

R/V Meteor

Cruise 70-1

LaValetta (Malta) – Heraklion (Crete, Greece)

24. September – 18. October, 2006

Short Cruise Report

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Objectives

The major scientific objective of the first M70-leg focuses on the investigation of bathyal coral communities which existed widely in the Mediterranean Sea. In Late Pleistocene times, bathyal corals were distributed along steep inclined continental margins, seamounts and narrow oceanographic gateways such as canyons. Compared to former periods in Earth history, present-day life coral occurrences are poorly known and indicate a decline since the end of last glacial. But why? This METEOR cruise sailed under the umbrella of the EC HERMES project and concentrates on the multidisciplinary research of the poorly known Mediterranean bathyal coral communities.

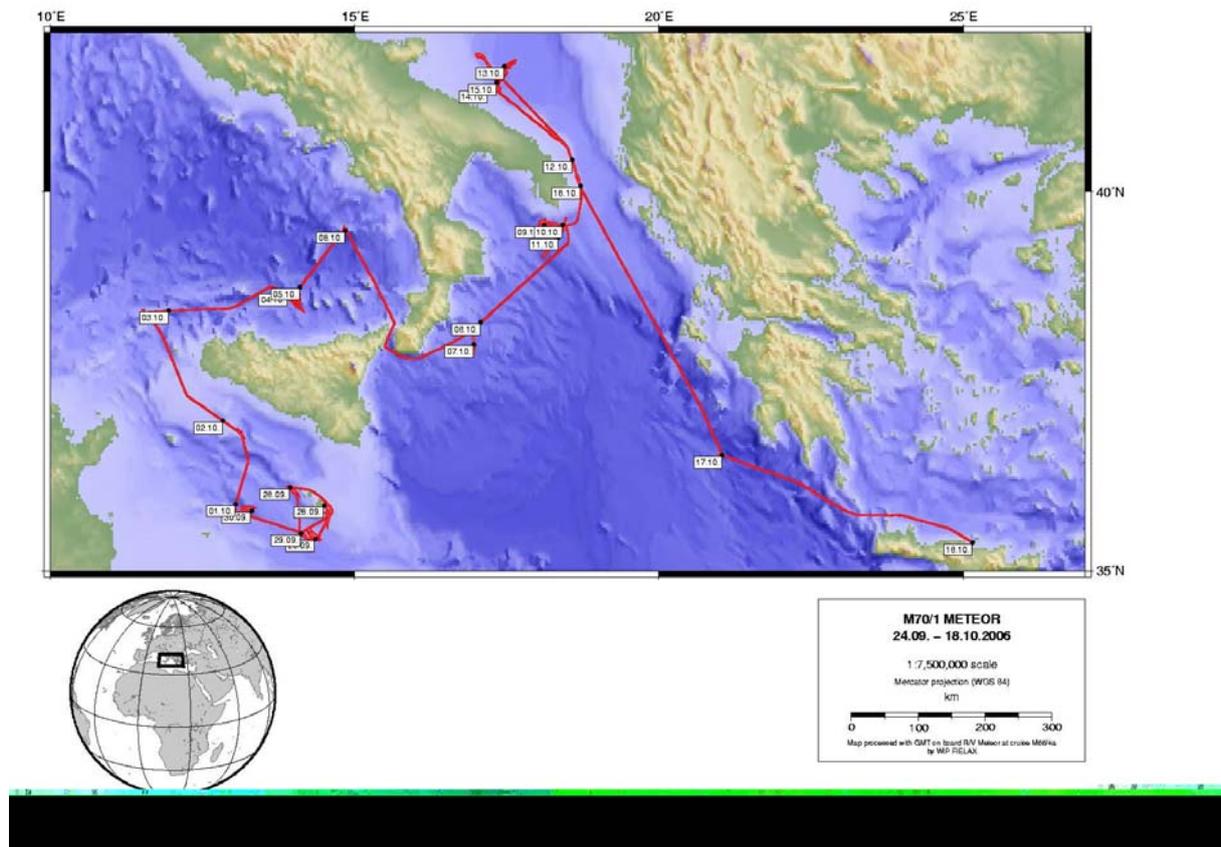
Cruise narrative

24 September 2006

The cruise starts in Lavaletta, Malta. We performed a one-day presentation of the vessel “in action” in front of the presidium of the Deutsche Forschungsgemeinschaft including a ROV dive in Maltese waters. Fruitful discussions centred on the topic of Germany’s future role in marine sciences: challenges, potentials and needs.

After a final loading day we left Malta on 26 Sept. but stayed close to Malta in the adjacent **Malta Trough**, until 29. Sept. Under the influence of a gale we used the time for intense mapping and CTD profiles and finished our work with a very successful ROV dive. On this dive, the first living corals (*Lophelia pertusa*, *Madrepora oculata*, *Desmophyllum dianthus*) and deepest thickets of the precious coral *Corallium rubrum* were documented in situ growing under escarpment overhangs. We headed to the **Linosa Trough** further west in the Strait of Sicily and continued to survey steep submarine cliffs until the evening of 30 Sept. Off Linosa our work was negatively influenced by numerous longlines so we had to learn how manoeuvre between the laid-out fishing gear carefully. Huge deep-sea oysters and more spectacular live coral thickets were found by the ROV. We called this hidden coral habitat the "hanging gardens of Linosa". The entire 1 Oct., we worked on the eastern escarpment of the **Urania Bank** and noticed the first living reefs in the Strait of Sicily. Large *Corallium* thickets were found down to 700 m. The work was accomplished with CTD stations and successful geology stations in a rough and rocky terrain. We entered the eastern Tyrrhenian Sea and surveyed the **Aceste Seamount** on 2 Oct. Successful negotiations with fishermen opened a strip without nets for the scheduled ROV dive. The coral population is dominated by the yellow *Dendrophyllia cornigera* and antipatharians. The 3 and 4 Oct. was spent over **Enarete Seamount**. We generated a genuine multibeam map that shows a huge collapse and slide structure on its eastern flank. The subsequent ROV dive went over this prominent feature and detected thick sulphidic coatings and microbial mounds clustered around low-temperature chimneys(?). Except for *Dendrophyllia*, all other colonial corals encountered are of Pleistocene age. We had to stop the dive near the summit because of too many lost longlines that could trap the ROV. A good gravity core yielding corals was taken from this seamount. On the 5 Oct., we stayed over **Palinuro Seamount** and found the same, only few living *Dendrophyllia* and huge fossil *Lophelia* hardgrounds. The ROV detected active low-temperature hydrothermalism in an area of sulphidic chimneys and sulphur crops out in fissures and cracks of the hardened black sulphidic crust. We passed through the Messina Strait and reached the **Explora Mudvolcanoes** in the Ionian Sea in the evening of 6 Oct. The next day was used for ground-truthing with the ROV and for CTD and geological station work. A major study site were the reefs off **Santa Maria di Leuca**, Apulia, from 8-11 Oct. A gale forced us to conduct our first ROV dive further into the Gulf of Tarent where we found a steep escarpment near Gallipoli. After this, we could enter our prime area and thanks to existing data achieved by the Italian APLABES project, we could directly go on the coral hot spots. Here, we also deployed settlement panels which will be recovered in 2007 by another HERMES cruise. We analysed many coral mounds and found clear indications of trawled reefs and many coral colonies that are wrapped in plastic bags. On 12 Oct., we entered the

Adriatic Sea and worked in the **Bari Canyon, Dauno Seamount** and **Gondola Slide** area until 15 Oct. Here, where the Adriatic Deep Water is formed, we found another new live coral province which is to be seen in continuation of the Apulian reef province. We also documented impressive slide blocks in the deep-water fan of the Gondola Slide. These blocks consist of shallow-water Pleistocene *Pseudamussium* deposits that were initially formed on the shelf. The cruise ended on 18 Oct in Heraklion.



Participants and participating Institutions

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