Geophysical Research Abstracts
Vol. 15, EGU2013-10925, 2013
EGU General Assembly 2013

Recent microfauna and -flora in the Gulf of Cádiz and W off Portugal: a key to the history of the Mediterranean Outflow Water (IOPD Expedition 339)

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IODP Expedition 339 recently drilled 5 sites in the Gulf of Cádiz and 2 west off Portugal, and recovered 5.5 km of core. The Gulf of Cádiz was targeted for drilling 1) to investigate the Mediterranean Outflow Water (MOW) and its influence on global circulation and climate, and 2) to understand the effects of tectonic activity and eustatic changes on evolution of the Gibraltar Gateway and margin sedimentation. During the expedition samples from surface-waters and the seafloor were collected to evaluate recent communities of foraminifers, ostracods and calcareous nannoplankton. The results will serve as an important reference for future paleoceanographic work based on the actualistic approach in the Upper Miocene-Pleistocene deposits drilled during IODP Expedition 339.
Over 400 foraminiferal taxa have been identified in size fractions >125μm at six sites of IODP Expedition 339. The preliminary results show that living specimens are rare (1-5% of the assemblages), which is most likely related to deep-sea patchiness; loss during the drilling process cannot be excluded for some samples. The composition of live and dead assemblages strongly depends on water depth and position along the pathway of MOW. Statistical analysis indicates the distinction of three groups of foraminiferal assemblages that reflect the influence of the upper and lower cores of MOW, and North Atlantic Deep Water.
Combined with ostracod and nannoplankton assemblages the results will provide insights into the effect of spatial and vertical fluctuation of North Atlantic Deep Water, Antarctic Intermediate Water and MOW circulation on the microfauna and –flora. Moreover, δ13C, δ18O, Mg/Ca and Sr/Ca of foraminifers, ostracods and coccoliths will be determined and compared to seawater geochemistry to evaluate “vital effects”.