

Miocene climate reconstruction in the west Tasmanian Sea using clumped isotopes in coccoliths

**ADDISON RICE, MADALINA JAGGI, STEFANO M
BERNASCONI AND HEATHER STOLL**

ETH Zürich

Climate transitions in the Miocene offer a view of changing climate under near-modern tectonic configuration. The clumped isotope composition of carbonates (Δ_{47}) is a promising option for temperature reconstruction, however, current methods require large sample sizes to obtain small uncertainties appropriate for climate studies. For sea surface temperature reconstruction, this can involve time-intensive picking and cleaning of planktonic foraminifera. Coccolith calcite, which is the main component of bulk carbonate in most marine sediments, is another option for sea surface temperature reconstruction. Here, we measure the clumped isotope composition of tightly controlled size fractions (i.e., 5-7 μm) in Miocene sediments from ODP site 1168 in the west Tasmanian Sea, and compare these results to previously reported biomarker temperature proxies U_{37}^K and TEX_{86} at the same site. Differences in reconstructed temperatures will be discussed in view of possible thermal and non-thermal biases on each proxy, such as the depth of temperature dependence, seasonality, lateral transport, and the particularities of clumped isotope measurements of fine-fraction sediments.