

Mesopelagic carbon remineralization along the GEOVIDE transect in the North Atlantic (GEOTRACES GA01)

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The international GEOVIDE expedition (GEOTRACES GA01, May-June 2014, spring period) aims at providing a better understanding on key trace metal biogeochemical cycles in the North Atlantic. Sampling was undertaken within different biogeochemical provinces including the Iberian Margin, the West European Basin, Reykjanes Ridge, Irminger Sea, Greenland Margin and the Labrador Sea showing contrasted physical, biological and chemical characteristics. Some of these areas are known to present an important spring phytoplankton bloom leading to the export of particles, but large uncertainties remain about the remineralization processes affecting the sinking particles. In this study, the inventories of the excess, non-lithogenic particulate barium (Baxs) proxy were determined at 12 stations in order to assess mesopelagic carbon remineralization (Dehairs et al., 1997). Baxs profiles display maximum values in the mesopelagic zone and range from 500 (Greenland Margin) to 1800 pmol.L⁻¹ (West European Basin) suggesting a large variation in the magnitude of the remineralization processes. Remineralization fluxes of carbon in the North Atlantic will be discussed with the aim of determining if this area is efficient to transfer carbon in the deep ocean.