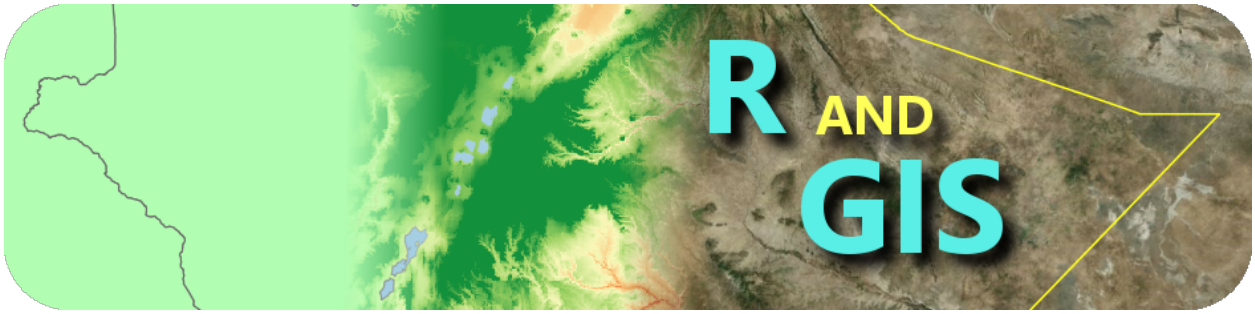

1 Overview

Trainers: Miguel Alvarez and Solomon Estifanos

Date and time: November 27th–December 1st, 2017
8:30–12:00 (classes)
13:30–16:30 (coaching)

Place: Room CAES 06
College of Agriculture and Environmental Sciences
Haramaya University, Ethiopia

ARBONETH

2 Description

In this course you will learn some applications of **R** on handling and analysing **GIS** data. It will implement a quick introduction to R syntax, the work with vector data imported from ESRI shapefiles, GPX and KML files, the work with raster data sets as well as export and transformation among those formats. An overview on display of data (e.g. to prepare figures for publications) will be provided, as well.

3 Potential Candidates

This activity is offered for PhD students and researchers working in geography, ecology, environmental sciences and other associated areas. Some previous experience working with R will be desiderable. The maximum number of participants will be 25.

4 Requirements

Participants of the training have to carry an own Laptop with a installation of the operative system **Windows 7** or higher as well as **Microsoft Office**. Personal data sets and analysis projects can be also discussed with the trainers during the coaching sessions.

5 Intended Schedule

27th Nov	Introduction to the course Software installation R syntax and R objects Data import and export
28th Nov	Mathematical and logical operations Statistics Basics on R plots Functions and loops
29th Nov	Spatial vector data Import and export of spatial vectors Data handling and creation
30th Nov	Raster files Import and export of raster data sets Raster calculations
1st Dec	Raster files and modelling Plotting all together Course closure

6 Supporting Institutions

This workshop is organised as part of the activities in the context of the **ARBONETH** project (The Ethiopian Arboretum Network, http://www.arboneth.com/), which is founded by the **German Academic Exchange Service** (DAAD) and the **Federal Ministry for Economic Cooperation and Development** (BMZ).

The partner institutions directly involved in the organization of this course are the **University of Bonn** (https://www.uni-bonn.de), the **Haramaya University** (http://www.haramaya.edu.et), and the University of Hamburg (https://www.uni-hamburg.de).

7 Bibliographic References

[1] Bivand & Gebhardt (2000). Implementing functions for spatial statistical analysis using the R language. *J Geogr Syst* 2: 307–317.

[2] Bivand et al. (2008). *Applied spatial datan analysis with R.* Springer. PDF Online

[3] Borcard et al. (2011). *Numerical ecology with R.* Springer.

[4] Hengl (2009). *A practical guide to geostatistical mapping.* University of Amsterdam. PDF Online

[5] Murrell (2006). *R graphics.* Chapman & Hall.

[6] Obe & Hsu (2015). *PostGIS in action.* Manning.

[7] Paradis (2005). *R for beginners.* Université Montpellier. PDF Online

[8] Pebesma & Bivand (2005). Classes and methods for spatial data in R. *R News* 5(2): 9–13.

[9] Robinson (2010). *IcebreakR.* University of Melbourne. PDF Online

[10] Venables et al. (2013). *An introduction to R.* R Development Core Team. PDF Online

[11] Verzani (2001). *SimpleR – using R for introductory statistics.* R Development Core Team. PDF Online

8 Links

R project: https://www.r-project.org

RStudio (Editor): https://www.rstudio.com/products/rstudio

R project: https://www.r-project.org

Quantum GIS: http://www.qgis.org/en/site

Google Earth: https://www.google.com/intl/en/earth

Color Chart: http://research.stowers-institute.org/efg/R/Color/Chart

R Graphic Gallery: http://research.stowers-institute.org/efg/R

R Reference Card: http://cran.r-project.org/doc/contrib/Short-refcard.pdf

R Reference Card for Data Mining: http://cran.r-project.org/doc/contrib/YanchangZhao-refcard-data-mining.pdf