ECMWF Global Data Monitoring Report

February 2022

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:

ECMWF
Attn. Head of Evaluation Section
Shinfield Park
Reading, Berkshire, RG2 9AX
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	Jan	Feb	Ident	Time	Jan	Feb
02365	(12)	22	7	03238	(12)	11	29
17064	(00)	30	2	03882	(12)	11	28
17064	(12)	31	1	03918	(12)	7	27
22820	(00)	31	20	27713	(00)	5	28
22820	(12)	31	20	27713	(12)	6	28
28695	(00)	28	15	40811	(00)	2	25
28695	(12)	29	18	42379	(00)	1	25
30758	(00)	28	13	42647	(00)	0	16
30758	(12)	27	7	42647	(12)	0	20
32150	(00)	27	12	61052	(12)	0	15
32150	(12)	27	13	65548	(12)	0	11
34731	(00)	26	7	66160	(12)	0	17
34731	(12)	23	10	74006	(12)	7	18
40179	(00)	31	14	76394	(00)	5	24
40179	(12)	26	13	76595	(00)	3	17
40706	(12)	24	7	76654	(00)	8	19
68538	(12)	29	6	78384	(00)	0	11
71925	(12)	30	13	78384	(12)	0	11
71934	(12)	15	2	78970	(00)	0	17
72317	(00)	37	19	78970	(12)	0	26
72317	(12)	36	19	82599	(12)	1	28
72520	(00)	39	9	-	-	-	-
72520	(12)	35	12	-	-	-	-
76644	(12)	18	0	-	-	-	-
78988	(00)	29	0	-	-	-	-
78988	(12)	27	0	-	-	-	-
83554	(12)	20	7	-	-	-	-
85469	(00)	31	10	-	-	-	-
89662	(00)	31	6	-	-	-	-
89664	(12)	31	12	-	-	-	-

2.2 Drifting Buoys

Surface pressure observations from **1692** 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

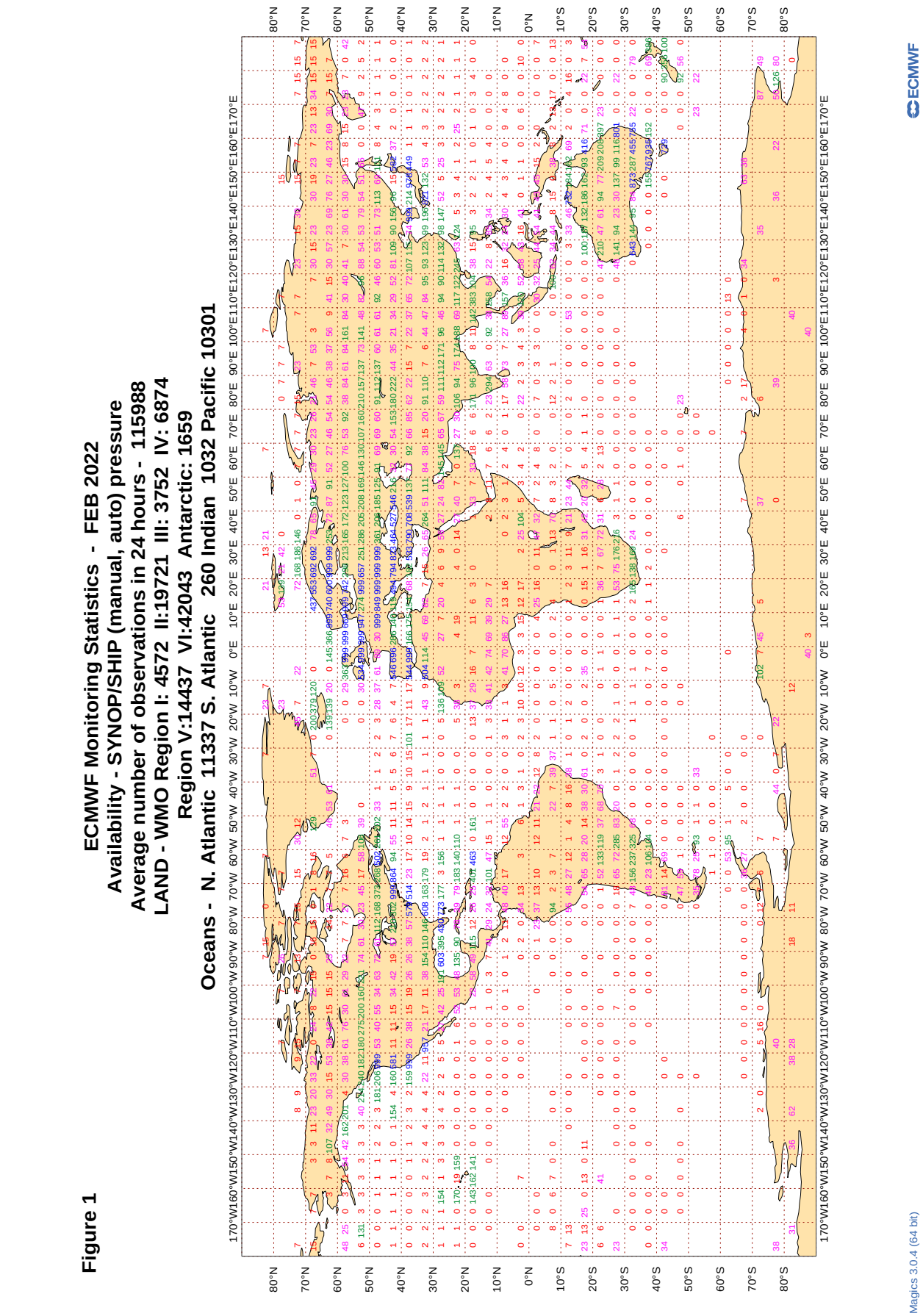


Figure 1

3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

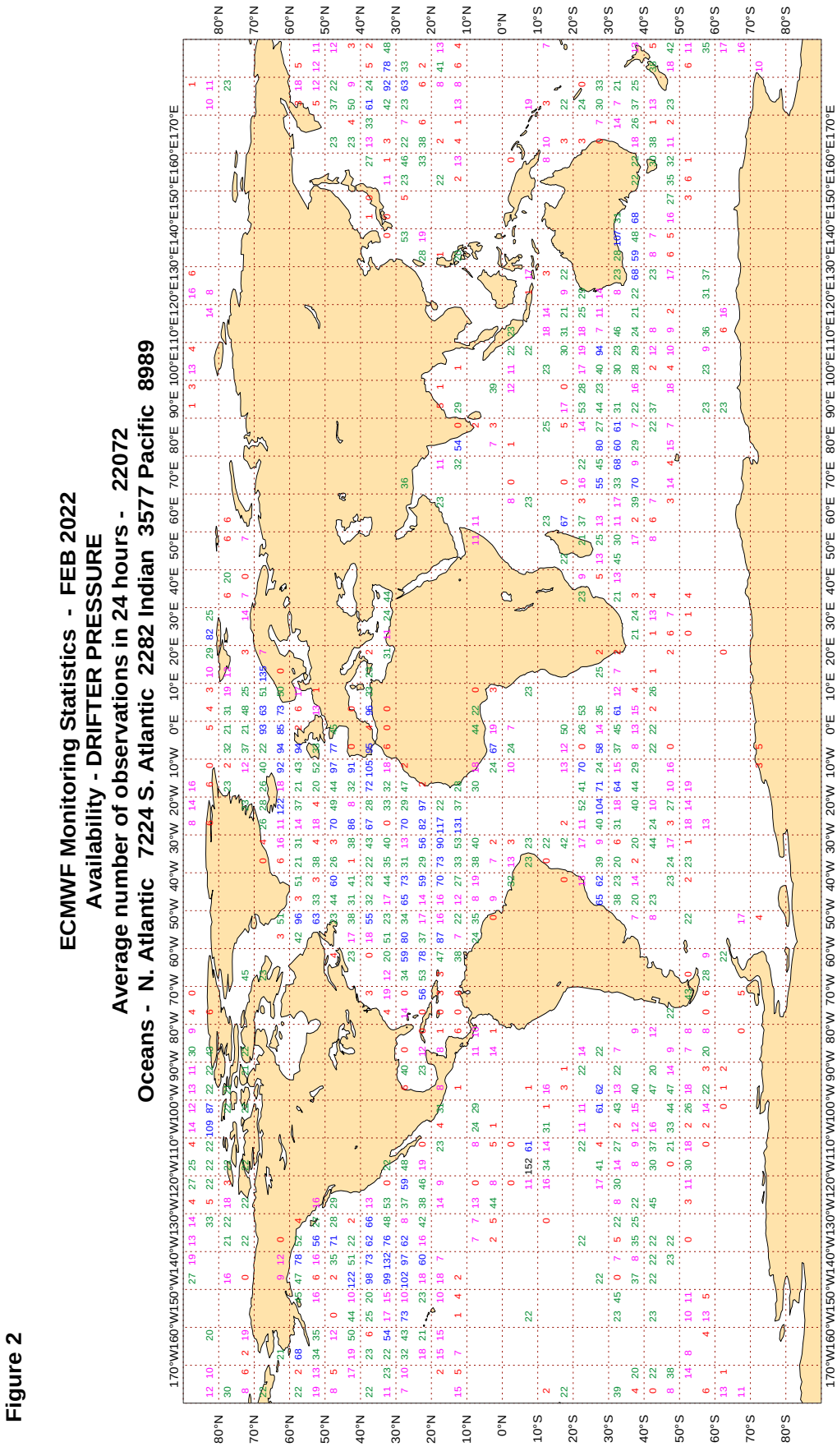


Figure 2

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

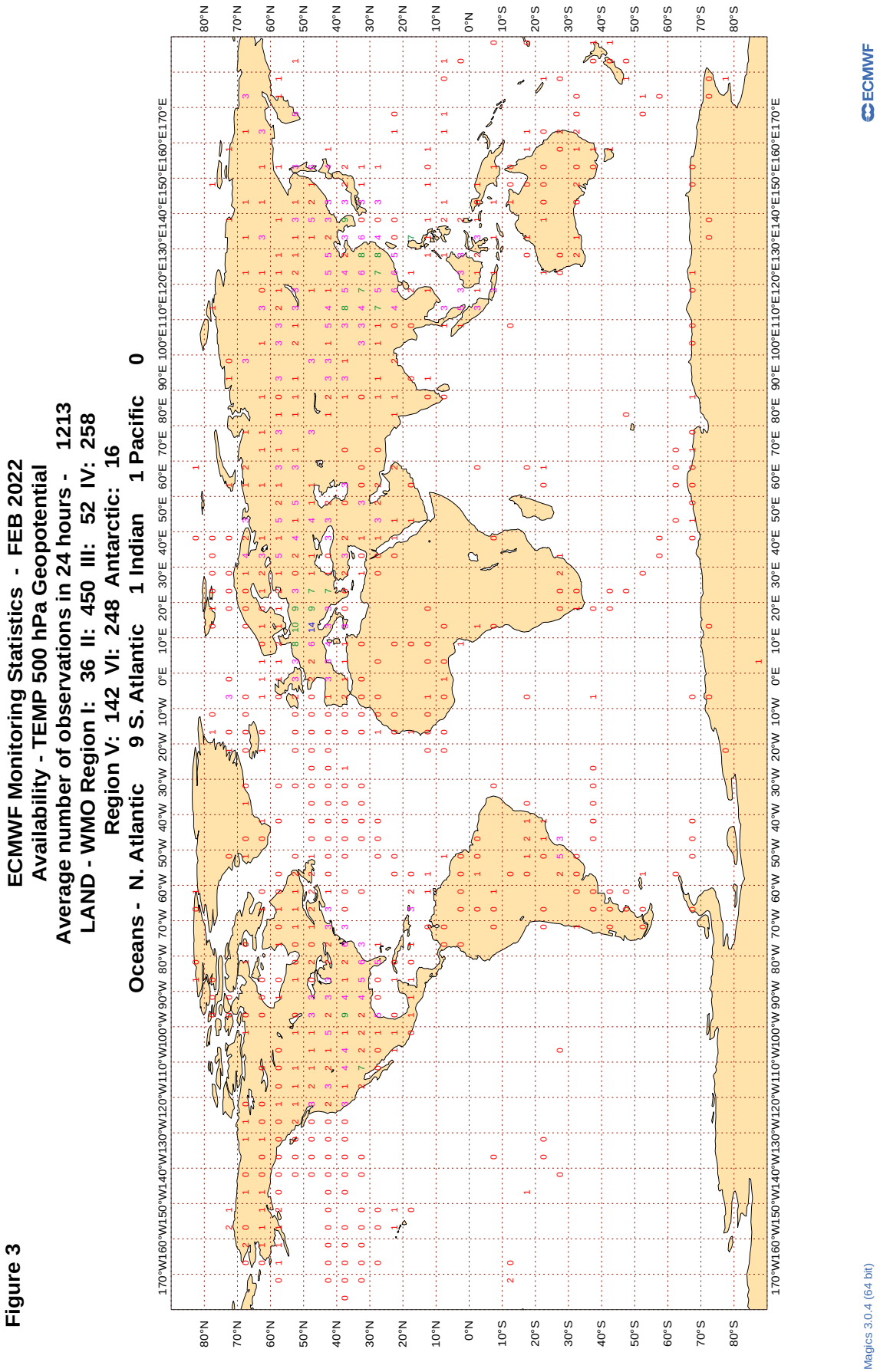


Figure 3

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

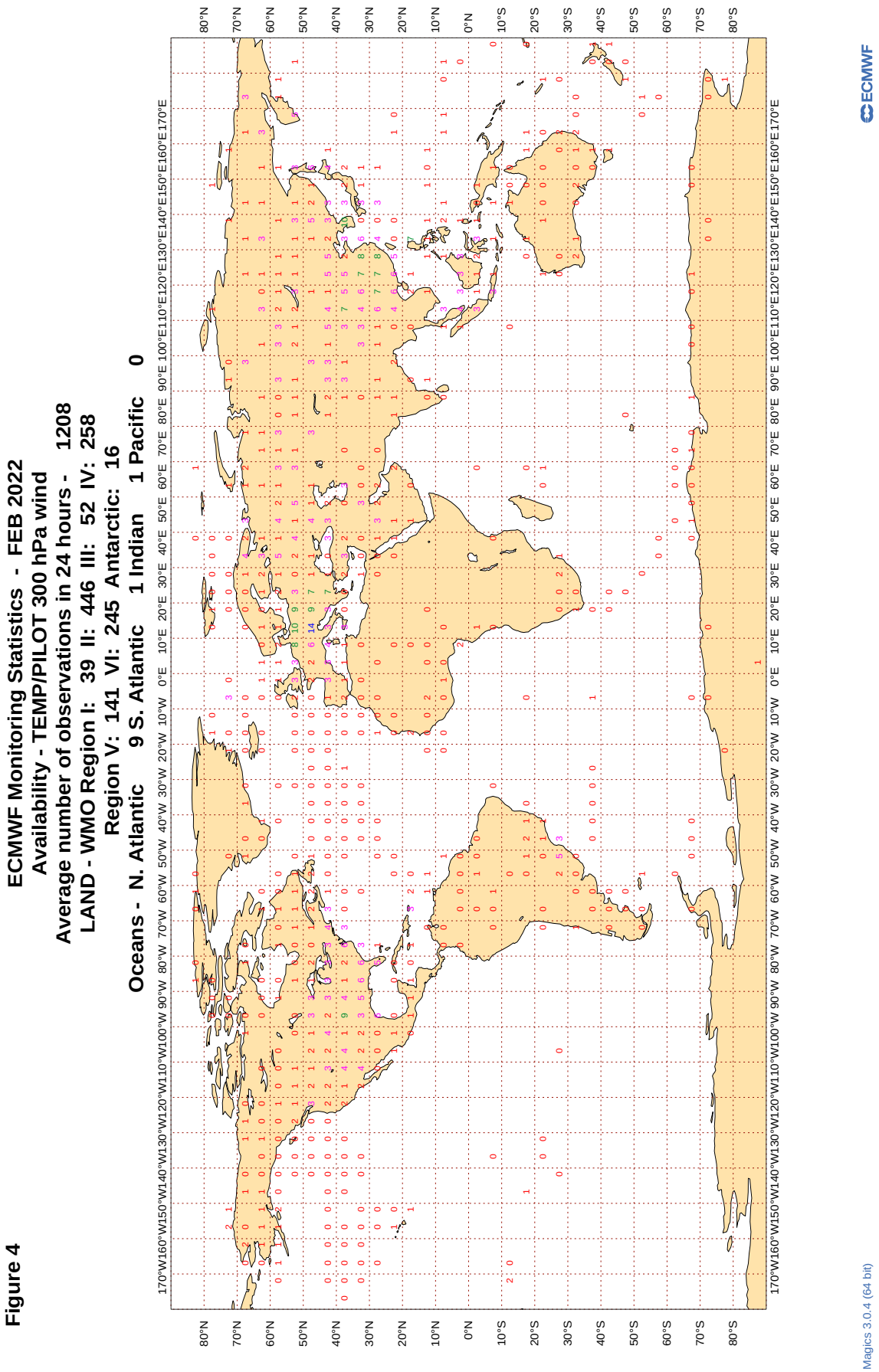


Figure 4

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

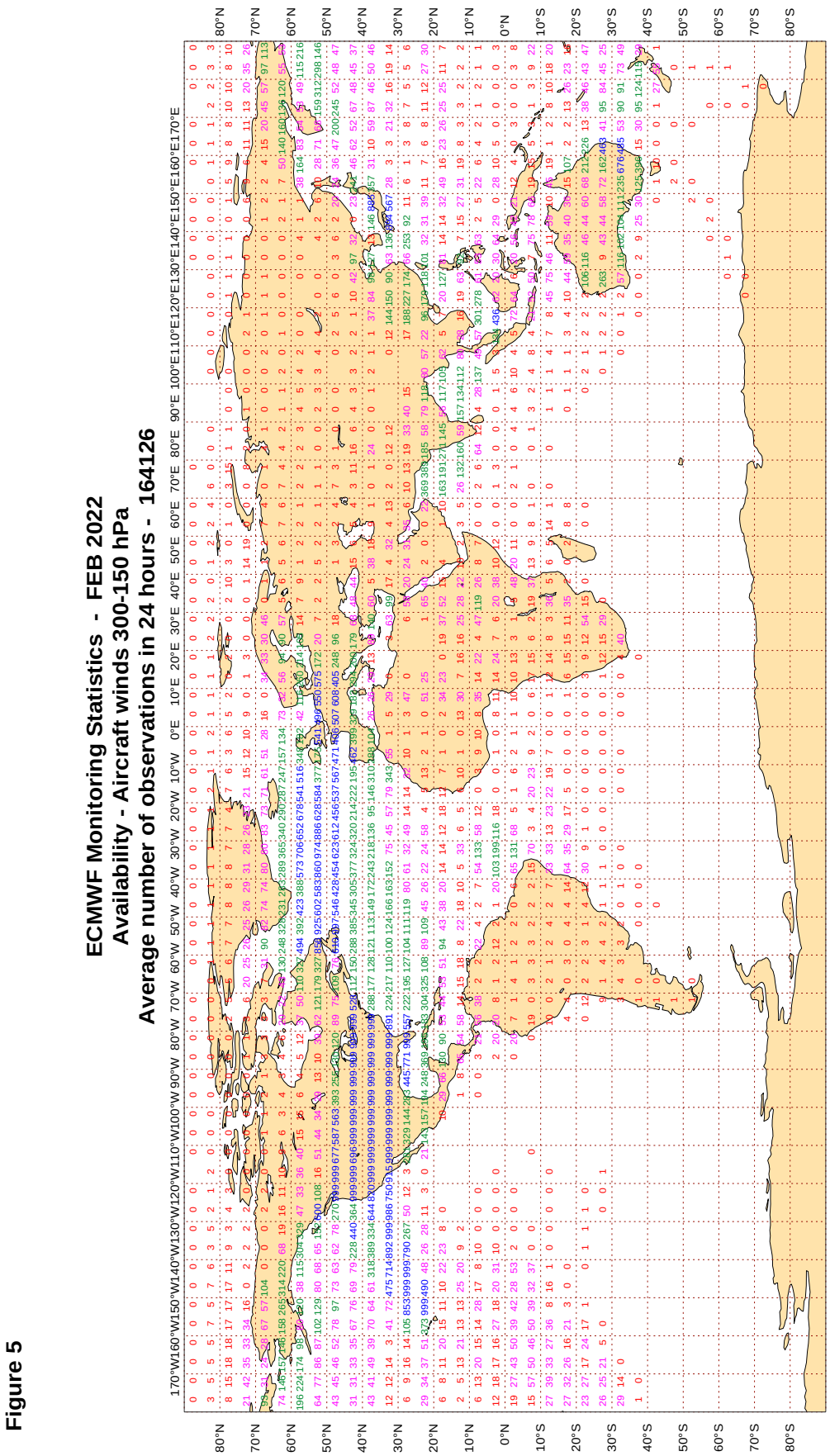


Figure 5

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

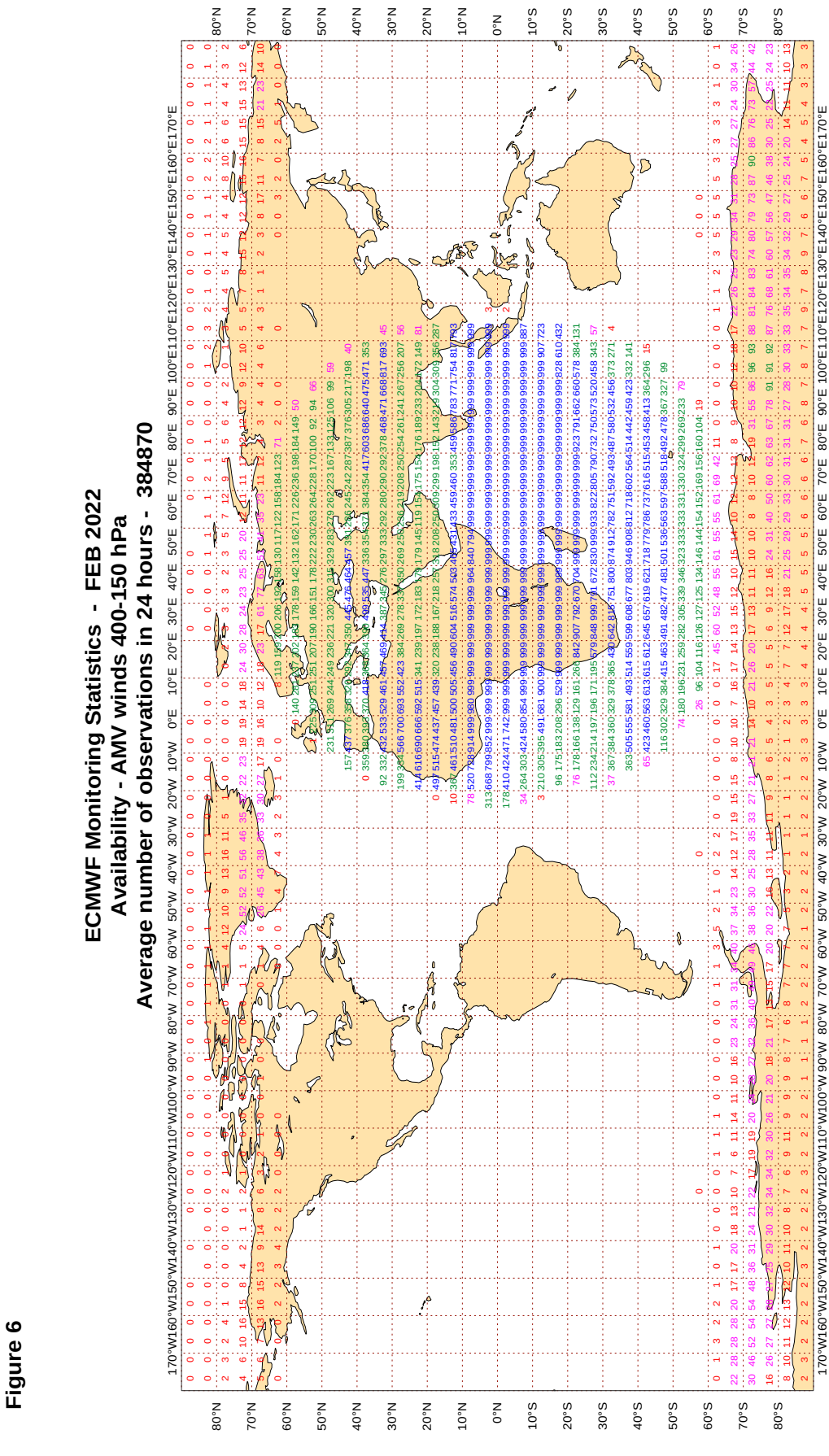


Figure 6

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

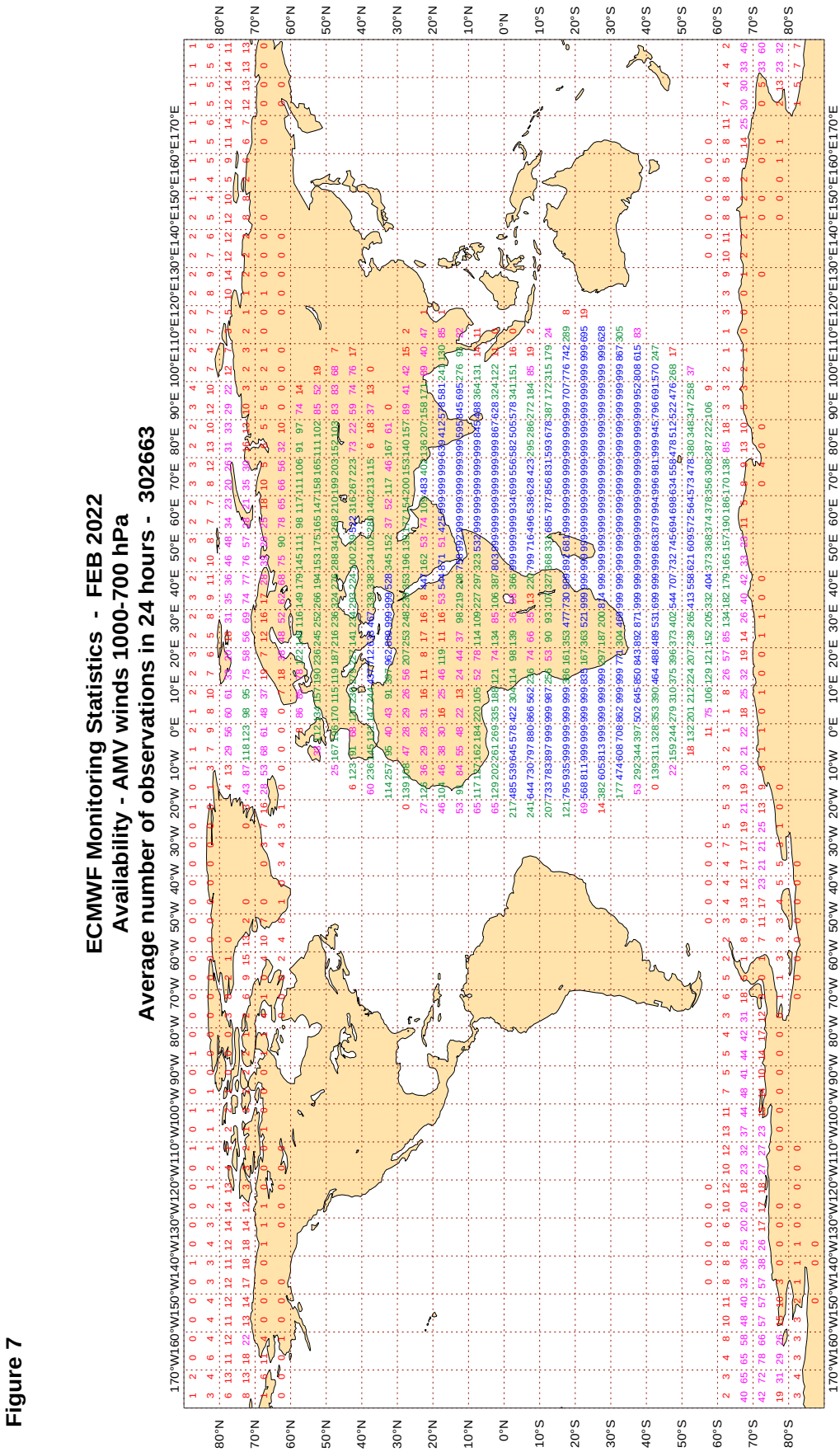
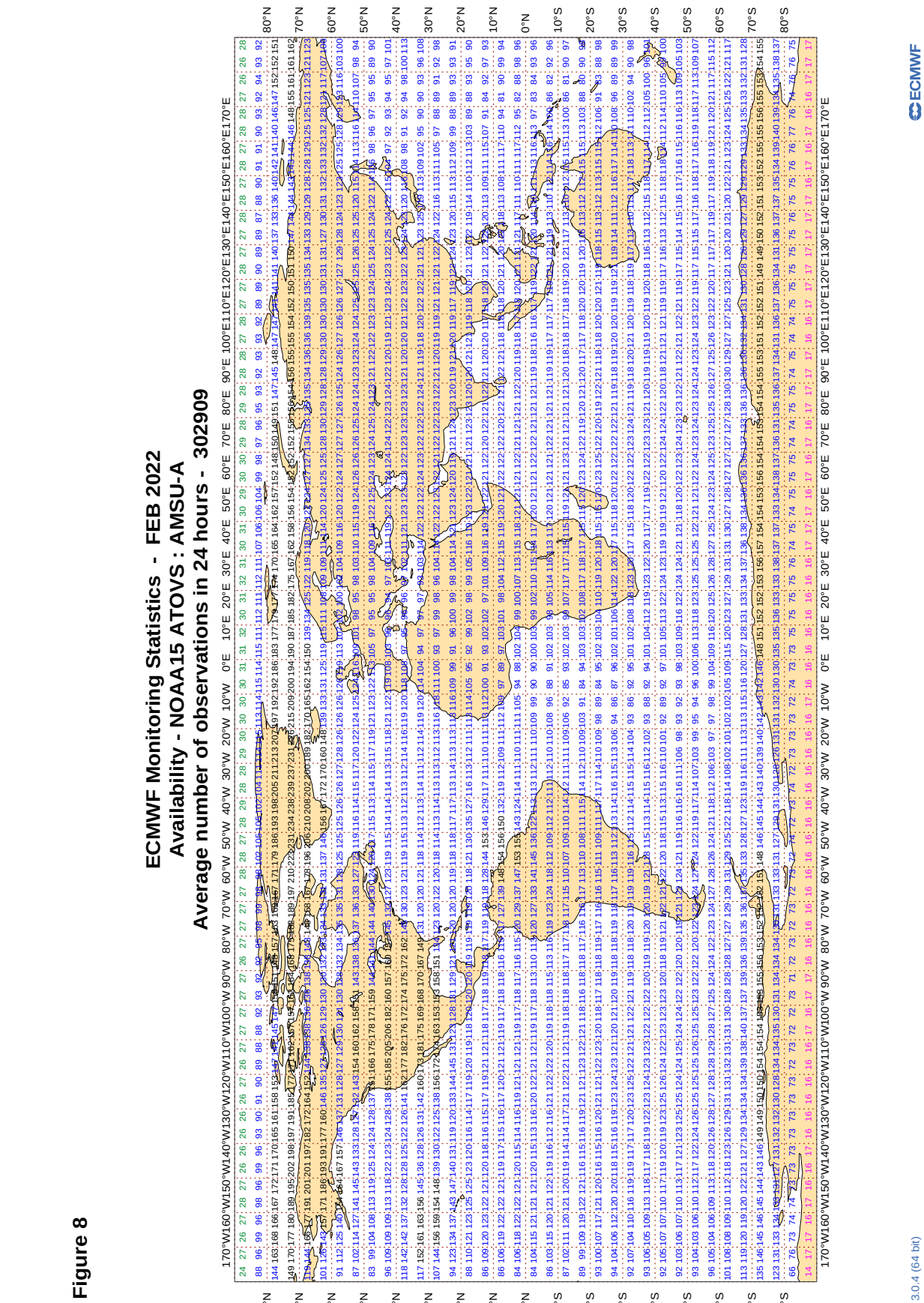


Figure 7

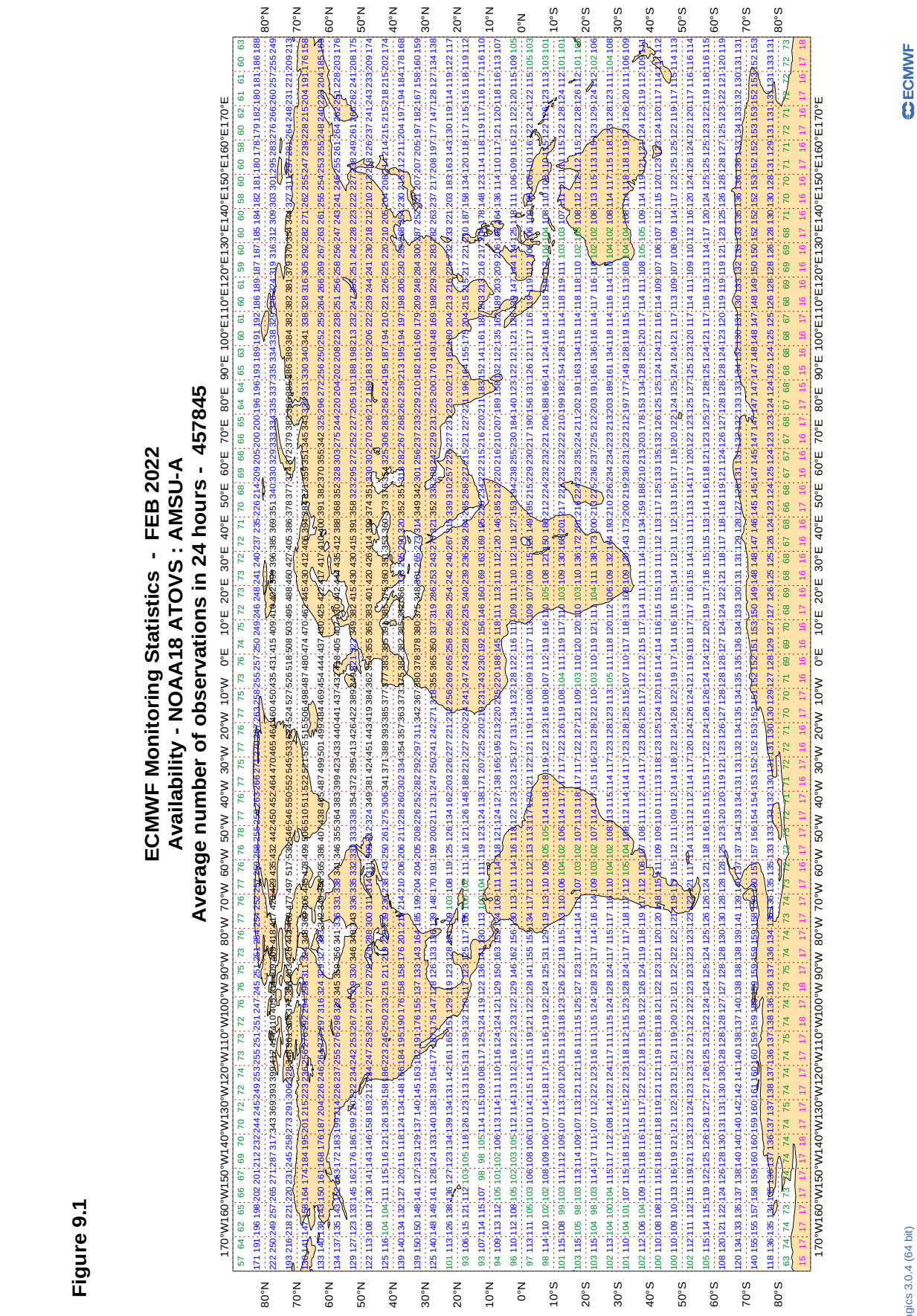
3.2.8 Figure 8 - Availability - NOAA15 ATOVS : AMSU-A

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

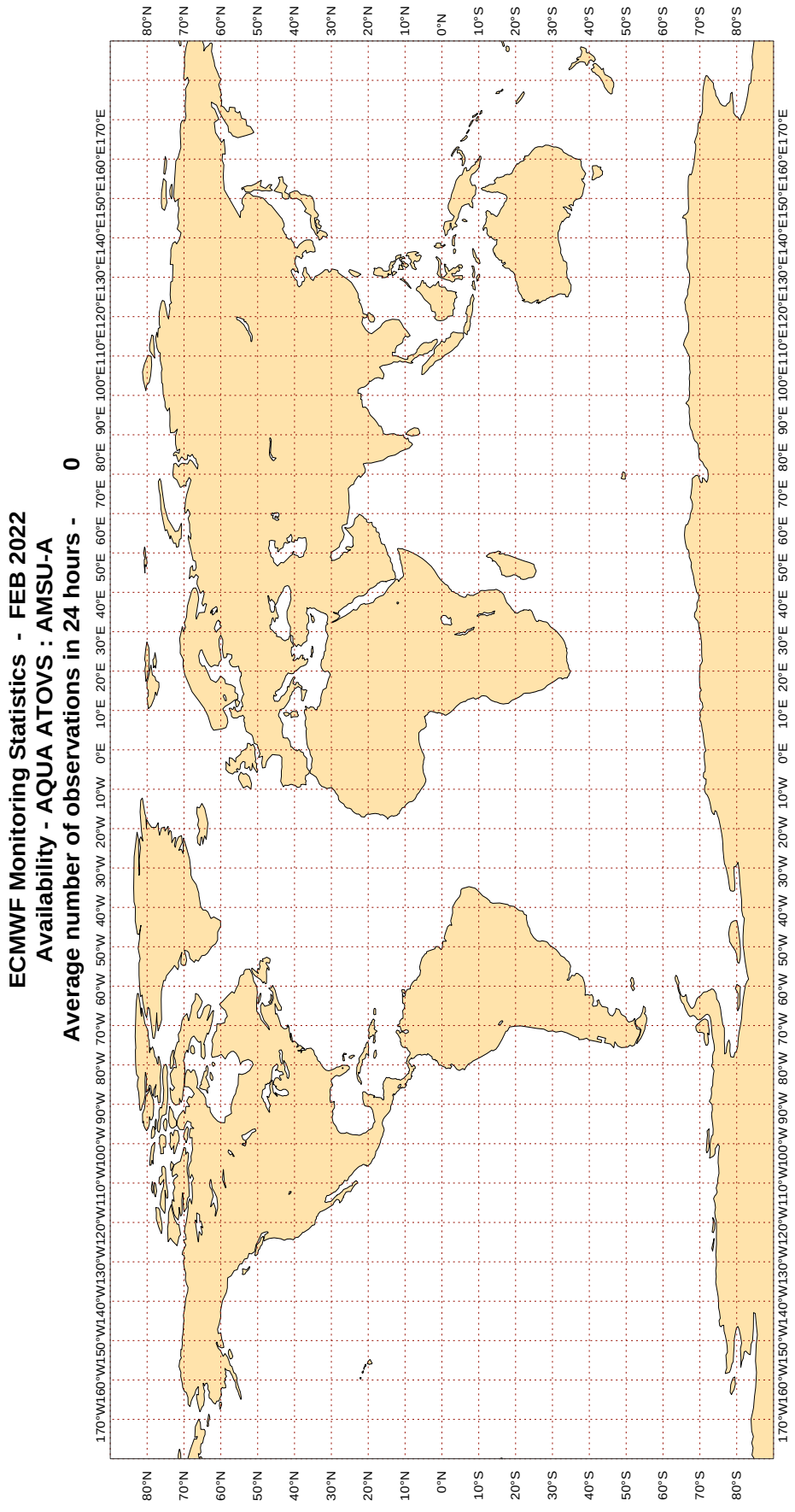


Figure 9.2

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

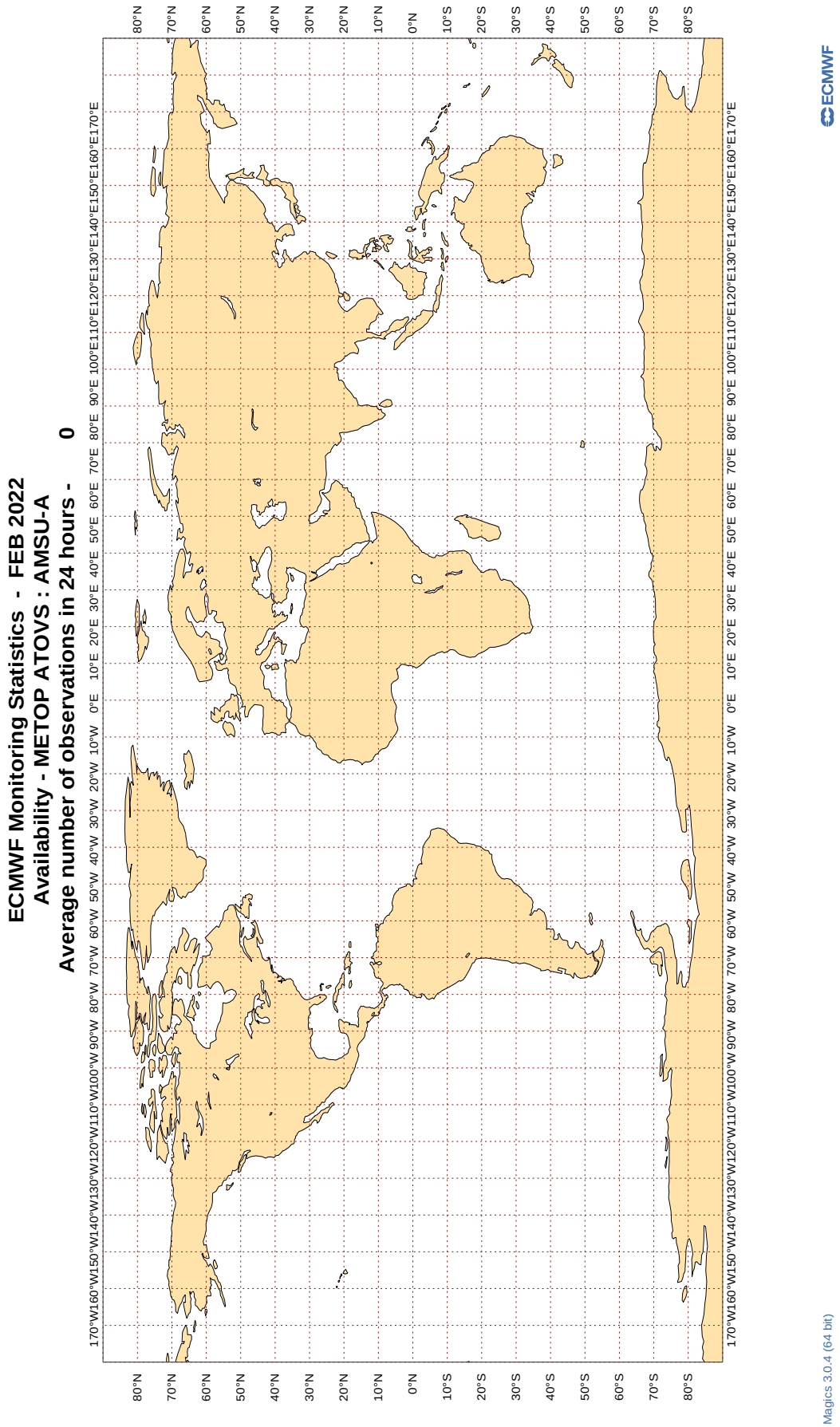


Figure 9.3

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                : FEB 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
2HDG3	99	P	SUR	92	0	3.0	4.7	5.5
3EJF3	99	P	SUR	41	0	0.8	5.7	5.8
3FWH8	99	P	SUR	21	0	1.0	7.7	7.7
4XFC	99	P	SUR	18	0	0.5	7.0	7.0
9HA2066	99	P	SUR	29	0	1.6	-3.7	4.1
9HA4612	99	P	SUR	202	0	0.8	3.6	3.6
9HA5197	99	P	SUR	20	0	0.6	4.9	4.9
9HA5209	99	P	SUR	110	3	1.8	12.7	12.8
9V2093	99	P	SUR	109	0	0.9	-3.3	3.4
9V5250	99	P	SUR	44	0	3.6	3.4	4.9
9V5456	99	P	SUR	26	0	2.0	8.2	8.5
9V8776	99	P	SUR	195	1	3.2	5.6	6.4
9V9401	99	P	SUR	73	0	0.7	-5.6	5.7
9V9916	99	P	SUR	25	0	1.1	8.0	8.1
9VBN2	99	P	SUR	16	0	0.3	5.8	5.8
ATVK	99	P	SUR	119	90	6.7	6.5	9.4
BKIC	99	P	SUR	105	31	0.9	13.9	13.9
BKIY	99	P	SUR	52	0	0.7	4.3	4.4
BKIZ	99	P	SUR	89	0	1.0	4.5	4.6
C6DP6	99	P	SUR	69	0	2.2	4.7	5.1
C6LG6	99	P	SUR	153	0	0.5	-4.4	4.5
C6PZ8	99	P	SUR	21	0	1.4	-3.6	3.8
C6SE5	99	P	SUR	18	2	0.6	-3.9	4.0
C6TQ6	99	P	SUR	18	0	5.0	-4.1	6.5
JMJRCES	99	P	SUR	174	0	3.2	-5.0	6.0
KIAB	99	P	SUR	65	0	2.0	3.2	3.8
LAIG7	99	P	SUR	26	0	0.7	3.8	3.8
LANT5	99	P	SUR	94	0	0.5	3.6	3.7
LAQM7	99	P	SUR	65	2	2.8	4.7	5.5
LAVD4	99	P	SUR	28	0	0.6	3.2	3.2
LAZU5	99	P	SUR	52	0	1.5	4.1	4.4
LOCW	99	P	SUR	26	2	1.8	-5.3	5.6

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
MCMB8	99	P	SUR	29	0	0.7	5.0	5.0
MJKZ4	99	P	SUR	22	0	0.5	3.6	3.7
S6LT3	99	P	SUR	26	0	2.1	3.5	4.1
SJA4RSK	99	P	SUR	131	0	2.3	-5.1	5.6
UAST	99	P	SUR	34	0	8.2	-7.3	11.0
UBSI9	99	P	SUR	26	0	0.6	-3.2	3.3
UCEE	99	P	SUR	18	18	0.0	0.0	0.0
UCQX	99	P	SUR	39	23	1.1	13.8	13.9
UFJN	99	P	SUR	71	0	1.1	-4.2	4.4
UHOW	99	P	SUR	49	0	5.7	-0.7	5.7
V7A5144	99	P	SUR	52	0	1.3	-4.4	4.6
V7BN6	99	P	SUR	15	0	3.8	5.1	6.3
V7QJ5	99	P	SUR	36	4	5.9	0.4	5.9
V7QS7	99	P	SUR	89	0	1.1	-5.7	5.8
V7TM6	99	P	SUR	28	0	2.6	-4.9	5.6
VRBN8	99	P	SUR	16	0	1.1	5.0	5.1
VRDB3	99	P	SUR	21	0	1.1	-3.5	3.7
VRFS2	99	P	SUR	24	0	2.2	7.2	7.5
VRGE3	99	P	SUR	32	0	0.9	-5.1	5.2
VRIB2	99	P	SUR	36	0	1.9	3.7	4.1
VRLI7	99	P	SUR	28	0	3.2	3.8	5.0
VRLJ3	99	P	SUR	43	0	1.5	4.3	4.5
VROO4	99	P	SUR	17	0	1.1	5.7	5.8
VRPY6	99	P	SUR	21	0	0.9	-3.4	3.5
VRRP7	99	P	SUR	24	0	2.7	-3.7	4.6
VTSJ	99	P	SUR	120	68	8.8	-0.7	8.8
WDDI	99	P	SUR	44	0	0.7	3.2	3.2
WDJ3192	99	P	SUR	38	0	1.4	3.9	4.1
WRJP	99	P	SUR	24	0	0.7	4.4	4.4
WTEF	99	P	SUR	276	18	5.1	4.0	6.4
ZGFY4	99	P	SUR	62	0	1.7	-11.9	12.0
ZNZH6	99	P	SUR	34	0	1.7	3.0	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                : FEB 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44137	99	SPEED	SUR	178	0	0	3.3	-7.8	8.5
46185	99	SPEED	SUR	46	0	0	2.0	-5.2	5.6

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                : FEB 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
41044	99	DIRN	SUR	31	0	0	94.0	-7.1	94.3
42019	99	DIRN	SUR	399	0	0	95.3	39.1	103.0
42060	99	DIRN	SUR	31	0	0	22.7	92.9	95.6
44025	99	DIRN	SUR	414	11	0	91.9	-60.6	110.1
46015	99	DIRN	SUR	470	47	0	76.5	10.4	77.2
46069	99	DIRN	SUR	156	0	0	36.6	-33.4	49.6
46072	99	DIRN	SUR	334	27	0	129.5	12.9	130.2
46073	99	DIRN	SUR	128	10	0	113.7	41.3	120.9
46080	99	DIRN	SUR	171	8	0	114.6	-41.5	121.9
46303	99	DIRN	SUR	105	0	0	32.1	58.0	66.3

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                 : FEB 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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

TIME = 99 => AVERAGE OF ALL OBSERVATIONS
```

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
0022958	99	P	SUR	27	126	468	468	0.0	0.0	0.0
1301760	99	P	SUR	2	-39	182	46	7.0	-2.3	7.4
4301614	99	P	SUR	36	-148	86	82	0.0	-14.5	14.5
4602507	99	P	SUR	55	-155	496	149	1.9	12.6	12.7
4602731	99	P	SUR	52	-131	202	0	2.7	4.9	5.6
4701658	99	P	SUR	72	-95	637	637	0.0	0.0	0.0
4701735	99	P	SUR	72	-120	653	653	0.0	0.0	0.0
4701738	99	P	SUR	70	-67	648	648	0.0	0.0	0.0
4701744	99	P	SUR	80	-100	665	665	0.0	0.0	0.0
4801670	99	P	SUR	86	-142	636	434	8.3	1.4	8.4
5201726	99	P	SUR	39	-177	661	26	4.3	4.1	5.9
6101009	99	P	SUR	35	25	24	8	0.4	0.1	0.4
6301511	99	P	SUR	55	-17	456	0	1.4	7.6	7.8
6402587	99	P	SUR	56	-55	601	59	4.7	5.1	6.9
6402589	99	P	SUR	54	-54	321	222	9.2	5.1	10.6
6402656	99	P	SUR	57	-44	533	0	2.7	5.1	5.8
6501676	99	P	SUR	76	-5	436	48	3.4	8.3	8.9

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                : FEB 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


TIME = 99 => AVERAGE OF ALL OBSERVATIONS
```

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44137	99	SPEED	SUR	42	-62	758	0	0	3.4	-8.0	8.7
46185	99	SPEED	SUR	52	-130	99	0	0	2.1	-5.3	5.8

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

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


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


TIME = 99 => AVERAGE OF ALL OBSERVATIONS
```

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300008	99	DIRN	SUR	15	-38	470	0	0	82.4	54.9	99.0
1300131	99	DIRN	SUR	28	-17	349	0	0	54.2	-55.8	77.8
2200102	99	DIRN	SUR	35	126	571	0	0	15.8	-28.1	32.3
2200298	99	DIRN	SUR	35	125	650	0	0	10.6	-52.2	53.2
23095	99	DIRN	SUR	10	94	99	0	0	92.2	49.1	104.4
23099	99	DIRN	SUR	13	80	376	0	0	76.2	63.2	99.0
23491	99	DIRN	SUR	12	93	159	0	0	55.0	49.8	74.2
23497	99	DIRN	SUR	11	72	89	0	0	102.1	14.6	103.1
41044	99	DIRN	SUR	22	-59	93	0	0	89.5	27.0	93.5
42019	99	DIRN	SUR	28	-95	852	0	0	91.0	39.8	99.3
42060	99	DIRN	SUR	16	-63	109	0	0	20.3	91.1	93.3
4400037	99	DIRN	SUR	43	-68	525	0	0	37.7	32.1	49.5
44025	99	DIRN	SUR	40	-73	977	19	0	89.7	-55.3	105.4
44037	99	DIRN	SUR	44	-68	1088	0	0	37.2	31.3	48.6
46015	99	DIRN	SUR	43	-125	990	87	0	73.1	11.8	74.1
46069	99	DIRN	SUR	34	-120	366	0	0	39.1	-31.9	50.5
46072	99	DIRN	SUR	52	-172	679	63	0	126.7	16.8	127.8
46073	99	DIRN	SUR	55	-172	273	20	0	115.9	30.2	119.8
46080	99	DIRN	SUR	58	-150	324	14	0	116.2	-39.3	122.7
46303	99	DIRN	SUR	49	-123	459	0	0	32.1	57.4	65.8
5100307	99	DIRN	SUR	8	-125	249	0	0	69.9	-35.3	78.3
51307	99	DIRN	SUR	8	-125	249	0	0	72.8	-27.4	77.8
5200001	99	DIRN	SUR	2	165	616	0	0	21.0	29.0	35.8
52001	99	DIRN	SUR	2	165	613	0	0	21.1	28.8	35.7
6200086	99	DIRN	SUR	55	6	360	0	0	11.3	25.2	27.6
6201065	99	DIRN	SUR	54	7	80	25	0	85.9	-83.2	119.6
62129	99	DIRN	SUR	58	0	1573	0	0	10.3	26.7	28.6

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

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


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


ONLY THE WORST LEVEL IS SHOWN (WITH UNWEIGHTED RMS)
```

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
01400	00	Z	1000	57	3	19	0	5.5	75.2	75.4
01400	12	Z	1000	57	3	20	0	3.9	76.8	76.9
21432	12	Z	250	76	138	28	0	20.0	-75.7	78.3
21432	00	Z	250	76	138	26	0	21.1	-78.0	80.8
40437	12	Z	925	25	47	26	1	9.2	34.3	35.5
42647	12	Z	70	23	73	18	1	97.0	-135.2	166.4
42647	00	Z	50	23	73	17	0	141.2	-92.8	169.0
43150	00	Z	1000	18	83	28	0	6.8	56.9	57.3
43371	00	Z	1000	8	77	10	0	3.1	48.6	48.7
48698	12	Z	200	1	104	15	0	18.8	79.2	81.4
64500	12	Z	850	0	9	19	0	44.4	11.8	45.9
82824	12	Z	1000	-9	-64	28	0	33.4	13.5	36.0
98558	00	Z	925	11	126	12	0	25.1	-32.3	40.9
98558	12	Z	925	11	126	19	0	25.9	-34.8	43.4
JNKN7J	12	Z	1000	50	-17	11	0	2.7	36.4	36.5

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                : FEB 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

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

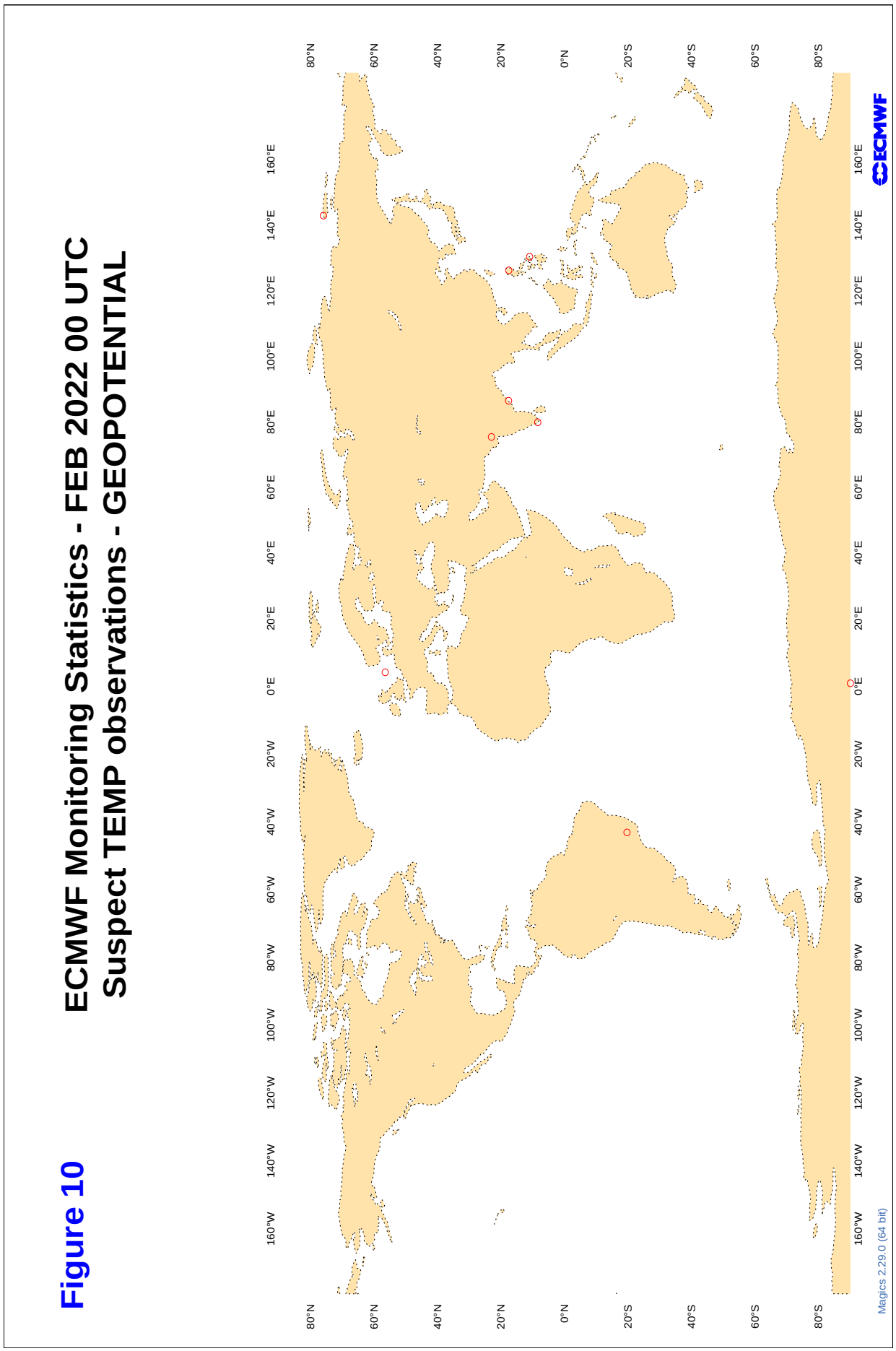
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

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

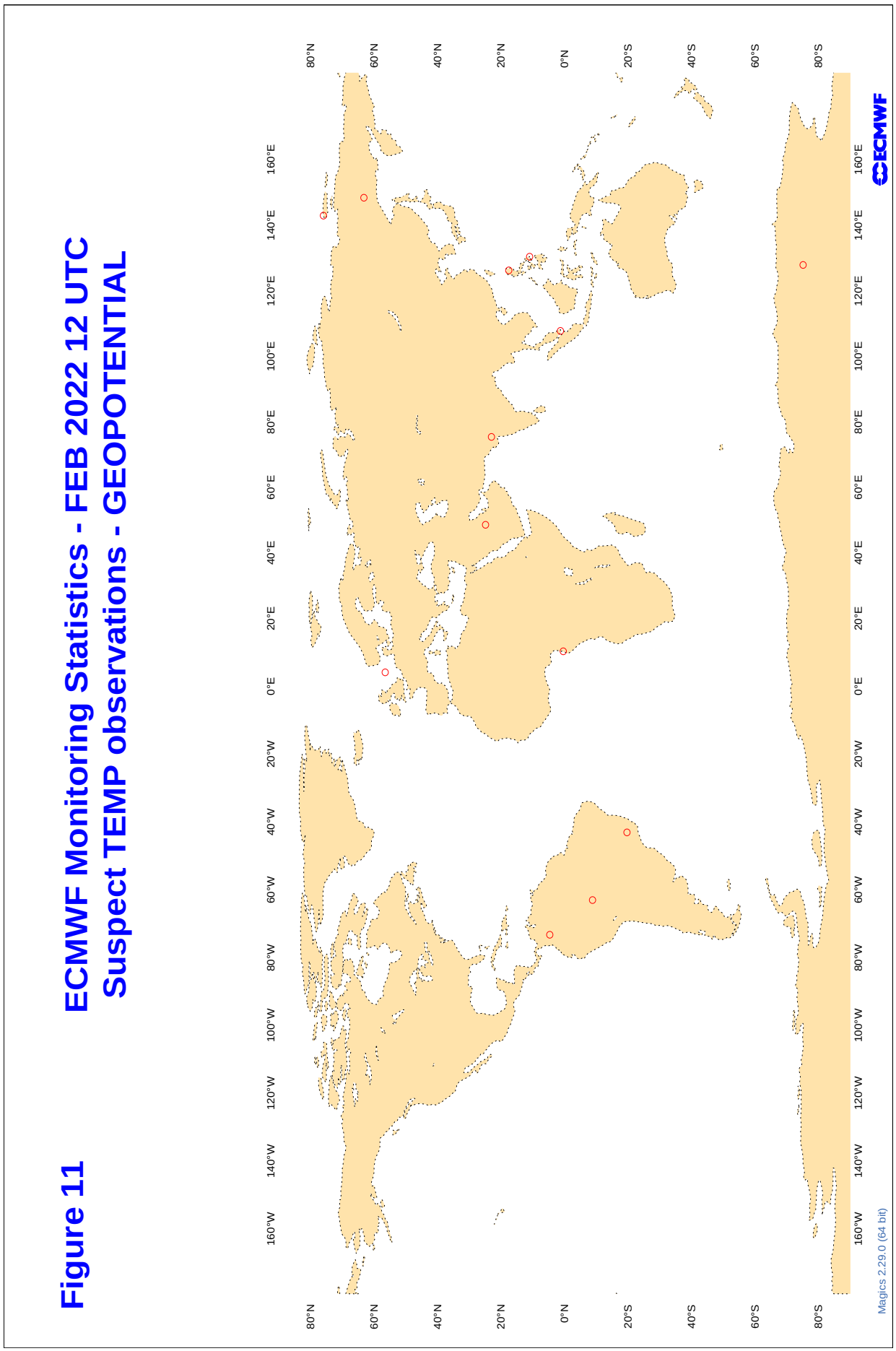

SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS >= 5 M/S
                    NO. OF OBSERVATIONS   >= 5, AND,
                    ABSOLUTE BIAS         >= 10 DEGREES, WITH
                    STANDARD DEVIATION    <  30 DEGREES, AND,
                    VERTICAL SPREAD       < 10 DEGREES
         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

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD

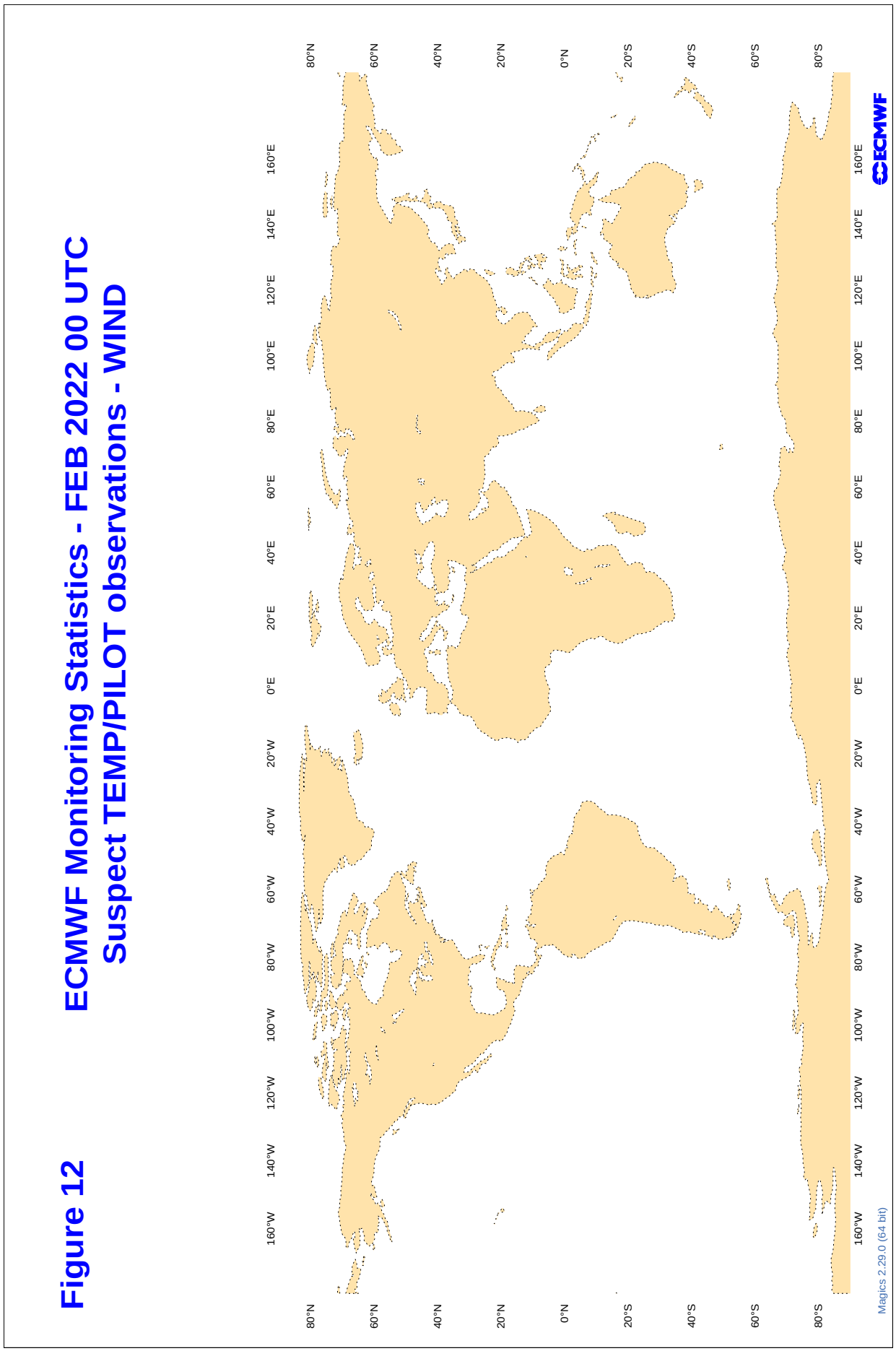
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



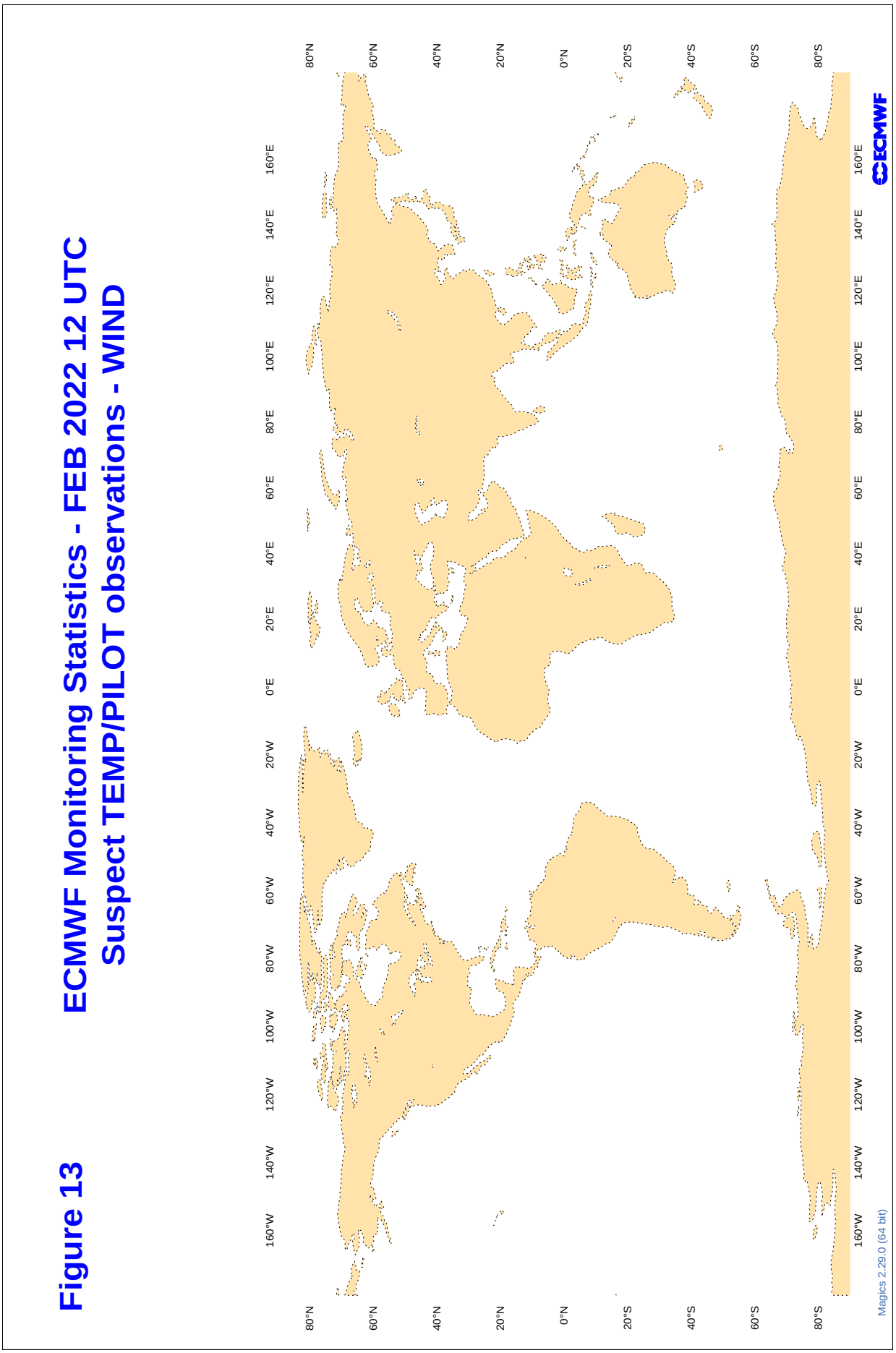
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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                : FEB 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
2EERVT	12	Z	100	7	10.3	-6.7
2EERVT	00	Z	100	4	14.4	-13.3
7JUNA4	12	Z	100	2	11.9	-5.9
7JUNA4	00	Z	100	1	12.2	-12.2
ASDE09	12	Z	100	4	28.6	21.6
ATGU3F	12	Z	100	5	30.2	-26.9
ATGU3F	00	Z	100	3	21.7	-20.4
BPMWB2	12	Z	100	9	11.4	2.9
BPMWB2	00	Z	100	7	20.0	14.2
CHQUR4	12	Z	100	9	8.9	-3.7
CHQUR4	00	Z	100	5	12.6	-0.4
DBLK	12	Z	100	24	9.4	6.7
FPUW5G	12	Z	100	1	2.4	-2.4
HTXUH4	00	Z	100	5	12.9	6.9
JGQH	12	Z	100	0	0.0	0.0
JGQH	00	Z	100	0	0.0	0.0
JNKN7J	12	Z	100	11	26.2	23.8
JNKN7J	00	Z	100	9	36.8	31.6
KJJF9X	12	Z	100	4	16.5	6.4
KJJF9X	00	Z	100	6	12.6	10.1
KMPLHP	12	Z	100	5	45.0	33.7
KMPLHP	00	Z	100	7	44.5	40.3
LRYQE3	12	Z	100	9	16.9	-14.2
LRYQE3	00	Z	100	3	11.9	-10.9
USCAT	00	Z	100	2	11.8	-11.5
USSAL	00	Z	100	1	5.1	5.1
UXK5JT	12	Z	100	1	12.6	12.6
UXK5JT	00	Z	100	0	0.0	0.0
WDK38H	12	Z	100	12	9.0	-8.0
XKQLWQ	12	Z	100	16	41.6	33.3
XQFJRG	12	Z	100	5	17.3	5.3
XQFJRG	00	Z	100	5	8.1	-0.9
YLV96W	12	Z	100	1	12.2	12.2
YLV96W	00	Z	100	1	16.4	-16.4
ZSNO	12	Z	100	10	19.7	16.6
ZVQEQC	12	Z	100	3	7.0	-4.4
ZVQEQC	00	Z	100	5	9.9	-3.3

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                : FEB 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
2EERVT	12	V	100	7	3.8	-0.1	-1.4
2EERVT	00	V	100	4	2.9	-1.0	-0.8
7JUNA4	12	V	100	2	5.5	-0.7	-3.3
7JUNA4	00	V	100	1	3.2	1.3	-2.9
ASDE09	12	V	100	3	4.0	-1.9	-0.6
ATGU3F	12	V	100	5	2.0	-1.2	-0.6
ATGU3F	00	V	100	3	2.1	-1.0	-0.2
BPMWB2	12	V	100	9	3.3	1.0	0.4
BPMWB2	00	V	100	7	4.7	1.4	0.4
CHQUR4	12	V	100	9	3.5	0.9	0.5
CHQUR4	00	V	100	5	3.9	2.3	-2.4
DBLK	12	V	100	24	2.6	0.8	-0.1
FPUW5G	12	V	100	1	2.9	1.7	-2.3
HTXUH4	00	V	100	4	3.6	1.2	0.5
JGQH	12	V	100	0	0.0	0.0	0.0
JGQH	00	V	100	0	0.0	0.0	0.0
JNKN7J	12	V	100	11	3.4	0.3	0.7
JNKN7J	00	V	100	9	3.8	0.8	0.3
KJJF9X	12	V	100	4	3.1	-0.5	1.3
KJJF9X	00	V	100	6	3.2	-1.0	0.0
KMPLHP	12	V	100	5	2.2	-0.9	1.2
KMPLHP	00	V	100	7	3.9	-0.8	1.2
LRYQE3	12	V	100	9	3.8	0.7	0.0
LRYQE3	00	V	100	3	3.0	2.7	0.0
USCAT	00	V	100	2	3.2	-1.3	-2.0
USSAL	00	V	100	0	0.0	0.0	0.0
UXK5JT	12	V	100	1	1.1	0.3	1.1
UXK5JT	00	V	100	0	0.0	0.0	0.0
WDK38H	12	V	100	12	4.2	-0.5	0.3
XKQLWQ	12	V	100	16	3.2	0.0	0.7
XQFJRG	12	V	100	5	4.0	-2.1	0.7
XQFJRG	00	V	100	4	4.0	0.6	-0.5
YLV96W	12	V	100	1	3.0	1.4	-2.7
YLV96W	00	V	100	1	1.3	-0.6	-1.2
ZSNO	12	V	100	10	2.6	0.4	-0.4
ZVQEQC	12	V	100	3	2.5	-0.5	-1.5
ZVQEQC	00	V	100	5	4.5	0.7	-0.9

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

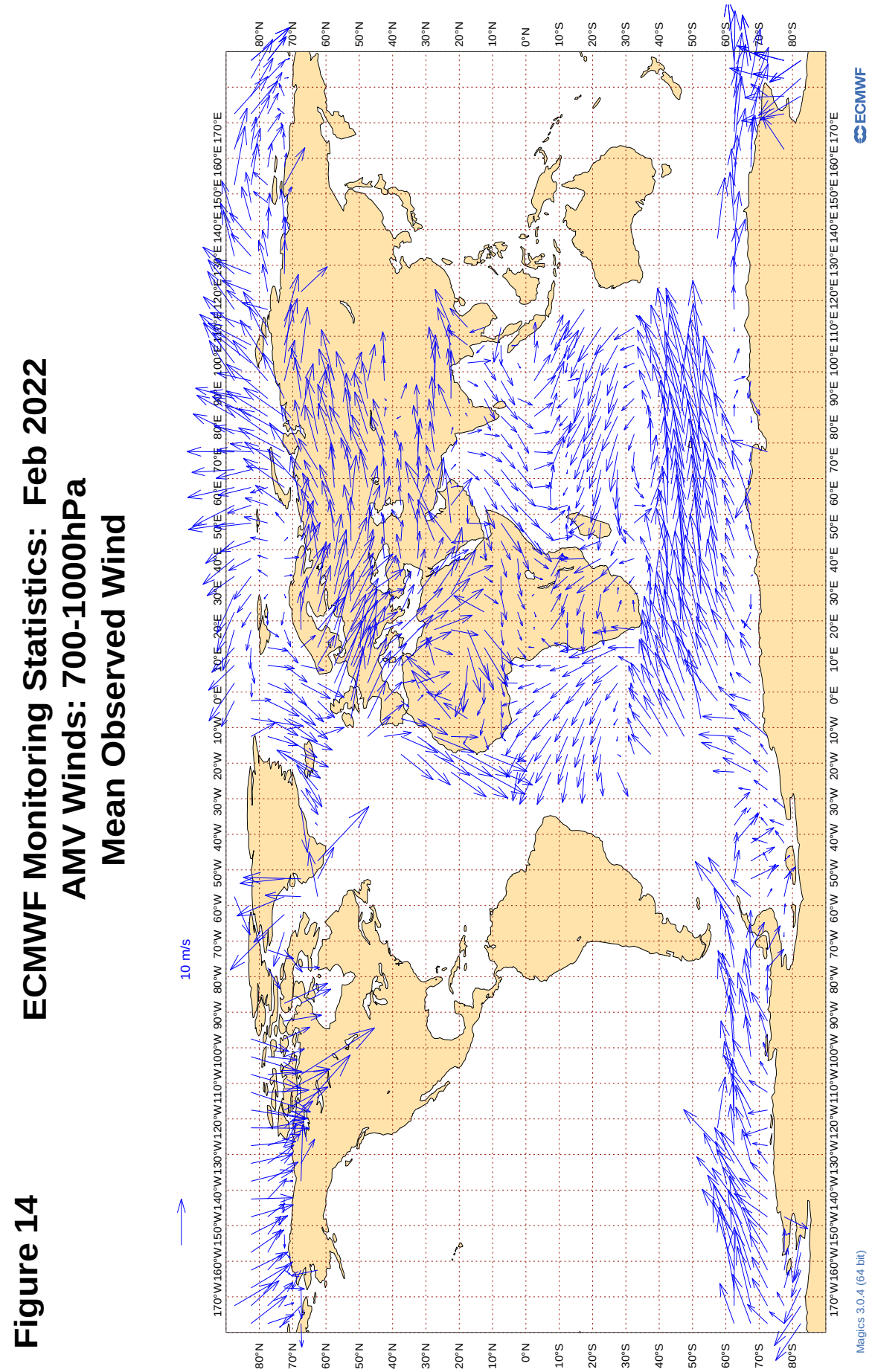


Figure 14

3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

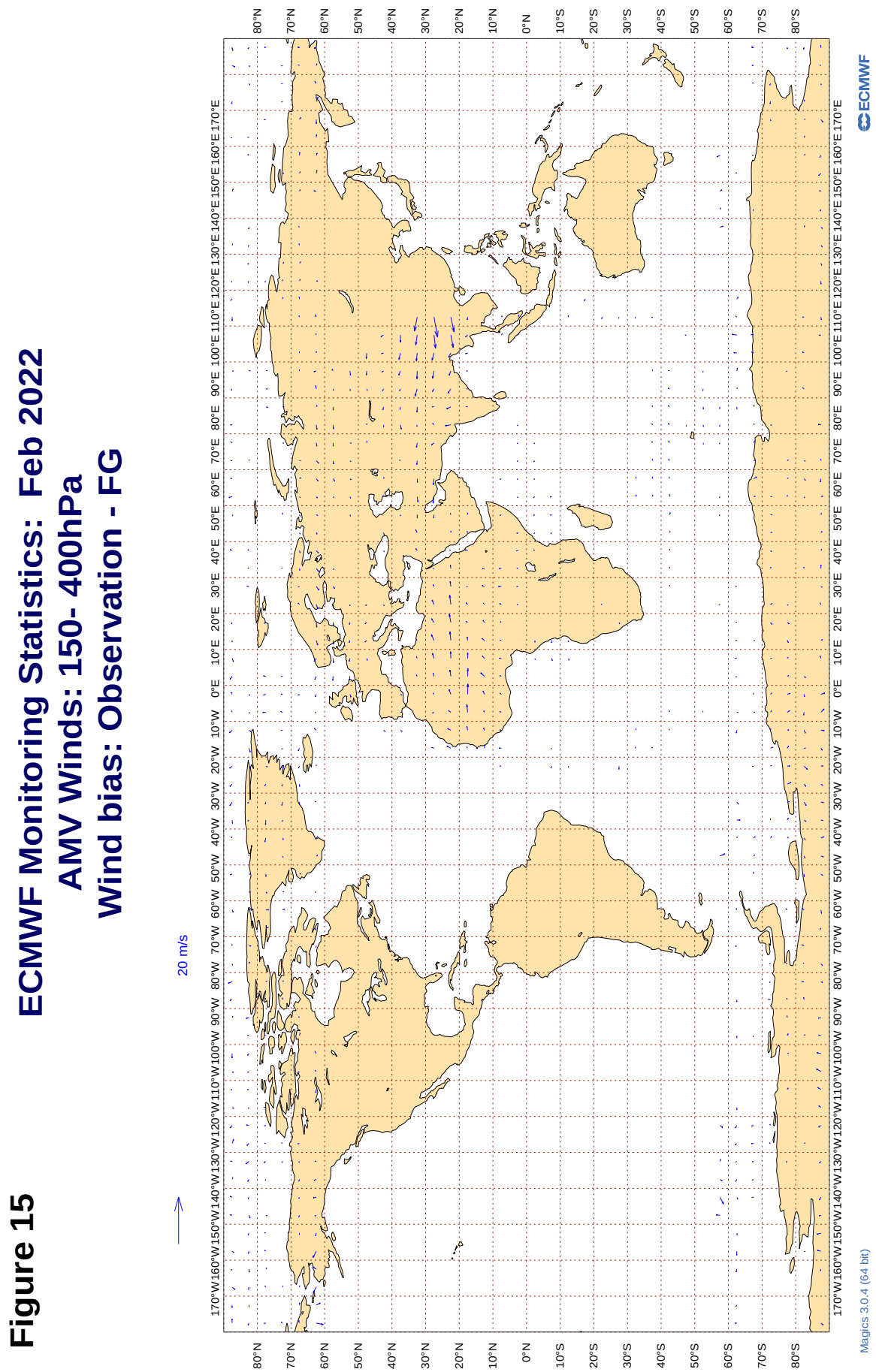


Figure 15

3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

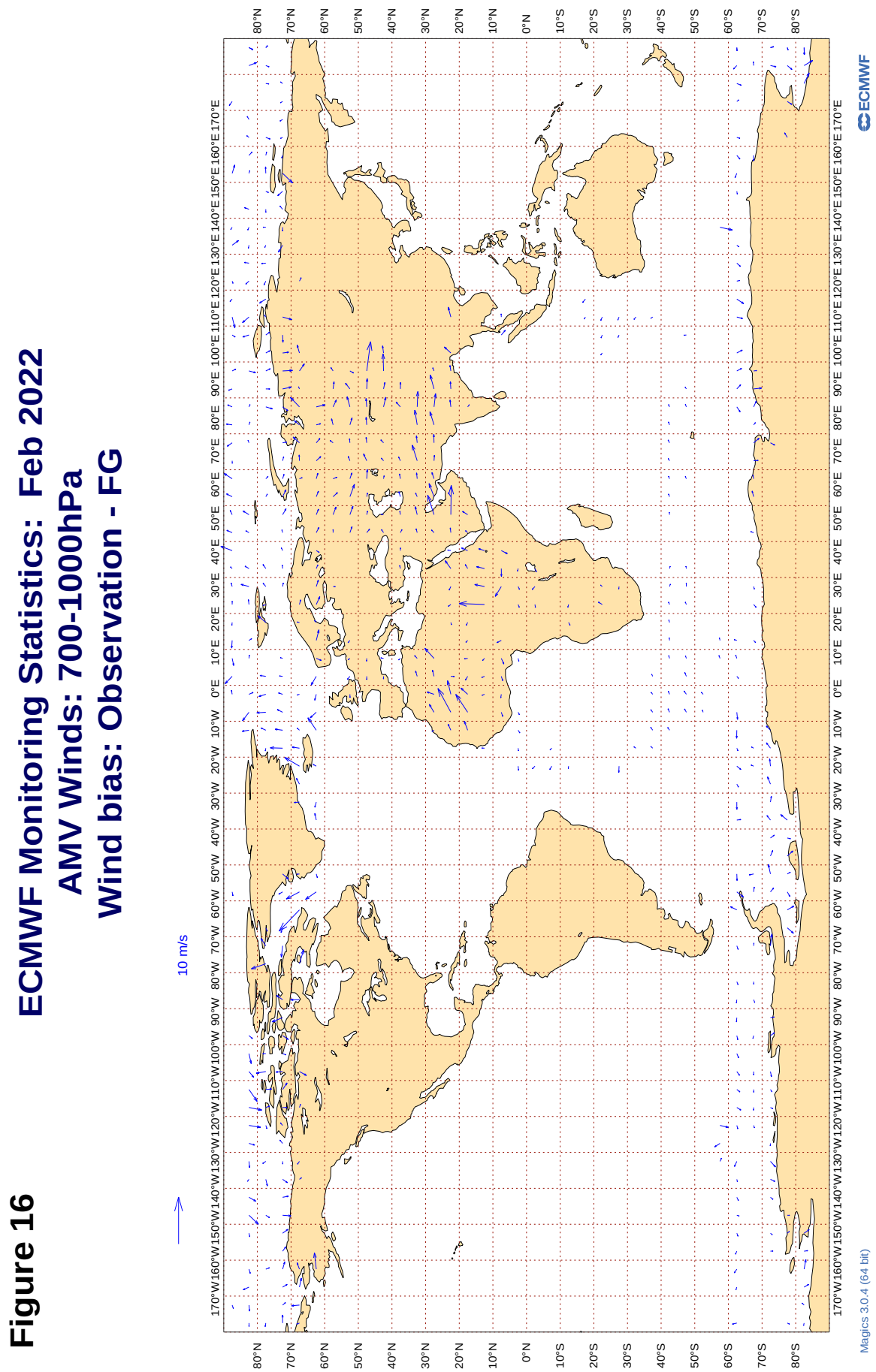


Figure 16

3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

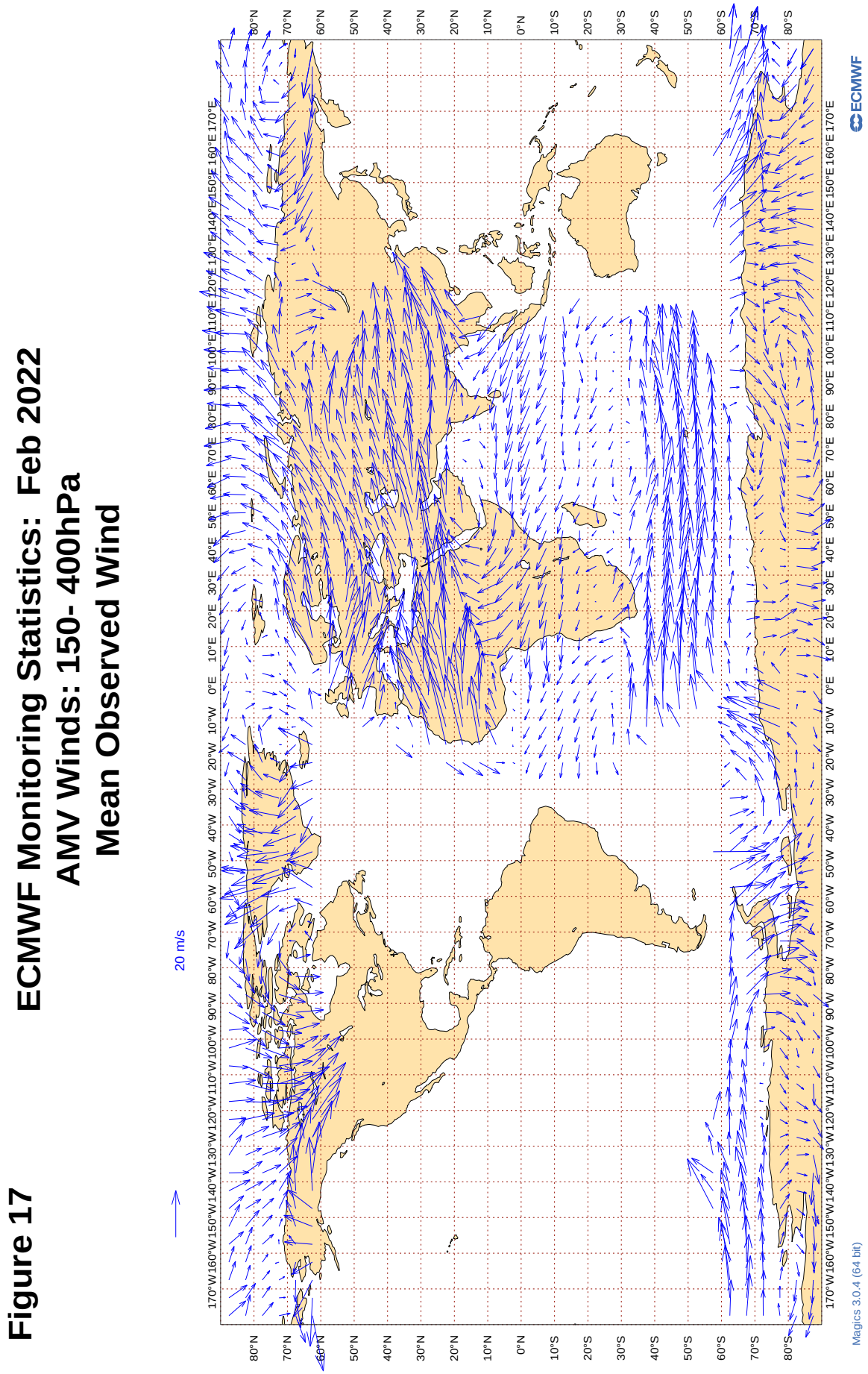


Figure 17

3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

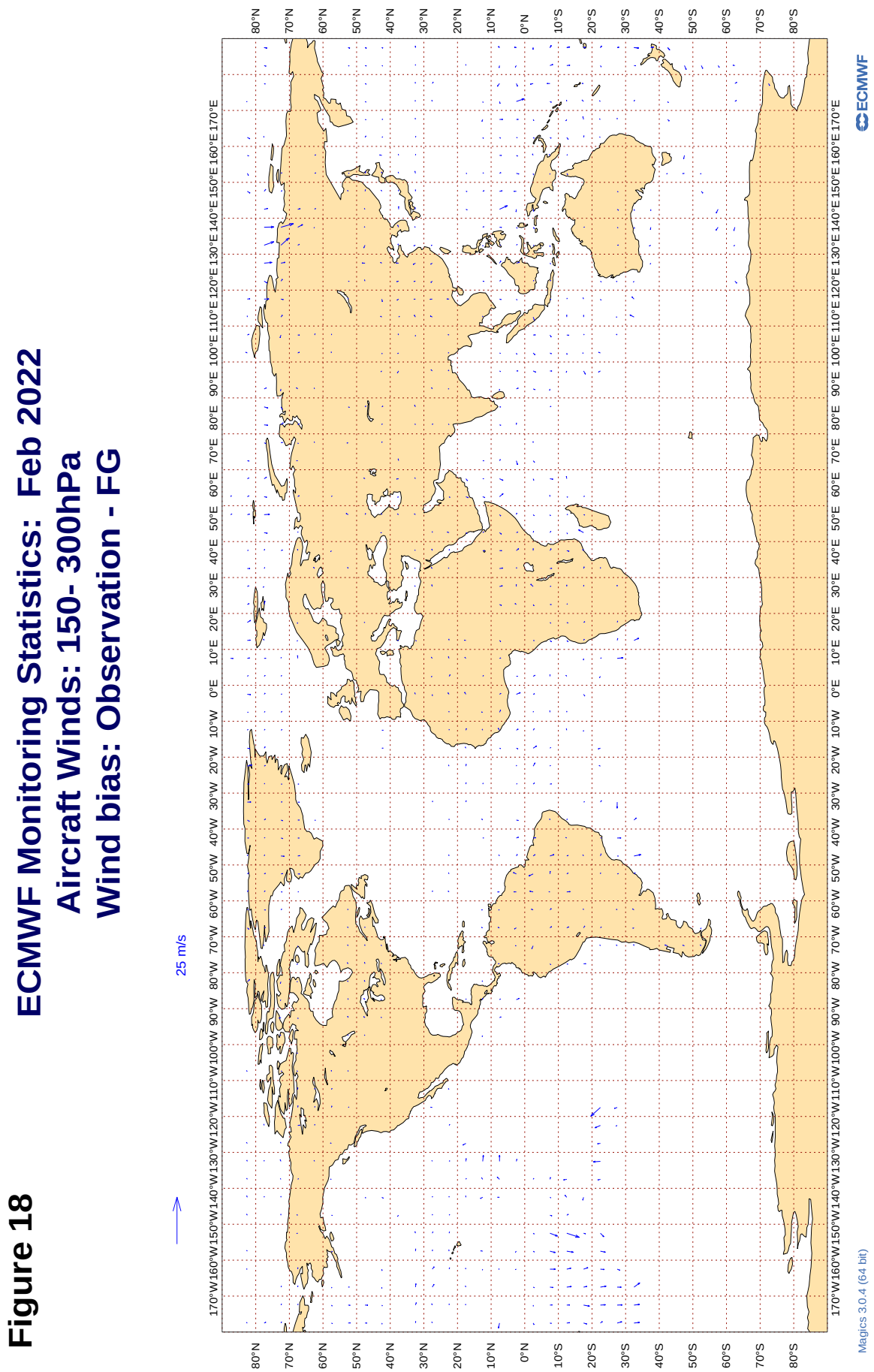


Figure 18

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 : FEB 2022
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
AAB	99	V	300-150	23	0	0	2.8	-0.1
AAL	99	V	300-150	19333	3	0	4.4	0.1
AAR	99	V	300-150	201	0	0	3.4	-1.0
ABB	99	V	300-150	997	0	0	3.3	0.1
ABD	99	V	300-150	1621	0	0	4.1	-0.4
ABG	99	V	300-150	346	0	0	3.2	0.2
ABP	99	V	300-150	66	0	0	4.7	0.5
ABW	99	V	300-150	567	0	0	3.7	-0.3
ABX	99	V	300-150	268	0	0	4.1	-0.4
ACA	99	V	300-150	9621	6	0	4.3	-0.0
ACI	99	V	300-150	238	0	0	5.4	1.2
AEA	99	V	300-150	296	10	2	6.0	-0.0
AFL	99	V	300-150	1809	0	0	3.2	-0.2
AFR	99	V	300-150	20676	1	0	3.8	0.1
AHO	99	V	300-150	387	1	0	5.0	0.2
AIC	99	V	300-150	2268	1	0	5.0	0.1
AJT	99	V	300-150	580	0	0	3.9	0.1
ALK	99	V	300-150	2011	0	0	2.9	0.4
AMX	99	V	300-150	1128	12	1	6.2	-0.2
ANZ	99	V	300-150	7952	4	0	9.2	0.4
AOJ	99	V	300-150	115	0	0	3.2	0.6
ASA	99	V	300-150	22	0	0	10.7	-1.1
ASL	99	V	300-150	245	0	0	3.6	0.5
ASY	99	V	300-150	63	0	0	5.5	1.0
ATC	99	V	300-150	72	0	1	6.4	0.2
ATN	99	V	300-150	159	1	1	5.5	0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AUA	99	V	300-150	1520	0	0	4.1	-0.4
AUI	99	V	300-150	31	0	0	3.7	0.1
AVA	99	V	300-150	27	0	19	4.8	0.3
AWC	99	V	300-150	365	0	0	3.4	0.3
AXB	99	V	300-150	34	0	0	2.5	0.8
AXM	99	V	300-150	250	1	4	4.8	0.6
AZG	99	V	300-150	568	0	0	3.4	-0.6
AZV	99	V	300-150	1050	0	0	3.2	0.2
BAF	99	V	300-150	45	0	0	3.5	0.6
BAH	99	V	300-150	26	0	0	3.1	0.8
BAW	99	V	300-150	26092	5	0	4.5	-0.0
BBB	99	V	300-150	20	0	0	3.7	2.9
BBC	99	V	300-150	489	0	0	3.2	1.2
BCS	99	V	300-150	2091	0	0	3.5	0.1
BEL	99	V	300-150	378	0	0	3.4	0.2
BFY	99	V	300-150	20	0	0	2.9	0.4
BLU	99	V	300-150	95	0	0	3.3	0.4
BLX	99	V	300-150	202	7	0	6.1	-0.5
BMW	99	V	300-150	20	0	0	4.2	-0.2
BOE	99	V	300-150	33	0	15	12.2	6.1
BOX	99	V	300-150	2910	0	0	3.4	-0.0
BOX	99	V	300-150	82	0	0	3.2	1.0
BTX	99	V	300-150	84	0	0	3.4	-0.2
CAL	99	V	300-150	383	0	0	4.1	0.5
CAZ	99	V	300-150	89	0	0	3.4	-0.6
CEB	99	V	300-150	81	0	0	2.8	0.2
CES	99	V	300-150	154	0	0	3.7	0.4
CFC	99	V	300-150	308	0	0	4.4	0.4
CFG	99	V	300-150	2593	0	0	4.2	-0.7
CHG	99	V	300-150	319	0	0	3.5	-0.2
CJT	99	V	300-150	1917	0	0	4.1	-0.3
CKS	99	V	300-150	702	0	0	3.7	0.1
CLE	99	V	300-150	20	0	0	3.0	-0.5
CLF	99	V	300-150	26	0	0	3.4	1.0
CLU	99	V	300-150	506	0	0	4.3	-1.1
CLX	99	V	300-150	4238	0	0	3.8	-0.4
CMB	99	V	300-150	666	0	0	4.1	-0.3
CNK	99	V	300-150	29	0	0	7.3	-0.8
CNV	99	V	300-150	79	0	0	2.7	-0.1
CPA	99	V	300-150	191	0	1	4.0	1.0
CRL	99	V	300-150	1111	0	1	3.4	0.3
CSC	99	V	300-150	24	0	0	3.6	0.2
CSN	99	V	300-150	164	2	1	7.7	0.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
CTM	99	V	300-150	79	0	0	2.6	-0.1
CWG	99	V	300-150	20	0	0	3.7	-1.1
CXA	99	V	300-150	24	0	0	2.9	0.3
DAH	99	V	300-150	412	0	0	3.7	0.4
DAL	99	V	300-150	21080	0	0	3.5	0.1
DHK	99	V	300-150	1994	2	0	4.4	-0.4
DJT	99	V	300-150	613	0	0	3.5	0.3
DLH	99	V	300-150	13353	0	0	3.5	-0.1
DUB	99	V	300-150	20	0	0	2.9	0.5
EAU	99	V	300-150	70	0	0	3.7	0.8
EDC	99	V	300-150	25	0	0	4.0	0.5
EDW	99	V	300-150	840	0	0	3.7	0.3
EIN	99	V	300-150	5763	0	0	3.6	0.2
EJM	99	V	300-150	456	0	0	3.4	-0.2
ELY	99	V	300-150	1928	10	0	6.0	-0.1
EMM	99	V	300-150	34	0	0	3.4	-0.1
ETD	99	V	300-150	6327	4	0	5.3	0.0
ETH	99	V	300-150	4422	2	0	4.8	0.0
EUK	99	V	300-150	1571	0	0	3.5	0.1
EUW	99	V	300-150	23	0	0	2.6	-0.3
EVE	99	V	300-150	95	0	0	4.8	-0.5
EXS	99	V	300-150	170	0	0	3.8	0.1
EXV	99	V	300-150	34	0	0	4.2	0.7
FBU	99	V	300-150	903	0	0	3.8	0.2
FDX	99	V	300-150	5546	0	0	3.6	0.1
FIN	99	V	300-150	1765	0	0	3.3	-0.6
FJI	99	V	300-150	832	0	0	4.1	0.6
FLJ	99	V	300-150	27	0	0	3.9	-0.3
FWI	99	V	300-150	1381	0	1	3.6	0.0
FYG	99	V	300-150	75	0	0	3.7	0.1
FYL	99	V	300-150	39	0	0	5.8	-1.0
GAF	99	V	300-150	89	0	0	3.2	0.8
GBG	99	V	300-150	84	0	0	3.6	1.0
GCK	99	V	300-150	72	0	0	3.6	-0.6
GEC	99	V	300-150	1093	0	0	3.7	-0.1
GES	99	V	300-150	46	0	2	3.4	-0.1
GFA	99	V	300-150	505	0	0	3.9	0.7
GIA	99	V	300-150	297	0	0	3.2	0.7
GJE	99	V	300-150	24	0	0	4.2	2.1
GKY	99	V	300-150	35	0	0	4.0	-1.0
GMA	99	V	300-150	63	0	0	4.6	0.5
GOL	99	V	300-150	33	0	0	2.9	-0.6
GTI	99	V	300-150	2196	0	0	4.0	-0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
HAL	99	V	300-150	308	1	1	4.9	0.3
HFM	99	V	300-150	604	0	0	3.6	0.3
HIM	99	V	300-150	24	0	0	2.7	-0.8
HKC	99	V	300-150	59	0	0	3.7	0.8
HRT	99	V	300-150	62	0	0	3.5	-0.4
HUA	99	V	300-150	69	0	0	3.5	0.3
HYP	99	V	300-150	31	0	0	3.2	1.8
HZX	99	V	300-150	25	0	0	2.7	-0.3
IBE	99	V	300-150	2042	0	1	4.0	0.2
ICE	99	V	300-150	2720	0	0	3.6	0.1
ICL	99	V	300-150	473	0	0	4.0	-0.1
ICV	99	V	300-150	336	0	0	4.3	-0.2
IFA	99	V	300-150	98	0	0	3.2	0.0
IJM	99	V	300-150	66	0	0	5.6	-0.9
ITY	99	V	300-150	803	0	0	3.8	0.3
IXR	99	V	300-150	24	0	0	3.0	-0.8
JAF	99	V	300-150	679	10	0	4.6	-0.3
JAS	99	V	300-150	29	0	0	4.4	0.9
JBU	99	V	300-150	1731	0	0	3.8	0.1
JCO	99	V	300-150	124	0	0	3.6	-0.3
JDI	99	V	300-150	52	0	0	4.7	0.7
JEF	99	V	300-150	21	0	0	5.2	0.2
JET	99	V	300-150	34	0	0	3.8	-1.2
JME	99	V	300-150	69	0	0	3.9	-0.1
JML	99	V	300-150	22	0	0	4.2	-1.1
JST	99	V	300-150	95	0	0	4.4	0.4
KAC	99	V	300-150	1350	0	0	3.0	0.3
KAI	99	V	300-150	67	0	0	5.4	1.5
KAL	99	V	300-150	101	0	0	3.9	0.7
KAR	99	V	300-150	630	0	0	3.4	0.4
KAY	99	V	300-150	198	0	0	3.3	0.5
KLM	99	V	300-150	12505	6	0	4.5	-0.0
KOC	99	V	300-150	67	0	0	3.6	0.3
KQA	99	V	300-150	134	2	1	5.3	-0.1
LCO	99	V	300-150	330	0	0	4.3	-1.5
LDX	99	V	300-150	83	0	0	3.3	0.4
LGT	99	V	300-150	46	0	0	4.0	0.2
LNI	99	V	300-150	342	0	0	2.7	0.3
LNX	99	V	300-150	86	0	0	3.8	0.2
LOT	99	V	300-150	2659	8	0	5.8	-0.2
LSI	99	V	300-150	530	0	0	3.7	0.1
LWG	99	V	300-150	20	0	0	2.9	0.1
LXJ	99	V	300-150	119	0	6	3.7	0.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
LYX	99	V	300-150	34	0	0	2.9	0.5
MAS	99	V	300-150	2039	0	0	3.9	0.6
MAU	99	V	300-150	167	0	0	4.4	0.7
MED	99	V	300-150	38	0	0	3.4	-0.4
MGE	99	V	300-150	32	0	6	5.0	-0.1
MHV	99	V	300-150	59	0	0	3.6	0.4
MJE	99	V	300-150	51	0	0	3.6	0.3
MJF	99	V	300-150	41	0	0	3.4	-0.8
MLM	99	V	300-150	82	0	0	3.2	-0.2
MLN	99	V	300-150	35	0	0	2.9	-0.3
MMD	99	V	300-150	338	0	0	4.0	0.1
MMF	99	V	300-150	49	0	0	3.1	0.1
MMZ	99	V	300-150	235	0	0	4.5	1.3
MNB	99	V	300-150	406	0	0	3.9	0.2
MPH	99	V	300-150	518	0	0	4.1	-0.9
MSR	99	V	300-150	1145	5	0	4.2	0.1
NCR	99	V	300-150	193	0	0	3.5	0.3
NJE	99	V	300-150	359	0	0	3.3	-0.2
NOS	99	V	300-150	553	7	0	4.9	-0.1
NWS	99	V	300-150	813	0	0	3.3	0.2
OAE	99	V	300-150	708	0	0	4.2	0.1
OCN	99	V	300-150	1661	0	0	4.0	0.2
OLI	99	V	300-150	51	0	0	3.9	-0.5
OMA	99	V	300-150	477	0	0	3.7	0.5
ORT	99	V	300-150	46	0	0	3.9	0.4
PAC	99	V	300-150	251	0	0	3.9	-0.7
PAL	99	V	300-150	381	1	0	3.0	-0.0
PDY	99	V	300-150	36	0	0	2.8	-0.4
PEG	99	V	300-150	37	0	0	3.5	-0.2
PIA	99	V	300-150	161	0	0	2.8	0.1
PLF	99	V	300-150	169	0	0	3.4	-0.1
PLM	99	V	300-150	166	0	0	3.8	0.7
PVA	99	V	300-150	127	0	0	3.7	0.8
PVG	99	V	300-150	36	0	0	2.3	-0.2
QAF	99	V	300-150	27	0	0	4.9	1.8
QFA	99	V	300-150	1997	1	0	8.2	0.2
QQE	99	V	300-150	177	0	0	3.2	0.3
QTR	99	V	300-150	20582	0	0	3.8	0.1
RAM	99	V	300-150	199	4	0	5.3	0.2
RCH	99	V	300-150	5018	0	0	4.3	0.2
RDN	99	V	300-150	30	0	0	4.5	0.5
RJA	99	V	300-150	813	13	0	6.5	-0.1
RKS	99	V	300-150	22	0	0	4.4	1.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
ROJ	99	V	300-150	75	0	0	3.8	0.3
ROU	99	V	300-150	21	0	5	6.6	4.2
RRR	99	V	300-150	234	0	0	3.8	-0.0
RSF	99	V	300-150	58	0	0	3.1	-0.0
RUN	99	V	300-150	60	0	0	4.0	-1.8
RWD	99	V	300-150	35	0	0	3.3	0.3
RYR	99	V	300-150	316	0	1	3.2	0.1
RZO	99	V	300-150	28	0	14	3.8	0.6
SAM	99	V	300-150	308	0	0	4.3	-0.2
SAS	99	V	300-150	2366	0	0	3.2	0.0
SAZ	99	V	300-150	151	0	1	3.5	0.1
SCX	99	V	300-150	51	0	2	4.6	0.8
SEY	99	V	300-150	68	0	0	3.3	-0.3
SHE	99	V	300-150	75	0	0	3.2	0.3
SIA	99	V	300-150	6634	0	0	4.3	0.3
SIO	99	V	300-150	59	0	0	2.9	-0.4
SLM	99	V	300-150	82	0	0	3.7	0.4
SNO	99	V	300-150	20	0	0	6.2	2.2
SPA	99	V	300-150	78	0	0	3.9	1.2
SSG	99	V	300-150	48	0	0	3.5	-0.8
SVA	99	V	300-150	4574	0	0	4.6	0.3
SVW	99	V	300-150	194	0	0	3.3	0.3
SWA	99	V	300-150	33	3	0	5.8	0.6
SWR	99	V	300-150	5618	0	1	3.8	0.1
SYB	99	V	300-150	66	0	0	3.1	0.1
TAG	99	V	300-150	42	0	0	3.2	0.3
TAM	99	V	300-150	47	0	2	2.8	0.6
TAP	99	V	300-150	1456	0	1	3.9	0.3
TAR	99	V	300-150	126	0	0	2.9	0.1
TAX	99	V	300-150	63	0	0	3.5	0.5
TAY	99	V	300-150	462	0	0	4.1	-0.4
TFL	99	V	300-150	1215	11	0	4.9	-0.2
TGW	99	V	300-150	704	1	0	7.3	0.3
THA	99	V	300-150	189	0	0	3.5	0.9
THT	99	V	300-150	1873	2	0	5.0	0.1
THY	99	V	300-150	10079	3	0	4.0	-0.1
TMN	99	V	300-150	228	0	0	4.1	0.6
TOM	99	V	300-150	3449	11	0	5.3	-0.2
TOW	99	V	300-150	60	0	0	3.9	0.7
TPA	99	V	300-150	179	0	0	4.1	0.7
TSC	99	V	300-150	1208	0	0	3.7	0.3
TUR	99	V	300-150	34	0	0	5.4	-0.7
TVP	99	V	300-150	43	0	0	3.3	0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
TWY	99	V	300-150	395	0	0	3.4	-0.2
UAE	99	V	300-150	18644	0	0	3.4	0.2
UAF	99	V	300-150	84	0	0	4.5	-0.0
UAL	99	V	300-150	29811	6	2	5.4	0.0
ULC	99	V	300-150	36	0	0	3.1	-0.2
UPS	99	V	300-150	4106	0	0	3.7	-0.1
URO	99	V	300-150	141	0	1	4.3	-0.3
UTN	99	V	300-150	216	0	0	3.6	0.1
UZB	99	V	300-150	44	27	0	3.9	-0.0
VCG	99	V	300-150	87	0	0	3.6	-0.0
VCJ	99	V	300-150	44	0	0	2.7	-0.4
VIR	99	V	300-150	12870	4	0	4.2	0.0
VJT	99	V	300-150	1066	0	0	3.4	0.3
VLJ	99	V	300-150	59	0	0	3.5	0.2
VMP	99	V	300-150	87	0	0	6.0	0.3
VTI	99	V	300-150	126	0	0	2.9	0.4
VXS	99	V	300-150	67	0	0	4.6	0.4
WGN	99	V	300-150	55	0	0	3.9	1.0
WJA	99	V	300-150	849	4	0	4.8	0.1
WNS	99	V	300-150	31	0	0	3.5	-0.3
WRC	99	V	300-150	94	0	0	3.3	0.5
WWI	99	V	300-150	24	0	0	3.2	0.3
XAX	99	V	300-150	44	0	2	4.3	1.1
XRO	99	V	300-150	33	0	0	3.8	0.9

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)

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RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 :  50 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : FEB 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
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WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	50	20	12.3	3.9
01001	12	Z	50	25	12.8	4.6
01028	12	Z	50	20	8.9	-7.0
01028	00	Z	50	20	9.3	-5.7
01400	00	Z	50	3	62.2	62.0
01400	12	Z	50	4	64.7	62.8
01415	12	Z	50	25	18.4	-3.0
01415	00	Z	50	25	21.9	-7.7
02365	12	Z	50	6	7.8	-4.6
02365	00	Z	50	10	12.4	0.0
02836	12	Z	50	29	11.8	-9.9
02836	00	Z	50	25	11.4	-5.3
02963	12	Z	50	28	14.5	-4.5
02963	00	Z	50	26	13.3	-4.8
03005	00	Z	50	26	19.6	-10.2
03005	12	Z	50	26	15.4	-10.3
03238	12	Z	50	27	15.5	-7.9
03238	00	Z	50	27	13.3	-1.1
03808	12	Z	50	26	10.6	-4.4
03808	00	Z	50	27	11.2	-1.2
03918	00	Z	50	25	18.1	6.0
03918	12	Z	50	25	16.8	-4.6
03953	12	Z	50	27	21.1	-10.8
03953	00	Z	50	26	19.1	-13.8
04018	00	Z	50	25	12.8	-3.3
04018	12	Z	50	23	14.1	-9.2
04220	12	Z	50	28	16.7	-5.6
04220	00	Z	50	28	12.8	-1.9
04270	12	Z	50	16	19.3	-10.8
04270	00	Z	50	19	16.7	1.2
04320	12	Z	50	21	8.2	-0.2
04320	00	Z	50	23	14.4	11.8
04339	12	Z	50	18	50.7	10.1
04339	00	Z	50	15	10.7	-1.9
04360	00	Z	50	5	14.8	-11.8
04360	12	Z	50	11	13.0	-6.6
06011	12	Z	50	24	18.6	11.5
06011	00	Z	50	19	12.5	-6.5
06260	00	Z	50	26	13.2	-6.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	50	5	14.0	3.6
06610	12	Z	50	28	15.7	4.8
06610	00	Z	50	28	19.3	4.9
07110	00	Z	50	25	15.3	-7.7
07110	12	Z	50	23	17.8	-5.5
07510	12	Z	50	25	10.2	0.1
07510	00	Z	50	27	13.1	-8.4
07645	00	Z	50	27	18.2	-11.2
07645	12	Z	50	25	15.0	-11.0
07761	00	Z	50	28	16.5	-12.0
07761	12	Z	50	27	16.1	-10.3
08001	00	Z	50	26	8.3	3.3
08001	12	Z	50	28	8.8	1.0
08221	12	Z	50	27	7.6	4.6
08221	00	Z	50	28	8.4	6.7
08302	12	Z	50	28	9.3	-7.0
08302	00	Z	50	28	7.5	-5.1
08508	12	Z	50	28	7.1	3.9
08522	12	Z	50	28	8.7	2.6
10035	00	Z	50	26	12.5	8.3
10035	12	Z	50	27	12.4	8.6
10393	00	Z	50	21	8.9	-0.4
10393	12	Z	50	27	13.3	-7.2
10410	00	Z	50	27	15.6	-10.3
10410	12	Z	50	28	16.5	-8.6
10739	12	Z	50	28	12.0	-0.1
10739	00	Z	50	28	8.8	-0.7
11035	12	Z	50	28	16.7	-0.9
11035	00	Z	50	26	11.2	0.3
12982	12	Z	50	28	9.0	2.0
12982	00	Z	50	28	7.0	2.8
16245	00	Z	50	28	10.4	5.3
16245	12	Z	50	28	7.0	0.3
16429	00	Z	50	27	11.7	7.2
16429	12	Z	50	27	8.6	4.4
16622	00	Z	50	26	15.0	12.9
16754	00	Z	50	21	13.3	11.3
17607	12	Z	50	26	7.9	3.8
26435	12	Z	50	14	10.3	-5.5
2EERVT	12	Z	50	6	11.3	-5.5
2EERVT	00	Z	50	4	17.3	-12.2
60018	00	Z	50	24	8.2	6.4
60018	12	Z	50	24	5.7	-0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	50	0	0.0	0.0
7JUNA4	00	Z	50	0	0.0	0.0
ASDE09	12	Z	50	4	20.2	11.5
ATGU3F	12	Z	50	5	32.6	-29.1
ATGU3F	00	Z	50	2	21.2	-6.0
BPMWB2	12	Z	50	8	11.1	5.5
BPMWB2	00	Z	50	6	30.1	21.6
CHQUR4	12	Z	50	9	8.9	-4.0
CHQUR4	00	Z	50	4	14.7	6.4
FPUW5G	12	Z	50	0	0.0	0.0
HTXUH4	00	Z	50	1	0.4	0.4
JNKN7J	12	Z	50	11	29.1	25.1
JNKN7J	00	Z	50	8	33.6	29.3
KJJF9X	12	Z	50	3	29.4	17.3
KJJF9X	00	Z	50	6	21.3	19.2
KMPLHP	12	Z	50	4	42.8	25.3
KMPLHP	00	Z	50	5	35.8	34.5
LRYQE3	12	Z	50	5	16.3	-9.4
LRYQE3	00	Z	50	1	2.8	2.8
UXK5JT	12	Z	50	0	0.0	0.0
UXK5JT	00	Z	50	0	0.0	0.0
WDK38H	12	Z	50	11	11.8	-9.6
XKQLWQ	12	Z	50	16	47.4	40.7
XQFJRG	12	Z	50	5	28.6	10.1
XQFJRG	00	Z	50	1	1.6	1.6
YLV96W	12	Z	50	0	0.0	0.0
YLV96W	00	Z	50	0	0.0	0.0

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                : FEB 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	50	16	3.0	-0.6	0.0
01001	12	V	50	25	3.3	0.5	0.2
01028	12	V	50	20	3.5	-1.1	0.1
01028	00	V	50	14	3.5	0.8	-0.8
01400	00	V	50	3	4.8	0.2	3.1
01400	12	V	50	4	2.2	0.2	0.0
01415	12	V	50	24	4.8	-0.1	-0.5
01415	00	V	50	19	4.5	0.1	0.5
02365	12	V	50	6	1.6	0.7	0.0
02365	00	V	50	7	3.0	-1.1	-0.2
02836	12	V	50	28	3.0	-0.2	-0.3
02836	00	V	50	17	3.0	0.4	0.5
02963	12	V	50	27	3.4	0.4	-0.8
02963	00	V	50	20	3.5	0.2	0.5
03005	00	V	50	21	4.5	0.3	0.0
03005	12	V	50	26	4.8	1.4	-0.7
03238	12	V	50	27	4.9	0.4	-0.3
03238	00	V	50	21	4.6	-0.5	0.1
03808	12	V	50	25	4.3	0.4	-0.4
03808	00	V	50	21	3.6	0.2	-0.2
03918	00	V	50	21	4.7	-0.2	-0.6
03918	12	V	50	25	5.5	-0.8	0.1
03953	12	V	50	27	4.0	0.5	0.3
03953	00	V	50	19	4.1	-0.4	-0.4
04018	00	V	50	20	3.1	-0.3	0.3
04018	12	V	50	21	3.3	-0.7	-0.6
04220	12	V	50	28	3.2	1.0	0.6
04220	00	V	50	22	3.1	0.6	-0.6
04270	12	V	50	16	3.9	0.8	0.5
04270	00	V	50	16	4.3	-0.5	-1.4
04320	12	V	50	21	3.6	0.1	-0.6
04320	00	V	50	18	3.9	-1.1	-0.7
04339	12	V	50	18	4.1	0.8	0.8
04339	00	V	50	13	4.7	-1.4	-0.1
04360	00	V	50	5	3.2	-0.8	0.6
04360	12	V	50	11	3.3	-0.8	1.0
06011	12	V	50	24	4.0	0.9	-0.4
06011	00	V	50	15	3.3	-0.2	0.0
06260	00	V	50	19	4.4	0.3	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	50	5	2.5	-0.1	-1.4
06610	12	V	50	28	6.4	-0.3	1.6
06610	00	V	50	22	4.7	0.0	0.0
07110	00	V	50	22	3.6	0.9	-0.1
07110	12	V	50	23	3.8	-0.2	-0.7
07510	12	V	50	25	3.8	0.0	0.6
07510	00	V	50	21	3.2	0.1	-0.6
07645	00	V	50	21	4.3	-1.0	-0.9
07645	12	V	50	25	3.6	0.0	0.1
07761	00	V	50	23	3.4	-0.4	0.1
07761	12	V	50	27	3.5	0.5	-0.7
08001	00	V	50	20	3.4	0.3	-0.5
08001	12	V	50	28	4.0	-0.5	-0.4
08221	12	V	50	27	3.6	0.3	0.6
08221	00	V	50	22	3.3	0.7	-0.3
08302	12	V	50	28	3.1	0.6	-0.8
08302	00	V	50	24	3.4	-0.6	-0.1
08508	12	V	50	28	3.7	-0.3	-0.1
08522	12	V	50	28	3.3	0.9	0.5
10035	00	V	50	26	4.0	-0.4	-1.0
10035	12	V	50	27	3.7	0.3	-0.6
10393	00	V	50	18	4.5	-0.6	0.8
10393	12	V	50	27	4.2	0.4	0.5
10410	00	V	50	26	4.0	-0.2	-0.6
10410	12	V	50	28	4.9	0.5	-1.2
10739	12	V	50	28	4.7	0.5	-0.7
10739	00	V	50	27	5.2	-0.8	-0.7
11035	12	V	50	28	5.9	0.7	-1.0
11035	00	V	50	19	4.4	0.6	-1.6
12982	12	V	50	28	5.2	-0.6	-0.1
12982	00	V	50	22	4.0	0.1	-0.8
16245	00	V	50	26	5.4	-0.6	0.2
16245	12	V	50	28	4.0	-0.7	-0.9
16429	00	V	50	23	4.9	0.3	0.2
16429	12	V	50	27	2.8	0.7	-0.5
16622	00	V	50	17	3.7	0.6	-0.4
16754	00	V	50	17	3.6	1.0	-0.7
17607	12	V	50	9	2.9	0.4	-0.3
26435	12	V	50	14	4.0	0.3	-0.6
2EERVT	12	V	50	6	2.2	0.1	0.5
2EERVT	00	V	50	4	2.9	0.1	0.2
60018	00	V	50	17	3.5	0.7	-0.3
60018	12	V	50	21	2.8	-0.2	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	50	0	0.0	0.0	0.0
7JUNA4	00	V	50	0	0.0	0.0	0.0
ASDE09	12	V	50	3	3.3	1.0	-0.8
ATGU3F	12	V	50	5	4.9	2.0	0.1
ATGU3F	00	V	50	2	3.3	1.4	0.9
BPMWB2	12	V	50	8	2.7	-0.2	0.7
BPMWB2	00	V	50	6	2.7	-0.1	-0.6
CHQUR4	12	V	50	9	2.4	0.8	-0.3
CHQUR4	00	V	50	4	3.7	1.3	-0.6
FPUW5G	12	V	50	0	0.0	0.0	0.0
HTXUH4	00	V	50	0	0.0	0.0	0.0
JNKN7J	12	V	50	11	3.4	-0.2	0.7
JNKN7J	00	V	50	8	4.0	-0.4	1.4
KJJF9X	12	V	50	3	1.8	-1.0	0.2
KJJF9X	00	V	50	6	4.3	-1.3	-0.3
KMPLHP	12	V	50	4	3.4	-0.7	0.6
KMPLHP	00	V	50	5	6.8	-1.1	-0.7
LRYQE3	12	V	50	5	2.9	0.6	-1.5
LRYQE3	00	V	50	1	4.0	3.8	-1.3
UXK5JT	12	V	50	0	0.0	0.0	0.0
UXK5JT	00	V	50	0	0.0	0.0	0.0
WDK38H	12	V	50	10	3.1	0.3	-0.3
XKQLWQ	12	V	50	15	4.4	-1.8	-0.6
XQFJRG	12	V	50	5	5.4	-0.3	3.2
XQFJRG	00	V	50	1	0.9	0.9	0.0
YLV96W	12	V	50	0	0.0	0.0	0.0
YLV96W	00	V	50	0	0.0	0.0	0.0

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                : FEB 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	100	26	53.6	7.5
01001	12	Z	100	25	11.3	-3.2
01028	12	Z	100	23	6.8	-5.8
01028	00	Z	100	23	7.4	-6.2
01400	00	Z	100	7	76.0	74.9
01400	12	Z	100	11	68.4	68.1
01415	12	Z	100	26	16.5	-2.3
01415	00	Z	100	26	12.4	-3.6
02365	12	Z	100	6	8.2	0.6
02365	00	Z	100	10	4.8	1.7
02836	12	Z	100	29	8.1	-6.8
02836	00	Z	100	25	9.7	-8.1
02963	12	Z	100	29	10.2	-3.4
02963	00	Z	100	27	7.2	-4.6
03005	00	Z	100	26	12.8	-7.2
03005	12	Z	100	28	12.3	-8.2
03238	12	Z	100	29	11.1	-7.0
03238	00	Z	100	28	12.7	-4.7
03808	12	Z	100	28	9.7	-2.9
03808	00	Z	100	28	8.4	-0.8
03918	00	Z	100	25	11.8	2.3
03918	12	Z	100	25	14.3	-4.8
03953	12	Z	100	28	16.7	-9.2
03953	00	Z	100	26	15.3	-12.0
04018	00	Z	100	25	6.7	-3.6
04018	12	Z	100	23	12.7	-10.6
04220	12	Z	100	28	15.2	-0.3
04220	00	Z	100	28	12.1	1.2
04270	12	Z	100	19	15.7	-12.1
04270	00	Z	100	26	19.0	-3.5
04320	12	Z	100	26	7.0	-2.7
04320	00	Z	100	27	8.2	3.9
04339	12	Z	100	22	28.6	0.4
04339	00	Z	100	18	7.8	-4.5
04360	00	Z	100	13	13.0	-9.4
04360	12	Z	100	17	16.1	-4.7
06011	12	Z	100	24	13.4	8.6
06011	00	Z	100	25	9.9	-3.6
06260	00	Z	100	27	13.2	-7.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	100	5	10.7	4.6
06610	12	Z	100	28	7.7	-1.0
06610	00	Z	100	29	9.6	-2.6
07110	00	Z	100	26	14.4	-9.5
07110	12	Z	100	25	16.2	-8.2
07510	12	Z	100	26	7.2	-1.5
07510	00	Z	100	28	12.0	-9.8
07645	00	Z	100	27	13.9	-11.7
07645	12	Z	100	25	12.0	-10.0
07761	00	Z	100	28	17.4	-14.7
07761	12	Z	100	27	17.9	-11.8
08001	00	Z	100	26	6.8	1.8
08001	12	Z	100	28	8.6	0.1
08221	12	Z	100	28	6.8	3.2
08221	00	Z	100	28	5.6	4.0
08302	12	Z	100	28	9.7	-7.5
08302	00	Z	100	28	9.8	-8.6
08508	12	Z	100	28	6.8	2.5
08522	12	Z	100	28	5.7	0.5
10035	00	Z	100	27	9.0	5.6
10035	12	Z	100	27	10.5	6.9
10393	00	Z	100	24	8.1	-4.3
10393	12	Z	100	28	11.3	-8.1
10410	00	Z	100	28	14.7	-9.9
10410	12	Z	100	28	12.2	-6.0
10739	12	Z	100	28	7.7	-0.8
10739	00	Z	100	28	9.2	-4.7
11035	12	Z	100	28	17.8	-1.5
11035	00	Z	100	28	10.9	-0.8
12982	12	Z	100	28	7.5	-1.5
12982	00	Z	100	28	5.9	-0.2
16245	00	Z	100	28	5.1	0.9
16245	12	Z	100	28	5.7	-1.2
16429	00	Z	100	27	10.2	4.3
16429	12	Z	100	27	5.9	0.9
16622	00	Z	100	28	11.0	9.1
16754	00	Z	100	24	8.6	5.7
17607	12	Z	100	25	6.3	1.4
26435	12	Z	100	14	9.0	-4.6
2EERVT	12	Z	100	7	10.3	-6.7
2EERVT	00	Z	100	4	14.4	-13.3
60018	00	Z	100	28	5.5	2.3
60018	12	Z	100	27	5.3	-2.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	100	2	11.9	-5.9
7JUNA4	00	Z	100	1	12.2	-12.2
ASDE09	12	Z	100	4	28.6	21.6
ATGU3F	12	Z	100	5	30.2	-26.9
ATGU3F	00	Z	100	3	21.7	-20.4
BPMWB2	12	Z	100	9	11.4	2.9
BPMWB2	00	Z	100	7	20.0	14.2
CHQUR4	12	Z	100	9	8.9	-3.7
CHQUR4	00	Z	100	5	12.6	-0.4
FPUW5G	12	Z	100	1	2.4	-2.4
HTXUH4	00	Z	100	5	12.9	6.9
JNKN7J	12	Z	100	11	26.2	23.8
JNKN7J	00	Z	100	9	36.8	31.6
KJJF9X	12	Z	100	4	16.5	6.4
KJJF9X	00	Z	100	6	12.6	10.1
KMPLHP	12	Z	100	5	45.0	33.7
KMPLHP	00	Z	100	7	44.5	40.3
LRYQE3	12	Z	100	9	16.9	-14.2
LRYQE3	00	Z	100	3	11.9	-10.9
UXK5JT	12	Z	100	1	12.6	12.6
UXK5JT	00	Z	100	0	0.0	0.0
WDK38H	12	Z	100	12	9.0	-8.0
XKQLWQ	12	Z	100	16	41.6	33.3
XQFJRG	12	Z	100	5	17.3	5.3
XQFJRG	00	Z	100	5	8.1	-0.9
YLV96W	12	Z	100	1	12.2	12.2
YLV96W	00	Z	100	1	16.4	-16.4

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                : FEB 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	100	21	2.5	0.1	0.2
01001	12	V	100	25	3.2	-0.2	-0.5
01028	12	V	100	22	2.3	0.0	0.2
01028	00	V	100	19	2.5	0.5	-0.1
01400	00	V	100	5	4.5	-3.1	0.3
01400	12	V	100	8	4.7	-0.1	0.2
01415	12	V	100	25	4.2	-0.1	-0.4
01415	00	V	100	21	3.5	0.1	-0.5
02365	12	V	100	6	1.8	0.8	-0.6
02365	00	V	100	8	3.5	1.0	-0.2
02836	12	V	100	28	2.8	0.3	0.0
02836	00	V	100	20	3.1	0.3	-0.3
02963	12	V	100	27	3.2	-0.4	0.3
02963	00	V	100	21	3.2	0.7	-0.8
03005	00	V	100	21	3.3	0.2	0.5
03005	12	V	100	27	2.3	0.6	0.0
03238	12	V	100	28	4.0	-0.2	-0.5
03238	00	V	100	21	4.0	0.8	-0.6
03808	12	V	100	26	4.3	-0.1	0.0
03808	00	V	100	21	3.1	-0.1	0.6
03918	00	V	100	21	4.6	0.5	0.6
03918	12	V	100	25	4.1	0.8	1.1
03953	12	V	100	28	3.8	0.2	0.6
03953	00	V	100	19	3.0	-0.5	-0.6
04018	00	V	100	25	2.9	0.6	-0.2
04018	12	V	100	23	2.7	0.5	0.6
04220	12	V	100	28	2.9	0.1	-0.1
04220	00	V	100	26	2.6	-0.2	0.3
04270	12	V	100	19	3.6	0.0	0.1
04270	00	V	100	26	3.8	-0.6	0.2
04320	12	V	100	26	3.1	0.5	0.1
04320	00	V	100	24	2.9	-0.2	-0.3
04339	12	V	100	22	2.5	0.3	0.0
04339	00	V	100	17	2.0	0.4	-0.5
04360	00	V	100	13	2.6	1.0	0.2
04360	12	V	100	17	5.1	0.7	1.0
06011	12	V	100	24	2.8	0.4	0.9
06011	00	V	100	23	3.3	-0.4	-0.1
06260	00	V	100	19	3.5	-1.0	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	100	5	2.6	0.8	-0.5
06610	12	V	100	28	4.0	-0.8	-0.1
06610	00	V	100	28	4.2	-0.6	0.1
07110	00	V	100	22	3.3	0.2	0.6
07110	12	V	100	25	3.0	-0.3	0.5
07510	12	V	100	26	3.1	-0.8	0.2
07510	00	V	100	22	2.9	0.6	-0.7
07645	00	V	100	21	4.3	-0.6	1.4
07645	12	V	100	25	3.9	-0.2	-0.9
07761	00	V	100	23	3.8	-0.5	-0.6
07761	12	V	100	27	3.7	-0.4	-0.1
08001	00	V	100	20	3.8	0.9	-0.1
08001	12	V	100	28	3.3	-0.3	-0.1
08221	12	V	100	28	3.6	-0.1	0.5
08221	00	V	100	22	3.3	0.0	0.8
08302	12	V	100	28	3.9	0.4	-0.1
08302	00	V	100	24	3.0	0.6	-0.2
08508	12	V	100	28	3.2	-0.3	0.0
08522	12	V	100	28	3.8	1.1	-0.6
10035	00	V	100	27	4.0	0.1	-0.6
10035	12	V	100	27	3.1	0.7	0.2
10393	00	V	100	22	4.5	-0.5	0.3
10393	12	V	100	27	3.5	1.2	-0.3
10410	00	V	100	27	4.0	0.3	0.1
10410	12	V	100	28	3.9	-0.3	0.0
10739	12	V	100	28	5.1	-1.7	1.0
10739	00	V	100	27	3.5	0.0	-0.7
11035	12	V	100	28	4.2	-0.8	-0.5
11035	00	V	100	20	3.4	-0.4	0.3
12982	12	V	100	28	3.4	0.5	-0.5
12982	00	V	100	22	2.9	0.0	-0.1
16245	00	V	100	23	4.0	0.2	0.6
16245	12	V	100	28	3.5	0.7	-0.8
16429	00	V	100	24	4.7	-1.3	0.7
16429	12	V	100	27	4.2	-0.2	-0.6
16622	00	V	100	18	3.2	-0.2	0.7
16754	00	V	100	19	3.1	0.2	0.2
17607	12	V	100	15	4.4	0.1	-0.8
26435	12	V	100	14	3.5	-0.3	0.1
2EERVT	12	V	100	7	3.8	-0.1	-1.4
2EERVT	00	V	100	4	2.9	-1.0	-0.8
60018	00	V	100	19	4.3	-0.3	-0.5
60018	12	V	100	27	3.8	0.6	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	100	2	5.5	-0.7	-3.3
7JUNA4	00	V	100	1	3.2	1.3	-2.9
ASDE09	12	V	100	3	4.0	-1.9	-0.6
ATGU3F	12	V	100	5	2.0	-1.2	-0.6
ATGU3F	00	V	100	3	2.1	-1.0	-0.2
BPMWB2	12	V	100	9	3.3	1.0	0.4
BPMWB2	00	V	100	7	4.7	1.4	0.4
CHQUR4	12	V	100	9	3.5	0.9	0.5
CHQUR4	00	V	100	5	3.9	2.3	-2.4
FPUW5G	12	V	100	1	2.9	1.7	-2.3
HTXUH4	00	V	100	4	3.6	1.2	0.5
JNKN7J	12	V	100	11	3.4	0.3	0.7
JNKN7J	00	V	100	9	3.8	0.8	0.3
KJJF9X	12	V	100	4	3.1	-0.5	1.3
KJJF9X	00	V	100	6	3.2	-1.0	0.0
KMPLHP	12	V	100	5	2.2	-0.9	1.2
KMPLHP	00	V	100	7	3.9	-0.8	1.2
LRYQE3	12	V	100	9	3.8	0.7	0.0
LRYQE3	00	V	100	3	3.0	2.7	0.0
UXK5JT	12	V	100	1	1.1	0.3	1.1
UXK5JT	00	V	100	0	0.0	0.0	0.0
WDK38H	12	V	100	12	4.2	-0.5	0.3
XKQLWQ	12	V	100	16	3.2	0.0	0.7
XQFJRG	12	V	100	5	4.0	-2.1	0.7
XQFJRG	00	V	100	4	4.0	0.6	-0.5
YLV96W	12	V	100	1	3.0	1.4	-2.7
YLV96W	00	V	100	1	1.3	-0.6	-1.2

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                : FEB 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	500	29	11.8	-8.7
01001	12	Z	500	28	16.9	-11.8
01028	12	Z	500	23	2.8	0.1
01028	00	Z	500	24	4.0	-1.5
01400	00	Z	500	19	74.6	74.3
01400	12	Z	500	19	76.2	76.0
01415	12	Z	500	27	6.3	2.9
01415	00	Z	500	26	5.2	2.5
02365	12	Z	500	7	4.7	3.8
02365	00	Z	500	11	5.7	5.5
02836	12	Z	500	29	2.6	-0.1
02836	00	Z	500	28	2.8	-0.6
02963	12	Z	500	29	3.5	1.5
02963	00	Z	500	28	2.5	1.5
03005	00	Z	500	26	5.2	-3.2
03005	12	Z	500	29	5.0	-3.3
03238	12	Z	500	29	4.3	-1.0
03238	00	Z	500	28	3.3	0.6
03808	12	Z	500	28	4.0	2.5
03808	00	Z	500	28	4.0	2.9
03918	00	Z	500	25	8.3	6.7
03918	12	Z	500	27	7.2	6.1
03953	12	Z	500	29	6.0	0.5
03953	00	Z	500	26	3.0	-1.4
04018	00	Z	500	26	3.9	-0.7
04018	12	Z	500	25	3.5	-1.2
04220	12	Z	500	28	17.3	7.4
04220	00	Z	500	28	14.3	4.8
04270	12	Z	500	22	12.3	-10.5
04270	00	Z	500	26	10.3	-9.0
04320	12	Z	500	27	4.9	-1.9
04320	00	Z	500	28	3.6	0.0
04339	12	Z	500	24	7.5	-5.7
04339	00	Z	500	22	9.7	-8.0
04360	00	Z	500	17	10.5	-8.4
04360	12	Z	500	19	13.4	-12.4
06011	12	Z	500	25	7.3	5.5
06011	00	Z	500	28	7.5	6.1
06260	00	Z	500	27	3.3	-0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	500	5	3.3	-0.7
06610	12	Z	500	28	4.3	2.1
06610	00	Z	500	29	3.4	1.5
07110	00	Z	500	29	10.0	-8.3
07110	12	Z	500	29	13.4	-3.1
07510	12	Z	500	27	2.8	0.4
07510	00	Z	500	28	5.2	-3.7
07645	00	Z	500	29	7.5	-5.7
07645	12	Z	500	27	6.9	-5.1
07761	00	Z	500	28	10.2	-9.4
07761	12	Z	500	27	8.4	-7.0
08001	00	Z	500	26	3.7	2.4
08001	12	Z	500	28	3.5	2.5
08221	12	Z	500	28	5.9	5.5
08221	00	Z	500	28	5.9	5.4
08302	12	Z	500	28	5.3	-4.4
08302	00	Z	500	29	5.9	-5.3
08508	12	Z	500	28	6.0	5.4
08522	12	Z	500	28	6.4	5.1
10035	00	Z	500	27	13.0	12.7
10035	12	Z	500	27	14.1	13.9
10393	00	Z	500	25	2.4	-0.3
10393	12	Z	500	28	2.8	0.9
10410	00	Z	500	28	4.0	-2.2
10410	12	Z	500	29	3.9	0.2
10739	12	Z	500	28	4.9	3.6
10739	00	Z	500	28	4.5	2.1
11035	12	Z	500	28	16.3	1.6
11035	00	Z	500	28	4.5	0.4
12982	12	Z	500	28	4.2	1.9
12982	00	Z	500	28	3.0	1.4
16245	00	Z	500	28	3.2	1.9
16245	12	Z	500	28	2.9	0.7
16429	00	Z	500	27	4.2	2.7
16429	12	Z	500	28	3.7	2.7
16622	00	Z	500	28	10.6	9.8
16754	00	Z	500	25	5.2	3.1
17607	12	Z	500	28	5.9	3.5
26435	12	Z	500	14	2.1	0.3
2EERVT	12	Z	500	8	9.0	-6.9
2EERVT	00	Z	500	4	12.4	-11.3
60018	00	Z	500	29	5.6	3.3
60018	12	Z	500	27	4.4	2.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	500	4	16.4	-12.7
7JUNA4	00	Z	500	4	3.0	-2.2
ASDE09	12	Z	500	4	26.7	26.4
ATGU3F	12	Z	500	5	26.2	-21.4
ATGU3F	00	Z	500	3	19.6	-16.9
BPMWB2	12	Z	500	12	9.6	4.8
BPMWB2	00	Z	500	10	7.0	1.4
CHQUR4	12	Z	500	9	3.9	-0.5
CHQUR4	00	Z	500	6	8.0	-4.8
FPUW5G	12	Z	500	1	7.3	-7.3
HTXUH4	00	Z	500	5	18.3	17.1
JNKN7J	12	Z	500	11	32.7	32.5
JNKN7J	00	Z	500	9	45.7	41.8
KJJF9X	12	Z	500	6	6.1	4.0
KJJF9X	00	Z	500	8	8.8	5.3
KMPLHP	12	Z	500	5	44.4	38.6
KMPLHP	00	Z	500	7	52.2	50.7
LRYQE3	12	Z	500	9	10.6	-6.7
LRYQE3	00	Z	500	5	3.8	-1.5
UXK5JT	12	Z	500	4	4.6	4.1
UXK5JT	00	Z	500	2	2.3	1.8
WDK38H	12	Z	500	17	6.5	-5.3
XKQLWQ	12	Z	500	18	26.5	22.0
XQFJRG	12	Z	500	6	7.2	-2.0
XQFJRG	00	Z	500	7	7.0	-6.0
YLV96W	12	Z	500	7	10.6	-8.7
YLV96W	00	Z	500	3	2.1	0.0

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                : FEB 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	500	28	2.3	-0.4	0.1
01001	12	V	500	28	2.9	0.0	0.0
01028	12	V	500	23	2.7	-0.2	0.3
01028	00	V	500	24	2.4	-0.4	-0.2
01400	00	V	500	19	3.2	0.1	0.4
01400	12	V	500	18	4.0	0.2	-1.1
01415	12	V	500	26	3.9	0.9	0.9
01415	00	V	500	26	3.2	0.0	-0.1
02365	12	V	500	7	3.0	1.7	0.7
02365	00	V	500	11	2.9	0.9	1.0
02836	12	V	500	28	3.2	0.2	0.8
02836	00	V	500	28	2.1	0.1	0.4
02963	12	V	500	28	2.8	0.6	-0.3
02963	00	V	500	28	2.9	0.3	-0.7
03005	00	V	500	26	3.4	-0.5	-0.1
03005	12	V	500	28	3.2	0.9	-0.2
03238	12	V	500	28	4.5	1.5	0.7
03238	00	V	500	28	3.4	0.4	-0.7
03808	12	V	500	26	2.9	-0.1	-0.4
03808	00	V	500	28	2.3	0.2	-0.1
03918	00	V	500	25	3.4	0.8	-0.9
03918	12	V	500	25	3.9	0.0	-0.2
03953	12	V	500	28	2.5	0.5	0.5
03953	00	V	500	26	3.8	-0.9	0.9
04018	00	V	500	26	4.3	0.7	-0.3
04018	12	V	500	25	3.9	-0.1	0.2
04220	12	V	500	28	4.2	0.3	-0.2
04220	00	V	500	28	4.0	0.0	-0.5
04270	12	V	500	22	5.3	-0.8	0.7
04270	00	V	500	26	3.0	0.2	0.4
04320	12	V	500	27	2.5	0.5	-0.2
04320	00	V	500	28	2.5	0.1	0.2
04339	12	V	500	24	3.2	0.8	-0.2
04339	00	V	500	22	2.9	-0.1	1.0
04360	00	V	500	17	4.2	-0.1	0.9
04360	12	V	500	19	3.6	-1.3	1.1
06011	12	V	500	25	3.3	0.0	-0.4
06011	00	V	500	28	3.4	0.1	0.1
06260	00	V	500	27	2.7	0.1	0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	500	5	1.9	0.1	0.4
06610	12	V	500	28	2.6	-0.1	0.0
06610	00	V	500	28	2.9	0.2	-0.5
07110	00	V	500	27	2.3	-0.1	0.2
07110	12	V	500	27	2.7	0.4	-0.7
07510	12	V	500	27	1.8	-0.4	0.2
07510	00	V	500	28	2.2	0.0	0.0
07645	00	V	500	28	2.3	0.0	0.4
07645	12	V	500	27	2.5	-0.5	0.4
07761	00	V	500	28	2.6	-0.1	-0.7
07761	12	V	500	27	3.0	0.4	0.0
08001	00	V	500	26	2.2	0.2	0.0
08001	12	V	500	28	2.6	-0.2	0.8
08221	12	V	500	28	2.1	0.0	0.7
08221	00	V	500	28	2.6	0.0	0.1
08302	12	V	500	28	1.8	0.2	0.0
08302	00	V	500	27	2.3	0.8	0.1
08508	12	V	500	28	3.0	0.5	-0.4
08522	12	V	500	28	3.0	0.0	0.1
10035	00	V	500	27	3.5	0.3	-0.5
10035	12	V	500	27	2.5	0.3	-0.1
10393	00	V	500	22	3.0	0.1	0.0
10393	12	V	500	27	2.8	1.0	-0.5
10410	00	V	500	28	2.5	-0.1	-0.9
10410	12	V	500	28	2.5	0.0	-0.2
10739	12	V	500	28	1.9	0.1	-0.4
10739	00	V	500	28	3.0	-0.3	-0.7
11035	12	V	500	28	2.8	0.2	-0.9
11035	00	V	500	28	2.8	-0.3	-0.4
12982	12	V	500	28	2.5	-0.3	0.5
12982	00	V	500	28	2.2	0.3	0.3
16245	00	V	500	28	2.4	0.1	0.2
16245	12	V	500	28	3.5	0.5	0.0
16429	00	V	500	27	2.3	0.5	-0.3
16429	12	V	500	28	2.9	0.5	-0.1
16622	00	V	500	27	2.5	0.5	-0.1
16754	00	V	500	24	2.5	0.1	0.1
17607	12	V	500	25	2.1	0.1	-0.6
26435	12	V	500	14	2.3	1.0	0.6
2EERVT	12	V	500	8	3.2	1.1	-0.6
2EERVT	00	V	500	4	2.3	0.8	0.3
60018	00	V	500	28	3.1	0.3	-0.5
60018	12	V	500	27	2.8	0.6	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	500	4	2.9	-0.1	0.9
7JUNA4	00	V	500	4	2.4	0.6	-0.1
ASDE09	12	V	500	3	2.2	-0.6	-0.4
ATGU3F	12	V	500	5	2.8	-1.0	0.2
ATGU3F	00	V	500	3	3.3	-0.8	0.2
BPMWB2	12	V	500	12	2.6	0.3	0.4
BPMWB2	00	V	500	10	2.7	1.2	0.2
CHQUR4	12	V	500	9	2.6	-0.3	0.9
CHQUR4	00	V	500	6	2.3	1.1	-0.2
FPUW5G	12	V	500	1	1.8	1.4	1.1
HTXUH4	00	V	500	5	2.3	-0.4	0.2
JNKN7J	12	V	500	11	2.8	0.3	0.8
JNKN7J	00	V	500	9	3.9	-0.6	0.5
KJJF9X	12	V	500	6	4.1	-0.6	1.3
KJJF9X	00	V	500	8	2.3	0.8	-0.1
KMPLHP	12	V	500	5	5.2	2.1	2.1
KMPLHP	00	V	500	7	4.7	-1.5	1.4
LRYQE3	12	V	500	9	3.3	-0.6	-0.7
LRYQE3	00	V	500	5	3.7	-1.9	0.0
UXK5JT	12	V	500	4	1.6	-0.1	0.0
UXK5JT	00	V	500	2	1.8	0.5	-0.8
WDK38H	12	V	500	17	2.0	-0.9	0.3
XKQLWQ	12	V	500	18	4.0	0.3	0.3
XQFJRG	12	V	500	6	4.1	0.0	-1.5
XQFJRG	00	V	500	7	3.0	1.5	-0.2
YLV96W	12	V	500	7	2.4	0.9	-0.1
YLV96W	00	V	500	3	2.3	-0.5	-1.8

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                : FEB 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	850	29	9.2	-7.8
01001	12	Z	850	28	10.7	-7.1
01028	12	Z	850	23	2.9	0.4
01028	00	Z	850	24	2.7	-0.8
01400	00	Z	850	19	75.8	75.6
01400	12	Z	850	20	77.4	77.2
01415	12	Z	850	27	5.9	4.2
01415	00	Z	850	26	4.8	4.0
02365	12	Z	850	7	5.4	5.0
02365	00	Z	850	11	6.2	6.0
02836	12	Z	850	29	2.7	1.8
02836	00	Z	850	28	2.3	0.7
02963	12	Z	850	29	3.3	2.3
02963	00	Z	850	28	2.9	2.4
03005	00	Z	850	26	4.2	-2.5
03005	12	Z	850	29	4.0	-1.9
03238	12	Z	850	29	4.4	2.3
03238	00	Z	850	28	4.4	2.0
03808	12	Z	850	28	4.9	4.4
03808	00	Z	850	28	4.5	2.9
03918	00	Z	850	25	6.4	5.7
03918	12	Z	850	27	7.1	6.2
03953	12	Z	850	29	5.4	-0.4
03953	00	Z	850	26	4.0	-2.4
04018	00	Z	850	26	3.9	-1.4
04018	12	Z	850	26	4.5	-0.8
04220	12	Z	850	28	17.4	6.0
04220	00	Z	850	28	15.1	3.8
04270	12	Z	850	22	5.2	-2.5
04270	00	Z	850	26	6.3	-3.6
04320	12	Z	850	27	5.7	-2.9
04320	00	Z	850	28	4.3	-1.2
04339	12	Z	850	24	8.1	-3.6
04339	00	Z	850	22	7.2	-5.8
04360	00	Z	850	17	9.9	-7.8
04360	12	Z	850	19	10.0	-9.1
06011	12	Z	850	25	5.5	4.1
06011	00	Z	850	28	5.8	3.8
06260	00	Z	850	27	3.5	0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	850	5	1.4	0.5
06610	12	Z	850	28	3.8	2.6
06610	00	Z	850	29	3.0	1.6
07110	00	Z	850	29	3.1	-1.9
07110	12	Z	850	29	13.1	1.3
07510	12	Z	850	27	4.5	3.8
07510	00	Z	850	28	3.1	1.9
07645	00	Z	850	30	3.2	-1.9
07645	12	Z	850	28	3.8	-2.7
07761	00	Z	850	28	4.8	-4.3
07761	12	Z	850	27	6.0	-4.9
08001	00	Z	850	26	2.2	0.7
08001	12	Z	850	28	3.3	1.7
08221	12	Z	850	28	4.0	3.6
08221	00	Z	850	28	2.6	1.9
08302	12	Z	850	28	7.5	-7.3
08302	00	Z	850	29	7.1	-6.8
08508	12	Z	850	28	4.9	4.3
08522	12	Z	850	28	4.1	3.2
10035	00	Z	850	27	14.6	14.3
10035	12	Z	850	27	14.7	14.2
10393	00	Z	850	22	3.1	1.3
10393	12	Z	850	27	4.8	2.8
10410	00	Z	850	28	3.5	0.2
10410	12	Z	850	29	3.4	1.4
10739	12	Z	850	28	6.1	5.4
10739	00	Z	850	28	5.2	4.3
11035	12	Z	850	28	16.4	5.4
11035	00	Z	850	28	3.8	2.2
12982	12	Z	850	28	2.9	0.9
12982	00	Z	850	28	2.9	1.8
16245	00	Z	850	28	3.1	2.2
16245	12	Z	850	28	2.4	0.9
16429	00	Z	850	28	2.3	1.3
16429	12	Z	850	28	2.1	1.0
16622	00	Z	850	28	10.1	9.6
16754	00	Z	850	25	3.0	1.8
17607	12	Z	850	28	3.1	2.0
26435	12	Z	850	14	1.9	0.8
2EERVT	12	Z	850	8	6.8	-5.1
2EERVT	00	Z	850	4	6.6	-6.5
60018	00	Z	850	29	4.2	3.0
60018	12	Z	850	27	2.8	1.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	850	4	8.8	-8.4
7JUNA4	00	Z	850	4	4.4	3.4
ASDE09	12	Z	850	4	35.3	35.2
ATGU3F	12	Z	850	6	27.1	-20.9
ATGU3F	00	Z	850	3	20.8	-17.8
BPMWB2	12	Z	850	12	6.3	3.9
BPMWB2	00	Z	850	9	5.1	2.6
CHQUR4	12	Z	850	9	6.1	-5.6
CHQUR4	00	Z	850	6	8.0	-7.3
FPUW5G	12	Z	850	1	16.1	-16.1
HTXUH4	00	Z	850	5	22.2	21.3
JNKN7J	12	Z	850	11	36.5	36.0
JNKN7J	00	Z	850	8	39.8	39.2
KJJF9X	12	Z	850	6	5.7	3.6
KJJF9X	00	Z	850	8	5.6	3.9
KMPLHP	12	Z	850	5	47.3	42.1
KMPLHP	00	Z	850	7	56.3	54.6
LRYQE3	12	Z	850	9	6.4	-4.8
LRYQE3	00	Z	850	5	4.3	-0.3
UXK5JT	12	Z	850	4	4.8	-4.0
UXK5JT	00	Z	850	3	3.7	-3.1
WDK38H	12	Z	850	17	7.4	-7.0
XKQLWQ	12	Z	850	18	19.2	15.8
XQFJRG	12	Z	850	6	4.8	-2.5
XQFJRG	00	Z	850	7	7.7	-6.6
YLV96W	12	Z	850	7	7.1	-4.3
YLV96W	00	Z	850	4	2.0	-1.0

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                : FEB 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	850	28	4.8	0.8	1.0
01001	12	V	850	28	7.6	2.4	0.3
01028	12	V	850	23	2.8	-0.7	-1.0
01028	00	V	850	24	2.7	0.2	0.3
01400	00	V	850	19	2.7	0.2	-0.6
01400	12	V	850	20	2.1	0.5	0.4
01415	12	V	850	26	3.0	0.2	0.3
01415	00	V	850	26	2.2	-0.3	0.0
02365	12	V	850	7	3.8	1.2	0.1
02365	00	V	850	11	3.3	0.7	-1.3
02836	12	V	850	28	2.3	-0.6	0.5
02836	00	V	850	28	3.7	0.4	-0.2
02963	12	V	850	28	2.6	-0.5	0.7
02963	00	V	850	28	2.1	0.1	-0.1
03005	00	V	850	26	3.4	0.9	0.6
03005	12	V	850	28	3.4	-0.1	0.5
03238	12	V	850	28	3.4	-0.1	-0.2
03238	00	V	850	28	3.6	0.0	1.1
03808	12	V	850	26	2.8	0.5	-1.0
03808	00	V	850	28	2.9	0.7	0.5
03918	00	V	850	25	3.3	-0.5	-0.2
03918	12	V	850	25	3.4	0.7	0.0
03953	12	V	850	28	3.2	0.3	0.3
03953	00	V	850	26	3.1	-0.3	0.0
04018	00	V	850	26	3.5	-0.8	0.5
04018	12	V	850	26	5.1	1.5	1.0
04220	12	V	850	28	3.7	-0.5	0.3
04220	00	V	850	28	4.6	-0.4	-0.3
04270	12	V	850	22	4.2	0.3	0.5
04270	00	V	850	26	3.6	0.5	0.3
04320	12	V	850	27	3.1	-0.9	0.7
04320	00	V	850	28	3.4	0.2	0.5
04339	12	V	850	24	5.8	2.1	1.1
04339	00	V	850	22	5.1	1.4	0.6
04360	00	V	850	17	12.6	6.6	2.2
04360	12	V	850	19	11.9	8.1	2.5
06011	12	V	850	25	4.1	-0.4	0.2
06011	00	V	850	28	2.8	-0.6	0.1
06260	00	V	850	26	2.8	0.5	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	850	5	2.5	-0.9	0.0
06610	12	V	850	28	2.5	0.2	0.0
06610	00	V	850	28	3.4	-0.2	0.3
07110	00	V	850	27	3.2	-0.3	-0.6
07110	12	V	850	27	3.4	0.2	0.2
07510	12	V	850	27	2.5	0.0	-0.7
07510	00	V	850	28	3.0	0.1	-0.9
07645	00	V	850	28	3.4	-1.1	0.2
07645	12	V	850	28	4.1	0.1	0.2
07761	00	V	850	28	4.3	0.4	0.6
07761	12	V	850	27	3.0	0.5	0.3
08001	00	V	850	26	3.1	-0.4	-0.2
08001	12	V	850	28	3.0	0.2	0.3
08221	12	V	850	28	2.3	0.6	0.1
08221	00	V	850	28	3.3	0.5	0.0
08302	12	V	850	28	2.8	0.5	-0.4
08302	00	V	850	28	3.1	-0.5	0.5
08508	12	V	850	28	2.8	-0.2	-0.3
08522	12	V	850	28	3.1	-0.7	0.7
10035	00	V	850	27	3.5	0.1	-0.2
10035	12	V	850	27	3.2	0.1	0.5
10393	00	V	850	22	3.6	0.3	-0.8
10393	12	V	850	27	3.1	-0.3	0.8
10410	00	V	850	28	2.8	-0.5	0.4
10410	12	V	850	28	2.5	-0.7	-0.2
10739	12	V	850	28	3.4	-0.5	0.6
10739	00	V	850	28	4.9	-1.0	-1.0
11035	12	V	850	28	3.8	0.7	0.0
11035	00	V	850	28	3.6	0.2	-1.1
12982	12	V	850	28	3.0	-0.8	0.1
12982	00	V	850	28	4.2	1.0	-1.2
16245	00	V	850	28	3.2	0.3	-0.3
16245	12	V	850	28	4.0	0.2	0.2
16429	00	V	850	28	2.6	0.7	-0.2
16429	12	V	850	28	2.5	0.0	0.1
16622	00	V	850	28	2.9	0.4	0.7
16754	00	V	850	25	3.8	-0.2	-0.3
17607	12	V	850	28	3.3	1.4	0.4
26435	12	V	850	14	2.4	-0.5	-0.7
2EERVT	12	V	850	8	3.9	-0.6	-0.5
2EERVT	00	V	850	4	2.6	0.1	-0.8
60018	00	V	850	28	4.0	0.5	0.0
60018	12	V	850	27	3.3	0.6	-1.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	850	4	3.4	-0.9	-1.9
7JUNA4	00	V	850	4	3.4	0.4	0.0
ASDE09	12	V	850	3	3.8	-2.9	-1.1
ATGU3F	12	V	850	6	4.8	-1.1	-0.6
ATGU3F	00	V	850	3	3.8	-2.2	-2.5
BPMWB2	12	V	850	12	2.5	0.2	-0.3
BPMWB2	00	V	850	9	3.2	-0.7	-1.1
CHQUR4	12	V	850	9	2.1	0.5	-0.3
CHQUR4	00	V	850	6	2.4	0.9	-0.9
FPUW5G	12	V	850	1	4.3	2.8	3.3
HTXUH4	00	V	850	5	3.4	0.5	-0.4
JNKN7J	12	V	850	11	3.4	0.5	1.0
JNKN7J	00	V	850	8	3.4	0.6	-0.5
KJJF9X	12	V	850	6	1.8	-0.2	-0.2
KJJF9X	00	V	850	8	1.6	0.4	-0.6
KMPLHP	12	V	850	5	2.8	-1.1	1.2
KMPLHP	00	V	850	7	2.8	-0.7	-0.2
LRYQE3	12	V	850	9	2.9	-0.6	0.9
LRYQE3	00	V	850	5	2.7	-0.4	0.2
UXK5JT	12	V	850	4	2.2	0.6	0.2
UXK5JT	00	V	850	3	1.5	-0.1	0.2
WDK38H	12	V	850	17	3.4	-0.6	0.7
XKQLWQ	12	V	850	18	5.3	-0.5	-0.6
XQFJRG	12	V	850	6	3.4	1.6	0.2
XQFJRG	00	V	850	7	2.3	-1.2	0.1
YLV96W	12	V	850	7	2.6	-0.2	-1.5
YLV96W	00	V	850	4	3.0	-1.5	0.3

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                 : FEB 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD


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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
03380	99	P	SUR	54	0	1591	0	0.5	-0.4	0.6
1300001	99	P	SUR	11	-23	540	0	0.3	0.2	0.4
1300008	99	P	SUR	15	-38	528	0	0.3	0.1	0.3
1300130	99	P	SUR	28	-16	665	0	0.4	0.2	0.5
1300131	99	P	SUR	28	-17	667	0	0.5	0.0	0.5
1301603	99	P	SUR	35	-54	668	0	0.7	0.4	0.8
1301608	99	P	SUR	29	-56	670	0	0.5	0.2	0.5
1301610	99	P	SUR	53	-10	566	0	0.6	-0.7	0.9
1301612	99	P	SUR	29	-29	670	3	1.5	0.3	1.6
1301619	99	P	SUR	29	-67	670	0	0.8	-0.1	0.8
1301699	99	P	SUR	25	-28	664	0	0.3	-0.4	0.5
1301700	99	P	SUR	14	-32	660	0	0.3	0.1	0.3
1301701	99	P	SUR	13	-27	670	0	0.3	0.3	0.4
1301706	99	P	SUR	16	-33	662	0	0.3	0.1	0.3
1301708	99	P	SUR	14	-17	668	0	0.3	-0.2	0.3
1301711	99	P	SUR	12	-20	669	0	0.3	0.1	0.3
1301712	99	P	SUR	13	-27	670	0	0.3	0.2	0.4
1301713	99	P	SUR	21	-25	669	0	0.3	0.1	0.3
1301714	99	P	SUR	21	-30	670	0	0.3	0.0	0.3
1301715	99	P	SUR	12	-24	670	0	0.3	0.2	0.3
1301717	99	P	SUR	35	-8	670	0	0.4	0.1	0.4
1301718	99	P	SUR	24	-22	670	0	0.3	0.2	0.4
1301719	99	P	SUR	21	-24	669	0	0.3	0.5	0.5
1301720	99	P	SUR	26	-22	669	0	0.3	0.0	0.3
1301721	99	P	SUR	38	-11	4145	0	0.3	-0.2	0.3
1301722	99	P	SUR	21	-29	669	0	0.3	0.0	0.3
1301763	99	P	SUR	12	-27	670	0	0.3	0.4	0.5
1701632	99	P	SUR	27	-57	349	0	0.3	0.2	0.4
1801607	99	P	SUR	37	-50	1116	0	1.0	0.1	1.0
1801608	99	P	SUR	38	-62	1	0	0.0	1.2	1.2
4100040	99	P	SUR	15	-53	3998	0	0.3	0.5	0.6
4100043	99	P	SUR	21	-65	3965	0	0.2	-1.2	1.3
4100044	99	P	SUR	22	-59	3992	0	0.3	0.2	0.4
4100046	99	P	SUR	24	-68	3997	0	0.3	0.3	0.4
4100048	99	P	SUR	32	-70	3990	0	0.3	0.4	0.5
4100049	99	P	SUR	27	-63	3994	0	0.2	-1.0	1.0

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4100052	99	P	SUR	18	-65	3878	0	0.3	-1.0	1.0
4100053	99	P	SUR	18	-66	3915	0	0.3	-0.4	0.5
4100056	99	P	SUR	18	-65	3824	0	1.1	-0.3	1.1
4100139	99	P	SUR	20	-38	652	0	0.4	-0.0	0.4
4100300	99	P	SUR	16	-57	668	0	0.2	0.2	0.3
4101557	99	P	SUR	42	-31	670	0	0.4	0.1	0.4
4101567	99	P	SUR	23	-61	670	0	0.2	0.1	0.3
4101609	99	P	SUR	22	-28	670	0	0.3	-0.0	0.3
4101613	99	P	SUR	28	-42	663	0	0.5	0.5	0.7
4101616	99	P	SUR	32	-36	670	0	0.3	0.1	0.3
4101618	99	P	SUR	24	-32	670	0	0.3	0.1	0.3
4101621	99	P	SUR	28	-29	670	0	0.3	0.2	0.4
4101627	99	P	SUR	52	-16	494	0	1.0	0.1	1.0
4101654	99	P	SUR	70	6	663	0	0.5	-0.0	0.5
4101656	99	P	SUR	64	-24	668	0	0.6	0.1	0.6
4101657	99	P	SUR	73	2	632	0	0.4	0.0	0.4
4101658	99	P	SUR	65	9	544	0	0.5	-0.1	0.5
4101659	99	P	SUR	75	39	620	1	3.3	1.0	3.5
4101663	99	P	SUR	32	-34	670	0	0.3	0.1	0.3
4101664	99	P	SUR	47	-46	669	0	0.6	-0.0	0.6
4101665	99	P	SUR	61	-10	665	0	0.7	-0.4	0.8
4101696	99	P	SUR	33	-41	670	0	0.3	0.1	0.3
4101702	99	P	SUR	41	-29	670	0	1.0	0.4	1.1
4101714	99	P	SUR	29	-56	670	0	1.5	0.3	1.6
4101717	99	P	SUR	42	-11	670	0	0.3	0.1	0.3
4101718	99	P	SUR	38	-51	670	0	0.9	0.6	1.0
4101719	99	P	SUR	37	-36	670	0	0.5	0.4	0.6
4101720	99	P	SUR	34	-23	670	0	0.8	0.7	1.0
4101722	99	P	SUR	11	-30	670	0	0.4	0.6	0.7
4101723	99	P	SUR	19	-62	670	0	0.2	0.0	0.2
4101724	99	P	SUR	14	-59	670	0	0.2	0.0	0.2
4101725	99	P	SUR	19	-56	670	0	0.3	-0.1	0.3
4101726	99	P	SUR	12	-45	414	0	1.9	1.3	2.3
4101743	99	P	SUR	33	-54	670	0	0.4	0.1	0.4
4101752	99	P	SUR	47	-7	670	0	0.4	0.1	0.5
4101753	99	P	SUR	28	-57	670	0	0.3	0.4	0.5
4101755	99	P	SUR	27	-49	669	0	0.3	0.2	0.4
4101756	99	P	SUR	12	-62	647	0	0.3	-0.6	0.7
4101842	99	P	SUR	62	1	664	0	0.4	-0.1	0.4
4101843	99	P	SUR	63	-8	663	0	0.5	0.1	0.5
4101844	99	P	SUR	14	-44	662	0	0.3	0.2	0.4
4101845	99	P	SUR	62	-11	662	0	0.6	-0.0	0.7
4101848	99	P	SUR	17	-57	661	0	0.2	0.3	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101850	99	P	SUR	45	-12	663	0	0.3	-0.0	0.3
4101851	99	P	SUR	17	-43	663	0	0.3	0.0	0.3
4102547	99	P	SUR	14	-54	594	0	0.3	0.3	0.4
4102548	99	P	SUR	19	-56	645	0	0.3	-0.1	0.3
4102549	99	P	SUR	16	-45	596	0	0.3	0.4	0.5
4102551	99	P	SUR	14	-38	453	0	0.3	0.1	0.3
4102632	99	P	SUR	22	-66	664	0	0.3	-0.8	0.9
4102634	99	P	SUR	16	-69	265	0	0.2	-0.0	0.2
41040	99	P	SUR	15	-53	4642	0	0.3	0.6	0.6
41043	99	P	SUR	21	-65	4012	0	0.3	-1.2	1.3
41044	99	P	SUR	22	-59	3161	0	0.3	0.2	0.4
41046	99	P	SUR	24	-68	6142	0	0.3	0.4	0.5
41048	99	P	SUR	32	-70	6695	0	0.4	0.4	0.5
41049	99	P	SUR	28	-63	6162	0	0.3	-1.0	1.0
41052	99	P	SUR	18	-65	2751	0	0.3	-1.0	1.0
41053	99	P	SUR	19	-66	2838	0	0.3	-0.4	0.5
41056	99	P	SUR	18	-66	2755	0	1.1	-0.3	1.1
4200059	99	P	SUR	15	-67	3999	0	0.2	-1.2	1.2
4200060	99	P	SUR	16	-63	3954	0	0.3	0.1	0.3
4200085	99	P	SUR	18	-67	3490	0	0.3	0.1	0.3
4201703	99	P	SUR	42	-56	430	0	0.6	0.2	0.7
42059	99	P	SUR	15	-68	4054	0	0.3	-1.2	1.3
42060	99	P	SUR	16	-63	3700	0	0.3	0.1	0.3
42085	99	P	SUR	18	-67	3118	0	0.3	0.1	0.3
4400005	99	P	SUR	43	-69	665	0	0.7	-0.3	0.7
4400008	99	P	SUR	40	-69	3998	0	0.5	-1.1	1.2
4400011	99	P	SUR	41	-67	3994	0	0.5	0.2	0.6
4400027	99	P	SUR	44	-67	665	0	0.6	0.0	0.7
4400032	99	P	SUR	44	-69	652	0	0.7	-0.1	0.7
4400033	99	P	SUR	44	-69	608	0	1.4	0.2	1.4
4400034	99	P	SUR	44	-68	449	13	1.3	-0.5	1.4
4400037	99	P	SUR	43	-68	524	0	1.2	-1.0	1.5
44005	99	P	SUR	43	-69	2080	0	0.7	-0.3	0.7
4400777	99	P	SUR	40	-33	670	0	0.7	0.5	0.9
44008	99	P	SUR	41	-69	6178	0	0.6	-1.1	1.2
4400857	99	P	SUR	30	-56	670	0	0.4	0.4	0.5
44011	99	P	SUR	41	-67	5488	0	0.6	0.2	0.6
4401557	99	P	SUR	26	-49	668	0	0.3	-0.5	0.6
4401563	99	P	SUR	35	-19	670	0	0.6	-0.1	0.6
4401572	99	P	SUR	25	-62	670	0	0.2	0.1	0.3
4401576	99	P	SUR	25	-48	670	0	0.3	0.3	0.5
4401577	99	P	SUR	22	-65	670	0	0.2	-0.5	0.5
4401581	99	P	SUR	26	-50	670	0	0.3	0.5	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401582	99	P	SUR	38	-20	669	0	0.3	0.5	0.6
4401584	99	P	SUR	33	-32	669	0	0.3	0.5	0.6
4401585	99	P	SUR	41	-47	670	0	0.6	0.3	0.7
4401828	99	P	SUR	61	-24	580	0	0.7	0.2	0.8
4401837	99	P	SUR	40	-20	668	0	0.3	0.2	0.3
4401848	99	P	SUR	54	-17	655	0	0.5	-0.2	0.6
4401850	99	P	SUR	64	9	648	0	0.5	-0.4	0.6
4401851	99	P	SUR	48	-6	655	0	0.5	0.5	0.7
4401854	99	P	SUR	28	-66	670	0	0.3	-0.3	0.5
4401859	99	P	SUR	10	-33	670	0	0.3	0.4	0.5
4401867	99	P	SUR	39	-57	670	0	0.4	-0.1	0.4
4401870	99	P	SUR	28	-50	670	0	0.3	0.0	0.3
4401872	99	P	SUR	28	-61	670	0	0.3	-0.0	0.3
4401874	99	P	SUR	19	-54	670	0	0.2	0.2	0.3
4402603	99	P	SUR	51	-28	662	0	0.5	-0.1	0.5
4402604	99	P	SUR	47	-32	668	0	0.5	-0.3	0.6
4402605	99	P	SUR	56	-14	661	0	0.7	-0.1	0.7
4402606	99	P	SUR	53	-39	662	0	0.6	-0.1	0.6
4402607	99	P	SUR	49	-26	661	0	0.5	-0.2	0.6
4402608	99	P	SUR	57	-35	667	0	0.7	-0.3	0.8
4402609	99	P	SUR	56	-20	664	0	0.7	-0.3	0.8
4402610	99	P	SUR	46	-27	661	0	0.5	-0.1	0.5
4402611	99	P	SUR	48	-25	663	0	0.5	-0.3	0.6
4402612	99	P	SUR	46	-39	662	0	0.5	0.1	0.5
4402613	99	P	SUR	46	-19	655	0	0.4	-0.0	0.4
4402614	99	P	SUR	51	-19	657	0	0.5	-0.3	0.6
4402615	99	P	SUR	46	-15	666	0	0.4	0.2	0.5
4402616	99	P	SUR	56	-6	472	0	0.6	-0.2	0.6
4402618	99	P	SUR	26	-42	667	0	0.3	0.2	0.4
4402656	99	P	SUR	42	-59	650	0	0.8	0.7	1.0
4402660	99	P	SUR	36	-14	670	0	0.4	0.3	0.5
4402663	99	P	SUR	46	-12	670	0	0.3	-0.2	0.4
4402665	99	P	SUR	30	-23	670	0	0.4	0.4	0.5
4402670	99	P	SUR	22	-26	664	1	0.3	0.1	0.3
4402671	99	P	SUR	16	-29	664	0	0.4	0.2	0.4
4402672	99	P	SUR	16	-27	660	0	0.3	0.1	0.3
4402673	99	P	SUR	16	-28	667	0	0.3	0.2	0.4
4402674	99	P	SUR	12	-29	659	0	0.4	0.3	0.5
4402675	99	P	SUR	37	-47	657	0	0.4	0.1	0.4
4402676	99	P	SUR	19	-30	664	0	0.3	0.3	0.4
4402687	99	P	SUR	38	-25	668	0	0.4	0.3	0.5
44027	99	P	SUR	44	-67	2065	0	0.6	0.0	0.6
4402708	99	P	SUR	14	-27	666	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
4402712	99	P	SUR	68	-66	669	0	0.4	0.0	0.4
4402717	99	P	SUR	70	-68	668	0	0.5	0.7	0.9
4402720	99	P	SUR	54	-54	402	51	2.5	0.2	2.5
4402721	99	P	SUR	47	-44	670	0	0.6	0.1	0.7
4402723	99	P	SUR	46	-52	670	1	0.6	0.0	0.6
4402726	99	P	SUR	56	-54	601	0	0.5	-0.2	0.6
4402727	99	P	SUR	43	-41	669	0	0.6	-0.0	0.6
44032	99	P	SUR	44	-69	1378	0	0.7	-0.1	0.7
44033	99	P	SUR	44	-69	1297	0	1.4	0.2	1.4
44034	99	P	SUR	44	-68	948	28	1.4	-0.5	1.5
4403556	99	P	SUR	46	-42	668	1	1.8	0.6	1.9
4403557	99	P	SUR	47	-43	663	0	0.7	0.4	0.8
4403558	99	P	SUR	44	-51	664	0	0.8	0.5	1.0
4403559	99	P	SUR	46	-50	663	0	1.0	1.0	1.4
44037	99	P	SUR	44	-68	1099	0	1.2	-1.0	1.5
44137	99	P	SUR	42	-62	756	0	0.6	-0.4	0.7
44139	99	P	SUR	44	-57	781	0	0.5	-0.2	0.6
44150	99	P	SUR	43	-64	853	0	0.6	-0.4	0.7
44258	99	P	SUR	45	-63	864	0	0.6	-0.3	0.7
44488	99	P	SUR	45	-61	868	0	0.6	-0.2	0.6
44489	99	P	SUR	46	-61	828	0	0.6	-0.2	0.6
44490	99	P	SUR	45	-66	533	0	0.6	-0.2	0.7
4601782	99	P	SUR	39	-42	666	0	0.7	0.5	0.9
4701738	99	P	SUR	70	-67	648	648	0.0	0.0	0.0
4801723	99	P	SUR	70	4	670	0	0.5	0.3	0.6
4801727	99	P	SUR	81	6	569	31	4.3	0.2	4.3
6100001	99	P	SUR	43	8	650	0	0.6	-0.0	0.6
6100002	99	P	SUR	42	5	640	0	0.5	-0.2	0.5
6100196	99	P	SUR	42	4	667	0	0.5	0.2	0.6
6100197	99	P	SUR	40	4	666	0	0.4	0.2	0.5
6100198	99	P	SUR	37	-2	665	0	0.4	0.4	0.6
6100280	99	P	SUR	41	1	666	0	0.4	0.4	0.6
6100281	99	P	SUR	40	0	665	0	0.4	0.3	0.5
6100417	99	P	SUR	38	0	665	0	0.4	0.4	0.5
6100430	99	P	SUR	40	2	664	0	0.3	0.2	0.4
6101003	99	P	SUR	40	25	181	0	0.5	-0.0	0.5
6101005	99	P	SUR	38	26	1	1	0.0	0.0	0.0
6101007	99	P	SUR	36	25	153	0	0.6	-0.5	0.8
6101008	99	P	SUR	37	22	172	0	0.5	-0.2	0.6
6101009	99	P	SUR	35	25	24	8	0.4	0.1	0.4
6102784	99	P	SUR	32	31	664	0	0.3	-0.0	0.3
6102786	99	P	SUR	32	19	662	0	0.5	0.3	0.6
6102787	99	P	SUR	35	19	666	0	0.7	0.5	0.9

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6102788	99	P	SUR	32	29	662	0	0.3	0.2	0.4
6102789	99	P	SUR	32	26	664	0	0.5	0.2	0.5
6102791	99	P	SUR	37	10	670	0	0.3	-0.1	0.3
6102792	99	P	SUR	39	8	415	0	0.3	-0.1	0.3
6102793	99	P	SUR	38	2	670	0	0.3	0.5	0.6
6102795	99	P	SUR	40	4	8	0	0.7	1.2	1.4
6102796	99	P	SUR	39	4	670	0	0.3	0.2	0.4
6102797	99	P	SUR	37	1	668	0	0.3	0.4	0.5
6102798	99	P	SUR	36	-2	660	0	0.3	0.3	0.4
6102799	99	P	SUR	39	2	297	0	0.4	0.2	0.4
6102800	99	P	SUR	39	1	273	0	0.3	0.3	0.4
6102801	99	P	SUR	39	1	274	0	0.3	0.2	0.4
6200024	99	P	SUR	44	-3	667	0	0.5	0.6	0.8
6200025	99	P	SUR	44	-6	663	0	0.4	0.2	0.4
6200082	99	P	SUR	44	-8	462	0	0.4	0.1	0.4
6200083	99	P	SUR	43	-9	666	0	0.6	0.0	0.6
6200084	99	P	SUR	42	-9	664	0	0.4	0.2	0.5
6200085	99	P	SUR	36	-7	665	0	0.3	0.1	0.4
6200086	99	P	SUR	55	6	358	0	0.4	-0.3	0.5
6200087	99	P	SUR	55	7	415	0	0.6	-0.4	0.7
6200091	99	P	SUR	53	-5	419	0	0.6	-0.4	0.7
6200092	99	P	SUR	51	-11	670	0	0.6	-0.5	0.8
6200093	99	P	SUR	55	-10	670	0	0.6	-0.8	1.0
6200094	99	P	SUR	52	-7	670	0	0.6	-0.2	0.6
62001	99	P	SUR	45	-5	1702	0	0.3	0.0	0.3
6200192	99	P	SUR	40	-10	152	0	0.4	-1.1	1.1
6201065	99	P	SUR	54	7	826	0	0.4	1.1	1.2
6201066	99	P	SUR	55	7	753	0	0.4	0.5	0.7
6202614	99	P	SUR	24	-57	670	0	0.2	-0.2	0.3
6202623	99	P	SUR	65	0	670	0	0.5	-0.1	0.5
6202624	99	P	SUR	61	-12	670	0	0.6	-0.0	0.6
6202626	99	P	SUR	55	-7	669	0	1.2	-1.4	1.8
6202627	99	P	SUR	63	-24	665	0	0.8	0.1	0.8
6202629	99	P	SUR	38	-42	117	0	0.5	-0.9	1.0
6202630	99	P	SUR	45	-3	670	0	0.3	-0.0	0.3
6202631	99	P	SUR	59	4	325	0	0.4	0.2	0.4
6202632	99	P	SUR	60	-27	668	0	0.8	-0.0	0.8
6202633	99	P	SUR	63	1	670	0	0.5	-0.0	0.5
6202635	99	P	SUR	72	27	670	0	0.4	0.1	0.5
6202637	99	P	SUR	69	-2	670	0	0.5	0.3	0.6
6202639	99	P	SUR	30	-30	670	0	0.3	0.0	0.3
6202640	99	P	SUR	30	-39	670	0	0.3	-0.3	0.4
6202643	99	P	SUR	26	-64	670	0	0.2	-0.0	0.2

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6202644	99	P	SUR	30	-40	670	0	0.3	-0.2	0.3
6202645	99	P	SUR	28	-63	670	0	0.3	-0.3	0.4
62029	99	P	SUR	49	-12	1645	0	0.5	-0.2	0.5
6203516	99	P	SUR	44	-61	657	0	1.0	0.1	1.0
6203588	99	P	SUR	63	-34	665	0	1.3	0.6	1.5
6203601	99	P	SUR	34	-50	670	0	0.5	0.1	0.5
6203607	99	P	SUR	36	-52	363	39	2.9	-0.5	2.9
6203612	99	P	SUR	30	-44	670	0	0.3	0.5	0.6
6203613	99	P	SUR	23	-51	670	4	2.0	0.7	2.1
6203614	99	P	SUR	24	-60	526	2	2.4	0.6	2.5
6203615	99	P	SUR	22	-63	670	0	0.2	-0.1	0.3
6203616	99	P	SUR	21	-45	670	0	0.3	0.3	0.4
6203617	99	P	SUR	15	-40	670	0	0.3	0.2	0.4
6203621	99	P	SUR	37	-20	670	0	0.7	0.3	0.7
6203622	99	P	SUR	44	-33	669	0	0.7	0.6	0.9
6203624	99	P	SUR	24	-69	670	0	0.2	-0.1	0.3
6203625	99	P	SUR	42	-30	670	0	0.6	-0.2	0.7
6203626	99	P	SUR	60	-1	669	0	0.5	-0.5	0.7
6203627	99	P	SUR	26	-57	670	0	0.3	0.2	0.4
6203632	99	P	SUR	27	-29	669	0	0.3	0.2	0.4
6203633	99	P	SUR	59	-15	670	0	0.8	0.0	0.8
6203634	99	P	SUR	34	-24	669	0	0.5	0.4	0.6
6203635	99	P	SUR	20	-54	670	0	0.3	0.3	0.4
6203639	99	P	SUR	40	-19	670	0	0.8	0.2	0.8
6203640	99	P	SUR	38	-18	669	0	0.5	0.1	0.5
6203642	99	P	SUR	13	-33	670	0	0.4	0.3	0.5
6203643	99	P	SUR	27	-57	669	0	0.3	0.4	0.5
6203650	99	P	SUR	62	4	477	0	0.7	-0.0	0.7
6203730	99	P	SUR	21	-45	663	0	0.3	0.1	0.3
6203732	99	P	SUR	17	-59	658	0	0.2	-1.2	1.2
6203734	99	P	SUR	15	-23	596	0	0.3	0.2	0.4
6203735	99	P	SUR	18	-63	654	0	0.3	0.1	0.3
6203737	99	P	SUR	28	-38	661	0	0.9	1.2	1.5
6203747	99	P	SUR	63	-6	660	0	0.6	0.1	0.6
6203748	99	P	SUR	69	14	234	0	0.5	-0.1	0.5
6203749	99	P	SUR	66	9	662	0	0.4	0.0	0.5
6203750	99	P	SUR	61	-8	663	0	0.5	0.1	0.5
6203753	99	P	SUR	58	-28	658	0	0.8	-0.2	0.8
6203755	99	P	SUR	46	-7	665	0	0.3	-0.7	0.8
6203760	99	P	SUR	59	3	667	0	0.5	0.3	0.6
6203765	99	P	SUR	23	-37	659	0	0.4	0.5	0.6
6203767	99	P	SUR	19	-41	666	0	0.3	-0.4	0.5
6203768	99	P	SUR	36	-12	521	0	0.3	0.3	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6203771	99	P	SUR	25	-26	660	0	0.3	0.2	0.3
6203772	99	P	SUR	22	-43	661	0	0.3	0.2	0.3
6203773	99	P	SUR	28	-40	669	0	0.3	-0.2	0.4
6203776	99	P	SUR	35	-26	663	0	0.2	0.1	0.3
6203777	99	P	SUR	21	-55	665	0	0.3	0.1	0.3
6203825	99	P	SUR	62	-12	670	0	0.7	0.0	0.7
6203827	99	P	SUR	63	-14	670	0	0.7	0.1	0.7
6203838	99	P	SUR	15	-41	669	0	0.3	0.2	0.4
6203839	99	P	SUR	18	-33	670	0	0.3	-0.1	0.3
6203840	99	P	SUR	21	-30	670	0	0.3	0.2	0.3
6203841	99	P	SUR	29	-16	669	0	0.4	0.0	0.4
6203843	99	P	SUR	28	-17	531	0	0.5	-0.6	0.8
6203846	99	P	SUR	26	-17	670	0	0.4	-0.0	0.4
62050	99	P	SUR	50	-4	1485	0	0.5	-0.3	0.6
62081	99	P	SUR	51	-13	1642	0	0.5	-0.6	0.8
62102	99	P	SUR	58	2	1646	0	0.5	-0.2	0.6
62103	99	P	SUR	50	-3	1643	0	0.5	-0.3	0.6
62104	99	P	SUR	57	1	1597	0	0.5	-0.4	0.6
62107	99	P	SUR	50	-6	1096	0	0.4	-0.2	0.5
62112	99	P	SUR	58	0	1701	0	0.5	-0.0	0.5
62113	99	P	SUR	58	0	1593	0	0.8	0.3	0.8
62114	99	P	SUR	58	0	2811	0	0.7	-0.2	0.7
62115	99	P	SUR	58	-3	1675	0	0.5	-0.2	0.6
62116	99	P	SUR	58	1	1643	0	0.7	-0.3	0.8
62118	99	P	SUR	58	1	1648	0	0.5	0.2	0.5
62119	99	P	SUR	57	2	1636	0	0.6	0.4	0.8
62120	99	P	SUR	56	2	1599	0	0.6	-0.4	0.7
62121	99	P	SUR	54	3	1593	0	0.6	0.5	0.8
62122	99	P	SUR	57	2	1472	0	0.7	0.1	0.7
62124	99	P	SUR	54	-4	1643	0	0.5	-0.3	0.6
62127	99	P	SUR	54	1	1640	0	0.5	0.3	0.6
62129	99	P	SUR	58	0	1593	0	0.7	0.3	0.8
62130	99	P	SUR	59	1	1642	0	0.5	-0.6	0.8
62131	99	P	SUR	54	1	1210	0	0.5	0.2	0.6
62132	99	P	SUR	56	2	1599	0	0.8	0.5	0.9
62133	99	P	SUR	57	1	1655	0	0.6	-0.1	0.7
62134	99	P	SUR	58	1	274	0	0.6	0.7	0.9
62135	99	P	SUR	54	2	220	0	0.4	0.0	0.5
62138	99	P	SUR	54	0	144	0	0.6	0.4	0.8
62140	99	P	SUR	57	1	1965	0	0.5	-0.2	0.5
62141	99	P	SUR	58	0	2370	0	0.5	-0.6	0.8
62143	99	P	SUR	58	2	1643	0	0.8	0.8	1.2
62144	99	P	SUR	53	2	1648	0	0.7	0.4	0.8

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62145	99	P	SUR	53	3	2259	0	0.5	0.3	0.6
62146	99	P	SUR	57	2	1641	0	0.8	0.2	0.8
62149	99	P	SUR	54	1	1638	0	0.4	0.6	0.7
62151	99	P	SUR	57	2	1941	0	0.5	0.0	0.5
62152	99	P	SUR	57	2	1591	0	0.6	0.6	0.8
62153	99	P	SUR	57	2	1324	166	4.5	2.5	5.2
62154	99	P	SUR	56	2	1652	0	0.5	-0.0	0.5
62155	99	P	SUR	58	1	1632	0	0.5	0.6	0.8
62157	99	P	SUR	58	0	1645	0	0.6	-0.3	0.6
62160	99	P	SUR	57	2	2253	0	0.5	0.2	0.5
62161	99	P	SUR	58	1	1644	0	0.8	0.3	0.9
62162	99	P	SUR	57	1	1643	0	0.5	-0.4	0.6
62163	99	P	SUR	48	-8	1711	0	0.4	0.2	0.5
62164	99	P	SUR	57	1	1599	0	0.5	0.3	0.6
62165	99	P	SUR	54	1	1589	0	0.7	0.5	0.9
62168	99	P	SUR	58	1	1641	0	0.5	-0.1	0.5
62170	99	P	SUR	51	2	1645	0	0.4	-0.1	0.4
62296	99	P	SUR	53	2	1598	0	0.4	-0.2	0.5
62297	99	P	SUR	59	2	2196	0	0.5	-0.2	0.5
62302	99	P	SUR	61	-2	1090	0	0.8	-0.4	0.9
62304	99	P	SUR	51	2	1603	0	0.9	-0.3	1.0
62305	99	P	SUR	50	0	2358	0	0.5	-0.1	0.5
62442	99	P	SUR	49	-16	1487	0	0.5	-0.5	0.7
6301001	99	P	SUR	64	5	664	0	1.0	1.2	1.6
6301003	99	P	SUR	74	24	667	0	0.4	-0.4	0.6
6301004	99	P	SUR	72	20	665	100	3.4	0.5	3.4
6301511	99	P	SUR	55	-17	456	0	1.4	7.6	7.8
6301564	99	P	SUR	62	-7	93	0	1.0	0.2	1.0
6301570	99	P	SUR	58	-28	42	0	3.7	-3.3	5.0
6301571	99	P	SUR	57	-6	321	24	3.1	-0.5	3.2
6301572	99	P	SUR	79	-2	647	34	3.0	-0.0	3.0
6301573	99	P	SUR	86	-26	670	0	0.5	-0.0	0.5
6301575	99	P	SUR	86	-25	669	0	0.5	-0.1	0.5
6301576	99	P	SUR	81	-3	670	0	0.6	-0.2	0.6
6301577	99	P	SUR	64	-9	670	0	0.5	0.4	0.6
6301578	99	P	SUR	69	-11	670	0	0.5	0.3	0.6
6301579	99	P	SUR	70	-11	670	0	0.5	0.4	0.7
63055	99	P	SUR	61	2	1645	0	0.7	0.0	0.7
63056	99	P	SUR	60	2	1643	0	0.9	0.2	1.0
63057	99	P	SUR	59	2	1641	0	0.5	-0.4	0.6
63058	99	P	SUR	53	2	2663	0	0.5	-0.1	0.5
63059	99	P	SUR	58	-1	1706	0	0.5	0.3	0.6
63101	99	P	SUR	61	1	1641	0	0.8	-0.2	0.8

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
63102	99	P	SUR	61	1	1643	0	0.7	0.1	0.7
63103	99	P	SUR	61	1	1639	0	0.6	0.2	0.6
63108	99	P	SUR	61	2	1643	0	0.7	0.1	0.7
63109	99	P	SUR	60	2	1593	0	0.6	-0.6	0.8
63110	99	P	SUR	60	2	1648	0	0.7	-0.5	0.9
63111	99	P	SUR	61	2	2193	0	0.6	-0.9	1.1
63112	99	P	SUR	61	1	1639	0	0.5	-0.7	0.9
63115	99	P	SUR	62	1	1644	0	0.7	-0.0	0.7
63117	99	P	SUR	61	1	2198	0	0.8	0.4	0.9
63118	99	P	SUR	58	-4	1721	0	0.6	-0.7	0.9
6401531	99	P	SUR	53	-18	659	0	0.6	-0.3	0.6
6401574	99	P	SUR	58	-32	670	0	1.1	-0.0	1.1
6401575	99	P	SUR	66	6	670	0	0.5	0.1	0.5
6401576	99	P	SUR	72	-22	669	0	0.7	-0.3	0.8
6401578	99	P	SUR	78	-19	670	0	0.6	0.5	0.7
6401592	99	P	SUR	63	-19	670	0	0.6	0.2	0.6
6401759	99	P	SUR	55	-46	669	0	0.7	0.1	0.7
6401760	99	P	SUR	59	-55	670	0	0.6	-0.1	0.7
6401761	99	P	SUR	57	-55	670	0	0.7	0.2	0.7
6401762	99	P	SUR	68	-4	670	0	0.6	0.5	0.8
6401763	99	P	SUR	66	12	670	0	0.6	-0.7	0.9
6401839	99	P	SUR	62	-2	531	0	0.5	0.2	0.6
6401840	99	P	SUR	66	10	632	0	0.4	0.2	0.5
6401842	99	P	SUR	66	-26	623	0	0.6	-0.0	0.6
6401843	99	P	SUR	63	-6	551	0	0.5	0.2	0.5
6402539	99	P	SUR	54	-18	661	0	0.6	-0.4	0.7
6402541	99	P	SUR	67	-17	407	0	0.7	0.4	0.8
6402543	99	P	SUR	58	-40	634	0	0.7	-0.1	0.7
6402544	99	P	SUR	72	8	663	0	0.4	0.2	0.5
6402545	99	P	SUR	78	7	242	0	0.6	-0.2	0.6
6402547	99	P	SUR	53	-41	659	0	0.7	-0.3	0.8
6402548	99	P	SUR	76	13	600	1	0.6	0.1	0.6
6402550	99	P	SUR	74	33	297	0	0.5	0.1	0.5
6402551	99	P	SUR	57	-54	648	0	0.6	-0.1	0.7
6402552	99	P	SUR	65	-2	584	0	0.5	0.3	0.6
6402554	99	P	SUR	66	9	533	0	0.5	0.4	0.6
6402557	99	P	SUR	70	-2	652	0	0.6	0.3	0.7
6402559	99	P	SUR	58	-57	468	0	0.7	-0.2	0.7
6402560	99	P	SUR	69	-6	556	0	0.5	0.2	0.5
6402561	99	P	SUR	68	-19	345	0	0.5	0.4	0.7
6402562	99	P	SUR	63	-51	502	0	3.2	-0.2	3.2
6402563	99	P	SUR	67	7	556	0	0.5	0.5	0.7
6402587	99	P	SUR	56	-55	601	59	4.7	5.1	6.9

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6402589	99	P	SUR	54	-54	321	222	9.2	5.1	10.6
6402591	99	P	SUR	54	-54	540	33	4.4	-0.1	4.4
6402592	99	P	SUR	59	-57	456	0	0.6	-1.3	1.4
6402594	99	P	SUR	58	-56	636	0	0.6	-0.4	0.8
6402596	99	P	SUR	57	-42	545	0	0.7	-0.3	0.8
6402597	99	P	SUR	58	-57	649	0	0.7	-0.5	0.8
6402598	99	P	SUR	63	-55	565	33	3.8	0.2	3.8
6402599	99	P	SUR	53	-51	601	0	0.6	0.1	0.6
6402600	99	P	SUR	84	-28	188	0	0.4	1.2	1.2
6402611	99	P	SUR	50	-48	475	0	0.5	0.2	0.6
6402615	99	P	SUR	17	-38	663	0	0.3	0.2	0.4
6402616	99	P	SUR	17	-36	660	0	0.3	0.5	0.6
6402617	99	P	SUR	17	-32	659	0	0.3	0.3	0.5
6402618	99	P	SUR	20	-20	666	0	0.3	0.2	0.4
6402619	99	P	SUR	42	-12	660	0	0.3	0.2	0.3
6402620	99	P	SUR	48	-14	661	0	0.4	0.4	0.5
6402621	99	P	SUR	43	-15	667	0	0.3	0.4	0.5
6402622	99	P	SUR	41	-14	659	0	0.3	0.2	0.3
6402654	99	P	SUR	59	-9	472	0	0.6	-0.2	0.6
6402655	99	P	SUR	65	2	572	0	0.6	0.3	0.7
6402656	99	P	SUR	57	-44	533	0	2.7	5.1	5.8
6402659	99	P	SUR	64	-6	657	0	0.5	0.1	0.5
6402660	99	P	SUR	66	-23	531	0	0.7	-0.4	0.8
6402661	99	P	SUR	61	-14	483	0	0.6	0.1	0.6
6402663	99	P	SUR	63	-26	625	0	0.8	-0.0	0.8
6402665	99	P	SUR	67	3	618	0	0.4	0.5	0.7
6402666	99	P	SUR	64	-21	647	0	0.8	-0.2	0.8
6402667	99	P	SUR	61	-25	663	0	0.7	-0.4	0.8
6402668	99	P	SUR	60	-17	664	0	0.6	0.2	0.6
6402680	99	P	SUR	59	-28	223	0	0.7	-0.5	0.9
6402681	99	P	SUR	66	0	225	0	0.5	0.3	0.6
6402682	99	P	SUR	68	-24	115	20	2.2	-0.4	2.2
6402683	99	P	SUR	68	-19	129	0	1.4	-0.6	1.5
6402684	99	P	SUR	68	-13	109	0	0.5	0.2	0.6
6402685	99	P	SUR	65	-9	88	0	0.6	0.7	0.9
6402722	99	P	SUR	67	-5	135	0	0.5	0.2	0.5
64041	99	P	SUR	61	-3	1066	0	0.7	-0.5	0.9
64045	99	P	SUR	59	-12	1646	0	0.7	-0.4	0.8
6501670	99	P	SUR	79	6	651	0	0.6	0.2	0.6
6501671	99	P	SUR	81	18	595	1	1.0	0.1	1.0
6501674	99	P	SUR	80	10	564	3	1.7	-0.2	1.7
6501675	99	P	SUR	74	-4	649	0	0.5	0.3	0.5
6501676	99	P	SUR	76	-5	436	48	3.4	8.3	8.9

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6501679	99	P	SUR	75	-7	657	0	1.4	-0.0	1.4
6501687	99	P	SUR	81	26	629	47	4.8	-2.2	5.2
6501689	99	P	SUR	81	20	2501	22	3.1	-0.4	3.1
6600021	99	P	SUR	55	14	40	0	1.0	0.4	1.0

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

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


TIME = 99 => AVERAGE OF ALL OBSERVATIONS


GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S
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WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300001	99	SPEED	SUR	11	-23	540	0	0	0.8	0.6	1.0
1300002	99	SPEED	SUR	20	-23	548	0	0	0.8	0.2	0.8
1300008	99	SPEED	SUR	15	-38	528	0	0	1.0	-0.1	1.0
1300130	99	SPEED	SUR	28	-16	664	0	0	1.4	0.3	1.4
1300131	99	SPEED	SUR	28	-17	657	0	0	2.1	1.0	2.4
1801607	99	SPEED	SUR	37	-50	1156	0	0	1.9	-1.0	2.2
1801608	99	SPEED	SUR	38	-62	64	0	0	1.3	-1.1	1.7
4100040	99	SPEED	SUR	15	-53	3997	0	0	1.0	0.2	1.0
4100043	99	SPEED	SUR	21	-65	3994	0	0	1.0	0.0	1.0
4100046	99	SPEED	SUR	24	-68	3977	0	0	0.8	0.0	0.8
4100048	99	SPEED	SUR	32	-70	3994	0	0	1.2	0.1	1.2
4100049	99	SPEED	SUR	27	-63	3675	0	0	1.1	0.0	1.1
4100052	99	SPEED	SUR	18	-65	3878	0	0	1.1	-0.3	1.2
4100053	99	SPEED	SUR	18	-66	3915	0	0	1.6	1.5	2.2
4100056	99	SPEED	SUR	18	-65	3827	0	0	1.2	-0.8	1.5
4100139	99	SPEED	SUR	20	-38	652	0	0	1.1	0.1	1.1
4100300	99	SPEED	SUR	16	-57	668	0	0	1.1	-1.1	1.5
41040	99	SPEED	SUR	15	-53	4641	0	0	1.0	-0.2	1.0
41043	99	SPEED	SUR	21	-65	4177	0	0	1.0	-0.1	1.0
41044	99	SPEED	SUR	22	-59	96	0	0	1.1	-0.2	1.1
41046	99	SPEED	SUR	24	-68	6119	0	0	0.9	-0.2	0.9
41048	99	SPEED	SUR	32	-70	6694	0	0	1.3	-0.0	1.3
41049	99	SPEED	SUR	28	-63	5757	0	0	1.1	-0.1	1.1
41052	99	SPEED	SUR	18	-65	2751	0	0	1.2	-0.2	1.2
41053	99	SPEED	SUR	19	-66	2838	0	0	1.6	0.7	1.8
41056	99	SPEED	SUR	18	-66	2760	0	0	1.3	-0.5	1.4
4200059	99	SPEED	SUR	15	-67	3999	0	0	0.8	0.2	0.8
4200085	99	SPEED	SUR	18	-67	3521	0	0	1.5	-0.4	1.5
42059	99	SPEED	SUR	15	-68	4054	0	0	0.8	-0.2	0.9
42060	99	SPEED	SUR	16	-63	118	0	0	1.1	0.8	1.3
42085	99	SPEED	SUR	18	-67	3139	0	0	1.4	0.0	1.5
4400005	99	SPEED	SUR	43	-69	665	0	0	1.3	-0.0	1.3
4400008	99	SPEED	SUR	40	-69	3997	0	0	1.5	0.2	1.5
4400027	99	SPEED	SUR	44	-67	666	0	0	1.3	0.4	1.4

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
4400032	99	SPEED	SUR	44	-69	657	0	0	1.5	0.3	1.5
4400033	99	SPEED	SUR	44	-69	616	0	0	1.7	-0.3	1.7
4400034	99	SPEED	SUR	44	-68	645	0	0	1.3	-0.1	1.3
4400037	99	SPEED	SUR	43	-68	555	0	0	1.2	-0.5	1.3
44005	99	SPEED	SUR	43	-69	2080	0	0	1.4	-0.0	1.4
44008	99	SPEED	SUR	41	-69	6175	0	0	1.5	-0.5	1.6
44027	99	SPEED	SUR	44	-67	2068	0	0	1.4	0.5	1.5
44032	99	SPEED	SUR	44	-69	1387	0	0	1.5	0.4	1.5
44033	99	SPEED	SUR	44	-69	1312	0	0	1.6	0.1	1.6
44034	99	SPEED	SUR	44	-68	1326	0	0	1.4	-0.0	1.4
44037	99	SPEED	SUR	44	-68	1161	0	0	1.2	-0.5	1.3
44137	99	SPEED	SUR	42	-62	758	0	0	3.4	-8.0	8.7
44139	99	SPEED	SUR	44	-57	778	0	0	1.3	0.5	1.4
44150	99	SPEED	SUR	43	-64	852	0	0	1.6	-0.5	1.7
44258	99	SPEED	SUR	45	-63	861	0	0	2.2	-0.2	2.2
44489	99	SPEED	SUR	46	-61	813	0	0	1.8	0.7	2.0
44490	99	SPEED	SUR	45	-66	515	0	0	1.9	-0.8	2.0
6100001	99	SPEED	SUR	43	8	664	0	0	2.0	-0.9	2.2
6100002	99	SPEED	SUR	42	5	640	0	0	1.3	-0.8	1.6
6100196	99	SPEED	SUR	42	4	656	0	0	1.8	-0.5	1.9
6100197	99	SPEED	SUR	40	4	658	0	0	1.4	-0.4	1.5
6100198	99	SPEED	SUR	37	-2	644	0	0	1.5	-0.5	1.6
6100280	99	SPEED	SUR	41	1	661	0	0	1.7	-0.8	1.9
6100281	99	SPEED	SUR	40	0	650	0	0	1.7	0.1	1.8
6100417	99	SPEED	SUR	38	0	652	0	0	1.2	-0.7	1.4
6100430	99	SPEED	SUR	40	2	646	0	0	1.5	-0.4	1.5
6101003	99	SPEED	SUR	40	25	181	0	0	2.1	-0.2	2.1
6101005	99	SPEED	SUR	38	26	5	0	0	0.6	-18.6	18.7
6101007	99	SPEED	SUR	36	25	153	0	0	2.3	-1.1	2.5
6101008	99	SPEED	SUR	37	22	172	0	0	1.8	-0.3	1.8
6101009	99	SPEED	SUR	35	25	24	0	0	2.3	1.6	2.8
6200024	99	SPEED	SUR	44	-3	663	0	0	1.4	-0.2	1.4
6200025	99	SPEED	SUR	44	-6	654	0	0	1.3	-0.7	1.5
6200082	99	SPEED	SUR	44	-8	462	0	0	1.2	-0.7	1.4
6200083	99	SPEED	SUR	43	-9	664	0	0	1.1	-1.1	1.6
6200084	99	SPEED	SUR	42	-9	657	0	0	1.3	-0.8	1.6
6200085	99	SPEED	SUR	36	-7	660	0	0	1.3	-0.3	1.3
6200086	99	SPEED	SUR	55	6	360	0	0	2.1	2.1	3.0
6200087	99	SPEED	SUR	55	7	416	0	0	1.9	1.8	2.6
6200091	99	SPEED	SUR	53	-5	419	0	0	1.6	-0.2	1.6
6200092	99	SPEED	SUR	51	-11	670	0	0	1.2	0.2	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
6200093	99	SPEED	SUR	55	-10	670	0	0	1.5	-1.2	2.0
6200094	99	SPEED	SUR	52	-7	670	0	0	1.4	-1.5	2.1
62001	99	SPEED	SUR	45	-5	1702	0	0	1.2	0.5	1.3
6201065	99	SPEED	SUR	54	7	84	25	0	2.1	-0.6	2.2
6201066	99	SPEED	SUR	55	7	753	0	0	1.9	0.6	2.0
62029	99	SPEED	SUR	49	-12	1645	0	0	1.2	1.0	1.5
62081	99	SPEED	SUR	51	-13	1642	0	0	1.3	1.1	1.7
62102	99	SPEED	SUR	58	2	1646	0	0	1.7	-0.1	1.7
62103	99	SPEED	SUR	50	-3	1643	0	0	1.4	-0.8	1.6
62104	99	SPEED	SUR	57	1	1592	0	0	1.5	-0.2	1.5
62112	99	SPEED	SUR	58	0	1701	0	0	1.8	-0.5	1.8
62113	99	SPEED	SUR	58	0	1593	0	0	1.9	0.0	1.9
62114	99	SPEED	SUR	58	0	2811	0	0	1.7	0.8	1.9
62118	99	SPEED	SUR	58	1	1648	0	0	1.7	0.6	1.8
62119	99	SPEED	SUR	57	2	1636	0	0	1.7	-0.1	1.7
62120	99	SPEED	SUR	56	2	1599	0	0	1.7	0.5	1.7
62121	99	SPEED	SUR	54	3	1593	0	0	1.7	-0.4	1.8
62122	99	SPEED	SUR	57	2	1472	0	0	1.5	-0.3	1.5
62129	99	SPEED	SUR	58	0	1593	0	0	1.7	0.2	1.7
62131	99	SPEED	SUR	54	1	1208	0	0	1.8	0.4	1.8
62132	99	SPEED	SUR	56	2	1599	0	0	3.3	-2.3	4.1
62133	99	SPEED	SUR	57	1	1655	0	0	1.7	-0.3	1.7
62134	99	SPEED	SUR	58	1	274	0	0	1.8	-0.1	1.8
62140	99	SPEED	SUR	57	1	1965	0	0	1.5	0.2	1.5
62143	99	SPEED	SUR	58	2	1643	0	0	2.5	-1.2	2.8
62144	99	SPEED	SUR	53	2	1648	0	0	2.7	-0.2	2.7
62145	99	SPEED	SUR	53	3	2259	0	0	1.7	1.6	2.3
62146	99	SPEED	SUR	57	2	45	0	0	2.9	0.2	2.9
62148	99	SPEED	SUR	54	2	1482	0	0	2.6	-0.4	2.6
62149	99	SPEED	SUR	54	1	1638	0	0	1.6	0.5	1.7
62152	99	SPEED	SUR	57	2	1591	0	0	2.4	-2.0	3.1
62153	99	SPEED	SUR	57	2	1447	0	0	3.8	-3.2	5.0
62154	99	SPEED	SUR	56	2	1652	0	0	1.6	0.1	1.6
62155	99	SPEED	SUR	58	1	968	0	0	1.6	0.2	1.6
62164	99	SPEED	SUR	57	1	1599	0	0	1.8	-1.6	2.4
62165	99	SPEED	SUR	54	1	1589	0	0	2.5	-0.9	2.7
62170	99	SPEED	SUR	51	2	1645	0	0	1.6	1.3	2.0
62304	99	SPEED	SUR	51	2	1603	0	0	1.9	1.3	2.3
62305	99	SPEED	SUR	50	0	2358	0	0	1.4	1.1	1.8
6301001	99	SPEED	SUR	64	5	664	0	0	1.7	-0.4	1.8
6301003	99	SPEED	SUR	74	24	667	0	0	1.5	-0.5	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
6301004	99	SPEED	SUR	72	20	665	0	0	1.8	-0.7	2.0
63055	99	SPEED	SUR	61	2	1645	0	0	1.7	-1.1	2.1
63056	99	SPEED	SUR	60	2	1643	0	0	1.7	0.3	1.8
63057	99	SPEED	SUR	59	2	1641	0	0	3.2	-2.0	3.8
63058	99	SPEED	SUR	53	2	1950	0	0	1.6	0.6	1.7
63101	99	SPEED	SUR	61	1	1637	0	0	1.7	-0.9	1.9
63103	99	SPEED	SUR	61	1	1639	0	0	2.0	-0.1	2.0
63106	99	SPEED	SUR	61	2	1506	0	0	2.3	-1.1	2.5
63108	99	SPEED	SUR	61	2	1643	0	0	2.1	0.0	2.1
63109	99	SPEED	SUR	60	2	1575	0	0	1.7	0.4	1.8
63110	99	SPEED	SUR	60	2	1648	0	0	1.6	-0.7	1.8
63112	99	SPEED	SUR	61	1	1639	0	0	1.5	-0.8	1.7
63115	99	SPEED	SUR	62	1	1641	0	0	1.7	-0.6	1.8
63117	99	SPEED	SUR	61	1	2198	0	0	1.7	-0.9	1.9
64041	99	SPEED	SUR	61	-3	283	0	0	1.8	-0.2	1.8
6600021	99	SPEED	SUR	55	14	40	0	0	1.6	-0.0	1.6
66021	99	SPEED	SUR	55	14	29	0	0	1.2	0.3	1.2

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

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


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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300001	99	DIRN	SUR	11	-23	533	0	0	7.8	-3.0	8.3
1300002	99	DIRN	SUR	20	-23	521	0	0	8.6	-3.2	9.1
1300008	99	DIRN	SUR	15	-38	470	0	0	82.4	54.9	99.0
1300130	99	DIRN	SUR	28	-16	438	0	0	16.1	5.7	17.0
1300131	99	DIRN	SUR	28	-17	349	0	0	54.2	-55.8	77.8
1801607	99	DIRN	SUR	37	-50	1012	0	0	20.0	0.9	20.0
1801608	99	DIRN	SUR	38	-62	60	0	0	10.6	-1.4	10.7
4100002	99	DIRN	SUR	32	-75	3460	0	0	16.4	6.2	17.6
4100004	99	DIRN	SUR	33	-79	3653	0	0	16.2	8.6	18.3
4100008	99	DIRN	SUR	31	-81	449	0	0	23.5	7.0	24.5
4100009	99	DIRN	SUR	29	-80	3264	0	0	14.6	5.1	15.5
4100010	99	DIRN	SUR	29	-78	3001	0	0	16.8	7.3	18.3
4100013	99	DIRN	SUR	33	-78	3722	0	0	17.4	6.3	18.5
4100024	99	DIRN	SUR	34	-78	441	0	0	20.0	-8.6	21.8
4100025	99	DIRN	SUR	35	-75	3762	0	0	27.7	7.5	28.7
4100029	99	DIRN	SUR	33	-80	446	0	0	25.4	2.8	25.6
4100033	99	DIRN	SUR	32	-80	453	0	0	23.4	6.3	24.2
4100037	99	DIRN	SUR	34	-77	532	0	0	20.4	2.3	20.5
4100038	99	DIRN	SUR	34	-78	495	0	0	22.9	-11.3	25.5
4100040	99	DIRN	SUR	15	-53	3957	0	0	10.6	3.9	11.3
4100043	99	DIRN	SUR	21	-65	3942	0	0	9.7	4.4	10.7
4100046	99	DIRN	SUR	24	-68	3796	0	0	9.0	5.0	10.3
4100047	99	DIRN	SUR	27	-71	3562	0	0	13.5	6.5	15.0
4100048	99	DIRN	SUR	32	-70	3350	0	0	14.9	1.5	15.0
4100049	99	DIRN	SUR	27	-63	3385	0	0	11.9	4.4	12.7
4100052	99	DIRN	SUR	18	-65	3802	0	0	11.9	5.2	13.0
4100053	99	DIRN	SUR	18	-66	3058	0	0	15.9	1.6	16.0
4100056	99	DIRN	SUR	18	-65	3702	0	0	13.2	4.2	13.9
4100064	99	DIRN	SUR	34	-77	624	0	0	19.6	-17.6	26.4
4100139	99	DIRN	SUR	20	-38	604	0	0	15.1	1.3	15.2
41002	99	DIRN	SUR	32	-75	5221	0	0	17.1	4.7	17.8
4100300	99	DIRN	SUR	16	-57	634	0	0	12.1	9.5	15.4

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
41004	99	DIRN	SUR	33	-79	6066	0	0	16.3	5.0	17.1
41008	99	DIRN	SUR	31	-81	1323	0	0	21.8	5.6	22.5
41009	99	DIRN	SUR	29	-80	4940	0	0	14.5	2.8	14.7
41010	99	DIRN	SUR	29	-79	4488	0	0	16.3	6.3	17.4
41013	99	DIRN	SUR	33	-78	5681	0	0	19.4	5.9	20.3
41024	99	DIRN	SUR	34	-79	855	0	0	21.5	-8.3	23.1
41025	99	DIRN	SUR	35	-76	5820	0	0	25.3	5.0	25.8
41029	99	DIRN	SUR	33	-80	1169	0	0	26.6	3.0	26.8
41033	99	DIRN	SUR	32	-80	908	0	0	22.2	5.0	22.8
41037	99	DIRN	SUR	34	-77	1016	0	0	22.5	1.8	22.6
41038	99	DIRN	SUR	34	-78	1007	0	0	24.3	-10.5	26.4
41040	99	DIRN	SUR	15	-53	4582	0	0	11.2	3.4	11.7
41043	99	DIRN	SUR	21	-65	4100	0	0	10.0	-0.3	10.0
41044	99	DIRN	SUR	22	-59	93	0	0	89.5	27.0	93.5
41046	99	DIRN	SUR	24	-68	5807	0	0	9.3	6.0	11.0
41047	99	DIRN	SUR	28	-72	5519	0	0	13.7	5.7	14.8
41048	99	DIRN	SUR	32	-70	5545	0	0	15.7	0.8	15.7
41049	99	DIRN	SUR	28	-63	5181	0	0	19.6	7.4	21.0
41052	99	DIRN	SUR	18	-65	2697	0	0	12.1	4.5	13.0
41053	99	DIRN	SUR	19	-66	2367	0	0	16.1	0.5	16.1
41056	99	DIRN	SUR	18	-66	2655	0	0	14.9	4.1	15.5
41064	99	DIRN	SUR	34	-77	1297	0	0	19.3	-18.2	26.5
4200013	99	DIRN	SUR	27	-83	705	0	0	14.7	-4.6	15.4
4200022	99	DIRN	SUR	28	-84	1056	0	0	15.8	-6.2	17.0
4200023	99	DIRN	SUR	26	-83	406	0	0	12.7	-5.7	13.9
4200026	99	DIRN	SUR	25	-83	519	0	0	9.1	-8.1	12.2
4200036	99	DIRN	SUR	29	-85	3060	0	0	12.7	3.2	13.2
4200056	99	DIRN	SUR	20	-85	687	0	0	10.3	7.2	12.6
4200059	99	DIRN	SUR	15	-67	3995	0	0	9.9	-0.2	9.9
4200085	99	DIRN	SUR	18	-67	3367	0	0	14.8	7.5	16.6
42013	99	DIRN	SUR	27	-83	910	0	0	16.4	-5.8	17.4
42022	99	DIRN	SUR	28	-84	1406	0	0	15.0	-8.0	17.0
42023	99	DIRN	SUR	26	-83	713	0	0	13.6	-6.5	15.0
42026	99	DIRN	SUR	25	-84	764	0	0	9.6	-8.2	12.6
42036	99	DIRN	SUR	29	-85	4599	0	0	12.3	0.5	12.3
42056	99	DIRN	SUR	20	-85	692	0	0	10.8	6.5	12.6
42059	99	DIRN	SUR	15	-68	4049	0	0	10.7	-0.2	10.7
42060	99	DIRN	SUR	16	-63	109	0	0	20.3	91.1	93.3
42085	99	DIRN	SUR	18	-67	2940	0	0	15.9	6.4	17.1
4400005	99	DIRN	SUR	43	-69	625	0	0	13.8	1.7	13.9
4400007	99	DIRN	SUR	44	-70	3556	0	0	20.1	5.1	20.8

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4400008	99	DIRN	SUR	40	-69	3745	0	0	15.9	12.1	20.0
4400009	99	DIRN	SUR	38	-75	3438	0	0	18.2	9.8	20.7
4400013	99	DIRN	SUR	42	-71	1981	0	0	14.3	7.0	15.9
4400014	99	DIRN	SUR	37	-75	3274	0	0	16.5	6.9	17.9
4400017	99	DIRN	SUR	41	-72	3663	0	0	18.4	8.9	20.4
4400020	99	DIRN	SUR	41	-70	3549	0	0	14.5	10.2	17.7
4400022	99	DIRN	SUR	41	-74	574	0	0	20.5	8.1	22.1
4400027	99	DIRN	SUR	44	-67	645	0	0	11.0	-1.9	11.2
4400029	99	DIRN	SUR	43	-71	376	0	0	15.2	0.9	15.2
4400030	99	DIRN	SUR	43	-70	407	0	0	18.2	12.7	22.2
4400032	99	DIRN	SUR	44	-69	608	0	0	14.3	0.5	14.3
4400033	99	DIRN	SUR	44	-69	538	0	0	16.9	3.2	17.2
4400034	99	DIRN	SUR	44	-68	626	0	0	12.5	5.8	13.8
4400037	99	DIRN	SUR	43	-68	525	0	0	37.7	32.1	49.5
4400039	99	DIRN	SUR	41	-73	30	0	0	21.7	11.4	24.5
4400040	99	DIRN	SUR	41	-74	662	0	0	17.9	0.4	17.9
4400042	99	DIRN	SUR	38	-76	4389	0	0	21.3	5.1	21.9
4400058	99	DIRN	SUR	38	-76	5211	0	0	19.8	1.1	19.9
4400062	99	DIRN	SUR	39	-76	4027	0	0	22.5	2.1	22.6
4400063	99	DIRN	SUR	39	-76	4642	0	0	18.9	0.4	19.0
4400065	99	DIRN	SUR	40	-74	3398	0	0	18.0	9.7	20.4
4400066	99	DIRN	SUR	40	-73	3642	0	0	14.9	8.9	17.4
4400072	99	DIRN	SUR	37	-76	986	0	0	26.7	-5.0	27.2
4400073	99	DIRN	SUR	43	-71	202	0	0	19.2	4.7	19.8
4400075	99	DIRN	SUR	40	-71	3265	0	0	17.2	-10.2	20.0
4400076	99	DIRN	SUR	40	-71	3153	0	0	14.4	-12.7	19.3
4400077	99	DIRN	SUR	40	-71	3328	0	0	13.0	-13.6	18.8
44005	99	DIRN	SUR	43	-69	1952	0	0	13.7	1.0	13.8
44007	99	DIRN	SUR	44	-70	5960	0	0	20.2	6.3	21.1
44008	99	DIRN	SUR	41	-69	5708	0	0	16.4	11.8	20.2
44009	99	DIRN	SUR	39	-75	5202	0	0	18.1	9.5	20.5
44013	99	DIRN	SUR	42	-71	3125	0	0	13.8	6.1	15.1
44014	99	DIRN	SUR	37	-75	4998	0	0	18.6	6.3	19.6
44017	99	DIRN	SUR	41	-72	5262	0	0	17.1	7.0	18.4
44020	99	DIRN	SUR	42	-70	5416	0	0	14.6	9.9	17.6
44022	99	DIRN	SUR	41	-74	840	0	0	21.8	8.4	23.4
44025	99	DIRN	SUR	40	-73	977	19	0	89.7	-55.3	105.4
44027	99	DIRN	SUR	44	-67	1996	0	0	11.5	-2.8	11.8
44029	99	DIRN	SUR	43	-71	1081	0	0	14.7	0.9	14.7
44030	99	DIRN	SUR	43	-70	846	0	0	18.3	12.7	22.2
44032	99	DIRN	SUR	44	-69	1283	0	0	15.2	0.3	15.2

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	1110	0	0	17.7	2.9	18.0
44034	99	DIRN	SUR	44	-68	1278	0	0	12.4	5.5	13.6
44037	99	DIRN	SUR	44	-68	1088	0	0	37.2	31.3	48.6
44039	99	DIRN	SUR	41	-73	51	0	0	19.3	11.4	22.4
44040	99	DIRN	SUR	41	-74	1102	0	0	18.7	1.7	18.8
44042	99	DIRN	SUR	38	-76	5204	0	0	21.6	4.3	22.0
44058	99	DIRN	SUR	38	-76	5884	0	0	20.3	1.1	20.3
44062	99	DIRN	SUR	39	-76	5880	0	0	23.3	2.0	23.4
44063	99	DIRN	SUR	39	-76	6590	0	0	19.2	0.3	19.2
44065	99	DIRN	SUR	40	-74	4961	0	0	17.5	9.3	19.8
44066	99	DIRN	SUR	40	-73	6021	0	0	13.6	7.4	15.5
44072	99	DIRN	SUR	37	-76	1190	0	0	29.3	-4.1	29.6
44073	99	DIRN	SUR	43	-71	455	3	0	44.9	-3.4	45.0
44075	99	DIRN	SUR	40	-71	4420	0	0	16.7	-10.9	20.0
44076	99	DIRN	SUR	40	-71	4397	0	0	14.3	-12.8	19.2
44077	99	DIRN	SUR	40	-71	4556	0	0	13.2	-13.8	19.1
44137	99	DIRN	SUR	42	-62	8	0	0	0.8	5.1	5.2
44139	99	DIRN	SUR	44	-57	719	0	0	12.3	5.3	13.3
44150	99	DIRN	SUR	43	-64	775	0	0	18.5	12.4	22.3
44258	99	DIRN	SUR	45	-63	745	0	0	16.1	1.2	16.1
44489	99	DIRN	SUR	46	-61	706	0	0	17.0	-1.1	17.1
44490	99	DIRN	SUR	45	-66	493	0	0	18.4	2.1	18.5
6100198	99	DIRN	SUR	37	-2	400	0	0	20.0	-2.6	20.1
6100281	99	DIRN	SUR	40	0	213	0	0	27.4	2.3	27.5
6100417	99	DIRN	SUR	38	0	410	0	0	14.4	6.9	16.0
6200024	99	DIRN	SUR	44	-3	490	0	0	19.5	3.7	19.8
6200025	99	DIRN	SUR	44	-6	373	0	0	16.5	-3.6	16.9
6200082	99	DIRN	SUR	44	-8	356	0	0	13.2	-1.9	13.3
6200083	99	DIRN	SUR	43	-9	558	0	0	15.0	3.6	15.4
6200084	99	DIRN	SUR	42	-9	437	0	0	14.4	14.9	20.8
6200085	99	DIRN	SUR	36	-7	538	0	0	17.2	-1.4	17.3
6200091	99	DIRN	SUR	53	-5	417	0	0	12.5	0.2	12.5
6200092	99	DIRN	SUR	51	-11	661	0	0	12.2	1.0	12.2
6200093	99	DIRN	SUR	55	-10	661	0	0	10.5	1.5	10.6
6200094	99	DIRN	SUR	52	-7	662	0	0	11.2	4.5	12.1
62001	99	DIRN	SUR	45	-5	1475	0	0	15.0	6.3	16.3
62029	99	DIRN	SUR	49	-12	1576	0	0	13.0	10.7	16.9
62081	99	DIRN	SUR	51	-13	1615	0	0	10.9	-3.1	11.4
62103	99	DIRN	SUR	50	-3	1602	0	0	12.5	7.0	14.3
62112	99	DIRN	SUR	58	0	1677	0	0	10.1	-2.4	10.4
62114	99	DIRN	SUR	58	0	2785	0	0	9.5	0.5	9.5

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62305	99	DIRN	SUR	50	0	2298	0	0	10.8	6.3	12.5
64041	99	DIRN	SUR	61	-3	283	0	0	8.9	5.6	10.5

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE09	ATGU3FT	BPMWB2N	CHQUR4G	DBLK	FPUW5GN	HTXUH4H	JNKN7JF	KJJF9XN
KMPLHPW	LRYQE3U	UXK5JTU	WDK38HS	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	2EERVTP
7JUNA4N	01001	01004	01010	01028	01241	01400	01415	01492
02365	02527	02836	02963	03005	03238	03354	03502	03743
03808	03882	03918	03953	04018	04089	04220	04270	04320
04339	04360	06011	06260	06458	06610	07110	07145	07510
07645	07761	08001	08023	08190	08221	08302	08383	08430
08508	08522	08536	10035	10113	10184	10238	10304	10393
10410	10548	10618	10739	10771	10868	10954	10962	11010
11035	11120	11240	11520	11747	11952	12120	12374	12425
12843	12982	13275	13388	14015	14240	14430	15420	15614
16045	16064	16113	16144	16245	16332	16429	16546	16622
16716	16754	17030	17064	17095	17130	17196	17220	17240
17351	17607	20674	22008	23205	23472	23884	24908	26038
26435	26708	26850	27459	27707	27713	28225	28661	29612
29698	30673	33008	33041	37789	40179	40186	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	60096	60155	60390	60571	60630	60656	60680
61660	61901	61980	61998	63894	63985	68263	68424	68442
68512	68816	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	71913	71917	71924
71925	71926	71934	71945	71957	71964	72201	72206	72208
72210	72214	72215	72230	72233	72235	72240	72248	72249
72250	72251	72261	72265	72274	72293	72305	72317	72318
72327	72340	72363	72364	72365	72376	72388	72403	72413
72426	72440	72451	72476	72489	72493	72501	72518	72520
72528	72558	72562	72572	72582	72597	72632	72634	72645
72649	72659	72662	72672	72681	72694	72712	72764	72768
72776	72786	72797	73033	73110	74389	74560	76225	76256
76394	76405	76458	76526	76595	76612	76654	76679	76692
76743	76805	76903	78897	78954	81405	83768	85442	85586
85799	85934	87155	87344	87576	87623	87715	87860	88889
89002	89062	89564	89571	89592	89611	89625	89642	89662
89859	91165	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
94461	94510	94578	94610	94637	94638	94653	94659	94672
94711	94767	94776	94802	94821	94866	94910	94975	94995
94996	94998	95282	95527	96996				

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

ASDE09	ATGU3FT	BPMWB2N	CHQUR4G	FPUW5GN	HTXUH4H	JNKN7JF	KJJF9XN	KMPLHPW
LRYQE3U	USSAL	UXK5JTU	WDK38HS	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	2EERVTP
7JUNA4N	01010	01028	01415	01492	02365	02527	02836	02963
03953	06610	07110	07145	07510	07645	07761	08001	08023
08190	08221	08302	08383	08430	08536	11010	11035	11120
11240	17607	40186	47155	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	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
63894	66160	69003	72413	76743	76903	89642	89859	91925
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.