Program of the course “Practical Introduction to Species Distribution Models” (2 Hp)

Instructor: Blas Benito, Ecological and Environmental Change Research Group, University of Bergen, Norway.

October 9
9.15 – 15.00 (including a lunch break)

Introduction to Species Distribution Models (SDMs)
- What is a model?
- The geographic distribution of species
- Ecological niches
- Species Distribution Models
- The modelling workflow
- Theoretical formulation
  - Presence records
  - Environmental predictors
  - Viability analysis of the input data
  - Modelling algorithms
  - Parameters
  - Evaluation
  - Model post-processing and analysis
  - Interpretation of results
- Applications of SDMs
- Limitations of SDMs

Getting started!
- Required tools (computer programs)
- Preparing presence records
- Getting environmental predictors ready

October 10
9.15 – 15.00 (including a lunch break)

Calibrating SDMs with different algorithms: theory and practice
- GLM
- GAM
- Classification and regression trees
- Random Forest
- Maxent

Evaluating SDMs

Projection of SDMs on space and time
October 11
9.15 – 15.00 (including a lunch break)

Practical workshop
- Workshop dynamics
- Study cases
- Formation of working teams
- Students work on the study cases assisted by the instructor

October 12
9.15 – 15.00 (including a lunch break)

Practical workshop (continued)
- Students work on the study cases assisted by the instructor
- Oral presentation of results by each team and open discussion

Dynamic Species Distribution Models
- Theoretical principles
- Simple example with R

Final discussion