Introduction to QGIS and GRASS

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Geographic 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, proprietary 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 workshop aims at presenting basic functionalities of two majors Open Source Dekstop GIS software: QGIS and GRASS. Through hands-on exercices participants will acquire the basic knowledge to be able to work with these software for handling vector and raster data (visualisation, processing), create maps, and documentation.

A CD with software, data, and relevant documentation will be provided to participants.

Programme

1. Short introduction on QGIS and GRASS

2. Discovering the QGIS community: users, developers, documentation, etc

3. Exercise 1: *Adding data with QGIS*
   ‣ Learn how to add shapefile, geotiff, XY, GPS, WMS, and WFS data

4. Exercise 2: *Managing projections with QGIS*
   ‣ Learn how to handle projections in QGIS and how to reproject data from Spain and China

5. Exercise 3: *Mapping with QGIS*
   ‣ Discover the functionalities to prepare a map and export it in PDF and as an image

6. Exercise 4: *Data Analysis with QGIS*
   ‣ Generate a population raster of a Jamaican region and extract basic statistics

7. Exercise 5: *Spatial queries with QGIS*
   ‣ Compute selection by locations based on rivers and population data sets

8. Exercise 6: *Basic functionalities of GRASS and the QGIS-GRASS plugin*
   ‣ Discover how to access GRASS GIS functionalities e within QGIS