

27th June to 22nd July, 1980.

The cruise was divided into two phases. The aim of Phase I was to investigate the short term variability in the hydrography in an area south of Cape St. Vincent where previous observations had indicated an appreciable meandering in the Mediterranean outflow and the possibility of a deep eastward counter current below 1500m. The confirmation of this was the main objective of Phase I. Phase II was complementary to previous work (Shackleton 9/79) in the Tyrrhenian Sea. The aim was to make similar CTD and Thermistor Chain observations in an area where step layers are formed beneath the Mediterranean outflow.

Phase I. Following an initial bathymetric and CTD survey, three moorings, carrying a total of 11 Aanderaa and one ACM (acoustic) current meters, were laid on 3-4 July in positions $36^{\circ}39.1'N$; $09^{\circ}05'W$, $36^{\circ}34.5'N$; $09^{\circ}04.9'W$, $36^{\circ}28'N$; $09^{\circ}04.5'W$ in depths of 1020, 2300 and 2500 m respectively. Weather conditions were not ideal but the operation proceeded smoothly. Repeated CTD profiles at 5 mile intervals were then taken on a daily basis along a section through the line of moorings between $36^{\circ}27'N$ and $36^{\circ}47'N$. This work continued until mid-day on 7 July when the ship sailed for Lisbon. The moorings were recovered intact on 17th and 18th July at the end of Phase II. All the current meters appeared to have worked satisfactorily. The complete success of the mooring deployment operation reflected much credit on the R.V.B. and ship's personnel involved.

Phase II. The fresh to strong northerly winds experienced throughout Phase I, persisted during Phase II but at no time was the work adversely affected. Phase II started on 12th July with a series of CTD stations at 20 mile intervals running 207° from $35^{\circ}35'N$; $9^{\circ}41'W$ followed by a closer 5 mile survey around the position where the best step layers were found ($34^{\circ}42'N$; $10^{\circ}12'W$). 36 hours were then spent at this site making time series and 'yo-yo' experiments with the CTD which was fitted with a thermistor chain above the probe and a recording current meter below. The detailed examination of the layers continued until 0000 on 16 July when the ship sailed for the Phase I area for a final CTD section and recovery of the moorings. The passage to Barry was uneventful; better weather was encountered than anticipated.

Overall, the cruise was highly successful. 45 stations were worked at which 116 CTD recordings were made giving much good data. Good co-operation was experienced throughout from the master/officers and crew. On each station up to 9 Rosette water bottle samples were taken for calibration of the CTD. The RVB lab. salinometer was erratic in operation but fortunately the Liverpool salinometer worked well throughout. Some trouble was experienced with leakage of the Niskin bottles on the rosette and three thermometers were lost due to a faulty frame mounting.

(R.I.Tait) 25th July, 1980.