



OSGeo Journal

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FOSSAG 2011 USA Denver! You There! See You 2010 Official Visitors Guide

More information coming soon...



LIKE AN EGYPTIAN

with King Tut at the
Denver Art Museum
Page 72

July 1, 2010 –
January 2, 2011



JULY 10 A "WESTERN HEMIS-FAIR"

of art, culture and
music at the Biennial
of the Americas
Page 76

July 1 – July 31, 2010

From the Editor...

by Tyler Mitchell

Welcome to the first edition of the OSGeo Journal for 2010! As a good kick-off to the new year this volume takes a few different perspectives on software development and design. Naturally the various issues related to typical development projects applies quite well to our open source geospatial specific interests. The articles cover a range of topics from a review of various software to a discussion of user-centered design. Along the way you'll also get to read some more technically meaty articles and some perspective pieces.

Each volume of the Journal takes several months of concerted effort by many individuals. Landon Blake played a lead editorial role in getting this vol-

ume pulled together so you can read it - thank you Landon! It's always a pleasure to have more section editors, LaTeX masters and reviewers come to help. Thank you to all the volunteers.

With our new online management system, any potential article can be submitted at anytime by simply filling in a form at <http://osgeo.org/ojs>. As well, over the next couple of months keep one eye open for the OSGeo 2009 Annual Report. Get your articles in soon if you have not already. Enjoy the articles!

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Contents of this volume:

Editorial	1
From the Editor..	1

News	2
Brief News from the OSGeo Community	2

Event Reports	6
CASCADOSS International Symposium and International Information Workshop	7
Summer Training Courses on FOSS4G, 2007-2009	14

Topical Interest	18
Why Every Open Source Project Needs a Good Dictator	18

Programming Tutorials	20
GPGPU With GDAL	20

Case Studies	23
gvSIG is a viable robust alternative to commer- cially available GIS packages	23

Project Introductions	26
GRASS Image Processing Environment	27
SEXTANTE, a Free Platform for Geospatial Analysis	32

Peer-review Papers	40
Usability Trumps Features	40

Volunteer Recognition	53
.	53

Event Reports

Summer Training Courses on FOSS4G, 2007-2009

Jos Van Orshoven, Rafal Wawer

With support of the Flemish Interuniversity Council (VLIR) through its Short Training Initiative programme, the Spatial Applications Division of the Katholieke Universiteit Leuven in Belgium (SADL/K.U.Leuven) has repeatedly offered two-week training sessions on the application of FOSS4G for processing and sharing of geospatial data in the context of land evaluation and land use planning. The initiatives were conducted during the summers of 2007, 2008 and 2009, and were oriented towards participants from developing countries.

Objectives

The summer courses were designed to help participants to:

- evaluate the potential of (F)OSS4G for the disciplines of physical land evaluation and land use planning;
- identify strong and weak points of FOSS4G-solutions and ways to handle them;
- acquire hands-on experience with Quantum-GIS and GRASS-software (2007–2009) and with related FOSS4G like PostgreSQL/PostGIS and R (2009 only);
- learn about the principles of OGC web mapping services (2008 and 2009);
- learn to work with MapServer and web clients: ka-map! and Chameleon (2008 and 2009); and
- learn about the technical components of Spatial Data Infrastructures (2009).

In addition, the courses were meant to provide a theoretical background regarding:

- the evolving concepts of physical land evaluation;
- the concepts and functionality of Geographic Information Systems;
- the principles of earth remote sensing for acquisition of land-related data for further processing in GIS.
- the concepts of Spatial Data Infrastructures and the European INSPIRE Directive.

The programmes were conceived in a ‘Train the Trainer’ spirit. An important objective was to motivate and help the participants to further spread the knowledge and skills gained.

Targeted participants, and venue

To be eligible, participants were required to have a background in the management and/or planning of natural resources (soil, water, vegetation, climate). They had to be familiar with maps and PC’s, and GIS was not completely new to them. They were current or future professionals or researchers dealing with rural development and planning. They had the ambition to play a leading role within their current and/or future organisations regarding education and training in land evaluation and land use planning, GIS and earth remote sensing. The training location was the Geo-Institute of the Katholieke Universiteit Leuven (Figure 1).



Figure 1: Geo-Institute of the Katholieke Universiteit Leuven

Practical arrangements and fees

Participation was free for VLIR-UOS scholars. Scholarship also included travel and accommodation costs. 500EUR was charged to other participants from developing countries (according to the OESO/DAC list used by VLIR-UOS) and 2420 EUR for other participants.

Campus accommodation was made available for all participants from developing countries. For scholars flights were booked and delivered by the organizers. Insurance for the duration of the course was also included for this group.

Some facts and figures

In 2007 the course was attended by 19 people from 14 countries: Belgium, Cameroon, Ecuador, Egypt, Ghana, Guatemala, Indonesia, Philippines, Rwanda, Sri Lanka, Sudan, Uganda and Zambia. Table 1 summarizes the course modules that year.



Figure 2: Participants at the workshop, 2007

The participants were chosen among 55 submitted applications. Most of the participants had strong background in research and engineering within the fields of environmental and agricultural applications, as well as in civil engineering. Through a questionnaire the participants gave a very positive feedback, proving the course materials and scheme to be very effective and suited to the participants need and expectations. However there were also a few critical opinions pointing at the lack of advanced training, especially on software programming issues.



Figure 3: Mobile participants



Figure 4: 2008 Participants

In 2008, 2 extra modules were added. The course included new material on programming and the evaluation of FOSS4G software, OSS licensing issues and OSS business models. A theoretical and practical introduction to OGC WMS and WFS and their implementation in FOSS4G software was also added. Table 2 summarizes the 2008 course. The 2008 course was attended by 25 participants from 15 countries: Bangladesh, Belgium, Bolivia, Colombia, Cuba, Egypt, Ethiopia, Ghana, Nepal, Nigeria, Philippines, Tanzania, Togo, Uganda and Zambia.

The most recent edition, conducted in 2009, put more emphasis on Spatial Data Infrastructures, introducing both theoretical and practical background, giving aspects of European regulation (INSPIRE Directive), as well as practical hands-on exercises managing databases and setting view and download services. Table 3 summarizes the 2009 offerings. The 2009 edition was attended by 21 participants, coming from 12 countries: Belgium, Bolivia, Cambodia, Ecuador, Ethiopia, Guatemala, India, Kenya, Peru,

Week	Module	Subtopics
1	Concepts, functionalities & land databases; sources of spatial data; evaluation applications of GIS; Illustrations & hands-on exercises using GRASS for Windows	Land evaluation process; need for spatial data and processing in land evaluation; GIS as information system; GIS as technology; FOSS4G vs. proprietary geomatics software; spatial data modelling & databases; sources of spatial data; query and presentation; GIS data input; geographic reference systems & coordinate transformations; topology & spatial analysis; producing maps; integration exercise; terrain modelling & surface analysis; SDIs
2	Concepts, functionalities & applications of earth remote sensing & image processing in the context of land evaluation with GIS; Illustrations & hands-on exercises using GRASS for Windows	What is earth remote sensing?; electromagnetic radiation; platforms & sensors for earth remote sensing; image visualization, preprocessing, enhancement, & transformation; classification; integration & processing of images in GIS; extended integration exercise; land cover and land use change detection; extended RS exercise; image processing & GIS

Table 1: Course programme in 2007

Week	Module	Subtopics
1	QGIS & its GRASS plugin as a FOSS4G tool for land evaluation & land use planning; Concepts & functions of Geographic Information Systems	Intro: land evaluation, geomatics, FOSS4G; GIS as information system & technology; finding, downloading & installing QGIS; QGIS & the Tabacay dataset; FOSS4G resources; modelling geographic reality with GIS; Tabacay database as model of geographic reality; viewing, query & mapping with QGIS & GRASS plugin; GIS as viewing/mapping system; coordinate reference systems; QGIS coordinate management; WMS & WFS in SDI context; QGIS as V/M system; Input of data into a gDB; GRASS database, locations & mapsets; editing & creating geodatasets with QGIS/GRASS; structures for vector geodatasets; analysis of geodatasets; analysis with QGIS GRASS plugin; input, structure, transformation & management in QGIS/GRASS; land evaluation for land use planning; terrain modelling; construction & analysis of terrain models with QGIS GRASS plugin; analytical capabilities of QGIS/GRASS; receiving/providing QGIS help/support
	Introduction to Quantum GIS customization	Core plugins: visualization, graticules, GPS, georeferencer
2	GRASS as a FOSS4G tool to integrate remotely sensed imagery & land use planning; Basics of earth remote sensing & image processing	Core plugins: MapServer export; Intro to programming with Python Basics of earth remote sensing; analytical capabilities of QGIS/-GRASS; introduction to GRASS; finding, downloading & installing WinGRASS; image visualization; starting with GRASS; import/export from/slash to GRASS; image viewing & preprocessing; enhancement; classification; GRASS image processing; free image data sources; advanced integrated exercise; graduate study possibilities
	Evaluating FOSS4G software projects	Methods for evaluation; evaluating QGIS; CASCADOSS FOSS4G evaluation results; FOSS4G licensing issues; contents of KOI DVD

Table 2: Course programme, 2008

Week	Module	Subtopics
1	FOSS4G tools for processing geospatial data in the context of land evaluation and land use planning	Welcome, getting started; Intro to land evaluation, geomatics & FOSS4G; GIS: information system & technology; modelling geographic reality with GIS; finding, downloading & installing QGIS; first experience with QGIS & Tabacay geospatial database; GIS as a viewing/mapping system; coordinate reference systems; viewing, query & mapping with QGIS and GRASS plugin; QGIS coordinate management; structures for vector geodatasets; analysis of geodatasets; analysis with QGIS GRASS plugin; terrain modelling; construction & analysis of terrain models with QGIS GRASS plugin; finding, downloading & installing R statistics software; integrated exercises with QGIS, GRASS plugin & R; input of data into a gDB; editing & creating geodatasets with QGIS/GRASS; QGIS-plugins; receiving/providing help/support regarding QGIS; QGIS as V/M system; input, structure, transformation & management capabilities of QGIS; analytical capabilities of QGIS; earth remote sensing; introduction to GRASS; finding, downloading & installing GRASS; first experiences with GRASS
2	FOSS4G tools for sharing geospatial data	Sharing geospatial data with SDIs; SDI services for sharing; concepts & exercises of metadata services, webmapping services, and web feature services; object-relational database management systems (ORDBMS) to improve accessibility of geospatial data in multi-user environments; PostgreSQL / PostGIS as a FOSS ORDBMS; grad study opportunities; documentation & evaluation of FOSS4G solutions; business models for FOSS; FOSS licenses

Table 3: Course programme, 2009

Tanzania, Uganda and Zambia. In 2009 VLIR-UOS changed the list of developing and low-income countries, eligible for scholarships, which was reflected in the decrease of the countries represented in our course.

Final remarks

We have provided participants of our courses with several questionnaires, starting from so called “zero measurement”, where we assessed the knowledge and skill in ICT, GIS, RS, SDI of our participants at the beginning of the course. Zero measurement was followed by evaluation questionnaires for the modules as well as evaluation of the whole course, where we emphasized the future plans for further use of the software and dissemination of the materials. Then we sent additional questionnaires, some 6 months after the course, asking about the actual

use of the materials and software in the daily professional tasks of the participants. The results from 2007 and 2008 assessments, compared to our previous courses, where commercial and closed software was used, were presented during AGILE conference in 2009 and are published in the proceedings:

Van Orshoven, J., R. Wawer and K. Duytschaever, 2009. Effectiveness of a train-the-trainer initiative dealing with free and open source software for geomatics. CD-ROM-proceedings (J.-H. Haunert, B. Kieler, and J. Milde, eds. (2009)) of the 12th AGILE International Conference on Geographic Information Science (2009), Hannover, Germany, 2–5 June 2009, IKG, Leibnitz Universität, ISBN 2073-8013.

The paper is also available on the AGILE 2009 website: <http://www.ikg.uni-hannover.de/agile/fileadmin/agile/paper/136.pdf>

*Jos Van Orshoven
Rafal Wawer*

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