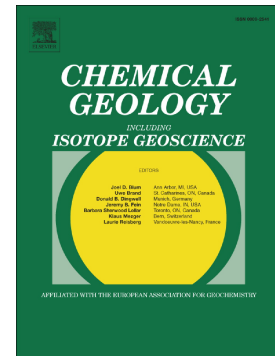


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Marine ferromanganese oxide: a potentially important sink of light chromium isotopes?

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Abstract

Marine ferromanganese oxides are widely distributed in oxic marine sediments and are a sink for a range of metal elements derived from seawater. Their potential as a sink of chromium (Cr) isotopes has yet to be investigated and may have important implications for our understanding of the Cr-isotope system. In this study, we reported Cr-isotope data of modern oceanic Fe-Mn crusts for the first time. The $\delta^{53}\text{Cr}$ values of the surface scrapings of the Fe-Mn crusts from the central North Pacific seamounts, range from -0.85 to -0.15 ‰, with an average of -0.42 ± 0.34 ‰ (2σ , $n = 11$), which are lower than published data from Pacific seawater (0.53 – 1.43 ‰ with an average of 0.79 ‰). These results reveal preferential removal of light Cr isotopes from seawater into Fe-Mn crusts, with an isotopic fractionation ($\Delta^{53}\text{Cr} = \delta^{53}\text{Cr}_{\text{Fe-Mn crust}} -$

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