

HYDROLOGY AND GEOPHYSICS FOR THE GEORESOURCES AND THE ENVIRONMENT

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PhD Students in HYDROLOGY AND GEOPHYSICS FOR THE GEORESOURCES AND THE ENVIRONMENT will face advanced themes in the field of groundwater hydrology and geophysical methods (from field and lab data acquisition to mathematical modelling) for applications to the characterization of geo-resources (water resources, geothermal resources, cultural heritage). Both basic science research and practical applications can be addressed by PhD students working in this group. Some possible research themes are listed hereinafter:

- *Groundwater hydrology*. Mathematical modeling of flow and transport processes in heterogeneous alluvial sediments: scaling and inversion. Applications to the study of sustainable exploitation of water resources, to the long-time safety of radioactive waste disposal sites, to the geothermal exploitation of groundwater.
- *Geoelectrical and electromagnetic prospecting of soils and sediments*: integration of field, laboratory and modeling studies to assess the effect of pore water and of texture, fabric and composition of grains on the electrical and electromagnetic properties. Applications in hydrostratigraphy (hydrogeophysics), geoarcheology and conservation of cultural heritage (archeogeophysics), etc.