Report on the Quality of Marine Surface Observations

Report Number 36

July to December 2006

REPORT ON THE QUALITY OF MARINE SURFACE OBSERVATIONS:

JULY TO DECEMBER 2006

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1.   INTRODUCTION

In 1985, the Commission for Basic Systems (CBS) 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 stations providing seemingly erroneous data. 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. The Met Office was allocated the role as lead centre for marine surface observations which encompass observations from ships, drifting buoys, moored buoys and other fixed marine platforms. This is the thirty-sixth of its reports and covers the period July to December 2006. For each observing platform identified as suspect, values are supplied for the number of observations received at the Met Office, the number of these observations with gross errors, the observations' mean differences from the background values used by the numerical data assimilation system and the standard deviations of these differences.

Following the CBS recommendations, by the end of the 1980s there were four centres active in the monthly exchange of monitoring information; The Met Office, ECMWF, RSMC Tokyo and NCEP. Since then, a number of other centres have also begun to exchange this information and these reports have included data provided by Météo-France as of report number 23. Initially, the only monitoring information exchanged on marine surface observations related to pressure, and the first two WMO reports addressed that parameter alone. Since then, these reports have contained monitoring statistics for wind observations, now being exchanged between centres on a consistent monthly basis. In addition, the report contains monitoring results for sea-surface temperature (SST). Due to changes in the observation processing system and database structure, there was no monitoring of SST data at the Met Office from May 1998 to September 2000. The SST information presented in reports 20 to 23 was therefore compiled, with permission, from the monthly NCEP monitoring data and so is not directly comparable with that presented in other reports. SST monitoring was reinstated at the Met Office from October 2000.

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 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 are possible 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 applicable in 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 core of all monitoring work by GDPS centres. Unlike wind and pressure, SST monitoring at the Met Office used to be performed against the analysis field, this being judged a sufficiently good approximation due to the slowly varying nature of SST, relative to parameters measured above the surface. As of October 2000, background values have been used but with the slowly varying nature of SST used to assume persistence, such that the background is in fact the previous analysis. (These analyses are performed daily at the Met Office from an assimilation of both surface and satellite observations.) Thus the SST monitoring at the Met Office is no longer limited by a dependence upon the observations themselves.

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 often, however, a smaller group of observations departing much more from the background, for which observation error is the only reasonable explanation for the large values of O-B. Studies of the distribution and variation of O-B at different points around the globe enable reasonably accurate estimation of background error, 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 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 model background values. All observations, both synoptic and asynoptic, are assimilated. At the Met Office (as of May 2000) and ECMWF, the background fields are interpolated to the observation time whereas Météo-France, Tokyo and Washington, use the background value valid at the nearest main synoptic hour.

Given that the number of observations made during the month is at least 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 hPa
2. the standard deviation of O-B $\geq$6.0 hPa
3. the percentage of gross errors $\geq$25

Wind

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

Gross errors are defined as observations that depart from the background by more than 15hPa (Pressure) or 25ms^{-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 speeds are less than 5ms^{-1}.

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

The monthly results for pressure from all five 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 that have provided observations of poor quality over the 6-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. Observing platforms are listed only where 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 are not 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 | ≥ 3.5 hPa
2. the standard deviation of O-B ≥ 5.0 hPa
3. the percentage of gross errors ≥ 25

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

SST
1. the | mean of O-B | $\geq 3.0 °C$
2. the standard deviation of O-B $\geq 5.0 °C$
3. the percentage of gross errors ≥ 25

All observations having gross errors are excluded from the calculation of the mean and standard deviation of O-B. The same gross error limits apply in these reports as in the monthly lists. The Met Office now sets a limit of 10°C for SST but this was previously 5°C and NCEP use 15°C. Also, criteria previously used in these reports were based on O-A statistics. Data presented here is, then, not directly comparable with that in earlier reports.

The limits on the bias and standard deviation O-B are more stringent than those for the monthly lists because the sample sizes are larger. If there has been a recent change in quality, they are only applied at the end of the period. Identifiers can be listed in this report without appearing on any of the monthly lists. This is can be due to a representative sample only being obtained over several months or deterioration occurring at the end of the period for platforms reporting very frequently. The 6-month list is longer than most of the monthly lists because many ships cease reporting for variable periods of time, in many cases while they are in port or out of service. Only over a relatively long period, probably more than 6 months, is a representative sample obtained from all those ships providing observations.

3. MONITORING RESULTS

The monitoring results presented in this report relate only 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 BUOY 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 BUOY 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 2006, 3256405 observations of pressure were monitored at Exeter from 2683 manual ships, 630 drifting buoys, and 431 automatic ships. The number of reports received from individual ships varies greatly as Table 1 demonstrates; apparently, a 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 report number 35 shows a further reduction in the number of manual ships reporting pressure, a smaller decrease in automatic ships, and a ~10% increase in the number of drifting buoys. Since most marine observations are located in the northern hemisphere, there is inevitably some seasonal variation in the number of vessels reporting, especially in the case of buoys, since new or replacement buoys are generally deployed in better weather conditions. Considering the general trends over previous reports, however, confirms the move towards fewer manual ships reporting pressure observations, compensated by an increase in automated platforms.

Table 2 shows the number of observations of pressure that have been received over the GTS at the Met Office and processed, over past 6-month periods. Due to changes in data storage methods in May 1991, report number 5 covered the period January to May 1991 only, thence figures for January to June 1991 have been scaled-up in order to make a fair comparison with other 6-month periods; this may not be entirely accurate. Further changes in November 1993 for drifting buoys and automatic ships for pressure and winds, may have allowed duplication of a few identifiers in totals 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.) The period January to June 1998 is also based on only 5 months data (February-June), but the numbers of observations received have been scaled up, as in the 1991 case.

Figure 1 shows the information presented in Table 2 more clearly. It can be seen that the total number of observations remained fairly steady with only minor fluctuations until report number 11 (January-June 1994). Since that time however, there has been a steady increase in the total, with the number of observations of pressure nearly doubling between reports 11 and 16 (July-December 1996), a period of just 2.5 years. This increase was due to the larger number of reports from each drifting buoy, as reliability has improved; many drifting buoys now make several thousand observations of pressure during a 6-month period. The number of reports from drifting buoys now exceeds those for manual ships by around 310 %, with a little over 56 % of all marine pressure observations now being made by drifting buoys. The sudden increase seen in the number of automatic ships in report number 19 (January-June 1998) was due to observation processing changes at the Met Office, whereby all reports from 'automatic ships' are processed, rather than only one report per 6-hour assimilation period, as previously. Since then there has been a steady increasing trend in the total number of pressure reports.

A histogram of O-B differences for all ship pressure reports in the period July to December 2006 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 much larger 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 (Figure 2b). The remaining 93.8 % of the observations, that 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 1.2 hPa. The principal contribution to the standard deviation is assumed to be from background errors.

A global estimate of the background error, such as that provided above, can conceal large spatial variations. 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 most areas, the magnitude of the mean is less than 1.0 hPa, the exceptions being generally where the sample size is small. The standard deviation is generally around 1.5 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 2006. Values over the six-month period are given for the number of observations of pressure available for Met Office global model runs, the number of observations differing from the model background value by more than 15 hPa (gross errors), and the mean and standard deviation of the model O-B. The number of times the identifier has appeared on the monthly suspect lists from the five monitoring centres is also given. In order to give a detailed picture of the frequency of reporting and any changes in the observation accuracy, 6-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; although some values depart greatly from the sample mean, presumably due to some gross error in the observation, these are generally 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 report number 35 (January to June 2006) have been indicated with an asterisk. A comparison of the statistics given here with those in the report number 34 (July to December 2005), clearly indicates that the bias in the pressure observations from a few ships has hardly changed for more than a year.

Statistics for those marine observing platforms listed in report number 35 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 were received in the 6-month period for many of the ships on this list. Approximately 45 % of them, however, do show some improvement in the quality of their observations.

3.2 Wind

Monitoring observations of wind is more problematical than pressure. On most observing platforms, wind is measured using anemometers; the reported speed depends upon the averaging period and instrument height above sea level, which varies a great deal between platforms. Since large structures distort wind flow, the anemometer position relative to the wind bearing and platform structure does affect the measurement. (These factors do not apply to those ship observations where wind speed is based on visual estimates of the sea state e.g. the UK VOF fleet.)

In these monitoring results, the background winds are valid at a height of 10 metres above mean sea level; slightly lower than the average height of ship anemometers. Where anemometer height is much different from 10 metres, a significant O-B speed bias may be evident. Examples of this are, observations from oil rigs or tankers with anemometer heights of 50m or more (although the speeds reported by some rigs are now adjusted on board to be nominal 10m values) and buoys, where the anemometer can be as low as 2m.

In the period July to December 2006, 1500458 wind observations were available for monitoring at Exeter, from 2715 manual ships, 70 drifting buoys, and 483 automatic ships. (More detail is given in Table 1.) The number of reported manual ship identifiers continued to diminish slowly over this period, whereas there were 9 more drifters reporting wind observations and the number of automatic ships was more-or-less steady. As stated for pressure observations, the large increase in the number of monitored wind observations, seen in report number nineteen, was largely due to the inclusion of all 'automatic ship' data, not just one report in each six hour period.

Histograms of O-B differences for ship observations of wind speed are presented in Figures 2d, 2e and 2f and of wind direction in Figures 2g, 2h and 2i. As with observations of pressure, those wind observations that fail the quality-control checks differ most from background, some by as much as 50 ms^{-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 93 % of the observations are nearly Gaussian. There is a speed bias of 1.1 ms^{-1} relative to background, with a direction bias of just -1.0°.

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 that 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 2.5 to 4 ms^{-1} in middle latitudes and 2 to 3 ms^{-1} in the tropics. The bias is generally around +1 ms^{-1}, but exceeds +2 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 data-sparse areas, 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 to compare the O-B characteristics for different marine observing platforms. 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 2006, and in Table 7 a similar list is provided for wind direction. Values are given for the number of observations of wind received at the Met Office, the number of observations having a vector difference from background of more than 25ms^{-1} (gross errors), and the mean and standard deviation of O-B. Time-series of O-B are given at the end of the report for each listed identifier. In the majority of the cases of suspect speed observations, a constant bias is clearly evident. Errors in observations of direction are more random in nature. Tables 6 and 8 contain

statistics for platforms reporting in ship code which are not included in Tables 5 and 7 but that were listed in the previous report, for wind speed and 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 2006, a total of 5895462 observations of SST were monitored at the Met Office, from 2361 manual ships, 1710 drifting buoys and 333 automatic ships. Of the total, 355607 were from manual ships, 4590038 from drifting buoys and 949807 from automatic ships. (More detail is given in Table 1.) For the same reasons as stated for pressure observations, it appears that many identifiers report only once during the six-month period. As is also apparent for pressure and wind observations, the number of manual ships reporting SSTs appears to be dropping slowly, whilst there was also a small reduction during this particular period in drifters, although this is not reflected in the longer term trend. Despite there being a relatively small number of drifting buoys, they contribute a substantial percentage of the total number of SST observations received. This is due to the frequency of buoy observations; hourly in many cases, with ships tending to report only at the main synoptic hours. There was a small decrease (5895462 cf 6293008) in the overall total of SST observations compared to the previous period – more importantly, however, this number appears to confirm the consolidation of the large increase in SST observations that was observed in the previous report.

Histograms of O-B differences for all ship SST reports are shown in Figures 2j, 2k and 2l. As with observations of pressure and wind, those SST observations that fail the quality-control checks differ most from background and make a large contribution to the variance of O-B. The distribution of O-B SST for the remaining 87 % of the observations is nearly Gaussian. There is a bias of 0.1 °C relative to background.

Figures 12 and 13 show the geographical distributions over the three-month period of the mean and standard deviation of O-B for ship observations that pass the quality control checks. The numbers of reports used to generate these statistics are presented in Figure 14. The bias is generally around 0.5°C and the standard deviation 1 to 2°C. Particular exceptions to this tend to show up where the number of observations is relatively low.

Table 9 contains a list of the ships and drifting buoys considered to have produced suspect observations over the 6-month period. The comments given in each case provide an indication of the main reason for the station to be listed as suspect; time-series charts have also been plotted for SST and are included at the end of the report. The majority of the identifiers appearing on the list do so because of bias. Table 10 gives details of the performance over the latest 6-month period of ships which were considered suspect in the previous period but which do not appear in Table 9.

4. SUMMARY

133 marine observing platforms are listed as producing suspect observations of pressure over the period July to December 2006, 123 as producing suspect wind observations and 163 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. With the selection criteria remaining unchanged, an initial reduction in the number of platforms listed as suspect was followed by a series of reports listing similar numbers of suspects, a trend maintained by the statistics in this latest report. When considered alongside the fluctuations in numbers of platforms reporting and observations monitored, this trend does not, it seems, represent decreasing observation quality. Over the same period, there have been increasing numbers of wind observing platforms listed as suspect, although this also appears not to be a worrying trend.

The most common characteristic in the case of identifiers listed as producing suspect pressure observations is bias in the reported pressure, sometimes remaining constant for many months. In the case of wind suspects, the most common reason for listing a platform is a bias in the reported wind speed, while a few show large standard deviations or biases in wind direction. For sea-surface temperature observations, bias is again the most common cause of error.

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

TABLE 1: FREQUENCY DISTRIBUTION OF THE NUMBER OF REPORTS OF PRESSURE, WIND AND SEA SURFACE TEMPERATURE FROM INDIVIDUAL IDENTIFIERS AVAILABLE FOR MONITORING AT EXETER, JULY TO DECEMBER 2006.

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	285	285	245	8	12	7	19	20	5
2-10	289	291	310	4	2	9	11	12	2
11-20	176	169	183	2	0	9	5	6	1
21-40	242	262	261	7	2	5	9	9	1
41-100	560	579	495	20	8	30	24	22	11
101-200	629	632	497	15	1	38	15	19	5
201-500	385	385	259	60	11	137	48	55	17
501-1000	51	51	54	55	8	164	40	50	14
1001-1500	30	31	22	37	5	101	19	31	21
1500+	36	30	35	422	21	1210	241	259	256
Total	2683	2715	2361	630	70	1710	431	483	333
(Report 35)	(2798)	(2844)	(2464)	(567)	(61)	(1746)	(441)	(485)	(337)

* numbers are for automatic (fixed) buoys only

TABLE 2: NUMBER OF OBSERVATIONS OF PRESSURE RECEIVED AT EXETER ON THE GTS FOR EACH OF THE SIX-MONTH PERIODS COVERED BY THE WMO REPORTS ON THE QUALITY OF MARINE OBSERVATIONS.

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
Jan - Jun 1995	13	369781	407111	124537	901429
Jul - Dec 1995	14	394016	528938	138653	1061607
Jan - Jun 1996	15	430162	566035	122909	1119106
Jul - Dec 1996	16	477928	621869	133221	1233018
Jan - Jun 1997	17	446530	623835	122178	1192543
Jul - Dec 1997	18	453399	684292	140227	1277918
Jan - Jun 1998	19	426622	700743	423217	1550582
Jul - Dec 1998	20	443548	700239	497313	1641100
Jan - Jun 1999	21	432506	697983	466311	1596800
Jul - Dec 1999	22	448996	771624	500070	1720690
Jan - Jun 2000	23	443023	772510	455799	1671332
Jul - Dec 2000	24	477828	829588	512338	1819754
Jan - Jun 2001	25	458345	784686	465887	1708918
Jul - Dec 2001	26	473887	914744	554002	1942633
Jan - Jun 2002	27	443876	1111699	517200	2072775
Jul - Dec 2002	28	544433	952313	595959	2092705
Jan - Jun 2003	29	432672	994877	506185	1933734
Jul - Dec 2003	30	473591	1128039	605241	2206871
Jan - Jun 2004	31	435824	1092461	596495	2124780
Jul - Dec 2004	32	434160	1113527	724014	2271701
Jan - Jun 2005	33	471113	1221528	717207	2409848
Jul - Dec 2005	34	472565	1523938	837397	2833900
Jan - Jun 2006	35	456847	1758276	792765	3007888
Jul - Dec 2006	36	447474	1833376	975555	3256405

TABLE 3: **LIST OF MARINE OBSERVING PLATFORMS REPORTING SUSPECT PRESSURE OBSERVATIONS OVER THE PERIOD JULY TO DECEMBER 2006.**

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.
Columns   6-10   Number of times observing platform has appeared on suspect lists. B=Exeter, E=ECMWF, F=MétéoFrance, T=Tokyo, W=Washington.
Column   11   Comments on quality of pressure observations.

Notes: 1.   Units are hPa.
2.   Observing platforms marked with an asterisk were listed in the previous report January to June 2006)

Table 3a: Platforms reporting in BUOY code

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

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
15964	1237	71	2.2	-0.2	0	0	0	0	0	SD and GE at end of report
16517	2476	8	1.2	-0.4	0	0	0	0	0	Bias at end of report
16557	2968	15	2.0	0.2	0	0	0	0	0	Bias and SD at end of report
16558	4109	37	2.3	-0.6	1	1	0	1	0	Bias and SD at end of report
16563	2979	131	2.8	-0.1	0	0	0	0	0	Bias and GE at end of report
17523	4166	5	2.5	-0.4	1	1	1	1	0	Bias and SD at end of report
21528	8462	314	1.4	1.0	2	2	1	0	1	GE from October
21924	2142	0	1.9	0.6	0	0	0	0	0	Bias and SD at end of report
21959	1715	1	1.5	1.2	0	0	0	0	0	Bias
23592	471	0	0.8	-3.7	0	1	1	2	0	Bias
23593	567	0	3.3	-1.1	0	0	0	0	0	Bias
23594	2509	0	2.7	-6.7	6	4	6	5	5	Bias
23596	91	0	0.7	-4.0	0	0	1	1	1	Bias
23982	488	488	---	---	1	1	1	0	0	GE
25522	72	63	6.5	-4.2	1	1	1	0	1	Bias, SD and GE

25574	86	53	5.8	3.3	3	2	2	0	0	SD and GE
33596	729	0	3.5	0.0	0	0	0	0	0	Bias and SD
33598	2401	3	1.7	-1.0	0	0	0	0	0	Bias at end of report
33661	132	22	4.7	5.3	1	0	1	1	1	Bias
41552	1486	19	2.6	-7.4	3	3	0	2	3	Bias
41671	240	2	3.1	-5.3	1	1	0	0	1	Bias
41938	2696	1	2.3	1.0	0	0	0	0	0	Bias at end of report
41940	1827	0	0.8	0.3	0	0	0	0	0	Bias at end of report
43574	927	63	1.5	-0.2	0	0	0	0	0	SD and GE at end of report
44615	3708	21	0.7	-0.6	0	0	0	0	0	GE at end of report
44722	3134	2	1.1	-0.4	0	0	0	0	0	Bias and SD at end of report
44747	1847	0	0.9	-0.3	0	0	0	0	0	Bias at end of report
44760	688	10	1.1	0.1	0	0	0	0	0	GE at end of report
44768	3263	0	1.0	-0.3	0	0	0	0	0	SD at end of report
44774	3452	45	0.7	-0.1	0	0	0	0	0	Bias and GE at end of report
46516	1135	0	2.3	1.8	1	1	1	1	1	Bias at end of report
46588	104	0	2.7	2.3	0	0	0	0	0	Bias at end of report
48521	16661	294	1.3	0.0	0	0	0	0	0	SD towards end of period
48624	1286	23	1.6	-0.3	0	0	0	0	0	GE at end of report
48625	5372	1113	1.8	-0.1	2	2	2	2	1	GE from November
51965	1635	0	3.6	-0.1	0	0	0	0	0	SD
52535	9496	26	1.4	1.5	0	0	0	0	0	Bias and SD
52643	10277	232	1.2	1.1	1	1	1	0	0	Bias and SD at end of report
52649	138	49	0.8	0.4	1	1	1	0	0	GE at end of report
54926	871	34	3.6	-0.1	0	1	0	0	0	Bias and GE at end of report
55626	4448	54	2.0	-0.6	0	0	0	0	0	Bias and GE
55936	3638	0	1.3	-0.3	0	0	0	0	0	Bias at end of report
56503	46	40	0.4	-14.1	1	1	0	0	1	Bias and GE
56535	3624	11	0.5	-0.2	0	0	0	0	0	GE at end of report
56543	45	39	0.4	-13.8	1	1	0	0	1	Bias and GE
56548	45	39	0.4	-14.1	1	1	0	0	1	Bias and GE
56550	46	40	0.4	-14.2	1	1	0	0	1	Bias and GE
65581	1537	72	0.8	0.3	0	0	0	0	0	Bias and GE at end of period
68992	1688	0	1.3	-5.0	2	0	1	0	0	Bias
71575	250	113	5.3	-6.2	1	1	1	1	1	Bias and SD
71578	258	37	4.0	-6.8	1	0	1	1	1	Bias
71636	914	460	7.0	-5.7	2	2	2	2	2	Bias, SD and GE
73650	1223	58	2.3	-0.6	0	0	0	0	0	Bias and GE at end of report
74533	47	41	0.4	-13.8	1	1	0	0	1	Bias and GE
74541	65	52	1.9	-11.0	1	1	1	0	1	Bias and GE

| 74543 | 2754 | 347 | 4.8 | -0.6 | 1 | 1 | 0 | 1 | 1 | Bias and GE |

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

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
21914	3337	8	2.8	2.0	1	1	1	1	0	Bias
23913	456	7	2.2	-1.5	0	0	0	0	0	SD at end of period
46517	3499	26	2.6	2.0	1	1	1	1	0	Bias and SD
46589	3201	6	2.3	1.2	0	0	0	0	0	Bias
51656	2108	0	1.4	0.8	0	0	0	0	0	Bias from November
54933	4449	763	5.6	-1.6	3	3	3	3	3	Bias and SD
63529	10993	0	1.9	-0.8	0	0	0	0	0	Bias from September
74544	4564	700	6.7	-2.2	5	5	4	5	3	Bias and SD

Table 3b: Platforms reporting in SHIP code

Identifier		N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
AUBD		43	0	1.1	5.9	1	0	1	0	0	Bias
AUBE		44	1	1.4	11.5	0	0	0	0	0	Bias
AUFI		78	0	1.9	4.1	1	1	0	0	3	Bias
A8DE3		137	1	1.8	-2.8	1	2	2	0	1	Bias from November
A8GU7		301	1	1.5	3.1	1	0	1	1	1	Bias towards end of period
A8HJ4		63	0	1.2	4.2	1	1	2	0	1	Bias
CGDS	*	466	14	4.0	-3.9	1	1	0	1	0	Bias
CYBJ		43	2	5.8	0.8	0	0	0	0	0	SD
C6FM8		66	0	1.6	3.5	0	0	0	0	0	Bias
C6FV3		107	0	1.0	4.4	2	0	1	0	1	Bias
C6FZ6	*	152	0	1.2	8.2	4	4	4	4	4	Bias
C6LG6		73	0	1.8	-5.8	2	0	2	0	2	Bias
C6LU4	*	132	3	5.8	4.8	2	2	2	2	2	Bias from August
C6PZ3	*	146	0	2.1	6.9	5	0	5	2	5	Bias
DDSK		45	0	3.1	4.2	0	0	0	0	0	Bias
DEDM		122	1	2.4	2.4	1	0	1	1	0	Bias from October
DLCX	*	76	0	1.8	4.3	2	0	2	0	2	Bias
D5XH	*	58	0	2.0	-4.1	0	0	0	0	0	Bias
HPYE		62	0	0.6	-3.4	0	0	0	0	0	Bias
KMJL	*	62	0	0.8	-3.5	0	0	0	0	0	Bias
KS049	*	1294	0	0.8	-3.9	2	0	4	6	0	Bias
MINFR04		1646	15	1.6	-0.5	0	0	0	0	0	SD at end of report
MLTH5		48	0	2.7	-4.9	1	1	1	0	0	Bias
OSTF		115	27	1.1	-13.5	1	1	1	1	1	Bias and GE
OWWS2	*	47	0	1.6	5.4	0	1	1	1	1	Bias

PBJF		301	10	2.3	2.8	1 0 1 1 0	Bias
PGCY		44	0	1.2	3.7	0 1 1 0 1	Bias
P3NL5		123	0	1.9	3.4	1 0 1 1 2	Bias
SWJC		46	0	4.3	-3.8	1 0 1 0 1	Bias
TEST	*	223	221	0.6	0.3	1 1 1 0 0	GE
TESTCA5	*	589	0	0.6	-11.0	3 0 0 0 0	Bias
TESTCA7		510	0	0.6	-11.4	3 0 0 0 0	Bias
TESTFR		66	66	---	---	1 0 0 0 0	GE
UAMX		91	3	5.9	0.5	1 1 0 1 1	SD
UANF		56	0	0.6	5.6	3 1 2 1 2	Bias
UCFT		217	2	2.0	-3.0	1 0 1 0 1	Bias
UCJL	*	111	0	2.5	-4.2	1 2 2 2 2	Bias
UCKA		91	3	3.0	3.9	0 0 0 0 0	Bias
UCUO	*	129	9	6.0	-1.4	1 1 0 1 1	Bias and SD
UCUQ	*	102	7	6.1	6.0	2 0 2 2 2	Bias and SD
UDYN		137	0	4.0	-1.3	1 0 1 0 0	Bias at end of report
UFJN		116	2	1.9	-3.1	0 0 0 0 0	Bias
UGNQ	*	354	0	3.6	-2.2	3 0 2 1 2	Bias
UGOU	*	212	1	2.7	-3.3	3 2 3 1 2	Bias
UICO		185	13	3.5	-0.1	1 0 1 1 0	SD
UIFL		54	9	3.2	-7.4	0 0 0 0 0	Bias
UIFV		58	0	2.4	4.5	0 0 1 0 0	Bias
VRZK9		95	1	2.7	3.0	1 0 0 0 1	Bias
VTXK		242	1	2.8	3.9	1 0 2 1 1	Bias at end of period
VVMA		47	10	7.4	-0.6	0 1 1 0 1	SD
V2AW5	*	94	0	6.2	4.5	3 0 2 0 2	Bias and SD
V2BN9		158	2	1.1	-5.8	3 0 4 0 3	Bias
V2IA1		187	1	2.0	1.4	0 1 1 0 1	Bias from November
V2OB8	*	121	0	1.8	2.3	1 0 1 0 0	Bias from December
V7BX3		133	0	1.7	3.1	1 0 1 0 2	Bias
V7FN7		50	1	3.9	-3.8	1 0 0 0 1	Bias
V7FW7		138	2	2.3	2.8	1 1 1 0 0	Bias
WCY7052		127	0	1.9	2.2	0 0 0 0 0	Bias
WDB9918	*	177	0	1.5	-4.9	5 0 2 1 6	Bias
WDB9986	*	108	3	2.5	7.5	2 0 1 3 4	Bias
WMLG	*	118	0	5.6	3.6	1 0 0 1 2	Bias from October
WRTF		54	0	1.5	-4.4	1 0 1 1 0	Bias
YJZJ5		87	0	1.4	4.2	2 0 2 0 1	Bias
ZCDJ5		64	0	1.1	-4.6	0 1 1 1 0	Bias
41037		997	0	3.1	-1.4	1 0 1 1 1	Bias

| 46072 | 2702 | 0 | 1.0 | -0.2 | 0 | 0 | 0 | 0 | 0 | Bias at end of report |
| 62147 | 333 | 0 | 3.2 | -1.6 | 1 | 0 | 1 | 1 | 0 | Bias from November |

TABLE 4: **LIST OF PLATFORMS REPORTING IN SHIP CODE NOT APPEARING IN TABLE 3 BUT LISTED AS SUSPECT OVER THE PERIOD JANUARY TO JUNE 2006.**

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

Identifier	N Obs.	NGE	SD	Bias	Comments
A8AS5	0	---	---	---	No reports
A8EU2	238	0	1.7	0.8	Bias reduced
A8FZ5	108	1	1.8	-1.5	Bias reduced
A8FZ6	128	0	3.2	0.9	Bias reduced
A8IX5	178	0	2.3	-0.5	Bias reduced
CYLX	19	1	6.9	5.0	Less than 40 reports
C6FE5	228	0	2.7	2.9	Bias reduced
C6FU9	19	1	0.7	-0.7	Less than 40 reports
C6NL6	0	---	---	---	No reports
C6QD3	96	5	2.7	1.6	** Add a comment here **
C6QK	328	0	2.8	3.1	Bias reduced
DBJM	4198	1	0.5	0.2	Bias reduced
DDPH	291	0	2.0	1.5	Bias reduced
DGGE	110	0	0.7	3.1	Bias reduced
DGRF	120	0	2.2	2.3	Bias reduced
DHSI	238	1	2.1	1.2	Bias reduced
DMRX	173	0	2.0	1.1	Bias reduced
ELTY4	13	0	1.0	-5.8	Less than 40 reports
ELVF4	117	0	1.8	3.2	Bias reduced
ELVX9	0	---	---	---	No reports
ELWX5	1511	1	1.4	-0.3	Bias and SD reduced
FKJB	199	0	0.6	-0.3	Bias and GE reduced
KF003	31	0	2.2	-8.9	Less than 40 reports
LAOX5	39	0	1.3	3.6	Less than 40 reports
LAVX5	0	---	---	---	No reports

LAYG5	118	0	2.2	-1.8	Bias reduced
LDGJ	3750	2	1.7	-0.1	Bias and SD reduced
LJIT	2614	0	0.9	0.3	Bias reduced
OWAY2	202	0	1.7	0.0	Bias reduced
OWTW2	126	0	3.0	1.9	Bias reduced
OZWA2	46	0	2.9	-1.2	Bias reduced
PBGH	681	1	1.6	-2.5	Bias reduced
PCEX	138	0	1.4	0.2	Bias reduced
S6JS	279	2	4.2	-3.3	Bias reduced
TESTFR1	0	---	---	---	No reports
UBAW	108	1	1.1	-1.2	Bias reduced
UBXD	0	---	---	---	No reports
UBXS	0	---	---	---	No reports
UCTK	175	0	1.6	-2.2	Bias reduced
UCUF	244	0	2.7	-2.2	SD and GE reduced
UITJ	103	1	2.2	0.8	SD reduced
UITP	4	0	1.9	7.3	Less than 40 reports
VRBH5	54	0	2.3	2.9	Bias reduced
VRBI3	69	0	1.9	-0.1	Bias reduced
VTXL	38	0	2.1	-0.4	Less than 40 reports
VVCZ	13	0	0.9	7.6	Less than 40 reports
VVGG	29	0	1.1	3.0	Less than 40 reports
VVJN	0	---	---	---	No reports
V2GR	44	0	1.5	2.1	GE reduced
V7IX7	29	0	2.0	5.7	Less than 40 reports
WAQ3521	0	---	---	---	No reports
21945	0	---	---	---	No reports
21955	0	---	---	---	No reports
23948	0	---	---	---	No reports
3EES2	201	0	2.6	0.2	Bias reduced
3FHJ6	0	---	---	---	No reports
31551	0	---	---	---	No reports
41502	0	---	---	---	No reports
41647	0	---	---	---	No reports
41927	0	---	---	---	No reports
42014	2606	0	0.4	0.1	Bias and GE reduced
42362	5043	0	1.8	0.8	Bias reduced
42522	0	---	---	---	No reports
42570	0	---	---	---	No reports
43515	0	---	---	---	No reports

44636	0	---	---	---	No reports
44746	0	---	---	---	No reports
44832	0	---	---	---	No reports
46071	4245	0	1.4	0.1	Bias and SD reduced
46635	0	---	---	---	No reports
52530	0	---	---	---	No reports
52534	0	---	---	---	No reports
53525	0	---	---	---	No reports
62504	0	---	---	---	No reports
62570	0	---	---	---	No reports
71543	0	---	---	---	No reports
71545	0	---	---	---	No reports
7850	4	0	1.9	7.3	Less than 40 reports

TABLE 5: LIST OF MARINE OBSERVING PLATFORMS REPORTING SUSPECT WIND SPEED OBSERVATIONS OVER THE PERIOD JULY TO DECEMBER 2006.

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	6-10	Number of times observing platform has appeared on suspect lists. B=Exeter, E=ECMWF, F=MétéoFrance, T=Tokyo, W=Washington.
Column	11	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 2006)

Table 5a: Platforms reporting in BUOY code

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

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
13973	363	0	3.6	-2.0	0	0	0	0	0	Bias at end of report
15952	781	0	3.2	-3.8	1	1	0	0	0	Bias at end of report
21523	656	1	4.0	-0.9	0	0	0	0	0	Bias and SD at end of report
26501	55	27	3.5	16.8	2	0	0	0	0	Bias and GE
41525	3299	1	2.0	-3.0	0	0	0	0	0	Bias
41643	3374	2	3.4	0.2	1	2	0	0	0	Bias at end of report

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

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments

Table 5b: Platforms reporting in SHIP code

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
A8CF9	136	10	6.3	5.9	2	3	2	2	2	Bias and SD
A8IH7 *	75	5	5.2	12.2	0	1	1	0	1	Bias
A8IN7	344	0	5.1	3.3	0	0	0	2	0	SD
A8KD7	47	0	3.5	4.5	0	0	0	0	0	Bias
BATFR03	2552	1	3.4	3.8	0	0	0	3	0	Bias
CGBR	985	0	2.9	-0.4	0	0	0	0	0	Bias at end of period
C6KD9	247	2	4.1	0.5	0	0	0	0	0	Bias and SD at end of period
DARU	110	1	3.4	3.6	0	0	0	0	0	Bias
DBBI	2084	0	2.4	-1.2	0	0	1	0	0	Bias at end of period
ELOV9	121	0	4.4	1.0	1	0	1	0	0	SD at end of report
ELXG9	123	0	4.5	4.2	1	1	1	0	0	Bias at end of report
FNNB	600	8	3.6	1.6	1	0	1	0	0	Bias and SD at end of period
H3VU	179	1	3.5	2.8	0	0	0	0	0	Bias at end of period
KRGB	3531	20	3.8	1.8	0	0	0	0	0	Bias and SD at end of period
LDGJ *	3750	11	2.3	0.7	0	0	0	0	0	Bias at end of report
LMXQ	66	0	6.0	9.3	0	0	0	0	1	Bias and SD
MDTE9	60	0	5.2	0.8	0	0	0	0	0	SD
MFLQ4	88	0	5.1	3.2	0	0	0	1	0	Bias at end of period
OWFU2 *	369	16	6.6	6.7	5	2	4	0	3	Bias and SD
OXRA6	480	1	2.6	3.4	2	0	0	0	0	Bias at end of report
OZWP2 *	368	21	5.1	3.6	1	2	2	2	0	Bias and SD
PBHU	242	3	4.3	3.0	1	1	1	1	0	Bias and SD at end of report
SCKM	146	1	4.0	4.4	2	2	0	3	0	Bias
SHJC	208	2	4.1	3.7	0	0	0	0	0	Bias
UASQ	401	0	2.8	2.7	0	0	0	0	0	Bias from December
UIAG *	119	0	3.8	-4.5	1	1	1	0	1	Bias
VEP717 *	1317	0	3.3	4.0	2	0	0	0	1	Bias
VROB	1260	43	3.3	1.3	2	1	1	1	0	GE at end of period
VTXK	243	8	6.0	7.4	3	3	3	4	2	Bias and SD
V2BN9	157	1	4.0	3.0	0	0	0	0	0	Bias
V2OU9	121	0	6.1	3.7	0	0	0	0	0	Bias and SD
WDA5598	72	0	3.3	4.5	0	0	0	0	0	Bias
WDA9217	56	0	4.8	5.0	0	0	0	0	0	Bias at end of report
WFLH	401	1	3.3	2.0	0	0	0	0	0	Bias
WQZ7791	381	1	3.4	3.6	0	0	0	0	0	Bias

WQZ9670		190	0	4.0	4.8	1	0	1	0	2	Bias
WYL4908		49	0	4.4	4.9	0	0	0	0	0	Bias
ZCBP5		66	2	5.5	0.9	0	0	0	0	0	SD
4XGU		116	0	3.5	3.5	1	0	0	1	0	Bias at end of report
41001		1803	22	1.6	-0.6	0	0	0	0	0	GE at end of report
42014		3715	0	2.4	-1.6	0	0	0	1	0	Bias
42022		3700	0	1.9	-1.0	0	0	0	0	0	Bias
42023		2809	0	2.2	-1.6	0	0	0	0	0	Bias at end of period
42362		15742	66	2.4	1.7	0	0	0	0	0	Bias
46015		3006	1	1.9	0.3	0	0	0	0	0	Bias and SD at end of period
46054	*	2957	0	2.6	3.5	0	0	0	1	0	Bias
46081		4231	0	2.7	2.3	0	0	0	0	0	Bias
46087		6935	0	2.2	1.9	0	0	0	0	0	Bias
46088	*	6996	0	3.2	3.4	0	0	0	0	0	Bias
46131	*	4239	0	2.9	3.4	0	0	0	0	0	Bias
46146	*	4292	0	2.5	3.4	0	0	0	0	0	Bias
46181	*	4302	0	2.9	2.7	0	1	0	0	0	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 2006.**

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}

Identifier	N Obs.	NGE	SD	Bias	Comments
A8DV4	12	0	1.9	0.4	Less than 40 reports
BATFR01	649	0	3.0	1.4	Bias reduced
CFN3031	1119	0	3.4	-1.4	SD reduced
DBJM	4095	0	1.8	0.7	Bias reduced
ELNT7	0	---	---	---	No reports
ELXT8	87	0	3.0	2.0	Bias reduced
FNJI	502	0	2.5	0.6	Bias reduced
HP6038	1357	0	3.0	3.3	Bias reduced
LAJV4	134	5	4.2	1.6	Bias and SD reduced
PBAD	140	0	2.9	3.2	Bias reduced
PJTA	0	---	---	---	No reports
UCUF	233	0	3.0	2.0	Bias reduced
UCUO	129	0	2.9	0.4	Bias and SD reduced
VNVR	1221	0	2.2	0.7	Bias reduced
VRYO9	75	0	2.8	-0.5	Bias reduced
VVCZ	13	0	2.4	2.5	Less than 40 reports
V2OO4	25	1	3.5	1.0	Less than 40 reports
V7IA5	57	0	6.4	4.3	Bias and SD reduced
WBN2074	30	0	3.7	5.3	Less than 40 reports
WDA2311	0	---	---	---	No reports
WYL5718	50	0	3.5	2.4	Bias reduced
ZCDF8	185	0	2.8	2.7	Bias reduced
23097	565	0	3.6	-2.7	Bias reduced
3FMV3	125	0	2.9	2.6	Bias and SD reduced
41933	0	---	---	---	No reports

41941	0	---	---	---	No reports
62052	2941	1	1.5	-0.2	Bias reduced
62092	3403	0	1.4	-0.3	Bias reduced
63113	3450	0	1.4	-0.2	Bias reduced
9HGR8	0	---	---	---	No reports
9MCD3	146	1	3.1	2.0	Bias and SD reduced

TABLE 7: LIST OF MARINE OBSERVING PLATFORMS PRODUCING SUSPECT WIND DIRECTION OBSERVATIONS OVER THE PERIOD JULY TO DECEMBER 2006 .

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   6-10   Number of times observing platform has appeared on suspect lists. B=Exeter, E=ECMWF, F=MétéoFrance, T=Tokyo, W=Washington.
Column   11   Comments on quality of wind direction observations.

Notes: 1.   Units are degrees (°).
         2.   Observing platforms marked § had a significant speed bias at some time within the period and the statistics and their plots refer to direction reports associated with background wind speeds greater than 5 ms^{-1}. If no significant speed bias was present, the statistics and plots refer to direction reports with an observed speed greater than 5 ms^{-1}.
         3.   Observing platforms marked with an asterisk were listed in the previous report (January to June 2006)

Table 7a: Platforms reporting in BUOY code

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

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
13973 §	220	0	31.4	43.5	1	1	1	0	0	Bias
13975	1608	0	28.0	37.1	3	3	3	0	0	Bias

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

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments

Table 7b: Platforms reporting in SHIP code

Identifier		N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
A8CK7		56	3	61.9	-0.2	0	0	0	0	1	SD
A8IP9	§	74	4	78.3	21.8	0	1	1	0	0	SD
A8JC8	*	285	1	68.9	-17.9	0	0	0	0	0	Bias and SD
A8JG4		98	0	66.0	-14.7	0	0	0	0	1	SD
C6KU8		73	1	61.9	10.0	0	0	0	0	0	SD
C6NR5		129	0	74.9	1.5	0	1	0	0	3	SD
C6SS3	*§	281	0	59.3	-10.8	0	0	0	0	3	SD
ELOV9	*	121	0	58.0	8.0	0	0	0	0	1	SD
ELTS6		321	0	68.2	-12.6	0	0	0	0	0	Bias and SD
ELTY2		289	0	51.9	-30.1	0	0	0	0	1	Bias
ELWS3		115	0	69.9	11.3	0	0	0	0	1	SD
FH8698		150	0	39.4	-31.0	0	0	0	0	1	Bias
GBSN		70	0	64.6	-6.0	0	0	0	0	0	SD
GQVS	*	103	4	62.1	4.5	1	1	1	0	1	SD
HZZB	*	125	0	55.6	4.4	0	0	0	0	1	SD
H3VT	*	128	0	56.2	-24.0	0	0	0	0	2	Bias and SD
J7AV7		248	0	60.8	10.1	0	0	0	0	1	SD
KLHZ		101	0	48.1	32.5	0	0	0	0	0	Bias
LAJV4	*	132	4	68.4	-8.1	1	0	1	0	1	SD
LDGJ	*	3685	11	64.3	3.4	2	2	2	2	2	Bias and SD
MFLQ4	§	86	0	65.5	-30.9	0	0	0	0	0	Bias and SD
OVZV2	*	144	4	61.5	-19.2	0	1	1	0	0	Bias and SD
PCHS	*	120	2	56.2	-4.3	0	0	0	0	1	SD
PGCU		105	1	73.4	-18.9	0	0	0	0	1	SD
SWLC		81	3	102.3	-5.6	0	0	1	0	1	SD

S6JT	§	179	1	73.9	-13.3	1	0	0	0	2	SD
UCAE		92	1	61.1	-5.5	0	0	0	0	1	SD
UCFT	*	218	0	51.6	3.7	0	0	0	0	0	SD
UCTS		160	0	45.9	53.5	0	0	0	1	2	Bias
UERK		93	0	68.0	9.2	0	0	0	0	1	SD
UFEQ		129	0	65.1	18.5	0	0	0	0	2	Bias and SD
UIAG	§	59	0	82.2	-16.2	0	0	0	0	1	SD
UIAI		224	4	66.9	1.0	0	0	0	0	1	SD
VCLM	*	275	0	52.2	-2.5	0	0	0	0	0	SD
VNNM		234	1	65.0	0.1	0	1	0	0	1	SD
VRWQ2		68	1	70.6	4.9	0	0	0	0	0	SD
VRY09	*	130	0	82.6	-23.3	1	1	1	1	0	SD
VSJG7		107	2	62.3	-8.2	0	0	0	0	2	SD
V2AD6		268	0	60.2	-46.3	0	0	0	0	2	Bias and SD
V3ZB2	*	68	0	82.7	-14.9	0	1	1	0	1	SD
WAM7635		163	0	64.5	-3.5	0	0	0	0	1	SD
WBP3396	§	227	0	66.5	11.4	0	0	0	0	1	SD
WBVY		90	0	42.7	35.8	0	0	0	0	2	Bias
WCY2920		93	0	41.0	-30.5	0	0	0	0	0	Bias
WCY6777		117	0	63.0	-18.3	0	0	0	0	1	SD
WCZ6534		72	1	76.3	-5.5	0	0	0	0	3	SD
WCZ7336	*	68	0	52.6	-50.4	0	0	0	0	1	Bias
WDB7918		80	0	68.9	1.9	0	0	0	0	1	SD
WUR7250		89	0	63.5	23.1	0	0	0	0	3	SD
ZCBD3		161	0	67.8	-12.7	0	0	0	0	2	SD
ZCBD4		72	0	69.5	-17.4	0	0	0	0	0	SD
ZCDJ5		65	1	63.9	-8.5	0	0	0	0	0	SD
0NDB		103	3	64.6	-7.6	0	0	0	0	0	SD
23168		45	0	29.5	-79.3	1	1	1	0	1	Bias
23174	*	597	0	117.8	17.1	3	3	3	3	3	Bias and SD
3FXK4		192	2	61.1	-19.0	0	0	0	1	1	Bias and SD
41027	*	661	0	37.7	-8.9	0	0	1	0	2	Bias at end of report
44040	*	9647	0	39.3	14.9	0	0	1	0	1	Bias and SD
45140	*	2639	0	39.9	49.9	0	4	4	4	4	Bias
45144	*	1932	0	36.6	59.9	0	3	3	3	3	Bias
45158		1586	0	48.0	32.4	0	0	0	0	1	Bias and SD
46078		114	0	26.8	-39.4	1	0	1	0	1	Bias
46081	*§	4148	0	47.0	-37.7	0	1	3	6	6	Bias and SD
5WDC		103	1	72.1	-26.3	0	0	0	0	1	Bias and SD
52086		374	0	118.6	43.7	2	0	2	2	2	Bias and SD

6ZXG	*	224	0	54.4	-60.9	0	0	0	0	1	Bias and SD

TABLE 8: LIST OF PLATFORMS REPORTING IN SHIP CODE NOT APPEARING IN TABLE 7 BUT LISTED AS SUSPECT OVER THE PERIOD JANUARY TO JUNE 2006.

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 (°)

Identifier	N Obs.	NGE	SD	Bias	Comments
A8AX3	176	0	46.2	-5.8	SD reduced
A8CD2	89	0	34.4	9.0	SD reduced
A8FN8	52	0	21.1	-2.7	SD reduced
A8GQ8	47	0	42.3	8.1	SD reduced
CFN3031	1117	0	32.3	-8.7	Bias and SD reduced
CGBR	952	0	40.4	-0.2	Bias reduced
CGTF	955	0	38.1	-9.5	Bias and SD reduced
C6LP4	0	---	---	---	No reports
C6QY4	100	0	50.4	1.4	SD reduced
DGZN	13	0	12.4	-7.8	Less than 40 reports
ELVG7	10	0	29.7	-5.2	Less than 40 reports
ELXT8	87	0	50.3	4.8	SD reduced
KCDK	6	0	21.3	-12.0	Less than 40 reports
KF002	64	0	54.7	-5.9	SD reduced
LAYG5	117	0	47.3	8.0	Bias and SD reduced
PGDP	73	0	41.5	2.0	SD reduced
PJTA	0	---	---	---	No reports
SYAQ	198	0	36.5	-2.4	Bias and SD reduced
TOUR	0	---	---	---	No reports
UDDE	20	0	64.3	-4.8	Less than 40 reports

UDYG	66	1	28.4	8.7	Bias reduced
VQEN3	27	0	64.6	-1.5	Less than 40 reports
VRBH5	53	0	44.8	6.3	SD reduced
VRBI2	104	0	47.6	-7.7	SD reduced
V2AZ5	27	0	27.6	8.6	Less than 40 reports
V7CG7	263	0	43.7	-1.6	SD reduced
V7IA5	57	0	70.1	2.4	Bias and SD reduced
WCZ7337	109	0	57.6	-17.0	Bias reduced
WDC7227	0	---	---	---	No reports
WYL5445	45	0	58.1	-32.6	SD reduced
ZCBU6	110	1	55.6	-3.0	SD reduced
ZIZP9	211	0	50.8	-11.1	SD reduced
23099	0	---	---	---	No reports
9HGR8	0	---	---	---	No reports

TABLE 9: LIST OF MARINE OBSERVING PLATFORMS REPORTING SUSPECT SEA SURFACE TEMPERATURE OBSERVATIONS OVER THE PERIOD JULY TO DECEMBER 2006.

Column	1	Call sign or identifier.
Column	2	Number of sea-surface temperature observations available for monitoring over the six-month period, excluding duplicates, but including any observations with gross errors.
Column	3	Number of sea surface temperature observations differing by more than 10 °C 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 excluding cases of gross error.
Columns	6-10	Number of times observing platform has appeared on suspect lists. B=Exeter, E=ECMWF, F=MétéoFrance, T=Tokyo, W=Washington.
Column	11	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 2006)

Table 9a: Platforms reporting in BUOY code

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

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
13979	60	0	1.5	-5.0	1	-	1	-	0	Bias
14901	4104	0	1.7	1.0	1	-	1	-	0	Bias
14919	131	0	1.7	-3.9	1	-	0	-	0	Bias
15620	2111	166	2.4	1.0	0	-	1	-	1	Bias at end of report
15628	2208	4	0.8	0.1	0	-	0	-	0	Bias at end of report
15636	1956	44	1.6	-0.3	1	-	0	-	0	Bias and GE at end of report
16528	366	0	3.7	4.5	2	-	1	-	1	Bias
17662	4256	0	0.6	0.0	0	-	0	-	0	Bias at end of report
21546	191	5	1.3	1.8	0	-	0	-	0	Bias
21547	408	0	1.2	2.6	0	-	1	-	0	Bias
21912	2064	17	1.5	0.0	0	-	0	-	0	Bias at end of report
22531	1342	0	1.6	-0.4	0	-	0	-	0	Bias and SD at end of report
22583	3990	15	1.3	0.2	0	-	0	-	0	Bias at end of report
22596	1766	0	1.4	0.0	0	-	0	-	0	Bias at end of report
22625	107	0	1.4	-6.1	3	-	2	-	1	Bias

22627	153	0	1.2	-1.3	0	-	0	-	0	Bias
22641	57	0	2.6	-2.9	1	-	0	-	1	Bias
22648	773	50	1.3	0.5	1	-	1	-	1	Bias and GE at end of report
23914	1741	0	0.8	-0.1	0	-	0	-	0	Bias at end of report
32521	1109	0	0.9	4.4	3	-	2	-	1	Bias
32526	889	13	0.3	0.2	0	-	0	-	0	GE at end of period
32674	218	18	2.4	-1.4	0	-	0	-	0	Bias
33647	1853	1	2.1	0.3	0	-	0	-	0	Bias at end of report
33683	4634	1	1.3	-0.1	0	-	0	-	0	Bias
33957	4027	3	1.7	-0.5	0	-	0	-	1	Bias
41567	4349	0	1.2	-0.1	0	-	0	-	0	Bias at end of report
41613	326	0	1.6	2.9	1	-	0	-	0	Bias at end of period
41620	4041	9	1.2	0.6	0	-	0	-	0	Bias
41626	1127	0	1.4	1.8	0	-	0	-	0	Bias
41924	799	0	1.3	0.4	0	-	0	-	0	Bias
41945	2819	37	1.2	0.1	0	-	0	-	0	Bias and GE at end of report
42557	742	15	2.7	-3.1	2	-	0	-	0	Bias
43517	181	85	3.6	1.2	1	-	1	-	1	GE at end of report
43524	62	2	3.4	2.4	0	-	0	-	0	Bias
44615	3533	0	0.7	-0.1	0	-	0	-	0	Bias at end of report
44742	3765	5	0.9	-0.3	0	-	0	-	0	Bias at end of report
44760	684	30	0.8	0.7	2	-	1	-	1	GE at end of report
44766	3888	3	1.2	-0.7	0	-	0	-	0	Bias
44831	733	5	1.4	0.9	0	-	0	-	0	Bias at end of report
44842	327	4	1.9	3.9	1	-	0	-	0	Bias
51537	335	0	2.0	-0.7	0	-	0	-	0	Bias at end of report
51614	1868	1	1.4	-0.6	0	-	0	-	0	Bias at end of report
51658	1890	23	0.6	-0.1	0	-	0	-	0	GE at end of report
51762	3110	0	1.4	-0.6	0	-	0	-	0	Bias
51820	886	0	1.3	-0.1	0	-	0	-	0	Bias at end of report
51899	1512	23	1.2	0.0	0	-	0	-	0	Bias and GE at end of report
51961	145	10	3.0	-4.0	3	-	2	-	0	Bias
53523	1789	2	1.5	-0.2	0	-	0	-	0	Bias at end of report
53565	759	5	2.9	-0.8	1	-	0	-	0	Bias and SD at end of report
53905	3879	0	0.7	-0.1	0	-	0	-	0	Bias at end of report
54855	565	0	2.5	-0.9	0	-	0	-	0	Bias at end of report
55609	1579	19	2.1	-0.4	0	-	0	-	0	Bias at end of report
55924	583	10	2.5	-1.3	0	-	0	-	0	Bias at end of report
56536	713	3	2.7	-1.2	0	-	0	-	0	Bias at end of report
56549	1803	0	0.7	3.1	2	-	0	-	0	Bias

61687	405	0	1.2	1.3	0	-	0	-	0	Bias
61817	886	0	0.9	2.8	0	-	0	-	0	Bias
61835	940	74	1.7	0.0	0	-	0	-	0	Bias and SD at end of report
61874	108	0	2.5	-1.1	1	-	0	-	0	Bias at end of period
62507	1034	0	1.5	0.6	0	-	0	-	0	Bias at end of report
62572	3670	45	1.3	0.7	0	-	0	-	0	Bias at end of report
64614	2757	11	0.6	0.2	0	-	0	-	0	GE at end of report
64615	251	54	1.9	7.3	1	-	1	-	1	Bias
64617	4031	0	1.8	0.6	1	-	0	-	0	Bias from November
64930	981	0	1.6	0.3	0	-	0	-	0	Bias at end of period
71624	4415	16	1.3	-0.2	0	-	0	-	0	Bias and SD at end of report
71644	2024	0	2.7	-0.6	0	-	1	-	1	Bias
73650	1606	109	0.3	-0.1	0	-	0	-	1	GE at end of report

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
14556	4866	0	1.4	0.7	0	-	0	-	0	Bias
17560	4149	0	1.0	0.4	0	-	0	-	0	Bias at end of period
23913	341	59	0.7	-0.3	0	-	0	-	0	GE at end of period
32548	2286	0	2.1	0.1	0	-	0	-	0	Bias
33655	1832	0	2.0	0.4	0	-	0	-	0	Bias
41595	497	74	4.2	-2.1	1	-	0	-	0	Bias and GE at end of period
41685	4880	0	0.5	-3.7	6	-	2	-	0	Bias
41969	3838	0	1.3	0.4	0	-	0	-	0	Bias at end of period
43508	4113	0	1.1	0.5	0	-	0	-	0	Bias at end of period
44622	1816	1	2.3	-0.8	0	-	0	-	0	Bias
51535	3948	0	0.9	-0.2	0	-	0	-	0	Bias at end of period
51652	3382	1	1.1	0.0	0	-	0	-	0	Bias at end of period
54916	4035	0	0.9	0.4	0	-	0	-	0	Bias at end of period
61689	429	36	5.1	-1.8	3	-	0	-	0	Bias and SD
61872	1212	0	1.0	-0.1	0	-	0	-	0	Bias at end of period
62935	3891	3	0.7	0.2	0	-	0	-	0	Bias at end of period

Table9b: Platforms reporting in SHIP code

Identifier	N Obs.	NGE	SD	Bias	B	E	F	T	W	Comments
A8HE9	48	0	2.2	4.9	0	-	0	-	0	Bias
A8IH6	75	16	1.9	0.4	0	-	0	-	0	GE
CGTF	136	104	2.2	7.9	3	-	2	-	2	Bias and GE
CG2522	71	41	2.5	7.0	1	-	1	-	1	Bias and GE
C6IO9	156	0	2.8	-3.6	2	-	3	-	1	Bias
C6UG4	231	0	1.7	-3.2	2	-	5	-	1	Bias
C6UG8	48	2	2.6	-4.1	0	-	0	-	0	Bias
DCCM2	405	1	1.2	-3.8	4	-	5	-	3	Bias
DGCT	73	0	2.9	3.0	1	-	0	-	0	Bias
DHSI	207	1	1.4	-3.9	4	-	5	-	3	Bias
DIGW	125	0	1.0	-3.5	4	-	3	-	1	Bias
DNDD	164	0	0.9	2.9	2	-	2	-	0	Bias
ELZW9	67	0	0.7	3.1	1	-	0	-	0	Bias
KNBD	172	34	2.6	-0.1	1	-	2	-	1	GE
KS008	1007	0	1.4	0.2	0	-	1	-	1	Bias at end of report
KS044	65	0	1.3	-2.8	2	-	0	-	0	Bias
KS049	1110	16	2.6	-3.2	4	-	3	-	0	Bias
LADR4	64	0	1.5	3.6	0	-	0	-	0	Bias
LMXQ	65	62	0.0	0.0	1	-	0	-	1	GE
OSTF	101	101	---	---	0	-	0	-	1	GE
OWEB2	168	0	0.7	-3.0	1	-	3	-	0	Bias
PGDO	123	0	0.5	-2.8	0	-	1	-	0	Bias
P3BA7	83	6	3.0	-4.7	1	-	1	-	1	Bias
P3BP9	72	2	3.5	4.0	3	-	2	-	2	Bias
P3ZY6 *	137	0	1.6	4.6	4	-	4	-	0	Bias
SIWB *	177	0	1.2	2.7	1	-	1	-	0	Bias
SWJC	60	60	---	---	1	-	0	-	1	GE
S6EJ6	52	1	2.7	-2.5	0	-	0	-	0	Bias
S6EJ7	130	1	2.7	-2.1	0	-	1	-	0	Bias
S6IW *	160	0	3.5	-3.1	4	-	2	-	2	Bias
TEST *	221	219	0.3	-1.0	1	-	0	-	0	GE
UAMX	52	30	5.7	1.9	0	-	1	-	2	SD and GE
UCCZ	52	22	4.5	1.2	2	-	1	-	1	GE
UCFT *	106	0	1.9	-2.8	1	-	1	-	1	Bias
UEFE	43	12	2.6	-6.2	0	-	1	-	1	Bias and GE

UHQP		95	22	3.7	-3.3	2 - 1 - 1	Bias
UIAI		202	0	1.5	1.8	0 - 0 - 0	Bias
UIFV		65	4	3.3	-2.1	1 - 1 - 0	Bias
VJIK		69	49	5.4	0.4	0 - 1 - 0	Bias, SD and GE
VRBH8		59	1	2.7	-2.3	1 - 0 - 0	Bias
V2AC6		90	3	0.7	3.1	1 - 0 - 0	Bias
V2AW5		86	4	2.8	-3.0	1 - 0 - 0	Bias
V7BW8		353	1	1.1	-3.6	2 - 4 - 2	Bias
V7DN3		175	3	1.2	-3.2	2 - 3 - 0	Bias
V7IP9	*	235	0	4.4	-0.3	1 - 1 - 0	Bias at end of period
WAAH	*	388	0	1.3	3.1	5 - 3 - 0	Bias
WCY2306	*	502	0	2.3	-0.7	1 - 5 - 2	Bias from November
WCZ5528	*	103	0	2.0	-2.4	2 - 1 - 1	Bias
WDB9135		97	0	1.7	-3.4	1 - 1 - 0	Bias
WMLH	*	121	0	1.6	2.7	1 - 0 - 0	Bias
WSRH	*	109	0	1.4	-4.3	4 - 2 - 5	Bias
WZJD	*	195	1	1.1	-4.2	6 - 5 - 5	Bias
XP421		48	0	1.0	-3.8	0 - 0 - 1	Bias
23167		321	0	2.5	0.5	0 - 0 - 0	Bias at end of report
3EWS5		122	0	2.7	1.7	1 - 1 - 1	Bias
3FDN9		307	2	2.2	2.7	1 - 1 - 1	Bias from October
41025	*	4068	0	2.1	0.5	0 - 0 - 0	Bias
41035	*	8059	0	1.8	-1.3	2 - 0 - 0	Bias
41112		8029	0	1.6	-1.1	1 - 0 - 0	Bias
42007	*	4044	0	1.9	-0.9	1 - 0 - 1	Bias from October
42013		2368	58	1.0	-0.6	0 - 0 - 0	GE at end of period
44004	*	3779	0	1.3	0.1	0 - 0 - 0	Bias
44014	*	4013	0	1.3	-0.9	1 - 0 - 0	Bias
44137		2684	0	1.1	-1.0	0 - 0 - 0	Bias
44140	*	3704	0	2.7	-1.7	2 - 0 - 2	Bias
44141	*	3390	9	1.5	-0.9	0 - 0 - 1	Bias
45139	*	3320	0	1.6	-1.9	0 - 3 - 1	Bias
45141		439	439	---	---	3 - 2 - 2	GE
45144	*	1878	1613	0.7	7.8	3 - 0 - 3	Bias and GE
45145	*	2338	1491	2.4	5.6	4 - 1 - 4	Bias and GE
45150		1257	1174	2.5	4.9	3 - 2 - 2	Bias and GE
45158	*	1484	112	2.6	2.4	3 - 1 - 1	Bias
46029	*	3253	0	0.7	-3.3	3 - 1 - 1	Bias
46063		2291	0	1.0	-2.0	0 - 0 - 0	Bias
8POF		99	1	1.3	3.4	1 - 1 - 0	Bias

9MCR3	117	1	2.0	-3.8	3 - 3 - 1	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 2006.

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 10 °C from the 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 excluding cases of gross error.
Column	6	Comments on quality of sea surface temperature observations.

Notes: 1. Units are °C

Identifier	N Obs.	NGE	SD	Bias	Comments
SBFC	79	0	1.2	-0.2	Bias reduced
S6PI	0	---	---	---	No reports
UCBM	149	0	3.0	0.7	Bias reduced
UCDM	16	1	2.9	-3.7	Less than 40 reports
UCEF	95	3	2.8	0.3	Bias reduced
UHCO	0	---	---	---	No reports
UICO	164	1	1.3	0.0	Bias reduced
VLTT	127	2	1.3	-0.6	GE reduced
VROB	143	21	1.8	-0.3	GE reduced
V2EX	143	0	1.6	-1.4	Bias reduced
V2007	11	0	1.4	0.8	Less than 40 reports
V7GX5	29	0	2.1	-0.7	Less than 40 reports
WQZ9670	34	0	1.9	-1.4	Less than 40 reports
WTEA	0	---	---	---	No reports
WXQ4511	30	0	3.5	2.4	Less than 40 reports
Y3CH	3412	0	1.5	0.6	Bias reduced
13526	0	---	---	---	No reports
13617	0	---	---	---	No reports
14559	0	---	---	---	No reports
14913	0	---	---	---	No reports

15510	0	---	---	---	No reports
15652	0	---	---	---	No reports
16513	0	---	---	---	No reports
17511	0	---	---	---	No reports
21542	0	---	---	---	No reports
21549	0	---	---	---	No reports
21550	0	---	---	---	No reports
21945	0	---	---	---	No reports
22530	0	---	---	---	No reports
22591	0	---	---	---	No reports
22599	0	---	---	---	No reports
22618	0	---	---	---	No reports
22624	0	---	---	---	No reports
22638	0	---	---	---	No reports
22646	0	---	---	---	No reports
22647	0	---	---	---	No reports
22649	0	---	---	---	No reports
22651	0	---	---	---	No reports
22913	0	---	---	---	No reports
22916	0	---	---	---	No reports
22918	0	---	---	---	No reports
22924	0	---	---	---	No reports
22927	0	---	---	---	No reports
22932	0	---	---	---	No reports
3FRR5	286	15	1.9	1.3	Bias reduced
31551	0	---	---	---	No reports
32620	0	---	---	---	No reports
32668	0	---	---	---	No reports
32671	0	---	---	---	No reports
32675	0	---	---	---	No reports
32708	0	---	---	---	No reports
32823	0	---	---	---	No reports
32868	0	---	---	---	No reports
33584	0	---	---	---	No reports
33587	0	---	---	---	No reports
34544	0	---	---	---	No reports
41502	0	---	---	---	No reports
41553	0	---	---	---	No reports
41560	0	---	---	---	No reports
41623	0	---	---	---	No reports

41649	0	---	---	---	No reports
41650	0	---	---	---	No reports
41919	0	---	---	---	No reports
41928	0	---	---	---	No reports
41930	0	---	---	---	No reports
42522	0	---	---	---	No reports
42570	0	---	---	---	No reports
43526	0	---	---	---	No reports
43531	0	---	---	---	No reports
44008	4065	0	1.5	-1.2	Bias reduced
44018	3918	0	1.9	-1.1	Bias reduced
44034	3910	0	1.4	-1.0	Bias reduced
44142	0	---	---	---	No reports
44150	4030	0	0.9	-0.3	Bias reduced
44636	0	---	---	---	No reports
45006	2269	6	2.6	1.2	Bias reduced
45136	2572	0	1.5	1.1	Bias reduced
45142	3443	4	1.2	0.8	Bias reduced
45143	3448	0	0.8	-0.3	Bias reduced
45154	3315	0	1.4	0.9	Bias reduced
46211	5324	0	1.0	-0.9	Bias reduced
46212	6128	0	1.5	-0.6	Bias reduced
46562	0	---	---	---	No reports
46635	0	---	---	---	No reports
51517	0	---	---	---	No reports
51518	0	---	---	---	No reports
51519	0	---	---	---	No reports
51523	0	---	---	---	No reports
51667	0	---	---	---	No reports
51677	0	---	---	---	No reports
51711	0	---	---	---	No reports
51743	0	---	---	---	No reports
51776	0	---	---	---	No reports
51878	0	---	---	---	No reports
51889	0	---	---	---	No reports
52538	0	---	---	---	No reports
52664	0	---	---	---	No reports
53522	0	---	---	---	No reports
53524	0	---	---	---	No reports
53567	0	---	---	---	No reports

53582	0	---	---	---	No reports
53600	0	---	---	---	No reports
53607	0	---	---	---	No reports
53908	0	---	---	---	No reports
54918	0	---	---	---	No reports
55611	0	---	---	---	No reports
56519	0	---	---	---	No reports
56551	0	---	---	---	No reports
61298	0	---	---	---	No reports
61299	0	---	---	---	No reports
61301	0	---	---	---	No reports
61302	0	---	---	---	No reports
61303	0	---	---	---	No reports
61304	0	---	---	---	No reports
61305	0	---	---	---	No reports
61306	0	---	---	---	No reports
61307	0	---	---	---	No reports
61308	0	---	---	---	No reports
61310	0	---	---	---	No reports
61312	0	---	---	---	No reports
61314	0	---	---	---	No reports
61799	0	---	---	---	No reports
61814	0	---	---	---	No reports
61816	0	---	---	---	No reports
61818	0	---	---	---	No reports
61820	0	---	---	---	No reports
61823	0	---	---	---	No reports
61825	0	---	---	---	No reports
61837	0	---	---	---	No reports
63528	0	---	---	---	No reports
64613	0	---	---	---	No reports

TABLE 11: NUMBER OF PLATFORMS REPORTING SUSPECT PRESSURE, WIND AND SST OBSERVATIONS FOR EACH OF THE SIX-MONTH PERIODS COVERED BY THE WMO REPORTS ON THE QUALITY OF MARINE OBSERVATIONS.

Report	Period Covered		Pressure	Wind	SST	Comments
1	January to June	1989	150			
2	July to December	1989				
3	January to June	1990				
4	July to December	1990				
5	January to June	1991				
6	July to December	1991	81	27	98	
7	January to June	1992	74	23	126	
8	July to December	1992	64	19	102	
9	January to June	1993	64	24	164	
10	July to December	1993	71	21	124	
11	January to June	1994	72	27	130	
12	July to December	1994	71	29	127	
13	January to June	1995	82	33	132	
14	July to December	1995	104	39	121	
15	January to June	1996	99	35	124	
16	July to December	1996	112	23	102	
17	January to June	1997	88	19	94	
18	July to December	1997	85	22	100	
19	January to June	1998	74	28	89	Feb-Jun for P & Wind, Jan-Apr for SST
20	July to December	1998	75	45	58	NCEP SST data
21	January to June	1999	95	45	35	NCEP SST data
22	July to December	1999	111	43	35	NCEP SST data
23	January to June	2000	129	64	38	NCEP SST data
24	July to December	2000	124	80	79	
25	January to June	2001	123	101	123	
26	July to December	2001	125	114	145	
27	January to June	2002	152	129	165	
28	July to December	2002	158	148	171	
29	January to June	2003	119	136	143	
30	July to December	2003	133	130	152	
31	January to June	2004	106	110	139	
32	July to December	2004	141	150	152	
33	January to June	2005	125	113	174	
34	July to December	2005	157	142	225	
35	January to June	2006	152	97	210	
36	July to December	2006	133	123	163	

Figure 1: Number of observations of pressure received at Exeter on the GTS for each of the six-month periods covered by the WMO reports on the quality of marine surface observations
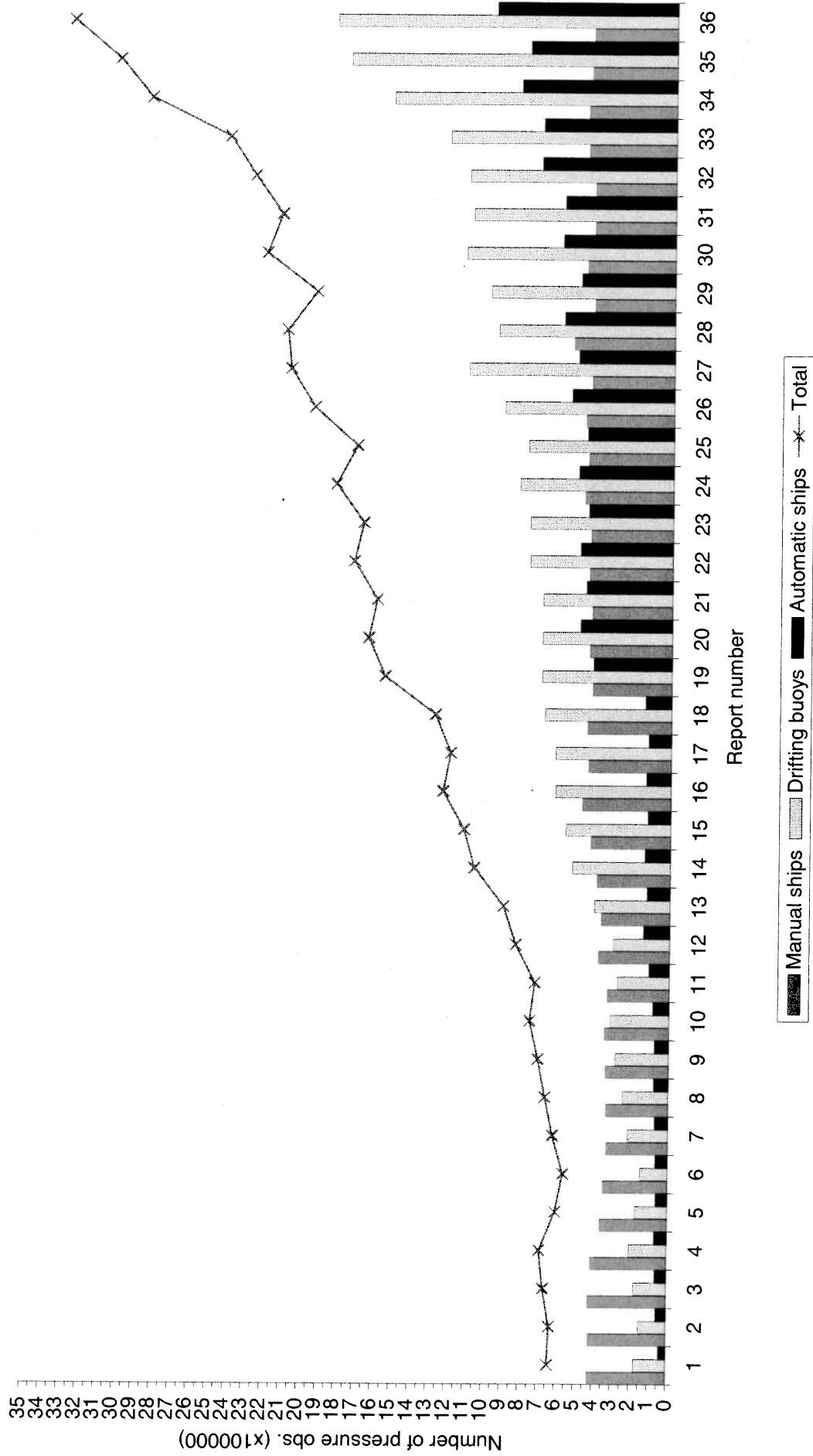
Figure 2a: Distribution of ship O-B pressure (hPa)
Period of data: July-Dec 2006   Data used: All observations
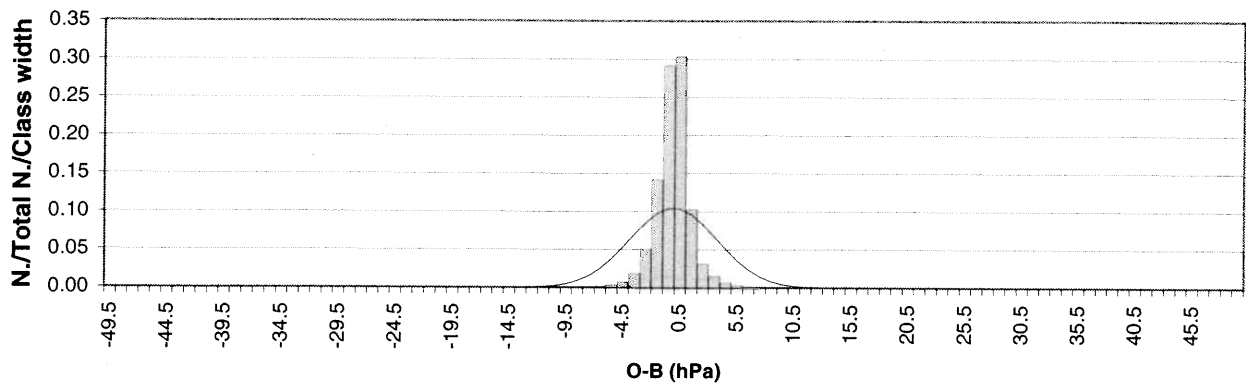
Mean O-B = -0.1   SD O-B = 3.8

Figure 2b: Distribution of ship O-B pressure (hPa)
Period of data: July-Dec 2006   Data used: Flagged observations
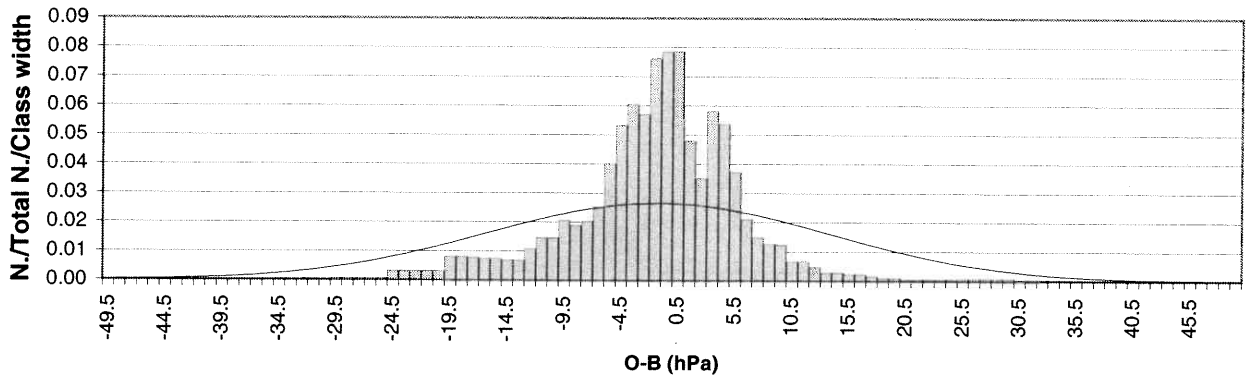
Mean O-B = -1.3   SD O-B = 15.0

Figure 2c: Distribution of ship O-B pressure (hPa)
Period of data: July-Dec 2006   Data used: Unflagged observations
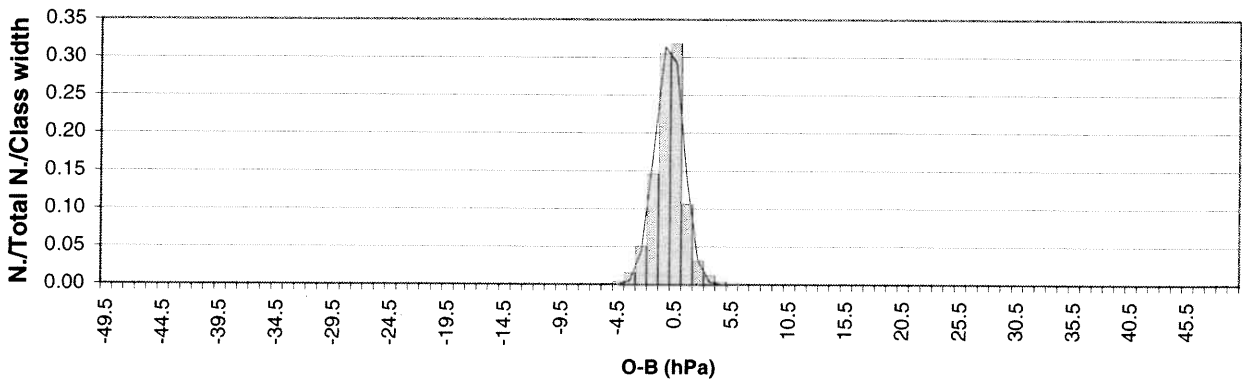
Mean O-B = -0.1   SD O-B = 1.2

Figure 2d: Distribution of ship O-B wind speed (ms⁻¹)
Period of data: July-Dec 2006   Data used: All observations

Mean O-B = 1.3   SD O-B = 3.1
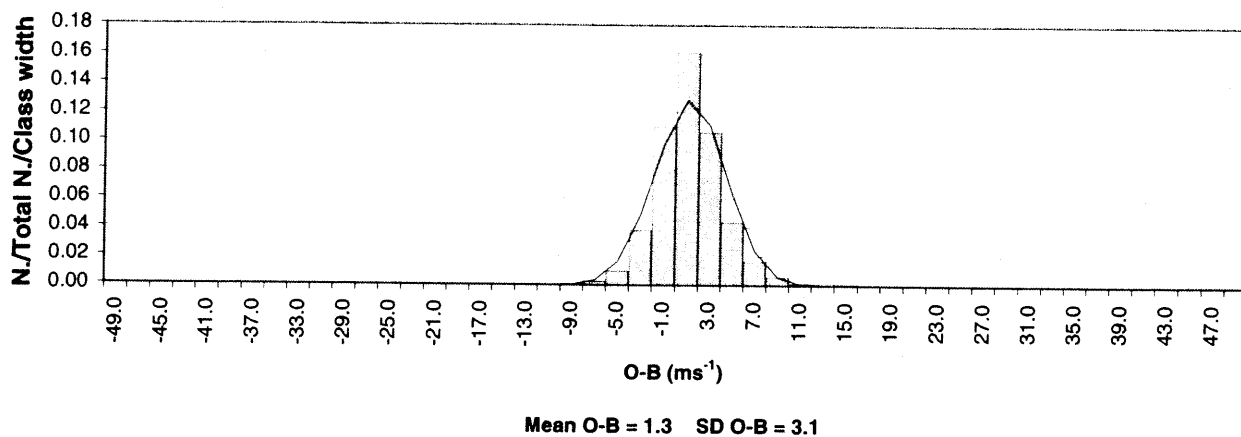
Figure 2e: Distribution of ship O-B wind speed (ms⁻¹)
Period of data: July-Dec 2006   Data used: Flagged observations

Mean O-B = 3.1   SD O-B = 6.2
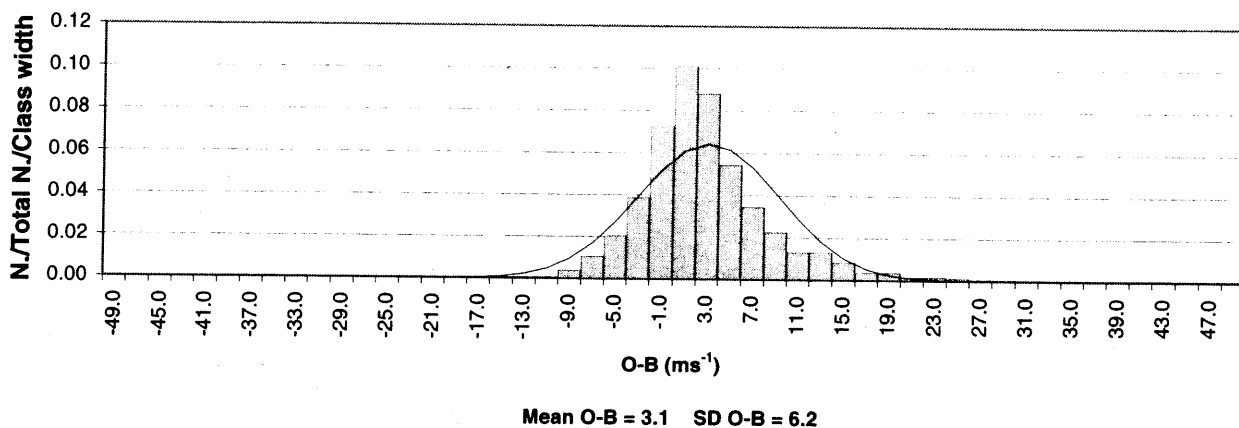
Figure 2f: Distribution of ship O-B wind speed (ms⁻¹)
Period of data: July-Dec 2006   Data used: Unflagged observations

Mean O-B = 1.1   SD O-B = 2.6
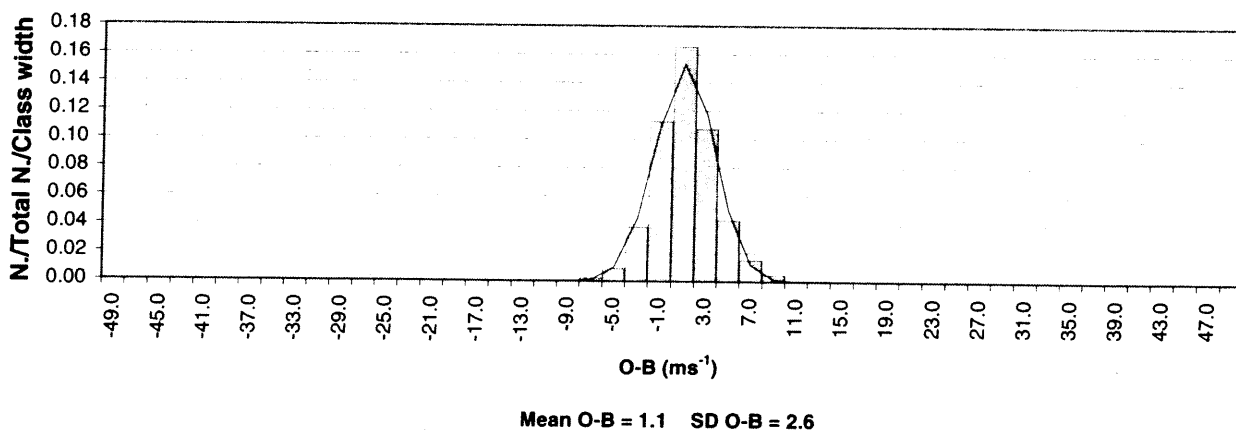
Figure 2g: Distribution of ship O-B wind direction (degrees)
Period of data: July-Dec 2006   Data used: All observations

Mean O-B = -1.0   SD O-B = 33.7
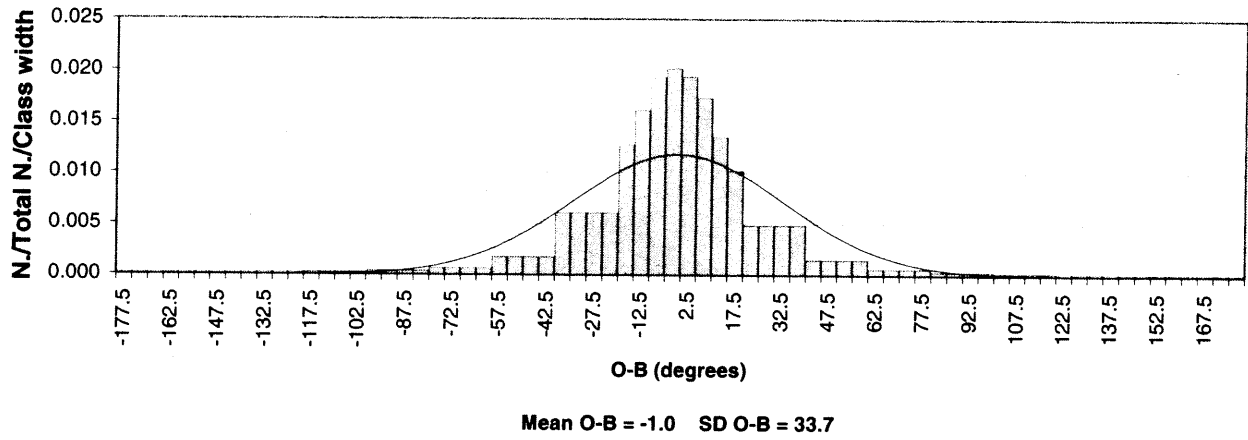
Figure 2h: Distribution of ship O-B wind direction (degrees)
Period of data: July-Dec 2006   Data used: Flagged observations

Mean O-B = -0.8   SD O-B = 64.8
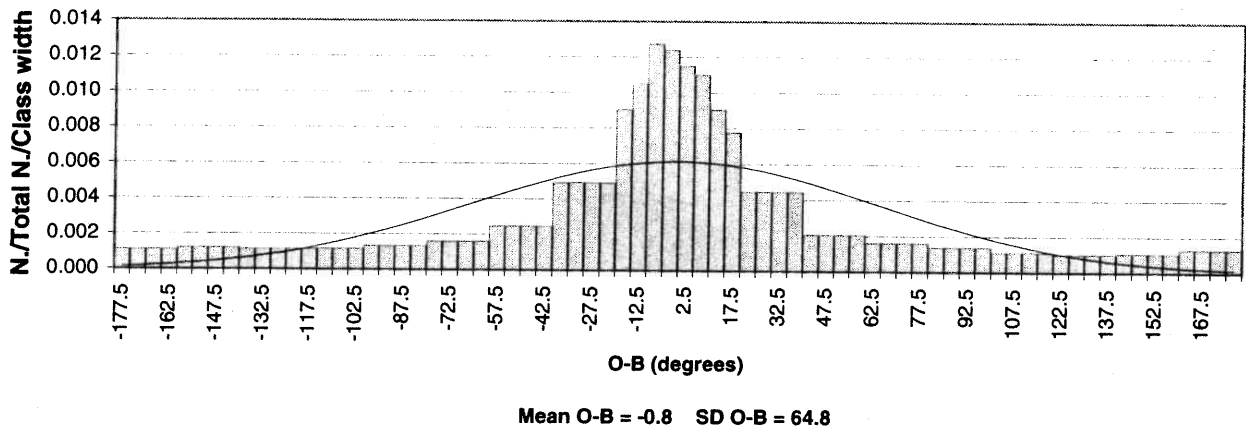
Figure 2i: Distribution of ship O-B wind direction (degrees)
Period of data: July-Dec 2006   Data used: Unflagged observations

Mean O-B = -1.0   SD O-B = 29.0
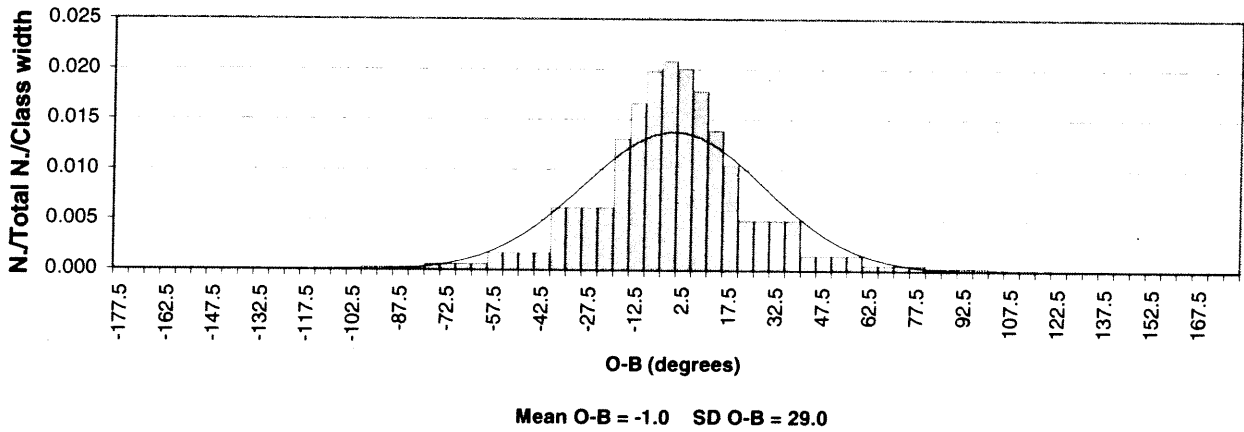
Figure 2j: Distribution of ship O-B SST (°C)
Period of data: July-Dec 2006   Data used: All observations

O-B (°C)

Mean O-B = -0.1   SD O-B = 2.8
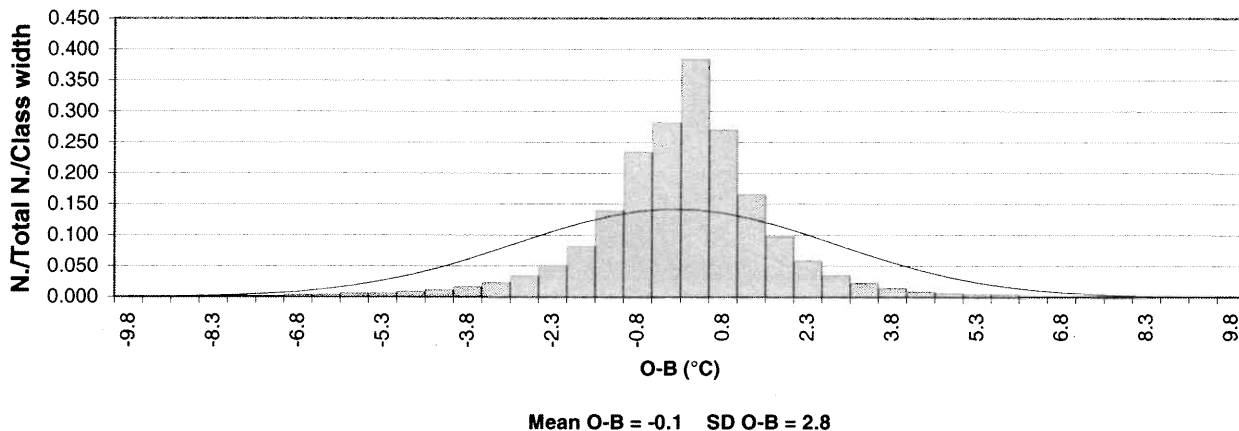
Figure 2k: Distribution of ship O-B SST (°C)
Period of data: July-Dec 2006   Data used: Flagged observations

O-B (°C)

Mean O-B = -0.8   SD O-B = 6.8
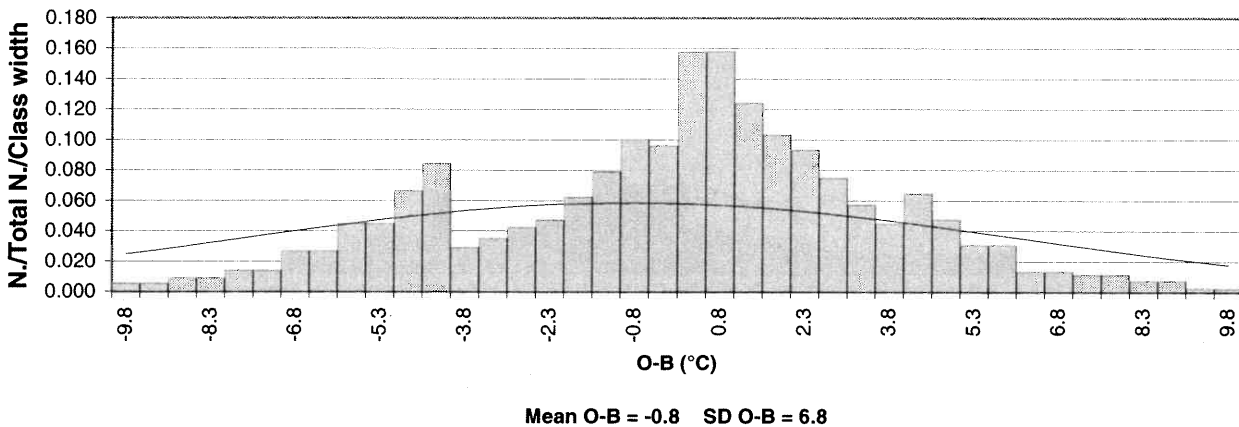
Figure 2l: Distribution of ship O-B SST (°C)
Period of data: July-Dec 2006   Data used: Unflagged observations

O-B (°C)

Mean O-B = 0.1   SD O-B = 1.2
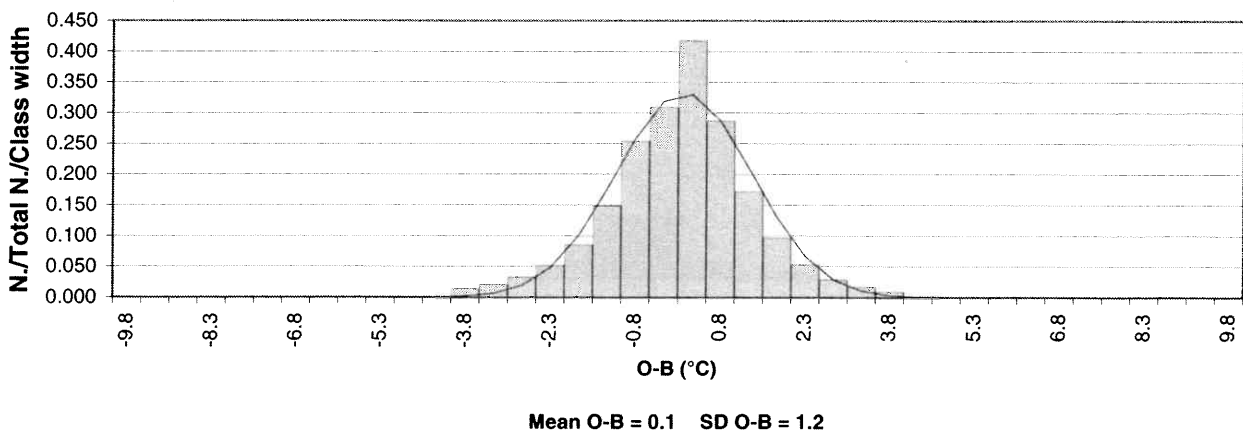
Figure 3: Bias of Ship O-B Pressure (hPa). Date:- July - December 2006
Only observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
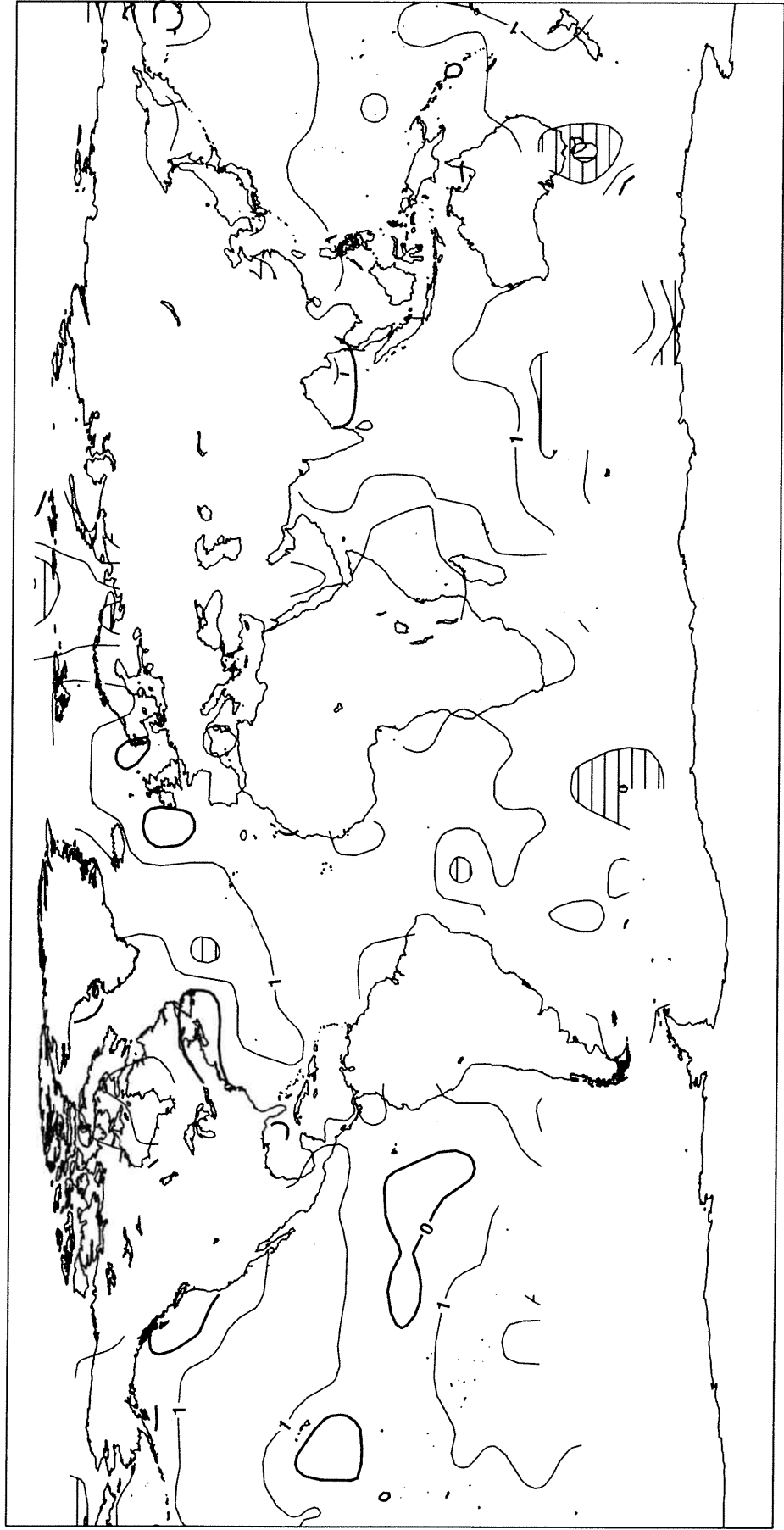Shaded areas have a bias of magnitude greater than 0.5 hPa
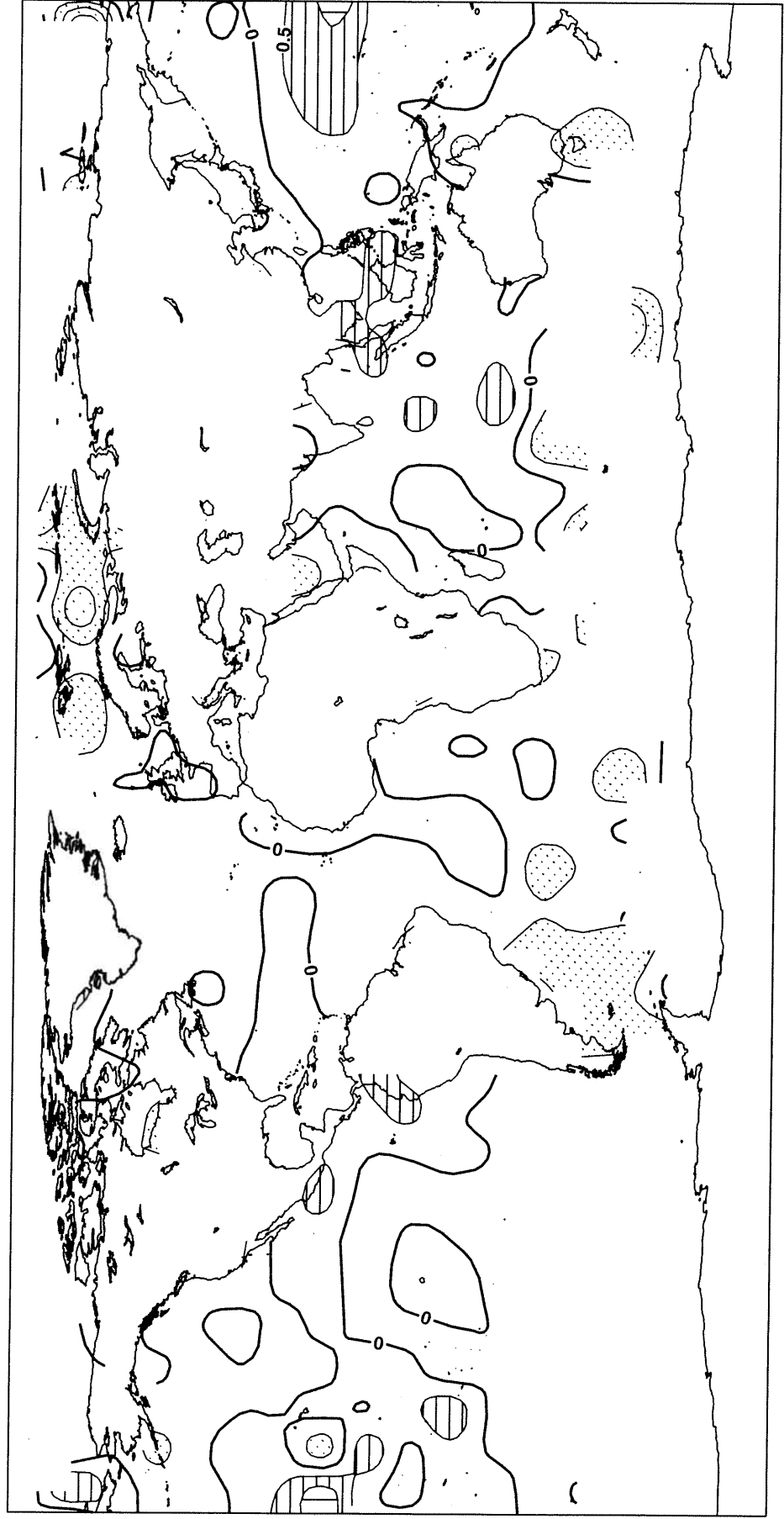
Figure 4: Standard Deviation of Ship O-B Pressure (hPa). Date:- July - December 2006
Only Observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
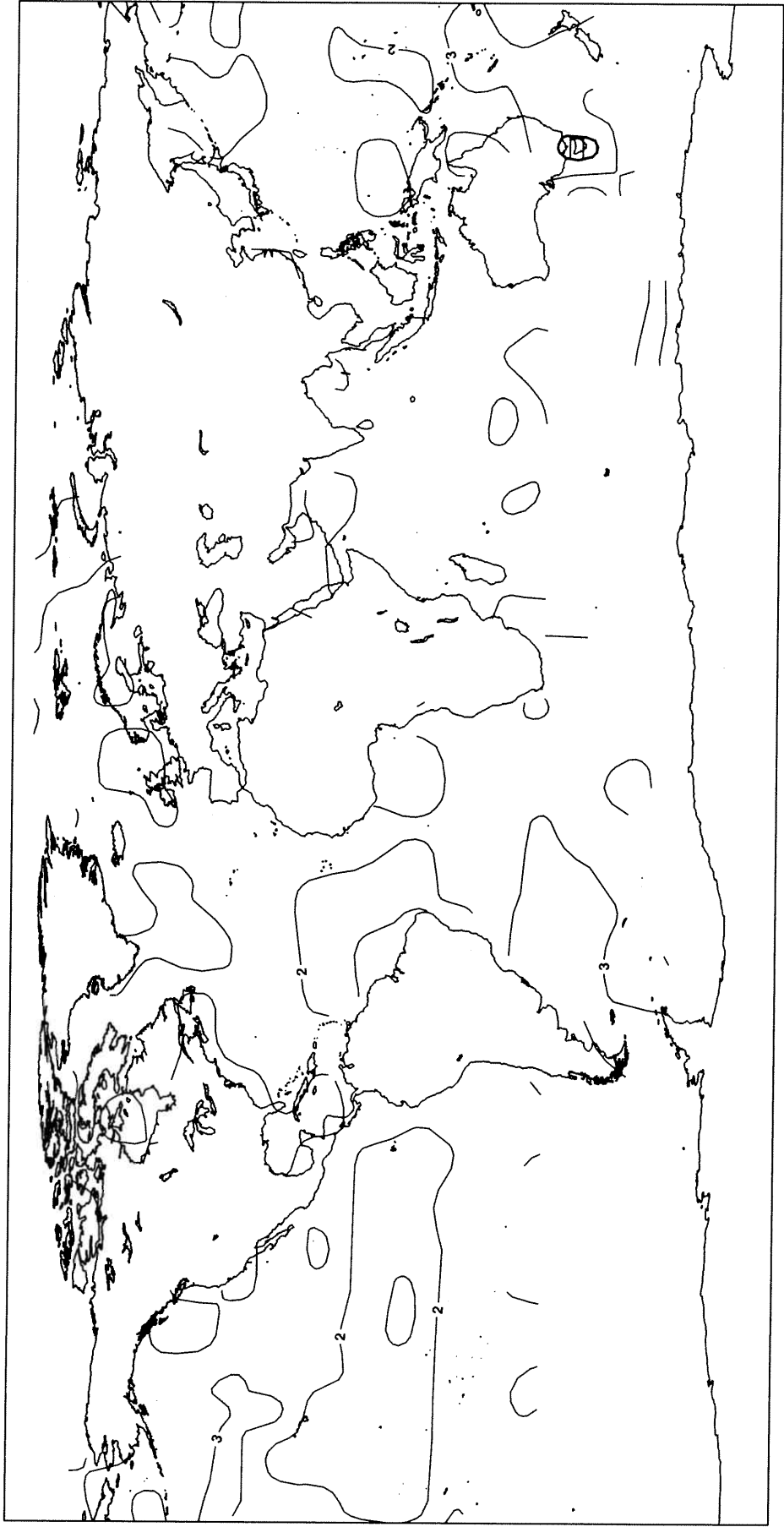Shaded areas have a standard deviation of greater than 2.0 hPa
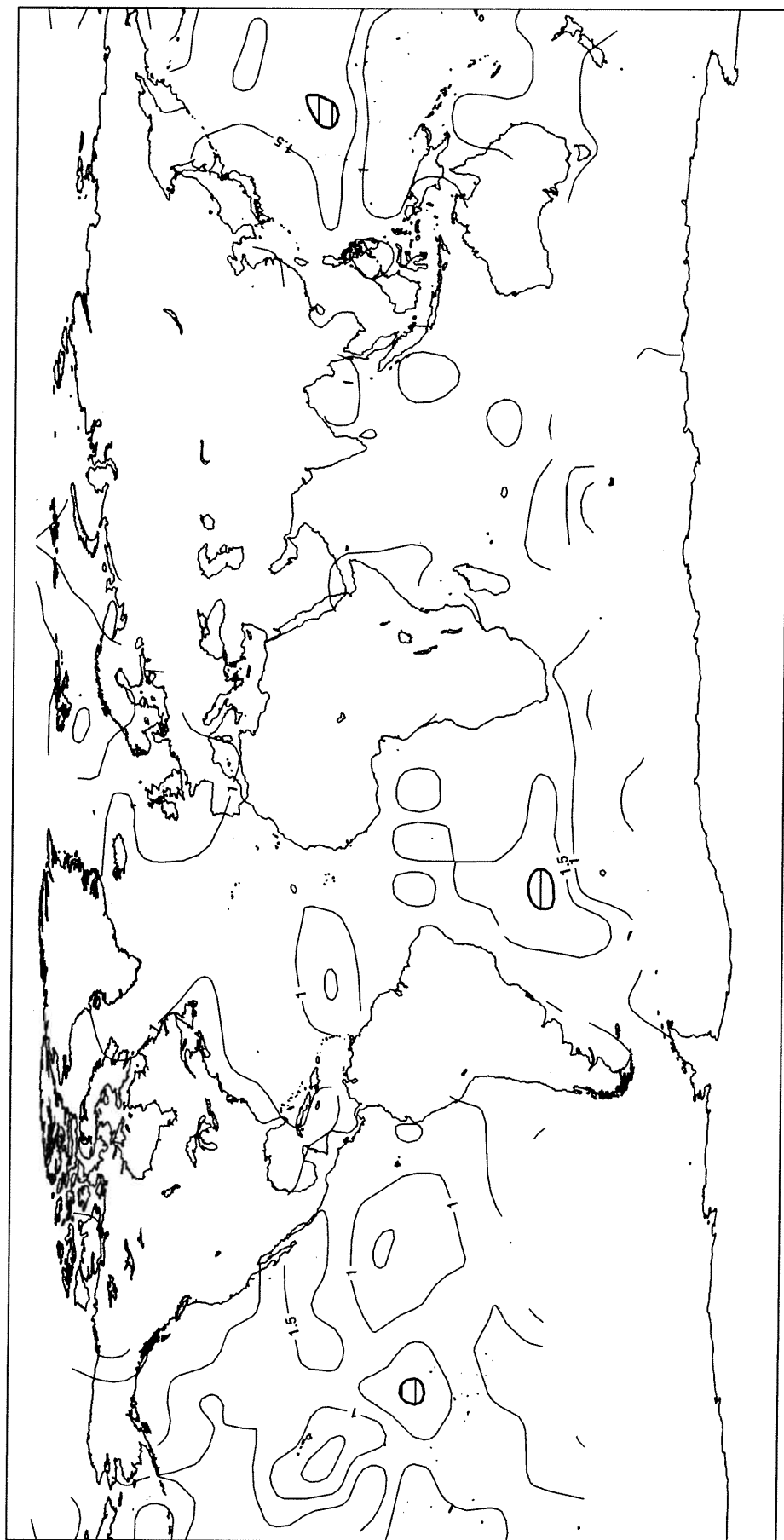
Figure 5:
Plot of the Number of Ship Pressure Observations. Date:- July - December 2006
Only observations passing quality control included
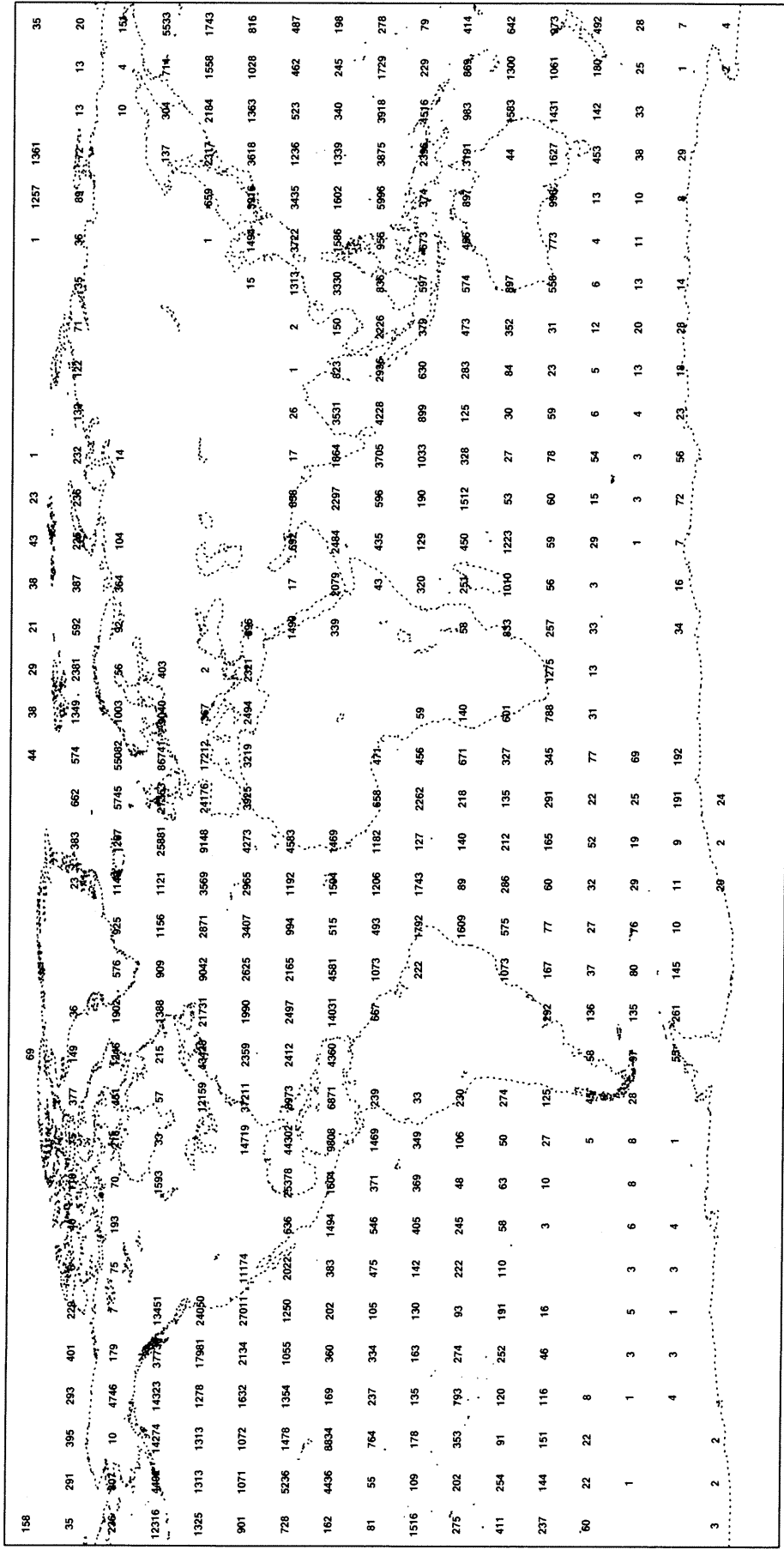
Figure 6: Bias of Ship O-B Wind Speed (ms-1). Date:- July - December 2006
Only observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
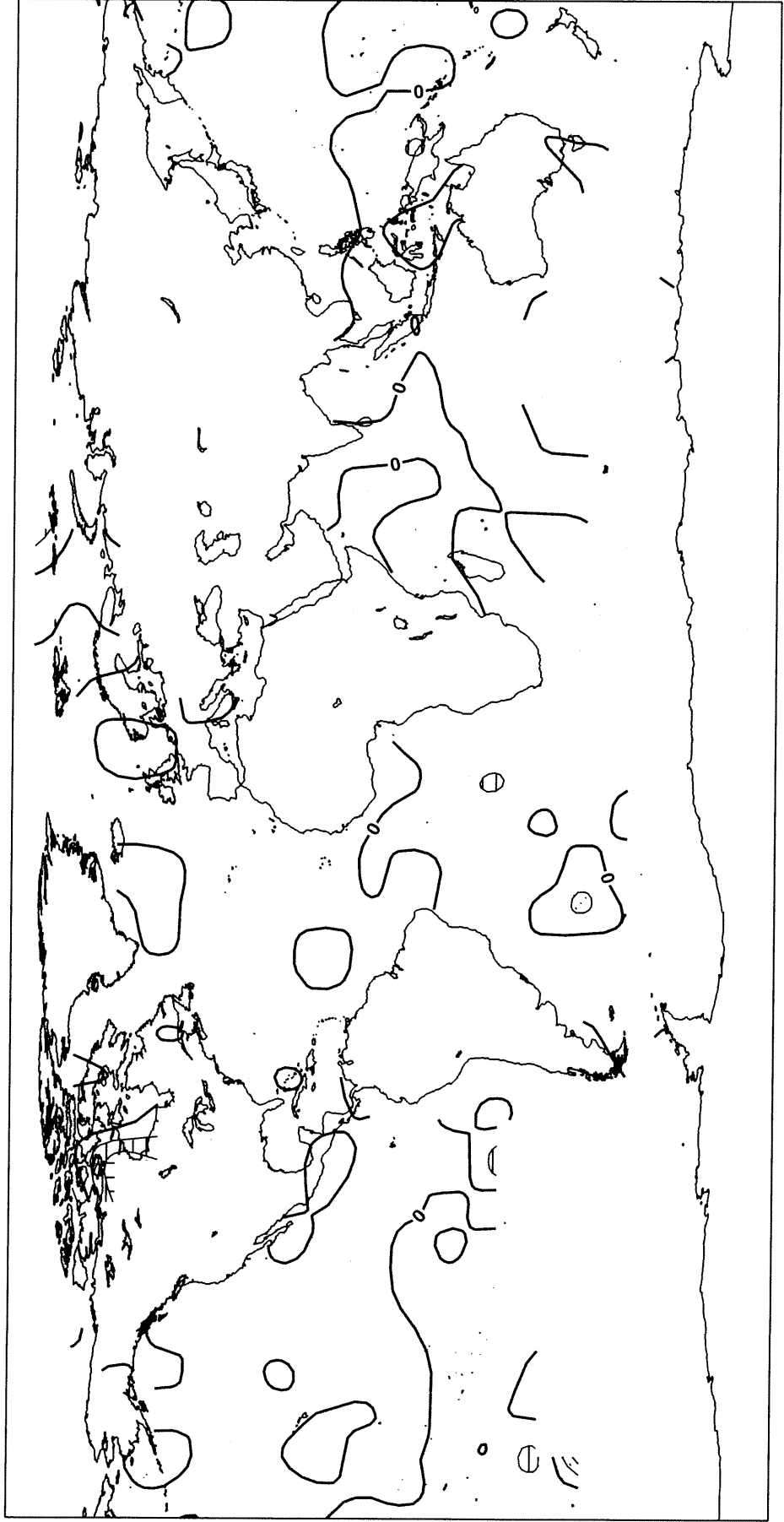Shaded areas have a bias of magnitude greater than 2.0 ms-1

Figure 7: Standard Deviation of Ship O-B Wind Speed (ms-1). Date:- July - December 2006
Only Observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
Shaded areas have a standard deviation of greater than 4.0 ms-1

Figure 8:
Plot of the Number of Ship Wind Speed Observations. Date:- July - December 2006
Only observations passing quality control included

Figure 9: Bias of Ship O-B Wind Direction (degrees). Date:- July - December 2006
Only observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
Shaded areas have a bias of magnitude greater than 10 degrees

Figure 10: Standard Deviation of Ship O-B Wind Direction (degrees). Date:- July - December 2006
Only Observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
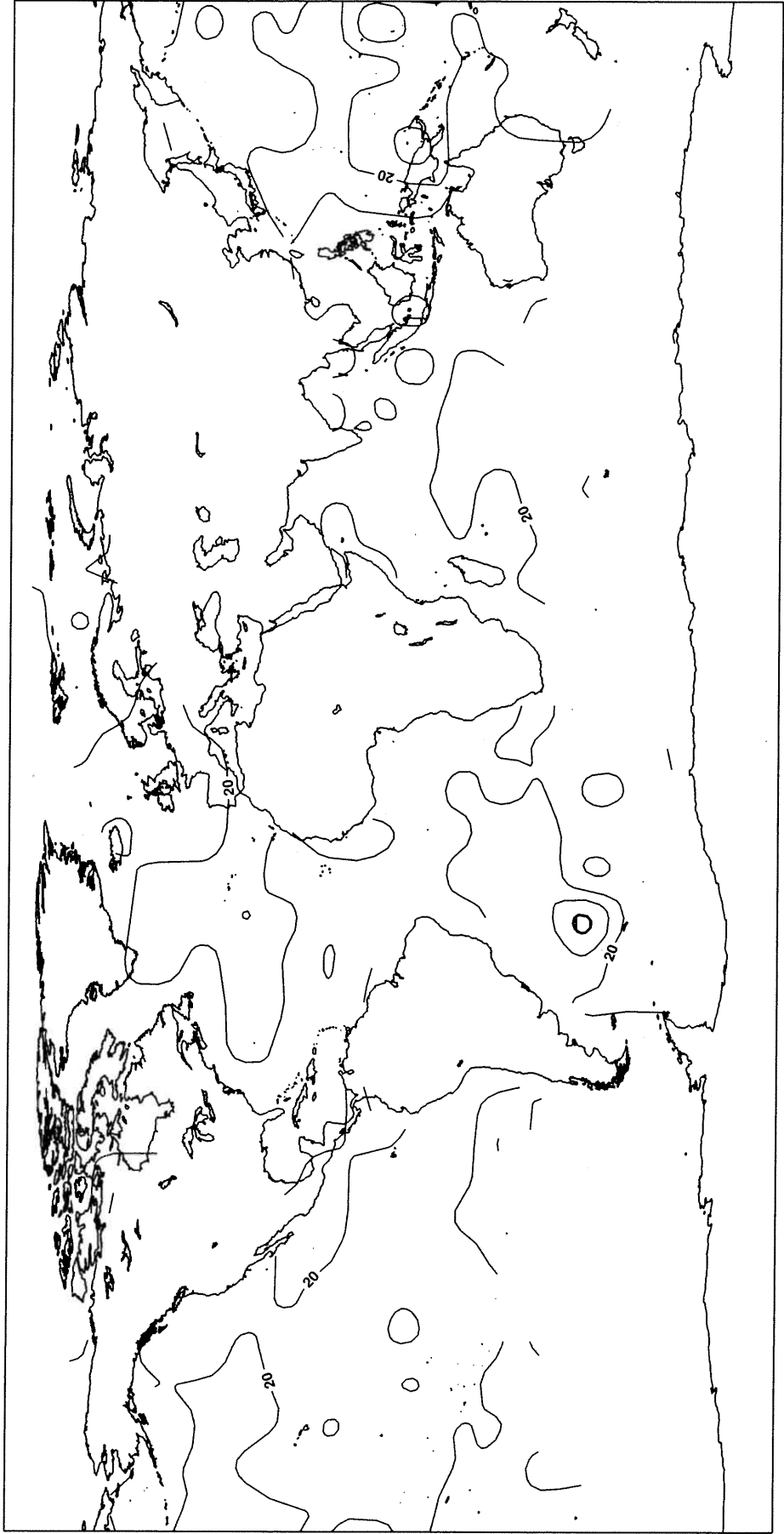Shaded areas have a standard deviation of greater than 40 degrees

Figure 11:
Plot of the Number of Ship Wind Direction Observations.   Date:- July - December 2006
Only observations passing quality control included
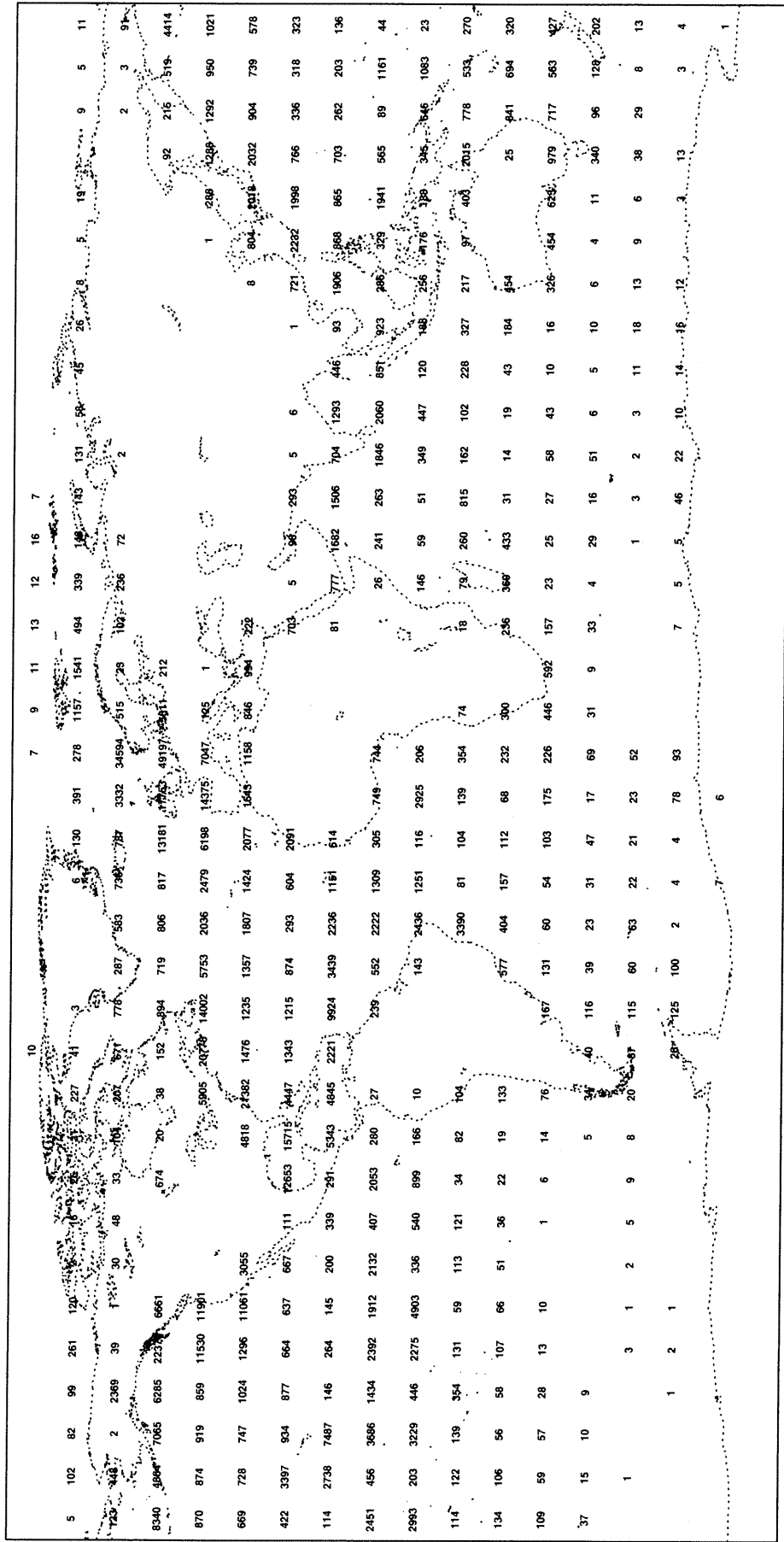
Figure 12: Bias of Ship O-B SST (degrees C). Date:- July - December 2006
Only observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
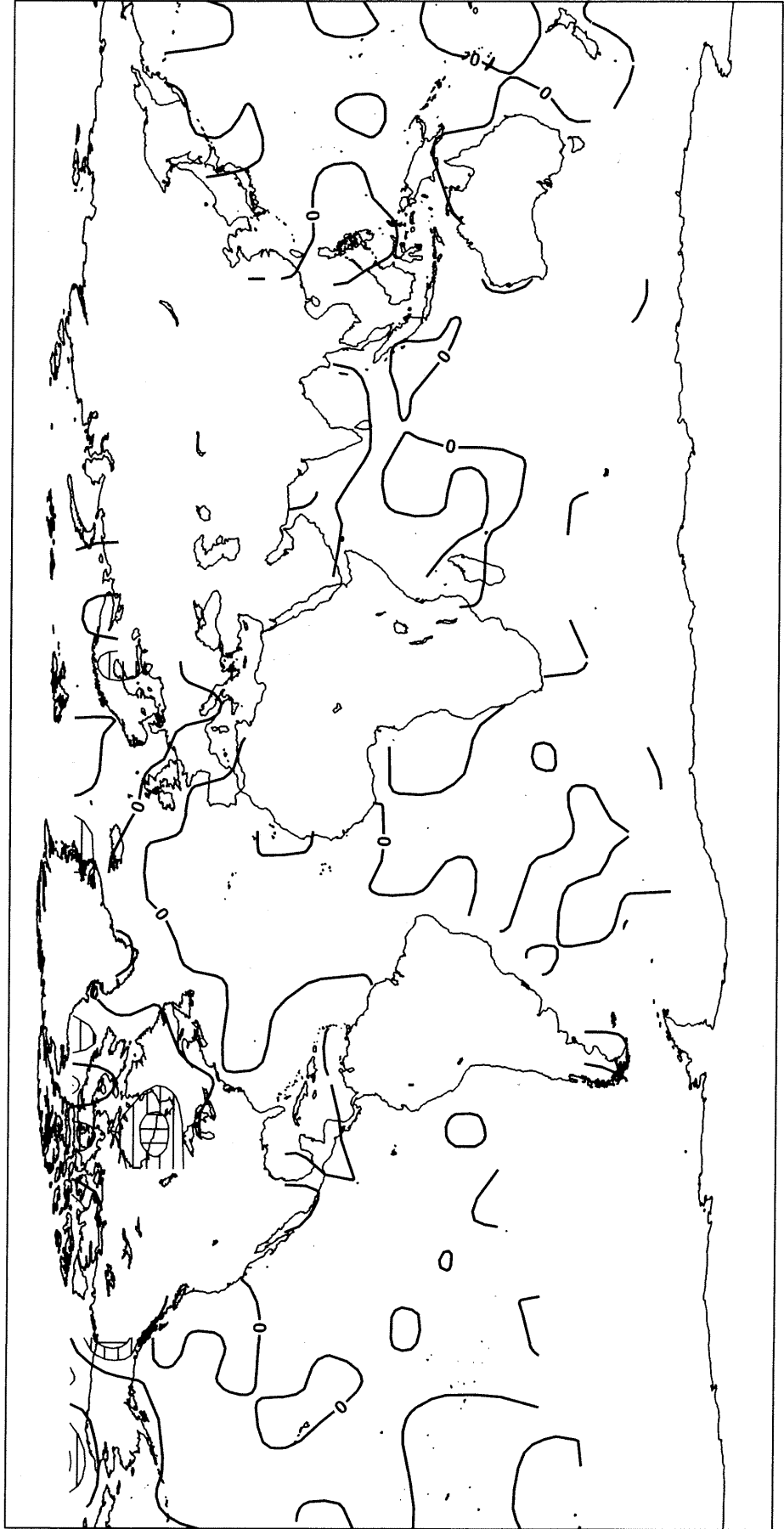Shaded areas have a bias of magnitude greater than 1.0 degree C

Figure 13: Standard Deviation of Ship O-B SST (degrees C). Date:- July - December 2006
Only Observations passing quality control used in statistics
Contours drawn to 10 degree boxes, if the number of observations is greater than 10
Shaded areas have a standard deviation of greater than 3.0 degrees C

Figure 14:
Plot of the Number of Ship SST Observations. Date:- July - December 2006
Only observations passing quality control included