

Evolution of Technology-Critical Element contents in sediments of a contaminated bay of Lake Geneva (Switzerland) over the past century

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Research on environmental concentrations and processes of technology-critical elements (TCE) is gaining relevance in the recent years due to their increasing use in a variety of emerging technological applications (e.g. Cobelo-García et al. 2015). However, knowledge on their temporal evolution in anthropogenically impacted areas during the past century has not been well documented. To this aim, TCE (e.g. Ta, Te, Nb, Ga, Ge, In, Tl, Rare Earth Elements, platinum group elements) have been analyzed in a dated sediment core collected from a contaminated bay of Lake Geneva, Switzerland in which a high degree of enrichment for 'common' (e.g. Pb, Cu, Hg, Ni) metals has already been reported (Gascón Díez et al. 2017). We observed a significant degree of contamination for several TCE (e.g. In, Te; Figure 1) following a trend similar to other common metals, and linked to the implementation of the Lausanne city wastewater treatment plant discharging its treated and untreated effluent in the bay. For other TCE like Tl or Ge, low or null contamination was found.

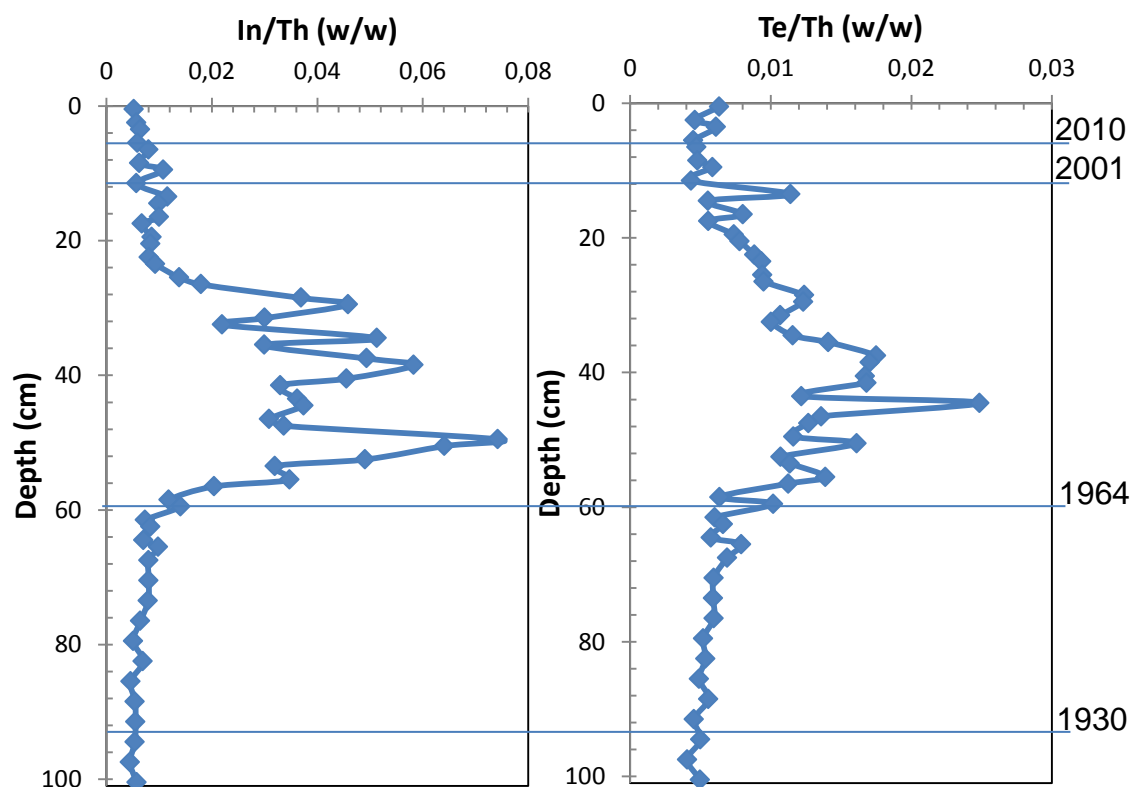


Figure 1. Temporal trend of Th-normalized concentrations of In (left) and Te (right) in a sediment core collected in the Vidy Bay (Lake Geneva, Switzerland).

REFERENCES

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