Site Documentation: Mooring D (53°30'N, 03°00'E, water depth 30m)

This mooring was one of four thermistor chain moorings deployed during the North Sea Project survey. It was situated in a region of moderate tidal currents, up to a maximum of 1.0m/s.

The thermistor chain was deployed at site D on cruises Challenger 33 (CH33 - Aug 88), CH35 (Sep 88), CH49 (Apr 89), CH51 (May 89), CH53 (Jun 89), CH55 (Jul 89), CH57 (Aug 89) and CH59 (Sep 89).

The thermistor chain was on a single point mooring beneath a toroidal buoy. Thermistor chain 1608 was used for deployments CH33 (Aug 88), CH35 (Sep 88), CH49 (Mar 89) and CH51 (Apr 89); chain 1611 for CH53 (Jun 89); chain 0118 for CH55 (Jul 89) and CH57 (Aug 89); and chain 0179 for CH59 (Sep 89). There were eleven thermistor beads on all of these chains. The data logger was positioned just above the chain and incorporated a thermistor bead. The accuracy of the thermistor beads is +/- 0.05 degC.

On deployment CH33 (Aug 88), the beads were at the following depths below the surface of the water:

5.00m, 5.32m, 7.82m, 10.32m, 12.82m, 15.32m,
17.82m, 20.32m, 22.82m, 25.32m, 27.82m, 30.32m.

On CH53 (Jun 89) the depths of the beads were:

5.00m, 5.32m, 9.32m, 13.32m, 17.32m, 21.32m,
25.32m, 29.32m, 33.32m, 33.32m, 33.32m, 33.32m.

The bottom four beads are at the same depth because the chain was looped up.

On CH55 (Jul 89), CH57 (Aug 89) and CH59 (Sep 89) the beads were at the following depths below the surface of the water:

5.0m, 5.3m, 7.3m, 9.3m, 11.3m, 13.3m,
15.3m, 17.3m, 19.3m, 21.3m, 23.3m, 25.3m.

On CH35 (Sep 89), CH49 (Apr 89) and CH51 (May 89) deployments, only data from the thermistor bead attached to the data logger (at 5.0m depth) are included; the other beads recorded no data.

Differences between the data recorded by the CTD temperature sensor and the thermistor chain are noted in the table below, giving an indication of the data quality. The thermistor chain mooring is identified by the cruise on which it was deployed (i.e CH33/S is the start of the CH33 deployment and CH33/E is the end of the CH33 deployment). The CTD cast number with which the comparison was made is given, this will be the CTD taken close to the time of deployment or recovery of the thermistor chain. The difference between the two temperatures is listed in the columns DELTA1 to DELTA12 (e.g. DELTA1 (degC) = CTD temperature - thermistor bead 1 temperature). DELTA1 refers to the top bead (i.e. the one attached to the logger) and DELTA12 to the bottom bead.

Cruise	CTD	DELTA1	DELTA2	DELTA3	DELTA4	DELTA5	DELTA6
CH33/S	190	-0.131	-0.062	0.005	0.002	0.033	0.024
CH33/E	568	-0.139					
CH35/S	568	-0.153					
CH35/E	767	0.002					
CH49/S	1645	-0.162					
CH49/E	1787	-0.143					
CH51/S	1787	-0.134					
CH51/E	2046	-0.011					
CH53/S	2046	-0.170	0.078	-0.063	-0.063	-0.072	-0.065
CH53/E	2256	-0.040	-0.040	-0.007	-0.006	-0.021	-0.036
CH55/S	2256	0.142	0.338	0.260	0.224	0.110	0.166
CH55/E	2433	0.208	0.218	0.330	0.257	0.054	0.079
CH57/S	2433	0.277	0.438	0.347	0.261	0.117	0.086
CH57/E	2573						
CH59/S	2573						
CH59/E	2774	-0.142	-0.095	-0.154	-0.189		

Cruise	CTD	DELTA7	DELTA8	DELTA9	DELTA10	DELTA11	DELTA12
CH33/S	190	0.039	0.064	0.083	0.048	0.082	0.066
CH33/E	568						
CH35/S	568						
CH35/E	767						
CH49/S	1645						
CH49/E	1787						
CH51/S	1787						
CH51/E	2046						
CH53/S	2046	0.007	0.028	0.062	0.062	0.079	0.079
CH53/E	2256	-0.017					
CH55/S	2256	0.144					
CH55/E	2433	-0.006					
CH57/S	2433	0.035	-0.051	-0.063	-0.103	-0.161	-0.345
CH57/E	2573		-0.030	-0.009	-0.041	-0.103	-0.307
CH59/S	2573		0.216	0.202	0.168	0.104	-0.020
CH59/E	2774						

Warnings

There is some doubt about the calibrations of thermistor chains 0179 and 0118. However the calibrations have been adjusted to be in line with the CTDs.

The top thermistor bead (5.0m) recorded slightly lower temperatures, by approx. 0.1 degC, than the second bead (at 5.32m or 5.3m) on deployments CH33 (Aug 88), CH55 (Jul 89), CH57 (Aug 89) and CH59 (Sep 89).