

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

Cruise Report: RRS CHALLENGER Cruise 7A/1975

Duration: 1444h 1 May to 1200h 6 May 1975. All times BST.

Locality: Rockall Channel, 57° to 58°N.

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- Aims:
- 1) To moor current meters at 57°N, 9°W for the duration of the cruise.
  - 2) To make hourly STD lowerings at the current meter site over a period of 14 hours.
  - 3) To work hydrographic sections across the shelf-edge at 57°N to Anton Dohrn Seamount and Rockall Bank.
  - 4) To obtain bottom samples for the Dept. of Geology, UCW, Aberystwyth.
  - 5) Further developments of the cassette tape data-logging system for the STD.
  - 6) To obtain 50 litres surface water samples for  $^{137}\text{Cs}$  analysis by the Fisheries Radiobiological Laboratory.
  - 7) To transmit messages to Bracknell of vertical temperature profiles.

Narrative. CHALLENGER sailed from James Watt Dock, Greenock at 1445h, 1 May, clearing Customs at the Tail of the Bank at 1600h. A heavy head swell caused speed to be reduced after rounding the Mull of Kintyre, and the first station of the Anton Dohrn Seamount section was reached at 2000h, 2 May. Faults in the pen recorder of the STD led to the first four stations being worked with reversing water-bottles. Shipek grab samples were obtained and unsuccessfully attempted at a deeper fifth station at 0400h, 3 May.

At 0930h, 3 May the current meter rig was successfully launched in calm sea conditions with force 3 southerly winds. In view of nearby trawling by East German and other vessels it was deemed prudent to make the series of 14 hourly STD observations alongside the buoy at this time, the series being completed at 0022h, 4 May.

Stations on the section were resumed at 0158h, 4 May and continued in fine weather, until 0230h, 5 May, when a further 10 stations had been worked using the STD. Shipek grab samples were obtained from the flanks and top of Anton Dohrn Seamount.

Retrieval of the buoy and current meters took place at 1300h, 5 May in calm conditions. Apart from initial difficulties in detaching the spar buoy from the buoy wire, due to fouling of the latter by the chains ballasting the buoy, the recovery was completed without incident. At 1630h a section on to the shelf from deep water with 8 STD stations spaced at  $2\frac{1}{2}$  n. ml. intervals was begun. On completing this at 2225h the ship set course for the Sound of Mull, surface samples for <sup>137</sup>Cs being taken en route. CHALLENGER berthed at South Pier, Oban at 1200h, 6 May.

Results Aim 1) Current meters were successfully moored over four tidal cycles at 57°N, 9°W. Modification of the weighting of the spar buoy may be advisable to avoid entangling the buoy-wire when hauling. Navigational warnings had been broadcast by Oban and Malin Head Radios on this occasion, and steps had been taken to increase the visibility of the spar buoy on radar and to the eye.

Aim 2) Hourly STD lowerings beside the buoy showed fluctuations of properties in the lower water-column over 14 hours which will be analysed further.

Aim 3) The hydrographic section to Anton Dohrn Seamount was worked, repeating observations made at the Scottish shelf-edge in March. Lack of time curtailed the extension of the section to Rockall, but observations were obtained in the deep water to the west of the Seamount.

As there were no problems in locating and recovering the current meters, time was available for a detailed STD section across the shelf-edge with stations spaced at  $2\frac{1}{2}$  n.ml. intervals in order to examine conditions in the vicinity of the buoy station more closely.

Aim 4) Good Shipek grab samples were obtained at seven stations to depths of 800m. Attempts at two deeper stations were unsuccessful.

Aim 5) Data-logging to cassette tapes via the Hewlett-Packard 9820A calculator was carried out at all STD stations. Plots could be generated within a few minutes of the STD reaching the bottom, and this proved a valuable facility whilst the STD pen recorder was out of action. Further programme development can now be carried out ashore.

Aim 6) Surface samples for  $^{137}\text{Cs}$  analysis were taken at ten positions between the buoy station and Ardmore Point, repeating stations sampled in March.

Aim 7) Six messages were coded from the STD profiles for transmission to Bracknell.

D.J. Ellett

12 May 1975. . .