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Glacial magnetite dissolution in abyssal NW Pacific sediments - evidence for carbon trapping?

Lucia Korff (1), Tilo von Dobeneck (1), Thomas Frederichs (1), Sabine Kasten (2), Gerhard Kuhn (2), Rainer Gersonde (2), and Bernhard Diekmann (3)

(1) University of Bremen, Geosciences Dptm., Bremen, Germany (dobeneck@uni-bremen.de), (2) Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Bremerhaven, Germany, (3) Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Potsdam, Germany

The abyssal North Pacific Ocean's large volume, depth, and terminal position on the deep oceanic conveyor make it a candidate site for deep carbon trapping as postulated by climate theory to explain the massive glacial drawdown of atmospheric CO_2. As the major basins of the North Pacific have depths of 5500-6500m, far below the modern and glacial Calcite Compensation Depths (CCD), these abyssal sediments are carbonate-free and therefore not suitable for carbonate-based paleoceanographic proxy reconstructions. Instead, paleo-, rock and environmental magnetic methods are generally well applicable to hololytic abyssal muds and clays.
In 2009, the international paleoceanographic research cruise SO 202 INOPEX ('Innovative North Pacific Experiment') of the German RV SONNE collected two ocean-spanning EW sediment core transects of the North Pacific and Bering Sea recovering a total of 50 piston and gravity cores from 45 sites. Out of seven here considered abyssal Northwest Pacific piston cores collected at water depths of 5100 to 5700m with mostly coherent shipboard susceptibility logs, the 20.23m long $SO_2$02-39-3, retrieved from 5102 m water depth east of northern Shatsky Rise (38°00.70'N, 164°26.78'E), was rated as the stratigraphically most promising record of the entire core transect and selected for detailed paleo- and environmental magnetic, geochemical and sedimentological investigations. This core was dated by correlating its RPI and Ba/Ti records to well-dated reference records and obviously provides a continuous sequence of the past 940 kyrs.
The most striking orck magnetic features are coherent magnetite-depleted zones corresponding to glacial periods. In the interglacial sections, detrital, volcanic and even submicron bacterial magnetite fractions are excellently preserved. These alternating magnetite preservation states seem to reflect dramatic oxygenation changes in the deep North Pacific Ocean and hint at large-scale benthic glacial carbon trapping followed by subsequent interglacial carbon burn-down and CO_2 release. Abyssal Northwest Pacific sediments may have served as glacial carbon reservoir in particular since the onset of systematic 100 kyr ice age cycles at the end of the Mid-Pleistocene transition (MPT). Stagnant glacial Antarctic Bottom Water, which expanded primarily into abyssal South Atlantic basins during the MPT interim phase, thereafter seemed to flow preferentially into the deeper and larger abyssal Indo-Pacific basins, where it may have enabled more efficient carbon-trapping. More intensive scavenging of the Northwest Pacific surface ocean by enhanced glacial Asian dust flux is suggested by parallel TOC and quartz contents, enhancing glacial carbon accumulation despite potentially lower export production. The magnetic records also identify numerous partly consistent tephra layers, which can be matched between most records of the core transect.