
Verification of lysimeters as a tool for degradation processes

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Abstract

Up to now changes of the lysimeter soil after long term experiments could not be investigated. To solve this problem the Lysimeter Soil Retriever (LSR) (RETH et al., 2006a, b) was developed. The LSR enables scientists for the first time to retrieve the soil column unaltered out of lysimeter-vessels.

From spring 2004 to October 2006 a lysimeter (1 m² x 1.40 m depth) installed on the test area Wielenbach was investi-

gated on the mobilization of polycyclic aromatic hydrocarbons (PAH) by the seepage water. The soil originated from a sleeper factory of the Deutsche Bahn at Kirchseeon (Oberbayern, Germany) was contaminated by PAH with a concentration of 16 mg/kg soil. In October 2006 the lysimeter soil reclaimed in 20 cm horizontal slices using our recently developed Lysimeter Soil Retriever (LSR). Our new technique allows us to reproduce both vertical and horizontal fluxes in a lysimeter.

The main target was the retrieval of an intact soil monolith from lysimeter and the immediate dissection into slices such that its soil environment can be directly probed at several depths. Photos of the top of the slices were taken by a digital camera. These photos were analysed by an image processing tool to get horizontal information of the distribution of PAH. Further analyses on the natural attenuation are still running.

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