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by Alexandra Radics

REF. N. 22_18

Job Description:

Job title: 1 PhD position in ENVIRONMENTAL ENGINEERING

Name of Organisation: Luxembourg Institute of Science and Technology

Country: Luxembourg

City: Esch-Belval

Main research fields: Environmental Engineering

Sub research fields: Physics, Hydrology

Application deadline: 24/05/2018 21:00 – Europe/Brussels

Required Education:

Level: Master Degree

Fields: Physics, Hydrology, Environmental Engineering or a similar discipline.

Language skills:

Required languages: English

Level: Excellent

Required experiences:

- Strong background in physics and/or maths to be able to work with signal processing;
- programming skills for data analysis (preferably with R, Python);
- experience with suspended sediment sampling, monitoring and analysis is an asset.

Application details:

Job description: Quantification of suspended sediment fluxes is crucial in studies focusing on water quality as well as on sediment budgets. Catchment sediment studies remain severely measurement limited and there is an urgent need for the development of new systems for monitoring a broader range of suspended sediment-associated parameters and properties at high temporal frequency. The PhD candidate will investigate the use of submersible ultraviolet-visible spectrophotometers to estimate in situ suspended sediment properties, including the percentage of abiotic material, at high temporal resolution. He/she will establish how this new technique complements existing approaches of monitoring sediment suspensions based on optics and acoustics.

More specifically, the selected candidate will design and carry out experimental work in the laboratory and in the field, and combine techniques based on chemometrics, optics and acoustics to:

Determine which sediment properties can be estimated from in situ absorbance data series;

Investigate the influence of suspended sediment concentration and particle size distribution on in situ absorbance;

Corroborate if the relationships between the spectrophotometric readings and the suspended sediment properties found in the laboratory are persistent in contrasting natural field conditions and;

Establish how the new technique may increase our understanding of sediment dynamics in rivers and estuaries, and how it can be applied in water quality studies.

Moreover, the proposed study is expected to yield new insight into flocculation processes. Rigorously processing and analysing the collected data for publication in highly ranked international peer-reviewed journals is also expected. The selected candidate will be encouraged to present his/her results at conferences and to attend workshops. Research visits at Wageningen University and other project partners (including industrial partners) are foreseen.

Candidate must have Driving licence class B.

Job starting date: 01/06/2018

Status: Full time