Site Documentation: Mooring A (55°30'N, 0°54'E, water depth 85m)

This mooring was one of four thermistor chain moorings deployed as part of the North Sea Project survey. It was situated in a region of weak tidal currents, up to a maximum of 0.5m/s. During the summer the site was in stratified water.

The thermistor chain was deployed at site A on cruises Challenger 33 (CH33 - Aug 88), CH35 (Sep 88), CH37 (Oct 88), CH39 (Nov 88), CH49 (Apr 89), CH51 (May 89), CH53 (Jun 89), CH57 (Aug 89) and CH59 (Sep 89).

The thermistor chain was on a single point mooring beneath a toroidal buoy. Thermistor chain 1612 was used for all deployments except CH57 (Aug 89) and CH59 (Sep 89) when chain 1638 was used. There were eleven thermistor beads on both 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 all of the deployments except CH39 (Nov 88) the beads were at the following depths below the surface of the water (the top bead is the one attached to the logger):

10.00m, 10.32m, 15.32m, 20.32m, 25.32m, 30.32m,
35.32m, 40.32m, 45.32m, 50.32m, 55.32m, 60.32m.

On CH39 (Nov 88) the depths of the beads were:

19.00m, 19.32m, 24.32m, 29.32m, 34.32m, 39.32m,
44.32m, 49.32m, 54.32m, 59.32m, 64.32m, 69.32m.

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	234	-0.086	-0.081	-0.100	0.217	0.229	0.424
CH33/E	612	-0.038	-0.012	-0.021	-0.024	0.021	
CH35/S	612	-0.012	-0.012	-0.012	-0.015	-0.013	
CH35/E	779	-0.045	0.001	0.001	-0.004	-0.012	-0.009
CH37/S	779	-0.019	0.044	0.027	0.039	0.030	0.016
CH37/E	884	0.020	0.093	0.072	0.068	0.054	0.044
CH39/S	884	-0.048	0.034	0.029	0.087	-0.007	0.110
CH39/E	1036	-0.143	-0.005	-0.023	-0.024		0.041
CH49/S	1669	-0.204	-0.046	-0.063	-0.056	-0.150	-0.074
CH49/E	1832	-0.292	-0.025	-0.141	0.130		-0.175
CH51/S	1832	0.104	0.158	0.141	0.113	-0.183	-0.109
CH51/E	2089	-0.008	0.007	0.028	0.014	0.023	-0.150
CH53/S	2089	0.001	0.056	0.056	0.065	0.023	
CH53/E	2299	-0.015	0.015	0.024	0.023		
CH57/S	2494	-0.027	-0.301	-0.300	-0.216	-0.232	
CH57/E	2616	-0.201	-0.474	-0.390	-0.328	-0.280	-0.686
CH59/S	2616	-0.157	-0.414	-0.339	-0.182	-0.198	-0.225
CH59/E	2815	0.013	-0.311	-0.160			

Cruise	CTD	DELTA7	DELTA8	DELTA9	DELTA10	DELTA11	DELTA12
CH33/S	234	-0.273	0.063	0.087	0.131	0.168	0.174
CH33/E	612	0.025	0.016	0.114	0.187	-0.015	-0.035
CH35/S	612	0.118	0.000	0.038	0.018	0.027	0.074
CH35/E	779	0.019	0.004	0.036			
CH37/S	779	0.036	-0.159	-0.126			
CH37/E	884	0.086	0.112	0.117	0.116	0.214	0.305
CH39/S	884	0.135	0.125	0.214	-0.161	0.039	0.012
CH39/E	1036	0.057	0.051	-0.052	-0.256	-0.061	0.163
CH49/S	1669	-0.075	-0.101	-0.085		-0.135	-0.169
CH49/E	1832	-0.247	-0.177	-0.124		-0.130	-0.129
CH51/S	1832	-0.052	-0.109	-0.023		-0.011	0.006
CH51/E	2089		-0.040	-0.022		-0.011	-0.002
CH53/S	2089		-0.040	-0.031		-0.022	-0.002
CH53/E	2299	0.040	-0.020	-0.010		0.007	0.013
CH57/S	2494		0.216	-0.098	-0.033	0.117	-0.082
CH57/E	2616		0.127	0.024		0.046	-0.069
CH59/S	2616	0.207		-0.009	0.162	0.130	0.073
CH59/E	2815			-0.256			0.196

Warnings

Data from the 50.32m bead from the deployments on CH49 (Apr 89), CH51 (May 89) and CH53 (Jun 89) have been completely flagged out.

Data from CH57 (Aug 89) exhibits severe problems below the second bead (i.e. below 10.32m). The data have been heavily flagged, but some of the spikes may have been missed.

The top thermistor bead (19.0m or 10.0m) recorded slightly lower temperatures, by approx. 0.1 degC, than the second bead (at 19.32m or 10.32m) on deployments CH39 (Nov 88) and CH49 (Apr 89) respectively.