

## Neodymium as a Tracer in the North Atlantic Deep Western Boundary Current

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In recent years neodymium has been used more and more to observe ocean circulation, past and present. However, neodymium is a quasi-conservative tracer [1], suggesting processes other than water mass mixing can alter the neodymium isotopic composition of seawater. Neodymium can be exchanged between particles and seawater, altering the isotopic composition of the water [2,3]. Here, the North Atlantic Deep Western Boundary Current and its constituent water masses will be observed and attempt to identify the processes controlling neodymium input and export, altering its isotopic composition. Using well known water mass tracers like temperature and salinity and with the use of computer generated models; deviations from the expected profile could be the result of processes such as boundary exchange [3]. In order to effectively observe changes in past ocean circulation with neodymium isotopic composition, the processes controlling present neodymium isotopic composition must be understood.

[1] Piegras, D. J., and G. J. Wasserburg. (1987), Rare earth element transport in the western North Atlantic inferred from isotopic observations, *Geochim. Cosmochim. Acta*, **51**, 1257-1271 [2] Elderfield, H. (1987), Rare earth elements in the pore waters of reducing nearshore sediments. *Earth Planet. Sci. Lett.* **82**, 280-288 [3] Jeandel, C., T. Arsouze, F. Lacan, P. Techine, and J. C. Dutay (2007), Isotopic Nd compositions and concentrations of the lithogenic inputs into the ocean: A compilation, with an emphasis on the margins, *Chem. Geol.*, **239**, 156-164