

RGeostats Workshop

to review geostatistical tools for INTAROS

By Didier Renard and Fabien Ors

Dates:

Thursday 10th from 14:00 + Friday 11th (all day)

Purpose:

Train the INTAROS partners to use geostatistical techniques for processing their data products

Goal:

Understand geostatistical methods and perform hands-on exercises to get familiar with the geostatistical tools available in the RGeostats package

Expected audience:

INTAROS WP6 partners and any additional interested partner

Expected outcome:

Provide INTAROS partners with a first experience to use RGeostats in their applications

Description:

Geostatistics has now gained momentum and is commonly applied in domains as diverse as Mining, Oil & Gas, Air, Water and Soil quality monitoring and many other fields. Geostatistics provides a powerful and flexible suite of procedures to analyze and map almost any type of spatial data. It also provides sound techniques for uncertainty evaluation and risk assessment.

The team of Geostatistics of MINES ParisTech (formerly headed by Prof. G. Matheron) has decided to help disseminating the theory by producing the package [RGeostats](#) under the R platform.

This workshop gives an opportunity for INTAROS partners to review the main concepts of Geostatistics and put them in practice by applying RGeostats procedures on some geophysical datasets.

Outline:

- 1) The variogram and its extension (variogram cloud, variogram map) and the model selection (fitting procedures)
- 2) Estimation using an optimal linear predictor: kriging and its extensions (cross-validation). Neighborhood specification
- 3) Multivariate geostatistics. Bivariate statistics and multivariate spatial tools (cross-variogram). Linear model of coregionalization. Multivariate estimation technique (co-kriging) and its extensions (external drift concept)
- 4) Simulations. Spatial law and Gaussian random function (anamorphosis). Turning bands algorithm