

RV Maria S. Merian
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In the past week we mainly carried out CSEM and hydroacoustic measurements.

Because of the rough sea bottom, we previously had decided against using the bottom-dragged CSEM system. In order to carry out further CSEM measurements, we therefore had to first solve the problem that we only have a limited number of anchor stones for our OBEM receivers. Due to the shallow water depths in the working area of typically 40 - 60m, we decided to also recover the anchor stones together with the OBEM stations after experiments. To do this, we use a floating line that is connected to the anchor stone at one end and to the station at the other end. In order to prevent the line from getting caught in the station or tangled during the ascent of a station, it must be shot open very carefully and packed between two plastic sheets (Fig. 1). After manufacturing of the 12th package at the latest, we had all gained sufficient experience and during various "rope



Fig. 1: Henrike Timm and Thies Bartels preparing the line. (Photo: S. Hölz)



Fig. 2: Recovery of the anchor, which is connected to the front end of the OBEM station by a long line. (Photo: Thies Bartels)

parties" in the hangar a total of 48 packages were put together, which were used last week for two CSEM experiments to the east and for the current experiment to the northeast of the island. In all experiments, we use different station geometries to investigate channel structures that we previously identified in seismic- and / or hydroacoustic data. We currently have 29 of the original 50 anchor stones left, which we will use in the upcoming last two experiments of this cruise in places that are too deep for the anchor stones to be recovered.

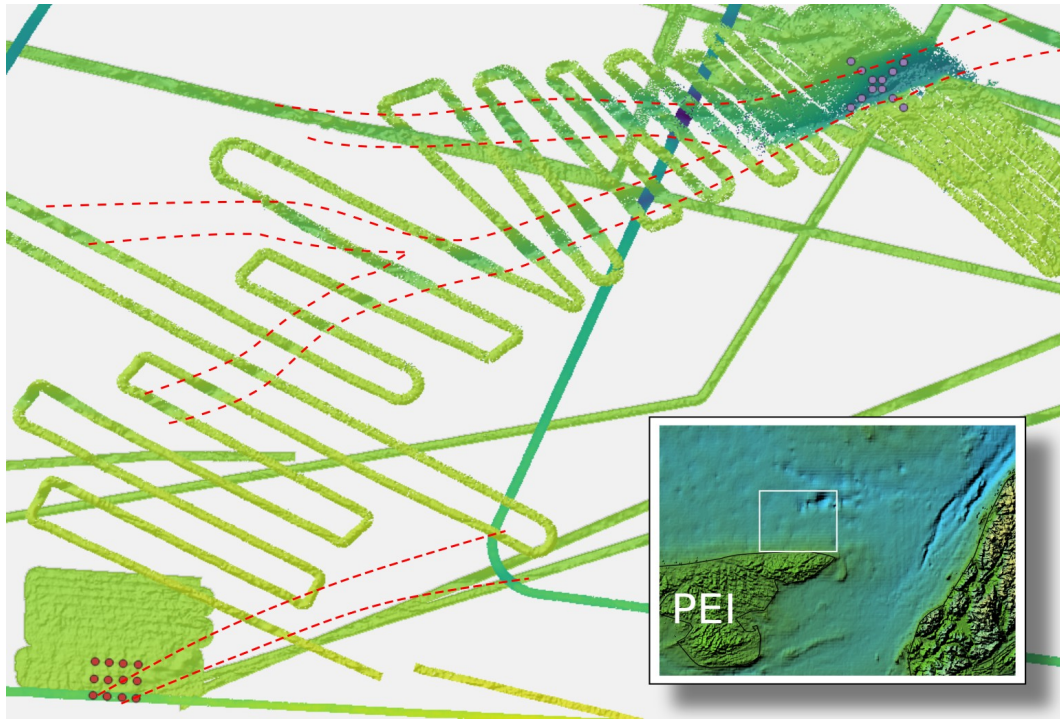


Fig. 3: Seafloor northeast of PEI (see map) from multibeam data with approximate location of channel structures (red dashed lines) and the location of OBEM stations from two CSEM experiments (dots).

At the beginning of last week, we first used hydroacoustics to investigate the area east of the PEI, where a large number of entangled channel structures can be seen, which we also investigated with two CSEM experiments. Later we again concentrated on the area northeast of PEI. There, it turned out that the approximately 140m deep, U-shaped depression previously examined by us is apparently not in connection with a channel structure further south (Fig. 3). Instead, it looks like they are two sub-parallel troughs that belong to an east-northeast striking system that is oriented towards Cape Breton Island. To what extent the northern of these two channels shows anomalous conductivity of the seafloor, which could be an indication of offshore groundwater, is currently being investigated in our 7th CSEM experiment.

Finally, we can briefly report on the operations with the gravity corer east of PEI: cores with a total length of over 20m could be recovered at four locations, with the 5m core barrel being used for the first time. The cores generally show lower salinities, which should primarily be due to the greater fresh water input from nearby rivers, which can also be seen in CTD data with a generally lower salinity in the water column.

With best regards on behalf of the crew of cruise MSM103

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