

# RV METEOR M193 “REPLENISH“

Limassol – Jeddah

## 1. Weekly Report (08.09 - 10.09.23)



The Meteor cruise M193 (**REPLENISH: Red Sea Paleoenvironmental Evolution under Monsoon fluctuations in the Pleistocene to Holocene**) is part of a close cooperation between University of Hamburg, Leibniz Centre for Tropical Marine Research (ZMT, Bremen), King Abdullah University of Science and Technology (KAUST, Thuwal, Saudi Arabia), University of Bremen, (MARUM), and Institute of Marine Research (ISMAR, Bologna, Italy). The scientific team consists of 20 scientists, two technicians from Hamburg University as well as four ROV pilots from MARUM and four marine mammal observers from Ocean Science Consulting Limited (OSC).

The project REPLENISH is funded by the German Research Foundation (DFG). It aims to study the influence and records of monsoon shifts controlled by orbital timescales, and related pluvial-arid phases in the Red Sea since the Late Pliocene. The study area is located off the Al Wajh lagoon in Saudi Arabian waters. Compared to the Mediterranean Sea, where monsoon run-off and its consequences are intensively studied, the Northern Red Sea margins are, so far, only little investigated. In order to fill this gap, our project is focused on three research topics. These include the investigation of (1) marine climate archives related to ITCZ shifts and monsoon records, (2) the Influence of monsoonal run-off on Red Sea siliciclastic-carbonate shelf system development since the Late Pliocene, and (3) the Red Sea shallow-water and deep-water coral habitats. To achieve our objectives, we utilize a 144-channel digital streamer (University of Hamburg), a ROV (Squid – MARUM) and several sampling gears including a van Veen grab, a giant box corer and gravity corer (MARUM) as well as the shipboard hydroacoustic sonars and CTD.



Figure 1: Pilot vessel picking up the pilot in the port of Limassol. (Photo T. Lüdmann).

The RV Meteor left the port of Limassol (Cyprus) on the 8<sup>th</sup> September at 11:30 LT. The transit to our research area in the Red Sea will take ca. 4 days. First destination on the transit was Port Said in front of the Suez Canal. Here we anchored on 9<sup>th</sup> of September at 12:30 LT. During the transit we started to setup our gear and the equipment in the labs. Because there were no international waters on our transit we could not collect hydroacoustic underway-data (DAM).

At 2:30 on 10<sup>th</sup> of September, we began with the passage through the channel in a convoy of several ships after we had taken on board the Egyptian team consisting of a pilot, an electrician and two auxiliaries. During the passage, the Egyptians stayed in the universal and geology labs. Hence, our equipment must be installed after the end of the passage.



*Figure 2: Passage through the Suez Channel at Lake Timsah. (Photo T. Lüdmann).*

Before entering the southern passage of the Suez Canal, we had to wait in the Great Bitter Lake for the onward journey. The transit commenced at 19:00 LT and will take about 4-5 hours. After that, the FS Meteor will set course for the area under investigation, which we will reach on Tuesday 12<sup>th</sup> of September.

With best regards on behalf of all participants of the expedition M193,

Thomas Lüdmann

(University of Hamburg)