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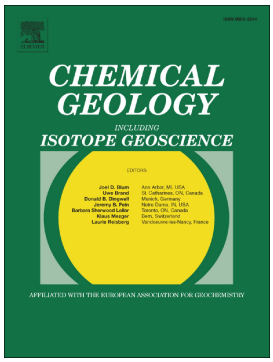

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Isotopic variation of dissolved and colloidal iron and copper in a carbonatic floodplain soil after experimental flooding

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Abstract

Many floodplain soils worldwide are contaminated by present and past industrial and mining activities. During flooding redox potential decreases, triggering the release of dissolved and colloidal metals. We used an anaerobic microcosm incubation to simulate flooding of a carbonate-rich floodplain soil for 40 days. Soil solution samples were extracted to determine the release of dissolved (<0.02 µm) and colloidal fractions (0.02 - 10 µm). We analyzed stable isotope ratios of colloidal and dissolved Fe and Cu representing two groups of metals with different release behavior; release of Fe was steadily increasing, while Cu peaked sharply after flooding and decreased afterwards. The temporal trend of δ^{56}Fe values of total Fe in