

Influence of particle-released Nd in the seawater ϵ_{Nd} signal of the proximal Bay of Bengal during interglacial periods

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The factors controlling Nd isotopic variations in the oceans include changes in continental sources and water circulation, along with interactions between dissolved and particulate Nd in the water column [1]. We reconstructed the evolution of the ϵ_{Nd} signal in the proximal Bay of Bengal, from glacial stage 6 to the Holocene, based on the analysis of core MD12-3411. The combined study of detrital and authigenic Nd helped us figure out the relative influence of continental vs. oceanic sources in controlling the seawater Nd composition of the bay. REE patterns and seawater ϵ_{Nd} indicate important continental discharges in the northern Bay of Bengal, especially during interglacials. By contrast, far from the continental sources, in the equatorial Indian Ocean, seawater is able to acquire its typical REE signal. Comparison with modern water ϵ_{Nd} values from the Bay of Bengal [2, 3] suggests that the carbonate fraction in the sediments recorded the bottom seawater composition. Reconstructed seawater ϵ_{Nd} values can be explained by the contribution of NIDW and AABW, with an additional contribution from the release of Nd from the settling detrital particles. During glacial periods, the influence of particle-released Nd was reduced and the ϵ_{Nd} values mainly reflected the Indian Ocean bottom water circulation.

[1] Tachikawa et al. (2014) *Quat. Sci. Rev.* **88**, 1-13.

[2] Singh et al. (2012) *Geochim. Cosmochim. Acta* **94**, 38-56.

[3] Zhaojie et al. (submitted *Earth Planet. Sci. Lett.*)