



## **Mud mounds, Carbonates and Methane in the Pen Duick area, El Arraiche mud volcano field, Gulf of Cadiz, NE Atlantic.**

T.C.E. van Weering (1,2), H.de Haas (1), A.Gorban(3), M.Tokarev (3), F.Mienis (1)  
(1) Royal Netherlands Institute for Sea Research (NIOZ), The Netherlands, (2) Free University of Amsterdam, The Netherlands, (3) Lomonosov Moscow State University, Russian Federation (tjeerd@nioz.nl;tel: +31 222 369 395)

A 3-D seismic survey with RV "Pelagia" of Royal NIOZ was held to the Gulf of Cadiz in the framework of the ESF MICROSISTEMS project to define the detailed structure of the Pen Duick mud mound area. The El Arrache mudvolcano field consists of a series of mudvolcanoes in waterdepths ranging from 200-700m, the Al Idrissi mudvolcano with a height of 255 m above the surrounding seabed and a diameter of about 5 km being the largest and the Lazarillo del Tormes MV rising 50 m out of seabed with a diameter of just 500 m being the smallest.

A block of 100 seismic lines with a length of about 5.5 miles and a spacing of 50 m was recorded across the Pen Duick Escarpment and the Lazarille de Tormes mud volcano. Initial results show that an extensive zone of gas saturated sediments occurs in the NE of the research area, while carbonate ridges are found at the inner (landward) side of the mud mound area and directly in front of the Pen Duick escarpment. These carbonates have the form of small, clustered mounds, pinnacles or ridges and are considered related to early seepage activities associated with mound formation. Locally cold water corals are present in small numbers.