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## Behaviour of suspended particulate matter (SPM) and selected trace metals during the 2002 summer flood in the River Elbe (Germany) at Magdeburg monitoring station

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**Abstract.** In August 2002, in the worst flooding in more than 100 years, the River Elbe destroyed built-up areas and caused widespread erosion and the relocation of soils and river sediments. To assess the pollutants entering the water, surveys of dissolved constituents and suspended particulate matter (SPM) were carried out daily during the flood at a monitoring station near Magdeburg. The sampling point is part of the network of the International Commission for the Protection of the Elbe (ICPE). The results were compared with those of previous flood studies which used the same sampling strategy. Unlike past floods, the 2002 flood was characterised by the transport of relatively fine suspended material with a low mass concentration. Owing to different input sources, the maxima of dry weight and of particle number concentration occurred at different times. Hg, Fe, Mn, Zn, Cu, Ni and Cr showed a maximum concentration concurrent with the dry weight of the SPM, whereas the maximum concentrations of As, Pb, and Cd coincided with the particle number concentration peak. The concentration of particulate matter decreased rapidly, unlike the concentrations of dissolved substances such as DOC and trace metals, as well as the values of UV extinction, all of which remained high for a longer period. Comparing the results of the 2002 flood with the winter floods in 1995, 1999 and 2000, revealed increased values of As and Pb as well as higher concentrations of dissolved compounds.

**Keywords:** river, flood, transport, suspended particulate matter, trace metals, dissolved compounds, Elbe

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