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Iron isotopic composition of marine ferromanganese deposits

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Iron isotopic composition of marine ferromanganese deposits could be a useful tool to understand the cycling of iron in the ocean. Beard et al. (2003) proposed that the iron delivered to the ocean is essentially controlled by the atmospheric particulate flux (delta-56Fe = 0 permil) and the mid-ocean ridge hydrothermal flux (delta-56Fe = -0.5 permil). However, the global dataset of iron isotopic composition for hydrogenetic ferromanganese deposits demonstrated large variations on local scale and no systematic difference between ocean basins (Levasseur et al., 2004). Thus, further studies are needed in order to determine source and precipitation process of iron in marine ferromanganese deposits. In this study, we preliminary analyzed the iron isotopic compositions of hydrothermal ferromanganese crusts, hydrogenetic ferromanganese crusts, and hydrogenetic/diagenetic ferromanganese nodules.

Keywords: marine ferromanganese deposit, iron isotope