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CRUISE REPORT 4/86

R V "G A REAY" 18.6.86 - 29.6.86

PERSONNEL

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AIMS

1. To recover two current meter rigs 097 and 098 deployed in November on the slopes at 500m.
2. To deploy two identical rigs in the same positions as 097 and 098 as part of a long term study into seasonal changes along the slopes.
3. To study mixing on the slopes and shelf-break using the RVS Neil Brown CTD referenced to a drogued dhan buoy.
4. In conjunction with the above expt., zooplankton samples to be taken on station using vertical nets and the 2" hosing plus Flygt pump.
5. To measure sea surface temperature, salinity, chlorophyll 'a', transmission and inorganic nutrients continuously via the overside pump together with discrete samples of zooplankton.
6. To deploy three satellite tracked drifting buoys with sheet drogues at 47°N/16°W, 48°N/16°W and 49°N/16°W.

18.6.86 1530 Mobilisation Complete

1615 Vessel Sails Plymouth

1700 Deployed PES fish and overside pump

1725 Set Co. 219 T

19.6.86 1100 Reported intentions to RVS for transmission to
Brest Marine

1200 47 45 N 7 37 W Commence acoustic search for
mooring 097

1300 Boat Stations

1500 47 45 N 7 37 W Buoy at surface. Launched
ship's Searider since strayline was missing
on mooring 097

1635 Mooring recovered intact

1800 Wire-tested two releases

1830 47 43 N 7 36 W CTD dips

2200 Steaming short legs, water sampling

20.6.86 0800 47 47 N 7 34 W Commence laying Current Meter
rig 106

1150 Rig recovered after pyro prefire (1)

1400 2nd Attempt to lay rig 106. Prefire in air. (2)

1510 3rd Attempt to lay rig 106. Prefire at surface
(3).

1520 Testing releases. Performance without weight
OK.

1620 Link call from RVS with French prohibition of
moorings in area

1645 Proceeding to recover mooring 098.

2130 Acoustic search for 098

	2225	47 28 N 6 38 W	Mooring recovered intact.
	2300		Steaming short legs, water sampling.
21.6.86	0400	47 23 N 6 06 W.	
	0830	47 45 N 6 35 W.	Stopped.
	1000		Commenced CTD dips.
	1150		Deployed parachute dhan buoy.
22.6.86	0130		Completed CTD dips.
	0930		Testing Flygt pump.
	1240		Deployed Flyght pump on CTD.
	1435		Flygt pump fails.
	1450		Bongo nets deployed.
	1515		Bongo nets recovered.
	1650	47 52 N 6 32 W	Dhan buoy recovered.
	2150	47 24 N 7 10 W	Commenced CTD dips.
	2255		Completed CTD dips
	2310		Steaming short legs, water sampling
23.6.86	0830	47 26 N 7 08 W	Deployed parachute dhan buoy
	0900		Deployed Bongo nets.
	1005		Recovered Bongo nets. Commenced CTD dips
	2245		Completed CTD dips
24.6.86	0545		Recovered dhan buoy
	0702	47 31 N 7 10W	Deployed dhan buoy
	0910		Recovered dhan buoy. Steaming short legs, water sampling.
	1050	47 45 N 7 10 W	
	1205	47 45 N 7 10 W	Stopped.
	1450		Deployed dhan buoy.
	1510		Deployed Bongo Nets.
	1540		Recovered Bongo Nets. Commenced CTD dips.

25.6.86	0400	Completed CTD dips. Water sampling.
	1415	Recovered dhan buoy. Steaming to new mooring site.
	1930	48 08 N 8 11 W
	2000	Commence laying current meter mooring. Pyro prefire in air (4)..
	2125	Deployed dhan buoy. Commenced CTD dips.
26.6.86	0015	Completed CTD dips. Water sampling.
	0835	Commenced CTD dips.
	1010	Completed CTD dips.
	1040	Recovered dhan buoy.
	1430	Commenced laying current meter mooring.
	1440	Pyro prefire at 36 metres (5)
	1515	Set course 254 T at full speed.
27.6.86	1330	47 00 N 14 00 W Deployed satellite drifting buoy.
	2100	48 00 N 14 00 W Deployed satellite drifting buoy.
28.6.86	0305	48 40 N 13 00 W Deployed satellite drifting buoy. Steaming to Plymouth. Water sampling.
29.6.86	1045	Recovered PES fish and overside pump.
	1200	Docked Plymouth.

Steaming Distance 790 Miles

Station Time 185 Hours.

COMMENTS

The failure of the pyro-releases is commented upon the accompanying report.

The mooring recoveries were a complete success.

The N/B CTD and logging system worked well for most of the cruise, although there were intermittent data drop outs probably due to a cable fault.

The overside pump worked well and was pumping for over 90% of the cruise. The rope stays were replaced with wire due to chaffing. Due to the importance of this system we would be reluctant to sail without a backup in future.

There were no problems encountered with the zooplankton sampling. The 2" hosing and Flygt pump proved to be unreliable due to the pump frequently cutting out. This was only used once, the vertical nutrient profiles were completed successfully with the multisampler.

There were various problems with the nutrient analyser, the most serious being some form of intermittent contamination to the nitrate analysis via the atmosphere in the laboratory (Smoking was prohibited). This could have been due to a sodium hydroxide/sodium nitrite mixture, a drum of which was stored on deck, used in the main engine cooling system. Further investigations need to be carried out to confirm this hypothesis.

The French although given 4 months notice of the planned mooring work acted in an extremely unreasonable manner by informing us during the cruise that we could only deploy the moorings on a

small section of the slope. What is the point of submitting details of moored equipment for clearance up to 6 months in advance when we are given 2 days notice to completely change the mooring programme?

This is just not possible in this type of work because wires, terminations, weights and buoyancy all have to be carefully tailored to each individual rig months before each cruise. It is absurd to be told during a cruise that positions and water depths have to be changed.

Conclusions

The majority of the work was a complete success, the only major disappointment being the inability to deploy the rigs and sustain a long term series of current measurements on the upper slopes. This was due both to the fault of the releases and to the unprofessional attitude of the French.

Cooperation with the ships officers and crew was excellent, their positive attitude and approach was a refreshing change from that often encountered on N.E.R.C. vessels.

ATTEMPTS TO LAY POP-UP CURRENT METER RIGS FROM R.V. G.A.

REAY CRUISE 4/86

1. 20.6.86, 1055. Release 2450 Motor Winch. A-frame. main engine (m/e), 360rpm.

Prefired about 10m under water. At the time, it was thought that the release was faulty.

2. 20.6.86, 1400. Release 2455. Motor Winch. A-frame. 360 rpm, m/e.

Prefired in air as soon as the fullweight of the clump came on the wire. At the time, it was thought that the clump had swung into the stern of the ship, so that the cause of the prefire was percussion.

3. 20.6.86, 1510. Release 2455. Motor Winch. A-frame. 360 rpm, m/e.

Prefired as soon as the weight and release were underwater. Suspicions were now hardening that vibration was causing the relay to tremble. At first, the motor winch was thought to be the source.

4. 25.6.86, 2000. Release 2368. Main Winch. A-frame. 360 rpm, m/e.

Prefired in air as soon as the full weight of the clump came on wire. It was now thought that the cause was the ship's own vibration, transmitted and amplified by the A-frame.

5. 26.6.86, 1440. Release 2368. Main Winch. Ship's port side Gantry. 330 rpm, m/e.

Prefired at 36m. depth. The wire was vibrating strongly during this deployment. It was noted that the plastic coated wire had some freedom to move sideways on the sheave. Ship's

staff say (this is unconfirmed!) that they have seen successful deployments of these releases before, when special sheaves were used -- wide enough to let shackles through, but equipped with a deep narrow central groove to restrain the wire.

NOTES:

1. On each occasion only one pyrotechnic fired, but not always the same one.
2. Releases 2450 and 2455 had recently been overhauled at Barry and both passed a wire test on 19.6.86. Release 2368 was recovered on 19th June from a nine month deployment.
3. Radio and radar transmissions were prohibited during all deployments.

If a grooved block is available, it could be tested on cruise 6/86, and used if successful. Otherwise all future rigs of this type should be laid buoy first, cutting free the clump last and allowing it to free-fall to the bottom.

This method could not be employed on this particular cruise as the top current meter had to be positioned above the thermocline, resulting in the sub-surface buoy being accurately placed between 25 and 30m. This accuracy cannot be sustained when free-falling a rig over a sharply sloping bottom as is present in this area.

LAYOUT AND LEADS ON R.V. 'G.H. REEDY'



