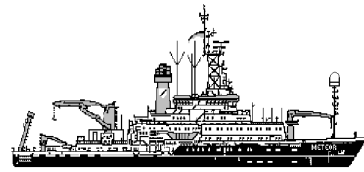


METEOR 61/1

First Weekly Report

19. – 25. 4. 2004



FS METEOR

51°27'N / 11° 45'W

METEOR cruise 61/1 started on Monday 19.4. in Lisbon. The expedition is dedicated to carbonate mound and coral research in the areas of the Porcupine Seabight and the Rockall bank west of Ireland. The scientific party comprises of 28 scientists from 7 nations. The passage to the first working area along the west coast of the Iberian Peninsula and across the Bay of Biscay took three and a half days. On Thursday afternoon (22.4.) we arrived at our first station at 51° 10'N, 11° 40'W in the Belgica Mound province where we deployed the ROBIO Lander of the OceanLab Group (University of Aberdeen).

During the first days of our expedition, we focused on biological and geological surveys over coral-covered carbonate mounds in the Belgica Mound Province. Within an area measuring 20 nm across, more than 20 mounds between 50 and 150 m in height determine the seabed topography at depths between 1000 and 600 m. These mounds are aligned in two groups. The deeper mounds at 900 to 1000 m depths were targeted in the first three working days of this leg. We visually inspected two previously unexplored carbonate mounds with the OFOS system, which we named Castor Mound and Pollux Mound, next to the well-known Therese Mound. Both mounds are about one kilometre long and around 500 m wide at the base. The OFOS coral habitat mapping carried out on Castor and Pollux yielded spectacular results that indicate the current-control on the distribution of corals and sedimentary structures. The southern flanks are rich in live coral thickets consisting of *Lophelia pertusa*, *Madrepora oculata* and gorgonian fans. At the lower slope, the thickets are confined to slope-parallel sedimentary ridges with rippled pteropod-foraminifer sands as through infill. Near the summit of the mounds, the thickets coalesce and form a 100%-cover of a dense coral framework. Hexactinellid sponges contribute significantly to the framework construction. The northern slope is structured with sedimentary ridges as well. The sand was not rippled but frequently admixed with dropstones. The octocoral abundance decreases but antipatharians become more abundant at the northern slope. Several lost gillnets with trapped coral bycatch were documented at the northern slope of Pollux Mound. Sediment samples were taken with the box-corer and van Veen-grab to further collect live organisms (Figure 1) and to further understand the sedimentary composition of carbonate mounds.



Figure 1. Van Veen grab sample from a coral thicket showing *Lophelia pertusa* (alive and dead) and silicate sponges.

Two CTD/Rosette water sampler surveys across the Galway Mound were driven in highly resolved longitudinal and a latitudinal transects and the first MOCNESS mesozooplankton hauls were also carried out in this area.

Two types of lander were deployed to study the occurrence and activity of necrophagous organisms.

The baited ROBIO lander (Robust Biodiversity lander) was deployed at 1000m. Digital still images were captured every minute for 8 hours. The images revealed the dominant scavengers were *Synphobranchus kaupi*, and lysianassid amphipods. Other organisms attending the bait were several elasmobranchs (Figure 2) and teleost fishes, *Mora moro* and *Phycis blennoides* (Figure 3). Baited small traps attached on the underside of the lander recovered a number of lysianassid amphipods. When positioned in front of a low light camera the amphipods were shown to be bioluminescent, emitting a pale blue light visible to the naked eye.



Figure 2: *Synaphobranchus kaupi* and unidentified elasmobranch at the bait.



Figure 3: *Phycis blennoide* inspecting the carcasses.

A GEOMAR Modular Lander, carrying the OceanLab instrumentation was deployed and positioned using the video launcher on Galway Mound. A low-light camera was positioned in front of a baited benthic chamber from a GEOMAR BC lander with the aim of recording bioluminescence emitted by resident organisms of a coral thicket. A total of thirteen 4-minute sequences were captured over 11 hours. The footage showed that there was not a consistent amount of bioluminescence. There was no evidence that bioluminescence is related to any feeding activity but emission of light was observed during the closing of the chamber, probably as a result of mechanical stimulation. The dominant scavengers were found to be lysianassid amphipods and *Synaphobranchus kaupi*.



Figure 4: Deployment of a GEOMAR BC-Lander carrying an OceanLab bioluminescence observatory.

An Bord sind alle wohlauf.

Es grüssen.

O. Pfannkuche & alle Fahrtteilnehmer