ID Number	401

Name	Till Adams
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Paper Title	Modelling 3D underground data in a webbased 3D-Client
I can give a practical demo	yes

Paper Abstract (short)

In the German federal state of Brandenburg geological borehole data, depth profiles and geological layer-data should be visualized in a 2D and 3D-based webclient: this talk will present the technical solution based on PostGIS 2.0, GeoServer, OpenLayers, GeoExt2 on the 2D and ExtJs 4.x and X3Dom on the 3D-side.

Paper Abstract (long)

The geological borehole, depth profile and layer-data and some background-data such as topographical maps were setup as services, mainly in a PostGreSQL/PostGIS and GeoServer environment. Both webclients are fully client-side based applications, for the 3D-client WebGL for rendering is used and all data is delivered via standarized services. For the 3D-data the X3D format is used, which is not an official OGC standard yet but delivers phantastic possibilities for 3D-modelling of data in a webbased environment.   The talk will focus on some of the high-end announced requirements, especially to the 3D-webclient such as gazetteers, FeatureInfo or dynamic load of services such as WMS or WFS.   A special task is the delivering of borehole data as BoreholeML, for which the GeoServer app-schema extension was used.   From a technical point of view especially the development of a GeoExt-like library which connects X3dom and ExtJs 4.x is an interesting part. With this solution, elements such as gazetteers and presentation-masks for requested attribute data could be used in both 2D- and 3D-client.   At the end some live impressions of the application will be shown.

Topic type		Target Type
Visualization: effective presentation of information. New data: handling new data models, for example 3D & temporal data, or big data. webbased 3D modelling		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters

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ID Number	69

Name	Emmanuel Belo
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Paper Title	3D web services and models for the web: where do we stand?
I can give a practical demo	yes

Paper Abstract (short)

The aim of this talk is to sum up the standardization efforts (OGC and W3C) in defining 3D web services and models, as well as to show existing implementations to support the discussion.

Paper Abstract (long)

In the past years, numerous open source projects have started to display 3D globes and 3D data on the web. Standardizing web services, data format and representation models is, therefore, a very hot topic. There are in particular ongoing efforts on the OGC side as well as on the W3C side. The OGC has released a draft candidate for a 3D web service W3DS, the ISO X3D standard proposes an XML-based file format for representing 3D computer graphics and the W3C is considering adding X3D rendering into HTML5. Other projects implement their own web services and formats. On the implementation side, Geoserver supports W3DS and X3D, the X3DOM library prototypes a possible implementation of X3D HTML5 integration and last but not least, browsers with WebGL support are fully able to handle the representation of 3D data on the client side. The talk is going to detail the mentioned elements, show demonstrations of existing implementations and try to suggest a possible path into the 3D web for the FOSS4G community.

Topic type		Target Type
Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		Manager Technical / Developer

Additional Presenters	
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ID Number	280

Name	Richard Hewitt
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Paper Title	A Cellular Automata land use model for the R software environment
I can give a practical demo	yes

Paper Abstract (short)

A cellular automata model of land use change developed in the free and open source software environment R is presented. The advantages offered by R as a development environment for a CA land use model are evaluated, and the pros and cons of the approach employed are discussed in depth with reference to commercial alternatives.

Paper Abstract (long)

The application of geographic Cellular Automata (CA) based techniques for land use modelling can be traced back to the theoretical formulations of the American geographer Tobler (1979), later implemented in practice by White and Englelen (1993) and Batty and Xie (1994). Since then, CA applications have developed very rapidly and CA-based software environments such as Metronamica and SLEUTH are now widely employed in many countries across several continents as scientific and policy tools for exploring land use dynamics and future land use change. The term CA is sometimes applied in a broad sense to any cell-based land use model in which algorithmic operations are used iteratively to determine future land use states on the basis of parameters such as distance from transport networks (accessibility), biophysical aptitude of land areas to take on new states (suitability), or exclusion zones such as natural protected areas or land set aside for future development (zoning). However, in a a CA land use model sensu stricto, key land use change dynamics are represented by neighbourhood transition functions, in which the value (land use class) of a given cell in each model iteration is determined by the value of adjacent cells according to user-defined attraction or repulsion parameters, with accessibility, suitability and zoning being applied to support new land use allocation. Determinism is avoided and realistic human behaviour is imitated by applying stochastic perturbations to the model derived from probability distributions. Simple initial cell states transformed in this way through many model runs can give rise to patterns of great complexity, chaotic structure and, eventually, randomness. This key distinction, that is, autonomy and capacity to self-organize, is what gives true CA models their power to replicate artificial processes such as urban development with a high degree of success.   Though there are a number of Free and Open Source Software (FOSS) applications presently available for other types of land use models, such as Huang's Change Analysis (logistic regression), and Purdue University's Land Transformation Modeller (LTM) (Artificial Neural Networks), there are few fully operational implementations of true CA models for land use modelling in the Open Source community. In addition, stand alone model frameworks do not usually incorporate appropriate statistical goodness-of-fit comparison techniques for model evaluation, something that is normally carried out externally in statistical software packages.   In this paper, we discuss in detail our recent work to address these limitations by developing and testing a CA land use model for the R software environment. The R platform, with its extensive developer and user community, and its clear relevance for model building and scientific computing, seems to present an ideal environment for geographical land use modelling. The advantages offered by R as a development environment for a CA land use model are evaluated, and the pros and cons of the approach employed are discussed in depth with reference to commercial alternatives.

Topic type		Target Type
Case Studies: Relate your experiences. Benchmarks: Comparisons between packages. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		End User Technical / Developer scientific modelling community

Additional Presenters	
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ID Number	20

Name	Anton Bakker
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Paper Title	A future perspective on the sensor web
I can give a practical demo	yes

Paper Abstract (short)

The presentation of the current status of an Sensor Web Enablement (SWE) based ÒSensor WebÓ and a future perspective. As an example an application will be presented that integrates sensor data with data from an existing spatial data infrastructure.

Paper Abstract (long)

The Sensor Web Enablement (SWE) of framework has been around for almost ten years. The goal of the SWE is to enable the integration of sensors and sensor data into existing spatial data infrastructures. This presentation will look at in what extent this goal of the SWE framework has been achieved. Besides presenting the current state of SWE also a future perspective will presented. This future perspective is based on a series of interview with leading organizations in the adaption and usage of SWE standards in the Netherlands.   From this future perspective, potential use cases will be presented for the integration of sensor data with existing spatial data infrastructures. One of these use cases will be presented as a functional open source application.

Topic type		Target Type
Case Studies: Relate your experiences. Hacks and Mashes: novel solutions to our problems. Collaboration: data collection, data sharing, open standards.		Technical / Developer

ID Number	215

Name	Olivier Courtin
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Paper Title	A new dimension to PostGIS : 3D
I can give a practical demo	yes

Paper Abstract (short)
Bringing 3D analysis functions to PostGIS, and play therefore with 3D rendering tools.

Paper Abstract (long)
Talking about 3D used to sound cool. Used to. But for real GIS use, we really   need more than just playing with a globe.   3D in GIS becomes cool as soon as we have the ability to deal with full 3D spatial analysis. Just as we already have in 2D, we need functions like intersection, buffer, triangulation and more ...   The GEOS library provides us 2D topological processing for years. The CGAL   library could now also provide us some interesting additional 3D topological functions.   As CGAL is not fully designed for GIS data models, we provide a library   inbetween called SFCGAL, in charge of providing a Simple Feature API on top of   CGAL.   PostGIS 2.1 now allows to link PostGIS and (SF)CGAL, and already provides   several exciting 3D functions (and more and more to come). This thrilling talk about PostGIS 3D will therefore focus on :   - What kind of project / application needs 3D GIS analysis ? - What can we do right now with PostGIS 2.1 and (SF)CGAL ? - What we will be able to do soon with PostGIS 3D ? - Some tools used to view and manipulate 3D data (QGIS / WebGL based)

Topic type		Target Type
Development: new developments in products. New data: handling new data models, for example 3D & temporal data, or big data.		Manager Technical / Developer

Additional Presenters	
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ID Number	65

Name	Dr. Robin S. Smith
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Paper Title	A Reusable INSPIRE Reference Platform: supporting open source developments for INSPIRE implementation and reuse
I can give a practical demo	no

Paper Abstract (short)

The implementation of the European INSPIRE Directive will benefit from the reuse of a constellation of technical assets, including the key contribution of open source software; where the identification and sharing of components through a reference platform (ARE3NA) aims to provide additional benefits for those wanting to adopt interoperable cross-sector and cross-border geospatial data beyond the initial environmental policy context of INSPIRE.

Paper Abstract (long)

European Union (EU) Member States are currently in the implementation phase of the INSPIRE Directive, building a cross-border spatial data infrastructure (SDI) for Europe by adding components to their existing spatial data-sharing resources. Although INSPIREÕs technical guidelines have been based on existing international standards, implementations often use standards either in different ways or different versions. In addition, standards themselves regularly evolve with often limited coordination between changes in different standards. Such issues can limit interoperability between information systems, especially in cross-border contexts.   There is a need for additional guidance and increased collaboration to share best practices and approaches in INSPIREÕs implementation. Moreover, technical components (software, technical guidelines, Ôsemantic assetsÕ etc.) need to be referenced and shared to support the EU Member States and address these interoperability issues. Such a resource will also help other European policy areas to reuse this material when looking to share and integrate spatial in their, broadly speaking, e-government activities. This includes contributing to technologies and infrastructures to support open data and the EUÕs key ICT policy, the Digital Agenda for Europe. The EUÕs Interoperability Solutions for European Public Administrations (ISA) Programme is an initiative covering many aspects of the interoperability requirements for cross-border and cross-sector e-government, from strategic policy needs in legal and organisational interoperability through to semantic and technical requirements. Under ISA, a Reusable INSPIRE Reference Platform (ARE3NA) is addressing the dual needs to support interoperability between Member StatesÕ implementations and the reuse of INSPIRE components in other sectors. Based in the Unit responsible for the technical coordination of INSPIRE at the European CommissionÕs (EC) Joint Research Centre (JRC), the ARE3NA team have already established several baseline inventories as part of its initial evidence base. This includes an inventory of European policies using spatial information and a related inventory of data-sharing platforms and tools. Another inventory has reviewed recent studies to identifying components already being used in Member States, including associated architecture documents and the technologies being used in some INSPIRE implementation tasks. These have, in turn helped to draft generic workflows in the INSPIRE implementation process. In many instances the tools being used are Free and Open Source Software (FOSS), and a third inventory has both built on the recent work of Steiniger and Hunter (2012) to create an overview of the current groups of technologies being deployed in Member States to support INSPIRE. In order to provide more reference components, work has also created inventories of the standards being used in INSPIRE, with a final inventory providing a baseline position on the amount of geospatial data current being shared in national open data portals. The online ARE3NA platform space to share these findings has recently been established within the ISA

programmeÕs JoinUp platform, a resource to support developers and e-government professionals share their experience with interoperability solutions. This platform will help users to validate the material being found and to gather further examples towards a ÔconstellationÕ of components connected to INSPIREÕs legal items, implementation tasks and the technologies (etc.) involved.   The platform is being supported by a survey to gather further evidence that will run for the duration of the project. The survey aims to establish what other technologies are being used to support INSPIRE implementation and where there may be Ômissing componentsÕ or gaps in current technologies or standards or, similarly, gaps between the data-sharing infrastructure of INSPIRE and the needs of European cross-border and cross-sector e-government, including those that ARE3NA can help to address by supporting developments in new or existing open source projects. The survey also aims to identify good practices and training to support INSPIRE implementation across the Member States in the coming years. Already, ARE3NA has addressed one gap by developing the open source INSPIRE Registry. This fundamental component for geospatial data interoperability across European SDIs provides a means to manage and share codelists from INSPIRE data models. By developing the INSPIRE Registry with ISA in mind, these codes can also be readily adopted in other contexts, potentially reducing multiple vocabularies for similar spatial objects across Europe. By basing its development on open source software tools, the INSPIRE Registry itself becomes a reusable component in JoinUp, so that other interoperability projects can adopt the software for their own purposes, including any register, including those involving hierarchical information, from organogram details to thesauri. Following the collaborative processes seen throughout INSPIRE, the presentation will provide an opportunity to introduce ARE3NA to a key stakeholder audience, with an invitation to participate in the platform and survey as well as present the evidence to date, illustrating the role of FOSS in establishing interoperable SDIs in Europe.

Topic type		Target Type
Collaboration: data collection, data sharing, open standards.		Manager Technical / Developer

ID Number	183

Name	Michelle Walker
Organisation	The Rivers Trust
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Paper Title	A toe in the water - using open source software to support catchment management planning
I can give a practical demo	yes

Paper Abstract (short)
The Rivers Trust demonstrate how open source software and data is improving the sharing of information, leading to better decision-making and ultimately more sustainable management of rivers and their catchments.

Paper Abstract (long)
Integrated river catchment management planning seeks to balance many demands on the water and land, to protect water resources and ecology for the benefit of the economy, society and the natural world. Third sector organisations have a key role in this process - providing both the practical delivery of river restoration work, and an 'honest broker' role between government, private sector interests and local communities, to try and balance these often conflicting interests in a sustainable catchment plan. However, access to the complex evidence, software models and datasets, which are required for strategic environmental management planning, can be difficult for the third sector and community groups, due to reasons such as cost, licensing restrictions or technical capability. As the umbrella organisation of the rivers trusts movement in England, Wales and Northern Ireland, The Rivers Trust has been exploring the potential for open source software and datasets to improve the sharing of information and evidence with a range of stakeholders in the catchment management planning process. A web GIS application for identifying and prioritising barriers to migratory fish (based on Geoserver) and an application to identify sources of diffuse sediment pollution (built on SAGA GIS) will be demonstrated, and plans for future development of open source tools and data sharing is discussed.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial End User

ID Number	8

Name	Andrea Aime
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Paper Title	Advanced cartographic map rendering in GeoServer
I can give a practical demo	No

Paper Abstract (short)

Various software can style maps and generate a proper SLD document for OGC compliant WMS. However, in most occasions, the styling allowed by the graphical tools is pretty limited and not good enough to achieve good looking, readable and efficient cartographic output. The presentation will provide hints, examples and enough information to master SLD in order to create beatiful maps with GeoServer.

Paper Abstract (long)

Various software can style maps and generate a proper SLD document for OGC compliant WMS like GeoServer to use. However, in most occasions, the styling allowed by the graphical tools is pretty limited and not good enough to achieve good looking, readable and efficient cartographic output. Topics that will be covered are as follows: - Mastering multi-scale styling, choosing the appropriate style and content for the various map scales - Using GeoServer extensions to build common hatch patterns - Line styling beyond the basics, such as cased lines, controlling symbols along a line and the way they repeat   - Leveraging TTF symbol fonts and SVGs to generate good looking point thematic maps, line and fill patterns - Use the full power of GeoServer label lay-outing tools to build pleasant, informative maps on both point, polygon and line layers, including adding road plates to your map - Leverage the labelling subsystem conflict resolution engine to avoid overlaps in stand alone point symbology - Blending charts into a map - Dynamically transform data during rendering to get more explicative maps without the need to pre-process a large amount of views, such as on the fly contours extraction, heat maps, and wind maps from raster data - Leverage the analitic power of spatial databases to build dynamic thematic maps based on SQL views - Perform cross layer filtering and parametrize it to perform informative cross layer containment and neighborhood searches.   The presentation aims to provide the attendees with enough information to master SLD documents allowing him to produce amazingly looking maps on his own. At the end of the presentation the SLD will no longer be cartographer's enemy.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		Manager End User

Additional Presenters

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ID Number	174

Name	Mauro Bartolomeoli
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Paper Title	Advanced GeoServer security with GeoFence
I can give a practical demo	yes

Paper Abstract (short)

The presentation will provide an introduction to GeoFence, an open source tool to configure and use complex authorization rules to protect data served by GeoServer OGC services

Paper Abstract (long)

The presentation will provide an introduction to GeoFence, an open source tool to configure and use complex authorization rules to protect data served by GeoServer OGC services.   The introduction will cover the unique integration architecture, comparing it with the usual security proxies and comparing merits of the different approaches, moving on to show the fine setup of grained authorization rules spanning form spatial filters, attribute filters, attribute hiding as well as cropping raster data to areas of interest, and how they can be assigned to single users or groups of them. The granularity can span from the instance of GeoServer, to workspaces, to single layers.   The presentation will move on to authentication integration and user management, with examples from the integration of LDAP directories. Using LDAP GeoFence and GeoServer can use a common users database, simplifying administrators job.   We will show how GeoFence can centralize authorization policies on a common repository, for several GeoServer instances, easing cluster configurations.   Finally, the presentation will show how GeoFence is used in practice with a few real world use cases.

Topic type		Target Type
Development: new developments in products.		Technical / Developer

Additional Presenters	
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ID Number	232

Name	Paul Van Lindt
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Paper Title	Advantages of using FOSSGIS software to automate and manage the building permit process
I can give a practical demo	yes

Paper Abstract (short)

Case study of how FOSSGIS software is effectively used to realize an integrated solution for managing building permit processes.

Paper Abstract (long)

Flanders currently invests in a management system to automate the processes for requesting and handling building permits. The system integrates business process management with web GIS and foresees a M2M interface with existing systems being used by governments and architects. It also has an intuitive web front-end for user interaction (citizens, architects and public administrators).   Paul Van Lindt, Project Leader working with the Flemish Government Department of Spatial Planning will cover the key objectives, system requirements and the project challenges. We will also explain how FOSSGIS technology is used and what the advantages are for this solution.

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Visualization: effective presentation of information. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User Technical / Developer Public administration

ID Number	201

Name	Nathan Woodrow
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Paper Title	All the New Cool Stuff in QGIS 2.0
I can give a practical demo	yes

Paper Abstract (short)
A quick overview of all the new cool features in QGIS 2.0.

Paper Abstract (long)
With QGIS being such a fast moving project and just over a year since the 1.8 release, 2.0 is packed full of new and exciting features. This presentation will give an overview of some of the new awesome features in QGIS 2.0 like composer snap and guide lines, built-in Atlas printing, blending modes for vectors and rasters, grouping and tagging support for symbols, new faster raster engine, and much much more. A roadmap of 2.1 gives you a peak of what is coming in the future.

Topic type		Target Type
Development: new developments in products.		People new to open source geospatial Manager End User Technical / Developer

ID Number	326

Name	Simon Jirka
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Paper Title	An API for Visualizing Data from the Sensor Web
I can give a practical demo	yes

Paper Abstract (short)

In this presentation a library for facilitating the development of OGC Sensor Observation Service (SOS) clients will be introduced that hides all complex interactions with the SOS interface by providing a simple, lightweight API based on REST and JSON.

Paper Abstract (long)

This presentation will show how observation data from the Sensor Web, i.e. provided through the standardized OGC Sensor Observation Service (SOS) interface, can be accessed and visualized through web-based clients. For this purpose, the open source 52iNorth Sensor Web Client API will be introduced.   The 52iNorth Sensor Web client has been available for several years and provides a very broad range of features for displaying sensor data (i.e. time series data as graphs and tables). This is complemented by additional functionality for creating notification rules and for subscribing to according alerts (based on the OGC Sensor Event Service Discussion Paper).   To achieve such functionality, any OGC SOS client needs to be able to gather the necessary metadata from SOS servers. This includes information such as the parameters, the sensors as well as the geographic features for which observations are available. Based on this metadata a client becomes able to display the available data sets and to allow the user a selection of the data he is interested in. The implementation of this metadata retrieval and analysis task is a fundamental step for every SOS client developer that requires good knowledge of the OGC SOS standard as well as a significant amount programming work. However, as this metadata retrieval functionality is a common element of basically all SOS client implementations, the decision was taken to isolate this functionality into a separate software module which can be re-used by any other SOS client.   The same applies to the actual observation data retrieval. Also in this case client implementers would need to work with the SOS standard and often very large XML documents. Looking at lightweight clients, for example running on mobile phones, the handling of such large XML documents is usually not feasible. Instead a (server-side) component hiding the complex SOS requests and handling the parsing of XML responses is needed.   The result of this work is a REST based client API which hides all complexity of the SOS standard as well as the individual requests necessary for retrieving sensor metadata and time series. Thus, instead of relying on the rather complex SOS interface, client developers can use simple REST requests to gather meta-information about available data in a SOS server and to retrieve the according time series data. In order to avoid the need for complex processing of XML documents, the responses of the client REST API are returned as lightweight JSON documents (or even PNG files containing rendered time series diagrams).   Within this presentation, this API will be introduced and interested developers will receive best practice guidance how they can rely on the Sensor Web Client API for building their own SOS client applications. As a result, the creation of Sensor Web clients, especially OGC SOS clients, can be significantly facilitated. Also the enhancement of other, existing client frameworks with functionality for displaying near-real time and archived sensor data becomes a very easy task that can be quickly achieved.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		Manager Technical / Developer

Additional Presenters	
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ID Number	23

Name	Arnulf Christl
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Paper Title	An introduction to Open Source Geospatial
I can give a practical demo	no

Paper Abstract (short)

This is a presentation focused on gently introducing the unitiated to the concepts of Open Source, Free Software licenses and the associated business models.

Paper Abstract (long)

ngs of Open Source development and Free Software licensing. The second part of this presentation introduces OSGeo's mission, goals and the organizational structure implemented to achieve them.
To make it a little more bearable all of this is wrapped up nicely and bundled with the story of how Open Source was the natural thing to do, how it was then pirated and appropriated by closed business models and how it eventually has been conquered back once the Internet came into being for real.
Now - knowing that we are all geeks none of us really wants to hear this again! And why do we need to preach to the converted? Well, you don't have to. But there are still people out there who ask: * Is it really all gratis - er - free? * Who can I sue when it goes wrong?   * How can this be reliable? * Do I get support?   Therefore this kind introduction to Free and Open Source Software for Geospatial is still important and often gets neglected in the more geeky conference. But if we want to get anywhere we will have to help folks who still think by themselves: * This Open Source stuff is insecure and unsafe. * Open Source = unlicensed = pirated. Better stay away! * Nobody serious is using this for real. * It's all for geeks only. * I am too old to learn this. * Nobody will behead me if I stuck with the old crap and everything falls apart.   And so on. In case there is no other presentation addressing these topics and the need for an introduction is seen then I am prepared to give it (yet again) with a decade of experience and trying to not look to bored by it.   Cheers,   your Ex-Borg

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Introduction to FOSS4G Newbies		People new to open source geospatial Manager

Additional Presenters

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ID Number	17

Name	Andrew Turner
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Paper Title	Analysis of Realtime Stream data with Anvil
I can give a practical demo	yes

Paper Abstract (short)

This talk will present Anvil, an open-source realtime stream processing fabric that makes it possible to connect, georeference, analyze, and visualize high-rate data.

Paper Abstract (long)

Realtime geospatial data has become more prevalent and relevant in the areas of disaster response, crisis identification, government operations, and business branding and engagement. In particular, Social Media provides for a new wealth of personalized, qualitative data that gives an unprecendented view of live, on the ground information. Our traditional tools are ill-equiped to access, store and understand these stream of data.   Anvil is a new open-source realtime stream processing fabric that provides a stable and flexible service for on-demand data access and analysis. Leveraging the Storm and Hadoop frameworks, Anvil extends these to add a pluggable spatial processing components for capabilities such as sentiment scoring, social network analysis, aggregation, alerting, and even emergent event detection. It includes libraries for realtime visualization of high-volume data in server and client-side analysis.   This talk will present the Anvil project, how it works and ways it is being used by government and businesses. We will demonstrate visualization of hundreds of points per second and millions of features in the browser using HTML5 and Javascript.

Topic type		Target Type
Visualization: effective presentation of information. Disaster Response: software, case studies, outcomes. Development: new developments in products. New data: handling new data models, for example 3D & temporal data, or big data.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters

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ID Number	402

Name	Tim Schaub
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Paper Title	Application Development with OpenLayers 3
I can give a practical demo	yes

Paper Abstract (short)

OpenLayers 3 is here! Now it's time to learn how to build great mapping apps with it.

Paper Abstract (long)

OpenLayers 3 is a complete rewrite based on the latest in browser technology. This talk will focus on best practices for application development with OpenLayers 3. Covering simple maps in a page, integration with popular MV* frameworks, and native-wrapped mobile apps, we'll look at strategies for building mapping functionality into your applications. OpenLayers 3 aims to provide a high performance library with a wide breadth of functionality. Come learn about how it differs from OpenLayers 2, what makes it stand apart from other alternatives, and how you can best leverage its functionality.

Topic type		Target Type
Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		End User Technical / Developer

Additional Presenters	
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ID Number	176

Name	Mauro Bartolomeoli
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Paper Title	Assessing risk of dangerous goods transport with GeoServer, GeoBatch and MapStore: an introduction to the Destination project
I can give a practical demo	yes

Paper Abstract (short)

A practical example on how GeoServer, GeoBatch and MapStore can be used to build a complex geospatial application for real-time monitoring, supporting decision making processes, emergency assessment and management

Paper Abstract (long)

The presentation will provide a practical example on how GeoServer, GeoBatch and MapStore can be used to build a complex geospatial application for real-time monitoring, supporting decision making processes, emergency assessment and management   DESTINATION (DangErous tranSport To New prevenTive Instruments) is a project developed in the framework of Italy/Switzerland Operational Programme for Trans-frontier Cooperation 2007-2013, in order to contribute to inter-regional road accident prevention, real-time monitoring of Dangerous Goods Transportation (DGT) and more efficient emergency management.   Partners include Regione Piemonte as project leader, Canton Ticino, Regione Lombardia, Regione Autonoma della Valle dÕAosta and Provincia Autonoma di Bolzano. Technical partners working on the solution components are CSI-Piemonte, 5T S.r.l., Politecnico di Milano and Fondazione Lombardia per lÕAmbiente. DESTINATION initiative is focused on implementation of a shared information system including environmental, territorial and technical data relevant to meet local authorities and private stakeholders needs: The presentation will analyze how the different needs of the Destination project have been solved using the above mentioned OpenSource projects.   We are going to discuss how the data coming from the various partners involved in the project can be automatically ingested and preprocessed using GeoBatch flows and actions, harmonizing and transforming them in the most appropriate format for the application needs Then we will introduce GeoServer WPS process development, to discover how to build processes for on-the-fly risk calculation and simulation, and through rendering transformations viewing the output of the calculation processes directly on a map. We will also learn how to build dynamic thematic maps using GeoServer sql views, using current user input as parameters.   eventually we will show how MapStore has been used as the basis to develop a custom webgis interface integrating and orchestrating OGC services.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Disaster Response: software, case studies, outcomes.		End User Technical / Developer

Additional Presenters

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ID Number	118

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Paper Title	Backyard to Beach: Capturing Urban Stormwater Runoff with WebGIS
I can give a practical demo	yes

Paper Abstract (short)

We demonstrate a new web based GIS application built with open source tools and specially designed for monitoring sources of stormwater in an urban environment.

Paper Abstract (long)

Urban runoff or stormwater is surface runoff of rainwater or snowmelt water created by urbanization. Unlike regular wastewater, urban runoff is not treated at wastewater treatment plants. Excessive urban is a threat to water quality in receiving lakes. In Finland lakes provide unique services for water supply, tourism and recreation. Maintaining water quality of the lakes is of high interest for all citizens and visitors. The volume and water quality of urban runoff from each parcel depends on the land use, slope and drainage of source areas. Everybody from urban planner to parcel owner can contribute to reducing stormwater runoff from public properties and private parcels by smart management practices.   In our presentation we demonstrate a prototype of a geospatial web services infrastructure and an interactive map website for for tracking urban land cover changes and stormwater runoff city of Lahti in southern Finland. The main function of the website is to help urban planners and public to evaluate the current urban runoff situation and estimate the impact of past, present and future land cover changes on health of the lake ecosystem. Users can compare how land cover changed in the past as forest was replaced by built up areas and identify if their neighborhood is likely contributing to lake pollution through stormwater runoff. Users can also observe what is happening real-time in selected urbanized stream catchments in the course of actual rainfall or snowmelt events. In addition, the standard-compliant web service interface empowers expert users to develop custom analyses in a growing number of desktop GIS and statistical software tools such as QGIS or R.   Main challenge in developing the application were large volumes of high-detail survey-level data: aerial photographs and large scale technical cadastral maps that were initially designed for technical GIS professionals but were unsuitable for efficient display on the Internet or as hydrological transport model input. The original data were provided by city utilities departments in various file formats and coordinate systems. Initially we imported all spatial objects to a PostGIS database and tried publishing the information only as a web feature service (WFS) or web map service (WMS) using the Geoinformatica and MapServer software tools. However this approach was unsuitable for a web map application due to high volume of transferred data resulting in network timeout errors. Therefore a combined approach using WFS only for high detail view and using web map tile service (WMTS) with pre-calculated cached ÒtilesÓ for predefined scale levels was selected. For designing the WMTS we compared two open-source solutions: MapTiler and MapProxy. MapTiler was more suitable for air raster data such as air photographs and MapProxy was more suitable for vector-type maps such as buildings and road network as well as for dynamic sources that change frequently because it enabled the passing attribute information about selected map objects (individual buildings, stream catchments, trees or green areas) when the users examine high-detail situation at a selected location. The prototype of the map application is designed using the GeoExt javascript toolkit. Modular design, use of standards and reliance on open source solutions simplifies future changes of the WebGIS as a more detailed on stormwater management strategies in the city becomes available.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. New data: handling new data models, for example 3D & temporal data, or big data.		Manager End User Technical / Developer

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ID Number	316

Name	Seven
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Paper Title	Benchmarking Session at FOSS4G
I can give a practical demo	yes

Paper Abstract (short)

This is submitted as a regular presentation just ot have a foot in the door. Probably it would make sense to have it in the plenary at the end of the conference.

Paper Abstract (long)

In the last years FOSS4G set the scene for performance shootouts between the most powerful and renowned mapping software around - both open source and proprietary. Each year the teams gave the best they could and unanimously agreed that they learned a lot and were able to considerably improve the software. So far the goal was to accelerate the process of grabbing a geometry, rendering it and pushing it out. This has been optimized to a degree that makes differences hard to distinguish, we can honestly say that the contestants are really, really dead fast.   The next level of speed can only be achieved by fine tuning data stores, kernels and twisting virtual arms at a very low level. But this will at the same time defeat the point of comparability. So what to do? The Benchmarking team will find an answer until FOSS4G starts - or rather: ends, so we have three days more to excel at speeding up. But like everything in this world we do not want to stagnate, wither and die but evolve. Therefore the 2013 edition of the benchmark proposes to look into evaluating three aspects: 1. The well known dedicated map server contest * As known on comparable platforms * plus (potentially) a session where experts tune kernel parameters and everything they put their heads around to hihgest level the team is capable of or interested in - including a readable documentation of what they did   2. Ease of use / Flexibility * how easy is it to set up a web map service (tile rendering engine), again including a documentation * How easy is it to create a map with a Desktop GIS package using the Open Data published by the Ordnance Survey plus an OSM overlay (probably the pubs) and a randomly chosen CSV file with some coordinates and attributes. In 2006 the TU Delft inplemented a GML relay contest in which software development teams / vendors received a GML and had to load, modify, save and then pass it on to the next contestant - again reporting on what worked and what didn't. This excercise could follow similar patterns.   3. Cartography * using the OGC SLD SE as published by the Ordnance Survey as a starter * plus then going into nitty gritty details and enhancements and maybe some interested cartographers from ICA   We will probably not be able to do all of this but it will at least hihglight the complexity of the excercise and give some hints as to the parameters which are relevant when chosing a mapping platform on the green field or as replacment for an existing solution.

Topic type		Target Type
Case Studies: Relate your experiences. Benchmarks: Comparisons between packages. Visualization: effective presentation of information.		People new to open source geospatial Manager End User Technical / Developer

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ID Number	240

Name	Peter Baumann
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Paper Title	Big Data in Standardization: Can This Fly?
I can give a practical demo	yes

Paper Abstract (short)

We discuss standards in OGC, ISO, and INSPIRE to find out whether they support or inhibit scalable spatio-temporal services.

Paper Abstract (long)

In geo data, a main footprint coming from Big Data stems from remote sensing, atmospheric and ocean models, and statistics data. In the strive for interoperability, standardizaiton bodies establish interface specifications for large-scale geo services. Are these standards really helpful, or do they inhibit performance? We investigate this and show both positive and negative examples, based on OGC, INSPIRE, and ISO standards relevant for scalable geo services.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Development: new developments in products. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		People new to open source geospatial Manager End User Technical / Developer

ID Number	27

Name	Barend Gehrels
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Paper Title	Boost.Geometry, introduction and examples
I can give a practical demo	yes

Paper Abstract (short)

The first part of the presentation gives an accessible introduction to Boost Geometry. The second part focuses on some algorithms in detail.

Paper Abstract (long)

Boost.Geometry is a generic library written in C++ providing concepts, geometry types and algorithms developed for solving problems in computational geometry. Boost.Geometry is using modern and portable C++ generic programming techniques and is built upon the foundation of the C++ Standard Library and Boost C++ Libraries. Boost.Geometry follows the OGC Simple Features standard.   The Boost Geometry library kernel is designed as agnostic with respect to dimensions, coordinate systems, and types, which makes it generally applicable. A set of geometry models is delivered already by Boost Geometry. This set can be complemented through adaptation of user-defined geometry types, following the concepts defined by Boost Geometry.   Boost.Geometry is developed since 2008 by Barend Gehrels and Bruno Lalande, and Mateusz Loskot. The library is peer reviewed by the Boost Community, and accepted into the well-known Boost collection in November 2009. Since 2011 it is released as a standard part of Boost, and immediately available for the majority of C++ programmers. The library is licensed under the (non restrictive) Boost Software License.   A Spatial Index, developed by Adam Wulkiewicz, will be released as a standard part of the library in the next release of Boost. The Boost.Geometry library can, because it is a concept based library, following OGC Simple Features, easily be fit into for example Spatial Databases or existing projects using (probably legacy) Object Models.   The presentation is dedicated to developers who are interested in receiving practical overview to the Boost Geometry library. The first part of the presentation gives an accessible introduction to Boost Geometry. The second part focuses on some algorithms in detail.

Topic type		**Target Type**
Visualization: effective presentation of information. Development: new developments in products. Hacks and Mashes: novel solutions to our problems. Collaboration: data collection, data sharing, open standards.		Technical / Developer

Additional Presenters

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ID Number	41

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Paper Title	Building Catastrophe Models with Open Data and Open Software
I can give a practical demo	yes

Paper Abstract (short)

A catastrophe model estimates the potential loss of property and life following a major catastrophic event and can be built using Open Source software and improved with Open Data

Paper Abstract (long)

A catastrophe model is a tool/technique which estimates the potential loss of property and life following a major catastrophic event. Different types of events or perils are modelled including; windstorm, earthquake, flood, and storm surge.   ELEMENTS is the in-house catastrophe modelling software which is developed by Impact Forecasting, part of Aon Benfield Analytics. Behind the software are models for a wide range of different event and peril types across many countries and regions of the world.   To develop the different components of the catastrophe model, Impact Forecasting use a variety of proprietary and open solutions. Open Data sources such as OpenStreetMap, SRTM, CORINE land cover datasets are used, amongst others. The open-source programming language, Python, is also used extensively to create hazard footprints and files needed for the catastrophe model.   The use of Open Source software and Open Data supplemented with other available proprietary data sources allow Impact Forecasting to build more flexible and transparent catastrophe models.

Topic type		Target Type
Case Studies: Relate your experiences.		People new to open source geospatial Technical / Developer

ID Number	1

Name	Adriˆ Mercader
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Paper Title	Building the next generation of geo.data.gov with CKAN
I can give a practical demo	yes

Paper Abstract (short)

The next version of data.gov, the main online data catalog from the US Government, will combine both non-geographic and geographic data in a single portal powered by CKAN, an open source data management system. This presentation will explore the main capabilities of the new catalog, the challenges found during its implementation, the open source geospatial tools used to overcome them, and its future plans.

Paper Abstract (long)

Data.gov is the main online data catalog from the US Government, aggregating data from across several publishers including Federal Agencies, States, Universities, etc. As part of a series of wider changes, a new version of the portal is being built, which will merge the current data.gov and geo.data.gov sites into a single catalog, hosting both non-geographic and geographic data. This combined portal will be powered by CKAN, an open source data management system.   A mature and widely used project, CKAN is maintained by the Open Knowledge Foundation, a UK-based non-profit organization that promotes open access to information. The main goals of CKAN are to help publishers manage and place data online and make that data easily discoverable for users, while allowing developers to customize and extend the software for maximum re-use potential.   Already used in several governmental Open Data catalogs across the world [1], CKAN will replace two existing instances currently powered by proprietary software.   The implementation of the new version of geo.data.gov has posed significant challenges, from technical ones (such as harvesting and managing large numbers of datasets) to user experience and design ones (like presenting such a big amount of data in a useful and meaningful way). Data needed to be harvested from different sources across a wide range of organizations, using an authorization process compatible with existing systems in place. Metadata sources used different protocols and formats, with a significant quality disparity.   The harvesting extension of CKAN provides a framework that allows building harvesters for different kinds of sources, managing them via a web interface and generating job reports. Existing harvesters for CSW servers and Web Accessible Folders were improved, allowing the import of documents in both ISO19139 and FGDC formats, and new ones were created for other sources such as ArcGIS Rest API endpoints or Z39.50 databases. Custom validation options were implemented to deal with common errors encountered, such as wrong bounding boxes, misplaced elements on the XML document, etc. Once the metadata is imported into CKAN, it follows an approval process where it can be reviewed by authorized users based on the organization it belongs to, with tools that allow bulk processing of large number of datasets. After becoming publicly available, datasets can be found via a user interface that allows full text search, filtering by bounding box, term faceting and a powerful JSON based search API that allows building third party applications and mashups on top of the catalog. Great effort has been put into making the search among such a big volume of data useful, with special work on ranking algorithms and aggregation of conceptually close datasets into collections (for example, map series) so they donÕt interfer in the main search results.   The same metadata is exposed via a CSW endpoint to ensure compatibility with other geospatial software. This has been done leveraging pycsw, an open source CSW implementation, and a number of improvements have resulted from the collaboration

between both projects teams.   In terms of data visualization, the portal integrates with online viewers based on GeoExt and OpenLayers for common geospatial formats and services like WMS or KML, with plans to extend support for others. At the same time, existing previews for other non-geospatial formats like CSV and PDF are available, giving users access to different types of data and making the catalog useful to users without a geospatial technical background.   Both the US and Canada Open Data Initiatives are committed to use and support CKAN, as well as provide an open source distribution based on CKAN and Drupal, the Open Government Platform, for other governments and agencies to meet open data and open government policies and requirements.   The first version of the portal will be available in the coming weeks at the following URL: http://catalog.data.gov/ More information on CKAN and the main source code repository can be found on the following links: * http://ckan.org * https://github.com/okfn/ckan   [1] http://ckan.org/instances

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters	
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ID Number	236

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Paper Title	Bulk interpolation with R scripting language
I can give a practical demo	yes

Paper Abstract (short)

The contribution presents the development and application of a script for bulk assessment and interpolation of data in R scripting language.

Paper Abstract (long)

The paper explains the development and application of a script for bulk assessment and interpolation of data in the R scripting language.   In practice it is often required to analyze a large amount of spatial data from multiple periods of time. First, for familiarization with the data before their processing and second, in the process of space-time analysis in the course of the research. For majority of analyzed quantities it is required to find out, if the analyzed data are changing in space, how the data change in time, whether there are errors in the processed data etc.. An optimal solution of this problem is using the R scripting language. R comes with many interpolation methods (kriging, IDW, É), possibility to use virtually any format of input data from text, csv, xls or other file formats and provides a large abundance of optional picture, plot and graphical outputs. It is also possible to generate picture and text plots for every in-situ observation location of the examined quantity, do different statistical comparison and other applications. In short time it is possible to create a simple application that after minor modification can be employed for dealing with another bulk interpolation task. Thanks to this, after one exemplary application script has been created, it is possible to efficiently create and run additional modifications of the task, wheras other solution approaches (such as using desktop GIS programs) usually require a repetition of the same steps Ð setting of color ramp and color interval breaks, creating output map lazouts, adding lists of extra data layers, transformations of shapefiles to identical coordinate system and aditional processing Ð for example statistical testing, creation of tables or creation of more plots that show a complete picture of the quantities' behavior.   In our contribution, it is clearly demonstrated how the work with GIS data can be easily automated by using the R scripting language.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Development: new developments in products. New data: handling new data models, for example 3D & temporal data, or big data.		People new to open source geospatial End User

Additional Presenters	
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ID Number	248

Name	Pieter De Graef
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Paper Title	Bulk publishing of sensitive authentic data sources
I can give a practical demo	yes

Paper Abstract (short)
A case study and architectural consideratins on data publishing for INSPIRE.

Paper Abstract (long)
Internally an organization's data is highly secured, normalised and protected through business logic. When organizations need to publish (parts of) this sensitive authentic data to the public a series of considerations need to be taken. This presentation covers a case study and presents an architecture on how publishing for INSPIRE was achieved through FOSS components. Topics are security, ETL, filtering and data modeling. We will also highlight why OGC services may not be the best option at every turn!

Topic type		Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User Technical / Developer

ID Number	35

Name	Brian Low
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Paper Title	CanadaÕs National Forest Information System and FOSS4G
I can give a practical demo	yes

Paper Abstract (short)

Canada's National Forest Information System relies on Open Source Software to address issues related to forestry

Paper Abstract (long)

CanadaÕs National Forest Information System (NFIS) was designed to address and report on issues related to CanadaÕs vast forests. Issues related to sustainable forest management, conservation of genetics, forest disturbances, as well as viewing the most current and consistent information on the forests are all addressed within NFIS.   NFIS is a distributed spatial data infrastructure (SDI) focussing on forestry. Nodes are spread across the country at federal, provincial and territorial centres. All of these nodes rely on ÒFree and Open Source SoftwareÓ and internationally adopted standards like OGC and W3C. The majority of these nodes consist of an Open Source stack from operating systems to databases to Web containers and presentation layers (Linux, Apache, OSGeo, etc).   This presentation will focus on the general NFIS infrastructure and one new application, the Long-Term Research Installation Catalogue (LTRIC). LTRIC is a database of established Canadian Forest Service and collaboratorÕs long term forest research sites. The catalogue was implemented using PostgreSQL/PostGIS, Mapserver and OpenLayers, OpenStreetMaps along with other open source products. A discussion on the choice of FOSS4G technology and their use will be given.

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User Forestry, Natural Resources, Geospatial

ID Number	160

Name	Mark Jackson
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Paper Title	Carbones.eu: a FOSS geoportal for atmospheric science
I can give a practical demo	yes

Paper Abstract (short)

A case-study of a big-data geoportal for a EU carbon cycle research project (www.carbones.eu) created by CERC (the presenters), publishing the scientific results using only FOSS components, in a web portal which provides map animations, over one million maps with user-editable colour scales, and graphs, embedded in a Content Management System, reading data directly from the scientific data files on the server (in OGC compliant netCDF), and publishing them with INSPIRE-compliant OGC web services (discovery, view and download); we will describe both the custom FOSS code created for the project and the third-party FOSS components (MapServer, Postgresql, ncWMS, OpenLayers, Alfresco)

Paper Abstract (long)

We present a case-study of a geoportal for an EU FP7 atmospheric science project (www.carbones.eu) created by CERC (the presenters). The science project has produced a global reanalysis of carbon fluxes and pools over a twenty-year period, which can be used by climate scientists to improve their models. The geoportal was built entirely from FOSS components under a business-friendly license, and provides the scientific results as highly-interactive maps and graphs. The intended users are both the general public and climate scientists, who can use the results to improve their modelling of climate change. Scientific users, including sponsors of geoportals from rival projects, have made very generous comments about the geoportal, such as ÒCongratulations on the great user interface, a dreamÉ an extraordinary way to deliver informationÓ and ÒThe mapping works flawlessly and is very useful. The time series are great and very intuitiveÓ.   The map features (visit www.carbones.eu and choose Product-Maps) include animations playing directly in the map interface, user-editable colour scales for the raster data, PDF creation and export of animations and maps to KML for use in Google Earth. The maps are created directly on the server from the scientific data files, in OGC compliant CF netCDF format. netCDF is a portable, compact, fast, flexible, extensible binary format for gridded data (raster data). It is also the preferred format for this data among the scientific users, so we were able to use the same data files created for the scientific end-users directly as input for the geoportal. The portal provides over one million map layers from 500GB of netCDF data (Òbig dataÓ). The graph features (visit www.carbones.eu and choose Product-Time series) include a slider control to allow interactive selection of the date range on display, PDF creation and data download.   The geoportal has been embedded in a FOSS Content Management System (Alfresco) so that team members without web-development skills can edit the static content (text, images, etc.). The geoportal serves the data through INSPIRE-compliant web services, including discovery (metadata through OGC CS-W), view (WMS), and download (direct access to the netCDF through HTTP). The third-party components used for the project include some well-known components (Postgresql, MapServer, OpenLayers, Alfresco) and some less well-known. In particular ncWMS proved very useful: a 100% Java open-source GIS Server designed for geoportals providing scientific data from netCDF files. It provides WMS directly from CF-compliant netCDF, supporting user-editable colour scales, time-series of values at a point, export to Google Earth, and animations. During the Carbones project CERC were able to suggest some bug-fixes to ncWMS which have now been included in the main trunk of the ncWMS project by the developers (University of Reading e-Science department). ncWMS includes a generic web user

interface, but for Carbones we decided to create our own custom user interface in JavaScript. This allowed us to create a specific user-interface tailored to the Carbones data, and also make some improvements over the ncWMS interface: we have a fluid layout to make use of the whole browser window, with splitter controls to allow the user to resize individual page elements; the choice of layers is presented through a tree control with explanatory balloon tooltips; we present more information about the layers than ncWMS makes available including the absolute minimum and maximum values in the original data; our legends are more elegant and user-friendly than the ncWMS default legends. The Carbones geoportal code has been published as FOSS by CERC (carbones.googlecode.com).

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		Technical / Developer

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ID Number	414

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Paper Title	Cartaro - the Geospatial CMS
I can give a practical demo	yes

Paper Abstract (short)

A New Kid on the Block: Bringing together Open Source Geospatial and Content Mangement Software

Paper Abstract (long)

Cartaro is a new web mapping platform that makes the power of some of the best open source geospatial components available in a content management system (CMS). Cartaro allows to set-up and run small websites or complex web applications with maps and geodata. It is also suitable for geoportals and spatial data infrastructures whenever there is the need to get everything up and running without much individual programming.   The geospatial software stack used in Cartaro consists of PostGIS, GeoServer, GeoWebCache and OpenLayers. The whole stack is managed from within the CMS Drupal. The geospatial components bring professional aspects of geodata management into the CMS. This is namely the ability to persist data as true geometries, thus allowing for complex and fast queries and analyses. It does also mean supporting a whole range of data formats and the most relevant OGC standards. For the latter Cartaro can extend the handling of user roles and permissions, which already exists in Drupal, to define fully granular read and write permissions for the web services, too.   In the presentation we will first explain our basic motivation behind Cartaro: that is bringing geospatial functionality to the huge community of CMS developers and users. This community, which is of course much larger than the classical FOSS4G community, has a great potential to make more and better use of geodata than it was possible with most existing tools. We will then demonstrate how far the integration with the CMS reaches and present the Drupal user interface that allows to configure most features of Cartaro. We will show how to create, edit and map geospatial content with Cartaro and we will demonstrate the publication of this content as an OGC web service. We will also go into some details concerning the architecture of Cartaro and explain how we tackled specific problems. A glimpse of the some use cases will demonstrate the real potential of Cartaro. It will also show how the focus and functionality of a Cartaro based application can be extended with the installation of any of the Drupal modules that exist for almost every task one could imagine.   The presentation will close with the future perspectives for Cartaro. From a technical point of view this includes the roadmap for the next months. But it also includes a discussion of our ideas about Cartaro's role as self-supporting bridge between the geo and not-so-geo world of open source software.

Topic type		Target Type
Development: new developments in products. Collaboration: data collection, data sharing, open standards. Integration with Non-GIS Open Source Software		Manager Technical / Developer

ID Number	113

Name	Javier de la Torre
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Paper Title	CartoDB 2.1
I can give a practical demo	yes

Paper Abstract (short)

It has been an exciting year of development for CartoDB and itÕs technologies, here we will report those updated and the lessons we have learned in the projectÕs development.

Paper Abstract (long)

CartoDB is an open-source technology stack that offers mapping services for dynamic data, APIs for application development, and data management tools. CartoDB as a service wraps all those features into a secure, scalable, and powerful cloud based tool to drive geospatial applications on the web. CartoDB just passed the one-year mark since it's first public release and will soon close in on two years since the initial beta release. Over that time, CartoDB has grown and improved in many ways, we would like to share some of those advances and the lessons we have learned with you now.   A primary area of development has been the speed and reliability of the dynamic tile service. Dynamic tiles, map tiles that change to reflect modifications in underlying data, are a key feature that sets CartoDB apart from other available services. To handle this feat, CartoDB uses a combination of database optimization, query optimization, and multi-tiered caching. For database optimization, CartoDB uses predictable schemas and automated geometry reprojection for web-based maps, queries are limited and tuned for tile-based visualizations, and caching happens from the database to the cloud to help deliver the fastest dynamic tiles available.   CartoDB is also innovating on the web through the use of SQL everywhere. SQL everywhere means just what it says, SQL is used from the server, to CartoDB's administrative consoles, all the way to the client side JavaScript library. Exposing the full power of SQL, and geospatially enabled SQL through PostGIS, is helping to give our users access to the most powerful tool for building web-GIS tools and spatially enabled applications.   These features and many more have made for an exciting pace of development since CartoDB's initial release. We will report here on a range of advances made in the software that are relevant to users and of interest to the open-source community.

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Development: new developments in products.		People new to open source geospatial Manager End User Technical / Developer

ID Number	100

Name	Ian Edwards
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Paper Title	Cartopy and Iris: Open Source Python Tools for Analysis and Visualisation
I can give a practical demo	yes

Paper Abstract (short)

Cartopy is a new python mapping library for the transformation and visualisation of geospatial vector and raster data. Iris implements a generalised n-dimensional gridded data model, enabling powerful analysis of 3D, temporal and big data.

Paper Abstract (long)

The Python programming language has emerged as the ÒLanguage of GISÓ, providing a powerful geospatial and scientific development environment whilst also being ideal for rapid prototyping and a good introductory language for first-time programmers.   The open source environment is strategically important to the Met Office as we strive to meet the increasing need to collaborate freely and openly in academic and commercial partnerships. The Met Office employs a team of software engineers to develop, simplify and improve its scientific capabilities by contributing to the the open source community.   The focus of much of this effort has been on two new open source packages. Cartopy [1] is a new mapping library that builds on PythonÕs matplotlib module. Cartopy exposes an intuitive interface for the transformation and visualisation of geospatial vector and raster data. Iris [2], implements a generalised n-dimensional gridded data model to isolate analysis and visualisation code from file format specifics. The Iris data model is a result of close collaboration with the CF Data Model community. In addition to common GIS file formats, it also has read/write support for a variety of scientific file formats including NetCDF.   This talk will give details of the Met Office's involvement in the open source community, including demonstrations of Iris and Cartopy and outline areas of future development.   [1] - http://scitools.org.uk/cartopy/docs/latest/ [2] - http://scitools.org.uk/iris/docs/latest/

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Visualization: effective presentation of information. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		End User Technical / Developer

ID Number	151

Name	Marcos Hermida Mera
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Paper Title	CDM & TDS data server: Earth & Ocean Sciences meet GIS
I can give a practical demo	yes

Paper Abstract (short)

The Common Data Model and the THREDDS Data Server provide metadata and data access for scientific datasets using several remote data access protocols (OpeNDAP, NetCDF Subset Service, WMS, WCS) and have become an essential tool for interdisciplinary data sharing within the various domains of geosciences.

Paper Abstract (long)

Different geoscience disciplines have developed sophisticated domain-specific cyber infrastructures for data storage, manipulation, and visualization. NetCDF, HDF, and GRIB are multi-dimensional array-based data formats widely used in meteorology and oceanography. However, these formats are not fully compatible with the visualization and manipulation tools supported by Geographic Information Systems (GIS), which caters to the discrete vector features and 2D raster formats commonly used in the geography, hydrology, and cartography. By providing a higher level of abstraction and enabling spatial, rather than indexed, data access, the Unidata Common Data Model (CDM) facilitates integration of NetCDF, HDF, and GRIB data into GIS tools, fostering interdisciplinary communication.

The THREDDS Data Server (TDS) utilizes the CDM to work efficiently with large, dynamic collections of observational and model data. The TDS organizes these collections into unified, logical datasets, simplifying their access and dissemination. TDS datasets are exposed via the WMS and WCS Open Geospatial Consortium specifications, with support for time and elevation standard dimensions. Alternatively, TDS datasets are accessible through specialized web services that provide subsetting capabilities. The NetCDF Subset Service allows for spatial subsetting, while OpenDAP subsets by index. Finally, metadata discovery systems such as Geoportal and GI-CAT harvest TDS catalog metadata. The TDS ncISO service also serves catalog metadata directly as ISO documents, enabling text searches and exposing a CSW interface on TDS instances through these discovery systems.

The CDM & TDS are OpenSource projects (https://github.com/Unidata/thredds) with strong community support. Members have contributed key features, including the ncISO and WMS implementations. Moreover, many interdisciplinary Web-GIS applications have already been successfully developed combining TDS web services with resources from other spatial data infrastructures. Coupled with Unidata's governing committees, the projects provide a unique framework that establishes quality standards and ensures that development meets community needs.

Topic type	Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.	People new to open source geospatial End User Technical / Developer Scientist

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ID Number	15

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Paper Title	Choosing the right data store
I can give a practical demo	no

Paper Abstract (short)
An architectural view of application data model and data storage technologies

Paper Abstract (long)
So you're going to build the next killer app? That's awesome!   Flexible hosting solutions from Google, Amazon, Rackspace, and many others make it really easy to get started. You can reuse powerful open source libraries and services to focus your efforts on developing something unique. Ideally your technology choices support your application's architecture and your business model. Ideally you can scale up or out as your needs change. There are so many good technology choices, so which one(s) do you pick?   This presentation focuses on storage technologies. It is a mixed database and architecture talk. We will examine some of the popular storage and processing technologies such as PostgreSQL, MongoDB, SQLite, Hadoop, and others. We'll play match maker and try to pair up the model each technology is ideal for. Do you need a small footprint for mobile devices? Do you low latency for web or mobile applications? Do you need a high degree of redundancy? What proportion of the time does your application read vs. write data? Do you need to optimize CPU for processing large data sets? Do you need to minimize bandwidth or disk space? What about support for spatial data types and spatial functions?   After attending this talk, you should have a good idea of some of the important factors in choosing your data storage technology and a rough sense of some of the great open source options available to you.

Topic type		Target Type
Benchmarks: Comparisons between packages. New data: handling new data models, for example 3D & temporal data, or big data.		People new to open source geospatial Manager End User Technical / Developer

ID Number	121

Name	Jon Blower
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Paper Title	Communicating data quality through Web Map Services
I can give a practical demo	yes

Paper Abstract (short)

We shall demonstrate new developments in using Web Map Services to communicate data quality at the level of datasets, variables and individual samples, using a new set of conventions ("WMS-Q") and prototype software

Paper Abstract (long)

The sharing and visualization of environmental data through spatial data infrastructures is becoming increasingly common. However, information about the quality of data is frequently unavailable or presented in an inconsistent fashion. (ÒData qualityÓ is a phrase with many possible meanings but here we define it as Òfitness for purposeÓ Ð therefore different users have different notions of what constitutes a Òhigh qualityÓ dataset.) The GeoViQua project (www.geoviqua.org) is developing means for eliciting, formatting, discovering and visualizing quality information using ISO and Open Geospatial Consortium (OGC) standards. Here we describe one aspect of the innovations of the GeoViQua project.   In this presentation, we shall demonstrate new developments in using Web Map Services to communicate data quality at the level of datasets, variables and individual samples. We shall outline a new draft set of conventions (known as ÒWMS-QÓ), which describe a set of rules for using WMS to convey quality information (OGC draft Engineering Report 12-160). We shall demonstrate these conventions through new prototype software, based upon the widely-used ncWMS free and open source software, that applies these rules to enable the visualization of uncertainties in raster data such as satellite products and the results of numerical simulations.   Many conceptual and practical issues have arisen from these experiments. How can source data be formatted so that a WMS implementation can detect the semantic links between variables (e.g. the links between a mean field and its variance)? The visualization of uncertainty can be a complex task - how can we provide users with the power and flexibility to choose an optimal strategy? How can we maintain compatibility (as far as possible) with existing WMS clients?   We explore these questions with reference to existing standards and approaches, including UncertML, NetCDF-U and Styled Layer Descriptors.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		End User Technical / Developer

Additional Presenters

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ID Number	376

Name	Steven M. Ottens
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Paper Title	Concurrent Online Webgis: a new way to map together
I can give a practical demo	yes

Paper Abstract (short)

A new way to share geodata in real time to create collaborative maps, using new HTML5 techniques like websockets and IndexedDB.

Paper Abstract (long)

Imagine a map on which many people collaborate at the same time. Imagine you see the edits happening in real time and you can also see the position of your collaborators and their current view on the map. A Google Docs for maps so you will. Imagine this map in a web-browser that runs on a mobile phone. Imagine not a single bit of data has to be stored on a central server but people are all acting as nodes storing the data in their browser.... and it still works offline.....   With the rise of HTML5, including websockets and indexeddb, this is now possible. We created a concurrent online webgis where an unlimited amount of people can do collaborative work on a map in real time. A combination of Openlayers, Websocket and Indexeddb makes it possible to see and update each others edits and location. When people go offline their edits are stored for later synchronisation with their peers. This makes it very useful in unreliable network conditions.   The tool has already been deployed in a few test cases. In low level educational projects where students share data with their smart-phone and create a common map. Also during wildfires where officers in the field regularly update the situation for the commanders in the control room. This is just the beginning, new HTML5 capabilities like WebRTC will open up new roads in map-making. Maps will become more dynamic and social, where (map)data will be directly shared between peers.   Also if you get bored you get to make a map together with everybody else in the room.

Topic type		Target Type
Hacks and Mashes: novel solutions to our problems. Collaboration: data collection, data sharing, open standards.		End User Technical / Developer

Additional Presenters

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ID Number	211

Name	Oliver May
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Paper Title	Configuration Management for web GIS applications
I can give a practical demo	yes

Paper Abstract (short)

Birth of a configuration tool for Geomajas web GIS applications.

Paper Abstract (long)

With the release of the Geomajas Desk Manager and Runtime Config plug-ins, web GIS application developers get powerful building blocks for adding configuration management to their solutions. In this presentation we will guide you through the possibilities of these plug-ins and cover: - Use the configuration web interface (management console) - Create, configure and secure applications - Add data layers from external sources - Change the look and feel of your web application through widget configuration (supports a.o. layer tree, themes) - Add custom widgets to your application and provide configuration editors for them We will illustrate the new capabilities with hands-on demonstrations.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters

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ID Number	438

Name	Vincent Heurteaux
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Paper Title	Constellation 1.0 : presentation of a powerful and user friendly SDI platform.
I can give a practical demo	yes

Paper Abstract (short)

The Constellation SDI project as been created 5 years ago to serve specific needs expressed by some actors of the oceanographic and more generaly the scientific domain. During that time the project has evolve to serve many other use-cases and has grown to be now considered mature enough to reach itÕs 1.0. This version propose a wide variety of services, to reach a better usability and to improve the user experience, a user interface has been developed to manage the services and itÕs back-end. This talk aims to present some original points of the project like itÕs usability and the variety of the services proposed.

Paper Abstract (long)

Since the presentation of the early phases of the project in the FOSS4G 2008 in Cape Town, the work on the project never stopped, and by the time it has grown, extending itÕs capabilities to CS-W 2.0.2, WFS 2.0, SOS 2.0, WMTS, WPS, completing WMS and WCS already there.   We decide this year to release the first stable version of the project with the goal to give it a decent website and an useful user interface. This work has been leaded by an UX designer to give as much intuitiveness as possible, and facilitate webservices management. This presentation will show the overall functionality of the project, and the technical choices done to create both the back-end and the front-end of this project.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products.		Manager End User Technical / Developer

Additional Presenters	
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ID Number	158

Name	Mark Hedley
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Paper Title	Coordinate Reference System Challenges in Geoscince Modelling
I can give a practical demo	no

Paper Abstract (short)

Addressing the challenges of coordinate reference system support for geosciences modellers: do Well Known Text, Proj4 and EPSG deliver?

Paper Abstract (long)

Geoscience modellers develop numerical models where constraints are placed on how the model domain and sampling relates to location in the modelled world and the real world. The shape of the model domain is a significant factor for numerical algorithms and computational solvers. This leads to a number of interesting definitions of coordinate reference systems.   I will summarise some requirements the modelling community have for specifying and working with coordinate reference systems. Post processing and presentation of analyses are important factors; archiving for future use is a crucial consideration.   I will present examples of horizontal and vertical coordinate system definitions in common use in the meteorology and oceanography domains and the challenges they may bring.   The conclusion will be a discussion how specifications and tools for defining, interpreting and transforming coordinate reference systems, such as Well Known Text (WKT), European Petroleum Survey Group (EPSG) and PROJ.4 are able or unable to meet the requirements of a geosciences modeller.

Topic type		Target Type
Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		Technical / Developer

ID Number	77

Name	Frank Warmerdam
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Paper Title	Coordinate Systems: PROJ.4, EPSG and OGC WKT
I can give a practical demo	yes

Paper Abstract (short)

A practical review of coordinate systems.

Paper Abstract (long)

A practical review of how to identify and specify coordinate systems for applications built on PROJ.4, use of EPSG codes or use of OGC Well Known Text. Detailed examples will be given for a variety of coordinate system, including examples of how it would be used with applications such as MapServer, GRASS, GDAL/OGR, and PostGIS. However, the techniques should apply to any application built on the same representations.

Topic type		Target Type
Development: new developments in products.		People new to open source geospatial End User Technical / Developer

ID Number	320

Name	Silvia Franceschi
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Paper Title	Create and Use INSPIRE Harmonised Geodata with HALE
I can give a practical demo	yes

Paper Abstract (short)

HUMBOLDT Alignment Editor (HALE) is a Free and Open Source solution for interactive geodata harmonisation. The presentation will start with a short introduction on HALE, then a practical showcase on how data can be transformed to comply to the INSPIRE Data Specification for some spatial data themes defined in Annex I, II and III will be shown.

Paper Abstract (long)

In 2013, the final specifications of Annex II and III themes will be published, and hundreds of organisations need to find effective methods and tools for providing data complying with the INSPIRE standards. Researchers, companies and administrative organisations will be interested in the professional use of these rich, high-quality data sets Ð as long as integration costs can be kept low. The HUMBOLDT Alignment Editor (HALE) is a solution for interactive geodata harmonisation. It enables the definition of consistent mappings between source and target data models and transforms data based on these mappings.   HALE is Free and Open Source and allows both data providers and data users to: - analyze spatial data sets - understand data schemes - specify schema mappings and conduct transformation testing - transform complex spatial data in desktop and service environments - perform transformation quality checking - document the transformation - work collaboratively on harmonization projects.   The presentation will start with a short introduction on HALE, then a practical showcase on how data can be transformed to comply to the INSPIRE Data Specification for some spatial data themes defined in Annex I, II and III will be shown.

Topic type		Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards.		Manager End User People interested in data harmonization and open standards

Additional Presenters	
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ID Number	28

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Paper Title	Creating a Web Atlas in an SDI environment using the D3 library
I can give a practical demo	yes

Paper Abstract (short)

We describe how we have created an Atlas Map Viewer component, using the Open Web Platform and the D3 JavaScript library to map data in an SDI environment.

Paper Abstract (long)

This presentation is about different worlds, and how we try to unite them. One of these worlds is the world of Atlases: collections of complex, high quality maps presenting a nation to the geographically interested. The second is the world of National Spatial Infrastructures: highly organised, standardised and institutionalised large collections of spatial data and services. We describe the two worlds and their fundamental differences and we present the theoretical framework in which these worlds could be united. We introduce a test bed we are using to try out the theoretical framework in a real-life use case. In the architecture of that test bed we introduce a National Atlas Services layer and describe how we have created an Atlas Map Viewer component, using the Open Web Platform and the D3 JavaScript library.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information.		People new to open source geospatial Manager End User Technical / Developer

ID Number	245

Name	Philippe Duchesne
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Paper Title	CrossLinks: seamlessly integrate geospatial fragments with other media
I can give a practical demo	yes

Paper Abstract (short)

This paper presents the geospatial features, aspects and issues of the CrossLinks project, which aims at building an authoring and visualization platform for so-called data mosaics, i.e. meaningful and contextualized aggregations of fragments of heterogeneous datasets.

Paper Abstract (long)

The CrossLinks project aims at defining both a representation model and a visualization/authoring tool for data mosaics, i.e. mashups involving fragments of online datasets such as video, audio, text and structured data, including geographical data. The goal is to be able to link parts of data entities and tie them together in such added-value mosaics, and provide the tools to store, collaboratively author and visualize them. The resulting platform is intended both for collaborative cross-annotation of various media types, and for story telling involving these media types. This is achieved in a three steps approach, involving first a formalization of URI fragments, then the definition of a representation format for data mosaics, and finally an authoring and visualization application developed on top of these standards. Geo-data being a major part of online data, both in terms of quantity and relevance, special attention has been brought to its specificities in each of these steps. As a result, one of the data dimensions taken into account in the URI data fragment syntax is the geospatial dimension. As for the representation format and the implemented UI, focus is put on the ability to link fragments of geospatial mimetypes such as KML or GML, and also resources made available via OGC services. A major feature and challenge was to integrate seamlessly the display of linked data fragments within an annotated document. That means overlaying a map with bits of other medias, inserting map insets within other medias, and have an intuitive display of links between these fragments. The developed application is a browser-based UI relying on an RDF triple store. The client part uses several javascript libraries for the manipulation of supported mime types, including OpenLayers for the manipulation of geo resources. The server features a uSeekM/Sesame/PostGIS stack to provide a GeoSPARQL-enabled triple store, and serves data mosaics both through a REST/JSON and a SPARQL endpoint. The presentation of both the proposed standard and the resulting application shows how the geospatial dimension benefits from being treated equally to other dimensions, and how the integrated portrayal of these linked and heterogeneous data bits can offer a new browsing experience. It also shows how URI fragments can offer much finer-grained linked data.

Topic type		Target Type
Visualization: effective presentation of information. Hacks and Mashes: novel solutions to our problems. Collaboration: data collection, data sharing, open standards. Linked data		People new to open source geospatial End User Technical / Developer

ID Number	169

Name	Massimo Di Stefano
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Paper Title	Data and visualization integration via web based resources
I can give a practical demo	yes

Paper Abstract (short)

We are developing cyberinfrastructure to facilitate collaboration and knowledge sharing for marine Integrated Ecosystem Assessments (IEAs). The main tool is based on a web application (IPython Notebook) that provides the ability to work on very diverse and heterogeneous data and information sources, providing an effective way to share the source code used to generate data products and associated metadata, as well as to track the workflow provenance to allow the reproducibility of a data product.

Paper Abstract (long)

We are developing cyberinfrastructure to facilitate collaboration and knowledge sharing for marine Integrated Ecosystem Assessments (IEAs). The main tool is based on a web application (IPython Notebook) that provides the ability to work on very diverse and heterogeneous data and information sources, providing an effective way to share the source code used to generate data products and associated metadata as well as to track the workflow provenance to allow the reproducibility of a data product. Starting with a source dataset and ending with a final product for an Ecosystem Status Report. A key feature is that metadata, embedded in the final product, are acquired during the processing and plotting of the data. In this way we are able to record the provenance needed to reproduce the data products. We are using the IPython Notebook as tool for collaborative data processing, workflow provenance and products publishing. IPython (Interactive Python) can be run interactively over the web, providing to the user an effective way to work on local or shared data. Here, is an example session showing the IPython Notebook interface used to run interactively the code to produce some figures for the Northeast Shelf (NES) LME Ecosystem Status Report. We executed some geospatial data analysis using tools including GRASS GIS (Geographic Information System) and R for statistical analysis in combination with other free and open source software tools.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Development: new developments in products. Hacks and Mashes: novel solutions to our problems. Collaboration: data collection, data sharing, open standards. Reproducible Science, Education		People new to open source geospatial End User Technical / Developer Education

ID Number	29

Name	Barry Rowlingson
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Paper Title	Data-driven Report Writing with R and QGIS
I can give a practical demo	no

Paper Abstract (short)
Presenting tools and techniques for making data-driven writing with open-source GIS software.

Paper Abstract (long)
Creating a workflow from data to report with a GUI-driven package produces something that is hard to repeat. If the data is updated, the pattern of clicks needs to be reproduced. Some software products adapt to this by introducing a custom macro system, or embedding a programming language. The user records a macro, or writes a short script, and replays that script when the data changes.   A further step in automating the process from data to report is to have a report document that drives the analysis process itself. Such dynamic documents update to reflect the current data by running chunks of code within the report text.   This presentation will show how the "knitr" package for the R statistical system can be used in a GIS context to produce a dynamic document with maps and spatial analysis, and also demonstrate a (hopefully) novel technique to integate with QGIS so that reports can contain analysis results and maps produced there.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. Research Techniques		End User Researcher

ID Number	162

Name	Markus Schneider
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Paper Title	deegree: Turn-key solution for interoperable INSPIRE Download Services
I can give a practical demo	yes

Paper Abstract (short)

This presentation outlines the requirements and the successful implementation of compliant INSPIRE Download Services using FOSS.

Paper Abstract (long)

The INSPIRE directive aims to create a European Union (EU) spatial data infrastructure. After Discovery Services (metadata catalogues) and View Services (map servers), the next big thing on the INSPIRE roadmap are Download Services. Download Services provide access to the geospatial base data of the member states. This presentation outlines the requirements and the successful implementation of compliant INSPIRE Download Services using FOSS. What are the differences between "Predefined Dataset and "Direct Access" Download Services? What are "non-interoperable" and "interoperable" Download Services? What are the Data Themes (Annex I-III)? When is harmonization of base data required and how to approach it in practice?   After providing an overview on the formal requirements, the presentation will turn to the special features of the deegree WFS. This thorough implementation of the OGC WFS 2.0 standard has a special focus on smooth handling of rich data models, such as INSPIRE Data Themes. This includes a powerful relational mapping language and an alternative storage approach which guarantees efficient reconstruction of rich features from spatial SQL databases, such as PostGIS.

Topic type		Target Type
Development: new developments in products. Hacks and Mashes: novel solutions to our problems. New data: handling new data models, for example 3D & temporal data, or big data.		Manager Technical / Developer Anybody interested in INSPIRE Download Services

Additional Presenters	
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ID Number	155

Name	Mark Bishop
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Paper Title	Delivering high performance Spatial Data Infrastructures using FOSS4G components
I can give a practical demo	yes

Paper Abstract (short)

Envitia will outline the experiences gained and benefits resulting from delivering Open Spatial Data Infrastructures to Enterprise clients including the Welsh Government, UK Hydrographic Office and Royal Brunei Armed Forces for business and/or mission critical applications. These innovative projects have been proven to break down perceived barriers to open source adoption by providing highly performant, secure and future proof systems whilst ensuring the lowest possible total cost of ownership.

Paper Abstract (long)

Introduction   Service Oriented Architectures (SOA), and their geospatial derivatives, commonly called Spatial Data Infrastructures (SDI) are gaining increased visibility as key technologies in a range of commercial, civil and defence environments. Organisations and individuals alike are identifying the benefits of being able to readily access geospatial information no matter where and on what infrastructure it is served. The concept of a GIS ÔsystemÕ is being broken down allowing people to concentrate on their business need and not the technology used.   Programs such as INSPIRE are key catalysts in the adoption of SDIÕs. Organisations now more than ever need to publish their data holdings as open standard compliant services, and in many cases must do this free of charge. Many have found FOSS4G a convenient solution to the conundrum of providing data for free and yet paying for the infrastructure to serve it; the tough economic climate has simplified the decision making process for many.   Some organisations are trying to hold on to their proprietary systems and solutions where there is a requirement for ÒHigh PerformanceÓ, ÒStabilityÓ or ÒSecurityÓ Ð Open is still seen by many as Risky...   In this presentation Envitia will aim to dispel the myth!   Open software is now at such a level of maturity to allow many traditional proprietary software components to be substituted to meet business requirements. We will outline the benefits and experiences of Enterprise clients including the Welsh Government, UK Hydrographic Office and Royal Brunei Armed Forces in designing, developing, integrating, testing, deploying, supporting and maintaining OpenSDIÕs.   Case Studies   Envitia was contracted in 2010 to deliver a Corporate GIS implementation project for Welsh Government (WG). The GIS makes geospatial information available to every department and Civil Servant in Welsh Government (approximately 5000-6000 staff).   This solution provides the ability to rapidly build a number of separate spatial applications both for internal and public publication based upon the set of reusable web services. The project was awarded the Association of Geographic Information 2011 award for Government Innovation and Best Practice. The award recognised not only the success of the technology mix, implementation approach and adherence to both time and budget constraints, but also major cost savings which were achieved.   Envitia are implementing the Defence Maritime Geospatial Information Services (DMarGS) capability on behalf of the United Kingdom Hydrographic Office (UKHO), one of the worldÕs foremost producers and maintainers of Hydrographic Information and Charting. Envitia are providing both an infrastructure and an interface for the delivery of a broad range of on-line geospatial information to defence customers. Delivering services into the Defence Information Infrastructure (DII) the DMarGS Geoportal now makes geospatial and environmental information available to defence users worldwide. Envitia are working in conjunction with Northrop Grumman UK, to supply the geographic information and spatial data management components of the Joint Operations Centre (JOC) Command and Control system for the Royal Brunei Armed Forces (RBAF). The JOC provides the RBAF with a facility that

delivers command and control capability for military commands and civil organisations at both national and international level. It not only helps improve national security and the protection of its natural resources but also allows the Royal Brunei Armed Forces (RBAF) to be a lead nation in regional and coalition activities.   Components of the OpenSDI   Each of the solutions described in the above case studies comprise a mixture of Open Source Software combined with EnvitiaÕs Open Geospatial Consortium (OGC) standard compliant components where these add value, performance and/or capability. All of the Open Source components used within the OpenSDI have extremely active communities with a wealth of resources and support available. FOSS4G components used include: GeoServer, the reference implementation of the OGC Web Feature Service (WFS) and Web Coverage Service (WCS) standards, as well as a high performance certified compliant Web Map Service (WMS). GeoNetworks, an OGC compliant catalogue application, providing tools for the management of spatially referenced resources, and enabling rapid search of, and access to, local and distributed geospatial catalogues. It supports powerful online metadata editing and search functions and is currently used in numerous Spatial Data Infrastructure initiatives across the world.   Eclipse BIRT, a reporting system for web applications, especially those based on Java and Java EE. BIRT has two main components: a report designer based on Eclipse, and a runtime component that you can add to your app server or Java application. BIRT also offers a charting engine that lets you add charts to your own application. Open Layers, a widely-used JavaScript library for the delivery of dynamic mapping and geospatial solutions into web browsers, with in-built support for WMS and WFS queries. As well as a wide range of ready-to-use components, it also provides an extensive API, allowing sophisticated geospatial applications to be delivered within a standard browser.   DOJO, a JavaScript toolkit that supports dynamic capabilities within web pages using DHTML and Ajax. As with OpenLayers it includes both ready-to-use components and an extensive API. It is a general-purpose toolkit, rather than having any specific geospatial elements. It is very effective when used in conjunction with OpenLayers to provide dynamic browser-based capabilities for geospatial applications that could previously only be found in heavyweight desktop GIS.   Quantum GIS (QGIS), a user friendly Geographic Information System (GIS) that runs on GNU/Linux, Unix, Mac OSX and MS Windows. QGIS supports vector, raster, and database formats and is licensed under the GNU General Public License.   Conclusions   The adoption of Open Source technology is accelerating at pace. Innovative mixed economy approaches and commercially supported Open Source Software are able to break down the barriers to adoption of open source and provide highly performant, secure and future proof systems whilst ensuring the lowest possible total cost of ownership.   Attend this presentation if: You want to take the ÒriskÓ out of OpenSDI implementation for mission/business critical solutions.   You are looking to build your own OpenSDI and would like to understand how the Envitia solution is made up.   You want an honest account of the issues we faced and how we overcame these.

Topic type		Target Type
Case Studies: Relate your experiences. Benchmarks: Comparisons between packages. Business Cases: building the economic case. Visualization: effective presentation of information. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		People new to open source geospatial Manager End User Technical / Developer

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Paper Title	Deploying a Open Source Web-GIS within Warwickshire County Council
I can give a practical demo	no

Paper Abstract (short)

This presentation seeks to present a case study for how Warwickshire County Council replaced their proprietary web-GIS with a in-house developed deployment of Heron Mapping Client, with GeoServer for the backend. It will cover the entire process, from business case, through specification, extending Heron, technical "gotcha's", community participation, user feedback, evaluation of the project, and future plans.

Paper Abstract (long)

Warwickshire County Council wanted a new intranet web-GIS to replace its existing proprietary solution which was failing to meet either the expectations or needs of the users. Unfortunately, because of the current political climate, the council lacked the funds to go out to tender for a new commercial solution - the last one cost in vendor fees alone in excess of £100,000 over three years. The Corporate GIS team had touched on with Open Source GIS before, using GeoNetwork for their metadata needs, but now gave it serious consideration for replacing the web-GIS.   Time was set-aside for the project with the GIS Developer set to investigate open source options. A comparison of just some of the almost daunting selection of web-mapping libraries, frameworks, and clients was made and eventually the Heron Mapping Client was chosen for the web-front-end. For the back end, GeoServer was chosen and would work in conjunction with the existing Oracle database.   Heron was chosen because it's a client designed for ease-of-deployment, and had no need for anyone to learn a full, complicated, framework. This, combined with its readily customisable user-interface would allow it to be used easily for this project and potentially other web-map projects the council had plans for in the future. As Heron lacked some of the more advanced "GIS-like" features Warwickshire desired ("redlining", select by location, etc), work was commissioned to extend the software, with the aim of this work being contributed back to the community, something Warwickshire feel is part of their social role as a publicly funded body. Some commits also went upstream to other projects such as OLEditor. This marked a notable change from the norm of giving funds to a proprietary vendor only to receive bespoke work that wouldn't benefit anyone else.   GeoServer was chosen because of familiarity from a previous project and its user-friendly GUI for most admin things would allow easier training of administrators. The active and helpful community further solidified this decision. Its support for a myriad of OGC standards would also allow Warwickshire to expand its use, including to provide mapping for the desktop GIS's that are used across the Authority (MapInfo, ArcGIS, and potentially QGIS in the future).   Warwickshire were pleased to note that participation in the communities was a two-way process: as well as using the software, they identified and reported a considerable number of bugs, some user-experience improvement suggestions, and endeavoured to participate in the mailing list communities to help others. Conversely, experience with the proprietary realm shows that bugs are often swept under the carpet ("That's a feature", "We can't replicate it") and very few commercial offerings come with a active online user community.   Because the products are Open Source, Warwickshire also found there were a considerable number of potential vendors for both the Heron development work and the GeoServer support. This was in contrast to the current (and typical) vendor lock-in where once a system has been deployed, there is only one place to get support/development;

something that also proves a particular problem if that support isn't up to par.   As a result of this work, Warwickshire aims to have a state-of-the-art web-GIS client that can be used by users of all abilities within the authority, ideally with a smaller staff maintenance overhead. Development time from start to finish for the first version will be less than 5 months, with an anticipated cost over the next three years of about £20-£25,000 - a very significant saving to the taxpayer. Future web-GIS and web-map solutions should be created quickly and easily (weeks at most), with Warwickshire aiming to provide several external versions, some for the public, and some for partner organisations later.
(Note: This project goes live internally in May 2013; we'll report at FOSS4G whether it lived up to its promise or not.)

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case.		People new to open source geospatial Manager Technical / Developer

ID Number	224

Name	Paul van Genuchten
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Paper Title	Developing an accessible Geonetwork for Environment Canada
I can give a practical demo	yes

Paper Abstract (short)

Accessibility guidelines and geo never were close friends. However governments require accessibility to the full website. For Environment Canada we are redesigning the classic UI in GeoNetwork to better comply with accessibility regulations. I'll present you the challenges we meet in doing so.

Paper Abstract (long)

At many governmental agencies there is a tendency to require websites to be fully accessible for a wide public. In the geo world there is quite some attention on fancy map navigation, accessibility didnÕt always get enough attention. Within the geonetwork project the interface has become more and more slick over the years, but it also ended up getting less and less accessible for impaired users (no scripting, IE6/7, (colour)blind, keyboard only). The group has recently increased dramatically with the recent explosion of mobile use of the web (small screen size, processing limitations). Environment Canada, one of the aware agencies, asked Geocat to create a UI that complies with accessibility Guidelines. In this presentation IÕll guide you through the changes we did to the classic GeoNetwork UI. The changes were considerable: Page-endpoints for home, search, detail, editÉ Javascript and ajax are optional, core functions can operate without scripting. All html elements have useful titles. UrlÕs are spider friendly.   The changes will be proposed to the community soon, and probably integrated in the 2.12 release of Geonetwork.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		Manager End User Technical / Developer

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Paper Title	Disconnected Geospatial Mobile & ÒOpen SourceÓ 5 rule to success?
I can give a practical demo	yes

Paper Abstract (short)
Building a disconnected geospatial mobile solution in 5 key steppes

Paper Abstract (long)
Will 2013 be the year we all embrace GI mobile technology? Maybe but... there are a number of obstacle still ahead! Geospatial solutions are very data centric and whether you are in the office or in a remote location they need to consume large amounts of data. This is not always easily achieved in remote locations with poor connectivity.   At the same time Open Source is increasingly being considered as a credible technology choice for desktop, web and mobile platforms. There is undoubtedly a growing community and standardization of the Open Source stack.   This paper looks at the challenges and opportunities that are brought about by these two issues and addresses the key rules to consider for enabling geospatial technologies on mobile platform.   This paper will look at the following key issues: Rule 1 Ð Data Storage. Streaming GI data requires good bandwidth, by implementing a caching mechanism the end-user will always have access to the data for a given area. Rule 2 - Use Open Source. Free and Open Source software for GIS has evolved significantly in recent years and in some cases faster than commercial alternatives. The mobile field is a bit different and few experts are using free and open source mobile GIS, despite the good tools that exist.   Rule 3 - Use Open Standards. In combination with the use of Open Source products, Open Standards can help future proof the solution.   Rule 4 - Simplify User Interfaces. The time of the stylus is gone and users now expect to use their finger for driving the application. Specific attention must be paid to designing simple and clear user interfaces.   Rule 5 - Implement Non native Solutions. Should separate solutions be developed for IPhone and Android? Could the answer be instead to actually develop non native solutions reducing development and maintenance costs.   Armed with these rules we will look at the challenges on the road ahead to implementing your GI Mobile solution.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. Collaboration: data collection, data sharing, open standards. Open Source Mobile solution		Manager Technical / Developer

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Paper Title	Distributed development environments (like GeoNetwork)
I can give a practical demo	no

Paper Abstract (short)
On a spatially distributed world we need a spatially distributed development environment. How can we do it and not fail trying?

Paper Abstract (long)
In this presentation different aspects related to the FOSS4G development process will be described focussing on GeoNetwork opensource, a metadata catalog that started in 2000. Now in 2013 itÕs still here and with lots of active contributions.   Some of the topics being discussed will include: - Principles of Telework - Must have tools, to survive in the wild.   * The importance of choosing the right tools (svn vs git, skype vs google,...). - (Successful) Example: How GeoNetwork gets improved. - Distributed work: is it really better than face to face?   * The danger of no personal contact vs the danger of closed relationship circles - Most common mistakes (No Pants Day!). - Rebuilding Babel   * Transposed working hours   The presenters have (tele)worked in several projects related to GeoNetwork and are core contributors to the project.   We think this presentation should be at FOSS4G as it is a great opportunity to get inside FOSS4G developments and share the knowledge to improve the development with other people working in other FOSS4G software.

Topic type		Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards.		Manager Technical / Developer

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Paper Title	Doing business with FOSS
I can give a practical demo	no

Paper Abstract (short)

How to make money with FOSS while keeping your customers happy?

Paper Abstract (long)

How to make money with free and open source software ... that's the question! Often the easy answer is Òby delivering services to the clients using the softwareÓ. A more nuanced answer could be: Òto be open in your bussiness model, to cooperate with other FOSS project communities and to provide a sustainable service offer with quality assurance to the clientsÓ. Dirk Frigne, co-founder of Geosparc and spiritual father of Geomajas will share his experience with open source adepts and business people interested in starting doing business in an open and transparent way.

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case.		People new to open source geospatial Manager End User

ID Number	145

Name	Marco Montanari
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Paper Title	Dreamscapes
I can give a practical demo	yes

Paper Abstract (short)

A practical use of open source geographic tools to create wonderful landscapes and maps for gaming

Paper Abstract (long)

The Player Experience of a Role Playing game is based on may factors: ambient, characters, plot and location. The location is usually defined by a map of an area. Dreamscapes is a platform enabling the gamers to create a complete map of a fictional world using a procedural approach and exposing the map of the planet in a web-usable format always keeping style and lazy generation as a guideline. The process of mapping a fantasy world consists of three steps, which are basically the various mapping levels we have in medieval cartography: a large map of a given area of the world, more or less accurate, with a very ÒaestheticÓ approach; a map of a given city, with its features and main roads well marked, but difficult to interact with. Then the players should interact with a photo-realistic city (with a small set of outskirts) or photo-realistic landmarks, because that is where the players have their adventures in. The process starts from the size of the planet to be created, generating a set of projections enabling the best view of the world. After that, over the planet two sets of random points are created. The first set is the base for the land and sea areas, the second is the base for the resources. From each one a Voronoi Diagram is created and the points from one set within a polygon of the diagram created from the other set define the amount of resources or elevation in the specific areas. A percentage is used to decide which adjacent polygons create the various landblocks. After that a small percentage of the polygons defining land is chosen to be transformed into civilized areas. The process iterates creating sub-areas interconnected by part of the edges of a Delaunay triangulation, creating the roads to and from coast and the various locations of the map. Within the cities created after the third iteration of the process, the points are no longer used for their specific locations, but to create up to three major roads. After that, most roads are chosen parallel or almost parallel to the original ones. The next iterations generate infos about the buildings and plazas in the city. The points are then only the centers of elements that randomly are chosen between houses, religious buildings, services, inns. From this choice the area around the point is occupied using some more or less regular forms. After populating a database with such a great amount of data, the db has two possibilities: either it is given into TileMill, in order to generate a set of tiles to be delivered to the players through a WMS with a possible zoom-level that is way beyond the detail given by the usual real-world maps, or it is given into Cartagen, enabling an enormous amount of interaction for the users. From that point on, the play is completely in the hands of the players.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		End User Technical / Developer

ID Number	149

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Paper Title	DTM Fusion A SVD solution for interpolation problems
I can give a practical demo	no

Paper Abstract (short)

The HELI-DEM project, funded by the European Regional Development Fund, aims to develop a unique DTM for the alpine area between Italy (Piedmont, Lombardy) and Switzerland (Ticino and Grisons) by georeferencing, validation and integration of all the elevation data available. DTMs can be interpolated with different approaches but can happens that a bad spatial configuration of the "observed" points causes an ill conditioning of the equation system with an unrealistic elevation value. We chose to address to the problem through the implementation of Singular Value Decomposition (SVD) and a command to perform this approach has been implemented in GRASS.

Paper Abstract (long)

Digital Elevation Models represent one basic tool for many environmental and territorial applications. In recent years, both in Italy and Switzerland, elevation data georeferenced in different reference frames and produced with different technologies, accuracies and resolutions have been acquired. The HELI-DEM (HELvetia-Italy Digital Elevation Model) project, funded by the European Regional Development Fund (ERDF), aims to develop a unique DTM for the alpine area between Italy (Piedmont, Lombardy) and Switzerland (Ticino and Grisons Cantons). By validation and integration of all the elevation data available within the area of interest of the project and previously correctly georeferenced in the european ETRF2000 reference frame, a multiresolution and multiaccuracy DTM will be produced. The available DTMs are both with medium and high resolution, with national, regional or local extensions. The final DTM will be created using the official regional DTMs of Piedmont and Lombardy and the national Switzerland DTM with resolutions of 5, 20 and 25 meters respectively; moreover an high resolution LiDAR DTM (1 meter planimetric resolution), produced by the Ministry of Environment, which covers the Lombardy and Piedmont main hydrographic basins, will be used. The final product of the project will be a low resolution DTM (planimetric resolution of 2x10-4 degrees both in latitude and longitude) that must cover the whole project area for a total of about 120 millions of nodes. This DTM is obtained by two consequential steps: the merging of the three regional DTMs and then its correction using the elevation data derived from the high resolution LiDAR information. The present paper deals with the production of the low resolution intermediate DTM, obtained by the merging of the regional low resolution DTMs. To merge the three regional DTMs, a preliminary operation has been the transformation of the DTMs from their original reference frames to ETRF2000 - geographic coordinates. Then the three datasets have been merged into a unique dataset, which is no more gridded and composed by points with variable density according to the original resolution of the DTMs that cover the different areas: for example in the Piedmont area the points are denser than inside the Lombardy or Switzerland ones. The re-grid of the unique dataset on the nodes of the low resolution final grid is necessary. DTMs can be interpolated either by deterministic or by stochastic approaches. In our project a deterministic approach has been chosen: in particular, the interpolation is based on a polynomial bicubic surface. In fact it is known from literature that a bicubic surface can well model the morfology of a terrain that presents significant elevation changes at a very local spatial scale as in the case of the project. To interpolate the dataset in one node of the final grid two different solutions can be used: an exact bicubic interpolation with the sixteen nearest points, or a filtered least

square interpolation using all the points that fall inside a window with an assigned dimension around the interpolation node. When an exact interpolation is used it can happens that a bad spatial configuration of the "observed" points around the interpolation node causes an ill conditioning of the equation system, therefore interpolation in these cases produces an unrealistic elevation value. A better result can be mostly obtained by using Least Squares filtered interpolation increasing the number of points. But sometimes this solution is still not sufficient yet: bad configurations can still exist. In the DTMs analysis framework, a solution is the application of the Thyconov regularization, which adds a regularization to all the diagonal elements of the normal matrix of the system. This paper however wants to address the problem through the implementation of Singular Value Decomposition (SVD). With this algorithm only the parameters that can be estimated are really estimated through a factorization based on the analysis of the eigenvalues and eigenvectors.   This approach has been tested for the areas where the usual bicubic approach does not produce good results. The full work discusses the results obtained using the new approach of SVD applied on DTMs in some study cases inside the HELI-DEM project.   A command to perform the SVD approach has been implemented in the free and open source GIS GRASS: this command choice the interpolation method (between SVD and Least Squares) for each cell of input raster, in according to parameters setting by user.

Topic type		Target Type
Case Studies: Relate your experiences. Disaster Response: software, case studies, outcomes.		People new to open source geospatial End User Technical / Developer

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ID Number	276

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Paper Title	ENVIRO: A new WebGIS framework to monitor and plan land use systems dynamics based on climate and weather data.
I can give a practical demo	yes

Paper Abstract (short)

The scope of the ENVIRO platform is to frame Integrated Assesment Models (IAMs) to quantify the environmental risk and the vulnerability of agricultural systems to climate change in Trentino and to study and propose policy options for climate change issues.

Paper Abstract (long)

In the past decades, among all the issues that have emerged in the framework of environmental sciences and their applications, climate change is one of the most interesting, debated and hard to manage. Climate modeling, climate data, and weather forecasts are fields where computer science have a major role in tackling big data volumes and processing time issues. Software, computers and networks allow nowadays to interact with a large amount of scientific data, referenced in time and space, to simulate earth system processes and to explore potential management responses. Focusing on these issues we developed ENVIRO, an innovative WebGIS platform which integrates weather-driven, Ecosystem Modeling (EM) to monitor the effects of climate and study the impacts of climate change on Trentino's major agricultural systems. Researchers and stakeholders can use ENVIRO to map and overlay environmental, agricultural and socio-economic data. The platform is modular and it is designed to support the entire pipeline of implementation, validation of experimental models, based on high resolution climate data. enviDB is a spatial-temporal database which addresses the main objective of the system: harmonize and give access to series of maps of weather-climate data, climate change scenarios and land use geodata. The engine of the system is enviModel, a web geoprocessing library of environmental models usable to simulate and map the influences of weather and climate on plant-pathology systems. enviGrid is a built in panel to easy the access and navigation through spatial-temporal climate databases at different aggregation scales in time and space. A web mapping interface, enviMapper, to monitor influences of climate and the vulnerability of agricultural systems to climate change complete the system. All modules and technical components are Open Source and they are built on software endorsed by the Open Source Geospatial Foundation (OSGeo). The implementation follows the international Open Geospatial Consortium (OGC) standards for geodata transmission and geoprocesses to enable a complete interoperability with existing spatial data infrastructures (SDIs). Researchers can add new models, as well as simulate life cycles of plants and pathogens and their interaction using the implemented models based on climate data via web geoprocessing technologies. The platform has a typical client server architecture: PostgreSQL with its extension for spatial objects PostGIS is the spatial database of the application server, GeoServer as web mapping server to publish and give access to geospatial data, 52north and pyWPS as web processing services (WPS) for scientific geospatial computing, PL/R to automate the creation of graphs and statistical reports. The web client interface was implemented using Open Layers and ExtJS besides novel techniques coming from HTML5 technologies that enable dynamic client side graph generation and data visualization on the fly. ENVIRO represent a state of the art prototype for applied climate studies with a focus on modeling effects on agriculture at high resolution, in space and time. The platform is designed for two groups of users: environmental scientists, who use weather driven experiments to predict how the plants and pathogens systems react to climate changes, and policy

makers, who are interested in simulating and mapping change of policies onto two main agricultural products for Trentino as grapevine and apple. In this first prototyping phase the focus was on Trentino province and the two main crops for the research area. ENVIRO is anyhow a scalable tool and could be extended to the Alpine region or to other research contexts and applications as, e.g., hydrology, forestry, ecology, entomology etc. The system was developed within the ENVIROCHANGE project funded by the Autonomous Province of Trento. Co-Authors: Shamar Droghetti, Calogero Zarbo, Matteo Poletti, Claudia Dolci, Monica Rinaldi1, Emanuele Eccel1, Amelia Caffarra1, Ilaria Pertot1, Cesare Furlanello 1Fondazione Edmund Mach, via Mach 1, S.Michele all'Adige, 38010, TN, Italy

Topic type		Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data. Climate data, Big Spatial Temporal Data		End User

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ID Number	49

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Paper Title	Epidemiology with an Open Source WebGIS platform
I can give a practical demo	yes

Paper Abstract (short)

We present a statistical WebGIS platform integrating visualization tools and statistical functions for epidemiological studies, entirely based on Open Source technologies. An application for cancer mapping and environmental cancer studies is the Cancer Atlas (CA-TN), the GeoICT platform of the Cancer Registry of Trentino (Italy).

Paper Abstract (long)

We developed a new web platform supporting the visualization of epidemiological indicators on spatial geometries and the exploration of the spatial distribution of data patterns (e.g. cancer sites, age classes, gender). Together with a rich web interface for epidemiological data, CA-TN includes standard statistical tools to provide complementary information facilitating periodic reporting and cancer surveillance activities. Incidence data from the Cancer Registry in Trentino provided by the Azienda Sanitaria per i Servizi Sanitari (Servizio Epidemiologia Clinica e Valutativa) have been aggregated to the municipality level to deal with privacy issues. Furthermore, to maintain compliancy with European and Regional privacy framework, we built a distributed database infrastructure, where single patient data at record level were kept only on local Sanitary Datacenter. The system is fully built on Open Source technologies: most of components are compliant with public standards defined by OpenGeo Consortium. Spatial and statistical data of the system are structured in a PostgreSQL/PostGIS geodatabase. Maps are published using Geoserver, with an interface implemented with OpenLayer and ExtJS, Django as middleware. The central element of the system is a reconfigurable multi-level database (GeoTree), which allows high flexibility in defining the cells of spatial and temporal analysis. The GeoTree is structured as an directed acyclic graph, where each node represents an entity in space and time (usually an administrative division) and outgoing arcs point to sub-elements of the node itself. Statistical and geographical datasets are associated to the nodes and can be queried and aggregated directly using different and even custom aggregation functions (e.g. sum, mean, intersection, collection). Furthermore, using the data aggregation functionalities, GeoTree structure allows defining and computing on the fly complex indicators involving multiple datasets and results are saved in a transparent cache structure that speeds up data presentation and further data elaboration. The GeoTree structure is a systematic approach to (1) managing relations among geometrical entities at different time and spatial scale, (2) linking datasets and geometries, (3) keeping track of original data sources and associated metadata, (4) easy integration of external data sources, (5-6) aggregation and calculation of complex indicators. The main application of this multi-level database for this project is the computation of each statistical variable at census unit, municipality, sanitary district, and province level. The second technical improvement in this project is the use of R statistical environment for both GeoTree indicators calculation and graphs generation directly in database through PL/R procedural language for PostGreSQL. This communication procedure allows both the creation of dynamic graphs and the deployment of more complex analysis, like the correction algorithms for small areas estimation (SAE) of epidemiological indicators. The target users for CA-TN are medical staff Ð either from public administration or professionals. Authors: Dolci C., Droghetti S., Franch G., Riccadonna S., Furlanello C.

Topic type		Target Type
Visualization: effective presentation of information.		People new to open source geospatial Technical / Developer

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Paper Title	ESA User Services powered by Open Source
I can give a practical demo	yes

Paper Abstract (short)

This presentation introduces the Browse Server of ESA's new User Services infrastructure (ngEO) serving browse images via OGC's WMTS and WMS standards using GDAL, MapServer, EOxServer, and MapCache

Paper Abstract (long)

The Browse Server of the European Space Agency's (ESA's) new User Services infrastructure (ngEO) serves browse images via OGC's WMTS and WMS standards. It is entirely based on Open Source software including GDAL, MapServer, EOxServer, and MapCache.   The offered services are used to present the user with visual representations of search results. Searches are typically performed against collections of acquisitions where it is important to visualize single as well as all browses in a specific time interval. Thus new functionality has been implemented in MapCache to support time dimensions. A caching strategy suitable for this use case has been developed and implemented in MapCache including read-only functionality.   Internally the Browse Server supports ingesting and pre-processing of browse images following ESA specifications. This includes browse images whose geographic metadata are supplied either as footprint polygon, regular grid of tiepoints, or pre-georeferenced images. The pre-processing includes optimizations like footprint generation, re-projection, and addition of alpha-channel, as well as internal tilling, overviews, and compression. The presentation will highlight the design and functionality of the Browse Server. It will introduce the Browse Server in the context of the overall ESA User Services Next Generation (ngEO) as well as the possibilities to integrate it directly using the supported OGC services.

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Visualization: effective presentation of information. New data: handling new data models, for example 3D & temporal data, or big data.		People new to open source geospatial End User Technical / Developer

Additional Presenters

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ID Number	6

Name	Allan Laframboise
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Paper Title	Esri: Going Open with GitHub
I can give a practical demo	yes

Paper Abstract (short)

Esri hosts over 80 public code repositories on GitHub. These Ògeo projectsÓ extend across a very wide-range of disciplines and technologies. This includes everything from full client-server Government solutions to specific geo-utility/analysis tools to ArcGIS products, components and solutions. This session covers how Esri embraced GitHub for sharing geo projects both across the organization and to the public domain, the implementation strategy, the technical challenges faced, and why others might want to consider adopting GitHub for their organizations as well.

Paper Abstract (long)

Esri: Going Open with GitHub   As many of us know, GitHub has become the largest and most popular open source, social coding platform in the world. Not only does GitHub provide developers with a simple and effective way to publish projects and to collaborate with other developers, it also gives organizations a way to deploy large software development projects in the same space. Organizations can publish projects and interface with the community through the standard ÒFork, Clone, Pull RequestÓ methodology to accept code changes back into projects. Internal teams at large organizations can also use the private features of GitHub to curate and further develop projects until they are ready to be moved the public domain.   Esri hosts over 80 public code repositories on GitHub. These Ògeo projectsÓ extend across a very wide-range of disciplines and technologies. This includes everything from full client-server Government solutions to specific geo-utility/analysis tools to ArcGIS products, components and solutions. Here are a few examples: -   Geoportal Server - a standards-based tool that enables the discovery of geospatial resources and data;   -   Citizen Service Request Solution - a client-server application allowing citizens to submit requests from their desktop, mobile and tablet devices;   -   Spatial Framework for Hadoop - a spatial framework that allows developers and scientists to use the Hadoop data processing system for spatial data analysis;   -   Bootstrap for Maps Ð an example of how to use Bootstrap with Dojo to build mapping apps;   -   ArcGIS Flex Viewer - the complete Flex source code for building RIA web applications.   This session covers how Esri embraced GitHub for sharing geo projects both across the organization and to the public domain, the implementation strategy, the technical challenges faced, and why others might want to consider adopting GitHub for their organizations as well.

Topic type		Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User Technical / Developer

ID Number	138

Name	Lynnae Sutton
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Paper Title	Evaluating open source GIS techniques for addressing database, analysis and visualization aspects of spatiotemporal information
I can give a practical demo	yes

Paper Abstract (short)

Most GIS were not specifically designed to manage dynamic spatiotemporal data. Spatiotemporal mapping is the representation of changes in geographical phenomena over time. By identifying the characteristics of the spatial, temporal and attributional dimensions, we evaluate, compare and contrast OSGIS techniques for data storage, retrieval, pattern analysis and visualization of spatiotemporal data. Some of the open source software evaluated includes: Weave, timemap.js, Dojo.js, QGIS temporal extension, OpenLayers Tracking, D3 and i2maps.

Paper Abstract (long)

Most GIS were not specifically designed to manage dynamic spatiotemporal data. Spatiotemporal mapping is the representation of changes in geographical phenomena over time. By identifying the characteristics of the spatial, temporal and attributional dimensions, we evaluate, compare and contrast OSGIS techniques for data storage, retrieval, pattern analysis and visualization of spatiotemporal data. Spatial change components include: shape, location, presence and size. Temporal change components include: states, rate, duration and intervals. Attributes include qualitative and quantitative descriptors. Combinations of changes are evaluated in dimensional components: attribute change (i.e. land-use), spatial attribute change (i.e. national boundaries), moving objects (i.e. hurricane paths), rate of change (i.e. populations of invasive species), temporal aggregation (i.e. precipitation) and spatial aggregations (i.e. voting results). In addition, visualization methods are explored: static (single and multiple snapshots), dynamic display (animation) and symbolic temporal representation. Results of the evaluations are presented. Some of the open source software evaluated includes: Weave, timemap.js, Dojo.js, QGIS temporal extension, OpenLayers Tracking, D3 and i2maps.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Hacks and Mashes: novel solutions to our problems. New data: handling new data models, for example 3D & temporal data, or big data.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters

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ID Number	325

Name	Simon Jirka
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Paper Title	Event Processing in the Sensor Web
I can give a practical demo	yes

Paper Abstract (short)

The aim of this presentation is to show how open source technology can be applied for performing event processing of sensor data streams based on an open and interoperable approach using the OGC Sensor Event Service interface.

Paper Abstract (long)

Observation data provided through interoperable interfaces, e.g. through the specifications of the OGC Sensor Web Enablement framework, is a valuable enhancement of spatial data infrastructures. This way, conventional geospatial data can be augmented with additional information about the environment. This can comprise both, historic (time-series) as well as real-time information.   The next step beyond displaying and analyzing observation data concerns the creation of notification systems that dispatch messages to users in case of certain events that are of interest for them. Examples for this are flood warnings, severe weather watches, personal warning systems for exposure to air pollutants, etc. While the pull-based access to observation data is already well established through the OGC Sensor Observation Service, a different mechanism is needed for such notification systems: push-based data access that delivers new measurements as soon as they are available.   For this purpose, several activities have been started at the OGC, e.g. the work on the OGC Sensor Event Service Discussion Paper as well as the currently ongoing Publish/Subscribe Standards Working Group. Within the 52iNorth open source Sensor Event Service implementation, several results of these activities were incorporated.   This presentation will first introduce the general idea of push-based data access and how this can be used for enhancing existing spatial data infrastructures. After this, based on the example of the 52iNorth Sensor Event Service implementation, a more detailed view on the concepts and ideas behind complex event stream processing will be given. It will be discussed which types of events usually need to be considered and how they can be expressed with the means provided by the different eventing specifications of the OGC. As a result the benefits of complex event processing technology are made available within Sensor Web set-ups.   Complementary to the server side, the presentation will also cover according client developments. In this context, the latest enhancement of the open source Sensor Web Client of 52iNorth will be discussed. This client offers a web-based interface for user to subscribe to certain sensor events in a very easy manner. Through this GUI it becomes possible to use the mentioned server components for creating user-friendly notification systems based on sensor data.   Finally, typical deployment scenarios will be discussed. Best practices how to integrate sensor data streams into event notification systems, necessary components as well as exemplary system set-ups will be introduced.   In summary, this talk will offer the audience a comprehensive overview how open source technology can be used for enhancing Sensor Webs with event processing capabilities so that advanced and user-friendly notification systems become available.

Topic type	Target Type

Disaster Response: software, case studies, outcomes. Development: new developments in products. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.	People new to open source geospatial Manager End User Technical / Developer

Additional Presenters	
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ID Number	76

Name	Frank Warmerdam
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Paper Title	Exploiting Landsat for Global Mapping
I can give a practical demo	yes

Paper Abstract (short)

A review of various uses of Landsat imagery.

Paper Abstract (long)

A review of various uses of Landsat imagery, with a focus on global mapping and understanding global change. The presentation will include information on how to process data with open source tools such as GDAL and LEDAPS as well as the proprietary Google Earth Engine platform. Access to archives of historical Landsat data, and future availability and implications of Landsat 8 will also be discussed.

Topic type		Target Type
Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		People new to open source geospatial Manager End User Technical / Developer

ID Number	131

Name	Lars Aksel Opsahl
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Paper Title	Farm Maps Online: an Open Source success in Norway.
I can give a practical demo	yes

Paper Abstract (short)

GPI is the primary application used to view and maintain information and geo-data and that gives a complete description of farms, farm geometries and farm properties throughout Norway - enabling farmers to create and update some farm data records themselves directly.

Paper Abstract (long)

The 2012 GPI project produced a new "Farm Maps Online" client, as a replacement for an existing HTML client that had been used for 10 years. The GPI application is an important tool for Norwegian farmers and governmental staff, but it's open everybody all properties in Norway can be viewed in the application.   The GPI application provides users with a variety of area statistics and maps relating to farms and farmland. In particular, the system can be used to track (land/farm?) ownership, which is an important factor for Norwegian farm subsidy calculation. Norwegian municipal authorities also use GPI to control applications from farmers.   The discussion here focusses on the server side aspects of this project: data sources, server-side design and the provided client interfaces.   The client interacts with OpenLayers and Java on the server side.   Data sources: The application uses both remote and local data sources. Data is collected via WFS, Soap WS, WMS, and JDBC (for local PostgreSQL databases). The system is integrated with the Norwegian national MinID system, which allows Norwegian residents to log in to many national data services with a single personal identification number.   Server-side design: The application is based on Spring/Java together with Hibernate, some code from Geotools/Geoserver and JTS. The application stack is 100% Open Source, and is hosted on multiple Linux virtual servers. The applications and servers are fully integrated with open source system monitoring software like Nagios and Munin. This has provided a high performance solution for our purposes - the average time to collect and process information for a farm is less than 2 seconds. The application is heavily multithreaded to improve response time. The only limit on current performance is the speed of the external data sources.   Server client interfaces: The client interfaces used are JSON WS, SOAP WS and Geoserver. SOAP WS was used because it defines communication between the server and client in a very precise way. We are now also using JSON. The mapping from a JSON string to Java DAO objects is handled by the Jackson package from Fasterxml, and converting to JSON is simply a extra endpoint in Spring. We also store temporary data in PostgreSQL, which is used by the client via a JSON client interface or through Geoserver as WMS or WFS.   How do we use Open Source?   We use Open Source technology in every step of the value chain that we control. In particular, we rely upon access to source code as an aid for debugging, and we re-use code samples from existing projects, and make adjustments to fit our local needs.   One of the main advantages of Open Source for this project was the ability to separate application design issues from software pricing / software interface issues. For example: Pricing: We wanted to run small, independent Geoserver instances to simplify design, and this was simple because Geoserver is free and open source. If there had been a license fee per instance, or a more complex installation (e.g. license server), it would have caused problems for our project.   Code Re-use: We looked at existing JUnit & integration tests, and existing WFS code, to find solutions we could use ourselves in our own code.   This flexibility (at the package, module and source code levels) is a strong motivation to use

open source throughout our value chain. The only constraint upon design is the functionality provided by existing open source modules; but even this is something that can be addressed directly (by adding code) rather than indirectly (by asking a manufacturer to add a feature).   We try to give back by producing new test cases for existing projects; hiring open source developers to contribute to projects we rely upon and share code back to the community; by reporting bugs; and by promoting Open Source to others.   Our session presentation will provide a comparison of Open Source against commerical software alternatives in terms of ease of development, installation and upfront/ongoing costs.

Topic type		Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager Technical / Developer

ID Number	96

Name	Herman Assink
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Paper Title	Fast tiling and presentation of TB's aerial image data
I can give a practical demo	yes

Paper Abstract (short)

A solution is presented to fast tile 10 cm resolution aerial images covering the whole Netherlands resulting in more than 8 billion tiles which are stored in a NoSQL database and served by a dedicated TMS&WMTS service for fast delivery to clients.

Paper Abstract (long)

Because of the huge size of a 10 cm resolution aerial image of The Netherlands, which are available as TIFF tiles of 4*4 km, a dedicated solution was needed. Converting the available 4*4 km tiles tiles to a tile priamid with tiles of 256*256 pixels would take weeks. In addtion, storing more than 8 billion files is not possible on most file systems. The ideal solution would be the use of JPEG2000. However no suitable open source software is available which supports the reading and writing of JPEG2000. Therefore a custom solution is developed for generating the tile piramyd. The tiles are stored using a NoSQL database with a separate index using the x/y coordinate of the tile. This storage is also used for serving the data. Tiles are served via the WMS, TMS and WMTS protocol. To realize a fast WMS (not a WMS-C) also a custom solution was developed because of the need to merge tiles and transform the resolution. The presentation will discuss the technical solution in detail and the realized performance and scalability of the solution.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products.		End User Technical / Developer

Additional Presenters	
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ID Number	89

Name	Graeme Bell
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Paper Title	Faster Rasters for All
I can give a practical demo	yes

Paper Abstract (short)

The Norwegian Forest and Landscape geomatics group works with national-scale agricultural data, and as part of a recent project, we have developed some tools & techniques that significantly improve performance with open source GIS tools, that we want to share with the community.

Paper Abstract (long)

(Note to conference organisers: I am new to GIS development and I have not attended a FOSS4G conference previously. I would welcome the opportunity to introduce myself to the community as well as presenting some of my work). Project background: This project is being run by the geomatics section of the Norwegian Forest and Landscape institute, and involves building a new map describing farmland across the country of Norway. The aim is to combine the best quality information found in historic and current map datasets (stored in various different formats) into a best-estimate description of land status today. We want to understand how the countryside is changing over time, and find ways to help protect and monitor the landscape. One major motivation for the project is that high quality farmland ('mat jord') in Norway is at threat from erosion and urbanisation. Norway is a very mountainous country, and so flat farmland is an extremely important national food resource. Another motivation comes from local research into marshland ('myr'). Researchers have found that marshes in Norway trap very large quantities of carbon and prevent CO_2 from entering the atmosphere. They also provide a habitat to a wide variety of local species. If marshes and farmland are not maintained appropriately, there is the potential for many types of harm to the environment and the national food supply in Norway. But these issues also extend far beyond Norway; many countries are experiencing deterioriation in their farmland, environmental hotspots, and carbon sinks. In general, we're hoping that in future, the land-change discovery, visualisation and monitoring tools we are building can be re-used around the world. Our group has a commitment to using open source technology wherever possible, and that gives us the freedom to share what we build with geoinformatics and landscape experts everywhere. In terms of this talk to Foss4G, and the theme of "Geo for all", we want to contribute some new, fast, general purpose tools and code performance techniques into the open source geoinformatics community. Building the project's technology: We are standardising diverse vector maps and raster maps into a raster format that allows us to track change and status over time in terms of a fixed spatial reference system. The main open source technologies being used to enable this project include: Linux, PostgreSQL, PostGIS, GDAL/OGR/Proj4, Python, BASH, QGis, and OpenOffice. To accelerate our software and scale up our maps, we use parallel data processing techniques - primarily Python's NumPy project for high speed numerical calculations and the Gnu Parallel project for multi-core process management, as well as some tools of our own. Presentation: Our presentation will discuss the first year of development in this project - in particular, what we learned about open source tools that enabled us to improve our software performance by several orders of magnitude. There are two main themes in the presentation: - An introductory project description / case study that explains the context of this work, and establishes the scale and context in which we're using open source. For example: we perform fairly complex mathematical transformations that combine multiple input datasets, each covering an area of around 2

trillion square meters, at up to 1 square meter resolution.   - "A bundle of hacks": techniques that improve the performance of open source geo-technology, discovered by analyzing the program behaviour and source code of popular tools. This part of the talk is intended to suit developers at all levels, with a mix of theory, diagrams, benchmarks and code.   Techniques: The second part of the presentation offers tips, suggestions and measurements relating to the following performance techniques: - multi-core parallel programming, and the balance between increasing parallelism and overheads   - vectorisation/array programming (using mathematical operations that transform groups of data in one step) - analysing/improving open source code   - appropriate selection of data types   - benchmarking open source software (e.g. gdalwarp vs gdal_merge.py; GDAL/files vs postgis/db)   - benchmarking the effects of algorithm choices & parameters upon performance   - benchmarking operator/function performance in languages   - precalculation   - divide and conquer   - cache management, fitting the problem into the cache, and taking advantage of temporal/spatial locality in geodata processing   - indexing & tiling   - tradeoffs between storage space, access times, and CPU-time in compression of rasterised vector data.   - compilation   Optimising the user's performance, as well as the code: We also want to make map programming more accessible to non-programmers. Particularly, in this project, we want to draw upon the knowledge of domain experts in soil status and landscape change.   At the end of our presentation we will offer two new re-usable open source tools/approaches that can help non-programmer domain experts to work easily with open source map software. The first tool is a small compiler that transforms ideas described in spreadsheet tables into optimised array mathematics expressions suitable for NumPy. The second tool is a GDAL-based raster build environment that simplifies the process of starting from mixed map sources, applying the right calculations in the right order, and getting back to easy-to-use vector or raster maps.   Summary: Tips, techniques, benchmarks and tools from an environmentally-friendly and open-source-friendly project in Norway!

Topic type		Target Type
Case Studies: Relate your experiences. Benchmarks: Comparisons between packages. Development: new developments in products. Hacks and Mashes: novel solutions to our problems. New data: handling new data models, for example 3D & temporal data, or big data. The most relevant topic might be 'hacks and mashes' but there are strong elements of the other 4 highlighted topics too.		People new to open source geospatial End User Technical / Developer

ID Number	250

Name	Pieter De Graef
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Paper Title	Flanders soil and subsoil database: Using Open Source technology
I can give a practical demo	yes

Paper Abstract (short)
Using Open Source Technology to build a Digital Inventory of Soil and Sub-soil Information for Flanders by Pieter De Graef, Technical lead.

Paper Abstract (long)
Soil and sub-soil information (like geology, geotechnics, soil and ground water)Êneeds to be collected, managed and disseminated through an INSPIRE compliant information system. This presentation covers the objectives for the system and describes the design principles and approach taken to realize this large-scale project using open source technology like PostGIS, GeoServer, GeoNetwork, OpenLayers and Geomajas. The presenter will explain what the advantages and challenges are of working with FOSS software, what they have learned so far and what best practices can help to make similar projects successful.

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Visualization: effective presentation of information.		People new to open source geospatial Manager End User Technical / Developer People interested in INSPIRE case studies

Additional Presenters	
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ID Number	329

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Paper Title	Foss4G in AWS: Choosing, deploying and tuning Open Source components in AWS
I can give a practical demo	yes

Paper Abstract (short)

This presentation will cover leveraging cloud computing, specifically AWS public cloud, to support development and deployment of FOSS4G components.

Paper Abstract (long)

1-Use cases: why would AWS makes sense? We will focus on the following use cases: A-The premise of on demand computing resources, and using that for tile rendering, geocoding or route calculation.   B-The premise of high availability and multi-region infrastructure and using that as a disaster recovery option.   C-The premise of readily available infrastructure and using that to support ongoing development and testing. 2-What is available in AWS: A-Infrastructure components(various configuration of EC2 instances, storage types, etc)   B-Software as a service components, covering queues, relational databases, etc.   C-Scalability model in AWS: horizontal scalability vs vertical scalability. 3-Spatial data storage in AWS: A-Postgresql + PostGIS with OSM dataset: techniques on deployment, benchmarks on different infrastructure types.   B-MySQL spatial with OSM datasets: techniques , benchmarks with different infrastructure types   C-NoSQL storage: Using Solr as a POI storage: techniques, benchmarks using the geonames dataset.   D-NoSQL storage: Using neo4j to store OSM or geonames data : techniques, benchmarks on various different infrastructure types. 4-Geocoding using FOSS in AWS: A-GISGraphy as a geocoder: background, techniques, benchmarks, issues.   B-Foursquare's Twofishes: background, deployment, benchmarks, issues.   C-Geocommons Geocoder: background, deployment, benchmarks, issues. 5-Routing using FOSS in AWS: A-Open Source Routing Machine: background, deployment, benchmarks, issues.   B-OpenVRP: background, deployment, benchmarks, issues. 6-Tile Rendering using FOSS in AWS: A-Geoserver: background, deployment, benchmarks, issues.   B-Mapserver; background, deployment, benchmarks, issues. 7-Summary and further readings   About the presenter: Mohamed Sayed has over 17 years of professional experience in Software Engineering, System Engineering and Architecture. For the past 7 years he has been focused on Web Services at scale. Mohamed Sayed played a key role in building the Nokia's here.com Core Cloud platform serving major partners like Bing, Yahoo, Amazon, etc. He has a strong proponent of Open Source Software, and has been a Linux/BSD user since his teen years. He is currently working to evangelize and promote Open Source Software in Africa and especially Egypt.

Topic type		Target Type
Case Studies: Relate your experiences. Benchmarks: Comparisons between packages. Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		People new to open source geospatial Manager End User Technical / Developer

ID Number	161

Name	Marko Turkovic
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Paper Title	FOSS4G in large-scale projects
I can give a practical demo	yes

Paper Abstract (short)

The presentation covers experiences and challenges encountered during the implementation of the Kosovo Spatial Data Infrastructure. The SDI consists of GeoPortal, Cadaster and Land Information System and the Address Register, all implemented on the FOSS stack and interconnected via OGC services.

Paper Abstract (long)

During the last few years, Open-source GIS software has been taking precedence over proprietary GIS software. ItÕs even becoming viable for implementation of large-scale, national GIS projects with a large number of users; projects traditionally supported by proprietary software. The Kosovo Spatial Data Infrastructure (SDI) is one example of this new trend. It consists of several service-oriented modules: GeoPortal, Cadaster and Land Information System (CLIS) and the Address Register (AR). All of these are designed and implemented on the FOSS stack and interconnected via OGC services based on Service-Oriented Architecture concepts. At the heart of the whole system lies the GeoPortal - the main official channel for spatial data dissemination. It provides discovery and view services for the underlying spatial data and enables ordering and downloading of the data by exposing it via its services. The main part of the AR and CLIS applications is a web-based feature Viewer/Editor which supports a rich set of feature editing capabilities including: quadratic BŽzier curve digitization, digitization of adjacent polygons, client-side polygon splitting, topology preserving feature modification tool, multipolygon digitization, digitization of perpendicular and parallel lines, etc. The Viewer/Editor application is optimized to handle a large number of features without overburdening the clientÕs browser while maintaining a high performance level. The project utilizes many of the FOSS4G frameworks and projects such as OpenLayers, GeoExt, GeoServer, GeoWebCache, GDAL/OGR, JTS and its ports, GeoAPI, proj4, MapFish Printing service and GeoSolutions Style-editor, so you could call it a real showcase of available FOSS4G potential. Besides the standard GIS functionalities, the system offers capabilities such as importing of spatial data and feature class creation from the web interface using the GeoServer REST API, dynamic handling of user-defined styles for layers and multilanguage support for alphanumeric as well as the spatial data. Initially, there were some doubts about implementing such a large-scale solution on FOSS, but at the end of the project it has become clear that it lives up to our expectations. The presentation focuses on our experiences and challenges related to building the SDI on FOSS stack.

Topic type		Target Type
Case Studies: Relate your experiences.		People new to open source geospatial Manager Technical / Developer

Additional Presenters

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ID Number	62

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Paper Title	Gamification in GIS
I can give a practical demo	yes

Paper Abstract (short)

Introducing simple GIS gamification service using openlayers and nodeMap

Paper Abstract (long)

Many people like Google maps and Bing map, apple map. But, they always say "GIS is difficult"   I don't understand this situation. So I made a gamification tool for GIS using Openlayers and NodeMap.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products.		People new to open source geospatial Technical / Developer

ID Number	78

Name	Frank Warmerdam
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Paper Title	GDAL/OGR Project Status
I can give a practical demo	no

Paper Abstract (short)
An overview of the capabilities of the GDAL/OGR (Geospatial Data Abstraction Library) project will be covered, followed by a focus on new developments in the last two years and future directions for the project.

Paper Abstract (long)
An overview of the capabilities of the GDAL/OGR (Geospatial Data Abstraction Library) project will be covered, followed by a focus on new developments in the last two years and future directions for the project.

Topic type		Target Type
Development: new developments in products.		End User Technical / Developer

ID Number	101

Name	Ignacio Talavera
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Paper Title	Generating JEE GIS Aplication with geoMVD
I can give a practical demo	yes

Paper Abstract (short)
GIS Enterprise Framework Application Generator

Paper Abstract (long)
This framework allows the generation of GIS JEE applications from any Geodatabase and in a completely declarative way (using XML) without coding.   Besides you can define a user layer that is an abstraction of many related database layers. This software is Open Source and can be downladed from http://sourceforge.net/projects/imm-geomvd/.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		Manager Technical / Developer

Additional Presenters	
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ID Number	116

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Paper Title	GeoCat Bridge - Publish from ArcGIS Desktop into FOSS4G
I can give a practical demo	yes

Paper Abstract (short)

GeoCat Bridge helps to bridge the gap between proprietary and open source solutions. The goal of this product is to provide a solution that makes it extremely easy for users to publish their data on a GeoNetwork, GeoServer and/or MapServer based server solution.

Paper Abstract (long)

GeoCat Bridge helps to bridge the gap between proprietary and open source solutions. The goal of this product is to provide a solution that makes it extremely easy for users to publish their data on a GeoNetwork, GeoServer and/or MapServer based server solution.   The tool converts the ArcMap symbology to symbology optimized for GeoServer and MapServer. Data can be loaded to the server on the file system or straight into PostGIS. It manages metadata at the source and publishes it as clean ISO19139 metadata.   This extension creates a bridge where both proprietary, open source solution providers and open standards supporters are winners.

Topic type		Target Type
Business Cases: building the economic case. Visualization: effective presentation of information. Development: new developments in products.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters	
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ID Number	441

Name	Volker Mische
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Paper Title	GeoCouch: An n-dimensional index for Apache CouchDB and Couchbase
I can give a practical demo	no

Paper Abstract (short)
GeoCouch is an extension for the document databases Apache CouchDB and Couchbase to query them with n-dimensions

Paper Abstract (long)
Databases that support spatial queries are often limited to three dimensions, but the requirements increase. You might want to query in more dimensions, for time ranges or other attributes like trajectories.   Documents are represented as JSON. The values that will be stored in the index can be extracted from anywhere within such a JSON document. Even conversions like reprojections are possible.   Apache CouchDB and Couchbase are document databases, hence belong to the non-relational space which is also known as ÒNoSQLÓ.   One of the strength of Apache CouchDB is the (multi-master) replication. You can keep the data from several different instances easily in sync, even if you change the data on different instances. The replication isn't limited to Apache CouchDB, but it's a whole ecosystem. It's even possible to sync with your web browser and store it in its offline storage. This way the user can access the data offline, without the need to be always connected to the server. In contrast Couchbase has its strong point in working at scale. The data gets automatically sharded across machines. Adding and removing servers at a later stage can be performed through a simple web interface. If a server goes down the system can still work without any interruptions.   GeoCouch, Apache CouchDB and Couchbase are open source and licensed under the Apache License 2.0.

Topic type		Target Type
Development: new developments in products.		Technical / Developer

ID Number	153

Name	Mario Basa
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Paper Title	GEOFUSE: Location Intelligence Analytics Tool
I can give a practical demo	yes

Paper Abstract (short)

Leveraging all the advantages of location intelligence can be achieved using GEO-Fuse, which can easily combine business data coming from different sources with location information to provide better analytics.

Paper Abstract (long)

From Wikipedia, Location Intelligence Òcombines geographic and location-related data with other business data, organizations can thus gain critical insights, make better decisions and optimize important processes and applications. Location Intelligence offers organizations opportunities to streamline their business processes and customer relationships to improve performance and results.Ó GEO-Fuse is an Open Source Application that uploads and links CSV and TAB delimited attribute data with geographic data. Once the attribute data has been accepted, GEO-Fuse creates thematic maps using the uploaded metrics to achieve the benefits that Location Intelligence offers. The thematic maps can be configured to use different criteria, distribution types (Huff Model, Statistical, etc.), different ranges, and different colors for better analytics.   GEO-Fuse also accepts data that include Longitude/Latitude information and creates a Point layer which can again be used to create thematic maps.   PDFs can be created from the thematics maps. And the entire thematic map can actually be embedded in a blog or a web news letter for better dissemination of information.   GEO-Fuse is built upon Geoserver, PostgreSQL/PostGIS, OpenLayers, and Ext-JS.

Topic type		Target Type
Visualization: effective presentation of information.		End User

ID Number	10

Name	Andrea Antonello
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Paper Title	Geographic scripting in uDig: halfway between developer and user
I can give a practical demo	yes

Paper Abstract (short)

Scripting is one of the powerful things in GIS. Through geographic scripting skilled users get the possibility to enhance their favourite GIS and extend it with their own ideas and customization needs.

Paper Abstract (long)

Scripting is one of the powerful things in GIS. Through geographic scripting skilled users get the possibility to enhance their favourite GIS and extend it with their own ideas and customization needs. The GeoScript project adds spatial capabilities to dynamic scripting languages. It has reached a mature state and is used in quite a lot of environments.   Since its 1.4.0 release, uDig features a Scripting editor that aids the user in composing and executing scripts seamlessly from within the GIS environment. The editor helps the user with syntax colouring and simplified command completion, as well as drag and drop of resources from the catalog and layer views. That way uDig gives a great opportunity to have a simple and powerful GeoScript environment ready to use directly in the GIS, without any installation hassle.   An introduction to the scripting editor of uDig will be given, as well as some hints about how the most common operations in GeoScript are performed.   It will also be shown how GeoScript can be extended to do geomorphologic processing through the JGrasstools project libraries in uDig, the same used also in the Spatial Toolbox of uDig.

Topic type		Target Type
Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		End User Technical / Developer

Additional Presenters

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ID Number	209

Name	Nouri Sabo
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Paper Title	GeoHashTree, a multi-resolution data structure for the management of point clouds in PostgreSQL database
I can give a practical demo	no

Paper Abstract (short)

Natural Resources Canada has initiated a new project to modernize its elevation data management system. The new system, mainly based on Open Source tools, also includes a new hierarchical data structure for managing point clouds and other types of elevation data at different resolutions. This structure called GeoHashTree, is a component of POINTPACH, the new extension for the management of point clouds in PostgreSQL. During this presentation, the system architecture and the new data structure will be exposed. Then, the results of tests conducted with the new structure will be discussed.

Paper Abstract (long)

Elevation data are increasingly used in many application areas. The growing number of applications using elevation data demonstrates the interest of users vis-ˆ-vis this type of data. In fact, the needs continue to grow and specialize and acquisition technologies for this type of data are becoming more numerous, efficient and accessible. In this area, LiDAR is one of the technologies that has radically changed the way elevation data is acquired. If, on one hand, this technology allows to acquire data of high precision, it remains that the storage, management and exploitation of these data pose serious challenges due to their irregular distribution, their density and the amount of information they contain. This difficulty to manage and use point clouds often led some organizations to transform LiDAR points to regular data (e.g. raster) to facilitate data handling. In Canada, elevation data managed by Natural Resources Canada were stored and distributed as CDED (Canadian Digital Elevation Data). The CDED has a very restrictive format which supports only one resolution, making it impossible to manage data at a high resolution such as LiDAR. This is why, a little more than two years ago, the Mapping Information Branch of Natural Resources Canada initiated a project to develop a new flexible system for the management and dissemination of Canadian elevation data from various sources. This new system is mainly based on Open Source tools and also includes a new data structure called GeoHashTree. GeoHashTree is a generic data structure that allows to store, access and manipulate point clouds. It integrates both data with different types (irregular and regular data) and different resolutions in the same structure. GeoHashTree is a hierarchical structure which can present irregular data with various levels of abstraction (e.g. the same LiDAR data can have multiple representations with minimum storage overhead). At each level of the structure, several statistics such as multiple attributes' min, max and mean are presented. The structure itself is based on the Geohash which is a global geocoding system based on a hash function that divides the surface of the earth into a hierarchical grid. Inside the structure, each point is indexed and the search for a point is accomplished by a simple character string comparison, which greatly facilitates its integration into a database. GeoHashTree structure is a component of POINTPACH, a new extension to manage point clouds in PostgreSQL. Based on this structure, a system for the management of point clouds in PostgreSQL was developed. The system allows to interact with the database through spatial and attributive queries. For example, a user can select certain attributes from LiDAR points included in a bounding box, whose elevation is greater than 150 m. In addition to providing arbitrary access to the data, the ability to aggregate data and the ability to manage multi-resolution data, this structure allows the management

of point clouds in a database while minimizing storage (more compact than LAS). In addition, our tests have shown that this structure allows to obtain an excellent performance in terms of access (better than LAS with arbitrary access to the data). In this paper, the system architecture and the new structure will be exposed. Then, the results of tests conducted with the new structure in terms of storage and performance will be presented. And finally, future developments based on this structure will be discussed.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. Hacks and Mashes: novel solutions to our problems. New data: handling new data models, for example 3D & temporal data, or big data.		People new to open source geospatial Manager End User Technical / Developer

ID Number	225

Name	Paul van Genuchten
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Paper Title	Geonetwork mobile
I can give a practical demo	yes

Paper Abstract (short)

In your appstore soon: a mobile version of geonetwork, imagine querying a spatial catalogue from the field. Bad wheather expected, unexpected road block, rare species of butterfly, find and display required data on your phone

Paper Abstract (long)

WouldnÕt it be great to be somewhere in the field, get your phone, query a spatial catalogue and find (and display) nice datasets at the location youÕre at. Guess what, soon in your favourite appstore: Geonetwork Mobile. With great thanks to Geonetwork, Cordova, Jquery Mobile and OpenLayers.   In this presentation youÕll get a small walk through on the used techniques and how to build your own html5 spatial app. Jquery mobile is a jquery extension that creates a stunning mobile UI out of simple html elements. Cordova is a wrapper that wraps any website into an app that can be build against most of the widely used mobile platforms.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		Manager End User Technical / Developer

ID Number	117

Name	Jeroen Ticheler
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Paper Title	GeoNetwork opensource - The geospatial metadata catalogue
I can give a practical demo	yes

Paper Abstract (short)

The presentation will provide an insight of the new functionality available in the latest release of the software. Publishing and managing spatial metadata using GeoNetwork opensource has become main stream in many Spatial Data Infrastructures. The project developers have made big progress on INSPIRE support, performance, scalability, usability, workflow, metadata profile plugins and catalogue services compliance. Examples of implementations of the software will be given, highlighting several national European SDI portals developed in the context of the INSPIRE directive as well as work for Environment Canada.

Paper Abstract (long)

No full abstract

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User

ID Number	259

Name	Pirmin Kalberer
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Paper Title	GeoPackage, the shapefile of the future
I can give a practical demo	no

Paper Abstract (short)

GeoPackage is a OGC candidate standard combining vector data and raster tiles in a single database file

Paper Abstract (long)

OGC has published GeoPackage as a candidate standard in January 2013. An SQLite container combines simple feature vector data (SpatiaLite) and JPEG/PNG raster tiles in a single file. The SQL interface makes it immediately usable for mobile, web or desktop applications. An embedded XML capabilities manifest makes a typical OGC standard out of it, provoking also critical comments. But an official standard for an interchange format built on widespread technology could finally end the good old shapefile era.

Topic type		Target Type
Development: new developments in products.		Manager End User Technical / Developer

ID Number	63

Name	Dorian Ginane
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Paper Title	Geoportal in action
I can give a practical demo	yes

Paper Abstract (short)

Nowadays, influenced by the OpenData movement or by legislation, lots of organization want to share their geospatial data using geoportal. However, the management, the maintenance and the evolution of such platforms are often expensive and time consuming. To overcome this gap, Geomatys built a geoportal solution based on homogenous technical solutions and where User eXperiences drive the software conception. To facilitate the maintainability, the solution is based on Java JEE portlets, allowing to do evolve each application parts without impacting the entire portal. To ensure user platform appropriation functionalities and interfaces benefit of a real ergonomic work.

Paper Abstract (long)

Due to OpenData movement or because of legislation such as the European INSPIRE directive, more and more organisations wish or have to share geospatial data using web platforms. Most of these structures are not historical data producers such as national cartographic institutes or such as marine charts editors, but they acquire geospatial data as a side effect to their core activities. Also these structures do not have always a specific team to manage the platform and an important budget dedicated to the maintain and to do evolve the platform.   Also geoportals must be easily maintained and easily updated. Moreover the geoportal will be used by non-expert users and must be easily taken in hand. However the geoportals often handle a lot of different functionalities such as a classical web content management system and a geospatial data viewer in a same application. Consequently, they are often an aggregation of several different softwares each one dedicated to a specific function. One of the risk of these multi OpenSources software approach is to penalize the user experience by providing an heterogeneous visual aspect and by providing several different ergonomic approach in the same application. A second risk, is to have several different technologies for a same application and so to make difficult the solution maintenance.   To avoid the first risk, the key idea is to be able to design the functionalities focusing on the user experience and not led by the pre-existing interfaces and by the pre-existing workflows of the softwares integrated. Also the portal solution presented is built on a technical homogenous OpenSource toolkit from which specific interfaces are designed based on an ergonomic work.   To avoid the second risk, Geomatys uses an architecture based on Java JEE portlet and geospatial interoperability standards to design its portals. Indeed the portlets allow to integrate various applications on a same portlets container, this giving a very homogenous aspect to the solution. Moreover portlets ensure easy portal evolution. Each portlet can evolve independently because portlets communicate with each other using a communication standard (JSR 286). The interoperability allows building new clients portlets easily and to easily add third-party applications to the geoportal. Used together, portlets and interoperability standards are able to provide a very modular solution.   The combined approach of a modular architecture and of an ergonomic interface design allow to build portal able to respond to organisations needs for sharing geospatial data.

Topic type		Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards.		End User

ID Number	330

Name	Simone Giannecchini
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Paper Title	GeoServer on steroids
I can give a practical demo	no

Paper Abstract (short)

Setting up a GeoServer can sometimes be deceptively simple. However, going from proof of concept to production requires a number of steps to be taken in order to optimize the server in terms of availability, performance and scalability. The presentation will show how to get from a basic setup to a battle ready, rock solid installation.

Paper Abstract (long)

Setting up a GeoServer can sometimes be deceptively simple. However, going from proof of concept to production requires a number of steps to be taken in order to optimize the server in terms of availability, performance and scalability.   The presentation will show how to get from a basic setup to a battle ready, rock solid installation by showing the ropes an advanced user already mastered. The topics that will be covered in details include: - Optimize vector and raster data for the deep multi-resolution displays typical of web GIS   - Optimize styling to provide a good balance between map navigability and performance, identifying common performance pitfalls in the styling options   - Setting up caching with GWC for the background layers, identify layers and situations that are not suitable for caching - Defend against peak hour load by setting service limits and using the control-flow extension - Using the monitoring extension to control the server in production and identify sources of trouble (long request, clients making too many/too heavy requests, layers and services used the most that could use more tuning attention) - Solutions for clustering GeoServer 2.3.0 and GeoWebCache 1.4.0 - Challenges in scaling beyond the few hundreds concurrent requests, and solutions to get there   The presentation will end with real world examples of enterprise deployments of GeoServer implemented by the author as well as its colleagues at GeoSolutions during the years.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters

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ID Number	5

Name	Alessio Fabiani
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Paper Title	GeoServer, an introduction for beginners
I can give a practical demo	yes

Paper Abstract (short)
This presentation will provide an introduction to the GeoServer project and its abilities to publish data with a mix of well known OGC protocols and other pupolar protocol and data formats.

Paper Abstract (long)
This presentation will provide an introduction to the GeoServer project and its abilities to publish data with a mix of well known OGC protocols and other pupolar protocol and data formats. This presentation will provide an introduction to the GeoServer project and its abilities to publish data with a mix of well known OGC protocols and other pupolar protocol and data formats, including: - Setting up vector and raster data from the GeoServer administration control - Publishing data via WMS, WFS and WCS - Styling layers using desktop tools, with a carousel of GeoServer mapping abilities - Tile caching with WMTS   - Moving to data processing with WPS - Brief introduction to security   The attendees will be provided with the basic information to be able to get started with using GeoServer proficiently on their own.

Topic type		Target Type
Case Studies: Relate your experiences. Hacks and Mashes: novel solutions to our problems.		People new to open source geospatial Manager End User

Additional Presenters	
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ID Number	46

Name	Christopher Helm
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Paper Title	Geospatial Github
I can give a practical demo	yes

Paper Abstract (short)

A whimsical exploration of the best geospatial code repos on Github

Paper Abstract (long)

Github has lots of code, lots! Finding code is aslo actually pretty easy but there are a lot of repos that are directly related to the geospatial industry that can be hard to find. This talk will take you on exciting journey through several of the best & seldom known Github repos. I'll give my top ten repos, and also walk through demos of why these repos are great and why you should know about them.

Topic type		Target Type
Case Studies: Relate your experiences. Benchmarks: Comparisons between packages. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User Technical / Developer

ID Number	136

Name	Luca Morandini
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Paper Title	Getting the best performance for GeoJSON map visualizations: PostGIS vs CouchDB backend.
I can give a practical demo	no

Paper Abstract (short)

Rich user experiences call for JSON data, but what combination of DBMS, compression, generalization, etc. can deliver the best performance on the client ? During the course of this presentation we will present our findings, showing how we collected test data and built statistical models to gauge the contribution of each factor (DBMS, compression, etc.) to the overall performance

Paper Abstract (long)

In order to deliver rich user experience to user, features (attribute data and geometries) have to be sent to the client for mouse-over visual effects, synchronization between charts, tables and maps, and on-the-fly classifications. GeoJSON is one of the most popular encodings for the transfer of features for client-side map visualization.   The performance of client visualizations depends on a number of factors: message size, client memory allocation, bandwidth, and the speed of the database back-end amongst the main ones. Large GeoJSON-encoded datasets can substantially slow down loading and stylization times, and also crash the browser when too many geometries are requested. A combination of techniques can be used to reduce the size of the data (polygon generalization, compression, etc). The choice of an open-source DBMS for geo-spatial applications used to be easy: PostGIS is powerful, well-supported, robust and fast RDBMS ? On the other hand, unstructured data, such as (Geo)JSON, may be better served by document-oriented DBMS such as Apache CouchDB.   The performance of PostGIS and CouchDB in producing GeoJSON polygons with different combination of factors that are known to affect performance was tested: compression of GeoJSON (zip) to reduce transmission times, different levels of geometry generalization (reducing the number of vertices in transferred geometries), precision reduction (the reduction of numbers of decimal digits encoding coordinates), and the use of a topological JSON encoding of geometries (TopoJSON) to avoid redundancy of edges transferred.   We present the results of a benchmark exercise testing the performance of an OpenLayers interface backed by a persistence layer implemented using PostGIS and CouchD. Test data were collected using an automated test application based on Selenium, which allowed to gather repeated observations for every combination of factors and build statistical models of performance. These statistical models help to pick the best combination of techniques and DBMS, and to gauge the relative contribution of every technique to the overall performance.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information.		Technical / Developer

Additional Presenters

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ID Number	119

Name	Joachim Van der Auwera
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Paper Title	GIS data security applied
I can give a practical demo	yes

Paper Abstract (short)
Deep-dive on how security can be applied within web GIS solutions.

Paper Abstract (long)
Architecture and implementation of security on GIS data as provided in Geomajas. Details are given about design considerations, choices made (including why) and ways to prevent credential leakage. We will also tackle how this can be integrated with external security systems incl. industry standard solutions like LDAP and SSO. Finally we'll see different security configurations at work via real world examples.

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Hacks and Mashes: novel solutions to our problems.		Manager End User Technical / Developer

Additional Presenters	
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ID Number	47

Name	Christopher Helm
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Paper Title	GIS is not dead, itÕs coming for you and itÕs been drinking JavaScript
I can give a practical demo	yes

Paper Abstract (short)

This talk will discuss several super kick-ass ways that JavaScript and the web have re-shaped GIS and are changing how we visualize, analyze and share geospatial data with each other and the world.

Paper Abstract (long)

GIS is dead? No, itÕs not, and itÕs coming to find you and spatially kick your ass with a big bag of JavaScript.   The world changes fast (hello, Internet). Yet, our industry (map making in one form or another) is stuck, and has generally shown itself to be slow to react to new ideas and paradigms that grow rapidly in other spaces. But there is still hope! GIS is coming back, and itÕs being re-tooled with lots of shiny new software and geo-weapons. ItÕs going to make an assault on all of our previous notions of its old self. Of course this new and shiny GIS resembles its former self in many ways, it's also full many new ideas about how we experience maps and data on the web. As we witness a massive resurgence in JavaScript (hello D3 & node.js), and more emphasis placed on the web in general, we see that there are actually still large holes that should be filled the geo-spatial stack. New waves of JavaScript developers have, and will continue to fill these gaps.   This talk will discuss several super kick-ass ways that JavaScript and the web have re-shaped GIS and are changing how we visualize, analyze and share geospatial data with each other and the world.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. GIS resurrected as a crime fighting zombie		People new to open source geospatial Manager End User Technical / Developer map making zombies

Additional Presenters

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ID Number	139

Name	Manuel de la Calle Alonso
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Paper Title	Glob3 mobile. A new approach to mobile GIS 3d.
I can give a practical demo	yes

Paper Abstract (short)

Glob3 mobile. A new approach to mobile GIS 3d.

Paper Abstract (long)

G3M (Glob3 mobile) is a new Framework developed from scratch by IGO Software using the know how acquired developing glob3 and the first version of glob3 mobile. G3M wants to be the reference framework for developing 3d GIS mobile solutions. G3M has been developed taking mobile-only issues into consideration (Performance, Usability, Fragmentation, etc...). In addition, using the same core we have developed a html5 version in order to run in standard browsers in a near future. At the moment, we have the following capabilities: Multiplatform: iOS Android HTML5 - WebGL   Terrain support Efficient tiled-based planet rendering Raster support   Vectorials support (Limited): geojson (bson) Markers Labelling 3D Models: Rendering and Blender plugin for exporting of any format Blender can read. Animations subsystem: Animated change of position, color, size, etc for 3d shapes, 3d-models, etc. Animated movement of Camera. Tasks handling subsystem: run tasks in background, periodical tasks, etc. Downloader subsystem download queue with priority per request. cancelable requests. Downloader cache (interchangeables databases using sqlite) Offline maps The used architecture is one of the key features of this project. The core is only developed in C++ and works in iOS platform. This code is translated to java in order to use in Android and webGL (GWT).   Using well-known object oriented Design Patterns (Abstract factory, Builder, Template method, etc) we was able to create an extensible core system, that can be ported to new platforms with relative easy-to-implement native-implementation of few classes. The result is the possibility of build native applications in iOS, Android and webGL using the very same API. Now the library has been ready to release under a open source license. Some examples of this library at works are: Apple Store https://itunes.apple.com/us/artist/igo-software/id432324541   Play Store: https://play.google.com/store/apps/details?id=org.glob3.mobile.demo https://play.google.com/store/apps/details?id=com.glob3.mobile.owm   Amazon: http://www.amazon.com/IGO-SOFTWARE-glob3-mobile   WebGL http://galileo.glob3mobile.com http://milanuncios3d.glob3mobile.com http://owmg3m.globemobile.com

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products.		Manager End User Technical / Developer

Additional Presenters

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ID Number	210

Name	Oleg Zhurakousky
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Paper Title	Go Beyond "Debug": Wire Tap your App for Knowledge
I can give a practical demo	yes

Paper Abstract (short)
Today, application developers devote roughly 80% of their code to persisting roughly 20% of the total data flowing through the applications. The other 80% of the data is "Event Data" that can no longer be ignored if you want to stay competitive. Changes to application state are already stored as a sequence of events in application and middleware logs. In fact, since this data never held value to anyone but the developer in the past, a lot of potentially valuable information is often never collected In this talk, we will demonstrate how capturing all event data could dramatically simplify data collection and management within the enterprise.

Paper Abstract (long)
Today, application developers devote roughly 80% of their code to persisting roughly 20% of the total data flowing through the applications. That means two things: * 80% of the data flowing through our applications is at best lost in rolling log files, at worst never collected -- without ever being analyzed or accounted for.   * Application-level database programming, licensing, storage, administration, and ETL processing have maxed out IT budgets and have constrained app development teams from keeping pace with the rate of change in the business. The other 80% of the data is "Event Data" that can no longer be ignored if you want to stay competitive. Changes to application state are already stored as a sequence of events in application and middleware logs. In fact, since this data never held value to anyone but the developer in the past, a lot of potentially valuable information is often never collected. With Hadoop, we can: * store and query these events - Transaction tracing,   * use the event log to reconstruct the application domain at any point in time - ETL,   * use the same event log to construct new domains we haven't planned for - ELT, and   * automatically adjust our data domains to cope with retroactive changes - ???   In this talk, we will demonstrate how capturing all event data could dramatically simplify data collection and management within the enterprise.

Topic type		Target Type
Business Cases: building the economic case. Hacks and Mashes: novel solutions to our problems.		End User Technical / Developer

Additional Presenters	
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ID Number	79

Name	Frederic Houbie
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Paper Title	GraphGIS, bringing spatial functionalities in NoSQL graph databases
I can give a practical demo	yes

Paper Abstract (short)
Using graph NoSQL databases to manage complex GIS data.

Paper Abstract (long)
Driven by the major players in of the Web like Google, Facebook, Twitter, NoSQL databases quickly gained real legitimacy in handling important data volumetry. With a first concept of key-value, NoSQL databases have quickly evolve to meet a recurring relationships between entities or documents. Graph / document paradigm provides flexibility that facilitates the representation of the real world. Beyond the representation of information of social networks, this data model fits very well to the problem of Geo Information, its variety of data models and the interconnections between them.   The emergence of cloud computing and the needs driven by the Semantic Web have led publishers of geospatial solutions to consider other ways than those currently used to store and process GIS information. It is in this perspective that Geomatys has developed GraphGIS, a spatial cartridge for OrientDB, the Graph oriented NoSQL database. This solution provides support of geographic Vector, Raster and Sensor data, in multiple dimensions and their associated metadata.

Topic type		Target Type
New data: handling new data models, for example 3D & temporal data, or big data.		Technical / Developer

Additional Presenters
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ID Number	335

Name	Sšren Gebbert
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Paper Title	GRASS as Temporal GIS
I can give a practical demo	yes

Paper Abstract (short)

An introduction to the new spatio-temporal capabilities of GRASS GIS that transform it into a comprehensive temporal GIS.

Paper Abstract (long)

Recently GRASS GIS has been extended to provide spatio-temporal modeling, processing, analysis and visualization capabilities based on the field based view of geographic data. Space time datasets were introduced to represent collections of time stamped raster, 3D raster and vector maps. A comprehensive set of new spatio-temporal modules were introduced that make the management, processing and visualization of massive time series data as easy as possible. The integrated temporal topology approach allows the investigation of temporal and spatial relationships between different space time datasets. New interfaces to spatio-temporal analysis and processing software as R, ParaView and CDO were implemented for seamless data exchange. These new capabilities transform GRASS into a comprehensive temporal GIS.

Topic type		Target Type
Development: new developments in products. New data: handling new data models, for example 3D & temporal data, or big data.		End User Technical / Developer Modeler of spatio-temporal data, GIS developer

ID Number	18

Name	Andy South
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Paper Title	Half a million petition signatures mapped for free using open-source, open-data and an open-api.
I can give a practical demo	yes

Paper Abstract (short)
I will present the workflow used to download and visualise the temporal and spatial uptake of one of the largest and fastest online petitions the UK has ever seen.

Paper Abstract (long)
This talk will present a case study of visualising the uptake of an online petition on the social activism site change.org. I will outline the workflow of what was done to download and visualise data for half a million signatures. I used exclusively free and open-source tools and data. I used the statistical environment R as my main workhorse. An R script was used to access the change.org open API and download the signature data in the maximum permitted blocks of 500 hundred signatures. To date (the petition is still running at this time) over 800 requests have been made. The data are returned as JSON and were then read into R. The process occasionally fails when users have accidentally typed a character that acts as a JSON escape code. I developed code to correct these files. R was used to bind the data into a single file. The petition asks for town of residence. I used the freely available GB public transport gazetteer from data.gov.uk to geocode the data by merging latitude longitude columns onto the signature data. To include Northern Ireland in the analysis I downloaded a second gazetteer and repeated the process. I then used R to reproject the Northern Irish coordinates from the Irish grid to the OS GB grid so that they could be displayed on the same map. The data was initially used to plot a timeline of cumulative uptake and a bubble plot indicating the spatial distribution of signatures. The map and timeline were sent to over half a million people via email and twitter. To allow more detailed interrogation of the data I used the R package shiny to create a javascript web application. Each step in this process will be covered and the presentation will contain the code allowing the audience to replicate the steps.

Topic type		Target Type
Case Studies: Relate your experiences.		People new to open source geospatial Technical / Developer

Additional Presenters	
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ID Number	14

Name	AndrŽs Maneiro
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Paper Title	How linear referencing and dynamic segmentation can help us to model (linear) assets: a custom application for a road network.
I can give a practical demo	yes

Paper Abstract (short)

This session will look into how advanced data modeling methods -linear referencing and dynamic segmentation- can be useful in working with assets such as roads, water and sanitation networks, rivers or electrical grids. We will also showcase a custom solution based on PostGIS and gvSIG for road networks -built upon the methods mentioned- which is used in a european regional administration, located in Lugo, Galicia, northwest of Spain.

Paper Abstract (long)

This session will look into how advanced data modeling methods -linear referencing and dynamic segmentation- can be useful in working with assets such as roads, water and sanitation networks, rivers or electrical grids. We will also showcase a custom solution based on PostGIS and gvSIG for road networks -built upon the methods mentioned- which is used in a european regional administration, located in Lugo, Galicia, northwest of Spain. In making an inventory of assets, we may have some basic entities -for example: a road- over the which we need to store more information -attributes or features- as its width, type of surface, elevation, traffic accidents, etc. In such a case, different approaches may be used to model this kind of data. For example: storing all the necessary attributes (width, surface, etc) in the same entity and split it at a constant rate -for instance: every few meters- or at a variable one -every time any of its features changes. Other solution might be to create several entities, one for each feature or event of the road, and update them separately. Last, but not the least, we can also consider using linear referencing and dynamic segmentation, which allow us to store every feature as a separate entity while having only one reference geometry (the road) over the wich all the attributes are referenced. Each method above can be useful in different situations: for example, when gathering information with mechanical means -such as a car- it is very common to receive the data at segments of the same length. But also some techniques are not recommended in some contexts on account of the problems they may cause: data fragmentation due to excesive segmentation (an important source of performance degradation and storage wasting), making the updating tasks harder for technicians since each one of the entities should change when the basic entity is modified, etc. The second part of the session will walk through a specific solution built on linear referencing and dynamic segmentation techniques, which helped us to design a system where each feature changed at different rate -avoiding the fragmentation phenomenon- while allowing for easy growth and extensibility of the data model and making the updating tasks easier for users. The application is a custom product for road management used in the conservation department of a regional european administration (located in Lugo, Galicia, northwest of Spain) built on top of PostGIS LRS functions and gvSIG as the UI tool to interact with the data. We will showcase how an user can view and update the data through the features catalog; how a technician can change the basic entity (the road) and that automatically will force the features and events affected to update; and other real use cases for this application and the opportunities that these techniques open. - About the speaker AndrŽs is a lead software architect and partner at iCarto, a company specialized in building custom solutions in areas such as civil engineering, development aid and cultural heritage. During last 5 years he has built products based on

PostgreSQL, PostGIS, gvSIG, Geoserver, Openlayers, Python Pyramid or Backbone and he is fluent in languages such as Java, Javascript, Python, SQL and HTML5/CSS3.

Topic type		Target Type
Case Studies: Relate your experiences. Hacks and Mashes: novel solutions to our problems.		Manager End User Technical / Developer Although focused on manages/end users, it may be interesting for devs due to the techniques used.

ID Number	283

Name	Roger Bamkin
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Paper Title	How to create a geocoded town - Monmouthpedia and Gibraltarpedia
I can give a practical demo	yes

Paper Abstract (short)

Monmouthpedia and Gibraltarpedia are towns that have hundreds of geocoded Wikipedia articles. The authors have liased with communities, businesses, universities, PHd students, media to create these places in augmented reality and it in the real world

Paper Abstract (long)

Monmouthpedia was the first Wikipedia project to embrace a whole townÑspecifically, the Welsh town of Monmouth (pron.: /_m_nm__/ MON-m_th; Welsh: Trefynwy). The project aimed to cover every single notable place, person, artefact, plant, animal and other things in Monmouth in as many languages as possible, but with a special focus on Welsh. This was a different scale of wikipedia-project. The project was jointly funded by Monmouthshire County Council and Wikimedia UK, Monmouthshire County Council and it included free town wide Wi-Fi for the project.   Ó Monmouthpedia uses QRpedia codes, a type of bar code a smartphone can read through its camera (using one of the many free QR readers available) that takes you to a Wikipedia article in your language. QR codes are extremely useful, as physical signs have no way of displaying the same amount of information and in a potentially huge number of languages. Articles have coordinates (geotags) to allow a virtual tour of the town using Wikipedia's mobile apps (or the Wikipedia layer on Google Streetview) and are available in augmented reality software including Layar. Monmouthpedia may not use standard black and white QR codes, in order to differentiate between MonmouthpediA codes and other schemes and individual's codes. There are different kinds of QR codeÑplaques and labelsÑall put up with the permission of the council and building owner: GibraltarpediA is the first Wikipedia project to aspiresto bridge two continents. Like Monmouthpedia the project aims to cover every single notable place, person, artefact, plant and animal in Gibraltar in as many languages as possible. This is a large WikiProject; it's at least three times the size of MonmouthpediA. The area of interest includes the British Overseas Territory of Gibraltar, the Strait of Gibraltar, the Spanish municipalities along the coast of the Bay of Gibraltar, the northernmost coast of Morocco and Ceuta. This project also uses NFC technology in addition to QR codes   The authors are currently working in Gibraltar to demonstrate geotagging in practise. The project uses open street map to keep track of its progress.

Topic type		Target Type
Case Studies: Relate your experiences.		People new to open source geospatial

Additional Presenters	
Name	John Cummings
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ID Number	16

Name	Andrew Ross
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Paper Title	How to Pet the Crocodiles
I can give a practical demo	yes

Paper Abstract (short)
an amusing yet informative guide on FLOSS project interactions with companies

Paper Abstract (long)
If you've not read them, Simon Phipps has a great series of articles comparing companies to reptiles. Quoting: "Crocodiles are not evil; neither are they good. ... Working with them is not a matter of relying on their goodwill. ItÕs all down to understanding their instincts Ð and learning to stand in the right place." His point is that companies are similar and operate in a predictable manner provided you know what to expect. Companies are unavoidable. This talk is an amusing yet informative how-to guide on FLOSS projects interactions with companies. The prize for doing so effectively can be worthwhile up to and including world domination.

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case.		People new to open source geospatial Manager End User Technical / Developer

ID Number	105

Name	Jachym Cepicky
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Paper Title	HSLayers status report
I can give a practical demo	yes

Paper Abstract (short)
Presentation about OpenLayers & ExtJS JavaScript mapping framework and it's old and new features.

Paper Abstract (long)
HSLayers (http://hslayes.org) is yet another JavaScript Mapping framework developed since 2007, and used by state organizations, cities and in various European projects. You can use it for building rich mapping portals (even some people say, they do not work), as well as use itÕs parts for improving your simple OpenLayers-based map.   Presentation will give you overview about new things in the repository, such as usage of new OpenLayers, LayerSwitcher, OGC OWS manager, usage of OGC WMC for storing the map composition and getting rid of it again, using proprietary JSON format, improvements of the original PanZoomBar and many other features.   We are also trying to simplify the graphical user interface for non-GIS expert user, eliminating unnecessary buttons and inputs, while trying to find the way, how to enable advanced functions to the power-GIS user. Certainly, look and feel of the application is determined strongly by usage of ExtJS.   Big topic was and still is rewriting of HSLayers to Sencha ExtJS 4. Currently ExtJS 3.4 is used, but new components are written using ExtJS 4 in sandbox mode. But is ExtJS 4 the only right way to go?

Topic type		Target Type
Development: new developments in products.		Manager Technical / Developer

Additional Presenters	
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ID Number	150

Name	Marco Negretti
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Paper Title	Implementation of standard web services for GOCE data exploitation
I can give a practical demo	yes

Paper Abstract (short)

The European Space Agency (ESA) with the launch of the GOCE satellite made it possible to study the Earth's gravitational field and estimate the geoid with unprecedented accuracy and resolution on a global scale. In this work first results of the development of some OWS service (WPS, WMS and WCS) for spatio-temporal exploration and exploitation of GOCE and GEMMA (GOCE Exploitation for Moho Modeling and Applications) data is presented.

Paper Abstract (long)

The European Space Agency (ESA) with the launch of the GOCE satellite in 2009 made it possible to study the Earth's gravitational field and estimate the geoid with unprecedented accuracy and resolution on a global scale. In the framework of the GOCE mission a group of experts from Politecnico di Milano, led by Professor Fernando Sans˜, is also involved in order to collect, process and distribute data. Access to GOCE data, through common procedures and standard, can bring significant improvement in many fields of Earth sciences: for this reason it was decided to distribute the data using standard web services as specified by OGC (Open Geospatial Consortium). In this work first results of the development of a WPS (Web Processing Service) for spatio-temporal exploration and exploitation of GOCE and GEMMA (GOCE Exploitation for Moho Modeling and Applications) data is presented. The download query can be made for both global data and local data; in the latter case data can be dynamically interpolated from the WPS on the area and at the resolution defined by the user, or evaluated in correspondence of a set of sparse points provided by user. The GOCE service is implemented with free and open source software, GRASS GIS and pyWPS for WPS service and OpenLayers for the web interface. Furthermore the development of WMS and WCS services is on going; a WFS service, built using MapServer and to be used for the data distribution, will be added soon to improve the ASCII Grid and GeoTIFF formats that are currently available and also a new interpolation algorit based on spherical harmonics will be added too. The service is continuously updated from the point of view of the available data, the calculation procedures and data distribution. Internet site: - http://gocedata.como.polimi.it/ - http://geomatica.como.polimi.it/elab/goce/ - http://geomatica.como.polimi.it/elab/gemma/ - http://www.esa.int/Our_Activities/Observing_the_Earth/GOCE

Topic type		Target Type
Collaboration: data collection, data sharing, open standards.		End User Technical / Developer

Additional Presenters

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ID Number	112

Name	Javier çlvarez
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Paper Title	Innovations in mapping time based data in CartoDB
I can give a practical demo	yes

Paper Abstract (short)

The ability to map live data and share visualizations of data that changes through time is an exciting area of research at CartoDB and we will report on some of the key innovations we have developed.

Paper Abstract (long)

The past few years have seen rapid progress in the territory of temporal data mapping on the web. During the development of CartoDB we have made relevant contributions to temporal mapping in two forms: mapping of real-time datasets and visualization of temporal change over time. Through these two areas of development, CartoDB is giving its users the ability to map live data and share visualizations of data that changes through time.   Publishing maps online that contain real-time or continuously generated data has been a difficult challenge prior to CartoDB. Using the CartoDB technology stack, mappers can store and update data on a PostgreSQL database. Tiles are created from the live data, and tile invalidation is directly linked to database table updates. In this way, CartoDB has made it possible for mobile application developers, online game developers, and other map developers to create dynamically changing maps.   The Life of Trash project (http://blog.cartodb.com/post/38258951298/community-spotlight-life-of-trash) and the Felix Baumgartner map (http://blog.cartodb.com/post/33236163160/a-120-000-feet-freefall-jump-live-map-powered-by) provide simple-yet-powerful examples.   On the other side of temporal data is the ability to replay changes over time. CartoDB's solution to map based temporal data visualizations have come in several forms, largely utilizing HTML5 and D3. Torque (http://cartodb.github.com/torque) for example lets CartoDB users map and replay temporal data with only a few modifications of the code. Since releasing the open source library, we have seen it used by the FCC, by wildlife experts, and by city planners. Here we will showcase how and why people are finding temporal mapping useful on the web.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		People new to open source geospatial Technical / Developer

Additional Presenters	
Name	Javier de la Torre
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ID Number	82

Name	Gabriel Rold‡n
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Paper Title	Inside GeoGit. Decentralized versioning of geospatial data for developers.
I can give a practical demo	yes

Paper Abstract (short)
An introduction to the technical ideas behind GeoGit, for developers and advanced users

Paper Abstract (long)
GeoGit is a Decentralized Version Control System (DVCS) for geospatial data. This presentation introduces the ideas and concepts upon which GeoGit is build, giving insight into its architecture and technical details. It is targeted at developers and technically inclined users interested in understanding the inside of GeoGit and find out where the powerful capabilities of GeoGit come from. In particular, the following ideas will be discussed.   *Structure of a GeoGit repository: How is a repository organized? *Data storage in GeoGit: How is data stored so GeoGit can manage it efficiently? *Differences and similarities with git: A comparison of strategies, with special emphasis on those elements that do not share the same approach as git and are more adapted for the particular case of geospatial data. *Extending GeoGit: From customizing GeoGit with simple hook scripts to adding full new commands or data backends *Scalability and performance. *The GeoGit web API: A discussion about the different ways of interacting with a GeoGit instance.

Topic type		Target Type
Development: new developments in products. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		Technical / Developer

Additional Presenters

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ID Number	95

Name	Hans-Jšrg Stark
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Paper Title	Inspection Service of national Geo-Web Services
I can give a practical demo	yes

Paper Abstract (short)

The inspection service to be presented is an online tool that is available for any service provider in Switzerland and is able to check their own geo-web services on conformity with the National Standard eCH 0056 ("eCH-0056 Profil dÕapplication de gŽoservices") in near real-time. This service is a substantial contribution to the implementation of national spatial data-infrastructures (NSDI). It is completely implemented with Open-source Software and can be adapted to other national profiles. Thus it fosters the economic use of interoperability.

Paper Abstract (long)

The introduction and availability of internationally accepted and valid standards for geo-web services of the OpenGeospatial Consortium (OGC) along with the evolution of national spatial data-infrastructures (NSDI) led to the concept of spatially distributed datasets that are accessible to anyone who is interested and authorised to use the corresponding datasets. As much as the OGC web service standards (OWS) are appreciated and in use as much do both service providers and users struggle with different versions of OWS. Hence the main goal of interoperability suffers from discrepancies. One approach to avoid such discrepancies is to implement national profiles. Such profiles regulate which OWS are supported, which versions shall be used and define many other crucial aspects of web-service interoperability. These regulations are formulated as mandatory or optional guidelines. Mandatory guidelines must be implemented while optional guidelines serve as indices in which direction to move or allow for a certain openness and freedom. This means that for instance for the definition of supported coordinate systems of an OWS the support of one or more coordinate systems are defined as mandatory while other coordinate systems are optional and do not have to be implemented by the service provider. In Switzerland the development of a national profile for OWS was started in 2006 and led to the national standard eCH-0056 ("eCH-0056 Profil dÕapplication de gŽoservices"). This standard is anchored in national law and must be applied on all geodata that is classified as ãnational geo-basis dataÒ. Thus an OWS that deals with data from this classification must also conform to eCH-0056.   In the period 2009/2010 the first version was revised to account for the current state of OWS. Along with this revision the need of a web-based tool that offers an inspection of OWS according to regulations and guidelines defined in eCH-0056 was recognised. In 2011 and 2012 a web-based application as inspection service was developed as research project at University of Applied Sciences and Arts Northwestern Switzerland (FHNW) on behalf of the Federal Coordination, Geo-Information and Services Division (COGIS). This inspection service is available online and can be used free of charge. Any service provider is consequently able to check his own geo-web services on conformity with eCH 0056 in near real-time. The tool was implemented with open source components and is designed to be used by other national bodies or organisations and can be adapted to their own specifications. The tool fosters the interoperability and general use of geo-web services both within federal administration and between administration and industries.

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Collaboration: data collection, data sharing, open standards.		Manager Technical / Developer OpenGeospatial WebService Provider

ID Number	56

Name	David Askov
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Paper Title	Integration of collaborative geospatial data collection and versioning into open source tools for humanitarian assistance/disaster relief.
I can give a practical demo	yes

Paper Abstract (short)

ROGUE (Rapid Open Geospatial User-Driven Enterprise) is a 2-year project funded under the Joint Capability Technology Demonstration (JCTD) Program to add functionality to the OpenGeo Suite to allow users to collaboratively develop geospatial data in a disconnected environment, version the collected data, and create a federated collection of nodes that can search, discover, and display the latest data edits in support of humanitarian assistance and disaster relief efforts.

Paper Abstract (long)

ROGUE (Rapid Open Geospatial User-Driven Enterprise) is a 2-year project funded under the Joint Capability Technology Demonstration (JCTD) Program from the U.S. Department of Defense.   It is scheduled to be completed in July 2014. Technical management is provided by the U.S. Army Corps of Engineers, with OpenGeo and LMN Solutions leading its technical implementation and the Pacific Disaster Center (PDC) serving in the role of project Transition Manager. The projectÕs goal is to improve the abilities of the OpenGeo Suite to ingest, update, and distribute non-proprietary feature data in a distributed, collaborative, and occasionally disconnected environment and then transition it into an operational environment by the end of the project. The charter for the ROGUE JCTD is to enable collaboration on geospatial feature data for distributed organizations and teams.   This is being accomplished through a community effort based on the OpenGeo Suite, GeoNode, and GeoGit. While GeoGit provides data producers with a conduit to collaboratively develop and share geographic data, the GeoNode software is also being enhanced to leverage this capability for the discovery, display and dissemination of the data.   By integrating these capabilities with Pacific Disaster CenterÕs DisasterAWARE platform, the DoD and mission partners are better able to plan, analyze, and collaborate using dynamic map data to support humanitarian and disaster response. PDCÕs DisasterAWARE system presently supports ArcGIS Server REST format, so another aspect of the project is to develop a prototype of the GeoServices REST 1.0 candidate standard (derived from the ÒEsri GeoServices REST Specification Version 1.0Ó) to deliver the content from the OpenGeo Suite to PDCÕs DisasterAWARE. This enables clients to ArcGIS Server REST services to consume map layers from the OpenGeo Suite via this new functionality.   The ROGUE-enhanced OpenGeo suite will be integrated into PDC operations as well as its DisasterAWARE decision support application at the end of the project. This will greatly facilitate collaborative data development and management with key humanitarian assistance and disaster response stakeholder agencies to more effectively support disaster risk reduction activities around the globe.

Topic type		Target Type
Visualization: effective presentation of information. Disaster Response: software, case studies, outcomes.		Manager End User

Development: new developments in products. Collaboration: data collection, data sharing, open standards.	

Additional Presenters	
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ID Number	282

Name	Robin Lovelace
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Paper Title	Interactive visualisation of the energy costs of commuting
I can give a practical demo	yes

Paper Abstract (short)

The energy impacts of commuting are large and highly variable over space, time and technology; this presentation will describe interactive methods for communicating this.

Paper Abstract (long)

Commuting is important due to its ubiquity and consumption of time, money and energy. In the current context of environmental change and concern over finite natural resources, the energy impacts should take centre stage. However, energy is largely intangible due to its invisibility and lack of concrete value, unlike time or money. Energy costs of commuting are rarely studied, much less visualised. This presentation will describe approaches for tackling this issue, in three main stages. First, the power of 'infographics' to commuter energy use compared with baths, showers and other household activities will be illustrated, based on static visualisations producing in the visualisation language processing. Second, time and space elements will be added, using dynamic maps and videos of the changing geography of energy use of commuting, based on 1971 to 2011 Census data and estimates of vehicle fleet efficiencies over time. Finally, interactive online visualisation tools will be showcased: Google Fusion Tables, OpenLayers togglable maps served by a cloud-based GeoServer stack and tools for visualising future change based loosely on the Department of Energy and Climate Change's 2050 tool will be discussed in terms of strengths and weaknesses during an interactive display. These visualisation techniques have been developed during my PhD to more effectively communicate the results to a wider audience.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Collaboration: data collection, data sharing, open standards. Interactive on-line maps		People new to open source geospatial Manager End User

ID Number	296

Name	Scott Clark
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Paper Title	Introduction to GeoGit: Distributed Versioned Editing For Geospatial Features
I can give a practical demo	yes

Paper Abstract (short)

GeoGit is a new open source software project that is designed to allow for multiple individuals to contribute to geospatial feature data while providing versioning, provenance, and support for collaborative workflows.

Paper Abstract (long)

As a reflection of our increasingly connected world, many endeavors involve multiple organizations with a need to share their unique perspectives and expertise. These endeavors also seek to benefit from the wider awareness of internal and external viewpoints. It is widely acknowledged that local knowledge should inform operational decisions, but organizations are still wrestling with how to treat volunteered information versus ÒauthoritativeÓ information. GeoGit is designed to allow for multiple individuals to contribute to geospatial feature data while providing distributed versioning. With this capability we can move into a paradigm that allows for distributed collaboration on geographic data development and management. GeoGit will provide the ability to maintain a history of the changes to geospatial vector data, track who provided the changes, and store comments on the reasons for the changes. GeoGit provides the ability to track and maintain the provenance of the data in a distributed and sometimes connected environment. By combining GeoGit with user-focused applications and portals, we can do this in such a way that the provenance of the data is maintained throughout the process. This talk is targeted at managers, developers, and anyone else wanting an introduction to GeoGit and how it can be used to support collaborative workflows between organizations and individuals. WeÕll cover: * The challenges GeoGit addresses * What GeoGit does * How GeoGit enables workflows allowing collaboration around creating and editing of geospatial data * Short demonstration of GeoGit in action using a web client * How mobile apps complement data collection efforts * The GeoGit roadmap

Topic type		Target Type
Development: new developments in products. Collaboration: data collection, data sharing, open standards.		Manager Technical / Developer

Additional Presenters	
Name	Chris Holmes
Organisation	
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ID Number	171

Name	Mauro Bartolomeoli
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Paper Title	Introduction to MapStore, mashups made simple
I can give a practical demo	yes

Paper Abstract (short)

This presentation will provide an introduction to creating geospatial mashups using the MapStore Open Source framework. The main features are designed to allow a simple and intuitive way to create, save, browse and share maps.

Paper Abstract (long)

This presentation will provide an introduction to creating geospatial mashups using the MapStore Open Source framework. The main features are designed to allow a simple and intuitive way to create, save, browse and share maps using content from sources like Google Maps, OpenStreetMap, MapQuest or WMS and so on.   As a first topic the presentation will provide an introduction to the MapStore framework, describing its main building blocks, with emphasis on the components that allow the storage and management of maps (creation, visualization and sharing).   This presentation will also provide information on how MapStore can be used in real use cases; It will cover the installation and configuration procedures, with emphasis on the main use cases like: -Creation of standard GeoPortals -Embedding MapStore in existing websites -Integration with GeoNetwork portal as an advanced GIS viewer   Eventually, the presentation will provide more detailed information on how a developer can work with MapStore, illustrating the creation of new functionalities by implementing new widgets and plugins.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters	
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ID Number	32

Name	Bart van den Eijnden
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Paper Title	Is there a future for Ext JS in the geospatial arena?
I can give a practical demo	no

Paper Abstract (short)

At FOSS4G CapeTown in 2008 the GeoExt library was born based on Ext JS. Did the future of Ext JS look a lot more promising back then than it does now?

Paper Abstract (long)

At FOSS4G CapeTown in 2008 the GeoExt library was born based on Sencha's Ext JS. A lot of people were enthusiastic back then about Ext JS and were creating their own geospatial classes on top of it. Companies such as CampToCamp and OpenGeo decided to build a shared geospatial library on top of Ext JS and OpenLayers called GeoExt. This saw a lot of uptake in geospatial web sites and web portals in the years after. 5 years later, it seems that the experience that people want from a geospatial website has changed a lot, and the desktop look-a-like experience is not seen as a good thing anymore. Also, with the birth of Ext JS 4, it has become a lot more difficult for libraries to upgrade to that new version of Ext JS which was proved at the GeoExt 2 code sprint in Bonn. This is giving an opportunity to maybe move on to something completely different for the geospatial realm. Also the mobile space has changed the landscape a lot since 2008, and this needs to be taken into account when making choices currently.

Topic type		Target Type
Development: new developments in products. client-side		People new to open source geospatial End User Technical / Developer

ID Number	167

Name	Massimiliano Cannata
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Paper Title	istSOS: a comprehensive user friendly monitoring data system; release 2.0 and latest enhancements.
I can give a practical demo	yes

Paper Abstract (short)
This presentation will show latest software enhancements that includes administration RESTful API and Web Administration Interface for easy management.

Paper Abstract (long)
istSOS (http://istgeo.ist.supsi.ch/software/istsos) is an OGC SOS server implementation the SOS service entirely written in Python for exchanging XML requests and responses. istSOS allows for managing and dispatching observations from monitoring sensors according to the Sensor Observation Service standard. The talk will present the latest software enhancements (version 2.0) that include the availability of a RESTful Web API written in Python for automating administration procedures and wrapping SOS functionalities and a Web graphical user Interface written in HTML/Javascript/CSS that allows for easing daily operations like service administration or data manipulation. The presentation will show a series of case study application and will go trough the details of the new features. istSOS is released under the GPL License, and should run on all major platforms (Windows, Linux, Mac OS X).

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters	
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ID Number	73

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Paper Title	Keep your data & metadata synchronized
I can give a practical demo	yes

Paper Abstract (short)

Exploring use cases where synchronization mechanism between data and their metadata could improve SDI user experience

Paper Abstract (long)

Synchronization of geospatial datasets and their metadata is a key point of today's SDI. In this presentation weÕll explore some use cases where metadata and the described resources interacts. Analyzing the resources, which could be webservices or datasets, could improve both end-user experience (eg. by improving search) and GIS data manager work (eg. by making metadata editing easier). Harvesting OGC services, analyzing datasources for better metadata, metadata crawling, indexing the data to improve search experience are some of the topics covered.   Those examples are based on OGC map servers, Talend ETL, GeoNetwork metadata catalog with Lucene and Tika libraries.

Topic type		Target Type
Case Studies: Relate your experiences.		End User

Additional Presenters	
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ID Number	86

Name	Gergely Havas
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Paper Title	KIRA - Integrated transport database and information system of Hungary
I can give a practical demo	yes

Paper Abstract (short)

Case study of KIRA system development and implementation.

Paper Abstract (long)

Hungarian Transport Administration (KKK) is a background institute of the Ministry of National Development Hungary. Coordinating transport network management and development are two of its main duties.   The purpose of KIRA project is dual. First is to create a common and standardized transport network base map, graph and topology maintained together by responsible organizations and to serve that to everybody (at least Ð as a first step Ð for governmental organizations). Second is to connect and share several standalone databases and registers of transport sector based on the common topological network (road and railway maintenance, traffic, accidents, tourist and bike roads etc.). KIRA is the platform for both. It handles the base map, handles different location referencing methods, converts different data types of several databases to a common platform and distributes them. KIRA is built from open source components and its services are based on JAVA, OGC and W3C standards. Components: database (PostgreSQL, PostGIS, PGagent), application server (Spring Framework, Apache Tomcat, Apache CXF, iText, JExcelApi, GeoTools, GeoServer, Jackson, JAXB), browser client (ExtJS, OpenLayers, Proj4js, Video.js), mobile client (Sencha Touch). Services: WMS, WFS, JSON, SOAP. Preparation of the project took 2 years, development one year (2012) and now the database and community building is going on.

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		Manager Technical / Developer

Additional Presenters

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ID Number	99

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Paper Title	Korea Planning Support System(KOPSS)
I can give a practical demo	no

Paper Abstract (short)

KOPSS (KOrea Planning Support System) is a decision support system for territorial planning, regional planning, urban planning, public facility planning and landscape planning based on geospatial open source technologies and sophisticated analitical methodologies.

Paper Abstract (long)

KOPSS (KOrea Planning Support System) is a computer system to support spatial planning and policy making in a scientific way. Spatial data such as land, building, cadastre, topography have been created since launching national geographic information system development project in 1995 in Korea. On the other hand, spatial planning and policy making need to be scientific and transparent because it should deal with complicated issues and involves various stakeholder in developing, implementing and evaluating process. KOPSS is a computer tool to make decision and policy scientifically in developing spatial planning using geospatial open source technologies and sophisticated analytical methodologies. KOPSS currently has five models for regional planning, land use planning, urban regeneration planning, public facility planning and landscape planning. Each model has adopted its own analytical methodologies. Regional planning support model (REPSUM) diagnoses and monitors balanced development over time across the country by computing spatial patterns of various indicators. REPSUM also locates clusters or hot spots for those indicators. In addition, REPSUM analyzes location quotient based on extended distance and visualizes traffic volumes among regions. Land use planning support model is a tool for reviewing locational conditions, analyzing development potential and supporting population projection, demand calculation for land use types, land suitability analysis and allocation. Urban regeneration planning support model delineates areas to regenerate based on outworn buildings, household density and the rate of very small parcels etc. Public facility planning support model evaluates supply sufficiency of public facilities compared to demand using parcel-based population data, and simulates change between demand and supply for a new facility based on Huff model, and recommends optimized locations to minimize total travel distance. Finally, landscape planning support model analyzes visibility, skyline, view-shaft, sunshine light, blockage ratio etc. for a new land/building development in three dimensional space.   KOPSS complies international standards for interoperability. KOPSS has adopted an open system architecture to be free from a specific tool and provides standard open APIs. In other words, KOPSS is developed based on 3-tier architecture that complies OGC web service standards. WMS(Web Map Service), WFS(Web Feature Service), WCS(Web Coverage Service) are used for map and data services, and analyses service based on Web Processing Service(WPS) makes use of WMS, WFS, WCS and the output of WPS. This indicates that any clients from web-based to desktop complied with those standards can make use of the services. The design of WPS Process is focused on basic functions of GIS, expandability and interoperability rather than business, and intended to link with geospatial information systems such as Korea land information system and urban planning information system. This work intends to facilitate GIS market through inducing GIS engine vendors to join the KOPSS project. Especially, WPS is core of KOPSS that is an interface to make accessible to geo-processing on web and defined to interoperate with any other OGC web service standards. WPS is composed of atomic single process and functions from simple to

complicated analyses are completed and expanded by chaining those atomic services without any restrictions. Individual WPS processes of KOPSS are classified into geometry operator, vector analysis, grid coverage analysis, statistical analysis, and KOPSS model services, and a naming rule is designed to make sense of service type and function just by looking at identifier. Geometry service supports spatial relationship or spatial computation for thin client not equipped with any geometry engine like a web browser. Vector analysis service provides overlay method etc. and grid coverage analysis supports raster analysis for density or topography etc. Statistical analysis provides spatial statistics such as histogram and KOPSS model service is specialized in solving real world problems and can not be composed just by chaining atomic processes. KOPSS is operating on PostgreSQL(+PostGIS) as a spatial DBMS, GeoServer(WMS, WFS, WCS, WPS) as a GIS sever, Spring Framework and OpenLayers as a web client.

Topic type		Target Type
Case Studies: Relate your experiences.		People new to open source geospatial

Additional Presenters	
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ID Number	104

Name	Jachym Cepicky
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Paper Title	LayMan: Tool for the upload-publish data chain
I can give a practical demo	yes

Paper Abstract (short)

Client-Server user-oriented interface for uploading and publishing geodata with help of GeoServer.

Paper Abstract (long)

When user wants to visualise some geospatial data, MapServer or GeoServer are usually used. But how is the data uploaded to the server and loaded into the database? Simple options can be used, such as FTP and manual database loading, or more convenient such as GeoExplorer. LayMan is another one, offering complete web-based UI for human users, REST API for programmers and their applications, and an Access Control System for all who need to separate the work of different users and their groups. It has been integrated with Liferay.   With LayMan, the data is first uploaded to the server in the original format (e.g. ESRI Shapefile or any other). Then, it is loaded into the database (PostGIS or directory) and published with popular mapping server (GeoServer for now, MapServer or any other is considered for the future).   LayMan Client is based on ExtJS 4 JavaScript library and resembles the classical file managers. On one side it provides a list of the uploaded files and on the other side a tree of the published layers.   LayMan Server is written in Python. It offers LayMan REST API to the LayMan Client or to any other interested application. Upon a request, it communicates with authentication authority, filesystem, database and map server as appropriate. It uses the GeoServer REST API and overcomes some of its weak points.   LayMan itself does not include any visualisation part. To show the data, any visualisation client can be used, since at the end of the whole process the OGC WMS is published as a result. HSLayers map client has been proved to work with LayMan nicely. Neither the style editor is included, any existing one can be picked up and used. The old OpenGeo Styler has been proved to work with LayMan well.

Topic type		Target Type
Development: new developments in products.		Technical / Developer

Additional Presenters

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ID Number	220

Name	Paul Ramsey
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Paper Title	LIDAR in PostgreSQL with Pointcloud
I can give a practical demo	no

Paper Abstract (short)

Features and use cases of new LIDAR support for PostgreSQL

Paper Abstract (long)

How do you store massive point cloud data sets in a database for easy access, filtering and analysis? The new PointCloud extension for PostgreSQL allows LIDAR data to be loaded, filtered by spatial and attribute values, and analyzed via integration with PostGIS. We'll discuss the extension implementation, basics of loading data with PDAL, and how to use PointCloud with PostGIS to do on_the_fly LIDAR analysis inside the database.

Topic type		Target Type
Development: new developments in products.		Technical / Developer

ID Number	58

Name	DHONT RenŽ-Luc
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Paper Title	LizMap : Easy QGIS maps publication on the Web
I can give a practical demo	yes

Paper Abstract (short)
LizMap allows to easily publish maps created with QGIS on the Web.

Paper Abstract (long)
Since QGIS-Server has been released, we have built an application to facilitate the publication of maps created with QGIS on the Web. LizMap is OpenSource and based on OpenSource softwares : QGIS and QGIS server for web services and rendering, OpenLayers for building web maps, Jelix a PHP framework, jQuery and Bootstrap for the user interface. The presentation will explain why we chose QGIS-Server and will describe the full publication process. Key features will be presented, as dynamic map respecting QGIS project configuration, html5 responsive interface (mobile friendly), rights management, automatic caching, printing, ediion tool, etc. A quick demonstration will show Lizmap in action.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Development: new developments in products.		Manager End User

Additional Presenters	
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ID Number	66

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Paper Title	Load balancing large number of OSGeo components
I can give a practical demo	yes

Paper Abstract (short)

Through the use of OpenSource HAproxy component, we created a large cluster of PostGIS, Geoserver and GeoWebCache components used as one of the cornerstones of the Croatian NSDI.

Paper Abstract (long)

Croatian State Geodetic Administration required a new Geoportal that would better fulfill its role as one of the corner stones of the national SDI. This Geoportal was developed using mostly Open Source software which consisted of (but not limited to): Geoserver, PostgreSQL/PostGIS, OpenLayers, WordPress CMS and Linux OS. After initial release, it became clear that planned number of users was greatly underestimated. The numbers (around 1000 requests per second on the first day) were a clear proof that there is a great need for fast and reliable access to national spatial data sets and that there is a great public demand for this kind of data A quick system upgrade (both hardware and software) was urgently necessary, but without any significant downtime. As of March 2013, system is constantly serving 320 GB data per day (about 7.5 TB per month), with an average of 19.500 unique visitors each day. Statistics cover the usage of all available services (WMS, WFS, and WMTS) and web page visits. Focus of this case study is best practices while load balancing large number of OSGeo components using in turn freely available software load balancer.. Our previous software load balancing setup which was based on Apache HTTP server and mod_proxy_balancer extension, did not prove suitable for such a large scale deployment, but an alternative solution had to be found. HAproxy is a free TCP and HTTP load balancer, suited for sites under very heavy load and can manage thousands of concurrent connections on a very modest system. Using HAproxy as dedicated HTTP balancer, users gain many benefits, such as: - Protecting Geoserver backends from overloading by imposing service limits -   Defining connection pools for different type of services -   Dividing application layer and service layer -   Better WMS load balancing for GeoWebCache seeding -   Web GUI for easier understanding of load on backend server - Layer 7 health checks with very fast problem detection -   Wide choice of load balancing algorithms In this presentation we will demonstrate: -   Advantages of using HAproxy instead of Apache mod_proxy_balancer -   HAproxy configuration   -   Common pitfalls -   Benchmarks (Apache mod_proxy_balancer, HAproxy)

Topic type		Target Type
Case Studies: Relate your experiences. Benchmarks: Comparisons between packages. Hacks and Mashes: novel solutions to our problems.		End User Technical / Developer

Additional Presenters

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ID Number	360

Name	Steven Citron-Pousty
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Paper Title	Lucene Spatial - the forgotten NOSQL spatial datastore
I can give a practical demo	yes

Paper Abstract (short)
This talk will cover all the cool things you can do with Lucene/Solr spatial

Paper Abstract (long)
Lucene, while a mature and proven technology, has gotten little press in the FOSS geospatial community. What started as a full-text search index solution has grown to also be the basis for Solr and ElasticSearch. Most importantly for our crowd they have added the capability to do spatial queries along with full text queries. In this talk I will give a quick intro to Lucene and surrounding projects, give it's sweet spot for use, and then give a quick code sample on indexing and searching of a document collection. The code will use Java along with Hibernate Search in a simple web application. The plan after is to have you go home with another geospatial storage and search tool in your toolbox.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. Hacks and Mashes: novel solutions to our problems. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager Technical / Developer

Additional Presenters	
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ID Number	126

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Paper Title	Machine learning for remote sensing : Orfeo ToolBox meets OpenCV
I can give a practical demo	yes

Paper Abstract (short)

This talk will present the recent advance in machine learning capabilities for remote sensing with the Orfeo ToolBox. While supervised classification of satellite images was essentially relying on libSVM in previous OTB version, a more generic modelisation of machine learning algorithms has been developed in OTB trunk. This modelisation allows to encapsulate all machine learning algorithms from OpenCV in addition to libSVM. A factory pattern allows to save trained algorithms parameters and automatically load the file into the appropriate algorithm. This extends greatly the set of available algorithms and allows for joint training of multiple algorithms for instance.

Paper Abstract (long)

Orfeo ToolBox is an open-source library developed by CNES in the frame of the Orfeo program since 2006, which aimed at preparing institutional and scientific users to the use of the Very High Resolution optical imagery delivered by the Pleiades satellites. It is written in C++ on top of ITK, a medical imagery toolkit, and relies on many other open-source libraries such as GDAL or OSSIM. The OTB aims at providing generic means of pre-processing and information extraction from optical satellites imagery. In this talk, we will focus on recent advances in the machine learning functionality allowing to use the full extent of OpenCV algorithms.   Historically, supervised classification of satellite images with OTB mainly relies on libSVM. The Orfeo ToolBox provides tools to train the SVM algorithm from images and raster or vector training areas, to use a trained SVM algorithm to classify satellite images of arbitrary size in a multithreaded way, and to estimate the accuracy of the classification. The SVM algorithm has also been used for other applications such as change detection or object detection. But even if it is one of the most used function of the OTB, the supervised classification function did not offer a single alternative to the SVM algorithm.   However, the open-source world offers plenty of implementations of state-of-the-art machine learning algorithms. For instance OpenCV, a computer vision C++ library distributed under the BSD licence, includes a statistical machine learning module that contains no less than height different algorithms (including SVM). We therefore created an API to represent a generic machine learning algorithm. This API can then be specialized to encapsulate a given algorithm implementation.   The machine learning algorithm API assumes very few properties for such algorithms. A method has to be specialized to train the algorithm from a samples vector and a set of target labels or values, and another to predict labels or values from a samples vector. Thanks to templating, these methods handle both classification and regression. Two other methods are in charge of saving and loading back the parameters from training. File format for saving is left to the underlying implementation, and the load method is expected to return a success flag. This success flag is used in a factory pattern, designed to be able to seamlessly instantiate the appropriate machine learning algorithm specialization upon file reading. It is therefore not necessary to know which algorithms the trained parameters files refer to.   This new set of classes has been embedded into a new OTB application. Its purpose is to train one of the machine learning algorithm from a set of images and GIS file describing training areas, and output the trained parameters file. Another application is in charge of reading back this file and applying the classification algorithm to a given image. With these two tools, it is very easy to train different algorithms against the same dataset, evaluate them with the

help of another application which can compute confusion matrix and classification performances measurement so as to choose one or several best algorithm along with their parameters. The resulting classification maps could then be combined into a more robust one using yet another OTB application, using classes majority voting or Dempster-Shafer combination.   Our perspectives for using and improving this new API are manyfold. First, we would like to investigate further the use of the regression mode. We also would like to investigate the performances of the new machine learning algorithms for other tasks achievable with OTB, such as object detection for instance. Last, we would like to evolve the API so as to export any confidence or quality indices an algorithm can output regarding its predictions. This would open the way to the implementation of new active learning tools.

Topic type		Target Type
Development: new developments in products.		End User Technical / Developer

Additional Presenters	
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ID Number	52

Name	Claus Nagel
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Paper Title	Management of 3D city models in PostGIS with the 3D City Database
I can give a practical demo	yes

Paper Abstract (short)

The award winning 3D City Database is a free 3D geo database to store, represent, and manage virtual 3D city models on top of a standard spatial relational database. The database model contains semantically rich, hierarchically structured, multi-scale urban objects facilitating complex GIS modeling and analysis tasks, far beyond visualization. The 3D City Database comes with additional software providing easy data exchange or facilitating coupling with cloud services. The 3D City Database content can be directly exported in KML and COLLADA formats for the visualisation in a broad range of applications like Google Earth, ArcGIS and ArcGIS Explorer.

Paper Abstract (long)

The 3D City Database is an open source project under LGPL v3 and a free and powerful geodatabase solution to store and manage virtual 3D city models. Its relational database schema is derived from the data model of the international OGC standard CityGML and is set on top of a spatial database management system. CityGML has become a key interface for describing the semantics, appearance, geometry and topology of city and landscape models. It is predestined to represent and exchange data in fields of city planning, environmental analysis, simulation, facility management, marketing or political issues and civic participation. The impact of CityGML can be seen in other recent data models referring to 3D urban information modeling as they were designed in close adherence to the OGC standard, e.g. (INSPIRE Building 3D (Europe), IMGeo (Netherlands), AdV-CityGML (Germany). Along with the schema comes a high performance and efficient Java-based application for converting CityGML datasets independent from file size and complexity in both directions. The software also supports exports into the OGC standard KML and offers numerous options to customize the visual output and the presentation of information (balloons). A plugin API facilitates the development of additional functionalities e.g. other export formats, continuation workflows etc. Even though the database represents the CityGML data model it is not necessarily restricted to this kind of data. The database content can also be transformed into different 3D graphics and geodata formats like 3ds, Shape 3D or dxf (e.g. with FME). Thus, the 3D City Database renders a core component for integrating and distributing data for various use cases in the context of urban information modeling. Due to these strengths it has been embedded into several workflows of academic and commercial projects in the past years ranging from desktop applications to web access via OGC web services (WMS, WFS, W3DS). The development of the 3D City Database was led by the Department for Geodesy and Geoinformation Science (IGG) at the Technische UniversitŠt Berlin under the supervision of Prof. Dr. Thomas H. Kolbe, one of the fathers of CityGML. Since last summer the 3D City Database is also available for PostgreSQL/PostGIS, after having supported Oracle Spatial exclusively in former years (the software also won the Oracle Spatial Excellence Award for Education and Research in 2012). Regarding the still quite limited choice of tools to exchange and analyze 3D spatial data in PostGIS, the 3D City Database provides an efficient solution for the management of virtual 3D models. In 2013, the open source project has been brought to a new level. As the 3D City Database is used by companies to build up 3D spatial infrastructures in national cadastres and several european cities the idea arose to connect the developers working on this project in order to share tasks and accelerate the

progress of the software. This February Prof. Kolbe (now with the Technische UniversitŠt MŸnchen) and the companies M.O.S.S. and virtualcitySYSTEMS signed a cooperation agreement to steer the future development of the 3D City Database.   Other companies and individuals who are interested in the 3D City Database or already using it are invited to send their ideas, feature requests, bug reports etc. to 3dcitydb@lrz.tum.de. The code repository can be accessed at www.3dcitydb.net.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products. New data: handling new data models, for example 3D & temporal data, or big data. Database		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters	
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ID Number	25

Name	Astrid Emde
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Paper Title	Mapbender3 - Create your own Geoportal Web Application and Service Repository
I can give a practical demo	yes

Paper Abstract (short)
Get to know the web based geoportal framework Mapbender3 to administrate and view spatial services.

Paper Abstract (long)
Mapbender3 is a client framework for spatial data infrastructures. It provides web based interfaces for displaying, navigating and interacting with OGC compliant services.   Mapbender3 has a modern and user-friendly administration web interface to do all the work without writing a single line of code. Mapbender3 helps you to set up a repository for your OWS Services and to create indivdual application for different user needs.   The software is is based on the PHP framework Symfony2 and integrates OpenLayers, MapQuery and JQuery.   The Mapbender3 framework provides authentication and authorization services, OWS Proxy functionality, management interfaces for user, group and service administration.   In the presentation we will have a look at some Mapbender3 solutions and find out how powerful Mapbender3 is!   You will see how easy it is to publish your own application. http://mapbender3.org http://demo.mapbender3.org

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products.		People new to open source geospatial Manager End User Technical / Developer

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ID Number	381

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Paper Title	MapCache: The fast tiling server from the MapServer project
I can give a practical demo	yes

Paper Abstract (short)

MapCache is a fast and featureful library allowing webservers to efficiently serve and manipulate tiles, and transparently speedup access to existing WMS instances.

Paper Abstract (long)

MapCache is a new member in the family of tile caching servers. It aims to be simple to install and configure (no need for the intermediate glue such as mod-python, mod-wsgi or fastcgi), to be (very) fast (written in C and running as a native module under apache or nginx, or as a standalone fastcgi instance), and to be capable (services WMTS, googlemaps, virtualearth, KML, TMS, WMS). When acting as a WMS server, it will also respond to untiled requests, by merging its cached tiles vertically (multiple layers) and/or horizontally.   Multiple cache backends are included, allowing tiles to be stored and retrieved from file based databases (sqlite, mbtiles, berkeley-db), memcached instances, or even directly from tiled TIFF files. Support of dimensions allows storing multiple versions of a tileset, and time based requests can be dynamically served by interpreting and reassembling entries matching the requested time interval. MapCache can also be used to transparently speedup existing WMS instances, by intercepting getmap requests that can be served by tiles, and proxying all other requests to the original WMS server.   Along with an overview of MapCache's functionalities, this presentation will also address real-world usecases and recommended configurations.

Topic type		Target Type
Development: new developments in products. Hacks and Mashes: novel solutions to our problems. New data: handling new data models, for example 3D & temporal data, or big data.		End User Technical / Developer

ID Number	281

Name	Robert Graham
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Paper Title	MapCollaborator Ð Shared Data Made Easy
I can give a practical demo	yes

Paper Abstract (short)
This presentation proposes to explain, discuss, and demonstrate the open source infrastructure supporting MapCollaborator, a highly customizable map wiki that allows organizations to crowdsource a wide range of geographic data and related information.

Paper Abstract (long)
MapCollaborator is a highly customizable map wiki developed by GreenInfo Network that allows organizations to collect a wide range of geographic data and related information from any interested user. Using an intuitive interface with simple, guided steps, invited users or the general public can review data, post notes, draw new features, edit over current features, or upload GIS files for immediate display. The MapCollaborator platform utilizes a variety of open source geospatial tools. The applicationÕs foundation is constructed using a PostGIS database, MapServer WMS/WFS layers and GeoJSON for dynamic data, TileCache layers for static data, OpenLayers for map display and feature editing, and the OGR Python API for file handling. These components are wrapped in a CodeIgniter MVC web framework to create an extensible, repeatable deployment that adapts to specific project needs.   This presentation proposes to explain and discuss the open source infrastructure supporting MapCollaborator and demonstrate examples of its use. Each instance of MapCollaborator is its own Edition, tailored to the complexity of the data and customized to meet the requirements of its particular project. An example implementation of the platform is the Anza Trail Edition (http://www.mapsportal.org/mapcollab_anza/), which facilitates Trail Partners such as agencies, non-profits, and volunteers to assist the National Park Service in documenting recreational trails and resources along the Anza National Historic Trail in Arizona and California. Database edits and additions collected through MapCollaborator are reviewed by project managers via a robust custom administrative interface that allows reviewers to approve, archive, or delete edits as well as download data summaries, track application activity, and generate emails to participants. By melding the best of open source GIS and web development tools, GreenInfo has created a versatile and intuitive application framework that can support the collaborative development and review of almost any kind of spatial dataset.

Topic type		Target Type
Case Studies: Relate your experiences. Hacks and Mashes: novel solutions to our problems. Collaboration: data collection, data sharing, open standards.		End User Technical / Developer

ID Number	265

Name	Pirmin Kalberer
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Paper Title	Mapfish Appserver
I can give a practical demo	yes

Paper Abstract (short)
Feature-rich Web GIS based on standard protocols

Paper Abstract (long)
Mapfish Appserver is a platform for building web mapping applications using OGC standards and the Mapfish REST protocol. Customizable viewers from minimal mobile viewers to full featured map portals for public administrations like maps.zh.ch share a service and administration backend. Maps can be created by importing UMN Mapserver map files or QGIS projects. The generated legends and info tables are customizable and extendible with the underlying development framework. Other features are multi site capabilities, rich digitizing and editing tools, embeddable Jasper reports, complex search functions, fine grained access control and more.

Topic type		Target Type
Development: new developments in products.		Manager End User Technical / Developer

ID Number	68

Name	Elisabeth Leu
Organisation	Camptocamp SA
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Paper Title	MapFish Framework
I can give a practical demo	yes

Paper Abstract (short)

OSGeo WebGIS 2.0 Framework

Paper Abstract (long)

The MapFish framework allows to build rich Web GIS Applications in an easy and flexible way. It combines some of the best Open Source Tools in one framework: OpenLayers 2, ExtJS3 and GeoExt4 on the client side, and MapFish print, Ruby or Python modules (especially Papyrus based on Pyramid) on the server side. Besides the OGC-Standard web services, a MapFish protocol adapted to the efficient communication between Client and Server is available.   On this basis, complex and high performance web mapping applications have been built. Among them, one MapFish-based project will be presented in more detail in order to show the power of the MapFish Framework: the c2cgeoportal is a complete WebGIS with large set of tools and configuration options. Since its beginning, the plug-in based architecture makes each application unique and adapted to the specific use case.   The presentation gives a general overview of the MapFish Framework and demonstrates its possibilities with the c2cgeoportal implementation.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products. Hacks and Mashes: novel solutions to our problems. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User

Additional Presenters	
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ID Number	202

Name	Nicolas Bozon
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Paper Title	MapMint: An innovative SDI authoring platform based on FOSS4G
I can give a practical demo	yes

Paper Abstract (short)
MapMint: Never write mapfiles again ! Tips and tricks for playing with OGC standards using FOSS4G (MapServer, ZOO-Project, GDAL,OpenLayers)

Paper Abstract (long)
Mapmint is an Internet platform dedicated to the management, processing and publication of geographic data. Based on a collection of C/Python/JavaScript open source geospatial software, MapMint combines and orchestrates various OGC and W3C services and provides a complete administration interface for the use of use MapServer, GDAL/OGR and OpenLayers together online. The purpose of this conference is to present MapMint and its main functions. The first part will be devoted to describing its innovative architecture and the interactions between advanced WPS, WFS, WMS and WMTS services. The administration interface will then be presented, particularly the automatic and visual creation of MapServer mapfiles (WYSIWYG) and the advanced configuration and publication of webmapping applications. Examples of MapMint use in production will be shown to illustrate the conference.

Topic type		Target Type
Business Cases: building the economic case. Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters	
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ID Number	84

Name	Georges Thierry Handja
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Paper Title	Mapping for Rights
I can give a practical demo	yes

Paper Abstract (short)

Rainforest Foundation UKÕs participatory mapping programme allows forest communities to secure rights to the lands on which they depend, more recently with the adoption of open source GIS technologies for data storage, presentation and remote surveying.

Paper Abstract (long)

Over the last ten years, Rainforest Foundation UKÕs participatory mapping programme has demonstrated that forest communities are capable of accurately defining the lands they occupy and use, with the help of geo-technologies, and that they can use this information to gain more secure rights to forest land and resources on which they depend.   Our programmes have worked in Cameroon, Central African Republic (CAR), DRC, Gabon and the Republic of Congo. They have trained over 200 mapping facilitators and 40 GIS technicians from NGOs and government in participatory approaches; and trained over 1,000 local community mappers. To date, these people have supported over 300 forest communities to produce fully geo-referenced maps, covering over two million hectares of forest.   During those years, communities were trained to use GPS units for data collection, and their maps were produced using proprietary GIS software which were very expensive in terms of initial and ongoing maintenance costs. All the data collected from various sources were stored on local computers and only a limited backup strategy existed. Due to the use of un-verified software packages, data were prone to corruption or loss as a result of computer viruses. In addition, it was not possible to effectively quality assure the data.   Since 2009, The Rainforest Foundation with the support of Lutra Consulting have started to adopt open source GIS software. PostGIS is now used to centrally store all background and survey data including legacy data collected up until 2005. The GIS infrastructure was set up in a way which allows a data administrator to more easily follow QA procedures for the surveyed data.   A WebGIS platform was developed (based on MapServer) to present the verified data with uniform symbology and allow end-users to easily generate hard-copy maps through the project website.   More recently, to facilitate field survey, an Android application was developed based on Quantum GIS (QGIS). The application features a heavily simplified, pictorial user-interface, allowing users with minimal training to operate survey devices. 500 villages will be surveyed using GPS-enabled Android devices and the results uploaded securely into the PostGIS database from the field.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User

Additional Presenters

Name	Peter Wells
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ID Number	205

Name	Nicolas Bozon
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Paper Title	Mapping open data with open source software
I can give a practical demo	yes

Paper Abstract (short)

A generic method to map opendata using MapServer, OpenLayers and other FOSS4G tools

Paper Abstract (long)

The trend towards the liberation of public data, otherwise known as "opendata", means that anyone can access and use certain amount of gegraphic data freely. Those are progressively being released by regional and states gorvernements but also by local communities, and are thus heterogeneous and available in various formats and/or APIs (shp, mif, kml, csv, json, osm, tif...). This conference aims to present general methods to map the territories or 'extents' released onto the web, according to a standardized framework (OGC and W3C standards) which can be duplicated for any type of territory or GIS data (vectors, rasters, tiles...). The various stages of the mapping work will be explained and examplified. Technical details will be given about the Mapserver and Openlayers techniques used for the cartographic rendering. A live demonstration of an application based on such a method and using the Ordance Survey open datasets combined with some OpenStreetMap will also be shown.

Topic type		Target Type
Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User Technical / Developer

ID Number	214

Name	Oliver Tonnhofer
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Paper Title	MapProxy Ð Past, Present, Future
I can give a practical demo	yes

Paper Abstract (short)

How did MapProxy evolve from a simple tile cache software to a powerful and flexible proxy solution for maps, and new what features are ahead.

Paper Abstract (long)

More than three years ago MapProxy started as a small tile cache with the ability to serve regular WMS clients. MapProxy grew from that to a powerful and flexible proxy for maps. Features like the security API, the ability to reproject tiles, support for coverages from Shapefiles or PostGIS and the various tools are just a few things that make MapProxy to stand out.   MapProxy is used in countless projects Ð by federal or state agencies and institutions, by universities, students and hobbyists, by small, national and international companies Ð all around the world. It is used to combine multiple WMS services to one, make WMS servers available in tiled clients or to restict access to georaphic boundaries.   This presentation will show you the most important features that were added to MapProxy in the last years. All features will be explained with practical use cases.   Topics: - Cascading WMS: combine multiple heterogeneous WMS services to one, with coverages and unified FeatureInfo   - Tiling: create Google Maps/OpenStreetMap compatible tile services from WMS services that do not support the web mercator projection   - Tiling: reproject tiles from web mercator to a local projection   - Security: give users access to single layers, restricted to user-dependent polygons   - Render server: directly integrate MapServer or Mapnik into MapProxy   - Tools: calculate scales, estimate the number of tiles, read capabilities, re-seed areas, ...   This presentation will also be about the future of MapProxy and the road to version 2.0.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products.		Technical / Developer

ID Number	26

Name	Audrey Malherbe
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Paper Title	Mappy-ng Open Source
I can give a practical demo	no

Paper Abstract (short)

Feedback on the overhaul of the mapping engine of Mappy around Mapnik and PostGIS

Paper Abstract (long)

Mappy is an online mapping company based in France and fully-owned by Solocal Group (PagesJaunes). Mappy was the pioneer in online mapping in France, and holds a significant market share in France and Belgium (about 10 millions monthly users). The company has developed an home-made LBS platform since 1998. The mapping service delivers 100 millions tiles a day.   At the beginning of 2012, Mappy decided to redesign its core mapping service to meet new business challenges. The company needed a more standard and open source solution. Developers and product managers have fallen in love with Mapnik (some for code and performance, others for the map display quality). The team made the decision to build the new mapping service around Mapnik and others open source tools like PostGIS. The project was challenging : we switched from a MSSqlServer database/home made mapping engine/Windows architecture to a postgis database/mapnik engine/Linux one. During the development, we've seen and appreciated the energy around Mapnik and we started to gradually dive into code and contribute to some features.   This talk will present a feedback on the overhaul : the functional and technical challenges, the decision to contribute to Mapnik project, the release of this service, its performance and the future roadmap.

Topic type		Target Type
Case Studies: Relate your experiences.		People new to open source geospatial Manager Technical / Developer

ID Number	309

Name	Seth Girvin
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Paper Title	MapRoad Pavement Management System - A Cross Platform GIS Roads Management Toolkit
I can give a practical demo	yes

Paper Abstract (short)

The MapRoad Pavement Management System supports the monitoring and management of 90,000km of Irish roads via an integrated desktop, web, and smart mobile solution. The web solution is built on open source software combined with existing proprietary databases and desktop GIS allowing minimum disruption to workflows during development and rollout. Open standards are used to communicate between different system components.

Paper Abstract (long)

The MapRoad Pavement Management System supports the monitoring and management of 90,000km of Irish roads via an integrated desktop, web, and smart mobile solution. The web solution is built on open source software combined with existing proprietary databases and desktop GIS allowing minimum disruption to workflows during development and rollout. Open standards are used to communicate between different system components.   The overall system allows assessments including routing, feature editing and attribution, with time period based visualisation. The smart mobile solution operates on Android tablets and facilitates rapid visual inspection of the road surface, with offline data editing, and, when signal allows, automated synchronisation to back-office systems. The solution allows effective planning of road management and work tasks at both local authority and national level. An online ticketing system and information portal website are available to users of the system. A critical part of the development process was to clean up the existing roads dataset. This was achieved using open source Python libraries to review and fix networking errors. The clean dataset allowed routing to be carried out on the web system using code based on the open source NetworkX Python library.   Although developed and implemented in the Irish context, MapRoad PMS is an example of technology allowing more to be done with less, freeing up the user to optimise their working day, and allowing decision makers quicker access to data in a readily accessible format.   This paper will examine the challenges involved in delivering this cross platform system and examine the readiness and benefits of open source geospatial software. While the context is roads the message throughout the paper will be that open source really works in the workflow chain from data capture all the way through to decision making. Keywords during presentation: workflow, open source, mobile GIS, implementation, android, data accessibility, routing, reporting, standards.

Topic type	Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Visualization: effective presentation of information. Collaboration: data collection, data sharing, open standards.	People new to open source geospatial Manager End User Technical / Developer

Additional Presenters	
Name	Andy Day
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ID Number	53

Name	Daniel Morissette
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Paper Title	MapServer Project Status Report - Meet the developers!
I can give a practical demo	no

Paper Abstract (short)

This session starts with a status report of the MapServer project, followed by an open question/answer session to provide a opportunity for users to interact with members of the MapServer project team.

Paper Abstract (long)

This session starts with a status report of the MapServer project, followed by an open question/answer session to provide a opportunity for users to interact with members of the MapServer project team. We will go over the main features and enhancements introduced in MapServer 6.2 and 6.4, including the addition of the new TinyOWS and MapCache components, the current and future direction of the project, and finally discuss contribution opportunities for interested developers and users.   DonÕt miss this chance to meet and chat face-to-face with the members of the MapServer project team!

Topic type		Target Type
Development: new developments in products. OSGeo Software project report		End User Technical / Developer

Additional Presenters	
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ID Number	93

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Paper Title	MapServer REST API
I can give a practical demo	yes

Paper Abstract (short)

Presentation of a REST API for MapServer

Paper Abstract (long)

MapServer doesn't have any build-in administration tool. MapServer REST API has been designed to manipulate the mapfile from HTTP requests (GET, POST, PUT, DELETE) based on RESTFul URL patterns. The presentation will show the basic concepts of the API, based on GeoServer REST API, and will make a live demo of managing a mapfile content with HTTP requests.

Topic type		Target Type
Hacks and Mashes: novel solutions to our problems.		Technical / Developer

ID Number	36

Name	Briana Sullivan
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Paper Title	Mash it up: A Better Way to Obtain, Visualize and Interact with Nautical Chart Corrections
I can give a practical demo	yes

Paper Abstract (short)

Nautical chart corrections are just one of the many types of geospatial data that can be found in the World Wide Web. Corrections for charts are useless without the actual chart, so why not view them that way? With a mash up using Google Maps called ChUMª (Chart Update Mashup), not only can the corrections be displayed in conjunction with the chart, but interacting with the data becomes intuitive, fast and insightful.

Paper Abstract (long)

Nautical chart corrections are just one of the many types of geospatial data that can be found in the World Wide Web. However finding the corrections and using the data can prove to be a challenge even for a regular user.   The U.S. Coast Guard (USCG) distributes the chart corrections weekly via a PDF document called the ÒLocal Notice to MarinersÓ. The first challenge is finding this data. After doing a Google search for Òlocal notice to marinersÓ three options show up: navcen.uscg.gov (USCG Navigation Center - NavCen), msi.nga.mil (US NGA Notice to Mariners) and ocsdata.ncd.noaa.gov (The Office of Coast Survey - OCS). All of these have at least some of the Local Notice to Mariners on their site. We focus on the USCG NavCen and the OCS websites. The USCG Navigation Center website for the Local Notice to Mariners displays a map of the United States with clickable districts. Clicking on the desired district will navigate to a page listing all of the weekly notices for that district for the current calendar year. Archived notices are on a separate page which lists one link for each year of notices; which leads to another list of links containing a .zip archive file for each district. Each compressed file can be anywhere from 12-98 megabytes (the weekly PDF file is typically 1-1.5 megabytes)! Luckily, there is an easier way to get just the critical chart corrections that are in the PDF by visiting the website for the Office of Coast Survey. Typing Òchart correctionsÓ in the search bar will list the Chart Updates page, which will show the disclaimer for use and a button ÒGo to Chart UpdatesÓ. When clicked, this will show the terms and conditions and clicking ÒacceptÓ will produce a form that asks for a chart number. If the chart number is not known then a link is provided to help with chart selection called ÒPaper/RNC CatalogÓ. A Google Maps mashup for the chart catalog is then available to help find the desired location/chart. When the desired area is selected a chart number is highlighted from a list of charts then links (listed lower down) for that chart are updated. The Òview onlineÓ link opens the chart in a new window; Ònotice listingÓ will display the chart corrections for the selected chart. Finally, the data is found! However, corrections to a chart are useless without the actual chart, and viewing the corrections in a separate window from the actual chart isnÕt much help either. Ideally, viewing the correction on top of the chart in a geo-referenced environment would be the best way to present this kind of data.   The chart corrections section in the .pdf version of the Local Notice to Mariners displays the data in a tabular/paragraph format. All of the chart details are listed in a tab-delimited format then there is a list of the type of correction with a latitude and longitude position. The HTML OCS chart corrections are displayed in a table with the chart details at the top of the table and the corrections to the chart listed in each row of the table. Additionally, this data is available in a tab-delimited text file. Access to historical data is also available by adding a date to a field below the table and fetching the new updates since that date. None of this data can be interacted with. There are links at the top of

each row that it seems should sort the column, however, all the links just point to the same page explaining the headers for each column in the table. The solution to the problems relating to obtaining, visualizing and interacting with the nautical chart update data can be found with one easy tool: ChUMª, the Chart Update Mashup. ChUMª is a Google Maps mashup that not only displays the corrections in conjunction with the chart, but allows for intuitive interaction with the data. ChUMª leverages the power of three open-source tools: Google Maps, DataTables and the Nautical Charts API. The Google Maps interface is well-known by the general public so additional components that were created maintain the look and feel of the default map controls. Markers were created to represent updates to the chart; they are color coded depending on the type of update they represent. DataTables is a plug-in for the jQuery Javascript library which is a Òhighly flexible toolÓ that allows for the data in a table to be sorted, filtered, and linked to associated markers overlaid in Google Maps. The NauticalChartsAPI is used to overlay the nautical charts in the Google Maps environment. When used together, dynamically overlaying charts and their updates in a geo-referenced interactive environment becomes a reality.

Topic type		Target Type
Visualization: effective presentation of information. Hacks and Mashes: novel solutions to our problems.		End User Technical / Developer

ID Number	107

Name	Jan De Moerloose
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Paper Title	Mashing up drawing tools and GIS in the browser with Geomajas Graphics
I can give a practical demo	yes

Paper Abstract (short)
Learn more about the Geomajas Graphics project and how it can be used to add neat redlining to your map.

Paper Abstract (long)
The increasing demand for cool map annotations and redlining on one hand and the absense of solid web based drawing solutions on the other hand triggered the Geomajas community to release the Graphics project. The lead engineer will provide insight in the capabilities of the Graphics project, its structure, the license and the technologies used like GWT Graphics, SVG, VML and canvas.   We will demonstrate powerpoint-style drawing capabilities and mash it up in a hands-on exercise!

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		Manager Technical / Developer

ID Number	122

Name	Jonas Lund Nielsen
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Paper Title	Migration to open source database systems
I can give a practical demo	no

Paper Abstract (short)

The Danish Geodata Agency has had a positive experience changing a major part of its data distribution to open source databases and services, PostGIS, Mapserver and Geoserver.

Paper Abstract (long)

Changing data distribution from one relational database system to another should be an easy task. SQL is a standardized database language and concepts concerning spatial data is much the same through OGC standards. Still, some tasks has to be done in a slightly different manner. The Danish Geodata Agency decided to explore changing a major part of its data distribution from a commercial Oracle Spatial database to an open source PostGres/PostGIS database. A pilot project was set up to evaluate PostGIS as a productive distribution database accessed by a lot of users through open source services. Experiences were positive and the pilot system was upsized to a full scale production system. The database setup is designed to facilitate sufficient performance and ensure constantly running service. Databases and services are replicated and a master-slave relation is established between the databases to ensure immediate copying when new data are transferred from the authoritative database. A special challenge was the change-over from the old system to the new one while services were still running. New data are copied on a daily basis. Old and new system were run in parallel for a short while to be sure that the new system was stable. The change-over has mainly been done by inhouse employees, which were non-specialists in open source products. Documentation and expert service companies are available if help is needed. Experiences are positive.

Topic type		Target Type
Case Studies: Relate your experiences.		People new to open source geospatial Technical / Developer

Additional Presenters	
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ID Number	4

Name	Age Nielsen
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Paper Title	Migration to open source database systems.
I can give a practical demo	yes

Paper Abstract (short)

The Danish Geodata Agency has changed a major part of its data distribution to open source databases and services, PostGIS, Mapserver and Geoserver.Experiences are positive. Performance and stability are comparable to commercial systems.

Paper Abstract (long)

Changing data distribution from one relational database system to another should be an easy task. SQL is a standardized database language and concepts concerning spatial data is much the same through OGC standards. Still, some tasks has to be done in a slightly different manner.   The Danish Geodata Agency decided to explore changing a major part of its data distribution from a commercial Oracle Spatial database to an open source PostGres/PostGIS database. A pilot project was set up to evaluate PostGIS as a productive distribution database accessed by a lot of users through open source services. Experiences were positive and the pilot system was upsized to a full scale production system.   The database setup is designed to facilitate sufficient performance and ensure constantly running service. Databases and services are replicated and a master-slave relation is established between the databases to ensure immediate copying when new data are transferred from the authoritative database.   A special challenge was the change-over from the old system to the new one while services were still running. New data are copied on a daily basis. Old and new system were run in parallel for a short while to be sure that the new system was stable.   The change-over has mainly been done by inhouse employees, which were non-specialists in open source products. Documentation and expert service companies are available if help is needed. Experiences are positive. The Danish Geodata Agency decided to explore changing a major part of its data distribution from a commercial Oracle Spatial database to an open source PostGres/PostGIS database. A pilot project was set up to evaluate PostGIS as a productive distribution database accessed by a lot of users through open source services. Experiences were positive and the pilot system was upsized to a full scale production system.

Topic type		Target Type
Case Studies: Relate your experiences.		People new to open source geospatial Technical / Developer

Additional Presenters

Name	Jonas Lund Nielsen
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ID Number	30

Name	Bart van den Eijnden
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Paper Title	Mobile development with OpenLayers, Sencha Touch and PhoneGap
I can give a practical demo	no

Paper Abstract (short)

In this presentation we will share our experiences of working with OpenLayers for mobile applications, in combination with the Sencha Touch framework and PhoneGap.

Paper Abstract (long)

We will discuss some of the experiences we (Camptocamp and OpenGeo) had whilst developing several mobile applications with OpenLayers 2 in combination with Sencha Touch. Some applications also used PhoneGap to create real apps. Among the topics that will be discussed: -approaches for feature selection -the OpenLayers tile manager -offline tiles (async layer) with PhoneGap

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products.		Technical / Developer

Additional Presenters

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ID Number	170

Name	Matteo Gismondi
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Paper Title	MOLUSCE Ð An open source land use change analyst
I can give a practical demo	yes

Paper Abstract (short)

A Quantum GIS plugin called MOLUSCE (Modules for Land Use Change Evaluation) is currently under development. MOLUSCE is a tool for analysing, modelling and simulating land use changes.

Paper Abstract (long)

Open source software platforms are progressively becoming widely used in the public and private sectors. In GIS (Geographical Information System), open source software packages such as Quantum GIS are actively being developed. More importantly, customization and further development is possible since developers create specific plugins with flexibility.   Asia Air Survey Co., Ltd is currently developing MOLUSCE (Modules for Land Use Change Evaluation), a user-friendly plugin for a Quantum GIS. MOLUSE is designed to analyse, model and simulate land use changes. The plugin incorporates well-known algorithms, which can be used in land use/cover change analysis, urban analysis as well as forestry applications and projects.   MOLUSCE is well suited to: analyse land use and forest cover changes between different type periods; model land use transition potential or areas at risk of deforestation; and simulate future land use and forest cover changes   Currently, MOLUSCE is computing land use change analysis effectively. The plugin performs the same type of analysis as other proprietary software. However, sub-modules for computing land use transition potential modelling and simulation are currently undergoing testing and development.   MOLUSCE was officially released to the public during the FOSS4G Japan meeting (3-5 November 2012) with a presentation during the main day event. Despite the relatively short time from the official release, the plug-in has already created a widespread interest of international recognized companies in AAS as one the first Japanese companies to embrace FOSS and engage in such a valuable project.   The plugin incorporates the following sub-modules: Input Sub-module Land use maps from different epochs and biophysical and socio-economic driving factor data such as the road network, rivers, topography, population etc. are loaded in the Input Sub-model. Area Change Sub-module Computes quantitative land use changes between the initial and final land use/cover maps. Land use change transition matrices as well as land use change maps are computed. Sample data Sub-module Randomly selects user-specified sample points, which will be used for model calibration and validation Define Model Sub-module Four modelling methods are supported: Artificial Neural Networks (ANN), and Logistic Regression (LR), Multi-Criteria Evaluation (MCE) and Weights of Evidence (WoE). Simulation Sub-module Displays transition potential maps and calibration statistics. A simulated (projected) land use map is produced based on a Monte Carlo Cellular-automata model approach. Validation Sub-module This sub-module incorporates kappa statistics (standard kappa, kappa histogram and kappa location), which will be used to validate the accuracy of the simulated land use maps.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products.		People new to open source geospatial Manager End User

ID Number	154

Name	Marius Schebella
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Paper Title	odvis.at - Visualization of Austrian Open Government Data
I can give a practical demo	yes

Paper Abstract (short)

The Project combines the visualisation of Austrian open government data with Open Street Map.

Paper Abstract (long)

ODVIS-AT is a project funded by the Internet Foundation Austria and Salzburg University of Applied Science. The goal is to display open data (demographic, open government data) in a quick and easy way to end users.   In 2011 the Austrian cities Linz and Vienna launched two Open Government Data services where information was published in textform (csv, pdf, json, etc.), other public authorities joined soon (find a current list at data.gov.at). In an attempt to make this data visible we started the development of a visualization service in 2013 where published data is linked to geodata and the result is put on a map. The project consists of an internet portal (odvis.at) and an api to query the data and allow personalization and combination of information. At the moment the project is still in development phase but scheduled to be finished in September 2013.   The project adresses a public audience as well as researchers, journalists, students and developers. Data can be accessed from a central service that provides a snapshot of currently available government data. On thehe backend the visualisation is rendered as a graphic layer to be used with Open Street Map, using Mapnik and a postGIS module. Rendering on demand allows filtering, combination of data sets, mathematical computation (via the api) and hence the personalisation of the information display.   In the presentation at FOSS4G we would like to show the project status (finished version should be ready) and experiences with the project.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial End User

ID Number	243

Name	Petr Pridal
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Paper Title	Old Maps Online and Georeferencer
I can give a practical demo	yes

Paper Abstract (short)
How to turn scanned maps into attractive discoverable resource

Paper Abstract (long)
Hundreds of thousands of historical maps have now been scanned and made available on-line by libraries around the world, and this has been a great boon to anyone interested in the history of cartography. Despite this fact it is hard to find scanned maps covering area of interest in the large number of online catalogs, library systems and web presentations on the web. The traditional fulltext search engines, such as Google, is failing to index the scanned maps properly. Old Maps Online is a search system tailored just for historical maps. Pick a location on a world map, or type in a place-name, narrow the search by selecting a date range. A listing of all possible maps covering that location appears, ordered by best geographical match. Select a map, click on the link and you go directly to view the map on the original libraryÕs website. You donÕt need to know who holds the map, just where in the world you want to look at. This system is designed to complement rather than compete with libraries' own search interfaces. The system is powered by the enhanced version of the MapRank Search technology and indexes over 130.000 scanned high-resolution maps already. Many major collections in the US, UK and elsewhere have agreed to contribute: The British Library, Harvard Library, National Library of Scotland, David Rumsey Map Collection, Dutch National Archives, Moravian Library, New York Public Library, Norman B. Leventhal Map Center at the Boston Public Library, National Library of Australia, etc. Our aim is to include as many collections as possible, so map libraries and collectors are encouraged to participate. To be able to index the scanned maps geographically, we must be supplied with minimal metadata (title, creator/publisher, date, identifier, and a stable url), plus geographic coordinates for the area covered, for each map. We can suggest/provide tools you can use to create the coordinates. One of the tools is the Georeferencer online service, which allows rapid collaborative georeferencing, 3D visualization, annotation and accuracy analysis of scanned online maps directly in a web browser environment, without the need to install any software on a local computer. The online visitors can help with the metadata enrichment and georeferencing of the scanned maps - and they are motivated with competitions, rewarding, community participation and recognition during this crowdsourcing effort. The Georeferencer service is applied in several institutions such as the British Library (London), the Moravian Library (Brno), the Nationaal Archief (The Hague), the National Library of Scotland (Edinburgh), and the Institut Cartografic de Catalunya (Barcelona).

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Hacks and Mashes: novel solutions to our problems. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data. History		Manager End User

Additional Presenters	
Name	Vaclav Klusak
Organisation	
Email	

ID Number	40

Name	Chris Brown
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Paper Title	Online GIS - Meet the Cloud Publication Platforms that Will Revolutionize our Industry
I can give a practical demo	yes

Paper Abstract (short)

A presentation looking at the products featured in my recent book ÒOnline GIS - Meet the Cloud Publication Platforms that Will Revolutionize our IndustryÓ and the underlying open source technologies that made them all possible.

Paper Abstract (long)

Web mapping has become very exciting in the last year or two. Many new products have come onto the market that make the creation and publication of web maps easier by an order of magnitude. The demand for quick and easy web maps isnÕt a new one, so why is it only now that weÕre seeing products that address this need enter the market? The answer is twofold: first, cloud computing has has hugely reduced the cost of running resource hungry map servers; and, second, the open source building blocks that most of the products featured in this presentation utilise have reached the level of maturity required to build reliable, scalable products on top of them. Most of this new generation of cloud based web map publication products are indeed Òstanding on the shoulders of giantsÓ and wouldnÕt exist if it wasnÕt for the tremendous work done by the open source GIS community over the last decade.   This presentation will be a follow up to my free ebook released in March entitled ÒOnline GIS - Meet the Cloud Publication Platforms that Will Revolutionize our IndustryÓ (www.onlinegis.com), the presentation will take a closer look at the products covered in the book and particular the open source building blocks that make them possible.   You no doubt are wondering is why the CEO of a web map software company would want to give a presentation that not only looks at his product but also those of his ÒrivalsÓ. The short answer is that I get asked all the time what the difference is between these products and also see the same question asked many times in online forums and social media channels, so itÕs obviously something that needs answering. I also donÕt view most of these products as our rivals, although all of the products featured in this presentation are capable of similar end results; the steps required to achieve those results differ hugely, with each aiming to make that process as smooth as possible for a certain type of user, be it programmer, casual GIS user or GIS analyst.   After this presentation youÕll have a good idea of the differences between ArcGIS Online, CartoDB, GeoCommons, GISCloud, MangoMap and Mapbox, you will also have a clearer idea of which of the products is best suited to your unique needs and requirements as well as the open source building blocks that power them. This presentation isnÕt going to show you how to use these products, but it will show you what is possible with each of them and what it takes in order to achieve the best results.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User Technical / Developer

ID Number	24

Name	Arnulf Christl
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Paper Title	Open Data for Real
I can give a practical demo	yes

Paper Abstract (short)

This presentation goes into the details of Open Data and how to use it.

Paper Abstract (long)

The term "Open Data" is currently being used in many different contexts and to describe different aspects of data access, ownership, copyright and licensing. This presentation gives an update on the OSGeo white paper collating and commenting the definitions proposed by different organizations by applying them to real-world use cases form the geospatial domain.   We start off exploring What Open Data Really Is by looking into the definition of the terms geodata, dataset, authenticity, service, authority, public good and infrastructure. Then we look at the definition of Open Data itself which can be divided into at least two distinct categories: * Data collected and maintained by volunteer communities (for example OpenStreetMap) * Data from public administrations / government * Data from private businesses   Next we will look into the definition of Open Data as proposed by relevant organizations (OSGeo, the Open Knowledge Foundation, government and commercial providers). Each of these definitions come in different tastes and with differing potential for use and derivative work depending on the underlying licensing model. In the examples we will focus on he geospatial domain and compare the ODbL as used by OSM data, CreativeCommons for OSM maps, the Open Government License of the UK, the (non-license) Public Domain as is broadly used in the USA and compare them to a variety of proprietary business models (Google, Bing, Nokia and even Facebook).   In the second part we will highlight examples of how this data can be used in geospatial services - and make a distinction why services for Open Data may actually not be quite as open as the Open Data Definiton claims they should be.   Finally we will highlight one product (http://SplashMaps.net) that makes exclusive use of Open Data from many different of the above mentioned resources. The SplashMaps business model (just one of many) is completely designed around Open Data requirements and communities. If there is interest we invite to a Birds of a Feather session for a dialog about the opportunities and challenges of Open Data. As a side note we describe the Open Source software stack powering the enterprise.

Topic type		Target Type
Business Cases: building the economic case. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User

Additional Presenters	
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ID Number	60

Name	Dimitris Kotzinos
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Paper Title	Open Geospatial Data and Services Publication on the Cloud: the INGEOCLOUDS open source approach
I can give a practical demo	yes

Paper Abstract (short)

The cloud can be used to support widespread adoption of geospatial data since it offers reliable extensible storage and elastic computing facilities; we provide an open source software stack which adapts existing open source products (e.g. Mapserver, PostGIS, etc.) for a cloud based environment allowing them to take advantage of the scalability and elasticity properties of the cloud. On top of that we built a set of geospatial services allowing the user to dynamically publish his own data and create his own services on the cloud or exploit existing services by using either already available data or his own.

Paper Abstract (long)

The cloud can be used as an infrastructure, as a platform or as a (desktop) software replacement according to the three different paradigms that it supports (IaaS, PaaS and SaaS). On the other hand at the moment more and more applications are using the cloud as their backend since it promises (unlimited) scalability and elasticity in terms of storage and computing power. In the open source geospatial world a lot of effort has been invested in developing excellent software that can be used to store, manage, visualize and publish on the web geospatial data and services. But when it comes to the cloud those offerings are not always readily available since the software, we all build, does not scale in a way that can take advantage of the cloud. In that respect we worked towards providing scalability and elasticity capabilities for the storage, querying and visualization of geospatial data based on existing open source solutions like the Mapserver, PostGIS, Apache and so on. We also worked on the lower part of the software stack so that we can build an elastic file system for storing geospatial data. So we are in the process of offering a fully open source solution that can take advantage of the cloud and its properties. Moreover we have coupled this solution with support for publishing anyoneÕs geospatial data as Linked Open Data so that they can be readily combined with other data on the web. In that respect we are using an open source SPARQL endpoint (Virtuoso) that allows us to store geospatially enabled information given that a suitable conceptual model will be provided described in RDF. Thus we allow for seamless integration of published data on the semantic web and we provide the necessary services for integrating this kind of offering in other applications in the future. Additionally we identified an emerging need to allow end users to publish their own data and create dynamically their own customized services on the cloud. Thus we exploit cloudÕs ÒunlimitedÓ storage capabilities to allow end users to publish their own data (as long as it is cost effective, too), combine them with existing data and create their own WMS/WFS customized services and publish them on the web. This has a great value-added for the users since they can actually publish their own maps. Finally, we demonstrate the capabilities of our technical solution by building and offering a set of advanced geophysical services through the platform. These services include a service for creating shakemaps (maps the visualize the effects caused by an earthquake to the environment), predicting landslides (providing maps assessing the possibility of landslides) and handling pollution information in ground waters. In conclusion, we offer an open source software stack that is based on existing open source software and extends it as needed in order to take to the most possible advantage of the properties of the cloud. We have tried to keep the software agnostic

for the specific cloud and its capabilities. The work is carried out within the INGEOCLOUDS FP7 Project, co-funded by the EU, and with the participation of companies (AKKA technologies, France), research centers (CNR, Italy and FORTH, Greece) and data providers like geological surveys (GEUS, Denmark; GEO-ZS, Slovenia; BRGM, France and EKBAA, Greece) and earthquake research institutes (EPPO, Greece).

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. Hacks and Mashes: novel solutions to our problems. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters	
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ID Number	433

Name	Veronica Paniagua Chavez
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Paper Title	Open Source Climate Change Network
I can give a practical demo	yes

Paper Abstract (short)

The Open Source Climate Change Network, emerged as an effort to strengthen the link between all stakeholders on issues related to Geography and Environment: Federal, State and Municipal Civil Society Organizations, Legislative, Companies, Institutions Education and Research, of the Governments of the States of Aguascalientes, Colima, Guanajuato, Jalisco, Michoac‡n, Nayarit and Zacatecas, which make Western Region of the country. In order to promote the generation and dissemination of geographic and environment, linking all sectors through the implementation of open source technology platforms that can generate cartographic information and knowledge management, in order to develop climate change adaptation and mitigation strategies.

Paper Abstract (long)

At present, the damage caused by global warming are imminent, so, to ensure proper implementation of public policies aimed at environmental protection, it is vitally important that the general public have information that allows current geographical knowledge the surrounding environment. The information generated must comply with the regulatory framework that facilitates their subsequent integration into the National Subsystem of Geography and Environment, according to the guidelines of the National System of Statistical and Geographical Information (INEGI, 2008).   To ensure progress in the generation and diffusion of geographical and environmental information, it is vital that all sectors participate in a coordinated involved in projects for the exchange of information and experiences that can protect and care for our environment as well same propose alternatives for adaptation and mitigation to climate change.   In Mexico, despite the efforts of the National Institute of Statistics and Geography (INEGI), still do not have all the information set out in the guidelines for the formation of the National Statistical and Geographical Information. This coupled with the lack of commitment on the part of the actors involved in the generation, integration and dissemination of information on the Governments of the States of Aguascalientes, Colima, Guanajuato, Jalisco, Michoac‡n, Nayarit and Zacatecas, which make Western Region of the country. As advances in this area have been limited and no regional information is available for consultation by all sectors involved within the Advisory Councils for Sustainable Development and which are coordinated between the SEMARNAT and the United Nations Development Programme.   The Open Source Climate Change Network, emerged as an effort to strengthen the link between all stakeholders on issues related to Geography and Environment: Federal, State and Municipal Civil Society Organizations, Legislative, Companies, Institutions Education and Research, of all States in the region west. In order to promote the generation and dissemination of geographic and environment, linking all sectors through the implementation of open source technology platforms that can generate cartographic information and knowledge management, in order to develop climate change adaptation and mitigation strategies.   Today in Latin America, there have been a series of extreme weather events. In addition, during the 20th century, the increase in temperature and the occurrence of natural disasters, where the consequences for the population have been catastrophic. The damage has been caused by the frequency of floods, increased morbidity and mortality, forest fires, loss of biodiversity, increased crop pests, reduced milk production, loss of livestock.   The stress generated by the problem of global warming is jeopardizing sustainable

development in Latin America and population pressure as a result of migration to urban areas, resulting bring joblessness, overcrowding and the spread of infectious diseases. Moreover, overexploitation of aquifers and mismanagement of irrigation systems, are causing salinization of soil and water and sanitation problems.   At the end of the 21st century, the average temperature in Latin America. Range from 1-4 i C and 2-6 i C, as applicable, and the frequency of extreme weather and climate events is likely to increase. By 2020, disappear more than 100 million hectares of forests. If Latin American countries, including Mexico, should take urgent measures to address environmental issues will be presented in future scenarios and the best strategy is to build networks that enable knowledge management and exchange successful experiences that can be replicated in other states, other regions and countries worldwide.

Topic type		Target Type
Case Studies: Relate your experiences.		People new to open source geospatial

ID Number	255

Name	Pieter Kempeneers
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Paper Title	Open source software for land cover mapping from remote sensing data
I can give a practical demo	yes

Paper Abstract (short)

A case study on image classification using free and open source software as part of the IEEE IGARSS 2013 data fusion contest

Paper Abstract (long)

Open source software is well established for basic raster and vector data processing, with the Geospatial Data Abstraction Library (GDAL) as one of the most well known tools. Its utilities and application programming interface (API) have become a common standard for data format conversion, reprojection, spatial and spectral subsetting. With its command line interface utilities, GDAL is better suited for the automatic processing of very large amounts of data and for repetitive processing tasks than most of its commercial counterparts.   Though GDAL provides an excellent API on which more advanced image processing tasks can be built, not all users have the time or programming skills to get involved such development. In particular within the remote sensing user community, there is a large interest in machine learning techniques applied to remote sensing data. A typical example is the automatic classification of satellite imagery, an area that has been long reserved for commercial software (IDL/ENVI, Erdas Imagine, eCognition, ArcGIS). As one of the exceptions, there is GRASS that has gained a lot of interest. I has R integrated functionalities that offers a variety of statistical tools. Unfortunately, one of the limitations of R is its memory allocation and lack of performance for large data sets. However, GRASS also offers native functionalities that are much better suited for image processing. It combines image processing, visualization and geospatial modeling into a single integrated developing environment, providing its own file management and data structure as an open source Geographical Information System (GIS).   More recently, two suites of open source software tools have been developed that combine the power and simplicity of the GDAL command line interface with more advanced and state of the art image processing techniques. The first is the Orfeo toolbox (http://www.orfeo-toolbox.org), released by the French Centre National d'Etudes Spatiales (CNES) under a free software license (CeCILL). It is based on the medical image processing library ITK and offers both a graphical and command line user interface. The second is pktools (http://pktools.nongnu.org), released under the GNU Public License v3. It uses the GDAL API and is available with a command line interface under Linux. Both tools are developed in C++ and are designed for high performance and large data processing.   This study, focuses on a case study on a typical land cover/land use classification problem using the Orfeo toolbox and pktools. In particular, the case study deals with the data fusion contest 2013, organized by the Data Fusion Technical Committee of the IEEE Geoscience and Remote Sensing Society (GRSS). The Contest is open to everyone, with the goal of evaluating existing methodologies at the research or operational level to solve remote sensing problems using data from a variety of sensors. The final results of the contest will be announced at the 2013 IEEE International Geoscience and Remote Sensing Symposium in Melbourne, Australia, in July 2013.   The current contest involves two datasets Ð a hyperspectral image and a LiDAR derived Digital Surface Model (DSM), co-registered and both at the same spatial resolution (2.5 m). They were acquired over the University of Houston campus and the neighboring urban area. A particularity of hyperspectral imagery is its high dimensionality. For the current data set,

a total of 144 spectral bands were acquired in the 380 nm to 1050 nm region of the electromagnetic spectrum.   For the contest, a total of 15 pre-defined classes must be distinguised. The labels as well as a training set for the classes have been put available by the organizing committee.   The abundance of spectral information in the hyperspectral image has the potential to differentiate land cover classes with similar spectral characteristics that can not be distinguished with traditional sensors that capture only a few spectral bands in the visual range of the electromagnetic spectrum. As an example, the contest includes three classes for grass that have to be mapped: healthy grass, stressed (unhealthy) grass and synthetic grass. On the other hand, the high dimensionality of the data makes the classification task challenging due to the Hughes fenomenon. Also known as the curse of dimensionality within the machine learning community, this phenomenon typically occurs for classification problems where training data are limited with respect to the dimensionality of the input data. However, some state of the art classification problems such as support vector machines (SVM) have been shown to be more robust to this type of problem than others. Both the Orfeo toolbox and pktools have implemented this SVM technique and were applied for this contest.   Another challenge in this contest is that some of the classes are related to land use rather than land cover. As an example, the classes include two types of parking lots, roads must be distinguised from highways and residential from commerical areas. These classes can have identical spectral characteristics, which make them difficult to classifiy with spectral information only. This is where the LiDAR derived DSM can provide valuable additional information to make a better distinction. In addition, the Orfeo toolbox includes powerful feature extraction methods including Haralick and structural feature set (SFS) textures that can provide spatial contextual information to the classifier.   Although the results of the contest have not been revealed yet, the obtained result looks promising and can be considered as a potential winning candidate. At the end, the winning solution depends on a number of factors such as the available time of the applicants to fine tune the methods, the amount of manual interaction introduced such as expert knowledge of the area and additional training data obtained from extra sources (e.g., Google Earth). The solution presented here introduces no additional information and requires no manual interaction. It aims for a generic and fully automatic process that can be applied to other classification problems. It also shows that this challenging classification task can be performed using free and open source software only. All steps used for this solution will be presented, showing some of the potential of the Orfeo toolbox and pktools.

Topic type		Target Type
Case Studies: Relate your experiences.		People new to open source geospatial Manager End User Technical / Developer

ID Number	237

Name	Peter Batty
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Paper Title	Open Source web and mobile mapping applications in utilities and telcos
I can give a practical demo	yes

Paper Abstract (short)
This presentation will discuss enterprise web mapping applications that we've been developing for large utilities and communications companies, based on a number of open source geospatial components including PostGIS, MapFish, GeoServer and Leaflet, and including a case study on how this helped with recovery from Hurricane Sandy

Paper Abstract (long)
This presentation will discuss enterprise web mapping applications that we've been developing for large utilities and communications companies, based on a number of open source geospatial components. At this time last year the main elements of our solution were PostGIS, MapFish and Google Maps. Since then we've added GeoServer into the mix, and we're just finishing a migration from Google Maps to Leaflet on the front end (but still able to pull in data from Google as well as OpenStreetMap, Bing and other sources).   We'll talk about examples of what our customers have been doing, including how we helped one of them with recovery from Hurricane Sandy, and how we're handling some very large volumes of near real time data from cable networks using PostGIS and GeoServer. And we'll talk about various technical architecture issues including our approach to offline mobile web applications on various platforms, our experience of moving to Leaflet, and best practices on updating PostGIS with large volumes of near real time data.

Topic type		Target Type
Case Studies: Relate your experiences. Disaster Response: software, case studies, outcomes.		People new to open source geospatial Manager End User Technical / Developer

ID Number	103

Name	J Passmore
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Paper Title	Opening up access to Geological data with Rasdaman based WCS and WCPS services
I can give a practical demo	yes

Paper Abstract (short)

As part of EarthServer, an ongoing e-Infrastructure EU-FP7 project, the British Geological Survey is investing in the development of Web Coverage Services (WCS) and Web Coverage Processing Services (WCPS), built on open source Rasdaman and Petascope software in a bid to make 100TB of geological data readily available to the geoscience data user community of scientific users, stakeholders such as exploration companies, civil engineers, local authority planners, and the general public.

Paper Abstract (long)

EarthServer, an ongoing e-Infrastructure EU-FP7 project ending in August 2014, is developing capabilities for access to, and ad-hoc processing of, large Earth science data sets using Open Geospatial Consortium (OGC) standard web service interfaces for coverage data. At project close it is intended that at least 600TB of data, in total, will be available online through a number of services, covering the Cryospheric, Atmospheric, Planetary science, Oceanographic, and Geological domains. The British Geological Survey (BGS) will host the Geological services and will offer a number of applications, beneficial to real users, that will be available beyond the life of the project; demonstrating capability across a range of data held by the organization.   At the time of writing, just after the first year of the project the BGS EarthServer service (http://earthserver.bgs.ac.uk/) is hosting demonstration services showcasing inter al. 3D visualization draping remote sensing data over a DTM, thickness calculations between geological surfaces in a model of the Glasgow region, band calculations and sub-setting based on Landsat imagery, and querying superficial thickness floating point data to show regions of a thickness range as an image.   Moving forward we shall be, inter al. adding the full national coverage of UK Landsat imagery, adding multiple DTM's and Bathymetrys, adding to and improving our 3D visualizations and querying tools. We shall be adding PS data generated by the ESA TerraFirma project, to allow us to provide time series analysis of height data at any location, and we shall be working with hyperspectral data (CASI and HyMap) to develop an application to show band reflectance signatures to characterize mineral assemblages, to help the management of mine waste and resource mapping.   Why should BGS be interested in investigating and developing such systems? Well for a start there is the push of the research councils, national government and EU regulation to open up public access to environmental data, but also within the organization there is the need to share large data between remote partners, for validation of methodology and comparison of results with large, otherwise difficult to distribute, data sets.   The EarthServer project is not just restricted to domain specialists opening up their data, it is instead a collaboration between the principal developers of the Rasdaman and Petascope open source software, and also the lead members of the OGC WCS and WCPS standards committees. Thus all project members gain from each other. The software developers gain from having real users with real problems to throw at the software, the data providers gain from the software working to their needs and all gain from the development of the WCS, WCPS, and related standards.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. New data: handling new data models, for example 3D & temporal data, or big data.		Manager Technical / Developer

ID Number	38

Name	CŽdric Moullet
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Paper Title	OpenLayers 3 - how to successfully run a crowdfunding campaign for an OSS project.
I can give a practical demo	no

Paper Abstract (short)

In order to create the third release of OpenLayers, an important crowdfunding effort has been organized by the OpenLayers community in 2012 and was able to collect 350'000 USD for the development of this new release. This presentation will present the key findings of this effort.

Paper Abstract (long)

The impressive list of OSGeo Projects [1] show the necessity to develop OpenSource software. Behind all lines of code, there is the work of one developer. And, in our capitalist world, work means money. This presentation will underline the challenges of the crowdfunding effort organized for the development of the next major release of OpenLayers 3.   OpenLayers is one of the most famous OSGeo library and is widely used for the development of web mapping applications. Its development started in 2007. In 2012, it was clear for the developers that the current release was at the end of its life. The emergence of new technologies implied to create a complete new libraries based on these new technologies. As usual in the OpenSource world, some developers started this work in the middle of 2012. Since a complete rewrite was required, it appeared clearly that the work needed to obtain a library that would allow the migration to the new release was huge. It was estimated to 2Õ500 hours of work.   At this time, swisstopo planned a migration of its web mapping applications. swisstopo decided to use the future release of OpenLayers, which was only a very first prototype. In order to benefit of the advantages of OpenSource developments made by a community, it was not possible for swisstopo to simply mandate a company for the development of this library. The commitment of the OpenLayers community and its committers/developers was needed. So, in order to speed up the development process, swisstopo decided to invest a substantial amount of money and to organize a crowdfunding effort together with companies active in the OpenLayers development scene. Several financement channels were used: micro fundings from individuals and more important fundings from companies and administrations.   This presentation will describe the main problems and challenges faced during this crowdfunding effort and how they have been solved. Here is a list of these problems and challenges: - Some key actors had to be convinced to donate in order to convince others to follow the movement. It is important that one or two big players make the first donations. And, since the money is managed by the higher manager, a lot of energy has been put in explaining how an OpenSource community works. The OpenSource development model is still not very well known and the higher management often think that a normal contract with one company is the best way to develop softwares.   - The general objective was to be clear and strong enough in order to convince individuals, companies or administrations to invest on something that didnÕt exist.   - The financial capacities of individuals, companies or administrations are not the same. But all are part of the OpenLayers community. It was important to be able to handle donations of some dollars to some thousand of dollars.   - OpenLayers is an OpenSource community, but is not a legal entity. ItÕs therefore not possible to make a contract with OpenLayers. In order to solve that, the main companies of the OpenLayers development scene decided to create an association in order to simplify the administrative aspects.   - The commitments and the resources of the OpenLayers committers was needed in order to ensure that the library could be developed in a short time frame and with the

necessary level of quality.   - A worldwide communication concept has to be put in place in order to reach all potential crowdfunders. And this only with a few persons working partially on this project.   - An organization had to be put in place in order to coordinate the work of persons located all around the world.   But at the end, the result is here: more than 350Õ000 USD have been found and the development of OpenLayers 3 is a reality. And everyone can now benefit of a modern, performant and 2D/3D web mapping library, thanks to all crowdfunders and developers !!!   [1]
http://www.osgeo.org/

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case.		People new to open source geospatial Manager End User

ID Number	408

Name	Tom Payne
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Paper Title	OpenLayers 3 Showcase
I can give a practical demo	yes

Paper Abstract (short)
Cool demonstrations of how OpenLayers 3 opens up new possibilities for presenting your geospatial data.

Paper Abstract (long)
OpenLayers 3 enables a huge range of new web mapping functionality. In this talk, we'll show off many of the cool features of OpenLayers 3, including: Rich interaction and animation Virtual globe integration Raster layer effects Wide-ranging data source support The talk will be light on technical details and heavy with cool demos to show you how OpenLayers 3 opens up new and exciting ways of presenting your geospatial data.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products. Hacks and Mashes: novel solutions to our problems. New data: handling new data models, for example 3D & temporal data, or big data.		People new to open source geospatial Manager End User Technical / Developer

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Name	Tom Payne
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Paper Title	OpenLayers 3: under the hood
I can give a practical demo	yes

Paper Abstract (short)

A technical exploration OpenLayers 3's architecture, explaining how to use the new features and functionality of this next generation mapping software.

Paper Abstract (long)

OpenLayers 3 is the next generation of web mapping. A radical new architecture and the use of cutting edge JavaScript techniques, libraries, and tools enables a full suite of previously unimaginable functionality while maintaining a compact, high performance library.   In this talk we'll show you how to use this functionality in your applications, and peek under the hood to see how OpenLayers 3's architecture makes it possible. We'll include: Virtual globe (Cesium) integration: a carefully designed camera and data source abstractions permit close integration with the virtual globes. Switch between 2D and 3D views of the same data, or display synchronized 2D and 3D views side by side.   Multiple rendering back-ends: a pluggable rendering architecture supports multiple renderers for maximum performance and portability. A Canvas 2D renderer provides fast, reliable rendering on current devices, a DOM renderer provides fall-back capabilities for older browsers, and a WebGL renderer opens the door to the next generation of performance for the most demanding applications.   Rich data sources: generic and powerful core data representations of tiled, single image, and vector data make it easy to add support for a wide range of geospatial data sources.   Smooth and flexible interaction and animation: an optimized rendering path ensures that interaction remains smooth at all times.   Compact library size: use of the Closure suite of tools creates keeps the build size small while keeping the source code readable.

Topic type		Target Type
Development: new developments in products. Hacks and Mashes: novel solutions to our problems. New data: handling new data models, for example 3D & temporal data, or big data.		Technical / Developer

Additional Presenters

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Paper Title	OpenPOIs: an open source, open data index to POIs
I can give a practical demo	yes

Paper Abstract (short)

OpenPOIs [http://openpois.ogcnetwork.net] is an open database containing points of interest (POIs) and links to other POI databases such as Geonames, OpenStreetMap, DBPedia, Futouring and the Harvard China Biographical Database.

Paper Abstract (long)

OpenPOIs [http://openpois.ogcnetwork.net], a new OGC project, is a very large freely available open database containing points of interest (POIs) and links to other commercial, governmental, and academic POI databases. Everyone is free to contribute and access is free. It is intended to be a widely used public resource inspired by policies and practices similar to those of Wikipedia and OpenStreetMap. So far, OpenPOIs contains names and locations for over 10 million business and civic places.   OpenPOIs embodies three facets of openness. First, the data set is open. Only POI repositories with compatible open data policies have been indexed by OpenPOIs. Second, the API is open. Anyone is free to use the read API, and a write API is being built for any authenticated user to freely add information. Thirdly, the code is open. The system is built on PostGIS, Mapserver and custom PHP.   To create the OpenPOIs database, POIs have been collected from many sources, including: Geonames (which in turn is built from the US Geological Survey, US National Geospatial-intelligence Agency, CIA World Factbook, hotels.com and over a hundred others), DBPedia, OpenStreetMap, Futouring (Rome, Italy area cultural tourism POIs) and the Harvard China Biographical Database.   The OGC is looking for data publishers and developers to work with us in creating the largest open system of linked geospatial data on the Web. If you have a POI database, let's talk! Are you a historical data curator? We support time-based queries and historical data storage so that you can publish and find all the information about a place, not just what's there today. And of course, we want developers of mobile apps, research tools, concierge services, and local resource finders to build on the OpenPOIs platform.   Like OGC standards, OpenPOIs is part of the public Internet infrastructure. OGC standards and OpenPOIs are platform, vendor and data neutral. The OGC's vision and mission, experience with legal and organizational issues involved in "openness", and rich connections to the world's providers and users of geospatial data and technology put the Consortium in a unique position to launch and host this resource.   The potential societal benefits are broad and deep. Linked POI registries will support disaster management, public health, resource management, science, and more.   Better geospatial standards are another benefit of this project. Current growth areas in Web-based computing are "RESTful" programming, linked data and the Semantic Web. OpenPOIs is designed to accommodate and leverage these developments. The Web and Semantic Web provide tools with which the POI vision can be achieved, and OpenPOIs provides the data. Existing OGC Web Services (OWS) standards have just begun to evolve to track these developments, and experience gained with the OpenPOIs Registry will help move the standards forward.

Topic type		Target Type
Development: new developments in products. Hacks and Mashes: novel solutions to our problems. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		Manager End User Technical / Developer

ID Number	288

Name	Jacques ROUMILHAC
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Paper Title	OpenWIS Opensource Software
I can give a practical demo	yes

Paper Abstract (short)

Based on opensource bricks, with GeoNetwork, OpenAM, JBoss, Apache, Solr and PostGreSQL, OpenWIS fitting the OGC (OpenGeospatial Consortium) and INSPIRE (European directive) aspects, with standards OGC interfaces, a portal providing the viewer function with the discovery, search and request possibilities, and in a short future the billing and the transformation services, is going to become opensource.

Paper Abstract (long)

OpenWIS OpenSource Software   The World Meteorological Organization (WMO) has been working for several years towards upgrading its global infrastructure to support all of its international programmes of work, both operational and research-based, to collect, share and disseminate information. The new infrastructure is called the WIS (WMO Information System). It identifies three top level functions, namely: ¥   GISC: Global Information System Centre; ¥   DCPC: Data Collection and Production Centre; ¥   NC: National Centre. MŽtŽo-France, the UK Met Office, the Australian Bureau of Meteorology, the Korean Meteorological Administration and Meteo France International have developed the OpenWIS software, coupled with their existing systems, to perform the three functions required by the WMO Information System; that is, GISC, DCPC and NC.   Based on opensource bricks, with GeoNetwork, OpenAM, JBoss, Apache, Solr and PostGreSQL, OpenWIS is going to become opensource. Beyond the WIS requirements, the OpenWIS consortium is building new functionalities for OpenWIS that will fit the OGC (OpenGeospatial Consortium) and INSPIRE (European directive) aspects, with standards OGC interfaces, a portal providing the viewer function with the discovery, search and request possibilities, and in a short future the billing and the transformation services.   The current functional components of OpenWIS are: ¥   Data Service and its cache of essential data ¥   Metadata Service (ISO19115 catalogue synchronised with OAI-PMH protocol) ¥   Security Service ¥   Monitoring and Control ¥   Portal (Discovery, Search, Browse, Request, Subscription) MŽtŽo France operates various dissemination tools. OpenWIS provide a generic interface that MŽtŽo France has adapted, covering requests for dissemination and their monitoring. OpenWIS interacts with data sources to respond to ad hoc or periodic subscription requests either directly via harness connections or relying on SOA OGC infrastructure.   The new challenge of the consortium is to share the opensource model and expand membership beyond the founding members. The reflexion within the consortium enables to give some trends: ¥   A steering committee for the integration of new functionalities (spontaneous or not) ¥   One or two licences (the portal and the metadata component inheriting of the GeoNetwork licence) ¥   A strong but reduced team for the initial developpement (MetOffice and Meteo France) ¥ Git for the management of versioning and integration ¥   The will to put the soft on the shelves of the World Meteorological Organisation ¥   Entrance in the opensource area by the end of 2013

Topic type	Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Collaboration: data collection, data sharing, open standards.	People new to open source geospatial Manager End User Technical / Developer

ID Number	87

Name	Gianni Ciolli
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Paper Title	Optimising spatial data analysis with PostgreSQL and PostGIS
I can give a practical demo	yes

Paper Abstract (short)
We describe the solution of some PostGIS problems, demonstrating relevant PostgreSQL features which include: GiST and SP-GiST index types; custom database objects; query and workload profiling.

Paper Abstract (long)
In this talk we will demonstrate spatial data analysis on the relational database system PostgreSQL (http://www.postgresql.org) equipped with the spatial extension PostGIS (http://www.postgis.org). We will gradually introduce some of the optimisation techniques provided by PostgreSQL, by applying them to the solution of increasingly complex problems belonging to the PostGIS domain.   Our aim is to point out as clearly as possible the main ideas behind each example, showing the link in both projects between development of new features and the need to tackle real-world problems.   Topics mentioned in this talk include: the special index types GiST and SP-GiST; custom database objects, such as data types, functions and operators; query and workload profiling.

Topic type		Target Type
Development: new developments in products. Demonstrating product capabilities.		Manager Technical / Developer

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Paper Title	ORION-GEO / GeoServerFaces : A Web Framework Geared Towards Business Applications Development
I can give a practical demo	yes

Paper Abstract (short)

ORION-GEO / GeoServerFaces is a web framework based on Java Server Faces 2 which was designed to reduce the hinderings in bringing geographic data into the business information system and to leverage spatial functions in business applications ; in this presentation, we will describe the design principles of the framework and demonstrate its potential in building geospatial business applications.

Paper Abstract (long)

The French Ministry of Agriculture decided to publish ORION, the web framework which was developped for its internal business needs. Release is in progress under a LGPL-like license. ORION is based on Java Server Faces 2 and is a tool for building web business applications ; it also includes a geospatial module named ORION-GEO, which was designed to reduce the hinderings in bringing geographic data into the business information system and to leverage spatial functions in business applications. Derivative work is planned to turn ORION-GEO into GeoServerFaces, a new open source project independent from the specifics of ORION and fully conforming to JSF design patterns ; GeoServerFaces will be usable in any JSF 2 application project, with solely the basic requirements of JSF / J2EE 6. Based on HTML 5, CSS 3 and OpenLayers on the UI side and on GeoTools and Hibernate on the server side, ORION-GEO offers a clean, state-of-the-art, easy-to-use and responsive user interface that is also easy and productive to develop and customize to meet specific business needs. Most functionnalities usually offered in traditional GIS softwares are available in a complete set of components and building blocks, but more importantly, ORION-GEO allows to treat geographic data as a not anymore separate and specifically managed kind of information ; as such, it transcends existing webGIS solutions and it goes past the ArcView UI model - in which the application is built around the GIS frame - by spatially enabling business processes at specific chosen steps while not forcing the entire application into the GIS. In this presentation, we will first describe the strategy behing ORION-GEO, the technical and organisational components of the framework strategy, and how it helps in catching up with the general need for more spatial data in the information system. Then we'll demonstrate the potential of ORION-GEO / GeoServerFaces in building geospatial business applications or enabling spatial collaboration by showing examples of typical development in typical use cases, eg. spatial search of business objects, creating and modifiying objects, publishing elaborate data into maps, developing Geo BI solutions, etc.

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Visualization: effective presentation of information. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		Manager Technical / Developer

ID Number	57

Name	David Medyckyj-Scott
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Paper Title	OS geospatial technologies + science data for evidence based decision making
I can give a practical demo	yes

Paper Abstract (short)

We will describe how Landcare Research, a Crown-owned company that carries out environmental research for the benefit of New Zealand, has been using open source geospatial software and open standards to provide access to data and tools to support decision making by industry, central and local government, and M_ori.

Paper Abstract (long)

In many countries there is increasing pressure for government and business to base decisions on scientific evidence. The need to do this has become more apparent as issues have become more complex, non-liner, dynamic and under greater scrutiny by businesses and the public alike. Using a scientific approach to investigate all available evidence can lead to business and policy decisions that are more effective in achieving desired outcomes as decisions are based on accurate and meaningful information rather than anecdote, dogma and belief. This leads to better outcomes for a business, the community or a country.   Statistics are a vital source of evidence as they provide us with clear, objective, numerical data on important aspects of life, assisting and encouraging informed understanding of the issues, discussions, the levels of uncertainty involved, decision making, and then evaluation of the success of the decision.   However, experience suggests that statistical data is not as frequent an input to a decision process as suggested by the popular press. This is particularly the case in policy making by governments. Reasons for this include a lack of awareness of what data exist, the lack of data fit for purpose or with sufficient quality for decision making, barriers to accessing the data and difficulties in using the data. It is also often the case that decision makers donÕt want to do the Õheavy liftingÕ of getting and processing the data so that they can analyse and interpret it. They may also lack an understanding of the data to be able to do this and would rather have access to tools that provide scientific interpretations of the data for them.   Open source geospatial software provides science organisations with a cost effective way to efficiently provide access to scientific data and tools. In our presentation we will describe how Landcare Research, a Crown-owned company that carries out environmental research for the benefit of New Zealand, has been using open source geospatial software and open standards to provide access to data and tools to support decision making by industry, central and local government and M_ori.   Landcare Research is one of eight Crown research institutes (CRIs) formed in 1992. Our Core Purpose is to drive innovation in New ZealandÕs management of terrestrial biodiversity and land resources in order to both protect and enhance the terrestrial environment and grow New ZealandÕs prosperity. Landcare Research does this through the provision of research and the transfer of technology and knowledge. Landcare Research is also the custodian of a number of nationally significant databases and collections all of which have varying levels of spatial information within them. Examples include the National Land Resource Inventory, the National Soils Database, the National Vegetation Survey Databank, the New Zealand Arthropod Collection (NZAC), and the New Zealand Fungal and Plant Disease Collection (PDD). Landcare Research engaged early in web delivery of geospatial data, launching the first environmental GIS on the web in 1995 and has developed and operated a number of on-line geospatial tools in the intervening period based, in the main, on proprietary software.   While Landcare Research has been

working with large science datasets for 10+ years, over the last three years Landcare Research has invested heavily in data management and processing infrastructure, in developing web based applications and tools, and B2B and B2C web services. In some cases this has been in partnership with other companies but increasingly the work has been done by a team of developers based in the Informatics team at Landcare Research using open source geospatial tools and libraries including Postgres/PostGIS, MapServer, MapCache, MapFish, OpenLayers, GDAL, etc. We now provide a number of external and internal science data based mapping portals to support decision makers, e.g. Our Environment (http://ourenvironment.scinfo.org.nz), which are underpinned by a map, data and processing web services infrastructure. This same services infrastructure is used to quickly and cost effectively to deploy new geospatial applications and integrate maps and spatial data into other types of web browser delivered science applications. Landcare Research has also deployed a variety of public OGC compliant web services. One of the advantages of using open source geospatial software is that we can extend the software ourselves (and contribute this back to the open source open source geospatial software community) and are doing so in innovative ways e.g. video WMS or WMS-V. Or we can work with others in the community to extend it on our behalf e.g. support for BerkeleyDB cache back-end stores in Mapcache. We will demonstrate some of these during the presentation. The conclusion we have drawn is that open source geospatial software brings us many benefits that we wouldnÕt obtain from using proprietary GIS software. There are some downsides, but these are outweighed by the advantages. These include flexibility, extensibility, direct communication between our developers and other developers, cost savings (licences particularly with respect to scalability), that as an organisation at the leading edge of science and transfer of knowledge we need. We canÕt yet prove that providing a science based evidence base is resulting in better decision making, not least because such data is only one dimension of decision making, but we can show that it is possible to cost effectively lower the barriers to gaining access to such data in meaningful ways.

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case.		Manager End User

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Name	Jani KylmŠaho
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Paper Title	Oskari Map Application Framework and Spatial Data Service Platform
I can give a practical demo	yes

Paper Abstract (short)

Oskari is a multi-purpose, open source Map Application Framework and Spatial Data Service Platform developed using several JavaScript and Java libraries.

Paper Abstract (long)

Oskari is an open source Map Application Framework and Spatial Data Service Platform developed using several JavaScript and Java libraries. The Oskari project provides easy-to-use tools to create embedded map windows with content from multiple spatial data infrastructures. Oskari also aims to serve some advanced GIS tools, such as spatial and statistical analysis tools, as a web application. Applying a dual licensing scheme (EUPL and MIT) makes it possible for anyone to benefit from the resulting open source code.   The project was started as development of a map window for the Finnish Geoportal, Paikkatietoikkuna. However, it was soon discovered that there is a growing demand for web-based mapping and more advanced GIS tools in e-government and other applications within the Finnish public sector. National Land Survey of Finland then started to develop Oskari into an independent application, which could be used for two different scenarios: as a cloud service platform to provide customized embedded maps or as a standalone map application within some other web application.   The Finnish reference architecture for SDI is designed extending the INSPIRE architecture in order to offer more functionality for data utilization. The reference architecture aims to describe how to build a spatial data infrastructure that supports not only viewing and downloading spatial data but also analyzing and visualizing data. The map window at the Finnish geoportal is one example of an Oskari-based service platform. It also serves as a development and demonstration environment for the project and the reference architecture.   The Oskari platform is already being used in multiple e-government services run by the Finnish public administration. The Oskari development network embodies government authorities and municipalities as well as private companies, who develop Oskari as part of their own service solutions. The National Land Survey of Finland together with other parties in the development network has a budget of over 1 million Euros for Oskari development during 2013.   Internationally, Oskari is will be developed and used alongside with ArcGIS Online platform in the European Location Framework (E.L.F.) project run by EuroGeographics, 14 national mapping agencies and other partners. During the project the Oskari framework will be translated to support all major European languages.   Technically speaking, Oskari provides applications with loose coupling and inter-bundle messaging with Requests and Events, configuration, application state and localization support. Loose coupling enables reusing bundles in different application setups. Map functionality is implemented with OpenLayers. The user interface components are based mostly on jQuery.   Oskari frontend is implemented as a collection of reusable, interoperable bundles. Bundles are used as uniform containers to ship and share new functionality to different application setups. Bundles can pro-vide the Oskari framework with new functionalities such as data edit, thematic mapping and spatial analysis tools. Additions to existing functionality are implemented as Plugins shipped within the bun-dles. The architecture eliminates the need to start application development from scratch: it is easy to extend the Oskari framework with new functionality by creating a new bundle.   The backend functionalities are implemented as Java servlets. For

example, GeoTools and Jackson li-braries are used for integration with OGC services and the frontend map framework.   Oskari has a wiki site at http://www.oskari.org and the code is hosted at GitHub repository nls-oskari.

Topic type		Target Type
Visualization: effective presentation of information. Hacks and Mashes: novel solutions to our problems. Spatial data service platforms, spatial data infrastructure		Manager End User Technical / Developer

Additional Presenters	
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ID Number	120

Name	John Birkett
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Paper Title	Painless loading of national OpenData sources
I can give a practical demo	no

Paper Abstract (short)

We describe a painless automated process of loading cumbersome collections of OpenData that leads from the data order to ready to use in a day using some simple scripting and Postgres/ PostGIS, with minimal officer input!

Paper Abstract (long)

OpenData is a useful resource but it can involve large and cumbersome files. Brent wanted to make use of nationwide postcode data through CodePoint Open, but staff resources could never be allocated to the time-consuming task of manipulating, loading, and managing the data. A solution proposed was to develop a batch loading process incorporating the manipulating and management stages utilising BrentÕs Postgres/PostGIS spatial database.   The data can now be ordered, downloaded, manipulated, loaded and go live within one working day Ð requiring only around 20 minutes of officer time! We will guide you through our process which takes a large cumbersome dataset and gives you useful outputs, including for example postcode sectors, change files, and incorporating vertical streets. A similar process is used for Environment Agency data. We will share the pitfalls the can be discovered and how they can be overcome, for example multiple projections, non-topological data, etc.

Topic type		Target Type
Case Studies: Relate your experiences.		People new to open source geospatial Manager End User Technical / Developer

ID Number	182

Name	Michael Smith
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Paper Title	PDAL: It rhymes with GDAL
I can give a practical demo	yes

Paper Abstract (short)
PDAL is a BSD licensed library for translating and manipulating point cloud data of various formats

Paper Abstract (long)
PDAL is a BSD licensed library for translating and manipulating point cloud data of various formats. It is a library that is analogous to the GDAL raster library. PDAL is focussed on reading, writing, and translating point cloud data from the ever-growing constellation of data formats that are being developed for working with multi-dimensional emitted-pulse scanning systems. While PDAL is not explicitly limited to working with LiDAR data formats, its initial rollout is focused in that area.   PDAL also supports spatial database storage of point clouds (currently Oracle with PostGIS currently in development) and can translate point clouds to DEMs using the Points2Grid library (incorporated into PDAL). PDAL contains decimation, cropping, mosiaking, reprojection (including vertical datum support), scaling, and a numpy programmable filter. PDAL includes command line tools as well as an VRT-like XML language used to build processing pipelines. These pipelines permit the sequencing and chaining of multiple operations against data and minimize passes through the data.   PDAL is being sponsored by the US Army Corps of Engineers and is the backbone of a centralized Lidar data warehouse being used by the Corps and other federal agencies in the US Deptment of Defense.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. New data: handling new data models, for example 3D & temporal data, or big data.		Manager Technical / Developer

ID Number	128

Name	Julien-Samuel Lacroix
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Paper Title	pgRouting for dummies
I can give a practical demo	yes

Paper Abstract (short)

You may think that adding driving directions to your webmapping application is complicated. Please stand corrected!

Paper Abstract (long)

This presentation will guide you with step by step directions to integrate a routing functionality in your webmapping application in a matter of hours. Starting from your road network data, you will be guided through the installation and configuration of the pgRouting library to deliver driving directions to your users. At the end, a live example with real life data will be available to see the integration in an OpenLayers application.

Topic type		Target Type
Development: new developments in products.		Technical / Developer

ID Number	367

Name	Steven Citron-Pousty
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Paper Title	Polyglot spatial with MongoDB
I can give a practical demo	yes

Paper Abstract (short)
MongoDB has spatial capabilities perfect for "checkin" type services and I will show how to use it with Python, Java, and Node.JS for a REST based web service.

Paper Abstract (long)
Spatial is a hot topic for all sorts of developers and MongoDB offers an easy way to get started. MongoDB enables search and checkin type applications - ranging from field resource management to social check-in applications. In this session we will load up a spatial database and then create web services using three different languages, Python, Java, and Node.JS. We will demonstrate the similarity and differences when getting the same functionality for a MongoDB REST-based web service. For each language I will show how to load the driver, authenticate, query, filter, and write to the database. By the end you will be amazed at the wonderful job the driver writers did on ease of use and native feel when writing code. You will also enjoy a demonstration of how easy it is to use MongoDB for your application.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. New data: handling new data models, for example 3D & temporal data, or big data.		People new to open source geospatial Manager Technical / Developer

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Paper Title	PostGIS Feature Frenzy
I can give a practical demo	no

Paper Abstract (short)

What can you do with this PostGIS thing?

Paper Abstract (long)

PostGIS has over 300 functions, which in turn can be used with the many features of the underlying PostgreSQL database. This talk covers some basic and not_so_basic ways to use PostGIS/PostgreSQL to process spatial data, to build infrastructures, and to do crazy things with data. Consider the possibilities: raster, topology, linear referencing, history tracking, web services, overlays, unions, joins, constraints, replication, json, xml, and more!

Topic type		Target Type
Development: new developments in products.		People new to open source geospatial Technical / Developer

ID Number	108

Name	Jan Jezek
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Paper Title	PostMap Ð The PostGIS web client
I can give a practical demo	yes

Paper Abstract (short)

Introduction of lightweight web based application for PostGIS queries visualisation.

Paper Abstract (long)

PostgreSQL with PostGIS is generally understood as a flag ship of open source RDBMS. With no doubts its functions fully covers all requirements on vector and raster data processing of advanced GIS. On other hand the possibility of simple and fast spatial visualisation of the queries is limited. Widely used GIS applications offer certain solutions, but their approach have some limits in data scale and usability. They might be also seen as too complex.   The aim of this paper is to introduce the PostMap what is an server side software that will make output of SQL queries available through simple REST services with respect to simplicity and easy ussage. For that propose the KML format is chosen. PostMap also includes mechanisms that helps to simplify the output data so that even large scale results can be easily cartographically visualised.   Benefits of the developed application is in simple access and straight forward visualisation with the utility of SQL together with comprehensive list of spatial functions available in PostGIS. The developed application can be useful for data mining and spatial analyses as well as for education proposes in the field of the spatial databases.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		Technical / Developer

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ID Number	7

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Paper Title	Processing data in GeoServer with WPS and SQL views
I can give a practical demo	no

Paper Abstract (short)

The presentation is a brief introduction to GeoServer WPS capabilities, showing how to build processing request based on existing processes and how to build new processes leveraging scripting languages, and introducing unique GeoServer integration features, showing how processing can seamlessly integrate directly in the GeoServer data sources and complement existing services.

Paper Abstract (long)

This presentation will provide the attendee with an introduction to data processing in GeoServer by means of WPS, rendering transformations and SQL views.   We will start by a brief introduction to GeoServer WPS capabilities, showing how to build processing request based on existing processes and how to build new processes leveraging scripting languages, and introducing unique GeoServer integration features, showing how processing can seamlessly integrate directly in the GeoServer data sources and complement existing services.   The presentation will move on showing how to integrate on the fly processing in WMS requests, achieving high performance data displays of heatmaps, point interpolation and contour line extraction without having to pre-process the data in advance, and allowing the caller to interactively choose processing parameters.   While the above shows how to make GeoSever perform the processing, the analytics abilities of spatial databases are not to be forgotten, the presentation will move on showing how certain classes of processing can be achieved directly in the database.   Eventually, the presentation will close with some guidance on how to choose the best processing approach depending on the application needs, data volumes and frequency of update, mentioning also the possibly to leverage GeoServer own processes from batch tools such as GeoBatch.   At the end the attendee will be able to easily issue WPS requests both for Vectors and Rasters to GeoServer trhough the WPS Demo Builder, enrich SLDs with awesome on-the-fly rendering transformations and play with virtal SQL views in order to create dynamic layers.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters

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Paper Title	Progress in testing integrity of geoscience software, and implementation in Apache SIS
I can give a practical demo	yes

Paper Abstract (short)

Progress over the last 2 years in the implementation of GIGS tests in GeoAPI, demonstration on Proj.4, the UCAR NetCDF library and Apache SIS, and introduction to the new Apache Spatial Information System (SIS) project.

Paper Abstract (long)

The Geospatial integrity of geoscience software (GIGS) guidances is a set of tests developed by the authors of the well-known EPSG database [1]. From their web site: GIGS is a process developed in response to significant concern and user experiences   of violations of geospatial integrity of data when using geoscience software, resulting   in incorrect results, inconsistent understanding and misleading information for the user   community.   This talk will cover the progress over the last 2 years in the implementation of GIGS tests in the GeoAPI conformance test suites [2]. GeoAPI 3.0.0 is an OGC standard defining a set of Java interfaces that different libraries can implement. GeoAPI Conformance is a suite of JUnit tests that any GeoAPI implementation can leverage. The relationship with CITE tests will be briefly explained and the execution of GIGS tests will be demonstrated on Proj.4, the UCAR NetCDF library and Apache SIS.   The Apache Spatial Information System (SIS) is a top level project at the Apache Software Foundation (ASF) [3]. The goals of Apache SIS are to provide an ALv2 licensed Java toolkit and API that developers can leverage to build spatial information systems. This includes the OGC/ISO services commonly found in similar toolkits (metadata, referencing, queries, etc.) with particular attention given to the needs of geoscience applications and data integrity.   The SIS project has undergone successful incubation at the ASF in fall 2012. The project is both relatively young, and in the process of inheriting a relatively large code base from other projects. This situation gives to users an opportunity to influence the SIS design in an early stage and experiment now what may come later.   [1] http://www.epsg.org/gigs.html [2] http://www.geoapi.org/geoapi-conformance/index.html [3] https://builds.apache.org/job/sis-trunk/site/

Topic type		Target Type
Benchmarks: Comparisons between packages. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		Technical / Developer Quality insurance

ID Number	39

Name	CŽdric Moullet
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Paper Title	Publish 175 years of swiss national maps. Easy task ?
I can give a practical demo	yes

Paper Abstract (short)

swisstopo has launched on 17.1.2013 a world premier [http://s.geo.admin.ch/363c3e5b] allowing all internet users to navigate in all swiss national maps, years by years, from 1838 to today.

Paper Abstract (long)

swisstopo has launched on 17.1.2013 a world premier [1] allowing all internet users to navigate in all swiss national maps, years by years, from 1838 to today.   This talk presents three essential aspects which allowed this launch: the time management, the preparation of the historical data and the required technical infrastructure needed in order to resist to the slashdot effect generated by the important media coverage.   The first aspect is the time management. For a national map, the time can be the publication date, the date when the aerial picture has been taken or the date when the map has been updated. So, itÕs essential to define clearly the notion of time. In addition, the swiss FSDI (Federal Spatial Data Infrastructure) needed to be extended in order to support the time dimension. The second aspect is the data preparation. Several steps are required for this preparation: scan of the paper maps, georeferenciation and documentation, management of 4000 digital maps and their metadata, tiling and integration in the application map.swisstopo.admin.ch.   The third aspect will present the strategy used in order to ensure the availability of the ÒJourney Through TimeÓ application. After the press release and the presentation of the tool in various media, a peak of 2Õ600 tiles per second has been reached. This is what is usually called a Òslashdot effectÓ. This effect has been clearly observed during the swiss television news [2].   But, and this is probably the most important, the ÒJourney Through TimeÓ service is very appreciated from the users. It allows the citizen and the professionals to see how the swiss landscape has evolved during the last 2 centuries. [1] http://s.geo.admin.ch/363c3e5b   [2] https://docs.google.com/document/d/1fkJies9nTiBNHBbP3KHk_ia5Chk611aEFUpW-IXtWBE/edit?usp=sharing

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information.		People new to open source geospatial Manager End User Technical / Developer

ID Number	42

Name	Chris Eykamp
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Paper Title	Pushing the Limits of OGC Protocols: iGUESS Ð A Distributed Modeling System for European Cities
I can give a practical demo	yes

Paper Abstract (short)

Challenges and lessons learned developing a generic, open, distributed modeling system based on OGC standards that allows users to configure and run models and visualize results using a web-based platform.

Paper Abstract (long)

The integrated Geospatial Urban Energy decision Support System (iGUESS) was conceived as a way to help urban planners explore renewable energy and energy savings potentials to make cities more sustainable and self sufficient. Models that calculate solar, wind, and geothermal energy potential can be complex to build and run, so we felt we could simplify the process by creating a web-based tool that a planner could run from their browser. To maximize interoperability with existing models and data sources, we decided to build the system using existing OGC standards and protocols.   iGUESS is a web-based system for connecting data, modeling, and visualisation services distributed across the Internet. Users can leverage data and processing services offered via standard OGC protocols such as WMS, WFS, WCS, CSW, and WPS.Ê iGUESS helps users match data with models, launch model runs, monitor progress of execution, and visualize computed results. iGUESS does not store data or host computation services, but instead relies on data and modeling web services provided elsewhere in the project, by our partners, and by third parties.   Developing iGUESS has given us a better understanding of the strengths and weaknesses of a distributed modeling system based on OGC services, and some of the inherent limits of these protocols.ÊThe interface allows users to interact with services in real-time, using minimal caching, so it always presents an accurate reflection of what data and modeling services are available. This design has presented us with interesting challenges related to intermittent and unpredictable availability of distributed data and process services that live beyond the bounds of the system.   The primary advantages of this distributed modeling system is its modularity and flexibility. Users can run models using input datasets they (or others) may have published for different purposes. Models can be upgraded and improved by their publishers without requiring users to install new software. Finally, running models via WPS can be easier than configuring a local desktop model, and the processing is offloaded onto a computer presumably more suited to handling large, complex calculations.   Many of the specific challenges we faced have been related to the limitations of the WPS protocol. It is difficult to precisely specify inputs or describe outputs, and there is no mechanism for prioritzing or terminating a running process. The lack of process control is particularly relevant to the sorts of large, processor intensive models that iGUESS was designed to run. Also, very little of the data our partners need to use is actually available online, and they have encountered a wide range of logistical and institutional barriers to providing it themselves. Lastly, we are still trying to cope with issues related to exposing computationally expensive processes to the Internet.   This talk will present a technical overview of the iGUESS system, how it works, alternate approaches we considered (distributed architecture vs. traditional ÒdesktopÓ approach), and the lessons we learned building it (managing complexity and the risks of oversimplification).Ê It will also explore some of the Òreal worldÓ hurdles mentioned above, and will offer some ideas and insights into the type of applications that are best suited for the WPS protocol.

Topic type		Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards.		End User Technical / Developer

Additional Presenters	
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ID Number	19

Name	Angelos Tzotsos
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Paper Title	pycsw: Metadata Publishing Just Got Easier
I can give a practical demo	yes

Paper Abstract (short)

pycsw is an OGC Compliant CSW server implementation written in Python, enabling publishing and discovery of geospatial metadata, providing a standards-based metadata and catalogue component of spatial data infrastructures.

Paper Abstract (long)

pycsw is an OGC CSW server implementation written in Python, enabling publishing and discovery of geospatial metadata, providing a standards-based metadata and catalogue component of spatial data infrastructures. This presentation will look at the history and motivation of pycsw, current developments, and why pycsw is quickly gaining momentum as the choice for CSW deployments among many open data portals (GeoNode, Open-Data-Catalog, CKAN/data.gov). The project is certified OGC Compliant, and is an OGC Reference Implementation. Since April, pycsw is under OSGeo Incubation.

Topic type		Target Type
Development: new developments in products. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters	
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ID Number	135

Name	Luca Delucchi
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Paper Title	pyModis: the Python library for MODIS data
I can give a practical demo	no

Paper Abstract (short)

pyModis is a Free and Open Source Python based library to work with MODIS data. It offers bulk-download for user selected time ranges, mosaicking of MODIS tiles, and the reprojection from Sinusoidal to other projections, convert HDF format to other formats.

Paper Abstract (long)

pyModis library is a Python library to work with MODIS sensor satellite data. It was originally developed as an interface to download MODIS data from the NASA FTP server but it has grown into a powerful library which also offers further operations on the data.   pyModis has several features: - it supports downloading of large numbers of original MODIS HDF/XML files. This is ideal for the automated continuous updating of a local archive through a cron job; - it can parse the XML file to obtain metadata information about the related HDF files; - it can convert a HDF MODIS file to GEOTIFF format; - it can create a mosaic of several MODIS tiles to obtain large coverages including the creation of the merged XML metadata file with information of all tiles used in this mosaic.   For format conversion and mosaicing the MODIS Reprojection Tool (MRT) is required, because at time MRT is the best free and open source software to manage original MODIS data and convert them into a different projection system or format while taking care of the special features of the original Sinusoidal projection. pyModis is composed of three modules: - downmodis.py contains a class downModis used to download MODIS data, it requires a ÒpasswordÓ for the FTP transfer (usually your email address) and a path where to store the downloaded data. Other parameters are optional, such as the date range or the MODIS product to be downloaded; - parsemodis.py contains two classes, parseModis that parses metadata of a HDF file returning all useful information. It has also the capability to create a configuration file for MRT; the other class is parseModisMulti, it reads metadata of several HDF files, hence it is used to create the XML file for a mosaic. This class is also able to return the bounding box of all the tiles; - convertmodis.py is the module to do some simple operations on the original HDF files such as reprojection. It contains three classes and all of them require the MRT software to be installed. convertModis converts HDF files to GeoTIFF format; createMosaic creates a mosaic from several MODIS HDF files into a single HDF file; and processMosaic converts the raw data of MODIS using swath2grid from MRT-Swath.   In pyModis the user can also find five command line tools to easily work with pyModis library: - modis_download.py is the tool to download data, - modis_parse.py reads metadata of a HDF file, prints information or writes them to a file,   - modis_multiparse.py reads metadata of several HDF files and prints bounding box or writes the MODIS XML metadata for a mosaic, - modis_mosaic.py creates a HDF mosaic from several HDF files, - modis_convert.py converts MODIS data to GeoTIFF or other formats and as well as different projection reference systems. During the presentation all these topics will be discussed and illustrated along with more information about the future of pyModis and the tools for the community (how to contribute or how to report a bug or an enhancement).

Topic type	Target Type

Development: new developments in products. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		End User Technical / Developer

Additional Presenters

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ID Number	88

Name	Gideon Okpoti Tetteh
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Paper Title	PYTHON-BASED AUTOMATIC WATER MASK GENERATION FROM RAPIDEYE IMAGES
I can give a practical demo	no

Paper Abstract (short)

Python-based algorithm using NumPy and SciPy to automatically generate water masks. Firstly, an initial water mask is created using the low reflectance of water in the NIR band by applying a threshold on the NIR band. Secondly, the spectral features of water are used by two simple ratios between the NIR and Green band, and between the NIR and Red band. Simple thresholds are then applied to these two ratios to generate two additional water masks. The next step is to apply a logical and operation on the three initial water masks to create the overall water mask.

Paper Abstract (long)

RapidEye since last year has extended its product portfolios to include large area mosaics. One of the routine and laborious activities carried out during the mosaic generation process is the manual digitization of water masks, as part of the colour balancing of the mosaics. The exclusion of objects such as water bodies from images helps to greatly improve the colour balancing of mosaics. The Research and Development (R&D) department of RapidEye is undertaking a development project in order to identify various ways of improving the overall outlook of RapidEye mosaics. One of the objectives of this project is the automatic creation of water masks from the RapidEye images, and to create a global water mask from the single masks. Considering the variety of different approaches to identifying water bodies, a Python-based four step algorithm to automatically generate water masks has been developed. Firstly, an initial water mask is created using the low reflectance of water in the NIR band by applying a simple threshold on the NIR band, which is done automatically. Secondly, typical spectral features of water are considered by two simple ratios between the NIR and Green band, and between the NIR and Red band. Simple thresholds are then applied to these two ratios to generate two additional water masks. The next step is to apply a logical and operation on the three initial water masks to create an intermediate water mask. Finally, in order to remove very small water bodies and any remaining holes, a morphological opening and closing is performed on the intermediate water mask to generate the final water mask. This proposed algorithm was used to extract two water masks from two RapidEye Level 3A images and it yielded a mean accuracy of 90 %, which was calculated using the confusion matrix approach.

Topic type		Target Type
Development: new developments in products.		People new to open source geospatial Manager End User Technical / Developer

ID Number	247

Name	Vincent Picavet
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Paper Title	QGIS as a platform
I can give a practical demo	no

Paper Abstract (short)

Quantum GIS has evolved from a GIS desktop application to a GIS platform, let's see what you can do with it !

Paper Abstract (long)

Quantum GIS as a platform   At the age of web and mobile GIS application, it could be considered a strange idea to focus on desktop GIS. But still, desktop software have a future and are still really pertinent when it comes to advanced analysis or visualization features, where web applications are currently limited.   Quantum GIS (QGIS) is a user friendly Open Source desktop Geographic Information System (GIS) part of the Open Source Geospatial Foundation (OSGeo). It supports numerous vector, raster, and database formats and functionalities.   QGIS has evolved a lot, and is gaining more and more attention from the geospatial comunity. From a simple PostGIS data viewer, it became a full-featured desktop GIS, with very little lacking compared to the proprietary industry leaders.   With the major 2.0 release, QGIS mutated from a desktop GIS to a GIS platform.   First of all, the opensource side of this software makes it ease collaboration and innovation. The QGIS infrastructure is open, and bug reports, advices, feature requests and patches can be sent seamlessly. The community shares ideas, code, documentation and more.   On the technical side, there are a lot of aspects that make QGIS a platform more than a simple software : it has an API, it is a GIS connector to many other components, it is extendable, it is open, it propose a rapid development model, and offers Python bindings.   Sextante, the new QGIS geoprocessing framework, allows QGIS to integrate even more external modules and use them seamlessly, or add your own geoprocessing algorithms.   This presentation shows all the ways you can use the QGIS platform to build tools : * Customize the interface * Create custom forms * Create actions * Create scripts * Use sextante * Build Python plugins * Interact with the web   QGIS as an application platform is a powerful tool, and is continuously improving in that direction. We will also see the next coming steps in future version which will allow for greater interactions with tools and leverage new applications.

Topic type		Target Type
Development: new developments in products.		End User Technical / Developer

ID Number	256

Name	Pirmin Kalberer
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Paper Title	QGIS Cloud and other map publishing platforms
I can give a practical demo	yes

Paper Abstract (short)
A comparison of web publication offerings from little and big players

Paper Abstract (long)
ArcGIS Online, CartoDB, GeoCommons, GIS Cloud, Google Maps Engine Lite, MangoMap and QGIS Cloud offer a wide range of services for publishing maps on the web. They cover the different needs of software developers, web designers and GIS professionals. QGIS Cloud is a popular platform within the QGIS user community for publishing maps directly from the desktop. With direct access to private PostGIS 2 databases and OGC services it gives their users the full power of a spatial data infrastructure.

Topic type		Target Type
Benchmarks: Comparisons between packages.		People new to open source geospatial Manager End User Technical / Developer

ID Number	143

Name	Marco Hugentobler
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Paper Title	QGIS in the cloud
I can give a practical demo	yes

Paper Abstract (short)
This presentation shows the recent developments in the QGIS cloud project

Paper Abstract (long)
There are a lot of powerfull open source tools available to create, manage and deploy web maps. However, it still needs a web server and knowledge about webserver/ databases /mapserver software in order to setup a web map. QGIS cloud provides a means to publish web maps from the desktop (QGIS in that case) without having a running database or a webserver. A QGIS plugin helps to upload the data and maps to the cloud portal and the published maps are collected on a webpage.

Topic type		Target Type
Development: new developments in products. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User Technical / Developer

ID Number	12

Name	Andreas Neumann
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Paper Title	QGIS Server, QGIS Web Client and QGIS Cloud
I can give a practical demo	yes

Paper Abstract (short)

The aim of the QGIS suite is to provide, next to QGISÊDesktop, a web client, a mobile client and OGCÊgeoservices, all from a single project file.

Paper Abstract (long)

The QGIS project started with a Desktop viewer, then mutated in a Desktop-GIS and now further evolves into a GIS suite, offering a Desktop-GIS, a server (currently WMS and WFS), web clients (QGIS web client, Lizmap) and a cloud service (QGIS cloud). In addition there are experimental versions for QGIS mobile (Android) and QGIS globe for 3d views. The philosophy behind all these offerings is central configuration (all of these services use the same project file) and ease of use (most of the settings can be defined in the QGIS Desktop project settings).   This presentation demonstrates the recent developments in QGIS server and QGIS web client and also demonstrates how a QGIS project can be published in the QGIS cloud.   The most-interesting feature of QGIS is server is the re-use of QGIS desktop configurations for the web and for web services, which is a real time saver for administrators of smaller GIS infrastructures. There is no need to reconfigure the same data for different publication methods and services. The same metadata, coordinate system definitions, map extents, layer set, symbology and labeling, print composer layouts and layouts are offered regardless of the publication media or client.   New developments in QGIS server: * introduction of a proprietary GetProjectSettings command which extends the GetCapabilities response to transport project information to a web client * attributes can be selectively hidden from WMS or WFS * print layouts can be hidden from QGIS server * layers can be published as WFS. For each layer, the administrator can define whether the WFS layer is read-only or transactional. * per layer transparency definable for each WMS request * easy filtering and selection of features without the need to create complex SLD structures * legend configuration options for legend graphics customization   QGIS web client is based on OpenLayers, ExtJS and GeoExt. It uses the standard WMS requests like GetMap, GetFeatureInfo and GetLegendGraphics, but also proprietary extensions like GetProjectSettings and GetPrint. The current feature set includes viewing and navigation of map extents, feature info querying with feature highlighting, tooltips (on mouse over) and popups (on mouse-click), geographic search, printing (through PDF), measuring length and area and viewing legends.   Recent improvements include: * viewing of metadata * layer reordering * setting layer opacity * map theme switcher * permalink with optional URL shortener   Samples for QGIS web client in a production environments can be seen at [4], [5] and [6].   For users who want to publish QGIS projects without installing and maintaining their own server environment there is the option to publish QGIS projects to the QGIS cloud [7]. Publically visible projects can be published for free, restricted maps or excessive use are regarded as commercial use that can be ordered as part of an abonnement. A QGIS plugin [8] helps the publisher to upload the project, used styling resources and data files to the QGIS cloud.   Links: [1] http://hub.qgis.org/projects/quantum-gis/wiki/QGIS_Server_Tutorial - QGIS server documentation [2] https://github.com/qgis/qgis-web-client - QGIS web client github project page [3] http://hub.qgis.org/projects/qgis-web-client/ - QGIS web client bug tracker [4] http://gis.uster.ch/ - QGIS web client of the City of Uster [5]

http://map2.jena.de/kartenportal/kartenportal?format=image/png&visibleLayers=Stadtplan,Adressen - City map of Jena using QGIS web client [6] http://map.geo.gl.ch/ - QGIS web client based geo portal of the Kanton of Glarus [7] http://www.qgiscloud.com/ [8] http://www.qgiscloud.com/en/pages/quickstart

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		Manager End User Technical / Developer

Additional Presenters	
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ID Number	439

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Paper Title	QGis, PostGIS, MapServer Suite : use the stack with maximum efficiency
I can give a practical demo	no

Paper Abstract (short)

How to use the QGis, PostGIS and MapServer suite tools at their best, and strenghten the integration of this FOSS4G stack.

Paper Abstract (long)

Opensource softwares follow the UNIX way : do one thing and do it well. This leads to very efficient software, and FOSS4G are among them. But sometimes integrating the pieces and working with multiple components can be rough and not really straightforward for end-users.   Let's show you that it's not the case with this software stack : QGis, PostGIS, MapServer Suite.   PostGIS is the well-known opensource GIS database, and is a must-have for any serious GIS data storage and processing. MapServer suite is still the fastest map renderer, and allows to setup GIS webservices which can support lots of users and loads of data, leveraging MapCache and TinyOWS in the most recent versions.   Quantum GIS specializes in desktop GIS, and is at the same time a platform integrating various GIS modules, and offering the user an integrated experience.   This presentation will offer the user tools and workflows to use this FOSS4G stack with maximum efficiency, using the best features of every piece of software involved, while enjoying a handy end-user interface.   Manage and analyze live PostGIS data within Quantum GIS, write MapFile and view your modifications on the fly in a new Quantum GIS layer, add new Webservices layers for viewing or editing...   We will cover standard workflows to let you save time and concentrate on your real work : get value out of your data.

Topic type		Target Type
Hacks and Mashes: novel solutions to our problems.		People new to open source geospatial End User

ID Number	21

Name	Arnulf Christl
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Paper Title	Qualifying for Open Source
I can give a practical demo	no

Paper Abstract (short)
The new Certification and Accreditation Program

Paper Abstract (long)

There is a growing need for independent qualification around Open Source. In general IT it is already possible to acquire post graduate qualifications, for example the the Linux Professional Institute Certification (LPIC). In the geospatial domain there are programs but most are heavily focused on learning a specific typically proprietary software. None of this exists for the Open geospatial domain. This has been discussed in and around OSGeo for quite some time but it is a decidedly difficult topic to tackle and proves to have a lot of slippery slopes. It requires continuous engagement which can only be ensured by having dedicated paid staff. This requires up front investment and a continuous stream of revenue coming in to keep going. As it turns out OSGeo has (for now) decided to not go down this road but instead rely on volunteer work, foster communities and keep its independence from investors. But as the Open Source Geospatial market grows so does the need for accreditation and post graduate qualification. Some Open Source businesses have gone forward and offer training courses and do so well. But again they will focus on "their own stack" and are therefore not really qualified to qualify others in a more general sense of Openness. The same applies to Open Standards and increasingly also for Open Data.   Metaspatial now launches an Institute with the mission to close this gap by offering an accreditation program. It is clearly geared towards individuals and does not qualify for a brand (as do most proprietary vendors) or for a specific company. The intention is to specifically raise the value of individual competence instead of making people just another exchangeable human resource.   As the prefix "meta" already suggests this is a program beyond purely "spatial". Besides qualifying on a technical level individuals are invited to learn about themselves and introspectively explore their own potential.   The program initially focuses on four main qualifications: * Open Source Geospatial Software Developer   * Open Data Professional   * Open Standards Expert   * Open Geospatial Consultant   In the presentation Arnulf Christl, president of the metaspatial Institute will explain the program and offer insights into the accreditation process.   The program is developed in close cooperation with universities and academia, but also with open source businesses, user communities and not-for-profit organizations. The program is offered through a commercial entity (metaspatial) and geared towards accrediting professionals. The program does not provide training classes for specific software stacks (i.e the software XY or the Suite ZA) because there already exists a well established ecosystem of Open Source businesses around the globe offering this.   The Process: Accreditation starts by sending in an application. The application requires an extended CV, previous work references and list of associations. After these have been evaluated and if they are acceptable the applicant qualifies for an online test which requires payment of a moderate fee. If the online test was successful the applicant is invited to a personal interview. This is probably the most subjective and intricate but also most important and challenging part of the process. Once accepted the applicant pays the second part of the fee and is listed in the metaspatial hall of fame as a professional for one (or more) of the above areas. The accreditation is valid for 2 years as of acceptance after which the process can be repeated with the initial fee being waived.   Organizational Structure Initially the

metaspatial Institute will be run as a private company with Arnulf Christl as president. An advisory board of directors from private industry, academia, Open Source and standardization organizations will oversee and accompany the process. Initial funding comes from private investment and a sponsorship program (to be launched before FOSS4G 2013). The long term goal of the institute is to establish an environment of paying accredited professionals who will be able to cover the running costs of the institute.   Partners: The metaspatial Institute partners with academia, private industry and not-for-profit organizations. Training partners are invited to have the metaspatial Institute quality assure their courses but this is not mandatory. Accreditation fees will be reduced for successful participants of metaspatial QA'd courses.   Future Development The accreditation program will undergo continuous improvement based on the the feedback of the applicants, the board of directors and through the input of the sponsors. The metaspatial Institute does not intend to offer training courses on their own and does not intend to compete with existing academic education. Instead it aims to close the gap of post-graduate qualification accreditation for Open geospatial professionals.

Topic type		Target Type
Development: new developments in products. Maybe this is a product presentation which belongs in a separate track for sponsors?		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters	
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ID Number	332

Name	Simone Giannecchini
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Paper Title	Raster data in GeoServer and GeoTools: Achievements, issues and future developments
I can give a practical demo	no

Paper Abstract (short)

The purpose of this presentation is to discuss the developments performed during last year as far as raster data support in GeoTools and GeoServer is concerned, while on the other side to introduce and discuss future development directions

Paper Abstract (long)

The purpose of this presentation is, on a side, to dissect the developments performed during last year as far as raster data support in GeoTools and GeoServer is concerned, while on the other side to introduce and discuss the future development directions.   Advancements and improvements for the management of raster mosaic and pyramids will be introduced and analyzed, as well as the latest developments for the exploitation of GDAL raster sources. Extensive details will be provided on the latest updates for the management of multidimensional raster data used in the Remote Sensing and MetOc fields.   The presentation will also introduce and provide updates on the JAITools and ImageIO-Ext projects. JAITools provides a number of new raster data analysis operators, including powerful and fast raster algebra support. ImageIO-Ext bridges the gap across the Java world and native raster data access libraries providing high performance access to GDAL, Kakadu and other libraries.   The presentation will wrap up providing an overview of unresolved issues and challenges that still need to be addressed, suggesting tips and workarounds allowing to leverage the full potential of the systems.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. New data: handling new data models, for example 3D & temporal data, or big data.		Manager End User Technical / Developer

Additional Presenters	
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ID Number	189

Name	Mike Pumphrey
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Paper Title	Ready, Fire, Aim
I can give a practical demo	no

Paper Abstract (short)
Ready, Fire, Aim: Some thoughts on how to better finish the projects we start

Paper Abstract (long)
With rapid release cycles and downloads-direct-from-the-source-code, it's easy to get new features out the door and then move on. And while the open source nature of our projects makes this viable, there are some potential pitfalls with this approach. This brief talk will discuss some suggestions on how to think about a finished project in the context of ongoing development.

Topic type		Target Type
Case Studies: Relate your experiences.		Manager Technical / Developer

ID Number	407

Name	Tom Kunicki
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Paper Title	Real_time data analysis and rendering with HTML5 Canvas using OpenLayers and GeoServer
I can give a practical demo	yes

Paper Abstract (short)

The emergence of HTML5 Canvas support in browsers creates an opportunity to shift rendering and analysis tasks from the server_side to the client web browser.

Paper Abstract (long)

The emergence of HTML5 Canvas support in browsers creates an opportunity to shift rendering and analysis tasks from the server_side to the client web browser.   Traditional workflows of distributed geospatial applications implement filtering and styling on the server requiring frequent communication between the client and server with each modification to filters or symbology.   By implementing high_throughput filtering and symbology rendering in the client web browser application responsiveness is significantly increased.   Raster representations of features and coverages can be dynamically filtered and symbolized in the browser with functionality recently developed in OpenLayers.   Recent developments in GeoServer enable customized rendering of feature attributes and coverage data into raster pixels by use of SLD utilizing WPS and Rendering Transformations. These rasters are then cacheable and in a format suitable for filtering and symbology rendering in the browser.   With the newly developed HTML5 Canvas functionality in OpenLayers, these rasters can be dynamically filtered and symbolized in the browser.   This technique is being applied at the USGS to provide real_time rendering of complex spatio_temporal hydrologic and climate model outputs with constant performance.   Sample implementations will be presented that take advantage of an OpenLayers HTML5 canvas raster pipeline utilizing data vended by GeoServer using WPS and WMS coupled with SLD Rendering Transforms and an integrated WMS tile cache.

Topic type	Target Type
Visualization: effective presentation of information.	Technical / Developer

Additional Presenters	
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ID Number	179

Name	Michael Nolde
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Paper Title	Realization of a web-based Fire Danger Forecasting System for Mediterranean Landscapes
I can give a practical demo	yes

Paper Abstract (short)

The presentation covers the realisation of a fire danger forecasting platform for the Isle of Sardinia, using crowd sourced weather data and only Free and Open Source software.

Paper Abstract (long)

This presentation covers the preparation and realisation of setting up a fire   danger forecasting platform for the Isle of Sardinia. The system   created uses, firstly, crowd sourced weather data as input for   calculation of fire danger predictions and, secondly, only free and   open source software for the actual implementation. The platform is   meant to provide regional, daily fire danger forecasting maps. Its   configuration is based on a ten-year study of fire occurrence on   Sardinia and Crete. The Fire Weather Index (FWI) with treshold   values adapted to Sardinia is used for the forecasts.

Topic type		Target Type
Disaster Response: software, case studies, outcomes.		End User

ID Number	127

Name	Julien-Samuel Lacroix
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Paper Title	Scribe: MapServer mapfile development made easy
I can give a practical demo	yes

Paper Abstract (short)
Scribe helps you edit and manage large MapServer mapfile easily.

Paper Abstract (long)
Anyone who has tried to create great looking maps for a large dataset such as OpenStreetMap knows how daunting of a task that can be. Scribe is the solution to this painstaking task.   This presentation will introduce this new way to not only edit, but mostly to manage, mapfiles. No matter how much data you have, how many mapfiles or the complexity of your symbology, it will help you sort out the essential by removing the iterative part of the process. Getting rid of all of this error prone copy-paste as well!   Scribe is a python script that allows you to write a configuration file instead of a mapfile. The configuration is similar to Basemaps, but simpler to use and less verbose.

Topic type		Target Type
Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		End User Technical / Developer

ID Number	388

Name	Till Adams
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Paper Title	SHOGun in action - WebGIS-stack for a complete federal state WebGIS solution for water managment
I can give a practical demo	yes

Paper Abstract (short)

SHOGun itself is mainly based on the Frameworks Java-Spring, Hibernate, Hibernate Spatial, GeoExt, ExtJS, GeoExt Mobile and OpenLayers as well as technical challenges such as getting the most out of the Maven Build and using a CI-server (Continuous Integration) were included.

Paper Abstract (long)

The WebGIS-Framework SHOGun was especially extended for the water administration environmental agency of Rhineland-Palatinate in western Germany. The SHOGun framework was released as Open Source software from terrestris in 2012 and mainly focussed on the backend-side for a WebGIS solution   based on widely accepted and very stable Java-frameworks. There has always been a WebGIS-client for SHOGun, based on GeoExt 1.1 and also a test-port to the OpenGeo "GeoExplorer" was implemented. Project-specific requirements drove us to a complete re-work of the whole SHOGun-suite.   The talk will be split into two parts. In the first part the (Open Source) framework SHOGun as a full usable WebGIS-Framework including the backend/frontend with user- and group-administration, setting up WMS/WFS services via file-upload using GeoServers REST interface, connecting additional attribute-data and photographs to existing services and an administration backend for setting up WebGIS clients (Desktop and Mobile) with special layers, tools for a selected group of users, to name a few, will be presented.   Also the state-of-the-art WebGIS-Client framework based on GeoExt 2 and ExtJS 4 with lots of features widely known from Desktop-GIS will be shown. There is also an integration of a mobile WebApp-GIS-client, based on GeoExt mobile.   In the second part we will focus on the re-use of the whole framework for a second project, called Momo, which has a more scientific background, The first application for the water authority was based on an Oracle database, the second on PostgreSQL-database server. This is not worth a third focus in the talk, because the migration from one database-server to another just worked.   Especially for the re-use the Maven-package built process and also the use of a continuous integration server helped a lot.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products. Full WebGIS stack suite		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters	
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ID Number	94

Name	Hal Seki
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Paper Title	Shortest Path search for real road networks with pgRouting
I can give a practical demo	yes

Paper Abstract (short)

pgRouting adds routing functionality to PostGIS, and this presentation will give an overview of the current state of the project and introduce the new and revised features of the new release in 2013.

Paper Abstract (long)

pgRouting adds routing functionality to PostGIS. A completely revisioned version of the library will be released in 2013. This presentation will show the inside and current state of pgRouting development. We will explain the shortest path search in real road networks and how the data structure is important to get better routing results. Furthermore we will show how you can improve the quality of the search with dynamic costs and make the result look closer to the reality. You will learn about difficulties and limitations of implementing routing functionality in GIS applications, the difference between algorithms and for which use case pgRouting is the right tool.   pgRouting includes: Shortest path search (3 algorithms: Dijkstra, A-Star, Shooting Star) Traveling salesperson problem solver (TSP) Driving distance calculation É and many new features!   pgRouting is an extension of PostgreSQL and PostGIS. A predecessor of pgRouting Ð pgDijkstra, written by Sylvain Pasche from Camptocamp, was later extended by Orkney and renamed to pgRouting. The project is now supported and maintained by Georepublic, iMaptools and a broad user community.

Topic type		Target Type
Development: new developments in products.		Technical / Developer

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ID Number	132

Name	Lluis VICENS FRANQUESA
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Paper Title	SIGTE Maps Cloud, new web map service for University of Girona investigators
I can give a practical demo	yes

Paper Abstract (short)

SIGTE Maps Cloud is a web tool for creating interactive web maps without requiring server architecture. The application aims to optimise the process of developing interactive maps for the university community and is an initiative of The GIS and Remote Sensing Service of the University of Girona (SIGTE) to provide service for the universityÕs own needs regarding the publication of geographic data.

Paper Abstract (long)

WHAT IS Maps Cloud?   ItÕs a service offered by SIGTE (The Geographical Information Systems and Remote Sensing Centre of the University of Girona) to the UdG community to publish their data on the internet in a spatial context.   Using a web tool created by the SIGTE, your technicians can create a web map viewer with basic browsing functionality, data visualisation, a static legend, a basemap and a printable version of the map.   OBJECTIVES   ¥   Provide a service to the university community (economical, uncomplicated maintenance...). ¥   Automate the web map creation process. ¥   No dependence on third parties ¥   Avoid multiple, similar developments. ¥   Open to incorporation of new functionalities. Freedom to implement the requirements of each new project. ¥   Get a fully modifiable end result. ¥   Explore new programming libraries.   OTHER TOOLS   In the initial phase of the project, we proceeded to identify some of the tools that can be found on the web for generating maps.   ¥   ÒMy sitesÓ on Google Maps. ¥ ArcgisOnline. ¥GIScloud ¥   GeoCommons ¥   Ikimap ¥   CartoDB ¥   AMMAPS ¥   BatchGeo ¥   Many Eyes ¥ MyGeoCloud   The most important aspects we took into account in assessing these tools were: ¥   Language, possibility of generating maps in Catalan. ¥ Generating maps would not involve any cost. ¥ The final result would be a map viewer with basic functionalities. ¥   Possibility of integrating multiple data sources in a single map. ¥   Possibility of generating results offline. ¥   Possibility of customising the map viewer interface. ¥ Possible problems of data licenses. ¥   User community.   Although the tools analysed are great, very popular and are widely accepted, they were not completely suitable for our objectives and, in the end, we decided to develop our own solution.   FUNCTIONALITIES   ¥   Importation of data: _   Geographic data from .shp and .xls files _   Complementary alphanumeric (.xls) ¥   Apply general symbology or by rules associated with the values from one of its columns. ¥   Generate map viewers in web format. ¥   The maps generated do not require server architecture (except for the base layer). DESCRIPTION   Users   The application includes two job roles: administrators and editors.   The administratorÕs role is to administer the tool. This profile manages the base layers of maps and tool users.   The editorÕs role is indicated for content/map creators. This profile can: ¥ Manage data sources. ¥   Apply data symbology. ¥   Upload icons. ¥   Create maps.   User-administrators also have the possibility of working as editors.   Base layer   Only the user-administrator can administrate it. Providers of the most popular maps are, by default, registered, both globally and locally: Google maps, Bing Maps, CloudMade, OSM, PNOA and ICC.   Data sources   The application allows working with geographic data and alphanumeric data.   We will represent the graphical content of our maps with the geographic data. Data in geographic data format can be

imported from .shp or .xls files. In the case of .xls files, only coordinates can be imported, which will be processed as points. In the case of working with very detailed geometries, the application offers the possibility of simplifying the geometries to allow viewing on a lighter map. The alphanumeric data are used to complete the geographic data information. Their importation is particularly suitable in the case of attributes that contain values of more than 255 characters, given the limitations of .shp files in regard to number of characters. Styles Styles are generated to apply symbology to data uploaded in the application and are built according to the type of data geometry: points, lines or polygons. Styles can be applied by the overall data source or based on the values of one of its columns. For theming based on the value of one of its attributes, we can apply the rules deemed appropriate, choosing between several operators and completing the style according to the value entered. Each rule is assigned a title and an order of preference that will be reflected both on the map and in its legend. In the event of working with points, the tool has a basic library of icons. There is also the possibility that the user-editor can upload customised icons in ÒIconsÓ. This section also offers the possibility of managing windows with more information. Attributes to be displayed can be chosen by clicking on an entity of the map. This functionality is deactivated if this field is left blank. Maps Maps are a composition of various data sources with their symbology within a viewer. When creating a map an editor should: ¥ Define some basic attributes such as title, subtitle, investigator, credits. ¥ Choose a theme, which is the template that contains the display. The themes, if theyÕve been programmed, enable the editor to define some variables such as colours. ¥ Choose the background map. ¥ Define the centre of the map. It may be based on a coordinate and a zoom or on some limits, whether defined by the user or done automatically based on the data from the mapÕs data sources. ¥Add the data sources that will make up the map. Maps can be exported in a .zip file containing all the code needed to install the map in a conventional web space. The web map generated does not need SIGTE Maps Cloud to be viewed; it operates autonomously. Depending on the template, in this case on the default template, the map generated has basic browsing functionality, windows with more detailed information, a legend and a printable version. Technical details The application has been developed in Python with the DJANGO framework. Importation of geographic data is done via Gdal + python-gdal. Data is stored in a PostgreSQL database with the Postgis module. The maps generated with the default theme for geographic data visualisation uses OpenLayers. These are stored in text files in GEOJSON format and symbology is applied by using SLD styles

Topic type	Target Type
Development: new developments in products. Hacks and Mashes: novel solutions to our problems.	Manager End User Technical / Developer

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ID Number	343

Name	Stephen Jones
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Paper Title	Simple OGC Use Cases - and experience
I can give a practical demo	no

Paper Abstract (short)
Show how Vaisala use OGC standards to provide products and services that are used to provide Decision Support Applications in various market segments. In addition we will look at how we have used Puppet technology to help simplify the deployment and management of servers..

Paper Abstract (long)
Using examples of real world applications developed by Vaisala, the presentation will show how using OGC services can bring benefits to both application vendors and users. The applications will demonstrate how Vaisala are utilizing WMS to deliver decision support applications to users in various market segments.   The presentation will also cover how Puppet, a system for automating system administration tasks , has been taken into to use to simplify the deployment and running of OGC compliant servers by allowing the configuration and build of such servers to be become a standard process. As an example we will show how by using Puppet we have been able to automate the build of a Global Base Map WMS servers using OpenStreetMap data, such as we use within Vaisala data centres. Such servers can run either as physical or virtual machines.   Finally we look at some of the areas we are working onto today. These include   Dynamic SLD creation   Multi-Dimension WMS services to provide access to Meteorological forecast data   The use of OGC WPS to turn sensor observation data into raster products.

Topic type		Target Type
Case Studies: Relate your experiences.		Technical / Developer

Additional Presenters	
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ID Number	168

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Paper Title	SITGAP 2 Ð moving Early Warning System from FTP/ASCII files to OGC/SOA
I can give a practical demo	yes

Paper Abstract (short)

This talk will present the renewal of an Early Warning System for the Lake Maggiore flood risk moving from an approach based on file exchange (FTP) and a rigid sequence of timely synchronized processes to a flexible, real time and scalable Service Oriented Architecture based on OGC standards and FOSS4G software. Architecture and components of the system, as well as strength, weakness and opportunities of this approach when applied in a real case that is in a production environment will be discussed.

Paper Abstract (long)

Several international researches has showed the feasibility of Innovative Early Warning System architectures that takes advantages of interoperability and Service Oriented Architecture.   But, have you ever tried to apply this approach to renew old, existing and stable systems? What are the experts requirements? Does the existing standard clearly address them? What FOSS4G solution can you apply? This talk will present a case study located in Ticino: the renewal of an Early Warning System for the Lake Maggiore flood risk. The system,   The system, originally based on file exchange (FTP) and a rigid sequence of synchronized processes, accounted for the international exchange of hydro-meteorological data between 5 partners, acquisition of weather forecasts, hydrological modeling, Web based geospatial decision support system and dispatch of alarms/notifications.   The switch in 2009 from sensor GSM based to GPRS based communication of the regional monitoring network, that the IST manage under contract from the Canton Ticino, gives the impulse to redesign the system. The choice of using Open Standards standard (OGC) and a Service Oriented Architecture was selected due to the needs of flexibility and scalability of the system. Nevertheless, the renewal of the system had to fulfill a series of operational requirements expressed by hydrologists experts, which undertook the task of data collection, validation and publication since the 80s. For this reason a series of development and solutions were specifically deployed.   As a result of this shift, today we have: a new software supporting the SOS (istSOS); 25 years of hydro-meteorological network observations accessible trough the SOS standard; a series of Web Processing Service performing tasks of preprocessing, re-projecting, data analysis and validation a series of geoservices exposing data as WMS and WFS standards a python/WSGI RESTfull service for civil protection related information management   Several international researches has showed the feasibility of Innovative Early Warning System architectures that takes advantages of interoperability and Service Oriented Architecture.   But, have you ever tried to apply this approach to renew old, existing and stable systems? What are the experts requirements? Does the existing standard clearly address them? What FOSS4G solution can you apply?   This talk will present a case study located in Ticino: the renewal of an Early Warning System for the Lake Maggiore flood risk. The system,   The system, originally based on file exchange (FTP) and a rigid sequence of synchronized processes, accounted for the international exchange of hydro-meteorological data between 5 partners, acquisition of weather forecasts, hydrological modeling, Web based geospatial decision support system and dispatch of alarms/notifications.   The switch in 2009 from sensor GSM based to GPRS based communication of the regional monitoring network, that the IST manage under contract from the Canton Ticino (Switzerland), gives the impulse

to redesign the system. The choice of using Open Standards (OGC) and a Service Oriented Architecture was selected due to the needs of flexibility and scalability of the system. Nevertheless, the renewal of the system had to fulfill a series of operational requirements expressed by hydrologists experts, which undertook the task of data collection, validation and publication since the 80s. For this reason a series of development and solutions were specifically deployed. As a result of this shift, today we have: a new software supporting the Sensor Observation Service standard (istSOS); 25 years of hydro-meteorological network observations accessible trough SOS standard; a series of Web Processing Service performing tasks of preprocessing, re-projecting, data analysis and validation a series of geoservices exposing data as WMS and WFS standards a python/WSGI RESTfull service for civil protection related information management The presentation illustrates this case study focusing on selected technical solution and strength, weakness and opportunities of this approach when applied in a real case that is in a production environment.

Topic type		Target Type
Case Studies: Relate your experiences. Disaster Response: software, case studies, outcomes. Development: new developments in products.		People new to open source geospatial Manager End User Technical / Developer

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ID Number	64

Name	Dr. Horst DŸster
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Paper Title	Sleep well with QGIS Enterprise - good news for decision makers
I can give a practical demo	yes

Paper Abstract (short)
Contracted maintenance and support from the makers of QGIS.

Paper Abstract (long)
A lot of reliable FOSS4G is available around the world. But contracts for maintenance and support are lacking very often. With QGIS Enterprise based on PostgreSQL/PostGIS and the Quantum GIS Suite this gap is closed for the future. The presentation shows the options and the advantages of a QGIS Enterprise contract, and how it is possible to build up a distributed SDI with QGIS Enterprise.

Topic type		Target Type
Business Cases: building the economic case.		Manager End User Decision Makers

ID Number	437

Name	Victor Olaya
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Paper Title	SmallData vs BigData: The perils of using geospatial BigData
I can give a practical demo	no

Paper Abstract (short)

This presentation discusses the problems associated with using geospatial BigData

Paper Abstract (long)

BigData represents one of the most important topics in the geospatial field nowadays. However, the benefits of using BigData might be shadowed by some of the problems associated to it, and as BigData gets more popular and accessible, wrong usage becomes more frequent.   Discussion about the dangers of BigData is not new in a more general context. This presentation tries to adapt that discussion to the geospatial context, and to raise awareness about the problems associated to using BigData.

Topic type		Target Type
New data: handling new data models, for example 3D & temporal data, or big data.		End User Technical / Developer

ID Number	403

Name	Tim Waters
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Paper Title	Space, Place and Psychogeography.
I can give a practical demo	yes

Paper Abstract (short)

An introduction to psychogeography and how it can shed a new light on space and place and itÕs relevance to our geospatial work.

Paper Abstract (long)

Psychogeography is a loose term but generally means "the study of the geographical environment, consciously organised or not, on the emotions and behaviours of individuals", or as the writer Alan Moore said it's "the poetry of place". The term originated with the Situationists in 1950's Paris and has it's roots as a technique for a critique of capitalism and the urban built environment. Whilst we can adopt this radical, critical side of psychogeography to help us in our work for social justice, and open collaborative efforts, psychogeography also has themes that are shared from many other areas, including art, architecture, urban planning, heritage and tourism. It is already present in the study of geography with studies about sense of place, vernacular places, vague geographies and fuzzy boundaries. With the development of the Internet and near ubiquitous mobile computing utilisation, everyone has greater access to information about places and can interact with spaces in a myriad of new unique ways whilst inside or outside a space. A place has sounds, smells, textures, history and a person in that space has their own perceptions. Spaces have invisible borders, architectures, opportunities for play, reflection, recreation. Location based services and games, neogeographical tools and new services and the ease of making new cartographies (using OSM for example) all influence and can be influenced by how we think about space and place. Psychogeography can give us useful insights into how space is organised within our society, how places are represented and work, and how it has the potential to influence the things we do within the geospatial world. An opportunity to do some short psychogeographical activities outside the conference venue at the closet break following the presentation will be given for participants.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Development: new developments in products. Hacks and Mashes: novel solutions to our problems. Collaboration: data collection, data sharing, open standards. Geographical concepts, theory, ethics, participation, cartography. Please fit this in somewhere!		People new to open source geospatial Manager End User Technical / Developer creative types as well, social scientists

Additional Presenters

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ID Number	275

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Paper Title	Spatial Data's Infrastructure of Bolivia's Plurinational State: A free and democratic SDI
I can give a practical demo	yes

Paper Abstract (short)

The Vice-presidency of the State in partnership with the GeoBolivia Project, are approaching to the construction of the Plurinational State of Bolivia«s Spatial Data Infrastructure (IDE-EPB by its Spanish initials), which it is already finished in its first phase. This phase consisted in the implementation of a platform and the construction of a geoportal that allows the access to the country's geographical information of reference, through WMS, WFS, WCS and CSW services. The whole platform uses free software and open standards. This first phase it is complemented with the development of an on-line training module to undertake the transfer of the generated knowledge within the project. The main components that have been used were: gvSIG, QGis, uDig as clients advanced GIS-SDI; PostGreSQL+PostGIS as spatial database; framework geOrchestra that contains GeoServer as map server, GeoNetwork as catalogue server and OpenLayers+Mapfishapp as thin client (geoportal); MapServer like map server for the bottom OpenStreetMap; Debian like operating system; Apache like web server and finally Tomcat like application server.

Paper Abstract (long)

1. Introduction The Spatial Data Infrastructure of the Plurinational State of Bolivia IDE-EPB was created within the framework of the GeoBolivia project, which aims to provide interesting geographical information to institutions and users in general, regardless of the device that is used to access, it means, to have relevant, harmonized, and high quality geographic information to support the formulation, evaluation, implementation and monitoring of practical policies into the development of projects with have a direct or indirect impact on our territory. Additionally bring support in education, research, etc.   GeoBolivia Project has the responsibility for working in cooperation with all the institutions involved to generate spaces for consensus providing access to geographic information. Therefore, the contribution of public and private institutions and professionals involved in the field is crucial for its strengthening and enriching.   In this respect, GeoBolivia, in its first phase had as a final goal the construction of a computer platform, the publication of geographic information according with OGC standards and the development of a portal for consultation, as an initiator and main node of the SDI.   Regarding with technology selection, GeoBolivia opted for the use of free software and open standards, ensuring its sustainability and promoting the democratization of access to information where democracy depends on an informed citizenry with a wide access to information that allows them l
access to justice and demand accountability from public officers to citizens. "While access to information is generally associated with the fight against corruption, is also an essential tool for citizens to exercise their rights and demand accountability from officials." (Neuman, 2002). Also taking into account that the world of free geomatics has grown enough in recent years to consider meeting the same requirements as any other tool deprivation, in that sense, Article 77 of the new General Telecommunications Law states: "The Executive, Legislative, Judicial and Electoral bodies at all levels, to promote, to prioritize the use of free software and open standards, within the framework of sovereignty and national security", supports the technology selected.   2. Project Development Initially, the possible technological options were evaluated in order to implement the framework of the

IDE-EPB which gives priority to the use of free technologies, ensuring data sovereignty, and its "modular" feature. In this sense were considered the following: GeoNode (http://geonode.org) EasySDI (http://www.easysdi.org) and geOrchestra (http://www.georchestra.org/fr/index.html), this last one was chosen as a software solution under the criteria mentioned above.   The main components were: Customers GIS (QGIS, uDig and gvSIG) for data processing before storage (encoding, projection, raster conversion) and symbols for creating Web Services WMS format maps. Spacial Data Infrastructure (geOrchestra) consisting of: A repository of geographic files (SHP and GeoTIFF formats). A geographic database (PostgreSQL + PostGIS). A map server dedicated to the generation of map background with OpenStreetMap data (MapServer). A map server for all data GeoBolivia (GeoServer). A map viewer with slight GIS client functionality (Mapfishapp, based on OpenLayers). An extractor maps downloading games allowing data by geography (Extractorapp). Underlying infrastructure with: An operating system GNU / Linux (Debian Wheezy). A proxy web server (Apache2). A Java Server Applications (Apache Tomcat) to give access to geOrchestra modules.   Figure 1: Artifacts (Prepared by Reynaldo Condori)   All applications used in the implementation of the Spatial Data Infrastructure are free software, both in the preparation of documentation, knowledge transfer and in the Geoportal itself, as well. (See Figure # 2)   Figure No. 2: Technologies Used (Adapted by Reynaldo Condori)   Regarding with the development computer itself, a prototype for testing was designed, and from there the implementation of the portal was designed. For its in this sense, development 5 versions were programmed which main features are described below: Version v0.1: prototype platform with a simplified installation geOrchestra. Version v0.2: Installation of the main modules of geOrchestra (map server, catalog, user management), generating a WMS map background from OpenStreetMap data, updating the website. Version v0.3: Installing geOrchestra auxiliary modules (maps extractor allowing the download of data), "API" to install a viewer (based on OpenLayers) GeoBolivia with data on a website, new website with a section consistently dedicated to helping with texts, images and videos.   Version v0.4: two nodes interconnected via harvesting catalog (CSW) and display maps (WMS), installation of auxiliary modules geOrchestra (catalog search light), map viewer for mobile devices, Live DVD (based on Ubuntu 12.10) containing all main GeoBolivia data, metadata and symbology, and free GIS tools.   Version v1.0: editing shortcut partners (virtual nodes) to their data within GeoBolivia server, bug fixes, server infrastructure more professional, with control of the availability of services and data quality . Following versions: geOrchestra contribution to the evolution and integration, direct download page data sets (without going through the extractor), Community assessment of the quality of the data and metadata (comments and ratings system), personal space each user, interconnection with other types of catalogs (geographical or more generally OpenData).   Figure No. 3: Architecture (Prepared by Sylvain Lesage)   In the same vain and in a reciprocal mean, GeoBolivia became an active member of the community of contributing geOrchestra improvements and new solutions. In fact, at the end of 2012 a version 12.11 geOrchestra Bolivia (http://blog. georchestra.org/post/2012/12/16/geOrchestra-12.11-Bolivia-is-out) was released as a signal of bring back the contributions made by GeoBolivia especially in the internationalization of the framework.   In that sense the features of our platform are: Viewfinder Movement, zoom on the map. Add new layers from the catalog or a remote WMS. Change semiology of a local or remote WMS layer and save the style. Querying on a layer to filter the data displayed. Save the list of layers and open the display area in a context file. Lets read a context file (*. Wmc). Print a map in PDF format. See the map projection (EPSG 4326). Catalog   GeoBolivia Metadata Profile (based ISO 19139). Make harvesting on distant catalogs. Being questioned by a catalog via harvesting distant.   Extractor Choose an area of __extraction. Handling extraction format (ECW, GeoTIFF, SHP, etc.). Management levels. Email when extraction is complete. GeoPublisher Allows publishing geographic data from the GeoNetwork catalog, after loading the data in the metadata record.   Similarly, regarding the collection of Geographic Information (GI) proceeded to conduct an assessment of all existing GI generated or generated the state as such, then formally requested to all public institutions, under the premise that "all information generated from state resources must be public and shared." In that sense we gave the GI under the formats established, the GI was in Shapefile format (. SHP), this was processed and migrated using QGIS, gvSIG and uDig to PostGIS1 spatial database.   The raster data in TIFF format was migrated to GeoTIFF using GDAL function: 'GDAL-translate' Geospatial Data Abstraction Library or GDAL   Once processed geographic information, we proceeded to generate configurations OGC services. This is used to generate the styles uDig and QGIS to check the topology, projections and attributes among others.   Subsequently ordered a server space to store geographic information in raster and vector, and then by proceeding to standardize Geoserver GIs also were created Workspaces with their respective stores data addressed to the appropriate server.   The next step was the publication assigning styles (*. sld) generated for

each layer, that means to determine the appropriate symbology respecting the initially generated by the "producer"   Finally, onward the Geonetwork, the metadata was generated based on the ISO 19139once generated it was linked to the web addresses of the map server.   3. Milestone and New Phases The project in its first phase GeoBolivia's main objective: "to standardize, and distribute GIS democratize the Plurinational State of Bolivia".   In that sense, the installation of the platform had a strong emphasis, ie: installing and configuring a metadata catalog (http://geo.gob.bo/geonetwork/), a geographic database stored and organized (http: / / geo.gob.bo / geoserver /) and the publication of a Web portal that allows direct access to the display modules, Catalog and spatial data downloads: http://geo.gob.bo, also installed a Shared Development Platform, which enables document the entire project development in a systematic and orderly. This can be viewed from http://intranet.geo.gob.bo/proyectos/.   Similarly, it is important to note that in Phase I began Institutional coordination activities with users and providers of data through the Interagency Committee for the effect was convened four meetings, which hosted the explanation, sample developments achieved and proposed a first document of Supreme Decree and Regulations for the establishment of this Committee so as to ensure their constitution and actively participate.   Among others, a training module Virtual (http://geo.gob.bo/cursos/) has been developed with the purpose of training the users and producers to use the IDE-EPB as a means of capacity building for institutions that request it. It also prompted the generation of Bolivian standards regarding the handling and management of geographic information (ISO: 19100) together with public institutions and coordinated with the Bolivian Institute of Standardization and Quality (IBNORCA).   Also, the nodal vision was incorporated into GeoBolivia strategy, in the sense of providing technical robustness and sustainability of Spatial Data Infrastructure in this sense a first product was the development of a Live DVD GeoBolivia 12.12, a DVD that offers no only one copy of the database GeoBolivia, but the ability to install all software applications GeoBolivia implemented. They agree on the Spanish adaptation and development of a framework called geOrchestra (http://www.georchestra.org), developed as a community worldwide, offering the ability to replicate the functionality of GeoBolivia entirely from any institutional server. Moreover, there are other free solutions such as GeoNode compatible (http://geonode.org), developed by the World Bank, implemented in Bolivia under GeoSinager portal (http://geosinager.defensacivil.gob.bo) . The latter is the first example of thematic node (in this case "risks") directly integrated to the IDE-EPB proceed without any adaptation to heavy machinery.   To date, GeoBolivia in Stage I, plays a repository in which all institutions are deposited initially interested and giving your information that is available and free access to our platform with the appropriate metadata (see Fig N i 4 and No. 5).   Figure No. 4: Data Repository (Phase I)   Figure No. 5: Current state of the IDE-EPB (Phase I)   3.1 Second phase: a public SDI, shared and financially sustainable Compared to the initial proposal, Phase I identified some existing or planned systems with which we intend to develop a less centralized structure, the currently implemented in the IDE-EPB (one group of servers located in the Vice President) to achieve a nodal structure (multiple servers interconnected among several institutions). This involves articulation and enhancement of thematic information systems existing in other institutions that were the result of much effort and budget then retrieve and convert later in "nodes" of the IDE, ie it tends to a development structure "nodal". GeoBolivia is the keystone of this infrastructure and that from the sum of articulated systems and network nodes to allow remote replicas have a solid infrastructure and sustainable central government level as shown in Figure No. 6.   Figure No. 6: possible nodal structure systems based on the national executive.   The other important element to be developed in Phase II, are mechanisms for integrating geographic information from players who do not have the resources or technology to mount a node may do so directly meet the parameters set by GeoBolivia. This is the case of territorial autonomy or institutions whose technical capacity to manage it does not take large amounts of geographic information but to produce specific data such as the location of infrastructure (banks, schools, projects, etc..).   To do this, GeoBolivia develop guidelines and tools for the creation of geographic information and also promote GI exchange protocols to ensure interoperability through standards. This means that each institution according to its competence and update its metadata GI as its theme.   Likewise, the phase II will emphasize and promote the standardization of geographic information from producing institutions. GeoBolivia develop a strategy of "participatory quality control" (LERCH, 2013) information to facilitate the integration of comments and evaluations by data users directly in the metadata catalog and establishing a committee of users and providers in a consultative Agency Committee. By offering a variety of mechanisms to share the IDE-EPB, from the viewing, downloading, and quality assessment for individual users to create nodes that replicate GeoBolivia entire infrastructure.   Figure No. 7: Geoportal IDE-EPB (www.geo.gob.bo)   4. Institutional Developments Institutional progress is essential to carry out any project of Spatial Data

Infrastructure. GeoBolivia promoted the socialization and coordination with various institutions conducting the following activities: Consolidation and strengthening of the the links established with the main producing entities GIS in Bolivia, such as: the military Geographic Institute, unique system of information of Earth (SUNIT), national system of risk management (SINAGER) and the National Institute of statistics (INE), since they cover almost 60% of available for the Bolivian State IG, and therefore requires their participation active inside conformation above all of the Interinstitutional Committee. Furthermore, the signing of agreements or extensions with international institutions such as the University of Geneva, Geobretagne, geOrchestra, GeoNode and international cooperation will be promoted in order foster academic activities (specific Informatics developments) and to coordinate tasks with regard the management of GI, so it benefits to the consolidation of the IDE-EPB. Finally, the inclusion of the University within the activities of GeoBolivia, will continue similarly to the first phase, offering internships, promoting the use of open standards and encouraging the generation of new information technology. Currently he has been working with the University Mayor of San AndrŽs, Public University of El Alto, University of Potosi Tomas Frias, San Xavier University of Chuquisaca, Cochabamba University of San Simon and Gabriel RenŽ Moreno University of Santa Cruz, they are motivated and in this second phase will focus on support for the training of new professionals in the area of __the SDI's. REFERENCES Gonz‡lez, V., Pe–arrubia, F.,Hig—n, J.,Sanz J., and Anguix, A. (2009), ' Spatial Data Infraestructure of Venezuela, a SDI 100% free software', Fourth Conference on GIS FREE, University of Girona, 1-7. Lerch, L., Laguna, N., Lesage, S. (2010-2011), 'Project: Spatial Data Infrastructure the State Plurinational of Bolivia: Strategy and Technical Document', Vice-presidency of the State.

Topic type		Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager

ID Number	71

Name	Erin Hodgess
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Paper Title	Spatio-Temporal Modeling of Regional Consumer Price Index Using R
I can give a practical demo	yes

Paper Abstract (short)

We show how to model consumer price index data for several Texas cities and produce a series of maps for Google Earth

Paper Abstract (long)

Spatio-temporal software has not been available until fairly recently. But now, using several packages in R, we can model such data sets and generate maps. We look at the annual consumer price index for several Texas cities and produce a spatio-temporal model and a set of annual maps to be displayed in Google Earth.

Topic type		Target Type
Visualization: effective presentation of information.		People new to open source geospatial

ID Number	54

Name	Daniele Romagnoli
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Paper Title	SpatioTemporal data handling with GeoServer: an introduction with examples for MetOc and Remote Sensing data for WMS and WCS
I can give a practical demo	no

Paper Abstract (short)

This presentation will provide detailed information on how to ingest and configure SpatioTemporal in GeoServer to be be served using OGC services, with examples form WMS and WCS services

Paper Abstract (long)

This presentation will provide detailed information on how to ingest and configure SpatioTemporal in GeoServer to be served using OGC services, with examples form WMS and WCS services. Topics covered are as follows: -Discussion over existing data formats and how to preprocess them for best serving with GeoServer -Configuring SpatioTemporal raster and vector data in GeoServer -Serving SpatioTemporal raster and vector data with OGC Services -Tips and techniques to optimize performance and allow maximum exploitation of the available data   The attendees will be provided with the basic knowledge needed to preprocess and ingest the most common spatiotemporal data from the MetOc and Remote Sensing field for serving via GeoServer.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Development: new developments in products. New data: handling new data models, for example 3D & temporal data, or big data.		Manager End User Technical / Developer

Additional Presenters	
Name	Simone Giannecchini
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ID Number	74

Name	Frank Maes
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Paper Title	Spot on Geomajas - general introduction
I can give a practical demo	yes

Paper Abstract (short)
An overall introduction to the Geomajas web GIS software with live demo's.

Paper Abstract (long)
Geomajas is an osgeo project that provides powerful functionality to realize advanced web GIS solutions. Key features are the integrated client-server architecture, fine-grained security, a stable API, support for multiple data sources, handy widgets and plug-ins and its possibilities for enterprise integration and SDI. The audience will get an overall introduction to the Geomajas web GIS framework covering the project history, the community and activity, key capabilities and functional plug-ins and the project roadmap. All this will be illustrated using live demo's of reference web GIS applications.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Development: new developments in products.		People new to open source geospatial Manager End User Technical / Developer

ID Number	252

Name	Pieter De Graef
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Paper Title	Spot on Geomajas Đ what's new?
I can give a practical demo	yes

Paper Abstract (short)

A comprehensive summary of all the new features, projects and plug-ins under the Geomajas umbrella.

Paper Abstract (long)

Since Foss4G2011 the Geomajas community has released several extensions, improvements and new functionality for web GIS. Pieter De Graef, Geomajas PSC Chair and core developer since day one, will lead you through all that's new and cool! With the aid of technical diagrams, code snippets and live samples the audience will get answers to questions like: What can I do with the new Geomajas plug-ins like Advanced Search and Filter, Feature Info Tools, Advanced Views, Layer Widgets and Run-time Config? How can I use the Geomajas Graphics or Geometry projects? Can I build mobile web GIS solutions with the PureGWT plug-in? How do the SLD project and SLD Editor work with my web GIS application? How can I add a configuration GUI to facilitate application management?

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		People new to open source geospatial Manager End User Technical / Developer

ID Number	141

Name	Marc Jansen
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Paper Title	State and future of GeoExt mobile (GXM) Ð HTML5 GIS applications on mobile devices
I can give a practical demo	yes

Paper Abstract (short)

The talk will showcase GeoExt mobile (GXM), an open-source JavaScript library for mobile WebGIS applications based on OpenLayers & Sencha Touch, and outline the future developments of the sister-software of GeoExt.

Paper Abstract (long)

Mobile web application develepment is hard. Mobile webGIS applications are even harder to get right. GeoExt mobile (GXM, https://github.com/geoext/GXM), a library based on OpenLayers (http://openlayers.org) and Sencha Touch (http://www.sencha.com/products/touch/), aims to make the development of such applications easier and less error-prone. With GXM you can create a great looking WebGIS application for the market-leading mobile devices with just a couple of lines of own JavaScript.   The talk will highlight what you currently can achieve with GXM by showing code and examples. Furthermore some real-world applications, and how they came to life will be shown. We'll nt with HTTP requests.q q
q q q Technical / Developerq
OpenLayers 3 gets nearer towards API-stability, GXM will likely switch to using OpenLayers 3 in the near future. Supporting various other mapping libraries such as Leaflet JS are also on the TODO list.

Topic type		Target Type
Development: new developments in products.		Manager End User Technical / Developer

ID Number	9

Name	Andrea Aime
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Paper Title	State of GeoServer
I can give a practical demo	yes

Paper Abstract (short)

Get a summary of new features added to GeoServer in the last year in the 2.3 and 2.4 releases, and a glimpse of what we have planned for year 2014, straight from the core developers.

Paper Abstract (long)

GeoServerÊcontinues to grow with an active community and expanding user base. This presentation takes the pulse of the project with a status report of howÊGeoServerÊis doing and what to expect in the coming future. The presentation will start with a Òyear in reviewÓ overviewing some of the new and noteworthy of the past year. This past year saw the coming ofÊGeoServerÊ2.3, and we are going to release 2.4 around FOSS4G, both piled up a number of exciting new features along with it. Better virtual services, WCS 2.0, NetCDF support, multiple coverages per coverage store, CSW advertising GeoServer own layers with ISO recods, integration of scripting languages, improvements in time/elevation support, layer groups management, a fully rewritten KML subsystem are just a few of the highlights of 2.3 and 2.4. Attend this presentation to get the entire report of what happened in the past year. TheÊGeoServerÊdeveloper community continues to remain active with a number of exciting features in the pipeline. The remainder of the presentation will focus on the future with a report of the new developments currently being worked on and what new features and improvements users can expect in 2014. Whether you are an expert user, a developer, or simply someone who wants to know whatÊGeoServerÊis and what it can do for you, this talk is for you.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products. New data: handling new data models, for example 3D & temporal data, or big data.		End User Technical / Developer

Additional Presenters	
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ID Number	184

Name	Mike McCann
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Paper Title	STOQS: The Spatial Temporal Oceanographic Query System
I can give a practical demo	yes

Paper Abstract (short)
Deep exploration of campaign oriented in situ oceanographic measurements made possible by open source geospatial software

Paper Abstract (long)
With increased availability of oceanographic measurements from platforms such as ships, moorings, gliders, and autonomous underwater vehicles, the need to efficiently access and visualize the data they collect is growing. The Monterey Bay Aquarium Research Institute has designed and built the Spatial Temporal Oceanographic Query System (STOQS) specifically to address this issue. The STOQS application consists of a Postgres/PostGIS database, Mapserver, and Python-Django running on a server and Web 2.0 technology (jQuery, OpenLayers, Twitter Bootstrap) running in a modern web browser. The web application provides faceted search capabilities allowing a user to quickly drill into the data of interest. Data selection can be constrained by spatial, temporal, and depth selections as well as by parameter value and platform name. The web application layer also provides a REST (Representational State Transfer) Application Programming Interface allowing tools such as the Matlab stoqstoolbox to retrieve data directly from the database. New capabilities provided by X3DOM are being explored for providing interactive 3D views of the data in browsers that support WebGL. STOQS is an open source software project built upon a framework of free and open source software and is available for anyone to use for making their data more accessible and usable. For more information please see: http://code.google.com/p/stoqs/

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. New data: handling new data models, for example 3D & temporal data, or big data.		Technical / Developer Domain experts

ID Number	268

Name	Pyoung Woo Yang
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Paper Title	Storing and Querying of Trajectory Information
I can give a practical demo	no

Paper Abstract (short)

This paper is the representation of a method for the storage and query of trajectory information using the User Defined Function of PostgreSQL / PostGIS.

Paper Abstract (long)

Recently, a number of researches and applications on processing real-time sensor streams are required in various fields, such as a real-time fire alarm system. A time series sensor data is a sequence of observations which are ordered in time. A time-series observation model is a common method of representing sensor data with a linear temporal order. As such, time series observations are utilized in a wide variety of fields such as statistics and signal processing for advanced environment analysis and forecasting. We propose a model for time series sensor data. Sensor data has characteristics of timeÑseries data. e=<o||t> An time series data element is a tuple with value object and timestamp. A time series data is a sequence of the time series data elements as the followings show. s=[e1,e2,É,en] We define three data types for sensor data using the time series data definition. The data types consist of MDouble, MInteger, and MBoolean..   The proposed data types can be used for creating a new table for storing some time series sensor data stream. Sensor database application developers can choice one of two manners. One is that developer would define a new sensor data table with time series data attributes as the following example. [Example 1] Create a new temperature sensor data table with a MDouble data type attribute for home sensors. CREATE TABLE HomeSensors (sensorid   char(20),   sensorlocation   char(15),   comments   char(50)   temperature   MDouble,   humidity   MDouble); We implemented the proposed system using PostgreSQL. The ORDBMS supports to create new user define data types, and to use the data type in CREATE TABLE statements as example 1. Another is to append a sensor attribute column into existing table. When a developer would appends a sensor attribute for a existing legacy table, he can use an ÔaddSensorColumnÕ function. addSensorColumn(table_name, column_name,. data_type) For example, when a user want to append a temperature attribute for managing temperature on an existing table, he may call ÔaddSensorColumnÕ function as shown example 2. [Example 2] Append an attribute for temperature sensor data on an existing HomeSensors table. CREATE TABLE HomeSensors (sensorid   char(20),   sensorlocation   char(15),   comments   char(50)); SELECT addSensorColumn(ÔHomeSensorsÕ, ÔtemperatureÕ, ÔMDoubleÕ) MInteger and MBoolean data types can be used for the similar table creation and update statements. In these sensor applications, storing and querying sensor data is the important functional components. Most object-relation database systems (ORDBMS) provide user-defined function(UDF) features that allow the user to include application-specific functions into the DBMS for their execution within database queries. These new data types and functions are implemented on the PostgreSQL ORDBMS. For the sensor data tables, insertion, update, and deletion of sensor data are very important function for the sensor database manipulation. ¥   append(column_name, sensordata) ¥ append(column_name, sensordata[]) ¥   remove(column_name, start_time, end_time) ¥   modify(column_name, sensordata, start_time, end_time) ¥   modify(

column_name, sensordata[], start_time, end_time)   [Example 3] Append the new arrived temperature data of room number 323 into temperature attribute of HomeSensor table. UPDATE HomeSensors SET temperature = append(ÔtemperatureÕ,   MDouble(26.2, TIMESTAMP '2012-03-07 12:05:30')) WHERE sensorlocation = 'room323'; Example 4 shows how to remove a part of the archived temperature sensor data. [Example 4] Remove the temperature data which are sensed from 2012-03-07 to 2012-03-09. UPDATE sensor_user SET temperature = remove(ÔtemperatureÕ, TIMESTAMP '2012-03-07 00:00:00' TIMESTAMP Ô2012-03-09 24:60:00Õ,)) WHERE sensorlocation = 'room323'; We describe how to support sensor databases queries using UDFs. These UDFs consists of time series UDFs, Temporal UDFs, and Outlier UDFs.   Time series UDFs and Queries ¥   validtime(ei) = ti ¥   value(ei) = vi ¥   first(s) = efirst, last(s) = elast ¥   first(s, k) = ek, last(s, k) = ek ¥   count(s) = l ¥ subsequence(s, kfrom, kto) = s`  ¥        subsequence(s, tfrom, tto) = s`   [Example 5] Show the latest value and the number of sensor information, whose sensor location is Ôroom005Õ. SELECT value(last(temperature, 0)), count(temperature) FROM HomeSensors WHERE sensorlocation = Ôroom005Õ   [Example 6]. Show the time series data during one hour from the time tx of temperature sensor data. SELECT subsequence(sensorvalue, :tx, :tx+ interval(Ô1 hourÕ)) FROM sensordata   Temporal UDFs and Queries   For temporal queries view, we propose three kinds of operators, snapshot, slice, and project. ¥   snapshot -   snapshot_validtime(m, ti) = vi -   snapshot_value(m, vi) = ti   domain(Time) ¥ slice -   slice_validtime(m, tfrom, tto) = mÕ - slice_value(m, vi ,vj) = mÕ   [Example 7] Show the sensor value in current time. SELECT sensorid, snapshot_validtime(ÔtemperatureÕ, ÔnowÕ) FROM HomeSensors   Outlier UDFs and Queries Outlier means the values far from most others in a set of data. _upperbound(column_name, value) _   underbound(column_name, value) _   range(column_name, start_time, end_time, max, min)   [Example 8] Show the temperature value below 20.0 degrees in the sensor tables. SELECT sensorid, upperbound(temp, 20.0) FROM HomeSensors   [Example 10] Show the sensorids where humidity stay safe states that are described start_time, end_time, max value, and min valueÕ   SELECT sensorid, range(ÔhumidityÕ, start_time, end_time, max, min) FROM HomeSensors.   In this paper, we proposed how to support time series sensor data on the ORDBMS. We defined new data types and table creation functions for various sensor data. Also, we proposed some time series functions for sensor queries. These new data types and functions were implemented in UDFs on the PostgreSQL ORDBMS.

Topic type	Target Type
New data: handling new data models, for example 3D & temporal data, or big data.	People new to open source geospatial

Additional Presenters

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ID Number	271

Name	Qing Liu
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Paper Title	Storing, Querying, and Mapping Global Collection of Nighttime Light Data with Open Source GIS Software
I can give a practical demo	yes

Paper Abstract (short)

The goal of this project is to store the global collection of nighttime light data products in a queryable raster format in PostgreSQL, to develop a web application for the visualization and seamlessly interactive vector/raster queries on the nighttime light data, and to develop the API for developers to query and retrieve nighttime light data to feed their own applications.

Paper Abstract (long)

Nocturnal lighting is a unique indicator of human activity that can be measured from space. The widespread use of outdoor lighting is a relatively recent phenomenon, tracing its roots back to the electric light bulb commercialized by Thomas Edison in the early 1880s. Since that time nocturnal lighting has emerged as one of the hallmarks of modern development and provides a unique attribute for identifying the presence of development or human activity that can be sensed remotely. Nighttime light imagery as an unusual remote sensing data source offers capabilities to represent human activities on the Earth's surface through the observation of artificial lighting at night. Interest in satellite remote sensing of nocturnal lighting stems, in part, from the difficulty in global mapping of human settlements in a repeatable, timely manner from traditional sources. The remote sensing of nocturnal lighting provides an accurate, economical, and straightforward way to map the global distribution and density of developed areas. The Defense Meteorological Satellite Program (DMSP) was originated in the mid-1960s by the US Department of Defense for collecting worldwide cloud cover on a daily basis. The DMSP program has been repeatedly upgraded over time since it was officially declassified in 1972 and made available to the civilian and scientific community. The latest series incorporated the Operational Linescan System (OLS). Digital OLS data was archived by National Oceanic and Atmospheric AdministrationÕs National Geophysical Data Center (NOAA-NGDC) since 1992. The DMSP-OLS global nighttime lights products have been used as a surrogate for a range of socio-economic indicators including population, Gross Domestic Product (GDP), energy consumption, urban typology, and CO2 emissions. Other sources of nighttime light data include the recently launched Visible Infrared Imaging Radiometer Suite (VIIRS) on Suomi NPP satellite with a Òday/night bandÓ observing dim light sources, and photographs taken by astronaut aboard International Space Station (ISS) providing more detailed nighttime lights information with much higher spatial resolution. NOAA-NGDC has developed a series of procedures to generate global cloud-free composites of DMSP nighttime lights. The DMSP-OLS data products as well as the newly produced VIIRS nighttime light data products have been archived by NGDC and made available for public download from their website. Nighttime light data products can be downloaded in their raw raster format, which can be then processed and analyzed by researchers who possess sufficient knowledge about the data products. However, there is currently no effective interface to browse and analyze nighttime light data for users who are interested in this type of remote sensing data source but do not possess professional remote sensing image processing software packages. The needs and challenges of storing, querying, and mapping a global data collection of nocturnal lighting are significant. PostGIS Raster as the raster support in PostGIS provides the capabilities to operate vector and raster data in a seamless fashion. Following an open source philosophy, this project aims to build an interactive web interface using

PostgreSQL + PostGIS, GeoServer and Cartodb in the front-end. Global raster collection of nighttime light data products will be stored in PostgreSQL with PostGIS Raster support. Spatial queries can be conducted seamlessly on the raster data with other vector layers. Statistical summary of nighttime light intensities can be generated through the aggregation of raster values within geographic boundaries at national and sub-national level. The goal is to store the global collection of nighttime light data products in a queryable raster format in PostgreSQL, develop a web application for the visualization and seamlessly interactive vector/raster queries on the nighttime light data, and develop the API for developers to query and retrieve nighttime light data to feed their own applications.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information.		People new to open source geospatial End User Technical / Developer Scholars, Researchers

ID Number	228

Name	Paul van Genuchten
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Paper Title	Story of the Map
I can give a practical demo	yes

Paper Abstract (short)

Quite some new map products offer users the possibility to save a map to share, embed or archive. Unfortunately most of them don't use the WMC/OWSContext standard, which makes the maps inoperable. I'll show you some good use of the WMC format in Geonetwork.

Paper Abstract (long)

Last years weÕve seen quite some products offering users the possibility to stack a set of layers and share it with others. Since a wms-layer doesnÕt have a story, until you combine it with other data (and zoom to an extent). Products like Mapstory, Storymap, Geonode, Tilemill and more all offer similar functionality, but each uses itsÕ own proprietary format. This unfortunately prevents the maps to be exchangeable. The use case is there! Consider a map being created in Geonode, save it and open it in QGis. All this happened while an OGC standard has been out there for quite a while, the WMC standard. Soon to be replaced by OWSContext. For sure the standard doesnÕt manage all tiny details in maps, but it offers extension points, where one can insert any custom map and layer attributes.
In geonetwork we gladly support the WMC format. In the Geonetwork Mapviewer you are able to create, open and save WMC documents. In near future one can attach a WMC to an iso19139 record to share the map in the catalogue. Users will be able to open the map in the catalogue and even embed it in a website.

Topic type		Target Type
Development: new developments in products. Collaboration: data collection, data sharing, open standards.		Manager Technical / Developer

Additional Presenters	
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ID Number	213

Name	Oliver May
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Paper Title	Subsidized school transport for the shortest way to school
I can give a practical demo	yes

Paper Abstract (short)
Presentation of a tailor made project for subsidized school transport using open source technologies and routing

Paper Abstract (long)
This project realizes the automation of the granting of the right to individual and/or collective subsidized transport of students. Applications are initiated by the school by means of a web application. Afterwards these applications are treated automatically and on-the-fly thanks to a routing algorithm (calculation of distance) between the place of residence of the student and the closest school which qualifies for that specific student. Next to this formal application, there is also an interactive tool where the closest schools can be found for potential students in real-time open to the general public. The presentation will show how the application is built using different open source technologies, these technologies include a.o. PostGIS, hibernate-spatial, pgrouting, Geomajas and OSM.

Topic type		Target Type
Case Studies: Relate your experiences.		Manager End User Technical / Developer

ID Number	380

Name	Taro Matsuzawa
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Paper Title	SVG Map - Tile Map without Javascript
I can give a practical demo	yes

Paper Abstract (short)
SVG Map implements specific elements and attributes, that enable internet browsers to display map tiles directly through the browser's layout engine, supporting dynamic tiling and layering.

Paper Abstract (long)
In this presentation we will show how the SVG Map technology can display a tiled map without Javascript.   Many popular internet tile maps such as OpenStreetMap, Google Maps, etc. use Javascript to provide tiling and layering. But this can cause high load especially on mobile platforms. SVG Map instead implements specific elements and attributes, that enable internet browsers to display map tiles directly through the browser's layout engine, with support for dynamic tiling and layering. The core mechanism of this tile map is the ÒSVG iframeÓ element. Depending on zoom level, map layer and viewport the relevant map data is downloaded using media queries. The ÒglobalCoordinateSystemÓ element allows to define the geographic coordinate system and to describe transformation rules.   SVG Map will make it possible to display maps in the browser with SVG files alone, and it will allow to style maps with CSS.   While a first prototype has been is developed using Javascript, development has started on implementations for Webkit browser and a Firefox add-on. Because Firefox OS doesn't support add-ons, the native implementation in Firefox browser is also planned.   The final aim is to make SVG Map a W3C standard, and discussion has already started in the SVG Working Group at W3C.

Topic type		Target Type
Development: new developments in products.		Technical / Developer

Additional Presenters	
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ID Number	124

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Paper Title	Table Joining Service implementation using Geoserver platform
I can give a practical demo	yes

Paper Abstract (short)

This article describes the implementation of the specification for Table Joining Service Service (TJS) of OGC as an extension to the GeoServer platform.

Paper Abstract (long)

GeoServer is an open source server developed in Java that allows the users to share and edit geospatial information. Designed for the interoperability, publishes information of any spatial information source using open standards. GeoServer constitutes the OGC Reference implementation for the Web Feature Service standard (WFS). The license model used by GeoServer as well as their architecture allows the extension development using their platform as support. In this way some components can be re-used like the security; the definition and implementation of OGC OWS, and validated implementations of WFS, WCS, WMS and others.   This article describes the implementation of the specification for Table Joining Service Service (TJS) of OGC as an extension to the GeoServer platform. This OGC standard defines a simple way to describe and to exchange information stored in data sources not spatial that contains information related to geographical objects.

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters	
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ID Number	129

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Paper Title	Taming rich GML with stETL, a lightweight Python-framework for geospatial ETL
I can give a practical demo	yes

Paper Abstract (short)

stETL, Streaming ETL and pronounced "Stetl", is a lightweight, geospatial ETL-framework written in Python, that tightly integrates and combines existing transformation tools like GDAL/OGR, XSLT and PostGIS. stETL targets ETL-cases that involve complex XML and GML data, like INSPIRE Data Harmonization but any other transformation, even non-geospatial, can be applied as well. stETL applies declarative programming: a configuration file specifies an ETL chain of input/filter/output modules. Standard modules are available or can be user-defined. stETL is speed-optimized, by using native calls to for example GDAL/OGR, libxml and libxslt.

Paper Abstract (long)

Data conversion combined with model and coordinate transformation from a source to a target datastore (files, databases) is a recurring task in almost every geospatial project. This proces is often refered to as ETL (Extract Transform Load). Source and/or target geo-data formats are increasingly encoded as GML (Geography Markup Language), either as flat records, so called Simple Features, but more and more using domain-specific, object oriented OGC/ISO GML Application Schema's. GML Application Schema's are for example heavily used within the INSPIRE Data Harmonization effort in Europe. Many National Mapping and Cadastral Agencies (NMCAs) use GML-encoded datasets as their bulk format for download and exchange and via Web Feature Services (WFSs). As geospatial professionals we are often confronted with ETL-tasks involving (complex) GML or worse: "GML-lookalikes", which are often XML Schema's embedded with GML-namespaced elements. Luckily, in many cases, GDAL/OGR, the Swiss Army Knife for geo-data conversion, can do the job. If "ogr2ogr" sounds like gibberish to you, check out http://gdal.org ! But when complex, some say rich, GML Application Schema's are involved, data conversion can be a daunting task when GDAL/OGR alone is not sufficient. Firstly, often complex data model transformations have to be applied. In addition we may be confronted with the bulkiness of GML: Megabyte/Gigabyte-files, deeply nested elements where the nuggets, the actual attribute values, reside, trees of .zip files and possibly more nasty surprises once we have unboxed a GML-delivery. High resource consumption in memory and CPU and long processing hours, up to complete machine-lockup, can be the the side-effects of naive GML-processing. Within the FOSS4G world we can resort to higher level, GUI-based, ETL-tools such as GeoKettle, Humboldt tools and Talend GeoSpatial. These are very powerful tools by themselves, check them out as well. Some of us, like the author, like to stay closer to GDAL/OGR, to XSLT for model transforms, some command line tools and some Python scripting, but without having to write a complete, ad-hoc ETL-program each time. This is the space where stETL tries to fit in, so read on. So we already have great FOSS tools for XML/GML parsing, data-conversion and model-transformation like GDAL/OGR (ogr2ogr!), XSLT (Extensible Stylesheet Language Transformations, for transforming XML) and native XML-parsing libraries like libxml2. Each individual tool/library is extremely powerful and performant by itself. But we would like to combine of these tools. Take for example flat, national adres data in a PostGIS database that we need to transform to multiple INSPIRE Application Schema GML files. Each individual FOSS tool can handle part of the ETL: ogr2ogr for converting from PostGIS (including coordinate tranformation) into to

simple feature GML,   XSLT (xsltproc/libxslt) to transform the resulting flat GML to rich INSPIRE GML. But with millions of addresses we cannot   simply use a single GML memory datastructure (DOM) or single intermediate GML-file.   Add Python and a configuration convention to this equation and we have   stETL: Streaming ETL. stETL is a lightweight, geospatial ETL (Extract Transform Load) framework written in Python. ETL-processing with stETL is driven from a configuration file. Within a stETL configuration file a chain of ETL-processing modules is declared through which the data flows ("streams"). A module may be an input, filter or output module. Modules have input and output data types declared such that only compatible modules can be connected. However, stETL does not define a grand internal data structure to which all data is mapped as many ETL-tools do. Data formats are kept close to the external tools that stETL uses. stETL comes with pre-defined modules for GML-parsing,   XSLT processing, XSD Validation, PostGIS/OGR input and output, GML-splitting and many more. stETL calls on the above tools like OGR, libxslt and libxml2 via their native interfaces. stETL is even more speed-optimized as no intermediate file-storage   is used and through other means such as native string buffers.   For example large XML/GML-files can be split into manegeable   documents and streamed into an XSLT filter module. stETL-modules are offcourse extensible   and can be user-defined. Reusable ETL-configurations invoked through parameterized commandline scripts can be defined without programming.   stETL evolved from and is used within the INSPIRE-FOSS project (http://inspire-foss.org). Here for example, Dutch national addresses (BAG) were transformed into INSPIRE Addresses GML   (files and database). Special stETL integration modules are available to extract and publish   data from/to a deegree WFS and deegree "Blobstore-database". The combination stETL/deegree is an ideal   setup for INSPIRE deployments.   Other Dutch national datasets like Top10NL and BGT (Dutch topo vector datasets) have been completely and successfully transformed. Work is in progress to use stETL as the basis for NLExtract (http://nlextract.nl), a project that provides ETL tools for Dutch open geo-datasets. stETL development is now (april 2013) in an initial phase and takes place in   GitHub. The current version is workable but we hope to present a v1.0 at FOSS4G with more documentation and as a standard Python Package via PyPi. The main link is: http://stetl.org (now links to GitHub).   To get started find some basic examples here: https://github.com/justb4/stetl/tree/master/examples/basics.   This presentation will gently introduce the above "GML challenge" and explain the basics of stETL starting with some simple examples, building up to more complex cases like INSPIRE   transformations and integration with the deegree WFS/WMS server (http://deegree.org).

Topic type		Target Type
Development: new developments in products.		Technical / Developer

ID Number	140

Name	Manuel Haro M‡rquez
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Paper Title	Technological Innovation with Open Source
I can give a practical demo	yes

Paper Abstract (short)

At the society and economy knowledge age where the technologies are the development platforms for the countries, is important to create strategies wich ensure the advantage of all that scientific and technological developments towards knowledge appropriation, impulse the creativity and innovation going to create collaborative communities wich may guarantee a technological sovereignty and open innovation. Today Open Source, with their freedoms and robust solutions, is the best alternative and is a technological tendency towards I+D+I2 paradigm (Investigation + Development + Innovation + Inversion) where is very important the integration of academic, industrial, governmental and social sectors at the projects and those commitment.

Paper Abstract (long)

Technological Innovation with Open Source   Ing. Manuel Haro M‡rquez Science, Technology and Innovation Zacatecan Council National Open Source Laboratory   email: mharo@cozcyt.gob.mx, manuel.haro@zacatecas.gob.mx   Abstract   At the society and economy knowledge age where the technologies are the development platforms for the countries, is important to create strategies wich ensure the advantage of all that scientific and technological developments towards knowledge appropriation, impulse the creativity and innovation going to create collaborative communities wich may guarantee a technological sovereignty and open innovation. Today Open Source, with their freedoms and robust solutions, is the best alternative and is a technological tendency towards I+D+I2 paradigm (Investigation + Development + Innovation + Inversion) where is very important the integration of academic, industrial, governmental and social sectors at the projects and those commitment.   I. INTRODUCTION   The FOSS and GPL licensed solutions offers key points like freedom to use those at any instance and everyone machine, the solutions are shared ready to install and the code source wich allows modify to improve the solution, after the modify the solution must to be shared ready to use and with the code source.   Any FOSS solution offer several ways to develope some project as advantage of developed solutions wich like a FOSS project the source code can be modified and installed, in other way some times the project must to be developed fully like a new solution; another kind of project with advantage of FOSS is using the solutions availables but this kind of projects need two importants parallel activities like a strong capacitation program and supplemented with a great support team to attend any incidence around the project.   II. NATIONAL OPEN SOURCE LABORATORY   The Open Innovation (OI) paradigm has been the best strategie at countries like Brasil, France, Spain and Germany wich allows to impulse the entrepreneurship and sectorial project development over open source developments, at National Open Source Laboratory (NOSL) we are working to apply some of that projects and strategies in the way to propitiate the global benefit for universities, goverment dependencies, companies, organizations and citizens.   The strong of OI is the integration of communities at universities, companies, citizens and goverment and with the capabilities of each sector create global projects. In this way the academical sector is very important because the young students, teachers and researchers working together have a great potential of creation, research, share and development knowledge; the companies focussed to information technologies and services must to change the bussines model to

advantage the open source solutions; the integration of society is a key point because the citizens can contribute with proposals focussed to improve social services. The goverment sector must to take the leadership building strategies to support and strengthen any kind of inititative of innovation projects, this leadership is about create important investment funds wich may be possible the succesful development of all kind of innovation projects.   Integrating the elements of OI can ensure projects over a collaboration culture, the exploitation and development of open source solutions provides great alternatives to any kind of technological and innovation project.   The National Open Source Laboratory achivied the integration of companies, universities and citizens to create the projects development teams, as a goverment dependencie take the leadership with important investment in infraestructure, equipment, services and scholarships for students working at projects; the semester august to december 2012 were integrated 28 students form Zacatecas Institute of Technology who developed 10 technological projects, today we are working with 49 students and the better is about this students is coming from 8 universities at Zacatecas State who are developing 15 projects.   Listed below the 2012 projects: 1. PBX Server with Elastix   2. Web Page www.conlibre.org 3. Web Page NOSL www.cozcyt.gob.mx/labsol 4. Collaborative network with Noosfero 5. Services using IPv6 6. Open source migration project 7. Innovation management projects 8. LAN Services server 9. LAN and WAN Security Server 10. Mobile apps for android
          The NOSL works creating innovation projects to resolve requirements in any sector, all the projects are developed using open source solutions and considering the General Public License as FOSS development; so all the projects must to be share with documentation, install packages, source code and are available at NOSL repositories; when some instance wants to use any project we contact those students who works the project trying to impulse them to start work creating new companies focussed to advtange FOSS solutions and innovating with a new bussines model.   Listed below the january to june 2013 projects: 1. Global Goverment Planning Platform 2. Documental Management with Quipux 3. Network security server with Squid and Iptables 4. Robotics with NAO humanoid Robot 5. NOSL intelligent bulding with RFID 6. Multimedia Learning Objects to science 7. Augmented reality 8. COZCyT open source migration project 9. COZCyT Network redesign 10. Parallel computing 11. COZCyT Web Page develope 12. ZigZag Science divulgation park WebPage develope 13. B-learning NOSL platform   Listed below wich are ready to starts: 1. Global GIS Platform 2. OSGeo Laboratories Network Web Page develope 3. New Linux distribution design   4. Technical support to Federal Goverment equipment project (4,000,000 computers with linux)
          The NOSL strengthens their strategies with strategic alliances: Intel Corporation Brasilian Public Software Project, Federal Goverment of Brasil Pixart Corporation, Argentina Forest House Foundation, Colombia Latinux International Corporation Minatitlan Institute of Technology Puebla Institute of Technology Zacateas Institute of Technology Fresnillo Institute of Technology Technological University of Zacatecas Guadalajara University Working hard to create a strong culture using and developing open source solutions, the NOSL have a complete program of capacitation with almost 40 different courses, the alliance to Latinux International brings the way to apply for certification in some themes about open source and information technologies.   The NOSL have enough infrastructure wich allows works with a lot projects and almost any kind of project: 3 Classroom for 20 students 1 Super Computing Laboratory   23 Dell Workstations with Core I5 Intel, 8 Gbytes RAM and 500 Gbytes in hard disk   60 Intel Classmate computers   8 Network servers
          Assigned to NOSL are 4 professional engineers who works as leaders of projects, with 15 collaborators from universities and some goverment dependencies who works in capacitation programs, special projects and academical background for the projects.

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Development: new developments in products. Collaboration: data collection, data sharing, open standards. Open Innovation		People new to open source geospatial Manager Technical / Developer

ID Number	11

Name	Andrea Antonello
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Paper Title	The Android platform, mobile for everyone at the end of a tough trip? + Geopaparazzi
I can give a practical demo	no

Paper Abstract (short)
This presentation wants to trace back the history of the mobile evolution in the last decade + talk about Geopaparazzi

Paper Abstract (long)
The last decade has shown an initially crawling, but then explosive growth of the availability of the mobile technologies for the average user.   While not so much time ago quite some investment was required for the professionals interested in trying out mobile technologies, now everything needed lies in the hands of a 12 years old kid that uses it to listen to music and chat in facebook.   This presentation wants to trace back the history of the mobile evolution in the last decade, as seen through the eyes of a group of technicians, of endusers, professionals and passionates of the free and open source technologies.   The presentation will conclude describing the Geopaprazzi project, an Android application for digital field mapping, and some projects that were built on top of it.

Topic type		Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial End User Technical / Developer

Additional Presenters	
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ID Number	33

Name	BJ Jang
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Paper Title	The architecture of mobile traffic map service
I can give a practical demo	no

Paper Abstract (short)

Gaia3D Inc., will introduce not only the experience of implementing mobile traffic map service (iPhone App, Android App, and Mobile Web Client) showing traffic on roads, streets, and highways at NTIC(National Transport Information Center) using Squid Proxy Server, GeoServer, and SQL Server but also advanced architecture coming up in 2014

Paper Abstract (long)

MOLIT(Ministry of Land, Infrastructure, and Transport) has established NTIC(National Transport Information Center) for effective management of various kinds of transportations in South Korea and released several services that people can use. Gaia3D Inc., has involved in one part of mobile service which displays traffic status on roads, streets, and highways up on geographical map, making people easily check the status of traffc wherever theyÕre heading. Gaia3D Inc., will introduce not only the experience of implementing mobile traffic map service (iPhone App, Android App, and Mobile Web Client) showing traffic on roads, streets, and highways at NTIC using Squid Proxy Server, GeoServer, and SQL Server but also advanced architecture coming up in 2014.　 NTIC system collects all kinds of real time traffic data of all highways, routes, streets, and roads in South Korea and divides those collected traffic data into three colors in green, yellow, and red by speed. These colorized traffic data are mashed up with map data to service on mobile devices. Servers carry out tiling traffic map in every 5 minutes and clients receive and display those tiled data. This system aimed at tolerating peak times of two major holiday seasons in South Korea - Chuseok(Korean Thanksgiving day) and Seolnal(Lunatic New YearÕs day) when almost 15 million people per day travel at the peakest dat and about 8 million vehicels are poured out to roads, streets, and highways, so the system should be designed to safely handle over 100,000 concurrent connections.　 The whole system is consisted of two Cache Servers with Squid Proxy, six Map Server with GeoServer, and three Database Server with SQL Server. Real time traffic information and road lines are managed in SQL Server and provided to GeoServer. Traffic map tiles are produced in GeoServer and are passed to Cache Server. The client is designed to request tiles via interface of WMTS(Web Map Tile Service) protocol with Time Tag.　 The very initail architecture designed in 2012 somehow managed to endure traffic loads at peak times, but had some problems, which was quite disappointing and unexpected results. In order to improve the system, weÕve mainly focused on the enhancement of scalability. Also, weÕve newly redesigned the system into seperating tile producing servers and managing static contents using NGINX web server.

Topic type		Target Type
Case Studies: Relate your experiences.		Technical / Developer

Additional Presenters

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ID Number	199

Name	Morten Lindegaard
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Paper Title	The Geodata Agency's Data Distribution platform
I can give a practical demo	yes

Paper Abstract (short)

An overview of the Agency's Data Distribution platform that handles more than 100.000.000 requests per month

Paper Abstract (long)

Digital distribution of geodata makes it possible to improve the efficiency and accuracy of our professional users' data collections on an ongoing basis. The Agency's Digital Map Supply is a national infrastructure to distribute geospatial data to all kind of users.   Subscribers to the Digital Map Supply receive their geodata via web services, eliminating shipping time and resources. All services are based on OGC standards e.g. WFS, WMTS, WMS and WCS. Furthermore the Digital Map Supply exposes a range of REST and SOAP services for geocoding, address searches etc.   As part of the common public-sector eGOVERNMENT strategy 2011-2015, the government and Local Government Denmark have agreed on a basic data programme. The programme contains a number of specific improvements and initiatives in public-sector basic data, which will underpin greater efficiency and growth. The Digital Map Supply is the infrastructure that is used to supply the geospatial data to public agencies, end users, private companies etc. Furthermore the Digital Map Supply also supports a number of INSPIRE compliant services that The Geodata Agency is responsible of - such as a cadastral WFS. The presentation will show the architecture behind the Digital Map Supply including the number of open source components such as PostGIS, MapServer, GeoWebCache and GeoServer. The Digital Map Supply has been in service for more than ten years and the architecture has evolved during that time moving from commercial software to open source software. Moreover the presentation will outline the future of the Digital Map Supply including the migration to a new, common National distribution platform for all common public-sector data.

Topic type		Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards.		Technical / Developer

Additional Presenters

Name	Mads Bj¿rn-M¿ldrup
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ID Number	378

Name	Suchith Anand
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Paper Title	The importance of Open Source Geospatial Labs in widening Geospatial education worldwide
I can give a practical demo	no

Paper Abstract (short)

This paper describe the experiences learned for the establishment of ICA-OSGeo Lab Network to help spread geospatial science education

Paper Abstract (long)

The importance of Open Source Geospatial Labs in widening Geospatial education worldwide   Suchith Anand, University of Nottingham, UK Charlie Schweik, University of Massachusetts, Amherst, USA Helena Mitasova, North Carolina State University Maria Antonia Brovelli, Politecnico di Milano, Italy Serena Cotezee, University of Pretoria, South Africa Phil Davis, GeoTech Center, Delmar College, USA Patrick Hogan, NASA, USA Raphael Moreno, University of Colorado, Denver, USA Jeremy Morley, University of Nottingham, UK   Although there has been tremendous growth in geospatial science over the last decade, the number of universities offering teaching in geospatial science in developing countries is very low. There are number of factors for this including high cost of software, lack of trained staff etc. But with the advent and maturity of free and open source geospatial software many universities in developing countries across the world will be establishing courses in geospatial science in the next few years.   It was with this bigger mission in mind that in Sep 2011, the Open Source Geospatial Foundation (OSGeo) and the International Cartographic Association (ICA) signed an MoU with the aim of developing on a global basis collaboration opportunities for academia, industry and government organizations in open source GIS software and data. Within a span of one year, we now have established labs across the planet in 6 continents . We have now grown to 20 research labs across the world (6 in Europe, 3 in North America, 3 in South America, 4 in Asia, 3 in Africa and 1 in Australia).   The three main aims of the ICA-OSGeo Lab Network are to provide expertise and support for the establishment of Open Source Geospatial Laboratories and Research Centers across the world for supporting development of open-source geospatial software technologies, training and expertise ; to provide support for building-up and supporting development of open source GIS training materials; to enable development of collaboration opportunities for academia, industry and government organizations in open source GIS for the purpose of creating a sustainable ecosystem for open source GIS globally.   The availability of free and open source GIS will make possible for large number of universities especially in developing countries to also start courses in geospatial science. This will in true sense bring down the entry barrier for many students especially in developing countries to learn GIS. The OSGeo.orgÕs education and curriculum committee has a significant history of collaboration and established significant social capital among the network of participants. but up until now, we have only been able to achieve collaboration in the form of individual posts of metadata and links to educational material [2]. With the emergence of this lab network model, coupled with the right incentives, we are confident that this network can do more collectively on the education front, and we have not yet formed closer collaborative ties in the area of open geospatial application and research. Recently the authors listed above have been collaborating on a grant proposal to establish a new effort for this open geospatial lab network that mimics open source software collaboration and that includes three key components: (1) a coordinated teaching program; (2) a repository and a system for the management of new derivatives; and (3) a organized cross-node research program focusing on

applications of open geospatial technologies to support local governance and management in several key environmental management areas. In this presentation, we will describe elements of this proposal, partly in an effort to encourage others at FOSS4G to consider joining in the effort, and to solicit other collaborative ideas from the audience.

Topic type		Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards. Education		People new to open source geospatial End User Students, Academics

Additional Presenters

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ID Number	48

Name	Clare Hubbard
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Paper Title	The Met Office Open Data journey
I can give a practical demo	no

Paper Abstract (short)

In November 2011 the Met Office launched DataPoint an Application Programming Interface (API) for release of its Open Data in support of the GovernmentÕs desire for increased transparency and economic growth. Starting with just a handful of users the service has grown in terms of data, functionality and usage. This year the Met Office is making further developments responding to user feedback and ensuring INSPIRE compliance. This presentation will describe the journey of Met Office Open data so far and a forecast for the future.

Paper Abstract (long)

See short Abstract.

Topic type		Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards. Met Office Sponsorship - Session Keynote Presentation.		People new to open source geospatial Manager End User

ID Number	125

Name	Julien Michel
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Paper Title	The Orfeo ToolBox applications engine : write once, use everywhere
I can give a practical demo	yes

Paper Abstract (short)

This talk will introduce the audience with some of the major recent improvements of the OTB library core system. The main focus of the talk will be the applications framework, an API allowing to write a high-level processing chains on top of the Orfeo ToolBox into an auto-descriptive plugin, which can then be used from standard engines provided by Orfeo ToolBox (command-line, auto-generated QT GUIs, Python or C++ API) or ad hoc engines for tailored integration in other tools (QGIS plugins, Monteverdi 2.0).

Paper Abstract (long)

Orfeo ToolBox is an open-source library developed by CNES since 2006 in the frame of the Orfeo program, which aimed at preparing institutional and scientific users to the use of the Very High Resolution optical imagery delivered by the Pleiades satellites. It is written in C++ on top of ITK, a medical imagery toolkit, and relies on many other open-source libraries such as GDAL or OSSIM. Orfeo ToolBox aims at providing generic means of pre-processing and information extraction from optical satellites imagery. In order to increase the interaction between end-users and researchers developing processing methods, OTB provides applications which make the use of these algorithms easier and more user friendly. In this talk, we will introduce the application framework, a new API to easily write and export OTB processing chains. As an image processing library, lots of code factorization in OTB relies on classes called filters, which implement a given algorithm. This ensures that almost no image processing operation is duplicated across several tools in the OTB environment, like Monteverdi or the OTB applications. However, a full OTB processing chain usually involves chaining several filters and setting their parameters, which might in turn derive from the user input parameters. This portion of code has never been properly factorized and led to the same processing chain being implemented in slightly different ways in Monteverdi and the applications for instance, thus increasing maintenance efforts, and frustration for the user who need to learn a new interface for each application. The OTB applications framework has been designed to resolve this issue, with the following motto : write the processing chain only once, and use it everywhere. It provides the user with a single high-level interface to all the applications, which greatly improves the ease of reuse. It is divided into two components : the application engine, which is an API to create new applications, and the application wrappers, which are tools to run the applications from different environnements. Both can be easily extended. The application engine mainly consists in a single base class for all applications. Only three customization points need to be implemented to create a new application : - The initialization method is the place were to describe the application. It includes the application name, documentation and tags, as well as the complete description of the application parameters. These parameters can be scalar types or OTB based types, and can be easily extended to create new types of parameters. They can be specialized to reflect their specificities, for example minimum and maximum values for numerical values, and also comes with default value and the classical mandatory flag, and a complete documentation. - Another method is provided to update parameters in interactive mode. This is useful to compute default values from some inputs already sets (for instance the ground footprint for ortho-rectification), but can be left blank in most cases. - Last, the execution method is the place

where the processing chain is actually implemented : parameters are retrieved by interrogating the application, filters are set up and outputs are exported.   A new application extending the base application is then compiled into a single dynamic library. This plugin can then be dynamically loaded, and the application it represents can be inquired to get the application documentation, its parameters ...   The application wrappers consist in an API to dynamically load an application plugin from the library path, and a set of tools to generate interfaces for these applications. The loader performs a dynamic lookup from a given application name and a search path in order to find the corresponding dynamic library, and instantiate the application. It is also able to list all the available applications in a given path. This loader can then be used to dynamically build some interfaces to use the application. For instance, the command-line application launcher builds the command-line style options from the parameters description, while the graphical launcher generates a standalone QT interface for the same parameters. The loader and application API can also be used directly in C++, or in interpreted language like Python through SWIG, which allows to script high level processing chains involving several applications. This interface can also be used to write ad-hoc wrappers in order to dynamically build information on available applications. For instance, the applications reference documentation is automatically generated by a Python script, and so are the descriptive file of the applications for their integration into Sextante (and thus QGIS). Last, it can be used to integrate the applications in other software, such as Monteverdi 2.0.   In its 3.16 version, OTB ships more than 70 applications, allowing to perform several high level tasks such as geometric or radiometric pre-processing, supervised classification, segmentation, stereo reconstruction from images pair, dimensionality reduction... This set can be easily extended by users such as scientist wishing to share their work with Orfeo ToolBox.

Topic type		Target Type
Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		Manager End User Technical / Developer

Additional Presenters	
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ID Number	13

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Paper Title	The QGEP waste-water management project
I can give a practical demo	yes

Paper Abstract (short)
A waste-water management application based on QGIS will be presented along with improvements in QGISÊcore for facilitating the development of QGISÊapplication modules based on complex data models.

Paper Abstract (long)
The QGEP project [2] has the goal to develop a QGIS based application module for the management of waste-water management and GEP (general sewer system planning). The presentation reports on the current state of application development, the problems the project is facing and solutions taken. QGEP will be one of the first bigger QGIS application modules using on a complex data structure involving many hundred tables and relations. Therefore the project has to deal with a lot of problems regarding database relations that are and will be solved in QGIS core so that other projects or applications can benefit from these improvements. The QGIS project [1] is enjoying increased popularity among local governments and smaller and medium-sized companies. However, there are still very few complex application modules in domains such as infrastructure documentation (gaz, water, electricity, telcommunication, heating and waste-water), cadastral data management and urban planning. At the end of the year 2011 a group of several waste-water engineers and municipalities met with the goal to establish a group to develop this waste-water application module, as a successive project to an older operational project "GEPView" which was based on ArcView 3, which was discontinued by ESRI. The project implements the data structure (VSA-DSS), regulations and guidelines defined and published by the Swiss waste-water association. Many commercial GIS vendors do not implement these regulatons sufficiently. The project is kind of pioneer in the area of developing more complex application modules based on QGIS. Theses applications, until now, are only available in commercial GIS, like ArcGIS, Geomedia, Autocad Map3d or Smallworld. Database relations (1:n, n:m) have to be supported along with many improvements regarding forms, nested forms based on the databse relations, improved filtering, input validation, mass attribute manipulation, DXF import/export improvements, network following, etc. These are all core requirements of more complex application modules that will be contributed by QGEP for other projects to re-use. In addition there are waste-water specific additions developed in Python and applicable only for the waste-water application. The data model is based on the DSS model [3] from the Swiss waste-water association. The table names, column names and comments have been translated to english to facilitate exchange between different language parts of Switzerland and potential other countries. A localisation to german and french language exists. Other languages can be added relatively easy. A Postgis database is the core of the project - triggers and rules help to ensure data consistency. We are using Python plugins and we can publish the project to the Web, mobile clients and OGC geoservices using QGIS Server and QGIS web client. For the network following plugin, NetworkX (python library) [4] is used. d3.js [5] inside a webkit frame is used to interactively display a profile along sewer channels and manholes, showing structure dimensions, depth and the surface profile. The goal of the project is to first offer a productive version for the editing of the main waste-water documentation (geometric and attributive editing). Later, more analysis modules, export and import modules and interfaces to other software will be added. As an

open source project, other are invited to participate with their knowledge, ideas, testing and financing. Links [1] http://www.qgis.org/ - QuantumGIS (QGIS) project homepage [2] https://github.com/qgep/QGEP Ð project homepage with code, wiki and issue tracker [3] http://dss.vsa.ch/ - data structure "SiedlungsentwŠsserung des VSA (Verband Schweizer Abwasser- und GewŠsserschutzfachleute)" [4] http://networkx.github.com/ - High-productivity software for complex networks [5] http://d3js.org/ - Data-Driven Documents.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		Manager End User Technical / Developer

Additional Presenters	
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ID Number	218

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Paper Title	The Right Approach: how Toscana is migrating to GFOSS
I can give a practical demo	no

Paper Abstract (short)

The Tuscany Regional Administration is migrating his GIS infrastructure to Open Source software. In doing so, they took the right approach, working with the community, and contributing back substantial amounts of code, especially to PostGIS and QGIS projects.

Paper Abstract (long)

The Tuscany Regional Administration had a rather usual proprietary GIS infrastructure (ArcIMS, Oracle, ArcGIS). They started migrating to Open Source GIS with an integrated approach, both on the sever side (PostGIS, MapServer, Geonetworks) and on the client side (Quantum GIS, GRASS), providing also training to hundreds of their technicians. What makes this experience particularly interesting is the fact that they worked form the onset in very close contact with the community, requiring that the code developed for them was generalized, and pushed to main source code. This seemed more cumbersome at first, having to coordinate with several other developers, and not having functions closely fit to their specific needs, but the superiority of this approach become quickly evident, as several functions were further improved and maintained by third parties. Among the most notable achievements were much improved topology support in PostGIS, SLD support in QGIS, and much more. We advise other administrations and enterprises to avoid the temptation of working in isolation, and simply using FOSS4G, maybe tailoring it locally, without contributing back, as this approach is short-lived, and less successful in the long term.

Topic type		Target Type
Case Studies: Relate your experiences.		Manager

ID Number	142

Name	Marc Jansen
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Paper Title	The state and future of GeoExt 2
I can give a practical demo	yes

Paper Abstract (short)
The talk will showcase various aspects of the open-source JavaScript library GeoExt 2, a toolkit for rich web mapping applications based on OpenLayers & ExtJS, and outline the near future of the software.

Paper Abstract (long)
GeoExt 2 (http://geoext.org, https://github.com/geoext/geoext2) brings together the geospatial know how of OpenLayers (http://openlayers.org) with the user interface savvy of Ext JS (http://www.sencha.com/products/extjs) to help you build powerful desktop style GIS applications on the web with JavaScript. It is the successor of GeoExt 1.1.   The talk will first highlight the current state of the software. Since a code-sprint in Spring 2012, GeoExt 2 is able to work with the newest versions of Ext JS 4.x. We will explore the possibilities of the various components in GeoExt and how these interact with the vast options that OpenLayers and ExtJS offer. I will both show code and running examples. We will explore the client-side MVC structure that ExtJS offers and GeoExt 2 fully supports. Also custom builds and the setup to generate these will be explained.   Currently OpenLayers 2.x is used in GeoExt 2. As OpenLayers 3 gets nearer towards API stability, GeoExt will likely switch to using OpenLayers 3 in the near future. This is one upcoming task to be accomplished by the development-community. I will outline some other aspects of the future development of GeoExt 2 and upcoming versions.

Topic type		Target Type
Development: new developments in products.		Manager End User Technical / Developer

ID Number	110

Name	Javier çlvarez
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Paper Title	The subtleties of the infowindow
I can give a practical demo	yes

Paper Abstract (short)
A nearly ubiquitous feature of online maps today is the infowindow, here we will discuss how to use them effectively to communicate and share data in maps online.

Paper Abstract (long)
A nearly ubiquitous feature of online maps today is the infowindow. Infowindows have some unique characteristics in an online map: infowindows represent a direct point of communication between a datapoint and the viewer; when active, infowindows often take up a large portion of the display area, and; infowindows serve as a platform for mixed media directly within an interactive map. Given their importance and unique role in interactive maps, little discussion is made about the design and implementation of infowindows as effective communication tools.   Over the past 5 years of developing interactive maps, we have developed hundreds of unique infowindows, fine tuning the user interaction, information layout and presentation, and role in the mapping interface. More recently, as the core development team for CartoDB, we have been tasked with creating a reusable suit of infowindows useful for a broad range of user maps. From our work, we have learned an enormous amount about good practices for infowindow design, interaction, and content integration.   Here we will discuss the lessons we have learned over the history of our work. We will discuss the good, the bad, and the beautiful in the often overlooked infowindow.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information.		People new to open source geospatial Manager End User Technical / Developer

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ID Number	83

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Paper Title	Things to do with OpenStreetMap
I can give a practical demo	no

Paper Abstract (short)
OpenStreetMap is much more than a set of data. In this article we aim to present an overview showing a good portion of the possibilities it offers. We will see, first of all, what data one can download from OpenStreetMap and how it can be downloaded in a totally personalized way, employing completely customizable criteria. In addition to downloading we will look at other tools that add value to OSM: editors, importers to databases, geolocation services, image rendering, routing algorithms, etc.

Paper Abstract (long)
INTRODUCTION This study of the things we can do using OpenStreetMap arises from SIGTE's need, as a service within the University of Girona, to offer the university community new cartographic services based on free data and, more specifically, on OpenStreetMap, from the elaboration of paper maps to computer applications like the publication of maps, the rendering of custom layers, routing, etc.   In this article we will examine the possibilities offered by OpenStreetMap and the main tools allowing one to operate with this data.   AVAILABLE DATA AND DOWNLOADING There are three types of files ready to be downloaded.   - planet.osm. This file, which takes up about 26 Gb in compressed format (pbf), contains all the OpenStreetMap mapping for the entire planet and is generated weekly.   - history.osm. This file (39 Gb in compressed format) file is generated less frequently than the planet file and contains the entire history of the OSM database.   - diff files. Due to the large volume of data handled in OpenStreetMap there are a number of differential (diff) files containing the database modifications carried out during a specific period (inserts, modifications, deletions).   If one wishes to carry out more customized downloads (by country, region, city, etc.) he can download pregenerated extracts from the original database. These extracts can be downloaded from third-party sites that OSM makes available at its wiki (http://wiki.openstreetmap.org/wiki/Planet.osm).   But if one wishes to customize his downloads even further (with more specific areas, or according to types of entities, such as main roads, parks, etc.), OSM also offers the possibility of using its APIs (Xpai, Overpass API) which, thanks to their REST interface, make it possible to download such data through the generation of URLs.   DATA GENERATION AND EDITING   The main way to participate in OSM is by editing the map, whether capturing the geographical data through GPS and mobile devices or using other open data sources. The workflow to generate OpenStreetMap data is as follows: 1. Data capture and acquisition 2. Data generation and editing 3. Data labelling 4. Map generation   On the OSM wiki there is a complete list of editors (http://wiki.openstreetmap.org/wiki/Editing):   PUBLICATION OF PERSONALIZED MAPS ON THE INTERNET The publication of maps on the Internet is one of the most common tasks carried out using OSM data. Thanks to free tools such as Leaflet and OpenLayers (to name two of the most widespread) one can, in just a few lines of code, generate maps for his webpages, blogs, etc. These tools are developed in Javascript code run on the client side, so these maps do not have any requirements on the server side and can be applied to any webpage. In the specific case of the Leaflet API, generating a map which shows the OSM mapping with the initial view one indicates (initial map coordinates and zoom level) is as simple as changing a couple of lines of code.   IMPORTING OSM DATA TO DATABASES   There are several tools to import data to databases in .osm format. The main ones are osm2pgsql, osmosis, imposm and nominatim. These

tools are designed to organize data (within the databases) in accordance with schemes designed for some very specific uses. For example, osm2pgsql and imposm tools are designed to generate some highly efficient databases with a view to rendering. Other tools, such as nominatim, generate a scheme designed for geocoding, etc. Each tool, therefore, generates a scheme. The main features of these schemes are three: ¥   They are updatable. ¥ They contain predefined geometries. ¥ They contain all the attributes (comprehensive).   RENDERING AND STYLES   Rendering is the conversion of data into an image. During the rendering process the data to be included in the image is defined (on the basis of its attributes) and its style (colour, thickness, colour of the edge, symbols, the scale of the map at which an element is to appear, the scale of map at which it is to disappear, etc.). The complexity of rendering OSM data is mainly determined by three factors: the intricacy of each style, the great variety of different elements containing OSM and, thirdly, the fact that each level of zoom (up to 22) may have assigned a few unique styles for each element of the map. It is easy, thus, to imagine the effort required during the rendering.   The tool used for this process is mapnik (available both for Windows and Linux systems).   Mapnik, in addition to featuring a set of very versatile styles, gives one the possibility of partitioning the images generated into tiles to streamline their transmission on the Internet. In this way the transferred images are smaller and the map navigation gains enhanced fluidity. Mapnik recognizes many different input formats (PostGIS, shp, tiff; OGR, GDAL and raster formats, etc.) and makes it possible to generate output images in the formats png, jpg, pdf, svg, tiff, etc.   Although the generation of styles is a very laborious process, there are tools like TileMill which speed up those processes through a user-friendly graphic interface. Tilemill includes mapnik in its installation as a rendering engine.   Within TileMill one can upload the OSMBright project, which contains a set of pre-defined styles for OpenStreetMap. In this way one can customize his data, starting out from a previous definition and focusing only on those items which he wishes to highlight or customize.   ROUTING   One of the tools intermediate users will find easiest to use is osm2po, one developed in Java (multiplatform) which makes possible, via a few simple commands, the importation of .osm data and the creation of a Web service to process optimal route calculations in a web environment.   Another tool, for slightly more advanced user profiles, is osm2pgrouting. Available on Linux systems, Osm2pgrouting allows one to import .osm data to a PostgreSQL/PostGIS database. It also generates the graph structure (as one more table) necessary for the calculation of optimal routes. With the graph one can modify the costs associated with the connections between nodes and, in this way, customize the routes according to his needs in each case.   Osm2pgrouting requires, in addition to a PostGIS type database, pgRouting functions. pgRouting extends a PostgreSQL/PostGIS spatial database to include route calculation functionality.

Topic type		Target Type
Case Studies: Relate your experiences. Benchmarks: Comparisons between packages.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters	
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ID Number	307

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Paper Title	Tiles and more - deegree freshly implements WMTS
I can give a practical demo	yes

Paper Abstract (short)
In 2013, a new service type joined the deegree family - the deegree Web Map Tile Service. This deegree service implements the OGC WMTS 1.0.0 specification and is going to be the OGC reference implementation for this specification. Both, the OGC WMTS test suite and deegree's candidate reference implementation have been developed within the OGC OWS-9 initiative.

Paper Abstract (long)
In 2013, a new service type joined the deegree family - the deegree Web Map Tile Service. This deegree service implements the OGC WMTS 1.0.0 specification and is going to be the OGC reference implementation for this specification. Both, the OGC WMTS test suite and deegree's candidate reference implementation have been developed within the OGC OWS-9 initiative.   The intention for implementing WMTS was that deegree had no clear strategy to handle big raster data. As a result, one of the advantages of deegree WMTS is the performant handling of big raster data - such as aerial images - and providing it through a standard-compliant interface. Additionally there is advanced support for using other web services based on OGC WMS and WMTS such as GeoServer, GeoWebCache and Mapserver as datasource for deegree's tiling API, which is the underlying data access layer of the WMTS. As a key feature deegree is capable of proxying FeatureInfo output from those remote services.   The presentation will give an overview about deegree WMTS and all its capabilities, especially regarding the interfaces with other OSGeo components.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		Manager End User Technical / Developer

ID Number	244

Name	Petr Pridal
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Paper Title	TileServer: hosting map tiles and MBTiles
I can give a practical demo	yes

Paper Abstract (short)

Extremely fast, free and open-source OGC WMTS server for pre-rendered tiles running on any web server

Paper Abstract (long)

OpenGIS Web Map Tiling Service (WMTS) is becoming the standard used for distributing raster maps to the web and mobile applications, cell-phones, tablets as well as desktop software. Practically all popular desktop GIS products now support this standard as well, including ESRI ArcGIS for Desktop, open-source Quantum GIS (qgis) and uDig, etc.   The TileServer, a new open-source software project, is going to be demonstrated. It is able to serve maps from an ordinary web-hosting and provide an efficient OGC WMTS compliant map tile service for maps pre-rendered with MapTiler, MapTiler Cluster, GDAL2Tiles, TileMill or available in MBTiles format.   The presentation will demonstrate compatibility with ArcGIS client and other desktop GIS software, with popular web APIs (such as Google Maps, MapBox, OpenLayers, Leaflet) and with mobile SDKs. We will show a complete workflow from a GeoTIFF file (Ordnance Survey OpenData) with custom spatial reference coordinate system (OSGB / EPSG:27700) to the online service (OGC WMTS) provided from an ordinary web-hosting.   The software has been originally developed by Klokan Technologies GmbH (Switzerland) in cooperation with NOAA (The National Oceanic and Atmospheric Administration, USA) and it has been successfully used to expose detailed aerial photos during disaster relief actions, for example on the crisis response for Hurricane Sandy and Hurricane Isaac in 2012. The software was able to handle large demand from an ordinary in-house web server without any issues. The geodata were displayed in a web application for general public and provided to GIS clients for professional use - thanks to compatibility with ArcIMS.   It can be easily used for serving base maps, aerial photos or any other raster geodata. It very easy to apply - just copy the project files to a PHP-enabled directory along with your map data containing metadata.json file. The online service can be easily protected with password or burned-in watermarks made during the geodata rendering.   Tiles are served directly by Apache web server with mod_rewrite rules as static files and therefore are very fast and with correct HTTP caching headers. The web interface and XML metadata are delivered via PHP, because it allows deployment on large number of existing web servers including variety of free web hosting providers. There is no need to install any additional software on the webserver.   The mapping data can be easily served in the standardized form from in-house web servers, or from practically any standard web-hosting provider (the cheap unlimited tariffs are applicable too), and from a private cloud. The same principle can be applied on an external content distribution network (Amazon S3 / CloudFront) to serve the geodata with higher speed and reliability by automatically caching it geographically closer to your online visitors, while still paying only a few cents per transferred gigabyte.

Topic type		Target Type
Business Cases: building the economic case. Development: new developments in products. Hacks and Mashes: novel solutions to our problems.		People new to open source geospatial Manager End User Technical / Developer

ID Number	239

Name	Peter Baumann
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Paper Title	Towards Big Earth Data Analytics: The EarthServer Approach
I can give a practical demo	yes

Paper Abstract (short)

EarthServer introduces distributed real-time analytics on Big Earth Data

Paper Abstract (long)

Big Data in the Earth sciences, the Tera- to Exabyte archives, mostly are made up from coverage data whereby the term "coverage", according to ISO and OGC, is defined as the digital representation of some space-time varying phenomenon. Common examples include 1-D sensor timeseries, 2-D remote sensing imagery, 3D x/y/t image timeseries and x/y/z geology data, and 4-D x/y/z/t atmosphere and ocean data. Analytics on such data requires on-demand processing of sometimes significant complexity, such as getting the Fourier transform of satellite images. As network bandwidth limits prohibit transfer of such Big Data it is indispensable to devise protocols allowing clients to task flexible and fast processing on the server. The EarthServer initiative, funded by EU FP7 eInfrastructures, unites 11 partners from computer and earth sciences to establish Big Earth Data Analytics. One key ingredient is flexibility for users to ask what they want, not impeded and complicated by system internals. The EarthServer answer to this is to use high-level query languages; these have proven tremendously successful on tabular and XML data, and we extend them with a central geo data structure, multi-dimensional arrays.   A second key ingredient is scalability. Without any doubt, scalability ultimately can only be achieved through parallelization. In the past, parallelizing code has been done at compile time and usually with manual intervention. The EarthServer approach is to perform a semantic-based dynamic distribution of queries fragments based on networks optimization and further criteria. The EarthServer platform is comprised by rasdaman, an Array DBMS enabling efficient storage and retrieval of any-size, any-type multi-dimensional raster data. In the project, rasdaman is being extended with several functionality and scalability features, including: support for irregular grids and general meshes; in-situ retrieval (evaluation of database queries on existing archive structures, avoiding data import and, hence, duplication); the aforementioned distributed query processing. Additionally, Web clients for multi-dimensional data visualization are being established. Client/server interfaces are strictly based on OGC and W3C standards, in particular the Web Coverage Processing Service (WCPS) which defines a high-level raster query language. We present the EarthServer project with its vision and approaches, relate it to the current state of standardization, and demonstrate it by way of large-scale data centers and their services using rasdaman.

Topic type	Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Development: new developments in products. Hacks and Mashes: novel solutions to our problems. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.	People new to open source geospatial Manager End User Technical / Developer

ID Number	37

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Paper Title	User centered design for map.geo.admin.ch or how to create an usable geoportal.
I can give a practical demo	yes

Paper Abstract (short)
This presentation will describe the way to make a geoportal used and useful.

Paper Abstract (long)
ÒFast, intuitive, informative, fastÓ, according to Brian Timoney [1], these requirements are the secret of good web mapping applications. Ok, great, but how to handle 200 layers, permalinks, tooltips, address search, feature search, catalogs, layer trees, KML, GPX, measurements, profile, print, help, feedback, copyrights, contextual menu etc, etc.. ?   This presentation will try to provide an answer based on the experiences made by the map.geo.admin.ch geoportal.   ÒUser centered designÓ is probably the most important process in order to propose an usable geoportal. This process implies to identify the personas (or the user types) and to identify the use cases accomplished by these users. For map.geo.admin.ch, several methods have been used: contextual inquiry, user survey, analysis of user feedbacks and user tests. This talk will present these various methods and discuss their key findings: - A geoportal is not a GIS application. The UI has to be as simple as simple with only the strictly required features. - The pareto rule Ò80% of the effects come from 20% of the causeÓ applies perfectly for the features of a geoportal. The majority of features are ÒonlyÓ expert features. - Search has to be fast, efficient, fast, efficient, fast, efficient etc... The majority of users are used to work with Google search. The geoportal has to offer equivalent possibilities. - Thematic geoportals are easier to use. The diversity of layers is a killer for a geoportal. Layers need to be contextualized and grouped. - No need to have an ÒiÓ button is order to get attributive information. If the users wants an information about a feature, he has simply to click on this feature. - ÒSettingsÓ are forbidden (because never used) - Users are able to navigate in the map with the mouse... and this is the first thing users do after starting the application. - The switch between mobile and desktop worlds has to be possible without losing information. Internet users expect to work with a geoportal like with other web applications. The same design patterns have to be used in order to simplify the access to the geoinformation and to make your geoportal used and useful. LetÕs see if this dream can be a reality ! [1] http://mapbrief.com/2013/02/11/the-tyranny-of-requirements-why-map-portals-dont-work-part-iii/

Topic type		Target Type
Case Studies: Relate your experiences. Business Cases: building the economic case. Visualization: effective presentation of information. Hacks and Mashes: novel solutions to our problems.		Manager End User Technical / Developer

ID Number	2

Name	Adriˆ Mercader
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Paper Title	Using CKAN as a catalog for geospatial data
I can give a practical demo	yes

Paper Abstract (short)

CKAN is the most widely used open source data portal software across the world, built on open standards to make data easily discoverable and reusable for end users, manageable by publishers and easily customisable and expandable for developers. This presentation will explore what features already allow several organizations to publish their geospatial metadata with CKAN and how this provides an alternative to traditional geospatial catalogs.

Paper Abstract (long)

CKAN is an open source data management software maintained by the Open Knowledge Foundation, a UK-based non-profit organization pioneering tools for the promotion and sharing of open information. CKAN makes data accessible by providing tools to streamline publishing, sharing, finding and using data.   CKAN is used around the world to power numerous Open Data catalogs [1], including official portals like the Open Data Hub of the European Union [2], the UK Government [3] one, and community driven ones like the DataHub or PublicData.eu. The upcoming new version of the US government Open Data portal will be also based on CKAN, merging general and geographic data, now spread across different sites. CKAN is a mature project, with a vibrant community around it and regularly welcomes contributions from external developers.   On many of these portals geographic data plays a crucial role and a significant part of recent CKAN developments have focused on enhancing its geospatial capabilities, making it compatible with the standards used by the geospatial community. This process was started during the development of Data.gov.uk, which acts as the INSPIRE node for the UK, and has carried on through the development of the next version of geo.data.gov for the US Government.   Our presentation will include an overview of the main features available in CKAN, from a polished user-centered UI down to the APIs that give full control over its functionality, allowing developers to extend it and customize it. Special efforts are made to make data easy to find and share, with a powerful full text search with faceting and spatial filtering available. Another aspect that has seen significant improvements are data visualizations that allow users to explore the datasets listed on the catalogue. For tabular data, CKAN integrates Recline [4], another open source library from the OKF that provides advanced visualizations such as tables, graphs and maps. Other viewers for geospatial standards like WMS and KML have also been developed.   Using its harvesting and spatial extensions [5], CKAN allows importing geospatial metadata from other catalogs, supporting formats like ISO 19139 or FGDC and protocols like CSW or Web Accessible Folders. Other harvesters for other data sources like ArcGIS REST APIs can be also developed. Apart from its own API, metadata stored in CKAN can be exposed via a CSW interface, which is done integrating pycsw. CKAN is built on top of an open source stack, with the main code base written in Python and Javascript, Postgres as database server and Apache Solr as the search platform. The spatial extensions use well known open source geospatial projects and libraries, from PostGIS, pycsw or shapely on the backend to Leaflet or OpenLayers on the frontend.   More information on CKAN and the main source code repository can be found on the following links: * http://ckan.org * https://github.com/okfn/ckan   [1] http://ckan.org/instances [2] http://open-data.europa.eu/open-data/ [3] http://data.gov.uk [4] http://reclinejs.com/ [5] https://github.com/okfn/ckanext-spatial

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager Technical / Developer

Additional Presenters	
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ID Number	34

Name	Blake Crosby
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Paper Title	Using FOSS4G Software for Flight Planning
I can give a practical demo	yes

Paper Abstract (short)
An open source solution to flight planning for pilots.

Paper Abstract (long)
World Flight Planner is a website that allows commercial and private pilots to plan flights.   This presentation will describe how we used FOSS4G software to process: - Complex weather data (winds aloft, temperatures) (postgis/postgres) - Parse and plot aeronautical information and real time pilot reports on a map. (geoserver, openlayers) - Show non-pilots the steps involved in pre-flight planning. Aeronautical data can be quite complex and traditional tools offered to pilots are purely text based. Tools like Geoserver and OpenLayers allow World Flight Planner to display this information in a visual format for safer flight planning.   Elements from a previous presentation (http://tinyurl.com/badzvae) will be used.

Topic type		Target Type
Visualization: effective presentation of information. New data: handling new data models, for example 3D & temporal data, or big data.		People new to open source geospatial Technical / Developer

ID Number	55

Name	Darren Hardy
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Paper Title	Using GeoNetwork as a Metadata Toolkit for a Geospatial Digital Library
I can give a practical demo	yes

Paper Abstract (short)

Our geospatial digital library at Stanford University integrates GeoNetwork for metadata management and workflow services. We will present how we've integrated GeoNetwork as part of our metadata toolkit and accessioning services. GeoNetwork provides key metadata management and transformation services, but has rudimentary workflow support.

Paper Abstract (long)

Our geospatial digital library at Stanford University integrates GeoNetwork for metadata management and workflow services. We will present how we've integrated GeoNetwork as part of our metadata toolkit and accessioning services. GeoNetwork provides key metadata management and transformation services, but has rudimentary workflow support.

Topic type		Target Type
Case Studies: Relate your experiences.		Technical / Developer

ID Number	106

Name	Jack Harrison
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Paper Title	Using NoSQL & HTML5 libraries to rapidly generate interactive web visualisations of high-volume spatiotemporal data.
I can give a practical demo	yes

Paper Abstract (short)
Challenges and successes in implementing real-time, browser-based social media analysis & visualisation with open-source tools.

Paper Abstract (long)
Twitter has developed over the past few years into a potent source of public opinion and comment. The service passed 500 million users in June 2012, collectively posting hundreds of millions of tweets each day, and several high-profile analyses of this data (such as the Twitter Political Index, which mapped sentiment across the US towards the 2012 presidential candidates over the course of their campaigns) have demonstrated its potential for insight and near-time customer feedback.   Handling such large volumes and throughputs of data is a sizeable engineering challenge, however, and several commercial ventures (TweetReach, Tweet Archivist - many others) have sprung up specifically to deal with this complexity - at a cost. In addition, many existing solutions are unable to properly utilise the location data that is present in a significant proportion of tweets, losing out on the rich geographical context. This retrospective aims to demonstrate how an informed coupling of emerging open-source component technologies can be used to resolve the complex problems of i. large stored data volumes, ii. real-time streaming input, iii. concurrency of writes and iv. geographically querying and visualising results - with a minimal development outlay.   Specifically, the construction of an open-source process to read, process, write, query and visualise streaming, geolocated Twitter data using the MongoDB NoSQL database and D3.js JavaScript library will be detailed, focusing on how MongoDB handles real-time spatial data (including spatial indexes & querying) and the unique features that make D3 so well-suited to visualising and exploring spatial data in the web browser.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. New data: handling new data models, for example 3D & temporal data, or big data.		Technical / Developer

ID Number	115

Name	Jeremy Morley
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Paper Title	Using OSGeo Live in MSc teaching
I can give a practical demo	yes

Paper Abstract (short)

OSGeo Live provides a valuable "system in a box" for MSc teaching in GIS, particularly for creating & managing GIS web services

Paper Abstract (long)

This presentation will reflect on my experience of using the OSGeo Live system (versions 5.0 and 6.0) for delivering practical class teaching of GIS at Masters level. We have tried various configurations of the system including virtual machines and running from USB sticks and I will discuss the trials and tribulations of setting up the system to run smoothly on the university's network, allowing the students to transport their work between home and the university and explore setting up data in a spatial database, connecting Geoserver to create web services and then connecting QGIS or OpenLayers to the services to access the services.   Alongside discussion of the technical details I will reflect on the wide set of technical skills and system understanding needed to truly understand spatial data management, web service creation and management, and creating a good web mapping site. This poses big challenges for teaching the technology in real depth in the limited time in an MSc curriculum.

Topic type		Target Type
Case Studies: Relate your experiences. Benchmarks: Comparisons between packages.		People new to open source geospatial End User

ID Number	207

Name	Niels Hoffmann
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Paper Title	Using Spatial Business Intelligence for Asset Management
I can give a practical demo	yes

Paper Abstract (short)

In this presentation I demonstrate the use of Spatial OLAP for better Asset Management of Provincial Waterways.

Paper Abstract (long)

The maintenance of waterways is expensive. Optimization of reconstruction projects can save money and limit hindrance for the public. In this presentation I show how the implementation of Spatial OLAP can give better insight in the quality of the construction of waterway banks. By spatially overlaying inspection results with construction records, a better estimation can be made about the overall quality, potential danger and repair costs. Spatial OLAP is an excellent way to provide insight into the different variables involved in the planning proces of maintenance.

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information.		Manager End User Technical / Developer

ID Number	165

Name	Martin Stypinski
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Paper Title	Vaadin - A simple approach to GIS-RIApplications
I can give a practical demo	yes

Paper Abstract (short)

Vaadin as a RIA framework is very known, unfortunatly not very represented in the GIS scene. With this presentation I hope to increase its popularity...

Paper Abstract (long)

Vaadin as a framework is very common among Java RIA developers but for GIS developers Vaadin is still a much unknown platform. With this presentation I would like to alter that - and show how a small company developed a stylish GIS RIA application without the needs to switch from the 'classic' language Java. Most web based GIS applications today are written in a mix of languages such as PHP/JS or Phyton/JS, etc. Many frameworks exist to support the development team and make the programming cycle as short as possible. However there is still a downside of choosing a client and a server side technology on its own. The problem starts with knowing at least two technologies to the fullest and there is no end in sight. Even server / client side communication can bring up a few issues and make the developers life really troublesome. With Vaadin these problems are gone, somehow to a certain point. Development starts straight in Java and as it is one of the bigger Java frameworks in the game, support is quite strong and guaranteed. With only on language to develop, the main asset of development is posed on 'making a nice application' rather than 'bolting things together and make it work'. Vaadin somehow enables the focus on the important things instead the technology. The software itself runs on an Apache Tomcat Server and uses Googles GWT framework to render all displaying webpages.   Using Vaadin to write a modern GIS application there is still a missing piece in the puzzle. A library, plugin or similar is needed to display all these dynamic maps and enable features to draw and display spacial shapes (polygons, points, etc.). VOpenLayers (vol) is a wrapper class for OpenLayers 2.x developed for Vaadin, it enables the developer to use many of OpenLayersÕs feature in Vaadin. With these 2 components it was possible for us to write a full GIS application in a very limited amount of time and with only limited manpower. Java as a technology was already known, and we had already applications running on the internet with Vaadin technology implemented. So the best step we could make was, try out Vaadin and vol to write our application Ð and it was a great success! In my opinion, customers will seek for rich internet or intranet applications in near future. With Vaadin as an enabling technology it will be very easy to handle the job. The current situation is unfortunately that Vaadin and vol are not very common in our sector. Therefor vol really needs help through developers with deep OpenLayers knowledge to make the next necessary steps for a bug free and feature enhanced version.

Topic type		Target Type
Case Studies: Relate your experiences.		Technical / Developer

ID Number	44

Name	Chris Little
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Paper Title	Visualising 4D Weather Data
I can give a practical demo	yes

Paper Abstract (short)
WindAR demos 4D gridded wind information, both actual and forecast, overlaid on a live video view on a mobile Android table.

Paper Abstract (long)
WindAR is a proof-of-concept project that combines Augmented Reality, Open Mapping, Cloud technology, standard weather feeds and mobile hardware to demonstrate visualisation of local weather information. Wherever possible, accepted interoperability standards and packages have been used. Currently, the system displays 4D gridded wind information, both actual and forecast, overlaid on a live video view on a mobile Android tablet, and the demo service has been running for a few months. Areas for simple extensions to the service and further development will be outlined. The current implementation uses OGC WFS and GML v2.0, Google's tile mapping API, WMO (World Meteorological Organisation) GRIB (binary gridded) data format, open source Iris and Cartopy python libraries, Augmented Technologies AWILA package, an Amazon EC2 server and various Android clients.

Topic type		Target Type
Visualization: effective presentation of information. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		End User Technical / Developer

Additional Presenters	
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ID Number	144

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Paper Title	VivaCity Smart City Platform
I can give a practical demo	yes

Paper Abstract (short)

An Open Source Open Data Usage and analysis Platform for the Smart City

Paper Abstract (long)

Many big vendors are exploring the smart city concept explaining that the smart city is a city aware of the things happening in the infrastructures. Thus the vendors are pushing for a Smart Grid, Smart Metering, Smart Sensors and Smart Whatsoever. This makes the city look like a sick patient, being monitored in many ways with histograms, gauges and panels for the information to be read.   In our opinion this is the most unnatural way to interact with city information. Historically the most used way to interact with citizen oriented information is the map. Even today, with the always more precise GIS tools, the map can be an important part of a city information management tool.   The VivaCity Project is a platform for the data-driven smart city. The core of the platform consists of a map- based view of the city itself, with all the possible cartographic open data made available by the governance. Beyond that, various apps can contribute in a smart manner through a set of plugins and entry-points for various views of the city, enabling a deep and complex interaction with the city itself.   This system is self-sustaining, considering that the city already contains its monitors, which are the citizens. They just need two sets of tools: a visualization tool enabling the citizens to understand what is being done at a given time, and a tool to express opinions, problems and proposals to the governance. Considering that an overly generic tool loses its meaning because it has no real target, the interaction with the governance is delegated to function-specific or target-specific apps sharing a common API. This way both governance and citizen gain benefits, having both sides creating new data all the time and interconnecting information from the city and its inhabitants: governance has the ability make decisions based on real-time citizen-driven data, while citizens have the opportunity to create new services using the provided data.   Figure 1 - Part of the VivaCity Smart City Interface   For instance, the APIs offered to external apps are aimed to the following areas of interest: Politics, political decisions Maintenance   ¥ ¥   ¥ ¥ ¥ ¥ ¥ ¥   Security City Info, Touristic, Cultural information Management, urbanistic information Urban events, Urban Acupuncture, social analysis Emergency Management, Emergency information aggregation from the many sources available Economic, Managerial information Environmental, Energy usage information   The data shown in the interface is the sum and interpretation of the data provided by the local governments through open data, or applications created by third parties like OpenMunicipio in Italy, the OpenSpending platform by OKFN or even simply mash-ups with complex datasources, like the USGS earthquake map, or the various regional APIs for simple services or any other app enabling the citizen to participate actively to the activity of his government.   Using the platform in different cities enables a normalization of the services offered by the cities, and the direct comparison and interconnection of cities through a distributed API supporting the governance to empower policies and improve citizensÕ lifes.

Topic type	Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Hacks and Mashes: novel solutions to our problems.	End User Technical / Developer

ID Number	242

Name	Peter Smart
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Paper Title	ViziCities - Bringing cities to life using big data and the power of the web
I can give a practical demo	yes

Paper Abstract (short)
We're using open big data to bring real world cities to life using WebGL and three.js

Paper Abstract (long)
My name is Peter Smart. I'm working with Rob Hawkes to bring real world cities to life using open, big-data. What started out as a personal project to use some cutting-edge web tech is quickly accelerating. We're now talking with the Ordnance Survey, data.gov.uk, TFL and IBM about how we can work to visualise complex data in amazing, new ways.   Interest lies in the fact we're stitching and hacking together a raft of open data sources to create immersive, explorable cities with both live and legacy data overlaid on top. This opens up some really interesting opportunities for useful and accessible data-vis - all in the browser.   We released out first dev. diary a few days ago and we've been blown away by the response. This can be seen here: http://rawkes.com/articles/vizicities-dev-diary-1. This features some screenshot, videos and more information.   We'd love to chat further so please do get in touch!

Topic type		Target Type
Case Studies: Relate your experiences. Visualization: effective presentation of information. Hacks and Mashes: novel solutions to our problems. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		People new to open source geospatial End User Technical / Developer

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ID Number	196

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Paper Title	VRGeo
I can give a practical demo	yes

Paper Abstract (short)
VRGeo - Open Source Collaborative Mapping Platform

Paper Abstract (long)
VRGeo (pronounced Òwe-are-geoÓ), is an Open-Source collaborative mapping platform for Crowd-sourcing Location based information, aka Geospatial information. In India, the digital divide has had an effect on geospatial information detail also, like limiting the use and adoption of this technology in rural and natural resource rich areas. So, VRGeo (Village Resource Geospatial Data Repository) was conceived to bridge this gap especially from data-poor regions of the country and with the help of the community Ð college students, NGOs, rural departments and others. As the development progressed, it was increasingly found that the technology and tool has an universal appeal and can apply to any geographical region Ð urban or rural; and any domain where geospatial data is of value like mapping agricultural pest spread monitoring, environmental pollution/impacts, livestock or human disease occurrence, on-field monitoring of projects like housing, road development, etc. By leveraging the latest mobile and web technologies, tools like VRGeo, can help common man to provide information about their locality even without the knowledge of GIS. The VRGeo platform enables to download GIS data by academic institutions and government organizations which help in better decision making, modeling, temporal analysis etc. This data download is only possible under the terms of a suitable Open Source License   Currently, web map services and spatial mash-ups only provide a uni-directional source of data like ISRO Bhuvan, Google maps etc., which means that pre-loaded data from geospatial data servers are dished out based on user-request (or query). The user is limited to add his/her data but cannot combine it with the pre-loaded information for further query processing, which increasing the steps in processing of such data interactions. VRGeo does provide online tools to edit oneÕs own data (like GPX data) before uploading. In addition, an SMS-VRGeo plugin has been built, which allows for direct assimilation of SMS data into VRGeo and its visualization on the platform.   The primary architecture is based on client centric map rendering methodology rather than widely prevalent server side rendering of maps. This technique has been proved to be very effective and highly scalable in web based rendering of large data. Direct rendering of geospatial data is one of the technological innovations done with the help of web technologies such as HTML5, SVG etc. VRGeo UI is developed using Wt Web Toolkit which is built on jQuery, AJAX, CSS3 and provide an abstraction between HTML and scripting code. VRGeo uses PostgreSQL/PostGIS as the main data storage model for vector data and is rendered/queried by LSIViewer(direct rendering) without using any Web Services such as WFS,WFS-T.

Topic type		Target Type
Visualization: effective presentation of information. Development: new developments in products.		People new to open source geospatial Manager End User

Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.	Technical / Developer

Additional Presenters	
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ID Number	415

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Paper Title	Water quality forecast and information system build entirely with FLOSS software
I can give a practical demo	no

Paper Abstract (short)

CLEANWATER system combine various information in order to evaluate the present level of nutrient pollution in vulnerable areas and to assess the cost-efficiency of the measures that could be applied. Through a simple and intuitive web interface, CLEANWATER offers the decision makers a spatial aware tool to (1) create scenarios related to the human activities and climate changes, (2) send those scenarios to numerical models to model future evolution of water quality and (3) view, query and perform spatial analysis of the simulation results. The system is build entirely with standard compliant free and open source software applications like OpenLayers, ExtJS, PostGIS, GeoServer and GDAL.

Paper Abstract (long)

Water quality is a major problem nowadays around the world. CLEANWATER system combine various information and complex data in order to evaluate the present level of nutrient pollution in vulnerable areas, as well as to assess the cost-efficiency of the measures that could be applied. Through a simple and intuitive web interface, CLEANWATER offers the decision makers a spatial aware tool to (1) create scenarios related to the human activities and climate changes, (2) send those scenarios to numerical models to model future evolution of water quality and (3) view, query and perform spatial analysis of the simulation results. The system was implemented in a test river basin (Barlad River Basin in Eastern part of Romanian) and started to contribute to the development of a modern water management system, according to EU legislation (e.g. Water Framework Directive, Nitrates Directive). The future plan is to replicate the system at national and international level.   The system is build entirely with standard compliant free and open source software applications like OpenLayers, ExtJS, PostGIS, GeoServer and GDAL.

Topic type		Target Type
Case Studies: Relate your experiences.		People new to open source geospatial End User

ID Number	340

Name	Stephan Meissl
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Paper Title	WCS & EO-WCS Status in Open Source
I can give a practical demo	yes

Paper Abstract (short)

This presentation will show the current status of Open Source implementations of WCS and particularly EO-WCS by comparing GeoServer and MapServer/EOxServer

Paper Abstract (long)

The EO-WCS standard extends OGC's Web Coverages Service (WCS) 2.0 standard with the ability to support the typical workflow and needs of Earth Observation (EO) data. The presentation will introduce the typical EO workflow and the additional capabilities of the protocol with examples from MapServer/EOxServer and GeoServer. Finally issues with the current protocol, workarounds, and future directions from OGC's Standard Working Group will be presented.

Topic type		Target Type
Benchmarks: Comparisons between packages. Development: new developments in products. Collaboration: data collection, data sharing, open standards. New data: handling new data models, for example 3D & temporal data, or big data.		Manager Technical / Developer

Additional Presenters

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ID Number	98

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Paper Title	Web Processing Services using OS OpenData
I can give a practical demo	yes

Paper Abstract (short)

Using OS OpenData, applying OGC standards & services and customising a number of open source GIS tools a WebGIS App was developed to provide a simple and intuitive online tool for generating hydrological catchments within the UK [1].   [1] http://webgis1.lutraconsulting.co.uk/catchment_finder/

Paper Abstract (long)

In April 2010, Ordnance Survey made a number of their national mapping products freely available under the OS OpenData initiative. Vector and raster datasets at varying scales were released under a very permissive license which allows users to freely create derivative works, even for commercial purposes.   Lutra Consulting released a WebGIS application to demonstrate the value and potential of combining OS OpenData, OGC services & standards and open source GIS software.   The WebGIS application, Catchment Finder, uses the OGC Web Processing Service (WPS) to provide a simple method for users to generate hydrological catchments (or watersheds) for any point in the UK. Catchment delineation is based on the OpenData Landform PANORAMA dataset, a 50 metre resolution digital terrain model (DTM).   Catchment Finder was developed using the following FOSS components: OpenLayers and Ext JS for all user-facing functionality. MapServer and TileCache to serve background mapping and processed results. GRASS GIS for server-side catchment delineation process. PyWPS to provide a mechanism for interaction between the browser and GIS processing taking place on the server.   GRASS GIS sits at the core of Catchment Finder. National slope and aspect raster datasets were pre-calculated as inputs for the watershed analysis module in order to optimise calculation times.   A WPS process was developed in python (using PyWPS and GRASSÕ python bindings). The process chains together a number of GRASS commands in order to generate a vector layer representing the catchment outline which is then displayed in the web client via GML or optionally downloaded as a Shapefile. PyWPS (based on python) was chosen in preference to alternative WPS server implementations due to the typical flexibility and efficiency offered by python (a high-level programming language).   Implementing specific GIS processing tasks as WebGIS applications simplifies the end-userÕs tasks and therefore opens up GIS processes to non-technical people. Storing datasets and carrying out processing centrally helps remove the burden of managing large/national datasets. Any updates to underlying datasets can be carried out centrally with minimal impact.   As Catchment Finder implements the OGC WPS standard, it is also possible for the service to be utilised by desktop GIS applications. At present, due to the low resolution of the underlying DTM, it is only possible to generate watersheds for larger watercourses.

Topic type		Target Type
Case Studies: Relate your experiences. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial End User

ID Number	50

Name	Claudia Vitolo
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Paper Title	WebGIS applications for the new generation of hydrological models
I can give a practical demo	no

Paper Abstract (short)

Developed to address limitations of existing hydrological desktop applications, OASIS-WS utilises the latest advancement in web technologies & data availability to inform key decision makers of the impacts of land management on water resources & flood risk through a robust and consistent web-based approach.

Paper Abstract (long)

Knowledge about the potential impact of land management scenarios on water resources and flood risk is essential for decision-making amongst various governmental organisations and the private sector. Environmental models are typically applied to assess impacts of future water shortages & flood risk and to simulate and analyse various scenarios to inform key decision makers.   The practice of environmental modelling is hindered by a number of technological characteristics of the current generation of models. These models are typically stand-alone applications developed for desktop computers with little standardisation of input & outputs and with limited possibility of automatic coupling with other models. This is problematic for various reasons. Not only does it limit computational power, but it also hinders the construction of complex workflows, ensemble modelling using different model structures, and a full uncertainty analysis of the model chain.   Web technologies may overcome most of the above limitations. These technologies, combined with appropriate standards, provide tools to construct analysis workflows of relevant spatial and non-spatial data available over the internet/intranets. In addition, elastic and scalable cloud services facilitate computational efforts.   OASIS-WS (Web Service) is a WebGIS based tool for processing hydrological information. OASIS-WS uses recent web technologies to capture both spatial and non-spatial hydrological data, analyse and process those data, and to present results as maps and plot outputs. The data discovery element of OASIS-WS is designed to explore data availability using Open Geospatial Consortium (OGC) standards. It is based on the recently developed data exchange standard, WaterML2, which enables the storing and exploring of various hydrological data sources through a web interface. Data collected through the discovery stage are stored in a PostgreSQL / PostGIS database. An algorithm was developed to filter and select appropriate data for analyses of specific scenarios.   Based on a user scenario (e.g. flooding or low flow analysis), OASIS-WS can select an appropriate hydrological model from the multi-model Framework for Understanding Structural Errors (FUSE), developed by Clark et al. (2008).   FUSE consists of an ensemble of over 1200 conceptual rainfall-runoff models. It is widely used for local to national scale hydrological analyses. FUSE has been implemented in R with some portions implemented in C++ to optimise processing times. It is an integrated part of the RHydro package (publicly available from R-Forge). The functionality of FUSE is exposed to OASIS-WS as a web service using the OGC Web Processing Service (WPS) standard.   Users interact with OASIS-WS through its web interface which features a map panel and modelling dashboard. Visualisation and interaction are facilitated using the OGC Web Map Service (WMS) and Web Feature Service (WFS). The exploration of input data and model results is implemented using the Sensor and Observation Service (SOS).   OASIS-WS is fast, reliable and able to provide the most appropriate simulation engine for a given user scenario thanks to the modular

nature of the underlying hydrological models. As OASIS-WS is web-based, it is also scalable and easily accessible.

Topic type		Target Type
Case Studies: Relate your experiences. Development: new developments in products. Collaboration: data collection, data sharing, open standards.		People new to open source geospatial Manager End User Technical / Developer

Additional Presenters

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ID Number	293

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Paper Title	Why Open Source GIS is a Viable Option for Korean National GIS Program?
I can give a practical demo	no

Paper Abstract (short)

This presentation will talk about the recent positive change of Korean government's policy toward open source GIS and its background rationale by reviewing past investment on Korean GIS from 1995 to 2011 and related research reports on open source GIS adoptions in Korea.

Paper Abstract (long)

January 2013, Ministry of Land and Transportation, Korea, announced new mid-long term Korean National GIS R&D plan composed of 16 major action items. Surprisingly Korean government included ÔDevelopment of Open Source GISÕ within 16 major action items. According to this tentative R&D plan Korean government will invest around US$ 15 Million in ÔDevelopment of Open Source GISÕ for next 7 years, this open source GIS development plan should go through feasibility study and get final budget approval though. This announcement was widely accepted as a positive sign of policy change toward open source GIS in Korean government, since Korean government has usually given much preferences to Korean local GIS technology against so-called foreign GIS technology(e.g. ESRI, Intergraph, ERDAS..) and open source GIS.   This presentation will mainly talk about the rationale why Korean government changed its policy toward open source GIS by reviewing the results of past Korean NGIS(National GIS) R&D program. And a research report, ÔStrategies on Building the Platform for GeoSpatial Information Technology Development: Based on Open Source ThinkingÕ by KRIHS(Korean Research Institute of Human Settlements), will be introduced largely, since this report had great impact on policy change of Korean government toward open source GIS.   3 main parts will be delivered through presentation. Those are as follows: First, current market situation and R&D model change will be discussed including closed innovation and open innovation. Rapid market change and paradigm shift of innovation model raised fundamental questions on Korean NGIS R&D structure. Second, past Koran NGIS R&D program, goals and strategies will be introduced. Korean government invested around US$ 200 Million from 1995 through to 2011. And the results, merits & demerits of this investment will be discussed.   Third, proposed strategies to Korean government will be introduced, those are ÔInside-Out strategyÕ, ÔOutside-In StrategyÕ and ÔSelect & Focus Strategy.Õ

Topic type		Target Type
Case Studies: Relate your experiences. Policy		People new to open source geospatial Manager Government officials

Additional Presenters	
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Paper Title	Wide Area Alerting and Notification System for Wildfires (and other nasties)
I can give a practical demo	yes

Paper Abstract (short)

Describes the case study, use cases and heavy use of FOSS4G and other FOSS software in a large alerting and notification system in the vegetation wildfire domain

Paper Abstract (long)

CSIR has developed a software system known as the Wide Area Alerting and Notification System to handle complex alerting and notification requirements in the vegetation wildfire domain. The system is aimed at being fairly generic though, so finds use in other domains too. This presentation describes a number of case studies of the system in use, illustrating the important requirements, before getting to grips with the architecture of and software used in the system. This presentation will describe how the system makes heavy use of several FOSS4G software favourites and relies on a small but interesting open standard, namely CAP (OASIS Common Alerting Protocol).

Topic type		Target Type
Case Studies: Relate your experiences. Disaster Response: software, case studies, outcomes.		End User Technical / Developer

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Paper Title	WMS-V - A new way to visualise geo-temporal data
I can give a practical demo	yes

Paper Abstract (short)

We have developed a new way of visualising geo-temporal data by extending the functionality of WMS and caching to produce video tiles/files which, using OpenLayers, can be viewed and interacted with as if they were ÔmapsÕ.

Paper Abstract (long)

There is an increasing amount of geo-temporal data being created. Examples include weather patterns, population movement of plant and animal species, epidemics of the Avian flu, shopping patterns. Generally speaking geo-temporal data is big data which can be difficult to visualise in a web browser. It can be even more challenging to allow a user to dynamically explore the data at different scales and for large geographic areas. Or is it?   We have explored different ways of achieving this and in the end came up with a solution which employs a web service, WMS-V, to produce animated web maps or what we call ÔmapimationsÕ. Services like WMS, WMS-C, TMS, etc. delivered by technologies such as MapServer and GeoServer and the like basically tile up spatial data into image tiles that the browser requests. We thought this must be possible for data that changes over time and not just static imagery.   Essentially a video is just a series of images, called frames. These frames are shown in quick succession to give the impression of something happening on the screen. WMS-V uses this same technique, however the frames are map images / tiles. Starting with a dataset for a particular phenomena across space and time, maps are requested from a WMS or other tile generating service. Through an automated process, the tiles are stitched together into a standard video format that can then be played in a browser. All tiles for a given geographic extent, scale set, and time period are requested and video tiles created. These videos are cached in a file / directory structure which is readable by the map serving software. Then, dependent on the request sent to this server, videos are sent back to the browser for a particular spatial extent. A fork of OpenLayers has been created, extending its functionality to assemble the correct requests, but instead of static images, it can now request video tiles.   Our simple use case is the possum pest problem in New Zealand. We have modelled potential possum population growth in 30 years starting from 2008 and created an instance of WMS-V to visualise the data for animal health specialists and local government. Users can pan and zoom to any part of the country and watch how possum numbers grow and decline over time. We will also show examples of the approach being used for other geo-temporal data.   Feedback about both the approach and result has been very positive and we believe WMS-V could be used for all sorts of data. Come and learn whether it will work for you!

Topic type		Target Type
Visualization: effective presentation of information. New data: handling new data models, for example 3D & temporal data, or big data.		Technical / Developer

Additional Presenters	
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Paper Title	Working with spatial databases with GeoAlchemy
I can give a practical demo	no

Paper Abstract (short)
GeoAlchemy is a powerful toolkit to use SQL spatial databases from Python.

Paper Abstract (long)
GeoAlchemy helps you use spatial databases from Python. GeoAlchemy provides extensions to SQLAlchemy, the Python SQL toolkit and ORM. GeoAlchemy builds on SQLAlchemy's extreme flexibility, and can be used for different types of applications, from simple scripts to complex web applications.   In this talk we will present GeoAlchemy and SQLAlchemy. We will describe when and how SQLAlchemy and GeoAlchemy can be useful. We will demonstrate the power and flexibility of the tools. We will also present the new version of GeoAlchemy, namely GeoAlchemy 2. GeoAlchemy 2 enables leveraging PostGIS' new features. For example, GeoAlchemy 2 supports PostGIS's new raster type. Finally, we will demonstrate how GeoAlchemy integrates with other well-known Python tools, such as Shapely.

Topic type		Target Type
Development: new developments in products.		Technical / Developer

Additional Presenters	
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Name	Steven Citron-Pousty
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Paper Title	Your Geospatial Platform running on a PaaS
I can give a practical demo	yes

Paper Abstract (short)
All developers and sysadmins need to learn about PaaS and this sessions will give an intro. and demonstrate most of the major geospatial servers

Paper Abstract (long)
We all know some of the major pieces of a FOSS geospatial platform, some of the main pieces have been in place for years now. We have all heard about the cloud and how it is going to "change everything". For most of us, we haven't had a chance to use the cloud and if we have it is only a Amazon EC2 instance (which is Infrastructure as a Services - IaaS). In this talk I will actually bring up all the infrastructure needed to run GeoServer and PostGIS with two commands. I am going to give an introduction for a FOSS Platform as a Service (PaaS), explain why all developers NEED to become familiar with PaaS, and then do a tour-de-force of geospatial in the cloud: PostGIS, GeoServer, OpenLayers, GeoDjango, and CKAN, without having to administer any servers.

Topic type		Target Type
Development: new developments in products.		Manager Technical / Developer

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Paper Title	ZOO-Project 1.3.0 : the WPS developing environment
I can give a practical demo	yes

Paper Abstract (short)

ZOO-Project 1.3.0 : new functionalities available in the 1.3.0 version and future ones.

Paper Abstract (long)

ZOO is a WPS (Web Processing Service) open source project released under a MIT/X-11 style license . It provides an OGC WPS compliant developer-friendly framework to create and chain WPS Web services. ZOO is made of three parts: * ZOO Kernel : A powerful server-side C Kernel which makes it possible to manage and chain Web services coded in different programming languages.   * ZOO Services : A growing suite of example Web services based on various Open Source libraries.   * ZOO API : A server-side JavaScript API able to call and chain the ZOO Services, which makes the development and chaining processes easier.   A brief introduction to WPS and a summary of the Open Source project history with its direct link with FOSS4G will be presented. Then an overview of the ZOO-Project will serve to introduce new functionalities and concepts available in the 1.3.0 release and highlight their interrests for applications developpers. For instance, the caching mechanism and the MapServer WxS automatic publication of result as WMS, WFS or WCS will be presented, this specific enhancement obviously use MapServer to publish and the GDAL library to extract vector or raster metadata informations. Then, examples of concrete services chain use will illustrate the way ZOO-Project can be used to build complete applications in a flexible way by using the service chain concept, creating new service by implementing intelligent chain of service through ZOO-API but also by taking advantage of the publication using OGC standards and caching mechanism to share data between multiple services call. Various use of OSGeo softwares, such as GDAL tools, GEOS, PostGIS, pgRouting, as WPS services by using ZOO-Project will be illustrated by applications presentation. Futur steps and enhancements planned for the ZOO-Project will conclude.

Topic type		Target Type
Development: new developments in products.		People new to open source geospatial Manager End User Technical / Developer