

## Dolostone as a reliable tracer of seawater lithium isotope composition

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We present new findings on the evolution of the carbon and silicon cycles over geologic time through the lithium isotope composition ( $\delta^7\text{Li}$ ) of seawater<sup>1</sup>. Our study reports  $\delta^7\text{Li}$  values in a suite of Neogene dolostones (23–3.4 Ma, n = 39) from the South China Sea<sup>2</sup>. Dolostone  $\delta^7\text{Li}$  values have increased from 24.9‰ to 30.1‰ over the Neogene, which confirms the observed ~5‰ increase in Neogene seawater  $\delta^7\text{Li}$  and overlaps with previously published foraminifera records. Importantly, our results suggest that fabric-retentive dolostones provide seawater  $\delta^7\text{Li}$  records even after early diagenesis and offer a high-resolution dolostone record as an alternative to fossil and other calcite carbonate records. We anticipate that our findings will be useful in understanding changes in seawater  $\delta^7\text{Li}$  and continental weathering in the Precambrian global carbon cycle through early marine diagenetic dolostones with fabric textures that were abundant in the Proterozoic Eon.

References:

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