Technical Workshop

Innovative methods for solute flux measurement in the subsurface environment, with technology demonstration and practical field training

7-9 March 2018

Mol, Belgium

Conventionally, the distribution and transport of solutes in groundwater is determined by taking groundwater samples at specific times and locations. These measurements, however, provide only snapshots of solute concentration in the subsurface environment but contain no information on solute fluxes. Measurement of solute fluxes is now widely acknowledged to be the preferred and technically superior approach to the assessment of solute transport in both surface water (e.g. rivers) and groundwater bodies. Solute fluxes can only be determined indirectly using related information on groundwater velocity and direction, as well as solute concentration. However, this concept offers considerable improvements in the resolution of processes controlling solute behaviour and can address inherent uncertainties in "snapshot"-style monitoring. It has specific importance to studies of contaminant fate and performance assessment of restoration or management measures in many contexts (e.g. investigation and management of environmental impacts from agricultural, industrial and natural sources). In recent years several methods have been developed to directly measure solute fluxes in the subsurface.

The aim of this workshop is to explore the principles and applications of innovative approaches available for sampling groundwater using solute flux-based concepts. Participants will gain an understanding of the theory which underpins this approach, the different methods available and receive hands-on field training with different technologies.

The sessions will be presented by experienced training facilitators and experts from the INSPIRATION Innovative Training Network (www.inspirationitn.eu) and iFLUX. The programme includes technical sessions and hosted field trip, with the objective of consolidating participant understanding and skills development.

The workshop is open to external participants including, but not limited to, stakeholders, practitioners, managers, researchers and students with interests in the monitoring, assessment and management of groundwater resources in different contexts. Participants with backgrounds in agricultural/environmental engineering, hydrogeology, hydrology, environmental sciences and applied geosciences are encouraged to attend. The course will be attended by scientists and researchers from the INSPIRATION Innovative Training Network, providing a unique opportunity for networking with leading experts in the field.

Further information on the technical programme, joining instructions and venue for the workshop is provided overleaf.

Programme

Wednesday 7 March : Principles and theoretical background (VITO, Mol)

12.50-13.00: Introduction and welcome (*Ingeborg Joris, VITO, Belgium*)
13.00-14.00: Good practices and pitfalls in conventional groundwater sampling (*Instructor: Johan Vos, VITO, Belgium*)
14.15-15.45: Passive sampling techniques to measure solute fluxes in the subsurface (*Instructor: Goedele Verreydt, iFLUX, Belgium*)
16.00-17.30: Using tracers to assess the movement of solutes in the subsurface environment (*Instructor: Serge Brouyère, University of Liege, Belgium*)

Thursday 8 March : Practical training in different methods and technologies (University of Liege, Liege)

09.00-17.00: Demonstration and hands-on training of different field-based methods for groundwater sampling, including conventional techniques, tracer tests and passive sampling techniques. This is provided at the University of Liege field site in Hermalle-sous-Argenteau. (*Instructors: Johan Vos, VITO, Belgium; Goedele Verreydt, iFLUX, Belgium; Ilse Van Keer, VITO, Belgium; Pierre Jamin, University of Liege, Belgium*).

Friday 9 March : Interpretation and use of flux measurements (VITO, Mol)

09.00-12.30: Hands-on training in the interpretation and use of flux measurements. Participants will get a case study with data on concentrations and flux measurements collected with the different methods discussed. Using the appropriate calculation tools they will interpret the transport and dispersion of solutes in a groundwater body based on different types of measurements and the concentration and mass that will reach the receptors present. Participants will have the opportunity to present the case to each other. (*Instructors: Goedele Verreydt, iFLUX, Belgium; Ilse Van Keer, VITO, Belgium; Pierre Jamin, University of Liege, Belgium; Laurent Piron, Geolys, Belgium*).

Registration

Registration for this workshop is essential as places are limited. **Deadline for registration is 28th February 2018.**

You can register for the workshop using this link. If you have further questions please contact Katrien.Bultynck@vito.be.

Cost

The fee for the workshop is €180, payable electronically when registering. This covers course notes, lunch, coffee/tea breaks, field site visit, transport from and to Mol train station (on Wednesday 7 March and Friday 9 March) and Certificate of Attendance.

Accommodation is available in the Lakehouse hotel, close to the workshop venue (address overleaf). If you wish to stay in the Lakehouse, please indicate this on the application form. Participants must cover their accommodation costs directly with the hotel. Room rates per night, including breakfast, are: single room with parkview: € 78,00; single room with lakeview: € 88,00; double room with lakeview: € 96,00. All rooms have a bathroom with shower, colour TV, minibar and free wireless Internet.

Venue & Location

Venue

The workshop will be hosted in the Jupiter Meeting Room at VITO (see picture below). VITO is a short distance from the Lakehouse hotel and Mol town centre. Taxis are available.

VITO TAP – Meeting Room Jupiter
Boeretang 282
2400 Mol
Belgium
Route description
Route description with Googlemaps

Location map

The map below shows the location of the workshop venue and Lakehouse hotel. There is a frequent rail service to Mol from Brussels, with a journey time of 1.5 to 2 hours. Mol train station is located in the centre of the town. Taxis are available outside Mol train station. Details of the Lakehouse hotel are provided below.

Lakehouse hotel
Boeretang 201
B-2400 Mol, Belgium
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info@lakehouse.be
http://lakehouse.sckcen.be/en