



## **Flux measurements during field and laboratory tracer experiments with a novel variable-suction multi-compartment sampler.**

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Soil and groundwater contamination is a major concern in many densely populated areas. Soil heterogeneity, fingered flow and macropore flow cause solutes to spread out in time and space as they move downwards from the soil surface with infiltrating water.

Solute monitoring is often limited to observations of resident concentrations, while flux concentrations govern the movement of solutes in soils. We developed a new multi-compartment sampler which is capable of measuring fluxes at a high spatial resolution under natural conditions. The sampler is divided into 100 separate cells of 31 by 31 mm. Two tracer experiments have been performed. During a laboratory experiment a 30 cm height undisturbed soil column has been placed above the sampler. During a field experiment two samplers were placed at 30 cm depth, leaving the soil undisturbed. For both experiments, the flux data were recorded at a high time resolution (every 5 minutes). The tracer leaching was monitored by frequently sampling the collected leachate while leaving the samplers buried in situ.

During this presentation the multi-compartment results will be shown. The performance and capabilities of the instrument will be explained. Time series of flux measurements will be presented, and the solute leaching patterns will be discussed.