

INSTITUTE OF OCEANOGRAPHIC SCIENCES

WORMLEY

RRS CHALLENGER

Cruise 5/83

11 - 31 March 1983

Current meter recoveries in
the Faeroe-Shetland Channel

Principal Scientist

W.J. Gould

CRUISE REPORT NO. 144

1983

Cruise Objectives

- (1) To recover moorings set in the Faeroe-Shetland Channel as part of the Continental Slope Experiment.
- (2) To carry out CTD surveys as time permits.

Scientific Personnel

A.D. Banaszek	(B)
J.W. Cherriman	(W)
W.J. Gould	Principal Scientist (W)
A.G. Harrison	(B)
A.G. Kerr	(B)
J. Loynes	(W)
R. Palin	(B)
R. Phipps	(W)
R. Spencer	(B)
I. Waddington	(W)

All scientists from IOS Wormley or Bidston.

Officers

J. Moran	Master
K. Avery	Ch. Officer
R. Hagley	2nd Officer
R. Chamberlain	3rd Officer
I. McGill	Ch. Engineer

Acknowledgements

It is a pleasure to acknowledge the willing and capable assistance of the officers and crew of RRS Challenger in carrying out the scientific programme described in this report.

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Narrative

RRS Challenger sailed from Falmouth at 1000z on Friday March 11th with Banaszek, Palin and Waddington on board. The remainder of the scientific party joined from the pilot boat off Ardrossan at 1200z Sunday March 13th. The ship then proceeded northwards through the Minch and on leaving the Minch at 2000z 14th course was set towards mooring G4 (the north-easternmost position).

The course passed close to mooring F3 and in view of the weather forecast the opportunity was taken to recover moorings F1 to F3. The pressure gauge at F3 was recovered without difficulty late on the 15th and a CTD station worked nearby while waiting for daylight for the recovery of the current meter mooring at F3.

Recovery of the F3 current meter mooring was started at 0530z/16th and was completed by 0720z. The buoyancy of mooring F2 had been recovered by a Peterhead trawler and the mooring was confirmed to be lying on the sea bed.

Site F1 (pop-up current meter rig and teleost tide gauge) was recovered successfully by noon/16th.

G1 was reached by 1720z/16th but location of the moorings proved difficult due to poor Decca reception and difficult acoustic conditions. By 2300/16 only the pressure gauge and thermistor chain had been located. It had been hoped to do CTD stations overnight but due to engine room difficulties with the auxiliary generators this was not possible. The ship remained hove to overnight and mooring recovery was commenced by 0530/17th. This was quickly completed but no sign of the current meter mooring could be found.

The current meters at G2 were recovered by 1100z/17th but on arrival at G3 no sign of the mooring could be found. The site was temporarily abandoned and course set for G4 with a line of CTD stations at 10 mile intervals overnight.

G4 was reached at 0500/18 and the pressure gauge and current meter recovered by 0730. Course was set back to G3 and a detailed but unsuccessful search carried out around

the mooring position between 1330 and 1700z/18th. Course was set towards E3.

Early on the 19th the ship diverted towards the Shetlands to shelter from the severe SE gales forecast. The ship anchored in Aith Voe on the southern side of St. Magnus Bay and remained at anchor in 50 kt winds overnight. In view of the continuing poor forecast it was decided to bring forward the port call in Lerwick and accordingly the ship weighed anchor at 0600/20th. There was a 2 hr delay in getting underway due to the two anchors having become tangled (the second anchor had been deployed when the anchor had dragged in the night). The ship eventually sailed at 0800 and arrived in Lerwick by 2000z/20th. The opportunity was taken in Lerwick to repair the steering gear which had developed a severe oil leak (aggravated by heavy weather).

The ship remained at Lerwick throughout March 21st and sailed at 1600/22nd in F7 northerly winds. Course was set towards E1. The ship reached E1 at 0600z/23rd but no sign of the spar on the current meter could be found. The pinger on the current meter rig was switched on but no sign was found of the pressure gauge. Course was set towards E2. The beacon was switched on at 2.8 miles range but could not be released and is assumed to be lying on the seabed with the buoyancy missing. The subsurface buoy has since been recovered in the Shetlands. By mid afternoon/23rd site E3 had been reached and although the current meter release was switched on easily it took about 1 hr to fire the release. The mooring was picked up in strong northerly winds. The pressure gauge was released without difficulty and course set towards Stornoway to shelter from the forecast severe northerly gales. The ship anchored off Stornoway at 1000/20th and remained at anchor until 0730/25th when the ship proceeded towards I2 in 30-40 kt northwesterly winds. By 1000z the wind had freshened to 50 kts and in view of a forecast of F9 the ship returned to anchor where she remained until 0500/26th when she set sail again for I2.

The passage was made in a heavy northerly swell with speeds at times as low as 5.5 kts. I2 was reached at 0500/27th and the mooring recovered without difficulty by 0702z. Course was then set towards E1.

The vessel arrived at E1 at 0000z/28th and the current meter rig was fixed and a search made for the Teleost pressure gauge. No sign of the latter was found. Dragging for the current meter rig was started at 0600z and after several passes the ground line was recovered at 1215z. It had obviously been trawled and cut. With no ground line to drag for and an obviously small target the site was abandoned. Dragging for E2 was commenced at 1345z and ended at 1920z. The pinger was returned to beacon mode and the site abandoned. It had been planned to work a line of CTD stations parallel to the E line but in view of a bad weather forecast the Master decided to end scientific work and proceed towards Dunstaffnage. Winds overnight increased to 30-35 kts and only slow progress was made.

The vessel arrived at Dunstaffnage at 1130A/7th and the scientific party disembarked.

Mooring work

A summary of the status of moorings recovered is given in table 1. Several of the moorings on the continental shelf and along the 500m depth contour were missing or damaged presumably as a result of fishing activity. In the case of G1 the current meter mooring had been lost since its replacement in January 1983. It has since been recovered in Norway. The disappearance of the mooring at G3 is difficult to explain since it is probably too deep to have been trawled and was of similar design and age to that at I2 which was in excellent condition when recovered. It must be assumed that the mooring had failed either at or below the release.

Only limited time was available for attempts at recovery by dragging but when this was done Decca coordinates and the use of the track plotter were helpful.

The satellite navigation equipment failed shortly after leaving shelter near Stornoway and mooring I2 was recovered using the new LORAN C set. This is a great improvement over the old Loran C receiver on Challenger.

CTD stations

Only a small number of CTD stations were worked due to shortage of time on account of poor weather; the station positions and water depths are listed in table 2. The unit used was the Bidston Bisset-Berman CTD with data recorded at one second intervals on a Rapco data logger.

TABLE 1

<u>Site</u>	<u>Mooring</u>	<u>Recovered</u>	<u>Lat</u>	<u>Long</u>	<u>Comments</u>
E1	U-CM	No	60° 06'.2N	04° 28'.5W	Ground line recovered. Obviously trawled.
E1P	Teleost	No	60° 05'.7N	04° 27'.5W	No sign after acoustic search.
E2	CM	No	60° 13'.3N	04° 31'.8W	On bottom - buoyancy recovered by fishing boat
E3	CM	1423z 23-III	60° 31'.5N	04° 55'.2W	
E3P	P MkIV	1654z 23-III	60° 31'.7N	04° 58'.8W	
F1	CM	1100z 16-III	61° 09'.3N	01° 31'.7W	
F1P	Teleost	1136z 16-III	61° 08'.5N	01° 32'.0W	
F1	CM	No	61° 11'.9N	01° 45'.4W	On bottom - buoyancy recovered by fishing boat
F3	CM	0618z 16-III	61° 24'.6N	02° 05'.3W	
F3P	P MkIV	2233z 15-III	61° 24'.2N	02° 05'.6W	
G1	CM	No	61° 31'.7N	00° 02'.0E	No sign after acoustic search. Recovered in Norway.
G1P	Teleost	0734z 17-III	61° 30'.0N	00° 02'.0W	
G1T	Thermistor	0602z 17-III	61° 29'.6N	00° 02'.2E	
G2	CM	1240z 17-III	62° 06'.5N	00° 04'.5E	
G3	CM	No	62° 20'.0N	00° 00'.2W	No sign after acoustic search
G4	CM	0635z 18-III	63° 09'.4N	00° 00'.6W	
G4P	P MkIV	0600z 18-III	63° 07'.9N	00° 00'.4W	
I2	CM	0605z 27-III	60° 12'.3N	09° 12'.6W	

TABLE 2

Stn.	Lat.	Long.	Date	Time (z)	Max depth
CTD1	61° 29' .9N	02° 01' .6W	15-III-83	2331-0016/16th	1202m
CTD2	62° 25' .1N	00° 00' .1W	17-III-83	1911-1942	1084m
CTD3	62° 35' .0N	00° 00' .0W	17-III-83	2106-2133	1125m
CTD4	62° 45' .0N	00° 00' .0W	17-III-83	2302-2334	1200m
CTD5	62° 55' .0N	00° 00' .5E	18-III-83	0110-0158	1355m
CTD6	63° 04' .5N	00° 00' .9E	18-III-83	0339-0420	1510m

