

DUPLICATE ALSO



*FIFTH?*  
THIRTY ~~FOURTH~~ QUARTERLY REPORT

ON DRIFTING BUOYS

IN THE NORTH ATLANTIC

25-60 deg N, 60 deg W to 10 deg E

JULY TO SEPTEMBER 1995

Headquarters, Bracknell

ORGS UKMO Q

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## 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

### NOTE

Although buoys 44742, 44764 and 65562 were reporting at the beginning of the period, pressure data failed to reach the Observation Processing Databanks (OPD) until 13/7, 8/7 and 12/7 respectively.

### (a) Buoy deployments, etc.

#### North of 50deg N

There were 17 buoys reporting pressure at the beginning of the period and 11 at the end. (NB. This 17 at the beginning includes buoy 44762 which, although not included in the last report was reporting on the first day of this report period). 5 new buoys were deployed during the period (44763, 44765, 44769, 44773 and 65594). 11 buoys ceased reporting (44726, 44762, 44780, 62673, 63675, 64544, 64575, 64576, 64577, 65562 and 65571).

#### South of 50deg N

There were 8 buoys reporting pressure at the beginning of the period and 12 at the end. 5 new buoys were deployed (44546, 44547, 44548, 44760 and 44770). 1 buoy, 44624 ceased reporting during the period.



(b) Location Accuracy

The location accuracy was worse than last quarter with 27 out of 35 of the buoys reporting having a '% of observations with acceptable positions' greater than 95% (compared to 35 out of 39 last quarter). There were 21 gross errors in location during the quarter, compared with 11 last quarter (see under Data Quality).

(c) Data timeliness

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

Timeliness	Last quarter.	This quarter
Very Good	13	20
Good	7	4
Satisfactory	6	2
Poor	--	2
Very poor	13	7
Total no. of buoys	39	35

(d) 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	1	1	16	15
Good	--	--	4	3
Satisfactory	7	9	3	2
Poor	4	3	3	1
Very Poor	--	--	1	1

The total number of buoy days in the quarter was 2,496 [obtained by summing the number of reporting days for each buoy] (last quarter the total was 2,563) and the number of 'buoy hours' with at least one observation was 41,710 (compared with 41,100 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 16.71 (last quarter the figure was 16.04).



(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:-

- 44546 - This buoy showed a bias of +1.9 hPa throughout the period when compared to the background field.
- 44762 - The limited data from this buoy (only 7 observations) were totally erratic from the start of the period until it ceased reporting on 10/8.
- 62511 - This buoy showed a slight bias of +0.7 hPa throughout the period and produced some slightly erratic data during the early part of September.

Biases

3 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
44547	W of SCOS	-0.9	-0.4	02/08 - 30/09
44548	W of SCOS	-1.2	-0.1	02/08 - 30/09
44616	SOBA	+0.6	-0.2	01/07 - 30/09

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 observations have been individually examined to see whether the errors lie with the pressure, location or the background field. Out of 187 occasions the results are as follows -

ERROR	NUMBER LAST QUARTER	NUMBER THIS QUARTER	COLLECTING CENTRE
bg field	0	0	-----
location	4	0	Oslo
location	2	3	Sondre Stromfjord
location	5	14	Paris
location	0	0	Unknown
location	--	4	US Air Force
pressure	149	49	Oslo
pressure	3	55	Sondre Stromfjord
pressure	38	42	Paris
pressure	0	20	US Air Force
pressure	0	0	Unknown
<b>Total no. of buoy hours</b>	41,100	41,710	

During the quarter 166 gross pressure errors were transmitted as compared to 190 last quarter. The number of gross location errors from the Local User Terminals was greater than last quarter (21 compared to 11 last quarter).

### (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	1.6(1.8)	1.5(3.0)	1984 (199)	---	---	---
44546	-1.1(0.5)	9.7(1.8)	347 (705)	0.3(0.1)	1.5(2.0)	390 (542)
44547	0.0(0.3)	1.5(1.9)	626 (770)	0.9(0.2)	1.2(2.3)	433 (578)
44548	0.7(0.4)	1.6(1.8)	577 (700)	0.0(0.0)	0.3(2.2)	393 (563)
44613	0.9(0.3)	1.8(1.3)	2814 (314)	0.3(0.5)	1.4(2.9)	2073 (312)
44616	0.5(0.4)	1.4(1.4)	4952 (176)	-0.1(0.3)	0.7(1.2)	3765 (124)
44624	1.2(1.0)	1.7(2.2)	2508 (1602)	0.2(0.0)	1.2(3.2)	2084 (1264)
44726	0.8(0.9)	1.4(1.7)	3208 (997)	0.3(0.0)	1.0(3.8)	2659 (796)
44728	0.1(0.6)	1.7(1.4)	4675 (135)	0.0(0.3)	0.9(1.4)	3479 (83)
44742	4.2(0.9)	4.5(1.4)	1970 (55)	0.0(-0.1)	0.6(1.6)	4357 (27)
44760	0.2(0.3)	1.5(1.2)	1468 (628)	-0.8(0.0)	1.3(2.1)	1407 (457)
44762	-2.8(1.0)	3.3(1.7)	6 (1273)	-3.1(0.0)	0.2(3.5)	9 (999)
44763	-0.1(1.1)	1.0(1.9)	1416 (325)	-0.8(-0.7)	0.4(4.9)	855 (207)
44764	0.7(0.7)	1.7(1.6)	4977 (671)	-0.1(-0.2)	0.9(1.6)	4499 (518)
44765	0.0(0.3)	1.0(1.2)	246 (124)	0.3(0.3)	1.3(0.9)	102 (82)
44769	---	---	---	0.1(0.2)	1.0(1.9)	2501 (159)
44770	0.2(0.3)	1.6(1.3)	2014 (699)	-0.4(0.1)	0.9(2.2)	1534 (521)
44773	-0.4(0.3)	0.9(1.5)	966 (258)	-0.5(0.1)	1.5(1.9)	668 (184)
44777	---	---	---	-0.5(0.1)	0.9(2.2)	627 (510)

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
44777	---	---	---	-0.5(0.1)	0.9(2.2)	627 (510)
44779	---	---	---	-0.1(0.1)	1.2(2.1)	711 (513)
44780	---	---	---	-0.2(0.0)	0.6(3.9)	3985 (767)
62511	---	---	---	0.1(0.0)	0.8(3.3)	801 (1211)
62517	---	---	---	0.0(0.3)	0.4(3.2)	1457 (560)
62518	---	---	---	-0.5(0.1)	0.5(3.2)	1410 (1299)
62519	---	---	---	-0.6(0.1)	0.3(4.0)	1104 (744)
62524	---	---	---	0.2(0.2)	0.5(1.3)	1328 (385)
62673	0.0(0.5)	1.5(1.3)	1752 (193)	0.1(0.5)	1.3(0.9)	1573 (125)
62675	0.1(0.5)	1.8(1.2)	176 (238)	-0.2(0.6)	0.9(0.9)	189 (169)
64544	0.7(0.7)	1.3(1.4)	63 (110)	0.0(0.4)	0.3(1.6)	69 (63)
64575	0.7(0.7)	2.3(1.6)	2366 (39)	0.2(-0.1)	1.1(1.3)	2048 (22)
64576	0.3(0.5)	1.2(1.7)	1223 (153)	0.1(0.0)	0.5(1.5)	1126 (108)
64577	-0.1(0.8)	1.2(1.5)	2150 (231)	-0.3(0.2)	0.8(1.4)	1988 (150)
65562	-0.3(0.6)	2.7(1.5)	4948 (34)	-0.3(0.1)	1.8(1.4)	2589 (34)
65581	0.3(0.9)	1.7(1.4)	4581 (87)	0.3(0.3)	0.8(1.7)	2019 (53)
65594	0.4(0.8)	1.3(1.6)	4515 (45)	0.0(0.0)	0.8(1.3)	3348 (24)

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

Buoys 25565 (1.6), 44546 (-1.1), 44624 (1.2), 44742 (4.2) and 44762 (-2.8) all showed significant air temperature biases. However, the figure for buoy 44546 (-1.1) includes a large number of gross errors and the figure for buoy 44762 (-2.8) was based on only a limited number of observations (6).



Buoy 44762 (-3.1) showed a significant sea surface temperature bias but only 9 SST observations were received from this buoy.

#### (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.

WMO No	Period	Wind Speed (kn)		Wind Direction (deg)		No. of Obs
		Mean	St. Dev.	Mean	St. Dev.	
44613	01/07-30/09	-0.1(1.3)	4.6(6.4)	19.9(-0.9)	37.6(26.1)	1789 (278)
44616	01/07-30/09	-20.5(1.0)	10.7(6.0)	18.3(-0.9)	36.4(19.1)	274 (428)
44742	01/07-18/09	-5.3(-0.2)	6.4(5.9)	24.9(9.7)	20.7(23.8)	2902 (46)
44762	01/07-10/08	13.2(-1.4)	24.5(6.7)	27.0(-3.0)	64.5(28.2)	4 (1086)
44764	01/07-30/09	-4.8(2.5)	4.8(5.7)	-10.8(-3.7)	23.9(30.8)	2756 593
62518	01/07-30/09	0.7(1.5)	2.9(6.5)	0.9(-1.5)	17.7(27.5)	1573 (1426)

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

Buoys 44616 (-20.5), 44742 (-5.3), 44762 (13.2) and 44764 (-4.8) all showed significant wind speed biases. However, only 4 observations were received from buoy 44762.

Buoys 44613 (19.9) and 44742 (24.9) showed a significant wind direction bias. Buoy 44762 also showed a larger than normal standard deviation of wind direction, but this was again only using 4 observations.



## 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

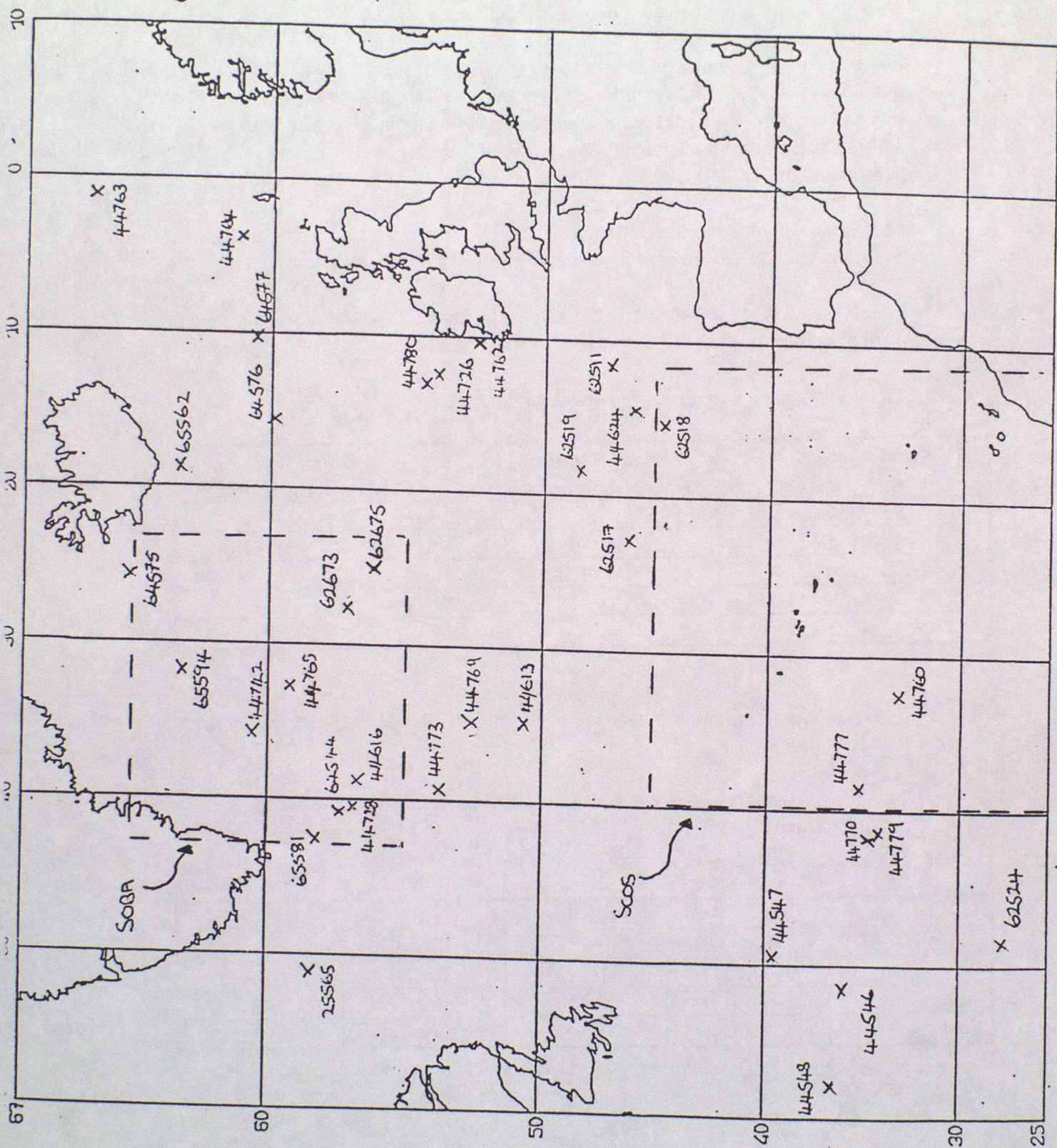
(N.B. WMO requirements state the need for only 4 observations per day from marine stations.)

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



6. MEAN POSITION  
OF BUOYS DURING  
PERIOD JULY TO  
SEPTEMBER 1995





# ANNEX A - TABLE OF STATISTICS

Wmo No./ Country <sup>1</sup>	25565/UK	44546/US	44547/US
Argos Id No.	1639	8706	8707
Period within area	01/07-30/09	02/08-30/09	02/08-30/09
Area	W of SOBA	W of SCOS	W of SCOS
Mean Latitude	58.3	36.1	39.9
Mean Longitude	-51.1	-51.6	-49.4
No. of obs received <sup>2</sup>	2187	612	646
% of obs with valid Time and Dates <sup>3</sup>	100.0	100.0	100.0
% of obs with acceptable Positions <sup>4</sup>	100.0	99.2	99.5
% of Presents			
Pressure	92.5	94.9	98.0
P. Tendency	89.0	0.0	0.0
Air Temperature	92.2	58.2	97.1
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface temp.	0.0	95.6	97.8
Median delay (min) <sup>5</sup>	12.0	45.0	26.0
Number of days	92.0	60.0	60.0
Mean no. of obs/day	23.8	10.2	10.8
No. of hours with obs	1562.0	595.0	637.0
Mean no. of hours/day with obs	17.0	9.9	10.6
% of hour periods without an ob <sup>7</sup>	29.2	58.8	55.8
Mean (Ob-Bg)	-0.2	1.9	-0.9
RMS (Ob-Bg)	1.6	2.1	1.7
<b>unflagged data</b>			
Mean (Ob-Bg)	-0.2	2.0	-0.9
RMS (Ob-Bg)	1.6	2.3	1.8
<b>all data</b>			
Revised RMS (Ob-Bg) <sup>8</sup>	1.6	2.2	1.7
% of data flagged <sup>8</sup>	38.0	5.0	2.0
Operating at end of period	YES	YES	YES
Performances <sup>9</sup>			
Availability	Satisfactory	Poor	Poor
Pressure Quality	Acceptable	Suspect	Suspect
Timeliness	Very Good	Very Good	Very Good
Comments			



Wmo No. / Country <sup>1</sup>	44548/US	44613/UK	44616/UK
Argos Id No.	10357	3324	3318
Period within area	02/08-30/09	01/07-30/09	01/07-30/09
Area	W of SCOS	S of SOBA	SOBA
Mean Latitude	36.7	50.8	56.9
Mean Longitude	-57.6	-34.9	-38.9
No. of obs received <sup>2</sup>	613	2808	5165
% of obs with valid Time and Dates	100.0	100.0	100.0
% of obs with acceptable Positions <sup>4</sup>	99.5	78.5	97.9
% of Presents			
Pressure	94.1	98.0	98.9
P. Tendency	0.0	95.1	95.3
Air Temperature	94.6	99.6	99.0
Wind Speed/Dir.	0.0/0.0	85.2/68.0	10.4/12.6
Sea-surface temp.	95.6	99.6	99.1
Median delay (min) <sup>6</sup>	171.0	21.0	73.0
Number of days	60.0	92.0	92.0
Mean no. of obs/day	10.2	30.5	56.1
No. of hours with obs	595.0	1379.0	1840.0
Mean no. of hours/day with obs	9.9	15.0	20.0
% of hour periods without an ob <sup>7</sup>	58.8	37.5	16.7
Mean (Ob-Bg)	-1.2	-0.1	0.6
RMS (Ob-Bg)	1.7	1.4	1.4
<b>unflagged data<sup>8</sup></b>			
Mean (Ob-bg)	-1.2	-0.2	0.7
RMS (Ob-Bg)	1.7	2.3	1.9
<b>all data<sup>8</sup></b>			
Revised RMS (Ob-Bg) <sup>8</sup>	1.7	1.9	1.4
% of data flagged <sup>8</sup>	1.0	60.0	71.0
Operating at end of period	YES	YES	YES
Performances			
Availability	Poor	Good	Very Good
Pressure Quality	Suspect	Acceptable	Suspect
Timeliness	Satisfactory	Very Good	Good
Comments			



Wmo No./ Country <sup>1</sup>	44624/UK	44726/UK	44728/UK
Argos Id No.	6292	6296	3024
Period within area	01/07-06/09	01/07-13/09	01/07-30/09
Area	N of SCOS	W of Ireland	SOBA
Mean Latitude	46.0	54.0	56.9
Mean Longitude	-14.5	-12.3	-40.4
No. of obs received <sup>2</sup>	2589	3309	4789
% of obs with valid Time and Dates <sup>3</sup>	100.0	100.0	100.0
% of obs with acceptable Positions <sup>4</sup>	98.9	99.6	97.8
% of Presents			
Pressure	99.2	99.0	98.5
P. Tendency	96.4	95.8	95.0
Air Temperature	99.1	99.0	98.8
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface temp.	99.4	99.2	99.0
Median delay (min) <sup>6</sup>	25.0	325.0	33.0
Number of days	68.0	75.0	92.0
Mean no. of obs/day	38.1	44.1	52.1
No. of hours with obs	1091.0	1212.0	1795.0
Mean no. of hours/day with obs	16.0	16.2	19.5
% of hour periods without an ob <sup>7</sup>	33.3	32.5	18.8
Mean (Ob-Bg)	-0.2	0.5	-0.2
RMS (Ob-Bg)	3.5	1.0	1.5
<b>unflagged data<sup>8</sup></b>			
Mean (Ob-bg)	-0.4	0.3	-0.2
RMS (Ob-Bg)	6.0	3.4	3.8
<b>all data<sup>9</sup></b>			
Revised RMS (Ob-Bg) <sup>8</sup>	0.9	1.0	1.4
% of data flagged <sup>8</sup>	62.0	68.0	69.0
Operating at end of period	NO	NO	YES
Performances			
Availability	Very Good	Very Good	Very Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Very Good	Very Poor	Very Good
Comments			



Wmo No./ Country <sup>1</sup>	44742/UK	44760/UK	44762/UK
Argos Id.No.	2953	2947	6307
Period within area	01/07-30/09	12/07-30/09	01/07-10/08
Area	SOBA	SCOS	W of Ireland
Mean Latitude	60.4	33.6	52.2
Mean Longitude	-35.9	-32.4	-10.2
No. of obs received <sup>2</sup>	5864	1765	7
% of obs with valid Time and Dates <sup>3</sup>	100.0	100.0	100.0
% of obs with acceptable Positions <sup>4</sup>	98.2	96.4	0.0
% of Present:			
Pressure	99.2	98.9	100.0
P. Tendency	96.7	96.1	42.9
Air Temperature	41.3	98.4	85.7
Wind Speed/Dir.	89.1/79.5	0.0/0.0	85.7/85.7
Sea-surface temp.	99.3	98.5	100.0
Median delay (min) <sup>6</sup>	84.0	691.0	30.0
Number of days	92.0	81.0	41.0
Mean no. of obs/day	63.7	21.8	0.2
No. of hours with obs	1906.0	1187.0	7.0
Mean no. of hours/day with obs	20.7	14.7	0.2
% of hour periods without an ob <sup>7</sup>	13.8	38.8	99.2
Mean (Ob-Bg)	-0.1	0.0	-0.5
RMS (Ob-Bg)	1.3	0.9	0.5
<b>unflagged data</b>			
Mean (Ob-bg)	-0.2	-0.1	-2.8
RMS (Ob-Bg)	2.2	2.9	16.9
<b>all data</b>			
Revised RMS (Ob-Bg) <sup>8</sup>	1.3	1.0	7.1
% of data flagged <sup>8</sup>	74.0	39.0	86.0
Operating at end of period	YES	YES	NO
Performance <sup>9</sup>			
Availability	Very Good	Satisfactory	Very Poor
Pressure Quality	Acceptable	Acceptable	Suspect
Timeliness	Good	Very Poor	Very Good
Comments			



Wmo No./ Country <sup>1</sup>	44763/UK	44764/UK	44765/UK
Argos Id.No.	3098	6306	???
Period within area	04/09-30/09	01/07-30/09	25/09-30/09
Area	E of Iceland	N of Scotland	SOBA
Mean Latitude	65.1	60.8	59.3
Mean Longitude	-1.0	-3.7	-32.5
No. of obs received <sup>2</sup>	1385	5562	260
% of obs with valid Time and Date <sup>3</sup>	100.0	100.0	100.0
% of obs with acceptable Positions <sup>4</sup>	0.4	87.1	99.2
% of Presents			
Pressure	99.1	99.6	98.1
P. Tendency	97.2	96.5	97.7
Air Temperature	99.2	99.5	99.2
Wind Speed/Dir.	0.0/0.0	75.2/74.3	0.0/0.0
Sea-surface temp.	91.0	99.7	60.0
Median delay (min) <sup>6</sup>	14.0	60.0	19.0
Number of days	27.0	92.0	6.0
Mean no. of obs/day	51.3	60.5	43.3
No. of hours with obs	495.0	1878.0	98.0
Mean no. of hours/day with obs	18.3	20.4	16.3
% of hour periods without an ob <sup>7</sup>	23.8	15.0	32.1
Mean (Ob-Bg)	0.0	0.1	-0.3
RMS (Ob-Bg)	1.9	1.0	2.2
<b>unflagged datas</b>			
Mean (Ob-bg)	-0.1	-0.1	-0.5
RMS (Ob-Bg)	2.9	3.2	5.7
<b>all datas</b>			
Revised RMS (Ob-Bg) <sup>8</sup>	2.1	2.1	2.6
% of data flagged <sup>8</sup>	71.0	74.0	68.0
Operating at end of period	YES	YES	YES
Performance <sup>9</sup>			
Availability	Very Good	Very Good	Very Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Very Good	Good	Very Good
Comments			



Wmo No./ Country <sup>1</sup>	44769/UK	44770 UK	44773/UK
Argos Id No.	1253	3035	3132
Period within area	20/07-30/09	03/07-30/09	08/09-30/09
Area	S of SOBA	W of SCOS	S of SOBA
Mean Latitude	52.9	34.6	53.7
Mean Longitude	-34.8	-41.6	-39.4
No. of obs received <sup>2</sup>	3497	2077	966
% of obs with valid Time and Dates <sup>3</sup>	100.0	100.0	100.0
% of obs with acceptable Positions <sup>4</sup>	98.7	92.6	99.4
% of Presents			
Pressure	99.1	99.3	98.7
P. Tendency	96.7	96.5	95.1
Air Temperature	0.0	98.5	98.0
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface temp.	99.5	98.5	98.8
Median delay (min) <sup>6</sup>	11.0	242.0	49.0
Number of days	73.0	90.0	23.0
Mean no. of obs/day	47.9	23.1	42.0
No. of hours with obs	1383.0	1206.0	411.0
Mean no. of hours/day with obs	18.9	13.4	17.9
% of hour periods without an ob <sup>7</sup>	21.3	44.2	25.4
Mean (Ob-Bg)	0.0	-0.1	0.1
RMS (Ob-Bg) <b>unflagged data</b>	1.3	1.0	1.4
Mean (Ob-bg)	0.0	-0.3	-7.9
RMS (Ob-Bg) <b>all data</b>	2.5	4.4	33.1
Revised RMS (Ob-Bg) <sup>8</sup>	1.3	1.2	1.8
% of data flagged <sup>8</sup>	68.0	50.0	66.0
Operating at end of period	YES	YES	YES
Performance <sup>9</sup>			
Availability	Very Good	Satisfactory	Very Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Very Good	Very Poor	Very Good
Comments			



Wmo No./ Country <sup>1</sup>	44777/UK	44779/UK	44780/UK
Argos Id No.	14733	14737	1250
Period within area	01/07-30/09	01/07-30/09	01/07-28/09
Area	SCOS	W of SCOS	W of Ireland
Mean Latitude	35.5	34.2	54.4
Mean Longitude	-38.5	-41.1	-12.7
No. of obs received <sup>2</sup>	1597	1387	4942
% of obs with valid Time and Dates <sup>3</sup>	100.0	100.0	100.0
% of obs with acceptable Positions <sup>4</sup>	45.8	99.9	99.4
% of Presents			
Pressure	99.9	39.9	99.4
P. Tendency	56.4	22.9	95.3
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.	56.5	71.1	99.5
Median delay (min) <sup>6</sup>	274.0	46.0	224.0
Number of days	92.0	92.0	90.0
Mean no. of obs/day	17.4	15.1	54.9
No. of hours with obs	1267.0	1196.0	1718.0
Mean no. of hours/day with obs	13.8	13.0	19.1
% of hour periods without an ob <sup>7</sup>	42.5	45.8	20.4
Mean (Ob-Bg)	0.1	0.1	0.0
RMS (Ob-Bg) <b>unflagged data</b>	0.9	1.0	0.9
Mean (Ob-bg)	0.2	0.1	-0.1
RMS (Ob-Bg) <b>all data</b>	1.5	1.4	2.2
Revised RMS (Ob-Bg) <sup>8</sup>	1.5	1.4	0.9
% of data flagged <sup>8</sup>	27.0	27.0	70.0
Operating at end of period	YES	YES	NO
Performances <sup>9</sup>			
Availability	Satisfactory	Satisfactory	Very Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Very Poor	Very Good	Poor
Comments			



Wmo No./ Country <sup>1</sup>	62511/F	62517/F	62518/F
Argos Id. No.	14423	10120	14419
Period within area	01/07-30/09	01/07-30/09	01/07-30/09
Area	N of SCOS	N of SCOS	SCOS
Mean Latitude	47.1	46.2	44.9
Mean Longitude	-11.3	-22.6	-15.2
No. of obs received <sup>2</sup>	1865	1988	1905
% of obs with valid Time and Dates <sup>3</sup>	100.0	100.0	100.0
% of obs with acceptable Positions <sup>4</sup>	62.3	100.0	100.0
% of Presents			
Pressure	100.0	95.8	97.1
P. Tendency	60.9	85.9	89.6
Air Temperature	0.0	0.0	0.0
Wind Speed/Dir.	0.0/0.0	0.0/0.0	99.6/95.2
Sea-surface temp.	61.1	95.6	95.3
Median delay (min) <sup>6</sup>	58.0	155.0	22.0
Number of days	92.0	92.0	92.0
Mean no. of obs/day	20.3	21.6	20.7
No. of hours with obs	1547.0	1462.0	1451.0
Mean no. of hours/day with obs	16.8	15.9	15.8
% of hour periods without an ob <sup>7</sup>	30.0	33.8	34.2
Mean (Ob-Bg)	0.7	0.3	0.1
RMS (Ob-Bg)	1.2	1.1	0.9
<b>unflagged datas</b>			
Mean (Ob-bg)	0.6	0.3	0.1
RMS (Ob-Bg)	5.7	1.1	0.9
<b>all datas</b>			
Revised RMS (Ob-Bg) <sup>8</sup>	2.7	1.0	0.9
% of data flagged <sup>8</sup>	33.0	35.0	33.0
Operating at end of period	YES	YES	YES
Performances			
Availability	Satisfactory	Satisfactory	Satisfactory
Pressure Quality	Suspect	Acceptable	Acceptable
Timeliness	Very Good	Satisfactory	Very Good
Comments			



Wmo No./ Country <sup>1</sup>	62519/F	62524/UK	62673/US
Argos Id No	14421	4625	5259
Period within area	01/07-30/09	01/07-30/09	01/07-31/08
Area	N of SCOS	W of SCOS	SOBA
Mean Latitude	48.4	27.6	57.1
Mean Longitude	-18.4	-48.4	-27.8
No. of obs received <sup>2</sup>	1453	2261	2097
% of obs with valid Time and Dates <sup>3</sup>	100.0	100.0	100.0
% of obs with acceptable Positions <sup>4</sup>	100.0	89.4	100.0
% of Presents			
Pressure	96.1	99.6	95.7
P. Tendency	88.5	61.3	0.0
Air Temperature	0.0	0.0	96.4
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface temp.	95.7	80.8	97.9
Median delay (min) <sup>6</sup>	22.0	10.0	251.0
Number of days	92.0	92.0	62.0
Mean no. of obs/day	15.8	24.6	33.8
No. of hours with obs	1253.0	1351.0	1355.0
Mean no. of hours/day with obs	13.6	14.7	21.9
% of hour periods without an ob <sup>7</sup>	43.3	38.8	8.8
Mean (Ob-Bg)	-0.2	0.4	0.4
RMS (Ob-Bg) <b>unflagged data</b>	1.3	1.1	1.5
Mean (Ob-bg)	-0.2	0.4	0.3
RMS (Ob-Bg) <b>all data</b>	1.3	4.4	3.5
Revised RMS (Ob-Bg) <sup>8</sup>	1.3	1.3	1.5
% of data flagged <sup>8</sup>	23.0	56.0	41.0
Operating at end of period	YES	YES	NO
Performances <sup>9</sup>			
Availability	Satisfactory	Satisfactory	Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Very Good	Very Good	Very Poor
Comments			



Wmo No./ Country <sup>1</sup>	62675/US	64544/US	64575/US
Argos Id No.	6120	14631	5399
Period within area	01/07-09/07	01/07-15/07	01/07-15/09
Area	SOBA	SOBA	SOBA
Mean Latitude	56.3	57.3	64.0
Mean Longitude	-25.0	-41.2	-26.0
No. of obs received <sup>2</sup>	220	86	2854
% of obs with valid Time and Dates <sup>3</sup>	100.0	100.0	100.0
% of obs with acceptable Positions <sup>4</sup>	100.0	100.0	100.0
% of Presents			
Pressure	95.9	86.0	96.8
P. Tendency	0.0	0.0	0.0
Air Temperature	93.2	81.4	96.4
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface temp.	96.8	84.9	98.5
Median delay (min) <sup>6</sup>	384.0	34.0	198.0
Number of days	9.0	15.0	77.0
Mean no. of obs/day	24.4	5.7	37.1
No. of hours with obs	142.0	77.0	1796.0
Mean no. of hours/day with obs	15.8	5.1	23.3
% of hour periods without an ob <sup>7</sup>	34.2	78.8	2.9
Mean (Ob-Bg)	0.2	-0.2	0.3
RMS (Ob-Bg)	1.1	0.9	1.2
<b>unflagged data</b>			
Mean (Ob-bg)	0.2	-0.1	0.0
RMS (Ob-Bg)	1.1	0.9	4.9
<b>all data</b>			
Revised RMS (Ob-Bg) <sup>8</sup>	1.1	0.9	1.7
% of data flagged <sup>8</sup>	38.0	7.0	44.0
Operating at end of period	NO	NO	NO
Performances <sup>9</sup>			
Availability	Satisfactory	Poor	Very Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Very Poor	Very Good	Poor
Comments			



Wmo No./ Country <sup>1</sup>	64576/US	64577/US	65562/N
Argos Id.No.	5522	5523	1298
Period within area	01/07-10/08	01/07-18/09	01/07-28/09
Area	E of SOBA	E of SOBA	E of SOBA
Mean Latitude	59.9	60.6	62.5
Mean Longitude	-15.5	-10.2	-18.8
No. of obs received <sup>2</sup>	1456	2626	5428
% of obs with valid Time and Date <sup>3</sup>	100.0	100.0	100.0
% of obs with acceptable Positions <sup>4</sup>	100.0	100.0	95.2
% of Presents			
Pressure	97.6	94.6	98.8
P. Tendency	0.0	0.0	96.5
Air Temperature	97.6	95.3	98.9
Wind Speed/Dir.	0.0/0.0	0.0/0.0	0.0/0.0
Sea-surface temp.	99.2	97.0	62.0
Median delay (min) <sup>6</sup>	38.0	251.0	12.0
Number of days	41.0	80.0	90.0
Mean no. of obs/day	35.5	32.8	60.3
No. of hours with obs	917.0	1693.0	1859.0
Mean no. of hours/day with obs	22.4	21.2	20.7
% of hour periods without an ob <sup>7</sup>	6.7	11.7	13.8
Mean (Ob-Bg)	0.2	-0.1	-0.2
RMS (Ob-Bg)	0.9	0.9	1.1
<b>unflagged data<sup>8</sup></b>			
Mean (Ob-bg)	0.2	-0.1	-0.2
RMS (Ob-Bg)	0.9	1.0	1.1
<b>all data<sup>8</sup></b>			
Revised RMS (Ob-Bg) <sup>9</sup>	0.9	0.9	1.1
% of data flagged <sup>8</sup>	42.0	39.0	72.0
Operating at end of period	NO	NO	NO
Performance <sup>9</sup>			
Availability	Very Good	Good	Very Good
Pressure Quality	Acceptable	Acceptable	Acceptable
Timeliness	Very Good	Very Poor	Very Good
Comments			



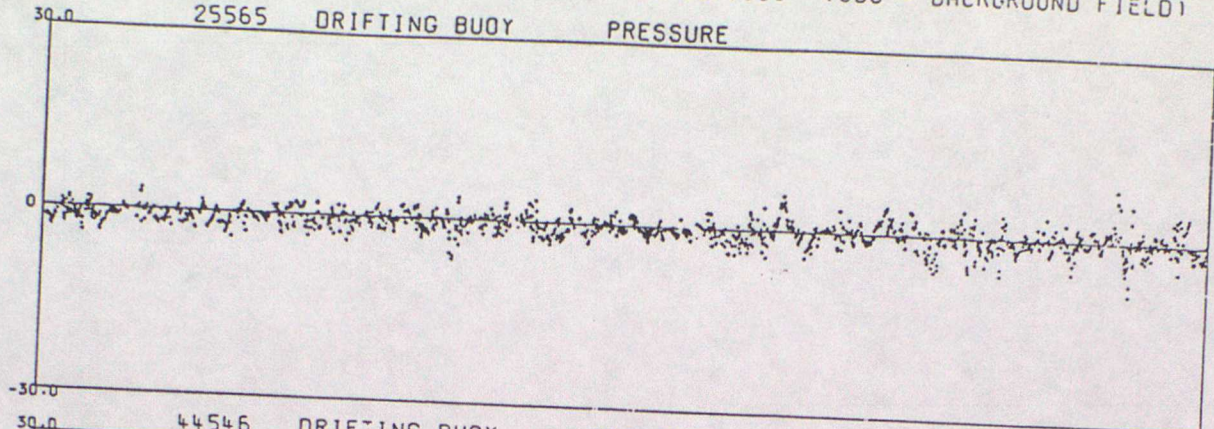
Wmo No. / Country <sup>1</sup>	65581/IC	65594/UK
Argos Id No.	1299	1252
Period within area	01/07-30/09	13/07-30/09
Area	SOBA	SOBA
Mean Latitude	58.0	62.5
Mean Longitude	-42.3	-31.6
No. of obs received <sup>2</sup>	4768	4586
% of obs with valid Time and Dates <sup>3</sup>	100.0	100.0
% of obs with acceptable Positions <sup>4</sup>	97.2	98.7
% of Presents		
Pressure	97.3	98.9
P. Tendency	93.3	96.4
Air Temperature	96.8	98.9
Wind Speed/Dir.	0.0/0.0	0.0/0.0
Sea-surface temp.	60.7	98.9
Median delay (min) <sup>6</sup>	17.0	92.0
Number of days	92.0	80.0
Mean no. of obs/day	51.8	57.3
No. of hours with obs	1761.0	1588.0
Mean no. of hours/day with obs	19.1	19.9
% of hour periods without an ob <sup>7</sup>	20.4	17.1
Mean (Ob-Bg)	-0.4	0.0
RMS (Ob-Bg)	1.5	1.6
<b>unflagged datas</b>		
Mean (Ob-bg)	-0.4	0.0
RMS (Ob-Bg)	1.7	3.1
<b>all datas</b>		
Revised RMS (Ob-Bg) <sup>8</sup>	1.6	1.6
% of data flagged <sup>8</sup>	70.0	71.0
Operating at end of period	YES	YES
Performances		
Availability	Very Good	Very Good
Pressure Quality	Acceptable	Acceptable
Timeliness	Very Good	Good
Comments		



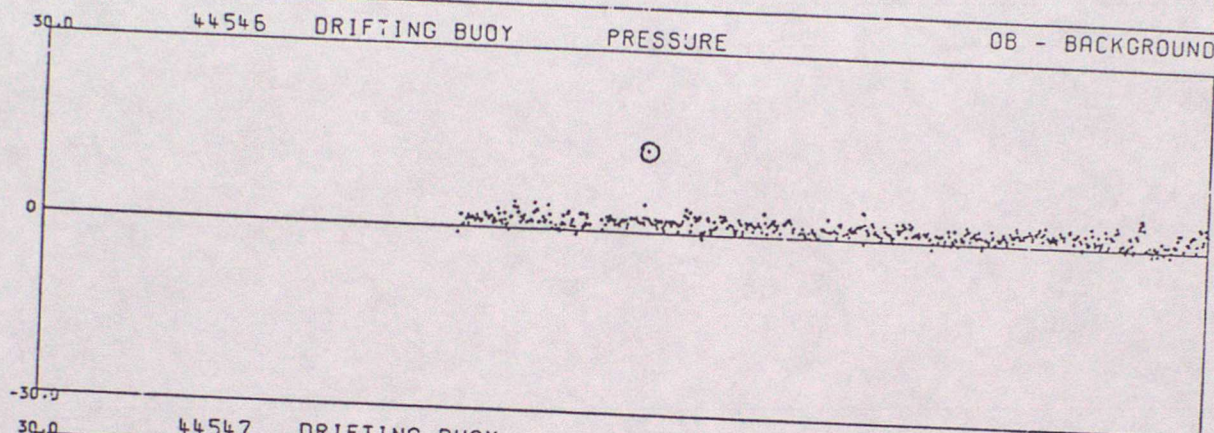
## ANNEX B - TIME SERIES PLOTS OF PRESSURE

DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)

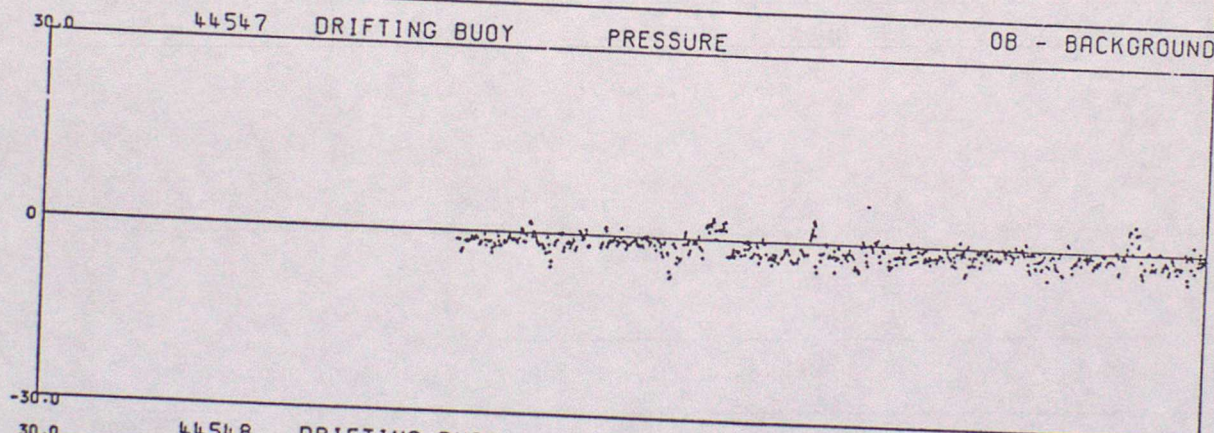
25565 DRIFTING BUOY PRESSURE



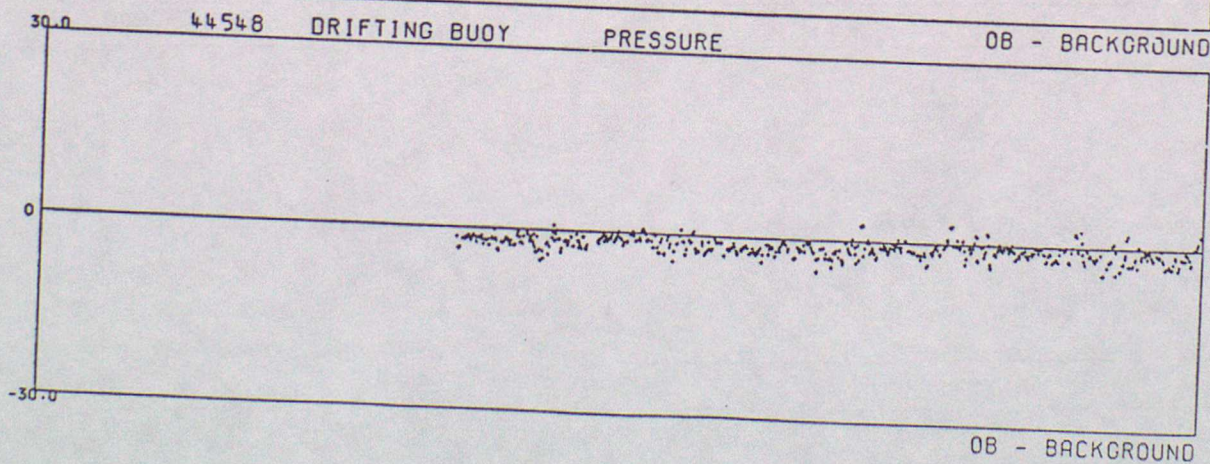
44546 DRIFTING BUOY PRESSURE OB - BACKGROUND



44547 DRIFTING BUOY PRESSURE OB - BACKGROUND

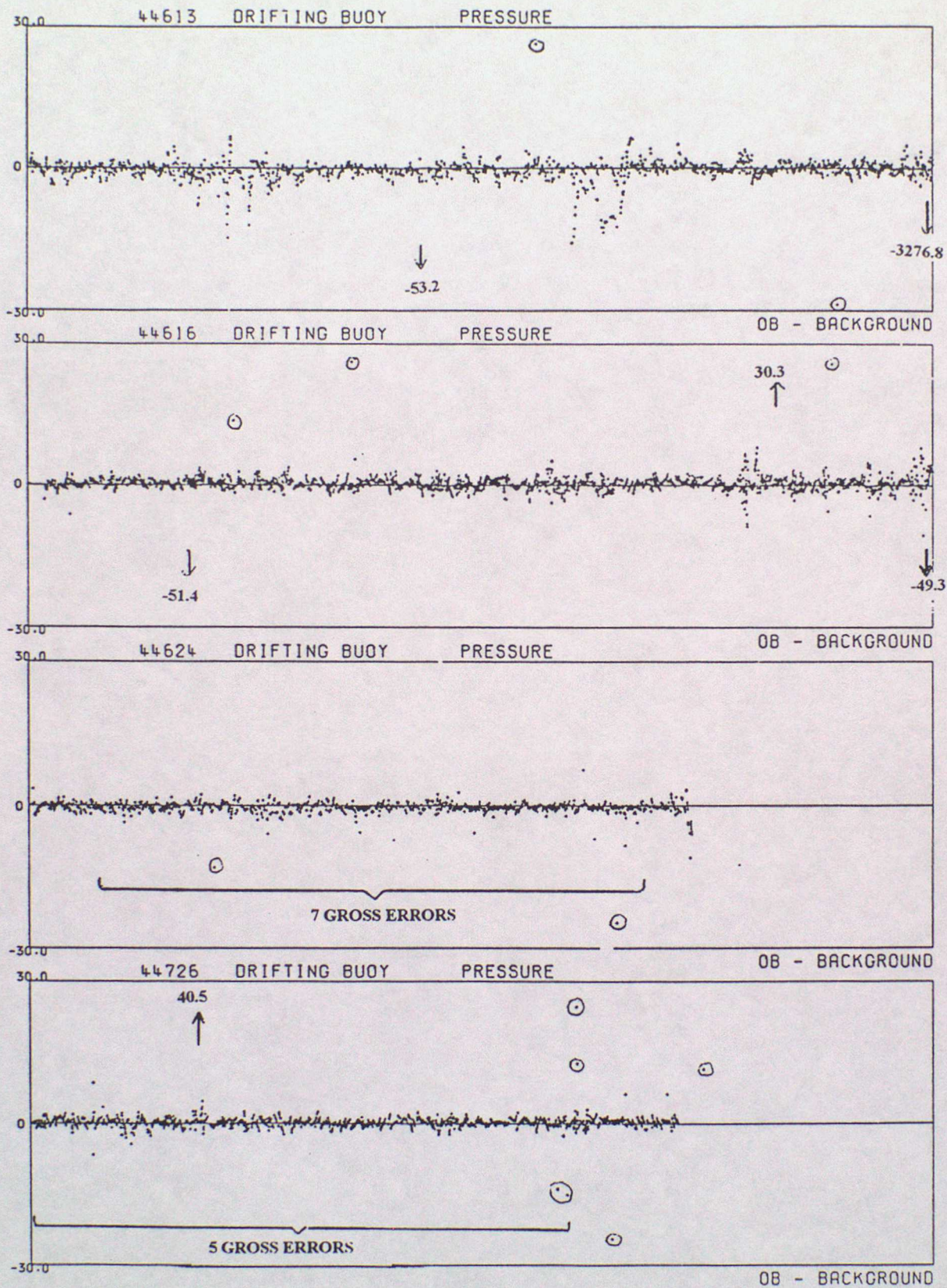


44548 DRIFTING BUOY PRESSURE OB - BACKGROUND



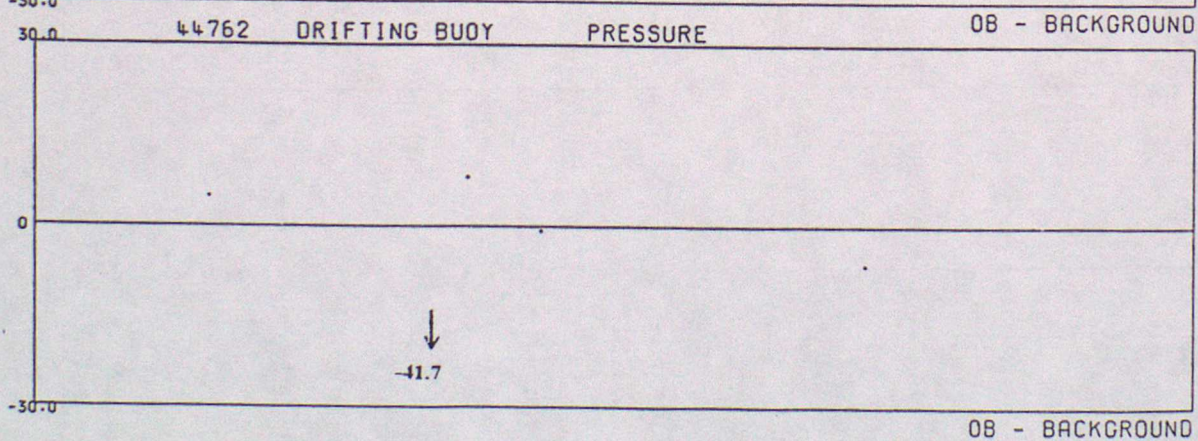
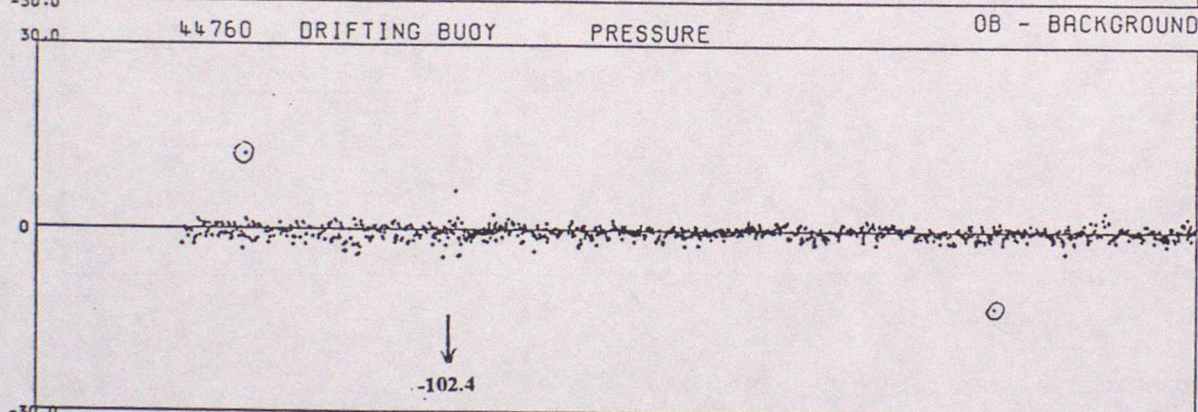
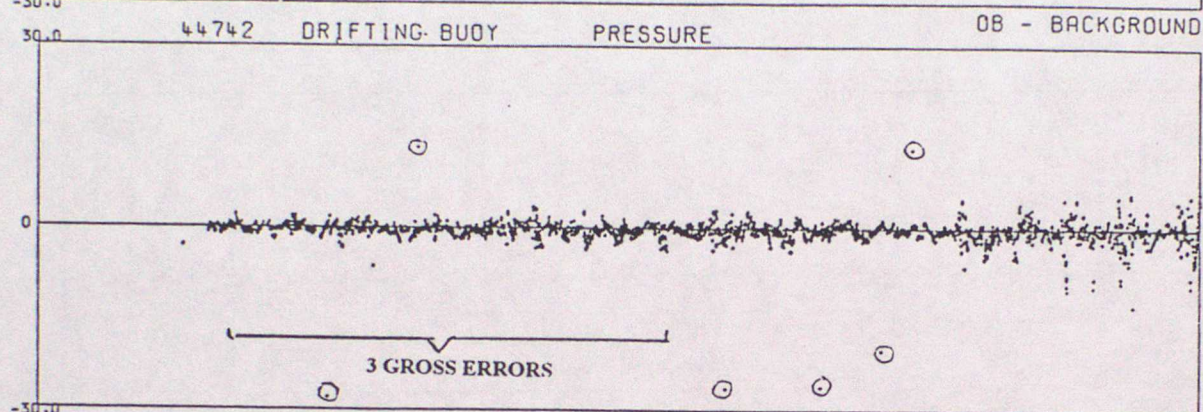
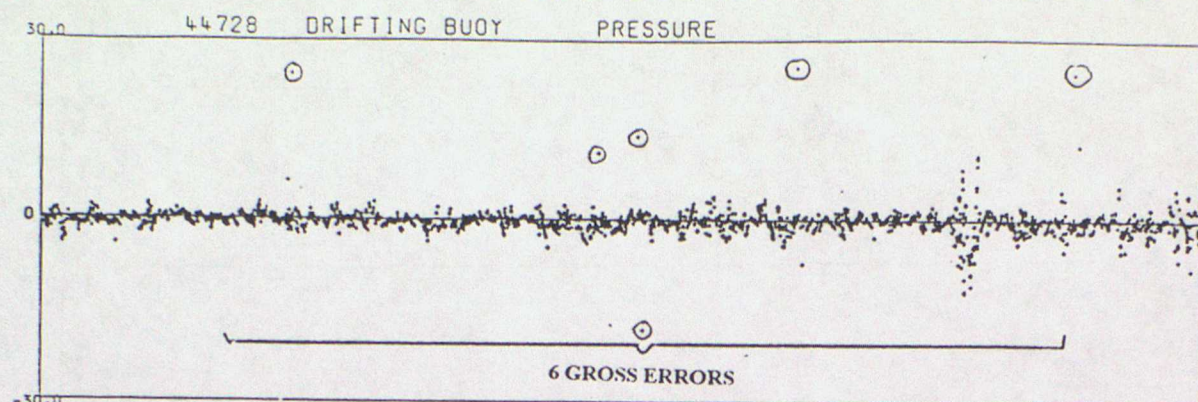


DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



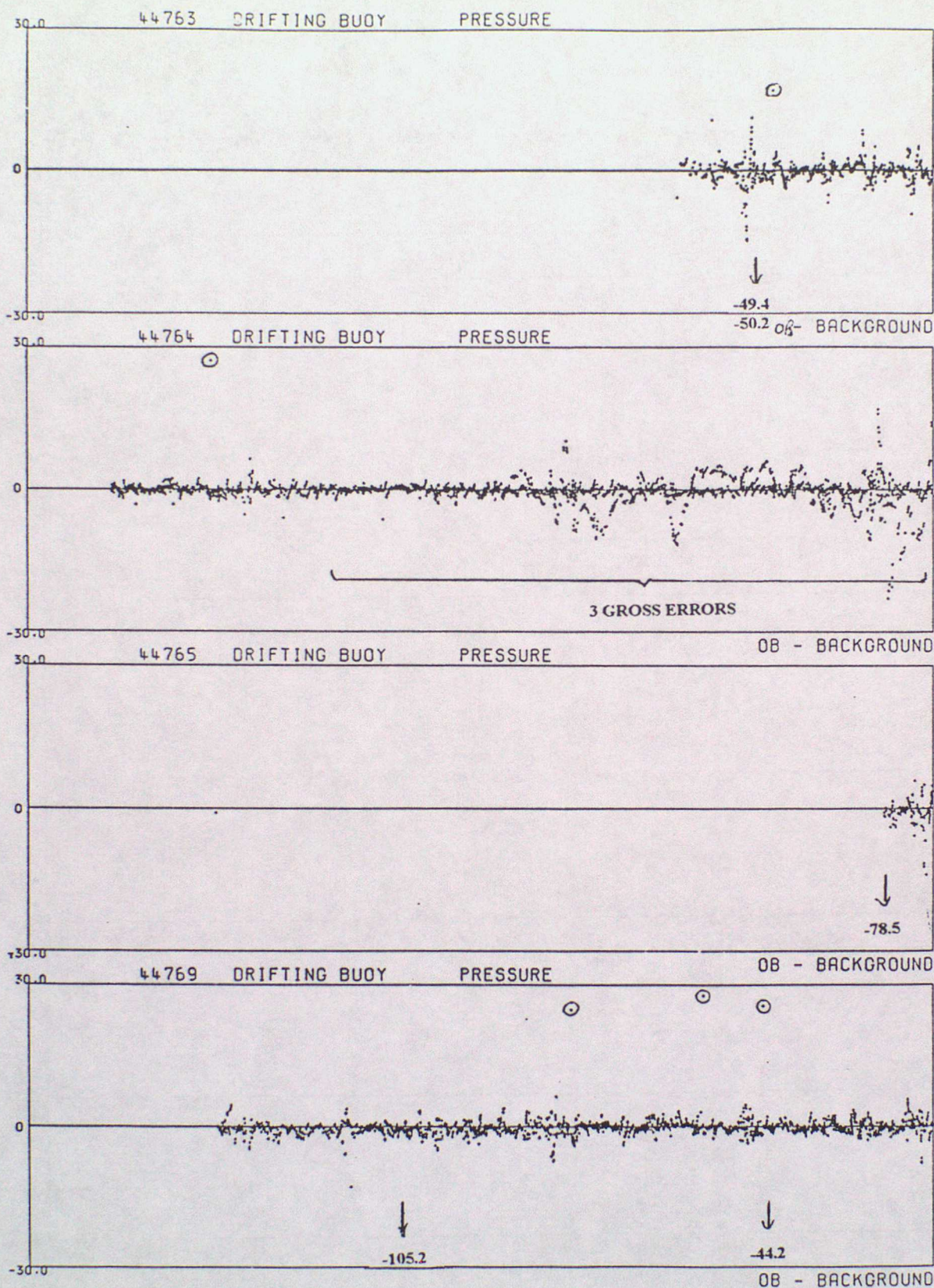


DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



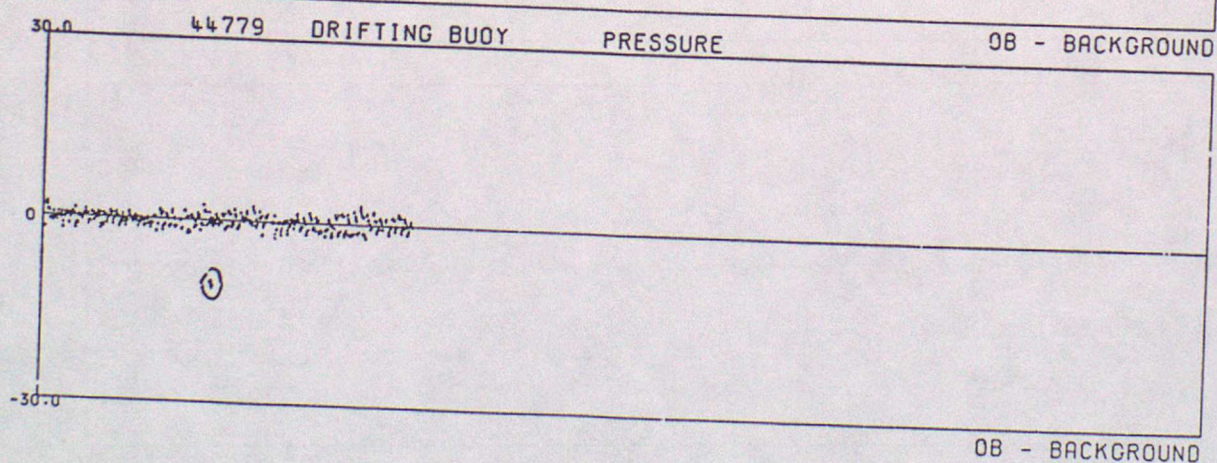
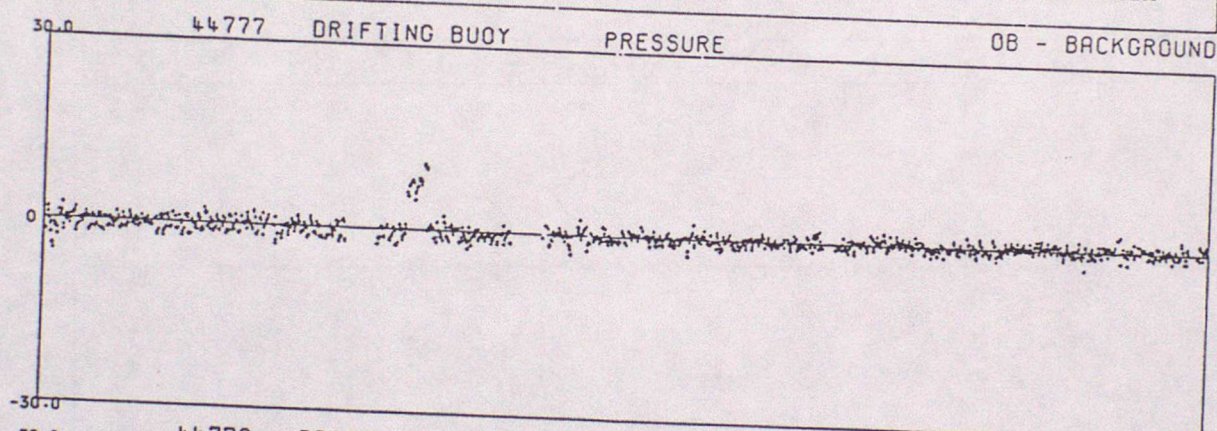
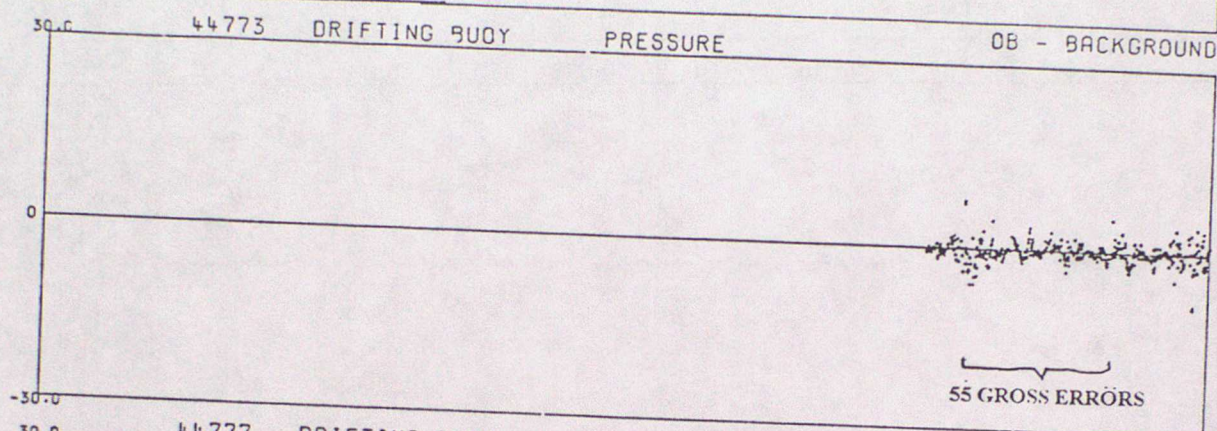
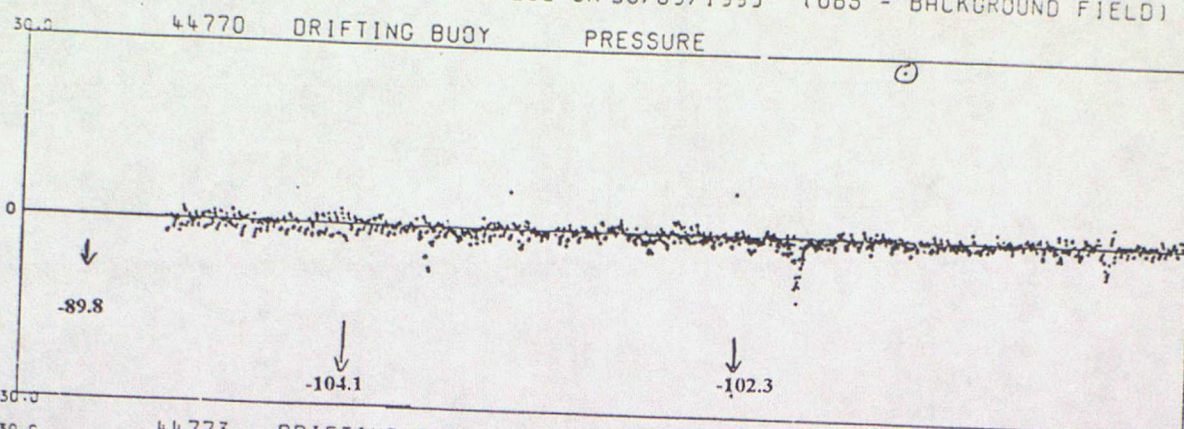


DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



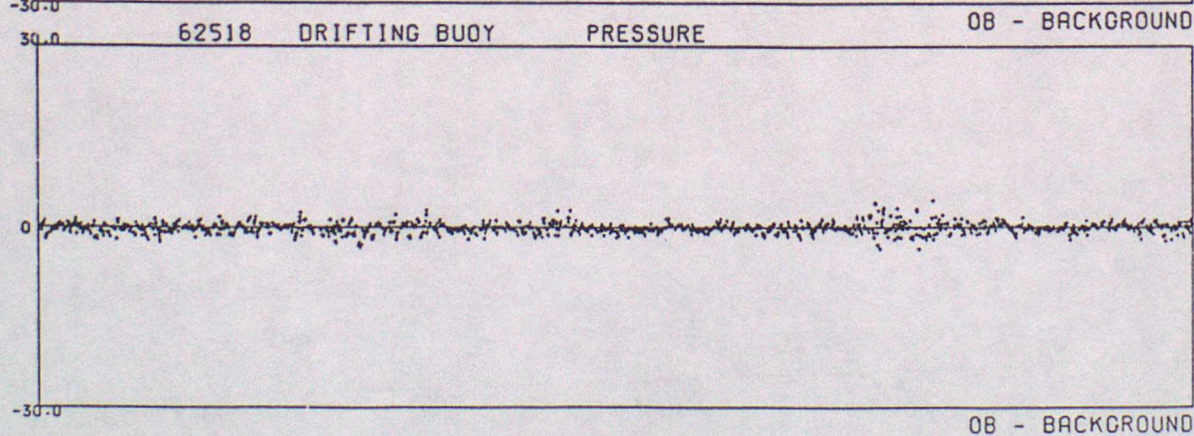
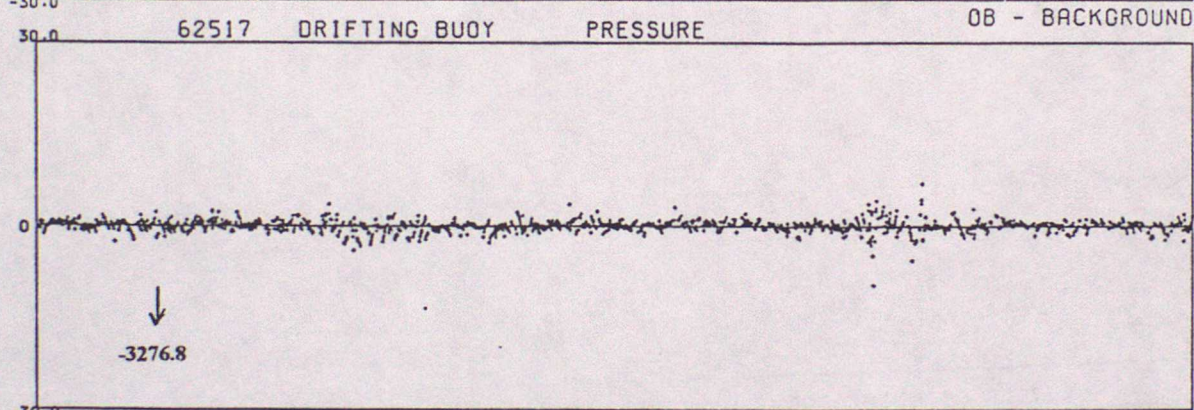
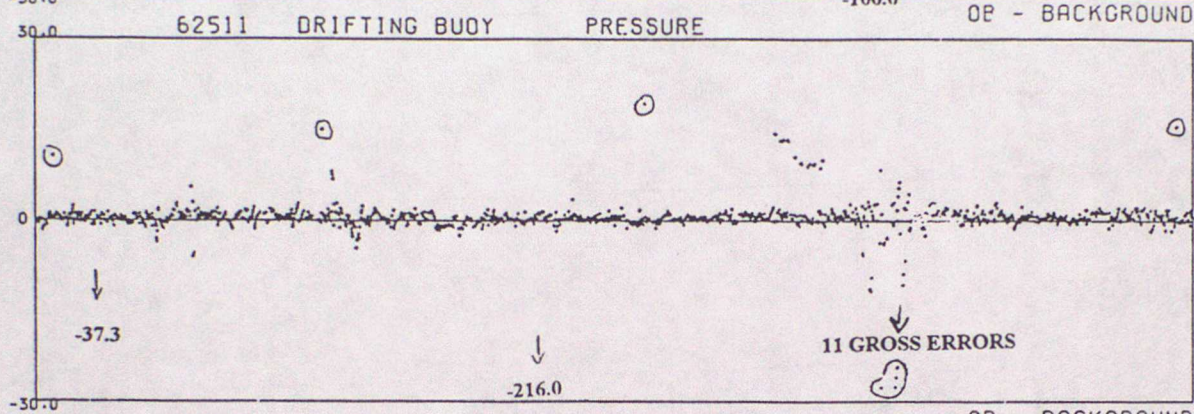
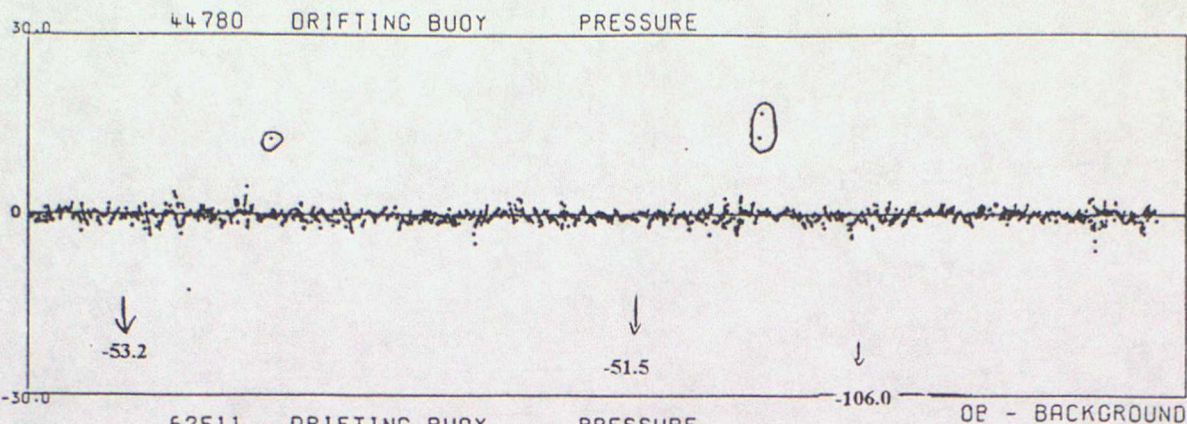


DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



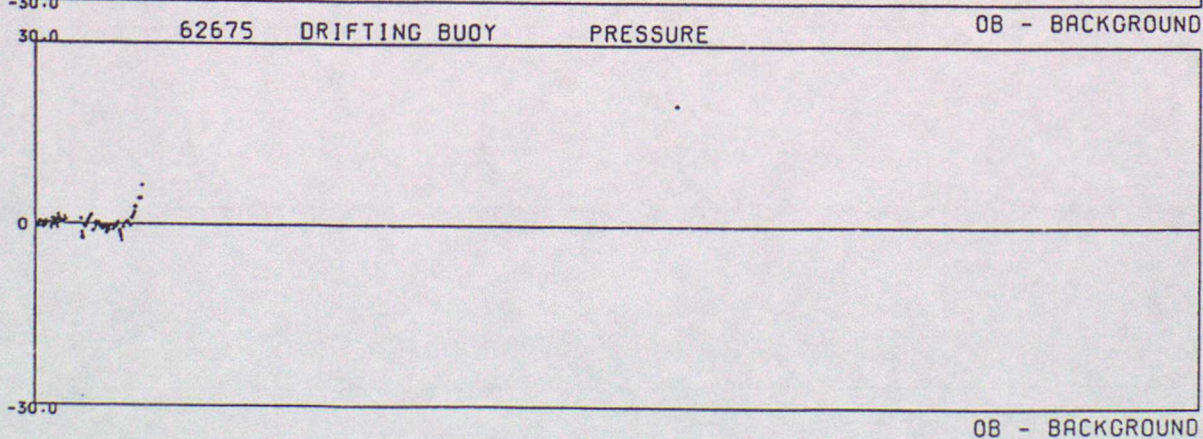
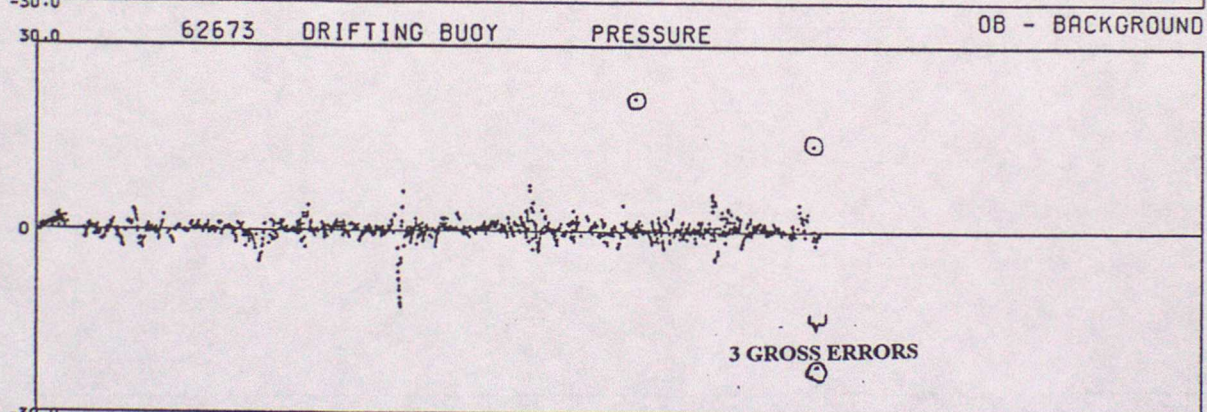
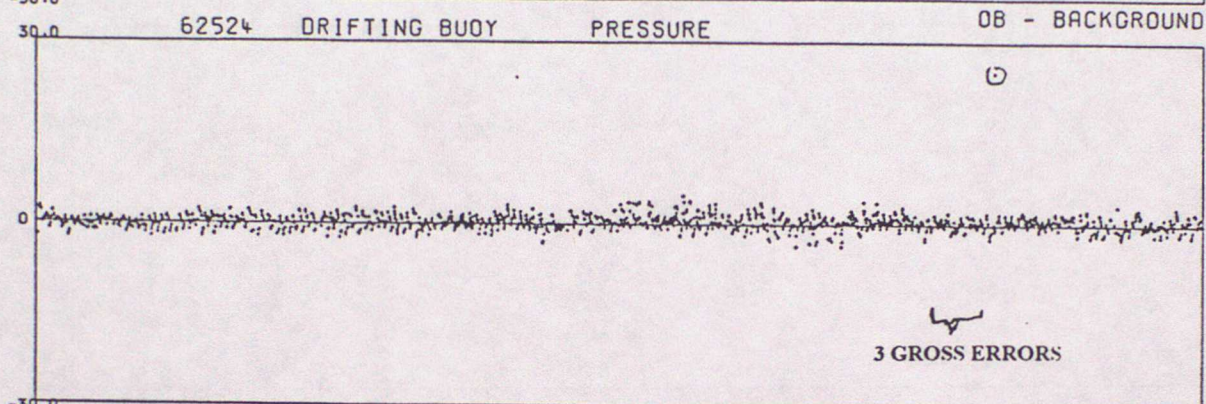
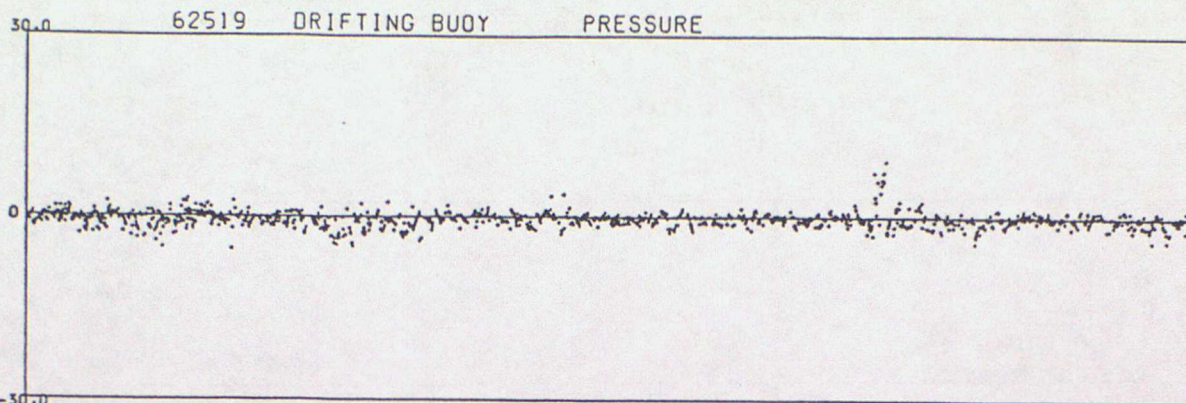


DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



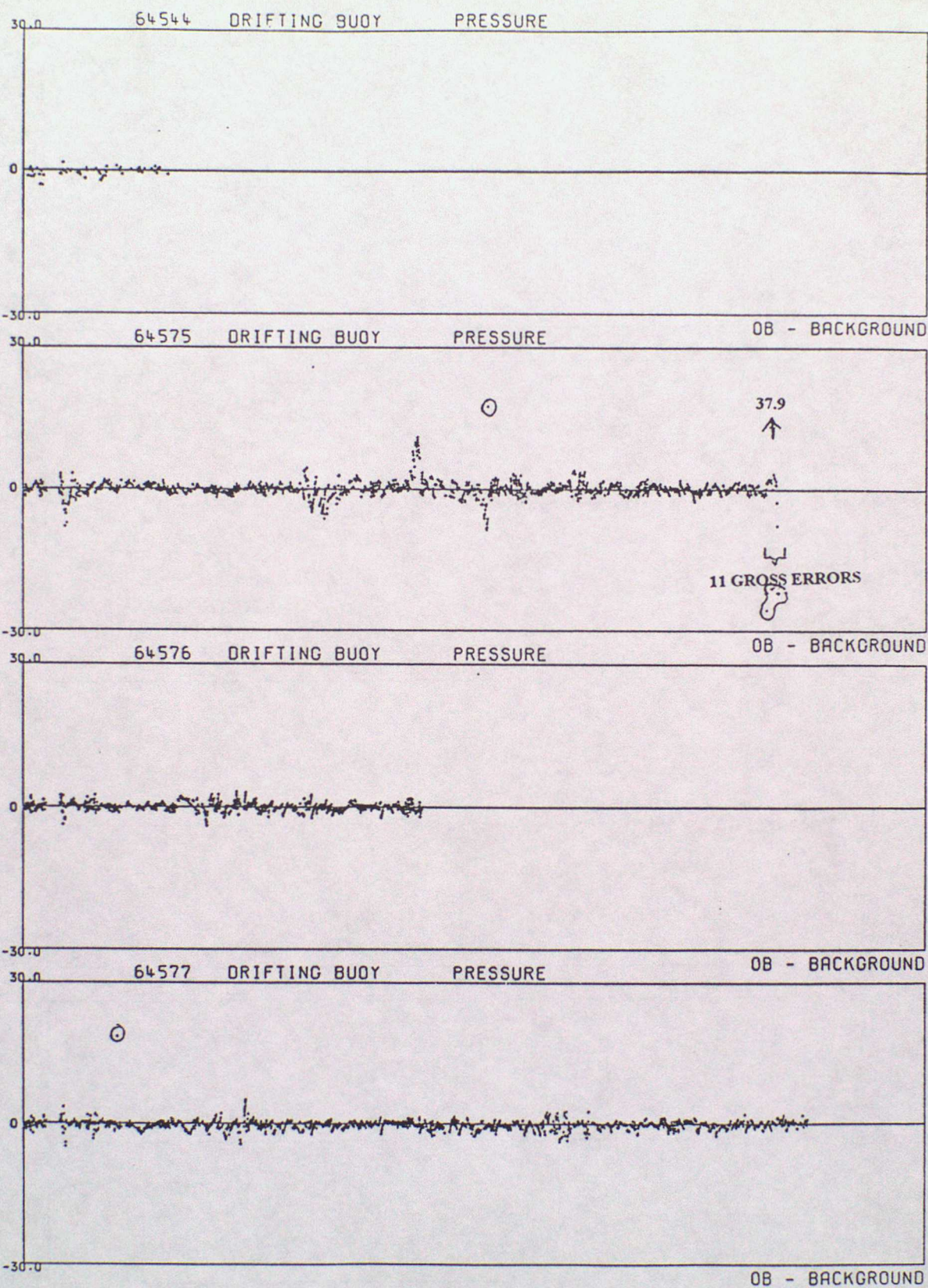


DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



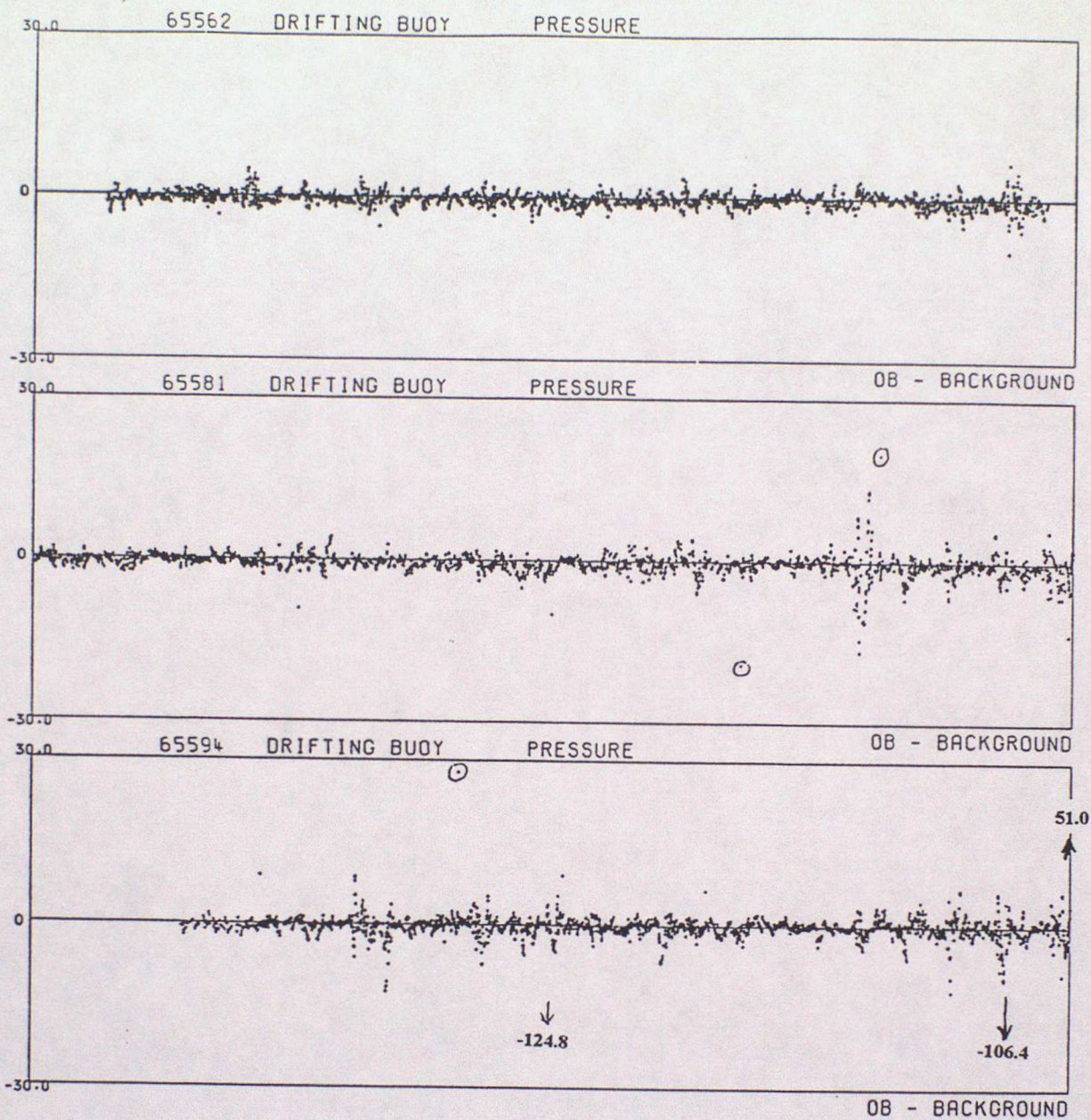


DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)





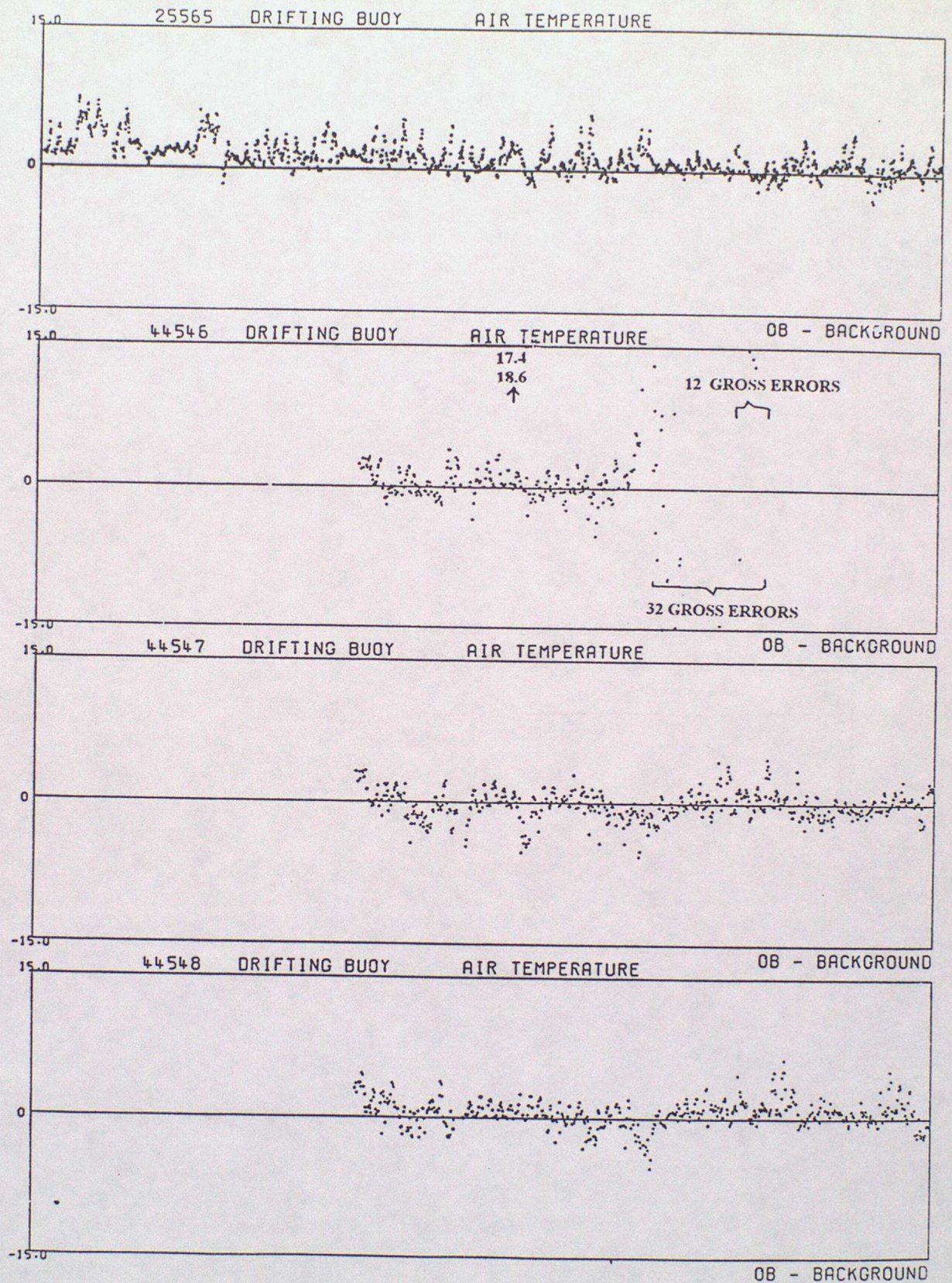
DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)





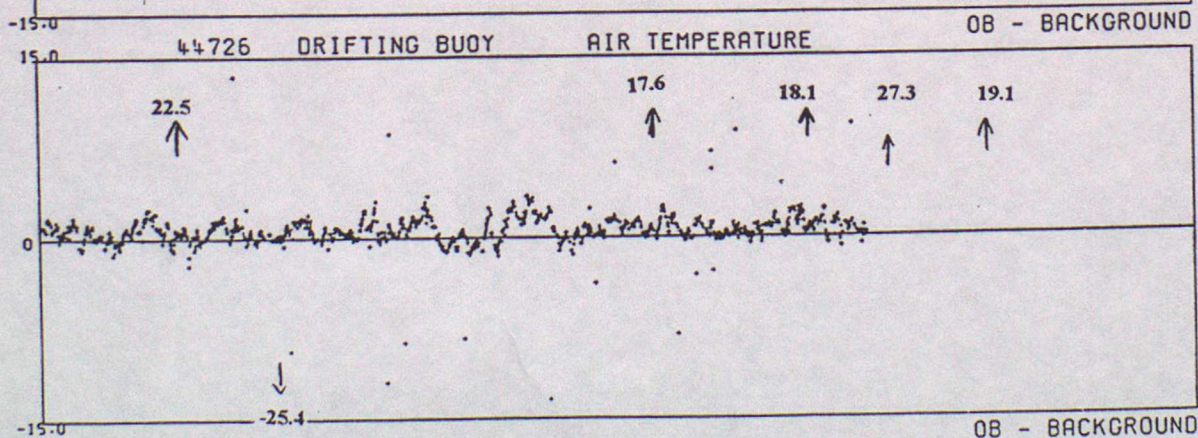
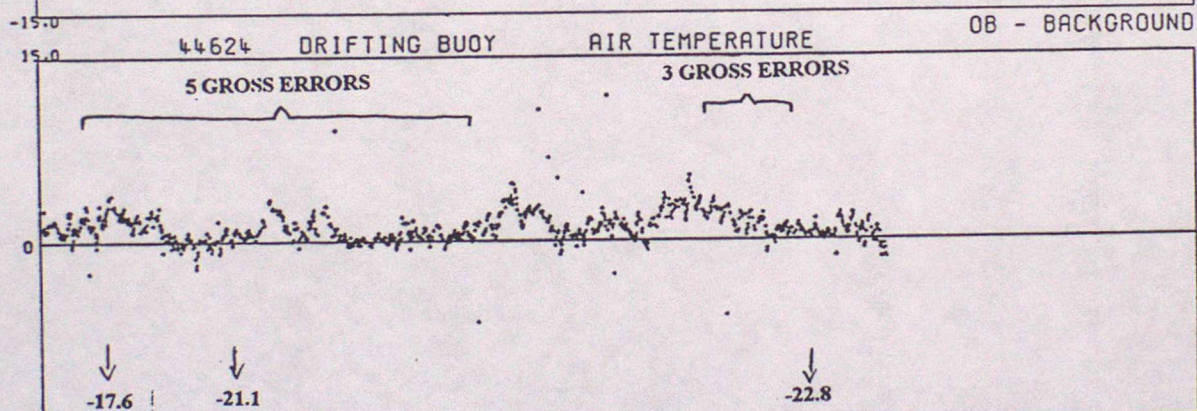
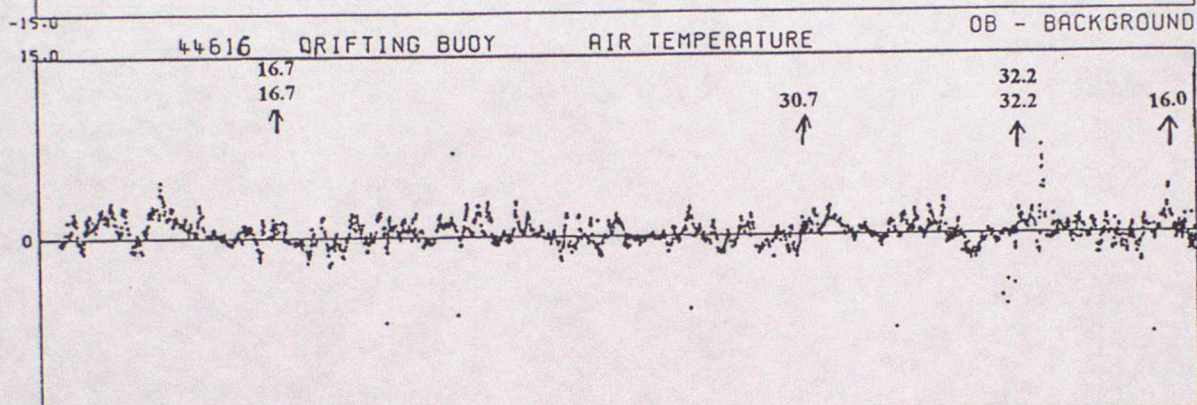
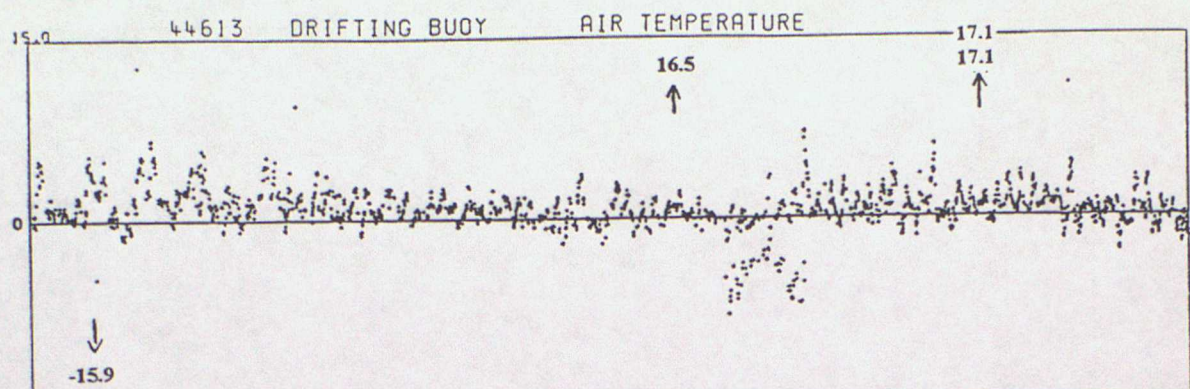
# ANNEX C - TIME SERIES PLOTS OF AIR TEMPERATURE

DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



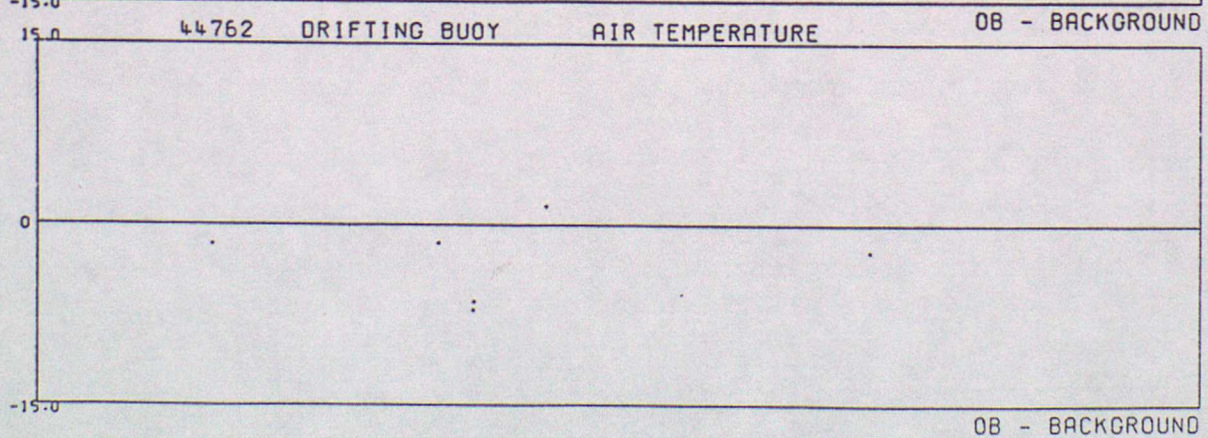
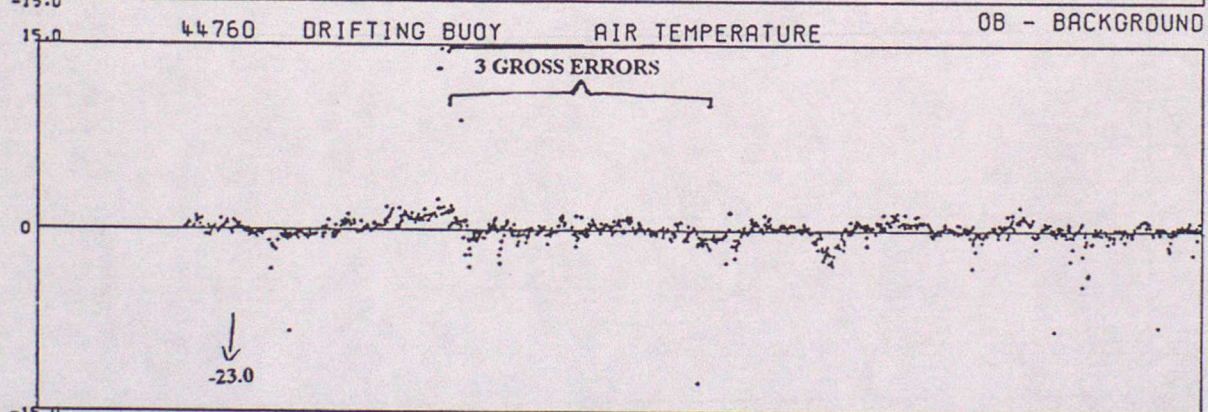
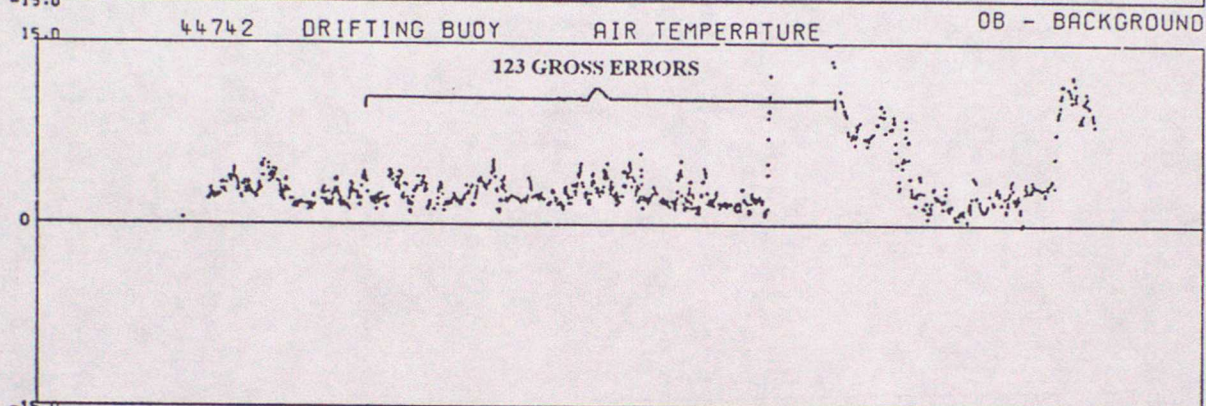
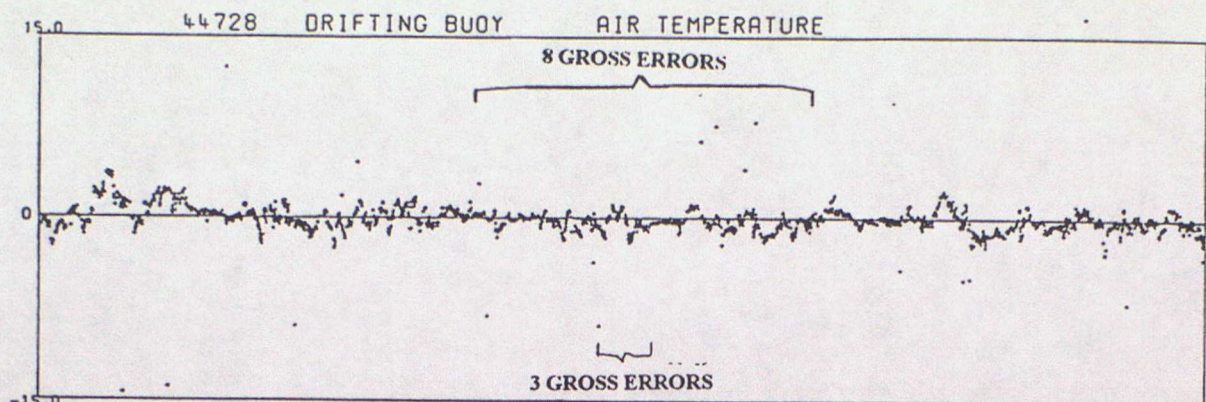


DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



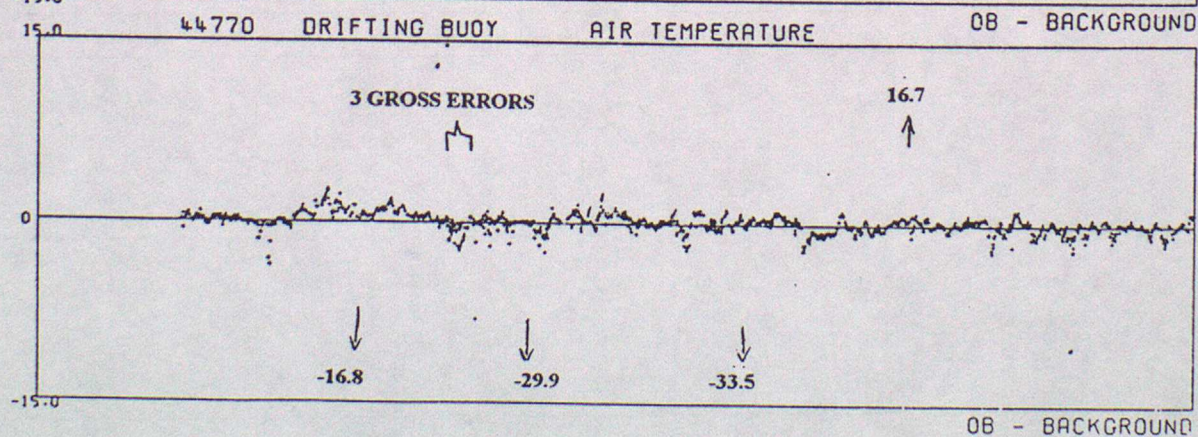
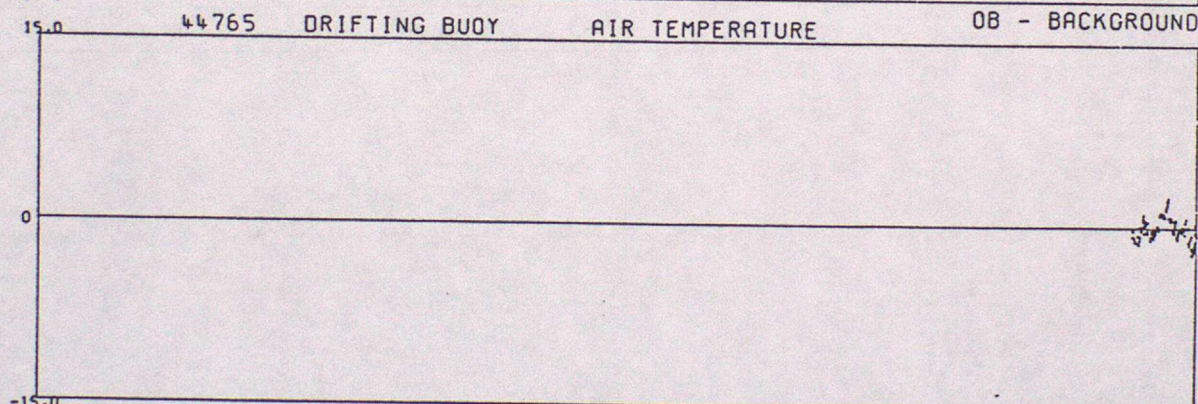
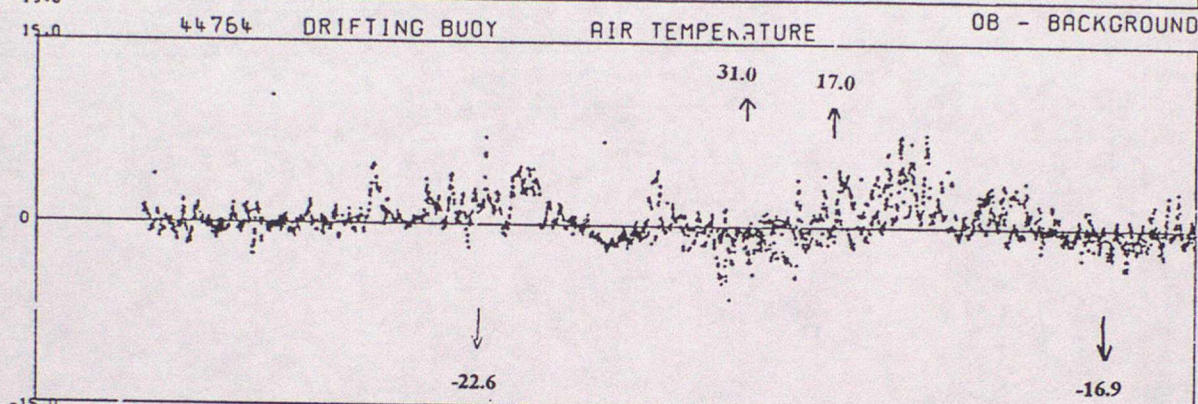
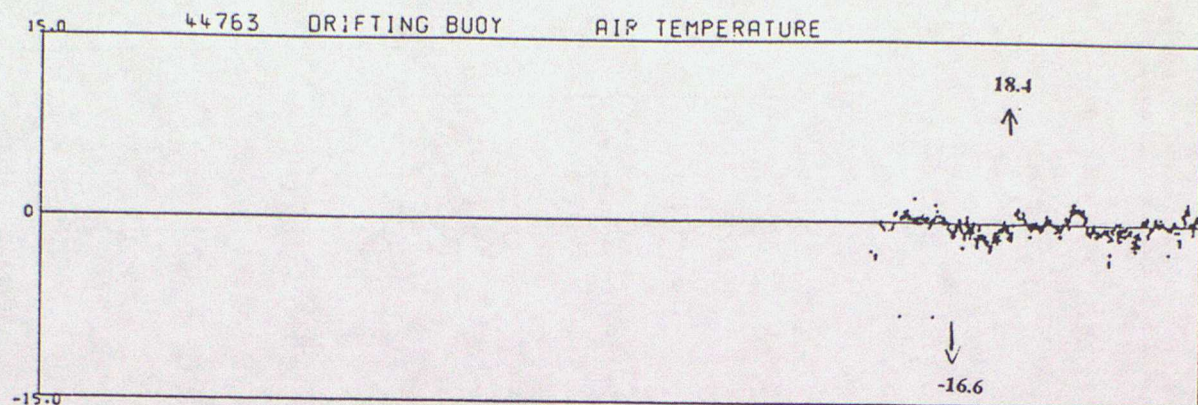


DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)





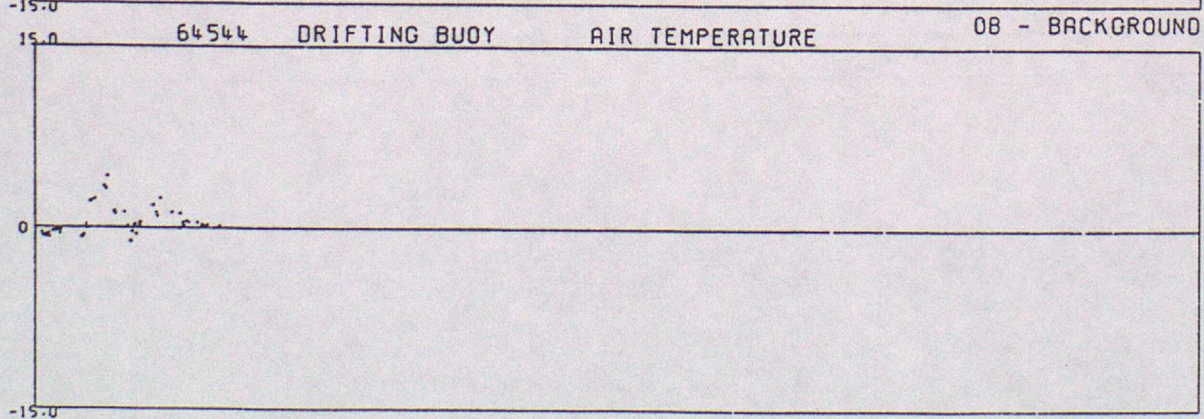
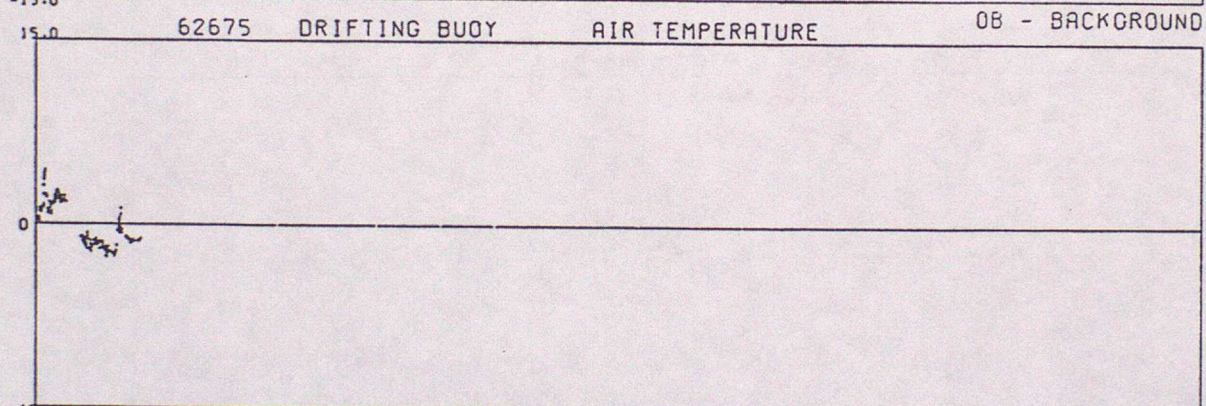
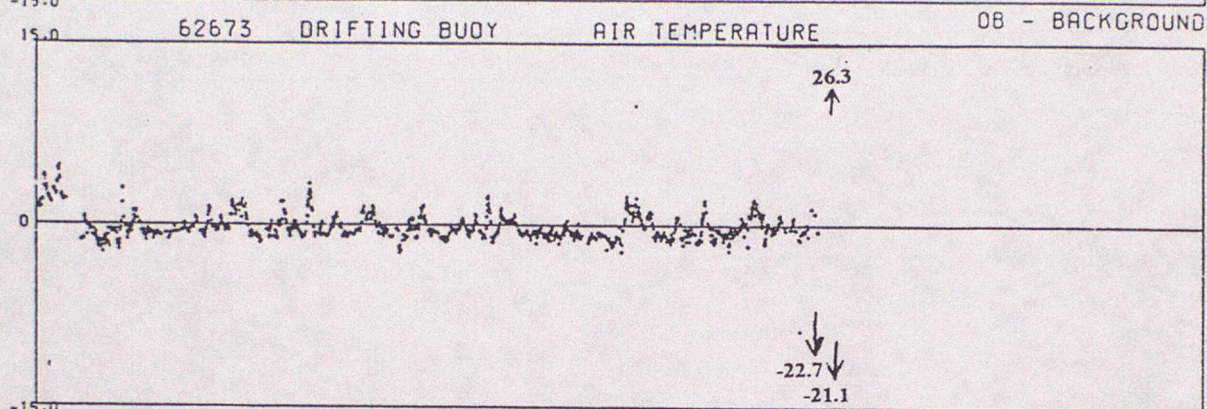
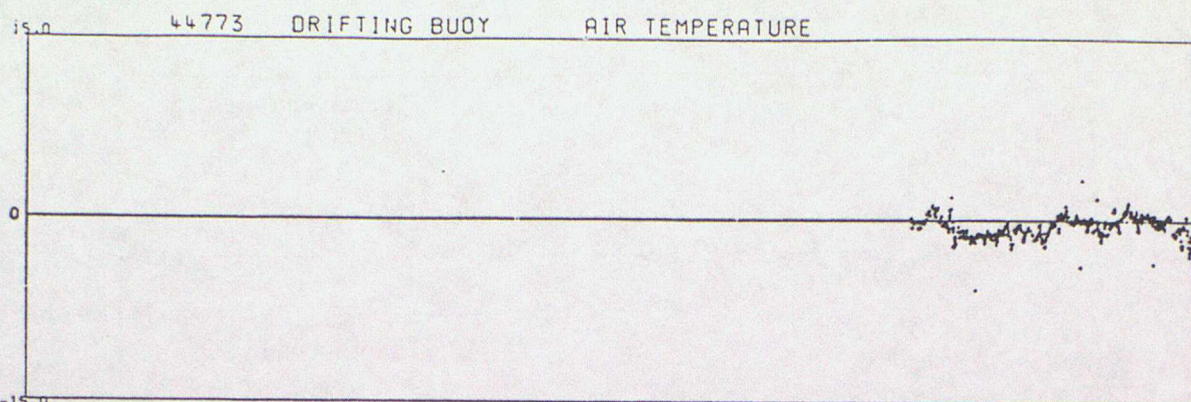
DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



OB - BACKGROUND



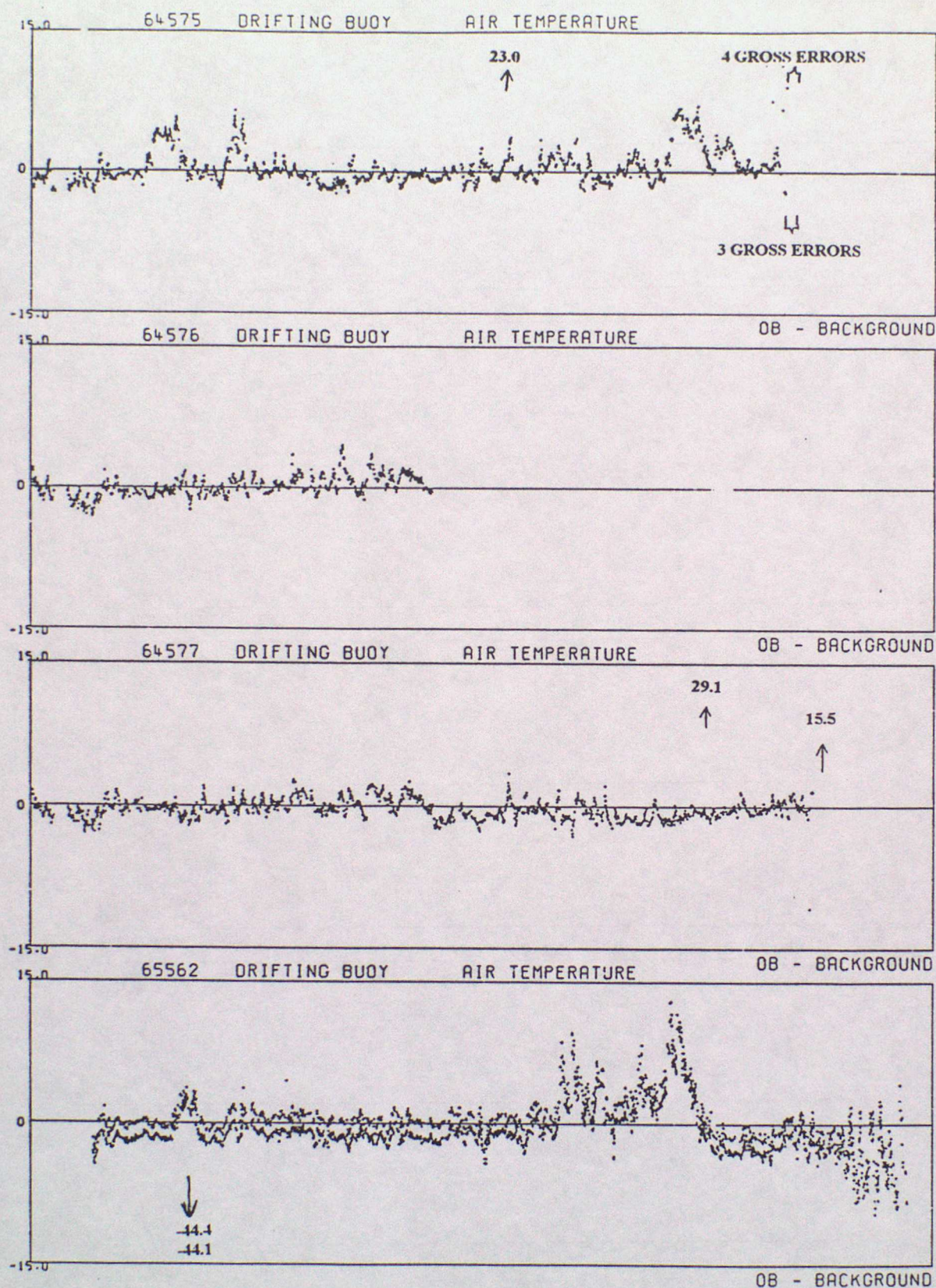
DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



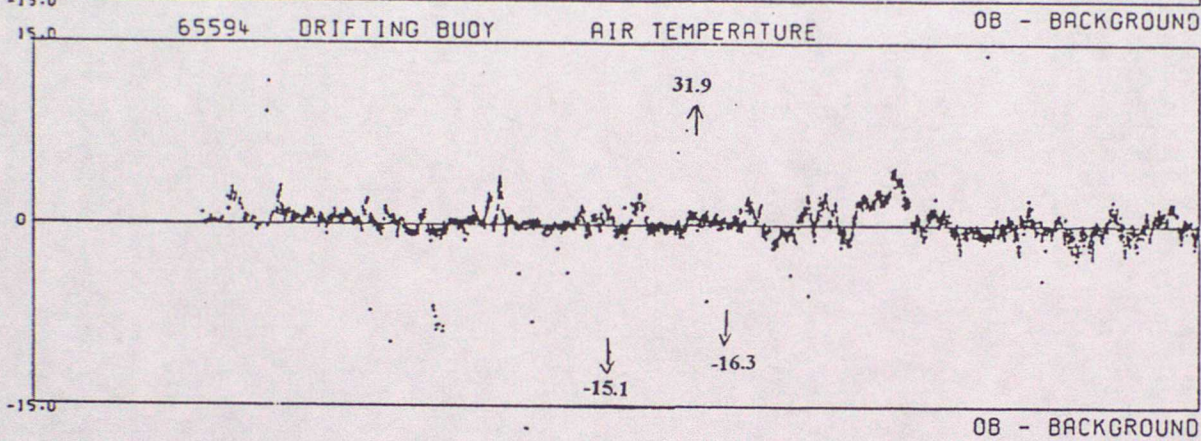
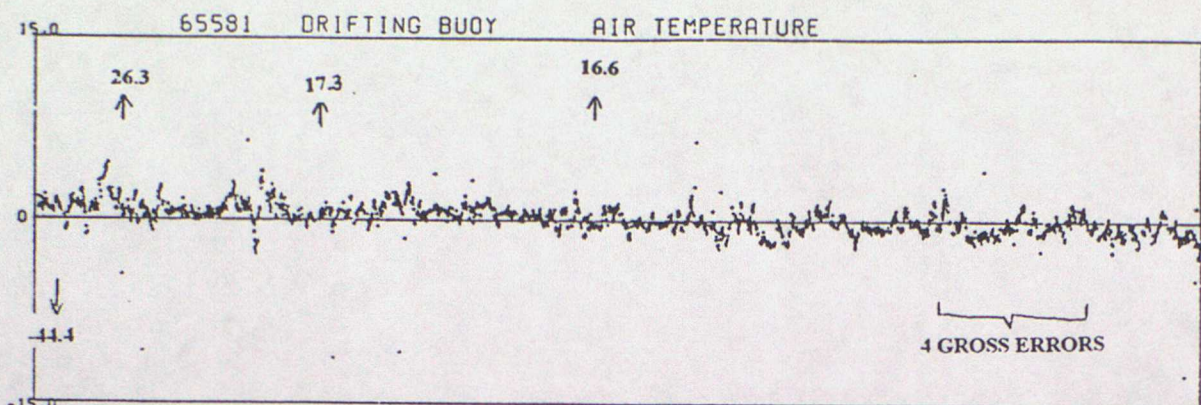
OB - BACKGROUND



DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



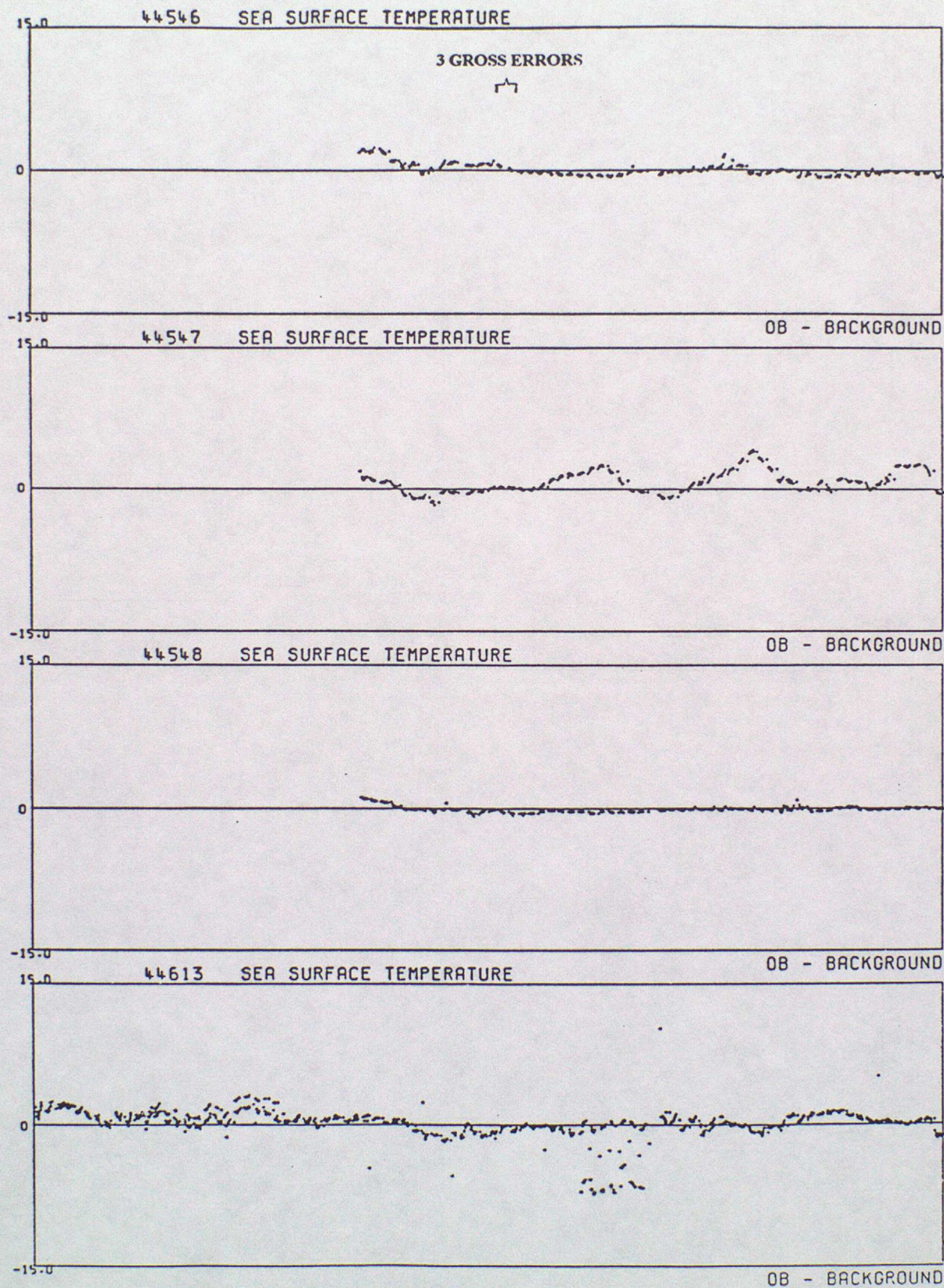






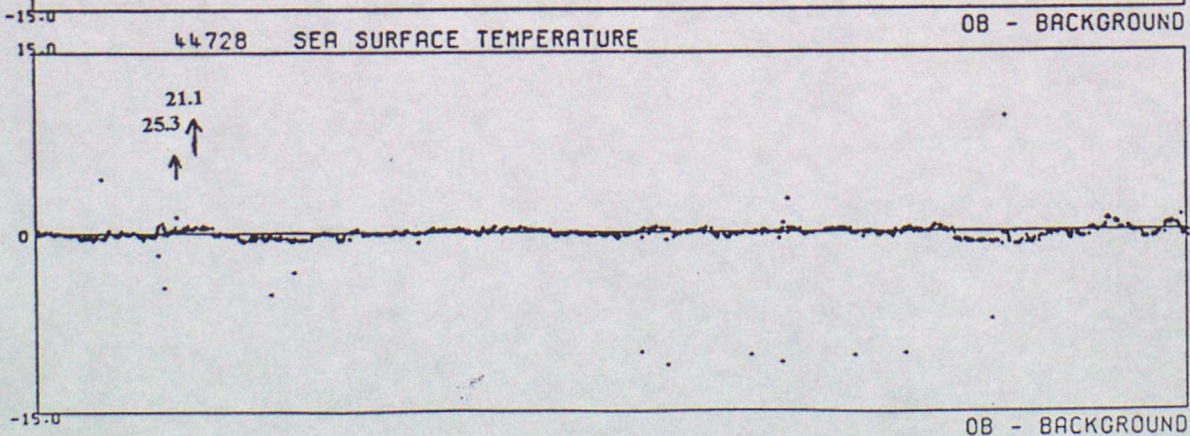
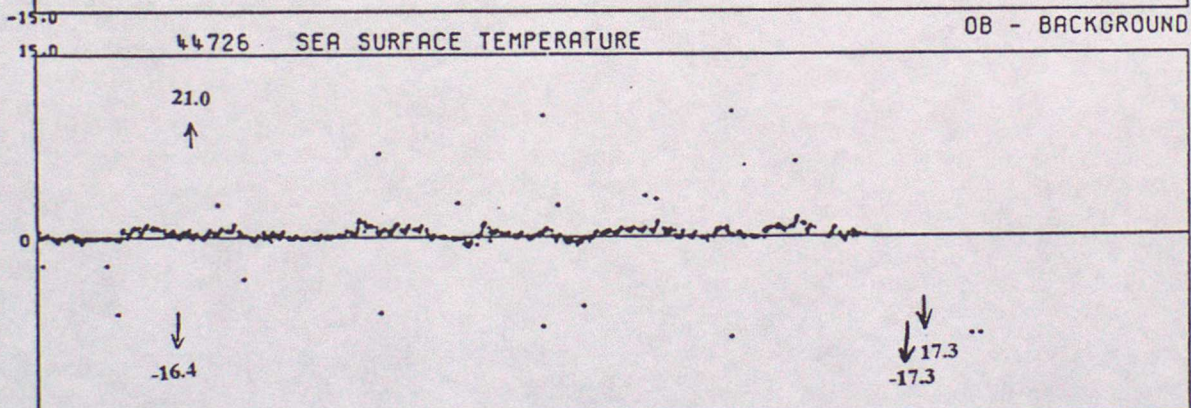
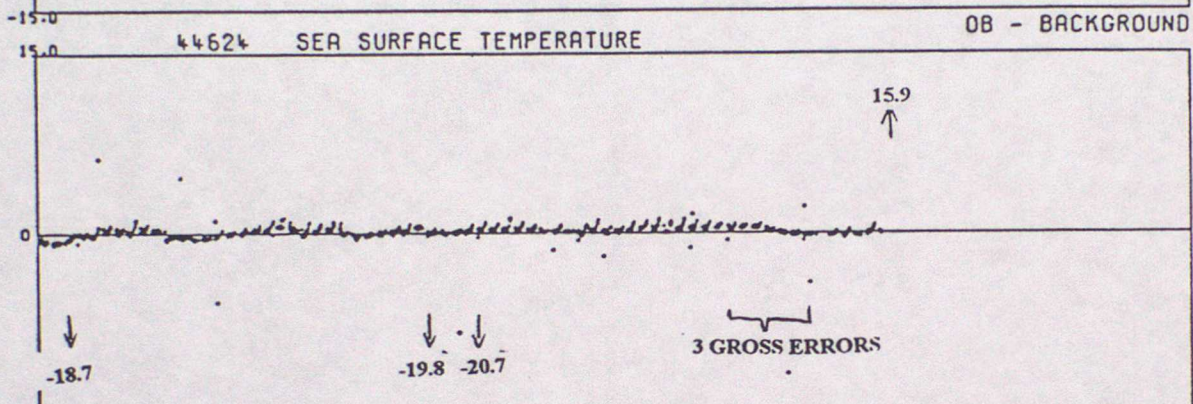
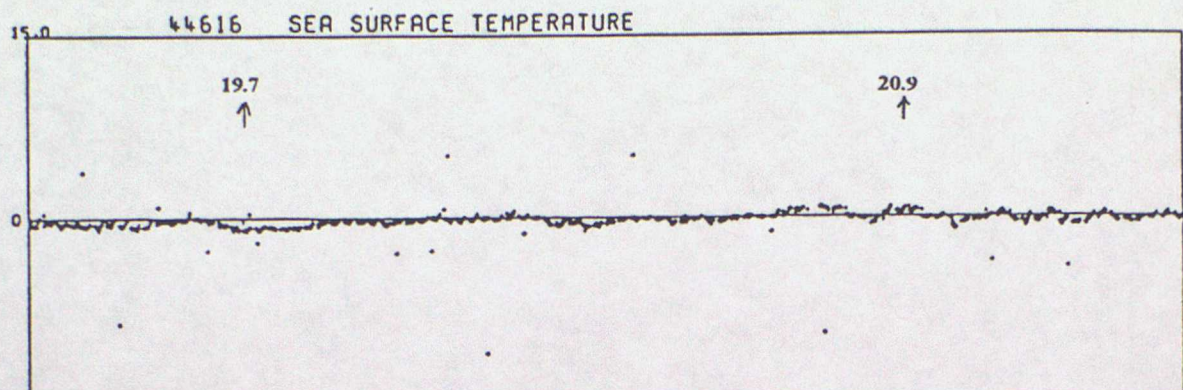
## ANNEX D - TIME SERIES PLOTS OF SEA SURFACE TEMPERATURE

DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



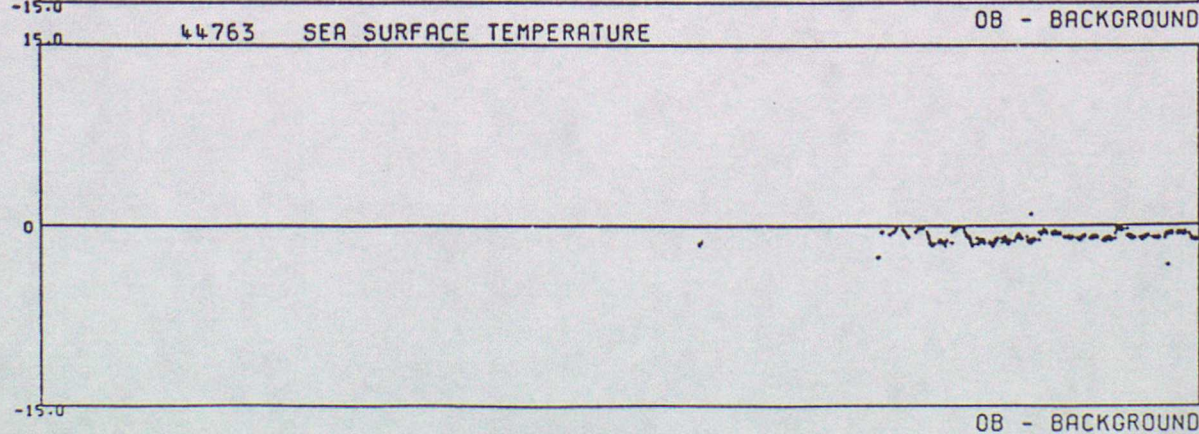
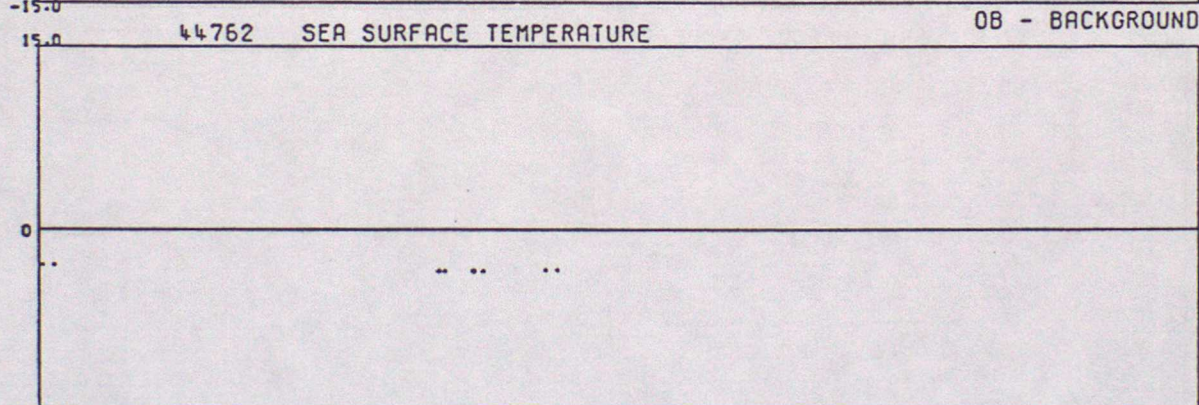
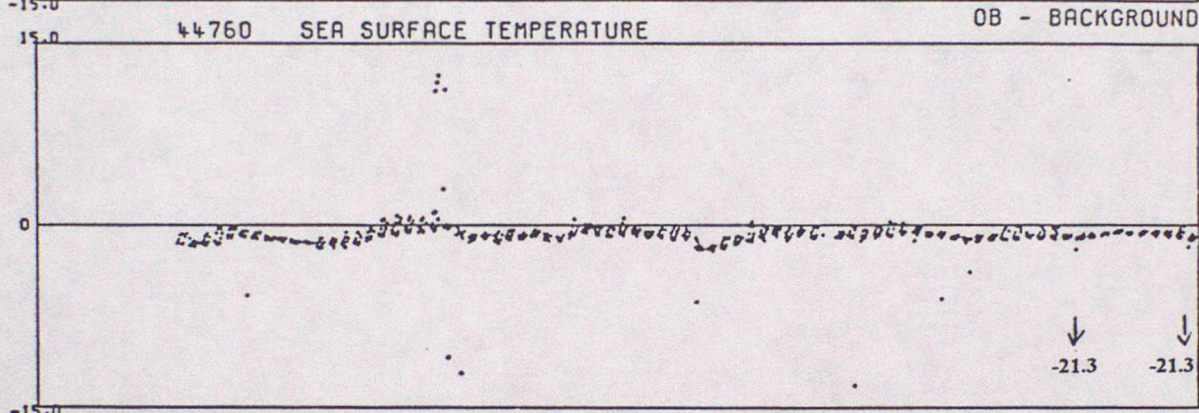
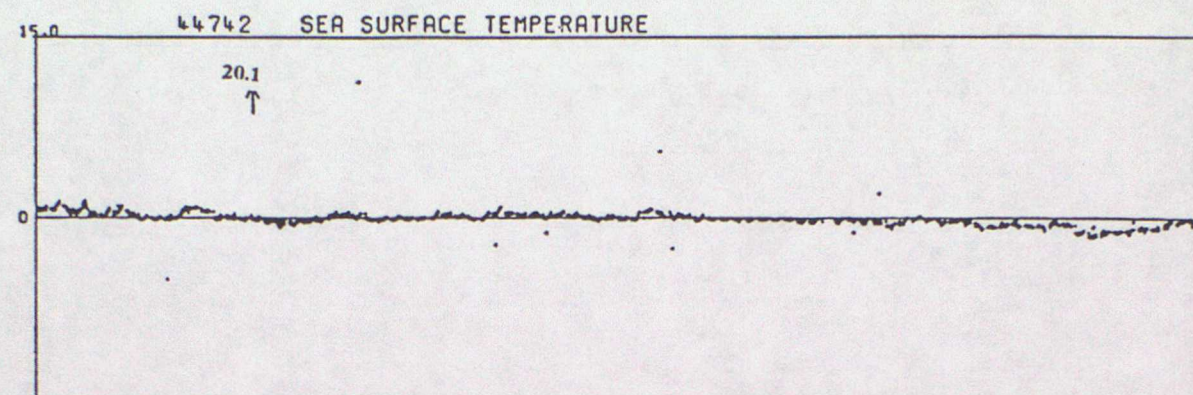


DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



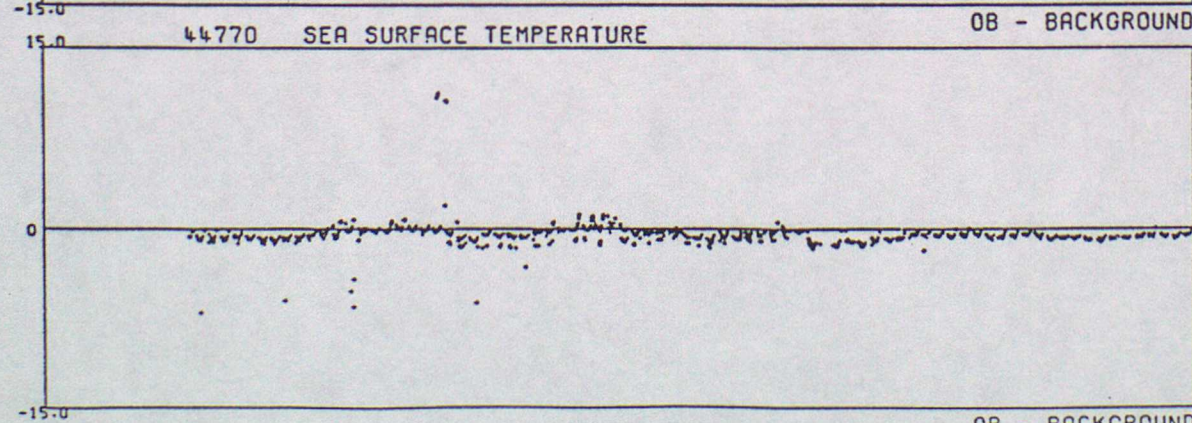
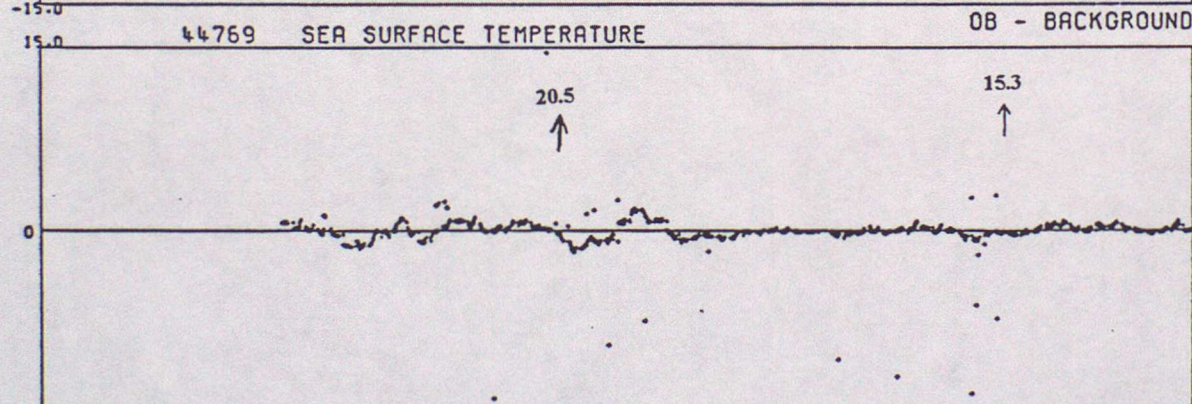
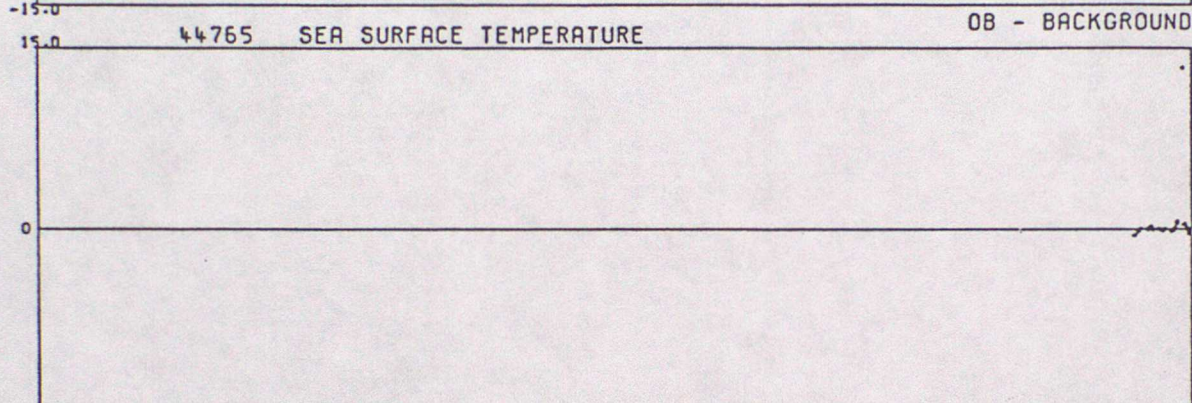
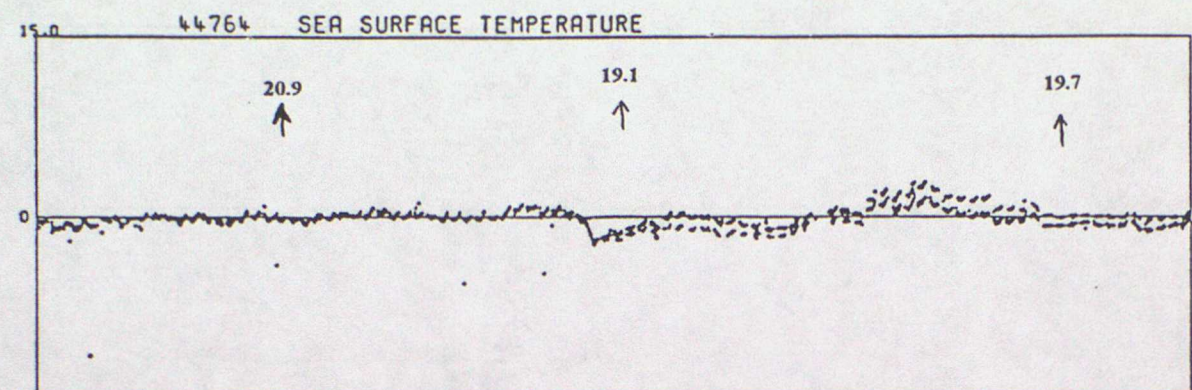


DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)





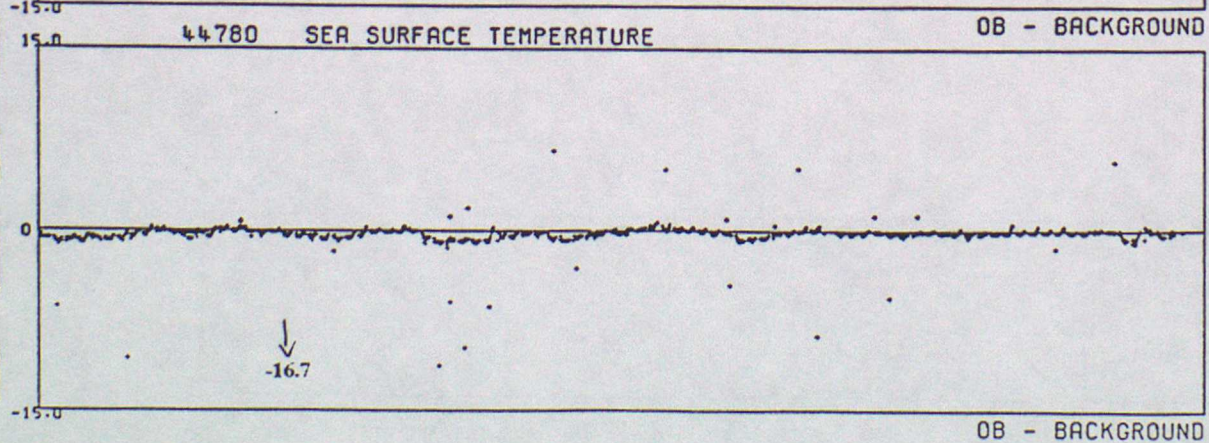
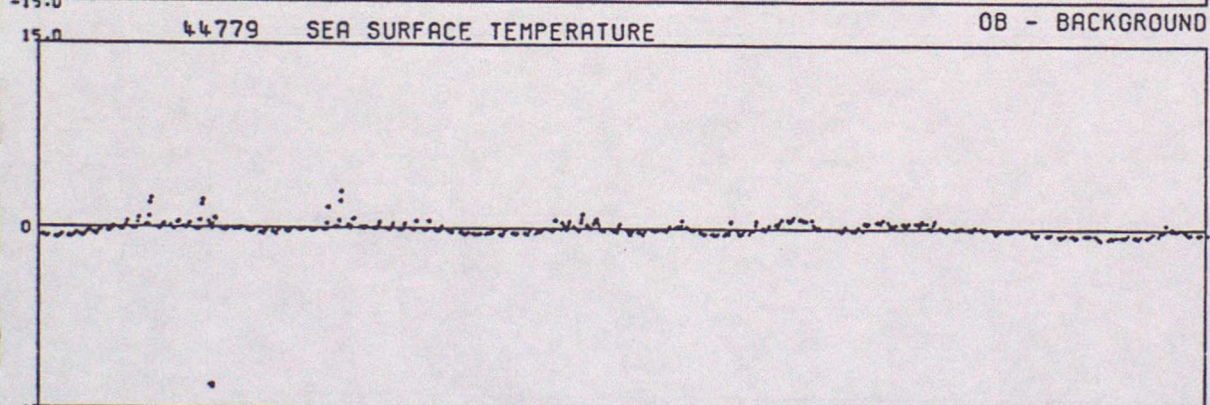
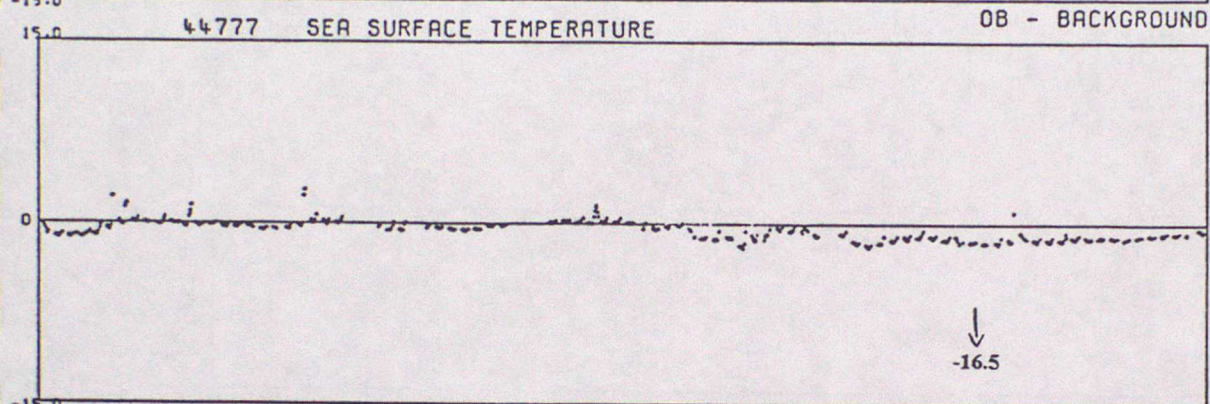
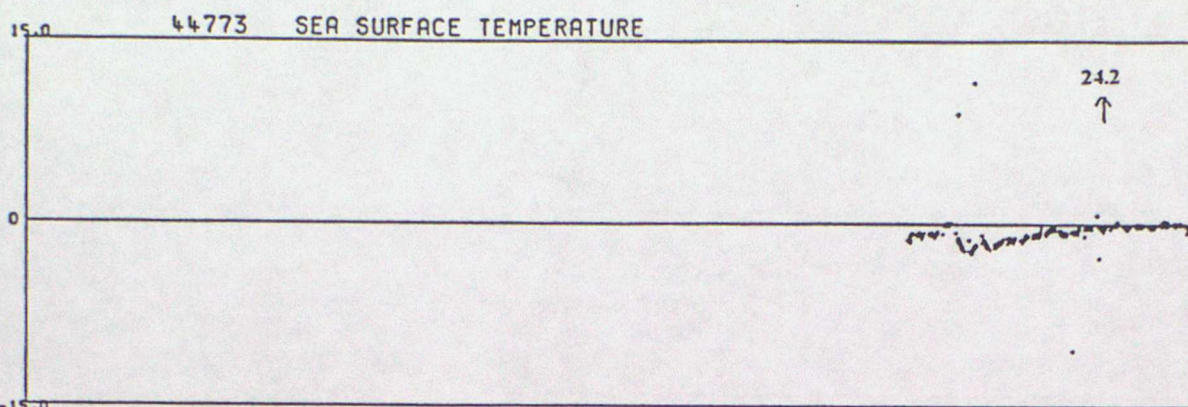
DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



OB - BACKGROUND

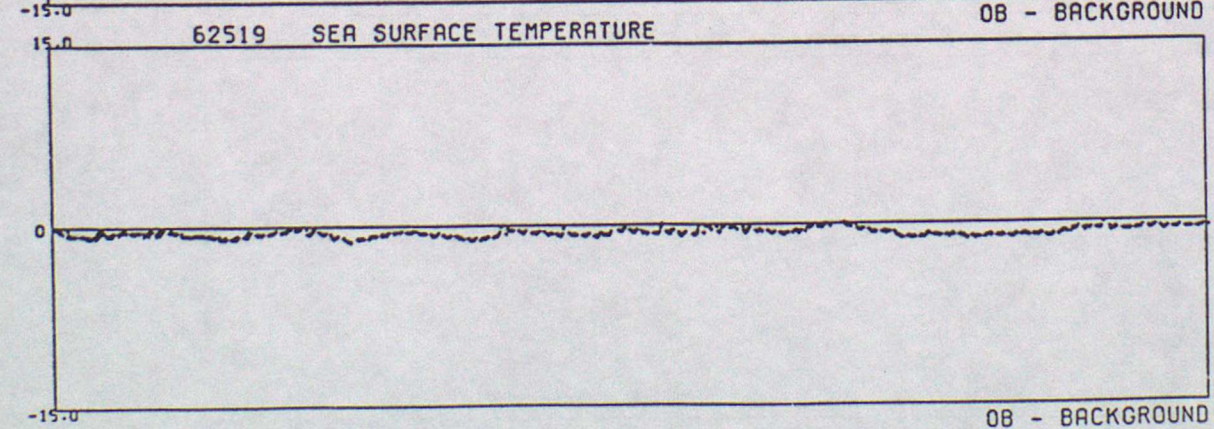
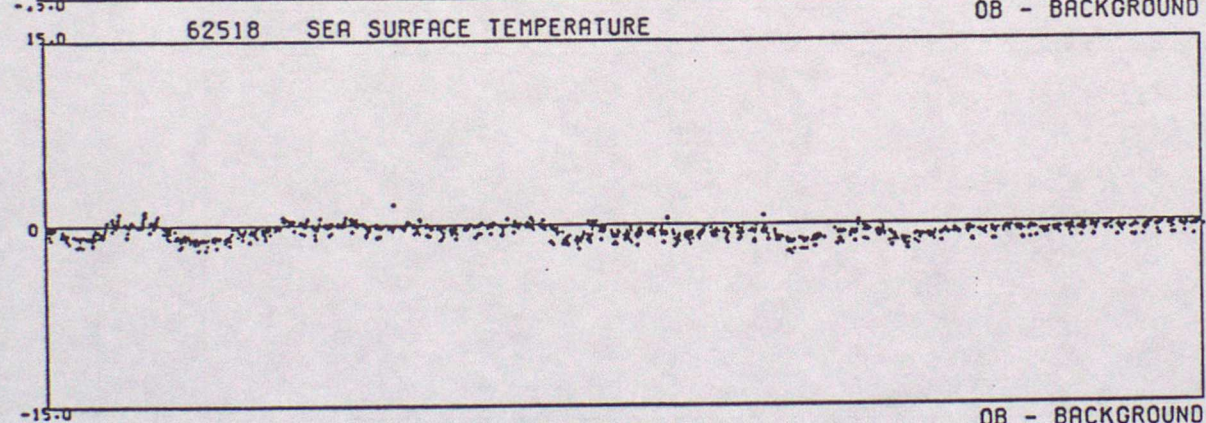
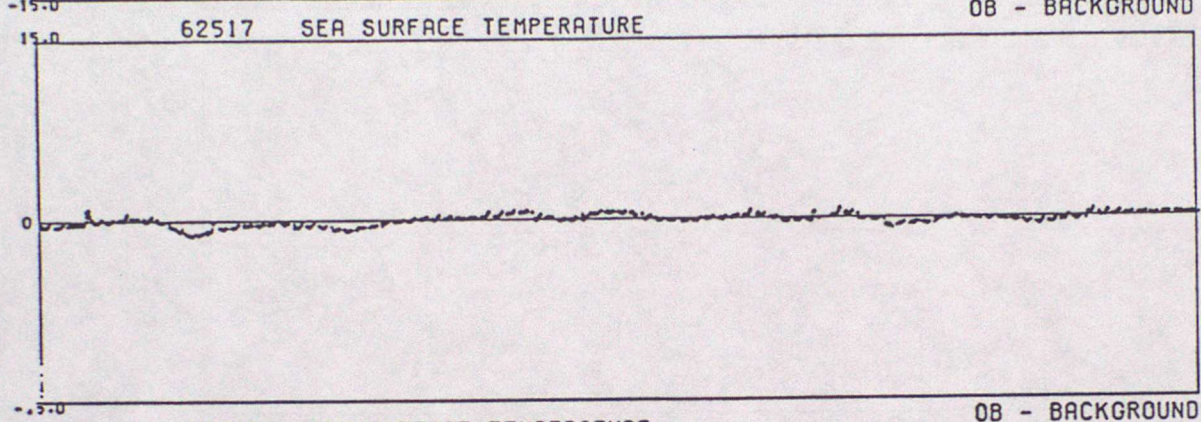
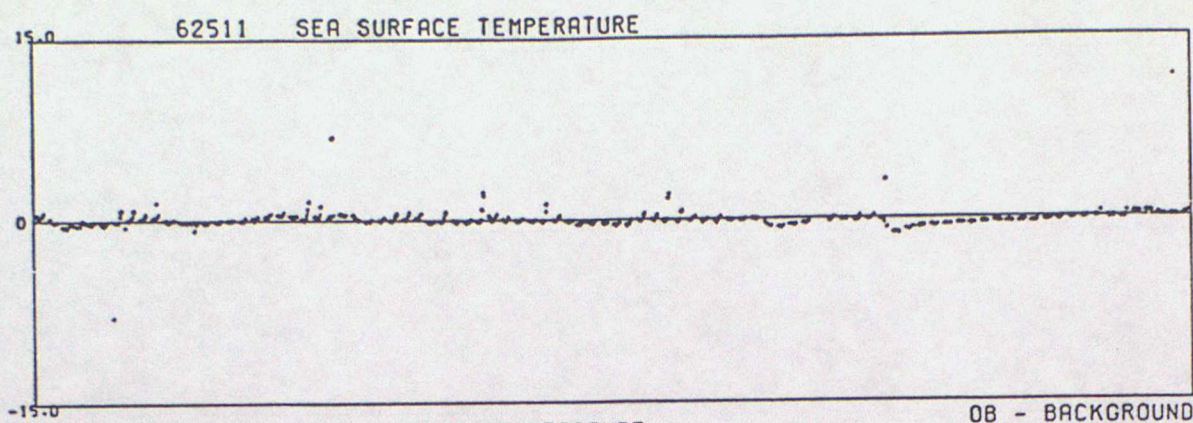


DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)





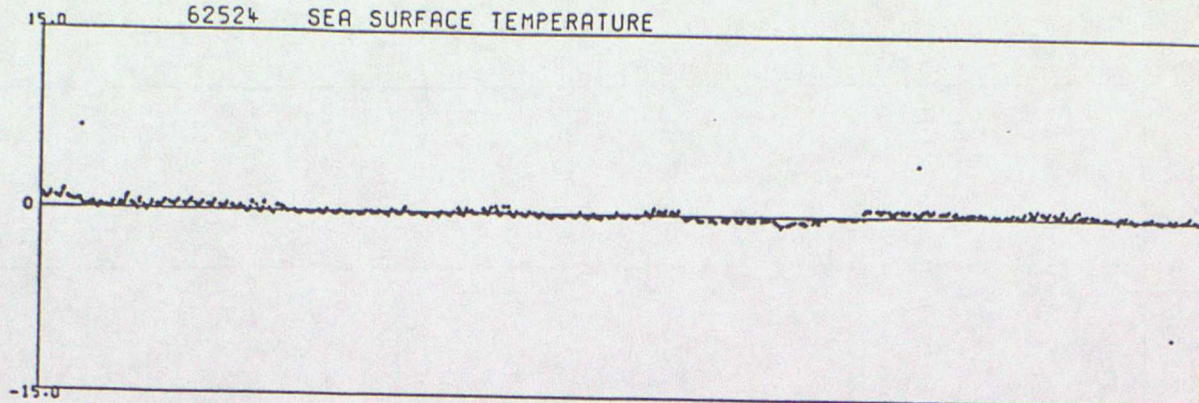
DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)





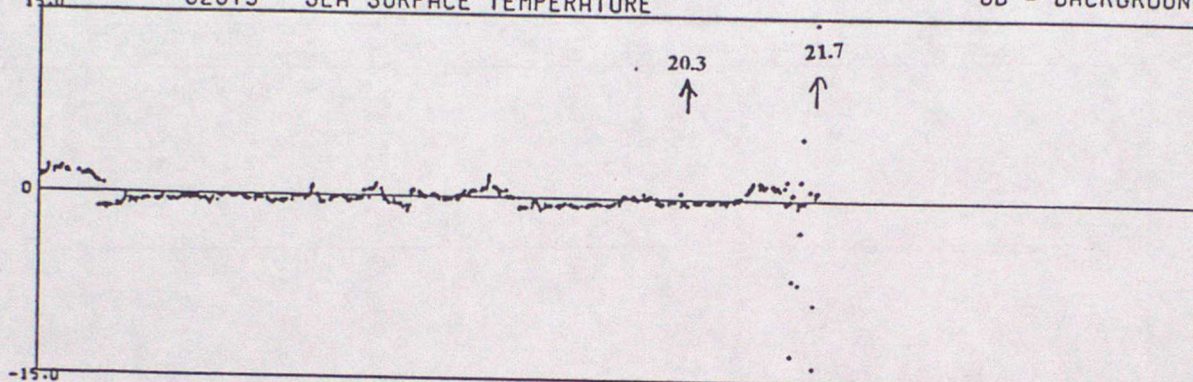
DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)

62524 SEA SURFACE TEMPERATURE



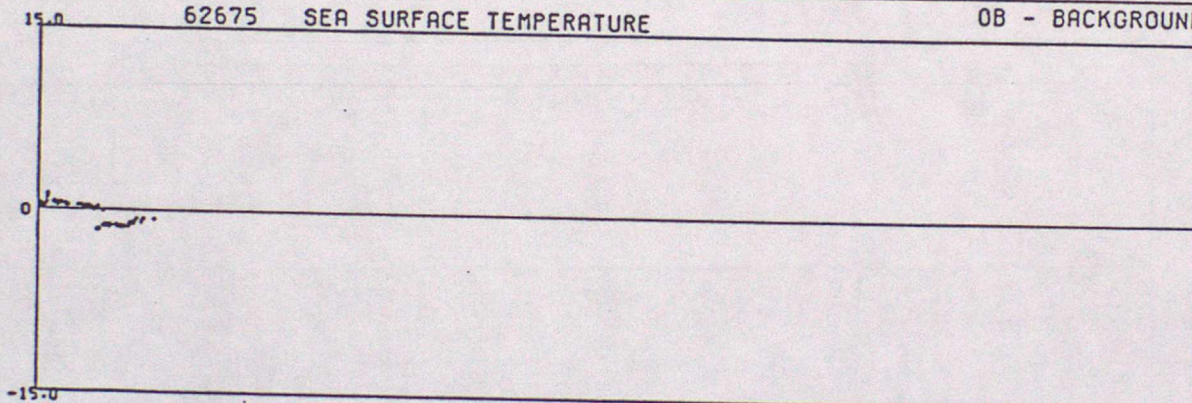
62673 SEA SURFACE TEMPERATURE

OB - BACKGROUND



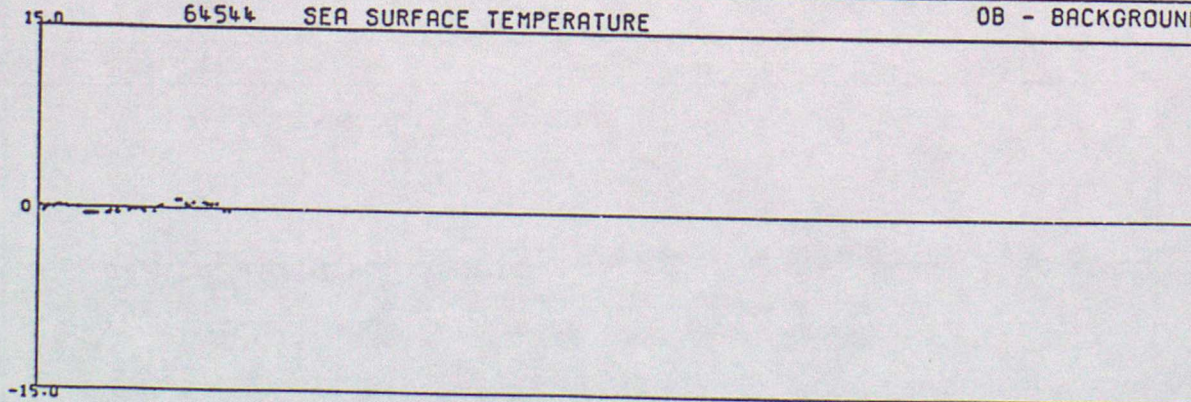
62675 SEA SURFACE TEMPERATURE

OB - BACKGROUND



64544 SEA SURFACE TEMPERATURE

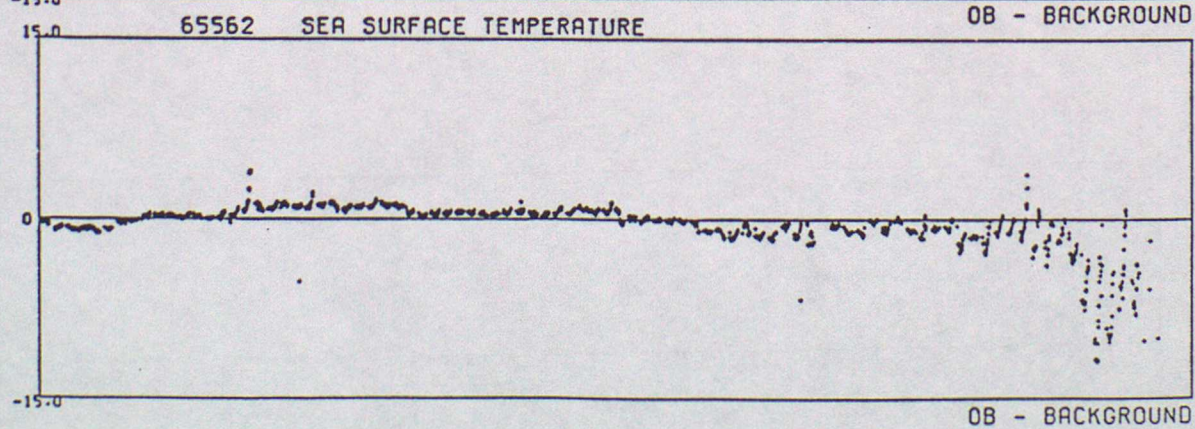
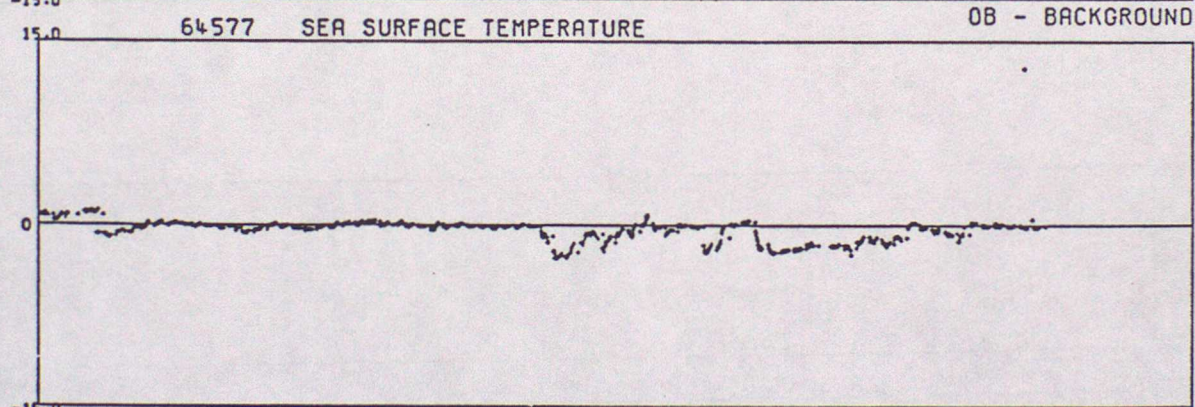
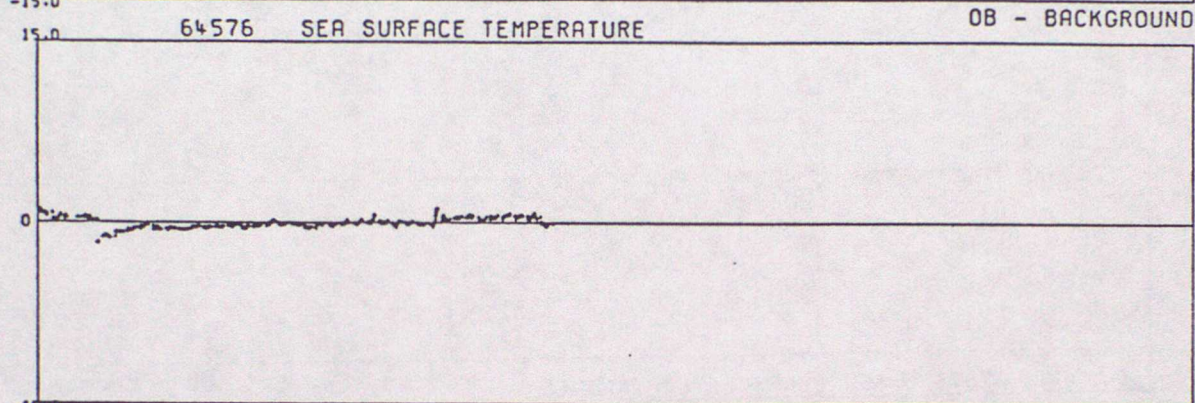
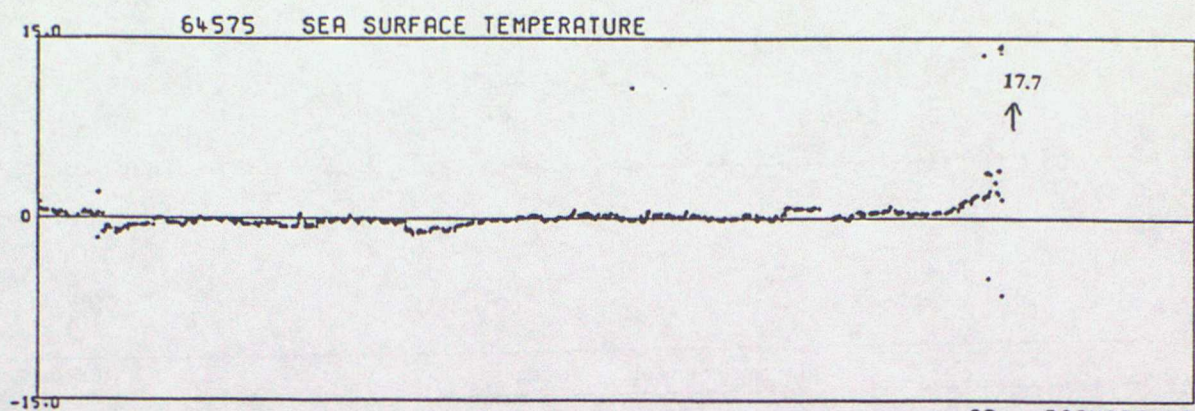
OB - BACKGROUND



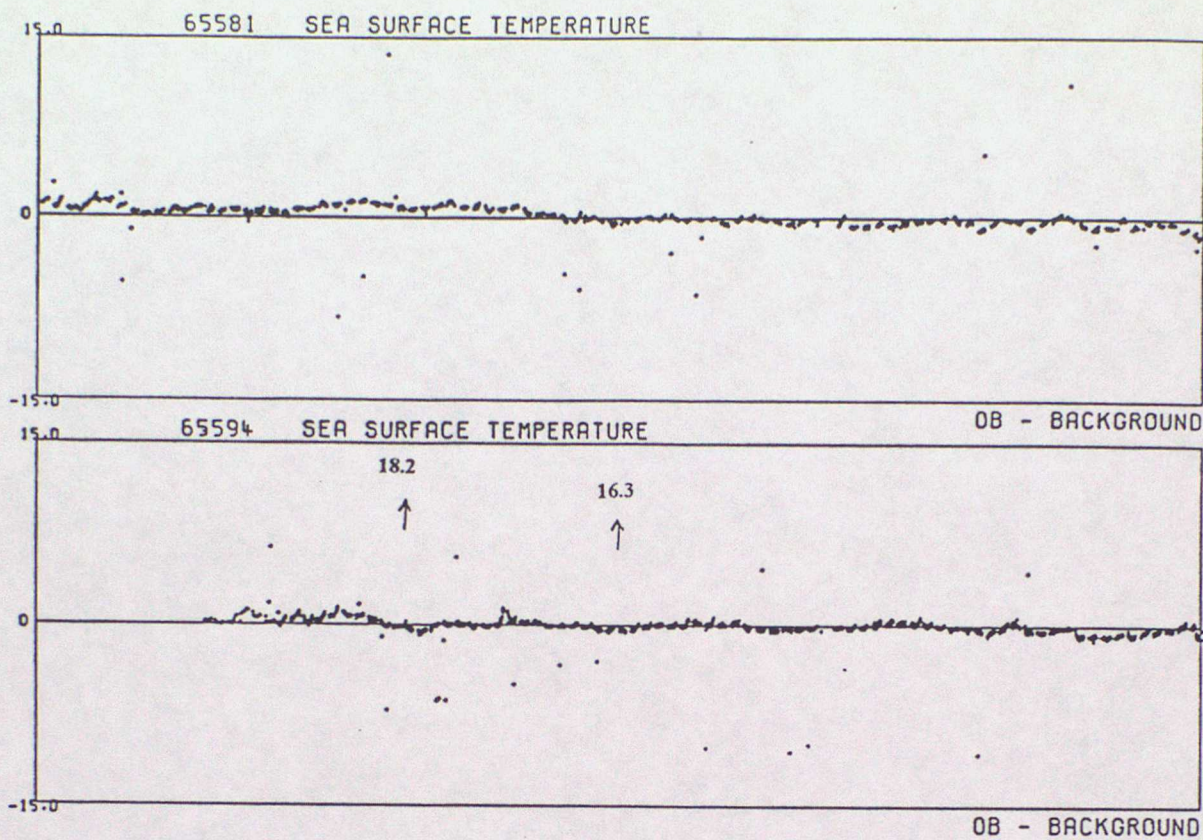
OB - BACKGROUND



DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



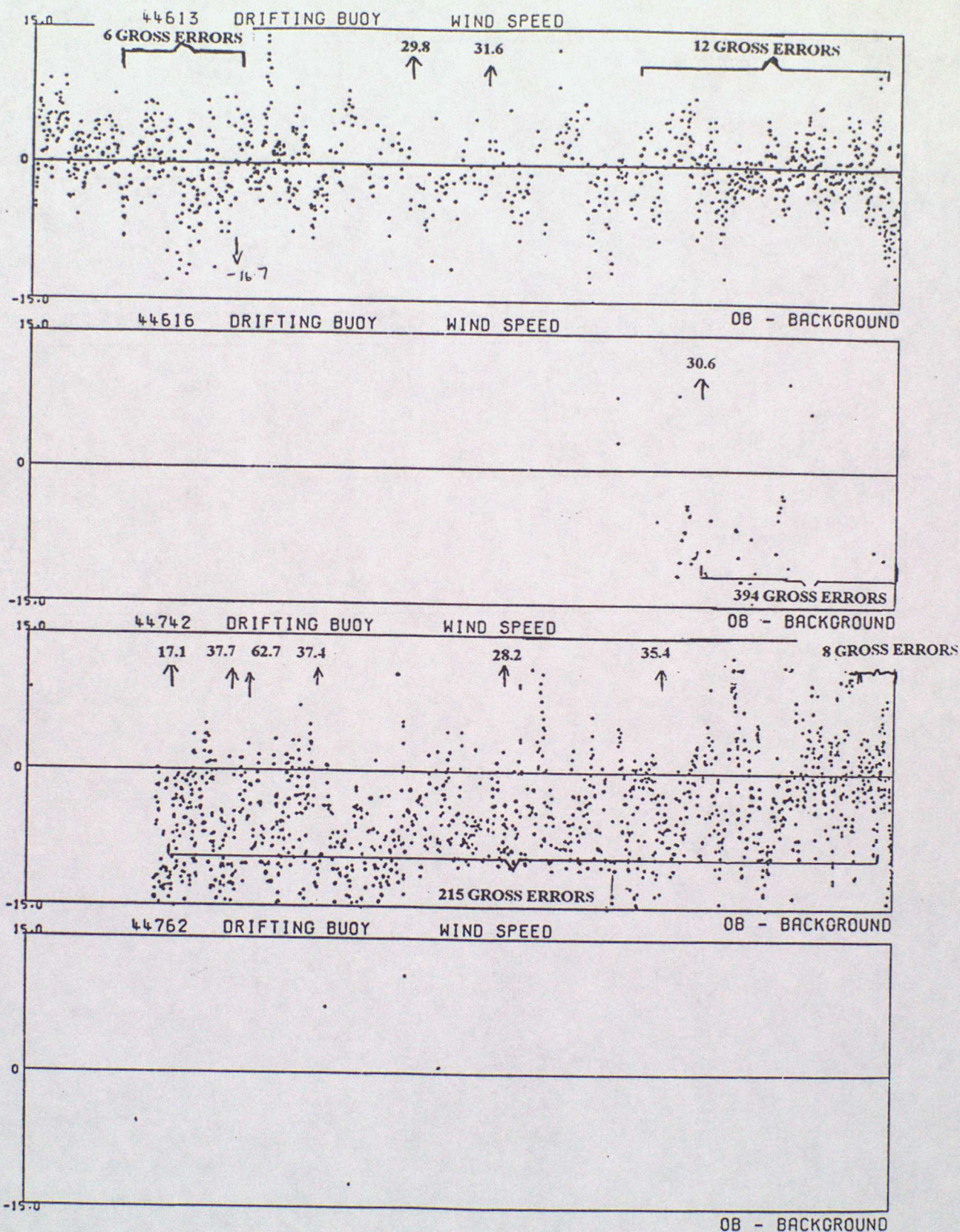




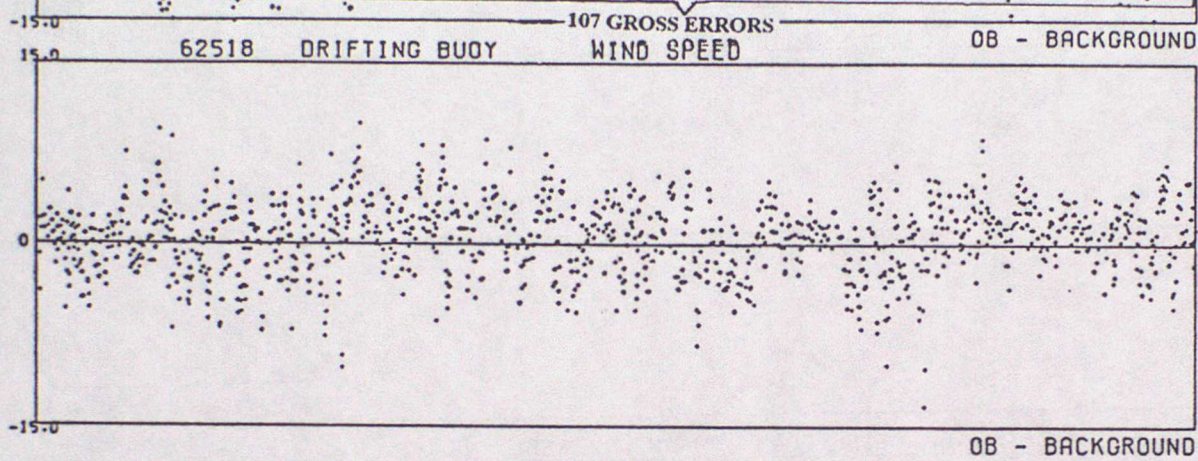
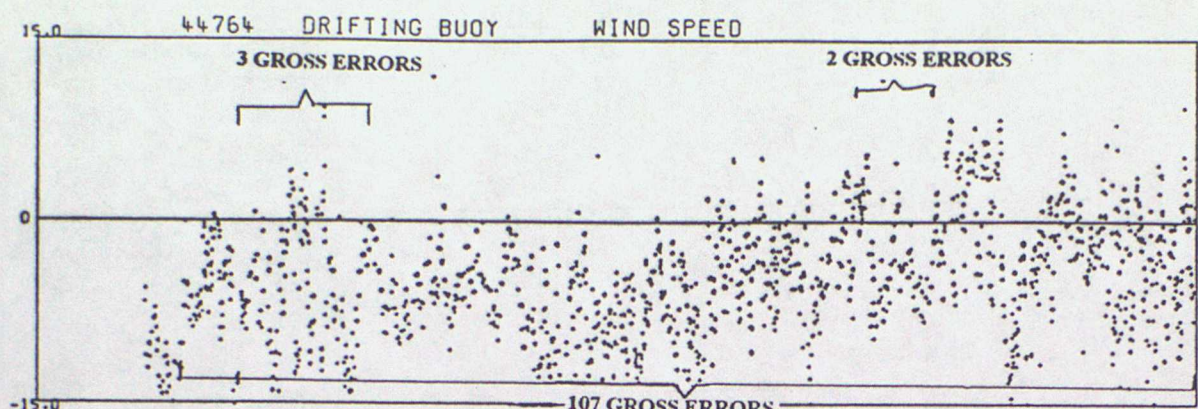


# ANNEX E - TIME SERIES PLOTS OF WIND SPEED

DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (OBS - BACKGROUND FIELD)



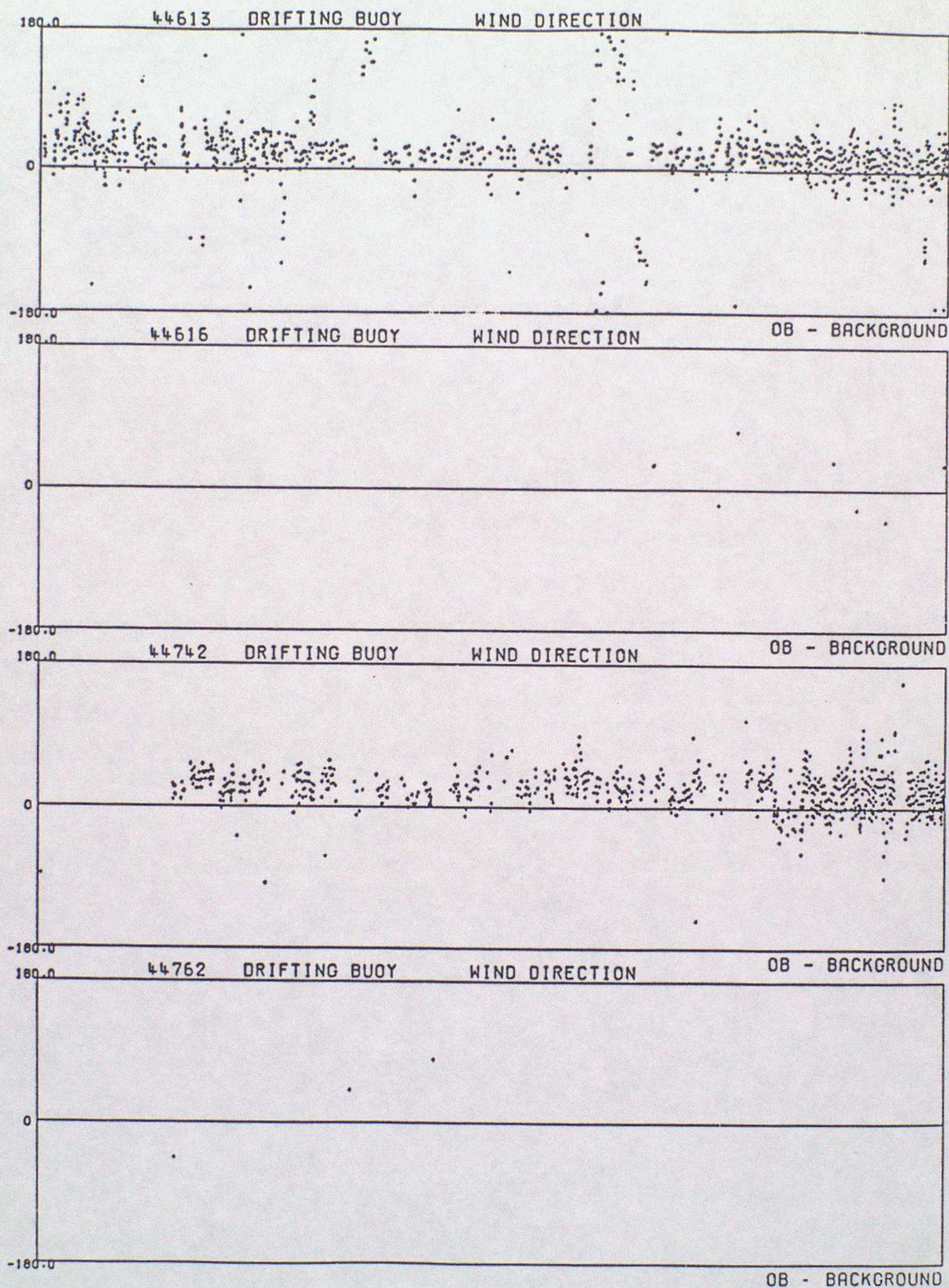




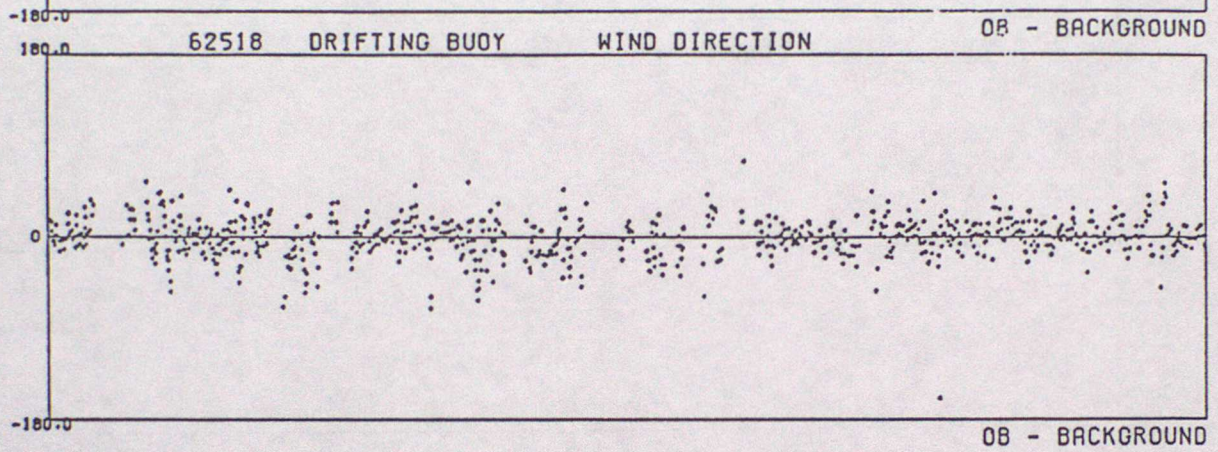
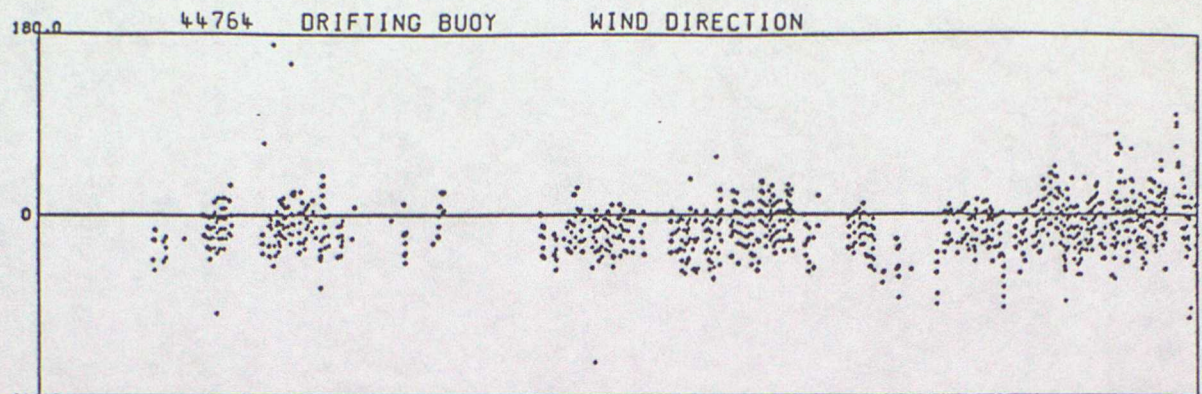


## ANNEX F - TIME SERIES PLOTS OF WIND DIRECTION

DATA FROM 00Z ON 01/07/1995 TO 23Z ON 30/09/1995 (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.	*	*	*				01/07 - 30/09
44546	8706	US	*		*			*	02/08 - 30/09
44547	8707	US	*		*			*	02/08 - 30/09
44548	10357	US	*		*			*	02/08 - 30/09
44613	3324	UK	*	*	*	*	*	*	01/07 - 30/09
44616	3318	UK	*	*	*	*	*	*	01/07 - 30/09
44624	6292	UK	*	*	*			*	01/07 - 06/09
44726	6296	UK	*	*	*			*	01/07 - 13/09
44728	3024	UK.	*	*	*			*	01/07 - 30/09
44742	2953	UK.	*	*	*	*	*	*	01/07 - 18/09
44760	2947	UK.	*	*	*			*	12/07 - 30/09
44762	6307	UK	*	*	*	*	*	*	01/07 - 10/08
44763	3098	UK.	*	*	*			*	04/09 - 30/09
44764	6306	UK.	*	*	*	*	*	*	01/07 - 30/09
44765	????	UK.	*	*	*			*	25/09 - 30/09
44769	1253	UK	*	*				*	20/07 - 30/09
44770	3035	UK	*	*	*			*	03.07 - 30/09
44773	3132	UK	*	*	*			*	08/09 - 30/09
44777	14733	UK	*	*				*	01/07 - 30/09
44779	14373	UK	*	*				*	01/07 - 30/09
44780	1250	UK	*	*				*	01/07 - 28/09
62511	14423	F	*	*				*	01/07 - 30/09
62517	10120	F.	*	*				*	01/07 - 30/09
62518	14419	F	*	*		*	*	*	01/07 - 30/09
62519	14421	F	*	*				*	01/07 - 30/09
62524	4625	UK	*	*				*	01/07 - 30/09
62673	5259	US	*		*			*	01/07 - 31/08
62675	6120	US	*		*			*	01/07 - 09/07
64544	14631	US	*		*			*	01.07 - 15/07
64575	5399	US	*		*			*	01/07 - 15/09

## KEY

PP	- Pressure	Pt	- Pressure tendency	TT	- Air temperature
FF	- Wind speed	DD	- Wind direction	SST	- Sea surface temperature



WMO No.	Argos No.	Owner	Elements Reported						Reporting Period
			PP	Pt	TT	FF	DD	SST	
64576	5522	US	*		*			*	01/07 - 10/08
64577	5523	US	*		*			*	01/07 - 18/09
65562	1298	N	*	*	*			*	01/07 - 28/09
65581	1299	IC	*	*	*			*	01/07 - 30/09
65594	1252	UK	*	*	*			*	13/07 - 30/09

# KEY

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

TT - Air temperature  
SST - Sea surface temperature



