ECMWF Global Data Monitoring Report

March 2024

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 30 (Nov 23) - Coverage charts for AIREP/AMDARs updated:
Added MODE-S and ADS-C to Figure 5 and Figure 18

Revision 29 (Dec 22) - Coverage charts for ATOVS AMSU-A updated:
METOP-C replaces Aqua-ATOVS (Figure 9.2)
METOP-B replaces METOP-ATOVS (Figure 9.3)
SATOB figures updated with METEOSAT-9, Dual-Metop,
METEOSAT-11, GOES-16, HIMAWARI-9, GOES-17 satellites

Revision 28 (Jun 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	Feb	Mar	Ident	Time	Feb	Mar
04089	(12)	29	0	01001	(12)	34	49
30309	(00)	16	0	01028	(12)	32	61
30309	(12)	12	0	02185	(00)	6	28
30635	(00)	29	8	30372	(00)	0	16
30635	(12)	26	8	30372	(12)	0	16
30715	(00)	18	0	40650	(12)	9	23
30715	(12)	20	0	42182	(12)	2	31
34731	(00)	28	16	42516	(00)	3	20
41883	(00)	24	13	48431	(00)	0	16
41891	(00)	16	0	48500	(00)	0	20
47600	(00)	19	0	48568	(00)	0	23
65578	(00)	12	0	64500	(00)	4	25
65578	(12)	16	0	64500	(12)	4	54
66390	(12)	25	10	71907	(00)	6	28
82193	(00)	29	2	72261	(00)	0	12
82332	(00)	29	11	72261	(12)	0	12
82332	(12)	29	11	76225	(00)	11	30
82532	(00)	21	0	76225	(12)	12	28
82599	(00)	28	8	76256	(00)	0	28
82705	(00)	21	3	76256	(12)	4	29
83554	(00)	28	6	76458	(00)	12	29
89009	(00)	27	15	76654	(00)	7	30
89664	(12)	25	9	76654	(12)	8	30
96315	(00)	23	0	76679	(00)	6	31
98233	(12)	24	2	82022	(00)	1	31
98328	(12)	22	0	82022	(12)	1	31
98747	(12)	18	0	82244	(00)	2	27
-	-	-	-	82411	(00)	7	18
-	-	-	-	83612	(00)	0	15
-	-	-	-	83612	(12)	0	17
-	-	-	-	98444	(12)	1	21

2.2 Drifting Buoys

Surface pressure observations from **1401** 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.

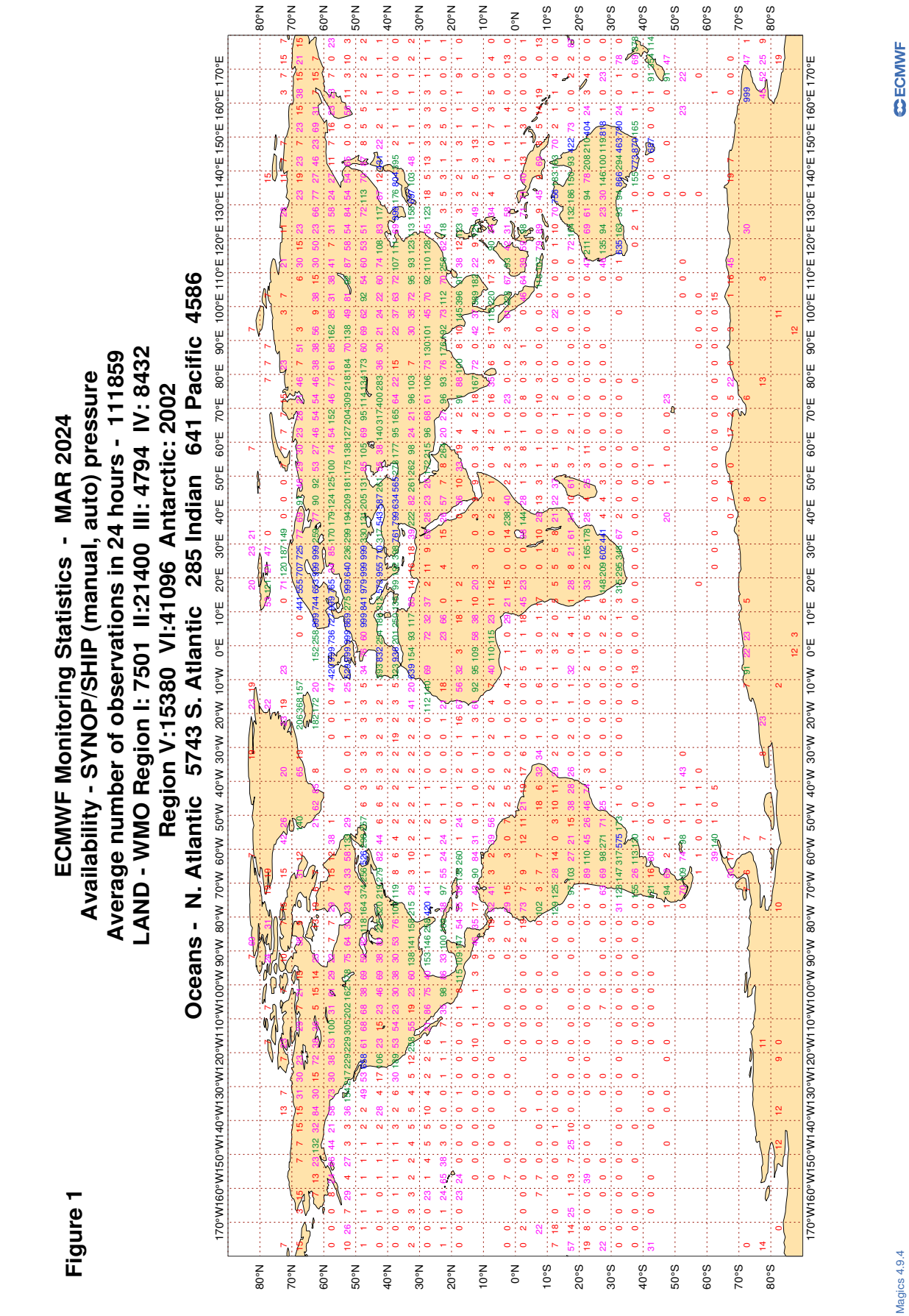
Tab	Parameter	Observation Time
10	Geopotential	00 and 12 UTC
11	Wind	00 and 12 UTC

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



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

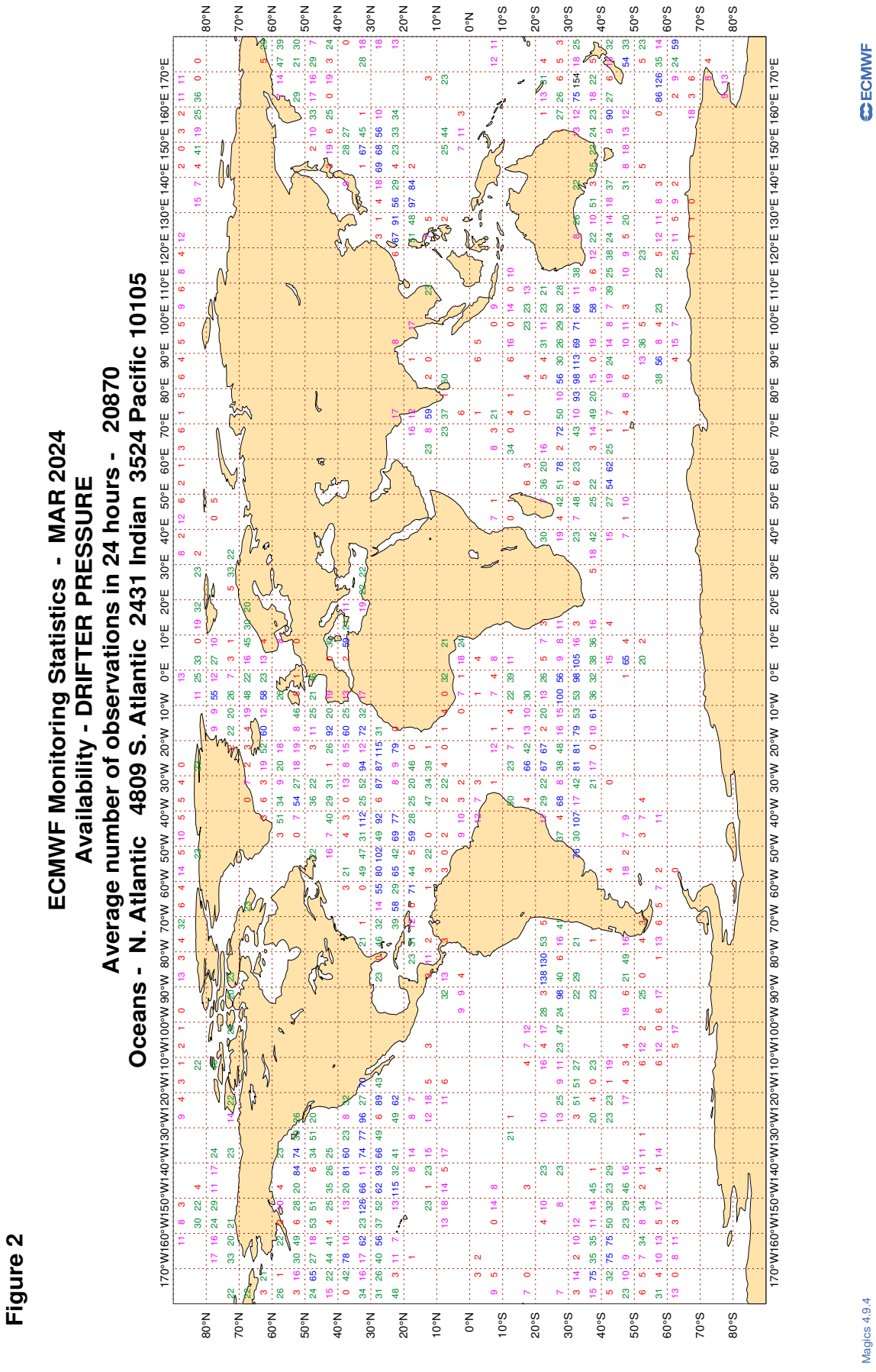
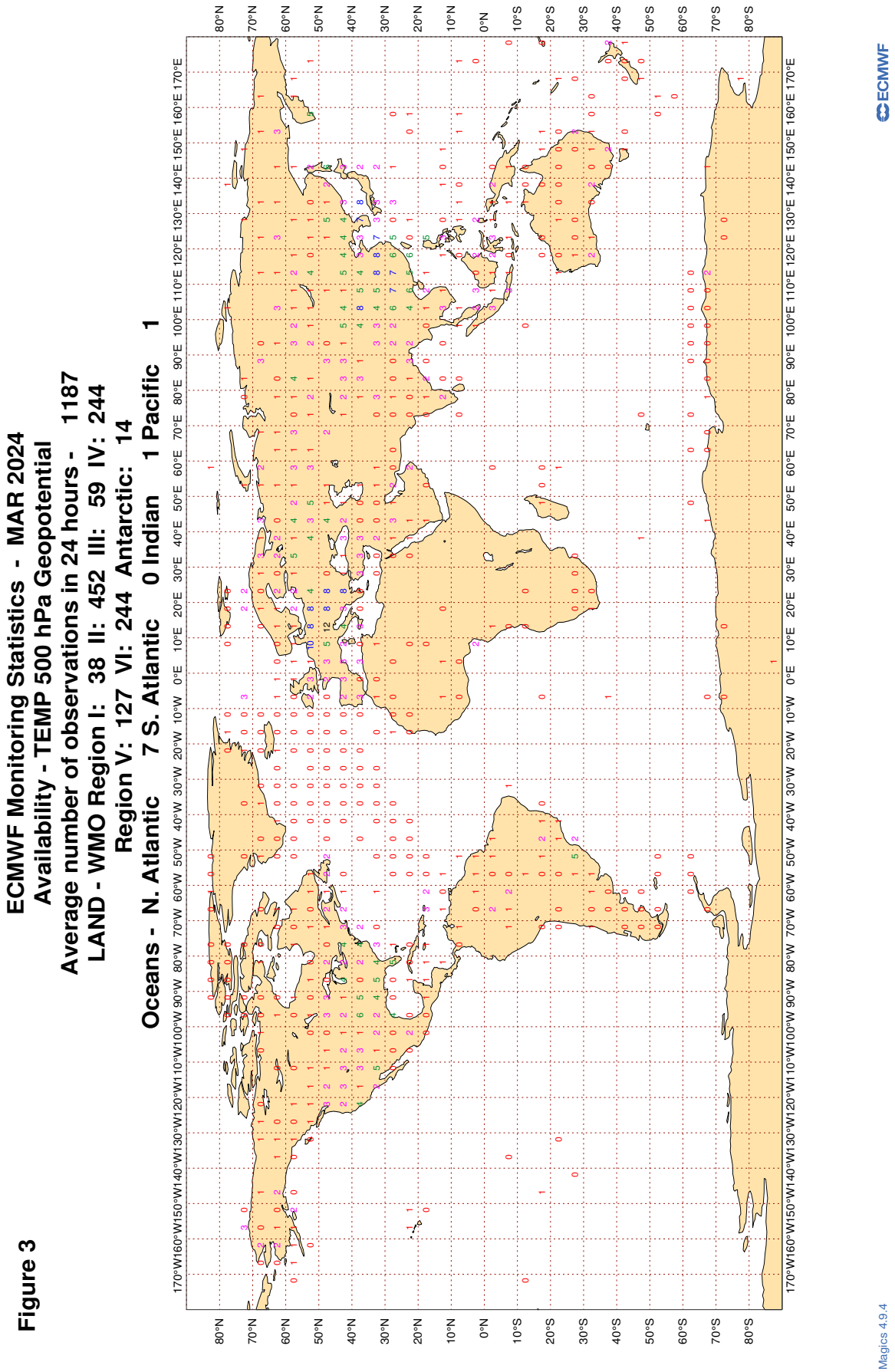
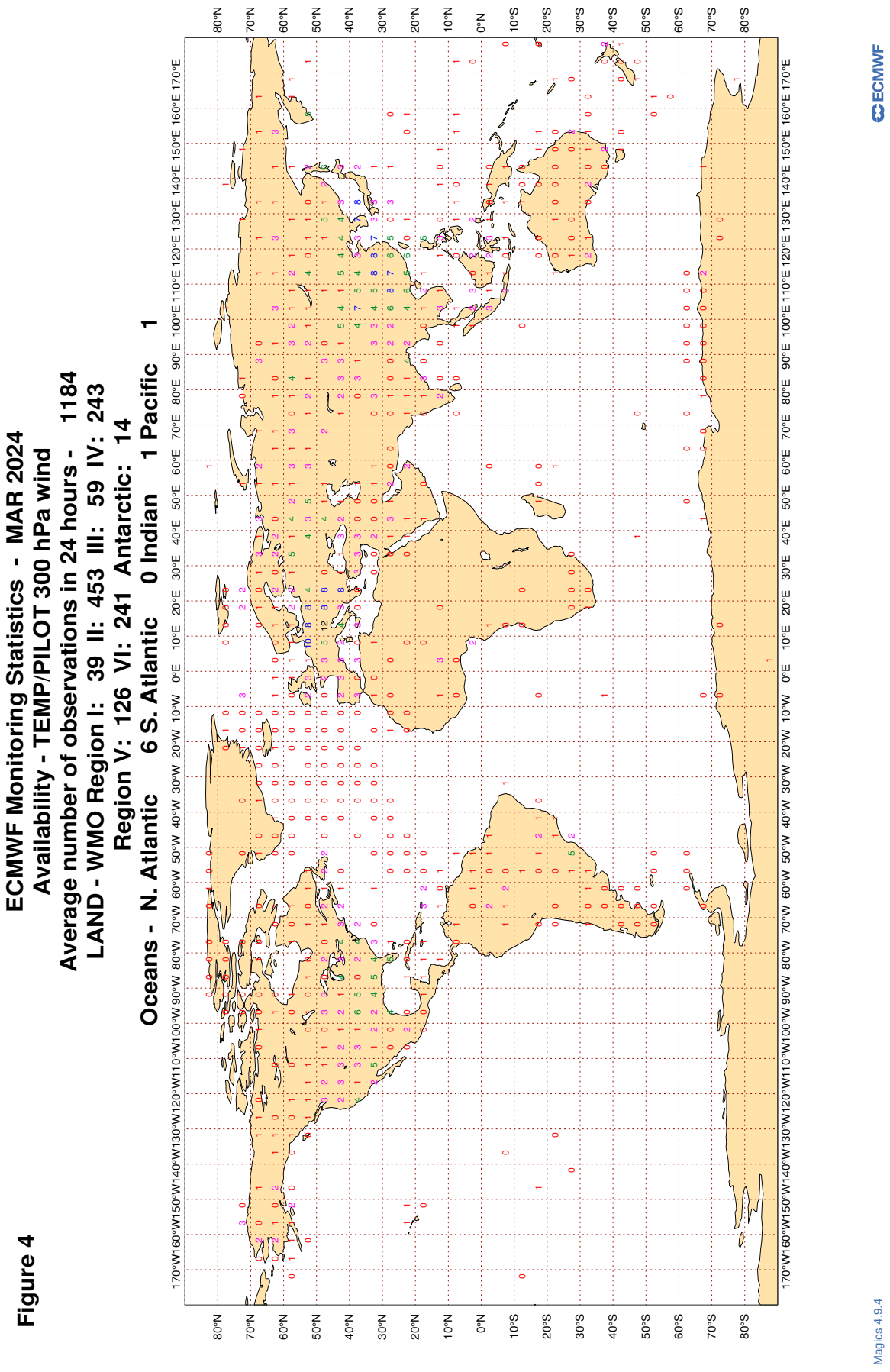


Figure 2

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential



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



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

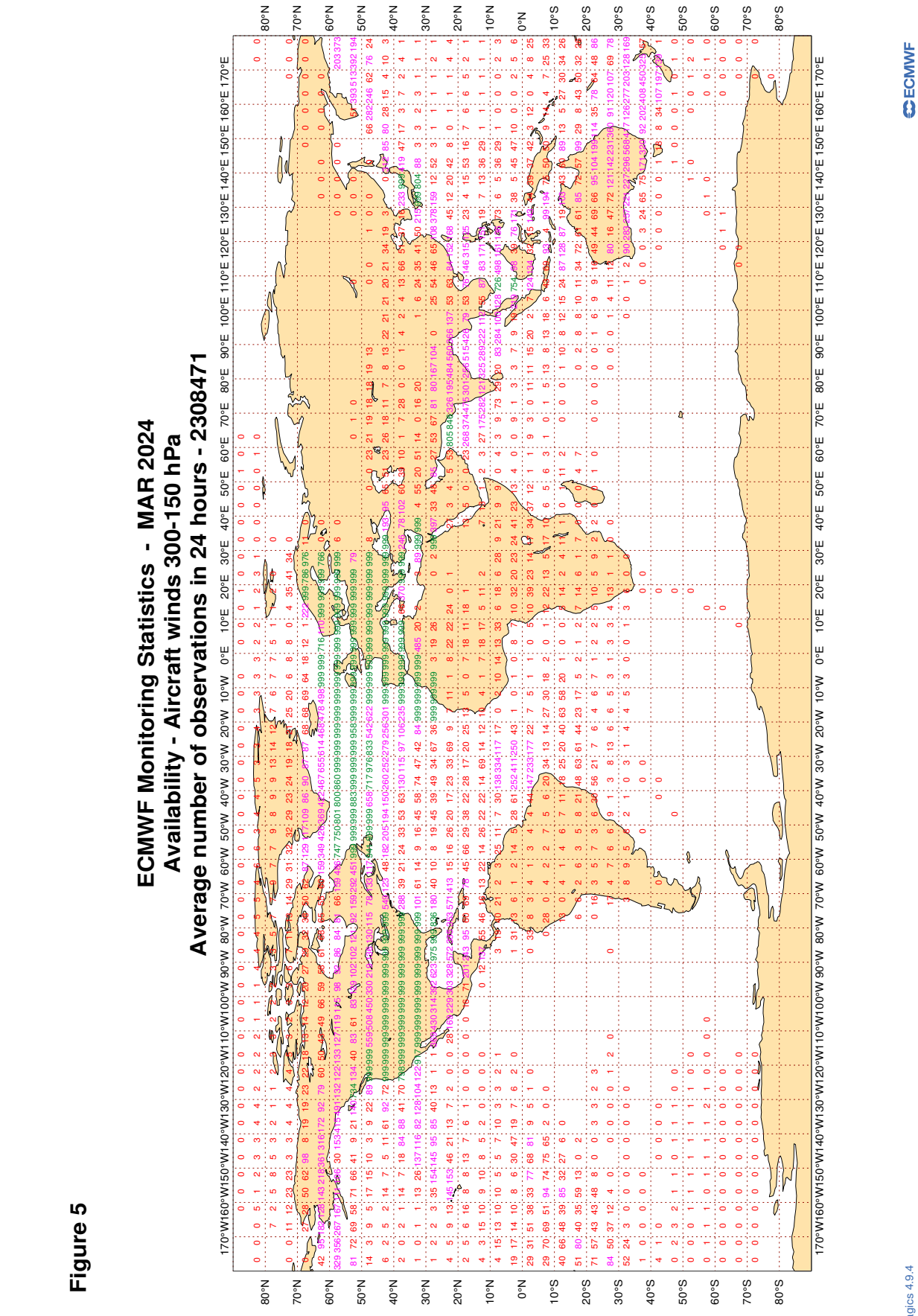
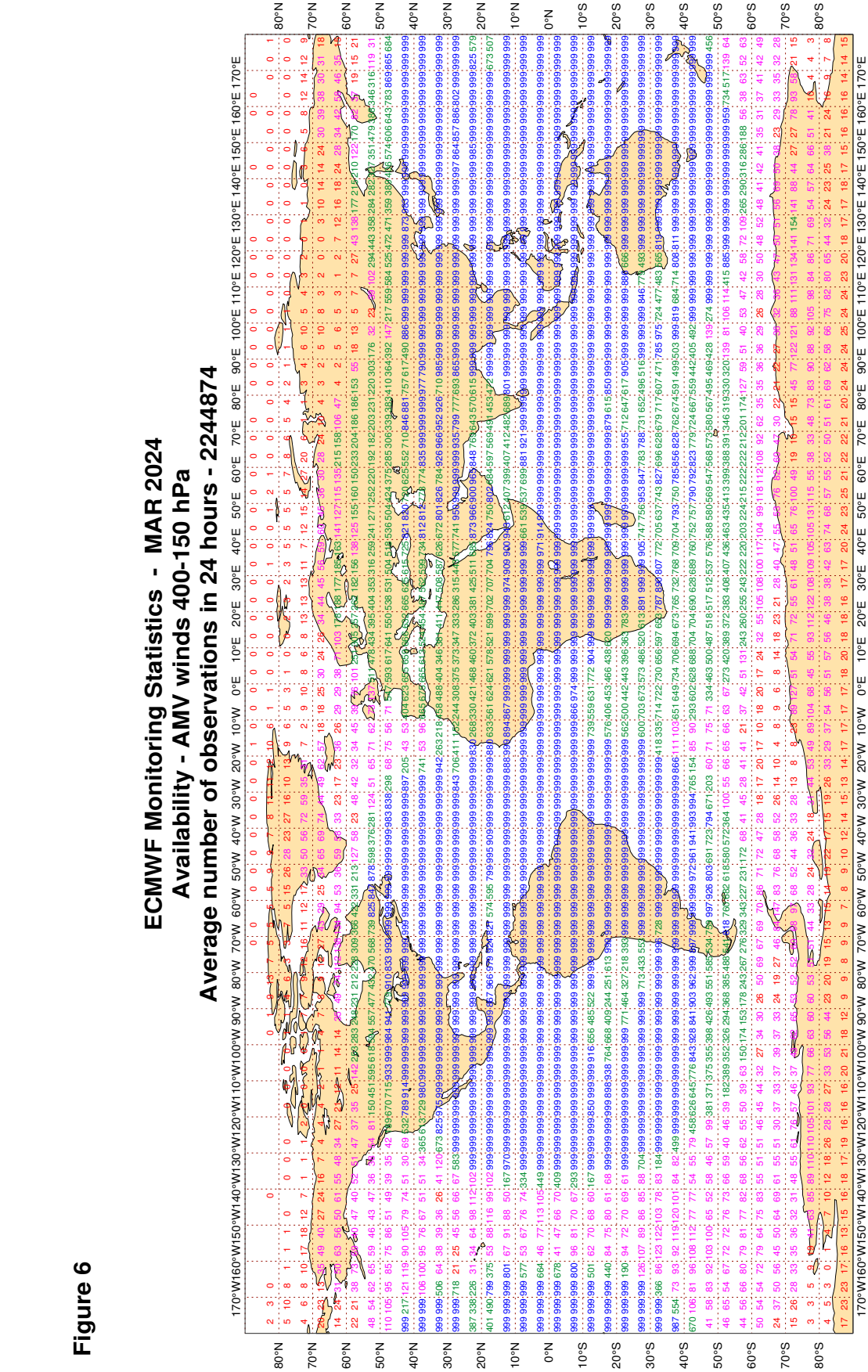


Figure 5

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

Figure 6



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

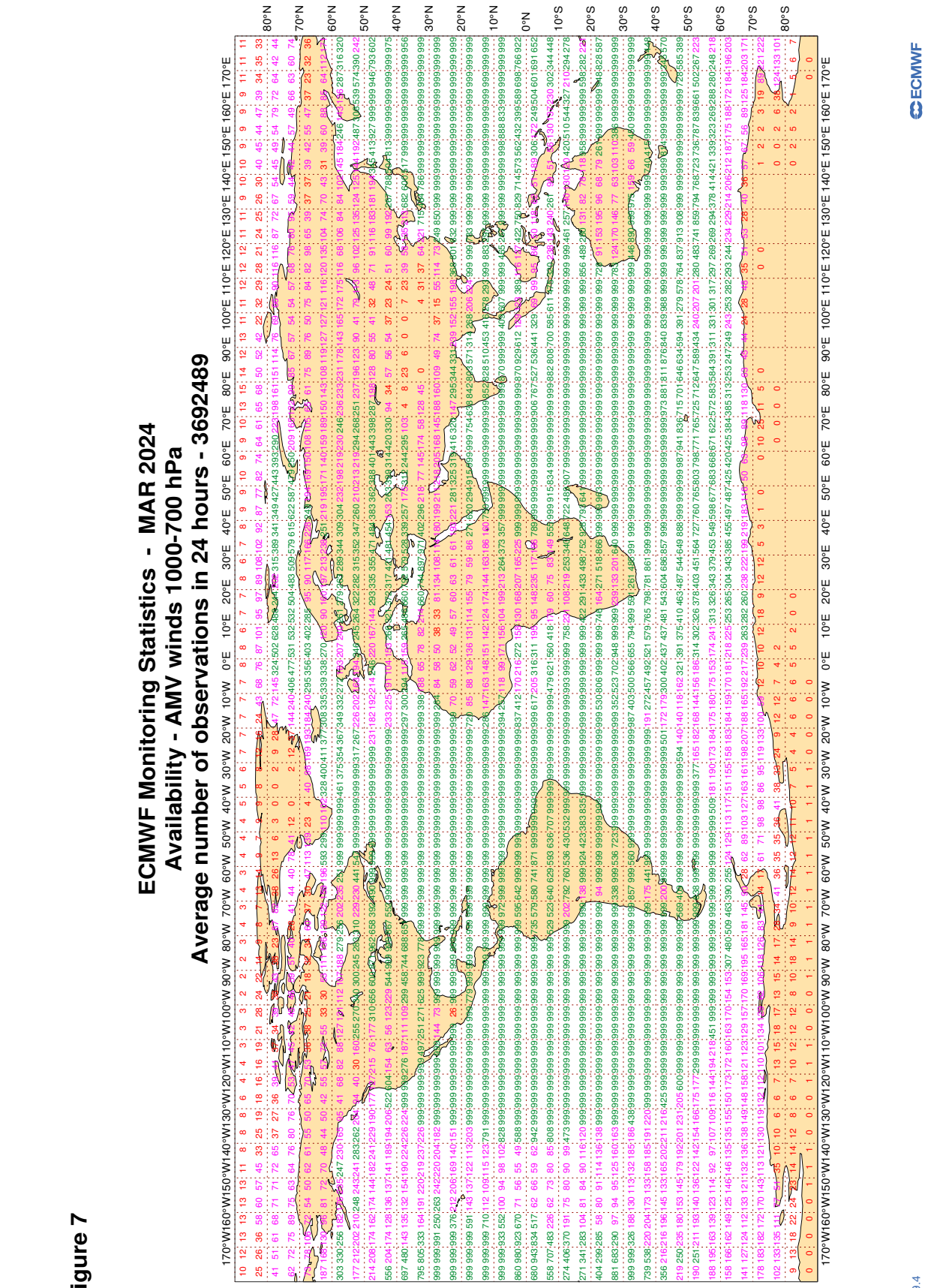
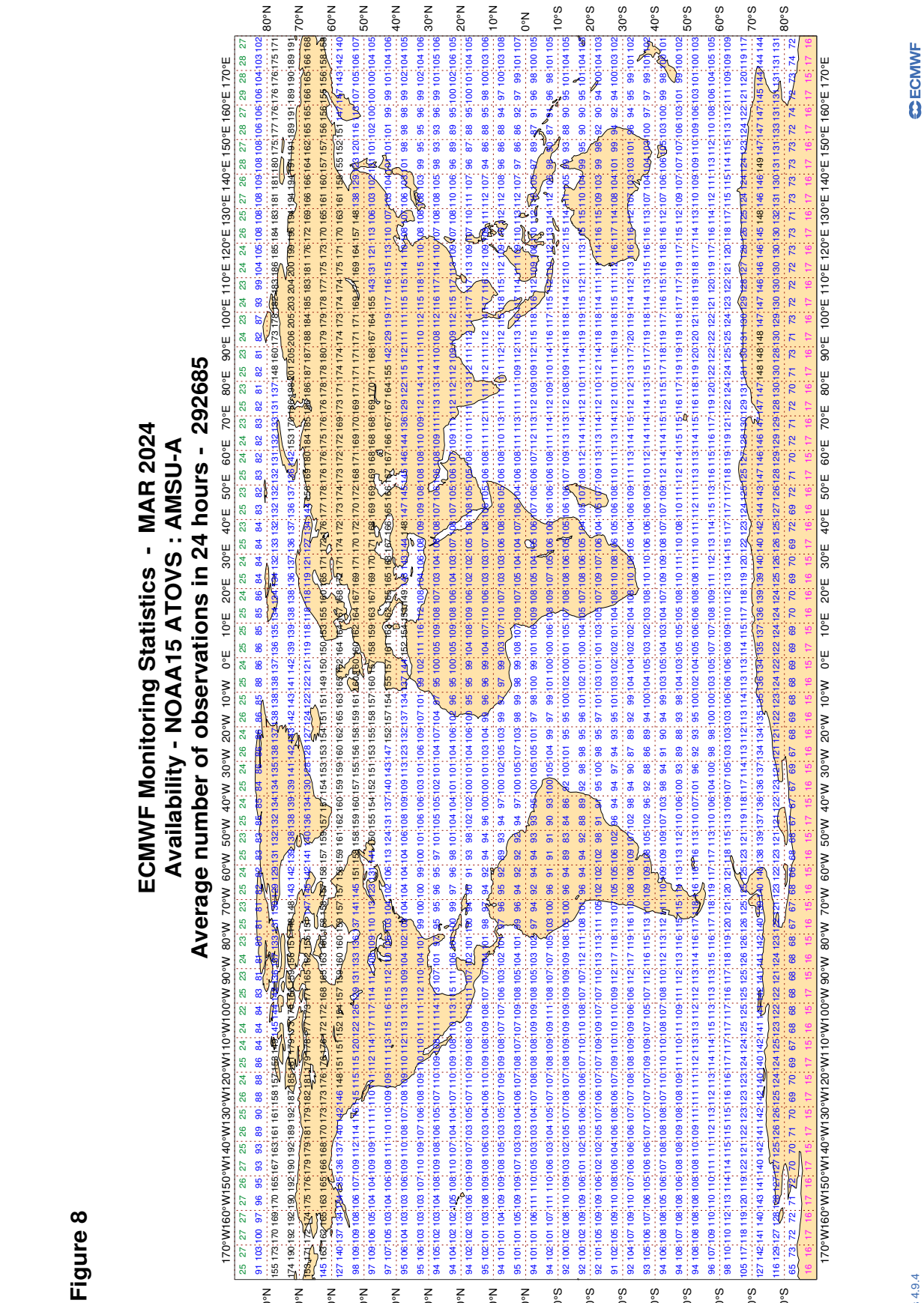


Figure 7

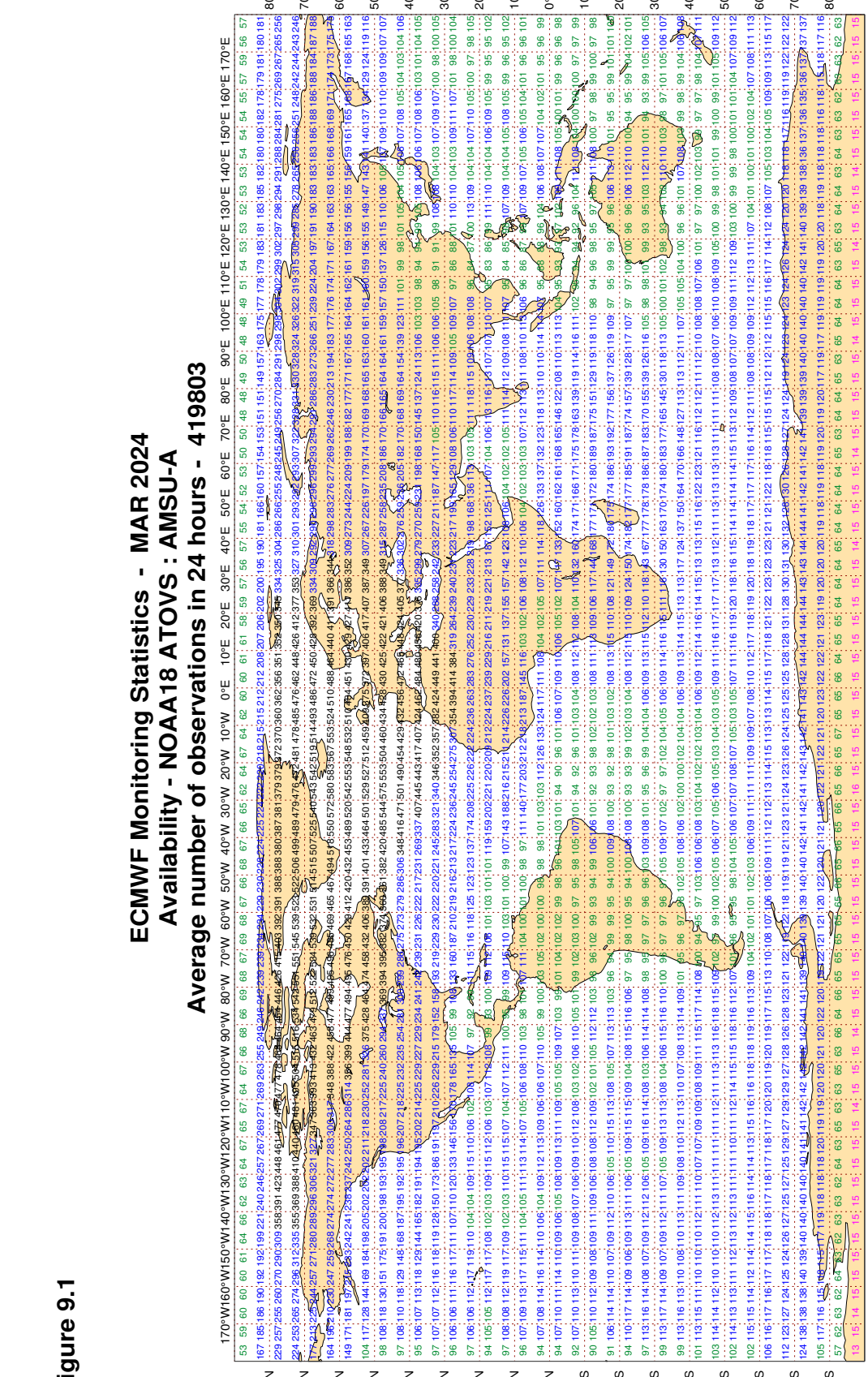
3.2.8 Figure 8 - Availability - NOAA15 ATOVS : AMSU-A

Figure 8



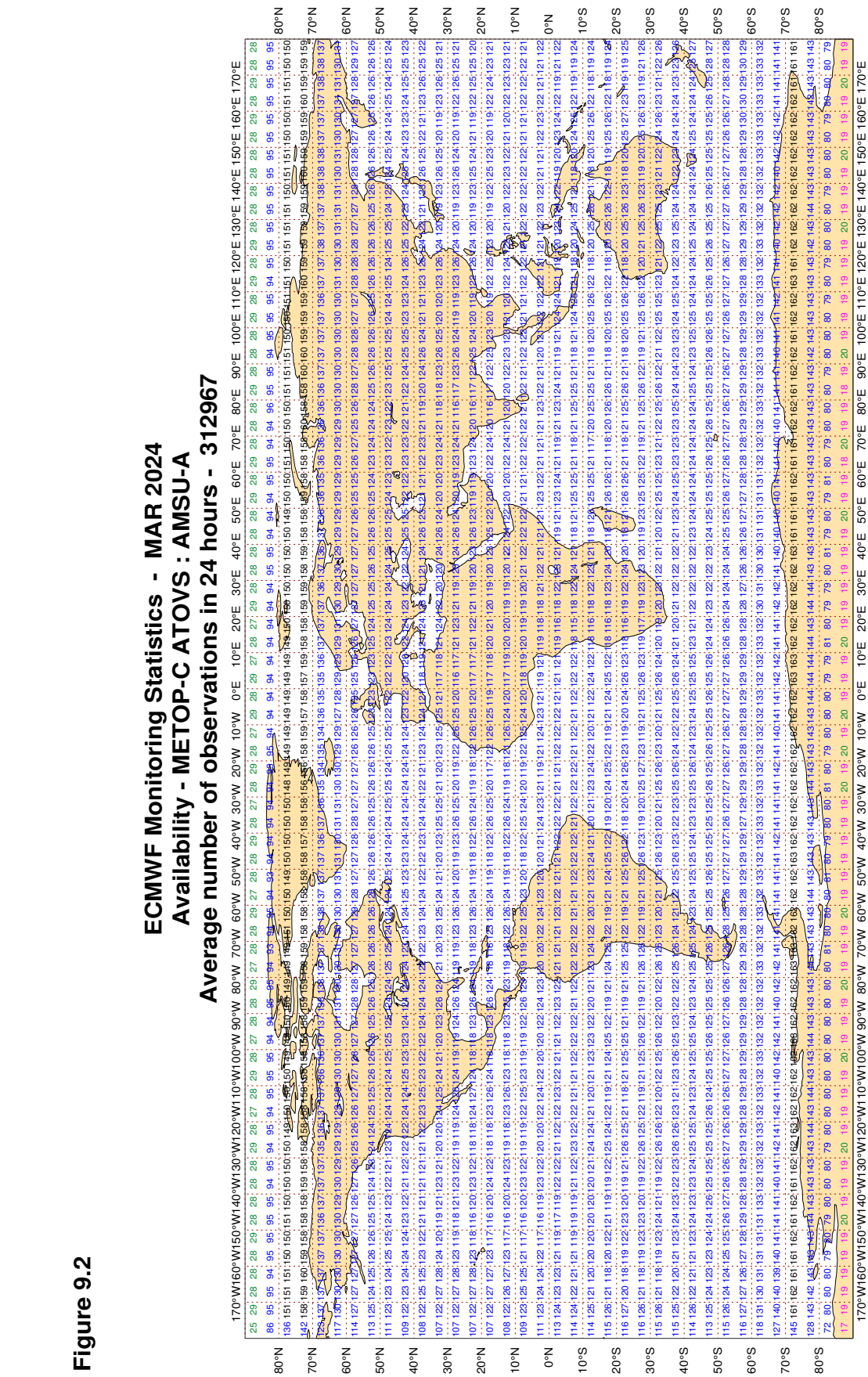
3.2.9 Figure 9.1 - Availability - NOAA18 ATOVS : AMSU-A

Figure 9.1



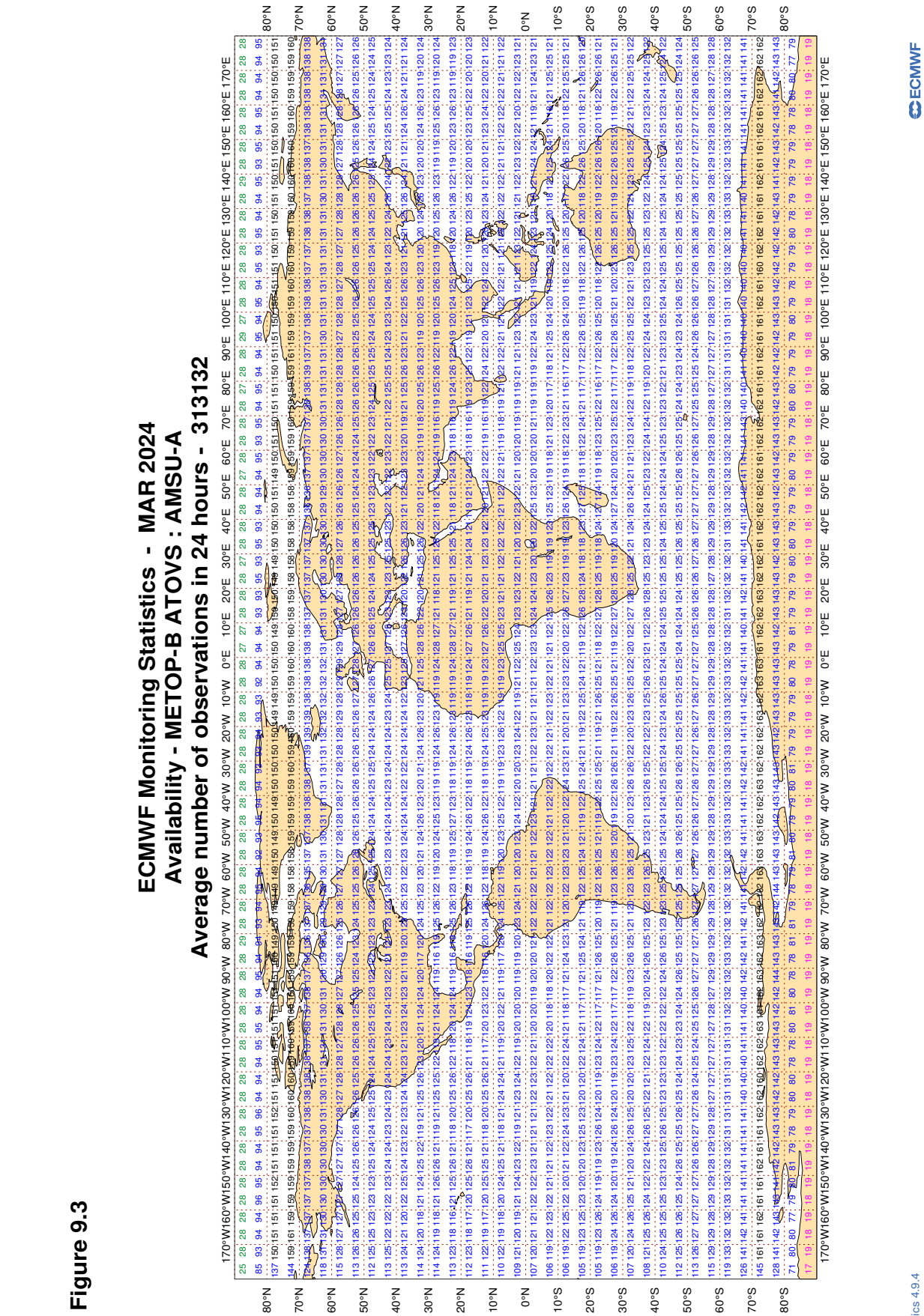
3.2.10 Figure 9.2 - Availability - AQUA ATOVS : AMSU-A

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)

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          LIST OF SUSPECT STATIONS        : SHIPS + FIXED MARINE PLATFORMS
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : SURFACE PRESSURE (HPA)
                    AREA                  : GLOBAL
                    PERIOD                : MAR 2024
                    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
2HDG2	99	P	SUR	22	1	1.5	3.8	4.1
3E3566	99	P	SUR	31	0	1.1	4.7	4.9
3EBY2	99	P	SUR	41	35	1.0	13.0	13.0
3EPL4	99	P	SUR	19	0	1.0	7.5	7.6
3FEN2	99	P	SUR	63	0	1.0	3.2	3.4
3FFA5	99	P	SUR	37	0	2.6	3.0	4.0
3FLO4	99	P	SUR	32	0	2.2	6.7	7.1
3FMI2	99	P	SUR	20	0	0.7	-5.6	5.6
3FOA6	99	P	SUR	51	0	2.2	4.2	4.7
3FZI8	99	P	SUR	22	0	3.6	4.5	5.7
443EJF3	99	P	SUR	16	0	1.5	5.8	6.0
5LCS5	99	P	SUR	36	0	0.8	-6.4	6.5
7JEX	99	P	SUR	18	0	0.8	-4.2	4.3
7JUN	99	P	SUR	31	0	0.8	-3.7	3.8
7KDA	99	P	SUR	17	0	0.7	-5.3	5.3
7KPK	99	P	SUR	23	0	0.7	-3.9	4.0
9HA4612	99	P	SUR	33	1	2.7	3.0	4.1
9HA4638	99	P	SUR	58	3	2.4	9.6	9.9
9HA4683	99	P	SUR	21	0	0.6	-3.4	3.5
9HA5063	99	P	SUR	110	0	4.1	6.4	7.7
9HA5209	99	P	SUR	95	6	2.3	10.5	10.8
9HA5370	99	P	SUR	72	0	2.8	4.8	5.5
9HJD9	99	P	SUR	31	0	1.8	3.4	3.8
9HSJ7	99	P	SUR	15	0	2.3	3.1	3.8
9V2728	99	P	SUR	15	0	2.1	6.2	6.5
9V3913	99	P	SUR	108	0	1.9	3.2	3.7
9V9402	99	P	SUR	36	6	1.5	11.8	11.8
9V9404	99	P	SUR	70	0	2.1	8.0	8.2
9V9450	99	P	SUR	65	0	3.1	7.1	7.8
A8HY8	99	P	SUR	61	0	0.7	-3.1	3.2
A8JM7	99	P	SUR	16	0	2.1	3.2	3.8
AUCU	99	P	SUR	37	0	0.4	3.2	3.2

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
AUTP	99	P	SUR	108	0	2.2	5.4	5.8
AUYR	99	P	SUR	33	0	1.3	3.5	3.7
AVBF	99	P	SUR	16	0	1.6	8.3	8.4
BNPC	99	P	SUR	113	4	7.7	1.0	7.7
C6PZ8	99	P	SUR	26	0	1.1	-3.0	3.2
C6SE5	99	P	SUR	19	0	0.9	-4.1	4.2
C6TX6	99	P	SUR	16	0	1.7	9.7	9.8
C6YM7	99	P	SUR	26	0	1.2	4.4	4.5
D5264	99	P	SUR	17	0	1.2	5.7	5.8
D5LW3	99	P	SUR	45	0	2.3	6.1	6.5
DUUFU3N	99	P	SUR	16	0	1.2	-5.6	5.7
FVU8WJS	99	P	SUR	112	1	5.8	-9.0	10.7
H3JW	99	P	SUR	64	0	2.4	3.9	4.5
KIAB	99	P	SUR	31	0	1.0	3.8	3.9
LAHR7	99	P	SUR	54	0	0.5	4.2	4.3
LAPE7	99	P	SUR	43	0	1.5	3.1	3.5
LAQL7	99	P	SUR	40	0	1.5	4.5	4.8
LAQO7	99	P	SUR	20	0	1.1	3.5	3.7
LOCW	99	P	SUR	70	0	1.5	-4.6	4.8
MJKZ4	99	P	SUR	17	0	1.4	6.7	6.8
OBAA	99	P	SUR	17	0	0.8	-6.7	6.8
SKEC	99	P	SUR	33	33	0.0	0.0	0.0
TNVXRHV	99	P	SUR	18	0	0.7	-5.8	5.9
UBBO5	99	P	SUR	16	4	0.9	-2.9	3.1
UCSJ	99	P	SUR	24	3	5.0	-5.5	7.4
UDKG	99	P	SUR	25	0	3.6	4.9	6.1
V7A4788	99	P	SUR	15	0	1.8	9.3	9.5
V7A6081	99	P	SUR	92	0	1.6	3.7	4.0
V7A6085	99	P	SUR	36	0	2.5	6.2	6.7
V7DJ7	99	P	SUR	15	2	3.4	10.6	11.1
V7QK9	99	P	SUR	90	0	1.8	3.2	3.7
VRCB4	99	P	SUR	19	0	0.5	-4.6	4.6
VRDW2	99	P	SUR	88	0	2.0	-3.8	4.2
VREX4	99	P	SUR	18	0	0.8	10.6	10.6
VRFI7	99	P	SUR	63	0	0.6	-4.0	4.0
VRFU8	99	P	SUR	19	0	1.0	-5.8	5.9
VRGO2	99	P	SUR	29	0	2.7	4.2	5.0
VRGO8	99	P	SUR	31	0	0.6	5.2	5.3
VRME7	99	P	SUR	19	0	1.1	9.0	9.1
VROO3	99	P	SUR	76	1	5.2	4.2	6.6
VROO4	99	P	SUR	17	0	1.2	9.7	9.8

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
VROO6	99	P	SUR	23	0	1.5	4.7	4.9
VRRH6	99	P	SUR	15	0	1.1	5.2	5.3
VRTF2	99	P	SUR	36	0	2.0	4.6	5.0
VRV03	99	P	SUR	26	0	1.4	3.2	3.5
VRVC6	99	P	SUR	20	0	0.7	4.3	4.3
VRVR2	99	P	SUR	41	0	0.9	-6.4	6.5
VRZK8	99	P	SUR	15	0	1.1	3.4	3.6
VTEO	99	P	SUR	67	1	2.3	3.0	3.8
VTGP	99	P	SUR	22	0	1.3	-8.7	8.8
VTHYFYA	99	P	SUR	18	2	5.4	-1.3	5.5
VTKL	99	P	SUR	36	0	2.5	4.7	5.3
VTSJ	99	P	SUR	16	0	1.4	-9.5	9.6
VTVS	99	P	SUR	38	0	1.1	3.1	3.3
VTZJ	99	P	SUR	39	0	1.5	5.4	5.6
WCY2920	99	P	SUR	113	0	1.0	-4.4	4.5
WDK5676	99	P	SUR	122	0	0.7	-3.9	4.0
WGEB	99	P	SUR	110	0	0.5	5.9	5.9
WTAA	99	P	SUR	96	0	0.7	4.3	4.3
WTED	99	P	SUR	75	8	6.5	-4.6	8.0
WYM9567	99	P	SUR	123	0	0.9	-3.4	3.5
XJBH	99	P	SUR	112	1	5.8	-9.0	10.7
XSPQWLM	99	P	SUR	18	0	1.9	3.2	3.7
ZGFY4	99	P	SUR	26	0	0.9	-8.3	8.4

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                : MAR 2024
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS

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

```
          LIST OF SUSPECT STATIONS        : SHIPS + FIXED MARINE PLATFORMS
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
                    AREA                  : GLOBAL
                    PERIOD                : MAR 2024
                    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
44489	99	DIRN	SUR	96	0	0	15.6	-31.5	35.2
46036	99	DIRN	SUR	118	0	0	24.5	55.0	60.2
46145	99	DIRN	SUR	89	0	0	24.6	-44.2	50.6
46185	99	DIRN	SUR	71	2	0	46.5	-80.6	93.1

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                 : MAR 2024
                    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
1501727	99	P	SUR	-16	-39	118	0	0.4	-7.5	7.5
1501729	99	P	SUR	-29	-46	741	728	0.5	-14.6	14.6
1701718	99	P	SUR	12	-52	730	730	0.0	0.0	0.0
2101820	99	P	SUR	34	-178	741	27	7.4	0.3	7.4
2802115	99	P	SUR	-56	87	338	127	3.6	-2.4	4.3
3301523	99	P	SUR	-15	-39	743	0	0.3	-4.3	4.3
3301702	99	P	SUR	-40	-14	742	29	8.5	0.1	8.5
3401636	99	P	SUR	-31	-118	744	0	0.3	-5.4	5.4
3801564	99	P	SUR	-22	35	234	234	0.0	0.0	0.0
4601776	99	P	SUR	30	-129	570	23	6.4	-3.0	7.0
4602563	99	P	SUR	29	-165	743	34	0.7	13.5	13.6
4701558	99	P	SUR	79	-18	60	0	0.5	-4.7	4.7
4802506	99	P	SUR	58	-8	721	319	7.0	-4.5	8.3
4802662	99	P	SUR	70	-125	725	678	1.4	13.0	13.1
5102809	99	P	SUR	10	-109	117	117	0.0	0.0	0.0
5103563	99	P	SUR	30	-146	677	346	7.0	-7.5	10.2
5501563	99	P	SUR	-39	-147	744	138	4.4	-4.0	5.9
5501735	99	P	SUR	-47	-149	744	744	0.0	0.0	0.0
5601752	99	P	SUR	-42	158	282	83	5.0	3.2	5.9
6203744	99	P	SUR	79	9	436	146	2.4	0.1	2.4
6801915	99	P	SUR	46	-174	719	482	6.0	7.3	9.4
6801924	99	P	SUR	-20	58	113	0	0.5	-6.4	6.5
6801934	99	P	SUR	27	141	731	33	4.1	4.8	6.3
7801731	99	P	SUR	-65	128	562	187	3.5	1.8	3.9

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                : MAR 2024
                    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
2200107	99	SPEED	SUR	33	126	456	0	0	4.4	-5.2	6.8
6101008	99	SPEED	SUR	37	22	52	0	0	2.6	-5.5	6.1

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

```
          LIST OF SUSPECT STATIONS         : DRIFTER
                    MONITORING CENTRE      : ECMWF
                    ELEMENT MONITORED      : WIND DIRECTION (DEGREES)
                    PERIOD                 : MAR 2024
                    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
2200185	99	DIRN	SUR	37	125	527	0	0	62.5	36.5	72.4
2300095	99	DIRN	SUR	10	94	147	0	0	13.1	23.5	26.9
23095	99	DIRN	SUR	10	94	46	0	0	9.6	25.0	26.8
4100033	99	DIRN	SUR	32	-80	72	0	0	73.1	8.2	73.5
41033	99	DIRN	SUR	32	-80	66	0	0	71.2	4.3	71.3
4400488	99	DIRN	SUR	45	-61	359	0	0	23.2	-25.2	34.2
4400489	99	DIRN	SUR	45	-61	353	0	0	21.0	-29.5	36.2
44078	99	DIRN	SUR	60	-40	234	0	0	18.1	-23.9	30.0
44488	99	DIRN	SUR	45	-61	603	0	0	20.6	-26.2	33.4
44489	99	DIRN	SUR	46	-61	583	0	0	18.1	-30.6	35.6
4600036	99	DIRN	SUR	48	-134	689	4	0	23.4	57.2	61.8
4600145	99	DIRN	SUR	54	-132	563	0	0	19.8	-43.0	47.4
4600185	99	DIRN	SUR	53	-130	434	9	0	41.4	-84.7	94.3
46036	99	DIRN	SUR	48	-134	689	4	0	24.0	56.5	61.3
46145	99	DIRN	SUR	54	-132	548	0	0	19.8	-43.3	47.6
46185	99	DIRN	SUR	53	-130	425	8	0	39.4	-85.2	93.9
5100310	99	DIRN	SUR	-8	-170	326	0	0	24.6	-26.4	36.1
51310	99	DIRN	SUR	-8	-170	312	0	0	26.3	-25.7	36.7
6100280	99	DIRN	SUR	41	1	444	0	0	33.1	26.2	42.2
6200086	99	DIRN	SUR	55	7	69	0	0	12.9	29.7	32.4
6301004	99	DIRN	SUR	72	20	631	0	0	18.5	-38.1	42.4
6600022	99	DIRN	SUR	54	14	293	0	0	46.9	33.7	57.8

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                 : MAR 2024
                    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	29	0	3.8	73.6	73.7
01400	12	Z	1000	57	3	29	0	3.8	73.0	73.1
29231	12	Z	250	58	83	21	0	74.5	-42.9	86.0
29231	00	Z	250	58	83	25	1	69.3	-41.0	80.5
29862	00	Z	100	54	91	25	1	130.4	-4.2	130.5
31088	00	Z	100	59	143	31	0	31.9	103.8	108.6
36003	12	Z	250	52	77	30	0	40.6	59.6	72.1
38341	00	Z	250	43	71	26	6	145.6	-48.7	153.5
38341	12	Z	150	43	71	14	3	142.3	-37.5	147.2
41923	12	Z	1000	24	90	26	0	22.9	43.1	48.8
41923	00	Z	1000	24	90	27	0	17.6	42.6	46.1
42027	00	Z	200	34	75	19	9	97.5	-55.5	112.2
42123	12	Z	200	30	74	14	0	30.7	69.2	75.7
42220	00	Z	500	28	95	28	3	45.7	26.4	52.8
42339	12	Z	700	26	73	10	0	19.5	50.8	54.4
42348	12	Z	500	27	76	10	0	12.8	73.9	75.0
42623	00	Z	250	25	94	10	3	67.1	54.9	86.7
43128	12	Z	500	17	78	14	0	30.3	51.9	60.1
54374	00	Z	30	42	127	26	0	56.6	204.5	212.2
58424	00	Z	50	31	117	30	0	126.1	115.0	170.7
62403	12	Z	850	26	33	11	3	37.6	75.1	84.0
65548	12	Z	925	7	-8	11	0	11.8	30.6	32.8
68994	12	Z	850	-47	38	24	0	6.1	30.3	30.9
68994	00	Z	925	-47	38	25	0	6.0	29.7	30.3
78486	12	Z	1000	18	-70	31	0	0.0	30.7	30.7
78486	00	Z	1000	18	-70	29	0	4.4	32.3	32.6
91680	00	Z	1000	-18	177	27	0	3.5	31.3	31.5

LIST OF SUSPECT STATIONS (CONTINUED)

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
JNKN7J	12	Z	1000	45	-59	11	0	5.6	39.0	39.4
JNKN7J	00	Z	1000	46	-54	10	0	5.4	36.1	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                : MAR 2024
                    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
17607	12	V	100	35	33	24	0	-21.4	0.0	26.0
38341	12	V	150	43	71	13	1	-2.2	-9.6	17.7
38341	00	V	200	43	71	21	1	-3.0	-6.2	16.2
40179	00	V	100	32	35	18	0	-25.1	-0.6	29.6
40179	12	V	100	32	35	17	0	-22.7	-1.1	27.9
42027	00	V	150	34	75	19	0	-8.5	-0.5	18.2
42667	00	V	100	23	77	11	0	-7.8	-13.4	16.1

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                : MAR 2024
                    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
42667	00	DD	23	77	13	-29.9	7.9	6.1
48327	00	DD	19	99	26	-10.1	2.1	6.8
54340	00	DD	42	124	29	-11.7	1.0	5.3
54340	12	DD	42	124	31	-12.6	0.8	3.9

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

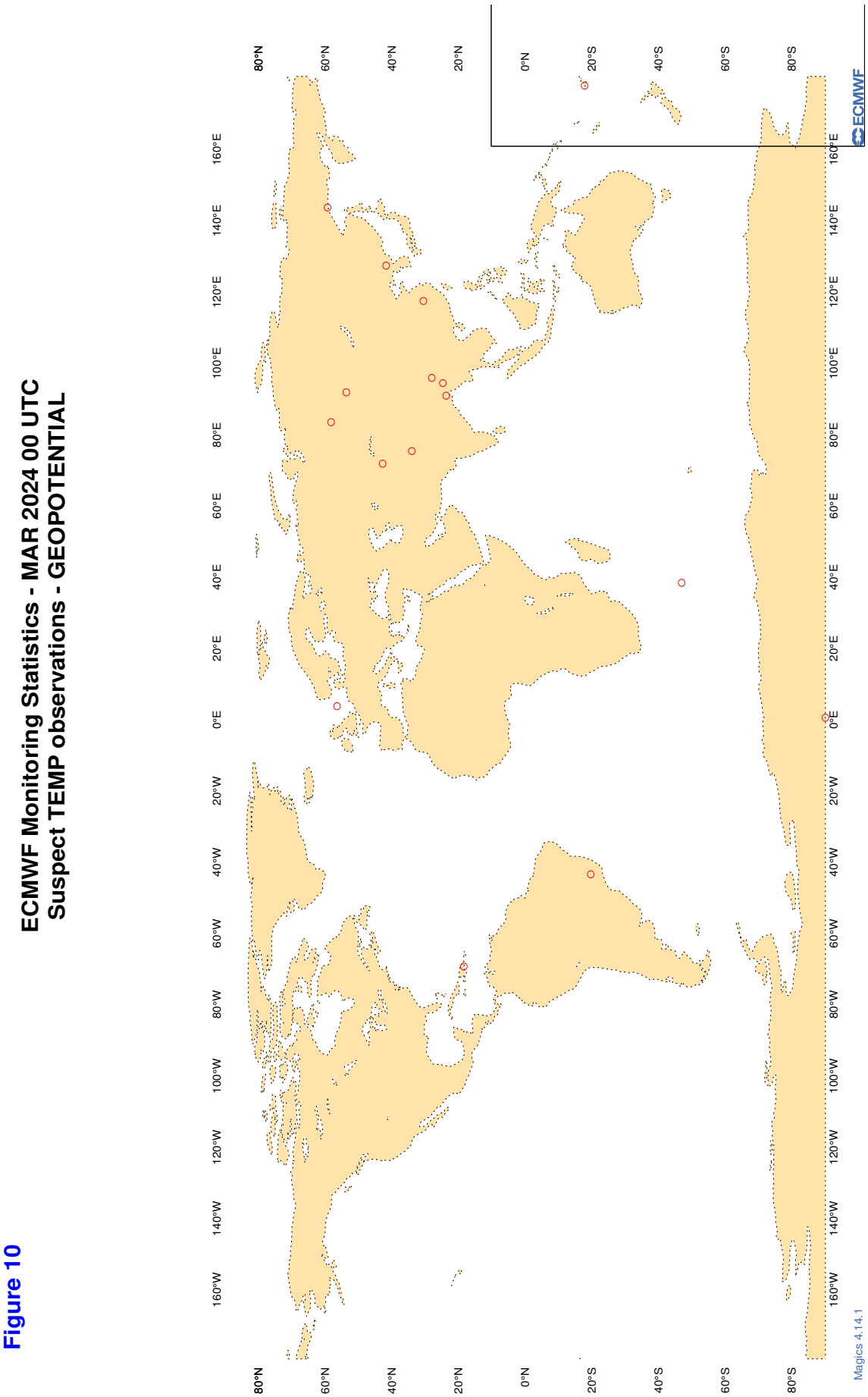
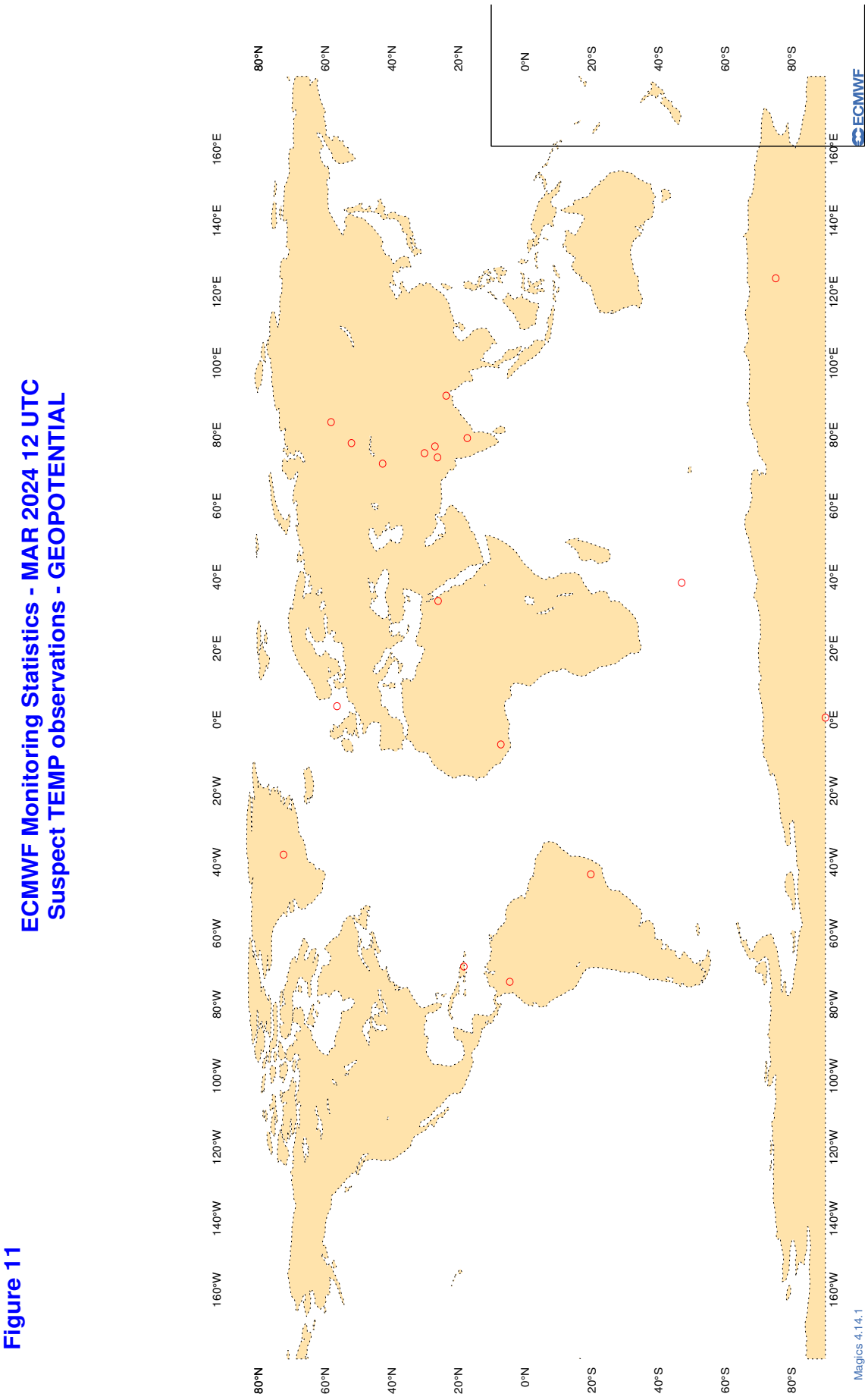
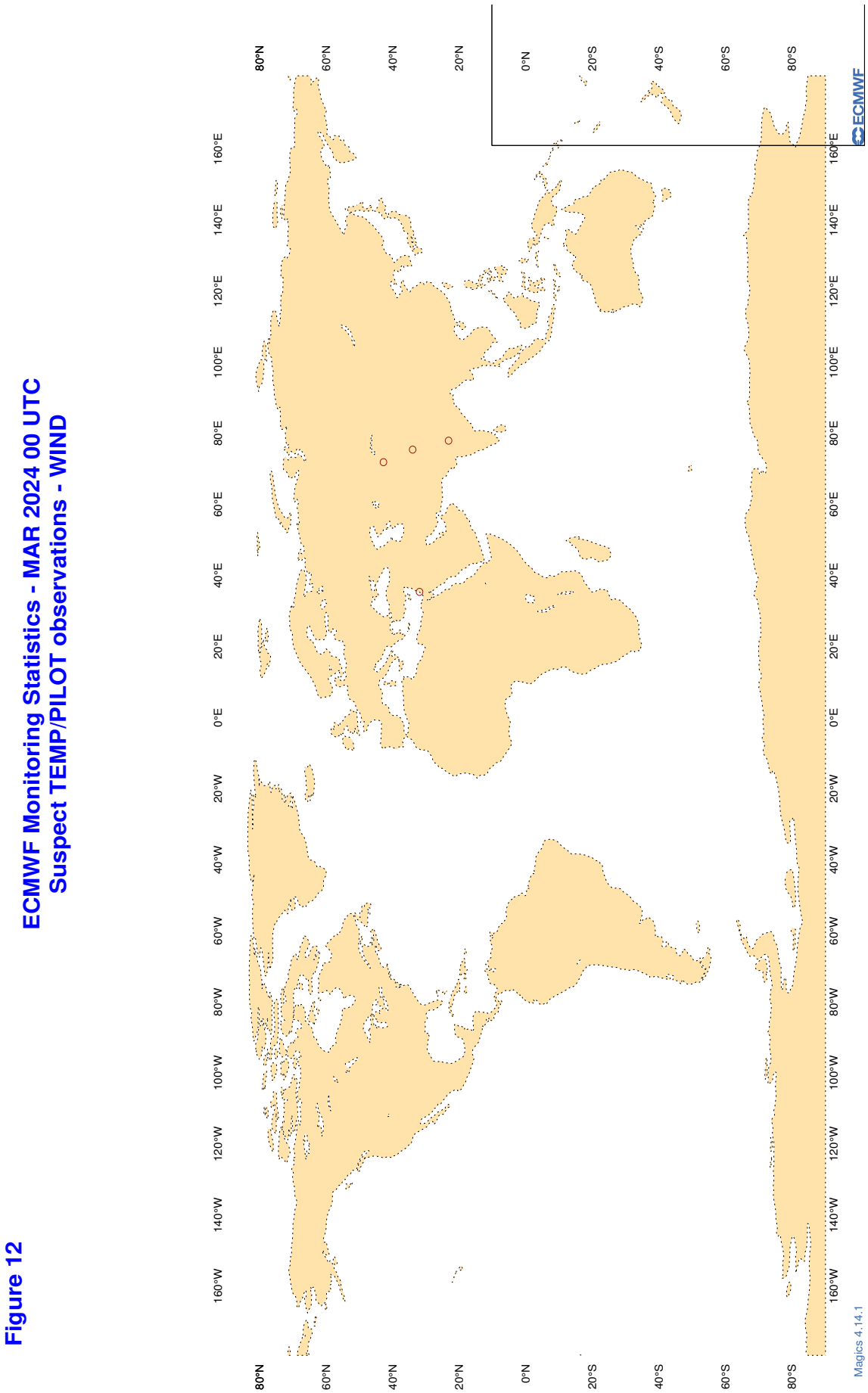


Figure 10

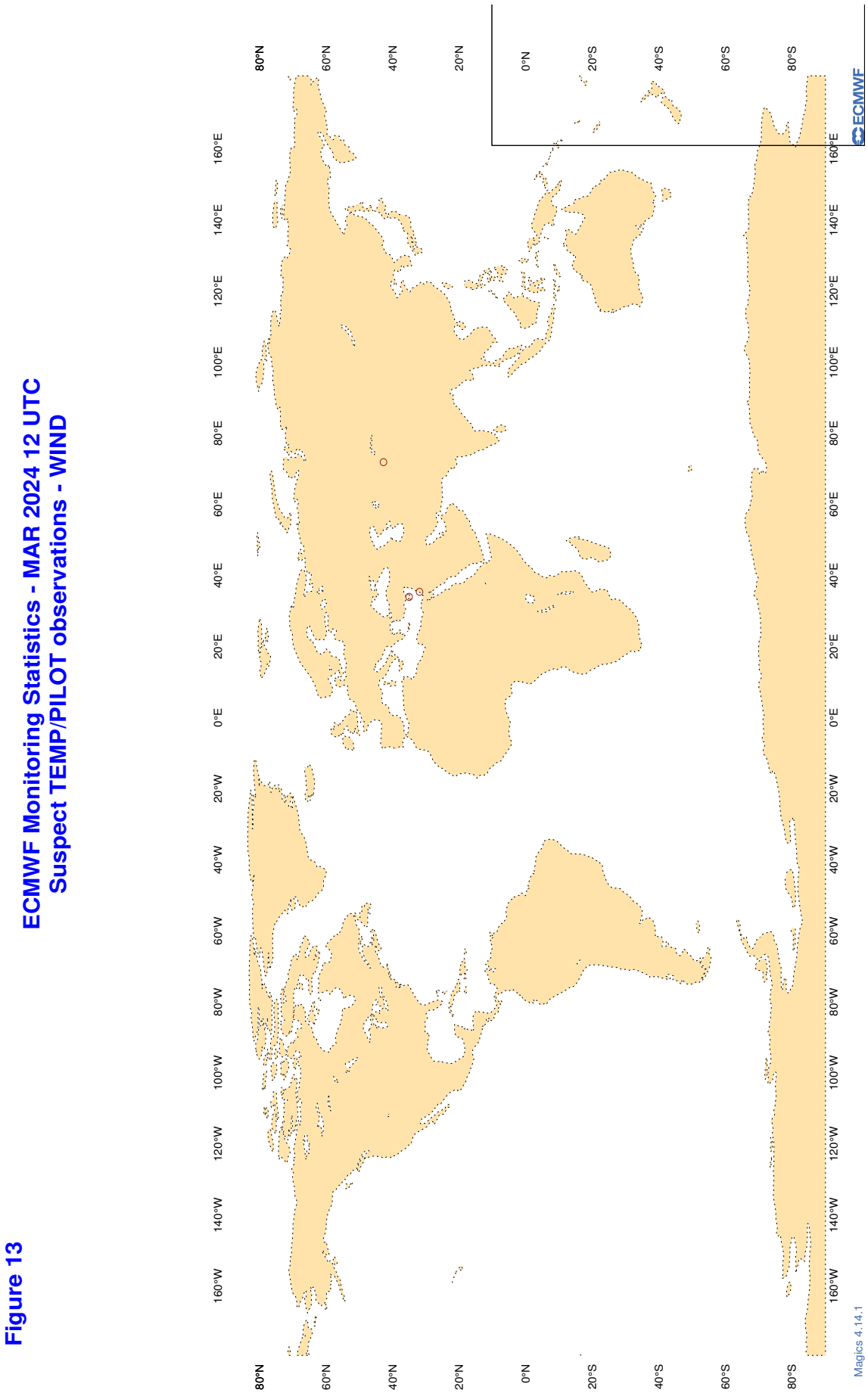
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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                : MAR 2024
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
2EERVT	12	Z	100	8	8.7	-1.7
2EERVT	00	Z	100	9	11.1	-9.2
7JUNA4	00	Z	100	0	0.0	0.0
7JUNA4	12	Z	100	0	0.0	0.0
ASDE09	12	Z	100	0	0.0	0.0
ATGU3F	12	Z	100	11	21.2	-8.1
ATGU3F	00	Z	100	13	22.6	-13.1
BPMWB2	12	Z	100	0	0.0	0.0
BPMWB2	00	Z	100	0	0.0	0.0
DBLK	12	Z	100	31	10.6	7.2
DBLK	00	Z	100	13	9.2	7.4
FPUW5G	12	Z	100	0	0.0	0.0
GQBZLZ	00	Z	100	0	0.0	0.0
GQBZLZ	12	Z	100	0	0.0	0.0
JNKN7J	12	Z	100	10	28.7	21.9
JNKN7J	00	Z	100	10	24.2	22.5
KMPLHP	00	Z	100	0	0.0	0.0
KMPLHP	12	Z	100	0	0.0	0.0
LAGY8	12	Z	100	0	0.0	0.0
LAGY8	00	Z	100	0	0.0	0.0
LAGZ8	12	Z	100	0	0.0	0.0
LRYQE3	12	Z	100	6	89.8	52.3
LRYQE3	00	Z	100	6	17.1	-10.4
USBOD	12	Z	100	3	12.9	6.7
USBOD	00	Z	100	4	26.1	-20.6
USCAT	00	Z	100	0	0.0	0.0
USSIO	00	Z	100	1	8.9	8.9
USYUB	12	Z	100	1	3.8	-3.8
USYUB	00	Z	100	5	17.8	-9.0
UXK5JT	00	Z	100	0	0.0	0.0
UXK5JT	12	Z	100	0	0.0	0.0
XKQLWQ	12	Z	100	0	0.0	0.0
YLV96W	00	Z	100	0	0.0	0.0
YLV96W	12	Z	100	0	0.0	0.0
ZVQEQC	12	Z	100	0	0.0	0.0

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                : MAR 2024
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
2EERVT	12	V	100	7	4.8	-0.1	0.5
2EERVT	00	V	100	9	3.8	0.1	0.0
7JUNA4	00	V	100	0	0.0	0.0	0.0
7JUNA4	12	V	100	0	0.0	0.0	0.0
ASDE09	12	V	100	0	0.0	0.0	0.0
ATGU3F	12	V	100	11	4.3	0.8	0.5
ATGU3F	00	V	100	13	2.9	0.5	0.4
BPMWB2	12	V	100	0	0.0	0.0	0.0
BPMWB2	00	V	100	0	0.0	0.0	0.0
DBLK	12	V	100	31	2.4	0.5	0.3
DBLK	00	V	100	13	2.3	-0.1	0.1
FPUW5G	12	V	100	0	0.0	0.0	0.0
GQBZLZ	00	V	100	0	0.0	0.0	0.0
GQBZLZ	12	V	100	0	0.0	0.0	0.0
JNKN7J	12	V	100	10	3.5	0.2	1.4
JNKN7J	00	V	100	10	3.0	1.1	0.9
KMPLHP	00	V	100	0	0.0	0.0	0.0
KMPLHP	12	V	100	0	0.0	0.0	0.0
LAGY8	12	V	100	0	0.0	0.0	0.0
LAGY8	00	V	100	0	0.0	0.0	0.0
LAGZ8	12	V	100	0	0.0	0.0	0.0
LRYQE3	12	V	100	6	2.6	-2.1	0.0
LRYQE3	00	V	100	6	2.7	0.7	-0.3
USBOD	12	V	100	2	1.5	0.1	-0.4
USBOD	00	V	100	3	4.7	-0.3	-2.9
USCAT	00	V	100	0	0.0	0.0	0.0
USSIO	00	V	100	1	2.4	2.3	0.8
USYUB	12	V	100	1	9.6	9.4	2.0
USYUB	00	V	100	3	10.3	-1.4	-2.4
UXK5JT	00	V	100	0	0.0	0.0	0.0
UXK5JT	12	V	100	0	0.0	0.0	0.0
XKQLWQ	12	V	100	0	0.0	0.0	0.0
YLV96W	00	V	100	0	0.0	0.0	0.0
YLV96W	12	V	100	0	0.0	0.0	0.0
ZVQEQC	12	V	100	0	0.0	0.0	0.0

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

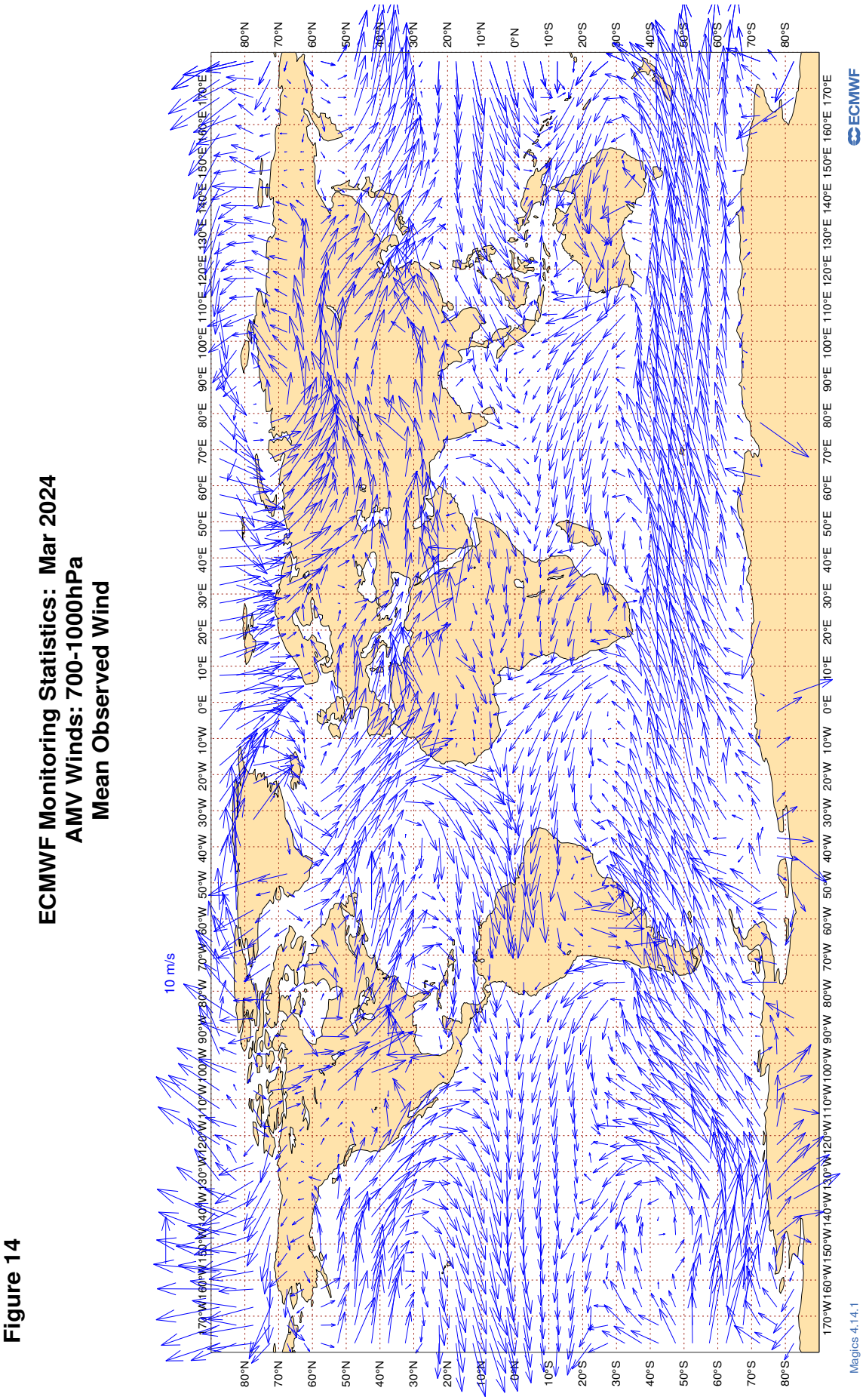


Figure 14

3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

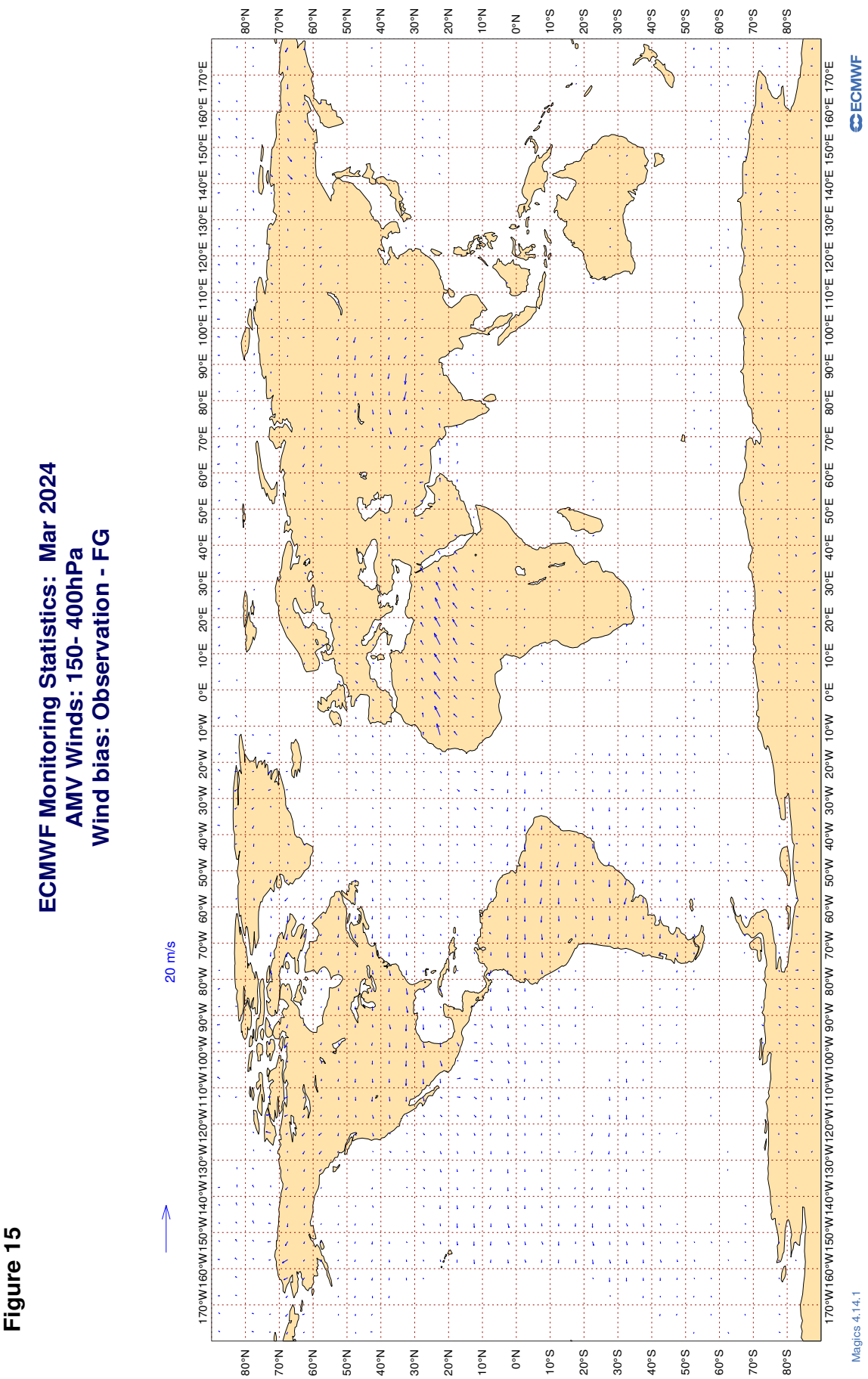


Figure 15

3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

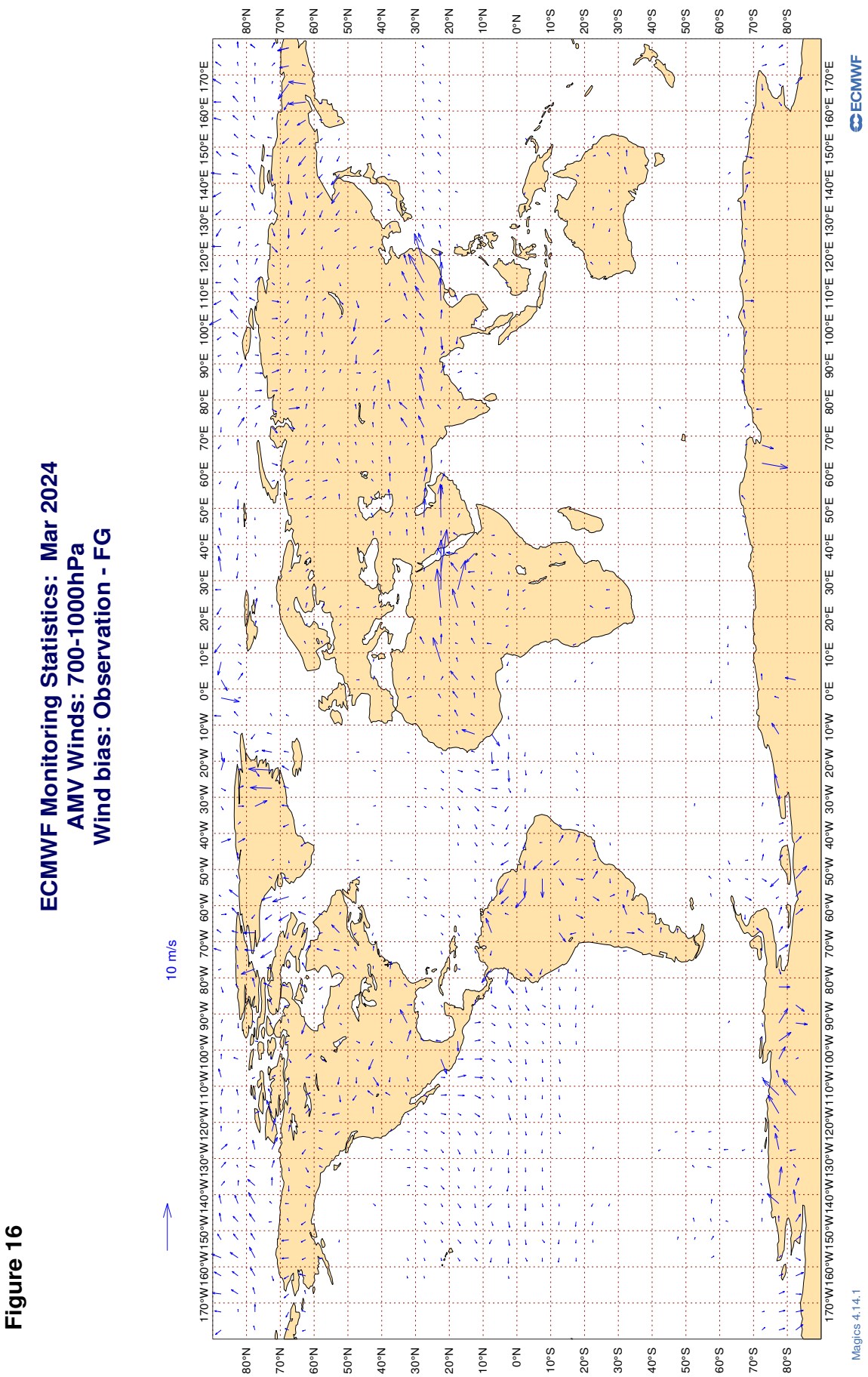


Figure 16

3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

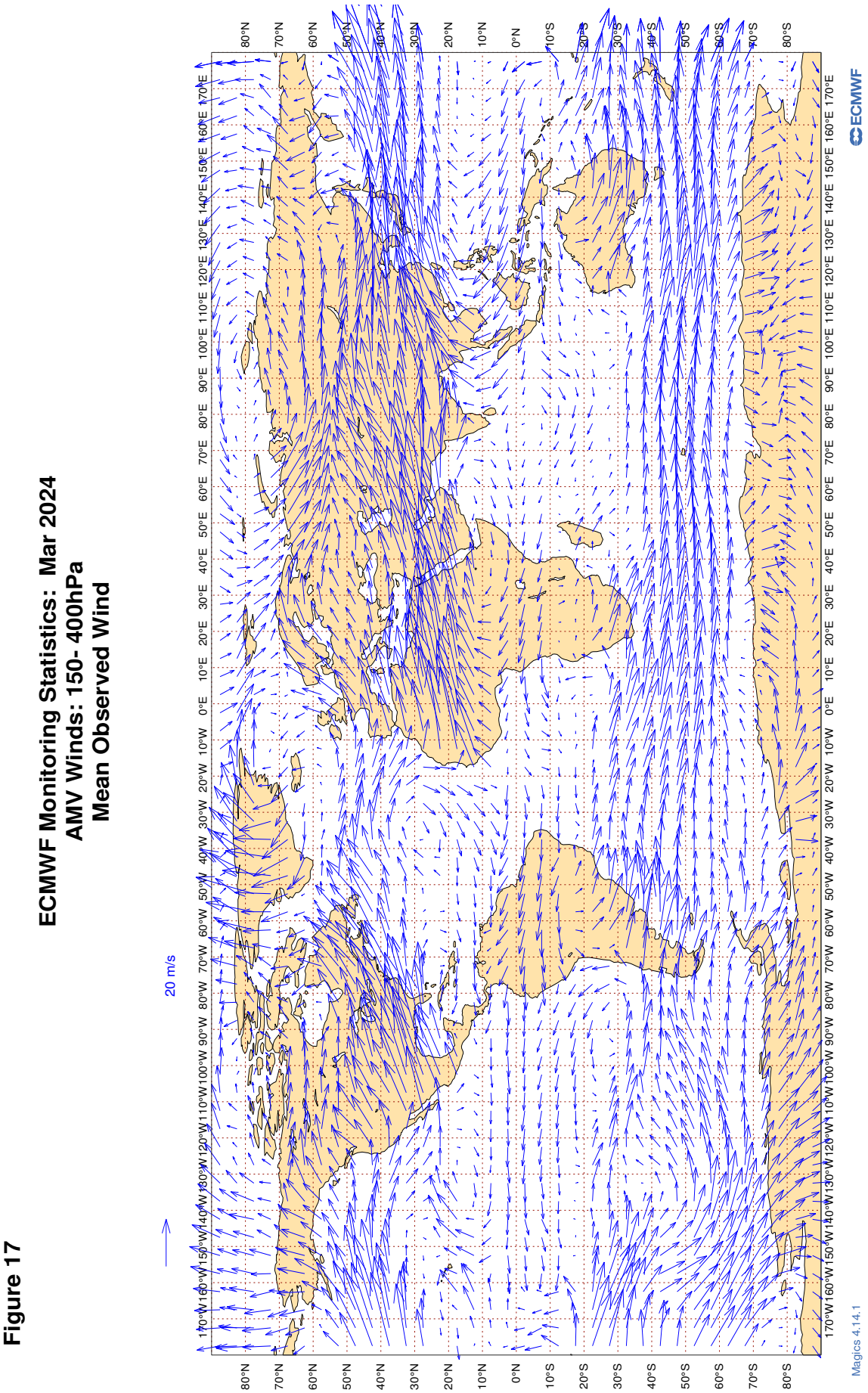


Figure 17

3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

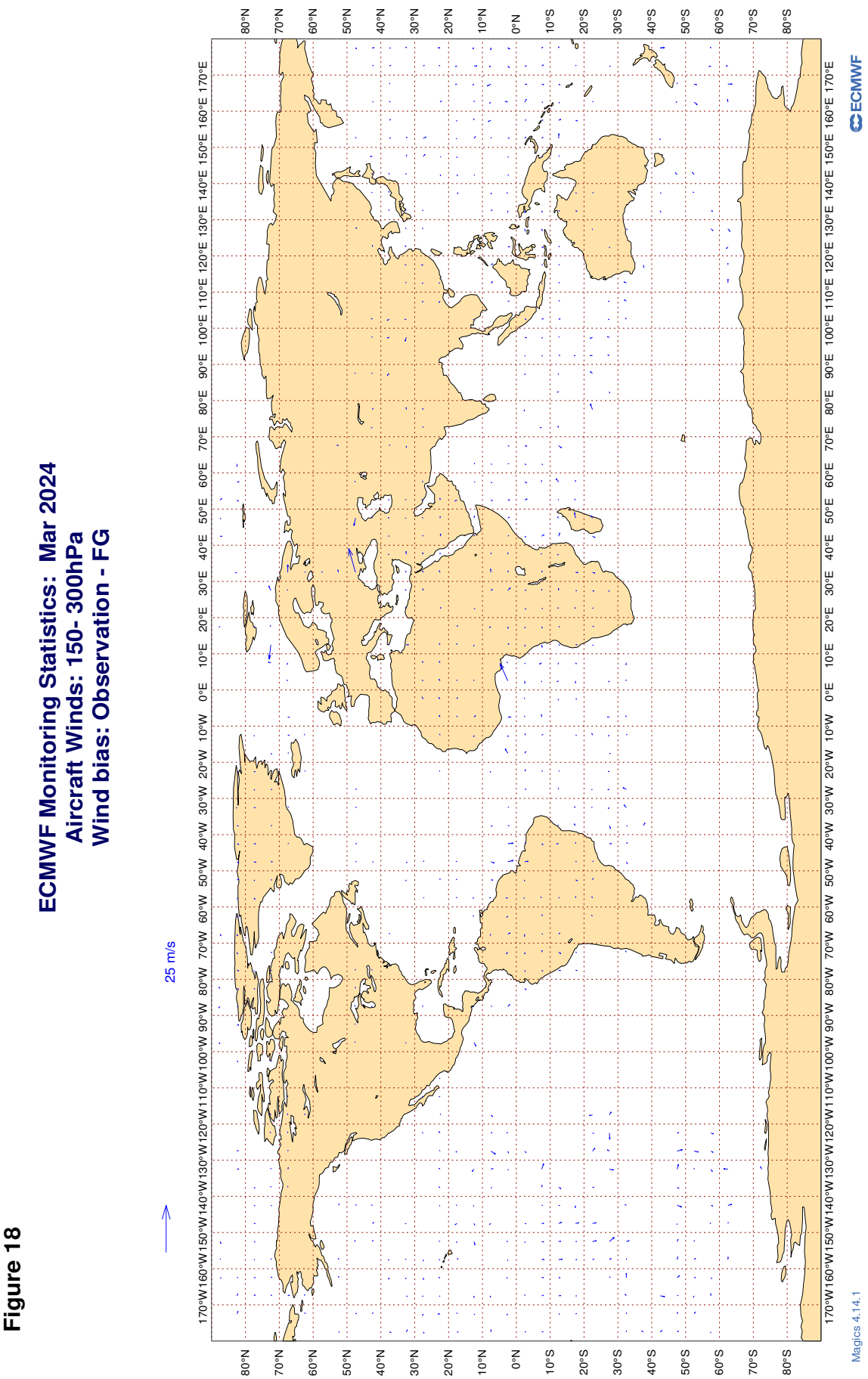


Figure 18

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 : MAR 2024
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	137	0	0	3.3	-0.2
AAL	99	V	300-150	41952	2	0	5.3	0.3
AAR	99	V	300-150	210	0	0	3.9	-0.4
ABB	99	V	300-150	688	0	0	3.1	0.2
ABD	99	V	300-150	1327	0	0	4.0	0.0
ABP	99	V	300-150	58	0	0	3.3	0.0
ACA	99	V	300-150	26288	2	0	5.0	0.2
ACI	99	V	300-150	447	0	0	4.3	0.6
ADY	99	V	300-150	45	0	0	2.3	0.7
ADZ	99	V	300-150	709	0	0	3.6	0.1
AEA	99	V	300-150	569	4	1	6.5	0.1
AFR	99	V	300-150	33910	1	0	4.3	0.3
AHY	99	V	300-150	36	0	3	3.3	0.5
AIC	99	V	300-150	6201	2	0	5.4	0.2
AIZ	99	V	300-150	50	0	0	3.4	1.0
AJT	99	V	300-150	206	0	0	4.2	0.0
AKK	99	V	300-150	20	0	0	4.8	-1.7
ALK	99	V	300-150	2726	0	0	3.0	0.3
AMX	99	V	300-150	4834	6	0	7.3	0.1
ANA	99	V	300-150	221	12	0	4.9	0.3
ANZ	99	V	300-150	16716	0	0	4.0	0.2
AOJ	99	V	300-150	270	0	0	3.6	0.2
ASA	99	V	300-150	53	0	0	6.1	0.7

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
ASL	99	V	300-150	464	0	0	3.4	0.5
ASY	99	V	300-150	26	0	0	7.4	1.1
ATC	99	V	300-150	266	0	0	4.5	0.2
ATG	99	V	300-150	258	0	0	5.9	1.0
ATN	99	V	300-150	107	2	1	5.5	0.5
AUA	99	V	300-150	3842	0	0	3.8	0.1
AVA	99	V	300-150	464	5	1	5.7	-0.1
AWC	99	V	300-150	171	0	0	4.0	-0.4
AXL	99	V	300-150	40	0	0	3.6	0.4
AXM	99	V	300-150	75	0	1	4.3	1.0
AXY	99	V	300-150	131	0	0	3.8	-0.2
AZG	99	V	300-150	1028	0	0	3.9	0.0
BAF	99	V	300-150	73	0	0	4.1	0.4
BAH	99	V	300-150	21	0	0	1.9	0.0
BAW	99	V	300-150	49282	1	0	4.7	0.3
BBC	99	V	300-150	1088	2	0	4.9	0.4
BCS	99	V	300-150	1100	0	0	3.6	0.4
BEL	99	V	300-150	726	0	0	3.4	0.6
BFY	99	V	300-150	35	0	0	3.3	0.4
BLU	99	V	300-150	50	0	0	4.2	-0.3
BLX	99	V	300-150	1109	5	0	7.0	0.3
BOX	99	V	300-150	5048	0	0	3.6	0.1
BOX	99	V	300-150	56	0	0	3.4	0.0
BQA	99	V	300-150	28	0	0	3.1	0.2
BRJ	99	V	300-150	34	0	0	3.7	0.2
BRK	99	V	300-150	23	0	0	2.8	0.0
BTX	99	V	300-150	153	0	0	3.6	0.5
BVR	99	V	300-150	20	0	0	2.4	0.6
CAL	99	V	300-150	1588	0	1	4.8	0.6
CAO	99	V	300-150	36	0	0	4.2	0.5
CAZ	99	V	300-150	61	0	2	3.4	0.8
CBJ	99	V	300-150	356	0	0	3.6	0.4
CCA	99	V	300-150	262	2	0	4.7	0.4
CEB	99	V	300-150	607	0	0	3.0	0.3
CEF	99	V	300-150	38	0	0	3.4	0.2
CES	99	V	300-150	1348	0	0	3.8	0.3
CFC	99	V	300-150	201	0	0	4.8	0.7
CFG	99	V	300-150	5314	0	0	3.7	0.4
CHG	99	V	300-150	177	0	0	3.7	0.4
CHH	99	V	300-150	622	0	0	3.7	0.1
CJT	99	V	300-150	249	0	0	3.9	0.5
CKS	99	V	300-150	402	0	0	3.7	-0.2
CLF	99	V	300-150	87	0	0	4.4	0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
CLX	99	V	300-150	4991	0	0	3.8	-0.3
CLY	99	V	300-150	93	0	0	3.8	-0.1
CMA	99	V	300-150	107	0	0	4.4	0.6
CMB	99	V	300-150	1766	0	0	3.8	-0.1
CND	99	V	300-150	389	0	0	3.7	0.2
CNV	99	V	300-150	112	0	0	3.2	0.5
CPA	99	V	300-150	3039	0	0	4.1	0.4
CPI	99	V	300-150	32	0	0	4.2	-0.2
CPJ	99	V	300-150	28	0	0	3.4	1.1
CRL	99	V	300-150	1373	0	0	3.4	0.3
CSC	99	V	300-150	1038	0	0	4.2	0.7
CSG	99	V	300-150	42	0	0	3.0	0.1
CSN	99	V	300-150	749	2	0	4.2	0.6
CSS	99	V	300-150	137	0	0	4.1	0.1
CTM	99	V	300-150	137	0	1	3.8	0.1
CXA	99	V	300-150	78	6	0	4.3	0.6
DAH	99	V	300-150	741	0	0	3.5	0.4
DAL	99	V	300-150	54507	0	0	3.6	0.3
DCS	99	V	300-150	56	13	0	12.5	0.4
DGX	99	V	300-150	22	0	0	3.5	-0.6
DHK	99	V	300-150	4855	0	0	3.7	0.1
DHX	99	V	300-150	621	0	0	3.5	1.0
DJT	99	V	300-150	1837	0	0	3.7	0.5
DLH	99	V	300-150	22429	1	0	4.1	0.2
DSO	99	V	300-150	76	0	0	3.9	0.0
DUB	99	V	300-150	54	0	0	3.6	0.0
EAL	99	V	300-150	79	0	0	3.8	-0.6
EAU	99	V	300-150	60	0	0	5.4	0.5
EDC	99	V	300-150	89	0	0	4.1	1.0
EDW	99	V	300-150	1880	0	0	3.9	0.5
EIN	99	V	300-150	15333	0	0	3.5	0.4
EJM	99	V	300-150	483	0	0	3.5	-0.1
ELY	99	V	300-150	5353	4	0	6.2	0.1
EMO	99	V	300-150	34	0	0	2.9	0.4
ESW	99	V	300-150	44	0	0	3.5	1.1
ETD	99	V	300-150	17524	2	0	5.3	0.2
ETH	99	V	300-150	6838	2	0	5.3	0.2
EUK	99	V	300-150	1655	0	0	3.5	0.3
EUW	99	V	300-150	24	0	0	2.5	0.4
EVA	99	V	300-150	1479	3	1	6.7	1.1
EVE	99	V	300-150	94	0	0	3.0	0.4
EXS	99	V	300-150	3977	0	0	3.4	-0.1
EZY	99	V	300-150	36	0	0	3.9	-0.6

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
FBU	99	V	300-150	1983	0	0	4.1	0.5
FDX	99	V	300-150	7602	0	0	3.5	0.2
FFM	99	V	300-150	30	0	0	4.2	2.1
FIN	99	V	300-150	3031	0	0	4.2	0.3
FJI	99	V	300-150	2312	0	0	4.2	0.6
FJO	99	V	300-150	86	0	0	4.2	0.7
FLA	99	V	300-150	56	0	0	3.5	-0.4
FPY	99	V	300-150	4499	0	0	3.1	0.3
FWI	99	V	300-150	2370	0	0	3.7	0.4
FWK	99	V	300-150	29	0	0	4.0	-0.4
FYG	99	V	300-150	78	0	0	3.3	0.1
FYL	99	V	300-150	24	0	0	5.0	-0.9
GAF	99	V	300-150	254	0	0	3.8	0.7
GCK	99	V	300-150	72	0	0	4.0	0.4
GEC	99	V	300-150	1226	0	0	3.6	0.1
GES	99	V	300-150	132	0	0	3.8	0.6
GFA	99	V	300-150	1809	5	0	7.0	0.4
GGW	99	V	300-150	20	25	0	27.0	-1.0
GIA	99	V	300-150	942	0	0	2.8	0.4
GJE	99	V	300-150	22	0	0	3.0	-0.6
GJI	99	V	300-150	33	0	0	3.8	0.5
GJW	99	V	300-150	34	0	0	2.8	0.2
GNJ	99	V	300-150	132	0	0	3.4	0.6
GOL	99	V	300-150	62	0	0	4.2	0.3
GSM	99	V	300-150	36	0	0	3.6	-0.1
GTI	99	V	300-150	2497	0	0	3.8	0.1
HAF	99	V	300-150	33	0	0	4.0	-0.1
HAL	99	V	300-150	824	0	0	4.4	0.6
HGO	99	V	300-150	110	0	0	5.2	1.7
HIM	99	V	300-150	50	0	0	4.7	0.9
HKC	99	V	300-150	305	0	0	4.0	0.3
HKH	99	V	300-150	23	0	0	2.9	0.3
HLF	99	V	300-150	122	0	0	3.3	0.6
HNW	99	V	300-150	32	0	0	4.8	-2.0
HOO	99	V	300-150	32	0	0	3.2	1.1
HPJ	99	V	300-150	73	0	0	3.6	0.4
HRT	99	V	300-150	34	0	0	3.8	-0.3
HUA	99	V	300-150	113	0	0	4.2	0.5
HUE	99	V	300-150	110	0	0	6.0	0.9
HVN	99	V	300-150	928	3	0	5.2	0.4
HZS	99	V	300-150	20	0	0	3.0	0.2
IAM	99	V	300-150	33	0	0	4.5	-0.8
IBE	99	V	300-150	4433	0	0	3.7	0.5

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
ICE	99	V	300-150	6622	0	0	3.2	0.3
ICV	99	V	300-150	295	0	0	4.0	-0.6
IFA	99	V	300-150	564	0	0	3.9	0.4
IFC	99	V	300-150	24	0	4	5.1	0.2
IGA	99	V	300-150	27	0	0	4.0	-0.1
IGO	99	V	300-150	53	4	0	7.5	1.6
IJM	99	V	300-150	84	0	0	3.4	0.0
IND	99	V	300-150	44	0	0	3.8	0.4
ITY	99	V	300-150	4303	0	0	3.8	0.6
JAF	99	V	300-150	697	7	0	7.2	0.0
JAL	99	V	300-150	223	2	0	6.6	0.2
JAS	99	V	300-150	96	0	0	4.2	-0.2
JBU	99	V	300-150	9845	0	0	3.6	0.3
JCO	99	V	300-150	118	0	0	3.2	0.6
JCT	99	V	300-150	34	0	0	4.8	0.0
JEF	99	V	300-150	75	0	0	3.4	0.4
JME	99	V	300-150	63	0	0	3.6	0.5
JNY	99	V	300-150	57	0	0	3.4	0.0
JST	99	V	300-150	781	0	0	3.6	0.2
JUN	99	V	300-150	22	0	0	5.2	-0.2
JVW	99	V	300-150	32	0	0	2.6	-0.2
KAC	99	V	300-150	3185	0	0	3.8	0.4
KAF	99	V	300-150	37	0	0	3.9	1.1
KAI	99	V	300-150	125	2	1	4.5	0.3
KAL	99	V	300-150	507	1	0	4.7	0.7
KAY	99	V	300-150	57	0	2	3.5	0.6
KFE	99	V	300-150	25	0	4	3.7	-0.4
KIW	99	V	300-150	108	0	0	4.7	0.7
KLM	99	V	300-150	19313	3	0	5.6	0.3
KOC	99	V	300-150	37	0	0	3.6	1.1
KQA	99	V	300-150	423	3	0	6.6	0.5
LCO	99	V	300-150	533	0	0	4.3	-0.9
LDX	99	V	300-150	84	0	0	4.5	1.8
LEA	99	V	300-150	33	0	0	4.6	-1.4
LNI	99	V	300-150	1437	0	0	3.0	0.4
LNX	99	V	300-150	36	0	0	3.0	0.1
LOT	99	V	300-150	4369	5	0	6.7	0.4
LRQ	99	V	300-150	23	0	0	3.4	-0.1
LWG	99	V	300-150	36	0	0	3.6	0.9
LXJ	99	V	300-150	465	0	0	3.7	0.7
MAS	99	V	300-150	7279	0	0	3.5	0.5
MAU	99	V	300-150	330	0	0	3.7	0.5
MED	99	V	300-150	96	0	0	3.6	0.5

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
MHV	99	V	300-150	29	0	0	4.1	0.3
MLM	99	V	300-150	138	0	0	3.1	0.0
MLT	99	V	300-150	180	0	0	3.3	0.1
MMD	99	V	300-150	282	0	0	4.0	0.2
MMF	99	V	300-150	31	0	0	2.9	0.8
MNB	99	V	300-150	471	0	0	3.3	0.4
MPH	99	V	300-150	497	0	0	4.0	-0.2
MSR	99	V	300-150	2407	3	0	6.0	0.1
MVJ	99	V	300-150	43	0	0	3.2	1.2
MXD	99	V	300-150	484	0	0	3.1	0.5
NBT	99	V	300-150	1248	6	0	6.7	0.3
NCR	99	V	300-150	649	0	0	4.5	0.3
NJE	99	V	300-150	512	0	0	3.5	0.5
NOJ	99	V	300-150	38	0	0	3.8	0.5
NOS	99	V	300-150	1829	5	0	5.5	0.1
NUM	99	V	300-150	66	0	2	4.0	0.0
OAE	99	V	300-150	627	0	0	4.1	0.2
OCN	99	V	300-150	4306	0	0	3.8	0.4
OMA	99	V	300-150	2751	5	0	6.3	0.3
PAC	99	V	300-150	289	0	0	3.8	0.2
PAL	99	V	300-150	2020	0	0	3.3	0.2
PEX	99	V	300-150	99	0	0	3.1	-0.2
PIA	99	V	300-150	484	0	0	4.1	0.9
PJS	99	V	300-150	30	0	0	6.8	3.1
PJV	99	V	300-150	30	0	0	5.1	0.2
PLF	99	V	300-150	118	0	0	3.3	0.5
PUE	99	V	300-150	232	0	1	3.9	0.2
PVA	99	V	300-150	135	0	0	4.0	0.2
PVG	99	V	300-150	63	0	0	3.0	-0.4
QAF	99	V	300-150	50	0	0	3.9	-0.1
QFA	99	V	300-150	6019	0	0	5.6	0.3
QFX	99	V	300-150	72	0	0	2.9	0.6
QID	99	V	300-150	29	0	0	3.6	1.3
QQE	99	V	300-150	230	0	1	3.6	0.1
QTR	99	V	300-150	42073	0	0	4.3	0.3
RAM	99	V	300-150	475	11	1	6.9	0.9
RBA	99	V	300-150	406	4	0	8.2	0.2
RCH	99	V	300-150	3009	0	0	4.7	0.4
RCR	99	V	300-150	81	0	0	3.3	1.2
RHH	99	V	300-150	87	0	0	8.2	0.1
RJA	99	V	300-150	1637	4	0	7.4	0.0
RKK	99	V	300-150	32	0	0	2.9	0.7
ROJ	99	V	300-150	48	2	0	3.9	1.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
ROM	99	V	300-150	20	0	0	4.3	0.6
RRR	99	V	300-150	293	0	0	4.1	0.6
RSF	99	V	300-150	36	0	0	3.9	-0.3
RYR	99	V	300-150	1196	0	0	3.5	0.2
RZO	99	V	300-150	263	0	3	4.3	-0.1
SAM	99	V	300-150	272	0	0	3.8	0.4
SAS	99	V	300-150	5473	0	0	3.4	0.4
SAZ	99	V	300-150	115	0	0	4.0	0.3
SCX	99	V	300-150	60	0	3	5.4	0.9
SEY	99	V	300-150	84	0	0	3.4	-0.2
SIA	99	V	300-150	15565	0	0	4.0	0.4
SIO	99	V	300-150	198	0	0	3.9	-0.1
SKV	99	V	300-150	52	0	0	3.5	0.1
SLM	99	V	300-150	151	0	1	3.0	0.1
SME	99	V	300-150	46	0	0	3.1	0.5
SON	99	V	300-150	40	0	0	3.9	1.4
SPA	99	V	300-150	98	0	0	4.4	0.2
SVA	99	V	300-150	11783	1	0	4.6	0.3
SVW	99	V	300-150	282	0	0	3.5	0.8
SWN	99	V	300-150	124	0	0	4.1	-0.5
SWR	99	V	300-150	11147	0	1	3.9	0.4
SWW	99	V	300-150	60	0	0	3.6	0.9
SYB	99	V	300-150	65	0	0	4.0	0.2
TAM	99	V	300-150	131	0	1	6.8	0.6
TAP	99	V	300-150	3102	0	1	3.7	0.4
TAR	99	V	300-150	401	0	0	3.4	0.5
TAY	99	V	300-150	106	0	1	3.7	0.1
TBJ	99	V	300-150	26	0	0	4.0	-0.5
TFF	99	V	300-150	102	0	3	4.3	-0.2
TFL	99	V	300-150	1776	6	0	7.2	0.1
TGW	99	V	300-150	986	3	0	7.4	0.5
THA	99	V	300-150	6537	1	0	4.6	0.3
THT	99	V	300-150	2697	1	0	6.6	0.3
THY	99	V	300-150	23402	2	0	4.8	0.2
TMN	99	V	300-150	444	0	0	4.1	0.1
TOM	99	V	300-150	5248	6	0	6.7	0.2
TRK	99	V	300-150	33	0	0	2.0	0.7
TSC	99	V	300-150	4774	0	0	3.6	0.4
TUA	99	V	300-150	23	0	0	4.2	0.4
TUA	99	V	300-150	20	0	0	3.6	1.1
TVR	99	V	300-150	39	0	0	5.0	0.5
TVS	99	V	300-150	105	0	0	4.7	1.0
TWY	99	V	300-150	559	0	0	3.5	0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
UAE	99	V	300-150	37601	0	0	3.6	0.3
UAL	99	V	300-150	67654	1	1	5.2	0.2
UBT	99	V	300-150	2811	6	0	6.4	0.4
UGD	99	V	300-150	64	0	0	3.1	0.4
ULC	99	V	300-150	76	0	0	3.6	0.2
UNI	99	V	300-150	137	0	0	3.9	1.0
UPS	99	V	300-150	6081	0	0	3.7	0.1
URO	99	V	300-150	26	0	0	4.3	-0.2
UZB	99	V	300-150	448	3	0	5.6	0.6
VAL	99	V	300-150	34	0	0	5.1	0.4
VCG	99	V	300-150	53	0	0	3.9	0.7
VCJ	99	V	300-150	42	0	0	2.9	0.5
VIR	99	V	300-150	21357	1	0	4.8	0.2
VJC	99	V	300-150	386	0	0	3.5	0.2
VJH	99	V	300-150	623	0	0	3.8	0.2
VJT	99	V	300-150	2103	0	0	3.9	0.6
VKG	99	V	300-150	403	0	0	3.2	0.3
VLZ	99	V	300-150	122	0	0	4.0	0.8
VOZ	99	V	300-150	75	0	0	3.8	0.9
VSV	99	V	300-150	97	0	2	3.8	-0.2
VTI	99	V	300-150	3635	0	0	3.2	0.4
VXS	99	V	300-150	78	0	0	3.6	-0.4
WAZ	99	V	300-150	39	0	0	3.2	0.7
WFL	99	V	300-150	363	0	0	3.8	0.4
WGN	99	V	300-150	29	0	0	5.9	2.3
WJA	99	V	300-150	2170	1	0	6.0	0.2
WWI	99	V	300-150	71	0	0	4.5	0.8
XAX	99	V	300-150	1181	0	0	3.5	0.3
XFL	99	V	300-150	23	0	0	3.1	0.5
XLS	99	V	300-150	24	0	0	3.1	0.8

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 $10\,^{\circ}$N - $90\,^{\circ}$N, $70\,^{\circ}$W - $40\,^{\circ}$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 $10\,^{\circ}$N - $90\,^{\circ}$N, $70\,^{\circ}$W - $40\,^{\circ}$E. The statistics are in the same form as tables 4-6.

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

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 :  50 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAR 2024
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	42	16.3	-3.8
01001	00	Z	50	24	30.5	-28.1
01028	12	Z	50	51	6.7	-3.9
01028	00	Z	50	30	5.8	-2.1
01400	12	Z	50	27	73.1	72.8
01400	00	Z	50	28	72.0	71.4
01415	00	Z	50	22	5.7	1.3
01415	12	Z	50	24	6.3	3.0
02365	12	Z	50	15	7.0	-4.1
02365	00	Z	50	12	5.8	-1.8
02591	12	Z	50	25	5.4	4.5
02591	00	Z	50	24	9.2	8.8
02836	00	Z	50	28	4.1	-1.2
02836	12	Z	50	33	7.3	-2.8
02963	12	Z	50	31	4.8	-2.0
02963	00	Z	50	31	6.7	-1.1
03005	00	Z	50	29	6.3	-3.8
03005	12	Z	50	29	8.3	-3.4
03238	00	Z	50	30	6.4	1.7
03238	12	Z	50	1	7.1	7.1
03808	12	Z	50	31	7.8	1.0
03808	00	Z	50	29	4.9	1.2
03918	00	Z	50	30	10.4	6.0
03918	12	Z	50	3	9.0	7.1
03953	12	Z	50	31	13.2	-8.7
03953	00	Z	50	31	12.8	-9.6
04018	00	Z	50	25	8.2	-4.0
04018	12	Z	50	25	10.8	-9.0
04220	12	Z	50	31	22.0	-19.3
04220	00	Z	50	31	21.8	-19.6
04270	12	Z	50	30	12.8	-6.2
04270	00	Z	50	31	18.0	-16.7
04320	00	Z	50	31	9.0	-5.3
04320	12	Z	50	31	12.4	-9.2
04339	00	Z	50	29	27.2	-23.8
04339	12	Z	50	27	17.9	-12.3
04360	12	Z	50	27	17.6	-5.0
04360	00	Z	50	28	22.0	-19.3
06011	12	Z	50	25	16.8	-12.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	50	4	9.6	-3.7
06260	00	Z	50	30	8.4	-0.9
06610	12	Z	50	32	9.6	1.9
06610	00	Z	50	31	9.5	0.3
07110	00	Z	50	27	37.2	-36.2
07110	12	Z	50	28	28.7	-25.8
07510	12	Z	50	31	22.2	15.1
07510	00	Z	50	27	13.5	-4.0
07645	12	Z	50	24	32.5	-28.0
07645	00	Z	50	27	36.4	-28.9
07761	12	Z	50	29	16.2	-1.7
07761	00	Z	50	29	32.0	-12.4
08001	00	Z	50	30	9.4	-1.6
08001	12	Z	50	29	13.5	0.6
08221	12	Z	50	30	9.7	2.3
08221	00	Z	50	31	9.8	4.0
08302	00	Z	50	25	7.9	-3.5
08302	12	Z	50	27	13.9	-8.8
08508	12	Z	50	30	9.2	0.8
08522	12	Z	50	31	6.2	-0.3
10035	00	Z	50	31	15.7	15.1
10035	12	Z	50	31	14.5	11.9
10393	12	Z	50	31	8.1	-0.8
10393	00	Z	50	31	6.1	3.4
10410	12	Z	50	31	6.4	-3.8
10410	00	Z	50	31	8.5	-1.3
10739	00	Z	50	30	8.3	4.9
10739	12	Z	50	31	5.2	1.2
11035	12	Z	50	31	24.4	19.8
11035	00	Z	50	29	10.4	2.1
12982	00	Z	50	31	7.1	2.8
12982	12	Z	50	31	7.5	-0.6
16245	00	Z	50	30	7.3	0.5
16245	12	Z	50	31	8.1	-2.7
16429	00	Z	50	30	7.7	5.5
16429	12	Z	50	30	6.7	0.4
16622	12	Z	50	0	0.0	0.0
16622	00	Z	50	27	12.6	9.5
16754	00	Z	50	25	11.4	7.2
17607	12	Z	50	26	53.3	-42.0
26435	12	Z	50	7	12.8	-7.3
2EERVT	12	Z	50	8	14.4	-4.5
2EERVT	00	Z	50	9	10.2	-6.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	00	Z	50	29	8.0	4.8
60018	12	Z	50	31	22.1	5.8
7JUNA4	00	Z	50	0	0.0	0.0
7JUNA4	12	Z	50	0	0.0	0.0
ASDE09	12	Z	50	0	0.0	0.0
ATGU3F	12	Z	50	10	24.8	-2.7
ATGU3F	00	Z	50	12	26.2	-16.3
BPMWB2	12	Z	50	0	0.0	0.0
BPMWB2	00	Z	50	0	0.0	0.0
FPUW5G	12	Z	50	0	0.0	0.0
GQBZLZ	00	Z	50	0	0.0	0.0
GQBZLZ	12	Z	50	0	0.0	0.0
JNKN7J	12	Z	50	10	41.9	23.4
JNKN7J	00	Z	50	10	23.7	20.9
KMPLHP	00	Z	50	0	0.0	0.0
KMPLHP	12	Z	50	0	0.0	0.0
LAGY8	12	Z	50	0	0.0	0.0
LAGY8	00	Z	50	0	0.0	0.0
LAGZ8	12	Z	50	0	0.0	0.0
LRYQE3	12	Z	50	6	149.5	93.0
LRYQE3	00	Z	50	6	19.9	-13.6
USCAT	00	Z	50	0	0.0	0.0
UXK5JT	00	Z	50	0	0.0	0.0
UXK5JT	12	Z	50	0	0.0	0.0
XKQLWQ	12	Z	50	0	0.0	0.0
YLV96W	00	Z	50	0	0.0	0.0
YLV96W	12	Z	50	0	0.0	0.0
ZVQEQC	12	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                : MAR 2024
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	31	2.3	0.0	0.4
01001	00	V	50	22	2.2	-0.1	0.0
01028	12	V	50	31	2.2	-0.3	-0.4
01028	00	V	50	25	2.5	0.1	0.5
01400	12	V	50	27	2.7	0.2	0.4
01400	00	V	50	21	2.8	0.0	-0.7
01415	00	V	50	21	2.1	0.4	-0.5
01415	12	V	50	24	2.6	0.6	-0.1
02365	12	V	50	14	2.4	-0.6	0.4
02365	00	V	50	11	2.1	-0.3	1.0
02591	12	V	50	25	2.1	0.1	-0.1
02591	00	V	50	24	2.4	0.3	-0.4
02836	00	V	50	27	2.6	0.0	0.3
02836	12	V	50	30	2.1	-0.5	0.2
02963	12	V	50	31	2.5	0.5	0.0
02963	00	V	50	29	2.4	0.1	-0.5
03005	00	V	50	28	2.9	-0.3	-0.1
03005	12	V	50	29	2.8	0.7	0.0
03238	00	V	50	28	2.6	0.0	-0.4
03238	12	V	50	1	2.9	1.3	-2.6
03808	12	V	50	31	3.3	0.8	0.3
03808	00	V	50	27	3.1	0.4	0.2
03918	00	V	50	29	3.3	-0.1	-0.5
03918	12	V	50	3	3.7	-0.9	-3.1
03953	12	V	50	31	2.9	0.5	0.2
03953	00	V	50	30	3.5	1.2	-0.1
04018	00	V	50	21	3.1	-0.3	-0.3
04018	12	V	50	24	3.2	-0.8	-0.2
04220	12	V	50	31	2.7	0.0	0.5
04220	00	V	50	28	2.5	-0.4	0.4
04270	12	V	50	30	3.4	0.5	-0.4
04270	00	V	50	29	3.0	-0.1	-0.4
04320	00	V	50	30	2.3	0.4	0.5
04320	12	V	50	31	2.2	0.1	0.3
04339	00	V	50	28	2.7	0.3	0.0
04339	12	V	50	26	2.4	0.4	0.1
04360	12	V	50	27	2.9	0.0	-0.1
04360	00	V	50	26	3.1	0.3	-0.3
06011	12	V	50	25	2.9	0.5	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	50	4	2.4	0.4	-0.2
06260	00	V	50	29	2.9	0.0	-0.4
06610	12	V	50	31	3.4	0.5	-0.1
06610	00	V	50	30	3.2	0.9	0.7
07110	00	V	50	26	3.7	-0.7	-0.3
07110	12	V	50	28	3.3	-0.1	-0.2
07510	12	V	50	31	2.9	0.6	-0.8
07510	00	V	50	25	3.3	0.5	-0.3
07645	12	V	50	24	3.0	0.3	-0.2
07645	00	V	50	26	3.1	0.1	0.6
07761	12	V	50	29	3.0	0.3	0.0
07761	00	V	50	28	3.9	-0.4	-0.5
08001	00	V	50	28	3.5	-0.4	0.6
08001	12	V	50	29	3.7	0.1	-0.3
08221	12	V	50	30	3.5	0.2	-0.4
08221	00	V	50	30	4.0	0.7	-0.5
08302	00	V	50	24	4.2	1.2	-0.4
08302	12	V	50	27	4.2	-1.5	0.2
08508	12	V	50	30	3.5	-0.2	-0.3
08522	12	V	50	30	3.3	-0.4	-0.2
10035	00	V	50	30	2.6	-0.1	-0.4
10035	12	V	50	31	2.9	0.0	0.3
10393	12	V	50	31	2.6	-0.1	0.0
10393	00	V	50	30	2.9	0.1	-0.4
10410	12	V	50	31	3.5	0.5	0.1
10410	00	V	50	30	3.0	-0.2	-0.7
10739	00	V	50	28	2.9	0.9	-0.2
10739	12	V	50	31	2.8	0.0	-0.4
11035	12	V	50	31	2.8	0.0	-0.5
11035	00	V	50	28	3.1	-0.3	0.0
12982	00	V	50	30	2.8	-0.3	0.0
12982	12	V	50	31	2.8	0.4	-0.7
16245	00	V	50	29	3.7	0.0	0.0
16245	12	V	50	31	3.6	0.6	0.1
16429	00	V	50	29	4.3	0.4	-0.1
16429	12	V	50	30	5.0	1.5	0.8
16622	12	V	50	0	0.0	0.0	0.0
16622	00	V	50	25	2.8	0.6	-0.3
16754	00	V	50	20	4.5	-0.1	0.5
17607	12	V	50	16	12.5	-9.0	-2.5
26435	12	V	50	6	1.7	0.1	-0.6
2EERVT	12	V	50	8	2.4	0.7	0.0
2EERVT	00	V	50	9	2.6	-0.5	0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	00	V	50	27	3.3	-0.9	-0.4
60018	12	V	50	31	3.9	0.4	0.8
7JUNA4	00	V	50	0	0.0	0.0	0.0
7JUNA4	12	V	50	0	0.0	0.0	0.0
ASDE09	12	V	50	0	0.0	0.0	0.0
ATGU3F	12	V	50	10	3.0	0.4	0.4
ATGU3F	00	V	50	12	2.6	0.2	-0.1
BPMWB2	12	V	50	0	0.0	0.0	0.0
BPMWB2	00	V	50	0	0.0	0.0	0.0
FPUW5G	12	V	50	0	0.0	0.0	0.0
GQBZLZ	00	V	50	0	0.0	0.0	0.0
GQBZLZ	12	V	50	0	0.0	0.0	0.0
JNKN7J	12	V	50	10	4.0	0.5	-0.1
JNKN7J	00	V	50	10	4.5	-0.9	-0.2
KMPLHP	00	V	50	0	0.0	0.0	0.0
KMPLHP	12	V	50	0	0.0	0.0	0.0
LAGY8	12	V	50	0	0.0	0.0	0.0
LAGY8	00	V	50	0	0.0	0.0	0.0
LAGZ8	12	V	50	0	0.0	0.0	0.0
LRYQE3	12	V	50	6	4.0	2.0	-0.9
LRYQE3	00	V	50	6	2.5	0.3	0.0
USCAT	00	V	50	0	0.0	0.0	0.0
UXK5JT	00	V	50	0	0.0	0.0	0.0
UXK5JT	12	V	50	0	0.0	0.0	0.0
XKQLWQ	12	V	50	0	0.0	0.0	0.0
YLV96W	00	V	50	0	0.0	0.0	0.0
YLV96W	12	V	50	0	0.0	0.0	0.0
ZVQEQC	12	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                : MAR 2024
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	42	13.9	-5.4
01001	00	Z	100	24	27.4	-25.9
01028	12	Z	100	51	6.8	-5.0
01028	00	Z	100	31	6.1	-4.3
01400	12	Z	100	28	72.1	71.9
01400	00	Z	100	29	70.3	69.9
01415	00	Z	100	22	5.0	-1.6
01415	12	Z	100	24	4.4	0.8
02365	12	Z	100	16	8.0	-5.9
02365	00	Z	100	14	7.9	-4.1
02591	12	Z	100	25	4.9	4.3
02591	00	Z	100	26	5.9	4.9
02836	00	Z	100	28	5.5	-3.4
02836	12	Z	100	34	5.8	-3.0
02963	12	Z	100	31	5.3	-2.4
02963	00	Z	100	31	5.4	-1.6
03005	00	Z	100	29	6.2	-5.1
03005	12	Z	100	30	7.4	-4.4
03238	00	Z	100	31	4.8	-0.5
03238	12	Z	100	1	6.2	6.2
03808	12	Z	100	32	5.9	0.9
03808	00	Z	100	29	5.1	0.4
03918	00	Z	100	30	7.4	3.1
03918	12	Z	100	3	4.0	3.9
03953	12	Z	100	31	12.2	-8.7
03953	00	Z	100	31	12.3	-10.3
04018	00	Z	100	26	8.3	-3.8
04018	12	Z	100	27	11.7	-8.0
04220	12	Z	100	31	19.3	-16.7
04220	00	Z	100	31	18.4	-17.3
04270	12	Z	100	30	13.2	-10.1
04270	00	Z	100	31	16.5	-14.6
04320	00	Z	100	31	8.9	-6.4
04320	12	Z	100	31	10.9	-8.8
04339	00	Z	100	30	24.5	-22.5
04339	12	Z	100	28	19.0	-14.7
04360	12	Z	100	28	12.2	-7.2
04360	00	Z	100	28	19.1	-17.8
06011	12	Z	100	30	20.9	-11.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	100	4	10.2	-2.8
06260	00	Z	100	31	6.6	-3.5
06610	12	Z	100	31	6.5	0.7
06610	00	Z	100	31	6.3	-2.4
07110	00	Z	100	29	33.2	-32.2
07110	12	Z	100	30	24.8	-22.9
07510	12	Z	100	31	13.9	8.9
07510	00	Z	100	30	10.9	-2.7
07645	12	Z	100	27	25.6	-23.3
07645	00	Z	100	29	29.0	-26.6
07761	12	Z	100	29	14.0	-5.2
07761	00	Z	100	30	26.0	-14.1
08001	00	Z	100	30	10.1	-3.6
08001	12	Z	100	30	11.6	-1.3
08221	12	Z	100	31	8.2	0.6
08221	00	Z	100	31	7.8	2.2
08302	00	Z	100	25	10.6	-7.0
08302	12	Z	100	27	11.0	-9.0
08508	12	Z	100	31	9.4	-0.4
08522	12	Z	100	31	5.3	1.4
10035	00	Z	100	31	13.5	12.7
10035	12	Z	100	31	13.4	11.6
10393	12	Z	100	31	7.7	-1.5
10393	00	Z	100	31	3.7	0.0
10410	12	Z	100	32	6.4	-3.8
10410	00	Z	100	32	7.4	-2.7
10739	00	Z	100	31	5.8	1.3
10739	12	Z	100	31	5.2	0.4
11035	12	Z	100	31	16.1	11.9
11035	00	Z	100	31	7.9	-1.6
12982	00	Z	100	31	4.2	-0.7
12982	12	Z	100	31	6.6	-1.4
16245	00	Z	100	30	7.0	-3.6
16245	12	Z	100	31	6.9	-2.9
16429	00	Z	100	31	5.5	1.0
16429	12	Z	100	30	5.5	-0.7
16622	12	Z	100	1	10.8	10.8
16622	00	Z	100	30	9.6	6.5
16754	00	Z	100	30	6.5	1.7
17607	12	Z	100	28	53.7	-40.1
26435	12	Z	100	13	8.4	-4.2
2EERVT	12	Z	100	8	8.7	-1.7
2EERVT	00	Z	100	9	11.1	-9.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	00	Z	100	29	8.4	5.0
60018	12	Z	100	31	21.9	6.8
7JUNA4	00	Z	100	0	0.0	0.0
7JUNA4	12	Z	100	0	0.0	0.0
ASDE09	12	Z	100	0	0.0	0.0
ATGU3F	12	Z	100	11	21.2	-8.1
ATGU3F	00	Z	100	13	22.6	-13.1
BPMWB2	12	Z	100	0	0.0	0.0
BPMWB2	00	Z	100	0	0.0	0.0
FPUW5G	12	Z	100	0	0.0	0.0
GQBZLZ	00	Z	100	0	0.0	0.0
GQBZLZ	12	Z	100	0	0.0	0.0
JNKN7J	12	Z	100	10	28.7	21.9
JNKN7J	00	Z	100	10	24.2	22.5
KMPLHP	00	Z	100	0	0.0	0.0
KMPLHP	12	Z	100	0	0.0	0.0
LAGY8	12	Z	100	0	0.0	0.0
LAGY8	00	Z	100	0	0.0	0.0
LAGZ8	12	Z	100	0	0.0	0.0
LRYQE3	12	Z	100	6	89.8	52.3
LRYQE3	00	Z	100	6	17.1	-10.4
USCAT	00	Z	100	0	0.0	0.0
UXK5JT	00	Z	100	0	0.0	0.0
UXK5JT	12	Z	100	0	0.0	0.0
XKQLWQ	12	Z	100	0	0.0	0.0
YLV96W	00	Z	100	0	0.0	0.0
YLV96W	12	Z	100	0	0.0	0.0
ZVQEQC	12	Z	100	0	0.0	0.0

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                : MAR 2024
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	31	2.6	-0.2	0.2
01001	00	V	100	22	1.7	0.3	-0.4
01028	12	V	100	31	2.1	0.1	0.3
01028	00	V	100	25	2.2	0.5	-0.1
01400	12	V	100	28	3.3	0.1	-0.4
01400	00	V	100	25	2.5	0.8	-0.6
01415	00	V	100	22	2.9	0.6	-0.4
01415	12	V	100	24	2.7	0.0	-0.5
02365	12	V	100	16	2.4	0.1	0.5
02365	00	V	100	14	2.7	0.8	-0.7
02591	12	V	100	25	2.1	0.4	-0.4
02591	00	V	100	26	2.8	0.1	-1.1
02836	00	V	100	27	2.6	-0.4	0.1
02836	12	V	100	31	2.3	-0.2	0.4
02963	12	V	100	31	2.3	-0.1	-0.4
02963	00	V	100	30	2.5	0.1	-0.1
03005	00	V	100	28	2.5	0.7	-0.6
03005	12	V	100	29	2.3	0.3	0.2
03238	00	V	100	28	3.5	0.2	-0.8
03238	12	V	100	1	2.4	1.0	2.2
03808	12	V	100	31	2.8	0.3	0.3
03808	00	V	100	28	3.2	0.9	0.0
03918	00	V	100	29	3.3	0.1	-0.4
03918	12	V	100	3	3.3	-0.1	2.1
03953	12	V	100	31	2.9	0.4	0.0
03953	00	V	100	30	3.1	0.1	-0.4
04018	00	V	100	24	2.6	-0.4	0.1
04018	12	V	100	27	2.7	-0.2	0.8
04220	12	V	100	31	2.4	-0.6	0.2
04220	00	V	100	30	2.4	-0.3	0.2
04270	12	V	100	30	2.5	0.1	-0.4
04270	00	V	100	30	2.9	0.1	0.1
04320	00	V	100	30	2.3	0.2	-0.2
04320	12	V	100	31	2.4	-0.4	-0.2
04339	00	V	100	29	2.5	0.4	0.2
04339	12	V	100	28	2.6	0.2	-0.7
04360	12	V	100	28	2.2	-0.1	0.2
04360	00	V	100	26	2.9	0.0	0.3
06011	12	V	100	30	2.2	0.3	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	100	4	3.3	-0.1	-0.3
06260	00	V	100	29	3.2	0.3	0.0
06610	12	V	100	31	3.7	0.3	-0.9
06610	00	V	100	30	3.6	-0.3	-0.7
07110	00	V	100	28	3.1	1.0	0.1
07110	12	V	100	30	2.8	0.5	0.3
07510	12	V	100	31	2.9	0.3	-0.4
07510	00	V	100	28	2.8	0.5	-0.5
07645	12	V	100	27	3.0	1.1	-0.6
07645	00	V	100	27	3.3	0.7	0.1
07761	12	V	100	29	4.2	1.4	-0.3
07761	00	V	100	29	3.8	0.0	0.7
08001	00	V	100	29	3.5	1.0	0.0
08001	12	V	100	30	3.7	-0.7	0.5
08221	12	V	100	30	3.3	-0.1	0.9
08221	00	V	100	30	4.0	0.1	-1.0
08302	00	V	100	24	3.9	-0.2	-1.3
08302	12	V	100	27	3.7	-0.1	0.0
08508	12	V	100	31	3.2	0.4	0.1
08522	12	V	100	30	4.0	0.1	-0.6
10035	00	V	100	30	3.2	0.5	0.0
10035	12	V	100	31	3.2	0.8	0.2
10393	12	V	100	31	3.3	0.1	0.7
10393	00	V	100	30	2.9	-0.1	-0.9
10410	12	V	100	31	2.8	0.4	-0.3
10410	00	V	100	30	3.5	1.3	-0.4
10739	00	V	100	30	3.8	1.4	0.0
10739	12	V	100	31	3.0	-0.1	-0.5
11035	12	V	100	31	3.1	-0.2	-0.1
11035	00	V	100	30	3.0	0.4	-0.5
12982	00	V	100	30	2.6	0.3	-0.1
12982	12	V	100	31	2.6	0.5	-0.1
16245	00	V	100	29	2.8	0.2	0.2
16245	12	V	100	31	3.7	0.6	-0.2
16429	00	V	100	30	3.5	0.6	-0.3
16429	12	V	100	30	4.0	0.1	0.3
16622	12	V	100	1	0.9	-0.8	0.5
16622	00	V	100	26	3.7	-0.4	0.3
16754	00	V	100	29	3.2	0.0	-0.1
17607	12	V	100	24	26.0	-21.4	0.0
26435	12	V	100	11	2.2	-0.4	-0.4
2EERVT	12	V	100	7	4.8	-0.1	0.5
2EERVT	00	V	100	9	3.8	0.1	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	00	V	100	28	4.0	0.9	0.1
60018	12	V	100	31	4.2	0.4	-0.4
7JUNA4	00	V	100	0	0.0	0.0	0.0
7JUNA4	12	V	100	0	0.0	0.0	0.0
ASDE09	12	V	100	0	0.0	0.0	0.0
ATGU3F	12	V	100	11	4.3	0.8	0.5
ATGU3F	00	V	100	13	2.9	0.5	0.4
BPMWB2	12	V	100	0	0.0	0.0	0.0
BPMWB2	00	V	100	0	0.0	0.0	0.0
FPUW5G	12	V	100	0	0.0	0.0	0.0
GQBZLZ	00	V	100	0	0.0	0.0	0.0
GQBZLZ	12	V	100	0	0.0	0.0	0.0
JNKN7J	12	V	100	10	3.5	0.2	1.4
JNKN7J	00	V	100	10	3.0	1.1	0.9
KMPLHP	00	V	100	0	0.0	0.0	0.0
KMPLHP	12	V	100	0	0.0	0.0	0.0
LAGY8	12	V	100	0	0.0	0.0	0.0
LAGY8	00	V	100	0	0.0	0.0	0.0
LAGZ8	12	V	100	0	0.0	0.0	0.0
LRYQE3	12	V	100	6	2.6	-2.1	0.0
LRYQE3	00	V	100	6	2.7	0.7	-0.3
USCAT	00	V	100	0	0.0	0.0	0.0
UXK5JT	00	V	100	0	0.0	0.0	0.0
UXK5JT	12	V	100	0	0.0	0.0	0.0
XKQLWQ	12	V	100	0	0.0	0.0	0.0
YLV96W	00	V	100	0	0.0	0.0	0.0
YLV96W	12	V	100	0	0.0	0.0	0.0
ZVQEQC	12	V	100	0	0.0	0.0	0.0

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                : MAR 2024
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	49	9.2	0.3
01001	00	Z	500	24	13.5	-12.5
01028	12	Z	500	61	3.6	0.3
01028	00	Z	500	31	4.3	-1.5
01400	12	Z	500	29	74.2	74.1
01400	00	Z	500	29	75.3	75.1
01415	00	Z	500	23	4.3	3.2
01415	12	Z	500	24	4.4	3.1
02365	12	Z	500	17	3.0	0.1
02365	00	Z	500	14	3.8	1.4
02591	12	Z	500	25	8.1	8.0
02591	00	Z	500	26	7.4	7.0
02836	00	Z	500	31	2.8	0.3
02836	12	Z	500	34	3.8	1.9
02963	12	Z	500	31	3.2	2.4
02963	00	Z	500	31	3.2	1.9
03005	00	Z	500	29	3.5	-1.7
03005	12	Z	500	31	4.1	-2.2
03238	00	Z	500	31	3.7	2.2
03238	12	Z	500	1	3.7	3.7
03808	12	Z	500	32	3.3	1.6
03808	00	Z	500	29	4.3	3.1
03918	00	Z	500	30	7.7	7.1
03918	12	Z	500	3	8.5	6.2
03953	12	Z	500	31	6.1	-1.0
03953	00	Z	500	31	4.7	-2.5
04018	00	Z	500	28	2.7	0.6
04018	12	Z	500	30	3.8	0.6
04220	12	Z	500	31	10.2	-6.2
04220	00	Z	500	31	8.9	-7.7
04270	12	Z	500	30	9.4	-7.4
04270	00	Z	500	31	8.8	-7.6
04320	00	Z	500	31	4.9	-1.1
04320	12	Z	500	31	4.5	0.8
04339	00	Z	500	30	13.6	-12.2
04339	12	Z	500	28	8.5	-7.0
04360	12	Z	500	29	9.5	-8.0
04360	00	Z	500	29	11.3	-10.4
06011	12	Z	500	30	16.4	-2.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	500	6	3.0	-0.4
06260	00	Z	500	31	3.3	-1.4
06610	12	Z	500	31	2.5	1.3
06610	00	Z	500	31	2.6	0.2
07110	00	Z	500	31	9.2	-7.8
07110	12	Z	500	31	8.9	-7.9
07510	12	Z	500	31	8.6	7.9
07510	00	Z	500	30	6.1	4.4
07645	12	Z	500	33	7.0	-5.2
07645	00	Z	500	31	8.2	-6.2
07761	12	Z	500	31	3.9	-1.4
07761	00	Z	500	30	7.5	-5.5
08001	00	Z	500	30	7.7	0.0
08001	12	Z	500	30	9.8	-0.4
08221	12	Z	500	31	5.0	2.8
08221	00	Z	500	31	5.3	4.1
08302	00	Z	500	28	6.1	-5.8
08302	12	Z	500	29	6.4	-5.8
08508	12	Z	500	31	7.3	4.6
08522	12	Z	500	31	5.3	3.9
10035	00	Z	500	31	14.2	14.0
10035	12	Z	500	31	13.4	13.2
10393	12	Z	500	31	3.3	1.4
10393	00	Z	500	31	2.7	1.5
10410	12	Z	500	32	2.7	-0.7
10410	00	Z	500	32	3.2	1.0
10739	00	Z	500	32	4.9	4.1
10739	12	Z	500	31	4.2	3.2
11035	12	Z	500	31	4.9	2.5
11035	00	Z	500	31	4.9	-1.2
12982	00	Z	500	31	3.2	0.1
12982	12	Z	500	31	2.5	0.9
16245	00	Z	500	30	3.9	2.4
16245	12	Z	500	31	2.7	1.1
16429	00	Z	500	31	3.6	2.9
16429	12	Z	500	30	4.4	2.5
16622	12	Z	500	1	8.2	8.2
16622	00	Z	500	31	9.4	8.6
16754	00	Z	500	31	2.8	1.8
17607	12	Z	500	28	4.0	-0.6
26435	12	Z	500	15	1.9	0.3
2EERVT	12	Z	500	8	4.5	-0.5
2EERVT	00	Z	500	11	9.9	-8.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	00	Z	500	29	5.9	2.2
60018	12	Z	500	31	23.6	10.7
7JUNA4	00	Z	500	0	0.0	0.0
7JUNA4	12	Z	500	0	0.0	0.0
ASDE09	12	Z	500	0	0.0	0.0
ATGU3F	12	Z	500	12	46.0	6.5
ATGU3F	00	Z	500	13	16.1	-8.6
BPMWB2	12	Z	500	0	0.0	0.0
BPMWB2	00	Z	500	0	0.0	0.0
FPUW5G	12	Z	500	0	0.0	0.0
GQBZLZ	00	Z	500	0	0.0	0.0
GQBZLZ	12	Z	500	0	0.0	0.0
JNKN7J	12	Z	500	11	35.4	34.9
JNKN7J	00	Z	500	10	33.2	32.8
KMPLHP	00	Z	500	0	0.0	0.0
KMPLHP	12	Z	500	0	0.0	0.0
LAGY8	12	Z	500	0	0.0	0.0
LAGY8	00	Z	500	0	0.0	0.0
LAGZ8	12	Z	500	0	0.0	0.0
LRYQE3	12	Z	500	7	11.5	4.4
LRYQE3	00	Z	500	7	5.3	-0.7
USCAT	00	Z	500	0	0.0	0.0
UXK5JT	00	Z	500	0	0.0	0.0
UXK5JT	12	Z	500	0	0.0	0.0
XKQLWQ	12	Z	500	0	0.0	0.0
YLV96W	00	Z	500	0	0.0	0.0
YLV96W	12	Z	500	0	0.0	0.0
ZVQEQC	12	Z	500	0	0.0	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                : MAR 2024
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	31	2.5	-0.3	0.1
01001	00	V	500	24	1.8	0.1	-0.1
01028	12	V	500	31	1.8	0.3	0.4
01028	00	V	500	30	2.7	0.2	0.0
01400	12	V	500	29	2.6	0.6	-0.4
01400	00	V	500	28	2.1	0.3	0.4
01415	00	V	500	23	2.0	-0.1	0.2
01415	12	V	500	24	2.8	0.4	0.4
02365	12	V	500	17	3.7	0.8	0.8
02365	00	V	500	14	2.5	0.5	0.6
02591	12	V	500	25	1.9	0.4	-0.2
02591	00	V	500	26	1.9	-0.2	-0.2
02836	00	V	500	30	2.1	0.2	-0.1
02836	12	V	500	31	2.8	0.0	0.0
02963	12	V	500	31	1.9	0.2	0.1
02963	00	V	500	30	2.0	0.5	-0.2
03005	00	V	500	28	2.3	0.1	-0.3
03005	12	V	500	30	3.6	1.0	0.2
03238	00	V	500	30	2.6	-0.5	-0.4
03238	12	V	500	1	1.4	-0.1	-1.4
03808	12	V	500	31	3.4	0.3	0.0
03808	00	V	500	28	3.3	-0.5	-0.4
03918	00	V	500	29	2.8	0.5	-0.5
03918	12	V	500	3	2.3	-1.3	1.0
03953	12	V	500	31	3.1	0.2	0.9
03953	00	V	500	30	2.4	0.1	0.1
04018	00	V	500	27	2.6	-0.4	0.3
04018	12	V	500	29	3.3	0.8	-0.2
04220	12	V	500	31	2.1	0.6	0.3
04220	00	V	500	30	2.6	0.3	0.3
04270	12	V	500	30	2.4	-0.9	0.1
04270	00	V	500	30	3.0	0.3	0.0
04320	00	V	500	30	2.3	-0.1	-0.2
04320	12	V	500	31	2.4	0.0	0.2
04339	00	V	500	29	2.6	0.1	0.2
04339	12	V	500	28	2.5	0.1	-0.1
04360	12	V	500	29	3.2	-0.1	0.3
04360	00	V	500	28	2.5	-0.4	0.2
06011	12	V	500	30	2.6	0.6	-0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	500	6	2.4	0.6	0.6
06260	00	V	500	30	2.6	0.3	-0.5
06610	12	V	500	31	2.8	0.6	-0.1
06610	00	V	500	30	2.3	0.5	0.3
07110	00	V	500	30	3.2	-0.7	-0.3
07110	12	V	500	31	3.4	-0.5	0.6
07510	12	V	500	31	2.9	0.7	-0.5
07510	00	V	500	29	3.7	-0.3	-0.5
07645	12	V	500	31	2.4	0.4	0.0
07645	00	V	500	29	2.6	-0.6	0.0
07761	12	V	500	30	2.0	0.1	0.0
07761	00	V	500	29	2.3	-0.2	-0.4
08001	00	V	500	29	2.5	0.2	0.2
08001	12	V	500	30	3.7	0.7	0.4
08221	12	V	500	31	3.1	0.3	0.3
08221	00	V	500	30	2.2	0.1	-0.7
08302	00	V	500	25	2.5	0.6	0.4
08302	12	V	500	27	2.5	0.0	0.1
08508	12	V	500	31	2.5	-0.4	0.2
08522	12	V	500	31	2.6	0.6	-0.2
10035	00	V	500	30	2.1	0.4	-0.2
10035	12	V	500	31	2.3	0.0	0.0
10393	12	V	500	31	2.3	-0.2	0.2
10393	00	V	500	30	1.8	0.0	0.5
10410	12	V	500	31	2.2	-0.1	-0.2
10410	00	V	500	30	2.9	-0.2	-0.2
10739	00	V	500	30	2.8	0.2	0.3
10739	12	V	500	31	2.7	0.3	0.2
11035	12	V	500	31	2.3	-0.1	0.1
11035	00	V	500	30	3.3	-0.6	-1.0
12982	00	V	500	30	2.1	0.5	0.0
12982	12	V	500	31	2.1	0.1	0.2
16245	00	V	500	29	3.0	0.3	0.6
16245	12	V	500	31	3.0	0.2	0.0
16429	00	V	500	30	2.8	0.0	0.1
16429	12	V	500	30	2.4	0.3	0.1
16622	12	V	500	1	2.0	1.9	0.5
16622	00	V	500	30	3.4	-0.1	0.3
16754	00	V	500	29	2.8	0.5	0.6
17607	12	V	500	26	9.0	-2.7	-0.8
26435	12	V	500	15	1.9	0.1	-0.4
2EERVT	12	V	500	8	1.8	0.4	-0.2
2EERVT	00	V	500	11	3.3	0.8	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	00	V	500	28	2.3	-0.1	0.0
60018	12	V	500	31	3.1	0.9	0.4
7JUNA4	00	V	500	0	0.0	0.0	0.0
7JUNA4	12	V	500	0	0.0	0.0	0.0
ASDE09	12	V	500	0	0.0	0.0	0.0
ATGU3F	12	V	500	11	2.5	-0.8	0.1
ATGU3F	00	V	500	13	2.0	0.2	0.8
BPMWB2	12	V	500	0	0.0	0.0	0.0
BPMWB2	00	V	500	0	0.0	0.0	0.0
FPUW5G	12	V	500	0	0.0	0.0	0.0
GQBZLZ	00	V	500	0	0.0	0.0	0.0
GQBZLZ	12	V	500	0	0.0	0.0	0.0
JNKN7J	12	V	500	11	4.2	-0.2	0.0
JNKN7J	00	V	500	10	3.5	-0.3	0.8
KMPLHP	00	V	500	0	0.0	0.0	0.0
KMPLHP	12	V	500	0	0.0	0.0	0.0
LAGY8	12	V	500	0	0.0	0.0	0.0
LAGY8	00	V	500	0	0.0	0.0	0.0
LAGZ8	12	V	500	0	0.0	0.0	0.0
LRYQE3	12	V	500	7	2.4	1.4	-0.2
LRYQE3	00	V	500	7	1.6	0.4	0.2
USCAT	00	V	500	0	0.0	0.0	0.0
UXK5JT	00	V	500	0	0.0	0.0	0.0
UXK5JT	12	V	500	0	0.0	0.0	0.0
XKQLWQ	12	V	500	0	0.0	0.0	0.0
YLV96W	00	V	500	0	0.0	0.0	0.0
YLV96W	12	V	500	0	0.0	0.0	0.0
ZVQEQC	12	V	500	0	0.0	0.0	0.0

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                : MAR 2024
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	49	9.0	0.7
01001	00	Z	850	24	10.5	-10.0
01028	12	Z	850	61	2.8	-1.4
01028	00	Z	850	31	3.6	-1.0
01400	12	Z	850	29	74.1	73.9
01400	00	Z	850	29	75.0	74.8
01415	00	Z	850	23	3.6	2.9
01415	12	Z	850	24	4.1	3.4
02365	12	Z	850	17	5.8	5.1
02365	00	Z	850	14	7.5	7.1
02591	12	Z	850	25	7.7	7.5
02591	00	Z	850	26	7.4	7.0
02836	00	Z	850	31	2.6	1.4
02836	12	Z	850	34	3.3	2.1
02963	12	Z	850	31	2.8	2.1
02963	00	Z	850	31	2.7	2.0
03005	00	Z	850	29	3.0	-1.3
03005	12	Z	850	31	3.2	-0.8
03238	00	Z	850	31	3.9	3.2
03238	12	Z	850	1	4.9	4.9
03808	12	Z	850	32	3.5	2.9
03808	00	Z	850	29	4.3	3.4
03918	00	Z	850	30	6.9	6.6
03918	12	Z	850	3	5.7	5.4
03953	12	Z	850	31	4.7	-0.3
03953	00	Z	850	31	3.4	-1.5
04018	00	Z	850	28	3.0	1.3
04018	12	Z	850	31	3.1	0.8
04220	12	Z	850	31	9.0	-3.3
04220	00	Z	850	31	6.6	-5.9
04270	12	Z	850	30	7.6	-6.6
04270	00	Z	850	31	8.0	-7.2
04320	00	Z	850	30	5.1	-2.8
04320	12	Z	850	31	4.1	-1.6
04339	00	Z	850	30	10.9	-10.2
04339	12	Z	850	28	10.8	-9.3
04360	12	Z	850	29	10.8	-9.8
04360	00	Z	850	29	11.3	-10.1
06011	12	Z	850	30	4.2	-3.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	850	6	1.9	-1.0
06260	00	Z	850	31	3.5	-1.0
06610	12	Z	850	31	2.8	2.1
06610	00	Z	850	31	2.2	1.2
07110	00	Z	850	31	2.8	-1.6
07110	12	Z	850	31	3.1	-2.0
07510	12	Z	850	31	5.0	4.4
07510	00	Z	850	30	4.8	3.9
07645	12	Z	850	33	3.5	-1.7
07645	00	Z	850	32	4.3	-3.4
07761	12	Z	850	31	2.2	0.8
07761	00	Z	850	30	2.4	0.0
08001	00	Z	850	30	6.9	-2.3
08001	12	Z	850	30	10.3	-2.7
08221	12	Z	850	31	3.1	2.3
08221	00	Z	850	31	3.1	2.0
08302	00	Z	850	28	8.8	-8.6
08302	12	Z	850	29	8.3	-8.0
08508	12	Z	850	31	5.6	4.6
08522	12	Z	850	31	4.6	3.9
10035	00	Z	850	31	13.2	13.2
10035	12	Z	850	31	12.7	12.5
10393	12	Z	850	31	2.1	0.8
10393	00	Z	850	31	2.2	-0.1
10410	12	Z	850	32	2.2	0.0
10410	00	Z	850	32	2.4	-0.3
10739	00	Z	850	32	4.2	3.7
10739	12	Z	850	31	4.4	3.7
11035	12	Z	850	31	2.6	0.3
11035	00	Z	850	31	3.2	-1.2
12982	00	Z	850	31	2.4	1.2
12982	12	Z	850	31	2.0	1.0
16245	00	Z	850	30	3.3	2.7
16245	12	Z	850	31	2.7	2.0
16429	00	Z	850	31	4.0	3.0
16429	12	Z	850	30	2.6	1.5
16622	12	Z	850	1	14.5	14.5
16622	00	Z	850	31	10.0	9.5
16754	00	Z	850	31	3.7	0.4
17607	12	Z	850	28	1.6	-0.6
26435	12	Z	850	15	2.2	1.4
2EERVT	12	Z	850	8	6.3	-0.9
2EERVT	00	Z	850	11	5.7	-4.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	00	Z	850	29	2.3	-0.8
60018	12	Z	850	31	22.4	7.8
7JUNA4	00	Z	850	0	0.0	0.0
7JUNA4	12	Z	850	0	0.0	0.0
ASDE09	12	Z	850	0	0.0	0.0
ATGU3F	12	Z	850	14	19.9	-14.5
ATGU3F	00	Z	850	14	16.8	-10.9
BPMWB2	12	Z	850	0	0.0	0.0
BPMWB2	00	Z	850	0	0.0	0.0
FPUW5G	12	Z	850	0	0.0	0.0
GQBZLZ	00	Z	850	0	0.0	0.0
GQBZLZ	12	Z	850	0	0.0	0.0
JNKN7J	12	Z	850	11	38.5	38.1
JNKN7J	00	Z	850	10	38.0	37.5
KMPLHP	00	Z	850	0	0.0	0.0
KMPLHP	12	Z	850	0	0.0	0.0
LAGY8	12	Z	850	0	0.0	0.0
LAGY8	00	Z	850	0	0.0	0.0
LAGZ8	12	Z	850	0	0.0	0.0
LRYQE3	12	Z	850	7	5.0	-0.9
LRYQE3	00	Z	850	7	4.8	0.5
USCAT	00	Z	850	0	0.0	0.0
UXK5JT	00	Z	850	0	0.0	0.0
UXK5JT	12	Z	850	0	0.0	0.0
XKQLWQ	12	Z	850	0	0.0	0.0
YLV96W	00	Z	850	0	0.0	0.0
YLV96W	12	Z	850	0	0.0	0.0
ZVQEQC	12	Z	850	0	0.0	0.0

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                : MAR 2024
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	31	3.8	0.1	0.5
01001	00	V	850	24	3.5	0.5	0.4
01028	12	V	850	31	2.6	0.6	-0.4
01028	00	V	850	30	3.0	0.6	-0.2
01400	12	V	850	29	2.1	-0.3	0.1
01400	00	V	850	28	2.4	-0.4	0.4
01415	00	V	850	23	2.8	0.4	-0.1
01415	12	V	850	24	2.6	0.1	0.3
02365	12	V	850	17	2.6	0.1	-0.4
02365	00	V	850	14	2.6	0.2	0.5
02591	12	V	850	25	2.5	0.4	-0.4
02591	00	V	850	26	2.2	0.0	-0.4
02836	00	V	850	30	2.5	0.0	0.0
02836	12	V	850	31	2.8	-0.7	-0.2
02963	12	V	850	31	2.1	0.4	0.0
02963	00	V	850	30	2.4	0.2	-0.2
03005	00	V	850	28	2.7	0.0	0.0
03005	12	V	850	30	3.1	0.6	-0.5
03238	00	V	850	30	2.3	0.2	0.4
03238	12	V	850	1	2.1	-1.6	-1.4
03808	12	V	850	31	3.1	0.4	0.0
03808	00	V	850	28	2.6	-0.1	-0.2
03918	00	V	850	29	2.2	0.2	0.4
03918	12	V	850	3	2.8	-1.6	0.9
03953	12	V	850	31	3.2	0.2	0.1
03953	00	V	850	30	3.2	0.7	0.5
04018	00	V	850	27	3.3	0.7	0.3
04018	12	V	850	30	3.6	0.2	0.8
04220	12	V	850	31	3.4	1.1	0.4
04220	00	V	850	30	3.0	-0.1	0.2
04270	12	V	850	30	3.5	-0.8	0.3
04270	00	V	850	30	5.1	0.3	-0.9
04320	00	V	850	29	3.5	0.8	-0.4
04320	12	V	850	31	2.9	0.3	0.3
04339	00	V	850	29	3.7	1.2	-0.1
04339	12	V	850	28	3.3	0.6	-0.4
04360	12	V	850	29	5.5	1.7	0.4
04360	00	V	850	28	3.8	0.3	-0.3
06011	12	V	850	30	2.8	-0.1	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	850	6	2.3	0.3	-1.1
06260	00	V	850	30	2.2	0.3	-0.4
06610	12	V	850	31	3.5	0.6	0.1
06610	00	V	850	30	2.7	0.4	0.3
07110	00	V	850	30	2.7	-0.2	0.2
07110	12	V	850	30	3.1	0.1	-0.3
07510	12	V	850	31	2.8	0.0	0.4
07510	00	V	850	29	3.0	0.6	0.0
07645	12	V	850	31	3.0	-0.3	0.1
07645	00	V	850	30	2.6	-0.9	-0.1
07761	12	V	850	30	3.1	-0.2	-0.2
07761	00	V	850	29	2.6	-0.2	0.5
08001	00	V	850	29	3.3	-0.4	-0.8
08001	12	V	850	30	2.8	0.7	-0.4
08221	12	V	850	31	3.1	0.1	0.1
08221	00	V	850	30	2.3	-0.1	-0.2
08302	00	V	850	25	2.5	0.3	0.7
08302	12	V	850	27	2.2	0.0	-0.1
08508	12	V	850	31	3.0	-0.8	-0.8
08522	12	V	850	31	4.0	-0.5	0.2
10035	00	V	850	30	1.8	0.2	-0.2
10035	12	V	850	31	2.1	0.6	0.1
10393	12	V	850	31	2.9	0.5	0.3
10393	00	V	850	30	2.6	-0.1	-0.1
10410	12	V	850	31	2.3	0.5	-0.1
10410	00	V	850	30	2.7	0.2	-0.2
10739	00	V	850	30	2.1	0.3	0.0
10739	12	V	850	31	2.5	-0.2	0.9
11035	12	V	850	31	2.5	0.0	0.2
11035	00	V	850	30	3.0	-0.1	-0.5
12982	00	V	850	30	3.0	0.2	-0.6
12982	12	V	850	31	2.7	0.1	0.1
16245	00	V	850	29	2.4	-0.5	-0.2
16245	12	V	850	31	2.6	-0.3	0.2
16429	00	V	850	30	3.5	0.1	-0.4
16429	12	V	850	30	2.6	-0.3	0.3
16622	12	V	850	1	10.7	-10.7	-0.3
16622	00	V	850	30	3.1	0.0	-0.1
16754	00	V	850	29	3.6	-1.4	-0.5
17607	12	V	850	27	2.5	1.0	-0.3
26435	12	V	850	15	2.3	0.3	-0.3
2EERVT	12	V	850	8	1.6	0.4	-0.7
2EERVT	00	V	850	11	2.7	0.4	-0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	00	V	850	28	4.6	-1.1	0.0
60018	12	V	850	31	3.6	-0.7	-0.3
7JUNA4	00	V	850	0	0.0	0.0	0.0
7JUNA4	12	V	850	0	0.0	0.0	0.0
ASDE09	12	V	850	0	0.0	0.0	0.0
ATGU3F	12	V	850	14	3.8	-1.5	-0.3
ATGU3F	00	V	850	14	3.9	0.0	0.6
BPMWB2	12	V	850	0	0.0	0.0	0.0
BPMWB2	00	V	850	0	0.0	0.0	0.0
FPUW5G	12	V	850	0	0.0	0.0	0.0
GQBZLZ	00	V	850	0	0.0	0.0	0.0
GQBZLZ	12	V	850	0	0.0	0.0	0.0
JNKN7J	12	V	850	11	2.0	0.5	0.4
JNKN7J	00	V	850	10	3.9	0.3	-1.6
KMPLHP	00	V	850	0	0.0	0.0	0.0
KMPLHP	12	V	850	0	0.0	0.0	0.0
LAGY8	12	V	850	0	0.0	0.0	0.0
LAGY8	00	V	850	0	0.0	0.0	0.0
LAGZ8	12	V	850	0	0.0	0.0	0.0
LRYQE3	12	V	850	7	2.5	-0.9	0.5
LRYQE3	00	V	850	7	2.3	-0.8	0.2
USCAT	00	V	850	0	0.0	0.0	0.0
UXK5JT	00	V	850	0	0.0	0.0	0.0
UXK5JT	12	V	850	0	0.0	0.0	0.0
XKQLWQ	12	V	850	0	0.0	0.0	0.0
YLV96W	00	V	850	0	0.0	0.0	0.0
YLV96W	12	V	850	0	0.0	0.0	0.0
ZVQEQC	12	V	850	0	0.0	0.0	0.0

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

```
DRIFTER MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE      : ECMWF
         ELEMENT MONITORED      : SURFACE PRESSURE (HPA)
         AREA                   : 10N - 90N, 70W - 40E
         PERIOD                 : MAR 2024
         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	1368	0	0.3	-0.3	0.4
1000044	99	P	SUR	55	10	402	0	0.4	-3.3	3.3
1300001	99	P	SUR	11	-23	269	0	0.3	0.3	0.4
1300130	99	P	SUR	28	-16	744	0	0.3	0.1	0.3
1300131	99	P	SUR	28	-17	742	0	0.4	-0.2	0.5
1301619	99	P	SUR	40	-19	378	0	0.8	-0.2	0.8
1301622	99	P	SUR	16	-59	737	0	0.2	0.0	0.2
1301629	99	P	SUR	23	-50	744	0	0.3	-0.1	0.3
1301712	99	P	SUR	19	-60	743	0	0.2	-0.1	0.3
1301714	99	P	SUR	24	-59	744	0	0.3	0.0	0.3
1301718	99	P	SUR	31	-44	744	0	0.3	0.0	0.3
1301719	99	P	SUR	26	-60	744	0	0.4	0.5	0.6
1301725	99	P	SUR	20	-42	742	0	0.3	-0.1	0.3
1301726	99	P	SUR	23	-44	743	0	0.3	-0.1	0.3
1301731	99	P	SUR	22	-45	741	0	0.3	0.1	0.3
1301735	99	P	SUR	31	-41	744	0	0.3	-1.0	1.1
1301736	99	P	SUR	28	-39	744	0	0.3	0.2	0.3
1301737	99	P	SUR	27	-52	744	0	0.4	-0.2	0.4
1301763	99	P	SUR	13	-48	3	3	0.0	0.0	0.0
1301769	99	P	SUR	30	-20	206	0	0.2	1.0	1.0
1301770	99	P	SUR	28	-28	744	0	0.3	0.1	0.3
1301771	99	P	SUR	31	-15	742	0	0.3	-0.1	0.3
1301773	99	P	SUR	36	-12	743	0	0.4	-0.1	0.4
1301774	99	P	SUR	27	-53	742	0	0.4	0.1	0.4
1301778	99	P	SUR	30	-20	743	0	0.3	0.0	0.3
1301779	99	P	SUR	18	-57	743	0	0.3	0.0	0.3
1301783	99	P	SUR	17	-60	575	0	0.3	0.3	0.4
1301792	99	P	SUR	20	-48	730	0	0.3	-0.5	0.6
1301793	99	P	SUR	61	-19	713	0	0.5	0.2	0.5
1301794	99	P	SUR	40	-16	718	0	0.8	-0.2	0.8
1301795	99	P	SUR	20	-44	653	0	0.3	-0.1	0.3
1301796	99	P	SUR	18	-45	625	0	0.3	0.1	0.3
1301797	99	P	SUR	18	-46	719	0	0.3	0.1	0.3
1301798	99	P	SUR	33	-28	741	0	0.3	0.3	0.5
1301799	99	P	SUR	29	-27	726	0	0.3	0.3	0.4
1301803	99	P	SUR	62	4	741	0	0.3	0.1	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
1301804	99	P	SUR	63	-15	741	0	0.4	0.2	0.5
1301810	99	P	SUR	41	-43	104	0	0.3	-0.1	0.3
1301811	99	P	SUR	42	-41	121	0	0.3	0.1	0.3
1301813	99	P	SUR	40	-45	96	0	0.3	0.2	0.3
1301814	99	P	SUR	43	-40	130	0	0.7	-0.1	0.7
1301819	99	P	SUR	26	-21	743	0	0.2	-0.1	0.3
1301820	99	P	SUR	23	-23	742	0	0.2	-0.1	0.2
1301822	99	P	SUR	21	-23	743	0	0.3	0.4	0.4
1301823	99	P	SUR	24	-22	743	0	0.2	0.2	0.3
1501637	99	P	SUR	10	-38	744	0	0.3	0.5	0.6
1501638	99	P	SUR	18	-28	744	0	0.2	0.2	0.3
1701715	99	P	SUR	19	-55	689	0	0.3	-0.3	0.4
1701716	99	P	SUR	12	-25	713	0	0.3	0.0	0.3
1701718	99	P	SUR	12	-52	730	730	0.0	0.0	0.0
1801671	99	P	SUR	50	-36	726	0	0.4	-0.2	0.5
1801674	99	P	SUR	43	-35	734	0	0.5	-0.2	0.5
1801678	99	P	SUR	50	-26	740	0	0.6	0.1	0.6
1801681	99	P	SUR	30	19	11	0	0.2	-0.7	0.8
2601714	99	P	SUR	83	14	657	0	1.2	0.9	1.5
2801966	99	P	SUR	35	17	718	0	0.3	0.1	0.3
2801988	99	P	SUR	32	-16	741	0	0.3	-0.2	0.3
2802066	99	P	SUR	77	-7	493	0	0.6	0.2	0.6
2802075	99	P	SUR	52	-36	741	0	0.5	-0.1	0.5
2802076	99	P	SUR	64	-35	372	0	0.4	-0.5	0.6
2802077	99	P	SUR	64	-31	744	0	0.8	0.4	0.9
3801569	99	P	SUR	50	-34	702	0	0.5	-0.2	0.5
3801572	99	P	SUR	34	27	708	0	0.3	-0.2	0.4
3801576	99	P	SUR	33	20	721	0	0.3	-0.6	0.7
3801596	99	P	SUR	33	-40	741	0	0.3	-0.1	0.4
3801665	99	P	SUR	83	-4	744	0	0.5	0.4	0.6
3801676	99	P	SUR	67	-6	742	0	0.4	0.3	0.5
4100040	99	P	SUR	15	-53	4455	0	0.3	-0.8	0.9
4100043	99	P	SUR	21	-65	4395	0	0.4	-0.7	0.8
4100044	99	P	SUR	22	-59	4455	0	0.3	-0.5	0.5
4100046	99	P	SUR	24	-68	4460	0	0.3	0.0	0.3
4100052	99	P	SUR	18	-65	4415	0	0.2	-1.0	1.0
4100053	99	P	SUR	18	-66	4404	0	0.3	-0.8	0.8
4100056	99	P	SUR	18	-65	4442	0	0.2	-1.0	1.0
4100139	99	P	SUR	20	-38	557	0	0.2	0.2	0.3
4101665	99	P	SUR	68	-6	744	0	0.4	-0.3	0.5
4101696	99	P	SUR	33	-39	37	0	0.2	-0.1	0.2
4101719	99	P	SUR	18	-58	743	0	0.2	-0.1	0.2
4101725	99	P	SUR	18	-63	744	0	0.2	-0.1	0.2

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101727	99	P	SUR	25	-50	744	0	0.4	0.0	0.4
4101728	99	P	SUR	28	-40	744	0	1.5	0.6	1.6
4101729	99	P	SUR	30	-46	744	0	1.1	0.2	1.1
4101730	99	P	SUR	14	-27	742	0	0.3	0.3	0.4
4101753	99	P	SUR	32	-42	744	0	0.4	0.5	0.7
4101755	99	P	SUR	31	-47	744	0	0.5	0.3	0.5
4101843	99	P	SUR	77	5	744	0	1.2	0.1	1.2
4101845	99	P	SUR	69	3	744	0	0.4	0.2	0.5
4101851	99	P	SUR	30	-55	744	0	0.4	-0.7	0.8
4101859	99	P	SUR	14	-35	744	0	0.3	0.1	0.3
4101860	99	P	SUR	15	-33	741	0	0.2	-0.4	0.5
4101861	99	P	SUR	19	-38	741	0	0.3	0.3	0.4
4101862	99	P	SUR	16	-30	736	0	0.2	-0.3	0.4
4101863	99	P	SUR	18	-29	741	0	0.3	0.1	0.3
4102547	99	P	SUR	25	-65	742	0	0.4	0.2	0.4
4102559	99	P	SUR	41	-46	21	0	0.4	0.4	0.5
41040	99	P	SUR	15	-53	743	0	0.3	-0.8	0.9
41043	99	P	SUR	21	-65	734	0	0.4	-0.7	0.8
41044	99	P	SUR	22	-59	744	0	0.3	-0.5	0.6
41046	99	P	SUR	24	-68	744	0	0.4	0.0	0.4
41052	99	P	SUR	18	-65	733	0	0.2	-1.0	1.0
41053	99	P	SUR	19	-66	743	0	0.3	-0.8	0.8
41056	99	P	SUR	18	-66	739	0	0.2	-1.0	1.0
4200059	99	P	SUR	15	-67	4462	0	0.3	-0.7	0.7
4200060	99	P	SUR	16	-63	4458	0	0.3	-0.4	0.4
4200085	99	P	SUR	18	-67	3477	0	0.3	-0.8	0.8
42059	99	P	SUR	15	-68	744	0	0.3	-0.7	0.7
42060	99	P	SUR	16	-63	744	0	0.2	-0.3	0.4
42085	99	P	SUR	18	-67	714	0	0.3	-0.8	0.8
4400005	99	P	SUR	43	-69	3513	0	0.6	-0.5	0.8
4400008	99	P	SUR	40	-69	4459	0	0.6	-1.0	1.1
4400027	99	P	SUR	44	-67	4461	0	0.6	-0.9	1.1
4400032	99	P	SUR	44	-69	741	0	0.6	-0.4	0.7
4400033	99	P	SUR	44	-69	738	0	0.6	-1.1	1.2
4400037	99	P	SUR	43	-68	733	0	0.7	-0.2	0.7
4400150	99	P	SUR	43	-64	733	0	0.5	-0.3	0.6
4400488	99	P	SUR	45	-61	417	0	0.5	-0.1	0.5
4400489	99	P	SUR	45	-61	434	0	0.5	-0.1	0.5
44005	99	P	SUR	43	-69	587	0	0.7	-0.6	0.9
44008	99	P	SUR	41	-69	744	0	0.6	-1.0	1.2
4401582	99	P	SUR	26	-53	736	0	1.2	0.1	1.2
4401584	99	P	SUR	25	-50	744	0	0.4	-0.1	0.4
4401585	99	P	SUR	26	-63	746	0	0.5	-0.1	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401587	99	P	SUR	80	26	744	0	0.6	1.1	1.3
4401588	99	P	SUR	69	15	537	0	0.6	0.1	0.6
4401864	99	P	SUR	23	-56	652	0	0.3	-0.3	0.4
4402613	99	P	SUR	33	-9	739	0	0.8	0.2	0.9
4402618	99	P	SUR	33	-54	744	0	0.4	0.1	0.4
4402656	99	P	SUR	37	-28	744	1	0.9	0.4	1.0
4402660	99	P	SUR	21	-63	741	0	0.3	0.3	0.4
4402663	99	P	SUR	31	-22	738	0	0.3	-0.1	0.3
4402672	99	P	SUR	17	-62	60	0	0.3	0.0	0.3
4402674	99	P	SUR	25	-62	744	0	0.3	0.1	0.3
4402675	99	P	SUR	24	-50	744	0	0.3	-0.2	0.4
4402676	99	P	SUR	28	-34	744	0	0.3	0.1	0.3
44027	99	P	SUR	44	-67	743	0	0.7	-0.9	1.1
4402721	99	P	SUR	28	-22	744	0	0.2	0.3	0.4
4402726	99	P	SUR	54	-13	744	0	0.4	-0.1	0.4
4402729	99	P	SUR	50	-32	743	0	0.5	-0.1	0.5
4402730	99	P	SUR	35	-36	730	0	0.3	0.0	0.3
4402731	99	P	SUR	47	-39	738	7	1.2	0.3	1.2
4402732	99	P	SUR	46	-2	742	0	0.4	-0.3	0.5
4402733	99	P	SUR	42	-55	741	0	0.5	0.1	0.5
4402735	99	P	SUR	47	-17	741	0	0.5	-0.3	0.6
4402736	99	P	SUR	44	-11	741	0	0.4	-0.1	0.5
4402737	99	P	SUR	51	-40	743	0	1.0	0.6	1.2
4402739	99	P	SUR	51	-41	740	0	0.5	0.1	0.5
4402741	99	P	SUR	53	-12	741	0	0.4	0.2	0.5
4402742	99	P	SUR	46	-5	743	0	0.4	-0.2	0.4
4402743	99	P	SUR	43	-21	741	0	1.2	-1.1	1.6
4402744	99	P	SUR	41	-40	737	0	1.0	1.0	1.4
4402747	99	P	SUR	41	-27	710	0	0.5	0.0	0.5
4402749	99	P	SUR	53	-25	742	0	0.5	-0.2	0.6
4402750	99	P	SUR	55	-36	744	0	0.4	-0.5	0.6
4402878	99	P	SUR	38	-48	15	0	0.3	0.6	0.7
4402879	99	P	SUR	34	-60	350	0	0.4	0.4	0.6
4402881	99	P	SUR	45	-12	2	0	0.3	-0.1	0.3
4402882	99	P	SUR	37	-57	665	0	0.5	0.2	0.6
4402884	99	P	SUR	24	-70	713	0	0.4	0.3	0.5
4402885	99	P	SUR	29	-44	555	0	0.3	0.4	0.5
44032	99	P	SUR	44	-69	741	0	0.6	-0.4	0.7
44033	99	P	SUR	44	-69	738	0	0.6	-1.1	1.2
4403568	99	P	SUR	33	-33	744	0	0.4	0.2	0.4
4403569	99	P	SUR	42	-16	743	0	0.4	-0.1	0.4
44037	99	P	SUR	44	-68	732	0	0.7	-0.2	0.8
44078	99	P	SUR	60	-40	267	0	0.7	-0.8	1.1

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44150	99	P	SUR	43	-64	733	0	0.5	-0.3	0.6
44258	99	P	SUR	45	-63	743	0	0.5	-0.2	0.6
44488	99	P	SUR	45	-61	718	0	0.5	-0.1	0.5
44489	99	P	SUR	46	-61	744	0	0.5	-0.1	0.5
4601782	99	P	SUR	30	-27	744	0	0.5	0.5	0.8
4701554	99	P	SUR	74	-11	710	7	2.0	0.1	2.0
4701555	99	P	SUR	78	-6	731	0	0.6	0.0	0.6
4701558	99	P	SUR	79	-18	60	0	0.5	-4.7	4.7
4701560	99	P	SUR	76	-9	463	0	1.1	0.0	1.1
4701561	99	P	SUR	75	-9	730	0	1.8	0.1	1.8
4801763	99	P	SUR	83	-27	744	0	0.8	0.1	0.8
4802506	99	P	SUR	58	-8	721	319	7.0	-4.5	8.3
4802582	99	P	SUR	84	-8	732	0	0.5	0.0	0.5
4802592	99	P	SUR	76	-13	731	0	0.5	-0.1	0.5
4802598	99	P	SUR	86	-60	730	0	0.4	0.1	0.4
4802602	99	P	SUR	64	-21	732	0	0.5	-0.6	0.8
4802606	99	P	SUR	86	-47	732	0	0.4	0.2	0.4
4802664	99	P	SUR	84	-52	744	0	0.6	0.0	0.6
5801972	99	P	SUR	45	-51	731	0	0.5	-0.1	0.5
5801975	99	P	SUR	40	-34	723	0	0.4	-0.1	0.5
5801976	99	P	SUR	49	-39	717	0	0.4	-0.2	0.5
5801977	99	P	SUR	20	-45	730	0	0.3	0.0	0.3
5801983	99	P	SUR	34	-17	725	0	0.3	0.1	0.3
5802034	99	P	SUR	47	-6	741	0	0.4	-0.1	0.4
5802061	99	P	SUR	76	-8	677	9	0.6	0.0	0.6
5802077	99	P	SUR	25	-66	741	0	0.4	-0.1	0.4
6100001	99	P	SUR	43	8	720	0	0.4	0.0	0.4
6100002	99	P	SUR	42	5	739	0	0.4	-0.1	0.4
6100196	99	P	SUR	42	4	742	30	0.4	0.7	0.8
6100197	99	P	SUR	40	4	744	0	0.3	0.3	0.5
6100198	99	P	SUR	37	-2	743	0	0.6	0.1	0.6
6100280	99	P	SUR	41	1	744	0	0.5	0.2	0.5
6100281	99	P	SUR	40	0	744	0	0.6	0.5	0.8
6100417	99	P	SUR	38	0	744	0	0.5	0.6	0.8
6100430	99	P	SUR	40	2	744	0	0.4	0.4	0.5
6101007	99	P	SUR	36	25	24	0	0.6	-0.5	0.8
6101009	99	P	SUR	35	25	36	0	0.7	-0.2	0.7
6101031	99	P	SUR	42	8	742	0	0.3	0.0	0.3
6200001	99	P	SUR	45	-5	740	0	0.4	-0.1	0.4
6200024	99	P	SUR	44	-3	742	3	1.3	0.3	1.3
6200050	99	P	SUR	50	-4	744	0	0.3	-0.1	0.3
6200083	99	P	SUR	43	-9	744	0	0.6	-0.2	0.6
6200084	99	P	SUR	42	-9	744	0	0.6	-0.1	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6200085	99	P	SUR	36	-7	744	0	0.5	0.0	0.5
6200086	99	P	SUR	55	7	77	0	0.3	-0.5	0.6
6200087	99	P	SUR	55	7	130	0	0.4	-0.3	0.5
6200091	99	P	SUR	53	-5	744	0	0.4	-0.2	0.4
6200092	99	P	SUR	51	-11	744	0	0.5	-0.3	0.5
6200093	99	P	SUR	55	-10	744	0	0.4	-0.3	0.5
6200094	99	P	SUR	52	-7	744	0	0.4	-0.1	0.4
6200095	99	P	SUR	53	-16	744	0	0.4	-0.3	0.5
6200103	99	P	SUR	50	-3	678	0	0.4	-0.3	0.5
6200163	99	P	SUR	47	-8	742	0	0.4	-0.2	0.4
6200191	99	P	SUR	41	-10	709	0	0.5	-0.7	0.9
6200192	99	P	SUR	40	-10	709	0	0.6	-0.6	0.9
6201065	99	P	SUR	54	7	692	0	0.3	1.1	1.2
6201066	99	P	SUR	55	7	718	0	0.3	0.3	0.5
6201081	99	P	SUR	38	-9	467	0	0.5	-0.4	0.6
6202114	99	P	SUR	54	6	136	0	0.3	-0.1	0.3
6202597	99	P	SUR	46	-14	744	0	0.4	0.2	0.5
6202598	99	P	SUR	43	-20	256	11	4.3	1.8	4.7
6202637	99	P	SUR	63	-6	703	0	0.4	0.1	0.4
6202639	99	P	SUR	31	-30	667	0	0.3	-0.2	0.4
6203516	99	P	SUR	41	-17	525	0	0.3	-0.1	0.3
6203607	99	P	SUR	31	-27	744	66	1.3	0.0	1.3
6203612	99	P	SUR	38	-50	630	115	4.4	-1.4	4.6
6203616	99	P	SUR	24	-70	744	0	1.0	0.1	1.0
6203621	99	P	SUR	26	-45	742	0	0.4	0.0	0.4
6203625	99	P	SUR	29	-41	743	0	0.3	-0.1	0.3
6203632	99	P	SUR	30	-56	744	0	0.6	0.2	0.6
6203634	99	P	SUR	30	-32	744	0	0.3	0.3	0.5
6203639	99	P	SUR	32	-26	744	10	2.2	0.5	2.2
6203651	99	P	SUR	39	-16	738	0	0.4	0.2	0.4
6203656	99	P	SUR	76	-8	737	43	1.8	-0.1	1.8
6203660	99	P	SUR	71	-20	743	0	0.7	-0.2	0.7
6203661	99	P	SUR	80	-4	744	0	0.5	0.0	0.5
6203664	99	P	SUR	86	-2	743	0	0.5	0.5	0.7
6203667	99	P	SUR	81	2	744	0	0.5	-0.3	0.6
6203669	99	P	SUR	80	16	744	0	0.6	-0.2	0.7
6203741	99	P	SUR	66	8	742	0	0.4	0.1	0.4
6203744	99	P	SUR	79	9	436	146	2.4	0.1	2.4
6203753	99	P	SUR	57	-45	744	0	0.6	-0.3	0.7
6203755	99	P	SUR	26	-19	607	0	0.4	-0.2	0.4
6203768	99	P	SUR	28	-31	744	0	0.3	0.2	0.4
6203771	99	P	SUR	26	-43	744	0	0.3	-0.1	0.3
6203773	99	P	SUR	42	-45	744	0	0.5	-0.7	0.8

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6203823	99	P	SUR	63	-18	743	0	0.6	0.3	0.7
6203824	99	P	SUR	63	-11	741	0	0.4	1.2	1.3
6203825	99	P	SUR	63	-1	738	0	0.4	0.2	0.5
6203826	99	P	SUR	64	-12	739	0	0.4	0.2	0.5
6203827	99	P	SUR	66	12	110	0	0.3	-0.1	0.4
6203839	99	P	SUR	32	-55	744	0	0.4	-0.3	0.5
6203840	99	P	SUR	23	-54	744	0	0.3	0.0	0.3
6203842	99	P	SUR	29	-32	744	0	0.3	0.1	0.3
6203844	99	P	SUR	46	-13	743	0	0.5	0.2	0.5
6203845	99	P	SUR	57	-7	115	0	0.3	-0.4	0.5
6203846	99	P	SUR	31	-27	744	0	0.3	-0.2	0.3
6203849	99	P	SUR	26	-53	741	0	0.4	0.0	0.4
6203853	99	P	SUR	73	25	742	24	1.5	-0.2	1.5
6203854	99	P	SUR	56	-43	741	0	0.5	0.3	0.5
6203855	99	P	SUR	68	12	118	0	0.3	-0.2	0.4
6203864	99	P	SUR	67	-13	413	0	0.4	0.1	0.5
6203865	99	P	SUR	56	-31	738	0	0.6	-0.2	0.6
6203866	99	P	SUR	69	15	118	0	0.6	0.2	0.6
6203890	99	P	SUR	13	-34	744	0	0.3	-0.1	0.3
6203894	99	P	SUR	22	-23	742	0	0.2	0.2	0.3
6204603	99	P	SUR	42	5	647	0	0.4	0.6	0.7
6204604	99	P	SUR	39	6	693	0	0.3	-0.8	0.9
6204607	99	P	SUR	37	9	40	0	0.5	-3.0	3.0
6204609	99	P	SUR	35	13	741	0	0.3	-0.5	0.6
6204610	99	P	SUR	37	8	268	0	1.1	-0.7	1.3
6204611	99	P	SUR	37	12	179	0	0.3	0.3	0.4
6204612	99	P	SUR	39	4	735	0	0.4	0.2	0.4
62050	99	P	SUR	50	-4	1488	0	0.4	-0.1	0.4
62081	99	P	SUR	51	-13	1484	0	0.5	-0.2	0.6
62091	99	P	SUR	53	-5	744	0	0.4	-0.2	0.4
62092	99	P	SUR	51	-11	744	0	0.5	-0.3	0.5
62093	99	P	SUR	55	-10	744	0	0.4	-0.3	0.5
62094	99	P	SUR	52	-7	744	0	0.4	-0.1	0.4
62095	99	P	SUR	53	-16	744	0	0.4	-0.3	0.5
62102	99	P	SUR	58	2	1398	0	0.7	0.5	0.9
62103	99	P	SUR	50	-3	1488	0	0.4	-0.4	0.5
62104	99	P	SUR	57	1	1402	0	0.4	0.1	0.5
62105	99	P	SUR	55	-13	1488	0	1.2	-0.3	1.2
62107	99	P	SUR	50	-6	328	0	0.3	-0.2	0.3
62112	99	P	SUR	58	0	1402	0	0.3	0.3	0.5
62113	99	P	SUR	58	0	1404	0	0.5	0.0	0.5
62114	99	P	SUR	58	0	704	0	0.4	0.3	0.5
62115	99	P	SUR	58	-3	1402	0	0.3	-0.1	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62116	99	P	SUR	58	1	1400	0	0.4	0.2	0.5
62118	99	P	SUR	58	1	1404	0	0.3	0.4	0.5
62119	99	P	SUR	57	2	1400	0	0.4	0.0	0.5
62120	99	P	SUR	56	2	1404	0	0.4	-0.2	0.5
62121	99	P	SUR	54	3	1400	0	0.5	0.4	0.6
62122	99	P	SUR	57	2	1392	0	0.4	0.0	0.5
62124	99	P	SUR	54	-4	1404	0	0.4	0.1	0.4
62127	99	P	SUR	54	1	1403	0	0.3	0.1	0.4
62129	99	P	SUR	58	0	1396	0	0.5	0.0	0.5
62130	99	P	SUR	59	1	1404	0	0.3	-0.2	0.4
62131	99	P	SUR	54	1	1384	0	0.4	0.6	0.7
62132	99	P	SUR	56	2	1400	0	0.5	0.3	0.6
62133	99	P	SUR	57	1	1400	0	0.5	0.3	0.6
62134	99	P	SUR	58	1	1384	0	0.4	0.2	0.4
62140	99	P	SUR	57	1	1400	0	0.3	0.2	0.4
62143	99	P	SUR	58	2	1396	0	0.4	0.5	0.7
62144	99	P	SUR	53	2	1368	0	0.3	0.1	0.3
62145	99	P	SUR	53	3	1402	0	0.3	0.3	0.4
62146	99	P	SUR	57	2	1348	0	0.5	0.2	0.5
62148	99	P	SUR	54	2	1326	0	0.4	0.5	0.6
62149	99	P	SUR	54	1	1404	0	0.3	0.3	0.4
62151	99	P	SUR	57	2	1396	0	0.4	0.3	0.5
62152	99	P	SUR	57	2	1394	0	0.5	0.3	0.5
62153	99	P	SUR	57	2	1252	0	0.3	0.2	0.4
62154	99	P	SUR	56	2	1402	0	0.4	0.0	0.4
62155	99	P	SUR	58	1	1400	0	0.4	0.4	0.5
62157	99	P	SUR	58	0	1402	0	0.5	0.0	0.5
62160	99	P	SUR	57	2	1396	0	0.5	0.3	0.6
62161	99	P	SUR	58	1	1404	0	0.5	-0.4	0.7
62162	99	P	SUR	57	1	1386	0	0.4	0.0	0.4
62163	99	P	SUR	48	-9	1482	0	0.4	-0.2	0.4
62164	99	P	SUR	57	1	1402	0	0.4	0.3	0.5
62165	99	P	SUR	54	1	1404	0	0.5	0.1	0.5
62168	99	P	SUR	58	1	1404	0	0.3	0.0	0.3
62170	99	P	SUR	51	2	1488	0	0.4	-0.1	0.4
62297	99	P	SUR	59	2	1404	0	0.3	-0.1	0.3
62302	99	P	SUR	61	-2	1392	0	0.5	0.0	0.5
62304	99	P	SUR	51	2	1474	0	0.4	-0.2	0.4
62305	99	P	SUR	50	0	1488	0	0.4	-0.3	0.5
6301001	99	P	SUR	64	5	743	0	0.3	-0.1	0.3
6301004	99	P	SUR	72	20	736	0	0.5	-0.5	0.7
6301008	99	P	SUR	68	15	560	0	0.4	-0.6	0.7
6301575	99	P	SUR	49	-8	531	0	0.4	0.5	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6301577	99	P	SUR	71	20	523	0	1.5	-0.2	1.5
63055	99	P	SUR	61	2	1400	0	0.5	-0.1	0.5
63056	99	P	SUR	60	2	1402	0	0.7	0.5	0.9
63057	99	P	SUR	59	2	1402	0	0.3	0.0	0.3
63058	99	P	SUR	53	2	835	0	0.3	0.1	0.3
63059	99	P	SUR	58	-1	1404	0	0.4	0.3	0.5
63101	99	P	SUR	61	1	1242	0	0.6	0.2	0.6
63102	99	P	SUR	61	1	1406	0	0.4	-0.1	0.5
63103	99	P	SUR	61	1	1404	0	0.9	0.6	1.1
63108	99	P	SUR	61	2	1404	0	0.6	-0.2	0.6
63109	99	P	SUR	60	2	1326	0	0.4	-0.5	0.7
63110	99	P	SUR	60	2	1290	0	0.7	0.0	0.7
63111	99	P	SUR	61	2	1404	0	0.4	-0.5	0.6
63112	99	P	SUR	61	1	1402	0	0.3	-0.4	0.5
63115	99	P	SUR	62	1	1390	0	0.4	-0.1	0.4
63117	99	P	SUR	61	1	1404	0	0.7	0.6	1.0
63118	99	P	SUR	58	1	1406	0	0.5	-0.4	0.7
6400045	99	P	SUR	59	-12	744	0	0.3	-0.3	0.5
6400046	99	P	SUR	61	-4	647	0	0.3	-0.2	0.4
6401583	99	P	SUR	62	-24	744	0	0.5	0.2	0.5
6401584	99	P	SUR	63	-34	744	0	0.6	0.3	0.7
6401590	99	P	SUR	70	32	705	0	0.4	-0.3	0.5
6401592	99	P	SUR	67	-1	637	68	3.2	-0.3	3.2
6401759	99	P	SUR	60	-21	744	0	0.5	-0.1	0.5
6401763	99	P	SUR	66	12	742	0	0.4	0.0	0.4
6402594	99	P	SUR	53	-48	1	1	0.0	0.0	0.0
6402615	99	P	SUR	26	-60	744	0	0.3	0.0	0.3
6402616	99	P	SUR	30	-41	744	0	0.3	-0.1	0.3
6402617	99	P	SUR	28	-47	744	0	0.4	0.3	0.5
6402618	99	P	SUR	20	-46	744	0	0.3	0.0	0.3
6402619	99	P	SUR	30	-20	744	0	0.3	0.0	0.3
6402621	99	P	SUR	33	-16	743	0	0.3	0.2	0.4
6402622	99	P	SUR	29	-21	744	0	0.3	0.1	0.3
64041	99	P	SUR	61	-3	1394	0	0.4	0.0	0.4
64045	99	P	SUR	59	-12	1488	0	0.4	-0.3	0.5
64046	99	P	SUR	61	-4	1488	0	0.3	-0.2	0.4
6600021	99	P	SUR	55	14	31	0	0.1	-1.0	1.0
6600022	99	P	SUR	54	14	369	0	0.4	-0.5	0.6
6600024	99	P	SUR	55	13	124	0	0.4	-1.2	1.3
6801790	99	P	SUR	40	-16	711	0	0.4	0.0	0.4
6801791	99	P	SUR	33	-31	741	0	0.3	0.3	0.5
6801878	99	P	SUR	14	-24	736	0	0.7	-0.2	0.8
6801906	99	P	SUR	69	-66	744	0	0.5	-0.3	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
7000972	99	P	SUR	17	-62	39	0	0.5	2.8	2.8
7801552	99	P	SUR	66	-5	744	0	0.9	-0.2	0.9
7801572	99	P	SUR	23	-48	729	0	0.4	-0.1	0.4
7801588	99	P	SUR	36	-9	696	0	0.4	0.1	0.4
7801698	99	P	SUR	65	-11	744	0	0.4	0.8	0.9

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                : MAR 2024
                   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
1000044	99	SPEED	SUR	55	10	402	0	0	1.8	2.0	2.7
1300001	99	SPEED	SUR	11	-23	265	0	0	0.7	0.3	0.8
1300002	99	SPEED	SUR	20	-23	181	0	0	0.6	0.0	0.6
1300130	99	SPEED	SUR	28	-16	744	0	0	1.2	-0.3	1.3
1300131	99	SPEED	SUR	28	-17	739	0	0	2.2	2.1	3.0
4100026	99	SPEED	SUR	12	-38	313	0	0	0.8	0.1	0.8
4100040	99	SPEED	SUR	15	-53	4460	0	0	0.8	0.0	0.8
4100043	99	SPEED	SUR	21	-65	4395	0	0	1.2	-0.1	1.2
4100044	99	SPEED	SUR	22	-59	4459	0	0	1.2	0.0	1.2
4100046	99	SPEED	SUR	24	-68	4458	0	0	1.1	-0.1	1.1
4100052	99	SPEED	SUR	18	-65	4456	0	0	0.9	-0.2	1.0
4100053	99	SPEED	SUR	18	-66	4399	0	0	1.3	0.5	1.4
4100056	99	SPEED	SUR	18	-65	4445	0	0	1.0	-0.1	1.0
4100139	99	SPEED	SUR	20	-38	504	0	0	1.0	0.1	1.0
41040	99	SPEED	SUR	15	-53	744	0	0	0.9	0.1	0.9
41043	99	SPEED	SUR	21	-65	734	0	0	1.2	0.0	1.2
41044	99	SPEED	SUR	22	-59	744	0	0	1.2	0.0	1.2
41046	99	SPEED	SUR	24	-68	744	0	0	1.1	0.0	1.1
41052	99	SPEED	SUR	18	-65	743	0	0	1.0	-0.1	1.0
41053	99	SPEED	SUR	19	-66	742	0	0	1.4	0.0	1.4
41056	99	SPEED	SUR	18	-66	739	0	0	1.0	-0.1	1.0
4200059	99	SPEED	SUR	15	-67	4459	0	0	0.7	0.1	0.7
4200060	99	SPEED	SUR	16	-63	4455	0	0	1.0	0.4	1.0
4200085	99	SPEED	SUR	18	-67	3541	0	0	1.3	0.1	1.3
42059	99	SPEED	SUR	15	-68	744	0	0	0.7	0.1	0.8
42060	99	SPEED	SUR	16	-63	743	0	0	1.0	0.5	1.1
42085	99	SPEED	SUR	18	-67	717	0	0	1.3	0.4	1.4
4400005	99	SPEED	SUR	43	-69	3474	0	0	1.4	0.1	1.4
4400008	99	SPEED	SUR	40	-69	4458	0	0	1.5	0.1	1.5
4400027	99	SPEED	SUR	44	-67	4460	0	0	1.4	0.3	1.4
4400032	99	SPEED	SUR	44	-69	741	0	0	1.4	0.1	1.4
4400033	99	SPEED	SUR	44	-69	718	0	0	1.6	0.2	1.6
4400034	99	SPEED	SUR	44	-68	735	0	0	1.4	0.1	1.4
4400037	99	SPEED	SUR	43	-68	734	0	0	1.3	0.1	1.3

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
4400488	99	SPEED	SUR	45	-61	414	0	0	1.6	0.6	1.7
4400489	99	SPEED	SUR	45	-61	434	0	0	1.6	1.4	2.1
44005	99	SPEED	SUR	43	-69	580	0	0	1.5	0.0	1.5
44008	99	SPEED	SUR	41	-69	744	0	0	1.5	0.1	1.5
44027	99	SPEED	SUR	44	-67	743	0	0	1.4	0.5	1.5
44032	99	SPEED	SUR	44	-69	741	0	0	1.5	0.2	1.5
44033	99	SPEED	SUR	44	-69	719	0	0	1.7	0.5	1.8
44034	99	SPEED	SUR	44	-68	735	0	0	1.4	0.1	1.4
44037	99	SPEED	SUR	44	-68	733	0	0	1.4	0.1	1.4
44078	99	SPEED	SUR	60	-40	267	0	0	1.8	-0.8	2.0
44258	99	SPEED	SUR	45	-63	742	0	0	1.6	0.7	1.8
44488	99	SPEED	SUR	45	-61	715	0	0	1.6	1.0	1.9
44489	99	SPEED	SUR	46	-61	744	0	0	1.7	1.5	2.3
6100001	99	SPEED	SUR	43	8	716	0	0	1.7	0.2	1.7
6100002	99	SPEED	SUR	42	5	739	0	0	1.2	0.0	1.2
6100196	99	SPEED	SUR	42	4	708	0	0	1.7	-0.9	2.0
6100197	99	SPEED	SUR	40	4	725	0	0	1.3	-0.3	1.3
6100198	99	SPEED	SUR	37	-2	731	0	0	1.7	-0.3	1.7
6100280	99	SPEED	SUR	41	1	700	0	0	1.7	-0.8	1.8
6100417	99	SPEED	SUR	38	0	734	0	0	1.6	-0.4	1.7
6100430	99	SPEED	SUR	40	2	718	0	0	1.6	-0.7	1.7
6101007	99	SPEED	SUR	36	25	24	0	0	1.8	-0.8	2.0
6101008	99	SPEED	SUR	37	22	52	0	0	2.6	-5.5	6.1
6101009	99	SPEED	SUR	35	25	36	0	0	1.7	0.7	1.9
6101031	99	SPEED	SUR	42	8	742	0	0	1.2	0.0	1.2
6200001	99	SPEED	SUR	45	-5	738	0	0	1.3	-0.5	1.4
6200024	99	SPEED	SUR	44	-3	730	0	0	1.8	-0.4	1.9
6200025	99	SPEED	SUR	44	-6	694	0	0	1.5	-1.0	1.8
6200050	99	SPEED	SUR	50	-4	744	0	0	1.3	-0.4	1.3
6200083	99	SPEED	SUR	43	-9	742	0	0	1.3	-0.4	1.4
6200084	99	SPEED	SUR	42	-9	741	0	0	1.4	-1.2	1.9
6200085	99	SPEED	SUR	36	-7	742	0	0	1.5	-0.7	1.7
6200086	99	SPEED	SUR	55	7	77	0	0	1.5	1.1	1.9
6200087	99	SPEED	SUR	55	7	131	0	0	1.4	1.1	1.8
6200091	99	SPEED	SUR	53	-5	744	0	0	1.2	-0.1	1.2
6200092	99	SPEED	SUR	51	-11	744	0	0	1.4	-0.4	1.4
6200093	99	SPEED	SUR	55	-10	744	0	0	1.2	-0.3	1.2
6200094	99	SPEED	SUR	52	-7	744	0	0	1.2	0.5	1.3
6200095	99	SPEED	SUR	53	-16	744	0	0	1.5	0.3	1.5
6200163	99	SPEED	SUR	47	-8	584	0	0	1.2	-0.4	1.3
6200192	99	SPEED	SUR	40	-10	584	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
6201065	99	SPEED	SUR	54	7	692	0	0	1.5	-0.8	1.7
6201066	99	SPEED	SUR	55	7	718	0	0	1.5	0.5	1.6
6202114	99	SPEED	SUR	54	6	137	0	0	1.2	-0.4	1.2
62050	99	SPEED	SUR	50	-4	1488	0	0	1.3	0.3	1.3
62091	99	SPEED	SUR	53	-5	744	0	0	1.2	0.2	1.2
62092	99	SPEED	SUR	51	-11	744	0	0	1.4	-0.4	1.4
62093	99	SPEED	SUR	55	-10	744	0	0	1.2	-0.2	1.2
62094	99	SPEED	SUR	52	-7	744	0	0	1.2	0.7	1.4
62095	99	SPEED	SUR	53	-16	744	0	0	1.5	0.4	1.6
62102	99	SPEED	SUR	58	2	1398	0	0	1.5	0.5	1.6
62104	99	SPEED	SUR	57	1	1402	0	0	1.3	-0.5	1.4
62105	99	SPEED	SUR	55	-13	1486	0	0	1.4	0.8	1.6
62107	99	SPEED	SUR	50	-6	292	0	0	1.7	0.2	1.7
62112	99	SPEED	SUR	58	0	1402	0	0	2.2	-1.0	2.4
62113	99	SPEED	SUR	58	0	1404	0	0	1.6	0.0	1.6
62114	99	SPEED	SUR	58	0	704	0	0	1.4	0.2	1.4
62118	99	SPEED	SUR	58	1	1404	0	0	1.3	0.6	1.4
62119	99	SPEED	SUR	57	2	1400	0	0	1.9	-1.5	2.5
62120	99	SPEED	SUR	56	2	1404	0	0	1.5	-0.7	1.6
62121	99	SPEED	SUR	54	3	1400	0	0	1.5	-0.6	1.6
62122	99	SPEED	SUR	57	2	1392	0	0	1.3	0.1	1.3
62129	99	SPEED	SUR	58	0	1396	0	0	1.5	0.1	1.5
62131	99	SPEED	SUR	54	1	1384	0	0	2.7	-1.2	3.0
62132	99	SPEED	SUR	56	2	1348	0	0	2.1	-1.2	2.4
62133	99	SPEED	SUR	57	1	1400	0	0	1.5	0.4	1.6
62134	99	SPEED	SUR	58	1	1378	0	0	1.4	0.1	1.5
62140	99	SPEED	SUR	57	1	1400	0	0	1.2	-0.2	1.2
62143	99	SPEED	SUR	58	2	1354	0	0	1.6	-0.5	1.7
62144	99	SPEED	SUR	53	2	1336	0	0	2.3	-0.8	2.5
62145	99	SPEED	SUR	53	3	1402	0	0	1.6	1.0	1.9
62146	99	SPEED	SUR	57	2	1278	0	0	1.2	0.1	1.2
62148	99	SPEED	SUR	54	2	1326	0	0	1.6	-0.3	1.6
62149	99	SPEED	SUR	54	1	1404	0	0	1.2	0.0	1.2
62152	99	SPEED	SUR	57	2	1396	0	0	1.6	-0.6	1.7
62154	99	SPEED	SUR	56	2	1402	0	0	1.4	0.5	1.5
62155	99	SPEED	SUR	58	1	1400	0	0	1.4	0.2	1.4
62163	99	SPEED	SUR	48	-9	1166	0	0	1.2	0.2	1.2
62164	99	SPEED	SUR	57	1	1402	0	0	1.5	-1.4	2.0
62165	99	SPEED	SUR	54	1	1404	0	0	1.4	-0.6	1.6
62170	99	SPEED	SUR	51	2	1486	0	0	1.5	0.7	1.6
62304	99	SPEED	SUR	51	2	1474	0	0	1.6	0.7	1.7

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
6301001	99	SPEED	SUR	64	5	743	0	0	1.3	-0.2	1.3
6301004	99	SPEED	SUR	72	20	742	0	0	1.4	-0.3	1.4
6301008	99	SPEED	SUR	68	15	560	0	0	1.7	0.3	1.8
63055	99	SPEED	SUR	61	2	1400	0	0	1.5	-1.2	1.9
63056	99	SPEED	SUR	60	2	1398	0	0	1.5	0.2	1.5
63057	99	SPEED	SUR	59	2	1402	0	0	2.1	-0.2	2.1
63058	99	SPEED	SUR	53	2	833	0	0	1.3	0.0	1.3
63101	99	SPEED	SUR	61	1	1242	0	0	1.4	-0.7	1.5
63103	99	SPEED	SUR	61	1	1404	0	0	1.7	-0.5	1.7
63108	99	SPEED	SUR	61	2	1404	0	0	1.8	-0.5	1.8
63109	99	SPEED	SUR	60	2	1306	0	0	1.5	0.0	1.5
63110	99	SPEED	SUR	60	2	1292	0	0	1.6	-0.6	1.7
63112	99	SPEED	SUR	61	1	1402	0	0	1.2	-0.7	1.4
63115	99	SPEED	SUR	62	1	1390	0	0	1.3	-0.9	1.6
63117	99	SPEED	SUR	61	1	1402	0	0	1.3	-0.5	1.4
6400045	99	SPEED	SUR	59	-12	744	0	0	1.2	0.0	1.2
64041	99	SPEED	SUR	61	-3	1382	0	0	1.3	-0.5	1.3
64045	99	SPEED	SUR	59	-12	1488	0	0	1.2	0.6	1.3
6600021	99	SPEED	SUR	55	14	31	0	0	0.6	-0.3	0.7
6600022	99	SPEED	SUR	54	14	369	0	0	1.3	-0.4	1.4
6600024	99	SPEED	SUR	55	13	75	0	0	1.1	1.2	1.6
7000972	99	SPEED	SUR	17	-62	37	0	0	2.6	1.5	3.0

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                : MAR 2024
                   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	264	0	0	6.6	0.7	6.7
1300002	99	DIRN	SUR	20	-23	181	0	0	5.6	-2.0	5.9
1300130	99	DIRN	SUR	28	-16	620	0	0	13.9	5.6	15.0
1300131	99	DIRN	SUR	28	-17	286	0	0	23.3	2.8	23.5
4100002	99	DIRN	SUR	32	-75	4077	0	0	14.9	6.2	16.2
4100004	99	DIRN	SUR	33	-79	3897	0	0	18.2	8.1	19.9
4100008	99	DIRN	SUR	31	-81	3100	0	0	19.0	13.5	23.3
4100009	99	DIRN	SUR	29	-80	3116	0	0	22.4	5.1	23.0
4100013	99	DIRN	SUR	33	-78	3818	0	0	17.3	9.6	19.8
4100024	99	DIRN	SUR	34	-78	569	0	0	19.5	6.3	20.5
4100025	99	DIRN	SUR	35	-75	3927	0	0	17.3	9.5	19.8
4100026	99	DIRN	SUR	12	-38	313	0	0	7.9	7.0	10.5
4100029	99	DIRN	SUR	33	-80	565	0	0	23.1	0.2	23.1
4100033	99	DIRN	SUR	32	-80	72	0	0	73.1	8.2	73.5
4100037	99	DIRN	SUR	34	-77	638	0	0	22.0	3.6	22.3
4100038	99	DIRN	SUR	34	-78	598	0	0	19.1	7.3	20.4
4100040	99	DIRN	SUR	15	-53	4243	0	0	12.7	3.1	13.1
4100043	99	DIRN	SUR	21	-65	3794	0	0	15.4	5.9	16.5
4100044	99	DIRN	SUR	22	-59	3367	0	0	16.1	6.1	17.2
4100046	99	DIRN	SUR	24	-68	4229	0	0	28.4	9.4	30.0
4100047	99	DIRN	SUR	27	-71	3453	8	0	18.0	5.9	19.0
4100052	99	DIRN	SUR	18	-65	4235	0	0	12.9	5.2	13.9
4100053	99	DIRN	SUR	18	-66	3276	0	0	16.5	12.5	20.7
4100056	99	DIRN	SUR	18	-65	4226	0	0	15.2	7.1	16.8
4100064	99	DIRN	SUR	34	-77	676	0	0	19.5	4.5	20.0
4100069	99	DIRN	SUR	29	-81	451	0	0	23.4	8.9	25.0
4100139	99	DIRN	SUR	20	-38	456	0	0	9.3	0.5	9.3
41002	99	DIRN	SUR	32	-75	676	0	0	15.2	6.2	16.4
41004	99	DIRN	SUR	33	-79	645	0	0	18.3	8.4	20.1
41008	99	DIRN	SUR	31	-81	509	0	0	19.8	14.3	24.4
41009	99	DIRN	SUR	29	-80	498	0	0	21.5	6.1	22.3
41013	99	DIRN	SUR	33	-78	627	0	0	18.0	10.6	20.9

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
41024	99	DIRN	SUR	34	-79	569	0	0	20.9	5.1	21.5
41025	99	DIRN	SUR	35	-76	648	0	0	17.0	10.7	20.1
41029	99	DIRN	SUR	33	-80	551	0	0	23.5	0.2	23.5
41033	99	DIRN	SUR	32	-80	66	0	0	71.2	4.3	71.3
41037	99	DIRN	SUR	34	-77	627	0	0	22.0	3.7	22.3
41038	99	DIRN	SUR	34	-78	593	0	0	19.7	6.8	20.9
41040	99	DIRN	SUR	15	-53	699	0	0	12.9	2.7	13.2
41043	99	DIRN	SUR	21	-65	618	0	0	13.9	6.1	15.1
41044	99	DIRN	SUR	22	-59	546	0	0	15.8	5.7	16.8
41046	99	DIRN	SUR	24	-68	701	0	0	28.6	9.2	30.1
41047	99	DIRN	SUR	28	-72	560	1	0	17.9	6.7	19.1
41052	99	DIRN	SUR	18	-65	695	0	0	13.3	4.4	14.0
41053	99	DIRN	SUR	19	-66	576	0	0	20.0	12.4	23.5
41056	99	DIRN	SUR	18	-66	693	0	0	15.1	7.1	16.6
41064	99	DIRN	SUR	34	-77	656	0	0	20.4	4.7	20.9
41069	99	DIRN	SUR	29	-81	442	0	0	23.5	8.8	25.1
4200013	99	DIRN	SUR	27	-83	938	0	0	22.3	-1.2	22.3
4200022	99	DIRN	SUR	28	-84	1085	0	0	26.0	-1.1	26.0
4200023	99	DIRN	SUR	26	-83	1084	0	0	24.4	-0.7	24.4
4200026	99	DIRN	SUR	25	-83	1226	1	0	23.7	0.3	23.8
4200036	99	DIRN	SUR	29	-85	3168	0	0	26.5	4.6	26.9
4200056	99	DIRN	SUR	20	-85	4190	0	0	12.4	-2.8	12.7
4200057	99	DIRN	SUR	17	-82	4132	0	0	16.5	1.4	16.5
4200058	99	DIRN	SUR	15	-75	2413	0	0	6.4	4.6	7.9
4200059	99	DIRN	SUR	15	-67	4229	0	0	8.5	4.6	9.7
4200060	99	DIRN	SUR	16	-63	4012	0	0	11.4	5.8	12.8
4200085	99	DIRN	SUR	18	-67	2857	0	0	18.0	11.2	21.2
42013	99	DIRN	SUR	27	-83	451	0	0	23.9	1.4	24.0
42022	99	DIRN	SUR	28	-84	519	0	0	26.3	2.5	26.4
42023	99	DIRN	SUR	26	-83	515	0	0	23.7	2.4	23.8
42026	99	DIRN	SUR	25	-84	591	1	0	23.9	1.6	23.9
42036	99	DIRN	SUR	29	-85	516	0	0	26.5	5.7	27.1
42056	99	DIRN	SUR	20	-85	689	0	0	12.0	-3.0	12.4
42057	99	DIRN	SUR	17	-82	682	0	0	16.0	1.7	16.1
42058	99	DIRN	SUR	15	-75	401	0	0	6.8	4.4	8.1
42059	99	DIRN	SUR	15	-68	701	0	0	8.8	4.3	9.8
42060	99	DIRN	SUR	16	-63	661	0	0	11.9	5.3	13.1
42085	99	DIRN	SUR	18	-67	550	0	0	17.7	8.3	19.6
4400005	99	DIRN	SUR	43	-69	3193	0	0	14.1	4.8	14.9
4400007	99	DIRN	SUR	44	-70	3665	0	0	18.4	3.3	18.7
4400008	99	DIRN	SUR	40	-69	3867	0	0	13.7	19.3	23.7

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
4400009	99	DIRN	SUR	38	-75	3731	0	0	20.0	6.5	21.0
4400013	99	DIRN	SUR	42	-71	3550	0	0	16.7	8.0	18.5
4400014	99	DIRN	SUR	37	-75	3613	0	0	17.1	7.8	18.8
4400018	99	DIRN	SUR	42	-70	2737	0	0	15.1	7.7	17.0
4400020	99	DIRN	SUR	41	-70	3927	0	0	16.7	5.6	17.6
4400022	99	DIRN	SUR	41	-74	1263	0	0	19.2	5.6	20.0
4400027	99	DIRN	SUR	44	-67	3975	0	0	16.3	6.9	17.7
4400029	99	DIRN	SUR	43	-71	616	0	0	17.7	-2.5	17.8
4400030	99	DIRN	SUR	43	-70	626	0	0	17.1	1.7	17.2
4400032	99	DIRN	SUR	44	-69	633	0	0	15.0	-1.8	15.2
4400033	99	DIRN	SUR	44	-69	565	0	0	20.5	16.9	26.6
4400034	99	DIRN	SUR	44	-68	642	0	0	13.6	-2.4	13.8
4400037	99	DIRN	SUR	43	-68	663	0	0	20.0	5.7	20.8
4400041	99	DIRN	SUR	37	-77	2328	0	0	19.7	1.4	19.7
4400042	99	DIRN	SUR	38	-76	4938	0	0	22.0	-0.1	22.0
4400043	99	DIRN	SUR	39	-76	2677	0	0	27.6	3.5	27.8
4400058	99	DIRN	SUR	38	-76	4742	0	0	23.1	-0.9	23.1
4400062	99	DIRN	SUR	39	-76	4803	0	0	28.7	-3.2	28.9
4400063	99	DIRN	SUR	39	-76	3831	0	0	27.2	2.7	27.4
4400064	99	DIRN	SUR	37	-76	5082	0	0	19.1	5.9	20.0
4400072	99	DIRN	SUR	37	-76	4670	0	0	24.0	4.8	24.4
4400073	99	DIRN	SUR	43	-71	2177	0	0	16.2	1.7	16.3
4400488	99	DIRN	SUR	45	-61	359	0	0	23.2	-25.2	34.2
4400489	99	DIRN	SUR	45	-61	353	0	0	21.0	-29.5	36.2
44005	99	DIRN	SUR	43	-69	527	0	0	14.8	4.6	15.5
44007	99	DIRN	SUR	44	-70	615	0	0	18.6	2.8	18.8
44008	99	DIRN	SUR	41	-69	641	0	0	15.1	19.6	24.8
44009	99	DIRN	SUR	39	-75	610	0	0	20.2	6.7	21.2
44013	99	DIRN	SUR	42	-71	567	0	0	18.7	6.4	19.7
44014	99	DIRN	SUR	37	-75	601	0	0	18.8	8.6	20.7
44018	99	DIRN	SUR	42	-70	448	0	0	16.5	7.7	18.2
44020	99	DIRN	SUR	42	-70	634	0	0	16.0	5.2	16.8
44022	99	DIRN	SUR	41	-74	335	0	0	20.5	6.5	21.5
44027	99	DIRN	SUR	44	-67	650	0	0	16.7	6.9	18.1
44029	99	DIRN	SUR	43	-71	613	0	0	18.6	-2.5	18.8
44030	99	DIRN	SUR	43	-70	620	0	0	17.1	1.5	17.2
44032	99	DIRN	SUR	44	-69	618	0	0	15.4	-2.1	15.5
44033	99	DIRN	SUR	44	-69	549	0	0	20.0	16.5	25.9
44034	99	DIRN	SUR	44	-68	641	0	0	14.0	-2.1	14.1
44037	99	DIRN	SUR	44	-68	652	0	0	20.0	5.7	20.8
44041	99	DIRN	SUR	37	-77	266	0	0	19.5	1.1	19.6

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
44042	99	DIRN	SUR	38	-76	521	0	0	22.6	1.8	22.7
44043	99	DIRN	SUR	39	-76	309	0	0	30.0	3.6	30.2
44058	99	DIRN	SUR	38	-76	524	0	0	23.0	-0.5	23.0
44062	99	DIRN	SUR	39	-76	521	0	0	29.5	-1.9	29.6
44063	99	DIRN	SUR	39	-76	434	0	0	27.4	2.8	27.5
44064	99	DIRN	SUR	37	-76	599	0	0	18.8	6.1	19.8
44072	99	DIRN	SUR	37	-76	553	0	0	25.3	5.3	25.9
44073	99	DIRN	SUR	43	-71	506	0	0	18.1	2.3	18.2
44078	99	DIRN	SUR	60	-40	234	0	0	18.1	-23.9	30.0
44258	99	DIRN	SUR	45	-63	684	0	0	18.4	-5.4	19.2
44488	99	DIRN	SUR	45	-61	603	0	0	20.6	-26.2	33.4
44489	99	DIRN	SUR	46	-61	583	0	0	18.1	-30.6	35.6
6100198	99	DIRN	SUR	37	-2	556	0	0	22.7	2.8	22.9
6100417	99	DIRN	SUR	38	0	564	0	0	14.3	-3.5	14.7
6200001	99	DIRN	SUR	45	-5	623	0	0	17.0	0.1	17.0
6200024	99	DIRN	SUR	44	-3	493	0	0	21.9	0.2	22.0
6200025	99	DIRN	SUR	44	-6	448	0	0	18.6	2.1	18.7
6200050	99	DIRN	SUR	50	-4	687	0	0	17.5	2.5	17.6
6200083	99	DIRN	SUR	43	-9	664	0	0	15.0	-9.2	17.6
6200084	99	DIRN	SUR	42	-9	617	0	0	15.5	0.9	15.5
6200085	99	DIRN	SUR	36	-7	582	0	0	17.6	9.2	19.8
6200091	99	DIRN	SUR	53	-5	702	0	0	16.4	5.4	17.3
6200092	99	DIRN	SUR	51	-11	708	0	0	15.0	0.6	15.0
6200093	99	DIRN	SUR	55	-10	700	0	0	11.4	4.3	12.2
6200094	99	DIRN	SUR	52	-7	712	0	0	13.6	4.1	14.2
6200095	99	DIRN	SUR	53	-16	688	0	0	15.4	5.0	16.2
6200163	99	DIRN	SUR	47	-8	560	0	0	19.6	8.4	21.3
6200192	99	DIRN	SUR	40	-10	477	0	0	16.3	-4.8	17.0
62050	99	DIRN	SUR	50	-4	1357	0	0	17.3	2.3	17.5
62091	99	DIRN	SUR	53	-5	702	0	0	16.5	4.9	17.2
62092	99	DIRN	SUR	51	-11	705	0	0	15.2	0.2	15.2
62093	99	DIRN	SUR	55	-10	697	0	0	13.3	4.0	13.9
62094	99	DIRN	SUR	52	-7	711	0	0	14.0	3.8	14.5
62095	99	DIRN	SUR	53	-16	681	0	0	15.7	4.4	16.3
62105	99	DIRN	SUR	55	-13	1377	0	0	15.7	-11.3	19.3
62107	99	DIRN	SUR	50	-6	266	0	0	14.7	0.2	14.7
62112	99	DIRN	SUR	58	0	1241	0	0	11.2	-3.5	11.8
62114	99	DIRN	SUR	58	0	662	0	0	9.9	1.0	10.0
62163	99	DIRN	SUR	48	-9	1113	0	0	19.8	8.0	21.4
6400045	99	DIRN	SUR	59	-12	729	0	0	13.4	-7.7	15.5
64041	99	DIRN	SUR	61	-3	1328	0	0	10.0	9.5	13.8

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
64045	99	DIRN	SUR	59	-12	1451	0	0	13.7	-7.7	15.7
7000972	99	DIRN	SUR	17	-62	21	0	0	19.4	-5.4	20.1

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE09	ATGU3FT	BPMWB2N	DBLK	FPUW5GN	GQBZLZL	JNKN7JF	KMPLHPW	LAGY8
LAGZ8	LRYQE3U	USBOD	USCAT	USYUB	UXK5JTU	XKQLWQB	YLV96WM	ZVQEQCM
2EERVTP	7JUNA4N	01001	01004	01010	01028	01241	01400	01415
01492	02185	02365	02527	02591	02836	02963	03005	03023
03238	03354	03743	03808	03882	03918	03953	04018	04220
04270	04320	04339	04360	04417	06011	06260	06458	06610
07110	07145	07510	07645	07761	08001	08023	08190	08221
08302	08383	08430	08508	08522	08536	10035	10113	10184
10238	10304	10393	10410	10548	10618	10739	10771	10868
10954	10962	11010	11035	11120	11240	11520	11747	11952
12120	12374	12425	12575	12843	12982	13275	13388	14015
14240	14430	15420	15614	16045	16064	16113	16144	16245
16332	16429	16546	16622	16716	16754	17030	17064	17095
17196	17220	17240	17351	17516	17607	20674	22008	22522
22820	22845	23205	23472	23884	23921	23955	24641	24908
26038	26435	26477	26629	26708	27459	27707	27713	27962
28225	28445	28661	28695	29612	29698	30557	30673	30935
31004	31770	31873	31977	34122	34172	34731	35121	35671
40179	40186	42056	42101	42123	42182	42314	42339	42348
42361	42369	42399	42410	42492	42634	42647	42675	42724
42867	42874	42886	42971	43003	43014	43041	43049	43063
43086	43128	43150	43185	43243	43279	43333	43346	43353
43369	45004	47102	47104	47138	47155	47169	47183	47186
47191	47230	47401	47412	47582	47646	47678	47807	47827
47909	47918	47945	47971	47991	48601	48615	48650	48657
48698	50527	50557	50774	50953	51076	51243	51431	51463
51644	51656	51709	51777	51828	51839	52203	52267	52323
52418	52533	52652	52681	52818	52836	52866	52983	53068
53463	53513	53543	53614	53772	53845	53915	54102	54135
54161	54218	54292	54340	54374	54511	54662	54727	54857
55299	55591	56029	56046	56080	56137	56146	56187	56492
56571	56651	56691	56739	56778	56964	56985	57083	57127
57131	57178	57245	57461	57494	57516	57541	57687	57749
57816	57957	57972	57993	58027	58150	58203	58238	58362
58424	58457	58606	58633	58665	58725	58847	59023	59134
59211	59265	59280	59293	59316	59431	59758	59981	60018
60096	60155	60253	60715	60760	61901	61980	61998	63985
65344	66160	67083	68424	68442	68512	68816	70026	70133
70200	70219	70231	70261	70273	70308	70316	70326	70350
70361	70398	71043	71081	71082	71109	71119	71603	71722
71802	71811	71815	71816	71823	71845	71867	71906	71907
71908	71909	71913	71917	71924	71925	71926	71934	71945
71957	71964	72201	72202	72206	72208	72210	72215	72230
72233	72235	72240	72248	72249	72250	72251	72261	72265
72293	72305	72317	72318	72327	72340	72363	72364	72365
72376	72388	72402	72403	72413	72426	72440	72451	72456
72476	72489	72493	72501	72518	72520	72528	72558	72562
72572	72582	72597	72632	72634	72645	72649	72659	72662
72672	72681	72694	72712	72747	72764	72768	72776	72786
72797	73033	73110	73111	74389	74455	74560	76225	76256
76405	76458	76526	76595	76612	76644	76654	76679	76692
76743	76903	78384	78397	78486	78583	78866	78897	78954
78970	80001	81405	82965	85442	85799	85934	87155	87344
87418	87582	87623	87715	87860	88889	89002	89055	89564
89571	89592	89611	89625	89642	91165	91212	91285	91334
91348	91376	91408	91413	91592	91610	91765	91925	91938
91948	91958	93112	93417	93817	93844	94001	94120	94155
94170	94203	94299	94302	94312	94326	94332	94403	94430
94461	94510	94578	94610	94637	94638	94653	94659	94672

94711	94767	94776	94802	94821	94866	94910	94975	94995
94996	94998	95282	95527	96413	96441	96471	96481	96996

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

ASDE09	ATGU3FT	BPMWB2N	DBLK	FPUW5GN	GQBZLZL	JNKN7JF	KMPLHPW	LAGY8
LAGZ8	LRYQE3U	USCAT	UXK5JTU	XKQLWQB	YLV96WM	ZVQEQCM	2EERVTP	7JUNA4N
01001	01004	01010	01028	01241	01400	01415	01492	02836
02963	06610	07110	07145	07510	07645	07761	08001	08023
08190	08221	08302	08383	08430	08508	08522	08536	11010
11035	11120	11240	12575	17607	40186	47183	47191	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	54340	54374	54511	54662	54727	54857	55299
55591	56029	56046	56080	56137	56146	56187	56492	56571
56651	56691	56739	56778	56964	56985	57083	57127	57131
57178	57245	57461	57494	57516	57541	57687	57749	57816
57957	57972	57993	58027	58150	58203	58238	58362	58424
58457	58606	58633	58665	58725	58847	59023	59134	59211
59265	59280	59293	59316	59431	59758	59981	60253	67083
72413	73111	76743	76903	89002	89642	91925	91938	91948
91958	94001	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.