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REPORT ON
THE QUALITY OF MARINE
SURFACE OBSERVATIONS
FOR THE PERIOD
JULY TO DECEMBER 1994.

REPORT NO. 12

CENTRAL FORECASTING SYSTEMS,
METEOROLOGICAL OFFICE,
BRACKNELL.

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REPORT ON THE QUALITY OF MARINE SURFACE OBSERVATIONS:

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JULY TO DECEMBER 1994

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REPORT ON THE QUALITY OF MARINE SURFACE OBSERVATIONS:

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1. INTRODUCTION

In 1985, the Commission for Basic Systems agreed that there was a need for GDPS/ Global NWP centres to monitor the quality of observations available on the GTS and to exchange monthly lists of those stations providing observations which seem in error. In 1988 three lead centres were nominated which would have a co-ordinating role of producing, at six-monthly intervals, consolidated lists of suspect stations for given data types together with information on the nature of the error. RSMC Bracknell was allocated the role as lead centre for marine surface observations which encompasses observations from ships, drifting buoys, moored buoys and other fixed marine platforms. This is the twelfth such report and covers the period July to December 1994. The report covering the period January to June 1995 will appear in autumn (fall) 1995.

Following the CBS recommendations, four centres have been active in exchanging monitoring information each month; RSMC Bracknell since August 1987, ECMWF since August 1988, RSMC Tokyo since September 1988 and NMC Washington since August 1989. At first, the only monitoring information exchanged on marine surface observations was related to pressure, and the first two WMO reports were restricted to that parameter alone. All four centres now regularly monitor wind observations and results are contained in this report. In addition, the report contains monitoring results for sea-surface temperature (SST). For each marine observing platform identified as suspect, values are supplied for the number of observations received at each centre, the number of observations with gross errors, and the mean and rms differences from the background values used by the numerical data assimilation system.

2. MONITORING METHODS

Errors in observations may arise from a number of sources: the instrument may be malfunctioning, figures may be mistaken while being transferred manually, or there may be corruption of data during transmission. Errors can also arise in the pressure report if the adjustment to sea level is made incorrectly or not at all, and a poorly-sighted anemometer can result in errors in the observations of wind. For SST observations, the depth at which the observation is made can be crucial. "Surface" observations from buoys are usually made at a depth of around 0.5m, whereas ships may take a measurement between a depth of 10m and the surface, depending on the method used. At present, there is no indication given within the report of the observation's depth, so it is not possible to determine the significance of this factor. By contrast, satellites measure the temperature of the ocean's "skin" which is generally slightly cooler than the temperature immediately beneath, by several tenths of a °C, as a result of evaporative cooling and other surface processes. Some of these errors can be detected by applying checks on the code format and the internal consistency of the report (for example: are the position and pressure consistent with a report 6 hours earlier?). Checks on spatial consistency may be made if there are other nearby observations. However, such quality checks are unable to identify errors on all occasions and it is recognised that the numerical data assimilation systems in use today can provide global reference values which have a valuable application in the area of observation monitoring. The short-term forecast from the previous numerical analysis, commonly known as the first-guess or background field, provides perhaps the most useful information on observation quality, as it represents an accurate and spatially consistent estimate of the observed value which is independent of the observation itself. Observation-minus-background (hereafter referred to as

O-B) differences are at the centre of all monitoring work by GDPS centres. For sea-surface temperature, it is not possible to use a background field with which to compare the observed value, as for wind and pressure observations, because no forecast of SST is performed. Instead, the analysis field is used. SST changes only slowly relative to parameters above the surface, thus this is a good enough approximation. Analyses are performed daily at RSMC Bracknell from an assimilation of both surface and satellite observations. There is one drawback in using the analysis field as an alternative: it is not independent of the observations themselves. This is a major limitation when it comes to assessing observation quality since the results are not straightforward to interpret.

Taking all marine surface observations together, the values of O-B have distinct characteristics. The vast majority of the observations show quite small departures from background and the distribution of O-B is nearly Gaussian, with little or no bias. The errors in the background field probably contribute most to the values of O-B for these observations. There is, however, often a smaller group of observations departing much more from background, for which observation error is the only reasonable explanation for the large values of O-B. Studies of the distribution of O-B and its variation at different points around the globe enable reasonably accurate estimates of background error to be made, and this provides the basis for the monitoring methods described here. Those marine observing platforms for which, in a sufficiently large sample, the observed values of pressure or wind differ from the background by an amount significantly in excess of the estimate of background error, may be labelled as suspect with a high degree of confidence. The limits used here to identify suspect observing platforms have been set sufficiently stringent to preclude much likelihood of the background, rather than the observations, being in error.

Each monitoring centre produces a monthly list of the identifiers of marine observing platforms considered suspect according to the departure from the centre's background values. All observations, both synoptic and asynoptic, are assimilated. At Bracknell, Tokyo and Washington, the corresponding background value used is that valid at the nearest main synoptic hour. At ECMWF, however, interpolation in time is performed.

Given that the number of observations made during the month is greater than or equal to 20, then the condition used by all centres for obtaining platforms for the suspect lists is that at least one of the following criteria are satisfied:

Pressure

1. the | mean of O-B | $\geq 4.0 \text{ hPa}$
2. the standard deviation of O-B $\geq 6.0 \text{ hPa}$
3. the percentage of gross errors ≥ 25

Wind

1. the | mean of O-B | $\geq 5.0 \text{ ms}^{-1}$ (Speed)
 $\geq 30^\circ$ (Direction)
2. the standard deviation of O-B $\geq 80^\circ$ (Direction)
3. the percentage of gross errors ≥ 25

A gross error is defined as an observation which departs from the background by more than 15hPa (Pressure) or 25 ms^{-1} (Vector Wind). The mean and standard deviation of the samples are evaluated excluding gross errors and in this way occasional "wild" values resulting from, for example, corruption during transmission, do not influence the sample characteristics. Direction statistics are also calculated excluding values in light winds, where either the observed or background speed is less than 5 ms^{-1} .

Very little information is exchanged between centres on a regular monthly basis for SST.

The monthly results for pressure from all four monitoring centres show considerable agreement, both on the observing platforms listed as suspect and the values of the mean and rms difference from each centre's background. Differences between the monthly suspect lists are usually due to the different numbers of observations available at each centre. The cut-off varies between 6 and 24 hours. There are also some unexplained variations in the data receipt between the centres, which may be due to problems in the GTS or in the local procedures for handling the data. Monitoring results for wind speed also show reasonable agreement on the mean and standard deviation from each centre's background; there is less agreement as to which platforms are listed, reflecting the greater uncertainty when monitoring wind speed.

This report draws together all the monthly monitoring results exchanged on marine surface data and identifies a list of observing platforms which have provided observations of poor quality over the six-month period. In drawing-up this list, there have been a number of guiding principles:

1. As with the monthly lists, accuracy is assessed relative to background values.
2. Only those observing platforms are listed for which there is a very high degree of confidence that the observations rather than the background values are in error.
3. At least 40 reports are required over the period in which the observations are considered suspect.
4. The perceived accuracy over the last part of the six-month period is of greatest importance; observing platforms will not be listed if there has been recent improvement and their reports are at present without major error.
5. Given that the number of observations made during the period is greater than or equal to 40, then the condition for listing a platform as suspect in this report is that at least one of the following criteria are satisfied:

Pressure

1. the | mean of O-B | $\geq 3.5 \text{ hPa}$
2. the standard deviation of O-B $\geq 5.0 \text{ hPa}$
3. the percentage of gross errors ≥ 25

Wind

1. the | mean of O-B | $\geq 5.0 \text{ ms}^{-1}$ (Speed)
 $\geq 30^\circ$ (Direction)
2. the standard deviation of O-B $\geq 6.0 \text{ ms}^{-1}$ (Speed)
 $\geq 60^\circ$ (Direction)
3. the percentage of gross errors ≥ 25

SST

1. the RMS of O-A $\geq 2.5^\circ \text{C}$
2. the percentage of gross errors ≥ 25

The same gross error limits apply in this report as for the monthly lists, with the limit for SST being set at 5°C . All observations having gross errors are excluded from the calculation of the mean and standard deviation of O-B and O-A.

The limits set on the bias and standard deviation of O-B are slightly less stringent than those for the monthly lists because the sample sizes are larger. They are only applied over the last part of the period if there has been a recent deterioration in quality. It is possible that there are a few observing platforms listed in this report which have not appeared on any of the monthly lists. This can occur if they report infrequently and only produce a large enough sample over a period of

several months. The six-month list is longer than most of the monthly lists because many ships cease reporting for variable periods of time, presumably in most cases while they are in port or out of service. Only over a relatively long period, probably more than six months, is a representative sample obtained from all those ships providing observations.

3. MONITORING RESULTS

The monitoring results presented in this report only relate to data exchanged over the GTS. Observations from marine platforms are transmitted in one of two formats: the SHIP code, used for most observations from ships, moored buoys and other fixed platforms, and the DRIFTR code, used mostly for observations from drifting buoys. In this report the term "ship observations" refers to those received in the SHIP code and the "drifting buoy observations" to those received in DRIFTR code. The SHIP code indicates whether the observation was made manually or by an automatic system and accordingly the sub-divisions "manual ship" and "automatic ship" will be defined.

3.1 Pressure

In the six-month period July to December 1994, 831846 observations of pressure were monitored at Bracknell from 5781 manual ships, 303 drifting buoys, and 420 automatic ships. The number of reports received from individual ships varies greatly as Table 1 demonstrates. Apparently, a very large percentage only report once. The reason for this is unclear but it may be a result of errors in the part of the message giving the ship identifier. A comparison with the corresponding table in the eleventh report, shows that the number of manual ship identifiers continues to decrease, while there is a slight increase in the number of drifting buoy identifiers in all but SST measurement; the number of automatic ship identifiers shows a more substantial increase.

TABLE 1: FREQUENCY DISTRIBUTION OF THE NUMBER OF REPORTS OF PRESSURE, WIND AND SEA SURFACE TEMPERATURE FROM INDIVIDUAL IDENTIFIERS AVAILABLE FOR MONITORING AT BRACKNELL, JULY TO DECEMBER 1994.

Number of reports	Number of manual ships reporting			Number of drifting buoys reporting			Number of automatic ships reporting		
	Press	Wind	SST	Press	Wind	SST	Press	Wind	SST*
1	1816	1501	1818	22	20	1	126	126	4
2-10	919	916	951	16	11	24	64	62	161
11-20	369	385	374	2	1	17	13	16	7
21-40	537	546	464	2	2	27	20	20	5
41-100	890	893	860	24	2	40	18	20	5
101-200	706	628	620	23	5	35	23	23	0
201-500	471	333	408	65	12	344	45	105	12
501-1000	63	33	55	76	11	165	105	100	9
1001-1500	9	8	6	59	1	33	3	2	14
1501 +	1	0	6	14	3	37	3	1	89
Total	5781	5243	5562	303	68	723	420	475	306
(Report 11)	(6008)	(5509)	(5889)	(289)	(49)	(729)	(362)	(413)	(259)

* numbers are for automatic (fixed) buoys only

Table 2 shows the number of observations of pressure that have been received over the GTS at Bracknell for past six-month periods. Due to changes in data storage methods at Bracknell in May 1991, report number 5 covered the period January to May 1991 only, thence figures for January-June 1991 have been scaled-up in order to make a fair comparison with other six-month periods;

this may not be entirely accurate. Further changes in November 1993 for drifting buoys & automatic ships for pressure & winds, may have allowed duplication of a few identifiers in Table 1 for the period June to December 1993, as reclassification from one observation type to another occurred. The observation distribution shown in Table 2 will also have been affected in the long term with a slight shift towards drifting buoys; no duplication of observations occurred however. SST observations were not affected by the November 1993 change.

NUMBER OF OBSERVATIONS OF PRESSURE RECEIVED AT BRACKNELL ON THE GTS FOR EACH OF THE SIX-MONTH PERIODS COVERED BY THE WMO REPORTS ON THE QUALITY OF MARINE OBSERVATIONS

TABLE 2:

Period	WMO report number	Number of Observations			
		Manual ships	Drifting buoys	Automatic ships	Total
Jan-Jun 1989	1	424087	174971	40082	639140
Jul-Dec 1989	2	421315	151972	58016	631303
Jan-Jun 1990	3	424335	177927	63847	666109
Jul-Dec 1990	4	412430	205488	71146	689064
Jan-Jun 1991	5	364760	177069	64401	606230
Jul-Dec 1991	6	348710	148604	68456	565770
Jan-Jun 1992	7	332443	216872	73893	623208
Jul-Dec 1992	8	336958	247873	80862	665693
Jan-Jun 1993	9	340293	288208	77317	705818
Jul-Dec 1993	10	348082	316261	88650	752993
Jan-Jun 1994	11	334134	279963	111928	726025
Jul-Dec 1994	12	383760	305618	142468	831846

FIGURE 1:



Figure 1 shows the information presented in Table 2 more clearly. It can be seen that the total number of observations rose somewhat to begin with, but was followed by a notable decline. Since report number six (covering the period July to December 1991) however, there has been a recovery in the total, with the latter half of 1994 showing the greatest number of all. At first the increase was mainly due to an increase in the number of drifting buoys reporting; more recently however, the number of buoys has stabilised to some extent, but the increase in the number of reports from each buoy continues, as reliability improves. In this latest six month period, the number of reports from all three observation types has increased, the increase being particularly noticeable for manual ships.

A histogram of O-B differences for all ship pressure reports in the period July to December 1994 is shown in Figure 2a, together with the Gaussian distribution with the same mean and standard deviation. Although almost all values fall within the range +5 to -5 hPa, a small number of very large values, presumably resulting from erroneous observations, contribute to the large standard deviation of the population. The distribution for all those observations which fail the automatic quality-control checks is broad and bimodal (Figure 2b). The remaining 95 per cent of the observations which pass the quality checks show a distribution of O-B which is very close to Gaussian (Figure 2c) with mean -0.1 hPa and standard deviation 1.4 hPa; the principal contribution to the standard deviation is assumed to be from background errors.

A global estimate of the background error, such as is provided above, will conceal large spatial variations which may occur. Background values will be more accurate in data-rich areas (e.g.: in the North Sea or Mediterranean) or where the meteorological variability is low (e.g.: the tropics). The geographical distributions of the mean and standard deviation of the values of O-B from all ship observations which pass the quality-control checks, have been calculated for 10-degree latitude-longitude boxes and are plotted in Figures 3 and 4. In almost all areas, the magnitude of the mean is less than 1.0 hPa, the exceptions being generally only where the sample size is small; in fact, with these exceptions plus the Pacific Ocean, many areas show a magnitude of less than 0.5hPa. The standard deviation in the tropics is 1.0 to 1.5 hPa, in northern latitudes 1.5 to 2.0 hPa, and in the Southern Ocean 2.0 to 3.0 hPa. The number of ship pressure reports accepted by the model quality control in each 10-degree box is shown in Figure 5.

Table 3 contains a list of those ships and drifting buoys considered to have produced suspect observations of pressure in the period July to December 1994. Values over the six-month period are given for the number of observations of pressure available for the Bracknell global model runs, the number of observations differing from the background value by more than 15 hPa (gross errors), and the mean and standard deviation of O-B using the Bracknell global model. The number of times the identifier has appeared on the monthly suspect lists from the four monitoring centres is also given. In order to give a detailed picture of the frequency of reporting and any changes in the observation accuracy, six-month time-series of O-B differences are given at the end of the report for each of the identifiers listed.

An interesting characteristic of the errors identified here, which soon becomes obvious on inspection of the time-series charts at the end of this report, is that most can be attributed to a bias in the observed pressure. In many cases the bias is constant over the whole monitoring period. There are some values which appear to depart greatly from the sample mean, presumably due to some gross error in the observation, but generally they are isolated instances. In only a few cases are there regular large random departures from background. Those observing platforms listed in Table 3 which appeared in the eleventh report (January to June 1994) have been indicated with an asterisk. A comparison of the statistics given here with those in the tenth report (July to December 1993), clearly indicates that the bias in the pressure observations from some ships has scarcely changed over the past 12 months.

Statistics for those marine observing platforms which were listed in the eleventh six-monthly report and which do not appear in Table 3b, are given in Table 4 along with comments on the quality of their pressure observations. Time-series charts of the pressure observations from these platforms are not given. Less than 40 reports have been received in the latest six-month period

for a majority of the ships on this list; several show some improvement in the quality of observations, however.

3.2 Wind

The monitoring of observations of wind, presents more problems than for pressure. On the majority of observing platforms, wind is measured using anemometers. The reported speed will be dependent on the averaging period and the height of the instrument above sea level, which will vary a great deal from platform to platform. The wind flow is distorted by a large structure and factors affecting the wind measurement will also include the siting of the anemometer and the bearing of the wind with respect to the structure. Not all winds are measured by anemometers; observations from some ships are based on visual estimates of the sea state and in these cases the factors outlined above do not apply.

In the monitoring results presented here, the background winds are valid at a height of 10 metres above mean sea-level, a little lower than the average height of a ship anemometer. Where the anemometer height is much different from the reference height, a significant O-B speed bias may be introduced. This will be the case, for example, for observations from oil rigs or tankers with an anemometer height of 50m or more, or from buoys where the anemometer can be as low as 2m.

In the period July to December 1994, 463746 observations of wind were available for monitoring at Bracknell from 5243 manual ships, 68 drifting buoys, and 475 automatic ships. A more detailed breakdown is given in Table 1. Histograms of O-B differences for ship observations of wind speed are presented in Figures 2d to 2f and of wind direction in Figures 2g to 2j. As with observations of pressure, those wind observations which fail the quality-control checks differ most from background, some by as much as 50ms^{-1} , and they make a large contribution to the variance of O-B. The distributions of O-B wind speed and direction for the remaining 92 per cent of the observations are nearly Gaussian. There is a speed bias of 1.4ms^{-1} relative to background, with a direction bias of just -1.6° .

Figures 6 and 7 show the geographical distributions over the six-month period of the mean and standard deviation of O-B for ship observations of wind speed which pass the quality-control checks. The numbers of wind reports used to generate these statistics are presented in Figure 8. The standard deviation of O-B wind speed is typically 3 to 4ms^{-1} in middle latitudes and less than 3ms^{-1} in the tropics. The bias is generally around $+1\text{ms}^{-1}$, but exceeds $+2\text{ms}^{-1}$ in a few places. Similar distributions of the mean and standard deviation of O-B wind direction are shown in Figures 9 and 10. Only reports where both the observed and background wind speeds are greater than 5ms^{-1} were used to obtain these values. The magnitude of the bias is less than 10 degrees in most places. The standard deviation is generally between 20 and 30 degrees globally, but in some areas, notably tropical parts of the Indian and Pacific Oceans & in data-sparse areas of the southern hemisphere, it is as large as 40 or 50 degrees. The numbers of reports of wind direction used to generate these statistics are presented in Figure 11.

Figures 6-11 provide reference values against which the characteristics of O-B for different marine observing platforms may be compared. Table 5 contains a list of those ships and drifting buoys considered to have produced suspect observations of wind speed in the period July to December 1994, and in Table 7 a similar list is provided for wind direction. Values are given for the number of observations of wind received at Bracknell, the number of observations having a vector difference from background of more than 25ms^{-1} (gross errors), & the mean and standard deviation of O-B. Time-series of O-B for each identifier listed are given at the end of the report. In most cases of suspect speed observations, a constant bias is clearly evident. Errors in observations of direction are more random in nature. Tables 6 & 8 contain statistics for platforms which are not included in Tables 5 & 7 but that were listed in the previous six-month report, for wind speed & direction respectively. Time-series plots for these identifiers are not included in this report.

3.3 Sea-surface temperature

In the six-month period, July to December 1994, a total of 1066725 observations of SST were monitored at RSMC Bracknell, an increase of 12312 compared with the six-month period January to June 1994. Of the total, 335399 were from ships, 336668 from fixed buoys and 387014 from drifting buoys. The increase is due to a slight increase in the number of observations from ships and a larger one from fixed buoys; it is offset by a fall in reports from drifting buoys. The number of ships reporting SST has decreased by around 5% compared with the previous six months, with the number of fixed buoys reporting increasing by almost 20%; the number of drifting buoys reporting has decreased slightly. Table 1 gives the number of reports received from individual identifiers in frequency categories and shows that a large number of ships reported only once during the six-month period. Errors in reporting the station's identifier could make a significant contribution to this total. Despite there being a relatively small number of buoys, they constitute a substantial percentage of the total number of observations received. This is due to the frequency at which the observations are made: ships usually report only at the main synoptic hours, or less frequently, whereas some buoys report as often as every hour.

Figures 12a, 12b and 12c show the number of observations, mean O-A and standard deviation of O-A for each of the 3 observation types, for both the northern and the southern hemispheres. Only observations passing quality control checks have been used. Figure 12b shows that the overall bias of each observation type is small ($< 0.1^{\circ}\text{C}$), with ship observations having a slightly positive bias and fixed and drifting buoys a slightly negative bias in general. Figure 12c shows that ship observations are substantially more erratic, with standard deviations approximately twice those of fixed and drifting buoys. This is partly due to the fact that buoys report frequently and at a quasi-constant location which effectively gives them increased weight in the analysed field.

Figures 13, 14 and 15 respectively show the global distribution of the bias and standard deviation of O-A and the numbers of observations, for ships. The largest biases occur at high latitudes, which is most likely a result of the small number of observations available and hence the decreased reliability of the analysis in these areas, particularly in the southern hemisphere. Figures 16 and 17 show the global distribution of fixed and drifting buoy SST reports. The coverage provided by drifting buoys is extensive, with particularly good coverage over the bulk of the Pacific Ocean and North Atlantic. Only a limited number of platforms report in the Indian Ocean and tropical parts of the Atlantic Ocean. Fixed buoys are largely concentrated in coastal regions, with particularly high observation densities around the UK and the USA. A number of $10^{\circ} \times 10^{\circ}$ grid boxes contain less than 5 reports; this situation may have arisen from reports containing erroneous positions.

Table 9 contains a list of the ships and drifting buoys considered to have produced suspect observations over the six-month period. The comments given in each case provide an indication of the main reason for the station to be listed as suspect. Table 10 gives details of the performance over the latest six-month period of ships which were considered suspect in the previous six-month period but which don't appear in Table 9. A significant number of the ships included in Table 10 have shown an improvement in the accuracy of SST measurements during the last six months of 1994. No time-series charts have been plotted for SST so the comments are based on a comparison of the magnitudes of the mean, root-mean-square error and standard deviation of O-A. A large number of the identifiers appearing on the list do so as a result of a persistent bias. A high percentage of those listed due to the number of gross errors, also show a large bias.

4. SUMMARY

71 marine observing platforms are listed as producing suspect observations of pressure over the period July to December 1994, 29 as producing suspect wind observations and 127 as producing suspect SST observations. The first report issued by RSMC Bracknell for the period January to June 1989, listed 150 marine platforms producing suspect observations of pressure. The

selection criteria have remained unchanged, and the reduction in the number of platforms listed seems to reflect a genuine improvement in quality over the period.

The most common characteristic of the pressure errors found here is a bias in the reported pressure which may remain constant for many months. The majority of platforms listed as producing suspect wind observations show a bias in the reported wind speed, while a few show a large standard deviation in wind direction. For sea-surface temperature observations, the presence of a persistent bias is again found to be the most common cause of error.

The selection criteria have been set sufficiently stringent to ensure that only those are listed for which there is a high degree of confidence in there being large observation errors. There are a great many others, not listed here, for which there must be considerable doubt over the quality of the observations. A wider range of monitoring results are available from Bracknell on request.

Table 3b: Platforms reporting in SHIP code

Ident.	N Obs.	NGE	SD	Bias	B	E	T	W	Comments
ATSR *	94	0	1.9	4.9	2	2	4	0	Constant bias
CG2241	56	51	2.6	-13.0	2	0	2	0	Gross errors
CG3198	61	0	1.8	3.6	1	0	0	1	Bias +5hPa from August
CZ9742 *	169	169	***	****	4	2	0	3	Gross errors
C6FA6 *	140	2	1.4	-5.8	3	3	4	3	Constant bias
C6JG8	160	0	2.0	4.3	3	3	2	2	Near constant bias
C6KB6 *	267	0	1.4	-5.7	6	6	6	6	Constant bias
C6KP	93	0	4.4	-2.7	0	0	1	0	Bias -10hPa from Oct
C6LU3	92	1	2.0	4.9	0	0	1	0	Bias +5hPa,+7hPa from October
DVRF *	377	0	1.0	5.0	3	0	3	3	Constant bias
D5NE *	57	0	1.7	5.7	1	0	0	1	Constant bias
D9ZZ *	45	3	3.6	4.9	0	0	0	0	Erratic
ELEW9	106	0	2.0	-6.0	2	0	2	0	Constant bias
ELIQ	82	3	2.5	-4.9	1	1	1	0	Constant bias
ELIQ7	53	0	1.6	-4.0	0	0	0	1	Constant bias
ELND2 *	131	1	4.7	2.1	2	0	1	1	Bias +6hPa, -4hPa from Nov
ELOY5	105	1	2.8	3.7	1	0	2	0	Bias +7hPa from September
ELQF4	41	0	1.8	-6.0	0	0	0	0	Constant bias
ESCA	93	2	0.9	12.4	3	3	1	3	Constant bias
ESDI *	56	0	1.8	-5.5	2	2	0	0	Constant bias
EUAF *	63	0	2.1	5.9	1	1	1	0	Constant bias
HSBN	153	1	2.3	-1.8	1	0	0	1	Bias -4hPa from December
KXDB *	134	32	1.8	-10.3	3	0	5	3	Bias -15hPa,-10hPa from Sep
LA004	55	1	4.1	3.6	1	0	0	2	Erratic
NHAR	182	0	2.7	-1.8	1	0	0	0	Bias drift; bias -5hPa by Dec
NQST	137	3	1.8	-4.1	4	1	1	1	Constant bias
OUZW2	122	0	2.3	2.9	1	2	0	2	Bias drift; bias +5hPa by Dec
OYMO2	214	0	3.3	-2.8	1	1	1	1	Bias -8hPa from November
PESF	47	0	0.9	-9.0	1	1	0	1	Constant bias
P3NE5	111	0	1.7	5.5	3	3	2	2	Constant bias
P3XM4	109	2	2.6	-2.7	1	0	0	1	Bias -4hPa from November
P3ZL4 *	68	0	2.6	-2.3	0	0	0	0	Bias -4hPa from October
UEZJ	58	0	2.8	4.3	0	0	0	0	Bias +5hPa from October
UFBE	95	0	1.5	4.1	2	0	0	0	Constant bias
UHUN *	70	1	1.8	4.0	1	0	0	0	Constant bias
UIAG	59	28	3.1	-1.4	0	0	0	0	Gross errors
UKPG	44	0	1.8	3.6	0	0	0	0	Constant bias
UKTV *	43	0	1.8	5.0	0	0	0	0	Constant bias
UNWJ *	75	0	1.4	4.6	2	2	1	1	Constant bias
UOPQ	70	3	1.6	11.1	1	1	0	1	Constant bias

Continued ⇨

Ident.	N Obs.	NGE	SD	Bias	B	E	T	W	Comments
UULE *	51	0	1.5	4.8	1	1	0	0	Constant bias
UVZP	79	0	1.5	-7.0	2	2	2	2	Constant bias
VC6749	86	1	2.6	-5.5	2	2	2	1	Constant bias
VLHJ	98	27	2.0	-0.8	1	1	1	0	Gross errors
VPHW	138	0	1.9	-6.2	4	4	4	4	Constant bias
VRKO	80	0	1.9	-5.0	1	1	0	0	Constant bias
VRUA4 *	344	0	1.6	4.9	6	6	6	4	Constant bias
VRUH6	45	0	3.2	3.7	1	0	1	1	Constant bias
WCB5820 *	265	1	2.5	6.5	5	4	2	5	Constant bias
WPPO	42	0	2.0	3.7	0	0	0	0	Constant bias
WXY6216	146	3	2.7	-4.7	5	1	0	0	Constant bias
WZE4928 *	241	236	5.5	8.7	5	3	2	3	Gross errors
ZBWP *	215	1	1.6	3.8	3	5	2	3	Constant bias
ZR4719	77	0	2.3	2.7	0	0	2	0	Bias +5hPa from October
ZSBK *	57	0	4.5	-5.5	0	0	3	0	Bias -6hPa; rather erratic
ZTFM	61	0	3.2	-5.3	0	0	3	0	Constant bias
ZTHP *	71	0	2.5	-4.2	0	1	2	0	Constant bias
3EAY5 *	134	0	1.8	-5.5	3	0	2	0	Constant bias
3EER8	45	0	1.9	-4.1	1	0	0	1	Constant bias
3EWF5	120	0	1.2	-3.6	1	0	0	0	Constant bias
3EWK9	144	0	2.2	2.6	0	2	2	0	Bias drift; bias +4hPa by Dec
3E WV5 *	49	0	0.9	4.6	0	0	2	0	Constant bias
3EYY8 *	121	4	2.5	-3.6	1	0	0	0	Constant bias
9MSS	65	0	1.7	-4.0	1	0	1	1	Constant bias

TABLE 4: LIST OF PLATFORMS REPORTING IN SHIP CODE NOT APPEARING IN TABLE 3 BUT LISTED AS SUSPECT OVER THE PERIOD JANUARY TO JUNE 1994.

- Column 1 Call sign or identifier.
 Column 2 Number of pressure observations available for monitoring over the 6-month period, excluding duplicates, but including any observations with gross errors.
 Column 3 Number of pressure observations differing by more than 15 hPa from background (gross error).
 Column 4 Standard deviation of observation-minus-background differences excluding cases of gross error.
 Column 5 Mean of observation-minus-background differences (bias) excluding cases of gross error.
 Column 6 Comments on quality of pressure observations.

Notes: 1. Units are hPa.

Ident.	N Obs.	NGE	SD	Bias	Comments
ATRK	16	0	2.8	1.9	Less than 40 reports; bias acceptable
CFD3491	315	22	1.6	-2.9	Bias reduced
CG2960	471	228	3.8	1.4	Gross errors ceased; bias acceptable from Sep
C6BT8	216	0	2.4	1.9	Bias acceptable from September
C6KQ9	4	0	1.2	5.9	Few reports
DZSB	157	0	1.6	-0.9	Bias acceptable
ELGI2	0				No reports
ELIU4	170	0	1.7	-0.5	Bias acceptable
ELPZ3	20	0	1.3	-3.8	Less than 40 reports; bias persists
KRHZ	38	2	1.3	-9.9	Less than 40 reports; bias persists
LAMT4	0				No reports
PEMA	140	1	2.1	-2.6	Bias reduced
PENQ	70	0	2.0	-2.4	Bias acceptable from September
SCYN	0				No reports
UBHT	3	2	0.0	-1.2	Few reports
UHZK	1	0	0.0	-3.1	Single report
UOVE	30	0	2.5	5.2	Less than 40 reports; bias persists
UPIU	20	0	1.3	5.0	Less than 40 reports; bias persists
USBZ	29	0	7.2	-0.9	Less than 40 reports; bias reduced but remains
UUOD	0				No reports
UYJL	0				No reports
UYKD	0				No reports
WCZB	36	0	1.4	6.7	Less than 40 reports; bias persists
WYR4481	663	5	3.3	-0.8	Bias reduced but now of opposite sign
ZCAM9	78	0	2.8	3.3	Bias acceptable from November
ZTCD	67	0	3.2	-3.3	Bias acceptable from December
3EJH6	30	0	1.2	3.3	Less than 40 reports; bias persists
3ELS2	0				No reports
3EYL9	39	0	2.5	-2.6	Less than 40 reports; bias persists

Continued ⇨

Ident.	N Obs.	NGE	SD	Bias	Comments
3FBK	57	0	2.3	0.0	Bias acceptable
3FCU3	73	2	4.2	2.2	Bias reduced but variable
3FGI3	34	0	1.1	-3.7	Less than 40 reports; bias persists
3FSB3	75	0	4.5	2.1	Bias acceptable from August
5LGK	19	0	2.1	0.0	Less than 40 reports; bias acceptable

TABLE 5: LIST OF MARINE OBSERVING PLATFORMS REPORTING SUSPECT WIND SPEED OBSERVATIONS OVER THE PERIOD JULY TO DECEMBER 1994.

- Column 1 Call sign or identifier.
 Column 2 Number of wind speed observations available for monitoring over the 6-month period, excluding duplicates, but including any observations with gross errors.
 Column 3 Number of wind observations with vector difference from background of more than 25ms^{-1} (gross error).
 Column 4 Standard deviation of observation-minus-background differences excluding cases of gross error.
 Column 5 Mean of observation-minus-background differences (bias) excluding cases of gross error.
 Columns 6-9 Number of times observing platform has appeared on suspect lists. B=Bracknell, E=ECMWF, T=Tokyo, W=Washington.
 Column 10 Comments on quality of wind speed observations.

- Notes:* 1. Units are ms^{-1} .
 2. Observing platforms marked with an asterisk were listed in the previous report (January to June 1994)

Table 5a: Platforms reporting in DRIFTR code

i): Platforms non-operational at the end of the reporting period

Ident.	N Obs.	NGE	SD	Bias	B	E	T	W	Comments
62509	134	0	4.2	6.2	2	2	1	0	Erratic

ii): Platforms operational at the end of the reporting period

Ident.	N Obs.	NGE	SD	Bias	B	E	T	W	Comments
46527	880	0	2.7	-5.1	3	3	3	4	Bias drift; bias -6 m s^{-1} by Dec
52525	932	0	2.6	-3.5	2	2	1	2	Bias drift; bias -7 m s^{-1} by Dec
52526	292	0	1.9	-4.4	1	2	0	2	Bias drift; bias -5 m s^{-1} by Dec
52540	808	0	2.4	-3.8	1	2	0	1	Bias drift; bias -5 m s^{-1} by Dec
64544	1676	3	3.3	-4.6	2	2	2	2	Bias drift; rather erratic

Note:

All identifiers appearing to be suspect have been included in the above tables. However, inspection of the corresponding time-series reveals that the buoys that are **operational** at the end of the reporting period all have a negative bias which is increasing in magnitude with time. The negative bias is probably indicative of an anemometer height of less than the background level of 10 metres; the increase in magnitude with time may simply be a seasonal variation.

Table 5b: Platforms reporting in SHIP code

Ident.	N Obs.	NGE	SD	Bias	B	E	T	W	Comments
C6DY8 *	151	3	4.3	8.4	5	5	2	3	Rather erratic;near constant bias
C6JD4	236	10	6.6	8.0	4	4	4	3	Bias +5 m s ⁻¹ ; +15 m s ⁻¹ later
C6MM5	81	0	4.9	5.6	1	1	2	1	Bias +8 m s ⁻¹ from October
ELLE9 *	145	3	4.3	9.6	3	3	2	2	Constant bias
FNH	770	12	5.7	9.4	6	6	6	5	Erratic
FNWC	125	2	5.4	5.3	1	1	2	1	Erratic from December
GBXW	358	0	3.9	4.6	1	2	2	0	Rather erratic; bias +5 m s ⁻¹
HPKW	168	0	6.7	6.1	2	1	0	0	Bias +15 m s ⁻¹ from November
JXSM	41	0	2.6	-5.1	1	0	0	1	Constant bias
MKHA7	68	0	6.3	7.8	0	0	0	0	Erratic
OXRA6	66	0	3.1	5.7	2	4	5	2	Constant bias
SXYY *	66	1	4.9	9.0	1	3	2	2	Rather erratic;near constant bias
VRRO	42	0	5.1	9.5	0	1	2	1	Rather erratic;near constant bias
VRUM3	220	3	5.6	5.1	1	1	2	1	Bias +17 m s ⁻¹ from December
XYKM	91	1	3.3	5.6	1	0	0	0	Near constant bias
3EVY8	56	0	5.2	7.4	1	1	1	1	Rather erratic;near constant bias
3F0C	48	2	5.4	10.6	0	0	4	0	Rather erratic;near constant bias

TABLE 6: LIST OF PLATFORMS REPORTING IN SHIP CODE NOT APPEARING IN TABLE 5
BUT LISTED AS SUSPECT OVER THE PERIOD JANUARY TO JUNE 1994.

- Column 1 Call sign or identifier.
 Column 2 Number of wind speed observations available for monitoring over the 6-month period, excluding duplicates, but including any observations with gross errors.
 Column 3 Number of wind observations with vector difference from background of more than 25ms^{-1} (gross error).
 Column 4 Standard deviation of observation-minus-background differences excluding cases of gross error.
 Column 5 Mean of observation-minus-background differences (bias) excluding cases of gross error.
 Column 6 Comments on quality of wind speed observations.

Notes: 1. Units are ms^{-1} .

Ident.	N Obs.	NGE	SD	Bias	Comments
ATSR	89	0	3.7	3.6	Less erratic; bias reduced
C6KF2	193	4	5.7	2.2	Bias acceptable from September
ELIH8	126	0	3.2	3.2	Bias reduced
ELLE	4	0	4.5	13.0	Few reports
FNVA	210	0	3.5	3.9	Bias reduced
GOMV	75	1	3.5	3.8	Bias reduced
PFRX	184	0	2.8	1.1	Bias acceptable from July
PJGK	0				No reports
S6CL	225	0	4.1	2.9	Bias reduced
VJBE	42	0	2.5	4.7	Bias reduced

TABLE 7: LIST OF MARINE OBSERVING PLATFORMS PRODUCING SUSPECT WIND DIRECTION OBSERVATIONS OVER THE PERIOD JULY TO DECEMBER 1994.

- Column 1 Call sign or identifier.
- Column 2 Number of wind direction observations available for monitoring over the 6-month period, excluding duplicates, but including any observations with gross errors.
- Column 3 Number of wind observations with vector difference from background of more than 25ms^{-1} (gross error).
- Column 4 Standard deviation of observation-minus-background differences excluding cases of gross error.
- Column 5 Mean of observation-minus-background differences (bias) excluding cases of gross error.
- Columns 6-9 Number of times observing platform has appeared on suspect lists. B=Bracknell, E=ECMWF, T=Tokyo, W=Washington.
- Column 10 Comments on quality of wind direction observations.

- Notes:
1. Units are degrees ($^{\circ}$).
 2. Observing platforms marked \blacklozenge had a negative speed bias and the statistics and their plots refer to direction reports associated with background wind speeds greater than 5ms^{-1} . If no significant speed bias was present the statistics and plots refer to direction reports with an observed speed greater than 5ms^{-1} .
 3. Observing platforms marked with an asterisk were listed in the previous report (January to June 1994)

Table 7a: Platforms reporting in DRIFTR code

i): Platforms non-operational at the end of the reporting period

Ident.	N Obs.	NGE	SD	Bias	B	E	T	W	Comments
21577 \blacklozenge	61	0	80.1	10.6	1	2	1	1	Erratic
52527 \blacklozenge	60	0	33.9	36.1	0	1	0	1	Bias
55580 \blacklozenge^*	155	0	59.5	84.6	1	1	1	1	Large bias $+100^{\circ}$ from July
64545 \blacklozenge	48	0	81.6	81.2	1	1	0	1	Erratic

ii): Platforms operational at the end of the reporting period

Ident.	N Obs.	NGE	SD	Bias	B	E	T	W	Comments
21527	199	0	76.2	33.5	2	2	1	1	Erratic
64544 \blacklozenge	1168	0	102.4	-36.2	5	5	4	4	Erratic; variable bias

Table 7b: Platforms reporting in SHIP code

Ident.	N Obs.	NGE	SD	Bias	B	E	T	W	Comments
46006	495	0	25.4	-20.0	1	2	1	2	Bias drift; bias -50° by December

TABLE 8: LIST OF PLATFORMS REPORTING IN SHIP CODE NOT APPEARING IN TABLE 7 BUT LISTED AS SUSPECT OVER THE PERIOD JANUARY TO JUNE 1994.

- Column 1 Call sign or identifier.
- Column 2 Number of wind direction observations available for monitoring over the 6-month period, excluding duplicates, but including any observations with gross errors.
- Column 3 Number of wind observations with vector difference from background of more than 25ms^{-1} (gross error).
- Column 4 Standard deviation of observation-minus-background differences excluding cases of gross error.
- Column 5 Mean of observation-minus-background differences (bias) excluding cases of gross error.
- Column 6 Comments on quality of wind direction observations.

Notes: 1. Units are degrees (°).

Ident.	N Obs.	NGE	SD	Bias	Comments
CG2614	319	0	30.4	25.1	Bias reduced
UYKD	0				No reports
21004	375	0	38.5	17.3	Bias reduced
42027	227	0	33.9	0.1	No longer biased

TABLE 9: LIST OF MARINE OBSERVING PLATFORMS REPORTING SUSPECT SEA-SURFACE TEMPERATURE OBSERVATIONS OVER THE PERIOD JULY TO DECEMBER 1994.

- Column 1 Call sign or identifier
- Column 2 Number of sea-surface temperature observations available for monitoring over the 6-month period, including any observations with gross errors.
- Column 3 Number of sea surface temperature observations differing by more than 5°C from the analysis (gross errors).
- Column 4 Standard deviation of observation-minus-analysis differences excluding cases of gross error.
- Column 5 Mean of observation-minus-analysis differences excluding cases of gross error.
- Column 6 Comments on quality of sea surface temperature observations.

- Notes: 1. Units are °C.
2. Observing platforms marked with an asterisk were listed in the previous report (January to June 1994)

Table 9a: Platforms reporting in DRIFTR code

i): Platforms non-operational at the end of the reporting period

Ident.	N Obs.	NGE	SD	Bias	Comments
17601	1287	1	1.5	-2.0	Bias
31903	72	60	1.9	1.4	Gross errors
31908	72	27	0.2	0.2	Gross errors
32821	268	114	0.2	0.0	Gross errors
33902	67	0	0.5	-3.3	Large bias
33906	99	30	1.0	-2.8	Gross errors; bias
33907	99	44	2.1	0.3	Gross errors; erratic
44727	1024	365	1.2	0.9	Gross errors
44761	162	67	0.9	-1.3	Gross errors
46715	257	0	0.7	2.6	Bias
46932	86	35	0.7	3.4	Gross errors; large bias
46937	50	45	0.4	4.3	Gross errors; large bias
46939	157	20	2.4	-1.9	Erratic; bias
56514	174	174	***	****	Gross errors
64642	299	111	1.3	2.0	Gross errors; bias
65581	921	236	0.3	0.0	Gross errors
71544	704	564	0.8	3.7	Gross errors; large bias
71545	723	589	0.9	3.7	Gross errors; large bias
71546	647	512	0.8	3.7	Gross errors; large bias

ii): Platforms operational at the end of the reporting period

Ident.	N Obs.	NGE	SD	Bias	Comments
52540	1035	581	0.5	0.3	Gross errors

Table 9b: Platforms reporting in SHIP code

Ident.	N Obs.	NGE	SD	Bias	Comments
A8LL *	75	0	1.2	2.2	Bias
BROE *	106	58	1.2	-3.1	Gross errors; large bias
CGCX	62	0	2.4	1.3	Erratic
CGDT	93	11	1.6	2.7	Bias
CGJY *	82	82	***	****	Gross errors
CZ9742	60	41	1.9	2.8	Gross errors; bias
C6DY5	78	42	1.4	-2.4	Gross errors; bias
C6IO9	61	3	2.5	-0.5	Erratic
C6JL6	67	40	1.5	0.2	Gross errors
C6JQ4	56	9	2.3	-1.9	Erratic; bias
C6JQ5	56	29	0.6	2.2	Gross errors; bias
C6KM	66	1	1.2	-3.4	Large bias
C6KP	91	27	0.5	-0.5	Gross errors
C6LC4	245	10	1.0	2.8	Bias
C6LU4	43	19	2.0	0.0	Gross errors; erratic
DEAL	98	1	0.6	-2.6	Bias
DULR	57	11	1.4	2.1	Bias
DULV	64	23	0.9	3.4	Gross errors; large bias
DUNV *	151	4	1.0	2.4	Bias
DUZH	55	5	1.1	2.9	Bias
DZBD *	59	48	2.0	2.0	Gross errors; erratic; bias
D5ND	53	37	1.1	1.4	Gross errors
D8SB	57	11	2.1	2.1	Erratic; bias
D9ZZ	46	17	1.3	-2.8	Gross errors; bias
EKGS	60	0	1.1	-2.4	Bias
ELAD7	48	45	3.1	0.2	Gross errors; erratic
ELBG9 *	261	2	0.7	-2.7	Bias
ELIO8	198	19	2.0	1.9	Erratic; bias
ELKD6	77	33	2.0	1.1	Gross errors; erratic
FNRV	76	40	0.7	0.5	Gross errors
J4LX *	130	2	1.0	2.8	Bias
KCDK	46	15	1.7	-1.3	Gross errors; slightly erratic
KIHD	124	5	1.0	2.7	Bias
KNJN *	117	7	1.1	-3.3	Large bias
KRHX	162	27	1.4	-2.7	Bias
KTDQ	54	3	1.5	-2.3	Bias
LADR4 *	60	0	1.0	3.0	Large bias
LAXQ2	68	22	0.9	1.8	Gross errors; bias
LA004 *	54	17	1.8	2.2	Gross errors; bias
NFMK	41	4	2.0	1.7	Erratic; bias

Continued ⇨

Ident.	N Obs.	NGE	SD	Bias	Comments
NRUF	70	1	1.1	3.0	Large bias
OENP *	64	5	1.3	2.9	Bias
P3NP4 *	80	20	2.8	-0.9	Gross errors; erratic
SQPY *	52	2	1.6	-2.2	Bias
SWYG	67	8	1.5	2.1	Bias
S6BP	116	11	2.8	-1.2	Erratic
TSLN	531	48	1.1	-2.6	Bias
UBAU	58	3	1.3	-2.3	Bias
UBLH	54	23	1.3	3.4	Gross errors; large bias
UBMU	58	8	2.2	-2.1	Erratic; bias
UERA *	72	28	1.4	-0.2	Gross errors
UEYV	50	15	1.5	-1.4	Gross errors
UFHG	43	7	2.7	-0.2	Erratic
UFHZ	98	28	2.4	-1.7	Gross errors; erratic
UHAJ	52	27	3.0	-0.6	Gross errors; erratic
UHRT	138	7	0.9	-2.6	Bias
UICP	114	79	0.3	-4.6	Gross errors; large bias
UIJP	66	12	1.6	-2.7	Bias
UJCQ	100	6	1.0	2.7	Bias
ULPL	124	44	1.7	-0.8	Gross errors
UNHX	54	19	1.8	1.7	Gross errors
UQJC	95	17	1.2	-2.5	Bias
UQUN	91	12	1.6	-2.2	Bias
URBX	83	36	2.1	-1.8	Gross errors; erratic
URFJ	89	3	1.0	2.6	Bias
URMI	44	5	2.4	-1.7	Erratic
UROU	41	31	1.2	-2.0	Gross errors; bias
UTTY	102	21	1.0	-2.3	Bias
UVMT	52	13	1.6	1.8	Gross errors
UYUG	49	13	1.7	-1.9	Gross errors
VOSR	73	19	1.1	1.3	Gross errors
VRIP	76	39	0.5	-4.4	Gross errors; large bias
VROC *	123	84	1.8	0.4	Gross errors
VRUH6	46	18	1.2	-0.2	Gross errors
WAO9082	104	26	1.5	0.0	Gross errors
WA6575	447	48	1.8	-2.0	Bias
WB4520	192	138	1.3	-0.7	Gross errors
WCJY *	129	8	1.0	2.7	Bias
WC5932	185	53	1.7	-0.8	Gross errors
WFQB	43	2	0.8	-2.6	Bias
WJBG	83	6	1.1	-3.5	Large bias
WLCV *	71	28	0.4	-4.4	Gross errors; large bias

Continued ⇨

Ident.	N Obs.	NGE	SD	Bias	Comments
WL3108	61	22	1.7	1.6	Gross errors
WRYG *	77	60	1.4	-0.1	Gross errors
WR3225 *	179	29	1.6	3.1	Large bias
WUR8856	319	33	1.5	2.3	Bias
WXQ4511	721	84	1.5	2.3	Bias
WYP8657 *	169	29	2.5	-0.2	Erratic
WZE7718	47	1	1.3	-3.0	Large bias
WZP8164 *	193	142	2.3	-2.3	Gross errors; erratic; bias
XYKH *	72	55	2.2	-0.7	Gross errors; erratic
YJZH9	154	11	1.6	2.4	Bias
ZCAW7 *	177	20	1.6	-2.1	Bias
3DRV	82	1	1.0	2.3	Bias
3EDD8	102	6	0.7	3.8	Large bias
3EJB9 *	283	4	0.9	3.0	Large bias
3EJT9 *	169	13	1.0	-3.6	Large bias
3EKH3	192	114	1.7	-3.0	Gross errors; large bias
3EKV5	43	23	1.2	-1.1	Gross errors
3ELQ9	175	5	0.7	-3.1	Large bias
3ESM4	101	35	2.2	-1.2	Gross errors; erratic
3FJE3	62	29	1.4	-2.4	Gross errors; bias
44014	115	115	***	****	Gross errors
45004	1000	108	0.8	-2.5	Bias
8KVT *	55	51	0.2	-3.9	Gross errors; large bias
9VNA	50	17	1.0	1.4	Gross errors; bias
9VYK *	206	2	1.0	-2.3	Bias

**TABLE 10: LIST OF PLATFORMS REPORTING IN SHIP CODE NOT APPEARING IN TABLE 9
BUT LISTED AS SUSPECT OVER THE PERIOD JANUARY TO JUNE 1994.**

- Column 1 Call sign or identifier
- Column 2 Number of sea-surface temperature observations available for monitoring over the 6-month period, including any observations with gross errors.
- Column 3 Number of sea surface temperature observations differing by more than 5°C from the analysis (gross errors).
- Column 4 Standard deviation of observation-minus-analysis differences excluding cases of gross error.
- Column 5 Mean of observation-minus-analysis differences excluding cases of gross error.
- Column 6 Comments on quality of sea surface temperature observations.

Notes: 1. Units are °C.

Ident.	N Obs.	NGE	SD	Bias	Comments
CGBN	36	14	1.1	0.7	Less than 40 reports; gross errors persist
CGBY	307	5	1.3	-0.5	Gross errors ceased
CG2240	93	0	1.0	0.5	Gross errors ceased; bias acceptable
C6JG6	261	5	1.0	0.8	Gross errors ceased
C6JY7	242	8	0.8	1.2	Bias acceptable
C6KE8	38	3	1.6	2.1	Less than 40 reports; bias persists
C6KJ5	141	2	1.0	2.1	Bias reduced
DUMF	68	10	1.1	2.0	No longer erratic
DVXE	23	6	1.5	-4.1	Less than 40 reports; GE + large bias persist
DZDI	56	3	1.1	1.5	No longer erratic; bias acceptable
EKYO	143	3	1.1	-0.2	Gross errors ceased; no longer erratic
ELEM3	127	6	1.4	-0.4	Gross errors ceased
ELFQ7	0				No reports
ELJJ3	20	3	0.9	2.2	Less than 40 reports; bias reduced
ELJO4	0				No reports
ELJS5	0				No reports
ELKM7	0				No reports
ENHL	0				No reports
EVKA	18	0	1.0	2.8	Less than 40 reports; no longer erratic; bias
EVMA	0				No reports
GYYP	60	3	0.9	1.2	Bias acceptable
J8NY	25	0	0.7	-2.4	Less than 40 reports; bias persists
KGTI	15	4	1.8	1.5	Less than 40 reports; bias acceptable
KHJB	48	0	1.3	0.1	Gross errors ceased
KNJA	19	0	0.5	-2.4	Less than 40 reports; bias persists
KNJD	122	0	0.9	-0.3	Gross errors ceased
KRNJ	105	3	1.6	1.3	Bias acceptable
NHWR	144	3	0.7	0.2	Gross errors ceased
PJYG	5	0	0.2	-3.1	Few reports

Continued ⇨

Ident.	N Obs.	NGE	SD	Bias	Comments
SFMY	0				No reports
SVKF	68	0	1.2	1.7	Bias acceptable
UBAW	0				No reports
UBCB	3	0	0.0	-3.7	Few reports
UBVU	45	5	1.0	1.1	Bias acceptable
UDXC	65	5	1.5	-1.8	Gross errors ceased; no longer erratic
UEEQ	48	3	2.3	0.2	Gross errors ceased; less erratic
UELJ	23	0	1.2	0.5	Less than 40 reports; no longer erratic
UFPL	67	5	1.9	0.5	No longer erratic
UJMQ	90	9	1.7	0.5	No longer erratic
UJQG	34	7	2.3	0.7	Less than 40 reports; remains erratic
ULAS	102	8	1.9	0.2	Bias acceptable
ULVR	163	17	1.6	-0.6	No longer erratic; bias acceptable
UMTB	6	5	0.0	-0.1	Few reports
UNRZ	55	5	1.7	0.8	Bias acceptable
UNWL	54	3	1.8	0.7	Gross errors ceased; no longer erratic
UPGM	39	13	1.1	-2.1	Less than 40 reports; gross errors + bias
UPIQ	38	10	1.6	-1.4	Less than 40 reports; gross errors ceased
UQDH	82	8	2.2	-1.0	Less erratic
UQHM	151	4	1.3	0.4	Gross errors ceased; no longer erratic
URFZ	14	0	1.5	-1.4	Less than 40 reports; no longer erratic
URPK	57	2	0.9	2.1	No longer erratic; bias persists
URTY	86	9	1.8	1.1	No longer erratic
USNN	209	1	1.7	-0.6	No longer erratic; bias acceptable
USTJ	12	2	0.6	-0.5	Less than 40 reports; bias acceptable
UUQR	160	29	1.4	1.9	Reduced bias
UVDJ	138	21	2.3	-0.9	Remains erratic; bias acceptable
UYDW	20	0	0.7	0.3	Less than 40 reports; gross errors ceased
UYKD	0				No reports
UYUS	82	7	1.6	0.7	Gross errors ceased
UZKJ	34	0	0.5	2.0	Less than 40 reports; bias persists
UZLJ	47	2	1.3	1.4	Bias acceptable
UZMX	66	3	1.6	0.2	No longer erratic
VCDT	74	3	1.1	-0.1	No longer erratic nor biased
VCTV	38	0	1.9	1.0	Less than 40 reports; gross errors ceased
VJIK	9	2	0.6	-3.1	Few reports
VODB	209	2	1.3	0.0	No longer erratic
VRMH	386	11	1.3	-1.2	Bias acceptable
VSOL	37	0	1.2	0.7	Less than 40 reports; no longer erratic
WBWK	30	29	0.0	1.2	Less than 40 reports; gross errors persist
WCIO	31	2	2.4	1.5	Less than 40 reports; remains erratic
WEHV	47	0	1.2	-1.7	Gross errors ceased
WE4805	192	15	1.7	0.3	Bias acceptable

Continued ⇨

Ident.	N Obs.	NGE	SD	Bias	Comments
WFDP	328	17	1.1	-0.7	Gross errors ceased
WFJK	335	22	1.8	0.4	No longer erratic
YDNP	1	1	***	****	Few reports
Y3CH	1264	1	0.8	0.6	No longer erratic; bias acceptable
Y4HM	0				No reports
3ECN7	28	23	2.4	-1.1	Less than 40 reports; GE persist; erratic
3EEZ7	32	16	0.6	4.2	Less than 40 reports; GE + large bias persist
3EJB3	90	0	0.9	0.8	Bias acceptable
3EXH4	4	1	2.6	1.6	Few reports
3EZK9	487	14	0.7	1.2	Bias acceptable
3FDY3	69	1	1.1	-0.1	Gross errors ceased
3FEN2	86	3	1.7	0.9	Bias acceptable
41004	4487	0	0.8	0.3	Bias acceptable
45010	1176	36	2.0	-0.9	Gross errors ceased; bias acceptable
46145	4379	0	0.4	-0.5	Gross errors ceased
46183	4093	9	0.4	-0.2	Gross errors ceased
7LHH	124	5	1.5	1.5	Gross errors ceased; bias acceptable
8JGU	10	0	1.1	-0.3	Less than 40 reports; gross errors ceased
9MBH9	11	0	2.2	-0.5	Less than 40 reports; remains erratic
9MTU	27	4	0.6	-1.3	Less than 40 reports; bias acceptable
9VJS	0				No reports

FIG 2A:
DISTRIBUTION OF O-B SHIP PRESSURE DIFFERENCES UNITS: HPA
PERIOD OF DATA: 1 JUL 1994 TO 31 DEC 1994 DATA USED: ALL OBSERVATIONS

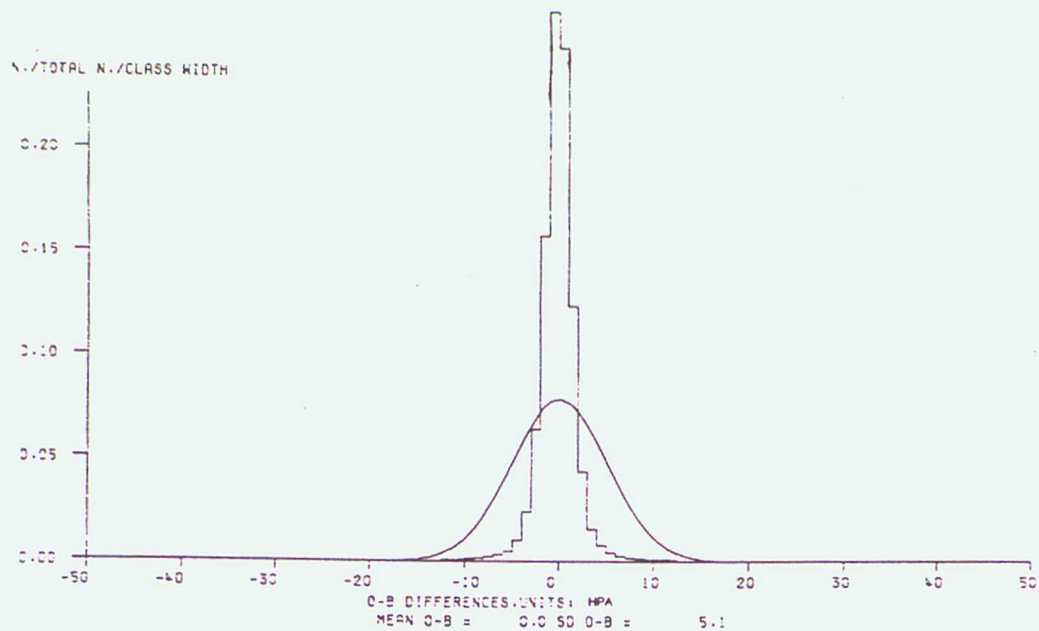


FIG 2B:
DISTRIBUTION OF O-B SHIP PRESSURE DIFFERENCES UNITS: HPA
PERIOD OF DATA: 1 JUL 1994 TO 31 DEC 1994 DATA USED: FLAGGED OBSERVATIONS

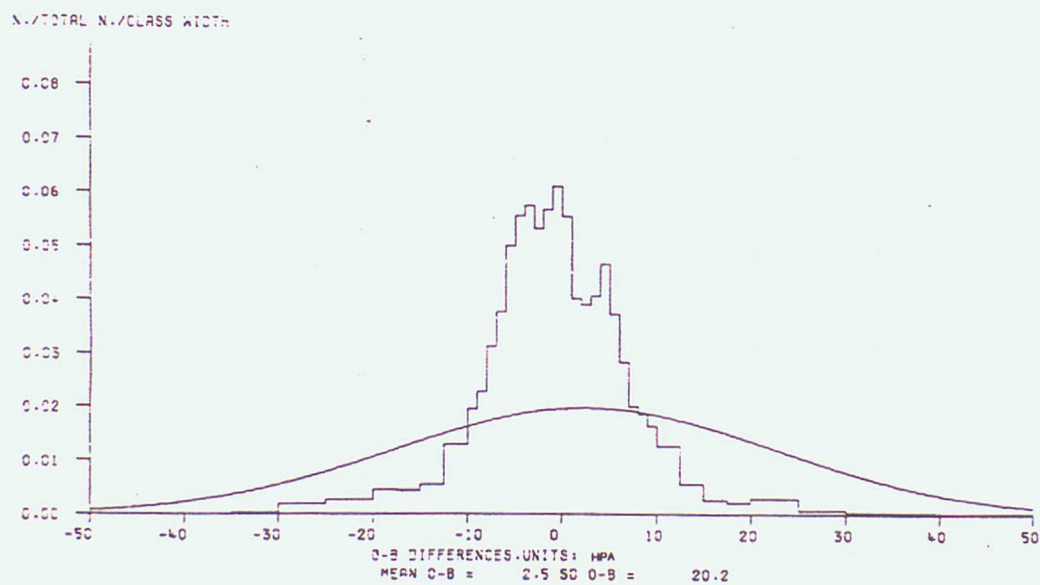


FIG 2C:
DISTRIBUTION OF O-B SHIP PRESSURE DIFFERENCES UNITS: HPA
PERIOD OF DATA: 1 JUL 1994 TO 31 DEC 1994 DATA USED: UNFLAGGED OBSERVATIONS

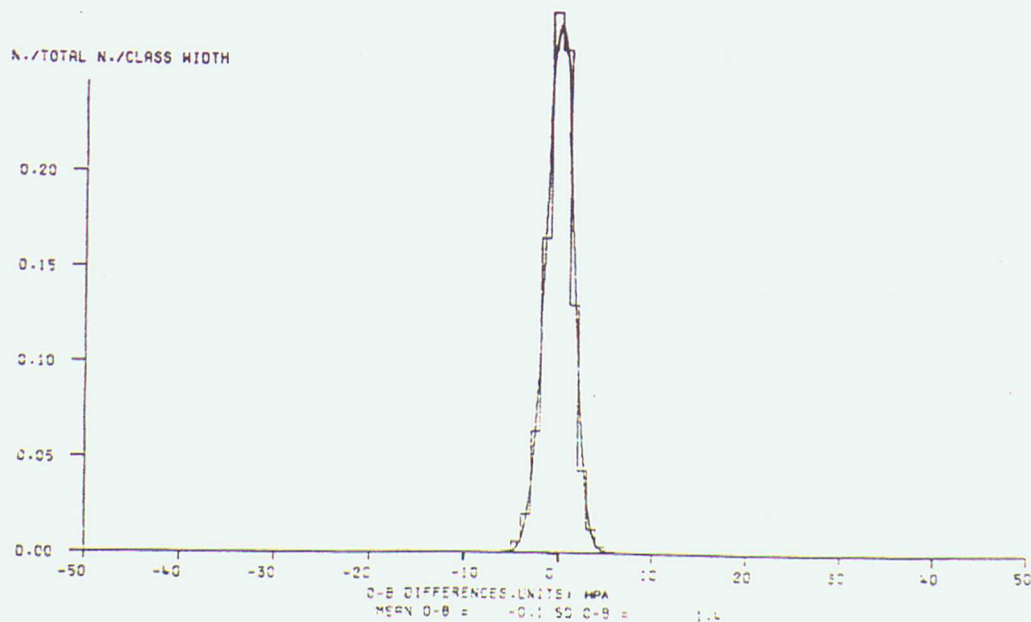


FIG 2D:
DISTRIBUTION OF O-B SHIP SPEED DIFFERENCES UNITS: MS^{-1}
PERIOD OF DATA: 1 JUL 1994 TO 31 DEC 1994 DATA USED: ALL OBSERVATIONS

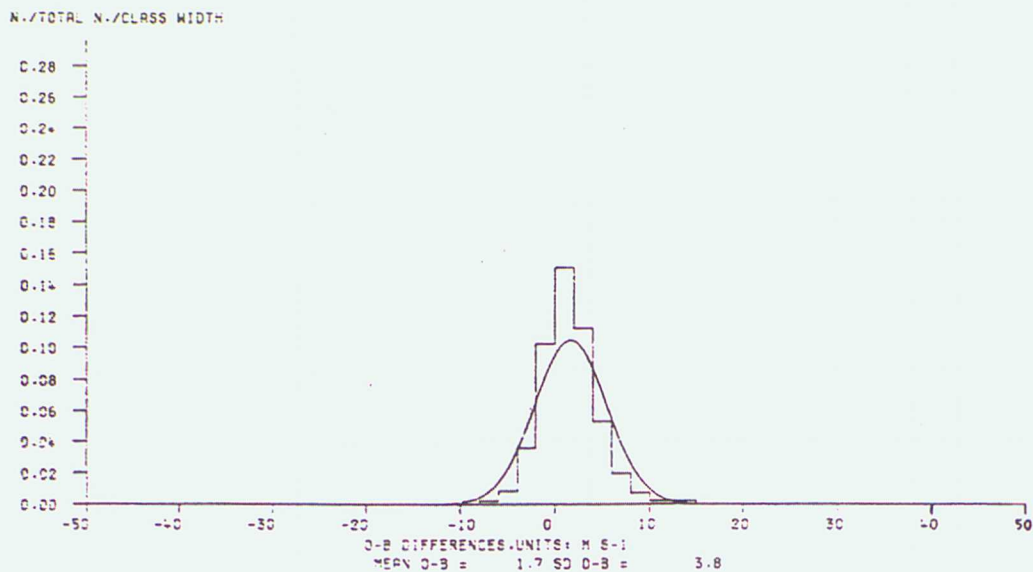


FIG 2E:
DISTRIBUTION OF O-B SHIP SPEED DIFFERENCES UNITS: MS^{-1}
PERIOD OF DATA: 1 JUL 1994 TO 31 DEC 1994 DATA USED: FLAGGED OBSERVATIONS

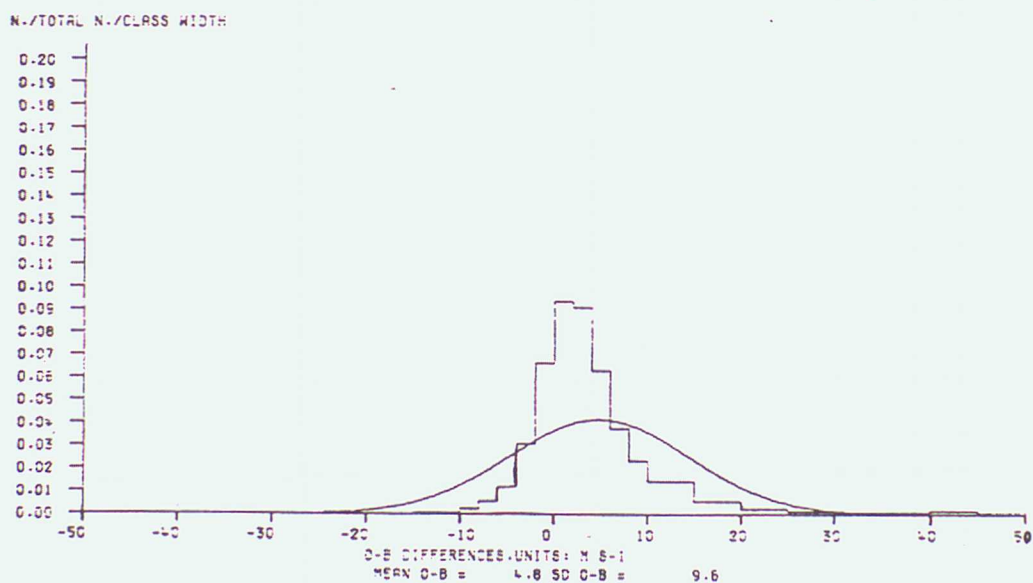


FIG 2F:
DISTRIBUTION OF O-B SHIP SPEED DIFFERENCES UNITS: MS^{-1}
PERIOD OF DATA: 1 JUL 1994 TO 31 DEC 1994 DATA USED: UNFLAGGED OBSERVATIONS

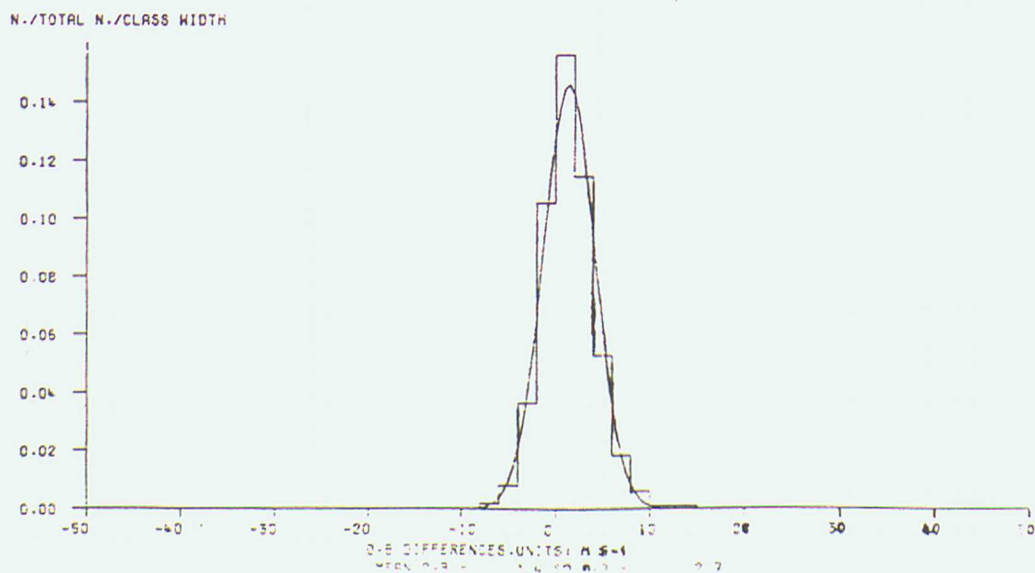


FIG 2G:
DISTRIBUTION OF O-B SHIP DIRECTION DIFFERENCES UNITS: DEGREES
PERIOD OF DATA: 1 JUL 1994 TO 31 DEC 1994 DATA USED: ALL OBSERVATIONS

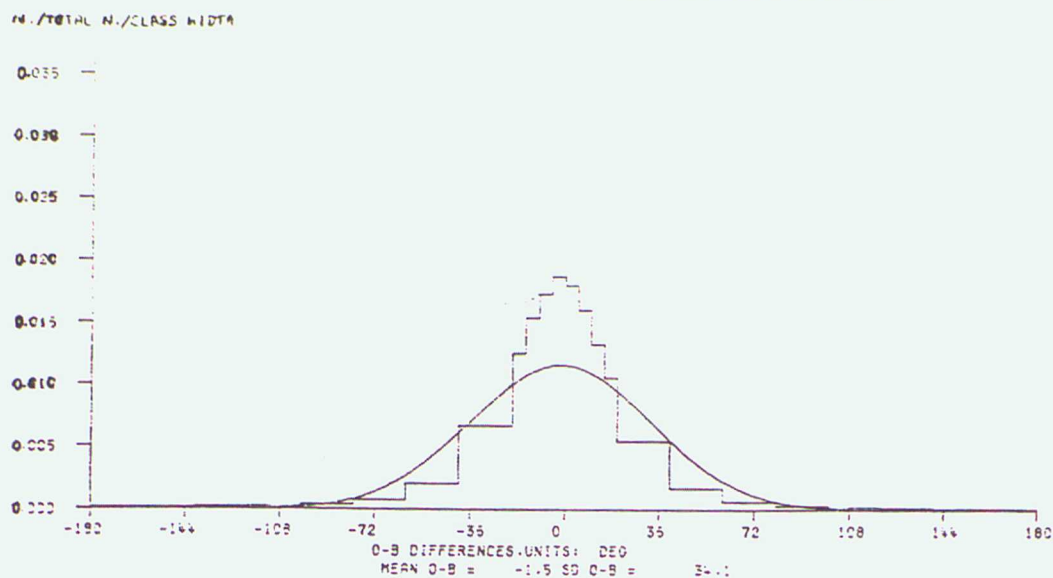


FIG 2H:
DISTRIBUTION OF O-B SHIP DIRECTION DIFFERENCES UNITS: DEGREES
PERIOD OF DATA: 1 JUL 1994 TO 31 DEC 1994 DATA USED: FLAGGED OBSERVATIONS

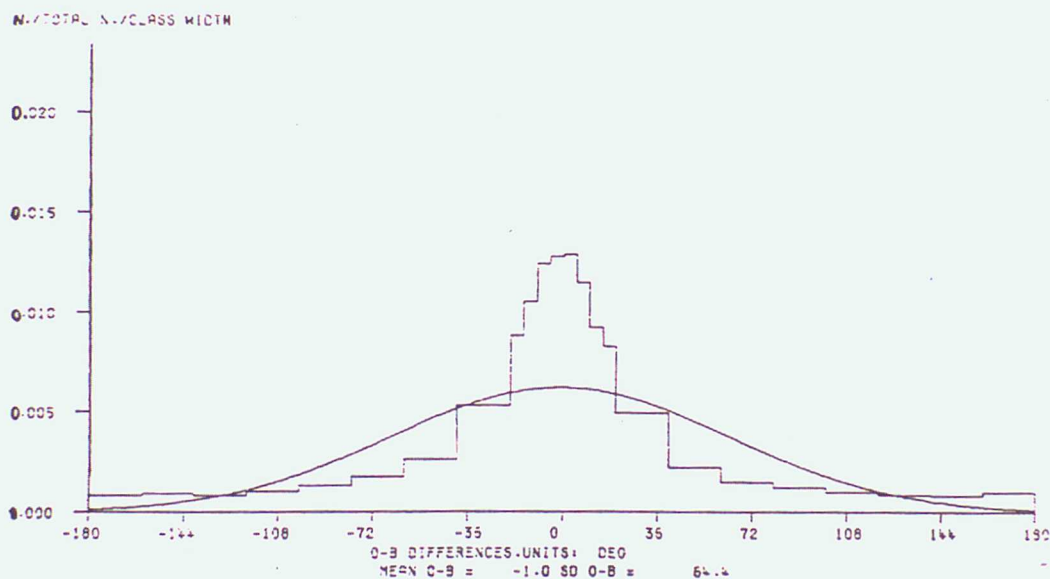


FIG 2J:
DISTRIBUTION OF O-B SHIP DIRECTION DIFFERENCES UNITS: DEGREES
PERIOD OF DATA: 1 JUL 1994 TO 31 DEC 1994 DATA USED: UNFLAGGED OBSERVATIONS

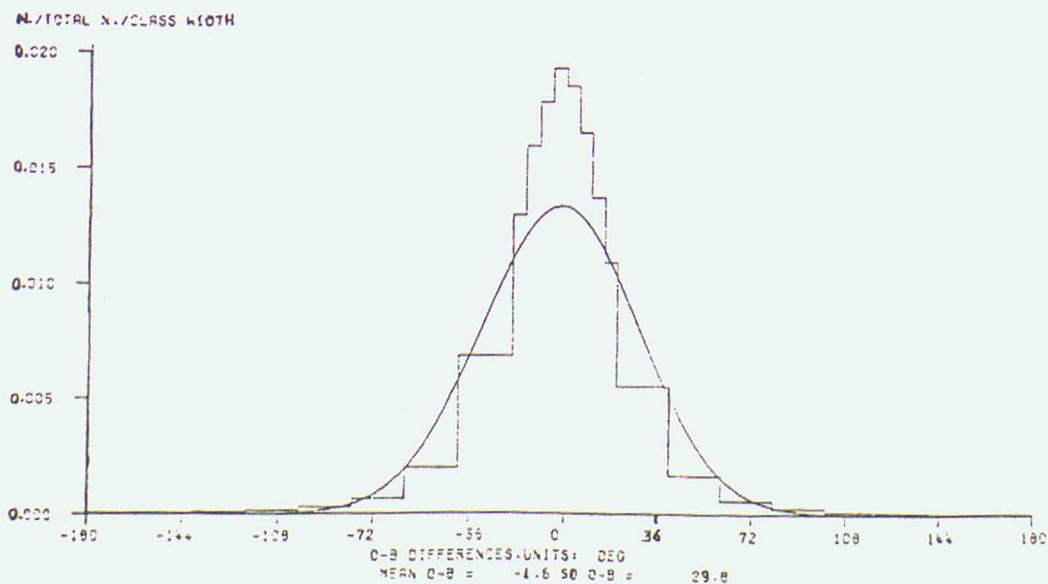


FIG. 3: BIAS OF SHIP PRESSURE 0-8. PERIOD: JUL TO DEC 1994.
 ONLY OBSERVATIONS PASSING QUALITY CONTROL USED IN STATISTICS.
 CONTOURS DRAWN TO 10 DEGREE BOXES IF N. OF CBS 10.
 AREAS SHADED HAVE BIAS OF MAGNITUDE GREATER THAN 0.5 HPA

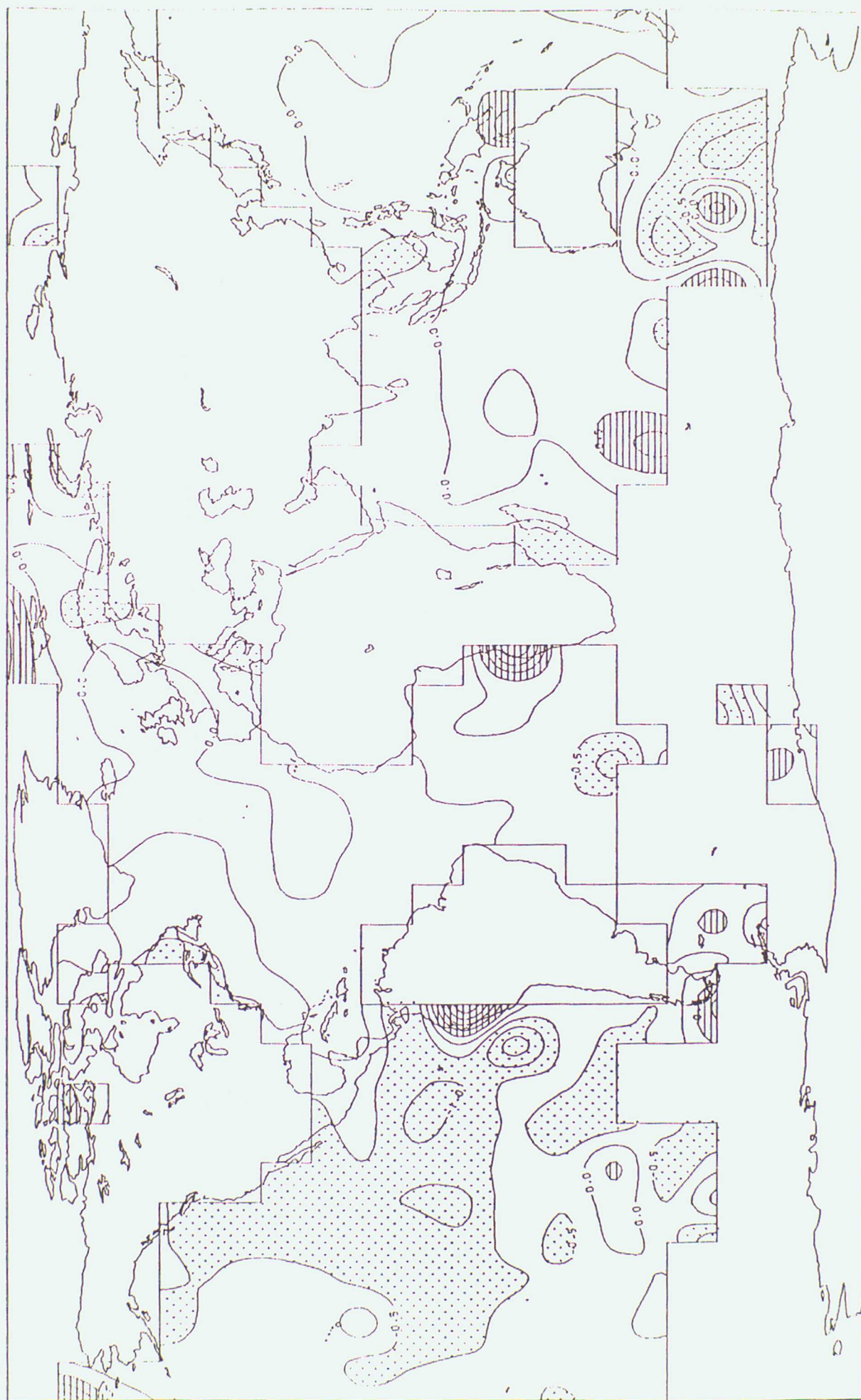


FIG. 4: S.D. OF SHIP PRESSURE 0-9. PERIOD: JUL TO DEC 1994
 ONLY OBSERVATIONS PASSING QUALITY CONTROL USED IN STATISTICS.
 CONTOURS DRAWN TO 10 DEGREE BOXES IF N. OF OBS. IN
 AREAS SHADED HAVE STANDARD DEVIATION GREATER THAN 0.0000

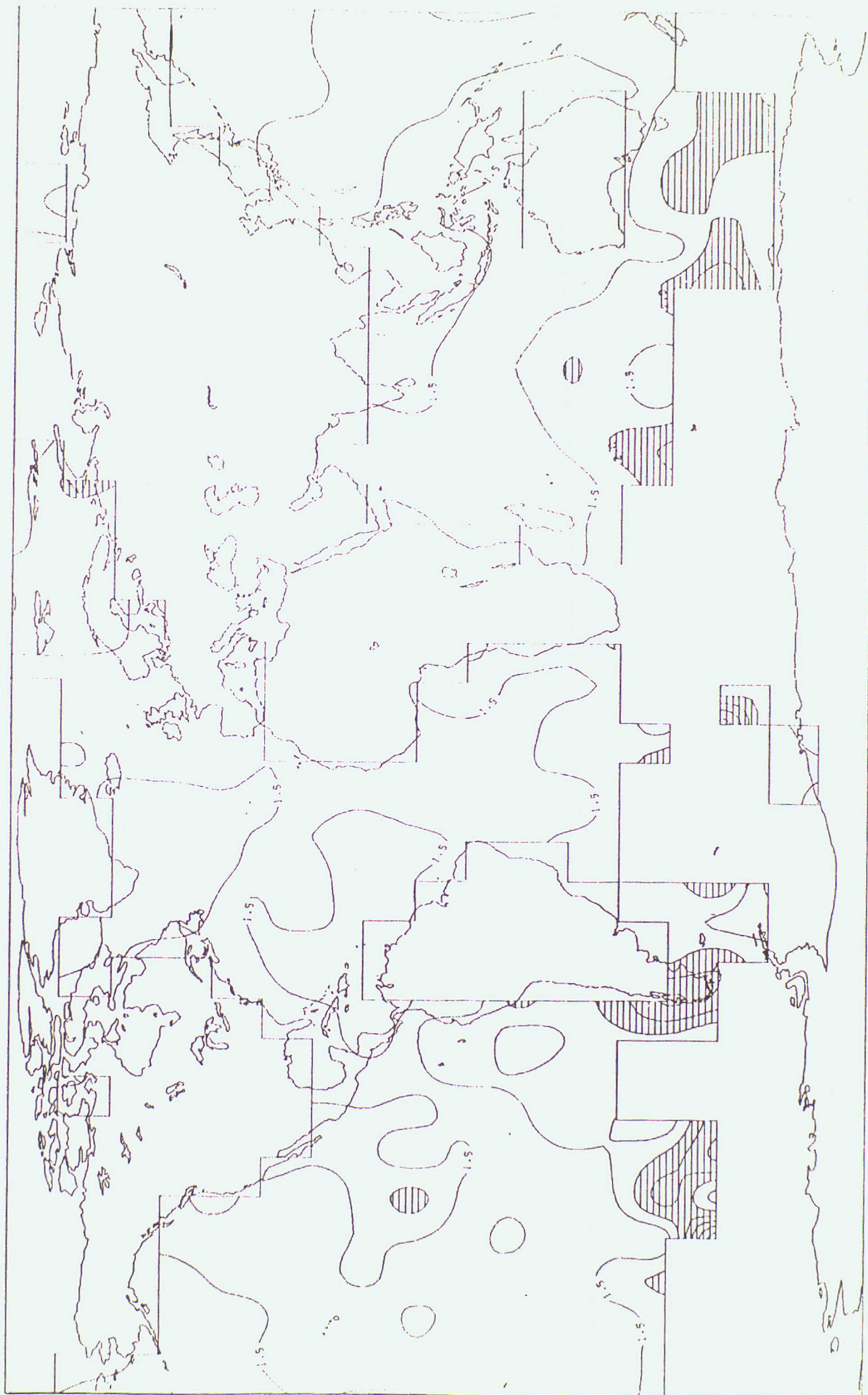


FIG 5:
PLOT OF NUMBER OF SHIP PRESSURE OBS. PERIOD: JUL TO DEC 1994
ONLY OBSERVATIONS PASSING QUALITY CONTROL INCLUDED

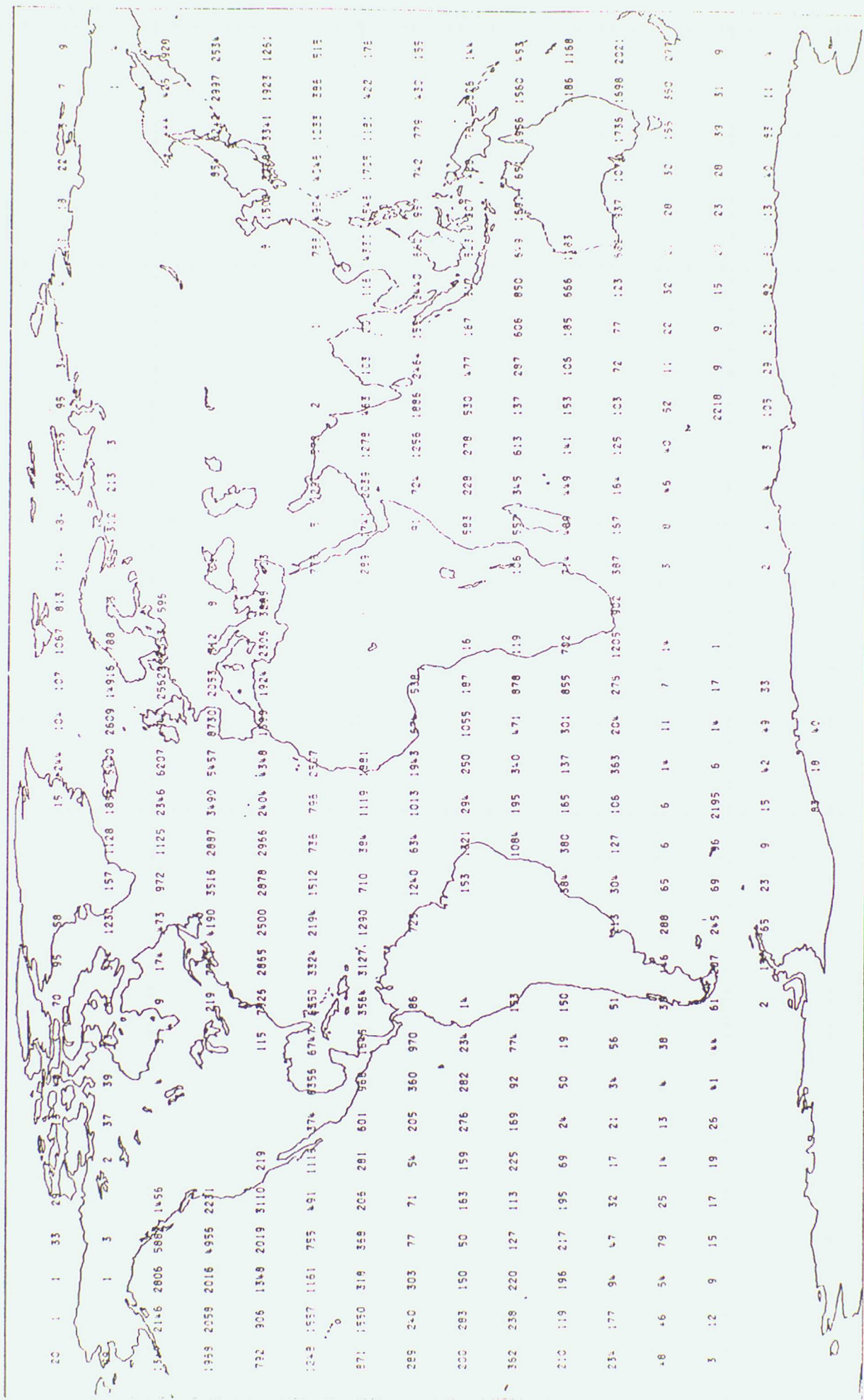


FIG 6: BIAS OF SHIP O-B WIND SPEED IN MS-1. PERIOD: JUL TO DEC 1994
ONLY OBSERVATIONS PASSING QUALITY CONTROL USED IN STATISTICS
CONTOURS DRAWN TO 10 DEGREE BOXES IF N. OF OBS 10
AREAS SHADED HAVE BIAS OF MAGNITUDE GREATER THAN 2.0MS-1

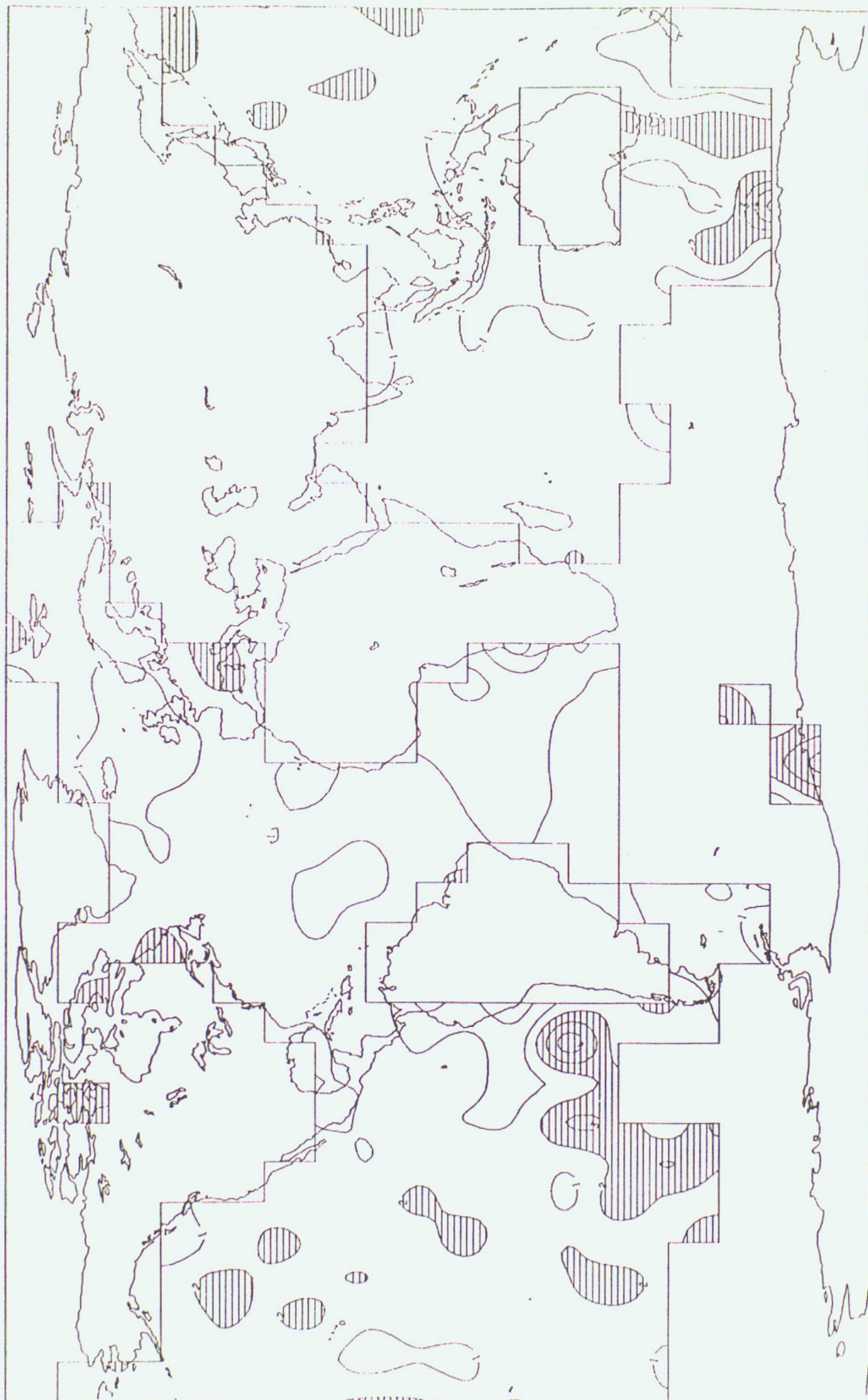
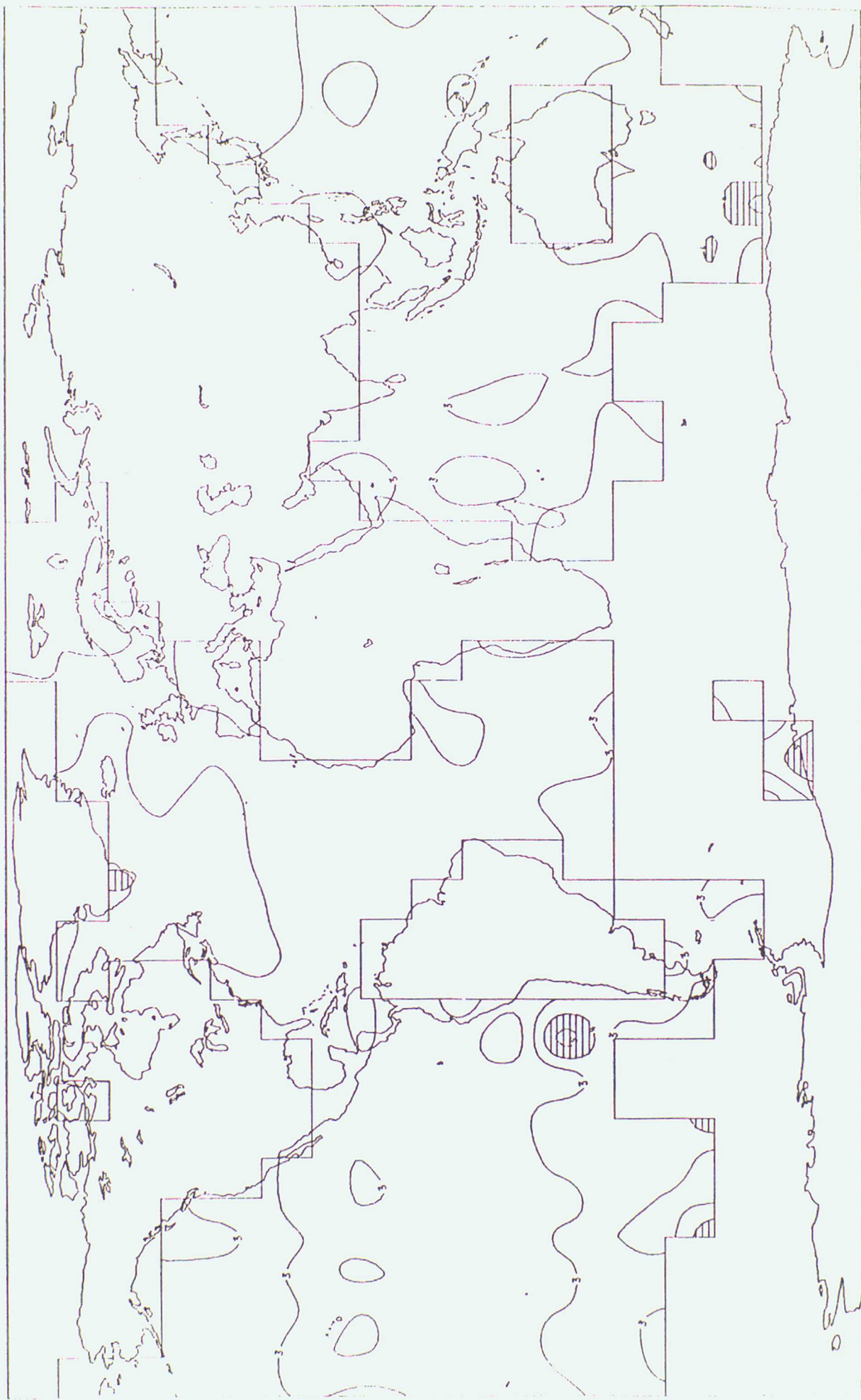


FIG 7: S.D. OF SHIP 0-B WIND SPEED IN NS-1. PERIOD: JUL TO DEC 1994
 ONLY OBSERVATIONS PASSING QUALITY CONTROL USED IN STATISTICS
 CONTOURS DRAWN TO 10 DEGREE BOXES IF N. OF OBS 10
 AREAS SHADED HAVE STANDARD DEVIATION GREATER THAN 4.0 MS-1



PLOT OF NUMBER OF SHIP WIND SPEED OBS. PERIOD: JUL TO DEC 1994
ONLY OBSERVATIONS PASSING QUALITY CONTROL INCLUDED

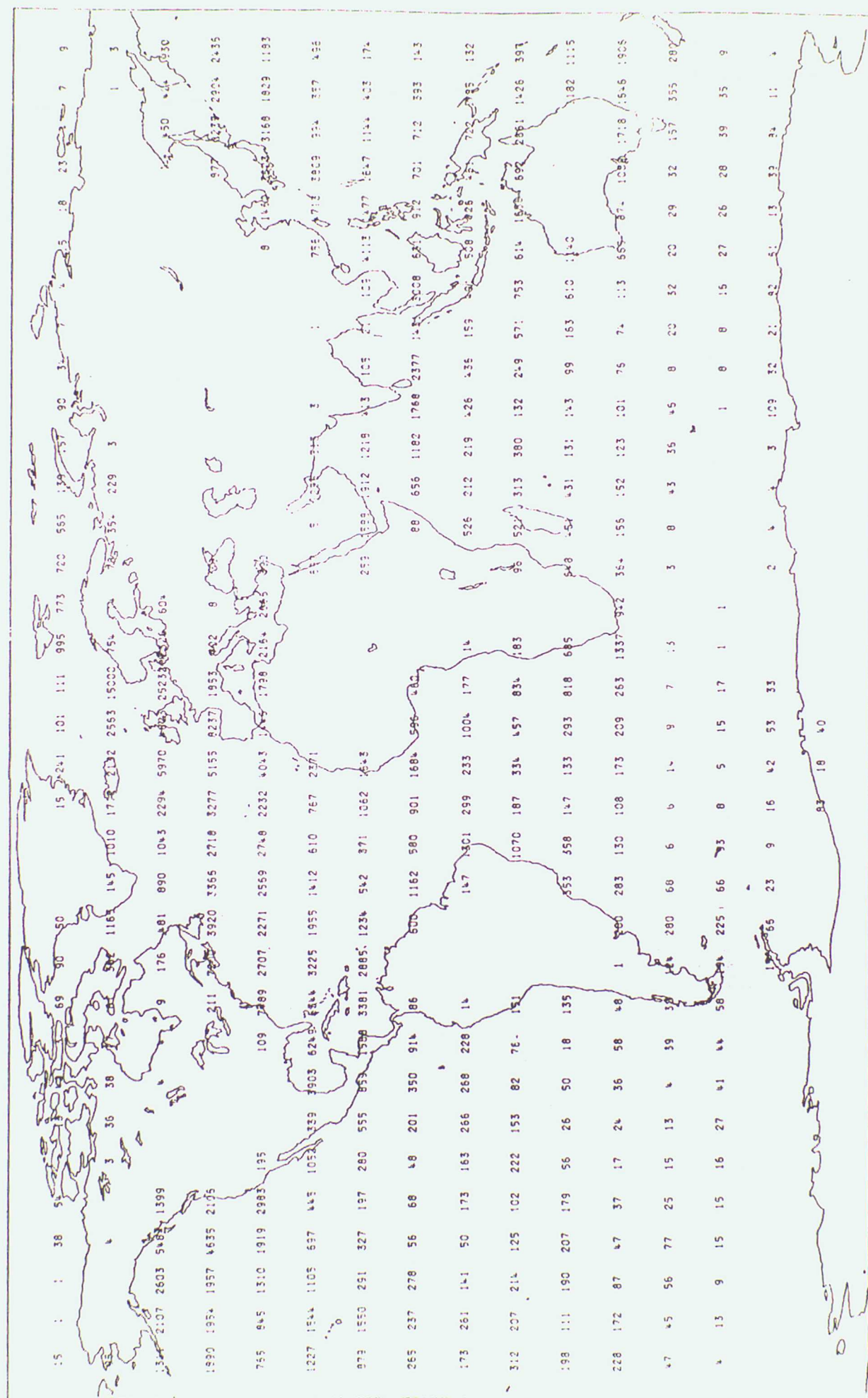


FIG 9: BIAS OF SHIP 0-B WIND DIRECTION IN DEG. PERIOD: JUL TO DEC 1994
 ONLY OBSERVATIONS PASSING QUALITY CONTROL USED IN STATISTICS
 CONTOURS DRAWN TO 10 DEGREE BOXES IF N. OF OBS 10
 AREAS SHADED HAVE BIAS OF MAGNITUDE GREATER THAN 10 DEG

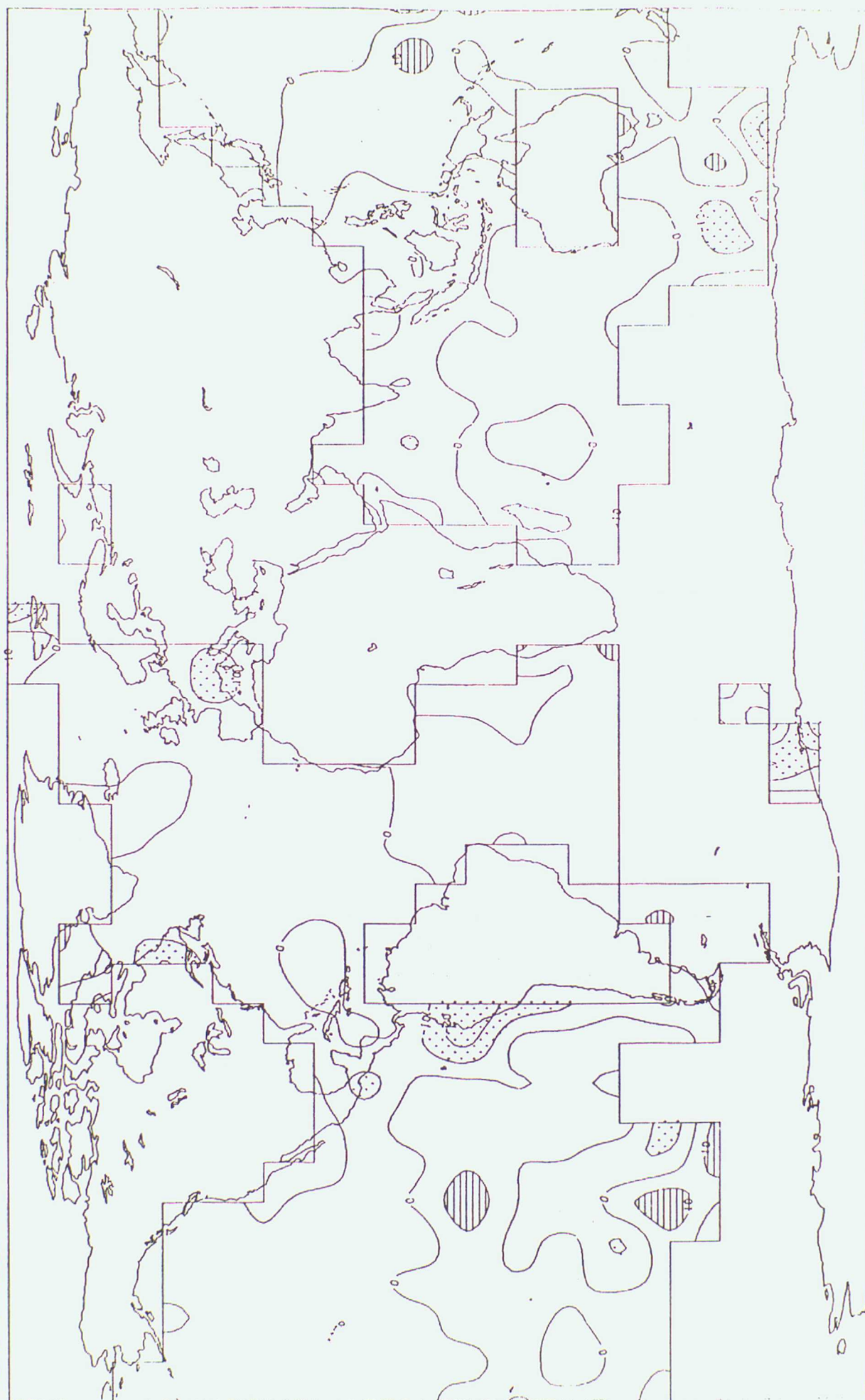


FIG 10: S.D. OF SHIP O-B WIND DIRECTION IN DEC. PERIOD: JUL TO DEC 1994
 ONLY OBSERVATIONS PASSING QUALITY CONTROL USED IN STATISTICS
 CONTOURS DRAWN TO 10 DEGREE BOXES IF N. OF OBS 10
 AREAS SHADED HAVE STANDARD DEVIATION GREATER THAN 40 DEG

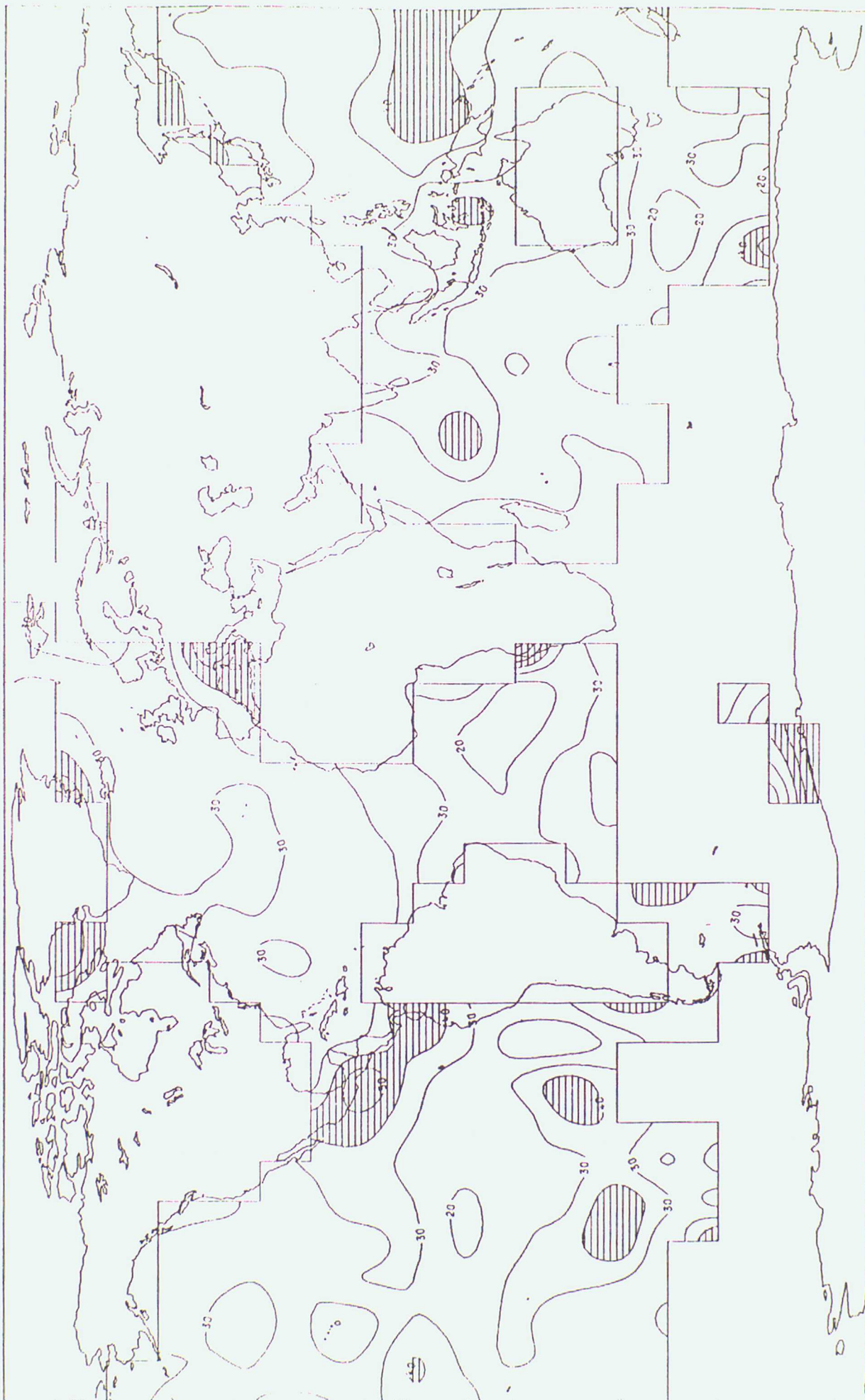
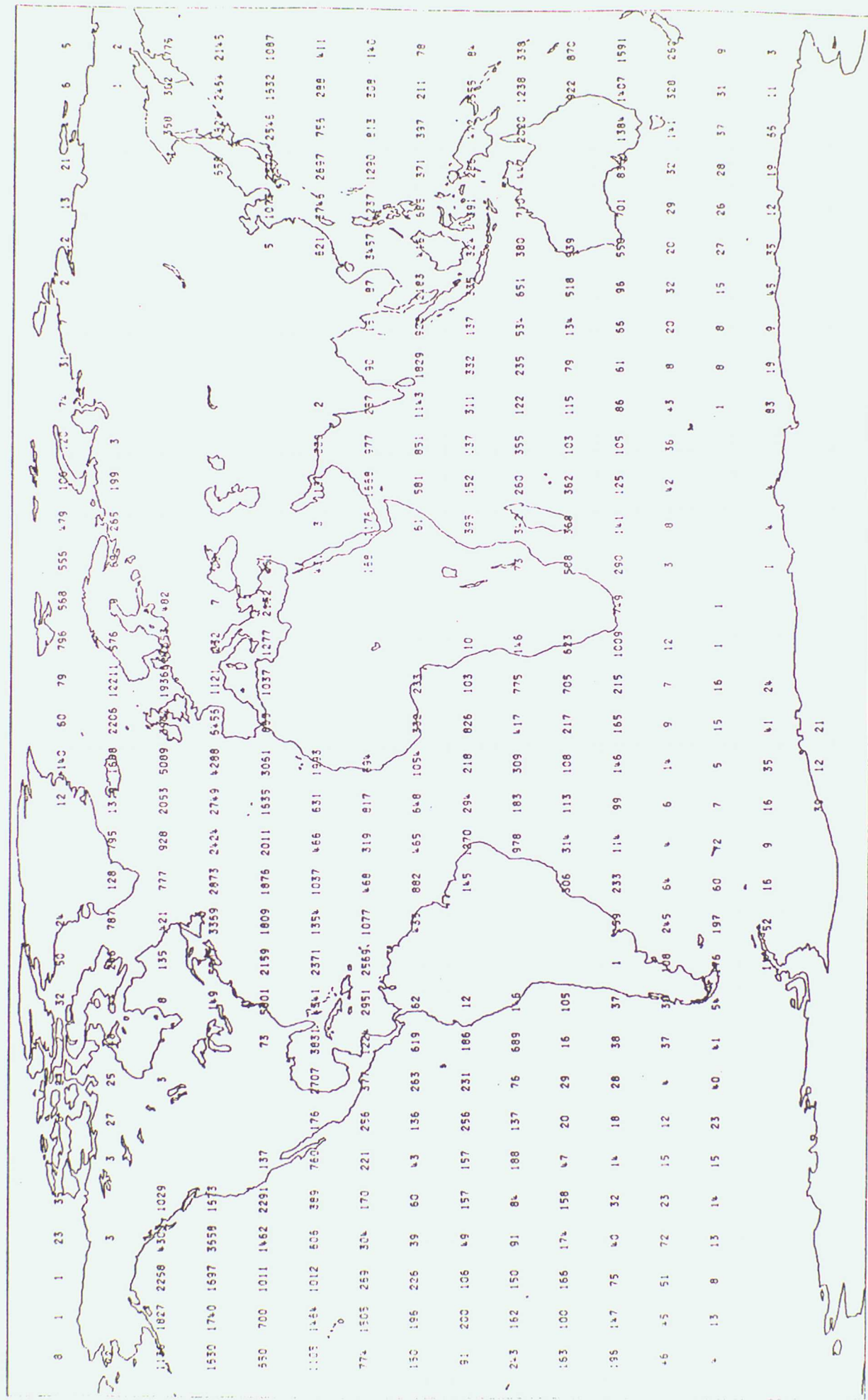


FIG 11:

PLOT OF NUMBER OF SHIP WIND DIRECTION OBS. PERIOD: JUL TO DEC 1994
ONLY OBSERVATIONS PASSING QUALITY CONTROL INCLUDED



SEA SURFACE TEMPERATURE STATISTICS FOR EACH OBSERVATION TYPE, FOR NORTHERN AND SOUTHERN HEMISPHERES, JULY TO DECEMBER 1994

NUMBER OF OBSERVATIONS

MEAN OBSERVATION-ANALYSIS

SD OBSERVATION-ANALYSIS

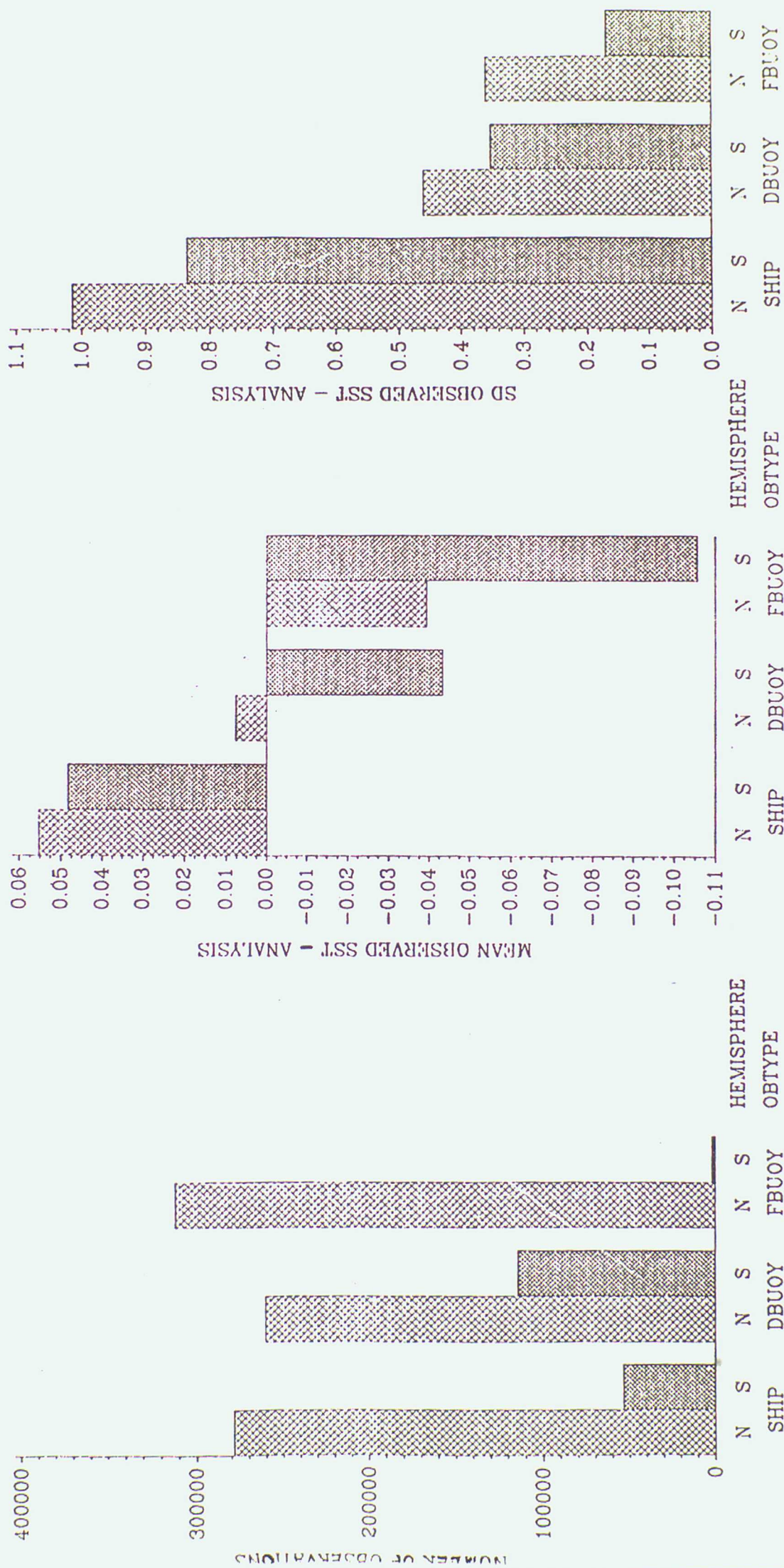


FIGURE 12(A)

FIGURE 12(B)

FIGURE 12(C)

FIG 13: BIAS OF SHIP SEA SURFACE TEMPERATURES (0-A) IN DEG C
 DATES: JULY - DECEMBER 1994
 ONLY OBSERVATIONS PASSING QUALITY CONTROL USED IN STATISTICS
 CONTOURS PLOTTED AT INTERVALS OF 0.2 DEG C

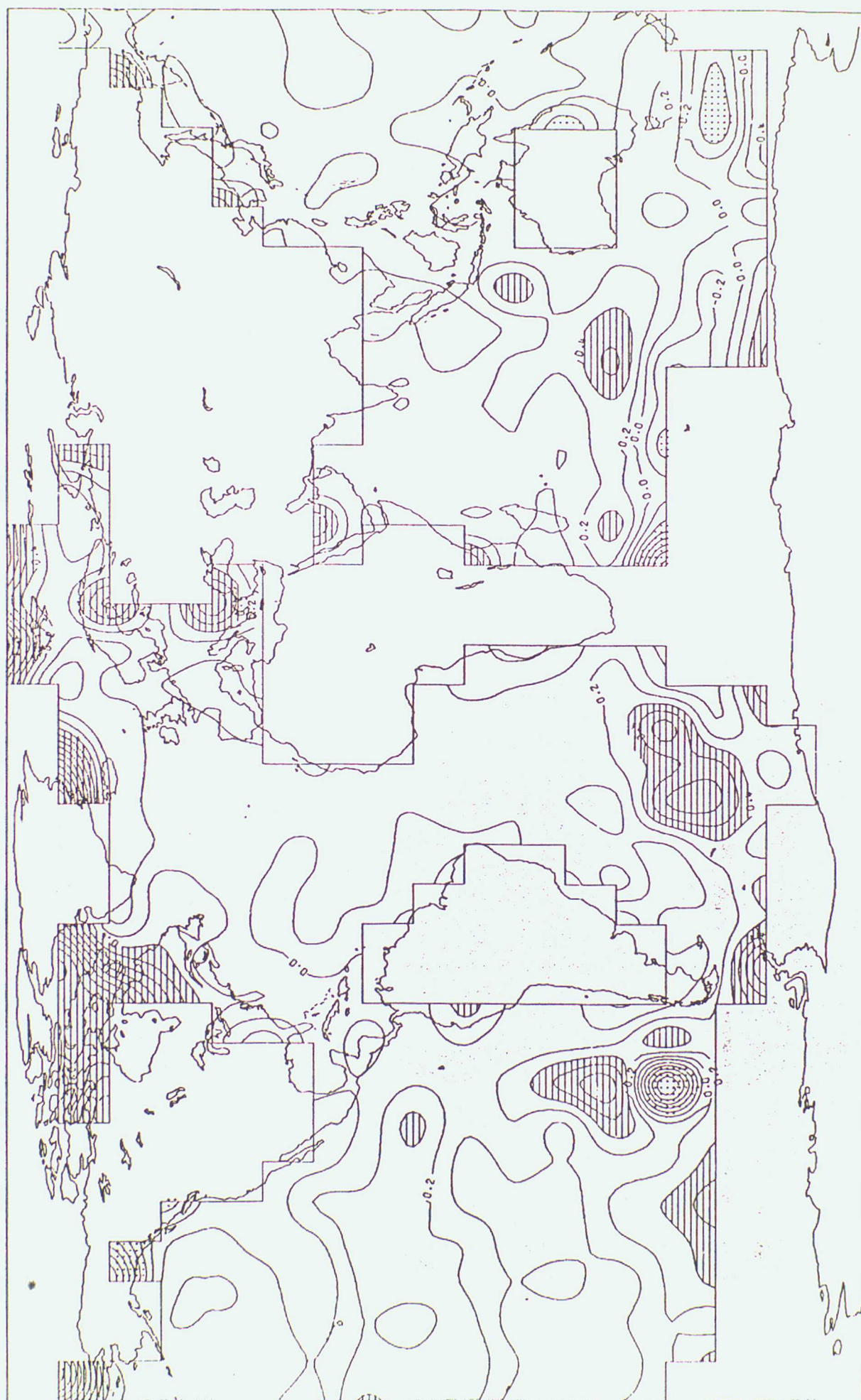
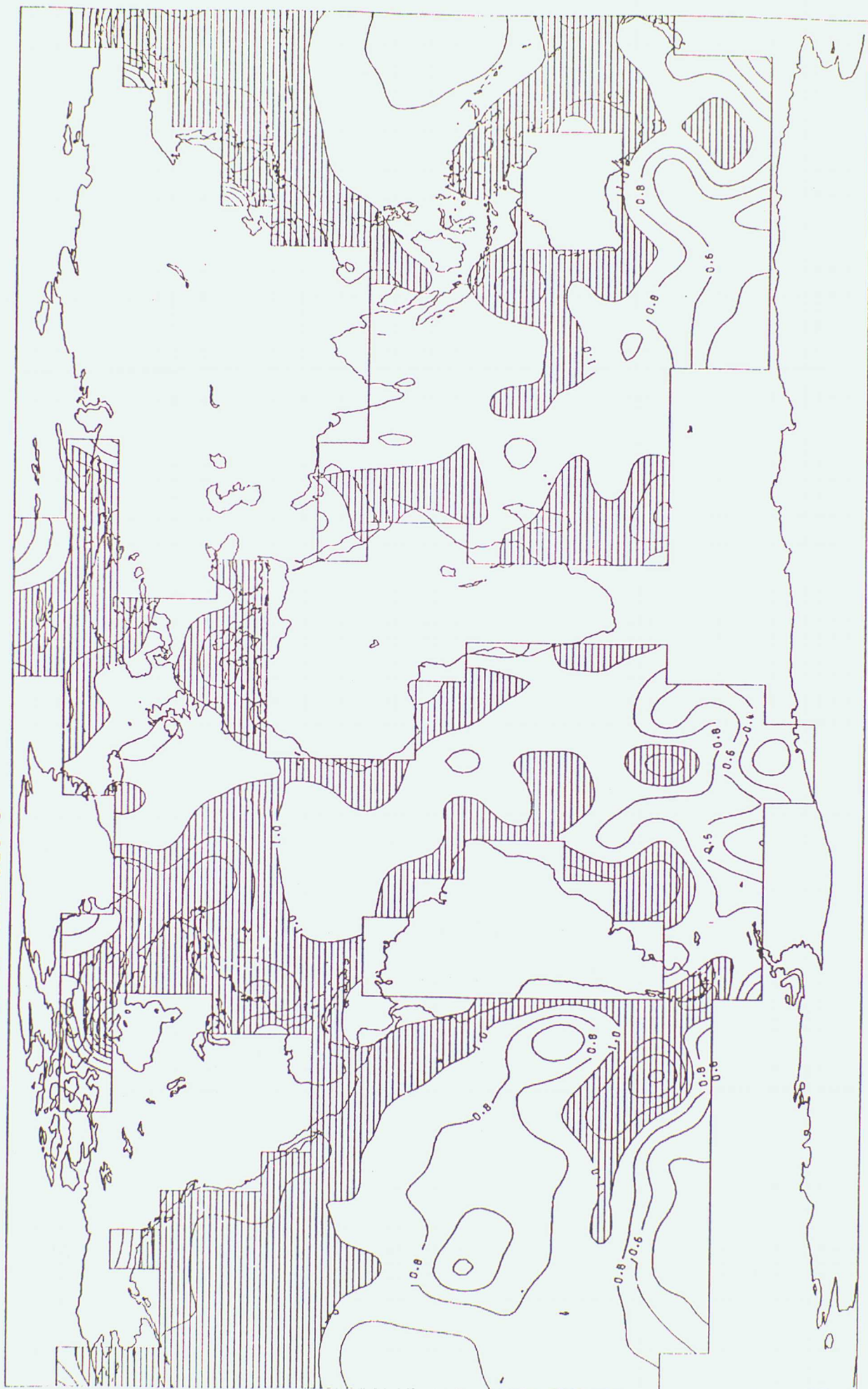
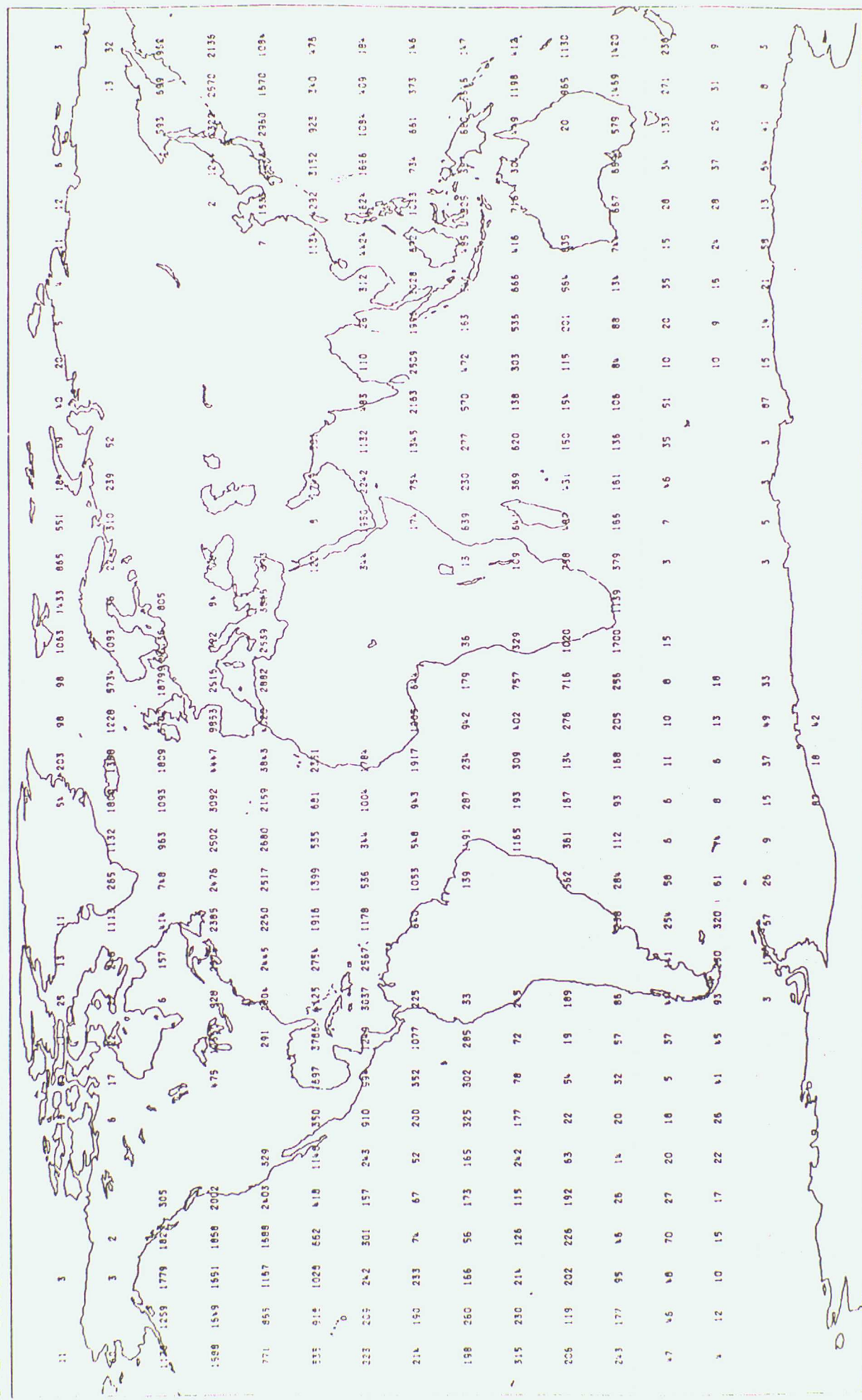


FIG 14: S.D. OF SHIP SEA SURFACE TEMPERATURES (O-A) IN DEG C
DATES: JULY - DECEMBER 1994
ONLY OBSERVATIONS PASSING QUALITY CONTROL USED IN STATISTICS
CONTOURS PLOTTED AT INTERVALS OF 0.2 DEG C



NUMBER OF SHIP SEA-SURFACE TEMPERATURE OBSERVATIONS

ONLY OBSERVATIONS PASSING QUALITY CONTROL ARE INCLUDED



NUMBER OF FIXED BUOY SEA-SURFACE TEMPERATURE OBSERVATIONS

DATE: JULY - DECEMBER 1994

ONLY OBSERVATIONS PASSING QUALITY CONTROL ARE INCLUDED

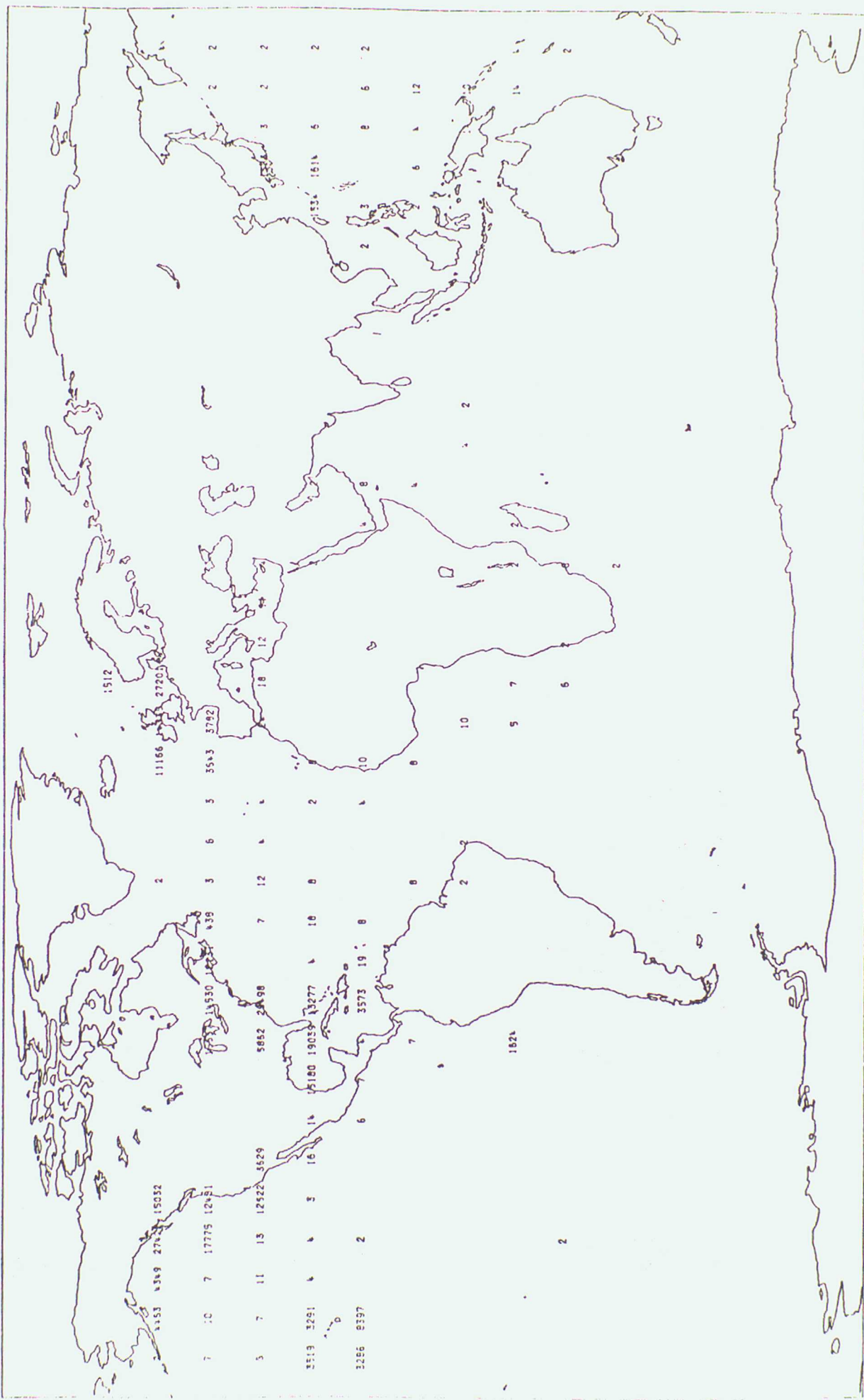
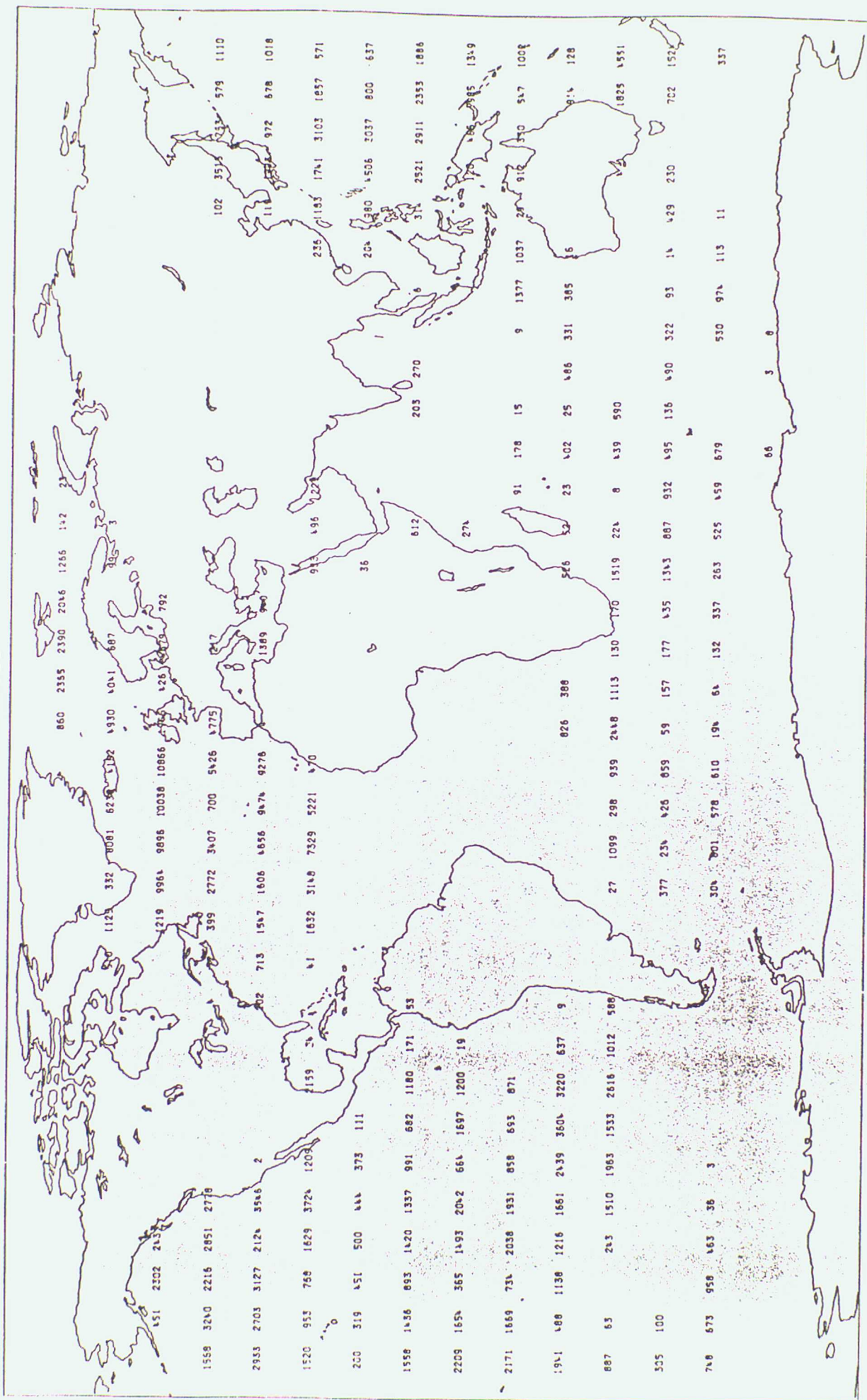


FIG 17:

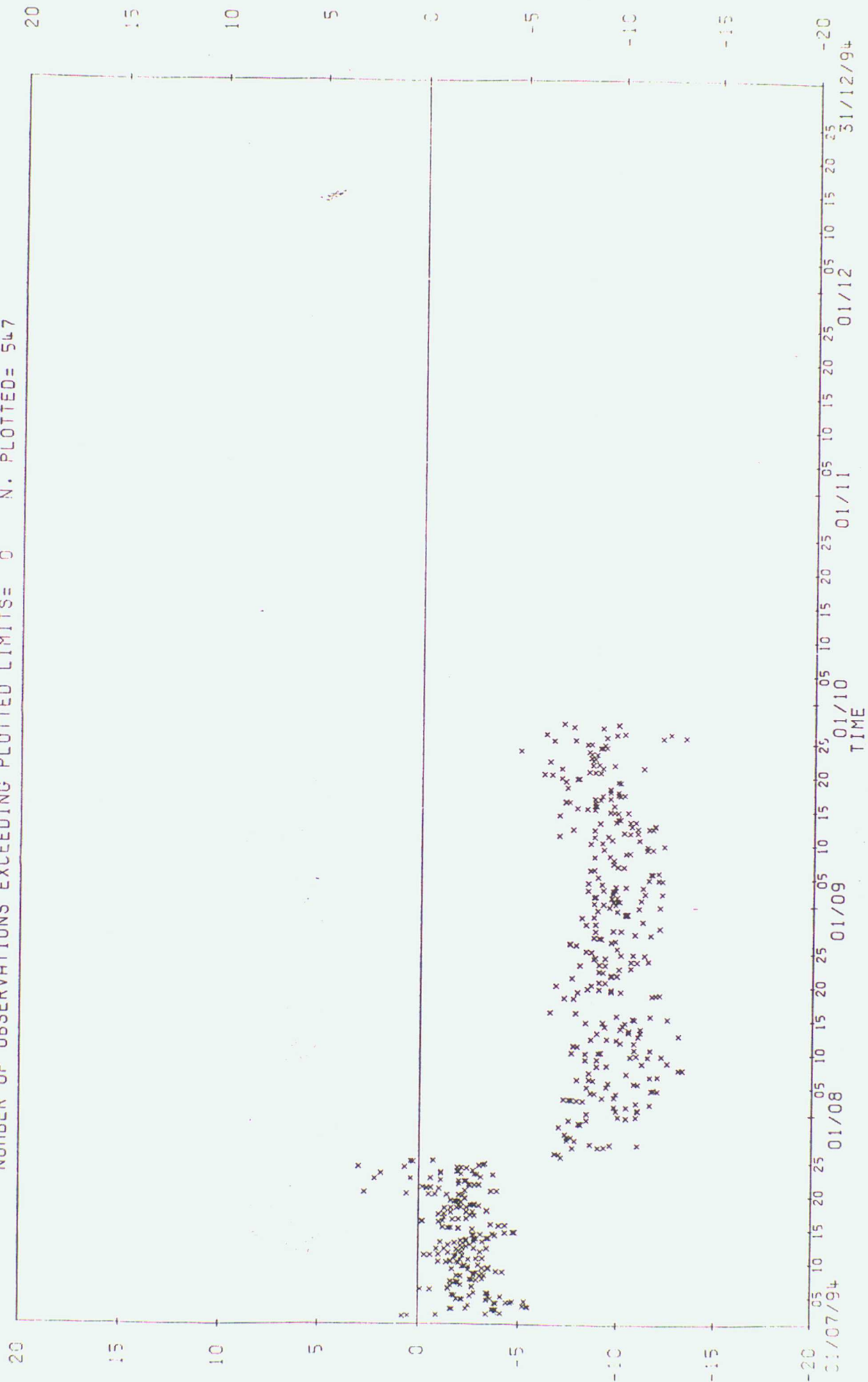
NUMBER OF DRIFTING BUOY SEA-SURFACE TEMPERATURE OBSERVATIONS

DATE: JULY - DECEMBER 1994

ONLY OBSERVATIONS PASSING QUALITY CONTROL ARE INCLUDED



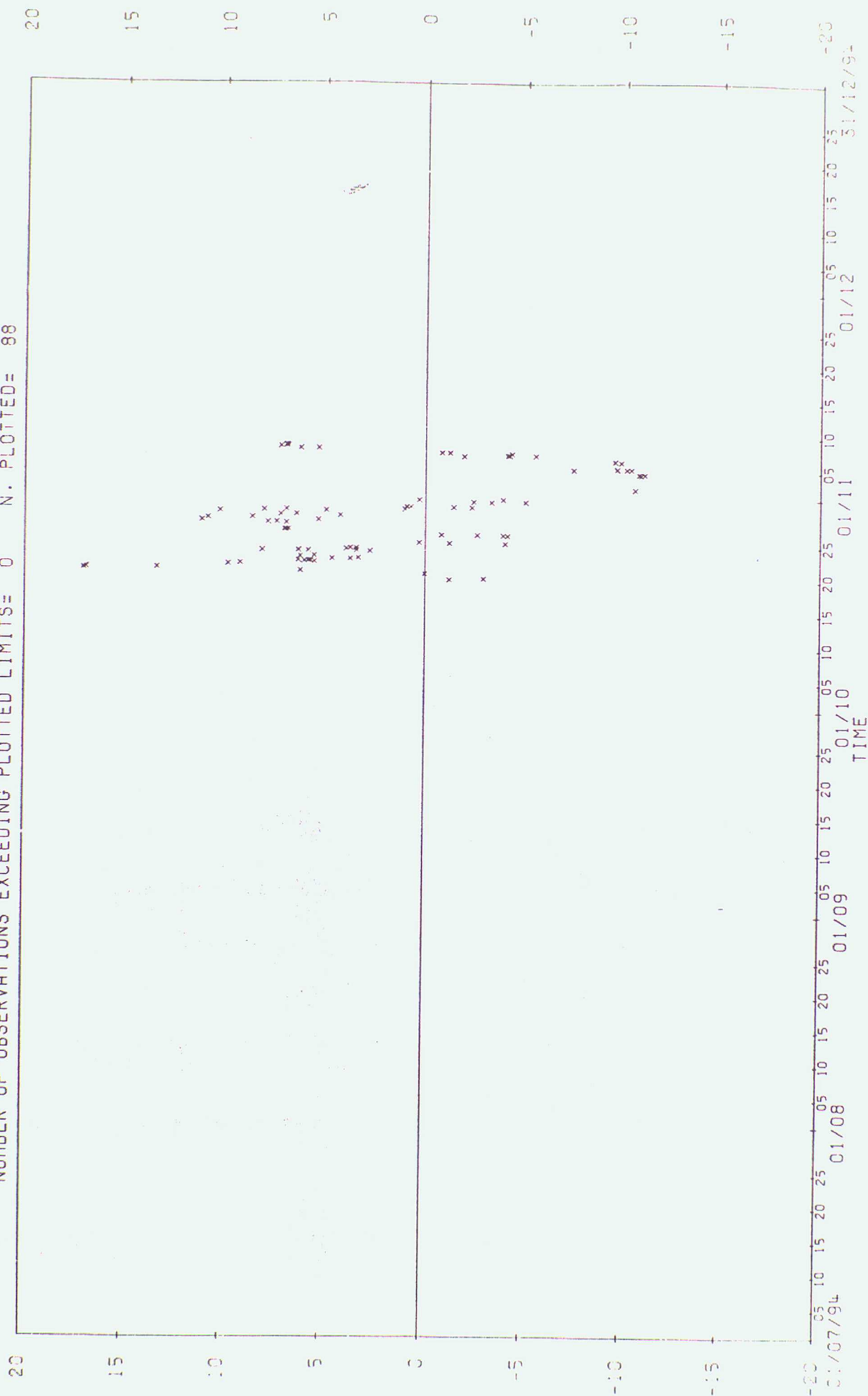
0-8
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-8) FOR IDENTIFIER: 21534
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 547
 0-8



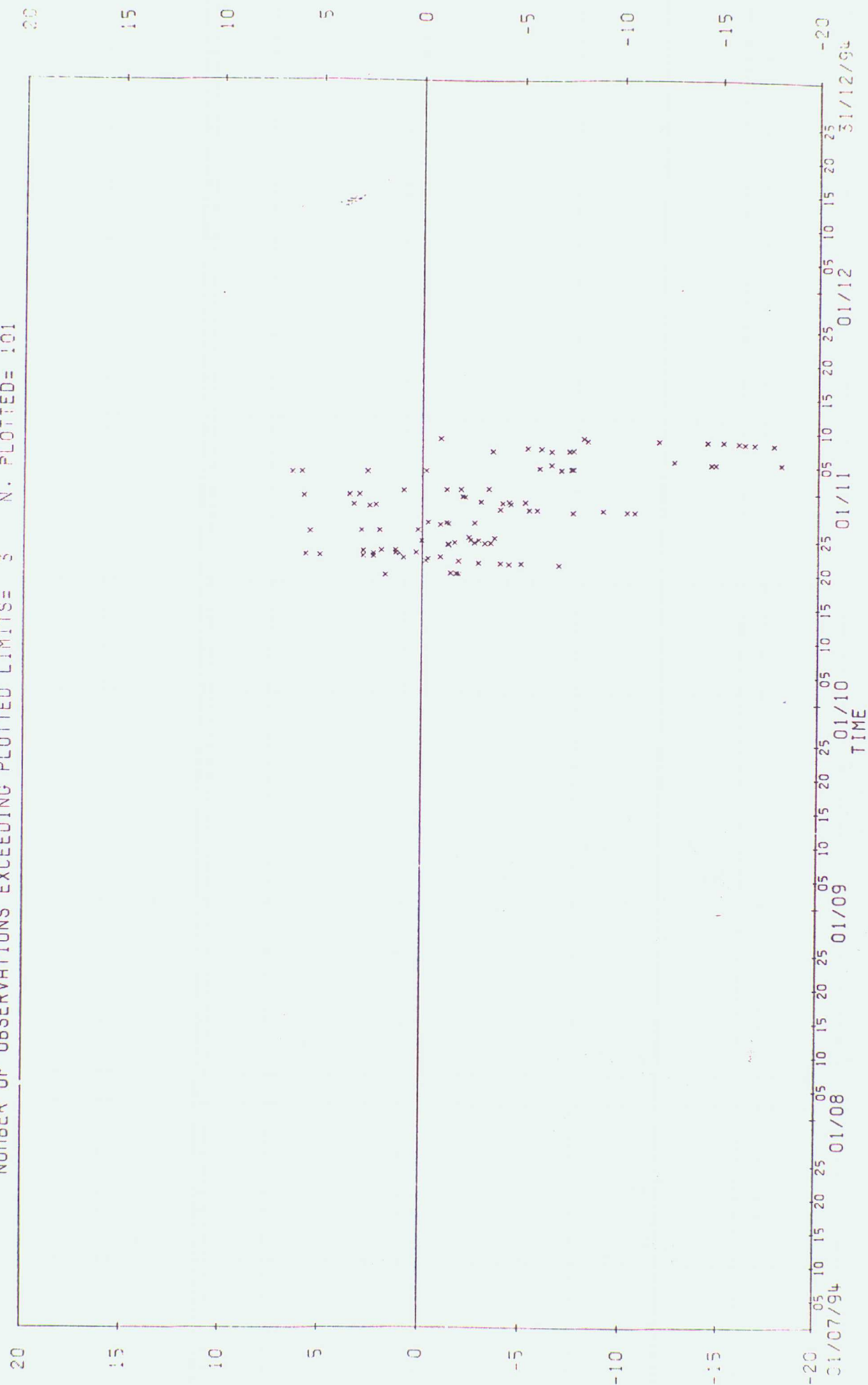
BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(C-B) FOR IDENTIFIER: 31907
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 98

C-B

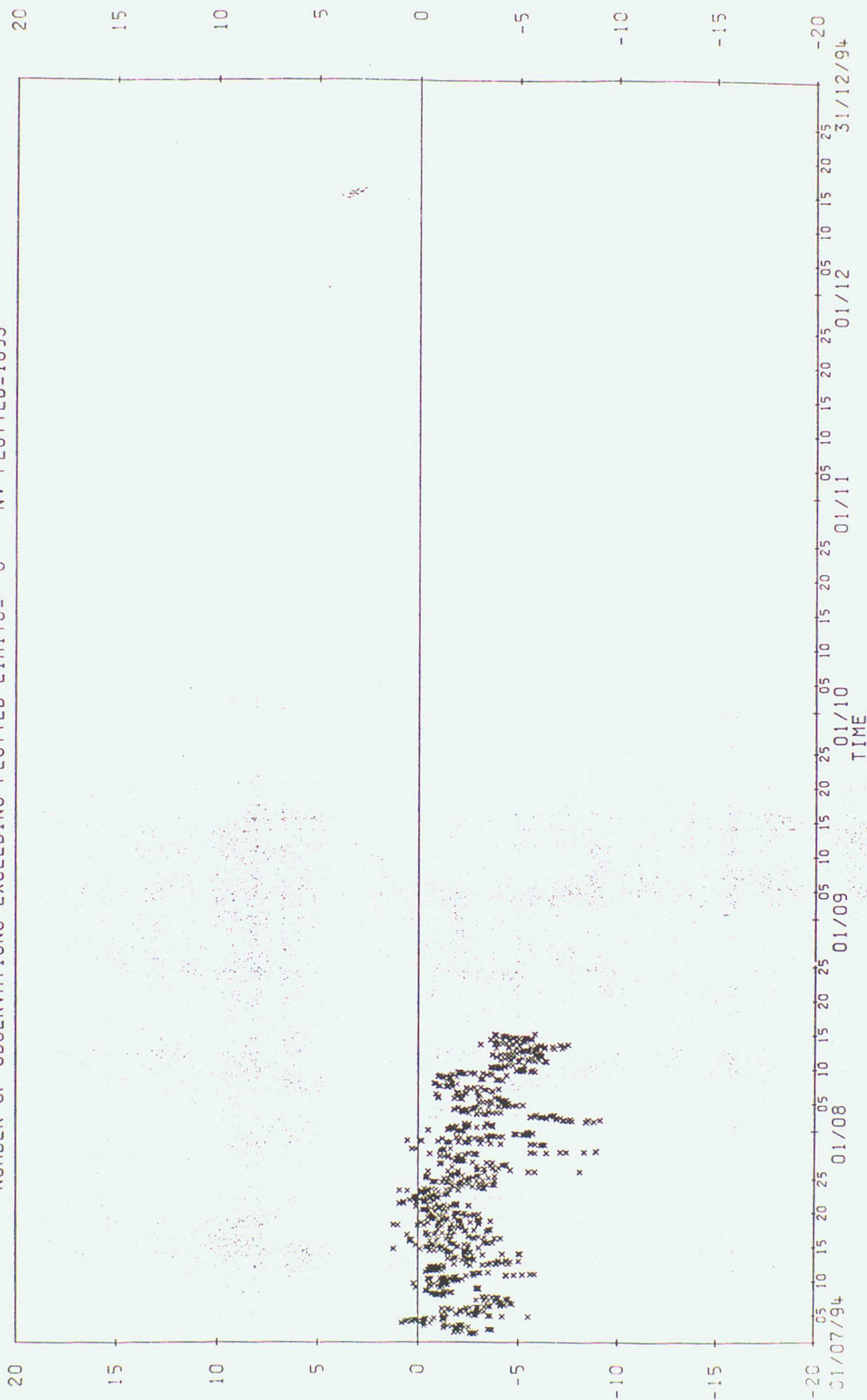
0-B



0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: 33909
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 3 N. PLOTTED= 101
 0-B



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: 47559 0-B
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED=1053



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

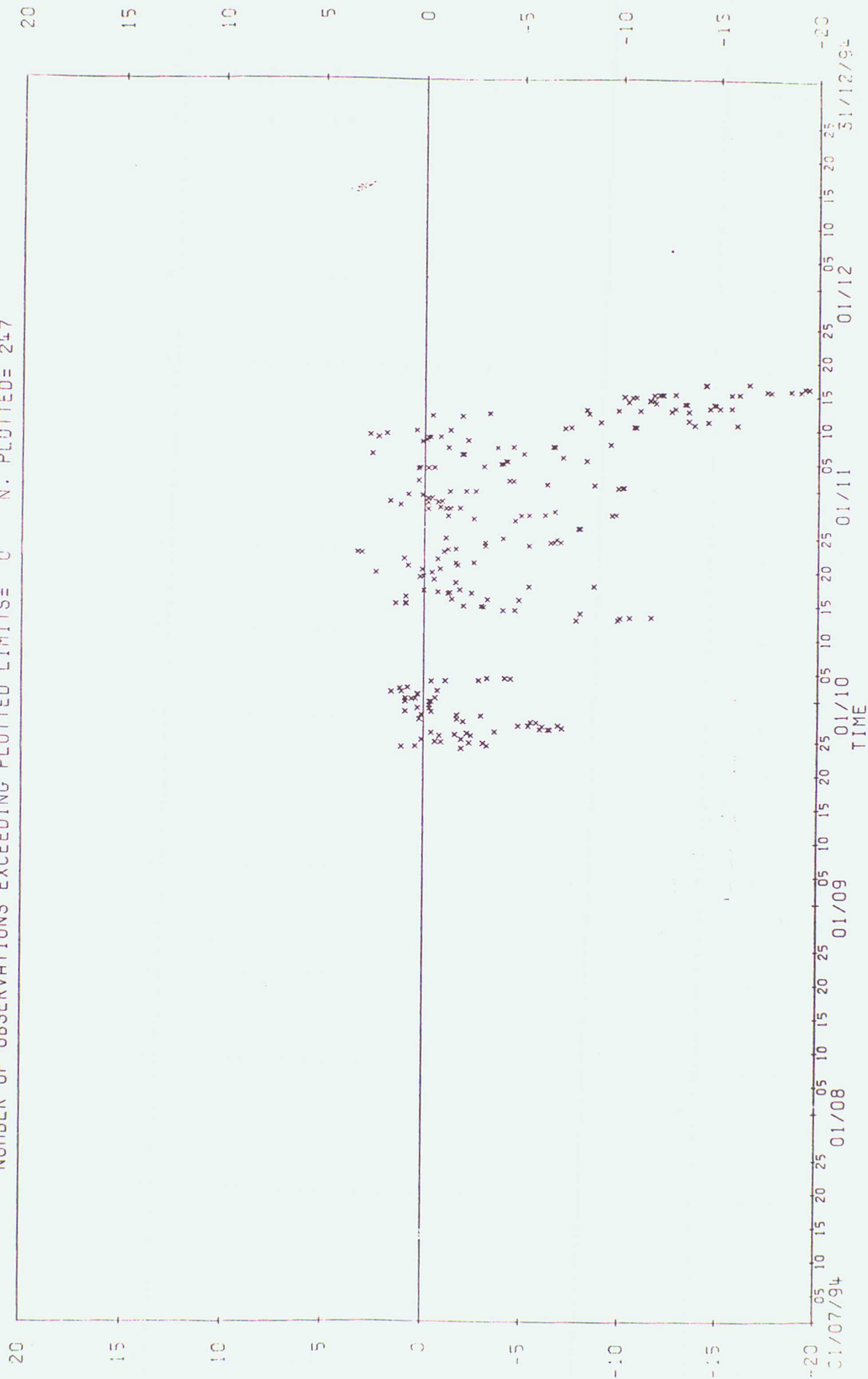
0-3

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-3) FOR IDENTIFIER: 62508

0-3

VARIABLE : MSLP IN UNITS OF HPA

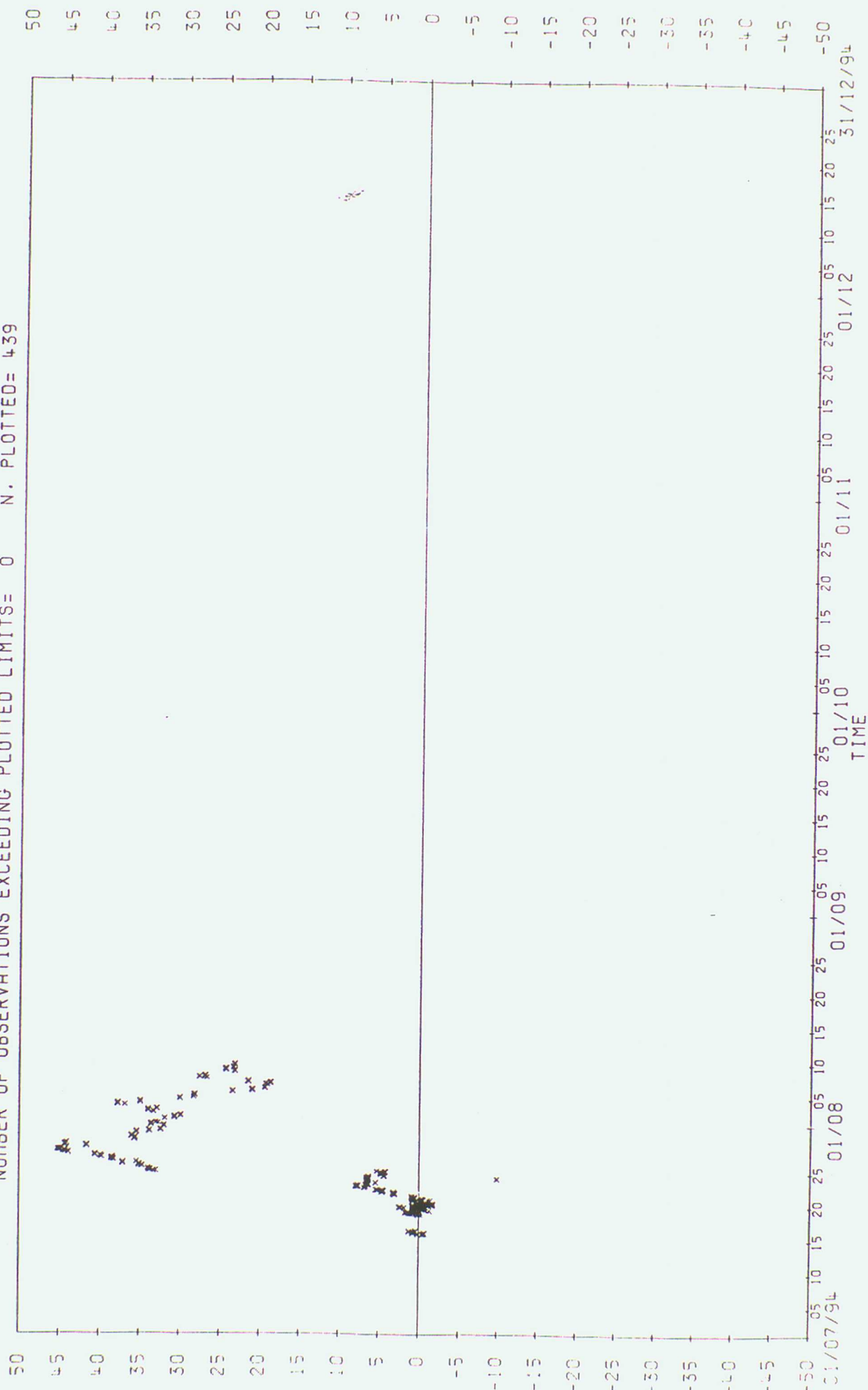
NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 247



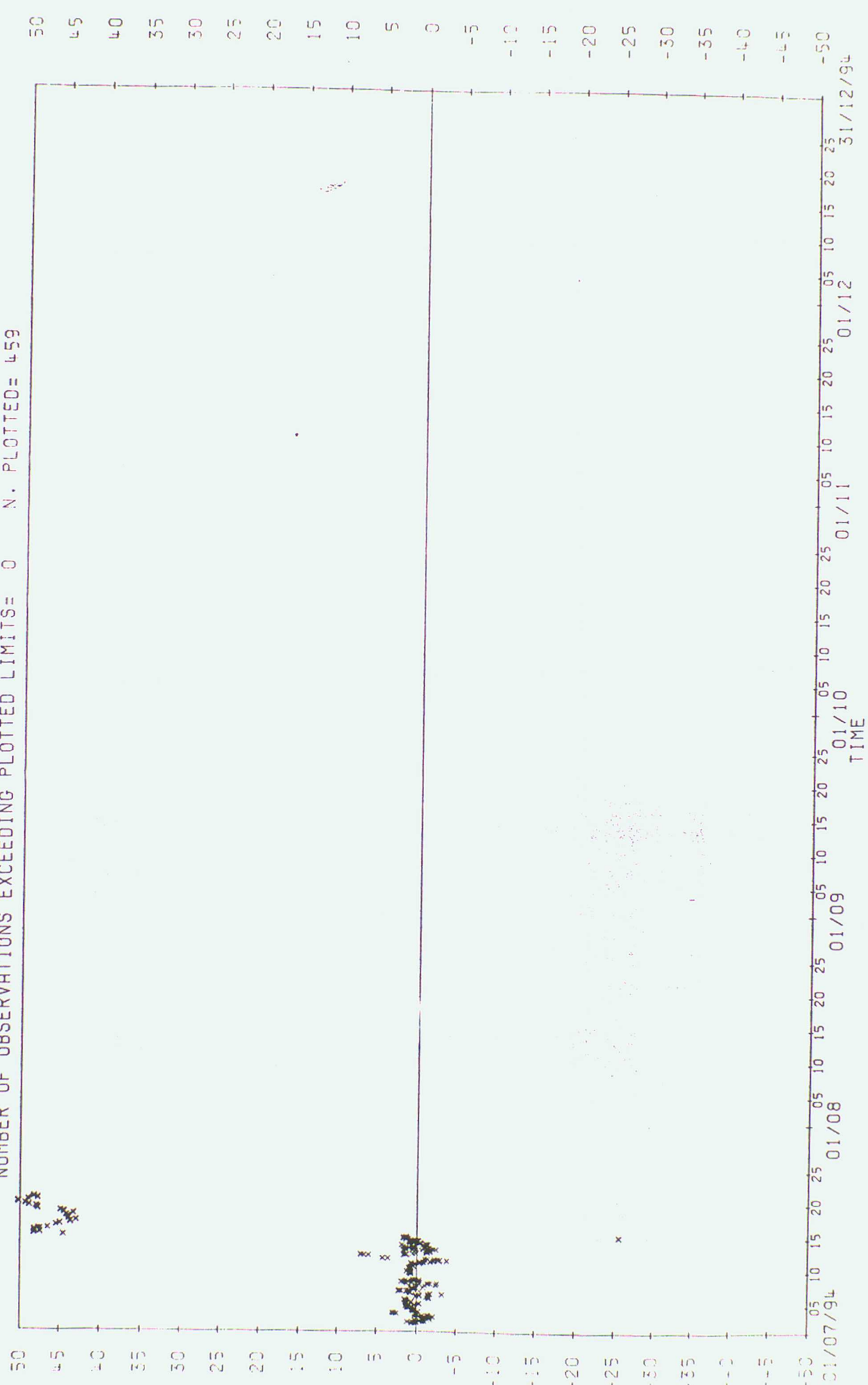
BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: 65593
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 439

0-B

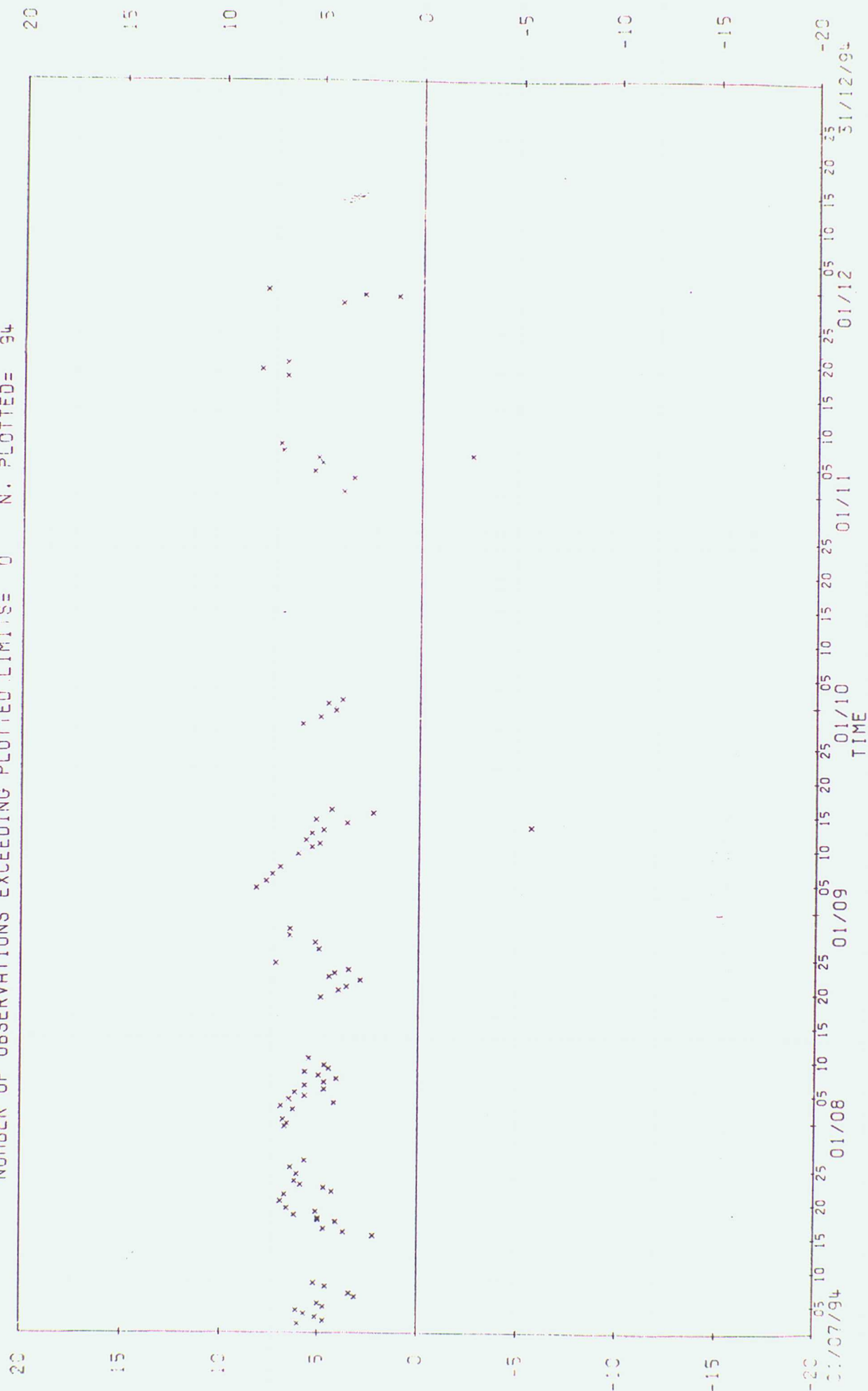
0-B



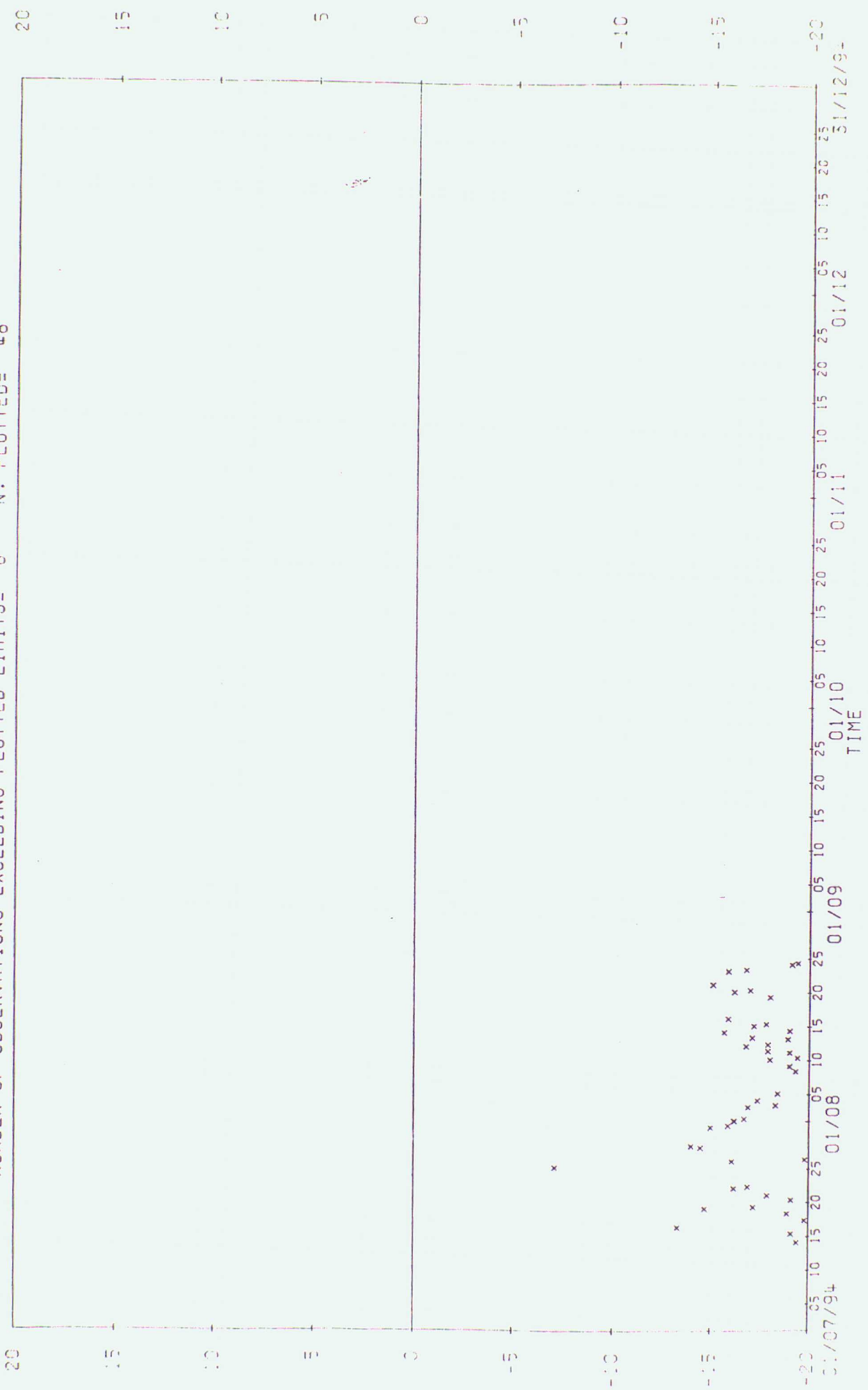
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: 71541
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 459
 0-B



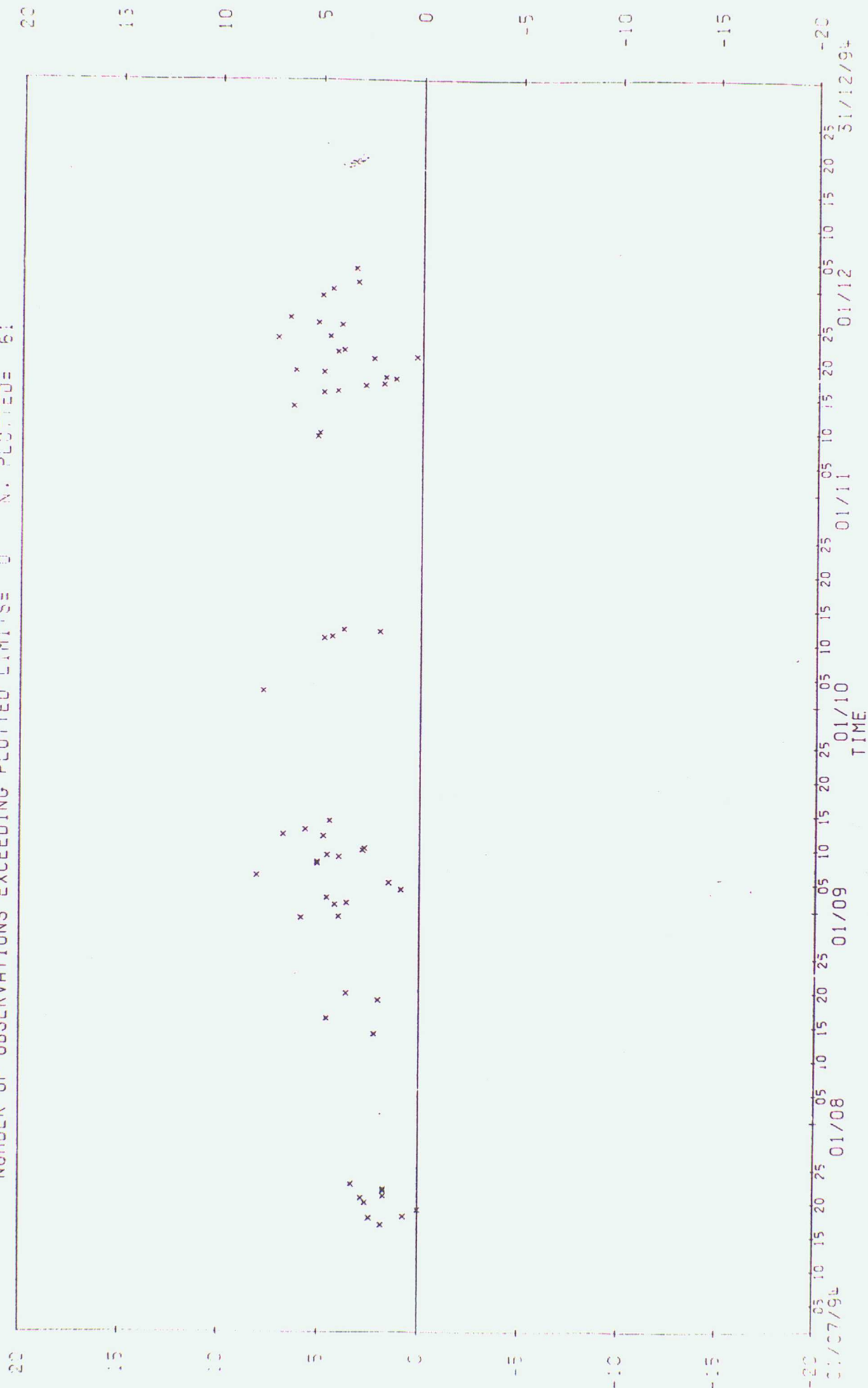
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: ATSR
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 34
 0-B



C-3
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: CG2241
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 8 N. PLOTTED= 48
 C-3



O-8
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-8) FOR IDENTIFIER: CG3198
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 61



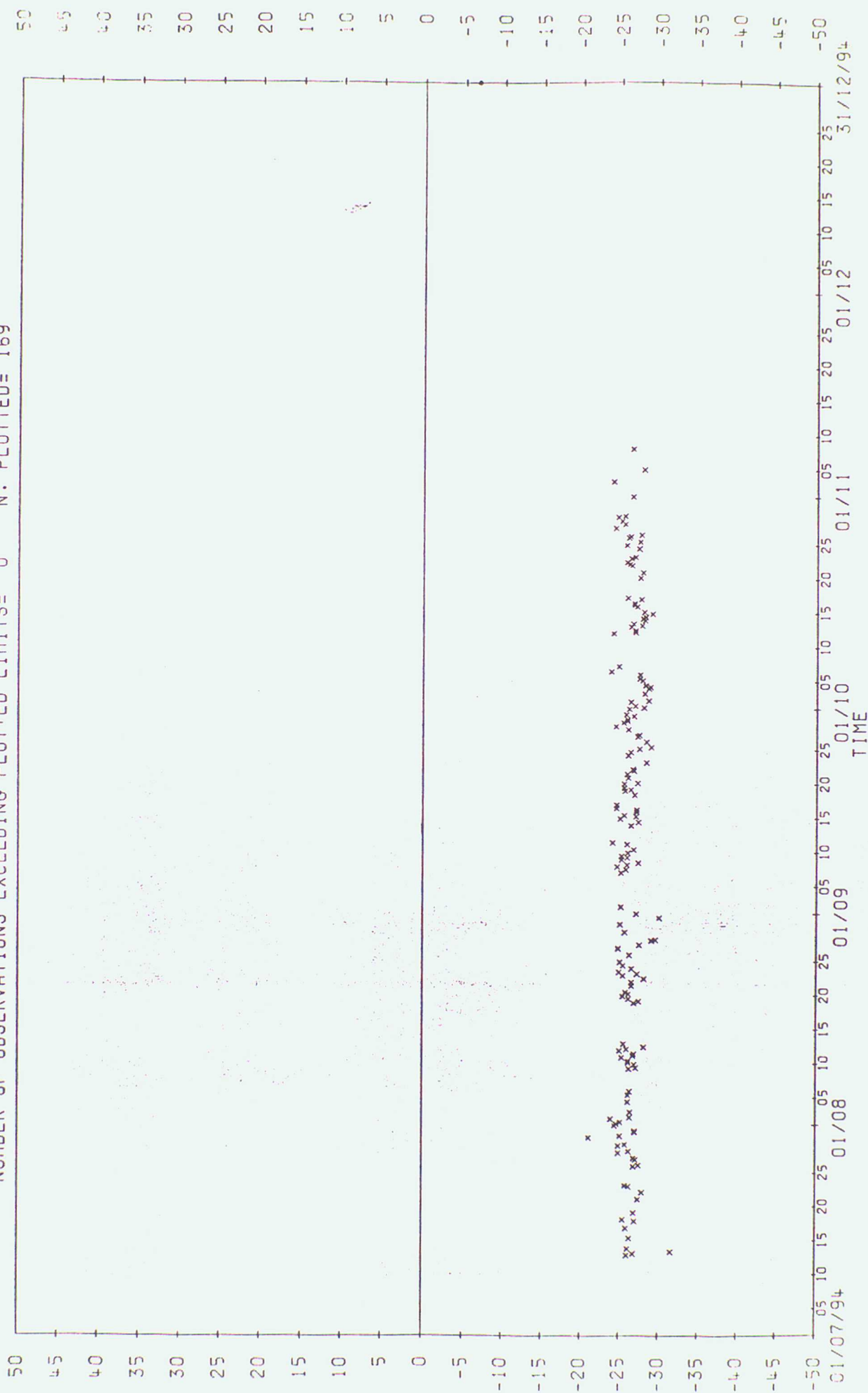
BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

0-B

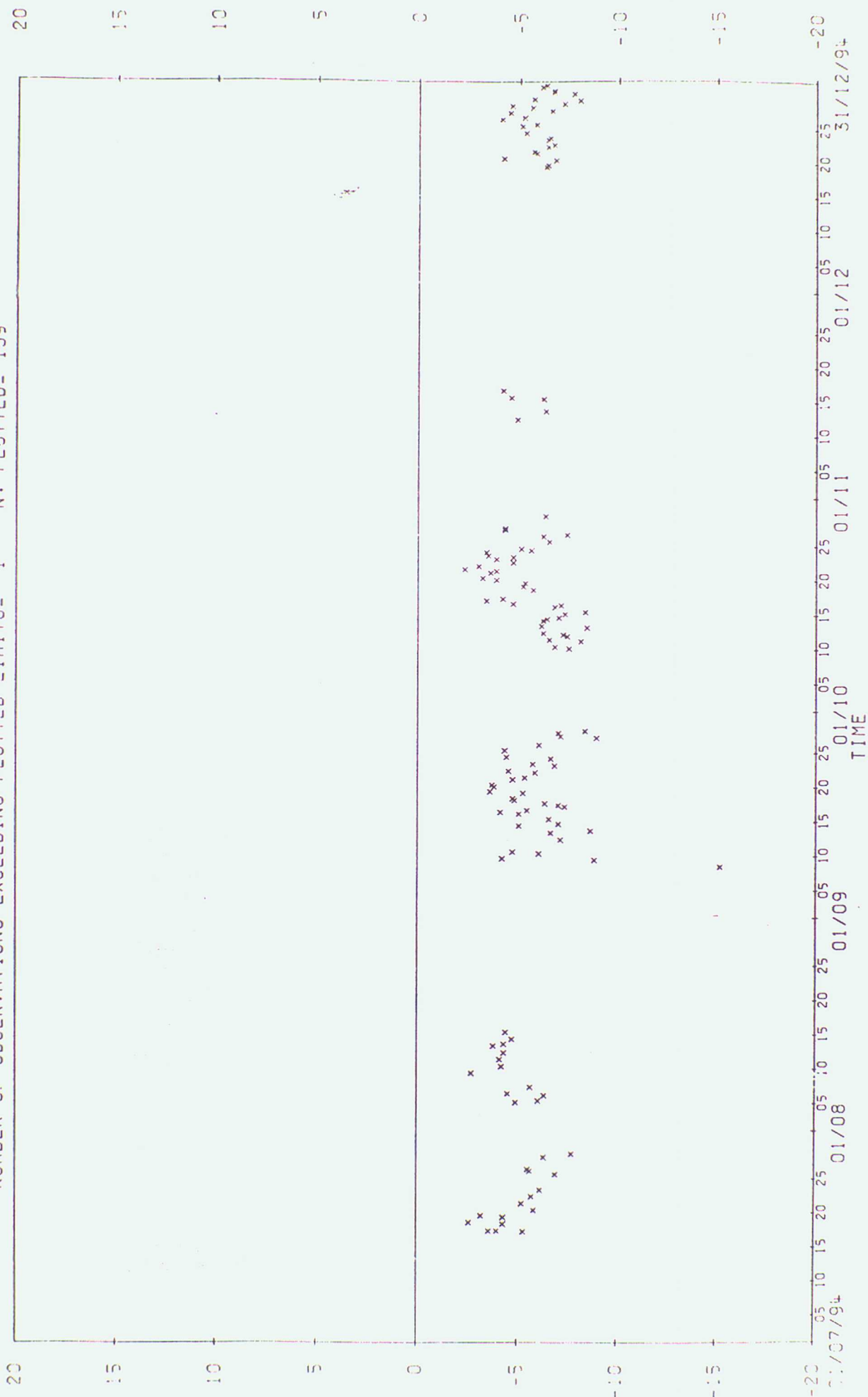
TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: CZ9742

VARIABLE : MSLP IN UNITS OF HPA

NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 169



0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: C6FA6
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 1 N. PLOTTED= 139
 C-B



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

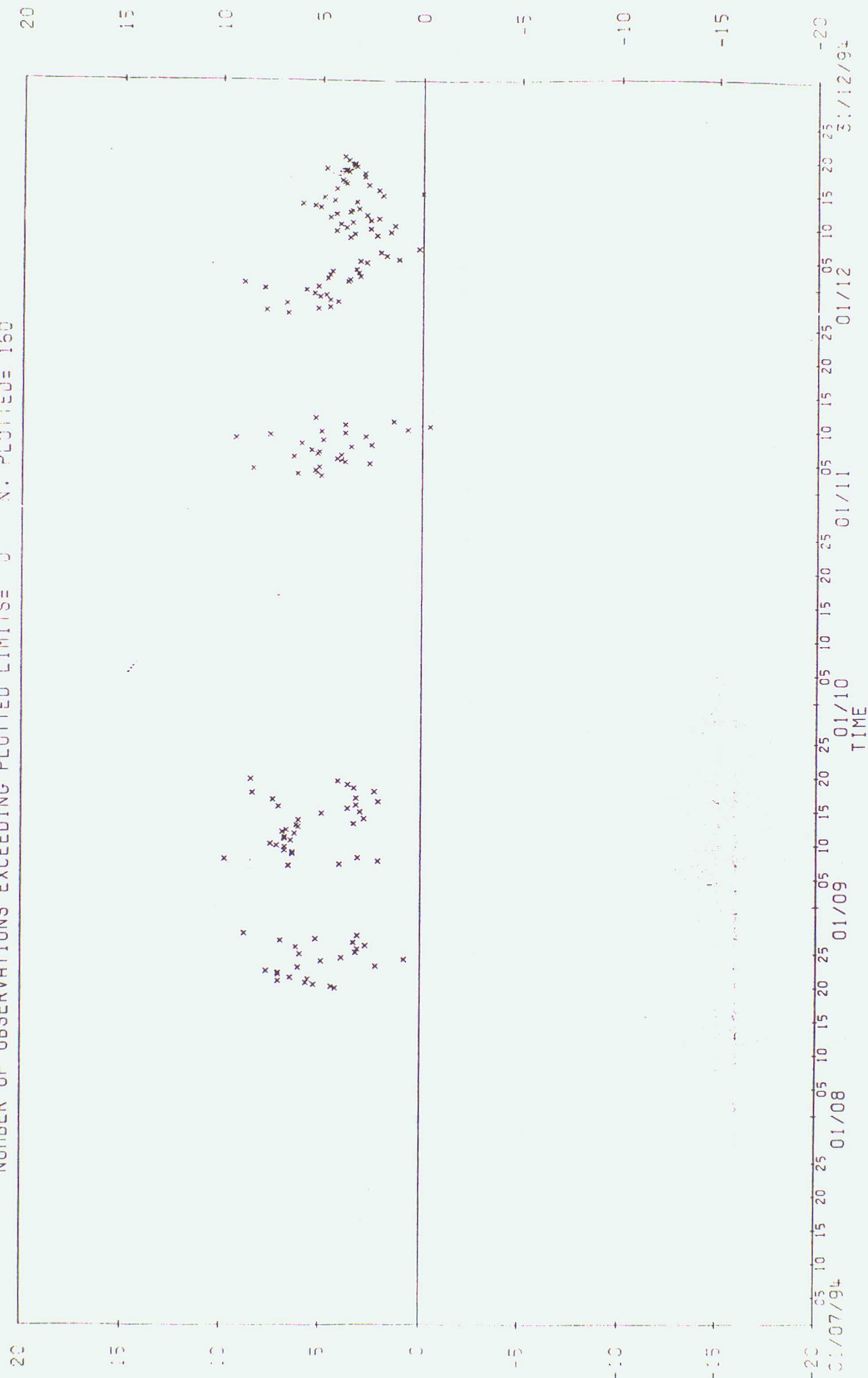
3-3

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-3) FOR IDENTIFIER: C6008

0-3

VARIABLE : MSLP IN UNITS OF HPA

NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 160



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

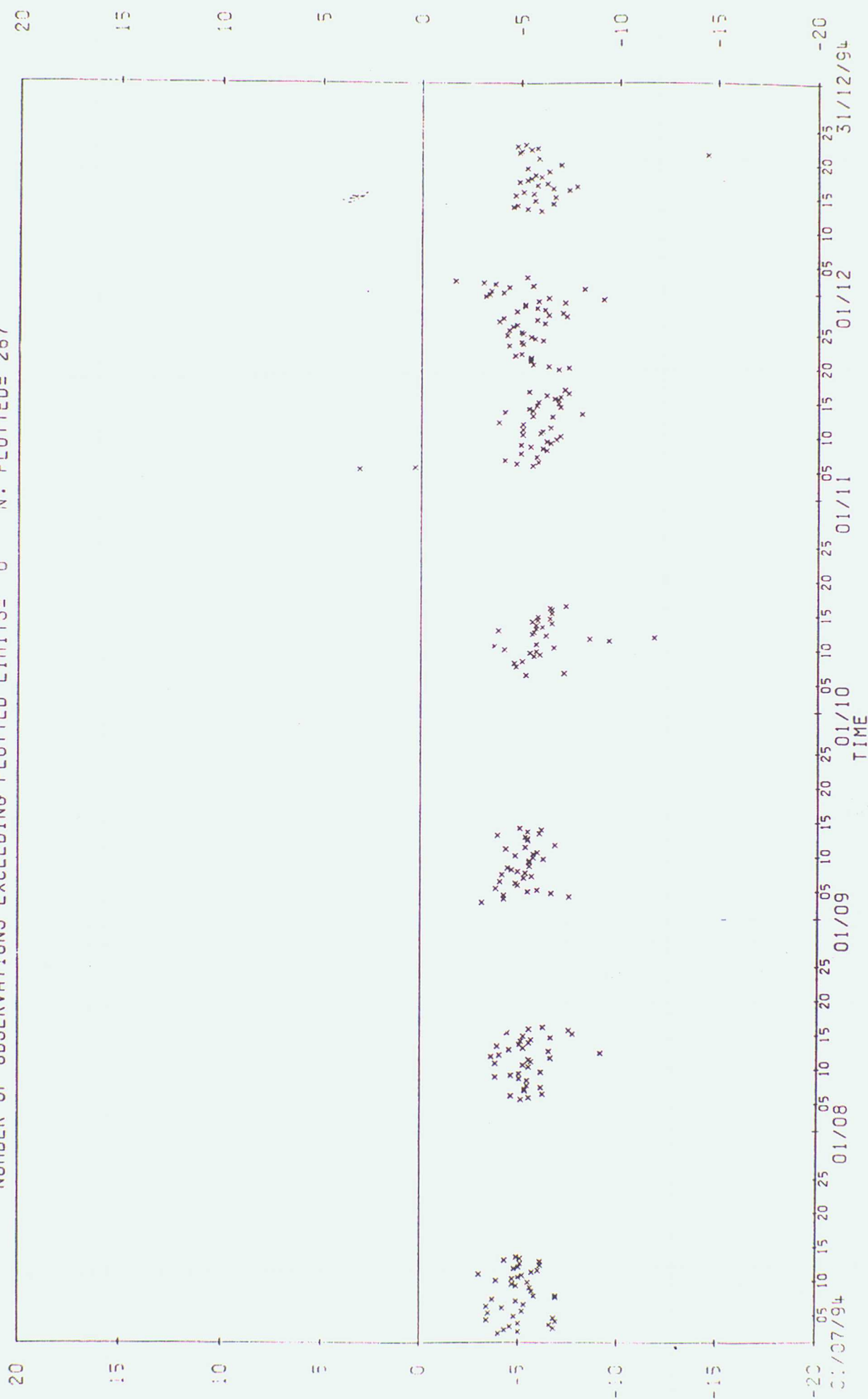
0-B

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: C6K86

0-B

VARIABLE : MSLP IN UNITS OF HPA

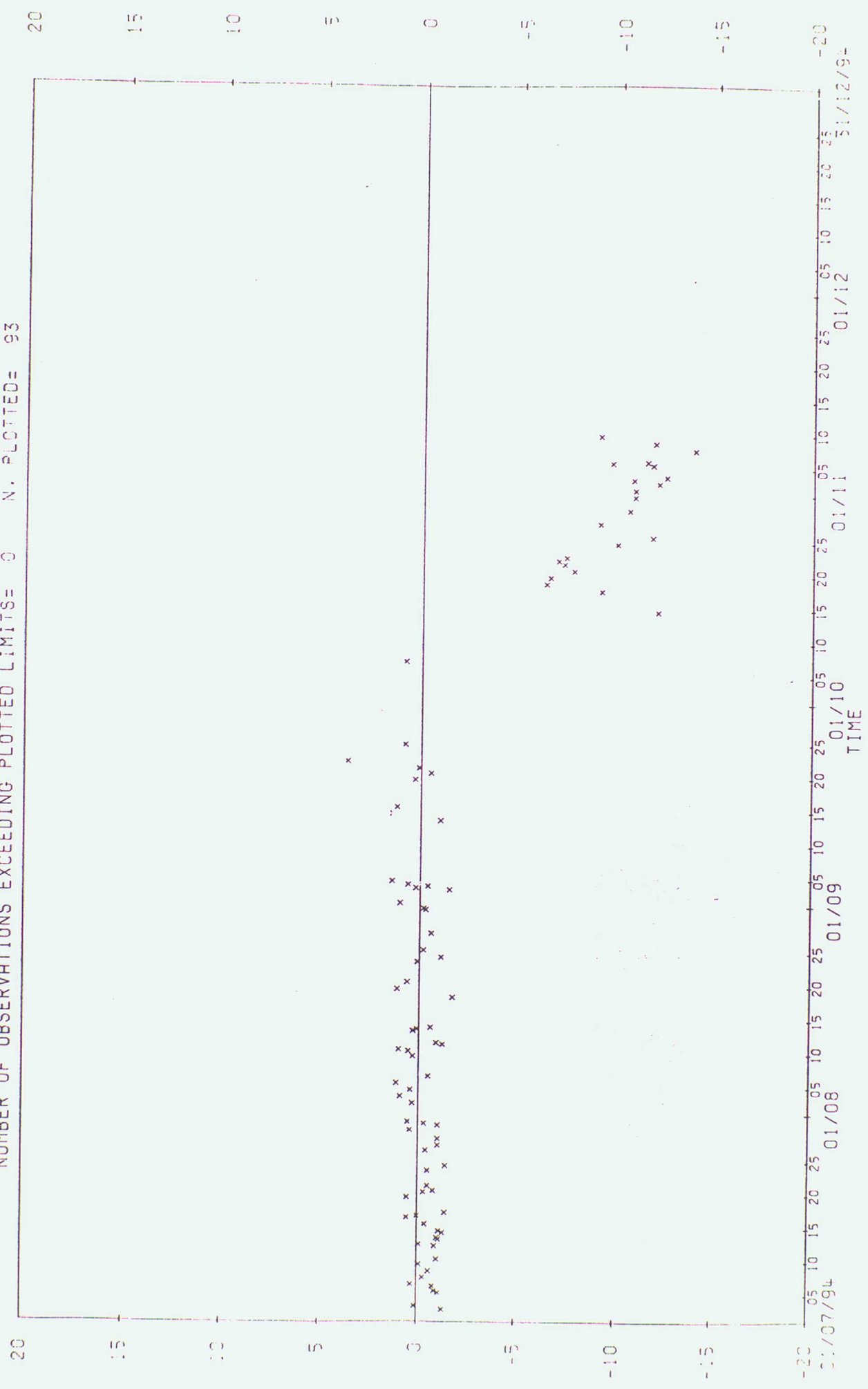
NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 267



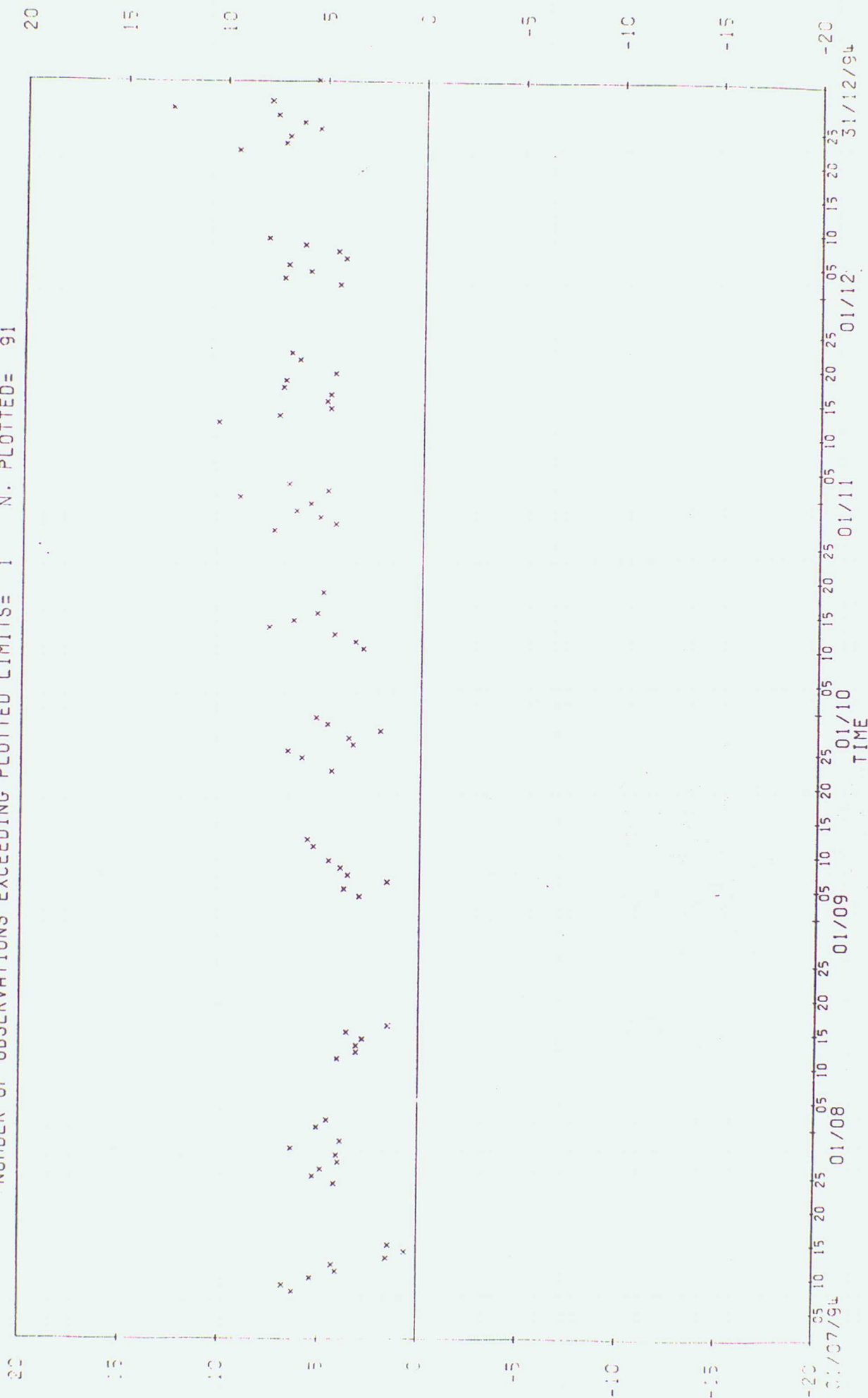
BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: C6KP
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 93

C-B

O-B



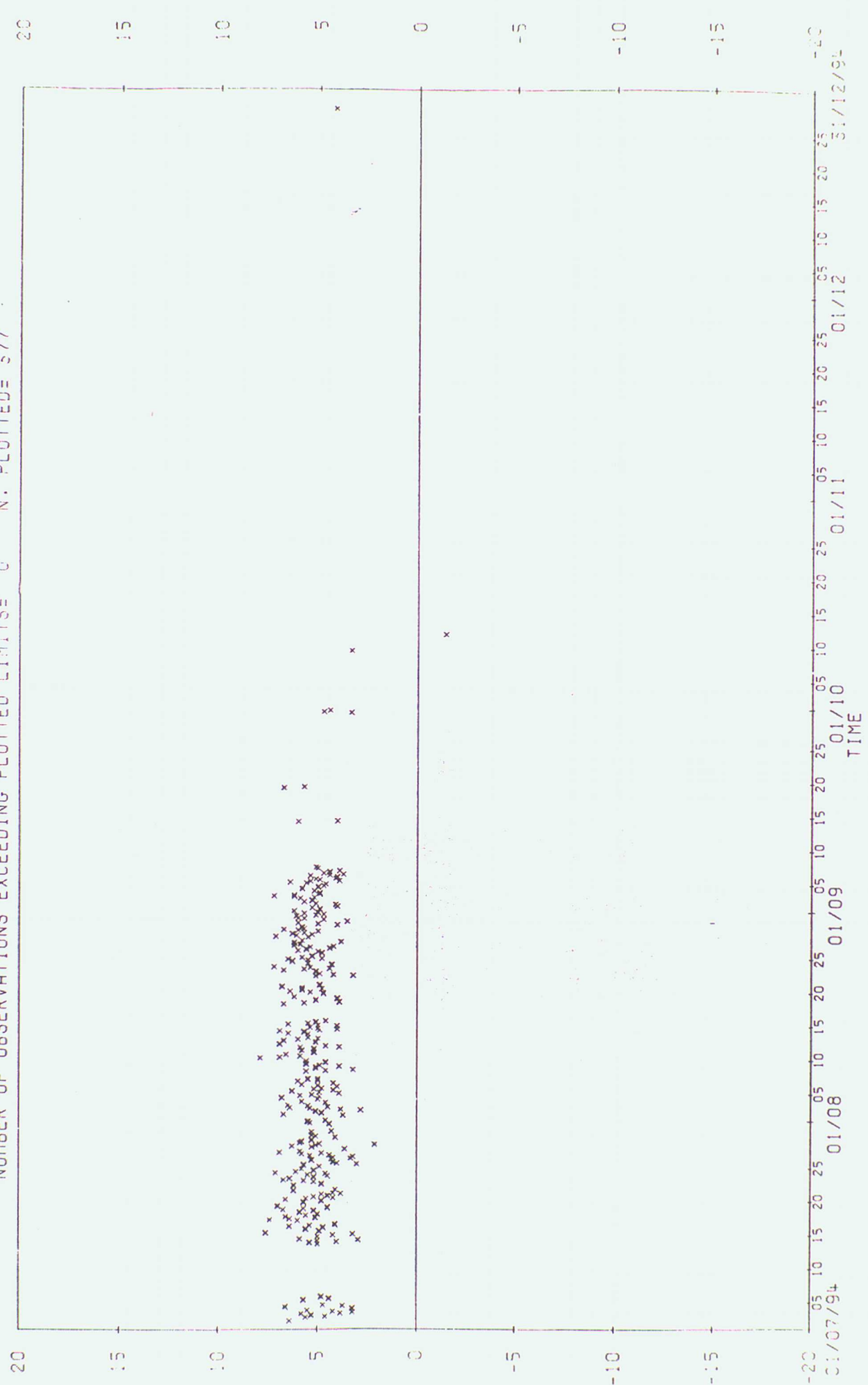
C-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B)' FOR IDENTIFIER: C6LU3
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 1 N. PLOTTED= 91
 C-B



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: OVR=
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 377

O-B

O-B



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

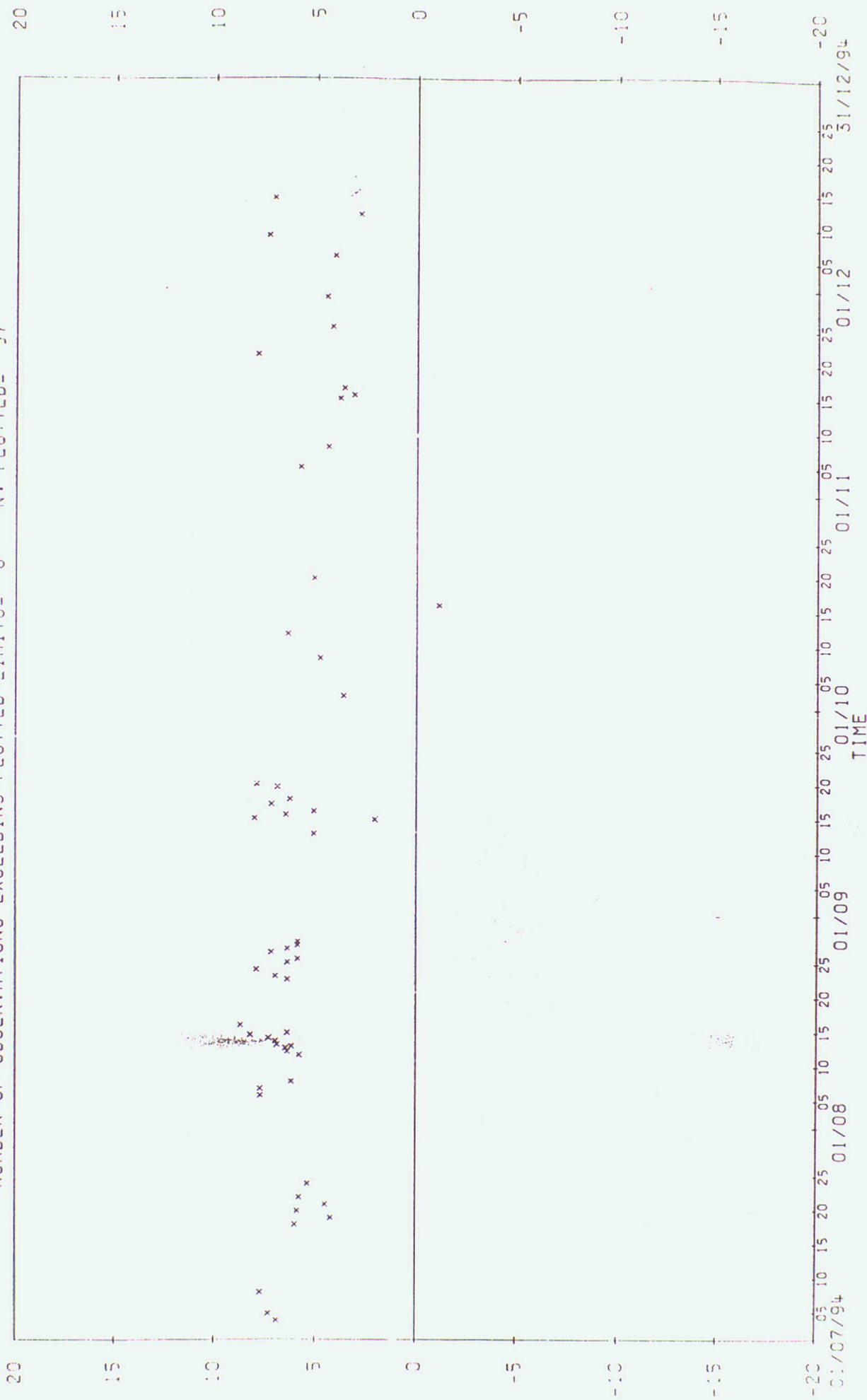
0-8

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-8) FOR IDENTIFIER: DSNE

0-9

VARIABLE : MSLP IN UNITS OF HPA

NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 57

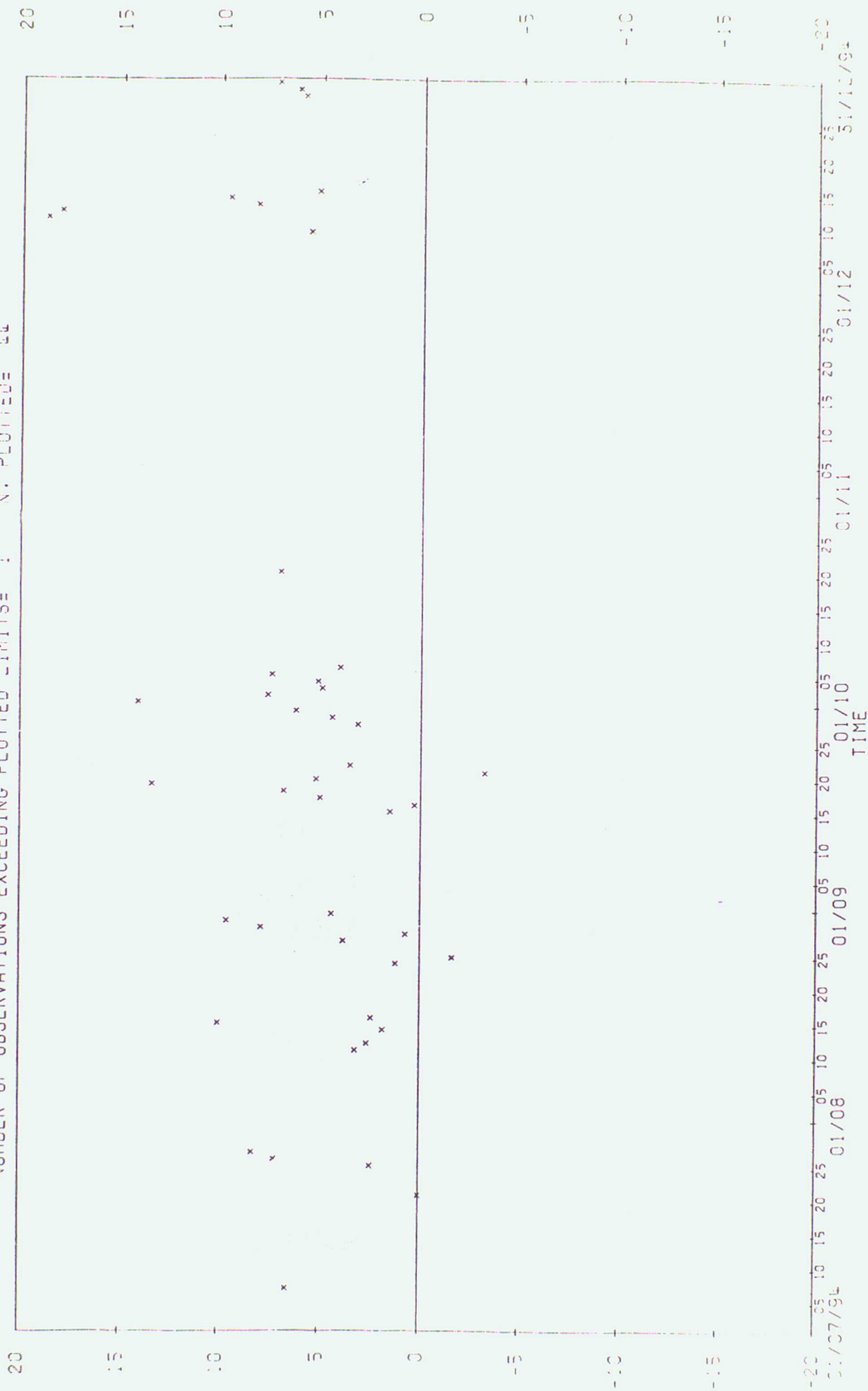


BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

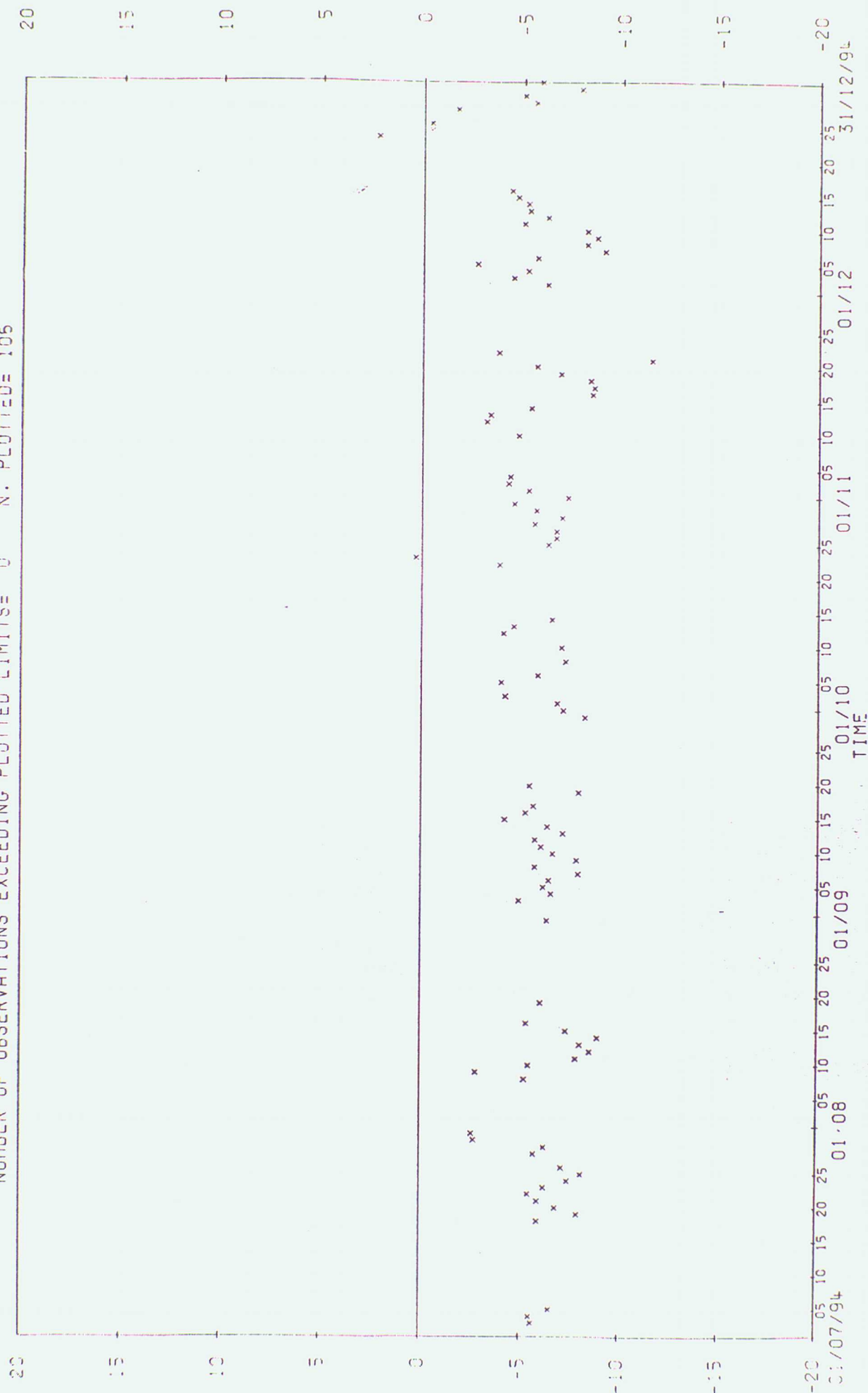
TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-3) FOR IDENTIFIER: D9ZZ

VARIABLE : MSLP IN UNITS OF HPA

NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 1 N. PLOTTED= 44

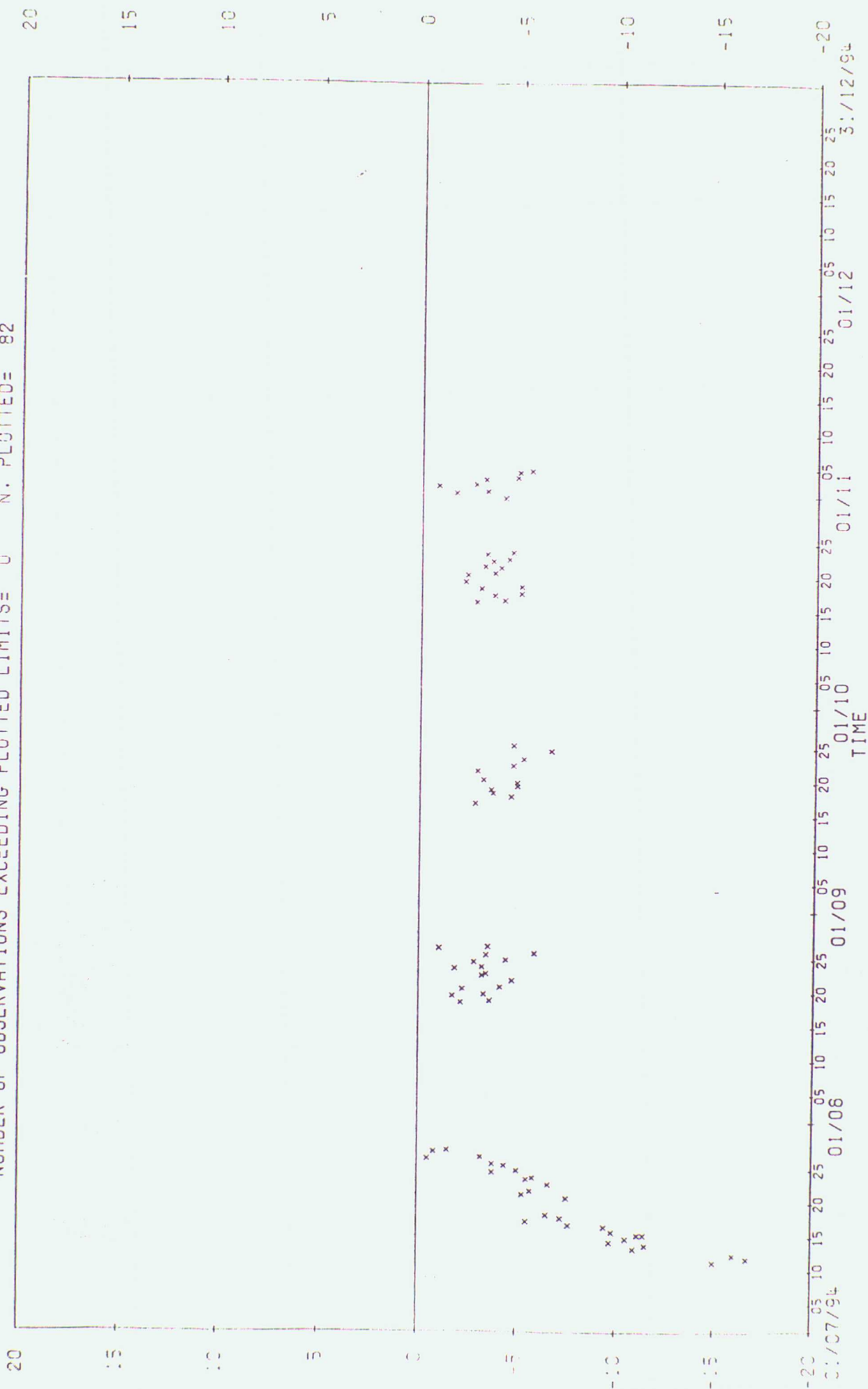


C-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(C-B) FOR IDENTIFIER: ELEW9
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 106
 C-B

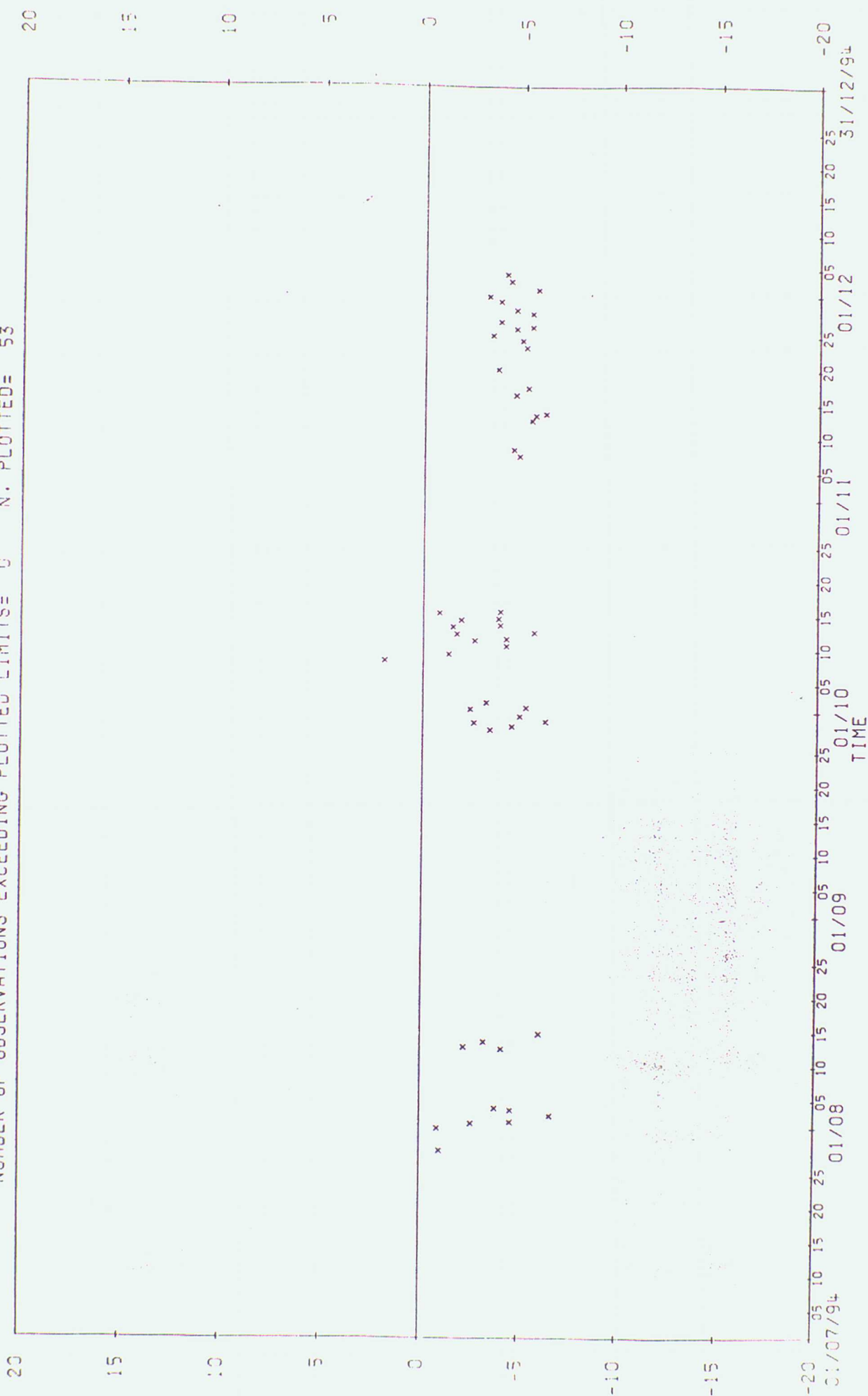


BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-3) FOR IDENTIFIER: ELIG
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 82

0-3



C-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: ELI07
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 53
 O-B



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

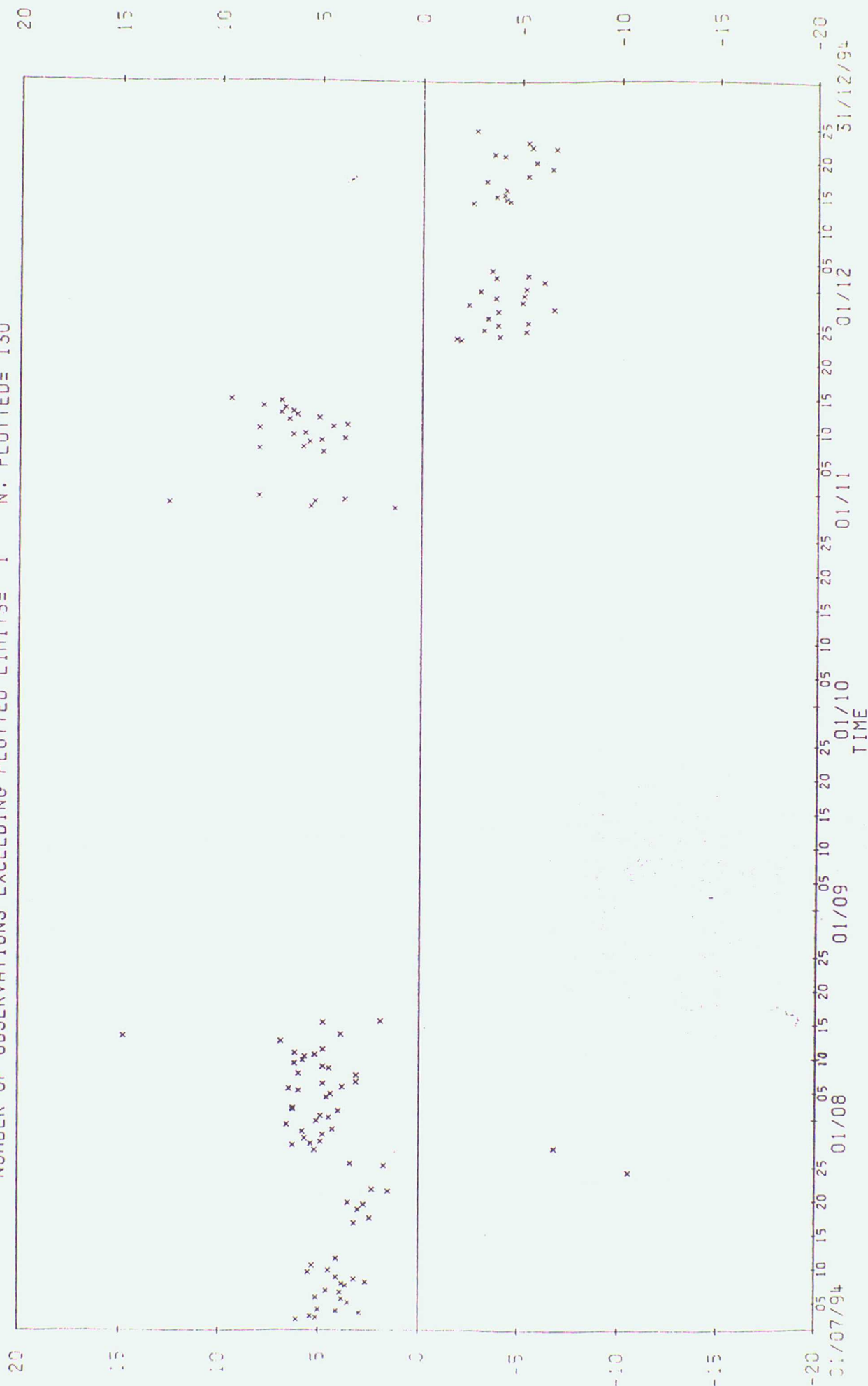
0-B

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: ELND2

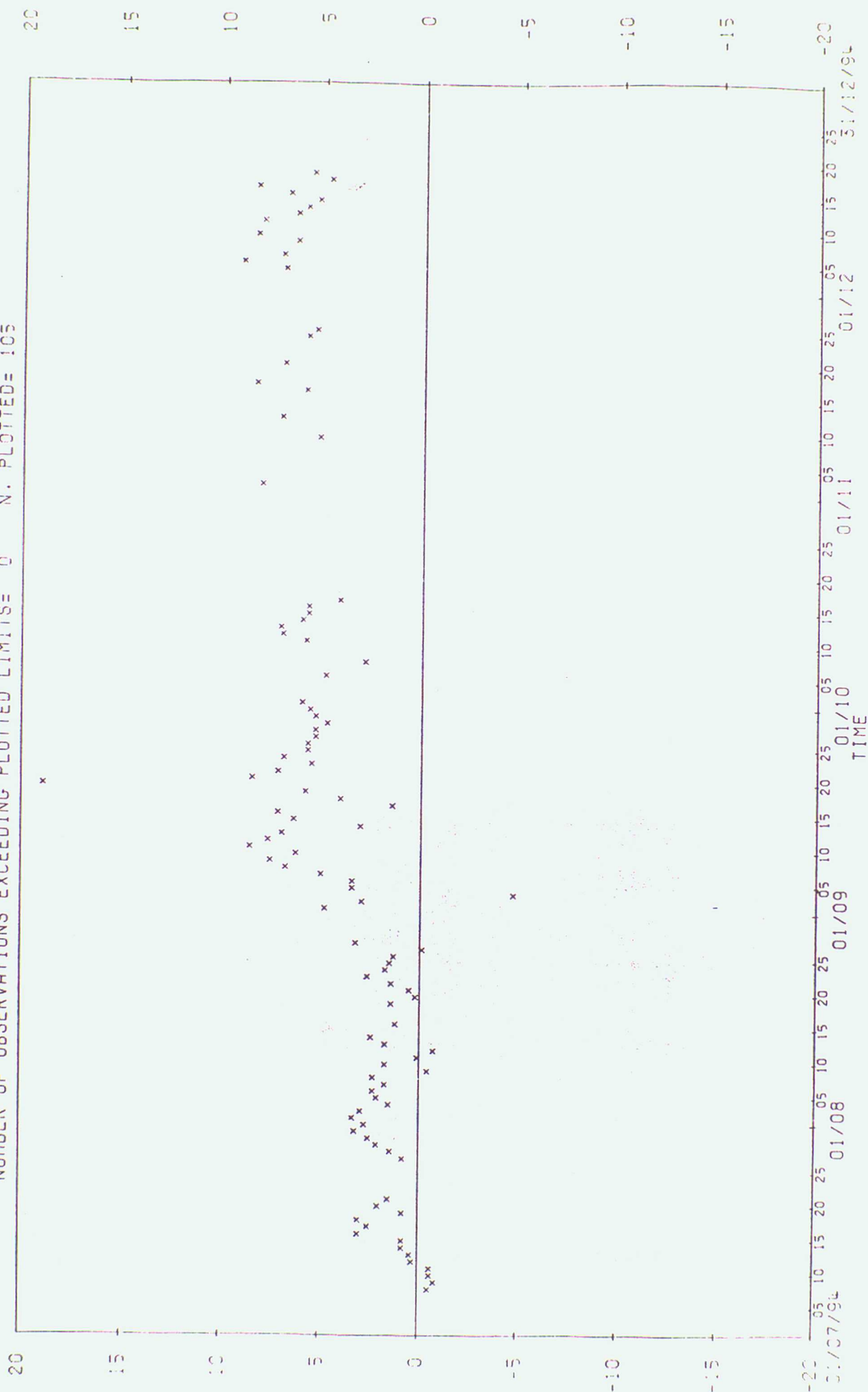
0-B

VARIABLE : MSLP IN UNITS OF HPA

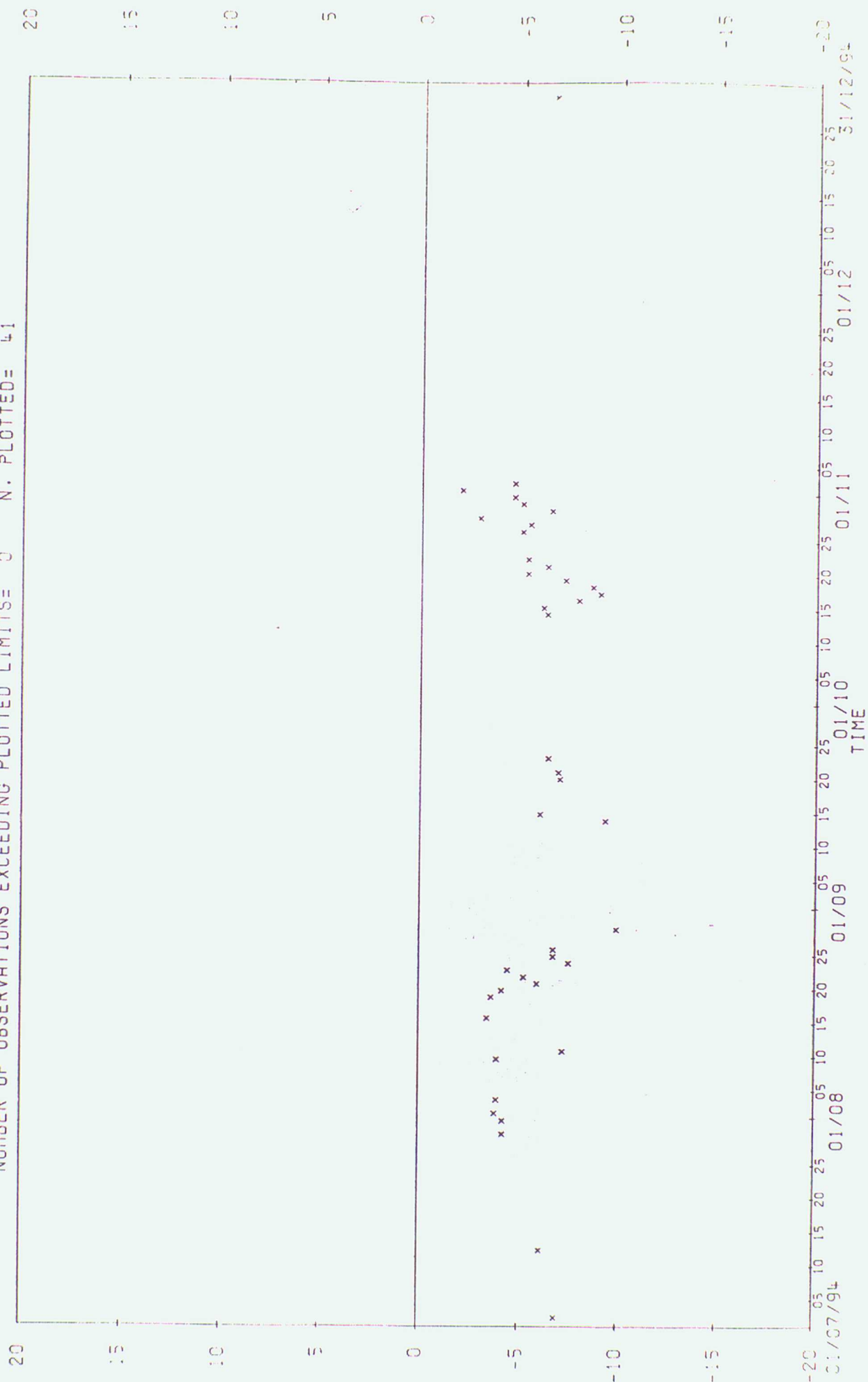
NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 1 N. PLOTTED= 130



0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: ELCYS
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 105
 0-B



0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: ELOFL
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 41



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

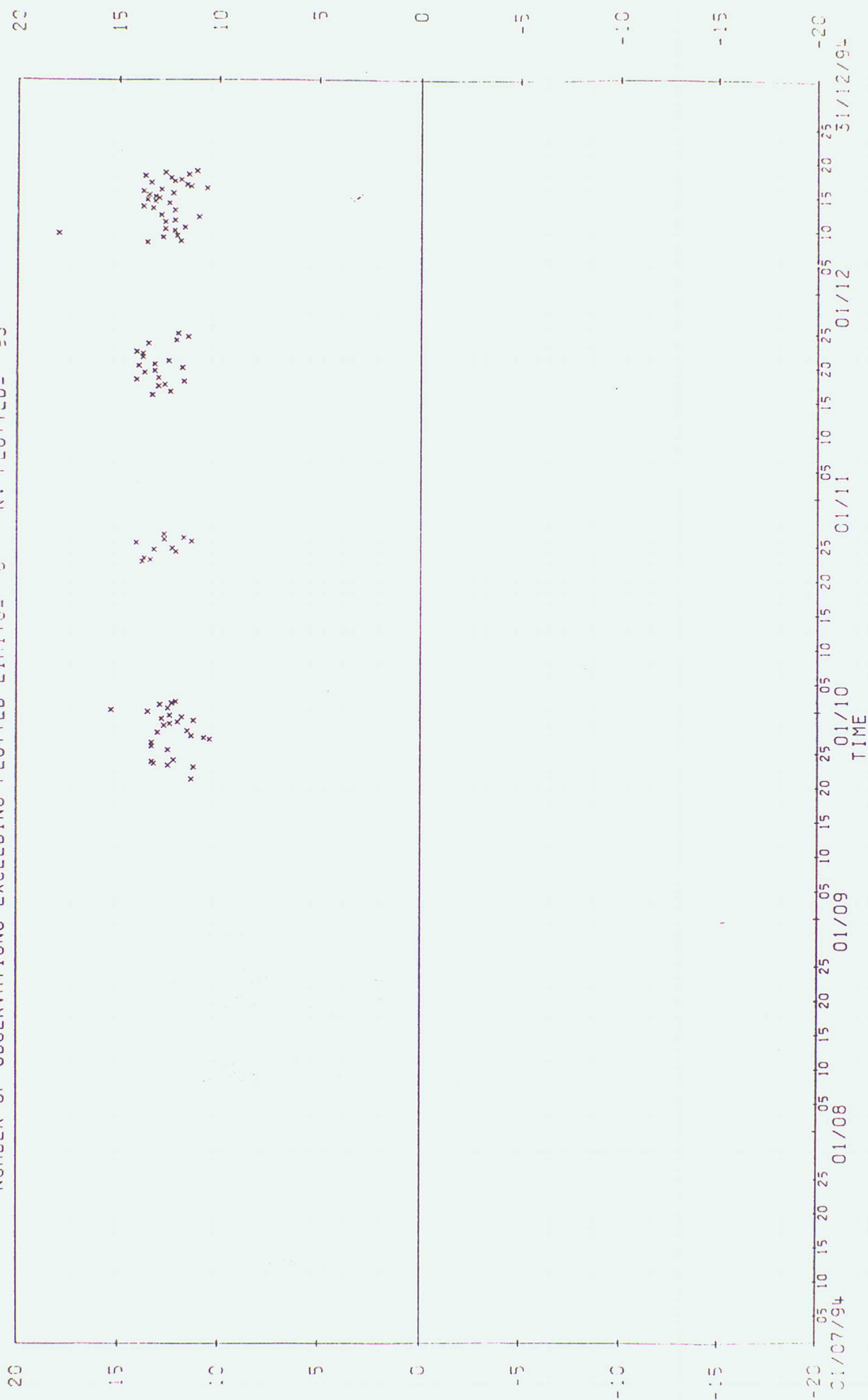
0-3

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-3) FOR IDENTIFIER: ESCA

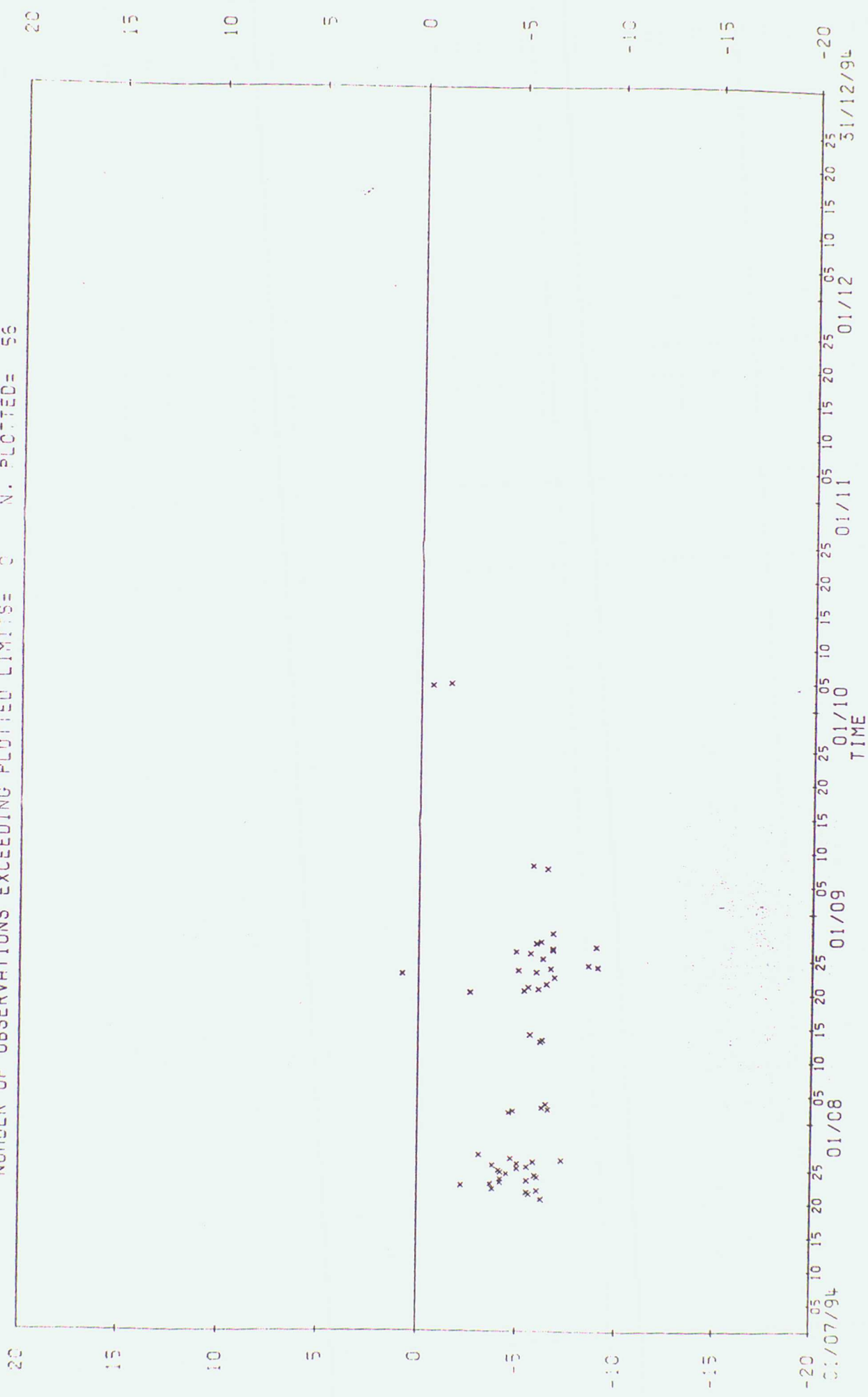
0-3

VARIABLE : MSLP IN UNITS OF HPA

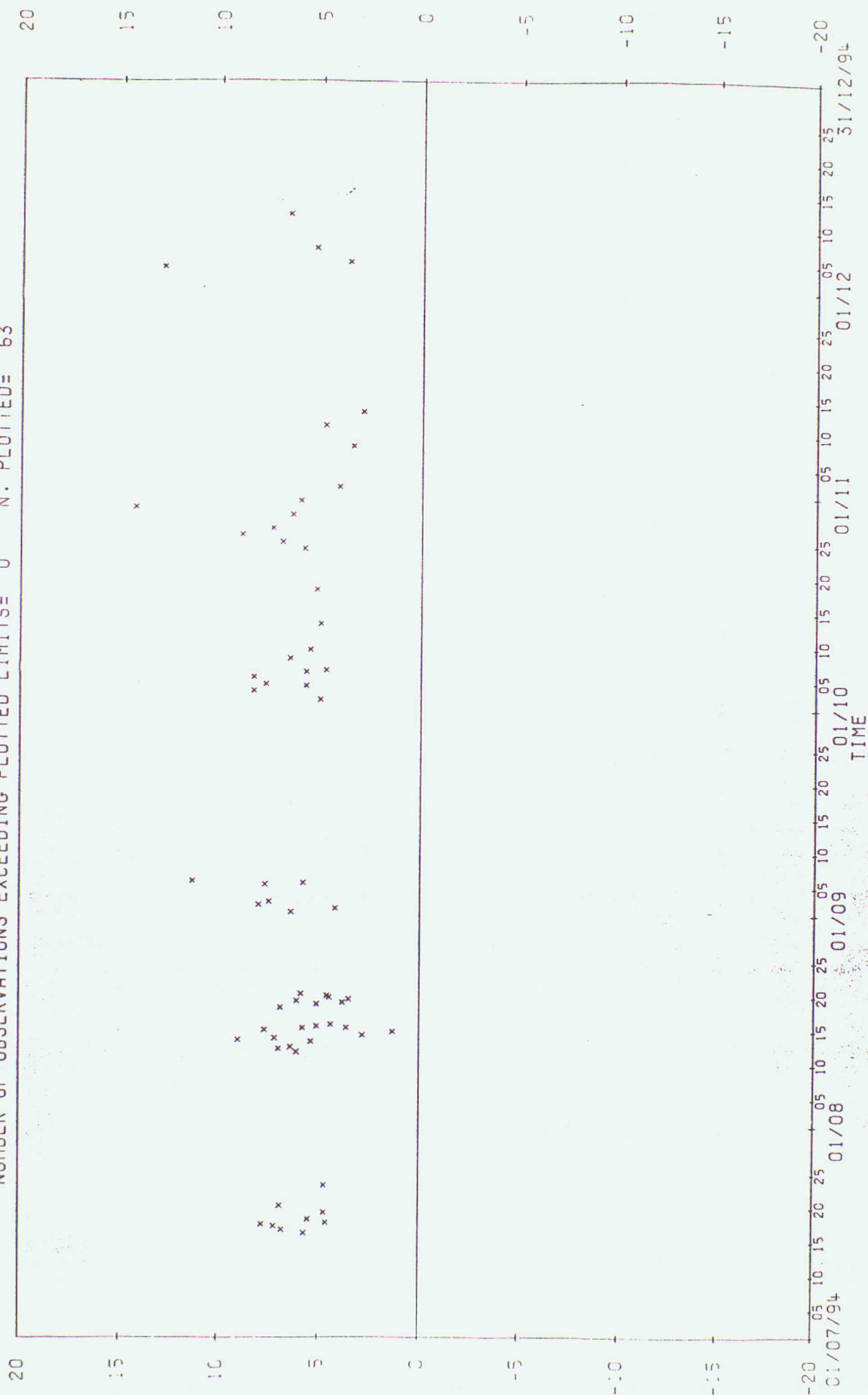
NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 93



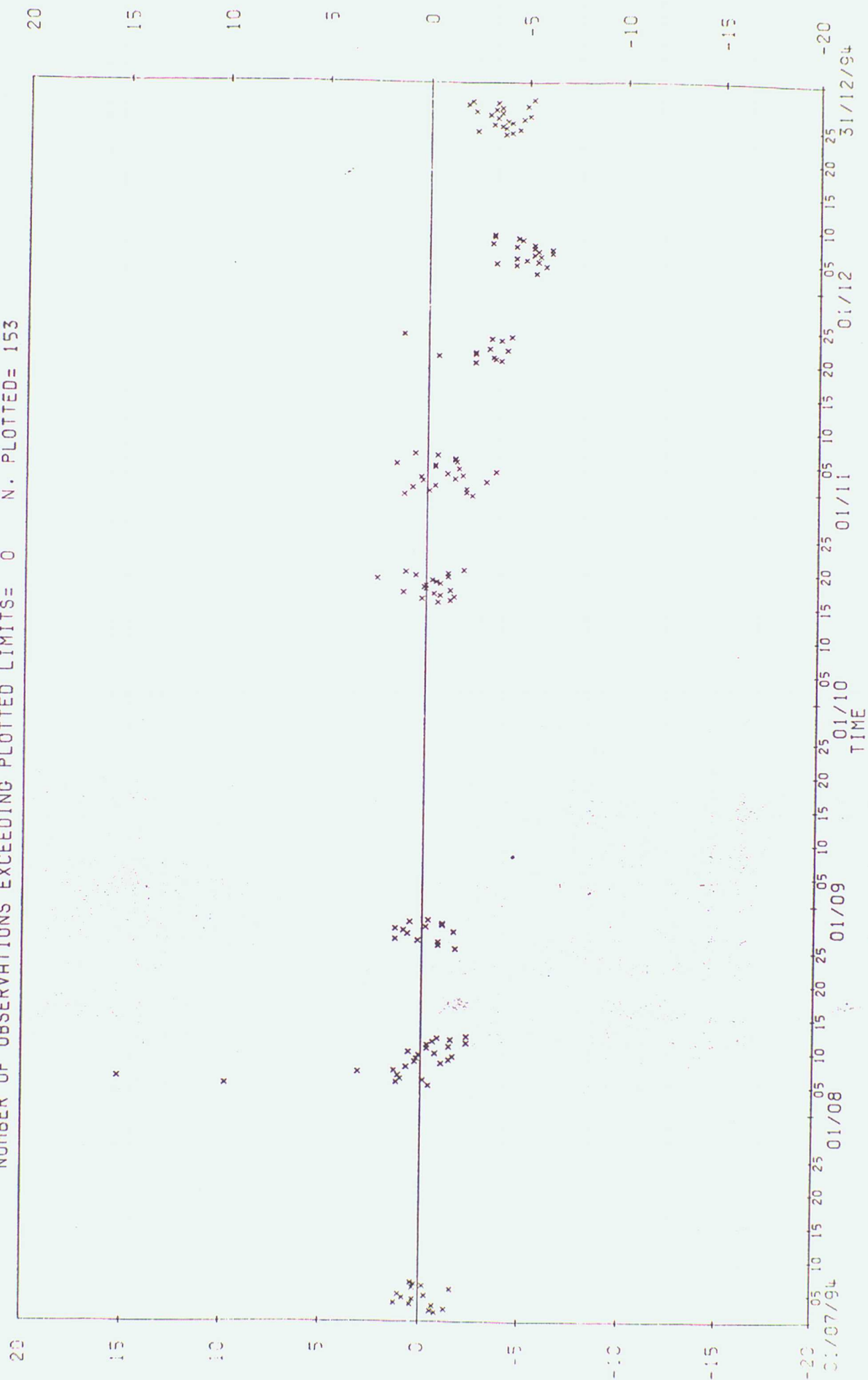
C-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: ESDI
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 56
 C-B
 0-3



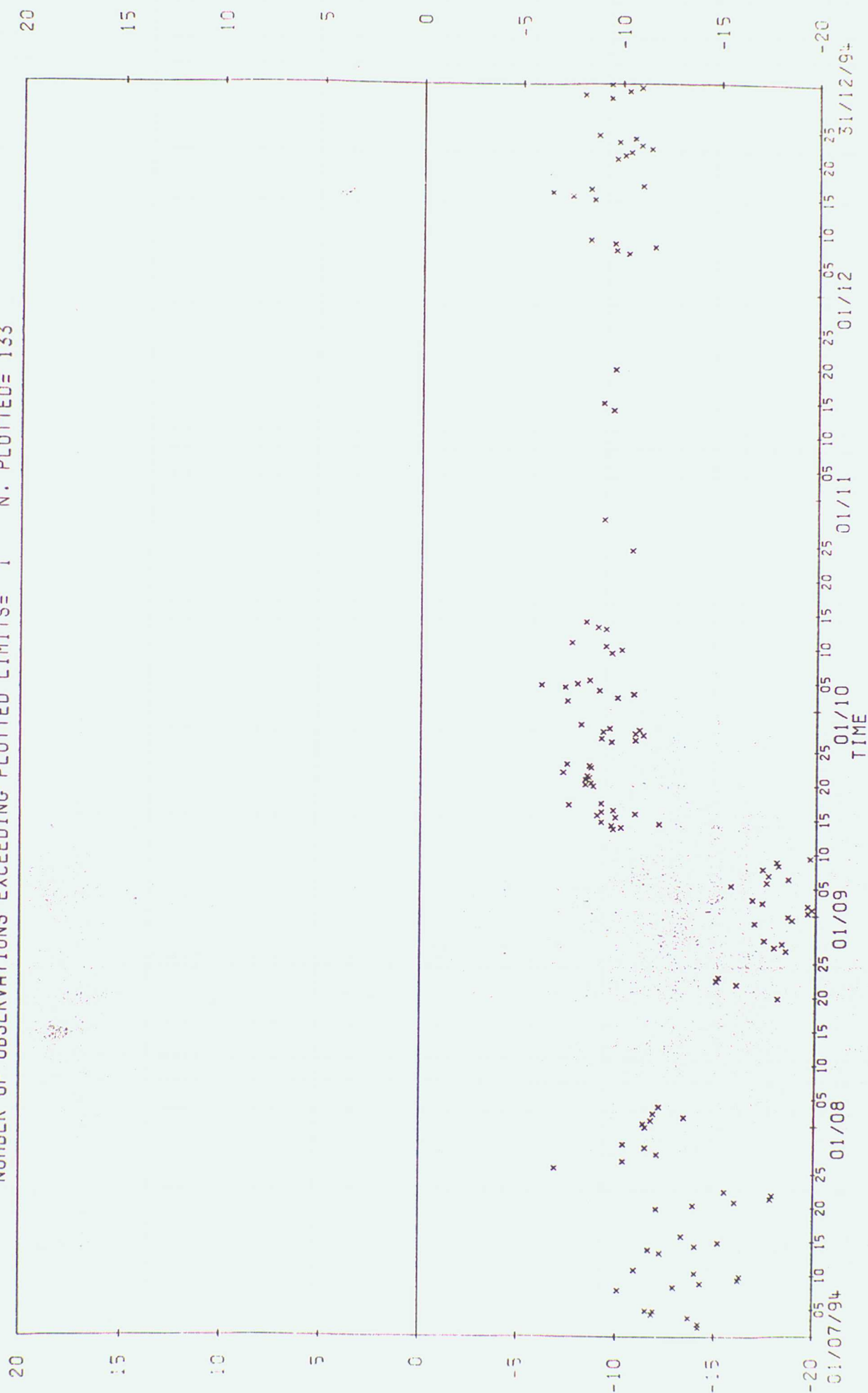
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: EUAF
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 63
 0-B



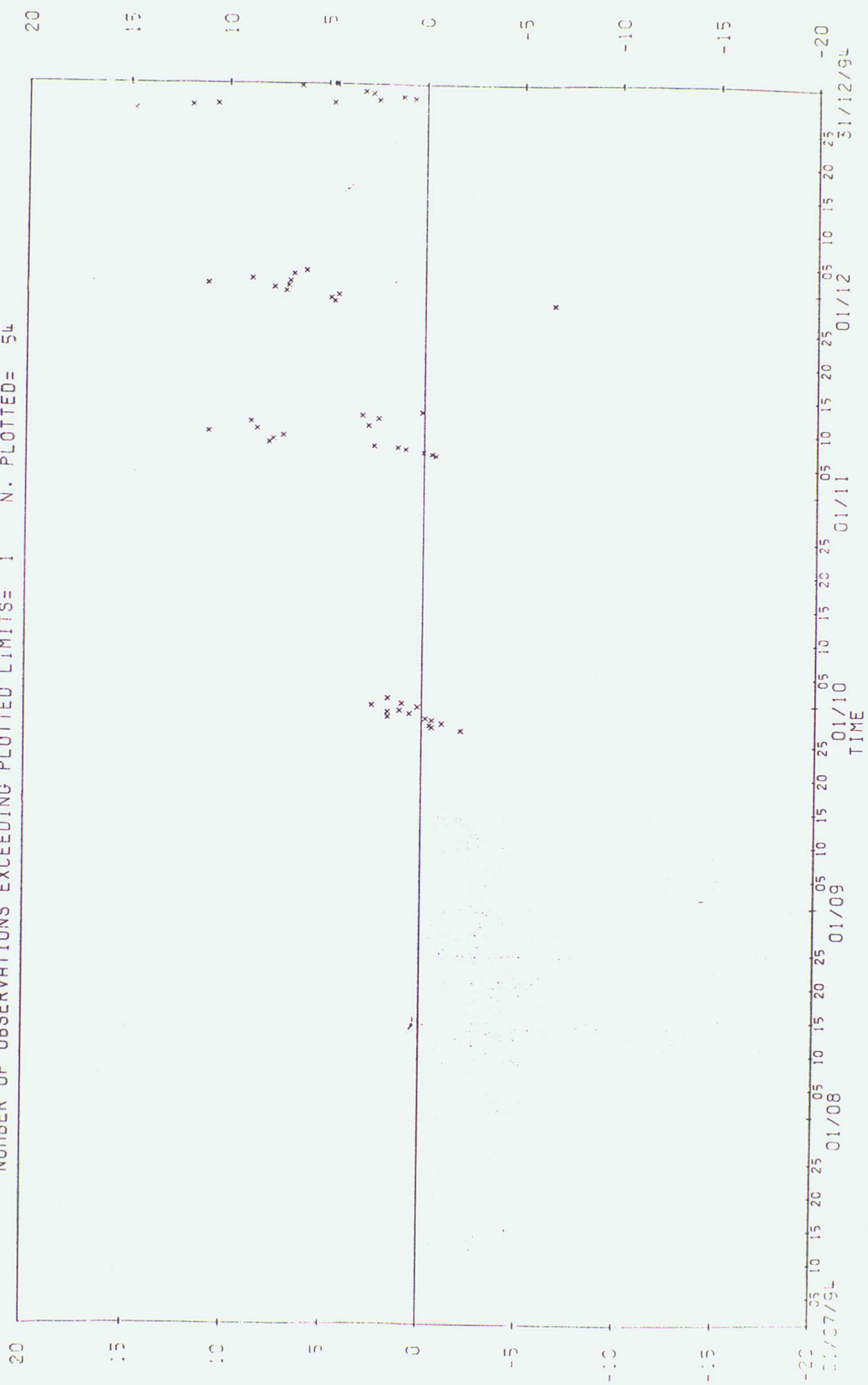
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: HSBN
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 153



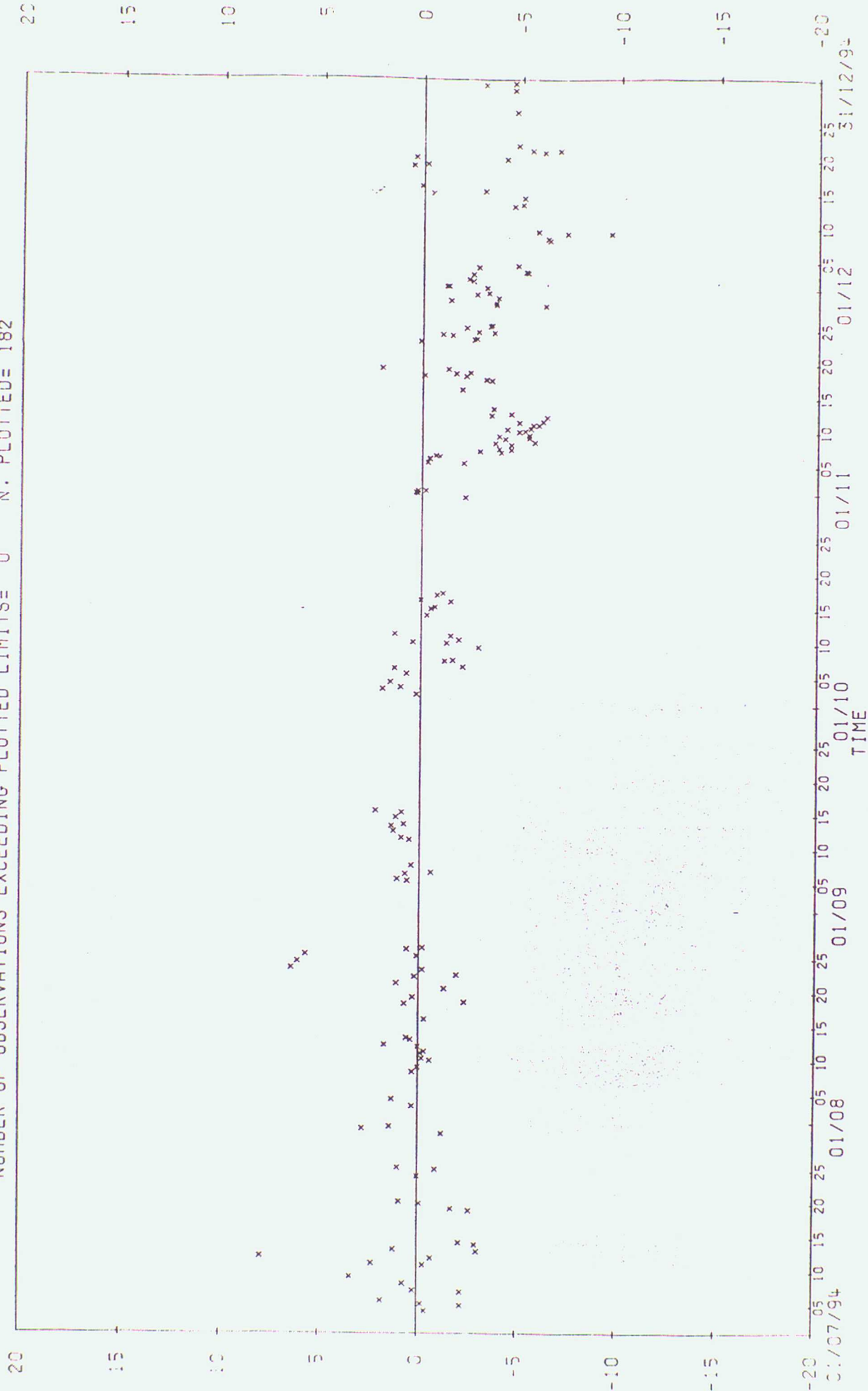
BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: KXD8
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 1 N. PLOTTED= 133



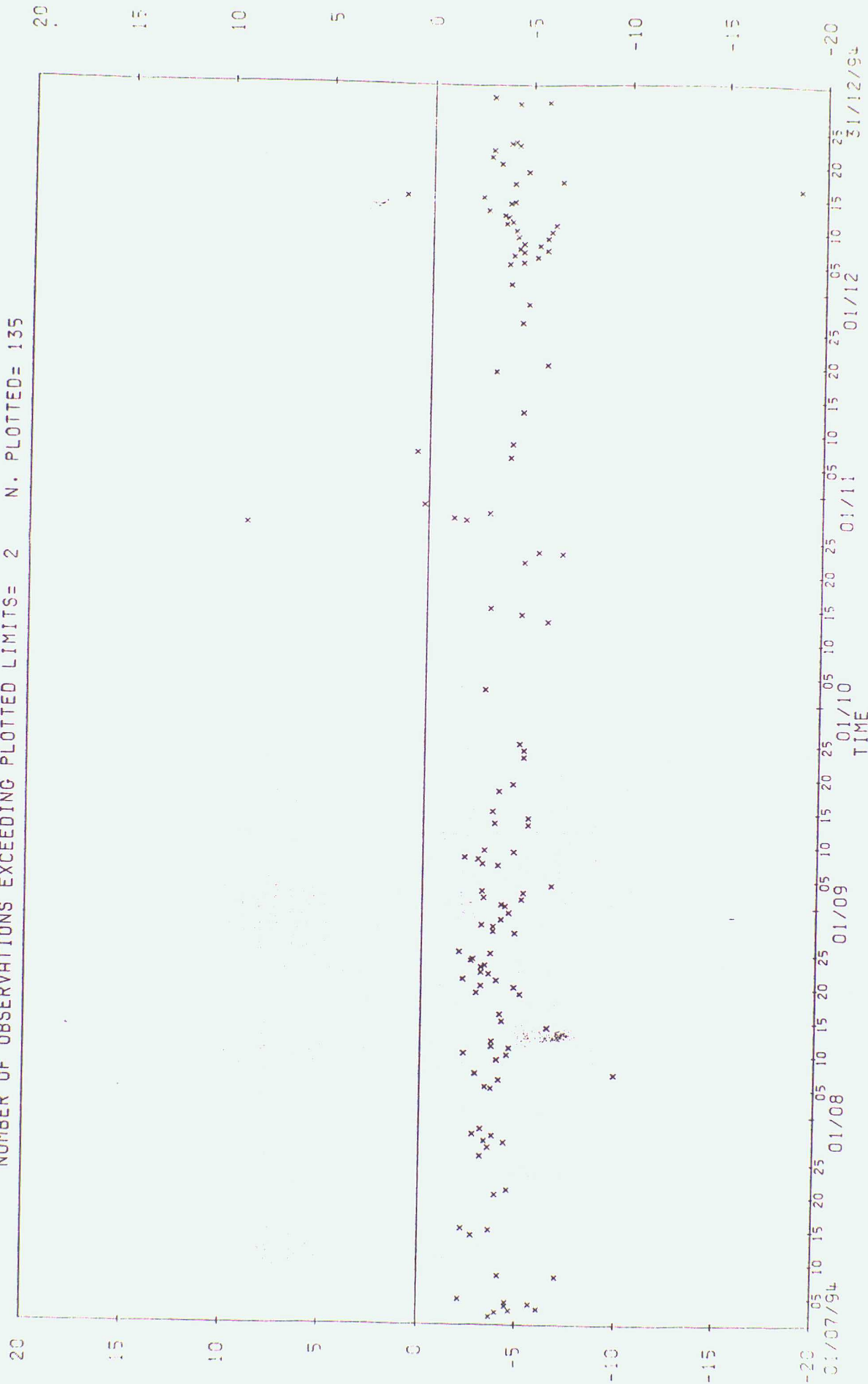
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: LA004
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 1 N. PLOTTED= 54
 0-B



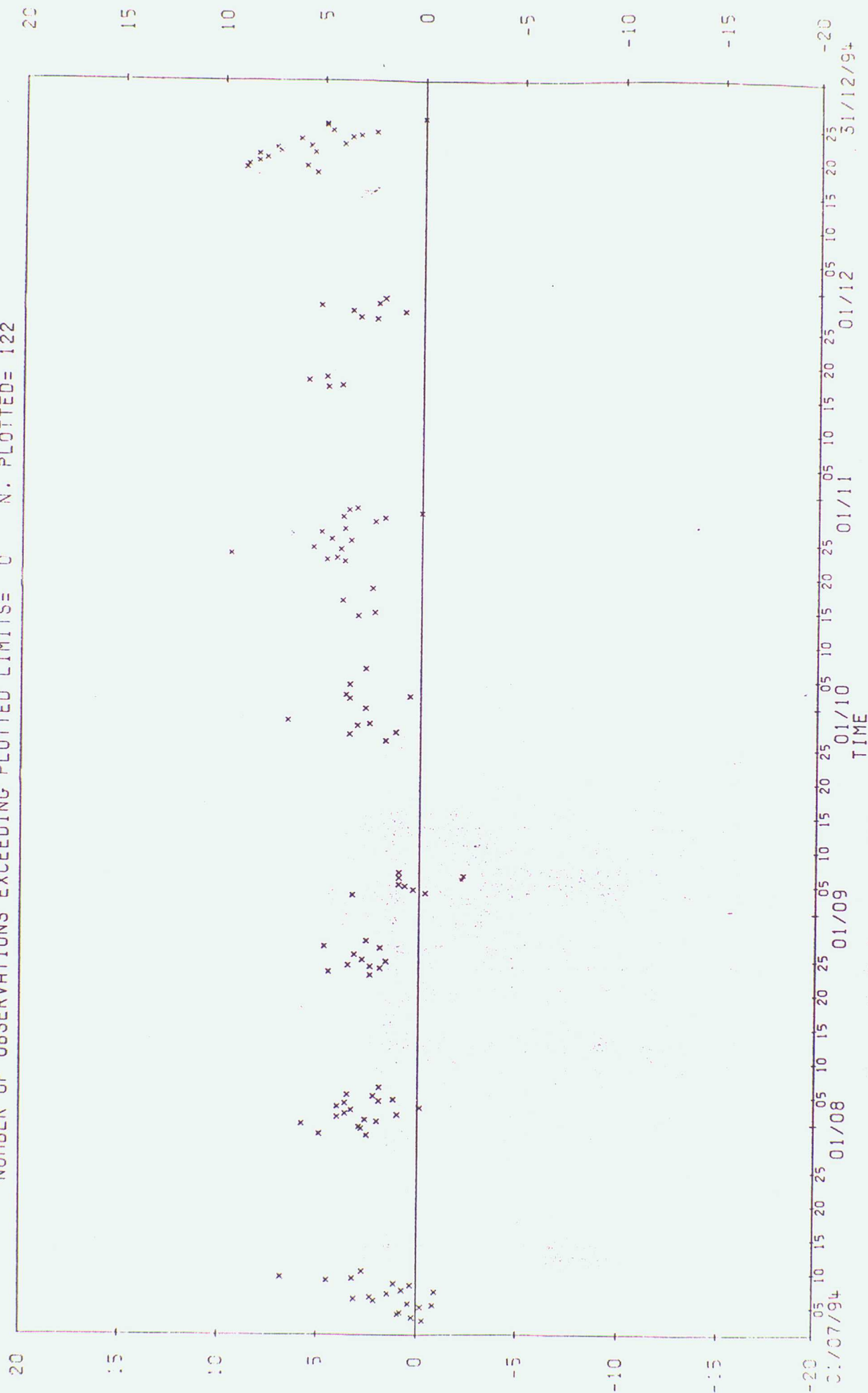
C-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: NHAR
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 182
 O-B



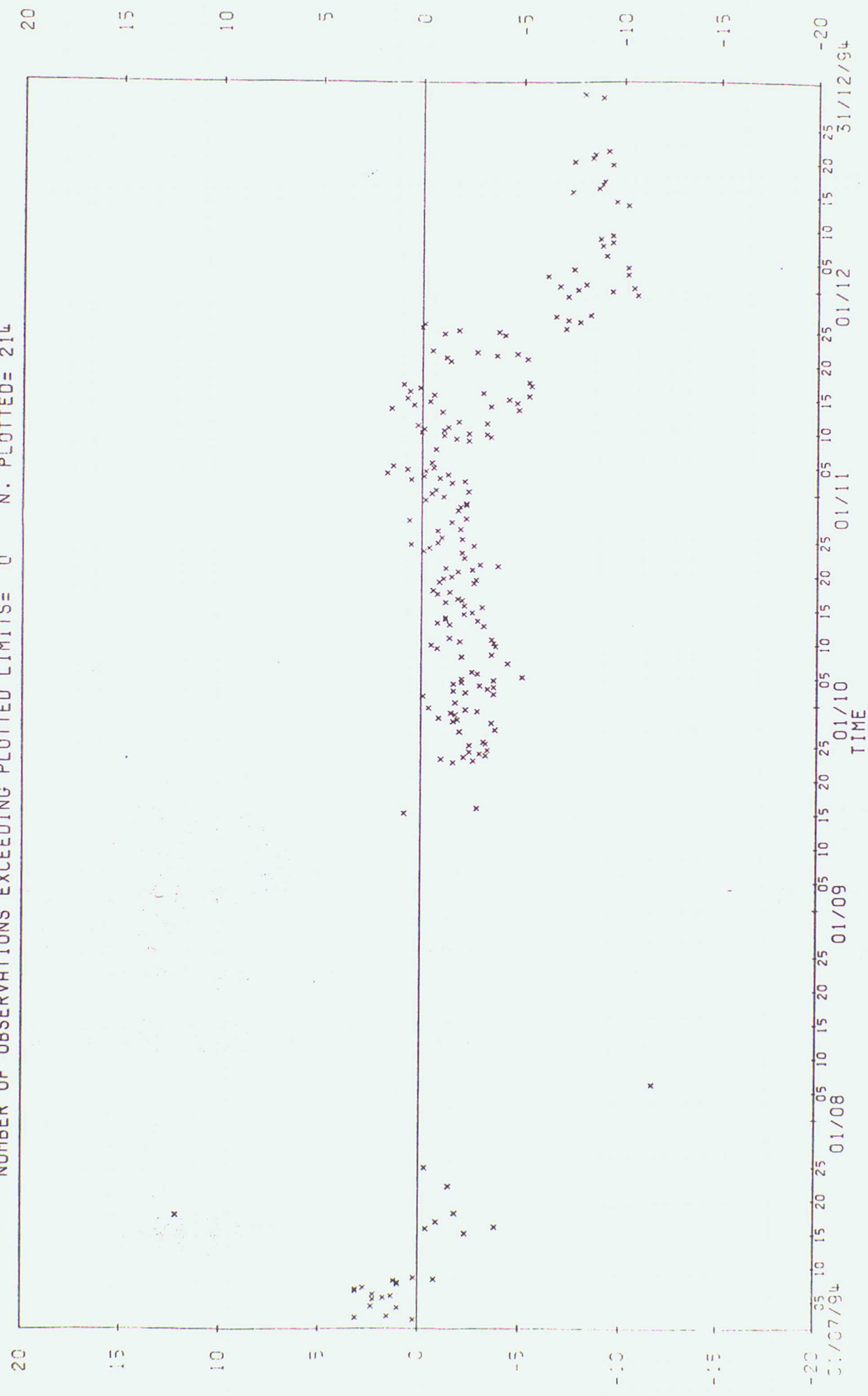
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(C-B) FOR IDENTIFIER: NOST
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 2 N. PLOTTED= 135



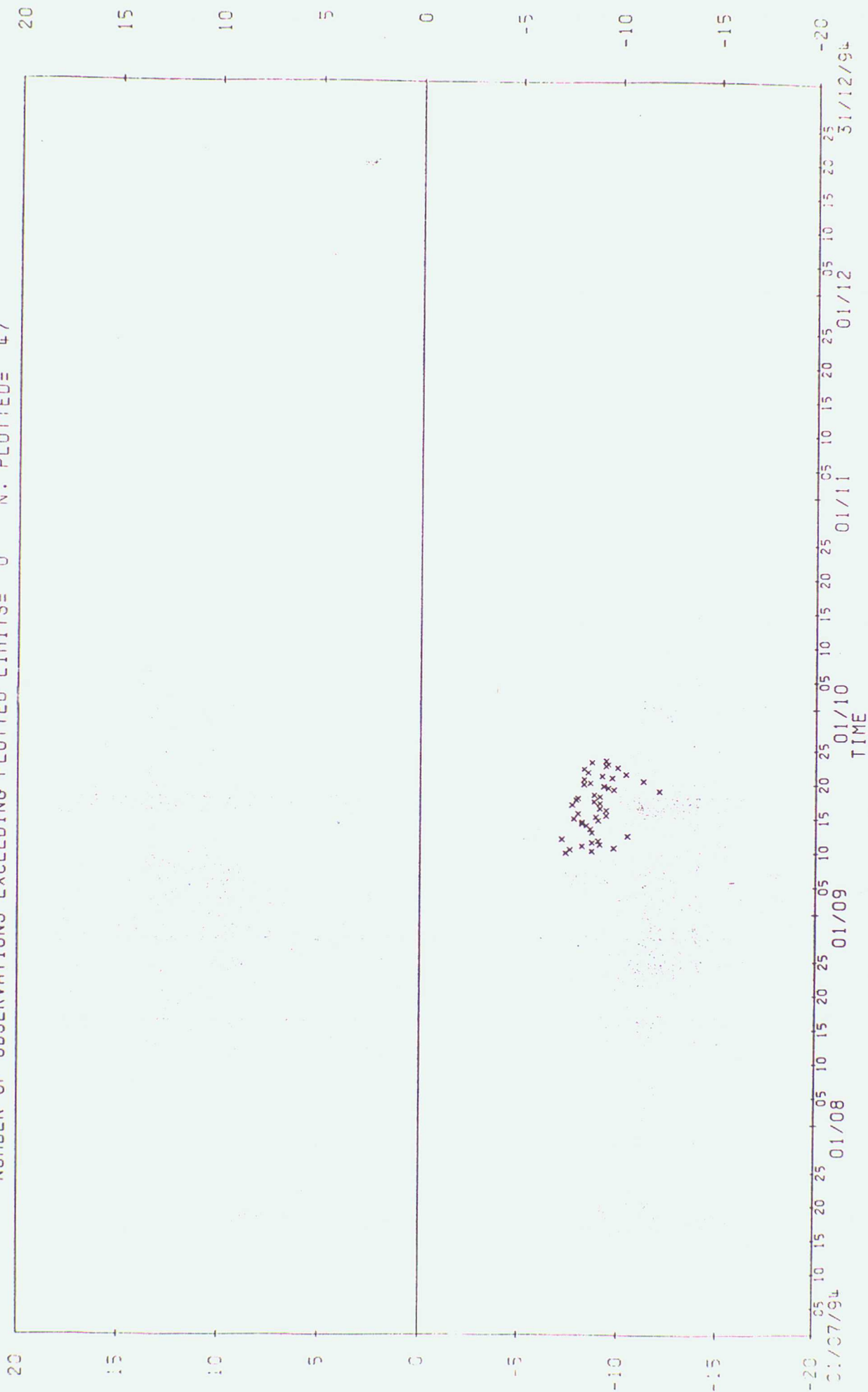
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: 0UZW2
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 122
 0-B



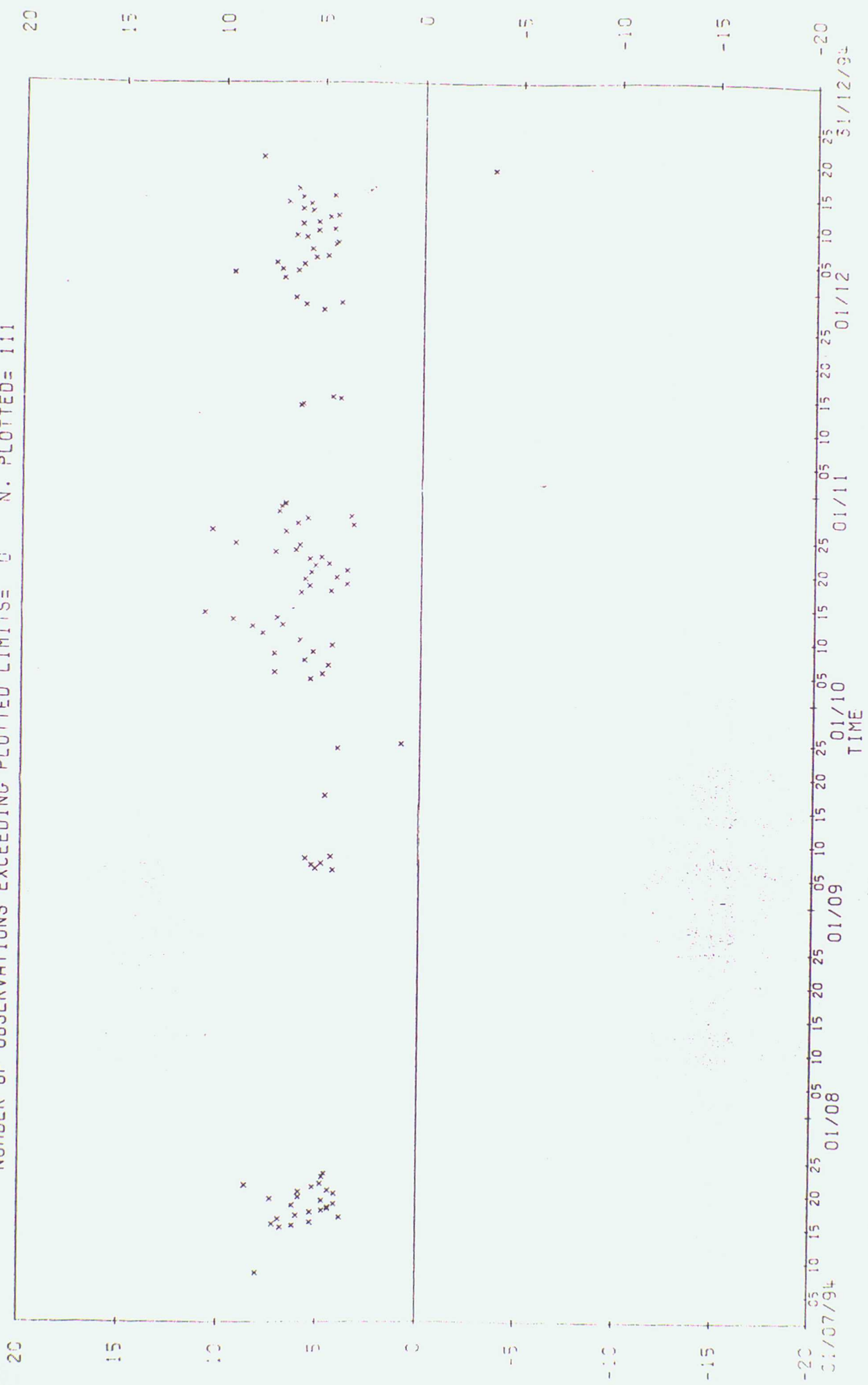
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: OYMO2
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 214



C-3
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: PESF
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 47
 C-3



0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-8) FOR IDENTIFIER: P3NE5
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 111
 0-8



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

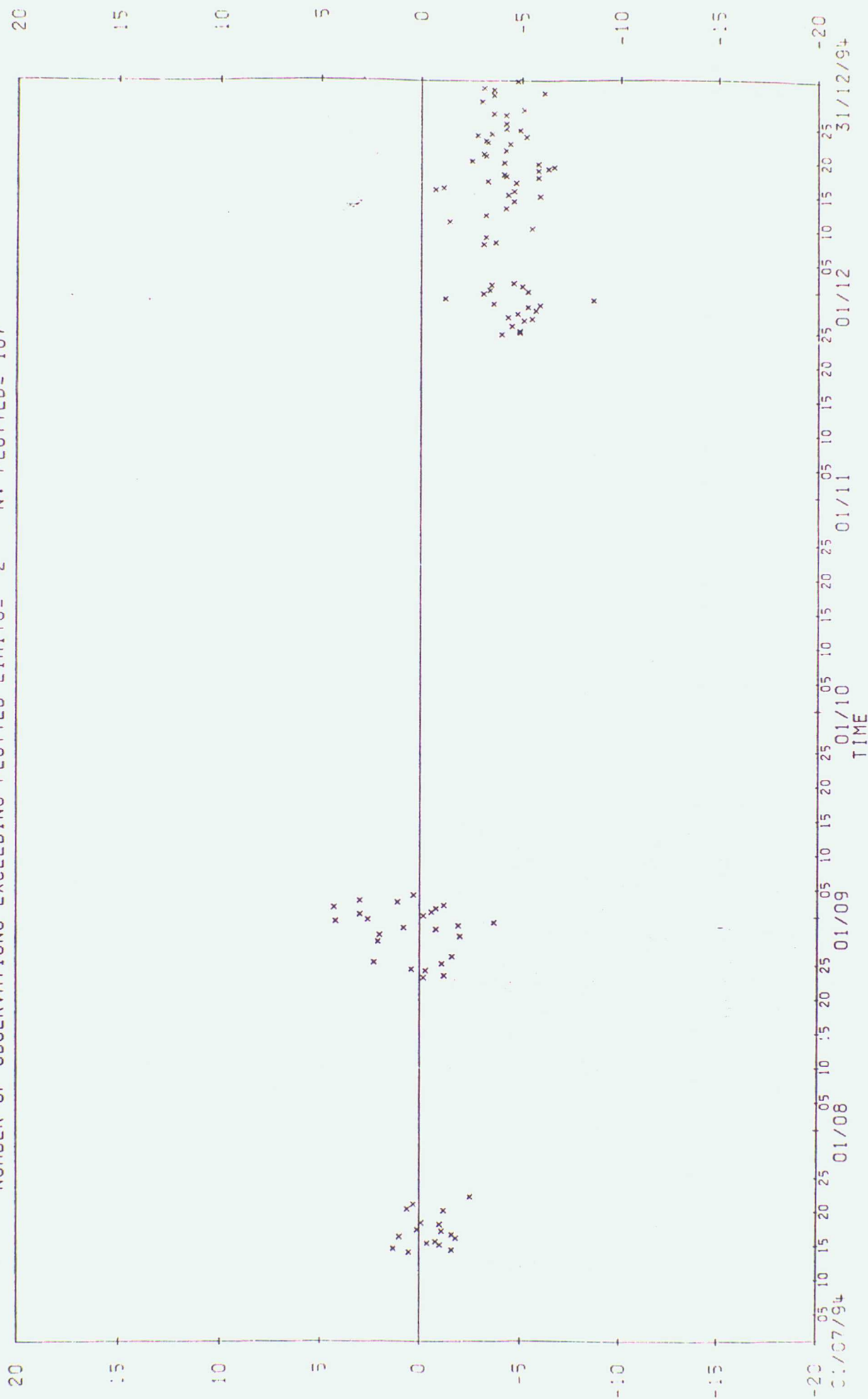
0-8

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-8) FOR IDENTIFIER: P3XML

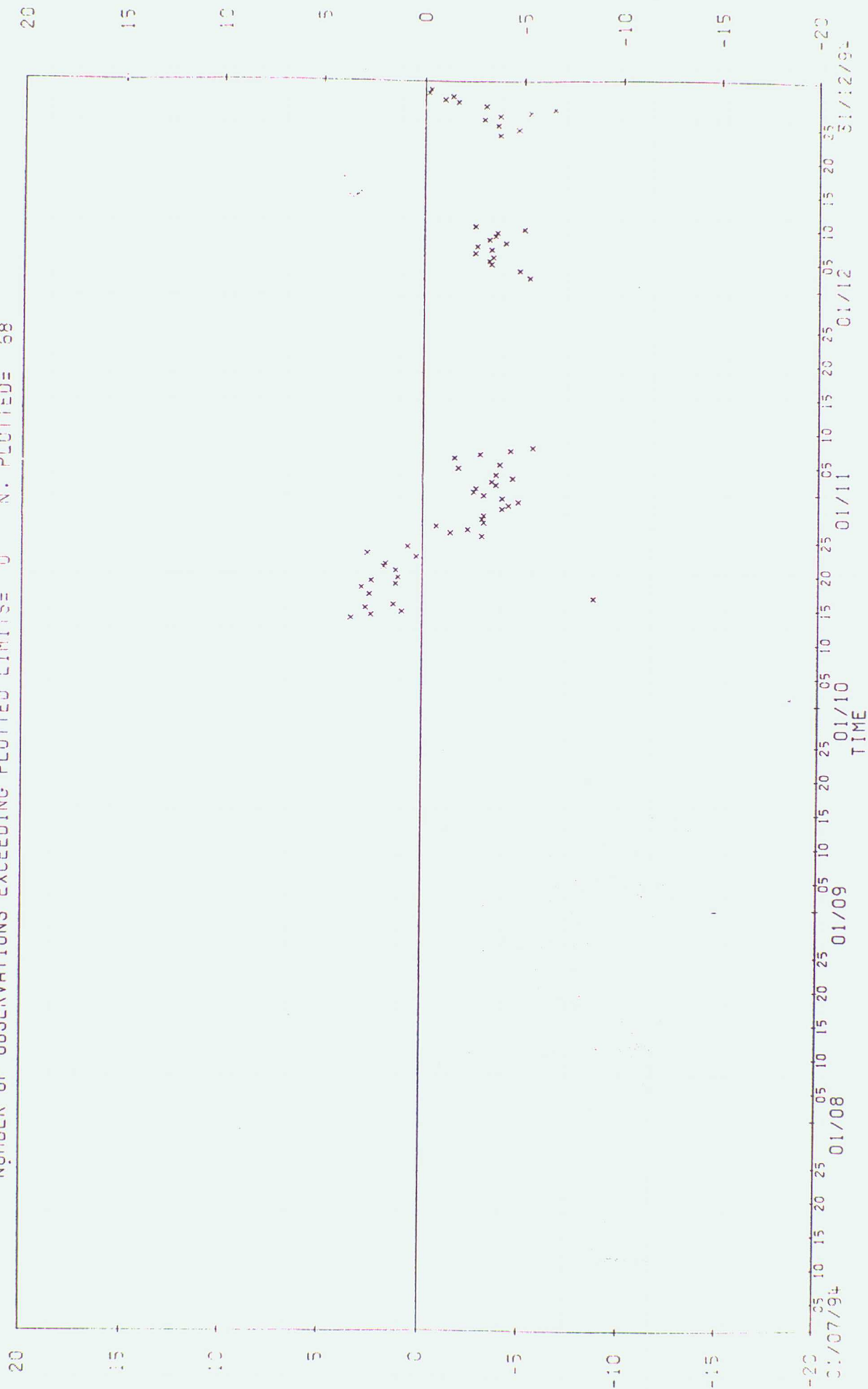
0-8

VARIABLE : MSLP IN UNITS OF HPA

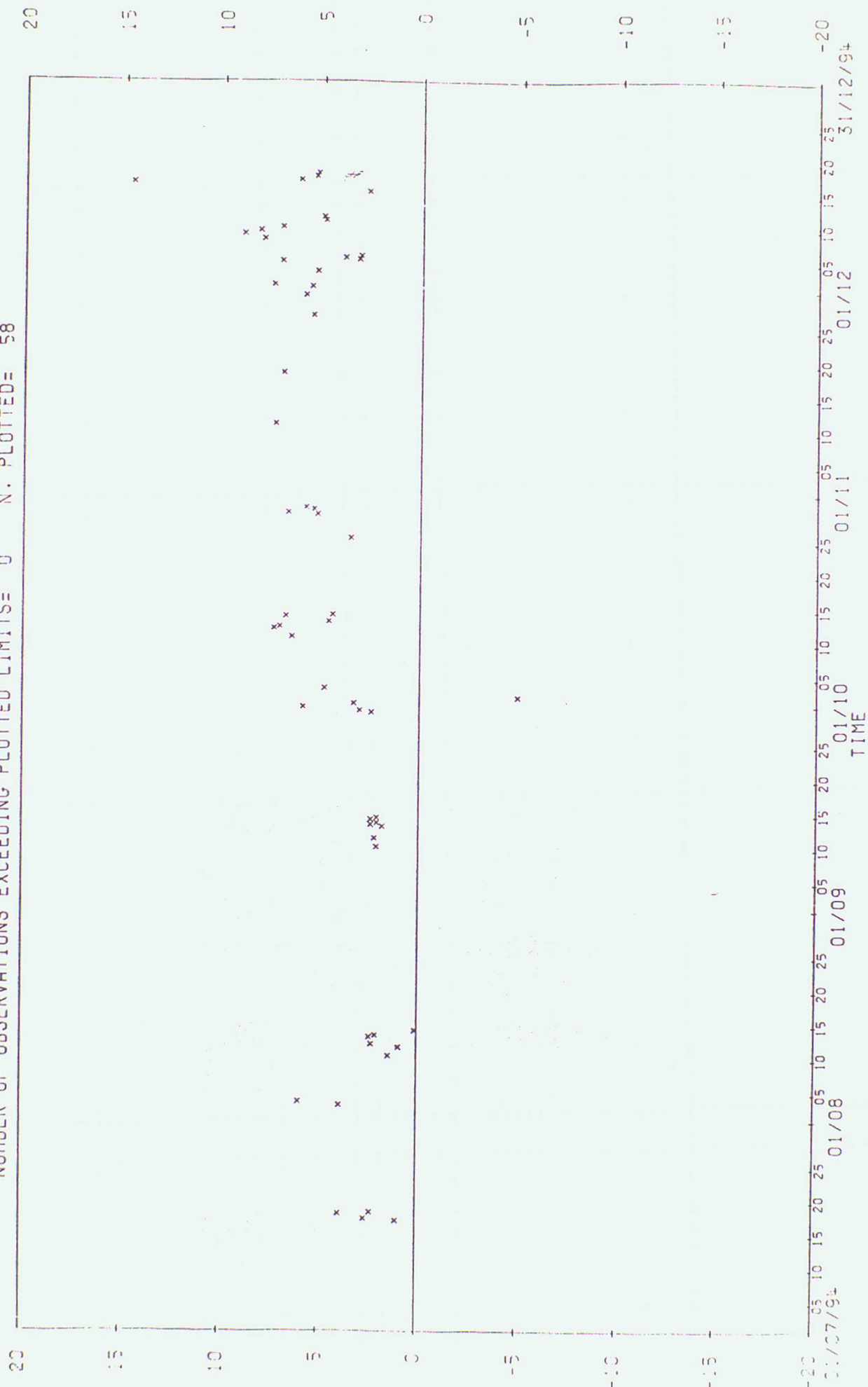
NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 2 N. PLOTTED= 107



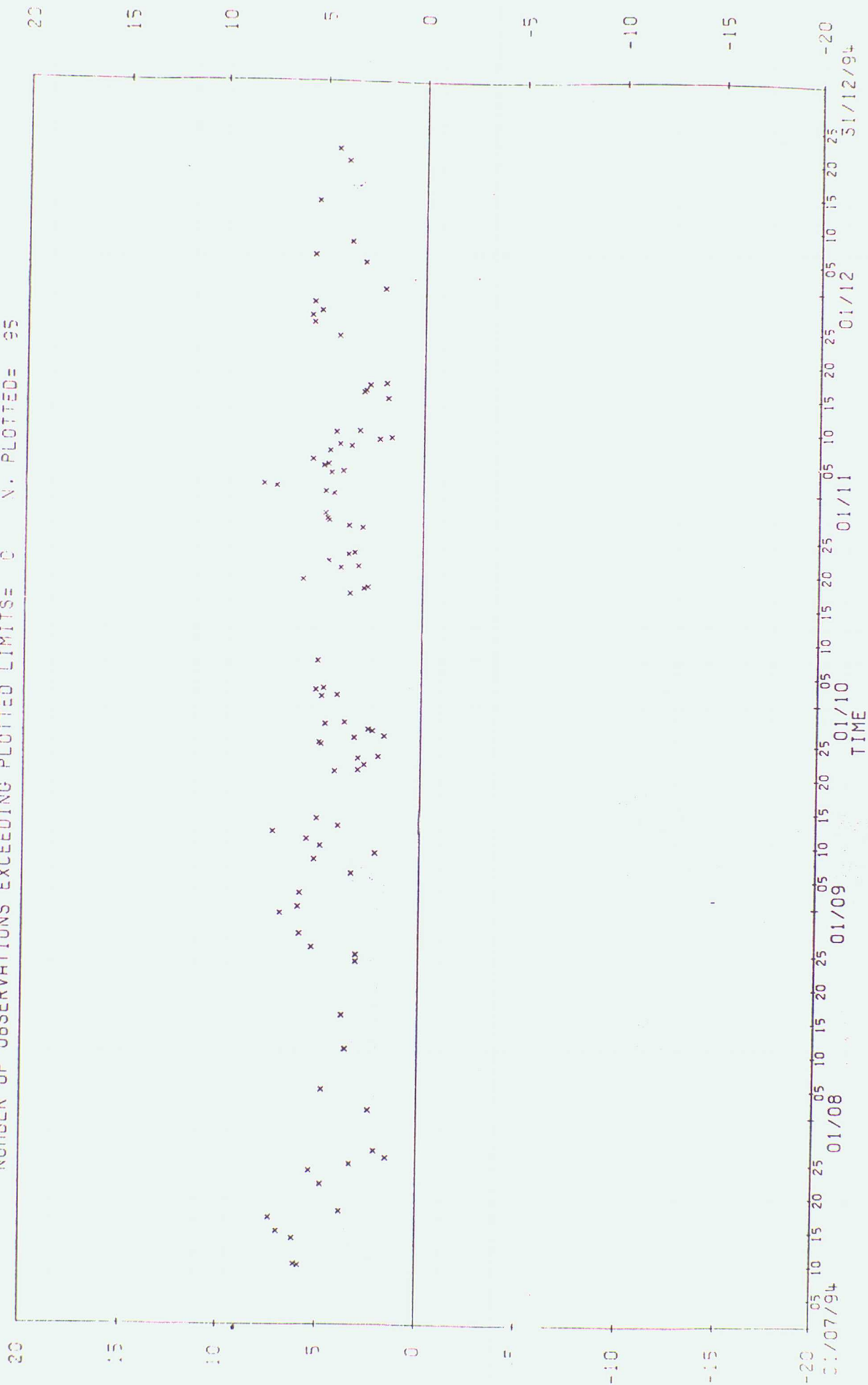
C-8
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: P3ZLE
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 68



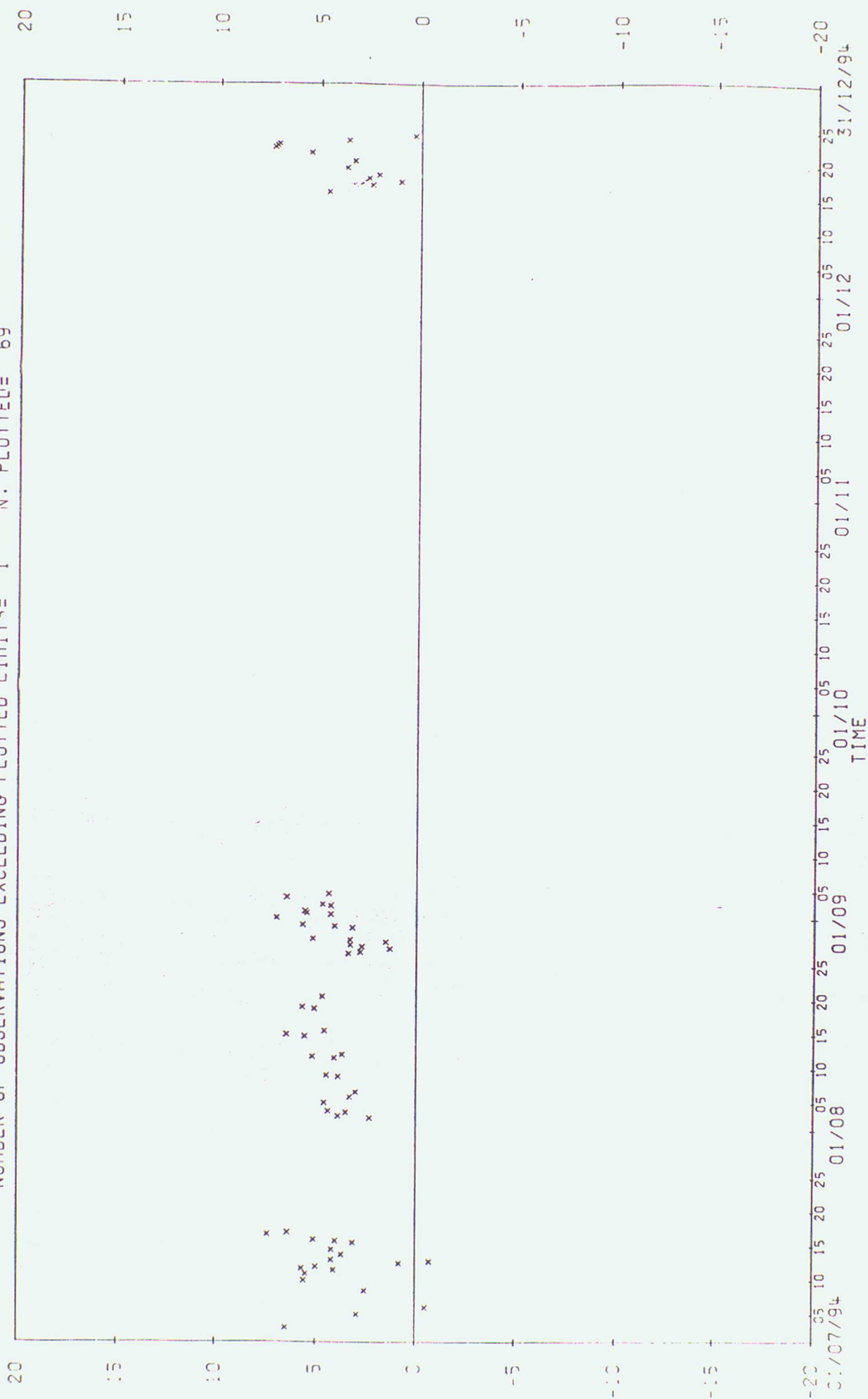
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: UEZJ
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 58
 0-B



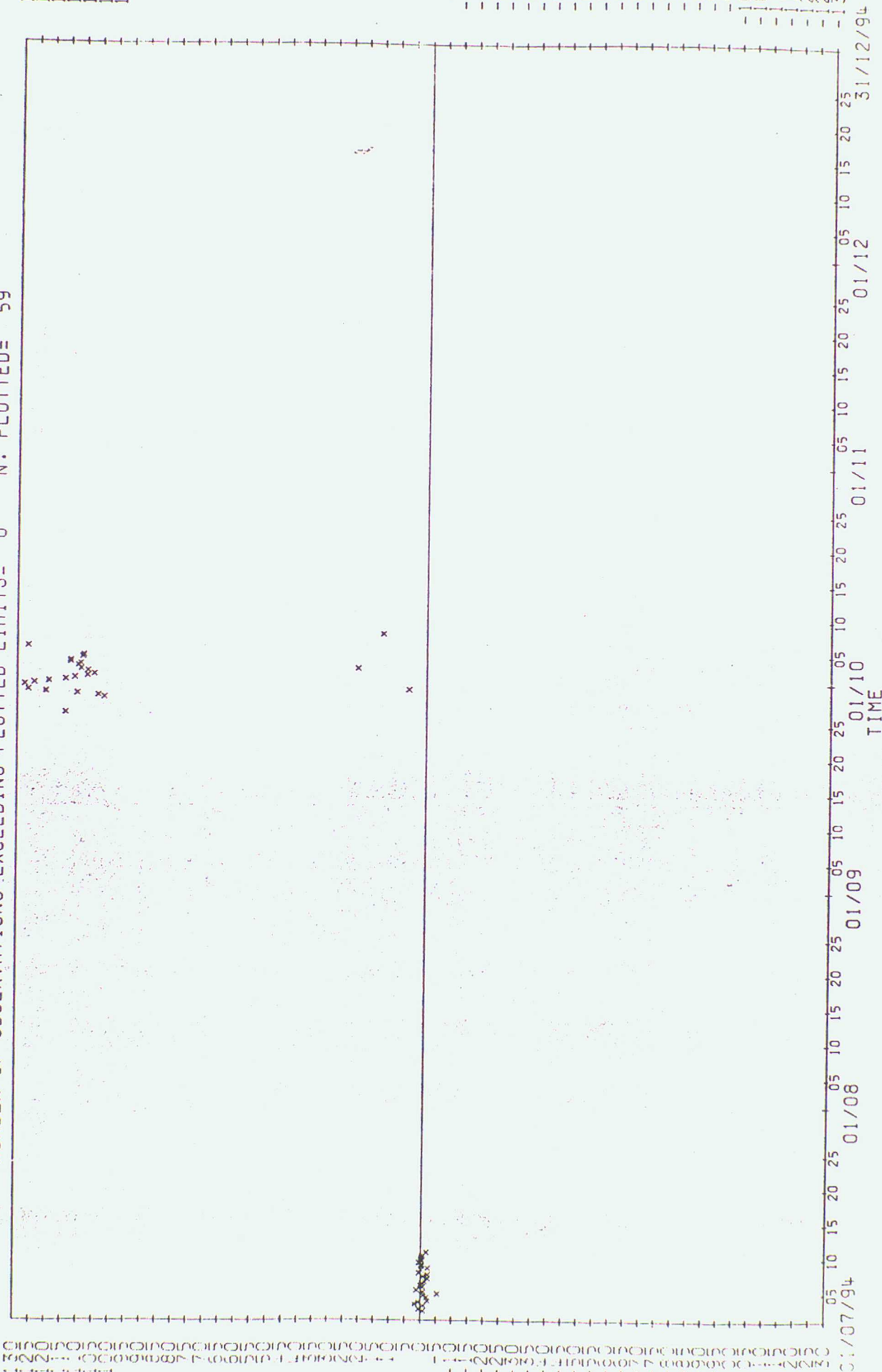
C-3
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(C-3) FOR IDENTIFIER: UFBE
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 95



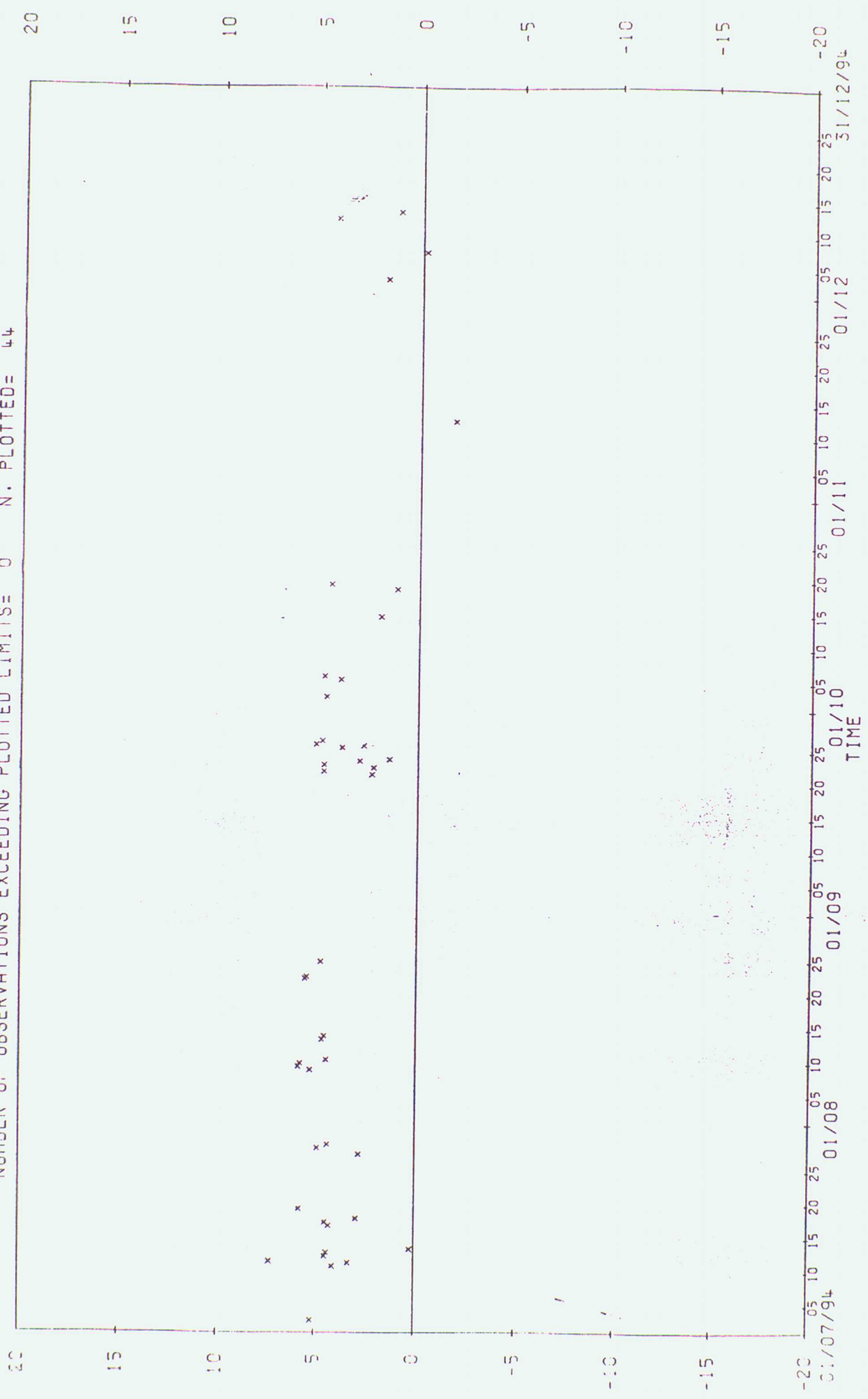
O-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: UHUN
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 1 N. PLOTTED= 69
 O-B



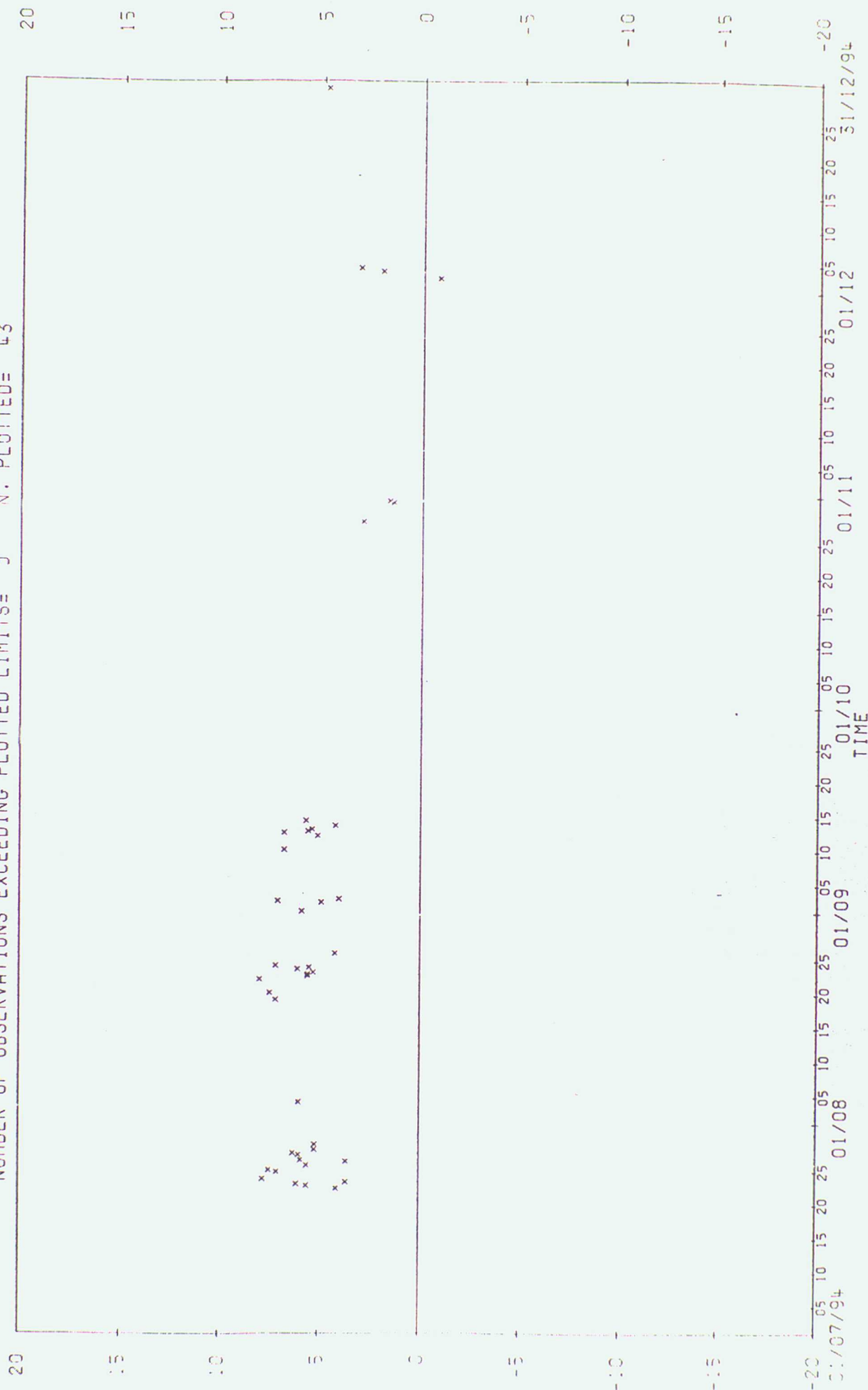
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: UIAG
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 59
 0-B



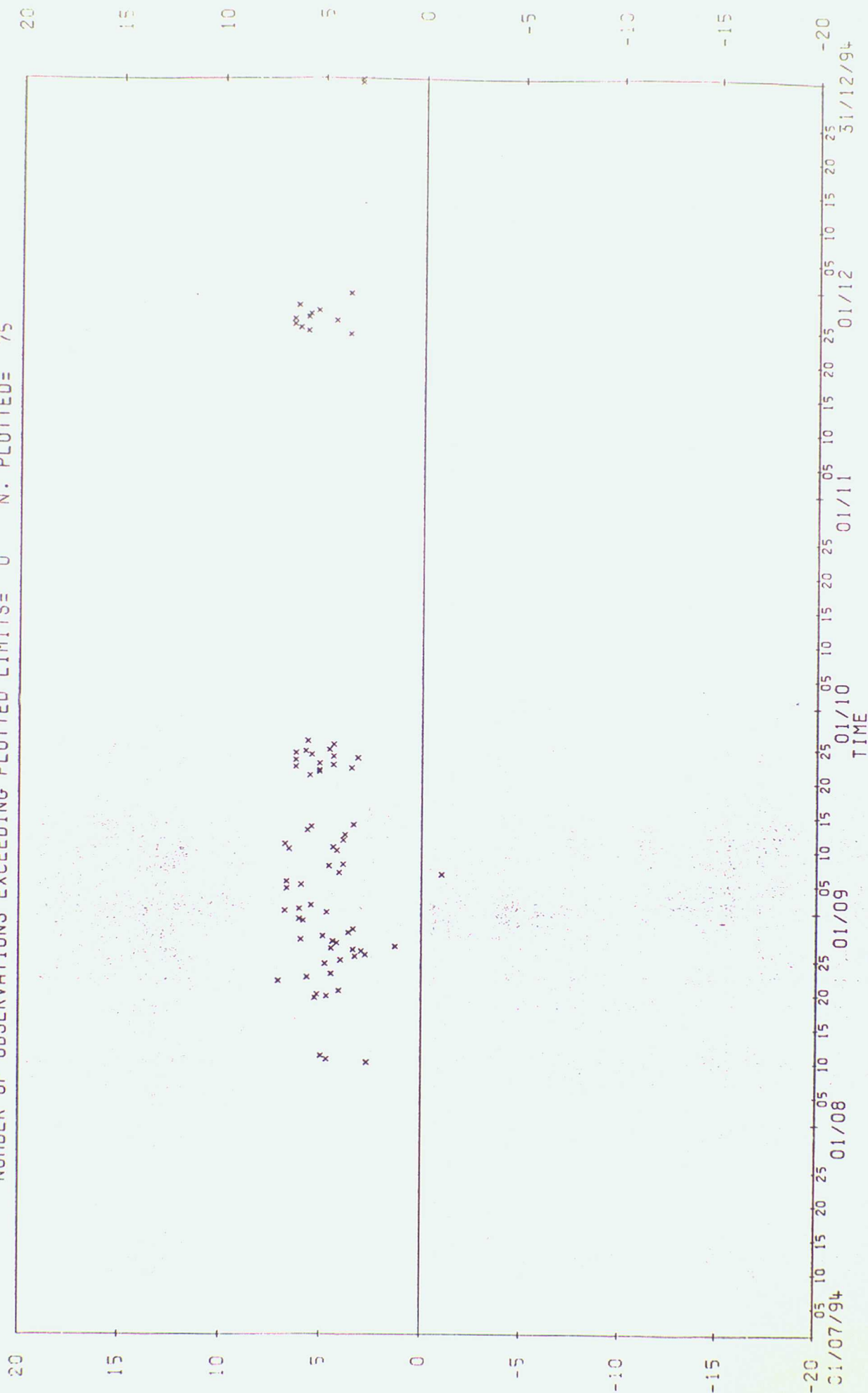
0-3
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-8) FOR IDENTIFIER: UKPG
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 44
 0-8



C-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: UKTV
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 43
 O-B



0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: UNWJ
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 75



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

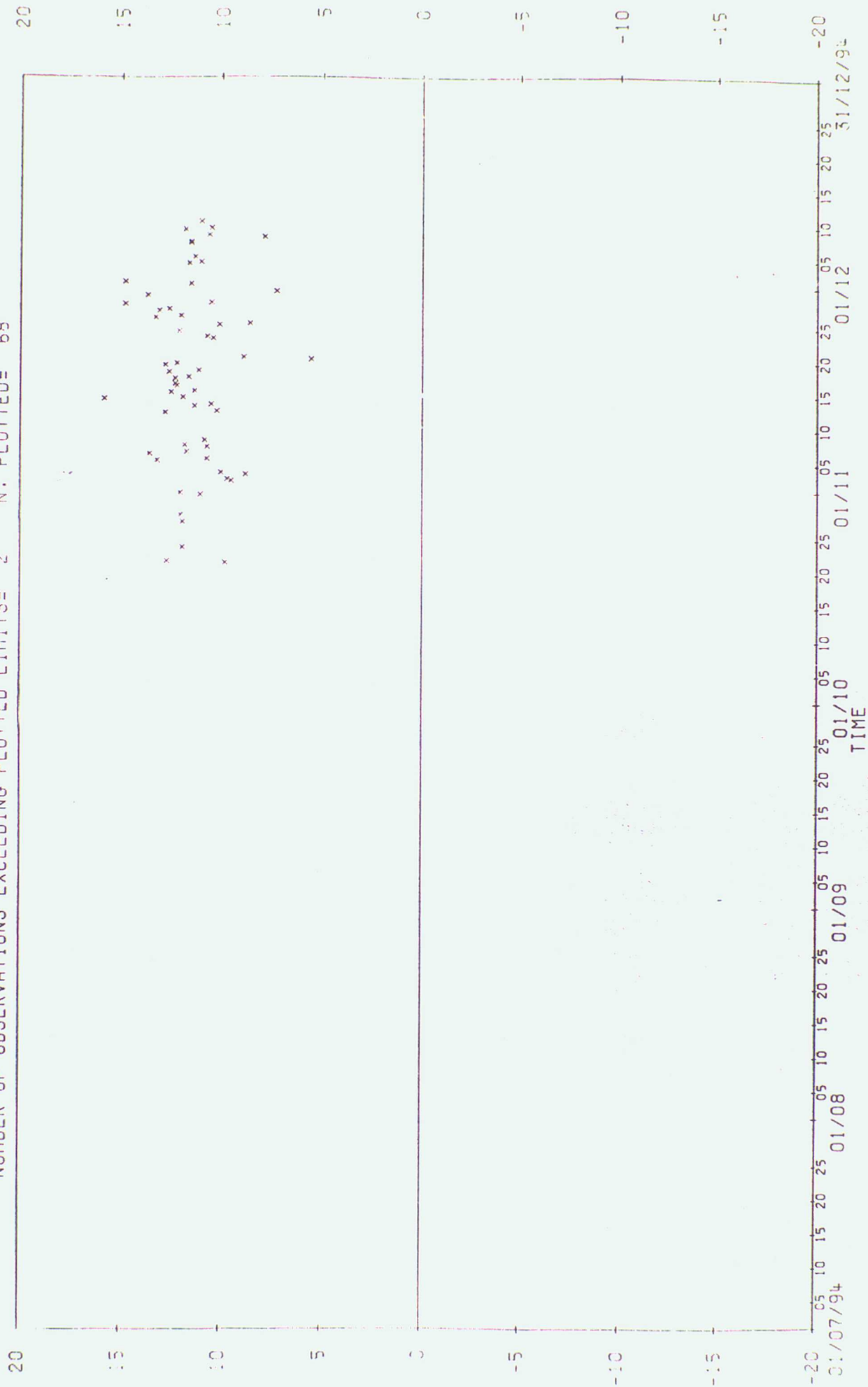
0-3

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-3) FOR IDENTIFIER: UOPC

0-3

VARIABLE : MSLP IN UNITS OF HPA

NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 2 N. PLOTTED= 68



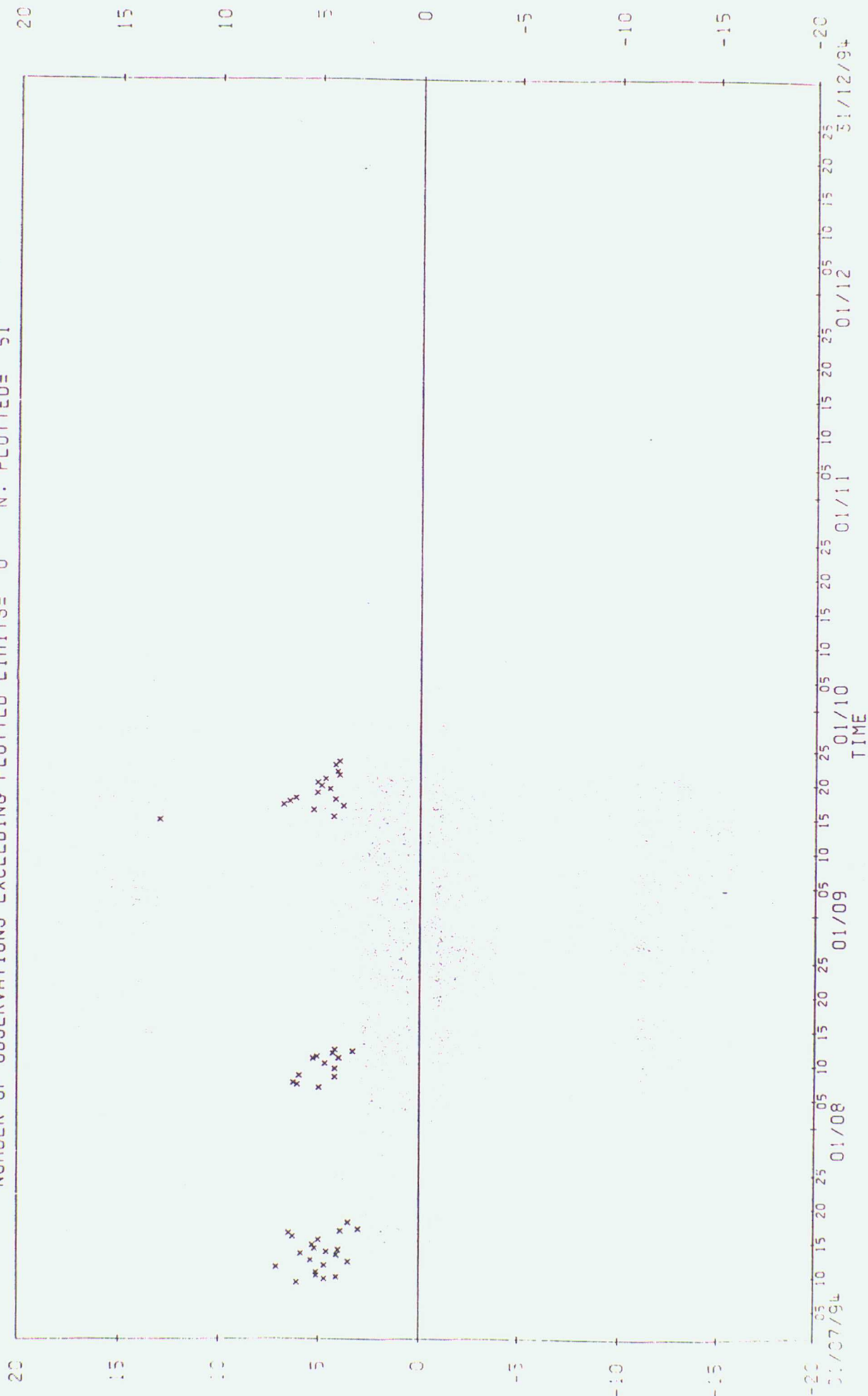
BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: UULE

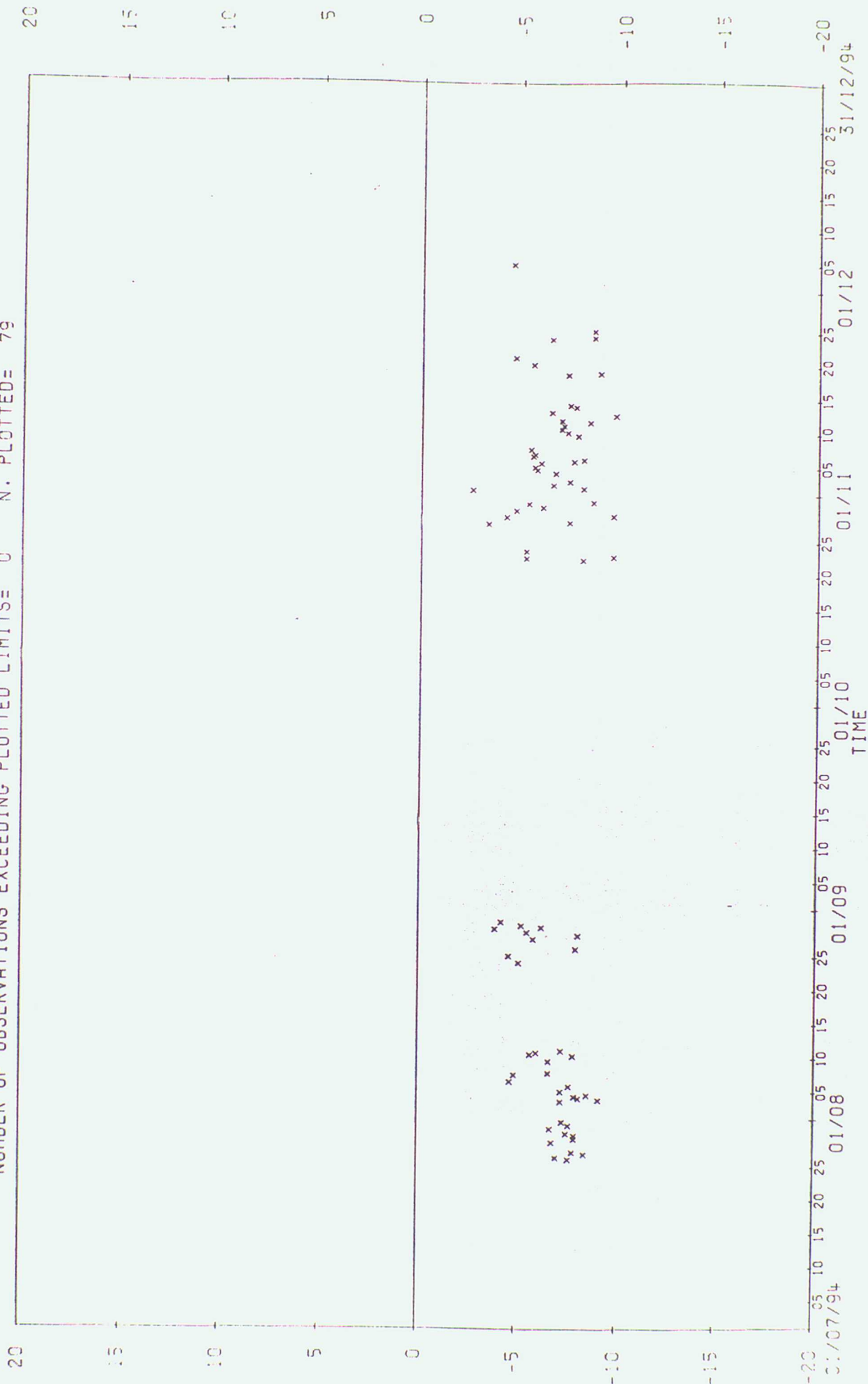
C-B

VARIABLE : MSLP IN UNITS OF HPA

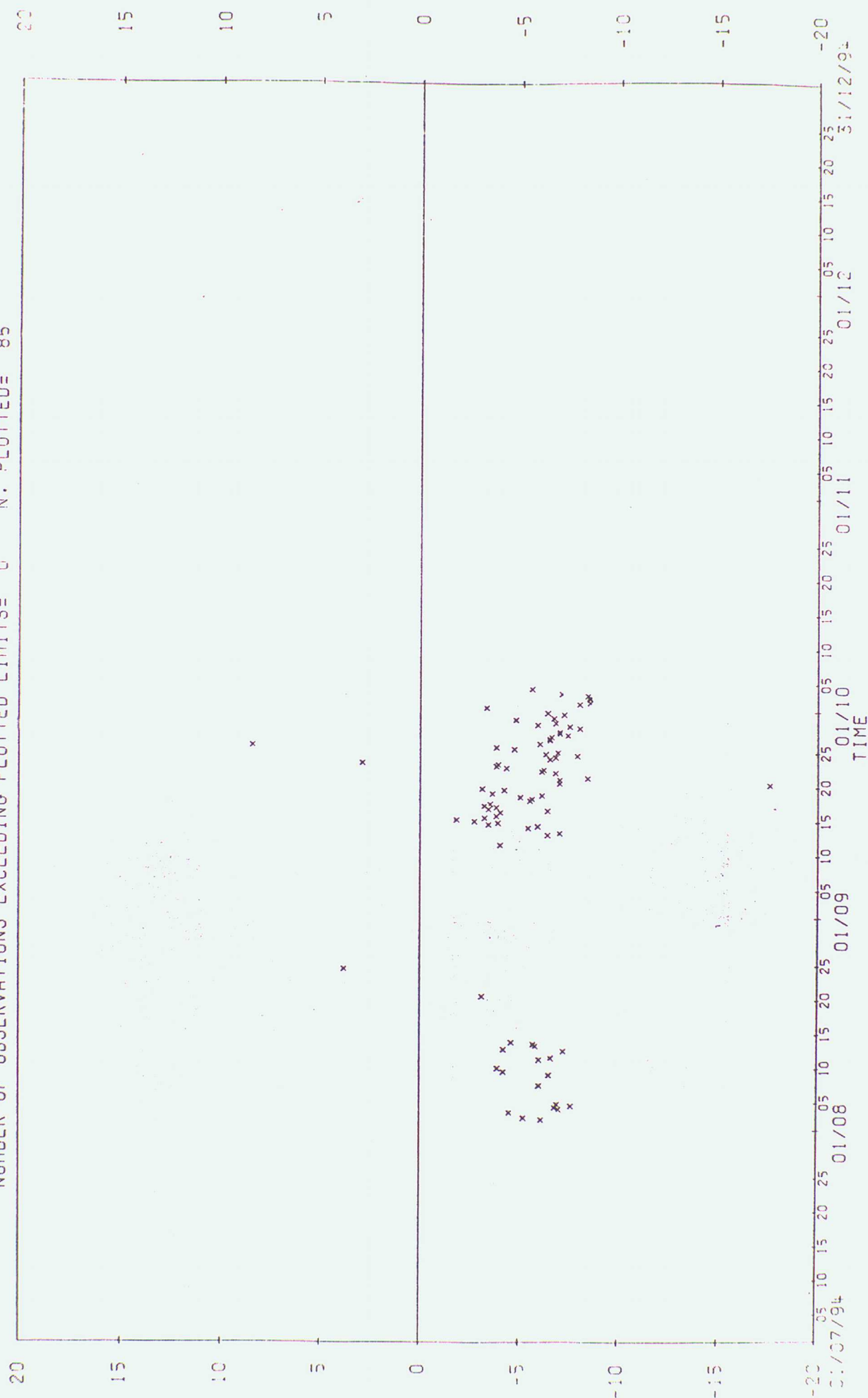
NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 51



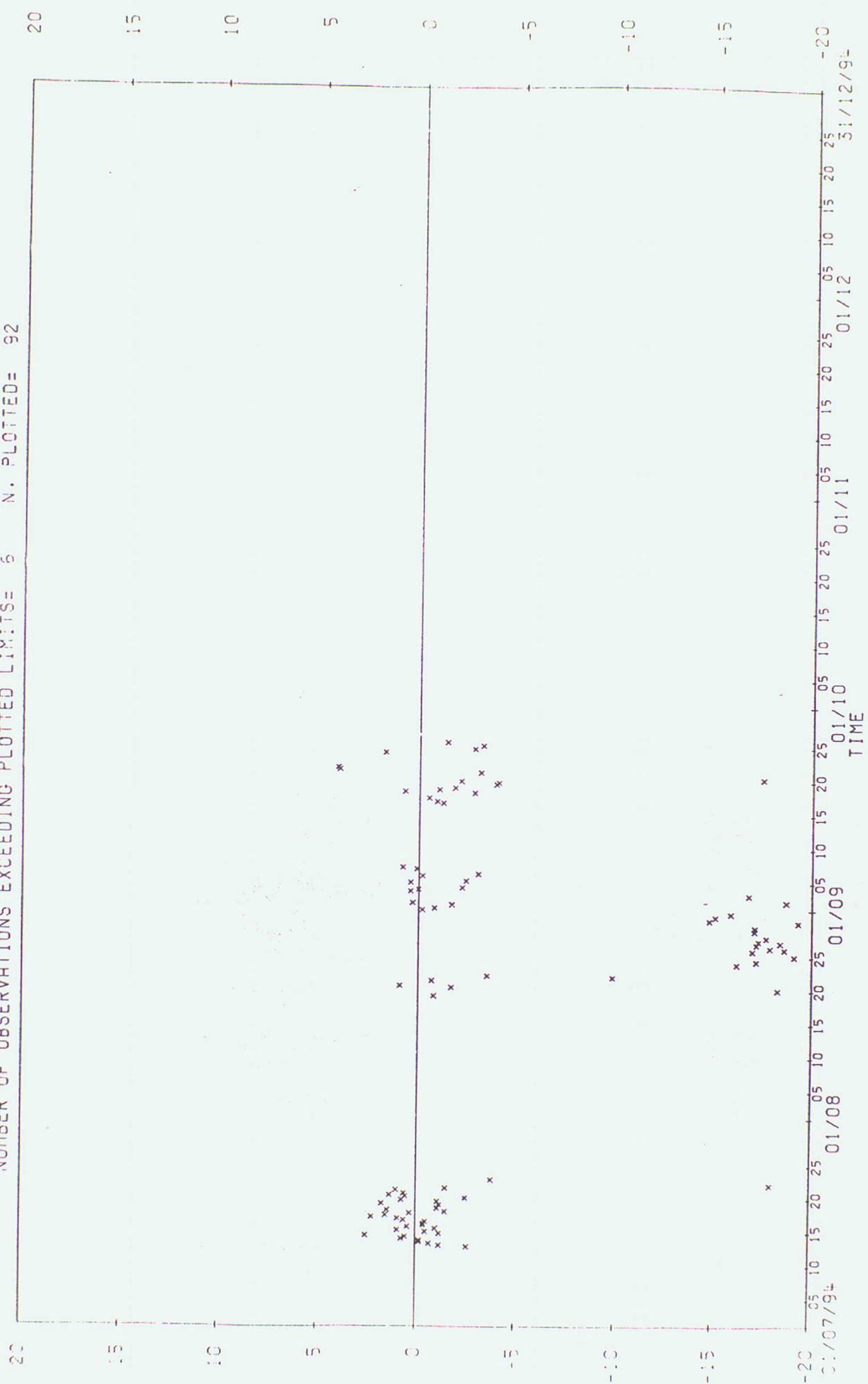
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: UVZP
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 79



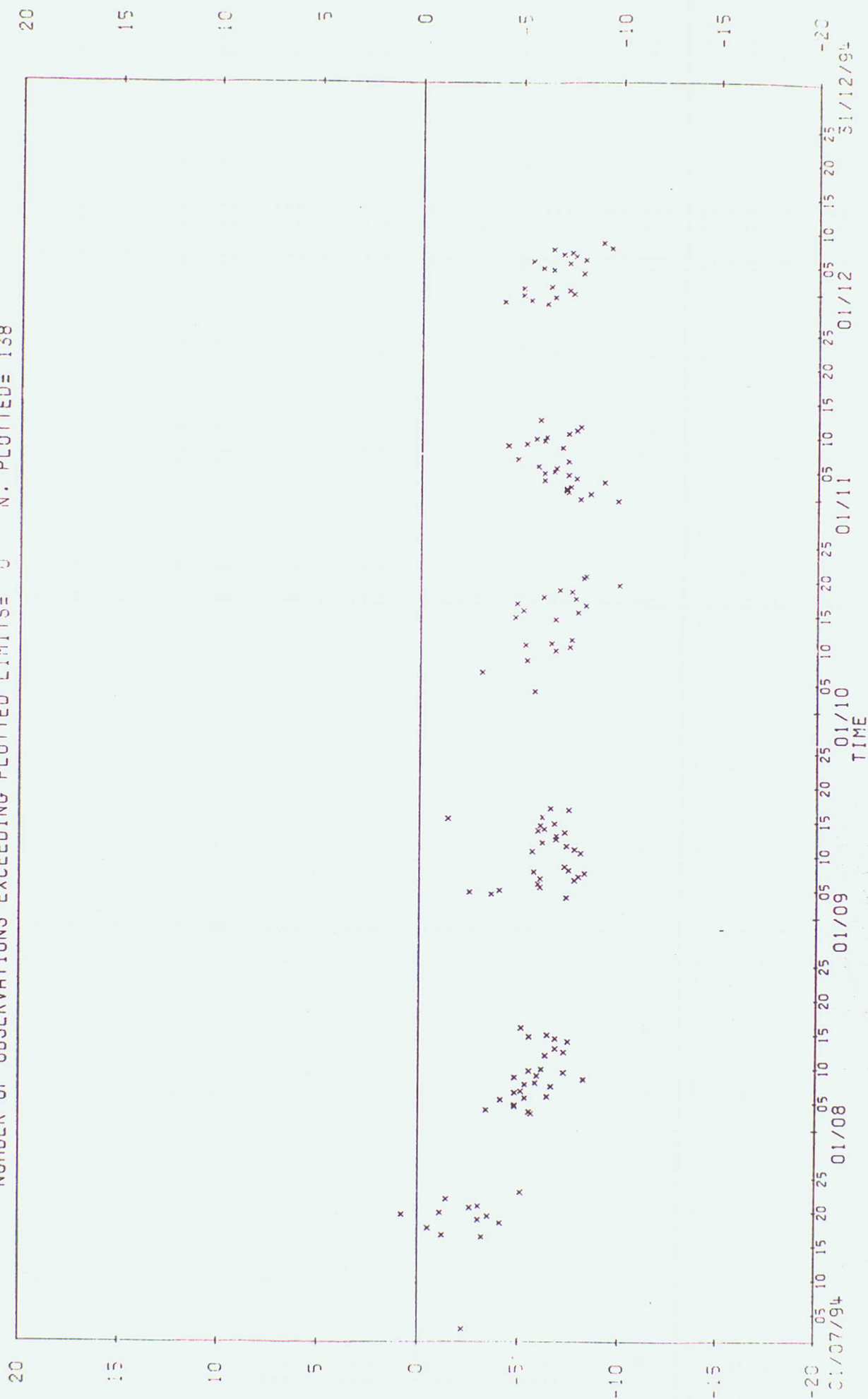
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: VC6749 0-B
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 85



C-3
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(C-3) FOR IDENTIFIER: VLHU
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 6 N. PLOTTED= 92
 C-3

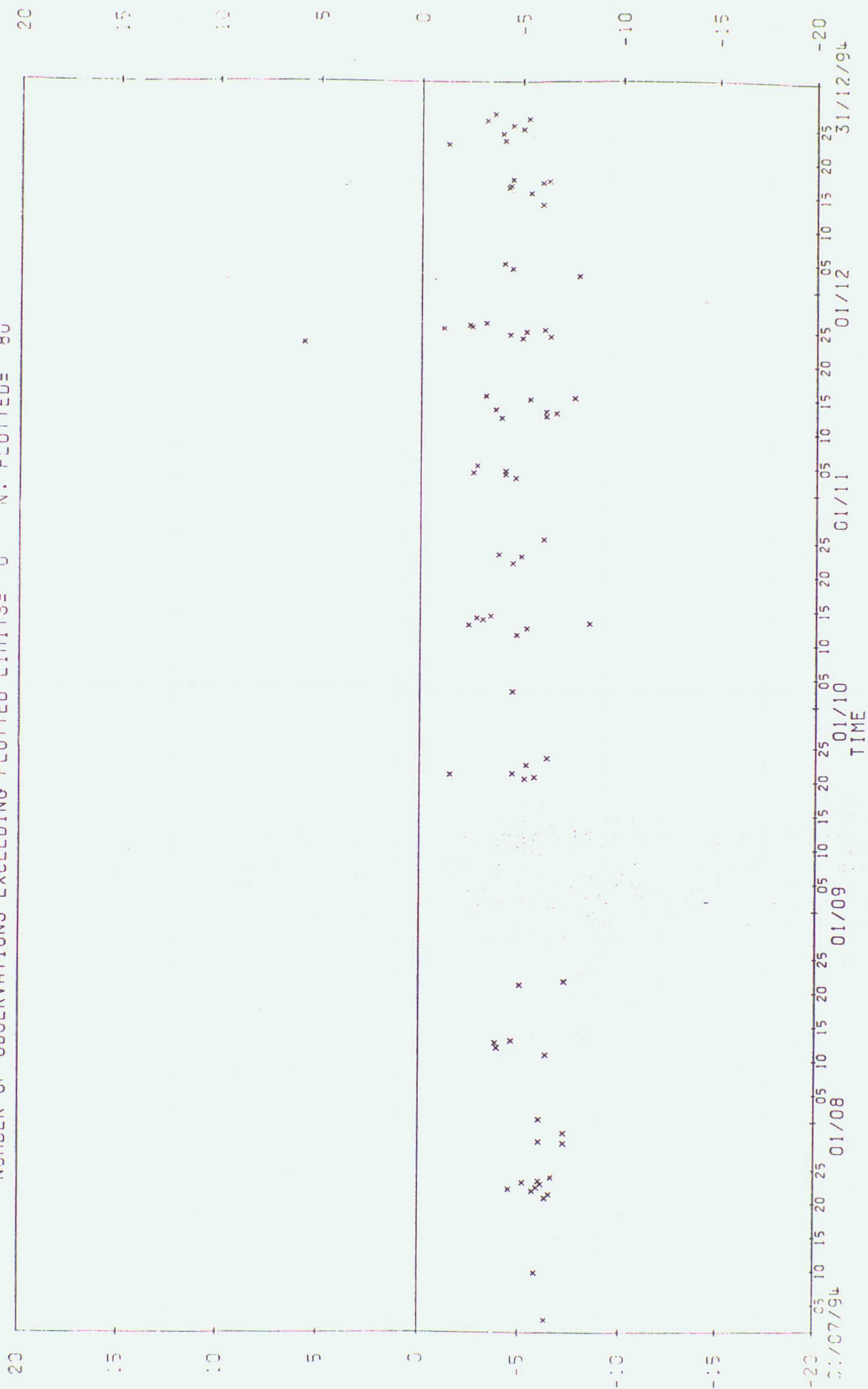


0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: VPHW
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 138
 0-B

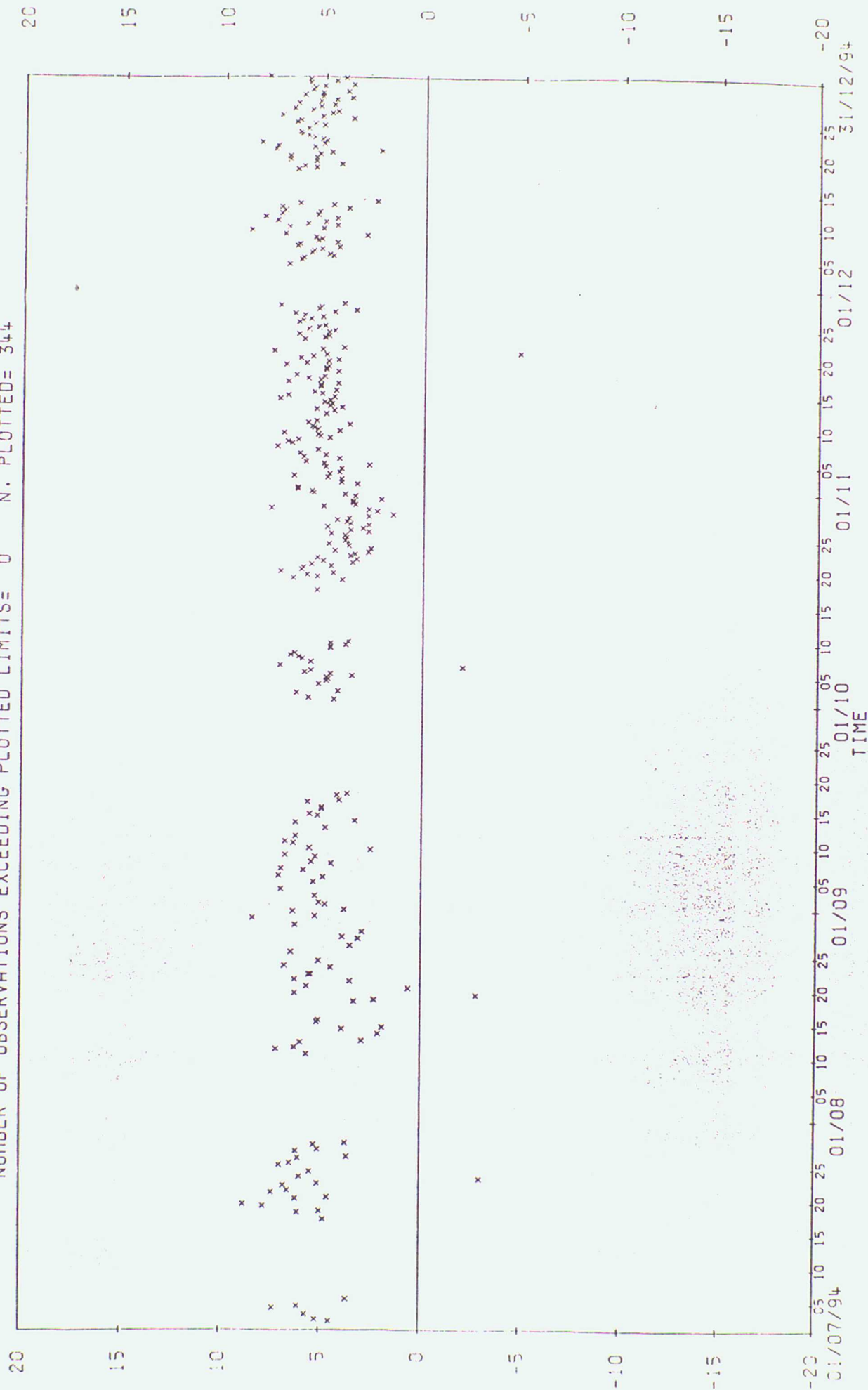


(1)

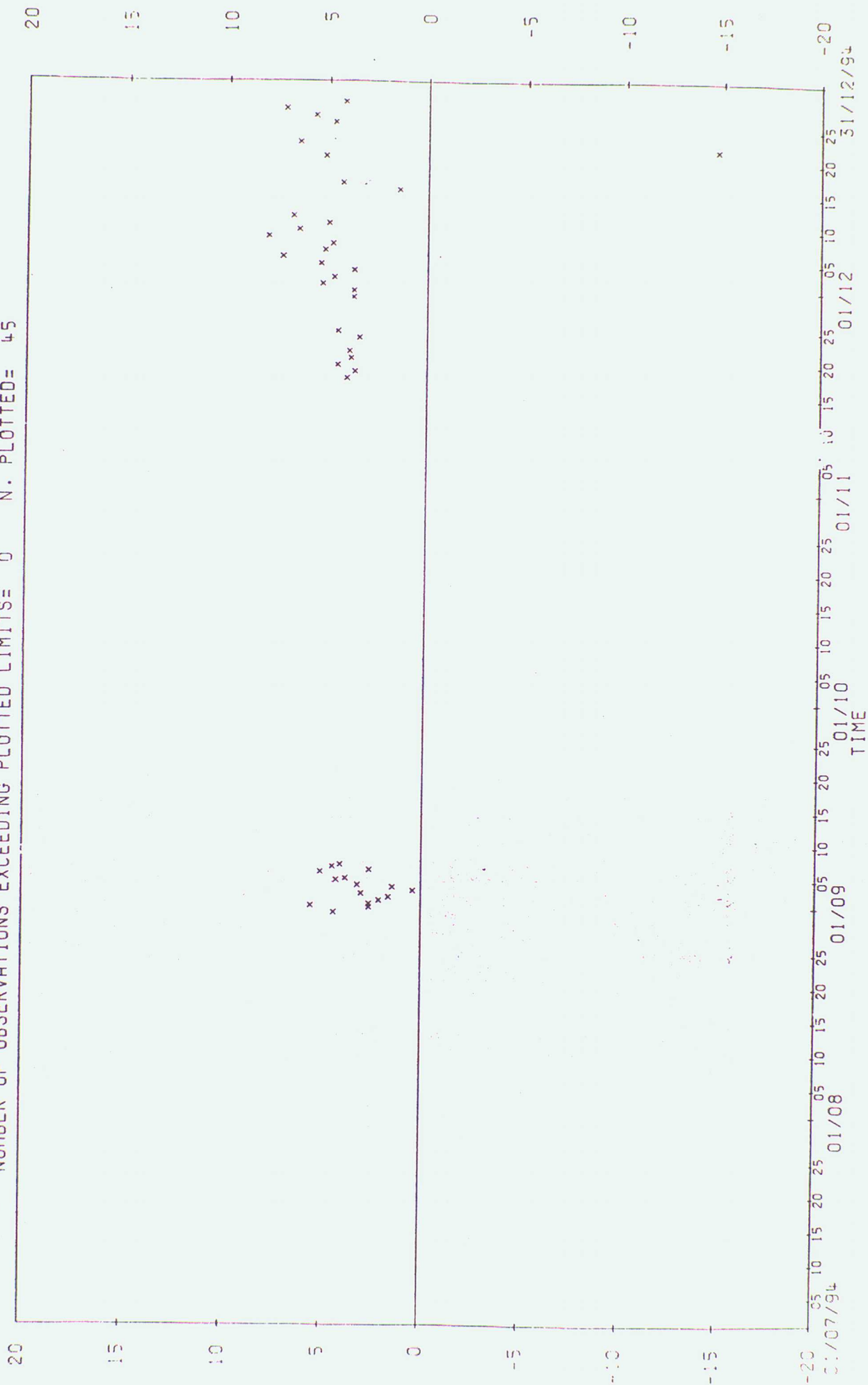
0 N. PLOTTED= 80



0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: VRUA4
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 344
 0-B



0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: VRUH6
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 45
 0-B



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

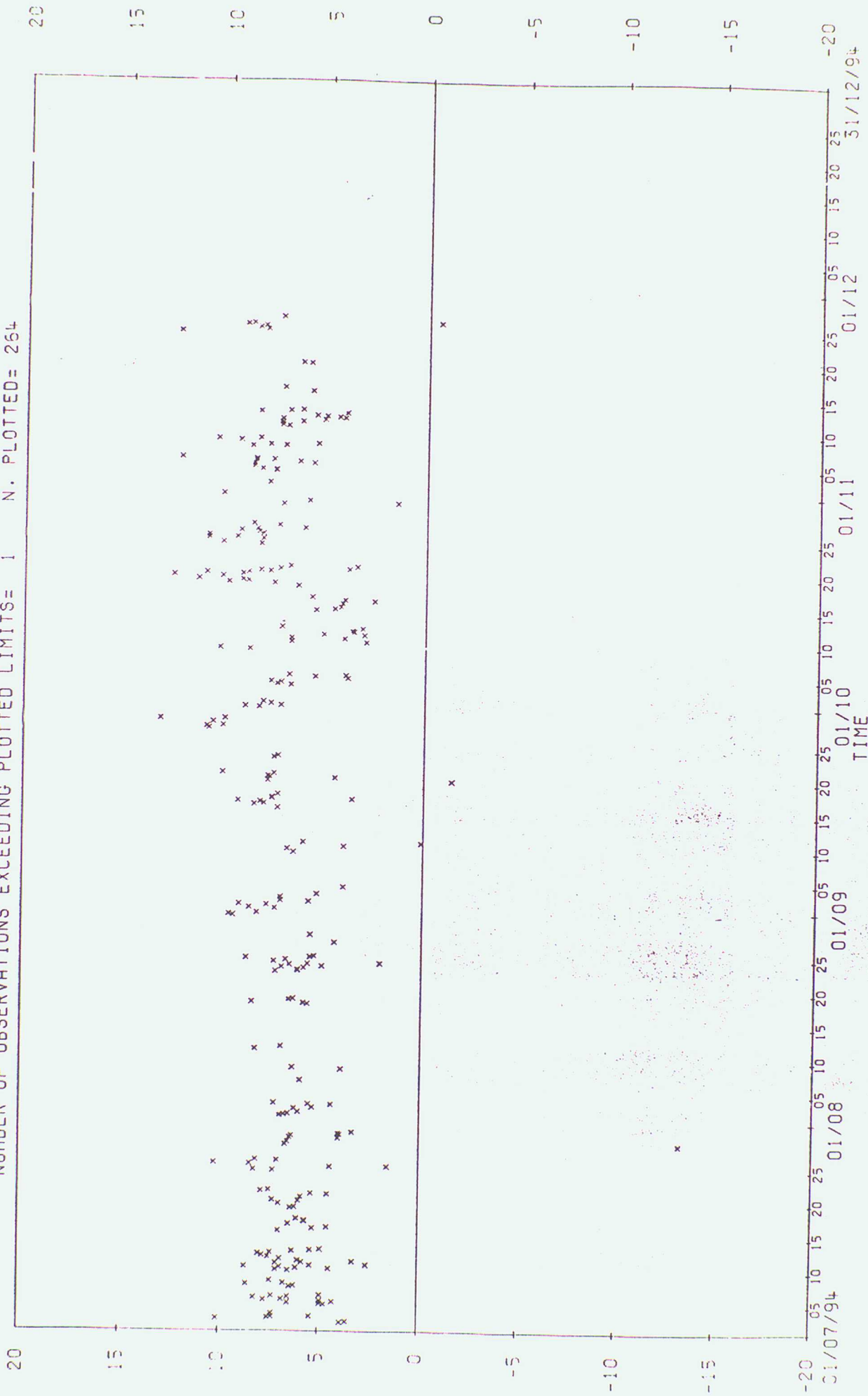
0-8

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-8) FOR IDENTIFIER: WC85820

VARIABLE : MSLP IN UNITS OF HPA

0-8

NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 1 N. PLOTTED= 264



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

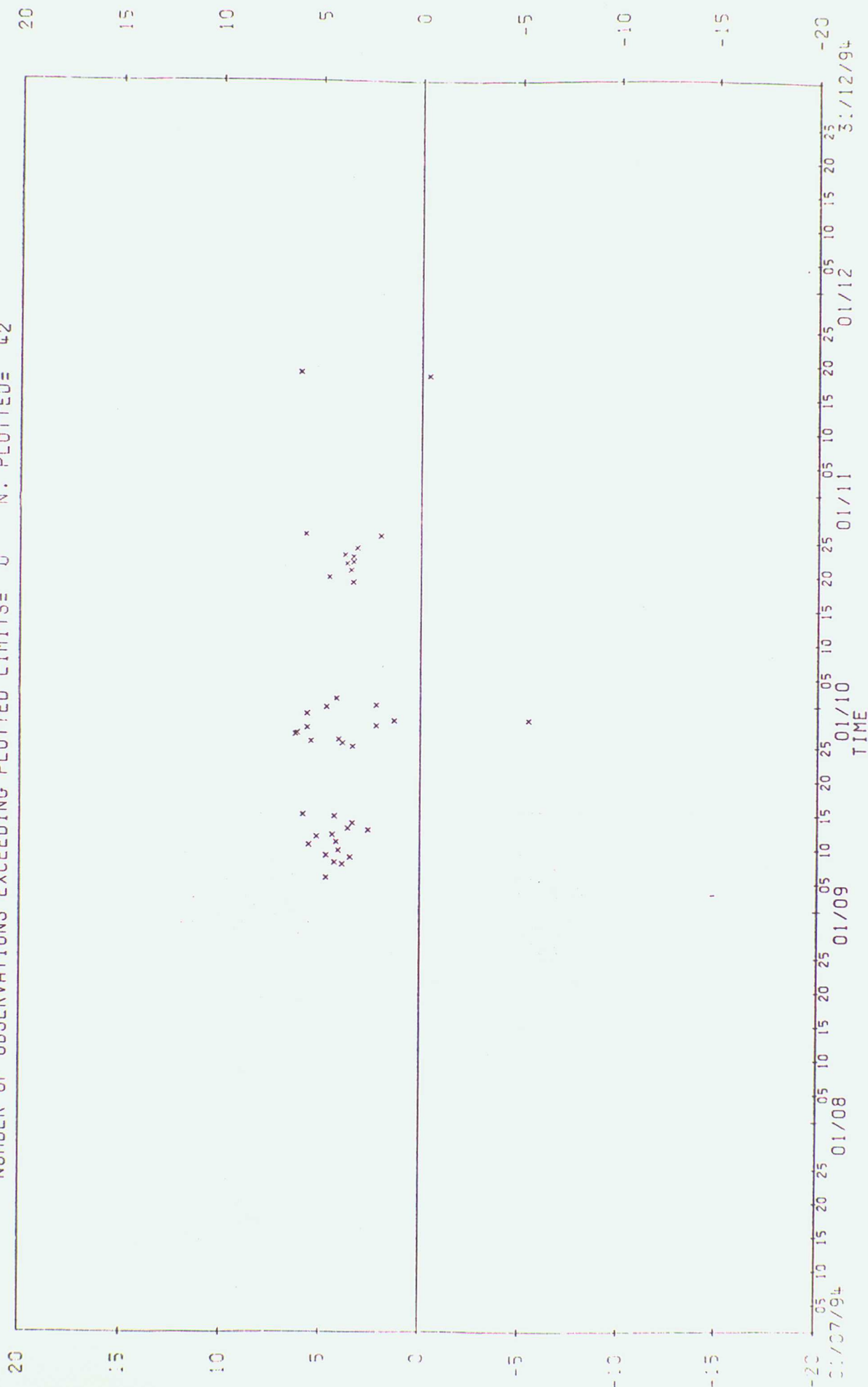
0-B

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: WPPC

0-B

VARIABLE : MSLP IN UNITS OF HPA

NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 42



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

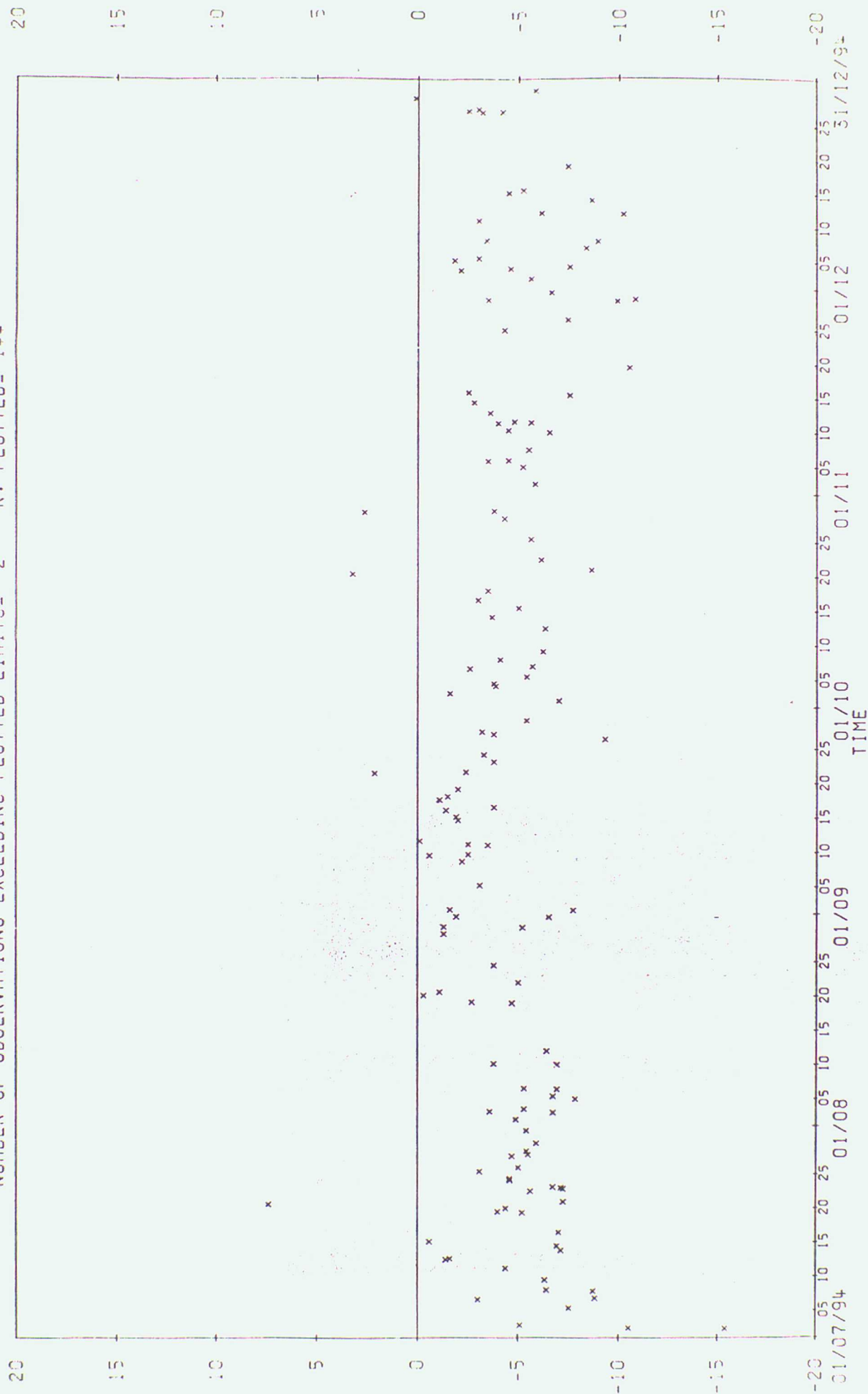
C-3

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: WXY6216

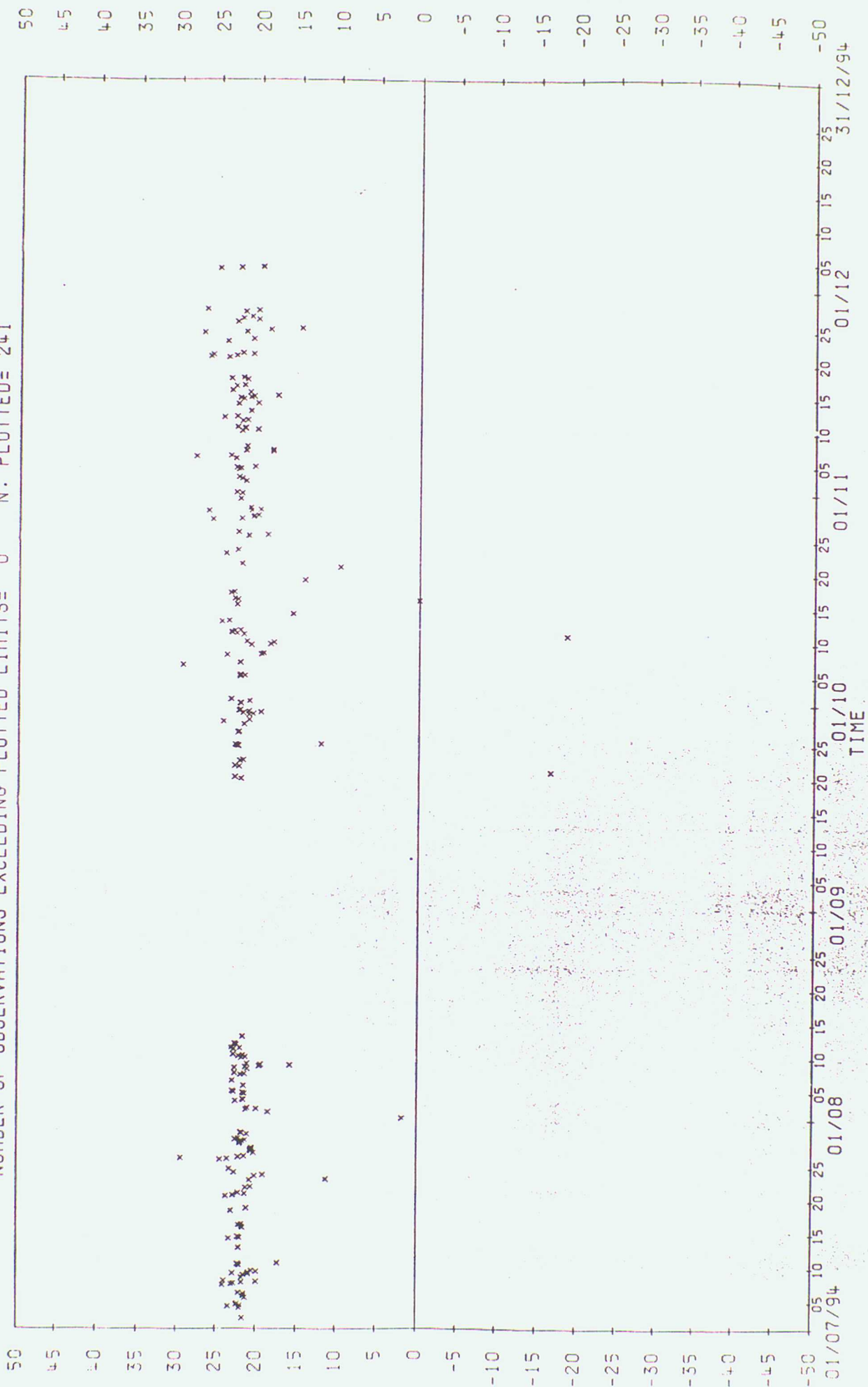
O-5

VARIABLE : MSLP IN UNITS OF HPA

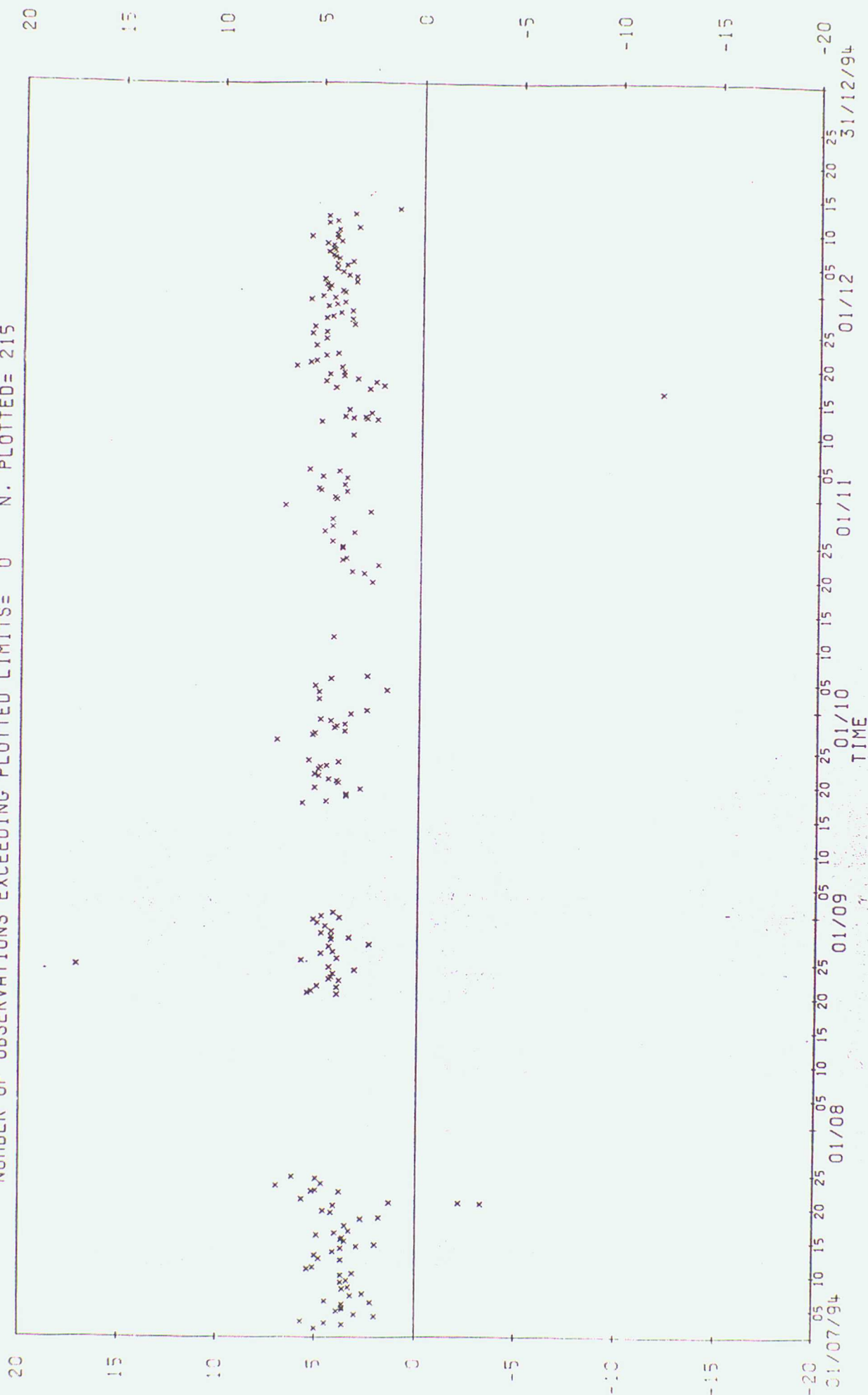
NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 2 N. PLOTTED= 144



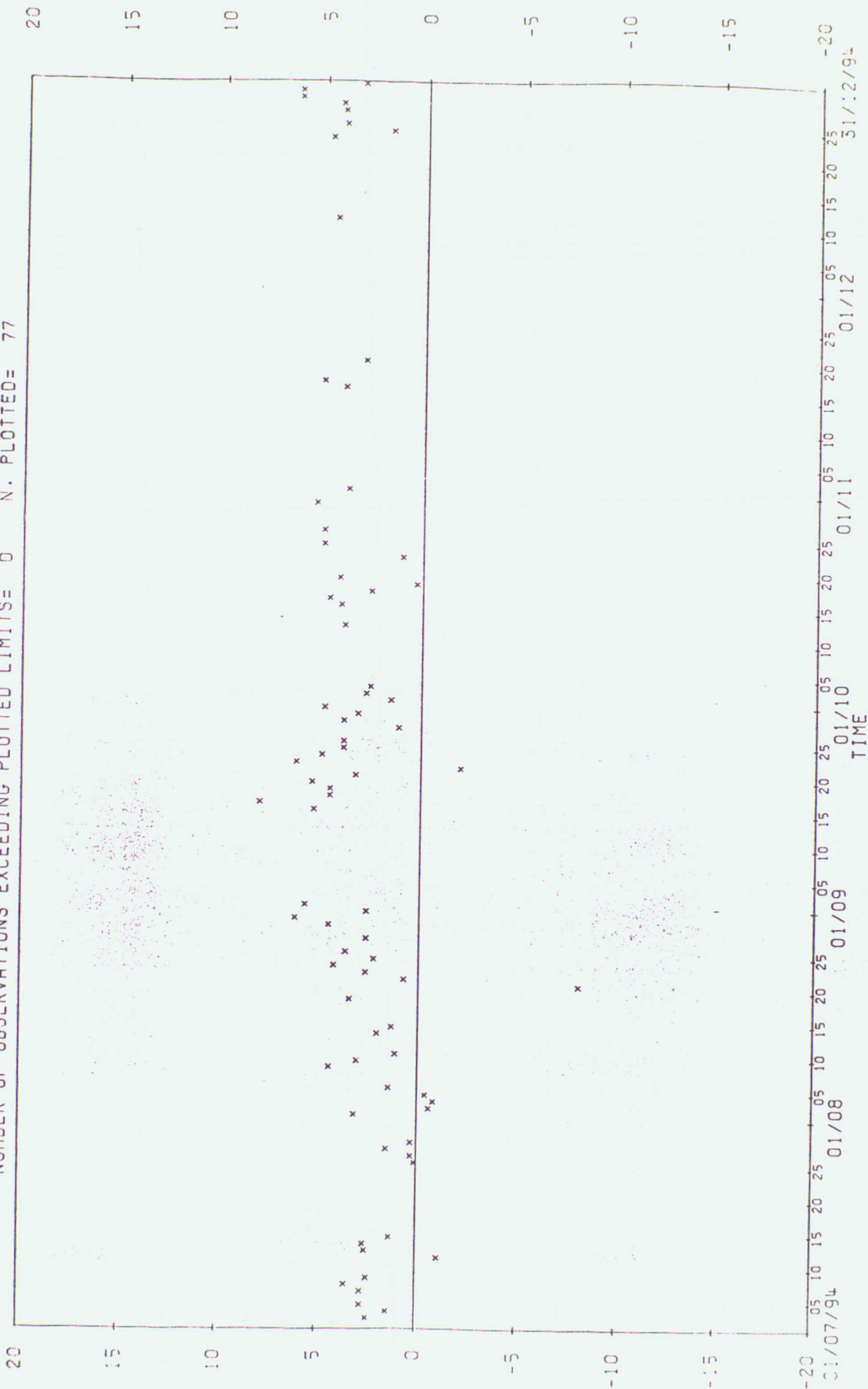
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: WZE4928 0-B
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 241



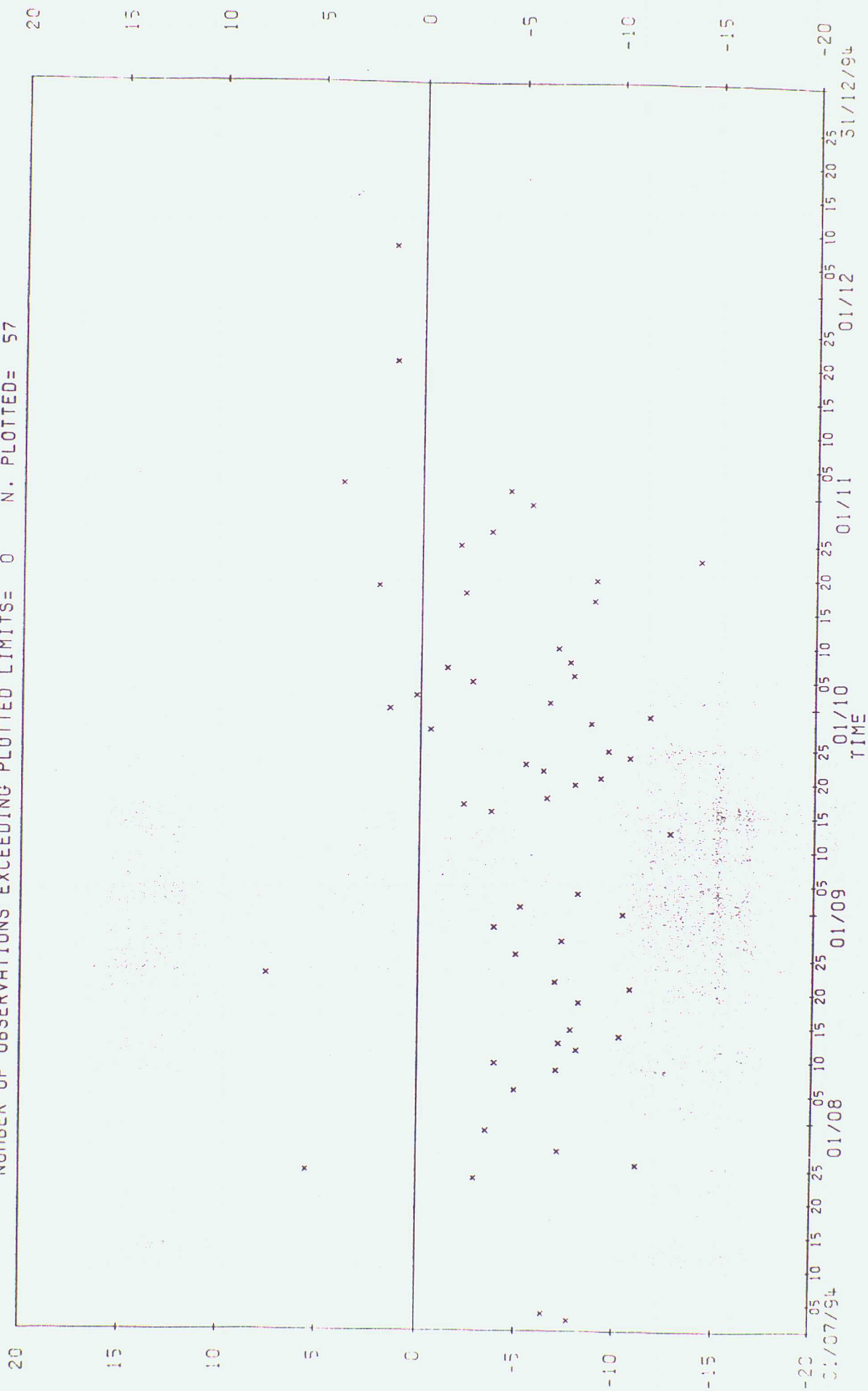
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: ZBWP
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 215
 0-B



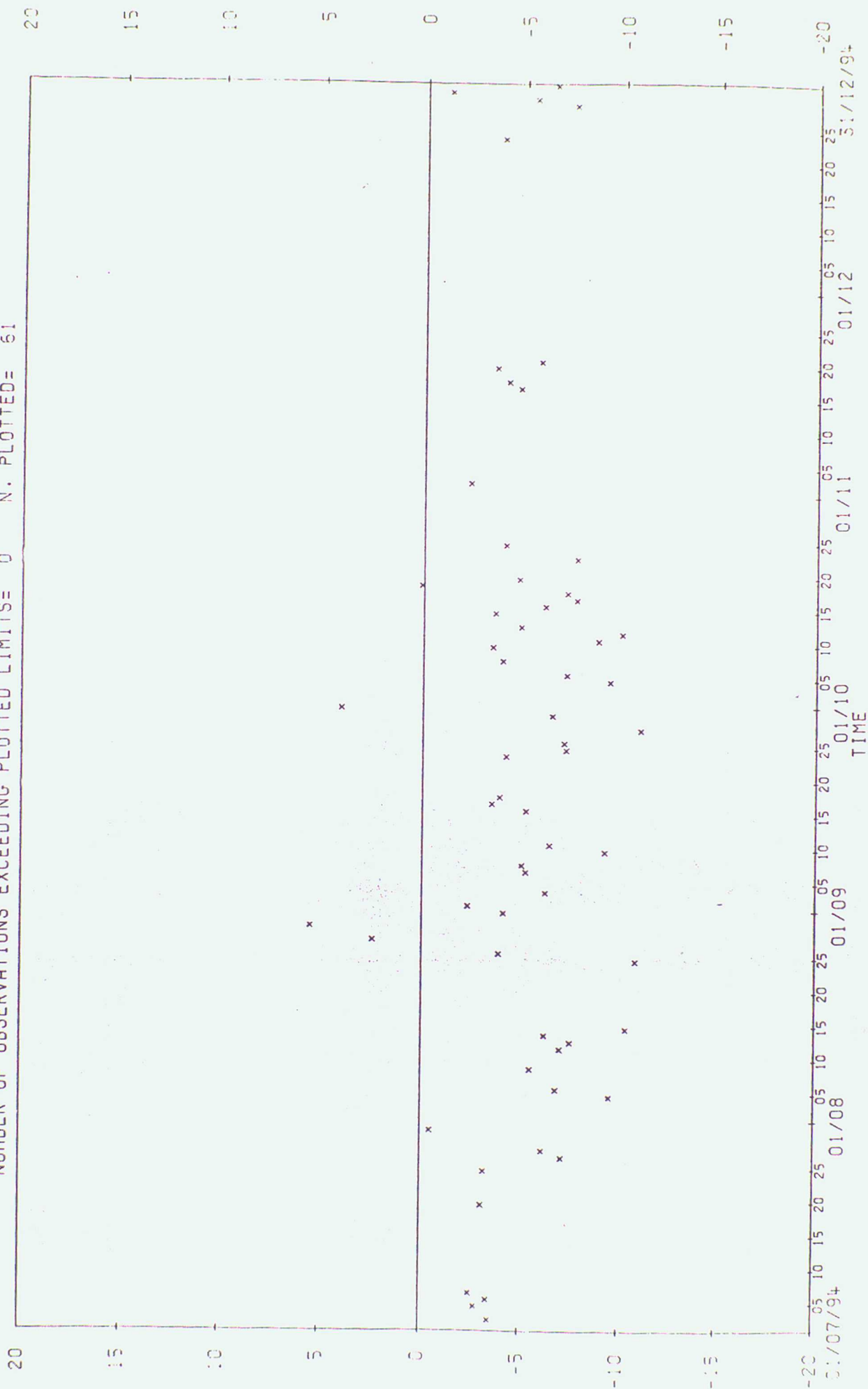
C-3
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(C-3) FOR IDENTIFIER: ZRL719
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 77



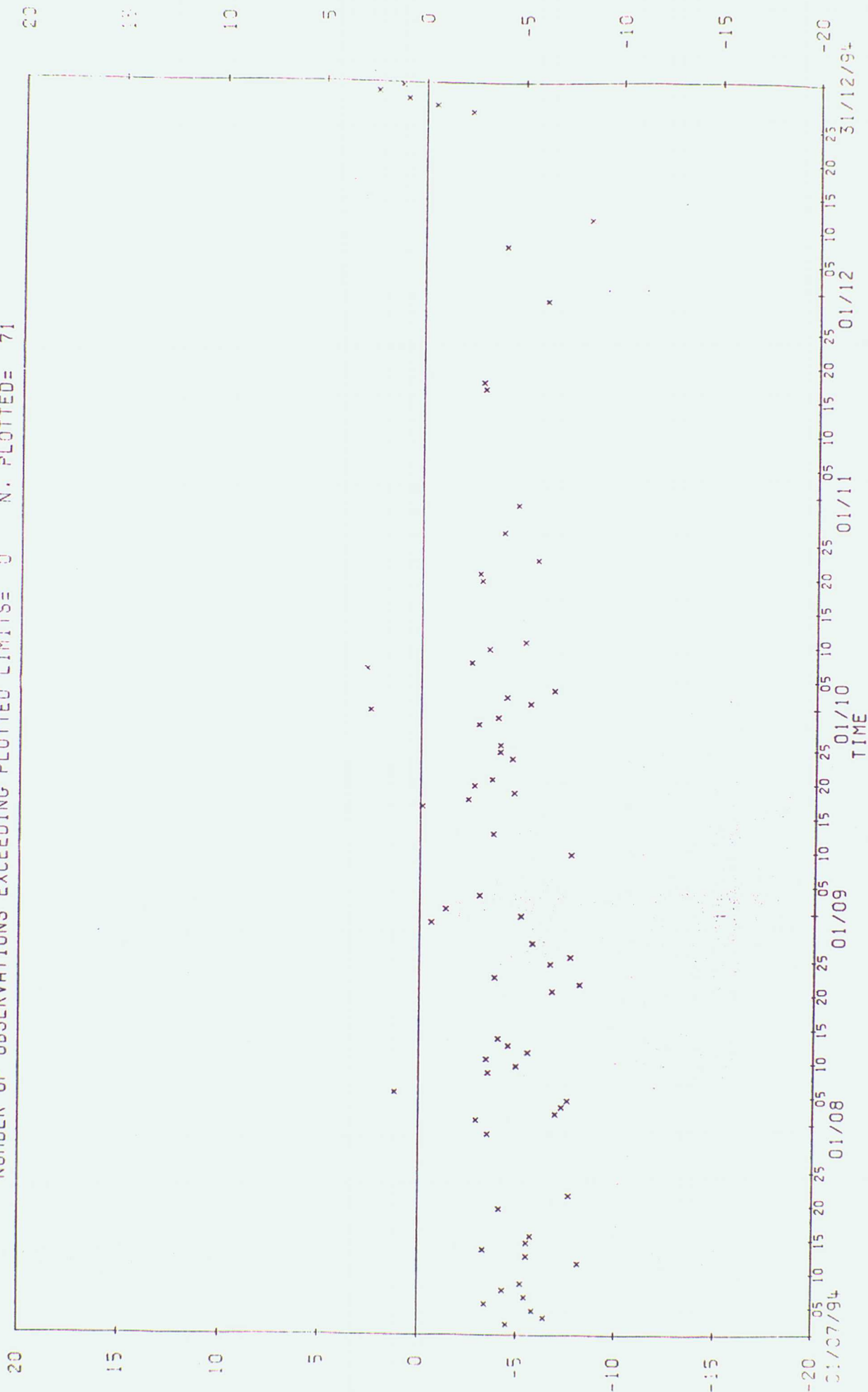
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: ZS8K
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 57
 0-B



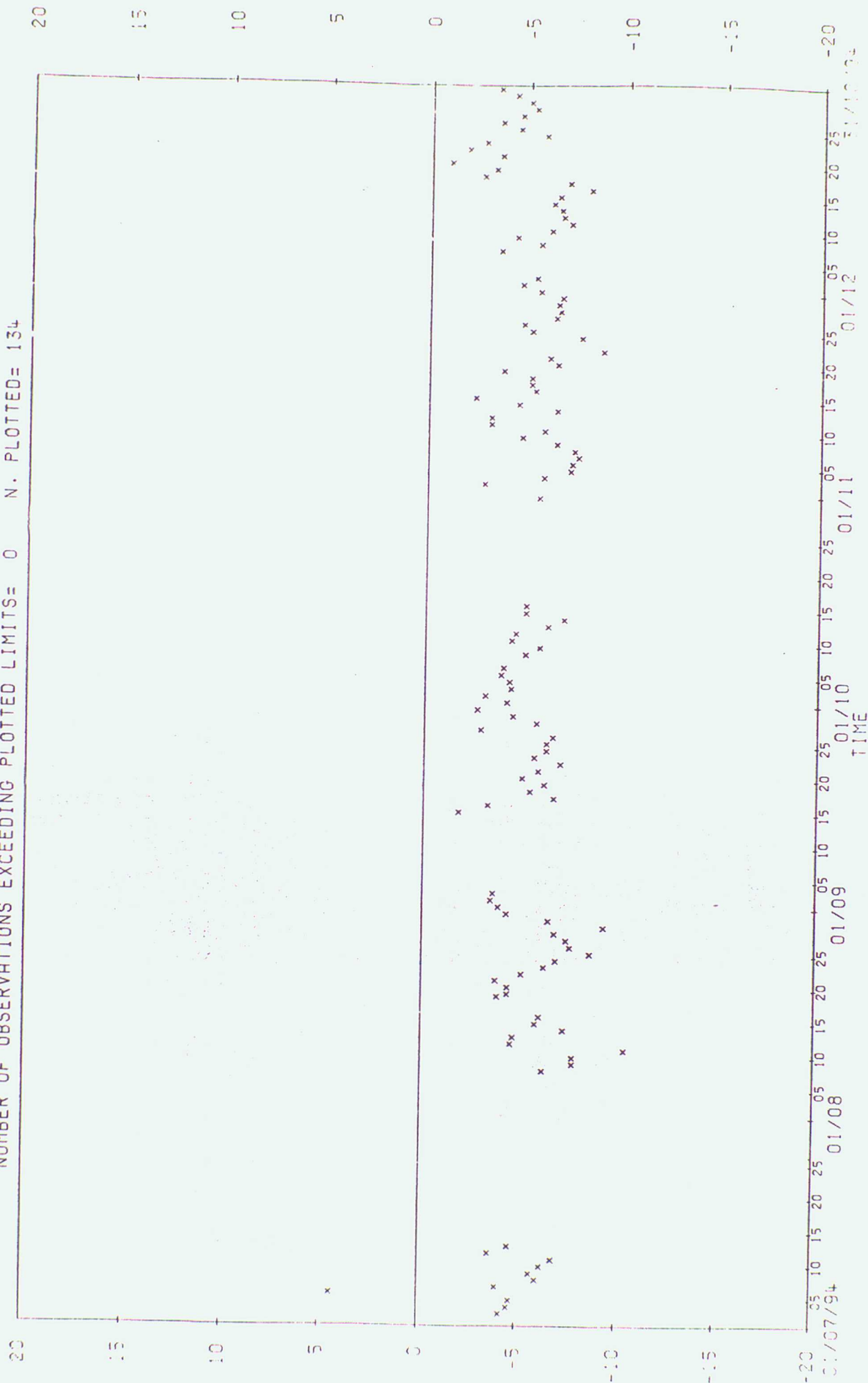
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: ZTFM
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 61
 C-B



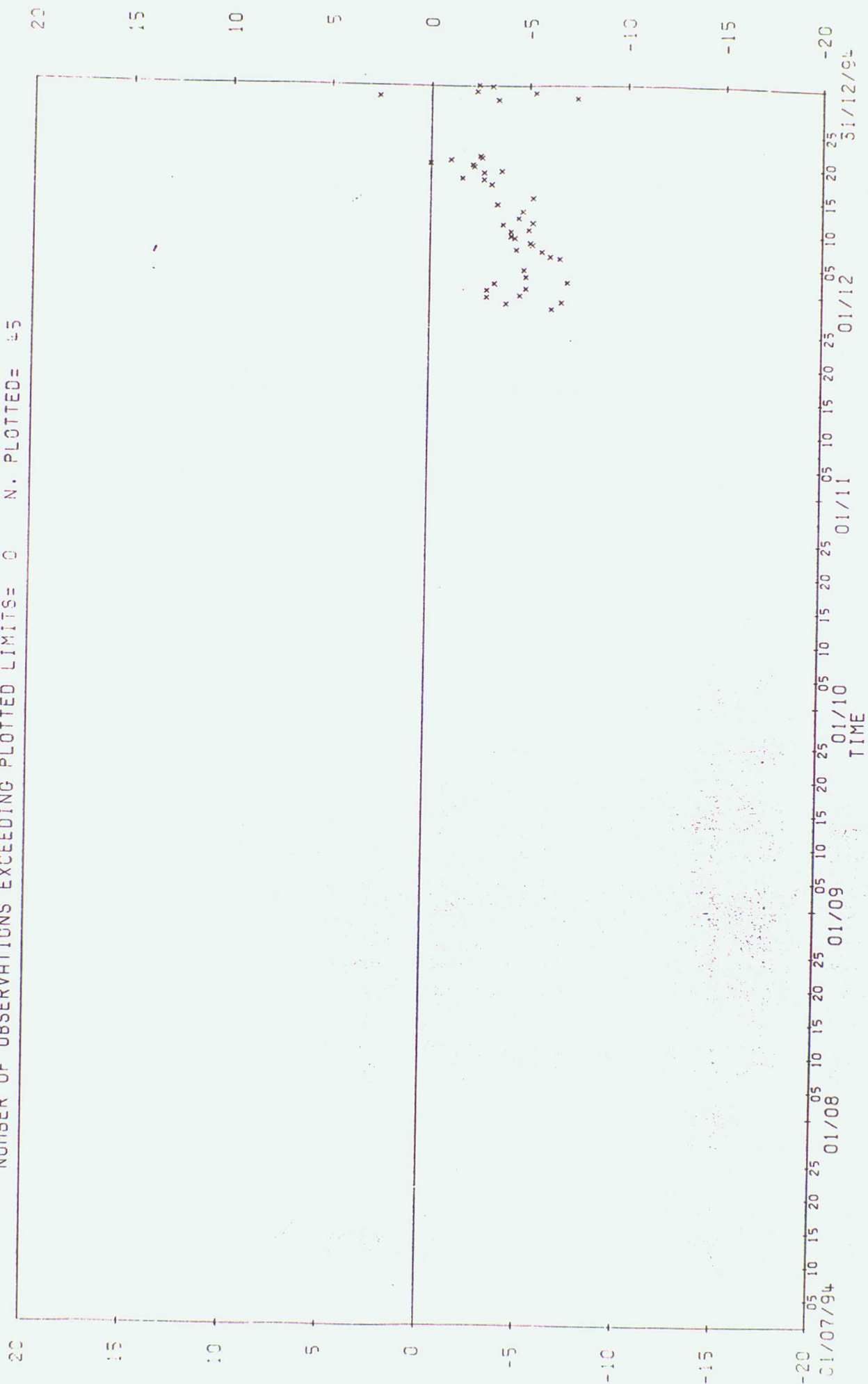
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: ZTHP
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 71
 0-B



0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: 3E9Y5
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 134



C-3
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: 3EER8
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 45
 0-B



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

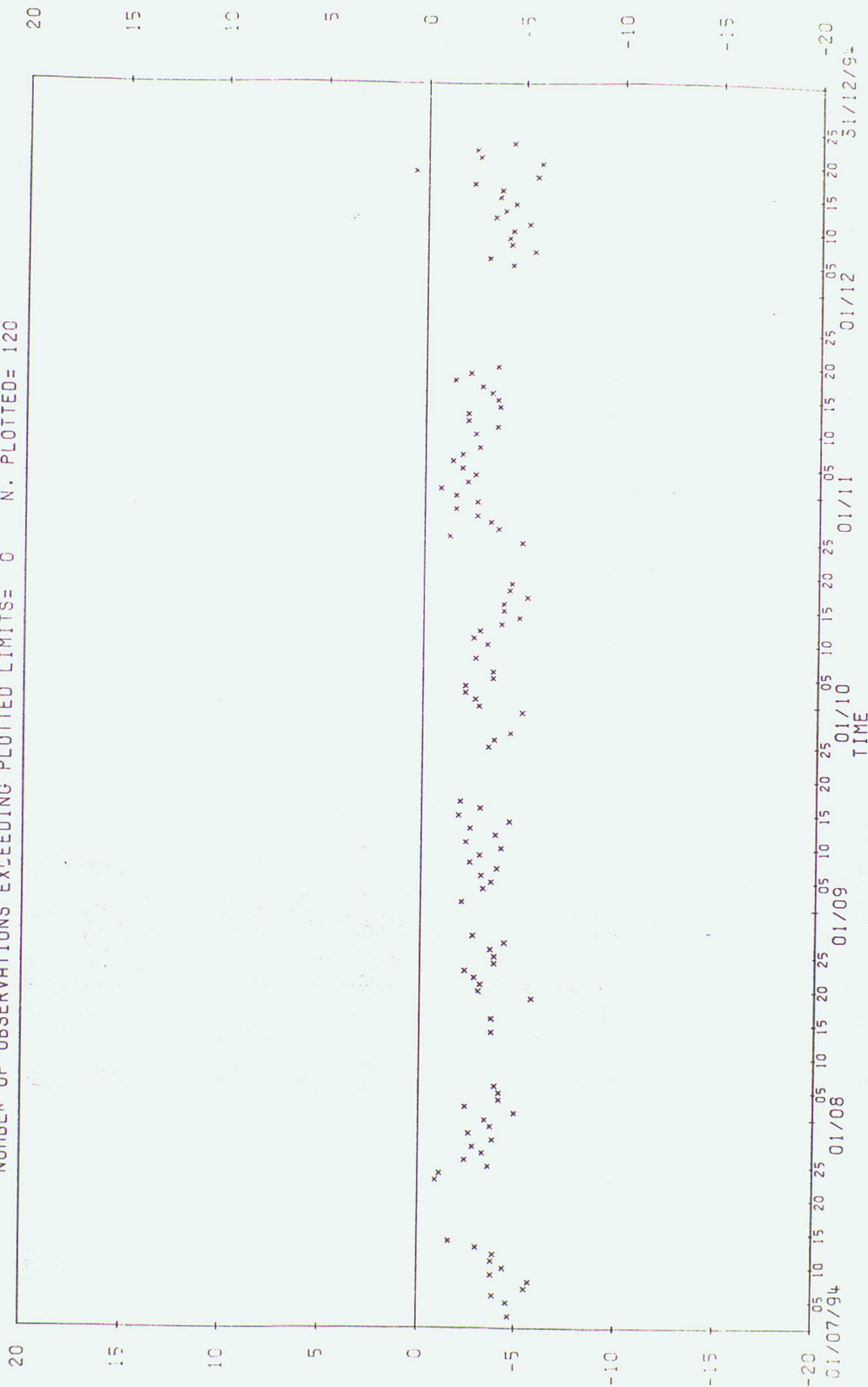
0-B

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: 3EWFS

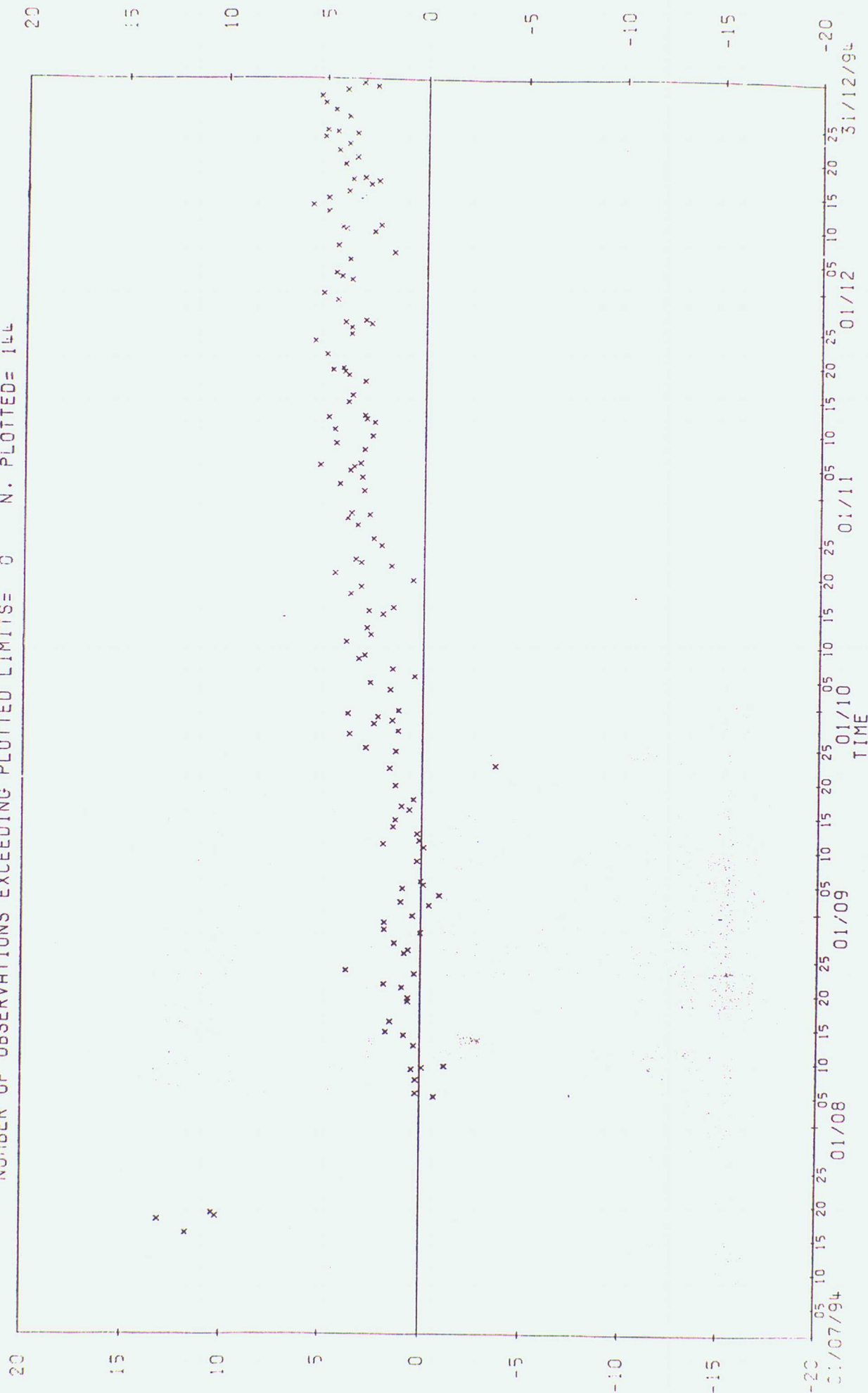
0-B

VARIABLE : MSLP IN UNITS OF HPA

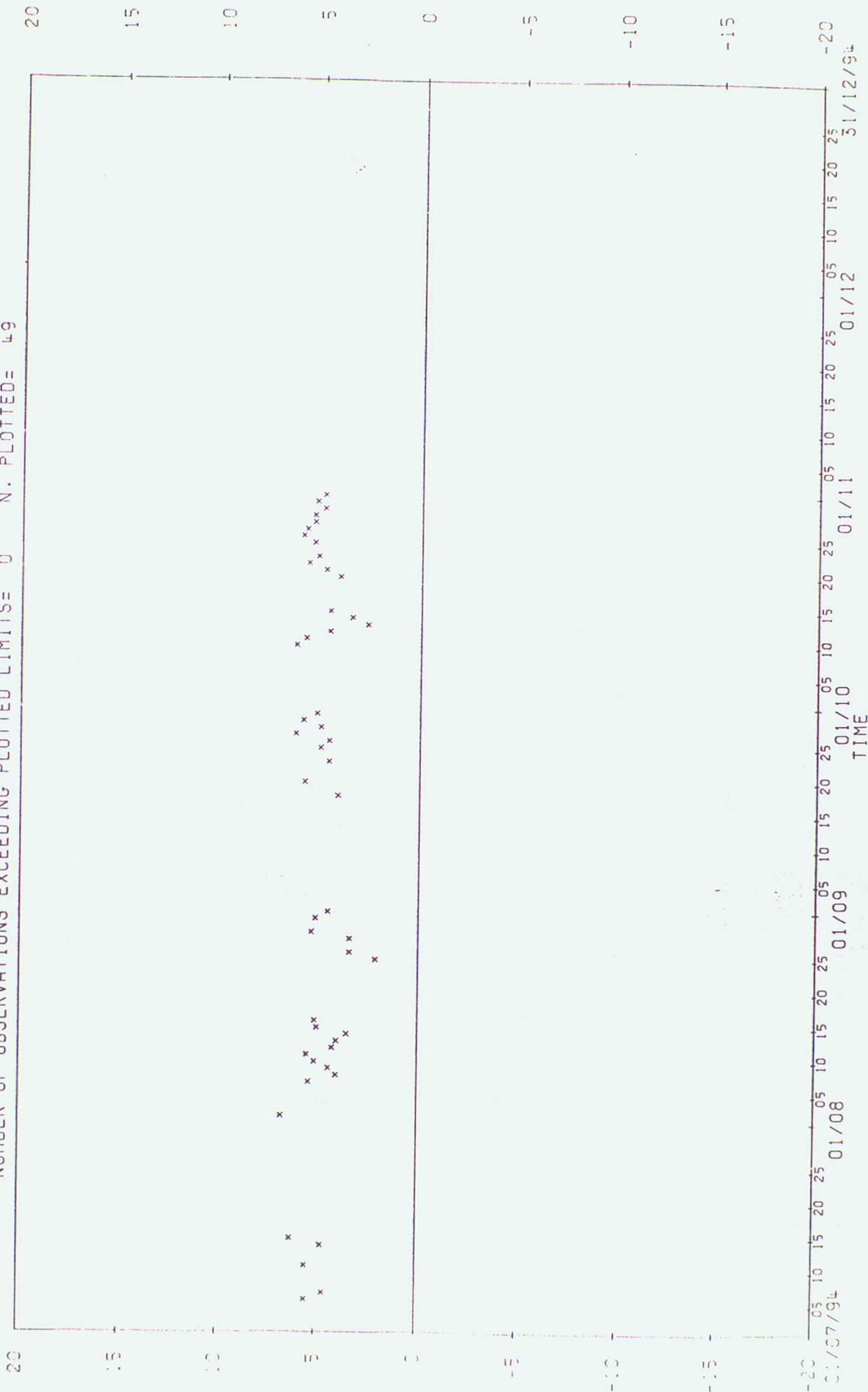
NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 120



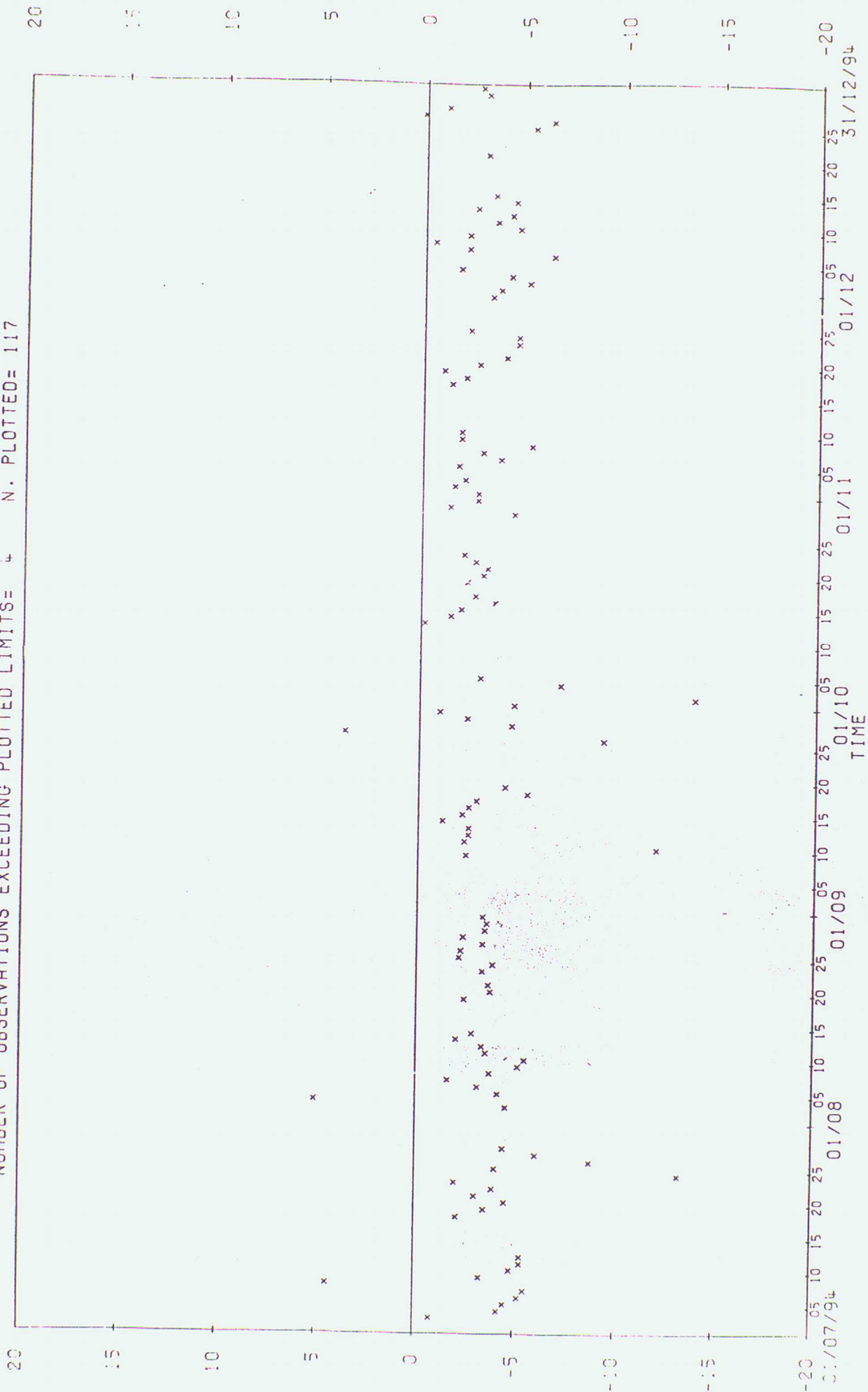
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: 3EWK9
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 144
 0-B



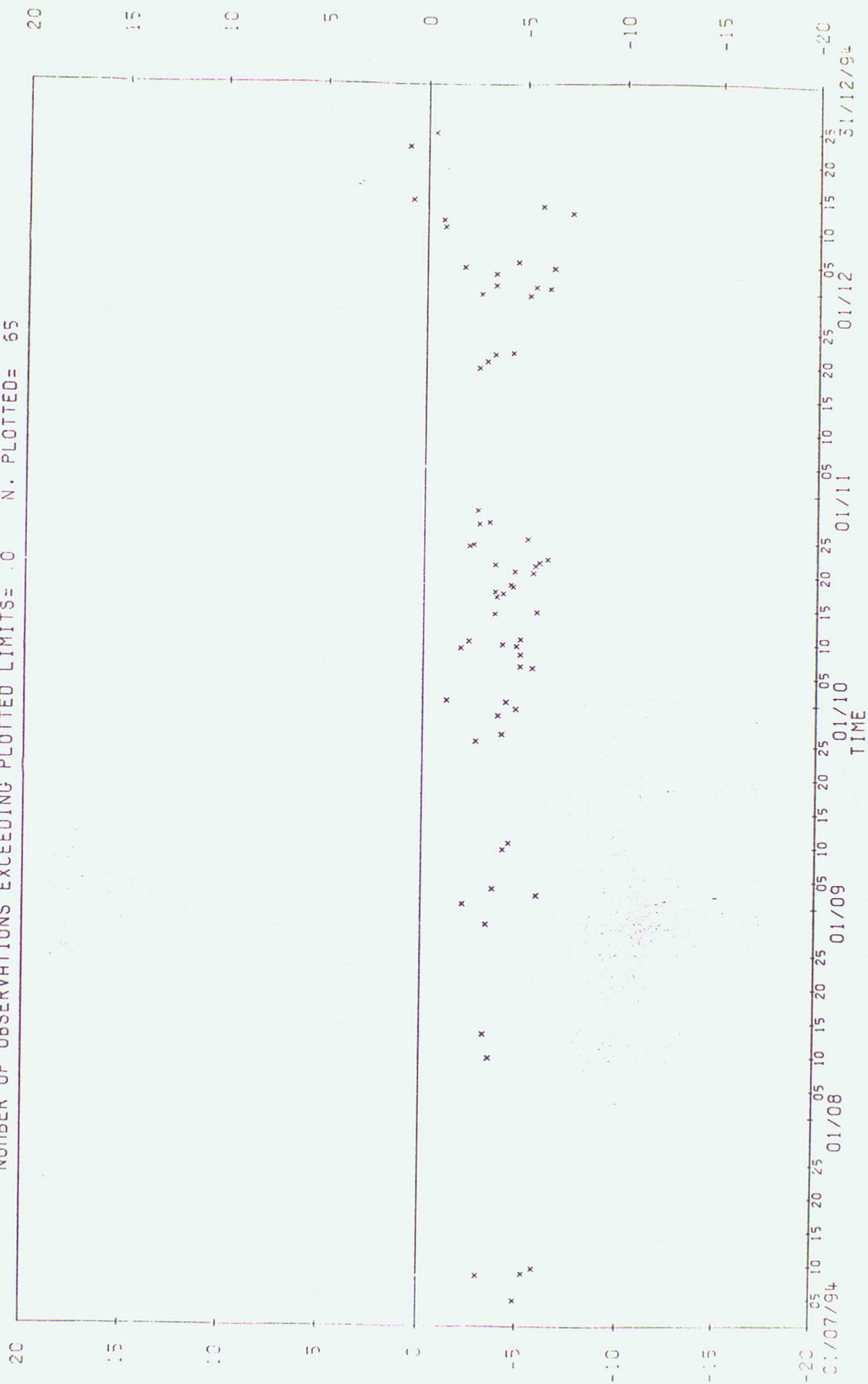
C-3
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: 3EWV5
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 49



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-3) FOR IDENTIFIER: 3EY98
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 4 N. PLOTTED= 117



C-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: 9MSS
 VARIABLE : MSLP IN UNITS OF HPA
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 65



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

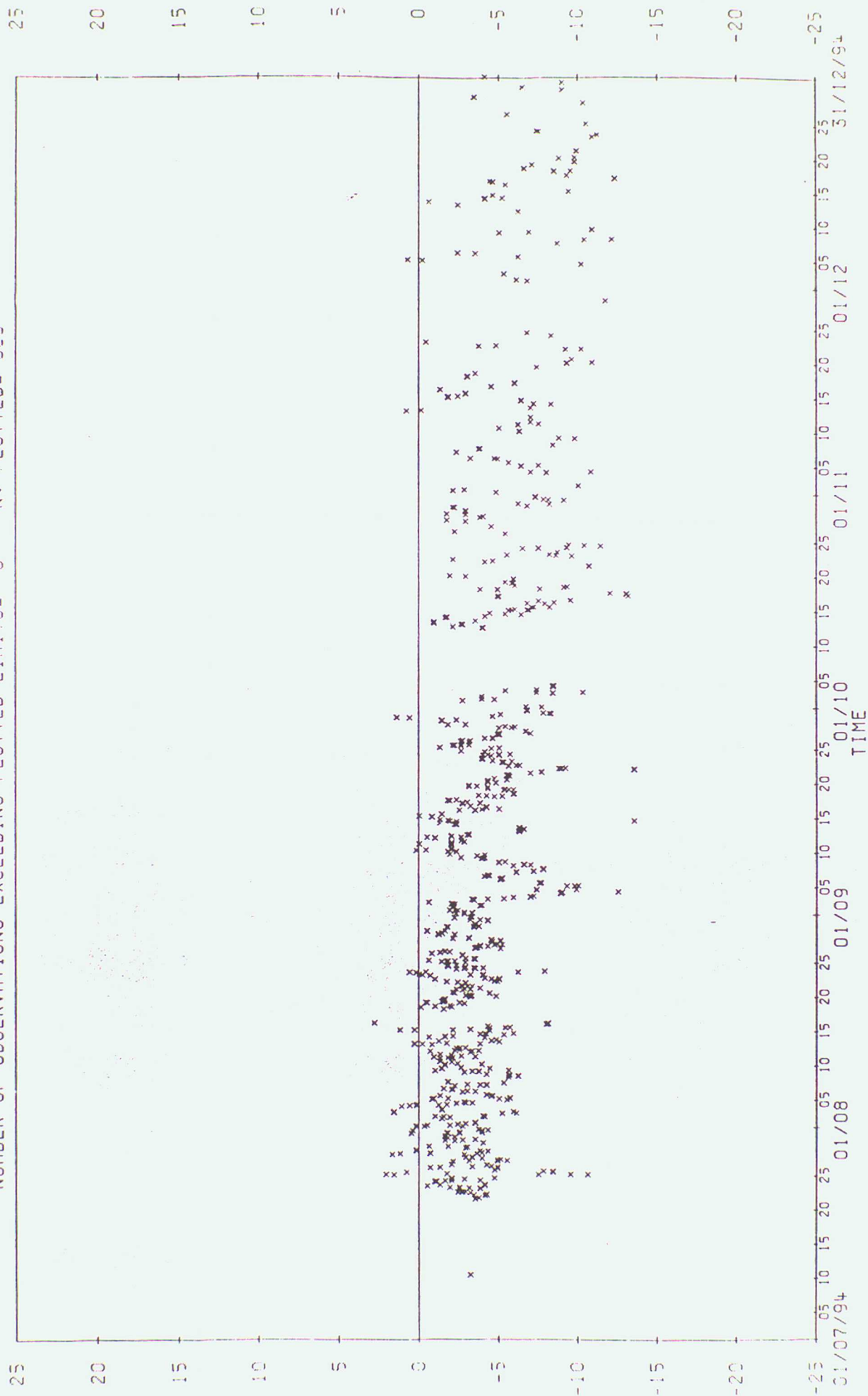
0-B

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: 46527

0-B

VARIABLE : WIND SPEED IN UNITS OF MS-1

NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 880



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

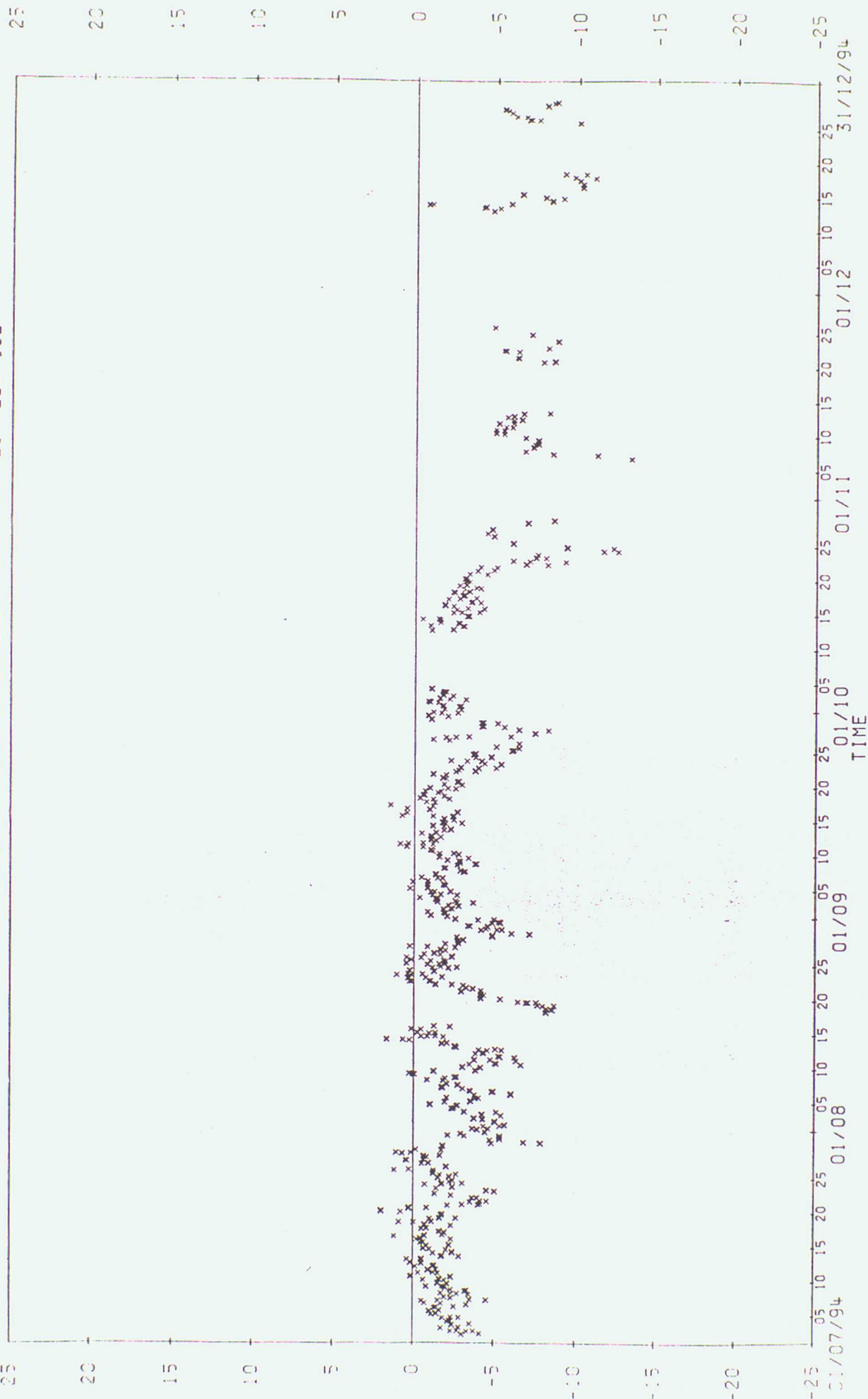
C-B

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: 52525

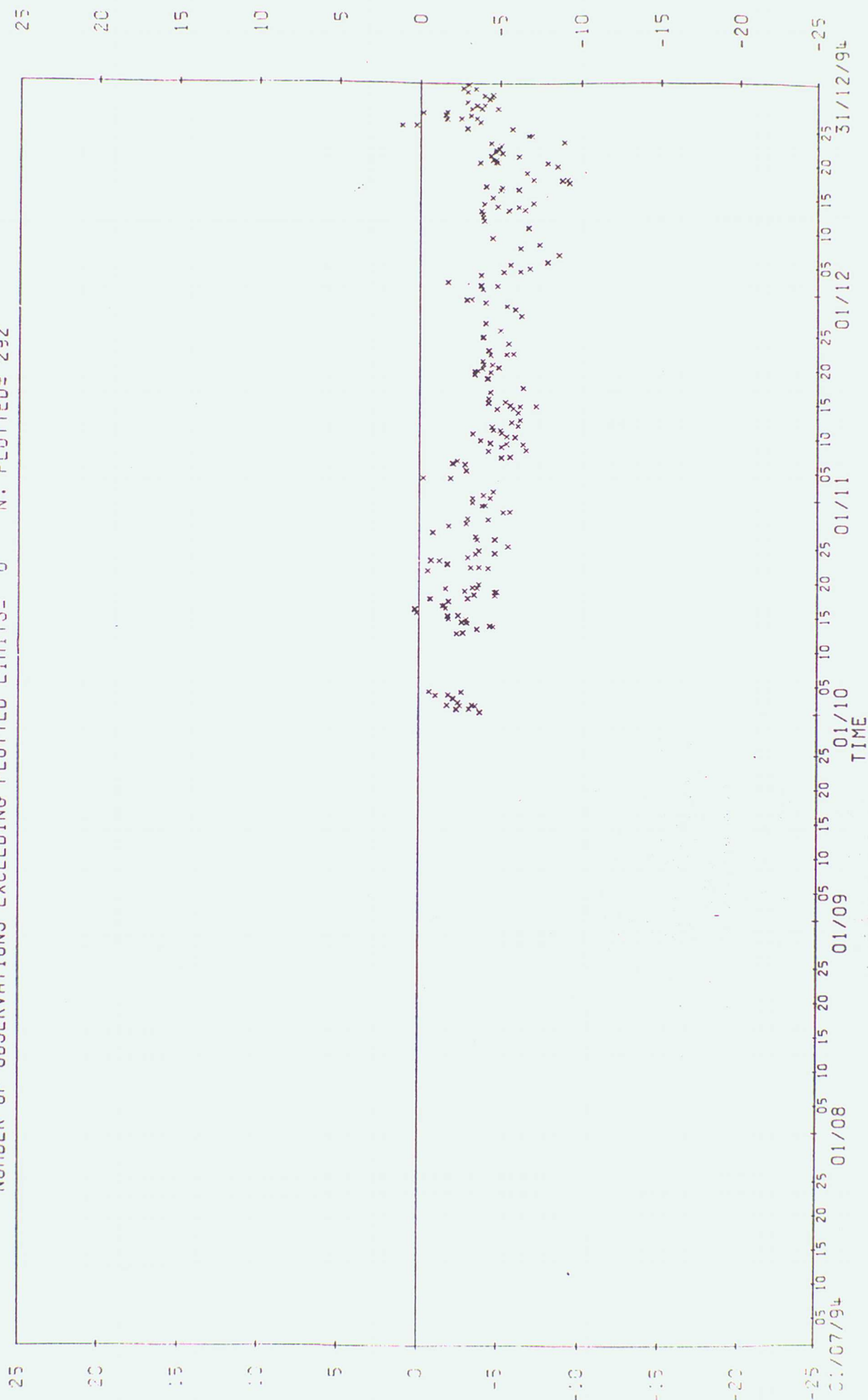
O-B

VARIABLE : WIND SPEED IN UNITS OF MS-1

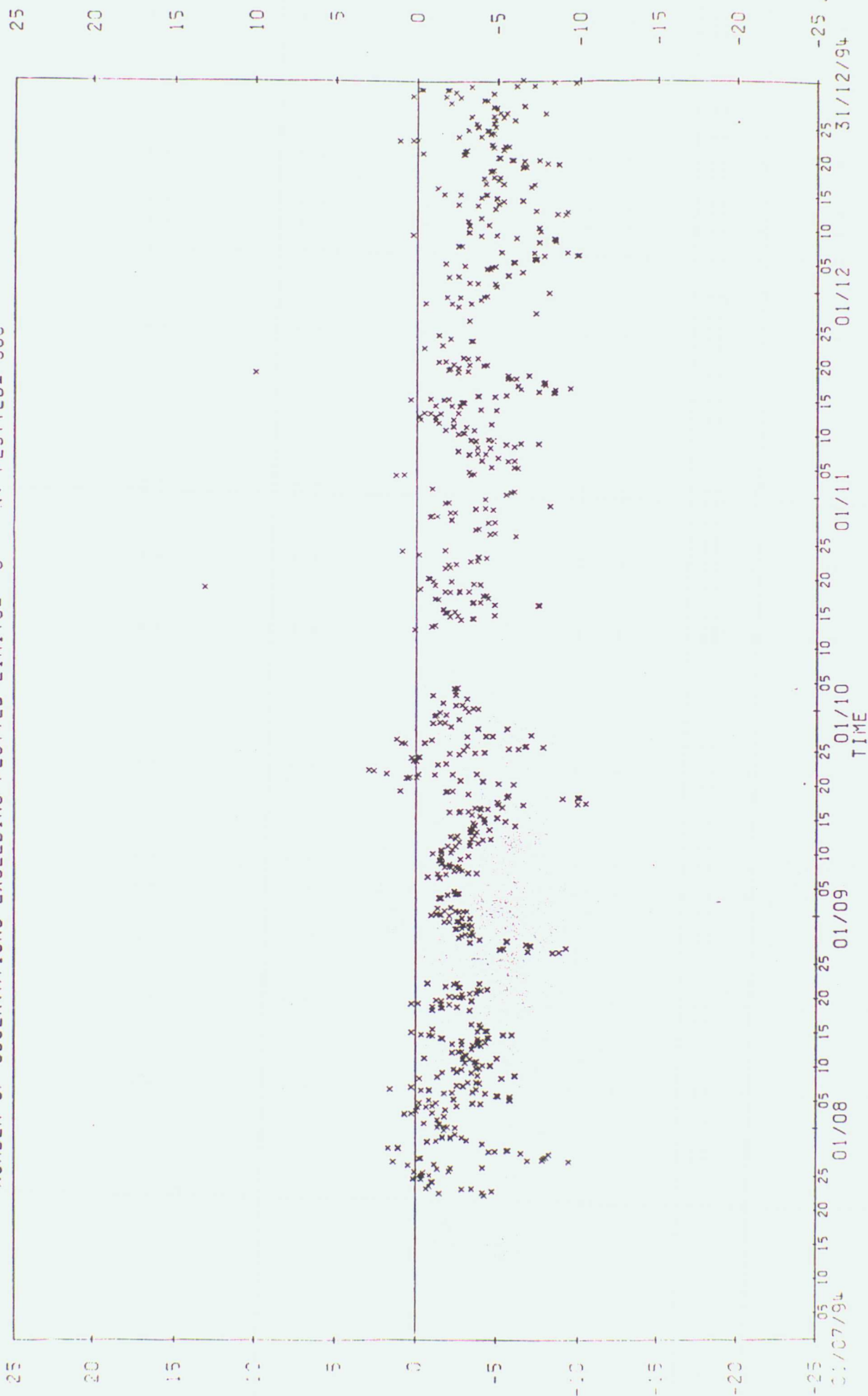
NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 932



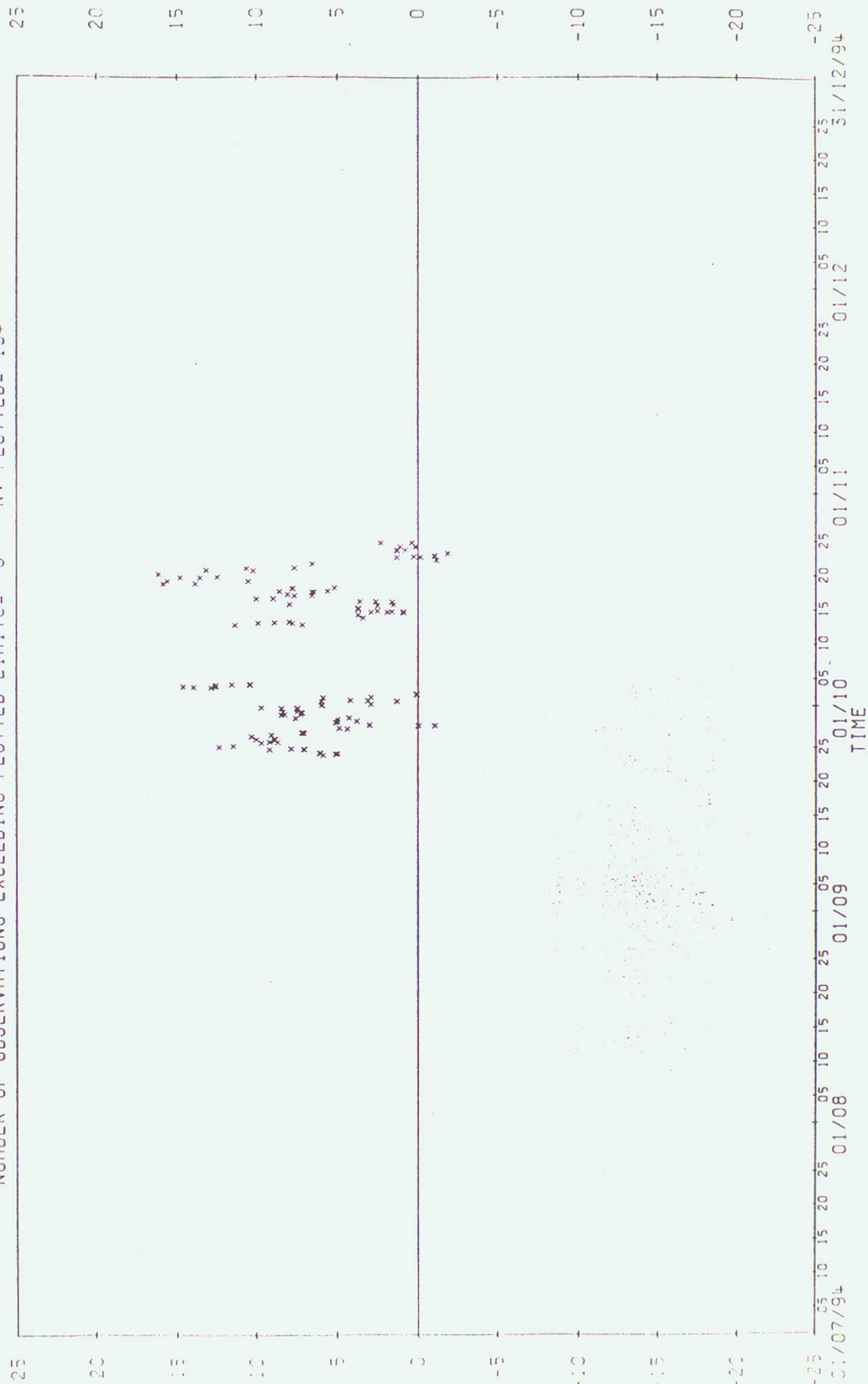
BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: 52526
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 292



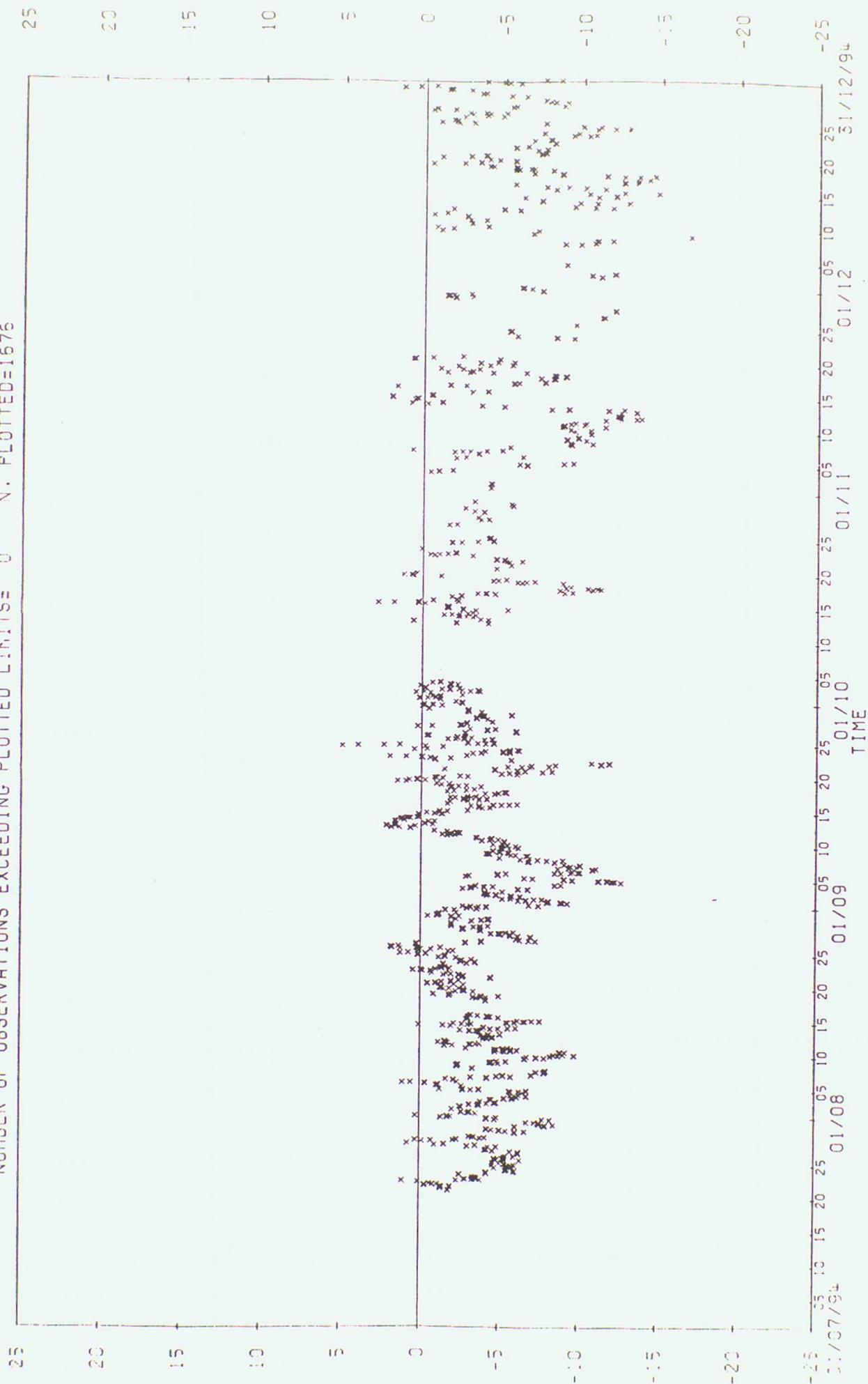
BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: 52540
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 808



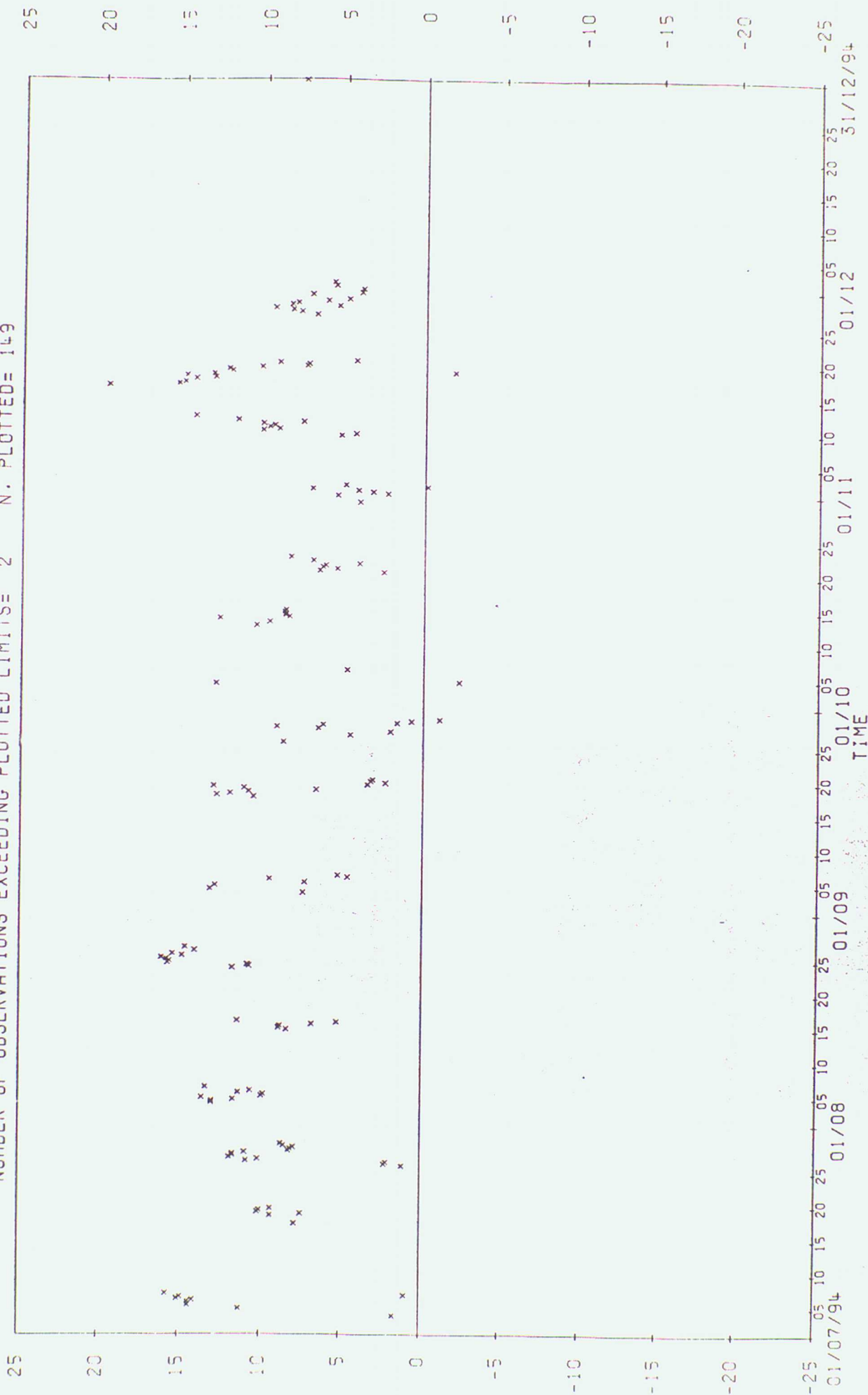
0-3
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-8) FOR IDENTIFIER: 62509
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 134
 0-3



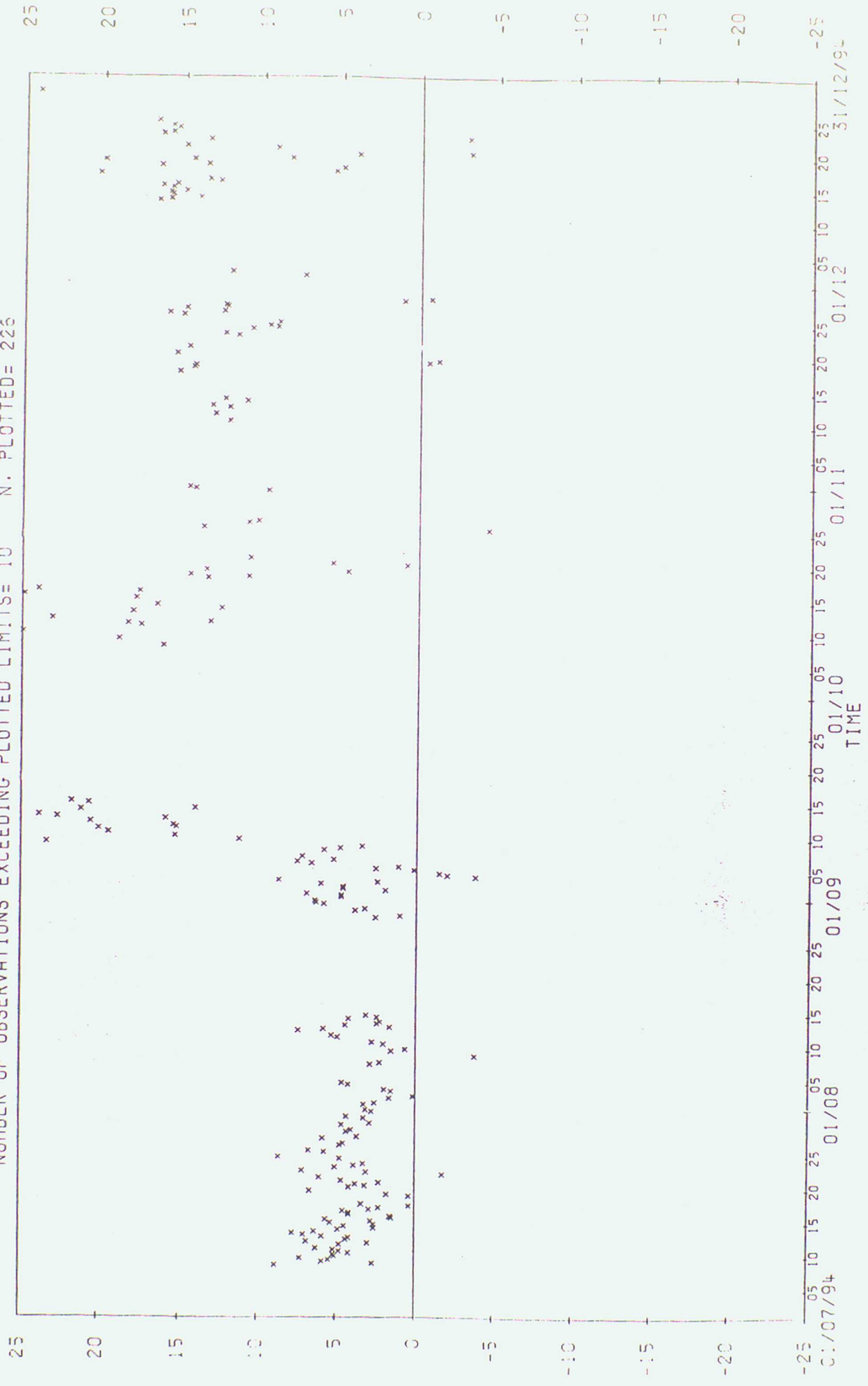
C-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: 64544
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED=1676
 O-B



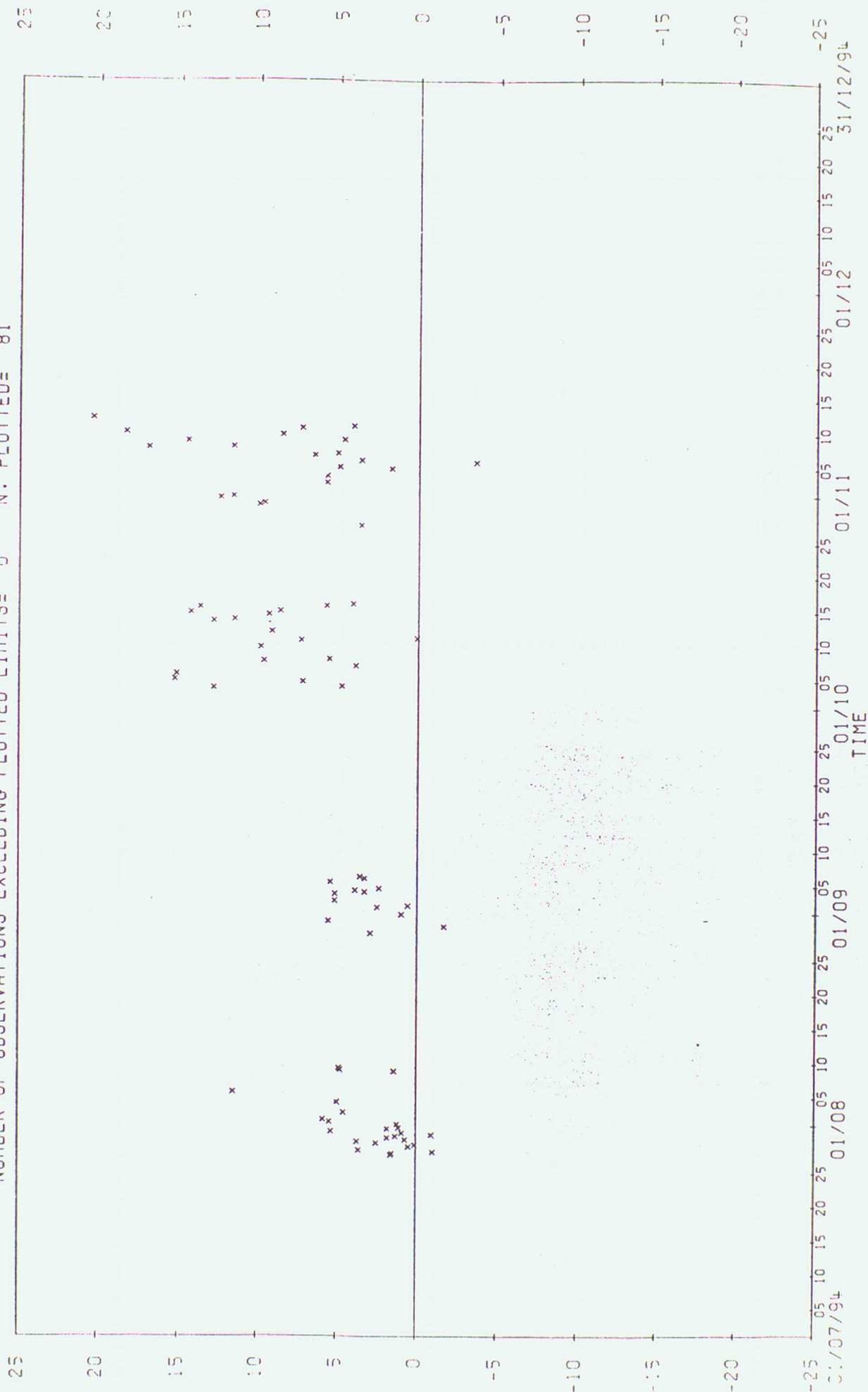
C-8
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-8) FOR IDENTIFIER: C6DY8
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 2 N. PLOTTED= 149
 C-8



C-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: C6JDL
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 10 N. PLOTTED= 226
 O-B



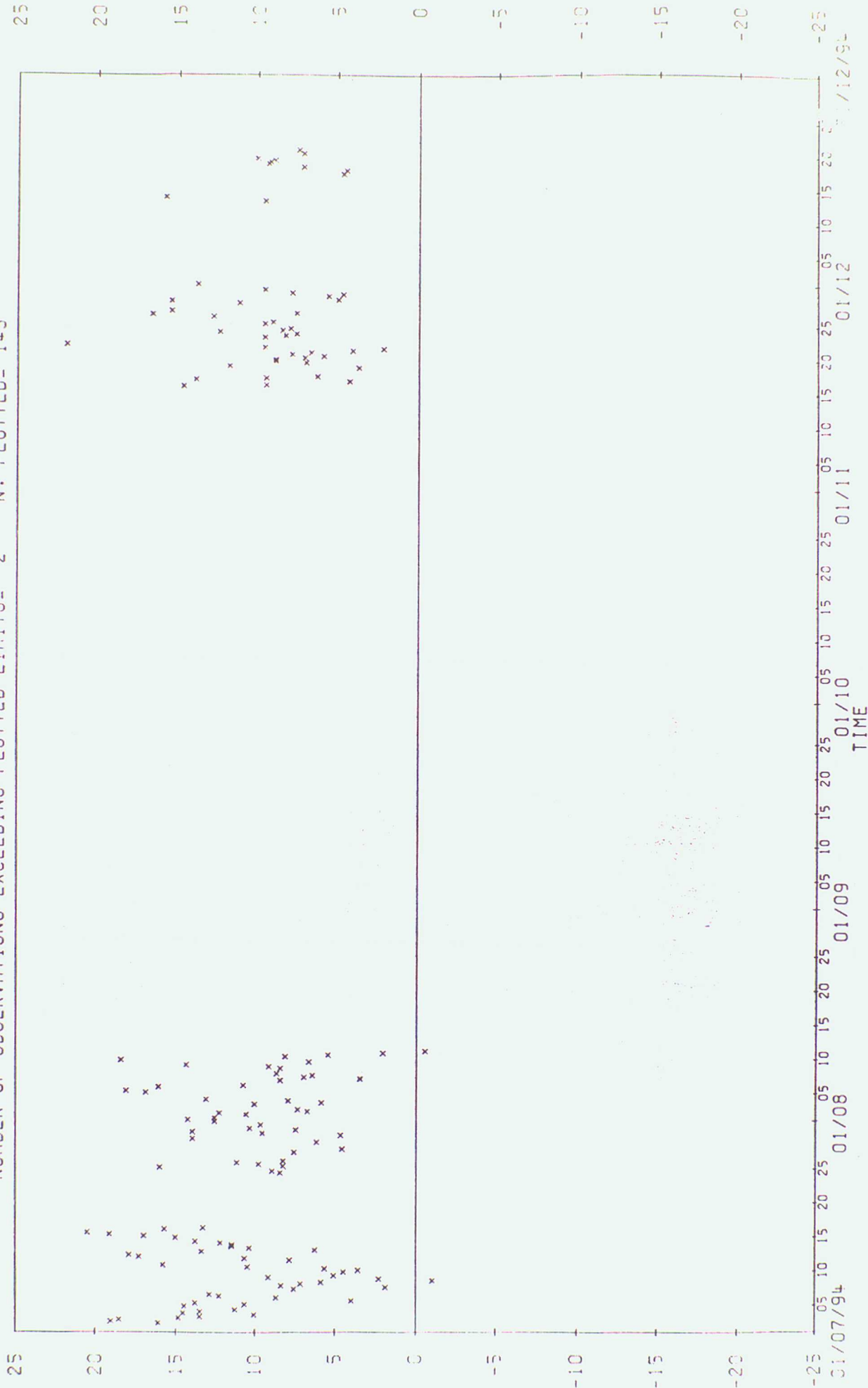
0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: C6MM5
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 81
 0-B



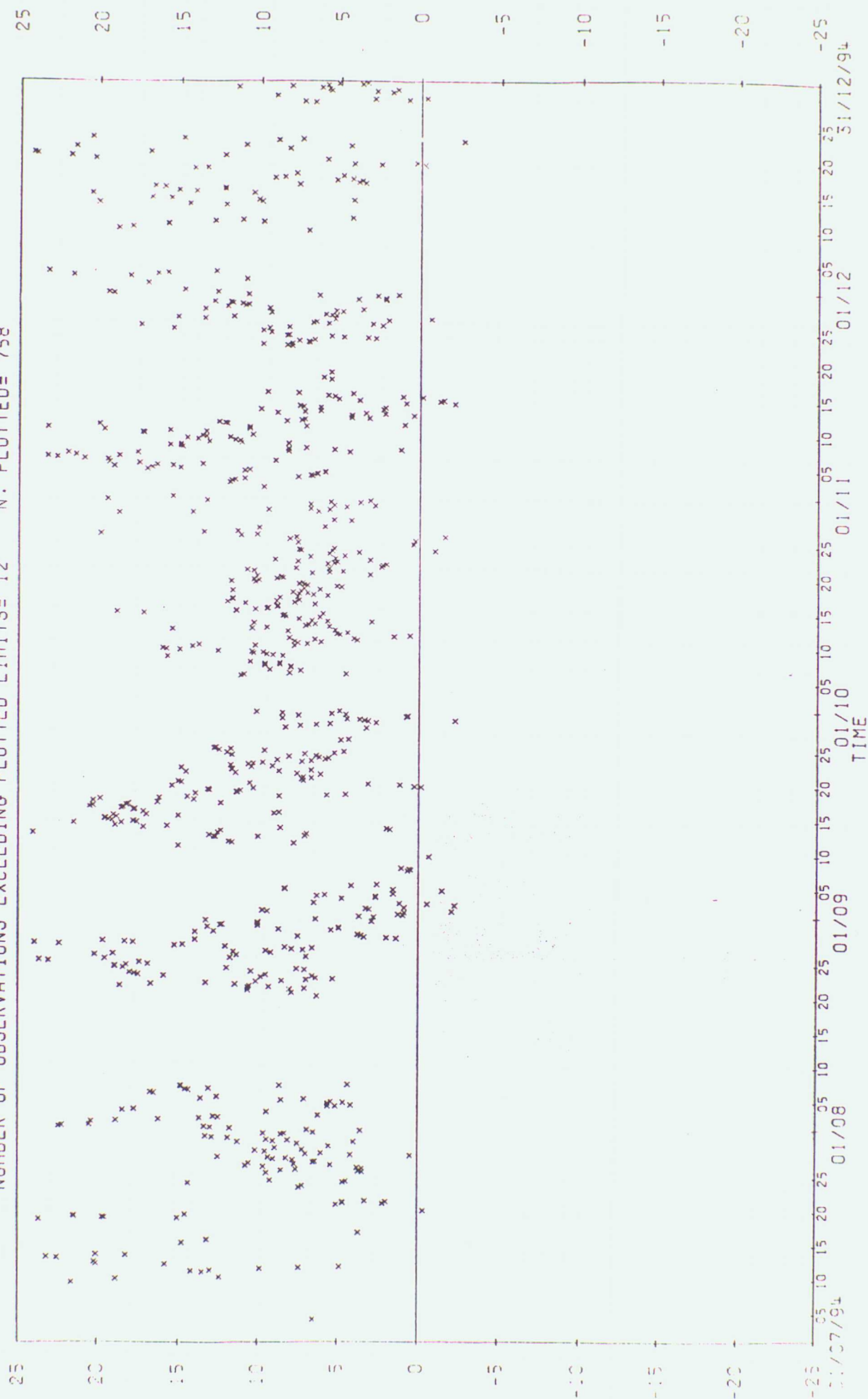
BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: ELLES
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 2 N. PLOTTED= 143

O-B

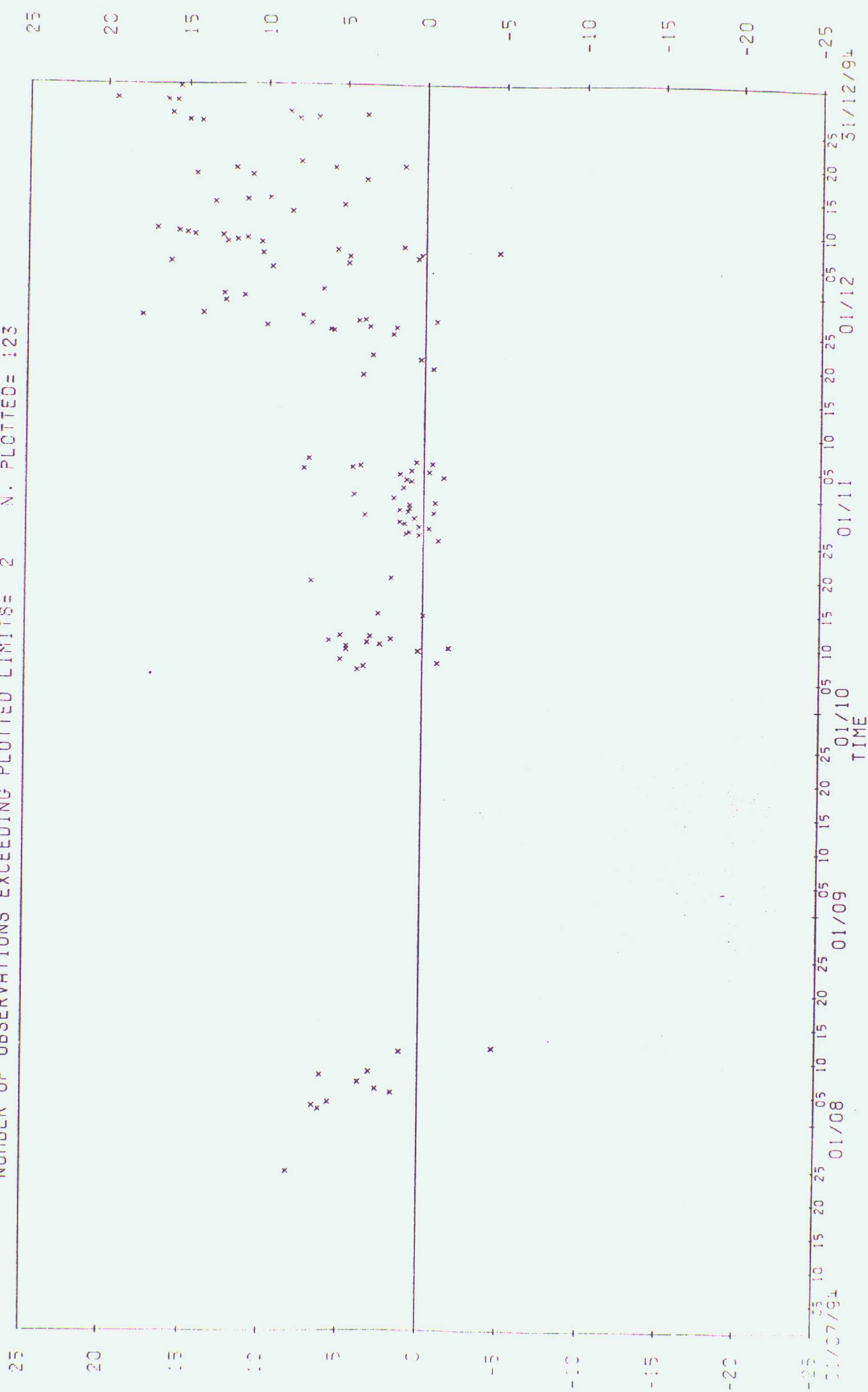
O-B



0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: FNIH
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 12 N. PLOTTED= 758
 0-B



0-3
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-3) FOR IDENTIFIER: FNWC
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 2 N. PLOTTED= 123



0-3

01/07/94

01/08

01/09

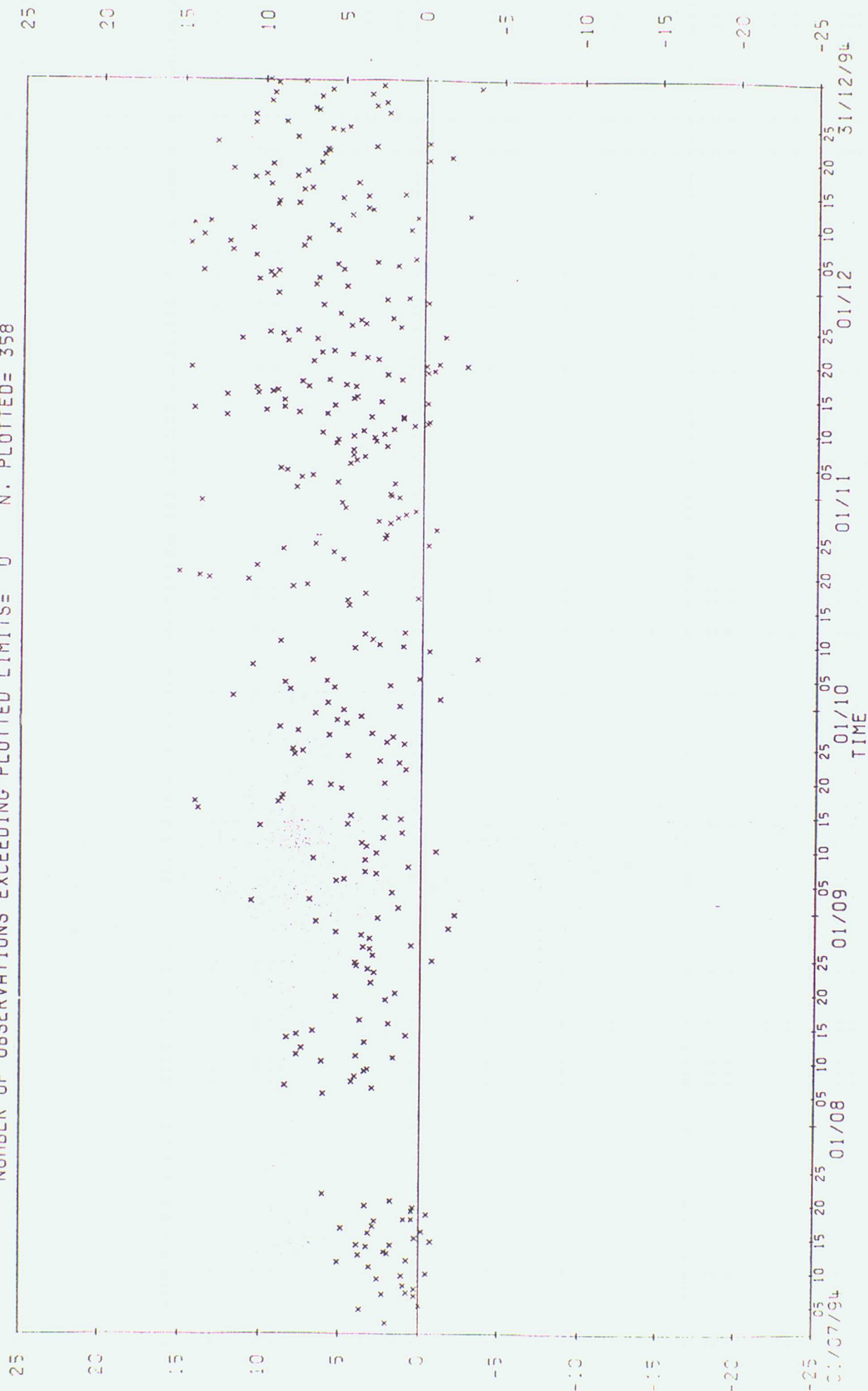
01/10

01/11

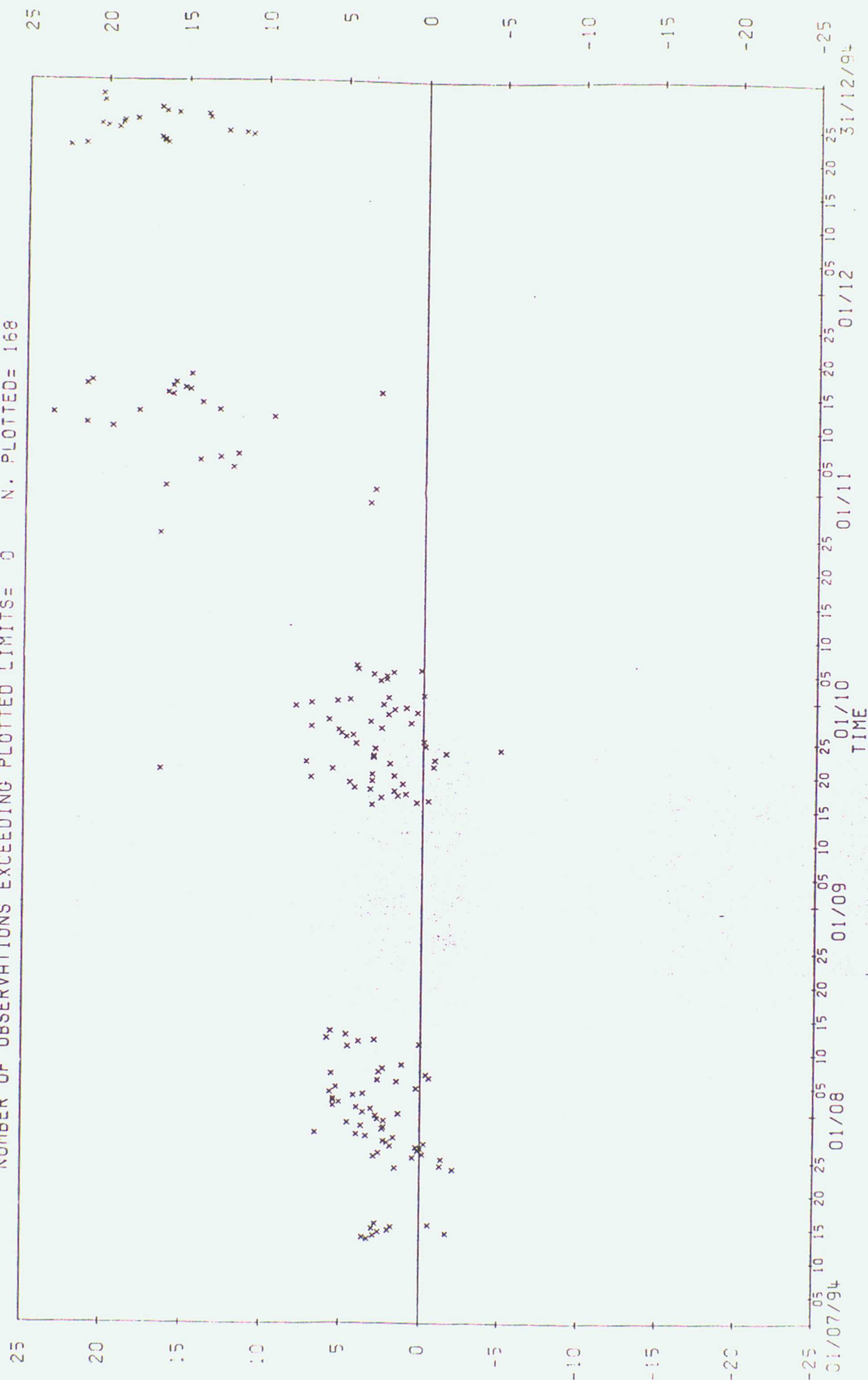
01/12

01/12/94

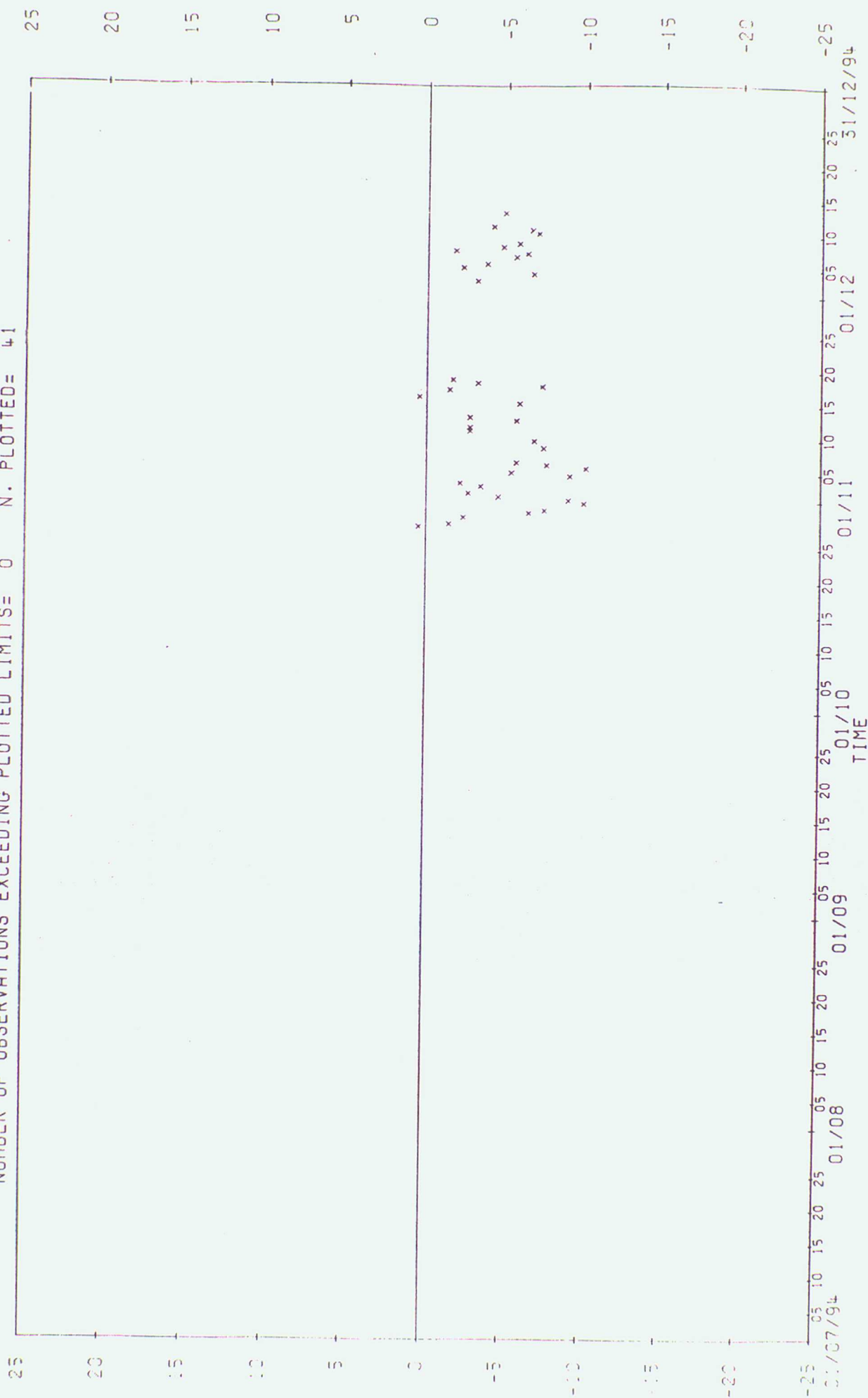
0-8
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-8) FOR IDENTIFIER: C3XW
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 358
 0-3



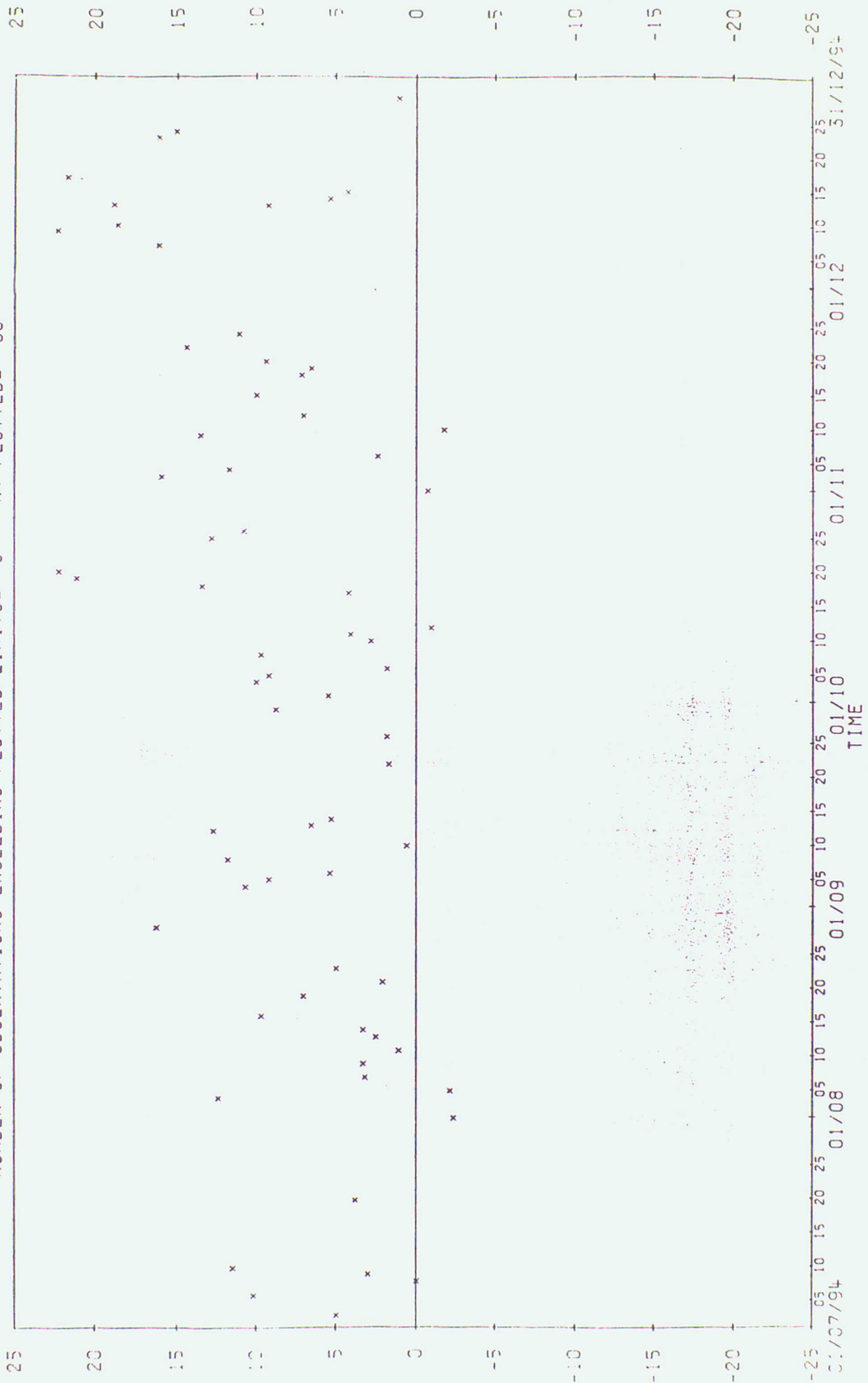
C-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: HPKW
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 168



0-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: JXSM
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 41
 0-B



C-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: MKHA7
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 68
 O-B



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

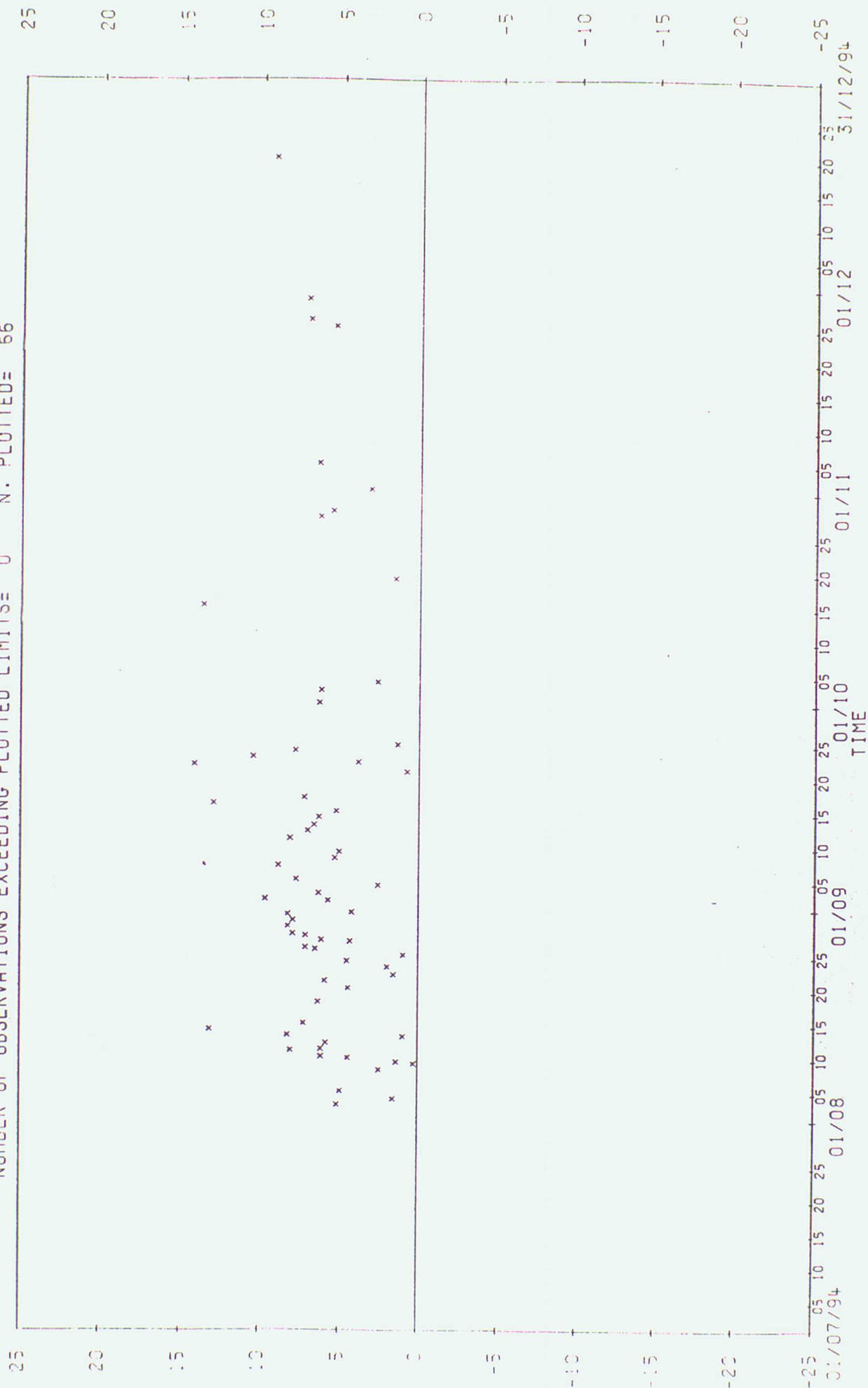
0-B

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: 0XRA6

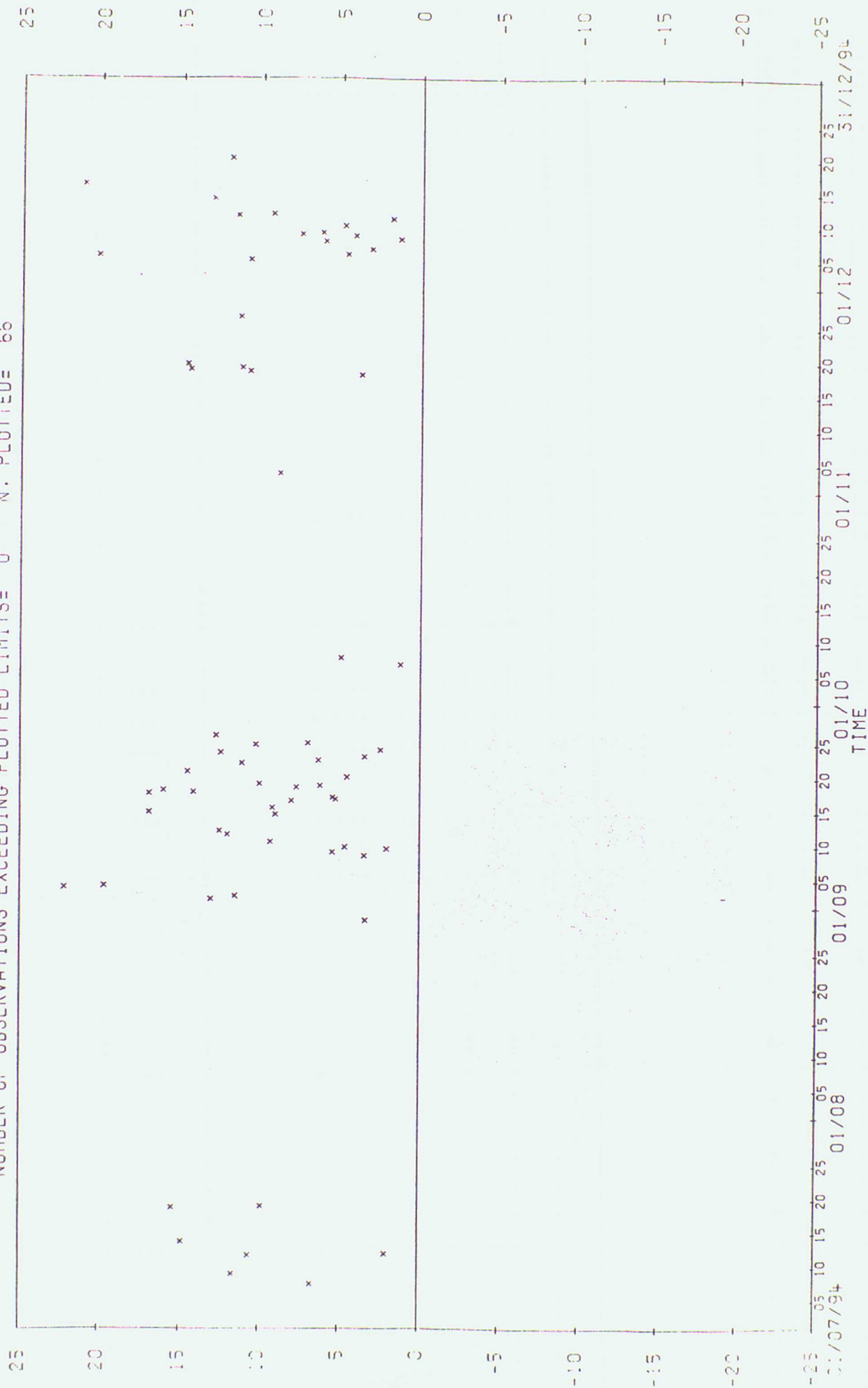
0-B

VARIABLE : WIND SPEED IN UNITS OF MS-1

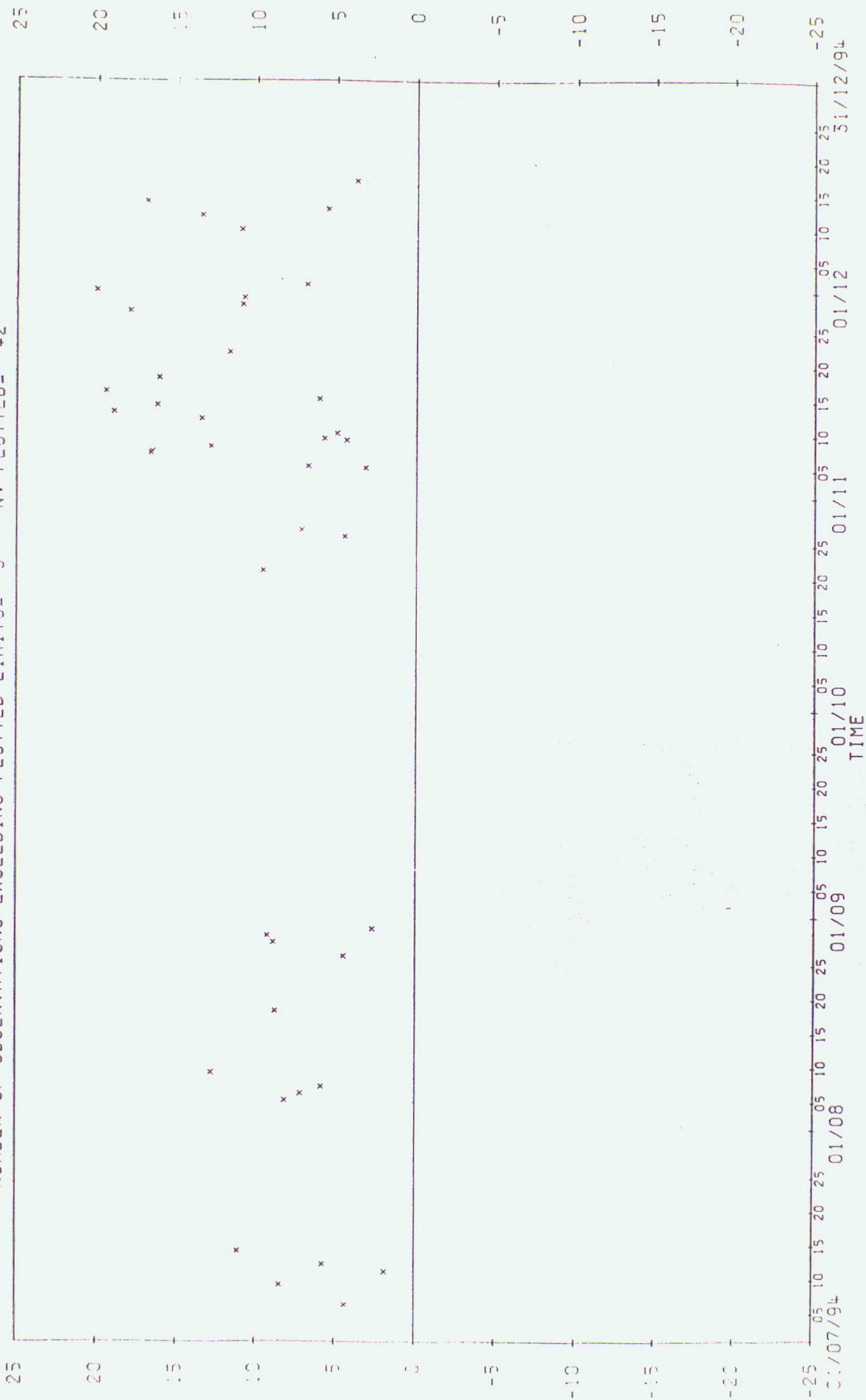
NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 66



0-3
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-8) FOR IDENTIFIER: SXYV
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 66



C-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: VRR0
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 42
 C-B



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

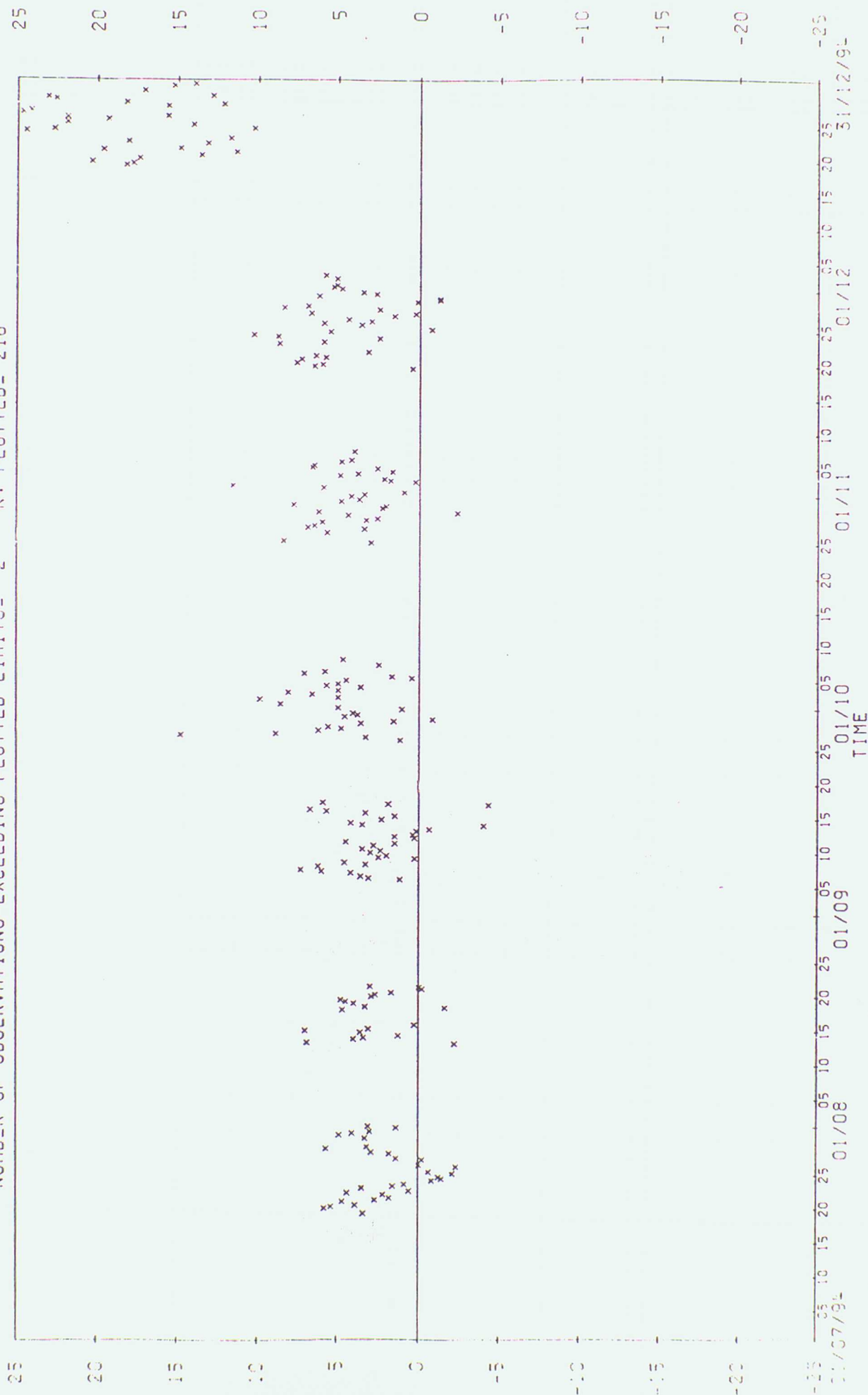
C-B

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(C-B) FOR IDENTIFIER: VRUM3

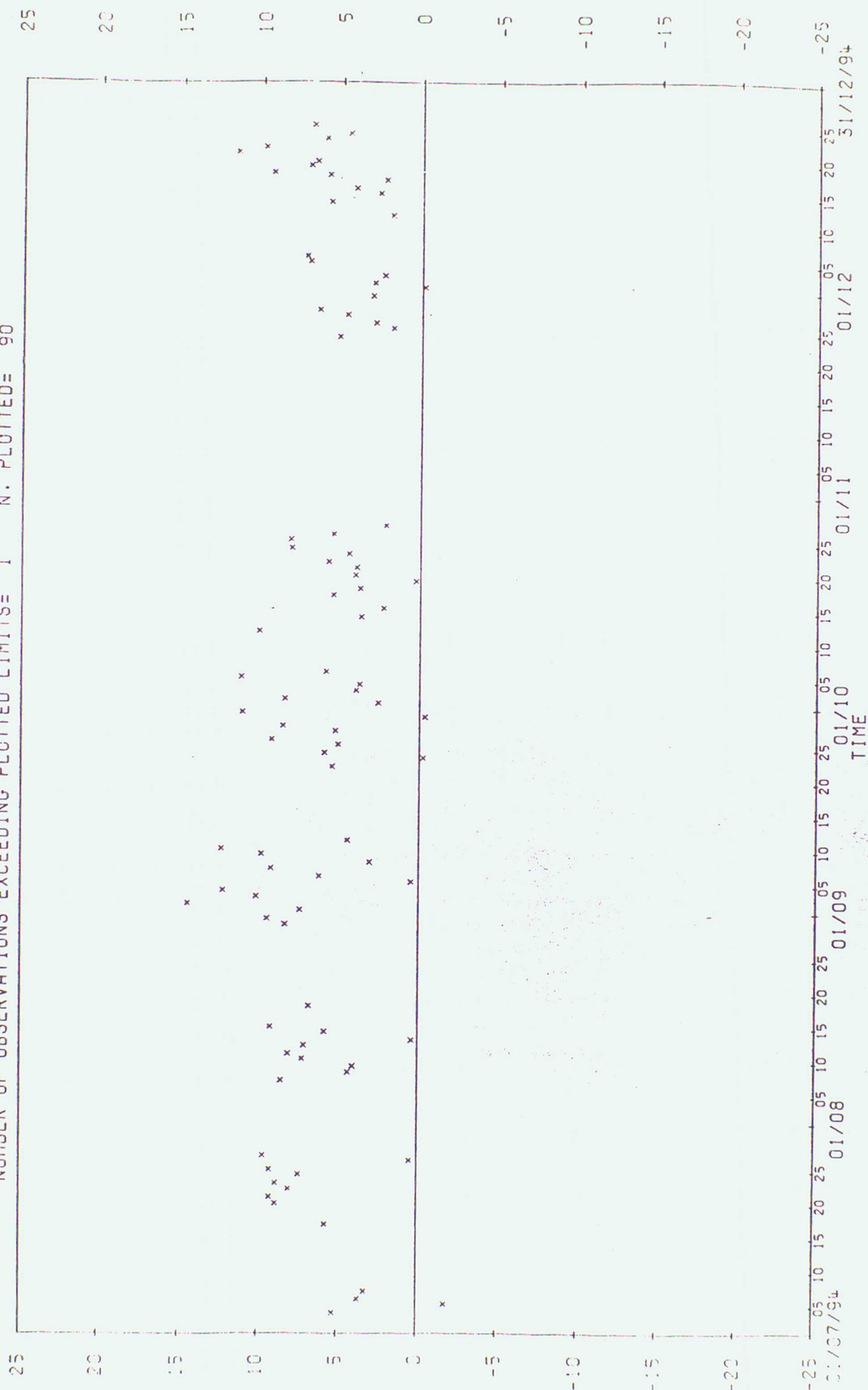
0-B

VARIABLE : WIND SPEED IN UNITS OF MS-1

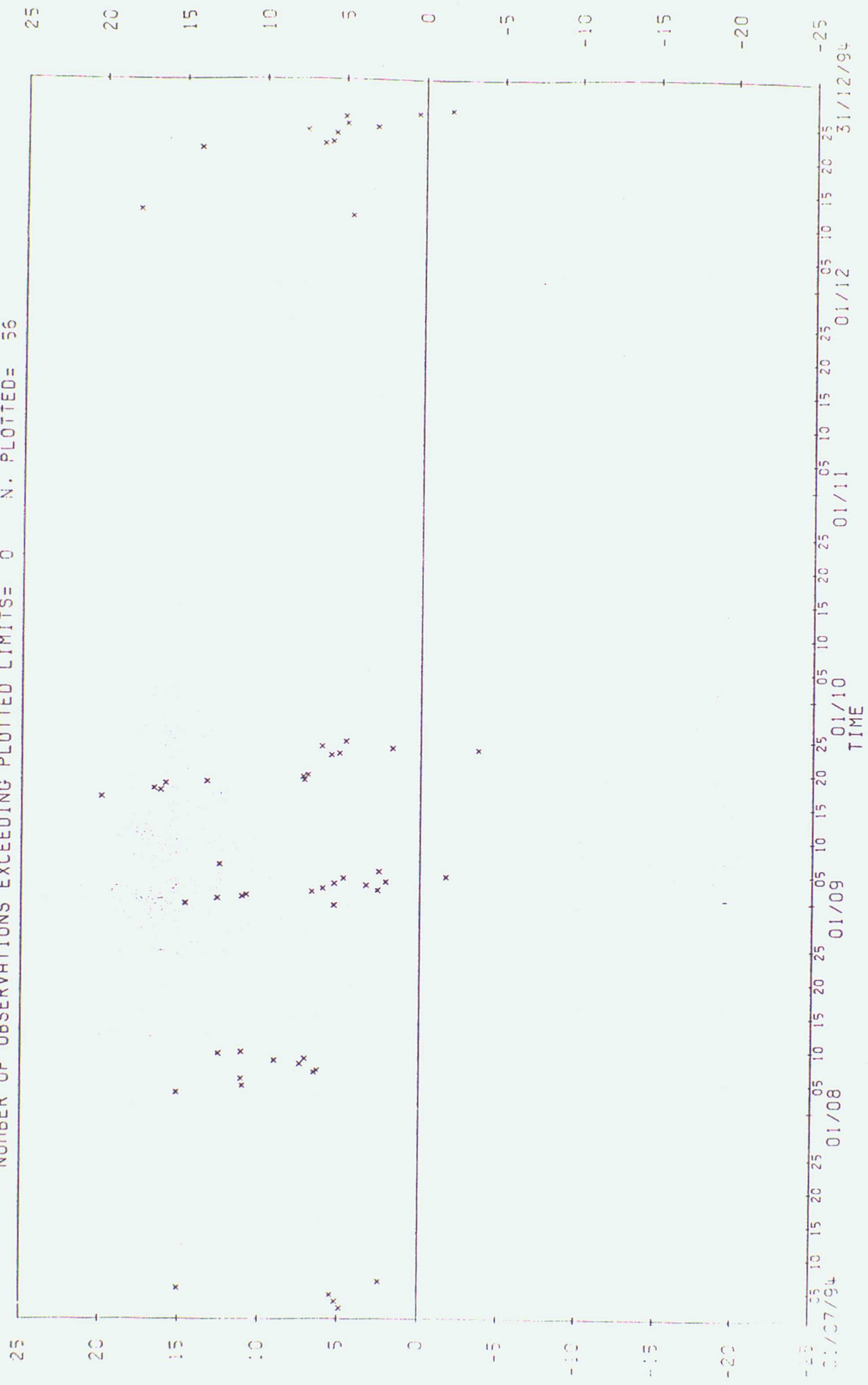
NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 2 N. PLOTTED= 218



C-B
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: XYKM
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 1 N. PLOTTED= 90
 C-B



C-3
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-8) FOR IDENTIFIER: 3EY8
 VARIABLE : WIND SPEED IN UNITS OF MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 56



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

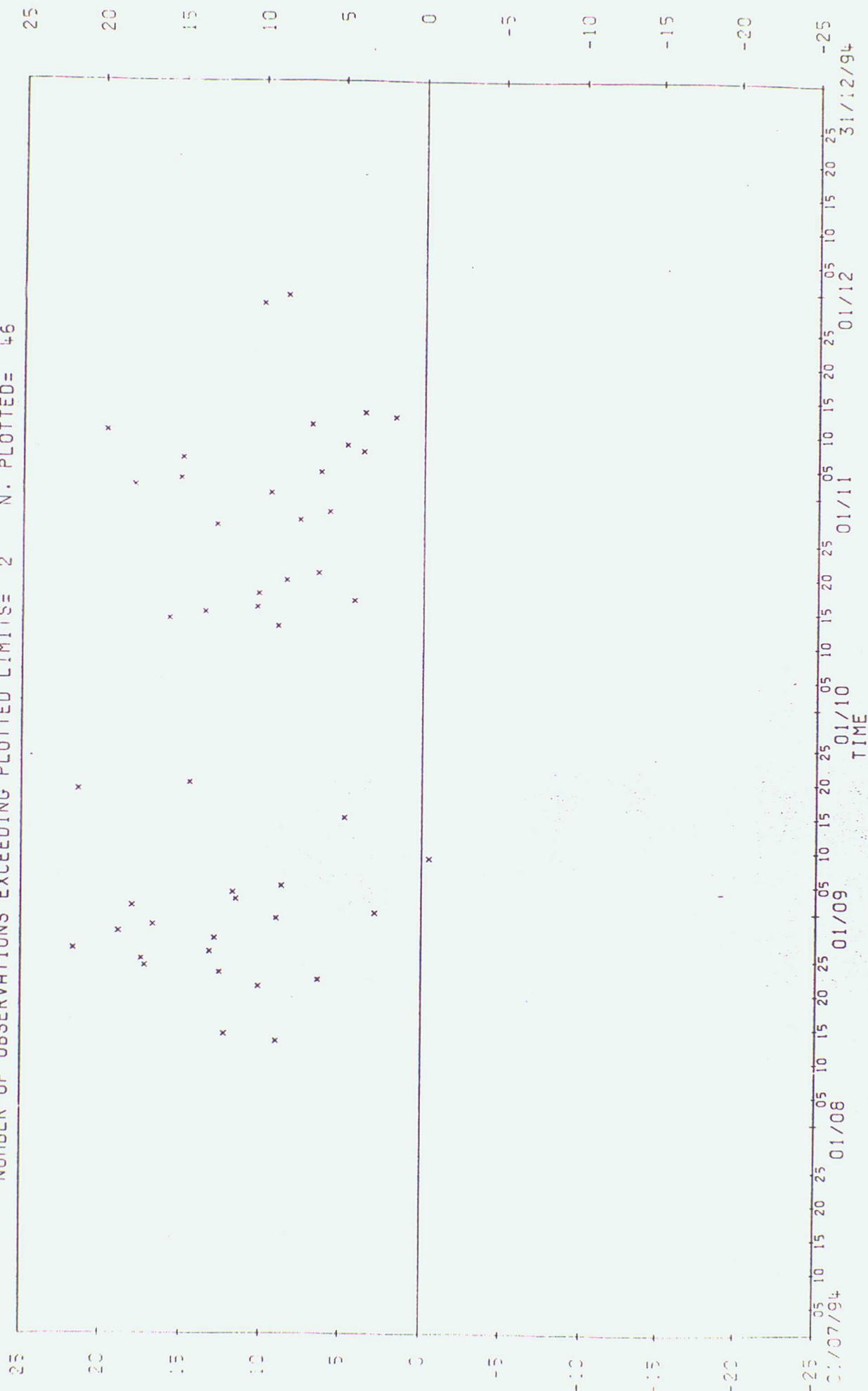
C-B

C-B

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(C-B) FOR IDENTIFIER: 3FOC

VARIABLE : WIND SPEED IN UNITS OF MS-1

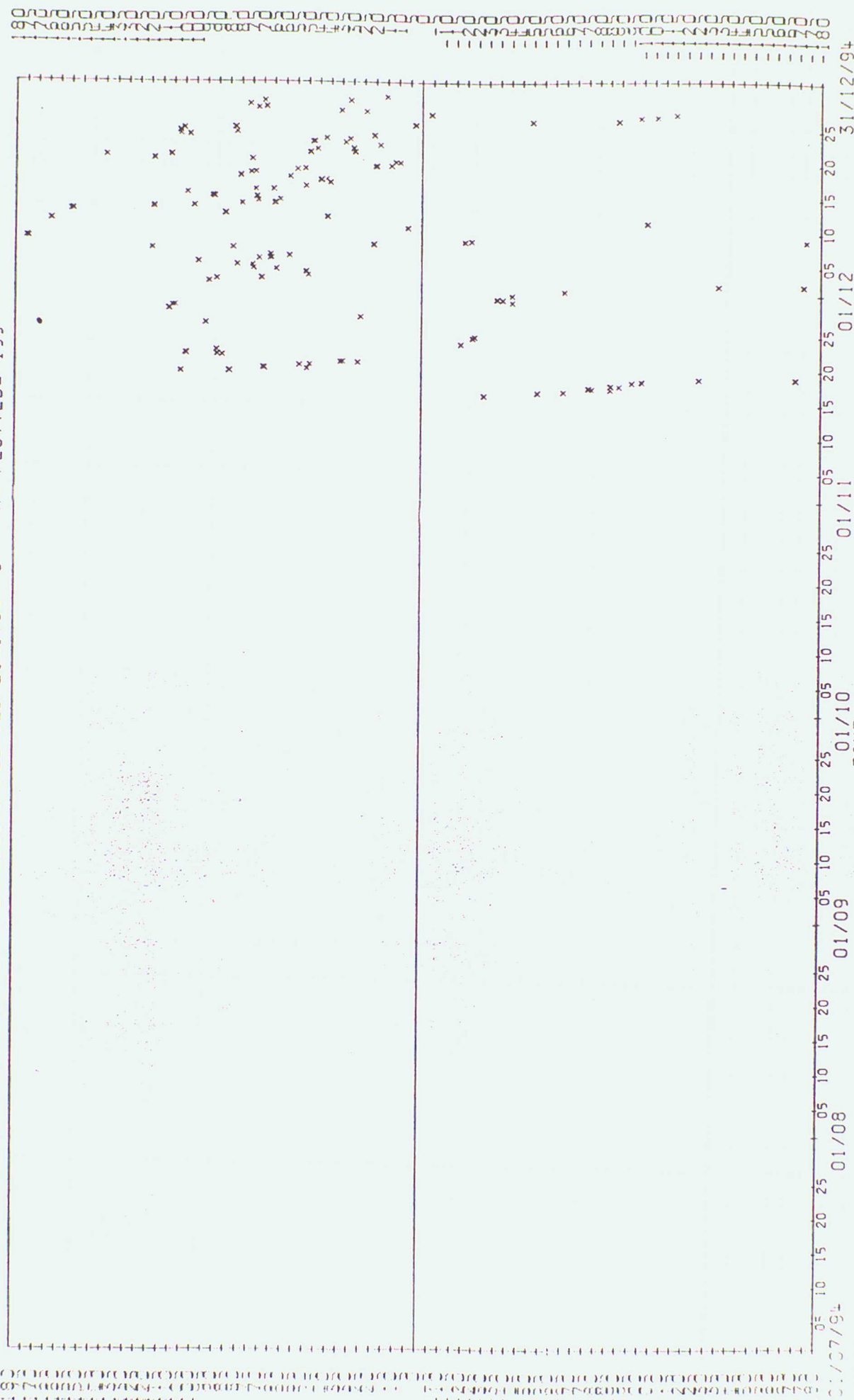
NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 2 N. PLOTTED= 46



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: 21527
 VARIABLE : DIRECTION IN DEG. IF SPEED > 5MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 199

O-B

O-B



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

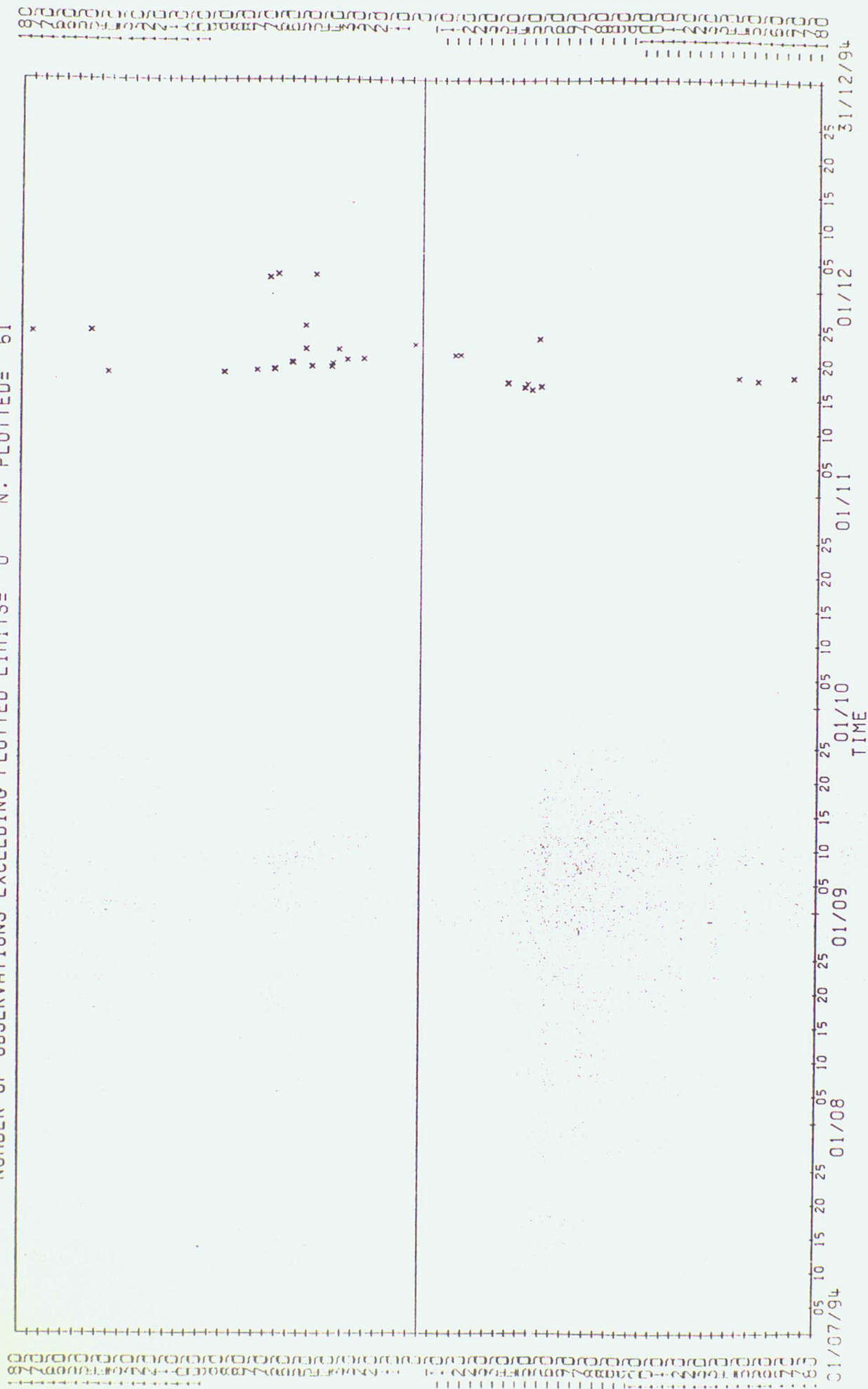
C-B

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: 21577

3-B

VARIABLE : DIRECTION IN DEG. IF SPEED > 5 MS-1

NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 61



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

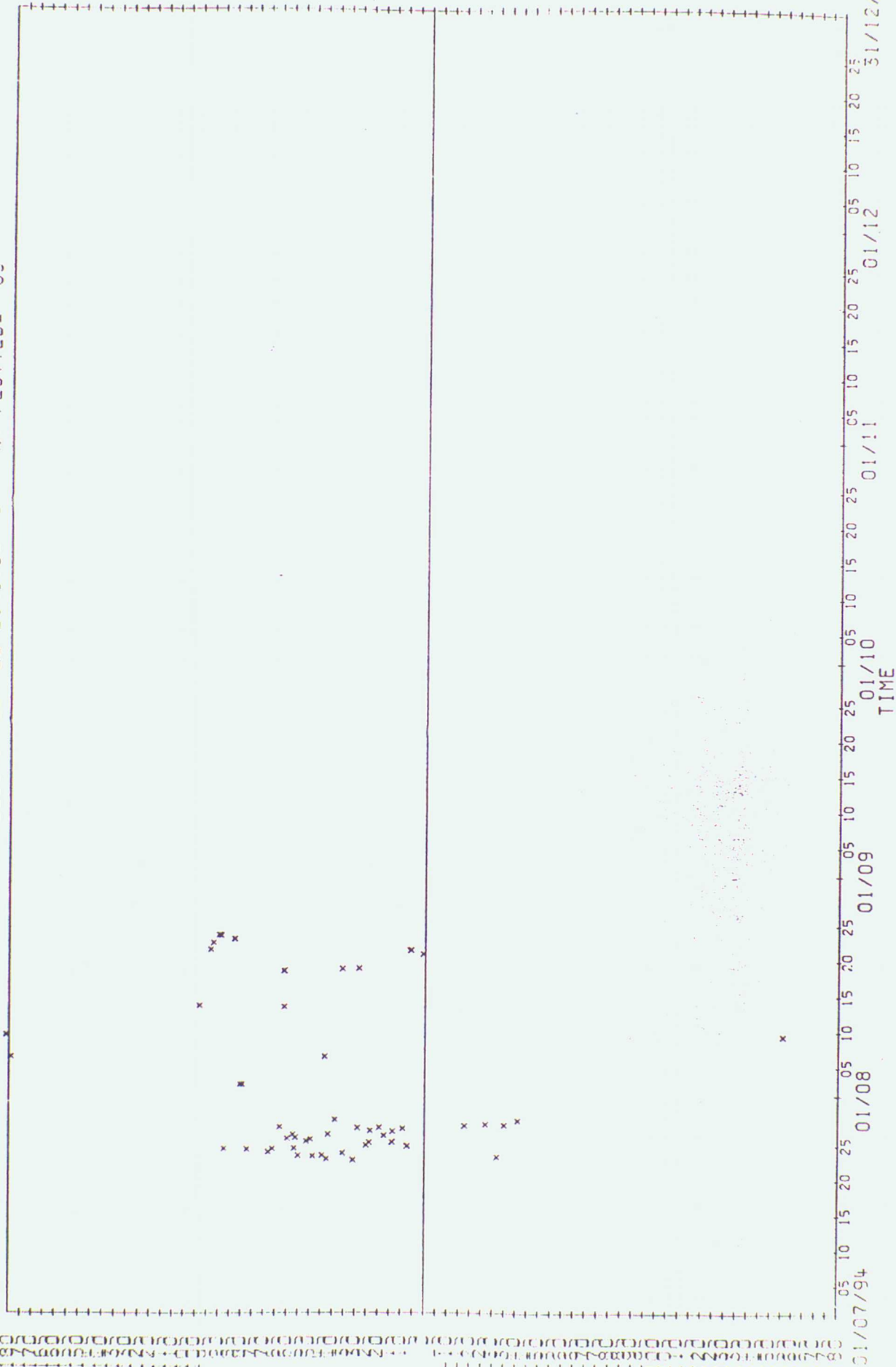
C-B

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(C-B) FOR IDENTIFIER: 52527

0-B

VARIABLE : DIRECTION IN DEG. IF SPEED > 5MS-1

NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 60



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

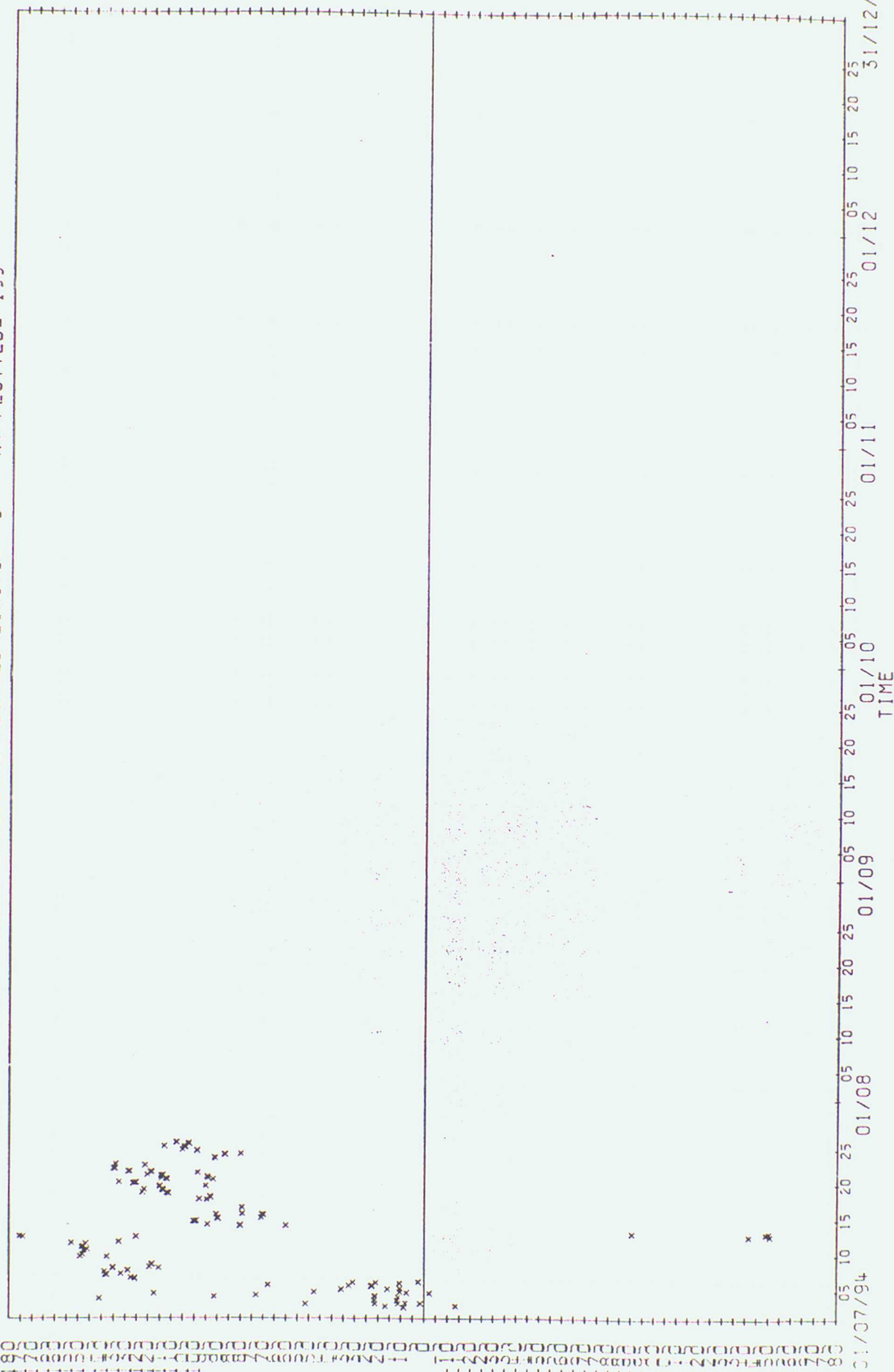
0-B

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: 55580

0-B

VARIABLE : DIRECTION IN DEG. IF SPEED > 5 MS-1

NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 155



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

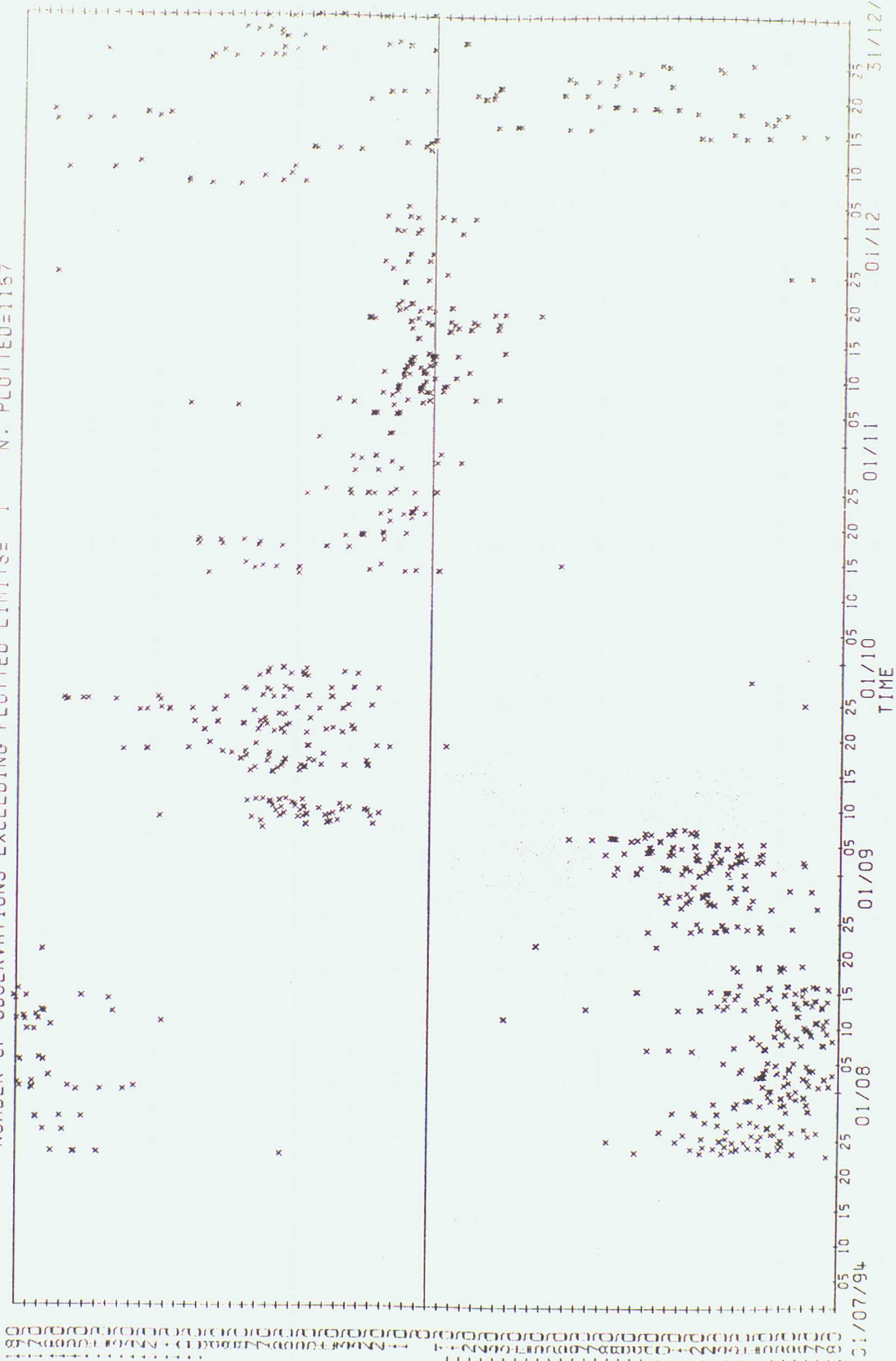
C-B

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(O-B) FOR IDENTIFIER: 64544

C-B

VARIABLE : DIRECTION IN DEG. IF SPEED > 5MS-1

NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 1 N. PLOTTED=1167



BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA

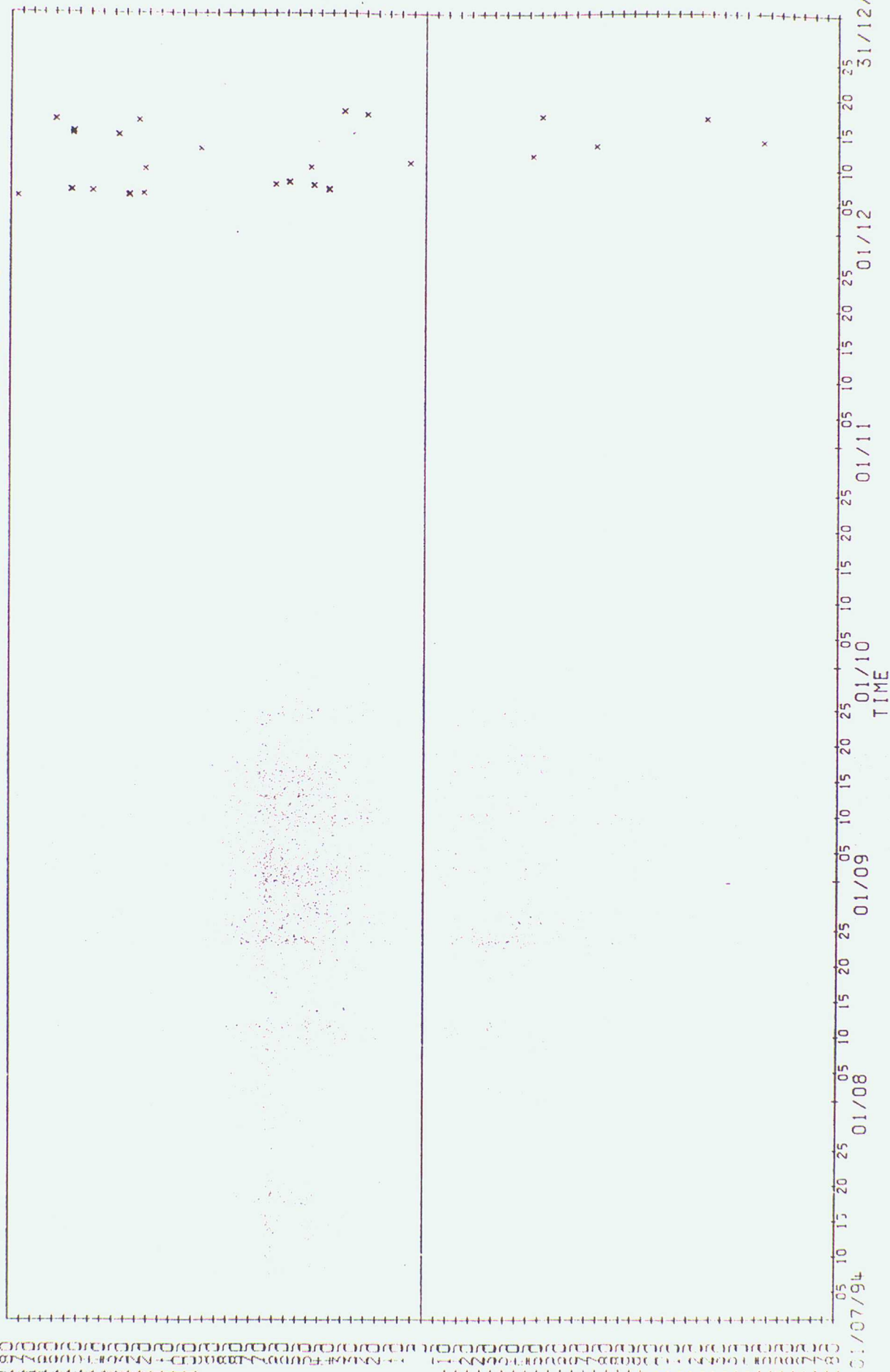
0-B

TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-B) FOR IDENTIFIER: 64545

0-B

VARIABLE : DIRECTION IN DEG. IF SPEED > 5 MS-1

NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 48



0-8
 BRACKNELL MONITORING INFORMATION FOR MARINE SURFACE DATA
 TIME SERIES OF OBSERVATION MINUS BACKGROUND INCREMENTS(0-8) FOR IDENTIFIER: 46006
 VARIABLE : DIRECTION IN DEG. IF SPEED \geq 5MS-1
 NUMBER OF OBSERVATIONS EXCEEDING PLOTTED LIMITS= 0 N. PLOTTED= 495

