

Thursday – 23.05.2019

02:00 pm

Passive sampling and mass flux measurements**Chair(s)**[Dr./PhD Goedele Verrevoet \(iFLUX\)](#)**Room:**

Okapi Room 1

Topic:

ThS 2a2 Passive sampling and mass flux measurements

Form of presentation:

Lecture

Duration:

90 Minutes

02:00 pm

A novel active-passive sampling approach for monitoring a broad range of pollutants in water[Dr./PhD Elvio Amato | University of Antwerp | Belgium](#)**Authors:**

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Passive sampling offers several advantages over traditional sampling methods (i.e., discrete spot sampling), however, data interpretation from conventional passive samplers is hampered by difficulties in estimating the thickness of the diffusion layer at the sampler/medium interface (δ), often leading to inaccurate determinations of water concentrations. In this study, the performance of a novel active-passive sampling (APS) device was investigated in the laboratory. The device is comprised of a diffusion cell fitted with a pump and a flowmeter. Three receiving phases were incorporated in the diffusion cell and allowed the simultaneous accumulation of cationic metals, polar, and non-polar organic compounds, respectively. The flow within the diffusion cell was accurately controlled and monitored, and, combined with diffusion coefficients measurements, enabled the average δ to be estimated. Different flow rates and sampler configurations were tested by exposing the APS device to artificial freshwater spiked with a mixture of pollutants (e.g., Cd, Cu, Ni, Zn, carbamazepine, diuron, isoproturon, fluoranthene, PCBs). Strong agreement between APS and time-averaged concentrations measured in discrete water samples was found for most of the substances investigated. These results indicated that the proposed APS approach could be useful for simultaneously monitoring a broad range of legacy and emerging pollutants in water.