

## **Chromium in marine sediments from the Antarctic**

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Chromium (Cr) and its isotopes are sensitive to redox conditions and/or biological productivity in modern marine environments. However, the debate on the preservation and interpretation of the Cr (isotope) system is still ongoing. We provide a new data set on Cr isotope compositions in marine sediments from the Weddell Sea.

To examine Cr contained in the authigenic fraction of the sediments from the Weddell Sea (Filchner–Ronne Ice Shelf), we apply different leaching techniques<sup>[1, 2]</sup>. While subglacial sediment samples have slightly lower TOC contents compared with samples deposited under open marine conditions, authigenic Cr concentrations behave the opposite way. Subglacial sediment samples show authigenic Cr concentrations of more than 0.7 ppm, whereas open marine samples contain  $\leq 0.5$  ppm. Preliminary Cr isotope compositions, however, are close to the detrital background regardless of their depositional environment.

To aid in interpreting Cr isotope compositions, we utilise an extensive data set of elemental concentrations as well as Pd and Nd isotope data. The combination of these data strengthens the interpretations of Cr variations, ultimately aiding in reconstructing changes in bioproductivity and redox in the Weddell Sea throughout the Last Glacial Maximum.

[1] Blaser P., Lippold J., Gutjahr M., Frank N., Link J. M. and Frank M. (2016), *Chemical Geology* 439, 189–204.

[2] Clarkson M. O., Müsing K., Andersen M. B. and Vance D. (2020), *Chemical Geology* 539, 119412.