Ministry of Agriculture, Fisheries and Food current meter data inventory, 1990-1993

S. R. Jones

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MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
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1. INTRODUCTION

This is the tenth in a series of current meter data inventories containing data obtained from work carried out by the Lowestoft Laboratory of the Ministry of Agriculture, Fisheries and Food (MAFF) Directorate of Fisheries Research (DFR). It covers the years 1990 to 1993.

Previous inventories are provided by MAFF Fisheries Research Technical Reports Nos. 4, 7, 15, 38, 54, 65, 80, 88 and 94 (Baxter and Bedwell, 1972; Bedwell, 1973; Bedwell *et al*., 1975; Medler, 1977; Jones, 1979, 1982, 1985, 1988; Jones and Read, 1993).

Baxter and Bedwell (1972) gave details of moorings and the types of instruments then employed, and this information was brought up to date by Jones and Read (1993).

2. DATA INVENTORY

The inventory comprises Table 1 which summarises the current meter deployments in shelf seas, and gives details of losses and data return. Tables 2-12 detail the data obtained from individual exercises and Figures 1-4 show the locations of the moorings referred to.

A footnote to each table gives information as to the types of meters used. The recording interval is usually 10 minutes in shelf seas and 1 hour in the deep ocean. All meters record speed, direction and temperature except where indicated. The length of good data recorded is given for each meter and where this is less than expected a note indicates why.

For the shelf seas, mean spring tidal range is given and is taken from the Admiralty Co-tidal and Co-range Chart No. 5058 (Great Britain – Hydrographer of the Navy, 1974).

3. DATA AVAILABILITY

The British Oceanographic Data Centre (BODC) (formally Marine Information and Advisory Service) was set up to co-ordinate the archiving of all UK oceanographic data. Data from MAFF moored current meters are supplied to them on a routine basis. MAFF data are not freely available to the scientific and commercial communty via BODC until two years have elapsed from the date of their receipt at BODC.

Data are available from BODC in a variety of formats to suit the customer's requirements. Enquiries should be made to BODC, Proudman Oceanographic Laboratory, Bidston Observatory, Birkenhead, Merseyside, L43 7RA. Enquiries about MAFF data which are not in circulation should be made to the Director, MAFF Fisheries Laboratory, Lowestoft, NR33 0HT.

The Fisheries Research Data Report Series provides detailed presentation of results from selected moored current meter deployments. Those published to date (Jones and Norris, 1988; Medler *et al*., 1983, 1984, 1985; Norris, 1985, 1989; Norris and MacDougall, 1986) are detailed in the references. The current meter data described in Tables 10 and 11 have been extensively worked up and can be found in Dickson and Brown (1994).

Table 1. Basic data referring to moored current meter exercises in shelf seas during 1990-93

Exercise	Deployment period (d)	Mean duration (d)	No. of rigs laid	Meters			Days good data	% data return
				Used	Lost	% lost		
NE Irish Sea 1991	54-67	63	5	11	3	27	508	73
Irish Sea 1992	13-23	20	4	10	0	0	200	100
Morecambe Bay 1993	(9-18)	(37)	6	8	3	37	100	34
Western Irish Sea 1993	21-28	25	2	4	0	0	95	95
North Channel 1993	37-38	38	5	10	2	20	297	78
The Wash 1990	16	16	3	4	0	0	64	100
The Wash 1993	22-29	25	3	4	0	0	83	83
NE Coast 1990	10-55	31	9	19	0	0	491	83
East Anglian Coast 1992	20-21	20	2	5	0	0	100	100

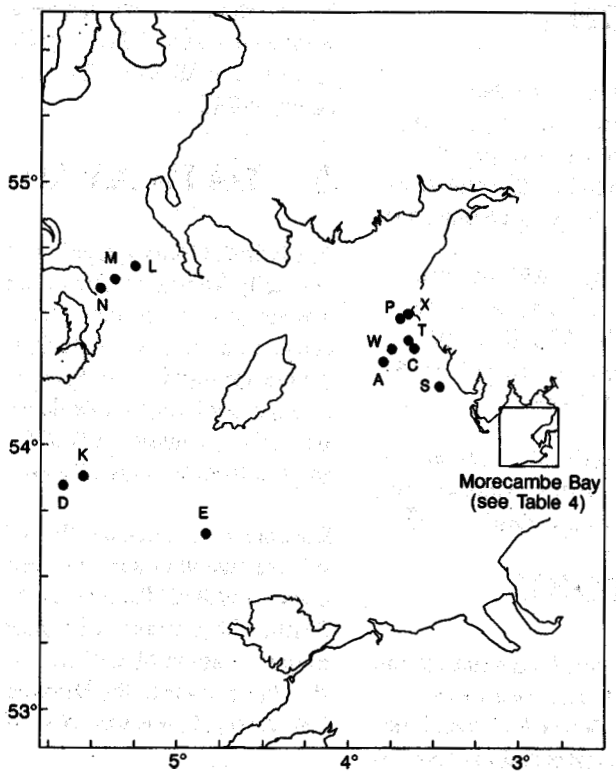

Figure 1. Irish Sea stations (Tables 2-6)

Table 2. North-east Irish Sea, 1991 (see Figure 1)

Station position	Deployed/ recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of good record			Timing discrepency (min)	Notes
					Days	Hours	Min		
Station P	Tidal range = 7.2 m								
91P1	19.2.91	27	410Ø	9	65	23	40	0	
54° 29.4'N	↓								
03° 42.0'W	26.4.91		279	4	65	23	40	0	
Station S	Tidal range = 7.4 m								
91S1	18.2.91	21	320Ø	9	66	20	30	0	
54° 13.4'N	↓								
03° 28.5'W	26.4.91		22+	4	66	15	10	0	
Station T	Tidal range = 7.2 m								
91T1	20.2.91	25	340Ø	9	64	14	20	0	
54° 24.2'N	↓								
03° 39.1'W	26.4.91		638	4	64	14	11	-1	
Station W	Tidal range = 7.1 m								
91W1	18.2.91	40	145Ø	24	-	-	-		Meter lost
54° 22.4'N			148	16	-	-	-		Meter lost
03° 45.1'W	↓		348	8	-	-	-		Meter lost
	21.4.91		980	4	62	4	51	-1	
Station X	Tidal range = 7.2 m								
91X1	15.11.91	21	192	7	53	21	0	0	
54° 30.0'N	↓								
03° 39.0'W	8.1.92		2+	4	53	20	59	+1	

**All meters are Aanderaa RCM 7 unless marked. Ø = Plessey MO21F; + = Aanderaa RCM4*

Table 3. Irish Sea, 1992 (see Figure 1)

Station position	Deployed/ recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of good record			Timing discrepency (min)	Notes
					Days	Hours	Min		
Station A	Tidal range = 7.1 m								
92A1	5.2.92	42	607	22	16	9	10	0	Encoder fault
54° 19.1'N	↓		523	14	26	0	50	0	
03° 48.6'W	2.3.92		155	3	26	0	50	0	
Station C	Tidal range = 7.2 m								
92C1	5.2.92	30	933	16	26	1	9	+1	
54° 22.1'N	↓		331	11	26	1	9	+1	
03°37.5'W	2.3.92		22	3	26	1	9	+1	
Station D	Tidal range = 4.7 m								
92D1	27.4.92	90	352Ø	72	13	18	30	0	
53° 50.9'N	↓								
05° 40.0'W	11.5.92		638Ø	4	13	18	30	0	
Station E	Tidal range = 5.7 m								
92E1	28.4.92	50	213Ø	30	12	23	20	0	
53° 39.9'N	↓								
04° 50.1'W	11.5.92		239Ø	4	12	23	20	0	

**All meters are Aanderaa RCM4 unless marked. Ø = Aanderaa RCM7*

Table 4. Irish Sea, Morecambe Bay, 1993 (see Figure 1)

Station position	Deployed/ recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of good record			Timing discrepency (min)	Notes
					Days	Hours	Min		
Station A	Tidal range = >8.0 m								
93A1	23.2.93	16	525	1	-	-	-		Meter not operating
54° 02.5'N	↓								
03° 10.4'W	4.3.93								
Station B	Tidal range = >8.0 m								
93B1	24.2.93	10	560	0.6	-	-	-		Meter not operating
54° 01.9'N									
03° 00.3'W	–								
Station C	Tidal range = >8.0 m								
93C1	3.3.93	6	340	2	-	-	-		Meter fault, no useable data
54° 02.1'N									
02° 56.2'W	-								
Station D	Tidal range = >8.0 m								
93D1	4.3.93	10	749	1	20	3	10	0	Directions only
54° 00.4'N	↓								
03° 01.2'W	24.3.93								
Station G	Tidal range = >8.0 m								
93G1	11.2.93	35	239Ø	17	-	-	-		Meter lost
53° 58.2'N									
03° 03.1'W	-		620	3	-	-	-		Meter lost
Station H	Tidal range = >8.0 m								
93H1	11.2.93	48	352Ø	23	-	-	-		Meter lost
53° 57.1'N	↓								
03° 06.5'W	3.5.93		683	3	80	11	14	-4	No speeds after 6 days

**All meters are Plessey MO21F unless marked. Ø = Aanderaa RCM7*

Table 5. Western Irish Sea, 1993 (see Figure 1)

Station position	Deployed/ recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of good record			Timing discrepency (min)	Notes
					Days	Hours	Min		
Station K	Tidal range = 4.8 m								
93K1	7.5.93	104	608	92	21	2	50	0	
53° 52.6'N	↓								
05° 33.58'W	28.5.93		186	4	21	2	30	0	
93K2	28.5.93	107	608	92	27	11	51	-1	
53° 52.6'N	↓								
05° 33.5'W	25.6.93		186	4	27	11	31	-1	

**All meters are Aanderaa RCM7*

Table 6. Irish Sea, North Channel, 1993 (see Figure 1)

Station position	Deployed/ recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of good record			Timing discrepency (min)	Notes
					Days	Hours	Min		
Station L	Tidal range = 3.5 m								
93L1	21.9.93	141	608	114	36	18	10	0	
54° 41.1'N	↓		360Ø	62	36	18	0	0	
05° 15.0'W	28.10.93		512Ø	17	36	18	11	-1	
93L2	28.10.93	140	608	115	31	21	45	+5	Rig trawled
54° 41.3'N	↓		34	65	-	-	-		through and
05° 14.7'W	4.12.93		227	20	5	23	10		meter 34 lost
Station M	Tidal range = 3.5 m								
93M1	21.9.93	104	34	86	36	16	50	0	
54° 38.2'N	↓								
05° 22.2'W	28.10.93		749Ø	17	36	16	39	+1	Some weeding of rotor
93M2	27.10.93	107	186	86	-	-	-	-	Meter not yet returned
54° 38.1'N									
05° 22.0'W			284	20	-	-	-	-	Meter lost
Station N	Tidal range = 3.5 m								
93N1	21.9.93	44	683Ø	19	36	15	38	+2	
54° 36.2'N	↓								
05° 28.0'W	28.10.93								
93N2	28.10.93	42	239	19	36	23	31	-1	
54° 36.0'N	↓								
05° 27.1'W	4.12.93								

** All meters are Aanderaa RCM7 unless marked. Ø = Plessey MO21F*

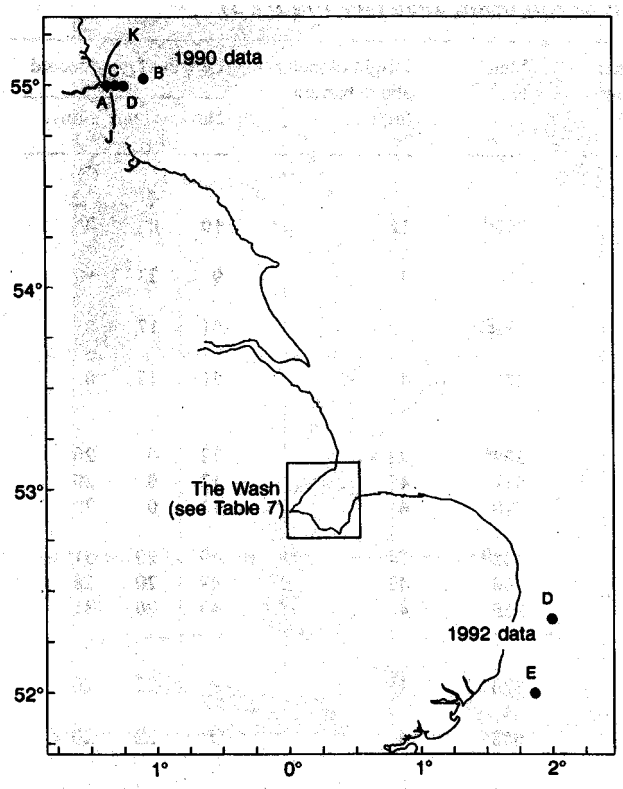

Figure 2. North Sea stations (Tables 7-9)

Table 7. North Sea, The Wash, 1990, 1991 and 1993 (see Figure 2)

Station position	Deployed/ recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of good record			Timing discrepency (min)	Notes
					Days	Hours	Min		
1990									
Station E	Tidal range = 6.4 m								
90E1	30.10.90	46	340	16	16	2	22	-2	
53° 02.1'N	↓								
00° 25.7'E	15.11.90		410	4	16	2	29	-9	
Station F	Tidal range = 6.4 m								
90F1	30.10.90	22	320	10	16	1	12	-2	
53° 01.3'N	↓								
00° 27.0'E	15.11.90								
Station G	Tidal range = 6.7 m								
90G1	30.10.90	22	145	1	15	18	20	0	
52° 56.0'N	↓								
00° 16.3'E	15.11.90								
1991									
Station A	Tidal range = 6.5 m								
91A2	14.4.91	12	749	0.6	1	12	0	0	
52° 56.4'N	↓								
00° 23.3'E	16.4.91								
1993									
Station A	Tidal range = 6.7 m								
93A1	11.8.93	18	608^{O}	6	28	18	0	0	
52° 56.2'N	↓								
00° 16.3'E	9.9.93								
93A2	9.9.93	17	186^{O}	6	21	21	10	0	
52° 56.2'N	↓								
00° 16.5'E	1.10.93								
Station B	Tidal range = 6.4 m								
93B2	9.9.93	26	284^{O}	17	22	19	0	0	
53° 02.7'N	↓								
00° 25.5'E	2.10.93		227^{O}	3	9	2	50	0	Meter weeded

* *All meters are Plessey MO21F unless marked.* ^{O} *= Aanderaa RCM7*

Table 8. North east coast of England, 1990 (see Figure 2)

Station position	Deployed/ recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of good record			Timing discrepency (min)	Notes
					Days	Hours	Min		
Station A	Tidal range = 4.3 m								
90A1	6.1.90	27	348Ø	12	10	0	0	0	
54° 59.8'N	↓								
01° 21.9'W	16.1.90		2+	4	9	23	50	0	
90A2	16.1.90	26	133Ø	12	51	17	0	0	
54° 59.8'N	↓								
01° 21.8'W	9.3.90		22+	4	51	17	0	0	
Station B	Tidal range = 4.1 m								
90B1	6.1.90	88	390#	74	12	0	20	0	
55° 01.7'N	↓		553	45	12	0	20	0	
01° 05.7'W	18.1.90		410	4	12	0	20	0	
90B2	18.1.90	84	148Ø	74	49	20	31	-1	
55° 01.8'N	↓		340	43	49	20	28	+2	
01° 05.6'W	9.3.90		360	4	49	20	31	-1	
Station C	Tidal range = 4.2 m								
90C1	6.1.90	44	320	15	9	22	20	0	
54° 59.4'N	↓								
01° 18.1'W	16.1.90		638Ø	4	9	22	20	0	
Station D	Tidal range = 4.2 m								
90D1	6.1.90	58	3293#	40	1	22	20	0	Rig trawled
55° 00.1'N	↓		749	19	1	22	20	0	through and
01° 14.4'W	18.1.90		620	4	1	22	20	0	recovered by fishing boat
90D2	18.1.90	55	752	40	29	20	40	0	Rig trawled
55° 00.2'N	↓								through and
01° 14.2'W	17.2.90		683	4	29	20	40	0	recovered by fishing boat
Station J	Tidal range = 4.3m								
90J1	26.11.90	22	22+	4	43	6	50	0	Encoder fault
54° 59.6'N	↓								
01° 22.1'W	8.1.91								
Station K	Tidal range = 4.3m								
90K1	14.11.90	33	213Ø	4	51	19	41	-1	
54° 59.3'N	↓								
01° 20.3'W	5.1.91								

* *All meters are Plessey MO21F unless marked.* Ø *= Aanderaa RCM7;* + *= Aanderaa RCM4;* # *= Valeport BFM 208*

Table 9. North Sea, East Anglian coast, 1992 (see Figure 2)

Station position	Deployed/ recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of good record			Timing discrepency (min)	Notes
					Days	Hours	Min		
Station D	Tidal range = 1.7 m								
92D1	20.10.92	42	340	18	20	15	59	+1	
52° 21.9'N	↓		749	8	20	15	59	+1	
02° 00.6'E	10.11.92		752	1	20	15	59	+1	
Station E	Tidal range = 2.5 m								
92E1	21.10.92	26	525	13	20	3	10	0	
52° 00.8'N	↓								
01° 52.2'E	10.11.92		683	3	20	4	9	+1	

* *All meters are Plessey MO21F*

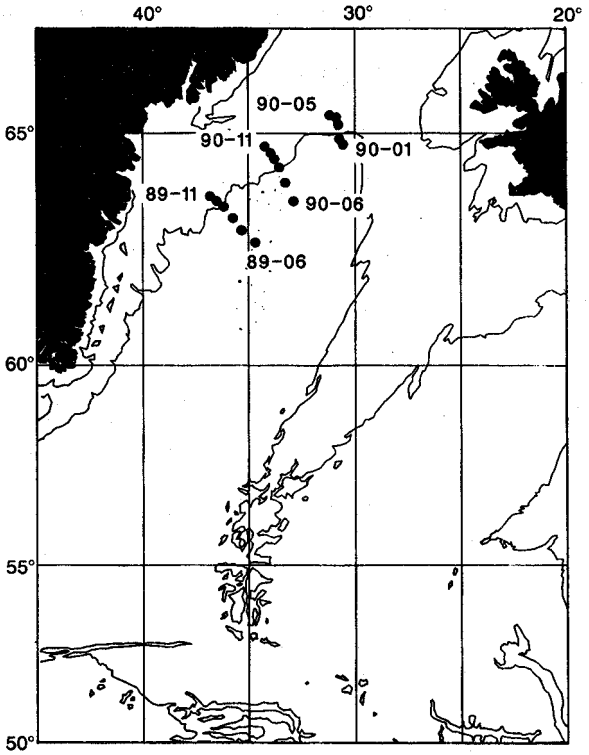

Figure 3. North-east Atlantic stations (Tables 10 and 11)

Table 10. North east Atlantic, 1989 deployments (8906-8911) (see Figure 3)

Station position	Deployed/ recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of good record			Timing discrepency (min)	Notes
					Days	Hours	Min		
89-06	2.7.89	2756	109	325	246	17	58	+2	
62° 46.9'N	↓		652	63	-	-	-		Meter failure
34° 48.1'W	6.3.90		825	20	133	7	2	-2	Bad record after 133d
89-07	2.7.89	2634	397	405	246	20	02	-2	
63° 00.0'N	↓		442	63	246	19	55	+5	
35° 20.1'W	6.3.90		534	20	246	20	02	-2	
89-08	2.7.89	2463	128	437	399	4	0	0	Rig recovered in
63° 12.1'N	↓		132	63	-	-	-		Aug '90 by
35° 43.7'W	0.8.90		476	20	111	15	0	0	MRI, Iceland
89-09	3.7.89	2153	331$^{\varnothing}$	365	246	19	2	-2	
63° 23.0'N	↓		759	63	246	19	5	-5	
36° 05.3'W	7.3.90		373	20	246	18	41	+19	
89-10	3.7.89	1767	523$^{\varnothing}$	365	247	16	5	-5	
63° 33.4'N	↓		278	63	64	19	59	+1	Encoder fault
36° 30.3'W	8.3.90		543	20	120	18	53	+7	Poor data
89-11	4.7.89	1445	155$^{\varnothing}$	265	63	5	1	-1	Bad translation
63° 39.4'N	↓		607$^{\varnothing}$	63	246	14	4	-4	
36° 51.5'W	8.3.90		696$^{\varnothing}$	20	46	9	1	-1	Bad translation

* *All meters are Aanderaa RCM5 unless marked:* $^{\varnothing}$ *= Aanderaa RCM4*

Table 11. North east Atlantic, 1990 deployments (9001-9011) (see Figure 3)

Station position	Deployed/ recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of good record			Timing discrepency (min)	Notes
					Days	Hours	Min		
90-01	9.3.90	2200	124	1002	122	18	0	0	
64° 45.0'N	↓		178	521	122	18	2	-2	
30° 33.0'W	10.7.90		886	20	122	18	0	0	
90-02	9.3.90	2005	644	850	122	16	54	+6	
64° 54.8'N	↓		703	99	122	16	1	-1	
30° 40.1'W	10.7.90		743	18	122	16	56	+4	
90-03	9.3.90	1500	606	620	122	17	1	-1	
65° 09.9'N	↓		461	269	122	16	58	+2	
30° 47.0'W	10.7.90		182	18	122	16	57	+3	
90-04	9.3.90	1200	73	450	122	17	2	-2	
65° 15.3'N	↓		351	99	-	-	-		Meter leaked
30° 50.9'W	10.7.90		924	18	122	16	58	+2	
90-05	9.3.90	1080	562	400	122	15	48	+12	
65° 17.9'N	↓		768	99	36	20	0	0	Encoder fault
31° 06.9'W	10.7.90		898	18	122	16	0	0	
90-06	12.7.90	2738	37	1104	383	9	5	-5	
63° 37.3'N	↓		373	602	383	9	29	+31	
32° 55.6'W			825	100	364	22	6	-6	Tape ran out
	30.7.91		879	18	56	12	0	0	Encoder fault
90-07	12.7.90	2345	534	822	-	-	-		Meter lost
64° 01.9'N	↓		543	60	-	-	-		Meter lost
33° 21.2'W	30.7.91		960	18	-	-	-		Meter lost
90-08	12.7.90	2001	397	752	369	5	3	-3	Poor data. No speeds
64° 16.3'N	↓								
33° 37.8'W			109	370	372	12	55	+5	
	30.7.91		278	18	331	18	54	+6	Encoder fault
90-09	12.7.90	1731	652	202	382	14	52	+8	
64° 25.8'N	↓		801	60	382	14	42	+18	No speeds after 29d
33° 46.8'W	30.7.91		490	18	100	18	58	+2	Encoder fault
90-10	12.7.90	1494	155Ø	502	371	11	5	-5	Tape ran out
64° 33.0'N	↓		607Ø	100	366	21	6	-6	Tape ran out
33° 55.6'W	30.7.91		759	18	382	11	9	-8	
90-11	12.7.90	1142	331Ø	202	382	7	2	-2	
64° 43.2'N	↓		696Ø	60	-	-	-		Meter failed
34° 06.3'W	30.7.91		442	18	382	6	50	+10	

* *All meters are Aanderaa RCM5 unless marked: Ø = Aanderaa RCM4*

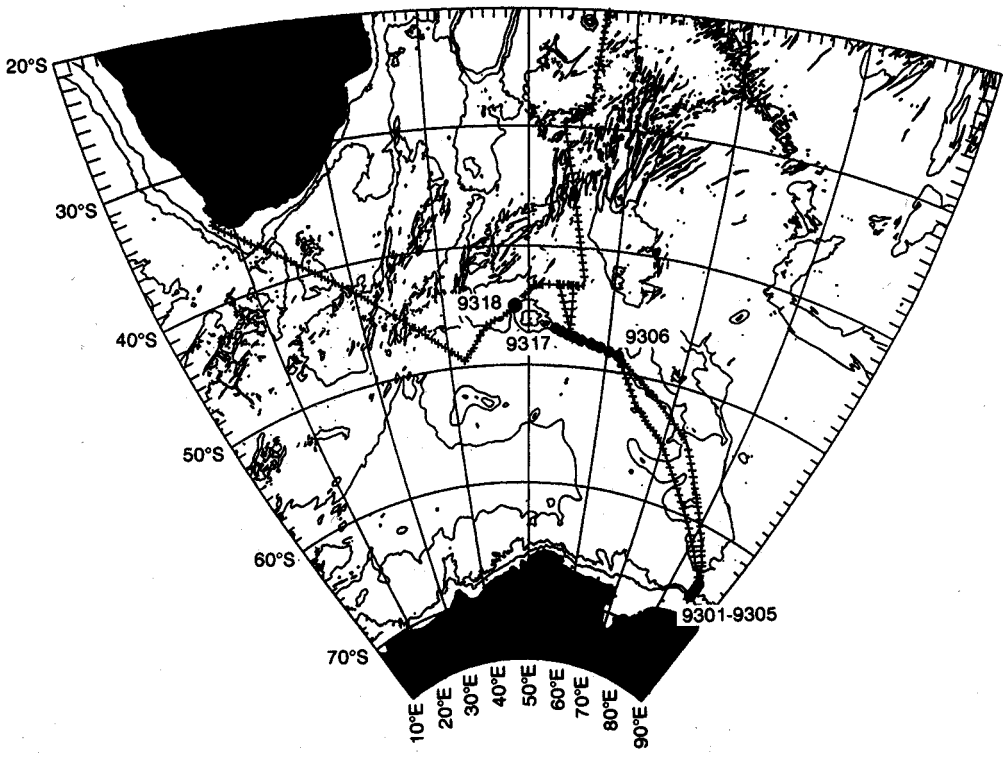

Figure 4. Southern Ocean stations (Table 12)

Table 12. Southern Ocean, 1993-94 (9301-9318) (see Figure 4)

Station position	Deployed/ recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of good record			Timing discrepency (min)	Notes
					Days	Hours	Min		
93-01	24.2.93	2636	37	533	381	20	6	-6	
63° 03.2'S	↓								
83° 35.4'E	13.3.94		476	46	381	19	54	+6	
93-02	24.2.93	3048	124	844	381	21	3	-3	
63° 29.8'S	↓		373	316	381	20	26	+34	
83° 57.2'E	13.3.94		898	46	361	23	2	-2	Poor data after 361d
93-03	24.2.93	3700	2	724	381	21	9	-9	
63° 56.0'S	↓		46	305	381	20	56	+4	
84° 19.1'E	13.3.94		73	46	-	-	-		Meter failure
93-04	25.2.93	3367	562	577	276	2	15	-15	Poor data after 276d
64° 49.2'S	↓								
85° 07.8'E	14.3.94		768	46	-	-	-		Meter failure
93-05	25.2.93	3654	490	962	380	12	54	+6	Poor data after 380d
64° 22.6'S	↓								
84° 41.6'E			879	431	382	8	4	-4	
	15.3.94		924	46	26	8	0	0	Meter stopped
93-06	4.3.93	3565	801	1675	368	18	6	-66	
48° 34.8'S	↓								
61° 30.8'E	8.3.94		933	46	368	18	0	0	
93-08	5.3.93	4356	397	1956	-	-	-		)
48° 22.7'S			743	1053	-	-	-		)Mooring lost
60° 29.7'E			980^{O}	46	-	-	-		)

Table 12. Southern Ocean, 1993-94 (9301-9318) continued

Station position	Deployed/ recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of good record			Timing discrepency (min)	Notes
					Days	Hours	Min		
93-09	5.3.93	4366	155†	2738	366	22	6	-6	
48° 11.9'S	↓		696	1570	168	19	5	-5	Poor data after 168d
59° 37.6'E	7.3.94		109	763	-	-	-		Meter failure
			981Ø	46	366	22	13	-13	
93-10	6.3.93	4460	855	2413	177	1	0	0	Poor translation
48° 00.1'S	↓		644	573	365	15	45	+15	
58° 38.2'E	7.3.94		965∇	46	365	17	10	-10	
93-11	6.3.93	4230	10856∇	3915	379	17	7	-7	
47° 45.3'S	↓		10854Ø	3614	379	17	10	-10	
58° 02.8'E	21.3.94		9967∇	2895	379	17	10	-10	
			9968∇	2167	379	17	9	-9	
			238Ø	2064	379	17	13	-13	
			652	1378	379	16	53	+7	
			331	562	270	20	3	-3	Poor translation
			942Ø	46	-	-	-		Meter lost
93-12	7.3.93	4353	178	2680	362	13	5	-5	
47° 37.0'S	↓		607	1627	314	22	0	0	Meter stopped
56° 48.4'E	5.3.94		703	574	60	19	0	0	Meter stopped
			638Ø	46	362	13	12	-12	
93-13	8.3.93	4110	555Ø	1847	360	18	44	+16	
47° 25.0'S	↓		606	1102	360	19	4	-4	
55° 36.6'E	4.3.94		278	574	359	18	52	+8	
			546Ø	46	360	19	15	-15	
93-14	9.3.93	3996	10855∇	3600	-	-	-		)
47° 08.3'S			10854∇	3299	-	-	-		)
55° 06.5'E			10113∇	2580	-	-	-		)
				9969	1849	-	-	-	)Mooring lost
			611Ø	1239	-	-	-		)
			234	590	-	-	-		)
			436Ø	46	-	-	-		)
93-15	9.3.93	3774	553Ø	1630	358	16	16	-16	
47° 01.2'S	↓		523	1102	358	16	8	-8	
54° 05.3'E	3.3.94		442	574	358	15	50	+10	
			279Ø	46	358	16	6	-6	
93-17	10.3.93	3345	213Ø	1681	358	11	8	-8	
46° 50.5'S	↓		825Ø	581	1	23	0	0	Meter stopped
53° 20.3'E	4.3.94		146Ø	46	358	11	16	-16	
93-18	11.3.93	3036	128	781	0	13	0	0	Meter flooded
45° 26.2'S	↓								
47° 59.7'E	27.2.94		192	46	352	10	0	0	

** All meters are Aanderaa RCM5 unless marked: Ø = Aanderaa RCM7; ∇ = Aanderaa RCM8; † = Aanderaa RCM4.*
Note: 9307 and 9316 were bottom pressure gauges

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