SC06 - STATISTICAL AND MACHINE LEARNING FOR BIG GEOSPATIAL DATA

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Course outline:

Traditional geostatistical analysis

- Exploratory data analysis
- Spatial linear mixed effect models
- Gaussian processes and kriging
- Methods for spatial big data

Introduction to non-linear machine learning algorithms

- Random Forests
- Neural Networks
- Challenges of standard machine learning for spatially correlated data

Machine learning algorithms for spatially correlated data

- How to use spatial correlation in machine learning algorithms?
- RF-GLS: Random Forests for spatially dependent data
- NN-GLS and geospaNN: (Graph) neural networks for geospatial data
- Demonstration of software RandomForestsGLS (R) and geospaNN (Python)