Sustainable site remediation

Research aim

To develop and deliver novel tools for site investigation, experimental analysis and modeling. The tools enable site owners, consultants and researchers to advance sustainable site remediation.

'Sustainable site remediation'

Soil is the ultimate support for human life and development. Degraded contaminated sites should be restored and brought to full use, for current and future generations. Multidisciplinary expertise is needed to achieve such sustainable remediation of contaminated sites.
Research highlights

**Site investigation** The spatial inventory of a site’s soil properties is crucial to the development and implementation of site remediation strategies. Current research focuses on the use of geophysical sensors to investigate soils in a non-invasive way:

- Contaminant mapping to support the sampling design for invasive investigation
- Mapping subsurface utilities and infrastructure in preparation for excavation works
- Landfill characterization to advance the estimation of the landfill mining potential

**Site modeling and risk assessment** Research is dedicated to the development of soil and groundwater transport models for in-situ remediation technology assessment, and to the development of sustainability appraisal tools to evaluate different remediation options:

- Modeling of in-situ bioprecipitation (ISBP) of heavy metals in groundwater
- Modeling of in-situ reductive dechlorination of chlorinated aliphatic hydrocarbons (CAH) using permeable reactive barriers (PRB)
- Sustainability appraisal of in-situ thermal desorption

**Experimental analysis** Research focuses on physical-chemical and ecochemical aspects of remediation of soils, and is highly specialized in the determination of the occurrence, speciation and behavior of heavy metal contamination. Specific attention is paid to phytoremediation and the processing of biomass originating from contaminated soils.

- Pollution assessment with focus on reactivity, mobility and bioavailability of trace contaminants
- Fate of trace metals during management of contaminated sites and biomass processing; ecosystem cycling
- Development of physico-chemical methods to target site specific contamination in soil and groundwater

**Contact & info**

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