



COLD WATER CORALS AND CARBONATE CRUSTS IN THE EL ARRAICHE MUD VOLCANO FIELD, GULF OF CADIZ

P. Van Rensbergen (1), J.P. Henriët (1), R. Swennen (2), M. Cunha (3), M. Ivanov (4)

(1) Renard Centre of Marine Geology, Ghent University, Ghent, Belgium
Pieter_vanrensbergen@yahoo.com (2) Katholieke Universiteit Leuven, Leuven, Belgium (3)
University of Aveiro, Aveiro, Portugal (4) University of Moscow, Moscow, Russia

The El Arraiche mud volcano field is situated on the Atlantic Moroccan margin. About 8 small to giant mud volcanoes are clustered around two sub-parallel thrust ridges, the Vernadsky and Renard ridges, with steep fault escarpments. The ridges rise up in water depths of about 700 m and stretch to the shelf edge. Most mud volcanoes occur on top of the Renard ridge (Lazarillo de Tormes mv, Gemini mv, Don Quichote mv and Fiúza mv). Isolated mud volcanoes occur between the ridges (Adamastor mv, Mercator mv, Al Idrissi mv). The largest mud volcano, Al Idrissi, is situated at the shelf edge and is almost 250 m high, 5.3 km wide at the base and 1.4 km at the top.

The mud volcano cluster was discovered during a R/V Belgica cruise in May 2002 and surveyed again with the R/V Logachev in July 2002. The surveys yielded detailed swath bathymetry over the entire area, dense grids of high-resolution seismic data, a few very high-resolution deep-tow sub bottom profiles, side scan sonar mosaics over the major structures, selected TV-lines, TV-grabs, dredge samples and gravity cores. Integration of the data set allows to reconstruct the structure of active mud volcanoes in detail, and moreover, it allows to zoom at selected places from the regional structures gradually down to microscopic scale.

In the study area small coral banks and carbonate crusts were found at the Pen Duick escarpment at the southern flank of the Renard Ridge. The Pen Duick escarpment is a

fault scarp about 4.5 km long, 100 m high, and the waterdepth at the top is 525 m. The eastern part of the platform is characterized by a hummocky topography, to the west the pattern changes to parallel elongated ridges. On basis of the TV lines, TV guided grab samples were taken from dead coral banks and from a fault zone with carbonate slabs. The coral bank consisted of a dead coral framework with terrigenous mud matrix and few living corals at the top. It is indicative of a more favourable coral habitat in the past, probably related to strong currents in this area. The carbonate slabs consist of carbonate cement with shells, corals and debris.

During this presentation the first results from the geophysical surveys, geochemical analysis on carbonate slabs, and the biological sampling will be presented.