

## Cruise METEOR M166

Emden - Emden - 09.09.2020 – 08.10.2020

### 2. Weekly report: 13. – 19. Sep. 2020



The second week of the M166 cruise began with the deployment of the fourth mooring and further analyses of the data obtained from our first CTD measurements. Due to the predicted storms and high waves in the region, we had to change our main plan. We took advantage of the calm ocean conditions to stay longer in the Western Valley (WV), where we conducted 61 CTD stations (see Fig. 1), sampling temperature and salinity profiles in six sections in two sides of the WV. According to the first section plots for potential density from our onboard post-processing, we were able to capture the overflow in the WV in different sections. As an example, Fig. 2 presents a section plot of potential density along the section between stations 15 and 21 (left to right is north to south). The  $27.8 \text{ kg/m}^3$  contour line depicts the interface to the dense overflow water ( $> 27.8 \text{ kg/m}^3$ ). The section plot suggests an overflow with an interruption. However, more processing is needed particularly for the velocity components to support this.

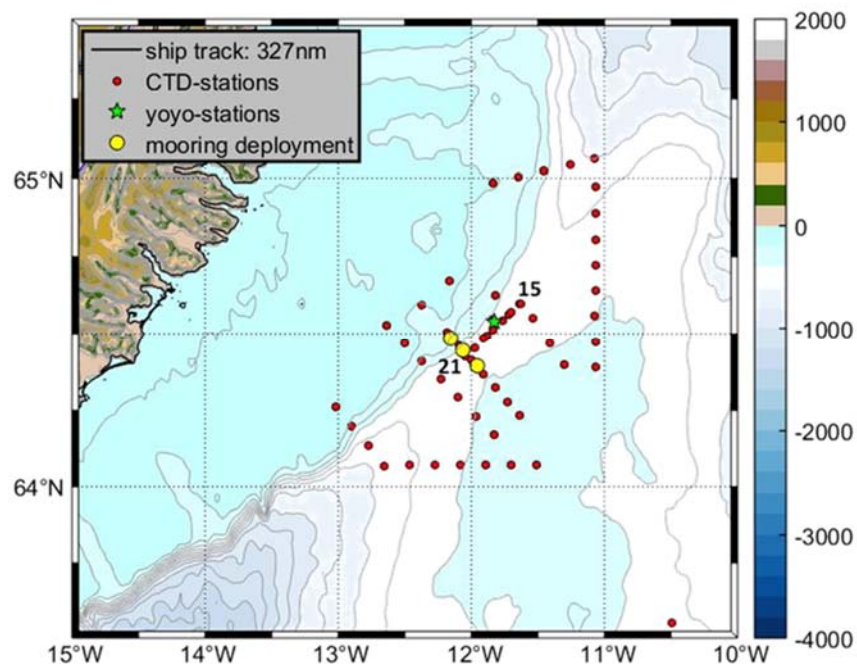


Figure 1. Station map for the first part of M166 in the Western Valley region before leaving for the Denmark Strait.

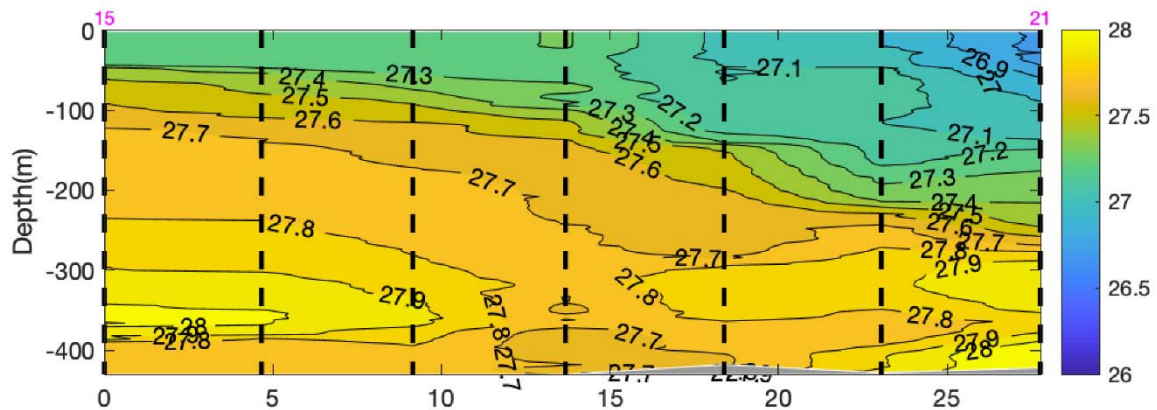


Figure 2: The potential density ( $\text{kg/m}^3$ ) distribution along the section 15-21 (shown as background colour with the black lines indicating isopycnals, of which  $27.8 \text{ kg/m}^3$  is commonly used as the upper boundary of the overflow layer).

We left the WV for the Denmark Strait on Wednesday afternoon to follow our plan in our second working area. Starting with the recovery procedure of DS2 mooring at its position on 18.09.2020 at around 7am, we tried to communicate with the mooring until 2pm – without any success. The mooring’s releaser did not respond to any of the calling signals (neither an answer signal nor a release signal). In spite of no reply, most scientific M166 participants were watching the ocean surface around the Meteor in case of release without responding signal from the releaser. At 2pm, we had to stop this to start a CTD section across the Denmark Strait. After the last at around 6:30pm, we had to leave and sail back immediately to the east of Iceland, where we had to reach a bay close to Vopnafjörður in time to get protection from the heavy storm approaching from the west. We will have to stay there and wait for calmer weather conditions probably until Monday (21 Sep.) morning.



Pictures by Vincent Urban

Best wishes on behalf of all participants,

Hossein Mashayekh Poul  
(Institut für Meereskunde, Universität Hamburg)

R/V METEOR Monday, 21 September 2020

For further information, please follow us here:

[https://twitter.com/M166\\_Meteor](https://twitter.com/M166_Meteor)