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OBSERVATIONS, PLANS AND REQUIREMENTS BRANCH

Quality Evaluation Section

**THIRTY EIGHTH QUARTERLY REPORT  
ON DRIFTING BUOYS  
IN THE NORTH ATLANTIC  
25-60 deg N, 60 deg W to 10 deg E**

**APRIL TO JUNE 1996**

Produced By : S. J. Smith & P. M. Ellis  
Meteorological Office,  
Met O (OPR),  
Room 129,  
London Road,  
Bracknell,  
Berkshire, RG12 2SZ,  
United Kingdom

Tel : 01344 854446

**Headquarters, Bracknell**

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16th August 1996

This report has not been published.  
Permission to quote from it should be obtained from the  
Branch Director (Observations, Plans and Requirements).

## 1. INTRODUCTION

Drifting buoys operated by European countries, the United States, Canada and E.G.O.S. (European Group on Ocean Stations) provide valuable meteorological data in the North Atlantic Ocean. This report is a summary of the performance of these buoys giving information on the number of buoys operating, the accuracy of reported locations and data quality, timeliness and availability. It is compiled by looking at observations received in the Met. Office Meteorological Data Bank (Met.D.B.) and by comparisons of observations with background fields from the Met. Office forecast model. Additional information on buoy operations and data quality is extracted from E.G.O.S. Technical Secretariat reports.

## 2. GENERAL PERFORMANCE

The following few sub-sections describe the general performance of the drifting buoys throughout the quarter.

### (a) Location Accuracy

The location accuracy was similar to last quarter with 43 out of 46 of the buoys reporting having a '% of observations with acceptable positions' greater than 95% (compared to 30 out of 33 last quarter). There were 0 gross errors in location during the quarter, compared with only 7 last quarter (see under Data Quality).

### (b) Data timeliness

(see note 9 of section 5 for definition of terms.)

<b>Timeliness</b>	<b>Last quarter.</b>	<b>This quarter</b>
Very Good	14	20
Good	8	9
Satisfactory	4	5
Poor	5	4
Very poor	8	8
<b>Total no. of buoys</b>	<b>39</b>	<b>46</b>

(c) Data availability

(see note 9 of section 5 for definition of terms.)

Availability	South of 50 deg N		North of 50 deg N	
	Previous Quarter	Present Quarter	Previous Quarter	Present Quarter
Very Good	2	--	14	11
Good	--	2	1	5
Satisfactory	13	3	4	4
Poor	3	12	1	7
Very Poor	1	2	--	--

The total number of buoy days in the quarter was 3,391 [obtained by summing the number of reporting days for each buoy] (last quarter the total was 2,627) and the number of 'buoy hours' with at least one observation was 38,750 (compared with 43,703 last quarter). Thus, the mean number of hours per day, for days with at least one observation (averaged over all buoys operating in the area) was 11.43 (last quarter the figure was 16.64).

**3. SUMMARY OF PRESSURE PERFORMANCE**

**NOTE**

Although buoys 44616, 44763, 44767, 44768, 44769 and 65594 were reporting at the beginning of the period, pressure data failed to reach the Observation Processing Databanks (OPD) until 10/4, 7/4, 2/4, 13/4, 5/4 and 13/4 respectively.

(a) Buoy deployments, etc.

North of 50deg N

There were 21 buoys reporting pressure at the beginning of the period (this figure includes buoy 44549 which was mistakenly excluded from the last report and buoy 64590 which drifted into the reporting area during this period. The figure also includes the buoys in the note above - all of which were north of 50 degN.). 21 buoys were reporting at the end of the period. 6 new buoys were deployed during the period (44772, 44775, 44777, 44778, 62910 and 65598). 6 buoys ceased reporting (44549, 44692, 62694, 63665, 64590 and 64934).

South of 50deg N

There were 14 buoys reporting pressure at the beginning of the period and 15 at the end. 4 new buoys were deployed (61521, 61522, 61523 and 63661). Buoy 62507 resumed reporting pressure on 1/7 after failing to report the element on 1/3. 4 buoys ceased reporting (44684, 61521, 61523 and 62512).

(e) Data Quality - Pressure

Revised RMS Differences

The technique used to assess the quality of pressure data in this report is based on the Revised RMS differences between the observations and the background field from the Global Forecast Model (see note 8 in Explanatory Notes). For buoys south of 50 degN the Revised RMS differences should be less than 2.0 hPa and for buoys north of 50 degN they should be below 3.0 hPa. The buoys whose revised RMS difference were found to lie outside these limits have had their performance described as 'suspect' and are included in the section below. Examination of the time-series plots (see Annex B) indicates the performance of these buoys:-

- 62506 - This buoy showed a larger than normal scatter of data throughout the period.
- 62507 - Pressure data was erratic for this buoy from 1/6 (when it started reporting pressure again) until approximately 3/6 when data improved to a more accurate level.
- 63661 - There were only a limited number of reports (24) from this buoy. However, all data proved to be erroneous.
- 65598 - This buoy produced erroneous data at the beginning of its reporting life (21/5). However, data improved to a more accurate level around 4/6.

Biases

5 buoys (excluding those mentioned in the previous section) showed pressure biases greater than 0.5 hPa (pressure biases are determined using the mean value for unflagged data from Annex A). Those buoys whose pressure data showed a bias of greater than 0.5 hPa have also had their performance described as 'suspect'.

WMO No.	Position	Buoy bias (hPa)	Ship bias (hPa)	Period of reports
44616	E of SOBA	+0.7	-0.3	01/04-30/06
44684	NW of SCOS	+0.6	-0.4	01/04-02/04
44692	SW of SOBA	-0.6	-0.5	01/04-02/05
44775	SW of SOBA	-0.6	-0.7	31/05-30/06
62512	SCOS	+0.6	-0.1	01/04-20/06

The ship bias represents the mean pressure biases reported from ships within a radius of 500 nautical miles of the mean position of each buoy.

### Gross errors

The observations that appear to lie outside the expected distribution - the 'gross' errors (see Time-series graphs) - have been ringed. (The erroneous observations which occurred towards the end of the life of 62694 have not been included in this section.) The observations have been individually examined to see whether the errors lie with the pressure, location or the background field. Out of 174 occasions the results are as follows -

ERROR	NUMBER LAST QUARTER	NUMBER THIS QUARTER	COLLECTING CENTRE
bg field	0	0	-----
location	4	0	Oslo
location	0	0	Sondre Stromfjord
location	3	0	Paris
location	0	0	US Air Force
pressure	90	98	Oslo
pressure	58	1	Sondre Stromfjord
pressure	74	74	Paris
pressure	2	1	US Air Force
<b>Total no. of buoy hours</b>	<b>43,703</b>	<b>37,650</b>	

During the quarter 174 gross pressure errors were transmitted as compared to 224 last quarter. There were no gross location errors from the Local User Terminals (last quarter there were only 7).

### (3) Air Temperatures and Sea Surface Temperatures

The following table shows the mean and standard deviation of observation minus background differences for air temperatures and sea surface temperatures. Figures in brackets are for the observations from voluntary observing ships within a radius of about 500 nautical miles of the mean position of each buoy.

(Note : The calculations below include gross errors. Therefore, in some instances, the figures may be slightly misleading.)

WMO No.	Air Temperature			Sea Surface Temperature		
	Mean	St. Dev	No. of Obs	Mean	St. Dev.	No. of Obs
25565	1.2(0.5)	1.5(2.0)	1554 (117)	---	---	---
41526	0.2(0.0)	0.8(5.6)	644 (316)	-0.1(0.0)	0.5(2.2)	691 (324)
41585	0.1(0.3)	1.1(7.3)	855 (173)	0.0(0.4)	0.5(2.8)	922 (177)
44549	0.6(0.9)	1.2(2.7)	2432 (84)	-0.1(1.4)	0.5(8.3)	2948 (72)
44613	2.9(1.4)	4.4(2.2)	2822 (760)	-0.1(-0.5)	0.8(5.6)	3676 (740)
44616	1.1(0.2)	1.7(1.7)	4800 (83)	0.0(-1.2)	0.8(9.2)	5617 (76)
44684	5.5(-0.1)	2.4(5.3)	13 (392)	0.0(0.2)	0.2(2.4)	15 (340)
44692	-1.5(0.2)	5.4(2.5)	268 (403)	---	---	---
44727	0.4(1.4)	1.4(2.3)	3301 (545)	0.1(-0.6)	0.8(6.5)	3466 (539)
44728	-0.1(0.3)	1.8(1.7)	4761 (86)	0.1(-0.2)	0.8(11.6)	4929 (82)
44760	0.2(0.4)	1.2(2.5)	926 (93)	-0.8(-5.8)	0.6(16.3)	1331 (96)
44763	0.9(0.6)	1.4(2.1)	4841 (96)	-0.2(0.6)	0.8(12.9)	5422 (94)
44765	0.4(0.3)	1.6(1.7)	4710 (84)	-0.1(-0.3)	0.6(11.9)	3223 (79)
44767	0.3(0.5)	1.3(2.1)	4841 (120)	0.1(0.5)	0.8(11.4)	5075 (121)
44768	0.6(0.5)	1.5(2.2)	4835 (79)	0.2(0.7)	0.7(14.4)	5806 (76)
44769	---	---	---	0.3(-0.1)	0.8(9.9)	5327 (112)
44770	0.6(0.6)	1.3(2.3)	1607 (129)	-0.3(-2.3)	0.8(11.3)	1785 (131)
44771	0.7(0.9)	1.2(2.3)	4314 (138)	0.5(1.5)	1.4(8.4)	4457 (139)
44772	0.0(0.6)	1.5(2.1)	3304 (121)	-0.2(0.6)	1.1(11.5)	2175 (120)

Statistics of (ob-bg) differences for buoys reporting this quarter and all ships within 500 nautical miles

WMO No.	Air Temperature			Sea Surface Temperature		
	Mean	St. Dev	No. of Obs	Mean	St. Dev.	No. of Obs
44773	0.1(0.9)	1.9(1.6)	3516 (335)	-0.4(0.1)	1.0(1.2)	3715 (312)
44774	0.5(1.0)	1.6(2.0)	4401 (123)	0.0(1.5)	1.3(8.6)	4553 (128)
44775	0.1(0.4)	2.5(2.6)	627 (161)	1.3(0.9)	1.6(6.3)	659 (137)
44777	19.7(0.7)	7.9(2.6)	214 (133)	-0.6(1.1)	0.9(6.6)	773 (119)
44778	0.7(0.9)	1.9(2.6)	958 (133)	1.3(1.2)	1.1(8.4)	1008 (138)
44911	---	---	---	0.5(0.8)	0.8(5.9)	6 (150)
61521	3.1(2.2)	3.4(2.4)	1095 (362)	3.3(-1.0)	2.5(8.5)	320 (322)
61522	2.0(2.1)	2.8(3.2)	1629 (328)	2.6(-0.6)	2.2(6.9)	627 (299)
61523	2.4(2.3)	2.6(2.7)	1009 (359)	3.1(-0.9)	2.1(7.7)	651 (334)
62501	---	---	---	-0.4(0.1)	0.3(1.5)	2036 (336)
62503	---	---	---	0.0(-0.6)	0.5(6.4)	1858 (578)
62504	---	---	---	-0.1(-0.4)	0.4(4.8)	1901 (782)
62505	---	---	---	0.3(0.2)	0.3(1.6)	1872 (230)
62506	0.6(1.2)	0.8(1.8)	1426 (380)	0.3(0.0)	0.4(1.5)	1577 (372)
62507	---	---	---	-0.3(-0.1)	0.5(5.6)	1197 (321)
62508	---	---	---	---	---	---
62510	---	---	---	-0.2(-0.7)	0.3(6.6)	1157 (549)
62512	---	---	---	0.1(-0.6)	0.5(7.2)	956 (431)
62694	-2.5(1.6)	13.6(2.9)	2238 (65)	2.0(2.7)	3.5(11.7)	1306 (67)

Statistics of (ob-bg) differences for buoys reporting this quarter and all ships within 500 nautical miles

WMO No.	Air Temperature			Sea Surface Temperature		
	Mean	St. Dev	No. of Obs	Mean	St. Dev.	No. of Obs
62910	---	---	---	0.0(0.9)	0.2(14.3)	5 (77)
63661	-30.1(0.2)	41.7(2.5)	17 (392)	---	---	---
63665	5.7(1.4)	5.1(2.7)	944 (52)	---	---	---
64590	-1.7(0.6)	0.6(2.2)	12 (75)	1.7(-0.4)	0.3(12.5)	21 (71)
64934	---	---	---	3.3(-0.5)	1.0(12.4)	2 (72)
65594	1.3(0.6)	1.7(2.3)	4819 (74)	0.9(0.8)	1.3(15.0)	5856 (70)
65595	0.1(1.1)	1.9(2.7)	4816 (106)	-0.3(1.6)	0.8(9.3)	2828 (109)
65598	1.1(1.3)	3.6(2.9)	1937 (69)	0.7(1.3)	2.7(14.9)	1301 (72)

Statistics of (ob-bg) differences for buoys reporting this quarter and all ships within 500 nautical miles

Buoys 25565(1.2), 44616(1.1), 44684(5.5) (only 13 reports were received from this buoy), 44692(-1.5), 61521(3.1), 61522(2.0), 61523(2.4), 63665(5.7), 64590 (-1.7) (only 12 reports were received from this buoy) and 65594(1.3) all showed significant air temperature biases.

Data from buoy 44613 became erroneous at the start of June and was subsequently deleted from the GTS on 12/6. Air temperature data from buoy 44777 was excessively high from the time of its deployment until 14/6 when it was deleted from the GTS. Data from buoy 62694 became erroneous towards the end of its reporting life on 14/5. Data from buoy 63661 was erroneous from the time of its deployment on 26/6 until the end of the quarter. However, only 17 reports were received from this buoy during that period. Erratic reports were received from buoy 65598 towards the end of May, but these improved to an acceptable level during June.

Buoys 44775(1.3), 44778(1.3), 64590(1.7) and 64934 (3.3) all showed significant sea surface temperature biases. However, both 64590 and 64934 only produced a limited number of reports (21 and 2 respectively).

Buoys 61521, 61522 and 61523 produced sea surface temperatures which fluctuated by up to 2°C from report to report. A similar characteristic is present in the graph (see Annex D) for buoy 65598. However, this was due to erroneous location data being entered. Data for buoy 62694 became erroneous towards the end of its life.

#### (4) Winds

The following table shows the mean and standard deviation of observation minus background differences for wind speed and direction. Figures in brackets are for the observations from voluntary observing ships within a radius of about 500 nautical miles of the mean position of each buoy (Note - it is not known what proportion of the ships' winds were measured rather than estimated visually using the Beaufort Scale). The statistics for this report can be compared with those for ships and the relative quality of the wind data from each buoy can be assessed.

(Note : Although in Annex A, it quotes buoy 44771 as having 81.5% of wind speeds present, no analysis was carried out on the data because the speed reports were not accompanied by a wind direction. Wind data was occasionally present for buoy 65598 (0.9% present). However, the limited number of values received were all 0 for both wind speed and direction. Thus, no wind analysis has been carried out for this buoy either.)

WMO No.	Period	Wind Speed (kn)		Wind Direction (deg)		No. of Obs
		Mean	St. Dev.	Mean	St. Dev.	
41526	01/04-30/06	-4.7(3.3)	3.3(7.9)	0.6(-3.7)	21.0(30.1)	555 (277)
41585	02/04-30/06	0.8(1.8)	2.6(6.0)	-59.9(-7.4)	63.6(33.4)	94 (150)
44613	01/04-30/06	-4.1(3.5)	4.9(6.3)	-2.6(-2.1)	20.7(31.3)	2733 (654)

Statistics of (ob-bg) differences for buoys reporting this quarter and all ships within 500 nautical miles

Buoys 41526 and 44613 showed a significant negative wind speed bias.

Only buoy 41585 showed a significant wind direction bias.

## 5 EXPLANATORY NOTES:

1. Buoy owners are as follows,

CA	- Canada	P	- Portugal
F	- France	UK	- United Kingdom
D	- Germany	US	- United States
N	- Norway	IC	- Iceland
NL	- Netherlands	EG	- EGOS
IR	- Ireland	??	- unknown

2. Number of observations received is the number received at Bracknell in the Meteorological Data Bank (Met.DB). If identical reports are received which have originated at different Collecting Centres, the earliest one received at Bracknell is stored in the Met.DB.
3. An observation with valid Time and Date is one that contains no coding errors in the Date/Time group.
4. An acceptable position for an observation is within a distance  $d$  of the last acceptable position where  $d=vt$  and,
- $v$  = maximum drift speed = 1/4 knot  
 $t$  = time between observations.
5. The percentage of elements present is calculated from the total number of observations received.
6. The delay is (Time of Receipt at Bracknell) - (Time of Observation).
7. The mean number of observations per day is calculated from the total number of observations received divided by the number of days in the period. It therefore includes 'quasi-identical' observations, i.e. those made within a few minutes of one another. For this reason the mean number of hours per day with at least one observation and the % of hour periods without an observation has been included, where an 'hour period' is defined as the period from HH-30 to HH+29 minutes.

8. Mean (OB-BG) is the mean value of (Observation-Background) Pressure, where the Background is the 6-hour forecast from the Global Forecast Model. RMS (OB-BG) is the Root Mean Square value of (Observation-Background) Pressure differences.

Unflagged data are those data used in model analyses.

Flagged data (i.e. unused observations) are those observations of suspect quality and all observations reported by a buoy at a frequency greater than 5 times every 6 hours, with accepted observations being at least one hour apart. Thus, those buoys which report most frequently have a higher percentage of flagged data.

The Mean calculated over Unflagged Data gives an indication of the instrument bias, since any gross errors have been excluded from the calculation.

The Revised RMS is based on all data except for the few that contain gross errors (as indicated on the time-series graphs - see Annex B).

9. The performance categories are defined in the table below.

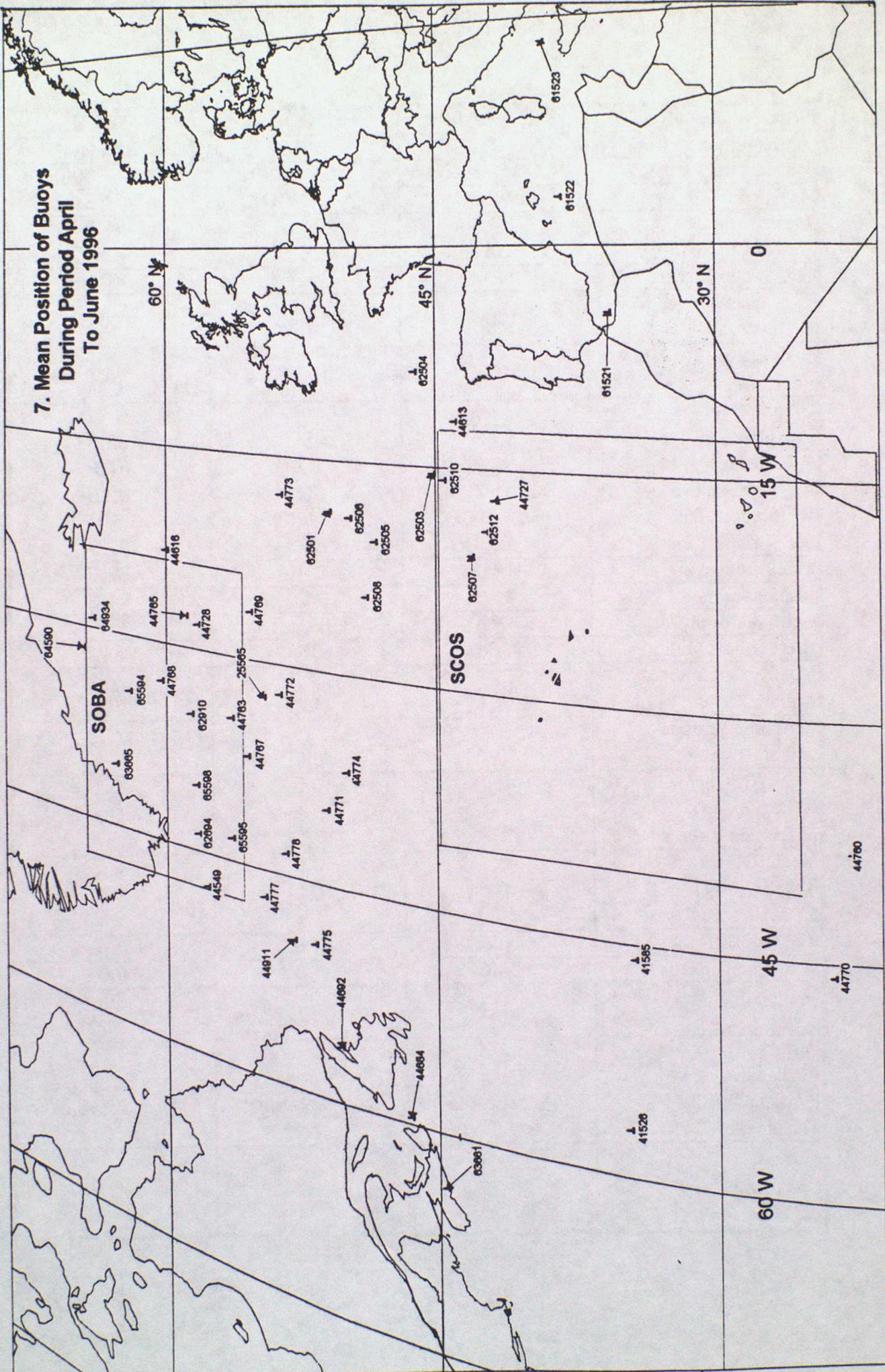
Performance	Availability (mean no. of obs/day)	Timeliness (median delay in mins)
Very Good	> 35	< 60
Good	25 - 35	60 - 119
Satisfactory	15 - 24	120 - 179
Poor	5 - 14	180 - 239
Very Poor	< 5	> 240

(N.B. WMO requirements state the need for only 4 observations per day from marine stations.)

The pressure quality is assessed from the Revised RMS and the Mean (for unflagged data).

Performance	Pressure Quality (in hPa)			
	North of 50 degN		South of 50 degN	
	RMS	MEAN	RMS	MEAN
Acceptable	< 3.0	< 0.5	< 2.0	< 0.5
Suspect	> 3.0	> 0.5	> 2.0	> 0.5

7. Mean Position of Buoys  
During Period April  
To June 1996



## ANNEX A - TABLE OF STATISTICS

Wmo No./Country <sup>1</sup>	25565/UK	41526/US	41585/US
Argos Id.No.	1639	5575	23640
Period within area	01/04 - 30/06	01/04 - 30/06	01/04 - 30/06
Area	S of SOBA	W of SCOS	W of SCOS
Mean Latitude	54.6	34.8	34.5
Mean Longitude	-32.5	-56.9	-45.9
No. of obs received <sup>2</sup>	1211	544	704
% of obs with valid Time and Dates <sup>3</sup>	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	100.0	100.0	98.7
% of Presents			
Pressure	93.3	85.1	92.5
P. Tendency	88.9	0.0	0.0
Air Temperature	91.7	85.3	92.5
Wind Speed/Dir.	0.0/0.0	82.2/82.2	15.6/17.0
Sea-surface Temp.	0.0	85.3	92.2
Median delay(min) <sup>5</sup>	12.0	61.0	37.0
Number of days	91.0	91.0	91.0
Mean no. of obs/day	13.3	6.0	7.7
No. of hours with obs	920.0	536.0	651.0
Mean no. of hours/day with obs	10.1	5.9	7.2
% of hour periods without an ob <sup>7</sup>	57.9	75.4	70.0
Mean (Ob-Bg)	-0.1	0.0	-0.2
RMS (Ob-Bg) unflagged data <sup>8</sup>	1.6	0.9	1.0
Mean (Ob-Bg) all data <sup>8</sup>	-0.1	0.0	-0.2
RMS (Ob-Bg) all data <sup>8</sup>	1.7	0.9	1.0
Revised RMS (Ob-Bg) <sup>8</sup>	1.7	0.9	0.9
% of data flagged <sup>8</sup>	34.0	1.0	8.0
Operating at end of period	YES	YES	YES
Performance			
Availability	Poor	Poor	Poor
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Very Good	Good	Very Good
Comments			

## ANNEX A - Cont.

Wmo No./Country <sup>1</sup>	44549/US	44613/UK	44616/UK
Argos Id.No.	????	3324	3318
Period within area	01/04 - 28/06	01/04 - 30/06	01/04 - 30/06
Area	SOBA	E of SCOS	E of SOBA
Mean Latitude	57.8	44.0	60.1
Mean Longitude	-47.4	-11.8	-22.9
No. of obs received <sup>2</sup>	2047	2572	3959
% of obs with valid Time and Dates <sup>3</sup>	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	100.0	99.4	99.8
% of Presents			
Pressure	94.2	99.2	98.7
P. Tendency	0.0	93.3	92.2
Air Temperature	95.3	68.3	96.1
Wind Speed/Dir.	0.0/0.0	91.8/91.9	0.0/0.0
Sea-surface Temp.	97.9	95.7	96.2
Median delay(min) <sup>5</sup>	65.0	102.0	18.0
Number of days	89.0	91	91.0
Mean no. of obs/day	23.0	28.3	43.5
No. of hours with obs	1301.0	1113.0	1365.0
Mean no. of hours/day with obs	14.6	12.2	15.0
% of hour periods without an ob <sup>7</sup>	39.2	49.2	37.5
Mean (Ob-Bg)	-0.1	-0.1	0.7
RMS (Ob-Bg)	1.3	1.4	1.2
<b>unflagged datas</b>			
Mean (Ob-Bg)	-0.2	-0.2	0.5
RMS (Ob-Bg)	1.4	3.0	4.4
<b>all datas</b>			
Revised RMS (Ob-Bg) <sup>8</sup>	1.4	1.2	1.7
% of data flagged <sup>9</sup>	44.0	63.0	73.0
Operating at end of period	NO	YES	YES
Performance			
Availability	Satisfactory	Good	Very Good
Pressure Quality	Acceptable	Acceptable	Suspect
Timeliness	Good	Good	Very Good
Comments			

**ANNEX A - Cont.**

Wmo No./Country <sup>1</sup>	44684/CA	44692/CA	44727/UK
Argos Id.No.	977	972	2974
Period within area	01/04 - 02/04	01/04 - 02/05	01/04 - 30/06
Area	NW of SCOS	SW of SOBA	SCOS
Mean Latitude	46.6	50.4	41.8
Mean Longitude	-59.5	-56.0	-17.0
No. of obs received <sup>2</sup>	9	161	2383
% of obs with valid Time and Dates	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	0.0	100.0	98.9
% of Presents			
Pressure	100.0	95.7	99.5
P. Tendency	0.0	0.0	93.8
Air Temperature	100.0	94.4	95.1
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface Temp.	100.0	0.0	95.5
Median delay(min) <sup>6</sup>	47.0	297.0	261.0
Number of days	2.0	32.0	91.0
Mean no. of obs/day	4.5	5.0	26.2
No. of hours with obs	9.0	156.0	1112.0
Mean no. of hours/day with obs	4.5	4.9	12.2
% of hour periods without an ob <sup>7</sup>	81.3	79.6	49.2
Mean (Ob-Bg)	0.6	-0.6	-0.2
RMS (Ob-Bg) unflagged data <sup>8</sup>	1.2	1.3	0.9
Mean (Ob-Bg) all data <sup>8</sup>	0.7	-0.6	-0.3
RMS (Ob-Bg) all data <sup>8</sup>	1.2	1.3	2.6
Revised RMS (Ob-Bg) <sup>8</sup>	1.3	1.3	1
% of data flagged <sup>8</sup>	7.0	3.0	60.0
Operating at end of period	NO	NO	YES
Performance			
Availability	Very Poor	Poor	Good
Pressure Quality	Suspect	Suspect	Acceptable
Timeliness	Very Good	Very Poor	Very Poor
Comments			

ANNEX A - Cont.

Wmo No./Country <sup>1</sup>	44728/UK	44760/UK	44763/UK
Argos Id.No.	3024	2947	3098
Period within area	01/04 - 30/06	01/04 - 30/06	01/04 - 30/06
Area	SOBA	S of SCOS	SOBA
Mean Latitude	58.3	22.8	56.4
Mean Longitude	-28.1	-38.1	-34.5
No. of obs received <sup>2</sup>	3465	853	3822
% of obs with valid Time and Dates	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	99.6	97.7	99.6
% of Presents			
Pressure	98.5	98.7	99.0
P. Tendency	92.1	97.3	94.1
Air Temperature	96.6	98.6	97.0
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface Temp.	96.5	98.7	96.9
Median delay(min) <sup>6</sup>	47.0	13.0	24.0
Number of days	91.0	91.0	91.0
Mean no. of obs/day	38.1	9.4	42.0
No. of hours with obs	1254.0	725.0	1318.0
Mean no. of hours/day with obs	13.8	8.0	14.5
% of hour periods without an ob <sup>7</sup>	42.5	66.7	39.6
Mean (Ob-Bg)	0.2	-0.3	0.1
RMS (Ob-Bg) unflagged datas	1.2	0.9	1.2
Mean (Ob-Bg) all datas	0.0	-0.5	0.0
RMS (Ob-Bg) all datas	4.2	3.4	3.4
Revised RMS (Ob-Bg) <sup>8</sup>	1.5	0.9	1.4
% of data flagged <sup>9</sup>	70.0	12.0	72.0
Operating at end of period	YES	YES	YES
Performance			
Availability	Very Good	Poor	Very Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Very Good	Very Good	Very Good
Comments			

## ANNEX A - Cont.

Wmo No./Country <sup>1</sup>	44765/NL	44767/UK	44768/UK
Argos Id.No.	4178	3013	1251
Period within area	01/04 - 30/06	01/04 - 30/06	01/04 - 30/06
Area	SOBA	S of SOBA	SOBA
Mean Latitude	59.0	55.5	60.4
Mean Longitude	-27.6	-37.0	-32.9
No. of obs received <sup>2</sup>	3505	3578	4124
% of obs with valid Time and Dates	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	94.9	99.9	99.6
% of Presents			
Pressure	95.4	98.8	99.4
P. Tendency	90.0	93.9	92.3
Air Temperature	93.9	97.0	97.0
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface Temp.	62.5	97.1	96.9
Median delay(min) <sup>6</sup>	107.0	249.0	58.0
Number of days	91.0	91.0	91.0
Mean no. of obs/day	38.5	39.3	45.3
No. of hours with obs	1250.0	1262.0	1393.0
Mean no. of hours/day with obs	13.7	13.9	15.3
% of hour periods without an ob <sup>7</sup>	42.9	42.1	36.3
Mean (Ob-Bg)	-0.3	0.1	0.1
RMS (Ob-Bg) unflagged data <sup>8</sup>	1.2	1.2	1.1
Mean (Ob-Bg) all data <sup>8</sup>	-0.5	0.0	0.1
RMS (Ob-Bg) all data <sup>8</sup>	4.1	3.5	2.0
Revised RMS (Ob-Bg) <sup>8</sup>	1.4	1.5	1.2
% of data flagged <sup>8</sup>	71.0	71	73.0
Operating at end of period	YES	YES	YES
Performance			
Availability	Very Good	Very Good	Very Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Good	Very Poor	Very Good
Comments			

ANNEX A - Cont.

Wmo No./Country <sup>1</sup>	44769/UK	44770/UK	44771/UK
Argos Id.No.	1253	3035	2954
Period within area	01/04 - 30/06	01/04 - 30/06	01/04 - 30/06
Area	S of SOBA	SW of SCOS	S of SOBA
Mean Latitude	55.3	23.8	51.1
Mean Longitude	-26.5	-45.8	-39.6
No. of obs received <sup>2</sup>	3780	1196	3156
% of obs with valid Time and Dates	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	99.7	96.7	99.6
% of Presents			
Pressure	99.0	98.9	99.6
P. Tendency	92.5	98.1	94.3
Air Temperature	0.0	99.2	97.7
Wind Speed/Dir.	0.0/0.0	0.0/0.0	81.5/0.0
Sea-surface Temp.	96.6	99.2	97.9
Median delay(min) <sup>6</sup>	176.0	128.0	69.0
Number of days	91.0	91.0	91.0
Mean no. of obs/day	41.5	13.1	34.7
No. of hours with obs	1307.0	856.0	1210.0
Mean no. of hours/day with obs	14.4	9.4	13.3
% of hour periods without an ob <sup>7</sup>	41.5	60.8	44.6
Mean (Ob-Bg)	0.1	0.0	-0.3
RMS (Ob-Bg)	1.2	0.8	1.4
<b>unflagged data</b>			
Mean (Ob-Bg)	0.1	-0.2	-0.4
RMS (Ob-Bg)	1.7	6.5	4.4
<b>all data</b>			
Revised RMS (Ob-Bg) <sup>8</sup>	1.5	1.2	1.6
% of data flagged <sup>9</sup>	72.0	37.0	68
Operating at end of period	YES	YES	YES
Performance			
Availability	Very Good	Poor	Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Satisfactory	Satisfactory	Good
Comments			

## ANNEX A - Cont.

Wmo No./Country <sup>1</sup>	44772/D	44773/UK	44774/UK
Argos Id No.	6667	3132	3162
Period within area	25/04 - 30/06	01/04 - 30/06	01/04 - 30/06
Area	S of SOBA	SE of SOBA	N of SCOS
Mean Latitude	53.7	53.6	50.0
Mean Longitude	-32.1	-17.7	-36.7
No. of obs received <sup>2</sup>	2558	2615	3189
% of obs with valid Time and Dates	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	99.1	99.7	99.3
% of Presents			
Pressure	97.9	98.7	99.3
P. Tendency	93.9	90.9	93.6
Air Temperature	96.4	95.6	97.1
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface Temp.	61.3	96.4	97.4
Median delay(min) <sup>6</sup>	18.0	215.0	19.0
Number of days	67.0	91.0	91.0
Mean no. of obs/day	38.2	28.7	35.0
No. of hours with obs	916.0	1115.0	1215.0
Mean no. of hours/day with obs	13.7	12.3	13.4
% of hour periods without an ob <sup>7</sup>	42.9	48.8	44.2
Mean (Ob-Bg)	0.0	-0.1	-0.3
RMS (Ob-Bg) unflagged data <sup>8</sup>	1.3	1.8	1.4
Mean (Ob-Bg) all data <sup>8</sup>	-0.1	-0.2	-0.4
RMS (Ob-Bg) all data <sup>8</sup>	2.0	4.6	2.6
Revised RMS (Ob-Bg) <sup>8</sup>	1.3	1.7	1.8
% of data flagged <sup>8</sup>	70.0	64.0	68.0
Operating at end of period	YES	YES	YES
Performance			
Availability	Very Good	Good	Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Very Good	Poor	Very Good
Comments			

ANNEX A - Cont.

Wmo No./Country <sup>1</sup>	44775/UK	44777/UK	44778/UK
Argos Id.No.	1260	14733	1258
Period within area	31/05 - 30/06	31/05 - 30/06	15/05 - 30/06
Area	SW of SOBA	S of SOBA	S of SOBA
Mean Latitude	51.8	54.6	53.4
Mean Longitude	-49.3	-46.9	-43.4
No. of obs received <sup>2</sup>	674	789	917
% of obs with valid Time and Dates	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	100.0	100.0	100.0
% of Presents			
Pressure	97.6	97.8	97.4
P. Tendency	82.9	81.2	79.6
Air Temperature	96.4	27.0	94.8
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface Temp.	96.4	96.8	95.0
Median delay(min) <sup>6</sup>	22.0	452.0	201.0
Number of days	31.0	31.0	47.0
Mean no. of obs/day	21.7	25.5	19.5
No. of hours with obs	458.0	485.0	581.0
Mean no. of hours/day with obs	14.8	15.6	12.4
% of hour periods without an ob <sup>7</sup>	38.3	38.7	48.3
Mean (Ob-Bg)	-0.6	-	-0.2
RMS (Ob-Bg)	1.5	-	1.4
unflagged data <sup>8</sup>			
Mean (Ob-Bg)	-0.5	0.2	-0.6
RMS (Ob-Bg)	2.9	1.7	5.9
all data <sup>8</sup>			
Revised RMS (Ob-Bg) <sup>8</sup>	1.5	1.7	1.9
% of data flagged <sup>8</sup>	42.0	100.0	45.0
Operating at end of period	YES	YES	YES
Performance			
Availability	Satisfactory	Good	Satisfactory
Pressure Quality	Suspect	Acceptable	Acceptable
Timeliness	Very Good	Very Poor	Poor
Comments			

## ANNEX A - Cont.

Wmo No./Country <sup>1</sup>	44911/US	61521/US	61522/US
Argos Id No.	466	6430	7207
Period within area	01/04 - 30/06	11/04 - 01/06	11/04 - 30/06
Area	SW of SOBA	S of Spain	E of Spain
Mean Latitude	53.0	35.7	38.3
Mean Longitude	-49.4	-4.3	3.2
No. of obs received <sup>2</sup>	506	705	1430
% of obs with valid Time and Dates	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	100.0	100.0	100.0
% of Presents			
Pressure	95.8	98.7	97.1
P. Tendency	0.0	0.0	0.0
Air Temperature	0.0	99.3	97.7
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface Temp.	0.8	54.9	25.6
Median delay(min) <sup>6</sup>	723.0	27.0	476.0
Number of days	91.0	52.0	81.0
Mean no. of obs/day	5.6	13.6	17.7
No. of hours with obs	430.0	550.0	1092.0
Mean no. of hours/day with obs	4.7	10.6	13.5
% of hour periods without an ob <sup>7</sup>	80.4	55.8	43.8
Mean (Ob-Bg)	0.0	-0.2	-0.4
RMS (Ob-Bg) unflagged data	1.5	1.0	1.1
Mean (Ob-Bg) all data	0.1	-0.2	-0.5
RMS (Ob-Bg) all data	2.4	1.3	1.3
Revised RMS (Ob-Bg) <sup>8</sup>	1.4	1.3	1.6
% of data flagged <sup>9</sup>	10.0	26	27.0
Operating at end of period	YES	NO	YES
Performance			
Availability	Poor	Poor	Satisfactory
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Very Poor	Very Good	Very Poor
Comments			

## ANNEX A - Cont.

Wmo No./Country <sup>1</sup>	61523/US	62501/F	62503/F
Argos Id. No.	15352	10116	14427
Period within area	11/04 - 26/05	01/04 - 30/06	01/04 - 30/06
Area	W of Italy	SE of SOBA	N of SCOS
Mean Latitude	39.2	50.9	45.2
Mean Longitude	13.4	-18.6	-15.4
No. of obs received <sup>2</sup>	688	1387	1222
% of obs with valid Time and Dates <sup>3</sup>	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	100.0	100.0	100.0
% of Presents			
Pressure	96.9	95.1	97.1
P. Tendency	0.0	89.3	90.0
Air Temperature	98.4	0.0	0.0
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface Temp.	56.5	95.8	97.7
Median delay(min) <sup>6</sup>	159.0	18.0	51.0
Number of days	46.0	91.0	91.0
Mean no. of obs/day	15.0	15.2	13.4
No. of hours with obs	534.0	995.0	929.0
Mean no. of hours/day with obs	11.6	10.9	10.2
% of hour periods without an ob <sup>7</sup>	51.7	54.6	57.5
Mean (Ob-Bg)	-0.1	0.1	0.0
RMS (Ob-Bg)	0.9	1.1	1.0
<b>unflagged datas</b>			
Mean (Ob-Bg)	-0.1	0.1	0.0
RMS (Ob-Bg)	0.9	1.1	1.0
<b>all datas</b>			
Revised RMS (Ob-Bg) <sup>8</sup>	0.9	1.2	0.9
% of data flagged <sup>9</sup>	28.0	38.0	34.0
Operating at end of period	NO	YES	YES
Performance			
Availability	Satisfactory	Satisfactory	Poor
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Satisfactory	Very Good	Very Good
Comments			

ANNEX A - Cont.

Wmo No./Country <sup>1</sup>	62504/F	62505/F	62506/F
Argos Id No.	14428	10117	????
Period within area	01/04 - 30/06	01/04 - 30/06	01/04 - 30/06
Area	NE of SCOS	N of SCOS	N of SCOS
Mean Latitude	46.2	48.4	49.8
Mean Longitude	-8.5	-20.4	-18.9
No. of obs received <sup>2</sup>	1273	1258	1052
% of obs with valid Time and Dates	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	100.0	100.0	100.0
% of Presents			
Pressure	95.8	96.8	97.7
P. Tendency	87.3	89.0	93.0
Air Temperature	0.0	0.0	97.8
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface Temp.	96.5	97.1	98.4
Median delay(min) <sup>6</sup>	108.0	17.0	32.0
Number of days	91.0	91.0	91.0
Mean no. of obs/day	10.4	13.8	11.6
No. of hours with obs	949.0	945.0	868.0
Mean no. of hours/day with obs	10.4	10.4	9.5
% of hour periods without an ob <sup>7</sup>	56.7	56.7	60.4
Mean (Ob-Bg)	0.2	0.1	0.2
RMS (Ob-Bg)	1.0	1.2	1.5
<b>unflagged data<sup>8</sup></b>			
Mean (Ob-Bg)	0.2	0.2	-0.3
RMS (Ob-Bg)	1.0	1.2	2.7
<b>all data<sup>8</sup></b>			
Revised RMS (Ob-Bg) <sup>8</sup>	0.9	1.2	2.6
% of data flagged <sup>8</sup>	35.0	36.0	33
Operating at end of period	YES	YES	YES
Performance			
Availability	Poor	Poor	Poor
Pressure Quality	Acceptable	Acceptable	Suspect
Timeliness	Good	Very Good	Very Good
Comments			

ANNEX A - Cont.

Wmo No./Country <sup>1</sup>	62507/F	62508/F	62510/F
Argos Id.No.	????	????	14417
Period within area	01/04 - 30/06	01/04 - 30/06	01/04 - 30/06
Area	SCOS	N of SCOS	SCOS
Mean Latitude	43.1	48.9	44.6
Mean Longitude	-20.8	-24.3	-15.8
No. of obs received <sup>2</sup>	1102	1369	1262
% of obs with valid Time and Dates	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	100.0	100.0	100.0
% of Presents			
Pressure	21.6	100.0	100.0
P. Tendency	71.4	64.2	61.9
Air Temperature	0.0	0.0	0.0
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface Temp.	71.4	0.0	61.9
Median delay(min) <sup>6</sup>	94.0	182.0	120.0
Number of days	91.0	91.0	91.0
Mean no. of obs/day	12.1	15.0	13.9
No. of hours with obs	929.0	1085.0	988.0
Mean no. of hours/day with obs	10.2	11.9	10.9
% of hour periods without an ob <sup>7</sup>	57.5	50.4	54.6
Mean (Ob-Bg)	--	0.5	0.4
RMS (Ob-Bg)	--	1.2	1.0
<b>unflagged datas</b>			
Mean (Ob-Bg)	-0.3	0.4	0.4
RMS (Ob-Bg)	4.7	1.2	1.0
<b>all datas</b>			
Revised RMS (Ob-Bg) <sup>8</sup>	4.7	1.2	1.0
% of data flagged <sup>9</sup>	100.0	29.0	35.0
Operating at end of period	YES	YES	YES
Performance			
Availability	Poor	Satisfactory	Poor
Pressure Quality	Suspect	Acceptable	Acceptable
Timeliness	Good	Poor	Satisfactory
Comments			

## ANNEX A - Cont.

Wmo No./Country <sup>1</sup>	62512/F	62694/NL	62910/??
Argos Id. No.	14424	9306	????
Period within area	01/04 - 20/06	01/04 - 14/05	02/04 - 30/06
Area	SCOS	SOBA	SOBA
Mean Latitude	42.3	58.3	58.7
Mean Longitude	-19.1	-43.7	-34.9
No. of obs received <sup>2</sup>	1005	1307	826
% of obs with valid Time and Dates	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	100.0	99.2	99.9
% of Presents			
Pressure	100.0	93.1	95.4
P. Tendency	60.3	94.0	0.0
Air Temperature	0.0	91.7	0.0
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface Temp.	60.3	59.2	0.6
Median delay(min) <sup>6</sup>	192.0	18.0	676.0
Number of days	81.0	44.0	90.0
Mean no. of obs/day	12.4	29.7	9.2
No. of hours with obs	786.0	486.0	645.0
Mean no. of hours/day with obs	9.7	11.0	7.2
% of hour periods without an ob <sup>7</sup>	59.6	54.2	70.0
Mean (Ob-Bg)	0.6	-0.1	0.3
RMS (Ob-Bg) unflagged data <sup>8</sup>	1.2	1.2	1.1
Mean (Ob-Bg) all data <sup>8</sup>	0.6	-0.9	0.3
RMS (Ob-Bg) all data <sup>8</sup>	1.2	9.9	1.1
Revised RMS (Ob-Bg) <sup>8</sup>	1.2	2.4	1.1
% of data flagged <sup>8</sup>	33.0	71.0	24.0
Operating at end of period	NO	NO	YES
Performance			
Availability	Poor	Good	Poor
Pressure Quality	Suspect	Acceptable	Acceptable
Timeliness	Poor	Very Good	Very Poor
Comments			

## ANNEX A - Cont.

Wmo No./Country <sup>1</sup>	63661/D	63665/D	64590/??
Argos Id No.	8068	8067	????
Period within area	26/06 - 30/06	01/04 - 26/05	01/04 - 02/04
Area	W of SCOS	SOBA	N of SOBA
Mean Latitude	44.7	63.1	65.0
Mean Longitude	-63.6	-40.2	-31.7
No. of obs received <sup>2</sup>	24	609	17
% of obs with valid Time and Dates	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	100.0	100.0	100.0
% of Presents			
Pressure	95.8	92.1	94.1
P. Tendency	16.7	88.8	0.0
Air Temperature	83.3	88.2	94.1
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface Temp.	0.0	0.0	100.0
Median delay(min) <sup>6</sup>	89.0	18.0	169.0
Number of days	5.0	56.0	2.0
Mean no. of obs/day	4.8	10.9	8.5
No. of hours with obs	24.0	462.0	17.0
Mean no. of hours/day with obs	4.8	8.3	8.5
% of hour periods without an ob <sup>7</sup>	80.0	65.4	64.6
Mean (Ob-Bg)	--	0.1	0.1
RMS (Ob-Bg)	--	1.6	0.4
<b>unflagged datas</b>			
Mean (Ob-Bg)	-2.3	0.1	0.2
RMS (Ob-Bg)	29.3	1.7	0.4
<b>all datas</b>			
Revised RMS (Ob-Bg) <sup>8</sup>	7.1	1.7	0.4
% of data flagged <sup>9</sup>	100.0	35.0	21.0
Operating at end of period	YES	NO	NO
Performance			
Availability	Very Poor	Poor	Poor
Pressure Quality	Suspect	Acceptable	Acceptable
Timeliness	Good	Very Good	Satisfactory
Comments			

## ANNEX A - Cont.

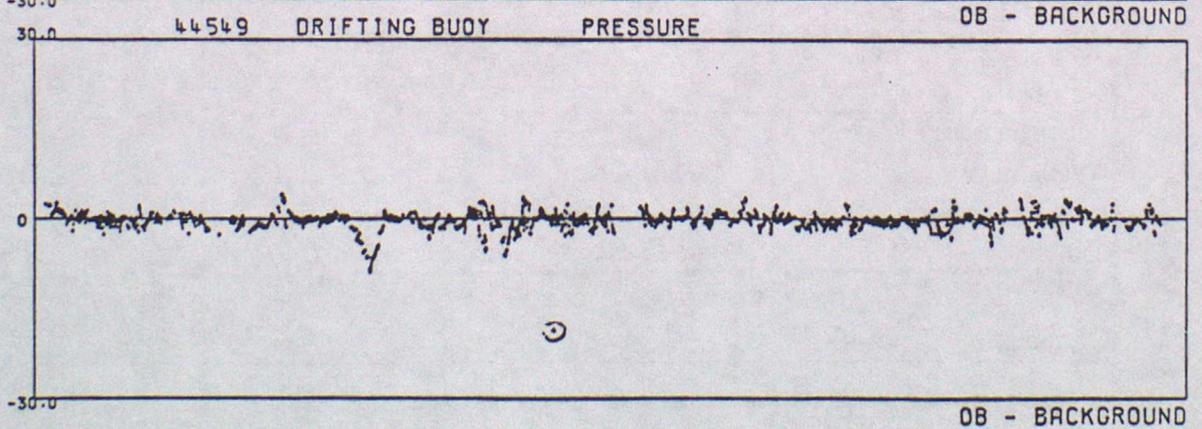
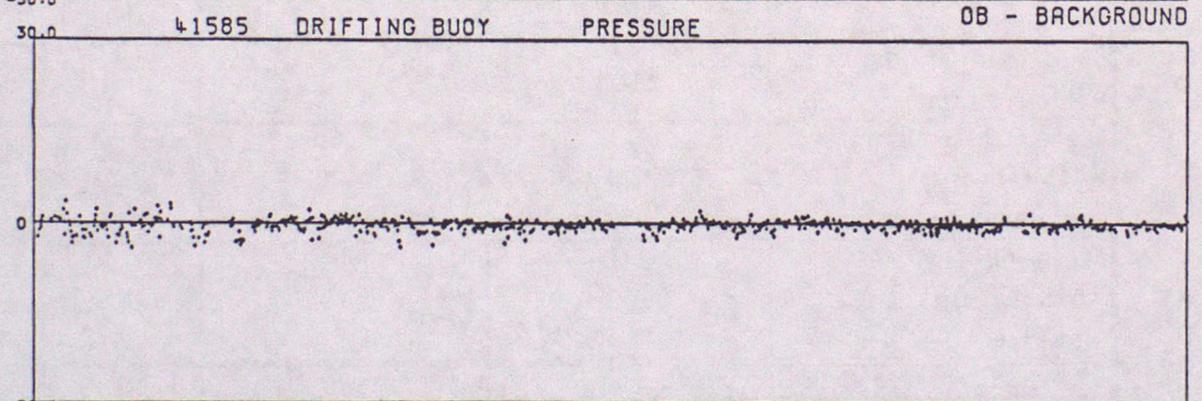
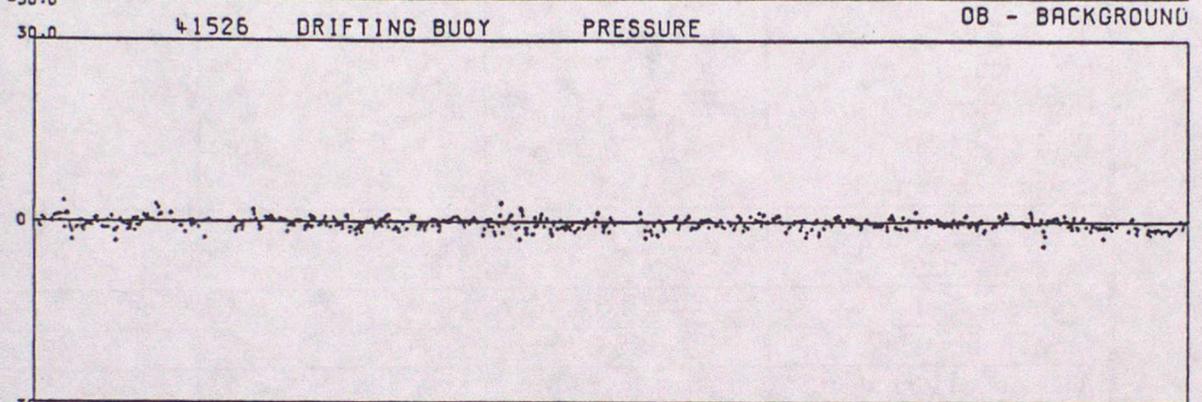
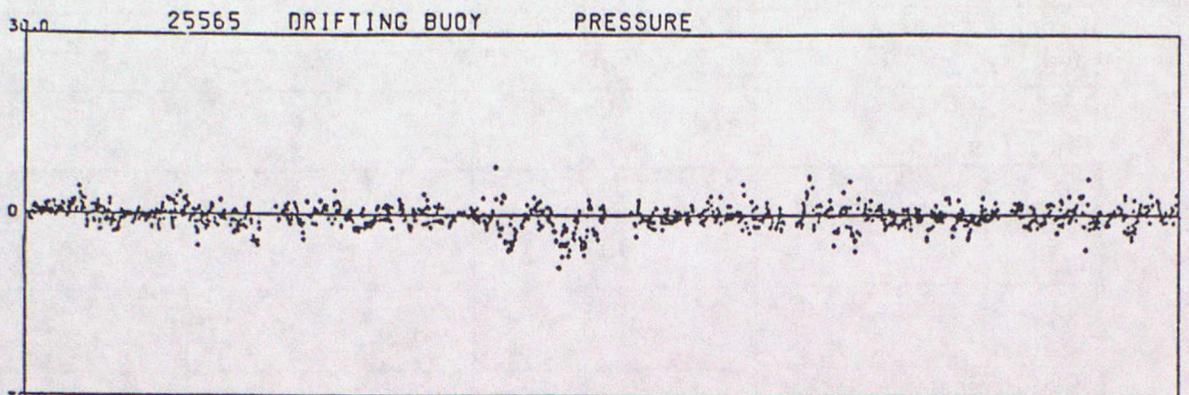
Wmo No./Country <sup>1</sup>	64934/US	65594/UK	65595/IR
Argos Id.No.	23567	1252	3038
Period within area	01/04 - 16/05	01/04 - 30/06	01/04 - 30/06
Area	SOBA	SOBA	SOBA
Mean Latitude	64.4	62.3	56.4
Mean Longitude	-29.2	-34.3	-43.3
No. of obs received <sup>2</sup>	304	4127	3191
% of obs with valid Time and Dates <sup>3</sup>	100.0	100.0	100.0
% of obs with acceptable position <sup>4</sup>	100.0	99.9	99.7
% of Presents			
Pressure	100.0	98.9	97.6
P. Tendency	0.0	92.5	92.2
Air Temperature	0.0	96.4	95.8
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface Temp.	0.3	96.6	62.2
Median delay(min) <sup>5</sup>	328.0	21.0	107.0
Number of days	46.0	91.0	91.0
Mean no. of obs/day	6.6	45.4	35.1
No. of hours with obs	262.0	1383.0	1198.0
Mean no. of hours/day with obs	5.7	15.2	13.2
% of hour periods without an obs <sup>7</sup>	76.3	36.7	45.5
Mean (Ob-Bg)	0.3	-0.2	-0.2
RMS (Ob-Bg) unflagged data <sup>8</sup>	1.2	1.1	1.1
Mean (Ob-Bg) all data <sup>8</sup>	0.2	-0.3	-0.2
RMS (Ob-Bg) all data <sup>8</sup>	1.2	1.4	1.7
Revised RMS (Ob-Bg) <sup>8</sup>	1.2	1.1	1.2
% of data flagged <sup>8</sup>	9.0	74	68.0
Operating at end of period	NO	YES	YES
Performance			
Availability	Poor	Very Good	Very Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Very Poor	Very Good	Good
Comments			

## ANNEX A - Cont.

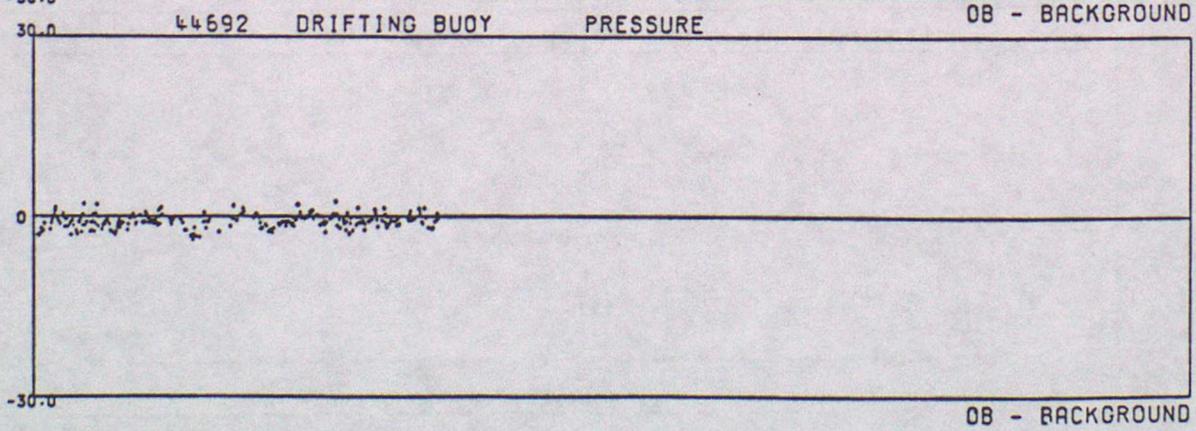
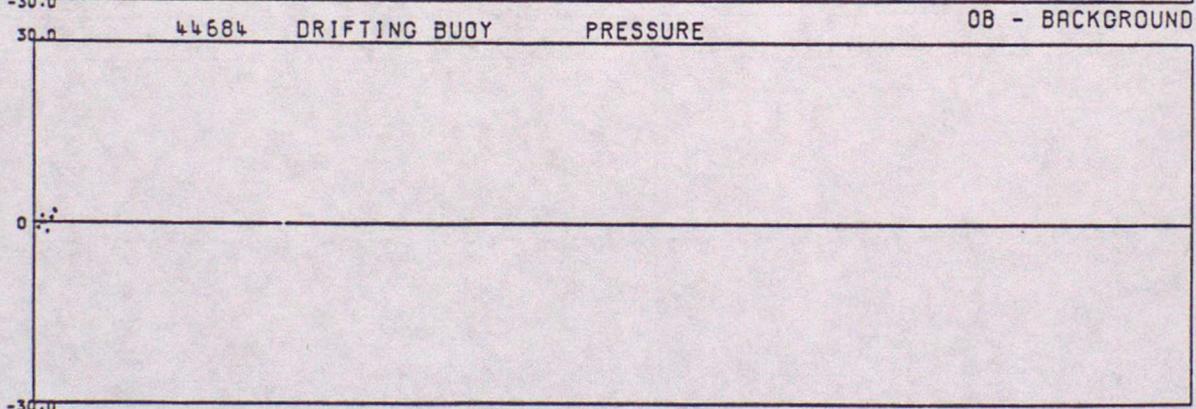
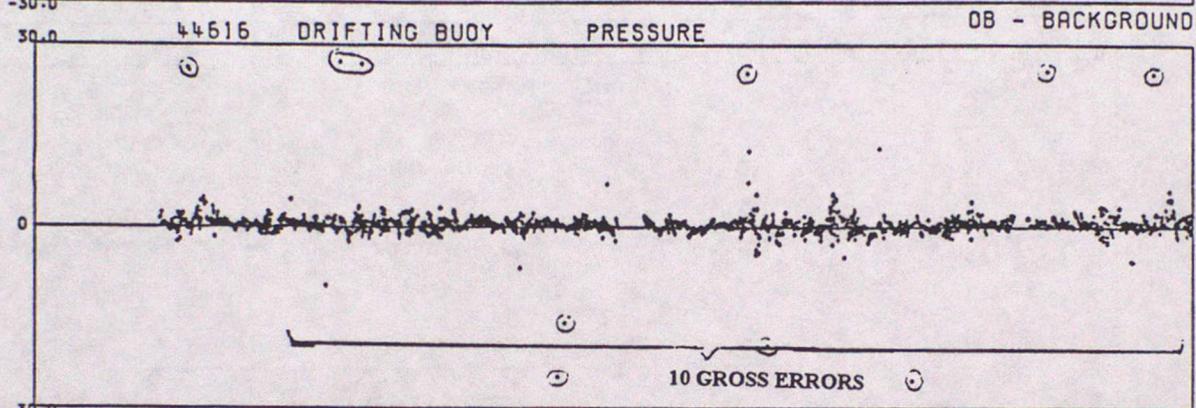
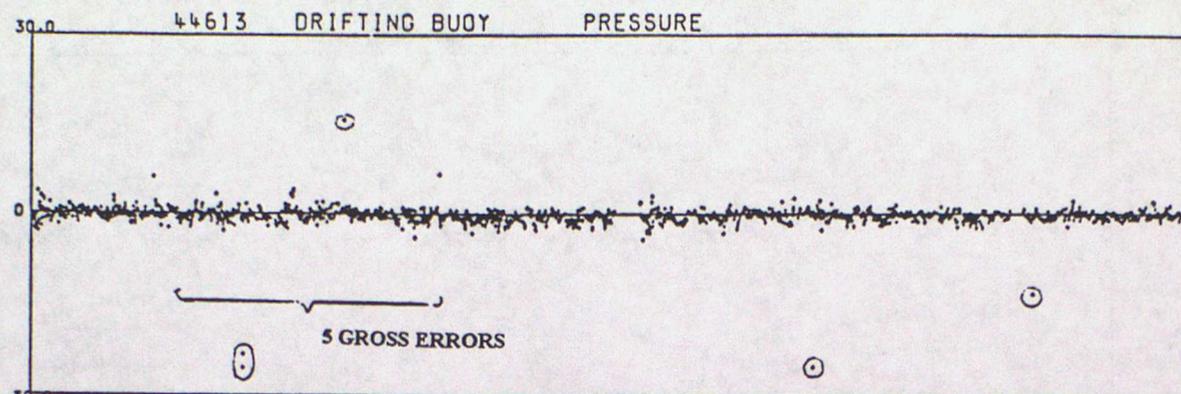
Wmo No./Country <sup>1</sup>	65598/N		
Argos Id.No.	3678		
Period within area	21/05 - 30/06		
Area	SOBA		
Mean Latitude	58.4		
Mean Longitude	-40.1		
No. of obs received <sup>2</sup>	1857		
% of obs with valid Time and Dates	100.0		
% of obs with acceptable position <sup>4</sup>	93.0		
% of Presents			
Pressure	95.8		
P. Tendency	89.7		
Air Temperature	95.1		
Wind Speed/Dir.	0.9/0.9		
Sea-surface Temp.	63.1		
Median delay(min) <sup>6</sup>	20.0		
Number of days	41.0		
Mean no. of obs/day	45.5		
No. of hours with obs	685.0		
Mean no. of hours/day with obs	16.7		
% of hour periods without an ob <sup>7</sup>	30.4		
Mean (Ob-Bg)	-0.4		
RMS (Ob-Bg)	1.2		
<b>unflagged datas</b>			
Mean (Ob-Bg)	-1.0		
RMS (Ob-Bg)	5.3		
<b>all datas</b>			
Revised RMS (Ob-Bg) <sup>8</sup>	4.9		
% of data flagged <sup>9</sup>	73.0		
Operating at end of period	YES		
Performance			
Availability	Very Good		
Pressure Quality	Suspect		
Timeliness	Very Good		
Comments			

## ANNEX B - TIME SERIES PLOTS OF PRESSURE

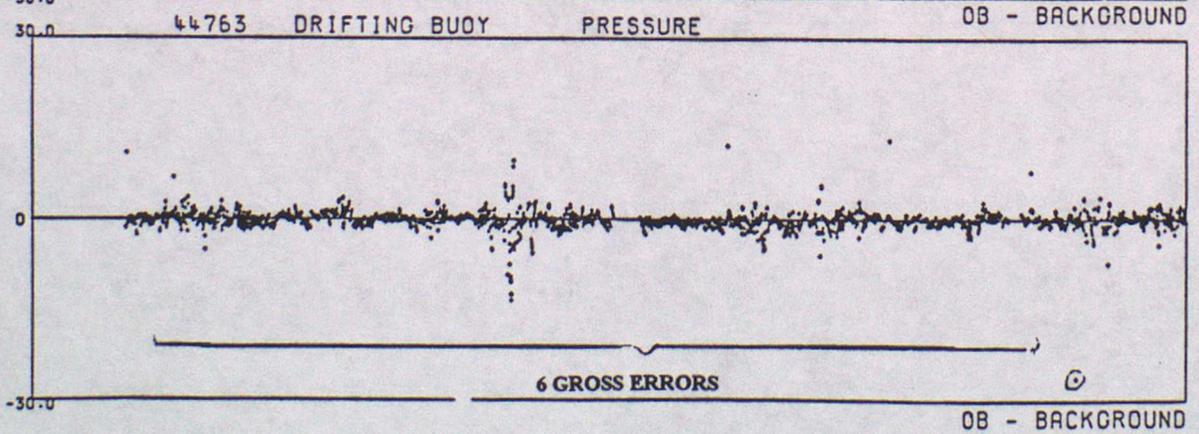
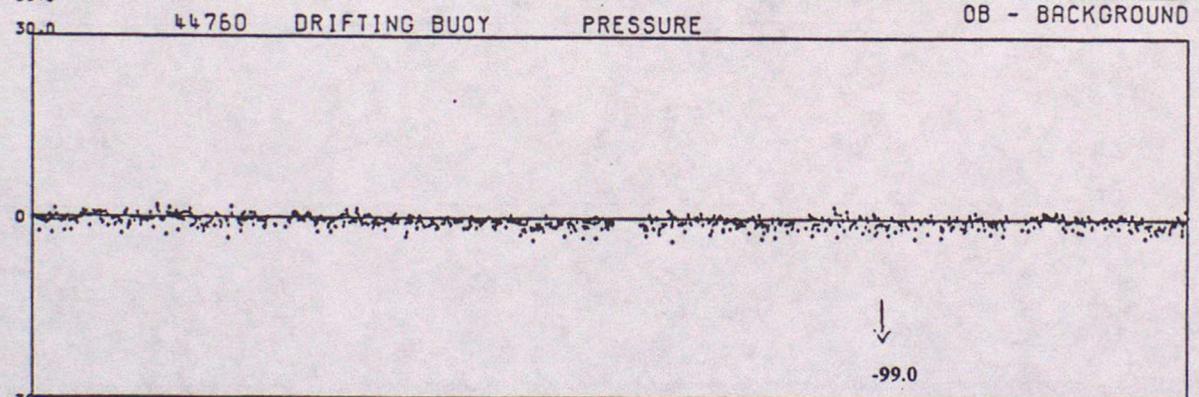
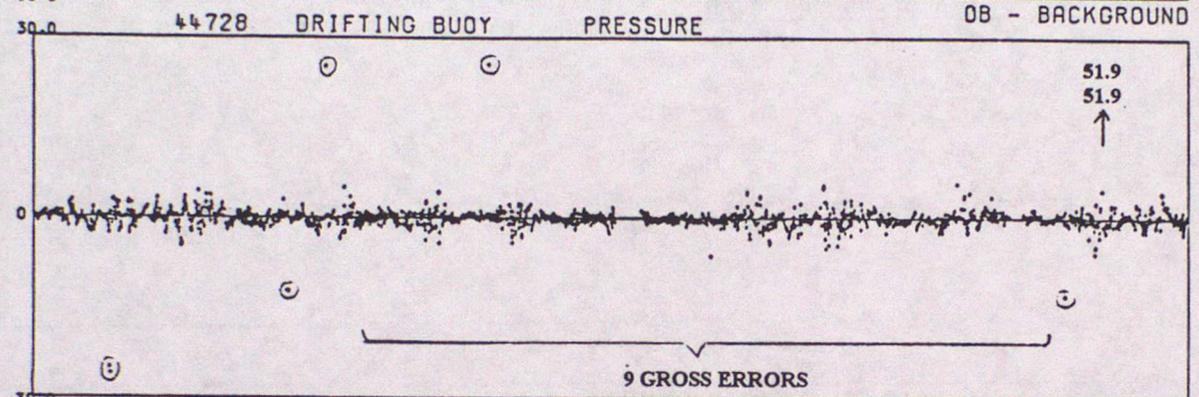
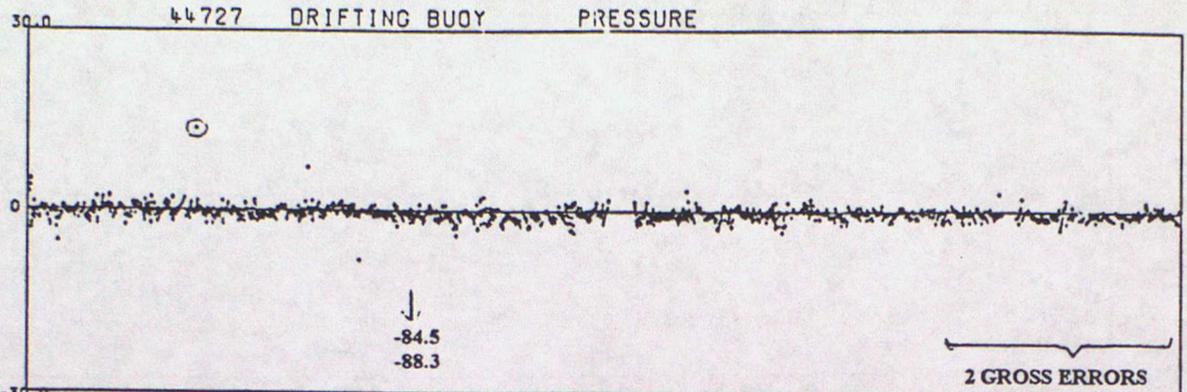
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



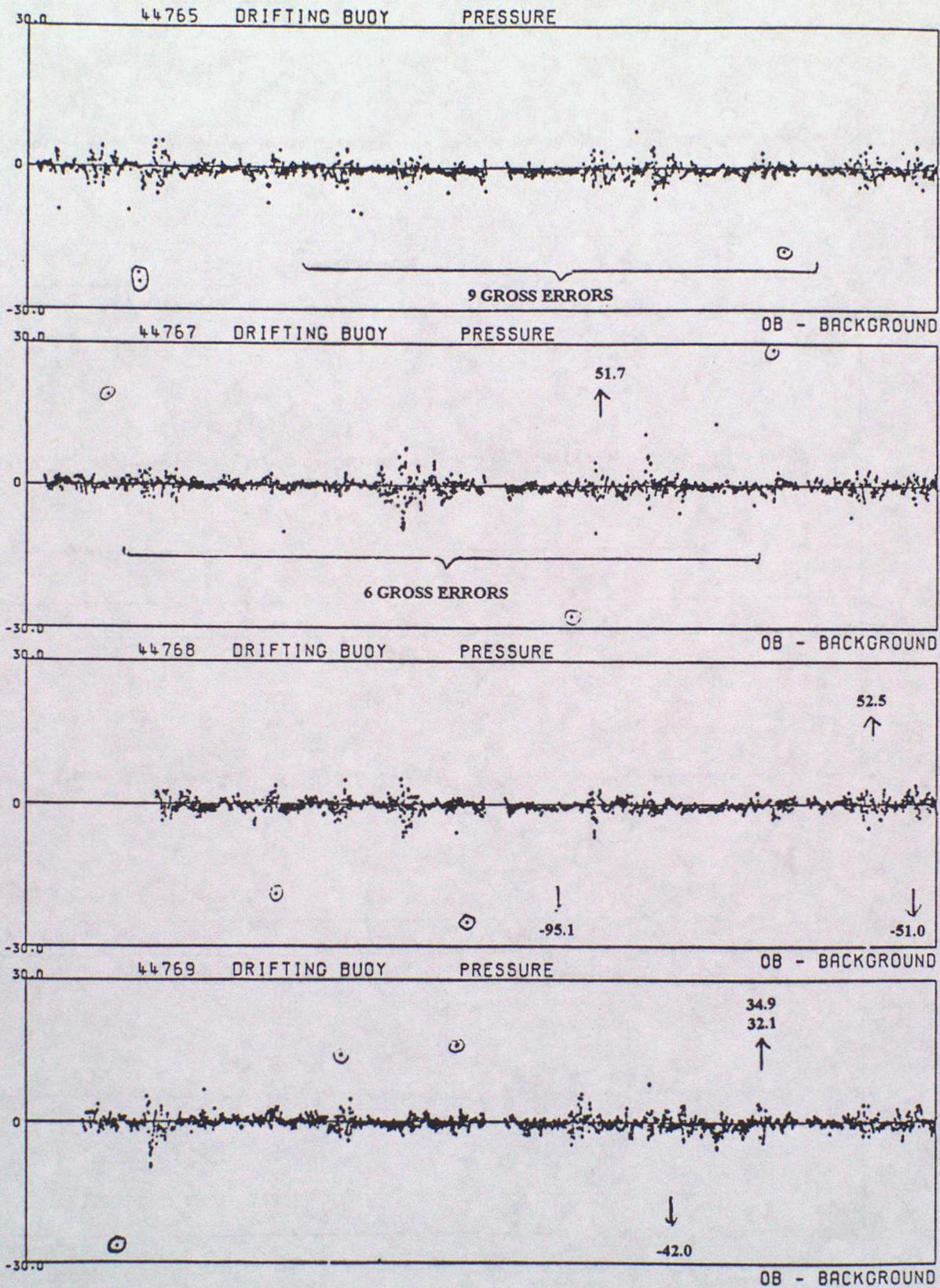
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



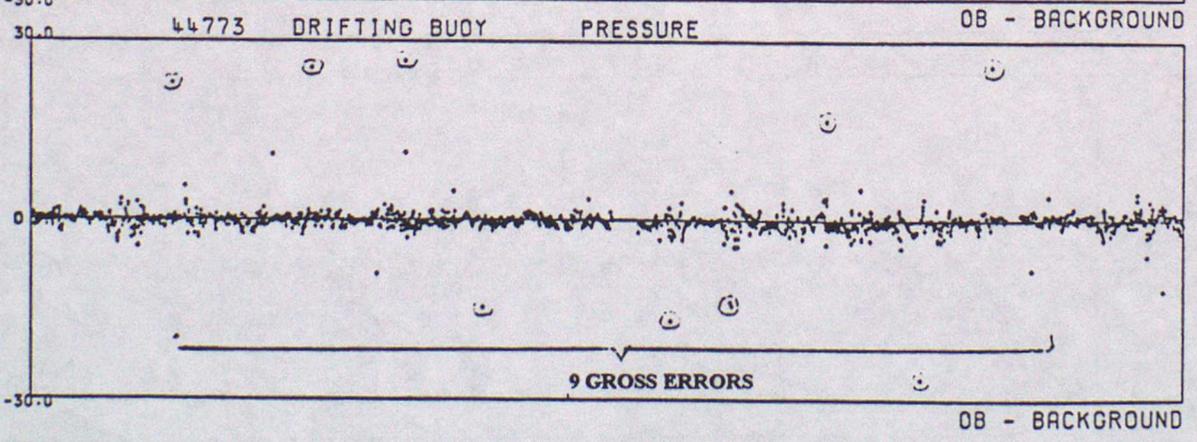
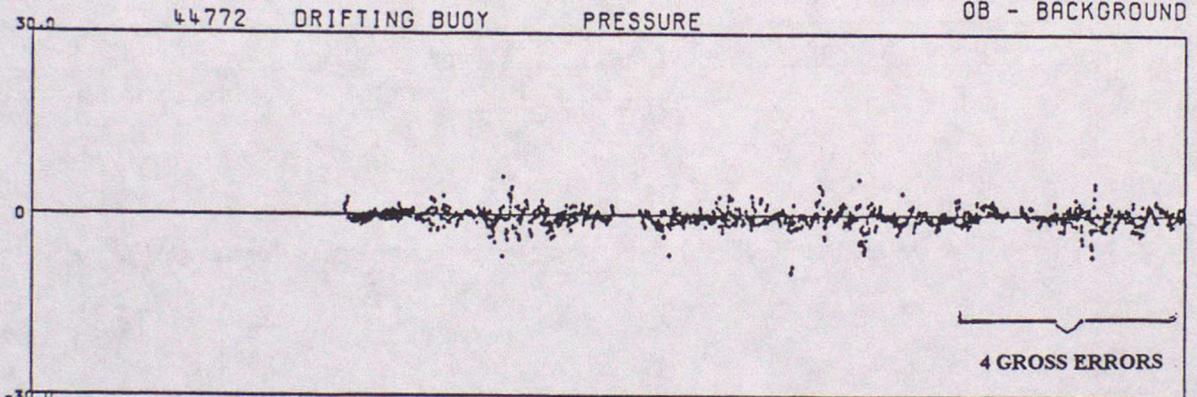
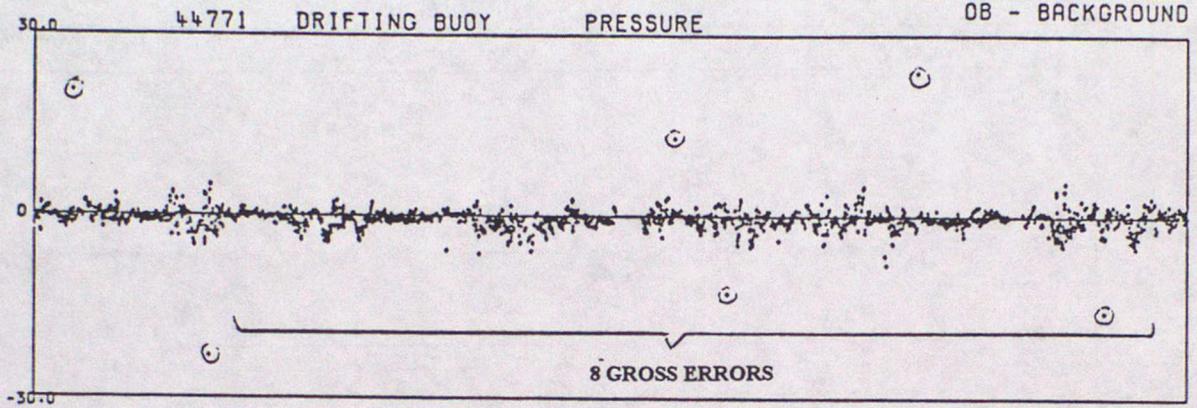
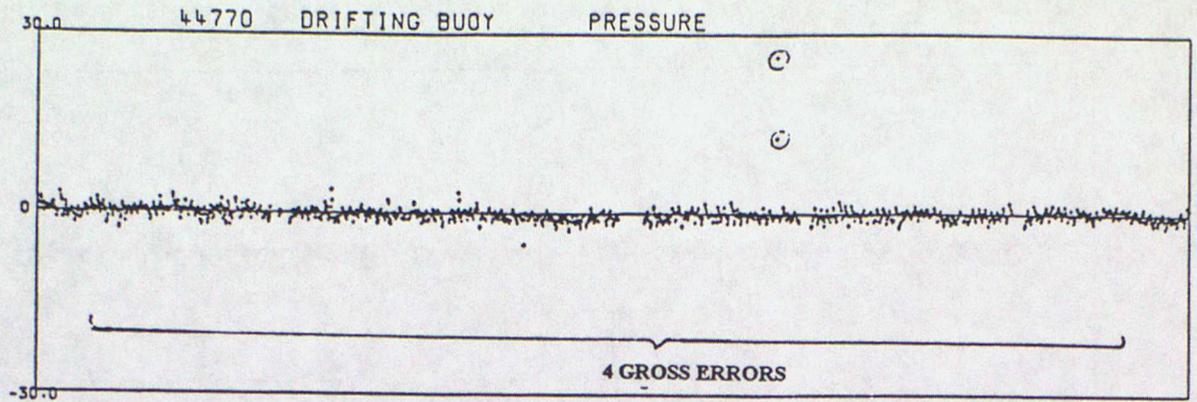
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



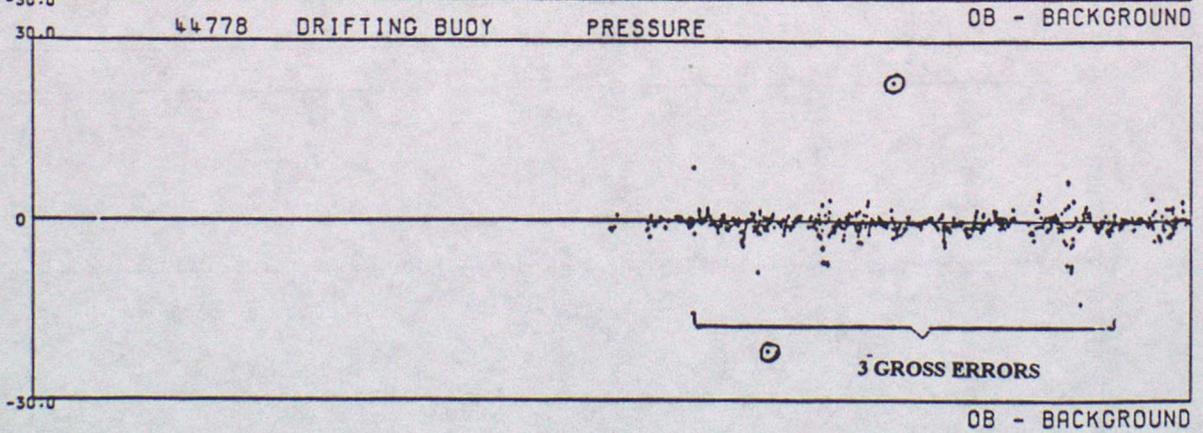
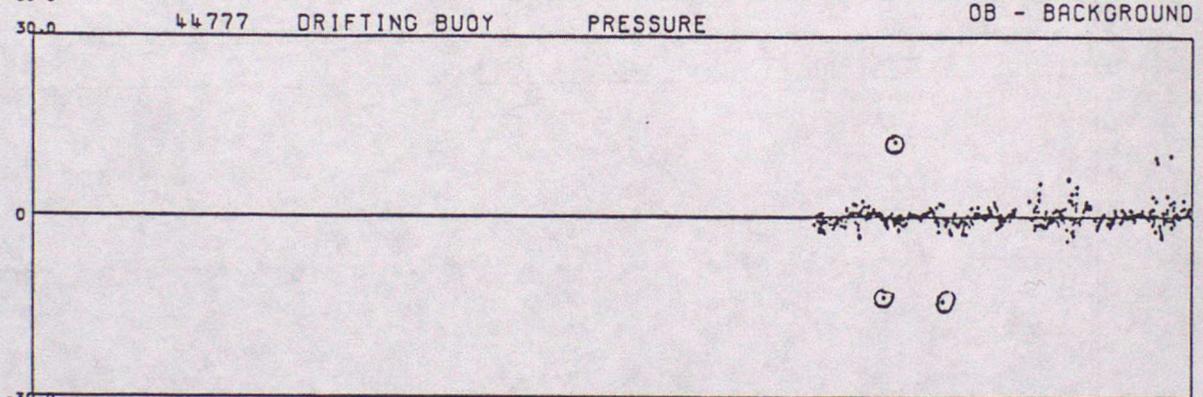
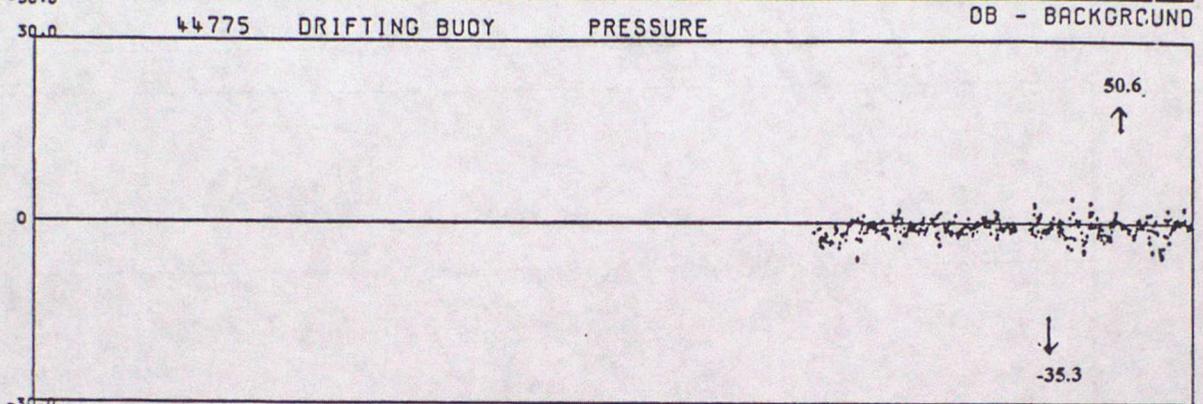
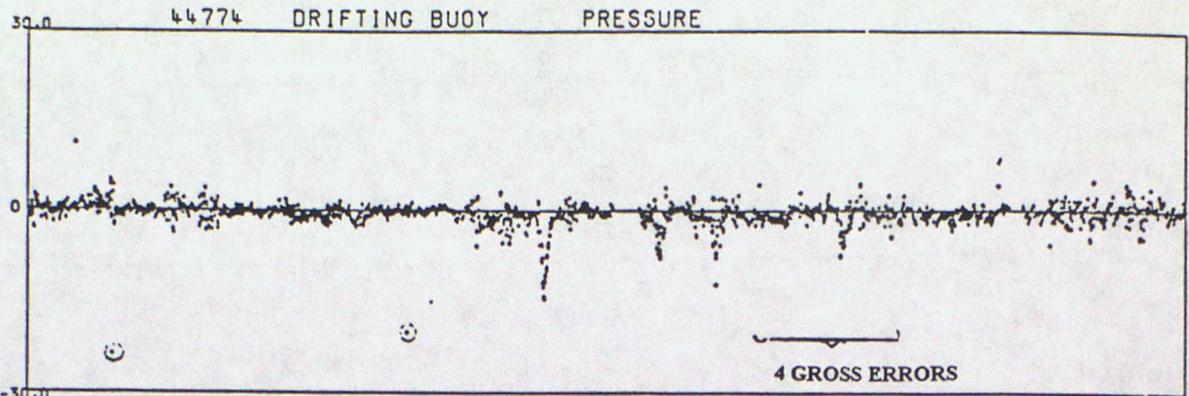
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (08S - BACKGROUND FIELD)



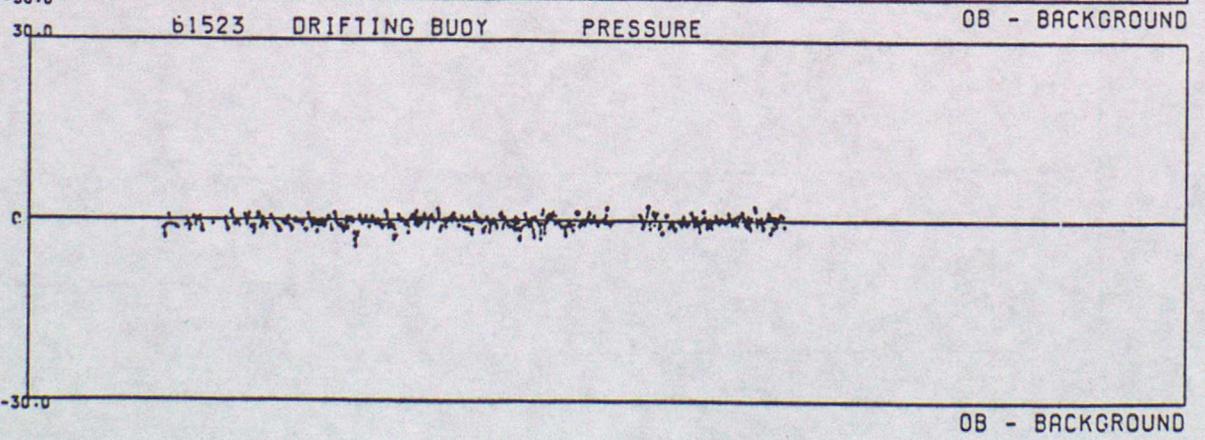
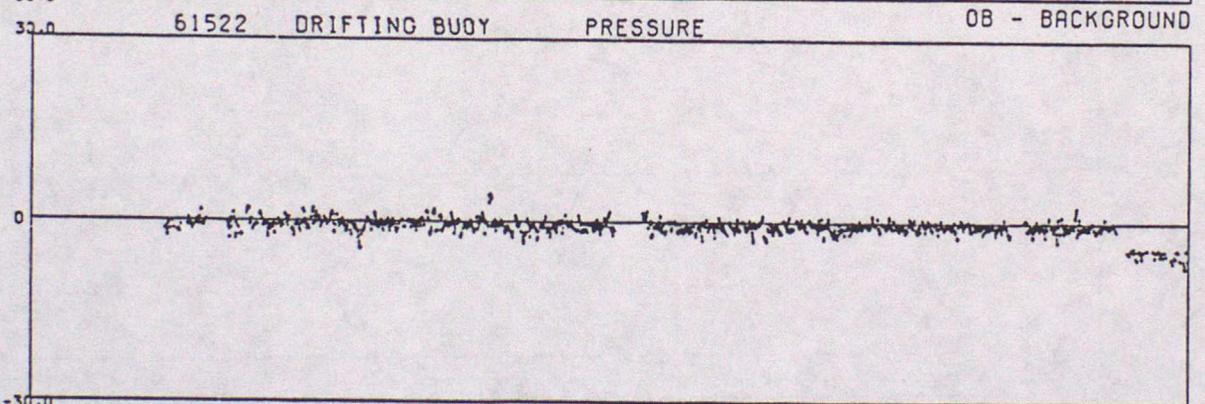
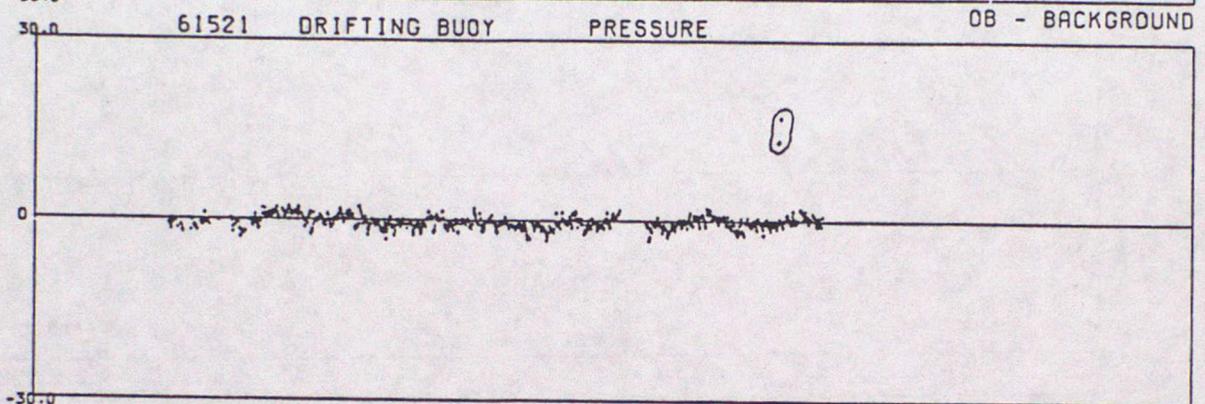
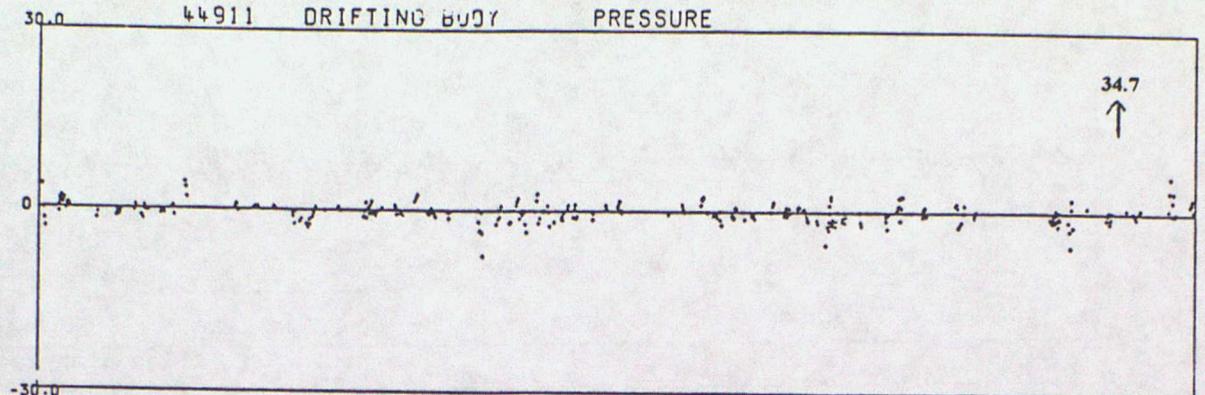
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



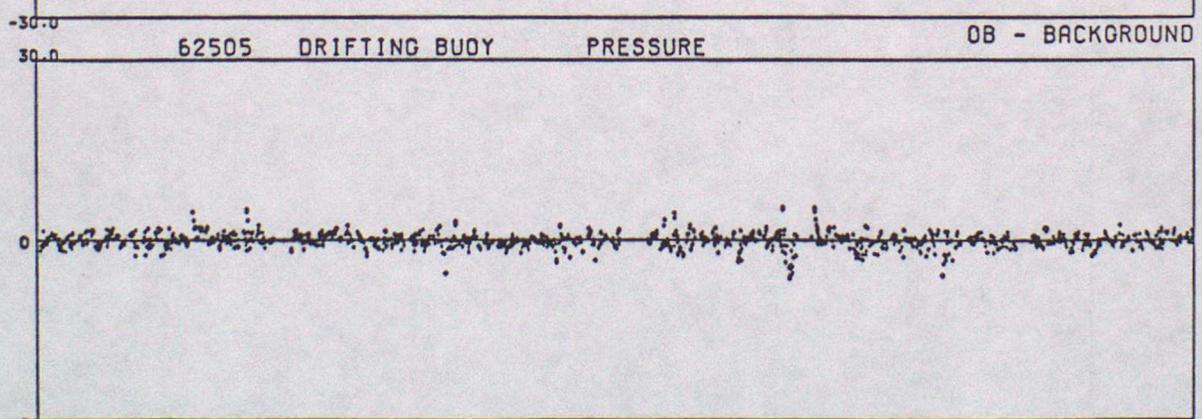
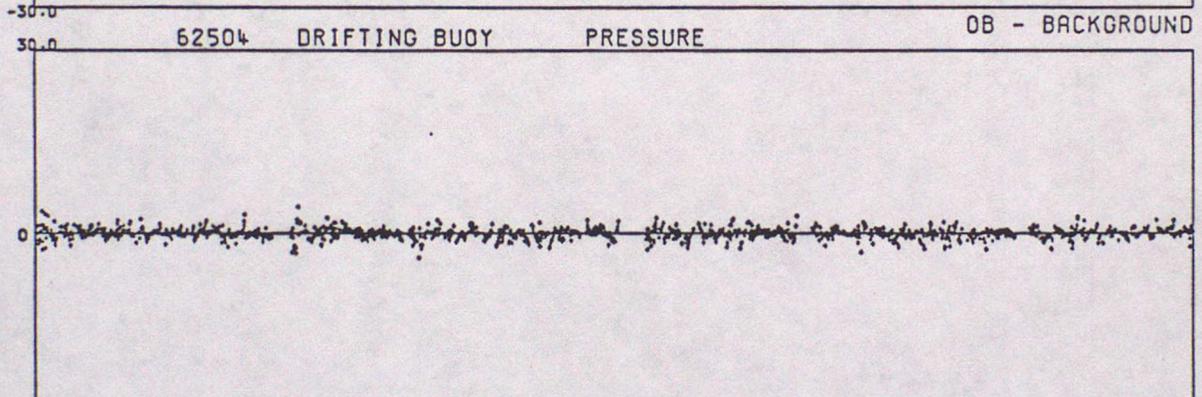
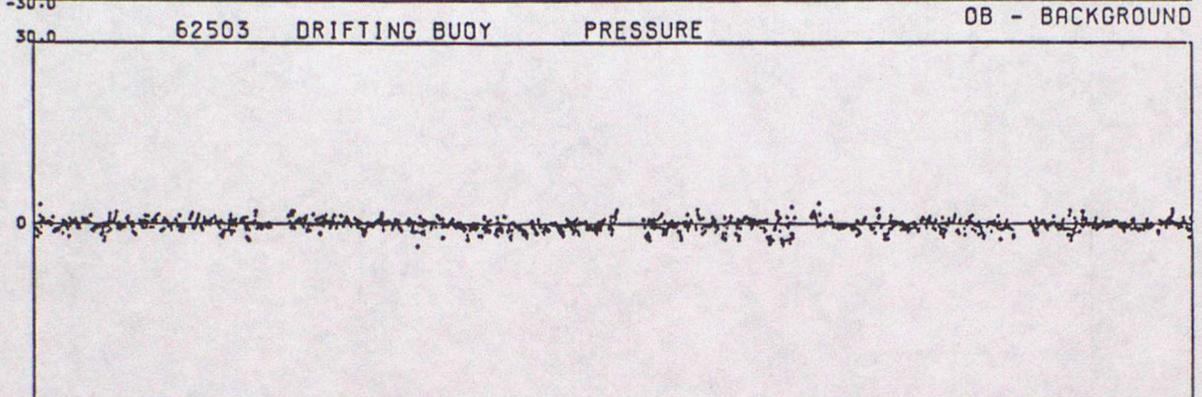
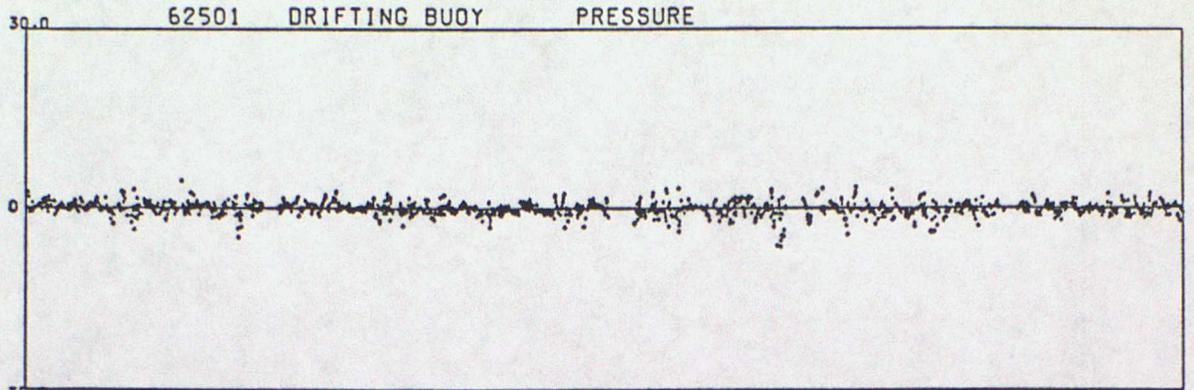
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)

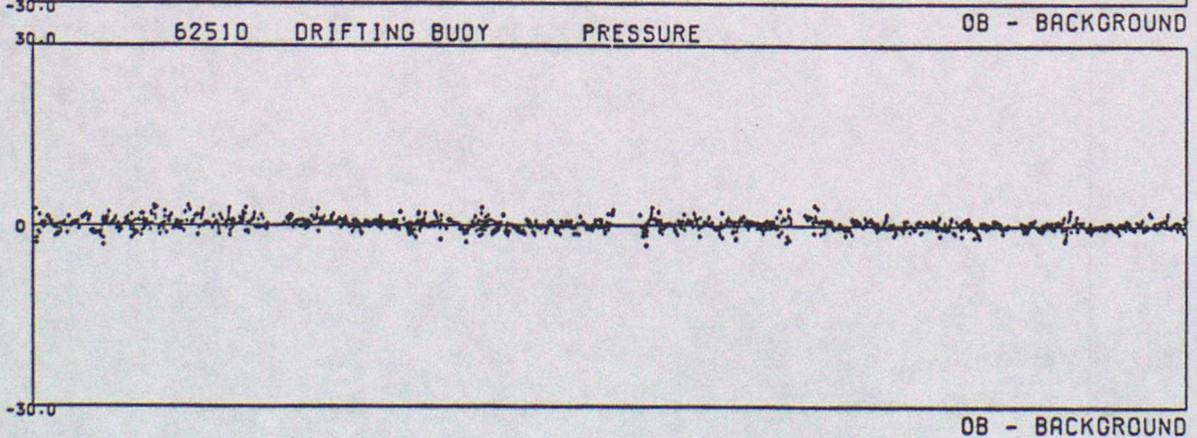
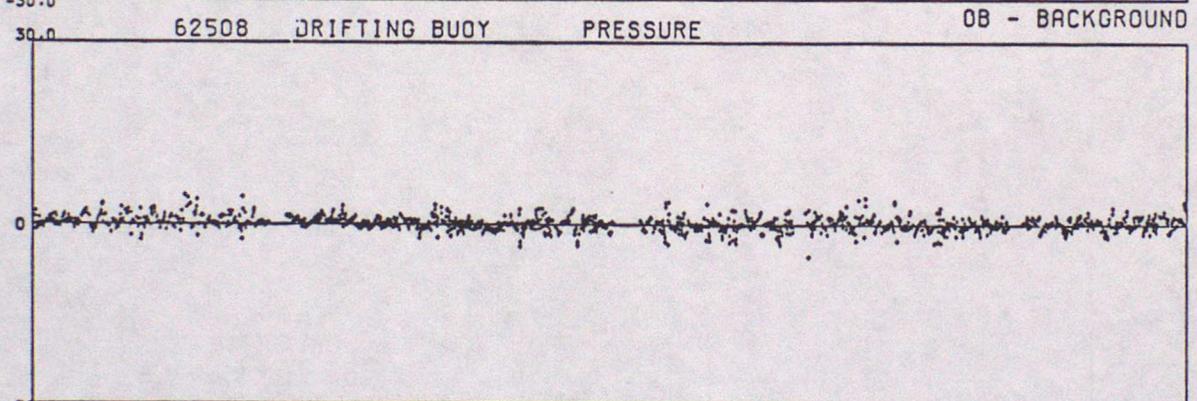
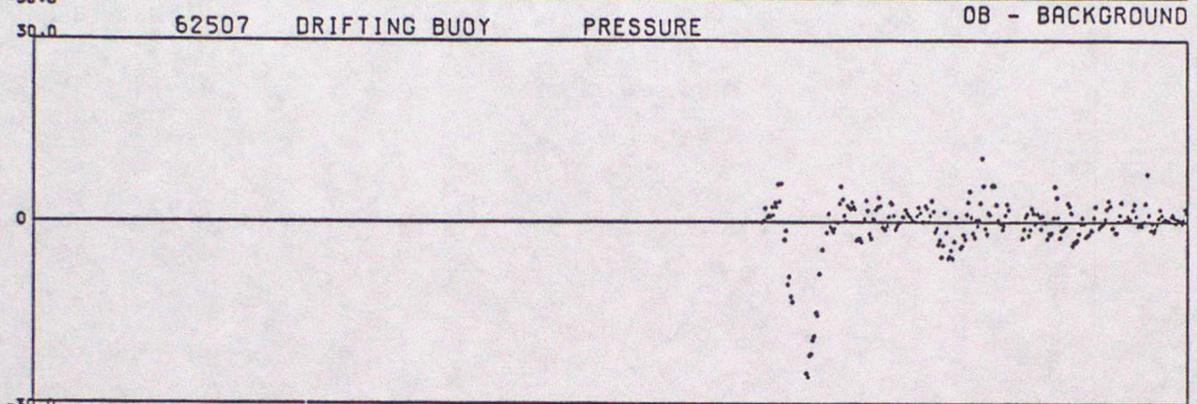
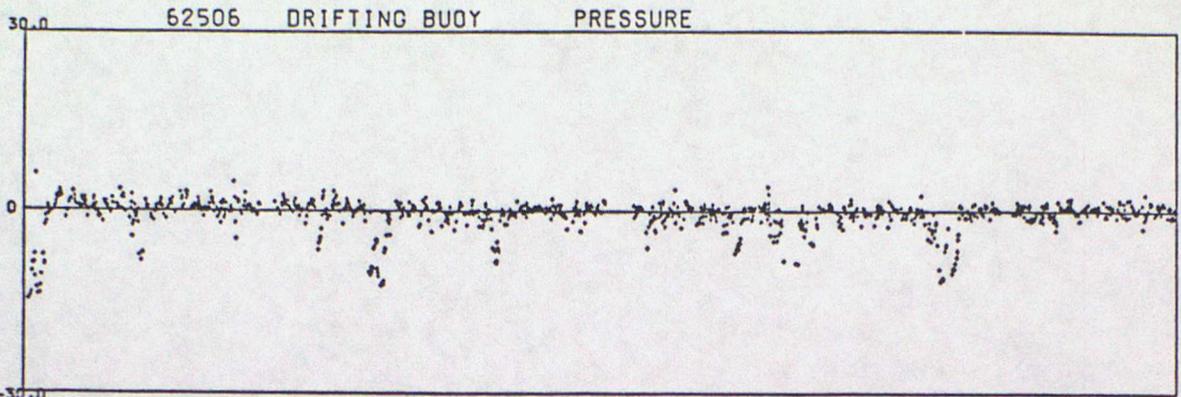


DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)

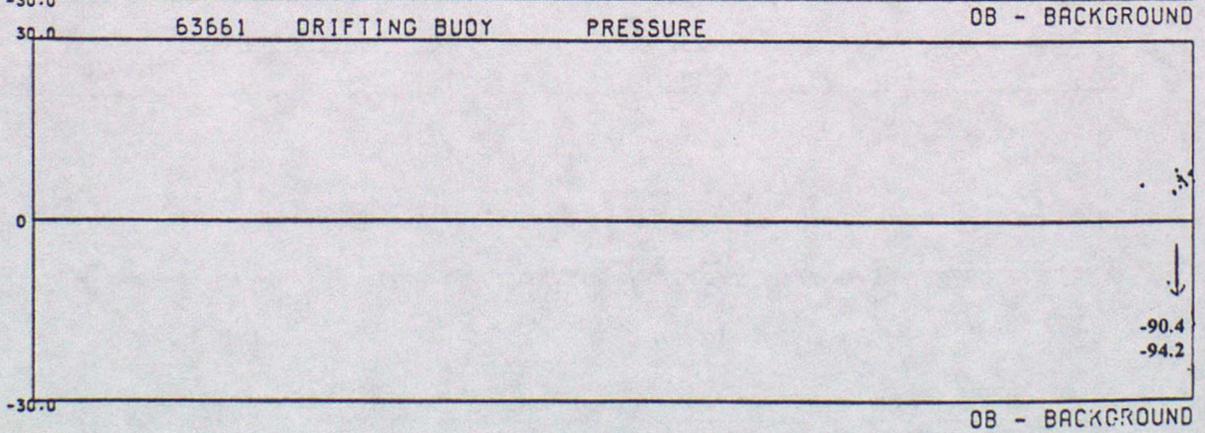
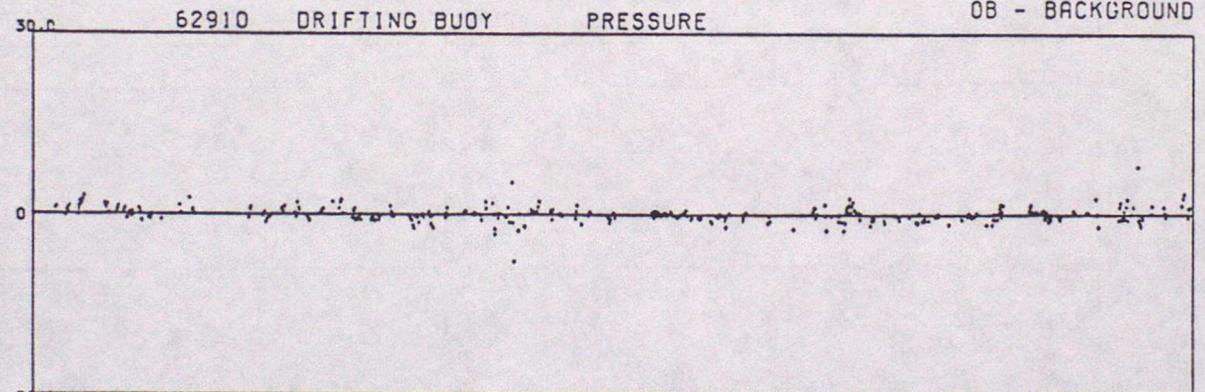
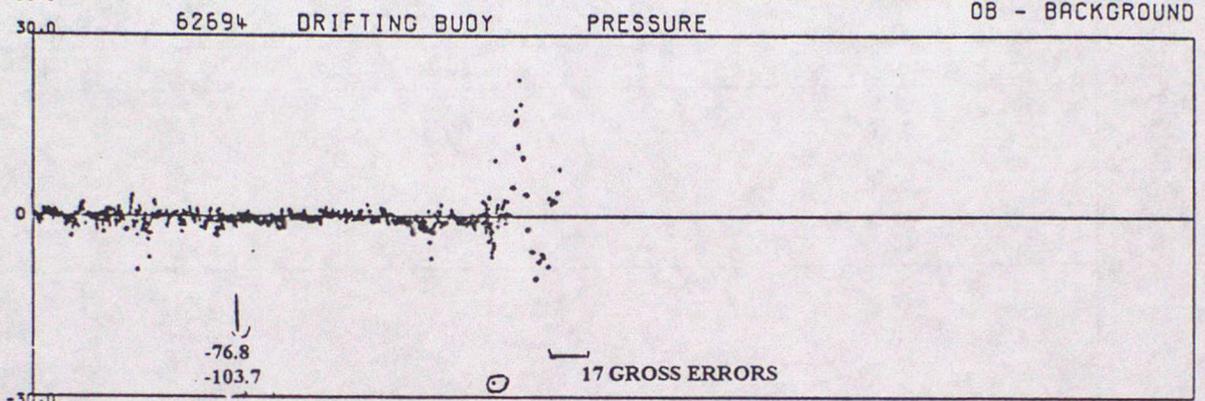
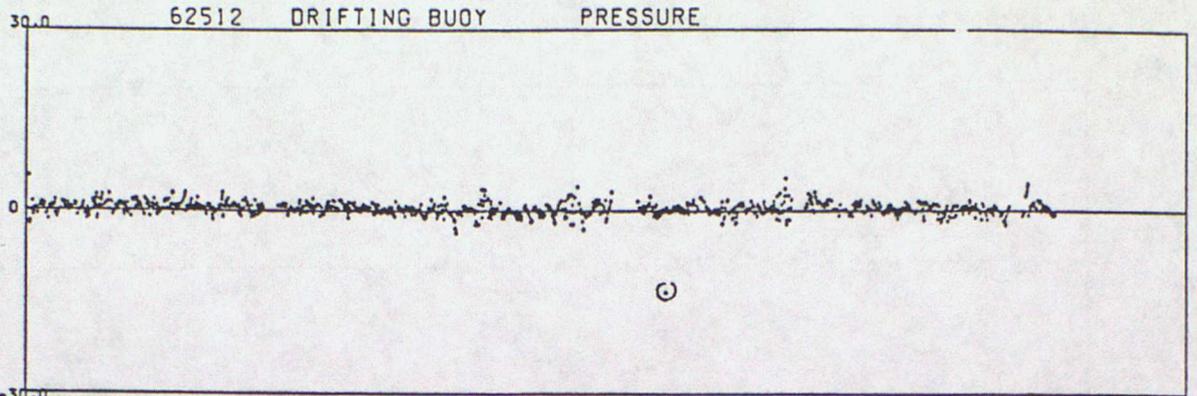


OB - BACKGROUND

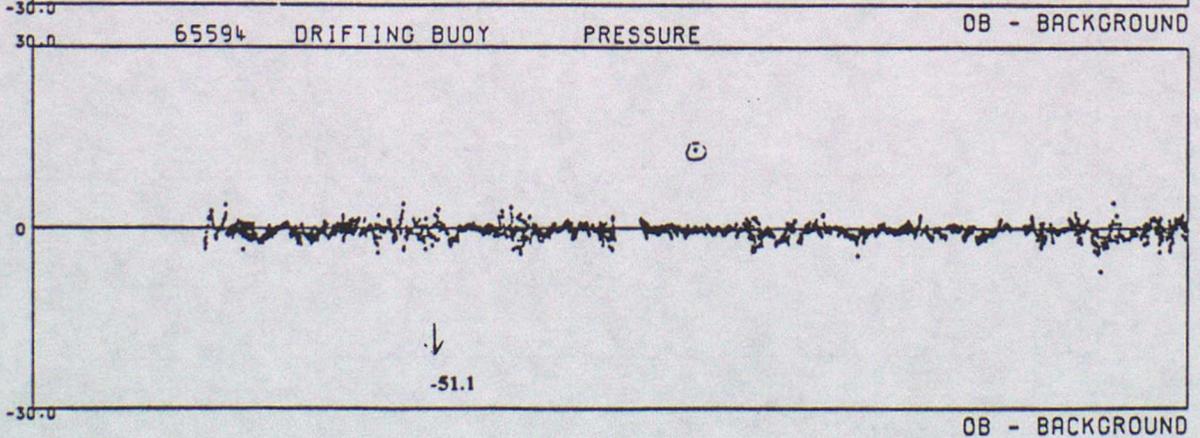
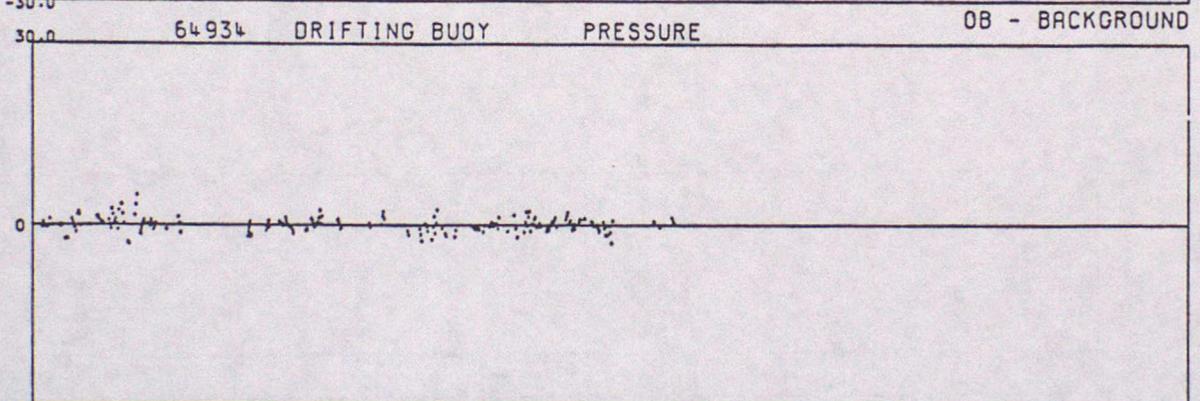
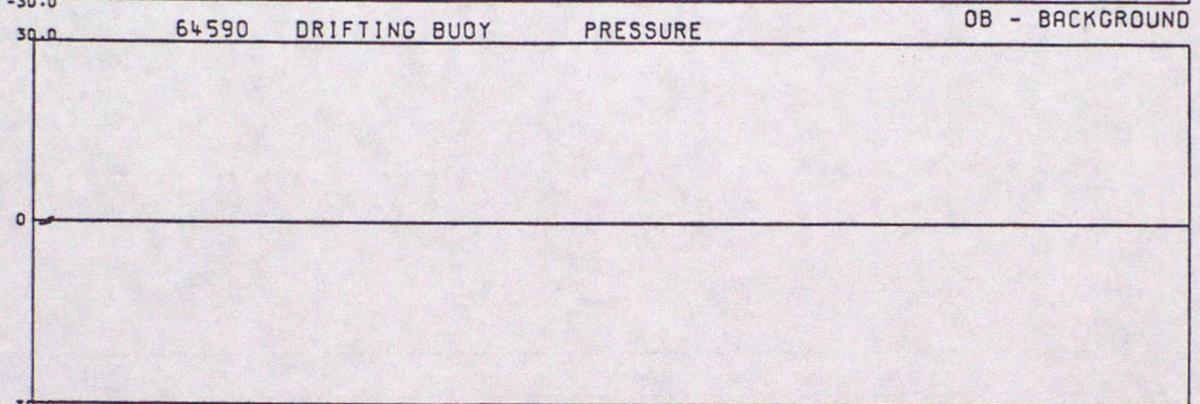
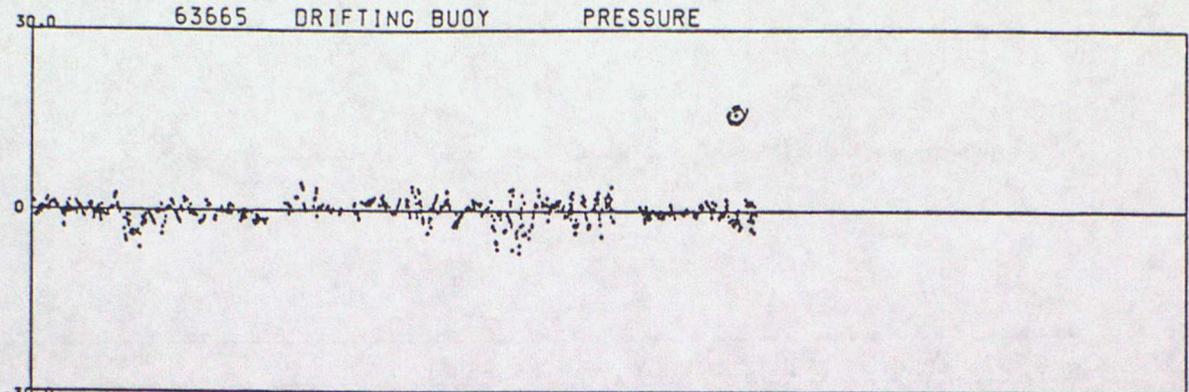
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)

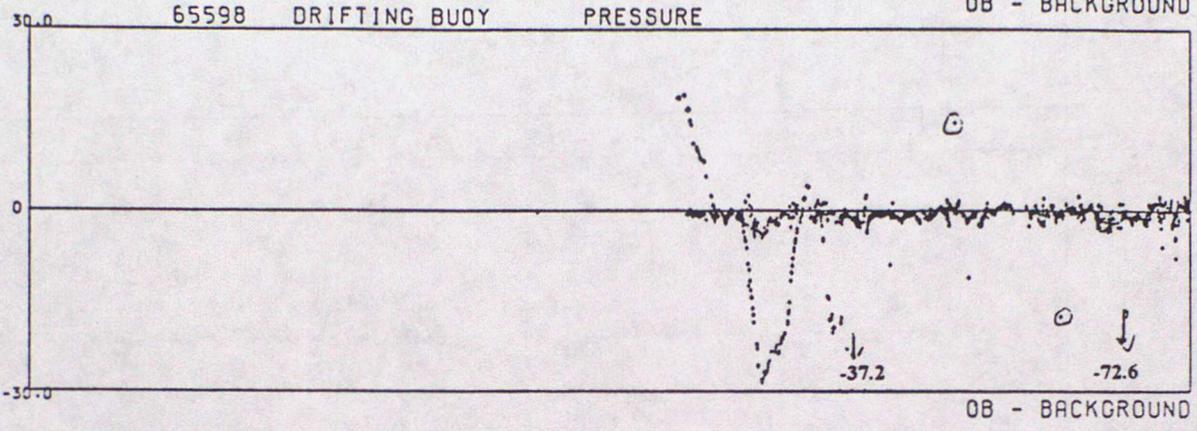
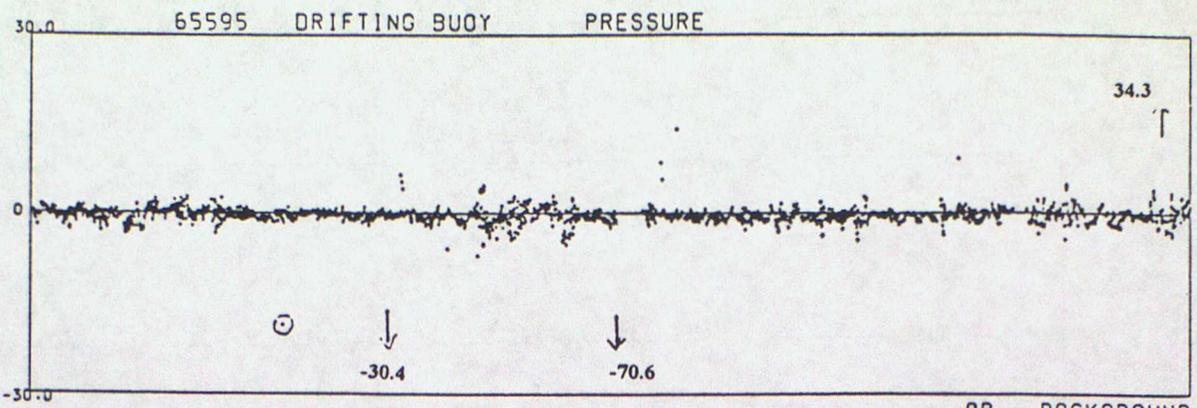


DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



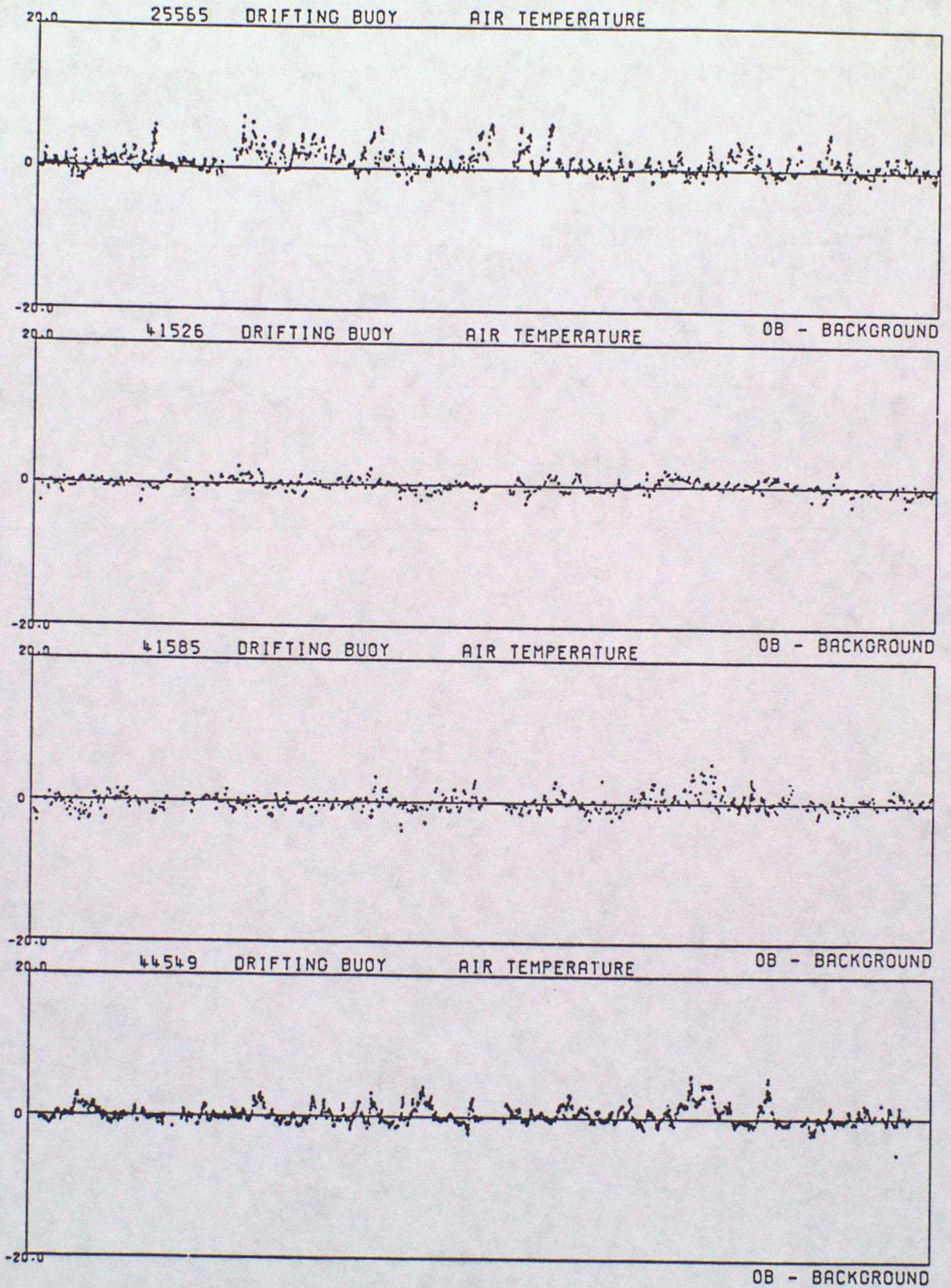
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



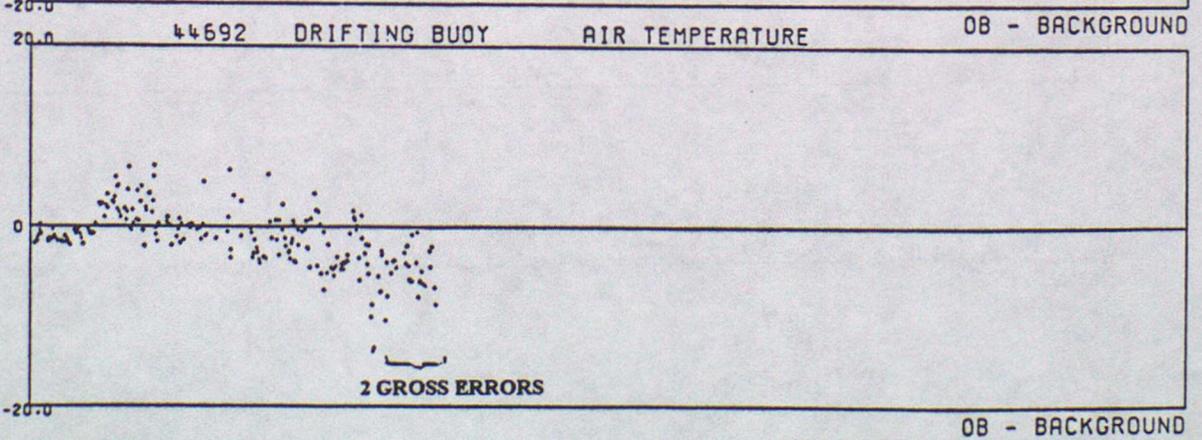
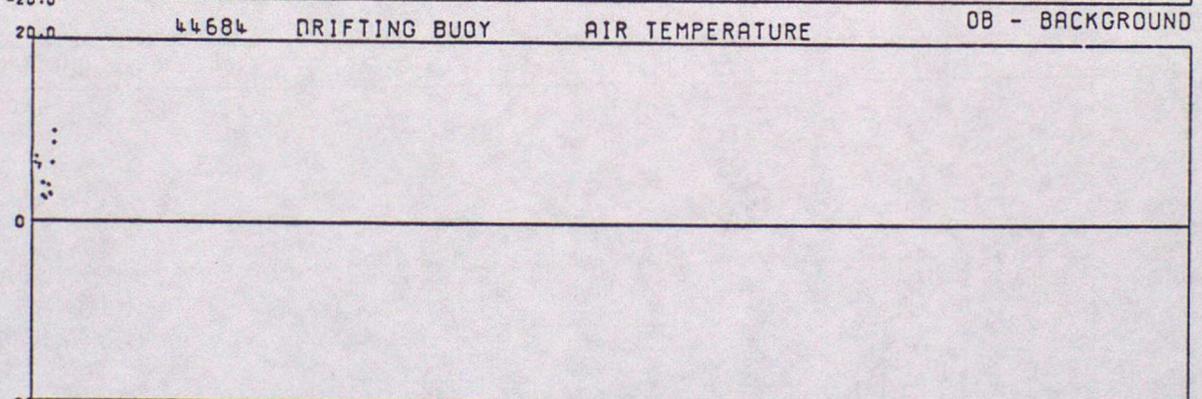
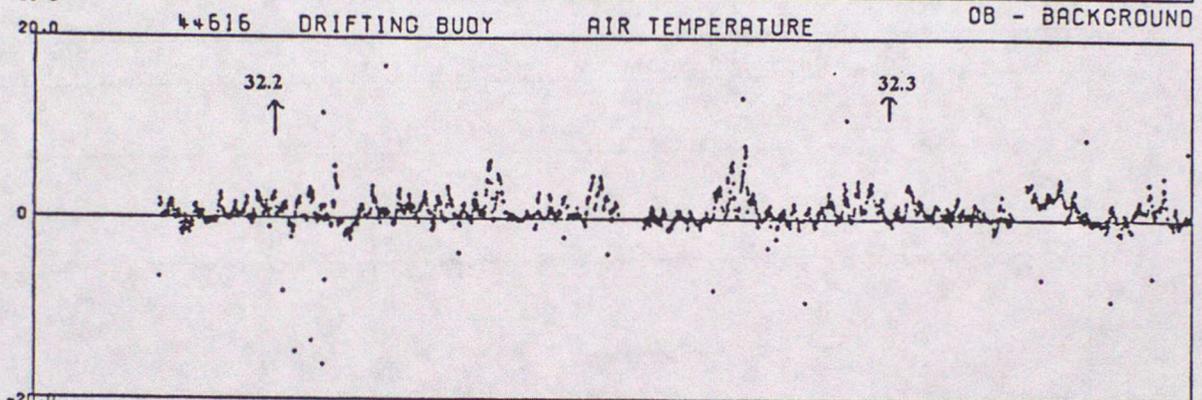
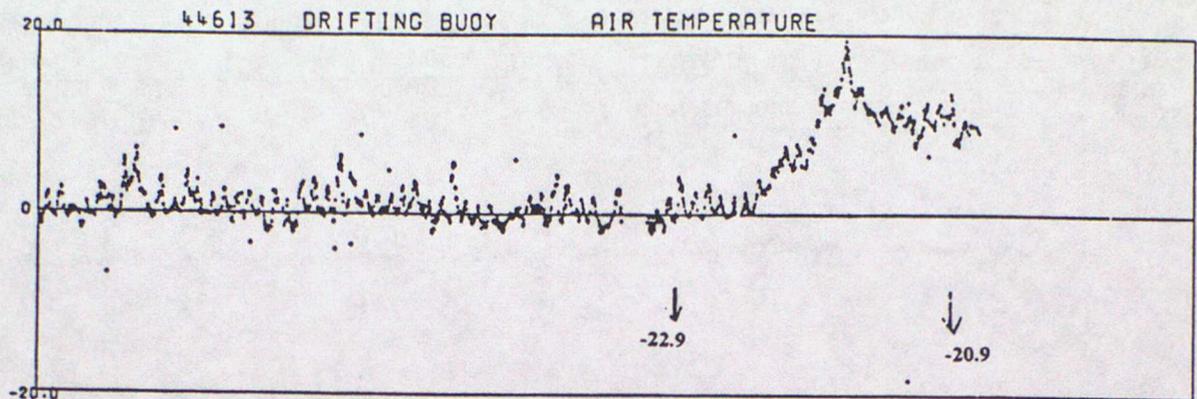


# ANNEX C - TIME SERIES PLOTS OF AIR TEMPERATURE

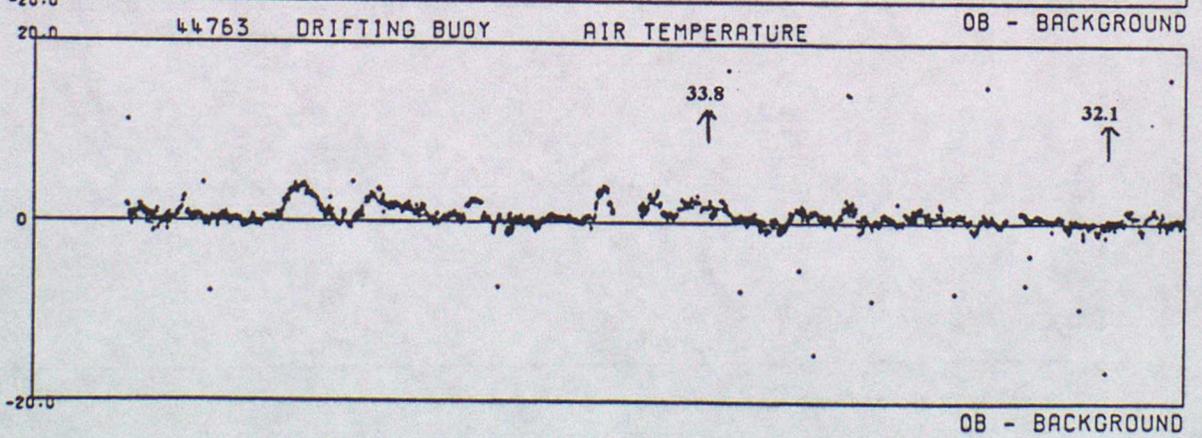
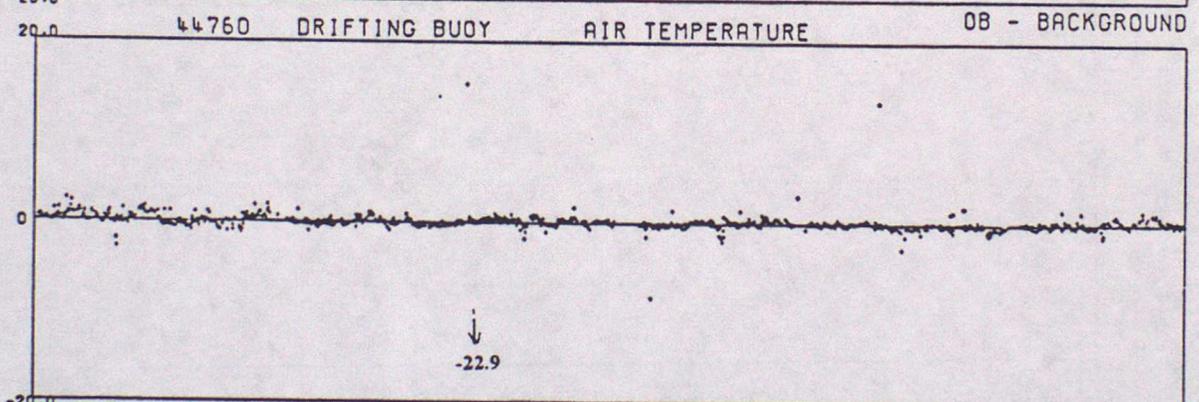
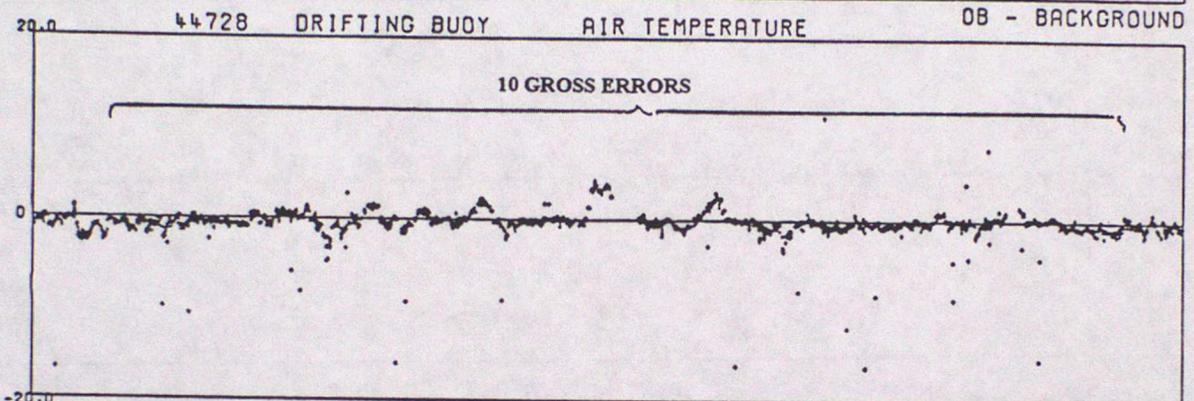
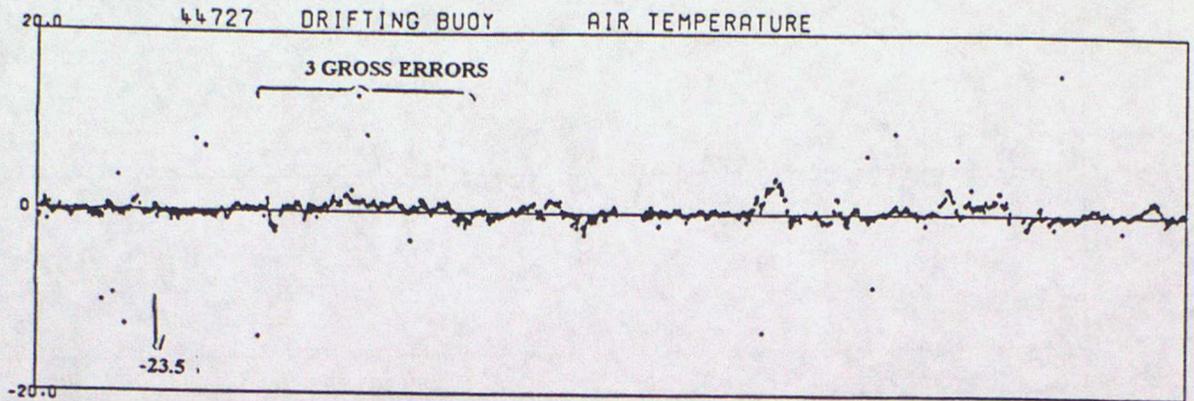
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



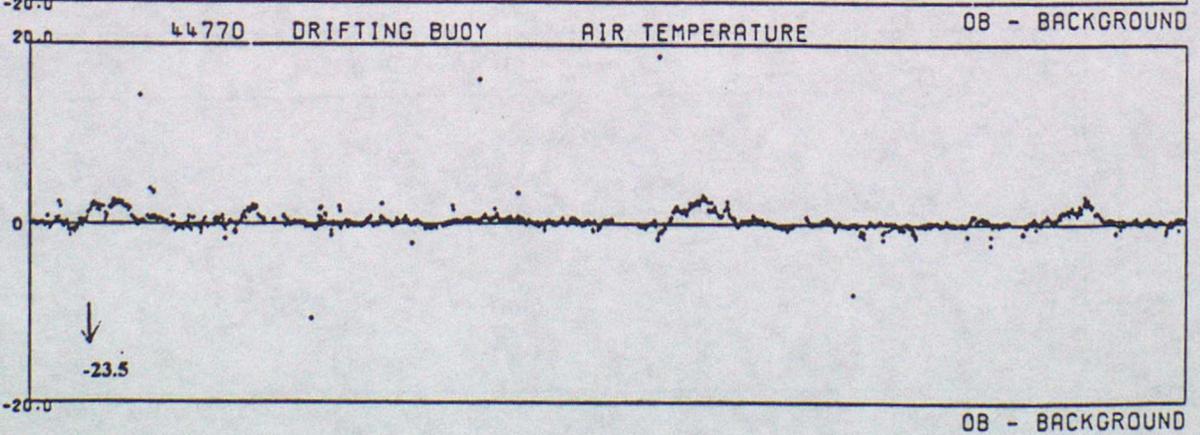
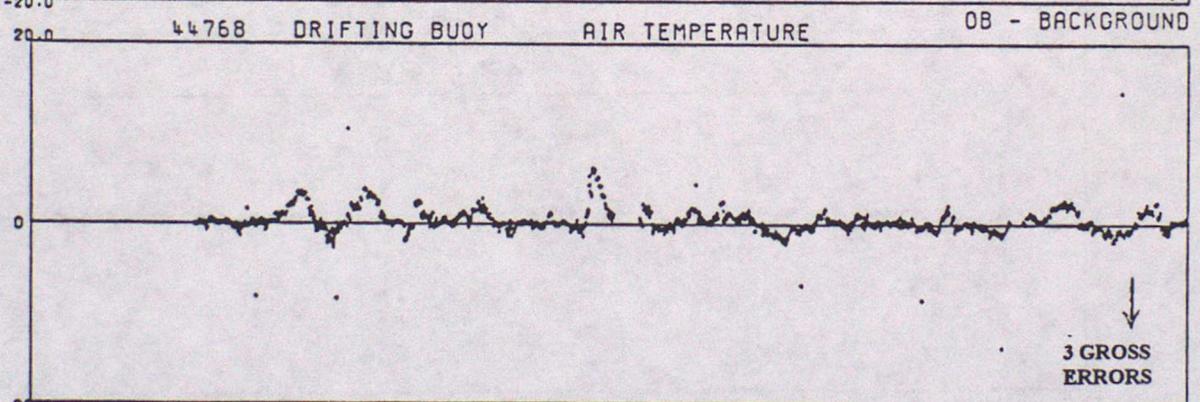
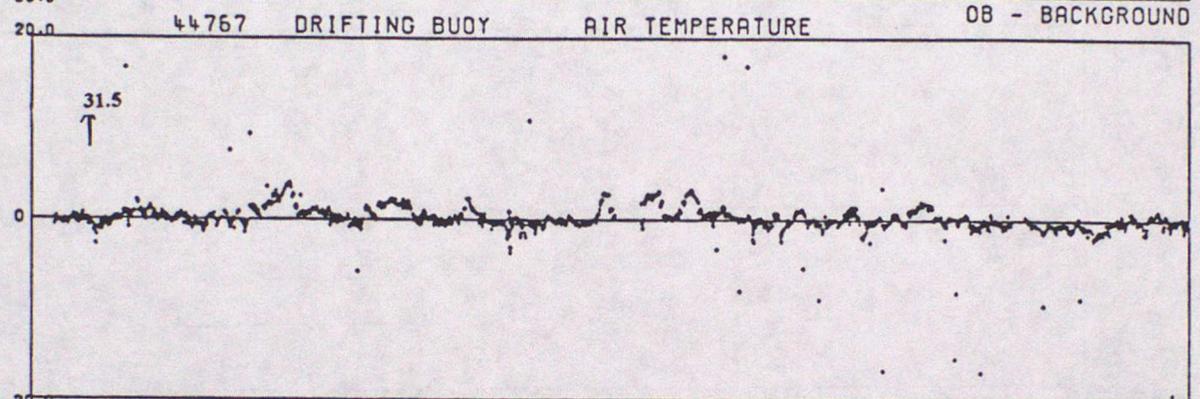
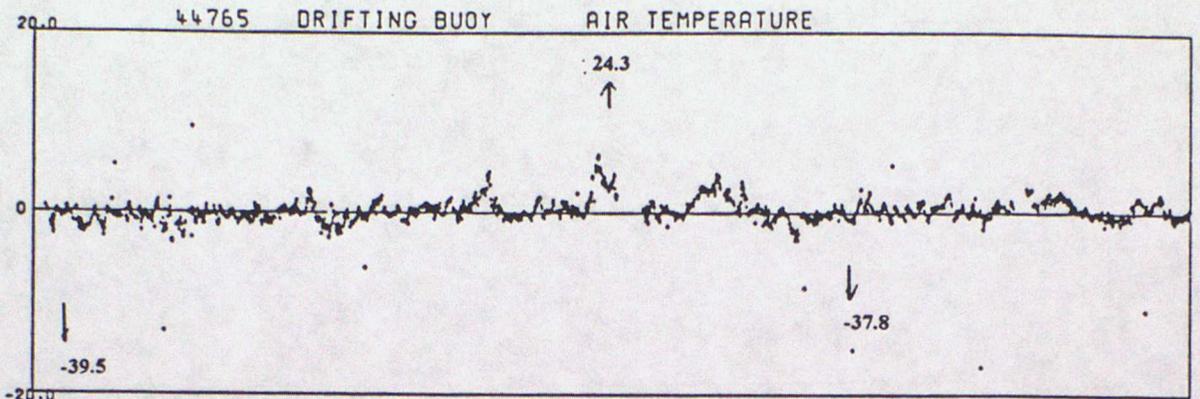
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



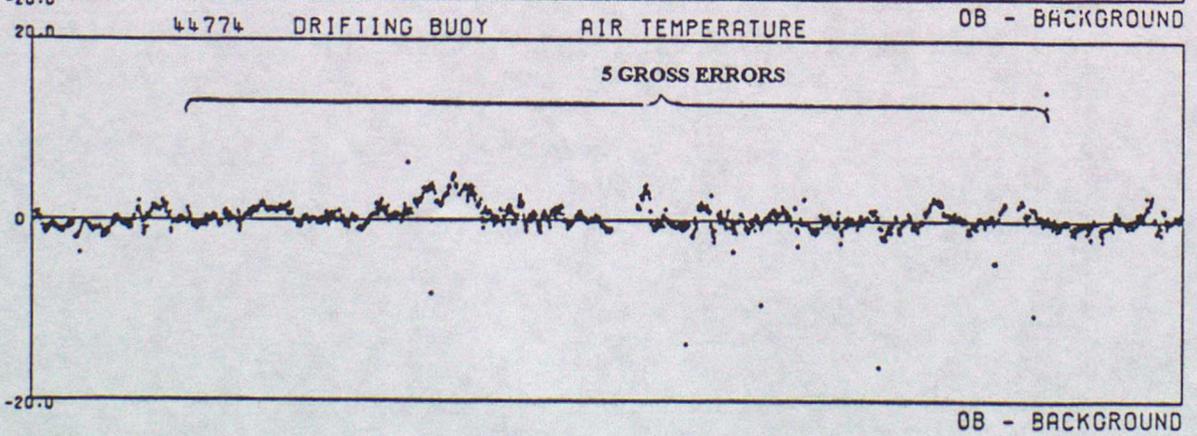
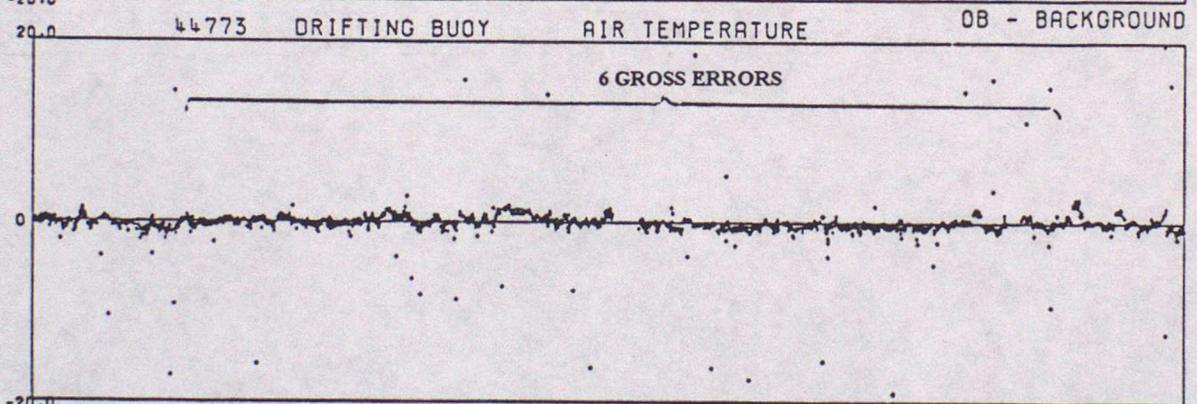
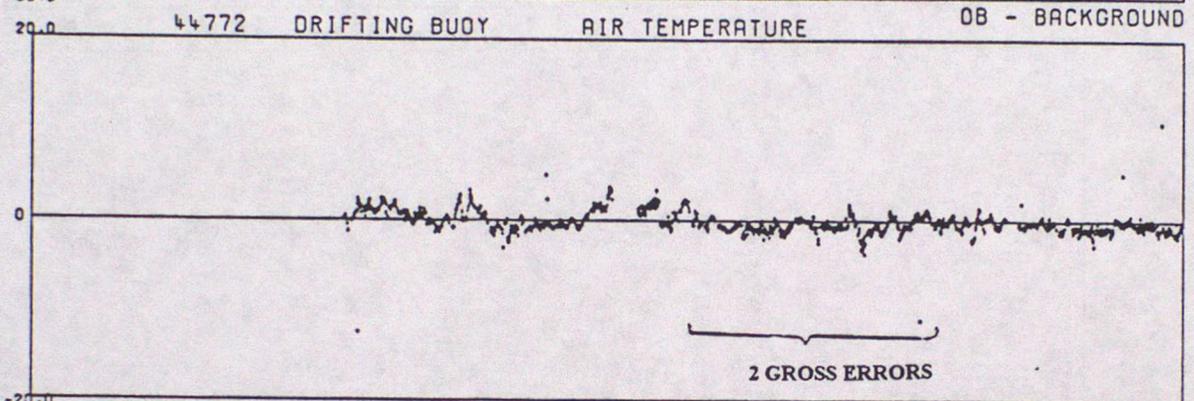
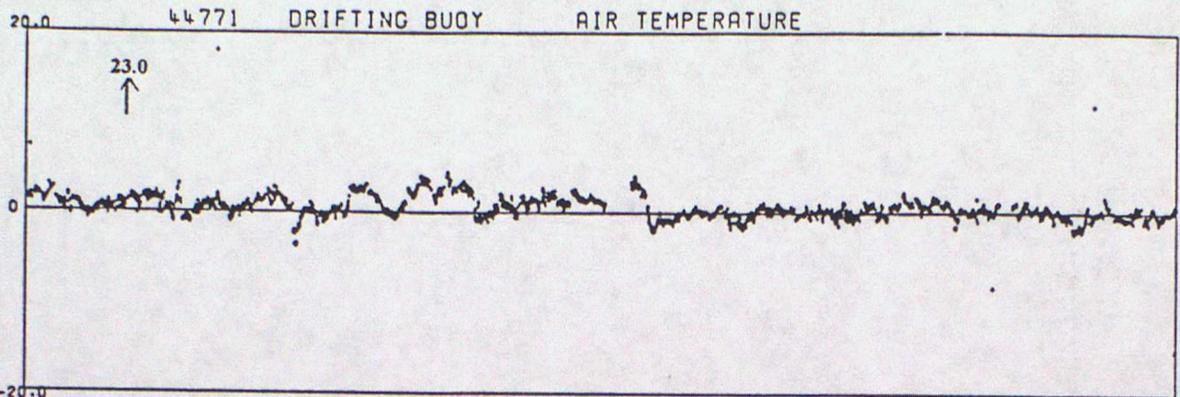
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



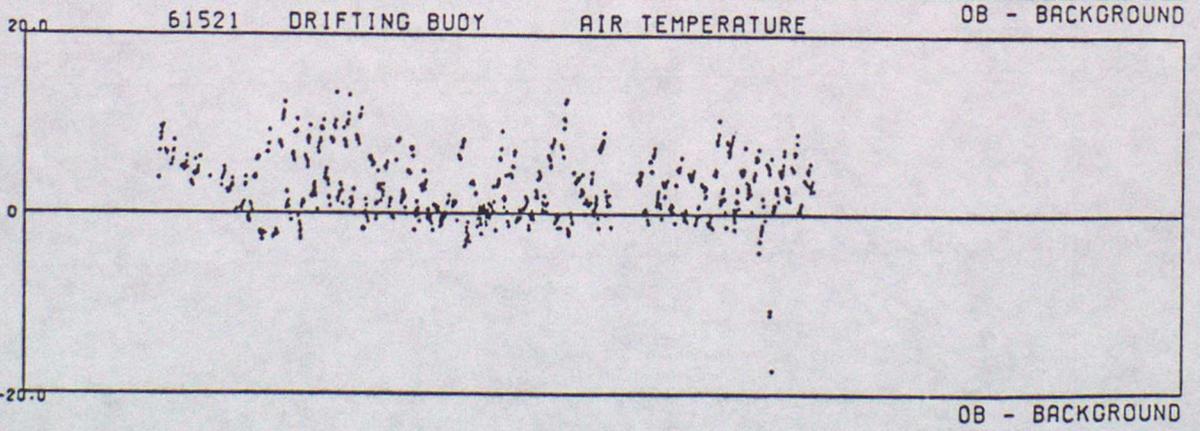
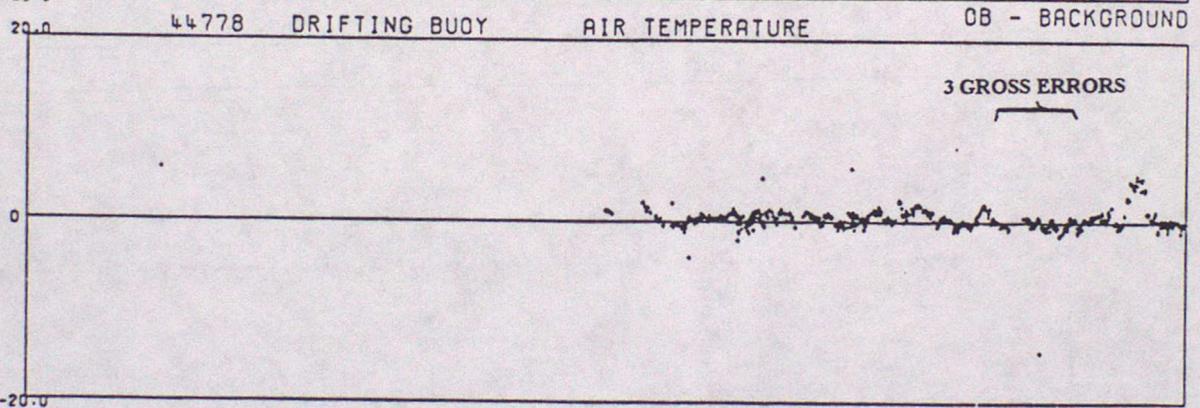
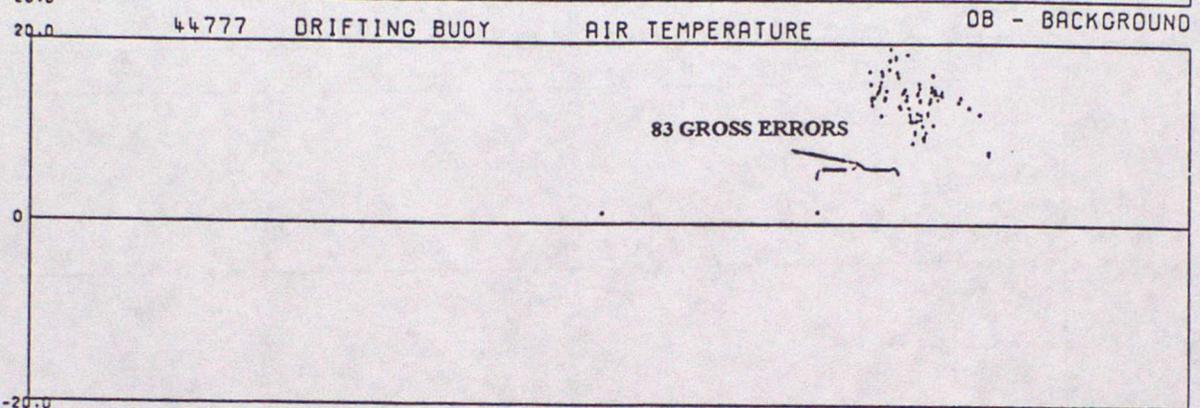
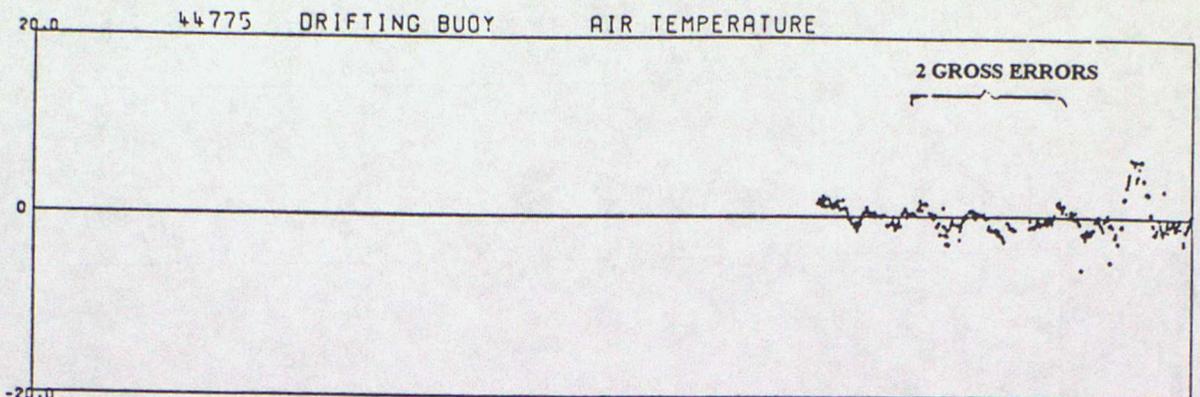
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



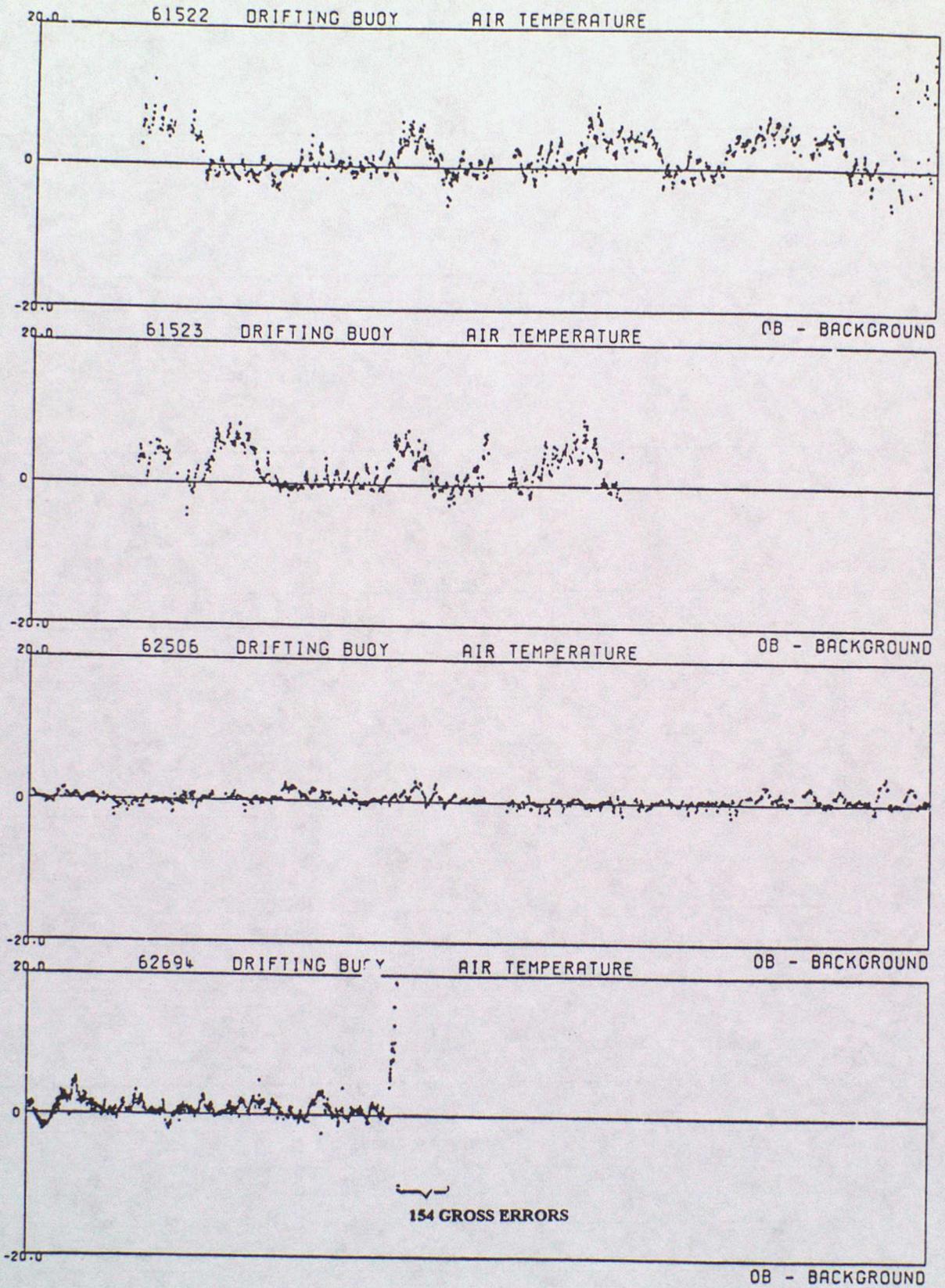
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



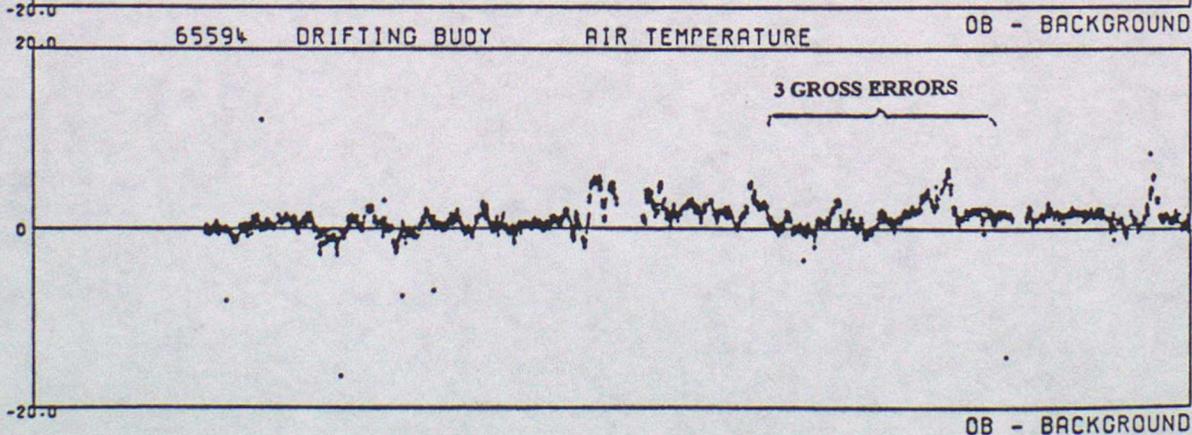
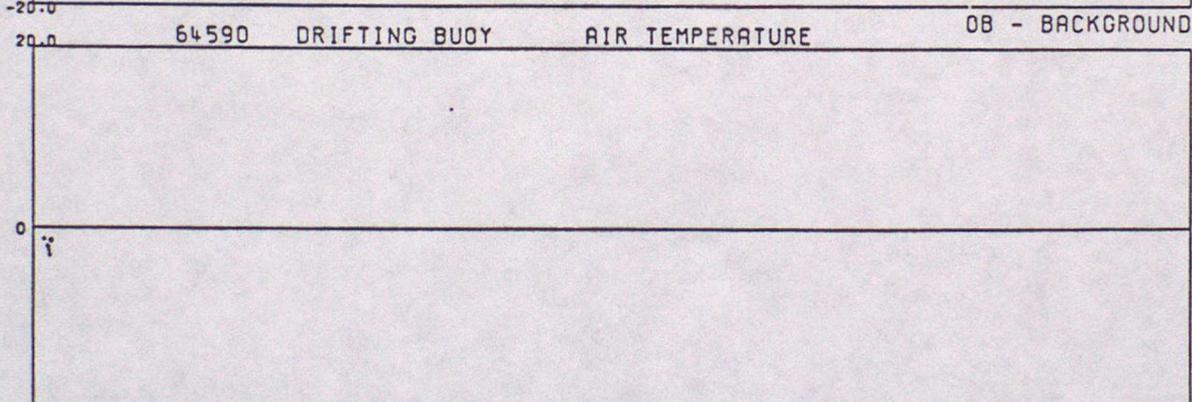
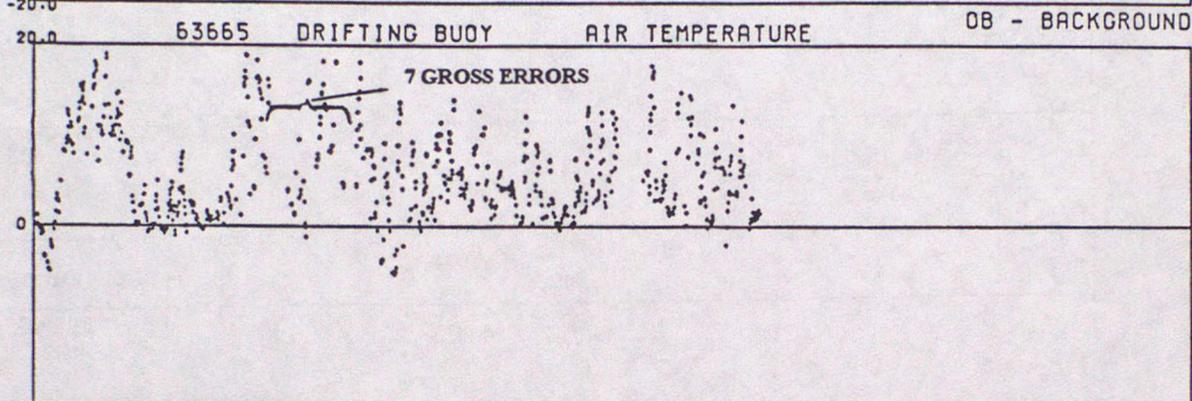
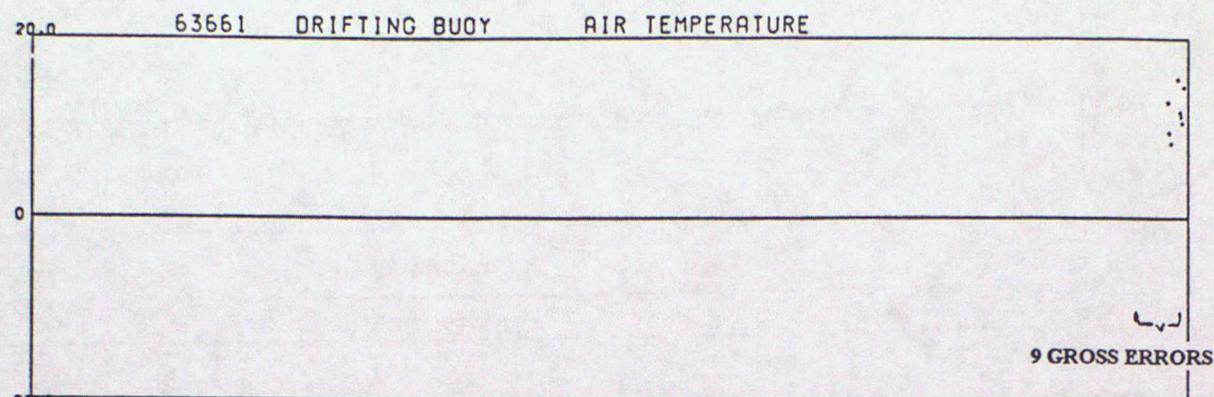
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)

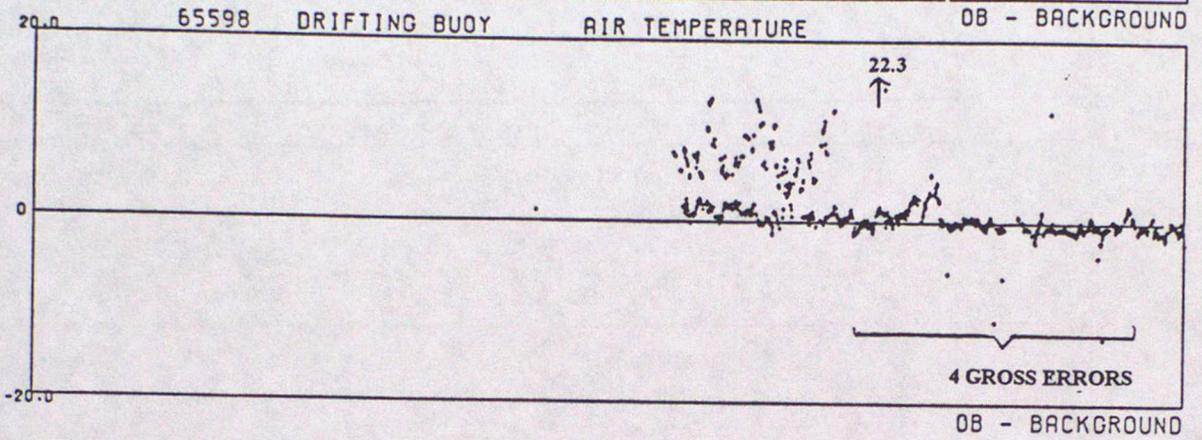
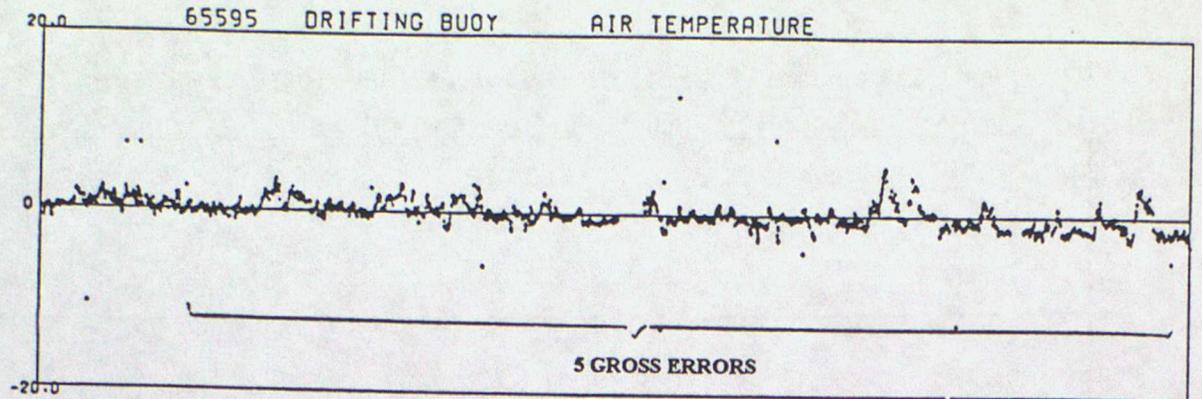


DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



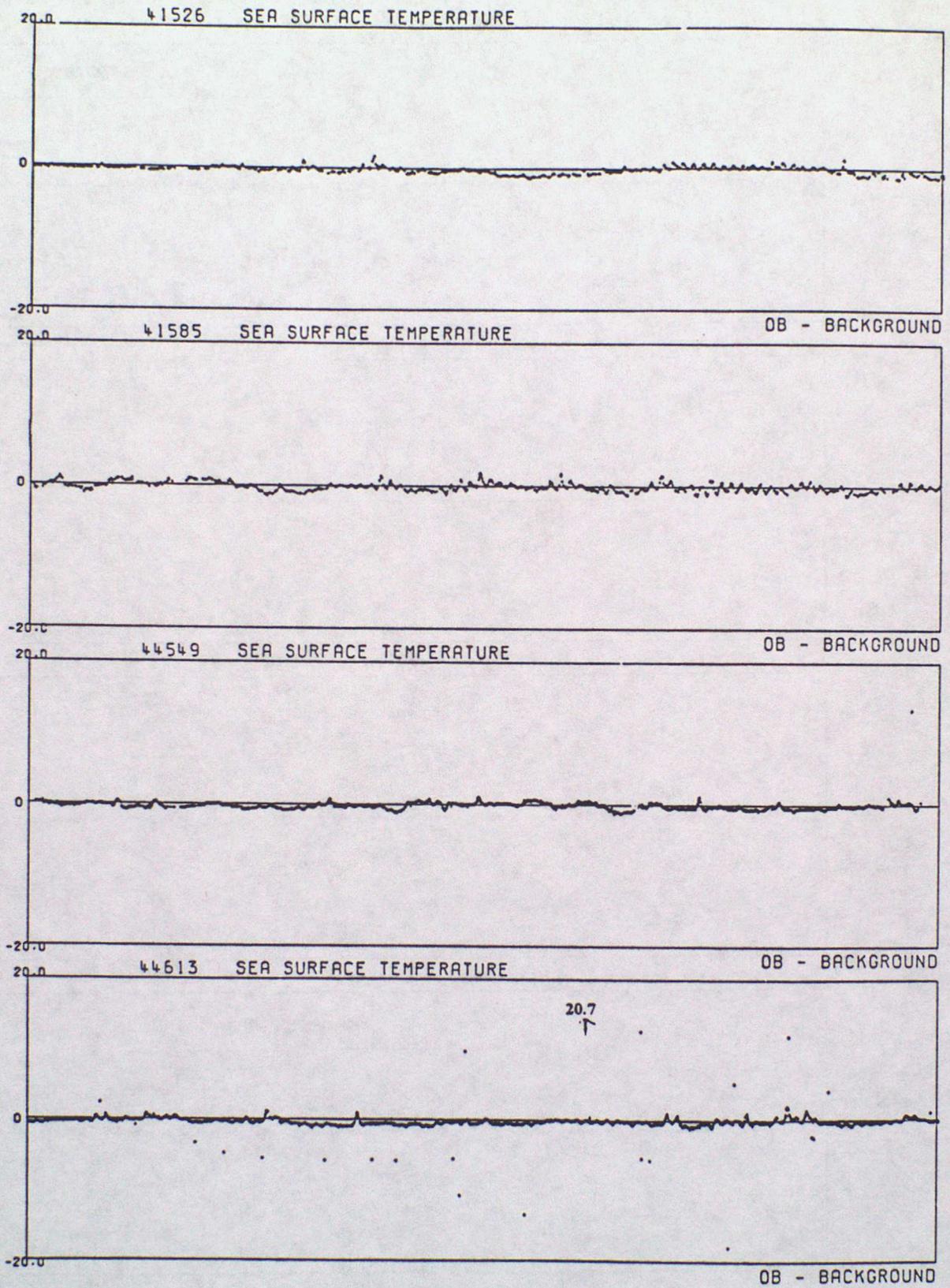
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



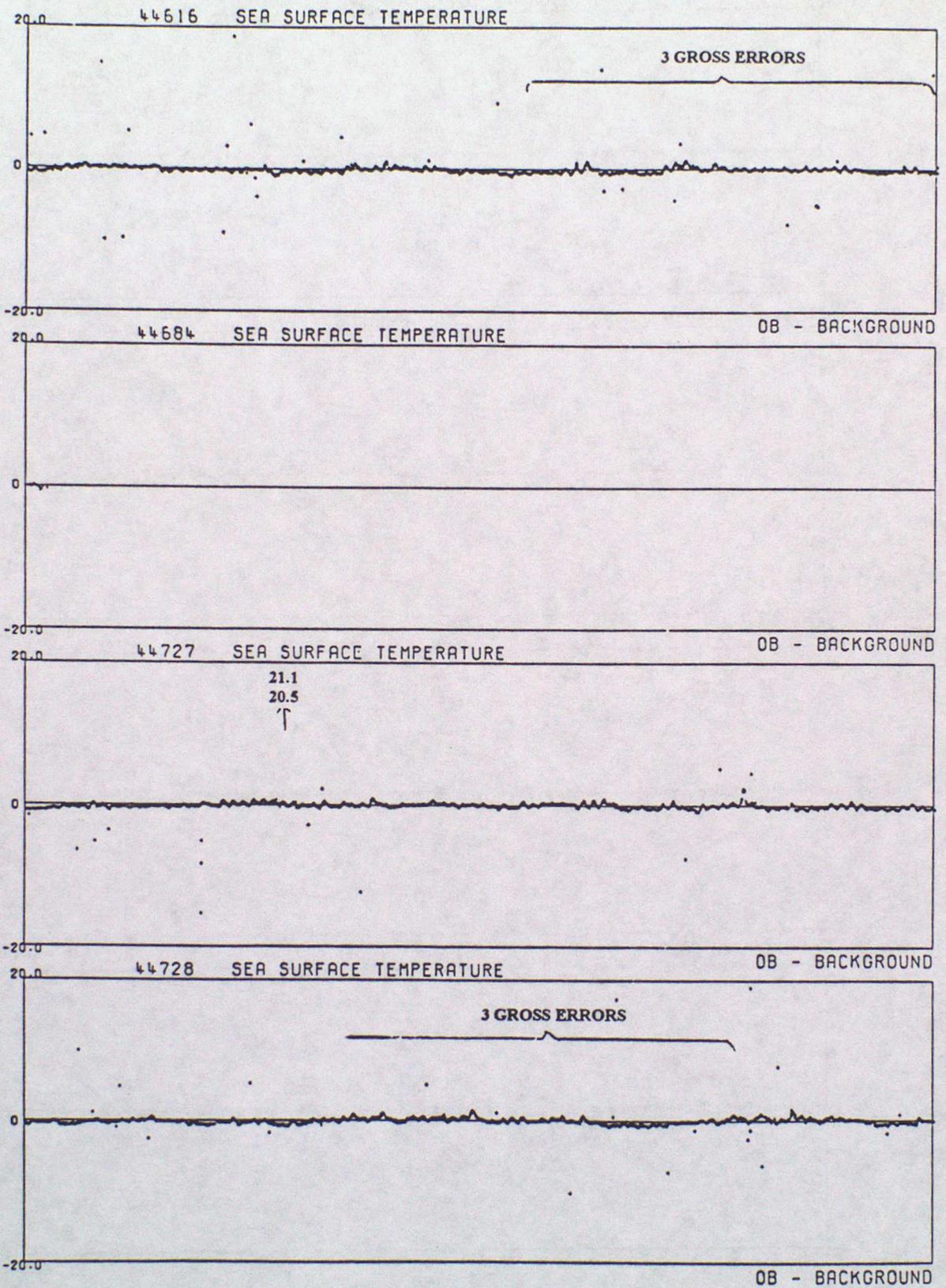


# ANNEX D - TIME SERIES PLOTS OF SEA SURFACE TEMPERATURE

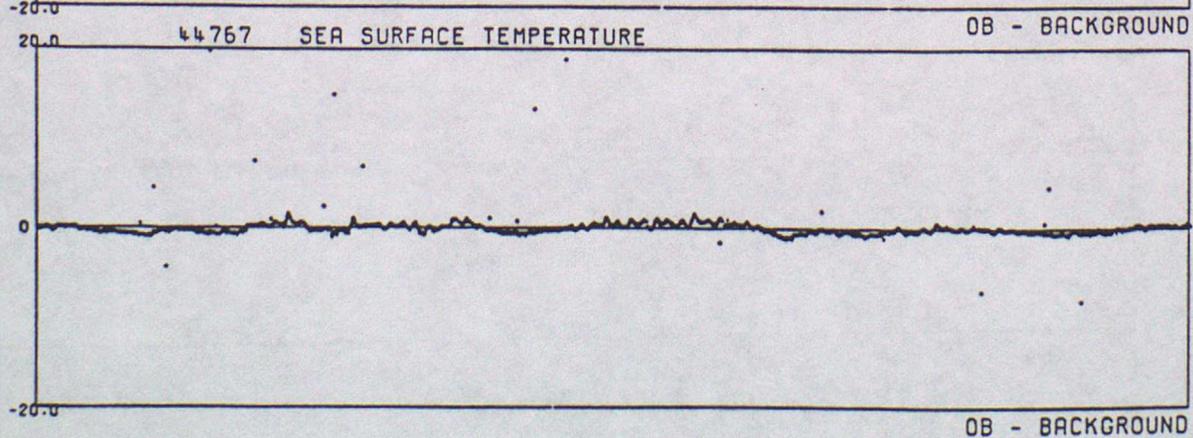
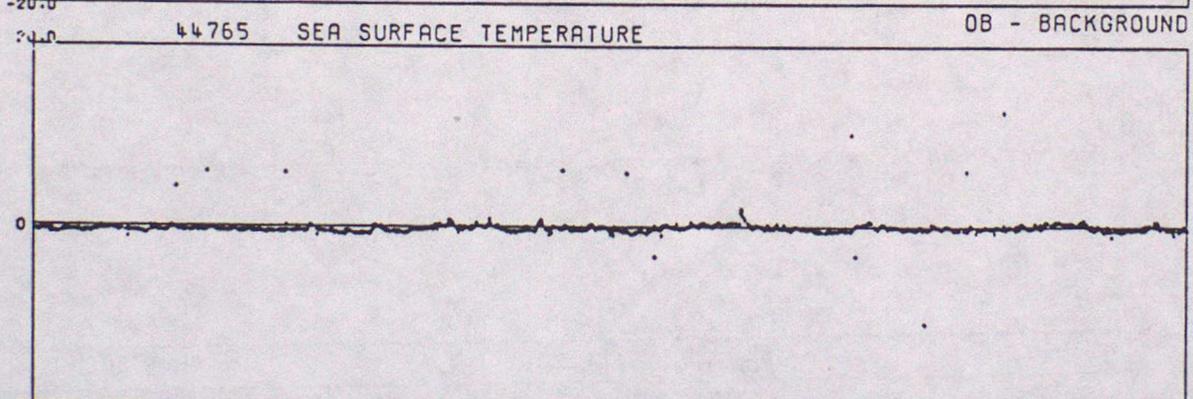
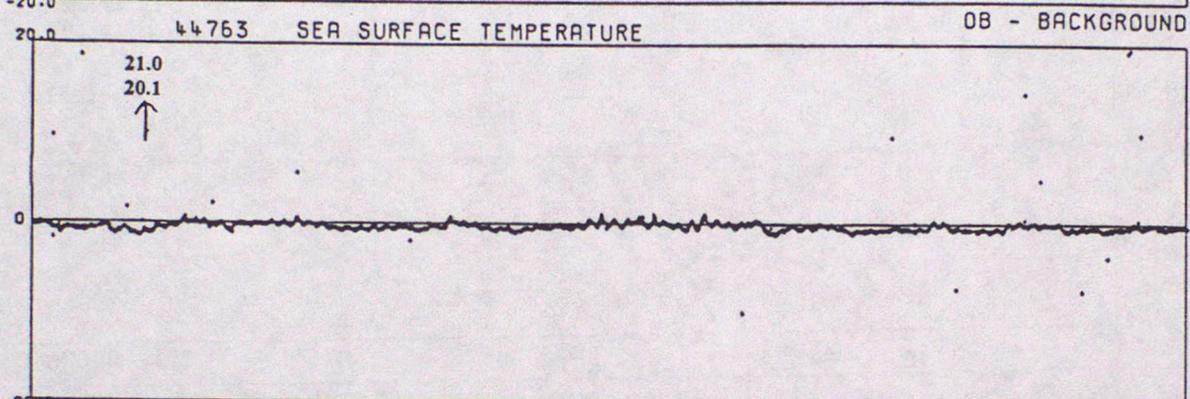
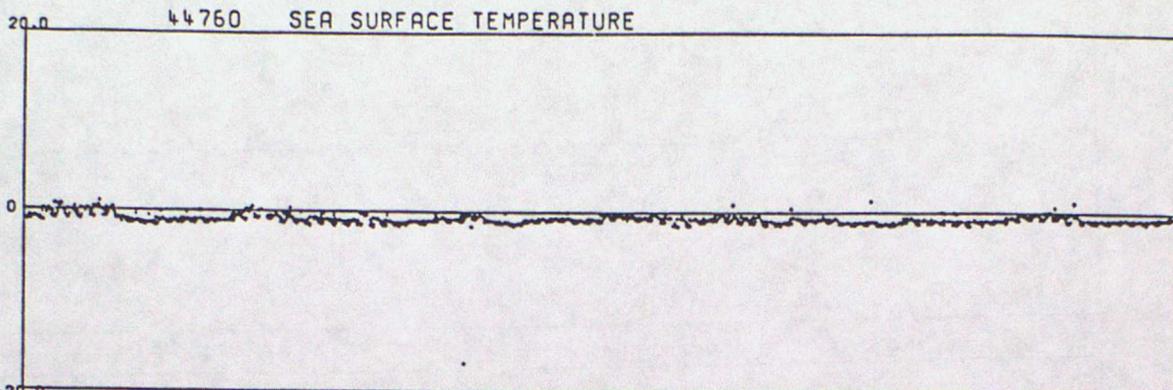
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



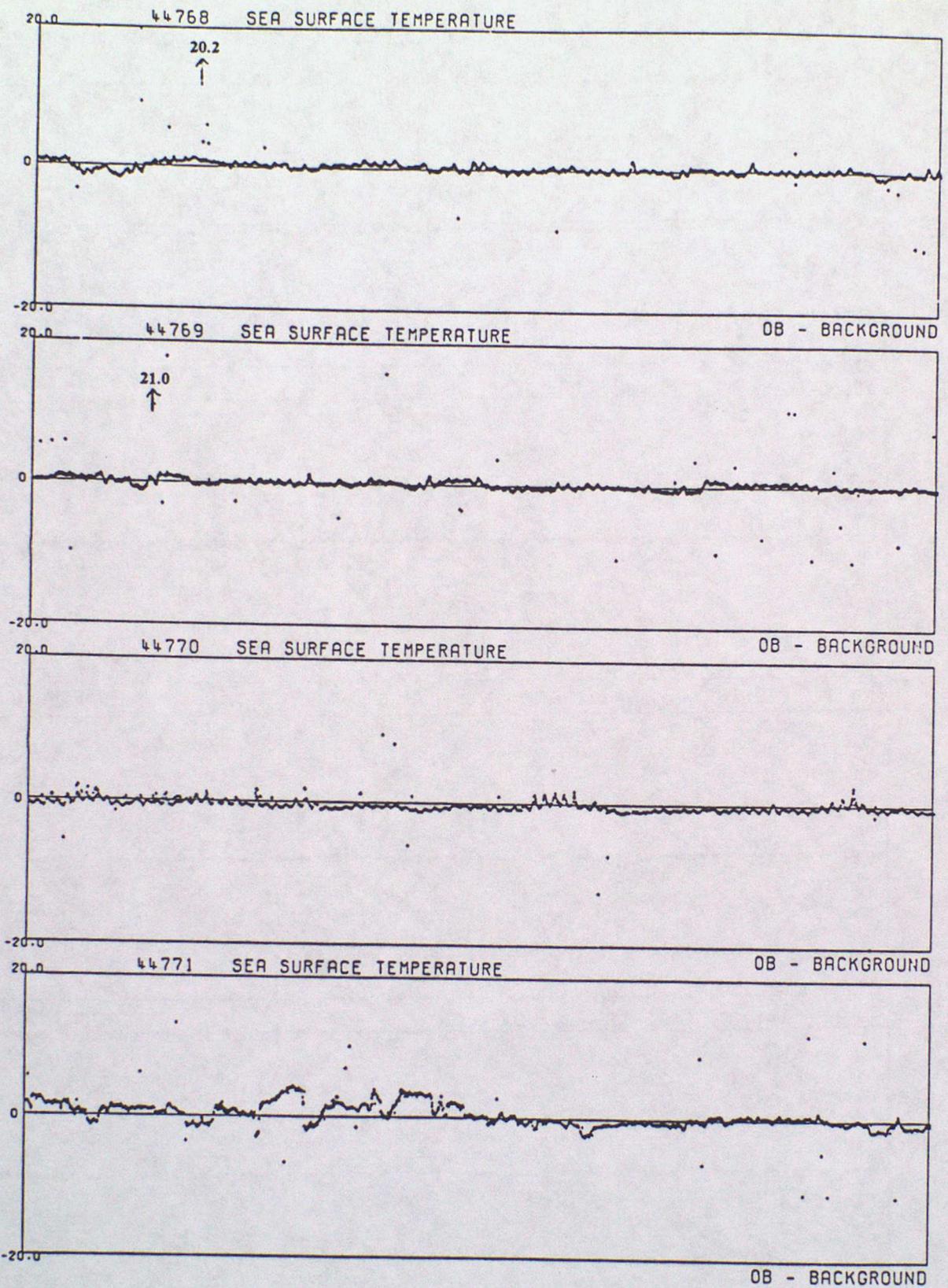
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



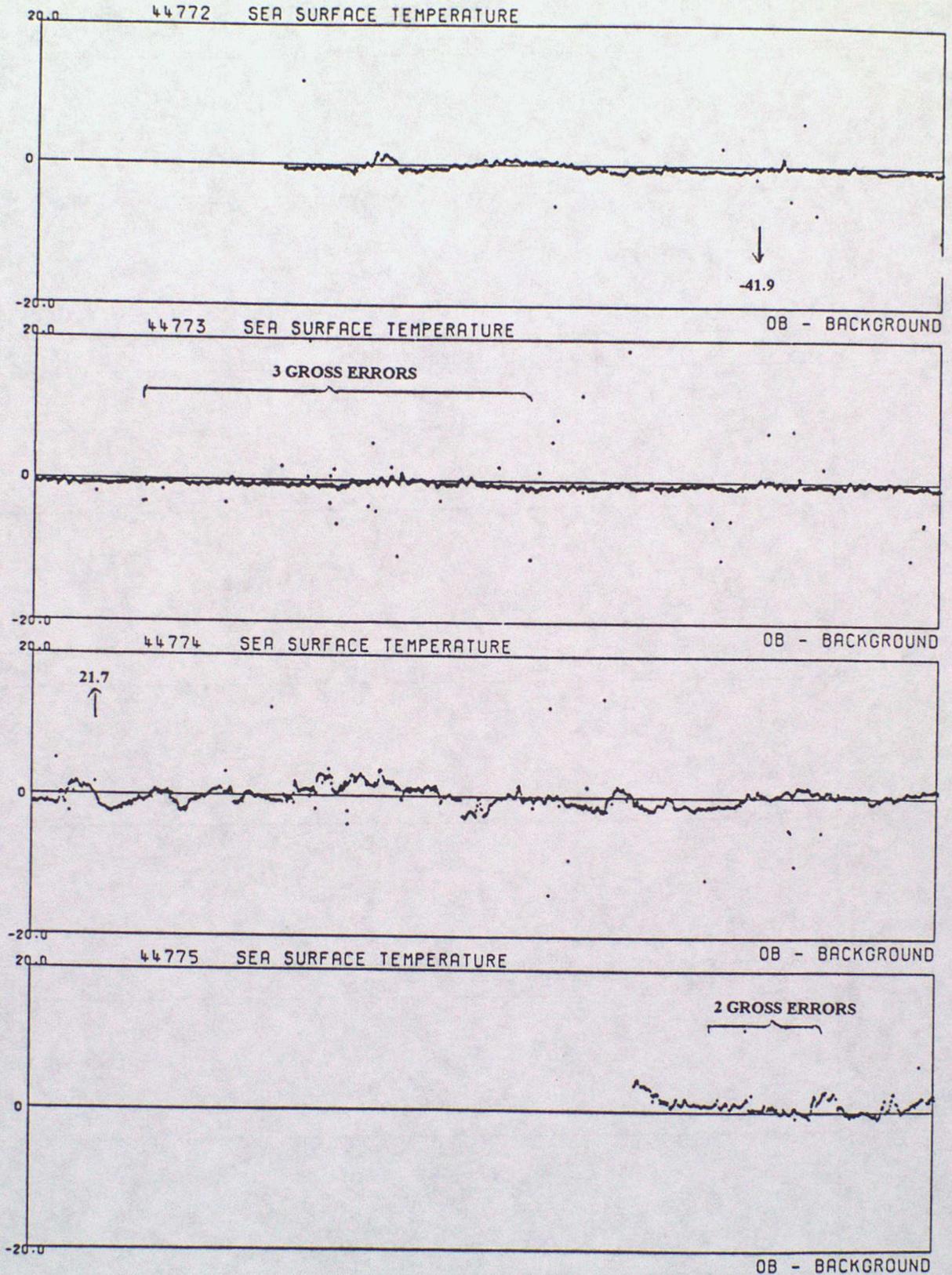
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



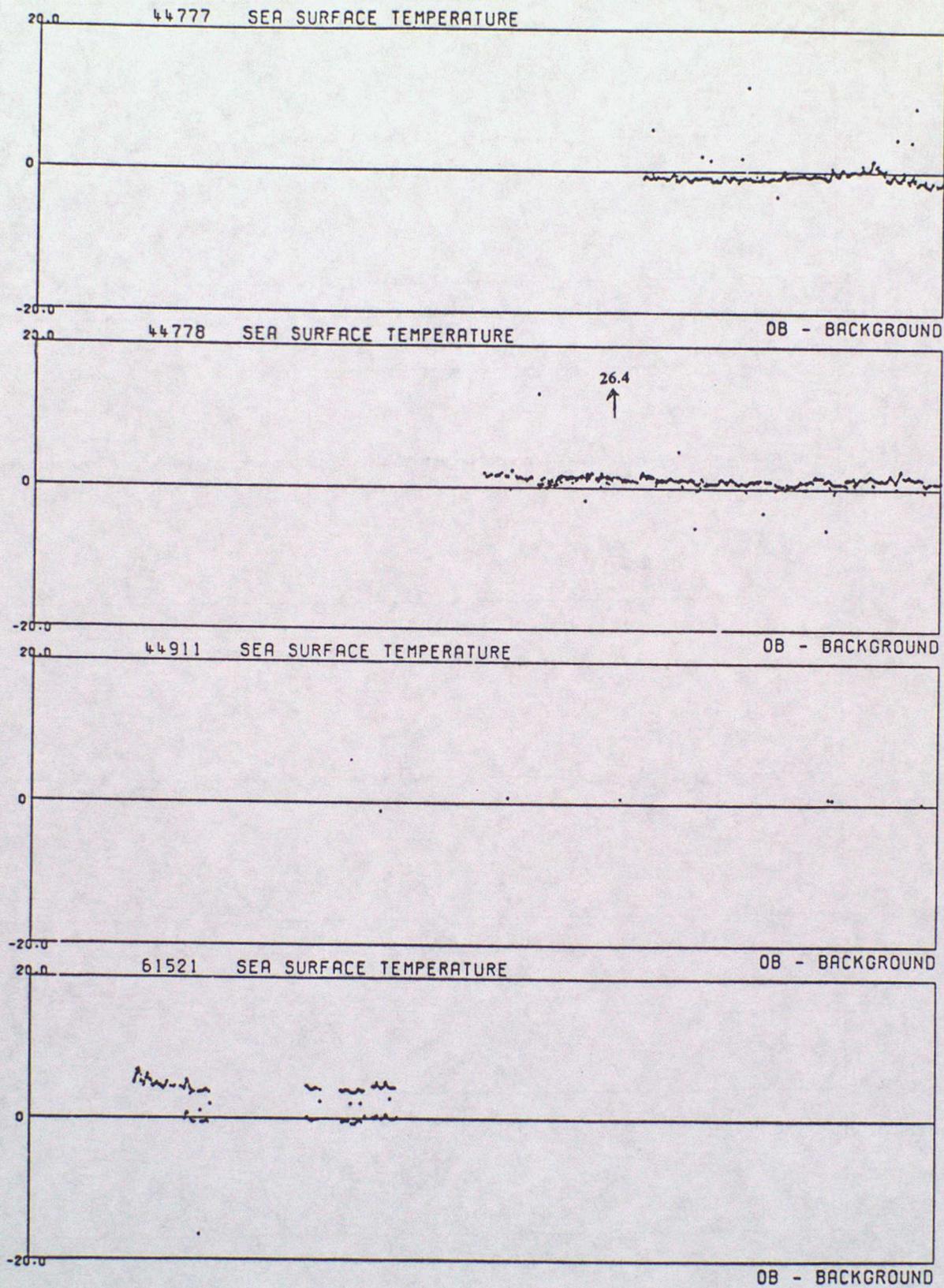
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



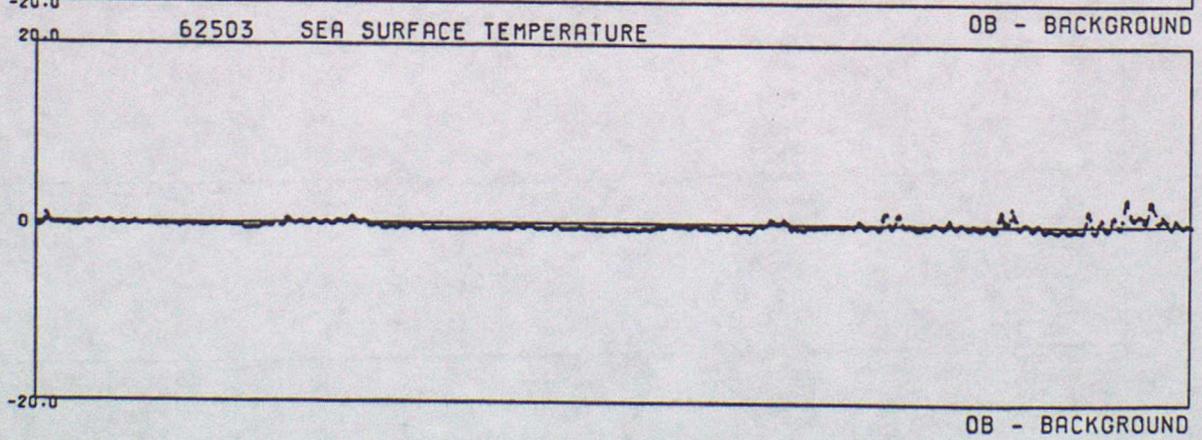
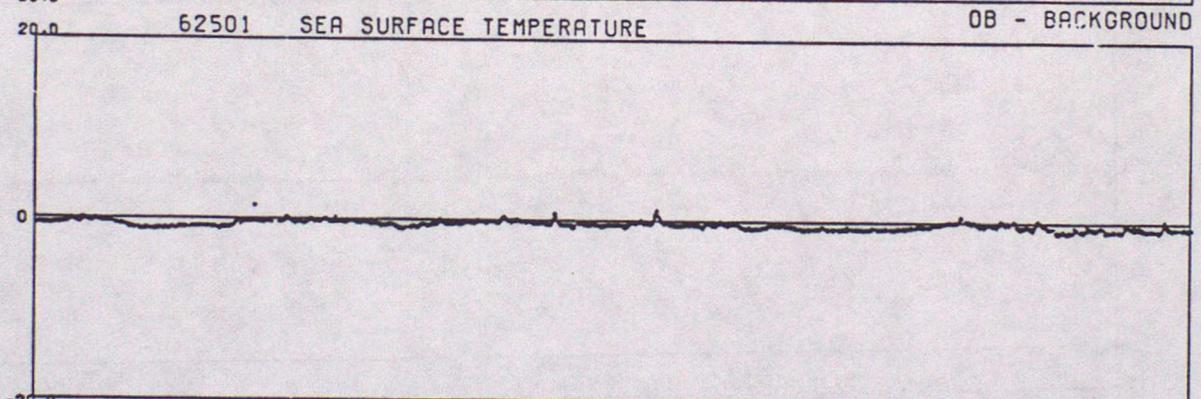
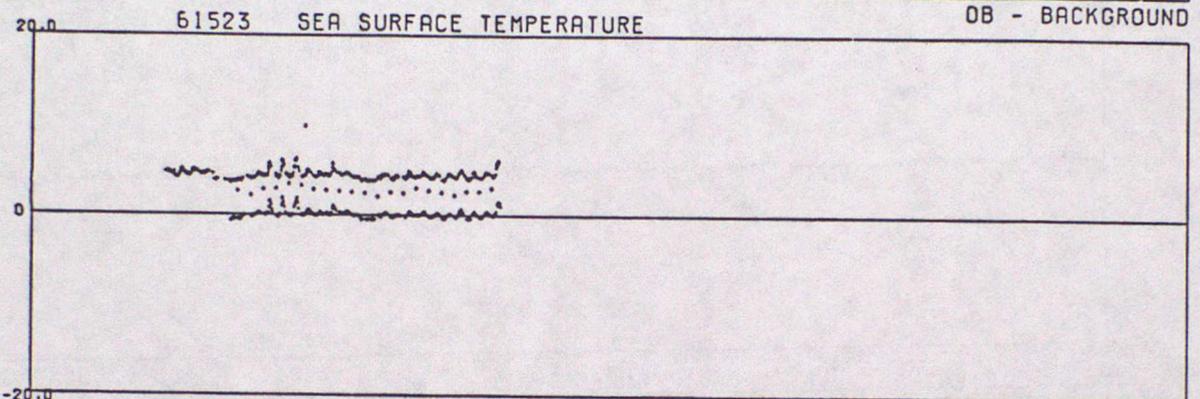
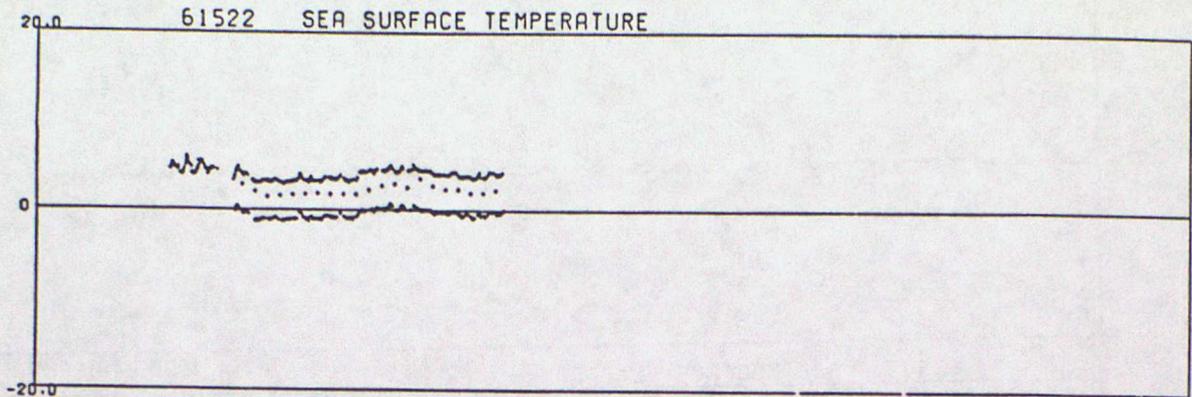
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



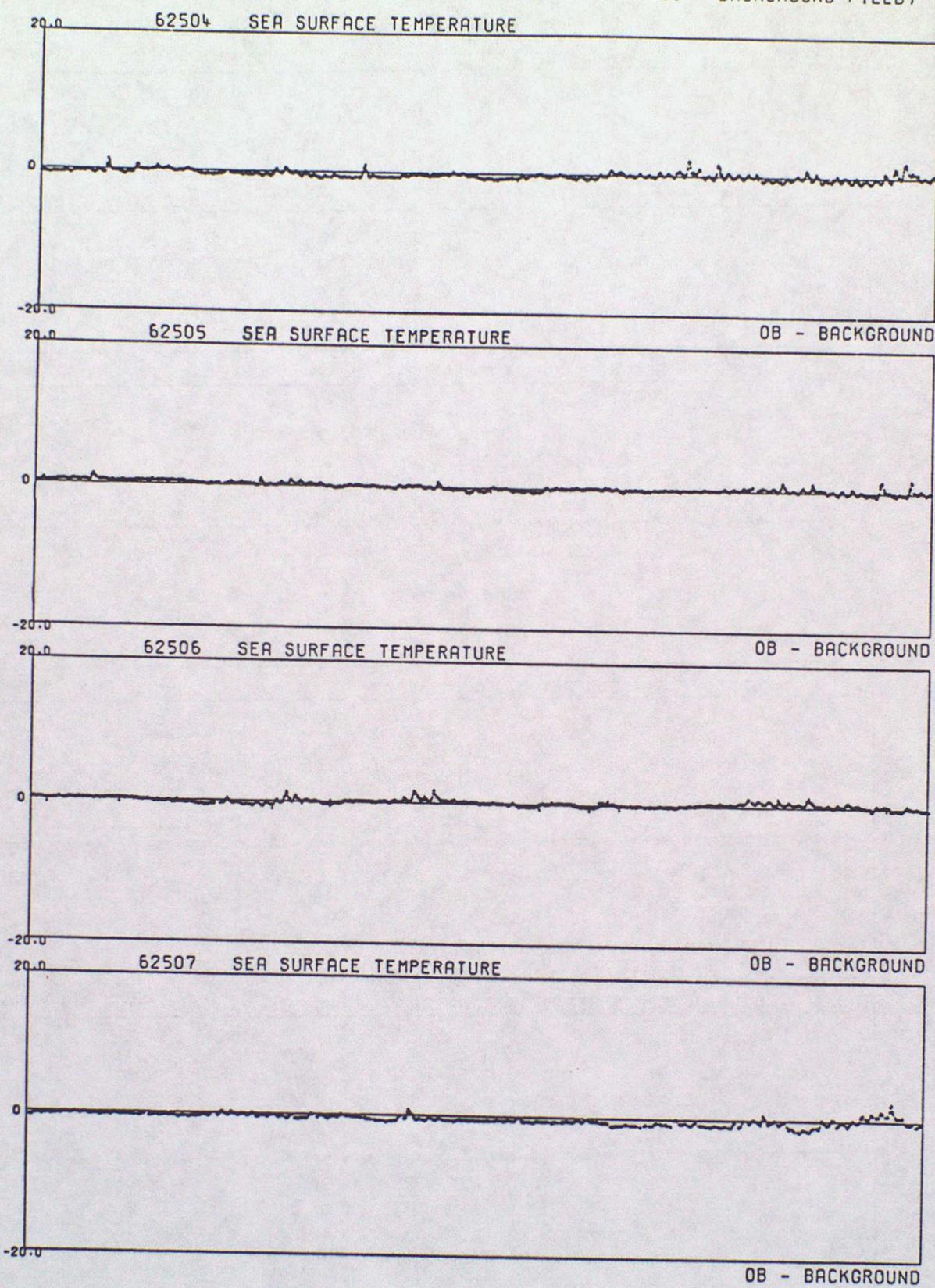
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



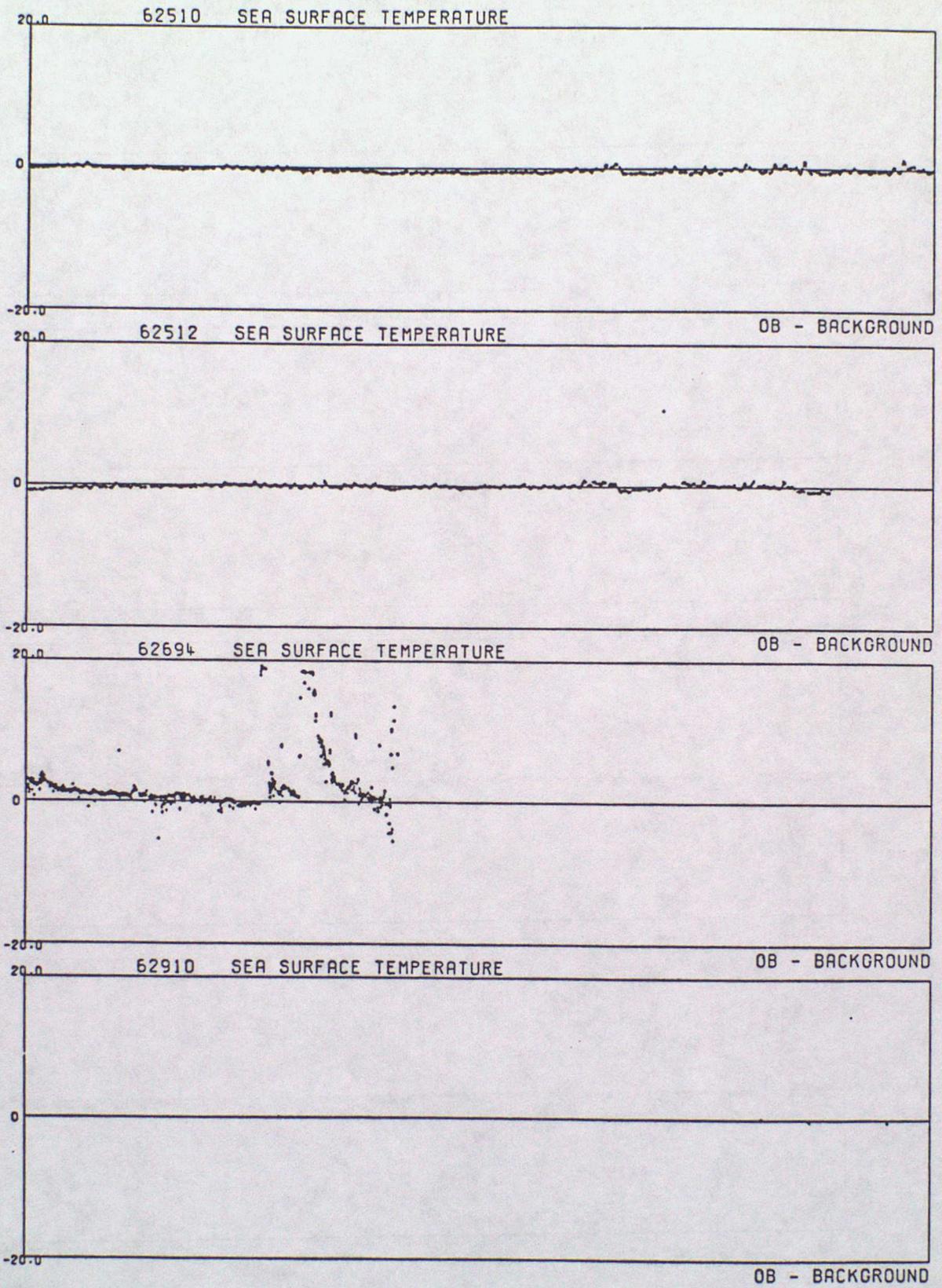
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



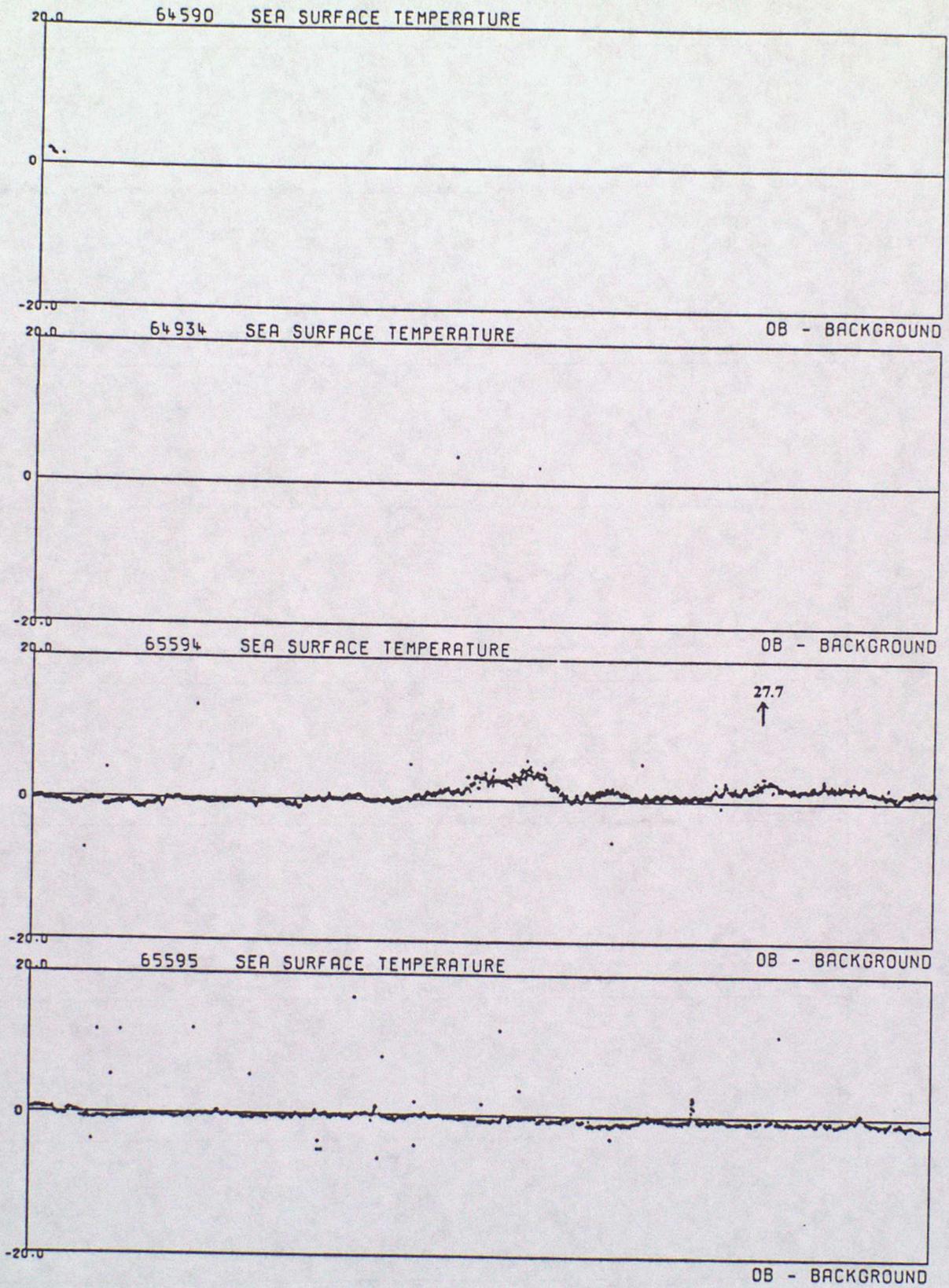
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)

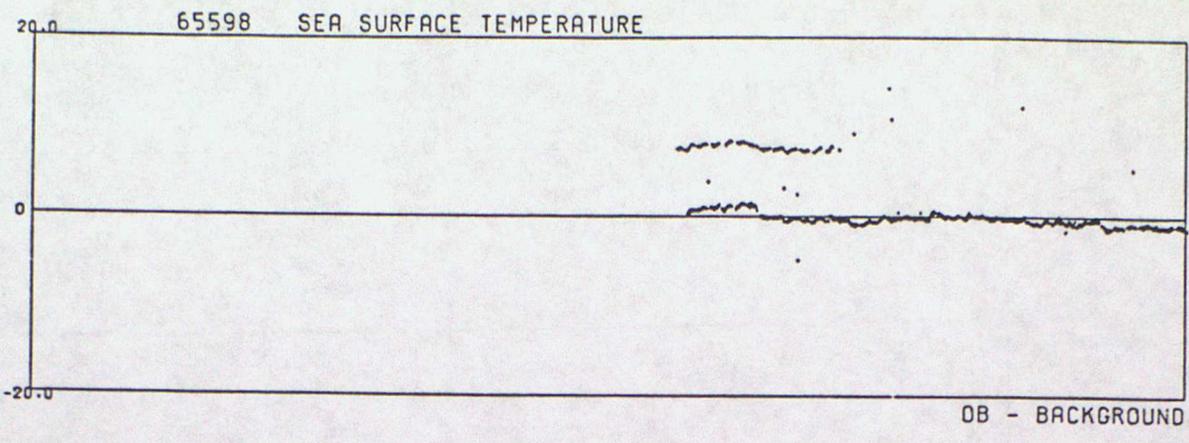


DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



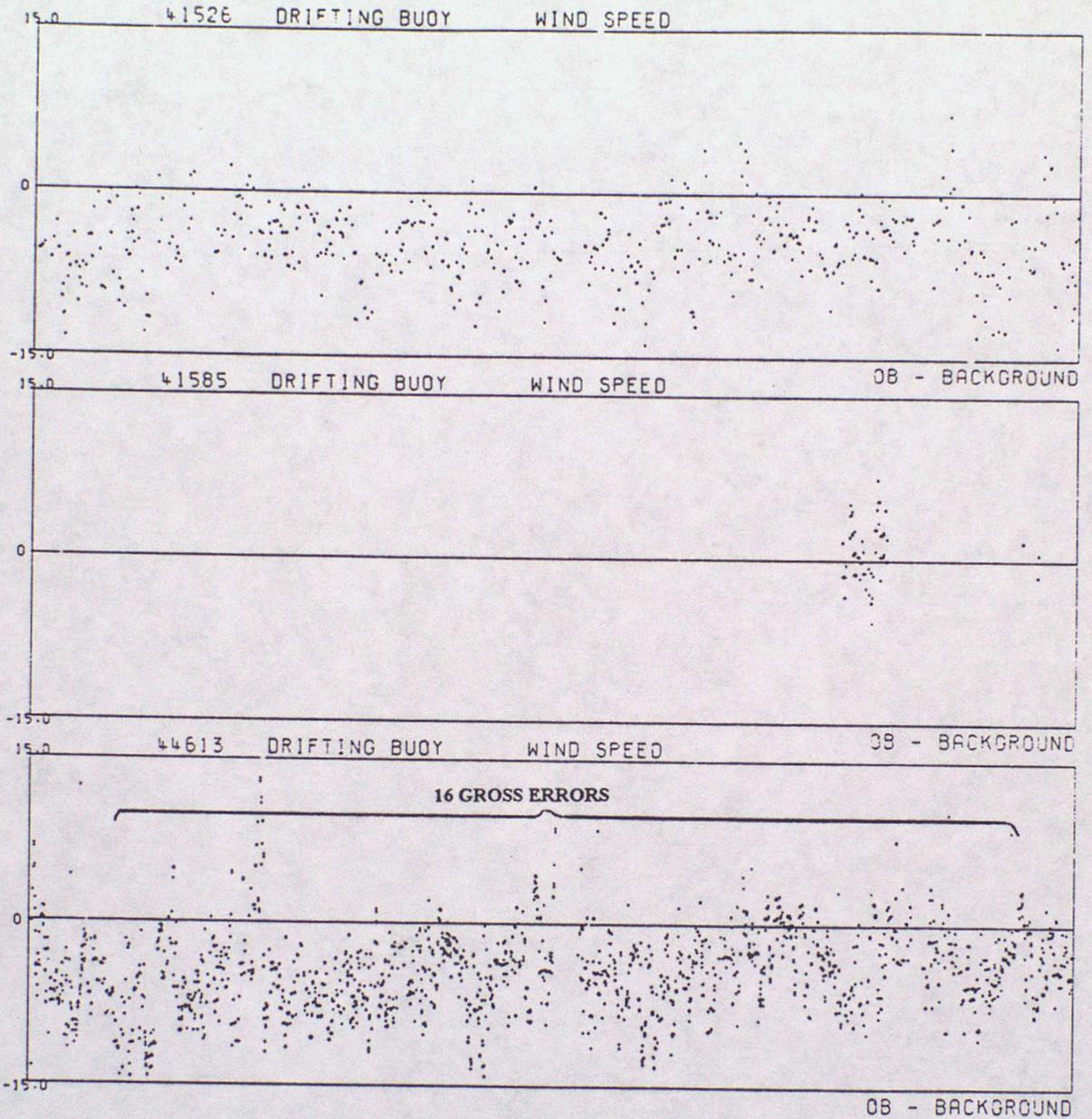
DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)





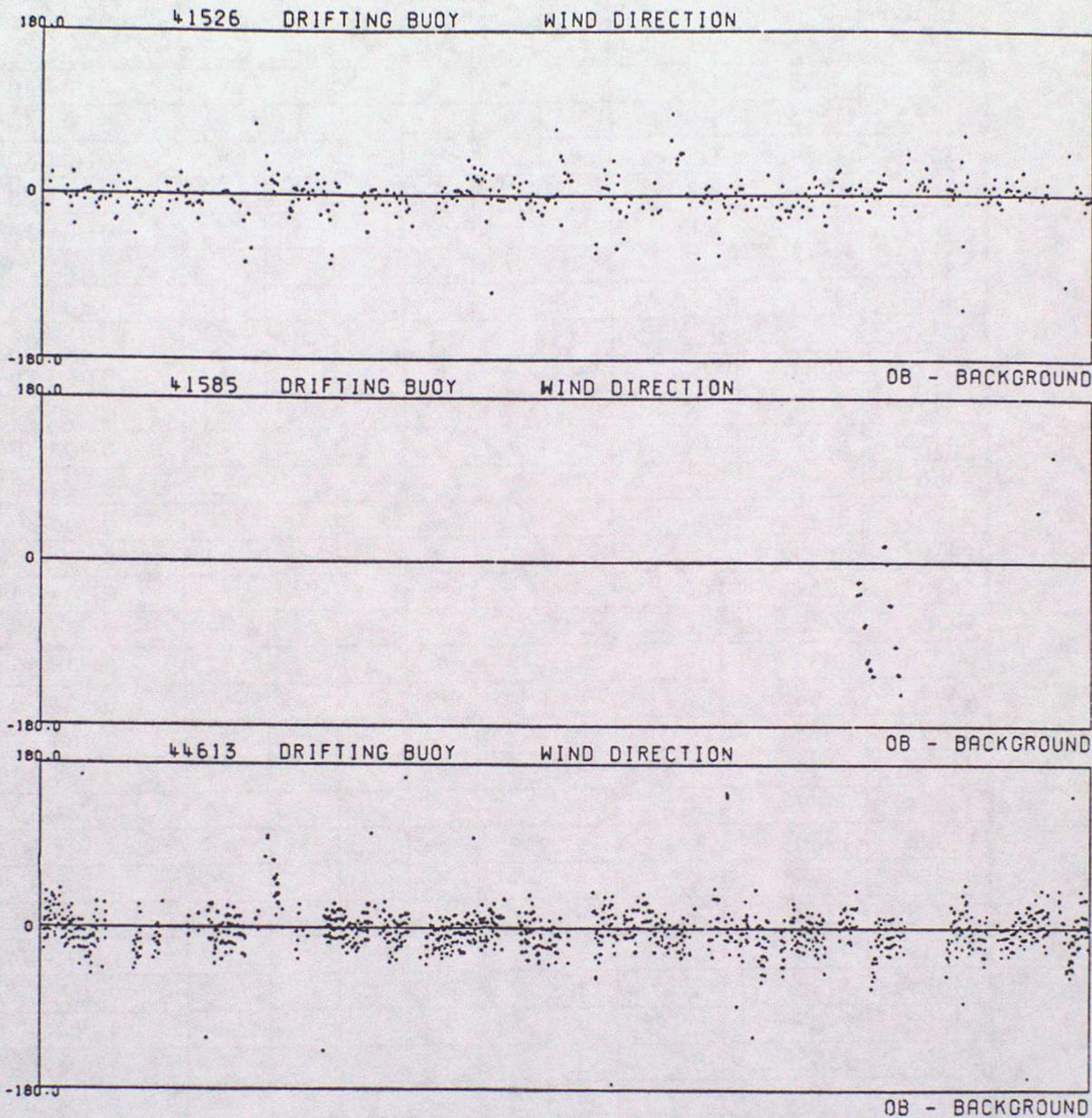
# ANNEX E - TIME SERIES PLOTS OF WIND SPEED

DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/05/1996 (OBS - BACKGROUND FIELD)



# ANNEX F - TIME SERIES PLOTS OF WIND DIRECTION

DATA FROM 00Z ON 01/04/1996 TO 23Z ON 30/06/1996 (OBS - BACKGROUND FIELD)



## ANNEX G - SUMMARY TABLE OF OPERATIONAL DRIFTING BUOYS

WMO No.	Argos No.	Owner	Elements Reported						Reporting Period
			PP	Pt	TT	FF	DD	SST	
25565	1639	UK.	*	*	*				01/04-30/06
41526	5575	US.	*		*	*	*	*	01/04-30/06
41585	23640	US.	*		*	*	*	*	01/04-30/06
44549	7777	US.	*		*			*	01/04-28/06
44613	3324	UK.	*	*	*	*	*	*	01/04-30/06
44616	3318	UK.	*	*	*			*	01/04-30/06
44684	977	CA.	*		*			*	01/04-02/04
44692	972	CA.	*		*				01/04-02/05
44727	2974	UK.	*	*	*			*	01/04-30/06
44728	3024	UK.	*	*	*			*	01/04-30/06
44760	2947	UK.	*	*	*			*	01/04-30/06
44763	3098	UK.	*	*	*			*	01/04-30/06
44765	4178	NL.	*	*	*			*	01/04-30/06
44767	3013	UK.	*	*	*			*	01/04-30/06
44768	1251	UK.	*	*	*			*	01/04-30/06
44769	1253	UK.	*	*				*	01/04-30/06
44770	3035	UK.	*	*	*			*	01/04-30/06
44771	2954	UK.	*	*	*	*		*	01/04-30/06
44772	6667	D.	*	*	*			*	25/04-30/06
44773	3132	UK.	*	*	*			*	01/04-30/06
44774	3162	UK.	*	*	*			*	01/04-30/06
44775	1260	UK.	*	*	*			*	31/05-30/06
44777	14733	UK.	*	*	*			*	31/05-30/06
44778	1258	UK.	*	*	*			*	15/05-30/06
44911	466	US.	*					*	01/04-30/06
61521	6430	US.	*		*			*	11/04-01/06
61522	7207	US.	*		*			*	11/04-30/06
61523	15352	US.	*		*			*	11/04-26/05
62501	10116	F.	*	*				*	01/04-30/06
62503	14427	F.	*	*				*	01/04-30/06

### KEY

- PP - Pressure      Pt - Pressure tendency      TT - Air temperature  
 FF - Wind speed    DD - Wind direction      SST - Sea surface temperature  
 + - Pressure ceased reporting before the end of the period but other elements continued to be reported.

WMO No.	Argos No.	Owner	Elements Reported						Reporting Period
			PP	Pt	TT	FF	DD	SST	
62504	14428	F.	*	*				*	01/04-30/06
62505	10117	F.	*	*				*	01/04-30/06
62506	????	F.	*	*	*			*	01/04-30/06
62507	????	F.	*	*				*	01/04-30/06
62508	????	F.	*	*					01/04-30/06
62510	14417	F.	*	*				*	01/04-30/06
62512	14424	F.	*	*				*	01/04-20/06
62694	9306	NL.	*	*	*			*	01/04-14/05
62910	????	??	*					*	02/04-30/06
63661	8068	D.	*	*	*				26/06-30/06
63665	8067	D.	*	*	*				01/04-26/05
64590	????	??	*		*			*	01/04-02/04
64934	23567	US.	*					*	01/04-16/05
65594	1252	UK.	*	*	*			*	01/04-30/06
65595	3038	IR.	*	*	*			*	01/04-30/06
65598	3678	N.	*	*	*	*	*	*	21/05-30/06

**KEY**

PP - Pressure      Pt - Pressure tendency  
FF - Wind speed    DD - Wind direction

TT - Air temperature  
SST - Sea surface temperature

