Site Documentation: Mooring C (54°20'N, 0°24'E, water depth 60m)

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 1.1m/s. During the summer the site was in a frontal region between stratified water in the north and vertically well mixed water to the south.

The thermistor chain was deployed at site C 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 1609 was used for deployments CH33 (Aug 88) and CH53 (Jun 89), chain 1611 for CH35 (Sep 88), chain 1610 for CH49 (Apr 89), CH51 (May 89) and CH53 (Jun 89), and chain 1612 for CH57 (Aug 89) and 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 deployments CH33 (Aug 88), CH35 (Sep 88) and CH55 (Jul 89), the beads were at the following depths below the surface of the water:

5.00m, 5.32m, 9.32m, 13.32m, 17.32m, 21.32m,
25.32m, 29.32m, 33.32m, 37.32m, 41.32m, 45.32m.

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

5.00m, 5.32m, 9.32m, 9.32m, 13.32m, 17.32m,
21.32m, 25.32m, 29.32m, 33.32m, 37.32m, 41.32m.

The third and fourth beads are at the same depth because the chain was looped up.

On CH57 (Aug 89) and CH59 (Sep 89) the depths of the beads were:

5.00m, 5.32m, 10.32m, 15.32m, 20.32m, 25.32m,
30.32m, 35.32m, 40.32m, 45.32m, 50.32m, 55.32m.

On CH49 (Apr 89) and CH51 (May 89) 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	253	0.054	0.033	-0.071	0.017	0.043	
CH33/E	632	0.101	0.136	0.130	0.121		
CH35/S	632	-0.057	0.025	-0.042			
CH35/E	776	-0.070	0.067	-0.003	0.026	0.023	-0.013
CH49/S	1688	-0.209					
CH49/E	1854	-0.239					
CH51/S	1854	-0.222					
CH51/E	2111	-0.064					
CH53/S	2111	-0.004	0.015	0.041	0.015	0.034	-0.021
CH53/E	2319	0.213					
CH55/S	2319	-0.189	-0.095	-0.151	-0.208		
CH55/E	2505	0.534	0.553	0.379	-0.427		
CH57/S	2505	0.772	0.701	0.675	0.675	0.867	-0.238
CH57/E	2636	0.024	-0.004	-0.003	0.010	0.007	0.023
CH59/S	2636	-0.302	-0.291	-0.308	-0.312	0.154	0.178
CH59/E	2835	-0.006	-0.028	0.010	0.019	0.028	0.038

Cruise	CTD	DELTA7	DELTA8	DELTA9	DELTA10	DELTA11	DELTA12
CH33/S	253	0.105	0.127	0.118	0.216	0.203	0.144
CH33/E	632		-0.059	-0.001	0.036	0.049	0.023
CH35/S	632		0.299	0.301	0.416	0.273	0.219
CH35/E	776	0.038	-0.008	0.016	0.020	0.029	0.005
CH49/S	1688						
CH49/E	1854						
CH51/S	1854						
CH51/E	2111						
CH53/S	2111			0.032	0.020	0.079	-0.117
CH53/E	2319						
CH55/S	2319			-0.159	-0.132	-0.119	-0.136
CH55/E	2505	-0.321	-0.218	-0.199	-0.185	-0.184	-0.182
CH57/S	2505	-0.506	-0.533	-0.511		-0.440	-0.427
CH57/E	2636	-0.030	-0.063	-0.004		0.034	
CH59/S	2636	-0.083	-0.331	-0.288		-0.156	
CH59/E	2835	0.115	0.063	0.053		0.050	