



University Continuing Education

# Open-Source GIS

March to June 2012



**GRID**  
Geneva



**UNIVERSITÉ  
DE GENÈVE**



## Director

Dr. Anthony LEHMANN, University of Geneva

## Scientific Advisory Board

- Dr. Grégory GIULIANI, Scientific collaborator, University of Geneva and UNEP/GRID-Geneva
- Mr. Luc St.PIERRE, Senior Geographic Information Systems Officer, UNHCR
- Dr. François Van Der BIEST, Software engineer, Camptocamp SA

## Lecturers

- Grégory GIULIANI (University of Geneva and UNEP/GRID-Geneva)
- Andrea DE BONO (University of Geneva and UNEP/GRID-Geneva)
- Nicolas RAY (University of Geneva and UNEP/GRID-Geneva)
- Bruno CHATENOUX (UNEP/GRID-Geneva)
- Alain DUBOIS (University of Geneva and HEPIA)
- Pierre LACROIX (University of Geneva)
- Luc St.PIERRE (UNHCR), Yvon Orand (UNHCR)
- Yves JACOLIN (Camptocamp SA)

## Coordination

Dr. Robert DEGLI AGOSTI, Dr. Gregory GIULIANI, Dr. Anthony LEHMANN  
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# Open your Mind through GIS

**G**eographic Information Systems (GIS) software have become extremely popular since global mapping services became available through the Web and mobile phones.

GIS acquire and process spatial data for a wide range of applications (e.g., natural resources management, archaeology, urban planning, environmental sciences, global change modelling, and cartography). Geospatial data is turned into geographic information through geo-processing and visualisation. All GIS processes can now be conducted using open-source applications on Linux, Mac, or Windows-based platforms.

Indeed, commercial packages are dominating the GIS market but convincing open-source software and data solutions are clearly emerging. These are especially attractive for students, GIS professionals, small and medium enterprises, companies and institutions in emerging countries, and international organizations.

This continued education course aims at presenting and discussing major open-source desktop GIS solutions. Participants will acquire the necessary knowledge to start working autonomously using the presented software. They will also learn some basics on spatial databases and automated geoprocessing. About half of this training will consist of practicals in a computer classroom.

This continued education course is offered by the University of Geneva, Institute of Environmental Sciences, in partnership with UNEP-GRID Geneva.

## Audience

International organizations, GIS professionals, national and regional offices, private companies and students.



# Objectives

## General Objective

Theoretical and practical introduction to Open-Source GIS tools for storing, manipulating and analyzing geospatial data.

## Specific Objectives

The whole program is organized in 3 modules of 2 days each with the following objectives:

### Module 1

- Acquire basic knowledge in Geographical Information Systems.
- Provide an overview of open-source concepts and related methods, on GIS software, and examples of successful use and deployment of open-source GIS solutions.

### Module 2

- Be able to work with QGIS and GRASS software to handle data (visualisation, processing), create maps, and documentation.

### Module 3

- Get the basic knowledge for storing, querying, and extracting geospatial data with the PostgreSQL/PostGIS relational database.
- Be able to write simple geoprocessing scripts for vector and raster data handling using GDAL/OGR and PROJ.4 libraries.

# Organization

Day 1 is optional and should be followed by people who aren't familiar with GIS, and Day 2 is for decision makers, leaders and any person who is interested in Open-Source GIS in general.

In order to participate to the 3rd Module (days 5 and 6), it is necessary to follow the 2nd Module (days 3 and 4).



# Programme

3 modules of 2 days each

Thursdays and Fridays from 9.00 to 12.00 am and from 01.30 to 06.00 pm

## Module 1

- Day 1 | 22nd March  
**Basics in Geographical Information Systems**  
A. Dubois, B. Chatenoux
- Day 2 | 23rd March  
**Introduction to Open-Source GIS (concepts, methods, and success stories)**  
G. Giuliani, B. Chatenoux

## Module 2

- Days 3 and 4 | 19th and 20th April  
**Desktop GIS (QGIS and GRASS) for visualization, analysis, processing and cartography using vector and raster data**  
B. Chatenoux, G. Giuliani, A. de Bono

## Module 3

- Day 5 | 31st May  
**PostgreSQL/PostGIS: introduction to SQL and spatial databases, storing and querying data, visualizing results in QGIS**  
A. de Bono, P. Lacroix
- Day 6 | 1st June  
**Batch programming with Python, libraries GDAL/OGR and PROJ**  
G. Giuliani, N. Ray

# Practical Information

## Registration deadline: 15th February 2012

- Online at: [www.unige.ch/formcont/opengis](http://www.unige.ch/formcont/opengis)
- Alternatively, a registration form (pdf) can be downloaded at: [www.unige.ch/formcont/opengis](http://www.unige.ch/formcont/opengis).

It should be returned before deadline to:

Dr. Robert DEGLI AGOSTI  
Université de Genève  
Institut des sciences de l'Environnement  
Battelle - Bâtiment D  
7 route de Drize  
CH-1227 Carouge  
Phone: + 41 (0)22 379 07 65  
[Robert.degliagosti@unige.ch](mailto:Robert.degliagosti@unige.ch)

The number of participants is limited.

## Participation Fees

- Whole programme: CHF 1'200.-
- Module 1, Day 1: CHF 250.-
- Module 1, Day 2: CHF 250.-
- Module 2, Days 3 and 4: CHF 500.-
- Modules 2 and 3, Days 3, 4, 5 and 6: CHF 1'000.-  
(Module 2 is a prerequisite to Module 3)

## Attestation

An attestation of participation may be issued upon request.

## Location

Université de Genève  
Institut des sciences de l'environnement  
Battelle - Bâtiment D  
7 route de Drize  
CH-1227 Carouge

## Acces | Map

Tax parking available on the site of Battelle.  
[www.unige.ch/environnement/contact.html](http://www.unige.ch/environnement/contact.html)





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