ECMWF Global Data Monitoring Report

August 2021

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

Contents

Summary of Revisions (in reverse order)

Revision 28 (June 15) – Monitoring of SYNOP and SYNOP-SHIPs now includes BUFR encoded observations for those which were assimilated as well as for those without TAC counterpart.

Revision 27 (Feb 15) – Selection criteria for SHIPs are modified as per SOT-7/Doc.9.1.1.
Different criteria applied to Manual and Automatic SHIPs.

Revision 26 (Dec 14) – Coverage chart for ATOVS AMSU-A for Noaa_16 removed

Revision 25 (Mar 13) – Monitoring of Radiosondes and ASAPs now includes BUFR encoded observations for those which were assimilated as well as for those without TAC counterpart.
Tables 24 and 25 are also added to show the identifiers of these BUFR observations separately.

Revision 24 (Aug 06) – North Atlantic Monitoring statistics replaced by EUCOS Area Monitoring Statistics (tables 13 to 23).
Airep tables removed from this section.

Revision 23 (Dec 00) – Coverage charts for Noaa_14 MSU replaced by ATOVS AMSU-A for Noaa_16.

Revision 22 (Aug 99) – Coverage charts for TOVS thickness 300-100 hPa replaced by (A)TOVS AMSU-A and MSU (Noaa_15 and Noaa_14).

Revision 21 (May 99) – Monitoring statistics ceased for Noaa_11 as satellite is no more available.

Revision 20 (Sep 98) – Changes to tables and annex to remove all mention about data usage. Two more levels (50 and 850 hPa) added to the COSNA statistics for Sondes.

Revision 19 (Jul 98) – From June 29th, 1998 ECMWF model assimilates temperature data instead of geopotential from radiosondes. As a consequence the number of used geopotential data drops to zero in tables 7, 10, 13 and 15.

Revision 18 (Apr 98) – Changes to tables and annex to introduce the usage of accepted numbers and observations instead of precentage of rejection.

1 Introduction

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

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

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

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

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

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

ECMWF
Attn. Head of Evaluation Section
Shinfield Park
Reading, Berkshire, RG2 9AX
United Kingdom

2 Data summary - History of events

2.1 Radiosondes

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

Ident	Time	Jul	Aug	Ident	Time	Jul	Aug
02365	(00)	31	14	24908	(12)	0	22
02365	(12)	31	8	40800	(00)	0	28
02527	(00)	29	5	40848	(00)	4	31
06610	(12)	32	16	61687	(12)	0	12
08302	(12)	31	20	65548	(12)	0	26
16045	(12)	34	19	65578	(00)	5	32
16144	(12)	31	0	65578	(12)	5	29
16245	(12)	30	14	78583	(00)	3	27
16716	(12)	28	15	78583	(12)	4	25
16754	(00)	23	11	78954	(00)	7	29
17351	(12)	24	13	78954	(12)	7	29
29612	(12)	30	2	83362	(00)	0	27
30230	(00)	21	0	83378	(00)	0	17
30230	(12)	21	0	83554	(00)	12	31
30673	(00)	28	14	83566	(00)	5	21
30673	(12)	24	10	83612	(00)	12	31
31300	(00)	31	13	83779	(00)	0	30
31300	(12)	29	12	83899	(00)	10	28
31538	(00)	29	17	83937	(00)	12	31
40948	(00)	29	14	-	-	-	-
40948	(12)	27	6	-	-	-	-
42647	(00)	11	0	-	-	-	-
42809	(00)	30	0	-	-	-	-
43110	(00)	14	0	-	-	-	-
48407	(00)	12	0	-	-	-	-
60018	(12)	31	18	-	-	-	-
60096	(12)	21	8	-	-	-	-
70200	(00)	28	10	-	-	-	-
70200	(12)	28	10	-	-	-	-
82332	(00)	31	20	-	-	-	-
82332	(12)	31	19	-	-	-	-
91348	(00)	26	0	-	-	-	-
91348	(12)	26	0	-	-	-	-

2.2 Drifting Buoys

Surface pressure observations from **1726** drifting buoys were received during the month.

3 Global monitoring statistics

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

3.1 Data Availability

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

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

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

3.2 Data Quality

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

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

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

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

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

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

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

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

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

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

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

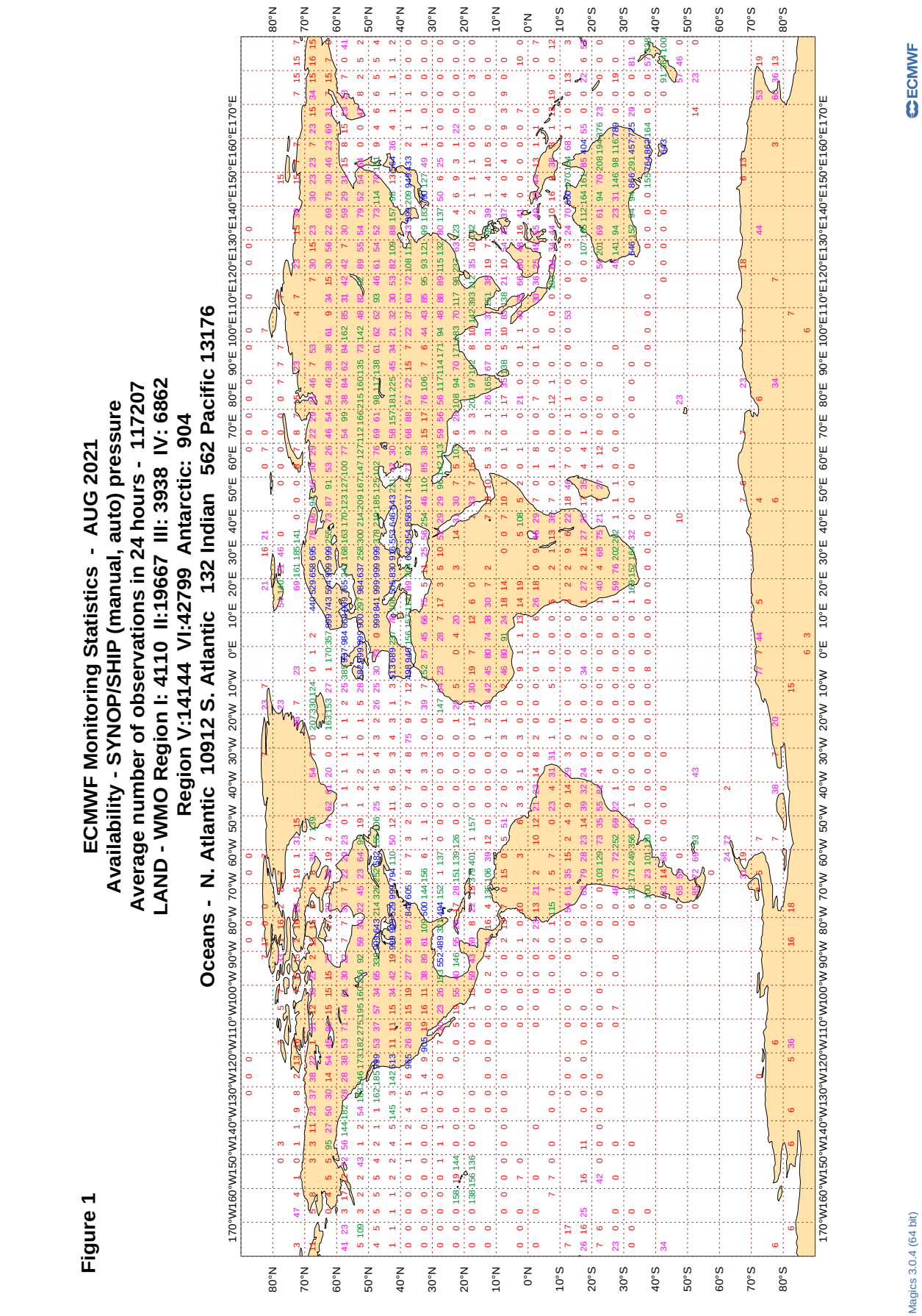


Figure 1

3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

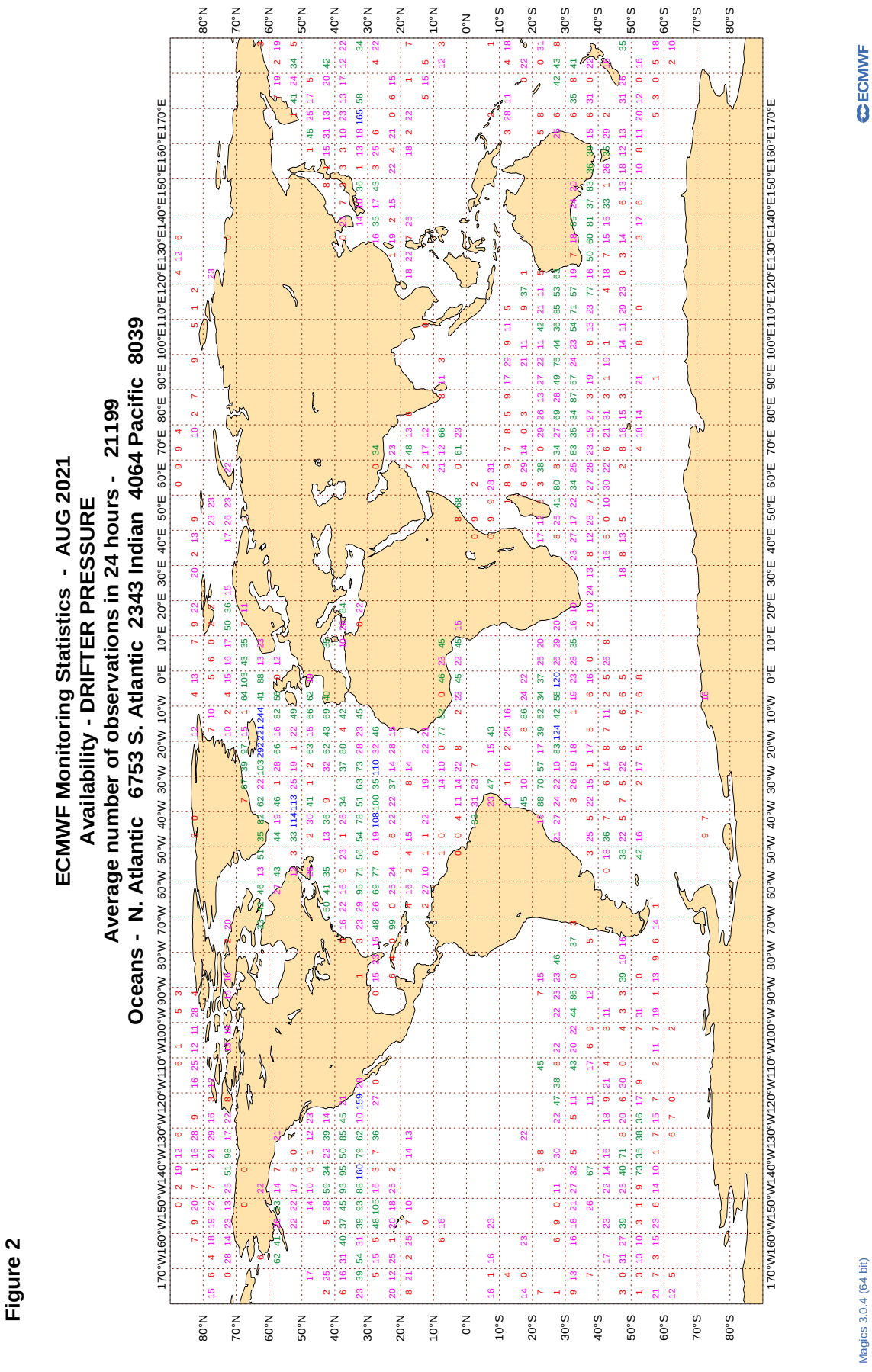


Figure 2

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

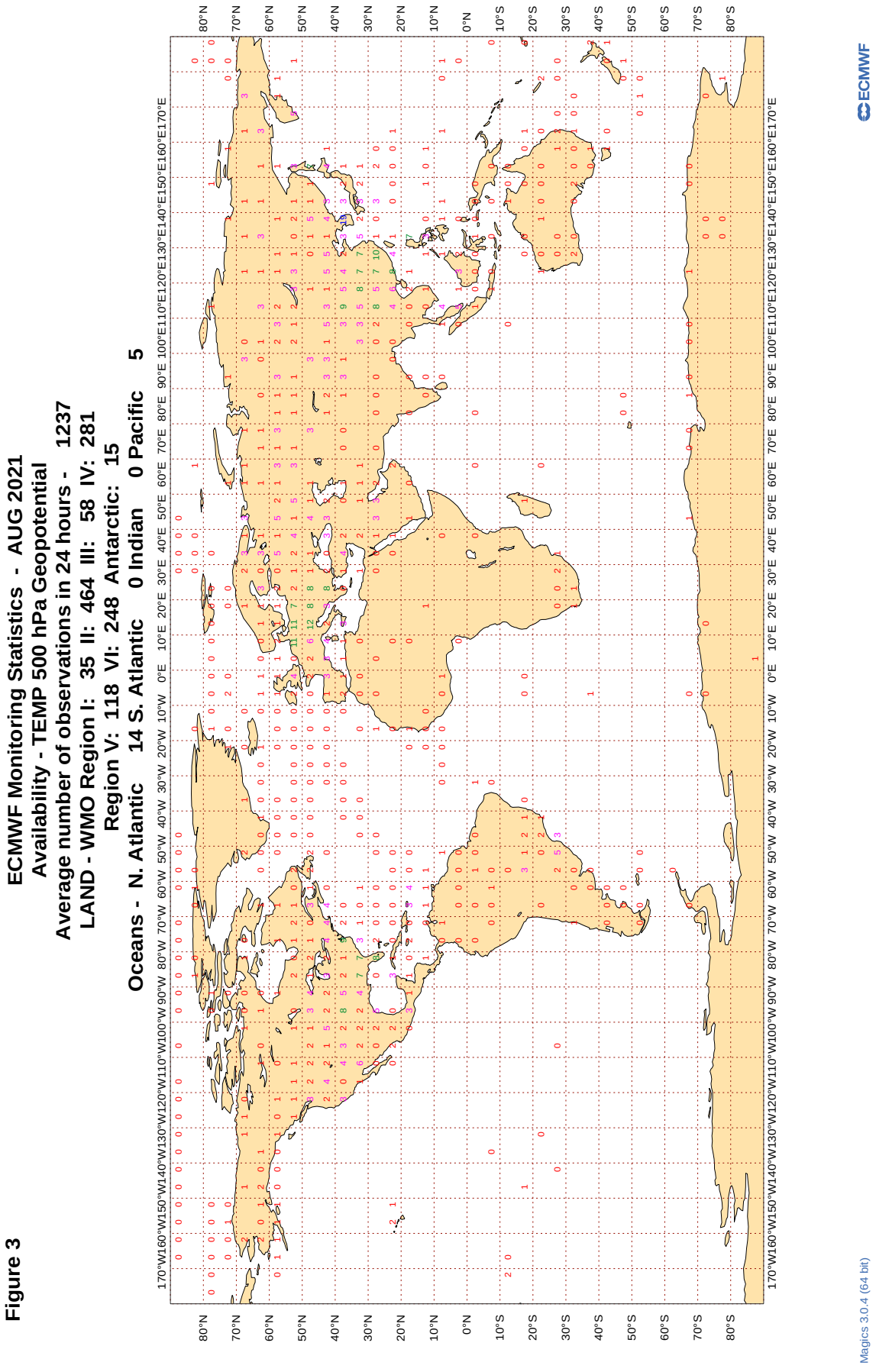


Figure 3

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

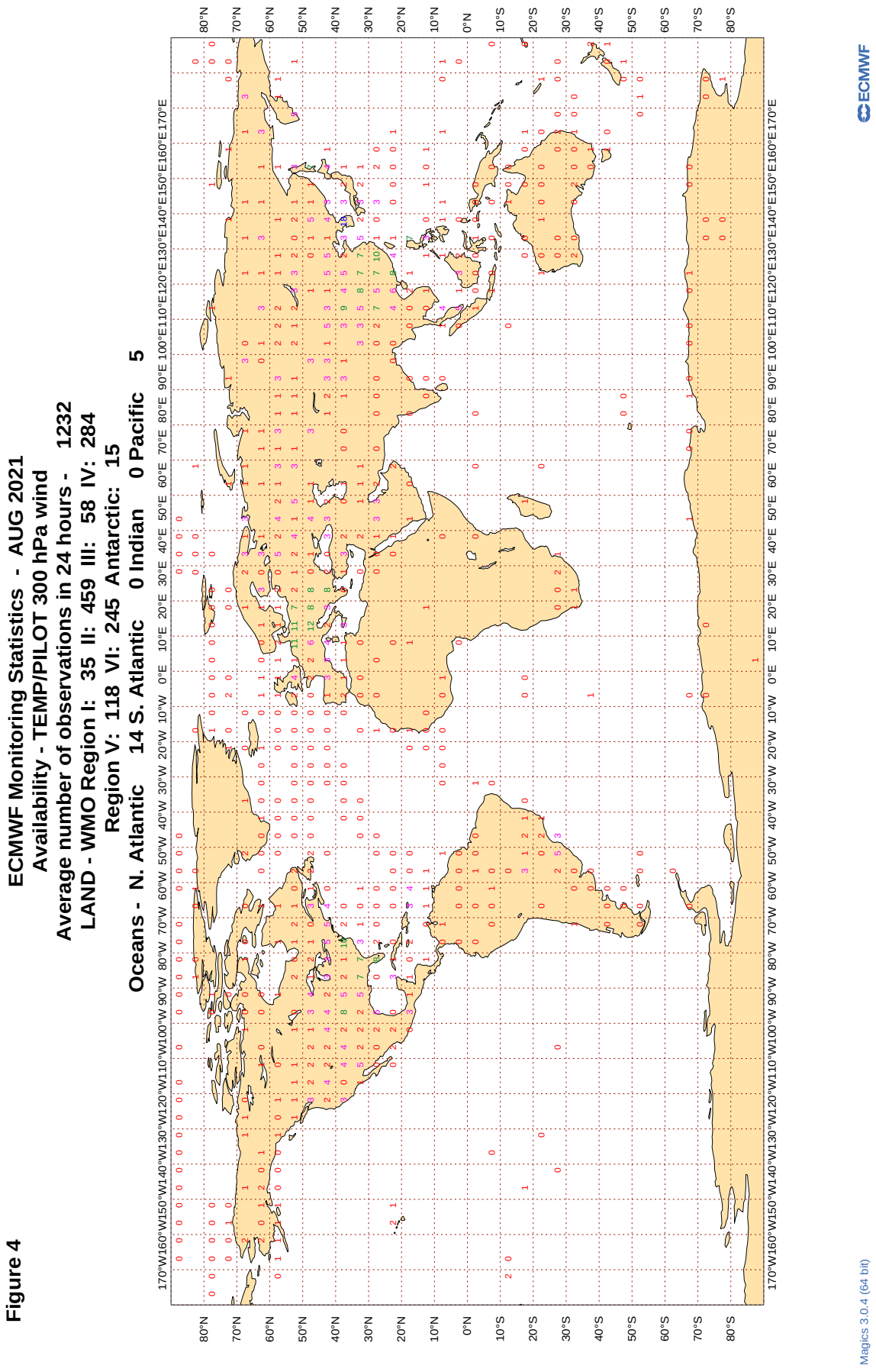


Figure 4

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

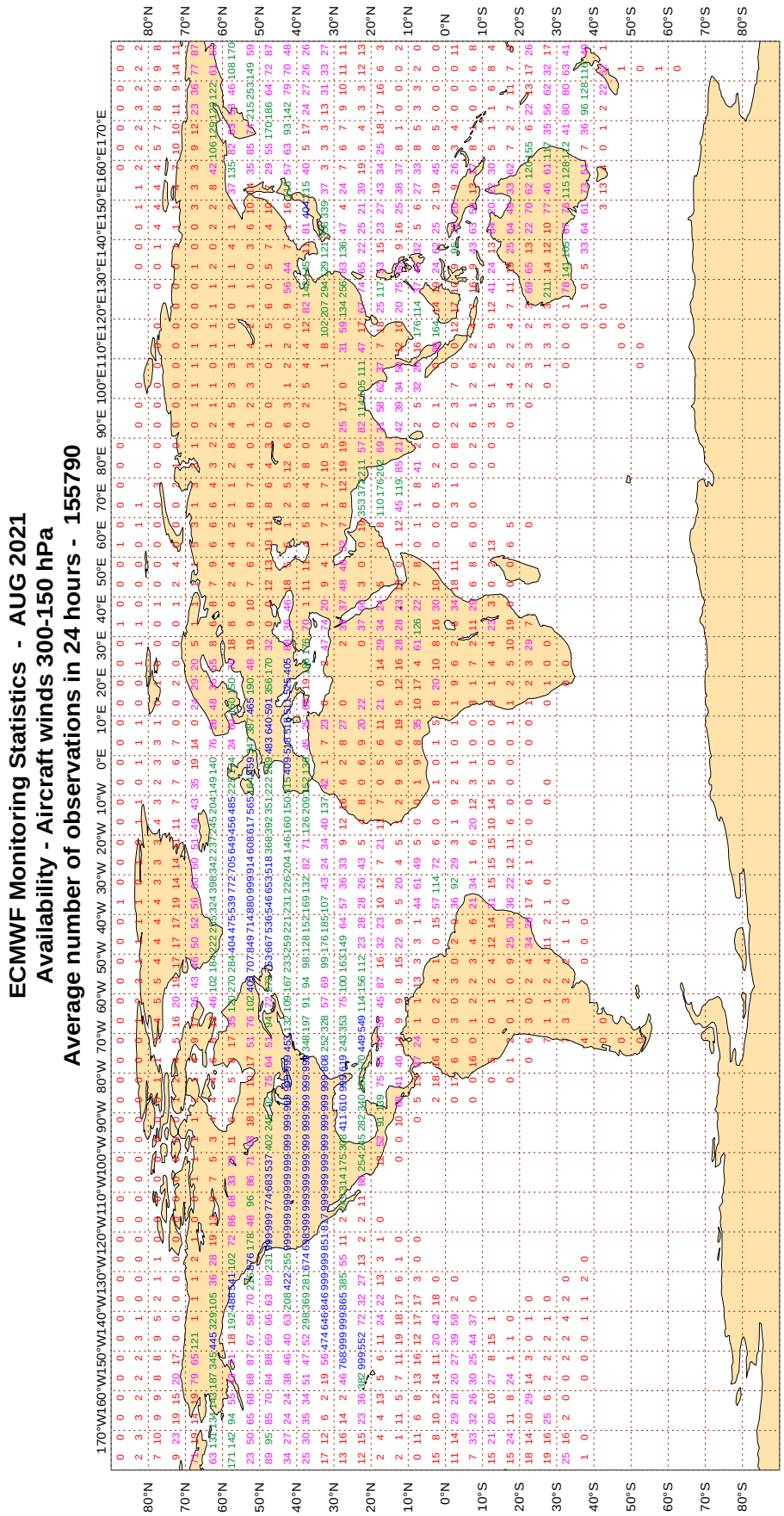


Figure 5

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

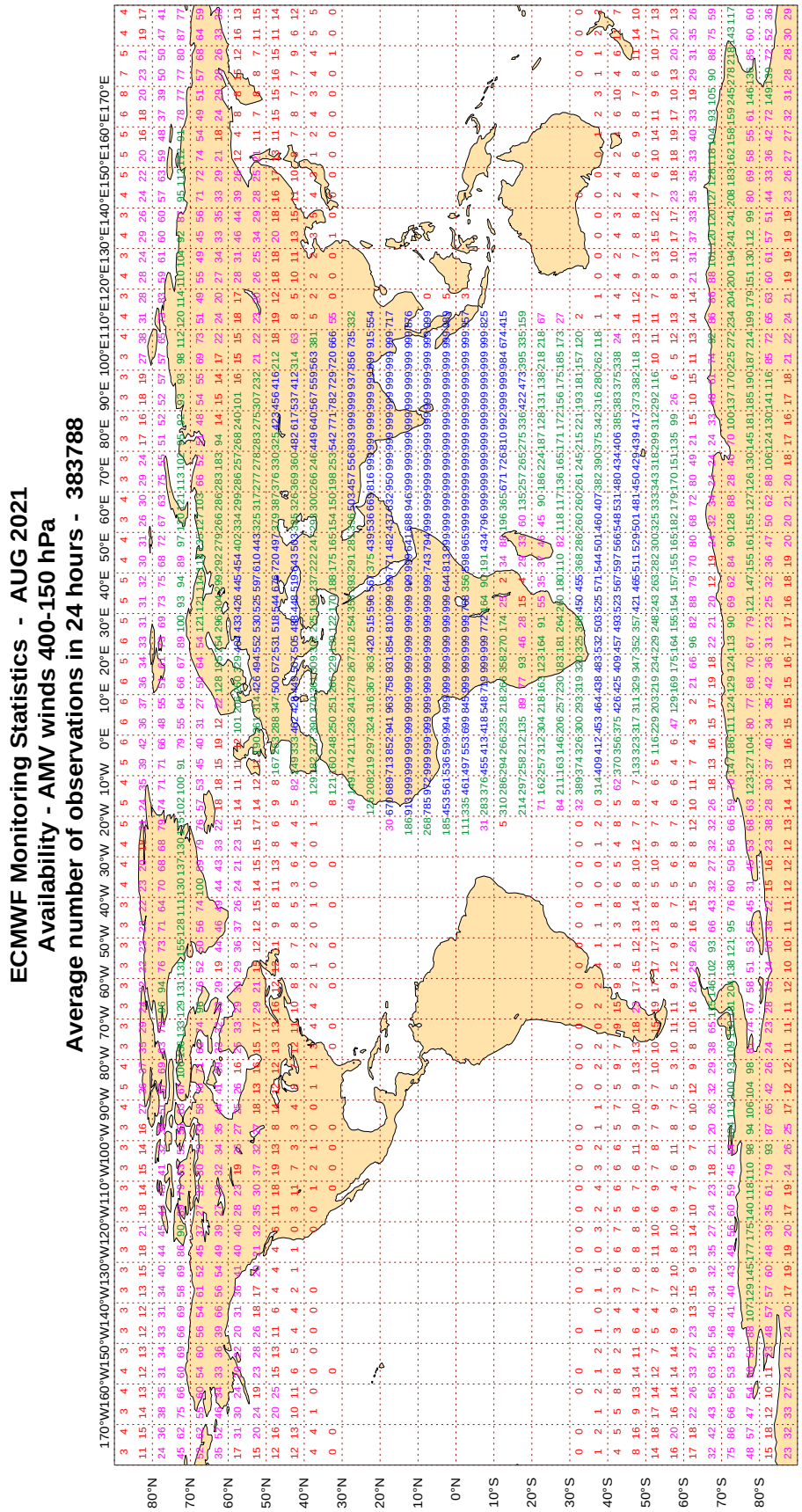


Figure 6

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

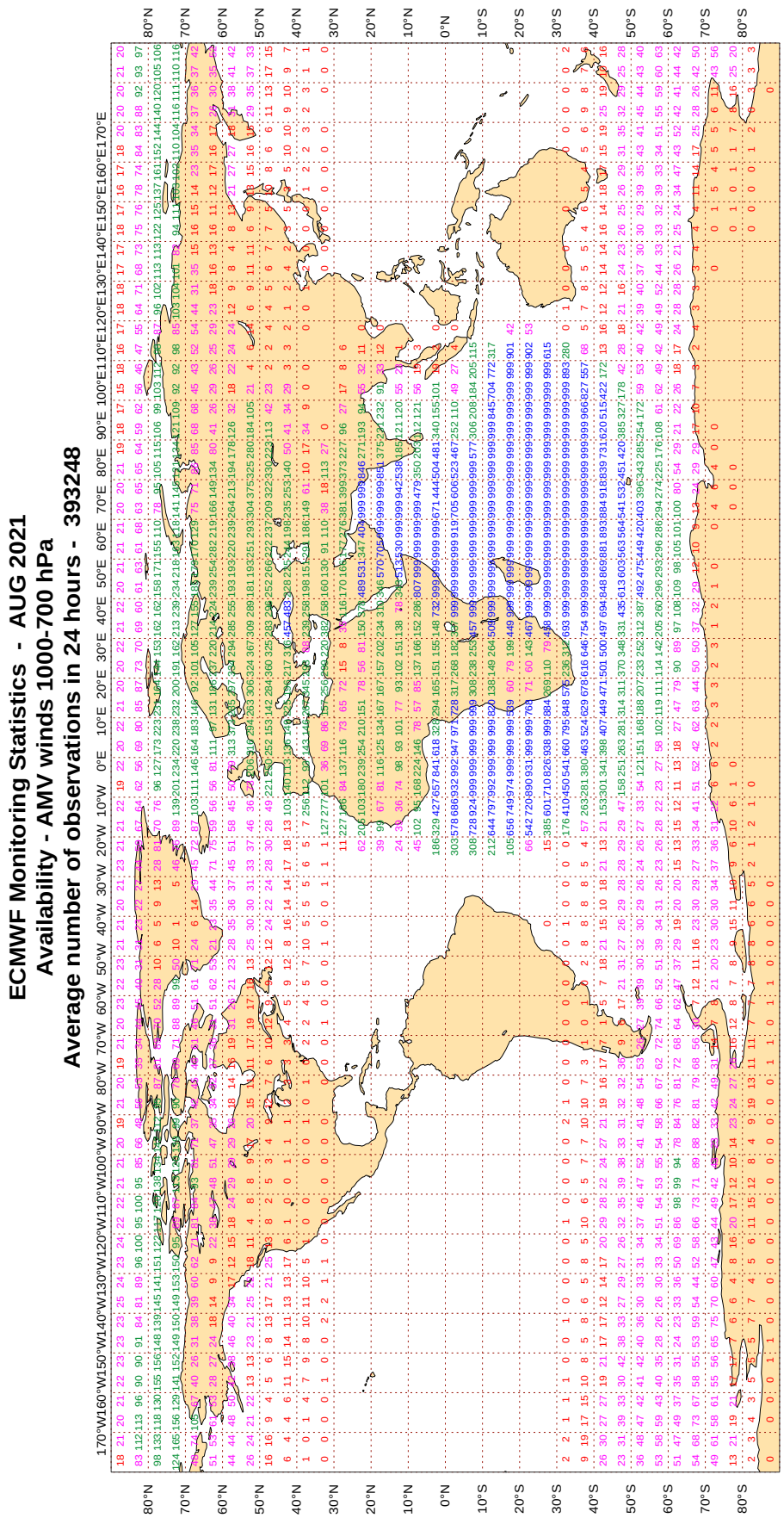


Figure 7

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

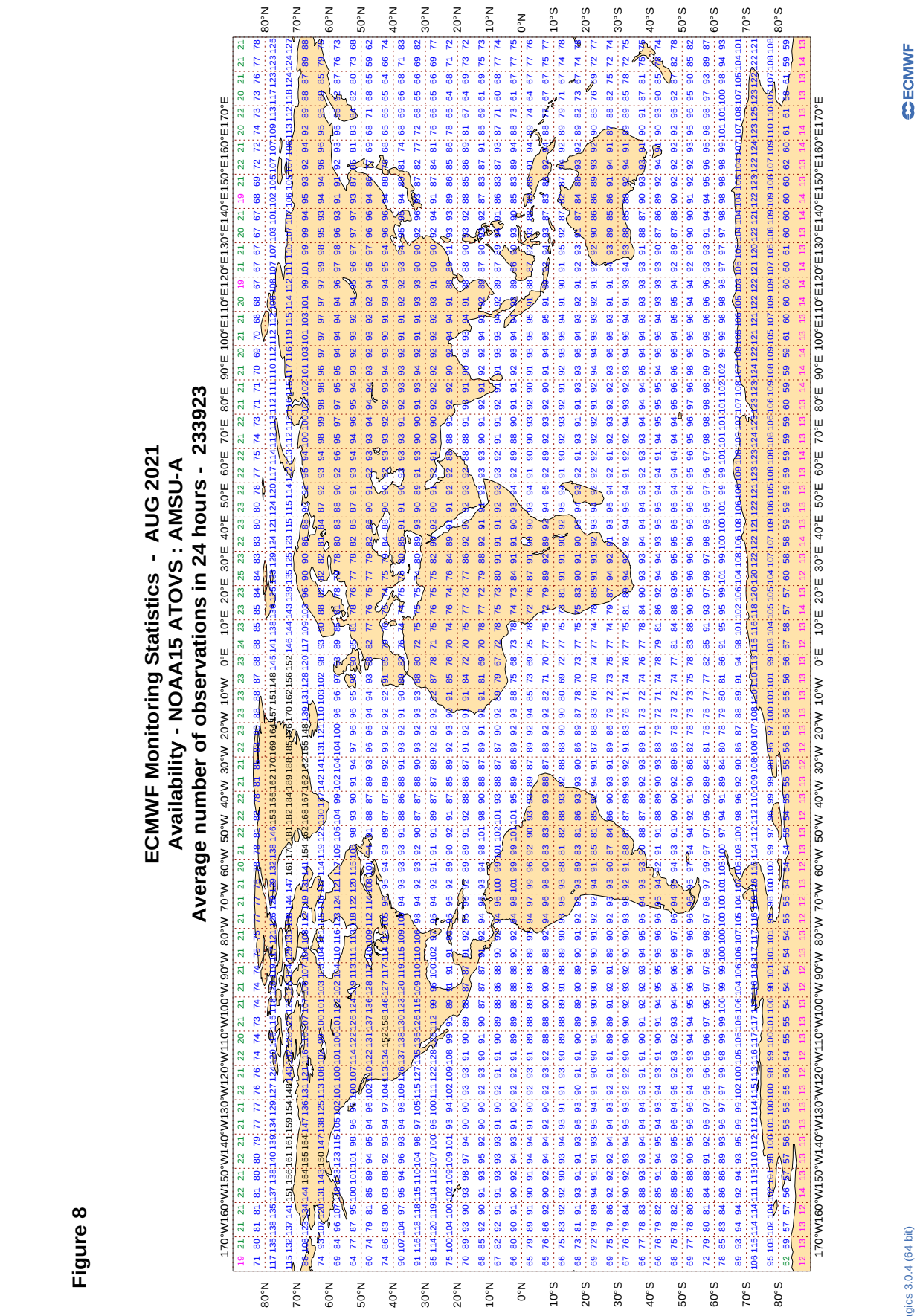


Figure 8

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

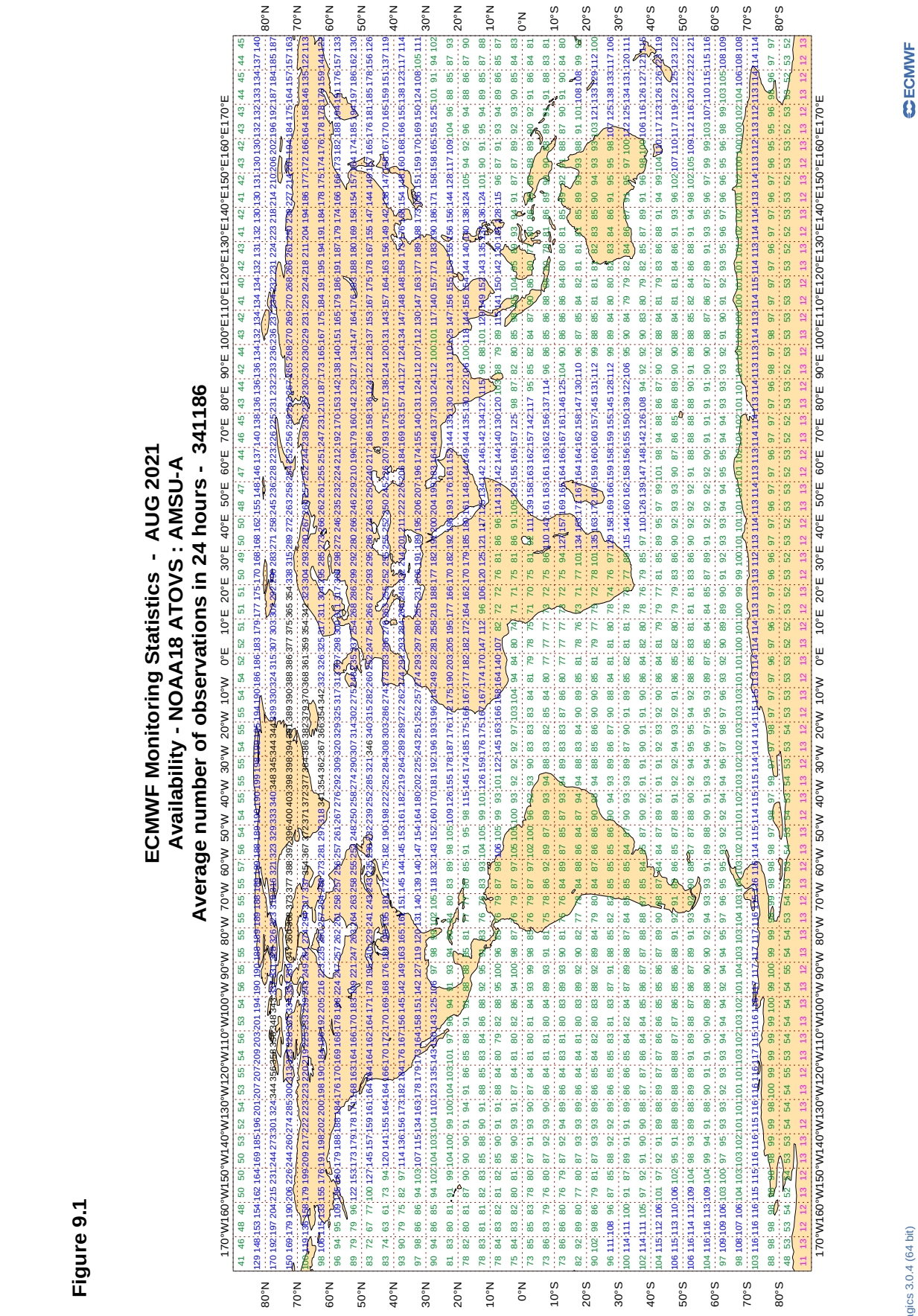


Figure 9.1

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

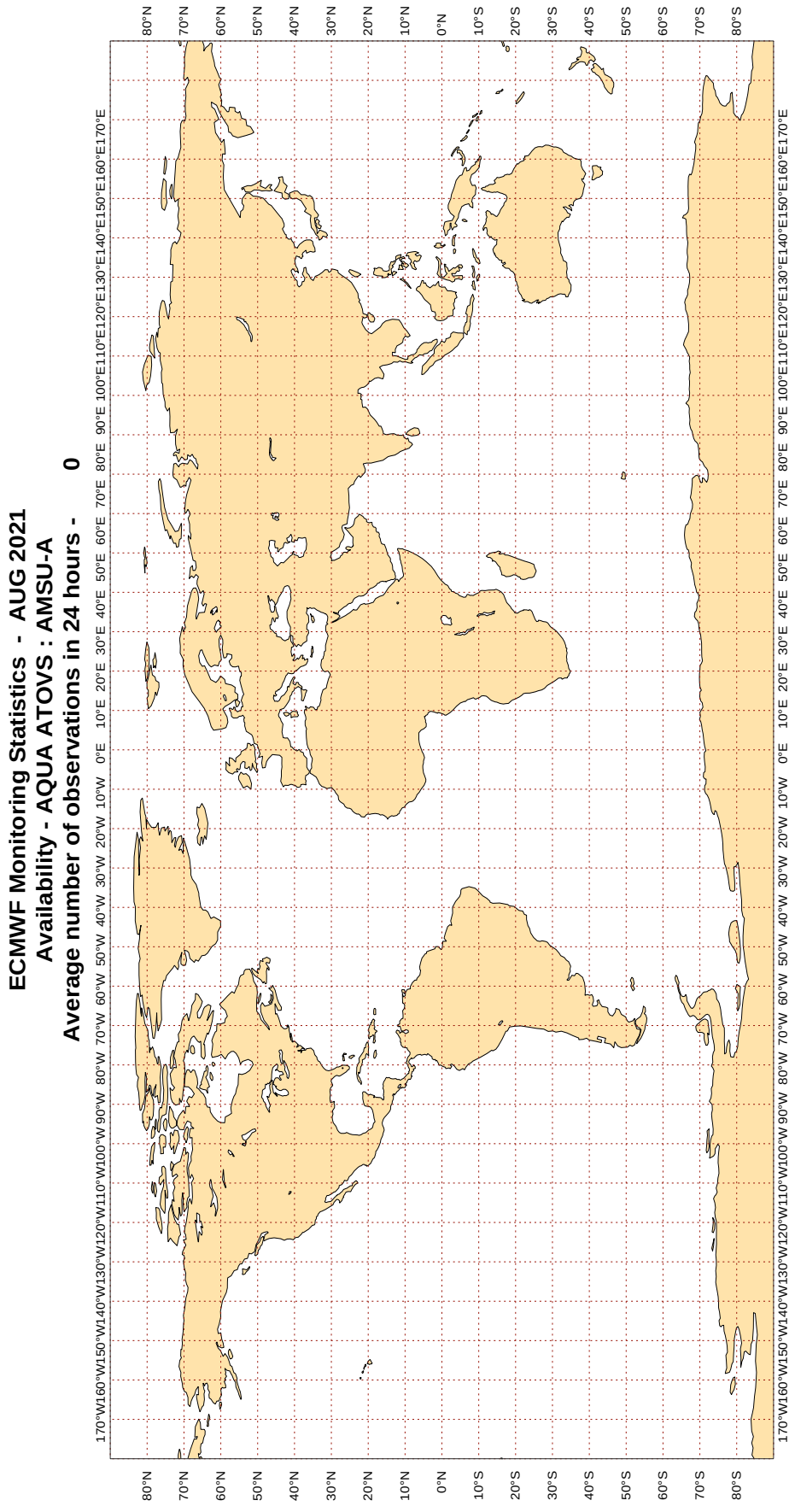


Figure 9.2

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

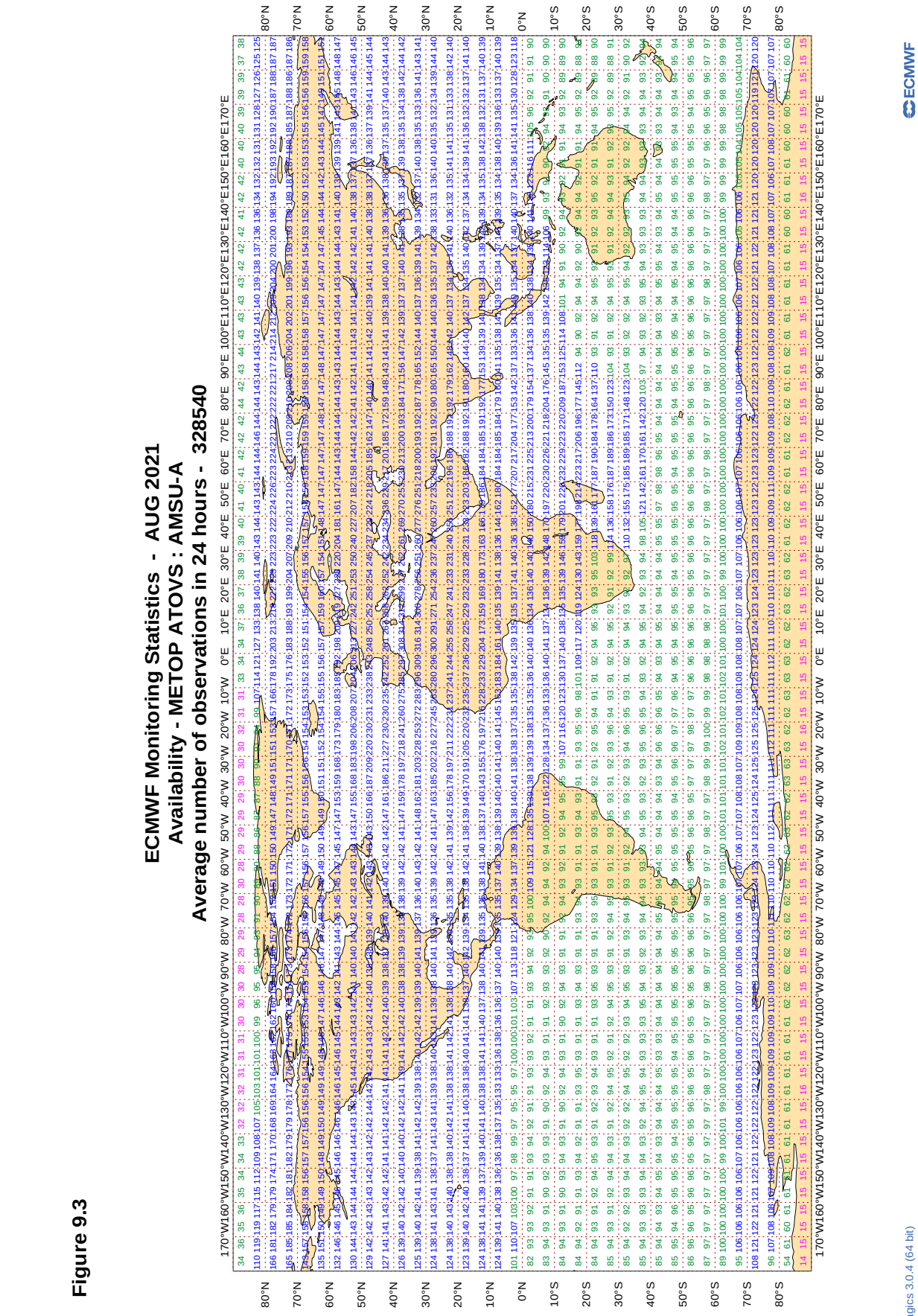


Figure 9.3

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

```
          LIST OF SUSPECT STATIONS        : SHIPS + FIXED MARINE PLATFORMS
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : SURFACE PRESSURE (HPA)
                    AREA                  : GLOBAL
                    PERIOD                : AUG 2021
                    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
3EDZ7	99	P	SUR	20	0	1.3	-5.3	5.5
3FBD9	99	P	SUR	77	0	5.8	6.4	8.6
3FFA5	99	P	SUR	29	0	1.0	6.9	7.0
7JFI	99	P	SUR	38	0	0.8	-4.3	4.3
7KHL	99	P	SUR	22	0	3.9	3.5	5.3
9HA4612	99	P	SUR	19	0	2.7	3.0	4.0
9V2676	99	P	SUR	162	0	2.9	10.0	10.4
9V3286	99	P	SUR	80	0	1.3	5.2	5.4
9V5242	99	P	SUR	30	0	1.3	8.0	8.1
9V6250	99	P	SUR	15	0	0.4	-4.3	4.3
9V9365	99	P	SUR	20	0	1.1	4.5	4.7
9V9404	99	P	SUR	46	0	3.0	4.7	5.6
9V9793	99	P	SUR	21	0	0.7	4.5	4.5
AVFX	99	P	SUR	187	0	0.5	3.6	3.7
C6AP4	99	P	SUR	30	0	1.7	4.6	4.9
C6AV5	99	P	SUR	31	0	0.5	-5.4	5.4
C6LG6	99	P	SUR	132	0	0.5	-3.7	3.7
C6PT7	99	P	SUR	21	0	0.6	4.9	5.0
C6SY3	99	P	SUR	28	0	0.7	3.9	4.0
D5HF5	99	P	SUR	113	0	2.7	8.9	9.3
FMFT	99	P	SUR	58	0	3.6	-4.9	6.1
JMJRCES	99	P	SUR	102	0	2.1	-5.9	6.3
KS1032	99	P	SUR	139	106	0.6	-0.1	0.6
KS1046	99	P	SUR	156	117	0.9	-0.3	0.9
LANT5	99	P	SUR	16	0	0.4	3.6	3.6
LAQM7	99	P	SUR	41	0	1.6	4.0	4.3
MVEP4	99	P	SUR	20	0	0.8	4.2	4.3
NWS8686	99	P	SUR	95	0	0.7	3.5	3.5
ONGI	99	P	SUR	16	0	2.7	-4.8	5.5
OZ2049	99	P	SUR	17	0	0.7	-8.9	9.0
SJA4RSK	99	P	SUR	66	0	0.6	-5.1	5.1
UASX	99	P	SUR	25	3	5.7	4.4	7.2

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
UBUO6	99	P	SUR	33	0	1.6	-3.2	3.6
UBVP6	99	P	SUR	23	0	1.1	4.0	4.2
V7DR9	99	P	SUR	52	0	1.2	4.3	4.5
V7HG7	99	P	SUR	23	0	1.9	7.8	8.0
V7HH3	99	P	SUR	22	0	2.3	7.7	8.1
V7TN7	99	P	SUR	29	0	1.5	-3.1	3.4
VDBA	99	P	SUR	23	20	0.4	9.4	9.4
VRAR6	99	P	SUR	21	0	1.0	10.0	10.1
VRCI9	99	P	SUR	17	0	3.0	3.3	4.5
VRCX7	99	P	SUR	19	0	1.6	6.7	6.9
VRDB3	99	P	SUR	17	0	0.6	-4.2	4.2
VRGO3	99	P	SUR	16	2	2.7	5.2	5.8
VRKQ5	99	P	SUR	26	0	2.4	3.6	4.3
VRLJ3	99	P	SUR	25	0	0.6	5.2	5.2
VRNL2	99	P	SUR	15	0	3.4	3.9	5.2
VRNR6	99	P	SUR	17	0	0.9	-4.9	5.0
VROO4	99	P	SUR	24	0	1.8	8.9	9.1
VROS8	99	P	SUR	15	0	2.9	6.8	7.4
VRRB6	99	P	SUR	75	0	2.4	3.4	4.1
VRRD3	99	P	SUR	21	0	1.5	-3.0	3.3
VRSQ7	99	P	SUR	21	0	2.0	-5.4	5.7
VTSG	99	P	SUR	15	15	0.0	0.0	0.0
WDDI	99	P	SUR	55	0	0.5	3.8	3.8
WDH6745	99	P	SUR	36	0	0.7	3.3	3.4
WDJ3199	99	P	SUR	51	0	2.8	3.8	4.7

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                : AUG 2021
                    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                : AUG 2021
                    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
44150	99	DIRN	SUR	38	0	0	19.5	-35.5	40.5
45023	99	DIRN	SUR	950	0	0	30.9	30.5	43.4
45141	99	DIRN	SUR	69	0	0	23.2	32.6	40.0
45196	99	DIRN	SUR	303	0	0	35.2	39.8	53.2
46092	99	DIRN	SUR	92	0	0	84.2	49.2	97.5
46303	99	DIRN	SUR	59	0	0	35.7	40.9	54.3

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

```
          LIST OF SUSPECT STATIONS         : DRIFTER
                    MONITORING CENTRE      : ECMWF
                    ELEMENT MONITORED      : SURFACE PRESSURE (HPA)
                    AREA                   : GLOBAL
                    PERIOD                 : AUG 2021
                    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
0022605	99	P	SUR	38	125	191	85	2.0	1.4	2.4
0022958	99	P	SUR	36	125	590	0	5.3	6.5	8.3
1401721	99	P	SUR	-24	78	738	279	6.3	-7.1	9.5
1601531	99	P	SUR	-24	49	703	95	3.3	7.4	8.1
2301568	99	P	SUR	-35	15	145	0	6.0	-0.5	6.0
2601503	99	P	SUR	87	111	746	46	2.3	10.8	11.0
3301512	99	P	SUR	-33	-35	325	190	1.2	-0.0	1.2
4601592	99	P	SUR	-35	-91	739	287	4.7	-2.0	5.1
4601840	99	P	SUR	40	-141	734	194	1.5	-12.6	12.7
4701658	99	P	SUR	72	-95	522	0	2.0	8.3	8.5
4801670	99	P	SUR	84	-150	705	104	1.7	11.6	11.7
5102756	99	P	SUR	29	-135	446	0	0.3	-5.2	5.2
5601645	99	P	SUR	-45	-138	545	179	7.6	-0.8	7.7
6101009	99	P	SUR	35	25	101	101	0.0	0.0	0.0
6301511	99	P	SUR	57	-47	705	0	1.5	7.3	7.4
6401539	99	P	SUR	54	-52	258	66	9.6	1.5	9.7
6401844	99	P	SUR	64	-23	715	136	5.3	8.4	9.9

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                : AUG 2021
                    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
0031374	99	SPEED	SUR	-26	-43	512	0	0	1.7	-7.5	7.7
6101005	99	SPEED	SUR	38	26	194	0	0	3.0	-7.7	8.2
6101007	99	SPEED	SUR	36	25	168	0	0	2.0	-6.2	6.5
6101009	99	SPEED	SUR	35	25	192	0	0	1.8	-5.1	5.4

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

```
          LIST OF SUSPECT STATIONS         : DRIFTER
                    MONITORING CENTRE      : ECMWF
                    ELEMENT MONITORED      : WIND DIRECTION (DEGREES)
                    PERIOD                 : AUG 2021
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300008	99	DIRN	SUR	15	-38	592	0	0	116.7	42.7	124.2
1300131	99	DIRN	SUR	28	-17	436	0	0	89.0	-34.0	95.2
1500008	99	DIRN	SUR	-20	-13	215	0	0	15.1	-35.1	38.2
2200297	99	DIRN	SUR	34	125	531	0	0	92.2	-35.3	98.7
2200298	99	DIRN	SUR	35	125	497	0	0	33.1	-41.1	52.8
23491	99	DIRN	SUR	12	93	287	0	0	34.6	-111.7	116.9
23497	99	DIRN	SUR	11	72	91	0	0	60.3	-85.7	104.8
3200317	99	DIRN	SUR	-2	-110	72	0	0	86.3	132.6	158.2
3200321	99	DIRN	SUR	0	-96	45	0	0	7.6	27.5	28.5
32317	99	DIRN	SUR	-2	-110	70	0	0	111.6	111.0	157.4
32321	99	DIRN	SUR	0	-96	45	0	0	8.5	27.2	28.5
4400034	99	DIRN	SUR	44	-68	321	0	0	25.2	21.4	33.1
4400041	99	DIRN	SUR	37	-77	118	0	0	62.6	50.3	80.3
44034	99	DIRN	SUR	44	-68	525	0	0	26.4	22.1	34.4
44041	99	DIRN	SUR	37	-77	149	0	0	61.3	56.9	83.7
44078	99	DIRN	SUR	60	-40	893	0	0	11.9	-20.3	23.6
44150	99	DIRN	SUR	43	-64	274	0	0	19.0	-37.0	41.6
4500023	99	DIRN	SUR	47	-89	5473	0	0	30.7	31.9	44.3
4500196	99	DIRN	SUR	42	-82	1681	0	0	27.5	40.4	48.8
4500197	99	DIRN	SUR	42	-82	1789	0	0	35.1	-22.1	41.5
45023	99	DIRN	SUR	47	-89	7496	0	0	31.2	30.4	43.6
45141	99	DIRN	SUR	61	-115	464	0	0	21.5	33.7	40.0
45186	99	DIRN	SUR	42	-88	641	0	0	64.9	-1.0	64.9
45196	99	DIRN	SUR	42	-82	2394	0	0	28.3	40.6	49.5
45197	99	DIRN	SUR	42	-82	2797	0	0	35.7	-23.7	42.9
4600092	99	DIRN	SUR	37	-122	350	0	0	84.7	43.7	95.3
46092	99	DIRN	SUR	37	-122	517	0	0	79.1	51.5	94.4
46303	99	DIRN	SUR	49	-123	400	0	0	30.3	46.3	55.3
5200001	99	DIRN	SUR	2	165	518	0	0	25.6	23.6	34.8
52001	99	DIRN	SUR	2	165	499	0	0	26.6	22.6	34.9
5300040	99	DIRN	SUR	-8	95	694	0	0	158.6	54.1	167.5

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
53040	99	DIRN	SUR	-8	95	651	0	0	158.1	53.5	167.0
6200200	99	DIRN	SUR	36	-8	565	0	0	153.0	-79.0	172.2
6301003	99	DIRN	SUR	74	24	575	0	0	15.6	23.7	28.4
6301004	99	DIRN	SUR	72	20	522	0	0	12.1	25.8	28.5
6600022	99	DIRN	SUR	54	14	188	0	0	48.4	-99.8	110.9

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                : AUG 2021
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
01400	12	Z	1000	57	3	29	0	5.7	79.8	80.0
01400	00	Z	1000	57	3	30	0	5.7	80.3	80.5
24343	00	Z	250	67	123	31	0	69.9	46.7	84.1
30673	12	Z	200	54	120	10	0	105.0	37.2	111.4
30673	00	Z	200	54	120	14	0	108.2	58.0	122.8
38064	12	Z	250	45	66	28	1	87.1	37.2	94.7
40437	12	Z	925	25	47	30	0	0.0	32.8	32.8
52323	00	Z	50	42	97	31	1	120.7	150.5	192.9
52323	12	Z	50	42	97	29	0	109.1	143.9	180.6
55591	12	Z	50	30	91	21	0	51.4	137.5	146.8
76394	12	Z	200	26	-100	18	0	106.7	86.6	137.4
76394	00	Z	200	26	-100	19	0	115.5	94.0	148.9
76644	00	Z	1000	21	-90	27	0	3.5	30.9	31.1
76644	12	Z	1000	21	-90	28	0	3.3	27.9	28.1
97014	00	Z	1000	2	125	31	0	46.5	25.9	53.2
98233	12	Z	1000	18	122	29	0	27.6	15.2	31.5
98233	00	Z	1000	18	122	31	0	26.6	16.8	31.5
98558	12	Z	1000	11	126	24	0	24.1	16.0	28.9
KMPLHP	12	Z	925	55	-21	10	0	5.5	50.9	51.2
KMPLHP	00	Z	1000	54	-26	10	0	5.5	49.6	49.9

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                : AUG 2021
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

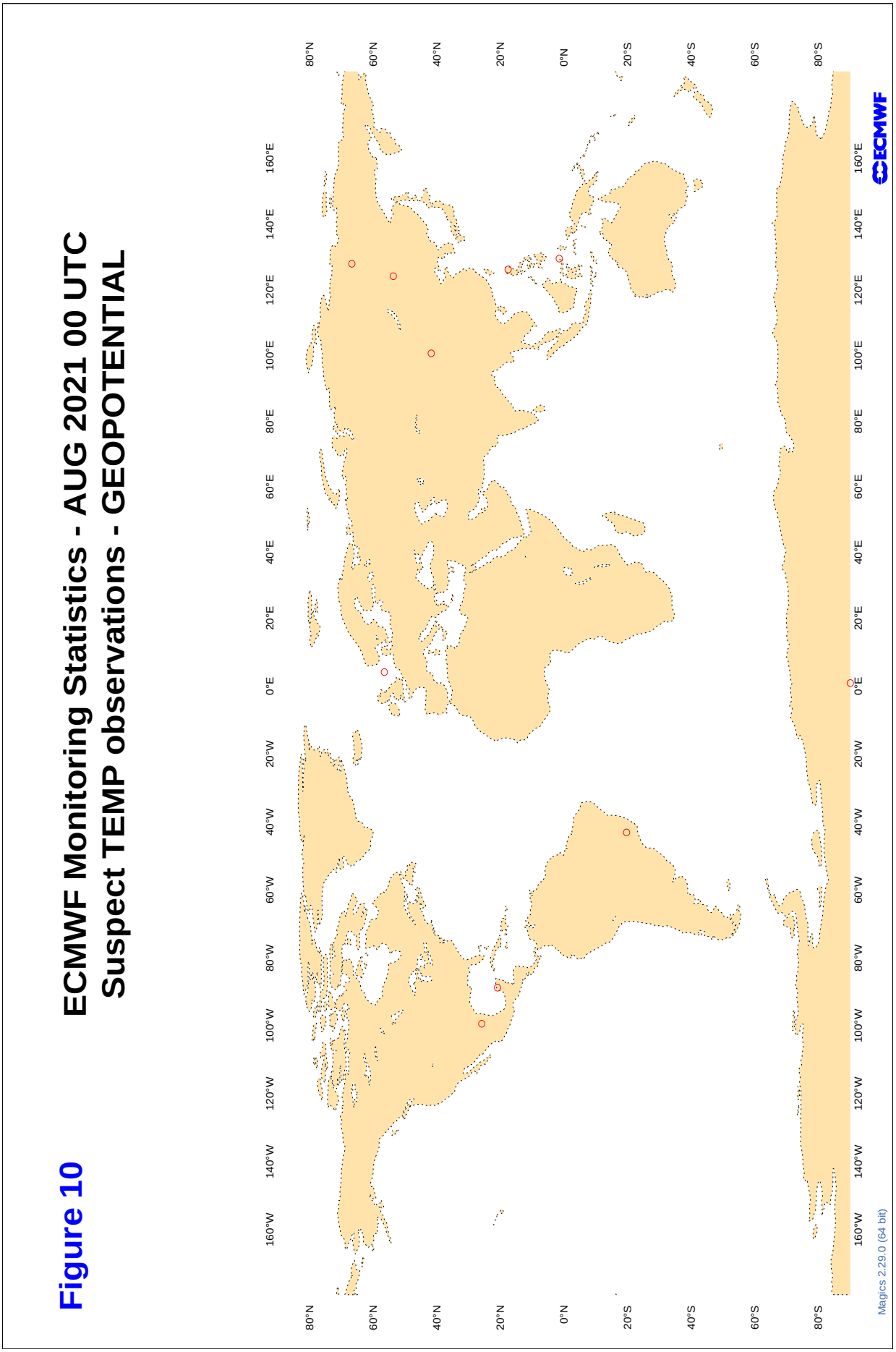
WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	UBIAS	VBIAS	RMS

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

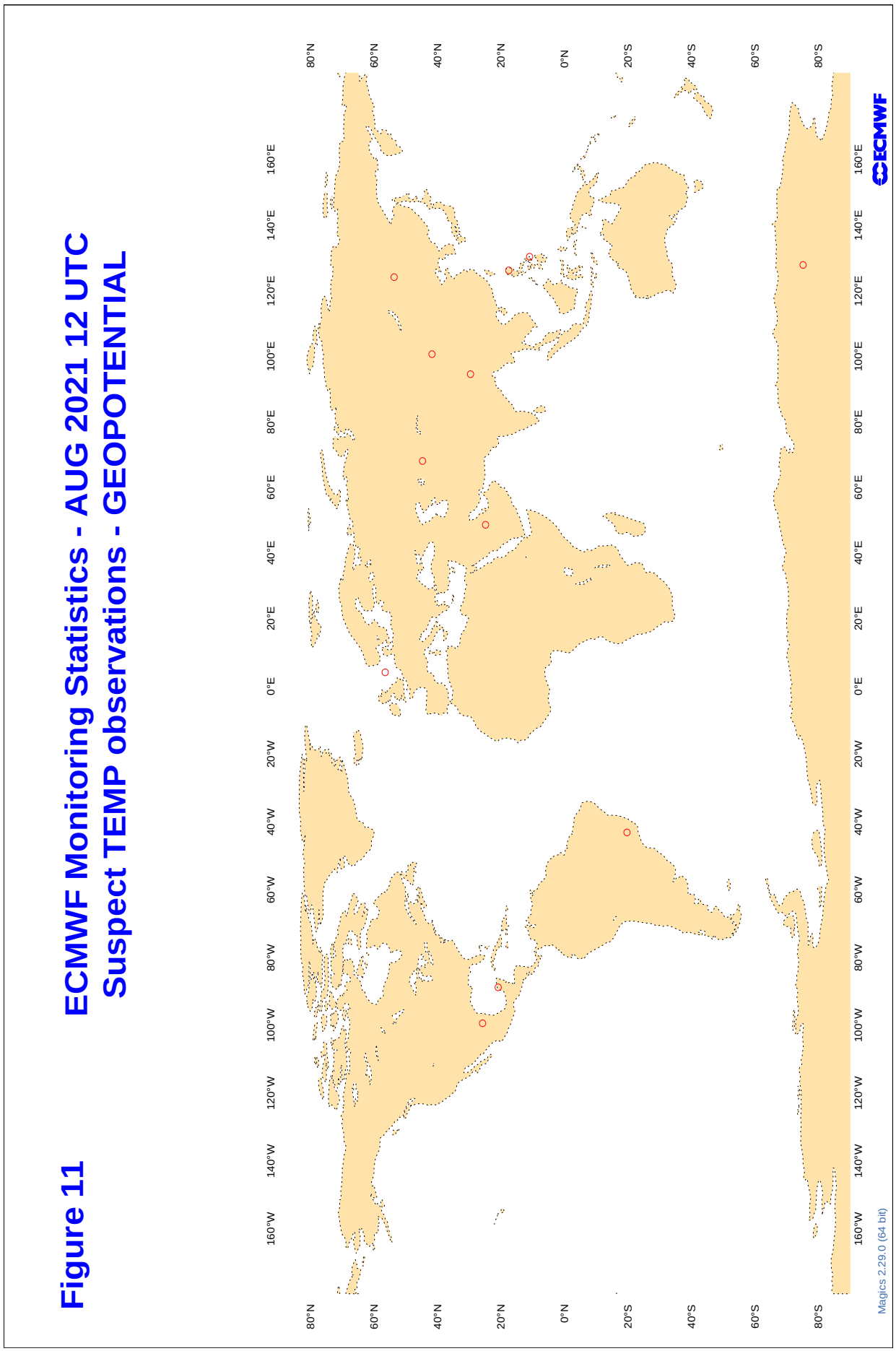
```
          LIST OF SUSPECT STATIONS        : RADIOSONDES
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
                    AREA                  : GLOBAL
                    PERIOD                : AUG 2021
                    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
48381	00	DD	16	103	21	-10.5	5.9	15.6
59431	12	DD	23	109	22	-12.6	7.6	12.5

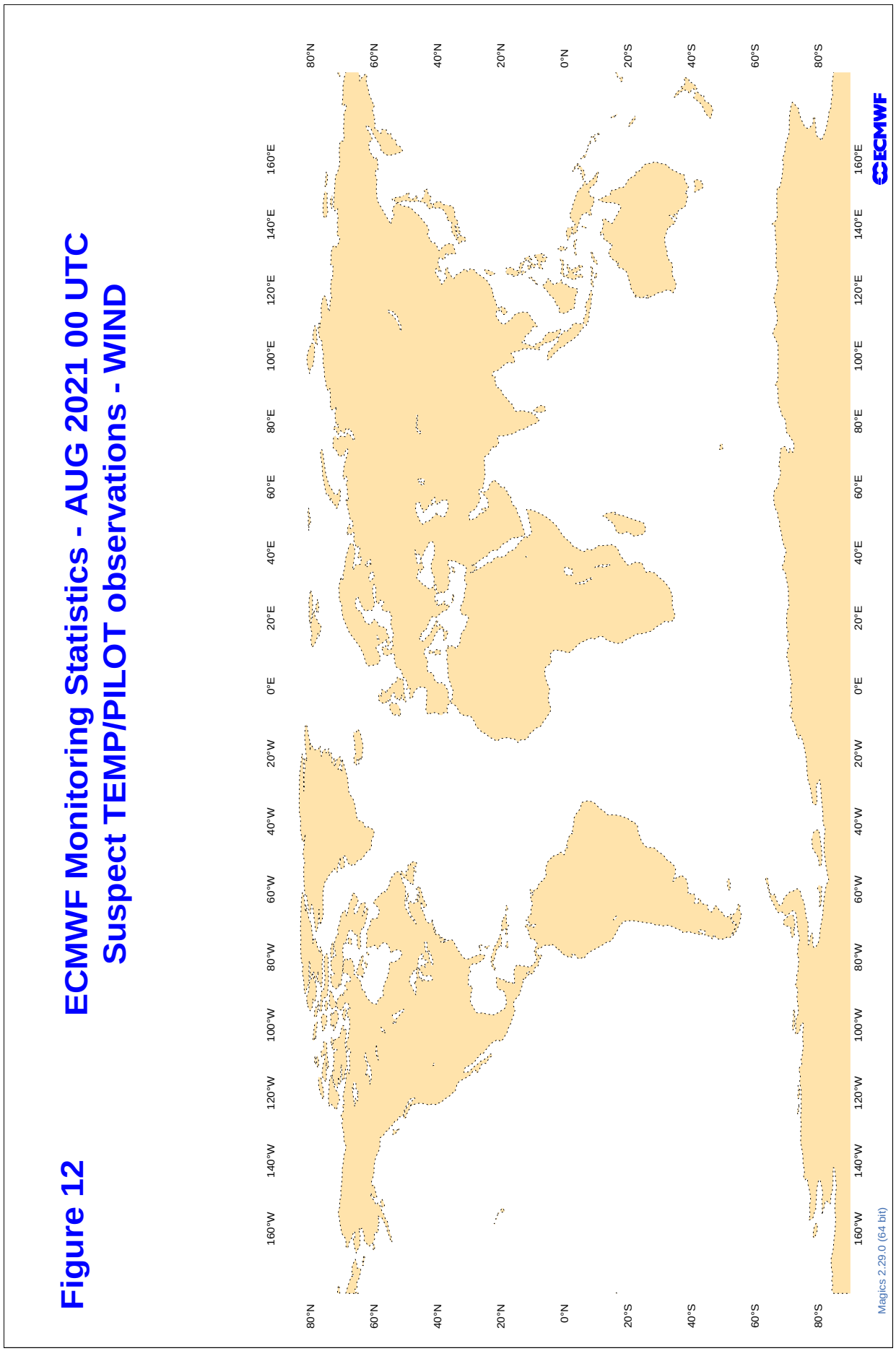
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



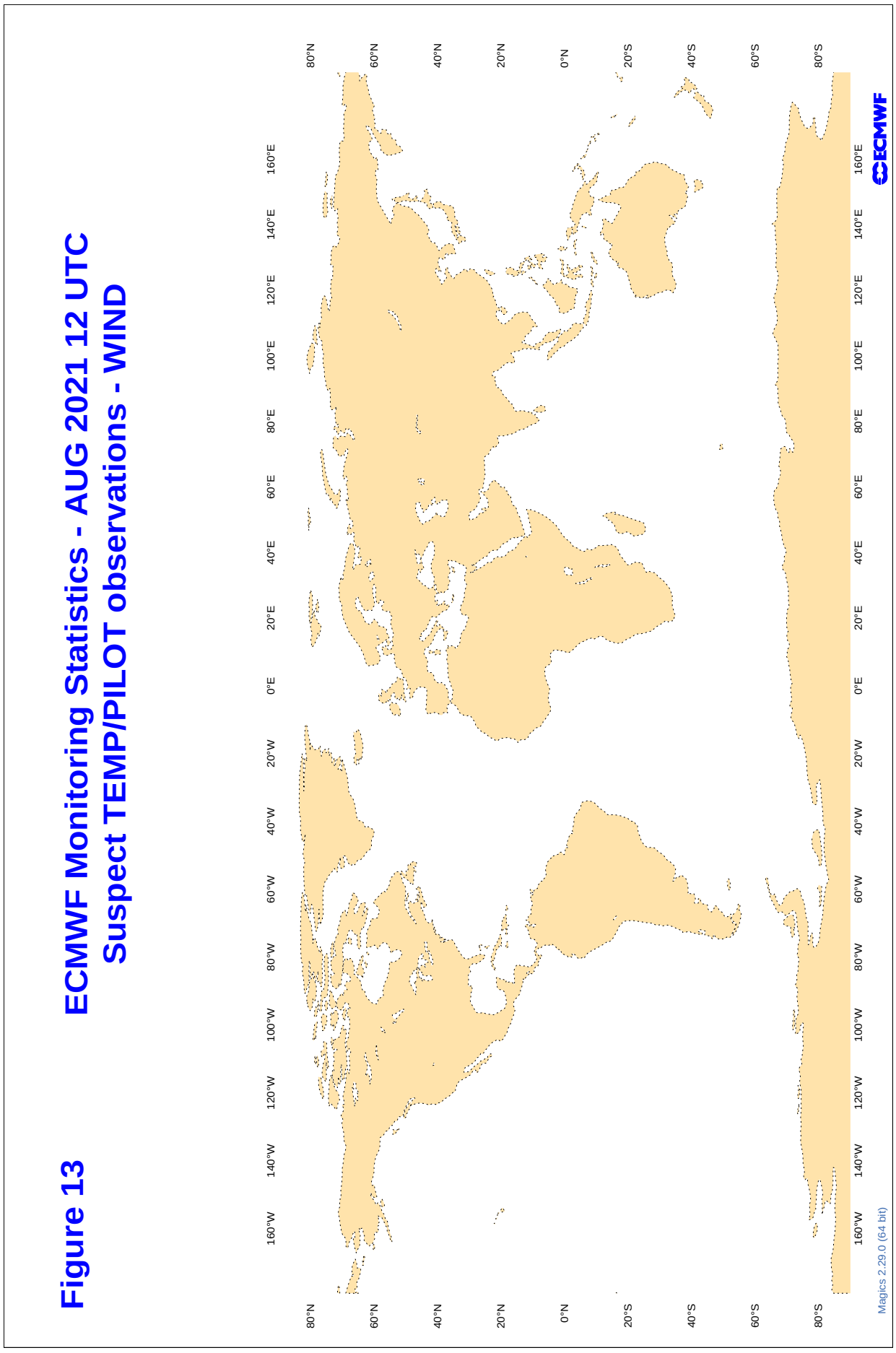
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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



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



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

```
RADIOSONDE MONITORING STATISTICS (SHIPS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 100 HPA
         AREA                  : GLOBAL
         PERIOD                : AUG 2021
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
2EERVT	12	Z	100	2	3.9	-2.8
2EERVT	00	Z	100	2	9.2	6.7
4DC8UU	00	Z	100	8	15.9	14.3
4DC8UU	12	Z	100	8	13.0	11.3
7JUNA4	00	Z	100	4	2.5	2.1
7JUNA4	12	Z	100	3	8.2	2.8
ASDE09	12	Z	100	1	8.3	8.3
ATGU3F	12	Z	100	7	13.6	-7.1
ATGU3F	00	Z	100	3	20.1	-19.9
BPMWB2	00	Z	100	9	19.9	14.1
BPMWB2	12	Z	100	6	30.3	28.5
DSQL7	00	Z	100	31	8.3	-6.5
DSQL7	12	Z	100	28	38.0	-1.3
FPUW5G	12	Z	100	23	10.3	-8.2
HTXUH4	12	Z	100	1	53.9	-53.9
HTXUH4	00	Z	100	7	104.5	37.5
JGQH	12	Z	100	2	11.4	9.2
JGQH	00	Z	100	2	11.9	11.4
JNKN7J	12	Z	100	4	124.7	122.3
JNKN7J	00	Z	100	4	25.1	24.2
JPBN	12	Z	100	2	5.4	-2.3
JPBN	00	Z	100	1	5.2	5.2
KJJF9X	12	Z	100	5	15.7	3.7
KJJF9X	00	Z	100	3	13.1	12.7
KMPLHP	00	Z	100	10	48.6	44.2
KMPLHP	12	Z	100	9	127.3	122.4
LRYQE3	12	Z	100	10	24.8	16.7
LRYQE3	00	Z	100	9	19.5	10.2
SMLQ	12	Z	100	27	7.7	-6.8
SMLQ	00	Z	100	24	8.1	-6.6
UXK5JT	12	Z	100	12	11.1	7.4
UXK5JT	00	Z	100	11	9.0	4.3
VKB4L5	00	Z	100	12	44.6	34.4
VKB4L5	12	Z	100	8	33.2	32.2
WDK38H	12	Z	100	17	11.1	-10.2
WDK38H	00	Z	100	2	9.4	-9.4
XKQLWQ	12	Z	100	21	28.4	25.6
XQFJRG	12	Z	100	2	18.4	4.6
XQFJRG	00	Z	100	3	8.0	-5.1

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
YLV96W	12	Z	100	9	10.3	3.7
YLV96W	00	Z	100	8	9.5	-1.6
ZVQEQC	12	Z	100	23	5.5	-1.3

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

```
RADIOSONDE MONITORING STATISTICS (SHIPS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 100 HPA
         AREA                  : GLOBAL
         PERIOD                : AUG 2021
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
2EERVT	12	V	100	2	2.4	2.0	-0.9
2EERVT	00	V	100	2	2.0	1.0	-1.5
4DC8UU	00	V	100	6	3.7	1.2	-1.1
4DC8UU	12	V	100	5	5.2	-1.5	-0.2
7JUNA4	00	V	100	4	3.3	-0.4	-1.5
7JUNA4	12	V	100	3	2.1	0.0	-0.2
ASDE09	12	V	100	1	3.5	2.8	-2.1
ATGU3F	12	V	100	7	3.2	0.5	1.3
ATGU3F	00	V	100	3	2.6	-0.2	0.4
BPMWB2	00	V	100	9	3.3	-0.5	-1.1
BPMWB2	12	V	100	6	4.2	-1.0	2.0
DSQL7	00	V	100	31	1.8	-0.1	0.2
DSQL7	12	V	100	27	2.1	-0.5	0.4
FPUW5G	12	V	100	22	3.0	0.2	0.0
HTXUH4	12	V	100	1	2.9	0.6	-2.8
HTXUH4	00	V	100	7	3.3	0.1	0.8
JGQH	12	V	100	2	2.2	1.3	0.3
JGQH	00	V	100	2	3.9	-0.8	3.0
JNKN7J	12	V	100	4	2.1	-0.5	0.7
JNKN7J	00	V	100	4	2.0	0.8	0.2
JPBN	12	V	100	2	4.0	-1.8	-1.3
JPBN	00	V	100	1	1.3	1.3	-0.2
KJJF9X	12	V	100	5	2.1	-1.5	0.6
KJJF9X	00	V	100	3	2.6	2.6	0.2
KMPLHP	00	V	100	10	3.3	0.1	0.8
KMPLHP	12	V	100	9	3.2	-0.1	1.2
LRYQE3	12	V	100	10	2.8	0.5	0.1
LRYQE3	00	V	100	9	3.2	1.8	0.8
SMLQ	12	V	100	27	3.6	-1.2	0.6
SMLQ	00	V	100	24	3.3	-0.7	0.2
UXK5JT	12	V	100	12	3.4	0.3	0.6
UXK5JT	00	V	100	11	2.1	0.0	-0.5
VKB4L5	00	V	100	12	4.3	0.8	0.3
VKB4L5	12	V	100	8	3.7	0.6	1.3
WDK38H	12	V	100	14	2.5	-0.2	-0.6
WDK38H	00	V	100	2	1.2	-0.4	-0.6
XKQLWQ	12	V	100	20	2.8	-0.1	-0.3
XQFJRG	12	V	100	2	4.7	4.7	0.2
XQFJRG	00	V	100	3	2.0	-0.4	-1.0

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
YLV96W	12	V	100	9	2.3	-0.1	0.4
YLV96W	00	V	100	8	2.4	0.0	0.3
ZVQEQC	12	V	100	23	2.8	-0.2	0.4

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

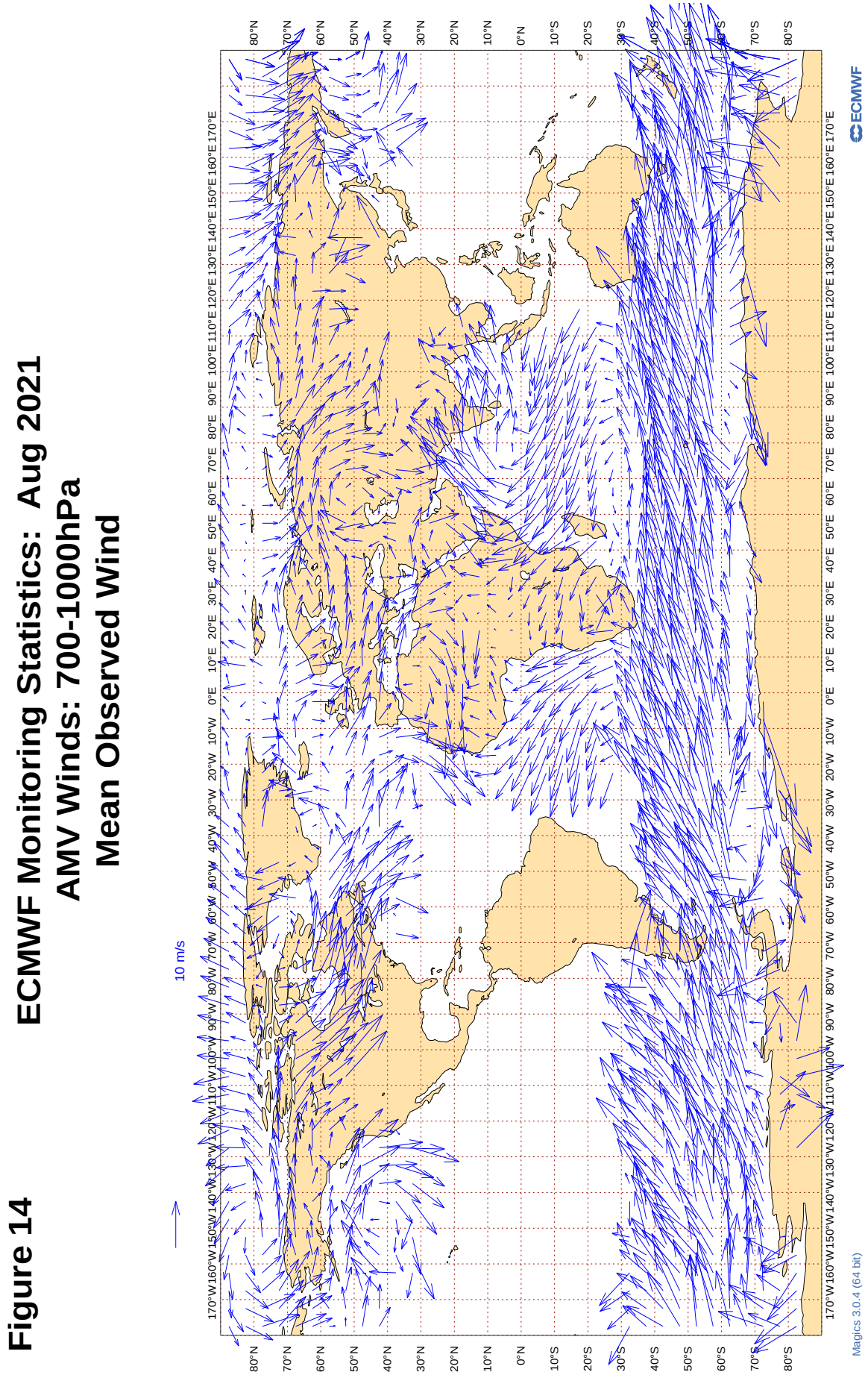


Figure 14

3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

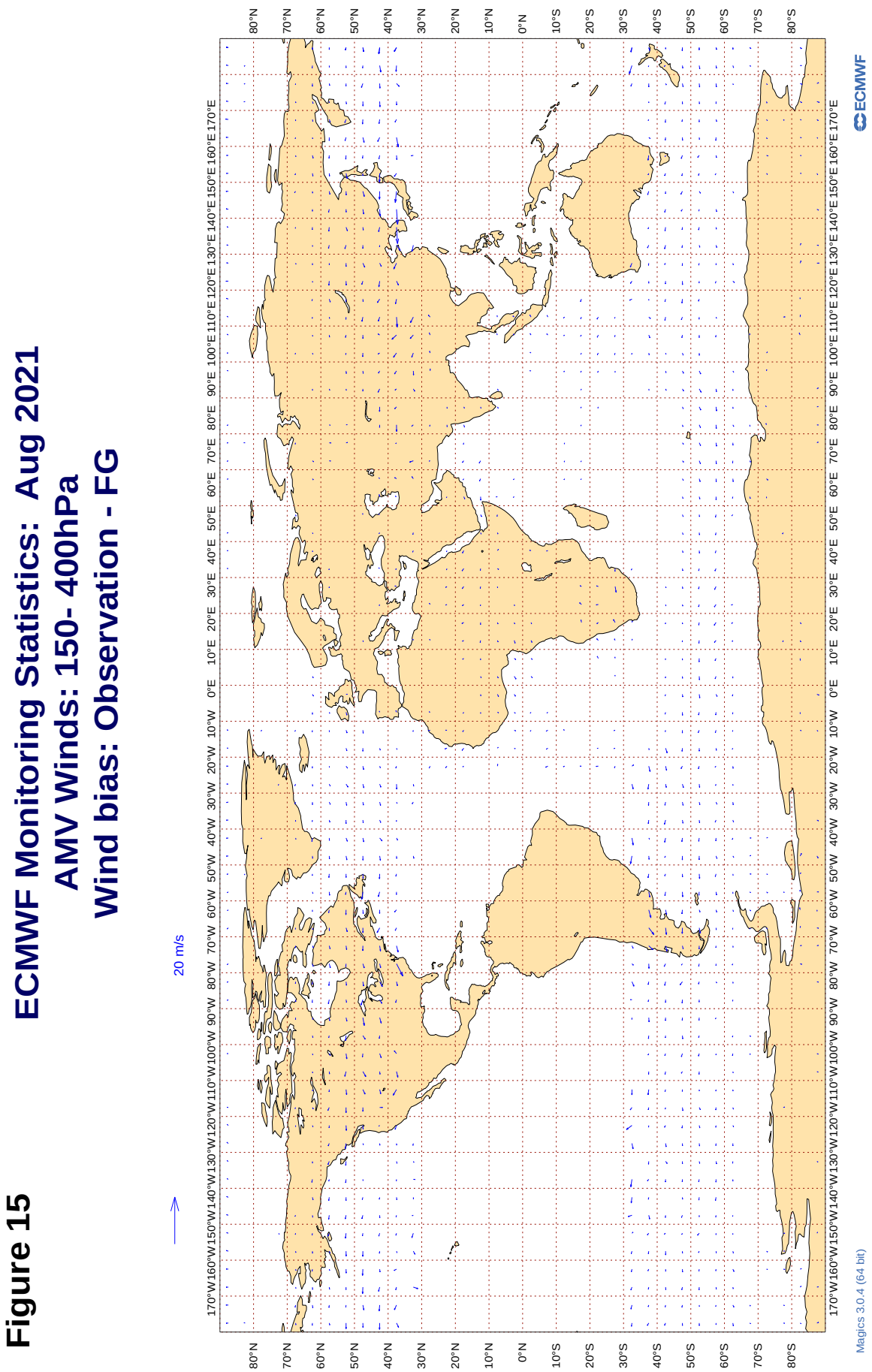


Figure 15

3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

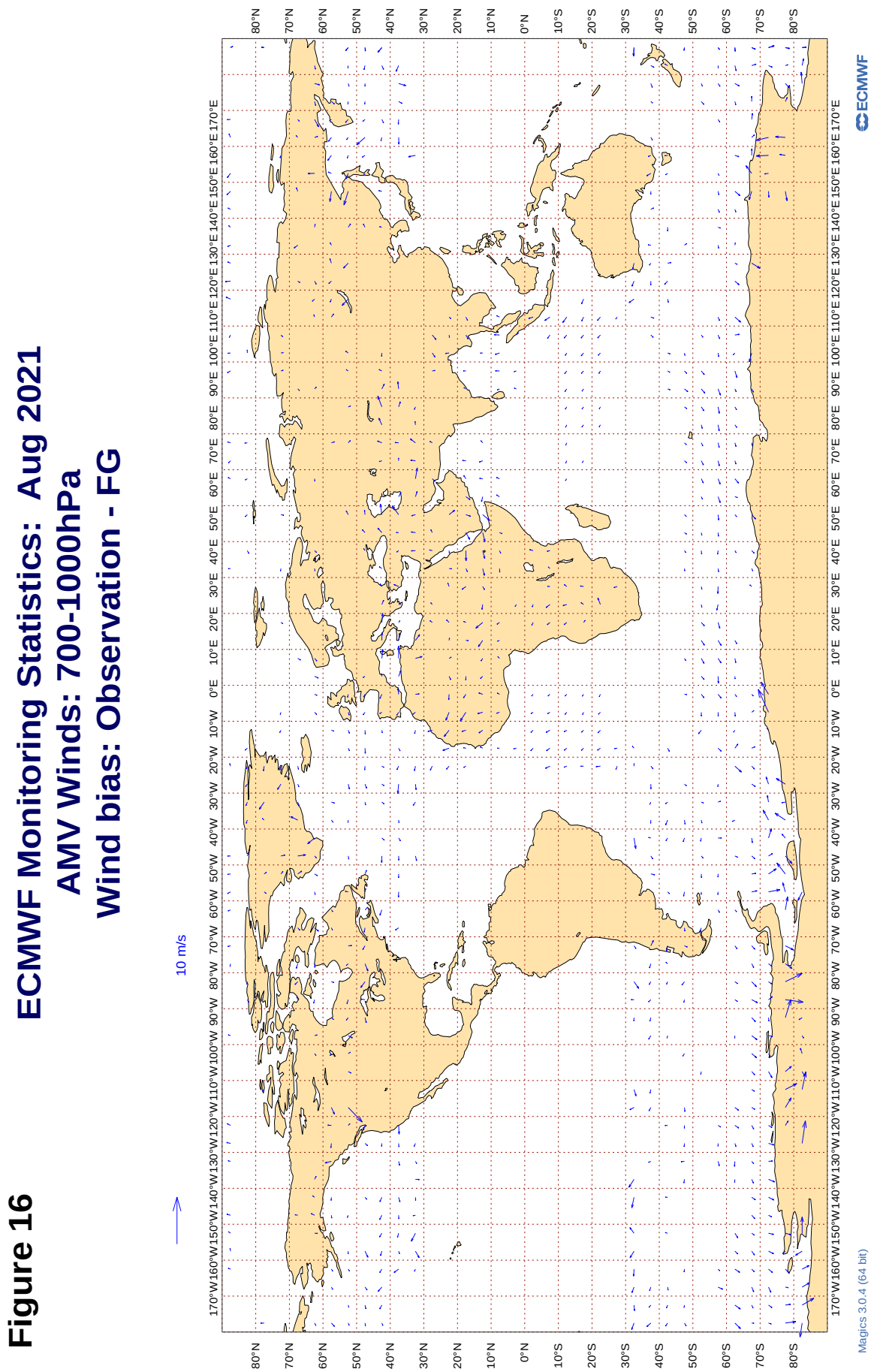


Figure 16

3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

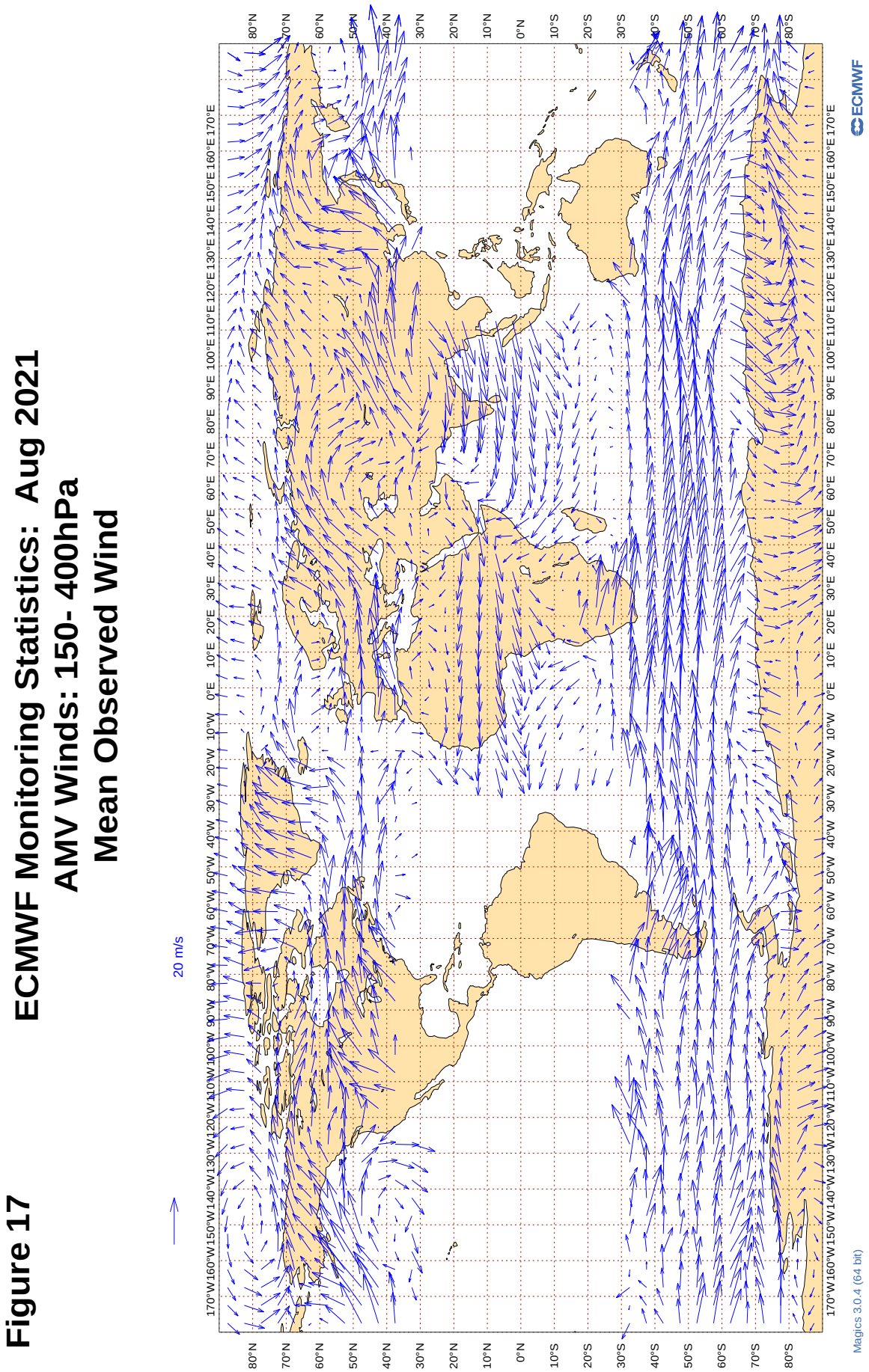


Figure 17

3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

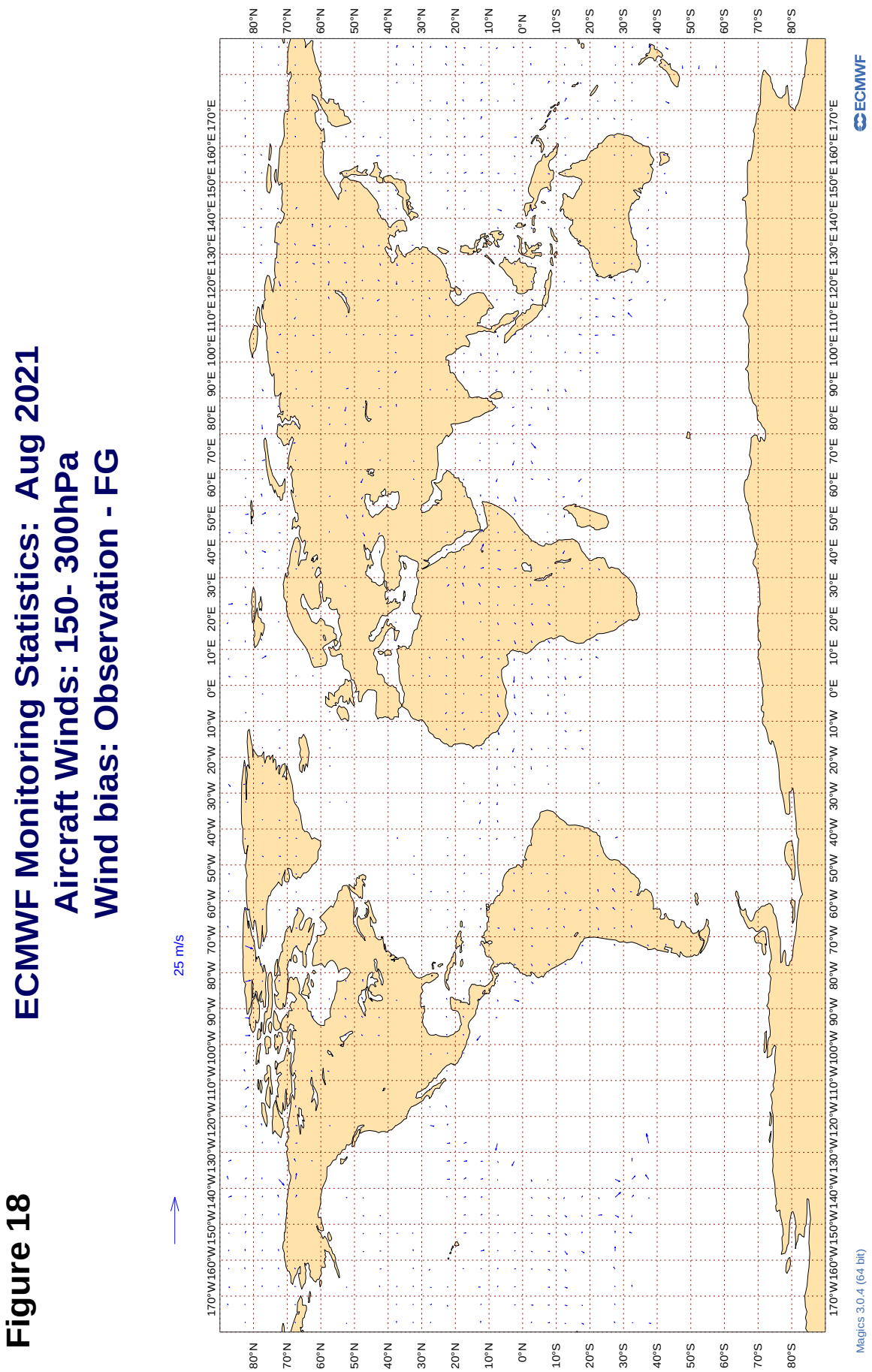


Figure 18

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 : AUG 2021
STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20

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

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AAL	99	V	300-150	24723	3	0	5.0	0.2
AAR	99	V	300-150	196	1	0	3.6	-0.7
ABB	99	V	300-150	2236	0	0	3.2	0.2
ABD	99	V	300-150	1151	0	0	4.0	-0.4
ABG	99	V	300-150	109	0	0	3.4	0.2
ABW	99	V	300-150	742	0	0	3.7	-0.1
ABX	99	V	300-150	47	0	0	3.6	0.3
ACA	99	V	300-150	16175	5	0	5.7	0.2
ACI	99	V	300-150	72	0	0	2.9	0.5
ACP	99	V	300-150	22	0	0	6.6	2.7
AEA	99	V	300-150	429	4	0	4.6	-0.0
AFL	99	V	300-150	2076	0	0	3.8	0.3
AFR	99	V	300-150	26235	1	0	4.2	0.2
AHO	99	V	300-150	87	0	0	3.5	0.5
AIC	99	V	300-150	1427	1	0	4.5	0.1
AJT	99	V	300-150	476	0	0	4.0	0.3
ALK	99	V	300-150	1099	0	0	4.0	0.2
AMX	99	V	300-150	2278	5	0	6.5	0.1
ANZ	99	V	300-150	6997	3	0	4.9	0.3
AOJ	99	V	300-150	149	0	1	3.4	-0.3
ASA	99	V	300-150	39	0	5	8.0	1.1
ASL	99	V	300-150	691	0	0	3.2	0.4
ASY	99	V	300-150	90	0	0	4.8	0.3
ATC	99	V	300-150	25	0	0	4.1	0.5
ATN	99	V	300-150	31	0	3	5.2	1.7
AUA	99	V	300-150	3374	0	0	3.7	-0.0
AUH	99	V	300-150	61	0	0	3.5	-0.2
AXY	99	V	300-150	131	0	1	3.6	0.0
AZA	99	V	300-150	2705	0	0	3.3	0.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AZG	99	V	300-150	839	0	0	3.5	-0.2
AZV	99	V	300-150	918	0	0	3.4	0.4
BAH	99	V	300-150	20	0	0	2.2	-0.3
BAW	99	V	300-150	19822	3	0	5.2	0.2
BBC	99	V	300-150	166	0	0	4.1	0.4
BCS	99	V	300-150	2430	0	0	3.2	0.3
BEL	99	V	300-150	1128	0	0	3.2	0.3
BFF	99	V	300-150	49	0	0	11.0	1.1
BLU	99	V	300-150	31	0	0	4.4	0.1
BMW	99	V	300-150	66	0	0	2.9	0.0
BOX	99	V	300-150	3804	0	0	3.5	0.1
BOX	99	V	300-150	69	0	0	3.2	-0.1
BPA	99	V	300-150	123	0	0	3.7	0.6
BRI	99	V	300-150	33	0	0	5.8	2.0
BTX	99	V	300-150	58	0	0	3.2	1.7
CAJ	99	V	300-150	66	0	0	2.8	0.4
CAL	99	V	300-150	325	0	0	3.8	0.7
CAZ	99	V	300-150	133	0	0	3.5	0.0
CEB	99	V	300-150	105	0	0	3.2	0.0
CES	99	V	300-150	61	0	0	3.9	1.0
CFC	99	V	300-150	366	0	0	3.8	0.1
CFG	99	V	300-150	2005	0	0	3.9	-0.2
CJT	99	V	300-150	1484	0	0	3.8	-0.3
CKS	99	V	300-150	1482	0	0	3.6	0.1
CLU	99	V	300-150	1445	0	0	4.1	-0.3
CLX	99	V	300-150	4767	0	0	3.7	-0.2
CMB	99	V	300-150	2260	0	0	3.9	0.0
CNV	99	V	300-150	94	0	0	3.5	0.8
CPA	99	V	300-150	283	0	0	3.7	0.0
CRL	99	V	300-150	1213	0	0	3.1	0.2
CSN	99	V	300-150	296	2	0	4.0	1.2
CXB	99	V	300-150	74	0	0	3.2	0.6
DAL	99	V	300-150	31359	0	0	3.4	0.2
DGX	99	V	300-150	37	0	0	2.4	-0.3
DHK	99	V	300-150	1057	1	0	4.7	0.0
DJT	99	V	300-150	694	0	0	3.4	0.2
DLH	99	V	300-150	20211	0	0	3.4	0.1
DSO	99	V	300-150	30	0	0	4.0	1.1
DUB	99	V	300-150	74	0	0	3.4	-0.2
EAU	99	V	300-150	21	0	0	3.5	-0.2
EDG	99	V	300-150	362	0	0	3.6	0.3
EDW	99	V	300-150	640	0	0	3.2	0.2
EIN	99	V	300-150	4329	0	0	3.3	0.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
EJM	99	V	300-150	707	0	0	3.2	0.2
ELY	99	V	300-150	4219	6	0	5.6	0.1
ETD	99	V	300-150	7067	3	0	5.2	0.2
ETH	99	V	300-150	6149	1	0	4.5	0.1
EVE	99	V	300-150	59	0	0	3.5	0.3
EXS	99	V	300-150	35	0	0	2.2	-0.1
FBU	99	V	300-150	1768	0	0	3.7	0.2
FDX	99	V	300-150	7249	0	0	3.4	0.2
FIN	99	V	300-150	772	0	0	3.4	-0.1
FJI	99	V	300-150	390	0	0	3.3	0.5
FWI	99	V	300-150	1960	0	0	3.2	0.3
FYL	99	V	300-150	22	0	0	4.6	0.6
GAF	99	V	300-150	84	0	0	2.9	0.5
GCK	99	V	300-150	51	0	0	3.7	0.1
GEC	99	V	300-150	1506	0	0	3.6	0.2
GFA	99	V	300-150	499	0	0	4.9	-0.1
GJE	99	V	300-150	35	0	3	3.5	0.5
GKY	99	V	300-150	95	0	0	2.8	0.3
GLJ	99	V	300-150	20	0	0	3.2	0.4
GNJ	99	V	300-150	154	0	0	3.7	0.4
GTI	99	V	300-150	2334	0	0	4.0	-0.2
HAL	99	V	300-150	241	0	0	3.9	0.0
HFM	99	V	300-150	125	0	0	3.7	0.5
HRN	99	V	300-150	39	0	0	3.9	0.0
HRT	99	V	300-150	182	0	0	6.7	0.3
HUA	99	V	300-150	33	0	0	5.0	0.5
HVN	99	V	300-150	30	0	0	4.3	-0.3
HYP	99	V	300-150	21	0	0	4.0	0.2
HZA	99	V	300-150	36	0	0	3.5	-0.2
IBE	99	V	300-150	3045	0	0	3.7	0.5
ICE	99	V	300-150	5070	0	0	3.9	0.3
ICL	99	V	300-150	865	0	0	3.9	0.0
ICV	99	V	300-150	364	0	0	3.3	-0.1
IFA	99	V	300-150	140	0	0	3.6	0.3
IFC	99	V	300-150	55	0	0	4.3	1.4
IJM	99	V	300-150	262	0	0	5.0	-0.0
IXR	99	V	300-150	20	0	0	2.7	0.1
JAF	99	V	300-150	335	3	0	4.4	-0.1
JAS	99	V	300-150	76	0	0	3.5	-0.1
JBU	99	V	300-150	713	0	1	3.4	0.5
JCO	99	V	300-150	25	0	0	3.5	-0.4
JET	99	V	300-150	56	0	0	5.4	0.1
JME	99	V	300-150	29	0	0	3.7	0.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
JTL	99	V	300-150	61	0	0	3.5	-0.3
KAC	99	V	300-150	305	0	0	3.4	0.2
KAF	99	V	300-150	37	0	0	3.9	0.2
KAI	99	V	300-150	64	0	0	4.0	0.7
KAL	99	V	300-150	48	17	0	9.4	1.0
KAR	99	V	300-150	26	0	0	2.8	0.2
KAY	99	V	300-150	216	0	0	3.8	0.4
KLM	99	V	300-150	15988	3	0	4.9	0.2
KQA	99	V	300-150	227	1	0	5.0	0.4
LCO	99	V	300-150	294	0	0	3.7	-1.1
LDX	99	V	300-150	24	0	0	3.5	0.5
LGT	99	V	300-150	261	0	0	4.3	-0.4
LNX	99	V	300-150	30	0	0	3.7	0.5
LOT	99	V	300-150	4611	8	0	7.5	0.1
LXA	99	V	300-150	32	0	0	4.0	-0.4
LXG	99	V	300-150	47	0	0	3.8	-0.0
LXJ	99	V	300-150	467	0	0	3.3	0.0
MAA	99	V	300-150	43	0	0	2.9	-0.7
MAS	99	V	300-150	265	0	0	3.4	0.3
MAU	99	V	300-150	158	0	0	5.5	1.1
MED	99	V	300-150	121	0	0	4.7	-0.0
MHV	99	V	300-150	74	0	0	3.6	0.1
MJF	99	V	300-150	40	0	0	3.6	-1.6
MLM	99	V	300-150	104	0	0	3.7	0.2
MLN	99	V	300-150	30	0	0	2.7	-0.4
MLT	99	V	300-150	473	0	0	3.1	0.0
MMD	99	V	300-150	252	0	0	3.2	0.1
MMZ	99	V	300-150	233	0	0	4.2	0.5
MPH	99	V	300-150	700	0	0	3.8	-0.7
MSR	99	V	300-150	2367	2	0	4.7	0.2
NAS	99	V	300-150	743	0	0	4.4	0.5
NCR	99	V	300-150	316	0	0	3.3	0.3
NEW	99	V	300-150	49	0	0	3.3	0.5
NJE	99	V	300-150	470	0	0	3.5	0.4
NOJ	99	V	300-150	75	0	0	3.5	-0.3
NOS	99	V	300-150	651	6	0	5.8	0.1
NSH	99	V	300-150	33	0	0	3.7	1.2
NSP	99	V	300-150	33	0	0	8.3	0.7
NWS	99	V	300-150	320	0	0	3.7	0.3
OAE	99	V	300-150	930	0	0	4.2	0.0
OCN	99	V	300-150	232	0	0	3.5	0.2
OMA	99	V	300-150	366	1	0	4.0	0.3
PAC	99	V	300-150	87	0	1	3.8	-0.5

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
PAL	99	V	300-150	422	0	0	3.9	0.3
PEG	99	V	300-150	40	0	0	3.6	-0.2
PIA	99	V	300-150	168	0	0	3.5	0.2
PLF	99	V	300-150	33	0	0	3.2	0.0
PLM	99	V	300-150	527	0	0	3.7	0.6
PVG	99	V	300-150	91	0	0	2.7	0.5
PXT	99	V	300-150	30	0	0	4.7	-0.4
QAF	99	V	300-150	32	0	0	2.6	0.2
QFA	99	V	300-150	1046	1	0	4.2	0.2
QQE	99	V	300-150	164	0	0	3.5	0.3
QTR	99	V	300-150	25362	0	0	3.7	0.2
RAM	99	V	300-150	760	4	0	5.6	0.1
RCH	99	V	300-150	4694	0	0	4.8	0.5
RJA	99	V	300-150	1914	7	0	6.4	0.2
ROJ	99	V	300-150	135	0	0	3.4	0.2
ROM	99	V	300-150	110	0	0	4.0	0.3
RRR	99	V	300-150	180	0	0	3.2	0.3
RSY	99	V	300-150	30	0	0	3.4	0.8
RUN	99	V	300-150	173	0	0	4.2	-0.5
RYR	99	V	300-150	142	0	0	2.9	-0.1
RZO	99	V	300-150	217	0	0	3.2	0.4
SAM	99	V	300-150	108	0	0	3.3	-0.0
SAS	99	V	300-150	2103	0	0	3.4	0.0
SCX	99	V	300-150	478	0	1	3.8	0.3
SEY	99	V	300-150	158	0	0	4.7	0.3
SIA	99	V	300-150	2017	0	0	3.9	-0.0
SIO	99	V	300-150	52	0	0	3.4	-0.2
SLM	99	V	300-150	83	0	0	2.6	-0.2
SOO	99	V	300-150	637	0	0	3.4	0.3
SPA	99	V	300-150	86	0	1	4.7	-0.2
SVA	99	V	300-150	3307	0	0	3.5	0.2
SVW	99	V	300-150	171	0	0	3.3	0.0
SWA	99	V	300-150	158	2	1	3.6	0.5
SWR	99	V	300-150	5457	0	1	3.5	0.3
SYB	99	V	300-150	53	0	0	2.5	-0.4
TAG	99	V	300-150	32	0	0	3.0	0.4
TAM	99	V	300-150	30	0	0	6.9	0.0
TAP	99	V	300-150	1800	0	0	3.8	0.7
TAR	99	V	300-150	310	0	0	2.9	0.2
TAY	99	V	300-150	476	0	0	3.4	-0.1
TBJ	99	V	300-150	32	0	0	3.2	0.8
TFF	99	V	300-150	102	0	0	4.8	0.5
TFL	99	V	300-150	1251	6	0	6.6	0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
TGW	99	V	300-150	44	0	0	6.6	0.0
THT	99	V	300-150	2833	1	0	5.2	0.4
THY	99	V	300-150	13454	2	0	4.7	0.2
TMN	99	V	300-150	295	0	0	3.9	0.3
TOM	99	V	300-150	861	6	0	5.9	0.2
TOW	99	V	300-150	65	0	0	3.5	-0.1
TPA	99	V	300-150	451	0	0	3.2	0.4
TSC	99	V	300-150	702	0	0	3.6	0.6
TUR	99	V	300-150	36	0	0	4.1	1.3
TWY	99	V	300-150	600	0	0	3.4	0.1
UAE	99	V	300-150	19774	0	0	3.6	0.2
UAF	99	V	300-150	26	0	0	3.0	-0.8
UAL	99	V	300-150	44639	4	1	5.7	0.2
ULC	99	V	300-150	30	0	0	3.9	0.3
UPS	99	V	300-150	5059	0	0	3.8	-0.0
UTN	99	V	300-150	223	0	0	3.4	0.0
UZB	99	V	300-150	119	8	0	5.6	0.5
VAL	99	V	300-150	36	0	0	4.5	0.0
VCG	99	V	300-150	128	0	0	3.0	0.6
VCJ	99	V	300-150	32	0	0	3.8	0.1
VCN	99	V	300-150	87	0	1	3.4	0.3
VIR	99	V	300-150	8400	3	0	5.3	0.1
VJT	99	V	300-150	1679	0	0	3.2	0.4
VLJ	99	V	300-150	36	0	0	2.7	0.5
VMP	99	V	300-150	117	0	0	6.1	0.2
VTI	99	V	300-150	34	0	0	2.7	0.3
WFL	99	V	300-150	35	0	0	5.1	0.1
WGN	99	V	300-150	36	0	0	3.8	0.0
WJA	99	V	300-150	857	7	0	6.6	0.0
WRC	99	V	300-150	119	0	0	3.1	0.3
WWI	99	V	300-150	97	0	0	3.6	0.2
XOJ	99	V	300-150	32	0	0	3.8	0.9
XRO	99	V	300-150	46	0	0	3.8	-0.6
?	99	V	300-150	2608	0	0	4.4	0.4

4 EUCOS Area Monitoring Statistics

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

Tables 13, 14 (50 hPa level), 15, 16 (100 hPa level) 17, 18 (500 hPa level) 19 and 20 (850 hPa level) provide quality statistics for all TEMPSHIPS and PILOTSHIPS received during the month in the area $10\,^{\circ}$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)

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RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 :  50 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : AUG 2021
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
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WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	50	30	15.7	-10.7
01001	12	Z	50	28	12.4	-5.9
01028	00	Z	50	31	7.7	-5.3
01028	12	Z	50	32	10.9	-8.6
010282	12	Z	50	0	0.0	0.0
010284	00	Z	50	0	0.0	0.0
01400	12	Z	50	19	75.2	75.0
01400	00	Z	50	19	82.8	82.6
01415	00	Z	50	28	7.2	4.2
01415	12	Z	50	14	8.5	-7.6
02365	00	Z	50	12	13.3	-3.4
02365	12	Z	50	8	5.7	-4.5
02836	00	Z	50	31	5.2	-3.0
02836	12	Z	50	32	11.1	-8.6
02963	12	Z	50	31	9.4	-5.7
02963	00	Z	50	29	5.3	3.5
03005	12	Z	50	31	9.2	-7.2
03005	00	Z	50	27	5.8	-4.2
03238	00	Z	50	30	5.8	2.5
03238	12	Z	50	2	3.5	-3.4
03808	00	Z	50	28	4.7	2.3
03808	12	Z	50	30	5.9	-3.9
03918	00	Z	50	30	6.1	-0.9
03918	12	Z	50	4	5.8	4.5
039180	12	Z	50	0	0.0	0.0
03953	00	Z	50	31	4.6	-0.4
03953	12	Z	50	31	7.6	-4.5
04018	00	Z	50	26	6.3	-3.2
04018	12	Z	50	29	12.9	-9.5
04220	12	Z	50	31	9.5	-5.4
04220	00	Z	50	30	11.4	-5.1
04270	12	Z	50	31	8.8	-7.0
04270	00	Z	50	30	6.9	-4.1
04320	00	Z	50	30	16.0	-10.1
04320	12	Z	50	30	11.0	-9.5
043206	00	Z	50	0	0.0	0.0
04339	12	Z	50	31	9.5	-8.2
04339	00	Z	50	25	10.0	-5.3
04360	12	Z	50	26	13.0	-9.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04360	00	Z	50	25	26.2	-19.7
06011	00	Z	50	27	30.9	-6.9
06011	12	Z	50	22	14.5	10.7
06260	00	Z	50	28	7.4	2.3
06260	12	Z	50	4	2.4	0.6
06610	12	Z	50	14	6.1	-1.1
06610	00	Z	50	23	9.5	7.0
07110	12	Z	50	31	13.5	-1.3
07110	00	Z	50	29	8.8	-2.3
07510	12	Z	50	31	16.6	2.4
07510	00	Z	50	31	8.9	-4.0
07645	12	Z	50	24	23.3	-20.7
07645	00	Z	50	27	10.3	-4.8
07761	00	Z	50	30	15.0	-7.5
07761	12	Z	50	28	15.5	-9.3
08001	12	Z	50	28	5.6	-1.0
08001	00	Z	50	30	8.7	7.4
08221	12	Z	50	28	13.8	0.2
08221	00	Z	50	29	11.1	8.7
08302	12	Z	50	20	12.7	-8.8
08302	00	Z	50	22	6.4	2.7
08508	12	Z	50	30	5.5	0.1
08522	12	Z	50	31	4.8	-1.2
085224	00	Z	50	0	0.0	0.0
10035	00	Z	50	31	18.6	18.1
10035	12	Z	50	31	13.7	12.6
10393	12	Z	50	16	8.6	-6.9
10393	00	Z	50	22	6.5	5.3
10410	00	Z	50	30	4.7	0.8
10410	12	Z	50	31	5.6	-2.4
10739	00	Z	50	29	9.8	7.9
10739	12	Z	50	31	5.9	1.1
11035	12	Z	50	24	4.0	-0.3
11035	00	Z	50	28	6.6	4.9
12982	00	Z	50	31	9.2	4.9
12982	12	Z	50	31	5.3	0.0
16245	00	Z	50	20	9.7	8.4
16245	12	Z	50	12	4.2	-1.7
16429	00	Z	50	20	10.4	9.2
16429	12	Z	50	31	5.9	-2.5
16622	00	Z	50	23	18.9	17.3
16622	12	Z	50	9	13.9	8.1
16754	00	Z	50	10	11.3	8.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	12	Z	50	10	6.6	-1.3
17607	12	Z	50	22	7.7	6.0
26435	12	Z	50	3	2.5	0.8
2EERVT	12	Z	50	1	4.7	4.7
2EERVT	00	Z	50	2	7.8	7.6
4DC8UU	00	Z	50	8	7.2	4.0
4DC8UU	12	Z	50	7	15.1	10.5
60018	00	Z	50	17	9.0	8.5
60018	12	Z	50	18	7.6	-4.3
7JUNA4	00	Z	50	0	0.0	0.0
7JUNA4	12	Z	50	0	0.0	0.0
ASDE09	12	Z	50	1	0.0	0.0
ATGU3F	12	Z	50	6	26.9	5.0
ATGU3F	00	Z	50	3	19.5	-18.6
BPMWB2	00	Z	50	9	29.4	21.6
BPMWB2	12	Z	50	6	44.9	42.1
FPUW5G	12	Z	50	20	11.3	-9.3
HTXUH4	12	Z	50	1	54.6	-54.6
HTXUH4	00	Z	50	1	19.3	-19.3
JNKN7J	12	Z	50	0	0.0	0.0
JNKN7J	00	Z	50	0	0.0	0.0
KJJF9X	12	Z	50	4	15.0	-0.7
KJJF9X	00	Z	50	2	24.6	24.4
KMPLHP	00	Z	50	0	0.0	0.0
KMPLHP	12	Z	50	2	173.5	173.5
LRYQE3	12	Z	50	2	15.7	15.7
LRYQE3	00	Z	50	0	0.0	0.0
SMLQ	12	Z	50	9	6.3	-5.0
SMLQ	00	Z	50	12	7.0	-4.6
UXK5JT	12	Z	50	12	13.9	10.7
UXK5JT	00	Z	50	11	14.8	11.0
VKB4L5	00	Z	50	12	45.9	34.9
VKB4L5	12	Z	50	8	35.1	32.2
WDK38H	12	Z	50	13	8.4	-6.8
WDK38H	00	Z	50	2	50.4	34.3
XKQLWQ	12	Z	50	19	34.7	31.8
XQFJRG	12	Z	50	2	43.2	21.9
XQFJRG	00	Z	50	3	6.2	-3.3
YLV96W	12	Z	50	1	44.2	44.2
YLV96W	00	Z	50	0	0.0	0.0
ZVQEQC	12	Z	50	23	5.5	-1.3

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                : AUG 2021
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	50	25	2.5	0.3	0.2
01001	12	V	50	28	3.1	-0.1	0.4
01028	00	V	50	27	2.5	-0.2	0.6
01028	12	V	50	31	2.3	-0.3	0.1
010282	12	V	50	0	0.0	0.0	0.0
010284	00	V	50	0	0.0	0.0	0.0
01400	12	V	50	18	2.5	-1.4	0.3
01400	00	V	50	16	2.5	0.0	1.3
01415	00	V	50	28	2.5	0.3	0.9
01415	12	V	50	14	1.7	-0.3	0.5
02365	00	V	50	11	4.0	0.4	1.0
02365	12	V	50	8	2.5	0.2	-0.2
02836	00	V	50	22	2.4	-0.1	0.1
02836	12	V	50	30	2.7	-0.3	-0.3
02963	12	V	50	31	3.1	-0.3	-0.1
02963	00	V	50	23	3.0	0.8	0.5
03005	12	V	50	31	2.5	0.1	-0.1
03005	00	V	50	22	1.9	-0.3	0.1
03238	00	V	50	24	2.4	0.3	0.1
03238	12	V	50	2	3.6	2.2	-1.5
03808	00	V	50	24	2.5	0.5	-0.1
03808	12	V	50	30	2.5	0.6	0.4
03918	00	V	50	29	3.9	0.7	-0.1
03918	12	V	50	4	3.1	-1.3	1.4
039180	12	V	50	0	0.0	0.0	0.0
03953	00	V	50	25	2.5	-0.4	0.3
03953	12	V	50	31	2.3	-0.1	0.2
04018	00	V	50	18	2.1	0.5	0.1
04018	12	V	50	29	2.4	-0.5	0.2
04220	12	V	50	31	2.5	-0.6	-0.4
04220	00	V	50	25	2.4	-0.7	0.2
04270	12	V	50	31	2.7	-0.1	-0.6
04270	00	V	50	24	2.5	-0.1	0.0
04320	00	V	50	24	2.7	0.5	-0.4
04320	12	V	50	30	2.8	0.0	-0.4
043206	00	V	50	0	0.0	0.0	0.0
04339	12	V	50	31	3.3	-0.1	-0.6
04339	00	V	50	23	2.7	0.0	-0.6
04360	12	V	50	26	2.4	0.0	0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04360	00	V	50	20	2.2	-0.5	-0.1
06011	00	V	50	24	2.3	-0.5	0.5
06011	12	V	50	22	2.5	0.1	0.5
06260	00	V	50	20	3.0	0.8	-0.3
06260	12	V	50	4	2.9	-0.9	-0.9
06610	12	V	50	14	2.6	0.0	-0.3
06610	00	V	50	21	2.4	-0.3	-0.2
07110	12	V	50	31	2.7	0.0	0.3
07110	00	V	50	23	3.4	0.5	0.8
07510	12	V	50	31	2.6	0.4	0.1
07510	00	V	50	27	2.6	-0.3	0.4
07645	12	V	50	24	2.2	0.0	0.0
07645	00	V	50	20	2.3	-0.4	0.2
07761	00	V	50	25	2.8	0.3	0.5
07761	12	V	50	28	3.3	0.0	-0.1
08001	12	V	50	27	2.7	0.1	-0.1
08001	00	V	50	29	2.8	-0.2	0.5
08221	12	V	50	28	2.8	-0.2	0.1
08221	00	V	50	27	2.7	-0.2	-0.1
08302	12	V	50	20	3.1	-0.6	-0.5
08302	00	V	50	21	3.5	-0.1	0.3
08508	12	V	50	30	3.0	0.4	-0.3
08522	12	V	50	31	3.3	0.2	-0.3
085224	00	V	50	0	0.0	0.0	0.0
10035	00	V	50	27	2.3	0.4	0.2
10035	12	V	50	31	2.6	-0.3	0.0
10393	12	V	50	16	3.1	0.3	0.1
10393	00	V	50	18	3.1	-0.1	-0.2
10410	00	V	50	30	3.5	0.5	0.4
10410	12	V	50	31	2.8	0.6	0.7
10739	00	V	50	26	2.9	0.5	-0.6
10739	12	V	50	31	3.0	-0.3	-0.4
11035	12	V	50	23	3.1	-0.1	0.1
11035	00	V	50	21	3.0	0.5	0.4
12982	00	V	50	24	3.3	0.4	-1.1
12982	12	V	50	31	3.3	-0.1	-0.1
16245	00	V	50	20	3.0	-0.2	-0.7
16245	12	V	50	12	2.8	-0.3	-0.2
16429	00	V	50	17	2.8	-0.1	0.5
16429	12	V	50	31	3.2	0.1	-0.1
16622	00	V	50	18	3.3	-0.3	1.1
16622	12	V	50	9	2.5	0.0	0.1
16754	00	V	50	8	3.0	-0.5	1.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	12	V	50	10	3.7	-0.6	0.9
17607	12	V	50	0	0.0	0.0	0.0
26435	12	V	50	3	2.2	0.5	-0.1
2EERVT	12	V	50	1	3.9	-3.9	0.5
2EERVT	00	V	50	2	3.4	1.3	1.6
4DC8UU	00	V	50	4	9.4	-2.9	-3.0
4DC8UU	12	V	50	4	3.7	-0.7	3.0
60018	00	V	50	16	3.5	-0.4	0.2
60018	12	V	50	18	3.0	-0.3	0.1
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	1	2.4	2.4	0.4
ATGU3F	12	V	50	6	2.3	-0.1	0.5
ATGU3F	00	V	50	3	1.1	-0.3	0.3
BPMWB2	00	V	50	9	3.4	-1.0	-0.5
BPMWB2	12	V	50	6	4.2	-2.1	1.4
FPUW5G	12	V	50	20	2.6	-0.1	0.5
HTXUH4	12	V	50	1	1.8	-1.5	1.0
HTXUH4	00	V	50	1	1.7	1.5	-0.7
JNKN7J	12	V	50	0	0.0	0.0	0.0
JNKN7J	00	V	50	0	0.0	0.0	0.0
KJJF9X	12	V	50	4	3.2	1.2	1.5
KJJF9X	00	V	50	2	3.0	-1.0	-2.4
KMPLHP	00	V	50	0	0.0	0.0	0.0
KMPLHP	12	V	50	2	2.0	0.1	-1.0
LRYQE3	12	V	50	2	3.3	-1.2	1.3
LRYQE3	00	V	50	0	0.0	0.0	0.0
SMLQ	12	V	50	9	2.5	0.2	-0.2
SMLQ	00	V	50	12	2.5	0.1	-0.1
UXK5JT	12	V	50	12	3.5	-0.9	0.1
UXK5JT	00	V	50	11	2.3	-0.2	0.6
VKB4L5	00	V	50	12	2.3	-0.4	-0.4
VKB4L5	12	V	50	8	4.9	1.4	-0.4
WDK38H	12	V	50	13	3.5	0.3	-0.3
WDK38H	00	V	50	1	2.5	-1.5	-2.0
XKQLWQ	12	V	50	16	2.0	-0.5	0.0
XQFJRG	12	V	50	2	1.9	-0.7	0.4
XQFJRG	00	V	50	3	3.5	-0.3	-1.8
YLV96W	12	V	50	1	0.5	-0.1	-0.5
YLV96W	00	V	50	0	0.0	0.0	0.0
ZVQEQC	12	V	50	23	2.9	0.5	-0.5

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                : AUG 2021
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	100	31	17.4	-15.3
01001	12	Z	100	30	13.7	-9.9
01028	00	Z	100	31	8.7	-7.3
01028	12	Z	100	32	11.3	-9.9
010282	12	Z	100	0	0.0	0.0
010284	00	Z	100	0	0.0	0.0
01400	12	Z	100	24	74.1	73.8
01400	00	Z	100	21	80.0	79.7
01415	00	Z	100	28	5.0	0.2
01415	12	Z	100	14	9.2	-8.4
02365	00	Z	100	14	7.9	-5.1
02365	12	Z	100	8	8.0	-7.3
02836	00	Z	100	31	7.6	-6.2
02836	12	Z	100	33	10.6	-9.0
02963	12	Z	100	31	7.8	-6.4
02963	00	Z	100	29	3.8	-1.7
03005	12	Z	100	31	9.7	-8.0
03005	00	Z	100	28	7.2	-6.0
03238	00	Z	100	30	4.1	-0.1
03238	12	Z	100	2	3.7	-3.7
03808	00	Z	100	30	3.8	0.2
03808	12	Z	100	31	5.7	-3.6
03918	00	Z	100	31	5.5	-0.7
03918	12	Z	100	5	6.6	4.1
039180	12	Z	100	0	0.0	0.0
03953	00	Z	100	31	4.3	-2.1
03953	12	Z	100	31	7.0	-4.3
04018	00	Z	100	26	7.3	-5.6
04018	12	Z	100	29	9.9	-8.6
04220	12	Z	100	31	8.6	-5.5
04220	00	Z	100	30	6.8	-4.5
04270	12	Z	100	31	7.9	-6.0
04270	00	Z	100	30	6.8	-4.7
04320	00	Z	100	30	12.9	-9.5
04320	12	Z	100	30	8.7	-7.4
043206	00	Z	100	0	0.0	0.0
04339	12	Z	100	31	9.6	-8.2
04339	00	Z	100	25	9.4	-6.9
04360	12	Z	100	27	14.5	-12.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04360	00	Z	100	25	23.9	-20.7
06011	00	Z	100	30	28.7	-8.1
06011	12	Z	100	29	8.3	5.7
06260	00	Z	100	28	6.3	-0.6
06260	12	Z	100	4	1.9	-1.4
06610	12	Z	100	14	5.1	-3.3
06610	00	Z	100	24	5.7	0.2
07110	12	Z	100	31	11.4	-5.8
07110	00	Z	100	30	11.2	-8.0
07510	12	Z	100	31	12.3	-2.7
07510	00	Z	100	31	9.9	-7.9
07645	12	Z	100	27	19.0	-17.3
07645	00	Z	100	28	10.8	-7.8
07761	00	Z	100	30	15.9	-11.4
07761	12	Z	100	28	15.7	-11.8
08001	12	Z	100	30	4.6	-1.5
08001	00	Z	100	30	6.4	4.2
08221	12	Z	100	28	8.8	-0.4
08221	00	Z	100	30	9.2	4.4
08302	12	Z	100	20	12.1	-9.1
08302	00	Z	100	22	5.6	-2.8
08508	12	Z	100	30	4.6	2.2
08522	12	Z	100	31	4.4	2.6
085224	00	Z	100	0	0.0	0.0
10035	00	Z	100	31	14.5	14.0
10035	12	Z	100	31	9.9	9.0
10393	12	Z	100	18	8.8	-7.3
10393	00	Z	100	27	6.4	1.4
10410	00	Z	100	31	4.9	-2.4
10410	12	Z	100	31	6.9	-5.4
10739	00	Z	100	30	7.5	3.9
10739	12	Z	100	31	5.5	-1.1
11035	12	Z	100	25	5.5	-2.6
11035	00	Z	100	30	3.8	0.3
12982	00	Z	100	31	6.0	2.1
12982	12	Z	100	31	6.6	-3.4
16245	00	Z	100	20	3.7	1.3
16245	12	Z	100	12	3.6	-1.9
16429	00	Z	100	20	8.9	5.5
16429	12	Z	100	31	6.3	-4.1
16622	00	Z	100	25	15.8	14.8
16622	12	Z	100	10	9.8	5.2
16754	00	Z	100	10	10.9	9.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	12	Z	100	10	7.0	-1.4
17607	12	Z	100	26	7.0	5.9
26435	12	Z	100	3	2.4	-1.5
2EERVT	12	Z	100	2	3.9	-2.8
2EERVT	00	Z	100	2	9.2	6.7
4DC8UU	00	Z	100	8	15.9	14.3
4DC8UU	12	Z	100	8	13.0	11.3
60018	00	Z	100	18	9.0	7.8
60018	12	Z	100	18	5.0	0.9
7JUNA4	00	Z	100	4	2.5	2.1
7JUNA4	12	Z	100	3	8.2	2.8
ASDE09	12	Z	100	1	8.3	8.3
ATGU3F	12	Z	100	7	13.6	-7.1
ATGU3F	00	Z	100	3	20.1	-19.9
BPMWB2	00	Z	100	9	19.9	14.1
BPMWB2	12	Z	100	6	30.3	28.5
FPUW5G	12	Z	100	23	10.3	-8.2
HTXUH4	12	Z	100	1	53.9	-53.9
HTXUH4	00	Z	100	7	104.5	37.5
JNKN7J	12	Z	100	4	124.7	122.3
JNKN7J	00	Z	100	4	25.1	24.2
KJJF9X	12	Z	100	5	15.7	3.7
KJJF9X	00	Z	100	3	13.1	12.7
KMPLHP	00	Z	100	10	48.6	44.2
KMPLHP	12	Z	100	9	127.3	122.4
LRYQE3	12	Z	100	10	24.8	16.7
LRYQE3	00	Z	100	9	19.5	10.2
SMLQ	12	Z	100	27	7.7	-6.8
SMLQ	00	Z	100	24	8.1	-6.6
UXK5JT	12	Z	100	12	11.1	7.4
UXK5JT	00	Z	100	11	9.0	4.3
VKB4L5	00	Z	100	12	44.6	34.4
VKB4L5	12	Z	100	8	33.2	32.2
WDK38H	12	Z	100	17	11.1	-10.2
WDK38H	00	Z	100	2	9.4	-9.4
XKQLWQ	12	Z	100	21	28.4	25.6
XQFJRG	12	Z	100	2	18.4	4.6
XQFJRG	00	Z	100	3	8.0	-5.1
YLV96W	12	Z	100	9	10.3	3.7
YLV96W	00	Z	100	8	9.5	-1.6
ZVQEQC	12	Z	100	23	5.5	-1.3

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                : AUG 2021
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	100	25	2.6	-0.6	0.0
01001	12	V	100	30	2.3	-0.1	-0.1
01028	00	V	100	27	2.3	-0.1	0.1
01028	12	V	100	31	2.8	-0.4	0.0
010282	12	V	100	0	0.0	0.0	0.0
010284	00	V	100	0	0.0	0.0	0.0
01400	12	V	100	21	2.5	0.4	-0.4
01400	00	V	100	18	2.5	0.1	-0.5
01415	00	V	100	27	2.5	0.4	0.0
01415	12	V	100	14	2.9	0.3	-0.1
02365	00	V	100	14	2.7	0.1	0.8
02365	12	V	100	8	2.6	-0.4	0.8
02836	00	V	100	22	2.5	0.2	0.4
02836	12	V	100	31	2.3	0.3	-0.2
02963	12	V	100	31	2.6	-0.1	0.4
02963	00	V	100	23	2.8	0.8	-0.2
03005	12	V	100	31	2.4	0.2	-0.1
03005	00	V	100	21	2.3	0.5	0.4
03238	00	V	100	25	2.5	-0.2	-0.2
03238	12	V	100	2	2.5	1.2	-0.8
03808	00	V	100	25	2.5	0.2	0.3
03808	12	V	100	31	2.3	0.2	-0.1
03918	00	V	100	30	3.5	0.1	0.6
03918	12	V	100	4	3.0	-0.2	-0.6
039180	12	V	100	0	0.0	0.0	0.0
03953	00	V	100	25	2.7	0.1	0.5
03953	12	V	100	31	2.6	0.5	0.2
04018	00	V	100	21	2.2	-0.2	0.1
04018	12	V	100	29	2.3	-0.1	0.6
04220	12	V	100	31	2.8	0.1	0.1
04220	00	V	100	28	2.6	-0.2	-0.5
04270	12	V	100	31	3.3	0.2	0.2
04270	00	V	100	28	2.9	0.1	-0.1
04320	00	V	100	27	2.5	0.2	-0.5
04320	12	V	100	30	2.8	0.1	-0.6
043206	00	V	100	0	0.0	0.0	0.0
04339	12	V	100	31	2.5	0.7	0.2
04339	00	V	100	20	2.1	-0.3	-0.6
04360	12	V	100	27	3.3	0.1	0.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04360	00	V	100	21	2.8	-0.6	0.9
06011	00	V	100	24	2.5	0.0	0.2
06011	12	V	100	29	2.5	0.4	0.2
06260	00	V	100	20	2.4	0.1	0.0
06260	12	V	100	4	2.4	0.4	-0.8
06610	12	V	100	14	3.0	-0.3	-0.3
06610	00	V	100	20	3.7	0.9	-1.2
07110	12	V	100	31	2.3	0.3	0.3
07110	00	V	100	24	2.8	1.0	-0.3
07510	12	V	100	31	3.5	0.1	-0.4
07510	00	V	100	27	2.5	-0.1	-0.5
07645	12	V	100	27	3.5	0.0	-0.2
07645	00	V	100	21	3.4	0.8	-0.3
07761	00	V	100	25	4.2	-0.3	0.6
07761	12	V	100	28	5.0	1.0	0.1
08001	12	V	100	29	3.2	-0.2	0.0
08001	00	V	100	29	2.8	0.0	0.5
08221	12	V	100	28	3.5	0.6	-0.8
08221	00	V	100	27	3.8	-0.1	1.2
08302	12	V	100	20	3.7	-0.2	-0.3
08302	00	V	100	21	3.5	1.3	-0.2
08508	12	V	100	30	3.0	0.4	-0.4
08522	12	V	100	31	2.7	0.3	-0.3
085224	00	V	100	0	0.0	0.0	0.0
10035	00	V	100	31	2.3	0.2	-0.2
10035	12	V	100	31	2.5	0.5	-0.5
10393	12	V	100	17	2.8	-0.6	-0.3
10393	00	V	100	23	3.0	0.4	0.3
10410	00	V	100	31	2.5	0.8	0.1
10410	12	V	100	31	2.6	0.1	-0.4
10739	00	V	100	30	3.2	0.7	-0.4
10739	12	V	100	31	2.9	0.1	-0.1
11035	12	V	100	24	3.5	-0.3	-0.1
11035	00	V	100	23	3.3	0.2	-0.2
12982	00	V	100	24	4.3	0.9	-0.5
12982	12	V	100	31	4.0	-0.4	-1.1
16245	00	V	100	18	3.4	0.9	0.4
16245	12	V	100	12	5.1	0.0	1.5
16429	00	V	100	18	3.3	-0.7	-0.8
16429	12	V	100	31	4.0	0.6	0.5
16622	00	V	100	20	4.3	-1.3	0.3
16622	12	V	100	10	3.5	-0.2	-0.5
16754	00	V	100	8	4.6	1.2	1.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	12	V	100	10	3.5	1.2	1.4
17607	12	V	100	2	4.3	2.0	-1.8
26435	12	V	100	3	2.8	0.9	-0.4
2EERVT	12	V	100	2	2.4	2.0	-0.9
2EERVT	00	V	100	2	2.0	1.0	-1.5
4DC8UU	00	V	100	6	3.7	1.2	-1.1
4DC8UU	12	V	100	5	5.2	-1.5	-0.2
60018	00	V	100	16	3.1	0.0	-0.1
60018	12	V	100	18	4.0	0.4	-0.1
7JUNA4	00	V	100	4	3.3	-0.4	-1.5
7JUNA4	12	V	100	3	2.1	0.0	-0.2
ASDE09	12	V	100	1	3.5	2.8	-2.1
ATGU3F	12	V	100	7	3.2	0.5	1.3
ATGU3F	00	V	100	3	2.6	-0.2	0.4
BPMWB2	00	V	100	9	3.3	-0.5	-1.1
BPMWB2	12	V	100	6	4.2	-1.0	2.0
FPUW5G	12	V	100	22	3.0	0.2	0.0
HTXUH4	12	V	100	1	2.9	0.6	-2.8
HTXUH4	00	V	100	7	3.3	0.1	0.8
JNKN7J	12	V	100	4	2.1	-0.5	0.7
JNKN7J	00	V	100	4	2.0	0.8	0.2
KJJF9X	12	V	100	5	2.1	-1.5	0.6
KJJF9X	00	V	100	3	2.6	2.6	0.2
KMPLHP	00	V	100	10	3.3	0.1	0.8
KMPLHP	12	V	100	9	3.2	-0.1	1.2
LRYQE3	12	V	100	10	2.8	0.5	0.1
LRYQE3	00	V	100	9	3.2	1.8	0.8
SMLQ	12	V	100	27	3.6	-1.2	0.6
SMLQ	00	V	100	24	3.3	-0.7	0.2
UXK5JT	12	V	100	12	3.4	0.3	0.6
UXK5JT	00	V	100	11	2.1	0.0	-0.5
VKB4L5	00	V	100	12	4.3	0.8	0.3
VKB4L5	12	V	100	8	3.7	0.6	1.3
WDK38H	12	V	100	14	2.5	-0.2	-0.6
WDK38H	00	V	100	2	1.2	-0.4	-0.6
XKQLWQ	12	V	100	20	2.8	-0.1	-0.3
XQFJRG	12	V	100	2	4.7	4.7	0.2
XQFJRG	00	V	100	3	2.0	-0.4	-1.0
YLV96W	12	V	100	9	2.3	-0.1	0.4
YLV96W	00	V	100	8	2.4	0.0	0.3
ZVQEQC	12	V	100	23	2.8	-0.2	0.4

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

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RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 500 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : AUG 2021
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
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WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	500	31	14.5	-13.0
01001	12	Z	500	32	10.4	-8.3
01028	00	Z	500	31	3.8	-2.5
01028	12	Z	500	32	3.9	-2.2
010282	12	Z	500	0	0.0	0.0
010284	00	Z	500	0	0.0	0.0
01400	12	Z	500	29	82.1	81.9
01400	00	Z	500	30	80.5	80.3
01415	00	Z	500	28	4.0	3.3
01415	12	Z	500	15	3.7	2.7
02365	00	Z	500	14	3.3	2.3
02365	12	Z	500	8	2.7	-0.1
02836	00	Z	500	31	2.9	0.9
02836	12	Z	500	33	2.8	1.4
02963	12	Z	500	31	3.5	1.7
02963	00	Z	500	30	3.8	3.0
03005	12	Z	500	31	3.9	-1.4
03005	00	Z	500	30	11.8	1.4
03238	00	Z	500	30	4.0	3.5
03238	12	Z	500	1	1.7	1.7
03808	00	Z	500	30	4.4	3.7
03808	12	Z	500	31	3.3	2.6
03918	00	Z	500	31	8.2	7.3
03918	12	Z	500	5	7.4	6.0
039180	12	Z	500	0	0.0	0.0
03953	00	Z	500	31	3.1	1.6
03953	12	Z	500	31	3.5	1.4
04018	00	Z	500	27	3.3	0.5
04018	12	Z	500	29	2.1	0.2
04220	12	Z	500	31	2.4	1.1
04220	00	Z	500	30	4.6	1.9
04270	12	Z	500	31	3.9	-0.8
04270	00	Z	500	30	3.4	0.7
04320	00	Z	500	30	3.2	-0.8
04320	12	Z	500	30	2.7	-0.4
043206	00	Z	500	0	0.0	0.0
04339	12	Z	500	31	3.2	-0.3
04339	00	Z	500	25	4.2	-0.3
04360	12	Z	500	28	9.4	-8.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04360	00	Z	500	27	12.9	-11.3
06011	00	Z	500	31	5.2	2.8
06011	12	Z	500	29	6.9	4.5
06260	00	Z	500	28	4.7	0.5
06260	12	Z	500	4	1.5	0.3
06610	12	Z	500	16	3.4	1.2
06610	00	Z	500	24	3.4	2.7
07110	12	Z	500	31	5.6	-3.1
07110	00	Z	500	31	6.7	-5.1
07510	12	Z	500	31	4.2	1.1
07510	00	Z	500	32	4.8	-2.0
07645	12	Z	500	27	4.7	-3.9
07645	00	Z	500	28	6.4	-4.0
07761	00	Z	500	30	7.5	-6.2
07761	12	Z	500	29	5.5	-3.8
08001	12	Z	500	30	3.5	2.6
08001	00	Z	500	30	3.7	3.1
08221	12	Z	500	28	4.8	4.1
08221	00	Z	500	30	5.7	5.1
08302	12	Z	500	20	4.8	-3.9
08302	00	Z	500	22	4.3	-2.9
08508	12	Z	500	30	7.9	7.4
08522	12	Z	500	31	7.7	7.0
085224	00	Z	500	0	0.0	0.0
10035	00	Z	500	31	16.0	15.9
10035	12	Z	500	31	15.1	15.0
10393	12	Z	500	19	2.6	-0.9
10393	00	Z	500	27	3.4	2.0
10410	00	Z	500	31	2.3	0.3
10410	12	Z	500	31	2.1	-0.8
10739	00	Z	500	30	5.9	5.5
10739	12	Z	500	31	4.5	3.0
11035	12	Z	500	26	3.1	1.6
11035	00	Z	500	31	3.3	2.4
12982	00	Z	500	31	4.6	2.9
12982	12	Z	500	31	2.2	0.6
16245	00	Z	500	20	4.6	4.1
16245	12	Z	500	14	2.9	1.9
16429	00	Z	500	20	9.1	5.6
16429	12	Z	500	31	4.7	3.5
16622	00	Z	500	25	11.1	10.6
16622	12	Z	500	10	12.2	11.6
16754	00	Z	500	11	7.5	4.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	12	Z	500	10	6.7	3.5
17607	12	Z	500	30	6.7	6.4
26435	12	Z	500	3	3.0	2.2
2EERVT	12	Z	500	2	1.1	1.1
2EERVT	00	Z	500	2	18.6	14.1
4DC8UU	00	Z	500	7	8.7	7.3
4DC8UU	12	Z	500	8	9.1	8.1
60018	00	Z	500	18	5.9	5.2
60018	12	Z	500	18	5.0	3.8
7JUNA4	00	Z	500	4	4.7	3.3
7JUNA4	12	Z	500	4	3.3	-1.5
ASDE09	12	Z	500	1	31.5	31.5
ATGU3F	12	Z	500	7	9.6	-8.0
ATGU3F	00	Z	500	3	20.5	-20.2
BPMWB2	00	Z	500	9	9.1	6.1
BPMWB2	12	Z	500	8	15.2	13.7
FPUW5G	12	Z	500	27	6.8	-6.0
HTXUH4	12	Z	500	1	56.1	-56.1
HTXUH4	00	Z	500	7	58.3	14.0
JNKN7J	12	Z	500	4	52.2	51.8
JNKN7J	00	Z	500	4	35.9	35.6
KJJF9X	12	Z	500	6	10.8	8.9
KJJF9X	00	Z	500	3	5.2	5.1
KMPLHP	00	Z	500	10	48.3	47.5
KMPLHP	12	Z	500	9	56.3	55.9
LRYQE3	12	Z	500	10	21.0	11.8
LRYQE3	00	Z	500	11	22.5	10.6
SMLQ	12	Z	500	28	2.8	0.1
SMLQ	00	Z	500	24	4.9	-2.1
UXK5JT	12	Z	500	12	4.9	1.6
UXK5JT	00	Z	500	12	5.1	-3.6
VKB4L5	00	Z	500	12	43.0	34.6
VKB4L5	12	Z	500	8	30.3	29.8
WDK38H	12	Z	500	17	7.5	-5.6
WDK38H	00	Z	500	3	5.9	-5.8
XKQLWQ	12	Z	500	22	19.9	18.4
XQFJRG	12	Z	500	2	7.6	-6.3
XQFJRG	00	Z	500	3	12.1	-7.3
YLV96W	12	Z	500	9	6.3	-3.3
YLV96W	00	Z	500	8	3.1	-0.6
ZVQEQC	12	Z	500	23	4.5	3.3

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

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RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 500 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : AUG 2021
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	500	31	2.3	-0.6	0.3
01001	12	V	500	31	1.9	-0.2	0.1
01028	00	V	500	31	2.4	0.2	-0.2
01028	12	V	500	31	2.3	0.4	-0.8
010282	12	V	500	0	0.0	0.0	0.0
010284	00	V	500	0	0.0	0.0	0.0
01400	12	V	500	29	2.5	0.4	-0.2
01400	00	V	500	30	2.3	0.1	-0.1
01415	00	V	500	28	2.4	-0.2	0.6
01415	12	V	500	15	2.5	0.5	-0.6
02365	00	V	500	14	2.1	0.9	0.0
02365	12	V	500	8	2.9	0.6	-1.6
02836	00	V	500	31	2.3	0.1	0.3
02836	12	V	500	31	2.6	0.1	0.4
02963	12	V	500	31	2.4	0.4	0.0
02963	00	V	500	30	2.3	0.3	0.3
03005	12	V	500	31	2.6	0.1	-0.3
03005	00	V	500	29	2.0	-0.2	-0.1
03238	00	V	500	30	2.1	0.3	-0.2
03238	12	V	500	1	1.5	1.0	-1.1
03808	00	V	500	30	2.0	-0.5	-0.1
03808	12	V	500	31	2.7	-0.1	-0.2
03918	00	V	500	30	2.6	0.1	-0.3
03918	12	V	500	5	2.3	-0.1	0.4
039180	12	V	500	0	0.0	0.0	0.0
03953	00	V	500	31	3.0	-0.1	0.4
03953	12	V	500	31	2.6	-0.6	0.8
04018	00	V	500	27	1.8	-0.1	0.2
04018	12	V	500	29	2.8	0.3	0.0
04220	12	V	500	31	2.7	0.1	0.3
04220	00	V	500	30	2.0	0.2	-0.3
04270	12	V	500	31	3.3	0.2	-0.3
04270	00	V	500	30	2.8	-0.2	0.1
04320	00	V	500	30	2.3	-0.1	0.1
04320	12	V	500	30	2.2	0.4	-0.1
043206	00	V	500	0	0.0	0.0	0.0
04339	12	V	500	31	2.8	0.7	-0.5
04339	00	V	500	25	2.4	0.1	-0.2
04360	12	V	500	28	2.8	-0.1	0.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04360	00	V	500	27	2.5	-0.5	-0.1
06011	00	V	500	31	2.1	0.3	-0.1
06011	12	V	500	29	2.4	0.9	0.0
06260	00	V	500	24	2.1	0.0	0.1
06260	12	V	500	4	1.8	0.8	-0.9
06610	12	V	500	14	2.8	1.0	-0.5
06610	00	V	500	24	2.3	0.2	-0.3
07110	12	V	500	31	2.2	0.4	-0.2
07110	00	V	500	31	2.0	0.4	0.2
07510	12	V	500	31	3.0	0.5	-0.2
07510	00	V	500	31	2.3	0.7	0.4
07645	12	V	500	27	2.0	0.5	0.1
07645	00	V	500	28	2.2	0.4	0.1
07761	00	V	500	30	2.8	0.2	-0.9
07761	12	V	500	29	2.7	1.0	-0.5
08001	12	V	500	29	2.1	0.3	0.1
08001	00	V	500	30	2.0	-0.2	0.1
08221	12	V	500	28	2.1	0.5	0.3
08221	00	V	500	30	2.6	0.3	0.4
08302	12	V	500	20	2.1	0.7	0.3
08302	00	V	500	22	3.1	0.3	0.8
08508	12	V	500	30	2.3	-0.2	-0.4
08522	12	V	500	31	2.1	-0.1	0.0
085224	00	V	500	0	0.0	0.0	0.0
10035	00	V	500	31	2.6	-0.2	-0.4
10035	12	V	500	31	2.2	0.0	-0.2
10393	12	V	500	18	2.2	-0.1	-0.6
10393	00	V	500	24	4.7	-0.9	0.4
10410	00	V	500	31	2.1	-0.1	0.3
10410	12	V	500	31	2.2	-0.2	0.1
10739	00	V	500	30	2.3	0.1	-0.2
10739	12	V	500	31	2.5	0.2	0.4
11035	12	V	500	24	3.1	0.4	-0.3
11035	00	V	500	31	3.2	0.8	-0.1
12982	00	V	500	31	2.9	0.3	0.6
12982	12	V	500	31	2.4	0.6	0.1
16245	00	V	500	20	2.8	0.9	-0.2
16245	12	V	500	14	2.6	0.9	-0.9
16429	00	V	500	20	2.8	-0.1	-0.3
16429	12	V	500	31	2.3	0.3	-0.3
16622	00	V	500	25	2.1	-0.2	0.2
16622	12	V	500	10	1.6	0.5	-0.5
16754	00	V	500	11	2.4	0.9	-0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	12	V	500	10	2.7	0.8	0.4
17607	12	V	500	22	2.1	0.6	0.6
26435	12	V	500	3	2.0	-1.2	0.5
2EERVT	12	V	500	2	2.8	-2.7	0.7
2EERVT	00	V	500	2	2.3	-0.4	-2.3
4DC8UU	00	V	500	5	3.9	0.4	0.5
4DC8UU	12	V	500	5	3.3	-1.6	0.0
60018	00	V	500	18	2.8	0.3	1.0
60018	12	V	500	18	2.7	1.1	-0.2
7JUNA4	00	V	500	4	1.5	0.3	-0.8
7JUNA4	12	V	500	4	2.2	0.9	-0.7
ASDE09	12	V	500	1	0.3	0.2	0.2
ATGU3F	12	V	500	7	3.8	0.3	-0.2
ATGU3F	00	V	500	3	0.9	-0.1	0.2
BPMWB2	00	V	500	9	2.1	0.2	0.5
BPMWB2	12	V	500	8	1.6	0.3	-0.1
FPUW5G	12	V	500	27	2.3	0.5	-0.2
HTXUH4	12	V	500	1	6.0	-2.2	5.6
HTXUH4	00	V	500	7	2.3	0.5	-0.3
JNKN7J	12	V	500	4	2.2	1.1	-0.3
JNKN7J	00	V	500	4	2.1	-0.1	-0.1
KJJF9X	12	V	500	6	2.4	1.1	1.2
KJJF9X	00	V	500	3	2.6	-0.1	-2.3
KMPLHP	00	V	500	10	3.0	-1.1	-1.0
KMPLHP	12	V	500	9	3.0	1.7	0.5
LRYQE3	12	V	500	10	3.4	-1.0	-0.5
LRYQE3	00	V	500	11	2.0	0.1	-0.2
SMLQ	12	V	500	28	7.7	-2.6	-0.3
SMLQ	00	V	500	24	5.4	-1.9	-0.6
UXK5JT	12	V	500	12	2.4	0.1	0.4
UXK5JT	00	V	500	12	2.2	-0.6	-0.4
VKB4L5	00	V	500	12	2.4	0.4	-0.6
VKB4L5	12	V	500	8	2.4	-0.2	-0.4
WDK38H	12	V	500	17	2.1	0.1	-0.4
WDK38H	00	V	500	3	3.2	0.2	1.3
XKQLWQ	12	V	500	22	1.8	0.0	0.3
XQFJRG	12	V	500	2	2.1	1.3	0.1
XQFJRG	00	V	500	3	2.3	-1.8	-0.3
YLV96W	12	V	500	9	2.5	0.0	-1.0
YLV96W	00	V	500	8	2.4	-0.2	0.4
ZVQEQC	12	V	500	23	2.8	1.0	0.4

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                : AUG 2021
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	850	31	8.2	-7.6
01001	12	Z	850	33	7.8	-6.8
01028	00	Z	850	31	2.0	0.1
01028	12	Z	850	32	2.4	-0.7
010282	12	Z	850	1	5.7	-5.7
010284	00	Z	850	1	34.1	34.1
01400	12	Z	850	29	80.9	80.7
01400	00	Z	850	30	81.4	81.3
01415	00	Z	850	28	4.8	4.5
01415	12	Z	850	15	4.3	3.8
02365	00	Z	850	14	3.0	2.2
02365	12	Z	850	8	3.4	2.6
02836	00	Z	850	31	3.6	2.9
02836	12	Z	850	31	3.4	2.3
02963	12	Z	850	31	4.0	3.7
02963	00	Z	850	30	3.8	3.2
03005	12	Z	850	31	2.5	-0.6
03005	00	Z	850	30	12.9	2.2
03238	00	Z	850	30	3.7	3.2
03238	12	Z	850	1	4.4	4.4
03808	00	Z	850	30	2.8	2.2
03808	12	Z	850	31	2.6	1.8
03918	00	Z	850	31	7.8	7.5
03918	12	Z	850	5	6.8	6.2
039180	12	Z	850	1	16.9	-16.9
03953	00	Z	850	31	2.0	0.8
03953	12	Z	850	31	2.4	-0.1
04018	00	Z	850	28	2.2	0.4
04018	12	Z	850	29	1.9	-0.2
04220	12	Z	850	31	2.6	1.9
04220	00	Z	850	30	3.6	2.8
04270	12	Z	850	31	2.6	-0.2
04270	00	Z	850	30	1.8	0.1
04320	00	Z	850	30	4.3	1.4
04320	12	Z	850	30	4.5	2.9
043206	00	Z	850	1	25.8	-25.8
04339	12	Z	850	31	4.1	1.2
04339	00	Z	850	25	3.6	0.7
04360	12	Z	850	28	7.0	-6.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04360	00	Z	850	28	7.1	-6.7
06011	00	Z	850	31	5.6	4.2
06011	12	Z	850	29	5.2	4.3
06260	00	Z	850	28	4.3	1.4
06260	12	Z	850	4	1.3	0.7
06610	12	Z	850	16	2.4	1.6
06610	00	Z	850	24	2.8	2.4
07110	12	Z	850	31	2.8	-2.2
07110	00	Z	850	31	2.5	-2.0
07510	12	Z	850	31	3.8	3.4
07510	00	Z	850	32	2.6	1.9
07645	12	Z	850	27	3.7	-2.6
07645	00	Z	850	29	4.0	-3.0
07761	00	Z	850	30	2.4	-0.5
07761	12	Z	850	29	2.8	0.0
08001	12	Z	850	29	1.8	-0.1
08001	00	Z	850	30	2.2	-0.5
08221	12	Z	850	28	2.3	1.8
08221	00	Z	850	30	2.3	1.5
08302	12	Z	850	20	7.1	-6.9
08302	00	Z	850	22	6.4	-6.0
08508	12	Z	850	30	4.8	3.9
08522	12	Z	850	31	4.4	3.8
085224	00	Z	850	1	1.6	-1.6
10035	00	Z	850	31	16.3	16.1
10035	12	Z	850	32	16.5	16.5
10393	12	Z	850	16	3.0	1.8
10393	00	Z	850	24	2.5	1.0
10410	00	Z	850	31	2.1	1.3
10410	12	Z	850	31	1.6	0.4
10739	00	Z	850	30	5.7	5.1
10739	12	Z	850	31	5.2	4.9
11035	12	Z	850	26	4.5	3.8
11035	00	Z	850	31	4.7	3.2
12982	00	Z	850	31	2.7	1.8
12982	12	Z	850	31	3.7	2.9
16245	00	Z	850	20	4.1	3.4
16245	12	Z	850	14	2.4	1.7
16429	00	Z	850	20	9.6	4.2
16429	12	Z	850	31	3.3	1.5
16622	00	Z	850	25	9.4	9.1
16622	12	Z	850	10	10.8	10.6
16754	00	Z	850	11	6.3	1.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	12	Z	850	10	3.1	-1.1
17607	12	Z	850	31	3.0	2.6
26435	12	Z	850	3	2.4	-0.1
2EERVT	12	Z	850	2	2.0	1.9
2EERVT	00	Z	850	2	27.3	19.6
4DC8UU	00	Z	850	5	3.0	-2.3
4DC8UU	12	Z	850	6	4.2	0.8
60018	00	Z	850	18	1.9	0.3
60018	12	Z	850	18	2.1	1.0
7JUNA4	00	Z	850	4	6.0	5.1
7JUNA4	12	Z	850	4	3.3	-2.3
ASDE09	12	Z	850	1	35.3	35.3
ATGU3F	12	Z	850	8	9.9	-7.6
ATGU3F	00	Z	850	3	14.1	-11.9
BPMWB2	00	Z	850	9	4.7	3.2
BPMWB2	12	Z	850	9	5.2	4.0
FPUW5G	12	Z	850	27	7.3	-6.7
HTXUH4	12	Z	850	1	63.8	-63.8
HTXUH4	00	Z	850	7	63.6	15.0
JNKN7J	12	Z	850	5	42.6	42.5
JNKN7J	00	Z	850	4	40.1	39.9
KJJF9X	12	Z	850	6	7.1	4.4
KJJF9X	00	Z	850	3	4.3	3.9
KMPLHP	00	Z	850	11	50.3	49.9
KMPLHP	12	Z	850	10	50.9	50.6
LRYQE3	12	Z	850	10	22.0	12.0
LRYQE3	00	Z	850	11	23.8	12.1
SMLQ	12	Z	850	28	4.2	1.3
SMLQ	00	Z	850	24	3.5	-0.2
UXK5JT	12	Z	850	12	6.2	-4.9
UXK5JT	00	Z	850	12	6.8	-6.1
VKB4L5	00	Z	850	12	24.6	24.1
VKB4L5	12	Z	850	9	26.2	25.7
WDK38H	12	Z	850	19	7.0	-4.8
WDK38H	00	Z	850	3	6.8	-5.8
XKQLWQ	12	Z	850	22	12.8	10.3
XQFJRG	12	Z	850	2	7.1	-7.1
XQFJRG	00	Z	850	4	10.8	-7.1
YLV96W	12	Z	850	10	4.1	-1.5
YLV96W	00	Z	850	8	3.2	-1.4
ZVQEQC	12	Z	850	24	2.5	-1.5

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                : AUG 2021
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	850	31	2.8	-0.5	-0.3
01001	12	V	850	31	2.9	0.4	-0.6
01028	00	V	850	31	2.3	0.2	0.2
01028	12	V	850	31	2.2	-0.1	0.1
010282	12	V	850	1	6.5	0.2	-6.5
010284	00	V	850	1	4.1	-2.6	3.2
01400	12	V	850	29	2.1	0.1	0.0
01400	00	V	850	30	2.4	0.3	-0.5
01415	00	V	850	28	1.6	-0.1	0.4
01415	12	V	850	15	3.9	1.2	0.2
02365	00	V	850	14	2.4	-0.2	0.2
02365	12	V	850	8	2.9	-0.6	-0.8
02836	00	V	850	31	2.5	0.1	0.1
02836	12	V	850	31	3.1	-0.5	0.0
02963	12	V	850	31	2.5	-0.1	0.0
02963	00	V	850	30	2.1	0.2	0.0
03005	12	V	850	31	2.7	0.6	-0.4
03005	00	V	850	29	2.4	0.8	0.3
03238	00	V	850	30	2.5	0.7	0.1
03238	12	V	850	1	1.2	0.9	0.8
03808	00	V	850	30	2.2	0.2	-0.1
03808	12	V	850	31	2.4	-0.1	-0.4
03918	00	V	850	30	2.0	0.1	-0.2
03918	12	V	850	5	2.4	0.8	0.9
039180	12	V	850	1	4.1	3.3	2.4
03953	00	V	850	31	2.6	0.2	0.3
03953	12	V	850	31	2.1	-0.4	0.2
04018	00	V	850	27	2.4	-0.5	0.6
04018	12	V	850	29	2.3	0.1	-0.4
04220	12	V	850	31	3.0	0.2	0.1
04220	00	V	850	30	3.3	0.9	-0.3
04270	12	V	850	31	3.8	0.2	0.0
04270	00	V	850	30	2.6	0.0	-0.4
04320	00	V	850	30	2.8	0.1	-0.3
04320	12	V	850	30	3.5	-0.4	-0.8
043206	00	V	850	1	1.4	0.4	-1.3
04339	12	V	850	31	2.9	-0.2	-1.1
04339	00	V	850	25	3.4	-0.7	-0.8
04360	12	V	850	28	3.2	0.3	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04360	00	V	850	28	2.5	0.2	-0.3
06011	00	V	850	31	2.2	-0.1	0.1
06011	12	V	850	29	2.5	-0.3	-0.2
06260	00	V	850	27	2.7	0.4	-0.2
06260	12	V	850	4	2.6	-0.7	-1.0
06610	12	V	850	14	2.6	0.3	1.0
06610	00	V	850	24	2.6	1.2	0.4
07110	12	V	850	31	2.3	-0.3	-0.5
07110	00	V	850	31	1.7	0.0	-0.2
07510	12	V	850	31	2.0	0.3	0.0
07510	00	V	850	31	2.5	-0.6	0.4
07645	12	V	850	27	3.0	-0.7	0.7
07645	00	V	850	28	3.1	-0.7	0.2
07761	00	V	850	30	2.6	0.4	-0.6
07761	12	V	850	29	3.2	-0.9	-0.7
08001	12	V	850	29	2.0	0.2	0.2
08001	00	V	850	30	2.2	0.0	-0.3
08221	12	V	850	28	2.1	0.7	0.6
08221	00	V	850	30	4.3	0.0	0.1
08302	12	V	850	20	3.3	0.6	-0.3
08302	00	V	850	22	2.8	0.3	0.0
08508	12	V	850	30	2.9	0.6	-0.2
08522	12	V	850	31	2.8	-0.6	0.4
085224	00	V	850	1	1.5	-1.1	1.0
10035	00	V	850	31	2.2	-0.2	-0.7
10035	12	V	850	31	2.2	-0.4	0.0
10393	12	V	850	16	2.4	-0.6	-0.4
10393	00	V	850	23	2.6	0.9	0.0
10410	00	V	850	31	2.6	0.8	0.7
10410	12	V	850	31	2.1	-0.5	0.6
10739	00	V	850	30	2.5	0.2	0.1
10739	12	V	850	31	2.2	0.5	-0.1
11035	12	V	850	24	2.8	0.1	0.5
11035	00	V	850	31	3.4	0.8	-0.7
12982	00	V	850	31	3.0	0.1	-0.7
12982	12	V	850	31	2.5	0.1	-0.6
16245	00	V	850	20	3.1	0.3	0.1
16245	12	V	850	14	3.0	-0.7	0.0
16429	00	V	850	20	2.9	0.3	0.6
16429	12	V	850	31	2.7	0.5	0.0
16622	00	V	850	25	3.0	0.7	-0.8
16622	12	V	850	10	2.2	0.2	-0.8
16754	00	V	850	11	1.8	-0.7	0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	12	V	850	10	3.7	-1.1	0.3
17607	12	V	850	31	3.2	0.6	0.3
26435	12	V	850	3	2.9	0.9	1.9
2EERVT	12	V	850	2	2.9	-1.6	-2.1
2EERVT	00	V	850	2	0.8	-0.7	-0.2
4DC8UU	00	V	850	5	2.8	0.2	0.0
4DC8UU	12	V	850	5	3.8	-0.4	-2.6
60018	00	V	850	18	3.5	1.4	1.3
60018	12	V	850	18	3.3	0.8	1.5
7JUNA4	00	V	850	4	1.8	0.2	0.5
7JUNA4	12	V	850	4	2.7	1.8	1.0
ASDE09	12	V	850	1	1.2	-0.6	-1.0
ATGU3F	12	V	850	8	2.9	-1.8	0.5
ATGU3F	00	V	850	3	2.1	0.7	1.5
BPMWB2	00	V	850	9	2.8	-0.6	-0.3
BPMWB2	12	V	850	8	1.8	-1.0	0.4
FPUW5G	12	V	850	27	2.4	0.4	-0.3
HTXUH4	12	V	850	1	4.8	-3.7	3.1
HTXUH4	00	V	850	7	2.7	-0.3	-0.6
JNKN7J	12	V	850	5	3.4	-2.4	0.7
JNKN7J	00	V	850	4	2.1	-0.6	1.0
KJJF9X	12	V	850	6	3.2	-0.3	-0.2
KJJF9X	00	V	850	3	3.0	-0.6	1.4
KMPLHP	00	V	850	11	1.7	0.2	0.2
KMPLHP	12	V	850	10	1.6	-0.3	-0.3
LRYQE3	12	V	850	10	2.2	0.6	0.2
LRYQE3	00	V	850	11	2.9	0.0	0.9
SMLQ	12	V	850	28	5.4	-0.7	-0.9
SMLQ	00	V	850	24	3.9	-1.0	-0.2
UXK5JT	12	V	850	12	2.1	-0.4	-0.1
UXK5JT	00	V	850	12	2.6	-0.2	-1.0
VKB4L5	00	V	850	12	1.7	0.9	0.0
VKB4L5	12	V	850	9	1.7	-0.1	0.2
WDK38H	12	V	850	19	3.3	0.0	-0.4
WDK38H	00	V	850	3	2.4	-1.8	-0.8
XKQLWQ	12	V	850	22	1.8	-0.1	0.5
XQFJRG	12	V	850	2	2.0	-2.0	0.3
XQFJRG	00	V	850	4	2.5	0.8	-0.4
YLV96W	12	V	850	10	2.3	0.0	-0.3
YLV96W	00	V	850	8	1.7	-0.4	-0.3
ZVQEQC	12	V	850	24	1.8	0.3	-0.1

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                 : AUG 2021
         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	1719	0	0.2	-0.1	0.3
1300001	99	P	SUR	11	-23	620	0	0.4	-0.0	0.4
1300008	99	P	SUR	15	-38	620	0	0.3	-0.0	0.3
1300130	99	P	SUR	28	-16	468	0	0.7	0.2	0.7
1300131	99	P	SUR	28	-17	732	0	0.4	0.3	0.5
1301569	99	P	SUR	25	-62	718	0	0.3	-0.5	0.6
1301603	99	P	SUR	34	-58	743	0	0.3	-0.0	0.3
1301608	99	P	SUR	33	-53	743	0	0.4	-0.4	0.5
1301610	99	P	SUR	54	-15	743	0	0.4	0.5	0.6
1301612	99	P	SUR	36	-29	744	0	0.3	-0.1	0.3
1301619	99	P	SUR	27	-66	438	0	0.3	-0.1	0.3
1301699	99	P	SUR	25	-27	719	0	0.3	-0.3	0.4
1301700	99	P	SUR	12	-22	725	0	0.5	-0.0	0.5
1701632	99	P	SUR	31	-63	738	0	0.3	0.2	0.3
4100040	99	P	SUR	15	-53	4453	0	0.3	0.3	0.4
4100043	99	P	SUR	21	-65	4454	0	0.3	-1.0	1.0
4100044	99	P	SUR	22	-59	4447	0	0.2	0.3	0.4
4100046	99	P	SUR	24	-68	4452	0	0.4	0.3	0.5
4100048	99	P	SUR	32	-70	4451	0	0.3	0.3	0.4
4100049	99	P	SUR	27	-63	4452	0	0.3	-0.6	0.7
4100052	99	P	SUR	18	-65	4406	0	0.3	-1.1	1.2
4100053	99	P	SUR	18	-66	4408	0	0.3	-0.3	0.4
4100056	99	P	SUR	18	-65	4412	0	0.4	-0.8	0.9
4100139	99	P	SUR	20	-38	616	0	0.3	0.1	0.3
4100300	99	P	SUR	16	-57	744	0	0.4	0.1	0.4
4101531	99	P	SUR	30	-45	742	0	0.3	-0.0	0.3
4101556	99	P	SUR	33	-67	744	0	0.3	-0.0	0.3
4101565	99	P	SUR	35	-41	744	0	0.3	0.3	0.4
4101567	99	P	SUR	29	-39	744	0	0.3	0.5	0.6
4101609	99	P	SUR	27	-26	744	0	0.3	0.2	0.3
4101613	99	P	SUR	26	-36	742	0	0.2	0.4	0.5
4101614	99	P	SUR	25	-25	743	0	0.3	0.1	0.3
4101616	99	P	SUR	32	-30	744	0	0.3	-0.0	0.3
4101618	99	P	SUR	30	-28	744	0	0.3	0.2	0.3
4101621	99	P	SUR	30	-30	744	0	0.3	0.3	0.4
4101627	99	P	SUR	52	-42	744	0	0.9	0.3	1.0

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101630	99	P	SUR	39	-37	496	0	0.4	0.1	0.4
4101652	99	P	SUR	62	-25	744	0	0.3	-0.1	0.3
4101653	99	P	SUR	79	0	212	1	0.9	-0.3	1.0
4101654	99	P	SUR	63	-1	726	0	0.3	0.1	0.3
4101656	99	P	SUR	63	-26	744	0	0.3	0.0	0.3
4101657	99	P	SUR	68	-6	743	0	0.3	-0.1	0.3
4101658	99	P	SUR	62	-11	744	0	0.2	0.1	0.3
4101663	99	P	SUR	35	-42	744	0	0.3	-0.0	0.3
4101664	99	P	SUR	57	-49	744	0	0.4	0.3	0.5
4101696	99	P	SUR	32	-46	744	0	0.3	-0.1	0.3
4101698	99	P	SUR	13	-60	343	0	0.5	-0.0	0.5
4101702	99	P	SUR	39	-52	744	0	0.8	0.0	0.8
4101707	99	P	SUR	25	-59	744	0	0.2	0.0	0.2
4101708	99	P	SUR	40	-28	298	0	1.3	1.3	1.8
4101714	99	P	SUR	33	-61	744	0	0.3	-0.1	0.3
4101717	99	P	SUR	47	-13	744	0	0.3	0.0	0.3
4101718	99	P	SUR	30	-55	744	0	0.3	0.5	0.6
4101719	99	P	SUR	33	-39	744	0	0.3	-0.1	0.3
4101720	99	P	SUR	35	-24	744	0	0.3	0.0	0.3
4101743	99	P	SUR	34	-58	744	0	0.3	-0.0	0.3
4101752	99	P	SUR	48	-15	744	0	0.3	-0.0	0.3
4101753	99	P	SUR	28	-53	744	0	0.3	0.2	0.3
4101755	99	P	SUR	33	-45	744	0	0.3	0.0	0.3
4101756	99	P	SUR	12	-62	344	0	0.4	-1.0	1.0
4101842	99	P	SUR	60	-17	724	0	0.3	-0.2	0.4
4101843	99	P	SUR	61	-18	723	0	0.2	0.1	0.2
4101845	99	P	SUR	62	-21	724	0	0.3	0.1	0.3
4101850	99	P	SUR	44	-10	726	0	0.3	0.1	0.3
4102627	99	P	SUR	35	-54	247	0	0.3	0.1	0.3
4102628	99	P	SUR	34	-57	246	0	0.3	0.2	0.3
4102629	99	P	SUR	32	-35	247	0	0.3	-0.0	0.3
4102632	99	P	SUR	16	-63	651	0	0.4	-1.0	1.1
4102634	99	P	SUR	14	-63	563	0	0.4	-0.1	0.4
4102635	99	P	SUR	15	-62	28	0	0.3	0.4	0.5
41040	99	P	SUR	15	-53	5039	0	0.4	0.3	0.5
41043	99	P	SUR	21	-65	4440	0	0.3	-1.0	1.0
41044	99	P	SUR	22	-59	4045	0	0.3	0.3	0.4
41046	99	P	SUR	24	-68	6319	0	0.4	0.3	0.5
41048	99	P	SUR	32	-70	6847	0	0.3	0.4	0.5
41049	99	P	SUR	28	-63	6217	0	0.3	-0.6	0.7
41052	99	P	SUR	18	-65	2918	0	0.4	-1.1	1.1
41053	99	P	SUR	19	-66	2929	0	0.4	-0.3	0.5
41056	99	P	SUR	18	-66	2946	0	0.4	-0.8	0.9

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4200059	99	P	SUR	15	-67	4455	0	0.4	-1.0	1.1
4200060	99	P	SUR	16	-63	4430	0	0.4	0.0	0.4
4200085	99	P	SUR	18	-67	4387	0	0.3	0.1	0.4
42059	99	P	SUR	15	-68	4404	0	0.4	-1.0	1.1
42060	99	P	SUR	16	-63	3919	0	0.4	0.0	0.4
42085	99	P	SUR	18	-67	3493	0	0.4	0.1	0.4
4400005	99	P	SUR	43	-69	741	0	0.5	0.4	0.6
4400008	99	P	SUR	41	-69	4453	0	0.3	-0.6	0.7
4400011	99	P	SUR	41	-67	4417	0	0.4	0.3	0.5
4400024	99	P	SUR	42	-66	733	0	0.4	-0.3	0.5
4400027	99	P	SUR	44	-67	98	14	0.3	0.4	0.5
4400032	99	P	SUR	44	-69	736	0	0.4	0.3	0.5
4400034	99	P	SUR	44	-68	733	0	0.4	0.2	0.4
4400037	99	P	SUR	43	-68	597	0	0.4	0.2	0.4
44005	99	P	SUR	43	-69	1959	0	0.5	0.4	0.6
4400777	99	P	SUR	40	-46	744	0	0.4	0.1	0.4
44008	99	P	SUR	41	-69	6156	0	0.4	-0.6	0.7
4400857	99	P	SUR	34	-55	740	0	0.3	0.2	0.4
44011	99	P	SUR	41	-67	6224	0	0.4	0.3	0.5
4401540	99	P	SUR	31	-33	509	0	1.4	0.6	1.5
4401557	99	P	SUR	28	-42	743	0	0.3	0.1	0.3
4401562	99	P	SUR	26	-69	743	0	0.3	-0.2	0.4
4401563	99	P	SUR	34	-23	743	0	0.3	-0.4	0.5
4401569	99	P	SUR	64	8	744	0	0.3	0.2	0.3
4401572	99	P	SUR	30	-54	744	0	0.3	0.4	0.5
4401574	99	P	SUR	48	-48	82	0	0.5	-0.1	0.5
4401576	99	P	SUR	26	-33	744	0	0.2	0.3	0.4
4401577	99	P	SUR	24	-33	744	0	0.8	0.2	0.8
4401581	99	P	SUR	28	-44	744	0	0.3	0.4	0.5
4401582	99	P	SUR	37	-21	744	0	0.3	0.2	0.3
4401828	99	P	SUR	57	-21	667	0	0.4	0.5	0.6
4401837	99	P	SUR	36	-30	740	0	0.2	0.2	0.3
4401848	99	P	SUR	43	-42	724	0	0.3	0.1	0.4
4401850	99	P	SUR	55	-22	715	0	0.5	-0.1	0.5
4401851	99	P	SUR	49	-15	718	0	0.3	0.1	0.3
4401854	99	P	SUR	31	-65	744	0	0.3	-0.4	0.5
4401870	99	P	SUR	32	-49	744	0	0.3	0.0	0.3
4401872	99	P	SUR	23	-56	744	0	0.3	0.0	0.3
4401874	99	P	SUR	23	-40	744	0	0.3	0.3	0.4
44024	99	P	SUR	42	-66	1914	0	0.4	-0.3	0.5
4402603	99	P	SUR	49	-44	725	0	0.4	0.2	0.4
4402604	99	P	SUR	52	-46	728	0	0.4	-0.0	0.4
4402605	99	P	SUR	56	-21	723	0	0.3	0.2	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4402606	99	P	SUR	54	-45	723	0	0.3	0.3	0.4
4402607	99	P	SUR	50	-37	724	0	0.4	-0.0	0.5
4402608	99	P	SUR	53	-39	723	0	0.5	0.1	0.5
4402609	99	P	SUR	51	-40	725	0	0.4	0.1	0.4
4402610	99	P	SUR	48	-41	726	0	0.3	0.1	0.3
4402611	99	P	SUR	54	-44	728	0	0.4	-0.1	0.4
4402612	99	P	SUR	46	-35	723	0	0.3	0.3	0.4
4402613	99	P	SUR	49	-25	721	0	0.4	0.0	0.4
4402614	99	P	SUR	50	-42	725	0	0.3	-0.0	0.3
4402615	99	P	SUR	49	-25	733	0	0.3	0.2	0.4
4402616	99	P	SUR	52	-31	729	0	0.4	0.3	0.5
4402617	99	P	SUR	50	-42	725	0	0.3	0.0	0.3
4402618	99	P	SUR	33	-36	727	0	0.3	0.2	0.3
4402655	99	P	SUR	42	-62	422	0	0.3	0.2	0.4
4402656	99	P	SUR	43	-64	445	0	0.3	0.3	0.5
4402659	99	P	SUR	49	-59	461	0	0.3	0.5	0.6
4402660	99	P	SUR	44	-22	739	0	0.4	0.2	0.4
4402663	99	P	SUR	50	-28	738	0	0.3	-0.1	0.3
4402665	99	P	SUR	42	-19	739	0	0.2	0.2	0.3
4402687	99	P	SUR	39	-21	554	0	0.2	0.1	0.2
44027	99	P	SUR	44	-67	252	31	0.3	0.4	0.5
4402719	99	P	SUR	61	-67	368	0	0.4	-0.2	0.4
4402720	99	P	SUR	61	-66	739	0	0.3	-0.2	0.4
4402721	99	P	SUR	60	-62	739	0	0.4	0.1	0.4
4402722	99	P	SUR	60	-61	739	0	0.5	0.0	0.5
4402723	99	P	SUR	58	-61	739	0	0.5	0.1	0.5
4402727	99	P	SUR	61	-67	739	0	0.4	-0.1	0.4
44032	99	P	SUR	44	-69	1359	0	0.4	0.3	0.5
44034	99	P	SUR	44	-68	1352	0	0.4	0.2	0.5
44037	99	P	SUR	44	-68	1104	0	0.4	0.2	0.5
44078	99	P	SUR	60	-40	1034	0	0.4	-0.6	0.7
44137	99	P	SUR	42	-62	833	0	0.4	0.1	0.4
44139	99	P	SUR	44	-57	843	0	0.4	0.1	0.4
44150	99	P	SUR	43	-64	681	0	0.4	0.0	0.4
44258	99	P	SUR	45	-63	796	0	0.3	0.1	0.4
44488	99	P	SUR	45	-61	857	0	0.3	0.2	0.4
44489	99	P	SUR	46	-61	857	0	0.3	0.2	0.4
44490	99	P	SUR	45	-66	860	0	0.4	0.2	0.5
4601782	99	P	SUR	44	-57	402	0	0.3	0.3	0.5
4700546	99	P	SUR	35	-27	538	0	0.3	0.4	0.5
4801625	99	P	SUR	82	-8	704	0	1.9	3.0	3.5
4801723	99	P	SUR	70	4	739	0	0.3	0.1	0.3
6100001	99	P	SUR	43	8	744	0	0.4	0.2	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6100002	99	P	SUR	42	5	707	0	0.3	0.0	0.3
6100196	99	P	SUR	42	4	726	0	0.4	0.5	0.6
6100197	99	P	SUR	40	4	726	0	0.4	0.5	0.7
6100198	99	P	SUR	37	-2	743	0	0.6	0.4	0.7
6100280	99	P	SUR	41	1	734	0	0.4	0.4	0.6
6100281	99	P	SUR	40	0	714	0	0.5	0.3	0.6
6100417	99	P	SUR	38	0	736	0	0.5	0.4	0.6
6100430	99	P	SUR	40	2	739	0	0.5	0.2	0.5
6101003	99	P	SUR	40	25	190	0	0.9	0.0	0.9
6101005	99	P	SUR	38	26	12	12	0.0	0.0	0.0
6101008	99	P	SUR	37	22	186	0	0.8	0.0	0.8
6101009	99	P	SUR	35	25	101	101	0.0	0.0	0.0
6102782	99	P	SUR	38	18	727	0	0.3	0.3	0.4
6102784	99	P	SUR	34	15	721	0	0.2	0.2	0.3
6102786	99	P	SUR	38	18	726	0	0.3	0.3	0.4
6102787	99	P	SUR	39	18	730	0	0.3	0.3	0.4
6102788	99	P	SUR	36	14	725	0	0.3	0.4	0.5
6102789	99	P	SUR	36	14	725	0	0.3	0.3	0.4
6102791	99	P	SUR	41	7	739	0	0.4	0.3	0.5
6102792	99	P	SUR	40	7	714	0	0.5	0.1	0.5
6200024	99	P	SUR	44	-3	742	0	0.3	0.5	0.6
6200025	99	P	SUR	44	-6	202	0	0.3	0.3	0.5
6200082	99	P	SUR	44	-8	739	0	0.4	0.2	0.5
6200083	99	P	SUR	43	-9	732	0	0.4	0.2	0.5
6200084	99	P	SUR	42	-9	741	0	0.5	0.3	0.5
6200085	99	P	SUR	36	-7	739	0	0.3	0.7	0.8
6200087	99	P	SUR	55	7	377	0	0.3	-0.2	0.3
6200091	99	P	SUR	53	-5	741	0	0.3	0.1	0.3
6200092	99	P	SUR	51	-11	743	0	0.3	0.0	0.3
6200093	99	P	SUR	55	-10	743	0	0.3	-0.0	0.3
6200094	99	P	SUR	52	-7	743	0	0.3	0.2	0.4
6200095	99	P	SUR	53	-16	743	0	0.4	-0.1	0.4
62001	99	P	SUR	45	-5	1730	0	0.3	0.1	0.3
6200192	99	P	SUR	40	-10	411	0	0.4	-0.9	1.0
6200199	99	P	SUR	40	-9	701	0	0.3	-0.7	0.7
6200200	99	P	SUR	36	-8	579	32	4.7	3.1	5.6
6201030	99	P	SUR	44	-4	696	0	0.3	0.4	0.5
6201065	99	P	SUR	54	7	3507	0	0.2	1.3	1.3
6201066	99	P	SUR	55	7	937	0	0.3	0.5	0.5
62023	99	P	SUR	51	-8	319	0	0.3	0.3	0.4
6202613	99	P	SUR	28	-63	744	0	0.4	0.1	0.4
6202614	99	P	SUR	26	-56	744	0	0.3	0.0	0.3
6202623	99	P	SUR	67	-3	744	0	0.3	-0.2	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6202624	99	P	SUR	59	-27	744	0	0.4	0.1	0.4
6202626	99	P	SUR	53	-13	744	0	0.3	0.2	0.3
6202627	99	P	SUR	57	-27	722	0	0.3	0.0	0.3
6202629	99	P	SUR	40	-43	744	0	0.7	0.1	0.7
6202630	99	P	SUR	46	-4	744	0	0.5	-0.7	0.8
6202631	99	P	SUR	58	-10	744	0	0.3	0.2	0.3
6202632	99	P	SUR	61	-21	744	0	0.3	0.1	0.3
6202633	99	P	SUR	63	-12	744	0	0.2	-0.0	0.2
6202634	99	P	SUR	77	8	744	0	0.4	-0.0	0.4
6202635	99	P	SUR	63	-4	744	0	0.2	0.2	0.3
6202636	99	P	SUR	67	9	744	0	0.3	-0.3	0.4
6202637	99	P	SUR	64	-5	744	0	0.3	0.1	0.3
6202639	99	P	SUR	33	-28	744	0	0.2	-0.0	0.2
6202640	99	P	SUR	38	-65	744	0	0.4	-0.5	0.7
6202643	99	P	SUR	33	-63	744	0	0.3	0.1	0.3
6202644	99	P	SUR	27	-42	744	0	0.2	-0.2	0.3
6202645	99	P	SUR	28	-64	744	0	0.3	-0.2	0.3
6202678	99	P	SUR	65	-30	1	1	0.0	0.0	0.0
6202684	99	P	SUR	65	-3	594	0	0.3	0.5	0.5
62029	99	P	SUR	49	-12	1730	0	0.3	0.1	0.3
6203507	99	P	SUR	42	-69	715	0	0.4	0.3	0.5
6203508	99	P	SUR	44	-67	716	0	0.3	0.4	0.5
6203513	99	P	SUR	44	-60	716	7	2.4	0.1	2.4
6203516	99	P	SUR	45	-60	706	0	0.3	0.2	0.4
6203574	99	P	SUR	60	-20	703	0	0.2	0.5	0.5
6203585	99	P	SUR	72	39	721	0	0.3	0.2	0.4
6203588	99	P	SUR	67	-22	727	0	0.3	0.7	0.8
6203601	99	P	SUR	34	-54	744	0	0.3	-0.2	0.3
6203612	99	P	SUR	28	-38	743	0	0.2	0.1	0.3
6203613	99	P	SUR	27	-35	743	0	0.2	0.4	0.4
6203614	99	P	SUR	17	-50	744	0	0.3	0.2	0.3
6203615	99	P	SUR	23	-59	743	0	0.3	0.1	0.3
6203616	99	P	SUR	29	-41	744	0	0.2	0.2	0.3
6203617	99	P	SUR	10	-32	744	0	0.4	0.0	0.4
6203621	99	P	SUR	42	-23	744	0	0.2	0.2	0.3
6203622	99	P	SUR	40	-28	744	0	0.3	0.1	0.3
6203624	99	P	SUR	19	-60	743	0	0.3	0.1	0.3
6203625	99	P	SUR	43	-24	744	0	0.3	0.3	0.4
6203626	99	P	SUR	60	-1	743	0	0.3	-0.3	0.4
6203627	99	P	SUR	24	-61	744	0	0.3	0.1	0.3
6203631	99	P	SUR	24	-63	743	0	0.3	-0.1	0.3
6203632	99	P	SUR	29	-27	744	0	0.3	0.1	0.3
6203633	99	P	SUR	55	-33	744	0	0.3	0.2	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6203634	99	P	SUR	38	-14	744	0	0.2	0.2	0.3
6203635	99	P	SUR	13	-49	744	0	0.3	0.1	0.3
6203637	99	P	SUR	58	-10	744	0	0.5	0.4	0.7
6203639	99	P	SUR	44	-19	744	0	0.3	0.2	0.4
6203640	99	P	SUR	42	-16	743	0	0.3	0.1	0.3
6203641	99	P	SUR	44	-7	744	4	1.5	0.1	1.5
6203643	99	P	SUR	24	-56	743	0	0.3	0.3	0.4
6203644	99	P	SUR	13	-33	743	0	0.4	-0.1	0.4
6203730	99	P	SUR	24	-41	723	0	0.3	0.4	0.5
6203732	99	P	SUR	19	-46	728	0	0.3	-0.0	0.3
6203734	99	P	SUR	12	-19	683	0	0.5	0.2	0.6
6203735	99	P	SUR	13	-42	723	0	0.4	0.1	0.4
6203736	99	P	SUR	26	-19	722	0	0.3	-0.1	0.3
6203737	99	P	SUR	30	-42	720	0	0.3	0.6	0.6
6203749	99	P	SUR	62	-11	722	0	0.2	0.1	0.2
6203750	99	P	SUR	60	-15	715	0	0.2	0.1	0.3
6203751	99	P	SUR	63	-13	724	0	0.3	0.5	0.6
6203752	99	P	SUR	63	-20	721	0	0.3	0.0	0.3
6203753	99	P	SUR	61	-26	723	0	0.3	-0.1	0.3
6203755	99	P	SUR	49	-10	729	0	0.4	-0.5	0.6
6203760	99	P	SUR	59	-6	726	0	0.3	0.2	0.3
6203762	99	P	SUR	25	-25	726	0	0.3	0.1	0.3
6203764	99	P	SUR	30	-18	724	0	0.3	0.3	0.4
6203765	99	P	SUR	22	-35	724	0	0.2	0.4	0.4
6203766	99	P	SUR	24	-26	725	0	0.3	-1.7	1.7
6203767	99	P	SUR	19	-29	729	0	0.3	-0.2	0.4
6203768	99	P	SUR	34	-13	727	0	0.2	0.5	0.5
6203769	99	P	SUR	33	-11	728	0	0.3	0.6	0.6
6203771	99	P	SUR	26	-27	729	0	0.3	0.3	0.4
6203772	99	P	SUR	24	-35	729	0	0.3	0.3	0.4
6203773	99	P	SUR	28	-31	722	0	0.3	0.0	0.3
6203774	99	P	SUR	28	-16	301	0	0.4	-0.5	0.7
6203776	99	P	SUR	32	-18	728	0	0.2	0.1	0.2
6203777	99	P	SUR	25	-29	727	0	0.3	0.3	0.4
6203840	99	P	SUR	20	-19	695	0	0.5	0.5	0.7
62050	99	P	SUR	50	-4	1730	0	0.3	0.0	0.3
62081	99	P	SUR	51	-13	1730	0	0.3	-0.1	0.3
62091	99	P	SUR	53	-5	724	0	0.3	0.1	0.3
62092	99	P	SUR	51	-11	724	0	0.3	0.0	0.3
62093	99	P	SUR	55	-10	724	0	0.3	-0.0	0.3
62094	99	P	SUR	52	-7	724	0	0.3	0.2	0.4
62095	99	P	SUR	53	-16	724	0	0.4	-0.1	0.4
62102	99	P	SUR	58	2	1726	0	0.4	0.3	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62103	99	P	SUR	50	-3	1621	0	0.3	0.1	0.3
62104	99	P	SUR	57	1	1727	0	0.3	0.2	0.3
62107	99	P	SUR	50	-6	2354	0	0.3	-0.2	0.4
62112	99	P	SUR	58	0	1735	0	0.3	0.5	0.6
62113	99	P	SUR	58	0	1726	0	0.3	0.1	0.3
62114	99	P	SUR	58	0	4110	0	0.3	0.5	0.6
62115	99	P	SUR	58	-3	1735	0	0.3	0.2	0.4
62116	99	P	SUR	58	1	1726	0	0.3	0.2	0.3
62118	99	P	SUR	58	1	1730	0	0.2	0.6	0.7
62119	99	P	SUR	57	2	1655	0	0.3	0.3	0.4
62120	99	P	SUR	56	2	1722	0	0.3	0.3	0.4
62121	99	P	SUR	54	3	1730	0	0.3	0.4	0.5
62122	99	P	SUR	57	2	2332	0	0.3	0.2	0.4
62124	99	P	SUR	54	-4	1661	0	0.3	0.2	0.3
62129	99	P	SUR	58	0	1726	0	0.3	0.2	0.3
62130	99	P	SUR	59	1	1726	0	0.3	0.2	0.3
62131	99	P	SUR	54	1	1667	0	0.2	0.7	0.7
62132	99	P	SUR	56	2	1728	0	0.3	0.5	0.6
62133	99	P	SUR	57	1	1729	0	0.4	0.3	0.5
62134	99	P	SUR	58	1	1706	0	0.2	0.7	0.7
62135	99	P	SUR	54	2	1729	0	0.3	0.7	0.8
62138	99	P	SUR	54	0	1923	0	0.3	0.6	0.7
62140	99	P	SUR	57	1	2356	0	0.3	0.3	0.4
62143	99	P	SUR	58	2	1726	0	0.3	0.8	0.9
62144	99	P	SUR	53	2	1730	0	0.3	0.4	0.5
62145	99	P	SUR	53	3	2344	0	0.3	0.7	0.7
62146	99	P	SUR	57	2	1723	0	0.3	0.1	0.3
62148	99	P	SUR	54	2	1729	0	0.3	1.1	1.2
62149	99	P	SUR	54	1	1670	0	0.2	0.9	1.0
62151	99	P	SUR	57	2	2136	0	0.3	0.3	0.5
62152	99	P	SUR	57	2	1353	0	0.3	0.5	0.6
62153	99	P	SUR	57	2	2335	0	0.3	0.5	0.6
62154	99	P	SUR	56	2	1730	0	0.3	0.2	0.3
62155	99	P	SUR	58	1	1652	0	0.3	0.5	0.6
62157	99	P	SUR	58	0	1726	0	0.2	0.2	0.3
62160	99	P	SUR	57	2	2355	0	0.3	0.6	0.7
62161	99	P	SUR	58	1	857	0	0.2	-0.0	0.2
62162	99	P	SUR	57	1	1623	0	0.2	0.4	0.4
62163	99	P	SUR	48	-8	1545	0	0.3	0.3	0.4
62164	99	P	SUR	57	1	1729	0	0.2	0.5	0.5
62165	99	P	SUR	54	1	1461	0	0.3	0.9	1.0
62168	99	P	SUR	58	1	1726	0	0.3	0.3	0.4
62170	99	P	SUR	51	2	1724	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
62296	99	P	SUR	53	2	1730	0	0.3	0.2	0.3
62297	99	P	SUR	59	2	2354	0	0.2	0.3	0.3
62302	99	P	SUR	61	-2	1718	0	0.3	0.1	0.3
62304	99	P	SUR	51	2	1725	0	0.4	0.2	0.4
62305	99	P	SUR	50	0	2959	0	0.3	0.2	0.4
62442	99	P	SUR	49	-16	1729	0	0.3	-0.3	0.4
6301001	99	P	SUR	64	5	743	0	0.3	-0.1	0.3
6301003	99	P	SUR	74	24	704	0	0.3	-0.4	0.5
6301004	99	P	SUR	72	20	705	0	0.3	-0.3	0.4
6301510	99	P	SUR	80	16	704	0	0.4	-0.2	0.5
6301511	99	P	SUR	57	-47	705	0	1.5	7.3	7.4
6301564	99	P	SUR	57	-40	743	0	0.4	0.3	0.5
6301567	99	P	SUR	52	-21	744	0	0.3	0.0	0.3
6301570	99	P	SUR	64	-32	743	0	0.3	0.2	0.4
6301571	99	P	SUR	52	-51	743	0	0.3	0.1	0.4
63055	99	P	SUR	61	2	1665	0	0.2	-0.0	0.2
63056	99	P	SUR	60	2	1729	0	0.3	0.5	0.6
63057	99	P	SUR	59	2	1726	0	0.3	0.1	0.3
63058	99	P	SUR	53	2	3120	0	0.4	0.5	0.6
63059	99	P	SUR	58	-1	1734	0	0.3	0.7	0.8
63101	99	P	SUR	61	1	1728	0	0.3	0.3	0.4
63102	99	P	SUR	61	1	1727	0	0.2	0.1	0.3
63103	99	P	SUR	61	1	1727	0	0.3	0.3	0.4
63104	99	P	SUR	61	2	1724	0	0.3	0.2	0.4
63108	99	P	SUR	61	2	1667	0	0.3	-0.1	0.3
63109	99	P	SUR	60	2	1729	0	0.3	-0.0	0.3
63110	99	P	SUR	60	2	1729	0	0.4	0.8	0.9
63111	99	P	SUR	61	2	2353	0	0.3	0.0	0.3
63112	99	P	SUR	61	1	1729	0	0.3	-0.2	0.3
63115	99	P	SUR	62	1	1726	0	0.3	0.3	0.4
63117	99	P	SUR	61	1	2291	0	0.3	0.4	0.5
63118	99	P	SUR	58	2	1725	0	0.2	0.1	0.3
6401531	99	P	SUR	53	-45	721	0	0.4	0.2	0.5
6401539	99	P	SUR	54	-52	258	66	9.6	1.5	9.7
6401573	99	P	SUR	55	-41	743	0	0.4	-0.0	0.4
6401574	99	P	SUR	59	-46	744	0	0.3	0.6	0.7
6401575	99	P	SUR	65	-5	744	0	0.2	0.0	0.2
6401576	99	P	SUR	75	-15	744	0	2.0	-0.3	2.0
6401577	99	P	SUR	74	-8	743	0	0.3	0.5	0.6
6401578	99	P	SUR	79	-17	618	0	0.5	-0.2	0.5
6401580	99	P	SUR	80	37	743	0	0.3	-0.2	0.4
6401759	99	P	SUR	66	-31	743	0	0.4	0.2	0.5
6401760	99	P	SUR	67	-28	744	0	0.4	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
6401761	99	P	SUR	64	-38	744	0	0.4	0.3	0.5
6401762	99	P	SUR	63	-3	744	0	0.2	0.1	0.3
6401763	99	P	SUR	62	-4	744	0	0.3	0.3	0.4
6401838	99	P	SUR	64	-18	718	0	0.2	-1.5	1.5
6401839	99	P	SUR	60	-14	721	0	0.3	0.2	0.3
6401840	99	P	SUR	62	-13	710	0	0.2	0.2	0.3
6401841	99	P	SUR	60	-15	703	0	0.2	0.3	0.4
6401842	99	P	SUR	63	-27	714	0	0.3	0.0	0.3
6401843	99	P	SUR	63	-19	705	0	0.3	0.2	0.3
6401844	99	P	SUR	64	-23	715	136	5.3	8.4	9.9
6401845	99	P	SUR	64	-22	580	0	0.9	0.2	0.9
6401846	99	P	SUR	62	-12	247	0	0.3	-0.1	0.3
6401847	99	P	SUR	62	-10	247	0	0.3	0.1	0.3
6401848	99	P	SUR	64	-17	154	0	0.7	0.2	0.7
6401851	99	P	SUR	63	-18	343	0	0.5	-0.3	0.6
6401852	99	P	SUR	67	-22	247	0	0.4	-0.3	0.5
6401856	99	P	SUR	66	-21	741	0	0.4	-0.2	0.4
6401857	99	P	SUR	63	-24	730	0	2.0	0.0	2.0
6401858	99	P	SUR	66	-31	247	0	0.4	0.2	0.5
6401859	99	P	SUR	61	-6	247	0	0.3	0.2	0.4
6401860	99	P	SUR	63	-18	246	0	0.3	-0.3	0.4
6401861	99	P	SUR	63	-19	247	0	0.3	0.0	0.3
6401862	99	P	SUR	63	-12	247	0	0.3	0.3	0.4
6401863	99	P	SUR	67	-29	247	0	0.4	0.2	0.5
6401864	99	P	SUR	64	-33	245	0	0.3	-0.0	0.3
6401865	99	P	SUR	66	-35	247	0	0.4	0.2	0.5
6401866	99	P	SUR	63	-16	246	0	0.3	0.1	0.3
6402539	99	P	SUR	52	-44	727	0	0.4	0.1	0.4
6402541	99	P	SUR	68	-9	663	0	0.2	0.1	0.3
6402543	99	P	SUR	63	-37	710	0	0.4	0.2	0.5
6402544	99	P	SUR	71	9	680	0	0.3	0.3	0.4
6402545	99	P	SUR	73	18	647	0	0.3	0.0	0.3
6402546	99	P	SUR	69	14	647	0	0.3	0.2	0.4
6402547	99	P	SUR	61	-56	643	0	0.4	0.3	0.5
6402548	99	P	SUR	69	4	694	0	0.3	0.1	0.3
6402549	99	P	SUR	72	14	690	0	0.3	0.0	0.3
6402550	99	P	SUR	74	20	668	0	0.2	0.2	0.3
6402551	99	P	SUR	61	-50	720	0	0.4	0.3	0.5
6402552	99	P	SUR	65	-4	711	0	0.3	0.2	0.3
6402554	99	P	SUR	59	3	410	0	0.3	0.6	0.7
6402557	99	P	SUR	65	1	718	0	0.3	0.2	0.3
6402558	99	P	SUR	68	1	571	1	1.8	-0.5	1.8
6402559	99	P	SUR	64	-39	713	0	0.4	0.4	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6402560	99	P	SUR	69	-2	720	0	0.3	0.0	0.3
6402562	99	P	SUR	66	-28	558	0	0.4	0.2	0.5
6402563	99	P	SUR	65	-9	356	0	0.3	0.2	0.3
6402592	99	P	SUR	60	-42	371	0	0.4	-0.7	0.8
6402593	99	P	SUR	61	-42	373	0	0.4	0.1	0.4
6402594	99	P	SUR	61	-43	374	0	0.4	-0.0	0.4
6402595	99	P	SUR	61	-42	350	0	0.4	-0.0	0.4
6402596	99	P	SUR	60	-42	360	0	0.4	0.1	0.4
6402597	99	P	SUR	61	-42	260	0	0.4	-0.1	0.4
6402598	99	P	SUR	61	-42	197	0	0.4	0.0	0.4
6402599	99	P	SUR	61	-43	254	0	0.4	0.1	0.4
6402600	99	P	SUR	84	-45	299	0	0.4	0.1	0.5
6402610	99	P	SUR	61	-43	248	0	0.4	-0.3	0.5
6402611	99	P	SUR	61	-42	226	0	0.4	0.2	0.5
6402619	99	P	SUR	44	-11	726	0	0.3	0.2	0.4
6402620	99	P	SUR	46	-16	725	0	0.3	0.4	0.5
6402621	99	P	SUR	44	-11	723	0	0.3	0.4	0.5
6402622	99	P	SUR	43	-13	724	0	0.3	0.2	0.3
6402623	99	P	SUR	81	13	530	0	0.3	0.0	0.3
6402624	99	P	SUR	80	28	739	0	0.3	-0.0	0.3
6402653	99	P	SUR	64	-22	583	0	0.3	0.1	0.3
6402654	99	P	SUR	60	-17	676	0	0.3	0.0	0.3
6402655	99	P	SUR	60	-24	695	0	0.3	0.2	0.3
6402656	99	P	SUR	66	-26	722	0	0.3	0.2	0.4
6402657	99	P	SUR	63	-20	721	0	0.3	0.1	0.3
6402658	99	P	SUR	67	-22	717	0	0.3	0.0	0.3
6402659	99	P	SUR	63	-23	723	0	0.3	0.1	0.3
6402660	99	P	SUR	66	-22	637	0	0.4	-0.2	0.5
6402661	99	P	SUR	60	-25	700	0	0.3	0.1	0.3
6402663	99	P	SUR	62	-25	692	0	0.3	-0.1	0.3
6402665	99	P	SUR	63	-13	711	0	0.3	0.3	0.4
6402666	99	P	SUR	64	-21	721	0	0.3	-0.7	0.7
6402667	99	P	SUR	62	-23	712	0	0.3	-0.1	0.3
6402668	99	P	SUR	65	-32	722	0	0.3	0.5	0.6
6402677	99	P	SUR	62	-32	247	0	0.3	0.0	0.3
6402678	99	P	SUR	60	-37	248	0	0.4	0.2	0.4
6402679	99	P	SUR	69	-7	247	0	0.3	0.2	0.3
6402680	99	P	SUR	66	-28	219	0	0.4	-0.1	0.4
6402681	99	P	SUR	65	-9	128	0	0.3	0.3	0.4
64041	99	P	SUR	61	-3	1718	0	0.3	0.3	0.4
64045	99	P	SUR	59	-12	1721	0	0.3	-0.1	0.3
6501685	99	P	SUR	76	13	3	0	0.1	-0.5	0.5
6501687	99	P	SUR	76	13	2	0	0.0	-0.5	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6600021	99	P	SUR	55	14	229	0	0.4	0.5	0.6
6600022	99	P	SUR	54	14	229	0	0.4	-0.2	0.4

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                : AUG 2021
                   STANDARD OF COMPARISON: FIRST-GUESS FIELD


TIME = 99 => AVERAGE OF ALL OBSERVATIONS


GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S
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WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300001	99	SPEED	SUR	11	-23	620	0	0	1.7	0.2	1.7
1300002	99	SPEED	SUR	20	-23	620	0	0	0.8	0.2	0.8
1300008	99	SPEED	SUR	15	-38	620	0	0	1.1	0.3	1.1
1300130	99	SPEED	SUR	28	-16	461	0	0	0.8	-0.1	0.8
1300131	99	SPEED	SUR	28	-17	729	0	0	2.5	2.7	3.7
4100040	99	SPEED	SUR	15	-53	4453	0	0	1.0	0.4	1.0
4100043	99	SPEED	SUR	21	-65	4452	0	0	0.8	0.0	0.8
4100044	99	SPEED	SUR	22	-59	4446	0	0	0.7	-0.0	0.7
4100046	99	SPEED	SUR	24	-68	4447	0	0	1.2	-0.1	1.2
4100048	99	SPEED	SUR	32	-70	4453	0	0	0.8	0.1	0.8
4100049	99	SPEED	SUR	27	-63	4451	0	0	0.8	0.0	0.8
4100052	99	SPEED	SUR	18	-65	4406	0	0	1.0	-0.4	1.1
4100053	99	SPEED	SUR	18	-66	4408	0	0	1.4	1.1	1.8
4100056	99	SPEED	SUR	18	-65	4412	0	0	1.2	-1.0	1.6
4100139	99	SPEED	SUR	20	-38	616	0	0	0.8	-0.1	0.8
4100300	99	SPEED	SUR	16	-57	744	0	0	1.0	-0.4	1.1
41040	99	SPEED	SUR	15	-53	5039	0	0	1.0	0.0	1.0
41043	99	SPEED	SUR	21	-65	4438	0	0	0.8	-0.1	0.8
41044	99	SPEED	SUR	22	-59	4044	0	0	0.8	-0.1	0.8
41046	99	SPEED	SUR	24	-68	6313	0	0	1.3	-0.2	1.3
41048	99	SPEED	SUR	32	-70	6852	0	0	0.9	-0.0	0.9
41049	99	SPEED	SUR	28	-63	6216	0	0	0.9	-0.0	0.9
41052	99	SPEED	SUR	18	-65	2918	0	0	1.0	-0.3	1.1
41053	99	SPEED	SUR	19	-66	2929	0	0	1.3	0.5	1.4
41056	99	SPEED	SUR	18	-66	2946	0	0	1.2	-0.7	1.4
4200059	99	SPEED	SUR	15	-67	4454	0	0	0.9	0.5	1.0
4200085	99	SPEED	SUR	18	-67	4387	0	0	1.3	-0.3	1.4
42059	99	SPEED	SUR	15	-68	4403	0	0	1.0	0.1	1.0
42085	99	SPEED	SUR	18	-67	3493	0	0	1.4	0.0	1.4
4400005	99	SPEED	SUR	43	-69	741	0	0	1.2	-0.7	1.4
4400008	99	SPEED	SUR	41	-69	4451	0	0	1.3	-0.2	1.3
4400011	99	SPEED	SUR	41	-67	4453	0	0	1.4	-0.4	1.5
4400024	99	SPEED	SUR	42	-66	733	0	0	1.2	-0.6	1.3
4400027	99	SPEED	SUR	44	-67	740	0	0	1.3	-0.5	1.4

DRIFTER MONITORING STATISTICS (EUCOS)
MONITORING CENTRE : ECMWF
ELEMENT MONITORED : WIND SPEED (M/S) (CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4400032	99	SPEED	SUR	44	-69	736	0	0	1.4	-0.8	1.6
4400033	99	SPEED	SUR	44	-69	731	0	0	1.2	-0.5	1.3
4400034	99	SPEED	SUR	44	-68	733	0	0	1.3	-1.0	1.6
4400037	99	SPEED	SUR	43	-68	597	0	0	1.3	-0.7	1.5
44005	99	SPEED	SUR	43	-69	1959	0	0	1.3	-0.7	1.4
44008	99	SPEED	SUR	41	-69	6136	0	0	1.3	-0.2	1.4
44011	99	SPEED	SUR	41	-67	6386	0	0	1.4	-0.7	1.6
44024	99	SPEED	SUR	42	-66	1914	0	0	1.2	-0.6	1.3
44027	99	SPEED	SUR	44	-67	1953	0	0	1.3	-0.4	1.4
44032	99	SPEED	SUR	44	-69	1359	0	0	1.5	-0.8	1.7
44033	99	SPEED	SUR	44	-69	1352	0	0	1.2	-0.3	1.3
44034	99	SPEED	SUR	44	-68	1352	0	0	1.3	-1.0	1.7
44037	99	SPEED	SUR	44	-68	1104	0	0	1.4	-0.6	1.5
44078	99	SPEED	SUR	60	-40	1034	0	0	1.5	-1.0	1.8
44137	99	SPEED	SUR	42	-62	833	0	0	2.2	-0.9	2.4
44139	99	SPEED	SUR	44	-57	461	0	0	1.3	-0.1	1.3
44150	99	SPEED	SUR	43	-64	358	0	0	1.5	-0.4	1.6
44258	99	SPEED	SUR	45	-63	796	2	0	1.6	0.0	1.6
44488	99	SPEED	SUR	45	-61	857	0	0	1.6	-0.1	1.6
44489	99	SPEED	SUR	46	-61	856	0	0	1.5	0.2	1.5
44490	99	SPEED	SUR	45	-66	860	0	0	1.5	-0.6	1.6
6100001	99	SPEED	SUR	43	8	742	0	0	1.8	-0.6	1.8
6100002	99	SPEED	SUR	42	5	705	0	0	1.0	0.0	1.0
6100196	99	SPEED	SUR	42	4	718	0	0	1.5	-0.3	1.5
6100197	99	SPEED	SUR	40	4	720	0	0	1.2	-0.3	1.2
6100198	99	SPEED	SUR	37	-2	733	0	0	1.7	-0.5	1.8
6100280	99	SPEED	SUR	41	1	713	0	0	1.3	-0.5	1.4
6100281	99	SPEED	SUR	40	0	711	0	0	1.8	0.2	1.8
6100417	99	SPEED	SUR	38	0	736	0	0	1.4	-0.1	1.4
6100430	99	SPEED	SUR	40	2	728	0	0	1.7	0.2	1.7
6101003	99	SPEED	SUR	40	25	190	0	0	2.0	-0.3	2.1
6101005	99	SPEED	SUR	38	26	194	0	0	3.0	-7.7	8.2
6101007	99	SPEED	SUR	36	25	168	0	0	2.0	-6.2	6.5
6101008	99	SPEED	SUR	37	22	186	0	0	1.9	-0.6	2.0
6101009	99	SPEED	SUR	35	25	192	0	0	1.8	-5.1	5.4
6200024	99	SPEED	SUR	44	-3	713	0	0	1.1	-0.5	1.2
6200025	99	SPEED	SUR	44	-6	701	0	0	1.6	-1.2	2.0
6200082	99	SPEED	SUR	44	-8	734	0	0	0.8	-0.1	0.8
6200083	99	SPEED	SUR	43	-9	725	0	0	1.5	-0.4	1.6
6200084	99	SPEED	SUR	42	-9	715	0	0	1.0	-0.8	1.3
6200085	99	SPEED	SUR	36	-7	735	0	0	1.3	-0.0	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
6200087	99	SPEED	SUR	55	7	142	0	0	1.1	1.4	1.8
6200091	99	SPEED	SUR	53	-5	741	0	0	1.1	0.2	1.1
6200092	99	SPEED	SUR	51	-11	743	0	0	1.0	0.5	1.1
6200093	99	SPEED	SUR	55	-10	743	0	0	1.3	-0.5	1.3
6200094	99	SPEED	SUR	52	-7	743	0	0	1.1	-0.1	1.1
6200095	99	SPEED	SUR	53	-16	743	0	0	0.9	0.4	1.0
62001	99	SPEED	SUR	45	-5	1736	0	0	1.0	0.5	1.1
6200192	99	SPEED	SUR	40	-10	411	0	0	0.9	-0.2	1.0
6200200	99	SPEED	SUR	36	-8	704	0	0	1.0	0.3	1.0
6201030	99	SPEED	SUR	44	-4	689	0	0	1.1	-0.1	1.1
6201066	99	SPEED	SUR	55	7	913	0	0	1.5	0.0	1.5
62023	99	SPEED	SUR	51	-8	316	0	0	1.7	-0.0	1.8
62029	99	SPEED	SUR	49	-12	1730	0	0	0.9	0.7	1.2
62081	99	SPEED	SUR	51	-13	1730	0	0	0.9	0.7	1.1
62091	99	SPEED	SUR	53	-5	724	0	0	1.1	0.3	1.1
62092	99	SPEED	SUR	51	-11	724	0	0	1.0	0.8	1.2
62093	99	SPEED	SUR	55	-10	724	0	0	1.2	-0.2	1.3
62094	99	SPEED	SUR	52	-7	724	0	0	1.1	0.1	1.1
62095	99	SPEED	SUR	53	-16	724	0	0	1.0	0.6	1.2
62102	99	SPEED	SUR	58	2	1726	0	0	1.1	0.1	1.1
62103	99	SPEED	SUR	50	-3	1621	0	0	1.4	0.1	1.5
62107	99	SPEED	SUR	50	-6	2354	0	0	1.2	0.2	1.2
62112	99	SPEED	SUR	58	0	1735	0	0	1.5	-0.5	1.6
62113	99	SPEED	SUR	58	0	1726	0	0	1.1	-0.3	1.2
62114	99	SPEED	SUR	58	0	4110	0	0	1.1	0.2	1.1
62118	99	SPEED	SUR	58	1	1730	0	0	1.1	0.2	1.1
62119	99	SPEED	SUR	57	2	1655	0	0	1.6	-1.3	2.1
62120	99	SPEED	SUR	56	2	1722	0	0	1.0	-0.2	1.0
62121	99	SPEED	SUR	54	3	1730	0	0	1.2	-0.7	1.4
62122	99	SPEED	SUR	57	2	2332	0	0	1.0	-0.2	1.0
62131	99	SPEED	SUR	54	1	1667	0	0	1.2	-0.1	1.2
62132	99	SPEED	SUR	56	2	1728	0	0	2.7	-1.8	3.2
62133	99	SPEED	SUR	57	1	1729	0	0	1.2	-0.2	1.3
62134	99	SPEED	SUR	58	1	1706	0	0	1.1	-0.4	1.2
62140	99	SPEED	SUR	57	1	2346	0	0	1.0	-0.2	1.0
62143	99	SPEED	SUR	58	2	1726	0	0	1.4	-0.5	1.5
62144	99	SPEED	SUR	53	2	1730	0	0	1.5	-1.0	1.8
62145	99	SPEED	SUR	53	3	2359	0	0	1.3	0.2	1.3
62146	99	SPEED	SUR	57	2	1520	0	0	1.3	-0.0	1.3
62148	99	SPEED	SUR	54	2	1729	0	0	1.3	-0.3	1.4
62149	99	SPEED	SUR	54	1	1670	0	0	1.2	0.1	1.2

DRIFTER MONITORING STATISTICS (EUCOS)
MONITORING CENTRE : ECMWF
ELEMENT MONITORED : WIND SPEED (M/S) (CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62153	99	SPEED	SUR	57	2	2335	0	0	1.9	-1.0	2.1
62154	99	SPEED	SUR	56	2	1730	0	0	0.9	-0.3	1.0
62155	99	SPEED	SUR	58	1	1612	0	0	1.0	-0.4	1.1
62164	99	SPEED	SUR	57	1	1729	0	0	1.2	-0.8	1.5
62165	99	SPEED	SUR	54	1	1461	0	0	1.2	-0.4	1.2
62170	99	SPEED	SUR	51	2	1724	0	0	1.4	0.2	1.4
62304	99	SPEED	SUR	51	2	1725	0	0	1.5	1.3	2.0
62305	99	SPEED	SUR	50	0	2959	0	0	1.3	0.4	1.4
6301001	99	SPEED	SUR	64	5	743	0	0	1.2	0.0	1.2
6301003	99	SPEED	SUR	74	24	703	0	0	1.0	-0.2	1.0
6301004	99	SPEED	SUR	72	20	704	0	0	1.0	-0.5	1.2
63055	99	SPEED	SUR	61	2	1665	0	0	1.2	-0.8	1.4
63056	99	SPEED	SUR	60	2	1729	0	0	1.1	0.0	1.1
63057	99	SPEED	SUR	59	2	1726	0	0	1.5	-0.4	1.5
63058	99	SPEED	SUR	53	2	2208	0	0	1.2	-0.5	1.3
63101	99	SPEED	SUR	61	1	1728	0	0	1.2	-0.3	1.2
63103	99	SPEED	SUR	61	1	1727	0	0	1.2	-0.4	1.3
63104	99	SPEED	SUR	61	2	1724	0	0	1.1	-0.3	1.2
63106	99	SPEED	SUR	61	2	1464	0	0	1.7	-1.0	2.0
63108	99	SPEED	SUR	61	2	1667	0	0	1.3	-0.3	1.3
63109	99	SPEED	SUR	60	2	1631	0	0	1.2	-0.1	1.2
63110	99	SPEED	SUR	60	2	1729	0	0	1.1	-0.4	1.2
63112	99	SPEED	SUR	61	1	1729	0	0	1.1	-0.4	1.2
63115	99	SPEED	SUR	62	1	1723	0	0	1.4	-0.6	1.5
63117	99	SPEED	SUR	61	1	2291	0	0	1.3	-0.4	1.3
6401851	99	SPEED	SUR	63	-18	343	0	0	1.6	2.1	2.6
6401856	99	SPEED	SUR	66	-21	741	0	0	2.8	1.9	3.3
6401857	99	SPEED	SUR	63	-24	730	0	0	1.1	2.3	2.5
64041	99	SPEED	SUR	61	-3	1718	0	0	1.3	-0.3	1.3
64045	99	SPEED	SUR	59	-12	1729	0	0	1.1	0.9	1.5
6600021	99	SPEED	SUR	55	14	229	0	0	1.3	0.5	1.4
6600022	99	SPEED	SUR	54	14	229	0	0	1.5	0.3	1.5

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                : AUG 2021
                   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	394	0	0	31.0	-0.7	31.0
1300002	99	DIRN	SUR	20	-23	584	0	0	11.2	1.0	11.3
1300008	99	DIRN	SUR	15	-38	592	0	0	116.7	42.7	124.2
1300130	99	DIRN	SUR	28	-16	461	0	0	7.3	6.0	9.4
1300131	99	DIRN	SUR	28	-17	436	0	0	89.0	-34.0	95.2
4100001	99	DIRN	SUR	35	-72	3389	0	0	14.8	1.3	14.9
4100002	99	DIRN	SUR	32	-75	3248	0	0	22.0	4.5	22.5
4100004	99	DIRN	SUR	33	-79	3035	0	0	25.6	5.9	26.3
4100008	99	DIRN	SUR	31	-81	568	0	0	25.1	3.1	25.3
4100009	99	DIRN	SUR	29	-80	3080	0	0	23.0	7.1	24.1
4100010	99	DIRN	SUR	29	-78	3721	0	0	18.6	8.4	20.4
4100013	99	DIRN	SUR	33	-78	2834	0	0	29.0	2.3	29.1
4100024	99	DIRN	SUR	34	-78	468	0	0	34.4	-13.7	37.0
4100025	99	DIRN	SUR	35	-75	3338	0	0	29.1	7.3	30.0
4100029	99	DIRN	SUR	33	-80	448	0	0	25.2	5.9	25.8
4100033	99	DIRN	SUR	32	-80	531	0	0	21.9	4.6	22.3
4100037	99	DIRN	SUR	34	-77	472	0	0	29.4	9.5	30.9
4100038	99	DIRN	SUR	34	-78	481	0	0	27.3	-17.7	32.6
4100040	99	DIRN	SUR	15	-53	4035	0	0	9.6	7.3	12.1
4100043	99	DIRN	SUR	21	-65	4271	0	0	9.1	5.2	10.5
4100044	99	DIRN	SUR	22	-59	4002	0	0	8.7	6.7	11.0
4100046	99	DIRN	SUR	24	-68	3930	0	0	14.2	5.9	15.4
4100047	99	DIRN	SUR	27	-71	3710	0	0	14.8	8.0	16.9
4100048	99	DIRN	SUR	32	-70	3187	0	0	10.0	2.0	10.2
4100049	99	DIRN	SUR	27	-63	3835	0	0	12.6	6.5	14.2
4100052	99	DIRN	SUR	18	-65	4168	0	0	10.0	7.3	12.4
4100053	99	DIRN	SUR	18	-66	3559	0	0	13.5	4.9	14.3
4100056	99	DIRN	SUR	18	-65	4231	0	0	12.8	6.8	14.5
4100064	99	DIRN	SUR	34	-77	500	0	0	35.6	14.9	38.6
41001	99	DIRN	SUR	35	-72	5049	0	0	15.0	4.7	15.7
4100139	99	DIRN	SUR	20	-38	614	0	0	8.0	1.7	8.2
41002	99	DIRN	SUR	32	-75	4537	0	0	21.7	2.8	21.9

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
4100300	99	DIRN	SUR	16	-57	673	0	0	15.3	12.6	19.8
41004	99	DIRN	SUR	33	-79	4468	0	0	24.9	3.7	25.1
41008	99	DIRN	SUR	31	-81	1447	0	0	26.4	2.6	26.5
41009	99	DIRN	SUR	29	-80	4099	0	0	22.2	4.9	22.7
41010	99	DIRN	SUR	29	-79	5204	0	0	18.8	8.8	20.7
41013	99	DIRN	SUR	33	-78	3738	0	0	27.4	3.2	27.6
41024	99	DIRN	SUR	34	-79	888	0	0	37.8	-14.8	40.6
41025	99	DIRN	SUR	35	-76	4531	0	0	27.7	5.3	28.2
41029	99	DIRN	SUR	33	-80	1108	0	0	24.6	6.0	25.3
41033	99	DIRN	SUR	32	-80	941	0	0	21.9	4.3	22.3
41037	99	DIRN	SUR	34	-77	841	0	0	29.2	9.2	30.6
41038	99	DIRN	SUR	34	-78	865	0	0	28.6	-17.6	33.6
41040	99	DIRN	SUR	15	-53	4500	0	0	10.0	6.5	12.0
41043	99	DIRN	SUR	21	-65	4227	0	0	9.9	4.0	10.7
41044	99	DIRN	SUR	22	-59	3595	0	0	9.3	6.5	11.3
41046	99	DIRN	SUR	24	-68	5516	0	0	14.3	6.8	15.8
41047	99	DIRN	SUR	27	-72	5181	0	0	14.4	5.5	15.4
41048	99	DIRN	SUR	32	-70	4706	0	0	9.9	-1.0	10.0
41049	99	DIRN	SUR	28	-63	5149	0	0	13.3	6.3	14.8
41052	99	DIRN	SUR	18	-65	2758	0	0	10.4	6.5	12.2
41053	99	DIRN	SUR	19	-66	2536	0	0	12.9	4.5	13.7
41056	99	DIRN	SUR	18	-66	2801	0	0	13.3	6.9	15.0
41064	99	DIRN	SUR	34	-77	866	0	0	36.3	15.6	39.5
4200013	99	DIRN	SUR	27	-83	917	0	0	21.5	-0.5	21.5
4200022	99	DIRN	SUR	28	-84	955	0	0	21.1	-2.5	21.2
4200023	99	DIRN	SUR	26	-83	919	0	0	19.5	-5.5	20.2
4200026	99	DIRN	SUR	25	-83	914	0	0	19.0	-6.3	20.1
4200036	99	DIRN	SUR	29	-85	3133	0	0	19.0	1.8	19.1
4200056	99	DIRN	SUR	20	-85	3732	0	0	15.1	7.9	17.0
4200058	99	DIRN	SUR	14	-75	4403	0	0	10.4	3.9	11.1
4200059	99	DIRN	SUR	15	-67	4428	0	0	9.4	6.1	11.2
4200085	99	DIRN	SUR	18	-67	4077	0	0	15.4	9.4	18.1
42013	99	DIRN	SUR	27	-83	1223	0	0	21.6	-1.0	21.6
42022	99	DIRN	SUR	28	-84	1252	0	0	22.0	-2.9	22.2
42023	99	DIRN	SUR	26	-83	1378	0	0	19.5	-5.9	20.4
42026	99	DIRN	SUR	25	-84	1241	0	0	19.8	-6.7	20.9
42036	99	DIRN	SUR	29	-85	4056	0	0	19.5	0.5	19.5
42056	99	DIRN	SUR	20	-85	3644	0	0	15.0	7.5	16.8
42058	99	DIRN	SUR	14	-75	4274	0	0	10.5	-0.9	10.5
42059	99	DIRN	SUR	15	-68	4361	0	0	10.1	11.6	15.4
42085	99	DIRN	SUR	18	-67	3204	0	0	15.0	9.3	17.7

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
436	99	DIRN	SUR	44	-82	1	0	0	0.0	-8.7	8.7
4400005	99	DIRN	SUR	43	-69	444	0	0	20.8	15.6	26.0
4400007	99	DIRN	SUR	44	-70	2409	0	0	18.3	10.7	21.2
4400008	99	DIRN	SUR	41	-69	2969	0	0	13.7	9.2	16.5
4400009	99	DIRN	SUR	38	-75	2858	0	0	22.5	10.5	24.8
4400011	99	DIRN	SUR	41	-67	2678	0	0	21.3	11.2	24.0
4400013	99	DIRN	SUR	42	-71	2610	0	0	19.2	10.2	21.7
4400014	99	DIRN	SUR	37	-75	2906	0	0	31.7	9.0	33.0
4400017	99	DIRN	SUR	41	-72	3042	0	0	16.3	9.7	19.0
4400020	99	DIRN	SUR	41	-70	3640	0	0	16.9	4.6	17.5
4400022	99	DIRN	SUR	41	-74	128	0	0	29.4	2.6	29.5
4400024	99	DIRN	SUR	42	-66	475	0	0	15.3	9.0	17.7
4400027	99	DIRN	SUR	44	-67	487	0	0	17.7	8.4	19.6
4400029	99	DIRN	SUR	43	-71	480	0	0	18.3	-0.5	18.3
4400030	99	DIRN	SUR	43	-70	441	0	0	17.5	4.8	18.1
4400032	99	DIRN	SUR	44	-69	339	0	0	20.7	13.6	24.8
4400033	99	DIRN	SUR	44	-69	268	0	0	26.0	7.8	27.2
4400034	99	DIRN	SUR	44	-68	321	0	0	25.2	21.4	33.1
4400037	99	DIRN	SUR	43	-68	364	0	0	22.6	13.7	26.5
4400039	99	DIRN	SUR	41	-73	94	0	0	23.1	10.5	25.4
4400040	99	DIRN	SUR	41	-74	174	0	0	23.7	-0.6	23.7
4400041	99	DIRN	SUR	37	-77	118	0	0	62.6	50.3	80.3
4400042	99	DIRN	SUR	38	-76	1918	0	0	23.4	2.2	23.5
4400058	99	DIRN	SUR	38	-76	3043	0	0	35.8	2.9	35.9
4400062	99	DIRN	SUR	39	-76	2833	0	0	30.5	1.2	30.6
4400063	99	DIRN	SUR	39	-76	2625	0	0	28.9	2.4	29.0
4400065	99	DIRN	SUR	40	-74	3087	0	0	18.4	8.6	20.3
4400066	99	DIRN	SUR	40	-73	3335	0	0	16.3	7.8	18.0
4400072	99	DIRN	SUR	37	-76	3483	0	0	29.4	0.7	29.4
4400073	99	DIRN	SUR	43	-71	79	0	0	18.8	14.9	24.0
4400075	99	DIRN	SUR	40	-71	3043	0	0	16.7	-14.0	21.8
4400076	99	DIRN	SUR	40	-71	3269	0	0	14.8	-12.2	19.2
4400077	99	DIRN	SUR	40	-71	3337	0	0	15.1	-12.2	19.4
44005	99	DIRN	SUR	43	-69	1081	0	0	20.0	15.2	25.1
44007	99	DIRN	SUR	44	-70	3226	0	0	17.7	11.7	21.2
44008	99	DIRN	SUR	41	-69	3891	0	0	14.7	8.4	16.9
44009	99	DIRN	SUR	39	-75	3737	0	0	23.2	9.5	25.1
44011	99	DIRN	SUR	41	-67	3535	0	0	21.7	2.8	21.9
44013	99	DIRN	SUR	42	-71	3448	0	0	20.4	10.0	22.7
44014	99	DIRN	SUR	37	-75	3940	0	0	32.3	9.0	33.5
44017	99	DIRN	SUR	41	-72	3832	0	0	17.2	10.6	20.2

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44020	99	DIRN	SUR	42	-70	4880	0	0	17.8	5.1	18.5
44022	99	DIRN	SUR	41	-74	209	0	0	21.0	1.4	21.0
44024	99	DIRN	SUR	42	-66	1144	0	0	15.5	9.1	18.0
44027	99	DIRN	SUR	44	-67	1198	0	0	17.3	8.1	19.1
44029	99	DIRN	SUR	43	-71	1142	0	0	18.5	-0.7	18.5
44030	99	DIRN	SUR	43	-70	753	0	0	18.7	5.1	19.3
44032	99	DIRN	SUR	44	-69	588	0	0	24.2	12.3	27.2
44033	99	DIRN	SUR	44	-69	435	0	0	25.4	5.5	26.0
44034	99	DIRN	SUR	44	-68	525	0	0	26.4	22.1	34.4
44037	99	DIRN	SUR	44	-68	610	0	0	19.8	15.2	24.9
44039	99	DIRN	SUR	41	-73	160	0	0	22.8	8.2	24.2
44040	99	DIRN	SUR	41	-74	265	0	0	24.1	2.0	24.2
44041	99	DIRN	SUR	37	-77	149	0	0	61.3	56.9	83.7
44042	99	DIRN	SUR	38	-76	2647	0	0	24.5	1.3	24.6
44058	99	DIRN	SUR	38	-76	3722	0	0	35.1	4.0	35.3
44062	99	DIRN	SUR	39	-76	3815	0	0	28.6	1.5	28.6
44063	99	DIRN	SUR	39	-76	3265	0	0	30.0	3.0	30.2
44065	99	DIRN	SUR	40	-74	3921	0	0	19.8	7.8	21.3
44066	99	DIRN	SUR	40	-73	4794	0	0	16.2	7.8	18.0
44069	99	DIRN	SUR	41	-73	1587	0	0	19.5	0.9	19.5
44072	99	DIRN	SUR	37	-76	3864	0	0	30.6	1.6	30.7
44073	99	DIRN	SUR	43	-71	148	0	0	18.9	17.4	25.7
44075	99	DIRN	SUR	40	-71	3673	0	0	16.9	-14.4	22.2
44076	99	DIRN	SUR	40	-71	3860	0	0	15.8	-12.3	20.0
44077	99	DIRN	SUR	40	-71	3888	0	0	17.3	-12.3	21.3
44078	99	DIRN	SUR	60	-40	893	0	0	11.9	-20.3	23.6
44137	99	DIRN	SUR	42	-62	506	0	0	26.1	-15.7	30.5
44139	99	DIRN	SUR	44	-57	370	0	0	19.9	-1.9	19.9
44150	99	DIRN	SUR	43	-64	274	0	0	19.0	-37.0	41.6
44258	99	DIRN	SUR	45	-63	545	2	0	19.7	1.9	19.8
44488	99	DIRN	SUR	45	-61	603	0	0	18.9	13.5	23.2
44489	99	DIRN	SUR	46	-61	533	0	0	18.0	7.7	19.6
44490	99	DIRN	SUR	45	-66	662	0	0	19.6	10.4	22.1
4500003	99	DIRN	SUR	45	-83	3068	0	0	24.7	4.8	25.1
4500005	99	DIRN	SUR	42	-82	2479	0	0	31.4	5.5	31.8
4500008	99	DIRN	SUR	44	-82	2595	0	0	20.1	3.2	20.4
4500012	99	DIRN	SUR	44	-77	2633	0	0	21.8	11.5	24.7
4500162	99	DIRN	SUR	45	-83	1282	0	0	25.1	4.9	25.6
4500163	99	DIRN	SUR	44	-84	1423	0	0	27.3	2.4	27.4
4500165	99	DIRN	SUR	42	-83	2228	0	0	53.6	1.2	53.6
4500175	99	DIRN	SUR	46	-85	3131	0	0	23.9	-4.2	24.3

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4500196	99	DIRN	SUR	42	-82	1681	0	0	27.5	40.4	48.8
4500197	99	DIRN	SUR	42	-82	1789	0	0	35.1	-22.1	41.5
45003	99	DIRN	SUR	45	-83	3947	0	0	23.1	5.5	23.7
45005	99	DIRN	SUR	42	-82	3340	0	0	31.3	5.3	31.8
45008	99	DIRN	SUR	44	-82	3875	0	0	20.8	6.0	21.7
45012	99	DIRN	SUR	44	-77	3551	0	0	22.7	8.2	24.1
45132	99	DIRN	SUR	43	-81	502	0	0	26.0	-3.0	26.2
45135	99	DIRN	SUR	44	-77	518	0	0	20.8	6.5	21.8
45139	99	DIRN	SUR	43	-80	417	0	0	23.6	-0.6	23.6
45142	99	DIRN	SUR	43	-79	536	0	0	26.7	-6.1	27.4
45143	99	DIRN	SUR	45	-81	481	0	0	23.9	2.2	24.0
45147	99	DIRN	SUR	42	-83	447	0	0	29.8	15.6	33.7
45149	99	DIRN	SUR	44	-82	429	0	0	26.1	3.9	26.4
45151	99	DIRN	SUR	45	-79	352	0	0	22.7	3.0	22.9
45152	99	DIRN	SUR	46	-80	403	0	0	15.8	-11.1	19.3
45154	99	DIRN	SUR	46	-83	547	0	0	20.7	1.2	20.8
45159	99	DIRN	SUR	44	-79	404	0	0	21.3	5.3	22.0
45162	99	DIRN	SUR	45	-83	1496	0	0	24.7	4.7	25.1
45163	99	DIRN	SUR	44	-84	1958	0	0	26.3	2.8	26.5
45165	99	DIRN	SUR	42	-83	2654	0	0	52.1	1.2	52.1
45175	99	DIRN	SUR	46	-85	4389	0	0	26.5	-3.9	26.8
45196	99	DIRN	SUR	42	-82	2394	0	0	28.3	40.6	49.5
45197	99	DIRN	SUR	42	-82	2797	0	0	35.7	-23.7	42.9
6100198	99	DIRN	SUR	37	-2	455	0	0	23.2	-9.2	25.0
6100281	99	DIRN	SUR	40	0	296	0	0	39.4	-10.2	40.7
6100417	99	DIRN	SUR	38	0	498	0	0	16.4	-0.6	16.4
6200024	99	DIRN	SUR	44	-3	372	0	0	19.1	0.5	19.1
6200025	99	DIRN	SUR	44	-6	496	0	0	12.9	-2.6	13.1
6200082	99	DIRN	SUR	44	-8	602	0	0	10.2	0.4	10.2
6200083	99	DIRN	SUR	43	-9	542	0	0	14.8	1.7	14.9
6200084	99	DIRN	SUR	42	-9	436	0	0	10.1	0.1	10.1
6200085	99	DIRN	SUR	36	-7	397	0	0	18.7	5.4	19.5
6200091	99	DIRN	SUR	53	-5	533	0	0	14.3	3.1	14.7
6200092	99	DIRN	SUR	51	-11	624	0	0	11.7	4.1	12.4
6200093	99	DIRN	SUR	55	-10	563	0	0	17.9	6.8	19.1
6200094	99	DIRN	SUR	52	-7	631	0	0	12.2	-4.7	13.0
6200095	99	DIRN	SUR	53	-16	686	0	0	13.0	0.7	13.0
62001	99	DIRN	SUR	45	-5	1404	0	0	11.2	1.8	11.4
6200192	99	DIRN	SUR	40	-10	233	0	0	10.2	0.5	10.2
6200200	99	DIRN	SUR	36	-8	565	0	0	153.0	-79.0	172.2
6201030	99	DIRN	SUR	44	-4	439	0	0	12.4	-1.5	12.5

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62023	99	DIRN	SUR	51	-8	262	0	0	16.6	3.6	17.0
62029	99	DIRN	SUR	49	-12	1579	0	0	10.8	-8.2	13.6
62081	99	DIRN	SUR	51	-13	1541	0	0	13.9	-5.8	15.1
62091	99	DIRN	SUR	53	-5	511	0	0	15.1	2.1	15.2
62092	99	DIRN	SUR	51	-11	594	0	0	11.4	3.3	11.9
62093	99	DIRN	SUR	55	-10	534	0	0	17.8	6.7	19.0
62094	99	DIRN	SUR	52	-7	601	0	0	11.3	-5.3	12.5
62095	99	DIRN	SUR	53	-16	659	0	0	13.0	-0.0	13.0
62103	99	DIRN	SUR	50	-3	1453	0	0	17.7	9.2	20.0
62107	99	DIRN	SUR	50	-6	2040	0	0	13.2	3.1	13.6
62112	99	DIRN	SUR	58	0	1458	0	0	14.5	-3.5	14.9
62114	99	DIRN	SUR	58	0	3542	0	0	13.0	-0.9	13.0
62305	99	DIRN	SUR	50	0	2635	0	0	13.0	3.9	13.6
6401851	99	DIRN	SUR	63	-18	120	0	0	51.5	1.6	51.5
6401856	99	DIRN	SUR	66	-21	219	0	0	55.1	-1.3	55.1
6401857	99	DIRN	SUR	63	-24	497	0	0	17.7	0.4	17.7
64041	99	DIRN	SUR	61	-3	1370	0	0	13.7	9.5	16.7
64045	99	DIRN	SUR	59	-12	1141	0	0	14.2	-6.5	15.6

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE09	ATGU3FT	BPMWB2N	DSQL7	FPUW5GN	HTXUH4H	JNKN7JF	KJJF9XN	KMPLHPW
LRYQE3U	SMLQ	UXK5JTU	VKB4L5Q	WDK38HS	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM
2EERVTP	4DC8UUK	7JUNA4N	01001	01004	01010	01028	01241	01400
01415	01492	02365	02527	02836	02963	03005	03023	03238
03354	03502	03743	03808	03882	03953	04018	04089	04220
04270	04320	04339	04360	06011	06260	06458	06610	07110
07145	07510	07645	07761	08001	08023	08190	08221	08302
08383	08430	08508	08522	08536	10035	10113	10184	10238
10304	10393	10410	10548	10618	10739	10771	10868	10954
10962	11010	11035	11120	11240	11520	11747	11952	12120
12374	12425	12843	12982	13275	13388	14015	14240	14430
15420	15614	16045	16064	16113	16144	16245	16332	16429
16546	16622	16716	16754	17030	17095	17130	17196	17220
17240	17351	17607	20674	22008	23205	23472	23884	24908
26038	26435	26708	26850	27459	27707	27713	28225	28661
29612	29698	30673	33041	37789	40179	40186	43599	45004
47102	47104	47138	47155	47169	47186	47401	47412	47418
47582	47600	47646	47678	47741	47778	47807	47827	47909
47918	47945	47971	47991	48698	50527	50557	50774	50953
51076	51243	51431	51463	51644	51656	51709	51777	51828
51839	52203	52267	52323	52418	52533	52652	52681	52818
52836	52866	52983	53068	53463	53513	53543	53614	53772
53845	53915	54102	54135	54161	54218	54292	54374	54511
54662	54727	54857	55299	55591	56029	56046	56080	56137
56146	56187	56492	56571	56651	56691	56739	56778	56964
56985	57083	57127	57131	57178	57245	57447	57461	57494
57516	57687	57749	57816	57957	57972	57993	58027	58150
58203	58238	58362	58424	58457	58606	58633	58665	58725
58847	59023	59134	59211	59265	59280	59293	59316	59431
59758	59981	60018	60096	60155	60390	60571	60630	60656
60680	61660	61901	61980	61998	63985	68263	68424	68442
68512	68816	70026	70133	70200	70219	70231	70261	70308
70316	70326	70350	70361	70398	71043	71081	71082	71109
71119	71603	71722	71802	71811	71815	71816	71823	71836
71845	71867	71906	71907	71908	71909	71913	71917	71924
71926	71934	71945	71957	72206	72208	72210	72214	72215
72230	72233	72235	72240	72248	72249	72250	72251	72261
72265	72274	72293	72305	72317	72327	72340	72363	72364
72365	72376	72388	72413	72426	72440	72451	72476	72489
72493	72501	72518	72520	72528	72558	72562	72572	72582
72597	72632	72634	72645	72649	72659	72662	72672	72694
72712	72764	72768	72776	72786	72797	73033	73110	74389
74560	76225	76256	76394	76405	76458	76526	76595	76612
76644	76654	76679	76692	76743	76805	76903	78897	78954
81405	83768	85442	85586	85799	85934	87155	87344	87576
87623	87860	88889	89002	89062	89564	89571	89592	89611
89625	89642	89859	91165	91212	91285	91592	91610	91765
91925	91938	91948	91958	93112	93417	93817	93844	94120
94150	94170	94203	94299	94302	94312	94326	94332	94374
94403	94430	94461	94510	94578	94610	94637	94638	94653
94659	94672	94711	94767	94776	94802	94821	94866	94910
94975	94995	94996	94998	95527	96996			

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

ASDE09	ATGU3FT	BPMWB2N	DSQL7	FPUW5GN	HTXUH4H	JNKN7JF	KJJF9XN	KMPLHPW
LRYQE3U	SMLQ	UXK5JTU	VKB4L5Q	WDK38HS	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM
2EERVTP	4DC8UUK	7JUNA4N	01001	01004	01010	01028	01241	01400
01415	01492	02365	02527	02836	02963	03953	06610	07110
07145	07510	07645	07761	08001	08023	08190	08221	08302
08383	08430	08536	11010	11035	11120	11240	17607	40186
47155	51243	51656	52652	53543	56046	56492	56651	57245
59023	59293	61980	61998	72413	76743	76903	78897	81405
89642	89859	91592	91938	93817	94653	94767		

5 Annex - Explanations of figures and tables

5.1 General

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

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

5.2 Data Availability

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

5.3 Data Quality

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

It should be noted that:

(i) all results are based on software that may undergo further development;

(ii) although the quality of the ECMWF first-guess fields is of a generally high standard this is only true to a limited extent in the tropics, where small-scale processes such as convection are of much greater importance than in mid-latitudes, and the observations will sometimes not be representative of the scales of motion given by the first-guess;

(iii) the first-guess fields themselves will vary in accuracy depending on the density and quality of data, particularly in the upstream regions and over Antarctica and the southern hemisphere mid-latitudes. Direct comparisons between stations (or airlines) should preferably be restricted to observations in a reasonably homogeneous climatic region.

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

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

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

The corresponding limits for wind (table 8) are:

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

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

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

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

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

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

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

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

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