

## **Understanding polycyclic aromatic hydrocarbon transfers at the catchment scale combining chemical and fallout radionuclides analyses**

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**Abstract** Contamination of river water and sediment constitutes a major environmental issue for industrialized countries. Polycyclic aromatic hydrocarbons (PAHs) are a group of persistent organic pollutants characterized by two or more fused rings. Some PAHs present a high risk for environmental and human health because of their carcinogenic and/or mutagenic properties. However, there remains a lack of understanding regarding the various processes responsible for PAH transfers from one environmental compartment to another. This study aims to quantify PAH transfers at the catchment scale. Chemical analyses and measurement of radionuclides have been carried out on soil and sediment samples collected in one upstream subcatchment of the Seine River basin during one year. Results show a large PAH accumulation in sediment and suspended matter and this highlights the importance of local sources for PAH distributions and concentrations at the subcatchment scale.

**Key words** environmental contamination; polycyclic aromatic hydrocarbons (PAHs); catchment scale; pollutant transfers; fallout radionuclides