

Standard hydrography

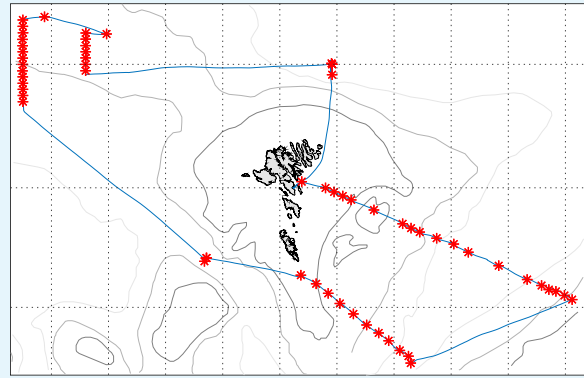
Mooring recoveries

Jákup Sverri, cruise nr. 2218

Period: 11-18/5 2022

Responsible PI: Karin Margretha H. Larsen

Objectives: *The objectives of the cruise were to recover moorings and to monitor hydrographic changes in the ocean around the Faroe Islands. The cruise is part of the regular investigations along standard hydrographic sections. The cruise is also part of the "Exchanges across the Iceland-Faroe Ridge" project.*



Summary

On the cruise, four ADCP moorings and one ADCP trawlproof frame were recovered; two in the Faroe Bank Channel, two on the Iceland-Faroe Ridge (IFR) and one north of the Faroes. A total of 54 CTD stations were occupied on the cruise, most of them on standard sections. All stations along standard section E from "Høgnaboði" towards "Flugga" in Shetland were occupied, while section S, from "Munkagrunnur" towards "Fair Isle", was occupied in Faroese waters only. In addition to this, two sections were occupied on the IFR nearby the moorings. On section N, north of the Faroes, the status of a PIES at station N05 was checked. WP2 hauls and water samples for salinity and nutrient analysis were sampled on the standard sections according to the cruise manual. Also, water samples for phytoplankton analysis were collected along section E for the COPS project and water samples for microplastic analysis were collected at selected stations in cooperation with researchers at the University of Rhode Island. At all stations, the CTD measured vertical profiles of temperature, salinity, oxygen and fluorescence. During the whole cruise, the underway Thermosalinograph was running and during most of the cruise, various echo sounders and the Ocean Surveyor ADCP were running.



Recovery of an ADCP buoy. Copyright Knút Olsen.

About the cruise

We left Tórshavn harbour on Wednesday 11/5 at 1920. The Thermosalinograph was turned on in order to measure underway temperature and salinity. The course was set for the location of standard station EHB (Høgnaboði), where section E was occupied throughout to Shetland Islands (Fig 1.). The last station was completed on Thursday 12/05 around 2030 and the course was set for station S14 on standard section S. On Friday morning 13/5 at 0730 we were on location and began occupying section S towards the Faroes. The section was completed in the evening around 2330 (Fig 2). The course was now set for the Faroe Bank Channel, where we arrived Saturday morning 17/05 around 0400. We began the work by occupying a CTD station at the NWFB site, after which the NWFB buoy was recovered. Then the course was set to NWFC and the NWFC buoy recovered. This work went well and was completed around 0730.

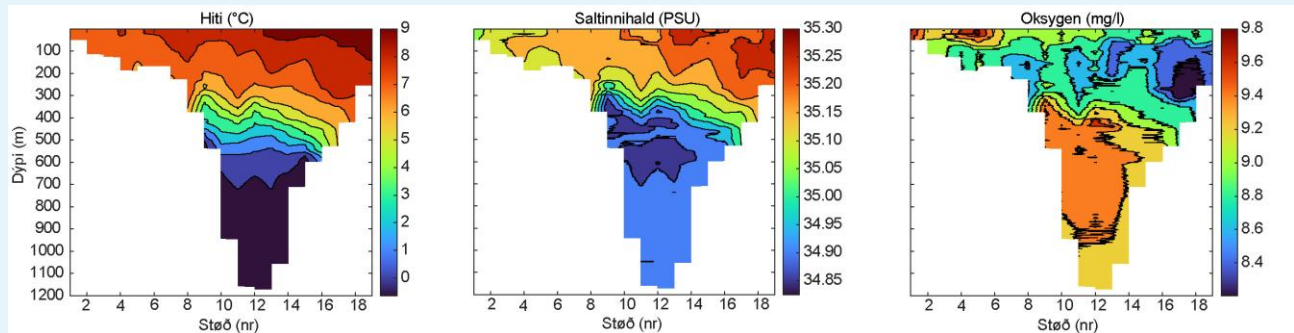


Fig 1. Preliminary results from standard section E. Station (Støð) 1 is station EHB close to Faroes. Left: Temperature, middle: salinity and right: oxygen.

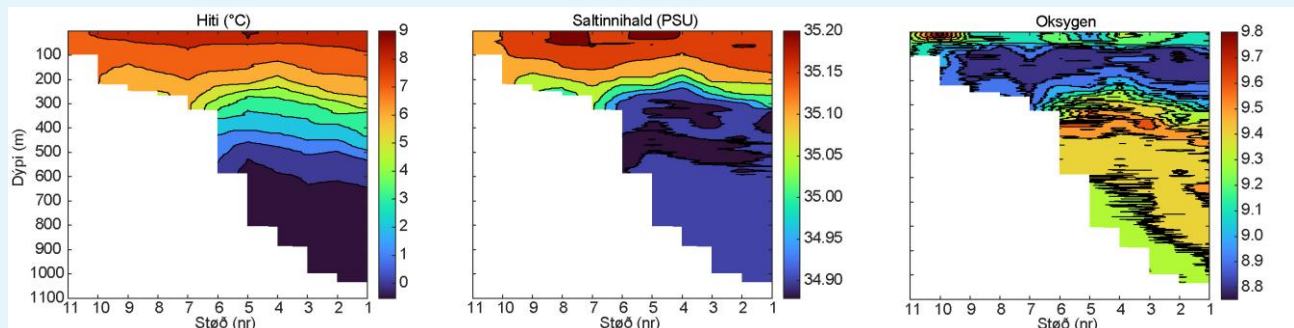


Fig 2. Preliminary results from standard section S. Station (Støð) 11 is station S01 close to Faroes and station 1 is station S14 in the centre of the Faroe-Shetland Channel. Left: Temperature, middle: salinity and right: oxygen.

We now set course for the IFR, where we began with CTD section DS2, which goes from Faroese waters into Icelandic waters (Fig 3). The section was initiated Saturday 17/05 around 2000 with only three nautical miles between the stations. The section was completed on Sunday 15/5 around 0530, after which we set course for the ADCP frame at location IFRF. We arrived around 0630. The weather was calm, but with some fog; thus we positioned the vessel as close as possible to the frame position before we released the acoustic release. The frame came afloat close to the vessel and the work to recover the frame went well. After that, we set course towards Faroese waters to the location of ADCP buoy IFRG. We were on location around 1000, but now it was foggier with foggy clouds moving back and forth. Again we positioned the vessel as close as possible to the site. Since everything went well in the recovery of the ADCP frame, we took the risk and released the buoy: the buoy went afloat just next to the starboard bow and was successfully recovered. We then set course west for section DS1 in Faroese waters. The section was initiated around noon on Sunday and we

occupied CTD stations in a southerly direction. After seven stations the measurements indicated that we had covered an overflow branch close to the bottom and we therefore terminated the section.

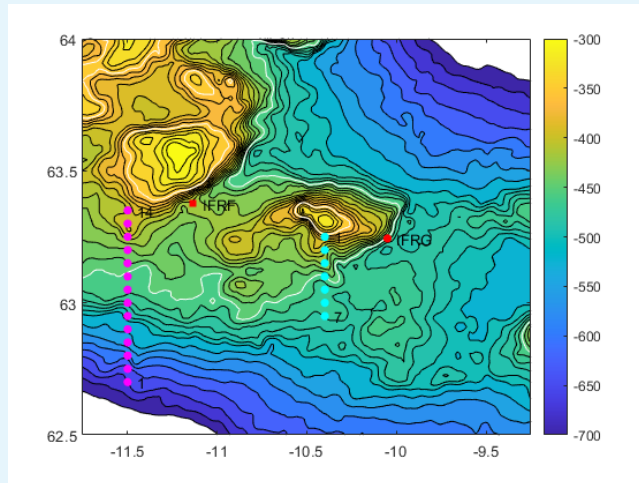


Fig 3. CTD stations on the IFR. Preliminary results from section DS1 (cyan dots) and DS2 (magenta dots) are shown in Fig. 5 and 4, respectively. Numbers to the right of the dots indicate station nr in Fig 4 and 5. The position of the ADCP frame (IFRF) is indicated by a red square and a red dot indicates the position of the ADCP buoy (IFRG).

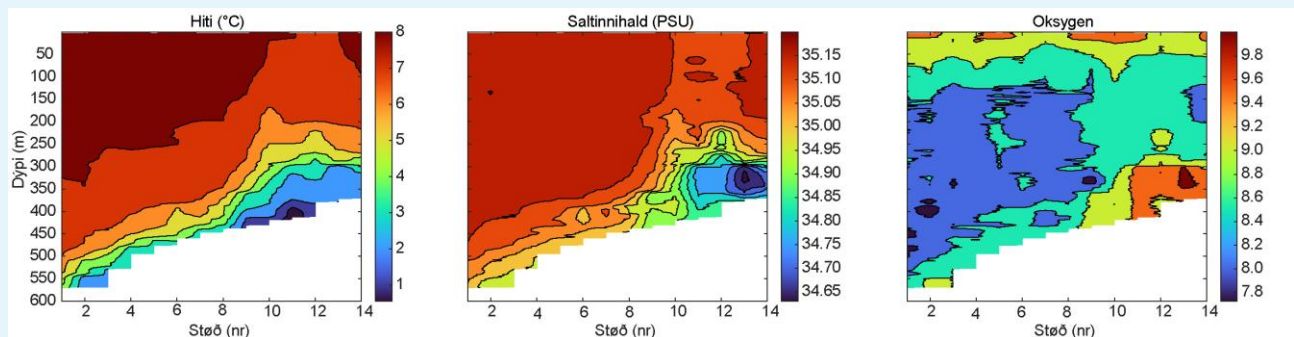


Fig 4. Preliminary results from section DS2, where overflow water is evident close to the bottom. Left: Temperature, middle: salinity and right: oxygen.

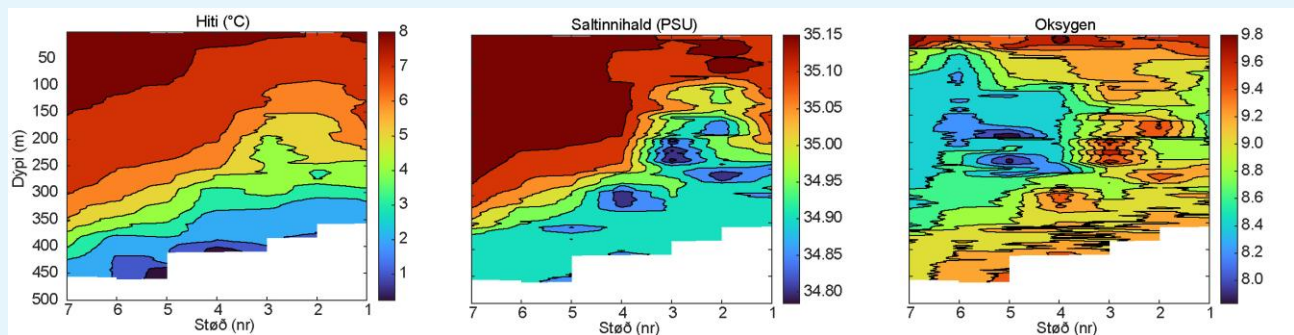


Fig 5. Preliminary results from section DS1, where overflow water is evident close to the bottom. Left: Temperature, middle: salinity and right: oxygen.

Finally, the course was set eastwards for section N north of the Faroes. Here, we first occupied a CTD station at standard station N05, where we on the up cast adjusted the CTD winch wire guide. Then we initiated the recovery of mooring NWNB just south of N05. This was on Monday morning 16/5 and the wind speed had now increased somewhat. Since the mooring had 300 m of line attached, we had to be extra careful, but after a few attempts to approach the buoy, we finally were successful and the whole mooring was successfully recovered. We then set course back for N05 to check the status of a PIES at the location. We succeeded in connecting acoustically with the PIES, although the signal was rather weak. The final station on the cruise was a CTD station, where we attached the self contained temperature sensors to the CTD frame for intercalibration. The work was completed around 1015 and we set course for Tórshavn. We were in harbour on Monday 16/05 at 1830.

Samples

Table 1. Measurements and samples during the cruise.

Samples / Data	Overview
Underway Thermosalinograph	Sea surface 11/5 to 16/5
CTD-stations	54 stations (Section E, S, two sections on the IFR, and two additional stations)
Salinity samples	Every other station in stable water
WP2 200 μm (50m)	19 stations (Section E and S)
Phytoplankton	8 stations (Section E)
Microplastic	4 stations (E09, E10, NWFB, N05)

Equipment

Sea-Bird 911+ CTD, WP2-net (200 μm), equipment for recovery of ADCP buoys and trawlproof frame, equipment for water samples (bottles, chemicals, etc) and acoustic equipment for PIES.

Comments

The CTD and winch worked well on the whole cruise. Overall, the RAPP system also worked well. The wire guide was adjusted a few times during the cruise, but on the IFR the wire was incorrectly spooled on the drum. This was adjusted on a deep station north of the Faroes. At the same time, the spooling diameter was changed from 8.130 to 8.120. On the up cast, the wire was nicely spooled on the drum.

Staff from Havstovan

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