



Particles transformation in estuaries: Fe, Mn and REE signatures through the Loire Estuary

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Résumé en anglais

During their transfer across estuaries, particles endure numerous cycles of deposition-resuspension accompanied by several redox oscillations. These oscillations are likely to modify the particles content of redox sensitive metals such as Fe, Mn and two rare earth elements (REE): Ce and Eu. The present paper focuses on the fate of particles originating from the Loire Estuary by the study of chemical composition changes of both total and ascorbate extracted phases. Transformations of particles buried in the sediment are estimated from sediment cores sampled in an estuarine intertidal mudflat. Changes affecting particles that are transferred to the ocean are evaluated by comparing the composition of suspended particulate matter (SPM) from riverine time series to coastal marine SPM. Our results show an important decrease of SPM iron content corresponding to a loss of 14.3% of total iron. However, no iron storage was observed in the intertidal mudflat. Manganese is probably also lost during the transfer but the riverine temporal variability prevents its quantification. The similarity of Ce and Eu signatures between highly concentrated SPM and sedimentary particles suggests that most estuarine transformations are probably induced by early diagenesis during deposition (and frequently anoxic) periods.

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- [1] <http://okina.univ-angers.fr/athibaultd/publications>
- [2] <http://okina.univ-angers.fr/edouard.metzger/publications>
- [3] <http://okina.univ-angers.fr/aurelia.mouret/publications>
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