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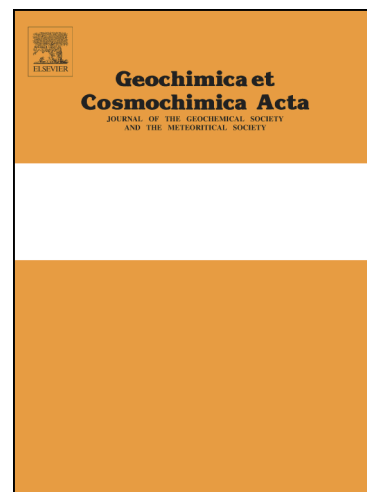
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Fingerprinting Northeast Atlantic water masses using Neodymium isotopes

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Abstract:

Dissolved neodymium (Nd) isotopic composition (expressed as ϵ_{Nd}) has been analysed for 82 seawater samples collected from 13 stations stretching from the Alboran Sea to the Iceland Basin. The distribution of the ϵ_{Nd} values of water masses was thus investigated for the first time along the western European margin in order to explore whether the water masses flowing in the eastern subpolar and subtropical Atlantic reveal distinct isotopic patterns. The Modified Atlantic Water (MAW) in the Alboran Sea displays ϵ_{Nd} values (between -9.2 ± 0.2 and -8.9 ± 0.2) that are significantly more radiogenic than those reported in previous studies (-10.8 ± 0.2 to -9.7 ± 0.2), suggesting temporal variations in the Nd isotopic composition of the water that enters the Mediterranean Sea from the Strait of Gibraltar. The ϵ_{Nd} value of the

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