

IDExtremes - R package

The tool is based on a Bayesian statistical modeling framework and provides functionalities for performing exploratory analysis, fitting spatiotemporal models, testing and validating the predictive ability of the models, and forecasting the probability of a disease outbreak. Additionally, the tool includes functions to visualise outputs for all modeling steps and final predictions.

Dependencies

The package is written in R (R version ? 4.2.0) and uses the following R packages: INLA, dplyr, ggplot2, grDevices, rlang, tidyr.

Functioning

The package can be used in any R environment and other programming languages if R is supported. All the functions will comprise a workflow of data processing, with parallelization and multi-core operation options. The jobs can be submitted to HPCs to be processed in parallel. The package also provides several model post-processing functions to validate model forecasts and select the models with the best predictive performance.

Development

The technology is being developed as part of the IDExtremes project (June 2023 - May 2027). The first two years are dedicated to developing a suite of functions and the R package with all associated documentation. The last two years will be used to test and validate the R package within several relevant environments of our partner agencies. Future users from our partner organisations will participate in the beta testing phase. At the end of the project, the sustainability of the operational R package will be evaluated using the CHAOSS framework.

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