



## **Marine paleoproductivity at warmer climate conditions during the Late Pliocene and Early Pleistocene in the Ross Sea**

D. Helling (1), G. Kuhn (1), and H. von Eynatten (2)

(1) Geology and Paleontology, Alfred Wegener Institute for Polar and Marine Research, Am Alten Hafen 26, Bremerhaven, Germany, (2) Geoscience Center, University of Göttingen  
Dept. of Sedimentology and Environmental Geology, Goldschmidtstrasse 3, Göttingen, Germany

The ice-uncovered Ross Sea, Antarctica, is a place with almost the highest bioproductivity rates in the Southern Ocean. In the past melting and collapse of large ice shelves caused highly variable conditions according to paleoproductivity in the McMurdo Sound (Ross Sea). The ANDRILL (Antarctic Geological Drilling) MIS deep drilling project (McMurdo Sound, NE Ross Ice Shelf, core AND-1B) drilled during austral summer 2006/2007 a well-preserved, outstanding record of approximately 14 million years of paleoclimate history. High-resolution geochemical data (XRF core scanning) and colour data (line scanning and reflectance measurements) in addition to quantitative chemistry data (e.g. opal, TOC and minor and major elements) and XRD on discrete samples were achieved. Colour data and XRF-CS counts are correlated to sample data to receive more and higher resolved information about the sediment composition. The interpretation of rapid paleoclimatic changes in the Antarctic realm, especially to understand the behaviour of the Ross Ice Shelf during the past million years, is one target of our study. From the Late Pliocene transitions from diamictite to diatomites are described which imply shifting from a retreating ice sheet to open marine conditions. The diatomites represent time spans with high bioproductivity and reflect warmer conditions at the Antarctic margin than today. The opal content increased to ~60-80% during 6 interglacials (151.70 – 224.45 mbsf). Within these interglacials, the paleoproductivity show variations that seem to be forced by small-scale climate variations.