



## **PAHs loadings of particles as tracer for origin and transport dynamics of particles in river networks**

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Transport of many urban pollutants in rivers is coupled to transport of suspended particles, potentially dominated by storm water overflows and mobilization of legacy contamination of sediments. Concentration of these pollutants depends on the mixture of “polluted” urban and “clean” background particles. In the current study, the total concentration of polycyclic aromatic hydrocarbons (PAHs) and the amount of total suspended solids (TSS) were measured in the course of pronounced flood events in 3 catchments with contrasting land use in Southwest Germany. Average PAHs loadings were calculated based on linear regressions of total PAHs concentrations versus TSS. For single samples PAHs loadings were estimated based on PAHs/TSS quotients. Average loadings are characteristic for each catchment and represent the number of inhabitants within the catchment per load of suspended sediment.

The absence of significant long-term trends or pronounced changes of the catchment-specific loadings indicate that either input and output of PAHs into the stream networks are largely at steady state or that storage of PAHs in the sediments within the stream network are sufficient to smooth out larger fluctuations.

Sampling at high temporal resolution during flood events revealed that loadings do show some short-term fluctuations and, additionally, that loadings show generally slightly decreasing trends during flood events. This is attributed to temporally and spatially varying contributions of particle inputs from sewer overflows and subcatchments which causes a changing proportion of urban and background particles. The decreasing trend is interpreted as the existence of a PAHs storage within the stream network and a slowly depletion thereof in PAHs by the inputs of fresh particles in the course of the events.

To better understand origin, transport and storage of contaminated particles, also metals, total organic carbon and carbonate content were measured for suspended particles representing different time periods of pronounced events. These results will also be presented.