

RV MARIA S. MERIAN - Project GeoHifi



Weekly Report No. 2

November 16, 2020 – November 23, 2020

MSM97 (GPF 20-3_085), Emden – Emden

Seismic and hydro-acoustic profiling has been ongoing for more than a week by now. Due to high winds during last week (in average Beaufort 7), our line planning had to be adopted to the prevailing wind and sea conditions. Despite the conditions, RV MARIA S. MERIAN is still sailing relatively smoothly and data quality remains good. Meanwhile we have acquired 25 seismic profiles, which have been processed on-board for first quality control (Figure 1). We imaged the Cenozoic and Mesozoic sediments down to the base of Zechstein (ca. 250 million years) in all profiles.

Last weekend, we imaged a special structure at the southern border of our research area: a crater-like depression with a diameter of 500 m and a depth of 20 m in the surrounding flat seafloor. It was formed in 1964 during the first drilling (B1) in the German North Sea for a gas deposit. Overpressured gas blew out 220 m away from the drilling platform and formed this crater, in spite of attempts to close the drill hole. We are interested in imaging the pathways of this leakage through the sedimentary rocks up to the seafloor and in understanding the mechanism of this blow out.

Our four profiles crossing this crater structure were a special nautical challenge since the crater is located exactly in the middle of a main traffic route in the North Sea where the dense vessel traffic is channelled and separated in zones. We had to cross these traffic lanes several times with our hydrophone cable (1400m long) towed behind the vessel. The nautical crew of MARIA S. MERIAN had to plan ahead, observing the ongoing traffic precisely and predicting sufficiently large gaps which allowed for a safe crossing.

Our survey area, the West-Schleswig Block, is surrounded by offshore wind farms on the eastern, southern, and western sides. These impressive installations (Figure 2) are meanwhile becoming a familiar view in the North Sea, showing that various users with different interests are sharing the North Sea area.

Next Tuesday we will finalize our measurements after a relatively short but very successful cruise, which ends on Wednesday in Emden port. We are very thankful to the captain and crew of the research vessel MARIA S. MERIAN, who always supported our work in a friendly and professional atmosphere!

With best regards from RV MARIA S. MERIAN in the name of all cruise participants!

Axel Ehrhardt

(Federal Institute for Geosciences and natural resources (BGR) – Hannover)

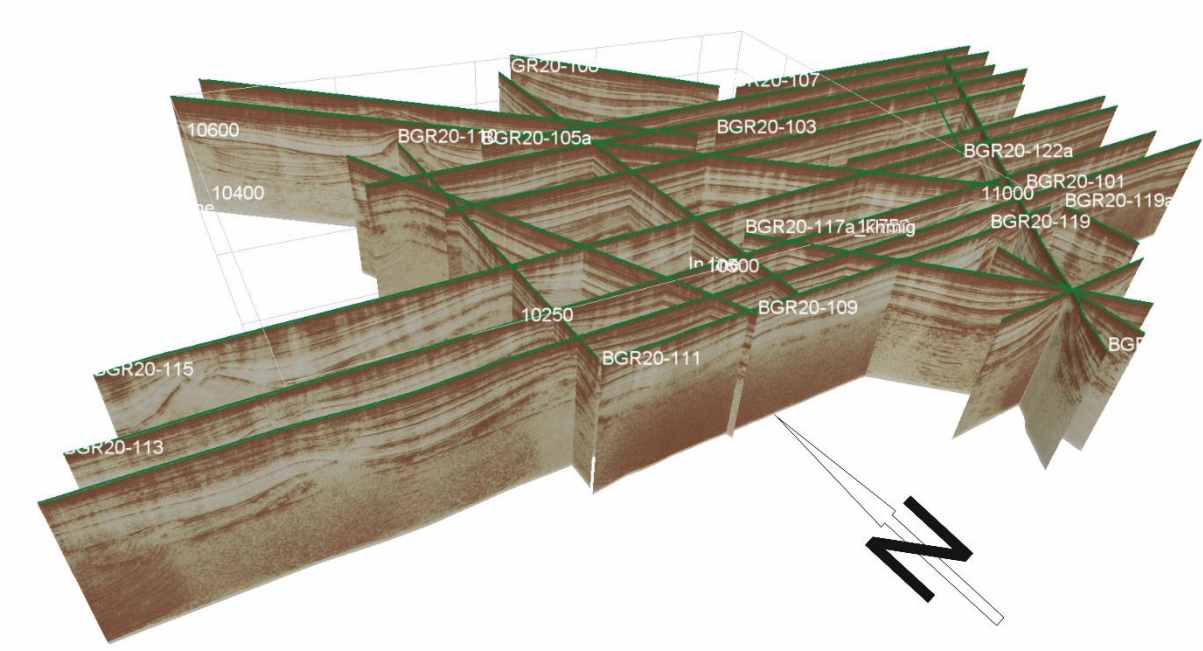


Figure 1: Perspective view over all preliminary processed new seismic lines. Sediments down to the Zechstein bases are imaged. Four profiles in the south-east cross over the craton structure.



Figure 2: Dawn over wind farm „Merkur Offshore“ (© Boris Hahn).