# ECMWF Global Data Monitoring Report

## June 2020



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

# Contents

**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 precentage 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 co-ordinate 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 | May | Jun | Ident | Time | May | Jun |
|---|---|---|---|---|---|---|---|
| 01010 | (12) | 36 | 19 | 03559 | (12) | 3 | 39 |
| 08508 | (00) | 29 | 1 | 10304 | (12) | 0 | 22 |
| 10393 | (12) | 30 | 15 | 13275 | (00) | 17 | 30 |
| 40179 | (00) | 14 | 0 | 25428 | (00) | 4 | 29 |
| 60096 | (12) | 18 | 1 | 42182 | (12) | 0 | 19 |
| 70308 | (12) | 28 | 17 | 42410 | (12) | 0 | 18 |
| 78807 | (12) | 20 | 2 | 42647 | (00) | 0 | 26 |
| 82026 | (00) | 20 | 2 | 43003 | (12) | 0 | 24 |
| 82099 | (00) | 31 | 2 | 43353 | (00) | 5 | 30 |
| 82107 | (00) | 19 | 2 | 48565 | (00) | 10 | 30 |
| 82193 | (00) | 31 | 2 | 61660 | (00) | 18 | 30 |
| 82244 | (00) | 31 | 2 | 64400 | (00) | 10 | 27 |
| 82281 | (00) | 26 | 2 | 64400 | (12) | 13 | 25 |
| 82411 | (00) | 27 | 2 | 64910 | (00) | 8 | 46 |
| 82532 | (00) | 29 | 2 | 64910 | (12) | 11 | 49 |
| 82705 | (00) | 19 | 0 | 65578 | (12) | 16 | 30 |
| 82824 | (00) | 31 | 1 | 74006 | (00) | 6 | 24 |
| 82917 | (00) | 29 | 2 | 76679 | (00) | 18 | 30 |
| 83208 | (00) | 31 | 2 | - | - | - | - |
| 83362 | (00) | 30 | 2 | - | - | - | - |
| 83554 | (00) | 30 | 1 | - | - | - | - |
| 83566 | (00) | 16 | 2 | - | - | - | - |
| 83612 | (00) | 31 | 1 | - | - | - | - |
| 83840 | (00) | 31 | 19 | - | - | - | - |
| 83928 | (00) | 30 | 0 | - | - | - | - |
| 83937 | (00) | 29 | 1 | - | - | - | - |
| 84628 | (12) | 30 | 0 | - | - | - | - |
| 94995 | (00) | 29 | 3 | - | - | - | - |
| 96035 | (12) | 15 | 0 | - | - | - | - |
| 96147 | (00) | 31 | 18 | - | - | - | - |
| 96147 | (12) | 14 | 0 | - | - | - | - |
| 96163 | (12) | 14 | 0 | - | - | - | - |
| 96237 | (12) | 14 | 0 | - | - | - | - |
| 96253 | (12) | 15 | 0 | - | - | - | - |
| 96413 | (00) | 26 | 4 | - | - | - | - |
| 96581 | (12) | 13 | 0 | - | - | - | - |
| 96645 | (12) | 15 | 0 | - | - | - | - |
| 96685 | (12) | 15 | 0 | - | - | - | - |
| 96749 | (12) | 12 | 0 | - | - | - | - |
| 96805 | (12) | 14 | 0 | - | - | - | - |
| 96935 | (12) | 17 | 0 | - | - | - | - |
| 97014 | (12) | 15 | 0 | - | - | - | - |
| 97072 | (12) | 15 | 0 | - | - | - | - |
| 97180 | (12) | 15 | 0 | - | - | - | - |
| 97372 | (12) | 15 | 0 | - | - | - | - |
| 97560 | (12) | 15 | 0 | - | - | - | - |
| 97724 | (12) | 15 | 0 | - | - | - | - |
| 97900 | (12) | 14 | 0 | - | - | - | - |
| 97980 | (12) | 15 | 0 | - | - | - | - |
| 98444 | (00) | 26 | 1 | - | - | - | - |
| 98646 | (12) | 30 | 11 | - | - | - | - |

### 2.2 Drifting Buoys

Surface pressure observations from **1822** 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

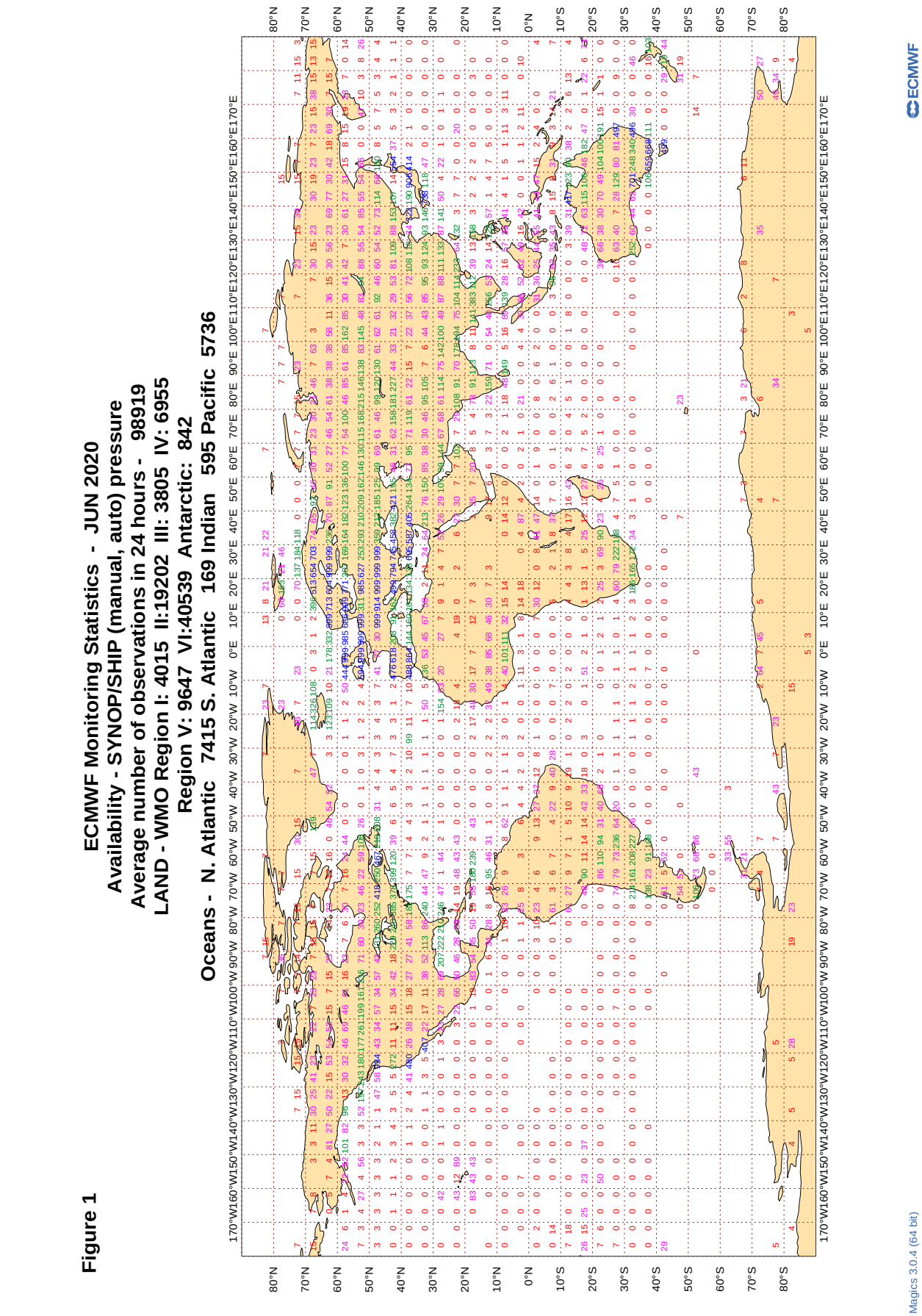



Figure 1

### 3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

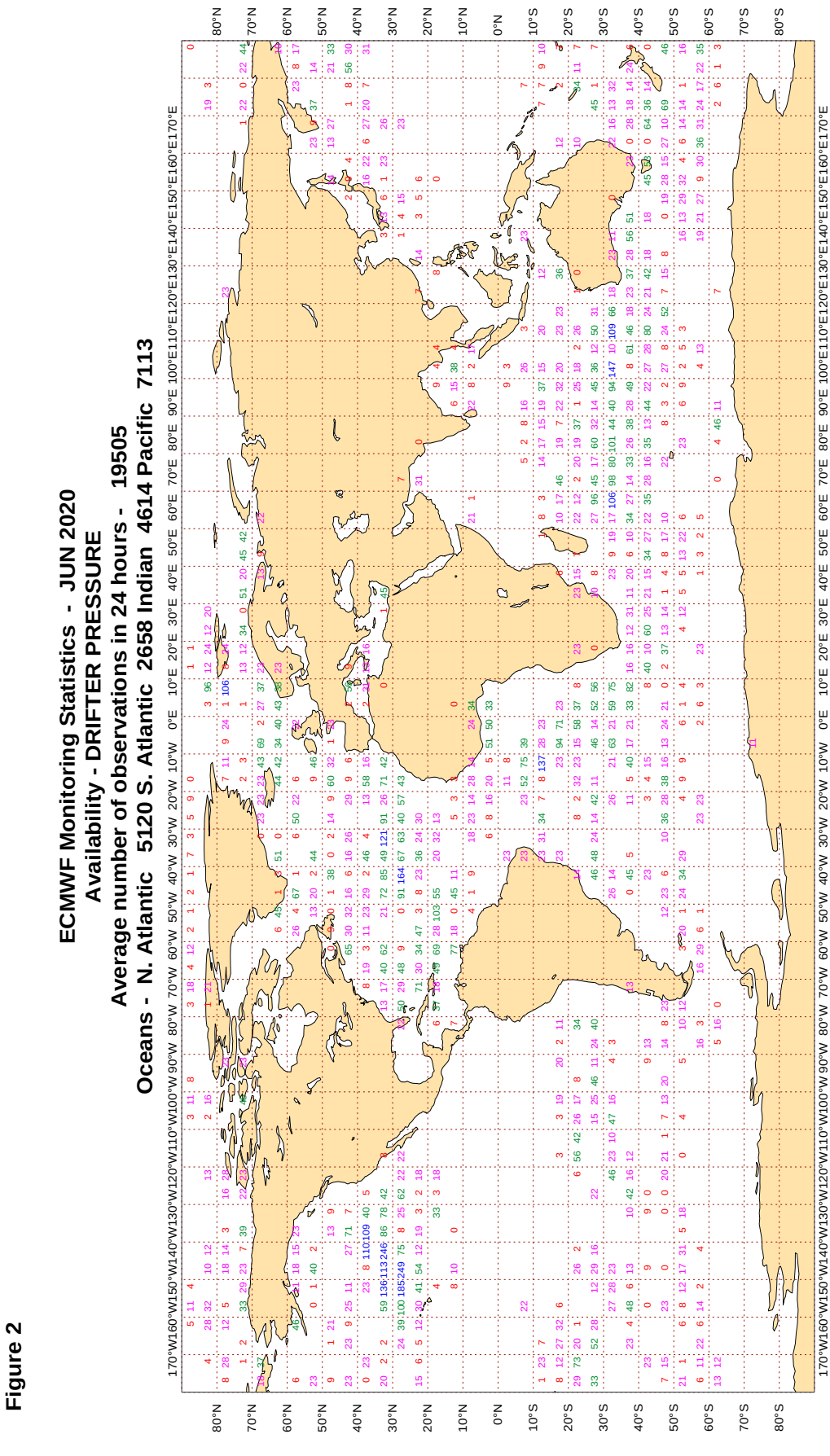



Figure 2

### 3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

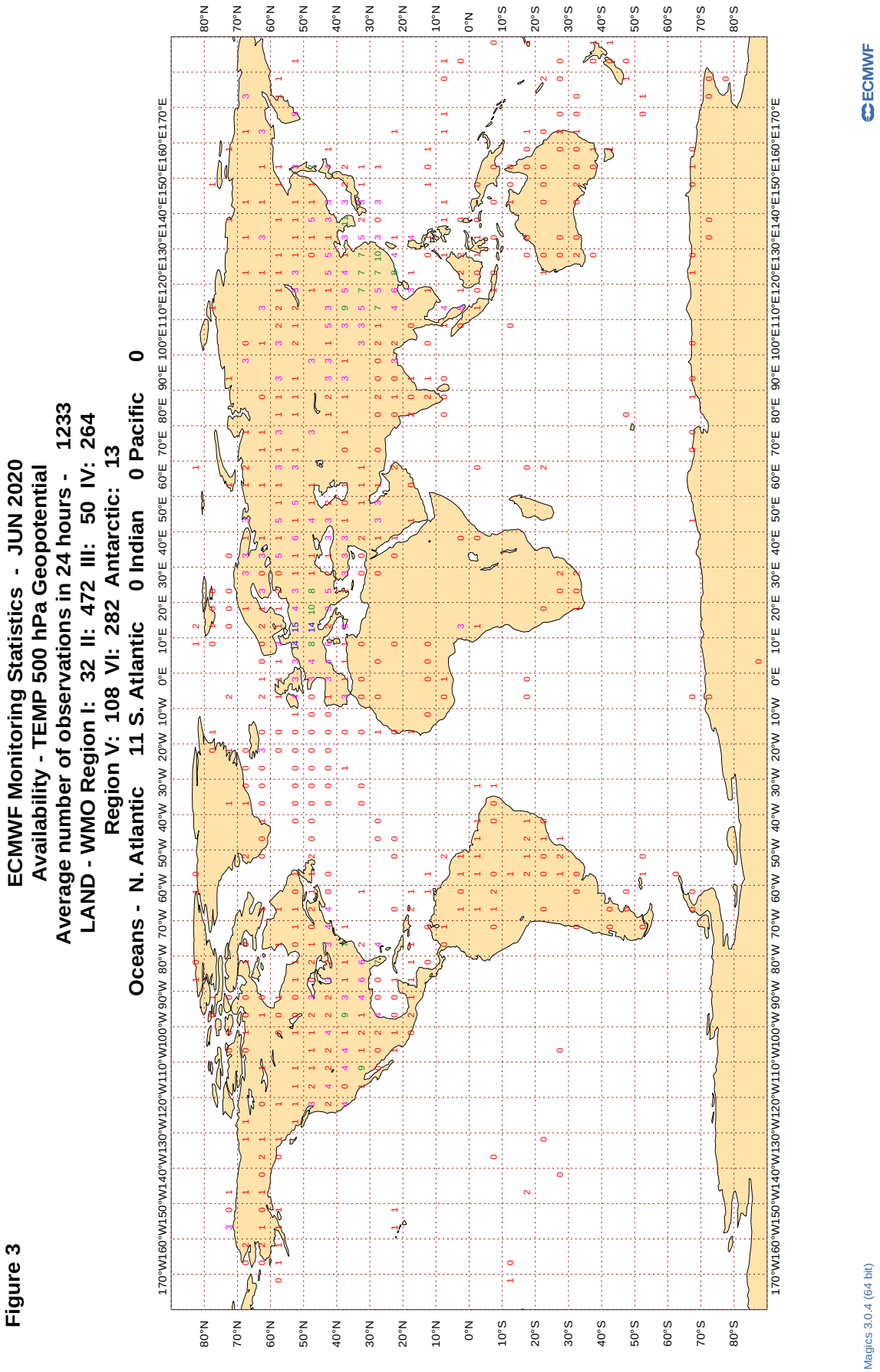



Figure 3

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

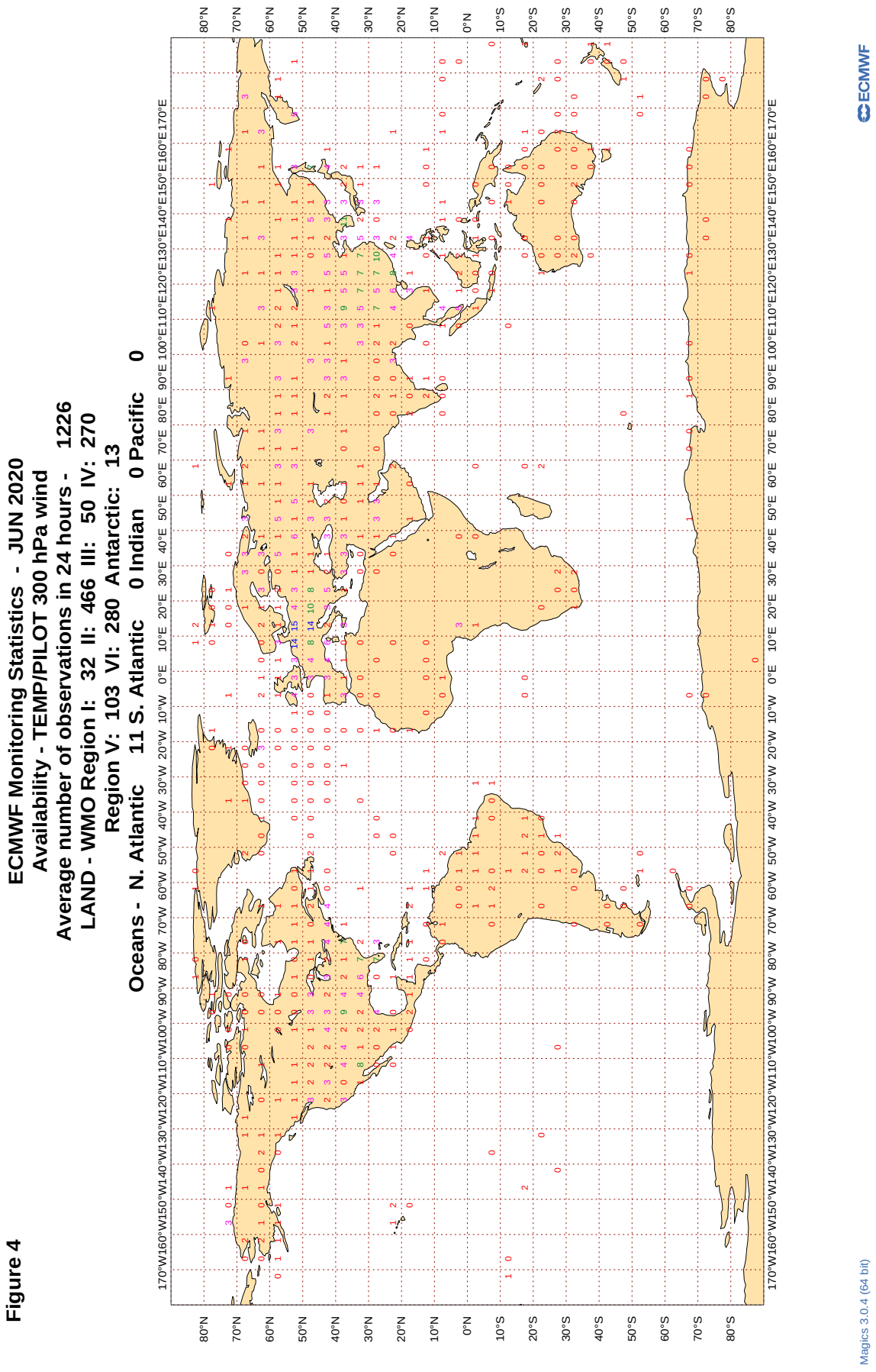



Figure 4

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

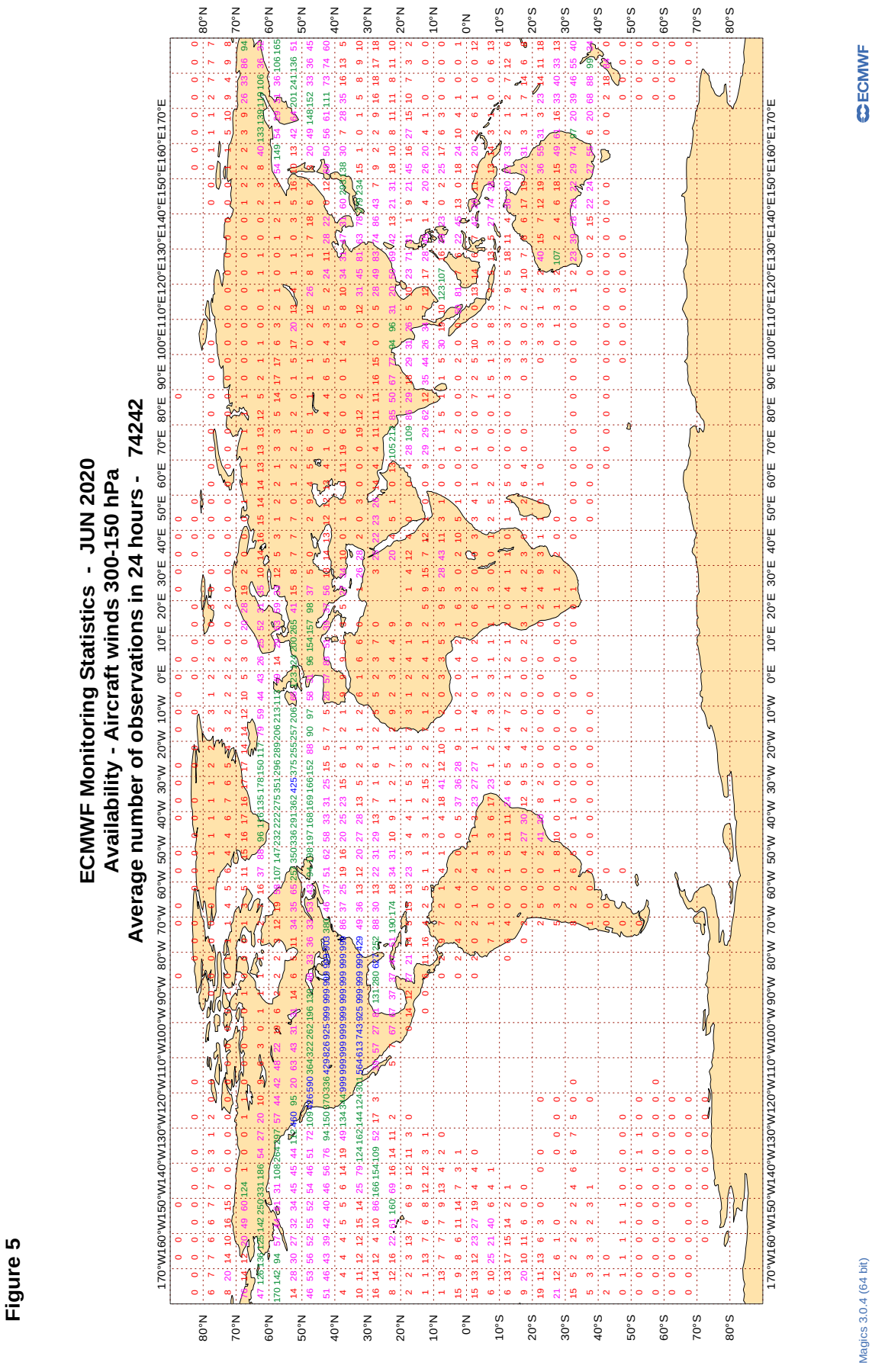



Figure 5

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

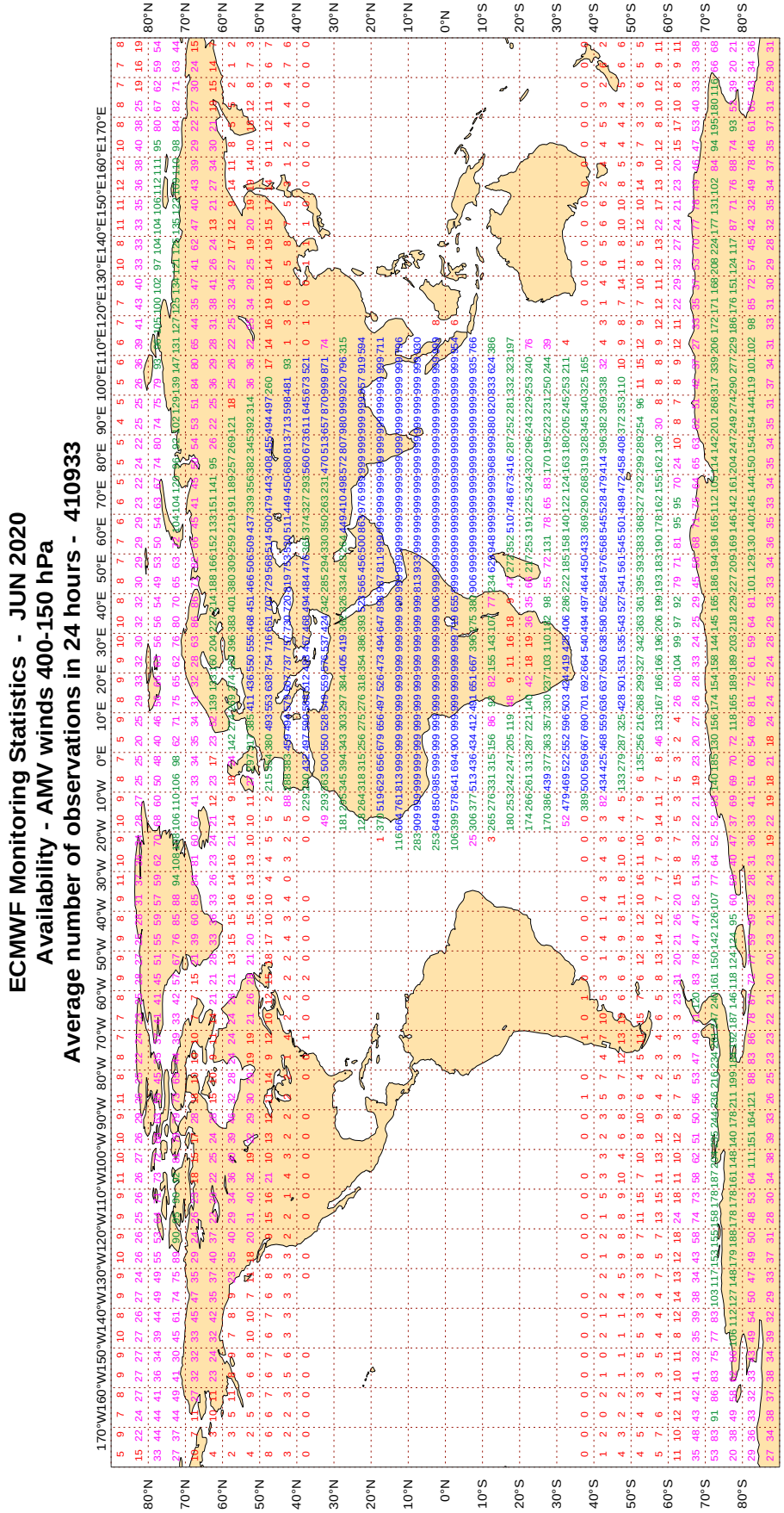



Figure 6

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

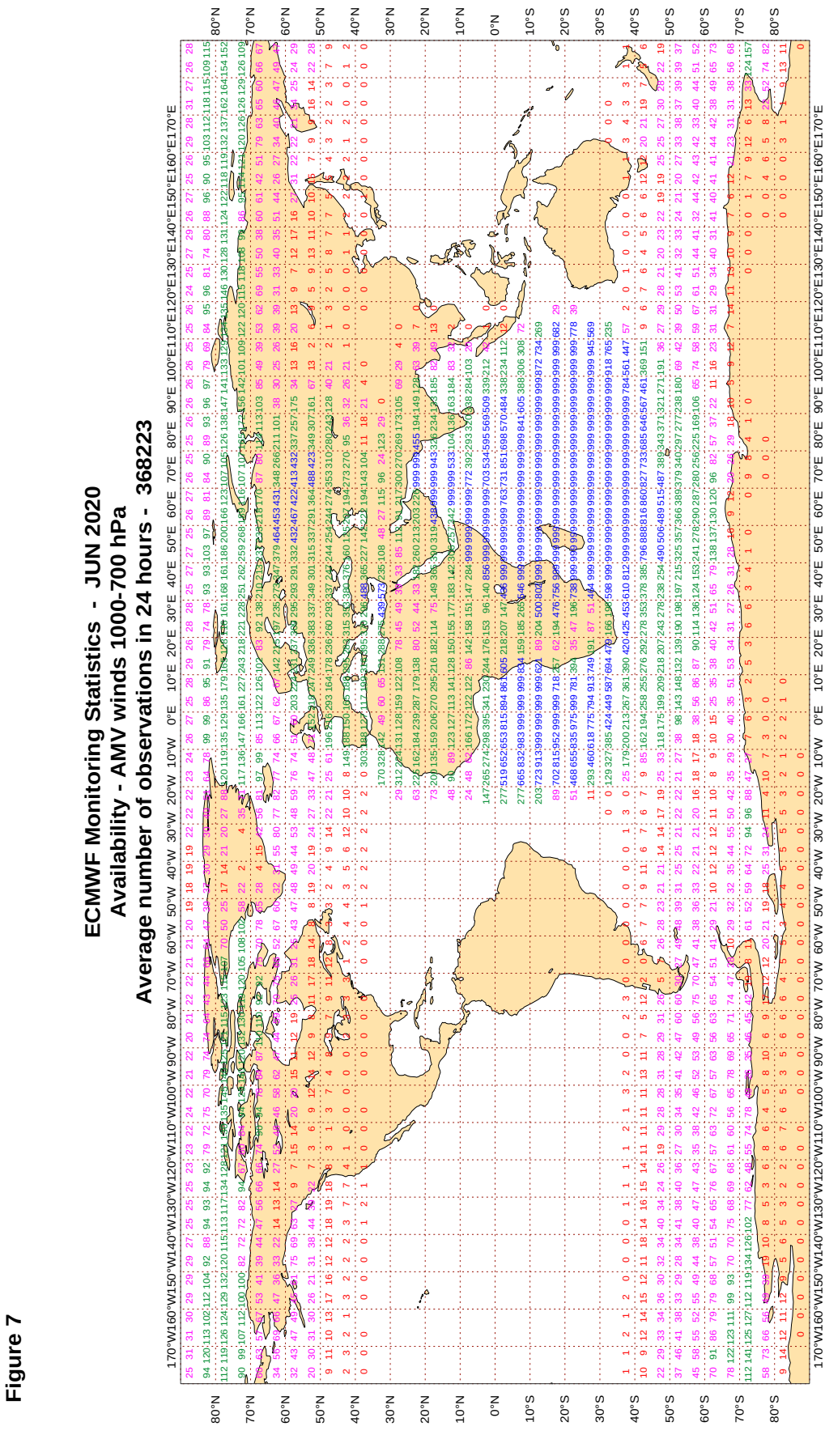



Figure 7

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

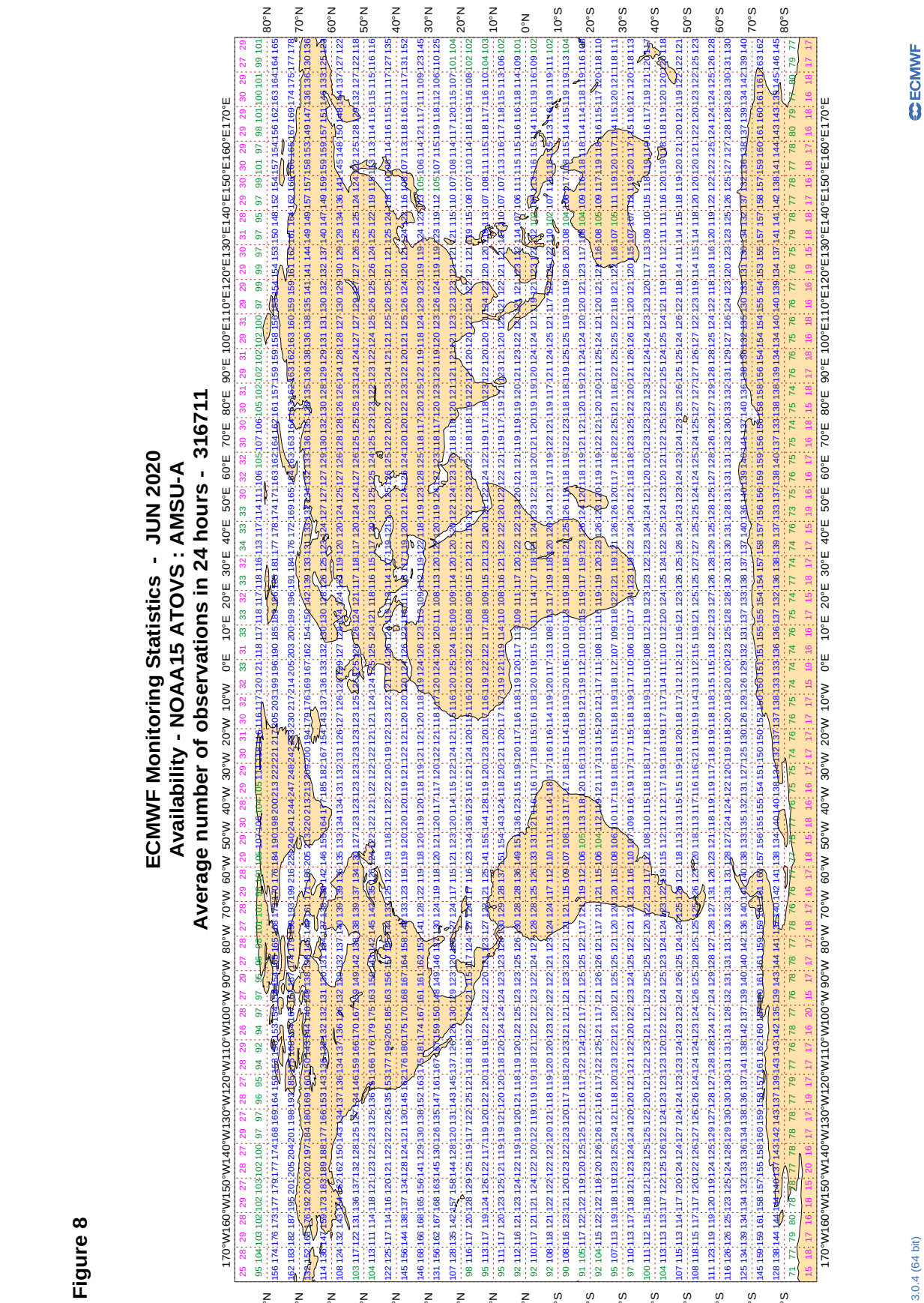
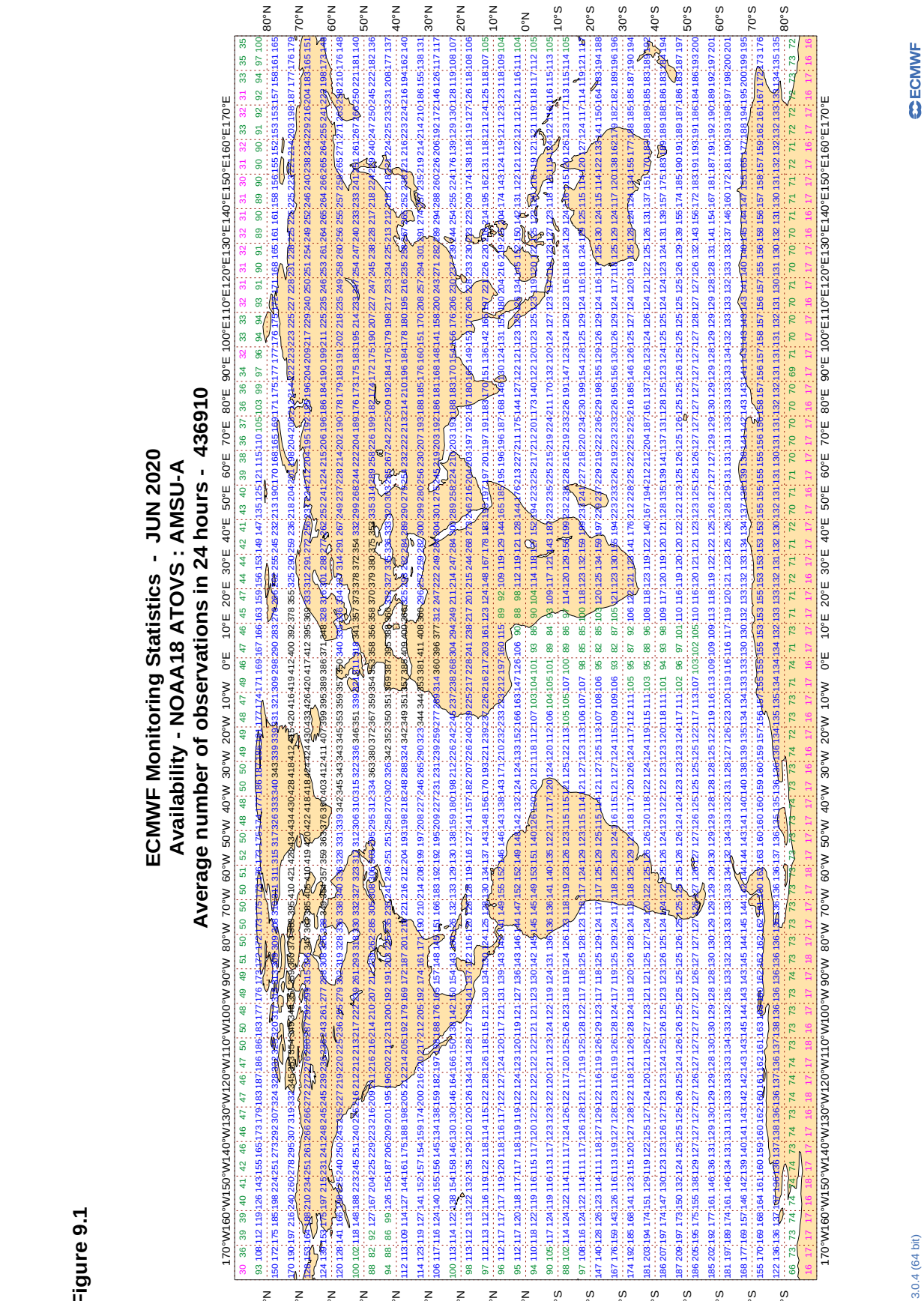



**Figure 8**

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

**Figure 9.1**



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

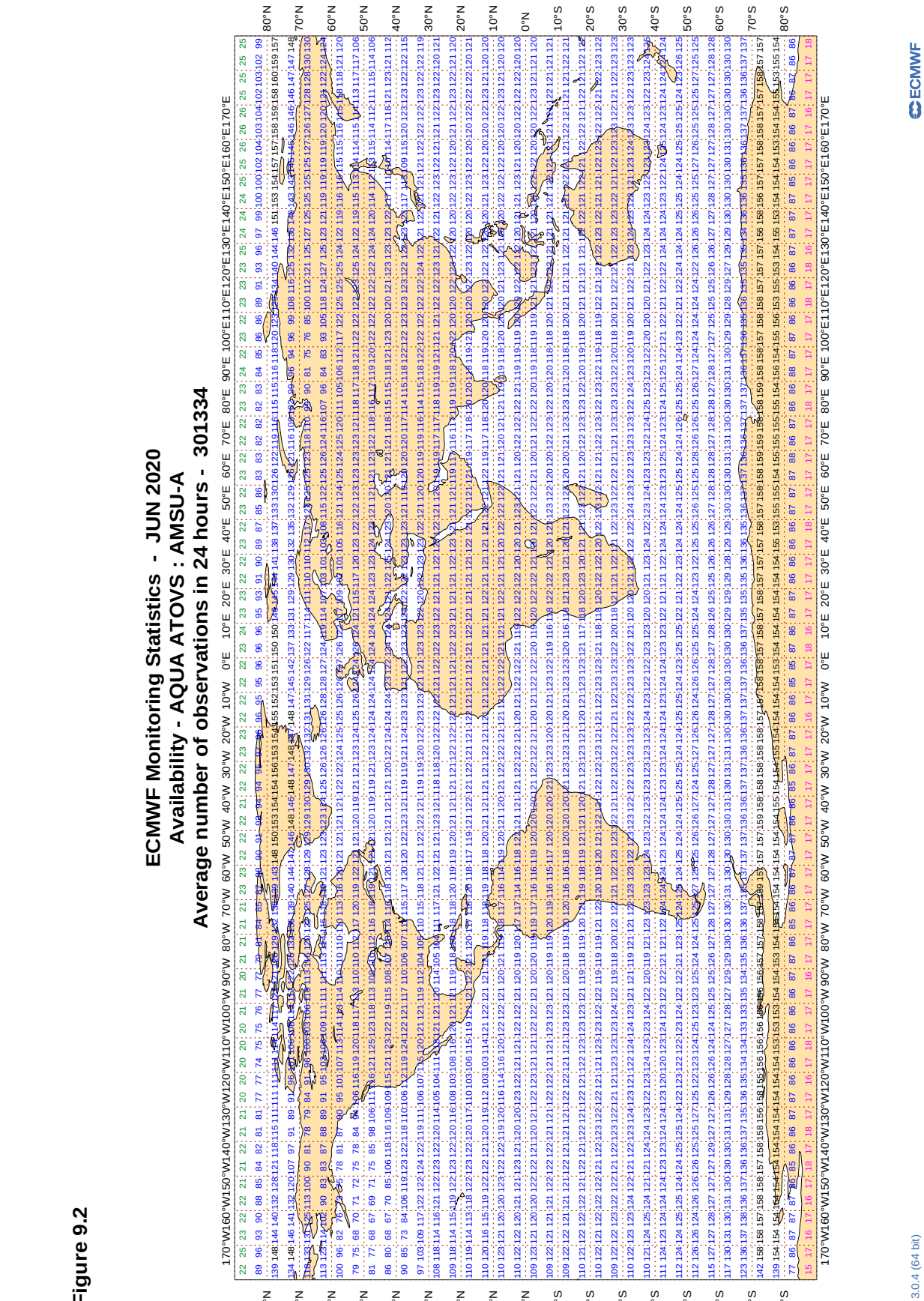



**Figure 9.2**

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

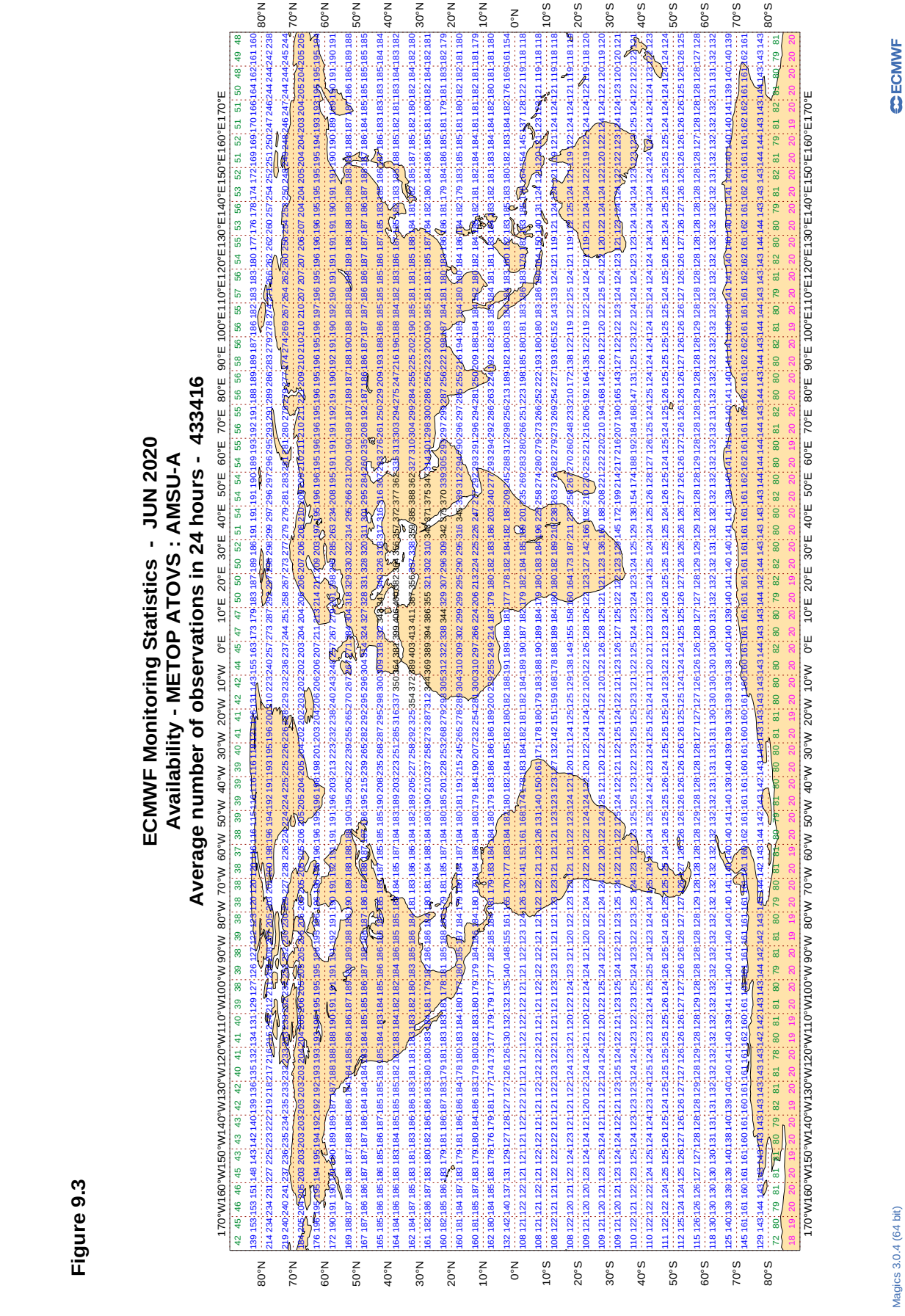



**Figure 9.3**

### 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                : JUN 2020
                    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 |
|---|---|---|---|---|---|---|---|---|
| 3EVZ8 | 99 | P | SUR | 34 | 0 | 2.4 | -3.5 | 4.2 |
| 3FAE4 | 99 | P | SUR | 28 | 0 | 1.3 | 3.3 | 3.6 |
| 3FWH8 | 99 | P | SUR | 17 | 0 | 1.9 | 3.9 | 4.3 |
| 44009 | 99 | P | SUR | 94 | 0 | 0.5 | -5.5 | 5.5 |
| 44030 | 99 | P | SUR | 116 | 0 | 0.8 | 5.4 | 5.5 |
| 44058 | 99 | P | SUR | 221 | 0 | 0.5 | 3.7 | 3.7 |
| 44062 | 99 | P | SUR | 21 | 20 | 0.0 | -8.0 | 8.0 |
| 8PSH | 99 | P | SUR | 120 | 0 | 0.4 | 4.6 | 4.7 |
| 9HA3667 | 99 | P | SUR | 41 | 0 | 0.8 | 8.6 | 8.6 |
| 9HA4612 | 99 | P | SUR | 36 | 0 | 2.4 | 3.0 | 3.9 |
| 9HJD9 | 99 | P | SUR | 45 | 0 | 1.5 | 4.5 | 4.8 |
| 9HJF9 | 99 | P | SUR | 86 | 0 | 0.5 | 3.4 | 3.4 |
| 9V2171 | 99 | P | SUR | 63 | 0 | 0.7 | -3.4 | 3.5 |
| 9V9287 | 99 | P | SUR | 51 | 0 | 2.6 | 4.9 | 5.6 |
| 9V9288 | 99 | P | SUR | 30 | 0 | 1.5 | 4.2 | 4.4 |
| 9V9373 | 99 | P | SUR | 43 | 0 | 1.4 | 3.6 | 3.8 |
| 9V9375 | 99 | P | SUR | 23 | 0 | 2.5 | 4.6 | 5.2 |
| 9V9413 | 99 | P | SUR | 22 | 0 | 0.7 | 5.0 | 5.0 |
| 9V9450 | 99 | P | SUR | 16 | 0 | 0.9 | 3.1 | 3.2 |
| 9V9631 | 99 | P | SUR | 48 | 0 | 1.1 | -3.5 | 3.7 |
| 9V9793 | 99 | P | SUR | 27 | 0 | 2.4 | 3.4 | 4.2 |
| 9V9863 | 99 | P | SUR | 15 | 0 | 1.7 | 3.1 | 3.5 |
| 9VHK7 | 99 | P | SUR | 50 | 5 | 2.0 | 8.9 | 9.1 |
| A8OR8 | 99 | P | SUR | 18 | 0 | 0.9 | 6.2 | 6.2 |
| ATVK | 99 | P | SUR | 115 | 0 | 0.7 | 3.3 | 3.4 |
| C6AX3 | 99 | P | SUR | 30 | 0 | 1.0 | -5.2 | 5.3 |
| C6DP7 | 99 | P | SUR | 19 | 0 | 1.5 | 3.9 | 4.2 |
| C6YM7 | 99 | P | SUR | 39 | 0 | 3.0 | 6.2 | 6.8 |
| D5GB9 | 99 | P | SUR | 49 | 0 | 1.4 | 3.7 | 4.0 |
| D5NZ4 | 99 | P | SUR | 18 | 1 | 8.8 | -0.7 | 8.8 |
| D5SU3 | 99 | P | SUR | 31 | 0 | 0.5 | -3.2 | 3.2 |
| KGTX | 99 | P | SUR | 45 | 0 | 0.4 | -4.1 | 4.1 |

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 |
|---|---|---|---|---|---|---|---|---|
| KLUX | 99 | P | SUR | 38 | 0 | 0.6 | 3.7 | 3.8 |
| KRAU | 99 | P | SUR | 23 | 0 | 0.3 | 3.7 | 3.7 |
| LAJF7 | 99 | P | SUR | 26 | 0 | 1.1 | 4.6 | 4.8 |
| OUIY2 | 99 | P | SUR | 29 | 29 | 0.0 | 0.0 | 0.0 |
| OUJI2 | 99 | P | SUR | 17 | 3 | 2.0 | 6.7 | 7.0 |
| OXFG2 | 99 | P | SUR | 25 | 0 | 3.2 | 5.6 | 6.4 |
| OYIK2 | 99 | P | SUR | 30 | 0 | 0.9 | 6.1 | 6.1 |
| OZ2049 | 99 | P | SUR | 21 | 0 | 0.4 | -7.2 | 7.2 |
| PBGJ | 99 | P | SUR | 30 | 0 | 1.6 | -6.1 | 6.3 |
| UCFT | 99 | P | SUR | 40 | 0 | 0.8 | 4.8 | 4.9 |
| UCUE | 99 | P | SUR | 20 | 0 | 1.5 | 3.8 | 4.1 |
| V7FF3 | 99 | P | SUR | 15 | 0 | 4.2 | 7.1 | 8.3 |
| V7HH2 | 99 | P | SUR | 61 | 0 | 2.4 | 4.4 | 5.0 |
| VRDJ3 | 99 | P | SUR | 140 | 0 | 1.4 | -4.5 | 4.8 |
| VRJS2 | 99 | P | SUR | 47 | 0 | 0.7 | -5.3 | 5.4 |
| VRJZ9 | 99 | P | SUR | 19 | 0 | 2.2 | 4.0 | 4.5 |
| VRLJ2 | 99 | P | SUR | 32 | 0 | 1.3 | -4.3 | 4.5 |
| VRNL2 | 99 | P | SUR | 18 | 0 | 0.7 | 4.6 | 4.6 |
| VRRB6 | 99 | P | SUR | 150 | 0 | 2.6 | 3.2 | 4.1 |
| VRRI4 | 99 | P | SUR | 73 | 0 | 1.4 | 6.9 | 7.1 |
| VRRP8 | 99 | P | SUR | 20 | 0 | 1.3 | 6.8 | 6.9 |
| VRTA6 | 99 | P | SUR | 20 | 0 | 0.5 | -3.4 | 3.4 |
| VRWE8 | 99 | P | SUR | 19 | 0 | 1.8 | -3.7 | 4.1 |
| VTWS | 99 | P | SUR | 106 | 83 | 3.0 | 12.2 | 12.5 |
| WCZ7837 | 99 | P | SUR | 36 | 5 | 4.7 | -4.3 | 6.4 |
| WDDI | 99 | P | SUR | 47 | 0 | 0.6 | 3.4 | 3.5 |

### 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                : JUN 2020
                    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 IDENT | OBS TIME | ELM | LEVEL | NUM OBS | NUM GROSS | % GROSS | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|

### 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                : JUN 2020
                    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 |
|---|---|---|---|---|---|---|---|---|---|
| 44072 | 99 | DIRN | SUR | 160 | 0 | 0 | 24.1 | -72.9 | 76.8 |
| 45025 | 99 | DIRN | SUR | 60 | 0 | 0 | 61.9 | 33.1 | 70.2 |
| 45186 | 99 | DIRN | SUR | 17 | 0 | 0 | 55.7 | 121.1 | 133.2 |

### 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                 : JUN 2020
                    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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1601700 | 99 | P | SUR | -62 | 77 | 1219 | 476 | 6.4 | -3.4 | 7.3 |
| 1701546 | 99 | P | SUR | -39 | 85 | 707 | 0 | 1.3 | 4.6 | 4.8 |
| 2501539 | 99 | P | SUR | 73 | 163 | 719 | 323 | 2.9 | 11.3 | 11.7 |
| 2501540 | 99 | P | SUR | 74 | 176 | 721 | 714 | 7.4 | -3.7 | 8.3 |
| 2501662 | 99 | P | SUR | 74 | -170 | 720 | 0 | 3.3 | 5.7 | 6.6 |
| 2501668 | 99 | P | SUR | 83 | 162 | 717 | 0 | 2.8 | -8.7 | 9.2 |
| 2601625 | 99 | P | SUR | 77 | 17 | 718 | 64 | 6.4 | -1.8 | 6.6 |
| 3101567 | 99 | P | SUR | -24 | -41 | 273 | 273 | 0.0 | 0.0 | 0.0 |
| 4400009 | 99 | P | SUR | 38 | -75 | 549 | 0 | 0.5 | -5.5 | 5.6 |
| 4400030 | 99 | P | SUR | 43 | -70 | 700 | 0 | 0.7 | 5.4 | 5.5 |
| 4400062 | 99 | P | SUR | 39 | -76 | 560 | 557 | 2.1 | -11.0 | 11.2 |
| 44009 | 99 | P | SUR | 39 | -75 | 553 | 0 | 0.5 | -5.5 | 5.5 |
| 44030 | 99 | P | SUR | 43 | -70 | 704 | 0 | 0.8 | 5.5 | 5.5 |
| 44062 | 99 | P | SUR | 39 | -76 | 114 | 113 | 0.0 | -8.0 | 8.0 |
| 4701658 | 99 | P | SUR | 72 | -95 | 719 | 6 | 2.3 | 10.0 | 10.2 |
| 4701660 | 99 | P | SUR | 70 | -102 | 712 | 214 | 1.8 | -0.2 | 1.8 |
| 5301656 | 99 | P | SUR | 22 | 114 | 49 | 0 | 0.5 | -7.5 | 7.5 |
| 5301657 | 99 | P | SUR | 22 | 114 | 49 | 0 | 0.4 | -7.6 | 7.6 |
| 5301658 | 99 | P | SUR | 22 | 114 | 49 | 0 | 0.5 | -7.5 | 7.5 |
| 5301659 | 99 | P | SUR | 22 | 114 | 49 | 0 | 0.4 | -7.7 | 7.7 |
| 5301660 | 99 | P | SUR | 22 | 114 | 49 | 0 | 0.4 | -8.2 | 8.2 |
| 6401789 | 99 | P | SUR | 77 | -3 | 403 | 82 | 6.2 | 6.6 | 9.0 |
| 7101553 | 99 | P | SUR | -71 | -8 | 357 | 0 | 0.9 | -4.8 | 4.9 |

### 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                : JUN 2020
                    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 IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | % GROSS | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3101567 | 99 | SPEED | SUR | -24 | -41 | 273 | 0 | 0 | 3.4 | 9.5 | 10.1 |
| 5300041 | 99 | SPEED | SUR | -8 | 100 | 3720 | 0 | 0 | 1.9 | -5.7 | 6.0 |
| 6101005 | 99 | SPEED | SUR | 38 | 26 | 223 | 0 | 0 | 3.1 | -5.6 | 6.4 |

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

```
          LIST OF SUSPECT STATIONS         : DRIFTER
                    MONITORING CENTRE      : ECMWF
                    ELEMENT MONITORED      : WIND DIRECTION (DEGREES)
                    PERIOD                 : JUN 2020
                    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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0053041 | 99 | DIRN | SUR | -8 | 100 | 162 | 0 | 0 | 28.9 | -27.8 | 40.1 |
| 1400047 | 99 | DIRN | SUR | -4 | 57 | 174 | 0 | 0 | 159.7 | 36.9 | 164.0 |
| 1500008 | 99 | DIRN | SUR | -20 | -10 | 203 | 0 | 0 | 13.9 | 38.9 | 41.3 |
| 2200298 | 99 | DIRN | SUR | 35 | 125 | 320 | 0 | 0 | 23.8 | -98.5 | 101.3 |
| 23091 | 99 | DIRN | SUR | 18 | 89 | 178 | 0 | 0 | 17.4 | -27.7 | 32.7 |
| 23099 | 99 | DIRN | SUR | 13 | 80 | 203 | 0 | 0 | 85.9 | 30.0 | 91.0 |
| 23451 | 99 | DIRN | SUR | 15 | 69 | 202 | 0 | 0 | 16.1 | -32.3 | 36.1 |
| 23452 | 99 | DIRN | SUR | 12 | 69 | 211 | 0 | 0 | 16.2 | -63.1 | 65.2 |
| 23454 | 99 | DIRN | SUR | 10 | 73 | 202 | 0 | 0 | 27.2 | 45.9 | 53.3 |
| 23456 | 99 | DIRN | SUR | 18 | 67 | 77 | 0 | 0 | 87.2 | 69.3 | 111.4 |
| 23460 | 99 | DIRN | SUR | 7 | 88 | 191 | 0 | 0 | 18.7 | 20.6 | 27.8 |
| 23491 | 99 | DIRN | SUR | 12 | 93 | 83 | 0 | 0 | 19.4 | 29.1 | 35.0 |
| 23497 | 99 | DIRN | SUR | 11 | 72 | 214 | 1 | 0 | 151.7 | -45.1 | 158.2 |
| 4200002 | 99 | DIRN | SUR | 26 | -94 | 1386 | 0 | 0 | 69.9 | 22.9 | 73.6 |
| 42002 | 99 | DIRN | SUR | 26 | -94 | 745 | 0 | 0 | 66.0 | 20.1 | 69.0 |
| 4300001 | 99 | DIRN | SUR | 8 | -110 | 147 | 0 | 0 | 29.6 | 64.7 | 71.1 |
| 43001 | 99 | DIRN | SUR | 8 | -110 | 141 | 0 | 0 | 29.6 | 64.5 | 71.0 |
| 4400072 | 99 | DIRN | SUR | 37 | -76 | 2804 | 0 | 0 | 22.8 | -70.1 | 73.7 |
| 44072 | 99 | DIRN | SUR | 37 | -76 | 634 | 0 | 0 | 23.7 | -71.8 | 75.7 |
| 44137 | 99 | DIRN | SUR | 42 | -62 | 290 | 0 | 0 | 17.0 | -21.8 | 27.7 |
| 44139 | 99 | DIRN | SUR | 44 | -57 | 591 | 0 | 0 | 15.1 | -26.1 | 30.2 |
| 44150 | 99 | DIRN | SUR | 43 | -64 | 406 | 0 | 0 | 17.1 | -29.0 | 33.7 |
| 4500025 | 99 | DIRN | SUR | 47 | -88 | 552 | 0 | 0 | 49.7 | 29.4 | 57.7 |
| 4500169 | 99 | DIRN | SUR | 42 | -82 | 902 | 0 | 0 | 28.2 | -30.7 | 41.7 |
| 4500175 | 99 | DIRN | SUR | 46 | -85 | 1805 | 0 | 0 | 60.9 | -29.6 | 67.7 |
| 4500186 | 99 | DIRN | SUR | 42 | -88 | 166 | 0 | 0 | 59.7 | 125.4 | 138.9 |
| 45025 | 99 | DIRN | SUR | 47 | -88 | 196 | 0 | 0 | 53.2 | 33.2 | 62.7 |
| 45145 | 99 | DIRN | SUR | 52 | -97 | 82 | 0 | 0 | 66.1 | 2.7 | 66.1 |
| 45169 | 99 | DIRN | SUR | 42 | -82 | 252 | 0 | 0 | 29.7 | -31.7 | 43.5 |
| 45175 | 99 | DIRN | SUR | 46 | -85 | 445 | 0 | 0 | 60.0 | -25.7 | 65.2 |
| 45176 | 99 | DIRN | SUR | 42 | -82 | 186 | 0 | 0 | 40.3 | -21.3 | 45.6 |

```
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 45186 | 99 | DIRN | SUR | 42 | -88 | 88 | 0 | 0 | 65.0 | 122.8 | 139.0 |
| 4600087 | 99 | DIRN | SUR | 48 | -125 | 541 | 0 | 0 | 33.3 | 22.3 | 40.1 |
| 4600088 | 99 | DIRN | SUR | 48 | -123 | 74 | 0 | 0 | 35.9 | 31.7 | 47.8 |
| 46088 | 99 | DIRN | SUR | 48 | -123 | 41 | 0 | 0 | 34.7 | 21.3 | 40.7 |
| 5200310 | 99 | DIRN | SUR | 2 | -180 | 41 | 0 | 0 | 31.5 | -79.6 | 85.6 |
| 52310 | 99 | DIRN | SUR | 2 | -180 | 42 | 0 | 0 | 30.6 | -79.4 | 85.1 |
| 5300040 | 99 | DIRN | SUR | -8 | 95 | 683 | 0 | 0 | 131.4 | 99.9 | 165.1 |
| 5300041 | 99 | DIRN | SUR | -8 | 100 | 314 | 0 | 0 | 65.6 | 34.2 | 73.9 |
| 5300056 | 99 | DIRN | SUR | -5 | 95 | 550 | 0 | 0 | 150.9 | 51.0 | 159.3 |
| 53040 | 99 | DIRN | SUR | -8 | 95 | 674 | 0 | 0 | 127.1 | 104.5 | 164.6 |
| 53056 | 99 | DIRN | SUR | -5 | 95 | 534 | 0 | 0 | 150.3 | 53.9 | 159.7 |
| 6200199 | 99 | DIRN | SUR | 40 | -9 | 483 | 0 | 0 | 130.5 | 107.0 | 168.8 |
| 62121 | 99 | DIRN | SUR | 54 | 3 | 577 | 0 | 0 | 48.8 | 20.7 | 53.0 |

### 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                : JUN 2020
                    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 | 15.0 | 74.3 | 75.8 |
| 01400 | 00 | Z | 1000 | 57 | 3 | 25 | 0 | 4.0 | 79.1 | 79.2 |
| 30965 | 00 | Z | 50 | 50 | 117 | 20 | 0 | 130.4 | 124.4 | 180.2 |
| 61687 | 12 | Z | 1000 | 14 | -14 | 13 | 0 | 3.9 | -38.1 | 38.3 |
| 76394 | 12 | Z | 200 | 26 | -100 | 11 | 0 | 103.2 | 118.3 | 157.0 |
| 82026 | 12 | Z | 70 | 2 | -56 | 29 | 0 | 138.5 | 87.4 | 163.8 |
| 98233 | 12 | Z | 1000 | 18 | 122 | 27 | 0 | 29.4 | 14.5 | 32.8 |
| 98233 | 00 | Z | 1000 | 18 | 122 | 28 | 1 | 31.9 | 26.4 | 41.4 |
| JNKN7J | 12 | Z | 1000 | 45 | -56 | 11 | 0 | 6.4 | 40.2 | 40.7 |
| JNKN7J | 00 | Z | 1000 | 42 | -66 | 12 | 0 | 2.8 | 39.8 | 39.9 |
| YLV96W | 12 | Z | 1000 | 50 | -22 | 11 | 0 | 30.6 | 51.4 | 59.8 |

### 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                : JUN 2020
                    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
```

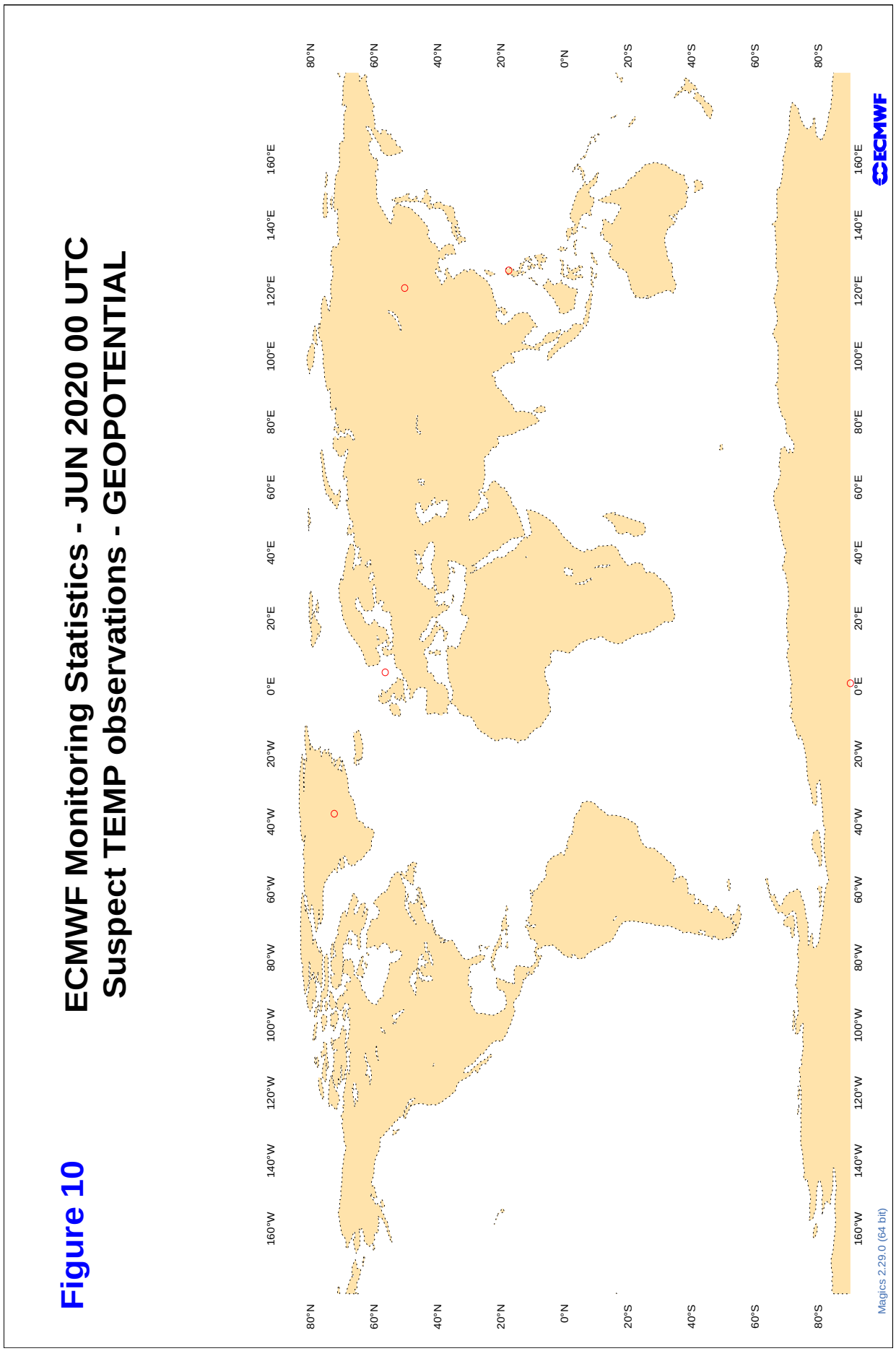
| WMO IDENT | OBS TIME | ELM | LEV | LAT | LONG | NUM OBS | NUM GROSS | UBIAS | VBIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|

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

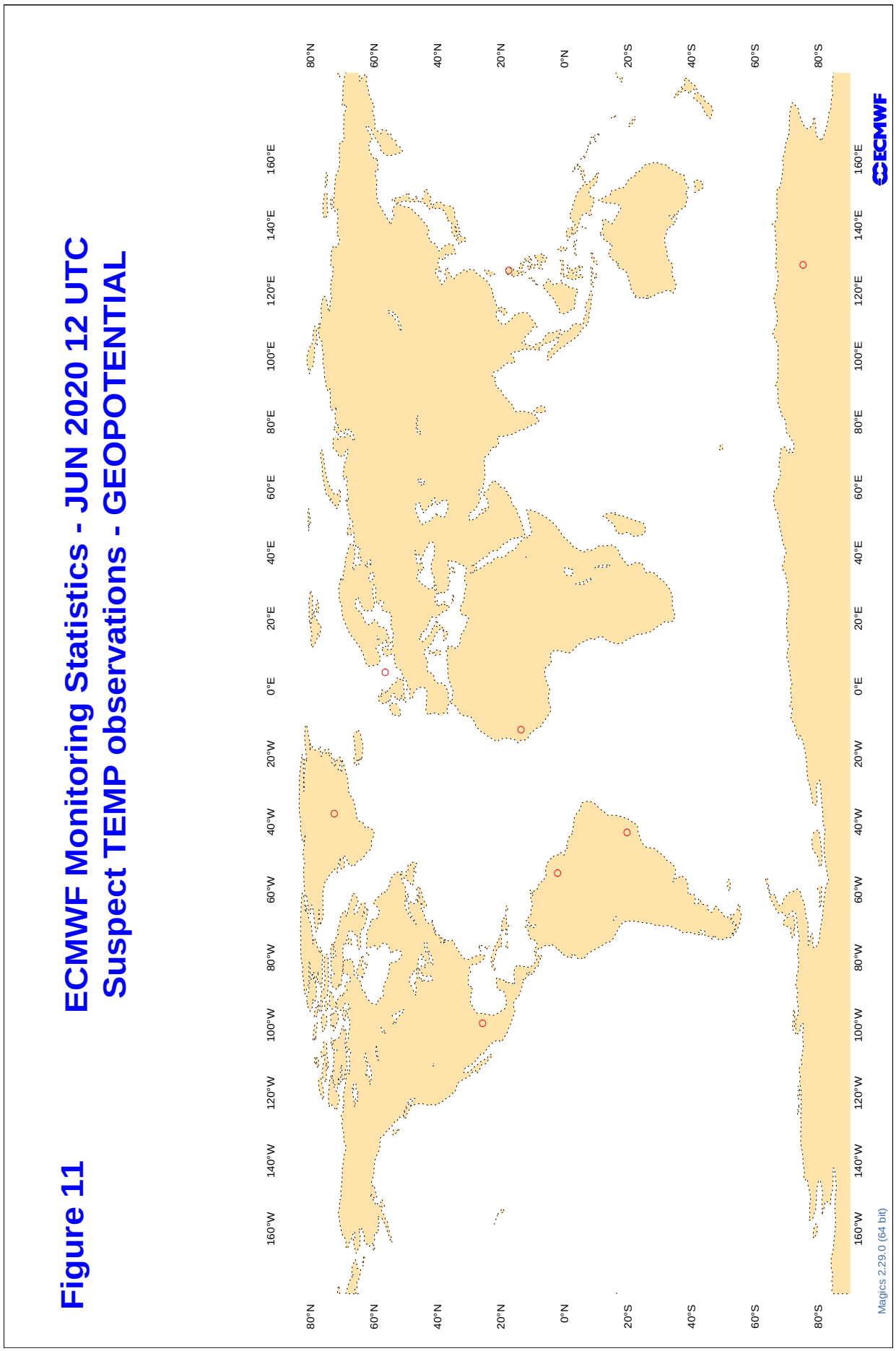
```
          LIST OF SUSPECT STATIONS        : RADIOSONDES
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
                    AREA                  : GLOBAL
                    PERIOD                : JUN 2020
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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

| WMO IDENT | OBS TIME | ELM | LAT | LONG | NUM OBS | BIAS | MAX SPREAD | SD |
|---|---|---|---|---|---|---|---|---|
| 48565 | 00 | DD | 8 | 98 | 20 | 14.1 | 6.9 | 17.7 |
| 59431 | 12 | DD | 23 | 109 | 21 | -13.3 | 9.0 | 15.6 |

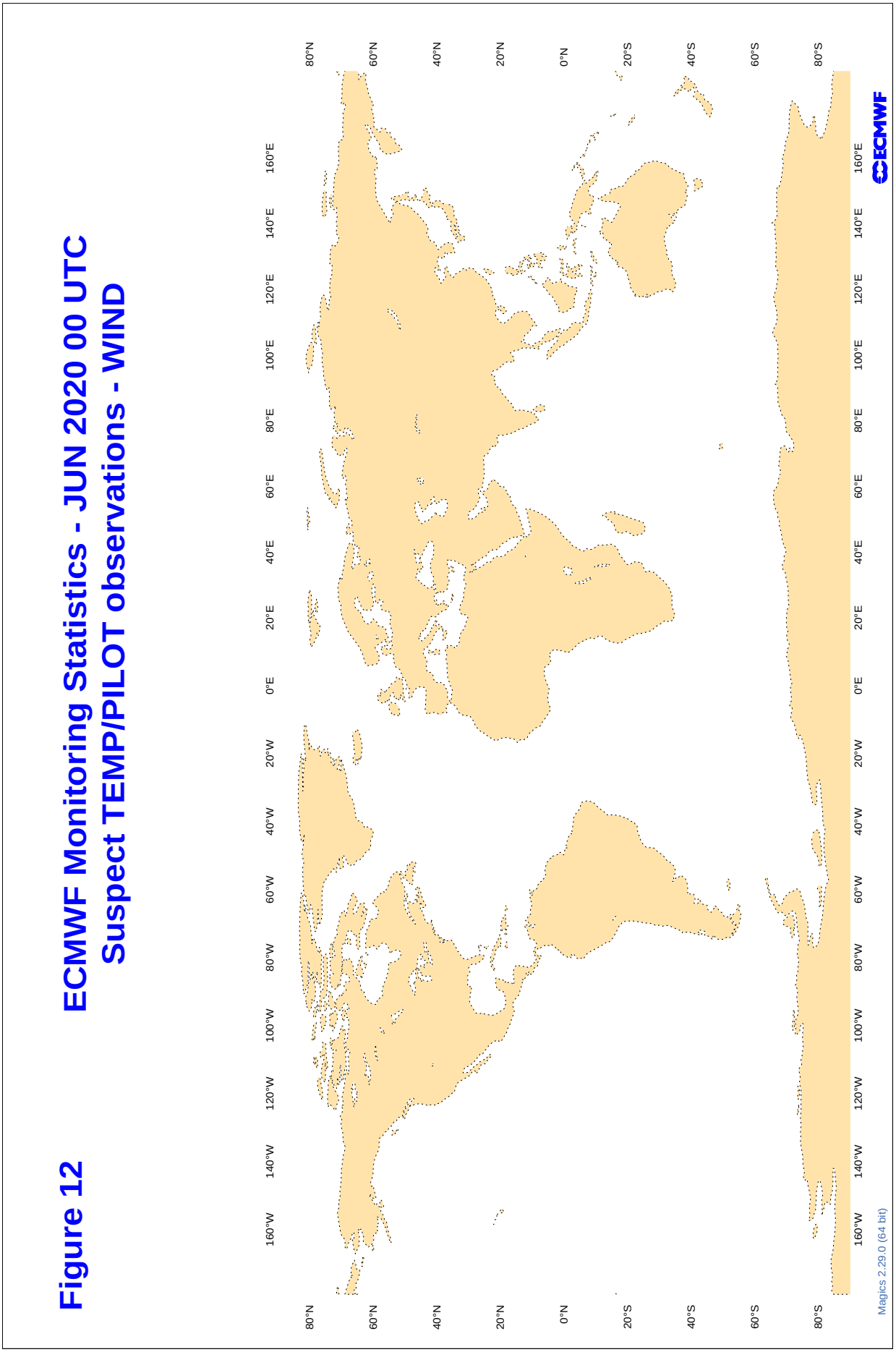
### 3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



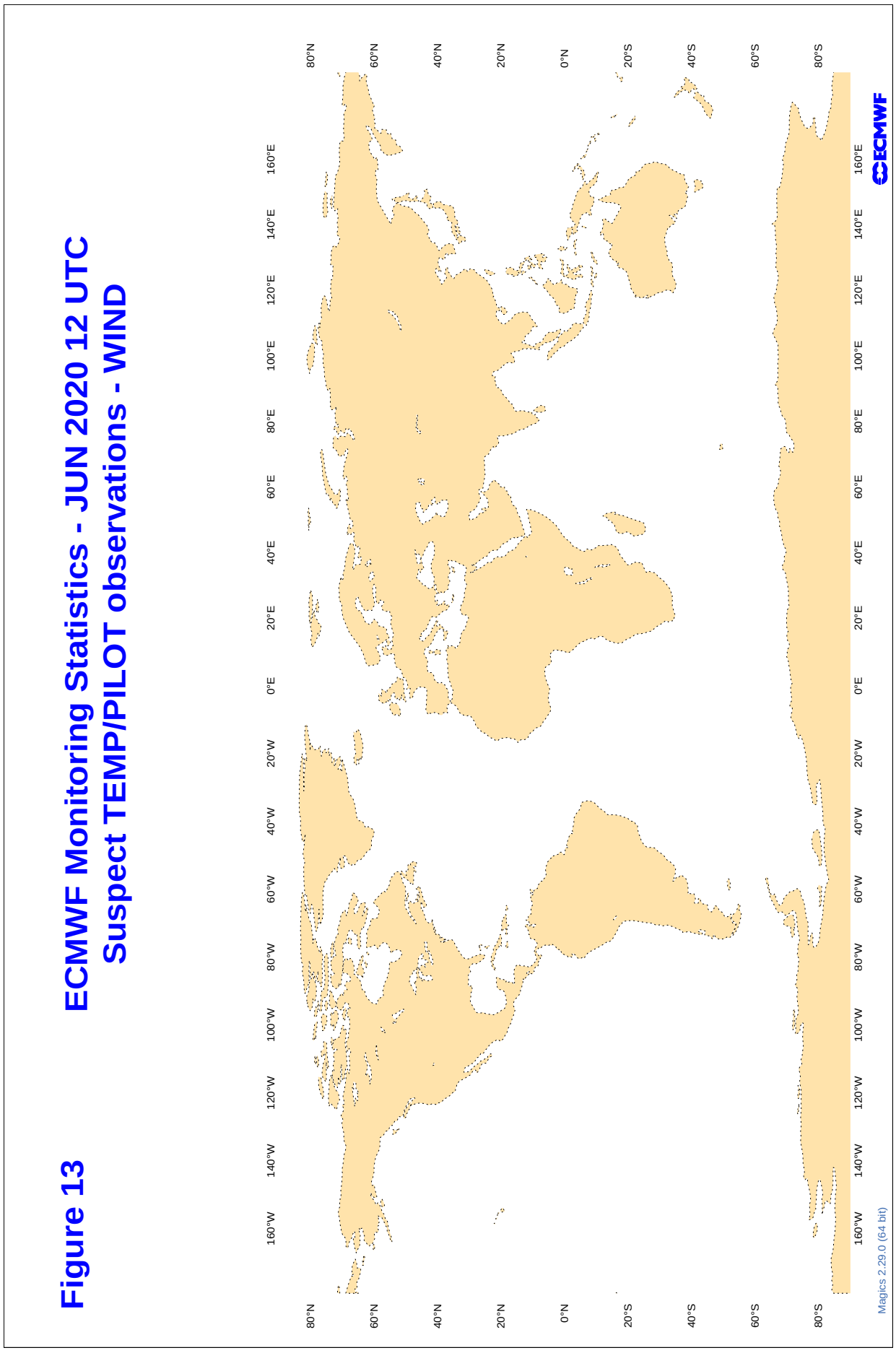
### 3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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



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



### 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                : JUN 2020
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | BIAS |
|---|---|---|---|---|---|---|
| 7JUNA4 | 12 | Z | 100 | 4 | 201.6 | 155.8 |
| 7JUNA4 | 00 | Z | 100 | 5 | 7.7 | 1.3 |
| ASDE09 | 12 | Z | 100 | 10 | 17.3 | 12.4 |
| DBLK | 12 | Z | 100 | 27 | 4.0 | -0.1 |
| DBLK | 00 | Z | 100 | 29 | 5.1 | -2.1 |
| HTXUH4 | 00 | Z | 100 | 8 | 5.6 | 1.6 |
| HTXUH4 | 12 | Z | 100 | 11 | 8.0 | -2.3 |
| JGQH | 00 | Z | 100 | 0 | 0.0 | 0.0 |
| JGQH | 12 | Z | 100 | 0 | 0.0 | 0.0 |
| JNKN7J | 12 | Z | 100 | 10 | 98.8 | 78.6 |
| JNKN7J | 00 | Z | 100 | 10 | 29.6 | 28.5 |
| KJJF9X | 00 | Z | 100 | 2 | 19.4 | 19.4 |
| KJJF9X | 12 | Z | 100 | 3 | 8.9 | 8.9 |
| KMPLHP | 12 | Z | 100 | 7 | 58.8 | 49.9 |
| KMPLHP | 00 | Z | 100 | 8 | 31.9 | 28.3 |
| LRYQE3 | 00 | Z | 100 | 6 | 10.5 | 5.3 |
| LRYQE3 | 12 | Z | 100 | 8 | 18.7 | 17.6 |
| VKB4L5 | 00 | Z | 100 | 5 | 40.2 | 39.7 |
| VKB4L5 | 12 | Z | 100 | 7 | 39.3 | 39.0 |
| WDK38H | 12 | Z | 100 | 11 | 12.7 | -11.2 |
| XQFJRG | 12 | Z | 100 | 6 | 3.6 | -1.3 |
| XQFJRG | 00 | Z | 100 | 9 | 9.4 | -8.7 |
| YLV96W | 00 | Z | 100 | 6 | 43.1 | 34.9 |
| YLV96W | 12 | Z | 100 | 10 | 92.5 | 79.4 |
| ZVQEQC | 12 | Z | 100 | 2 | 14.6 | -3.2 |

### 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                : JUN 2020
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|
| 7JUNA4 | 12 | V | 100 | 3 | 2.9 | -0.3 | 0.3 |
| 7JUNA4 | 00 | V | 100 | 4 | 9.2 | -4.8 | 1.8 |
| ASDE09 | 12 | V | 100 | 10 | 2.2 | 1.1 | -0.1 |
| DBLK | 12 | V | 100 | 24 | 1.8 | -0.4 | 0.1 |
| DBLK | 00 | V | 100 | 26 | 2.3 | -0.8 | 0.1 |
| HTXUH4 | 00 | V | 100 | 8 | 2.2 | -0.2 | -0.6 |
| HTXUH4 | 12 | V | 100 | 11 | 2.6 | -0.5 | 0.0 |
| JGQH | 00 | V | 100 | 0 | 0.0 | 0.0 | 0.0 |
| JGQH | 12 | V | 100 | 0 | 0.0 | 0.0 | 0.0 |
| JNKN7J | 12 | V | 100 | 9 | 2.7 | 0.5 | 0.0 |
| JNKN7J | 00 | V | 100 | 10 | 3.5 | 1.0 | 0.5 |
| KJJF9X | 00 | V | 100 | 2 | 6.6 | -4.5 | 1.9 |
| KJJF9X | 12 | V | 100 | 3 | 3.6 | -1.8 | -2.0 |
| KMPLHP | 12 | V | 100 | 7 | 3.7 | -0.4 | -1.1 |
| KMPLHP | 00 | V | 100 | 6 | 2.6 | -1.5 | -0.5 |
| LRYQE3 | 00 | V | 100 | 6 | 3.0 | -0.5 | 0.4 |
| LRYQE3 | 12 | V | 100 | 8 | 3.4 | -0.3 | 0.2 |
| VKB4L5 | 00 | V | 100 | 5 | 3.5 | -0.9 | 2.2 |
| VKB4L5 | 12 | V | 100 | 7 | 3.9 | 0.9 | -1.1 |
| WDK38H | 12 | V | 100 | 11 | 2.6 | 0.4 | -0.4 |
| XQFJRG | 12 | V | 100 | 6 | 3.1 | -0.5 | 0.8 |
| XQFJRG | 00 | V | 100 | 9 | 1.7 | -0.5 | -0.1 |
| YLV96W | 00 | V | 100 | 6 | 6.3 | -2.4 | 1.7 |
| YLV96W | 12 | V | 100 | 10 | 4.0 | 0.3 | 0.0 |
| ZVQEQC | 12 | V | 100 | 2 | 0.9 | 0.0 | 0.3 |

### 3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

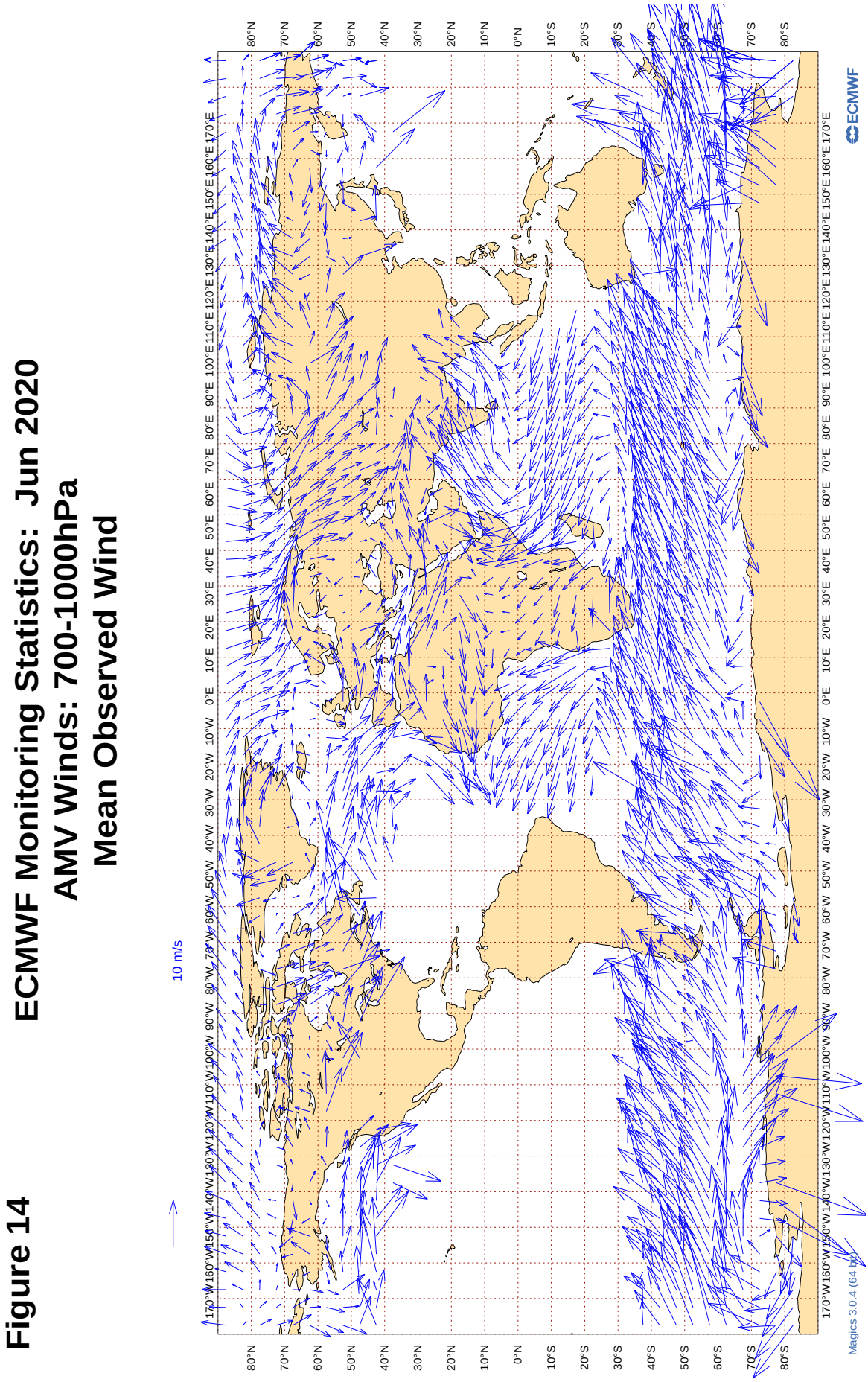



Figure 14

### 3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

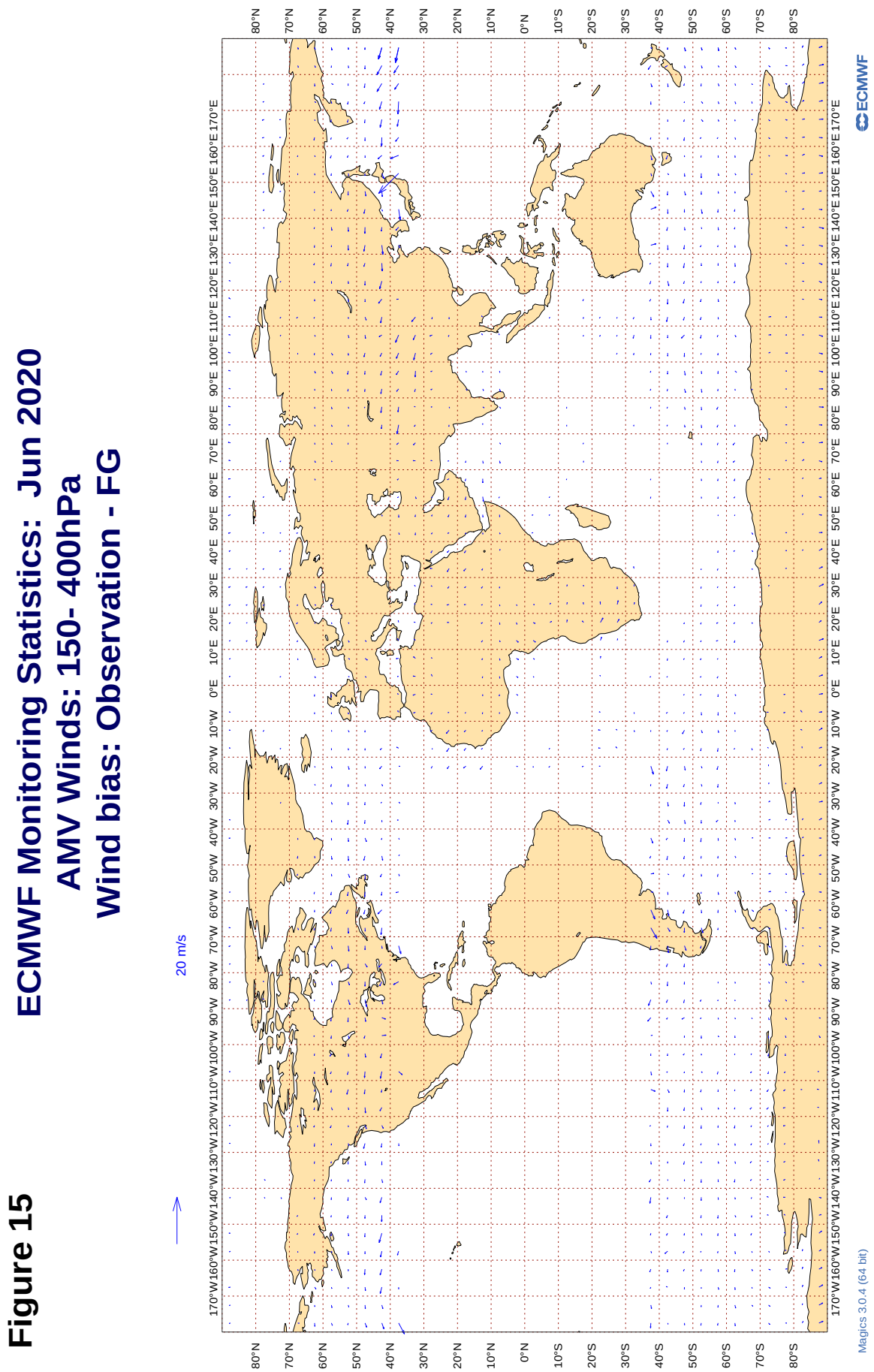



Figure 15

### 3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

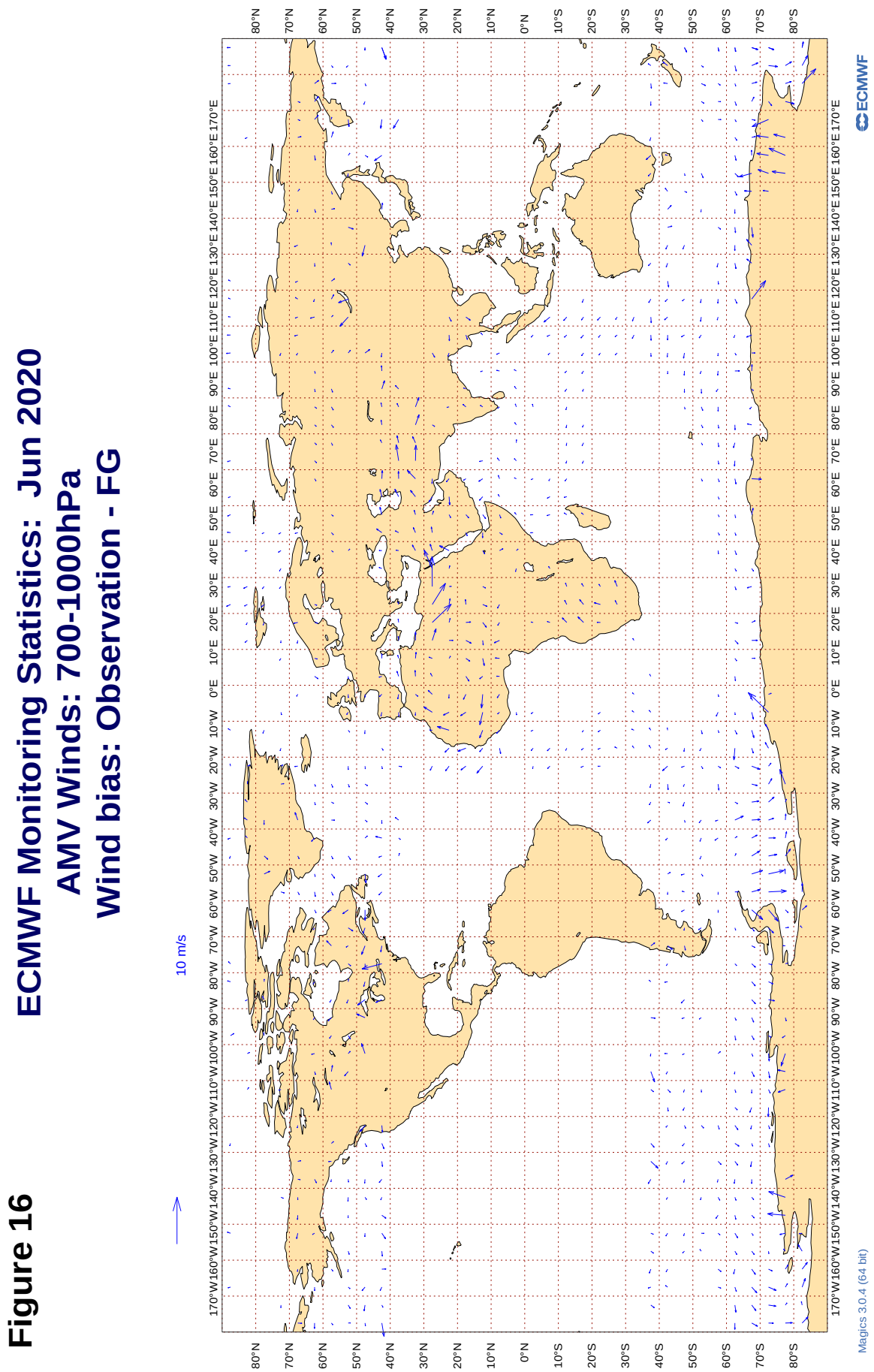



Figure 16

### 3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

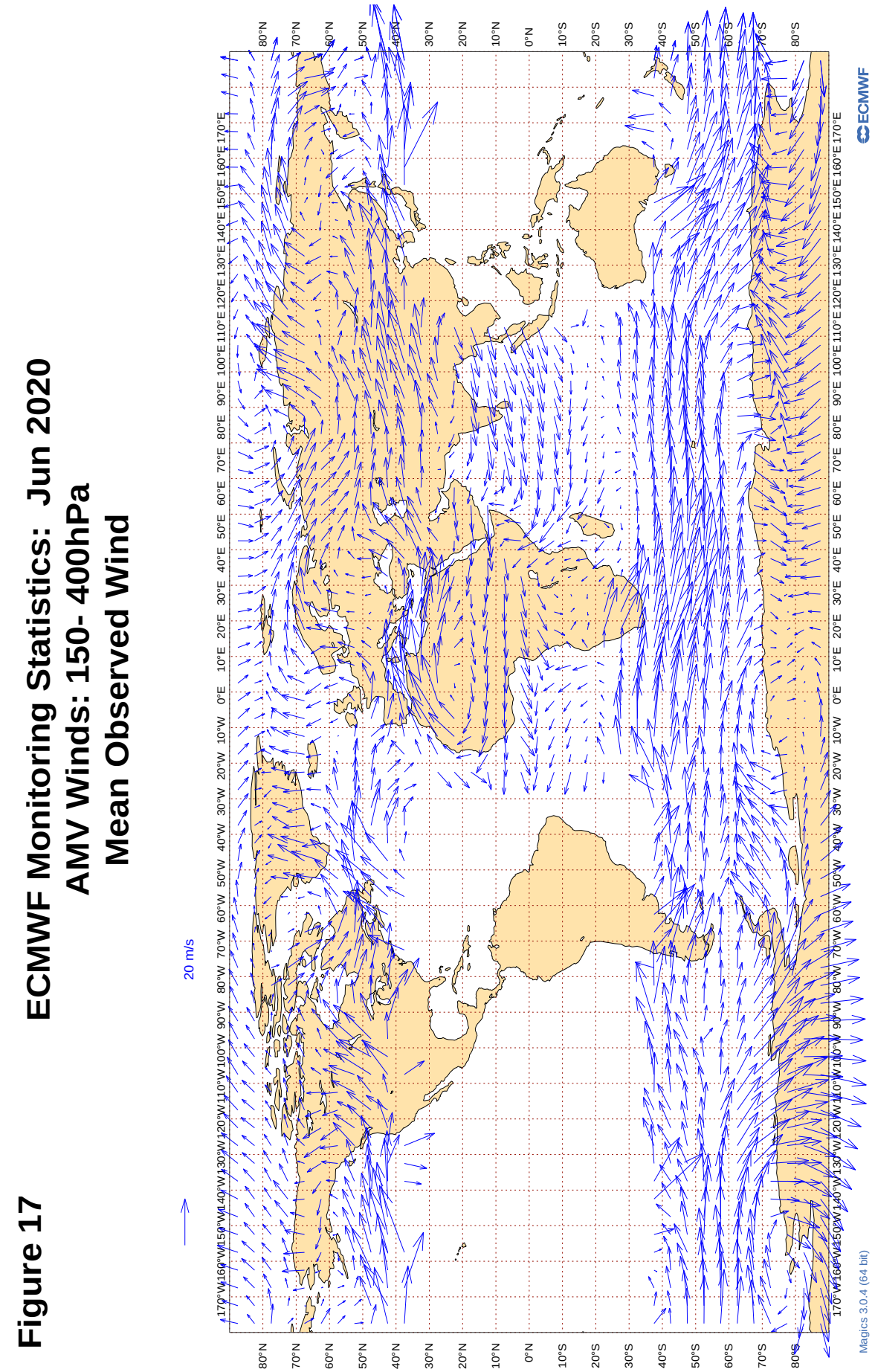



Figure 17

### 3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

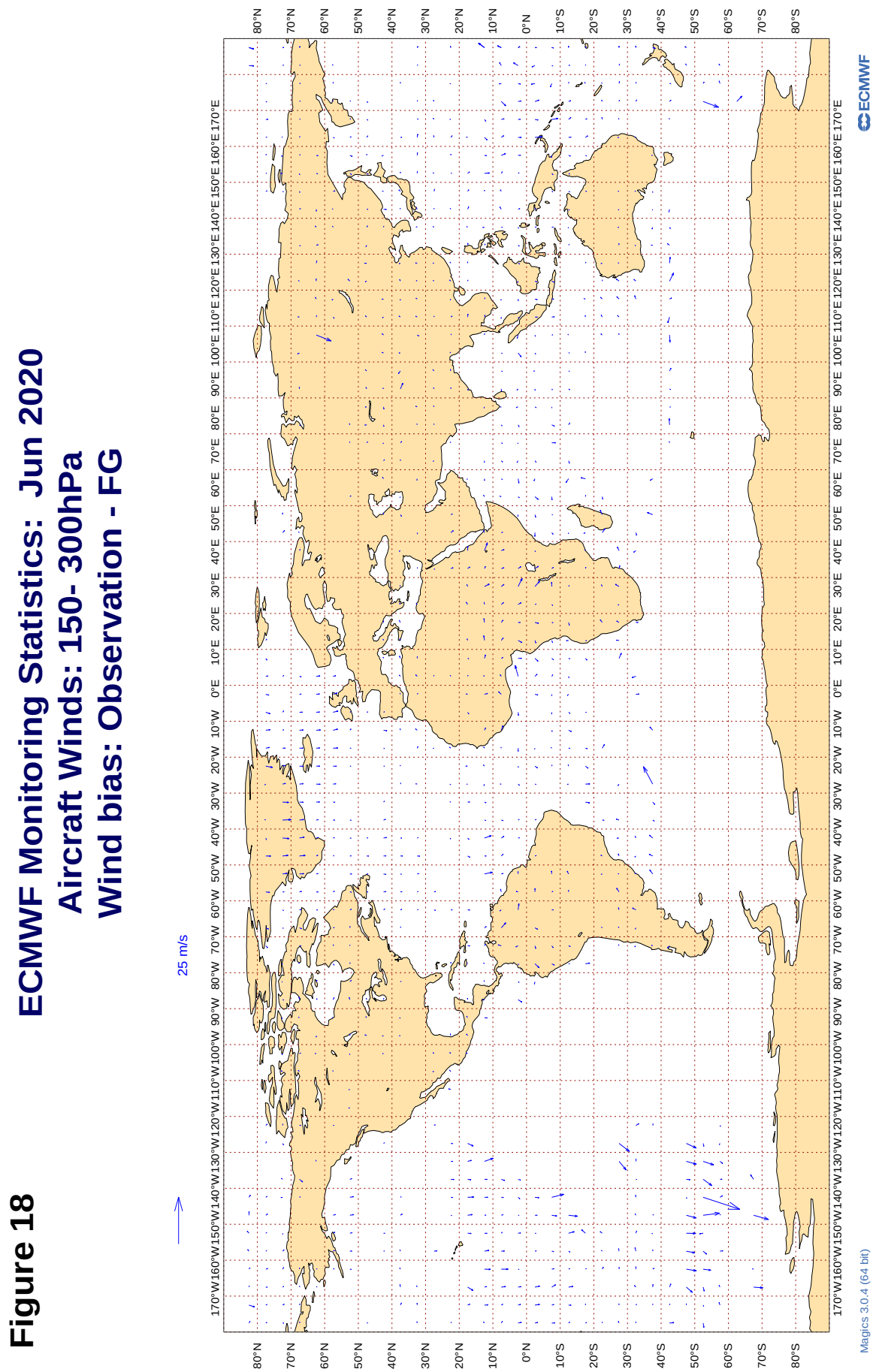



Figure 18

### 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 : JUN 2020
STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 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 |
|---|---|---|---|---|---|---|---|---|
| AAL | 99 | V | 300-150 | 6487 | 6 | 0 | 8.8 | 0.1 |
| AAR | 99 | V | 300-150 | 188 | 0 | 1 | 4.0 | -1.5 |
| ABB | 99 | V | 300-150 | 32 | 0 | 0 | 2.5 | 0.3 |
| ABD | 99 | V | 300-150 | 999 | 0 | 0 | 3.8 | -0.1 |
| ABW | 99 | V | 300-150 | 1055 | 0 | 0 | 3.6 | -0.2 |
| ABX | 99 | V | 300-150 | 55 | 2 | 0 | 5.9 | -0.2 |
| ACA | 99 | V | 300-150 | 8190 | 5 | 0 | 8.5 | 0.1 |
| AEA | 99 | V | 300-150 | 46 | 0 | 0 | 7.5 | 0.8 |
| AFL | 99 | V | 300-150 | 158 | 0 | 0 | 2.9 | 0.2 |
| AFR | 99 | V | 300-150 | 6825 | 1 | 0 | 4.5 | 0.2 |
| AHO | 99 | V | 300-150 | 255 | 0 | 0 | 3.8 | -0.3 |
| AHY | 99 | V | 300-150 | 31 | 26 | 0 | 12.2 | 0.2 |
| AIC | 99 | V | 300-150 | 830 | 1 | 0 | 4.4 | 0.2 |
| AJT | 99 | V | 300-150 | 969 | 0 | 0 | 3.4 | 0.0 |
| ALK | 99 | V | 300-150 | 248 | 0 | 0 | 5.3 | 0.3 |
| AMX | 99 | V | 300-150 | 454 | 5 | 0 | 8.6 | 0.1 |
| ANZ | 99 | V | 300-150 | 4728 | 0 | 0 | 5.1 | 0.5 |
| AOJ | 99 | V | 300-150 | 25 | 0 | 0 | 3.2 | -0.3 |
| ARG | 99 | V | 300-150 | 972 | 0 | 0 | 4.2 | 0.9 |
| ASL | 99 | V | 300-150 | 250 | 0 | 0 | 3.0 | 0.2 |
| ASY | 99 | V | 300-150 | 21 | 0 | 0 | 5.4 | 0.9 |
| ATN | 99 | V | 300-150 | 188 | 0 | 0 | 4.3 | 0.5 |
| AVA | 99 | V | 300-150 | 65 | 0 | 3 | 4.2 | 0.4 |
| AWC | 99 | V | 300-150 | 247 | 0 | 0 | 3.7 | 0.2 |
| AWK | 99 | V | 300-150 | 30 | 0 | 7 | 2.9 | 0.0 |
| AXM | 99 | V | 300-150 | 43 | 0 | 2 | 4.8 | 0.5 |
| AXY | 99 | V | 300-150 | 34 | 0 | 0 | 3.0 | 0.2 |
| AZA | 99 | V | 300-150 | 648 | 0 | 0 | 3.2 | 0.5 |
| AZG | 99 | V | 300-150 | 613 | 0 | 0 | 3.7 | -0.1 |

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

| IDENT | OBS TIME | ELM | LEVEL | NUM OBS | % GROSS | % CALM | VECTOR RMS | SPEE D BIAS |
|---|---|---|---|---|---|---|---|---|
| AZV | 99 | V | 300-150 | 97 | 0 | 0 | 3.1 | 1.1 |
| BAF | 99 | V | 300-150 | 50 | 0 | 0 | 3.3 | -0.1 |
| BAW | 99 | V | 300-150 | 13537 | 6 | 0 | 8.6 | 0.0 |
| BCS | 99 | V | 300-150 | 979 | 0 | 0 | 3.3 | 0.3 |
| BFF | 99 | V | 300-150 | 23 | 0 | 0 | 11.1 | 4.0 |
| BLU | 99 | V | 300-150 | 63 | 0 | 0 | 3.8 | 0.8 |
| BOX | 99 | V | 300-150 | 2078 | 0 | 0 | 3.4 | 0.1 |
| CAL | 99 | V | 300-150 | 181 | 0 | 0 | 3.8 | 0.7 |
| CCA | 99 | V | 300-150 | 59 | 0 | 0 | 4.8 | 0.7 |
| CES | 99 | V | 300-150 | 155 | 0 | 0 | 3.8 | 0.6 |
| CFC | 99 | V | 300-150 | 312 | 0 | 0 | 3.9 | 0.8 |
| CJT | 99 | V | 300-150 | 1593 | 0 | 0 | 3.6 | 0.1 |
| CKS | 99 | V | 300-150 | 2381 | 0 | 0 | 3.5 | -0.0 |
| CLU | 99 | V | 300-150 | 83 | 0 | 0 | 3.2 | 0.2 |
| CLX | 99 | V | 300-150 | 4248 | 0 | 0 | 3.5 | -0.3 |
| CMB | 99 | V | 300-150 | 1517 | 0 | 0 | 3.5 | 0.1 |
| CNV | 99 | V | 300-150 | 132 | 0 | 0 | 2.7 | 0.5 |
| CPA | 99 | V | 300-150 | 145 | 0 | 0 | 4.2 | 0.8 |
| CRL | 99 | V | 300-150 | 242 | 0 | 0 | 3.1 | 0.3 |
| CSC | 99 | V | 300-150 | 33 | 0 | 0 | 3.8 | 0.1 |
| CSN | 99 | V | 300-150 | 347 | 7 | 0 | 7.4 | 0.7 |
| CTM | 99 | V | 300-150 | 129 | 0 | 0 | 4.2 | 0.8 |
| DAL | 99 | V | 300-150 | 7663 | 0 | 0 | 3.1 | 0.2 |
| DHK | 99 | V | 300-150 | 962 | 0 | 0 | 4.5 | -0.3 |
| DKH | 99 | V | 300-150 | 86 | 0 | 0 | 4.1 | -0.2 |
| DLH | 99 | V | 300-150 | 2213 | 0 | 0 | 3.2 | 0.1 |
| EDC | 99 | V | 300-150 | 109 | 0 | 0 | 2.8 | -0.1 |
| EIN | 99 | V | 300-150 | 2752 | 0 | 0 | 3.0 | 0.5 |
| EJM | 99 | V | 300-150 | 154 | 0 | 0 | 3.2 | 0.2 |
| ELY | 99 | V | 300-150 | 683 | 7 | 0 | 7.9 | 0.3 |
| ETD | 99 | V | 300-150 | 1838 | 0 | 0 | 4.4 | 0.3 |
| ETH | 99 | V | 300-150 | 2852 | 4 | 0 | 7.2 | 0.7 |
| FDX | 99 | V | 300-150 | 7552 | 0 | 0 | 3.3 | 0.3 |
| FIN | 99 | V | 300-150 | 187 | 0 | 0 | 3.2 | 0.4 |
| FJI | 99 | V | 300-150 | 320 | 0 | 0 | 4.2 | 1.0 |
| FRH | 99 | V | 300-150 | 833 | 0 | 0 | 4.0 | -0.2 |
| FWI | 99 | V | 300-150 | 229 | 0 | 0 | 2.9 | 0.5 |
| GAF | 99 | V | 300-150 | 62 | 0 | 0 | 2.8 | -0.8 |
| GEC | 99 | V | 300-150 | 2495 | 0 | 0 | 3.3 | 0.2 |
| GFA | 99 | V | 300-150 | 184 | 0 | 0 | 4.3 | -0.2 |
| GTI | 99 | V | 300-150 | 1956 | 0 | 0 | 3.6 | -0.1 |
| HFM | 99 | V | 300-150 | 55 | 0 | 0 | 3.5 | 0.0 |
| HFY | 99 | V | 300-150 | 27 | 0 | 0 | 3.8 | 0.6 |

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

| IDENT | OBS TIME | ELM | LEVEL | NUM OBS | % GROSS | % CALM | VECTOR RMS | SPEE D BIAS |
|---|---|---|---|---|---|---|---|---|
| HVN | 99 | V | 300-150 | 20 | 0 | 0 | 3.8 | 0.2 |
| IAM | 99 | V | 300-150 | 126 | 0 | 0 | 3.4 | 0.6 |
| IBE | 99 | V | 300-150 | 114 | 0 | 0 | 3.8 | 0.3 |
| ICE | 99 | V | 300-150 | 294 | 0 | 0 | 3.9 | 0.3 |
| ICL | 99 | V | 300-150 | 187 | 0 | 0 | 4.2 | -0.3 |
| ICV | 99 | V | 300-150 | 226 | 0 | 0 | 3.6 | -0.7 |
| IFA | 99 | V | 300-150 | 31 | 0 | 0 | 2.9 | -0.3 |
| IGO | 99 | V | 300-150 | 27 | 0 | 0 | 5.1 | 1.0 |
| IJM | 99 | V | 300-150 | 49 | 0 | 0 | 7.0 | -0.3 |
| JAF | 99 | V | 300-150 | 51 | 0 | 0 | 9.2 | 0.1 |
| JCO | 99 | V | 300-150 | 67 | 0 | 0 | 2.8 | 0.3 |
| JET | 99 | V | 300-150 | 97 | 0 | 0 | 3.8 | -0.2 |
| JME | 99 | V | 300-150 | 51 | 0 | 0 | 3.6 | 0.4 |
| KAC | 99 | V | 300-150 | 116 | 0 | 0 | 3.7 | 0.2 |
| KAF | 99 | V | 300-150 | 114 | 0 | 0 | 3.5 | 0.2 |
| KAI | 99 | V | 300-150 | 71 | 0 | 0 | 3.4 | 0.6 |
| KAY | 99 | V | 300-150 | 50 | 0 | 0 | 3.5 | 0.5 |
| KFS | 99 | V | 300-150 | 30 | 3 | 0 | 21.8 | 2.0 |
| KIW | 99 | V | 300-150 | 102 | 0 | 0 | 4.4 | 1.5 |
| KLM | 99 | V | 300-150 | 8267 | 6 | 0 | 8.6 | 0.1 |
| KQA | 99 | V | 300-150 | 32 | 0 | 0 | 6.0 | 1.2 |
| LAN | 99 | V | 300-150 | 421 | 10 | 0 | 7.5 | -0.1 |
| LCO | 99 | V | 300-150 | 797 | 1 | 0 | 5.8 | -0.3 |
| LMJ | 99 | V | 300-150 | 33 | 0 | 0 | 2.7 | 0.3 |
| LNX | 99 | V | 300-150 | 46 | 0 | 0 | 3.8 | 1.2 |
| LOT | 99 | V | 300-150 | 529 | 11 | 0 | 12.2 | -0.3 |
| LXJ | 99 | V | 300-150 | 413 | 0 | 0 | 3.2 | 0.2 |
| MAS | 99 | V | 300-150 | 38 | 0 | 0 | 4.0 | 0.7 |
| MAU | 99 | V | 300-150 | 41 | 0 | 0 | 5.3 | 1.7 |
| MED | 99 | V | 300-150 | 152 | 0 | 0 | 4.1 | 0.0 |
| MHV | 99 | V | 300-150 | 96 | 0 | 0 | 3.0 | 0.2 |
| MJE | 99 | V | 300-150 | 55 | 0 | 0 | 3.7 | 0.1 |
| MMD | 99 | V | 300-150 | 114 | 0 | 0 | 3.1 | 0.2 |
| MNB | 99 | V | 300-150 | 28 | 0 | 4 | 3.5 | 1.8 |
| MPH | 99 | V | 300-150 | 665 | 0 | 0 | 3.4 | -0.5 |
| MSR | 99 | V | 300-150 | 297 | 0 | 0 | 3.7 | 0.3 |
| NCR | 99 | V | 300-150 | 45 | 0 | 0 | 4.7 | 2.0 |
| NJE | 99 | V | 300-150 | 251 | 0 | 0 | 2.8 | 0.2 |
| NOS | 99 | V | 300-150 | 74 | 3 | 0 | 3.4 | 0.1 |
| NWS | 99 | V | 300-150 | 163 | 0 | 0 | 3.3 | 0.4 |
| OAE | 99 | V | 300-150 | 1058 | 0 | 0 | 3.7 | 0.3 |
| OHY | 99 | V | 300-150 | 48 | 0 | 0 | 3.3 | 0.3 |
| OLI | 99 | V | 300-150 | 61 | 0 | 0 | 3.1 | -0.1 |

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

| IDENT | OBS TIME | ELM | LEVEL | NUM OBS | % GROSS | % CALM | VECTOR RMS | SPEE D BIAS |
|---|---|---|---|---|---|---|---|---|
| OMA | 99 | V | 300-150 | 65 | 0 | 0 | 4.3 | 0.7 |
| PAC | 99 | V | 300-150 | 121 | 0 | 0 | 4.5 | -0.5 |
| PAL | 99 | V | 300-150 | 146 | 0 | 0 | 5.2 | 0.2 |
| PEG | 99 | V | 300-150 | 35 | 0 | 0 | 3.2 | 0.3 |
| PIA | 99 | V | 300-150 | 88 | 0 | 0 | 3.5 | 0.3 |
| PLF | 99 | V | 300-150 | 155 | 0 | 0 | 3.1 | 0.2 |
| PLM | 99 | V | 300-150 | 95 | 0 | 0 | 3.2 | 0.7 |
| PRD | 99 | V | 300-150 | 29 | 0 | 0 | 2.9 | -0.3 |
| PUE | 99 | V | 300-150 | 35 | 0 | 0 | 3.4 | 0.2 |
| QFA | 99 | V | 300-150 | 473 | 0 | 0 | 4.2 | 0.8 |
| QID | 99 | V | 300-150 | 29 | 0 | 0 | 4.5 | 0.0 |
| QQE | 99 | V | 300-150 | 107 | 0 | 0 | 3.2 | 0.7 |
| QTR | 99 | V | 300-150 | 7824 | 0 | 0 | 3.7 | 0.3 |
| RCH | 99 | V | 300-150 | 4218 | 0 | 0 | 4.2 | 0.4 |
| RJA | 99 | V | 300-150 | 127 | 8 | 0 | 13.3 | -0.1 |
| ROU | 99 | V | 300-150 | 45 | 0 | 0 | 4.0 | -2.1 |
| RRR | 99 | V | 300-150 | 67 | 0 | 0 | 3.3 | 0.4 |
| RSY | 99 | V | 300-150 | 136 | 0 | 0 | 3.2 | 0.6 |
| SAM | 99 | V | 300-150 | 172 | 0 | 0 | 3.3 | -0.3 |
| SAS | 99 | V | 300-150 | 278 | 0 | 0 | 2.9 | 0.3 |
| SAZ | 99 | V | 300-150 | 83 | 0 | 0 | 3.6 | -0.0 |
| SHE | 99 | V | 300-150 | 33 | 0 | 0 | 3.4 | 0.1 |
| SIA | 99 | V | 300-150 | 895 | 0 | 0 | 4.1 | 0.2 |
| SJE | 99 | V | 300-150 | 20 | 0 | 0 | 3.8 | 1.0 |
| SLM | 99 | V | 300-150 | 26 | 0 | 0 | 3.7 | 1.0 |
| SOO | 99 | V | 300-150 | 583 | 0 | 0 | 3.2 | 0.2 |
| SPA | 99 | V | 300-150 | 68 | 0 | 0 | 4.1 | 0.6 |
| SVA | 99 | V | 300-150 | 2574 | 0 | 0 | 3.2 | 0.2 |
| SVW | 99 | V | 300-150 | 52 | 0 | 0 | 3.3 | -0.5 |
| SWR | 99 | V | 300-150 | 1385 | 0 | 0 | 3.2 | 0.2 |
| SYB | 99 | V | 300-150 | 82 | 0 | 0 | 3.7 | -0.4 |
| TAP | 99 | V | 300-150 | 48 | 0 | 0 | 3.5 | 0.1 |
| TAR | 99 | V | 300-150 | 139 | 0 | 1 | 3.1 | 0.8 |
| TAY | 99 | V | 300-150 | 447 | 0 | 0 | 3.5 | -0.3 |
| THA | 99 | V | 300-150 | 28 | 0 | 0 | 3.4 | -0.1 |
| THT | 99 | V | 300-150 | 355 | 3 | 0 | 10.2 | 0.4 |
| THY | 99 | V | 300-150 | 3116 | 1 | 0 | 4.7 | 0.2 |
| TMN | 99 | V | 300-150 | 260 | 0 | 0 | 4.2 | 0.8 |
| TOM | 99 | V | 300-150 | 62 | 5 | 0 | 7.7 | -0.1 |
| TOW | 99 | V | 300-150 | 64 | 0 | 0 | 2.8 | -0.2 |
| TPA | 99 | V | 300-150 | 373 | 0 | 0 | 3.0 | 0.5 |
| TWY | 99 | V | 300-150 | 81 | 0 | 0 | 2.6 | 0.0 |
| UAE | 99 | V | 300-150 | 6861 | 0 | 0 | 3.7 | 0.3 |

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

| IDENT | OBS TIME | ELM | LEVEL | NUM OBS | % GROSS | % CALM | VECTOR RMS | SPEE D BIAS |
|---|---|---|---|---|---|---|---|---|
| UAF | 99 | V | 300-150 | 44 | 0 | 0 | 7.8 | 1.2 |
| UAL | 99 | V | 300-150 | 13509 | 8 | 1 | 9.2 | 0.1 |
| UPS | 99 | V | 300-150 | 4699 | 0 | 0 | 3.5 | 0.1 |
| VCG | 99 | V | 300-150 | 22 | 0 | 0 | 2.7 | -0.4 |
| VCN | 99 | V | 300-150 | 22 | 0 | 0 | 3.3 | 0.9 |
| VIR | 99 | V | 300-150 | 4214 | 4 | 0 | 6.6 | -0.0 |
| VJT | 99 | V | 300-150 | 725 | 0 | 0 | 3.2 | 0.3 |
| VOZ | 99 | V | 300-150 | 166 | 0 | 0 | 4.2 | 0.7 |
| VTE | 99 | V | 300-150 | 95 | 29 | 0 | 21.4 | -0.3 |
| VXS | 99 | V | 300-150 | 72 | 0 | 0 | 5.2 | -0.1 |
| WGN | 99 | V | 300-150 | 360 | 0 | 0 | 3.9 | 0.9 |
| WWI | 99 | V | 300-150 | 73 | 0 | 0 | 3.9 | 0.1 |
| XOJ | 99 | V | 300-150 | 66 | 0 | 0 | 2.9 | 0.4 |

# 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                : JUN 2020
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | BIAS |
|---|---|---|---|---|---|---|
| 01001 | 00 | Z | 50 | 27 | 12.3 | 8.8 |
| 01001 | 12 | Z | 50 | 27 | 23.4 | 17.5 |
| 01028 | 00 | Z | 50 | 30 | 7.1 | 5.7 |
| 01028 | 12 | Z | 50 | 30 | 7.9 | 4.0 |
| 01400 | 12 | Z | 50 | 30 | 84.9 | 83.2 |
| 01400 | 00 | Z | 50 | 24 | 92.7 | 92.5 |
| 01415 | 12 | Z | 50 | 18 | 6.7 | 5.3 |
| 01415 | 00 | Z | 50 | 29 | 16.7 | 13.8 |
| 02365 | 12 | Z | 50 | 23 | 11.7 | 8.5 |
| 02365 | 00 | Z | 50 | 19 | 13.9 | 8.4 |
| 02836 | 00 | Z | 50 | 31 | 11.3 | 10.0 |
| 02836 | 12 | Z | 50 | 30 | 6.9 | 2.3 |
| 02963 | 12 | Z | 50 | 29 | 7.2 | 4.8 |
| 02963 | 00 | Z | 50 | 30 | 13.9 | 13.2 |
| 03005 | 00 | Z | 50 | 4 | 10.6 | 9.7 |
| 03005 | 12 | Z | 50 | 30 | 20.6 | 7.3 |
| 03238 | 00 | Z | 50 | 28 | 14.8 | 13.5 |
| 03238 | 12 | Z | 50 | 28 | 11.5 | 8.6 |
| 03808 | 12 | Z | 50 | 30 | 10.4 | 7.7 |
| 03808 | 00 | Z | 50 | 27 | 15.5 | 14.5 |
| 03918 | 12 | Z | 50 | 29 | 14.1 | 12.4 |
| 03918 | 00 | Z | 50 | 28 | 19.0 | 17.9 |
| 03953 | 12 | Z | 50 | 31 | 13.5 | 9.3 |
| 03953 | 00 | Z | 50 | 28 | 20.6 | 17.5 |
| 04018 | 00 | Z | 50 | 29 | 7.9 | 6.4 |
| 04018 | 12 | Z | 50 | 30 | 9.0 | 6.7 |
| 04220 | 12 | Z | 50 | 30 | 10.9 | 10.1 |
| 04220 | 00 | Z | 50 | 30 | 10.0 | 8.5 |
| 04270 | 12 | Z | 50 | 30 | 11.2 | 7.5 |
| 04270 | 00 | Z | 50 | 30 | 11.6 | 0.3 |
| 04320 | 12 | Z | 50 | 30 | 9.6 | 7.1 |
| 04320 | 00 | Z | 50 | 30 | 13.6 | 3.9 |
| 04339 | 12 | Z | 50 | 30 | 13.7 | 7.4 |
| 04339 | 00 | Z | 50 | 29 | 10.3 | 2.0 |
| 04360 | 00 | Z | 50 | 24 | 16.4 | -7.5 |
| 04360 | 12 | Z | 50 | 26 | 27.2 | 15.9 |
| 06011 | 00 | Z | 50 | 28 | 14.9 | 13.5 |
| 06011 | 12 | Z | 50 | 29 | 47.8 | 46.0 |
| 06260 | 00 | Z | 50 | 30 | 19.7 | 10.5 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | BIAS |
|---|---|---|---|---|---|---|
| 06260 | 12 | Z | 50 | 30 | 9.8 | 5.6 |
| 06610 | 00 | Z | 50 | 30 | 16.7 | 15.4 |
| 06610 | 12 | Z | 50 | 30 | 9.4 | 6.6 |
| 07110 | 00 | Z | 50 | 28 | 12.3 | 6.8 |
| 07110 | 12 | Z | 50 | 29 | 15.5 | 8.9 |
| 07510 | 00 | Z | 50 | 30 | 24.5 | 22.5 |
| 07510 | 12 | Z | 50 | 29 | 34.0 | 30.2 |
| 07645 | 12 | Z | 50 | 28 | 35.3 | 30.8 |
| 07645 | 00 | Z | 50 | 27 | 21.4 | 19.4 |
| 07761 | 00 | Z | 50 | 28 | 27.4 | 25.4 |
| 07761 | 12 | Z | 50 | 28 | 29.1 | 24.7 |
| 08001 | 00 | Z | 50 | 27 | 19.5 | 18.8 |
| 08001 | 12 | Z | 50 | 30 | 14.8 | 12.4 |
| 08221 | 00 | Z | 50 | 29 | 23.0 | 22.5 |
| 08221 | 12 | Z | 50 | 29 | 11.9 | 10.1 |
| 08302 | 12 | Z | 50 | 30 | 6.9 | -2.7 |
| 08302 | 00 | Z | 50 | 30 | 11.8 | 10.3 |
| 08508 | 00 | Z | 50 | 1 | 21.8 | 21.8 |
| 08508 | 12 | Z | 50 | 29 | 14.6 | 12.7 |
| 08522 | 12 | Z | 50 | 30 | 11.7 | 9.6 |
| 085228 | 12 | Z | 50 | 0 | 0.0 | 0.0 |
| 10035 | 00 | Z | 50 | 29 | 24.7 | 23.8 |
| 10035 | 12 | Z | 50 | 28 | 16.5 | 15.6 |
| 10393 | 00 | Z | 50 | 31 | 16.8 | 14.3 |
| 10393 | 12 | Z | 50 | 15 | 8.7 | 5.6 |
| 10410 | 00 | Z | 50 | 29 | 13.8 | 12.7 |
| 10410 | 12 | Z | 50 | 30 | 7.8 | 4.1 |
| 10739 | 12 | Z | 50 | 30 | 12.9 | 10.3 |
| 10739 | 00 | Z | 50 | 30 | 20.6 | 20.1 |
| 11035 | 00 | Z | 50 | 29 | 24.9 | 23.8 |
| 11035 | 12 | Z | 50 | 28 | 30.1 | 28.4 |
| 12982 | 12 | Z | 50 | 26 | 26.3 | 23.7 |
| 12982 | 00 | Z | 50 | 25 | 19.8 | 15.5 |
| 16080 | 00 | Z | 50 | 29 | 16.9 | 14.1 |
| 16080 | 12 | Z | 50 | 30 | 6.5 | 2.0 |
| 16245 | 12 | Z | 50 | 28 | 5.6 | 0.8 |
| 16245 | 00 | Z | 50 | 29 | 14.4 | 12.9 |
| 16320 | 12 | Z | 50 | 33 | 17.2 | 9.9 |
| 16320 | 00 | Z | 50 | 27 | 22.6 | 21.4 |
| 16429 | 00 | Z | 50 | 30 | 23.0 | 22.4 |
| 16429 | 12 | Z | 50 | 30 | 10.2 | 7.6 |
| 16622 | 00 | Z | 50 | 27 | 23.1 | 21.8 |
| 16754 | 00 | Z | 50 | 29 | 23.5 | 22.4 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | BIAS |
|---|---|---|---|---|---|---|
| 17607 | 12 | Z | 50 | 26 | 13.1 | 11.8 |
| 26435 | 12 | Z | 50 | 15 | 6.0 | 3.2 |
| 60018 | 12 | Z | 50 | 28 | 8.4 | 6.6 |
| 60018 | 00 | Z | 50 | 28 | 22.5 | 21.6 |
| 7JUNA4 | 12 | Z | 50 | 4 | 237.9 | 209.7 |
| 7JUNA4 | 00 | Z | 50 | 5 | 14.5 | 13.0 |
| ASDE09 | 12 | Z | 50 | 11 | 64.3 | 39.6 |
| DBLK | 12 | Z | 50 | 30 | 8.5 | 6.4 |
| DBLK | 00 | Z | 50 | 31 | 9.0 | 7.0 |
| HTXUH4 | 00 | Z | 50 | 6 | 9.5 | 8.9 |
| HTXUH4 | 12 | Z | 50 | 11 | 9.5 | 5.2 |
| JNKN7J | 12 | Z | 50 | 9 | 132.8 | 116.5 |
| JNKN7J | 00 | Z | 50 | 8 | 38.2 | 35.4 |
| KJJF9X | 00 | Z | 50 | 2 | 28.7 | 28.4 |
| KJJF9X | 12 | Z | 50 | 3 | 17.8 | 17.6 |
| KMPLHP | 12 | Z | 50 | 5 | 69.5 | 64.9 |
| KMPLHP | 00 | Z | 50 | 8 | 52.2 | 43.5 |
| LRYQE3 | 00 | Z | 50 | 6 | 25.9 | 19.8 |
| LRYQE3 | 12 | Z | 50 | 7 | 35.5 | 33.7 |
| VKB4L5 | 00 | Z | 50 | 4 | 45.1 | 45.1 |
| VKB4L5 | 12 | Z | 50 | 7 | 40.3 | 39.9 |
| WDK38H | 12 | Z | 50 | 10 | 6.0 | -0.5 |
| XQFJRG | 12 | Z | 50 | 6 | 13.8 | 12.2 |
| XQFJRG | 00 | Z | 50 | 7 | 8.2 | 0.4 |
| YLV96W | 00 | Z | 50 | 3 | 48.7 | 36.1 |
| YLV96W | 12 | Z | 50 | 7 | 117.6 | 102.6 |
| ZVQEQC | 12 | Z | 50 | 2 | 17.2 | 3.7 |

## 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                 : JUN 2020
          STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|
| 01001 | 00 | V | 50 | 23 | 2.5 | 0.0 | -0.5 |
| 01001 | 12 | V | 50 | 27 | 2.1 | 0.2 | -0.6 |
| 01028 | 00 | V | 50 | 23 | 2.1 | 0.7 | 0.6 |
| 01028 | 12 | V | 50 | 30 | 2.1 | 0.5 | 0.2 |
| 01400 | 12 | V | 50 | 29 | 2.8 | 0.3 | -0.6 |
| 01400 | 00 | V | 50 | 18 | 2.1 | 0.1 | -0.2 |
| 01415 | 12 | V | 50 | 18 | 2.6 | 0.5 | -0.3 |
| 01415 | 00 | V | 50 | 23 | 2.5 | -0.1 | 0.3 |
| 02365 | 12 | V | 50 | 22 | 2.7 | -0.1 | -0.5 |
| 02365 | 00 | V | 50 | 19 | 2.3 | 0.3 | -0.4 |
| 02836 | 00 | V | 50 | 24 | 2.5 | -0.2 | 0.5 |
| 02836 | 12 | V | 50 | 30 | 2.5 | -0.5 | 0.4 |
| 02963 | 12 | V | 50 | 28 | 2.9 | 0.1 | -0.7 |
| 02963 | 00 | V | 50 | 24 | 2.3 | 0.2 | 0.3 |
| 03005 | 00 | V | 50 | 4 | 2.0 | 0.0 | 1.1 |
| 03005 | 12 | V | 50 | 30 | 2.6 | 0.2 | -0.4 |
| 03238 | 00 | V | 50 | 22 | 2.0 | 0.1 | 0.0 |
| 03238 | 12 | V | 50 | 26 | 2.6 | 0.4 | -0.7 |
| 03808 | 12 | V | 50 | 30 | 2.9 | -0.1 | -0.5 |
| 03808 | 00 | V | 50 | 21 | 2.5 | -0.1 | 0.5 |
| 03918 | 12 | V | 50 | 28 | 2.8 | 0.9 | 0.0 |
| 03918 | 00 | V | 50 | 24 | 2.8 | 1.2 | -0.1 |
| 03953 | 12 | V | 50 | 30 | 3.1 | 0.3 | 0.6 |
| 03953 | 00 | V | 50 | 22 | 2.5 | 0.4 | 0.2 |
| 04018 | 00 | V | 50 | 24 | 2.7 | 0.1 | 0.7 |
| 04018 | 12 | V | 50 | 30 | 2.6 | 0.4 | 0.1 |
| 04220 | 12 | V | 50 | 30 | 2.2 | -0.2 | 0.3 |
| 04220 | 00 | V | 50 | 24 | 1.9 | -0.3 | 0.4 |
| 04270 | 12 | V | 50 | 30 | 2.8 | 0.1 | -0.6 |
| 04270 | 00 | V | 50 | 28 | 3.1 | 0.5 | -0.7 |
| 04320 | 12 | V | 50 | 30 | 2.6 | -0.2 | -0.6 |
| 04320 | 00 | V | 50 | 26 | 2.2 | -0.3 | -0.4 |
| 04339 | 12 | V | 50 | 30 | 2.2 | -0.2 | -0.7 |
| 04339 | 00 | V | 50 | 24 | 2.5 | -0.3 | -1.2 |
| 04360 | 00 | V | 50 | 20 | 2.5 | 0.4 | 0.2 |
| 04360 | 12 | V | 50 | 26 | 2.6 | 0.2 | -0.5 |
| 06011 | 00 | V | 50 | 22 | 2.5 | -0.2 | -0.4 |
| 06011 | 12 | V | 50 | 29 | 2.7 | 0.2 | -0.1 |
| 06260 | 00 | V | 50 | 25 | 2.7 | 0.2 | -0.4 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|
| 06260 | 12 | V | 50 | 29 | 2.8 | -1.1 | -0.3 |
| 06610 | 00 | V | 50 | 22 | 2.6 | 0.6 | 0.5 |
| 06610 | 12 | V | 50 | 30 | 2.8 | 0.2 | 0.2 |
| 07110 | 00 | V | 50 | 21 | 3.2 | -0.5 | 0.2 |
| 07110 | 12 | V | 50 | 29 | 3.0 | 0.4 | 0.3 |
| 07510 | 00 | V | 50 | 25 | 2.8 | 0.3 | -0.2 |
| 07510 | 12 | V | 50 | 29 | 2.9 | 0.1 | 0.1 |
| 07645 | 12 | V | 50 | 28 | 3.3 | 0.9 | -0.5 |
| 07645 | 00 | V | 50 | 22 | 3.0 | 0.1 | -0.7 |
| 07761 | 00 | V | 50 | 23 | 2.6 | 0.4 | 0.2 |
| 07761 | 12 | V | 50 | 28 | 3.1 | 1.2 | 0.5 |
| 08001 | 00 | V | 50 | 18 | 2.3 | 0.1 | -0.3 |
| 08001 | 12 | V | 50 | 28 | 3.2 | 0.8 | 0.1 |
| 08221 | 00 | V | 50 | 23 | 3.7 | 0.2 | -0.4 |
| 08221 | 12 | V | 50 | 28 | 3.4 | 0.4 | 0.2 |
| 08302 | 12 | V | 50 | 30 | 3.2 | 0.8 | -0.2 |
| 08302 | 00 | V | 50 | 21 | 3.8 | 0.5 | -0.2 |
| 08508 | 00 | V | 50 | 1 | 4.2 | 0.1 | 4.2 |
| 08508 | 12 | V | 50 | 29 | 2.7 | 0.4 | -0.3 |
| 08522 | 12 | V | 50 | 30 | 3.5 | 0.6 | -0.8 |
| 085228 | 12 | V | 50 | 0 | 0.0 | 0.0 | 0.0 |
| 10035 | 00 | V | 50 | 26 | 3.0 | 0.5 | 0.6 |
| 10035 | 12 | V | 50 | 28 | 2.7 | 0.0 | 0.0 |
| 10393 | 00 | V | 50 | 27 | 3.1 | 0.8 | 0.0 |
| 10393 | 12 | V | 50 | 15 | 3.0 | 0.3 | -0.4 |
| 10410 | 00 | V | 50 | 25 | 2.8 | 0.4 | -0.2 |
| 10410 | 12 | V | 50 | 30 | 3.0 | -0.6 | -0.1 |
| 10739 | 12 | V | 50 | 29 | 3.0 | 0.8 | -0.2 |
| 10739 | 00 | V | 50 | 30 | 2.6 | 0.3 | 0.3 |
| 11035 | 00 | V | 50 | 22 | 3.0 | -0.3 | 0.0 |
| 11035 | 12 | V | 50 | 28 | 3.0 | -0.3 | -0.2 |
| 12982 | 12 | V | 50 | 26 | 2.6 | -0.4 | 0.0 |
| 12982 | 00 | V | 50 | 19 | 2.5 | 0.0 | 0.3 |
| 16080 | 00 | V | 50 | 22 | 3.0 | -0.2 | 0.3 |
| 16080 | 12 | V | 50 | 30 | 3.1 | 0.9 | 0.3 |
| 16245 | 12 | V | 50 | 28 | 3.0 | 0.9 | 0.1 |
| 16245 | 00 | V | 50 | 20 | 2.7 | -0.1 | 0.6 |
| 16320 | 12 | V | 50 | 28 | 2.9 | 0.7 | -0.3 |
| 16320 | 00 | V | 50 | 21 | 3.2 | 1.1 | 0.2 |
| 16429 | 00 | V | 50 | 26 | 2.6 | 0.0 | 0.8 |
| 16429 | 12 | V | 50 | 30 | 3.1 | 0.6 | -0.1 |
| 16622 | 00 | V | 50 | 22 | 3.6 | -0.2 | 0.1 |
| 16754 | 00 | V | 50 | 22 | 3.0 | 0.2 | 0.2 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|
| 17607 | 12 | V | 50 | 20 | 3.1 | 0.3 | -0.4 |
| 26435 | 12 | V | 50 | 15 | 2.8 | -1.0 | -1.0 |
| 60018 | 12 | V | 50 | 28 | 3.4 | 0.2 | 0.9 |
| 60018 | 00 | V | 50 | 23 | 3.8 | 0.1 | 0.4 |
| 7JUNA4 | 12 | V | 50 | 4 | 2.4 | -0.9 | 0.5 |
| 7JUNA4 | 00 | V | 50 | 5 | 5.5 | -2.2 | -0.7 |
| ASDE09 | 12 | V | 50 | 9 | 2.6 | -0.3 | 0.5 |
| DBLK | 12 | V | 50 | 24 | 2.1 | -0.9 | 0.0 |
| DBLK | 00 | V | 50 | 26 | 1.9 | -0.1 | 0.1 |
| HTXUH4 | 00 | V | 50 | 5 | 2.4 | -1.2 | -0.2 |
| HTXUH4 | 12 | V | 50 | 10 | 2.5 | -0.3 | -0.7 |
| JNKN7J | 12 | V | 50 | 9 | 1.5 | -0.1 | -0.4 |
| JNKN7J | 00 | V | 50 | 8 | 3.2 | -0.7 | 0.5 |
| KJJF9X | 00 | V | 50 | 2 | 2.8 | -1.2 | 1.1 |
| KJJF9X | 12 | V | 50 | 3 | 2.9 | -0.3 | -1.9 |
| KMPLHP | 12 | V | 50 | 5 | 3.2 | -0.2 | 0.2 |
| KMPLHP | 00 | V | 50 | 7 | 1.7 | 0.0 | 0.3 |
| LRYQE3 | 00 | V | 50 | 6 | 2.1 | -0.5 | 0.8 |
| LRYQE3 | 12 | V | 50 | 7 | 2.7 | 0.1 | -0.2 |
| VKB4L5 | 00 | V | 50 | 4 | 3.5 | 1.2 | -1.7 |
| VKB4L5 | 12 | V | 50 | 6 | 3.5 | -0.2 | 0.0 |
| WDK38H | 12 | V | 50 | 5 | 2.1 | 0.5 | -0.5 |
| XQFJRG | 12 | V | 50 | 6 | 2.9 | 0.4 | 0.6 |
| XQFJRG | 00 | V | 50 | 7 | 2.4 | 0.0 | -1.0 |
| YLV96W | 00 | V | 50 | 3 | 2.2 | 1.9 | -0.4 |
| YLV96W | 12 | V | 50 | 7 | 2.2 | 0.2 | -0.6 |
| ZVQEQC | 12 | V | 50 | 1 | 3.5 | 3.4 | -1.0 |

## 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                : JUN 2020
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | BIAS |
|---|---|---|---|---|---|---|
| 01001 | 00 | Z | 100 | 27 | 6.4 | -2.1 |
| 01001 | 12 | Z | 100 | 27 | 13.0 | 6.3 |
| 01028 | 00 | Z | 100 | 30 | 4.1 | -1.5 |
| 01028 | 12 | Z | 100 | 30 | 6.5 | -2.2 |
| 01400 | 12 | Z | 100 | 30 | 77.6 | 76.0 |
| 01400 | 00 | Z | 100 | 24 | 84.3 | 84.1 |
| 01415 | 12 | Z | 100 | 18 | 3.9 | 0.0 |
| 01415 | 00 | Z | 100 | 30 | 7.1 | 5.1 |
| 02365 | 12 | Z | 100 | 23 | 4.7 | -0.8 |
| 02365 | 00 | Z | 100 | 22 | 5.5 | 2.1 |
| 02836 | 00 | Z | 100 | 31 | 4.4 | 2.2 |
| 02836 | 12 | Z | 100 | 30 | 5.6 | -3.3 |
| 02963 | 12 | Z | 100 | 29 | 4.6 | -1.6 |
| 02963 | 00 | Z | 100 | 30 | 6.2 | 4.8 |
| 03005 | 00 | Z | 100 | 5 | 4.2 | 0.5 |
| 03005 | 12 | Z | 100 | 31 | 7.9 | -2.7 |
| 03238 | 00 | Z | 100 | 30 | 7.5 | 5.0 |
| 03238 | 12 | Z | 100 | 29 | 5.6 | 1.1 |
| 03808 | 12 | Z | 100 | 30 | 4.9 | -0.1 |
| 03808 | 00 | Z | 100 | 28 | 6.8 | 4.6 |
| 03918 | 12 | Z | 100 | 29 | 7.1 | 4.5 |
| 03918 | 00 | Z | 100 | 30 | 10.5 | 8.7 |
| 03953 | 12 | Z | 100 | 31 | 9.3 | 0.3 |
| 03953 | 00 | Z | 100 | 28 | 9.9 | 5.1 |
| 04018 | 00 | Z | 100 | 30 | 5.2 | -2.0 |
| 04018 | 12 | Z | 100 | 30 | 4.8 | -0.3 |
| 04220 | 12 | Z | 100 | 30 | 3.8 | 2.7 |
| 04220 | 00 | Z | 100 | 30 | 4.0 | 1.6 |
| 04270 | 12 | Z | 100 | 30 | 5.6 | -0.2 |
| 04270 | 00 | Z | 100 | 30 | 12.0 | -5.9 |
| 04320 | 12 | Z | 100 | 30 | 5.9 | 0.2 |
| 04320 | 00 | Z | 100 | 30 | 12.6 | -3.9 |
| 04339 | 12 | Z | 100 | 30 | 10.5 | -0.1 |
| 04339 | 00 | Z | 100 | 29 | 8.3 | -4.8 |
| 04360 | 00 | Z | 100 | 24 | 19.4 | -17.0 |
| 04360 | 12 | Z | 100 | 27 | 10.5 | 0.3 |
| 06011 | 00 | Z | 100 | 29 | 8.7 | 6.4 |
| 06011 | 12 | Z | 100 | 30 | 26.5 | 25.3 |
| 06260 | 00 | Z | 100 | 30 | 15.1 | 0.3 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | BIAS |
|---|---|---|---|---|---|---|
| 06260 | 12 | Z | 100 | 30 | 6.3 | -0.8 |
| 06610 | 00 | Z | 100 | 30 | 6.2 | 4.7 |
| 06610 | 12 | Z | 100 | 30 | 4.9 | 0.3 |
| 07110 | 00 | Z | 100 | 29 | 8.6 | -3.9 |
| 07110 | 12 | Z | 100 | 29 | 9.4 | -2.6 |
| 07510 | 00 | Z | 100 | 30 | 12.9 | 10.0 |
| 07510 | 12 | Z | 100 | 29 | 18.3 | 14.9 |
| 07645 | 12 | Z | 100 | 28 | 18.0 | 14.8 |
| 07645 | 00 | Z | 100 | 27 | 9.7 | 6.5 |
| 07761 | 00 | Z | 100 | 28 | 12.9 | 8.8 |
| 07761 | 12 | Z | 100 | 28 | 13.4 | 9.0 |
| 08001 | 00 | Z | 100 | 30 | 7.9 | 7.1 |
| 08001 | 12 | Z | 100 | 30 | 7.2 | 4.2 |
| 08221 | 00 | Z | 100 | 29 | 13.7 | 12.5 |
| 08221 | 12 | Z | 100 | 29 | 7.3 | 5.1 |
| 08302 | 12 | Z | 100 | 30 | 10.1 | -8.0 |
| 08302 | 00 | Z | 100 | 30 | 4.6 | -0.8 |
| 08508 | 00 | Z | 100 | 1 | 20.8 | 20.8 |
| 08508 | 12 | Z | 100 | 29 | 9.7 | 8.5 |
| 08522 | 12 | Z | 100 | 30 | 9.2 | 7.6 |
| 085228 | 12 | Z | 100 | 0 | 0.0 | 0.0 |
| 10035 | 00 | Z | 100 | 29 | 15.2 | 14.5 |
| 10035 | 12 | Z | 100 | 28 | 9.6 | 8.6 |
| 10393 | 00 | Z | 100 | 30 | 8.7 | 6.7 |
| 10393 | 12 | Z | 100 | 15 | 5.8 | -3.3 |
| 10410 | 00 | Z | 100 | 29 | 4.5 | 2.4 |
| 10410 | 12 | Z | 100 | 30 | 5.6 | -2.5 |
| 10739 | 12 | Z | 100 | 31 | 7.0 | 2.9 |
| 10739 | 00 | Z | 100 | 30 | 10.6 | 10.0 |
| 11035 | 00 | Z | 100 | 29 | 14.0 | 13.0 |
| 11035 | 12 | Z | 100 | 30 | 19.1 | 16.6 |
| 12982 | 12 | Z | 100 | 26 | 13.8 | 10.3 |
| 12982 | 00 | Z | 100 | 25 | 10.6 | 6.8 |
| 16080 | 00 | Z | 100 | 30 | 7.6 | 3.2 |
| 16080 | 12 | Z | 100 | 30 | 5.6 | -3.7 |
| 16245 | 12 | Z | 100 | 28 | 7.0 | -4.9 |
| 16245 | 00 | Z | 100 | 29 | 6.2 | 3.2 |
| 16320 | 12 | Z | 100 | 33 | 13.8 | 2.0 |
| 16320 | 00 | Z | 100 | 27 | 13.3 | 10.9 |
| 16429 | 00 | Z | 100 | 30 | 11.0 | 9.8 |
| 16429 | 12 | Z | 100 | 30 | 5.9 | 1.2 |
| 16622 | 00 | Z | 100 | 28 | 12.6 | 10.5 |
| 16754 | 00 | Z | 100 | 29 | 13.3 | 11.4 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | BIAS |
|---|---|---|---|---|---|---|
| 17607 | 12 | Z | 100 | 30 | 8.0 | 6.2 |
| 26435 | 12 | Z | 100 | 15 | 5.8 | -3.4 |
| 60018 | 12 | Z | 100 | 28 | 6.9 | 4.1 |
| 60018 | 00 | Z | 100 | 28 | 15.0 | 14.1 |
| 7JUNA4 | 12 | Z | 100 | 4 | 201.6 | 155.8 |
| 7JUNA4 | 00 | Z | 100 | 5 | 7.7 | 1.3 |
| ASDE09 | 12 | Z | 100 | 10 | 17.3 | 12.4 |
| DBLK | 12 | Z | 100 | 27 | 4.0 | -0.1 |
| DBLK | 00 | Z | 100 | 29 | 5.1 | -2.1 |
| HTXUH4 | 00 | Z | 100 | 8 | 5.6 | 1.6 |
| HTXUH4 | 12 | Z | 100 | 11 | 8.0 | -2.3 |
| JNKN7J | 12 | Z | 100 | 10 | 98.8 | 78.6 |
| JNKN7J | 00 | Z | 100 | 10 | 29.6 | 28.5 |
| KJJF9X | 00 | Z | 100 | 2 | 19.4 | 19.4 |
| KJJF9X | 12 | Z | 100 | 3 | 8.9 | 8.9 |
| KMPLHP | 12 | Z | 100 | 7 | 58.8 | 49.9 |
| KMPLHP | 00 | Z | 100 | 8 | 31.9 | 28.3 |
| LRYQE3 | 00 | Z | 100 | 6 | 10.5 | 5.3 |
| LRYQE3 | 12 | Z | 100 | 8 | 18.7 | 17.6 |
| VKB4L5 | 00 | Z | 100 | 5 | 40.2 | 39.7 |
| VKB4L5 | 12 | Z | 100 | 7 | 39.3 | 39.0 |
| WDK38H | 12 | Z | 100 | 11 | 12.7 | -11.2 |
| XQFJRG | 12 | Z | 100 | 6 | 3.6 | -1.3 |
| XQFJRG | 00 | Z | 100 | 9 | 9.4 | -8.7 |
| YLV96W | 00 | Z | 100 | 6 | 43.1 | 34.9 |
| YLV96W | 12 | Z | 100 | 10 | 92.5 | 79.4 |
| ZVQEQC | 12 | Z | 100 | 2 | 14.6 | -3.2 |

## 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                : JUN 2020
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|
| 01001 | 00 | V | 100 | 23 | 2.4 | 0.2 | 0.0 |
| 01001 | 12 | V | 100 | 27 | 2.5 | 0.2 | -0.2 |
| 01028 | 00 | V | 100 | 23 | 2.2 | 0.2 | -0.6 |
| 01028 | 12 | V | 100 | 30 | 2.6 | -0.4 | -0.2 |
| 01400 | 12 | V | 100 | 29 | 2.8 | 0.0 | -0.5 |
| 01400 | 00 | V | 100 | 19 | 2.5 | 0.4 | -0.3 |
| 01415 | 12 | V | 100 | 18 | 2.4 | 0.2 | -0.8 |
| 01415 | 00 | V | 100 | 26 | 2.6 | 0.4 | 0.0 |
| 02365 | 12 | V | 100 | 23 | 2.7 | -0.4 | 0.0 |
| 02365 | 00 | V | 100 | 21 | 2.5 | -0.1 | -0.3 |
| 02836 | 00 | V | 100 | 24 | 2.7 | -0.3 | 0.2 |
| 02836 | 12 | V | 100 | 30 | 2.2 | -0.1 | 0.1 |
| 02963 | 12 | V | 100 | 28 | 2.2 | -0.2 | 0.1 |
| 02963 | 00 | V | 100 | 24 | 2.5 | 0.4 | 0.3 |
| 03005 | 00 | V | 100 | 4 | 2.3 | 1.1 | 0.0 |
| 03005 | 12 | V | 100 | 30 | 2.9 | 0.7 | -0.1 |
| 03238 | 00 | V | 100 | 26 | 3.0 | -0.4 | 0.1 |
| 03238 | 12 | V | 100 | 29 | 2.7 | -0.2 | 0.1 |
| 03808 | 12 | V | 100 | 30 | 2.3 | 0.1 | -0.4 |
| 03808 | 00 | V | 100 | 21 | 2.7 | 0.5 | 0.0 |
| 03918 | 12 | V | 100 | 29 | 3.1 | 0.3 | 0.0 |
| 03918 | 00 | V | 100 | 26 | 3.0 | 1.3 | -0.3 |
| 03953 | 12 | V | 100 | 30 | 2.6 | 0.8 | -0.1 |
| 03953 | 00 | V | 100 | 22 | 2.5 | -0.1 | -0.4 |
| 04018 | 00 | V | 100 | 27 | 2.8 | 0.0 | -0.3 |
| 04018 | 12 | V | 100 | 30 | 2.7 | 0.2 | -0.2 |
| 04220 | 12 | V | 100 | 30 | 2.5 | -0.4 | -0.3 |
| 04220 | 00 | V | 100 | 29 | 2.4 | -0.8 | -0.3 |
| 04270 | 12 | V | 100 | 30 | 4.1 | -0.6 | 0.2 |
| 04270 | 00 | V | 100 | 27 | 3.4 | -0.7 | -0.3 |
| 04320 | 12 | V | 100 | 30 | 2.8 | 0.2 | 0.2 |
| 04320 | 00 | V | 100 | 26 | 3.1 | -0.4 | -1.2 |
| 04339 | 12 | V | 100 | 30 | 3.0 | 0.1 | -0.2 |
| 04339 | 00 | V | 100 | 29 | 2.5 | 0.0 | 0.2 |
| 04360 | 00 | V | 100 | 20 | 2.6 | -0.7 | -0.1 |
| 04360 | 12 | V | 100 | 27 | 2.5 | 0.0 | -0.2 |
| 06011 | 00 | V | 100 | 25 | 2.4 | 0.0 | -0.2 |
| 06011 | 12 | V | 100 | 30 | 2.6 | 0.6 | -0.3 |
| 06260 | 00 | V | 100 | 25 | 2.7 | -0.4 | -0.3 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|
| 06260 | 12 | V | 100 | 30 | 2.3 | 0.1 | -0.3 |
| 06610 | 00 | V | 100 | 29 | 3.2 | 0.9 | -0.1 |
| 06610 | 12 | V | 100 | 30 | 2.9 | 0.2 | -0.3 |
| 07110 | 00 | V | 100 | 21 | 2.4 | 1.0 | 0.2 |
| 07110 | 12 | V | 100 | 29 | 2.4 | 0.2 | -0.7 |
| 07510 | 00 | V | 100 | 25 | 2.9 | 0.6 | 0.6 |
| 07510 | 12 | V | 100 | 29 | 3.2 | 0.6 | 0.2 |
| 07645 | 12 | V | 100 | 28 | 3.5 | 0.8 | -0.1 |
| 07645 | 00 | V | 100 | 22 | 3.3 | 0.0 | 0.1 |
| 07761 | 00 | V | 100 | 22 | 5.1 | -1.1 | 0.5 |
| 07761 | 12 | V | 100 | 28 | 3.7 | -0.7 | -1.0 |
| 08001 | 00 | V | 100 | 22 | 2.7 | 0.0 | 0.0 |
| 08001 | 12 | V | 100 | 30 | 2.6 | 0.1 | 0.1 |
| 08221 | 00 | V | 100 | 23 | 3.5 | -0.5 | 0.0 |
| 08221 | 12 | V | 100 | 29 | 3.5 | 0.7 | 0.1 |
| 08302 | 12 | V | 100 | 30 | 3.0 | 0.4 | 0.1 |
| 08302 | 00 | V | 100 | 22 | 3.6 | 0.9 | -0.4 |
| 08508 | 00 | V | 100 | 1 | 0.9 | 0.7 | 0.6 |
| 08508 | 12 | V | 100 | 29 | 2.8 | 0.7 | 0.2 |
| 08522 | 12 | V | 100 | 30 | 3.0 | 0.6 | -0.2 |
| 085228 | 12 | V | 100 | 0 | 0.0 | 0.0 | 0.0 |
| 10035 | 00 | V | 100 | 29 | 2.4 | 0.4 | -0.2 |
| 10035 | 12 | V | 100 | 28 | 2.1 | 0.1 | -0.6 |
| 10393 | 00 | V | 100 | 30 | 2.8 | 0.2 | -0.5 |
| 10393 | 12 | V | 100 | 15 | 3.2 | 0.9 | -0.5 |
| 10410 | 00 | V | 100 | 29 | 3.0 | -0.1 | 0.4 |
| 10410 | 12 | V | 100 | 30 | 2.3 | 0.3 | -0.4 |
| 10739 | 12 | V | 100 | 30 | 3.1 | 0.4 | -0.1 |
| 10739 | 00 | V | 100 | 30 | 3.0 | -0.7 | -0.5 |
| 11035 | 00 | V | 100 | 22 | 2.9 | 0.6 | -0.3 |
| 11035 | 12 | V | 100 | 30 | 2.5 | -0.3 | -0.1 |
| 12982 | 12 | V | 100 | 26 | 2.8 | 0.1 | -0.5 |
| 12982 | 00 | V | 100 | 20 | 3.5 | 0.7 | 0.2 |
| 16080 | 00 | V | 100 | 24 | 3.3 | 0.4 | 0.0 |
| 16080 | 12 | V | 100 | 30 | 3.1 | -0.5 | -0.1 |
| 16245 | 12 | V | 100 | 28 | 3.8 | 0.0 | -0.2 |
| 16245 | 00 | V | 100 | 21 | 3.7 | 0.6 | 0.9 |
| 16320 | 12 | V | 100 | 28 | 4.0 | 1.3 | 0.0 |
| 16320 | 00 | V | 100 | 23 | 4.1 | 0.4 | 1.1 |
| 16429 | 00 | V | 100 | 27 | 4.2 | 0.3 | -0.6 |
| 16429 | 12 | V | 100 | 30 | 5.0 | 0.7 | 1.2 |
| 16622 | 00 | V | 100 | 23 | 4.4 | 0.7 | 0.2 |
| 16754 | 00 | V | 100 | 23 | 3.9 | 1.0 | 0.3 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|
| 17607 | 12 | V | 100 | 22 | 4.5 | -0.2 | 0.6 |
| 26435 | 12 | V | 100 | 15 | 3.0 | 0.2 | -1.0 |
| 60018 | 12 | V | 100 | 28 | 4.4 | 0.9 | 0.1 |
| 60018 | 00 | V | 100 | 23 | 4.3 | -0.8 | 0.1 |
| 7JUNA4 | 12 | V | 100 | 3 | 2.9 | -0.3 | 0.3 |
| 7JUNA4 | 00 | V | 100 | 4 | 9.2 | -4.8 | 1.8 |
| ASDE09 | 12 | V | 100 | 10 | 2.2 | 1.1 | -0.1 |
| DBLK | 12 | V | 100 | 24 | 1.8 | -0.4 | 0.1 |
| DBLK | 00 | V | 100 | 26 | 2.3 | -0.8 | 0.1 |
| HTXUH4 | 00 | V | 100 | 8 | 2.2 | -0.2 | -0.6 |
| HTXUH4 | 12 | V | 100 | 11 | 2.6 | -0.5 | 0.0 |
| JNKN7J | 12 | V | 100 | 9 | 2.7 | 0.5 | 0.0 |
| JNKN7J | 00 | V | 100 | 10 | 3.5 | 1.0 | 0.5 |
| KJJF9X | 00 | V | 100 | 2 | 6.6 | -4.5 | 1.9 |
| KJJF9X | 12 | V | 100 | 3 | 3.6 | -1.8 | -2.0 |
| KMPLHP | 12 | V | 100 | 7 | 3.7 | -0.4 | -1.1 |
| KMPLHP | 00 | V | 100 | 6 | 2.6 | -1.5 | -0.5 |
| LRYQE3 | 00 | V | 100 | 6 | 3.0 | -0.5 | 0.4 |
| LRYQE3 | 12 | V | 100 | 8 | 3.4 | -0.3 | 0.2 |
| VKB4L5 | 00 | V | 100 | 5 | 3.5 | -0.9 | 2.2 |
| VKB4L5 | 12 | V | 100 | 7 | 3.9 | 0.9 | -1.1 |
| WDK38H | 12 | V | 100 | 11 | 2.6 | 0.4 | -0.4 |
| XQFJRG | 12 | V | 100 | 6 | 3.1 | -0.5 | 0.8 |
| XQFJRG | 00 | V | 100 | 9 | 1.7 | -0.5 | -0.1 |
| YLV96W | 00 | V | 100 | 6 | 6.3 | -2.4 | 1.7 |
| YLV96W | 12 | V | 100 | 10 | 4.0 | 0.3 | 0.0 |
| ZVQEQC | 12 | V | 100 | 2 | 0.9 | 0.0 | 0.3 |

## 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                : JUN 2020
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | BIAS |
|---|---|---|---|---|---|---|
| 01001 | 00 | Z | 500 | 30 | 8.3 | -6.0 |
| 01001 | 12 | Z | 500 | 32 | 9.2 | -3.5 |
| 01028 | 00 | Z | 500 | 30 | 4.0 | -1.2 |
| 01028 | 12 | Z | 500 | 30 | 3.6 | -1.0 |
| 01400 | 12 | Z | 500 | 30 | 77.1 | 75.7 |
| 01400 | 00 | Z | 500 | 25 | 79.8 | 79.6 |
| 01415 | 12 | Z | 500 | 19 | 3.9 | 1.7 |
| 01415 | 00 | Z | 500 | 30 | 4.3 | 2.4 |
| 02365 | 12 | Z | 500 | 23 | 5.4 | 2.8 |
| 02365 | 00 | Z | 500 | 23 | 5.4 | 3.6 |
| 02836 | 00 | Z | 500 | 31 | 3.2 | 2.6 |
| 02836 | 12 | Z | 500 | 30 | 3.5 | 2.2 |
| 02963 | 12 | Z | 500 | 30 | 4.0 | 3.0 |
| 02963 | 00 | Z | 500 | 30 | 5.4 | 5.0 |
| 03005 | 00 | Z | 500 | 5 | 2.7 | -2.2 |
| 03005 | 12 | Z | 500 | 31 | 4.1 | -2.3 |
| 03238 | 00 | Z | 500 | 30 | 3.2 | 1.6 |
| 03238 | 12 | Z | 500 | 29 | 3.5 | -0.2 |
| 03808 | 12 | Z | 500 | 30 | 2.5 | -0.1 |
| 03808 | 00 | Z | 500 | 28 | 4.6 | 1.0 |
| 03918 | 12 | Z | 500 | 29 | 5.9 | 5.1 |
| 03918 | 00 | Z | 500 | 30 | 7.0 | 6.0 |
| 03953 | 12 | Z | 500 | 32 | 5.6 | 1.1 |
| 03953 | 00 | Z | 500 | 30 | 6.7 | 0.7 |
| 04018 | 00 | Z | 500 | 30 | 3.9 | 0.1 |
| 04018 | 12 | Z | 500 | 30 | 2.5 | 0.2 |
| 04220 | 12 | Z | 500 | 30 | 2.0 | 1.0 |
| 04220 | 00 | Z | 500 | 30 | 3.2 | 1.5 |
| 04270 | 12 | Z | 500 | 30 | 4.0 | -0.9 |
| 04270 | 00 | Z | 500 | 30 | 3.6 | -0.8 |
| 04320 | 12 | Z | 500 | 30 | 3.4 | 1.1 |
| 04320 | 00 | Z | 500 | 30 | 13.8 | -2.3 |
| 04339 | 12 | Z | 500 | 30 | 10.0 | 1.0 |
| 04339 | 00 | Z | 500 | 30 | 4.1 | 0.2 |
| 04360 | 00 | Z | 500 | 28 | 15.3 | -11.7 |
| 04360 | 12 | Z | 500 | 27 | 10.5 | -8.5 |
| 06011 | 00 | Z | 500 | 29 | 5.0 | 4.1 |
| 06011 | 12 | Z | 500 | 30 | 9.2 | 8.3 |
| 06260 | 00 | Z | 500 | 30 | 15.0 | -4.5 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | BIAS |
|---|---|---|---|---|---|---|
| 06260 | 12 | Z | 500 | 30 | 4.0 | -2.0 |
| 06610 | 00 | Z | 500 | 31 | 3.9 | 2.1 |
| 06610 | 12 | Z | 500 | 31 | 2.6 | 0.0 |
| 07110 | 00 | Z | 500 | 30 | 7.1 | -5.2 |
| 07110 | 12 | Z | 500 | 29 | 7.5 | -5.3 |
| 07510 | 00 | Z | 500 | 30 | 5.8 | 1.1 |
| 07510 | 12 | Z | 500 | 29 | 7.2 | 2.2 |
| 07645 | 12 | Z | 500 | 28 | 4.4 | 1.6 |
| 07645 | 00 | Z | 500 | 27 | 5.0 | -1.4 |
| 07761 | 00 | Z | 500 | 29 | 9.6 | -2.0 |
| 07761 | 12 | Z | 500 | 30 | 4.9 | -1.3 |
| 08001 | 00 | Z | 500 | 30 | 3.6 | 2.1 |
| 08001 | 12 | Z | 500 | 30 | 3.9 | 3.2 |
| 08221 | 00 | Z | 500 | 29 | 6.4 | 5.5 |
| 08221 | 12 | Z | 500 | 29 | 5.0 | 4.2 |
| 08302 | 12 | Z | 500 | 30 | 8.6 | -8.1 |
| 08302 | 00 | Z | 500 | 30 | 7.0 | -6.4 |
| 08508 | 00 | Z | 500 | 1 | 14.1 | 14.1 |
| 08508 | 12 | Z | 500 | 30 | 6.3 | 5.6 |
| 08522 | 12 | Z | 500 | 30 | 6.1 | 5.8 |
| 085228 | 12 | Z | 500 | 0 | 0.0 | 0.0 |
| 10035 | 00 | Z | 500 | 29 | 12.6 | 12.0 |
| 10035 | 12 | Z | 500 | 28 | 10.3 | 9.5 |
| 10393 | 00 | Z | 500 | 30 | 4.5 | 2.1 |
| 10393 | 12 | Z | 500 | 15 | 3.0 | -0.6 |
| 10410 | 00 | Z | 500 | 30 | 3.3 | -0.1 |
| 10410 | 12 | Z | 500 | 30 | 3.1 | -2.1 |
| 10739 | 12 | Z | 500 | 31 | 3.1 | 2.0 |
| 10739 | 00 | Z | 500 | 30 | 5.7 | 5.0 |
| 11035 | 00 | Z | 500 | 30 | 7.9 | 7.3 |
| 11035 | 12 | Z | 500 | 30 | 13.3 | 11.8 |
| 12982 | 12 | Z | 500 | 26 | 8.8 | 4.2 |
| 12982 | 00 | Z | 500 | 25 | 4.2 | 2.4 |
| 16080 | 00 | Z | 500 | 30 | 3.7 | -1.7 |
| 16080 | 12 | Z | 500 | 30 | 5.1 | -4.4 |
| 16245 | 12 | Z | 500 | 29 | 6.0 | -5.0 |
| 16245 | 00 | Z | 500 | 29 | 2.9 | -2.0 |
| 16320 | 12 | Z | 500 | 38 | 14.4 | 3.3 |
| 16320 | 00 | Z | 500 | 30 | 7.2 | 4.8 |
| 16429 | 00 | Z | 500 | 30 | 5.8 | 4.3 |
| 16429 | 12 | Z | 500 | 30 | 4.0 | 1.4 |
| 16622 | 00 | Z | 500 | 29 | 6.0 | 3.5 |
| 16754 | 00 | Z | 500 | 29 | 6.2 | 5.0 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | BIAS |
|---|---|---|---|---|---|---|
| 17607 | 12 | Z | 500 | 30 | 6.4 | 5.5 |
| 26435 | 12 | Z | 500 | 15 | 2.8 | 1.3 |
| 60018 | 12 | Z | 500 | 28 | 4.1 | 2.0 |
| 60018 | 00 | Z | 500 | 28 | 4.7 | 2.8 |
| 7JUNA4 | 12 | Z | 500 | 5 | 7.0 | 5.7 |
| 7JUNA4 | 00 | Z | 500 | 6 | 7.5 | 2.9 |
| ASDE09 | 12 | Z | 500 | 10 | 14.4 | 8.8 |
| DBLK | 12 | Z | 500 | 28 | 3.4 | -2.3 |
| DBLK | 00 | Z | 500 | 28 | 3.8 | -1.8 |
| HTXUH4 | 00 | Z | 500 | 12 | 5.2 | 2.4 |
| HTXUH4 | 12 | Z | 500 | 12 | 4.9 | -0.7 |
| JNKN7J | 12 | Z | 500 | 11 | 38.1 | 31.6 |
| JNKN7J | 00 | Z | 500 | 11 | 34.9 | 34.7 |
| KJJF9X | 00 | Z | 500 | 4 | 3.5 | 1.2 |
| KJJF9X | 12 | Z | 500 | 4 | 8.9 | 7.9 |
| KMPLHP | 12 | Z | 500 | 7 | 19.0 | 16.5 |
| KMPLHP | 00 | Z | 500 | 8 | 27.3 | 20.5 |
| LRYQE3 | 00 | Z | 500 | 8 | 6.4 | -0.6 |
| LRYQE3 | 12 | Z | 500 | 8 | 7.3 | 6.2 |
| VKB4L5 | 00 | Z | 500 | 6 | 36.4 | 36.3 |
| VKB4L5 | 12 | Z | 500 | 7 | 36.5 | 36.1 |
| WDK38H | 12 | Z | 500 | 11 | 12.1 | -11.4 |
| XQFJRG | 12 | Z | 500 | 8 | 12.4 | -9.2 |
| XQFJRG | 00 | Z | 500 | 9 | 11.7 | -10.5 |
| YLV96W | 00 | Z | 500 | 9 | 51.6 | 42.9 |
| YLV96W | 12 | Z | 500 | 11 | 56.7 | 50.3 |
| ZVQEQC | 12 | Z | 500 | 2 | 5.3 | 4.6 |

## 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                : JUN 2020
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|
| 01001 | 00 | V | 500 | 29 | 2.1 | 0.3 | -0.2 |
| 01001 | 12 | V | 500 | 30 | 2.3 | -0.1 | 0.0 |
| 01028 | 00 | V | 500 | 30 | 2.1 | 0.3 | 0.3 |
| 01028 | 12 | V | 500 | 30 | 2.3 | -0.3 | 0.0 |
| 01400 | 12 | V | 500 | 30 | 3.2 | -0.2 | 0.6 |
| 01400 | 00 | V | 500 | 25 | 2.3 | -0.1 | 0.0 |
| 01415 | 12 | V | 500 | 19 | 2.3 | -0.1 | 0.8 |
| 01415 | 00 | V | 500 | 30 | 2.4 | -0.1 | 0.2 |
| 02365 | 12 | V | 500 | 23 | 2.3 | -0.6 | -0.7 |
| 02365 | 00 | V | 500 | 23 | 2.7 | -0.3 | -0.2 |
| 02836 | 00 | V | 500 | 30 | 2.3 | 0.4 | -0.4 |
| 02836 | 12 | V | 500 | 30 | 1.9 | -0.4 | 0.0 |
| 02963 | 12 | V | 500 | 29 | 2.7 | -0.4 | -0.5 |
| 02963 | 00 | V | 500 | 30 | 2.1 | 0.1 | -0.3 |
| 03005 | 00 | V | 500 | 5 | 3.0 | -0.2 | 0.7 |
| 03005 | 12 | V | 500 | 30 | 2.2 | 0.2 | 0.4 |
| 03238 | 00 | V | 500 | 29 | 2.3 | 0.2 | 0.3 |
| 03238 | 12 | V | 500 | 29 | 2.7 | -0.5 | 0.2 |
| 03808 | 12 | V | 500 | 30 | 2.6 | 0.0 | 0.0 |
| 03808 | 00 | V | 500 | 27 | 3.0 | 0.3 | -0.4 |
| 03918 | 12 | V | 500 | 29 | 2.9 | 0.3 | -0.2 |
| 03918 | 00 | V | 500 | 30 | 2.6 | 0.2 | -0.5 |
| 03953 | 12 | V | 500 | 30 | 2.3 | 0.3 | 0.1 |
| 03953 | 00 | V | 500 | 29 | 2.3 | -0.1 | 0.2 |
| 04018 | 00 | V | 500 | 30 | 2.4 | -0.2 | -0.4 |
| 04018 | 12 | V | 500 | 30 | 3.1 | 0.0 | -0.2 |
| 04220 | 12 | V | 500 | 30 | 2.5 | -0.1 | 0.0 |
| 04220 | 00 | V | 500 | 30 | 1.9 | -0.3 | -0.4 |
| 04270 | 12 | V | 500 | 30 | 2.9 | 0.6 | 0.2 |
| 04270 | 00 | V | 500 | 30 | 2.8 | -0.1 | -0.2 |
| 04320 | 12 | V | 500 | 30 | 2.4 | 0.6 | -0.1 |
| 04320 | 00 | V | 500 | 30 | 2.3 | 0.3 | -0.4 |
| 04339 | 12 | V | 500 | 30 | 2.8 | 0.2 | -0.2 |
| 04339 | 00 | V | 500 | 30 | 2.5 | 0.2 | -0.4 |
| 04360 | 00 | V | 500 | 28 | 3.3 | -0.8 | 0.6 |
| 04360 | 12 | V | 500 | 27 | 2.9 | 0.4 | 0.6 |
| 06011 | 00 | V | 500 | 29 | 2.8 | -0.4 | -0.2 |
| 06011 | 12 | V | 500 | 30 | 2.6 | 0.1 | 0.6 |
| 06260 | 00 | V | 500 | 30 | 2.6 | 0.2 | 0.0 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|
| 06260 | 12 | V | 500 | 30 | 2.9 | 0.4 | 0.0 |
| 06610 | 00 | V | 500 | 30 | 2.9 | -0.3 | -0.1 |
| 06610 | 12 | V | 500 | 30 | 2.6 | 0.7 | 0.6 |
| 07110 | 00 | V | 500 | 30 | 2.7 | 0.1 | 0.4 |
| 07110 | 12 | V | 500 | 29 | 3.1 | 0.0 | 0.3 |
| 07510 | 00 | V | 500 | 30 | 3.3 | 0.2 | -0.2 |
| 07510 | 12 | V | 500 | 29 | 2.1 | 0.2 | 0.1 |
| 07645 | 12 | V | 500 | 28 | 2.8 | 0.2 | -0.6 |
| 07645 | 00 | V | 500 | 27 | 3.5 | -0.4 | 0.2 |
| 07761 | 00 | V | 500 | 29 | 2.6 | 0.2 | 0.5 |
| 07761 | 12 | V | 500 | 30 | 2.4 | 0.3 | -0.1 |
| 08001 | 00 | V | 500 | 30 | 2.5 | -0.1 | 0.0 |
| 08001 | 12 | V | 500 | 30 | 2.1 | 0.4 | 0.1 |
| 08221 | 00 | V | 500 | 29 | 2.5 | -0.4 | 0.8 |
| 08221 | 12 | V | 500 | 29 | 2.7 | 0.0 | 0.5 |
| 08302 | 12 | V | 500 | 30 | 2.6 | 0.4 | -0.5 |
| 08302 | 00 | V | 500 | 30 | 3.0 | 0.8 | 0.5 |
| 08508 | 00 | V | 500 | 1 | 1.7 | 1.5 | -0.8 |
| 08508 | 12 | V | 500 | 30 | 2.1 | -0.1 | -0.6 |
| 08522 | 12 | V | 500 | 30 | 3.0 | 0.4 | -0.1 |
| 085228 | 12 | V | 500 | 0 | 0.0 | 0.0 | 0.0 |
| 10035 | 00 | V | 500 | 29 | 2.5 | -0.4 | 0.3 |
| 10035 | 12 | V | 500 | 28 | 2.8 | 0.0 | 0.3 |
| 10393 | 00 | V | 500 | 30 | 2.5 | 0.0 | -0.3 |
| 10393 | 12 | V | 500 | 15 | 2.2 | 0.0 | 0.4 |
| 10410 | 00 | V | 500 | 30 | 2.4 | 0.1 | 0.4 |
| 10410 | 12 | V | 500 | 30 | 2.7 | -0.1 | -0.1 |
| 10739 | 12 | V | 500 | 30 | 2.2 | -0.1 | -0.2 |
| 10739 | 00 | V | 500 | 30 | 2.9 | 0.4 | -0.3 |
| 11035 | 00 | V | 500 | 30 | 3.0 | 0.1 | -0.6 |
| 11035 | 12 | V | 500 | 30 | 2.9 | -0.6 | 0.6 |
| 12982 | 12 | V | 500 | 26 | 3.2 | 0.0 | 0.1 |
| 12982 | 00 | V | 500 | 24 | 1.9 | 0.4 | 0.5 |
| 16080 | 00 | V | 500 | 30 | 2.3 | 0.4 | -0.3 |
| 16080 | 12 | V | 500 | 30 | 2.8 | -0.5 | -0.1 |
| 16245 | 12 | V | 500 | 29 | 2.2 | -0.1 | 0.2 |
| 16245 | 00 | V | 500 | 29 | 2.5 | -0.2 | -0.2 |
| 16320 | 12 | V | 500 | 29 | 2.6 | 0.3 | 0.1 |
| 16320 | 00 | V | 500 | 27 | 3.2 | 0.7 | 0.6 |
| 16429 | 00 | V | 500 | 30 | 2.8 | 0.0 | 0.0 |
| 16429 | 12 | V | 500 | 30 | 2.7 | 1.2 | 0.3 |
| 16622 | 00 | V | 500 | 29 | 3.2 | 0.7 | 0.0 |
| 16754 | 00 | V | 500 | 28 | 2.1 | 0.5 | 0.1 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|
| 17607 | 12 | V | 500 | 30 | 2.3 | 0.8 | 0.1 |
| 26435 | 12 | V | 500 | 15 | 2.7 | -0.7 | 0.8 |
| 60018 | 12 | V | 500 | 28 | 3.1 | 0.3 | 0.3 |
| 60018 | 00 | V | 500 | 28 | 2.9 | 0.9 | -0.2 |
| 7JUNA4 | 12 | V | 500 | 4 | 2.0 | -1.4 | 0.1 |
| 7JUNA4 | 00 | V | 500 | 4 | 2.4 | -1.0 | 1.6 |
| ASDE09 | 12 | V | 500 | 10 | 2.2 | 0.1 | 0.0 |
| DBLK | 12 | V | 500 | 25 | 2.2 | -0.4 | 0.8 |
| DBLK | 00 | V | 500 | 26 | 1.8 | -0.4 | -0.1 |
| HTXUH4 | 00 | V | 500 | 12 | 2.1 | -0.3 | 0.5 |
| HTXUH4 | 12 | V | 500 | 12 | 2.4 | -0.2 | 0.7 |
| JNKN7J | 12 | V | 500 | 11 | 3.1 | 0.3 | -0.4 |
| JNKN7J | 00 | V | 500 | 11 | 2.5 | 0.1 | 0.3 |
| KJJF9X | 00 | V | 500 | 4 | 1.6 | 0.5 | -0.5 |
| KJJF9X | 12 | V | 500 | 4 | 2.7 | 1.0 | 0.0 |
| KMPLHP | 12 | V | 500 | 7 | 2.7 | 0.2 | 0.0 |
| KMPLHP | 00 | V | 500 | 7 | 2.4 | -0.4 | -0.3 |
| LRYQE3 | 00 | V | 500 | 8 | 2.6 | 0.5 | -0.2 |
| LRYQE3 | 12 | V | 500 | 8 | 2.2 | -0.1 | 0.2 |
| VKB4L5 | 00 | V | 500 | 6 | 1.7 | -0.2 | 0.1 |
| VKB4L5 | 12 | V | 500 | 7 | 3.0 | 1.2 | -0.4 |
| WDK38H | 12 | V | 500 | 11 | 2.5 | 0.4 | 0.7 |
| XQFJRG | 12 | V | 500 | 7 | 2.4 | 0.3 | 0.0 |
| XQFJRG | 00 | V | 500 | 9 | 2.8 | -1.3 | 0.8 |
| YLV96W | 00 | V | 500 | 9 | 3.1 | 0.9 | -0.3 |
| YLV96W | 12 | V | 500 | 11 | 2.9 | 0.2 | -0.6 |
| ZVQEQC | 12 | V | 500 | 2 | 0.9 | -0.1 | 0.5 |

## 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                : JUN 2020
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | BIAS |
|---|---|---|---|---|---|---|
| 01001 | 00 | Z | 850 | 31 | 6.0 | -4.4 |
| 01001 | 12 | Z | 850 | 32 | 6.5 | -4.7 |
| 01028 | 00 | Z | 850 | 30 | 3.2 | 0.8 |
| 01028 | 12 | Z | 850 | 30 | 3.1 | 0.6 |
| 01400 | 12 | Z | 850 | 30 | 76.7 | 75.2 |
| 01400 | 00 | Z | 850 | 25 | 79.9 | 79.8 |
| 01415 | 12 | Z | 850 | 19 | 3.0 | 2.3 |
| 01415 | 00 | Z | 850 | 30 | 3.6 | 2.9 |
| 02365 | 12 | Z | 850 | 23 | 4.4 | 2.7 |
| 02365 | 00 | Z | 850 | 23 | 4.7 | 4.1 |
| 02836 | 00 | Z | 850 | 31 | 3.7 | 3.4 |
| 02836 | 12 | Z | 850 | 30 | 3.6 | 2.8 |
| 02963 | 12 | Z | 850 | 30 | 3.8 | 2.9 |
| 02963 | 00 | Z | 850 | 30 | 4.1 | 3.8 |
| 03005 | 00 | Z | 850 | 5 | 2.3 | -1.2 |
| 03005 | 12 | Z | 850 | 31 | 2.9 | -1.8 |
| 03238 | 00 | Z | 850 | 30 | 3.4 | 2.5 |
| 03238 | 12 | Z | 850 | 29 | 3.4 | 2.7 |
| 03808 | 12 | Z | 850 | 30 | 2.7 | 1.9 |
| 03808 | 00 | Z | 850 | 28 | 2.7 | 1.3 |
| 03918 | 12 | Z | 850 | 29 | 6.8 | 6.5 |
| 03918 | 00 | Z | 850 | 30 | 7.2 | 6.7 |
| 03953 | 12 | Z | 850 | 32 | 5.7 | 2.3 |
| 03953 | 00 | Z | 850 | 30 | 4.1 | 1.9 |
| 04018 | 00 | Z | 850 | 30 | 2.6 | 0.5 |
| 04018 | 12 | Z | 850 | 30 | 2.7 | -0.1 |
| 04220 | 12 | Z | 850 | 30 | 3.0 | 2.3 |
| 04220 | 00 | Z | 850 | 30 | 4.6 | 2.3 |
| 04270 | 12 | Z | 850 | 30 | 2.6 | 0.8 |
| 04270 | 00 | Z | 850 | 30 | 2.6 | 0.7 |
| 04320 | 12 | Z | 850 | 30 | 4.8 | 3.3 |
| 04320 | 00 | Z | 850 | 30 | 13.3 | 1.5 |
| 04339 | 12 | Z | 850 | 30 | 11.0 | 3.2 |
| 04339 | 00 | Z | 850 | 30 | 3.6 | 1.0 |
| 04360 | 00 | Z | 850 | 29 | 7.5 | -6.2 |
| 04360 | 12 | Z | 850 | 26 | 6.7 | -6.0 |
| 06011 | 00 | Z | 850 | 30 | 4.8 | 4.3 |
| 06011 | 12 | Z | 850 | 30 | 5.6 | 4.1 |
| 06260 | 00 | Z | 850 | 30 | 15.7 | -4.7 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | BIAS |
|---|---|---|---|---|---|---|
| 06260 | 12 | Z | 850 | 30 | 2.9 | -0.1 |
| 06610 | 00 | Z | 850 | 31 | 2.2 | 1.7 |
| 06610 | 12 | Z | 850 | 31 | 2.2 | 0.4 |
| 07110 | 00 | Z | 850 | 30 | 2.5 | -1.4 |
| 07110 | 12 | Z | 850 | 29 | 2.9 | -1.7 |
| 07510 | 00 | Z | 850 | 30 | 4.1 | 3.5 |
| 07510 | 12 | Z | 850 | 29 | 4.4 | 3.7 |
| 07645 | 12 | Z | 850 | 28 | 2.2 | -0.5 |
| 07645 | 00 | Z | 850 | 27 | 2.4 | -0.2 |
| 07761 | 00 | Z | 850 | 30 | 2.3 | -0.9 |
| 07761 | 12 | Z | 850 | 30 | 3.0 | -1.5 |
| 08001 | 00 | Z | 850 | 30 | 2.8 | 1.8 |
| 08001 | 12 | Z | 850 | 30 | 2.7 | 1.8 |
| 08221 | 00 | Z | 850 | 29 | 3.8 | 2.9 |
| 08221 | 12 | Z | 850 | 29 | 3.3 | 2.8 |
| 08302 | 12 | Z | 850 | 30 | 9.4 | -9.2 |
| 08302 | 00 | Z | 850 | 30 | 7.9 | -7.6 |
| 08508 | 00 | Z | 850 | 1 | 7.8 | 7.8 |
| 08508 | 12 | Z | 850 | 30 | 3.8 | 3.3 |
| 08522 | 12 | Z | 850 | 30 | 2.9 | 2.0 |
| 085228 | 12 | Z | 850 | 1 | 8.5 | -8.5 |
| 10035 | 00 | Z | 850 | 29 | 11.8 | 11.6 |
| 10035 | 12 | Z | 850 | 28 | 12.2 | 12.0 |
| 10393 | 00 | Z | 850 | 30 | 3.6 | 1.4 |
| 10393 | 12 | Z | 850 | 15 | 2.1 | 1.1 |
| 10410 | 00 | Z | 850 | 30 | 2.4 | -0.9 |
| 10410 | 12 | Z | 850 | 30 | 2.3 | -0.7 |
| 10739 | 12 | Z | 850 | 31 | 3.9 | 3.5 |
| 10739 | 00 | Z | 850 | 30 | 4.4 | 4.0 |
| 11035 | 00 | Z | 850 | 30 | 8.4 | 7.7 |
| 11035 | 12 | Z | 850 | 30 | 15.9 | 14.9 |
| 12982 | 12 | Z | 850 | 26 | 5.8 | 5.0 |
| 12982 | 00 | Z | 850 | 25 | 3.3 | 2.1 |
| 16080 | 00 | Z | 850 | 30 | 2.9 | -0.7 |
| 16080 | 12 | Z | 850 | 30 | 3.4 | -2.2 |
| 16245 | 12 | Z | 850 | 29 | 4.5 | -4.0 |
| 16245 | 00 | Z | 850 | 29 | 2.9 | -1.9 |
| 16320 | 12 | Z | 850 | 38 | 16.2 | 4.9 |
| 16320 | 00 | Z | 850 | 31 | 7.1 | 3.3 |
| 16429 | 00 | Z | 850 | 30 | 4.7 | 2.9 |
| 16429 | 12 | Z | 850 | 30 | 2.6 | 1.3 |
| 16622 | 00 | Z | 850 | 29 | 4.8 | 1.7 |
| 16754 | 00 | Z | 850 | 30 | 3.3 | 1.2 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | BIAS |
|---|---|---|---|---|---|---|
| 17607 | 12 | Z | 850 | 30 | 3.2 | 2.4 |
| 26435 | 12 | Z | 850 | 15 | 3.5 | 2.2 |
| 60018 | 12 | Z | 850 | 28 | 2.9 | 0.2 |
| 60018 | 00 | Z | 850 | 28 | 2.5 | 0.1 |
| 7JUNA4 | 12 | Z | 850 | 8 | 7.8 | 6.1 |
| 7JUNA4 | 00 | Z | 850 | 6 | 8.4 | 6.3 |
| ASDE09 | 12 | Z | 850 | 11 | 13.8 | 8.9 |
| DBLK | 12 | Z | 850 | 28 | 3.3 | 0.4 |
| DBLK | 00 | Z | 850 | 28 | 4.4 | 0.7 |
| HTXUH4 | 00 | Z | 850 | 12 | 5.0 | 3.1 |
| HTXUH4 | 12 | Z | 850 | 12 | 3.8 | 0.3 |
| JNKN7J | 12 | Z | 850 | 11 | 39.2 | 36.9 |
| JNKN7J | 00 | Z | 850 | 11 | 39.0 | 38.9 |
| KJJF9X | 00 | Z | 850 | 4 | 2.5 | -1.9 |
| KJJF9X | 12 | Z | 850 | 4 | 2.2 | 1.5 |
| KMPLHP | 12 | Z | 850 | 8 | 16.4 | 14.1 |
| KMPLHP | 00 | Z | 850 | 9 | 30.8 | 22.6 |
| LRYQE3 | 00 | Z | 850 | 8 | 6.6 | 1.7 |
| LRYQE3 | 12 | Z | 850 | 8 | 5.7 | 4.7 |
| VKB4L5 | 00 | Z | 850 | 6 | 31.9 | 31.8 |
| VKB4L5 | 12 | Z | 850 | 8 | 34.5 | 34.4 |
| WDK38H | 12 | Z | 850 | 11 | 11.9 | -10.9 |
| XQFJRG | 12 | Z | 850 | 9 | 11.1 | -10.3 |
| XQFJRG | 00 | Z | 850 | 9 | 12.0 | -10.7 |
| YLV96W | 00 | Z | 850 | 9 | 55.6 | 46.4 |
| YLV96W | 12 | Z | 850 | 11 | 60.3 | 52.3 |
| ZVQEQC | 12 | Z | 850 | 2 | 2.4 | 2.1 |

## 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                : JUN 2020
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|
| 01001 | 00 | V | 850 | 29 | 4.0 | 1.0 | -1.3 |
| 01001 | 12 | V | 850 | 30 | 3.9 | 0.4 | -1.2 |
| 01028 | 00 | V | 850 | 30 | 2.0 | 0.2 | -0.1 |
| 01028 | 12 | V | 850 | 30 | 2.2 | 0.2 | -0.4 |
| 01400 | 12 | V | 850 | 30 | 2.6 | 0.6 | 0.1 |
| 01400 | 00 | V | 850 | 25 | 2.5 | -0.2 | -0.2 |
| 01415 | 12 | V | 850 | 19 | 3.5 | 0.5 | 0.6 |
| 01415 | 00 | V | 850 | 30 | 2.3 | 0.0 | 0.7 |
| 02365 | 12 | V | 850 | 23 | 3.3 | 0.2 | -1.2 |
| 02365 | 00 | V | 850 | 23 | 2.3 | 0.4 | -0.1 |
| 02836 | 00 | V | 850 | 30 | 2.6 | 0.5 | 0.3 |
| 02836 | 12 | V | 850 | 30 | 2.1 | 0.7 | 0.3 |
| 02963 | 12 | V | 850 | 29 | 2.6 | -0.3 | -0.2 |
| 02963 | 00 | V | 850 | 30 | 2.6 | 0.1 | 0.5 |
| 03005 | 00 | V | 850 | 5 | 2.9 | -0.2 | 0.3 |
| 03005 | 12 | V | 850 | 30 | 2.7 | 0.1 | -0.1 |
| 03238 | 00 | V | 850 | 29 | 3.3 | -0.1 | -0.4 |
| 03238 | 12 | V | 850 | 29 | 2.6 | 0.5 | 0.3 |
| 03808 | 12 | V | 850 | 30 | 2.3 | -0.3 | -0.2 |
| 03808 | 00 | V | 850 | 27 | 2.3 | 0.2 | -1.0 |
| 03918 | 12 | V | 850 | 29 | 2.6 | -0.1 | 0.4 |
| 03918 | 00 | V | 850 | 30 | 2.9 | -0.3 | -0.4 |
| 03953 | 12 | V | 850 | 30 | 2.4 | -0.2 | -0.2 |
| 03953 | 00 | V | 850 | 29 | 2.1 | 0.3 | -0.1 |
| 04018 | 00 | V | 850 | 30 | 2.6 | 0.1 | -0.1 |
| 04018 | 12 | V | 850 | 30 | 2.7 | 0.7 | 0.1 |
| 04220 | 12 | V | 850 | 30 | 2.8 | 0.3 | -0.8 |
| 04220 | 00 | V | 850 | 30 | 2.6 | 0.3 | 0.3 |
| 04270 | 12 | V | 850 | 30 | 4.0 | 0.7 | 0.5 |
| 04270 | 00 | V | 850 | 30 | 3.3 | -0.1 | -0.3 |
| 04320 | 12 | V | 850 | 30 | 3.5 | -0.7 | -0.3 |
| 04320 | 00 | V | 850 | 30 | 3.0 | -0.5 | -0.5 |
| 04339 | 12 | V | 850 | 30 | 3.2 | -0.1 | 0.1 |
| 04339 | 00 | V | 850 | 30 | 3.7 | -0.8 | -1.5 |
| 04360 | 00 | V | 850 | 29 | 7.1 | 1.7 | 0.8 |
| 04360 | 12 | V | 850 | 26 | 5.2 | 1.0 | -0.7 |
| 06011 | 00 | V | 850 | 30 | 2.3 | 0.1 | -0.3 |
| 06011 | 12 | V | 850 | 30 | 2.6 | -0.3 | 0.2 |
| 06260 | 00 | V | 850 | 30 | 2.1 | 0.1 | 0.1 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|
| 06260 | 12 | V | 850 | 30 | 2.6 | -0.3 | -0.2 |
| 06610 | 00 | V | 850 | 30 | 2.5 | 0.3 | -0.3 |
| 06610 | 12 | V | 850 | 30 | 3.0 | 0.0 | 0.2 |
| 07110 | 00 | V | 850 | 30 | 2.3 | 0.0 | -0.3 |
| 07110 | 12 | V | 850 | 29 | 2.8 | 0.0 | -0.1 |
| 07510 | 00 | V | 850 | 30 | 2.6 | 0.8 | -0.4 |
| 07510 | 12 | V | 850 | 29 | 2.6 | 0.1 | -0.5 |
| 07645 | 12 | V | 850 | 28 | 3.0 | -0.2 | 0.5 |
| 07645 | 00 | V | 850 | 27 | 3.5 | -0.5 | 0.5 |
| 07761 | 00 | V | 850 | 30 | 2.3 | 0.3 | 0.4 |
| 07761 | 12 | V | 850 | 30 | 3.1 | -1.2 | 0.3 |
| 08001 | 00 | V | 850 | 30 | 2.6 | 0.5 | 0.4 |
| 08001 | 12 | V | 850 | 30 | 2.4 | -0.2 | 0.3 |
| 08221 | 00 | V | 850 | 29 | 3.7 | 0.6 | 0.9 |
| 08221 | 12 | V | 850 | 29 | 2.6 | 0.2 | 0.4 |
| 08302 | 12 | V | 850 | 30 | 3.0 | 0.3 | 0.5 |
| 08302 | 00 | V | 850 | 30 | 2.7 | 0.0 | -0.1 |
| 08508 | 00 | V | 850 | 1 | 4.0 | -0.1 | 4.0 |
| 08508 | 12 | V | 850 | 30 | 3.0 | 0.2 | 0.0 |
| 08522 | 12 | V | 850 | 30 | 2.6 | -0.5 | -0.2 |
| 085228 | 12 | V | 850 | 1 | 5.7 | -4.1 | -4.0 |
| 10035 | 00 | V | 850 | 29 | 2.4 | 0.4 | 0.5 |
| 10035 | 12 | V | 850 | 28 | 2.3 | 0.2 | 0.3 |
| 10393 | 00 | V | 850 | 30 | 2.0 | 0.2 | 0.6 |
| 10393 | 12 | V | 850 | 15 | 2.6 | 0.1 | -0.2 |
| 10410 | 00 | V | 850 | 30 | 2.9 | -0.1 | -0.3 |
| 10410 | 12 | V | 850 | 30 | 2.1 | 0.2 | 0.1 |
| 10739 | 12 | V | 850 | 30 | 3.0 | 0.2 | 0.4 |
| 10739 | 00 | V | 850 | 30 | 2.7 | 0.2 | -0.4 |
| 11035 | 00 | V | 850 | 30 | 2.9 | 0.1 | 0.7 |
| 11035 | 12 | V | 850 | 30 | 2.7 | -0.2 | 0.5 |
| 12982 | 12 | V | 850 | 26 | 2.4 | -0.2 | -0.2 |
| 12982 | 00 | V | 850 | 24 | 3.1 | -0.5 | 0.2 |
| 16080 | 00 | V | 850 | 30 | 3.2 | 0.8 | -0.7 |
| 16080 | 12 | V | 850 | 30 | 2.5 | 0.1 | -0.3 |
| 16245 | 12 | V | 850 | 29 | 2.6 | -0.1 | 0.0 |
| 16245 | 00 | V | 850 | 29 | 3.1 | -0.3 | 0.2 |
| 16320 | 12 | V | 850 | 29 | 2.4 | 0.0 | -0.8 |
| 16320 | 00 | V | 850 | 28 | 3.2 | 0.5 | -0.5 |
| 16429 | 00 | V | 850 | 30 | 3.2 | -0.3 | -0.2 |
| 16429 | 12 | V | 850 | 30 | 2.8 | -0.2 | 0.8 |
| 16622 | 00 | V | 850 | 29 | 3.1 | 0.4 | 0.1 |
| 16754 | 00 | V | 850 | 29 | 2.8 | 0.3 | 0.2 |

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | OBS RECD | RMS | UBIAS | VBIAS |
|---|---|---|---|---|---|---|---|
| 17607 | 12 | V | 850 | 30 | 2.8 | 0.2 | -0.1 |
| 26435 | 12 | V | 850 | 15 | 2.7 | 0.5 | -0.3 |
| 60018 | 12 | V | 850 | 28 | 3.7 | 0.5 | 0.0 |
| 60018 | 00 | V | 850 | 28 | 3.5 | 0.4 | 0.7 |
| 7JUNA4 | 12 | V | 850 | 8 | 2.4 | 0.3 | 0.9 |
| 7JUNA4 | 00 | V | 850 | 6 | 1.9 | -1.0 | 1.0 |
| ASDE09 | 12 | V | 850 | 11 | 2.1 | -0.3 | 0.7 |
| DBLK | 12 | V | 850 | 25 | 2.4 | -0.2 | 0.0 |
| DBLK | 00 | V | 850 | 26 | 2.6 | -0.4 | 0.3 |
| HTXUH4 | 00 | V | 850 | 12 | 4.2 | -0.6 | 0.1 |
| HTXUH4 | 12 | V | 850 | 12 | 1.8 | 0.0 | 0.0 |
| JNKN7J | 12 | V | 850 | 11 | 4.8 | 0.2 | 0.0 |
| JNKN7J | 00 | V | 850 | 11 | 1.9 | -0.2 | -0.1 |
| KJJF9X | 00 | V | 850 | 4 | 1.7 | -0.9 | 0.3 |
| KJJF9X | 12 | V | 850 | 4 | 2.6 | 1.6 | -0.5 |
| KMPLHP | 12 | V | 850 | 8 | 10.2 | 0.7 | -2.9 |
| KMPLHP | 00 | V | 850 | 9 | 2.5 | -0.7 | 1.0 |
| LRYQE3 | 00 | V | 850 | 8 | 2.5 | -0.2 | 1.5 |
| LRYQE3 | 12 | V | 850 | 8 | 2.1 | -0.2 | -0.3 |
| VKB4L5 | 00 | V | 850 | 6 | 3.4 | -0.4 | 1.2 |
| VKB4L5 | 12 | V | 850 | 8 | 3.2 | 0.4 | -0.8 |
| WDK38H | 12 | V | 850 | 11 | 1.9 | 0.0 | 0.8 |
| XQFJRG | 12 | V | 850 | 8 | 2.7 | 0.1 | -0.2 |
| XQFJRG | 00 | V | 850 | 9 | 1.8 | -0.5 | -0.2 |
| YLV96W | 00 | V | 850 | 9 | 2.6 | 0.7 | 0.1 |
| YLV96W | 12 | V | 850 | 11 | 3.0 | 1.0 | 1.0 |
| ZVQEQC | 12 | V | 850 | 2 | 2.0 | 1.8 | 0.0 |

## 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                 : JUN 2020
         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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 006 | 99 | P | SUR | 74 | 16 | 5 | 0 | 0.8 | -0.1 | 0.8 |
| 0062087 | 99 | P | SUR | 55 | 7 | 301 | 0 | 0.3 | -0.1 | 0.4 |
| 0066024 | 99 | P | SUR | 55 | 13 | 116 | 1 | 0.5 | -0.0 | 0.5 |
| 03380 | 99 | P | SUR | 54 | 0 | 732 | 0 | 0.3 | -0.1 | 0.3 |
| 0640046 | 99 | P | SUR | 60 | -4 | 661 | 0 | 0.3 | -0.1 | 0.3 |
| 1300001 | 99 | P | SUR | 11 | -23 | 702 | 0 | 0.4 | 0.1 | 0.4 |
| 1300008 | 99 | P | SUR | 15 | -38 | 690 | 0 | 0.3 | 0.1 | 0.3 |
| 1300130 | 99 | P | SUR | 28 | -16 | 207 | 0 | 0.3 | 0.3 | 0.4 |
| 1300131 | 99 | P | SUR | 28 | -17 | 706 | 0 | 0.4 | 0.1 | 0.4 |
| 1301569 | 99 | P | SUR | 22 | -42 | 718 | 0 | 0.2 | -0.3 | 0.4 |
| 1301603 | 99 | P | SUR | 30 | -50 | 719 | 0 | 0.3 | 0.0 | 0.3 |
| 1301608 | 99 | P | SUR | 29 | -44 | 718 | 0 | 0.3 | -0.9 | 1.0 |
| 1301612 | 99 | P | SUR | 28 | -43 | 718 | 0 | 0.2 | -0.1 | 0.2 |
| 1301619 | 99 | P | SUR | 33 | -25 | 720 | 0 | 0.2 | 0.4 | 0.5 |
| 1301620 | 99 | P | SUR | 15 | -51 | 720 | 0 | 0.3 | 0.2 | 0.3 |
| 1501531 | 99 | P | SUR | 28 | -46 | 719 | 0 | 0.3 | -0.2 | 0.3 |
| 1501584 | 99 | P | SUR | 17 | -59 | 716 | 0 | 0.3 | -0.1 | 0.3 |
| 1701631 | 99 | P | SUR | 16 | -49 | 720 | 0 | 0.3 | 0.4 | 0.5 |
| 1701632 | 99 | P | SUR | 15 | -50 | 718 | 0 | 0.3 | 0.2 | 0.3 |
| 1701633 | 99 | P | SUR | 17 | -49 | 716 | 0 | 0.2 | 0.6 | 0.6 |
| 1701634 | 99 | P | SUR | 11 | -45 | 713 | 0 | 0.3 | 0.1 | 0.3 |
| 1701635 | 99 | P | SUR | 11 | -45 | 636 | 0 | 0.4 | 0.2 | 0.5 |
| 2501538 | 99 | P | SUR | 88 | -40 | 689 | 0 | 1.5 | 0.2 | 1.5 |
| 2501543 | 99 | P | SUR | 84 | 26 | 721 | 0 | 0.3 | -0.2 | 0.4 |
| 2501544 | 99 | P | SUR | 84 | 20 | 720 | 0 | 0.3 | -0.1 | 0.3 |
| 2501647 | 99 | P | SUR | 76 | -13 | 719 | 0 | 0.4 | 0.2 | 0.4 |
| 2600569 | 99 | P | SUR | 83 | 10 | 274 | 0 | 0.4 | -0.5 | 0.6 |
| 2601625 | 99 | P | SUR | 77 | 17 | 718 | 64 | 6.4 | -1.8 | 6.6 |
| 4100040 | 99 | P | SUR | 15 | -53 | 4233 | 0 | 0.3 | -0.2 | 0.4 |
| 4100043 | 99 | P | SUR | 21 | -65 | 3959 | 0 | 0.3 | 0.2 | 0.3 |
| 4100044 | 99 | P | SUR | 22 | -59 | 3954 | 0 | 0.3 | 0.1 | 0.3 |
| 4100046 | 99 | P | SUR | 24 | -68 | 3932 | 0 | 0.3 | 0.1 | 0.3 |
| 4100048 | 99 | P | SUR | 32 | -70 | 3968 | 0 | 0.4 | -0.1 | 0.4 |
| 4100049 | 99 | P | SUR | 27 | -63 | 3917 | 0 | 0.3 | -0.6 | 0.7 |
| 4100052 | 99 | P | SUR | 18 | -65 | 719 | 0 | 0.3 | -1.0 | 1.0 |
| 4100053 | 99 | P | SUR | 18 | -66 | 4297 | 0 | 0.3 | -0.7 | 0.8 |

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|
| 4100056 | 99 | P | SUR | 18 | -65 | 4301 | 0 | 0.3 | -0.8 | 0.9 |
| 4100139 | 99 | P | SUR | 20 | -38 | 700 | 0 | 0.3 | 0.0 | 0.3 |
| 4100300 | 99 | P | SUR | 16 | -57 | 718 | 0 | 0.3 | 0.1 | 0.3 |
| 4100729 | 99 | P | SUR | 34 | -27 | 720 | 0 | 0.4 | 3.7 | 3.7 |
| 4101531 | 99 | P | SUR | 29 | -26 | 718 | 0 | 0.2 | 0.6 | 0.6 |
| 4101537 | 99 | P | SUR | 32 | -16 | 718 | 0 | 0.3 | -2.0 | 2.0 |
| 4101557 | 99 | P | SUR | 25 | -44 | 720 | 0 | 0.3 | 0.2 | 0.3 |
| 4101560 | 99 | P | SUR | 34 | -13 | 719 | 0 | 0.3 | 0.6 | 0.7 |
| 4101564 | 99 | P | SUR | 25 | -43 | 685 | 0 | 0.2 | 0.0 | 0.2 |
| 4101565 | 99 | P | SUR | 25 | -49 | 719 | 0 | 0.3 | 0.3 | 0.5 |
| 4101567 | 99 | P | SUR | 32 | -32 | 717 | 0 | 0.2 | 0.6 | 0.6 |
| 4101570 | 99 | P | SUR | 30 | -66 | 718 | 0 | 0.3 | 0.2 | 0.4 |
| 4101573 | 99 | P | SUR | 32 | -35 | 719 | 0 | 0.3 | 0.2 | 0.3 |
| 4101574 | 99 | P | SUR | 31 | -40 | 719 | 0 | 0.2 | 0.5 | 0.6 |
| 4101603 | 99 | P | SUR | 15 | -61 | 695 | 0 | 0.3 | -0.3 | 0.4 |
| 4101609 | 99 | P | SUR | 31 | -18 | 720 | 0 | 0.3 | 0.1 | 0.3 |
| 4101610 | 99 | P | SUR | 64 | 1 | 717 | 0 | 0.3 | 0.4 | 0.5 |
| 4101613 | 99 | P | SUR | 29 | -20 | 719 | 0 | 0.3 | 0.5 | 0.6 |
| 4101614 | 99 | P | SUR | 29 | -17 | 718 | 0 | 0.4 | 0.0 | 0.4 |
| 4101616 | 99 | P | SUR | 34 | -19 | 717 | 0 | 0.3 | 0.0 | 0.3 |
| 4101617 | 99 | P | SUR | 28 | -29 | 720 | 0 | 0.4 | 0.4 | 0.6 |
| 4101618 | 99 | P | SUR | 33 | -29 | 719 | 0 | 0.2 | 0.3 | 0.4 |
| 4101621 | 99 | P | SUR | 34 | -34 | 720 | 0 | 0.2 | 0.4 | 0.4 |
| 4101622 | 99 | P | SUR | 67 | -13 | 720 | 0 | 0.3 | 0.2 | 0.3 |
| 4101623 | 99 | P | SUR | 58 | -49 | 718 | 0 | 0.4 | 0.1 | 0.4 |
| 4101627 | 99 | P | SUR | 60 | -57 | 719 | 0 | 0.4 | 0.1 | 0.4 |
| 4101636 | 99 | P | SUR | 10 | -26 | 720 | 1 | 0.4 | -0.1 | 0.4 |
| 4101655 | 99 | P | SUR | 60 | -11 | 719 | 0 | 0.3 | 0.0 | 0.3 |
| 4101657 | 99 | P | SUR | 63 | -17 | 181 | 0 | 0.3 | -0.1 | 0.3 |
| 4101658 | 99 | P | SUR | 58 | -30 | 717 | 0 | 0.4 | 0.1 | 0.4 |
| 4101659 | 99 | P | SUR | 63 | 6 | 720 | 0 | 0.4 | 0.4 | 0.5 |
| 4101662 | 99 | P | SUR | 73 | 17 | 719 | 0 | 0.3 | 0.2 | 0.3 |
| 4101663 | 99 | P | SUR | 59 | -59 | 718 | 0 | 0.4 | 0.2 | 0.4 |
| 4101664 | 99 | P | SUR | 59 | -28 | 720 | 0 | 0.4 | 0.1 | 0.4 |
| 4101669 | 99 | P | SUR | 18 | -52 | 719 | 0 | 0.3 | 0.1 | 0.3 |
| 4101690 | 99 | P | SUR | 48 | -15 | 704 | 0 | 0.4 | 0.1 | 0.4 |
| 4101696 | 99 | P | SUR | 16 | -52 | 719 | 1 | 0.3 | 0.0 | 0.3 |
| 4101698 | 99 | P | SUR | 13 | -60 | 283 | 0 | 0.4 | -0.6 | 0.7 |
| 4101699 | 99 | P | SUR | 13 | -61 | 717 | 0 | 0.4 | -0.9 | 0.9 |
| 4101702 | 99 | P | SUR | 35 | -69 | 720 | 0 | 0.4 | -0.0 | 0.4 |
| 4101705 | 99 | P | SUR | 31 | -31 | 720 | 0 | 0.3 | -1.3 | 1.3 |
| 4101707 | 99 | P | SUR | 35 | -21 | 720 | 0 | 0.3 | -0.1 | 0.3 |
| 4101708 | 99 | P | SUR | 37 | -50 | 720 | 0 | 0.3 | -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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 4101712 | 99 | P | SUR | 40 | -14 | 720 | 0 | 0.2 | -0.8 | 0.8 |
| 4101714 | 99 | P | SUR | 33 | -26 | 720 | 0 | 0.2 | -0.1 | 0.3 |
| 4101715 | 99 | P | SUR | 36 | -59 | 720 | 1 | 1.1 | -0.1 | 1.1 |
| 4101716 | 99 | P | SUR | 25 | -66 | 720 | 0 | 0.3 | -0.9 | 0.9 |
| 4101717 | 99 | P | SUR | 34 | -63 | 719 | 0 | 0.3 | -0.1 | 0.3 |
| 4101718 | 99 | P | SUR | 25 | -31 | 719 | 0 | 0.2 | -0.0 | 0.2 |
| 4101719 | 99 | P | SUR | 30 | -48 | 720 | 0 | 0.3 | 0.0 | 0.3 |
| 4101720 | 99 | P | SUR | 32 | -46 | 720 | 0 | 0.3 | 0.5 | 0.6 |
| 4101721 | 99 | P | SUR | 28 | -42 | 720 | 0 | 0.2 | 0.8 | 0.8 |
| 4101742 | 99 | P | SUR | 30 | -35 | 719 | 0 | 0.3 | 0.1 | 0.3 |
| 4101743 | 99 | P | SUR | 33 | -70 | 720 | 0 | 0.4 | 0.6 | 0.7 |
| 4101752 | 99 | P | SUR | 38 | -69 | 720 | 0 | 0.4 | -0.2 | 0.5 |
| 4101753 | 99 | P | SUR | 26 | -35 | 720 | 0 | 0.3 | 0.3 | 0.4 |
| 4101755 | 99 | P | SUR | 19 | -38 | 718 | 0 | 0.2 | 0.2 | 0.3 |
| 4101756 | 99 | P | SUR | 10 | -41 | 720 | 0 | 0.4 | -0.0 | 0.4 |
| 4101757 | 99 | P | SUR | 15 | -61 | 1440 | 5 | 2.2 | 0.3 | 2.2 |
| 41040 | 99 | P | SUR | 15 | -53 | 1302 | 0 | 0.3 | -0.3 | 0.4 |
| 41043 | 99 | P | SUR | 21 | -65 | 1301 | 0 | 0.3 | 0.2 | 0.4 |
| 41044 | 99 | P | SUR | 22 | -59 | 1302 | 0 | 0.3 | 0.1 | 0.3 |
| 41046 | 99 | P | SUR | 24 | -68 | 1311 | 0 | 0.3 | 0.1 | 0.4 |
| 41048 | 99 | P | SUR | 32 | -70 | 1392 | 0 | 0.4 | -0.1 | 0.4 |
| 41049 | 99 | P | SUR | 28 | -63 | 1317 | 0 | 0.4 | -0.6 | 0.7 |
| 41052 | 99 | P | SUR | 18 | -65 | 720 | 0 | 0.3 | -1.0 | 1.0 |
| 41053 | 99 | P | SUR | 19 | -66 | 1520 | 0 | 0.3 | -0.8 | 0.8 |
| 41056 | 99 | P | SUR | 18 | -66 | 1504 | 0 | 0.3 | -0.9 | 0.9 |
| 4200059 | 99 | P | SUR | 15 | -67 | 3999 | 0 | 0.3 | -0.2 | 0.4 |
| 4200060 | 99 | P | SUR | 16 | -63 | 4045 | 0 | 0.3 | -0.1 | 0.3 |
| 4200085 | 99 | P | SUR | 18 | -67 | 4053 | 0 | 0.3 | -0.8 | 0.8 |
| 42059 | 99 | P | SUR | 15 | -68 | 1287 | 0 | 0.4 | -0.2 | 0.4 |
| 42060 | 99 | P | SUR | 16 | -63 | 1314 | 0 | 0.3 | -0.1 | 0.3 |
| 42085 | 99 | P | SUR | 18 | -67 | 1494 | 0 | 0.3 | -0.8 | 0.9 |
| 4400008 | 99 | P | SUR | 41 | -69 | 4255 | 0 | 0.4 | 0.4 | 0.6 |
| 4400011 | 99 | P | SUR | 41 | -67 | 4271 | 0 | 0.4 | 0.2 | 0.4 |
| 4400027 | 99 | P | SUR | 44 | -67 | 717 | 0 | 0.4 | -0.4 | 0.6 |
| 4400032 | 99 | P | SUR | 44 | -69 | 692 | 0 | 0.4 | -1.5 | 1.5 |
| 4400033 | 99 | P | SUR | 44 | -69 | 680 | 0 | 0.4 | -1.3 | 1.4 |
| 4400034 | 99 | P | SUR | 44 | -68 | 668 | 0 | 0.4 | 0.6 | 0.8 |
| 4400037 | 99 | P | SUR | 43 | -68 | 685 | 0 | 0.4 | 0.0 | 0.4 |
| 4400777 | 99 | P | SUR | 31 | -65 | 720 | 0 | 0.3 | 0.1 | 0.4 |
| 44008 | 99 | P | SUR | 41 | -69 | 2100 | 0 | 0.4 | 0.4 | 0.6 |
| 4400857 | 99 | P | SUR | 32 | -26 | 720 | 0 | 0.3 | 0.3 | 0.4 |
| 44011 | 99 | P | SUR | 41 | -67 | 2136 | 0 | 0.4 | 0.2 | 0.5 |
| 4401531 | 99 | P | SUR | 31 | -17 | 719 | 0 | 0.4 | 0.3 | 0.5 |

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|
| 4401536 | 99 | P | SUR | 30 | -17 | 434 | 0 | 0.3 | 0.5 | 0.6 |
| 4401539 | 99 | P | SUR | 27 | -38 | 719 | 0 | 0.6 | -0.1 | 0.6 |
| 4401540 | 99 | P | SUR | 36 | -38 | 719 | 0 | 0.2 | 0.2 | 0.3 |
| 4401541 | 99 | P | SUR | 33 | -31 | 719 | 0 | 0.2 | -0.3 | 0.4 |
| 4401542 | 99 | P | SUR | 31 | -64 | 719 | 0 | 0.4 | 0.3 | 0.5 |
| 4401551 | 99 | P | SUR | 29 | -22 | 704 | 0 | 0.4 | 0.2 | 0.4 |
| 4401557 | 99 | P | SUR | 32 | -32 | 720 | 0 | 0.2 | 0.3 | 0.3 |
| 4401558 | 99 | P | SUR | 66 | 12 | 720 | 0 | 0.4 | -0.2 | 0.5 |
| 4401562 | 99 | P | SUR | 26 | -42 | 720 | 0 | 0.2 | -0.4 | 0.5 |
| 4401563 | 99 | P | SUR | 34 | -31 | 720 | 0 | 0.3 | -0.2 | 0.3 |
| 4401564 | 99 | P | SUR | 26 | -23 | 336 | 0 | 1.5 | -1.3 | 2.0 |
| 4401565 | 99 | P | SUR | 61 | -19 | 718 | 0 | 0.4 | 0.1 | 0.4 |
| 4401568 | 99 | P | SUR | 61 | 5 | 282 | 0 | 0.3 | -0.1 | 0.3 |
| 4401569 | 99 | P | SUR | 56 | -25 | 720 | 0 | 0.8 | -0.5 | 0.9 |
| 4401572 | 99 | P | SUR | 41 | -19 | 713 | 0 | 1.8 | 0.4 | 1.9 |
| 4401574 | 99 | P | SUR | 61 | -39 | 719 | 0 | 0.5 | 0.2 | 0.5 |
| 4401576 | 99 | P | SUR | 38 | -17 | 720 | 0 | 0.3 | 0.4 | 0.5 |
| 4401577 | 99 | P | SUR | 42 | -33 | 719 | 0 | 0.3 | 0.3 | 0.4 |
| 4401578 | 99 | P | SUR | 34 | -16 | 720 | 0 | 0.3 | 0.1 | 0.3 |
| 4401580 | 99 | P | SUR | 48 | -17 | 720 | 0 | 0.3 | 0.2 | 0.4 |
| 4401581 | 99 | P | SUR | 37 | -37 | 720 | 0 | 0.3 | 0.4 | 0.5 |
| 4401582 | 99 | P | SUR | 45 | -22 | 718 | 0 | 0.3 | 0.2 | 0.4 |
| 4401611 | 99 | P | SUR | 48 | -13 | 718 | 3 | 2.8 | -0.9 | 2.9 |
| 4401613 | 99 | P | SUR | 27 | -42 | 719 | 0 | 0.2 | 0.0 | 0.2 |
| 4401750 | 99 | P | SUR | 66 | -5 | 626 | 0 | 0.3 | -1.3 | 1.3 |
| 4401751 | 99 | P | SUR | 71 | 23 | 714 | 0 | 0.4 | -0.0 | 0.4 |
| 4401799 | 99 | P | SUR | 29 | -68 | 662 | 0 | 0.3 | 0.0 | 0.3 |
| 4401826 | 99 | P | SUR | 41 | -57 | 716 | 0 | 0.7 | -1.6 | 1.7 |
| 4401827 | 99 | P | SUR | 44 | -64 | 414 | 0 | 0.4 | 0.1 | 0.4 |
| 4401828 | 99 | P | SUR | 51 | -40 | 682 | 0 | 0.4 | 0.3 | 0.5 |
| 4401829 | 99 | P | SUR | 47 | -42 | 715 | 0 | 0.4 | 0.4 | 0.6 |
| 4401830 | 99 | P | SUR | 49 | -32 | 505 | 0 | 0.4 | 0.1 | 0.4 |
| 4401831 | 99 | P | SUR | 42 | -37 | 450 | 0 | 0.4 | 1.0 | 1.0 |
| 4401837 | 99 | P | SUR | 42 | -51 | 720 | 0 | 0.4 | 0.3 | 0.5 |
| 4401838 | 99 | P | SUR | 49 | -24 | 51 | 0 | 0.3 | 0.7 | 0.7 |
| 4401840 | 99 | P | SUR | 46 | -45 | 560 | 0 | 0.5 | 0.9 | 1.0 |
| 4401848 | 99 | P | SUR | 42 | -64 | 578 | 0 | 0.4 | -0.1 | 0.4 |
| 4401850 | 99 | P | SUR | 44 | -57 | 503 | 0 | 0.4 | -0.1 | 0.4 |
| 4401851 | 99 | P | SUR | 42 | -62 | 528 | 0 | 0.4 | 0.1 | 0.4 |
| 4401854 | 99 | P | SUR | 23 | -62 | 12 | 0 | 0.3 | -0.2 | 0.3 |
| 4401870 | 99 | P | SUR | 24 | -30 | 719 | 0 | 0.3 | 0.3 | 0.4 |
| 4401872 | 99 | P | SUR | 22 | -34 | 720 | 0 | 0.2 | 0.1 | 0.2 |
| 4401873 | 99 | P | SUR | 18 | -30 | 717 | 0 | 0.3 | 0.1 | 0.3 |

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|
| 4401874 | 99 | P | SUR | 23 | -26 | 719 | 0 | 0.3 | 0.3 | 0.5 |
| 4401894 | 99 | P | SUR | 51 | -39 | 706 | 0 | 0.4 | 0.2 | 0.4 |
| 4402687 | 99 | P | SUR | 41 | -54 | 718 | 0 | 0.4 | 0.2 | 0.5 |
| 44027 | 99 | P | SUR | 44 | -67 | 732 | 0 | 0.4 | -0.4 | 0.5 |
| 44032 | 99 | P | SUR | 44 | -69 | 697 | 0 | 0.4 | -1.4 | 1.5 |
| 44033 | 99 | P | SUR | 44 | -69 | 685 | 0 | 0.4 | -1.3 | 1.3 |
| 44034 | 99 | P | SUR | 44 | -68 | 671 | 0 | 0.4 | 0.6 | 0.8 |
| 44037 | 99 | P | SUR | 44 | -68 | 687 | 0 | 0.4 | 0.0 | 0.4 |
| 44137 | 99 | P | SUR | 42 | -62 | 671 | 0 | 0.5 | -0.1 | 0.5 |
| 44139 | 99 | P | SUR | 44 | -57 | 718 | 0 | 0.4 | -0.2 | 0.5 |
| 44150 | 99 | P | SUR | 43 | -64 | 584 | 0 | 0.8 | -0.4 | 0.9 |
| 44258 | 99 | P | SUR | 45 | -63 | 110 | 0 | 0.4 | -0.4 | 0.6 |
| 4700546 | 99 | P | SUR | 35 | -54 | 714 | 0 | 0.3 | 0.2 | 0.4 |
| 4801751 | 99 | P | SUR | 85 | -64 | 333 | 0 | 0.3 | -0.0 | 0.3 |
| 6100001 | 99 | P | SUR | 43 | 8 | 714 | 0 | 0.4 | 0.5 | 0.7 |
| 6100002 | 99 | P | SUR | 42 | 5 | 718 | 0 | 0.3 | 0.1 | 0.3 |
| 6100196 | 99 | P | SUR | 42 | 4 | 701 | 0 | 0.4 | 0.5 | 0.7 |
| 6100197 | 99 | P | SUR | 40 | 4 | 448 | 0 | 0.3 | 0.6 | 0.7 |
| 6100198 | 99 | P | SUR | 37 | -2 | 720 | 0 | 0.4 | 0.4 | 0.6 |
| 6100280 | 99 | P | SUR | 41 | 1 | 534 | 0 | 0.3 | 0.4 | 0.5 |
| 6100281 | 99 | P | SUR | 40 | 0 | 708 | 0 | 0.5 | 0.5 | 0.7 |
| 6100417 | 99 | P | SUR | 38 | 0 | 716 | 0 | 0.4 | 0.5 | 0.6 |
| 6100430 | 99 | P | SUR | 40 | 2 | 712 | 0 | 0.4 | 0.3 | 0.5 |
| 6101003 | 99 | P | SUR | 40 | 25 | 59 | 0 | 0.5 | 0.5 | 0.7 |
| 6101005 | 99 | P | SUR | 38 | 26 | 1 | 1 | 0.0 | 0.0 | 0.0 |
| 6101007 | 99 | P | SUR | 36 | 25 | 211 | 0 | 0.5 | -0.1 | 0.5 |
| 6101009 | 99 | P | SUR | 35 | 25 | 94 | 0 | 0.5 | -1.0 | 1.1 |
| 6102507 | 99 | P | SUR | 31 | 30 | 720 | 0 | 0.3 | -0.4 | 0.5 |
| 6102508 | 99 | P | SUR | 33 | 29 | 717 | 0 | 0.3 | -0.4 | 0.5 |
| 6200024 | 99 | P | SUR | 44 | -3 | 703 | 0 | 0.4 | 0.4 | 0.6 |
| 6200025 | 99 | P | SUR | 44 | -6 | 719 | 0 | 0.4 | 0.7 | 0.8 |
| 6200082 | 99 | P | SUR | 44 | -8 | 719 | 0 | 0.3 | 0.4 | 0.5 |
| 6200083 | 99 | P | SUR | 43 | -9 | 720 | 0 | 0.3 | 0.6 | 0.7 |
| 6200084 | 99 | P | SUR | 42 | -9 | 718 | 0 | 0.3 | 0.4 | 0.5 |
| 6200085 | 99 | P | SUR | 36 | -7 | 678 | 0 | 0.3 | 0.7 | 0.7 |
| 6200091 | 99 | P | SUR | 53 | -5 | 719 | 0 | 0.4 | -0.1 | 0.4 |
| 6200092 | 99 | P | SUR | 51 | -11 | 718 | 0 | 0.4 | -0.2 | 0.4 |
| 6200093 | 99 | P | SUR | 55 | -10 | 719 | 0 | 0.4 | -0.1 | 0.4 |
| 6200094 | 99 | P | SUR | 52 | -7 | 719 | 0 | 0.3 | 0.1 | 0.4 |
| 6200095 | 99 | P | SUR | 53 | -16 | 718 | 0 | 0.4 | 0.1 | 0.4 |
| 62001 | 99 | P | SUR | 45 | -5 | 731 | 0 | 0.3 | 0.2 | 0.3 |
| 6200199 | 99 | P | SUR | 40 | -9 | 692 | 0 | 0.3 | -0.5 | 0.6 |
| 6200200 | 99 | P | SUR | 36 | -8 | 713 | 0 | 0.4 | -0.9 | 0.9 |

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|
| 6201030 | 99 | P | SUR | 44 | -4 | 697 | 0 | 0.4 | 0.3 | 0.5 |
| 6201081 | 99 | P | SUR | 38 | -10 | 326 | 0 | 0.3 | -0.9 | 0.9 |
| 62023 | 99 | P | SUR | 51 | -8 | 482 | 0 | 0.3 | -0.0 | 0.3 |
| 6202613 | 99 | P | SUR | 20 | -35 | 718 | 0 | 0.3 | 0.1 | 0.3 |
| 6202614 | 99 | P | SUR | 19 | -35 | 720 | 0 | 0.7 | 1.0 | 1.2 |
| 6202634 | 99 | P | SUR | 63 | -13 | 199 | 0 | 0.3 | 0.0 | 0.3 |
| 6202637 | 99 | P | SUR | 62 | -14 | 180 | 0 | 0.3 | 0.1 | 0.3 |
| 6202638 | 99 | P | SUR | 18 | -51 | 718 | 0 | 0.3 | -0.1 | 0.3 |
| 6202639 | 99 | P | SUR | 31 | -45 | 719 | 0 | 0.2 | 0.1 | 0.2 |
| 6202640 | 99 | P | SUR | 24 | -60 | 720 | 0 | 0.3 | -0.1 | 0.4 |
| 6202642 | 99 | P | SUR | 22 | -65 | 719 | 0 | 0.3 | -0.2 | 0.3 |
| 6202643 | 99 | P | SUR | 19 | -66 | 719 | 0 | 0.3 | -0.3 | 0.5 |
| 6202644 | 99 | P | SUR | 29 | -42 | 719 | 0 | 0.2 | -0.9 | 1.0 |
| 6202645 | 99 | P | SUR | 24 | -58 | 720 | 0 | 0.4 | -0.2 | 0.4 |
| 6202646 | 99 | P | SUR | 20 | -58 | 719 | 0 | 0.3 | 0.0 | 0.3 |
| 6202675 | 99 | P | SUR | 59 | -2 | 708 | 0 | 0.4 | 0.4 | 0.6 |
| 6202677 | 99 | P | SUR | 62 | -2 | 688 | 0 | 0.3 | 0.3 | 0.4 |
| 6202678 | 99 | P | SUR | 61 | -51 | 667 | 0 | 0.4 | 0.3 | 0.5 |
| 6202680 | 99 | P | SUR | 64 | 10 | 713 | 0 | 0.4 | 0.0 | 0.4 |
| 6202681 | 99 | P | SUR | 64 | 1 | 695 | 0 | 0.4 | 0.3 | 0.5 |
| 6202683 | 99 | P | SUR | 64 | 7 | 704 | 0 | 0.3 | 0.6 | 0.7 |
| 6202684 | 99 | P | SUR | 67 | -14 | 699 | 0 | 0.4 | 0.6 | 0.7 |
| 6202685 | 99 | P | SUR | 39 | 12 | 720 | 0 | 0.3 | 0.5 | 0.6 |
| 6202686 | 99 | P | SUR | 39 | 4 | 720 | 0 | 0.3 | 0.4 | 0.5 |
| 6202687 | 99 | P | SUR | 38 | 15 | 516 | 0 | 0.4 | -2.5 | 2.5 |
| 6202688 | 99 | P | SUR | 40 | 8 | 715 | 0 | 0.4 | 0.3 | 0.5 |
| 6202690 | 99 | P | SUR | 42 | 5 | 719 | 0 | 0.3 | -0.0 | 0.3 |
| 6202691 | 99 | P | SUR | 40 | 4 | 720 | 0 | 0.3 | 0.3 | 0.4 |
| 6203523 | 99 | P | SUR | 74 | 12 | 579 | 0 | 0.4 | -0.9 | 1.0 |
| 6203529 | 99 | P | SUR | 34 | -48 | 719 | 0 | 0.3 | -0.5 | 0.6 |
| 6203574 | 99 | P | SUR | 51 | -49 | 647 | 0 | 0.5 | 0.5 | 0.7 |
| 6203580 | 99 | P | SUR | 65 | -10 | 691 | 0 | 0.3 | 0.5 | 0.6 |
| 6203581 | 99 | P | SUR | 76 | 13 | 657 | 0 | 0.4 | -0.0 | 0.4 |
| 6203582 | 99 | P | SUR | 60 | -54 | 656 | 0 | 0.4 | 0.4 | 0.6 |
| 6203583 | 99 | P | SUR | 59 | -22 | 563 | 0 | 0.4 | 0.1 | 0.4 |
| 6203585 | 99 | P | SUR | 66 | 8 | 713 | 0 | 0.3 | 0.5 | 0.6 |
| 6203587 | 99 | P | SUR | 64 | 3 | 683 | 0 | 0.4 | -0.1 | 0.4 |
| 6203588 | 99 | P | SUR | 59 | -47 | 701 | 0 | 0.4 | 0.7 | 0.8 |
| 6203601 | 99 | P | SUR | 28 | -41 | 720 | 0 | 0.2 | 0.6 | 0.7 |
| 6203607 | 99 | P | SUR | 29 | -21 | 720 | 0 | 0.3 | 0.2 | 0.4 |
| 6203609 | 99 | P | SUR | 37 | -19 | 720 | 0 | 0.3 | -0.2 | 0.3 |
| 6203612 | 99 | P | SUR | 28 | -39 | 717 | 0 | 0.2 | -0.1 | 0.2 |
| 6203613 | 99 | P | SUR | 32 | -35 | 719 | 0 | 0.2 | 0.3 | 0.4 |

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(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|
| 6203631 | 99 | P | SUR | 25 | -44 | 720 | 0 | 0.3 | -0.3 | 0.4 |
| 6203634 | 99 | P | SUR | 45 | -16 | 719 | 0 | 0.2 | 0.2 | 0.3 |
| 6203641 | 99 | P | SUR | 47 | -5 | 718 | 2 | 1.8 | 0.7 | 1.9 |
| 6203754 | 99 | P | SUR | 51 | -12 | 719 | 0 | 0.4 | 0.1 | 0.4 |
| 6203757 | 99 | P | SUR | 51 | -12 | 719 | 0 | 0.4 | -0.2 | 0.4 |
| 62091 | 99 | P | SUR | 53 | -5 | 719 | 0 | 0.4 | -0.1 | 0.4 |
| 62092 | 99 | P | SUR | 51 | -11 | 718 | 0 | 0.4 | -0.2 | 0.4 |
| 62093 | 99 | P | SUR | 55 | -10 | 719 | 0 | 0.4 | -0.1 | 0.4 |
| 62094 | 99 | P | SUR | 52 | -7 | 719 | 0 | 0.3 | 0.1 | 0.4 |
| 62095 | 99 | P | SUR | 53 | -16 | 718 | 0 | 0.4 | 0.1 | 0.4 |
| 62102 | 99 | P | SUR | 58 | 2 | 732 | 0 | 0.4 | 0.3 | 0.5 |
| 62103 | 99 | P | SUR | 50 | -3 | 714 | 0 | 0.4 | 0.7 | 0.8 |
| 62104 | 99 | P | SUR | 57 | 1 | 732 | 0 | 0.4 | 0.1 | 0.4 |
| 62105 | 99 | P | SUR | 55 | -12 | 677 | 1 | 0.4 | -0.1 | 0.4 |
| 62107 | 99 | P | SUR | 50 | -6 | 1425 | 0 | 0.3 | 0.3 | 0.5 |
| 62112 | 99 | P | SUR | 58 | 0 | 732 | 0 | 0.3 | 0.4 | 0.5 |
| 62113 | 99 | P | SUR | 58 | 0 | 732 | 0 | 0.4 | 0.1 | 0.4 |
| 62114 | 99 | P | SUR | 58 | 0 | 1426 | 0 | 0.3 | 0.4 | 0.5 |
| 62115 | 99 | P | SUR | 58 | -3 | 732 | 0 | 0.4 | 0.1 | 0.4 |
| 62116 | 99 | P | SUR | 58 | 1 | 732 | 0 | 0.4 | 0.2 | 0.5 |
| 62118 | 99 | P | SUR | 58 | 1 | 732 | 0 | 0.3 | 0.5 | 0.6 |
| 62119 | 99 | P | SUR | 57 | 2 | 732 | 0 | 0.5 | 0.1 | 0.5 |
| 62120 | 99 | P | SUR | 56 | 2 | 732 | 0 | 0.4 | 0.1 | 0.4 |
| 62121 | 99 | P | SUR | 54 | 3 | 703 | 0 | 0.4 | 0.3 | 0.6 |
| 62122 | 99 | P | SUR | 57 | 2 | 1426 | 0 | 0.5 | 0.1 | 0.6 |
| 62124 | 99 | P | SUR | 54 | -4 | 732 | 0 | 0.3 | 0.1 | 0.3 |
| 62129 | 99 | P | SUR | 58 | 0 | 732 | 0 | 0.3 | 0.0 | 0.3 |
| 62130 | 99 | P | SUR | 59 | 1 | 731 | 0 | 0.3 | 0.1 | 0.3 |
| 62131 | 99 | P | SUR | 54 | 1 | 712 | 0 | 0.3 | 0.6 | 0.7 |
| 62132 | 99 | P | SUR | 56 | 2 | 727 | 0 | 0.3 | 0.4 | 0.5 |
| 62133 | 99 | P | SUR | 57 | 1 | 732 | 0 | 0.5 | 0.3 | 0.6 |
| 62134 | 99 | P | SUR | 58 | 1 | 731 | 0 | 0.3 | 0.6 | 0.7 |
| 62135 | 99 | P | SUR | 54 | 2 | 732 | 0 | 0.4 | 0.5 | 0.6 |
| 62138 | 99 | P | SUR | 54 | 0 | 1423 | 0 | 0.5 | 0.6 | 0.8 |
| 62140 | 99 | P | SUR | 57 | 1 | 1420 | 0 | 0.5 | 0.3 | 0.5 |
| 62141 | 99 | P | SUR | 58 | -4 | 729 | 0 | 0.4 | -2.1 | 2.1 |
| 62143 | 99 | P | SUR | 58 | 2 | 732 | 0 | 0.3 | 0.7 | 0.8 |
| 62144 | 99 | P | SUR | 53 | 2 | 732 | 0 | 0.4 | 0.3 | 0.5 |
| 62145 | 99 | P | SUR | 53 | 3 | 1426 | 0 | 0.3 | 0.5 | 0.6 |
| 62146 | 99 | P | SUR | 57 | 2 | 727 | 0 | 0.4 | -0.0 | 0.4 |
| 62148 | 99 | P | SUR | 54 | 2 | 730 | 0 | 0.4 | 0.5 | 0.7 |
| 62149 | 99 | P | SUR | 54 | 1 | 732 | 0 | 0.3 | 0.8 | 0.9 |
| 62150 | 99 | P | SUR | 54 | 1 | 732 | 0 | 0.3 | 1.4 | 1.4 |

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(CONTINUED)

| WMO IDENT | OBS TIME | ELM | LEVEL | MEAN LAT | MEAN LONG | NUM OBS | NUM GROSS | SD | BIAS | RMS |
|---|---|---|---|---|---|---|---|---|---|---|
| 62151 | 99 | P | SUR | 57 | 2 | 1424 | 0 | 0.3 | 0.3 | 0.5 |
| 62152 | 99 | P | SUR | 57 | 2 | 732 | 0 | 0.5 | 0.3 | 0.6 |
| 62153 | 99 | P | SUR | 57 | 2 | 1426 | 0 | 0.4 | 0.4 | 0.6 |
| 62154 | 99 | P | SUR | 56 | 2 | 732 | 0 | 0.3 | 0.2 | 0.4 |
| 62155 | 99 | P | SUR | 58 | 1 | 722 | 0 | 0.3 | 0.3 | 0.5 |
| 62157 | 99 | P | SUR | 58 | 0 | 729 | 0 | 0.3 | 0.1 | 0.3 |
| 62160 | 99 | P | SUR | 57 | 2 | 1418 | 0 | 0.3 | 0.5 | 0.6 |
| 62161 | 99 | P | SUR | 58 | 1 | 718 | 0 | 0.4 | -0.1 | 0.4 |
| 62162 | 99 | P | SUR | 57 | 1 | 732 | 0 | 0.3 | 0.2 | 0.4 |
| 62163 | 99 | P | SUR | 48 | -8 | 731 | 0 | 0.3 | 0.4 | 0.5 |
| 62164 | 99 | P | SUR | 57 | 1 | 703 | 0 | 0.4 | 0.7 | 0.8 |
| 62165 | 99 | P | SUR | 54 | 1 | 732 | 0 | 0.4 | 0.7 | 0.8 |
| 62168 | 99 | P | SUR | 58 | 1 | 732 | 0 | 0.3 | 0.2 | 0.4 |
| 62296 | 99 | P | SUR | 53 | 2 | 732 | 0 | 0.3 | 0.2 | 0.4 |
| 62297 | 99 | P | SUR | 59 | 2 | 1423 | 0 | 0.3 | 0.2 | 0.3 |
| 62302 | 99 | P | SUR | 61 | -2 | 732 | 0 | 0.3 | 0.1 | 0.3 |
| 62304 | 99 | P | SUR | 51 | 2 | 731 | 0 | 0.5 | 0.2 | 0.5 |
| 62305 | 99 | P | SUR | 50 | 0 | 8 | 0 | 0.2 | -0.0 | 0.2 |
| 6301508 | 99 | P | SUR | 71 | 34 | 707 | 0 | 0.3 | 0.3 | 0.4 |
| 6301543 | 99 | P | SUR | 69 | 39 | 711 | 0 | 0.4 | 0.5 | 0.6 |
| 6301544 | 99 | P | SUR | 72 | 30 | 690 | 0 | 0.3 | 0.5 | 0.6 |
| 6301564 | 99 | P | SUR | 61 | -39 | 720 | 0 | 0.4 | 0.5 | 0.6 |
| 6301566 | 99 | P | SUR | 85 | 15 | 720 | 0 | 0.4 | 0.3 | 0.5 |
| 6301567 | 99 | P | SUR | 82 | 10 | 720 | 0 | 0.4 | 0.0 | 0.4 |
| 6301569 | 99 | P | SUR | 81 | 8 | 716 | 0 | 0.4 | 0.7 | 0.8 |
| 6301570 | 99 | P | SUR | 83 | 5 | 719 | 0 | 0.4 | 0.4 | 0.6 |
| 6301571 | 99 | P | SUR | 83 | 6 | 719 | 0 | 0.4 | 0.3 | 0.5 |
| 63055 | 99 | P | SUR | 61 | 2 | 732 | 0 | 0.3 | -0.1 | 0.3 |
| 63056 | 99 | P | SUR | 60 | 2 | 732 | 0 | 0.3 | 0.4 | 0.5 |
| 63057 | 99 | P | SUR | 59 | 2 | 732 | 0 | 0.3 | 0.1 | 0.3 |
| 63058 | 99 | P | SUR | 53 | 2 | 1449 | 0 | 0.3 | 0.3 | 0.5 |
| 63059 | 99 | P | SUR | 58 | -1 | 712 | 0 | 0.3 | 0.5 | 0.6 |
| 63101 | 99 | P | SUR | 61 | 1 | 730 | 0 | 0.4 | 0.3 | 0.5 |
| 63102 | 99 | P | SUR | 61 | 1 | 730 | 0 | 0.3 | 0.0 | 0.3 |
| 63103 | 99 | P | SUR | 61 | 1 | 730 | 0 | 0.3 | 0.2 | 0.4 |
| 63104 | 99 | P | SUR | 61 | 2 | 732 | 0 | 0.3 | 0.2 | 0.4 |
| 63108 | 99 | P | SUR | 61 | 2 | 729 | 0 | 0.3 | -0.1 | 0.3 |
| 63109 | 99 | P | SUR | 60 | 2 | 732 | 0 | 0.3 | -0.1 | 0.3 |
| 63110 | 99 | P | SUR | 60 | 2 | 732 | 0 | 0.3 | 0.0 | 0.3 |
| 63112 | 99 | P | SUR | 61 | 1 | 720 | 0 | 0.4 | -0.2 | 0.4 |
| 63115 | 99 | P | SUR | 62 | 1 | 729 | 0 | 0.3 | 0.2 | 0.4 |
| 63117 | 99 | P | SUR | 61 | 1 | 1426 | 0 | 0.4 | 0.4 | 0.6 |
| 63118 | 99 | P | SUR | 58 | -4 | 725 | 0 | 0.4 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 6401506 | 99 | P | SUR | 69 | 1 | 153 | 0 | 0.3 | 0.5 | 0.6 |
| 6401531 | 99 | P | SUR | 65 | -35 | 718 | 0 | 0.5 | 0.2 | 0.5 |
| 6401539 | 99 | P | SUR | 52 | -16 | 708 | 0 | 0.4 | 0.6 | 0.7 |
| 6401569 | 99 | P | SUR | 66 | -22 | 718 | 0 | 0.4 | -0.0 | 0.4 |
| 6401784 | 99 | P | SUR | 78 | 7 | 2856 | 0 | 0.5 | 0.2 | 0.6 |
| 6401789 | 99 | P | SUR | 77 | -3 | 403 | 82 | 6.2 | 6.6 | 9.0 |
| 6401795 | 99 | P | SUR | 75 | 0 | 708 | 0 | 0.4 | 0.4 | 0.5 |
| 6401807 | 99 | P | SUR | 71 | 40 | 714 | 0 | 0.3 | 0.3 | 0.4 |
| 6402539 | 99 | P | SUR | 61 | -51 | 720 | 0 | 0.5 | 0.0 | 0.5 |
| 6402540 | 99 | P | SUR | 59 | -47 | 682 | 0 | 0.4 | 0.2 | 0.4 |
| 6402541 | 99 | P | SUR | 64 | -2 | 707 | 0 | 0.3 | 0.2 | 0.4 |
| 6402542 | 99 | P | SUR | 63 | -16 | 709 | 0 | 0.3 | 0.3 | 0.4 |
| 6402543 | 99 | P | SUR | 65 | -30 | 714 | 0 | 0.4 | 0.2 | 0.5 |
| 6402544 | 99 | P | SUR | 68 | -19 | 717 | 0 | 0.3 | 0.4 | 0.5 |
| 6402545 | 99 | P | SUR | 65 | -8 | 711 | 0 | 0.3 | 0.2 | 0.3 |
| 6402546 | 99 | P | SUR | 64 | -11 | 715 | 0 | 0.3 | 0.2 | 0.4 |
| 64041 | 99 | P | SUR | 61 | -3 | 732 | 0 | 0.3 | 0.2 | 0.4 |
| 64045 | 99 | P | SUR | 59 | -12 | 730 | 0 | 0.4 | -0.1 | 0.4 |
| 64046 | 99 | P | SUR | 61 | -4 | 728 | 0 | 0.3 | -0.0 | 0.3 |

## 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                : JUN 2020
                   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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 006 | 99 | SPEED | SUR | 74 | 16 | 5 | 0 | 0 | 0.4 | 0.2 | 0.5 |
| 0066024 | 99 | SPEED | SUR | 55 | 13 | 116 | 0 | 0 | 1.3 | 0.2 | 1.3 |
| 0640046 | 99 | SPEED | SUR | 60 | -4 | 661 | 0 | 0 | 1.2 | -0.6 | 1.3 |
| 1300001 | 99 | SPEED | SUR | 11 | -23 | 702 | 0 | 0 | 1.2 | 0.6 | 1.4 |
| 1300002 | 99 | SPEED | SUR | 20 | -23 | 708 | 0 | 0 | 1.0 | -0.2 | 1.0 |
| 1300008 | 99 | SPEED | SUR | 15 | -38 | 690 | 0 | 0 | 0.8 | 0.2 | 0.8 |
| 1300130 | 99 | SPEED | SUR | 28 | -16 | 207 | 0 | 0 | 0.6 | 0.5 | 0.8 |
| 1300131 | 99 | SPEED | SUR | 28 | -17 | 705 | 0 | 0 | 2.2 | 1.9 | 2.9 |
| 4100026 | 99 | SPEED | SUR | 12 | -38 | 238 | 0 | 0 | 0.8 | 0.2 | 0.8 |
| 4100040 | 99 | SPEED | SUR | 15 | -53 | 4306 | 0 | 0 | 0.8 | 0.2 | 0.8 |
| 4100043 | 99 | SPEED | SUR | 21 | -65 | 3940 | 0 | 0 | 0.8 | 0.3 | 0.8 |
| 4100044 | 99 | SPEED | SUR | 22 | -59 | 3954 | 0 | 0 | 0.9 | 0.2 | 0.9 |
| 4100046 | 99 | SPEED | SUR | 24 | -68 | 3930 | 0 | 0 | 1.0 | 0.5 | 1.1 |
| 4100048 | 99 | SPEED | SUR | 32 | -70 | 3965 | 0 | 0 | 1.1 | 0.1 | 1.1 |
| 4100049 | 99 | SPEED | SUR | 27 | -63 | 3915 | 0 | 0 | 1.2 | 0.6 | 1.3 |
| 4100052 | 99 | SPEED | SUR | 18 | -65 | 719 | 0 | 0 | 0.7 | -0.2 | 0.7 |
| 4100053 | 99 | SPEED | SUR | 18 | -66 | 4297 | 0 | 0 | 1.3 | 1.3 | 1.8 |
| 4100056 | 99 | SPEED | SUR | 18 | -65 | 4301 | 0 | 0 | 1.0 | -0.6 | 1.1 |
| 4100139 | 99 | SPEED | SUR | 20 | -38 | 700 | 0 | 0 | 0.8 | -0.2 | 0.8 |
| 4100300 | 99 | SPEED | SUR | 16 | -57 | 718 | 0 | 0 | 0.7 | -0.2 | 0.8 |
| 41040 | 99 | SPEED | SUR | 15 | -53 | 1311 | 0 | 0 | 0.8 | -0.1 | 0.8 |
| 41043 | 99 | SPEED | SUR | 21 | -65 | 1291 | 0 | 0 | 0.9 | 0.1 | 0.9 |
| 41044 | 99 | SPEED | SUR | 22 | -59 | 1302 | 0 | 0 | 0.9 | -0.1 | 0.9 |
| 41046 | 99 | SPEED | SUR | 24 | -68 | 1310 | 0 | 0 | 1.0 | 0.1 | 1.0 |
| 41048 | 99 | SPEED | SUR | 32 | -70 | 1390 | 0 | 0 | 1.1 | -0.1 | 1.1 |
| 41049 | 99 | SPEED | SUR | 28 | -63 | 1316 | 0 | 0 | 1.2 | 0.1 | 1.2 |
| 41052 | 99 | SPEED | SUR | 18 | -65 | 720 | 0 | 0 | 0.7 | -0.1 | 0.7 |
| 41053 | 99 | SPEED | SUR | 19 | -66 | 1520 | 0 | 0 | 1.2 | 0.6 | 1.4 |
| 41056 | 99 | SPEED | SUR | 18 | -66 | 1504 | 0 | 0 | 1.0 | -0.3 | 1.1 |
| 4200059 | 99 | SPEED | SUR | 15 | -67 | 3999 | 0 | 0 | 0.7 | 0.2 | 0.8 |
| 4200060 | 99 | SPEED | SUR | 16 | -63 | 4069 | 0 | 0 | 1.0 | 0.4 | 1.1 |
| 4200085 | 99 | SPEED | SUR | 18 | -67 | 4068 | 0 | 0 | 1.0 | -0.2 | 1.0 |
| 42059 | 99 | SPEED | SUR | 15 | -68 | 1290 | 0 | 0 | 0.8 | -0.0 | 0.8 |
| 42060 | 99 | SPEED | SUR | 16 | -63 | 1318 | 0 | 0 | 1.0 | -0.0 | 1.0 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 42085 | 99 | SPEED | SUR | 18 | -67 | 1497 | 0 | 0 | 1.1 | 0.0 | 1.1 |
| 4400008 | 99 | SPEED | SUR | 41 | -69 | 4312 | 0 | 0 | 1.3 | -0.3 | 1.3 |
| 4400027 | 99 | SPEED | SUR | 44 | -67 | 717 | 0 | 0 | 1.3 | -0.6 | 1.5 |
| 4400032 | 99 | SPEED | SUR | 44 | -69 | 692 | 0 | 0 | 1.6 | -0.9 | 1.8 |
| 4400033 | 99 | SPEED | SUR | 44 | -69 | 680 | 0 | 0 | 1.6 | -0.6 | 1.7 |
| 4400034 | 99 | SPEED | SUR | 44 | -68 | 668 | 0 | 0 | 1.5 | -1.2 | 1.9 |
| 4400037 | 99 | SPEED | SUR | 43 | -68 | 684 | 0 | 0 | 1.2 | -0.4 | 1.3 |
| 44008 | 99 | SPEED | SUR | 41 | -69 | 2105 | 0 | 0 | 1.4 | -0.5 | 1.5 |
| 44027 | 99 | SPEED | SUR | 44 | -67 | 732 | 0 | 0 | 1.3 | -0.5 | 1.4 |
| 44032 | 99 | SPEED | SUR | 44 | -69 | 697 | 0 | 0 | 1.6 | -0.8 | 1.8 |
| 44033 | 99 | SPEED | SUR | 44 | -69 | 685 | 0 | 0 | 1.6 | -0.4 | 1.6 |
| 44034 | 99 | SPEED | SUR | 44 | -68 | 671 | 0 | 0 | 1.6 | -1.2 | 2.0 |
| 44037 | 99 | SPEED | SUR | 44 | -68 | 686 | 0 | 0 | 1.3 | -0.3 | 1.3 |
| 44137 | 99 | SPEED | SUR | 42 | -62 | 463 | 0 | 0 | 1.4 | -0.4 | 1.4 |
| 44139 | 99 | SPEED | SUR | 44 | -57 | 718 | 0 | 0 | 1.4 | -0.5 | 1.5 |
| 44150 | 99 | SPEED | SUR | 43 | -64 | 562 | 0 | 0 | 1.5 | -0.3 | 1.5 |
| 6100001 | 99 | SPEED | SUR | 43 | 8 | 714 | 0 | 0 | 1.6 | 0.1 | 1.6 |
| 6100002 | 99 | SPEED | SUR | 42 | 5 | 718 | 0 | 0 | 1.1 | 0.1 | 1.1 |
| 6100196 | 99 | SPEED | SUR | 42 | 4 | 653 | 0 | 0 | 1.5 | -1.5 | 2.1 |
| 6100197 | 99 | SPEED | SUR | 40 | 4 | 436 | 0 | 0 | 1.1 | -0.4 | 1.2 |
| 6100198 | 99 | SPEED | SUR | 37 | -2 | 713 | 0 | 0 | 3.0 | -2.1 | 3.7 |
| 6100280 | 99 | SPEED | SUR | 41 | 1 | 528 | 0 | 0 | 1.5 | -0.2 | 1.5 |
| 6100281 | 99 | SPEED | SUR | 40 | 0 | 402 | 0 | 0 | 1.5 | 0.2 | 1.5 |
| 6100417 | 99 | SPEED | SUR | 38 | 0 | 711 | 0 | 0 | 1.3 | 0.0 | 1.3 |
| 6100430 | 99 | SPEED | SUR | 40 | 2 | 698 | 0 | 0 | 1.6 | 0.2 | 1.6 |
| 6101003 | 99 | SPEED | SUR | 40 | 25 | 59 | 0 | 0 | 1.7 | -0.5 | 1.7 |
| 6101005 | 99 | SPEED | SUR | 38 | 26 | 223 | 0 | 0 | 3.1 | -5.6 | 6.4 |
| 6101007 | 99 | SPEED | SUR | 36 | 25 | 213 | 0 | 0 | 1.9 | -0.7 | 2.0 |
| 6101009 | 99 | SPEED | SUR | 35 | 25 | 97 | 0 | 0 | 2.1 | 1.2 | 2.4 |
| 6200024 | 99 | SPEED | SUR | 44 | -3 | 685 | 0 | 0 | 1.3 | -0.4 | 1.3 |
| 6200025 | 99 | SPEED | SUR | 44 | -6 | 711 | 0 | 0 | 1.2 | -0.7 | 1.4 |
| 6200082 | 99 | SPEED | SUR | 44 | -8 | 712 | 0 | 0 | 1.1 | -0.5 | 1.2 |
| 6200083 | 99 | SPEED | SUR | 43 | -9 | 719 | 0 | 0 | 1.0 | -0.6 | 1.2 |
| 6200084 | 99 | SPEED | SUR | 42 | -9 | 715 | 0 | 0 | 0.9 | -0.5 | 1.0 |
| 6200085 | 99 | SPEED | SUR | 36 | -7 | 676 | 0 | 0 | 1.3 | -0.1 | 1.3 |
| 6200091 | 99 | SPEED | SUR | 53 | -5 | 719 | 0 | 0 | 1.3 | -0.0 | 1.3 |
| 6200094 | 99 | SPEED | SUR | 52 | -7 | 719 | 0 | 0 | 1.1 | 0.2 | 1.1 |
| 6200095 | 99 | SPEED | SUR | 53 | -16 | 718 | 0 | 0 | 1.1 | -0.2 | 1.1 |
| 62001 | 99 | SPEED | SUR | 45 | -5 | 731 | 0 | 0 | 1.1 | 0.7 | 1.3 |
| 6200199 | 99 | SPEED | SUR | 40 | -9 | 692 | 0 | 0 | 1.2 | -0.5 | 1.3 |
| 6200200 | 99 | SPEED | SUR | 36 | -8 | 713 | 0 | 0 | 1.1 | 0.3 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6201030 | 99 | SPEED | SUR | 44 | -4 | 676 | 0 | 0 | 1.1 | -0.3 | 1.2 |
| 62023 | 99 | SPEED | SUR | 51 | -8 | 482 | 0 | 0 | 1.6 | 0.8 | 1.8 |
| 62091 | 99 | SPEED | SUR | 53 | -5 | 719 | 0 | 0 | 1.3 | 0.0 | 1.3 |
| 62094 | 99 | SPEED | SUR | 52 | -7 | 719 | 0 | 0 | 1.2 | 0.3 | 1.2 |
| 62095 | 99 | SPEED | SUR | 53 | -16 | 718 | 0 | 0 | 1.2 | -0.3 | 1.2 |
| 62102 | 99 | SPEED | SUR | 58 | 2 | 732 | 0 | 0 | 1.4 | 0.6 | 1.5 |
| 62103 | 99 | SPEED | SUR | 50 | -3 | 714 | 0 | 0 | 1.4 | 1.0 | 1.7 |
| 62104 | 99 | SPEED | SUR | 57 | 1 | 732 | 0 | 0 | 1.6 | 0.0 | 1.6 |
| 62107 | 99 | SPEED | SUR | 50 | -6 | 1425 | 0 | 0 | 1.4 | 1.0 | 1.7 |
| 62112 | 99 | SPEED | SUR | 58 | 0 | 732 | 0 | 0 | 1.3 | 0.0 | 1.3 |
| 62113 | 99 | SPEED | SUR | 58 | 0 | 732 | 0 | 0 | 1.6 | 0.7 | 1.8 |
| 62114 | 99 | SPEED | SUR | 58 | 0 | 1426 | 0 | 0 | 1.6 | 0.9 | 1.8 |
| 62118 | 99 | SPEED | SUR | 58 | 1 | 732 | 0 | 0 | 1.4 | 0.9 | 1.7 |
| 62119 | 99 | SPEED | SUR | 57 | 2 | 732 | 0 | 0 | 1.5 | -0.5 | 1.6 |
| 62120 | 99 | SPEED | SUR | 56 | 2 | 732 | 0 | 0 | 1.4 | 0.2 | 1.4 |
| 62121 | 99 | SPEED | SUR | 54 | 3 | 703 | 0 | 0 | 1.3 | -0.2 | 1.3 |
| 62122 | 99 | SPEED | SUR | 57 | 2 | 1426 | 0 | 0 | 1.6 | 0.2 | 1.6 |
| 62129 | 99 | SPEED | SUR | 58 | 0 | 732 | 0 | 0 | 1.4 | 0.4 | 1.5 |
| 62131 | 99 | SPEED | SUR | 54 | 1 | 712 | 0 | 0 | 2.1 | -0.7 | 2.2 |
| 62132 | 99 | SPEED | SUR | 56 | 2 | 719 | 0 | 0 | 2.5 | -2.5 | 3.5 |
| 62133 | 99 | SPEED | SUR | 57 | 1 | 732 | 0 | 0 | 2.0 | 0.9 | 2.1 |
| 62134 | 99 | SPEED | SUR | 58 | 1 | 731 | 0 | 0 | 1.5 | 0.5 | 1.6 |
| 62140 | 99 | SPEED | SUR | 57 | 1 | 1309 | 0 | 0 | 1.3 | 0.2 | 1.3 |
| 62143 | 99 | SPEED | SUR | 58 | 2 | 729 | 0 | 0 | 1.4 | -0.0 | 1.5 |
| 62144 | 99 | SPEED | SUR | 53 | 2 | 732 | 0 | 0 | 1.8 | -0.4 | 1.9 |
| 62145 | 99 | SPEED | SUR | 53 | 3 | 1426 | 0 | 0 | 1.6 | 1.2 | 2.0 |
| 62146 | 99 | SPEED | SUR | 57 | 2 | 565 | 0 | 0 | 1.3 | 0.2 | 1.3 |
| 62148 | 99 | SPEED | SUR | 54 | 2 | 730 | 0 | 0 | 1.4 | -0.0 | 1.4 |
| 62149 | 99 | SPEED | SUR | 54 | 1 | 732 | 0 | 0 | 1.3 | 0.3 | 1.3 |
| 62150 | 99 | SPEED | SUR | 54 | 1 | 732 | 0 | 0 | 2.2 | -0.7 | 2.3 |
| 62152 | 99 | SPEED | SUR | 57 | 2 | 732 | 0 | 0 | 1.4 | -0.3 | 1.4 |
| 62153 | 99 | SPEED | SUR | 57 | 2 | 1426 | 0 | 0 | 1.7 | -0.6 | 1.8 |
| 62154 | 99 | SPEED | SUR | 56 | 2 | 731 | 0 | 0 | 1.6 | 0.6 | 1.7 |
| 62155 | 99 | SPEED | SUR | 58 | 1 | 715 | 0 | 0 | 1.2 | -0.1 | 1.2 |
| 62163 | 99 | SPEED | SUR | 48 | -8 | 731 | 0 | 0 | 0.9 | 0.2 | 0.9 |
| 62164 | 99 | SPEED | SUR | 57 | 1 | 703 | 0 | 0 | 1.5 | -0.7 | 1.6 |
| 62165 | 99 | SPEED | SUR | 54 | 1 | 732 | 0 | 0 | 1.1 | -0.1 | 1.1 |
| 62304 | 99 | SPEED | SUR | 51 | 2 | 729 | 0 | 0 | 1.7 | 1.2 | 2.1 |
| 62305 | 99 | SPEED | SUR | 50 | 0 | 5 | 0 | 0 | 1.1 | -0.8 | 1.3 |
| 63055 | 99 | SPEED | SUR | 61 | 2 | 732 | 0 | 0 | 1.4 | -0.2 | 1.4 |
| 63056 | 99 | SPEED | SUR | 60 | 2 | 732 | 0 | 0 | 1.4 | 0.7 | 1.6 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 63057 | 99 | SPEED | SUR | 59 | 2 | 732 | 0 | 0 | 1.5 | 0.8 | 1.7 |
| 63058 | 99 | SPEED | SUR | 53 | 2 | 1449 | 0 | 0 | 1.3 | 0.5 | 1.4 |
| 63101 | 99 | SPEED | SUR | 61 | 1 | 730 | 0 | 0 | 1.4 | 0.5 | 1.5 |
| 63103 | 99 | SPEED | SUR | 61 | 1 | 730 | 0 | 0 | 1.5 | 0.3 | 1.5 |
| 63104 | 99 | SPEED | SUR | 61 | 2 | 732 | 0 | 0 | 1.5 | 0.5 | 1.5 |
| 63106 | 99 | SPEED | SUR | 61 | 2 | 728 | 0 | 0 | 1.8 | -0.2 | 1.8 |
| 63108 | 99 | SPEED | SUR | 61 | 2 | 729 | 0 | 0 | 1.8 | 0.2 | 1.9 |
| 63109 | 99 | SPEED | SUR | 60 | 2 | 703 | 0 | 0 | 1.5 | 0.5 | 1.5 |
| 63110 | 99 | SPEED | SUR | 60 | 2 | 732 | 0 | 0 | 1.5 | 0.4 | 1.5 |
| 63112 | 99 | SPEED | SUR | 61 | 1 | 720 | 0 | 0 | 1.4 | 0.2 | 1.4 |
| 63115 | 99 | SPEED | SUR | 62 | 1 | 729 | 0 | 0 | 1.5 | 0.0 | 1.5 |
| 63117 | 99 | SPEED | SUR | 61 | 1 | 1426 | 0 | 0 | 1.5 | 0.6 | 1.6 |
| 64041 | 99 | SPEED | SUR | 61 | -3 | 732 | 0 | 0 | 1.4 | 0.2 | 1.4 |
| 64045 | 99 | SPEED | SUR | 59 | -12 | 730 | 0 | 0 | 0.9 | 0.3 | 0.9 |
| 64046 | 99 | SPEED | SUR | 61 | -4 | 731 | 0 | 0 | 1.1 | 0.4 | 1.2 |
| 66021 | 99 | SPEED | SUR | 55 | 14 | 704 | 0 | 0 | 1.3 | 0.2 | 1.3 |
| 66024 | 99 | SPEED | SUR | 55 | 13 | 690 | 0 | 0 | 1.4 | 0.1 | 1.4 |

## 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                : JUN 2020
                   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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0640046 | 99 | DIRN | SUR | 60 | -4 | 574 | 0 | 0 | 12.0 | 3.1 | 12.4 |
| 1300001 | 99 | DIRN | SUR | 11 | -23 | 486 | 0 | 0 | 19.9 | 1.5 | 20.0 |
| 1300002 | 99 | DIRN | SUR | 20 | -23 | 610 | 0 | 0 | 8.3 | 2.3 | 8.6 |
| 1300008 | 99 | DIRN | SUR | 15 | -38 | 690 | 0 | 0 | 8.2 | 4.2 | 9.2 |
| 1300130 | 99 | DIRN | SUR | 28 | -16 | 207 | 0 | 0 | 7.6 | -5.0 | 9.1 |
| 1300131 | 99 | DIRN | SUR | 28 | -17 | 435 | 0 | 0 | 13.3 | 1.1 | 13.3 |
| 4100001 | 99 | DIRN | SUR | 35 | -72 | 2804 | 0 | 0 | 18.0 | 12.4 | 21.9 |
| 4100002 | 99 | DIRN | SUR | 32 | -75 | 3537 | 0 | 0 | 17.8 | 12.4 | 21.7 |
| 4100004 | 99 | DIRN | SUR | 33 | -79 | 2631 | 0 | 0 | 30.0 | 8.4 | 31.1 |
| 4100008 | 99 | DIRN | SUR | 31 | -81 | 563 | 0 | 0 | 22.7 | -4.3 | 23.1 |
| 4100009 | 99 | DIRN | SUR | 29 | -80 | 2398 | 0 | 0 | 22.9 | 8.5 | 24.4 |
| 4100010 | 99 | DIRN | SUR | 29 | -78 | 2961 | 0 | 0 | 25.3 | 9.4 | 26.9 |
| 4100013 | 99 | DIRN | SUR | 33 | -78 | 3317 | 0 | 0 | 25.1 | 7.1 | 26.1 |
| 4100024 | 99 | DIRN | SUR | 34 | -78 | 554 | 0 | 0 | 22.0 | -15.8 | 27.1 |
| 4100025 | 99 | DIRN | SUR | 35 | -75 | 2892 | 0 | 0 | 27.3 | 9.5 | 28.9 |
| 4100026 | 99 | DIRN | SUR | 12 | -38 | 238 | 0 | 0 | 8.0 | 12.4 | 14.8 |
| 4100029 | 99 | DIRN | SUR | 33 | -80 | 555 | 0 | 0 | 27.6 | -5.2 | 28.1 |
| 4100033 | 99 | DIRN | SUR | 32 | -80 | 346 | 0 | 0 | 32.6 | -12.3 | 34.8 |
| 4100037 | 99 | DIRN | SUR | 34 | -77 | 602 | 0 | 0 | 22.1 | -15.8 | 27.2 |
| 4100038 | 99 | DIRN | SUR | 34 | -78 | 578 | 0 | 0 | 25.4 | -10.4 | 27.4 |
| 4100040 | 99 | DIRN | SUR | 15 | -53 | 4305 | 0 | 0 | 8.6 | 2.9 | 9.0 |
| 4100043 | 99 | DIRN | SUR | 21 | -65 | 3245 | 0 | 0 | 11.2 | 6.8 | 13.1 |
| 4100044 | 99 | DIRN | SUR | 22 | -59 | 3539 | 0 | 0 | 12.0 | 3.5 | 12.5 |
| 4100046 | 99 | DIRN | SUR | 24 | -68 | 3475 | 0 | 0 | 16.4 | -1.2 | 16.4 |
| 4100048 | 99 | DIRN | SUR | 32 | -70 | 3179 | 0 | 0 | 15.9 | 1.3 | 16.0 |
| 4100049 | 99 | DIRN | SUR | 27 | -63 | 2930 | 0 | 0 | 22.4 | 7.6 | 23.6 |
| 4100052 | 99 | DIRN | SUR | 18 | -65 | 688 | 0 | 0 | 8.6 | 5.5 | 10.2 |
| 4100053 | 99 | DIRN | SUR | 18 | -66 | 3003 | 0 | 0 | 12.2 | 2.9 | 12.5 |
| 4100056 | 99 | DIRN | SUR | 18 | -65 | 3886 | 0 | 0 | 12.4 | 3.2 | 12.8 |
| 4100064 | 99 | DIRN | SUR | 34 | -77 | 520 | 0 | 0 | 24.3 | -12.2 | 27.2 |
| 41001 | 99 | DIRN | SUR | 35 | -72 | 934 | 0 | 0 | 16.9 | 8.2 | 18.8 |
| 4100139 | 99 | DIRN | SUR | 20 | -38 | 645 | 0 | 0 | 9.6 | 3.8 | 10.4 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 41002 | 99 | DIRN | SUR | 32 | -75 | 1102 | 0 | 0 | 17.9 | 11.5 | 21.3 |
| 4100300 | 99 | DIRN | SUR | 16 | -57 | 707 | 0 | 0 | 10.6 | 6.1 | 12.2 |
| 41004 | 99 | DIRN | SUR | 33 | -79 | 844 | 0 | 0 | 28.6 | 4.4 | 28.9 |
| 41008 | 99 | DIRN | SUR | 31 | -81 | 558 | 0 | 0 | 22.9 | -4.3 | 23.3 |
| 41009 | 99 | DIRN | SUR | 29 | -80 | 680 | 0 | 0 | 23.2 | 13.1 | 26.6 |
| 41010 | 99 | DIRN | SUR | 29 | -79 | 892 | 0 | 0 | 22.3 | 5.8 | 23.0 |
| 41013 | 99 | DIRN | SUR | 33 | -78 | 1091 | 0 | 0 | 23.5 | 3.2 | 23.8 |
| 41024 | 99 | DIRN | SUR | 34 | -79 | 576 | 0 | 0 | 24.8 | -17.3 | 30.2 |
| 41025 | 99 | DIRN | SUR | 35 | -75 | 893 | 0 | 0 | 24.3 | 7.9 | 25.6 |
| 41029 | 99 | DIRN | SUR | 33 | -80 | 698 | 0 | 0 | 28.4 | -5.4 | 28.9 |
| 41033 | 99 | DIRN | SUR | 32 | -80 | 336 | 0 | 0 | 34.8 | -15.1 | 37.9 |
| 41037 | 99 | DIRN | SUR | 34 | -77 | 602 | 0 | 0 | 23.9 | -16.3 | 29.0 |
| 41038 | 99 | DIRN | SUR | 34 | -78 | 576 | 0 | 0 | 25.3 | -10.9 | 27.6 |
| 41040 | 99 | DIRN | SUR | 15 | -53 | 1311 | 0 | 0 | 9.2 | 5.0 | 10.5 |
| 41043 | 99 | DIRN | SUR | 21 | -65 | 1057 | 0 | 0 | 11.4 | 6.2 | 13.0 |
| 41044 | 99 | DIRN | SUR | 22 | -59 | 1141 | 0 | 0 | 12.7 | 2.0 | 12.8 |
| 41046 | 99 | DIRN | SUR | 24 | -68 | 1121 | 0 | 0 | 15.2 | -4.5 | 15.8 |
| 41048 | 99 | DIRN | SUR | 32 | -70 | 1129 | 0 | 0 | 16.9 | 2.1 | 17.1 |
| 41049 | 99 | DIRN | SUR | 28 | -63 | 945 | 0 | 0 | 21.4 | 5.8 | 22.1 |
| 41052 | 99 | DIRN | SUR | 18 | -65 | 667 | 0 | 0 | 8.9 | 4.6 | 10.0 |
| 41053 | 99 | DIRN | SUR | 19 | -66 | 1157 | 0 | 0 | 12.3 | 2.1 | 12.5 |
| 41056 | 99 | DIRN | SUR | 18 | -66 | 1327 | 0 | 0 | 12.7 | 3.2 | 13.1 |
| 41064 | 99 | DIRN | SUR | 34 | -77 | 511 | 0 | 0 | 24.5 | -11.7 | 27.2 |
| 4200013 | 99 | DIRN | SUR | 27 | -83 | 662 | 0 | 0 | 27.4 | -3.6 | 27.6 |
| 4200022 | 99 | DIRN | SUR | 28 | -84 | 530 | 0 | 0 | 22.1 | -4.5 | 22.5 |
| 4200023 | 99 | DIRN | SUR | 26 | -83 | 704 | 0 | 0 | 21.4 | 2.9 | 21.6 |
| 4200026 | 99 | DIRN | SUR | 25 | -83 | 161 | 0 | 0 | 20.8 | 15.6 | 26.0 |
| 4200036 | 99 | DIRN | SUR | 29 | -85 | 1811 | 0 | 0 | 18.4 | 14.1 | 23.2 |
| 4200056 | 99 | DIRN | SUR | 20 | -85 | 3793 | 0 | 0 | 11.8 | 5.5 | 13.0 |
| 4200057 | 99 | DIRN | SUR | 17 | -81 | 3904 | 0 | 0 | 14.3 | 5.2 | 15.2 |
| 4200058 | 99 | DIRN | SUR | 15 | -75 | 3913 | 0 | 0 | 6.4 | 2.8 | 7.0 |
| 4200059 | 99 | DIRN | SUR | 15 | -67 | 3997 | 0 | 0 | 7.5 | 6.4 | 9.8 |
| 4200060 | 99 | DIRN | SUR | 16 | -63 | 3748 | 0 | 0 | 11.0 | 6.0 | 12.5 |
| 4200085 | 99 | DIRN | SUR | 18 | -67 | 3879 | 0 | 0 | 17.5 | 14.3 | 22.6 |
| 42013 | 99 | DIRN | SUR | 27 | -83 | 607 | 0 | 0 | 27.8 | -3.4 | 28.0 |
| 42022 | 99 | DIRN | SUR | 28 | -84 | 477 | 0 | 0 | 22.7 | -5.3 | 23.3 |
| 42023 | 99 | DIRN | SUR | 26 | -83 | 580 | 0 | 0 | 22.0 | 2.1 | 22.1 |
| 42026 | 99 | DIRN | SUR | 25 | -84 | 150 | 0 | 0 | 20.1 | 15.8 | 25.6 |
| 42036 | 99 | DIRN | SUR | 29 | -85 | 612 | 0 | 0 | 18.4 | 12.7 | 22.3 |
| 42056 | 99 | DIRN | SUR | 20 | -85 | 1198 | 0 | 0 | 12.2 | 3.7 | 12.7 |
| 42057 | 99 | DIRN | SUR | 17 | -81 | 1267 | 0 | 0 | 13.5 | 3.8 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 42058 | 99 | DIRN | SUR | 15 | -75 | 1331 | 0 | 0 | 8.0 | -0.1 | 8.0 |
| 42059 | 99 | DIRN | SUR | 15 | -68 | 1285 | 0 | 0 | 8.3 | 1.6 | 8.4 |
| 42060 | 99 | DIRN | SUR | 16 | -63 | 1196 | 0 | 0 | 11.7 | 9.5 | 15.1 |
| 42085 | 99 | DIRN | SUR | 18 | -67 | 1359 | 0 | 0 | 16.6 | 13.3 | 21.3 |
| 4400007 | 99 | DIRN | SUR | 44 | -70 | 435 | 0 | 0 | 22.7 | 0.5 | 22.8 |
| 4400008 | 99 | DIRN | SUR | 41 | -69 | 3104 | 0 | 0 | 17.2 | 15.5 | 23.2 |
| 4400013 | 99 | DIRN | SUR | 42 | -71 | 485 | 0 | 0 | 26.8 | 16.5 | 31.5 |
| 4400014 | 99 | DIRN | SUR | 37 | -75 | 2598 | 0 | 0 | 19.2 | 11.6 | 22.5 |
| 4400017 | 99 | DIRN | SUR | 41 | -72 | 2957 | 0 | 0 | 16.1 | 8.8 | 18.3 |
| 4400018 | 99 | DIRN | SUR | 42 | -70 | 508 | 0 | 0 | 22.1 | 14.5 | 26.5 |
| 4400020 | 99 | DIRN | SUR | 41 | -70 | 3541 | 0 | 0 | 23.1 | 9.0 | 24.8 |
| 4400022 | 99 | DIRN | SUR | 41 | -74 | 477 | 0 | 0 | 19.6 | 5.1 | 20.2 |
| 4400025 | 99 | DIRN | SUR | 40 | -73 | 2851 | 0 | 0 | 19.8 | 7.7 | 21.2 |
| 4400027 | 99 | DIRN | SUR | 44 | -67 | 496 | 0 | 0 | 17.4 | 11.9 | 21.1 |
| 4400029 | 99 | DIRN | SUR | 43 | -71 | 487 | 0 | 0 | 19.5 | -16.4 | 25.5 |
| 4400030 | 99 | DIRN | SUR | 43 | -70 | 426 | 0 | 0 | 19.3 | 8.5 | 21.0 |
| 4400032 | 99 | DIRN | SUR | 44 | -69 | 391 | 0 | 0 | 19.8 | 10.4 | 22.4 |
| 4400033 | 99 | DIRN | SUR | 44 | -69 | 336 | 0 | 0 | 28.2 | 5.6 | 28.8 |
| 4400034 | 99 | DIRN | SUR | 44 | -68 | 353 | 0 | 0 | 21.5 | 14.6 | 26.0 |
| 4400037 | 99 | DIRN | SUR | 43 | -68 | 534 | 0 | 0 | 15.0 | 8.5 | 17.2 |
| 4400040 | 99 | DIRN | SUR | 41 | -74 | 165 | 0 | 0 | 19.7 | -1.5 | 19.8 |
| 4400042 | 99 | DIRN | SUR | 38 | -76 | 200 | 0 | 0 | 26.0 | 2.5 | 26.1 |
| 4400058 | 99 | DIRN | SUR | 38 | -76 | 2686 | 0 | 0 | 27.0 | -6.5 | 27.7 |
| 4400062 | 99 | DIRN | SUR | 39 | -76 | 3140 | 0 | 0 | 32.2 | -4.5 | 32.5 |
| 4400064 | 99 | DIRN | SUR | 37 | -76 | 2411 | 0 | 0 | 24.0 | -15.7 | 28.7 |
| 4400065 | 99 | DIRN | SUR | 40 | -74 | 2687 | 0 | 0 | 19.2 | 9.8 | 21.5 |
| 4400072 | 99 | DIRN | SUR | 37 | -76 | 2804 | 0 | 0 | 22.8 | -70.1 | 73.7 |
| 4400073 | 99 | DIRN | SUR | 43 | -71 | 339 | 0 | 0 | 18.0 | 7.1 | 19.4 |
| 44007 | 99 | DIRN | SUR | 44 | -70 | 455 | 0 | 0 | 22.2 | 0.3 | 22.2 |
| 44008 | 99 | DIRN | SUR | 41 | -69 | 1425 | 0 | 0 | 16.0 | 14.7 | 21.7 |
| 44013 | 99 | DIRN | SUR | 42 | -71 | 460 | 0 | 0 | 27.5 | 14.8 | 31.2 |
| 44014 | 99 | DIRN | SUR | 37 | -75 | 1277 | 0 | 0 | 21.7 | 10.2 | 24.0 |
| 44017 | 99 | DIRN | SUR | 41 | -72 | 1388 | 0 | 0 | 16.6 | 5.9 | 17.6 |
| 44018 | 99 | DIRN | SUR | 42 | -70 | 497 | 0 | 0 | 21.3 | 13.7 | 25.3 |
| 44020 | 99 | DIRN | SUR | 42 | -70 | 998 | 0 | 0 | 21.0 | 7.4 | 22.3 |
| 44022 | 99 | DIRN | SUR | 41 | -74 | 194 | 0 | 0 | 22.7 | 5.6 | 23.3 |
| 44025 | 99 | DIRN | SUR | 40 | -73 | 1446 | 0 | 0 | 21.4 | 7.3 | 22.6 |
| 44027 | 99 | DIRN | SUR | 44 | -67 | 473 | 0 | 0 | 17.4 | 11.5 | 20.9 |
| 44029 | 99 | DIRN | SUR | 43 | -71 | 496 | 0 | 0 | 17.6 | -17.4 | 24.7 |
| 44030 | 99 | DIRN | SUR | 43 | -70 | 413 | 0 | 0 | 20.3 | 9.0 | 22.2 |
| 44032 | 99 | DIRN | SUR | 44 | -69 | 382 | 0 | 0 | 19.2 | 9.2 | 21.2 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 44033 | 99 | DIRN | SUR | 44 | -69 | 315 | 0 | 0 | 26.9 | 3.5 | 27.1 |
| 44034 | 99 | DIRN | SUR | 44 | -68 | 323 | 0 | 0 | 22.6 | 13.9 | 26.6 |
| 44037 | 99 | DIRN | SUR | 44 | -68 | 519 | 0 | 0 | 15.3 | 7.8 | 17.2 |
| 44040 | 99 | DIRN | SUR | 41 | -74 | 143 | 0 | 0 | 28.1 | -1.6 | 28.1 |
| 44042 | 99 | DIRN | SUR | 38 | -76 | 50 | 0 | 0 | 16.3 | 6.8 | 17.7 |
| 44058 | 99 | DIRN | SUR | 38 | -76 | 535 | 0 | 0 | 26.2 | -7.8 | 27.4 |
| 44062 | 99 | DIRN | SUR | 39 | -76 | 635 | 0 | 0 | 30.9 | -4.5 | 31.2 |
| 44064 | 99 | DIRN | SUR | 37 | -76 | 532 | 0 | 0 | 25.3 | -16.5 | 30.2 |
| 44065 | 99 | DIRN | SUR | 40 | -74 | 753 | 0 | 0 | 18.8 | 9.9 | 21.3 |
| 44072 | 99 | DIRN | SUR | 37 | -76 | 634 | 0 | 0 | 23.7 | -71.8 | 75.7 |
| 44073 | 99 | DIRN | SUR | 43 | -71 | 339 | 0 | 0 | 20.0 | 8.3 | 21.7 |
| 44137 | 99 | DIRN | SUR | 42 | -62 | 290 | 0 | 0 | 17.0 | -21.8 | 27.7 |
| 44139 | 99 | DIRN | SUR | 44 | -57 | 591 | 0 | 0 | 15.1 | -26.1 | 30.2 |
| 44150 | 99 | DIRN | SUR | 43 | -64 | 406 | 0 | 0 | 17.1 | -29.0 | 33.7 |
| 4500012 | 99 | DIRN | SUR | 44 | -77 | 318 | 0 | 0 | 23.8 | 13.6 | 27.4 |
| 4500165 | 99 | DIRN | SUR | 42 | -83 | 2661 | 0 | 0 | 39.8 | -7.4 | 40.4 |
| 4500167 | 99 | DIRN | SUR | 42 | -80 | 247 | 0 | 0 | 20.1 | -17.6 | 26.7 |
| 4500169 | 99 | DIRN | SUR | 42 | -82 | 902 | 0 | 0 | 28.2 | -30.7 | 41.7 |
| 4500175 | 99 | DIRN | SUR | 46 | -85 | 1805 | 0 | 0 | 60.9 | -29.6 | 67.7 |
| 4500176 | 99 | DIRN | SUR | 42 | -82 | 840 | 0 | 0 | 37.8 | -18.9 | 42.3 |
| 4500178 | 99 | DIRN | SUR | 45 | -73 | 426 | 0 | 0 | 17.0 | -13.8 | 21.9 |
| 45012 | 99 | DIRN | SUR | 44 | -77 | 168 | 0 | 0 | 22.4 | 17.2 | 28.2 |
| 45132 | 99 | DIRN | SUR | 43 | -81 | 467 | 0 | 0 | 19.2 | 5.5 | 20.0 |
| 45135 | 99 | DIRN | SUR | 44 | -77 | 334 | 0 | 0 | 21.0 | 12.5 | 24.4 |
| 45137 | 99 | DIRN | SUR | 46 | -81 | 324 | 0 | 0 | 20.9 | 7.5 | 22.2 |
| 45139 | 99 | DIRN | SUR | 43 | -80 | 311 | 0 | 0 | 27.3 | 7.3 | 28.2 |
| 45142 | 99 | DIRN | SUR | 43 | -79 | 429 | 0 | 0 | 20.5 | 0.8 | 20.5 |
| 45143 | 99 | DIRN | SUR | 45 | -81 | 316 | 0 | 0 | 22.8 | 10.3 | 25.0 |
| 45147 | 99 | DIRN | SUR | 42 | -83 | 76 | 0 | 0 | 31.4 | 11.2 | 33.3 |
| 45149 | 99 | DIRN | SUR | 44 | -82 | 355 | 0 | 0 | 22.3 | 4.8 | 22.8 |
| 45151 | 99 | DIRN | SUR | 45 | -79 | 305 | 0 | 0 | 23.0 | -15.0 | 27.4 |
| 45152 | 99 | DIRN | SUR | 46 | -80 | 266 | 0 | 0 | 18.7 | 7.0 | 20.0 |
| 45154 | 99 | DIRN | SUR | 46 | -83 | 247 | 0 | 0 | 26.5 | 0.7 | 26.5 |
| 45159 | 99 | DIRN | SUR | 44 | -79 | 279 | 0 | 0 | 30.1 | 10.5 | 31.9 |
| 45165 | 99 | DIRN | SUR | 42 | -83 | 589 | 0 | 0 | 40.7 | -9.6 | 41.8 |
| 45167 | 99 | DIRN | SUR | 42 | -80 | 159 | 0 | 0 | 20.6 | -18.4 | 27.6 |
| 45169 | 99 | DIRN | SUR | 42 | -82 | 252 | 0 | 0 | 29.7 | -31.7 | 43.5 |
| 45175 | 99 | DIRN | SUR | 46 | -85 | 445 | 0 | 0 | 60.0 | -25.7 | 65.2 |
| 45176 | 99 | DIRN | SUR | 42 | -82 | 186 | 0 | 0 | 40.3 | -21.3 | 45.6 |
| 45178 | 99 | DIRN | SUR | 45 | -73 | 285 | 0 | 0 | 23.8 | -19.7 | 30.9 |
| 6100198 | 99 | DIRN | SUR | 37 | -2 | 484 | 0 | 0 | 48.1 | 5.4 | 48.4 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6100281 | 99 | DIRN | SUR | 40 | 0 | 144 | 0 | 0 | 33.8 | -9.9 | 35.2 |
| 6100417 | 99 | DIRN | SUR | 38 | 0 | 436 | 0 | 0 | 16.1 | 1.7 | 16.1 |
| 6200024 | 99 | DIRN | SUR | 44 | -3 | 414 | 0 | 0 | 16.1 | 1.8 | 16.2 |
| 6200025 | 99 | DIRN | SUR | 44 | -6 | 409 | 0 | 0 | 14.7 | 2.2 | 14.8 |
| 6200082 | 99 | DIRN | SUR | 44 | -8 | 556 | 0 | 0 | 14.1 | 4.3 | 14.7 |
| 6200083 | 99 | DIRN | SUR | 43 | -9 | 505 | 0 | 0 | 16.4 | -3.6 | 16.8 |
| 6200084 | 99 | DIRN | SUR | 42 | -9 | 509 | 0 | 0 | 18.6 | 0.7 | 18.6 |
| 6200085 | 99 | DIRN | SUR | 36 | -7 | 522 | 0 | 0 | 13.1 | 1.9 | 13.2 |
| 6200091 | 99 | DIRN | SUR | 53 | -5 | 496 | 0 | 0 | 13.5 | 4.6 | 14.3 |
| 6200094 | 99 | DIRN | SUR | 52 | -7 | 573 | 0 | 0 | 11.8 | 0.8 | 11.9 |
| 6200095 | 99 | DIRN | SUR | 53 | -16 | 655 | 0 | 0 | 11.1 | 3.5 | 11.7 |
| 62001 | 99 | DIRN | SUR | 45 | -5 | 640 | 0 | 0 | 14.3 | 5.5 | 15.3 |
| 6200199 | 99 | DIRN | SUR | 40 | -9 | 483 | 0 | 0 | 130.5 | 107.0 | 168.8 |
| 6200200 | 99 | DIRN | SUR | 36 | -8 | 604 | 0 | 0 | 12.2 | 1.9 | 12.3 |
| 6201030 | 99 | DIRN | SUR | 44 | -4 | 452 | 0 | 0 | 16.5 | 6.5 | 17.7 |
| 62023 | 99 | DIRN | SUR | 51 | -8 | 421 | 0 | 0 | 15.0 | 3.7 | 15.5 |
| 62091 | 99 | DIRN | SUR | 53 | -5 | 491 | 0 | 0 | 13.9 | 4.2 | 14.6 |
| 62094 | 99 | DIRN | SUR | 52 | -7 | 560 | 0 | 0 | 12.1 | 0.1 | 12.1 |
| 62095 | 99 | DIRN | SUR | 53 | -16 | 653 | 0 | 0 | 12.0 | 3.2 | 12.5 |
| 62103 | 99 | DIRN | SUR | 50 | -3 | 602 | 0 | 0 | 19.2 | 11.9 | 22.6 |
| 62107 | 99 | DIRN | SUR | 50 | -6 | 1314 | 0 | 0 | 18.8 | 3.6 | 19.1 |
| 62112 | 99 | DIRN | SUR | 58 | 0 | 631 | 0 | 0 | 11.6 | -5.5 | 12.8 |
| 62114 | 99 | DIRN | SUR | 58 | 0 | 1269 | 0 | 0 | 12.1 | -4.3 | 12.9 |
| 62163 | 99 | DIRN | SUR | 48 | -8 | 682 | 0 | 0 | 11.3 | -1.1 | 11.4 |
| 62305 | 99 | DIRN | SUR | 50 | 0 | 3 | 0 | 0 | 11.6 | 8.7 | 14.5 |
| 64041 | 99 | DIRN | SUR | 61 | -3 | 609 | 0 | 0 | 10.9 | 5.9 | 12.4 |
| 64045 | 99 | DIRN | SUR | 59 | -12 | 654 | 0 | 0 | 11.3 | 5.2 | 12.4 |
| 64046 | 99 | DIRN | SUR | 61 | -4 | 608 | 0 | 0 | 11.9 | 0.4 | 11.9 |

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ASDE09 | DBLK | HTXUH4H | JNKN7JF | KJJF9XN | KMPLHPW | LRYQE3U | VKB4L5Q | WDK38HS |
| XQFJRGX | YLV96WM | ZVQEQCM | 7JUNA4N | 01001 | 01004 | 01010 | 01028 | 01241 |
| 01400 | 01415 | 01492 | 02527 | 02836 | 02963 | 03005 | 03023 | 03238 |
| 03354 | 03502 | 03808 | 03882 | 03918 | 03953 | 04018 | 04220 | 04270 |
| 04320 | 04339 | 04360 | 04417 | 06011 | 06060 | 06260 | 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 | 11120 | 11240 | 11520 | 11747 | 11952 | 12374 | 12843 |
| 12982 | 13275 | 13388 | 14015 | 14240 | 14430 | 15420 | 15614 | 16045 |
| 16080 | 16113 | 16245 | 16320 | 16429 | 16546 | 16622 | 16716 | 16754 |
| 17030 | 17064 | 17095 | 17130 | 17196 | 17220 | 17240 | 17281 | 17516 |
| 17607 | 22008 | 23205 | 23472 | 23884 | 26038 | 26435 | 26850 | 27707 |
| 27713 | 29612 | 29698 | 30673 | 33008 | 33041 | 37789 | 40186 | 42339 |
| 42379 | 45004 | 47102 | 47104 | 47138 | 47155 | 47169 | 47186 | 47401 |
| 47412 | 47418 | 47582 | 47600 | 47646 | 47678 | 47741 | 47778 | 47807 |
| 47827 | 47909 | 47918 | 47945 | 47971 | 47991 | 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 | 57447 |
| 57461 | 57494 | 57516 | 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 | 61901 | 61980 | 61998 | 63612 | 63741 | 68263 | 68442 |
| 68538 | 68816 | 68842 | 70026 | 70133 | 70200 | 70219 | 70231 | 70261 |
| 70308 | 70316 | 70326 | 70350 | 70361 | 70398 | 71043 | 71081 | 71082 |
| 71109 | 71119 | 71603 | 71722 | 71802 | 71811 | 71815 | 71816 | 71823 |
| 71836 | 71845 | 71867 | 71906 | 71907 | 71908 | 71909 | 71917 | 71924 |
| 71925 | 71926 | 71934 | 71945 | 71957 | 71964 | 72206 | 72208 | 72210 |
| 72214 | 72215 | 72230 | 72233 | 72235 | 72240 | 72248 | 72249 | 72250 |
| 72251 | 72265 | 72274 | 72293 | 72305 | 72317 | 72327 | 72340 | 72363 |
| 72364 | 72365 | 72376 | 72388 | 72413 | 72426 | 72440 | 72451 | 72476 |
| 72489 | 72493 | 72501 | 72518 | 72520 | 72528 | 72558 | 72562 | 72572 |
| 72582 | 72597 | 72632 | 72634 | 72645 | 72649 | 72659 | 72662 | 72672 |
| 72694 | 72712 | 72747 | 72764 | 72768 | 72776 | 72786 | 72797 | 73033 |
| 73110 | 74389 | 74494 | 74560 | 76225 | 76256 | 76394 | 76405 | 76458 |
| 76526 | 76595 | 76612 | 76644 | 76654 | 76679 | 76692 | 76743 | 76805 |
| 76903 | 78897 | 78954 | 81405 | 82983 | 83525 | 83768 | 84384 | 87155 |
| 87344 | 87576 | 87860 | 88889 | 89002 | 89062 | 89564 | 89571 | 89592 |
| 89611 | 89625 | 89642 | 89859 | 91212 | 91285 | 91592 | 91610 | 91765 |
| 91925 | 91938 | 91948 | 91958 | 93112 | 93417 | 93817 | 93844 | 94120 |
| 94150 | 94170 | 94203 | 94299 | 94302 | 94312 | 94326 | 94332 | 94374 |
| 94403 | 94430 | 94510 | 94578 | 94610 | 94637 | 94638 | 94653 | 94659 |
| 94672 | 94711 | 94767 | 94776 | 94802 | 94821 | 94866 | 94910 | 94975 |
| 94995 | 94996 | 94998 | 95527 | 96996 | | | | |

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ASDE09 | DBLK | HTXUH4H | JNKN7JF | KJJF9XN | KMPLHPW | LRYQE3U | VKB4L5Q | WDK38HS |
| XQFJRGX | YLV96WM | ZVQEQCM | 7JUNA4N | 01001 | 01010 | 01028 | 01241 | 01400 |
| 01415 | 01492 | 02836 | 02963 | 06610 | 07110 | 07145 | 07510 | 07645 |
| 07761 | 08536 | 11010 | 11035 | 11120 | 11240 | 17607 | 40186 | 47155 |
| 51243 | 51656 | 52652 | 53543 | 56046 | 56492 | 56651 | 57245 | 59023 |
| 59293 | 61980 | 61998 | 72413 | 76743 | 76903 | 78897 | 81405 | 84384 |
| 87344 | 89002 | 89642 | 89859 | 91592 | 91938 | 93817 | 94653 | 94767 |

# 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 $ms^{-1}$ 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 | $35ms^{-1}$ |
| 925 | $35ms^{-1}$ |
| 850 | $35ms^{-1}$ |
| 700 | $40ms^{-1}$ |
| 500 | $45ms^{-1}$ |
| 400 | $50ms^{-1}$ |
| 300 | $60ms^{-1}$ |
| 250 | $60ms^{-1}$ |
| 200 | $50ms^{-1}$ |
| 150 | $50ms^{-1}$ |
| 100 | $45ms^{-1}$ |

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.