

S.M.B.A., Dunstaffnage Marine Research Laboratory.

Cruise Report: RRS CHALLENGER Cruise 144/1975.

Duration: 1430h 7 November - 0915h 12 November 1975.
All times GMT.

Locality: Rockall Channel, 56°30' to 58°N.

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- Aims:
- 1) To work the Anton Dohrn Seamount hydrographic section.
 - 2) To make nutrient observations with the submersible pump across the Scottish and Rockall shelf-edges.
 - 3) To obtain bottom samples on the shelf for the Dept. of Geology, UCW, Aberystwyth.
 - 4) To work additional STD stations across the Scottish shelf-edge, as time permits.
 - 5) To obtain 50 litre surface water samples for 137 Cs analysis.
 - 6) To transmit messages of vertical temperature profiles to Bracknell.

Narrative. CHALLENGER sailed from Dunstaffnage at 1430h, 7 November, after a short delay caused by the need to re-assemble and test the Autoanalyser. As this had been taken apart subsequently to cruise 12A without the knowledge of the chemistry department, checks were necessary before sailing to ascertain whether the chemical work of the cruise could be carried out.

Surface samples for ^{137}Cs were taken from 1730h onwards during the steam to station E of the Anton Dohrn Seamount section, poor visibility in calm weather making it necessary to proceed at reduced speed for part of the passage. The section was worked between 0324h 8 November and 0030h 10 November in winds which briefly freshened to force 6-7 on the night of 8-9 November, but which fell below force 4 for the remainder of the cruise. Nutrients were sampled at sets of stations crossing the shelf-edge at either end of the section, and grab samples were obtained at all shelf stations and from the crest of Anton Dohrn Seamount.

After two additional grab samples on Rockall Bank, the ship steamed to station 3 of the St. Kilda section. From 1230h 10 November to 0300h 11 November the seven stations running inwards to the Scottish continental shelf were worked, with nutrient sampling at four stations and grab sampling at three stations. A PDR watch was kept across the shelf-edge and shelf in the vicinity of St. Kilda, and en route to station P of the Anton Dohrn Seamount section. Stations P and Q of this section were repeated between 0700h and 0940h 11 November, but a failure of the steering gear prevented the carrying out of any further work., After repairs

had been effected the ship set course at 1330h for Dunstaffnage by way of the Firth of Lorne, arriving at 0915h 12 November.

Results Aim 1) The 20 stations of the Anton Dohrn Seamount section were worked successfully with the STD during 8-10 November. The homogeneous layer was from 50 to 90 m deep, and over the western half of the section this was composed of cool water of relatively low salinity.

Aim 2) Three sections of four stations were worked to 80m depth with the submersible pump to obtain profiles of nitrate, silicate and chlorophyll-a concentrations across the edges of the continental shelf and Rockall Bank.

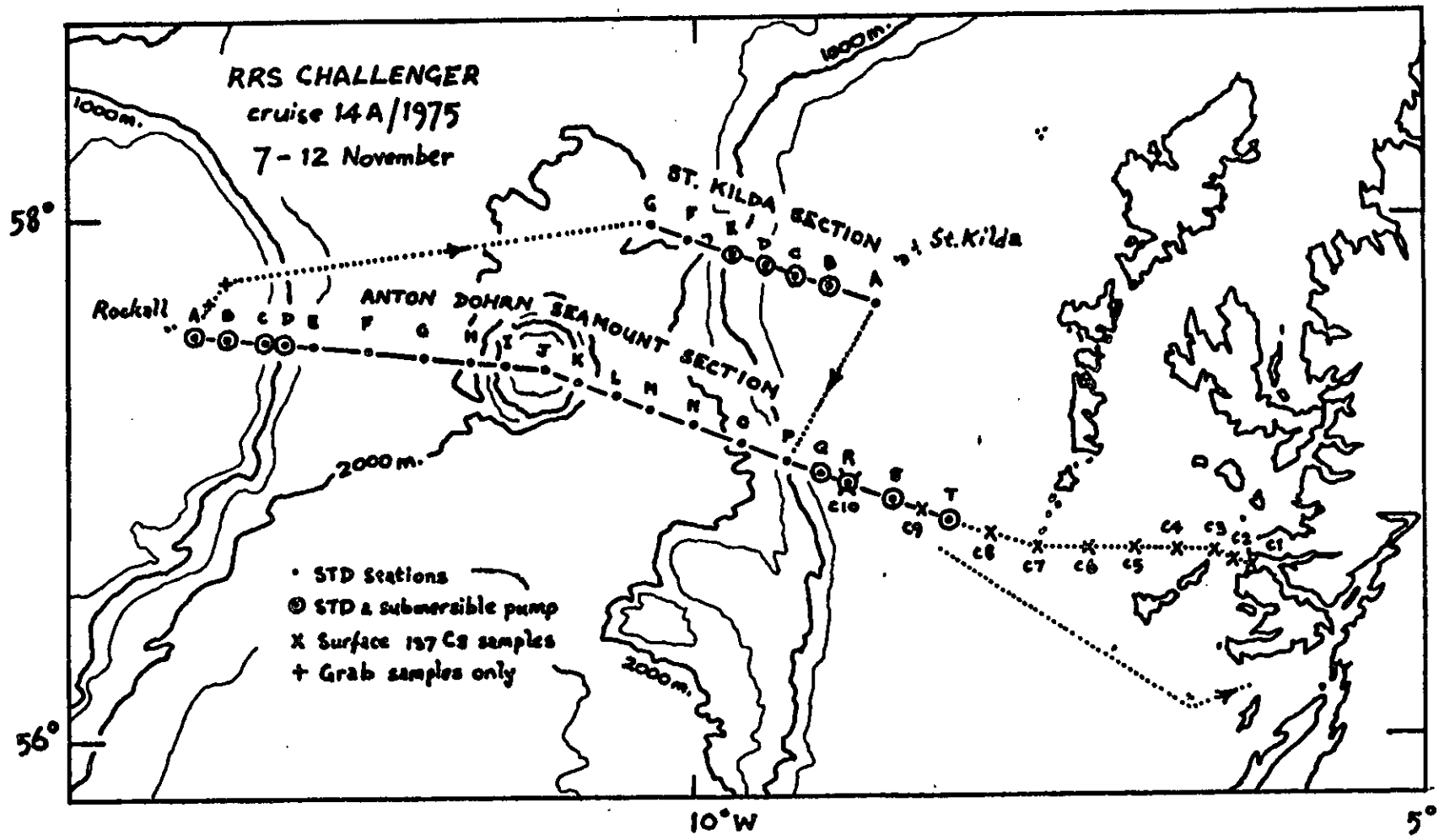
Aim 3) Samples were successfully obtained at twelve of the fourteen shelf stations worked with the Shipek grab.

Aim 4) The section worked in early September 1975 across the Scottish shelf-edge near St. Kilda was repeated on 10-11 November. It had been planned to repeat the five easternmost stations of the Anton Dohrn Seamount section during the final working hours of the cruise, but steering failure precluded this after the two deeper stations had been completed.

Aim 5) 50 litre surface water samples for ^{137}Cs analysis were obtained at ten standard locations on 7-8 November, and surface salinity samples were taken along the ship's track for comparison with the results.

Aim 6) Six messages of temperature profiles were sent to Bracknell during the cruise.

D.J. Ellett
13 November 1975



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