NOVA FCT

NOVA School of Science and Technology, NOVA University Lisbon Caparica, Portugal

ABOUT

The NOVA School of Science and Technology, Campus of Caparica, founded in 1977, is one of the most prestigious Portuguese engineering and science public schools. It is engaged in extensive research activities developed in 16 research centres involving 1600 PhD and Master students of the total enrollment of 7800.

With a total of 550 academic staff (90% holding a PhD) and 180 non-academic staff, FCT is organised in 14 departments and 14 support services. The entrepreneurial drive of the students and graduates has led to many successful spin-offs that transfer knowledge to the market and help create value and social impact.

EXPERTISE

The NOVA FCT team involved in PROMETIA has multidisciplinary expertise in environmental engineering, geology, chemistry, waste policy, pollution, assessment, monitoring, remediation and resource recovery. It develops its activities through the promotion of research projects, outreach initiatives, training programmes, collaboration with private and public organisations, dissemination of results and science-policy dialogues. Its funding is obtained from national and internationally-funded research programmes, as well as from other sources from public and private sectors. Examples of research areas are:

1. Geological mapping: analysis of aerial photos and satellite images for the zonation of outcropping geological formations of sedimentary and metasedimentary sequences or igneous masses, related with the occurrence of ore bodies.

2. Characterisation of mineral deposits:
   - Ores description: identification of minerals and alteration, metal grades, penalty element grades; geomechanical evaluation
   - Geostatistics: integration of multiple sources of data; object based modelling; conditional estimation of ore grades in complex geological environments; multi-element mapping.

3. Electrokinetic (EK) separation: to remove contaminants from soils, sediments, sludge or recovery of RM from mine tailings, as well as studying whether these tailings can be used in construction materials.

FACILITIES & SERVICES

Field work:

- TotalStation NOKIA, GPS Mobile Mapper 120, Schmidt hammers, Soil Augers, Resistivity meter (SYSCAL), Seismograph 16S12-u PASI

Sample preparation:

- Jaw crusher, ring/ball mills, Vibratory sieve shaker, Jones riffle splitter, Core drill bench top CARDI, Muffles, Magnetic separator, Microwave assisted DIGESTION and extraction (ETHOS LABSTATION MILESTONE).

Sample analysis:

- Ions chromatographs (Dionex, DX-120 & Metrohm, 761 Compact IC), XRF Niton XL3t, Scanning electron microscope with probe JEOL T330A, Atomic Absorption PerkinElmer, Petrographic microscopes, Multiparametric probe Consort C6030, Salt-spray chamber ASCOTT, Compression test machine Seidner, Thermo Scientific HAAKE Viscotester, Slake durability device PROETI, Pundit Lab+, Shear rock apparatus 45-D0548 Controls, Hand-Held Vane Tester GEONOR H60, Dynamic probe medium, Multidimensional Gas Chromatography and Mass spectrometry GCXGC¬FID (LECO/AGILENT 7890 with CHROMATOF 2012), GC/MS/MS (Bruker Scion triple quadrupole with dean's switch and CGT auto-sampler), GC/MS (Agilent 5972 MSD), GC-NPD-FID (THERMO TRACE 2000), GC-FIS (HP 5890), High-performance liquid chromatography, HPLC-DAD-FLD (AGILENT 1100, with quaternary pump, diode array and Fluorescence detectors), HPLC-DAD (THERMO/FINNIGANMAT)

Software:

- Visual modflow, Move, ArcGIS, Rockworks, Rocscience, Riskwork bench

MORE INFORMATION

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