We will be hosting two very interesting workshops in the GIS II course, the first in spatiotemporal modelling with INLA and the second in Template Model Builder. The workshops are on 19-01 and 26-01, respectively, from 2 pm.

You are welcomed to join online! Please find details below.

Workshops

Time: Jan 19, 2022 02:00 PM Amsterdam, Berlin, Rome, Stockholm, Vienna

Topic: Beyond the classical Kriging and the least square fit: Spatial and Spatio temporal modelling with INLA

Summary: INLA is a methodology codified in a package of R to solve different statistical models in a specific class of latent models, called "latent Gaussian models". It will be an introductory class to R-INLA and the main idea is to show how we can fit different statistical (spatial) models through this methodology.

Zoom Link:

https://uni-bayreuth.zoom.us/j/63888521495?pwd=aFI2OEJ5UnpRQW4rOGdFWTB5aWhRZz09

Preparation for the workshop:
1. Install R
2. Install the packages below:
install.packages ("devtools")
library(devtools)
install.packages("INLA",repos=c(getOption("repos"),INLA="https://inla.r-inla-download.org/R/stable"), dep=TRUE)

devtools::install_github("julianfaraway/brinla")

Install R-INLA:

```
install.packages("INLA",repos=c(getOption("repos"),INLA="https://inla.r-inla-download.org/R/testing"), dep=TRUE)
```

For more information, please refer to: https://www.r-inla.org/download-install

Main topics:

a) Install R-INLA

b) Theoretical description of INLA
c) Types of models to fit
d) Examples in R

References to R-INLA web:
https://www.r-inla.org/

Materials:
Bayesian linear regression with INLA
https://julianfaraway.github.io/brinla/

Spatial modelling with INLA:
https://becarioprecario.bitbucket.io/spde-gitbook/ (advanced)

Time: Jan 26, 2022 02:00 PM Amsterdam, Berlin, Rome, Stockholm, Vienna
Topic: A short introduction to Template Model Builder (TMB)

Zoom Link:
https://uni-bayreuth.zoom.us/j/65600578121?pwd=MkhObmE4SDNXRmU4OU9PY2VmNTU4QT09

Summary: TMB (Template Model Builder) is an R package for fitting statistical latent variable models to data. Unlike most other R packages the model is formulated in C++. This provides great flexibility, but requires some familiarity with the C/C++ programming language.

It will be an introductory class to TMB and the main idea is to show how we can fit different statistical models through this software.

Install TMB:

```
install.packages("TMB")
```

Please, refer to: https://github.com/kaskr/adcomp

Additionally, you need to install: **Rtools** (compatible for your Rstudio and R version!).

Main topics:

a) Install TMB
b) Theoretical description of TMB and how it works.

c) Types of models to fit
d) Examples in R

References to TMB web:
https://kaskr.github.io/adcomp/Introduction.html

Materials:
https://github.com/kaskr/adcomp/tree/master/tmb_examples

Lecturer:
Joaquin Cavieres PhD (c) in Statistics
Universidad de Valparaíso