



EDENext Training Program

“Spatial Data and GIS”

Aim

The purpose of this training program is to familiarize EDENext-participants with the use of geographic information systems (GIS) in particular reference to spatial issues of the EDENext project (i.e. spatial modeling and distribution modeling) and using the open source GIS package Quantum GIS (QGIS). Upon completion of the course, participants will have a profound conceptual and technical knowledge of GIS, have acquired advanced skills on how to use open-source in epidemiological studies and be able to contribute to the development and implementation of GIS in the EDENext-project.

Structure of the Training Cycle

Yearly workshops and distance learning follow-up will be organized during the EDENext project. The yearly workshops will take place during the first week of December in Zoersel (Antwerp, Belgium). Participants will attend these workshops at their own expenses and bring their own personal computer to the workshop. The distance learning course will be presented through a secure distance learning platform with access to EDENext-participants only. All communication, course content and data files will be accessible through this distance learning platform. To gain most benefit of the distance learning course, it is imperative that participants adhere to the scheduled activities (discussion forums, chat session, assignments ...). The activities of one particular theme will remain open during two weeks. The interaction amongst participants will enhance their level of GIS-experience. At the end of each theme, participants need to submit an assignment. Throughout the distance learning cycle, participants will be given support by the GIS-experts of the Euro-AEGIS grouping. The distance learning coordinator will structure this support on a daily basis.

During the first course (**Introduction Course**), participants with no prior GIS-knowledge will be exposed to general concepts and principals of GIS in the 2011 December workshop (6-7-8 December 2011). During the subsequent distance learning course (January 2011 – April 2012), participants will learn to use GIS-software by performing well delineated exercises, clustered around 8 themes. The level of difficulty of these exercises will be gradually increased. All these exercises will make use of the spatial data available from the EDEN-data site.



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The subsequent annual courses (**Advanced Courses**) will also start with a 3-day workshop in Antwerp (Belgium) in the third week of September respectively in 2012, 2013 and 2014. Topics for exercises will address relevant EDEN objectives and will be jointly defined during the yearly workshops. During the workshops, participants will have the opportunity to discuss with the GIS-experts of Euro-AEGIS on spatial issues that are relevant to their specific research with their own specific data. Besides the Quantum-GIS open-source software, also other spatial analysis software applications will be presented (e.g. the spatial packages of the R-statistical software). In addition, “tips and tricks” will be made available to participants on how to perform similar operations with different GIS-packages.

IN addition a **GIS-clinic** will also be deployed at each Annual Meeting. Participants of the training program will be able to discuss the bottlenecks they encountered in their research with domain experts of Euro-AEGIS.

TIMELINE	Workshop	Distance Learning Program
Introduction Course	6-8 December 2011	January 2012 – April 2012
Advanced Course 1	December 2012	January 2013 – April 2013
Advanced Course 2	December 2013	January 2014 – April 2014
Advanced Course 3	December 2014	January 2015 – April 2015

Requirements

Participants should fluently operate a computer and have basic skills on spreadsheet manipulation (MS-Excel or OpenOffice). GIS-software used will be the open-source software packages QuantumGIS and 'R'. During the advanced courses, specific software designed to be used in epidemiological studies such as products of the Avia-geoTools Suite will also be used: mainly VECMAP and Vet-geoTools.

Study Component

Learning resources

All learning resources will be accessible through the distance learning platform of Avia-GIS. Learning resources will be thematically bundled as a set of exercises. For the introduction cycle, the datasets needed to make these exercises will be made available through the EDENext-DMT



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website. In the advanced cycles, datasets of participants will be used as much as possible to design project-specific exercises on demand.

Learning outcomes

At the end of the Introduction Course, participants will:

1. Have a conceptual knowledge on the role GIS in health related issues and will understand the different components of a GIS;
2. Understand and manage all data-related aspects of a GIS, such as the data models in GIS, data input, data editing and data output; projection issues; metadata and managing a spatial database; importing and linking tabular data;
3. Be able to query, manipulate and perform simple analysis of geographical data;
4. Know how to build simple spatial models and understand the different types of models that can be built using a GIS: priority models, risk models, statistical models.

The specific learning outcomes of the Advanced Course will depend on the research questions suggested by the participants. As general learning outcomes, participants will be able to:

1. Fluently manipulate and transfer geographical data from a GIS-package to spatial statistical software and vice-versa;
2. Know how to conduct complex spatial analysis;
3. Know how to build complex spatial models;
4. Make species distribution maps.

Study load

A minimum study load of 4h/week during 16 weeks should be foreseen for each distance learning course. Preferably, the study load should be equally spread during the course time-line.

Application

Twenty participants will be admitted to the EDENext Training Cycle. Each of the vector-groups (TBD, RBD, MBD, PhBD, and CBD) as well as the Public Health (PH) and Modeling (MOD) groups within EDENext are invited to propose 3-4 participants. Particular attention will be given to the EDENext PhD network. We aim at obtaining a mix of interested EDENext post-docs and PhD-students. Candidates should submit their interest through their respective group-coordinators who will forward application requests to Els Goossens – egoossens@avia-gis.be – GIS course coordinator, before **September 1st 2011**.