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

1977 RESEARCH VESSEL PROGRAMME

REPORT: RV CIRCLANA: CRUISE 11

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

STAFF

R R Dickson
G C Baxter
J A Bedwell
P Gurbutt
J W Read
B Meggett (Grimsby)
K E Parker (Hull)
N Robinson (North Shields)

DURATION

Left Grimsby 1630 h, 12 October

Arrived Falmouth 1600 h, 8 November

LOCALITY

North Atlantic

AIMS

1. To lay 3 long-term current meter moorings in the southern trench of the Gibbs Fracture Zone (Mid Atlantic Ridge) at 52°10'N 31°00'W approximately.

2. To lay a long-term current meter mooring at the southern approaches to the Rockall Channel (52°30'N 17°45'W) as part of the existing NEADS network.

3. To work a TSD/Nansen hydrocast section from the latter site to the IOS NEADS site at 46'N 17'W.

4. To obtain cores of deep sea sediments.

5. To work echo-sounder transects in the vicinity of the Gibbs Fracture Zone for A S Laughton, IOS.

6. To service the JONSIS moorings.

NARRATIVE

Leaving Grimsby 1630 h, 12 October, CIROLANA proceeded to service the two JONSIS moorings and the mooring off Spurn Head. This task was completed by 1926 h, 13 October and CIROLANA continued to the main working area in the North Atlantic. Storm force winds and heavy swell from a stationary storm in the east Atlantic forced the vessel to shelter off the Cornish coast from the evening of 15 to 17 October. During this period a surface buoyancy test of the Atlantic mooring was conducted and on 17 October additional silicate sample bottles were taken aboard from the MBA Laboratory, Plymouth

in case the continuation of storm conditions across our working area forced us to change our work programme and operate further south than planned on the Mid Atlantic Ridge. By the afternoon of the 17th however both wind and swell were moderating offshore and CIROLANA proceeded on passage, with fine weather on the 18th and 19th, but with continuous dodging in winds up to 60 kts during 20 and 21 October. Some moderation of weather conditions from the evening of 21st permitted the vessel to enter the working area and conduct acoustic release tests on hydrowire and lay one mooring in the fracture zone by 1230 h, 22 October, but freshening wind and heavy swell forced dodging thereafter until 1900 h, 24 October. From 0100 h, 25 October, further acoustic release tests were made on hydrowire including successful interrogation of the existing mooring, and by 1200 h the remaining two moorings had been laid. Wind and swell were little better than marginal during this period and a subsequent attempt to work a hydrographic section across the trench was abandoned at 2005 h after two stations as conditions worsened. On 26 and 27 October in storm force winds echo sounder transects were conducted along lines requested by Dr Laughton, IOS, but were possible only when running eastwards before the heavy swell. For the remaining period the vessel dodged with hull noise preventing PDR coverage. At 1200 h, 27 October with no prospect of moderation in the working area for at least 48 h the Ridge site was abandoned and CIROLANA ran eastward towards the site of the NEADS mooring at 52°30'N 17°45'W. After long periods of dodging on passage due to the heavy following swell on 28th and 29th the site was reached am 30 October, but a short moderation permitted only the acoustic release test in marginal conditions before dodging had to be resumed. A further short moderation between 1900 h and 2000 h, 30 October permitted the mooring to be laid, but once again conditions were marginal and the subsequent attempt to work the hydrographic section southwards was abandoned during the first station. Only one station was possible during 31 October in winds of up to 45 kts, but from 1 November to the evening of 4 November the 400 mile section was completed with an additional 16 stations to 2 000 m; for most of these wind and swell continued marginal and stations were interrupted by periods of dodging. On completion of the section at 1932 h, 4 November, CIROLANA proceeded to the western Channel, where in appropriate conditions of water depth and windspeed two complete series of ship-noise measurements were made on 6 November on passage to Lyme Bay. On arrival at Lyme Bay, during the afternoon of 6 November wind conditions immediately freshened to severe gale force so that field tests of the crystal-controlled acoustic release were impracticable in that locality. Accordingly CIROLANA dodged westward during 7 November to a less ideal but more sheltered site in Mevagissey Bay. By 1035 h, 8 November the field tests had been successfully completed and CIROLANA proceeded to Falmouth, docking at 1600 h, 8 November.

RESULTS

1. The three moorings in the Gibbs Fracture Zone were successfully laid at positions 52°11.8'N 30°58.2'W, 52°09.3'N 31°00.2'W and 52°05.6'N 30°57.5'W. The laying of each mooring was timed to anticipate a Satnav update so that accurate positions at the times of launch were obtained.

2. The mooring in the eastern Atlantic was also successfully launched at position 52°28.7'N 17°43.9'W.

3. A 400 mile hydrographic section was worked to 2 000 m depth between the latter site and the IOS NEADS site at 46°N 17°W. Stations were at 20 mile intervals in the northern half and at 30 mile intervals in the southern half of the section. Due to the continuous heavy swell, lack of accumulator springing on the TSD wire and poor visibility

of the TSD winch from the bow-thruster position on the bridge it was impracticable to use the TSD, and this section was worked using standard hydrocasts.

4. Echo sounder transects were successfully worked for Dr Laughton, ICS, along the southern flanks of the Gibbs Fracture Zone.

5. JCNSIS 1 and 2 and the Spurn mooring were serviced. Instrument wires and surface buoys only were replaced at the two JCNSIS sites, but the Spurn buoy had apparently been towed east of its original position and required complete renewal.

6. A complete spectum of ship-noise measurements were made in a Force 4 following wind and swell in 94-104 m water depth at ship speeds ranging from 4.0 to 12.8 kts (engine raft down). A second series was later conducted in 64 m depth Force 3 (following) and with the engine raft up. Some drift in the Humber gear gain was suspected during this latter series of measurements.

7. Field tests of the crystal-controlled acoustic release were completely successful. Tests showed that in typical North Sea depths it should be possible to use the resulting range information from a single 'pass' to obtain the bearing of the moored release to within 5^{o}, and from successive fixes, to locate the release with an accuracy of 50 m.

8. Due to the heavy swell prevailing for most of the cruise no deep sea sediment cores were attempted.

9. Carboys of clean seawater were obtained for the algae culture unit at Cambridge.

R R Dickson
8 November 1977

SEEN IN DRAFT: RAT, WJS

INITIALLED: AJL

DISTRIBUTION:

Basic list+
R R Dickson
G C Baxter
J A Bedwell
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J W Read
B Meggett (Grimsby)
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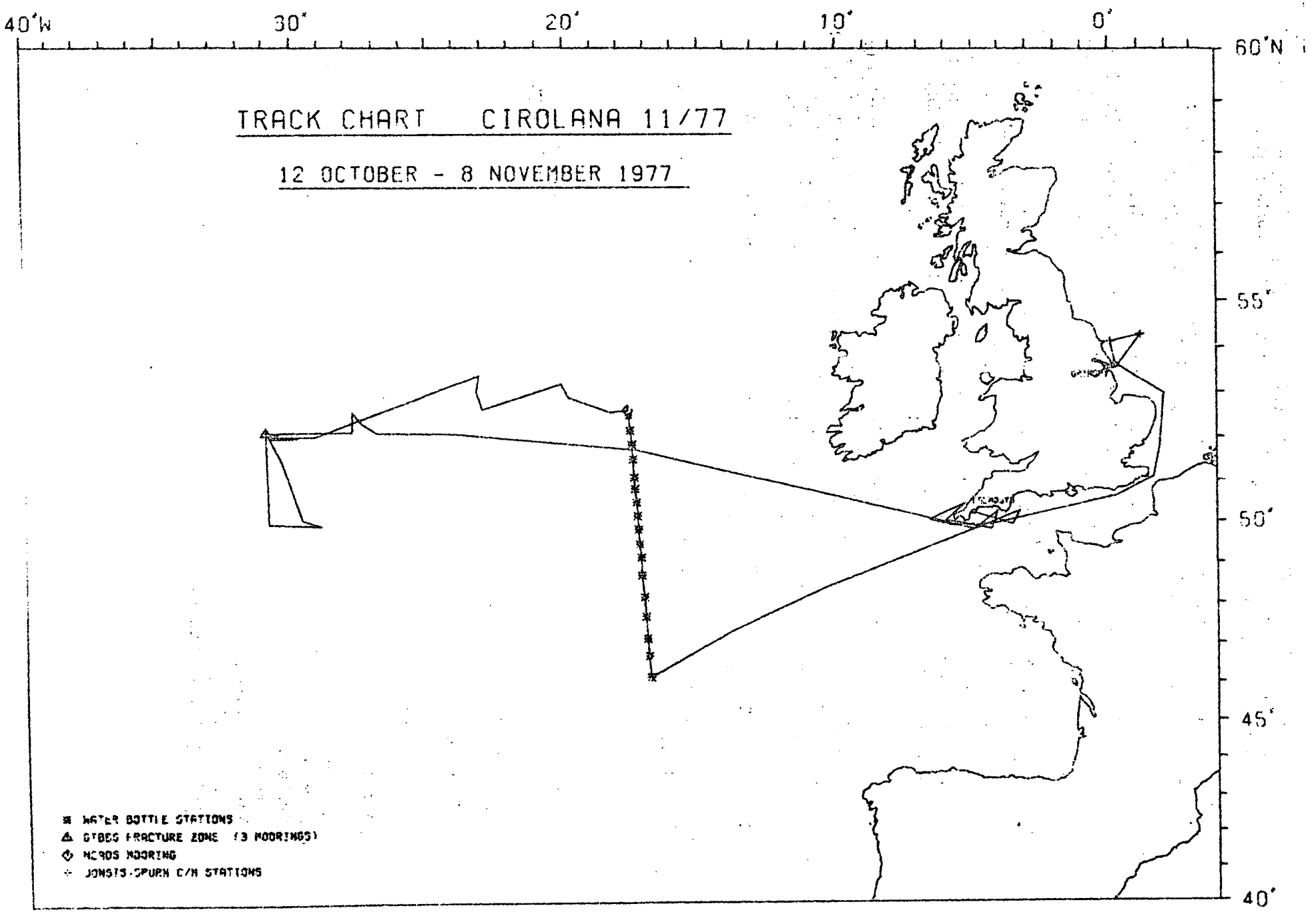
N Robinson (North Shields)


40°W
30°
20°
10°
0°
60°N
55°
50°
45°
40°
TRACK CHART CIROLANA 11/77
12 OCTOBER - 8 NOVEMBER 1977
WATER BOTTLE STATIONS
GIBBS FRACTURE ZONE (3 MOORINGS)
NORDS MOORING
JONSIS-SPURN C/M STATIONS