Indexed

NH

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND NR33 OHT

1988 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 1

(PROVISIONAL: Not to be quoted without prior reference to the author)

STAFF:

P A Gurbutt
N D Pearson
K J Medler
J W Read
C A Hudson
D J Allington
D C Denoon
A K Young
R J Chapman

DURATION:

Left Lowestoft 1100 h 7 January 1988
Arrived Lowestoft 2200 h 21 January 1988
All times are Greenwich Mean Time

LOCALITY:

Eastern Irish Sea

AIMS:

1. To repeat the anchor stations, with the NBVR deployed, at four locations between Sellfield and Liverpool Bay which were occupied on Cirolana 6B/87.

2. To repeat two lines of stations between Liverpool Bay and St Bee's Head and between St Bee's Head and the Isle of Man for $^{238}U/^{234}Th$ and $^{226}Ra/^{210}Pa$ geochemistry and sediment cores.

3. To deploy current meter array around mooring position S to examine the variability in steady long term flows in the Irish Sea.

4. To deploy the NBVR on the mud patch near St Bee's Head for recovery in March.

5. To complete a line of CTD stations from the Isle of Man to Anglesey.

NARRATIVE:

Cirolana sailed from Lowestoft at 1100 h on 7 January and proceeded via the English Channel to the Irish Sea. Strong winds made it necessary to shelter in Red Wharf Bay, Anglesey, before making for mooring S on Sunday 10 January. Moorings B, C, D and S were successfully laid but conditions were too bad to launch mooring E, so Cirolana made for the relative shelter of Liverpool Bay and anchored overnight.

The anchor chain parted and most of Monday 11 January was spent dragging for the anchor and 4 shackles of chain. Just before the search was about to be abandoned at 1500 h on Monday, the anchor and chain were snagged and successfully recovered. Then the NBVR was launched (position A4) with one guard buoy and a 24 hour 'anchor' station commenced with hourly CTD casts and samples taken for suspended load, particle size determination, salinity and nutrients. The ship did not anchor but dodged up to position hourly. Weather conditions and darkness meant that the NBVR was not recovered until the morning of Wednesday 13 January.

During an attempt to relay the NBVR off the Ribble (position A3) the surface recovery line became fouled on the ship's bow propellor, so there was a delay while the NBVR was recovered undamaged. The NBVR was then successfully deployed with a guard buoy and an 'anchor' station commenced with the ship dodging up to position for the hourly CTD casts.

The NBVR was successful recovered less than 24 hours after being laid in an attempt to make up time lost and then redployed off Morecambe Bay (position A2) and off Selker Rocks (position A1) on successive days for 24 hour anchor stations with the ship anchored.

After the recovery of the NBVR on Saturday 17 January, the four geochemistry stations (TH17-TH20) were worked with two CTD casts (1801 of water from both the surface and the bottom) and two Reineck box cores taken at each.

On Sunday 18 January, Cirolana went to Whitehaven to pick up a long life acoustic tag for the NBVR and some other equipment before proceeding to lay the NBVR with three guard buoys at position T for recovery in early March. A standard current meter rig was then deployed to test two new types of shallow water acoustic releases. The rig was successfully recovered.

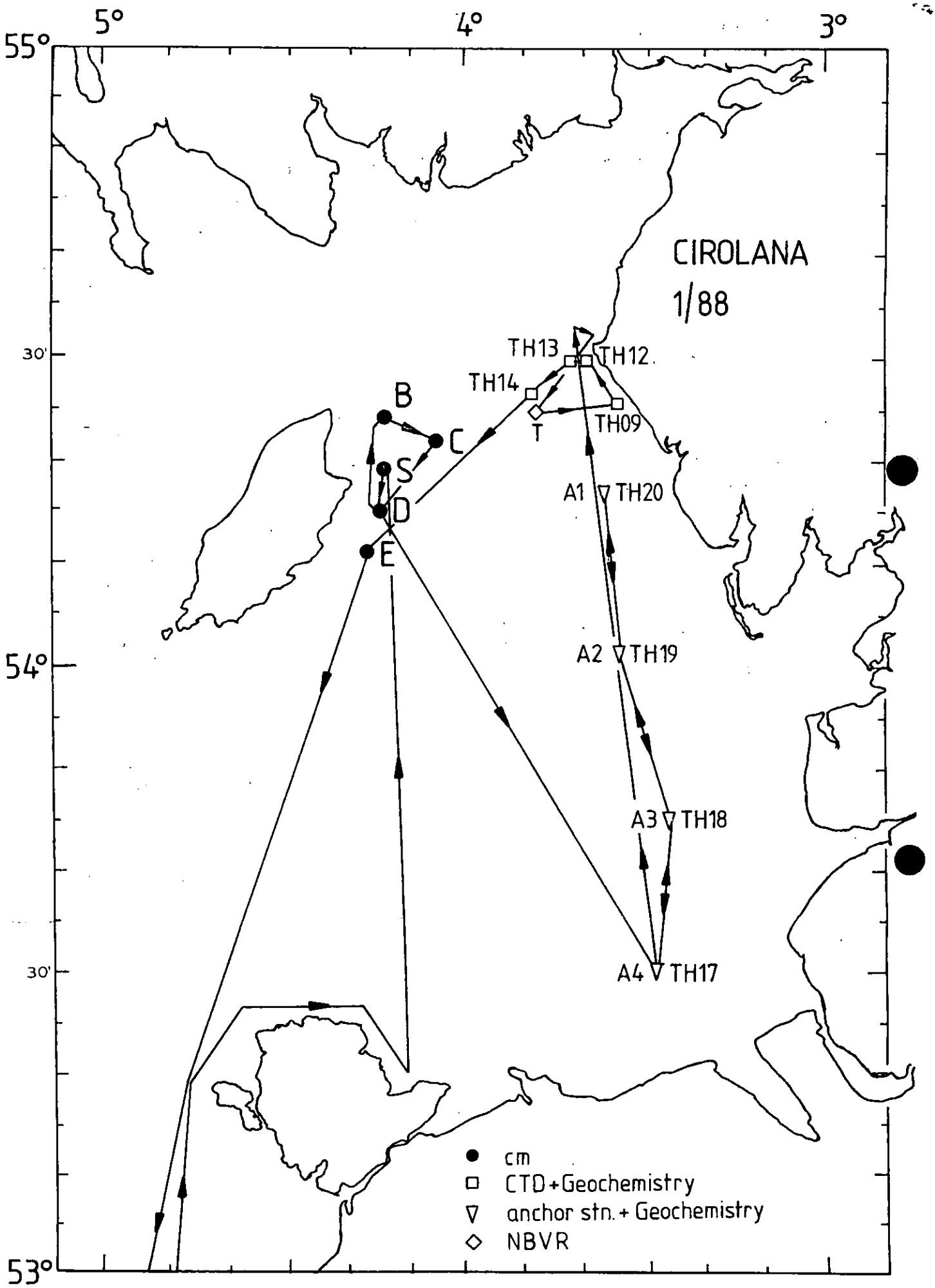
On Monday 19 January the four remaining geochemistry stations (TH09, TH12-14) were completed in calm conditions before Cirolana made for the Isle of Man and checked that the moorings B, C, D and S were still in position and to lay overnight to launch mooring E at first light. However, the wind strengthened to force 10 which made any further work in the time available impossible so Cirolana then proceeded to Lowestoft and docked at 2200 h on Thursday 21 January.

RESULTS:

1. Four out of five current moorings were successfully deployed to examine the variability of the long term mean flow in the Irish Sea.

2. A preliminary examination of the data from the NBVR shows that good data were obtained from all sensors. At peak tidal flows there is good correlation between the mean speed during a sampling burst and the logarithm of the height of the sensor above the seabed but at slack water the picture is more confused. As the four anchor stations (A1-A4) were worked during a period of decreasing wind strength and swell, ample data were provided on which to choose the limits on the pressure within a burst for event triggering of the NBVR during its month long deployment (position T).

3. Particle size determinations using a Coulter counter were completed for three depths on each CTD cast of each anchor station. A cursory examination shows the rapidity of the water clearing as the winds


5°
4°
3°
55°
30'
54°
30'
53°
CIROLANA
1/88
TH13
TH12
TH14
TH09
T
B
C
S
D
E
A1 TH20
A2 TH19
A3 TH18
A4 TH17
cm
CTD+Geochemistry
anchor stn.+Geochemistry
NBVR

decrease (1-2 days) and a relationship between swell and particle numbers. The water was also filtered through pre-weighed nucle-pore filter papers for suspended load determinations back at the laboratory.

4. Surface and bottom CTD casts at the eight geochemistry stations (TH09, TH12-TH14, TH17-TH20) collected water for ^{234}Th and ^{210}Pb determination and all the preliminary chemistry was complete on board.

5. Two box cores were collected from each of the geochemistry stations and after a preliminary visual examination and photography they were subsampled for ^{234}Th and grain size determinations and for X-radiographs, which were completed on board. The data from these cores will be used in conjunction with the water geochemical data.

6. The two shallow water acoustic releases were tested. The Oceano release could be heard and would release at a distance of nearly 6000 m (the maximum range tried) but the Datasonics released would only respond at about 500 m range and failed to release even though it indicated that it had.

7. The long-life acoustic tag was fitted to the HBVR before the final deployment of the cruise. Unfortunately it could not be clearly detected using the ship's Simrad sonar but this may be a fault in the sonar and not the tag. Multiple firings of the tag were heard when the ship was at close range.

8. Two SIS electronic reversing thermometers were successfully used on the rosette package during the CTD casts for the anchor stations. They were extremely easy to use and read. The results from the two thermometers were consistently different by about 0.002C. On return to the laboratory they are to be calibrated and a comparison made with the mercury in glass thermometers used at the same time.

9. The shallow water Guildline CTD was successfully logged on the Apricot and the data transferred to the HP1000. The salinity, but not the nutrient, determinations on the water samples were completed on board.

P A Gurbutt
Scientist in Charge
25 January 1988

SEEN IN DRAFT G Sinclair (Master)
P C Newrick (Fishing Skipper)

INITIALLED: H U H

DISTRIBUTION:

Basic List +
P A Gurbutt
N D Pearson
K J Sedler
J W Read
C A Hudson
D J Allington
D C Denoon
A K Young
R J Chapman