



# ECMWF Global Data Monitoring Report

**July 2022**

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**European Centre for Medium-Range Weather Forecasts  
Europäisches Zentrum für mittelfristige Wettervorhersage  
Centre européen pour les prévisions météorologiques à moyen terme**

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### Summary of Revisions (in reverse order)

- Revision 28 (June 15) - Monitoring of SYNOP and SYNOP-SHIPs now includes BUFR encoded observations for those which were assimilated as well as for those without TAC counterpart.
- Revision 27 (Feb 15) - Selection criteria for SHIPs are modified as per SOT-7/Doc.9.1.1. Different criteria applied to Manual and Automatic SHIPs.
- Revision 26 (Dec 14) - Coverage chart for ATOVS AMSU-A for Noaa\_16 removed
- Revision 25 (Mar 13) - Monitoring of Radiosondes and ASAPs now includes BUFR encoded observations for those which were assimilated as well as for those without TAC counterpart. Tables 24 and 25 are also added to show the identifiers of these BUFR observations separately.
- Revision 24 (Aug 06) - North Atlantic Monitoring statistics replaced by EUCOS Area Monitoring Statistics (tables 13 to 23). Airep tables removed from this section.
- Revision 23 (Dec 00) - Coverage charts for Noaa\_14 MSU replaced by ATOVS AMSU-A for Noaa\_16.
- Revision 22 (Aug 99) - Coverage charts for TOVS thickness 300-100 hPa replaced by (A)TOVS AMSU-A and MSU (Noaa\_15 and Noaa\_14).
- Revision 21 (May 99) - Monitoring statistics ceased for Noaa\_11 as satellite is no more available.
- Revision 20 (Sep 98) - Changes to tables and annex to remove all mention about data usage. Two more levels (50 and 850 hPa) added to the COSNA statistics for Sondes.
- Revision 19 (Jul 98) - From June 29th, 1998 ECMWF model assimilates temperature data instead of geopotential from radiosondes. As a consequence the number of used geopotential data drops to zero in tables 7, 10, 13 and 15.
- Revision 18 (Apr 98) - Changes to tables and annex to introduce the usage of accepted numbers and observations instead of percentage of rejection.

# 1 Introduction

The ECMWF global data monitoring report is a monthly publication intended to give an overview of the availability and quality of observations from the Global Observing System within the World Weather Watch of the World Meteorological Organisation. It should be recognised that the statistics given in this report refer to data as received at ECMWF in time for the appropriate analysis. The annex of the report gives further explanations of the methods applied to compile the statistics and on the reference used to establish the quality of observations.

The information presented on data quality is based on differences between observations and the values of the most recent ECMWF forecast ("first guess") of the same parameter. Depending on the time of the observation, the forecast range is between 9 and 15 hours. It should be recognised that although the quality of the first-guess is of a generally high standard this is only true to a limited extent in certain areas, such as the tropics and data-sparse areas of both northern and southern hemispheres. The data quality results should therefore be used with care when assessing the absolute quality of a particular observing platform. Other indicators such as long-term trends of station performance, particularly in comparison with nearby stations, can be more useful in this respect.

The global monitoring results presented in this report are meant to serve a wider meteorological community as well as to support special WMO programmes such as TOGA and EUCOS. The contents of the report may therefore be adapted for special requirements as necessary.

As recommended at the ninth session of the Commission for Basic Systems at Geneva 1988, lead centres have been appointed for each main type of observation which should liaise with the participating centres and coordinate all the results, inform the WMO Secretariat immediately of obvious problems, and produce every six months a consolidated list of observations of that particular type believed to be of low quality. The presently nominated centres are: RSMC Exeter for marine surface observations; RSMC ECMWF for radiosonde and pilot observations; WMC Washington for aircraft and satellite observations.

ECMWF produces this monthly report as part of its routine monitoring activity in order to facilitate the exchange of monitoring information. Tables are presented according to the CBS recommended standards for the exchange of monitoring results. Copies of the report will be provided to major GDPS centres participating in data monitoring activities as initiated and recommended at the ninth session of the Commission for Basic Systems in Geneva 1988, and to the WMO Secretariat and the International TOGA office in Geneva.

Any comments on the contents and the format of the report are welcome and should be addressed to:

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United Kingdom

## **2 Data summary - History of events**

### **2.1 Radiosondes**

The following is a list of land-based stations showing a change in reporting frequency (of 500 hPa geopotential) of at least 10 observations compared with the average over the previous 3 months. The number of reports received at ECMWF for the current and previous month is shown in addition to the observation time.

| Ident | Time | Jun | Jul | Ident | Time | Jun | Jul |
|-------|------|-----|-----|-------|------|-----|-----|
| 23472 | (00) | 30  | 18  | 04417 | (00) | 0   | 22  |
| 23472 | (12) | 30  | 17  | 04417 | (12) | 0   | 23  |
| 24266 | (00) | 27  | 6   | 17064 | (00) | 0   | 31  |
| 24266 | (12) | 26  | 6   | 17064 | (12) | 11  | 31  |
| 40373 | (00) | 29  | 15  | 26850 | (00) | 13  | 31  |
| 40373 | (12) | 29  | 15  | 31300 | (00) | 0   | 26  |
| 57447 | (00) | 30  | 0   | 31510 | (00) | 0   | 25  |
| 57447 | (12) | 30  | 0   | 31510 | (12) | 0   | 26  |
| 60096 | (12) | 30  | 8   | 31538 | (00) | 0   | 30  |
| 61291 | (00) | 15  | 0   | 31736 | (00) | 0   | 31  |
| 61291 | (12) | 13  | 0   | 31770 | (12) | 0   | 31  |
| 64500 | (00) | 24  | 8   | 35671 | (00) | 0   | 26  |
| 68110 | (12) | 16  | 1   | 35671 | (12) | 0   | 27  |
| 70026 | (00) | 28  | 9   | 47102 | (00) | 8   | 30  |
| 70026 | (12) | 28  | 4   | 47102 | (12) | 10  | 29  |
| 72469 | (00) | 30  | 9   | 47104 | (00) | 11  | 31  |
| 72469 | (12) | 30  | 7   | 47104 | (12) | 11  | 31  |
| 74004 | (00) | 16  | 5   | 47138 | (00) | 17  | 31  |
| 74004 | (12) | 33  | 22  | 47138 | (12) | 19  | 31  |
| 74005 | (12) | 38  | 10  | 47169 | (00) | 17  | 31  |
| 89009 | (12) | 25  | 0   | 47169 | (12) | 12  | 30  |
| 96996 | (00) | 23  | 8   | 47186 | (00) | 11  | 28  |
| -     | -    | -   | -   | 47186 | (12) | 10  | 28  |
| -     | -    | -   | -   | 47418 | (12) | 0   | 31  |
| -     | -    | -   | -   | 63741 | (00) | 0   | 22  |
| -     | -    | -   | -   | 63894 | (12) | 3   | 29  |
| -     | -    | -   | -   | 67197 | (12) | 0   | 11  |
| -     | -    | -   | -   | 70414 | (00) | 5   | 17  |
| -     | -    | -   | -   | 72403 | (00) | 3   | 30  |
| -     | -    | -   | -   | 72403 | (12) | 3   | 31  |
| -     | -    | -   | -   | 72501 | (12) | 0   | 18  |
| -     | -    | -   | -   | 74005 | (00) | 6   | 24  |
| -     | -    | -   | -   | 78384 | (00) | 5   | 29  |
| -     | -    | -   | -   | 78384 | (12) | 5   | 30  |
| -     | -    | -   | -   | 80001 | (00) | 11  | 27  |
| -     | -    | -   | -   | 80001 | (12) | 13  | 27  |
| -     | -    | -   | -   | 82022 | (00) | 19  | 30  |
| -     | -    | -   | -   | 82244 | (00) | 6   | 31  |
| -     | -    | -   | -   | 82244 | (12) | 7   | 31  |
| -     | -    | -   | -   | 82599 | (00) | 0   | 22  |
| -     | -    | -   | -   | 82917 | (00) | 14  | 28  |
| -     | -    | -   | -   | 82917 | (12) | 15  | 30  |
| -     | -    | -   | -   | 83746 | (00) | 8   | 31  |
| -     | -    | -   | -   | 83746 | (12) | 8   | 31  |
| -     | -    | -   | -   | 83779 | (00) | 0   | 30  |
| -     | -    | -   | -   | 85586 | (00) | 0   | 28  |
| -     | -    | -   | -   | 87344 | (12) | 15  | 30  |
| -     | -    | -   | -   | 87623 | (12) | 0   | 20  |
| -     | -    | -   | -   | 87715 | (12) | 0   | 20  |
| -     | -    | -   | -   | 89009 | (00) | 2   | 29  |
| -     | -    | -   | -   | 89642 | (12) | 5   | 16  |
| -     | -    | -   | -   | 96011 | (00) | 11  | 26  |
| -     | -    | -   | -   | 96147 | (00) | 18  | 29  |
| -     | -    | -   | -   | 96645 | (00) | 14  | 31  |
| -     | -    | -   | -   | 96645 | (12) | 16  | 32  |
| -     | -    | -   | -   | 96805 | (00) | 19  | 30  |
| -     | -    | -   | -   | 96805 | (12) | 10  | 31  |

## 2.2 Drifting Buoys

Surface pressure observations from **1619** drifting buoys were received during the month.

## 3 Global monitoring statistics

The following figures and tables provide information on both the availability and quality of various data types as received at ECMWF during the month. A brief description of each figure/table is given below. For a full explanation please refer to the Annex.

### 3.1 Data Availability

Figures 1-9 are global charts for each data type showing the average number of observations received in 24 hours in 5 degree boxes. The average daily number of observations (global) is also displayed with a breakdown, where appropriate, for each WMO region (figures 1, 3 and 4) and Ocean (figures 1-4).

| Fig | Observation Type            | Parameter    | Level/Layer  |
|-----|-----------------------------|--------------|--------------|
| 1   | SYNOP/SHIP                  | MSL Pressure | Surface      |
| 2   | DRIFTER                     | MSL Pressure | Surface      |
| 3   | TEMP                        | Geopotential | 500 hPa      |
| 4   | TEMP/PILOT                  | Wind         | 300 hPa      |
| 5   | AIRCRAFT (AIREP/AMDAR etc.) | Wind         | 300-150 hPa  |
| 6   | SATOB                       | Wind         | 400-150 hPa  |
| 7   | SATOB                       | Wind         | 1000-700 hPa |
| 9   | TOVS (120 km) - NOAA14      | Thickness    | 300-100 hPa  |

(Figure 1 includes data from fixed marine platforms e.g. moored buoys.)

### 3.2 Data Quality

Tables 1-8 contain lists of suspect stations in the format according to Recommendation 3 CBS-Ext(85).

| Tab | Observation Type | Parameter      | Level/Layer  |
|-----|------------------|----------------|--------------|
| 1   | SHIP             | MSL Pressure   | Surface      |
| 2   | SHIP             | Wind Speed     | Surface      |
| 3   | SHIP             | Wind Direction | Surface      |
| 4   | DRIFTER          | MSL Pressure   | Surface      |
| 5   | DRIFTER          | Wind Speed     | Surface      |
| 6   | DRIFTER          | Wind Direction | Surface      |
| 7   | TEMP             | Geopotential   | 1000- 30 hPa |
| 8   | TEMP/PILOT       | Wind           | 1000-100 hPa |
| 9   | TEMP/PILOT       | Wind Direction | 500-150 hPa  |

(SHIP tables include data from fixed marine platforms e.g. moored buoys.)

Figures 10-13 show the locations of suspect stations given in tables 7 and 8.

| Fig | Observation Type | Parameter    | Observation Time |
|-----|------------------|--------------|------------------|
| 10  | TEMP             | Geopotential | 00 UTC           |
| 11  | TEMP             | Geopotential | 12 UTC           |
| 12  | TEMP/PILOT       | Wind         | 00 UTC           |
| 13  | TEMP/PILOT       | Wind         | 12 UTC           |

Tables 10 and 11 provide quality statistics for all TEMPSHIPS and PILOTSHIPS received during the month.

| Tab | Parameter    | Observation Time |
|-----|--------------|------------------|
| 10  | Geopotential | 00 and 12 UTC    |
| 11  | Wind         | 00 and 12 UTC    |

Figures 14-18 show global charts of SATOB and aircraft wind statistics in the form of wind vectors averaged over 5 degree boxes.

| Fig | Parameter                                       | Level/Layer  |
|-----|---|--------------|
| 14  | SATOB - Mean observed wind                      | 1000-700 hPa |
| 15  | SATOB - Mean observed wind                      | 400-150 hPa  |
| 16  | SATOB - Mean observed minus first-guess wind    | 1000-700 hPa |
| 17  | SATOB - Mean observed minus first-guess wind    | 400-150 hPa  |
| 18  | AIRCRAFT WIND - Mean observed minus first-guess | 300-150 hPa  |

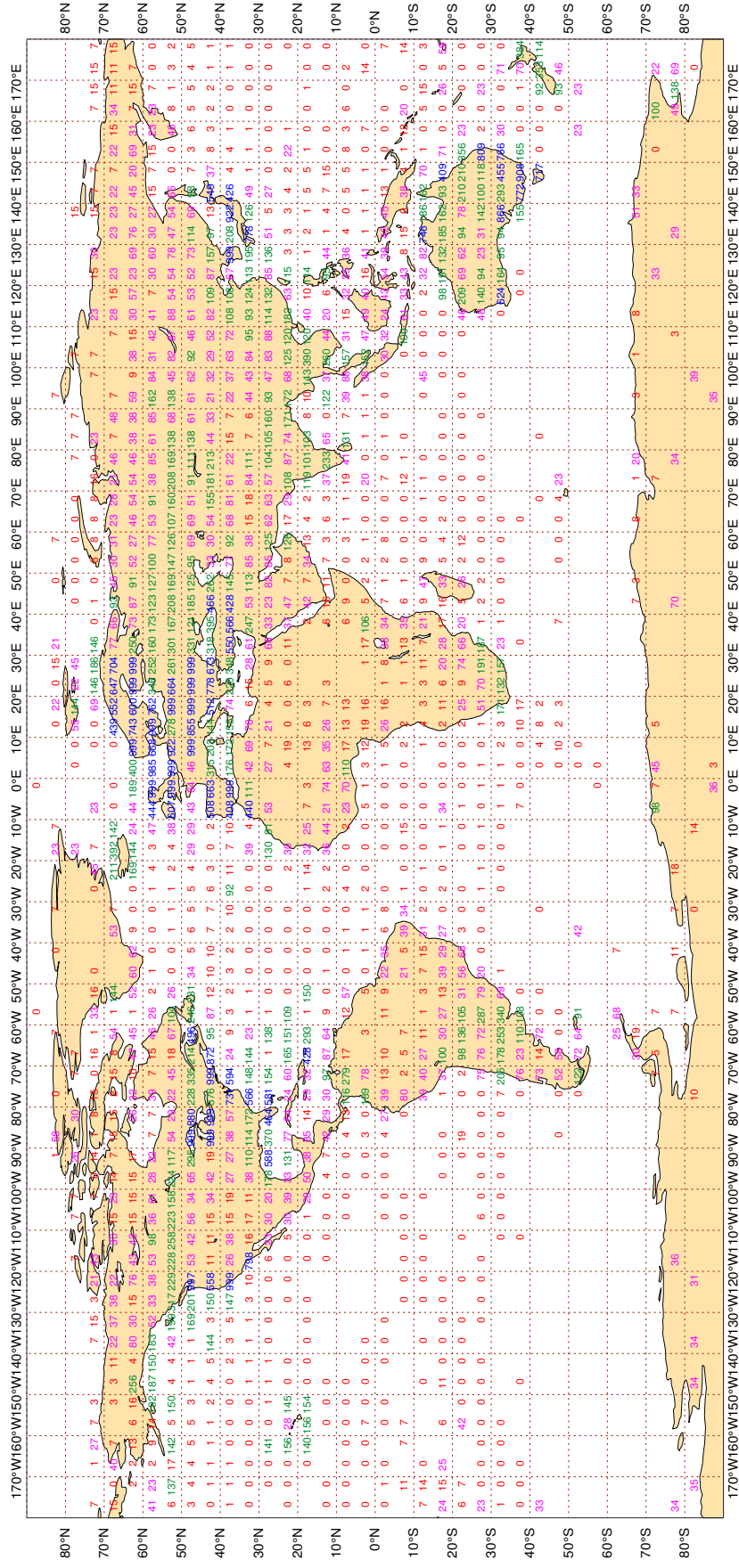
Table 12 provides quality statistics of aircraft wind observations stratified by airline carrier.



3.2.1 Figure 1 - Availability - SYNOP PRESSURE

ECMWF Monitoring Statistics - JUL 2022  
 Availability - SYNOP/SHIP (manual, auto) pressure  
 Average number of observations in 24 hours - 119966  
 LAND - WMO Region I: 4344 II:19401 III: 4806 IV: 7327  
 Region V:14609 VI:40976 Antarctic: 1404  
 Oceans - N. Atlantic 11268 S. Atlantic 237 Indian 797 Pacific 14795

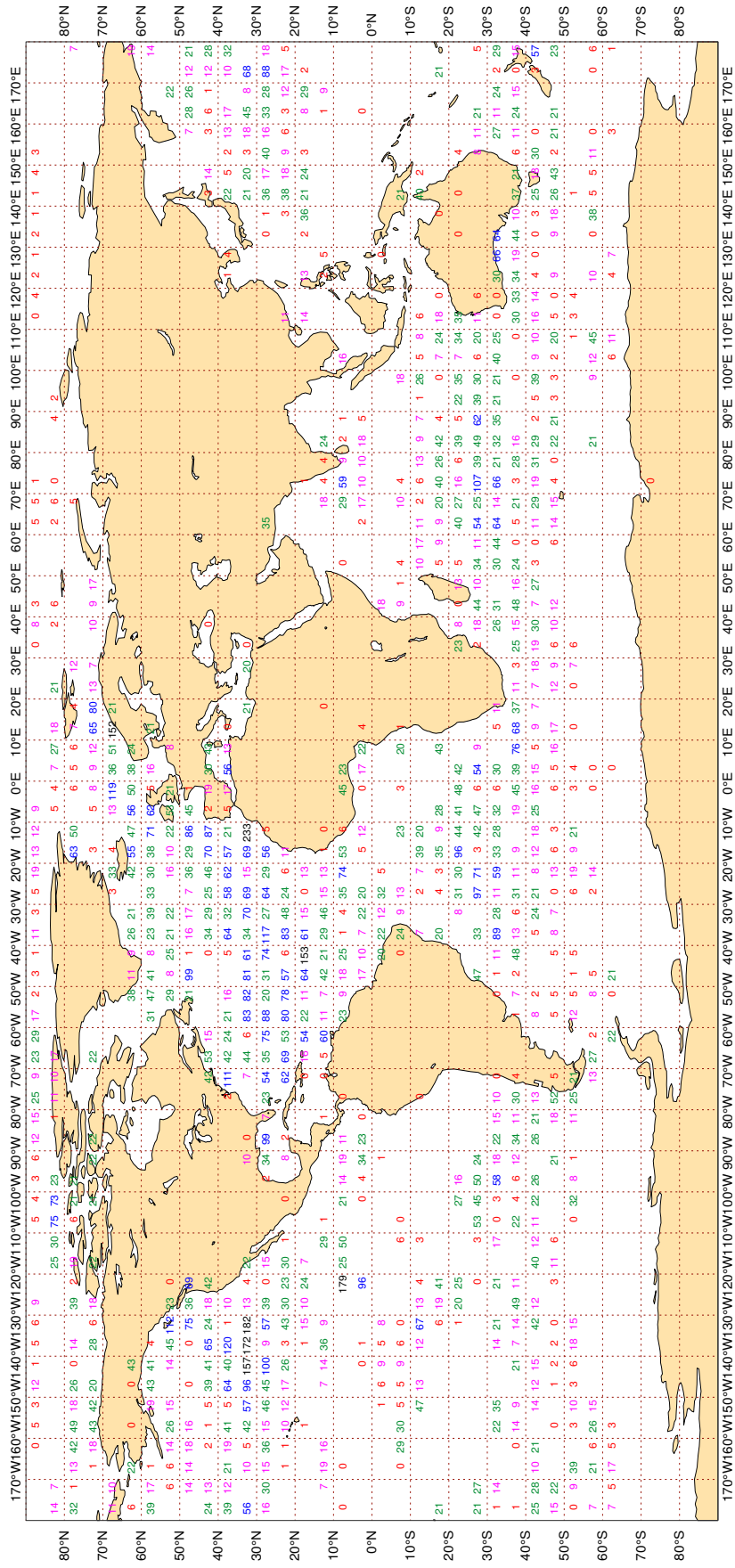
Figure 1



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

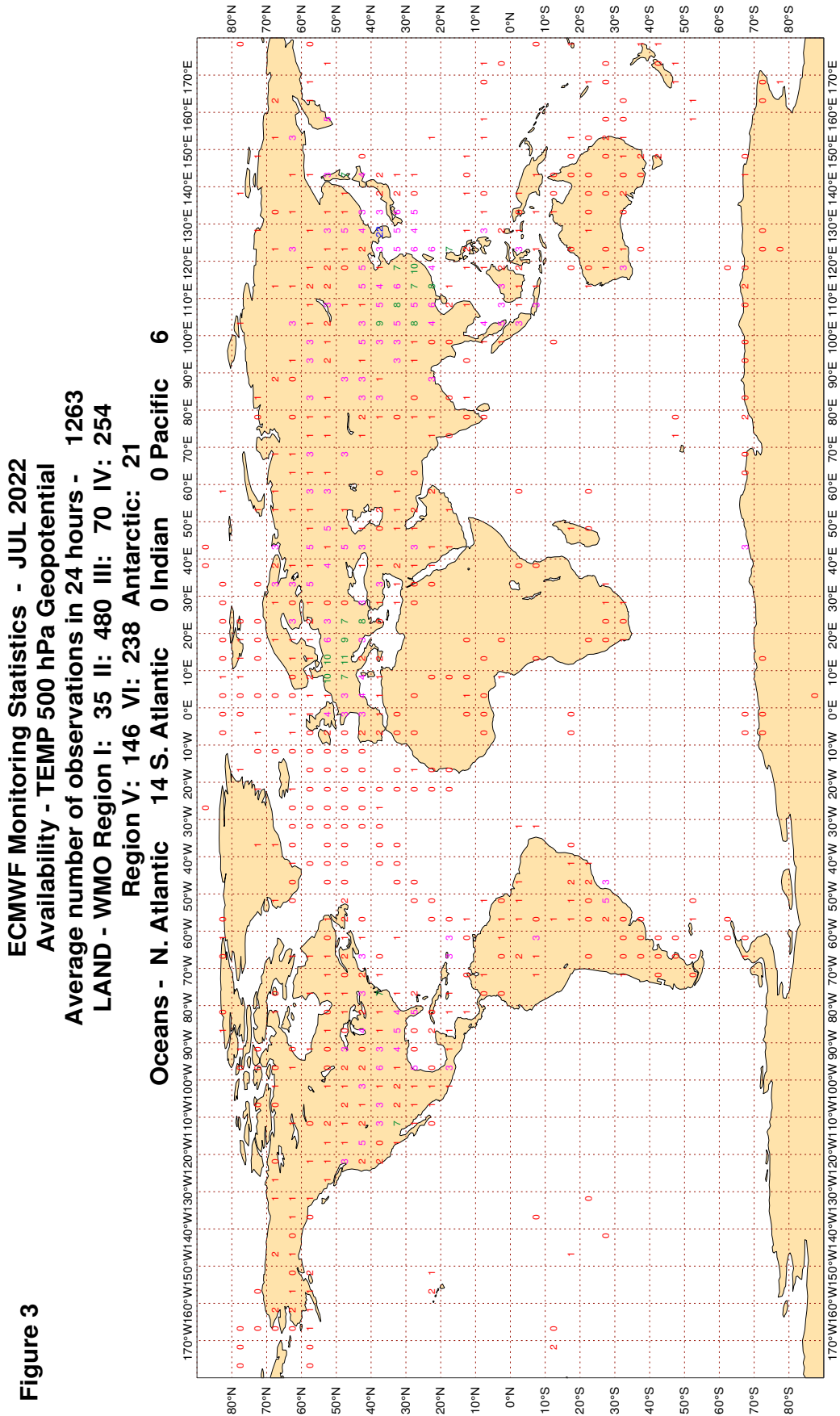
Figure 2

ECMWF Monitoring Statistics - JUL 2022  
 Availability - DRIFTER PRESSURE  
 Average number of observations in 24 hours - 21540  
 Oceans - N. Atlantic 7066 S. Atlantic 2435 Indian 3495 Pacific 8544

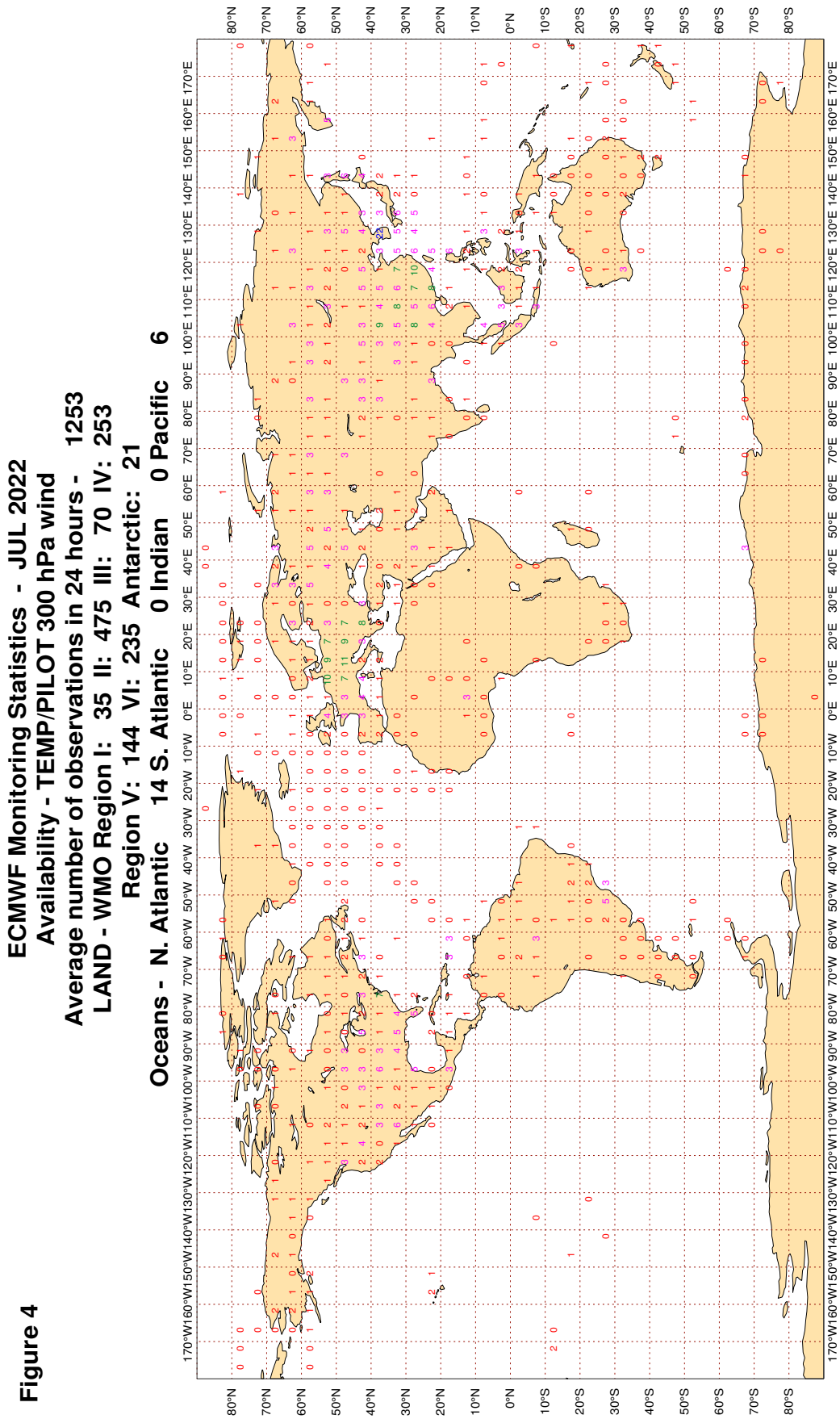


Magics 4.9.4

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential



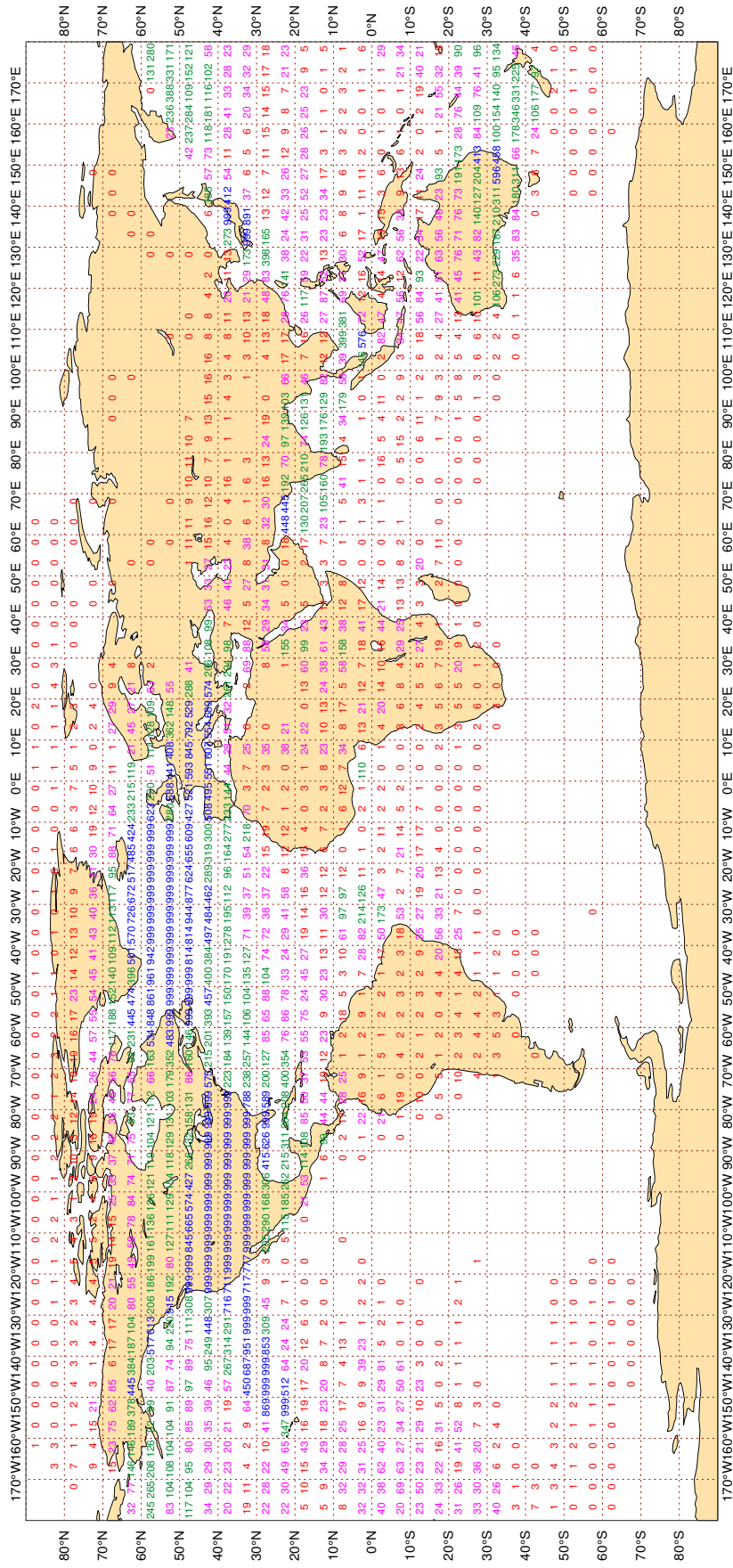
3.2.4 Figure 4 - Availability - TEMP/PILOT 300 hPa wind



3.2.5 Figure 5 - Availability - AIRCRAFT winds 300-150 hPa

Figure 5

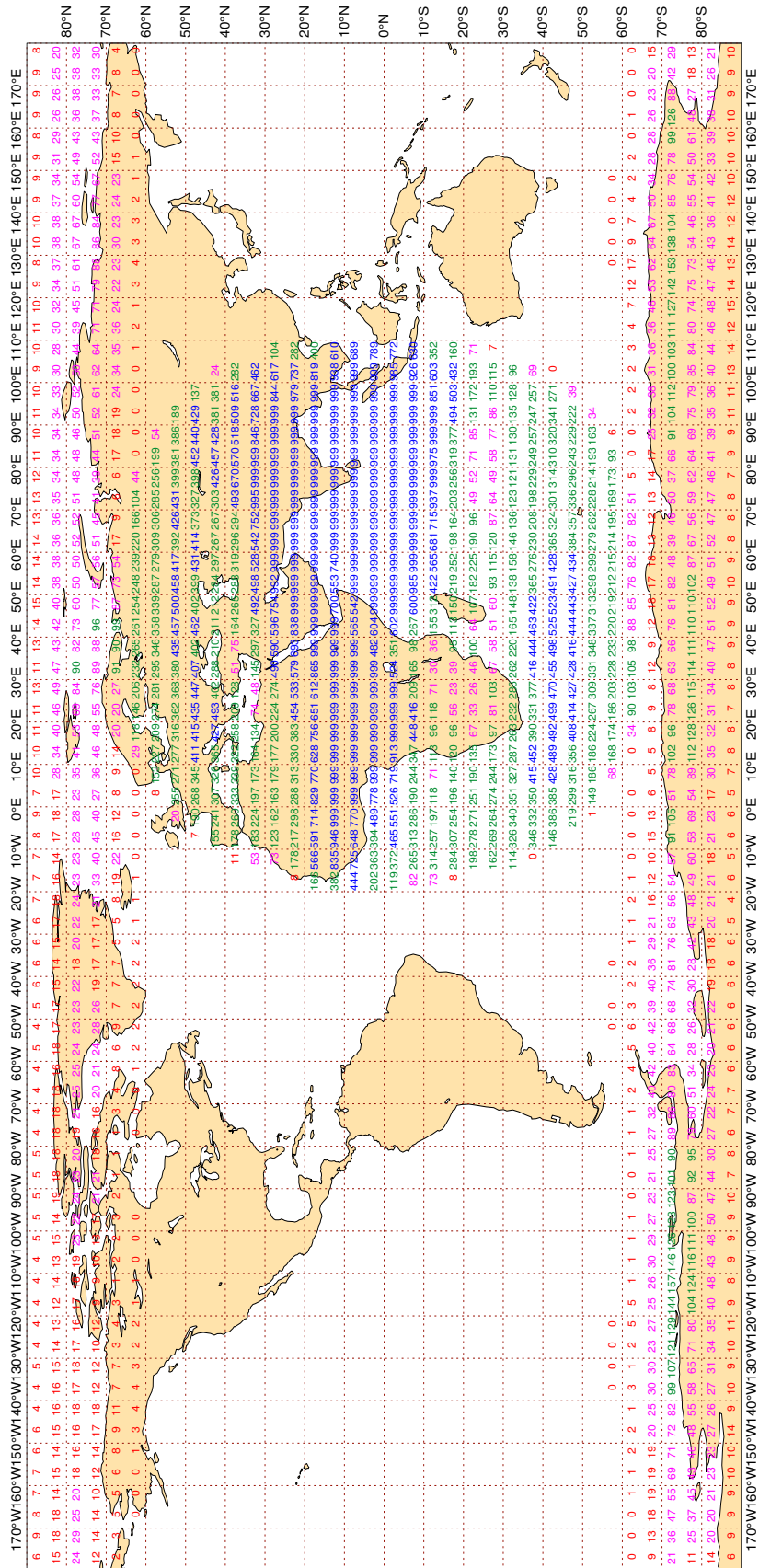
ECMWF Monitoring Statistics - JUL 2022  
Availability - Aircraft winds 300-150 hPa  
Average number of observations in 24 hours - 204282



3.2.6 Figure 6 - Availability - SATOB winds 400-150 hPa

Figure 6

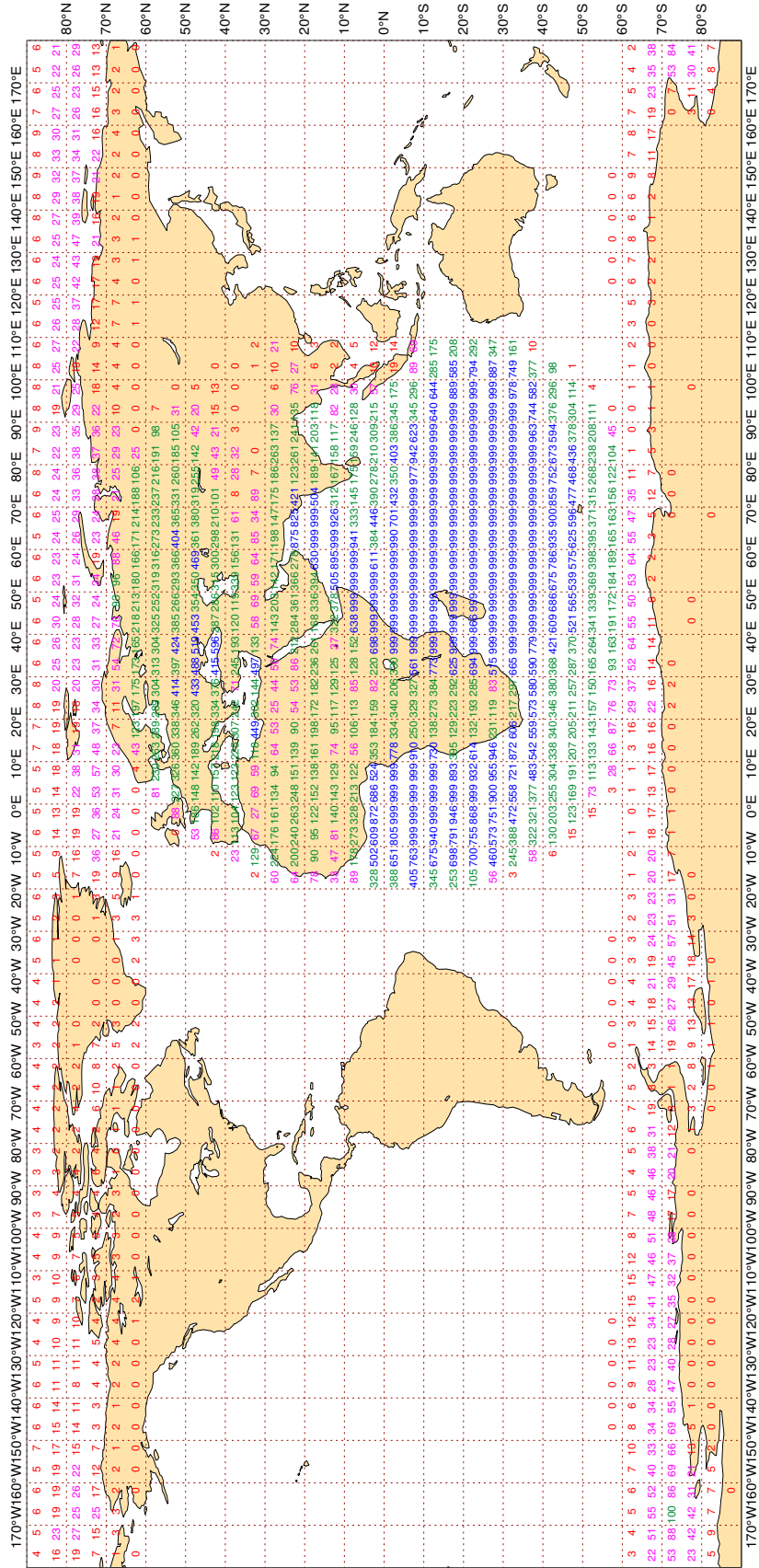
ECMWF Monitoring Statistics - JUL 2022  
Availability - AMV winds 400-150 hPa  
Average number of observations in 24 hours - 355092



3.2.7 Figure 7 - Availability - SATOB winds 1000-700 hPa

Figure 7

**ECMWF Monitoring Statistics - JUL 2022**  
**Availability - AMV winds 1000-700 hPa**  
**Average number of observations in 24 hours - 350698**

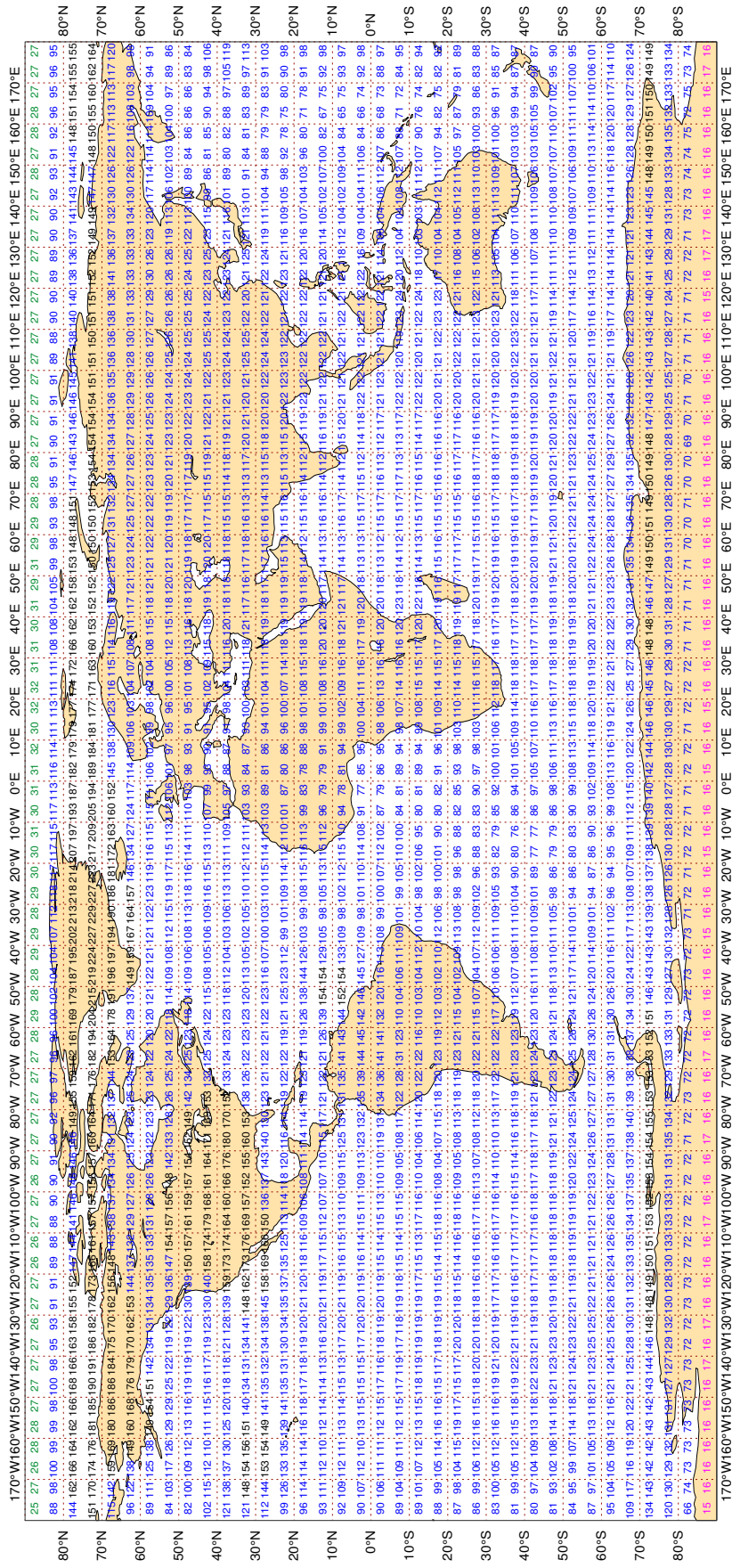


3.2.8 Figure 8 - Availability - NOAA15 ATOVS : AMSU-A

Figure 8

ECMWF Monitoring Statistics - JUL 2022  
Availability - NOAA15 ATOVS : AMSU-A

Average number of observations in 24 hours - 295129



Magics 4.9.4

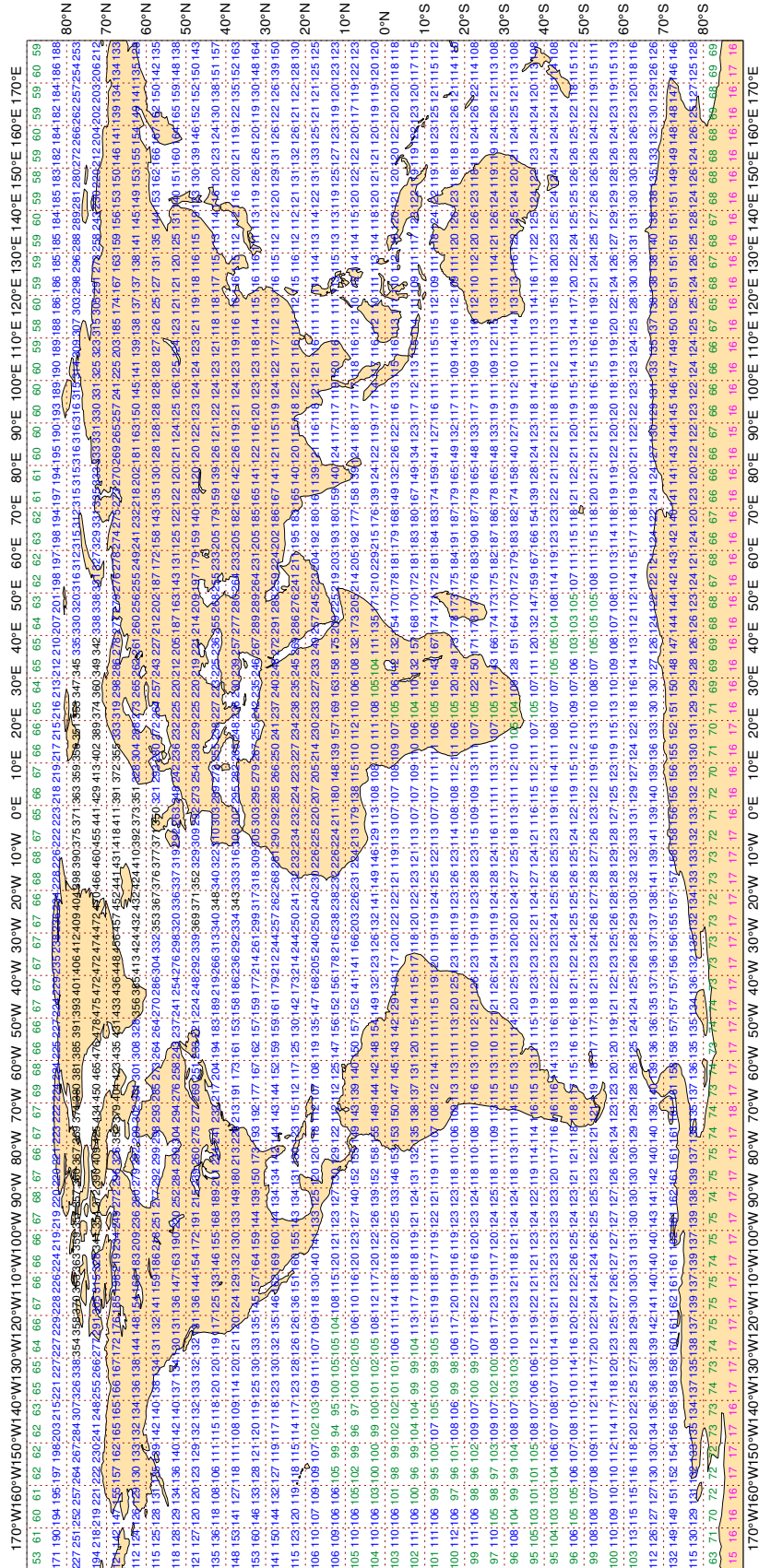




3.2.9 Figure 9.1 - Availability - NOAA18 ATOVS : AMSU-A

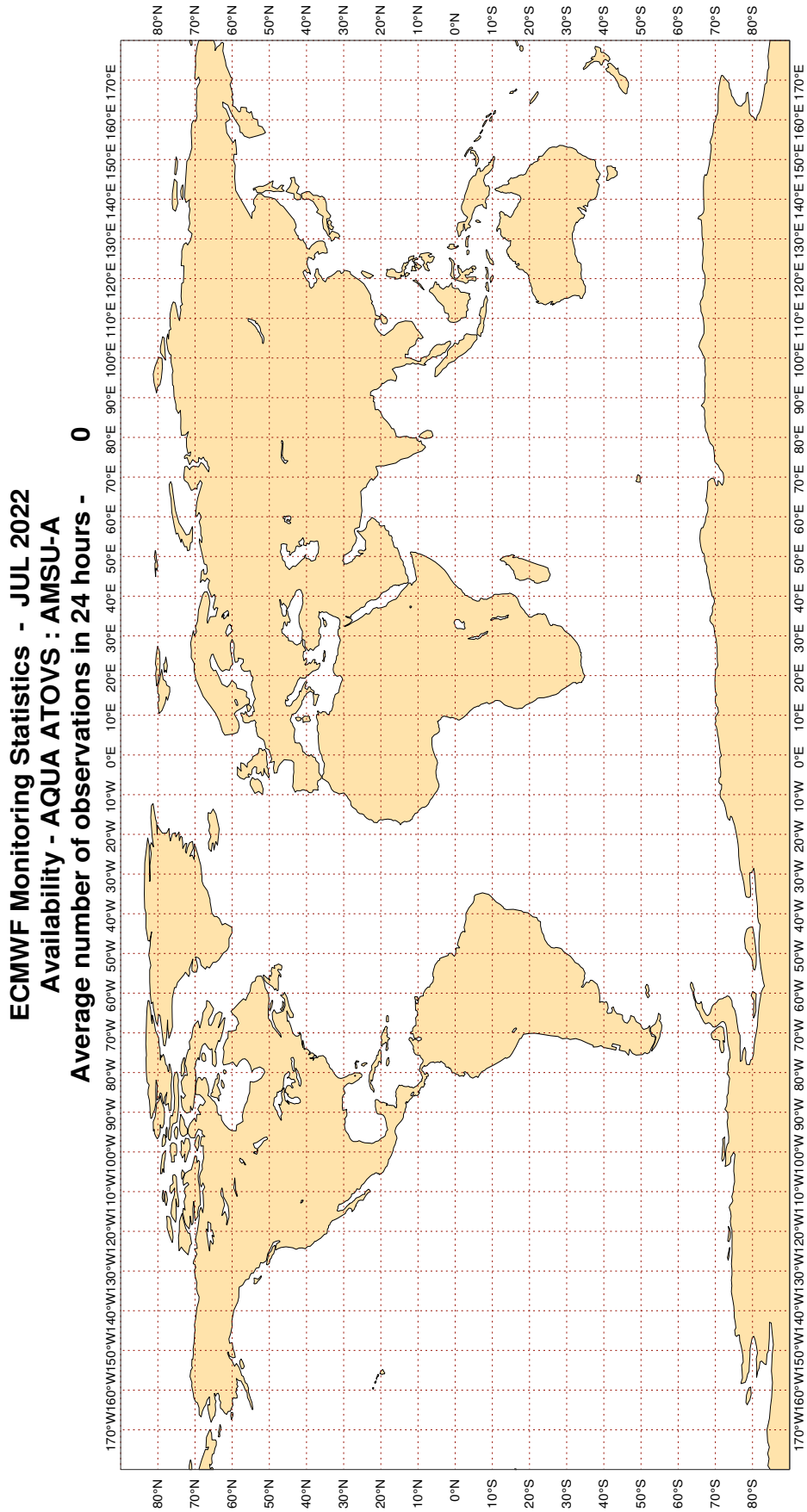
Figure 9.1

ECMWF Monitoring Statistics - JUL 2022  
Availability - NOAA18 ATOVS : AMSU-A  
Average number of observations in 24 hours - 398666



3.2.10 Figure 9.2 - Availability - AQUA ATOVS : AMSU-A

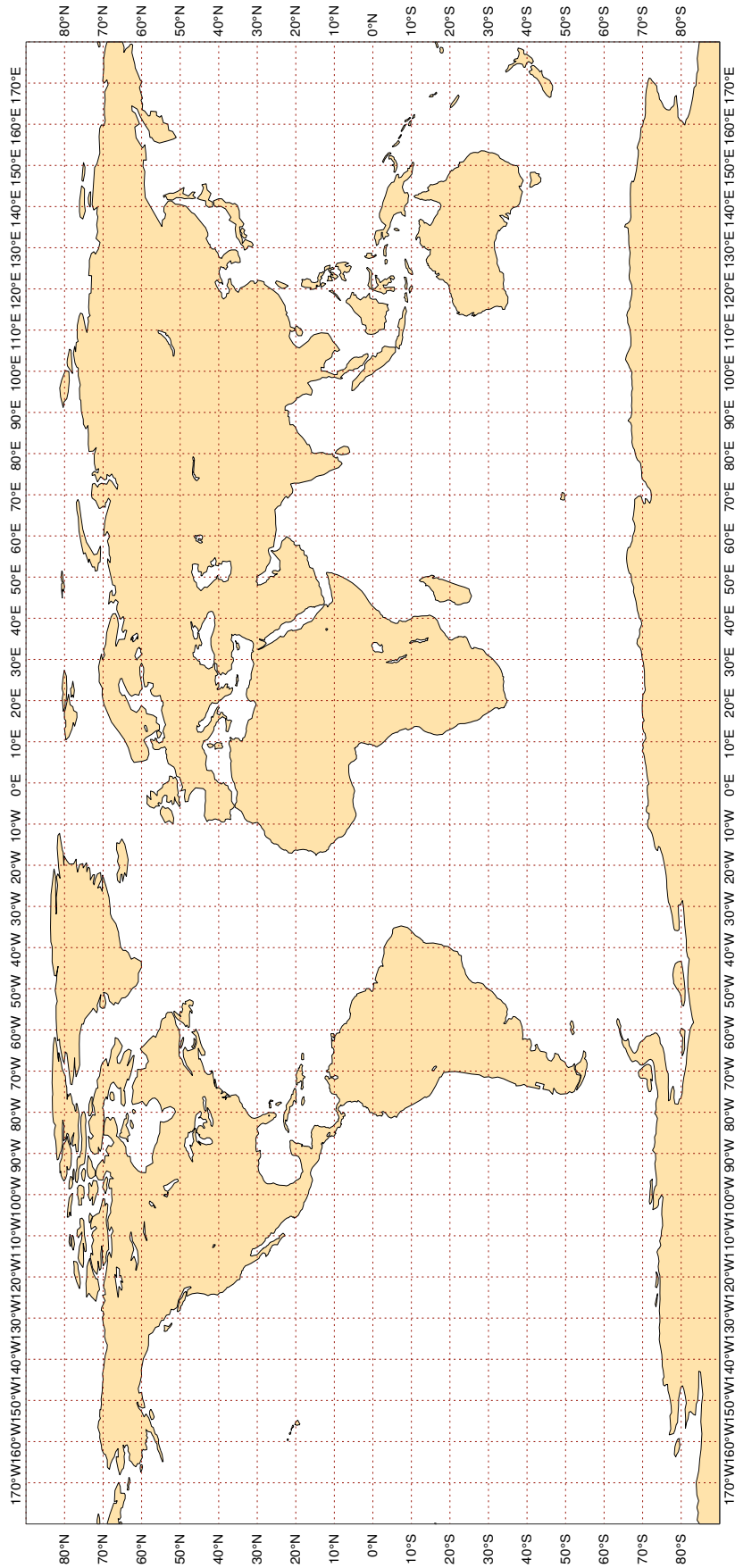
Figure 9.2



3.2.11 Figure 9.3 - Availability - METOP ATOVS : AMSU-A

Figure 9.3

**ECMWF Monitoring Statistics - JUL 2022**  
**Availability - METOP ATOVS : AMSU-A**  
**Average number of observations in 24 hours - 0**



**3.2.12 Table 1 - Suspect ships and fixed marine platforms: Surface pressure - (hPa)**

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)  
 AREA : GLOBAL  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 15(50), AND,  
 Manual (Automatic) ABSOLUTE BIAS >= 3(2) HPA, OR,  
 STANDARD DEVIATION >= 5(4) HPA, OR,  
 % GROSS ERROR >= 25(15)  
 (GROSS ERROR LIMIT = 15 HPA)

TIME = 99 => AVERAGE OF 00, 06, 12 AND 18 UTC OBSERVATIONS

| WMO IDENT | OBS TIME | ELM | LEVEL | NUM OBS | NUM GROSS | SD  | BIAS | RMS  |
|-----------|----------|-----|-------|---------|-----------|-----|------|------|
| 2EIF7     | 99       | P   | SUR   | 16      | 0         | 0.7 | 5.3  | 5.4  |
| 2HDG3     | 99       | P   | SUR   | 17      | 0         | 1.4 | 3.7  | 3.9  |
| 3E2032    | 99       | P   | SUR   | 18      | 0         | 0.8 | 4.6  | 4.7  |
| 3E3566    | 99       | P   | SUR   | 19      | 0         | 0.5 | -3.1 | 3.2  |
| 3E3594    | 99       | P   | SUR   | 17      | 0         | 1.4 | -3.3 | 3.6  |
| 3FSA9     | 99       | P   | SUR   | 37      | 0         | 3.5 | -5.0 | 6.1  |
| 3FWH8     | 99       | P   | SUR   | 15      | 0         | 1.3 | 5.9  | 6.0  |
| 45024     | 99       | P   | SUR   | 282     | 0         | 0.9 | -3.5 | 3.6  |
| 8UM7ETF   | 99       | P   | SUR   | 19      | 0         | 0.5 | -4.0 | 4.0  |
| 9HA4612   | 99       | P   | SUR   | 22      | 0         | 0.6 | 3.5  | 3.5  |
| 9HA4638   | 99       | P   | SUR   | 31      | 0         | 1.6 | 6.4  | 6.6  |
| 9HA4777   | 99       | P   | SUR   | 18      | 0         | 1.9 | 4.0  | 4.4  |
| 9HA4902   | 99       | P   | SUR   | 28      | 0         | 1.8 | 6.5  | 6.8  |
| 9HA4960   | 99       | P   | SUR   | 25      | 0         | 4.2 | 3.1  | 5.2  |
| 9HA5209   | 99       | P   | SUR   | 30      | 7         | 2.6 | 10.2 | 10.5 |
| 9HJB9     | 99       | P   | SUR   | 16      | 0         | 2.4 | 4.2  | 4.8  |
| 9HRJ9     | 99       | P   | SUR   | 66      | 0         | 0.5 | 3.7  | 3.8  |
| 9V2908    | 99       | P   | SUR   | 61      | 0         | 1.0 | 6.5  | 6.5  |
| 9V5243    | 99       | P   | SUR   | 19      | 0         | 0.7 | 4.5  | 4.5  |
| 9V9400    | 99       | P   | SUR   | 59      | 1         | 3.2 | -4.0 | 5.1  |
| ATVK      | 99       | P   | SUR   | 134     | 134       | 0.0 | 0.0  | 0.0  |
| AWWB      | 99       | P   | SUR   | 81      | 0         | 1.9 | 3.2  | 3.8  |
| C6SE5     | 99       | P   | SUR   | 53      | 0         | 0.7 | -3.5 | 3.6  |
| C6XB4     | 99       | P   | SUR   | 55      | 0         | 0.6 | 4.1  | 4.2  |
| GDE3FFJ   | 99       | P   | SUR   | 17      | 1         | 0.5 | 14.2 | 14.2 |
| H3JW      | 99       | P   | SUR   | 48      | 0         | 1.8 | 3.9  | 4.3  |
| H8EW      | 99       | P   | SUR   | 23      | 0         | 2.2 | 7.3  | 7.7  |
| JASREP    | 99       | P   | SUR   | 47      | 0         | 2.7 | 3.9  | 4.8  |
| JMJRCES   | 99       | P   | SUR   | 58      | 41        | 1.0 | -6.0 | 6.1  |
| KAFK      | 99       | P   | SUR   | 63      | 0         | 3.1 | 3.4  | 4.6  |
| KDAB      | 99       | P   | SUR   | 33      | 0         | 0.4 | 4.3  | 4.4  |
| KIAB      | 99       | P   | SUR   | 15      | 0         | 0.7 | 8.5  | 8.6  |

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)  
 (CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | NUM OBS | NUM GROSS | SD  | BIAS | RMS |
|-----------|----------|-----|-------|---------|-----------|-----|------|-----|
| KKFW      | 99       | P   | SUR   | 74      | 0         | 2.1 | -3.1 | 3.7 |
| KVMU      | 99       | P   | SUR   | 67      | 0         | 1.8 | 3.1  | 3.5 |
| LAQJ7     | 99       | P   | SUR   | 37      | 2         | 1.2 | -4.8 | 5.0 |
| PHET      | 99       | P   | SUR   | 16      | 0         | 2.0 | 3.5  | 4.1 |
| PJWM      | 99       | P   | SUR   | 24      | 0         | 1.9 | 6.2  | 6.5 |
| S6LT3     | 99       | P   | SUR   | 40      | 0         | 1.2 | 5.5  | 5.6 |
| SJA4RSK   | 99       | P   | SUR   | 143     | 0         | 0.4 | -4.6 | 4.6 |
| UCFT      | 99       | P   | SUR   | 41      | 0         | 1.3 | -4.0 | 4.2 |
| V7FA7     | 99       | P   | SUR   | 30      | 0         | 2.2 | -3.5 | 4.1 |
| V7QS7     | 99       | P   | SUR   | 89      | 0         | 0.9 | -5.7 | 5.7 |
| V7UX2     | 99       | P   | SUR   | 35      | 0         | 3.2 | 4.3  | 5.3 |
| VABC      | 99       | P   | SUR   | 45      | 0         | 1.4 | 5.8  | 6.0 |
| VRCF6     | 99       | P   | SUR   | 30      | 0         | 1.3 | 3.8  | 4.0 |
| VRDB3     | 99       | P   | SUR   | 22      | 0         | 0.7 | -5.4 | 5.4 |
| VRIB2     | 99       | P   | SUR   | 20      | 0         | 2.8 | 6.2  | 6.8 |
| VRJZ9     | 99       | P   | SUR   | 15      | 0         | 0.8 | -3.1 | 3.2 |
| VROO4     | 99       | P   | SUR   | 16      | 0         | 1.4 | 9.2  | 9.3 |
| VRPY7     | 99       | P   | SUR   | 20      | 0         | 1.3 | 4.0  | 4.2 |
| VRSR7     | 99       | P   | SUR   | 50      | 0         | 0.9 | 5.4  | 5.5 |
| VRTG6     | 99       | P   | SUR   | 16      | 0         | 5.5 | 2.9  | 6.2 |
| VRWQ2     | 99       | P   | SUR   | 65      | 0         | 2.7 | -3.8 | 4.7 |
| WGAH      | 99       | P   | SUR   | 19      | 0         | 0.5 | 3.3  | 3.3 |
| YDVUFGG   | 99       | P   | SUR   | 16      | 0         | 0.4 | 4.2  | 4.2 |
| ZCHC8     | 99       | P   | SUR   | 28      | 0         | 1.0 | 4.6  | 4.7 |
| ZGFY4     | 99       | P   | SUR   | 66      | 0         | 1.0 | -8.9 | 9.0 |

**3.2.13 Table 2 - Suspect ships and fixed marine platforms: Wind speed (m/s)**

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND SPEED (M/S)  
 AREA : GLOBAL  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 15(50), AND,  
 Manual (Automatic) ABSOLUTE BIAS >= 4(4) M/S, OR,  
 % GROSS ERROR >= 25(15)  
 (GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S)

TIME = 99 => AVERAGE OF 00, 06, 12 AND 18 UTC OBSERVATIONS

| WMO<br>IDENT | OBS<br>TIME | ELM   | LEVEL | NUM<br>OBS | NUM<br>GROSS | %<br>GROSS | SD  | BIAS | RMS |
|--------------|-------------|-------|-------|------------|--------------|------------|-----|------|-----|
| 44137        | 99          | SPEED | SUR   | 18         | 0            | 0          | 4.4 | -4.1 | 6.0 |

### 3.2.14 Table 3 - Suspect ships and fixed marine platforms: Wind direction (DEGREES)

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)  
 AREA : GLOBAL  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 15(50) (WIND SPEEDS > 3M/S), AND ,  
 Manual (Automatic) ABSOLUTE BIAS >= 30(25) DEGREES, OR,  
 STANDARD DEVIATION >= 70(50) DEGREES  
 (GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S)

TIME = 99 => AVERAGE OF 00, 06, 12 AND 18 UTC OBSERVATIONS

| WMO IDENT | OBS TIME | ELM  | LEVEL | NUM OBS | NUM GROSS | % GROSS | SD   | BIAS  | RMS  |
|-----------|----------|------|-------|---------|-----------|---------|------|-------|------|
| 44037     | 99       | DIRN | SUR   | 71      | 0         | 0       | 14.6 | 42.4  | 44.9 |
| 45023     | 99       | DIRN | SUR   | 135     | 0         | 0       | 15.4 | 33.1  | 36.5 |
| 45145     | 99       | DIRN | SUR   | 84      | 0         | 0       | 32.4 | 74.3  | 81.1 |
| 45197     | 99       | DIRN | SUR   | 459     | 0         | 0       | 31.7 | 31.7  | 44.8 |
| 45199     | 99       | DIRN | SUR   | 536     | 0         | 0       | 52.4 | -38.6 | 65.1 |
| 46081     | 99       | DIRN | SUR   | 50      | 0         | 0       | 43.1 | 50.2  | 66.2 |
| 46132     | 99       | DIRN | SUR   | 92      | 0         | 0       | 12.6 | 63.3  | 64.5 |
| 46146     | 99       | DIRN | SUR   | 56      | 0         | 0       | 38.3 | 31.3  | 49.5 |
| 46205     | 99       | DIRN | SUR   | 88      | 0         | 0       | 15.0 | 30.2  | 33.7 |
| 62030     | 99       | DIRN | SUR   | 41      | 0         | 0       | 19.0 | -51.0 | 54.4 |

**3.2.15 Table 4 - Suspect drifters: Surface pressure (HPA)**

LIST OF SUSPECT STATIONS : DRIFTER  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)  
 AREA : GLOBAL  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20, AND,  
 ABSOLUTE BIAS >= 4 HPA, OR,  
 STANDARD DEVIATION >= 6 HPA, OR,  
 % GROSS ERROR >= 25  
 (GROSS ERROR LIMIT = 15 HPA)

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD  | BIAS  | RMS  |
|-----------|----------|-----|-------|----------|-----------|---------|-----------|-----|-------|------|
| 00000     | 99       | P   | SUR   | 44       | -79       | 50      | 0         | 0.5 | -12.7 | 12.8 |
| 3101513   | 99       | P   | SUR   | -29      | -40       | 300     | 0         | 1.9 | 10.0  | 10.2 |
| 4601783   | 99       | P   | SUR   | 54       | -136      | 158     | 158       | 0.0 | 0.0   | 0.0  |
| 4701658   | 99       | P   | SUR   | 72       | -95       | 724     | 0         | 3.3 | 7.1   | 7.8  |
| 4701738   | 99       | P   | SUR   | 70       | -67       | 722     | 722       | 0.0 | 0.0   | 0.0  |
| 4701744   | 99       | P   | SUR   | 80       | -100      | 352     | 352       | 0.0 | 0.0   | 0.0  |
| 4701747   | 99       | P   | SUR   | 80       | -108      | 253     | 14        | 3.5 | 4.5   | 5.7  |
| 4801670   | 99       | P   | SUR   | 87       | -101      | 709     | 0         | 4.0 | 5.1   | 6.5  |
| 5102809   | 99       | P   | SUR   | 4        | -98       | 702     | 0         | 0.6 | -4.2  | 4.3  |
| 5401625   | 99       | P   | SUR   | -8       | 144       | 702     | 610       | 5.5 | -0.5  | 5.5  |
| 6102804   | 99       | P   | SUR   | 39       | 1         | 249     | 4         | 3.2 | -4.4  | 5.5  |
| 6402587   | 99       | P   | SUR   | 54       | -50       | 647     | 373       | 2.1 | 12.3  | 12.5 |
| 6402656   | 99       | P   | SUR   | 55       | -44       | 117     | 84        | 2.3 | 13.3  | 13.5 |
| 6402684   | 99       | P   | SUR   | 66       | -21       | 84      | 0         | 1.0 | 7.8   | 7.8  |
| 6501671   | 99       | P   | SUR   | 80       | 5         | 686     | 1         | 3.3 | 4.6   | 5.7  |
| 6501689   | 99       | P   | SUR   | 79       | 26        | 413     | 385       | 0.8 | 14.0  | 14.1 |



**3.2.16 Table 5 - Suspect drifters: Wind speed (m/s)**

LIST OF SUSPECT STATIONS : DRIFTER  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND SPEED (M/S)  
 AREA : GLOBAL  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20, AND,  
 ABSOLUTE BIAS >= 5 M/S, OR,  
 % GROSS ERROR >= 25  
 (GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S)

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

| WMO<br>IDENT | OBS<br>TIME | ELM   | LEVEL | MEAN<br>LAT | MEAN<br>LONG | NUM<br>OBS | NUM<br>GROSS | %<br>GROSS | SD  | BIAS | RMS |
|--------------|-------------|-------|-------|-------------|--------------|------------|--------------|------------|-----|------|-----|
| 4400069      | 99          | SPEED | SUR   | 41          | -73          | 1403       | 0            | 0          | 2.3 | 5.1  | 5.6 |
| 6101009      | 99          | SPEED | SUR   | 35          | 25           | 51         | 0            | 0          | 1.7 | -5.8 | 6.1 |

**3.2.17 Table 6 - Suspect drifters: Wind direction (degrees)**

LIST OF SUSPECT STATIONS : DRIFTER  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20 (WIND SPEEDS > 3M/S), AND ,  
 ABSOLUTE BIAS >= 20 DEGREES, OR,  
 STANDARD DEVIATION >= 60 DEGREES  
 (GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S)

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

| WMO IDENT | OBS TIME | ELM  | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | % GROSS | SD    | BIAS   | RMS   |
|-----------|----------|------|-------|----------|-----------|---------|-----------|---------|-------|--------|-------|
| 1300131   | 99       | DIRN | SUR   | 28       | -17       | 375     | 0         | 0       | 66.8  | 32.2   | 74.1  |
| 1500008   | 99       | DIRN | SUR   | -20      | -10       | 224     | 0         | 0       | 19.9  | -23.0  | 30.4  |
| 2200102   | 99       | DIRN | SUR   | 35       | 126       | 346     | 0         | 0       | 84.5  | 17.3   | 86.2  |
| 2200192   | 99       | DIRN | SUR   | 34       | 123       | 542     | 3         | 0       | 161.5 | -8.1   | 161.8 |
| 2200298   | 99       | DIRN | SUR   | 35       | 125       | 448     | 0         | 0       | 24.1  | -93.1  | 96.2  |
| 23099     | 99       | DIRN | SUR   | 13       | 80        | 368     | 0         | 0       | 96.3  | -51.6  | 109.3 |
| 23453     | 99       | DIRN | SUR   | 8        | 73        | 234     | 0         | 0       | 13.9  | -39.0  | 41.4  |
| 23454     | 99       | DIRN | SUR   | 10       | 73        | 230     | 0         | 0       | 35.4  | -45.0  | 57.3  |
| 23491     | 99       | DIRN | SUR   | 12       | 93        | 313     | 0         | 0       | 63.7  | -108.9 | 126.2 |
| 23492     | 99       | DIRN | SUR   | 11       | 72        | 244     | 0         | 0       | 30.5  | -70.2  | 76.6  |
| 23497     | 99       | DIRN | SUR   | 11       | 72        | 209     | 0         | 0       | 34.6  | -66.7  | 75.1  |
| 4400037   | 99       | DIRN | SUR   | 43       | -68       | 471     | 0         | 0       | 15.1  | 42.5   | 45.1  |
| 44037     | 99       | DIRN | SUR   | 44       | -68       | 451     | 0         | 0       | 15.2  | 42.8   | 45.5  |
| 4500001   | 99       | DIRN | SUR   | 48       | -88       | 2303    | 0         | 0       | 22.8  | 26.2   | 34.7  |
| 4500004   | 99       | DIRN | SUR   | 48       | -87       | 2390    | 0         | 0       | 21.8  | 24.1   | 32.5  |
| 4500006   | 99       | DIRN | SUR   | 47       | -90       | 2455    | 0         | 0       | 24.6  | 20.7   | 32.1  |
| 4500023   | 99       | DIRN | SUR   | 47       | -89       | 863     | 0         | 0       | 13.8  | 35.5   | 38.1  |
| 45001     | 99       | DIRN | SUR   | 48       | -88       | 2194    | 0         | 0       | 22.6  | 24.5   | 33.3  |
| 4500168   | 99       | DIRN | SUR   | 42       | -86       | 1968    | 0         | 0       | 38.3  | 26.4   | 46.5  |
| 4500176   | 99       | DIRN | SUR   | 42       | -82       | 2474    | 0         | 0       | 38.0  | -29.5  | 48.2  |
| 4500186   | 99       | DIRN | SUR   | 42       | -88       | 1936    | 0         | 0       | 62.6  | 1.1    | 62.6  |
| 4500197   | 99       | DIRN | SUR   | 42       | -82       | 2415    | 0         | 0       | 31.7  | 32.5   | 45.4  |
| 4500199   | 99       | DIRN | SUR   | 43       | -88       | 463     | 0         | 0       | 53.8  | -38.3  | 66.1  |
| 45004     | 99       | DIRN | SUR   | 48       | -87       | 2543    | 0         | 0       | 22.7  | 23.2   | 32.5  |
| 45006     | 99       | DIRN | SUR   | 47       | -90       | 2602    | 0         | 0       | 24.0  | 20.2   | 31.4  |
| 45023     | 99       | DIRN | SUR   | 47       | -89       | 815     | 0         | 0       | 16.2  | 34.5   | 38.2  |
| 45136     | 99       | DIRN | SUR   | 49       | -87       | 258     | 0         | 0       | 34.8  | 21.8   | 41.1  |
| 45145     | 99       | DIRN | SUR   | 52       | -97       | 545     | 0         | 0       | 34.2  | 74.3   | 81.8  |
| 45168     | 99       | DIRN | SUR   | 42       | -86       | 1902    | 0         | 0       | 39.2  | 25.6   | 46.8  |
| 45176     | 99       | DIRN | SUR   | 42       | -82       | 2350    | 0         | 0       | 41.0  | -28.5  | 49.9  |
| 45186     | 99       | DIRN | SUR   | 42       | -88       | 1823    | 0         | 0       | 63.1  | 0.4    | 63.1  |

LIST OF SUSPECT STATIONS : DRIFTER  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)  
 (CONTINUED)

| WMO IDENT | OBS TIME | ELM  | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | % GROSS | SD    | BIAS  | RMS   |
|-----------|----------|------|-------|----------|-----------|---------|-----------|---------|-------|-------|-------|
| 45197     | 99       | DIRN | SUR   | 42       | -82       | 2717    | 0         | 0       | 32.5  | 32.0  | 45.6  |
| 45199     | 99       | DIRN | SUR   | 43       | -88       | 3003    | 0         | 0       | 57.3  | -34.7 | 66.9  |
| 4600081   | 99       | DIRN | SUR   | 61       | -148      | 278     | 0         | 0       | 45.5  | 50.2  | 67.8  |
| 46081     | 99       | DIRN | SUR   | 61       | -148      | 279     | 0         | 0       | 46.7  | 48.0  | 66.9  |
| 46132     | 99       | DIRN | SUR   | 50       | -128      | 556     | 0         | 0       | 12.6  | 63.0  | 64.2  |
| 46145     | 99       | DIRN | SUR   | 54       | -132      | 521     | 0         | 0       | 22.9  | 20.9  | 31.1  |
| 46146     | 99       | DIRN | SUR   | 49       | -124      | 302     | 0         | 0       | 42.7  | 26.6  | 50.3  |
| 46205     | 99       | DIRN | SUR   | 54       | -134      | 541     | 0         | 0       | 14.9  | 29.6  | 33.2  |
| 46208     | 99       | DIRN | SUR   | 53       | -133      | 35      | 0         | 0       | 11.7  | 31.5  | 33.6  |
| 6101007   | 99       | DIRN | SUR   | 36       | 25        | 128     | 0         | 0       | 21.1  | 28.5  | 35.5  |
| 6200086   | 99       | DIRN | SUR   | 55       | 6         | 474     | 0         | 0       | 13.5  | 28.7  | 31.7  |
| 6200200   | 99       | DIRN | SUR   | 36       | -8        | 321     | 2         | 0       | 164.0 | -39.5 | 168.7 |
| 62030     | 99       | DIRN | SUR   | 50       | -4        | 349     | 0         | 0       | 17.3  | -53.4 | 56.2  |
| 6600022   | 99       | DIRN | SUR   | 54       | 14        | 182     | 0         | 0       | 37.1  | 26.5  | 45.6  |
| 66022     | 99       | DIRN | SUR   | 54       | 14        | 158     | 0         | 0       | 38.4  | 29.7  | 48.6  |

**3.2.18 Table 7 - Suspect radiosondes: Geopotential height (metres)**

LIST OF SUSPECT STATIONS : RADIOSONDES  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)  
 AREA : GLOBAL  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: AT LEAST 3 LEVELS WITH  
 10 OBS AND 100 M WEIGHTED RMS

ONLY THE WORST LEVEL IS SHOWN (WITH UNWEIGHTED RMS)

| WMO IDENT | OBS TIME | ELM | LEV  | LAT | LONG | NUM OBS | NUM GROSS | SD    | BIAS   | RMS   |
|-----------|----------|-----|------|-----|------|---------|-----------|-------|--------|-------|
| 01400     | 12       | Z   | 1000 | 57  | 3    | 30      | 0         | 5.6   | 79.1   | 79.3  |
| 01400     | 00       | Z   | 1000 | 57  | 3    | 31      | 0         | 5.6   | 78.4   | 78.6  |
| 38064     | 00       | Z   | 100  | 45  | 66   | 27      | 0         | 88.8  | 88.7   | 125.5 |
| 38064     | 12       | Z   | 150  | 45  | 66   | 28      | 0         | 74.6  | 57.7   | 94.3  |
| 38341     | 00       | Z   | 100  | 43  | 71   | 29      | 1         | 104.6 | 102.0  | 146.1 |
| 38341     | 12       | Z   | 150  | 43  | 71   | 30      | 0         | 82.3  | 101.7  | 130.8 |
| 40800     | 00       | Z   | 30   | 33  | 52   | 28      | 0         | 198.4 | -124.7 | 234.3 |
| 42647     | 12       | Z   | 50   | 23  | 73   | 20      | 4         | 134.0 | -271.2 | 302.5 |
| 47911     | 00       | Z   | 1000 | 24  | 123  | 29      | 0         | 3.5   | 30.2   | 30.4  |
| 47911     | 12       | Z   | 1000 | 24  | 123  | 30      | 0         | 8.7   | 26.5   | 27.9  |
| 52533     | 12       | Z   | 50   | 40  | 98   | 31      | 1         | 92.4  | 162.7  | 187.1 |
| 52533     | 00       | Z   | 50   | 40  | 98   | 31      | 0         | 104.8 | 198.9  | 224.8 |
| 58238     | 00       | Z   | 50   | 32  | 119  | 30      | 0         | 125.6 | 74.1   | 145.8 |
| 68842     | 12       | Z   | 1000 | -34 | 26   | 29      | 0         | 26.6  | 17.3   | 31.7  |
| 98558     | 00       | Z   | 1000 | 11  | 126  | 25      | 0         | 30.6  | 30.4   | 43.1  |
| JNKN7J    | 12       | Z   | 1000 | 51  | -27  | 11      | 0         | 4.1   | 41.0   | 41.2  |
| JNKN7J    | 00       | Z   | 1000 | 51  | -31  | 11      | 0         | 2.9   | 41.7   | 41.8  |
| KMPLHP    | 00       | Z   | 1000 | 49  | -35  | 10      | 0         | 28.3  | 32.1   | 42.8  |
| KMPLHP    | 12       | Z   | 1000 | 50  | -30  | 13      | 0         | 5.7   | 40.8   | 41.2  |

**3.2.19 Table 8 - Suspect radiosondes: Wind (m/s)**

LIST OF SUSPECT STATIONS : RADIOSONDES  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 AREA : GLOBAL  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: AT LEAST 10 OBS AND 15 M/S RMS VECTOR WIND

STANDARD LEVEL (1000-100 HPA) WITH HIGHEST RMS IS SHOWN

| WMO<br>IDENT | OBS<br>TIME | ELM | LEV | LAT | LONG | NUM<br>OBS | NUM<br>GROSS | UBIAS | VBIAS | RMS |
|--------------|-------------|-----|-----|-----|------|------------|--------------|-------|-------|-----|
|--------------|-------------|-----|-----|-----|------|------------|--------------|-------|-------|-----|

**3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)**

LIST OF SUSPECT STATIONS : RADIOSONDES  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)  
 AREA : GLOBAL  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

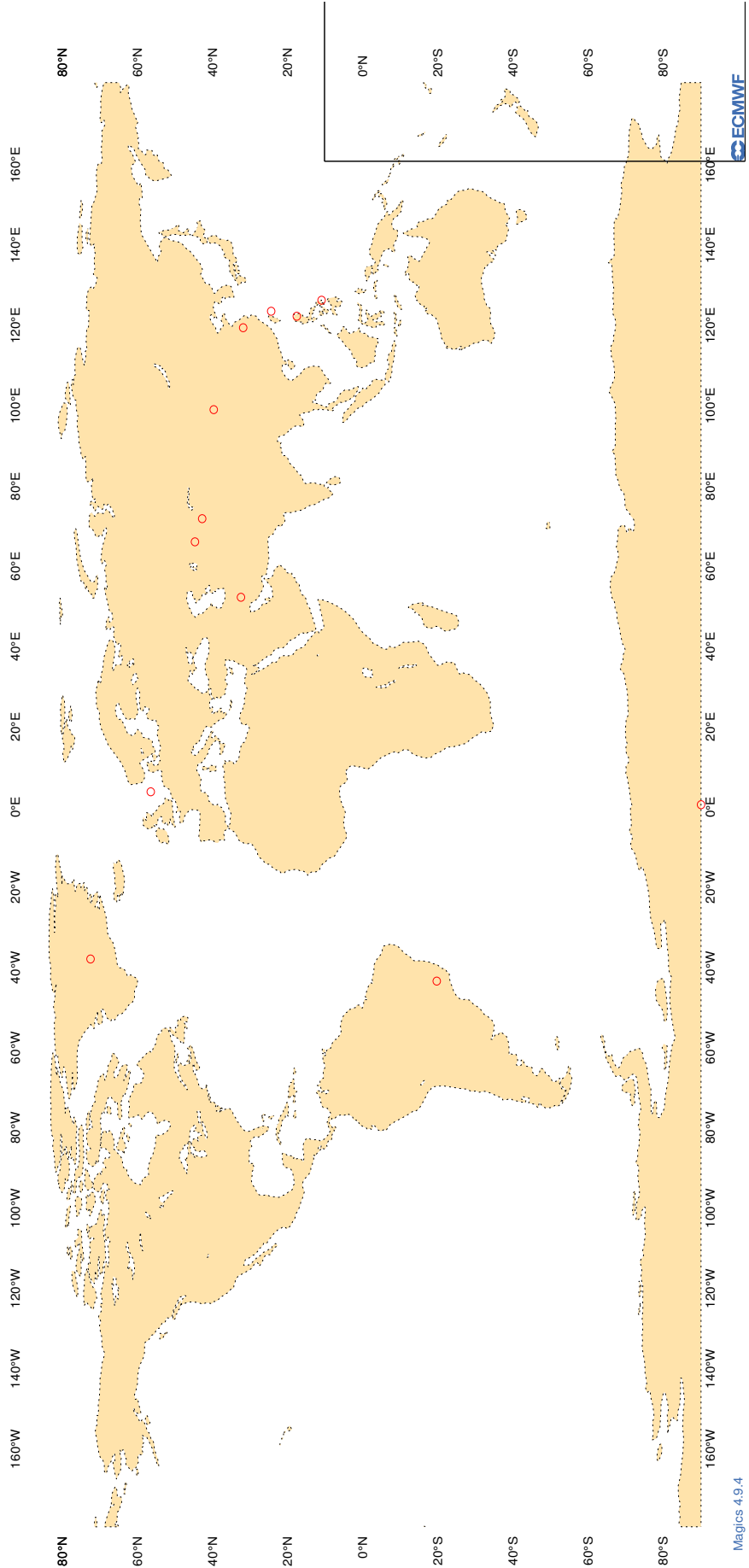
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS  $\geq$  5 M/S  
 NO. OF OBSERVATIONS  $\geq$  5, AND,  
 ABSOLUTE BIAS  $\geq$  10 DEGREES, WITH  
 STANDARD DEVIATION  $<$  30 DEGREES, AND,  
 VERTICAL SPREAD  $<$  10 DEGREES  
 (AVERAGE BETWEEN 500 AND 150 HPA)

| WMO<br>IDENT | OBS<br>TIME | ELM | LAT | LONG | NUM<br>OBS | BIAS | MAX<br>SPREAD | SD |
|--------------|-------------|-----|-----|------|------------|------|---------------|----|
|--------------|-------------|-----|-----|------|------------|------|---------------|----|

3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC

Figure 10

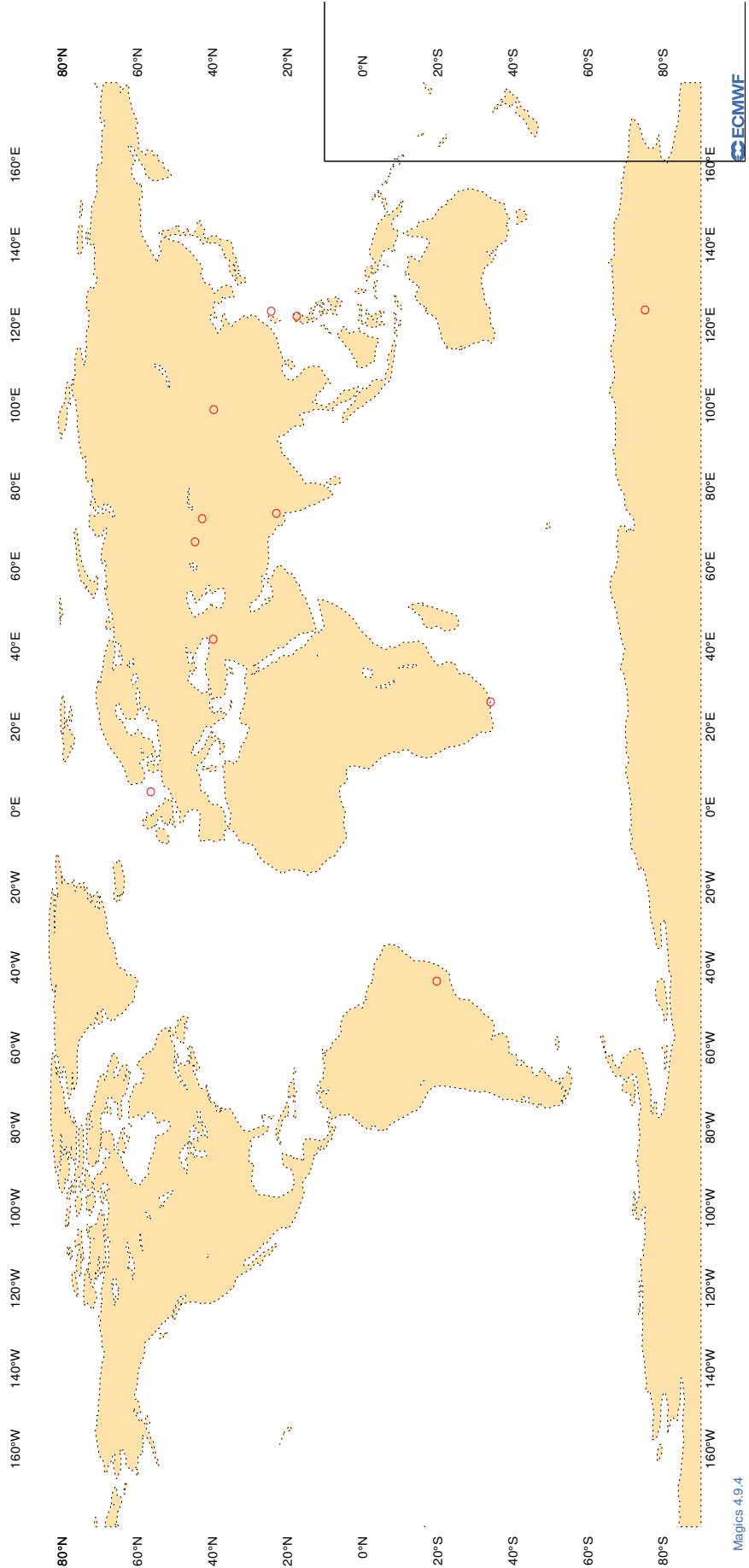
ECMWF Monitoring Statistics - JUL 2022 00 UTC  
Suspect TEMP observations - GEOPOTENTIAL



3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC

Figure 11

ECMWF Monitoring Statistics - JUL 2022 12 UTC  
Suspect TEMP observations - GEOPOTENTIAL

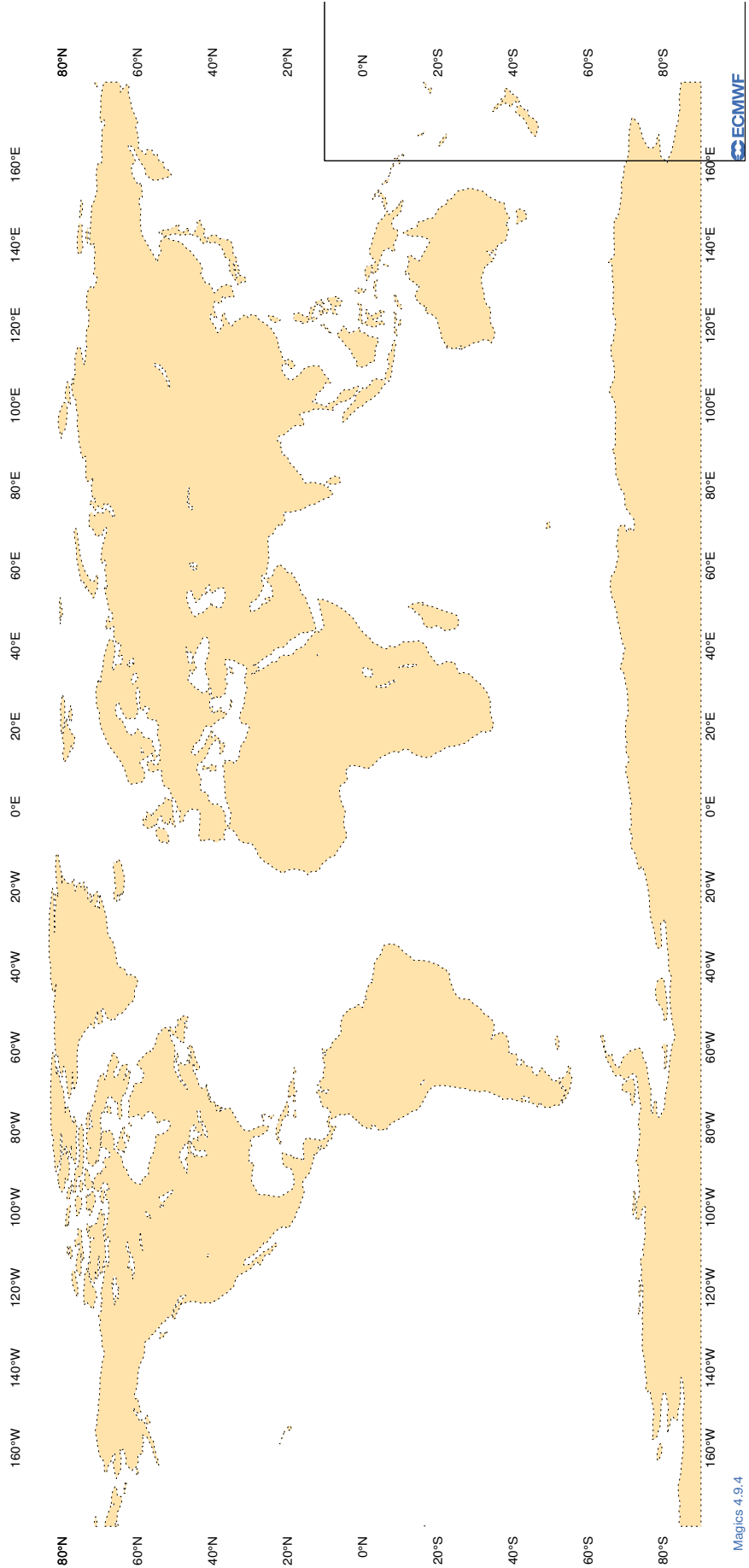




3.2.23 Figure 12 - Suspect TEMP/PILOT observations - wind : 00 UTC

Figure 12

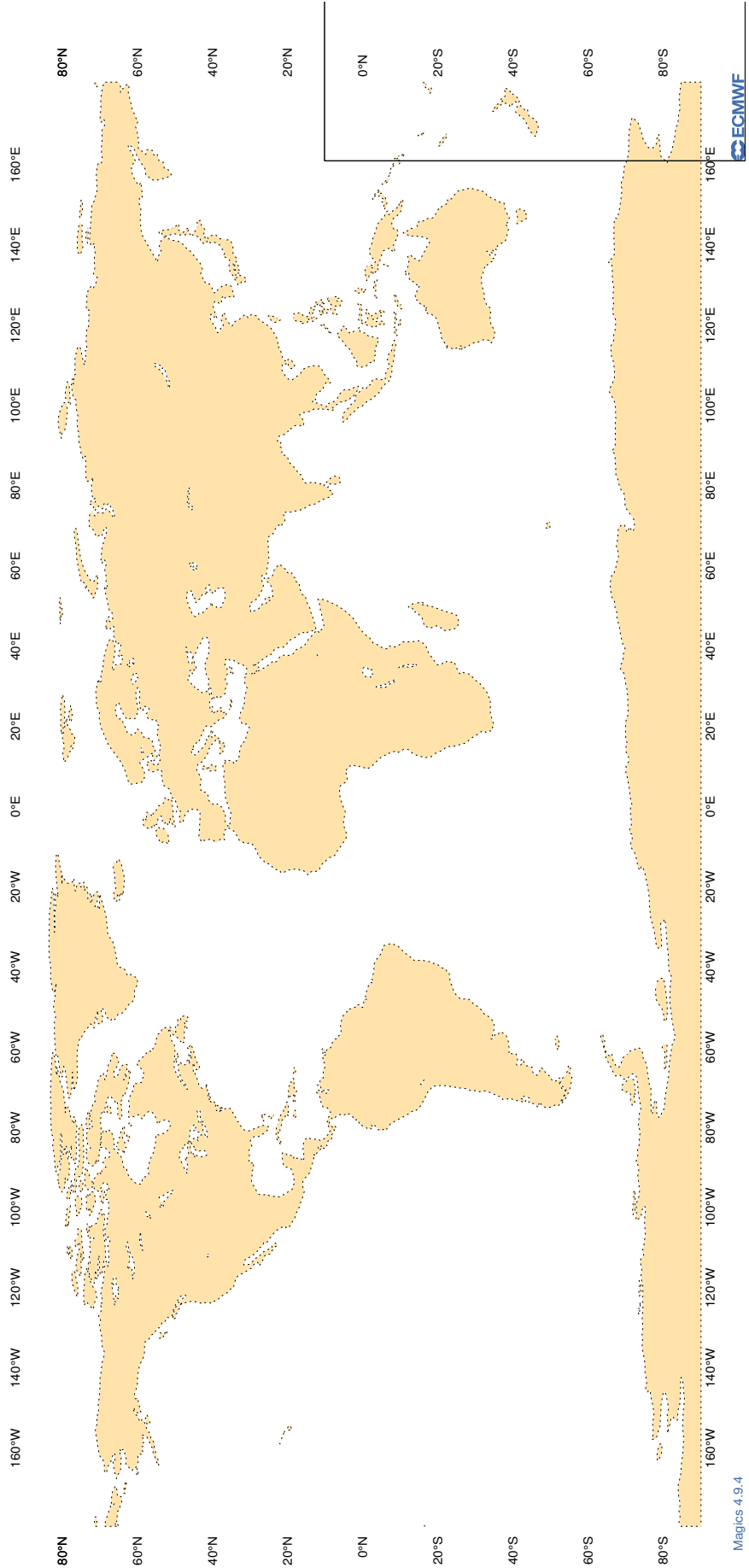
ECMWF Monitoring Statistics - JUL 2022 00 UTC  
Suspect TEMP/PILOT observations - WIND



3.2.24 Figure 13 - Suspect TEMP/PILOT observations - wind : 12 UTC

Figure 13

ECMWF Monitoring Statistics - JUL 2022 12 UTC  
Suspect TEMP/PILOT observations - WIND



### 3.2.25 Table 10 - Radiosonde monitoring statistics (SHIPS): Geopotential height (metres)

#### RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)  
 LEVEL : 100 HPA  
 AREA : GLOBAL  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS  | BIAS  |
|-----------|----------|-----|-------|----------|------|-------|
| 2EERT     | 12       | Z   | 100   | 5        | 15.2 | -14.2 |
| 2EERT     | 00       | Z   | 100   | 10       | 11.8 | -10.6 |
| 7JUNA4    | 00       | Z   | 100   | 7        | 7.4  | -0.3  |
| 7JUNA4    | 12       | Z   | 100   | 5        | 62.8 | 48.0  |
| 9ZT9MR    | 00       | Z   | 100   | 3        | 25.2 | -24.6 |
| 9ZT9MR    | 12       | Z   | 100   | 2        | 21.9 | -21.9 |
| ASDE09    | 12       | Z   | 100   | 1        | 26.2 | 26.2  |
| ATGU3F    | 00       | Z   | 100   | 4        | 27.2 | -26.2 |
| ATGU3F    | 12       | Z   | 100   | 3        | 22.5 | -22.4 |
| BPMWB2    | 00       | Z   | 100   | 7        | 16.5 | 13.2  |
| BPMWB2    | 12       | Z   | 100   | 9        | 22.4 | 19.4  |
| DBLK      | 12       | Z   | 100   | 32       | 9.8  | 9.1   |
| DBLK      | 00       | Z   | 100   | 30       | 8.9  | 7.5   |
| DSQL7     | 00       | Z   | 100   | 12       | 9.1  | -5.4  |
| DSQL7     | 12       | Z   | 100   | 13       | 8.5  | -3.9  |
| FPUW5G    | 12       | Z   | 100   | 20       | 6.2  | -1.7  |
| JGQH      | 12       | Z   | 100   | 4        | 3.6  | -0.2  |
| JGQH      | 00       | Z   | 100   | 8        | 7.7  | 3.9   |
| JNKN7J    | 00       | Z   | 100   | 11       | 22.8 | 21.9  |
| JNKN7J    | 12       | Z   | 100   | 11       | 19.9 | 17.7  |
| JPBN      | 00       | Z   | 100   | 2        | 7.8  | 7.4   |
| JPBN      | 12       | Z   | 100   | 3        | 8.7  | -1.2  |
| JPNAK     | 00       | Z   | 100   | 38       | 14.3 | 0.9   |
| JPNAK     | 12       | Z   | 100   | 39       | 10.2 | 4.6   |
| KJJF9X    | 12       | Z   | 100   | 5        | 7.6  | 4.4   |
| KJJF9X    | 00       | Z   | 100   | 9        | 12.4 | 5.6   |
| KMPLHP    | 12       | Z   | 100   | 12       | 79.3 | 74.9  |
| KMPLHP    | 00       | Z   | 100   | 10       | 24.3 | 12.0  |
| LRYQE3    | 00       | Z   | 100   | 10       | 13.7 | -10.8 |
| LRYQE3    | 12       | Z   | 100   | 11       | 14.3 | -4.9  |
| UXK5JT    | 00       | Z   | 100   | 8        | 4.7  | 0.9   |
| UXK5JT    | 12       | Z   | 100   | 10       | 10.5 | 2.5   |
| WDK38H    | 12       | Z   | 100   | 18       | 11.3 | -9.6  |
| WDK38H    | 00       | Z   | 100   | 1        | 11.2 | -11.2 |
| XKQLWQ    | 12       | Z   | 100   | 21       | 27.4 | 25.8  |
| XQFJRG    | 12       | Z   | 100   | 3        | 8.3  | -5.4  |
| XQFJRG    | 00       | Z   | 100   | 0        | 0.0  | 0.0   |
| YLV96W    | 12       | Z   | 100   | 6        | 8.5  | -6.8  |
| YLV96W    | 00       | Z   | 100   | 6        | 15.0 | -13.6 |

RADIOSONDE MONITORING STATISTICS (SHIPS)  
(CONTINUED)

| WMO<br>IDENT | OBS<br>TIME | ELM | LEVEL | OBS<br>RECD | RMS | BIAS |
|--------------|-------------|-----|-------|-------------|-----|------|
| ZVQEQC       | 12          | Z   | 100   | 13          | 7.4 | 0.8  |
| ZVQEQC       | 00          | Z   | 100   | 15          | 5.6 | -4.6 |

### 3.2.26 Table 11 - Radiosonde monitoring statistics (SHIPS): Wind (m/s)

#### RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 LEVEL : 100 HPA  
 AREA : GLOBAL  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|-----------|----------|-----|-------|----------|-----|-------|-------|
| 2EERVT    | 12       | V   | 100   | 5        | 1.4 | -0.3  | 0.2   |
| 2EERVT    | 00       | V   | 100   | 10       | 2.0 | -0.1  | 0.4   |
| 7JUNA4    | 00       | V   | 100   | 7        | 3.4 | 1.3   | 0.7   |
| 7JUNA4    | 12       | V   | 100   | 5        | 3.5 | 0.5   | 0.5   |
| 9ZT9MR    | 00       | V   | 100   | 3        | 2.2 | 0.1   | 0.8   |
| 9ZT9MR    | 12       | V   | 100   | 2        | 3.4 | -2.1  | 0.8   |
| ASDE09    | 12       | V   | 100   | 1        | 2.7 | -0.3  | 2.7   |
| ATGU3F    | 00       | V   | 100   | 4        | 2.1 | -0.7  | 0.8   |
| ATGU3F    | 12       | V   | 100   | 3        | 1.4 | 0.0   | -0.7  |
| BPMWB2    | 00       | V   | 100   | 6        | 2.8 | -1.1  | -1.1  |
| BPMWB2    | 12       | V   | 100   | 9        | 3.9 | 0.7   | 0.2   |
| DBLK      | 12       | V   | 100   | 31       | 2.1 | 0.0   | -0.4  |
| DBLK      | 00       | V   | 100   | 28       | 2.3 | 0.0   | -0.7  |
| DSQL7     | 00       | V   | 100   | 12       | 1.8 | 0.8   | 0.4   |
| DSQL7     | 12       | V   | 100   | 13       | 2.3 | 1.0   | 0.4   |
| FPUW5G    | 12       | V   | 100   | 20       | 2.2 | 0.4   | -0.2  |
| JGQH      | 12       | V   | 100   | 4        | 4.2 | 1.9   | 1.1   |
| JGQH      | 00       | V   | 100   | 8        | 3.8 | 0.2   | -0.6  |
| JNKN7J    | 00       | V   | 100   | 11       | 2.8 | 0.5   | -0.3  |
| JNKN7J    | 12       | V   | 100   | 11       | 2.6 | 1.4   | -1.2  |
| JPBN      | 00       | V   | 100   | 2        | 5.1 | 3.6   | 3.6   |
| JPBN      | 12       | V   | 100   | 3        | 3.9 | 0.2   | 0.9   |
| JPNAK     | 00       | V   | 100   | 20       | 4.0 | 0.1   | 0.4   |
| JPNAK     | 12       | V   | 100   | 20       | 4.8 | 0.7   | -1.6  |
| KJJF9X    | 12       | V   | 100   | 5        | 2.3 | -0.1  | -1.3  |
| KJJF9X    | 00       | V   | 100   | 9        | 2.1 | -0.3  | 0.3   |
| KMPLHP    | 12       | V   | 100   | 12       | 4.0 | 0.8   | 1.1   |
| KMPLHP    | 00       | V   | 100   | 10       | 2.9 | 0.5   | 0.4   |
| LRYQE3    | 00       | V   | 100   | 10       | 2.7 | 0.0   | 0.1   |
| LRYQE3    | 12       | V   | 100   | 11       | 3.4 | -0.1  | 0.3   |
| UXK5JT    | 00       | V   | 100   | 8        | 2.0 | -0.4  | 0.8   |
| UXK5JT    | 12       | V   | 100   | 10       | 3.4 | -0.2  | 1.0   |
| WDK38H    | 12       | V   | 100   | 18       | 2.0 | 0.0   | -0.1  |
| WDK38H    | 00       | V   | 100   | 1        | 2.9 | -2.8  | 0.9   |
| XKQLWQ    | 12       | V   | 100   | 21       | 2.4 | -0.2  | 0.1   |
| XQFJRG    | 12       | V   | 100   | 3        | 1.9 | 0.6   | 0.1   |
| XQFJRG    | 00       | V   | 100   | 0        | 0.0 | 0.0   | 0.0   |
| YLV96W    | 12       | V   | 100   | 6        | 1.7 | -0.3  | -0.4  |
| YLV96W    | 00       | V   | 100   | 6        | 3.3 | -0.9  | 1.5   |

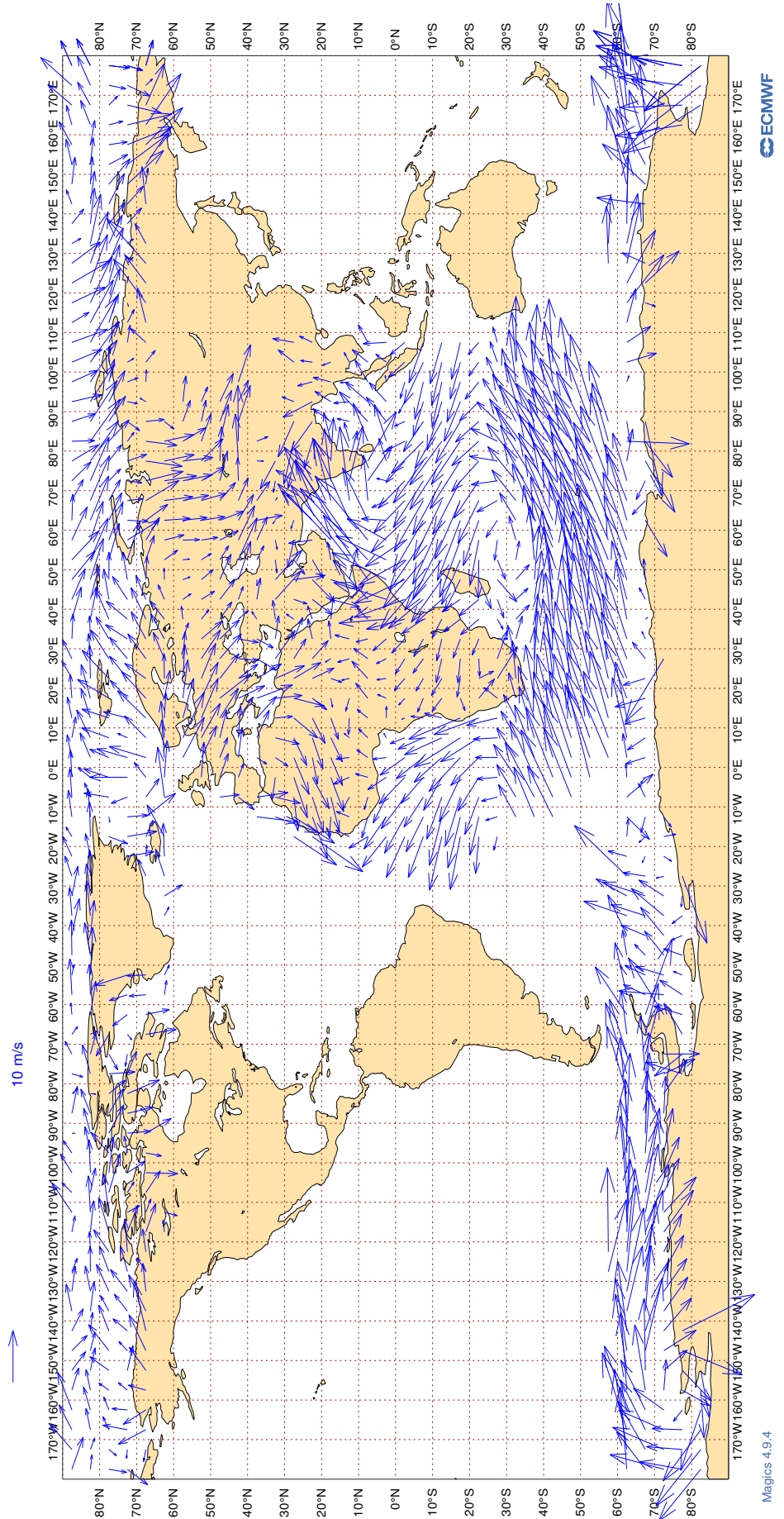
RADIOSONDE MONITORING STATISTICS (SHIPS)  
(CONTINUED)

| WMO<br>IDENT | OBS<br>TIME | ELM | LEVEL | OBS<br>RECD | RMS | UBIAS | VBIAS |
|--------------|-------------|-----|-------|-------------|-----|-------|-------|
| ZVQEQC       | 12          | V   | 100   | 13          | 3.8 | -0.4  | -0.3  |
| ZVQEQC       | 00          | V   | 100   | 15          | 2.7 | -0.2  | 0.9   |

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

Figure 14

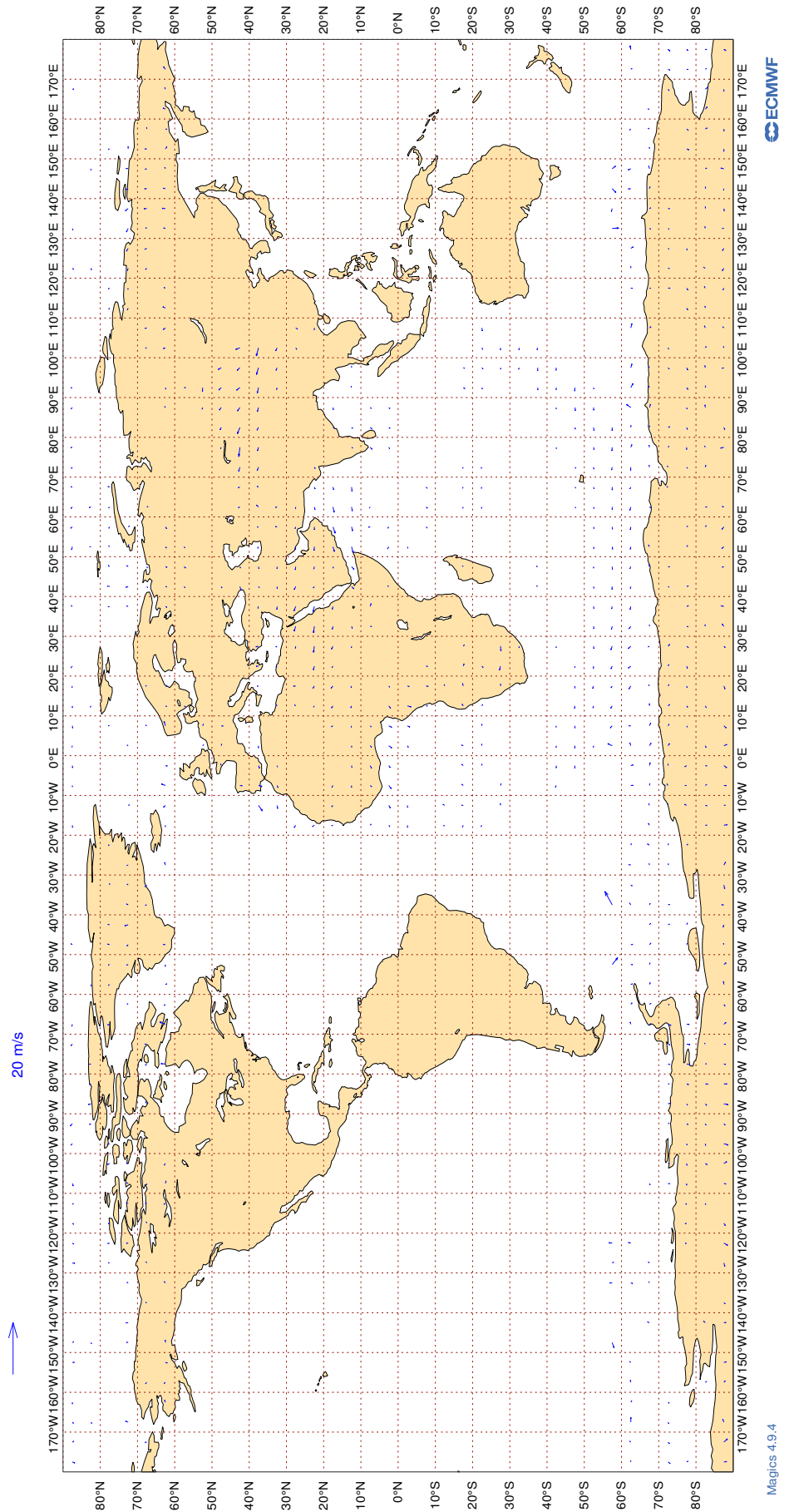
ECMWF Monitoring Statistics: Jul 2022  
AMV Winds: 700-1000hPa  
Mean Observed Wind



3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

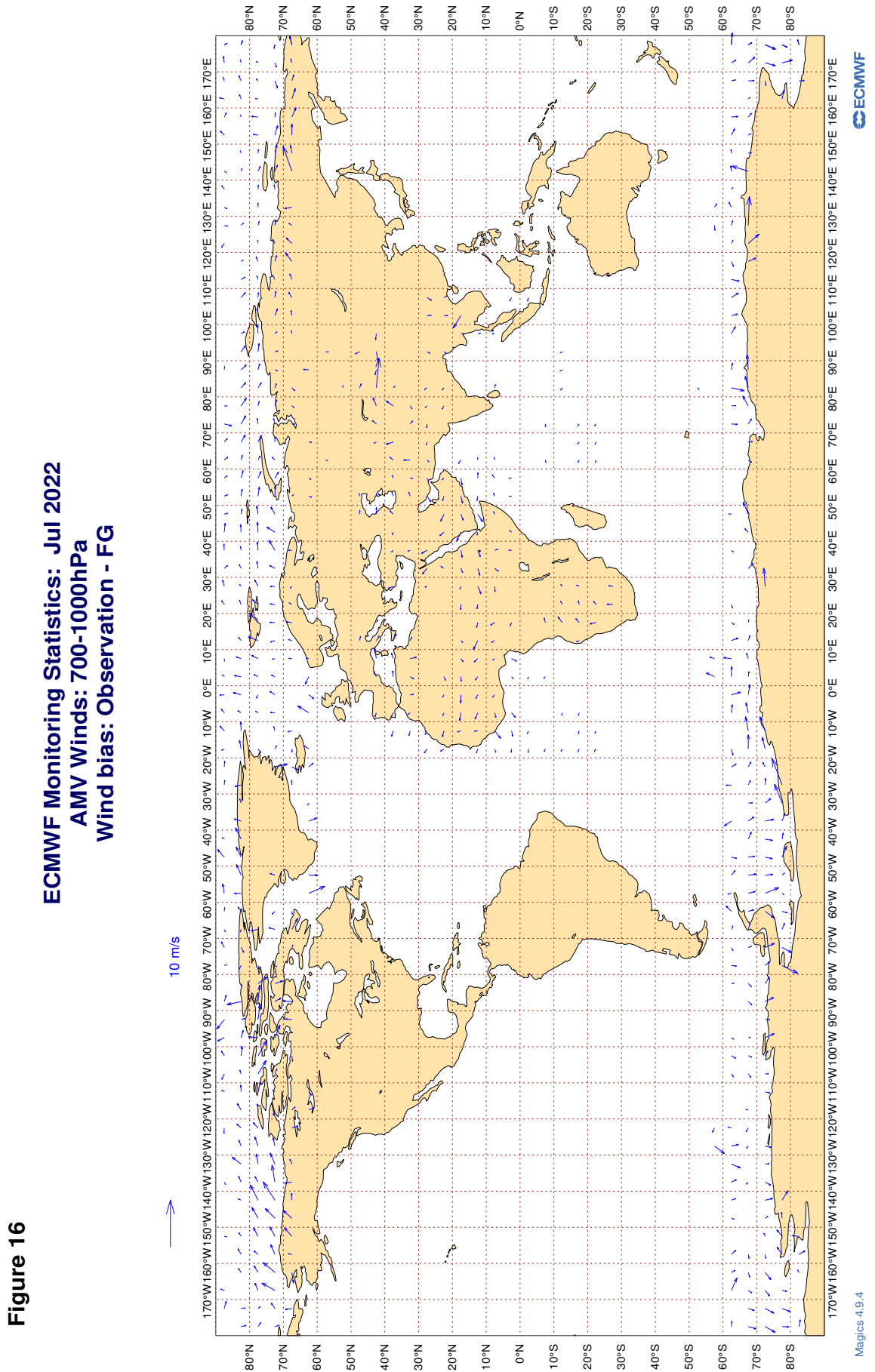
Figure 15

ECMWF Monitoring Statistics: Jul 2022  
AMV Winds: 150- 400hPa  
Wind bias: Observation - FG





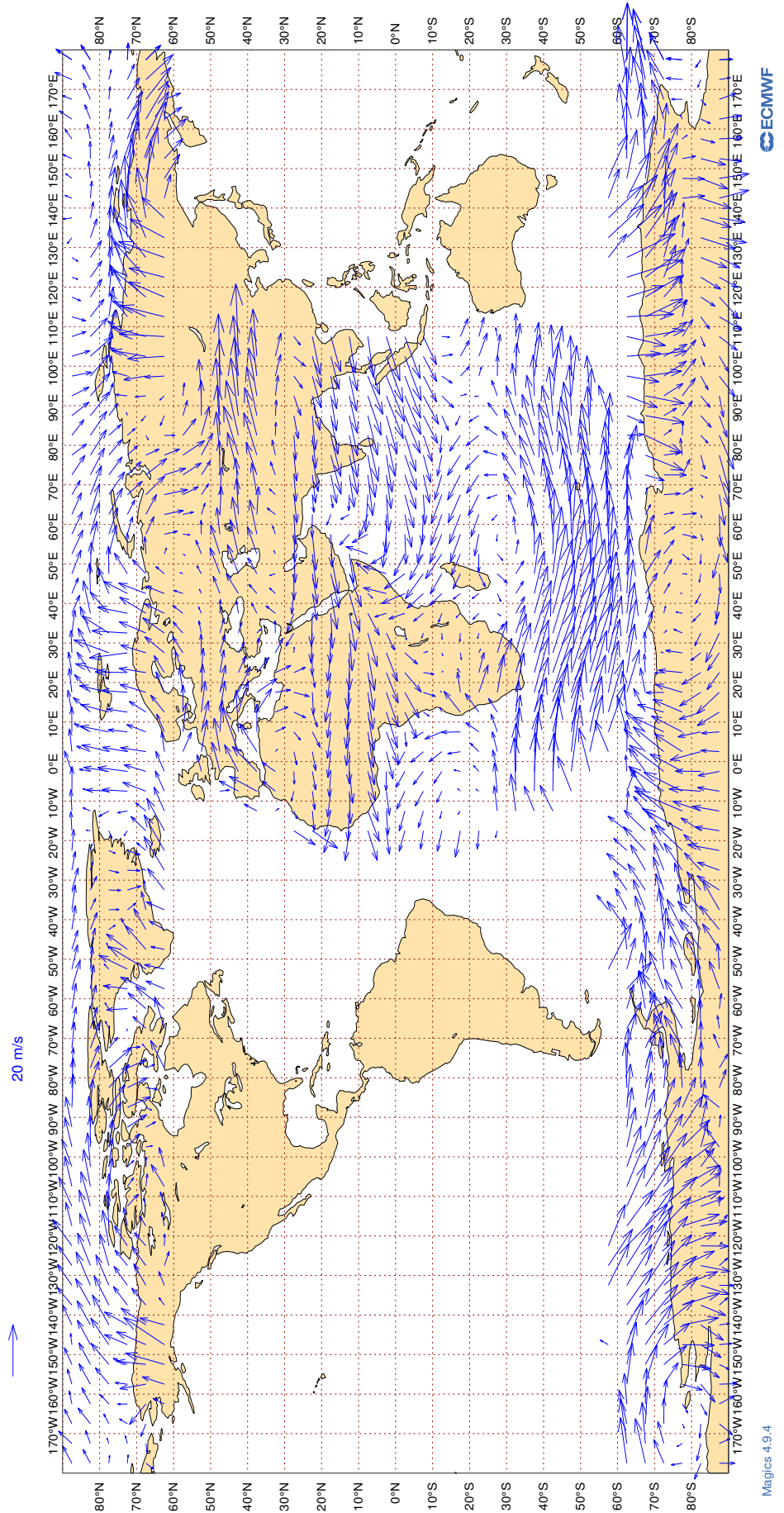
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa



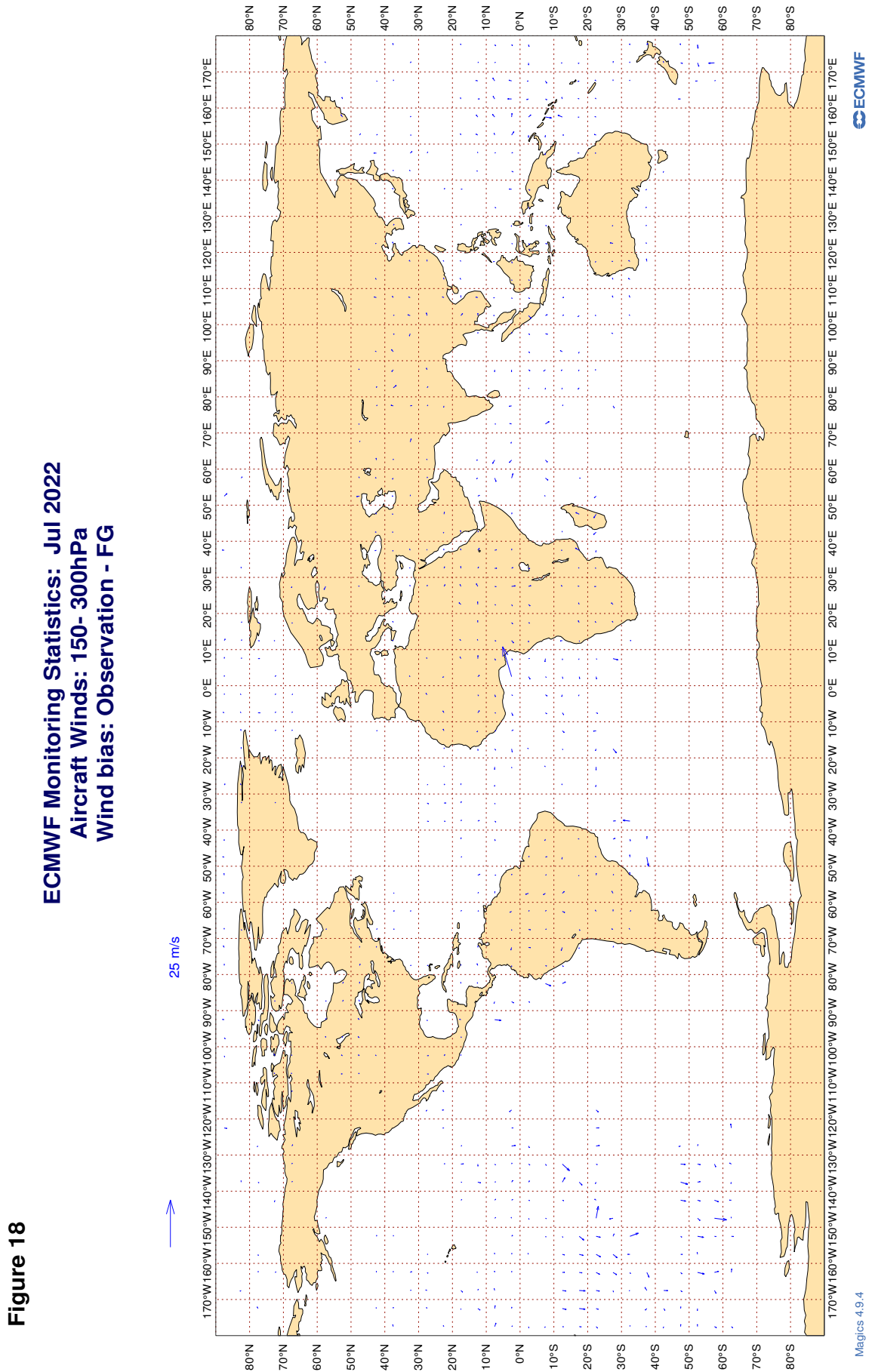
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

Figure 17

ECMWF Monitoring Statistics: Jul 2022  
AMV Winds: 150- 400hPa  
Mean Observed Wind



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa



**3.2.32 Table 12 - Airep Monitoring Statistics For Airline Carriers (Global)**

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : VECTOR WIND (M/S)  
 AREA : GLOBAL  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. &gt;= 20

TIME = 99 => AVERAGE OF ALL OBSERVATIONS  
 GROSS ERROR LIMIT ON VECTOR WIND = 40 M/S

| IDENT | OBS TIME | ELM | LEVEL   | NUM OBS | % GROSS | % CALM | VECTOR RMS | SPEE D BIAS |
|-------|----------|-----|---------|---------|---------|--------|------------|-------------|
| AAB   | 99       | V   | 300-150 | 46      | 0       | 0      | 3.2        | 0.5         |
| AAL   | 99       | V   | 300-150 | 51644   | 2       | 0      | 4.8        | 0.1         |
| AAR   | 99       | V   | 300-150 | 185     | 0       | 0      | 3.7        | -1.4        |
| ABB   | 99       | V   | 300-150 | 1980    | 0       | 0      | 3.1        | 0.1         |
| ABD   | 99       | V   | 300-150 | 2062    | 0       | 0      | 3.9        | -0.1        |
| ABP   | 99       | V   | 300-150 | 33      | 0       | 0      | 6.0        | 0.7         |
| ABX   | 99       | V   | 300-150 | 70      | 0       | 0      | 3.0        | -0.4        |
| ACA   | 99       | V   | 300-150 | 37941   | 2       | 0      | 4.4        | 0.1         |
| ACI   | 99       | V   | 300-150 | 373     | 0       | 0      | 3.9        | 0.4         |
| AEA   | 99       | V   | 300-150 | 1004    | 3       | 0      | 5.8        | -0.2        |
| AFR   | 99       | V   | 300-150 | 39556   | 1       | 0      | 3.7        | 0.2         |
| AHO   | 99       | V   | 300-150 | 323     | 0       | 0      | 3.6        | 0.2         |
| AIC   | 99       | V   | 300-150 | 2477    | 1       | 0      | 4.3        | 0.2         |
| AJT   | 99       | V   | 300-150 | 943     | 0       | 0      | 3.7        | 0.0         |
| ALK   | 99       | V   | 300-150 | 2042    | 0       | 0      | 4.1        | 0.2         |
| AMX   | 99       | V   | 300-150 | 3554    | 7       | 0      | 5.2        | -0.1        |
| ANZ   | 99       | V   | 300-150 | 16468   | 2       | 0      | 4.9        | 0.3         |
| AOJ   | 99       | V   | 300-150 | 82      | 0       | 0      | 3.2        | -0.1        |
| ASJ   | 99       | V   | 300-150 | 24      | 0       | 0      | 3.7        | -1.4        |
| ASL   | 99       | V   | 300-150 | 873     | 0       | 0      | 3.3        | 0.2         |
| ASP   | 99       | V   | 300-150 | 96      | 0       | 0      | 3.7        | -0.4        |
| ASY   | 99       | V   | 300-150 | 101     | 0       | 0      | 3.9        | 0.6         |
| ATC   | 99       | V   | 300-150 | 151     | 0       | 0      | 4.1        | 0.7         |
| ATN   | 99       | V   | 300-150 | 149     | 1       | 0      | 3.7        | -0.1        |
| AUA   | 99       | V   | 300-150 | 4729    | 0       | 0      | 3.7        | 0.2         |

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

| IDENT | OBS TIME | ELM | LEVEL   | NUM OBS | % GROSS | % CALM | VECTOR RMS | SPEE D BIAS |
|-------|----------|-----|---------|---------|---------|--------|------------|-------------|
| AUH   | 99       | V   | 300-150 | 55      | 0       | 0      | 5.7        | 1.5         |
| AVA   | 99       | V   | 300-150 | 513     | 6       | 0      | 5.5        | 0.0         |
| AWC   | 99       | V   | 300-150 | 83      | 0       | 0      | 3.5        | 0.4         |
| AXM   | 99       | V   | 300-150 | 168     | 0       | 1      | 4.2        | 0.7         |
| AXY   | 99       | V   | 300-150 | 49      | 0       | 0      | 4.2        | 2.0         |
| AYY   | 99       | V   | 300-150 | 46      | 0       | 0      | 5.2        | 1.2         |
| AZG   | 99       | V   | 300-150 | 630     | 0       | 0      | 4.0        | -0.6        |
| BAF   | 99       | V   | 300-150 | 81      | 0       | 0      | 3.0        | 0.2         |
| BAW   | 99       | V   | 300-150 | 43893   | 1       | 0      | 4.3        | 0.1         |
| BBC   | 99       | V   | 300-150 | 610     | 0       | 0      | 4.6        | 0.4         |
| BCS   | 99       | V   | 300-150 | 2487    | 0       | 0      | 3.2        | 0.1         |
| BEL   | 99       | V   | 300-150 | 1711    | 0       | 0      | 3.1        | 0.2         |
| BFF   | 99       | V   | 300-150 | 164     | 0       | 0      | 9.6        | 1.9         |
| BFY   | 99       | V   | 300-150 | 62      | 0       | 0      | 3.0        | 0.9         |
| BIA   | 99       | V   | 300-150 | 36      | 0       | 0      | 4.5        | -0.7        |
| BOB   | 99       | V   | 300-150 | 31      | 0       | 0      | 3.5        | -1.4        |
| BOX   | 99       | V   | 300-150 | 3416    | 0       | 0      | 3.8        | 0.0         |
| BOX   | 99       | V   | 300-150 | 122     | 0       | 0      | 3.2        | 0.3         |
| BRJ   | 99       | V   | 300-150 | 83      | 0       | 1      | 2.7        | 0.6         |
| BTX   | 99       | V   | 300-150 | 117     | 0       | 0      | 3.4        | -0.3        |
| BVR   | 99       | V   | 300-150 | 81      | 0       | 0      | 3.8        | 0.2         |
| BWJ   | 99       | V   | 300-150 | 36      | 0       | 0      | 3.4        | 0.1         |
| CAL   | 99       | V   | 300-150 | 328     | 0       | 0      | 4.2        | 0.3         |
| CAZ   | 99       | V   | 300-150 | 127     | 0       | 0      | 3.2        | -0.1        |
| CEB   | 99       | V   | 300-150 | 219     | 0       | 0      | 5.3        | 0.6         |
| CES   | 99       | V   | 300-150 | 82      | 0       | 1      | 4.7        | 0.5         |
| CFC   | 99       | V   | 300-150 | 345     | 0       | 0      | 5.0        | 0.2         |
| CFG   | 99       | V   | 300-150 | 5560    | 0       | 0      | 3.7        | -0.1        |
| CHG   | 99       | V   | 300-150 | 285     | 0       | 0      | 4.0        | -0.3        |
| CJT   | 99       | V   | 300-150 | 1515    | 0       | 0      | 3.8        | 0.1         |
| CKS   | 99       | V   | 300-150 | 762     | 0       | 0      | 3.7        | 0.4         |
| CLE   | 99       | V   | 300-150 | 34      | 0       | 0      | 3.2        | -0.4        |
| CLF   | 99       | V   | 300-150 | 82      | 0       | 0      | 3.5        | -0.4        |
| CLX   | 99       | V   | 300-150 | 5052    | 0       | 0      | 4.0        | -0.4        |
| CMB   | 99       | V   | 300-150 | 1166    | 0       | 0      | 3.8        | -0.3        |
| CNV   | 99       | V   | 300-150 | 122     | 0       | 0      | 3.5        | -0.1        |
| CPA   | 99       | V   | 300-150 | 256     | 0       | 0      | 5.4        | -0.4        |
| CPI   | 99       | V   | 300-150 | 31      | 0       | 0      | 4.4        | 1.3         |
| CRL   | 99       | V   | 300-150 | 2118    | 0       | 0      | 3.0        | 0.1         |
| CRV   | 99       | V   | 300-150 | 51      | 0       | 0      | 3.4        | 0.2         |
| CSC   | 99       | V   | 300-150 | 83      | 0       | 0      | 4.9        | 1.2         |
| CSN   | 99       | V   | 300-150 | 302     | 0       | 0      | 4.3        | 0.3         |
| CTM   | 99       | V   | 300-150 | 166     | 0       | 0      | 3.8        | 0.2         |

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

| IDENT | OBS TIME | ELM | LEVEL   | NUM OBS | % GROSS | % CALM | VECTOR RMS | SPEE D BIAS |
|-------|----------|-----|---------|---------|---------|--------|------------|-------------|
| CWG   | 99       | V   | 300-150 | 120     | 0       | 0      | 3.8        | -0.2        |
| CXB   | 99       | V   | 300-150 | 130     | 0       | 0      | 3.3        | -0.2        |
| DAH   | 99       | V   | 300-150 | 1267    | 0       | 0      | 3.1        | 0.2         |
| DAL   | 99       | V   | 300-150 | 64297   | 0       | 0      | 3.3        | 0.2         |
| DCS   | 99       | V   | 300-150 | 92      | 0       | 0      | 4.4        | 0.7         |
| DHK   | 99       | V   | 300-150 | 2310    | 0       | 0      | 3.7        | 0.0         |
| DHX   | 99       | V   | 300-150 | 132     | 0       | 0      | 4.8        | 0.3         |
| DJT   | 99       | V   | 300-150 | 1697    | 0       | 0      | 3.6        | 0.3         |
| DLH   | 99       | V   | 300-150 | 28241   | 0       | 0      | 3.3        | 0.1         |
| DSO   | 99       | V   | 300-150 | 67      | 0       | 0      | 3.6        | -0.2        |
| DTA   | 99       | V   | 300-150 | 40      | 0       | 0      | 6.3        | 2.4         |
| DUB   | 99       | V   | 300-150 | 64      | 0       | 0      | 4.0        | 0.1         |
| EAL   | 99       | V   | 300-150 | 90      | 0       | 0      | 4.1        | 0.6         |
| EAV   | 99       | V   | 300-150 | 35      | 0       | 0      | 3.8        | 0.6         |
| EDG   | 99       | V   | 300-150 | 330     | 0       | 0      | 3.7        | 0.4         |
| EDW   | 99       | V   | 300-150 | 1692    | 0       | 0      | 3.4        | 0.2         |
| EFF   | 99       | V   | 300-150 | 56      | 0       | 0      | 3.2        | 0.2         |
| EIN   | 99       | V   | 300-150 | 15289   | 0       | 0      | 3.3        | 0.3         |
| EJM   | 99       | V   | 300-150 | 1552    | 0       | 0      | 3.6        | 0.2         |
| ELX   | 99       | V   | 300-150 | 39      | 0       | 0      | 3.8        | -0.7        |
| ELY   | 99       | V   | 300-150 | 4728    | 7       | 0      | 6.5        | -0.1        |
| ETD   | 99       | V   | 300-150 | 8080    | 1       | 0      | 4.6        | 0.3         |
| ETH   | 99       | V   | 300-150 | 5513    | 1       | 0      | 4.5        | 0.2         |
| EUK   | 99       | V   | 300-150 | 1908    | 0       | 0      | 3.5        | 0.3         |
| EVE   | 99       | V   | 300-150 | 292     | 0       | 0      | 3.5        | 0.3         |
| EXS   | 99       | V   | 300-150 | 127     | 0       | 0      | 3.4        | 0.1         |
| EXV   | 99       | V   | 300-150 | 30      | 0       | 0      | 6.3        | 0.1         |
| FBU   | 99       | V   | 300-150 | 2642    | 0       | 0      | 3.5        | 0.0         |
| FDX   | 99       | V   | 300-150 | 7498    | 0       | 0      | 3.5        | 0.2         |
| FEX   | 99       | V   | 300-150 | 21      | 0       | 0      | 4.7        | 2.5         |
| FIN   | 99       | V   | 300-150 | 2078    | 0       | 0      | 3.4        | 0.2         |
| FJI   | 99       | V   | 300-150 | 2287    | 0       | 0      | 4.1        | 0.5         |
| FPY   | 99       | V   | 300-150 | 2154    | 0       | 0      | 2.8        | 0.1         |
| FWI   | 99       | V   | 300-150 | 1934    | 0       | 0      | 2.7        | 0.0         |
| FWK   | 99       | V   | 300-150 | 81      | 0       | 0      | 3.8        | 0.1         |
| FXT   | 99       | V   | 300-150 | 132     | 0       | 0      | 2.9        | -0.4        |
| FYG   | 99       | V   | 300-150 | 152     | 0       | 0      | 3.9        | 0.1         |
| GAF   | 99       | V   | 300-150 | 147     | 0       | 0      | 3.5        | 0.6         |
| GCK   | 99       | V   | 300-150 | 79      | 0       | 0      | 2.9        | 0.1         |
| GEC   | 99       | V   | 300-150 | 1747    | 0       | 0      | 3.5        | 0.1         |
| GES   | 99       | V   | 300-150 | 94      | 14      | 0      | 8.9        | -0.5        |
| GFA   | 99       | V   | 300-150 | 719     | 0       | 0      | 4.3        | 0.3         |
| GIA   | 99       | V   | 300-150 | 1022    | 0       | 0      | 4.2        | 0.3         |

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

| IDENT | OBS TIME | ELM | LEVEL   | NUM OBS | % GROSS | % CALM | VECTOR RMS | SPEE D BIAS |
|-------|----------|-----|---------|---------|---------|--------|------------|-------------|
| GJE   | 99       | V   | 300-150 | 195     | 0       | 0      | 3.3        | 0.5         |
| GKY   | 99       | V   | 300-150 | 56      | 0       | 0      | 3.0        | 0.0         |
| GLH   | 99       | V   | 300-150 | 39      | 0       | 0      | 3.3        | -0.6        |
| GMA   | 99       | V   | 300-150 | 71      | 0       | 0      | 2.9        | 0.2         |
| GOL   | 99       | V   | 300-150 | 31      | 0       | 0      | 3.9        | -0.3        |
| GRP   | 99       | V   | 300-150 | 57      | 0       | 0      | 2.8        | 0.5         |
| GTI   | 99       | V   | 300-150 | 1640    | 0       | 0      | 3.7        | -0.2        |
| GTR   | 99       | V   | 300-150 | 282     | 0       | 0      | 3.2        | 0.3         |
| HAL   | 99       | V   | 300-150 | 1051    | 0       | 0      | 4.6        | 0.3         |
| HFM   | 99       | V   | 300-150 | 89      | 0       | 0      | 3.4        | 1.2         |
| HKC   | 99       | V   | 300-150 | 106     | 0       | 1      | 5.8        | 0.2         |
| HRT   | 99       | V   | 300-150 | 272     | 0       | 0      | 3.3        | 0.6         |
| HUA   | 99       | V   | 300-150 | 60      | 0       | 0      | 3.7        | 0.2         |
| IAM   | 99       | V   | 300-150 | 65      | 0       | 0      | 4.8        | 0.1         |
| IBE   | 99       | V   | 300-150 | 6617    | 0       | 0      | 3.3        | 0.3         |
| ICE   | 99       | V   | 300-150 | 7752    | 0       | 0      | 3.3        | 0.1         |
| ICL   | 99       | V   | 300-150 | 744     | 0       | 0      | 3.7        | -0.1        |
| ICV   | 99       | V   | 300-150 | 368     | 0       | 0      | 4.2        | -0.4        |
| IFA   | 99       | V   | 300-150 | 281     | 0       | 0      | 3.7        | 0.4         |
| IJM   | 99       | V   | 300-150 | 244     | 0       | 0      | 3.8        | -0.1        |
| ITY   | 99       | V   | 300-150 | 5173    | 0       | 0      | 3.5        | 0.3         |
| IXR   | 99       | V   | 300-150 | 38      | 0       | 0      | 3.4        | 0.8         |
| JAF   | 99       | V   | 300-150 | 1082    | 5       | 0      | 6.1        | 0.1         |
| JAS   | 99       | V   | 300-150 | 268     | 0       | 0      | 4.0        | 0.7         |
| JBU   | 99       | V   | 300-150 | 2000    | 0       | 0      | 3.3        | 0.3         |
| JCO   | 99       | V   | 300-150 | 65      | 0       | 0      | 3.0        | 0.3         |
| JCT   | 99       | V   | 300-150 | 35      | 0       | 0      | 3.5        | -0.5        |
| JCY   | 99       | V   | 300-150 | 35      | 0       | 0      | 3.7        | 0.9         |
| JEF   | 99       | V   | 300-150 | 37      | 0       | 0      | 3.2        | 0.0         |
| JET   | 99       | V   | 300-150 | 43      | 0       | 0      | 2.9        | 0.0         |
| JME   | 99       | V   | 300-150 | 63      | 0       | 0      | 3.2        | -0.1        |
| JNY   | 99       | V   | 300-150 | 63      | 0       | 0      | 3.5        | 0.5         |
| JST   | 99       | V   | 300-150 | 56      | 0       | 0      | 4.0        | 0.7         |
| JTL   | 99       | V   | 300-150 | 37      | 5       | 0      | 21.6       | 2.2         |
| KAC   | 99       | V   | 300-150 | 923     | 0       | 0      | 3.8        | 0.3         |
| KAF   | 99       | V   | 300-150 | 34      | 0       | 0      | 4.4        | -0.7        |
| KAI   | 99       | V   | 300-150 | 109     | 0       | 0      | 4.9        | 0.8         |
| KAL   | 99       | V   | 300-150 | 72      | 1       | 0      | 5.2        | 0.5         |
| KFE   | 99       | V   | 300-150 | 40      | 0       | 0      | 2.9        | -0.4        |
| KIW   | 99       | V   | 300-150 | 97      | 0       | 0      | 4.5        | 1.6         |
| KLM   | 99       | V   | 300-150 | 19407   | 2       | 0      | 4.7        | 0.1         |
| KNE   | 99       | V   | 300-150 | 41      | 0       | 0      | 3.9        | -0.2        |
| KQA   | 99       | V   | 300-150 | 238     | 2       | 0      | 4.9        | 0.4         |

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

| IDENT | OBS TIME | ELM | LEVEL   | NUM OBS | % GROSS | % CALM | VECTOR RMS | SPEE D BIAS |
|-------|----------|-----|---------|---------|---------|--------|------------|-------------|
| LAE   | 99       | V   | 300-150 | 189     | 0       | 0      | 3.5        | -0.2        |
| LAN   | 99       | V   | 300-150 | 972     | 6       | 0      | 5.5        | 0.0         |
| LCO   | 99       | V   | 300-150 | 414     | 0       | 0      | 3.5        | -1.2        |
| LDX   | 99       | V   | 300-150 | 135     | 0       | 0      | 3.0        | -0.4        |
| LEA   | 99       | V   | 300-150 | 54      | 0       | 0      | 3.1        | -0.5        |
| LNI   | 99       | V   | 300-150 | 23      | 0       | 0      | 4.7        | 0.5         |
| LNK   | 99       | V   | 300-150 | 54      | 0       | 0      | 2.9        | 0.0         |
| LOT   | 99       | V   | 300-150 | 5248    | 5       | 0      | 6.4        | -0.2        |
| LUC   | 99       | V   | 300-150 | 125     | 0       | 0      | 3.0        | 0.2         |
| LXG   | 99       | V   | 300-150 | 63      | 0       | 0      | 2.8        | 0.4         |
| LXJ   | 99       | V   | 300-150 | 846     | 0       | 0      | 3.3        | 0.2         |
| MAA   | 99       | V   | 300-150 | 211     | 0       | 0      | 3.5        | 0.3         |
| MAS   | 99       | V   | 300-150 | 2951    | 0       | 0      | 5.3        | 0.4         |
| MAU   | 99       | V   | 300-150 | 294     | 0       | 0      | 5.4        | 0.7         |
| MED   | 99       | V   | 300-150 | 32      | 0       | 3      | 4.4        | 0.2         |
| MHV   | 99       | V   | 300-150 | 152     | 0       | 0      | 3.5        | 1.0         |
| MJE   | 99       | V   | 300-150 | 21      | 0       | 0      | 4.0        | 0.9         |
| MLN   | 99       | V   | 300-150 | 35      | 0       | 3      | 4.1        | -1.7        |
| MLT   | 99       | V   | 300-150 | 28      | 0       | 0      | 3.4        | 1.3         |
| MMD   | 99       | V   | 300-150 | 228     | 0       | 0      | 3.4        | 0.1         |
| MMF   | 99       | V   | 300-150 | 29      | 0       | 0      | 3.1        | -0.3        |
| MNB   | 99       | V   | 300-150 | 105     | 0       | 0      | 3.3        | 0.3         |
| MPH   | 99       | V   | 300-150 | 487     | 0       | 0      | 4.0        | -0.8        |
| MSR   | 99       | V   | 300-150 | 2050    | 1       | 0      | 4.1        | 0.0         |
| NAS   | 99       | V   | 300-150 | 252     | 0       | 0      | 3.9        | 0.0         |
| NBT   | 99       | V   | 300-150 | 1336    | 4       | 0      | 6.6        | -0.5        |
| NCR   | 99       | V   | 300-150 | 260     | 0       | 0      | 3.3        | 0.1         |
| NEW   | 99       | V   | 300-150 | 31      | 0       | 0      | 3.2        | -1.0        |
| NJE   | 99       | V   | 300-150 | 749     | 0       | 0      | 3.5        | 0.3         |
| NOJ   | 99       | V   | 300-150 | 56      | 0       | 0      | 4.7        | 0.4         |
| NOS   | 99       | V   | 300-150 | 691     | 6       | 0      | 6.3        | -0.1        |
| NSP   | 99       | V   | 300-150 | 66      | 0       | 0      | 9.2        | 2.1         |
| NUM   | 99       | V   | 300-150 | 54      | 0       | 0      | 4.1        | 0.8         |
| OAE   | 99       | V   | 300-150 | 1335    | 0       | 0      | 3.8        | 0.1         |
| OCN   | 99       | V   | 300-150 | 4602    | 0       | 0      | 3.3        | 0.2         |
| OLI   | 99       | V   | 300-150 | 32      | 0       | 0      | 4.2        | 0.6         |
| OMA   | 99       | V   | 300-150 | 1406    | 0       | 0      | 5.2        | 0.6         |
| PAC   | 99       | V   | 300-150 | 856     | 0       | 0      | 3.5        | -0.3        |
| PAL   | 99       | V   | 300-150 | 495     | 0       | 0      | 4.6        | 1.1         |
| PAT   | 99       | V   | 300-150 | 98      | 0       | 0      | 3.3        | -0.6        |
| PEG   | 99       | V   | 300-150 | 26      | 0       | 0      | 3.9        | -1.1        |
| PIA   | 99       | V   | 300-150 | 181     | 0       | 0      | 3.6        | 0.6         |
| PLM   | 99       | V   | 300-150 | 20      | 0       | 0      | 3.9        | 0.2         |



AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

| IDENT | OBS TIME | ELM | LEVEL   | NUM OBS | % GROSS | % CALM | VECTOR RMS | SPEE D BIAS |
|-------|----------|-----|---------|---------|---------|--------|------------|-------------|
| PRD   | 99       | V   | 300-150 | 31      | 0       | 0      | 3.7        | 1.5         |
| PVA   | 99       | V   | 300-150 | 158     | 0       | 0      | 3.2        | 0.0         |
| QAF   | 99       | V   | 300-150 | 69      | 0       | 0      | 3.3        | 0.7         |
| QFA   | 99       | V   | 300-150 | 6645    | 3       | 0      | 5.6        | 0.1         |
| QQE   | 99       | V   | 300-150 | 247     | 0       | 0      | 3.8        | 0.6         |
| QTR   | 99       | V   | 300-150 | 23689   | 0       | 0      | 4.1        | 0.3         |
| RAM   | 99       | V   | 300-150 | 693     | 6       | 0      | 4.7        | 0.2         |
| RBA   | 99       | V   | 300-150 | 248     | 0       | 0      | 6.0        | 0.9         |
| RCH   | 99       | V   | 300-150 | 3333    | 0       | 0      | 4.6        | 0.3         |
| RDN   | 99       | V   | 300-150 | 119     | 0       | 0      | 2.6        | 0.1         |
| RHH   | 99       | V   | 300-150 | 72      | 0       | 0      | 6.8        | 1.7         |
| RJA   | 99       | V   | 300-150 | 2521    | 6       | 0      | 6.5        | -0.1        |
| RKK   | 99       | V   | 300-150 | 26      | 0       | 0      | 3.0        | 1.8         |
| ROJ   | 99       | V   | 300-150 | 101     | 0       | 0      | 4.0        | 0.4         |
| RRR   | 99       | V   | 300-150 | 241     | 0       | 0      | 3.8        | 0.2         |
| RYR   | 99       | V   | 300-150 | 522     | 0       | 0      | 3.1        | 0.1         |
| RZO   | 99       | V   | 300-150 | 296     | 0       | 1      | 3.8        | 0.4         |
| SAM   | 99       | V   | 300-150 | 256     | 0       | 0      | 3.7        | 0.1         |
| SAS   | 99       | V   | 300-150 | 2155    | 0       | 0      | 3.0        | 0.1         |
| SAZ   | 99       | V   | 300-150 | 66      | 0       | 0      | 3.2        | 0.3         |
| SCX   | 99       | V   | 300-150 | 60      | 0       | 0      | 3.1        | 0.3         |
| SEY   | 99       | V   | 300-150 | 99      | 0       | 0      | 5.7        | 0.6         |
| SHE   | 99       | V   | 300-150 | 60      | 0       | 0      | 3.2        | 0.7         |
| SIA   | 99       | V   | 300-150 | 8882    | 0       | 0      | 5.0        | 0.2         |
| SIO   | 99       | V   | 300-150 | 25      | 0       | 0      | 2.8        | 0.1         |
| SJJ   | 99       | V   | 300-150 | 25      | 0       | 0      | 3.7        | -0.6        |
| SON   | 99       | V   | 300-150 | 54      | 0       | 0      | 3.1        | 0.7         |
| SPA   | 99       | V   | 300-150 | 95      | 0       | 0      | 2.9        | 0.1         |
| STV   | 99       | V   | 300-150 | 20      | 0       | 0      | 3.3        | 2.5         |
| SVA   | 99       | V   | 300-150 | 7094    | 0       | 0      | 4.2        | 0.4         |
| SVW   | 99       | V   | 300-150 | 156     | 0       | 0      | 3.4        | -0.2        |
| SWA   | 99       | V   | 300-150 | 22      | 0       | 0      | 2.8        | 0.2         |
| SWG   | 99       | V   | 300-150 | 79      | 0       | 0      | 3.2        | 1.0         |
| SWR   | 99       | V   | 300-150 | 8991    | 0       | 0      | 3.5        | 0.2         |
| SYB   | 99       | V   | 300-150 | 148     | 0       | 0      | 3.7        | -0.7        |
| TAM   | 99       | V   | 300-150 | 52      | 0       | 2      | 2.3        | -0.1        |
| TAP   | 99       | V   | 300-150 | 2176    | 0       | 0      | 3.5        | 0.5         |
| TAR   | 99       | V   | 300-150 | 442     | 0       | 0      | 3.1        | 0.2         |
| TAY   | 99       | V   | 300-150 | 518     | 0       | 0      | 3.6        | 0.0         |
| TEU   | 99       | V   | 300-150 | 67      | 0       | 0      | 3.3        | -0.3        |
| TFF   | 99       | V   | 300-150 | 62      | 0       | 0      | 3.4        | 0.8         |
| TFL   | 99       | V   | 300-150 | 1640    | 5       | 0      | 6.2        | 0.0         |
| TGW   | 99       | V   | 300-150 | 537     | 0       | 0      | 5.7        | 0.4         |

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

| IDENT | OBS TIME | ELM | LEVEL   | NUM OBS | % GROSS | % CALM | VECTOR RMS | SPEE D BIAS |
|-------|----------|-----|---------|---------|---------|--------|------------|-------------|
| THA   | 99       | V   | 300-150 | 497     | 0       | 0      | 5.8        | 0.3         |
| THT   | 99       | V   | 300-150 | 3630    | 4       | 0      | 6.8        | 0.1         |
| THY   | 99       | V   | 300-150 | 15935   | 2       | 0      | 4.6        | 0.1         |
| TMN   | 99       | V   | 300-150 | 275     | 0       | 0      | 4.5        | 0.3         |
| TOM   | 99       | V   | 300-150 | 7838    | 5       | 0      | 6.0        | 0.0         |
| TOW   | 99       | V   | 300-150 | 76      | 0       | 0      | 3.2        | 0.3         |
| TSC   | 99       | V   | 300-150 | 17195   | 0       | 0      | 3.5        | 0.2         |
| TUR   | 99       | V   | 300-150 | 34      | 0       | 0      | 5.9        | 0.9         |
| TWY   | 99       | V   | 300-150 | 1059    | 0       | 0      | 3.4        | 0.1         |
| UAE   | 99       | V   | 300-150 | 22838   | 0       | 0      | 4.2        | 0.2         |
| UAF   | 99       | V   | 300-150 | 77      | 0       | 0      | 6.1        | 1.1         |
| UAL   | 99       | V   | 300-150 | 85031   | 2       | 1      | 4.5        | 0.1         |
| ULC   | 99       | V   | 300-150 | 117     | 0       | 0      | 4.2        | -0.3        |
| UPS   | 99       | V   | 300-150 | 5620    | 0       | 0      | 3.6        | -0.1        |
| UZB   | 99       | V   | 300-150 | 116     | 11      | 0      | 4.9        | -0.2        |
| VCG   | 99       | V   | 300-150 | 200     | 0       | 0      | 3.8        | 0.7         |
| VIR   | 99       | V   | 300-150 | 19637   | 2       | 0      | 4.7        | 0.1         |
| VJT   | 99       | V   | 300-150 | 2488    | 0       | 0      | 3.4        | 0.4         |
| VLZ   | 99       | V   | 300-150 | 31      | 0       | 0      | 2.8        | 0.7         |
| VMP   | 99       | V   | 300-150 | 110     | 0       | 0      | 5.7        | 1.0         |
| VTI   | 99       | V   | 300-150 | 186     | 0       | 0      | 4.7        | 0.5         |
| WFL   | 99       | V   | 300-150 | 34      | 0       | 0      | 4.2        | -1.3        |
| WJA   | 99       | V   | 300-150 | 8220    | 2       | 0      | 4.6        | 0.1         |
| WWI   | 99       | V   | 300-150 | 66      | 0       | 0      | 3.7        | 0.5         |
| XEN   | 99       | V   | 300-150 | 84      | 0       | 0      | 3.3        | 0.0         |
| XLS   | 99       | V   | 300-150 | 115     | 0       | 0      | 3.6        | 0.0         |
| XRO   | 99       | V   | 300-150 | 118     | 0       | 0      | 3.5        | 0.2         |

## 4 EUCOS Area Monitoring Statistics

The following tables provide information on the quality of upper-air data and surface DRIFTER data over the EUCOS area as received at ECMWF during the month.

Tables 13, 14 (50 hPa level), 15, 16 (100 hPa level) 17, 18 (500 hPa level) 19 and 20 (850 hPa level) provide quality statistics for all TEMPSHIPS and PILOTSHIPS received during the month in the area 10°N - 90°N, 70°W - 40°E and for TEMPS and PILOTS from selected land stations within the same area. The statistics are in the same form as tables 10 and 11.

Tables 21-23 provides quality statistics of pressure and wind for all DRIFTER reports received in the area 10°N - 90°N, 70°W - 40°E. The statistics are in the same form as tables 4-6.

#### 4.1 Table 13 - Radiosonde Monitoring Statistics (EUCOS): 50 hPa Geopotential height (metres)

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)  
 LEVEL : 50 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS  | BIAS  |
|-----------|----------|-----|-------|----------|------|-------|
| 01001     | 00       | Z   | 50    | 30       | 21.5 | -14.7 |
| 01001     | 12       | Z   | 50    | 30       | 10.1 | -3.3  |
| 01028     | 00       | Z   | 50    | 31       | 8.3  | -6.0  |
| 01028     | 12       | Z   | 50    | 31       | 9.3  | -7.7  |
| 01400     | 12       | Z   | 50    | 10       | 75.4 | 74.9  |
| 01400     | 00       | Z   | 50    | 11       | 85.4 | 84.7  |
| 01415     | 12       | Z   | 50    | 29       | 6.2  | 1.5   |
| 01415     | 00       | Z   | 50    | 30       | 8.1  | 4.1   |
| 02365     | 00       | Z   | 50    | 29       | 5.2  | 2.0   |
| 02365     | 12       | Z   | 50    | 28       | 7.7  | -4.4  |
| 02836     | 00       | Z   | 50    | 31       | 4.4  | -0.4  |
| 02836     | 12       | Z   | 50    | 32       | 6.1  | -3.6  |
| 02963     | 00       | Z   | 50    | 30       | 6.4  | 4.1   |
| 02963     | 12       | Z   | 50    | 31       | 7.6  | -4.0  |
| 03005     | 12       | Z   | 50    | 31       | 9.1  | -5.7  |
| 03005     | 00       | Z   | 50    | 28       | 12.9 | -2.5  |
| 03238     | 00       | Z   | 50    | 22       | 9.0  | -1.7  |
| 03238     | 12       | Z   | 50    | 5        | 3.8  | -3.0  |
| 03808     | 00       | Z   | 50    | 27       | 5.9  | 4.4   |
| 03808     | 12       | Z   | 50    | 30       | 7.8  | -4.3  |
| 03918     | 00       | Z   | 50    | 31       | 11.4 | 6.1   |
| 03918     | 12       | Z   | 50    | 3        | 10.2 | 8.4   |
| 03953     | 00       | Z   | 50    | 31       | 8.5  | -6.5  |
| 03953     | 12       | Z   | 50    | 31       | 9.0  | -6.5  |
| 04018     | 12       | Z   | 50    | 29       | 6.1  | -3.0  |
| 04018     | 00       | Z   | 50    | 30       | 6.1  | -3.4  |
| 04220     | 12       | Z   | 50    | 31       | 10.9 | -5.8  |
| 04220     | 00       | Z   | 50    | 30       | 8.3  | -4.4  |
| 04270     | 00       | Z   | 50    | 23       | 17.6 | -15.6 |
| 04270     | 12       | Z   | 50    | 24       | 20.8 | -15.0 |
| 04320     | 12       | Z   | 50    | 23       | 14.0 | -9.0  |
| 04320     | 00       | Z   | 50    | 29       | 19.2 | -15.8 |
| 04339     | 12       | Z   | 50    | 19       | 17.2 | -14.6 |
| 04339     | 00       | Z   | 50    | 24       | 22.3 | -18.4 |
| 04360     | 12       | Z   | 50    | 30       | 22.6 | -4.9  |
| 04360     | 00       | Z   | 50    | 30       | 15.7 | -14.4 |
| 06011     | 00       | Z   | 50    | 26       | 9.4  | 0.8   |
| 06011     | 12       | Z   | 50    | 29       | 16.3 | 12.1  |
| 06260     | 12       | Z   | 50    | 5        | 4.3  | -2.4  |

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS  | BIAS  |
|-----------|----------|-----|-------|----------|------|-------|
| 06260     | 00       | Z   | 50    | 31       | 9.5  | 4.4   |
| 06610     | 00       | Z   | 50    | 31       | 5.9  | 3.8   |
| 06610     | 12       | Z   | 50    | 31       | 8.4  | -4.6  |
| 07110     | 12       | Z   | 50    | 30       | 16.5 | -5.5  |
| 07110     | 00       | Z   | 50    | 30       | 10.0 | -6.3  |
| 07510     | 00       | Z   | 50    | 31       | 5.4  | -0.3  |
| 07510     | 12       | Z   | 50    | 33       | 17.4 | -13.9 |
| 07645     | 00       | Z   | 50    | 31       | 10.5 | 4.8   |
| 07645     | 12       | Z   | 50    | 30       | 14.4 | -10.2 |
| 07761     | 12       | Z   | 50    | 29       | 43.9 | -42.1 |
| 07761     | 00       | Z   | 50    | 31       | 33.7 | -32.9 |
| 08001     | 12       | Z   | 50    | 31       | 4.9  | -1.0  |
| 08001     | 00       | Z   | 50    | 31       | 8.3  | 5.8   |
| 08221     | 12       | Z   | 50    | 31       | 5.3  | -2.0  |
| 08221     | 00       | Z   | 50    | 31       | 10.2 | 8.9   |
| 08302     | 00       | Z   | 50    | 29       | 4.7  | 2.0   |
| 08302     | 12       | Z   | 50    | 31       | 13.1 | -12.4 |
| 08508     | 12       | Z   | 50    | 31       | 5.2  | 0.2   |
| 08522     | 12       | Z   | 50    | 31       | 3.9  | -1.3  |
| 10035     | 12       | Z   | 50    | 31       | 9.5  | 6.5   |
| 10035     | 00       | Z   | 50    | 30       | 14.7 | 13.6  |
| 10393     | 00       | Z   | 50    | 29       | 6.7  | 2.6   |
| 10393     | 12       | Z   | 50    | 31       | 8.6  | -5.1  |
| 10410     | 00       | Z   | 50    | 31       | 5.5  | 1.3   |
| 10410     | 12       | Z   | 50    | 30       | 9.6  | -7.2  |
| 10739     | 00       | Z   | 50    | 30       | 10.0 | 7.8   |
| 10739     | 12       | Z   | 50    | 31       | 6.4  | -2.4  |
| 11035     | 12       | Z   | 50    | 31       | 7.9  | -1.1  |
| 11035     | 00       | Z   | 50    | 27       | 8.9  | 6.8   |
| 12982     | 00       | Z   | 50    | 31       | 8.0  | 6.8   |
| 12982     | 12       | Z   | 50    | 31       | 5.0  | -0.9  |
| 16245     | 00       | Z   | 50    | 31       | 8.5  | 7.0   |
| 16245     | 12       | Z   | 50    | 31       | 5.3  | -3.9  |
| 16429     | 12       | Z   | 50    | 31       | 4.0  | 1.3   |
| 16429     | 00       | Z   | 50    | 31       | 12.4 | 11.7  |
| 16622     | 00       | Z   | 50    | 22       | 18.4 | 17.9  |
| 16754     | 00       | Z   | 50    | 20       | 15.7 | 11.7  |
| 17607     | 12       | Z   | 50    | 16       | 4.4  | 3.1   |
| 26435     | 12       | Z   | 50    | 15       | 6.0  | -3.0  |
| 2EERV     | 12       | Z   | 50    | 5        | 18.8 | -14.9 |
| 2EERV     | 00       | Z   | 50    | 10       | 9.3  | -6.8  |
| 60018     | 00       | Z   | 50    | 31       | 8.7  | 6.7   |
| 60018     | 12       | Z   | 50    | 31       | 8.2  | -5.5  |

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO<br>IDENT | OBS<br>TIME | ELM | LEVEL | OBS<br>RECD | RMS   | BIAS  |
|--------------|-------------|-----|-------|-------------|-------|-------|
| 7JUNA4       | 00          | Z   | 50    | 6           | 7.1   | 3.2   |
| 7JUNA4       | 12          | Z   | 50    | 6           | 131.5 | 98.5  |
| 9ZT9MR       | 00          | Z   | 50    | 2           | 26.2  | -25.6 |
| 9ZT9MR       | 12          | Z   | 50    | 2           | 19.6  | -19.6 |
| ASDE09       | 12          | Z   | 50    | 1           | 37.6  | 37.6  |
| ATGU3F       | 00          | Z   | 50    | 4           | 27.3  | -25.9 |
| ATGU3F       | 12          | Z   | 50    | 3           | 18.3  | -18.1 |
| BPMWB2       | 00          | Z   | 50    | 6           | 24.6  | 21.2  |
| BPMWB2       | 12          | Z   | 50    | 6           | 33.3  | 30.9  |
| DBLK         | 12          | Z   | 50    | 34          | 12.2  | 8.5   |
| DBLK         | 00          | Z   | 50    | 30          | 12.3  | 10.7  |
| FPUW5G       | 12          | Z   | 50    | 15          | 5.6   | -0.1  |
| JNKN7J       | 00          | Z   | 50    | 11          | 24.4  | 23.8  |
| JNKN7J       | 12          | Z   | 50    | 12          | 17.3  | 13.0  |
| KJJF9X       | 12          | Z   | 50    | 5           | 10.8  | 4.8   |
| KJJF9X       | 00          | Z   | 50    | 9           | 21.6  | 14.1  |
| KMPLHP       | 12          | Z   | 50    | 10          | 176.0 | 144.0 |
| KMPLHP       | 00          | Z   | 50    | 10          | 27.3  | 13.8  |
| LRYQE3       | 00          | Z   | 50    | 9           | 10.8  | -5.0  |
| LRYQE3       | 12          | Z   | 50    | 12          | 19.4  | -2.7  |
| UXK5JT       | 00          | Z   | 50    | 7           | 8.9   | 6.3   |
| UXK5JT       | 12          | Z   | 50    | 7           | 11.4  | 2.5   |
| WDK38H       | 12          | Z   | 50    | 17          | 9.5   | -6.4  |
| WDK38H       | 00          | Z   | 50    | 1           | 6.0   | -6.0  |
| XKQLWQ       | 12          | Z   | 50    | 20          | 29.7  | 28.2  |
| XQFJRG       | 12          | Z   | 50    | 2           | 8.7   | -6.7  |
| XQFJRG       | 00          | Z   | 50    | 0           | 0.0   | 0.0   |
| YLV96W       | 12          | Z   | 50    | 4           | 12.2  | -6.6  |
| YLV96W       | 00          | Z   | 50    | 7           | 25.0  | -1.7  |
| ZVQEQC       | 12          | Z   | 50    | 13          | 6.0   | 1.3   |
| ZVQEQC       | 00          | Z   | 50    | 15          | 2.8   | -0.5  |

**4.2 Table 14 - Radiosonde Monitoring Statistics (EUCOS):50 hPa Wind (m/s)**

## RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 LEVEL : 50 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|-----------|----------|-----|-------|----------|-----|-------|-------|
| 01001     | 00       | V   | 50    | 22       | 2.0 | 0.2   | 0.0   |
| 01001     | 12       | V   | 50    | 30       | 2.5 | 0.3   | 0.1   |
| 01028     | 00       | V   | 50    | 28       | 2.9 | -0.3  | 0.4   |
| 01028     | 12       | V   | 50    | 31       | 2.4 | -0.5  | 0.2   |
| 01400     | 12       | V   | 50    | 10       | 3.3 | -0.3  | -0.9  |
| 01400     | 00       | V   | 50    | 9        | 2.5 | 0.8   | 0.1   |
| 01415     | 12       | V   | 50    | 29       | 3.2 | 0.8   | -0.4  |
| 01415     | 00       | V   | 50    | 24       | 2.6 | 0.3   | -0.3  |
| 02365     | 00       | V   | 50    | 23       | 2.7 | 0.2   | 0.0   |
| 02365     | 12       | V   | 50    | 28       | 2.6 | -0.1  | -0.1  |
| 02836     | 00       | V   | 50    | 25       | 2.6 | -0.1  | 0.0   |
| 02836     | 12       | V   | 50    | 31       | 2.6 | 0.0   | 0.4   |
| 02963     | 00       | V   | 50    | 24       | 2.9 | -0.5  | 0.0   |
| 02963     | 12       | V   | 50    | 31       | 3.0 | -0.4  | -0.7  |
| 03005     | 12       | V   | 50    | 31       | 2.5 | 0.4   | 0.0   |
| 03005     | 00       | V   | 50    | 23       | 2.6 | -0.1  | -0.2  |
| 03238     | 00       | V   | 50    | 17       | 2.1 | 0.1   | 0.1   |
| 03238     | 12       | V   | 50    | 5        | 2.4 | -0.3  | -0.9  |
| 03808     | 00       | V   | 50    | 24       | 2.5 | -0.3  | 0.4   |
| 03808     | 12       | V   | 50    | 30       | 2.4 | 0.4   | 0.0   |
| 03918     | 00       | V   | 50    | 23       | 3.0 | -0.3  | 0.5   |
| 03918     | 12       | V   | 50    | 3        | 3.4 | -0.8  | 0.6   |
| 03953     | 00       | V   | 50    | 26       | 2.4 | -0.3  | -0.3  |
| 03953     | 12       | V   | 50    | 31       | 2.7 | 0.0   | -0.4  |
| 04018     | 12       | V   | 50    | 29       | 2.1 | 0.1   | 0.2   |
| 04018     | 00       | V   | 50    | 23       | 1.7 | 0.1   | 0.1   |
| 04220     | 12       | V   | 50    | 31       | 2.0 | 0.3   | 0.3   |
| 04220     | 00       | V   | 50    | 26       | 2.1 | 0.0   | 0.0   |
| 04270     | 00       | V   | 50    | 20       | 2.6 | -0.4  | 0.2   |
| 04270     | 12       | V   | 50    | 24       | 2.5 | 0.3   | 0.3   |
| 04320     | 12       | V   | 50    | 23       | 2.3 | 0.1   | 0.0   |
| 04320     | 00       | V   | 50    | 25       | 2.5 | 0.0   | 0.8   |
| 04339     | 12       | V   | 50    | 19       | 2.4 | 0.5   | -0.5  |
| 04339     | 00       | V   | 50    | 20       | 2.4 | 0.3   | 0.0   |
| 04360     | 12       | V   | 50    | 30       | 1.6 | 0.2   | 0.1   |
| 04360     | 00       | V   | 50    | 23       | 2.2 | 0.1   | -0.1  |
| 06011     | 00       | V   | 50    | 23       | 2.3 | 0.3   | 0.4   |
| 06011     | 12       | V   | 50    | 29       | 2.4 | 0.4   | -0.1  |
| 06260     | 12       | V   | 50    | 4        | 2.3 | 1.3   | -0.6  |

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO<br>IDENT | OBS<br>TIME | ELM | LEVEL | OBS<br>RECD | RMS | UBIAS | VBIAS |
|--------------|-------------|-----|-------|-------------|-----|-------|-------|
| 06260        | 00          | V   | 50    | 22          | 2.6 | 0.2   | 0.2   |
| 06610        | 00          | V   | 50    | 25          | 2.5 | -0.2  | -0.2  |
| 06610        | 12          | V   | 50    | 31          | 2.8 | 0.4   | 0.4   |
| 07110        | 12          | V   | 50    | 30          | 2.4 | 0.3   | 0.2   |
| 07110        | 00          | V   | 50    | 26          | 2.6 | 0.1   | -0.3  |
| 07510        | 00          | V   | 50    | 25          | 2.7 | -0.4  | -0.6  |
| 07510        | 12          | V   | 50    | 31          | 2.5 | -0.2  | -0.5  |
| 07645        | 00          | V   | 50    | 23          | 2.7 | -0.3  | 1.1   |
| 07645        | 12          | V   | 50    | 30          | 2.6 | 0.4   | -0.6  |
| 07761        | 12          | V   | 50    | 29          | 2.9 | 0.3   | -0.4  |
| 07761        | 00          | V   | 50    | 25          | 2.2 | -0.6  | 0.1   |
| 08001        | 12          | V   | 50    | 30          | 3.1 | -0.1  | -0.1  |
| 08001        | 00          | V   | 50    | 27          | 3.3 | -0.5  | -0.1  |
| 08221        | 12          | V   | 50    | 31          | 2.8 | 0.2   | -0.2  |
| 08221        | 00          | V   | 50    | 26          | 3.3 | 0.4   | -0.4  |
| 08302        | 00          | V   | 50    | 24          | 2.9 | -0.4  | -0.5  |
| 08302        | 12          | V   | 50    | 31          | 3.1 | -0.2  | -0.5  |
| 08508        | 12          | V   | 50    | 31          | 3.1 | 0.4   | -0.8  |
| 08522        | 12          | V   | 50    | 31          | 3.2 | -0.3  | -0.1  |
| 10035        | 12          | V   | 50    | 31          | 2.9 | -0.2  | -0.2  |
| 10035        | 00          | V   | 50    | 28          | 3.0 | -0.2  | 0.0   |
| 10393        | 00          | V   | 50    | 19          | 3.0 | 0.7   | 0.6   |
| 10393        | 12          | V   | 50    | 31          | 2.4 | -0.4  | -0.1  |
| 10410        | 00          | V   | 50    | 24          | 2.7 | 0.0   | 0.1   |
| 10410        | 12          | V   | 50    | 30          | 2.5 | 0.1   | 0.1   |
| 10739        | 00          | V   | 50    | 25          | 3.3 | 0.4   | -0.4  |
| 10739        | 12          | V   | 50    | 31          | 3.0 | 0.0   | -0.3  |
| 11035        | 12          | V   | 50    | 31          | 3.0 | -0.2  | -0.4  |
| 11035        | 00          | V   | 50    | 26          | 2.8 | 0.0   | -0.1  |
| 12982        | 00          | V   | 50    | 23          | 2.8 | -0.2  | -0.7  |
| 12982        | 12          | V   | 50    | 31          | 2.4 | 0.4   | -0.4  |
| 16245        | 00          | V   | 50    | 25          | 2.9 | 0.3   | -0.3  |
| 16245        | 12          | V   | 50    | 31          | 2.8 | 0.1   | 0.2   |
| 16429        | 12          | V   | 50    | 31          | 3.0 | -0.6  | -0.7  |
| 16429        | 00          | V   | 50    | 24          | 3.4 | 0.5   | -0.4  |
| 16622        | 00          | V   | 50    | 17          | 3.1 | -0.1  | 0.0   |
| 16754        | 00          | V   | 50    | 17          | 3.7 | 0.0   | 0.4   |
| 17607        | 12          | V   | 50    | 11          | 3.3 | 1.5   | -1.2  |
| 26435        | 12          | V   | 50    | 15          | 3.7 | -0.5  | -1.6  |
| 2EERVT       | 12          | V   | 50    | 5           | 1.6 | -0.1  | 0.0   |
| 2EERVT       | 00          | V   | 50    | 10          | 3.4 | -0.3  | 0.8   |
| 60018        | 00          | V   | 50    | 26          | 3.3 | -0.1  | 0.0   |
| 60018        | 12          | V   | 50    | 31          | 3.0 | 0.3   | -0.1  |



RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|-----------|----------|-----|-------|----------|-----|-------|-------|
| 7JUNA4    | 00       | V   | 50    | 6        | 3.0 | -2.0  | 0.0   |
| 7JUNA4    | 12       | V   | 50    | 6        | 3.2 | -0.9  | -1.4  |
| 9ZT9MR    | 00       | V   | 50    | 2        | 2.7 | -1.4  | 1.2   |
| 9ZT9MR    | 12       | V   | 50    | 2        | 2.1 | -0.7  | 1.1   |
| ASDE09    | 12       | V   | 50    | 1        | 3.1 | -2.3  | -2.1  |
| ATGU3F    | 00       | V   | 50    | 4        | 1.9 | -0.5  | -0.3  |
| ATGU3F    | 12       | V   | 50    | 3        | 2.6 | -1.0  | 0.7   |
| BPMWB2    | 00       | V   | 50    | 5        | 3.2 | -1.2  | -0.4  |
| BPMWB2    | 12       | V   | 50    | 6        | 2.5 | -0.9  | -0.2  |
| DBLK      | 12       | V   | 50    | 31       | 2.2 | 0.3   | 0.4   |
| DBLK      | 00       | V   | 50    | 28       | 2.1 | 0.3   | 0.0   |
| FPUW5G    | 12       | V   | 50    | 14       | 2.4 | -0.1  | -0.2  |
| JNKN7J    | 00       | V   | 50    | 11       | 3.3 | -1.2  | -0.1  |
| JNKN7J    | 12       | V   | 50    | 12       | 3.4 | 0.1   | 0.0   |
| KJJF9X    | 12       | V   | 50    | 5        | 2.8 | 1.1   | -0.3  |
| KJJF9X    | 00       | V   | 50    | 9        | 3.0 | 1.0   | 0.8   |
| KMPLHP    | 12       | V   | 50    | 10       | 2.6 | 0.2   | -0.5  |
| KMPLHP    | 00       | V   | 50    | 10       | 1.9 | 1.0   | 0.1   |
| LRYQE3    | 00       | V   | 50    | 9        | 3.3 | 0.4   | 0.3   |
| LRYQE3    | 12       | V   | 50    | 12       | 2.9 | 0.6   | 1.0   |
| UXK5JT    | 00       | V   | 50    | 7        | 2.9 | 0.4   | -0.9  |
| UXK5JT    | 12       | V   | 50    | 7        | 3.8 | -1.0  | -0.7  |
| WDK38H    | 12       | V   | 50    | 14       | 1.9 | 0.0   | 0.4   |
| WDK38H    | 00       | V   | 50    | 1        | 1.6 | -1.5  | 0.4   |
| XKQLWQ    | 12       | V   | 50    | 19       | 3.0 | 0.2   | -1.2  |
| XQFJRG    | 12       | V   | 50    | 2        | 4.0 | 1.3   | 0.9   |
| XQFJRG    | 00       | V   | 50    | 0        | 0.0 | 0.0   | 0.0   |
| YLV96W    | 12       | V   | 50    | 4        | 2.1 | 0.7   | 0.6   |
| YLV96W    | 00       | V   | 50    | 7        | 3.9 | -0.3  | -0.6  |
| ZVQEQC    | 12       | V   | 50    | 13       | 1.9 | -0.5  | 0.6   |
| ZVQEQC    | 00       | V   | 50    | 15       | 2.5 | -0.1  | -0.2  |

### 4.3 Table 15 - Radiosonde Monitoring Statistics (EUCOS): 100 hPa Geopotential height (metres)

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)  
 LEVEL : 100 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS  | BIAS  |
|-----------|----------|-----|-------|----------|------|-------|
| 01001     | 00       | Z   | 100   | 30       | 20.1 | -17.2 |
| 01001     | 12       | Z   | 100   | 30       | 10.5 | -7.4  |
| 01028     | 00       | Z   | 100   | 31       | 9.8  | -8.3  |
| 01028     | 12       | Z   | 100   | 31       | 10.7 | -9.8  |
| 01400     | 12       | Z   | 100   | 18       | 72.0 | 71.6  |
| 01400     | 00       | Z   | 100   | 16       | 76.8 | 76.4  |
| 01415     | 12       | Z   | 100   | 30       | 5.3  | -2.2  |
| 01415     | 00       | Z   | 100   | 30       | 5.9  | 0.6   |
| 02365     | 00       | Z   | 100   | 30       | 5.7  | -4.2  |
| 02365     | 12       | Z   | 100   | 29       | 8.2  | -6.9  |
| 02836     | 00       | Z   | 100   | 31       | 5.3  | -3.6  |
| 02836     | 12       | Z   | 100   | 32       | 8.0  | -6.6  |
| 02963     | 00       | Z   | 100   | 30       | 4.8  | 0.5   |
| 02963     | 12       | Z   | 100   | 31       | 7.2  | -5.5  |
| 03005     | 12       | Z   | 100   | 31       | 10.8 | -9.2  |
| 03005     | 00       | Z   | 100   | 28       | 12.9 | -5.8  |
| 03238     | 00       | Z   | 100   | 22       | 8.3  | -4.8  |
| 03238     | 12       | Z   | 100   | 5        | 5.0  | -4.7  |
| 03808     | 00       | Z   | 100   | 27       | 3.7  | -1.1  |
| 03808     | 12       | Z   | 100   | 31       | 7.6  | -5.6  |
| 03918     | 00       | Z   | 100   | 31       | 6.5  | 1.2   |
| 03918     | 12       | Z   | 100   | 3        | 7.5  | 6.8   |
| 03953     | 00       | Z   | 100   | 31       | 11.1 | -10.0 |
| 03953     | 12       | Z   | 100   | 31       | 11.1 | -9.8  |
| 04018     | 12       | Z   | 100   | 29       | 6.7  | -5.1  |
| 04018     | 00       | Z   | 100   | 31       | 7.2  | -5.7  |
| 04220     | 12       | Z   | 100   | 31       | 8.4  | -3.8  |
| 04220     | 00       | Z   | 100   | 30       | 6.2  | -4.8  |
| 04270     | 00       | Z   | 100   | 30       | 20.0 | -18.8 |
| 04270     | 12       | Z   | 100   | 29       | 19.5 | -17.1 |
| 04320     | 12       | Z   | 100   | 29       | 12.6 | -10.2 |
| 04320     | 00       | Z   | 100   | 30       | 29.3 | -11.3 |
| 04339     | 12       | Z   | 100   | 25       | 16.0 | -14.4 |
| 04339     | 00       | Z   | 100   | 29       | 21.9 | -20.1 |
| 04360     | 12       | Z   | 100   | 30       | 17.0 | -8.1  |
| 04360     | 00       | Z   | 100   | 30       | 17.7 | -17.1 |
| 06011     | 00       | Z   | 100   | 30       | 9.1  | -3.8  |
| 06011     | 12       | Z   | 100   | 30       | 10.2 | 5.7   |
| 06260     | 12       | Z   | 100   | 6        | 7.8  | -5.5  |

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS  | BIAS  |
|-----------|----------|-----|-------|----------|------|-------|
| 06260     | 00       | Z   | 100   | 31       | 8.6  | -0.5  |
| 06610     | 00       | Z   | 100   | 31       | 4.7  | 0.2   |
| 06610     | 12       | Z   | 100   | 31       | 7.9  | -5.0  |
| 07110     | 12       | Z   | 100   | 30       | 14.4 | -10.3 |
| 07110     | 00       | Z   | 100   | 31       | 11.2 | -9.9  |
| 07510     | 00       | Z   | 100   | 31       | 4.5  | -1.7  |
| 07510     | 12       | Z   | 100   | 34       | 13.0 | -11.0 |
| 07645     | 00       | Z   | 100   | 31       | 8.3  | -0.7  |
| 07645     | 12       | Z   | 100   | 31       | 13.1 | -10.7 |
| 07761     | 12       | Z   | 100   | 30       | 38.3 | -36.9 |
| 07761     | 00       | Z   | 100   | 31       | 30.5 | -29.8 |
| 08001     | 12       | Z   | 100   | 31       | 3.9  | -0.5  |
| 08001     | 00       | Z   | 100   | 31       | 6.5  | 3.3   |
| 08221     | 12       | Z   | 100   | 31       | 3.9  | 0.1   |
| 08221     | 00       | Z   | 100   | 31       | 7.0  | 4.7   |
| 08302     | 00       | Z   | 100   | 30       | 5.1  | -1.8  |
| 08302     | 12       | Z   | 100   | 31       | 11.6 | -10.9 |
| 08508     | 12       | Z   | 100   | 31       | 3.6  | 1.3   |
| 08522     | 12       | Z   | 100   | 31       | 4.1  | 1.0   |
| 10035     | 12       | Z   | 100   | 32       | 6.1  | 3.6   |
| 10035     | 00       | Z   | 100   | 30       | 11.2 | 9.5   |
| 10393     | 00       | Z   | 100   | 29       | 5.8  | -1.1  |
| 10393     | 12       | Z   | 100   | 31       | 7.9  | -6.2  |
| 10410     | 00       | Z   | 100   | 31       | 5.3  | -1.7  |
| 10410     | 12       | Z   | 100   | 30       | 10.0 | -8.8  |
| 10739     | 00       | Z   | 100   | 30       | 7.9  | 5.3   |
| 10739     | 12       | Z   | 100   | 31       | 4.8  | -2.5  |
| 11035     | 12       | Z   | 100   | 31       | 7.6  | -5.4  |
| 11035     | 00       | Z   | 100   | 31       | 6.6  | 3.7   |
| 12982     | 00       | Z   | 100   | 31       | 6.1  | 4.4   |
| 12982     | 12       | Z   | 100   | 31       | 6.5  | -4.6  |
| 16245     | 00       | Z   | 100   | 31       | 5.2  | 4.0   |
| 16245     | 12       | Z   | 100   | 31       | 5.3  | -3.7  |
| 16429     | 12       | Z   | 100   | 31       | 3.6  | -0.2  |
| 16429     | 00       | Z   | 100   | 31       | 6.1  | 5.2   |
| 16622     | 00       | Z   | 100   | 30       | 15.9 | 15.2  |
| 16754     | 00       | Z   | 100   | 29       | 13.5 | 12.9  |
| 17607     | 12       | Z   | 100   | 31       | 5.9  | 4.7   |
| 26435     | 12       | Z   | 100   | 15       | 7.6  | -6.8  |
| 2EERVT    | 12       | Z   | 100   | 5        | 15.2 | -14.2 |
| 2EERVT    | 00       | Z   | 100   | 10       | 11.8 | -10.6 |
| 60018     | 00       | Z   | 100   | 31       | 8.3  | 7.2   |
| 60018     | 12       | Z   | 100   | 31       | 6.1  | -2.3  |

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS  | BIAS  |
|-----------|----------|-----|-------|----------|------|-------|
| 7JUNA4    | 00       | Z   | 100   | 7        | 7.4  | -0.3  |
| 7JUNA4    | 12       | Z   | 100   | 5        | 62.8 | 48.0  |
| 9ZT9MR    | 00       | Z   | 100   | 3        | 25.2 | -24.6 |
| 9ZT9MR    | 12       | Z   | 100   | 2        | 21.9 | -21.9 |
| ASDE09    | 12       | Z   | 100   | 1        | 26.2 | 26.2  |
| ATGU3F    | 00       | Z   | 100   | 4        | 27.2 | -26.2 |
| ATGU3F    | 12       | Z   | 100   | 3        | 22.5 | -22.4 |
| BPMWB2    | 00       | Z   | 100   | 7        | 16.5 | 13.2  |
| BPMWB2    | 12       | Z   | 100   | 9        | 22.4 | 19.4  |
| DBLK      | 12       | Z   | 100   | 32       | 9.8  | 9.1   |
| DBLK      | 00       | Z   | 100   | 30       | 8.9  | 7.5   |
| FPUW5G    | 12       | Z   | 100   | 20       | 6.2  | -1.7  |
| JNKN7J    | 00       | Z   | 100   | 11       | 22.8 | 21.9  |
| JNKN7J    | 12       | Z   | 100   | 11       | 19.9 | 17.7  |
| KJJF9X    | 12       | Z   | 100   | 5        | 7.6  | 4.4   |
| KJJF9X    | 00       | Z   | 100   | 9        | 12.4 | 5.6   |
| KMPLHP    | 12       | Z   | 100   | 12       | 79.3 | 74.9  |
| KMPLHP    | 00       | Z   | 100   | 10       | 24.3 | 12.0  |
| LRYQE3    | 00       | Z   | 100   | 10       | 13.7 | -10.8 |
| LRYQE3    | 12       | Z   | 100   | 11       | 14.3 | -4.9  |
| UXK5JT    | 00       | Z   | 100   | 8        | 4.7  | 0.9   |
| UXK5JT    | 12       | Z   | 100   | 10       | 10.5 | 2.5   |
| WDK38H    | 12       | Z   | 100   | 18       | 11.3 | -9.6  |
| WDK38H    | 00       | Z   | 100   | 1        | 11.2 | -11.2 |
| XKQLWQ    | 12       | Z   | 100   | 21       | 27.4 | 25.8  |
| XQFJRG    | 12       | Z   | 100   | 3        | 8.3  | -5.4  |
| XQFJRG    | 00       | Z   | 100   | 0        | 0.0  | 0.0   |
| YLV96W    | 12       | Z   | 100   | 6        | 8.5  | -6.8  |
| YLV96W    | 00       | Z   | 100   | 6        | 15.0 | -13.6 |
| ZVQEQC    | 12       | Z   | 100   | 13       | 7.4  | 0.8   |
| ZVQEQC    | 00       | Z   | 100   | 15       | 5.6  | -4.6  |

**4.4 Table 16 - Radiosonde Monitoring Statistics (EUCOS): 100 hPa Wind (m/s)**

## RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 LEVEL : 100 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|-----------|----------|-----|-------|----------|-----|-------|-------|
| 01001     | 00       | V   | 100   | 22       | 2.4 | 0.3   | 0.9   |
| 01001     | 12       | V   | 100   | 30       | 2.6 | 0.2   | 0.7   |
| 01028     | 00       | V   | 100   | 28       | 2.2 | -0.2  | -0.1  |
| 01028     | 12       | V   | 100   | 31       | 2.5 | -0.1  | -0.1  |
| 01400     | 12       | V   | 100   | 14       | 2.8 | 0.3   | -0.1  |
| 01400     | 00       | V   | 100   | 10       | 3.6 | 0.4   | -0.6  |
| 01415     | 12       | V   | 100   | 30       | 3.3 | -0.1  | -0.3  |
| 01415     | 00       | V   | 100   | 24       | 2.7 | 0.2   | -0.1  |
| 02365     | 00       | V   | 100   | 24       | 2.6 | 0.6   | -0.4  |
| 02365     | 12       | V   | 100   | 29       | 2.5 | -0.5  | 0.1   |
| 02836     | 00       | V   | 100   | 25       | 2.8 | 0.1   | -0.2  |
| 02836     | 12       | V   | 100   | 31       | 2.3 | 0.3   | 0.1   |
| 02963     | 00       | V   | 100   | 24       | 2.3 | -0.1  | 0.1   |
| 02963     | 12       | V   | 100   | 31       | 2.4 | 0.4   | -0.1  |
| 03005     | 12       | V   | 100   | 31       | 3.1 | 0.1   | 0.4   |
| 03005     | 00       | V   | 100   | 23       | 3.1 | -0.4  | 0.0   |
| 03238     | 00       | V   | 100   | 17       | 2.9 | 0.3   | 0.0   |
| 03238     | 12       | V   | 100   | 5        | 2.6 | -0.1  | -0.5  |
| 03808     | 00       | V   | 100   | 23       | 3.2 | 0.7   | 0.8   |
| 03808     | 12       | V   | 100   | 31       | 2.4 | 0.4   | -0.2  |
| 03918     | 00       | V   | 100   | 23       | 2.7 | -0.1  | 0.2   |
| 03918     | 12       | V   | 100   | 3        | 3.5 | -1.2  | 0.0   |
| 03953     | 00       | V   | 100   | 26       | 2.2 | 0.1   | 0.7   |
| 03953     | 12       | V   | 100   | 31       | 2.8 | 0.1   | 0.1   |
| 04018     | 12       | V   | 100   | 29       | 2.3 | 0.0   | 0.0   |
| 04018     | 00       | V   | 100   | 25       | 2.1 | 0.1   | 0.0   |
| 04220     | 12       | V   | 100   | 31       | 2.5 | -0.3  | 0.4   |
| 04220     | 00       | V   | 100   | 28       | 2.1 | 0.0   | 0.2   |
| 04270     | 00       | V   | 100   | 23       | 2.6 | -0.4  | -0.3  |
| 04270     | 12       | V   | 100   | 29       | 2.5 | -0.2  | -0.1  |
| 04320     | 12       | V   | 100   | 29       | 2.3 | 0.1   | 0.2   |
| 04320     | 00       | V   | 100   | 24       | 2.1 | 0.2   | 0.1   |
| 04339     | 12       | V   | 100   | 25       | 1.8 | 0.1   | 0.2   |
| 04339     | 00       | V   | 100   | 26       | 2.3 | -0.1  | 0.4   |
| 04360     | 12       | V   | 100   | 30       | 2.6 | 0.0   | -0.5  |
| 04360     | 00       | V   | 100   | 23       | 2.1 | -0.1  | 0.3   |
| 06011     | 00       | V   | 100   | 25       | 2.5 | 0.4   | 0.7   |
| 06011     | 12       | V   | 100   | 30       | 3.0 | 0.0   | 0.2   |
| 06260     | 12       | V   | 100   | 6        | 2.8 | -0.9  | -0.4  |

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO<br>IDENT | OBS<br>TIME | ELM | LEVEL | OBS<br>RECD | RMS | UBIAS | VBIAS |
|--------------|-------------|-----|-------|-------------|-----|-------|-------|
| 06260        | 00          | V   | 100   | 22          | 2.5 | 0.0   | 0.1   |
| 06610        | 00          | V   | 100   | 24          | 3.0 | 0.5   | 0.3   |
| 06610        | 12          | V   | 100   | 31          | 2.9 | 0.4   | 0.3   |
| 07110        | 12          | V   | 100   | 30          | 2.7 | 0.7   | 0.6   |
| 07110        | 00          | V   | 100   | 26          | 3.0 | 0.3   | -0.7  |
| 07510        | 00          | V   | 100   | 25          | 3.1 | 0.4   | -0.5  |
| 07510        | 12          | V   | 100   | 31          | 3.0 | -0.6  | -0.4  |
| 07645        | 00          | V   | 100   | 23          | 3.0 | 0.2   | 0.0   |
| 07645        | 12          | V   | 100   | 31          | 3.0 | 0.6   | 0.0   |
| 07761        | 12          | V   | 100   | 30          | 3.4 | 0.6   | 0.0   |
| 07761        | 00          | V   | 100   | 25          | 3.5 | 1.0   | -0.3  |
| 08001        | 12          | V   | 100   | 31          | 3.0 | 0.7   | -0.1  |
| 08001        | 00          | V   | 100   | 27          | 3.1 | 1.0   | 0.9   |
| 08221        | 12          | V   | 100   | 31          | 2.7 | 0.2   | 0.2   |
| 08221        | 00          | V   | 100   | 26          | 4.0 | 0.6   | -0.3  |
| 08302        | 00          | V   | 100   | 24          | 3.9 | 1.0   | 0.8   |
| 08302        | 12          | V   | 100   | 31          | 3.4 | -0.1  | 1.5   |
| 08508        | 12          | V   | 100   | 31          | 3.5 | 0.8   | -0.4  |
| 08522        | 12          | V   | 100   | 31          | 3.5 | -0.2  | -1.2  |
| 10035        | 12          | V   | 100   | 31          | 2.2 | 0.2   | 0.0   |
| 10035        | 00          | V   | 100   | 29          | 2.9 | -0.1  | -0.4  |
| 10393        | 00          | V   | 100   | 28          | 2.9 | 0.3   | -0.3  |
| 10393        | 12          | V   | 100   | 31          | 2.6 | 0.1   | -0.3  |
| 10410        | 00          | V   | 100   | 29          | 2.9 | 0.5   | 0.3   |
| 10410        | 12          | V   | 100   | 30          | 2.9 | -0.5  | 0.5   |
| 10739        | 00          | V   | 100   | 29          | 3.7 | -0.6  | 0.2   |
| 10739        | 12          | V   | 100   | 31          | 3.3 | 0.4   | -0.7  |
| 11035        | 12          | V   | 100   | 31          | 3.1 | -0.4  | -0.7  |
| 11035        | 00          | V   | 100   | 26          | 3.8 | 1.0   | -0.5  |
| 12982        | 00          | V   | 100   | 23          | 2.9 | 0.3   | 1.0   |
| 12982        | 12          | V   | 100   | 31          | 3.4 | 0.4   | 0.5   |
| 16245        | 00          | V   | 100   | 24          | 4.0 | 0.5   | 0.5   |
| 16245        | 12          | V   | 100   | 31          | 3.3 | 0.4   | 0.4   |
| 16429        | 12          | V   | 100   | 31          | 3.5 | 0.2   | 1.0   |
| 16429        | 00          | V   | 100   | 30          | 3.3 | 0.1   | 0.4   |
| 16622        | 00          | V   | 100   | 22          | 3.6 | -0.2  | 0.9   |
| 16754        | 00          | V   | 100   | 29          | 3.3 | 0.7   | 0.7   |
| 17607        | 12          | V   | 100   | 19          | 3.2 | 0.5   | 0.3   |
| 26435        | 12          | V   | 100   | 15          | 2.5 | -0.1  | -0.2  |
| 2EERV        | 12          | V   | 100   | 5           | 1.4 | -0.3  | 0.2   |
| 2EERV        | 00          | V   | 100   | 10          | 2.0 | -0.1  | 0.4   |
| 60018        | 00          | V   | 100   | 26          | 4.0 | 0.1   | 0.5   |
| 60018        | 12          | V   | 100   | 31          | 3.6 | 0.2   | 0.3   |

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|-----------|----------|-----|-------|----------|-----|-------|-------|
| 7JUNA4    | 00       | V   | 100   | 7        | 3.4 | 1.3   | 0.7   |
| 7JUNA4    | 12       | V   | 100   | 5        | 3.5 | 0.5   | 0.5   |
| 9ZT9MR    | 00       | V   | 100   | 3        | 2.2 | 0.1   | 0.8   |
| 9ZT9MR    | 12       | V   | 100   | 2        | 3.4 | -2.1  | 0.8   |
| ASDE09    | 12       | V   | 100   | 1        | 2.7 | -0.3  | 2.7   |
| ATGU3F    | 00       | V   | 100   | 4        | 2.1 | -0.7  | 0.8   |
| ATGU3F    | 12       | V   | 100   | 3        | 1.4 | 0.0   | -0.7  |
| BPMWB2    | 00       | V   | 100   | 6        | 2.8 | -1.1  | -1.1  |
| BPMWB2    | 12       | V   | 100   | 9        | 3.9 | 0.7   | 0.2   |
| DBLK      | 12       | V   | 100   | 31       | 2.1 | 0.0   | -0.4  |
| DBLK      | 00       | V   | 100   | 28       | 2.3 | 0.0   | -0.7  |
| FPUW5G    | 12       | V   | 100   | 20       | 2.2 | 0.4   | -0.2  |
| JNKN7J    | 00       | V   | 100   | 11       | 2.8 | 0.5   | -0.3  |
| JNKN7J    | 12       | V   | 100   | 11       | 2.6 | 1.4   | -1.2  |
| KJJF9X    | 12       | V   | 100   | 5        | 2.3 | -0.1  | -1.3  |
| KJJF9X    | 00       | V   | 100   | 9        | 2.1 | -0.3  | 0.3   |
| KMPLHP    | 12       | V   | 100   | 12       | 4.0 | 0.8   | 1.1   |
| KMPLHP    | 00       | V   | 100   | 10       | 2.9 | 0.5   | 0.4   |
| LRYQE3    | 00       | V   | 100   | 10       | 2.7 | 0.0   | 0.1   |
| LRYQE3    | 12       | V   | 100   | 11       | 3.4 | -0.1  | 0.3   |
| UXK5JT    | 00       | V   | 100   | 8        | 2.0 | -0.4  | 0.8   |
| UXK5JT    | 12       | V   | 100   | 10       | 3.4 | -0.2  | 1.0   |
| WDK38H    | 12       | V   | 100   | 18       | 2.0 | 0.0   | -0.1  |
| WDK38H    | 00       | V   | 100   | 1        | 2.9 | -2.8  | 0.9   |
| XKQLWQ    | 12       | V   | 100   | 21       | 2.4 | -0.2  | 0.1   |
| XQFJRG    | 12       | V   | 100   | 3        | 1.9 | 0.6   | 0.1   |
| XQFJRG    | 00       | V   | 100   | 0        | 0.0 | 0.0   | 0.0   |
| YLV96W    | 12       | V   | 100   | 6        | 1.7 | -0.3  | -0.4  |
| YLV96W    | 00       | V   | 100   | 6        | 3.3 | -0.9  | 1.5   |
| ZVQEQC    | 12       | V   | 100   | 13       | 3.8 | -0.4  | -0.3  |
| ZVQEQC    | 00       | V   | 100   | 15       | 2.7 | -0.2  | 0.9   |

#### 4.5 Table 17 - Radiosonde Monitoring Statistics (EUCOS): 500 hPa Geopotential height (metres)

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)  
 LEVEL : 500 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS  | BIAS  |
|-----------|----------|-----|-------|----------|------|-------|
| 01001     | 00       | Z   | 500   | 30       | 13.9 | -12.8 |
| 01001     | 12       | Z   | 500   | 31       | 4.7  | -0.5  |
| 01028     | 00       | Z   | 500   | 31       | 5.6  | -3.5  |
| 01028     | 12       | Z   | 500   | 31       | 5.2  | -2.1  |
| 01400     | 12       | Z   | 500   | 30       | 81.0 | 80.8  |
| 01400     | 00       | Z   | 500   | 31       | 79.5 | 79.3  |
| 01415     | 12       | Z   | 500   | 30       | 5.4  | 4.4   |
| 01415     | 00       | Z   | 500   | 30       | 4.2  | 3.4   |
| 02365     | 00       | Z   | 500   | 30       | 2.4  | 0.2   |
| 02365     | 12       | Z   | 500   | 29       | 3.2  | 1.1   |
| 02836     | 00       | Z   | 500   | 31       | 2.7  | -0.2  |
| 02836     | 12       | Z   | 500   | 31       | 2.8  | 0.7   |
| 02963     | 00       | Z   | 500   | 31       | 3.7  | 2.4   |
| 02963     | 12       | Z   | 500   | 31       | 3.9  | 2.8   |
| 03005     | 12       | Z   | 500   | 31       | 4.5  | -2.5  |
| 03005     | 00       | Z   | 500   | 31       | 11.9 | -3.8  |
| 03238     | 00       | Z   | 500   | 22       | 3.3  | 2.1   |
| 03238     | 12       | Z   | 500   | 6        | 2.0  | 1.3   |
| 03808     | 00       | Z   | 500   | 27       | 4.3  | 3.5   |
| 03808     | 12       | Z   | 500   | 32       | 3.0  | 1.5   |
| 03918     | 00       | Z   | 500   | 31       | 7.6  | 7.2   |
| 03918     | 12       | Z   | 500   | 3        | 5.0  | 4.1   |
| 03953     | 00       | Z   | 500   | 31       | 3.4  | -1.6  |
| 03953     | 12       | Z   | 500   | 31       | 4.9  | -2.9  |
| 04018     | 12       | Z   | 500   | 29       | 2.0  | -0.6  |
| 04018     | 00       | Z   | 500   | 31       | 2.9  | -0.7  |
| 04220     | 12       | Z   | 500   | 31       | 6.9  | 2.3   |
| 04220     | 00       | Z   | 500   | 31       | 3.3  | 1.8   |
| 04270     | 00       | Z   | 500   | 30       | 12.0 | -11.3 |
| 04270     | 12       | Z   | 500   | 29       | 11.1 | -9.7  |
| 04320     | 12       | Z   | 500   | 29       | 5.9  | -3.3  |
| 04320     | 00       | Z   | 500   | 30       | 8.2  | -5.5  |
| 04339     | 12       | Z   | 500   | 25       | 9.7  | -9.2  |
| 04339     | 00       | Z   | 500   | 31       | 11.7 | -9.9  |
| 04360     | 12       | Z   | 500   | 30       | 8.2  | -7.4  |
| 04360     | 00       | Z   | 500   | 30       | 8.8  | -8.4  |
| 06011     | 00       | Z   | 500   | 31       | 5.9  | 1.5   |
| 06011     | 12       | Z   | 500   | 31       | 7.7  | 3.9   |
| 06260     | 12       | Z   | 500   | 6        | 3.3  | 1.7   |



RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS  | BIAS  |
|-----------|----------|-----|-------|----------|------|-------|
| 06260     | 00       | Z   | 500   | 31       | 6.7  | 1.8   |
| 06610     | 00       | Z   | 500   | 31       | 3.0  | 2.3   |
| 06610     | 12       | Z   | 500   | 32       | 2.0  | 0.4   |
| 07110     | 12       | Z   | 500   | 31       | 6.6  | -4.6  |
| 07110     | 00       | Z   | 500   | 31       | 5.8  | -4.9  |
| 07510     | 00       | Z   | 500   | 32       | 3.6  | 2.9   |
| 07510     | 12       | Z   | 500   | 34       | 3.5  | 2.2   |
| 07645     | 00       | Z   | 500   | 31       | 8.3  | -3.9  |
| 07645     | 12       | Z   | 500   | 31       | 5.5  | -3.4  |
| 07761     | 12       | Z   | 500   | 31       | 17.1 | -16.9 |
| 07761     | 00       | Z   | 500   | 31       | 16.1 | -15.8 |
| 08001     | 12       | Z   | 500   | 31       | 3.7  | 2.8   |
| 08001     | 00       | Z   | 500   | 31       | 5.3  | 4.2   |
| 08221     | 12       | Z   | 500   | 31       | 5.8  | 5.5   |
| 08221     | 00       | Z   | 500   | 31       | 7.2  | 6.8   |
| 08302     | 00       | Z   | 500   | 30       | 3.7  | -3.3  |
| 08302     | 12       | Z   | 500   | 31       | 6.2  | -6.0  |
| 08508     | 12       | Z   | 500   | 31       | 5.9  | 5.4   |
| 08522     | 12       | Z   | 500   | 31       | 6.0  | 5.3   |
| 10035     | 12       | Z   | 500   | 32       | 12.6 | 12.4  |
| 10035     | 00       | Z   | 500   | 31       | 13.7 | 13.4  |
| 10393     | 00       | Z   | 500   | 29       | 2.7  | 1.2   |
| 10393     | 12       | Z   | 500   | 31       | 2.6  | 0.5   |
| 10410     | 00       | Z   | 500   | 31       | 2.5  | 1.3   |
| 10410     | 12       | Z   | 500   | 30       | 2.7  | -1.0  |
| 10739     | 00       | Z   | 500   | 30       | 6.7  | 6.2   |
| 10739     | 12       | Z   | 500   | 31       | 4.8  | 4.3   |
| 11035     | 12       | Z   | 500   | 31       | 7.7  | -0.3  |
| 11035     | 00       | Z   | 500   | 31       | 4.5  | 3.9   |
| 12982     | 00       | Z   | 500   | 31       | 5.0  | 4.5   |
| 12982     | 12       | Z   | 500   | 31       | 3.0  | 2.0   |
| 16245     | 00       | Z   | 500   | 31       | 4.1  | 3.5   |
| 16245     | 12       | Z   | 500   | 31       | 2.6  | 2.0   |
| 16429     | 12       | Z   | 500   | 31       | 3.4  | 2.7   |
| 16429     | 00       | Z   | 500   | 31       | 4.8  | 4.3   |
| 16622     | 00       | Z   | 500   | 31       | 12.1 | 11.5  |
| 16754     | 00       | Z   | 500   | 30       | 8.1  | 7.1   |
| 17607     | 12       | Z   | 500   | 30       | 5.4  | 4.9   |
| 26435     | 12       | Z   | 500   | 15       | 2.7  | 1.0   |
| 2EERVT    | 12       | Z   | 500   | 7        | 6.7  | -4.1  |
| 2EERVT    | 00       | Z   | 500   | 10       | 11.6 | -10.9 |
| 60018     | 00       | Z   | 500   | 32       | 5.4  | 4.3   |
| 60018     | 12       | Z   | 500   | 31       | 5.1  | 3.7   |

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS  | BIAS  |
|-----------|----------|-----|-------|----------|------|-------|
| 7JUNA4    | 00       | Z   | 500   | 9        | 7.0  | 0.5   |
| 7JUNA4    | 12       | Z   | 500   | 8        | 7.7  | 5.8   |
| 9ZT9MR    | 00       | Z   | 500   | 4        | 13.3 | -12.8 |
| 9ZT9MR    | 12       | Z   | 500   | 2        | 14.0 | -13.9 |
| ASDE09    | 12       | Z   | 500   | 1        | 23.8 | 23.8  |
| ATGU3F    | 00       | Z   | 500   | 5        | 26.1 | -25.8 |
| ATGU3F    | 12       | Z   | 500   | 3        | 23.1 | -22.3 |
| BPMWB2    | 00       | Z   | 500   | 13       | 17.7 | 16.3  |
| BPMWB2    | 12       | Z   | 500   | 10       | 21.9 | 21.3  |
| DBLK      | 12       | Z   | 500   | 32       | 15.7 | 15.5  |
| DBLK      | 00       | Z   | 500   | 29       | 14.1 | 14.0  |
| FPUW5G    | 12       | Z   | 500   | 26       | 7.6  | 3.3   |
| JNKN7J    | 00       | Z   | 500   | 11       | 34.0 | 33.8  |
| JNKN7J    | 12       | Z   | 500   | 12       | 36.5 | 36.1  |
| KJJF9X    | 12       | Z   | 500   | 6        | 7.9  | 5.5   |
| KJJF9X    | 00       | Z   | 500   | 9        | 6.4  | 3.6   |
| KMPLHP    | 12       | Z   | 500   | 13       | 39.6 | 39.2  |
| KMPLHP    | 00       | Z   | 500   | 10       | 35.1 | 26.3  |
| LRYQE3    | 00       | Z   | 500   | 12       | 4.6  | -3.2  |
| LRYQE3    | 12       | Z   | 500   | 13       | 7.8  | -2.4  |
| UXK5JT    | 00       | Z   | 500   | 9        | 7.0  | -5.7  |
| UXK5JT    | 12       | Z   | 500   | 10       | 6.6  | -2.3  |
| WDK38H    | 12       | Z   | 500   | 18       | 4.4  | -3.5  |
| WDK38H    | 00       | Z   | 500   | 1        | 3.4  | -3.4  |
| XKQLWQ    | 12       | Z   | 500   | 21       | 21.0 | 20.3  |
| XQFJRG    | 12       | Z   | 500   | 3        | 10.8 | -10.0 |
| XQFJRG    | 00       | Z   | 500   | 1        | 7.8  | -7.8  |
| YLV96W    | 12       | Z   | 500   | 7        | 4.4  | -3.4  |
| YLV96W    | 00       | Z   | 500   | 7        | 3.5  | -1.9  |
| ZVQEQC    | 12       | Z   | 500   | 13       | 5.0  | 3.6   |
| ZVQEQC    | 00       | Z   | 500   | 15       | 2.8  | -0.1  |

**4.6 Table 18 - Radiosonde Monitoring Statistics (EUCOS): 500 hPa Wind (m/s)**

## RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 LEVEL : 500 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|-----------|----------|-----|-------|----------|-----|-------|-------|
| 01001     | 00       | V   | 500   | 29       | 2.3 | 0.2   | 0.1   |
| 01001     | 12       | V   | 500   | 31       | 2.3 | 0.0   | 0.0   |
| 01028     | 00       | V   | 500   | 30       | 2.3 | -0.5  | 0.1   |
| 01028     | 12       | V   | 500   | 31       | 1.9 | 0.1   | -0.3  |
| 01400     | 12       | V   | 500   | 30       | 2.2 | -0.1  | -0.2  |
| 01400     | 00       | V   | 500   | 29       | 2.1 | 0.0   | -0.1  |
| 01415     | 12       | V   | 500   | 30       | 2.3 | 0.1   | 0.6   |
| 01415     | 00       | V   | 500   | 29       | 2.4 | -0.3  | 0.4   |
| 02365     | 00       | V   | 500   | 29       | 2.5 | 0.2   | -0.3  |
| 02365     | 12       | V   | 500   | 29       | 2.7 | 0.9   | 0.4   |
| 02836     | 00       | V   | 500   | 30       | 2.8 | 0.4   | 0.1   |
| 02836     | 12       | V   | 500   | 31       | 2.9 | 0.3   | 0.9   |
| 02963     | 00       | V   | 500   | 30       | 2.1 | 0.2   | -0.3  |
| 02963     | 12       | V   | 500   | 31       | 2.0 | -0.3  | 0.5   |
| 03005     | 12       | V   | 500   | 31       | 3.1 | 0.4   | 0.3   |
| 03005     | 00       | V   | 500   | 29       | 2.7 | 0.2   | 0.6   |
| 03238     | 00       | V   | 500   | 21       | 2.9 | 0.7   | -0.8  |
| 03238     | 12       | V   | 500   | 5        | 2.3 | 0.3   | -1.5  |
| 03808     | 00       | V   | 500   | 27       | 2.1 | 0.0   | -0.4  |
| 03808     | 12       | V   | 500   | 31       | 2.8 | 0.4   | 0.2   |
| 03918     | 00       | V   | 500   | 30       | 2.3 | 0.4   | 0.2   |
| 03918     | 12       | V   | 500   | 3        | 4.5 | 1.1   | 0.2   |
| 03953     | 00       | V   | 500   | 30       | 2.8 | 0.6   | 0.0   |
| 03953     | 12       | V   | 500   | 31       | 3.2 | -0.5  | 0.2   |
| 04018     | 12       | V   | 500   | 29       | 2.4 | 0.3   | -0.2  |
| 04018     | 00       | V   | 500   | 30       | 2.3 | 0.1   | -0.1  |
| 04220     | 12       | V   | 500   | 31       | 2.0 | -0.1  | 0.3   |
| 04220     | 00       | V   | 500   | 30       | 2.4 | -0.1  | 0.2   |
| 04270     | 00       | V   | 500   | 29       | 2.2 | 0.2   | -0.2  |
| 04270     | 12       | V   | 500   | 29       | 2.4 | 0.3   | 0.1   |
| 04320     | 12       | V   | 500   | 29       | 2.2 | -0.3  | 0.0   |
| 04320     | 00       | V   | 500   | 29       | 2.5 | 0.4   | 0.2   |
| 04339     | 12       | V   | 500   | 25       | 2.6 | 0.3   | -0.5  |
| 04339     | 00       | V   | 500   | 30       | 2.1 | 0.0   | 0.2   |
| 04360     | 12       | V   | 500   | 30       | 2.7 | -0.1  | 0.3   |
| 04360     | 00       | V   | 500   | 29       | 2.8 | -0.3  | -0.5  |
| 06011     | 00       | V   | 500   | 29       | 2.2 | -0.1  | 0.0   |
| 06011     | 12       | V   | 500   | 31       | 2.7 | -0.1  | 0.1   |
| 06260     | 12       | V   | 500   | 6        | 2.0 | -0.4  | 1.1   |

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO<br>IDENT | OBS<br>TIME | ELM | LEVEL | OBS<br>RECD | RMS | UBIAS | VBIAS |
|--------------|-------------|-----|-------|-------------|-----|-------|-------|
| 06260        | 00          | V   | 500   | 30          | 3.2 | 0.2   | 0.4   |
| 06610        | 00          | V   | 500   | 30          | 2.4 | 0.6   | 0.0   |
| 06610        | 12          | V   | 500   | 31          | 1.8 | 0.6   | 0.1   |
| 07110        | 12          | V   | 500   | 31          | 2.3 | 0.0   | -0.1  |
| 07110        | 00          | V   | 500   | 30          | 2.3 | 0.1   | -0.1  |
| 07510        | 00          | V   | 500   | 30          | 2.5 | 0.5   | -0.2  |
| 07510        | 12          | V   | 500   | 31          | 2.2 | 0.6   | 0.3   |
| 07645        | 00          | V   | 500   | 30          | 2.6 | -0.1  | 0.2   |
| 07645        | 12          | V   | 500   | 31          | 1.8 | 0.6   | 0.3   |
| 07761        | 12          | V   | 500   | 31          | 2.1 | 0.0   | 0.3   |
| 07761        | 00          | V   | 500   | 30          | 2.6 | 0.7   | -0.4  |
| 08001        | 12          | V   | 500   | 31          | 2.1 | 0.0   | 0.3   |
| 08001        | 00          | V   | 500   | 30          | 2.1 | -0.2  | 0.1   |
| 08221        | 12          | V   | 500   | 31          | 1.8 | 0.0   | 0.3   |
| 08221        | 00          | V   | 500   | 30          | 2.3 | -0.2  | 0.2   |
| 08302        | 00          | V   | 500   | 29          | 1.9 | 0.4   | 0.4   |
| 08302        | 12          | V   | 500   | 31          | 1.5 | 0.0   | 0.1   |
| 08508        | 12          | V   | 500   | 31          | 2.0 | -0.2  | -0.1  |
| 08522        | 12          | V   | 500   | 31          | 2.1 | 0.1   | 0.3   |
| 10035        | 12          | V   | 500   | 31          | 2.2 | 0.1   | -0.1  |
| 10035        | 00          | V   | 500   | 30          | 2.2 | -0.6  | 0.1   |
| 10393        | 00          | V   | 500   | 28          | 2.4 | 0.3   | -0.1  |
| 10393        | 12          | V   | 500   | 31          | 1.8 | -0.1  | -0.2  |
| 10410        | 00          | V   | 500   | 30          | 2.0 | 0.0   | 0.1   |
| 10410        | 12          | V   | 500   | 30          | 2.2 | 0.6   | -0.1  |
| 10739        | 00          | V   | 500   | 30          | 2.6 | 0.0   | 0.4   |
| 10739        | 12          | V   | 500   | 31          | 1.8 | 0.4   | -0.2  |
| 11035        | 12          | V   | 500   | 31          | 2.4 | 0.1   | 0.5   |
| 11035        | 00          | V   | 500   | 30          | 3.0 | 0.1   | 0.9   |
| 12982        | 00          | V   | 500   | 30          | 2.1 | -0.2  | -0.1  |
| 12982        | 12          | V   | 500   | 31          | 2.7 | -0.2  | -0.3  |
| 16245        | 00          | V   | 500   | 30          | 1.9 | 0.4   | -0.1  |
| 16245        | 12          | V   | 500   | 31          | 2.5 | 0.3   | -0.1  |
| 16429        | 12          | V   | 500   | 31          | 2.6 | 0.7   | 0.1   |
| 16429        | 00          | V   | 500   | 30          | 1.9 | 0.2   | 0.0   |
| 16622        | 00          | V   | 500   | 30          | 2.7 | 0.3   | 0.6   |
| 16754        | 00          | V   | 500   | 29          | 2.0 | 0.2   | -0.5  |
| 17607        | 12          | V   | 500   | 23          | 2.1 | -0.3  | 0.2   |
| 26435        | 12          | V   | 500   | 15          | 2.6 | 0.7   | 1.2   |
| 2EERV        | 12          | V   | 500   | 7           | 2.3 | 0.8   | -0.7  |
| 2EERV        | 00          | V   | 500   | 10          | 2.1 | -0.8  | -0.5  |
| 60018        | 00          | V   | 500   | 30          | 2.1 | 0.0   | 0.0   |
| 60018        | 12          | V   | 500   | 31          | 2.6 | 0.3   | -0.2  |

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|-----------|----------|-----|-------|----------|-----|-------|-------|
| 7JUNA4    | 00       | V   | 500   | 9        | 2.1 | 1.0   | -0.1  |
| 7JUNA4    | 12       | V   | 500   | 8        | 2.7 | 0.3   | -0.1  |
| 9ZT9MR    | 00       | V   | 500   | 3        | 1.2 | 0.1   | 0.4   |
| 9ZT9MR    | 12       | V   | 500   | 2        | 2.0 | -0.6  | 1.4   |
| ASDE09    | 12       | V   | 500   | 1        | 7.1 | -5.3  | 4.7   |
| ATGU3F    | 00       | V   | 500   | 5        | 3.5 | 1.7   | 0.3   |
| ATGU3F    | 12       | V   | 500   | 3        | 1.3 | 0.2   | -0.5  |
| BPMWB2    | 00       | V   | 500   | 12       | 2.3 | 1.4   | -0.1  |
| BPMWB2    | 12       | V   | 500   | 10       | 1.9 | -0.1  | -0.8  |
| DBLK      | 12       | V   | 500   | 31       | 2.1 | -0.4  | -0.2  |
| DBLK      | 00       | V   | 500   | 28       | 2.6 | -0.3  | 0.5   |
| FPUW5G    | 12       | V   | 500   | 26       | 2.0 | 0.4   | 0.1   |
| JNKN7J    | 00       | V   | 500   | 11       | 1.9 | 0.7   | -0.3  |
| JNKN7J    | 12       | V   | 500   | 12       | 1.9 | 0.3   | 0.2   |
| KJJF9X    | 12       | V   | 500   | 6        | 1.6 | 0.3   | 0.0   |
| KJJF9X    | 00       | V   | 500   | 9        | 1.4 | 0.0   | 0.4   |
| KMPLHP    | 12       | V   | 500   | 13       | 2.5 | 1.1   | -0.6  |
| KMPLHP    | 00       | V   | 500   | 10       | 2.7 | -0.8  | 0.3   |
| LRYQE3    | 00       | V   | 500   | 12       | 2.6 | 1.3   | -0.7  |
| LRYQE3    | 12       | V   | 500   | 13       | 2.3 | 0.3   | 0.1   |
| UXK5JT    | 00       | V   | 500   | 9        | 2.1 | 0.3   | -0.2  |
| UXK5JT    | 12       | V   | 500   | 10       | 2.2 | 0.3   | -0.5  |
| WDK38H    | 12       | V   | 500   | 18       | 2.5 | 0.2   | 0.0   |
| WDK38H    | 00       | V   | 500   | 1        | 4.4 | 2.1   | 3.9   |
| XKQLWQ    | 12       | V   | 500   | 21       | 2.0 | 0.4   | -0.6  |
| XQFJRG    | 12       | V   | 500   | 3        | 1.7 | -1.0  | -1.2  |
| XQFJRG    | 00       | V   | 500   | 1        | 1.0 | -0.1  | -1.0  |
| YLV96W    | 12       | V   | 500   | 7        | 1.5 | 0.4   | -0.8  |
| YLV96W    | 00       | V   | 500   | 7        | 2.6 | -0.9  | 0.1   |
| ZVQEQC    | 12       | V   | 500   | 13       | 2.9 | 0.6   | -0.1  |
| ZVQEQC    | 00       | V   | 500   | 15       | 2.4 | -0.7  | 0.3   |

#### 4.7 Table 19 - Radiosonde Monitoring Statistics (EUCOS): 850 hPa Geopotential height (metres)

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)  
 LEVEL : 850 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS  | BIAS  |
|-----------|----------|-----|-------|----------|------|-------|
| 01001     | 00       | Z   | 850   | 30       | 11.3 | -10.4 |
| 01001     | 12       | Z   | 850   | 31       | 4.8  | -0.6  |
| 01028     | 00       | Z   | 850   | 31       | 4.5  | -1.3  |
| 01028     | 12       | Z   | 850   | 31       | 4.5  | -1.9  |
| 01400     | 12       | Z   | 850   | 30       | 80.0 | 79.8  |
| 01400     | 00       | Z   | 850   | 31       | 79.9 | 79.8  |
| 01415     | 12       | Z   | 850   | 30       | 4.6  | 4.2   |
| 01415     | 00       | Z   | 850   | 30       | 4.7  | 4.4   |
| 02365     | 00       | Z   | 850   | 30       | 3.2  | 1.8   |
| 02365     | 12       | Z   | 850   | 29       | 3.8  | 2.3   |
| 02836     | 00       | Z   | 850   | 31       | 3.0  | 2.5   |
| 02836     | 12       | Z   | 850   | 31       | 3.6  | 2.5   |
| 02963     | 00       | Z   | 850   | 31       | 4.4  | 4.2   |
| 02963     | 12       | Z   | 850   | 31       | 4.0  | 3.7   |
| 03005     | 12       | Z   | 850   | 31       | 2.9  | -1.5  |
| 03005     | 00       | Z   | 850   | 31       | 12.4 | -4.4  |
| 03238     | 00       | Z   | 850   | 22       | 3.0  | 2.3   |
| 03238     | 12       | Z   | 850   | 6        | 2.8  | 2.7   |
| 03808     | 00       | Z   | 850   | 27       | 3.1  | 2.7   |
| 03808     | 12       | Z   | 850   | 32       | 2.6  | 1.8   |
| 03918     | 00       | Z   | 850   | 31       | 7.3  | 7.1   |
| 03918     | 12       | Z   | 850   | 3        | 8.7  | 8.6   |
| 03953     | 00       | Z   | 850   | 31       | 2.4  | 0.2   |
| 03953     | 12       | Z   | 850   | 31       | 3.1  | -0.9  |
| 04018     | 12       | Z   | 850   | 29       | 2.0  | -0.4  |
| 04018     | 00       | Z   | 850   | 31       | 2.2  | 0.6   |
| 04220     | 12       | Z   | 850   | 31       | 7.9  | 3.9   |
| 04220     | 00       | Z   | 850   | 31       | 3.2  | 2.7   |
| 04270     | 00       | Z   | 850   | 30       | 8.2  | -7.8  |
| 04270     | 12       | Z   | 850   | 29       | 7.3  | -6.8  |
| 04320     | 12       | Z   | 850   | 29       | 2.3  | 1.3   |
| 04320     | 00       | Z   | 850   | 30       | 3.2  | 1.1   |
| 04339     | 12       | Z   | 850   | 26       | 6.5  | -5.9  |
| 04339     | 00       | Z   | 850   | 31       | 6.6  | -5.9  |
| 04360     | 12       | Z   | 850   | 30       | 5.5  | -5.2  |
| 04360     | 00       | Z   | 850   | 30       | 6.4  | -5.7  |
| 06011     | 00       | Z   | 850   | 31       | 5.1  | 3.6   |
| 06011     | 12       | Z   | 850   | 31       | 4.8  | 2.6   |
| 06260     | 12       | Z   | 850   | 6        | 4.5  | 3.8   |

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS  | BIAS |
|-----------|----------|-----|-------|----------|------|------|
| 06260     | 00       | Z   | 850   | 31       | 7.1  | 2.6  |
| 06610     | 00       | Z   | 850   | 31       | 2.5  | 1.5  |
| 06610     | 12       | Z   | 850   | 32       | 2.0  | 1.7  |
| 07110     | 12       | Z   | 850   | 31       | 4.0  | -2.8 |
| 07110     | 00       | Z   | 850   | 31       | 2.6  | -1.6 |
| 07510     | 00       | Z   | 850   | 33       | 3.3  | 2.2  |
| 07510     | 12       | Z   | 850   | 34       | 3.4  | 2.3  |
| 07645     | 00       | Z   | 850   | 31       | 4.0  | -2.0 |
| 07645     | 12       | Z   | 850   | 31       | 4.0  | -1.5 |
| 07761     | 12       | Z   | 850   | 31       | 7.0  | -6.8 |
| 07761     | 00       | Z   | 850   | 31       | 6.9  | -6.7 |
| 08001     | 12       | Z   | 850   | 31       | 2.2  | 0.7  |
| 08001     | 00       | Z   | 850   | 31       | 1.8  | 0.4  |
| 08221     | 12       | Z   | 850   | 31       | 3.6  | 3.3  |
| 08221     | 00       | Z   | 850   | 31       | 4.5  | 4.2  |
| 08302     | 00       | Z   | 850   | 30       | 6.9  | -6.7 |
| 08302     | 12       | Z   | 850   | 31       | 8.1  | -7.9 |
| 08508     | 12       | Z   | 850   | 31       | 4.7  | 4.1  |
| 08522     | 12       | Z   | 850   | 31       | 3.8  | 3.2  |
| 10035     | 12       | Z   | 850   | 32       | 13.5 | 13.4 |
| 10035     | 00       | Z   | 850   | 31       | 13.5 | 13.4 |
| 10393     | 00       | Z   | 850   | 29       | 2.3  | 1.5  |
| 10393     | 12       | Z   | 850   | 31       | 2.7  | 1.8  |
| 10410     | 00       | Z   | 850   | 31       | 2.5  | 0.4  |
| 10410     | 12       | Z   | 850   | 30       | 2.4  | 1.4  |
| 10739     | 00       | Z   | 850   | 32       | 5.6  | 5.0  |
| 10739     | 12       | Z   | 850   | 31       | 6.1  | 5.7  |
| 11035     | 12       | Z   | 850   | 31       | 3.7  | 0.7  |
| 11035     | 00       | Z   | 850   | 31       | 4.6  | 3.8  |
| 12982     | 00       | Z   | 850   | 31       | 3.4  | 2.7  |
| 12982     | 12       | Z   | 850   | 31       | 3.7  | 3.2  |
| 16245     | 00       | Z   | 850   | 31       | 3.5  | 2.8  |
| 16245     | 12       | Z   | 850   | 31       | 2.5  | 1.9  |
| 16429     | 12       | Z   | 850   | 31       | 2.2  | 1.7  |
| 16429     | 00       | Z   | 850   | 31       | 3.9  | 3.5  |
| 16622     | 00       | Z   | 850   | 31       | 10.7 | 10.3 |
| 16754     | 00       | Z   | 850   | 31       | 11.8 | 8.1  |
| 17607     | 12       | Z   | 850   | 31       | 3.1  | 2.4  |
| 26435     | 12       | Z   | 850   | 15       | 2.4  | 1.6  |
| 2EERVT    | 12       | Z   | 850   | 7        | 7.3  | -5.7 |
| 2EERVT    | 00       | Z   | 850   | 10       | 8.0  | -7.7 |
| 60018     | 00       | Z   | 850   | 32       | 2.3  | 0.4  |
| 60018     | 12       | Z   | 850   | 31       | 3.5  | 1.5  |

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS  | BIAS  |
|-----------|----------|-----|-------|----------|------|-------|
| 7JUNA4    | 00       | Z   | 850   | 9        | 8.2  | 4.4   |
| 7JUNA4    | 12       | Z   | 850   | 8        | 5.7  | 4.5   |
| 9ZT9MR    | 00       | Z   | 850   | 4        | 12.2 | -10.8 |
| 9ZT9MR    | 12       | Z   | 850   | 2        | 12.0 | -11.8 |
| ASDE09    | 12       | Z   | 850   | 1        | 25.1 | 25.1  |
| ATGU3F    | 00       | Z   | 850   | 5        | 23.3 | -23.3 |
| ATGU3F    | 12       | Z   | 850   | 3        | 18.4 | -18.4 |
| BPMWB2    | 00       | Z   | 850   | 13       | 17.3 | 17.1  |
| BPMWB2    | 12       | Z   | 850   | 10       | 18.3 | 17.9  |
| DBLK      | 12       | Z   | 850   | 32       | 16.0 | 15.8  |
| DBLK      | 00       | Z   | 850   | 29       | 16.1 | 16.0  |
| FPUW5G    | 12       | Z   | 850   | 26       | 7.5  | 2.1   |
| JNKN7J    | 00       | Z   | 850   | 11       | 40.4 | 40.3  |
| JNKN7J    | 12       | Z   | 850   | 12       | 39.7 | 39.5  |
| KJJF9X    | 12       | Z   | 850   | 6        | 6.2  | 4.6   |
| KJJF9X    | 00       | Z   | 850   | 9        | 6.2  | 3.9   |
| KMPLHP    | 12       | Z   | 850   | 13       | 41.9 | 41.5  |
| KMPLHP    | 00       | Z   | 850   | 10       | 41.7 | 31.6  |
| LRYQE3    | 00       | Z   | 850   | 12       | 4.3  | -0.7  |
| LRYQE3    | 12       | Z   | 850   | 14       | 4.4  | -0.1  |
| UXK5JT    | 00       | Z   | 850   | 9        | 7.4  | -6.0  |
| UXK5JT    | 12       | Z   | 850   | 10       | 8.7  | -6.6  |
| WDK38H    | 12       | Z   | 850   | 18       | 4.4  | -2.4  |
| WDK38H    | 00       | Z   | 850   | 1        | 3.5  | -3.5  |
| XKQLWQ    | 12       | Z   | 850   | 21       | 13.9 | 12.7  |
| XQFJRG    | 12       | Z   | 850   | 4        | 8.5  | -6.2  |
| XQFJRG    | 00       | Z   | 850   | 3        | 6.5  | -6.4  |
| YLV96W    | 12       | Z   | 850   | 7        | 5.4  | -2.8  |
| YLV96W    | 00       | Z   | 850   | 7        | 2.3  | -0.5  |
| ZVQEQC    | 12       | Z   | 850   | 13       | 2.3  | 0.7   |
| ZVQEQC    | 00       | Z   | 850   | 15       | 3.0  | 0.6   |



**4.8 Table 20 - Radiosonde Monitoring Statistics (EUCOS): 850 hPa Wind (m/s)**

## RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 LEVEL : 850 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|-----------|----------|-----|-------|----------|-----|-------|-------|
| 01001     | 00       | V   | 850   | 29       | 2.8 | -0.2  | 0.2   |
| 01001     | 12       | V   | 850   | 31       | 3.7 | 0.4   | 0.9   |
| 01028     | 00       | V   | 850   | 30       | 3.4 | -0.1  | -0.3  |
| 01028     | 12       | V   | 850   | 31       | 2.4 | -0.2  | -0.2  |
| 01400     | 12       | V   | 850   | 30       | 2.5 | 0.0   | 0.1   |
| 01400     | 00       | V   | 850   | 29       | 2.3 | -0.1  | 0.0   |
| 01415     | 12       | V   | 850   | 30       | 2.1 | 0.2   | -0.1  |
| 01415     | 00       | V   | 850   | 29       | 2.1 | -0.1  | -0.4  |
| 02365     | 00       | V   | 850   | 29       | 3.2 | -0.5  | 0.2   |
| 02365     | 12       | V   | 850   | 29       | 3.3 | -0.6  | -0.2  |
| 02836     | 00       | V   | 850   | 30       | 2.5 | -0.2  | -0.1  |
| 02836     | 12       | V   | 850   | 31       | 2.3 | 0.4   | 0.3   |
| 02963     | 00       | V   | 850   | 30       | 2.2 | 0.0   | 0.5   |
| 02963     | 12       | V   | 850   | 31       | 2.5 | -0.6  | 0.3   |
| 03005     | 12       | V   | 850   | 31       | 2.9 | -0.3  | -0.2  |
| 03005     | 00       | V   | 850   | 29       | 2.5 | 0.0   | 0.3   |
| 03238     | 00       | V   | 850   | 21       | 3.0 | 0.0   | 0.1   |
| 03238     | 12       | V   | 850   | 5        | 2.4 | 0.9   | 1.5   |
| 03808     | 00       | V   | 850   | 27       | 2.2 | 0.2   | 0.4   |
| 03808     | 12       | V   | 850   | 31       | 2.6 | -0.1  | -0.1  |
| 03918     | 00       | V   | 850   | 30       | 2.4 | -0.1  | 0.2   |
| 03918     | 12       | V   | 850   | 3        | 1.7 | -1.1  | -0.8  |
| 03953     | 00       | V   | 850   | 30       | 2.3 | 0.3   | -0.2  |
| 03953     | 12       | V   | 850   | 31       | 2.3 | 0.0   | -0.1  |
| 04018     | 12       | V   | 850   | 29       | 3.0 | 0.1   | -0.2  |
| 04018     | 00       | V   | 850   | 30       | 2.8 | -0.2  | 0.3   |
| 04220     | 12       | V   | 850   | 31       | 3.0 | -0.6  | -0.3  |
| 04220     | 00       | V   | 850   | 30       | 3.2 | -0.2  | -0.3  |
| 04270     | 00       | V   | 850   | 29       | 2.3 | -0.3  | -0.6  |
| 04270     | 12       | V   | 850   | 29       | 2.6 | -0.4  | -0.3  |
| 04320     | 12       | V   | 850   | 29       | 2.5 | 0.3   | -0.5  |
| 04320     | 00       | V   | 850   | 29       | 2.3 | 0.2   | -0.5  |
| 04339     | 12       | V   | 850   | 26       | 3.1 | 0.4   | -0.5  |
| 04339     | 00       | V   | 850   | 30       | 2.6 | -0.6  | -0.2  |
| 04360     | 12       | V   | 850   | 30       | 4.0 | 0.7   | 0.5   |
| 04360     | 00       | V   | 850   | 29       | 3.4 | 0.4   | -0.2  |
| 06011     | 00       | V   | 850   | 29       | 2.6 | -0.5  | -0.2  |
| 06011     | 12       | V   | 850   | 31       | 3.1 | 0.1   | 0.4   |
| 06260     | 12       | V   | 850   | 6        | 2.8 | 0.7   | 1.2   |

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO<br>IDENT | OBS<br>TIME | ELM | LEVEL | OBS<br>RECD | RMS | UBIAS | VBIAS |
|--------------|-------------|-----|-------|-------------|-----|-------|-------|
| 06260        | 00          | V   | 850   | 30          | 2.1 | 0.7   | -0.1  |
| 06610        | 00          | V   | 850   | 30          | 2.3 | 0.4   | 0.2   |
| 06610        | 12          | V   | 850   | 31          | 2.4 | 0.9   | 0.3   |
| 07110        | 12          | V   | 850   | 31          | 3.0 | 0.2   | 0.3   |
| 07110        | 00          | V   | 850   | 30          | 2.3 | -0.1  | 0.3   |
| 07510        | 00          | V   | 850   | 30          | 2.8 | 0.2   | 0.1   |
| 07510        | 12          | V   | 850   | 31          | 2.4 | 0.4   | 0.2   |
| 07645        | 00          | V   | 850   | 30          | 3.4 | 0.7   | 0.4   |
| 07645        | 12          | V   | 850   | 31          | 3.7 | -0.5  | -0.1  |
| 07761        | 12          | V   | 850   | 31          | 3.0 | -0.8  | -0.5  |
| 07761        | 00          | V   | 850   | 30          | 2.5 | 0.8   | 0.1   |
| 08001        | 12          | V   | 850   | 31          | 2.0 | 0.3   | 0.0   |
| 08001        | 00          | V   | 850   | 30          | 3.0 | 1.1   | -0.1  |
| 08221        | 12          | V   | 850   | 31          | 2.0 | 0.2   | 0.3   |
| 08221        | 00          | V   | 850   | 30          | 3.8 | -0.2  | 0.1   |
| 08302        | 00          | V   | 850   | 29          | 2.3 | 0.3   | 0.1   |
| 08302        | 12          | V   | 850   | 31          | 2.4 | -0.1  | -0.1  |
| 08508        | 12          | V   | 850   | 31          | 2.3 | -0.2  | -0.3  |
| 08522        | 12          | V   | 850   | 31          | 2.8 | -0.2  | -0.3  |
| 10035        | 12          | V   | 850   | 31          | 1.9 | -0.1  | -0.1  |
| 10035        | 00          | V   | 850   | 30          | 2.9 | 0.5   | 0.3   |
| 10393        | 00          | V   | 850   | 28          | 2.5 | 0.2   | -0.5  |
| 10393        | 12          | V   | 850   | 31          | 2.6 | 0.2   | 0.3   |
| 10410        | 00          | V   | 850   | 30          | 2.2 | -0.2  | -0.1  |
| 10410        | 12          | V   | 850   | 30          | 2.1 | 0.8   | 0.0   |
| 10739        | 00          | V   | 850   | 30          | 3.3 | 0.3   | -0.7  |
| 10739        | 12          | V   | 850   | 31          | 2.3 | -0.1  | 0.1   |
| 11035        | 12          | V   | 850   | 31          | 2.9 | 0.1   | 0.0   |
| 11035        | 00          | V   | 850   | 30          | 3.7 | -0.5  | -0.1  |
| 12982        | 00          | V   | 850   | 30          | 2.5 | 0.7   | 0.1   |
| 12982        | 12          | V   | 850   | 31          | 2.6 | 0.8   | -0.1  |
| 16245        | 00          | V   | 850   | 30          | 4.0 | 0.1   | 0.2   |
| 16245        | 12          | V   | 850   | 31          | 2.0 | 0.0   | -0.2  |
| 16429        | 12          | V   | 850   | 31          | 2.5 | -0.2  | -0.6  |
| 16429        | 00          | V   | 850   | 30          | 2.0 | 0.0   | -0.4  |
| 16622        | 00          | V   | 850   | 30          | 3.8 | 0.6   | -0.9  |
| 16754        | 00          | V   | 850   | 31          | 2.7 | 0.2   | 1.2   |
| 17607        | 12          | V   | 850   | 31          | 3.6 | 0.3   | 0.5   |
| 26435        | 12          | V   | 850   | 15          | 2.7 | -0.3  | 0.1   |
| 2EERV        | 12          | V   | 850   | 7           | 1.8 | -0.3  | -0.4  |
| 2EERV        | 00          | V   | 850   | 10          | 2.0 | -0.4  | -0.5  |
| 60018        | 00          | V   | 850   | 30          | 3.2 | 1.1   | 1.4   |
| 60018        | 12          | V   | 850   | 31          | 2.7 | 0.3   | -0.3  |

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|-----------|----------|-----|-------|----------|-----|-------|-------|
| 7JUNA4    | 00       | V   | 850   | 9        | 2.2 | 0.7   | -0.1  |
| 7JUNA4    | 12       | V   | 850   | 8        | 2.9 | -0.6  | 0.7   |
| 9ZT9MR    | 00       | V   | 850   | 3        | 2.4 | -0.1  | 0.9   |
| 9ZT9MR    | 12       | V   | 850   | 2        | 6.3 | -5.1  | -1.9  |
| ASDE09    | 12       | V   | 850   | 1        | 1.8 | 1.7   | 0.5   |
| ATGU3F    | 00       | V   | 850   | 5        | 1.4 | 0.5   | 0.5   |
| ATGU3F    | 12       | V   | 850   | 3        | 3.0 | -0.6  | 0.4   |
| BPMWB2    | 00       | V   | 850   | 12       | 1.6 | 0.4   | 0.9   |
| BPMWB2    | 12       | V   | 850   | 10       | 1.8 | 0.4   | -0.3  |
| DBLK      | 12       | V   | 850   | 31       | 3.0 | 0.3   | 0.3   |
| DBLK      | 00       | V   | 850   | 28       | 2.8 | -0.1  | 0.3   |
| FPUW5G    | 12       | V   | 850   | 26       | 2.8 | -0.4  | 0.2   |
| JNKN7J    | 00       | V   | 850   | 11       | 2.8 | 0.4   | 0.3   |
| JNKN7J    | 12       | V   | 850   | 12       | 2.2 | 0.5   | -0.3  |
| KJJF9X    | 12       | V   | 850   | 6        | 2.2 | 0.2   | -1.0  |
| KJJF9X    | 00       | V   | 850   | 9        | 3.0 | 0.4   | 1.5   |
| KMPLHP    | 12       | V   | 850   | 13       | 2.0 | -0.1  | 0.3   |
| KMPLHP    | 00       | V   | 850   | 10       | 2.2 | 0.3   | 0.5   |
| LRYQE3    | 00       | V   | 850   | 12       | 2.3 | 0.0   | 0.2   |
| LRYQE3    | 12       | V   | 850   | 14       | 3.5 | 0.5   | -0.9  |
| UXK5JT    | 00       | V   | 850   | 9        | 2.5 | -1.0  | -0.6  |
| UXK5JT    | 12       | V   | 850   | 10       | 2.2 | 0.2   | 0.3   |
| WDK38H    | 12       | V   | 850   | 18       | 3.6 | -0.4  | -0.1  |
| WDK38H    | 00       | V   | 850   | 1        | 4.3 | -2.7  | -3.4  |
| XKQLWQ    | 12       | V   | 850   | 21       | 2.2 | 0.3   | 0.1   |
| XQFJRG    | 12       | V   | 850   | 4        | 3.5 | -0.8  | 0.9   |
| XQFJRG    | 00       | V   | 850   | 3        | 0.9 | -0.3  | -0.3  |
| YLV96W    | 12       | V   | 850   | 7        | 1.9 | -0.9  | -0.2  |
| YLV96W    | 00       | V   | 850   | 7        | 1.6 | -0.4  | 0.4   |
| ZVQEQC    | 12       | V   | 850   | 13       | 2.5 | 0.4   | -0.1  |
| ZVQEQC    | 00       | V   | 850   | 15       | 2.3 | 0.0   | 0.2   |

**4.9 Table 21 - Drifter Monitoring Statistics (EUCOS): Surface pressure (hpa)**

## DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)  
 AREA : 10N - 90N, 70W - 40E  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

TIME = 99 => AVERAGE OF ALL OBSERVATIONS  
 GROSS ERROR LIMIT = 15 HPA

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD  | BIAS | RMS |
|-----------|----------|-----|-------|----------|-----------|---------|-----------|-----|------|-----|
| 03380     | 99       | P   | SUR   | 54       | 0         | 1645    | 0         | 0.3 | -0.1 | 0.3 |
| 1300001   | 99       | P   | SUR   | 11       | -23       | 616     | 0         | 0.4 | 0.0  | 0.4 |
| 1300008   | 99       | P   | SUR   | 15       | -38       | 460     | 0         | 0.2 | 0.0  | 0.2 |
| 1300130   | 99       | P   | SUR   | 28       | -16       | 742     | 0         | 0.3 | 0.3  | 0.5 |
| 1300131   | 99       | P   | SUR   | 28       | -17       | 744     | 0         | 0.4 | 0.2  | 0.5 |
| 1301603   | 99       | P   | SUR   | 35       | -54       | 744     | 0         | 0.2 | 0.0  | 0.2 |
| 1301608   | 99       | P   | SUR   | 32       | -58       | 743     | 0         | 0.2 | 0.0  | 0.2 |
| 1301610   | 99       | P   | SUR   | 53       | -10       | 413     | 0         | 0.5 | -0.4 | 0.6 |
| 1301612   | 99       | P   | SUR   | 24       | -48       | 743     | 0         | 0.2 | 0.0  | 0.2 |
| 1301619   | 99       | P   | SUR   | 32       | -69       | 743     | 0         | 0.3 | -0.2 | 0.4 |
| 1301622   | 99       | P   | SUR   | 10       | -23       | 744     | 0         | 0.5 | -0.2 | 0.6 |
| 1301625   | 99       | P   | SUR   | 10       | -30       | 669     | 0         | 0.4 | 0.1  | 0.4 |
| 1301699   | 99       | P   | SUR   | 28       | -32       | 695     | 0         | 0.2 | -0.3 | 0.4 |
| 1301700   | 99       | P   | SUR   | 17       | -47       | 694     | 0         | 0.3 | 0.0  | 0.3 |
| 1301706   | 99       | P   | SUR   | 19       | -44       | 699     | 0         | 0.2 | 0.1  | 0.3 |
| 1301708   | 99       | P   | SUR   | 14       | -17       | 32      | 0         | 0.5 | -0.5 | 0.7 |
| 1301712   | 99       | P   | SUR   | 21       | -38       | 701     | 0         | 0.3 | 0.4  | 0.5 |
| 1301713   | 99       | P   | SUR   | 18       | -40       | 701     | 0         | 0.2 | 0.3  | 0.4 |
| 1301714   | 99       | P   | SUR   | 23       | -38       | 703     | 0         | 0.2 | 0.2  | 0.3 |
| 1301718   | 99       | P   | SUR   | 23       | -30       | 701     | 0         | 0.2 | 0.3  | 0.4 |
| 1301719   | 99       | P   | SUR   | 23       | -32       | 700     | 0         | 0.3 | 0.6  | 0.7 |
| 1301720   | 99       | P   | SUR   | 26       | -26       | 703     | 0         | 0.3 | 0.3  | 0.4 |
| 1301721   | 99       | P   | SUR   | 33       | -11       | 6957    | 1         | 0.4 | -0.1 | 0.4 |
| 1301722   | 99       | P   | SUR   | 16       | -35       | 700     | 0         | 0.3 | 0.1  | 0.3 |
| 1301723   | 99       | P   | SUR   | 36       | -13       | 700     | 0         | 0.3 | 0.8  | 0.9 |
| 1301724   | 99       | P   | SUR   | 34       | -17       | 704     | 0         | 0.2 | 0.2  | 0.3 |
| 1301730   | 99       | P   | SUR   | 37       | -9        | 160     | 0         | 0.3 | 0.3  | 0.4 |
| 1301735   | 99       | P   | SUR   | 28       | -43       | 702     | 0         | 0.2 | -0.1 | 0.2 |
| 1301736   | 99       | P   | SUR   | 29       | -42       | 701     | 0         | 0.2 | 0.3  | 0.4 |
| 1301737   | 99       | P   | SUR   | 23       | -56       | 703     | 0         | 0.2 | 0.1  | 0.2 |
| 1301756   | 99       | P   | SUR   | 11       | -64       | 703     | 0         | 0.4 | -0.8 | 0.9 |
| 1301763   | 99       | P   | SUR   | 11       | -31       | 704     | 0         | 0.3 | 0.0  | 0.3 |
| 1801556   | 99       | P   | SUR   | 17       | -66       | 14      | 0         | 0.2 | -0.1 | 0.2 |
| 4100040   | 99       | P   | SUR   | 15       | -53       | 4288    | 0         | 0.3 | 0.6  | 0.7 |
| 4100043   | 99       | P   | SUR   | 21       | -65       | 4449    | 0         | 0.3 | -1.4 | 1.4 |
| 4100044   | 99       | P   | SUR   | 22       | -59       | 4415    | 0         | 0.2 | 0.4  | 0.5 |

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD  | BIAS | RMS |
|-----------|----------|-----|-------|----------|-----------|---------|-----------|-----|------|-----|
| 4100046   | 99       | P   | SUR   | 24       | -68       | 4450    | 0         | 0.2 | 0.5  | 0.5 |
| 4100048   | 99       | P   | SUR   | 32       | -70       | 4404    | 0         | 0.3 | 0.4  | 0.5 |
| 4100049   | 99       | P   | SUR   | 27       | -63       | 4451    | 0         | 0.3 | -1.0 | 1.1 |
| 4100052   | 99       | P   | SUR   | 18       | -65       | 4371    | 0         | 0.3 | -1.1 | 1.1 |
| 4100053   | 99       | P   | SUR   | 18       | -66       | 4437    | 0         | 0.4 | -0.9 | 1.0 |
| 4100139   | 99       | P   | SUR   | 20       | -38       | 736     | 0         | 0.2 | 0.2  | 0.3 |
| 4100300   | 99       | P   | SUR   | 16       | -57       | 691     | 0         | 0.3 | 0.0  | 0.3 |
| 4101557   | 99       | P   | SUR   | 37       | -17       | 744     | 0         | 0.3 | 0.2  | 0.3 |
| 4101609   | 99       | P   | SUR   | 19       | -37       | 550     | 0         | 0.2 | 0.1  | 0.2 |
| 4101613   | 99       | P   | SUR   | 28       | -50       | 744     | 0         | 0.2 | 0.5  | 0.5 |
| 4101616   | 99       | P   | SUR   | 30       | -40       | 744     | 0         | 0.2 | 0.0  | 0.2 |
| 4101618   | 99       | P   | SUR   | 25       | -38       | 744     | 0         | 0.2 | 0.3  | 0.4 |
| 4101621   | 99       | P   | SUR   | 27       | -37       | 744     | 0         | 0.2 | 0.4  | 0.5 |
| 4101654   | 99       | P   | SUR   | 71       | 10        | 701     | 0         | 0.3 | 0.0  | 0.3 |
| 4101656   | 99       | P   | SUR   | 57       | -56       | 744     | 0         | 0.8 | 0.0  | 0.8 |
| 4101659   | 99       | P   | SUR   | 73       | 39        | 559     | 0         | 0.4 | 0.2  | 0.5 |
| 4101663   | 99       | P   | SUR   | 32       | -31       | 744     | 0         | 0.2 | 0.1  | 0.2 |
| 4101664   | 99       | P   | SUR   | 50       | -37       | 744     | 0         | 0.4 | -0.3 | 0.5 |
| 4101665   | 99       | P   | SUR   | 64       | -9        | 685     | 0         | 0.3 | -0.3 | 0.4 |
| 4101696   | 99       | P   | SUR   | 34       | -40       | 744     | 0         | 0.2 | 0.0  | 0.2 |
| 4101702   | 99       | P   | SUR   | 38       | -23       | 744     | 0         | 0.2 | 0.6  | 0.6 |
| 4101714   | 99       | P   | SUR   | 26       | -61       | 744     | 0         | 0.2 | 0.2  | 0.3 |
| 4101717   | 99       | P   | SUR   | 25       | -17       | 744     | 0         | 0.4 | 0.2  | 0.4 |
| 4101718   | 99       | P   | SUR   | 41       | -37       | 743     | 0         | 0.4 | 0.4  | 0.5 |
| 4101719   | 99       | P   | SUR   | 37       | -32       | 743     | 0         | 0.2 | 0.1  | 0.3 |
| 4101720   | 99       | P   | SUR   | 30       | -26       | 744     | 0         | 0.2 | -0.3 | 0.4 |
| 4101722   | 99       | P   | SUR   | 11       | -54       | 744     | 0         | 0.3 | 0.0  | 0.3 |
| 4101723   | 99       | P   | SUR   | 27       | -64       | 743     | 0         | 0.2 | 0.2  | 0.3 |
| 4101724   | 99       | P   | SUR   | 20       | -68       | 744     | 0         | 0.4 | -0.2 | 0.4 |
| 4101725   | 99       | P   | SUR   | 18       | -60       | 744     | 0         | 0.3 | -0.1 | 0.3 |
| 4101726   | 99       | P   | SUR   | 21       | -62       | 743     | 0         | 0.3 | 0.2  | 0.3 |
| 4101727   | 99       | P   | SUR   | 37       | -20       | 659     | 0         | 0.2 | 0.0  | 0.2 |
| 4101728   | 99       | P   | SUR   | 33       | -34       | 744     | 0         | 0.2 | 0.2  | 0.3 |
| 4101729   | 99       | P   | SUR   | 33       | -48       | 606     | 0         | 0.2 | 0.1  | 0.3 |
| 4101743   | 99       | P   | SUR   | 31       | -50       | 744     | 0         | 0.2 | 0.0  | 0.2 |
| 4101753   | 99       | P   | SUR   | 31       | -58       | 744     | 0         | 0.2 | 0.3  | 0.3 |
| 4101755   | 99       | P   | SUR   | 27       | -56       | 744     | 0         | 0.2 | 0.2  | 0.3 |
| 4101756   | 99       | P   | SUR   | 12       | -62       | 669     | 0         | 0.4 | -0.8 | 0.9 |
| 4101842   | 99       | P   | SUR   | 69       | 16        | 687     | 0         | 0.4 | -0.2 | 0.4 |
| 4101843   | 99       | P   | SUR   | 67       | 0         | 696     | 0         | 0.3 | 0.0  | 0.3 |
| 4101844   | 99       | P   | SUR   | 14       | -48       | 692     | 0         | 0.3 | 0.2  | 0.3 |
| 4101845   | 99       | P   | SUR   | 62       | -5        | 693     | 0         | 0.3 | 0.1  | 0.3 |
| 4101848   | 99       | P   | SUR   | 24       | -68       | 693     | 0         | 0.2 | 0.5  | 0.5 |

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD  | BIAS | RMS |
|-----------|----------|-----|-------|----------|-----------|---------|-----------|-----|------|-----|
| 4101849   | 99       | P   | SUR   | 18       | -64       | 696     | 0         | 0.3 | 0.3  | 0.4 |
| 4101850   | 99       | P   | SUR   | 45       | -10       | 686     | 0         | 0.4 | 0.0  | 0.4 |
| 4101851   | 99       | P   | SUR   | 20       | -50       | 693     | 0         | 0.2 | 0.1  | 0.2 |
| 4102547   | 99       | P   | SUR   | 16       | -61       | 702     | 0         | 0.4 | 0.2  | 0.4 |
| 4102548   | 99       | P   | SUR   | 21       | -64       | 674     | 0         | 0.3 | 0.0  | 0.3 |
| 4102549   | 99       | P   | SUR   | 20       | -58       | 699     | 0         | 0.2 | 0.4  | 0.5 |
| 4102551   | 99       | P   | SUR   | 19       | -49       | 422     | 0         | 0.2 | 0.1  | 0.2 |
| 4102632   | 99       | P   | SUR   | 24       | -67       | 695     | 0         | 0.2 | -0.7 | 0.7 |
| 4102638   | 99       | P   | SUR   | 15       | -67       | 84      | 0         | 0.4 | 0.1  | 0.4 |
| 41040     | 99       | P   | SUR   | 15       | -53       | 4788    | 0         | 0.3 | 0.6  | 0.7 |
| 41043     | 99       | P   | SUR   | 21       | -65       | 4367    | 0         | 0.3 | -1.4 | 1.4 |
| 41044     | 99       | P   | SUR   | 22       | -59       | 3129    | 0         | 0.3 | 0.4  | 0.5 |
| 41046     | 99       | P   | SUR   | 24       | -68       | 4434    | 0         | 0.3 | 0.5  | 0.6 |
| 41048     | 99       | P   | SUR   | 32       | -70       | 4321    | 0         | 0.3 | 0.4  | 0.5 |
| 41049     | 99       | P   | SUR   | 28       | -63       | 4369    | 0         | 0.3 | -1.0 | 1.1 |
| 41052     | 99       | P   | SUR   | 18       | -65       | 2972    | 0         | 0.3 | -1.0 | 1.1 |
| 41053     | 99       | P   | SUR   | 19       | -66       | 3168    | 0         | 0.4 | -0.9 | 1.0 |
| 4200059   | 99       | P   | SUR   | 15       | -67       | 4453    | 0         | 0.3 | -0.2 | 0.4 |
| 4200060   | 99       | P   | SUR   | 16       | -63       | 3574    | 0         | 0.3 | 0.1  | 0.3 |
| 4200085   | 99       | P   | SUR   | 18       | -67       | 3697    | 0         | 0.3 | 0.0  | 0.3 |
| 4201703   | 99       | P   | SUR   | 43       | -30       | 699     | 0         | 0.2 | 0.2  | 0.3 |
| 42059     | 99       | P   | SUR   | 15       | -68       | 4439    | 0         | 0.4 | -0.1 | 0.4 |
| 42060     | 99       | P   | SUR   | 16       | -63       | 2761    | 0         | 0.3 | 0.1  | 0.3 |
| 42085     | 99       | P   | SUR   | 18       | -67       | 3120    | 0         | 0.4 | 0.0  | 0.4 |
| 4400005   | 99       | P   | SUR   | 43       | -69       | 741     | 0         | 0.4 | -0.6 | 0.7 |
| 4400008   | 99       | P   | SUR   | 40       | -69       | 4440    | 0         | 0.3 | -0.8 | 0.9 |
| 4400011   | 99       | P   | SUR   | 41       | -67       | 4447    | 0         | 0.4 | 0.3  | 0.5 |
| 4400032   | 99       | P   | SUR   | 44       | -69       | 734     | 0         | 0.4 | 0.1  | 0.5 |
| 4400033   | 99       | P   | SUR   | 44       | -69       | 742     | 0         | 0.4 | 0.0  | 0.4 |
| 4400034   | 99       | P   | SUR   | 44       | -68       | 736     | 0         | 0.4 | -0.4 | 0.5 |
| 4400037   | 99       | P   | SUR   | 43       | -68       | 1       | 0         | 0.0 | -0.7 | 0.7 |
| 44005     | 99       | P   | SUR   | 43       | -69       | 1345    | 0         | 0.4 | -0.6 | 0.7 |
| 4400777   | 99       | P   | SUR   | 38       | -24       | 744     | 0         | 0.2 | 0.3  | 0.3 |
| 44008     | 99       | P   | SUR   | 41       | -69       | 4194    | 0         | 0.3 | -0.8 | 0.9 |
| 4400857   | 99       | P   | SUR   | 31       | -59       | 744     | 0         | 0.3 | 0.0  | 0.3 |
| 44011     | 99       | P   | SUR   | 41       | -67       | 3781    | 0         | 0.4 | 0.3  | 0.5 |
| 4401563   | 99       | P   | SUR   | 19       | -37       | 744     | 0         | 0.2 | -0.3 | 0.4 |
| 4401572   | 99       | P   | SUR   | 33       | -62       | 744     | 0         | 0.4 | -0.4 | 0.5 |
| 4401576   | 99       | P   | SUR   | 26       | -57       | 744     | 0         | 0.2 | 0.4  | 0.5 |
| 4401581   | 99       | P   | SUR   | 26       | -55       | 743     | 0         | 0.3 | 0.2  | 0.3 |
| 4401582   | 99       | P   | SUR   | 37       | -25       | 744     | 0         | 0.2 | 0.4  | 0.4 |
| 4401584   | 99       | P   | SUR   | 30       | -34       | 743     | 0         | 0.2 | 0.6  | 0.7 |
| 4401585   | 99       | P   | SUR   | 29       | -39       | 744     | 0         | 0.2 | 0.3  | 0.4 |

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD  | BIAS | RMS |
|-----------|----------|-----|-------|----------|-----------|---------|-----------|-----|------|-----|
| 4401848   | 99       | P   | SUR   | 54       | -10       | 673     | 0         | 0.4 | -0.5 | 0.7 |
| 4401850   | 99       | P   | SUR   | 67       | 13        | 682     | 0         | 0.3 | -0.2 | 0.4 |
| 4401851   | 99       | P   | SUR   | 50       | -4        | 686     | 0         | 1.5 | -0.4 | 1.6 |
| 4401859   | 99       | P   | SUR   | 15       | -46       | 744     | 0         | 0.3 | -0.1 | 0.3 |
| 4401863   | 99       | P   | SUR   | 10       | -42       | 701     | 0         | 0.8 | 0.8  | 1.1 |
| 4401864   | 99       | P   | SUR   | 19       | -56       | 693     | 0         | 0.2 | 0.0  | 0.2 |
| 4401866   | 99       | P   | SUR   | 14       | -65       | 689     | 0         | 0.4 | 0.1  | 0.4 |
| 4401867   | 99       | P   | SUR   | 36       | -57       | 743     | 0         | 0.3 | 0.1  | 0.3 |
| 4401872   | 99       | P   | SUR   | 30       | -55       | 744     | 0         | 0.2 | 0.0  | 0.2 |
| 4401874   | 99       | P   | SUR   | 21       | -59       | 744     | 0         | 0.3 | -0.1 | 0.3 |
| 4402603   | 99       | P   | SUR   | 57       | -17       | 685     | 0         | 0.3 | 0.0  | 0.3 |
| 4402604   | 99       | P   | SUR   | 44       | -17       | 381     | 0         | 0.3 | 0.0  | 0.3 |
| 4402605   | 99       | P   | SUR   | 59       | -1        | 695     | 0         | 0.3 | 0.4  | 0.5 |
| 4402606   | 99       | P   | SUR   | 55       | -26       | 691     | 0         | 0.3 | 0.2  | 0.4 |
| 4402607   | 99       | P   | SUR   | 46       | -24       | 692     | 0         | 0.3 | 0.0  | 0.3 |
| 4402608   | 99       | P   | SUR   | 59       | -31       | 692     | 0         | 0.3 | 0.0  | 0.3 |
| 4402609   | 99       | P   | SUR   | 63       | -20       | 690     | 0         | 0.3 | 0.1  | 0.3 |
| 4402611   | 99       | P   | SUR   | 49       | -19       | 684     | 0         | 0.3 | -0.2 | 0.4 |
| 4402612   | 99       | P   | SUR   | 46       | -29       | 234     | 1         | 0.6 | 0.4  | 0.7 |
| 4402613   | 99       | P   | SUR   | 44       | -14       | 684     | 0         | 0.3 | -0.2 | 0.4 |
| 4402614   | 99       | P   | SUR   | 56       | -6        | 683     | 0         | 0.4 | -2.1 | 2.1 |
| 4402615   | 99       | P   | SUR   | 48       | -11       | 686     | 0         | 0.4 | 0.2  | 0.5 |
| 4402618   | 99       | P   | SUR   | 27       | -59       | 695     | 0         | 0.2 | 0.3  | 0.4 |
| 4402656   | 99       | P   | SUR   | 38       | -37       | 681     | 0         | 0.3 | 0.3  | 0.4 |
| 4402660   | 99       | P   | SUR   | 30       | -16       | 704     | 0         | 0.4 | 0.5  | 0.6 |
| 4402663   | 99       | P   | SUR   | 42       | -12       | 698     | 0         | 0.5 | 0.0  | 0.5 |
| 4402665   | 99       | P   | SUR   | 23       | -48       | 704     | 0         | 0.2 | 0.5  | 0.5 |
| 4402670   | 99       | P   | SUR   | 19       | -30       | 704     | 0         | 0.3 | 0.2  | 0.3 |
| 4402671   | 99       | P   | SUR   | 15       | -44       | 685     | 0         | 0.3 | 0.1  | 0.3 |
| 4402672   | 99       | P   | SUR   | 14       | -34       | 692     | 0         | 0.3 | 0.0  | 0.3 |
| 4402673   | 99       | P   | SUR   | 14       | -37       | 694     | 0         | 0.3 | 0.2  | 0.3 |
| 4402674   | 99       | P   | SUR   | 15       | -41       | 694     | 1         | 0.5 | 0.3  | 0.6 |
| 4402675   | 99       | P   | SUR   | 35       | -39       | 692     | 0         | 0.2 | 0.1  | 0.2 |
| 4402676   | 99       | P   | SUR   | 23       | -36       | 692     | 0         | 0.2 | 0.5  | 0.5 |
| 4402721   | 99       | P   | SUR   | 50       | -45       | 699     | 0         | 0.4 | 0.1  | 0.4 |
| 4402723   | 99       | P   | SUR   | 45       | -53       | 701     | 0         | 0.4 | 0.1  | 0.4 |
| 4402726   | 99       | P   | SUR   | 47       | -47       | 702     | 0         | 0.4 | 0.2  | 0.5 |
| 4402727   | 99       | P   | SUR   | 53       | -23       | 701     | 0         | 0.3 | -0.1 | 0.3 |
| 4402749   | 99       | P   | SUR   | 56       | -51       | 190     | 0         | 0.2 | -0.1 | 0.3 |
| 4402750   | 99       | P   | SUR   | 57       | -49       | 171     | 0         | 0.2 | -0.5 | 0.5 |
| 44032     | 99       | P   | SUR   | 44       | -69       | 746     | 0         | 0.4 | 0.2  | 0.5 |
| 44033     | 99       | P   | SUR   | 44       | -69       | 752     | 0         | 0.4 | 0.0  | 0.4 |
| 44034     | 99       | P   | SUR   | 44       | -68       | 750     | 0         | 0.4 | -0.4 | 0.6 |

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| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD  | BIAS | RMS |
|-----------|----------|-----|-------|----------|-----------|---------|-----------|-----|------|-----|
| 4403556   | 99       | P   | SUR   | 47       | -23       | 740     | 0         | 0.6 | 0.5  | 0.8 |
| 4403557   | 99       | P   | SUR   | 54       | -20       | 736     | 0         | 0.4 | 0.3  | 0.5 |
| 4403558   | 99       | P   | SUR   | 48       | -36       | 739     | 0         | 0.4 | 0.0  | 0.4 |
| 4403568   | 99       | P   | SUR   | 47       | -48       | 738     | 0         | 0.4 | 0.2  | 0.5 |
| 4403569   | 99       | P   | SUR   | 48       | -50       | 735     | 0         | 0.4 | 0.2  | 0.4 |
| 44037     | 99       | P   | SUR   | 44       | -68       | 1       | 0         | 0.0 | -0.7 | 0.7 |
| 44078     | 99       | P   | SUR   | 60       | -40       | 300     | 0         | 0.3 | -0.6 | 0.7 |
| 44137     | 99       | P   | SUR   | 42       | -62       | 727     | 0         | 0.4 | -0.1 | 0.4 |
| 44139     | 99       | P   | SUR   | 44       | -57       | 729     | 0         | 0.3 | 0.1  | 0.4 |
| 44150     | 99       | P   | SUR   | 43       | -64       | 661     | 0         | 0.4 | -0.1 | 0.4 |
| 44258     | 99       | P   | SUR   | 45       | -63       | 730     | 0         | 0.3 | -0.1 | 0.3 |
| 44488     | 99       | P   | SUR   | 45       | -61       | 739     | 0         | 0.3 | 0.0  | 0.3 |
| 44489     | 99       | P   | SUR   | 46       | -61       | 739     | 0         | 0.3 | 0.1  | 0.3 |
| 4601782   | 99       | P   | SUR   | 40       | -32       | 682     | 0         | 0.3 | 0.4  | 0.5 |
| 4601813   | 99       | P   | SUR   | 85       | 34        | 704     | 0         | 0.4 | 0.1  | 0.4 |
| 4701518   | 99       | P   | SUR   | 78       | -12       | 709     | 0         | 0.3 | -0.1 | 0.3 |
| 4701519   | 99       | P   | SUR   | 77       | -12       | 709     | 0         | 0.3 | -0.2 | 0.4 |
| 4701738   | 99       | P   | SUR   | 70       | -67       | 722     | 722       | 0.0 | 0.0  | 0.0 |
| 4801668   | 99       | P   | SUR   | 86       | -30       | 709     | 0         | 0.3 | 0.0  | 0.3 |
| 4801723   | 99       | P   | SUR   | 72       | 13        | 703     | 0         | 0.3 | 0.0  | 0.3 |
| 4801761   | 99       | P   | SUR   | 87       | -27       | 740     | 0         | 0.4 | 0.1  | 0.4 |
| 4801767   | 99       | P   | SUR   | 87       | -45       | 740     | 0         | 0.4 | -0.4 | 0.5 |
| 4801771   | 99       | P   | SUR   | 85       | -68       | 740     | 0         | 0.3 | -0.2 | 0.4 |
| 4802506   | 99       | P   | SUR   | 87       | -34       | 334     | 0         | 0.3 | 0.0  | 0.3 |
| 4803912   | 99       | P   | SUR   | 37       | -65       | 1847    | 0         | 0.4 | 0.1  | 0.4 |
| 6100001   | 99       | P   | SUR   | 43       | 8         | 296     | 0         | 0.3 | 0.2  | 0.4 |
| 6100002   | 99       | P   | SUR   | 42       | 5         | 741     | 0         | 0.3 | 0.0  | 0.3 |
| 6100196   | 99       | P   | SUR   | 42       | 4         | 738     | 0         | 0.4 | 0.4  | 0.6 |
| 6100197   | 99       | P   | SUR   | 40       | 4         | 744     | 0         | 0.4 | 0.5  | 0.6 |
| 6100198   | 99       | P   | SUR   | 37       | -2        | 743     | 0         | 0.4 | 0.6  | 0.7 |
| 6100280   | 99       | P   | SUR   | 41       | 1         | 743     | 0         | 0.4 | 0.5  | 0.6 |
| 6100281   | 99       | P   | SUR   | 40       | 0         | 743     | 0         | 0.4 | 0.5  | 0.7 |
| 6100417   | 99       | P   | SUR   | 38       | 0         | 744     | 0         | 0.4 | 0.3  | 0.5 |
| 6100430   | 99       | P   | SUR   | 40       | 2         | 742     | 0         | 0.4 | 0.3  | 0.5 |
| 6101003   | 99       | P   | SUR   | 40       | 25        | 157     | 0         | 0.5 | 0.3  | 0.6 |
| 6101007   | 99       | P   | SUR   | 36       | 25        | 132     | 0         | 0.4 | -0.2 | 0.5 |
| 6101008   | 99       | P   | SUR   | 37       | 22        | 155     | 0         | 0.4 | 0.1  | 0.4 |
| 6101009   | 99       | P   | SUR   | 35       | 25        | 1       | 1         | 0.0 | 0.0  | 0.0 |
| 6102786   | 99       | P   | SUR   | 31       | 16        | 696     | 0         | 0.2 | 0.2  | 0.3 |
| 6102787   | 99       | P   | SUR   | 31       | 28        | 679     | 2         | 0.6 | 0.1  | 0.6 |
| 6102792   | 99       | P   | SUR   | 39       | 8         | 367     | 0         | 0.4 | 0.0  | 0.4 |
| 6102793   | 99       | P   | SUR   | 39       | 5         | 704     | 0         | 0.4 | 0.6  | 0.7 |
| 6102796   | 99       | P   | SUR   | 41       | 7         | 700     | 0         | 0.3 | 0.2  | 0.3 |



DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD  | BIAS | RMS |
|-----------|----------|-----|-------|----------|-----------|---------|-----------|-----|------|-----|
| 6102797   | 99       | P   | SUR   | 37       | -3        | 547     | 0         | 0.5 | -3.3 | 3.3 |
| 6102799   | 99       | P   | SUR   | 42       | 6         | 700     | 0         | 0.3 | 0.3  | 0.4 |
| 6102802   | 99       | P   | SUR   | 39       | 2         | 421     | 5         | 0.7 | -0.3 | 0.7 |
| 6102803   | 99       | P   | SUR   | 39       | 1         | 703     | 0         | 0.3 | -0.5 | 0.6 |
| 6102804   | 99       | P   | SUR   | 39       | 1         | 249     | 4         | 3.2 | -4.4 | 5.5 |
| 6102805   | 99       | P   | SUR   | 39       | 2         | 261     | 0         | 0.2 | 0.1  | 0.3 |
| 6102806   | 99       | P   | SUR   | 39       | 1         | 252     | 0         | 0.3 | -0.1 | 0.3 |
| 6102807   | 99       | P   | SUR   | 39       | 1         | 248     | 0         | 0.3 | 0.1  | 0.3 |
| 6200001   | 99       | P   | SUR   | 45       | -5        | 739     | 0         | 0.3 | 0.3  | 0.5 |
| 6200024   | 99       | P   | SUR   | 44       | -3        | 743     | 0         | 0.3 | 0.6  | 0.7 |
| 6200025   | 99       | P   | SUR   | 44       | -6        | 743     | 0         | 0.4 | 0.4  | 0.5 |
| 6200082   | 99       | P   | SUR   | 44       | -8        | 743     | 0         | 0.4 | 0.2  | 0.5 |
| 6200083   | 99       | P   | SUR   | 43       | -9        | 744     | 0         | 0.5 | 0.2  | 0.6 |
| 6200084   | 99       | P   | SUR   | 42       | -9        | 744     | 0         | 0.4 | 0.4  | 0.6 |
| 6200085   | 99       | P   | SUR   | 36       | -7        | 741     | 0         | 0.4 | 0.4  | 0.5 |
| 6200086   | 99       | P   | SUR   | 55       | 6         | 495     | 0         | 0.2 | -0.1 | 0.3 |
| 6200087   | 99       | P   | SUR   | 55       | 7         | 494     | 0         | 0.3 | -0.2 | 0.3 |
| 6200091   | 99       | P   | SUR   | 53       | -5        | 743     | 0         | 0.3 | 0.1  | 0.3 |
| 6200092   | 99       | P   | SUR   | 51       | -11       | 743     | 0         | 0.4 | -0.1 | 0.4 |
| 6200093   | 99       | P   | SUR   | 55       | -10       | 739     | 0         | 0.3 | -0.1 | 0.3 |
| 6200094   | 99       | P   | SUR   | 52       | -7        | 743     | 0         | 0.3 | 0.2  | 0.4 |
| 6200095   | 99       | P   | SUR   | 53       | -16       | 743     | 0         | 0.3 | -0.2 | 0.3 |
| 6200191   | 99       | P   | SUR   | 41       | -10       | 473     | 0         | 0.7 | 0.1  | 0.7 |
| 6200192   | 99       | P   | SUR   | 40       | -10       | 543     | 0         | 0.4 | -0.1 | 0.4 |
| 6200199   | 99       | P   | SUR   | 40       | -9        | 539     | 0         | 0.3 | 0.2  | 0.4 |
| 6200200   | 99       | P   | SUR   | 36       | -8        | 312     | 0         | 0.3 | 0.1  | 0.3 |
| 6201065   | 99       | P   | SUR   | 54       | 7         | 577     | 12        | 4.3 | -1.3 | 4.5 |
| 6201066   | 99       | P   | SUR   | 55       | 7         | 722     | 0         | 0.3 | 0.3  | 0.4 |
| 6201081   | 99       | P   | SUR   | 38       | -9        | 542     | 0         | 0.3 | -0.2 | 0.4 |
| 6202623   | 99       | P   | SUR   | 70       | 16        | 744     | 0         | 0.3 | -0.1 | 0.4 |
| 6202624   | 99       | P   | SUR   | 63       | 0         | 744     | 0         | 0.3 | 0.1  | 0.3 |
| 6202627   | 99       | P   | SUR   | 60       | -21       | 690     | 0         | 0.4 | 0.0  | 0.4 |
| 6202629   | 99       | P   | SUR   | 40       | -41       | 31      | 0         | 2.2 | -3.6 | 4.2 |
| 6202630   | 99       | P   | SUR   | 44       | -3        | 741     | 0         | 0.3 | 0.0  | 0.3 |
| 6202632   | 99       | P   | SUR   | 64       | -38       | 744     | 0         | 0.4 | 0.1  | 0.4 |
| 6202633   | 99       | P   | SUR   | 74       | 15        | 744     | 0         | 0.3 | -0.1 | 0.3 |
| 6202637   | 99       | P   | SUR   | 66       | -5        | 743     | 0         | 0.3 | 0.0  | 0.3 |
| 6202639   | 99       | P   | SUR   | 30       | -39       | 744     | 0         | 0.2 | 0.1  | 0.2 |
| 6202640   | 99       | P   | SUR   | 30       | -46       | 744     | 0         | 0.2 | 0.1  | 0.3 |
| 6202643   | 99       | P   | SUR   | 24       | -59       | 744     | 0         | 0.2 | 0.0  | 0.2 |
| 6202644   | 99       | P   | SUR   | 30       | -46       | 744     | 0         | 0.2 | -0.2 | 0.3 |
| 6202645   | 99       | P   | SUR   | 28       | -63       | 193     | 0         | 0.2 | -0.2 | 0.3 |
| 62029     | 99       | P   | SUR   | 49       | -12       | 1612    | 0         | 0.4 | -0.1 | 0.4 |

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD  | BIAS | RMS |
|-----------|----------|-----|-------|----------|-----------|---------|-----------|-----|------|-----|
| 62030     | 99       | P   | SUR   | 50       | -4        | 1862    | 0         | 0.3 | 0.2  | 0.4 |
| 6203516   | 99       | P   | SUR   | 42       | -64       | 655     | 0         | 0.4 | 0.0  | 0.4 |
| 6203588   | 99       | P   | SUR   | 56       | -46       | 682     | 0         | 0.4 | 0.6  | 0.7 |
| 6203601   | 99       | P   | SUR   | 36       | -43       | 744     | 0         | 0.4 | -0.1 | 0.5 |
| 6203607   | 99       | P   | SUR   | 32       | -45       | 743     | 0         | 0.2 | 0.2  | 0.3 |
| 6203612   | 99       | P   | SUR   | 30       | -46       | 744     | 0         | 0.2 | 0.3  | 0.4 |
| 6203614   | 99       | P   | SUR   | 29       | -62       | 744     | 0         | 0.2 | 0.4  | 0.4 |
| 6203615   | 99       | P   | SUR   | 25       | -65       | 744     | 0         | 0.2 | 0.0  | 0.2 |
| 6203616   | 99       | P   | SUR   | 22       | -52       | 744     | 0         | 0.2 | 0.6  | 0.6 |
| 6203617   | 99       | P   | SUR   | 20       | -50       | 742     | 0         | 0.2 | 0.2  | 0.3 |
| 6203621   | 99       | P   | SUR   | 36       | -20       | 742     | 0         | 0.2 | 0.0  | 0.2 |
| 6203622   | 99       | P   | SUR   | 42       | -24       | 744     | 0         | 0.4 | 0.4  | 0.5 |
| 6203625   | 99       | P   | SUR   | 35       | -26       | 744     | 0         | 0.2 | -0.1 | 0.2 |
| 6203627   | 99       | P   | SUR   | 22       | -63       | 743     | 0         | 0.3 | 0.3  | 0.4 |
| 6203632   | 99       | P   | SUR   | 26       | -26       | 744     | 0         | 0.3 | 0.3  | 0.4 |
| 6203633   | 99       | P   | SUR   | 66       | 7         | 743     | 0         | 0.3 | 0.2  | 0.4 |
| 6203634   | 99       | P   | SUR   | 30       | -26       | 744     | 0         | 0.3 | 0.3  | 0.4 |
| 6203635   | 99       | P   | SUR   | 22       | -66       | 744     | 0         | 0.3 | 0.0  | 0.3 |
| 6203639   | 99       | P   | SUR   | 36       | -21       | 744     | 0         | 0.2 | -0.1 | 0.2 |
| 6203640   | 99       | P   | SUR   | 30       | -18       | 742     | 0         | 1.3 | -0.3 | 1.3 |
| 6203642   | 99       | P   | SUR   | 17       | -45       | 744     | 0         | 0.5 | 0.5  | 0.8 |
| 6203643   | 99       | P   | SUR   | 22       | -56       | 744     | 0         | 0.2 | 0.5  | 0.6 |
| 6203651   | 99       | P   | SUR   | 41       | -35       | 655     | 0         | 0.3 | 0.2  | 0.4 |
| 6203730   | 99       | P   | SUR   | 21       | -53       | 686     | 0         | 0.2 | 0.3  | 0.4 |
| 6203734   | 99       | P   | SUR   | 15       | -24       | 417     | 0         | 1.8 | -0.2 | 1.8 |
| 6203737   | 99       | P   | SUR   | 25       | -38       | 695     | 0         | 0.2 | 0.5  | 0.5 |
| 6203744   | 99       | P   | SUR   | 62       | -12       | 691     | 0         | 0.3 | 0.2  | 0.4 |
| 6203746   | 99       | P   | SUR   | 66       | -4        | 691     | 0         | 0.3 | 0.0  | 0.3 |
| 6203747   | 99       | P   | SUR   | 64       | 5         | 687     | 0         | 0.3 | 0.2  | 0.3 |
| 6203750   | 99       | P   | SUR   | 67       | 13        | 687     | 0         | 0.3 | 0.2  | 0.4 |
| 6203751   | 99       | P   | SUR   | 77       | 10        | 674     | 48        | 2.4 | 0.9  | 2.6 |
| 6203753   | 99       | P   | SUR   | 61       | -25       | 690     | 0         | 0.4 | -0.3 | 0.5 |
| 6203755   | 99       | P   | SUR   | 44       | -12       | 683     | 0         | 0.4 | -0.8 | 0.9 |
| 6203760   | 99       | P   | SUR   | 58       | 11        | 691     | 0         | 0.6 | -0.1 | 0.6 |
| 6203765   | 99       | P   | SUR   | 24       | -40       | 692     | 0         | 0.4 | 0.8  | 0.9 |
| 6203767   | 99       | P   | SUR   | 20       | -42       | 696     | 0         | 0.2 | -0.6 | 0.6 |
| 6203768   | 99       | P   | SUR   | 35       | -19       | 690     | 0         | 0.3 | 0.4  | 0.5 |
| 6203771   | 99       | P   | SUR   | 23       | -35       | 693     | 0         | 0.2 | 0.3  | 0.3 |
| 6203772   | 99       | P   | SUR   | 25       | -54       | 697     | 0         | 0.2 | 0.3  | 0.4 |
| 6203773   | 99       | P   | SUR   | 29       | -46       | 697     | 0         | 0.2 | -0.2 | 0.3 |
| 6203776   | 99       | P   | SUR   | 35       | -30       | 687     | 0         | 0.2 | 0.1  | 0.2 |
| 6203777   | 99       | P   | SUR   | 29       | -69       | 691     | 0         | 0.3 | 0.2  | 0.3 |
| 6203825   | 99       | P   | SUR   | 65       | -4        | 704     | 0         | 0.3 | 0.2  | 0.4 |

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD  | BIAS | RMS |
|-----------|----------|-----|-------|----------|-----------|---------|-----------|-----|------|-----|
| 6203827   | 99       | P   | SUR   | 63       | -7        | 703     | 0         | 0.3 | 0.1  | 0.3 |
| 6203838   | 99       | P   | SUR   | 15       | -48       | 702     | 0         | 0.3 | 0.2  | 0.4 |
| 6203839   | 99       | P   | SUR   | 19       | -40       | 703     | 0         | 0.2 | 0.0  | 0.2 |
| 6203840   | 99       | P   | SUR   | 26       | -36       | 701     | 0         | 0.2 | 0.4  | 0.5 |
| 6203841   | 99       | P   | SUR   | 30       | -18       | 702     | 0         | 0.3 | 0.2  | 0.3 |
| 6203842   | 99       | P   | SUR   | 40       | -35       | 702     | 0         | 0.2 | 0.1  | 0.2 |
| 6203843   | 99       | P   | SUR   | 28       | -18       | 555     | 0         | 0.4 | -0.8 | 0.9 |
| 6203844   | 99       | P   | SUR   | 44       | -17       | 702     | 0         | 0.3 | 0.3  | 0.5 |
| 6203845   | 99       | P   | SUR   | 45       | -37       | 702     | 0         | 0.3 | 0.0  | 0.3 |
| 6203846   | 99       | P   | SUR   | 28       | -21       | 702     | 0         | 0.3 | 0.2  | 0.3 |
| 6203848   | 99       | P   | SUR   | 36       | -62       | 694     | 0         | 0.4 | 0.1  | 0.4 |
| 6203849   | 99       | P   | SUR   | 41       | -21       | 703     | 0         | 0.2 | 0.1  | 0.3 |
| 6203850   | 99       | P   | SUR   | 43       | -25       | 703     | 0         | 0.2 | 0.1  | 0.3 |
| 6203851   | 99       | P   | SUR   | 36       | -55       | 25      | 0         | 0.2 | -0.1 | 0.2 |
| 6203853   | 99       | P   | SUR   | 58       | -16       | 696     | 0         | 0.4 | 0.0  | 0.4 |
| 6203854   | 99       | P   | SUR   | 56       | -19       | 702     | 0         | 0.3 | 0.1  | 0.3 |
| 6203855   | 99       | P   | SUR   | 60       | -15       | 702     | 0         | 0.3 | 0.0  | 0.3 |
| 6203856   | 99       | P   | SUR   | 60       | -10       | 704     | 0         | 0.3 | 0.3  | 0.4 |
| 6203857   | 99       | P   | SUR   | 57       | -13       | 704     | 0         | 0.3 | 0.0  | 0.3 |
| 6203866   | 99       | P   | SUR   | 59       | -12       | 704     | 0         | 0.3 | 0.3  | 0.4 |
| 6203867   | 99       | P   | SUR   | 52       | -12       | 704     | 0         | 0.3 | 0.1  | 0.4 |
| 62050     | 99       | P   | SUR   | 50       | -4        | 1519    | 0         | 0.3 | 0.2  | 0.4 |
| 62081     | 99       | P   | SUR   | 51       | -13       | 1608    | 0         | 0.3 | 0.0  | 0.3 |
| 62091     | 99       | P   | SUR   | 53       | -5        | 743     | 0         | 0.3 | 0.1  | 0.3 |
| 62092     | 99       | P   | SUR   | 51       | -11       | 743     | 0         | 0.4 | -0.1 | 0.4 |
| 62093     | 99       | P   | SUR   | 55       | -10       | 739     | 0         | 0.3 | -0.1 | 0.3 |
| 62094     | 99       | P   | SUR   | 52       | -7        | 743     | 0         | 0.3 | 0.2  | 0.4 |
| 62095     | 99       | P   | SUR   | 53       | -16       | 743     | 0         | 0.3 | -0.2 | 0.3 |
| 62102     | 99       | P   | SUR   | 58       | 2         | 1640    | 0         | 0.3 | 0.2  | 0.4 |
| 62103     | 99       | P   | SUR   | 50       | -3        | 1613    | 0         | 0.3 | -0.1 | 0.3 |
| 62104     | 99       | P   | SUR   | 57       | 1         | 1640    | 0         | 0.3 | 0.0  | 0.3 |
| 62105     | 99       | P   | SUR   | 55       | -13       | 844     | 0         | 0.3 | -0.3 | 0.4 |
| 62107     | 99       | P   | SUR   | 50       | -6        | 2269    | 0         | 0.4 | 0.0  | 0.4 |
| 62112     | 99       | P   | SUR   | 58       | 0         | 1616    | 0         | 0.3 | 0.4  | 0.5 |
| 62113     | 99       | P   | SUR   | 58       | 0         | 1639    | 0         | 0.4 | 0.0  | 0.4 |
| 62114     | 99       | P   | SUR   | 58       | 0         | 2302    | 0         | 0.4 | 0.3  | 0.5 |
| 62115     | 99       | P   | SUR   | 58       | -3        | 1532    | 0         | 0.3 | 0.1  | 0.4 |
| 62116     | 99       | P   | SUR   | 58       | 1         | 1612    | 0         | 0.3 | 0.1  | 0.3 |
| 62118     | 99       | P   | SUR   | 58       | 1         | 1639    | 0         | 0.3 | 0.6  | 0.6 |
| 62119     | 99       | P   | SUR   | 57       | 2         | 1616    | 0         | 0.3 | 0.3  | 0.4 |
| 62120     | 99       | P   | SUR   | 56       | 2         | 1640    | 0         | 0.4 | 0.1  | 0.4 |
| 62121     | 99       | P   | SUR   | 54       | 3         | 1620    | 0         | 0.3 | 0.4  | 0.5 |
| 62122     | 99       | P   | SUR   | 57       | 2         | 2301    | 0         | 0.3 | 0.2  | 0.4 |

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| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD  | BIAS | RMS |
|-----------|----------|-----|-------|----------|-----------|---------|-----------|-----|------|-----|
| 62124     | 99       | P   | SUR   | 54       | -4        | 1615    | 0         | 0.3 | 0.1  | 0.3 |
| 62127     | 99       | P   | SUR   | 54       | 1         | 1631    | 0         | 0.3 | 0.8  | 0.8 |
| 62129     | 99       | P   | SUR   | 58       | 0         | 1640    | 0         | 0.3 | 0.2  | 0.4 |
| 62130     | 99       | P   | SUR   | 59       | 1         | 1639    | 0         | 0.3 | 0.1  | 0.4 |
| 62131     | 99       | P   | SUR   | 54       | 1         | 1647    | 0         | 0.3 | 0.7  | 0.7 |
| 62132     | 99       | P   | SUR   | 56       | 2         | 1644    | 0         | 0.4 | 0.6  | 0.8 |
| 62133     | 99       | P   | SUR   | 57       | 1         | 1616    | 0         | 0.3 | 0.2  | 0.4 |
| 62135     | 99       | P   | SUR   | 54       | 2         | 993     | 0         | 0.2 | 0.4  | 0.5 |
| 62138     | 99       | P   | SUR   | 54       | 0         | 2303    | 0         | 0.3 | 0.6  | 0.7 |
| 62140     | 99       | P   | SUR   | 57       | 1         | 2300    | 0         | 0.3 | 0.2  | 0.4 |
| 62141     | 99       | P   | SUR   | 57       | 1         | 1715    | 0         | 0.5 | 0.4  | 0.6 |
| 62143     | 99       | P   | SUR   | 58       | 2         | 1640    | 0         | 0.4 | 0.8  | 0.9 |
| 62144     | 99       | P   | SUR   | 53       | 2         | 1618    | 0         | 0.3 | 0.4  | 0.5 |
| 62145     | 99       | P   | SUR   | 53       | 3         | 2300    | 0         | 0.3 | 0.5  | 0.6 |
| 62146     | 99       | P   | SUR   | 57       | 2         | 1640    | 0         | 0.3 | 0.1  | 0.3 |
| 62148     | 99       | P   | SUR   | 54       | 2         | 807     | 0         | 0.3 | 0.6  | 0.7 |
| 62149     | 99       | P   | SUR   | 54       | 1         | 1604    | 0         | 0.3 | 0.9  | 0.9 |
| 62151     | 99       | P   | SUR   | 57       | 2         | 1714    | 0         | 0.3 | 0.3  | 0.4 |
| 62152     | 99       | P   | SUR   | 57       | 2         | 1637    | 0         | 0.3 | 0.5  | 0.6 |
| 62153     | 99       | P   | SUR   | 57       | 2         | 147     | 0         | 1.3 | 0.0  | 1.3 |
| 62154     | 99       | P   | SUR   | 56       | 2         | 1644    | 0         | 0.3 | 0.2  | 0.3 |
| 62155     | 99       | P   | SUR   | 58       | 1         | 1640    | 0         | 0.3 | 0.5  | 0.6 |
| 62157     | 99       | P   | SUR   | 58       | 0         | 1637    | 0         | 0.3 | 0.1  | 0.3 |
| 62160     | 99       | P   | SUR   | 57       | 2         | 2297    | 0         | 0.3 | 0.6  | 0.7 |
| 62161     | 99       | P   | SUR   | 58       | 1         | 1640    | 0         | 0.3 | 0.0  | 0.3 |
| 62162     | 99       | P   | SUR   | 57       | 1         | 1646    | 0         | 0.3 | 0.2  | 0.4 |
| 62163     | 99       | P   | SUR   | 48       | -9        | 1608    | 0         | 0.4 | 0.0  | 0.4 |
| 62164     | 99       | P   | SUR   | 57       | 1         | 1647    | 0         | 0.3 | 0.4  | 0.5 |
| 62165     | 99       | P   | SUR   | 54       | 1         | 1594    | 0         | 0.4 | 0.8  | 0.9 |
| 62168     | 99       | P   | SUR   | 58       | 1         | 1627    | 0         | 0.3 | 0.2  | 0.4 |
| 62170     | 99       | P   | SUR   | 51       | 2         | 1641    | 0         | 0.3 | 0.1  | 0.3 |
| 62296     | 99       | P   | SUR   | 53       | 2         | 1648    | 0         | 0.3 | 0.2  | 0.3 |
| 62297     | 99       | P   | SUR   | 59       | 2         | 2295    | 0         | 0.3 | 0.2  | 0.4 |
| 62302     | 99       | P   | SUR   | 61       | -2        | 1622    | 0         | 0.4 | 0.1  | 0.4 |
| 62304     | 99       | P   | SUR   | 51       | 2         | 1635    | 0         | 0.4 | 0.0  | 0.4 |
| 62305     | 99       | P   | SUR   | 50       | 0         | 1645    | 0         | 0.4 | 0.1  | 0.4 |
| 62442     | 99       | P   | SUR   | 49       | -16       | 1608    | 0         | 0.3 | -0.1 | 0.3 |
| 6301001   | 99       | P   | SUR   | 64       | 5         | 742     | 0         | 0.3 | -0.2 | 0.4 |
| 6301004   | 99       | P   | SUR   | 72       | 20        | 588     | 0         | 0.3 | -0.3 | 0.4 |
| 6301572   | 99       | P   | SUR   | 60       | -40       | 743     | 0         | 0.3 | -0.2 | 0.4 |
| 6301573   | 99       | P   | SUR   | 78       | -13       | 734     | 0         | 0.3 | -0.2 | 0.4 |
| 6301575   | 99       | P   | SUR   | 77       | -17       | 742     | 0         | 0.4 | -0.4 | 0.6 |
| 6301576   | 99       | P   | SUR   | 55       | -39       | 744     | 0         | 1.7 | -0.4 | 1.7 |

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(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD  | BIAS | RMS |
|-----------|----------|-----|-------|----------|-----------|---------|-----------|-----|------|-----|
| 6301577   | 99       | P   | SUR   | 66       | -1        | 743     | 0         | 0.3 | 0.2  | 0.4 |
| 63055     | 99       | P   | SUR   | 61       | 2         | 1650    | 0         | 0.4 | 0.1  | 0.4 |
| 63056     | 99       | P   | SUR   | 60       | 2         | 1649    | 0         | 0.3 | 0.4  | 0.5 |
| 63057     | 99       | P   | SUR   | 59       | 2         | 1641    | 0         | 0.3 | 0.1  | 0.3 |
| 63058     | 99       | P   | SUR   | 53       | 2         | 2885    | 0         | 0.6 | 0.6  | 0.9 |
| 63059     | 99       | P   | SUR   | 58       | -1        | 1614    | 0         | 0.4 | 0.9  | 1.0 |
| 63101     | 99       | P   | SUR   | 61       | 1         | 1615    | 0         | 0.4 | 0.2  | 0.4 |
| 63102     | 99       | P   | SUR   | 61       | 1         | 1650    | 0         | 0.4 | 0.2  | 0.5 |
| 63103     | 99       | P   | SUR   | 61       | 1         | 1090    | 0         | 0.5 | 0.4  | 0.6 |
| 63108     | 99       | P   | SUR   | 61       | 2         | 1648    | 0         | 0.4 | 0.1  | 0.4 |
| 63109     | 99       | P   | SUR   | 60       | 2         | 1649    | 0         | 0.3 | -0.2 | 0.3 |
| 63110     | 99       | P   | SUR   | 60       | 2         | 1648    | 0         | 0.3 | -0.1 | 0.3 |
| 63111     | 99       | P   | SUR   | 61       | 2         | 2295    | 0         | 0.3 | -0.2 | 0.4 |
| 63112     | 99       | P   | SUR   | 61       | 1         | 1646    | 0         | 0.3 | -0.2 | 0.4 |
| 63115     | 99       | P   | SUR   | 62       | 1         | 1640    | 0         | 0.4 | 0.2  | 0.5 |
| 63117     | 99       | P   | SUR   | 61       | 1         | 2292    | 0         | 0.4 | 0.4  | 0.6 |
| 63118     | 99       | P   | SUR   | 58       | -4        | 1644    | 0         | 1.0 | 1.0  | 1.4 |
| 6401531   | 99       | P   | SUR   | 53       | -9        | 633     | 0         | 0.3 | -0.3 | 0.4 |
| 6401574   | 99       | P   | SUR   | 64       | 4         | 744     | 0         | 0.3 | 0.4  | 0.5 |
| 6401575   | 99       | P   | SUR   | 69       | 14        | 744     | 0         | 0.3 | 0.1  | 0.3 |
| 6401578   | 99       | P   | SUR   | 78       | -19       | 742     | 0         | 0.4 | -0.3 | 0.5 |
| 6401583   | 99       | P   | SUR   | 83       | -6        | 155     | 0         | 0.4 | 0.0  | 0.4 |
| 6401585   | 99       | P   | SUR   | 83       | -7        | 155     | 0         | 0.3 | 0.5  | 0.6 |
| 6401587   | 99       | P   | SUR   | 81       | 1         | 83      | 0         | 0.5 | 0.3  | 0.5 |
| 6401589   | 99       | P   | SUR   | 82       | 5         | 323     | 0         | 0.4 | 0.6  | 0.7 |
| 6401592   | 99       | P   | SUR   | 66       | 5         | 744     | 0         | 0.3 | 0.1  | 0.3 |
| 6401759   | 99       | P   | SUR   | 54       | -41       | 744     | 0         | 0.4 | 0.2  | 0.4 |
| 6401760   | 99       | P   | SUR   | 60       | -52       | 744     | 0         | 0.3 | 0.0  | 0.3 |
| 6401761   | 99       | P   | SUR   | 60       | -50       | 744     | 0         | 0.4 | 0.3  | 0.5 |
| 6401762   | 99       | P   | SUR   | 66       | -4        | 743     | 0         | 0.3 | 0.1  | 0.3 |
| 6401763   | 99       | P   | SUR   | 66       | 12        | 744     | 0         | 0.4 | -0.4 | 0.5 |
| 6401839   | 99       | P   | SUR   | 68       | 6         | 578     | 0         | 0.3 | 0.2  | 0.4 |
| 6401843   | 99       | P   | SUR   | 69       | 11        | 540     | 0         | 0.3 | 0.2  | 0.3 |
| 6402539   | 99       | P   | SUR   | 63       | 4         | 676     | 0         | 0.3 | 0.1  | 0.3 |
| 6402543   | 99       | P   | SUR   | 62       | -40       | 301     | 0         | 0.4 | 0.4  | 0.6 |
| 6402544   | 99       | P   | SUR   | 69       | 9         | 684     | 0         | 0.3 | 0.1  | 0.3 |
| 6402547   | 99       | P   | SUR   | 55       | -29       | 681     | 0         | 0.4 | 0.1  | 0.4 |
| 6402551   | 99       | P   | SUR   | 59       | -56       | 683     | 0         | 0.3 | 0.3  | 0.4 |
| 6402552   | 99       | P   | SUR   | 71       | -4        | 643     | 0         | 0.3 | 0.1  | 0.3 |
| 6402557   | 99       | P   | SUR   | 73       | 10        | 435     | 0         | 0.5 | 0.2  | 0.6 |
| 6402560   | 99       | P   | SUR   | 70       | -5        | 662     | 0         | 0.4 | -0.2 | 0.5 |
| 6402562   | 99       | P   | SUR   | 58       | -49       | 684     | 0         | 0.3 | 0.0  | 0.3 |
| 6402563   | 99       | P   | SUR   | 72       | 17        | 658     | 0         | 0.3 | 0.2  | 0.4 |

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD  | BIAS | RMS  |
|-----------|----------|-----|-------|----------|-----------|---------|-----------|-----|------|------|
| 6402587   | 99       | P   | SUR   | 54       | -50       | 647     | 373       | 2.1 | 12.3 | 12.5 |
| 6402592   | 99       | P   | SUR   | 55       | -53       | 665     | 0         | 0.4 | -0.6 | 0.7  |
| 6402594   | 99       | P   | SUR   | 58       | -57       | 682     | 0         | 0.4 | 0.0  | 0.4  |
| 6402596   | 99       | P   | SUR   | 57       | -37       | 622     | 0         | 0.4 | 0.0  | 0.4  |
| 6402597   | 99       | P   | SUR   | 48       | -48       | 621     | 0         | 0.4 | 0.1  | 0.4  |
| 6402599   | 99       | P   | SUR   | 50       | -48       | 606     | 0         | 0.4 | 0.4  | 0.5  |
| 6402611   | 99       | P   | SUR   | 50       | -37       | 616     | 0         | 0.4 | 0.3  | 0.5  |
| 6402615   | 99       | P   | SUR   | 16       | -43       | 689     | 0         | 0.3 | 0.3  | 0.4  |
| 6402616   | 99       | P   | SUR   | 26       | -41       | 689     | 0         | 0.2 | 0.3  | 0.4  |
| 6402617   | 99       | P   | SUR   | 25       | -39       | 692     | 0         | 0.2 | 0.5  | 0.6  |
| 6402618   | 99       | P   | SUR   | 23       | -31       | 696     | 0         | 0.3 | 0.4  | 0.5  |
| 6402619   | 99       | P   | SUR   | 42       | -12       | 689     | 0         | 0.3 | 0.2  | 0.4  |
| 6402620   | 99       | P   | SUR   | 46       | -9        | 686     | 0         | 0.5 | 0.5  | 0.7  |
| 6402621   | 99       | P   | SUR   | 45       | -13       | 691     | 0         | 0.5 | 0.4  | 0.6  |
| 6402622   | 99       | P   | SUR   | 40       | -16       | 692     | 0         | 0.3 | 0.3  | 0.4  |
| 6402654   | 99       | P   | SUR   | 61       | -5        | 575     | 0         | 0.3 | 0.0  | 0.3  |
| 6402655   | 99       | P   | SUR   | 67       | 0         | 646     | 0         | 0.3 | 0.1  | 0.3  |
| 6402656   | 99       | P   | SUR   | 55       | -44       | 117     | 84        | 2.3 | 13.3 | 13.5 |
| 6402659   | 99       | P   | SUR   | 70       | 19        | 681     | 0         | 4.1 | 0.2  | 4.1  |
| 6402661   | 99       | P   | SUR   | 64       | -16       | 616     | 0         | 0.4 | 0.1  | 0.4  |
| 6402663   | 99       | P   | SUR   | 66       | -21       | 683     | 0         | 0.3 | -0.1 | 0.4  |
| 6402665   | 99       | P   | SUR   | 71       | 21        | 654     | 0         | 0.4 | 0.4  | 0.6  |
| 6402666   | 99       | P   | SUR   | 64       | -21       | 676     | 0         | 0.3 | -0.4 | 0.5  |
| 6402667   | 99       | P   | SUR   | 64       | -20       | 633     | 0         | 0.3 | -0.9 | 0.9  |
| 6402668   | 99       | P   | SUR   | 71       | 13        | 678     | 0         | 0.3 | 0.5  | 0.6  |
| 6402683   | 99       | P   | SUR   | 55       | -41       | 84      | 0         | 0.3 | -0.3 | 0.5  |
| 6402684   | 99       | P   | SUR   | 66       | -21       | 84      | 0         | 1.0 | 7.8  | 7.8  |
| 6402685   | 99       | P   | SUR   | 63       | 0         | 84      | 0         | 0.3 | 0.9  | 1.0  |
| 64041     | 99       | P   | SUR   | 61       | -3        | 1620    | 0         | 0.4 | 0.1  | 0.4  |
| 64045     | 99       | P   | SUR   | 59       | -12       | 1612    | 0         | 0.4 | -0.2 | 0.4  |
| 6501670   | 99       | P   | SUR   | 80       | 8         | 679     | 0         | 0.3 | 0.0  | 0.3  |
| 6501671   | 99       | P   | SUR   | 80       | 5         | 686     | 1         | 3.3 | 4.6  | 5.7  |
| 6501674   | 99       | P   | SUR   | 81       | 20        | 685     | 0         | 0.3 | -0.1 | 0.4  |
| 6501679   | 99       | P   | SUR   | 70       | -18       | 685     | 0         | 0.4 | -0.2 | 0.5  |
| 6501689   | 99       | P   | SUR   | 79       | 26        | 413     | 385       | 0.8 | 14.0 | 14.1 |
| 6600021   | 99       | P   | SUR   | 55       | 14        | 22      | 0         | 0.2 | 0.2  | 0.3  |
| 6600022   | 99       | P   | SUR   | 54       | 14        | 201     | 0         | 0.3 | 0.0  | 0.3  |
| 9182954   | 99       | P   | SUR   | 54       | 8         | 18      | 0         | 1.5 | -0.7 | 1.7  |

#### 4.10 Table 22 - Drifter Monitoring Statistics (EUCOS): Wind speed (m/s)

##### DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND SPEED (M/S)  
 AREA : 10N - 90N, 70W - 40E  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S

| WMO IDENT | OBS TIME | ELM   | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | % GROSS | SD  | BIAS | RMS |
|-----------|----------|-------|-------|----------|-----------|---------|-----------|---------|-----|------|-----|
| 1300001   | 99       | SPEED | SUR   | 11       | -23       | 616     | 0         | 0       | 1.5 | 0.5  | 1.5 |
| 1300002   | 99       | SPEED | SUR   | 20       | -23       | 592     | 0         | 0       | 0.9 | 0.0  | 0.9 |
| 1300008   | 99       | SPEED | SUR   | 15       | -38       | 460     | 0         | 0       | 0.8 | 0.1  | 0.8 |
| 1300130   | 99       | SPEED | SUR   | 28       | -16       | 742     | 0         | 0       | 1.1 | 0.0  | 1.1 |
| 1300131   | 99       | SPEED | SUR   | 28       | -17       | 744     | 0         | 0       | 2.7 | 2.7  | 3.8 |
| 1801556   | 99       | SPEED | SUR   | 17       | -66       | 14      | 0         | 0       | 0.6 | -0.5 | 0.8 |
| 4100026   | 99       | SPEED | SUR   | 12       | -38       | 148     | 0         | 0       | 1.3 | 0.0  | 1.3 |
| 4100040   | 99       | SPEED | SUR   | 15       | -53       | 4286    | 0         | 0       | 0.8 | -0.2 | 0.8 |
| 4100043   | 99       | SPEED | SUR   | 21       | -65       | 4449    | 0         | 0       | 0.9 | 0.0  | 0.9 |
| 4100046   | 99       | SPEED | SUR   | 24       | -68       | 4449    | 0         | 0       | 0.7 | -0.1 | 0.7 |
| 4100048   | 99       | SPEED | SUR   | 32       | -70       | 1353    | 0         | 0       | 0.8 | 0.0  | 0.8 |
| 4100049   | 99       | SPEED | SUR   | 27       | -63       | 4448    | 0         | 0       | 0.8 | -0.1 | 0.8 |
| 4100052   | 99       | SPEED | SUR   | 18       | -65       | 4372    | 0         | 0       | 0.9 | -0.4 | 1.0 |
| 4100053   | 99       | SPEED | SUR   | 18       | -66       | 4437    | 0         | 0       | 1.4 | 1.1  | 1.8 |
| 4100139   | 99       | SPEED | SUR   | 20       | -38       | 736     | 0         | 0       | 0.9 | -0.3 | 0.9 |
| 4100300   | 99       | SPEED | SUR   | 16       | -57       | 688     | 0         | 0       | 0.8 | -1.1 | 1.4 |
| 41040     | 99       | SPEED | SUR   | 15       | -53       | 4786    | 0         | 0       | 0.9 | -0.3 | 0.9 |
| 41043     | 99       | SPEED | SUR   | 21       | -65       | 4374    | 0         | 0       | 1.0 | -0.1 | 1.0 |
| 41046     | 99       | SPEED | SUR   | 24       | -68       | 4433    | 0         | 0       | 0.8 | -0.2 | 0.8 |
| 41048     | 99       | SPEED | SUR   | 32       | -70       | 1454    | 0         | 0       | 0.9 | 0.0  | 0.9 |
| 41049     | 99       | SPEED | SUR   | 28       | -63       | 4366    | 0         | 0       | 0.8 | -0.2 | 0.8 |
| 41052     | 99       | SPEED | SUR   | 18       | -65       | 2972    | 0         | 0       | 0.9 | -0.3 | 1.0 |
| 41053     | 99       | SPEED | SUR   | 19       | -66       | 3168    | 0         | 0       | 1.5 | 0.3  | 1.5 |
| 4200059   | 99       | SPEED | SUR   | 15       | -67       | 4454    | 0         | 0       | 0.9 | -0.1 | 0.9 |
| 4200085   | 99       | SPEED | SUR   | 18       | -67       | 3706    | 0         | 0       | 1.2 | -0.8 | 1.5 |
| 42059     | 99       | SPEED | SUR   | 15       | -68       | 4443    | 0         | 0       | 1.0 | -0.2 | 1.0 |
| 42085     | 99       | SPEED | SUR   | 18       | -67       | 3128    | 0         | 0       | 1.3 | -0.3 | 1.3 |
| 4400005   | 99       | SPEED | SUR   | 43       | -69       | 741     | 0         | 0       | 1.1 | -0.5 | 1.2 |
| 4400008   | 99       | SPEED | SUR   | 40       | -69       | 4445    | 0         | 0       | 1.5 | -0.9 | 1.7 |
| 4400032   | 99       | SPEED | SUR   | 44       | -69       | 734     | 0         | 0       | 1.4 | -1.1 | 1.8 |
| 4400033   | 99       | SPEED | SUR   | 44       | -69       | 742     | 0         | 0       | 1.6 | -1.0 | 1.9 |
| 4400034   | 99       | SPEED | SUR   | 44       | -68       | 736     | 0         | 0       | 1.4 | -1.6 | 2.2 |
| 4400037   | 99       | SPEED | SUR   | 43       | -68       | 634     | 0         | 0       | 1.2 | -0.9 | 1.5 |
| 44005     | 99       | SPEED | SUR   | 43       | -69       | 1345    | 0         | 0       | 1.1 | -0.4 | 1.2 |

## DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

| WMO IDENT | OBS TIME | ELM   | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | % GROSS | SD  | BIAS | RMS |
|-----------|----------|-------|-------|----------|-----------|---------|-----------|---------|-----|------|-----|
| 44008     | 99       | SPEED | SUR   | 41       | -69       | 4224    | 0         | 0       | 1.6 | -1.0 | 1.8 |
| 44032     | 99       | SPEED | SUR   | 44       | -69       | 746     | 0         | 0       | 1.4 | -1.1 | 1.8 |
| 44033     | 99       | SPEED | SUR   | 44       | -69       | 752     | 0         | 0       | 1.6 | -0.8 | 1.7 |
| 44034     | 99       | SPEED | SUR   | 44       | -68       | 750     | 0         | 0       | 1.5 | -1.6 | 2.2 |
| 44037     | 99       | SPEED | SUR   | 44       | -68       | 643     | 0         | 0       | 1.2 | -0.9 | 1.5 |
| 44078     | 99       | SPEED | SUR   | 60       | -40       | 300     | 0         | 0       | 1.1 | -0.6 | 1.3 |
| 44137     | 99       | SPEED | SUR   | 42       | -62       | 107     | 0         | 0       | 4.2 | -4.3 | 6.0 |
| 44150     | 99       | SPEED | SUR   | 43       | -64       | 661     | 0         | 0       | 1.3 | -0.1 | 1.3 |
| 44258     | 99       | SPEED | SUR   | 45       | -63       | 730     | 0         | 0       | 1.5 | -1.2 | 2.0 |
| 44488     | 99       | SPEED | SUR   | 45       | -61       | 739     | 0         | 0       | 1.7 | -0.8 | 1.8 |
| 44489     | 99       | SPEED | SUR   | 46       | -61       | 739     | 0         | 0       | 1.5 | -0.3 | 1.5 |
| 4803912   | 99       | SPEED | SUR   | 37       | -65       | 1847    | 0         | 0       | 1.1 | -0.1 | 1.1 |
| 6100001   | 99       | SPEED | SUR   | 43       | 8         | 330     | 0         | 0       | 1.4 | -0.5 | 1.5 |
| 6100002   | 99       | SPEED | SUR   | 42       | 5         | 739     | 0         | 0       | 1.3 | -0.4 | 1.4 |
| 6100196   | 99       | SPEED | SUR   | 42       | 4         | 704     | 0         | 0       | 1.6 | -0.9 | 1.8 |
| 6100197   | 99       | SPEED | SUR   | 40       | 4         | 696     | 0         | 0       | 1.1 | -0.5 | 1.2 |
| 6100198   | 99       | SPEED | SUR   | 37       | -2        | 642     | 0         | 0       | 1.6 | -1.8 | 2.4 |
| 6100280   | 99       | SPEED | SUR   | 41       | 1         | 720     | 0         | 0       | 1.3 | -0.5 | 1.5 |
| 6100281   | 99       | SPEED | SUR   | 40       | 0         | 701     | 0         | 0       | 1.6 | -0.2 | 1.6 |
| 6100417   | 99       | SPEED | SUR   | 38       | 0         | 735     | 0         | 0       | 1.0 | -0.3 | 1.1 |
| 6100430   | 99       | SPEED | SUR   | 40       | 2         | 722     | 0         | 0       | 1.5 | 0.1  | 1.5 |
| 6101003   | 99       | SPEED | SUR   | 40       | 25        | 157     | 0         | 0       | 1.7 | -0.8 | 1.9 |
| 6101007   | 99       | SPEED | SUR   | 36       | 25        | 133     | 0         | 0       | 1.3 | -1.0 | 1.6 |
| 6101008   | 99       | SPEED | SUR   | 37       | 22        | 159     | 0         | 0       | 1.6 | -0.6 | 1.7 |
| 6101009   | 99       | SPEED | SUR   | 35       | 25        | 51      | 0         | 0       | 1.7 | -5.8 | 6.1 |
| 6200001   | 99       | SPEED | SUR   | 45       | -5        | 738     | 0         | 0       | 1.2 | -0.6 | 1.4 |
| 6200024   | 99       | SPEED | SUR   | 44       | -3        | 739     | 0         | 0       | 1.2 | -0.2 | 1.2 |
| 6200025   | 99       | SPEED | SUR   | 44       | -6        | 741     | 0         | 0       | 1.3 | -0.6 | 1.5 |
| 6200082   | 99       | SPEED | SUR   | 44       | -8        | 741     | 0         | 0       | 1.1 | -0.8 | 1.3 |
| 6200083   | 99       | SPEED | SUR   | 43       | -9        | 739     | 0         | 0       | 1.1 | -0.5 | 1.2 |
| 6200084   | 99       | SPEED | SUR   | 42       | -9        | 738     | 0         | 0       | 1.1 | -0.8 | 1.4 |
| 6200085   | 99       | SPEED | SUR   | 36       | -7        | 739     | 0         | 0       | 1.7 | -1.1 | 2.0 |
| 6200086   | 99       | SPEED | SUR   | 55       | 6         | 494     | 0         | 0       | 1.5 | 1.0  | 1.8 |
| 6200087   | 99       | SPEED | SUR   | 55       | 7         | 494     | 0         | 0       | 1.4 | 1.0  | 1.7 |
| 6200091   | 99       | SPEED | SUR   | 53       | -5        | 743     | 0         | 0       | 1.3 | -0.1 | 1.3 |
| 6200092   | 99       | SPEED | SUR   | 51       | -11       | 743     | 0         | 0       | 0.9 | 0.5  | 1.1 |
| 6200093   | 99       | SPEED | SUR   | 55       | -10       | 739     | 0         | 0       | 1.2 | -0.2 | 1.2 |
| 6200094   | 99       | SPEED | SUR   | 52       | -7        | 743     | 0         | 0       | 1.2 | -0.1 | 1.2 |
| 6200095   | 99       | SPEED | SUR   | 53       | -16       | 743     | 0         | 0       | 0.9 | 0.2  | 1.0 |
| 6200192   | 99       | SPEED | SUR   | 40       | -10       | 543     | 0         | 0       | 1.1 | -0.3 | 1.2 |
| 6200199   | 99       | SPEED | SUR   | 40       | -9        | 539     | 0         | 0       | 1.4 | -1.2 | 1.9 |



## DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

| WMO IDENT | OBS TIME | ELM   | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | % GROSS | SD  | BIAS | RMS |
|-----------|----------|-------|-------|----------|-----------|---------|-----------|---------|-----|------|-----|
| 6200200   | 99       | SPEED | SUR   | 36       | -8        | 486     | 2         | 0       | 1.5 | 0.0  | 1.5 |
| 6201066   | 99       | SPEED | SUR   | 55       | 7         | 719     | 0         | 0       | 1.2 | 0.1  | 1.2 |
| 6201081   | 99       | SPEED | SUR   | 38       | -9        | 542     | 0         | 0       | 1.5 | 0.5  | 1.6 |
| 62029     | 99       | SPEED | SUR   | 49       | -12       | 1610    | 4         | 0       | 1.2 | 0.8  | 1.4 |
| 62030     | 99       | SPEED | SUR   | 50       | -4        | 716     | 0         | 0       | 1.5 | 0.2  | 1.5 |
| 62050     | 99       | SPEED | SUR   | 50       | -4        | 1309    | 6         | 0       | 1.4 | 0.7  | 1.6 |
| 62081     | 99       | SPEED | SUR   | 51       | -13       | 1608    | 0         | 0       | 0.9 | 0.9  | 1.3 |
| 62091     | 99       | SPEED | SUR   | 53       | -5        | 743     | 0         | 0       | 1.3 | 0.0  | 1.3 |
| 62092     | 99       | SPEED | SUR   | 51       | -11       | 743     | 0         | 0       | 1.0 | 0.7  | 1.2 |
| 62093     | 99       | SPEED | SUR   | 55       | -10       | 739     | 0         | 0       | 1.2 | 0.0  | 1.2 |
| 62094     | 99       | SPEED | SUR   | 52       | -7        | 743     | 0         | 0       | 1.2 | 0.1  | 1.2 |
| 62095     | 99       | SPEED | SUR   | 53       | -16       | 743     | 0         | 0       | 1.0 | 0.4  | 1.0 |
| 62102     | 99       | SPEED | SUR   | 58       | 2         | 1640    | 0         | 0       | 1.2 | -0.1 | 1.2 |
| 62103     | 99       | SPEED | SUR   | 50       | -3        | 1613    | 0         | 0       | 1.3 | -0.9 | 1.6 |
| 62104     | 99       | SPEED | SUR   | 57       | 1         | 1640    | 0         | 0       | 1.4 | -0.1 | 1.4 |
| 62105     | 99       | SPEED | SUR   | 55       | -13       | 844     | 0         | 0       | 1.0 | 0.8  | 1.3 |
| 62107     | 99       | SPEED | SUR   | 50       | -6        | 2266    | 0         | 0       | 1.2 | 0.3  | 1.3 |
| 62112     | 99       | SPEED | SUR   | 58       | 0         | 1616    | 0         | 0       | 1.4 | -0.4 | 1.5 |
| 62113     | 99       | SPEED | SUR   | 58       | 0         | 1639    | 0         | 0       | 1.7 | -0.1 | 1.7 |
| 62114     | 99       | SPEED | SUR   | 58       | 0         | 2302    | 0         | 0       | 1.7 | 0.4  | 1.7 |
| 62118     | 99       | SPEED | SUR   | 58       | 1         | 1639    | 0         | 0       | 1.5 | 0.3  | 1.5 |
| 62119     | 99       | SPEED | SUR   | 57       | 2         | 1616    | 0         | 0       | 1.4 | -0.4 | 1.5 |
| 62120     | 99       | SPEED | SUR   | 56       | 2         | 1640    | 0         | 0       | 1.5 | 0.1  | 1.5 |
| 62121     | 99       | SPEED | SUR   | 54       | 3         | 1620    | 0         | 0       | 1.1 | -0.3 | 1.2 |
| 62122     | 99       | SPEED | SUR   | 57       | 2         | 2301    | 0         | 0       | 1.2 | -0.1 | 1.2 |
| 62129     | 99       | SPEED | SUR   | 58       | 0         | 1640    | 0         | 0       | 1.6 | -0.1 | 1.6 |
| 62131     | 99       | SPEED | SUR   | 54       | 1         | 1647    | 0         | 0       | 1.4 | 0.0  | 1.4 |
| 62132     | 99       | SPEED | SUR   | 56       | 2         | 1644    | 0         | 0       | 2.8 | -1.8 | 3.3 |
| 62133     | 99       | SPEED | SUR   | 57       | 1         | 1616    | 0         | 0       | 1.6 | -0.1 | 1.6 |
| 62140     | 99       | SPEED | SUR   | 57       | 1         | 2300    | 0         | 0       | 1.3 | -0.1 | 1.3 |
| 62143     | 99       | SPEED | SUR   | 58       | 2         | 1640    | 0         | 0       | 1.7 | -1.1 | 2.0 |
| 62144     | 99       | SPEED | SUR   | 53       | 2         | 1618    | 0         | 0       | 1.7 | -0.7 | 1.9 |
| 62145     | 99       | SPEED | SUR   | 53       | 3         | 2300    | 0         | 0       | 1.5 | 0.7  | 1.7 |
| 62146     | 99       | SPEED | SUR   | 57       | 2         | 1640    | 0         | 0       | 1.2 | 0.0  | 1.2 |
| 62148     | 99       | SPEED | SUR   | 54       | 2         | 1557    | 0         | 0       | 1.5 | -0.2 | 1.5 |
| 62149     | 99       | SPEED | SUR   | 54       | 1         | 1604    | 0         | 0       | 1.4 | 0.2  | 1.4 |
| 62152     | 99       | SPEED | SUR   | 57       | 2         | 1639    | 0         | 0       | 1.4 | -0.7 | 1.6 |
| 62153     | 99       | SPEED | SUR   | 57       | 2         | 2185    | 0         | 0       | 2.2 | -1.9 | 3.0 |
| 62154     | 99       | SPEED | SUR   | 56       | 2         | 1644    | 0         | 0       | 1.6 | 0.0  | 1.6 |
| 62155     | 99       | SPEED | SUR   | 58       | 1         | 1170    | 0         | 0       | 1.4 | -0.1 | 1.4 |
| 62163     | 99       | SPEED | SUR   | 48       | -9        | 1582    | 2         | 0       | 1.0 | 0.5  | 1.2 |

## DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

| WMO IDENT | OBS TIME | ELM   | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | % GROSS | SD  | BIAS | RMS |
|-----------|----------|-------|-------|----------|-----------|---------|-----------|---------|-----|------|-----|
| 62164     | 99       | SPEED | SUR   | 57       | 1         | 1647    | 0         | 0       | 1.4 | -1.1 | 1.8 |
| 62165     | 99       | SPEED | SUR   | 54       | 1         | 1594    | 0         | 0       | 1.3 | -0.3 | 1.3 |
| 62170     | 99       | SPEED | SUR   | 51       | 2         | 1638    | 0         | 0       | 1.3 | 0.3  | 1.3 |
| 62304     | 99       | SPEED | SUR   | 51       | 2         | 1577    | 0         | 0       | 1.4 | 0.6  | 1.5 |
| 62305     | 99       | SPEED | SUR   | 50       | 0         | 1645    | 0         | 0       | 1.3 | 0.4  | 1.3 |
| 62442     | 99       | SPEED | SUR   | 49       | -16       | 1608    | 0         | 0       | 0.9 | 0.6  | 1.1 |
| 6301001   | 99       | SPEED | SUR   | 64       | 5         | 742     | 0         | 0       | 1.3 | -0.2 | 1.4 |
| 6301004   | 99       | SPEED | SUR   | 72       | 20        | 588     | 0         | 0       | 1.1 | -0.4 | 1.2 |
| 63055     | 99       | SPEED | SUR   | 61       | 2         | 1650    | 0         | 0       | 1.4 | -1.3 | 1.9 |
| 63056     | 99       | SPEED | SUR   | 60       | 2         | 1649    | 0         | 0       | 1.4 | 0.1  | 1.4 |
| 63057     | 99       | SPEED | SUR   | 59       | 2         | 1641    | 0         | 0       | 2.0 | -1.0 | 2.3 |
| 63058     | 99       | SPEED | SUR   | 53       | 2         | 1624    | 0         | 0       | 1.4 | 0.2  | 1.4 |
| 63101     | 99       | SPEED | SUR   | 61       | 1         | 1615    | 0         | 0       | 1.4 | -0.6 | 1.5 |
| 63103     | 99       | SPEED | SUR   | 61       | 1         | 1608    | 0         | 0       | 1.6 | -0.4 | 1.6 |
| 63106     | 99       | SPEED | SUR   | 61       | 2         | 1495    | 0         | 0       | 1.6 | -0.8 | 1.8 |
| 63108     | 99       | SPEED | SUR   | 61       | 2         | 1648    | 0         | 0       | 1.5 | -0.2 | 1.5 |
| 63109     | 99       | SPEED | SUR   | 60       | 2         | 1644    | 0         | 0       | 1.4 | 0.0  | 1.4 |
| 63110     | 99       | SPEED | SUR   | 60       | 2         | 1621    | 0         | 0       | 1.4 | -0.6 | 1.5 |
| 63112     | 99       | SPEED | SUR   | 61       | 1         | 1646    | 0         | 0       | 1.3 | -0.6 | 1.4 |
| 63115     | 99       | SPEED | SUR   | 62       | 1         | 1640    | 0         | 0       | 1.2 | -0.4 | 1.2 |
| 63117     | 99       | SPEED | SUR   | 61       | 1         | 2292    | 0         | 0       | 1.4 | -0.6 | 1.6 |
| 64041     | 99       | SPEED | SUR   | 61       | -3        | 1620    | 0         | 0       | 1.2 | 0.0  | 1.2 |
| 64045     | 99       | SPEED | SUR   | 59       | -12       | 1612    | 0         | 0       | 0.9 | 1.0  | 1.3 |
| 6600021   | 99       | SPEED | SUR   | 55       | 14        | 261     | 0         | 0       | 1.2 | 0.2  | 1.2 |
| 6600022   | 99       | SPEED | SUR   | 54       | 14        | 201     | 0         | 0       | 1.3 | 0.0  | 1.3 |
| 66022     | 99       | SPEED | SUR   | 54       | 14        | 181     | 0         | 0       | 1.3 | -0.1 | 1.3 |
| 9182954   | 99       | SPEED | SUR   | 54       | 8         | 18      | 0         | 0       | 1.5 | 0.9  | 1.8 |

### 4.11 Table 23 - Drifter Monitoring Statistics (EUCOS): Wind direction

#### DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)  
 AREA : 10N - 90N, 70W - 40E  
 PERIOD : JUL 2022  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

TIME = 99 => AVERAGE OF ALL OBSERVATIONS  
 GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S  
 WIND SPEEDS > 3M/S USED

| WMO IDENT | OBS TIME | ELM  | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | % GROSS | SD   | BIAS  | RMS  |
|-----------|----------|------|-------|----------|-----------|---------|-----------|---------|------|-------|------|
| 1300001   | 99       | DIRN | SUR   | 11       | -23       | 402     | 0         | 0       | 27.1 | 1.1   | 27.2 |
| 1300002   | 99       | DIRN | SUR   | 20       | -23       | 579     | 0         | 0       | 9.2  | -1.4  | 9.3  |
| 1300008   | 99       | DIRN | SUR   | 15       | -38       | 457     | 0         | 0       | 8.9  | 5.8   | 10.6 |
| 1300130   | 99       | DIRN | SUR   | 28       | -16       | 729     | 0         | 0       | 8.6  | 3.7   | 9.4  |
| 1300131   | 99       | DIRN | SUR   | 28       | -17       | 375     | 0         | 0       | 66.8 | 32.2  | 74.1 |
| 1801556   | 99       | DIRN | SUR   | 17       | -66       | 14      | 0         | 0       | 14.0 | 3.2   | 14.3 |
| 1801605   | 99       | DIRN | SUR   | 37       | -72       | 173     | 0         | 0       | 23.6 | -1.6  | 23.6 |
| 1801606   | 99       | DIRN | SUR   | 36       | -76       | 1548    | 0         | 0       | 13.9 | 2.1   | 14.1 |
| 4100001   | 99       | DIRN | SUR   | 35       | -72       | 4173    | 0         | 0       | 17.3 | 9.7   | 19.8 |
| 4100002   | 99       | DIRN | SUR   | 32       | -75       | 4149    | 0         | 0       | 14.9 | 3.8   | 15.4 |
| 4100004   | 99       | DIRN | SUR   | 33       | -79       | 4058    | 0         | 0       | 20.4 | -0.2  | 20.4 |
| 4100008   | 99       | DIRN | SUR   | 31       | -81       | 650     | 0         | 0       | 26.8 | -7.6  | 27.9 |
| 4100009   | 99       | DIRN | SUR   | 29       | -80       | 3622    | 0         | 0       | 20.4 | -0.5  | 20.4 |
| 4100010   | 99       | DIRN | SUR   | 29       | -78       | 3975    | 0         | 0       | 13.9 | 8.2   | 16.1 |
| 4100013   | 99       | DIRN | SUR   | 33       | -78       | 3891    | 0         | 0       | 18.1 | 5.1   | 18.8 |
| 4100024   | 99       | DIRN | SUR   | 34       | -78       | 609     | 0         | 0       | 18.1 | 5.6   | 19.0 |
| 4100025   | 99       | DIRN | SUR   | 35       | -75       | 4067    | 0         | 0       | 20.5 | 5.6   | 21.3 |
| 4100026   | 99       | DIRN | SUR   | 12       | -38       | 119     | 0         | 0       | 10.9 | -1.9  | 11.0 |
| 4100029   | 99       | DIRN | SUR   | 33       | -80       | 651     | 0         | 0       | 24.6 | 7.6   | 25.8 |
| 4100033   | 99       | DIRN | SUR   | 32       | -80       | 642     | 0         | 0       | 24.8 | 3.2   | 25.0 |
| 4100037   | 99       | DIRN | SUR   | 34       | -77       | 652     | 0         | 0       | 14.7 | 7.1   | 16.3 |
| 4100038   | 99       | DIRN | SUR   | 34       | -78       | 583     | 0         | 0       | 22.2 | 11.0  | 24.8 |
| 4100040   | 99       | DIRN | SUR   | 15       | -53       | 4279    | 0         | 0       | 8.4  | 4.3   | 9.4  |
| 4100043   | 99       | DIRN | SUR   | 21       | -65       | 4440    | 0         | 0       | 8.9  | 0.7   | 8.9  |
| 4100046   | 99       | DIRN | SUR   | 24       | -68       | 4444    | 0         | 0       | 8.3  | 8.1   | 11.6 |
| 4100047   | 99       | DIRN | SUR   | 27       | -71       | 4167    | 0         | 0       | 10.9 | 3.3   | 11.4 |
| 4100048   | 99       | DIRN | SUR   | 32       | -70       | 1159    | 0         | 0       | 10.7 | 3.8   | 11.3 |
| 4100049   | 99       | DIRN | SUR   | 27       | -63       | 3963    | 0         | 0       | 11.3 | 4.0   | 12.0 |
| 4100052   | 99       | DIRN | SUR   | 18       | -65       | 4372    | 0         | 0       | 8.7  | 6.0   | 10.6 |
| 4100053   | 99       | DIRN | SUR   | 18       | -66       | 4209    | 0         | 0       | 13.3 | 9.9   | 16.6 |
| 4100064   | 99       | DIRN | SUR   | 34       | -77       | 647     | 0         | 0       | 23.1 | -13.3 | 26.7 |
| 4100066   | 99       | DIRN | SUR   | 33       | -80       | 664     | 0         | 0       | 20.9 | 10.8  | 23.5 |

## DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

| WMO IDENT | OBS TIME | ELM  | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | % GROSS | SD   | BIAS  | RMS  |
|-----------|----------|------|-------|----------|-----------|---------|-----------|---------|------|-------|------|
| 41001     | 99       | DIRN | SUR   | 35       | -72       | 3779    | 0         | 0       | 18.2 | 8.7   | 20.1 |
| 4100139   | 99       | DIRN | SUR   | 20       | -38       | 736     | 0         | 0       | 8.7  | 1.7   | 8.9  |
| 41002     | 99       | DIRN | SUR   | 32       | -75       | 4108    | 0         | 0       | 15.6 | 3.8   | 16.1 |
| 4100300   | 99       | DIRN | SUR   | 16       | -57       | 688     | 0         | 0       | 8.6  | -11.7 | 14.5 |
| 41004     | 99       | DIRN | SUR   | 33       | -79       | 4507    | 0         | 0       | 20.7 | -1.0  | 20.8 |
| 41008     | 99       | DIRN | SUR   | 31       | -81       | 1152    | 0         | 0       | 26.0 | -7.8  | 27.2 |
| 41009     | 99       | DIRN | SUR   | 29       | -80       | 3662    | 0         | 0       | 19.6 | -0.8  | 19.6 |
| 41010     | 99       | DIRN | SUR   | 29       | -79       | 3801    | 0         | 0       | 14.5 | 8.2   | 16.6 |
| 41013     | 99       | DIRN | SUR   | 33       | -78       | 3801    | 0         | 0       | 19.5 | 3.9   | 19.9 |
| 41024     | 99       | DIRN | SUR   | 34       | -79       | 626     | 0         | 0       | 18.7 | 5.1   | 19.4 |
| 41025     | 99       | DIRN | SUR   | 35       | -76       | 3457    | 0         | 0       | 21.1 | 5.0   | 21.7 |
| 41029     | 99       | DIRN | SUR   | 33       | -80       | 1046    | 0         | 0       | 22.9 | 6.8   | 23.9 |
| 41033     | 99       | DIRN | SUR   | 32       | -80       | 647     | 0         | 0       | 23.3 | 4.0   | 23.6 |
| 41037     | 99       | DIRN | SUR   | 34       | -77       | 656     | 0         | 0       | 15.8 | 6.8   | 17.2 |
| 41038     | 99       | DIRN | SUR   | 34       | -78       | 592     | 0         | 0       | 20.7 | 11.4  | 23.7 |
| 41040     | 99       | DIRN | SUR   | 15       | -53       | 4770    | 0         | 0       | 8.8  | 3.8   | 9.6  |
| 41043     | 99       | DIRN | SUR   | 21       | -65       | 4362    | 0         | 0       | 9.3  | 0.2   | 9.3  |
| 41046     | 99       | DIRN | SUR   | 24       | -68       | 4425    | 0         | 0       | 9.0  | 7.8   | 11.9 |
| 41047     | 99       | DIRN | SUR   | 28       | -72       | 4067    | 0         | 0       | 11.1 | 3.3   | 11.6 |
| 41048     | 99       | DIRN | SUR   | 32       | -70       | 1213    | 0         | 0       | 10.8 | 3.2   | 11.3 |
| 41049     | 99       | DIRN | SUR   | 28       | -63       | 3773    | 0         | 0       | 11.4 | 3.8   | 12.1 |
| 41052     | 99       | DIRN | SUR   | 18       | -65       | 2972    | 0         | 0       | 9.3  | 5.5   | 10.8 |
| 41053     | 99       | DIRN | SUR   | 19       | -66       | 3013    | 0         | 0       | 13.4 | 8.8   | 16.0 |
| 41064     | 99       | DIRN | SUR   | 34       | -77       | 650     | 0         | 0       | 21.8 | -13.9 | 25.9 |
| 41066     | 99       | DIRN | SUR   | 33       | -80       | 673     | 0         | 0       | 21.6 | 9.9   | 23.8 |
| 4200013   | 99       | DIRN | SUR   | 27       | -83       | 697     | 0         | 0       | 24.3 | -3.7  | 24.5 |
| 4200022   | 99       | DIRN | SUR   | 28       | -84       | 567     | 0         | 0       | 25.8 | -3.4  | 26.0 |
| 4200023   | 99       | DIRN | SUR   | 26       | -83       | 796     | 0         | 0       | 20.3 | -6.1  | 21.2 |
| 4200026   | 99       | DIRN | SUR   | 25       | -83       | 719     | 0         | 0       | 19.0 | -4.9  | 19.7 |
| 4200036   | 99       | DIRN | SUR   | 29       | -85       | 1764    | 0         | 0       | 25.6 | -1.8  | 25.7 |
| 4200056   | 99       | DIRN | SUR   | 20       | -85       | 4172    | 0         | 0       | 13.9 | 8.1   | 16.1 |
| 4200059   | 99       | DIRN | SUR   | 15       | -67       | 4451    | 0         | 0       | 9.4  | 4.0   | 10.2 |
| 4200085   | 99       | DIRN | SUR   | 18       | -67       | 3704    | 0         | 0       | 11.4 | 8.0   | 13.9 |
| 42013     | 99       | DIRN | SUR   | 27       | -83       | 628     | 0         | 0       | 25.7 | -2.5  | 25.8 |
| 42022     | 99       | DIRN | SUR   | 28       | -84       | 506     | 0         | 0       | 26.1 | -4.7  | 26.5 |
| 42023     | 99       | DIRN | SUR   | 26       | -83       | 957     | 0         | 0       | 21.1 | -7.0  | 22.2 |
| 42026     | 99       | DIRN | SUR   | 25       | -84       | 663     | 0         | 0       | 20.6 | -3.9  | 20.9 |
| 42036     | 99       | DIRN | SUR   | 29       | -85       | 1701    | 0         | 0       | 24.2 | -2.8  | 24.4 |
| 42056     | 99       | DIRN | SUR   | 20       | -85       | 4063    | 0         | 0       | 14.2 | 7.5   | 16.1 |
| 42059     | 99       | DIRN | SUR   | 15       | -68       | 4439    | 0         | 0       | 9.7  | 3.6   | 10.3 |
| 42085     | 99       | DIRN | SUR   | 18       | -67       | 3123    | 0         | 0       | 11.6 | 7.8   | 14.0 |

DRIFTER MONITORING STATISTICS (EUCOS)  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)  
 (CONTINUED)

| WMO IDENT | OBS TIME | ELM  | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | % GROSS | SD   | BIAS  | RMS  |
|-----------|----------|------|-------|----------|-----------|---------|-----------|---------|------|-------|------|
| 4400005   | 99       | DIRN | SUR   | 43       | -69       | 602     | 0         | 0       | 15.6 | 3.4   | 16.0 |
| 4400007   | 99       | DIRN | SUR   | 44       | -70       | 2627    | 0         | 0       | 19.6 | 7.8   | 21.1 |
| 4400008   | 99       | DIRN | SUR   | 40       | -69       | 2995    | 0         | 0       | 18.9 | 10.6  | 21.6 |
| 4400009   | 99       | DIRN | SUR   | 38       | -75       | 2947    | 0         | 0       | 19.0 | 4.6   | 19.6 |
| 4400013   | 99       | DIRN | SUR   | 42       | -71       | 2705    | 0         | 0       | 24.0 | 5.5   | 24.6 |
| 4400014   | 99       | DIRN | SUR   | 37       | -75       | 3268    | 0         | 0       | 14.1 | 10.9  | 17.8 |
| 4400017   | 99       | DIRN | SUR   | 41       | -72       | 3335    | 0         | 0       | 16.1 | 5.0   | 16.8 |
| 4400018   | 99       | DIRN | SUR   | 42       | -70       | 3003    | 0         | 0       | 18.0 | 9.1   | 20.2 |
| 4400020   | 99       | DIRN | SUR   | 41       | -70       | 3693    | 0         | 0       | 17.6 | 3.4   | 17.9 |
| 4400022   | 99       | DIRN | SUR   | 41       | -74       | 406     | 0         | 0       | 29.0 | 7.2   | 29.9 |
| 4400029   | 99       | DIRN | SUR   | 43       | -71       | 415     | 0         | 0       | 18.7 | 5.0   | 19.3 |
| 4400030   | 99       | DIRN | SUR   | 43       | -70       | 453     | 0         | 0       | 22.1 | 15.2  | 26.9 |
| 4400032   | 99       | DIRN | SUR   | 44       | -69       | 456     | 0         | 0       | 17.0 | 3.9   | 17.4 |
| 4400033   | 99       | DIRN | SUR   | 44       | -69       | 423     | 0         | 0       | 22.2 | 4.1   | 22.6 |
| 4400034   | 99       | DIRN | SUR   | 44       | -68       | 469     | 0         | 0       | 17.2 | 16.1  | 23.6 |
| 4400037   | 99       | DIRN | SUR   | 43       | -68       | 471     | 0         | 0       | 15.1 | 42.5  | 45.1 |
| 4400039   | 99       | DIRN | SUR   | 41       | -73       | 331     | 0         | 0       | 47.8 | -1.3  | 47.8 |
| 4400040   | 99       | DIRN | SUR   | 41       | -74       | 457     | 0         | 0       | 24.5 | 5.7   | 25.1 |
| 4400041   | 99       | DIRN | SUR   | 37       | -77       | 834     | 0         | 0       | 18.5 | -6.0  | 19.4 |
| 4400042   | 99       | DIRN | SUR   | 38       | -76       | 3927    | 0         | 0       | 25.3 | -1.2  | 25.3 |
| 4400058   | 99       | DIRN | SUR   | 38       | -76       | 5026    | 0         | 0       | 24.2 | -7.3  | 25.3 |
| 4400062   | 99       | DIRN | SUR   | 39       | -76       | 3601    | 0         | 0       | 32.2 | -5.6  | 32.6 |
| 4400063   | 99       | DIRN | SUR   | 39       | -76       | 3304    | 0         | 0       | 27.2 | -1.9  | 27.3 |
| 4400064   | 99       | DIRN | SUR   | 37       | -76       | 4145    | 0         | 0       | 24.5 | 0.8   | 24.5 |
| 4400065   | 99       | DIRN | SUR   | 40       | -74       | 3294    | 0         | 0       | 18.9 | 7.2   | 20.2 |
| 4400066   | 99       | DIRN | SUR   | 40       | -73       | 3576    | 0         | 0       | 15.3 | 4.0   | 15.8 |
| 4400072   | 99       | DIRN | SUR   | 37       | -76       | 4375    | 0         | 0       | 24.8 | -2.6  | 24.9 |
| 4400075   | 99       | DIRN | SUR   | 40       | -71       | 2321    | 0         | 0       | 14.1 | -13.0 | 19.2 |
| 4400076   | 99       | DIRN | SUR   | 40       | -71       | 2210    | 0         | 0       | 14.1 | -15.8 | 21.2 |
| 4400077   | 99       | DIRN | SUR   | 40       | -71       | 2168    | 0         | 0       | 14.5 | -7.6  | 16.4 |
| 44005     | 99       | DIRN | SUR   | 43       | -69       | 1046    | 0         | 0       | 15.2 | 3.0   | 15.5 |
| 44007     | 99       | DIRN | SUR   | 44       | -70       | 2794    | 0         | 0       | 20.7 | 7.4   | 22.0 |
| 44008     | 99       | DIRN | SUR   | 41       | -69       | 2651    | 0         | 0       | 19.4 | 9.7   | 21.7 |
| 44009     | 99       | DIRN | SUR   | 39       | -75       | 3073    | 0         | 0       | 20.4 | 4.7   | 20.9 |
| 44013     | 99       | DIRN | SUR   | 42       | -71       | 2530    | 0         | 0       | 24.7 | 7.2   | 25.8 |
| 44014     | 99       | DIRN | SUR   | 37       | -75       | 3022    | 0         | 0       | 15.2 | 10.5  | 18.4 |
| 44017     | 99       | DIRN | SUR   | 41       | -72       | 3127    | 0         | 0       | 17.2 | 4.0   | 17.7 |
| 44018     | 99       | DIRN | SUR   | 42       | -70       | 2872    | 0         | 0       | 18.1 | 8.0   | 19.7 |
| 44020     | 99       | DIRN | SUR   | 42       | -70       | 3433    | 0         | 0       | 17.8 | 2.7   | 18.0 |
| 44022     | 99       | DIRN | SUR   | 41       | -74       | 458     | 0         | 0       | 29.6 | 9.9   | 31.3 |
| 44029     | 99       | DIRN | SUR   | 43       | -71       | 615     | 0         | 0       | 18.7 | 4.7   | 19.3 |

## DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

| WMO IDENT | OBS TIME | ELM  | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | % GROSS | SD    | BIAS  | RMS   |
|-----------|----------|------|-------|----------|-----------|---------|-----------|---------|-------|-------|-------|
| 44030     | 99       | DIRN | SUR   | 43       | -70       | 441     | 0         | 0       | 22.8  | 15.6  | 27.6  |
| 44032     | 99       | DIRN | SUR   | 44       | -69       | 434     | 0         | 0       | 16.5  | 3.0   | 16.8  |
| 44033     | 99       | DIRN | SUR   | 44       | -69       | 389     | 0         | 0       | 22.1  | 3.2   | 22.3  |
| 44034     | 99       | DIRN | SUR   | 44       | -68       | 440     | 0         | 0       | 17.6  | 16.2  | 23.9  |
| 44037     | 99       | DIRN | SUR   | 44       | -68       | 451     | 0         | 0       | 15.2  | 42.8  | 45.5  |
| 44039     | 99       | DIRN | SUR   | 41       | -73       | 317     | 0         | 0       | 51.2  | -0.3  | 51.2  |
| 44040     | 99       | DIRN | SUR   | 41       | -74       | 533     | 0         | 0       | 23.6  | 8.9   | 25.2  |
| 44041     | 99       | DIRN | SUR   | 37       | -77       | 737     | 0         | 0       | 19.6  | -7.1  | 20.9  |
| 44042     | 99       | DIRN | SUR   | 38       | -76       | 3306    | 0         | 0       | 28.9  | -2.2  | 29.0  |
| 44058     | 99       | DIRN | SUR   | 38       | -76       | 3969    | 0         | 0       | 24.8  | -6.6  | 25.7  |
| 44062     | 99       | DIRN | SUR   | 39       | -76       | 3559    | 0         | 0       | 32.1  | -6.7  | 32.7  |
| 44063     | 99       | DIRN | SUR   | 39       | -76       | 3124    | 0         | 0       | 26.7  | -0.8  | 26.8  |
| 44064     | 99       | DIRN | SUR   | 37       | -76       | 4160    | 0         | 0       | 24.6  | 0.7   | 24.6  |
| 44065     | 99       | DIRN | SUR   | 40       | -74       | 2955    | 0         | 0       | 19.8  | 6.7   | 20.9  |
| 44066     | 99       | DIRN | SUR   | 40       | -73       | 3813    | 0         | 0       | 16.2  | 3.2   | 16.5  |
| 44069     | 99       | DIRN | SUR   | 41       | -73       | 1331    | 0         | 0       | 18.7  | -2.6  | 18.9  |
| 44072     | 99       | DIRN | SUR   | 37       | -76       | 3741    | 0         | 0       | 27.1  | -2.5  | 27.2  |
| 44075     | 99       | DIRN | SUR   | 40       | -71       | 1753    | 0         | 0       | 14.3  | -13.0 | 19.3  |
| 44076     | 99       | DIRN | SUR   | 40       | -71       | 1651    | 0         | 0       | 15.1  | -16.1 | 22.1  |
| 44077     | 99       | DIRN | SUR   | 40       | -71       | 1557    | 0         | 0       | 15.4  | -8.5  | 17.6  |
| 44078     | 99       | DIRN | SUR   | 60       | -40       | 234     | 0         | 0       | 11.9  | -18.8 | 22.3  |
| 44137     | 99       | DIRN | SUR   | 42       | -62       | 41      | 0         | 0       | 10.5  | 14.4  | 17.8  |
| 44150     | 99       | DIRN | SUR   | 43       | -64       | 544     | 0         | 0       | 18.9  | 13.5  | 23.2  |
| 44258     | 99       | DIRN | SUR   | 45       | -63       | 492     | 0         | 0       | 15.0  | 13.4  | 20.1  |
| 44488     | 99       | DIRN | SUR   | 45       | -61       | 523     | 0         | 0       | 21.7  | 14.4  | 26.0  |
| 44489     | 99       | DIRN | SUR   | 46       | -61       | 485     | 0         | 0       | 20.2  | 6.7   | 21.3  |
| 4500003   | 99       | DIRN | SUR   | 45       | -83       | 2544    | 0         | 0       | 22.4  | 12.1  | 25.4  |
| 4500005   | 99       | DIRN | SUR   | 42       | -82       | 3234    | 0         | 0       | 23.1  | 4.5   | 23.5  |
| 4500008   | 99       | DIRN | SUR   | 44       | -82       | 2668    | 0         | 0       | 22.3  | 10.2  | 24.5  |
| 4500012   | 99       | DIRN | SUR   | 44       | -77       | 2619    | 0         | 0       | 21.5  | 7.7   | 22.8  |
| 4500162   | 99       | DIRN | SUR   | 45       | -83       | 1217    | 0         | 0       | 26.8  | 6.1   | 27.5  |
| 4500163   | 99       | DIRN | SUR   | 44       | -84       | 1582    | 0         | 0       | 27.0  | 4.4   | 27.3  |
| 4500165   | 99       | DIRN | SUR   | 42       | -83       | 2695    | 0         | 0       | 38.5  | 6.7   | 39.1  |
| 4500167   | 99       | DIRN | SUR   | 42       | -80       | 739     | 0         | 0       | 29.0  | 0.3   | 29.0  |
| 4500175   | 99       | DIRN | SUR   | 46       | -85       | 4968    | 0         | 0       | 19.3  | -5.3  | 20.0  |
| 4500176   | 99       | DIRN | SUR   | 42       | -82       | 2474    | 0         | 0       | 38.0  | -29.5 | 48.2  |
| 4500196   | 99       | DIRN | SUR   | 42       | -82       | 2408    | 0         | 0       | 19.7  | 4.9   | 20.3  |
| 4500197   | 99       | DIRN | SUR   | 42       | -82       | 2415    | 0         | 0       | 31.7  | 32.5  | 45.4  |
| 4500209   | 99       | DIRN | SUR   | 43       | -82       | 11      | 0         | 0       | 119.1 | 43.1  | 126.7 |
| 45003     | 99       | DIRN | SUR   | 45       | -83       | 2365    | 0         | 0       | 23.4  | 11.6  | 26.1  |
| 45005     | 99       | DIRN | SUR   | 42       | -82       | 3277    | 0         | 0       | 24.2  | 5.3   | 24.8  |

DRIFTER MONITORING STATISTICS (EUCOS)  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)  
 (CONTINUED)

| WMO IDENT | OBS TIME | ELM  | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | % GROSS | SD    | BIAS  | RMS   |
|-----------|----------|------|-------|----------|-----------|---------|-----------|---------|-------|-------|-------|
| 45008     | 99       | DIRN | SUR   | 44       | -82       | 2888    | 0         | 0       | 22.9  | 10.2  | 25.1  |
| 45012     | 99       | DIRN | SUR   | 44       | -77       | 2358    | 0         | 0       | 22.7  | 7.9   | 24.0  |
| 45132     | 99       | DIRN | SUR   | 43       | -81       | 489     | 0         | 0       | 26.1  | -5.5  | 26.6  |
| 45135     | 99       | DIRN | SUR   | 44       | -77       | 506     | 0         | 0       | 22.7  | 3.1   | 22.9  |
| 45137     | 99       | DIRN | SUR   | 46       | -81       | 548     | 0         | 0       | 18.8  | -2.7  | 19.0  |
| 45139     | 99       | DIRN | SUR   | 43       | -80       | 340     | 0         | 0       | 24.7  | -0.8  | 24.7  |
| 45142     | 99       | DIRN | SUR   | 43       | -79       | 492     | 0         | 0       | 21.3  | -8.6  | 23.0  |
| 45143     | 99       | DIRN | SUR   | 45       | -81       | 477     | 2         | 0       | 26.4  | -1.9  | 26.5  |
| 45147     | 99       | DIRN | SUR   | 42       | -83       | 332     | 0         | 0       | 28.1  | -5.1  | 28.5  |
| 45149     | 99       | DIRN | SUR   | 44       | -82       | 455     | 0         | 0       | 23.7  | 11.3  | 26.2  |
| 45151     | 99       | DIRN | SUR   | 45       | -79       | 364     | 0         | 0       | 19.9  | 0.0   | 19.9  |
| 45152     | 99       | DIRN | SUR   | 46       | -80       | 465     | 0         | 0       | 19.7  | -0.6  | 19.7  |
| 45154     | 99       | DIRN | SUR   | 46       | -83       | 458     | 0         | 0       | 20.2  | -0.2  | 20.2  |
| 45159     | 99       | DIRN | SUR   | 44       | -79       | 284     | 0         | 0       | 25.5  | -2.5  | 25.6  |
| 45162     | 99       | DIRN | SUR   | 45       | -83       | 1105    | 0         | 0       | 25.7  | 6.4   | 26.4  |
| 45163     | 99       | DIRN | SUR   | 44       | -84       | 1763    | 0         | 0       | 28.1  | 4.7   | 28.5  |
| 45165     | 99       | DIRN | SUR   | 42       | -83       | 2234    | 0         | 0       | 38.0  | 5.3   | 38.3  |
| 45167     | 99       | DIRN | SUR   | 42       | -80       | 871     | 0         | 0       | 29.2  | -0.5  | 29.2  |
| 45175     | 99       | DIRN | SUR   | 46       | -85       | 4933    | 0         | 0       | 20.3  | -5.6  | 21.0  |
| 45176     | 99       | DIRN | SUR   | 42       | -82       | 2350    | 0         | 0       | 41.0  | -28.5 | 49.9  |
| 45196     | 99       | DIRN | SUR   | 42       | -82       | 2390    | 0         | 0       | 20.4  | 4.9   | 21.0  |
| 45197     | 99       | DIRN | SUR   | 42       | -82       | 2717    | 0         | 0       | 32.5  | 32.0  | 45.6  |
| 45209     | 99       | DIRN | SUR   | 43       | -82       | 12      | 0         | 0       | 121.7 | 26.6  | 124.6 |
| 4803912   | 99       | DIRN | SUR   | 37       | -65       | 1511    | 0         | 0       | 16.4  | 7.0   | 17.8  |
| 6100198   | 99       | DIRN | SUR   | 37       | -2        | 314     | 0         | 0       | 11.5  | 2.0   | 11.7  |
| 6100281   | 99       | DIRN | SUR   | 40       | 0         | 252     | 0         | 0       | 40.6  | -17.2 | 44.1  |
| 6100417   | 99       | DIRN | SUR   | 38       | 0         | 404     | 0         | 0       | 12.8  | 4.4   | 13.5  |
| 6200001   | 99       | DIRN | SUR   | 45       | -5        | 591     | 0         | 0       | 11.7  | -0.8  | 11.8  |
| 6200024   | 99       | DIRN | SUR   | 44       | -3        | 378     | 0         | 0       | 21.4  | 3.6   | 21.7  |
| 6200025   | 99       | DIRN | SUR   | 44       | -6        | 513     | 0         | 0       | 15.6  | 8.8   | 17.9  |
| 6200082   | 99       | DIRN | SUR   | 44       | -8        | 634     | 0         | 0       | 11.5  | -2.1  | 11.7  |
| 6200083   | 99       | DIRN | SUR   | 43       | -9        | 557     | 0         | 0       | 8.6   | 3.4   | 9.3   |
| 6200084   | 99       | DIRN | SUR   | 42       | -9        | 540     | 0         | 0       | 13.8  | 7.3   | 15.6  |
| 6200085   | 99       | DIRN | SUR   | 36       | -7        | 446     | 0         | 0       | 19.8  | 3.7   | 20.1  |
| 6200091   | 99       | DIRN | SUR   | 53       | -5        | 505     | 0         | 0       | 14.2  | 5.6   | 15.3  |
| 6200092   | 99       | DIRN | SUR   | 51       | -11       | 619     | 0         | 0       | 13.5  | 5.6   | 14.6  |
| 6200093   | 99       | DIRN | SUR   | 55       | -10       | 614     | 0         | 0       | 12.9  | 4.0   | 13.5  |
| 6200094   | 99       | DIRN | SUR   | 52       | -7        | 524     | 0         | 0       | 17.5  | 3.5   | 17.8  |
| 6200095   | 99       | DIRN | SUR   | 53       | -16       | 656     | 0         | 0       | 11.1  | 2.8   | 11.4  |
| 6200192   | 99       | DIRN | SUR   | 40       | -10       | 404     | 0         | 0       | 15.7  | -10.0 | 18.6  |
| 6200199   | 99       | DIRN | SUR   | 40       | -9        | 219     | 0         | 0       | 20.0  | 17.2  | 26.4  |

## DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

| WMO IDENT | OBS TIME | ELM  | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | % GROSS | SD    | BIAS  | RMS   |
|-----------|----------|------|-------|----------|-----------|---------|-----------|---------|-------|-------|-------|
| 6200200   | 99       | DIRN | SUR   | 36       | -8        | 321     | 2         | 0       | 164.0 | -39.5 | 168.7 |
| 6201081   | 99       | DIRN | SUR   | 38       | -9        | 456     | 0         | 0       | 15.0  | -2.4  | 15.2  |
| 62029     | 99       | DIRN | SUR   | 49       | -12       | 1379    | 4         | 0       | 14.7  | -1.6  | 14.8  |
| 62030     | 99       | DIRN | SUR   | 50       | -4        | 349     | 0         | 0       | 17.3  | -53.4 | 56.2  |
| 62050     | 99       | DIRN | SUR   | 50       | -4        | 1119    | 6         | 0       | 17.2  | 3.4   | 17.5  |
| 62081     | 99       | DIRN | SUR   | 51       | -13       | 1335    | 0         | 0       | 12.6  | -7.3  | 14.5  |
| 62091     | 99       | DIRN | SUR   | 53       | -5        | 483     | 0         | 0       | 13.9  | 5.1   | 14.8  |
| 62092     | 99       | DIRN | SUR   | 51       | -11       | 605     | 0         | 0       | 13.1  | 4.4   | 13.8  |
| 62093     | 99       | DIRN | SUR   | 55       | -10       | 601     | 0         | 0       | 13.3  | 3.2   | 13.6  |
| 62094     | 99       | DIRN | SUR   | 52       | -7        | 509     | 0         | 0       | 17.8  | 2.9   | 18.0  |
| 62095     | 99       | DIRN | SUR   | 53       | -16       | 646     | 0         | 0       | 11.5  | 2.2   | 11.7  |
| 62103     | 99       | DIRN | SUR   | 50       | -3        | 1149    | 0         | 0       | 25.6  | 6.0   | 26.3  |
| 62105     | 99       | DIRN | SUR   | 55       | -13       | 663     | 0         | 0       | 12.6  | -8.6  | 15.2  |
| 62107     | 99       | DIRN | SUR   | 50       | -6        | 1948    | 0         | 0       | 16.6  | 2.1   | 16.7  |
| 62112     | 99       | DIRN | SUR   | 58       | 0         | 1392    | 0         | 0       | 13.4  | 0.2   | 13.4  |
| 62114     | 99       | DIRN | SUR   | 58       | 0         | 2045    | 0         | 0       | 13.8  | 0.2   | 13.8  |
| 62163     | 99       | DIRN | SUR   | 48       | -9        | 1385    | 2         | 0       | 19.5  | 5.2   | 20.2  |
| 62305     | 99       | DIRN | SUR   | 50       | 0         | 1306    | 0         | 0       | 17.1  | 6.5   | 18.3  |
| 62442     | 99       | DIRN | SUR   | 49       | -16       | 1367    | 0         | 0       | 13.3  | 4.7   | 14.1  |
| 64041     | 99       | DIRN | SUR   | 61       | -3        | 1556    | 0         | 0       | 10.3  | 8.8   | 13.5  |
| 64045     | 99       | DIRN | SUR   | 59       | -12       | 1525    | 0         | 0       | 9.9   | -6.8  | 12.0  |



#### 4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

| ASDE09  | ATGU3FT | BPMWB2N | DBLK    | DSQL7   | FPUW5GN | JGQH    | JNKN7JF | JPBN    |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| KJXF9XN | KMPLHPW | LRYQE3U | USSIO   | UXK5JTU | WDK38HS | XKQLWQB | XQFJRGX | YLV96WM |
| ZVQEQCM | 2EERVTP | 7JUNA4N | 9ZT9MRK | 01001   | 01004   | 01010   | 01028   | 01241   |
| 01400   | 01415   | 01492   | 02365   | 02836   | 02963   | 03005   | 03238   | 03354   |
| 03502   | 03743   | 03808   | 03882   | 03918   | 03953   | 04018   | 04220   | 04270   |
| 04320   | 04339   | 04360   | 04417   | 06011   | 06260   | 06458   | 06610   | 07110   |
| 07145   | 07510   | 07645   | 07761   | 08001   | 08023   | 08190   | 08221   | 08302   |
| 08383   | 08430   | 08508   | 08522   | 08536   | 10035   | 10113   | 10184   | 10238   |
| 10304   | 10393   | 10410   | 10548   | 10618   | 10739   | 10771   | 10868   | 10954   |
| 10962   | 11010   | 11035   | 11120   | 11240   | 11520   | 11747   | 11952   | 12120   |
| 12374   | 12425   | 12575   | 12843   | 12982   | 13275   | 13388   | 14015   | 14240   |
| 14430   | 15420   | 15614   | 16045   | 16064   | 16113   | 16144   | 16245   | 16332   |
| 16429   | 16546   | 16622   | 16716   | 17030   | 17196   | 17220   | 17240   | 17607   |
| 20674   | 22008   | 23205   | 23472   | 23884   | 23921   | 24908   | 26038   | 26435   |
| 26629   | 26708   | 26850   | 27459   | 27707   | 27713   | 27962   | 28225   | 28661   |
| 29612   | 29698   | 30557   | 30673   | 35121   | 40179   | 40186   | 42369   | 42667   |
| 43150   | 43371   | 45004   | 46757   | 47102   | 47104   | 47138   | 47155   | 47169   |
| 47186   | 47401   | 47412   | 47418   | 47582   | 47600   | 47646   | 47678   | 47741   |
| 47778   | 47807   | 47827   | 47909   | 47911   | 47918   | 47945   | 47971   | 47991   |
| 48601   | 48650   | 48657   | 48698   | 50527   | 50557   | 50774   | 50953   | 51076   |
| 51243   | 51431   | 51463   | 51644   | 51656   | 51709   | 51777   | 51828   | 51839   |
| 52203   | 52267   | 52323   | 52418   | 52533   | 52652   | 52681   | 52818   | 52836   |
| 52866   | 52983   | 53068   | 53463   | 53513   | 53543   | 53614   | 53772   | 53845   |
| 53915   | 54102   | 54135   | 54161   | 54218   | 54292   | 54374   | 54511   | 54662   |
| 54727   | 54857   | 55299   | 55591   | 56029   | 56046   | 56080   | 56137   | 56146   |
| 56187   | 56492   | 56571   | 56651   | 56691   | 56739   | 56778   | 56964   | 56985   |
| 57083   | 57127   | 57131   | 57178   | 57245   | 57461   | 57494   | 57516   | 57541   |
| 57687   | 57749   | 57816   | 57957   | 57972   | 57993   | 58027   | 58150   | 58203   |
| 58238   | 58362   | 58424   | 58457   | 58606   | 58633   | 58665   | 58725   | 58847   |
| 59023   | 59134   | 59211   | 59265   | 59280   | 59293   | 59316   | 59431   | 59758   |
| 59981   | 60018   | 60155   | 60390   | 60571   | 60630   | 60656   | 60680   | 60715   |
| 61901   | 61980   | 61998   | 63894   | 63985   | 65344   | 66160   | 67083   | 68263   |
| 68424   | 68442   | 68512   | 68816   | 68842   | 70026   | 70133   | 70200   | 70219   |
| 70231   | 70261   | 70308   | 70316   | 70326   | 70350   | 70361   | 70398   | 71043   |
| 71054   | 71081   | 71082   | 71109   | 71119   | 71603   | 71722   | 71802   | 71811   |
| 71815   | 71816   | 71823   | 71836   | 71845   | 71867   | 71906   | 71908   | 71909   |
| 71913   | 71917   | 71924   | 71925   | 71926   | 71934   | 71945   | 71957   | 71964   |
| 72201   | 72206   | 72208   | 72210   | 72214   | 72215   | 72230   | 72233   | 72235   |
| 72240   | 72248   | 72249   | 72250   | 72251   | 72261   | 72265   | 72274   | 72293   |
| 72305   | 72317   | 72318   | 72327   | 72340   | 72363   | 72364   | 72365   | 72376   |
| 72388   | 72402   | 72413   | 72426   | 72440   | 72451   | 72476   | 72489   | 72493   |
| 72501   | 72518   | 72520   | 72528   | 72558   | 72562   | 72572   | 72582   | 72597   |
| 72632   | 72634   | 72645   | 72649   | 72659   | 72662   | 72672   | 72681   | 72694   |
| 72712   | 72747   | 72764   | 72768   | 72776   | 72786   | 72797   | 73033   | 73110   |
| 74389   | 74455   | 74560   | 76225   | 76256   | 76394   | 76405   | 76458   | 76526   |
| 76595   | 76612   | 76644   | 76654   | 76679   | 76692   | 76743   | 76805   | 76903   |
| 78897   | 78954   | 81405   | 82965   | 83768   | 85442   | 85586   | 85799   | 85934   |
| 87155   | 87344   | 87576   | 87582   | 87623   | 87715   | 87860   | 88889   | 89002   |
| 89062   | 89564   | 89571   | 89573   | 89592   | 89611   | 89625   | 89642   | 89859   |
| 91165   | 91212   | 91285   | 91408   | 91592   | 91610   | 91765   | 91925   | 91938   |
| 91948   | 91958   | 93112   | 93417   | 93817   | 93844   | 94120   | 94150   | 94170   |
| 94203   | 94299   | 94302   | 94312   | 94326   | 94332   | 94374   | 94403   | 94430   |
| 94461   | 94510   | 94578   | 94610   | 94637   | 94638   | 94653   | 94659   | 94672   |
| 94711   | 94767   | 94776   | 94802   | 94821   | 94866   | 94910   | 94975   | 94995   |
| 94996   | 94998   | 95282   | 95527   | 96413   | 96441   | 96471   | 96481   | 96996   |

#### 4.13 Table 25 - List of BUFR Encoded Radiosonde Stations with no TAC Counterpart

|         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| ASDE09  | ATGU3FT | BPMWB2N | DSQL7   | FPUW5GN | JNKN7JF | KJJF9XN | KMPLHPW | LRYQE3U |
| UXK5JTU | WDK38HS | XKQLWQB | XQFJRGX | YLV96WM | ZVQEQCM | 2EERVTP | 7JUNA4N | 9ZT9MRK |
| 01010   | 01028   | 01415   | 01492   | 02365   | 02836   | 02963   | 06610   | 07110   |
| 07145   | 07510   | 07645   | 07761   | 08001   | 08023   | 08190   | 08221   | 08302   |
| 08383   | 08430   | 08536   | 11010   | 11035   | 11120   | 11240   | 12575   | 17607   |
| 40186   | 46757   | 47155   | 47911   | 50527   | 50557   | 50774   | 50953   | 51076   |
| 51243   | 51431   | 51463   | 51644   | 51656   | 51709   | 51777   | 51828   | 51839   |
| 52203   | 52267   | 52323   | 52418   | 52533   | 52652   | 52681   | 52818   | 52836   |
| 52866   | 52983   | 53068   | 53463   | 53513   | 53543   | 53614   | 53772   | 53845   |
| 53915   | 54102   | 54135   | 54161   | 54218   | 54292   | 54374   | 54511   | 54662   |
| 54727   | 54857   | 55299   | 55591   | 56029   | 56046   | 56080   | 56137   | 56146   |
| 56187   | 56492   | 56571   | 56651   | 56691   | 56739   | 56778   | 56964   | 56985   |
| 57083   | 57127   | 57131   | 57178   | 57245   | 57461   | 57494   | 57516   | 57541   |
| 57687   | 57749   | 57816   | 57957   | 57972   | 57993   | 58027   | 58150   | 58203   |
| 58238   | 58362   | 58424   | 58457   | 58606   | 58633   | 58665   | 58725   | 58847   |
| 59023   | 59134   | 59211   | 59265   | 59280   | 59293   | 59316   | 59431   | 59758   |
| 59981   | 65344   | 71054   | 72413   | 76743   | 76903   | 87576   | 89573   | 89642   |
| 89859   | 91925   | 91938   | 91948   | 93817   | 94653   |         |         |         |

## 5 Annex - Explanations of figures and tables

### 5.1 General

All information presented in this report is based on data received at ECMWF before the appropriate analysis. Approximate cut-off times (UTC) are shown below:

| Analysis | Obs Time  | Cut-off         |
|----------|-----------|-----------------|
| 0000     | 2101-0300 | 1530 (16 hours) |
| 1200     | 0901-1500 | 1900 ( 7 hours) |

### 5.2 Data Availability

For each observation type/parameter the average number of reports received per day is displayed in boxes of 5 degrees square. The numbers plotted are the nearest integer values - e.g. if 40 reports were received during the month then the average daily value plotted will be 1. If the average number is greater than 1000 then 999 will be plotted. If the average number is less than 0.5 then the digit 0 will be plotted. If no observations were received then the box will be left blank.

### 5.3 Data Quality

The information presented on data quality is based on differences between observations and the values of the most recent ECMWF forecast ("first guess") of the same parameter. Depending on the time of the observation, the forecast range is between 9 and 15 hours. The ability of a modern data assimilation system to provide the diagnostic facilities to monitor the performance of the observational network is demonstrated by A. Hollingsworth et. al., *Monthly Weather Review*, Vol 114, No. 5, May 1986.

It should be noted that:

- (i) all results are based on software that may undergo further development;
- (ii) although the quality of the ECMWF first-guess fields is of a generally high standard this is only true to a limited extent in the tropics, where small-scale processes such as convection are of much greater importance than in mid-latitudes, and the observations will sometimes not be representative of the scales of motion given by the first-guess;
- (iii) the first-guess fields themselves will vary in accuracy depending on the density and quality of data, particularly in the upstream regions and over Antarctica and the southern hemisphere mid-latitudes. Direct comparisons between stations (or airlines) should preferably be restricted to observations in a reasonably homogeneous climatic region.

Tables 1-9 contain lists of SHIPs (including fixed marine platforms), DRIFTERS, TEMPs and TEMPs/PILOTs believed to have supplied suspect reports of surface pressure, geopotential height or wind during the month. The format of the tables is according to Recommendation 3 CBS-Ext(85) and the criteria for stations or data platforms to be classified as suspect are given at the top of each table. For tables 7 and 8 data for the worst

standard pressure level are shown. Units of RMS, standard deviation and bias are hPa in tables 1 and 4, m in table 7 and  $\text{ms}^{-1}$  in tables 2, 5 and 8. In tables 7 and 8 the station position is indicated; in the case of TEMPSHIPS and PILOTSHIPS this position is obtained from the first report of the month. The gross error limits for first-guess deviations of geopotential in table 7 are as follows:

| Level | Geop |
|-------|------|
| 1000  | 100m |
| 925   | 100m |
| 850   | 100m |
| 700   | 100m |
| 500   | 150m |
| 400   | 175m |
| 300   | 200m |
| 250   | 225m |
| 200   | 250m |
| 150   | 275m |
| 100   | 300m |
| 70    | 375m |
| 50    | 400m |
| 30    | 450m |

The corresponding limits for wind (table 8) are:

| Level | Wind               |
|-------|--------------------|
| 1000  | $35\text{ms}^{-1}$ |
| 925   | $35\text{ms}^{-1}$ |
| 850   | $35\text{ms}^{-1}$ |
| 700   | $40\text{ms}^{-1}$ |
| 500   | $45\text{ms}^{-1}$ |
| 400   | $50\text{ms}^{-1}$ |
| 300   | $60\text{ms}^{-1}$ |
| 250   | $60\text{ms}^{-1}$ |
| 200   | $50\text{ms}^{-1}$ |
| 150   | $50\text{ms}^{-1}$ |
| 100   | $45\text{ms}^{-1}$ |

In table 7 the weighted RMS values at standard levels are calculated using the following weights:

| Level | Weight |
|-------|--------|
| 1000  | 3.70   |
| 925   | 3.55   |
| 850   | 3.40   |
| 700   | 2.90   |
| 500   | 2.20   |
| 400   | 1.90   |
| 300   | 1.60   |
| 250   | 1.50   |
| 200   | 1.37   |
| 150   | 1.19   |
| 100   | 1.00   |
| 70    | 0.87   |
| 50    | 0.80   |
| 30    | 0.64   |

Tables 10 and 11 provide geopotential and wind quality statistics (100 hPa level) for TEMPSHIPs and PILOTSHIPs received during the month. Units and display format are identical to those in tables 7 and 8 respectively. Tables 13, 14 (50 hPa), 15 and 16 (100 hPa), 17 and 18 (500hPa), 19 and 20 (850hPa) provide similar radiosonde statistics for the EUCOS area.

Tables 21-23 are similar to tables 4-6 with data coverage restricted to the EUCOS area.

Figures 14-18 show global charts of SATOB and aircraft wind quality, where the statistics have been averaged over latitude/longitude boxes of 5 degrees square, and the mean observed minus first-guess (or 'bias') wind vectors have been plotted. All observations in the specified layers have been used. For comparison the mean observed wind (from the SATOB reports only) for each layer is shown in figures 14 and 15. A reference value of wind speed is plotted in the top right corner of each figure. An arrow is only plotted if 10 or more observations have been received in that 5 degree square.

Table 12 provides quality statistics of aircraft wind observations in the layer 300-150 hPa stratified by airline carrier. The format and specifications of the table have been defined by NMC Washington, the lead centre for the monitoring of aircraft and satellite data.

Table 24 shows list of Assimilated BUFR Encoded Radiosonde Stations monitored within the month.

Table 25 shows list of BUFR Encoded Radiosonde Stations with no TAC Counterpart monitored within the month.