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CRUISE REPORT

FREDERICK RUSSELL CRUISE 15

20.8.84 - 9.9.84

Participants

R.D. Pingree	IOS/MBA	PSO
M. Beney	RVS	
D. Griffiths	MBA	(1st leg)
P. Holligan	MBA	(1st leg)
D. Leighton	IOS	(2nd leg)
R. Lloyd	RVS	
R. Longmore	MBA	
G. Mardell	IOS/MBA	
J. Smithers	IOS	
P. Taylor	RVS	(2nd leg)

Aims

The aims of the cruise were to study the propagation both on and off shelf of the internal tides generated at the shelf-break using the IOS Seasoar, ships radar and the Atlas 30 KHz echo-sounder. These measurements are to be combined with current meter and thermistor chain measurements from nine rigs deployed in early June.

Procedure

Frederick Russell sailed from Falmouth at 1730 GMT on 20 August 1984. Some trials concerning the underway pumping systems were undertaken for two hours. Sea surface measurements of temperature, salinity, fluorescence, nutrients and transmission on two wavelengths were made continuously throughout the cruise. These parameters were all logged together with the 'Seasoar' and navigation data on the RVS computing system.

The vessel steamed to a point north of Guernsey where one of the satellite tracked drifting buoys No. 1818 was deployed (21.8.84). A course was set for mooring 078 and the Seasoar was deployed half way along this track for seven hours to complete a section of the Ushant front. There were problems with the in situ fluorometer during this run, so the Seasoar was recovered prematurely. We then proceeded to 078 where there was no sign of the spar buoy but the acoustics were interrogated successfully, we then proceeded to the MET buoy. This was intact and a search for 079 was made, unfortunately no surface markers were found and there was no response from the acoustic release. The flashing light on mooring 083 was sighted after dark so we proceeded to check mooring 084, there was no sign so we steamed across to 077b where the acoustic release beacon was interrogated successfully. The slope moorings 080, 081 and 085 were then checked acoustically, all were OK. Only one surface pellet was left on 085 so another buff was attached using the inflatable at 0930 on 23.8.84.

The Seasoar was then deployed and towed away from the shelf-break at 202°T being recovered 8 hours later. Some problems were encountered

with the new hydraulic valve on the Seasoar winch; these were subsequently overcome by returning to the old valve system. After recovery the ship steamed back to 084 (spar No. 4) for another search, this one also proved negative and because no acoustics were attached the search was terminated (24.8.84). Mooring 082 (spar No. 7) was not searched for as we had already been notified of it being trawled.

Thermistor mooring 086 was then deployed near 081 in 500m of water, the surface marker being satellite tracked buoy No. 1820. The Seasoar was then deployed and a number of transects of the shelf-break were completed steaming up and down the mooring line. It was recovered 21 hours later (1100 GMT 25.8.84) after problems with the conducting cable near the instruments. The cable was re-terminated and the Seasoar was redeployed at 1500 and recovered 17 hours later at 0800 on 26.8.84, again making the same transects as the previous day.

Thermistor mooring 087 was then deployed near 077b using Hermes buoy 1819 as a surface marker. The ship then steamed down past 086 to 080 where another thermistor mooring was deployed; instead of being attached to the bottom it was attached to the surface pellets of 080. The thermistor chain was hung underneath Hermes buoy No. 1817. The Seasoar was then deployed at 1700 on 26.8.84 and towed south to 46°37'N 07°10'W then back up the slope to be recovered at 1000m depth, 18 hours later, with connector problems. These were quickly remedied and the fish was redeployed at 1300 27.8.84, being towed up and down near to the mooring line normal to the shelf break. It was recovered 36 hours later at 0100 on 29.8.84, again with conducting cable problems. Two CTD stations were then done with a number of dips on each station, these were completed at 1430. The Seasoar was launched at 2230 and towed back into deeper water and finally back over the shelf-break all the way to Concarneau. This tow took approx. 40 hours with a break for 4 hours to finally repair the in situ fluorometer, this then worked correctly for the rest of the cruise. Docked Concarneau at 1600 on 31.8.84. Holligan and Griffiths disembarked and Leighton and Taylor joined.

2nd Leg

The vessel departed Concarneau at 0600 on 1.9.84 and the Seasoar was deployed at 1300. It was towed south-west to 45°26'N 07°36'W in the middle of the Biscay then back across the shelf and up and down the line of moorings once more. It was recovered after a 68 hour tow at 0930 on 5.9.84. We then recovered thermistor mooring 086 deployed on the first leg then released and recovered slope moorings 081, 080 and 085 with no problems. We then steamed north to mooring 078, there were no surface markers but the acoustic release worked and the mooring was recovered. However, the 12 mm wire underneath the Aanderaa logger (804) thermistor chain (1191) and spar buoy (6) attaching them to the weight on the bottom had been cut with wire cutters for unknown reasons causing the loss of all three items.

Thermistor chain mooring 083 was recovered intact next, the acoustic release (2361) failed to operate so the mooring had to be recovered under tension causing some delays. Another acoustic search was then completed for 079 with no success.

From the positioned fixes of buoys 1817 and 1819, relayed from MBA via Argos, it was obvious that both buoys had drifted off their original

position. Buoy 1817 + the thermistor chain and logger which were originally attached to mooring 080 had obviously broken free and were recovered approximately 15 km from their original position. Buoy 1819 was recovered the next day at 1200 on 7.9.84, unfortunately everything that had been attached to 1819 had been removed presumably by some fishermen in yet another act of oceanographic vandalism. So thermistor chain 892 and logger 691 were lost.

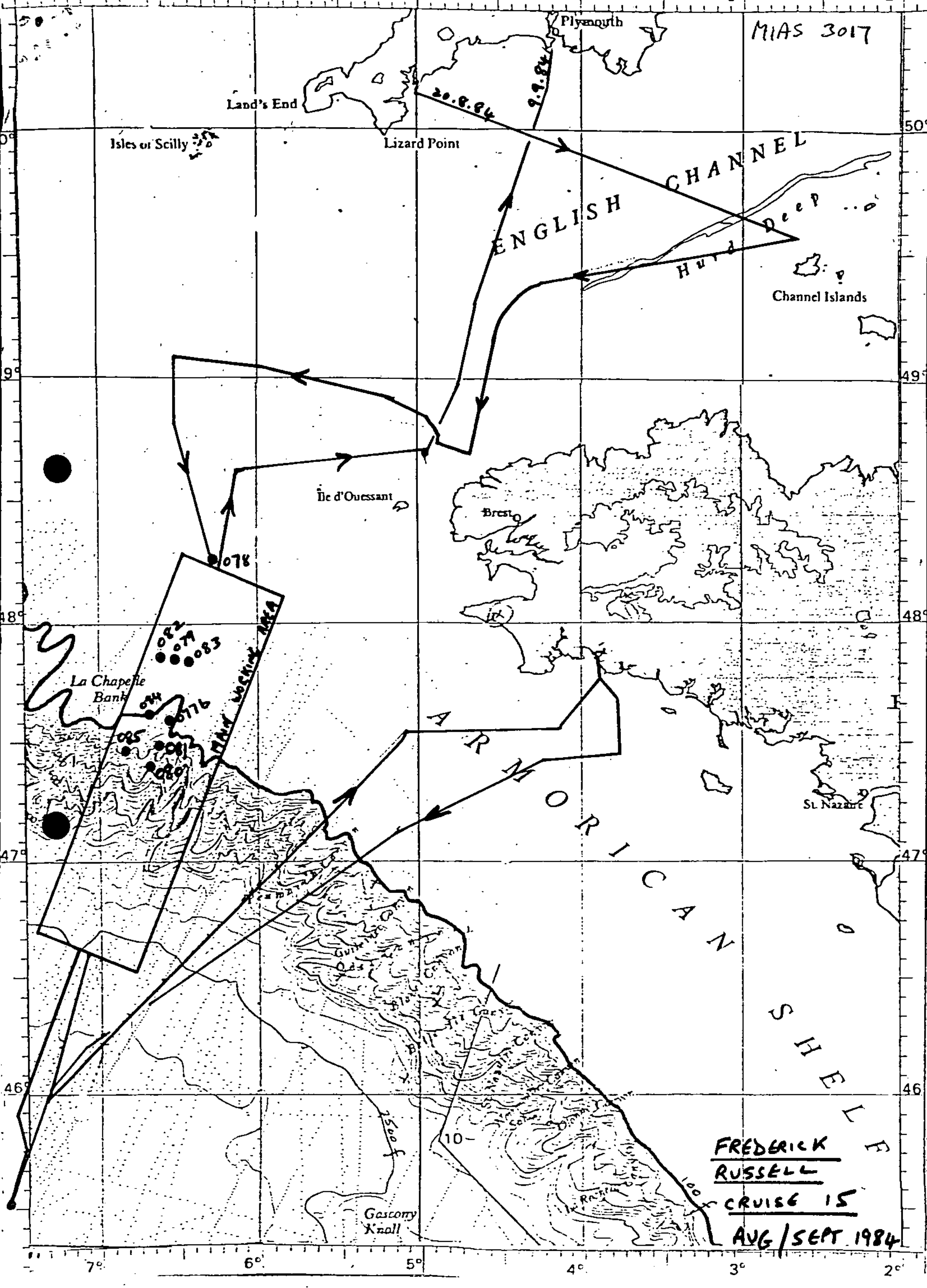
During the night between recovering these two buoys we grapnelled for mooring 077b using the acoustic release to home in on the groundline. The groundline was caught successfully and after some good work by the bosun all the instruments were recovered. The only item missing was the 48" sub-surface buoy. This mooring had obviously been trawled and although the current meters had been damaged they were still attached to the groundline. The spar buoy (No. 8) on the other end of the rig was recovered in a sorry state, it looked as though it had been run down by a ship and had spent some time lying on the bottom.

At 1515 on 7.9.84 satellite tracked buoy 1817 was deployed at 47°00'N 06°53'W with a large sheet drogue, this was left out in the Biscay. The Seasoar was then deployed and towed across the shelf-break up to 079 where it was recovered. We grapnelled for 079 all night using the MET buoy as a fix but to no avail. So 079 was presumed missing, this included current meters 6940 and 7064, acoustic release No. 2388, 48" sub-surface sphere No. 19, Seadata logger, thermistor chain No. 1075 and spar buoy No. 5. The MET buoy was recovered at 0830 on 8.9.84 and the Seasoar deployed at 1130. It was towed most of the way back and recovered at 0600 on 9.9.84. The ship docked in Plymouth at 1600.

1984 MOORINGS (RECOVERED)

Decca Positions

077b	47°35.75'N	06°33.20'W
078	48°14.5'N	06°17.2'W
080	47°24.35'N	06°38.75'W
081	47°29.0'N	06°37.0'W
083	47°49.7'N	06°27.1'W
085	47°30.0'N	06°43.8'W
086	47°29.5'N	06°36.7'W



MIAS 3017
Plymouth
Land's End
Lizard Point
Isles of Scilly
20.8.84
9.9.84
ENGLISH CHANNEL
Hurd Deep
Channel Islands
Ile d'Ouessant
Brest
078
082
079
083
084
076
085
081
080
La Chapelle Bank
MAIN WORKING AREA
ARMORICAN SHELF
St. Nazaire
Gascony Knoll
10
FREDERICK RUSSELL
CRUISE 15
AUG/SEPT 1984
50°
49°
48°
47°
46°
7°
6°
5°
4°
3°
2°