Geophysical Research Abstracts
Vol. 14, EGU2012-2962, 2012
EGU General Assembly 2012

Modern distribution of planktic foraminifers in the Fram Strait (Arctic Ocean) compared to sea floor species assemblages

T. Pados (1) and R. F. Spielhagen (1,2)

(1) Helmholtz Centre for Ocean Research Kiel (GEOMAR), Kiel, Germany (tpados@geomar.de), (2) Academy of Sciences, Humanities, and Literature Mainz, Mainz, Germany (rspielhagen@geomar.de)

Fossil planktic foraminifers are common tools in paleoceanography. The composition of species assemblages in sediment cores is often used to reconstruct properties of water masses in the past. The ratio between the abundances of different planktic foraminifer species provides information about the hydrographic regime, e.g., distribution of water masses, water temperatures and the position of the summer sea ice margin. However, for a correct interpretation of the fossil data it is important to improve our understanding of the correlation between recent oceanic variability and the distribution of living foraminifera. For this, planktic foramifers were studied along a transect across the Fram Strait (Arctic Ocean, 78˚50´N, 5˚W-8˚E). In the western part of this strait, the water column is strongly stratified, with cold, low-saline Arctic outflow waters of the East Greenland Current (EGC) in the upper 200 m and warmer, saline waters of Atlantic origin underneath. In the east, the upper water column of the northward flowing West Spitsbergen Current (WSC) consists of Atlantic Water, with a thin mixed layer on top. Five depth intervals were sampled vertically between 500 m water depth and the sea surface by using a large-diameter multinet at 10 stations. In the cold polar water masses of the EGC the polar species *Neogloboquadrina pachyderma* (sin.) contributes >70% to the total assemblage, while the warm Atlantic water of the WSC yielded higher abundances of *Turborotalita quinqueloba*. Highest abundances of individuals were obtained between 50 and 100 m water depth. However, unexpectedly, in the depth interval of 300-500 m the number of individuals showed a second peak at certain stations. Our multinet sampling results are compared to the planktic foraminifer assemblages in sediment surface samples to investigate how well the panktic species distribution at the sea floor reflects the surface-near environments.