

## **MEDITERRANEAN OUTFLOW WATER AND CONTOURITE DEPOSITIONAL SYSTEMS OVER THE LAST 1.4 MA IN THE GULF OF CADIZ**

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The Contourite Depositional Systems (CDS) in the Gulf of Cadiz are unique archives of the Mediterranean Outflow Water (MOW) variability since the Gibraltar gateway opening. These CDS have been generated by the upper and lower paths of the MOW, MUW and MLW respectively. These CDS have been studied with many different data based on high resolution and very high resolution seismic profiles and sedimentary cores. They have been also drilled during the IODP Expedition 339 (2011-2012). These drill sites offer a new data set over a longer period, allowing comparisons between recent and older climatic cycles, in sites both under the MUW and MLW cores.

This study provides preliminary results of a detailed sedimentological and facies analysis of different CDS in the Gulf of Cadiz over the last 1.4 Ma, using mainly grain size, natural gamma ray data, and XRF results from specific intervals. Downhole and core gamma ray data coupled to grain-size results provided a regional scale chronostratigraphic framework for the CDS contourite deposits and hiatuses at the regional scale. These long sedimentary records provide an overview of the behavior and circulation regime of the MOW over the large changes in climate and sea-level cyclicities and especially over two periods: the last climatic cycle MIS1-MIS2 and at the mid-Brunhes Event (MIS10-12) which is an analog of the last cycle.

The sedimentological and facies characteristics of contourite deposition over Pleistocene is controlled by a complex interaction of neo-tectonic activity, sea floor topography, sediment supply, downslope sediment transport and changes in bottom current flow and sediment transport. Two of the significant controlling factors on CDS are abrupt climate and sea-level changes over glacial and inter-glacial cycles.