



GRASS GIS tutorial ^[1]

Submitted by m.neteler on Tue, 03/06/2012 - 23:28

Location: *EM room*

Objective: Introduction to GRASS GIS: from history and background to statistical modules and GRASS+R

General description: The tutorial will begin with a general introduction to GRASS with a few exercises to get familiar with GRASS. Emphasis will be put on some important concepts of GRASS: locations, computational regions and vector topology. The amount of exercises will then increase from session to session, ending with GRASS ? R interaction.

Required back-ground knowledge: GIS and spatial data processing, statistics.

Software / R packages required: GRASS 6.4.2+ or 6.5, R.

9:00?10:30 GRASS GIS Intro, getting started - Markus Neteler

Summary: GRASS history and background; GRASS database concept (GISDBase, Location, Mapset); computational region in GRASS; raster format intro and principles of raster processing; vector format intro and principles of vector processing; data import/export; raster/vector reprojection. Exercises: data import/export, computational regions for raster processing, vector topological cleaning.

10:30?11:00 Coffee break;

11:00?12:30 Overview of the functionality in GRASS, exercises with selected modules - Markus Neteler

Summary: GRASS command structure; 3D visualisation; scripting in GRASS; statistical modules for raster maps, vector maps, and combining raster and vector maps. Each part will be accompanied by exercises.

12:30?14:00 Lunch break;

14:00?15:30 Lecture cont'ed + GRASS GIS exercises - Markus Neteler (in collaboration with Markus Metz)

Summary: GRASS - R interaction. Some analysis and visualization will be done with the ECA&D European climate data set from 1981 - 2010 (monthly aggregates)

15:30?15:45 Coffee break;

15:45?17:00 exercises -Markus Neteler (in collaboration with Markus Metz)

Summary: exercises continued; open analysis session.

Software download:

- **Course material incl. data sets download: [here](#)** [2] (updated!)
- Software:
 - Linux: your distro may offer a recent GRASS GIS package, see also [here](#) [3]
 - MS-Windows: get the latest 6.4.svn snapshot from [here](#) [4] (corresponds to 6.4.3)
 - Mac OSX: get the package from [here](#) [5]
 - R: get the package from [here](#) [6]

Literature:

- Bivand, R., Pebesma, E., Rubio, V., 2008. **Applied Spatial Data Analysis with R** [7]. Use R Series, Springer, Heidelberg, 378 p.
- Neteler, M., Bowman, M.H., Landa, M. and Metz, M. (2012): ***GRASS GIS: a multi-purpose Open Source GIS*** [8]. Environmental Modelling & Software, 31: 124-130 [DOI [8] | PDF [9]]
- Neteler, M., Mitasova, H., 2008. **Open Source GIS: A GRASS GIS Approach** [10], 3rd Edt. Springer, The International Series in Engineering and Computer Science: Volume 773. 406 p.
- Hall, G.B. (Ed), 2008. **Open Source Approaches to Spatial Data Handling** [11]. Springer, New York. 278p.
- Rocchini, D., Neteler, M. (2012): Let the four freedoms paradigm apply to ecology. Accepted by Trends in Ecology and Evolution, 27(6): 310-31 [DOI [12] | PDF [13]]

Source URL: <http://geostat-course.org/content/grass-gis-tutorial-0>

Links

- [1] <http://geostat-course.org/content/grass-gis-tutorial-0>
- [2] <http://data.neteler.org/geostat2012/>
- [3] <http://grass.osgeo.org/download/software.php#g64x>
- [4] <http://wingrass.fsv.cvut.cz/grass64/>
- [5] <http://grass.osgeo.org/grass64/binary/macosx/>
- [6] <http://cran.at.r-project.org/>
- [7] <http://asdar-book.org/>
- [8] <http://dx.doi.org/10.1016/j.envsoft.2011.11.014>
- [9] http://gis.cri.fmach.it/uploads/neteler_grass_env_model_software.pdf
- [10] <http://www.grassbook.org/>
- [11] <http://www.springer.com/west/home/geography/gis+cartography?SGWID=4-40421-22-173761773-0>
- [12] <http://tinyurl.com/tree-four-freedoms>
- [13] <http://download.cell.com/trends/ecology-evolution/pdf/PIIS0169534712000742.pdf>