Species distribution models (SDM)

AZTI

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Contents

About

This is a short tutorial for constructing species distribution models in R. It describes the whole process from downloading OBIS and GBIF data, generating pseudo-absence data, including environmental data, fitting the model, validating the model and generating the resulting maps for visualization.

The code is available in AZTI's github repository repository and the book is readily available here.

Chapter 1

Introduction

Some introduction about SDMs

Chapter 2

Libraries

Load libraries that will be used

Chapter 3

Presence-absence data

Bla bla bla

3.1 Download presence data

Download from GBIF OBIS. Mireia

3.2 Create pseudo-absence data

Prevalence 50%

See code from ANICHO (mantaining some space around presences). Leire C.

Chapter 4

Environmental data

Bla bla bla

4.1 Download from public repositories

Download from Bio-oracle. Guillem le pasa el código a Mireia, que lo sube a github

4.2 Operations with rasters (maybe not needed)

We can complete this a bit more later on, though not necessary right now

Chapter 5

Prepare final dataset

Bla bla bla

5.1 Extract environmental data associated to presence-absence data

5.2 Exploratory plots

Chapter 6

Shape Constrained-Generalized Additive Models

One citation is [Citores et al., 2020]

Mention there is an alternative using `mboost` that won't be further developed here.

6.1 Model fit

6.2 Model selection

Chapter 7

Model selection

Bla bla

Chapter 8

Model validation

Bla bla

8.1 Optimum threshold

8.2 k-fold validation

Chapter 9

Prediction and maps

predict from fitted models and produce maps

Bibliography

L. Citores, L. Ibaibarriaga, D. J. Lee, M. J. Brewer, M. Santos, and G. Chust. Modelling species presence–absence in the ecological niche theory framework using shape-constrained generalized additive models. *Ecological Modelling*, 418:108926, 2020.