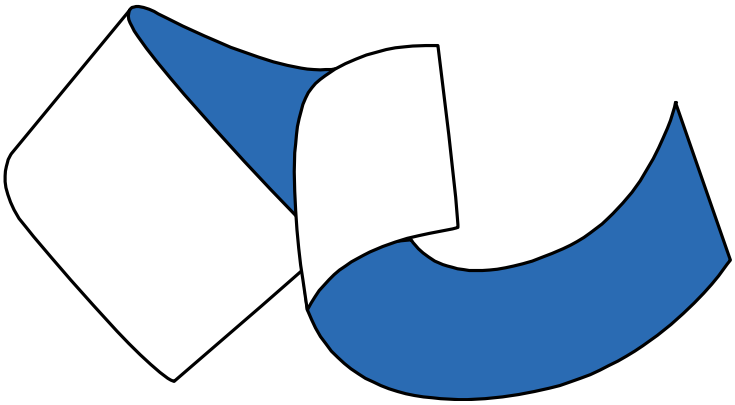
Draft Conference Program

Open Source Geospatial

MapServer User Meeting/EOGEO



Minneapolis, MN USA • June 16th – 18th, 2005

Day 1: Workshops and EOGEO Conference Session

Location: Radisson Hotel and UMN Computer Labs

<table>
<tr><td colspan="5">Registration
7:00 am – 9:00 am</td></tr>
<tr><td>EOGEO Conference Session
8:00 am – 2:00 pm</td><td>PostGIS
Paul Ramsey
8:00 am – 12:00 pm</td><td>GRASS GIS
Markus Neteler & Kristen Perry
8:00 am – 12:00 pm</td><td>MapServer
Perry Nacionales, Jeff McKenna & Tyler Mitchell
8:00 am – 12:00 pm</td><td>OpenMap
Don Dietrick
8:00 am – 12:00 pm</td></tr>
<tr><td colspan="5">Lunch (on your own)
12:00 pm to 1:00 pm</td></tr>
<tr><td>EOGEO
(continued)</td><td rowspan="2">Chameleon
Paul Spencer
1:00 pm – 5:00 pm</td><td rowspan="2">OSSIM
Mark Lucas
1:00 pm – 5:00 pm</td><td rowspan="2">OGC Protocols
Yewondwossen Assefa & Tom Kralidis
1:00 pm – 5:00 pm</td><td rowspan="2">Python GIS Hacks
Sean Gillies & Howard Butler
1:00 pm – 5:00 pm</td></tr>
<tr><td>Demo Fest
2:00 pm – 5:00 pm</td></tr>
<tr><td colspan="5">Group Activity: Fort Snelling Barbeque
5:30 pm – 10:00 pm</td></tr>
</table>

Day 2: Plenary and Concurrent Sessions

Location: Radisson Hotel

Registration 7:00 am – 9:00 am				
Plenary Session 8:00 am – 10:00 am **The State of FOSS GIS** *Lightning Talks* **Featured Speaker: Markus Neteler** Researcher (and Grass Guru), ITC-irst				
Break 10:00 am – 10:30 am				
Presentation Session 1 *Commercial Perspectives* 10:30 am – 12:00 pm	**Technology Session A** *MapServer Mapfiles* 10:30 am – 12:00 pm	**Presentation Session 2** *Data Management* 10:30 am – 12:00 pm	**Technology Session B** *Perl Geoinformatics* 10:30 am – 12:00 pm	**Presentation Session 3** *Global Views* 10:30 am – 12:00 pm
Lunch 12:00 pm – 1:00 pm				
Presentation Session 4 *Business Track* 1:00 pm – 3:00 pm	**Technology Session C** *MapBuilder* 1:00 pm – 3:00 pm	**Presentation Session 5** *User Interfaces* 1:00 pm – 3:00 pm	**Technology Session D** *uDig* 1:00 pm – 3:00 pm	**Presentation Session 6** *Case Studies* 1:00 pm – 3:00 pm
Break 3:00 pm – 3:30 pm				
Presentation Session 7 *Business Track* 3:30 pm – 5:00 pm	**Technology Session E** *DHTML SelectionTools* 3:30 pm – 5:00 pm	**Presentation Session 8** *Networks & Routing* 3:30 pm – 5:00 pm	**Technology Session F** *MapServer/Oracle Integration* 3:30 pm – 5:00 pm	**Presentation Session 9** *Case Studies* 3:30 pm – 5:00 pm
Poster Session and Reception 5:00 pm – 7:30 pm				

Day 3: Concurrent and Closing Sessions

Location: Radisson Hotel

Presentation Session 10 *Case Studies* 8:00 am – 10:00 am	**Technology Session G** *MapBender* 8:00 am – 10:00 am	**Presentation Session 11** *Technical Innovation* 8:00 am – 10:00 am	**Technology Session H** *ECW/JPEG2000 Toolkit* 8:00 am – 10:00 am	**Presentation Session 12** *Infrastructure* 8:00 am – 10:00 am
Break 10:00 am – 10:30 am				
Presentation Session 13 *Case Studies* 10:30 am – 12:00 pm	**Presentation Session 14** *Content Management* 10:30 am – 12:00 pm	**Technology Session I** *GeoServer* 10:30 am – 12:00 pm	**Presentation Session 15** *Building Communities* 10:30 am – 12:00 pm	**Presentation Session 16** *Technical Innovation* 10:30 am – 12:00 pm
Lunch 12:00 pm – 1:15 pm				
Closing Session 1:15 pm – 3:30 pm **Sol Katz Award Presentation** **Featured Speaker: Dirk-Willem van Gulik** President, Apache Software Foundation **Panel Discussion** *Meet the Developers* **Panel Discussion** *Making OpenSource Business Our Business* **2006 Meeting Preview**				

EOGEO Conference Session

Thursday, 8:00 am – 2:00 pm

Title: EOGEO Overview and Current Activities
Presenter: Allan Doyle, *EOGEO*

Abstract: The EOGEO Workshops started in 1996 as an outreach activity by the Committee on Earth Observation Satellites (CEOS). The workshops have been held yearly since then and have been a place where developers of leading edge software could meet and talk to each other about their activities related to Earth Observation and Geospatial data and services. In 2003 several individuals who were long term CEOS and EOGEO Workshop participants decided to form a non-profit organization named after the workshop series. Thus EOGEO, the organization, was begun. EOGEO has been in existence for about 2 years as a non-profit now. This talk will provide more details about the history of the workshops as well as more information about what the EOGEO organization is doing.

Title: Data Access Systems from the U.S. Geological Survey
Author: John Faundeen, *USGS*

Abstract: This presentation describes the characteristics of the numerous standards-based systems developed to provide access to the voluminous amounts of earth science data that the U.S. Geological Survey manages for the Public good. Scanned aerial photographs, elevation models, and satellite imagery, some dating from as early as the 1930s, provide researchers and the public with great tools with which to compare current data for purposes as diverse as detecting changes in the landscape and mapping urban development to disaster recovery and real estate planning. The systems designed to provide useful and efficient access to those data rely upon standards, both open-based and de facto. Federal Geographic Data Committee, Open Geospatial Consortium, NASA Directory Interchange Files, and Environmental Systems Research Institute (1) shapefile standards are utilized to serve our large customer base, which includes the international Committee on Earth Observation Satellites and the Nations satellite archive users through the National Satellite Land Remote Sensing Data Archive. (1) Any use of trade, product, or firm names is for descriptive purposes and does not imply endorsement by the U.S. Government.

Title: WMS Time Series with Mapbuilder
Author: Michael Adair, *Natural Resources Canada*

Abstract: Earth observation data presented as a time series can provide new insight into the physical processes being recorded. Serving this data using interoperable web mapping standards from the Open Geospatial Consortium (OGC) enables applications to use and share those insights. This presentation will focus on EO time series data and its implementation in the Mapbuilder client library using the OGC standards. Several different EO datasets will be demonstrated.

Title: EoGeo: Use Cases and Information Models for Open SDI
Author: Joshua Lieberman

Abstract: An exciting area of development for open-source geospatial components is the configuration and distribution of integrated packages as spatial data infrastructure (SDI) nodes. This has the potential to vastly increase SDI participation among local agencies and NGO's. Consideration of how these nodes may

be used and what information needs to be managed by them can guide how best to adapt and integrate available open-source components towards this goal.

Title: An introduction to the GeoTools Library the family of related projects
Author: James Macgill, *Penn State University*

Abstract: GeoTools is an open source Java GIS toolkit. It provides the functionality required to support implementation of many key Open Geospatial Consortium (OGC) specifications. This talk will provide an introduction to the GeoTools library, as well as providing an overview of the relationship between the library and three projects which leverage it as a core for their functionality, namely GeoServer, uDIG and GeoVISTA Studio

Geotools maintains an open development process, with public collaboration on new ideas. Project communication is open to all, indeed the developer pool is distributed across universities, government agencies, commercial companies and non-profit organizations around the world, the final part of this presentation will reflect on challenges of running such a distributed project, the strategies which have been employed to keep development moving forwards, in particular it will highlight the role that standards have played in keeping the community focused.

Title: The ICEDS OGC-compliant server for interactive global mapping and data delivery using SRTM and Landsat data
Authors: Morley J.G., Muller J.P., Gil N., Willis I., Giovando C., Greening, O.

Abstract: The Integrated CEOS European Data Server (ICEDS) has been funded by the British National Space Centre (BNSC) as a prototype within the Committee for Earth Observing Systems (CEOS) CLASP activity.

Particular aims have been to:

1. exploit Open Geospatial Consortium (OGC) technologies for interoperable map and data serving;
2. serve datasets, particularly global 3 arc-second (ÿ90m) Shuttle Radar Topography Mission (SRTM) digital elevation model (DEM) and for Europe and Africa, 1 arc-second (ÿ30m) Landsat TM data;
3. provide a portal website giving access to the served data along with cascaded maps and images from other Web Map Servers;
4. provide software scripts and a document describing the data processing and software set-up methods developed during the project.

ICEDS is publicly accessible both through its Web portal (http://iceds.ge.ucl.ac.uk) and by Web Mapping Service (WMS) and Web Coverage Service (WCS) connections.

The SRTM data currently served from ICEDS is the unedited dataset from JPL distributed by USGS. In order to be served on the ICEDS web portal and through a WMS, the SRTM data were colour hill-shaded with oceans and principal inland water bodies masked out. The decision was made not to attempt to fill the gaps in the unedited data but to highlight these regions as a form of qualitative validation. As a result of the hill-shading and masking process, unfilled pixels in the DEM appear as bright red in the final hill-shaded images. The highlighting of unassigned pixels in the SRTM DEM in association with the Landsat TM mosaics has proved of great use in validating the dataset.

The ICEDS WCS allows direct connection to the source data – in this case, the unedited SRTM elevations and individual, unstretched but mosaiced Landsat bands (1,2,3) as seamless layers. The WCS can be accessed from links in the Web portal for download of source data as GeoTIFF files.

An interactive demonstration of the web site and its utility for data exploration and validation will be given if facilities permit.

Title: GeoNetwork OpenSource
Author: Jeroen Ticheler, *Food and Agriculture Organization of the United Nations*

Abstract: In 2001, the Food and Agriculture Organization of the United nations (FAO) set up FAO GeoNetwork (www.fao.org/geonetwork), a facility that provides various services, such as a global library for geospatial data; a metadata catalogue; a system for searching, editing and publishing geospatial information; as well as information on how to integrate geospatial data from various sources on the Internet. The United Nations World Food Program's Vulnerability Analysis & Mapping branch (WFP-VAM) soon joined FAO in the further development of GeoNetwork through formulation of additional requirements and through co-funding. Early 2004 the United Nations Environment Program (UNEP) joined FAO and WFP in the development, further strengthening the GeoNetwork OpenSource software and improving standardized access to spatial data and information.

GeoNetwork OpenSource is released as a standards based Free Open Source Software, implementing OGC and ISO TC211 standards. This means that users are able to use, modify and redistribute system source code software without significant restrictions, thus benefiting communities and organizations in countries with limited financial resources and often inadequate internet access.

Recent work has resulted in GeoNetwork version 2 and has generated interest from other related open source software projects. Efforts are underway to work on effective integration of GeoNetwork with these projects through the OpenSDI initiative.

The GeoNetwork opensource software is maintained at http://sourceforge.net/projects/geonetwork.

Title: Development of OGC compliant prototype systems to promote application of EO satellite data
Presenter: Shinobu Kawahito, JAXA/RESTEC

Abstract: It is often the case that, for practical applications, a given type of Earth Observation satellite data needs to be combined with other types of Earth Observation satellite data, as well as with non-satellite geospatial data such as administrative thematic maps and statistical maps. Those data resources are generally owned and archived separately. JAXA (Japan Aerospace Exploration Agency), together with other data holders, the agricultural ministry and universities in Japan, are developing OGC compliant prototype systems to cultivate services which use EO satellite data and to develop methods to utilize archived geospatial data.

In this presentation, the prototype systems, which are (1) a land condition information providing system for environmental change and disaster mitigation purposes for local areas in Japan, (2) a (fire) hotspot, vegetation, and inundation monitoring system for agricultural purposes for the Asian region, will be described.

Demo Fest

Thursday, 2:00 pm – 5:00 pm

Title: Development of a dynamic ordering system for LiveLinux Cd's carrying a Geospatial infrastructure
Presenter: Till Adams, *terrestris GbR*

Abstract: terrestris develops a web-based ordering-system, which automatically creates ISO-Images of a Web-Map application. When booting from the CD the whole application including user-rights on maps and data-access will be started. The idea is to introduce in the application and discuss possible improvements and the use of such a technique for the community.

Title: A MapServer interface inside Tiki with Pacific Islands Data
Presenter: Franck Martin, *South Pacific Applied Geoscience Commission*

Abstract: The map interface inside tiki will be presented to the public. It will be highlighted its development and to get feedback from participants for future enhancements. All will be shown with some unique data from the Pacific Islands. http://tikiwiki.org/www.sopac.org/maps

Title: Mapbuilder Demonstration
Presenter: Michael Adair, *Natural Resources Canada*

Abstract: A walk through the various Mapbuilder demonstration pages:

- Time Series WMS
- WFS-T client (Adding features to a map)
- Gazetteer
- GML rendering
- Fast response times

Title: Mapbender Portal Site
Presenter: Arnulf Christl, *CCGIS*

Abstract: What to do about all those great geodata services that nobody seems to get managed? Do not try to, it won't work. Look at it from the other side: Keep it simple, use standard technology, do not reinvent the wheel and - probably most important - support the community process. The theory is, that only a large number of !empowered! users will be able to get the geodata services sorted out and managed - the experiment has started.

Title: IONIC Image Archive Server
Presenter: Sonny Parafina, *IONIC Software*

Abstract: Image Archive catalogs and serves coverages (rasters, imagery, DEMs) through OpenGeospatial interfaces. IA combines Catalog 2.0, Web Map Service 1.3, and Web Coverage Service 1.0 and a Coverage Portrayal Service. HDF is the prescribed format for standard data products that are derived from EOS missions. Developed, in part, IAS makes use of open source and freeware tools such as GDAL and HEG to provide delivery of NASA HDF-EOS data (as well as other imagery formats) through OGC interfaces. This enables users to dynamically search, view, and retrieve EOS data quickly and rapidly through a web-based

interface. The demonstration will display clients using the IA service in a typical web based map client as well as viewing coverage data through a Web Terrain Service.

Title: worldKit: easy web mapping
Presenter: Mikel Maron

Abstract: worldKit [http://brainoff.com/worldkit/] is an easy to use and flexible mapping application for the Web. "Light weight GIS". It's a Flash based app, configured by XML, data fed by RSS. Suitable for stand-alone use or integration in larger projects.

Title: Geospatial Catalog of Greek Vernacular Architecture: An Online GIS for the Archaeology and Architecture of Western Greece.
Presenter: Todd Brenningmeyer, *SAIC*

Abstract: Demonstration of the Morea online GIS system for architectural and archaeological data. Presenter will demonstrate the query and reporting tools built with Minnesota's MapServer, MapScript, and PostGIS applications.

Title: Creating an interactive network for winegrowers
Presenter: Jens Ingensand, *Swiss Federal Institute of Technology*

Abstract: The goal of the project is to develop an interactive application where winegrowers and other actors involved in wine-cultivation can input and share both spatial and non-spatial information related to wine-cultivation.

Title: Locative Media Toolkit
Presenter: Schuyler Erle

Abstract: The Locative Media Toolkit is a Python/GTk+ based application aimed at helping the desktop user tell their own story with maps, GPS traces, and digital media. Features include manual georeferencing of arbitrary base maps, access to WMS base maps, GPS track log and waypoint import, automated geocoding of digital media, and production of a variety of web-ready outputs. I will discuss how MapServer helps make all this possible.

Title: ICEDS in action - WMS/WCS access to Landsat for Africa
Presenter: Jeremy Morley, *University College London*

Abstract: Using open source tools, the ICEDS project now serves Landsat data via WMS and WCS for Africa. This demo will show the services in action and there will be an opportunity to ask questions about the implementation.

Title: QGIS New Zealand LiveCD
Presenter: Brent Wood

Abstract: GIS equals software plus data, so where are the FOSS GIS data to match the software? All too often the data are tied up with commercial licences similar to those for commercial GIS software, and frequently data costs are much more than the software.

As OS GIS matures, and effectively rivals commercial/proprietary software capabilities, the development of low cost GIS implementations is increasingly constrained by data costs. If you need several $100,000 of data for your GIS to be effective, a few $10,000 on software may not be a significant saving. For OS GIS software to challenge commercial tools, good quality, freely redistributable data is needed.

This demonstration is of a LiveCD using OS GIS to demonstrate a freely redistributable national dataset of 1:50,000 topographic vector data, street addresses and orthophotos. Unlike other LiveCD's with a GIS focus, such as GIS Knoppix and the AIT STAR CD, which have a simple demo dataset, this CD is intended to demonstrate the geographic datasets, at least as much as the OS Linux/GIS technology used.

This CD is a work in progress, so any suggestions for improving it will be appreciated.

Plenary Session

Friday, 8:00 am – 10:00 am

Featured Presentation

Title: GRASS 6: New Features for a Growing Open Source GIS Community
Presenter: Markus Neteler, Researcher, *ITC-irst and CEA Trento*

Abstract: GRASS, the Geographic Resources Analysis Support System (http://grass.itc.it), is a free software/open source GIS combined with integrated image processing and data visualization subsystems. In the presentation the features of the new GRASS 6 release will be shown. These include a new topological 2D/3D vector engine and support for vector network analysis. GRASS supports an extensive range of raster and vector formats. A new GIS manager as well as new interfaces to the QGIS and JAVAGRASS projects greatly enhance its usability.

Two applications developed at ITC-irst will illustrate the power of FOSS GIS: risk mapping of unexploded bombs from the Second World War in Northern Italy and a predictive risk model for deer-vehicle collisions. These applications were developed based on GRASS, UMN MapServer, PostGIS and further tools. They reflect the development efforts over the last years in the free software GIS community.

Bio: Markus currently works as a researcher at ITC-irst, Trento, Italy (since 2001) and at CEA, Trento (since 2005). His main research interests are remote sensing for environmental risk assessment and Free Software GIS development. He started to participate in the GRASS GIS development in 1998. He is co-author of a book on the Open Source Geographical Information System GRASS and of several papers on environmental applications in GIS. Markus received his MSc degree in Physical Geography and Landscape Ecology from the University of Hannover in Germany in 1999 where he worked at the Institute of Geography as Research Scientist and teaching associate until 2001. In 2003 he co-founded GDF Hannover with focus on Free Software GIS products, providing services such as formal FOSS training, spatial data analysis and remote sensing applications.

Geospatial FOSS Lightning Talks

Participants:

Allan Doyle, *EOGEO* -- EOGEO: Geotechnology for Civil Society
Daniel Morrisette, *DM Solutions Group* -- Chameleon, Maplab, and maptools.org
David Blasby, *OpenPlans* – GeoServer
Sean Gillies, *zcologia* -- MapScript and Beyond
Norman Vine, *Independent Software Developer* -- osgPlanet
Frank Warmerdam -- Advances with GDAL/OGR
Jody Garnett, *Refractions Research* -- uDig
Tyler Mitchell, GIS Manager, *Timberline Forest Inventory Consultants* -- "Web Mapping Illustrated"
Schuyler Erle, *Locative Technologies* -- Locative Media Toolkit and "Mapping Hacks"

Moderator: Howard Butler, *Iowa State University*

Technical Session A

Friday, 10:30 am – 12:00 pm

Title: Creating MapServer Mapfiles
Presenter: Flavio Hendry, CEO, *TYDAC AG*

Bio: Flavio Hendry is civil engineer by profession and has over fifteen years experience in the field of GIS. After a few years working in the civil engineering field, all started 1988 within IBM meeting up with a product called SPANS, which made him start up his own company in 1991 using the same name as the former Canadian developers of SPANS: TYDAC, based in Bern, Switzerland. During in career in GIS he gained experience in many application areas, such as forestry, planning, geomarketing, environment, telecommunications and so on. As CEO at TYDAC he is currently mainly in charge of Web Mapping Application Design, the TYDAC Web Sites and helps out in marketing, technical support, teaching etc.

Abstract: There are different tools and ways to help you create MapServer Mapfiles. The old fashion way to edit ASCII files combined with an extensive use of CopyPaste is simply one of the most efficient ways to create them. HowTo's on creating sophisticated and good looking maps: Tips and Tricks, all about Colors, Symbols, Linetypes and so on.

Technical Session B

Friday, 10:30 am – 12:00 pm

Title: Geoinformatics with Perl
Presenter: Dr. Ari Jolma, Professor of Geoinformatics, *Helsinki University of Technology*

Bio: Ari Jolma, Dr of Technology (water resources engineering) from Helsinki University of Technology (TKK) 1999, currently a professor of geoinformatics at the same university. I have been a TKK researcher since my masters degree (1990), but have worked at Cornell 1990-1991, at IIASA (International Institute of Applied Systems Analysis, in Austria) 1994-1995, for the World Bank 1998-1999, and at IDSIA (a small AI research lab in Switzerland) 2002-2003. My main field of interest is civil engineering informatics.

Abstract: This session presents and discusses map algebra and GIS architecture based on it. An implementation of several libraries and modules, coded in C and Perl, for developing map algebra based GIS applications is presented. A short introduction and review of Perl and its capabilities are presented. The author's software that are presented include libral, Geo::Raster, Geo::Shapelib, Tree::R, and Gtk::Ex::Geo modules. libral is a C library for raster algebra and Geo::Raster is an interface to it. Geo::Shapelib is an interface to the Frank Warmerdam's Shapelib C library. Tree::R is a pure Perl implementation of R-trees. Gtk::Ex::Geo is a set of perl-gtk2 widgets and modules for GIS applications. libral is available at sourceforge.net and the Perl modules are available at CPAN.

Technical Session C

Friday, 1:00 pm – 3:00 pm

Title: Using Mapbuilder for Browser Based Web Mapping Client Applications
Presenters: Michael Adair, *Natural Resources Canada*, Tom Kralidis, and Cameron Shorter, *Socialchange*

Bios: Mike Adair works at Natural Resources Canada (NRCan) as a Senior Systems Scientist, responsible for the development of the GeoConnections Discovery Portal and other NRCan Geospatial data distribution and discovery systems. He is active in advancing the architecture and development of the Canadian Geospatial Data Infrastructure (CGDI) and standards development through the Open Geospatial Consortium (OGC). He is one of the lead developers for the Mapbuilder open-source web-mapping project. Mike has a B.Sc. in Physics from the University of Western Ontario and M.Sc. in Physics from the University of Ottawa.

Tom Kralidis is a Senior Systems Scientist for Environment Canada. At EC, Tom provides technical and architectural leadership in support of EC's geospatial information holdings and management. Tom's professional background includes key involvement in the development and integration of geospatial web standards, systems and services for the Canadian Geospatial Data Infrastructure (CGDI) with Natural Resources Canada (NRCan). Tom is also active in the Open Geospatial Consortium (OGC) community, and is lead developer of the OGC Web Map Context Documents Specification. Tom holds a Bachelors degree in Geography from York University, GIS certification from Algonquin College, and Masters degree in Geography and Environmental Studies (thesis research in Geospatial Web Services) from Carleton University.

Cameron Shorter is an open source developer, currently one of the lead developers on the Mapbuilder project. He has previously worked on geotools and generguide - a generic developers guide based on docbook. By day he has worked as Webmapping manager at Socialchange Online and is currently improving company processes to be CMMI compliant at ADI Ltd.

Abstract: Mapbuilder-lib is a software library for creating browser-based web mapping clients using Open Geospatial Consortium (OGC) standards. It provides a very easy entry point for creating community mapping applications - a custom mapbuilder application can be built in under an hour. Implementing mapping applications entirely in a web browser means that users don't need to install any software and makes the client very responsive and interactive there is no need for a redraw map button! Mapbuilder-lib is highly configurable and extensible because of its modular design and adherence to the Model-View-Controller (MVC) design pattern. Mapbuilder-lib consists of a JavaScript library (no applets, plugins, iframes or hidden frames) and the server requirements are minimal. Browsers supported include MS Internet Explorer 6+, Netscape 6+ and Mozilla 1.2+ based browsers, running on Windows, Linux/Unix and Mac platforms. This technical session will begin with an introduction to Mapbuilder and a demonstration of some applications implemented using mapbuilder-lib. This will be followed by an in-depth look at the mapbuilder configuration file, schema and modular design. The session will end with a hands-on demonstration of creating a new mapping application from scratch, including customizing the look of the page and adding new widgets and tools.

Technical Session D

Friday, 1:00 pm – 3:00 pm

Title: Introduction to uDig, the User Friendly Desktop Internet GIS
Presenters: Paul Ramsey, Jody Garnett, and Jesse Eichar, *Refractions Reseach*

Bios: Paul Ramsey is the President of Refractions Research, and an enthusiastic supporter of open source spatial software. Paul has spoken and taught workshops on open source at numerous conferences around the world.

Jody Garnett is the lead developer of the uDig project, providing design and guidance throughout the life of the project. Jody is also a senior member of the GeoTools project, and is an enthusiastic evangelist of object oriented design principles.

Jesse Eichar is a developer on the uDig project, responsible for the application object model and the rendering pipeline. Jesse recently completed a Masters degree in Compupter Science at the University of Victoria, and is the project expert in Eclipse technologies.

Abstract: uDig is a new open source desktop GIS platform, that combines broad support for OpenGIS and de facto industry standards with an interactive desktop paradigm. uDig ships with a standard GIS application user interface, but is also designed to be extremely extendable and customizable. Part one of this technology session will cover uDig basics. The standard user interface, connecting to data sources (PostGIS, WMS, WFS, Shape Files, Images, Catalogues), feature styling, printing, coordinate re-projection, data editing, customization examples, and more. Part two of this session will cover the uDig technology and open source environment. The open source software uDig leverages, the uDig architecture, the uDig community, and setting up a uDig development environment. Part three of this session will cover an example of extending uDig. The steps involved in creating a new uDig tool with be covered, code examples will be discussed, and development tips and tricks presented.

Technical Session E

Friday, 3:30 pm – 5:00 pm

Title: Browser Selection Tools
Presenters: Richard Bennett and Bob Basques, *GRITechnologies*

Bios: Mr. Bennett is a founding partner in GRI Technologies and functions as it's Development Director. Richard has spent the last 10 years as an independent software developer specializing in Internet applications. He is actively involved in various open-source projects and communities. Within GRI Technologies, Richard performs a great deal of the R&D, giving special emphasis on accessibility and standards compliance. Richard is continuously investigating and testing new and emerging technologies. This ensures that GRI Technologies products are easy to use, reliable, and among the most advanced available.

As a founding partner in GRI Technologies Bob Basques functions as it's Chief Technology Officer. Bob manages the technical aspects of projects, coordinating customers, contractors and suppliers so the projects run smoothly. In addition to fifteen years of experience in a civil design and planning environment, Bob has a very broad hands-on knowledge of applying software technologies to technical projects. He has concentrated on component oriented server configurations which work with a multitude of applications ranging from AutoCAD to Web browsers. Bob frequently instructs classes on subjects ranging from Internet Security to CAD applications.

Abstract: DHTML selection tools for MapServer. Going beyond the dragbox for MapServer selections is what this session is all about. See how to implement a variety of selection methods with DHTML and PERL. Rather than being restricted to simple Drag Box or Pick Point selection tools, imagine being able to Sketch your Selection onto a map, or even to select multiple items by drawing or painting an area on top of the map. A step-by-step presentation on implementing some cutting edge selection tools for MapServer.

Technical Session F

Friday, 3:30 pm – 5:00 pm

Title: MapServer and Oracle Integration
Presenters: Sarah Hale, *Colgate University* and Joel Schlagel, *U.S. Army Engineer Research and Development Center*

Bio: Sarah Hale is an undergraduate student at Colgate University. She has been spending her summers developing applications using Oracle and MapServer since 11th grade.

Joel Schlagel is a Physical Scientist with the Army Corps of Engineers Remote Sensing / GIS Center of Expertise located in Hanover, NH. Mr. Schlagel has been with the Corps for almost 10 years participating in the design and development of a number of Enterprise Scale geographic information systems including geospatial components of EngLink the Army Corps of Engineers Emergency Operations Command and Control System, and the Formerly Used Defense Site Management Information System. He is a principal software architect for CorpsMap the Army Corps of Engineers Enterprise Geographic Information System, and EDIS the Engineer Design Information System. He has an MS from University of Vermont, and a BA from the State University of New York at Binghamton, and prior to joining the Corps of Engineers worked

for the US Fish and Wildlife Service Cooperative Research Unit at UVM, and for the US Environmental Protection Agency.

Abstract: MapServer is an ideal mapping component for large and complex web-based information systems. Its stability, scalability, platform independence and variety of access methods allow for easy application integration and deployment. By combining MapServer for visualization, with geospatial data storage in the Oracle database and application development in Oracle procedural SQL (PL/SQL) developers can rapidly create very sophisticated web-based geospatial applications.

This presentation will provide an overview of application development using MapServer and Oracle PL/SQL. We will provide an overview of data creation, storage, and retrieval using Oracle geometry, spatial analysis in the database, and application development using PL/SQL. Examples of integration with MapServer will include basic spatial analysis, spatial clustering, real-time asset tracking, and decision support.

Technical Session G

Saturday, 8:00 am – 10:00 am

Title: Mapbender Development
Presenters: Uli Rothstein and Arnulf Christl, *CCGIS*

Bios: Born in 1967 Uli Rothstein started job training in landscaping in 1988. During his studies in German langugage and literature at University of Bonn Uli started already in the early 1990s with different programming languages. He later focused on web development, especially in the programming languages PHP and JavaScript, becoming a certified webmaster in 2001. He started working for CCGIS in September 2001 and became chief developer of the Mapbender Framework at CCGIS. Since 2004 he coordinates distributed developers of the Mapbender Framework via CVS. With his more than 10 years experience in web development he is one of the central persons in the Mapbender project.

Arnulf Christl was born in 1970 and after stays in Indonesia and Uruguay settled down in Germany. After his job training as carpenter he started studying geography at the Phillipps University of Marburg (subsidiaries informatics and media studies) in 1991. There he attended his first GIS course, worked as system administrator. In 1995 he continued his studies at the University of Bonn, ExSe Group of the geography department. In the next years Arnulf worked as freelance GIS consultant for SIEMENS Business Services in Singapore, Taipeh, Kuala Lumpur and Beijing. In 1998 he founded CCGIS. Since then he focused on developing GIS client frameworks mainly for public administrations and utility companies. The roots of the Mapbender Framework go back 5 years, first developed as proprietary software and published as Free Software under the GPL in 2003. In 2004 Mapbender version 2.0 was released, in April 2005 an international Mapbender user meeting was organized. Switching from proprietary to Free Software development and subsequent changes in the business model caused a thorough reorganization of CCGIS keeping Arnulf busy. He now shares his experiences and conducts courses on Free Software business models.

Abstract: Adoption of OGC Standards, Fast Prototyping Development Model, Collaborative Free Software development, Using CVS for code management, Patches, Bugs, Features and FeatureBugs, Maintaining Productive and Test Environments

Technical Session H

Saturday, 8:00 am – 10:00 am

Title: ECW JPEG2000 SDK
Presenters: Simon Cope and Tom Lynch, *ER Mapper*

Bios: Tom Lynch has been a developer at ER Mapper for eighteen months and is responsible for georeferencing support, testing, standards compliance and production on the ECW JPEG2000 SDK project. He holds degrees in engineering and mathematics.

Abstract: ER Mapper is the only geospatial company to build it's own JPEG 2000 implementation, which we have designed from the ground up to meet the critical needs of geospatial imaging. This SDK is now available, for free, to the Open Source community. Learn what it can do for you and your Open Source project today.

Technical Session I

Saturday, 10:30 am – 12:00 pm

Title: GeoServer
Presenter: David Blasby, *Open Plans*

Bio: David Blasby is a Geospatial Architect at 'The Open Planning Project', a New York based non-profit bringing community organizations together with collaborative technology. David is currently the technical lead for the Geoserver project (a WFS and WMS) and on the Geotools Project Management Committee. He has contributed to several open source geospatial projects, including being the technical architect for "PostGIS", "Spatial Database in a Box", and several Computational Geometry and conflation project. He has also contributed to other projects such as UMN Mapserver, JUMP, and the Java Topology Suite. David has been involved in geospatial projects for over 12 years.

David holds a Bachelors degree in Computing Science from Simon Fraser University and has completed graduate work in Geography and Applied Physics.

Abstract: GeoServer is the WFS-T (Web Feature Service) reference implementation for the OGC, and has an integrated WMS (Web Feature Service). GeoServer combines a full and expendable implementation of the OGC specifications (built on top of the GeoTools library) with an easy-to-use interface. This session will look at GeoServer's capabilities and configuration GUI, with application to real-world projects.

Presentation Session 1

Theme: Commercial Perspectives

Title: FOSS and Commercial Software
Author: Sonny Parafina, *IONIC Software*

Abstract: For commercial software, FOSS can be a complimentary as well as a competitor. This presentation examines coexistence strategies between FOSS and commercial software against the current and near future geospatial software industry.

Title: The Positive Impact of OpenSource on the Commercial Market
Author: Chris Ribbel*, ER Mapper*

Abstract: The OpenSource community has a profound impact on the commercial Geospatial market. This talk will detail the importance of OpenSource software and file formats, and is presented by a company that is involved in both providing commercial software solutions and contributing to the OpenSource community.

Title: The Business Dynamics of Open Source - Finding a Place for Geo Technologies
Author: Perry Evans, *Local Matters Inc.*

Abstract: The open source movement in mapping needs to consider its place in the food chain of the Internet and "web 2.0". From the founder of MapQuest, and co-founder and Chairman of Jabber, Inc. Perry Evans will present a few thoughts designed to challenge the movement to consider how to best define and achieve an industry position that best leverages the benefits of open source to the maximum benefit of users and industry members.

Presentation Session 2

Theme: Data Management

Title: Serving Large-Scale Raster Collections with MapServer
Author: Chris Hodgson, *Refractions Research*

Abstract: In order to support a road network conflation effort for the British Columbia governments Ministry of Sustainable Resource Management, Refractions Research set-up a MapServer-based OrthoServer. This private WMS server allows easy access to the latest orthophotos available for the province, giving the road conflation operators a useful backdrop to support their decision-making process. We will discuss the entire process involved in setting up this seemingly simple system to meet the requirements of several full-time users while overcoming the obstacles inherent with dealing with over two terabytes of imagery. Topics will include MapServer tile-indexes, JPEG-2000 support, transparency issues, and GDAL tools. Some improvements were made to MapServer and GDAL to support this project and those will be highlighted as well.

Title: Handling Large Datasets in MapServer
Authors: Schuyler Erle and Rich Gibson, *Locative Technologies*

Abstract: Getting MapServer to scale well with large datasets can be a chore. We will discuss the different techniques that can be used to keep MapServer responsive, even when showing multi-gigabyte raster and vector data sources. We'll cover tiling and tile indexes, PostGIS indexing and query tuning, raster overviews, and vector simplification techniques. With the arsenal of available F/OSS tools, we'll show how MapServer can be used to tame even the largest and hairiest of GIS data sources.

Title: Image Processing with GDAL
Author: Frank Warmerdam

Abstract: Session addresses how to do a variety of data processing with GDAL command-line utilities, VRT files, and python scripts. Examples include georeferencing, enriching metadata, reprojecting, mosaicing, and organizing for optimal access speeds.

Presentation Session 3

Theme: Global Views

Title: A QGIS New Zealand LiveCD
Author: Brent Wood,

Abstract: New Zealand has a full national set of freely distributable vector topographic data, derived from 1:50,000 topo maps. There is also a freely downloadable national orthophoto set, with resolutions up to to 2.5m per pixel. However, until this project, the ortho's were not available georeferenced nor were the vector data in a useable format. This presentation describes the data and the development of a LiveCD to demonstrate them. Unlike other GIS related LiveCD's, this one has more of a focus on the data than the technology, and is designed to work with relatively low spec hardware (eg: 256Mb memory). The CD is intended for general public and educational use, as well as groups such as emergency services. A similar product is planned, to contain global datasets (using data from VMAP0, GNIS, SRTM, GEBCO, GSHHS, etc) which will probably need to be a LiveDVD.

Title: Deploying MapServer in Pacific Islands
Author: Franck Martin, *South Pacific Applied Geoscience Commission*

Abstract: As part of the EU funded project "Reducing vulnerabilities in Pacific ACP states", SOPAC is deploying a MapServer in 16 Pacific Islands. The purpose of the presentation is to show the deployment, how communities are built and the lesson learnt in the adoption of such application and what are the uses. www.sopac.org/ism www.sopac.org/maps

Title: West African Network of Market Information Systems - Market mapping with WMS
Author: Till Adams, *terrestris GbR*

Abstract: The main project, run by the CTA (Technical Centre for Agricultural and Rural Cooperation), ZADI (The German Centre for Documentation and Information in Agriculture) and IFDC (International Fertilizer Development Center) aims to increase regional agricultural trade and food security by improving and linking the existing regional efforts to govern, disseminate, and make commercial use of market information. It will also help regional MIS (Market Information Systems) and trade partners to address other constraints, so that strong and dynamic commodity chains emerge that will use the information to enhance production, handling, credit, trade and value added services such as post. The part of the project terrestris is involved is the development of an online-system that enables registered actors to map market places, products and images over a WMS based webmap application. The data is stored in a PG/PostGIS database. One future improvement will be the possibility to request actual prices via SMS. A very interesting aspect is, that the whole technology should be delivered to the partner states and people there, who are interested in building-up IT-structures in their countries in West Africa. Therefore it is impossible to use proprietary software.

Presentation Session 4

Theme: Business Track

"Business Opportunities at the Tipping Point of Open Source Spatial Technologies"

Title: Meeting a Global Market for Online Mapping through Open Source Spatial Technologies
Author: Kim Tofin, Vice President of Business Development, *DM Solutions Group*

Abstract: The demand for Online Mapping Solutions is growing exponentially around the world in markets that have traditionally never used spatial technologies. This combined with the rapid emergence of open source spatial technologies has created a unique opportunity for businesses that take advantage of both of these trends to propel open source technologies into the marketplace.

Title: Overview of OpenSource use in GIS projects from European administration
Author: Claude Philipona, *Camptocamp SA*

Abstract: Open Source and Free Software more and more seriously. In several countries there are now official policies that force to take in consideration or even choose Open Source technologies for new IT projects. This is particularly true for GIS projects and it offers good business opportunities for companies familiar with Open Source business model.

We will present an overview of Open Source situation in GIS projects of several European countries, mainly France, Germany and Switzerland.

Title: A "commercial" approach to Open Source Software
Author: Flavio Hendry, CEO, *TYDAC AG*

Abstract: TYDAC Inc., Bern, Switzerland, being a reseller for GIS companies such as ESRI, MapInfo and Safe Software, is obviously not the typical Open Source type of company. In contrast to dedicated (or shall we say fundamentalist) Open Source companies, we look at Open Source as we look at any other software: for us it is a vehicle helping us satisfying client needs. The only thing that counts is quality, price is secondary.

Title: Agency Scale MapServer Implementations
Author: Joel Schlagel, *U.S. Army Engineer Research and Development Center*

Abstract: The Army Corps of Engineers operates a number of very specialized web-based enterprise-scale information systems in which geospatial information is a critical component. Rather than designing and organizing these applications as “GIS,” we see geospatial analysis and visualization as one component of a broad range of system requirements. As a fast, flexible, stable, standards-based web mapping application, MapServer has played an important role in the successful design and implementation of a number of these critical information systems. This talk will cover our technical approach and experience integrating MapServer into our information system environment, and address some of the lessons we’ve learned as long-term MapServer users.

Presentation Session 5

Theme: User Interfaces

Title: User Interface Pitfalls in MapServer Site Design
Authors: Eva Grund and Michael P. Peterson

Abstract: The open source movement gives hope for a future of free maps accessible through the Internet. However, much work still needs to be done to provide this information in a high-quality and efficient way. Even though much effort has already been put into MapServer, the software is still lacking a number of important features, and its user interface leaves much to be desired. It has been said that the user interface is the most important part in every application. A well-designed user interface is crucial to the success of an online mapping application. However, it is difficult to create a good interface for MapServer because of 1) inherent limitations in the interface tools available in MapServer and 2) the inability of the person implementing MapServer to overcome these limitations. In addition, most people who implement MapServer sites often do not see the necessity of incorporating a useful user-interface. These facts lead to a high rate of problematic MapServer sites that make it unnecessarily complicated for users to create maps. This presentation will show the major usability problems of MapServer user interfaces, based on the findings of a heuristic evaluation of existing MapServer applications.

Title: Section 508 Compliance (and MapServer)
Author: Richard Bennett, *GRI Technologies*

Abstract: Section 508 requires that Federal agencies' electronic and information technology is accessible to people with disabilities. The Center for Information Technology Accommodation (CITA), in the U.S. General Services Administration's Office of Government wide Policy, has been charged with the task of educating Federal employees and building the infrastructure necessary to support Section 508 implementation. Using this web site, Federal employees and the public can access resources for understanding and implementing the requirements of Section 508. See how some of these requirements can be handled in a MapServer Web Interface. Some knowledge of Web Page design is a prerequisite for this session.

Title: Towards GIS for Non-GIS Experts
Author: Jens Ingensand, *Swiss Federal Institute of Technology*

Abstract: Through the impact of the Internet, GIS becomes available for everybody. But designing a GIS for non-expert users is different to the development of standard desktop GIS. This presentation focuses on the difference between GIS-experts and non-GIS experts and different GIS applications. Further it illustrates the development of geospatial systems for non-GIS experts and describes why these issues are important for open-source software.

Title: How to plug in worldKit for a slick web interface for MapServer or any WMS
Author: Mikel Maron

Abstract: This presentation will outline the simple steps to install worldKit as a front end to any existing WMS, including MapServer. It can handle raster (JPEG) or vector (SWF or GML) output, and displays maps with standard GIS GUI features, like toggable layers, as well as advanced abilities like in place smooth zooming. A demonstration app (a zoomable interface to Landsat7) is posted online at

http://brainoff.com/worldkit/scratch/mapserv/

Presentation Session 6

Theme: Case Studies

Title: Evolution of the role of civil society organizations in building community: The 'Caring Community' and Internet-based GIS
Authors: Christopher Johnson, CEO, *ifPeople* and Robert Gallant, Executive Director, *Highland Valley*

Abstract: Highland Valley is a non-profit organization that provides a network of coordinated, quality, and comprehensive local service delivery systems for elders throughout Western Massachusetts. Highland Valley requested support from ifPeople to build out custom software to manage its reporting requirements and to enable its vision for a local economy. Highland Valley had particular needs to:

- Manage a database of people and their dining preferences, dining centers, and truck routes with a means of registering the delivery of a meal.
- Report to state and federal agencies on the impact of the meals delivery program.
- Replace an un-maintainable and inefficient prototype application with scalable software that would handle the expansion of their program.
- Provide tools to create social capital and community networks.

Solution: An ifPeople custom application provides management functionality for a government-funded meals management program. In addition, online mapping tools that leverage Open Source technologies for the use of stakeholders participating in the 'Caring Communities' program. Highlights:

- Manages a database of people who participate in a meals delivery program. Generates reports on the program for funders and state agencies.
- Provides a member-only area, where people participating in the program can create a user account and register their 'needs' or 'offers' for the community in a database.
- Geographic information associated with the participants provides mapping and searching capabilities through the Internet. The interface allows for selecting the data layers (in this case, type of service/need), zooming, and retrieving information about the need/offer (using MapServer).
- The MapServer application dynamically generates maps of services chosen from a predetermined list. As soon as a new service is entered it will appear on a map.

This functionality enables the community to find the most accessible services and generates effective local economies. Future: The application will enable the 'Caring Community Network,' which the visionary leader of Highland Valley Robert Gallant has been advocating since before the Internet. He views this work as fundamental in 'empowerment programming', or re-positioning a non-profit organization to make it more accountable by getting the organization 'out of the way' and letting the people change their lives. The essence of this project is that the GIS application is used in repositioning the NGO and mobilizing resources, and the 'CitizenChips' currency supports the mobilization of resources. The result is a 'community' bottom line: the value is social capital and the resulting relationships and democratic participation. The program leverages relationships to build out a community map of existing services and needs. In order to get merchants to sign up, the relationships to people are harnessed by asking them where they want to spend (and getting them to bring the merchants on board). This results in information being fed into the database that will then be used for matching via the GIS interface.

Title: Mapping Great Works of Literature
Authors: Schuyler Erle and Rich Gibson

Abstract: The bounty of the Internet has placed many of history's greatest pieces of factual and fictional literature at our very fingertips. Quite a few of these grand works of the written art make reference to places that are obscure or unknown to the average reader. We'd like to show how, with some free world gazetteers, and a little bit of Open Source glue, MapServer can provide the basis for an interactive 'geospatial view' of several important texts from Project Gutenberg. We'll review the successes and flaws of our methods, consider some ways of adding collaborative annotation to the mix, and show how Open Source GIS can help illuminate the dark and sometimes forgotten recesses of our rich cultural tradition.

Title: DataPlace: Mapping and charting social indicators for ease-of- use and exploration
Author: Mark Torrance, *Vinq, LLC*

Abstract: DataPlace.org offers thematic mapping of social and demographic indicators from the U.S. Census, Department of Housing and Urban Development, Home Mortgage Disclosure Act, Zip Business Patterns database and many other public databases of spatially-organized information. Users can compare data and trends over time, develop thematic maps and corresponding charts, click to view detailed data, and read pre-built profiles illustrating important indicators for any place in the United States. Organizations can also upload their own data into DataPlace, for their own use, to share with a limited group, or with the general public. In addition, DataPlace can be co-branded to the look + feel of other sites, and elements of DataPlace content can be embedded in third party sites with little effort.

Maps are drawn using Mapserver with Perl Mapscript, and divided into tiles using a javascript approach similar to ka-map and Google Maps. Although the caching of tiles helps less due to the variety of layers and thematic indicators DataPlace offers, we still see some performance benefits from this approach as opposed to drawing each map as needed using Mapserver.

The project was conceived and sponsored by Fannie Mae Foundation, a non-profit dedicated to Affordable Housing and Community Development. Fannie Mae Foundation is making the site available free as a platform for research and exploration of the factors that affect and correlate with housing affordability, and how community development projects can help foster positive trends within communities. It was developed using many open source technologies by Vinq, LLC and Placebase.

Title: Geospatial Catalog of Greek Vernacular Architecture: An Online GIS for the Archaeology and Architecture of Western Greece
Authors: Todd Brenningmeyer and Frederick Cooper

Abstract: Since 1990, the Minnesota Archaeological Researches in the Western Peloponnese (MARWP) has undertaken archaeological investigations around the peninsula that forms the southern half of mainland Greece. One of the focuses of this work, termed the Morea Project, consists of a survey of vernacular architecture in an area of the western Peloponnese -- known in the Middle Ages as the Morea -- from the period of Frankish occupation in the 13th century A.D. to the present. This project's goal is to discover, document, and study a variety of previously unrecorded buildings and towns before they are destroyed by man and nature. The results of this study are currently being served to the archaeological community through a web based GIS developed by SAIC of St. Louis. Surveyed locations of nearly 2,500 buildings from the medieval through the modern period are tied to historical and architectural attributes within a postgreSQL database. This paper discusses the development of this archaeological GIS system as well as the future direction of the project.

Presentation Session 7

Theme: Business Track

"Business Opportunities at the Tipping Point of Open Source Spatial Technologies"

Title: Open Source Spatial World in the Japanese Business Solutions: How it began and the future
Author: Toru Mori, President and CEO, *Orkney Inc.*

Abstract: Open Source Software as IT tools have been accepted in the Japanese business solution market for almost 2 years. Now the trend is coming into GIS/LBS world. Toru Mori tells you what is going on in the High-Tech country Japan.

Title: Open Source – A compelling and pragmatic choice for a new software business
Author: Perry Casson, Vice President of Technology, *WayPoint*

Abstract: Having built and sold a successful 85 employee software company based on proprietary GIS solutions, Perry will explain how and why his new start-up company is using Open Source GIS components to build another software business.

Title: Yes, It Is Possible To Approach The GIS Market With Open Source
Author: Kevin Flanders, President, *People GIS*

Abstract: PeopleGIS has built GIS ASP business serving communities across New England. Having created an interface that rivals the competition, many of which are based on brand vendor software, PeopleGIS is now forging into partnerships with various companies with related technologies to bring together capabilities that appeal to the market regardless of software platform. In essence, PeopleGIS is focusing on the market and ignoring the fact that their approach is based on open source. The net result is that the market is beginning to accept open source as a valid platform and focus on what is important.

Presentation Session 8

Theme: Networks and Routing

Title: Reducing Petroleum Use with Cooperative Vehicle Routing
Author: Roger Bedell, *Sylvan Ascent Inc.*

Abstract: The Velocigram Project is an open source software project designed to save fuel and utilize the existing road network more efficiently. The software utilizes in-vehicle GPS, wireless Internet, and statistical algorithms to provide real-time, dynamic vehicle routing. GPS location, direction and speed from vehicles on the road are continuously fed back into the system to provide the best possible picture of traffic at any instant (the Velocigram). A useful by-product of the system is extremely accurate GIS map data and traffic flow data. The system can be used in any part of the world, even those without any good digital road data. It is anticipated that the fuel and infrastructure savings can be quite substantial over the next 10 to 50 years as this system, or ones like it are adopted world-wide. Of concern is security and anonymity to avoid governmental or commercial tracking.

Title: An Open Source Routing Solution
Authors: Sylvain Pasche and Daniel Faivre, *Camptocamp SA*

Abstract: Routing solutions that allow finding the shortest or otherwise best itinerary between two points in a complex topological network are easily to be found. Most of them, though, are proprietary and closed. We present here a free and OpenSource implementation of such a routing algorithm integrated with MapServer and PostGIS.

Title: Mapping the Wireless Revolution
Authors: Schuyler Erle and Rich Gibson, *Locative Technologies*

Abstract: The advent of inexpensive, off-the-shelf wireless networking hardware has made it possible for people to build their own telecommunications infrastructure for the first time, particularly in remote areas where DSL and like remain unavailable. The main trouble with long-range wireless networking, however, is that it demands a clear line-of-sight. We will introduce NoCat Maps, a tool designed to help wireless community network groups automate the grueling task of line-of-sight profiling between prospective network nodes. We'll discuss how the software works, how to install and make use of it, and how to marshal the Digital Elevation Models needed to make it all go. Finally, we'll show how NoCat Maps can be integrated with MapServer to provide a useful wide-area network analysis tool for any wireless enthusiast or community group.

Presentation Session 9

Theme: Case Studies

Title: Building an Environmental Information System for Ontario: The Birth Of ORISE
Authors: Brad Hill and Daniel Avramov, *Environment Canada*

Abstract: The Ontario Region Information System for the Environment (ORISE) is an interoperable system of distributed databases linked by web services and mapping technologies that serves as a discovery, access, visualization and decision support tool for multi-jurisdictional monitoring activities and priorities within the Great Lakes Basin and contributes to broader information management systems on the environment, nationally and internationally. The site is based on distributed web services, adhering to open specifications, and the data is being pulled dynamically from distributed sources within Environment Canada, other government departments, and various partner organizations across Canada and the US and thereby adhering to the own what you must, access what you need philosophy. This effort aligns with the Canadian Geospatial Data Infrastructure (CGDI) specifications adopted from the Open Geospatial Consortium and, because of this open, distributed and standards based approach, the layers from this application and the underlying architecture itself are readily available for re-use in other applications.

Title: Distributed Feature Update At U.S. Census With Standards-based Open-source Software
Author: Joshua Lieberman, *Traverse Technologies*

Abstract: The U.S. Census Boundary and Annexation Survey (BAS) program seeks TIGER feature updates from some 10,000 respondents using paper maps and colored pencils. A prototype Web-based system was developed and tested using a variety of open-source components, based on the use of OGC Web services standards. Both the design and the choice of components for WebBAS may herald radical changes for traditional work methods at the Census' Geography Division, which oversees the maintenance of TIGER data.

Title: Open Source Solutions in a Province-Wide Road Network Conflation Project
Author: Sam Smith, *Refractions Research*

Abstract: Conflation involves matching features from separate datasets that are logically but not spatially equivalent. Refractions Research used a collection of open-source tools to produce and maintain an improved version of the province of British Columbia’s Digital Road Atlas. Inputs to the DRA2 conflation were ~2.5 million photogrammetric roads from the provinces base maps and a set of ~200 thousand GPS-driven roads from an external supplier. This presentation will discuss the selection of open source software over commercial competitors, as well as the customization use of these tools in the preparation, production, and ongoing maintenance phases of our conflation project. The basic assumptions and rules behind the conflation process can also be address, time permitting.

Presentation Session 10

Theme:

Title: Supporting data collaboration and exchange in the Great Lakes basin
Author: Kevin Yam, *Great Lakes Commission* and Shon Doseck, *Pangaea Information Technologies*

Abstract: Numerous web mapping applications have been developing for the Great Lakes basin during the past few years and many of them contain a wealth of data and information for a particular geographic domain or subject area within the basin. The Great Lakes Commission (GLC) and Pangaea Information Technologies is currently developing an organizational framework with a supporting web mapping application that facilitates the discovery and exchange of geographic information owned and/or managed by the GLC and its partners. The data that is being served currently include the latest comprehensive datasets from the National Wetlands Inventory, TIGER, Land Information Ontario, Regional Air Toxic Emissions Inventory, and a number of lake basin specific data layers. This will provide a consistent set of geographic and topographic base information that will serve as a foundation for integrating, sharing, and distributing regional data. In addition to displaying these data, the organizational framework being developed will advance the increased involvement of regional partners in providing and consuming data within the basin. This presentation will focus on the process of incorporating these disparate data holdings into the organizational and system architectures and address how the data may benefit regional partners to foster future collaboration.

Title: Creating and Maintaining Free of Copyright Maps From the Ground Up
Author: Jo Walsh, *University of Openness (London, UK)*

Abstract: In most of the world outside the US, national mapping data is subject to state copyright and expensive cost-recovery licensing policies. In the UK, a group of grassroots projects have come together in a multi-pronged attempt to:

1. Create our own free of copyright street level maps, from user-contributed GPS traces and feature extraction from aerial imagery, with collaborative processes for maintaining their accuracy and currency.
2. Publish and propagate a Creative Commons derived license for open geodata.
3. Create use cases that demonstrate viable policy alternatives to the UK's Ordnance Survey, the government department which 'owns' its commercial activities, and other National Mapping Agencies.

An overview of the different projects' activities is offered, spearheaded by http://openstreetmap.org/, which operates as a shared data store and has the most functional wiki-nature interface. A complete list of projects is available at http://okfn.org/geo/. We hope to establish, not only a set of open source tools using MapServer and OGC standards which allow people bereft of free state geodata to create their own maps, but also a policy 'success story' for open access to national mapping data for nonprofit use. A sister project to our 'London Free Map' effort is a 'Mumbai Free Map' being produced by land use activists in India.

Title: A WMS Comparison: MapServer versus ArcIMS
Author: Brock Anderson, *Refractions Research*

Abstract: In 2004/2005 Refractions Research worked with the British Columbia governments Ministry of Sustainable Resource Management to analyze open source WMS alternatives to ArcIMS within the Ministry's demanding technical infrastructure. The Ministry was troubled by ArcIMS's administrative needs, especially when coupled with ESRI's WMS Connector. An open source alternative that fits into their technical infrastructure and provides comparable performance could be incentive enough to start replacing ArcIMS. With this as motivation, MapServer, the chief open source WMS competitor to ArcIMS, was compared to

ArcIMS on the axes of performance, standards compliance, and ease of administration. This talk will focus on the test methodology, initially slower-than-expected MapServer performance, the subsequent performance enhancements, and the final test results.

Title: Kentucky Landscape Census: NASA Funded R&D to Remove Barriers of Participation by Local Government in the Spatial Data Infrastructure
Author: Ben Lewis, *Advanced Technology Solutions Inc.*

Abstract: The Kentucky Landscape Census (KLC) will make NASA and the U.S. Geological Survey (USGS) satellite and digital airborne imagery and landcover and landuse computer maps available to citizens and governments of the Commonwealth in unprecedented ways through the Internet. A Spatial Data Infrastructure will be established using open source and OGC standards to provide public access to national, and state and local data sources. Open source, Ecommerce enabled mapping servers will be installed at four pilot counties, enabling counties to provide data free or for a fee.

Presentation Session 11

Theme: Technical Innovation

Title: Python Cartographic Library and Cartographic Objects for Zope
Author: Sean Gillies, *zcologia*

Abstract: The Python Cartographic Library (PCL) is a collection of Python classes inspired by the OGC's Styled Layer Descriptor Specification and aims to be the best possible Python software for constructing web mapping and feature services. The first application to use PCL is the Cartographic Objects for Zope (ZCO), a framework for cartographic content management systems based on the Zope application server. I will introduce the PCL and ZCO projects, features of the software, several sites using PCL and ZCO, and the migration path from legacy mapscript web applications.

Title: Geocoding US Street Addresses
Author: Schuyler Erle, *Locative Technologies*

Abstract: The author of Geo::Coder::US would like to introduce the art and science of geocoding US street addresses from freely available data sources, particularly the Census Bureau's TIGER/Line data set. I'll cover the design of the Geo::Coder::US database, how to use the Geo::Coder::US APIs, common tasks like matching addresses to electoral districts, and some common address parsing and geocoding pitfalls that have emerged in the development of the package. Additionally, I'll discuss possible new and future improvements, such as reverse geocoding, and fuzzy address matching, and finally reserve some nasty words on the side for those national mapping agencies less generous than the US's Census Bureau.

Title: MapServer and the Census
Authors: Bob Basques and Richard Bennett, *GRI Technologies*

Abstract: Join us as we introduce a new MapServer based product that utilizes Census data in a online Mapping interface. We'll talk about the architecture of the service and the Components needed to build similar web sites. Some of the components that will be discussed are, PERL (and MapScript) MySQL and MapServer. Anyone wanting to use MapServer by getting into the nitty gritty of using MapServer via the CGI interface will appreciate this presentation. While this application uses PERL as the Server side component Glue, and MapServer Mapscript capable language can be used to achieve the same results. Some Items discussed: Concepts of XML Templating, calling the Mapserver CGI with PERL, DHTML layered Web Client, Advanced Selection tool in a production environment. Some experience with PERL Web form handling is desirable.

Title: Using AJAX and MapServer to build an interactive web-mapping client
Authors: Paul Spencer, *DM Solutions Group*

Abstract: This presentation will introduce the key concepts of building interactive applications using AJAX (Asynchronous JavaScript and XML) and DHTML techniques to achieve maximum performance. It will also present the design of ka-Map, a continuous pan web-mapping application that uses map tiles and AJAX techniques to demonstrate a practical application of AJAX design. Using MapServer as the map rendering engine will be discussed as it pertains to this type of web-mapping client.

Presentation Session 12

Theme: Infrastructure

Title: HostGIS Assisted Hosting
Authors: Gregor Mosheh and Matthew Perry, *HostGIS*

Abstract: A live demonstration of an HostGIS Assisted Hosting service that lets people get their maps online quickly and easily. A complete online GIS system will be created during this brief presentation from shape files to completed online GIS system in 30 minutes. This Assisted Hosting service is appropriate for both beginner and advanced MapServer users and lets users:

- upload and manage files
- auto convert shapefiles to PostGIS tables and PostGIS tables to shapefiles
- web-based management of PostGIS tables
- use the Mapfile Maker to easily generate a MapServer mapfile
- display your maps through a library of templates without writing your own.
- speed up your map generation with raster overviews
- create raster and vector tile indexes, with a single click
- manage metadata and download in both ESRI XML and FGDC formats

This presentation will transition into a discussion of HostGIS Linux.

Title: HostGIS Linux
Author: Gregor Mosheh and Matthew Perry, *HostGIS*

Abstract: A discussion of HostGIS Linux, which is a free MapServer Slackware Linux/GNU distribution. This distribution saves days of installing MapServer and its components. It includes all the usual amenities of a Linux distribution:

- Apache webserver, with PHP
- MapServer, and MapScript for PHP, Perl, and Python
- PDFlib, with support built in to PHP, Perl, Python, and MapServer
- PostGIS-enabled Postgres database server
- MapServer Web Client (MWC) to display interactive maps without writing HTML or JavaScript
- Example apps already installed demonstrating WMS layers, PostGIS layers, and PHP/MapScript

HostGIS Linux is completely open source and may be downloaded, modified, and redistributed free of charge. HostGIS Linux is available for download from www.hostgis.com.

Title: 52North: Open Source SDI Components
Author: Ingo Simonis

Abstract: 52North: Open Source SDI Components In the past years, the advancements made in geoinformatics are propelled by alterations in user requirements, novel methodological and theoretical approaches in geographic information science as well as the rapid technological progress in general. These advancements share a common trend: proprietary, monolithic and solitary software solutions vanish while open, distributed and interoperable systems come into being, which establish a network of distinct spatial data resources, geoprocessing capabilities and ubiquitous applications. A logical consequence of this paradigm change is the establishment of Spatial Data Infrastructures, a process that gains a respectable

momentum worldwide nowadays. Concurrently, research bodies and software industry explore a new business model that proves beneficial for both the software user and the respective provider. Open source software development cannot anymore be exclusively associated with non-commercial, independent developer communities. It also represents an economically viable model for the software industry. These two orthogonal trends establish a tremendous challenge in geoinformatics, which remains not explored at present with regard to its technological and commercial potential. The open source software initiative 52North has been founded by the Institute for Geoinformatics of the University of Münster and con terra GmbH in order to face the aforementioned challenge. It aims at developing open source software for the acquisition, analysis and visualization of spatial data within open Spatial Data Infrastructures. The widest possible dissemination and popularization of the software in the market for geographic information technologies (public and private users, research and education bodies, developer communities, commercial entities etc.) will be assured by publishing it under the GNU General Public License. In this context, the research and software development activities shall be tailored to come along with technical innovations and market oriented products. Quality management is thereby of paramount importance as it helps to keep track on software usability and continuity. At the same time, the initiative will fuel national and international standardization efforts being relevant for the software in scope. Based on the already existing network of excellence for geographic information technologies, which spans across science and industry, 52North shall empower the development of open source software, its deployment and use. The open source software initiative 52North forms an umbrella around a broad range of software products that follow the principles of the service driven architecture (SOA). Services to form sensor networks will constitute one of main pillars of the entire project with SDI management services, SDI eBusiness services, raster data processing services, mobile services, and educational tools being the complementary others. The project serves as a test platform as well as a ready-to-use repository of stable releases. Following this parallel approach, 52North will be a rich information source to research, training, and development as well as a stable platform that allows building advanced demonstrators, prototypes, and real applications.

Title: GISmo, GIS with Managed Objects
Authors: Dan Little & Jim Klassen, City of Saint Paul, Public Works Information Services

Abstract: This presentation will deal with "GISmo" the City of St. Paul / Public Work's innovative use of MapServer in a high-demand environment. Supporting hundreds of City employees, GISmo uses both fixed raster and dynamic database maps without any noticeable difference to the user. It serves not only as a mapping viewer but also as a gateway to the City's asset management systems. Written entirely in-house GISmo is fast, works cross browser, and requires very little server load. Our users are their own data custodians and any single failure will not prevent the rest of the system from functioning. Only two months from initial deployment GISmo has become an indispensable tool for a large portion of the City of St. Paul's Public Works user base, as well as other City Departments.

Presentation Session 13

Theme: Case Studies

Title: Showcasing a Syndromic Surveillance System with GIS Functionality
Author: Shon Doseck, *Pangaea Information Technologies*

Abstract: Pangaea Information Technologies has developed in conjunction with ibex Healthdata Systems and Rush-Presbyterian-St. Luke's Medical Center a real-time syndromic surveillance system which identifies epidemiological trends and potential disease clusters in a given population or region. This biosurveillance system is a modular application designed to provide public health agencies and Emergency Departments with real-time statistical analysis, mapping, and reporting capabilities. This system analyzes real-time and/or historical data, allowing for instantaneous monitoring of patients as they are presented to hospital Emergency Departments. Complex statistical monitoring algorithms in the system can identify abnormalities in admissions and triage trends, and subsequently, initiate an automatic email or pager alert to public health officials of the potential for a disease outbreak or biological/chemical attack. In addressing the spatial data and mapping requirements of the application, a custom developed Chameleon-based MapServer application is used for visualizing spatial distribution of patient data and a geocoder.us process available from the CPAN is used in estimating a latitude and longitude for patient home and work locations. This presentation will outline the architecture of the syndromic surveillance solution, focusing primarily on the contributing open source components, and describe some of the lessons learned in the development process.

Title: Forthcoming
Authors: TBD, Where2GetIt

Abstract: Forthcoming

Title: Solution Option Manager, using JTS in Air Traffic Control Simulation
Author: Patrick Jones, *Mitre*

Abstract: The Solution Option Manager (SOM) is a simulation that maneuvers aircraft traffic along flight paths. While ensuring that airplanes maintain safe distances from each other, SOM enforces various Air Traffic Management "rules of the road." Amongst these rules are its methods to make sure aircraft properly respect Air Traffic Control sector boundaries. Every time an aircraft crosses from one Air Traffic Control sector to another, an Air Traffic Controller in each sector participates in a "handoff" of that aircraft. Because SOM is ensuring a safe distance between aircraft, it must sometimes maneuver aircraft away from nominal flight paths. With no restrictions on these handoffs between sectors, aircraft would move between sectors without regard to the increase in Air Traffic Controller workload. However, SOM finds a new safe and efficient flight path that does not unnecessarily cross Air Traffic Control sector boundaries. This presentation will discuss how SOM uses the open source "Java Topology Suite" (JTS) to enforce sector boundary restrictions.

Presentation Session 14

Theme: Content Management

Title: Neapoljs - Web based Content Management (CMS) for UMN MapServer
Author: Flavio Hendry, CEO, *TYDAC AG*

Abstract: Neapoljs is an all-in-one Application, Application Development Environment (ADE) and Content Management System (CMS). Originally based on MapInfo MapXtreme, it was eventually ported to ESRI ArcIMS and UMN MapServer. Using Neapoljs, you can create sophisticated Web Mapping Applications within hours and, once the application is running, you can add new maps and functions to it at any time within minutes - and all of it is web-based and database driven!

Title: Using Mapbender for SDI Management
Author: Arnulf Christl, *CCGIS*

Abstract: Starting from scratch. How to create map interfaces, manage SDI services, fool network architectures, respect security issues, add functionality, create user accounts, manage users in groups and deploy portal sites.

Title: CartoWeb v3, MapServer and SOAP based Web-GIS framework
Author: Alexandre Fellay, *Camptocamp SA*

Abstract: CartoWeb may be viewed as a comprehensive and ready-to-use Web-GIS. Based on MapServer, it widely expands its functionalities, with features like infinite-depth tree of layers, customized highlighting, persistent queries, access rights, internationalization, map annotation and many others. Beyond that, CartoWeb is also a convenient foundation for building advanced, customized applications. Its built-in modularity and extensibility, its multi-tiers architecture, the use of SOAP web-services make it a framework able to suit very complex requirements.

Presentation Session 15

Theme: Building Communities

Title: Enabling education decision support systems using open source GIS and Internet mapping tools
Authors: Michael G. Leahy and G. Brent Hall, *University of Waterloo*

Abstract: Earlier work by participants from the University of Waterloo and Alternativa (a Peruvian non-government organization) led to the development of an Internet tool named EduCal (abbreviated from Calidad de Educacion, meaning quality education), which provides access to a comprehensive online PostGreSQL database of information related to education and socioeconomic quality in Peru, and tools for calculating indices of quality. This presentation summarizes more recent accomplishments that have since been made in the development of online tools that enhance the capacity for decision-makers for education planning and management in developing countries to access and analyze information. More specifically, the focus of the more recent work has been to introduce greater flexibility for decision-makers in the process of geographically selecting areas for study, and in the presentation of data and calculations pertinent to decision-makers problems. The new features that are being added to EduCal tool integrate spatial functionality more closely into the decision-making process for education planning. This presentation demonstrates how open source software, including PostGIS, MapServer and other projects hosted at MapTools.org , has been implemented to allow planners highly functional spatial selection options for schools by defining study areas around selected sites using spatial relationships (e.g., beside/adjacent, or distance). The issues that affect education quality vary significantly between individual schools and communities. Thus planners and education planners and decision-makers in developing countries such as Peru stand to benefit from improved access to data and tools for analysis and data mining that enhance their knowledge relevant to problems within their local areas of interest.

Title: On the Management of Open Source Software Initiatives with Porters Value Chains
Authors: Adam Sliwinski, Andreas Wytzisk, Ulrich Streit, and Ann Hitchcock

Abstract: It is debatable whether or not the open source software community is capable of engineering all the different applications needed to run the world. In fact, we do not see this kind of software entirely replacing proprietary software within the geospatial information domain in the future. Others might. We are rather convinced that the development of such software and its distribution under the terms of a free software license boosts innovation, puts forth competitive products for certain user domains, helps break up monopolies and even qualifies for vital business. A widespread adoption of open source software, however, does not occur over night. There is an urgent necessity for concerted management actions in order to sustain the competition with proprietary solutions but also to keep an eye on other open source projects that offer alternative software. Michael Porters concept of value chains appeared in the management literature in the mid eighties. It is a basic approach for organizations to find ways for creating and sustaining a competitive advantage through differentiation, which stems from uniqueness. Generally, a value chain may disaggregate an open source software initiative into a finite set of activities that are executed to design, produce, promote, deliver, and support a software release. Each such activity may be a potential source for differentiation. Here we should distinguish between primary value activities and support value activities. The former activity type includes software architecting, incubation, and engineering, as well as the distribution of software releases to the public including technical support. The latter type consists of activities that complement the primary ones by providing organization wide business functions, e.g. executive management, coordination, quality management, community building, outreach or marketing. We currently experiment with this management method and establish economically viable value chain models for an open source software initiative called 52°North (http://www.52north.org). This represents a transition from the often quoted bazaar-like approach to, if you will, a coexistence of both the cathedral and

the bazaar - an approach that is in favor by the Swedish MySQL AB, for example. The aforementioned initiative aims at delivering software implementations that shall constitute the building blocks for interoperable services in Spatial Data Infrastructures (SDIs), but may also serve as elements of other, not necessarily distributed, geospatial information systems. It particularly strives for the development of innovative technologies that provide functionality for the management of SDIs including electronic business, the integration of real time geosensor data and geospatio-temporal simulation models within distributed web service architectures, and mobile geocomputing. In a nutshell, 52°North explores technological horizons beyond web mapping. The conference presentation will give a comprehensive overview of the 52°Norths value chain. We will exemplify what likely benefits and potential drawbacks are associated with the management of an open source initiative that thinks in terms of value activities. Even though 52°North is still a very young initiative, we will compare its management approach to those of other open source software projects in the world of geospatial information technology and show how it caters to a successful differentiation of its releases in the marketplace.

Title: FOSS as tool to democratize geomatics
Author: Jean-Denis Giguère, *l'Université de Sherbrooke*

Abstract: Using a concrete example based on light pollution modeling, this presentation will explain how free and open source software can help to promote spatial sciences. Géolampe is a portal to offer possibility to everyone to contribute to a real research project. This talk will also demonstrate how free software integration can offer many level of abstraction and how this feature can be use to make people with very different knowledge collaborate efficiently.

Presentation Session 16

Theme: Technical Innovation

Title: XML as an Integrated Map Directory
Authors: Dan Little & Jim Klassen, City of Saint Paul, Public Works Information Services

Abstract: This presentation will explore how the GISmo Web experience may be be extended in the future. With a large number and variety of maps an intelligent hierarchy for storing and sorting them is necessary. Simply using an empty directory structure seems unreasonable as it does not give users nor the Data custodians a means to apply any additional information about the maps or data they could be viewing. In order to address such deficiencies in a standard hierarchy, XML can be used to attach additional metadata. This can then be used to create a lightweight viewer using XSL.

Title: Providing Data Cubes with Thematic Maps
Authors: Laurent Pierre and Sabine Goutier, *EDF R&D*

Abstract: Data cubes are multidimensional extensions of 2D tables. If at least one of the axes of a cube is made of geographic objects (cities, regions, clients) it seems reasonable to have the possibility to get the result of a query displayed on a set of thematic map. The topic of this paper is to present the developments made in order to provide Oracle Express users with automatically generated thematic maps in addition to standard tables and charts. In order to achieve such a result, we had to define an XML dialect (olapML) capable of exporting model and data from a cube. Then, we constructed an intermediate server dedicated to the alimentation of a PostgreSQL/PostGIS database and the creation of the configuration files for MapServer. One very important point of this new service is that one needs only one general server for all data cubes inside our company for all cubes needing geographical representation, saving time and money in term of maintenance and map licenses.

Title: WFS+RDF+802.11 = ?
Author: Jo Walsh, *University of Openness (London, UK)*

Abstract: RDF, the w3c's Resource Description Framework, has tremendous power to connect metadata about spatial and non-spatial things, discovering new vocabularies and statements on the semantic web. Arriving at open source GIS from planet RDF, I've been in pursuit of unifying the benefits of the semantic web and OGC standard sets. In London we've been using MapServer as a backend to provide a web mapping service for community wireless network nodes, collaboratively written city guides and shared event listing systems, all of which publish their metadata in RDF under a CC license. Each feature available to MapServer is annotated with a URI and the URI of an RDF class. Further annotations about each point of interest, stretch of street segment or shape can be added to the RDF model, which dictates the display of the web map. RSS feeds can be mapped on the fly, in an approach pioneered by http://mapbureau.com/ , or collected by an RDF spider-aggregator with a PostGIS index. (http://frot.org/bbox/) The service is being used to run simple 'grassroots LBS', providing local information updates using the NoCatSplash 'captive portal' on open 802.11 access points. (http://map.wirelesslondon.info/)

Birds of a Feature Sessions

Time: Friday, 12:00 pm to 1:00 pm (over lunch)
Topic: How to be Managed by an Open Source Project

The odd project admin, dismissive chief programmer and freaking Free Software advocate talk about work loads, curmudgeonly customers, dumb users and community processes in general. Seeking for the answer to the question: Who would ever want to start an Open Source project and why for heaven's sake?

Contact: Arnulf Christl, arnulf.christl@ccgis.de

Time: Friday, 12:00 pm to 1:00 pm (over lunch)
Topic: FreeGIS Book

There was a discussion in Oct 2004 on the FreeGIS mailing list about people wanting to collaborate to write a book. One thing led to another and a group of people decided to start and a mailing list and a wiki was set up. This BoF is for people who are already on that list and want to get a visual contact with others on the list and for people who would like to join in. Please come and discuss things like what, how, why, when to contribute material to the FreeGIS book.

Contact: Ari Jolma, ari.jolma@tkk.fi

Time: Friday, 6:00 pm to 8:00 pm
Topic: Natural Resources

Do you use, or hope to use, Open Source tools for managing natural resources information? If so, you are invited to an informal gathering to meet others who are working, studying or volunteering in this field. This could include representatives from forestry, fisheries, ecology, biology, environmental science, tourism, geography, sustainable development and more. Come to share your ideas and experiences or to find overlapping interests with others.

Contact: Tyler Mitchell, tjm@timberline.ca

Time: Friday, 6:00 pm to 8:00 pm
Topic: Binary Packager

A get together of folks building binary packages for FOSS GIS tools on win32, Linux (rpm, deb, FGS, etc), MacOS X and other platforms. We will discuss successes and challenges, and ways that binary packagers can cooperate more closely.

Contact: Frank Warmerdam, warmerdam@pobox.com

Posters

Friday (during the reception), 5:00 pm – 7:30 pm

Title: Environmental Data Discovery with GIS
Authors: Dr. David L. White, David Dabney, Danna Dowdy and Dr. Dwayne Porter, *NOAA*

Abstract: Scientific monitoring and research efforts focused on South Carolina, USA, tidal creek and estuarine systems have resulted in disparate databases among various federal, state and academic laboratories and institutions. Up to this point, most if not all of this data has been analyzed independently by researchers and archived in separate databases with little opportunity for integrated research analyses. These data are valuable, particularly for historical change and environmental trend analyses. The designation of the NOAA Hollings Marine Laboratory in Charleston, SC as a Center of Excellence in Oceans and Human Health has lead to a unique opportunity to integrate some of these data into a centralized data management system. We are developing various data and information discovery tools associated with metadata that will provide an opportunity to explore, analyze and export these data. Web-based GIS interfaces will play a critical role in allowing researchers and end users to view and discover environmental parameters of interest. Our intent is to design Web-based GIS interfaces that allow the user an opportunity to filter by sampling sites, contaminants, and specify time periods of interest.

Title: Interactive, Multimedia Cartography Using Open Source Mapping Technologies: The Cybercartographic Atlas of Antarctica Experience
Authors: Peter L. Pulsifer, Amos Hayes, J-P Fiset, Sébastien Caquard, Birgit Woods and Xiuxia Liu, *Carleton University*

Abstract: The poster outlines the on-going development of a framework used to construct interactive, multimedia atlases. Atlas design guidelines established the need for a highly responsive and flexible system capable of integrating geographic information with a variety of other media (e.g. video, animations, 2.5d terrain models). The framework developed in response to design guidelines uses eXtensible Markup Language to structure atlases and facilitate interoperability between several open source system components. A high-level review of the current architecture is presented. The poster concludes with a review of a prototype of The Cybercartographic Atlas of Antarctica. Emerging research challenges and directions in terms of cartographic representation, atlas design and systems development are discussed.

Closing Session

Featured Presentation

Title: Building an effective Open Source Community
Presenter: Dirk-Willem van Gulik, President, *Apache Software Foundation*

Abstract: In 10 years, Apache, and its Apache Software Foundation have grown to be one of the largest open source communities. Started as a webserver it today covers the entire web application stack; including things such as xml parsers, soap engines all the way up to a full blown j2ee application environment.

Rather than focus on the technology this talk will detail the community processes behind the ASF and the navigation between effective oversight and legal protection on the one hand and giving developers enough freedom and fun on the other hand. Constantly trying to strike the right balance, which keeps the community healthy and allows it to create some of the best operational software around.

Bio: Dirk-Willem van Gulik is currently the President of the Apache Software Foundation and has served on the board since its creation. He has 15 years of Internet engineering, consulting and projects management experience. He has worked for the JRC, the United Nations, telecommunications firms and several satellite and space agencies. He participated to different international standards bodies, such as the IETF, on metadata, GIS and Internet standards. Dirk-Willem is one of the founders of www.asemantics.com; a leader in the Enterprise Information Integration field which is focusing on making the Semantic Web a reality. As such he is involved with the standards processes in for example the W3C around RDF, FOAF, URNs, RfID and RDQL with Federated Enterprise Information integration as his specialty.

Sol Katz Award for Geospatial Free and Open Source Software

For exceptional service to the Open Source Geospatial community.

The Sol Katz Award for Geospatial Free and Open Source Software (GFOSS) will be given annually to individuals who have demonstrated leadership in the GFOSS community. Recipients of the award will have contributed significantly through their activities to advance open source ideals in the geospatial realm. The hope is that the award will both acknowledge the work of community members, and pay tribute to one of its founders, for years to come.

Background - Sol Katz was born in Sweden and moved to NY at the age of 1. Yiddish was his first language, but he was amazingly bright, and learned both Hebrew and English quickly. After high school, he spent three years in the US Air Force, stationed in Germany, where he picked up yet another language. Following his brief military career, he decided to go to Brooklyn College in NY where he got his Bachelors in Geology in 2.5 years. He then married his wife Hedy in 1969, and went back to Brooklyn College while teaching in NY Public Schools and got his MA, also in Geology. After several years working for the U.S. Bureau of Land Management (BLM) in several states, he settled down in Lakewood, CO and decided to go back to school at the University of Denver in Computer Science and earned a second masters. At this time, he also had two children - Shanna and Risa. He was well loved in his office, at his children's school, and at home. Always full of laughter and good humor, Sol could easily be recognized by his flamboyant Hawaiian

shirts and toucan or propeller hats. Sadly, after fighting Non-Hodgkin's Lymphoma for almost a decade, Sol died April 23, 1999 in bed.

Open Source - Sol Katz was an early pioneer of GFOSS and left behind a large body of work in the form of applications, format specifications, and utilities. In the early 80's, Sol assisted in the development of a public domain GIS package called MOSS (Map Overlay and Statistical System). This software was arguably the first open source GIS software in the world. Sol would later go on to release and maintain PC MOSS. He was also one of the first involved in public data translator utilities. Utilities that he developed for converting DEMs and reading SDTS files were contributed back to the geospatial community, and are still available today. Sol was also a frequent contributor to many geospatial list servers, providing much guidance to the geospatial community at large. Sol Katz's informative Web site at the BLM is still available at http://www.blm.gov/gis/nsdi.html. His legacy still lives on in the GFOSS world.

Presented by Sonny Parafina, *IONIC Software.* Special thanks to Paul Ramsey, *Refractions Research* and Jeff McKenna, *DM Solutions Group* for their assistance in organizing the award.

Panel Discussion – *Meet the Developers*

Participants:

David Blasby, *OpenPlans*
Stephen Lime, *Minnesota DNR*
Daniel Morissette, *DM Solutions Group*
Markus Neteler
Paul Ramsey, *Refractions Research*
Frank Warmerdam

Moderator: Tyler Mitchell, GIS Manager, *Timberline Forest Inventory Consultants*

Panel Discussion – *Making Open Source Business Our Business*

Participants:

David McIlhagga, President, *DM Solutions Group*
Geoff Zeiss, Director of Technology, *Autodesk*
Dirk-Willem van Gulik, President, *Apache Software Foundation*

Moderator: Peter Pulsifer, Lead Researcher, *Carleton University, Department of Geography and Environmental Studies*

2006 Meeting Preview

A word about our sponsors...

Platinum Sponsors

Camptocamp - Camptocamp, located in Lausanne, Switzerland and Chambery, France is an IT engineering company focused on Open Source and GIS technology.

Camptocamp offers a complete range of services (consulting, software and web development, hosting, teaching) customized to customer needs.

Camptocamp has also developed CartoWeb, a comprehensive open source framework for building MapServer-based Web mapping applications using SOAP Web services.

For more information please visit http://www.camptocamp.com and http://cartoweb.maptools.org

DM Solutions Group - A major provider of Web and desktop mapping solutions, DM Solutions Group Inc. leads the development of Open Source mapping technology. Using its Web mapping toolkit, which includes tools like MapServer, Chameleon, and MapLab, DM Solutions Group works with organizations wanting to deploy Web mapping infrastructures that incorporate geospatial data from any server, anywhere in the world.

Founded in 1998, DM Solutions Group is headquartered in Ottawa, Ontario, Canada, and operates an office in Chicoutimi, Quebec, Canada. For more information visit www.dmsolutions.ca.

ER Mapper - forthcoming

Geo-Consortium - The Geo-Consortium has been founded in 2003 by the four companies CCGIS, DIALOGIS, KARTA.GO and terrestris to bundle know-how and achieve synergy effects in operating a common network and server farm. Another focus has developed around providing training and courses for all mayor FOSS geo data processing software packages. The four companies operate and further the Open Source Software packages Mapbender, AveiN!/AmeiN!, MapStorer and my-map.net.

The Geo-Consortium has been proud to organize last years German language offspring of the UMN MapServer User Meeting, this years Mapbender conference and several other community events.

CCGIS is a private owned company based in Bonn, Gemany providing advisory service and technical support for spatial data processing technology with Free and Open Source Software (F/OSS). Since our foundation in 1998 we have developed GIS client frameworks mainly for public administrations and utility companies. Implementation and operation of spatial data infrastructures brought about the need for an interoperable web mapping client suite which has consequently been the main focus of development. In 2003 Mapbender became Free Software (http://www.mapbender.org). Supporting the OGC industry standards for map services and geo data Mapbender provides user interfaces for displaying, navigating, querying, analyzing and most important for management of open web services.

Terrestris is a private owned company based in Bonn, Germany. Our main focus is building up geodata infrastructure (GDI) technology based on OpenSource/Free Software.

Our tools to do so are: UMN Mapserver in combination with the WMS/WFS client suite Mapbender, PostgreSQL/PostGIS and MySQL -We run the Open Source projects AveiN! and AmeiN!, providing an interface between ArcView GIS/ArcGIS and UMN Mapserver -We use the OGC specified web-interfaces WMS

and WFS -We implement information systems based on SMS, e.g. flood warning or water gauge measuring systems -We are engaged in the field of the new outcoming OGC specification for Sensor Web systems.

Orkney - Orkney is a business solution provider that specializes in Geographical Information Systems (GIS) and Location Based Services (LBS) technologies. Our uniqueness is that Orkney does not only provide software, data and hardware integration but also business process solutions that enable our customers to succeed in both technology and business aspects. Our mission thus is to provide business solutions to our customers utilizing GIS and LBS technologies.

Refractions Research - Refractions specializes in geographic data integration, spatial databases and spatial data infrastructure. We are an industry recognized leader in the development and use of open source Geographic Information Systems (GIS) technologies and are the principal developers of the PostGIS spatial database as well as uDig, a desktop internet GIS. Refractions also contributes to Mapserver, GeoServer and other open source GIS project development.

Refractions was founded in 1997 and is based in Victoria, BC, Canada. Refractions has grown steadily over the past 8 years and now has a total of 25 full-time employees. For more information please visit www.refractions.net.

TYDAC - TYDAC Inc, Bern, Switzerland is specialized in the application of geographic information and spatial analysis in any kind of area. TYDAC has developed a broad client base and expertise in the application of GIS for forestry, engineering, telecommunications, market analysis, administration, education and many more. TYDACs' customers include major retailers, communication and utility companies, government agencies and a large number of engineering companies.

In the last five years TYDAC developed its own product, a Web Application Development and Web Mapping Content Management System called Neapoljs on which the swissgeo.org application is based. Neapoljs is available for ESRI ArcIMS, MapInfo MapXtreme and UMN MapServer.

Further information can be found on http://www.tydac.ch/and http://www.mapserver.ch/.

Where2GetIt - Where2GetIt, Inc. is an ASP, specializing in locator services for hundreds of US & International customers. The private labeled application includes geocoding, routing, and maps delivered as a hosted solution or web service via the Web, IVR, Email, Fax and Wireless. Where2GetIt, Inc. is an open source advocate and continues to leverage emerging technologies including wireless applications, customer demographics and buy online links, to help our clients' customers find where to buy online and locally.

Gold Sponsors

Alchemedia - Alchemedia was founded in 1996 to realize a vision shared among certain leading entrepreneurs in Aomori Prefecture (the northernmost prefecture of Honshu, Japan's main island) and American technologists born and raised in Japan to harness the power of the Internet to realize new business value.

Although, the center of the firm's activities is now Tokyo, the source of our inspiration is the "Tsugaru spirit" of Aomori. In the local dialect we vow to "kepparunzuya" (which means "Go for it!").

Excensus/GRI Technologies - Excensus, LLC is a demographic services company devoted to the application of Census and other socioeconomic databases. Demographic data interpretation is often difficult due to the volume and complexity of information involved. Excensus specializes in the use of leading edge Geographic Information System (GIS) technology to perform analysis work on complex issues. A hallmark of our service is providing demographic information in high quality maps, graphs and tabular reports that offer clear insights into the spatial relationships inherent in demographic information. Excensus is a leader in the development and maintenance of small-area demographic data products for sale to our consulting clients. The Excensus "iBlock™ Cluster" products and associated methodology provide customers with current, enhanced small-area demographic tools that are ideal for local community analysis and decision making.

GRI Technologies, LLC provides solutions centered around GIS, mapping, and other graphical applications. We specialize in browser-based applications that can run over the internet. GRI Technologies is a diverse partnership of capable, professional individuals working together to develop exciting new graphics applications focusing on bringing GIS/cartography to the Internet. We are constantly striving to achieve the highest level of excellence in our products, and we do our utmost to produce standards compliant and accessible software. To this end we strive to stay abreast of all the latest developments, and even to push ahead, by actively supporting open-source projects, and providing examples of the technology at work, for other developers to learn from.

For further information about Excensus or it's products, please contact John Carpenter at (952) 892-6622 or via email at john@excensus.com. For more information about GRI Technologies, please visit us at http://www.gritechnologies.com/.

University of Minnesota, College of Natural Resources - As the University of Minnesota's original environmental college, the College of Natural Resources has a rich heritage of distinguished accomplishments.

For example, in the early part of the 20th century the college's faculty discovered the wood preservation techniques that advanced a multi-billion dollar industry that saves 226 million trees a year from premature harvest.

More recently, the faculty pioneered the interpretation of aerial photographs for natural resources management and now work with NASA to combine satellite data on natural resources with other forms of data via the Internet. Today, the college's undergraduate forestry program is ranked #1 in the U.S., followed closely by its fisheries and wildlife (#5) and natural resources management (#7) programs.

Silver Sponsors

Geosys - Geosys is worldwide leader in geographic information systems and satellite imagery for agriculture. For over 15 years Geosys has pioneered remote sensing and GIS technologies for the rural environment. Geosys is a private company, with offices in Europe (Toulouse, France) and in the USA (Minneapolis, MN and Washington DC), delivering its services and expertise to international organizations, governments and local authorities, and agribusinesses scaling from international corporations to crop consultants and farm producers.

The Geosys mission is to support decision makers in agriculture and agribusiness to better manage and value geographic information, and to develop new products and services through the use of aerial and satellite imagery, GPS data collection tools, mapping and information system. Geosys helps its customers

better value the land and their assets, fulfilling the requirements of agricultural production, food chain information flows, and food security, while preserving natural resources and the environment.

Houston Engineering - Houston Engineering, Inc. (HEI) is recognized as a regional leader in water resources management. We are also known for superior municipal engineering, transportation engineering, environmental, surveying, GIS and Web services. HEI has a long history of providing exceptional engineering, surveying and environmental consulting services to clients in the private and public sectors. Recently HEI has been providing MapServer development, customization, training and hosting to a number of clients as part of our growing GIS and Web services.

HEI was founded in 1968 and now has offices in Minnesota, North Dakota and Montana. Further information can be found at http://www.houstonengineeringinc.com.

Iowa State University, Center for Survey Statistics and Methodology - Center for Survey Statistics and Methodology faculty, students and staff collaborate to develop statistical and survey methods for conducting sample surveys and censuses. The Center provides a wide range of survey services for researchers, including survey design, sample selection, computer-assisted data collection, coding and keyentry, and statistical analysis. The Center works with the USDA to conduct the annual National Resources Inventory using custom-developed geospatial data collection and processing technologies.

Iowa State University, GIS Support and Research Facility - The GIS Support and Research Facility is a public computing facility established to support the use of geographic information systems (GIS) technology at Iowa State University. The mission of the facility is to provide a high level GIS research support laboratory for students, faculty and staff as well as to provided GIS education and outreach to the Iowa State University community and the state of Iowa.

Minnesota GIS/LIS Consortium - The Minnesota GIS/LIS Consortium is a forum for communicating information to, and improving cooperation among, those interested in Geographic Information Systems (GIS) and Land Information Systems (LIS) in the State of Minnesota. Members include GIS users in local, state and federal government agencies; business and industry; and educational institutions. Membership is free.

The Consortium hosts annual statewide conferences, and establishes committees that deal with specific GIS/LIS-related issues in Minnesota. Opportunities to participate in Consortium activities are available through volunteer work with committees, conferences and workshops.

O'Reilly - O'Reilly Media is the premier information source for leading-edge computer technologies. The company's books, conferences, and web sites bring to light the knowledge of technology innovators. Our latest mapping title, *Web Mapping Illustrated*, shows you how to create maps, even interactive maps, with free tools, including MapServer, OpenEV, GDAL/OGR, and PostGIS. It also explains how to find, collect, understand, use, and share mapping data, both over the traditional Web and using OGC-standard services like WFS and WMS: http://www.oreilly.com/catalog/webmapping/

Join us at the first Where 2.0 Conference June 29-30, 2005 in sunny San Francisco. Where 2.0 covers the movement of mapping and location technology from the theoretical to the masses, illustrating the creativity that's waiting to be unleashed as the tools and data become readily available. Sessions and panels will talk to real, deployed products (Google Maps, Yahoo!, MetaCarta) that combine a vision of the future with something to show right now. More information is available at: http://conferences.oreillynet.com/where/

PeopleGIS - PeopleGIS has created a web-mapping service called MapsOnline. Based on open source technology, MapsOnline provides all of the usual tools and functions expected on online mapping. But

MapsOnline takes online mapping further by integrating spherical photography, mobile cell phone photography, statewide roadway photography, and other visual media. MapsOnline also enables group communications through its own form of MapBlog. The idea is not to stop within the boundaries, but to push them. Our clients tell us what they want....and we build it for them.

PeopleGIS is located just outside of Boston in Somerville, Massachusetts. For more information, visit our website at www.peoplegis.com.

Event Sponsors

GIS Rangers - GIS Rangers is a group of motivated GIS professionals whose number one goal is to provide the best service for our customers. We enjoy bringing GIS to people because we believe the technology provides valuable information and cost savings. We believe that in order to reap the benefits of GIS, you should not have to be a GIS expert. To that end, we pride ourselves on creating GIS tools so anyone, regardless of GIS or computer skills, can get the information they seek. Our specialties are On-Site GIS Support, Project Based GIS Consulting, Web Mapping and Custom Training.

ThomTech Design - ThomTech Design, Inc. has provided management and technology solutions to state and local governments & businesses since 1995.ThomTech's specialty is the tracking of highway maintenance vehicles, using Remote Data Collection (RDC) from mobile platforms and Electronic Reporting (ER). We gather, record, parse, filter, and manipulate data to meet our customer's needs for public works and transit agencies. We specialize in Wireless Data Communications (such as RF, Satellite, & CDPD), Automatic Vehicle Location (AVL), Global Positioning Systems (GPS), Geographic Information Systems (GIS), Road Weather Information Systems (RWIS), Two Way Data Messaging, & Database Design/Report Generation.

Tierney Brothers - Established in 1977, Tierney Brothers has grown from a Kroy labeling products dealer to a leading provider of LCD projectors, systems integration, large format printers, graphic and engineering supplies, and audio and visual communication solutions. Our customers include Fortune 500 companies, government entities, educational institutions, nonprofit organizations, houses of worship, and small businesses. Our vision is to become the premier audiovisual and wide format provider in the Midwest.

University of Minnesota, Academic and Distributed Computing Services (ADCS) - ADCS provides leadership for the use of information technology in academic areas (teaching and learning, research and discovery, and some aspects of outreach and service) and supports students, faculty, and staff in anticipating information technology needs and responding to them with appropriate infrastructure, applications and services.

University of Minnesota, Department of Computer Science and Engineering - The Department of Computer Science and Engineering at the University of Minnesota is a major mid-western center for leading-edge research and top-quality education in computer science and engineering.

In addition to offering the only computer and information sciences doctoral program in Minnesota, it plays a major role as a source of talent, graduates and research for the computer industry, locally and beyond.

Currently, as one of the largest undergraduate programs in the Institute of Technology, the enrollment in the department includes nearly 585 undergraduate students in computer science, 280 in computer engineering, and 93 from the College of Liberal Arts who declare computer science as their major. We also have around 320 graduate students in computer science; about half of them are working toward their PhD's, and 94 in the master's degree program in computer engineering. We also offer a two-year

professional master's degree in software engineering with a total enrollment of around 78 students.

The number of faculty members in the department has been steadily increasing. They are not only providing high quality undergraduate and graduate education to the students, but also are immersed in cutting edge research which covers almost all disciplinary areas of computer science and engineering. They include: software engineering, computer graphics, robotics, artificial intelligence, programming languages, database, human-computer interface, internet technologies, bio-informatics, data mining, computer networks, high performance computing, computer architecture, parallel and distributed systems, theory and algorithms, system software, and several other areas. Most of the research funding is from federal and state agencies, and some from industry. The department has a strong industrial partners program with various collaborative projects with its partners.

Official Media Sponsor

Directions Magazine - Directions Magazine is the premier, worldwide resource for Geographic Information System news, location technology, and events. Each week, Directions publishes information regarding products, companies, and people in three editions: Directions on the Workplace featuring company financial news, jobs and project information; Directions on Geospatial Technology featuring technical and popular articles, and software reviews; and Directions on the News featuring the week's review of news items, new products and commentary.

In addition, the Direction's website provides access to tools, maps, websites, and other useful guides for both the experienced and novice GIS user. Search our archives for case studies of GIS applications and browse our map galleries for examples on what others in the industry have done. Plus, the "My Industry" pages of Directions have over 40 categories from which to find topics specifically for your area of interest. Directions also presents the conference "Location Intelligence" which strives to bring together many sectors of the information technology industry that leverages location technology. On the web at WWW.LOCATIONINTELLIGENCE.NET. And point your browser at Directions Magazine everyday at WWW.DirectionsMag.com.