

Research Vessel METEOR M196: Piräus (Greece) – Limassol (Cyprus) 2. Weekly Report: 11. bis 17. December 2023



Our second week at Sea had its highs and lows:

We have now taken a total of 11 gravity cores in various regions of the Gulf of Corinth. Although we were up to now unable to penetrate directly into the freshwater zone with the gravity corer, about half of the cores show a gradual freshening of the pore water within the first three to four meter of sediments. These are the first indications that the groundwater body in the seabed, which was identified 6 years ago from IODP well 381 in the eastern part of the Gulf, extends further west, well into the Gulf of Corinth. We are now eagerly awaiting the chemical analyses of the pore water at GEOMAR and the noble gases at ETH, which we hope will provide us with information about the origin of the groundwater.



Our M196 hydro-acoustic team

As pore water salinity changes, it create a strong resistivity anomaly in the seabed. Therefore, the geophysical method of choice for imaging fresh water bodies in the seafloor is electromagnetics. While we were able to collect data along the entire main axis of the sediment basin and across two IODP drill sites during our first deployment of the 800m long, seafloor towed electromagnetic survey system, we had bad luck with the four receiving dipoles during the second deployment, which did not record any usable data. We suspect that the system failure was caused by an increased tension load on the system due to an unexpected obstacle on the seabed that we got briefly stuck on. When we brought the system on board after 24 hours, during which we continuously monitored the proper functioning of the transmitter and load on the winch wire, the last of the four receiver dipoles was missing. That was a bitter at the moment, but at least the front three receivers with the transmitting dipole could be recovered safely and have since been repaired and tested so that we can use the towed electromagnetics again on Monday evening.

The electromagnetic team were restored the following evening during a fun and beautiful mid-term barbecue party on a decorated deck. Shooting stars, dolphins and schools of tuna around the ship provided additional entertainment. Our compliments to the grill masters from the crew and to the kitchen for the beautiful buffet. Our hydro-acoustic team, who is doing a great job around the clock since the start of the trip in recording and processing the important acoustic data, unfortunately had to continue working that evening. For the barbecue, however, we were at least able to plan straight, low maintenance profiles. The WTD additionally streamed the screen from the hydro lab to screens in the geo laboratory on the main deck, which made their work easier.



Filming for the M196 YouTube film series.

Another highlight of the second week was the completion of the first film sequences, which Hannes Schuler edited together thematically from his recordings taken in all weathers and during day and night shifts. As a true documentary film professional, he managed to present our work in a coherent, exciting and scientifically correct! way from a multitude of different sequences and interviews and with animations he created himself. Due to our enthusiasm for his films, we now feel more confident about microphones and a camera in front of our faces and are eagerly awaiting the next clips. Stay tuned for the release of the film series on the GEOMAR YouTube channel after the end of the cruise.

Everyone on board is doing well, the weather is still favourable except for a few showers and the mood is positive, also thanks to the friendly and competent work of the crew.

Seasonal greetings on behalf of all cruise participants

Marion Jegen, RV METEOR, Sunday Dec 17th, 2023.