

I.O.S.

R R S FREDERICK RUSSELL

CRUISE 82/2

MARCH 16 – MARCH 29 1982

CURRENT MEASUREMENTS AND HYDROGRAPHY IN THE  
ROCKALL TROUGH AND FAROE-SHETLAND CHANNEL

CRUISE REPORT NO 127

NATURAL ENVIRONMENT  
INSTITUTE OF  
OCEANOGRAPHIC  
SCIENCES  
RESEARCH COUNCIL

INSTITUTE OF OCEANOGRAPHIC SCIENCES

Wormley, Godalming,  
Surrey, GU8 5UB.  
(0428 - 79 - 4141)

(Director: Dr. A.S. Laughton FRS)

Bidston Observatory,  
Birkenhead,  
Merseyside, L43 7RA.  
(051 - 653 - 8633)

(Assistant Director: Dr. D.E. Cartwright)

Crossway,  
Taunton,  
Somerset, TA1 2DW.  
(0823 - 86211)

(Assistant Director: M.J. Tucker)

---

*On citing this report in a bibliography the reference should be followed by  
the words UNPUBLISHED MANUSCRIPT.*

RRS FREDERICK RUSSELL

Cruise 82/2

March 16 - March 29 1982

Current measurements and hydrography in the Rockall Trough  
and Faroe-Shetland Channel

Cruise Report No.127

Institute of Oceanographic Sciences  
Brook Road,  
Wormley, Godalming, Surrey  
GU8 5UB

CONTENTS

	Page
Cruise objectives	3
List of Scientific personnel	3
Acknowledgements	6
Narrative	4
Summary and comments on ship performance	6
Station List	7
Cruise track	8

CRUISE OBJECTIVES (See fig. 1)

- (1) Recovery of moorings at sites I2, I4 and of a current meter tripod T in the N. Rockall Trough.
- (2) Relay of I2 and I4.
- (3) Recovery of moorings at sites E2 and E3 in the Faroe-Shetland Channel.
- (4) Deployment of mooring at site G3 in Faroe-Shetland Channel.
- (5) Hydrographic stations and work with profiling Aanderaa current meter around NW UK continental slope.
- (6) Dragging for previously lost moorings in Rockall Trough.

SCIENTIFIC PERSONNEL (All IOS Wormley except for P. Riddy Department of Oceanography, University of Southampton).

	<u>Leg 1</u>	<u>Leg 2</u>
J.W. Cherriman	Pri. Sci.	+
W.J. Gould	-	Pri. Sci.
A.N. Cutler	+	+
I. Waddington	+	+
B. Knowles	+	+
M. Sawkins	+	-
A. Elliott	+	-
J. Moorey	-	+
P. Riddy	-	+

NARRATIVE

RRS Frederick Russell sailed from Barry at 1615Z 16 March and course was set towards the N. Channel of the Irish Sea en route to the Tripod position (58°21.3N 10°02.4W). The fine weather on passage during March 7th allowed the double barrel winch to be tested and the PES fish to be deployed. By 0800/8th the ship was off Barra Head in heavy seas and with a forecast of F8-9 and locally storm 10. It was decided to shelter in Village Bay St. Kilda to await a moderation. The vessel anchored there at 1600/8th. Throughout the 9th weather was very poor but at 0830/10th despite the bad weather an attempt was made to reach the tripod position some 60 miles away. By 1245 in very bad weather and with no prospect of improvement the ship returned to St. Kilda anchoring again at 1545/10. The vessel remained there at anchor until the morning of March 16th (the scheduled day for the first port call in Lerwick) the time at anchor being used to balance the profiling Aanderaa current meter. The ship sailed for the tripod position at 0730/16 and reached the tripod by 1430. The attempt to release the tripod was unsuccessful due presumably to a failure of the release mechanism or of the buoyancy package. The release was left to turn off and passage set towards I4 so as to arrive there at daylight on the 17th. A wire test of the acoustic releases needed for mooring deployment was carried out in winds of 40-50kts.

The position of I4 (58°49.5N 11°37.0W) was approached at 0400/17th in 50-60 kts of wind and heavy seas. The mooring was interrogated and appeared in position and upright so was abandoned since the data tapes would last until November 1982. Course was set for Lerwick via the I2 mooring.

I2 (60°12'.1N 09°14'.1W) was reached and interrogated by 0600/80 and in moderating weather was recovered and relaid in position (60°12'.7N 09°13'.3W) by 1145Z. Course was then set towards Lerwick via the position of moorings E2 and E3 in the Faroe Shetland Channel. E2 was located at 0310/19 and course set for E3 which was recovered by 0730 in position 60°29'.7N 04°56'.4W. The ship then returned to E2 (60°12'.0N 04°34'.1W) but the attempted recovery was unsuccessful. The acoustic signals from the release were satisfactory and there was no indication of the mooring lying on the seabed. It was assumed therefore that there had been a failure of the release mechanism.

Course was set for Lerwick, the vessel arriving at 2300/19. Leg 2 commenced with the Frederick Russell sailing at 0900/22 and course was set towards G3 (62°20'N 00°00'W). During the passage leg the weather deteriorated sufficiently to necessitate a dog leg course to G3 to prevent excessive rolling. G3 was reached at 0230/23 and a combined water bottle station and acoustic release test was performed. (Station FR1). Mooring deployment commenced at 0455 and was completed at 0610Z. During deployment there were two slight delays due to damage to the wire jacket which was repaired using self vulcanising tape and due to a break in the shear pin of the safety sheave. The final position for the mooring was 62°20'.0N 00°00'.2'W in 1032m of water.

Course was set towards E2 with a view to its recovery by dragging. Passage continued throughout the 23rd and 24th with tests of the trawl winches en route. Speeds were slow due to 30-50kt head winds and heavy seas.

E2 was reached and interrogated at 0130/25 and the vessel hove to to await daylight and a moderation in the weather. The latter did not appear and at 0800 a zig zag course was set towards E3 for the start of a water bottle section across the slope. Three water bottle stations and a current meter profile station (Station numbers FR2 to 5) were worked between 1417 and 2346/25 and course then set towards Cape Wrath on passage to Plymouth. The ship berthed in Plymouth on March 29th.

#### ACKNOWLEDGEMENTS

It is a pleasure to acknowledge the contribution of the master (P. Warne), officers and crew of the vessel to the cruise. Without their cooperation and expertise it is doubtful whether even this modest amount of work could have been achieved.

#### GENERAL SUMMARY

The proposed work programme was severely hampered by the poor weather. Almost all work was carried out with wind speeds between 30 and 40 kts and it is to the credit of the officers and crew that so much was achieved.

The Frederick Russell had not been used previously by IOS and its strong and weak points have become clear. The "lively" motion in heavy seas restricts the ship's ability to make good passage speeds in rough weather and to work from the after deck in such conditions. However the ship's station keeping ability is excellent as is also the hydrographic winch which, being sited amidships, is less prone to the effects of ship motion. There was no difficulty in working hydrographic stations in winds of 40kts.



TABLE 1Stations on which data were collected or moorings deployed

Date/time	Station No.	Position	Depth	Comments
18.III/0842	IOS Mooring 313	60°12'.1N 09°14'.1W	1451 m	Mooring I2 recovered
18.III/1143	IOS Mooring 316	60°12'.7N 09°13'.3W	1445 m	Mooring I2 deployed
23.III/0300-0415	(FR1)	60°20'.9N 00°01'.0W	1045 m	Hydro Stn.
23.III/0614	IOS Mooring 317	60°20'.0N 00°00'.2W	1032 m	Mooring G3 deployed
25.III/1445-1546	(FR2)	60°31'.0N 04°47'.0W	1050	HydroStn.
25.III/1700-1922	(FR3)	60°24'.0N 04°41'.4W	to 700m	Current profile
25.III/2018-2111	(FR4)	60°19'.2N 04°36'.2W	746 m	Hydro Stn.
25.III/2317-2346	(FR4)	60°09'.4N 04°24'.0W	217 m	Hydro Stn.

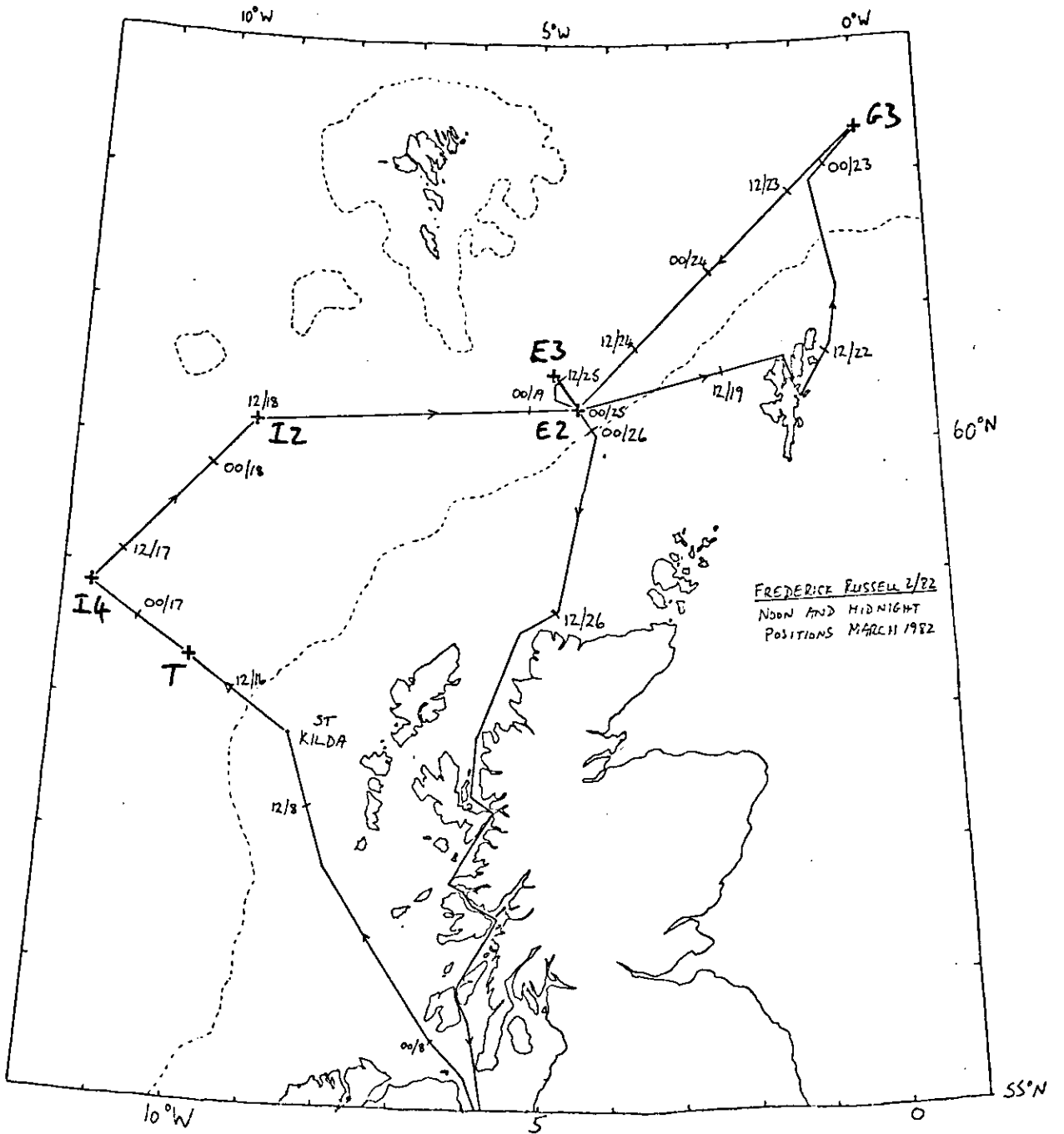


Fig 1