

RV Maria S. Merian
Cruise MSM103 (GPF 20-2-046)
12.09. – 15.11.21, Emden – Emden

PRINCE
Groundwater resources offshore
Prince Edward Island, Canada

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Within the first half of the week we finished the scientific work in the working area around the Prince-Edward Island.

For electromagnetics, this meant retrieval the OBEM receivers after our 7th EM experiment and a final deployment over a channel structure in which we had found signs of fresh water in previously taken gravity cores. The final measurements with the CAGEM transmitter went without any further problems, so that we were able to begin the last OBEM recovery in the morning of November 3rd. Here we were once again held in suspension, as the release hooks could not be opened at two stations. So we had to start a rescue operation in the last few hours we had left in the working area. For this purpose, we used the device carrier of the EM transmitter, which has a camera and a ranging system with which the distance to the OBEM receivers can be measured directly. Additionally, hooks for the rescue were attached to the frame. With the combination of camera, distance measurement and dynamic positioning system of the Merian, we were able to find the OBEMs within approx. 20-30 minutes each and then recover them within a very short time.

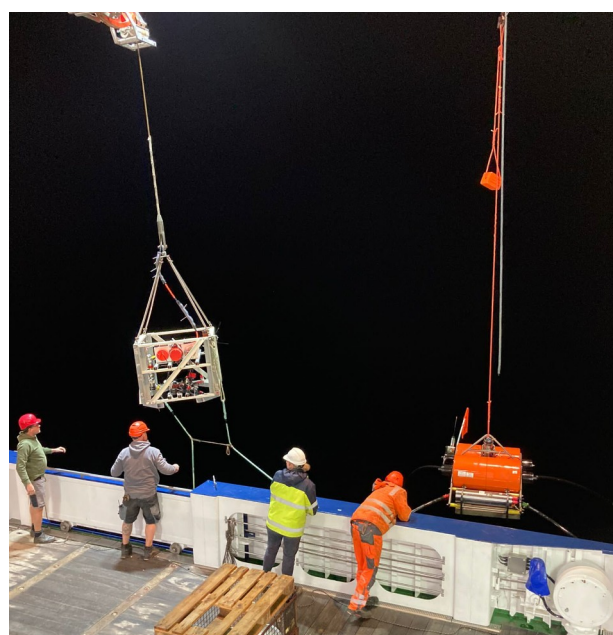


Fig. 1: Recovery of a lost OBEM station: after a successful acoustic detection, it is sighted on camera and grappled with hooks (left) and finally brought on deck (right).

Unfortunately, we had to cancel the last planned gravity coring stations. Previous attempts to acquire additional coring material with the gravity corer at the beginning of the week had already been unsuccessful. At two locations, the corer was unable to penetrate into the sediments at all, at a third location, the sediment was so unconsolidated that it leaked out of the barrel before the corer was even on deck.

Since Wednesday evening we are on our way back to Germany. After six weeks in the working area around the Prince-Edward-Island, it is time to draw a conclusion. We were informed by our System Operator Emmo Reize that, since last Friday, the cruise MSM103 is officially the longest expedition with an unchanged scientific crew ever to have taken place on the Merian. When arriving in Emden next week, the record will have been expanded to 64 days and will most likely not be challenged any time soon. During this time, we conducted various measurements and acquired substantial amounts of data and samples:

- 2D Seismic measurements with a streamer along profiles of more than 2000km;
- hydroacoustic measurements along profiles of more than 4000km, which corresponds to approximately 8TB of hydroacoustic data;
- CSEM measurements in eight sub-working areas, with a total of 93 OBEM deployments and recoveries and deployment of the CSEM source along profiles of approximately 200 km length;
- approximately 40 m of coring material was acquired in 9 locations; The total number of gravity coring locations was 19.

As the chief scientist, I would like to thank my scientific and technical colleagues, who worked tirelessly day in and day out to ensure that we were able to gain one data set after the other with practically no interruptions. Although we started with an extremely young team from the scientific crew, everyone did their jobs conscientiously and professionally. I am very proud of you.

Of course, none of this would have been possible without the active support of the Merian crew, who helped us to implement our scientific ideas at any time of the day or night. Many questions of the scientific crew could be clarified, most of the requests could be fulfilled. I would therefore like to thank Captain Ralf Schmidt and his entire team for the pleasant working atmosphere on the Merian.

Of course with such a long trip the social aspects cannot be neglected and I was impressed by how varied the leisure time was organized: tabata, yoga, table tennis, table football, game evenings, pub quizzes, film evenings, guitar, ukulele, OC, etc. ... As a testimony to this, this weekly report shall end with a watercolor painting created on board.

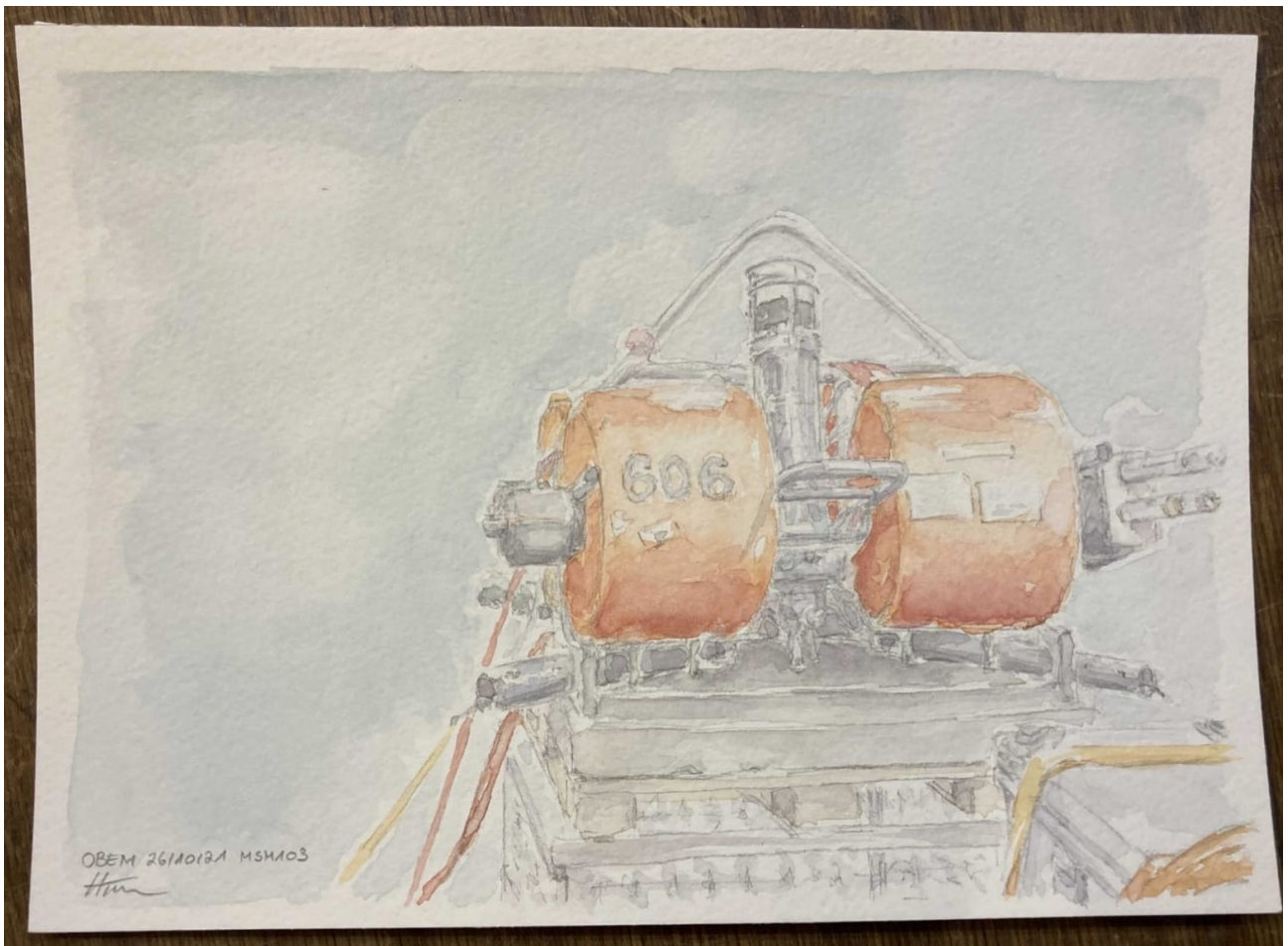


Fig. 2: OBEM station as seen by an artist: our colleague Henrike Timm captured the instrument artistically in a water color painting.

With best regards on behalf of the crew of cruise MSM103

Sebastian Hölz

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