



## **Monitoring of atmospheric deposition of polycyclic aromatic hydrocarbons (PAHs) in different European catchments**

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In the last decades environmental scientists focused most on point source soil and groundwater pollution. Although in comparably low concentrations, recent findings show that diffuse pollution occurs almost worldwide. The main pathway therefore is transport by and deposition from the atmosphere. Ongoing enrichment of pollutants in soils and sediments through this pathway could result in long term risks for groundwater even in areas far away from emission. This work investigates the deposition of polycyclic aromatic hydrocarbons (PAHs) in five European catchments chosen by the AquaTerra project, which is an integrated project of the 6th EU RTD Framework Program. Its intention is to provide the scientific basis for an improved river basin management through a better understanding of the river-sediment-soil-groundwater system. This might be adaptive to attempts in Europe on how to face variances due to changes in climate, landuse and pollution of air, soil and water. PAHs are chosen as representatives for persistent organic pollutants (POP) because they occur worldwide in the environment due to combustion of fossil fuels. They are also stable enough to be monitored with a time-integrated bulk deposition sampler in a two months frequency to minimize costs and sample numbers. The sampler consists of a funnel-adsorber-cartridge device where the PAHs adsorb to fine grained polystyrene. After a simple cartridge exchange it can be extracted in the laboratory. Initial results showed higher deposition rates for the mid-European catchments (Brévilles, France; Meuse, BEL-NL-GER; Elbe, Germany; Danube, Austria) than for the Ebro catchment (Spain), with a maximum in the Meuse catchment close to the Dutch-German border. They also in-

licated a different distribution pattern of the investigated PAHs in the Brévilles. In ongoing studies, soil samples from profiles of all study areas will be analyzed for PAHs and used for leaching tests. Selected samples will be examined for sorption isotherms using phenanthrene as a chemical probe, but also for identification of the organic material as the primary adsorbents for the organic pollutants. Based on that, the potential of the soils to act as a secondary source for groundwater pollution will be assessed.