

## Voelker, Antje H.L. (C2 – Oral presentation)

### Mid-Brunhes surface water changes in the mid-latitude North Atlantic revealed by *G. inflata* trace element records

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Climate records from IODP Site U1313 (41°N, 33°W; 3412 m w.d.) from the mid-latitude North Atlantic were used to reconstruct surface and deep-water changes during the mid-Brunhes glacial/ interglacial cycles of Marine Isotope Stages (MIS) 10 to 16 (340 – 640 ka) including MIS 11c, one of the longest interglacials of the Pleistocene. The records reveal Heinrich-type ice-rafting events during the glacial MIS 16, 12 and 10 that led to a reduction in the Atlantic overturning circulation. Here we focus on the conditions in the surface waters, namely the winter mixed layer/ spring thermocline, using *G. inflata* stable isotope and trace element records. Today the site is influenced by the North Atlantic Drift, the northward extension of the Gulf Stream. Past surface water changes therefore reflect conditions in this current and its southward displacement due to incursions of iceberg-laden subpolar waters.

Thermocline temperatures were estimated from the Mg/ Ca ratio using the equation of Elderfield and Ganssen (2000). The overall temperature range varied between 1.4 and 12.8°C with the colder temperatures related to the Heinrich-type ice-rafting events. Interglacial and often also interstadial temperatures were similar, but – with the current equation – slightly colder than modern levels. MIS 11 experienced millennial-scale oscillations with maximum interstadial temperatures declining towards MIS 10. The interglacial section, i.e. MIS 11c, was associated with an early warming lasting from 426 to 396 ka, but temperatures started to cool already after 400 ka indicating that subpolar subsurface water might have started to penetrate further south after 400 ka. Interglacial MIS 13a temperatures were in the range or even warmer than those of MIS 11c revealing that at least in the thermocline waters this interglacial was not colder than its younger counterpart. Glacial MIS 12 experienced several temperature oscillations with thermocline temperatures being colder in the first half of the glacial. During late MIS 12 maximum temperatures even reached interglacial levels raising the question if warm core rings might have reached the site or if *G. inflata* values then reflected a different growth season.

Cd/ Ca values were highly variable and no clear relationship between thermocline temperature and nutrient levels can be seen. REE/ Ca ratios increased during glacial inceptions and glacials raising the possibility that these values reflect glacial erosion more than a water mass signal such as Antarctic Intermediate Water.

## Voltsky, Ivan (D3 – poster presentation)

### Elphidiidae of the western White Sea, European Arctic

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Elphidiids are diverse and abundant on the Arctic shelves, and thus they are key foraminiferal markers in Quaternary paleoecological reconstructions for these areas. However their value as markers is hindered by the species-level taxonomy insufficiently resolved and poorly understood ecological preferences.

The White Sea is a marginal basin with salinities of 24 to 31‰. The study area was off the Keret' River mouth in the western White Sea, and it embraced a range of habitats from the intertidal zone to c. 100mwd. We sampled soft bottom sediments and hard substrates (algae, shells), documented comprehensively the morphology of all elphidiid taxa, and estimated semi-quantitatively the abundance of live specimens (discernable by their pseudopodial activity and bright cytoplasm) during summer months.