

## Sr isotope composition of marine manganese deposits

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Fluctuations of seawater Sr isotope ratio have been actively reconstructed since the 1980s. The seawater Sr isotope curves are used widely as a tool of dating (Sr isotopic stratigraphy) and as a tracer to evaluate surficial circulation of materials in the Earth's surface.

Futa et al. (1988) attempted to apply the Sr isotope stratigraphy to two Pacific manganese crusts and Ingram et al. (1990) applies the two-step sequential extraction method to leach original seawater Sr. Hein et al. (1992) observed fine-scale compositions in texture and chemistry of a Pacific manganese crust based on Sr isotopic ages. On the other hand, VonderHaar et al. (1995) assessed Sr isotopic dating for a manganese crust to conduct various leaching procedures. As the result, they pointed out the possibility of replacement of original Sr by later stage seawater Sr after growth. After that, Sr isotopic stratigraphy has not been actively applied as the dating method for marine manganese deposits.

In this study, various leaching procedures were tested to obtain basic data for Sr isotopic composition in marine manganese deposits. It was concluded that the two-step sequential extraction using acetic acid was the best way to minimize the effect of Sr from detrital silicates within manganese deposits.

Keywords: manganese deposits, manganese crusts, manganese nodules, strontium, isotope, growth rate