

R1/12

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FRV *Scotia*

Cruise 1600S

REPORT

5-19 October 2000

Loading: Aberdeen
Unloading: Aberdeen

Personnel

G Slesser In charge
P Gillibrand
S Hughes
J McKie
P Chatwin
N Collie
C Shaw
R Swift Aberdeen University
S Mendez Aberdeen University

Gear

SeaBird CTD's

Objectives

1. To perform a hydrographic survey along the JONSIS standard section in the northern North Sea.
2. To perform hydrographic surveys along the standard Faeroe-Shetland Channel sections.
3. To service two of the Nordic WOCE ADCP moorings.
4. To service the mooring east of Lerwick in support of the MAIA project.
5. To undertake comparison trials throughout the trip with Skalar and Bran + Luebbe AA3 nutrient analysers with the aim of commissioning the latter.
6. To perform *ad-hoc* sonar buoy recordings of cetaceans.
7. To perform continuous 13 hour CTD surveys at the positions of the Nordic WOCE Moorings A-E to study the effects of internal tides.
8. To perform a continuous 13 hour or 25 hour CTD and ship ADCP survey of the Wyville-Thomson Ridge to study the effects of internal tides.

9. Repeat wide area CTD survey of Faeroe-Shetland Channel.
10. To film the use of oceanographic equipment for a Carlton TV programme on global climate change.
11. To deploy water level recorder moorings adjacent to the ADCP moorings.

Out-Turn Days per Project: 15 days, AEIn.

Narrative

Scotia sailed from Aberdeen at 1000 hours (all times are GMT) on Thursday 5 October 2000 and proceeded towards the eastern end of the JONSIS section. A test 911+ CTD deployment was performed during the passage. Instrument problems occurred during this deployment. To allow work to continue the Sealogger CTD was prepared for deployment on the JONSIS line. The JONSIS standard section commenced at 0508 hours on Friday 6 October and was completed at 1732 hours on Friday 6 October (Stns 372-383).

Scotia then proceeded to the location of the MAIA mooring (60 25.37'N 000 48.18'W) east of Shetland. The mooring was successfully recovered at 0810 hours on Saturday 7 October. A delay in redeployment occurred due to problems downloading data from the instrument. The mooring was deployed at 1541 hours.

Scotia proceeded to the location of the NORDIC WOCE mooring NWSD (60 27.23'N 004 22.49'W). Prior to the recovery of this mooring a 13 hour continuous CTD survey was carried out at this site. This survey commenced at 1310 hours on Sunday 8 October and ended 0206 hours on Monday 9 October. The mooring was successfully located acoustically and recovered by 0925 hours on Monday 9 October. Following this a water level recorder mooring was deployed (60 27.18'N 004 22.39'W) at 1305 hours on 9 October.

Scotia then proceeded to the start of the Fair Isle - Munken section to commence CTD stations. Work started at 1640 hours on Monday 9 October and was completed by 1345 hours on Tuesday 10 October (Stns 395-409). Following this successful tests were carried out on the 911+ CTD.

Scotia made the passage to Torshavn and docked at 0800 hours Wednesday 11 October. The ADCP was transported from the ship to the Faeroese Fisheries Laboratory for down loading of the data, replacing of the batteries and refurbishment of damaged parts of the mooring. *Scotia* left Torshavn at 0900 hours on Thursday 12 October after delivery of the ADCP and a replacement ADCP for mooring NWSE and made passage to the start of the Nolso - Flugga section. Using the 911 + CTD, work along this line commenced at 1017 hours of that day and was completed by 1346 hours on Friday 13 October (Stns 410-426).

An overnight passage was made to the ADCP mooring position area. ADCP Moorings were successfully deployed at NWSD (60 27.48'N 004 21.94'W, 820 m) at 0841 hours and NWSE (60 16.38'N 004 19.88'W, 442 m) at 1144 hours and a water level recorder mooring (60 18.46'N 004 06.72'W, 358 m) at 1321 hours on Saturday 14 October. Following this a 13 hour 911+ CTD continuous survey was carried out at the NWSE site. This survey commenced at 1643 hours on Saturday 14 October and ended 0456 hours on Sunday 15 October (Stns 427-448).

For the remainder of the trip *Scotia* carried out 10 water bottle casts in aid of the nutrient analyser comparison trials and then continued to perform a CTD survey across the shelf. A further 23 CTD casts were performed (Stns 449 - 471) until work was terminated at 2100 hours

on Tuesday 18 October due to severe gale conditions. *Scotia* proceeded to the Moray Firth where some time was given on the afternoon of Wednesday 18 October to the deployment of sonar buoys for the recordings of cetaceans. *Scotia* then proceeded to Aberdeen, where she berthed at 0530 hours on Thursday 19 October.

Results

The trip was characterised by reasonable sea conditions throughout except near the end of the cruise.

1. The JONSIS standard section in the northern North Sea was surveyed.
2. The two standard Faeroe Shetland Channel sections were surveyed.
3. The Nordic WOCE ADCP mooring NWSD was recovered successfully, the data downloaded, the instrument reset and redeployed. These data will be processed in the laboratory by recently developed software. In addition a replacement ADCP for Nordic WOCE ADCP mooring NWSE was deployed.
4. The mooring east of Lerwick was successfully serviced in support of the MAIA contract.
5. Moderately successful comparison trials were undertaken throughout the trip with the Skalar and Bran + Luebbe AA3 nutrient analysers. The trials highlighted a number of problems which will be addressed before the AA3 can be used to its full potential onboard the *Scotia*.
6. *Ad-hoc* sonar buoy deployments and recordings of cetaceans were made.
7. Two continuous 13 hour CTD surveys were made at the Nordic WOCE Moorings NWSD and NWSE to study effects of internal tides. At the shallower mooring NWSE (400 m) the ship's ADCP was used to collect additional data for this study. No conclusions have been made from these data and further interpretation of these data will be made at the laboratory.
8. No time was given to this objective.
9. CTD stations were carried out across the east shelf of the Faroe Shetland Channel in support of the MAIA contract and the data collected will be interpreted in the laboratory.
10. The filming of the use of oceanographic equipment for a Carlton TV programme on global climate change was not carried out due to the last minute cancellation by the TV company. This work will be carried out at a later date.
11. The deployment of the water level recorders in support of the MAIA contract near the Nordic ADCP mooring sites NWSD and NWSE were successfully carried out.

G Slesser
27 October 2000

Seen in draft: Captain P Ramsay