# FOSS4G
## DENVER 2011

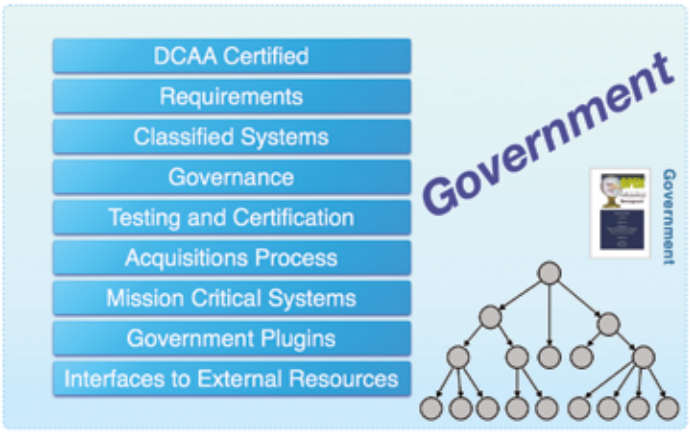
Free and Open Source Software
for Geospatial Conference

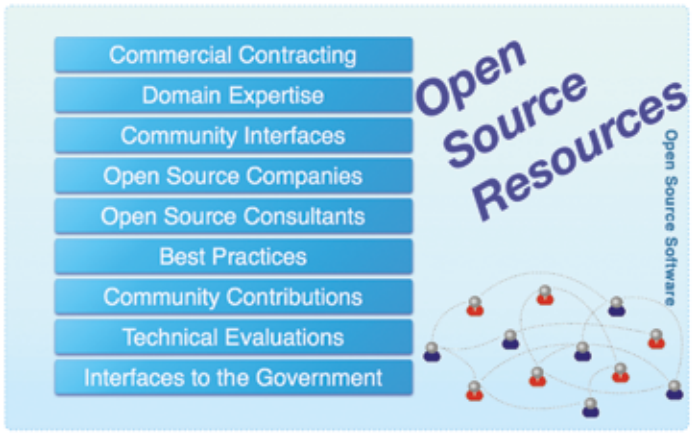
# Conference Program

Denver, Colorado, USA
September 12–16, 2011

# RadiantBlue TECHNOLOGIES

*Open Technology Integration*



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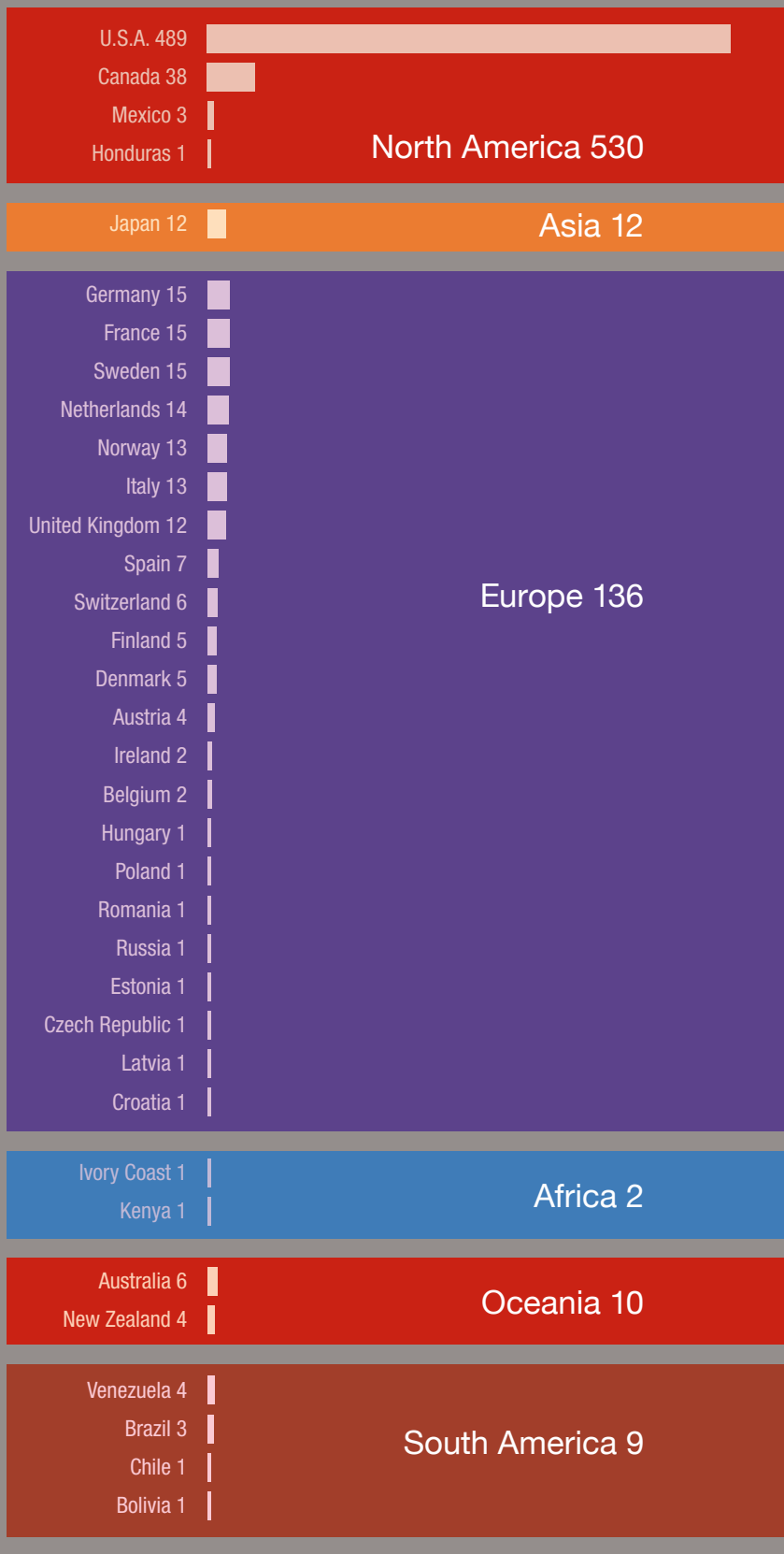
# Attendees by Country and Continent




Total Attendees 699

as of August 26, 2011

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# A Note from the Conference Chair

Welcome to FOSS4G 2011, the global conference focused on Free and Open Source Software for Geospatial. Recent years have seen strong growth in adoption of open source geospatial solutions, and this is reflected in the great interest we have seen in FOSS4G this year, building on previous years. The local organizing committee and myself are excited about the event we have lined up here in Denver and hope you will enjoy it and learn a lot.

We have an excellent technical program featuring 24 hands-on workshops, 12 tutorials, approximately 150 technical presentations, an academic track with 24 papers, and some great keynote presentations. And just as important if not more so is the chance to meet face-to-face with many people working with geospatial open source from around the world and to exchange experiences and ideas.

For those who are new to open source, we have added some elements to help you get the most out of FOSS4G. One is the Introduction to Geospatial Open Source event being held on Tuesday. This can be attended either as a standalone event or as a way to help you get the most out of attending the full FOSS4G conference. We have also tried to include a balance of introductory and advanced material in the main program with a good selection of case studies. I attended my first FOSS4G in 2007 in Victoria and had no real experience with open source at that time. I found it to be a very eye-opening and exciting experience, and I hope the same will be true for any first-time FOSS4G attendees in Denver.

We have some fun social events lined up, starting with the opening social at the Wynkoop Brewing Company, Colorado's first brewpub, which was founded by John Hickenlooper, who later went on to become Mayor of Denver and is now Governor of Colorado. Our main social event on Thursday night is at the spectacular Hamilton Building at the Denver Art Museum. And there are many excellent bars and restaurants within easy walking or free bus ride distance from the Sheraton.

If you are visiting from out of town, I hope you will also have time to see something of the beautiful scenery that Colorado offers within a short drive of Denver. If there is anything you need to help you get more out of FOSS4G, please don't hesitate to ask myself, a committee member, or one of the GITA staff.

Last but not least, I would like to thank the Local Organizing Committee, who are all volunteers, as well as the dedicated staff at GITA, for all the effort they have put into organizing FOSS4G. It takes a lot of work to put on an event of this size, and I very much appreciate all they have done to make it happen.

Peter Batty
FOSS4G Conference Chair
Ubisense

# A Note from the OSGeo Executive Director

On behalf of the Open Source Geospatial Foundation (OSGeo), I welcome you to our FOSS4G 2011 event! OSGeo turned five years old this year, and OSGeo has been running similar events from its inception. On an anniversary such as this, the excitement around the conference really is the icing on the cake. The breadth (and depth) of topics presented here is a clear reflection of where the industry is heading overall. But as you'll see, our speakers go beyond buzzwords and aim for practical implementation of technology.

Open source geospatial uptake has continued to grow and helped create some very innovative opportunities for more people to join in the OSGeo mission. There are even some signs that demand for OSGeo-based solutions may just be starting to outstrip existing resources. By attending FOSS4G, you get a firsthand look at those resources—companies, individuals, developers, software, volunteers—and with this letter, I invite you to join us in providing even more resources. Not only will you be engaged in a global community, but now we are paving the way for tomorrow's geospatial solutions.

This demand comes from those already working in the open source marketplace, and all types of developers are increasingly turning to the OSGeo stack because it is reliable enough to use behind their products and services. That's a good thing and reflects well on the quality of our projects. As this demand continues to grow, we hope events such as FOSS4G continue to encourage those providing services and solutions to keep growing as well.

While the final numbers for this year's attendance are not available at the time of this writing, the event is looking to be as popular as ever. The scope of the talks also rivals previous events; with nearly 300 presentation proposals submitted, fitting less than half that into the program was not easy. The Local Organizing Committee took on a lot of volunteer work to make the event possible, and I invite you to join me in thanking them for their dedication and focus on making the 2011 event a success.

The Geospatial Industry & Technology Association (GITA) also worked very closely with OSGeo and the FOSS4G local organizers to bring you the event you are experiencing this week. Thank you to the GITA staff for their diligent help.

As always, collaboration within the open source and geospatial communities has led us all here today. I wish you the best learning and networking experience ever. Welcome, and enjoy the event!

Sincerely,

Tyler Mitchell
Executive Director, OSGeo
tmitchell@osgeo.org

# The Local Organizing Committee

## Peter Batty, Conference Chair

Peter is vice president of geospatial technology at Ubisense. He has worked in the geospatial industry for 20 years and has served as chief technology officer for two leading companies in the industry (and two of the world's top 200 software companies), Intergraph and Smallworld (now part of GE Energy), as well as being a founder and chief technology officer of Ten Sails, which provided early-stage funding to and later merged with Ubisense. He serves on the advisory board of GeoIQ.

## Ben Tuttle, Workshop Committee

Ben is a Ph.D. student in the geography department at the University of Denver and a project scientist at the National Geospatial-Intelligence Agency. He has been a long-time user of geospatial open source software and finds many FOSS projects indispensable in his day-to-day work. He is a regular user of projects such as GDAL/OGR, MapServer, and the OpenGeo suite for building web tools to enable improved decision-making capabilities.

## Jeff McKenna, Workshop Committee

Jeff has been involved in every FOSS4G organizing committee since its inception, with a focus on the widely popular hands-on workshops at the events. A long-time MapServer user, Jeff operates a consulting company, Gateway Geomatics, located on the east coast of Canada, focusing on assisting organizations publish spatial information on the Internet.

## Chris Helm, Workshop Committee

Chris is a geospatial developer focused on analytics at GeoIQ. He recently joined them from the National Renewable Energy Laboratory and has extensive experience with a wide range of open source geospatial technologies.

## James Fee, Program Committee

James works for WeoGeo, helping people organize, share, and monetize their geo-content. He writes a popular blog, www.spatiallyadjusted.com.

## Tyler Erickson, Program Committee

Tyler is a research scientist at Michigan Tech Research Institute and adjunct assistant professor at the Department of Civil and Environmental Engineering at Michigan Technological University. His research interests include algorithm development for geostatistical analysis and designing Internet-based geospatial information systems. He had a winning entry in Google's KML in Research Competition.

## Matt Krusemark, Program Committee

Matt manages the information services group at the Denver Regional Council of Governments in Denver, Colorado. He has been in the geospatial industry for over 15 years, working in university research, private industry, and local and regional government. Matt's professional interests include collaborative technologies; enterprise-level database management; and web-mapping development, design, and usability.

## Brian Timoney, Introductory Event

Brian founded The Timoney Group in 2005 to focus on web-based delivery of visual information after a decade of applying his GIS skills in areas such as land development, environmental remediation, defense, and energy. Active in promoting the possibilities of web-mapping platforms in particular, Brian has presented at conferences such as Location Intelligence, Where 2.0, GIS in the Rockies, and Esri Petroleum User Group.

## Matt Ball, Media/PR

Prior to co-founding Vector1 Media, Matt was editor-in-chief of *GeoWorld Magazine* for seven years and managed all aspects of the GeoTec Event, Canada's largest geospatial-industry event. Before working in the geospatial-industry press, he was in charge of marketing and exhibit sales for the Geological Society of America's annual meeting. Matt writes and edits *V1 Magazine* and *Asian Surveying & Mapping*, blogs at Spatial Sustain, www.vector1media.com/spatialsustain, and can be found on Twitter @spatialsustain.

# The Local Organizing Committee

## Rafael Moreno-Sanchez, Academic Track

Rafael has a bachelor's degree in forestry from Chapingo Autonomous University in Mexico. He received his Ph.D. in natural resources administration from Colorado State University. He has research, teaching, and administrative experience, including working as a researcher for the National Institute of Forestry, Agricultural, and Livestock Research (INIFAP) in Mexico, director of the National Center for Disciplinary Research in Conservation and Improvement of Forest Ecosystems INIFAP (Mexico), post-doctoral fellow with the Organization of American States–SEMARNAP in collaboration with the University of Western Ontario. He has 16 years of experience as a full-time professor, teaching natural resources management, sustainable development, and geographic information science and technology, including web-geographic information systems. He is currently teaching and doing research in the Department of Geography and Environmental Sciences at the University of Colorado–Denver.

## Tyler Mitchell, OSGeo Executive Director

Tyler works as the executive director for OSGeo and is a charter member of The Open Source Geospatial Foundation. He has worked in the geospatial industry for 15 years and has been using open source geospatial software much of that time. While always on the lookout for innovative ways to apply new technology to old problems, he also runs the day-to-day operations of OSGeo.


OpenGeo supports clients worldwide with the OpenGeo Suite, a complete set of OGC-compliant open source components – PostGIS, GeoServer, GeoWebCache, OpenLayers, and GeoExt – enabling spatial data sharing, mapping, online editing, cloud solutions and more from a single, stable provider.

OpenGeo is committed to open source and many influential figures in geospatial FOSS communities are represented on our team. Our development and support efforts don't just leverage existing technologies, they improve upon the core open source projects used by everyone.

Come by **Booth #12** to meet the experts behind the OpenGeo Suite, see a demo, or learn about the exciting communities we're involved with.

OpenGeo

http://opengeo.org/ 1-877-OPENGEO

# Program at a Glance

## Sunday, September 11

| | |
|---|---|
| 3 pm – 5 pm | Registration desk open |

## Monday, September 12

| | |
|---|---|
| 7 am – 5 pm | Registration desk open |
| 8 am – 12 pm | Morning workshops |
| 12 pm – 1 pm | Lunch |
| 1 pm – 5 pm | Afternoon workshops |

## Tuesday, September 13

| | |
|---|---|
| 7 am – 5pm | Registration desk open |
| 9 am – 12 pm | Introductory event: Wading into Geospatial Open Source – Morning Session |
| 8 am – 12 pm | Morning workshops |
| 12 pm – 1 pm | Lunch |
| 1 pm – 4 pm | Introductory event: Wading into Geospatial Open Source – Afternoon Session |
| 1 pm – 5 pm | Afternoon workshops |
| 6 pm – 9 pm | Opening Social at Wynkoop Brewing Company |

## Wednesday, September 14

| | |
|---|---|
| 7:30 am – 6 pm | Registration desk open |
| 8:30 am – 9:30 am | Plenary session, welcome and opening events |
| 9:30 am – 6 pm | Exhibit hall open |
| 10 am – 11:30 am | Tutorials |
| 10 am – 10:30 am<br>10:30 am – 11 am<br>11 am – 11:30 am | Academic sessions and tech sessions |
| 11:30am – 1 pm | Lunch |
| 1 pm – 2:30 pm | Tutorials |
| 1 pm – 1:30 pm<br>1:30 pm – 2 pm<br>2 pm – 2:30 pm | Academic sessions and tech sessions |
| 3 pm – 4:30 pm | Tutorials |
| 3 pm – 3:30 pm<br>3:30 pm – 4 pm<br>4 pm – 4:30 pm | Academic sessions and tech sessions |
| 4:45 pm – 5:30 pm | Plenary session, afternoon wrap-up, and lightning talks |
| 5:30 pm – 8 pm | Exhibitor Reception |
| 5:30 pm – 8 pm | Poster sessions |
| 5:30 pm – 6:30 pm and<br>7 pm – 8pm | Birds of a Feather |

## Thursday, September 15

| | |
|---|---|
| 7:30 am – 6 pm | Registration desk open |
| 8:30 am – 9:30 am | Plenary session |
| 9:30 am – 6 pm | Exhibit hall open |
| 10 am – 11:30 am | Tutorials |
| 10 am – 10:30 am<br>10:30 am – 11 am<br>11 am – 11:30 am | Academic sessions and tech sessions |
| 11:30am – 1 pm | Lunch |
| 1 pm – 2:30 pm | Tutorials |
| 1 pm – 1:30 pm<br>1:30 pm – 2 pm<br>2 pm – 2:30 pm | Academic sessions and tech sessions |
| 3 pm – 4:30 pm | Tutorials |
| 3 pm – 3:30 pm<br>3:30 pm – 4 pm<br>4 pm – 4:30 pm | Academic sessions and tech sessions |
| 4:45 pm – 5:30 pm | Plenary session, afternoon wrap-up, and lightning talks |
| 6:30 pm – 9 pm | Gala dinner at Denver Art Museum |

## Friday, September 16

| | |
|---|---|
| 7:30 am – 12 pm | Registration desk open |
| 8:30 am – 9:30 am | Plenary session, panel discussion |
| 9:30 am – 1 pm | Exhibit hall open |
| 10 am – 11:30 am | Tutorials |
| 10 am – 10:30 am<br>10:30 am – 11 am<br>11 am – 11:30 am | Academic sessions and tech sessions |
| 11:30am – 1 pm | Lunch |
| 1 pm – 2:30 pm | Tutorials |
| 1 pm – 1:30 pm<br>1:30 pm – 2 pm<br>2 pm – 2:30 pm | Academic sessions and tech sessions |
| 2:45 pm – 3:45 pm | Plenary session, performance shootout, Sol Katz Award presentation, closing remarks |
| 4 pm – 5 pm | OSGeo Annual General Meeting |

# Welcome to Denver, Colorado!

## FOSS in the Area

Denver is the capital of the State of Colorado. The Colorado Front Range, comprised of the Denver-Aurora metropolitan area, Colorado Springs, Boulder, Longmont, Fort Collins, and others, is a recognized hub of geospatial research, development, and application. The Denver Federal Center is home to one of the largest U.S. Geological Survey mapping facilities and the cartographic offices of the National Park Service, Fish and Wildlife Service, and Bureau of Land Management. Major research centers are based in the Front Range, including the National Renewable Energy Laboratory, the National Snow and Ice Data Center, the National Oceanic and Atmospheric Administration, and the National Center for Atmospheric Research (major contributors to the Intergovernmental Panel on Climate Change Report, co-winner of the 2008 Nobel Peace Prize). This research focus even extends beyond the terrestrial with the University of Colorado's Laboratory for Atmospheric and Space Physics, creating FOSS tools used in studying the atmospheres of Mars and Venus.

## Fun Denver Facts

Denver is nestled at the foot of the Rocky Mountains and boasts approximately 300 days of sunshine each year. High temperatures in September average 79 degrees Fahrenheit—although it's not unusual to see a snow flurry followed by a warm, sunny day. The mild climate is partly because of the city's altitude, 5,280 feet above sea level—hence the nickname "The Mile-High City."

Denver is 153 years old. It's one of few cities in the world that was not settled near a body of water or transportation route. Rather, this was where prospectors heading west discovered gold in 1858. The first permanent structure in the city was a saloon, perhaps foretelling Denver's reputation as a fun place.

The city is home to a number of major-league sports teams including the Colorado Avalanche (hockey), Denver Broncos (football), Denver Nuggets (basketball), Colorado Rockies (baseball), Colorado Mammoth and Denver Outlaws (lacrosse), Denver Barbarians (rugby), and the reigning Major League Soccer champion Colorado Rapids.

The Denver Zoo and Denver Botanic Gardens are each among the top five in the country. The zoo features 3,500 animals, representing more than 685 species, including 157 that are classified as threatened or endangered. The Botanic Gardens has more than 32,000 plants, representing more than 2,000 species, including seven that are classified as endangered. The Denver Center for Performing Arts is second only to Lincoln Center in terms of theater seats and is the largest in the world under one roof with eight theaters.

# Get to Know the City and Your Fellow Attendees at Our Social Events

## Opening Social

**Tuesday, September 13, 6 pm–9 pm**

- Wynkoop Brewing Company, 1634 18th Street

The Wynkoop Brewing Company is the city's first brewpub. It opened in 1988 in a lower downtown building that was built in 1899, and now houses one of Denver's top pool halls in addition to brewing an array of award-winning beers. Join us for a game of billiards, enjoy a pint of Rail Yard Ale, and network with your colleagues at this Denver institution. You may even get a chance to test your skill against Melissa Little—a.k.a. The Viper—a world-ranked professional pool player who calls the Wynkoop her home field. Take the free 16th Street Mall shuttle west to Wynkoop Street, and find the brewery on the corner of 18th Street.

## Exhibitor Reception

**Wednesday, September 14, 6 pm–8 pm**

- Exhibit Hall, Sheraton Denver Downtown

Occurring concurrently with the poster sessions and the Birds of a Feather breakout sessions, this is your chance to get to know the exhibitors, their products, and the ways they may be integrated into your work. After the reception head to one of the wonderful local restaurants within walking distance of the hotel. Some wonderful choices include Cafe Berlin for German food, the modern American Row 14 Bistro, or Panzano for northern Italian fare.

## Gala Evening

**Thursday, September 15, 6:30 pm–9:30 pm**

- The Denver Art Museum, Hamilton Building, 13th Avenue between Broadway and Bannock

Please join us for a gala evening at the Hamilton Building, the newest wing of the Denver Art Museum, located within easy walking distance of the hotel, just across Colfax Avenue—the longest continuous street in the United States. Nearby, you'll also find the state capitol building, the U.S. Mint, the Central Denver Public Library, and a number of other interesting museums. The Hamilton Building was designed by Daniel Libeskind, an internationally recognized architect currently working on projects that range from the Memory Foundations complex planned for the World Trade Center site in New York City to the Dream Hub in the Yongsan International Business District in Seoul, South Korea, and an addition to his previously completed Jewish Museum in Berlin, Germany. During the evening, you'll get a chance to explore just a few of the museum's offerings, including the Western American art collection, one of the finest in the United States. In addition to this adventure, enjoy delicious fare from one of the city's top chefs, Kevin Taylor.

## Welcome and Introduction

**Wednesday, September 14, 8:30 am**

*Peter Batty, Conference Chair, Ubisense*

Peter is vice president of geospatial technology at Ubisense. He has worked in the geospatial industry for 20 years and has served as chief technology officer for two leading companies in the industry (and two of the world's top 200 software companies), Intergraph and Smallworld (now part of GE Energy), as well as being a founder and chief technology officer of Ten Sails, which provided early-stage funding to and later merged with Ubisense. He serves on the advisory board of GeoIQ. Peter will kick off the opening session with a welcome to the conference and will discuss his perspectives on open source and how the ex-CTO of two of the largest closed-source geospatial companies has come to be chairing FOSS4G!

## The State of OSGeo

**Wednesday, September 14, 8:50 am**

*Arnulf Christl, Metaspatial*

Arnulf Christl is a founding member and current president of OSGeo where he also contributes to several committees. He has worked as spatial systems architect since the late '90s, initially as a partner of the Siemens subsidiary GIS company SICAD. In 2003, he changed the business model of his company and started to advocate open source. Today, he provides open source geospatial consulting and agile project management for national mapping agencies through his business, Metaspatial. For many years, he has actively contributed to open standards and, more recently, promotes the adoption of linked open data—coming full circle with openness in all aspects. Open Source Geospatial Foundation was founded in 2006 with the vision to support the highest quality geospatial open source technology. Now, five years later, many goals have been achieved. OSGeo is an established and respected global organization with thousands of members on all continents sharing the same vision. A healthy ecosphere of businesses has emerged, supporting the organization through in-kind contributions and monetary sponsorship. OSGeo has built an excellent reputation as an independent voice for anything open source geospatial. The coming years will see more innovation and a growing diversity of software projects on one hand and solid maturity for reliable productivity on the other.

## Why Do You Do That? An Exploration of Open Source Business Models

**Wednesday, September 14, 9:10 am**

*Paul Ramsey, OpenGeo*

Paul is a geospatial architect at OpenGeo. He has been working with geospatial software for more than 10 years as a programmer and consultant. He founded the PostGIS spatial database project in 2001 and is currently an active developer and member of the project steering committee. In 2008, Paul received the Sol Katz Award for achievement in open source geospatial software. Paul speaks and teaches regularly at conferences around the world.

## Pivoting to Monetize Mobile Hyperlocal Social Gamification by Going Viral

**Wednesday, September 14, 5:15 pm**

*Schuyler Erle, SimpleGeo*

Schuyler is a long-time open source software developer and activist and a founding member of the OSGeo Foundation. Schuyler was a co-author of *Mapping Hacks: Tips and Tools for Digital Cartography*, one of the first books on the subject of digital cartography and GIS aimed at the mass market. Schuyler co-founded the OpenLayers and TileCache projects, two widely used components in the OSGeo software stack.

## Open Season: Open Standards, Open Source, and Open Data in Ordnance Survey

**Thursday, September 15, 8:30 am**

*Peter Ter Haar, Ordnance Survey*

Peter is director of products at Ordnance Survey, the UK national mapping agency. Peter is responsible for all aspects of product management, including product marketing, licensing, research, engineering, cartography, and supply. Peter has worked in both the public and private sectors in GIS, location-based services, and mobile technology. His previous roles include head of GIS for the city of Amsterdam and senior product and technical management roles at Geodan, Autodesk, and Intergraph. Peter has been the lead director at Ordnance Survey for the development of OS OpenData and is responsible for the open source activities of Ordnance Survey, the OS OpenSpace portal, and the standards activities with the Open Geospatial Consortium. Since April 2010, Ordnance Survey has made a range of mapping data, which previously it charged for, available for free to foster innovation and encourage government transparency. Anyone, from entrepreneurs and web developers to

ramblers, can download data from the OS OpenData service to help them build applications underpinned by geography. Postcode and administrative boundary data sets are among those freely available and have already been used in a variety of interesting and innovative ways. Ordnance Survey also offers free access to its mapping through the web mapping API OS OpenSpace, based on the open source OpenLayers framework. It is an easy way to get Ordnance Survey mapping embedded in a website or online application with the ability to plot routes, pan and zoom through mapping scales, and search via place names or postcodes. There is a web map builder service, which removes the need to write a single line of code. The final piece of the open innovation program is GeoVation, an initiative set up to provide seed funding for sustainable business ventures based on geography. First established in October 2009, GeoVation helps entrepreneurs and developers bring their map-based ideas to life by running themed challenges. The presentation will reflect on the first 18 months of OS OpenData and the effects of the innovation strategy on the geospatial industry in Great Britain. It will also reflect on the use of open source technology throughout Ordnance Survey and how contributions to open source and open standards are made.

## OpenStreetMap: The Mappers Map

**Thursday, September 15, 8:50 am**

*Steve Coast, Microsoft*

Steve is the founder of OpenStreetMap and CloudMade. In 2010, he left CloudMade to become principal architect at Microsoft's Bing Mobile. OpenStreetMap is the wiki map of the world made by people like you. As it passes its sixth year of helping the world map, OSM faces spectacular growth tied with large, new challenges. What does OSM have to do to ride the seas of change through 2012 and beyond? This talk will examine the past, present, and, most of all, future of the project.

## A New Way of Open Data

**Thursday, September 15, 9:10 am**

*Mike Byrne, GIO, U.S. Federal Communications Commission*

Mike is geographic information officer for the FCC. Everywhere we go, we want to know what's there. Open data are giving developers and data consumers new ways to describe and contextualize places. FCC.gov/Developer and the National Broadband Map are both examples of the new open data approach. Which groups or industries are doing this well? What components really make open data great? How does open data from government improve services for citizens? Architecturally, when we open data as a means of consuming simple nuggets of data—and the ones that are relevant to the end user, where they are, when they are—we actually add to the information ecosystem, rather than clog it. The old way of open data was the data clearinghouse, metadata files and ftp/download locations. The new way of open data is data consuming only what I need; tell me what is right here, right now. The National Broadband Map consumes lightly—only what the user needs—and is a reusable example of how to create new market opportunities from open data. The National Broadband Map was built on an entirely open source software stack and received 158,123,884 hits in its first 24 hours online!

## Adaptive Improvisation and the True Value of Open Source

**Thursday, September 15, 5:20 pm**

*Brian Timoney, The Timoney Group*

Brian founded The Timoney Group in 2005 to focus on web-based delivery of visual information after a decade of applying his GIS skills in areas such as land development, environmental remediation, defense, and energy. Active in promoting the possibilities of web-mapping platforms in particular, Brian has presented at conferences such as Location Intelligence, Where 2.0, GIS in the Rockies, and Esri Petroleum User Group. Since the last FOSS4G conference in North America in 2007, there has been a profound shift in how the value of open source software is perceived. No longer merely a "free" substitute for commercial equivalents, the open source model is highly valued as being particularly well suited for fast-moving, dynamic environments that move too quickly for commercial release cycles. From "hot" start-ups to the U.S. military, open source is now viewed as a key driver of innovative experimentation and rapid modification. We'll discuss how this reframing of the conversation bodes particularly well for the future of geospatial open source.

## Panel: Open x 4

**Friday, September 16, 8:30 am**

*Chaired by Matt Ball and featuring Arnulf Christl, Steve Coast, and Carl Reed*

*Matt Ball, Vector1 Media*

Prior to co-founding Vector1 Media, Matt was editor-in-chief of *GeoWorld Magazine* for seven years and managed all aspects of the GeoTec Event, Canada's largest geospatial-industry event. Before working in the geospatial-industry press, he was in charge of marketing and exhibit sales for the Geological Society of America's annual meeting. Matt writes and edits *V1 Magazine* and *Asian Surveying & Mapping*, blogs at Spatial Sustain, www.vector1media.com/spatialsustain, and can be found on Twitter @spatialsustain. Matt will moderate Friday's panel discussion. Open x 4 equals open source, maps, data, and standards. This panel takes advantage of the proximity of events

that include State of the Map (the OpenStreetMap conference), FOSS4G, and the Open Geospatial Consortium technical meeting in Boulder with the addition of an open government data advocate. The idea is to discuss the benefits of open collaboration across all of these areas with themes on collaboration, transparency, common cause, and complex problem solving.

*Carl Reed, OGC*

Dr. Carl Reed is the chief technology officer at the Open Geospatial Consortium. Before joining the OGC, he was vice president of geospatial marketing at Intergraph, and before that, he had served as chief technology officer for Genasys II worldwide.

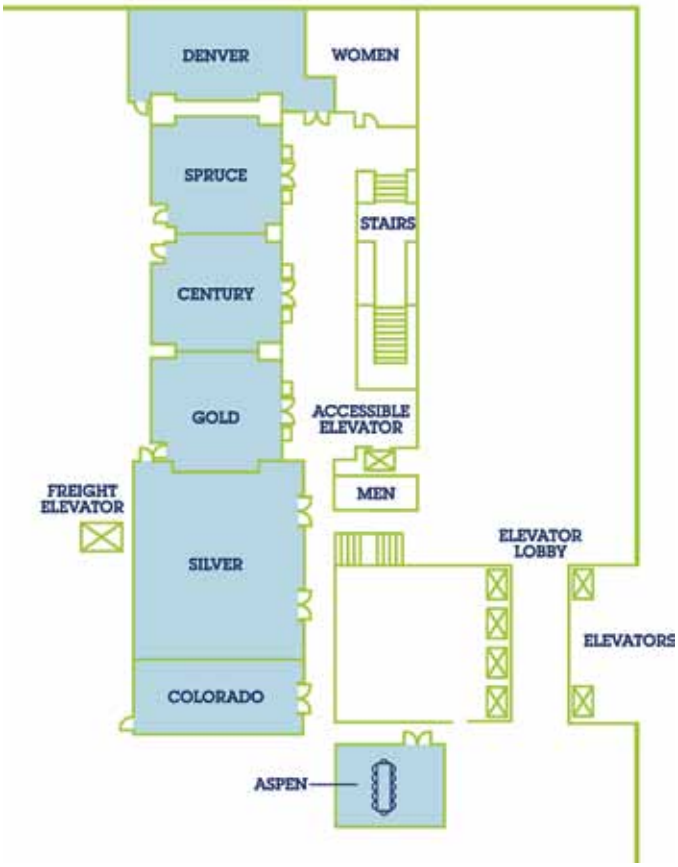
## Web Mapping Performance Shootout

**Friday, September 16, 2:50 pm**

*Jeff McKenna, Gateway Geomatics*

Jeff has his own company, Gateway Geomatics, focused on open source geospatial software. Jeff is on the board of OSGeo, is a MapServer project steering committee member, and is chair of the OSGeo conference committee. This is the latest installment in an annual series of benchmarks and presentations that pit open source and other web mapping servers against one another in a suite of performance tests based on the WMS standard. Participating teams include Cadcorp GeognoSIS, Constellation-SDI, GeoServer, Mapnik, MapServer, Oracle MapViewer, and QGIS Server. Please check the wiki page http://wiki.osgeo.org/wiki/Benchmarking_2011 for more info.

## I.M. Pei Tower

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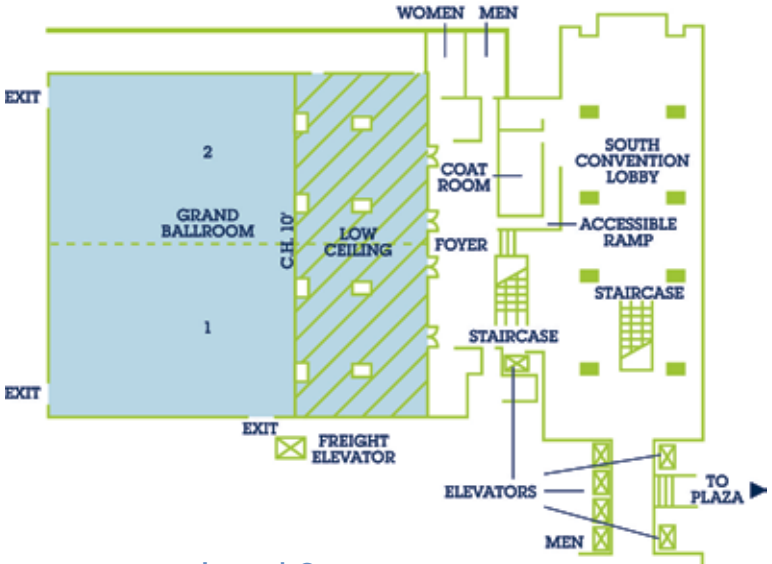


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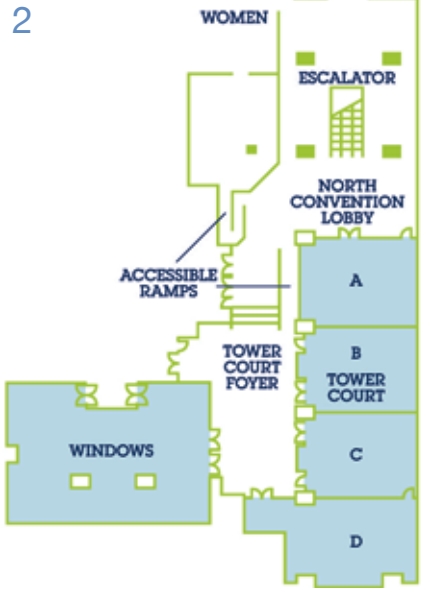

# Additional Plenary Sessions | Plenary sessions will take place in the Grand Ballroom.

## Lightning Talks

**Wednesday, September 14, 4:50 pm**
***Five talks in five minutes—start your engines!***

*Mike Pumphrey:* Why Your Product Sucks

*Jonathan Harahush:* Sharing Data with Drupal, GeoServer, and OpenLayers

*Dr. Tyler Erickson:* PyKML: A Pretty Pristine Package Promoting a Pythonic Path for Programmatically Producing, Playing with, Publishing, and Parsing Particularly Prickly KML

*Vincent Picavet:* Rumble: Communicate with Your Elephant!

*Muhammad Atif Butt* and *Dr. Songnian Li*: Open Source–based Online Map Sharing to Support Real-time Collaboration

## Birds of a Feather

**Wednesday, September 14,**
**5:30 pm – 6:30 pm and 7 pm – 8pm**

On Wednesday, directly after the regular program finishes, conference rooms will be available to hold breakout sessions (a.k.a. Birds of a Feather sessions). This is an unstructured time slot when people can self-organize into groups that share a common interest. For example, you might possibly join or create a breakout session on open data or for a specific FOSS4G software such as MapServer. It is up to you and the attendees. Be sure to check out the breakout session wiki page (http://wiki.osgeo.org/wiki/FOSS4G_2011_Breakout_Sessions) and either sign up for a session or create your own!

## Lightning Talks

**Thursday, September 15, 4:50 pm**
***Five talks in five minutes—start your engines!***

*Brian Timoney:* Rich Mapping without Tiles or Plugins: Thematic Cartography with Raphael.js

*Trevor Clarke* and *Kip Streithorst*: Accelerating Remote Sensing Visualization with WebGL

*Matt Krusemark*: Managers, Start Your FOSS Engines!

*Arthur Endsley*: Real-time, Web-based Satellite Tracking

*Olivier Courtin*: WFS and SQL Injection

## Sol Katz Award Presentation

**Friday, September 16, 3:20 pm**

The Sol Katz Award for Geospatial Free and Open Source Software (GFOSS) is awarded annually by OSGeo 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.

Solomon Stuart Katz, a.k.a. Sol, was born in Sweden in 1947 and moved to New York 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 U.S. 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 New York where he got his bachelor's degree in geology in two and a half years. He married his wife, Hedy, in 1969 and went back to Brooklyn College while teaching in the New York public schools and got his MA, also in geology. After several years working for the U.S. Bureau of Land Management in several states, he settled down in Lakewood, Colorado, and decided to go back to school at the University of Denver in computer science and earned a second master's degree. 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 was easily 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.

Sol 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 '80s, 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 went on to release and maintain PC MOSS. He was also one of the first involved in public data translator utilities. Utilities 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 collection of GIS utilities at the BLM is still available at ftp://ftp.blm.gov/pub/gis/. His legacy still lives on in the GFOSS world.

## OSGeo Annual General Meeting

**Friday, September 16, 4 pm**

The annual general meeting for OSGeo includes brief presentations and open floor discussions for all OSGeo members and visitors to participate in. Attend to discuss OSGeo's direction in the upcoming years, meet your board of directors, and continue networking. For more information (or to add your ideas to the agenda) please head to the AGM wiki page http://wiki.osgeo.org/wiki/Annual_General_Meeting_2011.

# Workshops

## Monday, September 12, 8 am – 12 pm

### Introduction to the Humanitarian OpenStreetMap Team

*Presenter: Kate Chapman, Humanitarian OpenStreetMap Team*

- Room: Tower Court A

The Humanitarian OpenStreetMap Team (HOT) utilizes OpenStreetMap for humanitarian response and economic development. Right now, there is a need to build trainer capacity within HOT, and one of the ways we aim to accomplish this is through workshops which show our process. When we work in a country on the ground, we educate those living and working there as to how to contribute data to OpenStreetMap and to utilize the information. This is a program that begins with basic data collection, then editing in OpenStreetMap, and finally, extracting the data utilizing PostGIS and Quantum GIS to create mapping products. This workshop will go through the "HOT process," so interested individuals can learn what we do and potentially become volunteers. The actual content of the workshop will start with data collection utilizing Walking Papers and GPS units. Then, participants will learn how to use JOSM to add the data they have collected into OpenStreetMap. Finally, we will review ways to pull data from OpenStreetMap to use in data analysis or creation of printed map products. This workshop is beneficial to both those unfamiliar with OpenStreetMap editing and those who are well versed in it. Beginners will learn the basics of how OpenStreetMap works when applied to humanitarian response. Current OpenStreetMap contributors will learn the specifics of the HOT data model and the collection materials we have developed specifically for the environments we work in.

### Developing Custom Apps in C# Using DotSpatial: A New Open Source Library from the OSGeo DotNet Community

*Presenter: Dan Ames, Idaho State University*

- Room: Tower Court B

This workshop will include a live demo and hands-on instruction introducing GIS developers at all levels to the new DotSpatial .NET libraries, which can be used to add GIS capabilities to any custom software application developed in Mono or the .NET Framework. DotSpatial includes an extensible set of plug-in interfaces and inheritable classes for data manipulation, visualization, and geoprocessing and builds on NetTopologySuite, GDAL, and a powerful extensibility architecture included in the Microsoft .NET 4.0 Framework. DotSpatial is currently being used as a GIS engine for a number of proprietary and open source desktop applications and is unique in that it can be compiled under Mono for non-Microsoft platforms and for handheld computers running Windows Mobile and for ASP.NET web development efforts. Anyone interested in participating in or learning about this project is encouraged to attend. In particular, anyone developing for the Windows platform using .NET should find this workshop very interesting (maybe even a little exciting). Indeed, the workshop targets end-user developers who want to build custom GIS-enabled applications.

### Introduction to Geomajas

*Presenter: Pieter De Graef, Geosparc*

- Room: Tower Court C

As the field of web GIS becomes more and more saturated, it becomes increasingly difficult to choose the correct technologies to meet our needs. This workshop will show you how to set up an attractive and user-friendly web GIS application capable of working with thousands of vector objects on a map. The goal of this workshop will be twofold: to demonstrate the ease of creating your first Geomajas application and to display how to handle very large data sets without having to turn to WMS to keep the performance at an acceptable level. The main technology used in this workshop is a client-server framework called Geomajas. The focus of Geomajas is to provide a platform for server-side integration of geospatial data, allowing multiple users to control and manage the data from within their own browsers. By leveraging Google Web Toolkit, Geomajas provides a full Java approach to build end-to-end solutions for the web. In this workshop, we will effectively start from scratch. Within mere seconds, you will have your first application up and running. From there, we will start adding layers and basic functionalities through configuration. All configuration in Geomajas is provided through a series of XML files, the manipulation of which is the subject of this workshop. As the main topic, a very large data set will be used to configure a vector layer within the application. Using Geomajas, you will learn how it is possible to edit, select, search, and more on data sets so large that other web GIS technologies can't handle them anymore. In the end, each user will have learned how to quickly set up a stunning web GIS application capable of handling thousands of vector objects while keeping the same performance level as thick clients.

### MapFish in Production

*Presenter: Eric Lemoine, Camptocamp*

- Room: Tower Court D

This workshop will present best practices, methods, tools, and tips for using the MapFish web framework in production contexts. We will show how to structure a MapFish application and organize its companion libraries, including, but not limited to, OpenLayers, GeoExt, GeoAlchemy, and Shapely. We will also show how to set up and use tools for the development, deployment, and building of the application. We will demonstrate how to secure application-specific, tile-caching, and OGC services. Finally, we will describe how to create administration interfaces with FormAlchemy and its geographical extension, GeoFormAlchemy. Performance considerations will be discussed throughout the workshop. Previous workshops showed what MapFish was and provided—while this workshop will focus on how to develop, and set up—real-life MapFish applications for production. The target audience for this workshop is web developers and project managers willing to know how to efficiently take advantage of MapFish.

### Introduction to PostGIS

*Presenters: Paul Ramsey, OpenGeo; Sam Smith*

- Room: Windows

Learn the basics of the most popular open source spatial database around. What is a spatial database? How do you load data into it? What is spatial SQL? How do you do analysis inside the database? This workshop covers all that and more. Basic concepts, data loading, spatial SQL, analysis queries, validity, geography type, and vector data are all covered. This workshop will not cover raster data. This workshop is suitable for any semi-technical person with some knowledge of the SQL query language.

### GeoNetwork for Dummies, or How to Set Up and Use an SDI in 3 Hours

*Presenter: Jeroen Ticheler, GeoCat*

- Room: Silver

This workshop will focus on the implementation of a GeoNetwork open source–based catalog to serve and access geospatial data in a spatial data infrastructure. A local catalog will be installed and configured. Harvesting of spatial data resources from remote servers will be configured, and geospatial web map services will be set up using the embedded GeoServer and configured for access through the catalog web interface. Participants will create INSPIRE compliant metadata and learn how to develop and use custom metadata templates based on the ISO 19115/19119 metadata standards. Participants will learn to use the various different interfaces that GeoNetwork offers, such as the GUI web interface and the OGC CSW/ISO interface. Integration of proprietary and open source software will be demonstrated. For that, GeoCat Bridge will be used to create metadata and map services in GeoNetwork open source and GeoServer directly from Esri ArcGIS desktop software. Attention will also be given to other import and export functionality of the catalog that allows integration of the publishing process in existing workflows.

## Monday, September 12, 1 pm – 5 pm

### FOSS4G Workshop for Educators

*Presenter: Kurt Menke, GISP, Central New Mexico Community College and the GeoTech Center*

- Room: Tower Court A

The GeoTech Center and Central New Mexico Community College have created a complete course curriculum based on free and open source software for GIS (FOSS4G). The class has been taught successfully and is now incorporated as a for-credit class. This workshop will demonstrate the FOSS4G software and lesson materials available for educators to use in their classroom immediately. Participants will learn the fundamentals of software download, installation, and use. Sources of geodata for class topics will be presented and solutions to your classroom needs discussed in an interactive conversation. If you have been interested in teaching a FOSS4G course but didn't know where to start or where to find curriculum material and lesson plans, this workshop is for you. Regardless of your discipline or program, the workshop can demonstrate how FOSS4G software can help your students get a competitive advantage in geospatial technology for their career in the workplace or the classroom. If you train employees for small government agencies or employers struggling with tight IT budgets and limited resources, FOSS4G allows your graduates to have the skills needed to help businesses and organizations put GIS technology into the hands of their employees and customers. Workshop will be taught at the introductory level with individualized attention from our trainers to maximize your time with the hands-on experience with the software applications.

### The Moose Is Loose, Mapping with GeoMOOSE

*Presenter: Bob Basques, City of Saint Paul*

- Room: Tower Court B

GeoMOOSE (www.geomoose.org) is the open source, web-based GIS project started by the city of Saint Paul. It is a very extensible client framework for MapServer and adheres strongly to a service-orientated architecture and configurability. GeoMOOSE has a number of strengths, making it ideal for use in a number of varying environments. Most notable are its capabilities for data organization and administration on the back end, which enables GIS system administrators to distribute the data maintenance and management to the data owners. It also easily integrates with both tabular and spatially based data web services. This workshop will introduce GeoMOOSE, the client interface, as well as cover installation and configuration of the GeoMOOSE client for services with MapServer. Some advanced topics will be discussed as they come up, but the session is intended to, first and foremost, convey the ease with which GeoMOOSE can be installed and configured for the typical user and/or administrator who wants to operate his or her own mapping service and/or distribute the maintenance aspects of the GIS publication effort. Advance topics may include interface customization, cartography of map layers, adding data layers, and configuring both GeoMOOSE and external services. The workshop will be presented using exercises to present the individual topics. Students are encouraged to bring their own laptop to class for installation of the service. Windows, Linux, and Mac installs can be accommodated.

### FOSS4G Routing with pgRouting Tools, OpenStreetMap Road Data, and GeoExt

*Presenter: Daniel Kastl, Georepublic*

- Room: Tower Court C

pgRouting adds routing functionality to PostGIS. This introductory workshop will show you how. It gives a practical example of how to use pgRouting with OpenStreetMap road network data. It explains the steps to prepare the data, make routing queries, assign costs, and use GeoExt to show your route in a web-mapping application. Navigation for

road networks requires complex routing algorithms that support turn restrictions and even time-dependent attributes. pgRouting is an extendable open source library that provides a variety of tools for the shortest path search as an extension of PostgreSQL and PostGIS. The workshop will explain about a shortest path search with pgRouting in real road networks and how the data structure is important to get faster results. Also, you will learn about the difficulties and limitations of pgRouting in GIS applications. To give a practical example, the workshop makes use of OpenStreetMap data in Denver. You will learn how to convert the data into the required format and how to calibrate the data with cost attributes. Furthermore, we will explain the difference of the main routing algorithms Dijkstra's, A*, and Shooting-Star. By the end of the workshop, you will have a good understanding of how to use pgRouting and how to get your network data prepared. To learn how to get the output from rows and columns to be drawn on a map, we will build a basic map GUI with GeoExt. We listened to the students' feedback from last year and want to guide you through the basic steps to build a simple browser application. Our goal is to make this as easy as possible and to show that it's not difficult to integrate with other FOSS4G tools. For that reason, we selected GeoExt, which is a JavaScript library providing the groundwork for creating web-mapping applications based on OpenLayers and Ext.

## Web Mapping with GeoServer

*Presenter: Mike Pumphrey, OpenGeo*

- Room: Tower Court D

Learn how to load, publish, and share geospatial data with GeoServer. Topics include navigating the GeoServer user interface, loading and publishing data, OGC web services, styling data with SLD, and tile caching with integrated GeoWebCache.

## OpenLayers Application Development

*Presenter: Tim Schaub, OpenGeo*

- Room: Windows

OpenLayers provides a full-featured library for building browser-based mapping applications. This workshop will guide participants through the library core, providing the experience necessary to build interactive mapping applications. We will cover best practices for dealing with a variety of raster and vector data sources, investigate client-side styling, and discuss options for integrating OpenLayers with other JavaScript libraries (e.g., jQuery UI, Ext JS, and Sencha Touch). The workshop will contain introductory material to get new users oriented, and it will include more advanced topics to keep more experienced users happy. Workshop presenters will guide participants through exercises in five modules. Each of these modules will include additional advanced topics for those who are able to work ahead of the presenters. Map basics: understand how maps are created and configured. Layer types: add data to your map from a variety of sources. User interaction: set up controls to manage user interaction. Editing and styling: focusing on vector data, read data from remote sources, allow for creation and editing of new data, and explore options for styling data client side. Integration: OpenLayers provides the mapping core for your application. Build rich widgets with mapping functionality by integrating OpenLayers with other JavaScript libraries. The modules will be presented by core OpenLayers developers who will be available for support throughout the workshop. Participants will be guided through exercises that result in working examples of a wide range of OpenLayers functionality. Printed materials will be provided that demonstrate advanced concepts in addition to workshop exercises. This year's workshop will cover newly added features to the library and will include a new section on mobile browser application development.

## GeoKettle: A Powerful Spatial ETL Tool for Feeding Your Spatial Data Infrastructure

*Presenter: Thierry Badard, Spatialytics*

- Room: Silver

A full-fledged spatial data infrastructure (SDI) enables dissemination of data and processes in an interoperable way through standardized web services such as WFS, WMS, SOS, and WPS. Data and processes are cataloged in a CSW, which is used as an entry point for the infrastructure. Feeding and updating such a spatial infrastructure is a repetitive and very time-consuming task. An open source spatial ETL tool, such as GeoKettle (www.geokettle.org), can help in automating numerous complex and repetitive everyday duties that an SDI administrator has to complete. It also avoids delivering data with poor quality as it is possible to perform advanced geoprocessing, data cleansing, and error correction in such a tool. This workshop proposes to explore, in a practical manner, all the areas where GeoKettle could be useful for automatically feeding and updating an SDI. Thus, after a short intro to the fundamental concepts and the features provided by this ETL tool, attendees will learn and experiment with the ways in which is it possible with GeoKettle to 1) grab some data from various and heterogeneous sources, such as GIS files, spatial DBMS, web services (WFS, SOS, etc.), and social networks and transform them in order to feed their SDI with value-added and error-prone data. Exercises will rely on PostGIS, GeoServer, and the 52North SOS service, 2) automatically retrieve some metadata about these different data sources for use and dissemination in a catalog service, such as GeoNetwork, 3) easily expose some ETL transformations as true web processing services in order to disseminate advanced online geoprocessing capabilities through their SDI. Exercises will use the 52North WPS service. At the end, attendees should have a working knowledge of GeoKettle and should be able to design advanced geospatial data transformations in order to automate numerous loading and updating tasks in their SDI.

## Tuesday, September 13, 8 am – 12 pm

### Interactive Space-time Dynamics: A Hands-on Introduction to i2maps

*Presenter: Christian Kaiser, National Centre for Geocomputation*

- Room: Tower Court A

The objective of this workshop is to provide an overview and give a practical introduction to i2maps, an open source geocomputation platform. i2maps provides a flexible framework for knowledge discovery from spatiotemporal data and web-oriented visualization, providing a means to enable your data to speak for themselves. It consists of two libraries, one written in JavaScript and one written in Python. The JavaScript library is used for building the interactive user interface and is built on top of OpenLayers. The Python library consists of a server-based API for linking data sources and spatiotemporal analysis modules to the JavaScript library and is built around the GeoDjango framework. This workshop will work through the process of setting up a complete i2maps project, involving setting up the data sources, linking the input data to a customized spatial analysis method, and providing the results as an interactive map/timeline in a web browser. After the workshop, each participant should have a broad overview of the i2maps architecture and the skills required to build a simple project of their own. The first step of the workshop will focus on setting up spatial data storage and accessing this data using the i2maps framework, displaying the data as an interactive map. In the second step, the spatial data will be plugged into a modeling module (for example, a spatial interpolation algorithm) to provide the results of the analysis or prediction model as an interactive visualization. Finally, a temporal dimension will be integrated into the model and visualization, allowing the user to explore the data and results in both space and time. During the workshop, participants will have the opportunity to work with their own data or to reproduce one of the i2maps demo examples, such as a weather information system or Twitter activity monitor. More information on i2maps is available at http://ncg.nuim.ie/i2maps and https://github.com/NCG/i2maps.

### Getting Started with MapServer

*Presenter: Jeff McKenna, Gateway Geomatics*

- Room: Tower Court B

This hands-on workshop is intended as an introduction to web mapping with the MapServer open source software project (www.mapserver.org). The participants will go through the process of setting up a MapServer environment, which includes configuring a web server and creating a MapServer application. The creation of a MapServer application will include step-by-step examples of building a map file, including defining the web object, the layer objects, and assigning symbology to these objects. Once a map file is created, the participants will then go through the process of creating a web-based interface.

### New Features for QGIS Power Users

*Presenter: Pirmin Kalberer, Sourcepole*

- Room: Tower Court C

This workshop covers the most important features introduced during the latest releases such as advanced labeling, raster calculator, new symbology features, WFS-T support, etc. Recently added plug-ins for versioning, offline editing, routing (Road Graph plug-in) and useful plug-ins such as GDAL raster tools, UMN Mapfile tools, and OpenLayers are presented as well. A hands-on introduction for publishing maps using QGIS mapserver with advanced features such as PDF printing is also part of this workshop.

### Leveraging Mapnik for Designing Custom Map Tiles and Scalable Applications

*Presenters: Dane Springmeyer, Development Seed; Iván Sánchez Ortega*

- Room: Tower Court D

This workshop will introduce the use of Mapnik for designing beautiful custom cartography. Instruction will be very hands-on. Fully preinstalled software running within Ubuntu on VirtualBox will be provided to allow participants to move directly to step-by-step demos and exercises. Core topics will include the following:

- How to use CSS styling for rapidly authoring style sheets
- How GDAL/OGR and Quantum GIS can be used to prep data for Mapnik
- How to hook Mapnik up to PostGIS with a focus on rendering live-updating OpenStreetMap data
- How to display your tiles in Polymaps and OpenLayers
- How vector tiles from Mapnik can be used for clickable map elements

Throughout the workshop, examples will highlight issues involved in the real-world design of applications using Mapnik such as www.openstreetmap.org, http://mapbox.com, http://open.mapquest.com, and http://developer.geoiq.com/tools/acetate and how scripting languages such as Python and Node.js/JavaScript are being used to scale up for modern mapping problems.

### Developing OGC Compliant Web Applications with GeoExt

*Presenter: Andreas Hocevar, OpenGeo*

- Room: Windows

GeoExt is a pure JavaScript library combining the web mapping power of OpenLayers with the user interface and data access savvy of Ext JS. Starting from a simple “Hello, World” map, participants will learn how to build an advanced web GIS application for browsing layers, showing them in a map and editing their feature geometries and attributes. The whole application will be built using typical OGC services–based workflows. The first part covers the interaction with a web mapping service (WMS). Using GetCapabilities, we will

load a list of available layers. From this list, we can add layers to the map where they will be displayed using GetMap requests. We will also handle clicks on the map to give us an info pop-up showing the result of a GetFeatureInfo request. To get familiar with user interface components, we will manage the map's layers in a tree. This part concludes with optional tasks to include legends from GetLegendGraphic requests and a selection box for available layer styles. The second part introduces feature editing with transactional web feature services (WFS-T). Using GetFeature requests, we will load geometries and feature attributes, so we can present them in a table grid for attribute editing and on the map for geometry editing. Changes can be persisted on the server using WFS-T transactions. Optional tasks for advanced users include linking between WMS and WFS using WMS DescribeLayer requests and the auto-creation of the grid with column information from WFS DescribeFeatureType. The workshop concludes with a showcase of GeoExt-based applications that are in production on the web. Participants should have basic programming skills and JavaScript knowledge. The tasks can be accomplished by copying code snippets from the online training materials to the application script, but understanding user interface configuration objects and event handlers will guarantee a pleasant workshop experience.

### Opening Data with GeoNode

*Presenters: David Winslow, OpenGeo; Jeff Johnson*

- Room: Silver

In this workshop, participants will learn how to deploy a full open geospatial data infrastructure with GeoNode. GeoNode was started by the World Bank and OpenGeo to provide a web 2.0 social layer on top of traditional 'spatial data infrastructure' (SDI) technology. It builds upon a complete stack of open source software, including GeoServer, OpenLayers, GeoExt, GeoWebCache, PostGIS, GeoNetwork, and Django to provide full OGC web services with deep permissioning controls. GeoNode is designed around the philosophy that the strongest and most flexible infrastructure is built bottom-up. The vitality of any open data project depends on the engagement of your data's users and responsiveness to their needs. GeoNode is an open data solution that puts the user at the center. Anyone can upload data, create a map, style it with advanced cartographic rules, and share it with the world—all completely through the web. It can be a complete data solution by providing advanced security, so organizations and groups can collaborate internally with the same tools before they open their data to all. In this workshop, we will deploy a GeoNode, customize it for a particular use, and explore all of its advanced features. Participants will then be able to return home and deploy an instant open data infrastructure. Topics will include user registration and management; cartography; data upload and management; and map publishing, federation, and editing.

## Tuesday, September 13, 1 pm – 5 pm

### Practical Introduction to the ZOO Project and WPS Services Development

*Presenter: Gérald Fenoy, GeoLabs SARL*

- Room: Tower Court A

The ZOO Project is an open source software that provides a WPS-compliant and developer-friendly framework to easily create and chain OGC web services. ZOO is made of three parts. ZOO Kernel is a powerful server-side C Kernel that makes it possible to manage and chain web services coded in different programming languages. ZOO Services is a growing suite of example web services based on various open source libraries, and ZOO API is a server-side JavaScript API able to call and chain the ZOO Services, which makes the development and chaining processes easier. ZOO Project will first be presented, along with some technical ramblings on the WPS implementation. In this workshop, participants will first learn how to compile and install ZOO Kernel and to get a WPS server running in several simple steps. Then, they will learn how to develop simple GDAL/OGR-based WPS services using Python language through different programming exercises. A ready-to-use OpenLayers client will be used to interact with WPS services. Finally, participants will learn how to chain the different created WPS services using the server-side JavaScript ZOO API. After this workshop, participants will be able to get ZOO running and to create new web services using existing FOSS4G libs.

### Practical Use of GeoServer and SLD for WMS

*Presenter: Anders Söderman, GISassistANS AB*

- Room: Tower Court B

This workshop offers hands-on experience to learn methods for visualization enhancement in multisource web mapping services (WMS) using basic cartography rules. Web mapping is the ultimate platform to discover, explore, share, and create content by combining distributed information and services. Combining different geodata sources may result in conflicting presentation styles and, consequently, in confusing maps. The disadvantages can be reduced by using basic rules for web cartography. A web service can be presented with a different cartography that is appropriate for the scope, e.g., crisis management or comprehensive planning. Many web map services use solid, one pixel–thick lines, which often are horizontal, vertical, or diagonal. If the distance between lines and choice of color is inappropriate, the interpretation is hampered significantly when different surfaces with similar patterning overlap. One promising alternative is using map symbols in order to render polygons instead. Map icons are selected that can easily be associated with the surface theme, e.g., the panda for the restricted areas due to environmental protection. Styles used in today's WMS rarely adapt styles for different scales, which is often needed.

PostgreSQL/PostGIS, GeoServer, QGIS, and Inkscape are the tools used to produce styles using SLD. The workshop includes the following for example:

- How to make the size of map symbols take into account the area of the polygon to be rendered when using up to seven different scale intervals
- How to customize map styles depending on user needs and thematic web map services
- Labeling text from available attributes for lines and polygons
- Saving SLDs in an HTML table using a PostgreSQL and PHP to quickly find information

Using pictures to show the SLD together with a basemap gives an instant feel when looking for a style to copy and edit to make a new style. The participants should leave the workshop understanding that a combination of geodata should be able to interpret without having to examine the legend in detail.

## Customizing QGIS with Python Plug-ins

*Presenters: Greg Corradini, CUGOS; Aaron Racicot, Z-Pulley*

- Room: Tower Court C

QGIS provides a lot of out-of-the-box functionality, but it seems there is always another "nice to have" feature. Writing your own plug-in is a good way to supplement your QGIS toolbox and have some fun doing it. QGIS supports plug-ins written in both C++ and Python. This workshop will dive into the process, techniques, and methods for customizing QGIS using Python plug-ins. Creating a plug-in requires a bit of knowledge about QGIS architecture, the Qt toolkit, PyQt, and, of course, Python. The workshop will begin by taking a look at plug-ins in QGIS—how they are installed, managed, and loaded. This is key in undertaking development and understanding the core concepts needed to build a plug-in that will actually load and do something useful. Moving forward, we jump right in by creating a simple plug-in using the PluginBuilder to generate a working template. We will customize the user interface using Qt Designer, compile it using PyQt tools, and connect up the user interface elements. Once we have some working code, we will test the loading, functionality, and unloading of the plug-in. Some techniques for debugging will also be discussed. An important part of plug-in development is deployment. In order to install your plug-in via the Python Plugin Installer, it must be properly packaged. We will take a look at naming, packaging, and adding your plug-in to the QGIS repository. We'll also take a brief look at setting up your own repository. To wrap up, we'll examine the resources available to you as a plug-in developer, including the details of the QGIS Contributed Repository and the hub where you can create a shared copy of your code and allow your users to submit enhancement requests, report bugs, and submit patches. For this workshop, you will need to have some background in Python; however, extensive experience is not required.

## A Complete Open Source Web Mapping Stack

*Presenters: Sam Smith, OpenGeo; Alyssa Wright; Ian Schneider*

- Room: Tower Court D

This workshop will overview a complete web mapping stack, utilizing all open source components. The stack will include the following:

- PostGIS (database)
- GeoServer (map/data server)
- GeoWebCache (tile cache server)
- OpenLayers (mapping client)
- GeoExt (application toolkit)

## There's JavaScript in Your Backend: Front to Back JavaScript with Node.js and Polymaps

*Presenter: Chris Helm, FortiusOne*

- Room: Windows

While using JavaScript for building web-based mapping applications is nothing new; recently an increasing number of developers have been using JavaScript for server-side application development. This means JavaScript is being used for more than just making front-end user interfaces, and developers can develop full-application stacks in a single language. Additionally, there are several JavaScript frameworks that are currently changing the way geospatial applications are being developed on the front end with respect to HTML5. This workshop will be a hands-on introduction to all things JavaScript for advanced geospatial developers. Attendees will learn how to deploy an application and perform a variety of geospatial tasks within the Node.js framework. They will also develop a front-end mapping application with the Polymaps framework and explore new ways of exchanging data between clients and servers. Attendees should be familiar with building JavaScript-based applications (think OpenLayers) and be comfortable within a Linux server environment.

## Deploying Map Services in Amazon Web Services

*Presenter: Sophia Parafina, Terrametrics*

- Room: Silver

This workshop takes participants from deploying GeoServer on Amazon Web Services to building an autoscaling, load-balancing cluster. The workshop emphasizes the use of scripted recipes and the Amazon Web Services architecture.

## Tuesday, September 13, 9 am – 12 pm, 1 pm – 4 pm

### An Introduction to Geospatial Open Source

- Room: Grand Ballroom

"Everything you wanted to know about open source geospatial but were afraid to ask." This daylong event right before FOSS4G will provide a broad introduction to the world of geospatial open source from the ground up. Free and open source geospatial software has matured in recent years and is being used by a wide range of commercial and government organizations for many mission-critical applications. If your organization is paying for geospatial software/GIS, and you haven't yet evaluated whether open source software has a role to play, you owe it to yourself and your organization to attend this event and find out more.

We'll address common questions and misconceptions about open source software, including the following:

- Is the software really free? (Yes)
- Do its capabilities really compare with closed-source software that I pay money for? (Yes)
- Can I get support for it? (Yes)
- Can it work together with my existing closed-source software? (Yes)

The event is mainly targeted at users, developers, and managers involved with geospatial software/GIS who haven't yet had significant involvement with open source, but it will provide a good overview for anyone interested in learning more about geospatial open source.

The day will work equally as a stand-alone event or as a way of getting up to speed to get the most out of the subsequent FOSS4G conference, which will provide three more days when you can get into much more detail, hear about more projects, and meet the leading developers and companies working in open source geospatial.

### Morning Session: Wading into Geospatial Open Source

*Presenters: Peter Batty, Ubisense; Geoff Zeiss, Autodesk; Mike Byrne, Federal Communications Commission; Arnulf Christl, OSGeo*

From desktop to server to core library, we'll take you on an enjoyably informative tour of the rich, diverse world of open source geospatial software. And yes, we'll provide a cheat sheet of acronyms, so you'll be able to decode the otherwise opaque references you may sometimes hear in conversations on this topic. We'll specifically touch on the following:

- What is open source and why?
- Desktop, database, server, web: a tour of open source geo projects
- Code libraries and the algorithms "under the hood" that make it all work
- Is this all really "free as in beer"? What are the licensing rules of the road?
- Business issues relating to open source: licensing, support, integration

### Afternoon Session: Case Studies and the Business of Open Source

*Presenters: Frank Warmerdam, Google; Tobin Bradley, Mecklenburg County, NC; Matt Krusemark, DRCOG; Paul Ramsey, OpenGeo; Dale Lutz, Safe Software; Dennis Wuthrich, Farallon Geographics; Andrew Turner, GeoIQ*

Now that you have the lay of the land from the morning session, we'll cover some case studies and discuss the question of geospatial open source as a business proposition. First, we'll have a number of case studies from end users of geospatial open source who'll talk about the applications they are running and the benefits to their organizations. Then, we'll talk about how companies make money in this space. From consulting to software development to geo-aware information platforms, we will have a panel of those for whom open source forms a core part of their business models. They'll discuss both the positives and pitfalls, as well as how they see the future role of open source in the burgeoning market of location-aware applications. With an emphasis on lively interactivity, we'll have a Twitter back-channel setup to field questions from the audience, ensuring your most pressing questions get straight answers.

## Wednesday, September, 14, 10 am – 11:30 am

### Async. and Real-time Geo Applications with Node.js

*Presenter: Kashif Rasul, Nomad Labs*

- Room: Century

Node.js is a library built on Google's V8 JavaScript engine, which does non-blocking evented I/O via the libeio library. V8 is incredibly fast—much faster than Ruby/Python—and can be used to create web applications that can handle thousands of concurrent connections and real-time data. This tutorial will go through the process of creating an asynchronous and real-time geospatial web app using the Node.js JavaScript server and bindings for the geostack. At the end of this tutorial, we will have built a web application that can handle multiple client connections and a RESTful API to push data to persistant storage such as PostGIS, SpatiaLite, or MongoDB. The web application will allow multiple clients to be notified of updates posted in real time using the API we built. The real-time communication will be achieved using the HTML5 WebSocket client and server API written in JavaScript. The workshop is aimed at people who wish to learn more about real-time, non-blocking geospatial web services and applications. We will also provide some insight into possible hosting of such web applications.

### A Spatial Wiki from the Ground-Up

*Presenters: Brian Krzys, Newmont Mining Corporation; Michael Barker; Morgan Davison; Frank Potempa*

- Room: Tower Court A

Wiki and spatial tools make a powerful combination for building and maintaining location-based knowledge. The workshop will present a complete exercise, building a spatial wiki from the ground up hosted on an Amazon EC2 instance using 100% free and open source tools, including Ubuntu, MediaWiki, Apache, GeoServer, OpenLayers, and PostGIS. Articles in the wiki will be spatially enabled, and discoverable via the wiki's built-in search capabilities or a clickable map index. Spatial reference(s) will be maintained in a back-end spatial database and updated dynamically via markup in the article itself. GeoServer will be used to serve the spatial data and presented in the wiki articles using OpenLayers with background data from OpenStreetMap, Google Maps, Bing, or similar. Relevant MediaWiki extensions, server-side scripts, and other "enablers" will be made available as part of the workshop but will not be covered in detail. Attendees can expect to depart the course with their own fully operational spatial wiki along with a basic knowledge of a variety of excellent free and open source tools. Requirements:

- A computer capable of remotely administering an Amazon EC2 instance via SSH or similar (Linux and Mac PCs are fine or a Windows PC with PuTTY or equivalent)
- A valid Amazon Web Services account to create an EC2 instance to be used in the class
- A rudimentary knowledge of Linux administration and tools such as vi is desirable but not absolutely required.

## Wednesday, September, 14, 1 pm – 2:30 pm

### GeoServer Scripting with Python and RESTConfig

*Presenter: David Winslow, OpenGeo*

- Room: Century

GeoServer's RESTConfig service is commonly used to automatically publish geospatial data to GeoServer's OGC services. However, RESTConfig allows reading and writing nearly all aspects of a GeoServer configuration. Participants in this tutorial will learn about the GeoServer configuration system, basic REST requests, and the usage of gsconfig.py, a Python module that allows using the simple but powerful Python scripting language with RESTConfig to automate administrative tasks.

### Building Fast, Flexible, and Secured WMS/TMS Services with MapProxy

*Presenter: Oliver Tonnhofer, Omniscale GmbH and Co KG*

- Room: Tower Court A

MapProxy is an open source proxy for geospatial data. It caches, accelerates, and transforms data from existing map services and serves any desktop or web GIS client. MapProxy offers tiled services similar to TileCache and GeoWebCache, but it offers a lot more functionality for systems that goes beyond a simple tile cache. This tutorial shows the installation and the basic configuration of MapProxy. Attendees will learn how to set up a cascaded WMS service that supports on-the-fly reprojection, LegendGraphic and FeatureInfo requests, and XSL transformation of FeatureInfo responses; limit WMS sources to polygon boundaries; configure tile caches and use these in OpenLayers or any regular WMS client; fill the cache with the advanced seeding tool; and extend services with flexible authentication and authorization. Attendees can follow the tutorial instructions and test the configuration with a local test WMS server from the presenter.

## Wednesday, September, 14, 3 pm–4:30 pm

### PyWPS

*Presenter: Jachym Cepicky, Help Service, Remote Sensing*

- Room: Century

PyWPS is a Python implementation of OGC's WPS 1.0.0 protocol on the server side. PyWPS development started in 2006 and was first presented at FOSS4G 2006 at Lausanne. Originally, it was written with direct support for GRASS GIS modules; however, it is not limited to GRASS only. Any sort of GIS functionality written in Python will be served as a WPS. PyWPS distribution does not include any processes by default. The user has to program his or her custom ones and add them to a PyWPS instance. The tutorial will start by focusing on installation and configuration of PyWPS on the server, how to construct custom WPS processes with help of GRASS GIS, GDAL/OGR, R, and Shapely to deploy custom process into a PyWPS instance. The first part will conclude with examples covering basic logging while the process is running and debugging of non-working processes. The second part will be web-oriented,

presenting PyWPS's JavaScript-based WPS client (using OpenLayers web mapping library), which is able to parse Capabilities and ProcessDescription documents from a WPS server, generating an HTML form for input data. After submitting the form with all inputs set, the Execute operation on given data is then requested, and the final response will be displayed on the map. To conclude the tutorial, special features of PyWPS will be demonstrated, such as running PyWPS in a Java environment, using Jython as a Python interpreter and Apache Tomcat as the server. PyWPS, together with UMN MapServer, will make data outputs from PyWPS to be accessed using standard OGC OWS services from the client, so the resulting maps can be, for example, downloaded with OGC WCS to a local disc or displayed in a mapping application with OGC WMS directly. Service orchestration will be demonstrated and explained using PyWPS's WSDL process interface using Taverna Workbench. Finally, a special focus will be given to the new WPS-GRASS-bridge interface that allows easy porting of GRASS processes into PyWPS and integration into the QGIS WPS plug-in.

### Getting Started with MapWindow: An Easy-to-Install, Easy-to-Use Open Source GIS for Windows

*Presenter: Dan Ames, Idaho State University*

- Room: Tower Court A

MapWindow GIS (www.mapwindow.org) is a widely used free and open source GIS for the Microsoft Windows operating system. With an easy-to-use installer and a number of plug-ins for geoprocessing, data manipulation, and visualization, MapWindow receives more than 6,000 downloads per month and has a large global user base. This workshop will target new/novice GIS users needing a simple GIS for Windows. Developers interested in building custom plug-ins for MapWindow may also find this workshop useful as basic concepts of plug-in construction and deployment using VB.NET and C# programming languages will also be discussed. Attendees will learn how to create maps with shapefile and raster data, how to edit and manipulate shape and attribute data, and how to use a number of plug-ins for geoprocessing. A copy of the e-book A Practical Look at MapWindow, which includes several introductory exercises, will be supplied to attendees.

## Thursday, September, 15, 10 am – 11:30 am

### Map Caching with GeoWebCache

*Presenter: Gabriel Roldán, OpenGeo*

- Room: Century

GeoWebCache is a free and open source Java web application used to cache map tiles coming from a variety of sources such as OGC Web Map Service (WMS). It implements various service interfaces (such as WMS-C, WMTS, TMS, Google Maps KML, and Virtual Earth) and a tile caching mechanism in order to accelerate and optimize map image delivery. It can also recombine tiles to work with regular WMS clients, and can serve tiles directly from an ArcGIS Server cache. This hands-on tutorial will discuss the basic GeoWebCache features, including architecture, layer configuration, caching options, back-end configuration and optimization, tile expiration, seeding and truncating, disk quotas, REST API, and more. It is intended for GIS professionals and system administrators who wish to optimize their map serving infrastructure. Previous GeoWebCache experience is not required.

### Introduction to MapGuide Open Source

*Presenter: Gordon Luckett, Arrow Geomatics*

- Room: Tower Court A

This class is for those who want to fast-track into installing and using MapGuide Open Source. MapGuide Open Source server and web extensions are set up in the workshop (Windows). MapGuide Maestro (Windows) is used to load and connect to GIS data, create layers, author maps, and publish websites.

Objectives: After completing this guide, you will be able to do the following:

- Install and configure MapGuide server on Microsoft Windows
- Describe the MapGuide server, web extensions and Studio system
- Use MapGuide Maestro to load data, build layers, create maps, and establish a web layout
- Create and customize flexible and basic web layouts
- Connect PHPReports to a web layout
- Explore OpenLayers connectivity.

## Thursday, September, 15, 1 pm – 2:30 pm

### Integration of OpenStreetMap into ArcGIS

*Presenter: Thomas Emge, Esri*

- Room: Century

This tutorial will go over the workflow of integrating the OpenStreetMap (OSM) data into the ArcGIS desktop product and the use of the ArcGIS desktop product to edit the data and synchronize the local edits with the OpenStreetMap server. The tutorial will include the steps of installing the ArcGIS Editor for OpenStreetMap extension, an overview of ArcMap, and how to use the ArcGIS desktop products for beginners. Next, we will cover how to download a data extract from OSM into ArcMap and how to make local edits to the data. For power users, we will spend some time showing advanced editing tools that can be used in ArcMap to improve the editing experience and take a look behind the scenes of mapping the OpenStreetMap data into the geodatabase. Finally, we will show how to upload the data changes back to the central OpenStreetMap repository. We will discuss the parts of this open source extension to ArcGIS and the opportunity for the community to shape the future direction of the tool set. This tutorial is intended for beginners and advanced users and will include tips and tricks for either users to understand how to use those tools to their level, from a simple edit to a very complete advanced editing experience.

## Thursday, September, 15, 3 pm–4:30 pm

### Working with GeoScript

*Presenters: Tim Schaub, OpenGeo; Justin Deoliveira, OpenGeo*

- Room: Century

GeoScript adds spatial capabilities to dynamic scripting languages. With implementations in Python, JavaScript, Scala, and Groovy, GeoScript provides access to the powerful geospatial data access, processing, and rendering functionality of GeoTools. This hands-on tutorial will guide participants through the GeoScript API with paired exercises in JavaScript and Python covering the following topics: Geoprocessing: This exercise will cover the basics of geoprocessing with GeoScript. We'll cover coordinate reference system transforms, geometry operations, and feature queries. Data juggling: GeoScript allows you to read and write feature data in a variety of formats. This exercise will cover reading and writing from shapefiles, converting shapefiles to PostGIS tables, and processing on the fly while converting formats. Mapping services: Using a simple web framework in conjunction with GeoScript, it is possible to write custom geospatial services. In these exercises, we'll write a simple web mapping service (OGC WMS), a service to provide access to feature data, and a geoprocessing service. This tutorial is intended for developers with experience in one of the GeoScript languages. Tutorial participants will be able to follow along with the GeoScript exercises on their own machines. All participants will go home with a solid overview of the GeoScript API and an understanding of how it provides simple scripting access to powerful processing, data access, and map rendering functionality.

## Friday, September, 16, 10 am – 11:30 am

### Open/Collaborative Real-time Analytics through the Web

*Presenter: Tim Waters, FortiusOne*

- Room: Century

As governments and other entities continue to release more varied types and quantities of data, having tools to make sense of that data and turn it into information becomes increasingly important. Analysis does not have to be the realm of experts, though. The GeoCommons community allows anyone to both share his or her analysis and build upon the analysis of others. By utilizing an open interface to analysis and methods, anyone can both add data to perform analysis and retrieve results. By creating a data analysis history, answers can be come to more quickly and expanded on to both verify and specify previous conclusions. In this workshop, we will go through the basics of geographic analysis through the web, combing both static and real-time data. Functions will include both geoprocessing and statistical analysis. Participants will learn how to use the building blocks of analysis and then chain them together to do more complex tasks. They will then learn how to publish those results so others can interpret them or create their own results. The goal will be to take large, complex datasets and break them down into a format where they can provide meaningful answers. This workshop is aimed at those without experience in data analysis or those who have a more traditional background in it. Those without experience will become more familiar with correlations and creating meaningful maps. Those with more traditional experience will learn how to collaborate with different levels of data experience to build complex community answers to large problems.

## Friday, September, 16, 1 pm–2:30 pm

### User-Friendly Web Processing Services (WPS): No Programming Needed

*Presenter: Bastian Schaeffer, 52North*

- Room: Century

Spatial data infrastructures have evolved from concepts to reality in the last decade. However, they are still focused on data retrieval and visualization. To proceed in the direction of a true spatial information infrastructure, it is necessary to take the processing of geodata into account. The OGC Web Processing Service (WPS) Interface is the most promising standard to address geoprocessing in a standardized manner. Several free and open source WPS implementations exist. However, a common requirement to use most of them is a deep technical knowledge in terms of programming or at least low-level configuration in various technical files. User-friendly configurations or even out-of-the-box usage of a wide variety of geoprocessing functionality is not supported yet in most cases. This tutorial shows how the 52North WPS can be used in a user-friendly way without the need for any deep technical knowledge or low-level configuration. After an introduction to the field of web-based geoprocessing, it will be shown in a live demonstration:

- WPS installation via an installer
- Visual selection of WPS processes from a large set of available processes coming from the FOSS GIS packages GRASS, SEXTANTE, ILWIS, and R.
- Execution of processes via OpenLayers
- Storage of results in a WMS/WFS

No programming, XML, Python, or other deeper technical skills are needed. Furthermore, it will be shown how WPS can be visually chained and re-exposed as WPS processes. This will be demonstrated with a real-use case from the UncertWeb project. A scientific model will be created, which also takes uncertainty into account as a future aspect in geoprocessing. It will be shown how errors can be propagated through model computations and uncertainties quantified and communicated.

# Tech and Academic Sessions | Wednesday, September 14

*Tech and Academic Sessions subject to change*

## 10 am – 10:30 am

**Geomajas, a GIS Framework for the Web** — Tech Session
*Presenter: Joachim Van der Auwera, Geosparc* — Room: Tower Court B

**Beyond Markers: A New Approach to Interactive, Real-time Weather Maps** — Tech Session
*Presenters: Fergal Walsh, National Centre for Geocomputation, NUI Maynooth; Dr. Christian Kaiser* — Room: Tower Court C

**HydroAnalyzer: An Open Source GIS Toolkit for Mining Hydrological Data** — Tech Session
*Presenters: Yang Cao, Idaho State University; Daniel Ames* — Room: Tower Court D

**State of PostGIS** — Tech Session
*Presenter: Paul Ramsey, OpenGeo* — Room: Windows

**A Better Way to Manage Millions of Map Tiles** — Tech Session
*Presenter: Oliver Tonnhofer, Omniscale* — Room: Silver

**Designing a Better SDI** — Tech Session
*Presenters: Sebastian Benthall, OpenGeo; Rolando Peñate* — Room: Denver

**Who's Watching Your Food: A Case Study for Environmental Health Monitoring** — Academic Session
*Presenters: Stacy Supak, North Carolina State University; Dr. Laura Tateosian* — Room: Spruce

## 10:30 am – 11 am

**gvSIG Mini Support for OSM Massive POI Data** — Tech Session
*Presenters: Jorge Gaspar Sanz Salinas, Prodevelop; Alberto Romeu Carrasco* — Room: Tower Court B

**Bringing the Oceans to Life Using OGC Services and Dynamic Visualization** — Tech Session
*Presenters: Kyle Wilcox, Applied Science Associates; Stephen Sontag* — Room: Tower Court C

**Thresholds of Proprietary Software Tolerance ... (Open Source on Windows?!)** — Tech Session
*Presenter: Daniel Ames, Idaho State University* — Room: Tower Court D

**Mod-Geocache, a Fast Tiling Solution for the Apache Web Server** — Tech Session
*Presenters: Thomas Bonfort, Terriscope; Stephen Woodbridge* — Room: Silver

**MapMint: The Next Generation SDI Manager** — Tech Session
*Presenters: Jeff McKenna, Gateway Geomatics; Nicolas Bozon* — Room: Denver

**Developing Enterprise Applications for Utilities Using Open Source and Google Maps** — Tech Session
*Presenters: Jason Sanford, Ubisense; Peter Batty* — Room: Windows

**Modeling of Landslide-Generated Tsunamis with GRASS** — Academic Session
*Presenters: Dr. Massimiliano Cannata, SUPSI-IST; Roberto Marzocchi* — Room: Spruce

## 11 am – 11:30 am

**Mobile GIS through Geomajas** — Tech Session
*Presenter: Pieter De Graef, Geosparc* — Room: Tower Court B

**MapQuery and SVG Charts: A Powerful Interface for Aggregated Data** — Tech Session
*Presenter: Steven Ottens, Geodan* — Room: Tower Court C

**Esri and Open Source: Moving to the Middle** — Tech Session
*Presenter: Victoria Kouyoumjian, Esri* — Room: Tower Court D

**From Oracle/SDE to PostgreSQL/PostGIS in Real Life** — Tech Session
*Presenter: Lars Aksel Opsahl, Skog og landskap* — Room: Windows

**Turning Data into Beautiful Maps** — Tech Session
*Presenter: Tom MacWright, Development Seed* — Room: Silver

**GeoNetwork Opensource: The Geospatial Metadata Catalog** — Tech Session
*Presenter: Jeroen Ticheler, GeoCat BV* — Room: Denver

**Functional Coverages** — Academic Session
*Presenters: Gennadii Donchyts, Deltares; Fedor Baart* — Room: Spruce

## 1 pm – 1:30 pm

**OpenStreetMap for Network Analyses in ArcGIS** — Tech Session
*Presenters: Eva Peters, 52North* — Room: Tower Court B

**Opticks: Releasing a Government Tool to the Open Source Community** — Tech Session
*Presenters: Trevor Clarke, Opticks; Kip Streithorst, Ball Aerospace & Technologies Corp.* — Room: Tower Court C

**Common Pitfalls for Users of OpenLayers** — Tech Session
*Presenter: Marc Jansen, Terrestris GmbH & Co. KG* — Room: Tower Court D

**The State of GeoServer** — Tech Session
*Presenters: Justin Deoliveira, OpenGeo; Andrea Aime, GeoSolutions* — Room: Windows

**GRASS GIS in the Cloud** — Tech Session
*Presenters: Luca Delucchi, Fondazione Edmund Mach; Dr. Markus Neteler* — Room: Silver

**Open Source 3D Globes: osgEarth** — Tech Session
*Presenter: Glenn Waldron, Pelican Mapping* — Room: Denver

**Advancing Global Marine Biogeography Research with Open Source GIS Software and Cloud Computing** — Academic Session
*Presenters: Jesse Cleary, Duke University; Ei Fujioka* — Room: Spruce

## 1:30 pm – 2 pm

**Mixing It Up with OpenLayers, ArcGIS Server, and JavaScript Widgets** — Tech Session
*Presenters: Allan Glen, City and County of Denver; David Youngerman* — Room: Tower Court B

**Managing Large Amounts of U.S. Army Imagery Data: Recommendations for Improving FOSS4G Imagery Solutions** — Tech Session
*Presenter: Kristofor Carle, Syncadd Systems* — Room: Tower Court C

**Social Networks on OpenLayers** — Tech Session
*Presenters: Jorge Sanz, Prodevelop; Vicente Sanjaime* — Room: Tower Court D

**GeoServer on Steroids** — Tech Session
*Presenters: Simone Giannecchini, GeoSolutions; Andrea Aime, GeoSolutions* — Room: Windows

**Quantum GIS & Inkscape: Cartographic Tools for Attractive Maps** — Tech Session
*Presenter: Michele Tobias, University of California, Davis* — Room: Silver

**3D Globes Advanced Visualization** — Tech Session
*Presenters: Diego Gomez Deck, IGO Software; Manuel De la Calle, IGO Software* — Room: Denver

**Earth Observation Scientific Workflows in a Distributed Computing Environment** — Academic Session
*Presenter: Dr. Terence L van Zyl* — Room: Spruce

## 2 pm – 2:30 pm

**Use of Google Fusion Tables for a Public Foodplain Interface** — Tech Session
*Presenter: Bruce Rindahl, Ventura County Watershed Protection District* — Room: Tower Court B

**Open Source Geospatial Software Powering Department of Defense Installation and Environment Business Systems** — Tech Session
*Presenter: Joel Schlagel, U.S. Army Corps of Engineers* — Room: Tower Court C

**Shortest Path Search for Real Road Networks with pgRouting** — Tech Session
*Presenters: Daniel Kastl, Georepublic; Anton Patrushev* — Room: Tower Court D

**Advanced Cartographic Map Rendering in GeoServer** — Tech Session
*Presenters: Andrea Aime, GeoSolutions; Simone Giannecchini, GeoSolutions* — Room: Windows

**QGIS in an Academic Library: A Case Study** — Tech Session
*Presenter: Frank Donnelly, Baruch College CUNY* — Room: Silver

**Glob3 Mobile: A Framework for Virtual Globe Development in iOD and Android Mobile Devices** — Tech Session
*Presenters: Manuel de la Calle, iGO Software; Agustin Trujillo* — Room: Denver

**Critical Analysis of the WFS Transactional** — Academic Session
*Presenters: Jorge Rocha, Universidade do Minho; José Silva* — Room: Spruce

## 3 pm – 3:30 pm

**Introducing GXP: Web Mapping Made Easy** — Tech Session
*Presenter: Bart van den Eijnden, OpenGeo* — Room: Tower Court B

**The National Geospatial-Intelligence Agency OSS Challenge** — Tech Session
*Presenters: Mark Lucas, RadiantBlue Technologies; Bert Beaulieu; Polly Shaffer* — Room: Tower Court C

**Raster Data in GeoServer and GeoTools: Achievements, Issues and Future Developments** — Tech Session
*Presenters: Simone Giannecchini, GeoSolutions; Daniele Romagnoli* — Room: Tower Court D

**QGIS, What's New?** — Tech Session
*Presenter: Pirmin Kalberer, Sourcepole* — Room: Windows

**The MapServer Project Stack** — Tech Session
*Presenters: Yewondwossen Assefa, DM Solutions Group; Julien-Samuel Lacroix, Mapgears* — Room: Silver

**OpenStreetMap and INSPIRE: Can the Twain Meet?** — Tech Session
*Presenter: Just van den Broecke, Just Objects* — Room: Denver

**An Open Source Mapping Application for Hatchery Release Data in the Columbia River Basin** — Academic Session
*Presenter: Lynnae Sutton, Fish Passage Center* — Room: Spruce

## 3:30 pm–4 pm

**Opticks: Overview of an Open Source ELT** — Tech Session
*Presenters: Kip Streithorst, Ball Aerospace & Technologies Corp.; Trevor Clarke* — Room: Tower Court B

**The GEO Data Portal: A Spatial Data Infrastructure for Integration of Geographic and Atmospheric** — Tech Session
*Presenters: Tom C. Kunicki, U.S. Geological Survey Center for Integrated Data Analytics; David L. Blodgett* — Room: Tower Court C

**GeoScript: Spatial Capabilities for Scripting Languages** — Tech Session
*Presenters: Justin Deoliveira, OpenGeo; Jared Erickson* — Room: Tower Court D

**Efficiently Using PostGIS with QGIS** — Tech Session
*Presenter: Vincent Picavet, Oslandia* — Room: Windows

**Introduction to Open Source Web Mapping: Beyond Google Maps** — Tech Session
*Presenter: Julien-Samuel Lacroix, Mapgears* — Room: Silver

**Coping with INSPIRE View Services: A FOSS4G Compliancy Comparison** — Tech Session
*Presenter: Tom Ellett von Brasch, Statens Kartverk* — Room: Denver

**The WISERD GeoPortal: A Tool for the Discovery of Socioeconomic Research Data in Wales** — Academic Session
*Presenters: Dr. Richard Fry, WISERD, University of Glamorgan, Cardiff University; Dr. Robert Berry* — Room: Spruce

## 4 pm – 4:30 pm

**CartoSet: A New FOSS to Create Highly Visual GeoPortals** — Tech Session
*Presenter: Javier de la Torre, Vizzuality* — Room: Tower Court B

**Spatial Data Access Tool: Enabling Visualization of and Access to Geospatial Data using OGC Standards and Open Source Software** — Tech Session
*Presenters: Yaxing Wei, Oak Ridge National Laboratory; Suresh SanthanaVannan* — Room: Tower Court C

**Scripting GeoServer with GeoScript** — Tech Session
*Presenters: Justin Deoliveira, OpenGeo; Tim Schaub, OpenGeo* — Room: Tower Court D

**Publishing Maps from the Desktop with QGIS Server** — Tech Session
*Presenter: Pirmin Kalberer, Sourcepole* — Room: Windows

**MapServer and OGC Web Services in Real Life and Saving Lives** — Tech Session
*Presenter: Daniel Morissette, Mapgears* — Room: Silver

**Authentication and Authorization Management to OGC Services with GeoShield: Introducing the GeoServer Resource Access Manager Plug-in and SOS Protection** — Tech Session
*Presenters: Milan Antonovic, Institute of Earth Sciences, SUPSI-IST; Dr. Massimiliano Cannata, SUPSI-IST* — Room: Denver

**Using GRASS GIS to Calculate Potential Global Solar Irradiation Using Canopy Heights as a Base Elevation Layer to Assist in the Landscape Scale Characterization of Aquatic Habitats** — Academic Session
*Presenter: Doug Newcomb, Department of Interior–U.S. Fish and Wildlife Service* — Room: Spruce

## 10 am – 10:30 am

**Overcoming Open Source and Proprietary Data Interoperability Challenges** — Tech Session
*Presenter: Dale Lutz, Safe Software* — Room: Tower Court B

**Defining a GIS: Essential GIS Functions from Users** — Tech Session
*Presenters: Anderson Sandes, Geoscience Department, Idaho State University; Dr. Daniel Ames, Idaho State University* — Room: Tower Court C

**Processing Chains with OGC Web Processing Services to Process Satellite Data Interactively in a GeoPortal** — Tech Session
*Presenters: Jonas Eberle, Friedrich-Schiller-University Jena; Dr. Christian Strobl* — Room: Tower Court D

**OpenAerialMap: Free Imagery for the World** — Tech Session
*Presenter: Schuyler Erle, SimpleGeo* — Room: Windows

**MapServer Project Status Report** — Tech Session
*Presenters: Steve Lime, MapServer PSC; Daniel Morissette, Mapgears* — Room: Silver

**Introducing DotSpatial: An Open Source .NET GIS Framework** — Tech Session
*Presenters: Matthew Klein, Idaho State University; Dr. Daniel Ames* — Room: Denver

**Using GRASS and R for Landscape Regionalization through PAM Cluster Analysis** — Academic Session
*Presenter: Allan Hollander, University of California, Davis* — Room: Spruce

## 10:30 am–11 am

**What About the Commercialization of Open Source Geospatial Solutions** — Tech Session
*Presenter: Luc Vaillancourt, Spatialytics* — Room: Tower Court B

**Crowdsourcing Aerial Image Mapping with MapMill.org and Cartagen Knitter** — Tech Session
*Presenters: Jeffrey Warren, Public Laboratory; Adam Griffith, Public Laboratory* — Room: Tower Court C

**Enhancing the Use of Python in GIS and Remote Sensing** — Tech Session
*Presenter: Nathan Jennings, American River College/Opticks* — Room: Tower Court D

**OpenLayers Mobile** — Tech Session
*Presenters: Tim Schaub, OpenGeo; Eric Lemoine, Camptocamp* — Room: Windows

**Status of the GeoTools Project** — Tech Session
*Presenters: Jody Garnett, OSGeo; Andrea Aime, GeoSolutions* — Room: Silver

**A Geospatial Data Viewer Using OpenLayers and Local File System Data** — Tech Session
*Presenter: Gary Senseman, Colorado State University* — Room: Denver

**Dynamic Earth in GRASS7** — Academic Session
*Presenters: Dr. Helena Mitasova, North Carolina State University; Eric Hardin* — Room: Spruce

## 11 am–11:30 am

From Project to Product to Open Source: Now What? — Tech Session
*Presenter: Christine White, Esri* — Room: Tower Court B

Applying the Open GeoStack to Web-enabled Things — Tech Session
*Presenters: Arne Bröring, 52North; Damian Lasnia* — Room: Tower Court C

GeoCell: A New OSSIM Application — Tech Session
*Presenters: Mark Lucas, RadiantBlue; Garrett Potts, RadiantBlue* — Room: Tower Court D

WebGL Earth: Open Source 3D Digital Globe for Web and Mobile Devices — Tech Session
*Presenters: Petr Pridal, Klokan Technologies; Petr Sloup* — Room: Windows

Enhanced Support of OGC's Web Coverage Service (WCS) in MapServer 6.0 — Tech Session
*Presenters: Stephan Meissl, EOX IT Services GmbH (S. Meissl, F. Schindler); Frank Warmerdam* — Room: Silver

Documenting Your Open Source Project with Sphinx — Tech Session
*Presenters: Howard Butler, Hobu; Jeff McKenna, Gateway Geomatics* — Room: Denver

GIS-Based Calibration of MassMov2D — Academic Session
*Presenters: Monia Molinari, Institute of Earth Sciences–SUPSI; Dr. Massimiliano Cannata* — Room: Spruce

## 1 pm–1:30 pm

Developing an Open Source Geospatial Solution for the Telecommunications Industry — Tech Session
*Presenters: Scott Stewart, NBT Solutions; Sean Myers* — Room: Tower Court B

Case Study: Disaster Response in the Gulf of Mexico–ERMA — Tech Session
*Presenters: Aaron Racicot, Z-Pulley; Chander Ganesan* — Room: Tower Court C

LiDAR Point Cloud Processing with libPC and libLAS — Tech Session
*Presenters: Howard Butler, Hobu; Michael Gerlek* — Room: Tower Court D

User-Friendly Open Source WPS — Tech Session
*Presenter: Bastian Schaeffer, 52North* — Room: Windows

Techniques for Distributed High-Speed Map Tile Generation Using Mapnik and Node.js — Tech Session
*Presenters: Simon Tokumine, Vizzuality; Javier De La Torre* — Room: Silver

Build Your Own Open Source Virtual Globe with the OpenWebGlobe SDK — Tech Session
*Presenters: Tom Payne, Camptocamp; Emmanuel Belo* — Room: Denver

Implementation, Challenges and Future Directions of Integrating Services from the GIS and Decision Science Domains: A Case of Distributed Spatial Multicriteria Evaluation — Academic Session
*Presenters: Dr. Luc Boerboom, Geo-Information Science and Earth Observation of the University of Twente; Ozgun Alan* — Room: Spruce

## 1:30 pm–2 pm

Securing GIS Data — Tech Session
*Presenter: Joachim Van der Auwera, Geosparc* — Room: Tower Court B

Case Study Fukushima: Open Source Data Discovery in Disaster Management — Tech Session
*Presenters: David Neufeld, CIRES/NOAA; Rich Signell* — Room: Tower Court C

Open Source LiDAR Visualization Using GRASS GIS — Tech Session
*Presenter: Shane Grigsby, University of Colorado, University of Santa Barbara* — Room: Tower Court D

PyWPS — Tech Session
*Presenters: Jachym Cepicky, Help Service–Remote Sensing; Premysl Wohnout* — Room: Windows

Mapnik2GeoTools — Tech Session
*Presenters: David Winslow, OpenGeo; Alyssa Wright* — Room: Silver

A Web-based PostGIS Educational Tool — Tech Session
*Presenter: Javier Morales, University of Twente, Geo-Information Sciences (ITC)* — Room: Denver

Open Source–Based Online Map Sharing to Support Real-time Collaboration — Academic Session
*Presenters: Muhammad Atif Butt, Ryerson University; Dr. Songnian Li* — Room: Spruce

## 2 pm – 2:30 pm

Cloud Scalability and the OpenGeo Stack: Publishing Statewide Broadband Availability Maps — Tech Session
*Presenters: Michael Terner, Applied Geographics; Ryan Westphal, Applied Geographics* — Room: Tower Court B

FalconView: Moving from DoD to Open Source — Tech Session
*Presenters: Chris Bailey, Georgia Tech; Carl Cox* — Room: Tower Court C

LiDAR Data Structures: Octree v. KD Tree — Tech Session
*Presenters: Michael Considine; Trevor Clarke, Opticks* — Room: Tower Court D

The Status of GeoServer WPS — Tech Session
*Presenter: Andrea Aime, GeoSolutions* — Room: Windows

Geomap: A New, Open Source JavaScript Mapping API — Tech Session
*Presenter: Ryan Westphal, Applied Geographics* — Room: Silver

Cellular Automata QuantumGIS Plug-in and Web-based Application — Tech Session
*Presenter: Ari Jolma, Aalto University, Lahti Center* — Room: Denver

Scalable Local Regression for Spatial Analytics — Academic Session
*Presenters: Dr. Christian Kaiser, National University of Ireland–Maynooth; Fergal Walsh* — Room: Spruce

## 3 pm – 3:30 pm

GeoKettle, the Open Source Spatial ETL Tool: Overview, New Features, and Road Map — Tech Session
*Presenter: Dr. Thierry Badard, Spatialytics* — Room: Tower Court B

Corporate FOSS Adoption: Managing Risk — Tech Session
*Presenter: Dr. Ignacio Guerrero, Andes GeoConsulting* — Room: Tower Court C

Twenty Web Mapping Tips, Tricks, and Tools — Tech Session
*Presenter: Julien-Samuel Lacroix, Mapgears* — Room: Tower Court D

Web-Based Geoprocessing: Quo Vadis? — Tech Session
*Presenter: Bastian Schaeffer, 52North* — Room: Windows

The State of GeoCouch — Tech Session
*Presenter: Volker Mische, Couchbase* — Room: Silver

Clip and Ship: MapServer for Data Distribution — Tech Session
*Presenters: Frank Warmerdam; Michael Smith* — Room: Denver

HydroLiDAR: An Open Source GIS Toward Accessing, Visualization, and Modeling of LiDAR — Academic Session
*Presenters: Dr. Ping Yang, Idaho State University; Dr. Daniel Ames* — Room: Spruce

## 3:30 pm – 4 pm

Google Maps This, GeoMOOSE That, What's a Nonprofit to Do? — Tech Session
*Presenters: Bob Basques; Jim Klassen* — Room: Tower Court B

Where OpenERP Meets OSGeo — Tech Session
*Presenters: Emmanuel Belo, Camptocamp; Eric Lemoine, Camptocamp* — Room: Tower Court C

MapFish Project: Status and Good Practices — Tech Session
*Presenter: Eric Lemoine, Camptocamp* — Room: Tower Court D

ZOO Project Status: Past, Present, and Future Steps — Tech Session
*Presenters: Gérald Fenoy, GeoLabs SARL; Dr. Nicolas Bozon* — Room: Windows

The New GeoData Tool Set: CouchDB and Node.js — Tech Session
*Presenter: Mick Thompson, Occipital* — Room: Silver

WorldMap: A GIS Web Application for Collaborative Research Built on the GeoNode Platform — Tech Session
*Presenters: Matthew Bertrand, Harvard University; Benjamin Lewis* — Room: Denver

A Prototype Open Source Tool for Water Resources Management in Developing Countries — Academic Session
*Presenters: Dr. Naga Coulibaly, University of Abobo-Adjamé, Côte d'Ivoire; Prof. Umesh Bellur* — Room: Spruce

## 4 pm – 4:30 pm

The Intersection of Geospatial and Business Intelligence — Tech Session
*Presenters: Jesse Eichar, Camptocamp; Emmanuel Belo, Camptocamp* — Room: Tower Court B

The Nordic Open Source Initiative Network — Tech Session
*Presenters: Morten Lindegaard, Ph.D., National Survey and Cadastre, Denmark; Anders Friis-Christensen, Ph.D.* — Room: Tower Court C

Map Design, Usability, and Interaction — Tech Session
*Presenters: Sergio Alvarez, Vizzuality; Javier de la Torre, Vizzuality* — Room: Tower Court D

WPS Shootout — Tech Session
*Presenters: Jody Garnett, OSGeo; Gérald Fenoy, GeoLabs SARL* — Room: Windows

Integration of GeoServer with NoSQL Databases — Tech Session
*Presenters: Alan Mangan, Data Tactics Corp.; David Boyd, Data Tactics Corp.* — Room: Silver

Accessing PostGIS Raster from gvSIG Desktop — Tech Session
*Presenters: Jorge Sanz, Prodevelop, S.L-gvSIG Association; Ignacio Brodin* — Room: Denver

Web Geoservices and: Ancient Cadastral Maps The Web C.A.R.T.E. Project — Academic Session
*Presenters: Marco Minghini, Politecnico di Milano, Dipartimento di Ingegneria Idraulica, Ambientale, Infrastrutture viarie e Rilevamento (DIIAR), Como Campus; Prof. Maria Antonia Brovelli, Politecnico di Milano, Dipartimento di Ingegneria Idraulica, Ambientale, Infrastrutture viarie e Rilevamento (DIIAR), Como Campus* — Room: Spruce

## 10 am – 10:30 am

Mayor of Main Street: How Badges Will Make OpenStreetMap Data Better — Tech Session
*Presenter: Martijn van Exel* — Room: Tower Court B

A WPS-Based Biogeography Tool for QGIS — Tech Session
*Presenter: Jeffery Cavner, Natural History Museum, University of Kansas* — Room: Tower Court C

What's New in the JTS Topology Suite — Tech Session
*Presenter: Martin Davis, Tsusiat Software* — Room: Tower Court D

Tips for the PostGIS Power User — Tech Session
*Presenter: Paul Ramsey, OpenGeo* — Room: Windows

HTML5 for Rich Geospatial Applications on the Web — Tech Session
*Presenter: Javier de la Torre, Vizzuality* — Room: Silver

Visualizing Time Series Data with Open Source Components — Tech Session
*Presenters: Simon Jirka, 52North; Arne Bröring, 52North* — Room: Denver

Applying the Department of Labor's Geospatial Technology Competency Model (GTCM) to FOSS4G Courses and Curriculum — Academic Session
*Presenters: Dr. Phillip Davis, GeoTech Center at Del Mar College; Kurt Menke; Amy Ballard* — Room: Spruce

## 10:30 am – 11 am

Response of OSGeo Japan with Other Communities to the Great East Japan Earthquake — Tech Session
*Presenter: Dr. Daisuke Yoshida, Tezukayama Gakuin University, OSGeo Japan* — Room: Tower Court B

Using Web GIS to Display Real-Time Rain/Stream Data with Potential Flood Impacts — Tech Session
*Presenter: Scott Holder, Ventura County Watershed Protection District* — Room: Tower Court C

TinyOWS: What's New for the High-Performance WFS-T Server? — Tech Session
*Presenter: Olivier Courtin, Oslandia* — Room: Tower Court D

PostGIS Replication — Tech Session
*Presenter: Steven Singer, Slony Development Team* — Room: Windows

Advanced Cartography for the Web — Tech Session
*Presenter: A.J. Ashton, Development Seed* — Room: Silver

Comparing GeoExt, MapQuery, and Legato from a Technical and Collaborative Point of View — Tech Session
*Presenter: Till Adams, Terrestris GmbH and Co KG* — Room: Denver

VGI and Geotechnology for Supporting Blind and Vision-impaired People Using a Localized Gazetteer — Academic Session
*Presenters: Ahmad Aburizaiza, George Mason University; Dr. Matthew Rice* — Room: Spruce

## 11 am – 11:30 am

**Beyond Vectors: Adapting Remote Sensing Research for Environmental Monitoring with Open Source Hardware and Software—Citizen Mapping the BP Oil Spill with Balloons and Kites** — Tech Session
*Presenters: Stewart Long, Public Laboratory; Shannon Dosemagen* — Room: Tower Court B

**A Prototype Open Source Tool for Water Resources Management in Developing Countries** — Tech Session
*Presenters: Dr. Naga Coulibaly, University of Abobo-Adjame, Côte d'Ivoire; Prof. Umesh Bellur* — Room: Tower Court C

**PAGC: Geocoding—Recent Advances and Future Developments** — Tech Session
*Presenters: Dr. Daniel Putler, PAGC Project; Stephen Woodbridge; Walter Sinclair* — Room: Tower Court D

**Store, Manipulate, and Analyze Raster Data within the PostgreSQL/PostGIS Spatial Database** — Tech Session
*Presenter: Pierre Racine, University Laval* — Room: Windows

**INTELIGEO: Geographic Intelligence** — Tech Session
*Presenters: Daniel Miranda, Brazil Federal Police; Daniel Russo* — Room: Silver

**Building Professional Geoanalytical Dashboards and Reports with GeoBIExt** — Tech Session
*Presenters: Dr. Thierry Badard, Spatialytics; Luc Vaillancourt, Spatialytics* — Room: Denver

**Are You Sure? Open Source Tools for Uncertainty Enabling the Model Web** — Academic Session
*Presenters: Benjamin Pross, Institute for Geoinformatics, University of Muenster; Dan Cornford* — Room: Spruce

## 1 pm – 1:30 pm

**GeoGlobalDomination: The Musical** — Tech Session
*Presenter: Iván Sánchez Ortega, OpenStreetMap Foundation* — Room: Tower Court B

**Open Source Business Intelligence (OSBI): Overview and Geospatial Enablement** — Tech Session
*Presenters: Luc Vaillancourt, Spatialytics; Dr. Thierry Badard* — Room: Tower Court C

**Speed Up Your GIS server: Run GIS Software on Solid-state Drives** — Tech Session
*Presenters: Daniel Kastl, Georepublic Japan & Next Co., Ltd.; Seongbong Kim* — Room: Tower Court D

**Scaling PostGIS Queries with Stado** — Tech Session
*Presenter: Jim Mlodgenski, Cirrus Technologies* — Room: Windows

**Open Source Web Test Engine for Geospatial Standards** — Tech Session
*Presenters: Dr. Raj Singh, Open Geospatial Consortium; Dr. Luis Bermudez* — Room: Silver

**Open Source and the Common Operating Picture** — Tech Session
*Presenters: Steve Swazee, www.sharedgeo.org ; Bob Basques* — Room: Denver

**OPeNDAP vs. WCS** — Academic Session
*Presenters: Gerben de Boer, TU Delft, Deltares; Gennadii Donchyts; Maarten Plieger; Wim de Haas* — Room: Spruce

## 1:30 pm – 2 pm

**3D GIS Collaborative in Real Time** — Tech Session
*Presenters: Manuel De la Calle, IGO Software; Diego Gómez-Deck, IGO Software* — Room: Tower Court B

**HSLayers** — Tech Session
*Presenters: Jachym Cepicky, Help Service–Remote Sensing; Premysl Vohnout* — Room: Tower Court C

**Lifemapper Moves Forward: Bringing Together Geospatial and Biodiversity Informatics Tools to Save the World** — Tech Session
*Presenters: Aimee Stewart, University of Kansas Biodiversity Institute; James Beach* — Room: Tower Court D

**PostGIS 2.0: The New Stuff** — Tech Session
*Presenters: Regina Obe, Paragon Corporation; Leo Hsu, Paragon Corporation* — Room: Windows

**Spatial Processing Using JEQL** — Tech Session
*Presenter: Martin Davis, Tsusiat Software* — Room: Silver

**Open Source GIS Solutions** — Tech Session
*Presenter: Al Pascual, Esri* — Room: Denver

**Expanding Map Server Performance Benchmarks for Distributed Disaster Response** — Academic Session
*Presenters: Charles Rose, MIT Lincoln Laboratory; Colin Mayer* — Room: Spruce

## 2 pm – 2:30 pm

**Geoprocessing with Neo4j Spatial and OSM** — Tech Session
*Presenter: Craig Taverner, Amanzi* — Room: Tower Court B

**Mapbender 3: Where Are We Going?** — Tech Session
*Presenter: Astrid Emde, WhereGroup* — Room: Tower Court C

**On-demand Transportation Optimization with pgRouting + DARP** — Tech Session
*Presenters: Haruyuki Seki; Daniel Kastl, Georepublic* — Room: Tower Court D

**Tuning GDAL Raster Performance** — Tech Session
*Presenter: Frank Warmerdam* — Room: Windows

**GeoAPI 3.0: Java Interfaces as an OGC Standard** — Tech Session
*Presenter: Martin Desruisseaux, Geomatys* — Room: Silver

**GeoCat Bridge: Publish from ArcGIS Desktop into FOSS4G** — Tech Session
*Presenter: Jeroen Ticheler, GeoCat BV* — Room: Denver

**Advancing Geospatially Enabled Scientific Workflow** — Academic Session
*Presenter: Graeme McFerren, CSIR; Dr. Terence van Zyl; Dr. Anwar Vahed; Bheki Cwele; Derek Hohls; Bolelang Sibolla* — Room: Spruce

FOSS4G CRUD Benchmark
*Presenters: Jorge Rocha, Universidade do Minho; José Silva*

Exploratory Visual Pattern Detection of Mobile Object Data in Attribute-Time Space
*Presenter: Dr. Tetsuo Kobayashi, University of Utah*

Geo-spatial.org: The Reference Point for the Romanian FOSS4G Community
*Presenters: Vasile Crăciunescu, Romanian National Meteorological Administration; Ştefan Constantinescu; Ionuţ Ovejanu*

FOSS Tools for Geospatial and Agent-Based Modeling to Evaluate Climate Change in an Agricultural Watershed
*Presenters: Dr. Alireza Ghaffari, York University; Dr. Martin Bunch; Dr. Rod MacRae; Joseph Zhao*

An Innovative Web Services–based GIS Architecture for Global Biogeographic Analyses of Species Distributions
*Presenter: Jeffery Cavner, Natural History Museum, University of Kansas*

Delineating Service Areas of Public Facilities
*Presenters: Kunsheng Fang, North Carolina State University; Hugh Devine; Stacy Supak*

Introducing DotSpatial: An Open Source .NET GIS Framework
*Presenters: Matthew Klein, ISU; Dr. Daniel Ames*

Thresholds of Proprietary Software Tolerance ... (Open Source on Windows?!)
*Presenter: Dr. Daniel Ames, Idaho State University*

Analysis of Medium- and Small-scale Digital Surface Models with Respect to Slope and Aspect
*Presenters: Prof. Maria Antonia Brovelli, Politecnico di Milano, DIIAR, Polo regionale di Como; Sara Lucca*

Integrating Social Attitudes and Spatial Data in Siting Power Lines
*Presenters: Robert Beazer, Idaho State University; Dr. Daniel Ames*

Development of QGIS Plug-in for a User-friendly Management of Climatological Data in Italy
*Presenters: Dr. Tiziana De Filippis, National Research Council–Institute of Biometeorology; Perlnd Leandro Rocchi; Giulio Castagnini; Fabio Straccali*

PRIO-GRID: A Unified Spatial Data Structure
*Presenters: Andreas F. Tollefsen, Peace Research Institute Oslo; Håvard Strand; Halvard Buhaug*

Integrating Open Source GIS in a Computerized Blotter System
*Presenters: Sorvigenaleon Ildefonso, Feati University; Jessie Linn Ablao; M.E. Cadatal; A.D. Braceros; C.M.C. Castillejos; M.G.I. Ocba; R.A.P. Fuentes; R.Z. Dalogdog; A.P. Punongbayan; M.S.R. Reyes; M.C.R. Paringit*

Embracing Web 2.0 and GIS to Enhance Public Participation in Science
*Presenter: Shaun Langley, Michigan State University*

Design and Development of a SpatiaLite Geodatabase Data Provider for the DotSpatial GIS Application Development Framework
*Presenters: Jiří Kadlec, Idaho State University; Daniel Ames*

Shortest Hyperpath Search for Public Transportation: A Java Web Application
*Presenters: MI David López Flores, Instituto de Ingeniería, Universidad Nacional Autónoma de México–Centro de Investigación en Geografía y Geomática; MCS Pablo López Ramirez*

Education, Research, and Development in an Institutional Cooperation Toward the Establishment of an Open Source GIS Platform
*Presenters: Roberto Giachetta, Eötvös Loránd University (ELTE); István László; István Elek; István Fekete*

Efficient Vehicle Tracking with Open Source Tools
*Presenters: Trevor Clarke, Opticks; Roxanne Canosa*

Enhancing the Use of Python in GIS and Remote Sensing
*Presenter: Nathan Jennings, American River College/Opticks*

Geographic Reference Interface for Internet Networks
*Presenter: Jan Kolar, Ph.D., Grifinor Project*

A Fast Search Mechanism for Multiple Raster Layers in MapWindow Open Source GIS
*Presenters: Ahmad Aburizaiza, George Mason University; Dr. Matthew Rice; William Hammill*

A Vivid Relic Under Rapid Transformation
*Presenters: Dr. Thomas Knudsen, National Survey and Cadastre; Dr. Simon Kokkendorff; Dr. Karsten Engsager; Dr. Karsten Bormann*

Opticks Open Source Remote Sensing and Image Processing Software: A Community College GIS Program, and Collaboration
*Presenter: Nathan Jennings, American River College/Opticks*

The Beta Version of Git Toolkit for Curricula for GIScience
*Presenters: Taichi Furuhashi, University of Tokyo; Dr. Koichi Kubota*

Using GRASS GIS to Calculate Potential Global Solar Irradiation Using Canopy Heights as a Base Elevation Layer to Assist in the Landscape Scale Characterization of Aquatic Habitats
*Presenter: Doug Newcomb, Department of Interior, U.S. Fish and Wildlife Service*

# Exhibitors

The Exhibit Hall will be open the following hours:

Wednesday, September 14: 9:30 am–6 pm, Exhibitor Reception 6 pm–8 pm

Thursday, September 15: 9:30 am–6 pm

Friday, September 16: 9:30 am–1 pm

## 52°North

- Booth #5

52°North is an international network of partners from research, industry, and public administration. The aim of this network is to foster innovation in the field of geoinformatics by organizing a collaborative software development process. The 52°North GmbH is the network's administrative office and service center. It contributes actively in many of its activities, such as managing near real-time sensor data or cloud-based geoprocessing. 52N provides complementary services such as support, software development, and consultancy.

## Dewberry

- Booth #14

Dewberry is a leading professional services firm with a proven history of providing architecture, engineering, management, and consulting services to a wide variety of public- and private-sector clients. Recognized for combining unsurpassed commitment to client service with subject matter expertise in geospatial services, Dewberry is dedicated to solving clients' most complex challenges and transforming their communities. Established in 1956, Dewberry is headquartered in Fairfax, Virginia, with more than 40 locations and 1,800+ professionals nationwide.

## DigitalGlobe

- Booth #2

DigitalGlobe is a leading global provider of commercial, high-resolution earth imagery products and services. With our collection sources and comprehensive ImageLibrary, we offer on- and off-line products and services designed to enable customers to easily access and integrate our imagery into their business operations and applications. And with an extensive suite of OGC-compatible web services combined with a powerful hosting infrastructure, users gain access to current, high-resolution imagery and geospatial information to desktops, portals, intranets, and mobile devices around the world.

## Esri

- Booth #6

Since 1969, Esri® has been helping organizations and individuals map and model our world. A full-service GIS company, Esri supports GIS technology on the desktop, server, online, cloud, and mobile platforms, complete with an extensive network of business partners and international distributors. Esri is a socially conscious business, actively supporting organizations involved in education, conservation, sustainable development, and humanitarian affairs. As a software vendor, Esri makes extensive use of open source components and offers several open source solutions for the geospatial community.

# FOSS4G 2011 Code Sprint

**Date: Saturday September 17, 2011 • Time: 9 am–5 pm**
**Venue: Tivoli Student Union building, Auraria Campus (http://www.tivoli.org/tivoli/) • 900 Auraria Parkway, Denver, CO**

## What is a Code Sprint?

A code sprint is about getting a group together to work on open source software, sitting around a table and sharing ideas. It's not just about writing code; as you know, a project has many needs, including documentation, testing, and providing feedback. What better way to give feedback and give back to the project you love than to spend a day with the project's developers. There are roles needed to be filled, no matter what your expertise.

This year's event will be held the day after the main program finishes, minutes away from the hotel in the historic Tivoli Student Union building on the Auraria Campus.

Everyone is welcome. Add your name to the bottom of the wiki page (http://wiki.osgeo.org/wiki/FOSS4G_2011_Code_Sprint) or just show up on Saturday. See you there!

## Geosparc

- Booth #1

Geosparc is the company professionally supporting the open source GIS development software Geomajas, coupling the innovation of open source with the stability of a true enterprise-class application framework. Geomajas was built with today's Internet and cloud architectures in mind. Geosparc's goal is not only to provide an open source offering but to complement it with services such as service-level agreements, commercial licenses, development support, consulting, training, and support for configuration and implementation

## Mapquest

- Booth #7

As a top 20 website, MapQuest helps more than 40MM people per month, providing tools for Internet and mobile users, developers, and businesses. Long known as a leader for maps and directions, the new MapQuest is all about the journey, helping you explore where to go, how to get there, and what to do along the way and at your destination.

## Moonshadow Mobile, Inc.

- Booth #15

Moonshadow Mobile works with large databases—from tens of thousands to hundreds of millions of records. We visualize "big data" over maps, translating the raw language of data into useful answers by making it easier to navigate, search, and analyze important data in more practical ways on both desktop and mobile platforms. Our patent-pending technology is blazing fast!

## OpenGeo

- Booth #12

OpenGeo is a global leader in geospatial software development, powering enterprises around the world. We provide supported, open source geospatial software, expert consultation and training. Our OpenGeo Suite is the best platform for serving maps and data to web applications, mobile devices, and desktop clients. The Suite combines certified, tested, open source components—including PostGIS, GeoServer, GeoExt, GeoWebCache, and OpenLayers—to enable spatial data sharing, mapping, and online editing.


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**Wanna hear more?**
Come talk shop at booth #7 or visit developer.mapquest.com

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There's much more to Newmont than producing the metals global consumers demand. Our business is about leadership in safety, environmental stewardship and social responsibility. Although much has changed since Newmont was founded 90 years ago, our commitment to industry leading performance remains.

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## OSGeo

- Booth #9/10

OSGeo is the Open Source Geospatial Foundation, a nonprofit organization supporting and promoting the collaborative development of open geospatial technologies. The foundation provides financial, organizational, and legal support to the broader open source geospatial community. OSGeo helps encourage contributors by maintaining their contributions for public benefit. OSGeo also serves as an outreach and advocacy organization for the open source geospatial community, and provides a common forum and shared infrastructure for improving cross-project collaboration. Visit our booth or join us at osgeo.org.

## RadiantBlue Technologies

- Booth #13

RadiantBlue Technologies, Inc., provides open source software solutions and policy consulting to the U.S. Government. We assist government agencies as they refine policies and adopt open source software practices and systems. RadiantBlue develops and integrates software used for the modeling and simulation, mission planning, collection, dissemination, visualization, and exploitation of intelligence and defense data. Developers in the Open Technology Division are primary contributors of the OSSIM project—a founding project of the OSGeo foundation.

## Safe Software

- Booth #8

Safe Software, Inc., the maker of FME® and the global leader in spatial data transformation technology, helps organizations overcome data interoperability challenges and make data more accessible. Safe Software supports the open source industry by providing seamless access to data held in both open source and proprietary systems. Since the early days of FME, we have used open source libraries and, over the years, have provided funding to OGR, GDAL, GEOS, libLAS, and others.

## Skygone, Inc.

- Booth #11

Skygone, founded in 2006, provides organizations with Cloud Computing solutions purpose-built for geospatial technologies. We also operate www.theGISmarketplace.com that enables customers to implement leading-edge, enterprise-class solutions quickly and efficiently by leveraging the Cloud. Skygone's depth and experience with Cloud Computing, Software-as-a-Service (SaaS), Virtualization, Geospatial Technologies, Green Technologies, and Data Center Consolidation services has made Skygone the go-to service provider for organizations around the globe, including clients in the federal, local-government, and private-market sectors.

## Spatial Networks, Inc.

- Booth #3

We pay attention to global issues and are keenly interested in how geospatial technology can be leveraged to bring about solutions to these problems. Our view of the world is unapologetically geospatial, but we don't feel the rest of the world shares that sentiment. Our mission is to fix that. We've come to appreciate the power of open source technology in that mission, and we are committed to giving back to the open source community.

## TerraFrame

- Booth #4

TerraFrame provides freely available GIS decision support software for monitoring and evaluation. Specifically designed to work on commonly available, low-cost phones, TerraFrame's software is an appropriate technology solution for developing countries without adequate IT infrastructure or reliable Internet access. Our solution is currently being used in sub-Saharan Africa to combat malaria. Contact TerraFrame and learn how recent innovations can lead to a step increase in promoting public health.

**The Open Source Geospatial Foundation is proud to present FOSS4G 2011**

**Join our community after the event as we collaboratively build the future of geospatial solutions**

**Drop by our booth or visit http://osgeo.org**

## Tools to Use

From desktop mapping to server-side functions, there is an OSGeo project ready to help you with:

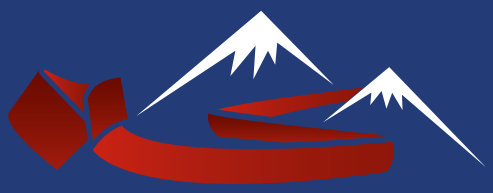
- Information Management
- Data Conversion
- Visualization
- Analysis

## Platforms to Build On

When you need more than ready-to-use tools, build on OSGeo Platforms to construct your own solution. These platforms use open standards that support interchange of data and processes:

- Web-based Mapping
- Programming Libraries
- Data Access
- Image Processing
- OGC Specifications

See us at booth #9
http://osgeo.org
info@osgeo.org
+1-250-303-1831



# FOSS4G
## DENVER 2011

Free and Open Source Software
for Geospatial Conference

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