

DUPLICATE ALSO



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

APRIL TO JUNE 1994

Headquarters, Bracknell

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August 1994

This report has not been published.
Permission to quote from it should be obtained from the
Branch Director (Observation Provision).

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. SUMMARY OF PRESSURE PERFORMANCE

(a) Buoy deployments, etc.

North of 50deg N

There were 9 buoys reporting pressure at the beginning of the period and 13 at the end. 7 new buoys were deployed during the period (44766, 44767, 44768, 44770, 44774, 44777 and 64043). 3 buoys ceased reporting (25561, 44777 and 62711).

South of 50deg N

There were 13 buoys reporting pressure at the beginning of the period and 13 at the end. 2 new buoys were deployed (62501 and 62507). 2 buoys ceased reporting (44760 and 62606).

(b) Location Accuracy

The location accuracy was poorer than last quarter with only 16 out of 31 of the buoys reporting having a '% of observations with acceptable positions' greater than 95% (compared to 39 out of 41 last quarter). There were 61 gross errors in location during the quarter, compared with only 4 last quarter (see under Data Quality). The increase in errors is largely due to a problem at the Paris LUT from 15/6 to 16/6.

(c) Data timeliness

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

Timeliness	Last quarter.	This quarter
Very Good	13	14
Good	10	11
Satisfactory	10	3
Poor	5	--
Very poor	3	3
Total no. of buoys	41	31

(d) Data availability

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

Avaiability	South of 50 deg N		North of 50 deg N	
	Previous Quarter	Present Quarter	Previous Quarter	Present Quarter
Very Good	--	--	10	13
Good	2	1	1	1
Satisfactory	10	8	5	1
Poor	9	5	3	--
Very Poor	--	1	1	1

The total number of buoy days in the quarter was 2,149 [obtained by summing the number of reporting days for each buoy] (last quarter the total was 2,080) and the number of 'buoy hours' with at least one observation was 31,378 (compared with 27,105 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 14.60 (last quarter the figure was 13.03).

(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:-

- 25561 - Pressure data showed a bias of +3.9 hPa from the beginning of the period until the end of the buoy's life on 12/4.
- 44777 - The few reports (11) produced by this buoy throughout its life were totally erratic.

Biases

2 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
44760	SCOS	-0.7	-0.4	01/04 - 07/05
62503	NE of SCOS	+0.6	+0.2	01/04 - 30/06

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 which appear to lie outside the expected distribution - the 'gross' errors (see Time-series graphs) - have been ringed. (The erroneous observations which occurred at the end of the life of buoys 44760 and 62711 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 225 occasions the results are as follows -

ERROR	NUMBER LAST QUARTER	NUMBER THIS QUARTER	COLLECTING CENTRE
bg field	0	0	-----
location	0	0	Oslo
location	0	0	Sondre Stromfjord
location	2	61	Paris
location	2	0	US Air Force
location	0	0	Washington
pressure	42	75	Oslo
pressure	16	20	Sondre Stromfjord
pressure	55	69	Paris
pressure	0	0	US Air Force
pressure	0	0	Washington
Total no. of buoy hours	27,105	31,378	

During the quarter 164 gross pressure errors were transmitted as compared to 113 last quarter. The number of gross location errors from the Local User Terminals showed a marked increase (61 compared to 4 last quarter). 59 of the gross location errors were transmitted via the Paris LUT on 15/6.

(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
13556	---	---	---	---	---	---
13561	---	---	---	---	---	---
25561	0.1(0.9)	1.1(1.7)	189	---	---	---
44743	---	---	---	---	---	---
44760	---	---	---	0.4(0.1)	0.4(2.9)	192
44761	5.5(0.6)	3.7(1.5)	1501	2.2(0.0)	3.2(0.8)	2109
44766	1.5(2.9)	3.5(3.7)	294	1.3(0.8)	0.7(3.1)	147
44767	0.2(0.5)	2.0(2.4)	3077	-0.7(0.2)	2.3(1.8)	2296
44768	16.1(0.6)	8.7(1.8)	358	-0.5(-0.1)	1.5(1.9)	2587
44769	-0.2(0.6)	2.0(1.8)	3055	-0.6(-0.1)	1.6(2.0)	3048
44770	-0.1(1.0)	4.1(1.4)	1017	-0.9(0.2)	3.3(1.3)	654
44771	7.0(0.7)	1.9(1.7)	500	-0.8(0.1)	1.8(2.0)	2754
44774	0.6(0.4)	3.1(5.4)	975	-0.3(0.3)	3.1(5.8)	858
44777	4.1(0.4)	5.5(7.0)	9	---	---	---
44778	---	---	---	-0.1(1.0)	1.7(7.4)	3282
62501	---	---	---	-0.2(0.5)	1.1(3.8)	168
62502	---	---	---	0.1(0.7)	1.1(5.3)	1581

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
62503	---	---	---	-0.2(0.6)	1.4(5.7)	1090
62504	---	---	---	-0.3(0.8)	1.5(6.2)	1186
62505	---	---	---	-0.7(0.8)	1.6(6.4)	1477
62506	---	---	---	-0.3(0.7)	1.2(5.4)	1651
62507	---	---	---	-0.5(0.4)	0.3(3.8)	165
62514	---	---	---	---	---	---
62524	1.1(1.4)	2.3(2.6)	2745	0.2(-0.4)	0.7(7.3)	2107
62606	1.5(1.4)	2.9(4.7)	42	-0.9(0.1)	0.4(5.5)	55
62695	0.6(1.4)	1.5(2.6)	1713	-0.2(-0.4)	0.8(7.3)	1876
62696	1.7(0.6)	2.6(1.9)	2986	-0.2(0.8)	1.8(7.0)	2988
62711	5.5(2.4)	5.4(10.7)	3	0.4(1.2)	1.5(7.7)	730
64043	0.6(2.1)	2.6(9.8)	2304	-0.3(1.7)	1.7(10.0)	1495
64528	0.9(1.0)	2.4(1.6)	3670	-0.2(0.2)	1.6(0.7)	2397
65592	0.9(1.1)	2.3(1.7)	4100	-0.4(0.3)	1.8(0.6)	2294

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

Buoys 44761 (5.5), 44768 (16.1), 44771 (7.0), 44777 (4.1) and 62711 (5.5) all showed significant air temperature biases. (Both 44777 and 62711 had a very limited number of air temperature observations.)

Only buoy 44761 showed a significant sea surface temperature biases of 2.2 degC.

(NB. The errors which occurred with both the air temperatures and sea surface temperatures from the 15/6 to 16/6 were due to errors in the reported locations of the buoys and were not due to instrument errors).

(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. (N.B. Buoys 44768, 44769, 44771 and 62696 are not fitted with wind sensors. However both wind speed and direction observations have been coded up as 0, hence producing a misleading value for the percentage of wind data present in the Table of Statistics (Annex A). Buoy 62695 produced wind direction data but not wind speed data. This has resulted in the data not being stored in the Office's Observation Processing Databank and thus it is not available for analysis.)

		Wind Speed (kn)		Wind Direction (deg)		
WMO No.	Period	Mean	St. Dev.	Mean	St. Dev.	No. of Obs
13556	01/04-30/06	-2.8(0.4)	2.8(5.8)	5.8(4.5)	17.3(30.8)	1249(41)
13561	01/04-30/06	-1.4(3.4)	3.2(5.9)	-3.5(-8.9)	26.9(32.3)	1196(143)
62502	01/04-30/06	0.7(4.0)	4.2(7.9)	-11.4(-3.2)	28.3(32.9)	1281(737)
62505	01/04-30/06	0.1(3.3)	3.3(8.0)	-1.1(-5.3)	31.0(28.0)	801(577)
62506	01/04-30/06	0.3(3.8)	3.2(8.2)	-5.1(-4.3)	24.2(30.8)	1335(675)
64043	26/04-30/06	0.1(2.3)	4.3(4.5)	-21.9(-3.7)	92.9(29.7)	1623(80)

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

Buoy 64043 showed a significant wind direction bias and standard deviation. This was due to the sensor being offset by 180 degrees. This problem was rectified on 18/5.

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, ie 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 (ie. 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.

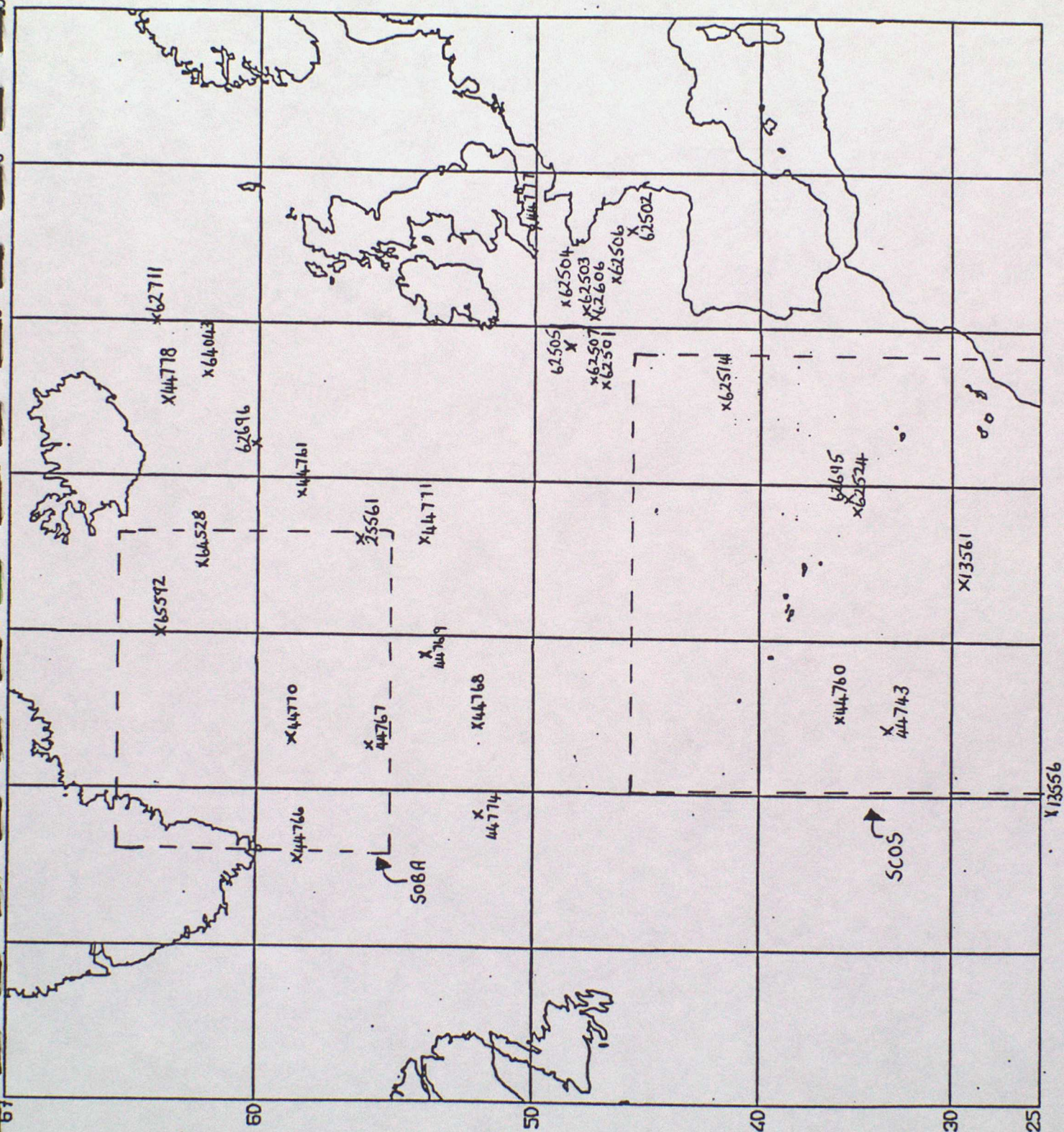
Performance	Availability (mean no. of obs/day)	Timeliness (median delay in mins)
Very Good	> 35	< 60
Good	25 - 35	60 - 119
Satisfactory	15 - 24	120 - 179
Poor	5 - 14	180 - 239
Very Poor	< 5	> 240

(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

6. MEAN POSITION
OF BUOYS DURING
PERIOD APRIL TO
JUNE 1994



ANNEX A - TABLE OF STATISTICS

Wmo No./ Country ₁	13556/F	13561/F	25561/N
Argos Id.No.	15526	15531	1556
Period within area	01/04-30/06	01/04-30/06	01/04-12/04
Area	SW of SCOS	SCOS	SOBA
Mean Latitude	24.3	29.3	56.3
Mean Longitude	-41.4	-26.4	-24.1
No. of obs received ₂	1664	1607	201
% of obs with valid Time and Date ₃	100.0	100.0	100.0
% of obs with acceptable Positions ₄	98.9	99.4	100.0
% of Present ₅			
Pressure	30.7	30.2	97.0
P. Tendency	0.0	0.0	97.0
Air Temperature	0.0	0.0	96.0
Wind Speed/Dir.	98.4/98.9	97.9/98.6	0.0/0.0
Sea-surface temp.	0.0	0.0	0.0
Median delay (min) ₆	249.0	85.0	51.0
Number of days	91.0	91.0	12.0
Mean no. of obs/day	18.3	17.7	16.8
No. of hours with obs	1652.0	1595.0	161.0
Mean no. of hours/day with obs	18.2	17.5	13.4
% of hour periods without an ob ₇	24.2	27.1	44.2
Mean (Ob-Bg)	0.2	0.5	3.9
RMS (Ob-Bg) unflagged data₈	1.4	1.1	4.8
Mean (Ob-Bg)	0.3	0.5	7.1
RMS (Ob-Bg) all data₈	1.6	1.3	7.5
Revised RMS (Ob-Bg) ₈	1.5	1.1	7.5
% of data flagged ₈	2.0	2.0	90.0
Operating at end of period	YES	YES	NO
Performance ₉			
Availability	Satisfactory	Satisfactory	Satisfactory
Pressure Quality	Acceptable	Acceptable	Suspect
Timeliness	Very Poor	Good	Very Good
Comments			

Wmo No. / Country ₁	44743/UK	44760/UK	44761/UK
Argos Id.No.	1370	1374	9308
Period within area	01/04-30/06	01/04-07/05	01/04-30/06
Area	SCOS	SCOS	E of SOBA
Mean Latitude	33.2	35.9	58.5
Mean Longitude	-35.9	-35.3	-21.1
No. of obs received ₂	1384	409	4405
% of obs with valid Time and Date ₃	100.0	100.0	100.0
% of obs with acceptable Positions ₄	98.6	93.9	84.7
% of Presents			
Pressure	99.7	92.2	97.3
P. Tendency	0.0	0.0	94.3
Air Temperature	0.0	0.0	35.1
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface temp.	0.0	44.7	48.4
Median delay (min) ₅	36.0	29.0	114.0
Number of days	91.0	37.0	91.0
Mean no. of obs/day	15.2	11.1	48.4
No. of hours with obs	867.0	273.0	1691.0
Mean no. of hours/day with obs	9.5	7.4	18.6
% of hour periods without an ob-	60.4	69.2	22.5
Mean (Ob-Bg)	0.1	-0.7	0.3
RMS (Ob-Bg)	1.0	1.2	1.4
unflagged data₆			
Mean (Ob-bg)	-1.2	15.7	0.3
RMS (Ob-Bg)	16.9	48.2	2.2
all data₇			
Revised RMS (Ob-Bg) ₈	1.2	1.4	1.5
% of data flagged ₉	44.0	52.0	69.0
Operating at end of period	YES	NO	YES
Performance ₁₀			
Availability	Satisfactory	Poor	Very Good
Pressure Quality	Acceptable	Suspect	Acceptable
Timeliness	Very Good	Very Good	Good
Comments			

Wmo No./ Country ₁	44766/N	44767/UK	44768/UK
Argos Id No.	4274	6297	6295
Period within area	22/06-30/06	26/04-30/06	05/04-30/06
Area	W of SOBA	SOBA	S of SOBA
Mean Latitude	58.7	55.8	52.0
Mean Longitude	-44.5	-37.7	-35.9
No. of obs received ₂	321	3175	3503
% of obs with valid Time and Date ₃	100.0	100.0	100.0
% of obs with acceptable Positions ₄	99.7	78.6	84.2
% of Present ₅			
Pressure	96.9	99.2	98.9
P. Tendency	92.8	97.0	96.7
Air Temperature	96.3	99.3	10.6
Wind Speed/Dir.	0.0/0.0	0.0/0.0	4.3/4.3
Sea-surface temp.	46.7	71.8	73.5
Median delay (min) ₆	15.0	16.0	120.0
Number of days	9.0	66.0	87.0
Mean no. of obs/day	35.7	48.1	40.3
No. of hours with obs	153.0	1243.0	1507.0
Mean no. of hours/day with obs	17.0	18.8	17.3
% of hour periods without an ob-	29.2	21.7	27.9
Mean (Ob-Bg)	-0.5	0.3	0.2
RMS (Ob-Bg)	1.2	1.5	1.6
unflagged data₈			
Mean (Ob-bg)	-0.2	0.3	0.2
RMS (Ob-Bg)	2.9	2.9	3.8
all data₉			
Revised RMS (Ob-Bg) ₈	1.5	1.7	1.8
% of data flagged ₈	61.0	68.0	64.0
Operating at end of period	YES	YES	YES
Performance ₉			
Availability	Very Good	Very Good	Very Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Very Good	Very Good	Satisfactory
Comments			

Wmo No./ Country ₁	44769/UK	44770/N	44771/UK
Argos Id.No.	6291	3039	6290
Period within area	01/04-30/06	03/06-30/06	01/04-30/06
Area	S of SOBA	SOBA	SE of SOBA
Mean Latitude	53.9	58.8	53.9
Mean Longitude	-31.1	-36.9	-23.6
No. of obs received ₂	4264	1096	4115
% of obs with valid Time and Date ₃	100.0	100.0	100.0
% of obs with acceptable Positions ₄	84.5	42.7	84.2
% of Present ₅			
Pressure	99.4	95.5	99.0
P. Tendency	97.2	90.1	97.2
Air Temperature	74.3	94.7	12.6
Wind Speed/Dir.	3.7/3.5	0.0/0.0	4.3/2.8
Sea-surface temp.	70.8	59.9	67.2
Median delay (min) ₆	69.0	20.0	16.0
Number of days	91.0	28.0	91.0
Mean no. of obs/day	46.9	39.1	45.2
No. of hours with obs	1700.0	496.0	1705.0
Mean no. of hours/day with obs	18.7	17.7	18.7
% of hour periods without an ob-	22.1	26.3	22.1
Mean (Ob-Bg)	0.2	-0.2	0.3
RMS (Ob-Bg)	1.6	1.3	1.4
unflagged data₈			
Mean (Ob-bg)	0.2	-0.2	0.2
RMS (Ob-Bg)	2.9	1.9	4.1
all data₈			
Revised RMS (Ob-Bg) ₈	1.7	1.5	1.6
% of data flagged ₈	68.0	63.0	66.0
Operating at end of period	YES	YES	YES
Performance ₉			
Availability	Very Good	Very Good	Very Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Good	Very Good	Very Good
Comments			

Wmo No./ Country ₁	44774/UK	44777/UK	44778/UK
Argos Id.No.	6289	1257	1259
Period within area	01/06-30/06	23/04-17/06	01/04-30/06
Area	SW of SOBA	NE of SCOS	NE of SOBA
Mean Latitude	52.1	50.2	62.6
Mean Longitude	-41.5	-3.8	-15.1
No. of obs received ₂	1013	11	4750
% of obs with valid Time and Date ₃	100.0	100.0	100.0
% of obs with acceptable Positions ₄	45.7	100.0	85.6
% of Present ₅			
Pressure	98.9	81.8	99.6
P. Tendency	95.8	72.7	47.9
Air Temperature	98.9	100.0	0.0
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface temp.	83.9	0.0	68.4
Median delay (min) ₆	59.0	31.0	28.0
Number of days	30.0	56.0	91.0
Mean no. of obs/day	33.8	0.2	52.2
No. of hours with obs	501.0	9.0	1773.0
Mean no. of hours/day with obs	16.7	0.2	19.5
% of hour periods without an ob-	30.4	99.2	18.8
Mean (Ob-Bg)	0.1	--	0.3
RMS (Ob-Bg)	1.5	--	1.4
unflagged data₈			
Mean (Ob-bg)	0.2	-15.0	-0.1
RMS (Ob-Bg)	5.7	28.4	3.4
all data₈			
Revised RMS (Ob-Bg) ₈	2.4	28.4	2.2
% of data flagged ₈	58.0	100.0	70.0
Operating at end of period	YES	NO	YES
Performance ₉			
Availability	Good	Very Poor	Very Good
Pressure Quality	Acceptable	Suspect	Acceptable
Timeliness	Very Good	Very Good	Very Good
Comments			

Wmo No./ Country ₁	62501/F	62502/F	62503/F
Argos Id.No.	10116	15503	10110
Period within area	13/04-30/06	01/04-30/06	01/04-30/06
Area	NE of SCOS	NE of SCOS	NE of SCOS
Mean Latitude	46.0	45.7	47.7
Mean Longitude	-13.6	-3.7	-9.1
No. of obs received ₂	160	1639	1024
% of obs with valid Time and Date ₃	100.0	100.0	100.0
% of obs with acceptable Positions ₄	100.0	85.1	98.8
% of Present ₅			
Pressure	99.4	32.3	97.9
P. Tendency	95.0	0.0	93.9
Air Temperature	0.0	0.0	0.0
Wind Speed/Dir.	0.0/0.0	95.9/97.3	0.0/0.0
Sea-surface temp.	98.7	94.4	97.9
Median delay (min) ₆	127.0	91.0	68.0
Number of days	79.0	91.0	91.0
Mean no. of obs/day	2.0	18.0	11.3
No. of hours with obs	120.0	1615.0	888.0
Mean no. of hours/day with obs	1.5	17.7	9.8
% of hour periods without an ob ₇	93.8	26.3	59.2
Mean (Ob-Bg)	-0.3	0.2	0.6
RMS (Ob-Bg) unflagged data₈	1.2	1.3	1.5
Mean (Ob-bg)	0.3	0.2	0.8
RMS (Ob-Bg) all data₈	2.8	1.5	1.9
Revised RMS (Ob-Bg) ₈	2.0	1.5	1.6
% of data flagged ₈	40.0	2.0	22.0
Operating at end of period	YES	YES	YES
Performance ₉			
Availability	Very Poor	Satisfactory	Poor
Pressure Quality	Acceptable	Acceptable	Suspect
Timeliness	Satisfactory	Good	Good
Comments			

Wmo No./ Country ₁	62504/F	62505/F	62506/F
Argos Id.No.	10111	10117	10118
Period within area	01/04-30/06	01/04-30/06	01/04-30/06
Area	NE of SCOS	NE of SCOS	NE of SCOS
Mean Latitude	48.7	48.4	46.4
Mean Longitude	-8.6	-11.3	-6.8
No. of obs received ₂	1117	1426	1592
% of obs with valid Time and Date ₃	100.0	100.0	100.0
% of obs with acceptable Positions ₄	98.7	98.8	98.6
% of Present ₅			
Pressure	97.8	98.4	97.4
P. Tendency	92.8	92.9	92.7
Air Temperature	0.0	0.0	0.0
Wind Speed/Dir.	0.0/0.0	66.0/65.8	94.0/93.4
Sea-surface temp.	98.4	98.7	98.0
Median delay (min) ₆	44.0	33.0	61.0
Number of days	91.0	91.0	91.0
Mean no. of obs/day	12.3	15.7	17.5
No. of hours with obs	959.0	1071.0	1201.0
Mean no. of hours/day with obs	10.5	11.8	13.2
% of hour periods without an ob-	56.3	50.8	45.0
Mean (Ob-Bg)	0.4	0.4	-0.4
RMS (Ob-Bg)	1.2	1.5	1.4
unflagged data₈			
Mean (Ob-bg)	0.5	0.5	-0.3
RMS (Ob-Bg)	1.7	3.0	1.6
all data₉			
Revised RMS (Ob-Bg) ₈	1.2	1.8	1.6
% of data flagged ₈	24.0	36.0	36.0
Operating at end of period	YES	YES	YES
Performance ₁₀			
Availability	Poor	Satisfactory	Satisfactory
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Very Good	Very Good	Good
Comments			

Wmo No./ Country ₁	62507/F	62514/F	62524/UK
Argos Id.No.	14420	1356	4625
Period within area	21/06-30/06	01/04-30/06	01/04-30/06
Area	NE of SCOS	SCOS	SCOS
Mean Latitude	47.4	41.3	34.7
Mean Longitude	-13.4	-14.9	-21.5
No. of obs received ₂	159	737	2853
% of obs with valid Time and Date ₃	100.0	100.0	100.0
% of obs with acceptable Positions ₄	100.0	97.4	94.4
% of Present ₅			
Pressure	97.5	99.5	99.5
P. Tendency	86.8	0.0	90.1
Air Temperature	0.0	0.0	99.7
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface temp.	98.1	0.0	71.3
Median delay (min) ₆	65.0	61.0	20.0
Number of days	10.0	91.0	91.0
Mean no. of obs/day	15.9	8.1	31.4
No. of hours with obs	120.0	679.0	1385.0
Mean no. of hours/day with obs	12.0	7.5	15.2
% of hour periods without an ob-	50.0	68.8	36.7
Mean (Ob-Bg)	0.4	0.0	0.4
RMS (Ob-Bg)	1.3	1.3	1.1
unflagged data₈			
Mean (Ob-bg)	0.4	0.1	0.3
RMS (Ob-Bg)	1.2	1.4	4.5
all data₈			
Revised RMS (Ob-Bg) ₈	1.2	1.4	1.4
% of data flagged ₈	34.0	27.0	58.0
Operating at end of period	YES	YES	YES
Performance ₉			
Availability	Satisfactory	Poor	Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Good	Good	Very Good
Comments			

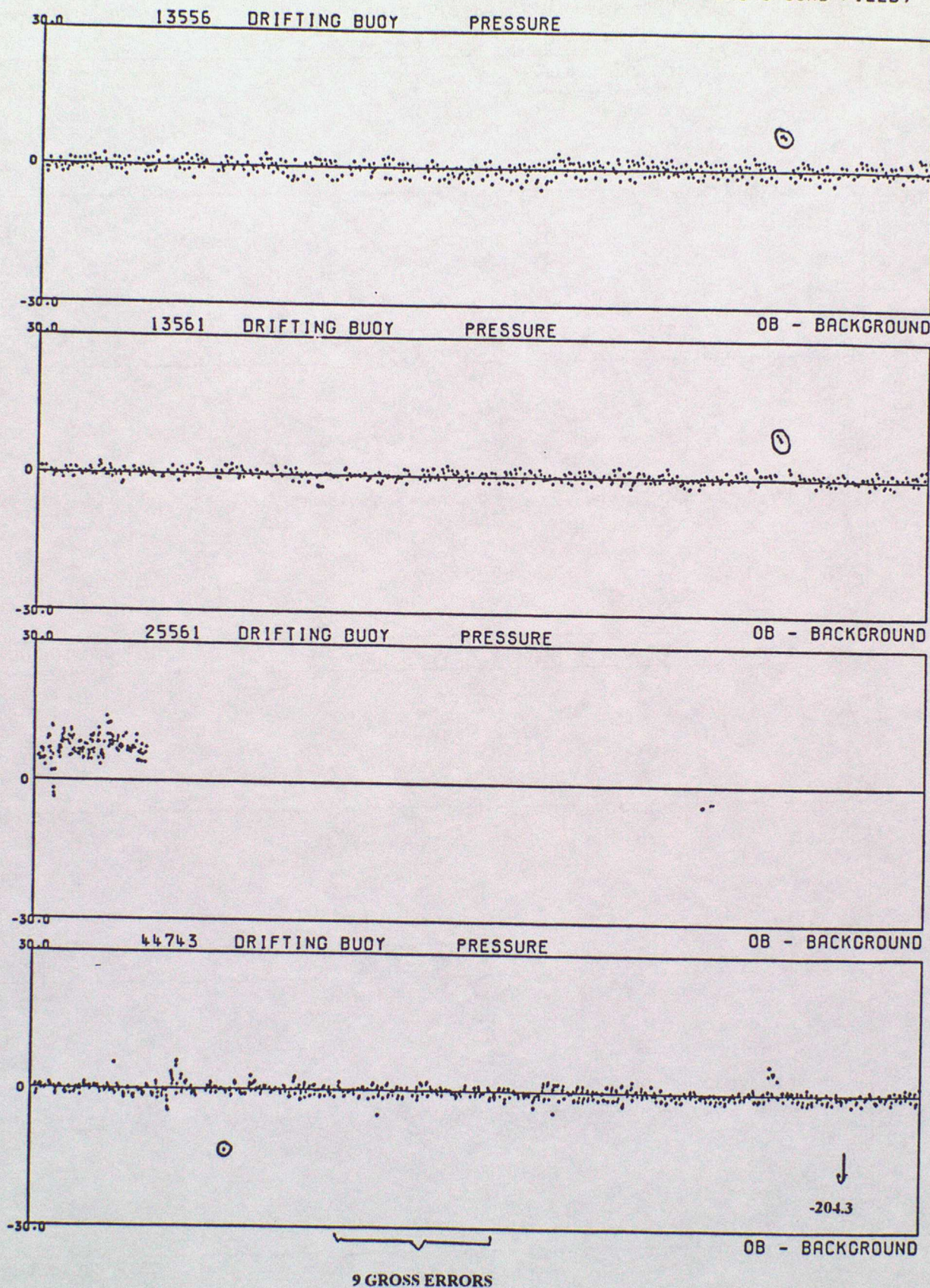
Wmo No./ Country ₁	62606/UK	62695/UK	62696/UK
Argos Id.No.	3916	2956	6288
Period within area	01/04-06/04	01/04-30/06	01/04-30/06
Area	NE of SCOS	SCOS	E of SOBA
Mean Latitude	37.6	35.3	60.1
Mean Longitude	-9.1	-21.0	-17.8
No. of obs received ₂	49	1799	4521
% of obs with valid Time and Date ₃	100.0	100.0	100.0
% of obs with acceptable Positions ₄	100.0	98.7	84.8
% of Present ₅			
Pressure	93.9	99.7	98.9
P. Tendency	0.0	87.1	96.8
Air Temperature	89.8	99.6	70.4
Wind Speed/Dir.	0.0/0.0	0.0/99.4	2.5/2.6
Sea-surface temp.	98.0	99.7	66.3
Median delay (min) ₆	102.0	545.0	738.0
Number of days	6.0	91.0	91.0
Mean no. of obs/day	8.2	19.8	49.7
No. of hours with obs	47.0	1280.0	1779.0
Mean no. of hours/day with obs	7.8	14.1	19.5
% of hour periods without an ob-	67.5	41.3	18.8
Mean (Ob-Bg)	0.5	0.2	0.4
RMS (Ob-Bg)	1.0	1.0	1.3
unflagged data₈			
Mean (Ob-bg)	0.5	0.2	0.3
RMS (Ob-Bg)	1.0	3.8	2.6
all data₈			
Revised RMS (Ob-Bg) ₈	1.0	1.2	1.3
% of data flagged ₈	15.0	37.0	68.0
Operating at end of period	NO	YES	YES
Performance ₉			
Availability	Poor	Satisfactory	Very Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Good	Very Poor	Very Poor
Comments			

Wmo No./ Country:	62711/UK	64043/UK	64528/NL
Argos Id.No.	1258	6271	9306
Period within area	01/04-25/04	26/04-30/06	01/04-30/06
Area	NE of SOBA	NE of SOBA	SOBA
Mean Latitude	62.9	61.5	61.5
Mean Longitude	-10.1	-13.3	-25.7
No. of obs received:	1108	2455	3890
% of obs with valid Time and Date:	100.0	100.0	100.0
% of obs with acceptable Positions:	100.0	80.7	85.2
% of Present:			
Pressure	98.2	96.8	97.9
P. Tendency	90.3	93.0	95.5
Air Temperature	0.3	95.8	97.9
Wind Speed/Dir.	0.0/0.0	76.0/75.1	0.0/0.0
Sea-surface temp.	66.1	61.3	62.6
Median delay (min):	86.0	54.0	80.0
Number of days	25.0	66.0	91.0
Mean no. of obs/day	44.3	37.2	42.7
No. of hours with obs	423.0	1096.0	1690.0
Mean no. of hours/day with obs	16.9	16.6	18.6
% of hour periods without an ob:	29.6	30.8	22.5
Mean (Ob-Bg)	0.4	0.2	0.3
RMS (Ob-Bg)	1.5	1.1	1.3
unflagged data:			
Mean (Ob-bg)	0.1	-0.2	0.2
RMS (Ob-Bg)	5.5	5.1	2.4
all data:			
Revised RMS (Ob-Bg):	1.5	1.1	1.3
% of data flagged:	69.0	1.0	69.0
Operating at end of period	NO	YES	YES
Performance:			
Availability	Very Good	Very Good	Very Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Good	Very Good	Good
Comments			

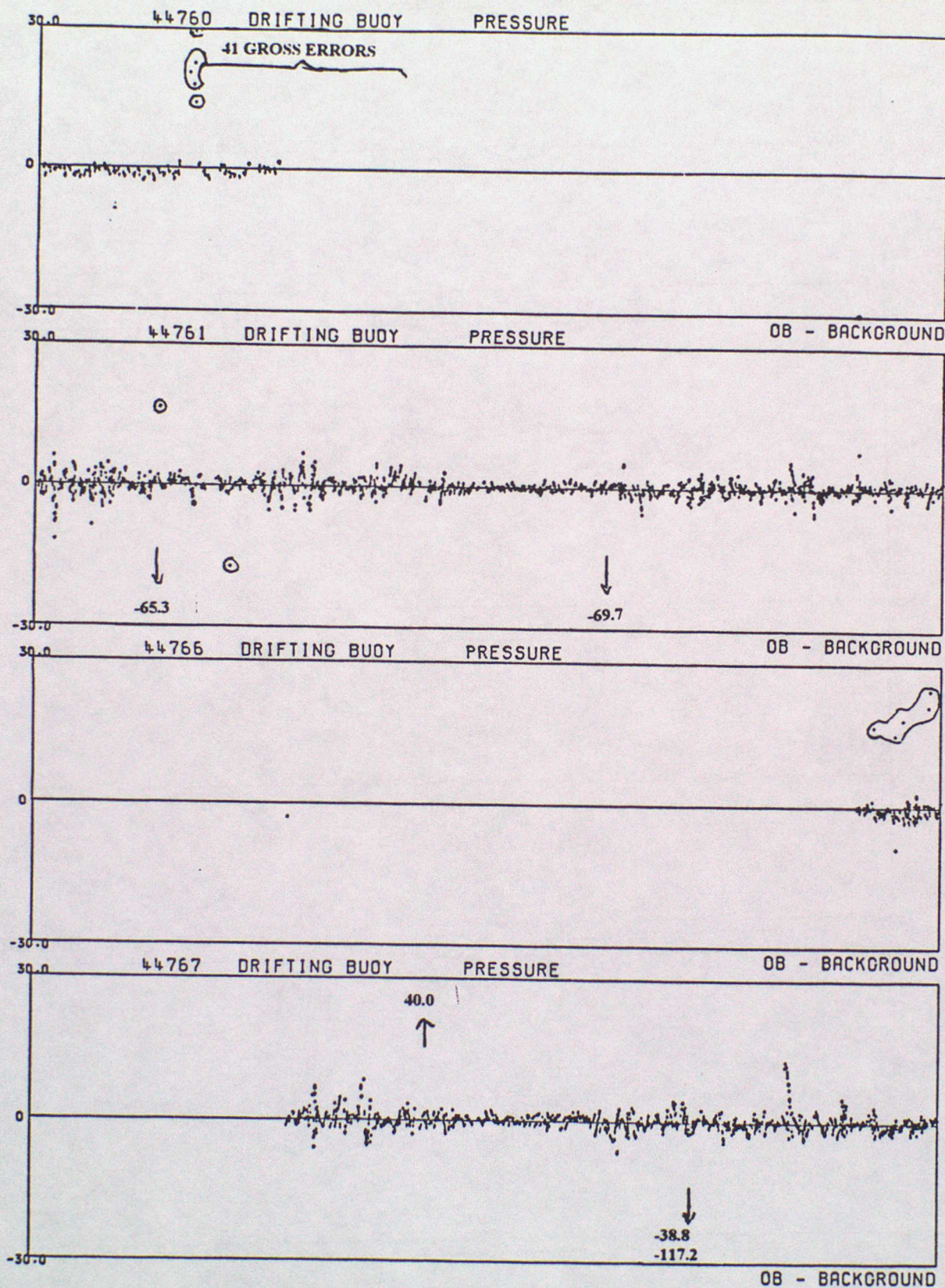
Wmo No./ Country ₁	65592/NL
Argos Id.No.	9309
Period within area	01/04-30/06
Area	SOBA
Mean Latitude	62.6
Mean Longitude	-30.0
No. of obs received ₂	4406
% of obs with valid Time and Date ₃	100.0
% of obs with acceptable Positions ₄	85.1
% of Present ₅	
Pressure	96.4
P. Tendency	92.9
Air Temperature	96.1
Wind Speed/Dir.	0.0/0.0
Sea-surface temp.	52.8
Median delay (min) ₆	133.0
Number of days	91.0
Mean no. of obs/day	48.4
No. of hours with obs	1699.0
Mean no. of hours/day with obs	18.7
% of hour periods without an ob-	22.1
Mean (Ob-Bg) RMS (Ob-Bg)	0.0 1.4
unflagged data₈	
Mean (Ob-bg) RMS (Ob-Bg)	0.2 4.5
all data₈	
Revised RMS (Ob-Bg) ₈	2.1
% of data flagged ₈	70.0
Operating at end of period	YES
Performance ₉	
Availability	Very Good
Pressure Quality	Acceptable
Timeliness	Satisfactory
Comments	

ANNEX B - TIME SERIES PLOTS OF PRESSURE

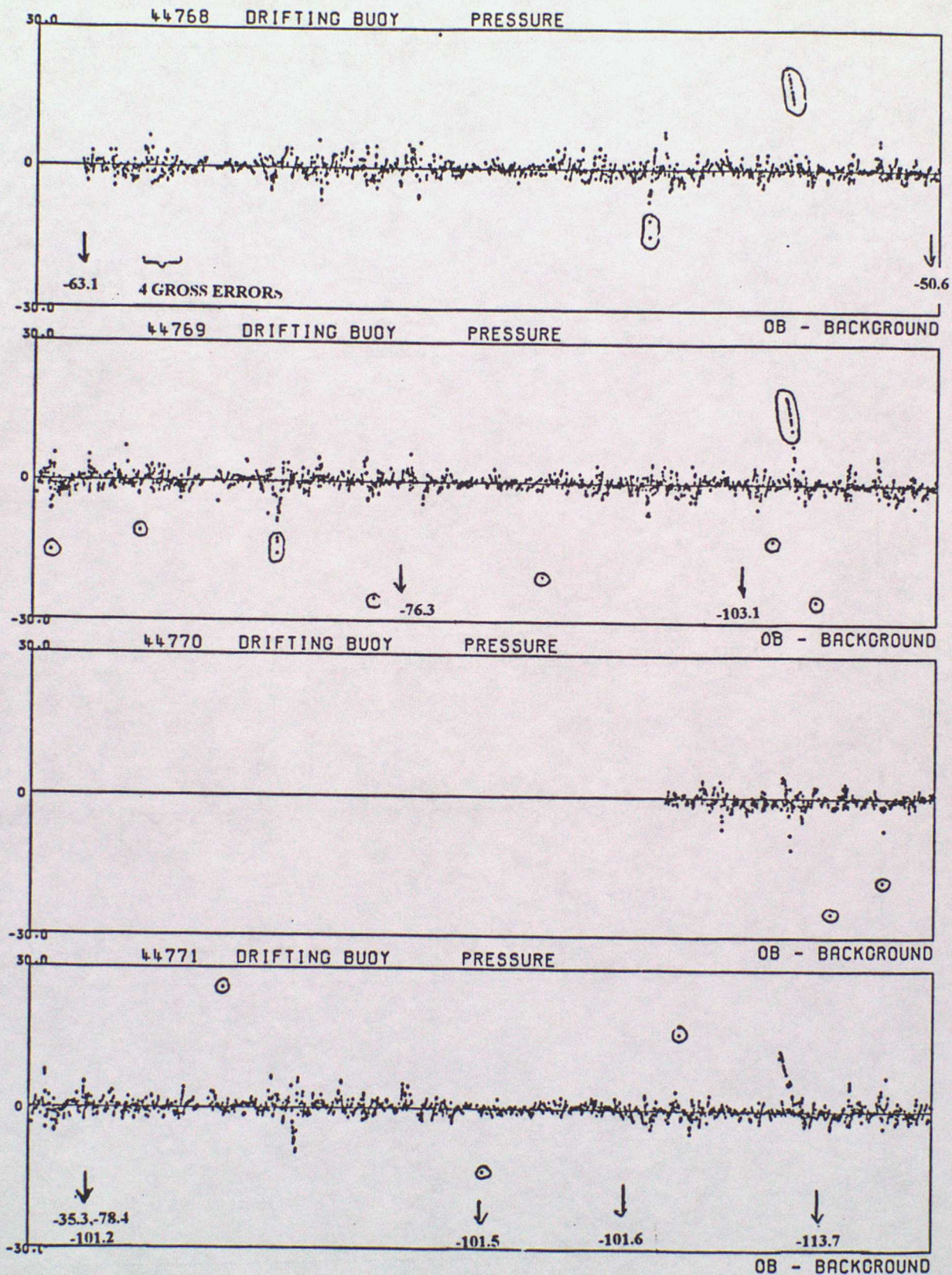
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)



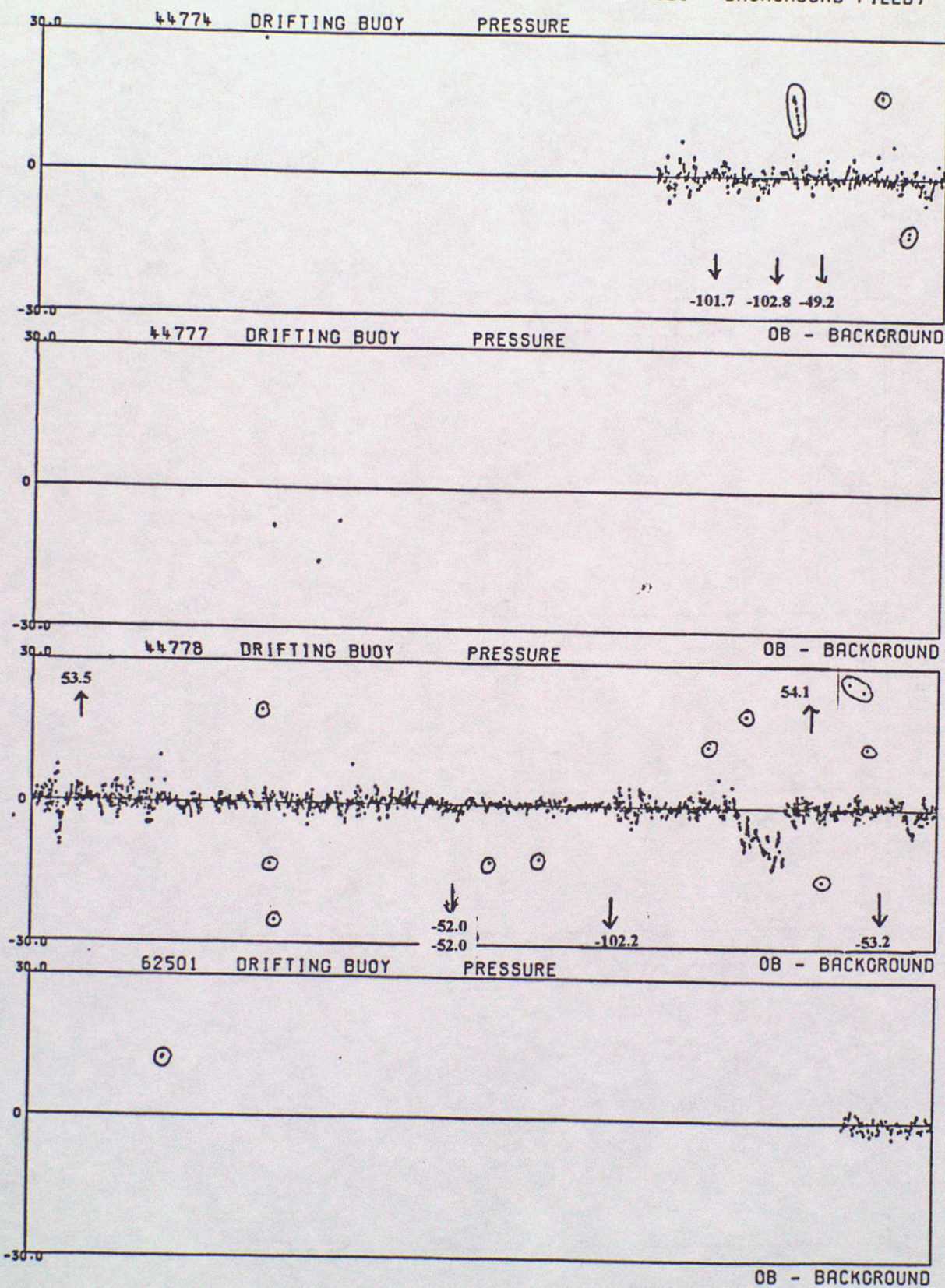
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)



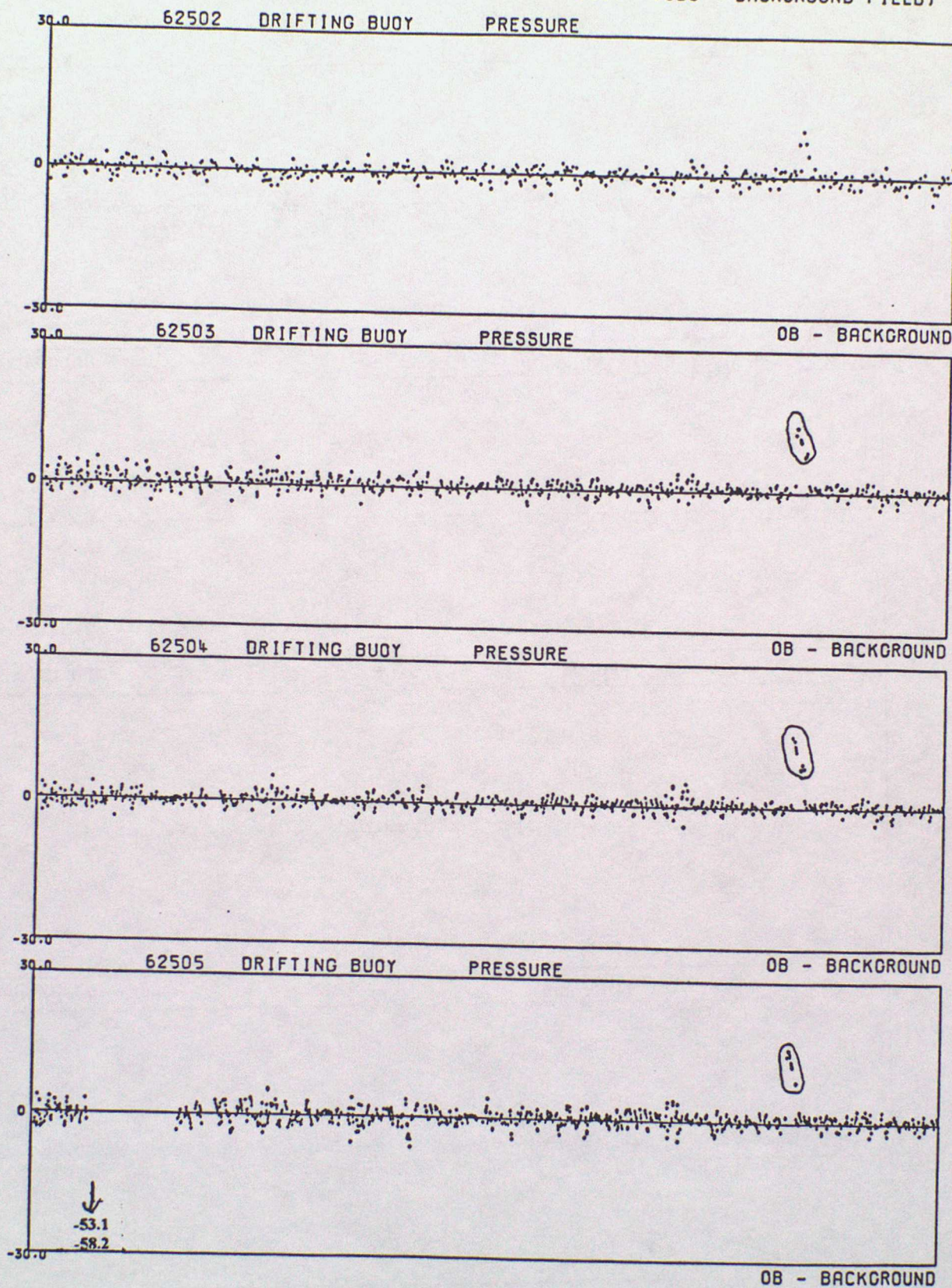
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)



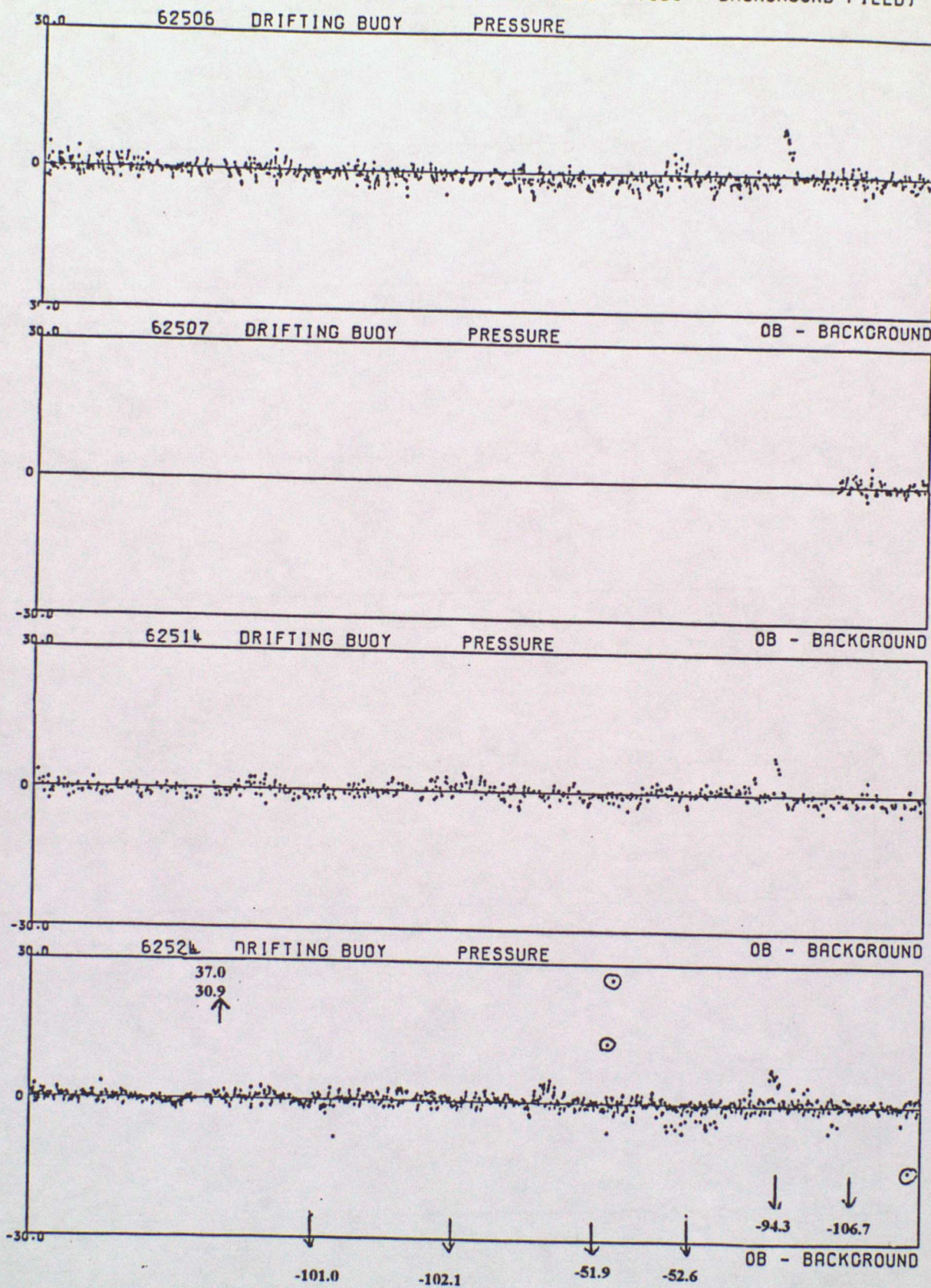
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)



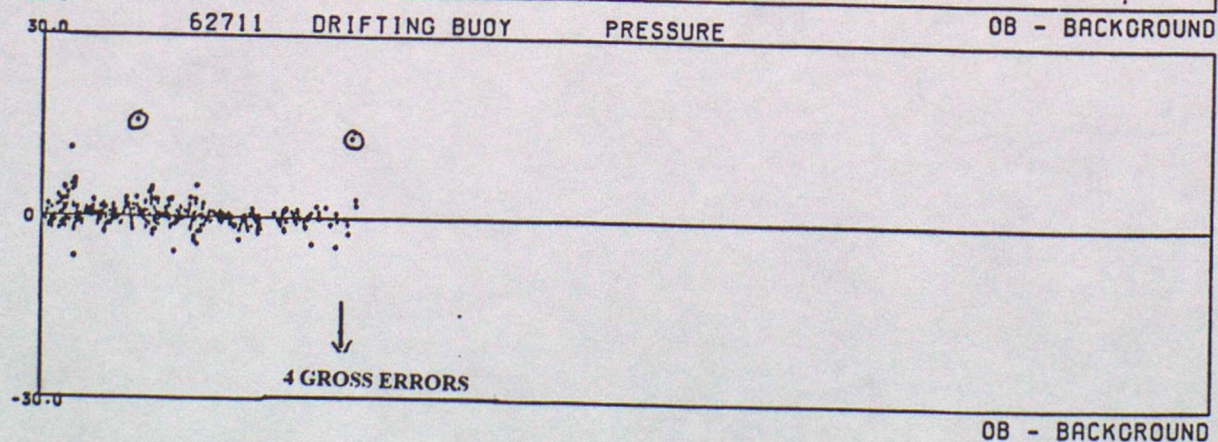
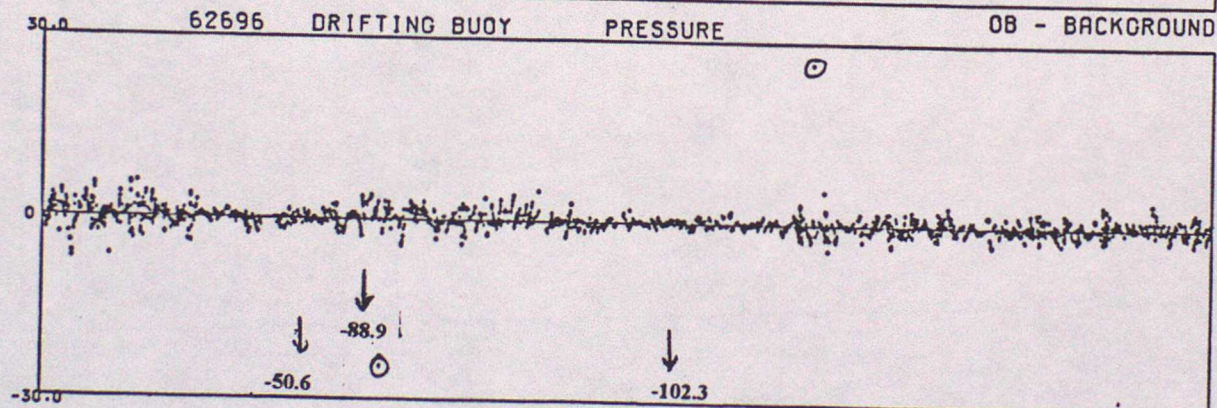
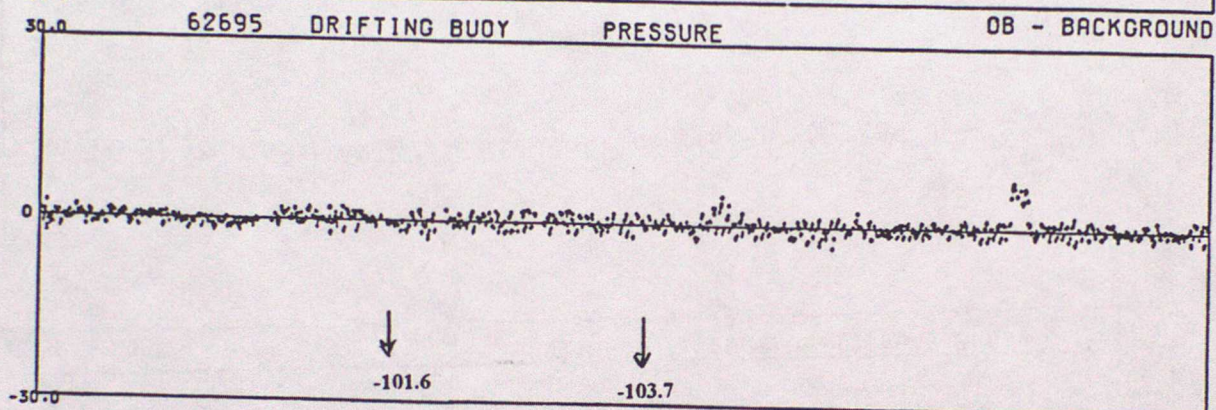
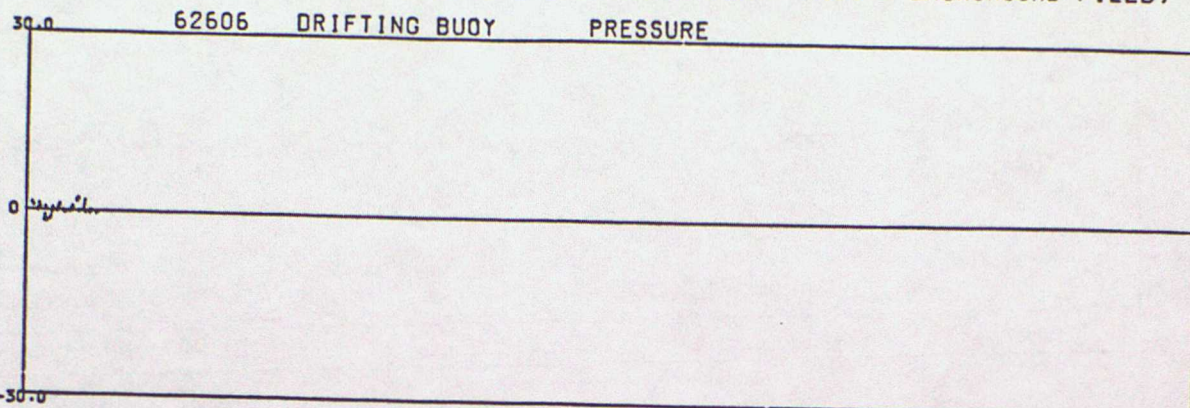
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)



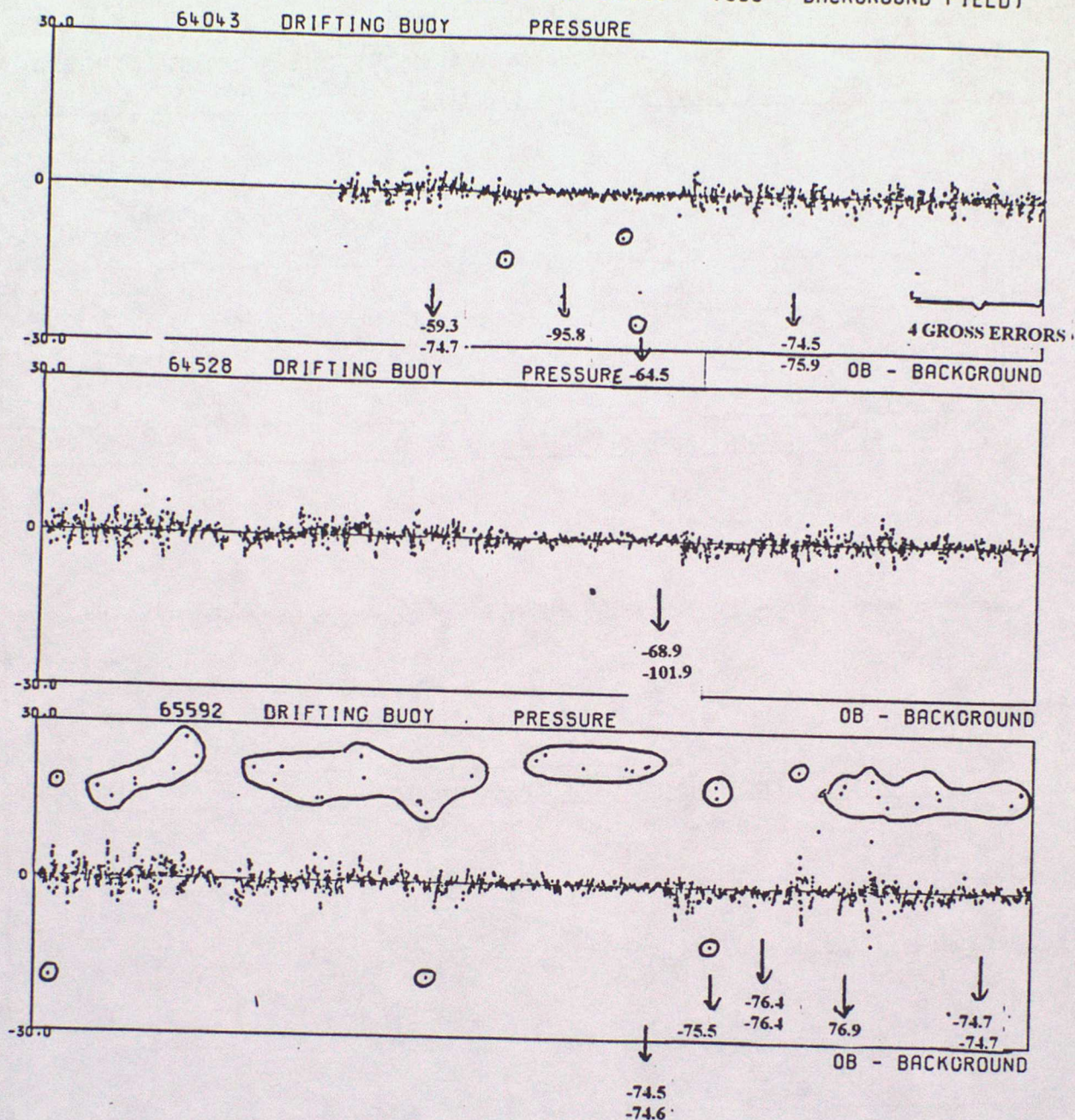
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)



DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)

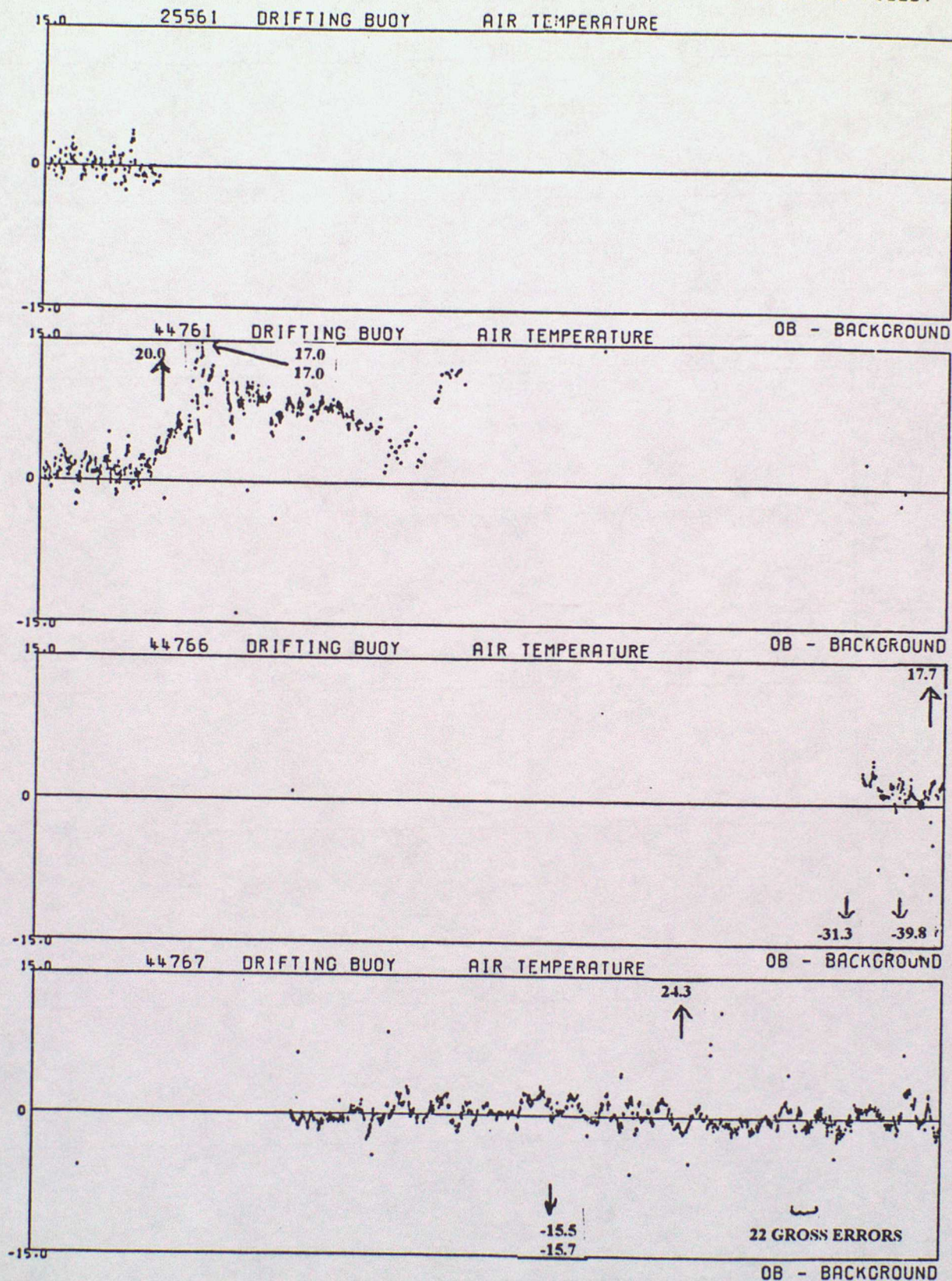


DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)

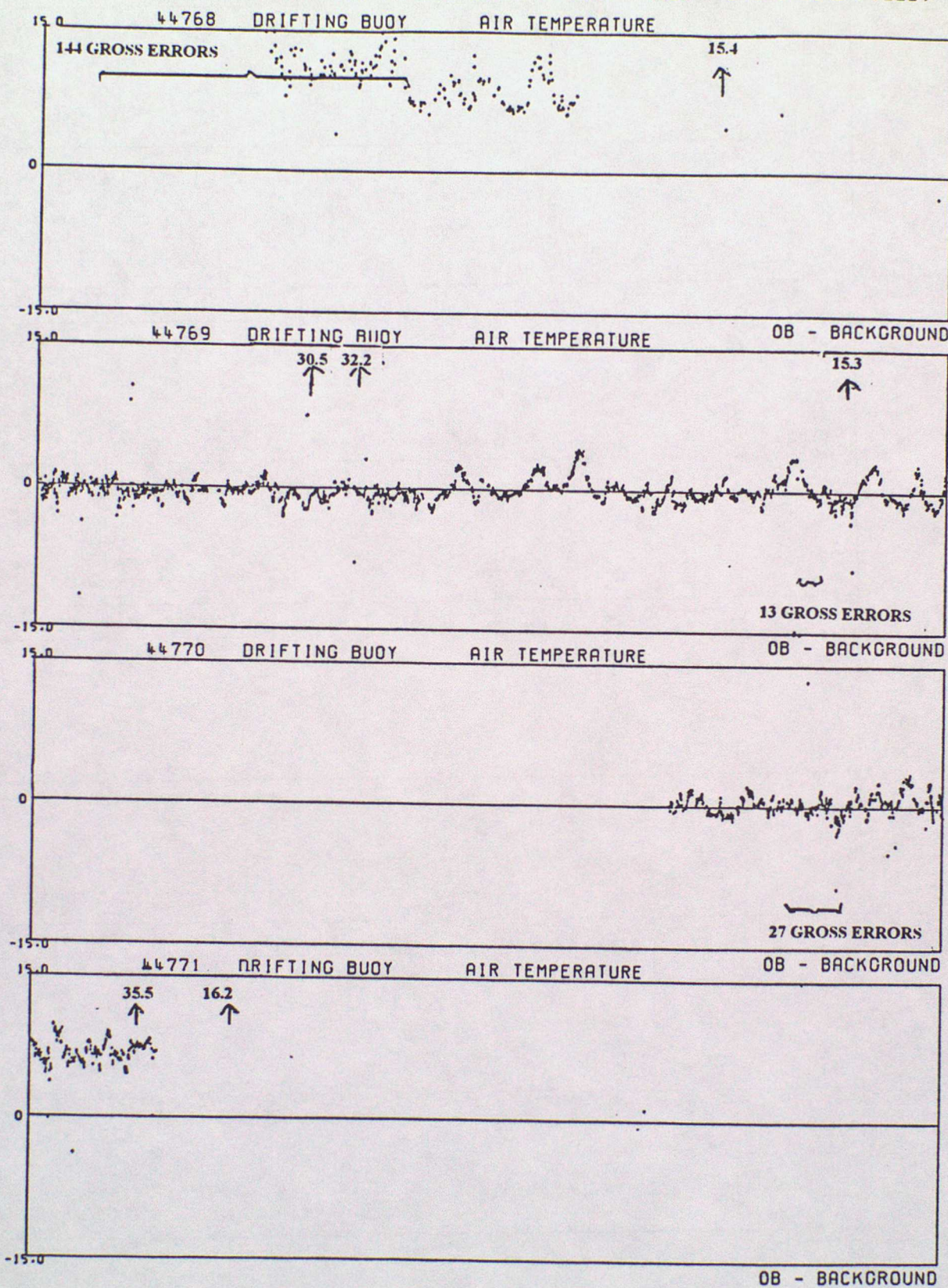


ANNEX C - TIME SERIES PLOTS OF AIR TEMPERATURE

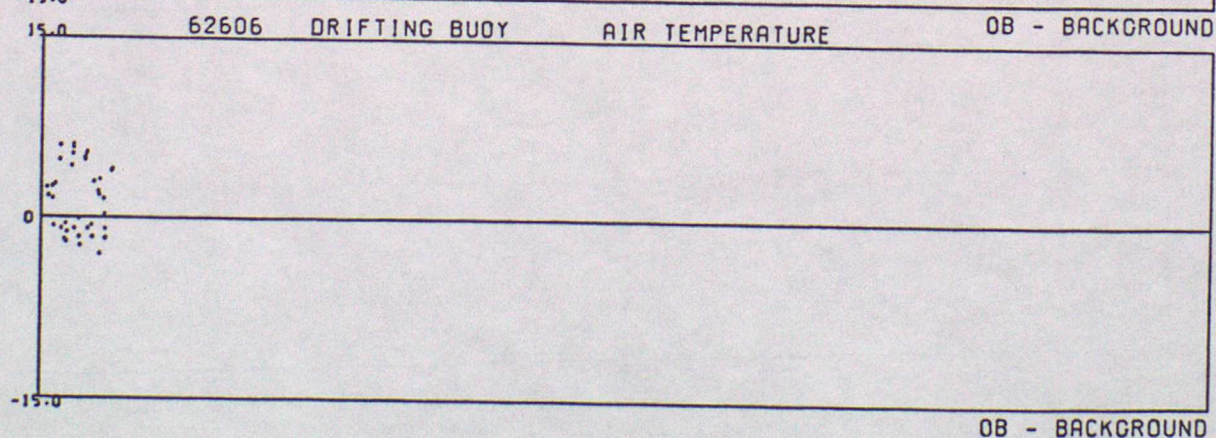
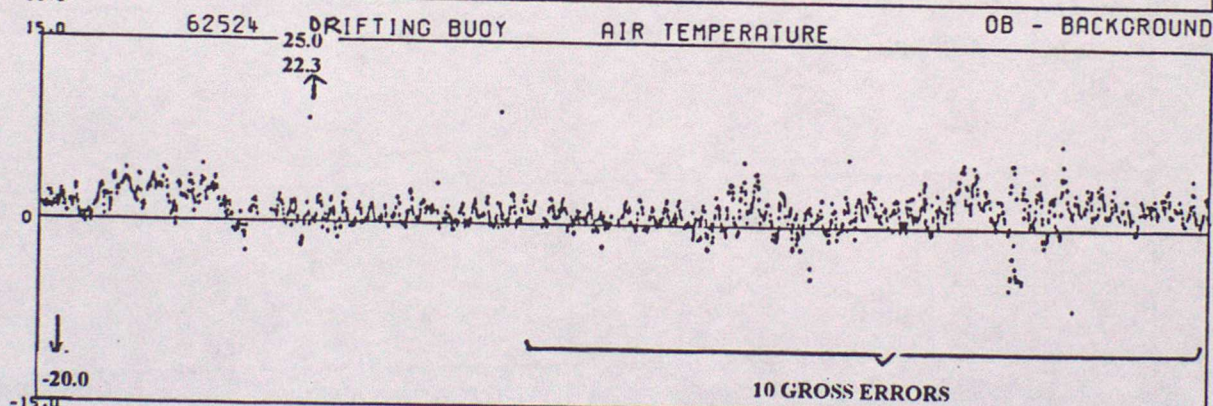
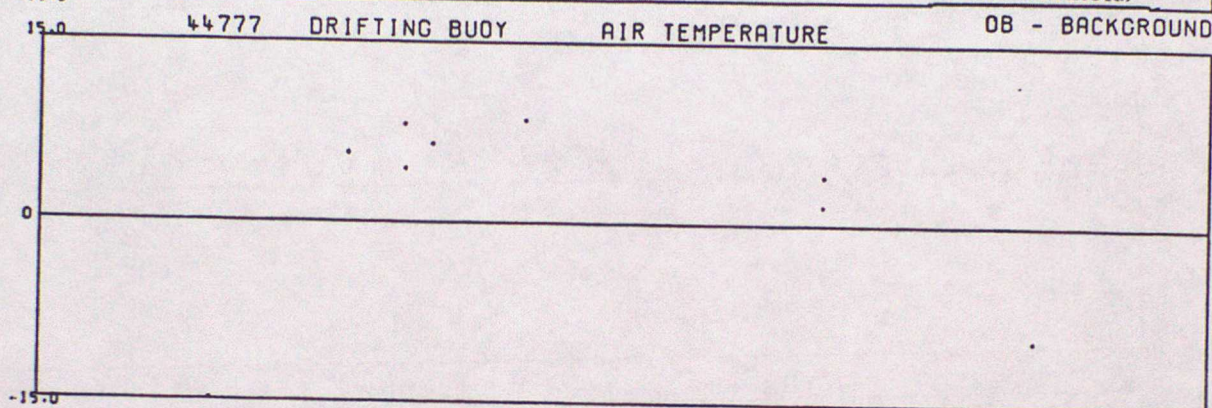
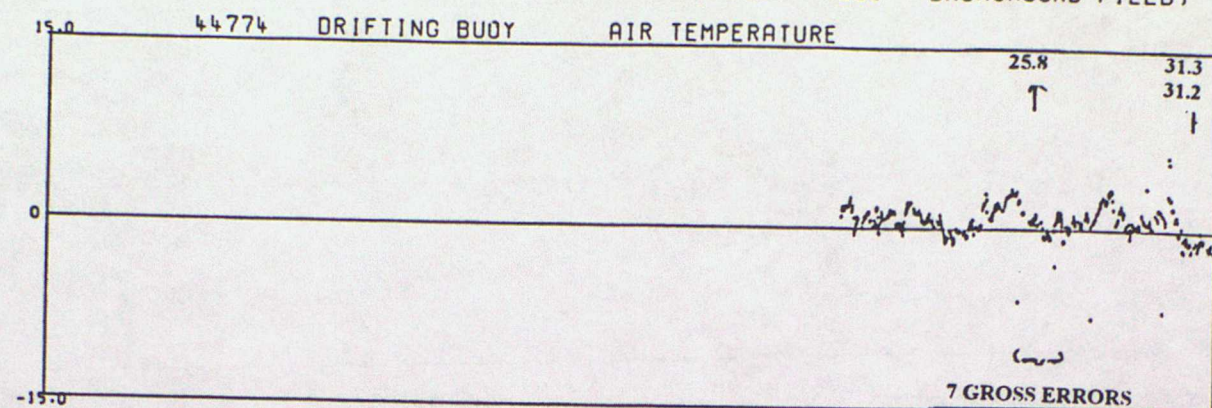
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)



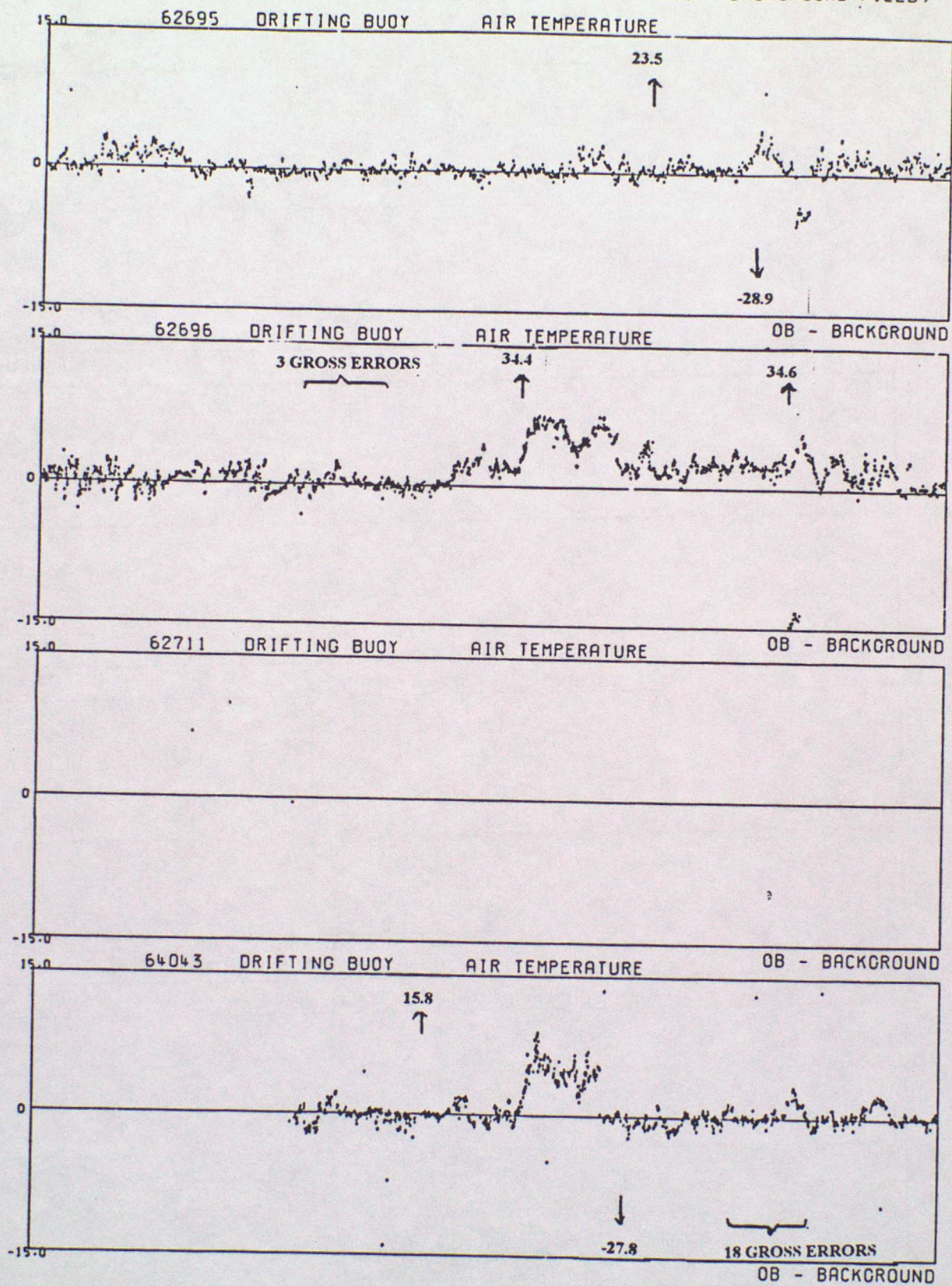
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)

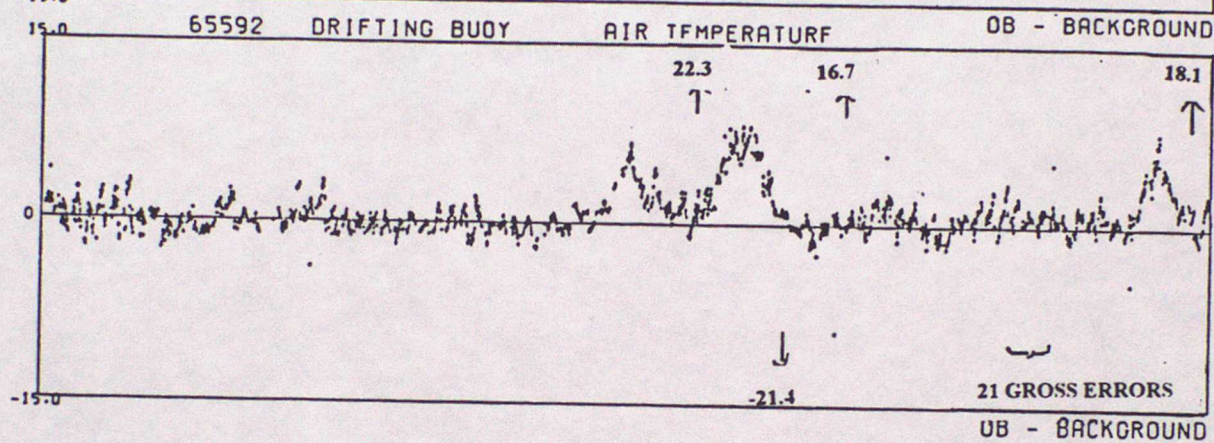
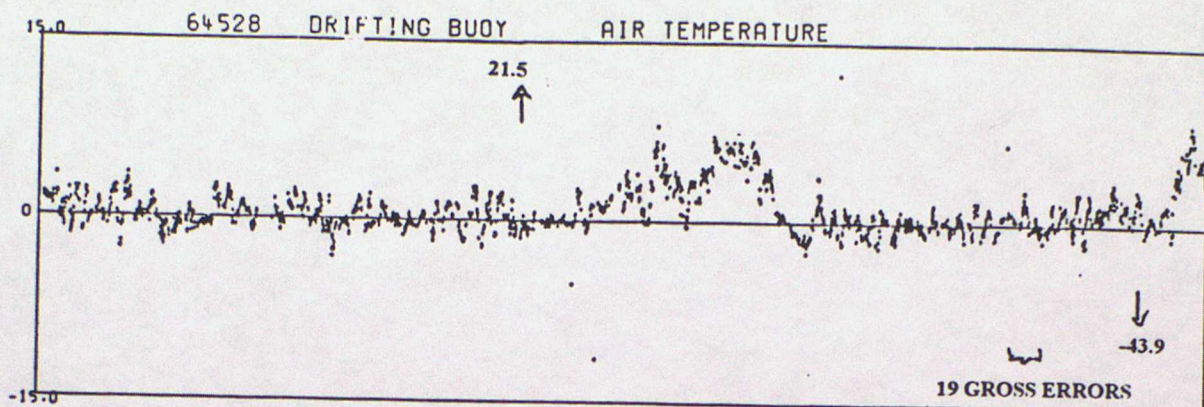


DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)



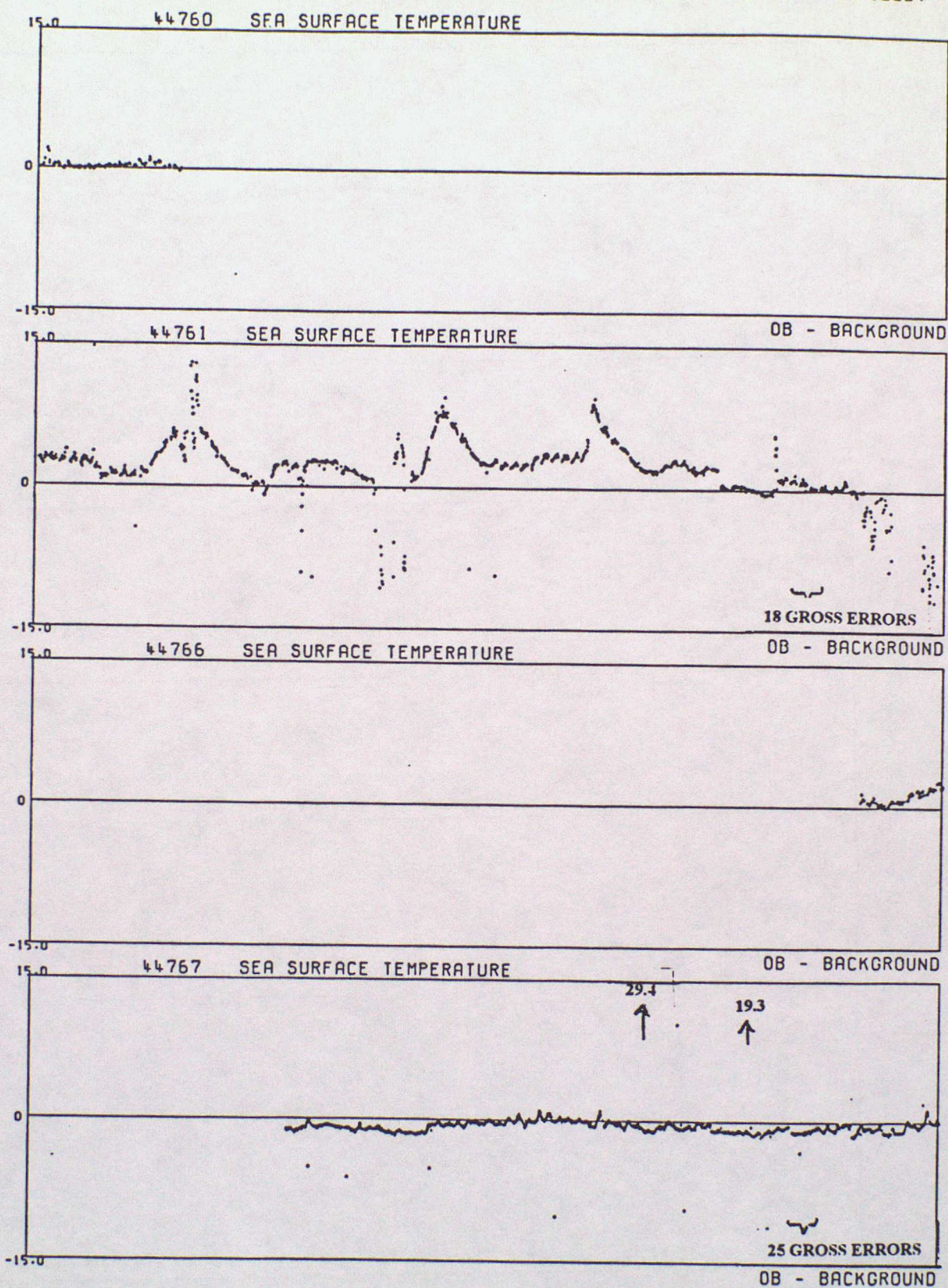
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)



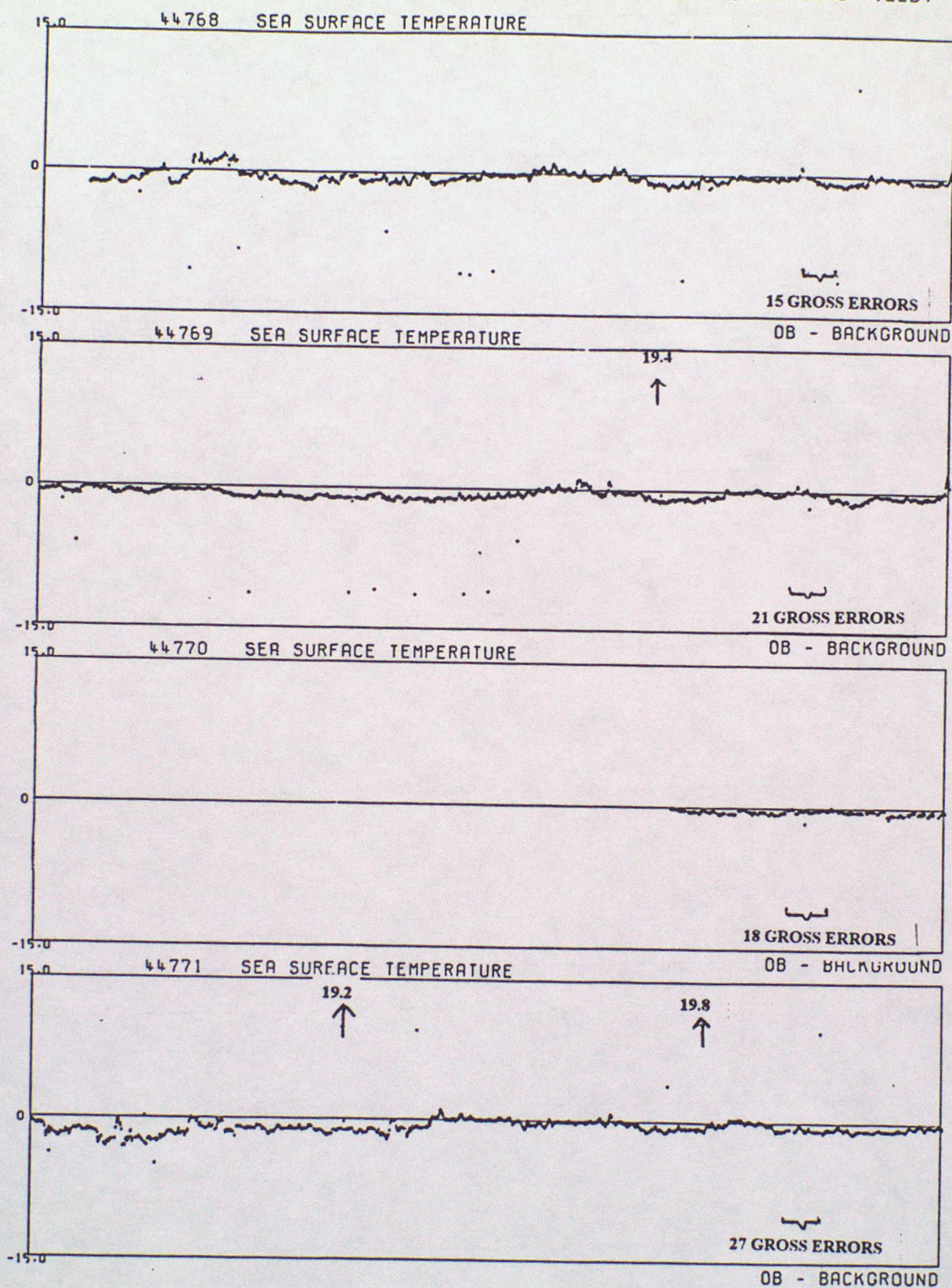


ANNEX D - TIME SERIES PLOTS OF SEA SURFACE TEMPERATURE

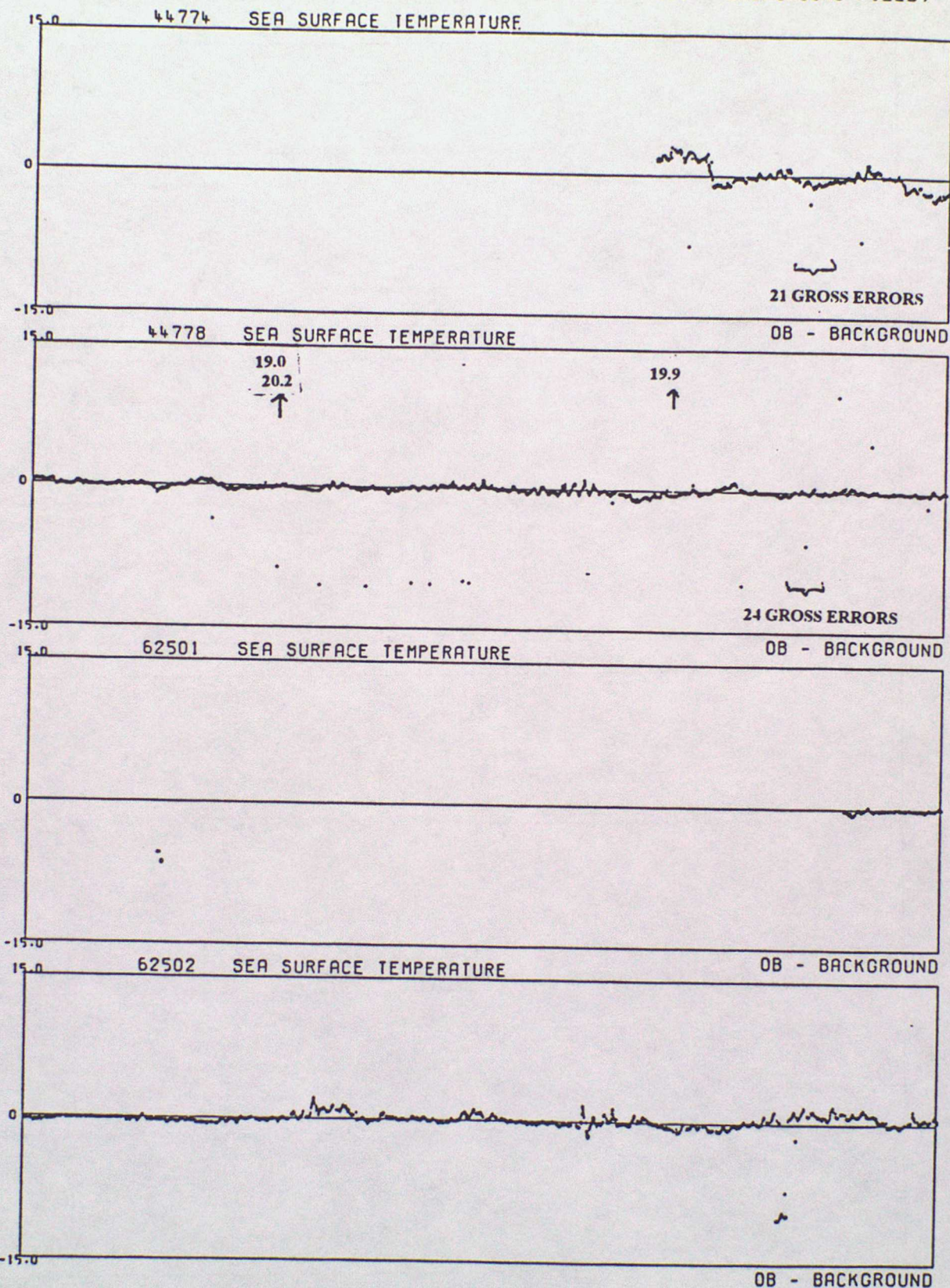
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)



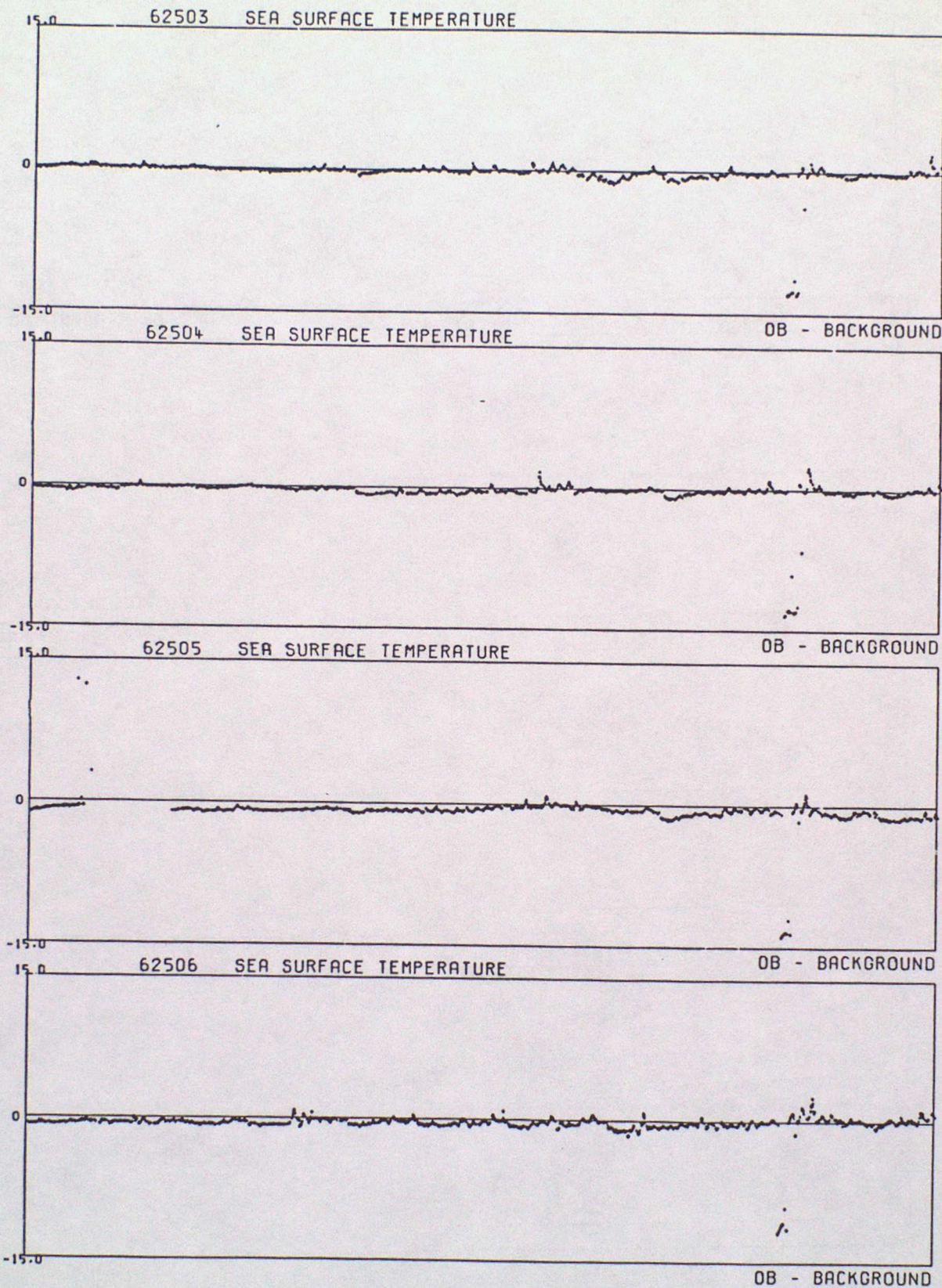
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)



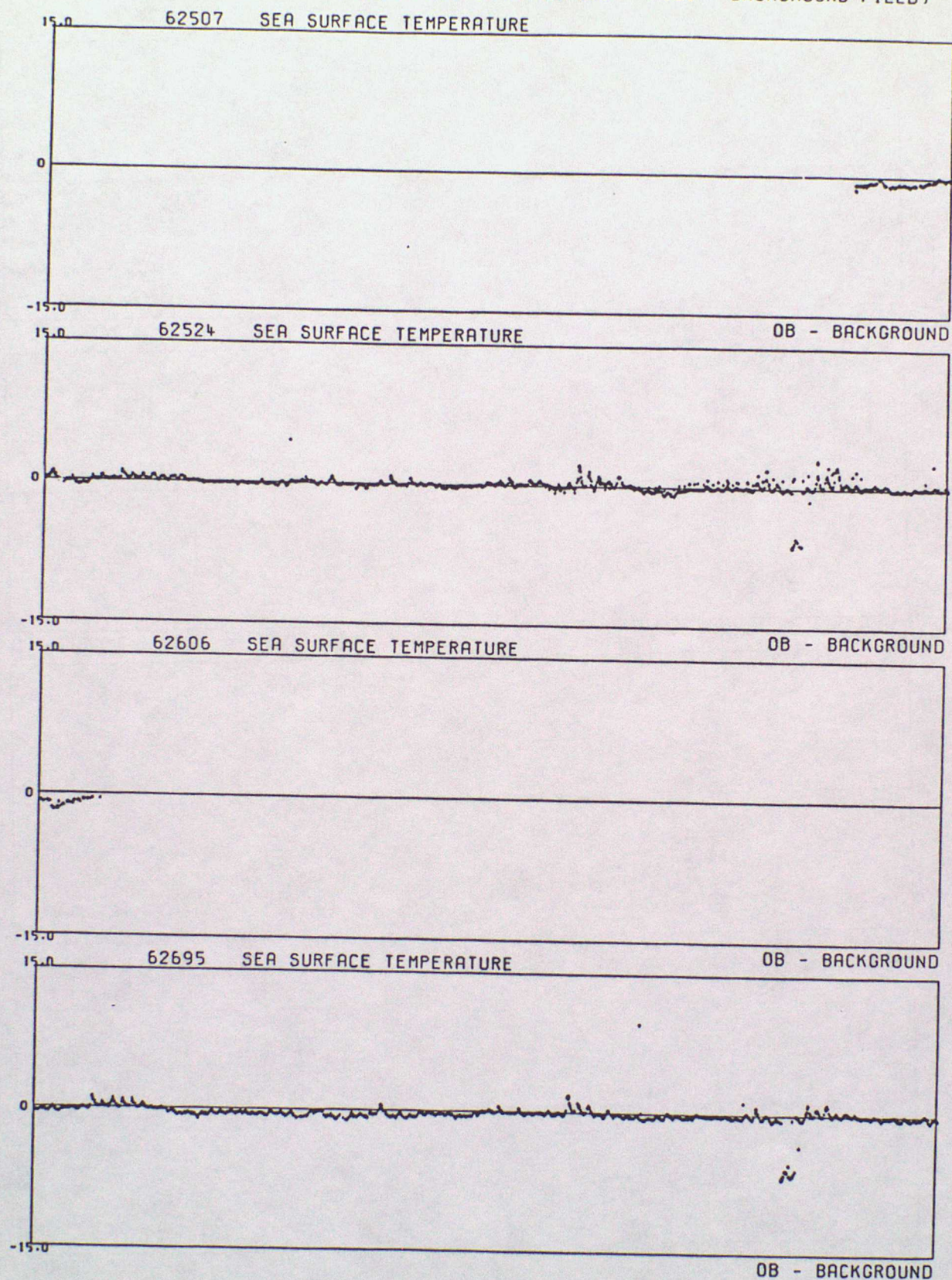
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)



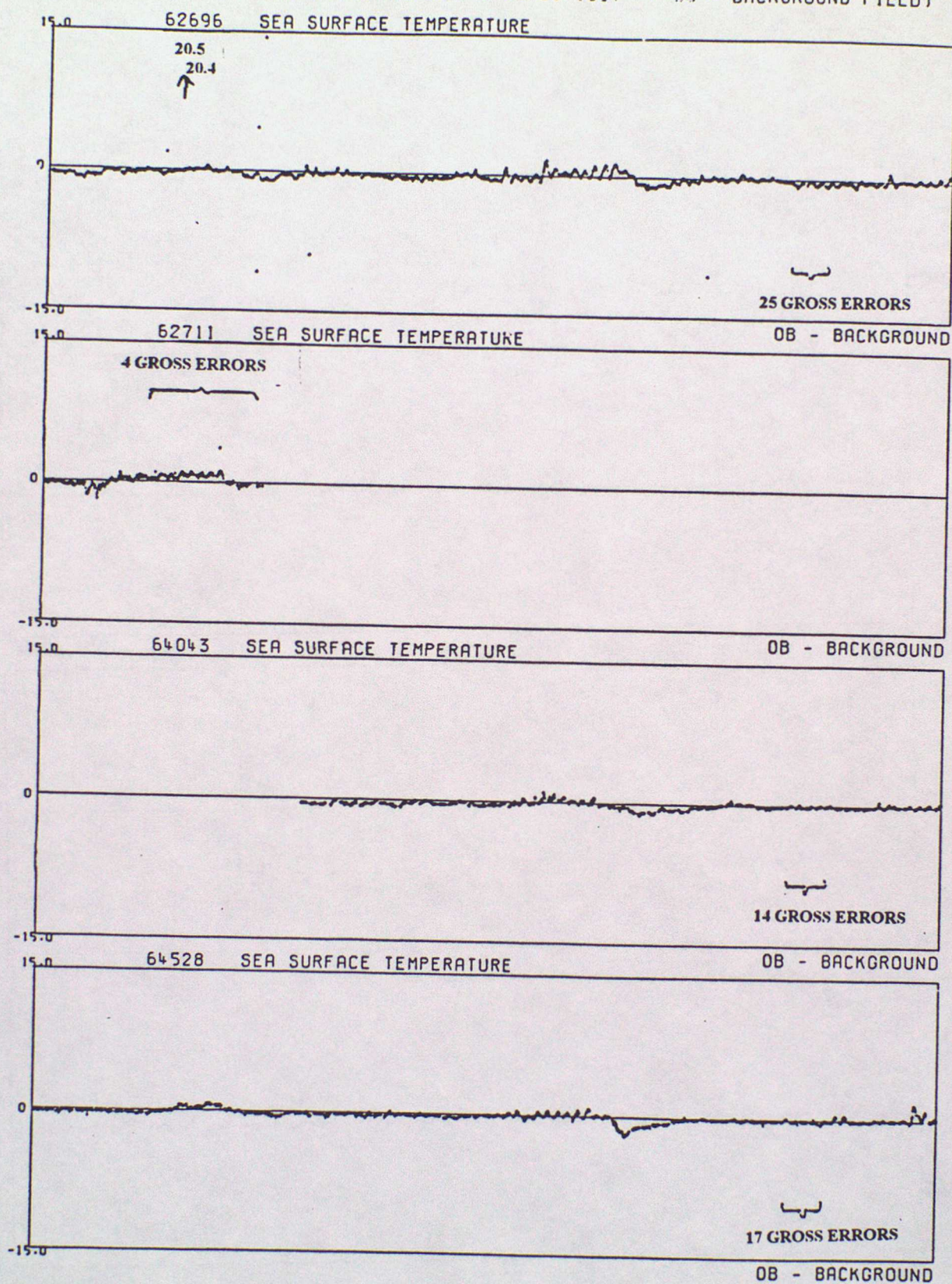
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)

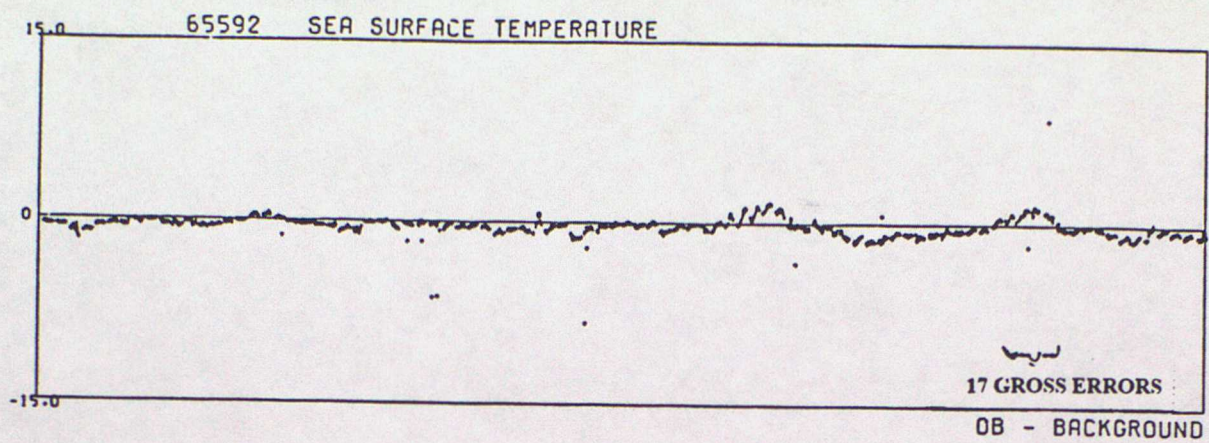


DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)



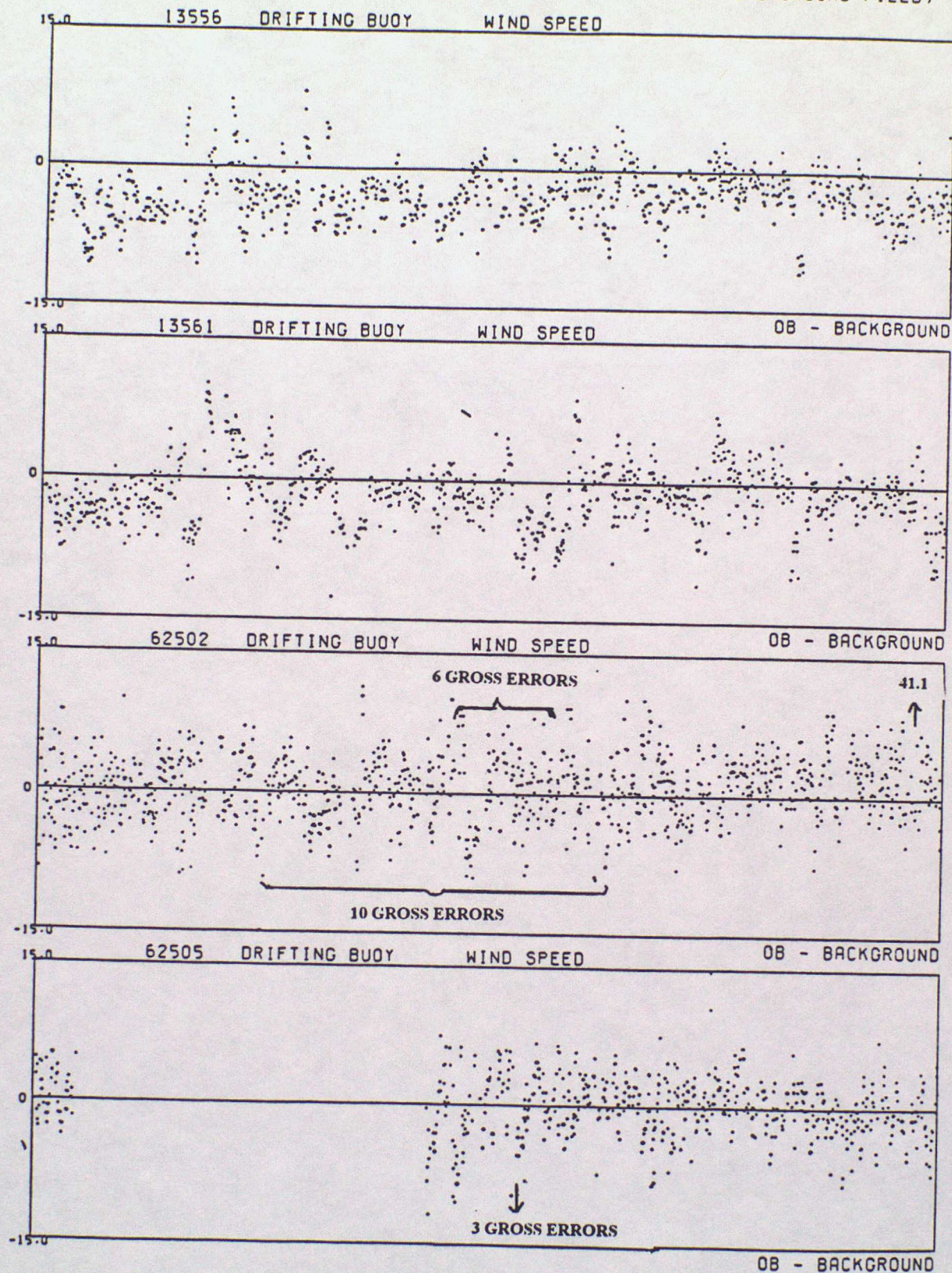
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (1995 - BACKGROUND FIELD)

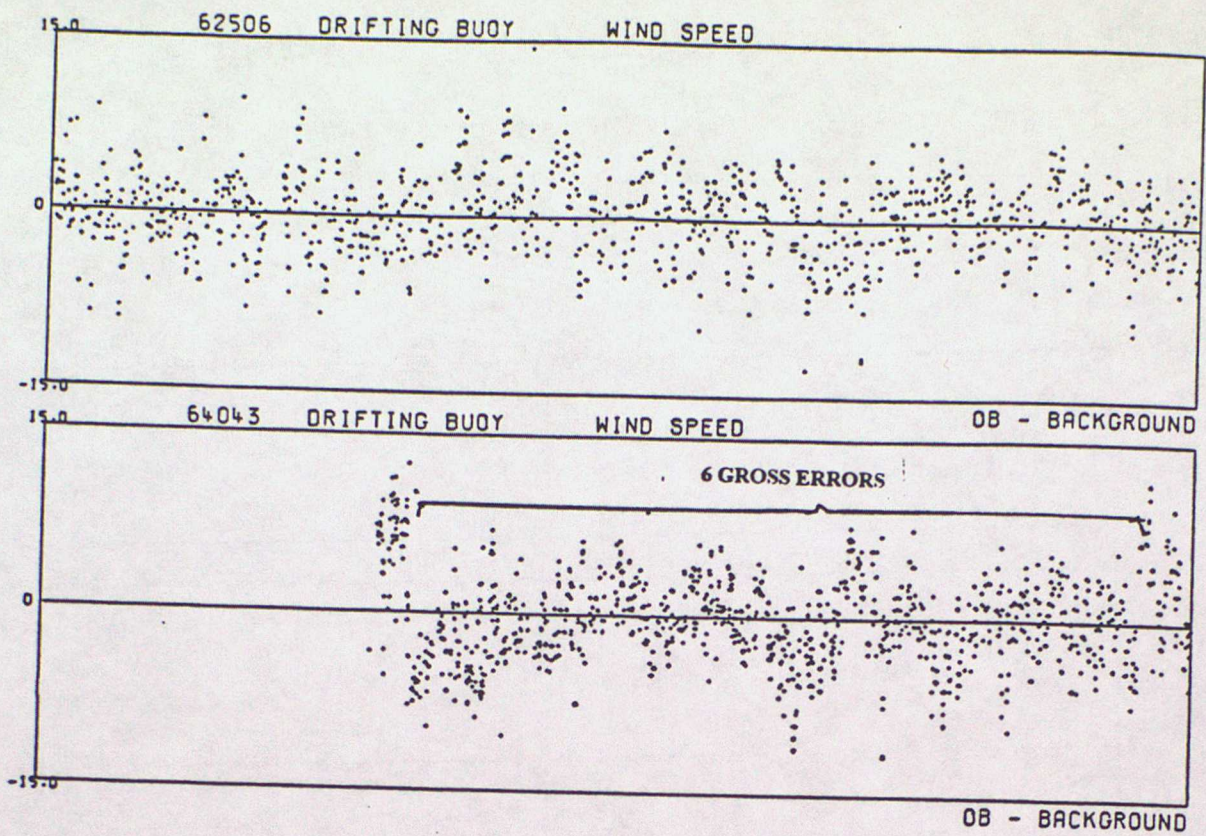




ANNEX E - TIME SERIES PLOTS OF WIND SPEED

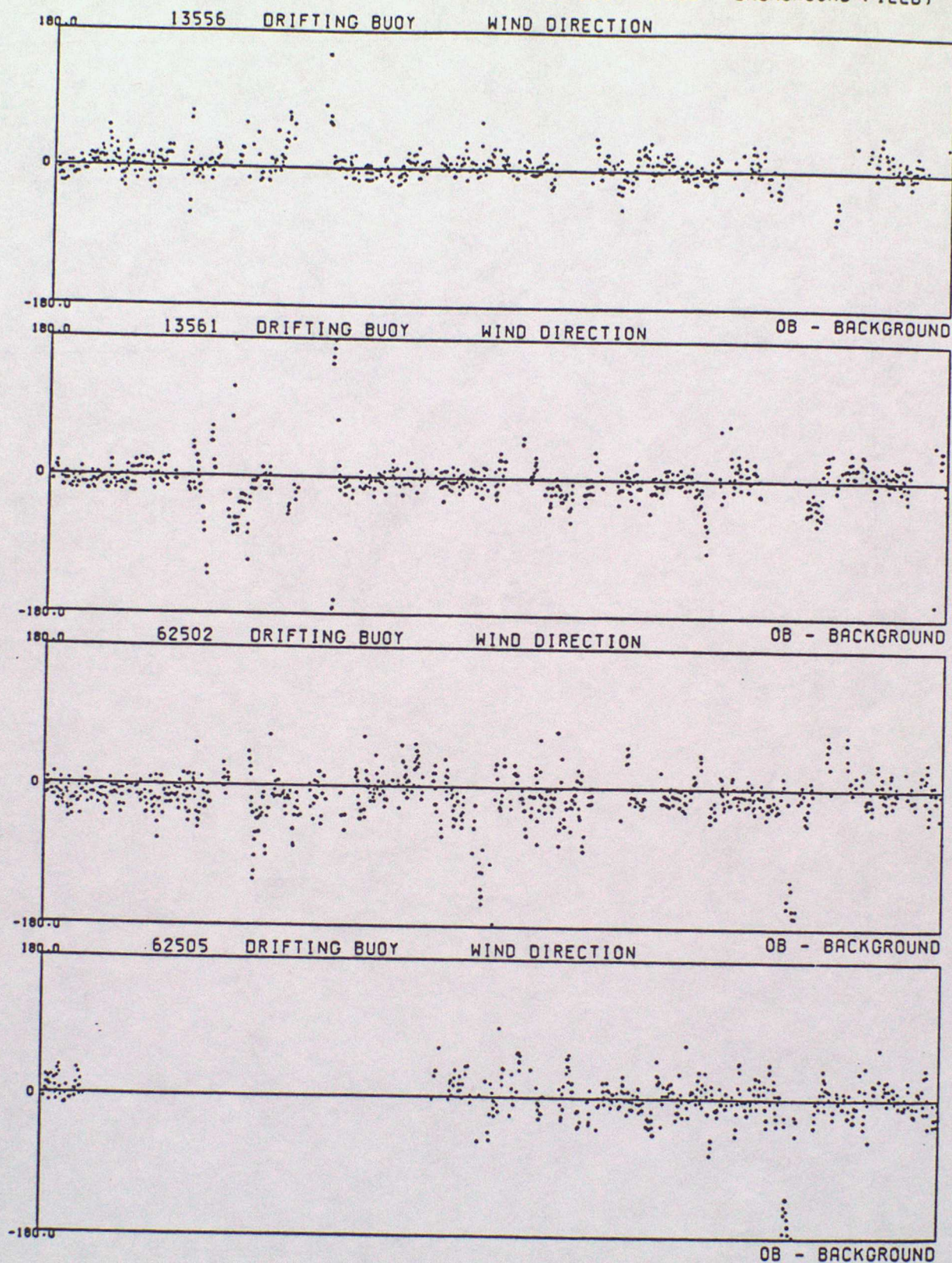
DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (OBS - BACKGROUND FIELD)

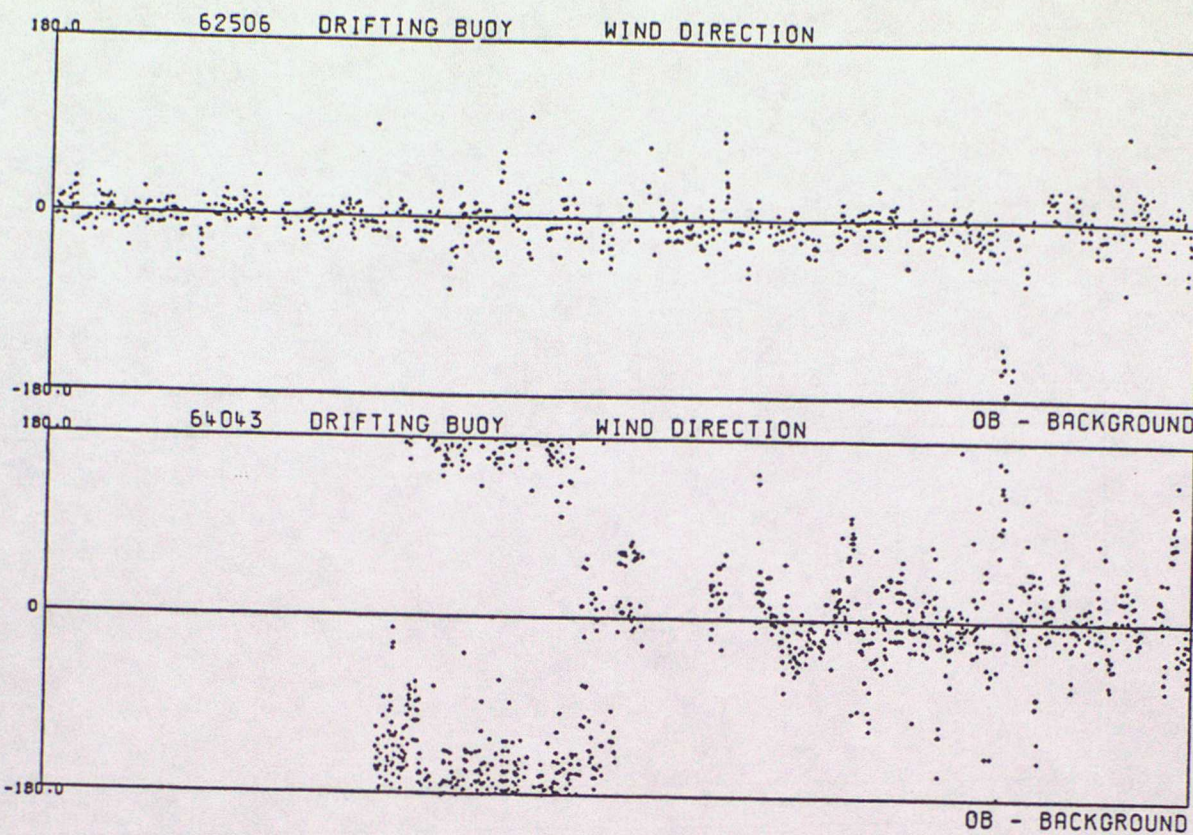




ANNEX F - TIME SERIES PLOTS OF WIND DIRECTION

DATA FROM 00Z ON 01/04/1994 TO 23Z ON 30/06/1994 (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	
13556	15526	F	*			*	*		01/04 - 30/06
13561	15531	F	*			*	*		01/04 - 30/06
25561	1556	N	*	*	*				01/04 - 12/04
44743	1370	UK	*						01/04 - 30/06
44760	1374	UK	*					*	01/04 - 07/05
44761	9308	UK	*	*	*			*	01/04 - 30/06
44766	4274	N	*	*	*			*	22/06 - 30/06
44767	6297	UK	*	*	*			*	26/04 - 30/06
44768	6295	UK	*	*	*	*	*	*	05/04 - 30/06
44769	6291	UK	*	*	*	*	*	*	01/04 - 30/06
44770	3039	N	*	*	*			*	03/06 - 30/06
44771	6290	UK	*	*	*	*	*	*	01/04 - 30/06
44774	6289	UK	*	*	*			*	01/06 - 30/06
44777	1257	UK	*	*	*				23/04 - 17/06
44778	1259	UK	*	*				*	01/04 - 30/06
62501	10116	F	*	*				*	13/04 - 30/06
62502	15503	F	*			*	*	*	01/04 - 30/06
62503	10110	F	*	*				*	01/04 - 30/06
62504	10111	F	*	*				*	01/04 - 30/06
62505	10117	F	*	*		*	*	*	01/04 - 30/06
62506	10118	F	*	*		*	*	*	01/04 - 30/06
62507	14420	F	*	*				*	21/06 - 30/06
62514	1356	F	*						01/04 - 30/06
62524	4625	UK	*	*	*			*	01/04 - 30/06
62606	3916	UK	*		*			*	01/04 - 06/04
62695	2956	UK	*	*	*		*	*	01/04 - 30/06
62696	6288	UK	*	*	*	*	*	*	01/04 - 30/06
62711	1258	UK	*	*	*			*	01/04 - 25/04
64043	6271	UK	*	*	*	*	*	*	26/04 - 30/06
64528	9306	NL	*	*	*			*	01/04 - 30/06
65592	9309	NL	*	*	*			*	01/04 - 30/06

KEY

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

TT - Air temperature
SST - Sea surface temperature

