ECMWF Global Data Monitoring Report

December 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	Nov	Dec	Ident	Time	Nov	Dec
17220	(12)	23	11	24908	(12)	6	31
27713	(00)	28	1	30230	(00)	13	31
27713	(12)	29	1	30230	(12)	12	30
30673	(00)	15	4	37789	(00)	1	30
43599	(12)	29	16	42182	(12)	18	30
48381	(00)	16	0	42369	(00)	0	19
63894	(12)	22	0	42379	(00)	0	17
65578	(00)	11	0	42971	(00)	15	30
71701	(12)	16	0	43150	(00)	17	31
71934	(12)	30	18	43466	(12)	0	12
74006	(00)	14	0	47104	(00)	0	31
76595	(00)	13	0	47104	(12)	0	31
76595	(12)	24	3	47138	(00)	1	31
76679	(00)	22	10	47138	(12)	0	31
78866	(00)	28	14	61980	(12)	0	17
78866	(12)	27	13	64400	(00)	17	28
78897	(00)	28	2	64400	(12)	11	25
80001	(00)	23	0	65344	(12)	0	12
80001	(12)	28	8	71964	(00)	11	31
83827	(00)	30	11	71964	(12)	9	31
83827	(12)	29	14	76225	(00)	2	27
87155	(12)	26	11	76225	(12)	3	25
87576	(12)	29	14	83525	(12)	9	21
87860	(12)	29	13	83649	(12)	10	22
98646	(12)	28	14	96035	(12)	0	30
-	-	-	-	96147	(12)	0	29
-	-	-	-	96163	(12)	0	31
-	-	-	-	96237	(12)	0	31
-	-	-	-	96253	(12)	0	29
-	-	-	-	96509	(12)	0	24
-	-	-	-	96581	(12)	3	27
-	-	-	-	96645	(12)	0	25
-	-	-	-	96685	(12)	0	31
-	-	-	-	96749	(12)	0	29
-	-	-	-	96805	(12)	0	23
-	-	-	-	96935	(12)	0	29
-	-	-	-	97014	(12)	0	29
-	-	-	-	97072	(12)	1	31
-	-	-	-	97180	(12)	0	30
-	-	-	-	97372	(12)	0	27
-	-	-	-	97560	(12)	0	31
-	-	-	-	97724	(12)	0	28
-	-	-	-	97900	(12)	1	30
-	-	-	-	97980	(12)	0	30

2.2 Drifting Buoys

Surface pressure observations from **1804** 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

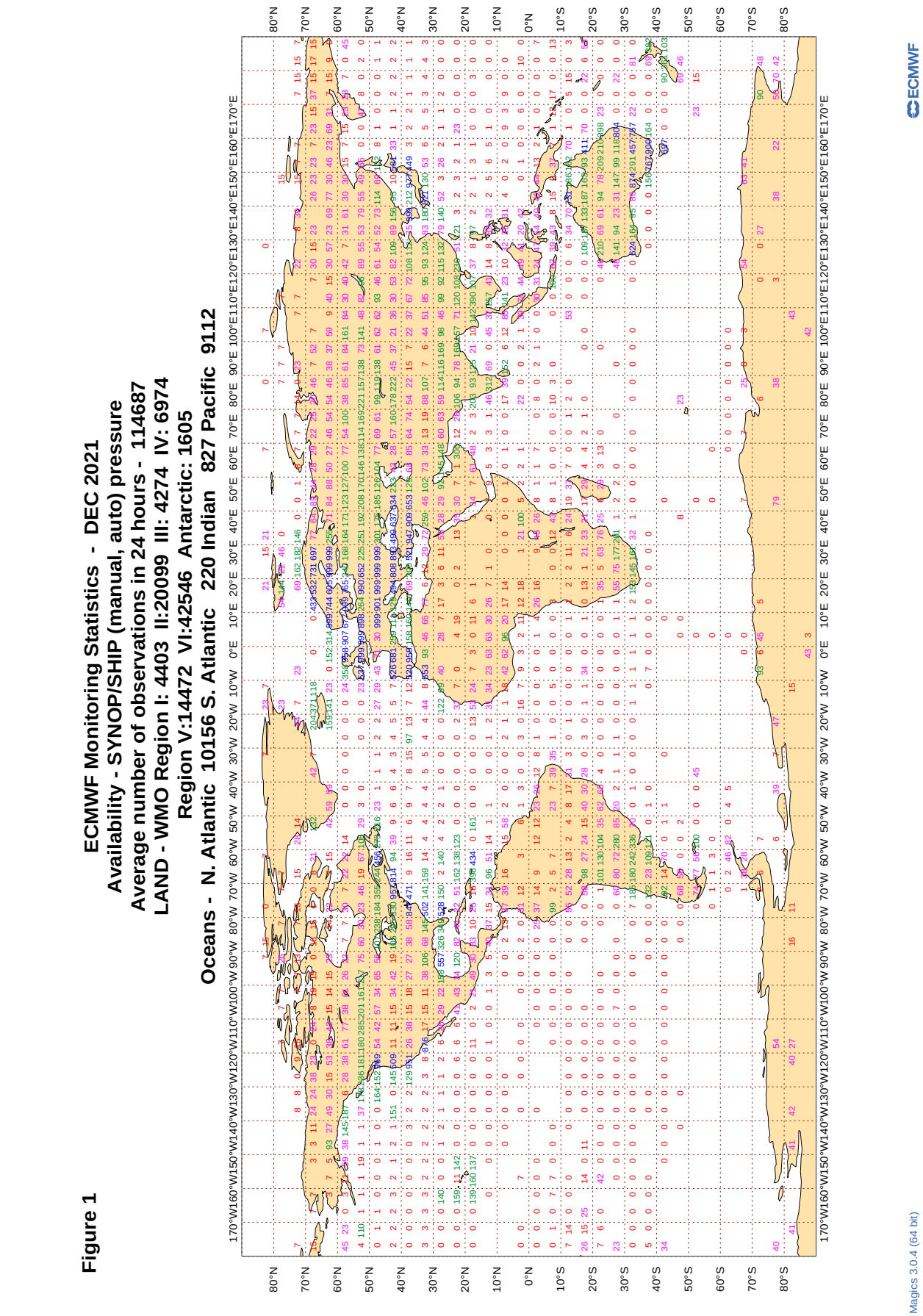


Figure 1

3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

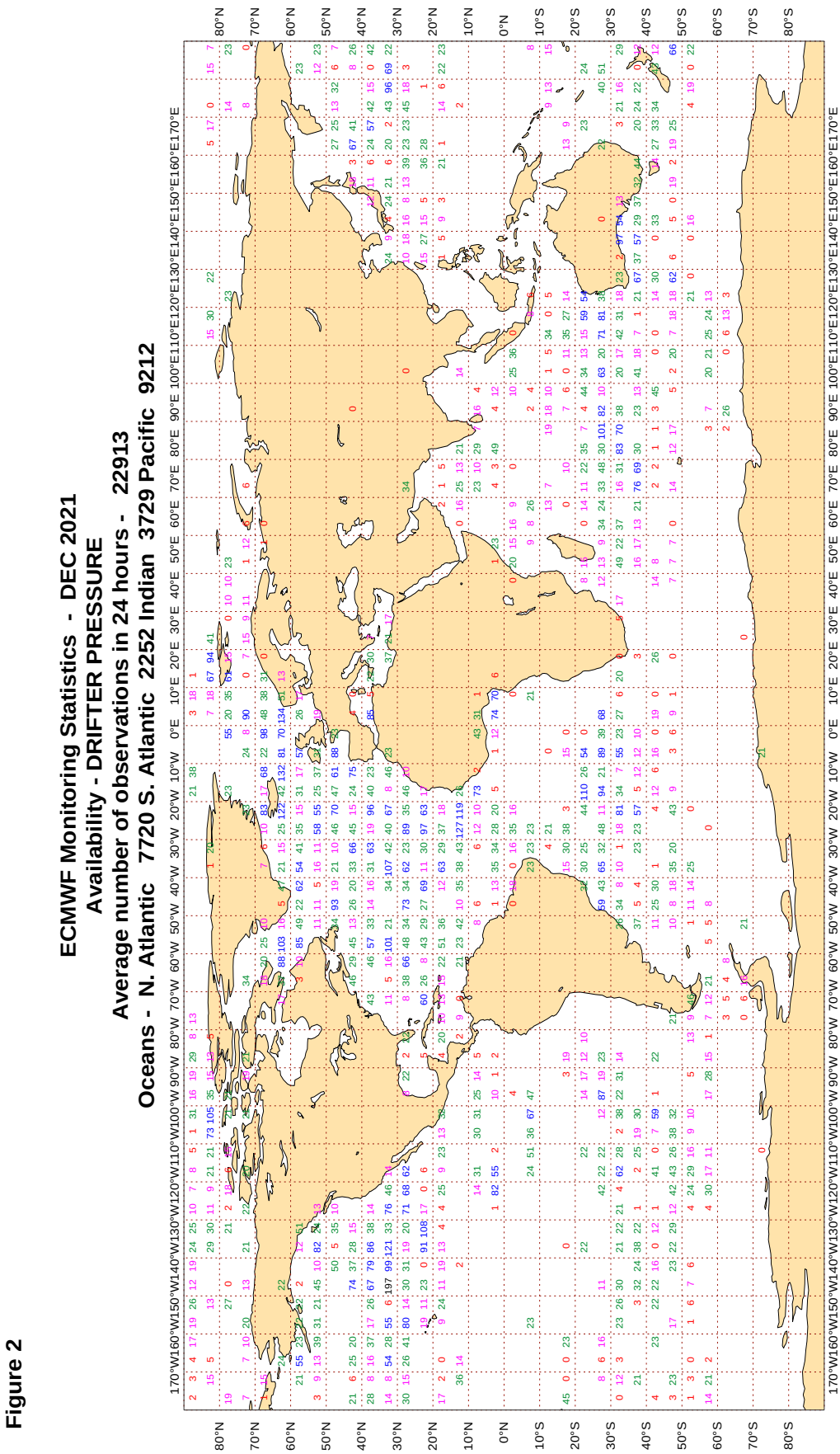


Figure 2

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

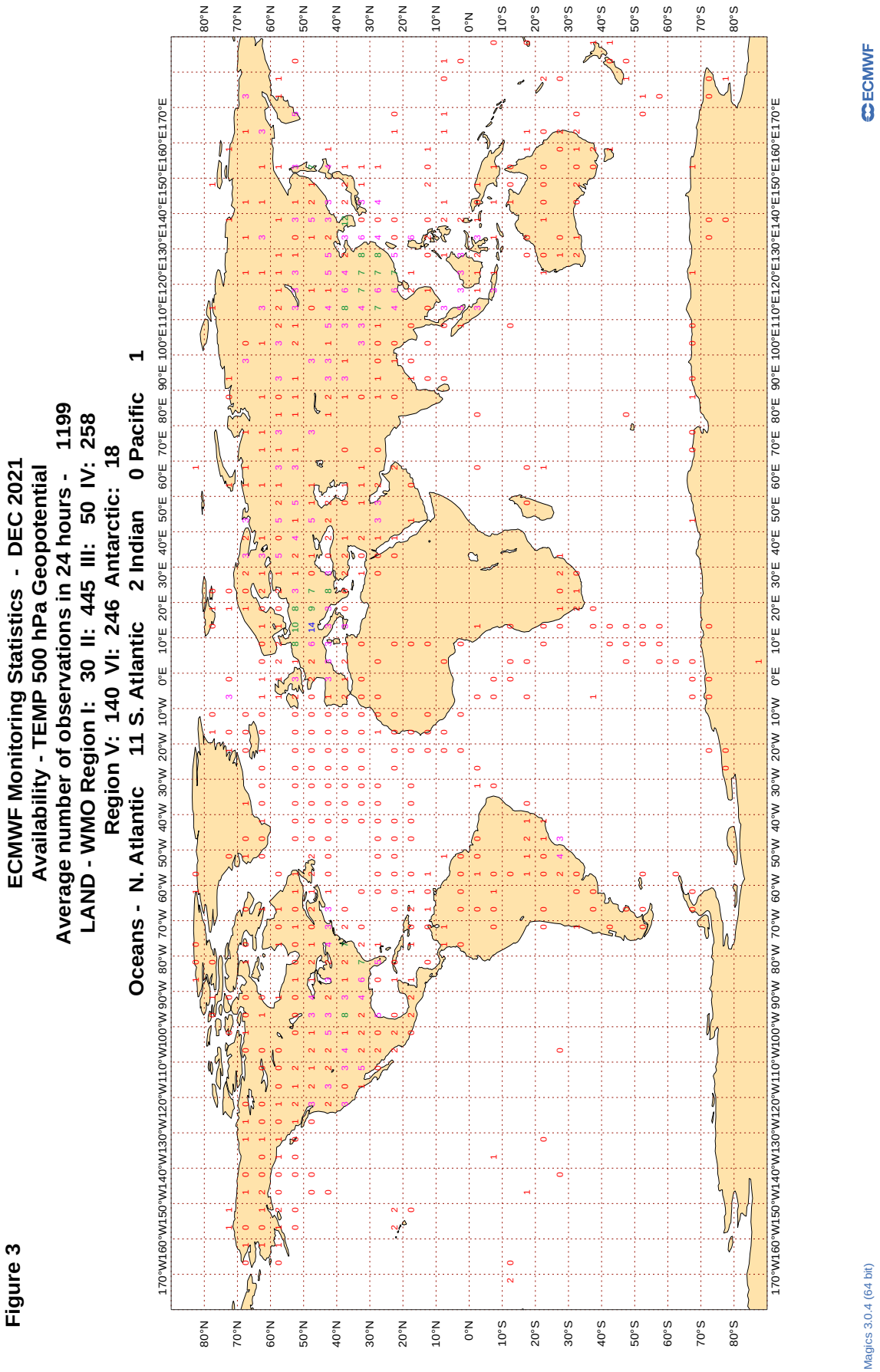


Figure 3

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

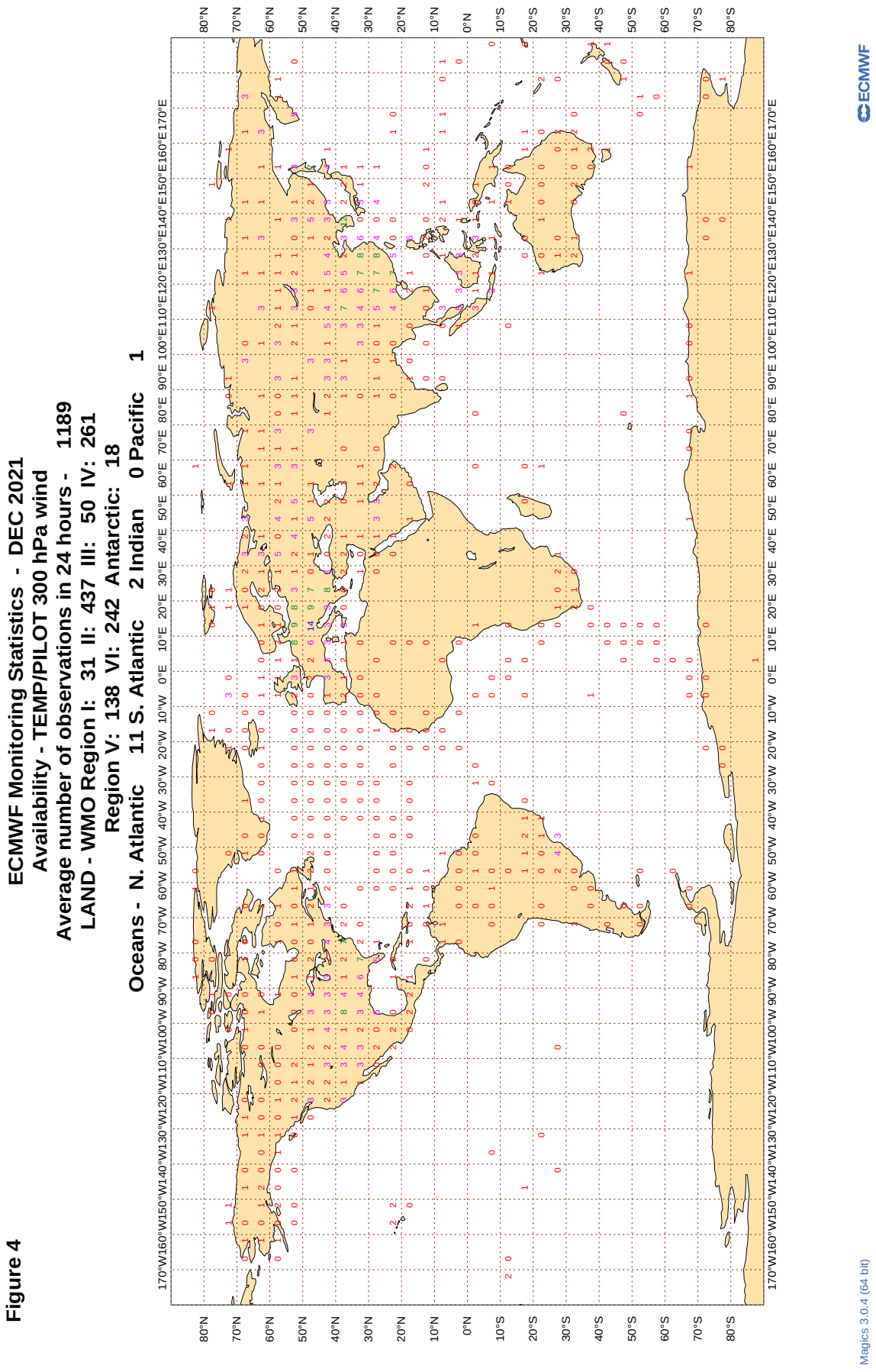


Figure 4

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

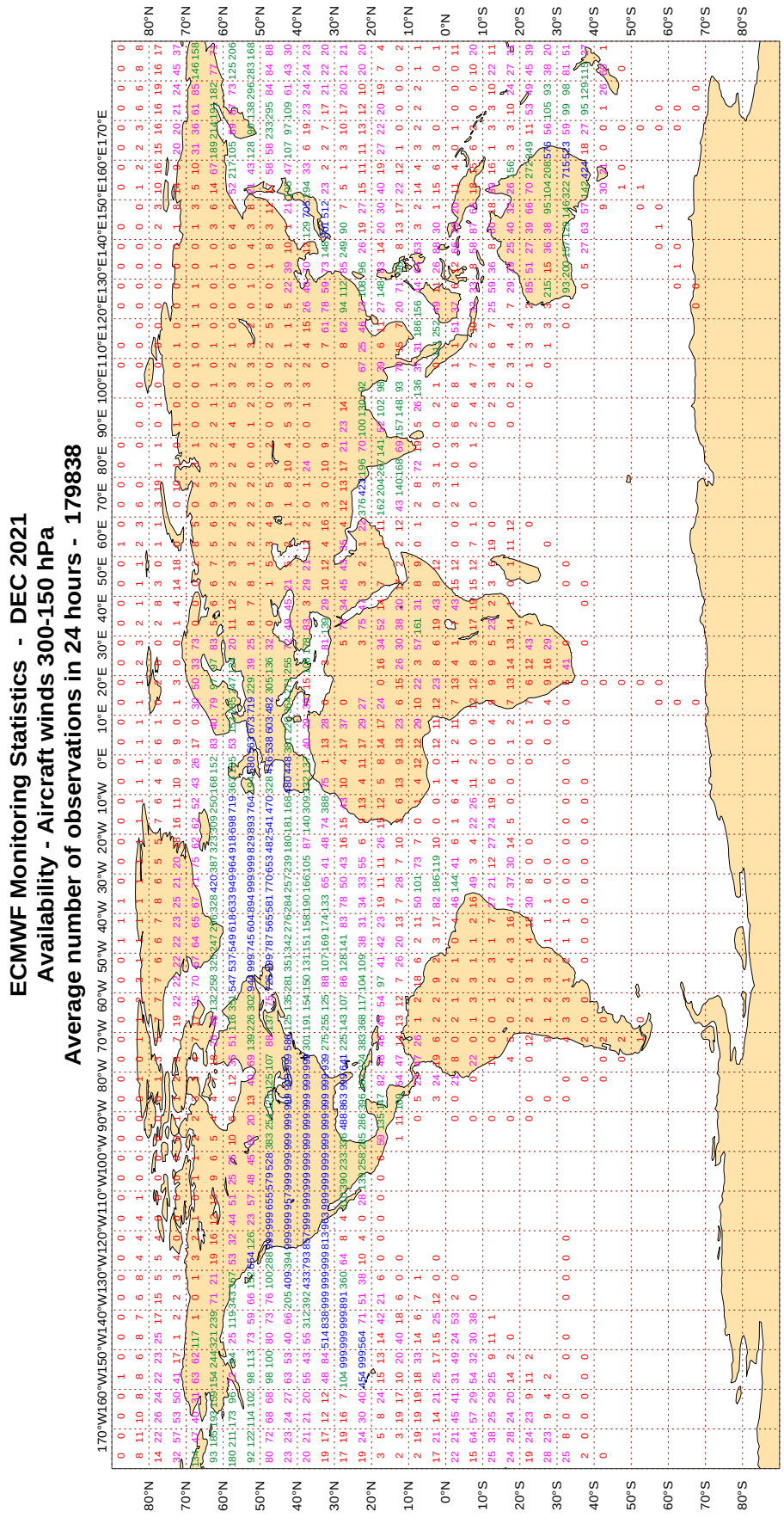


Figure 5

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

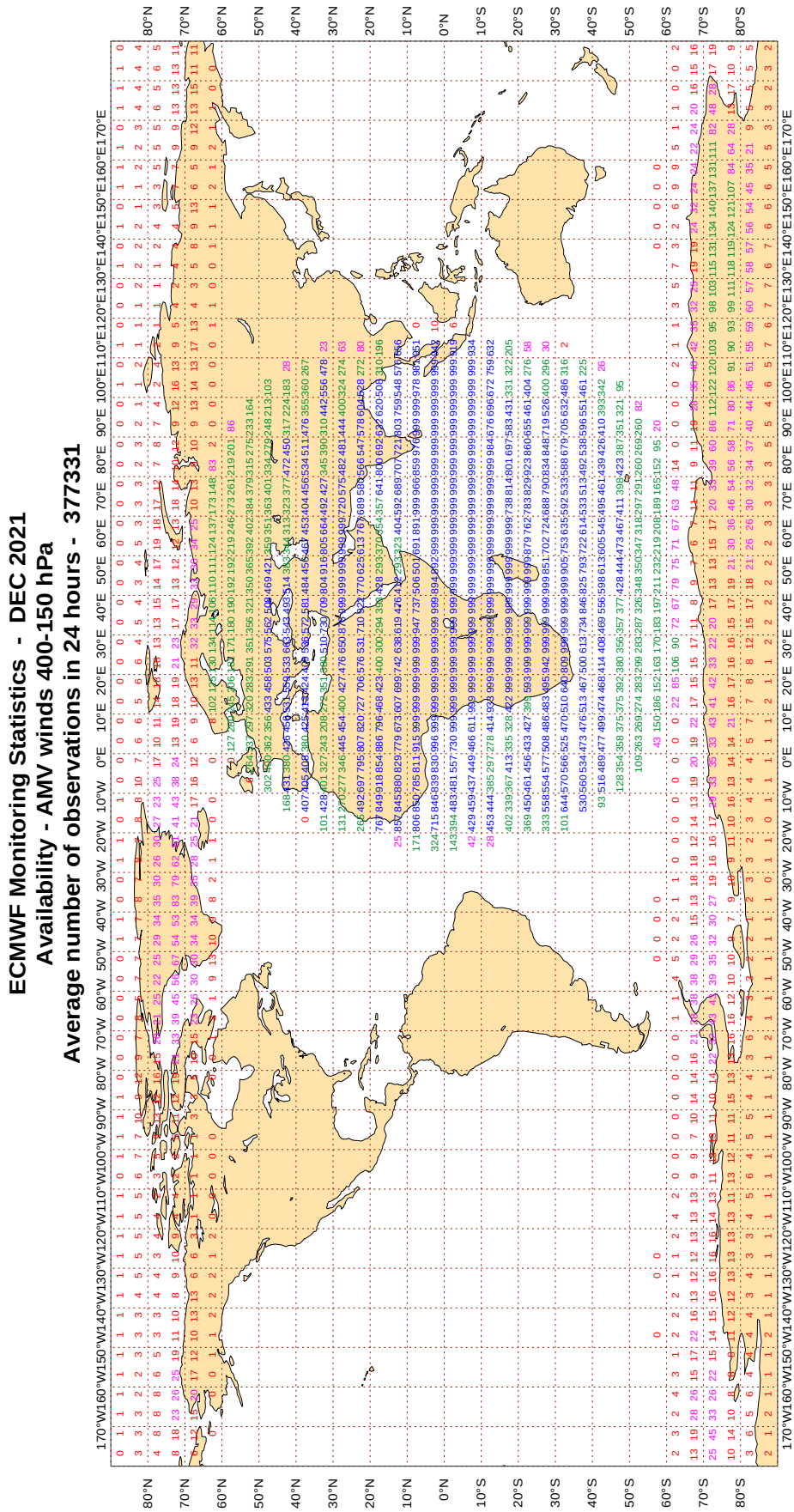


Figure 6

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

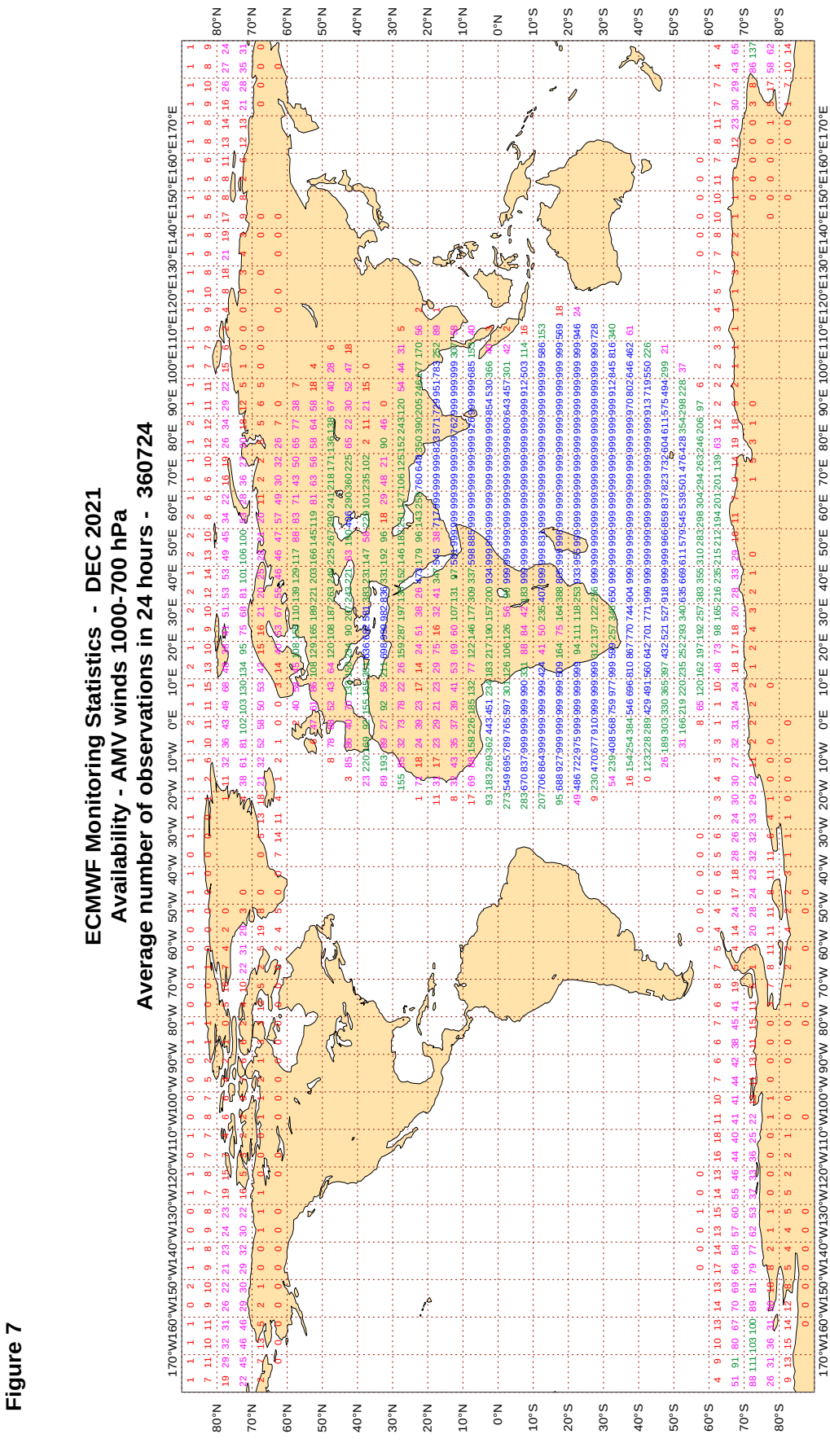


Figure 7

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

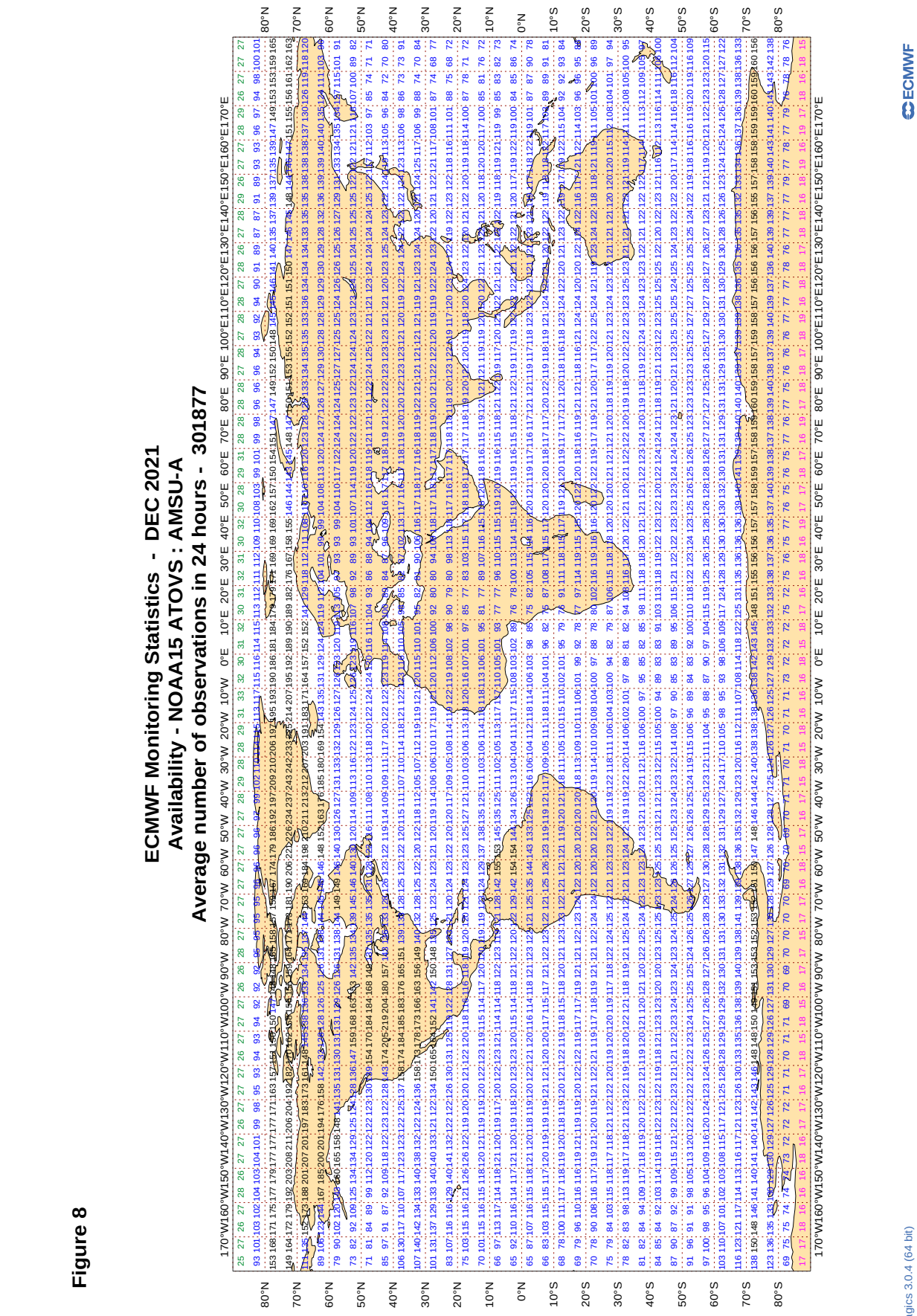
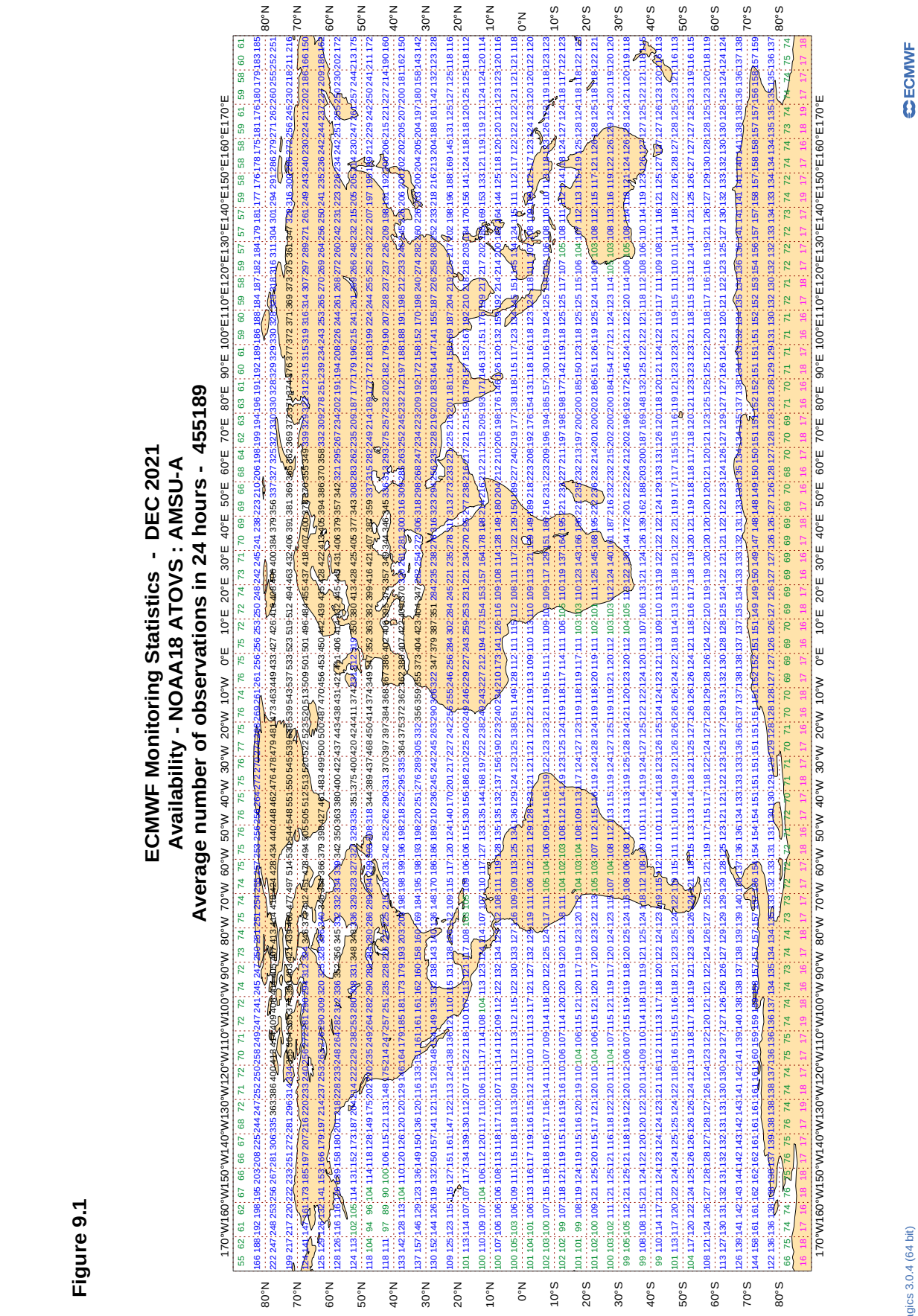


Figure 8

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

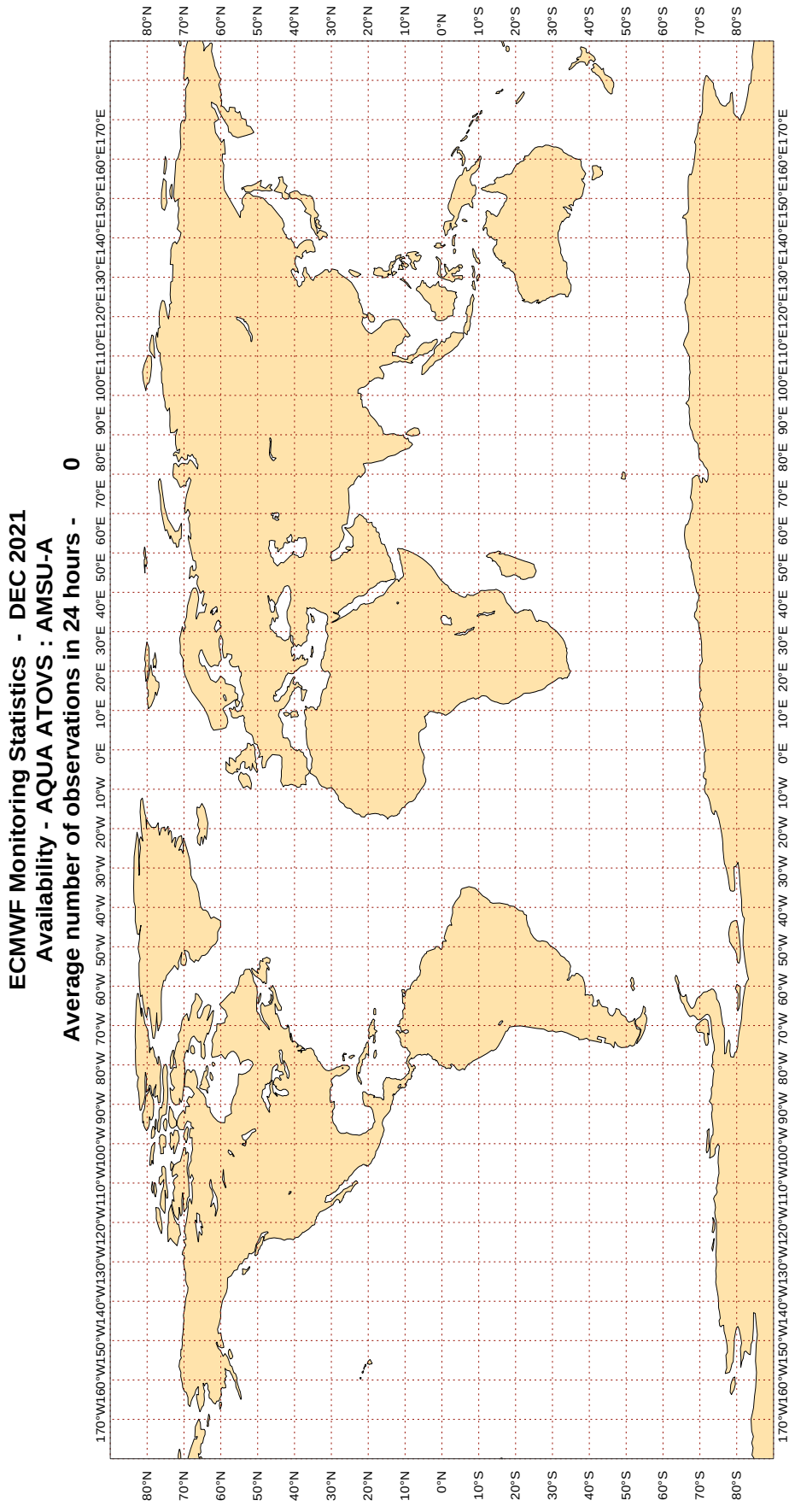


Figure 9.2

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

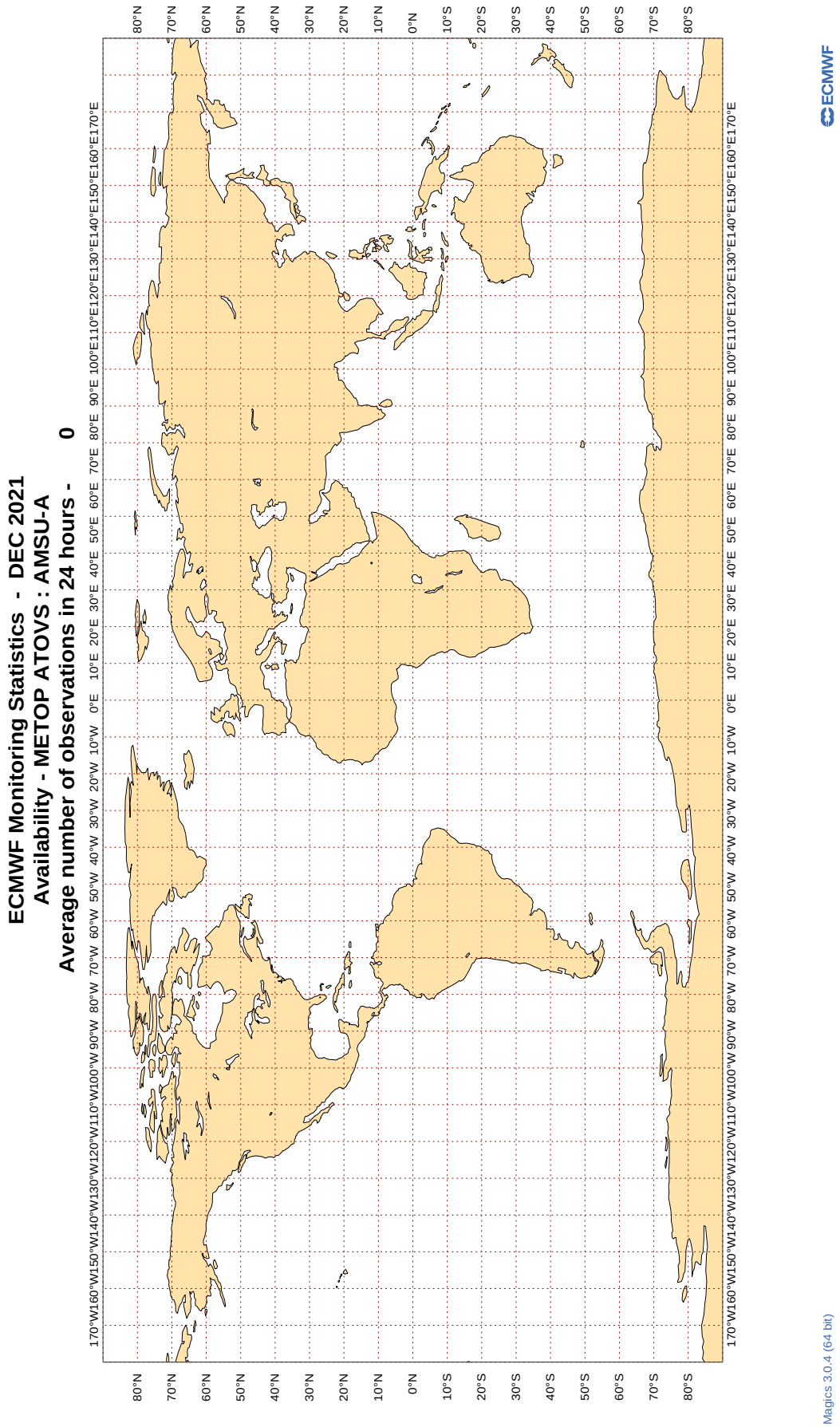


Figure 9.3

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                : DEC 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
3EVK3	99	P	SUR	63	0	0.9	-4.6	4.7
3FWH8	99	P	SUR	37	0	1.3	6.0	6.2
4XFC	99	P	SUR	34	1	1.3	6.9	7.0
9HA2583	99	P	SUR	34	0	2.2	-4.7	5.2
9HA5197	99	P	SUR	22	0	2.0	5.3	5.6
9V3912	99	P	SUR	15	0	1.4	4.1	4.3
9V6416	99	P	SUR	21	0	0.6	5.3	5.4
9V9401	99	P	SUR	60	0	1.5	-5.2	5.4
9V9404	99	P	SUR	65	0	2.2	3.5	4.2
9V9793	99	P	SUR	33	0	1.3	4.5	4.7
A8PQ3	99	P	SUR	22	0	5.1	3.9	6.4
ATVK	99	P	SUR	138	58	8.8	-0.8	8.8
AVFX	99	P	SUR	154	0	0.3	4.3	4.3
BKIC	99	P	SUR	35	0	1.8	3.9	4.3
BNSK	99	P	SUR	55	54	0.0	2.2	2.2
C6AV5	99	P	SUR	31	0	1.0	-5.8	5.8
C6LG6	99	P	SUR	94	0	0.9	-4.4	4.5
C6TQ6	99	P	SUR	19	0	0.6	-8.4	8.5
H3BL	99	P	SUR	20	0	2.9	5.5	6.2
JMJRCES	99	P	SUR	68	1	1.3	-6.2	6.3
KIAB	99	P	SUR	16	0	0.9	3.3	3.4
LAHR7	99	P	SUR	83	0	1.9	3.9	4.4
LANT5	99	P	SUR	17	0	0.7	3.0	3.1
LAQM7	99	P	SUR	18	0	1.3	4.9	5.0
LAQN7	99	P	SUR	24	0	2.4	-3.6	4.4
LAVD4	99	P	SUR	33	0	0.6	3.1	3.1
LAZU5	99	P	SUR	35	0	0.5	3.4	3.4
LOCW	99	P	SUR	56	2	2.7	-4.6	5.3
MJKZ4	99	P	SUR	23	0	0.6	3.9	3.9
NWS1968	99	P	SUR	176	0	1.7	3.1	3.5
ONGI	99	P	SUR	17	0	4.4	-3.9	5.9
ONJL	99	P	SUR	24	0	2.7	3.4	4.3

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
PBGJ	99	P	SUR	26	0	1.5	-5.9	6.1
SJA4RSK	99	P	SUR	118	45	4.3	-5.3	6.8
TBWUK62	99	P	SUR	23	0	1.7	3.5	3.9
UASX	99	P	SUR	20	0	2.1	-4.5	5.0
UBM09	99	P	SUR	18	0	1.8	-4.8	5.1
UBRI5	99	P	SUR	28	0	1.7	-3.1	3.6
UBSH	99	P	SUR	106	32	6.9	-2.3	7.3
UBSW9	99	P	SUR	72	18	6.1	-7.1	9.4
UIFY	99	P	SUR	16	0	2.2	-5.5	5.9
V7A2557	99	P	SUR	40	0	0.7	11.4	11.5
V7FV9	99	P	SUR	127	0	0.9	-3.6	3.7
V7TM3	99	P	SUR	25	0	1.7	-3.8	4.2
V7TN7	99	P	SUR	23	0	1.0	-4.0	4.1
VDBA	99	P	SUR	26	9	5.0	-0.9	5.1
VRAR6	99	P	SUR	32	0	0.8	10.2	10.3
VRDB3	99	P	SUR	21	0	0.6	-4.1	4.2
VRFU8	99	P	SUR	59	0	1.9	-3.7	4.2
VRFX2	99	P	SUR	45	0	1.5	-4.0	4.2
VRLJ3	99	P	SUR	21	0	0.9	4.3	4.4
VROO4	99	P	SUR	16	0	0.6	5.1	5.1
VRRB6	99	P	SUR	29	0	1.4	-5.1	5.3
VRTX7	99	P	SUR	23	0	2.1	-3.0	3.7
VTSJ	99	P	SUR	134	76	6.7	-2.1	7.0
VWXS	99	P	SUR	116	0	1.6	-4.5	4.8
WDDI	99	P	SUR	46	0	0.7	3.1	3.1
WDL6768	99	P	SUR	28	3	1.8	-3.2	3.7
WRJP	99	P	SUR	28	0	0.8	4.7	4.8

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                : DEC 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
46181	99	SPEED	SUR	120	0	0	3.0	6.4	7.1
46184	99	SPEED	SUR	77	0	0	3.6	-9.6	10.3

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                : DEC 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
46303	99	DIRN	SUR	74	0	0	31.0	45.4	54.9

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                 : DEC 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
0022958	99	P	SUR	33	123	677	677	0.0	0.0	0.0
1601575	99	P	SUR	-38	141	44	0	1.8	8.0	8.2
4101846	99	P	SUR	-1	-47	25	0	0.3	-4.9	4.9
4402724	99	P	SUR	64	-74	164	57	0.7	-0.3	0.8
4602731	99	P	SUR	52	-131	210	33	4.1	9.1	10.0
4701658	99	P	SUR	72	-95	645	645	0.0	0.0	0.0
4701735	99	P	SUR	72	-120	668	668	0.0	0.0	0.0
4701738	99	P	SUR	70	-67	689	689	0.0	0.0	0.0
4701739	99	P	SUR	68	-60	532	303	5.1	-0.5	5.1
4701744	99	P	SUR	80	-100	719	719	0.0	0.0	0.0
4801670	99	P	SUR	86	-158	710	442	8.9	-1.9	9.1
4801753	99	P	SUR	70	-178	711	410	1.9	0.9	2.1
4801760	99	P	SUR	85	-160	505	4	4.1	-6.0	7.3
6101009	99	P	SUR	35	25	41	17	0.8	-0.5	0.9
6200200	99	P	SUR	36	-8	79	0	1.5	-4.5	4.7
6301511	99	P	SUR	50	-33	710	0	1.5	7.6	7.8
6402656	99	P	SUR	61	-42	642	5	3.0	8.2	8.7

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                : DEC 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
46181	99	SPEED	SUR	54	-129	840	0	0	3.0	6.3	7.0
46184	99	SPEED	SUR	54	-139	498	0	0	3.8	-9.6	10.3
46185	99	SPEED	SUR	52	-130	57	0	0	2.5	-6.2	6.7

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

```
          LIST OF SUSPECT STATIONS         : DRIFTER
                    MONITORING CENTRE      : ECMWF
                    ELEMENT MONITORED      : WIND DIRECTION (DEGREES)
                    PERIOD                 : DEC 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	601	0	0	94.9	49.8	107.2
1300131	99	DIRN	SUR	28	-17	427	0	0	63.3	-79.7	101.8
2200102	99	DIRN	SUR	35	126	543	0	0	27.2	-25.0	37.0
2200298	99	DIRN	SUR	35	125	695	0	0	13.4	-49.3	51.1
23095	99	DIRN	SUR	10	94	180	0	0	52.4	38.8	65.2
23491	99	DIRN	SUR	12	93	201	0	0	39.0	83.2	91.9
3200315	99	DIRN	SUR	5	-110	141	0	0	63.2	-73.1	96.6
32315	99	DIRN	SUR	5	-110	141	0	0	63.6	-72.9	96.7
4600080	99	DIRN	SUR	58	-150	630	14	0	44.3	33.7	55.7
46080	99	DIRN	SUR	58	-150	1158	19	0	45.6	32.5	56.0
46303	99	DIRN	SUR	49	-123	504	0	0	31.2	47.7	57.0
5100307	99	DIRN	SUR	8	-125	469	0	0	48.4	-26.6	55.3
51307	99	DIRN	SUR	8	-125	447	0	0	47.5	-26.5	54.4
5200001	99	DIRN	SUR	2	165	582	0	0	17.5	22.5	28.5
5200007	99	DIRN	SUR	-8	165	434	0	0	39.6	45.0	60.0
52001	99	DIRN	SUR	2	165	563	0	0	17.8	22.5	28.7
52007	99	DIRN	SUR	-8	165	421	0	0	40.1	45.7	60.8
6101009	99	DIRN	SUR	35	25	32	0	0	62.0	-22.0	65.8
6200086	99	DIRN	SUR	55	6	339	0	0	12.8	23.5	26.8
6200200	99	DIRN	SUR	36	-8	95	0	0	168.8	-34.3	172.3
6301003	99	DIRN	SUR	74	24	632	0	0	15.4	21.8	26.7
6301004	99	DIRN	SUR	72	20	70	0	0	146.1	51.4	154.9
6600022	99	DIRN	SUR	54	14	26	4	0	12.1	-119.9	120.5

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                : DEC 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	00	Z	1000	57	3	28	0	5.5	75.0	75.2
01400	12	Z	1000	57	3	29	0	5.5	75.1	75.3
43150	00	Z	1000	18	83	31	0	0.0	59.5	59.5
76394	00	Z	200	26	-100	14	0	86.6	42.9	96.6
98223	00	Z	30	18	121	24	1	56.9	181.7	190.4
98233	12	Z	1000	18	122	22	0	31.1	26.9	41.1
98233	00	Z	1000	18	122	22	0	30.0	30.2	42.6
98558	12	Z	1000	11	126	14	1	12.3	57.3	58.6
KMPLHP	12	Z	1000	41	-67	11	0	15.4	52.6	54.8
KMPLHP	00	Z	1000	39	-71	10	0	12.7	53.4	54.9
XKQLWQ	12	Z	700	49	-9	19	0	30.9	27.8	41.6

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                : DEC 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

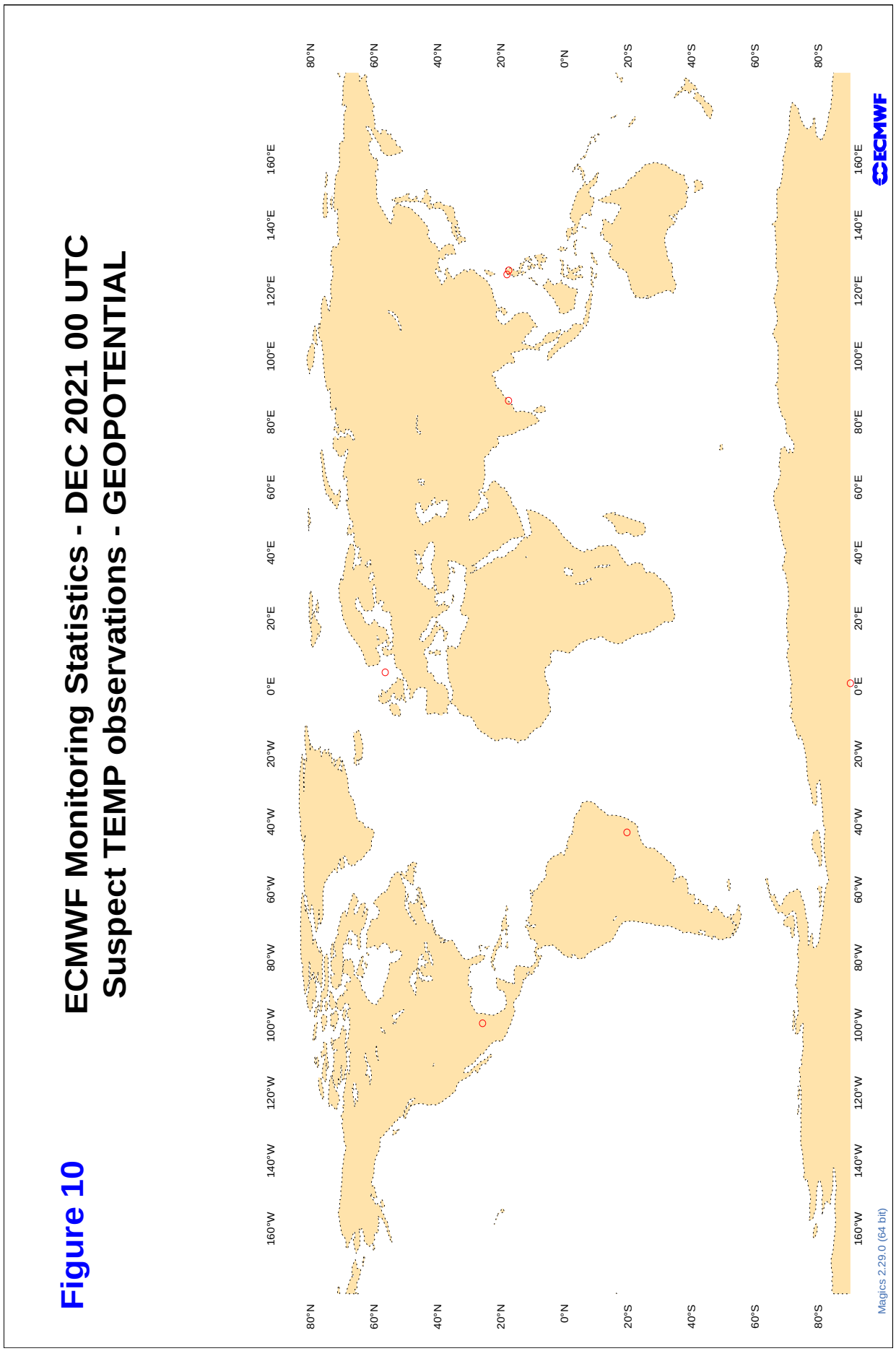
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

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

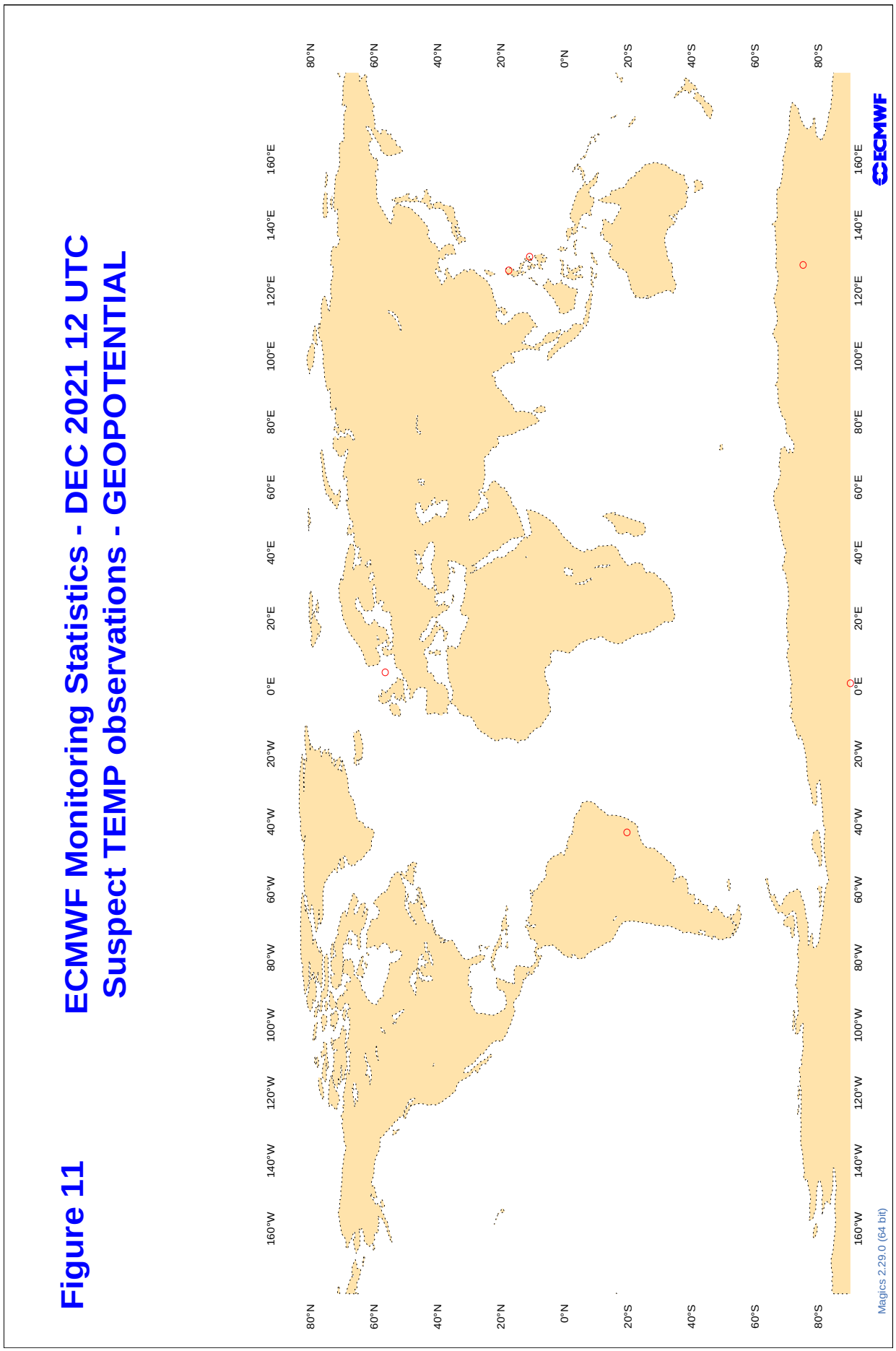

SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS >= 5 M/S
                    NO. OF OBSERVATIONS   >= 5, AND,
                    ABSOLUTE BIAS         >= 10 DEGREES, WITH
                    STANDARD DEVIATION    <  30 DEGREES, AND,
                    VERTICAL SPREAD       < 10 DEGREES
         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

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

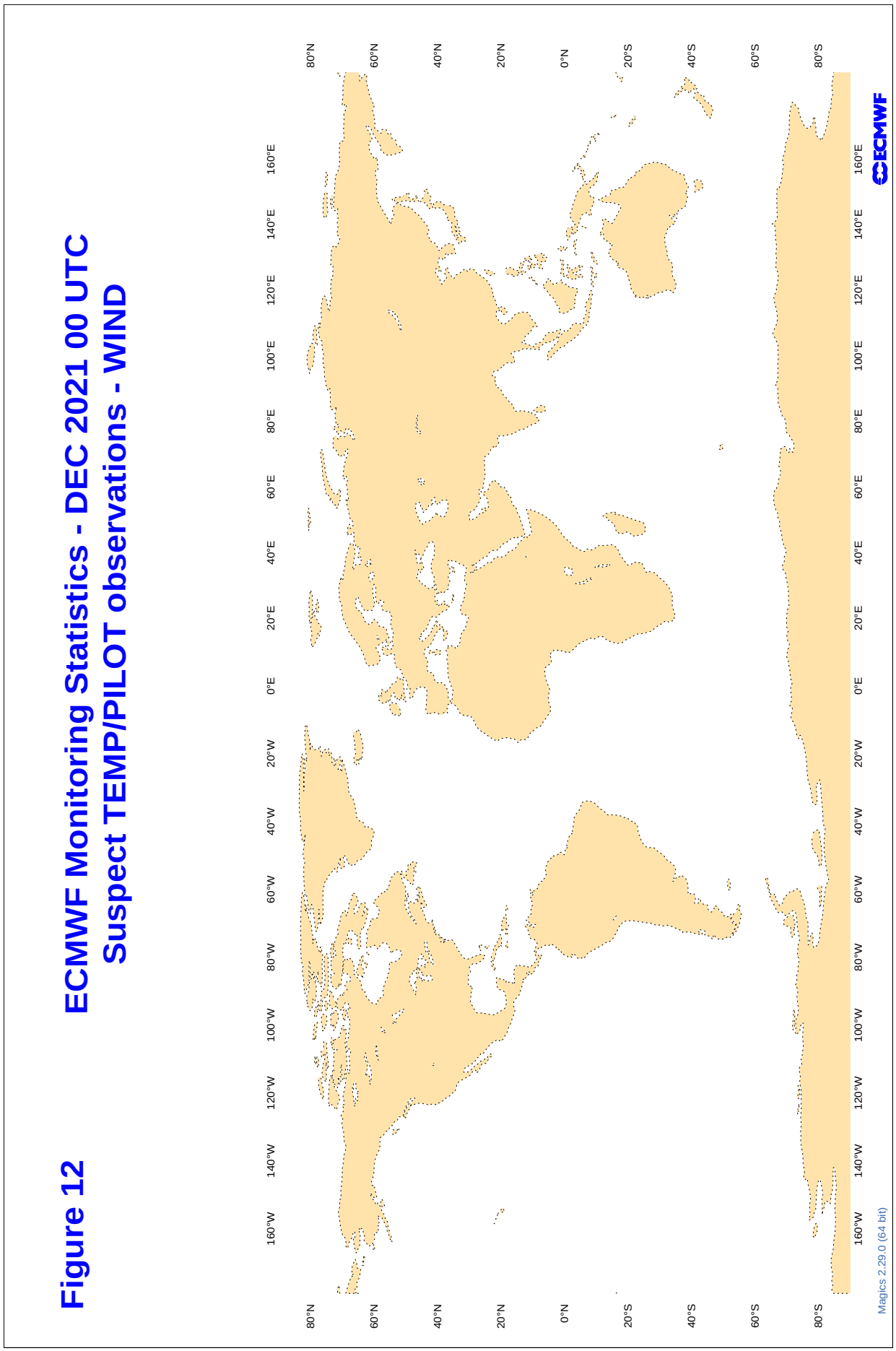
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



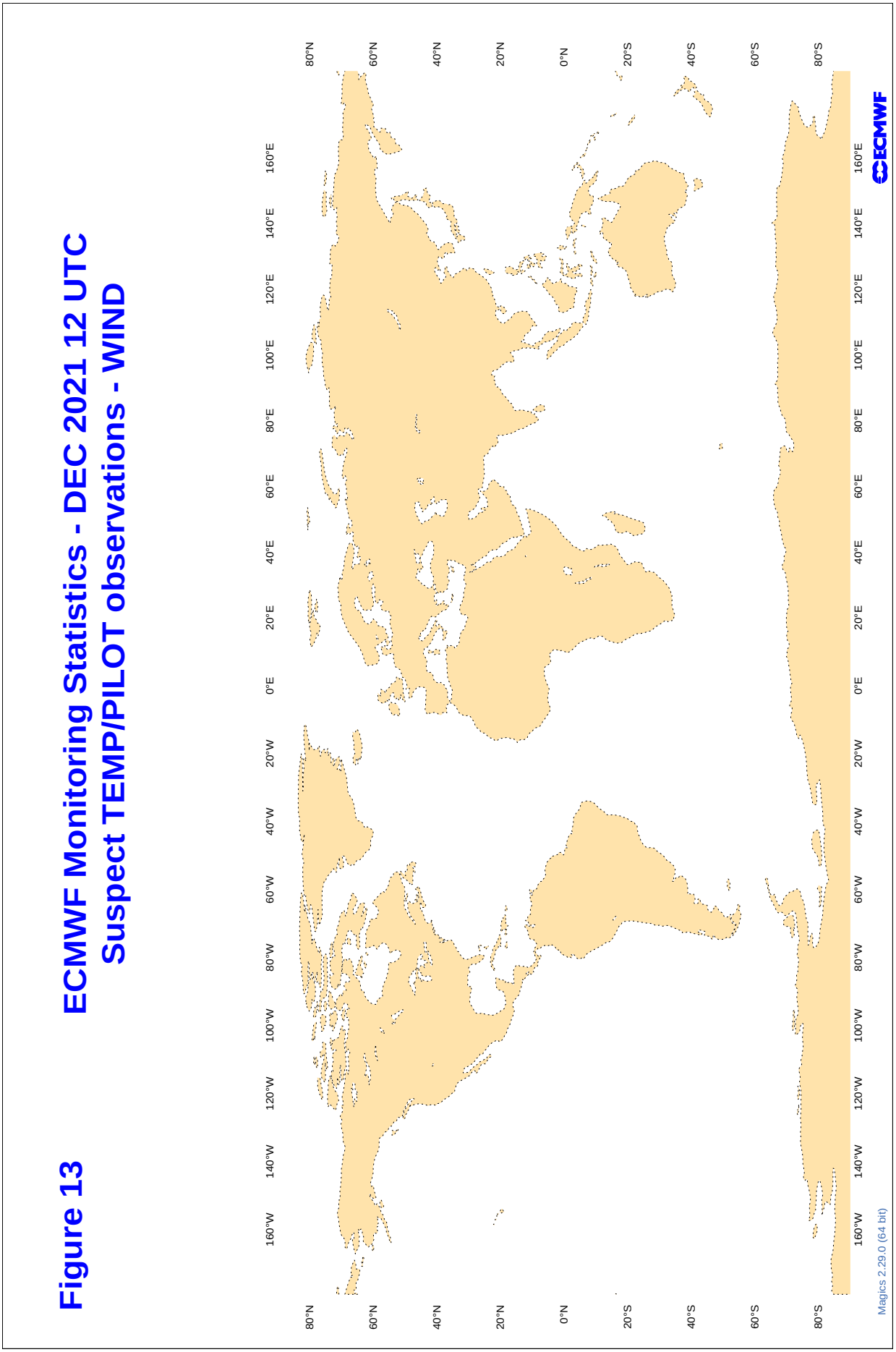
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
2EERVT	12	Z	100	5	9.0	4.4
2EERVT	00	Z	100	4	10.1	-6.7
7JUNA4	12	Z	100	9	16.3	14.0
7JUNA4	00	Z	100	8	8.7	1.1
ASDE09	12	Z	100	2	12.7	12.7
ATGU3F	12	Z	100	7	33.2	-16.9
ATGU3F	00	Z	100	4	16.5	-14.5
BPMWB2	12	Z	100	13	13.6	8.9
BPMWB2	00	Z	100	9	24.4	19.6
CHQUR4	00	Z	100	11	13.3	-5.0
DBBE	12	Z	100	2	28.0	27.7
DBBE	00	Z	100	2	8.1	8.1
DBLK	12	Z	100	3	28.0	27.6
FPUW5G	12	Z	100	15	4.2	-2.0
HTXUH4	12	Z	100	1	9.2	-9.2
HTXUH4	00	Z	100	3	40.4	-34.4
JNKN7J	12	Z	100	4	64.0	52.0
JNKN7J	00	Z	100	3	30.4	26.7
KJJF9X	12	Z	100	8	14.1	10.5
KJJF9X	00	Z	100	10	12.9	6.6
KMPLHP	00	Z	100	9	32.8	30.2
KMPLHP	12	Z	100	11	71.0	64.7
LRYQE3	12	Z	100	9	22.9	6.0
LRYQE3	00	Z	100	6	9.8	-5.7
USBOD	00	Z	100	3	9.5	-8.2
USBOD	12	Z	100	5	9.7	-3.6
USYUB	00	Z	100	5	25.1	-13.4
USYUB	12	Z	100	5	22.0	-9.7
UXK5JT	12	Z	100	8	17.8	10.7
UXK5JT	00	Z	100	5	8.0	2.1
WDK38H	12	Z	100	21	7.7	-0.9
XKQLWQ	12	Z	100	19	47.6	39.6
XQFJRG	12	Z	100	5	11.2	-10.4
XQFJRG	00	Z	100	5	12.8	-3.9
YLV96W	12	Z	100	7	25.7	22.6
YLV96W	00	Z	100	7	6.1	0.8
ZSNO	12	Z	100	8	13.4	7.6
ZVQEQC	12	Z	100	11	8.7	6.7
ZVQEQC	00	Z	100	2	5.6	5.1

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
2EERVT	12	V	100	5	3.3	-2.0	-1.0
2EERVT	00	V	100	4	2.3	0.4	0.4
7JUNA4	12	V	100	9	4.3	-0.2	0.8
7JUNA4	00	V	100	8	3.3	-0.6	0.8
ASDE09	12	V	100	2	4.3	3.8	1.3
ATGU3F	12	V	100	7	3.4	-1.6	1.0
ATGU3F	00	V	100	4	2.5	1.6	1.6
BPMWB2	12	V	100	13	4.0	-0.4	-1.7
BPMWB2	00	V	100	9	3.8	-0.8	0.2
CHQUR4	00	V	100	11	3.3	-1.2	-0.9
DBBE	12	V	100	2	3.7	-3.3	1.7
DBBE	00	V	100	2	2.0	1.4	0.7
DBLK	12	V	100	3	6.6	-0.4	1.4
FPUW5G	12	V	100	14	4.6	0.5	-0.6
HTXUH4	12	V	100	1	2.6	-0.5	-2.6
HTXUH4	00	V	100	3	0.9	0.1	-0.5
JNKN7J	12	V	100	4	2.9	1.2	-0.2
JNKN7J	00	V	100	3	3.7	2.7	0.1
KJJF9X	12	V	100	8	3.7	0.6	1.4
KJJF9X	00	V	100	10	2.6	0.0	0.8
KMPLHP	00	V	100	9	3.2	-0.1	0.8
KMPLHP	12	V	100	11	5.1	-0.4	0.0
LRYQE3	12	V	100	9	4.9	-0.3	1.0
LRYQE3	00	V	100	6	3.1	-0.7	0.6
USBOD	00	V	100	2	2.1	1.4	-1.1
USBOD	12	V	100	2	3.2	1.0	-2.5
USYUB	00	V	100	2	4.8	3.0	-3.6
USYUB	12	V	100	2	4.2	2.8	0.3
UXK5JT	12	V	100	8	4.6	-1.7	1.0
UXK5JT	00	V	100	5	4.5	1.5	-1.8
WDK38H	12	V	100	21	3.1	-0.3	0.5
XKQLWQ	12	V	100	19	5.4	1.4	0.5
XQFJRG	12	V	100	5	3.7	0.4	0.2
XQFJRG	00	V	100	5	2.9	-0.5	1.3
YLV96W	12	V	100	7	4.3	-1.7	0.9
YLV96W	00	V	100	7	4.6	-2.8	0.6
ZSNO	12	V	100	8	3.1	-0.2	-1.0
ZVQEQC	12	V	100	11	4.4	0.2	-1.0
ZVQEQC	00	V	100	2	3.9	0.2	-3.5

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

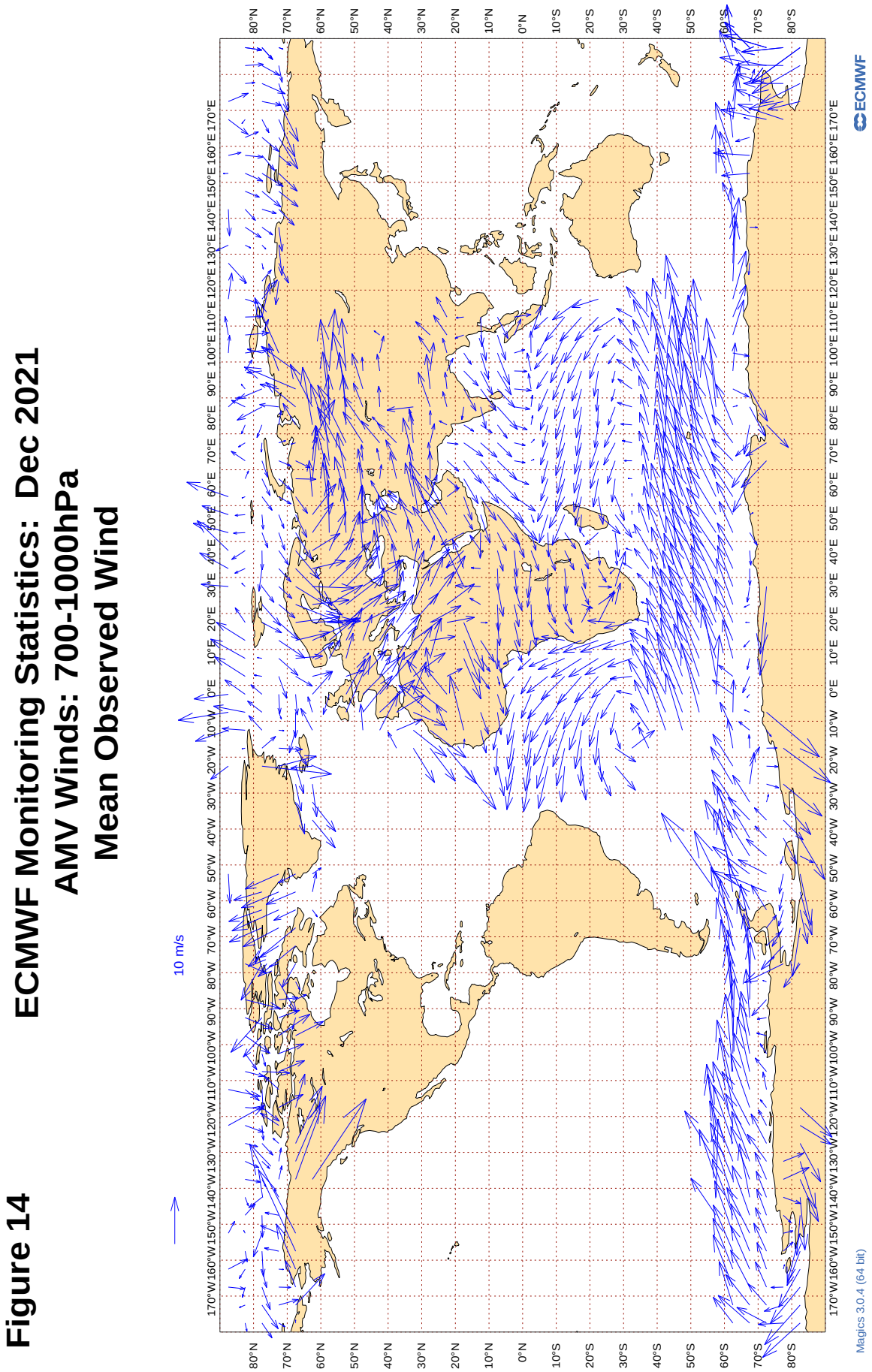


Figure 14

3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

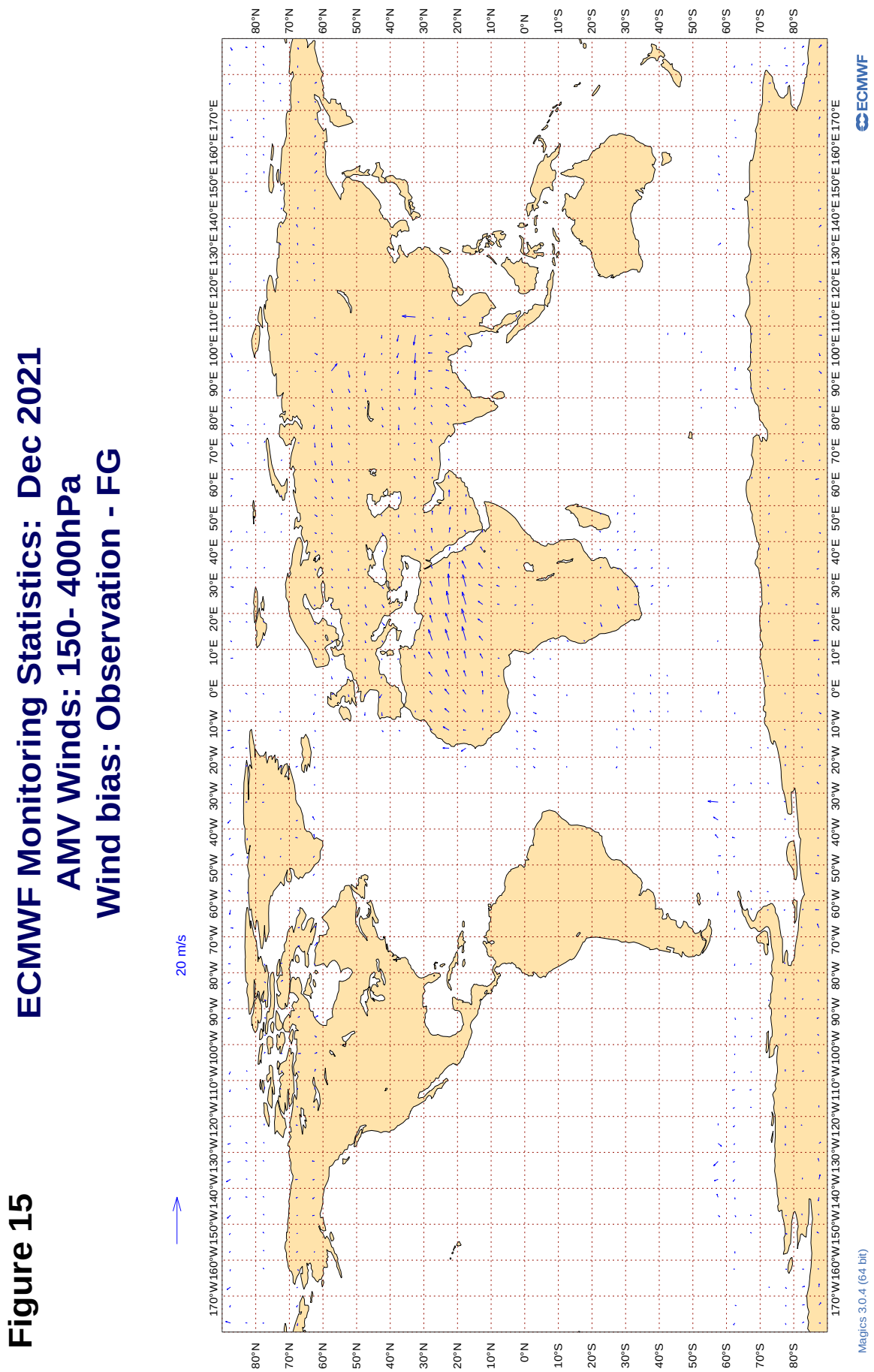


Figure 15

3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

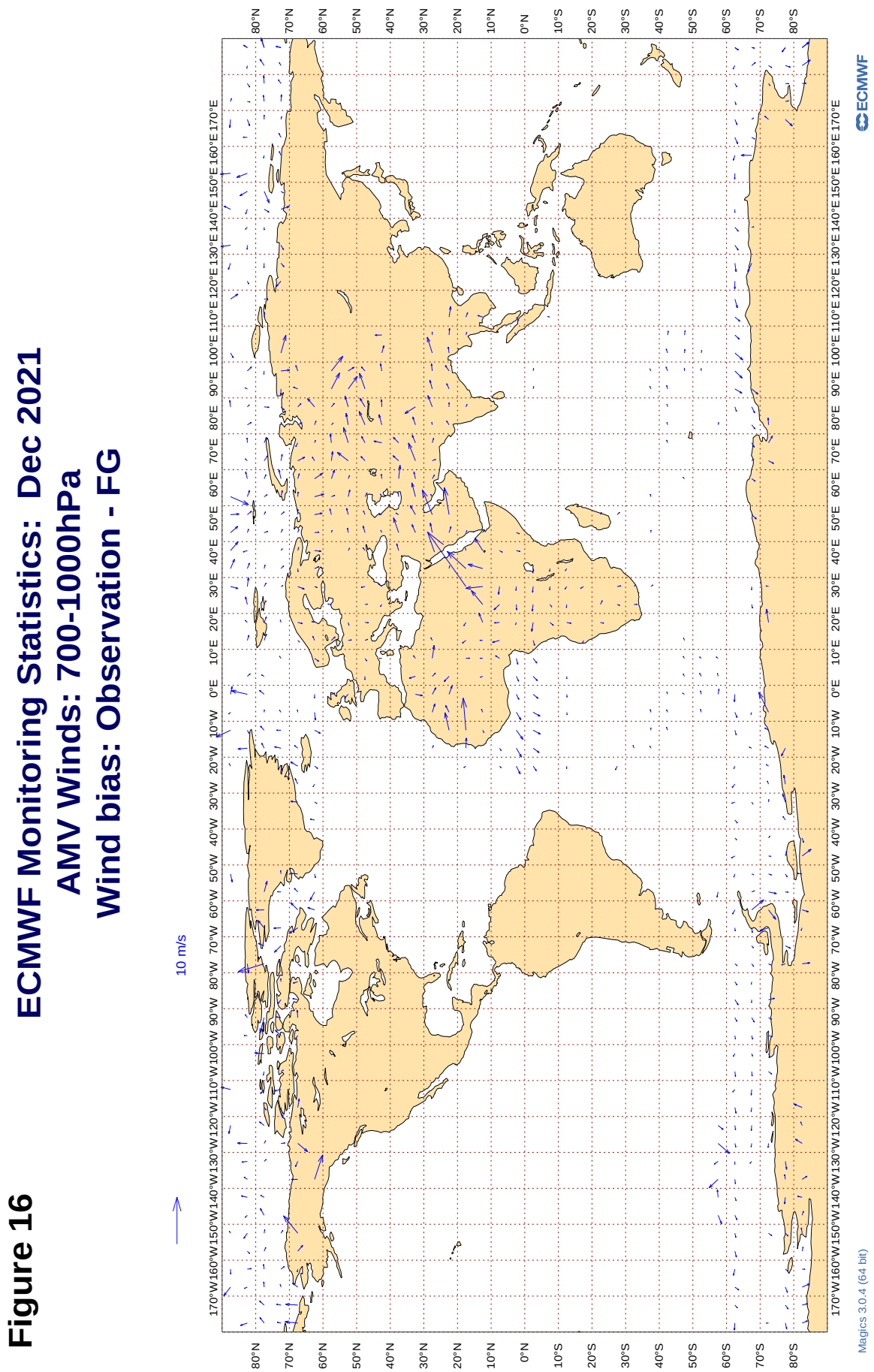


Figure 16

3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

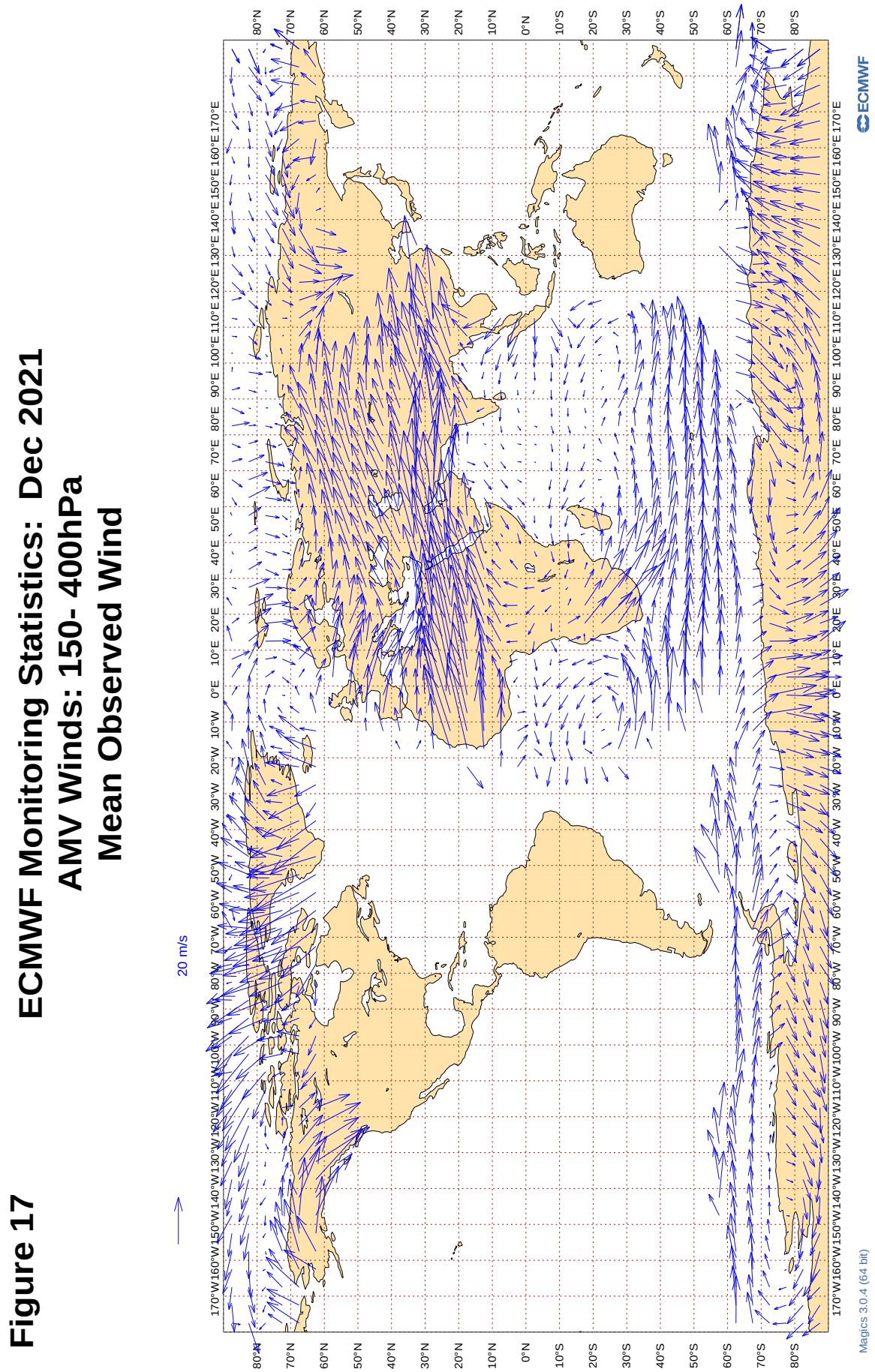


Figure 17

3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

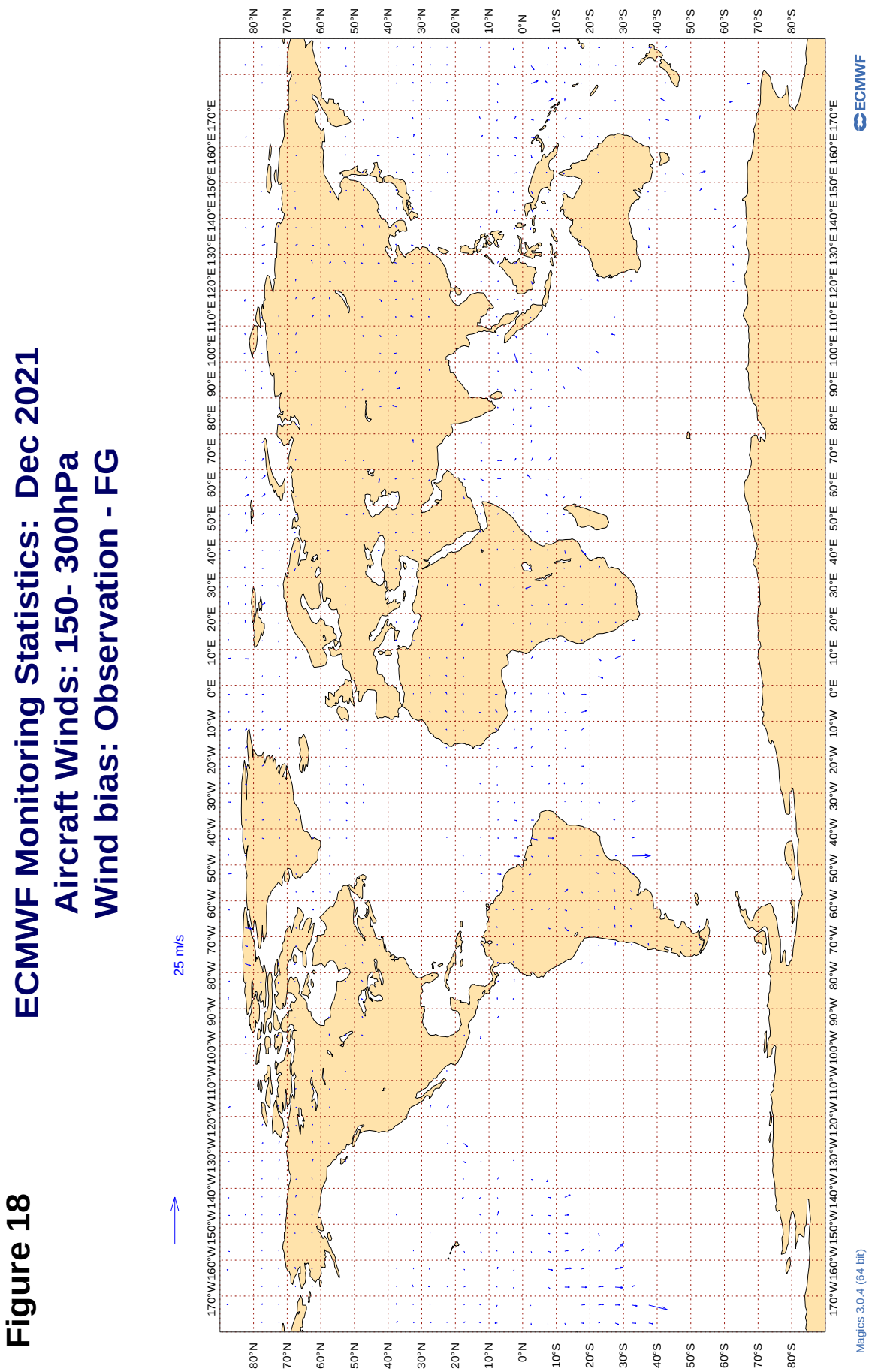


Figure 18

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 : DEC 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
)	99	V	300-150	3241	0	0	4.6	0.2
AAB	99	V	300-150	83	0	0	4.0	-0.0
AAL	99	V	300-150	17911	2	0	4.8	0.1
AAR	99	V	300-150	208	0	0	4.3	-1.0
ABB	99	V	300-150	1424	0	0	3.7	0.1
ABD	99	V	300-150	1631	0	0	4.1	-0.2
ABG	99	V	300-150	509	0	0	3.5	0.3
ABP	99	V	300-150	100	0	0	3.8	0.9
ABW	99	V	300-150	485	0	0	3.5	-0.3
ABX	99	V	300-150	350	0	0	3.8	-0.2
ACA	99	V	300-150	16320	7	0	6.3	0.1
ACI	99	V	300-150	165	0	0	5.6	0.7
AEA	99	V	300-150	733	14	2	7.7	-0.5
AFL	99	V	300-150	2594	0	0	3.5	0.1
AFR	99	V	300-150	28824	2	0	4.5	-0.0
AHO	99	V	300-150	527	0	0	6.5	0.1
AIC	99	V	300-150	2636	4	0	5.7	-0.1
AJT	99	V	300-150	653	0	0	4.0	-0.2
ALE	99	V	300-150	54	0	0	4.0	0.1
ALK	99	V	300-150	2020	0	0	3.5	0.3
AMX	99	V	300-150	2234	12	0	8.0	0.2
ANZ	99	V	300-150	8706	3	0	7.5	0.2
AOJ	99	V	300-150	223	0	0	4.1	-0.0
ASA	99	V	300-150	81	0	2	6.3	1.5
ASL	99	V	300-150	341	0	0	3.5	0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
ASP	99	V	300-150	57	0	0	3.1	-0.2
ASY	99	V	300-150	69	0	0	3.7	0.4
ATC	99	V	300-150	107	7	0	7.5	0.6
ATN	99	V	300-150	152	1	0	4.7	0.7
AUA	99	V	300-150	2923	0	0	4.4	-0.2
AUI	99	V	300-150	33	0	0	4.1	0.6
AWC	99	V	300-150	305	0	0	3.9	0.0
AXB	99	V	300-150	60	0	0	3.2	0.8
AXM	99	V	300-150	280	0	3	5.6	0.7
AXY	99	V	300-150	75	0	0	2.6	0.1
AZA	99	V	300-150	35	0	0	3.0	1.2
AZG	99	V	300-150	826	0	0	3.7	-0.3
AZV	99	V	300-150	1493	0	0	3.5	0.1
BAR	99	V	300-150	74	0	0	4.9	0.4
BAW	99	V	300-150	40021	7	0	6.3	0.1
BBB	99	V	300-150	42	0	0	4.3	-0.1
BBC	99	V	300-150	440	5	0	4.4	1.1
BCS	99	V	300-150	2583	0	0	3.7	0.1
BEL	99	V	300-150	626	0	0	3.7	0.2
BFF	99	V	300-150	56	0	0	9.6	-0.6
BLX	99	V	300-150	168	21	0	8.9	-0.2
BOX	99	V	300-150	3793	0	0	3.8	0.0
BTX	99	V	300-150	173	0	0	4.2	0.3
BVR	99	V	300-150	93	0	0	4.6	0.7
CAL	99	V	300-150	377	0	0	4.5	0.7
CAM	99	V	300-150	35	0	0	4.2	0.9
CAZ	99	V	300-150	199	0	0	3.9	-0.2
CEB	99	V	300-150	171	0	0	3.3	0.3
CES	99	V	300-150	94	0	0	3.7	0.3
CFC	99	V	300-150	193	0	0	4.0	-0.0
CFG	99	V	300-150	3093	0	0	4.2	-0.4
CHG	99	V	300-150	489	0	0	4.4	-0.7
CJT	99	V	300-150	2228	0	0	4.1	-0.2
CKS	99	V	300-150	1337	0	0	4.2	0.0
CLF	99	V	300-150	42	0	0	4.2	0.8
CLU	99	V	300-150	776	0	0	4.1	-0.8
CLX	99	V	300-150	5056	0	0	4.0	-0.4
CMB	99	V	300-150	713	0	0	4.1	-0.4
CNV	99	V	300-150	154	0	0	3.8	0.2
CPA	99	V	300-150	735	0	0	4.2	0.8
CRL	99	V	300-150	976	0	1	3.8	-0.0
CRV	99	V	300-150	98	0	0	4.3	1.1
CSN	99	V	300-150	299	2	0	6.1	-0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
CTM	99	V	300-150	56	0	0	4.3	0.8
CWG	99	V	300-150	22	0	0	5.3	2.4
CXB	99	V	300-150	45	0	0	5.4	1.3
DAH	99	V	300-150	439	0	0	3.8	0.0
DAL	99	V	300-150	24127	0	0	3.7	0.0
DCS	99	V	300-150	57	0	0	4.1	0.3
DGX	99	V	300-150	22	0	0	3.3	-0.9
DHK	99	V	300-150	2630	5	0	5.0	-0.2
DJT	99	V	300-150	883	0	0	3.8	0.1
DLH	99	V	300-150	20556	0	0	3.7	0.0
DSO	99	V	300-150	131	0	0	4.2	0.0
EAU	99	V	300-150	42	0	0	4.0	0.8
EDC	99	V	300-150	34	0	0	3.9	-1.4
EDG	99	V	300-150	63	0	2	3.5	-0.3
EDW	99	V	300-150	1064	0	0	3.6	0.2
EIN	99	V	300-150	7212	0	0	3.8	-0.0
EJM	99	V	300-150	343	0	0	3.8	0.5
ELY	99	V	300-150	2475	15	0	8.5	-0.0
EMM	99	V	300-150	57	0	0	4.0	-0.3
ESW	99	V	300-150	24	0	0	2.6	1.0
ETD	99	V	300-150	8038	8	0	7.0	0.2
ETH	99	V	300-150	6893	3	0	5.8	0.2
EUK	99	V	300-150	1602	0	0	3.6	-0.0
EVE	99	V	300-150	66	0	2	4.3	-0.4
EXS	99	V	300-150	53	0	0	3.2	0.2
EXV	99	V	300-150	101	0	0	3.8	0.6
FBU	99	V	300-150	1350	0	0	3.8	-0.3
FDX	99	V	300-150	6904	0	0	3.7	-0.1
FIN	99	V	300-150	1700	0	0	3.5	-0.2
FJI	99	V	300-150	1101	0	0	4.8	0.3
FRV	99	V	300-150	25	0	0	5.4	0.6
FWI	99	V	300-150	1693	0	1	3.5	0.0
FWK	99	V	300-150	24	0	0	3.3	0.6
FXT	99	V	300-150	34	0	0	4.0	-0.1
FYG	99	V	300-150	136	0	1	4.1	-0.1
GAF	99	V	300-150	84	0	1	4.4	0.7
GBG	99	V	300-150	75	0	0	3.8	0.5
GCK	99	V	300-150	100	0	0	3.6	0.1
GEC	99	V	300-150	1633	0	0	4.1	-0.0
GES	99	V	300-150	65	17	0	5.9	-0.1
GFA	99	V	300-150	711	4	0	7.4	0.5
GIA	99	V	300-150	139	0	0	3.9	0.9
GJE	99	V	300-150	21	0	0	4.5	-2.5

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
GLJ	99	V	300-150	22	0	0	3.4	0.3
GMA	99	V	300-150	93	0	0	3.7	-0.0
GOL	99	V	300-150	107	0	0	3.8	0.1
GTI	99	V	300-150	1813	0	0	4.3	-0.2
HAL	99	V	300-150	316	0	1	4.1	0.3
HFM	99	V	300-150	715	0	0	3.8	0.2
HFY	99	V	300-150	56	0	0	3.5	0.2
HKC	99	V	300-150	118	0	0	3.7	0.3
HRT	99	V	300-150	66	0	0	3.8	0.2
HVN	99	V	300-150	54	9	0	3.7	1.3
HYP	99	V	300-150	30	0	0	3.6	1.0
IBE	99	V	300-150	2828	0	1	3.9	0.0
ICE	99	V	300-150	3404	0	0	3.8	0.1
ICL	99	V	300-150	533	0	0	4.2	-0.4
ICV	99	V	300-150	686	0	0	3.9	-0.3
IFA	99	V	300-150	258	0	0	4.1	-0.3
IJM	99	V	300-150	200	0	0	5.2	0.0
ITY	99	V	300-150	804	0	0	3.6	0.2
IXR	99	V	300-150	39	0	0	4.0	-0.6
JAF	99	V	300-150	827	11	0	8.4	-0.0
JAL	99	V	300-150	32	0	0	9.7	0.1
JAS	99	V	300-150	67	0	0	3.9	-0.1
JBU	99	V	300-150	2056	0	0	4.1	0.1
JCL	99	V	300-150	23	0	0	3.9	2.1
JCO	99	V	300-150	131	0	0	3.9	0.8
JEF	99	V	300-150	63	0	0	4.0	0.1
JET	99	V	300-150	57	0	0	3.4	0.6
JME	99	V	300-150	122	0	0	3.6	0.1
JST	99	V	300-150	257	1	0	6.2	0.3
KAC	99	V	300-150	1649	0	0	3.7	0.4
KAI	99	V	300-150	81	0	0	4.0	0.7
KAL	99	V	300-150	83	1	0	4.4	0.9
KAR	99	V	300-150	627	0	0	3.5	0.3
KAY	99	V	300-150	74	0	0	5.4	0.1
KFE	99	V	300-150	68	0	0	3.7	-0.4
KIW	99	V	300-150	96	0	0	5.6	-0.2
KLM	99	V	300-150	15915	7	0	6.1	0.2
KQA	99	V	300-150	246	14	1	7.1	-0.0
KYE	99	V	300-150	26	4	0	7.9	0.5
LCO	99	V	300-150	340	0	0	4.3	-1.2
LDX	99	V	300-150	42	0	0	3.9	0.2
LGT	99	V	300-150	228	0	0	4.7	-1.1
LMJ	99	V	300-150	29	0	0	4.2	-0.9

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
LNX	99	V	300-150	119	0	0	4.1	0.3
LOT	99	V	300-150	3786	13	0	8.8	0.1
LSI	99	V	300-150	270	0	0	3.7	-0.0
LXA	99	V	300-150	21	0	0	3.2	-0.5
LXJ	99	V	300-150	429	0	0	3.8	0.2
LYX	99	V	300-150	332	0	0	3.4	0.2
MAS	99	V	300-150	2350	0	0	3.9	0.5
MAU	99	V	300-150	248	0	0	4.3	0.9
MED	99	V	300-150	70	0	0	3.4	0.3
MGE	99	V	300-150	39	3	3	4.6	0.5
MHV	99	V	300-150	223	0	0	3.5	0.4
MJE	99	V	300-150	25	0	0	3.5	0.3
MJF	99	V	300-150	71	0	0	3.9	-0.2
MLM	99	V	300-150	97	0	0	3.9	0.6
MLT	99	V	300-150	496	0	0	3.6	0.2
MMD	99	V	300-150	384	0	0	4.0	0.1
MMF	99	V	300-150	25	0	0	2.7	0.7
MMZ	99	V	300-150	72	0	0	3.3	0.0
MNB	99	V	300-150	320	0	0	3.3	0.2
MPH	99	V	300-150	620	0	0	4.0	-0.8
MSR	99	V	300-150	2166	3	0	5.1	-0.1
NAX	99	V	300-150	20	0	0	2.8	0.9
NCR	99	V	300-150	604	0	0	3.8	-0.2
NJE	99	V	300-150	775	0	0	3.8	0.3
NOS	99	V	300-150	744	10	0	7.8	0.1
NOZ	99	V	300-150	22	0	0	3.3	0.5
NWS	99	V	300-150	812	0	0	3.5	0.1
OAE	99	V	300-150	624	0	0	4.6	-0.2
OCN	99	V	300-150	2634	0	0	3.8	0.1
OLI	99	V	300-150	51	0	0	3.2	0.3
OMA	99	V	300-150	986	2	0	4.4	0.2
PAC	99	V	300-150	473	0	0	4.2	0.2
PAL	99	V	300-150	508	0	0	3.7	0.3
PAT	99	V	300-150	40	0	0	5.8	-1.1
PIA	99	V	300-150	197	0	0	3.5	-0.1
PLF	99	V	300-150	20	0	0	2.9	1.0
PLM	99	V	300-150	1184	0	0	3.7	0.2
PVA	99	V	300-150	81	0	1	3.7	-0.0
PVG	99	V	300-150	53	0	0	3.7	-0.0
QAF	99	V	300-150	60	0	0	3.3	0.4
QFA	99	V	300-150	2233	2	0	6.3	0.4
QQE	99	V	300-150	337	0	0	3.7	0.2
QTR	99	V	300-150	25235	1	0	4.5	0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
RAM	99	V	300-150	98	10	0	7.7	-0.4
RCH	99	V	300-150	3408	0	0	4.9	0.3
RDN	99	V	300-150	61	0	0	5.5	0.7
RJA	99	V	300-150	1482	15	0	9.4	0.4
RRR	99	V	300-150	83	0	0	3.8	0.2
RSB	99	V	300-150	27	0	0	5.3	2.5
RSF	99	V	300-150	37	0	0	4.0	0.0
RUN	99	V	300-150	392	0	0	4.7	-0.2
RYR	99	V	300-150	201	0	2	3.7	0.3
RZO	99	V	300-150	122	0	4	4.8	0.5
SAM	99	V	300-150	47	0	0	3.8	0.2
SAS	99	V	300-150	3132	0	0	3.5	0.0
SAZ	99	V	300-150	28	0	0	2.6	0.6
SCX	99	V	300-150	84	2	0	6.9	0.4
SEY	99	V	300-150	123	0	0	4.1	0.7
SHE	99	V	300-150	74	0	1	3.5	0.6
SIA	99	V	300-150	7505	0	0	4.5	0.2
SIO	99	V	300-150	93	0	0	4.2	-0.3
SJE	99	V	300-150	44	0	0	4.0	0.2
SLM	99	V	300-150	143	0	1	3.1	-0.4
SON	99	V	300-150	49	0	0	3.8	-0.4
SPA	99	V	300-150	35	0	0	4.2	-0.1
SRA	99	V	300-150	27	0	0	2.8	0.6
SVA	99	V	300-150	4702	1	0	5.3	0.2
SVF	99	V	300-150	31	0	0	7.2	0.5
SVW	99	V	300-150	211	0	0	3.6	-0.3
SWA	99	V	300-150	25	0	4	4.0	0.3
SWR	99	V	300-150	7353	0	1	3.9	0.1
SYB	99	V	300-150	117	0	0	4.7	-0.3
TAM	99	V	300-150	21	0	0	4.4	-0.0
TAP	99	V	300-150	2614	0	1	4.0	0.2
TAR	99	V	300-150	220	0	0	3.8	0.2
TAX	99	V	300-150	81	0	0	3.9	-0.0
TAY	99	V	300-150	487	0	0	4.2	-0.2
TBJ	99	V	300-150	30	0	0	2.5	0.6
TEU	99	V	300-150	58	0	0	3.3	-1.1
TFL	99	V	300-150	1244	9	0	8.0	0.1
TGW	99	V	300-150	870	6	0	9.5	0.5
THA	99	V	300-150	162	0	0	5.3	0.7
THT	99	V	300-150	2308	2	0	5.4	0.0
THY	99	V	300-150	14384	3	0	4.9	0.0
TMN	99	V	300-150	332	0	0	4.8	0.2
TOM	99	V	300-150	3692	14	0	8.0	-0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
TOW	99	V	300-150	65	0	0	4.1	0.8
TPA	99	V	300-150	304	0	0	3.6	0.3
TSC	99	V	300-150	2282	0	0	3.8	0.2
TVP	99	V	300-150	26	0	0	4.2	-0.6
TWY	99	V	300-150	378	0	0	3.8	0.2
UAE	99	V	300-150	21832	0	0	3.8	0.2
UAL	99	V	300-150	45598	6	2	6.3	-0.0
ULC	99	V	300-150	125	0	0	3.5	0.7
UPS	99	V	300-150	4688	0	0	3.9	-0.3
UTN	99	V	300-150	290	0	0	4.2	-0.2
UZB	99	V	300-150	96	9	0	12.0	0.2
VCG	99	V	300-150	144	0	0	4.1	0.2
VCJ	99	V	300-150	85	0	0	4.3	0.9
VIR	99	V	300-150	15758	5	0	5.7	0.0
VJT	99	V	300-150	1772	0	0	3.7	0.2
VLZ	99	V	300-150	20	0	0	4.4	-1.8
VMP	99	V	300-150	129	0	0	5.0	0.5
VTI	99	V	300-150	101	0	0	3.7	0.6
WFL	99	V	300-150	69	0	0	3.8	-0.0
WJA	99	V	300-150	878	9	0	8.2	0.0
WRC	99	V	300-150	202	0	0	3.4	0.2
WWI	99	V	300-150	33	0	3	5.7	-0.8
XAX	99	V	300-150	65	0	0	4.0	-0.5
XRO	99	V	300-150	235	0	0	3.9	-0.5
YEL	99	V	300-150	34	0	0	4.1	-0.5

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                : DEC 2021
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
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WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	28	11.9	6.0
01001	00	Z	50	27	14.1	9.0
01028	12	Z	50	31	5.5	3.0
01028	00	Z	50	27	6.5	0.1
01400	00	Z	50	8	76.8	76.0
01400	12	Z	50	11	77.9	77.1
01415	12	Z	50	30	9.6	0.3
01415	00	Z	50	23	13.2	4.1
02365	00	Z	50	10	9.7	-3.8
02365	12	Z	50	12	5.3	1.7
02836	12	Z	50	33	6.9	0.2
02836	00	Z	50	28	5.5	-0.8
02963	12	Z	50	31	6.0	0.8
02963	00	Z	50	31	9.7	0.6
03005	00	Z	50	30	8.4	-2.2
03005	12	Z	50	28	16.5	4.0
03238	00	Z	50	29	9.7	0.3
03238	12	Z	50	6	5.3	2.8
03808	12	Z	50	31	14.7	2.9
03808	00	Z	50	28	12.6	-1.1
03918	12	Z	50	6	4.8	3.9
03918	00	Z	50	31	12.6	3.6
03953	00	Z	50	31	11.3	-6.6
03953	12	Z	50	31	12.9	-6.1
04018	00	Z	50	29	8.7	1.1
04018	12	Z	50	31	8.4	-3.3
04220	12	Z	50	31	11.5	3.6
04220	00	Z	50	31	12.9	5.6
04270	12	Z	50	17	13.6	1.3
04270	00	Z	50	24	12.7	-0.1
04320	12	Z	50	22	23.3	17.8
04320	00	Z	50	25	16.5	14.3
04339	00	Z	50	18	19.5	12.7
04339	12	Z	50	17	23.5	9.9
04360	12	Z	50	19	6.1	-2.0
04360	00	Z	50	19	9.5	-1.4
06011	00	Z	50	26	8.4	0.5
06011	12	Z	50	28	9.7	2.3
06260	00	Z	50	31	10.5	0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	50	6	11.4	-2.4
06610	12	Z	50	32	11.5	6.5
06610	00	Z	50	21	8.8	3.0
07110	12	Z	50	31	13.4	2.6
07110	00	Z	50	30	13.5	-5.4
07510	00	Z	50	31	15.2	-9.1
07510	12	Z	50	30	14.4	-1.4
07645	12	Z	50	30	16.9	-10.6
07645	00	Z	50	28	16.2	-8.2
07761	12	Z	50	30	22.1	-11.5
07761	00	Z	50	28	23.9	-16.1
08001	12	Z	50	30	9.8	2.4
08001	00	Z	50	21	11.7	4.4
08221	00	Z	50	30	13.3	8.4
08221	12	Z	50	30	11.9	5.2
08302	00	Z	50	29	9.7	-2.1
08302	12	Z	50	30	11.9	-7.1
08508	12	Z	50	27	7.6	1.7
08522	12	Z	50	30	7.4	3.3
10035	00	Z	50	30	15.5	14.4
10035	12	Z	50	29	12.5	10.5
10393	00	Z	50	16	6.5	0.0
10393	12	Z	50	30	7.7	2.1
10410	00	Z	50	31	8.9	-2.0
10410	12	Z	50	31	8.2	-2.2
10739	12	Z	50	31	8.8	4.0
10739	00	Z	50	30	12.5	2.8
11035	00	Z	50	26	9.6	2.1
11035	12	Z	50	30	10.2	3.1
12982	00	Z	50	31	7.1	1.5
12982	12	Z	50	31	9.6	2.6
16245	12	Z	50	31	9.7	3.6
16245	00	Z	50	22	8.9	3.9
16429	00	Z	50	25	10.3	6.0
16429	12	Z	50	30	7.3	2.1
16622	00	Z	50	26	16.8	10.8
16754	00	Z	50	28	15.0	5.3
17607	12	Z	50	25	10.3	-0.7
26435	12	Z	50	15	5.5	0.6
2EERVT	12	Z	50	4	12.3	7.5
2EERVT	00	Z	50	4	9.7	-0.5
60018	12	Z	50	31	6.9	3.9
60018	00	Z	50	26	9.3	5.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	50	0	0.0	0.0
7JUNA4	00	Z	50	0	0.0	0.0
ASDE09	12	Z	50	2	16.5	15.5
ATGU3F	12	Z	50	7	39.3	-8.8
ATGU3F	00	Z	50	3	16.0	-9.1
BPMWB2	12	Z	50	12	20.3	15.5
BPMWB2	00	Z	50	9	33.1	29.2
DBBE	12	Z	50	0	0.0	0.0
DBBE	00	Z	50	1	16.9	16.9
DBLK	12	Z	50	3	25.2	24.7
FPUW5G	12	Z	50	12	7.3	-6.2
HTXUH4	12	Z	50	1	5.8	-5.8
HTXUH4	00	Z	50	3	39.1	-35.5
JNKN7J	12	Z	50	3	127.7	105.7
JNKN7J	00	Z	50	3	34.1	29.4
KJJF9X	12	Z	50	7	20.8	15.8
KJJF9X	00	Z	50	7	19.9	16.1
KMPLHP	00	Z	50	5	40.0	37.7
KMPLHP	12	Z	50	8	101.0	93.8
LRYQE3	12	Z	50	8	42.7	19.2
LRYQE3	00	Z	50	6	22.6	-13.8
UXK5JT	12	Z	50	8	21.1	12.9
UXK5JT	00	Z	50	4	4.4	2.5
WDK38H	12	Z	50	21	7.9	0.3
XKQLWQ	12	Z	50	19	61.1	54.3
XQFJRG	12	Z	50	5	6.7	-5.1
XQFJRG	00	Z	50	4	9.3	-4.8
YLV96W	12	Z	50	1	13.3	13.3
YLV96W	00	Z	50	0	0.0	0.0
ZVQEQC	12	Z	50	11	7.9	5.2
ZVQEQC	00	Z	50	2	9.5	9.5

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

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 :  50 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : DEC 2021
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	28	3.1	0.5	-0.3
01001	00	V	50	25	3.0	0.1	-0.8
01028	12	V	50	30	3.0	-0.6	0.3
01028	00	V	50	21	3.5	-0.3	0.4
01400	00	V	50	7	3.7	1.1	-1.5
01400	12	V	50	9	3.7	-0.2	0.3
01415	12	V	50	29	3.8	0.2	-0.2
01415	00	V	50	19	3.1	-1.3	-0.3
02365	00	V	50	8	3.3	0.6	-0.5
02365	12	V	50	8	2.8	-0.3	1.1
02836	12	V	50	29	3.5	0.5	0.6
02836	00	V	50	20	2.8	0.0	0.6
02963	12	V	50	31	3.5	0.0	0.6
02963	00	V	50	27	3.5	0.0	0.2
03005	00	V	50	27	2.9	0.9	-0.6
03005	12	V	50	27	3.3	-0.5	0.1
03238	00	V	50	22	3.5	0.8	-0.3
03238	12	V	50	6	3.2	-0.1	-0.6
03808	12	V	50	30	4.0	0.6	0.0
03808	00	V	50	24	3.6	-0.3	0.4
03918	12	V	50	6	3.1	0.7	0.4
03918	00	V	50	29	4.9	-0.7	-1.4
03953	00	V	50	25	3.8	-0.1	0.4
03953	12	V	50	31	3.2	0.3	0.4
04018	00	V	50	24	3.3	0.4	0.1
04018	12	V	50	31	4.0	-0.1	-0.1
04220	12	V	50	31	3.0	-0.7	-0.1
04220	00	V	50	24	3.7	0.1	-0.3
04270	12	V	50	17	3.5	0.8	-0.6
04270	00	V	50	18	4.8	0.2	0.0
04320	12	V	50	22	3.2	-0.1	-0.5
04320	00	V	50	22	3.1	-0.2	-0.3
04339	00	V	50	16	3.8	-0.6	-1.3
04339	12	V	50	17	4.0	-0.2	0.3
04360	12	V	50	19	4.0	1.3	0.8
04360	00	V	50	18	3.1	0.7	0.7
06011	00	V	50	21	4.2	0.1	0.5
06011	12	V	50	28	3.7	0.5	-0.8
06260	00	V	50	21	4.0	0.0	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	50	6	3.5	-0.8	1.3
06610	12	V	50	31	3.5	0.2	-0.1
06610	00	V	50	20	4.3	0.3	0.1
07110	12	V	50	31	3.4	-0.4	0.4
07110	00	V	50	25	3.3	-0.1	-0.2
07510	00	V	50	24	3.5	-0.3	-0.2
07510	12	V	50	30	3.7	-0.4	-0.3
07645	12	V	50	30	3.5	0.0	0.1
07645	00	V	50	21	4.2	0.5	0.0
07761	12	V	50	30	4.3	0.0	0.2
07761	00	V	50	26	4.1	-0.4	0.5
08001	12	V	50	29	4.0	0.1	-0.6
08001	00	V	50	20	3.8	0.4	0.7
08221	00	V	50	25	3.6	-0.1	-0.2
08221	12	V	50	30	3.6	0.7	-0.1
08302	00	V	50	25	4.2	0.0	-0.3
08302	12	V	50	30	4.2	-0.4	-0.7
08508	12	V	50	27	3.4	0.4	-0.6
08522	12	V	50	30	3.8	0.7	-1.1
10035	00	V	50	29	3.9	-0.4	1.7
10035	12	V	50	29	3.1	0.9	0.5
10393	00	V	50	16	3.6	0.1	-0.8
10393	12	V	50	30	3.1	0.1	-0.2
10410	00	V	50	30	3.4	0.2	0.7
10410	12	V	50	31	3.8	0.2	0.7
10739	12	V	50	31	3.5	0.2	0.4
10739	00	V	50	29	3.3	0.0	0.9
11035	00	V	50	20	4.2	0.7	1.1
11035	12	V	50	30	3.9	0.2	-0.4
12982	00	V	50	24	4.2	0.8	-0.5
12982	12	V	50	31	4.3	1.2	-0.4
16245	12	V	50	31	3.5	0.4	0.5
16245	00	V	50	21	3.8	0.3	0.3
16429	00	V	50	25	3.7	-0.2	-1.3
16429	12	V	50	30	3.6	1.0	0.4
16622	00	V	50	19	2.8	-0.2	1.0
16754	00	V	50	22	3.8	0.0	0.6
17607	12	V	50	7	4.7	-0.9	-0.1
26435	12	V	50	14	3.7	-0.6	0.0
2EERVT	12	V	50	4	3.7	0.9	-0.8
2EERVT	00	V	50	4	3.0	0.1	0.2
60018	12	V	50	31	3.8	1.0	0.5
60018	00	V	50	21	3.2	-0.6	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	50	0	0.0	0.0	0.0
7JUNA4	00	V	50	0	0.0	0.0	0.0
ASDE09	12	V	50	2	5.9	4.1	2.9
ATGU3F	12	V	50	7	2.6	1.1	0.2
ATGU3F	00	V	50	3	2.6	-0.9	-0.2
BPMWB2	12	V	50	12	3.2	-0.1	0.3
BPMWB2	00	V	50	9	3.0	0.2	-0.1
DBBE	12	V	50	0	0.0	0.0	0.0
DBBE	00	V	50	1	2.1	1.0	1.8
DBLK	12	V	50	3	4.8	2.3	2.4
FPUW5G	12	V	50	11	3.3	-0.4	0.5
HTXUH4	12	V	50	1	0.7	0.6	0.3
HTXUH4	00	V	50	3	3.5	-2.0	-1.7
JNKN7J	12	V	50	3	5.2	-1.1	0.9
JNKN7J	00	V	50	3	4.7	-0.9	-1.4
KJJF9X	12	V	50	7	4.1	-0.5	1.5
KJJF9X	00	V	50	7	3.6	0.2	0.2
KMPLHP	00	V	50	5	3.2	0.3	-1.0
KMPLHP	12	V	50	8	3.5	0.4	0.1
LRYQE3	12	V	50	8	3.2	0.7	-0.5
LRYQE3	00	V	50	6	4.0	0.4	0.9
UXK5JT	12	V	50	8	5.8	-2.3	0.5
UXK5JT	00	V	50	4	5.0	2.2	-0.8
WDK38H	12	V	50	21	3.0	1.4	-0.4
XKQLWQ	12	V	50	15	3.9	0.1	-0.3
XQFJRG	12	V	50	5	5.7	-2.8	0.3
XQFJRG	00	V	50	4	3.8	0.8	-1.6
YLV96W	12	V	50	1	1.0	1.0	0.3
YLV96W	00	V	50	0	0.0	0.0	0.0
ZVQEQC	12	V	50	11	4.2	0.0	-0.3
ZVQEQC	00	V	50	2	4.2	2.9	0.8

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	28	10.8	-3.7
01001	00	Z	100	27	9.6	-0.2
01028	12	Z	100	31	4.3	0.0
01028	00	Z	100	29	4.8	-2.6
01400	00	Z	100	12	75.8	75.2
01400	12	Z	100	18	73.2	72.7
01415	12	Z	100	30	7.7	-1.5
01415	00	Z	100	23	11.7	0.3
02365	00	Z	100	14	7.0	-3.1
02365	12	Z	100	14	5.1	-2.9
02836	12	Z	100	34	5.7	-3.0
02836	00	Z	100	31	6.0	-4.1
02963	12	Z	100	31	4.2	-1.0
02963	00	Z	100	31	7.2	-2.5
03005	00	Z	100	31	9.8	-6.1
03005	12	Z	100	29	14.0	-1.1
03238	00	Z	100	31	7.9	-1.4
03238	12	Z	100	6	2.6	0.7
03808	12	Z	100	31	14.0	0.7
03808	00	Z	100	30	9.8	-3.0
03918	12	Z	100	6	6.6	1.5
03918	00	Z	100	31	8.0	1.5
03953	00	Z	100	31	11.4	-8.9
03953	12	Z	100	31	10.3	-7.4
04018	00	Z	100	30	6.9	-0.7
04018	12	Z	100	31	6.3	-4.0
04220	12	Z	100	31	11.3	3.5
04220	00	Z	100	31	12.4	6.7
04270	12	Z	100	22	11.4	-2.9
04270	00	Z	100	27	14.6	-5.1
04320	12	Z	100	25	15.9	7.6
04320	00	Z	100	26	10.6	6.5
04339	00	Z	100	24	10.3	1.5
04339	12	Z	100	20	15.4	3.6
04360	12	Z	100	21	11.1	-8.9
04360	00	Z	100	21	9.4	-7.6
06011	00	Z	100	26	6.6	0.6
06011	12	Z	100	28	7.1	1.5
06260	00	Z	100	31	9.3	-4.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	100	6	8.5	-4.7
06610	12	Z	100	33	7.3	1.2
06610	00	Z	100	21	6.3	-1.5
07110	12	Z	100	31	11.4	-5.1
07110	00	Z	100	30	13.1	-9.4
07510	00	Z	100	31	15.3	-11.6
07510	12	Z	100	30	11.1	-5.2
07645	12	Z	100	31	16.3	-10.5
07645	00	Z	100	31	15.3	-11.2
07761	12	Z	100	31	22.4	-15.8
07761	00	Z	100	30	24.0	-19.6
08001	12	Z	100	30	8.7	-1.3
08001	00	Z	100	22	10.7	-2.9
08221	00	Z	100	30	10.0	3.7
08221	12	Z	100	31	10.1	2.8
08302	00	Z	100	29	11.9	-6.6
08302	12	Z	100	30	11.8	-7.4
08508	12	Z	100	27	7.9	0.0
08522	12	Z	100	30	6.7	2.9
10035	00	Z	100	31	11.6	9.8
10035	12	Z	100	31	9.8	7.8
10393	00	Z	100	22	5.7	-3.4
10393	12	Z	100	30	5.8	-2.4
10410	00	Z	100	31	7.5	-4.9
10410	12	Z	100	31	7.5	-4.4
10739	12	Z	100	31	6.6	2.7
10739	00	Z	100	30	8.5	-1.0
11035	00	Z	100	28	7.7	-0.2
11035	12	Z	100	33	7.3	-2.0
12982	00	Z	100	31	6.7	-1.4
12982	12	Z	100	31	6.2	-0.6
16245	12	Z	100	31	4.7	1.1
16245	00	Z	100	22	4.8	-1.4
16429	00	Z	100	25	5.5	-0.1
16429	12	Z	100	30	6.0	-1.2
16622	00	Z	100	28	13.7	9.1
16754	00	Z	100	29	8.7	0.2
17607	12	Z	100	26	6.1	1.7
26435	12	Z	100	15	4.7	-3.1
2EERVT	12	Z	100	5	9.0	4.4
2EERVT	00	Z	100	4	10.1	-6.7
60018	12	Z	100	31	4.2	1.1
60018	00	Z	100	26	5.0	3.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	100	9	16.3	14.0
7JUNA4	00	Z	100	8	8.7	1.1
ASDE09	12	Z	100	2	12.7	12.7
ATGU3F	12	Z	100	7	33.2	-16.9
ATGU3F	00	Z	100	4	16.5	-14.5
BPMWB2	12	Z	100	13	13.6	8.9
BPMWB2	00	Z	100	9	24.4	19.6
DBBE	12	Z	100	2	28.0	27.7
DBBE	00	Z	100	2	8.1	8.1
DBLK	12	Z	100	3	28.0	27.6
FPUW5G	12	Z	100	15	4.2	-2.0
HTXUH4	12	Z	100	1	9.2	-9.2
HTXUH4	00	Z	100	3	40.4	-34.4
JNKN7J	12	Z	100	4	64.0	52.0
JNKN7J	00	Z	100	3	30.4	26.7
KJJF9X	12	Z	100	8	14.1	10.5
KJJF9X	00	Z	100	10	12.9	6.6
KMPLHP	00	Z	100	9	32.8	30.2
KMPLHP	12	Z	100	11	71.0	64.7
LRYQE3	12	Z	100	9	22.9	6.0
LRYQE3	00	Z	100	6	9.8	-5.7
UXK5JT	12	Z	100	8	17.8	10.7
UXK5JT	00	Z	100	5	8.0	2.1
WDK38H	12	Z	100	21	7.7	-0.9
XKQLWQ	12	Z	100	19	47.6	39.6
XQFJRG	12	Z	100	5	11.2	-10.4
XQFJRG	00	Z	100	5	12.8	-3.9
YLV96W	12	Z	100	7	25.7	22.6
YLV96W	00	Z	100	7	6.1	0.8
ZVQEQC	12	Z	100	11	8.7	6.7
ZVQEQC	00	Z	100	2	5.6	5.1

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	28	2.9	0.8	-0.2
01001	00	V	100	25	2.7	0.2	-0.7
01028	12	V	100	31	2.1	-0.4	0.0
01028	00	V	100	25	2.4	0.8	-0.2
01400	00	V	100	10	3.0	1.2	0.8
01400	12	V	100	13	3.5	0.0	-0.5
01415	12	V	100	30	4.2	-0.2	0.6
01415	00	V	100	19	5.5	-2.1	-0.2
02365	00	V	100	12	2.1	0.1	-0.2
02365	12	V	100	14	3.8	0.9	0.9
02836	12	V	100	31	2.9	0.2	0.4
02836	00	V	100	22	2.8	0.3	-0.2
02963	12	V	100	31	2.8	-0.3	0.3
02963	00	V	100	28	3.3	-0.1	0.5
03005	00	V	100	26	3.6	0.5	0.4
03005	12	V	100	29	3.5	-0.5	0.0
03238	00	V	100	23	4.1	-0.3	0.9
03238	12	V	100	6	2.7	0.1	-0.4
03808	12	V	100	31	3.9	0.7	1.5
03808	00	V	100	26	3.0	0.4	0.1
03918	12	V	100	6	4.8	-0.9	1.1
03918	00	V	100	29	4.3	0.1	-0.1
03953	00	V	100	25	3.9	-0.7	-0.5
03953	12	V	100	31	3.7	0.1	0.5
04018	00	V	100	28	2.6	0.5	0.2
04018	12	V	100	31	3.9	-1.0	-0.9
04220	12	V	100	31	2.9	0.1	0.2
04220	00	V	100	25	3.3	-0.9	-0.1
04270	12	V	100	22	2.7	0.3	0.4
04270	00	V	100	25	3.1	-0.6	-0.5
04320	12	V	100	25	3.0	0.5	0.5
04320	00	V	100	24	3.3	-0.1	-0.6
04339	00	V	100	22	3.2	-0.9	-0.4
04339	12	V	100	20	4.1	0.8	-0.4
04360	12	V	100	21	2.5	-0.5	-0.2
04360	00	V	100	21	2.8	0.1	-0.3
06011	00	V	100	20	3.5	0.0	-0.2
06011	12	V	100	28	2.9	0.0	1.0
06260	00	V	100	21	3.1	-0.2	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	100	6	3.6	-0.3	-0.2
06610	12	V	100	31	3.7	-0.1	-0.1
06610	00	V	100	21	3.5	-0.6	-0.8
07110	12	V	100	31	3.5	-0.7	0.3
07110	00	V	100	25	2.9	0.0	0.5
07510	00	V	100	24	3.7	0.7	0.4
07510	12	V	100	30	3.3	0.0	0.1
07645	12	V	100	31	4.1	-0.1	-0.3
07645	00	V	100	23	4.7	0.1	0.6
07761	12	V	100	31	4.7	0.2	0.5
07761	00	V	100	27	4.4	1.0	0.0
08001	12	V	100	30	3.2	0.7	-0.2
08001	00	V	100	21	4.0	1.1	0.1
08221	00	V	100	25	3.7	0.0	0.2
08221	12	V	100	31	4.2	0.2	-0.4
08302	00	V	100	25	4.2	0.7	-0.6
08302	12	V	100	30	4.8	0.6	-0.8
08508	12	V	100	27	4.3	0.0	-0.7
08522	12	V	100	30	3.3	0.5	-0.1
10035	00	V	100	30	3.2	-0.1	-0.4
10035	12	V	100	31	2.9	0.6	0.5
10393	00	V	100	18	3.4	0.7	0.2
10393	12	V	100	30	3.0	0.0	0.4
10410	00	V	100	30	2.5	0.2	0.6
10410	12	V	100	31	3.4	0.0	-0.2
10739	12	V	100	31	4.0	-0.3	1.1
10739	00	V	100	29	3.4	-0.2	-0.8
11035	00	V	100	22	5.1	0.6	-0.3
11035	12	V	100	31	3.5	-0.2	-0.1
12982	00	V	100	25	3.2	0.5	0.0
12982	12	V	100	31	3.3	0.0	-1.0
16245	12	V	100	31	3.7	0.1	0.2
16245	00	V	100	20	4.4	-0.2	-1.4
16429	00	V	100	24	4.1	-0.5	1.0
16429	12	V	100	30	4.2	-0.2	-0.6
16622	00	V	100	24	3.3	0.2	0.1
16754	00	V	100	22	4.8	-0.1	0.6
17607	12	V	100	10	2.9	0.1	0.4
26435	12	V	100	15	2.7	-0.5	-1.0
2EERVT	12	V	100	5	3.3	-2.0	-1.0
2EERVT	00	V	100	4	2.3	0.4	0.4
60018	12	V	100	31	4.0	-0.2	0.2
60018	00	V	100	21	3.7	0.0	-0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	100	9	4.3	-0.2	0.8
7JUNA4	00	V	100	8	3.3	-0.6	0.8
ASDE09	12	V	100	2	4.3	3.8	1.3
ATGU3F	12	V	100	7	3.4	-1.6	1.0
ATGU3F	00	V	100	4	2.5	1.6	1.6
BPMWB2	12	V	100	13	4.0	-0.4	-1.7
BPMWB2	00	V	100	9	3.8	-0.8	0.2
DBBE	12	V	100	2	3.7	-3.3	1.7
DBBE	00	V	100	2	2.0	1.4	0.7
DBLK	12	V	100	3	6.6	-0.4	1.4
FPUW5G	12	V	100	14	4.6	0.5	-0.6
HTXUH4	12	V	100	1	2.6	-0.5	-2.6
HTXUH4	00	V	100	3	0.9	0.1	-0.5
JNKN7J	12	V	100	4	2.9	1.2	-0.2
JNKN7J	00	V	100	3	3.7	2.7	0.1
KJJF9X	12	V	100	8	3.7	0.6	1.4
KJJF9X	00	V	100	10	2.6	0.0	0.8
KMPLHP	00	V	100	9	3.2	-0.1	0.8
KMPLHP	12	V	100	11	5.1	-0.4	0.0
LRYQE3	12	V	100	9	4.9	-0.3	1.0
LRYQE3	00	V	100	6	3.1	-0.7	0.6
UXK5JT	12	V	100	8	4.6	-1.7	1.0
UXK5JT	00	V	100	5	4.5	1.5	-1.8
WDK38H	12	V	100	21	3.1	-0.3	0.5
XKQLWQ	12	V	100	19	5.4	1.4	0.5
XQFJRG	12	V	100	5	3.7	0.4	0.2
XQFJRG	00	V	100	5	2.9	-0.5	1.3
YLV96W	12	V	100	7	4.3	-1.7	0.9
YLV96W	00	V	100	7	4.6	-2.8	0.6
ZVQEQC	12	V	100	11	4.4	0.2	-1.0
ZVQEQC	00	V	100	2	3.9	0.2	-3.5

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

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 500 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : DEC 2021
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	32	11.0	-8.8
01001	00	Z	500	32	10.7	-6.8
01028	12	Z	500	31	2.3	1.2
01028	00	Z	500	30	3.8	0.4
01400	00	Z	500	28	77.7	77.6
01400	12	Z	500	29	76.5	76.1
01415	12	Z	500	31	4.4	3.0
01415	00	Z	500	23	4.6	3.3
02365	00	Z	500	14	5.7	5.1
02365	12	Z	500	14	4.1	3.4
02836	12	Z	500	35	2.8	0.8
02836	00	Z	500	31	2.5	1.1
02963	12	Z	500	31	3.0	1.5
02963	00	Z	500	31	3.2	1.0
03005	00	Z	500	31	4.1	-1.9
03005	12	Z	500	30	14.0	0.2
03238	00	Z	500	31	4.3	2.1
03238	12	Z	500	6	3.8	3.6
03808	12	Z	500	31	15.1	4.9
03808	00	Z	500	30	4.7	2.8
03918	12	Z	500	6	7.1	5.9
03918	00	Z	500	31	8.0	5.5
03953	00	Z	500	31	4.3	-2.6
03953	12	Z	500	33	6.3	1.6
04018	00	Z	500	30	3.8	2.0
04018	12	Z	500	31	3.3	0.8
04220	12	Z	500	31	14.8	7.6
04220	00	Z	500	31	15.2	8.0
04270	12	Z	500	27	9.2	-7.7
04270	00	Z	500	28	12.7	-9.3
04320	12	Z	500	26	15.0	3.2
04320	00	Z	500	27	4.7	1.4
04339	00	Z	500	28	7.4	-4.6
04339	12	Z	500	21	9.1	-4.5
04360	12	Z	500	21	10.3	-9.9
04360	00	Z	500	21	11.0	-9.9
06011	00	Z	500	30	25.3	10.3
06011	12	Z	500	31	22.7	8.4
06260	00	Z	500	31	6.9	-2.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	500	6	5.1	-1.8
06610	12	Z	500	34	3.1	1.0
06610	00	Z	500	21	2.3	1.2
07110	12	Z	500	31	9.3	-7.4
07110	00	Z	500	32	8.6	-7.2
07510	00	Z	500	31	7.1	-5.8
07510	12	Z	500	31	4.7	-2.1
07645	12	Z	500	31	6.6	-5.6
07645	00	Z	500	32	8.5	-7.1
07761	12	Z	500	31	11.9	-10.4
07761	00	Z	500	30	13.5	-11.9
08001	12	Z	500	31	4.1	3.2
08001	00	Z	500	22	4.7	2.9
08221	00	Z	500	30	5.4	3.3
08221	12	Z	500	31	5.5	3.5
08302	00	Z	500	29	8.3	-6.5
08302	12	Z	500	30	8.5	-5.7
08508	12	Z	500	27	7.3	4.4
08522	12	Z	500	30	6.2	5.5
10035	00	Z	500	31	12.8	12.6
10035	12	Z	500	31	11.8	11.6
10393	00	Z	500	22	2.8	0.7
10393	12	Z	500	31	2.6	-0.2
10410	00	Z	500	31	3.7	-0.6
10410	12	Z	500	32	2.1	-0.6
10739	12	Z	500	32	4.9	3.8
10739	00	Z	500	30	4.6	2.9
11035	00	Z	500	28	3.6	1.6
11035	12	Z	500	34	5.0	-3.5
12982	00	Z	500	31	3.5	1.5
12982	12	Z	500	31	3.9	0.4
16245	12	Z	500	31	3.3	2.1
16245	00	Z	500	22	3.0	2.3
16429	00	Z	500	25	3.4	1.9
16429	12	Z	500	31	3.9	2.7
16622	00	Z	500	29	9.9	9.2
16754	00	Z	500	31	5.5	-0.4
17607	12	Z	500	28	5.1	3.9
26435	12	Z	500	15	2.0	0.4
2EERVT	12	Z	500	5	5.7	1.5
2EERVT	00	Z	500	4	8.1	-5.4
60018	12	Z	500	31	4.9	3.8
60018	00	Z	500	26	4.5	3.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	500	9	6.1	0.0
7JUNA4	00	Z	500	10	16.2	0.2
ASDE09	12	Z	500	2	22.1	22.1
ATGU3F	12	Z	500	7	27.9	-26.5
ATGU3F	00	Z	500	5	19.6	-18.6
BPMWB2	12	Z	500	13	8.3	6.5
BPMWB2	00	Z	500	10	10.6	7.5
DBBE	12	Z	500	5	24.8	17.8
DBBE	00	Z	500	7	19.8	5.0
DBLK	12	Z	500	3	22.9	22.8
FPUW5G	12	Z	500	19	5.3	-3.2
HTXUH4	12	Z	500	2	8.1	0.6
HTXUH4	00	Z	500	3	43.3	-38.3
JNKN7J	12	Z	500	4	36.6	36.4
JNKN7J	00	Z	500	3	28.0	27.9
KJJF9X	12	Z	500	9	10.1	9.0
KJJF9X	00	Z	500	12	7.2	5.1
KMPLHP	00	Z	500	9	44.4	42.3
KMPLHP	12	Z	500	11	45.7	43.6
LRYQE3	12	Z	500	9	8.4	-6.3
LRYQE3	00	Z	500	8	7.6	-6.9
UXK5JT	12	Z	500	8	8.1	-1.2
UXK5JT	00	Z	500	6	10.3	-8.2
WDK38H	12	Z	500	21	8.6	-6.7
XKQLWQ	12	Z	500	19	51.8	32.7
XQFJRG	12	Z	500	6	10.4	-9.3
XQFJRG	00	Z	500	5	7.6	-3.0
YLV96W	12	Z	500	7	5.5	4.6
YLV96W	00	Z	500	7	5.0	0.0
ZVQEQC	12	Z	500	11	8.2	6.7
ZVQEQC	00	Z	500	2	5.3	5.3

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	31	2.6	0.3	0.6
01001	00	V	500	30	3.0	-0.5	0.0
01028	12	V	500	31	1.8	0.3	0.3
01028	00	V	500	29	2.0	0.1	0.1
01400	00	V	500	27	2.5	0.2	-0.3
01400	12	V	500	29	2.7	-0.4	0.0
01415	12	V	500	30	2.7	-0.2	-0.3
01415	00	V	500	22	2.7	0.2	0.2
02365	00	V	500	13	2.5	0.1	1.4
02365	12	V	500	14	2.1	0.6	0.4
02836	12	V	500	31	3.1	0.1	-0.4
02836	00	V	500	30	1.8	-0.5	0.2
02963	12	V	500	31	2.3	-0.3	0.0
02963	00	V	500	30	1.8	0.3	0.5
03005	00	V	500	29	2.4	-0.2	0.0
03005	12	V	500	29	3.3	1.0	0.0
03238	00	V	500	29	2.7	0.6	0.6
03238	12	V	500	6	2.5	1.4	-0.3
03808	12	V	500	31	2.7	-0.2	0.0
03808	00	V	500	28	3.5	0.2	-0.3
03918	12	V	500	6	3.6	-0.6	0.8
03918	00	V	500	29	3.3	-0.5	0.5
03953	00	V	500	30	3.6	-0.5	-0.5
03953	12	V	500	31	2.7	-0.1	0.1
04018	00	V	500	28	3.7	-0.1	0.4
04018	12	V	500	31	3.3	0.8	0.2
04220	12	V	500	31	3.5	-0.5	-0.2
04220	00	V	500	30	3.6	0.2	0.6
04270	12	V	500	27	4.2	-0.7	0.4
04270	00	V	500	27	3.3	0.3	-0.7
04320	12	V	500	26	2.5	0.2	0.5
04320	00	V	500	27	2.0	-0.1	0.3
04339	00	V	500	27	2.3	0.1	-0.4
04339	12	V	500	21	2.5	0.3	0.7
04360	12	V	500	21	3.5	-0.4	1.1
04360	00	V	500	21	2.5	0.1	-0.3
06011	00	V	500	28	2.8	-0.3	-0.8
06011	12	V	500	31	3.9	-0.8	-0.7
06260	00	V	500	28	2.1	-0.1	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	500	6	3.0	1.4	0.6
06610	12	V	500	31	2.8	0.1	-0.9
06610	00	V	500	21	2.6	0.7	0.0
07110	12	V	500	31	3.6	0.6	-0.3
07110	00	V	500	30	3.2	0.0	0.0
07510	00	V	500	30	2.8	-0.1	0.1
07510	12	V	500	31	2.6	-0.6	-0.2
07645	12	V	500	31	4.3	-0.4	-1.0
07645	00	V	500	29	2.5	0.6	-0.3
07761	12	V	500	31	2.6	0.2	-0.6
07761	00	V	500	29	2.8	0.4	0.2
08001	12	V	500	31	2.5	-0.1	0.0
08001	00	V	500	22	3.2	0.2	-0.3
08221	00	V	500	29	2.7	0.3	-0.7
08221	12	V	500	31	2.3	0.0	0.3
08302	00	V	500	28	3.1	0.4	-0.5
08302	12	V	500	30	1.9	0.1	-0.1
08508	12	V	500	27	3.4	-0.7	0.0
08522	12	V	500	30	3.3	0.1	-0.5
10035	00	V	500	30	2.1	0.5	-0.1
10035	12	V	500	31	2.8	-0.1	-0.3
10393	00	V	500	18	2.4	0.1	-0.3
10393	12	V	500	30	1.8	0.5	-0.4
10410	00	V	500	30	2.5	0.2	-0.1
10410	12	V	500	31	2.3	0.7	0.3
10739	12	V	500	31	2.3	0.4	-0.5
10739	00	V	500	29	2.6	0.3	-0.3
11035	00	V	500	27	3.7	0.1	0.2
11035	12	V	500	31	2.7	-0.1	-0.8
12982	00	V	500	30	2.7	0.2	0.6
12982	12	V	500	31	2.5	-0.3	-0.2
16245	12	V	500	31	2.6	0.6	0.2
16245	00	V	500	21	2.8	0.6	0.5
16429	00	V	500	25	2.6	0.0	0.3
16429	12	V	500	31	2.2	0.4	0.0
16622	00	V	500	29	3.0	-0.3	-0.2
16754	00	V	500	26	2.6	0.2	0.5
17607	12	V	500	15	4.1	0.4	0.8
26435	12	V	500	15	1.8	0.5	-0.3
2EERVT	12	V	500	5	1.7	0.1	0.2
2EERVT	00	V	500	4	1.5	0.6	0.1
60018	12	V	500	31	2.2	0.0	0.0
60018	00	V	500	25	2.1	-0.3	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	500	9	2.7	0.8	0.1
7JUNA4	00	V	500	10	2.5	-0.5	-1.0
ASDE09	12	V	500	2	2.3	-0.3	1.9
ATGU3F	12	V	500	7	2.9	0.9	0.7
ATGU3F	00	V	500	5	4.0	0.1	-1.2
BPMWB2	12	V	500	13	1.8	0.3	0.1
BPMWB2	00	V	500	10	3.1	1.1	0.1
DBBE	12	V	500	5	2.1	0.4	0.4
DBBE	00	V	500	7	2.9	1.1	1.1
DBLK	12	V	500	3	3.0	2.1	-1.0
FPUW5G	12	V	500	19	2.5	0.7	0.7
HTXUH4	12	V	500	2	2.1	2.1	-0.4
HTXUH4	00	V	500	3	1.5	0.5	-0.3
JNKN7J	12	V	500	4	1.6	-0.5	0.8
JNKN7J	00	V	500	3	5.2	1.5	-0.5
KJJF9X	12	V	500	9	2.3	0.4	-0.6
KJJF9X	00	V	500	12	1.4	0.4	-0.4
KMPLHP	00	V	500	9	2.6	-0.4	0.6
KMPLHP	12	V	500	11	2.7	-0.1	-0.3
LRYQE3	12	V	500	9	4.3	0.1	-0.6
LRYQE3	00	V	500	8	4.2	-0.1	1.7
UXK5JT	12	V	500	8	1.2	0.0	0.5
UXK5JT	00	V	500	6	1.4	0.0	0.0
WDK38H	12	V	500	21	2.2	0.4	-0.2
XKQLWQ	12	V	500	19	7.9	0.0	0.2
XQFJRG	12	V	500	6	4.7	-1.3	3.2
XQFJRG	00	V	500	5	3.8	0.1	-2.5
YLV96W	12	V	500	7	2.9	0.2	0.1
YLV96W	00	V	500	7	2.8	1.1	0.2
ZVQEQC	12	V	500	11	2.9	-0.5	0.2
ZVQEQC	00	V	500	2	2.3	-0.9	-1.1

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	32	9.7	-8.5
01001	00	Z	850	32	9.4	-7.9
01028	12	Z	850	31	2.4	0.4
01028	00	Z	850	30	4.5	0.1
01400	00	Z	850	28	76.1	75.9
01400	12	Z	850	29	76.0	75.7
01415	12	Z	850	31	4.5	3.4
01415	00	Z	850	23	4.9	4.2
02365	00	Z	850	14	5.2	4.9
02365	12	Z	850	14	5.7	5.2
02836	12	Z	850	35	3.3	2.3
02836	00	Z	850	31	3.0	1.9
02963	12	Z	850	31	2.6	2.1
02963	00	Z	850	31	2.7	1.5
03005	00	Z	850	31	3.4	-1.9
03005	12	Z	850	30	14.5	0.1
03238	00	Z	850	31	2.7	1.9
03238	12	Z	850	6	3.1	2.6
03808	12	Z	850	31	15.8	4.8
03808	00	Z	850	30	3.4	1.9
03918	12	Z	850	6	6.0	5.7
03918	00	Z	850	31	6.3	5.8
03953	00	Z	850	31	3.7	-2.4
03953	12	Z	850	34	4.5	0.0
04018	00	Z	850	31	1.9	-0.1
04018	12	Z	850	31	3.7	-0.7
04220	12	Z	850	31	15.2	6.9
04220	00	Z	850	31	15.9	5.5
04270	12	Z	850	28	6.3	-4.5
04270	00	Z	850	29	9.8	-7.9
04320	12	Z	850	26	15.6	2.1
04320	00	Z	850	28	3.1	-0.2
04339	00	Z	850	28	6.9	-5.5
04339	12	Z	850	22	7.5	-6.3
04360	12	Z	850	21	10.6	-9.1
04360	00	Z	850	21	10.2	-9.0
06011	00	Z	850	30	6.4	4.8
06011	12	Z	850	31	5.5	4.0
06260	00	Z	850	31	6.3	-2.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	850	6	2.1	-0.5
06610	12	Z	850	34	2.6	0.6
06610	00	Z	850	21	3.0	0.7
07110	12	Z	850	31	3.7	-2.7
07110	00	Z	850	32	4.0	-3.0
07510	00	Z	850	31	2.9	1.6
07510	12	Z	850	31	3.2	1.9
07645	12	Z	850	31	4.8	-3.3
07645	00	Z	850	33	5.0	-4.2
07761	12	Z	850	30	5.9	-5.0
07761	00	Z	850	30	5.7	-4.9
08001	12	Z	850	32	2.9	0.3
08001	00	Z	850	22	3.1	0.4
08221	00	Z	850	30	2.5	1.8
08221	12	Z	850	31	3.4	2.1
08302	00	Z	850	29	7.7	-7.5
08302	12	Z	850	30	9.4	-9.1
08508	12	Z	850	28	6.3	4.4
08522	12	Z	850	30	4.6	3.8
10035	00	Z	850	31	13.1	12.8
10035	12	Z	850	31	12.1	11.8
10393	00	Z	850	16	1.4	0.1
10393	12	Z	850	30	1.6	0.0
10410	00	Z	850	31	2.6	-0.2
10410	12	Z	850	32	1.9	-1.1
10739	12	Z	850	32	3.8	3.3
10739	00	Z	850	30	5.1	4.5
11035	00	Z	850	28	3.5	1.0
11035	12	Z	850	34	2.8	-0.5
12982	00	Z	850	31	2.8	0.4
12982	12	Z	850	31	3.2	0.3
16245	12	Z	850	31	3.1	1.7
16245	00	Z	850	22	3.1	0.1
16429	00	Z	850	25	3.0	1.7
16429	12	Z	850	31	2.9	1.7
16622	00	Z	850	29	10.0	8.9
16754	00	Z	850	31	3.9	-1.4
17607	12	Z	850	29	3.1	2.1
26435	12	Z	850	15	2.3	0.0
2EERVT	12	Z	850	5	4.8	-3.0
2EERVT	00	Z	850	4	5.4	-1.2
60018	12	Z	850	31	2.2	0.8
60018	00	Z	850	26	2.9	2.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	850	9	6.3	-1.6
7JUNA4	00	Z	850	10	7.1	3.6
ASDE09	12	Z	850	2	27.4	27.4
ATGU3F	12	Z	850	7	25.6	-24.6
ATGU3F	00	Z	850	5	22.8	-22.2
BPMWB2	12	Z	850	14	6.2	5.4
BPMWB2	00	Z	850	10	5.9	4.8
DBBE	12	Z	850	6	40.8	35.1
DBBE	00	Z	850	9	36.2	22.5
DBLK	12	Z	850	3	17.2	17.1
FPUW5G	12	Z	850	19	9.1	-8.1
HTXUH4	12	Z	850	3	8.8	-0.9
HTXUH4	00	Z	850	3	47.7	-41.6
JNKN7J	12	Z	850	4	39.2	38.9
JNKN7J	00	Z	850	3	27.7	27.4
KJJF9X	12	Z	850	9	7.1	5.5
KJJF9X	00	Z	850	12	4.8	4.1
KMPLHP	00	Z	850	10	53.1	51.6
KMPLHP	12	Z	850	12	52.3	50.6
LRYQE3	12	Z	850	10	13.5	-9.9
LRYQE3	00	Z	850	8	6.0	-4.9
UXK5JT	12	Z	850	8	7.2	-4.7
UXK5JT	00	Z	850	6	7.1	-6.3
WDK38H	12	Z	850	21	12.0	-11.2
XKQLWQ	12	Z	850	19	34.9	23.5
XQFJRG	12	Z	850	6	4.9	-3.1
XQFJRG	00	Z	850	5	6.0	-5.6
YLV96W	12	Z	850	7	2.4	-0.7
YLV96W	00	Z	850	7	3.0	-1.6
ZVQEQC	12	Z	850	11	2.8	0.6
ZVQEQC	00	Z	850	2	2.1	2.1

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

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 850 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : DEC 2021
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	31	3.4	-0.3	0.9
01001	00	V	850	30	3.3	-0.6	0.8
01028	12	V	850	31	2.3	-0.6	-0.2
01028	00	V	850	29	2.7	0.0	-0.1
01400	00	V	850	27	3.6	-0.1	-1.2
01400	12	V	850	29	2.5	0.7	0.1
01415	12	V	850	30	2.9	-0.4	0.4
01415	00	V	850	22	3.0	0.9	-0.6
02365	00	V	850	13	2.7	-0.2	0.9
02365	12	V	850	14	3.1	-0.1	0.4
02836	12	V	850	31	2.9	0.1	0.1
02836	00	V	850	30	2.8	-0.4	-0.1
02963	12	V	850	31	2.5	-0.3	0.1
02963	00	V	850	30	2.5	0.3	-0.1
03005	00	V	850	29	3.0	0.5	0.6
03005	12	V	850	29	2.5	0.3	-0.1
03238	00	V	850	29	2.7	0.3	0.5
03238	12	V	850	6	2.2	-0.7	-0.2
03808	12	V	850	31	2.8	0.1	-0.3
03808	00	V	850	29	2.9	0.3	0.1
03918	12	V	850	6	2.4	0.8	-0.7
03918	00	V	850	29	2.5	-0.3	-0.2
03953	00	V	850	30	2.9	0.0	0.2
03953	12	V	850	31	3.5	0.3	0.7
04018	00	V	850	29	3.3	-0.7	-0.6
04018	12	V	850	31	3.4	0.5	0.7
04220	12	V	850	31	4.4	-0.1	-0.2
04220	00	V	850	30	4.9	0.0	0.4
04270	12	V	850	28	6.1	0.6	0.5
04270	00	V	850	28	4.2	0.6	0.2
04320	12	V	850	26	3.1	0.4	1.1
04320	00	V	850	27	3.3	0.5	-0.1
04339	00	V	850	27	4.1	0.9	0.1
04339	12	V	850	22	3.7	0.5	0.0
04360	12	V	850	21	6.8	3.3	1.6
04360	00	V	850	21	6.1	1.8	1.0
06011	00	V	850	29	2.8	-0.1	-0.5
06011	12	V	850	31	2.5	-0.8	0.3
06260	00	V	850	30	2.1	0.2	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	850	6	2.7	-0.6	0.0
06610	12	V	850	31	3.0	0.1	-0.6
06610	00	V	850	21	2.0	0.0	0.2
07110	12	V	850	31	2.8	0.3	0.0
07110	00	V	850	30	2.5	0.1	0.2
07510	00	V	850	30	4.2	0.7	0.1
07510	12	V	850	31	3.6	-0.9	-1.0
07645	12	V	850	31	3.5	-0.7	0.3
07645	00	V	850	30	2.7	-0.3	-0.3
07761	12	V	850	30	3.0	0.0	0.0
07761	00	V	850	29	2.7	-0.3	0.2
08001	12	V	850	31	4.0	0.2	0.0
08001	00	V	850	22	3.4	0.5	-0.1
08221	00	V	850	29	3.1	0.0	-0.2
08221	12	V	850	31	2.8	0.1	0.1
08302	00	V	850	28	3.3	0.8	0.9
08302	12	V	850	30	3.0	-0.2	-0.1
08508	12	V	850	28	2.3	0.5	-0.5
08522	12	V	850	30	3.3	0.1	-0.1
10035	00	V	850	30	2.7	0.2	-0.3
10035	12	V	850	31	2.1	0.0	0.2
10393	00	V	850	16	2.4	-0.3	-1.0
10393	12	V	850	30	2.3	0.0	-0.1
10410	00	V	850	30	2.6	0.2	-0.2
10410	12	V	850	31	2.5	0.9	0.1
10739	12	V	850	31	2.7	-0.5	-0.2
10739	00	V	850	29	2.1	0.1	-0.2
11035	00	V	850	27	3.3	0.3	-0.8
11035	12	V	850	31	2.9	0.9	0.3
12982	00	V	850	30	2.7	-0.1	-0.2
12982	12	V	850	31	2.8	0.1	-0.1
16245	12	V	850	31	4.3	0.5	-0.4
16245	00	V	850	21	3.4	0.3	0.5
16429	00	V	850	25	2.8	-0.1	-0.2
16429	12	V	850	31	2.0	0.3	0.1
16622	00	V	850	29	3.5	0.1	0.4
16754	00	V	850	30	2.9	-0.1	-0.2
17607	12	V	850	29	3.2	0.8	-0.2
26435	12	V	850	15	2.6	-0.1	-0.4
2EERVT	12	V	850	5	2.2	-0.2	0.7
2EERVT	00	V	850	4	1.8	0.6	-1.1
60018	12	V	850	31	3.3	0.8	-0.2
60018	00	V	850	25	3.9	0.9	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	850	9	2.5	0.7	1.5
7JUNA4	00	V	850	10	2.7	0.2	-0.5
ASDE09	12	V	850	2	0.3	-0.2	0.1
ATGU3F	12	V	850	7	6.3	0.6	1.5
ATGU3F	00	V	850	5	3.0	1.2	-1.0
BPMWB2	12	V	850	14	2.6	0.6	-0.4
BPMWB2	00	V	850	10	2.5	0.1	0.7
DBBE	12	V	850	6	8.1	0.0	1.9
DBBE	00	V	850	9	5.5	1.2	0.5
DBLK	12	V	850	3	1.9	0.3	0.8
FPUW5G	12	V	850	19	2.1	1.0	0.0
HTXUH4	12	V	850	2	1.5	-0.9	0.0
HTXUH4	00	V	850	3	3.1	-0.4	-1.4
JNKN7J	12	V	850	4	3.3	-0.1	1.4
JNKN7J	00	V	850	3	2.1	1.2	-0.9
KJJF9X	12	V	850	9	2.7	-0.4	-0.1
KJJF9X	00	V	850	12	1.8	0.2	-0.4
KMPLHP	00	V	850	10	3.5	0.7	-0.1
KMPLHP	12	V	850	12	4.3	0.1	-0.6
LRYQE3	12	V	850	10	3.5	1.1	-1.5
LRYQE3	00	V	850	8	2.4	0.6	0.1
UXK5JT	12	V	850	8	1.8	-0.3	-1.1
UXK5JT	00	V	850	6	2.0	0.9	0.2
WDK38H	12	V	850	21	3.0	-0.1	0.0
XKQLWQ	12	V	850	19	5.0	-1.0	-0.3
XQFJRG	12	V	850	6	2.2	0.2	0.2
XQFJRG	00	V	850	5	5.6	-1.6	-2.1
YLV96W	12	V	850	7	2.1	0.3	-0.2
YLV96W	00	V	850	7	4.5	1.3	-1.0
ZVQEQC	12	V	850	11	3.0	-0.3	-1.6
ZVQEQC	00	V	850	2	7.7	2.7	-6.7

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                 : DEC 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	1532	0	0.4	-0.4	0.5
1300001	99	P	SUR	11	-23	610	0	0.4	0.2	0.4
1300008	99	P	SUR	15	-38	602	0	0.2	0.1	0.3
1300130	99	P	SUR	28	-16	743	0	0.4	0.3	0.5
1300131	99	P	SUR	28	-17	743	0	0.4	0.2	0.4
1301569	99	P	SUR	30	-63	7	0	0.2	-0.8	0.8
1301603	99	P	SUR	35	-60	743	0	1.2	-0.2	1.2
1301608	99	P	SUR	31	-56	743	0	0.4	0.0	0.4
1301610	99	P	SUR	53	-10	708	0	0.8	-0.2	0.8
1301612	99	P	SUR	32	-27	742	0	0.4	0.1	0.5
1301699	99	P	SUR	25	-26	731	0	0.3	-0.4	0.5
1301700	99	P	SUR	12	-28	736	0	0.3	0.1	0.3
1301701	99	P	SUR	10	-20	742	0	0.3	0.3	0.4
1301706	99	P	SUR	11	-27	730	0	0.3	0.0	0.3
1301712	99	P	SUR	12	-23	741	0	0.3	0.0	0.3
1301713	99	P	SUR	19	-23	740	0	0.3	0.1	0.3
1301714	99	P	SUR	20	-27	741	0	0.2	0.1	0.3
1301715	99	P	SUR	14	-23	741	0	0.4	0.1	0.4
1301717	99	P	SUR	34	-10	741	0	0.3	0.1	0.3
1301718	99	P	SUR	25	-18	741	0	0.3	0.2	0.4
1301719	99	P	SUR	25	-22	740	0	0.2	0.4	0.4
1301720	99	P	SUR	27	-20	743	0	0.2	0.1	0.3
1301721	99	P	SUR	38	-12	742	0	0.3	-0.1	0.3
1301722	99	P	SUR	22	-24	740	0	0.2	0.1	0.2
1701632	99	P	SUR	31	-59	735	0	0.4	0.1	0.4
1801607	99	P	SUR	41	-58	612	0	1.1	1.2	1.6
1801608	99	P	SUR	37	-61	1358	0	1.1	0.2	1.2
4100040	99	P	SUR	15	-53	4452	0	0.2	0.4	0.5
4100043	99	P	SUR	21	-65	4383	0	0.3	-1.2	1.2
4100044	99	P	SUR	22	-59	4440	0	0.2	0.3	0.4
4100046	99	P	SUR	24	-68	4452	0	0.3	0.2	0.4
4100048	99	P	SUR	32	-70	4448	0	0.4	0.3	0.5
4100049	99	P	SUR	27	-63	4452	0	0.3	-0.9	1.0
4100052	99	P	SUR	18	-65	4383	0	0.3	-1.1	1.1
4100053	99	P	SUR	18	-66	4428	0	0.3	-0.5	0.5
4100056	99	P	SUR	18	-65	4157	0	0.3	-2.0	2.0

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4100139	99	P	SUR	20	-38	742	0	0.2	0.1	0.2
4100300	99	P	SUR	16	-57	742	0	0.2	0.2	0.3
4101557	99	P	SUR	43	-46	729	0	0.5	0.0	0.5
4101567	99	P	SUR	26	-51	740	0	0.3	0.4	0.5
4101609	99	P	SUR	25	-28	743	0	0.2	0.0	0.2
4101613	99	P	SUR	30	-38	743	0	0.3	0.3	0.5
4101614	99	P	SUR	25	-26	282	0	0.3	-0.1	0.3
4101616	99	P	SUR	31	-34	743	0	0.3	-0.1	0.3
4101618	99	P	SUR	28	-31	743	0	0.3	0.1	0.3
4101621	99	P	SUR	29	-29	743	0	0.3	0.2	0.4
4101627	99	P	SUR	50	-26	743	0	1.0	-0.2	1.0
4101652	99	P	SUR	65	-24	743	0	0.5	-0.1	0.5
4101654	99	P	SUR	70	2	731	0	0.4	0.0	0.4
4101656	99	P	SUR	64	-25	742	0	0.5	0.1	0.5
4101657	99	P	SUR	74	2	701	0	0.5	-0.1	0.5
4101658	99	P	SUR	62	-1	743	0	0.4	0.1	0.4
4101663	99	P	SUR	32	-39	743	0	0.4	-0.1	0.4
4101664	99	P	SUR	49	-49	743	0	0.5	0.1	0.5
4101665	99	P	SUR	61	-10	734	0	0.4	-0.4	0.6
4101696	99	P	SUR	33	-36	743	0	0.4	-0.1	0.5
4101698	99	P	SUR	13	-60	4	0	0.1	0.2	0.2
4101702	99	P	SUR	41	-39	743	2	1.2	0.1	1.2
4101714	99	P	SUR	32	-58	742	5	2.1	0.3	2.1
4101717	99	P	SUR	42	-12	743	0	0.6	0.2	0.7
4101718	99	P	SUR	36	-62	743	0	0.5	0.0	0.5
4101719	99	P	SUR	38	-36	743	3	1.0	0.2	1.0
4101720	99	P	SUR	35	-25	742	0	1.0	0.4	1.1
4101723	99	P	SUR	18	-62	743	0	0.2	-0.0	0.2
4101724	99	P	SUR	12	-55	743	0	0.3	0.6	0.7
4101725	99	P	SUR	17	-55	743	0	0.2	-0.1	0.3
4101726	99	P	SUR	10	-37	742	0	0.3	0.1	0.3
4101743	99	P	SUR	33	-56	671	4	1.7	-0.4	1.7
4101752	99	P	SUR	47	-9	575	1	2.5	0.9	2.7
4101753	99	P	SUR	28	-54	743	0	0.3	0.3	0.4
4101755	99	P	SUR	30	-43	743	0	0.3	0.1	0.3
4101756	99	P	SUR	12	-62	676	0	0.3	-0.8	0.9
4101842	99	P	SUR	60	-9	736	0	0.4	-0.3	0.5
4101843	99	P	SUR	62	-13	732	0	0.4	0.0	0.4
4101844	99	P	SUR	12	-40	732	0	0.3	0.2	0.4
4101845	99	P	SUR	61	-15	728	0	0.4	0.0	0.4
4101848	99	P	SUR	12	-53	735	0	0.2	0.2	0.3
4101850	99	P	SUR	45	-11	732	0	0.3	-0.0	0.3
4102547	99	P	SUR	12	-50	651	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
4102548	99	P	SUR	17	-55	714	0	0.3	-0.1	0.3
4102549	99	P	SUR	13	-42	692	0	0.3	0.4	0.5
4102551	99	P	SUR	13	-36	527	0	0.3	0.0	0.3
4102627	99	P	SUR	39	-46	105	0	0.3	0.0	0.3
4102629	99	P	SUR	33	-34	248	0	0.4	-0.1	0.4
4102632	99	P	SUR	19	-65	735	0	0.2	-0.9	0.9
4102634	99	P	SUR	17	-67	479	0	0.3	-0.0	0.3
41040	99	P	SUR	15	-53	5129	0	0.3	0.5	0.5
41043	99	P	SUR	21	-65	4392	0	0.3	-1.2	1.2
41044	99	P	SUR	22	-59	3896	0	0.3	0.3	0.4
41046	99	P	SUR	24	-68	6293	0	0.3	0.2	0.4
41048	99	P	SUR	32	-70	6808	0	0.4	0.3	0.5
41049	99	P	SUR	28	-63	6216	0	0.3	-0.9	1.0
41052	99	P	SUR	18	-65	3128	0	0.3	-1.1	1.1
41053	99	P	SUR	19	-66	3223	0	0.3	-0.5	0.6
41056	99	P	SUR	18	-66	2992	0	0.4	-2.1	2.1
4200059	99	P	SUR	15	-67	4452	0	0.2	-1.3	1.3
4200060	99	P	SUR	16	-63	4437	0	0.3	0.0	0.3
4200085	99	P	SUR	18	-67	4104	0	0.2	0.2	0.3
4201703	99	P	SUR	40	-59	442	0	0.5	0.1	0.5
42059	99	P	SUR	15	-68	4404	0	0.3	-1.3	1.3
42060	99	P	SUR	16	-63	3969	0	0.3	0.0	0.3
42085	99	P	SUR	18	-67	3557	0	0.3	0.1	0.3
4400005	99	P	SUR	43	-69	741	0	0.7	-0.5	0.8
4400008	99	P	SUR	40	-69	4452	0	0.5	-1.0	1.1
4400011	99	P	SUR	41	-67	4451	0	0.5	0.1	0.5
4400027	99	P	SUR	44	-67	735	0	0.6	-0.1	0.7
4400032	99	P	SUR	44	-69	740	0	0.6	-0.3	0.7
4400033	99	P	SUR	44	-69	725	0	0.6	0.2	0.6
4400034	99	P	SUR	44	-68	733	0	0.6	-0.5	0.8
4400037	99	P	SUR	43	-68	654	0	0.6	-0.7	0.9
44005	99	P	SUR	43	-69	2070	0	0.7	-0.5	0.8
4400777	99	P	SUR	40	-36	743	0	0.6	0.3	0.7
44008	99	P	SUR	41	-69	6312	0	0.5	-1.0	1.2
4400857	99	P	SUR	31	-58	742	5	2.7	0.8	2.8
44011	99	P	SUR	41	-67	6265	0	0.5	0.1	0.5
4401557	99	P	SUR	29	-47	742	0	0.3	-0.2	0.4
4401563	99	P	SUR	35	-24	743	11	2.2	-0.6	2.3
4401572	99	P	SUR	26	-62	743	0	0.4	0.1	0.4
4401576	99	P	SUR	25	-45	743	0	0.2	0.3	0.4
4401577	99	P	SUR	22	-54	743	0	1.4	-0.3	1.4
4401581	99	P	SUR	28	-48	743	0	0.3	0.4	0.5
4401582	99	P	SUR	39	-23	743	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
4401584	99	P	SUR	34	-33	743	0	0.3	0.3	0.5
4401828	99	P	SUR	60	-22	635	0	0.5	0.4	0.7
4401837	99	P	SUR	39	-23	741	0	0.4	-0.0	0.4
4401848	99	P	SUR	49	-29	725	0	0.5	0.1	0.5
4401850	99	P	SUR	60	-8	727	0	0.5	-0.2	0.5
4401851	99	P	SUR	48	-9	722	0	0.5	0.2	0.6
4401854	99	P	SUR	28	-64	743	0	0.3	-0.3	0.4
4401867	99	P	SUR	35	-60	743	0	0.5	-0.3	0.6
4401870	99	P	SUR	29	-48	743	0	0.3	-0.0	0.3
4401872	99	P	SUR	28	-57	743	0	0.3	-0.1	0.3
4401874	99	P	SUR	21	-49	743	0	0.2	0.2	0.3
4402603	99	P	SUR	51	-28	732	0	0.5	0.1	0.5
4402604	99	P	SUR	44	-48	729	0	0.7	-0.1	0.7
4402605	99	P	SUR	56	-18	734	0	0.5	0.2	0.5
4402606	99	P	SUR	53	-42	733	0	0.5	0.0	0.5
4402607	99	P	SUR	50	-33	737	0	0.5	-0.1	0.5
4402608	99	P	SUR	56	-37	734	0	0.5	0.0	0.5
4402609	99	P	SUR	53	-27	732	0	0.5	0.0	0.5
4402610	99	P	SUR	45	-27	737	0	0.5	0.0	0.5
4402611	99	P	SUR	48	-30	730	0	0.5	-0.2	0.6
4402612	99	P	SUR	45	-45	729	0	0.5	0.3	0.6
4402613	99	P	SUR	48	-20	728	0	0.6	-0.1	0.6
4402614	99	P	SUR	49	-25	734	0	0.4	-0.1	0.4
4402615	99	P	SUR	45	-15	736	0	0.4	0.2	0.5
4402616	99	P	SUR	52	-16	733	0	0.6	0.2	0.6
4402618	99	P	SUR	29	-35	737	0	0.3	0.2	0.3
4402656	99	P	SUR	42	-60	736	0	0.5	0.2	0.6
4402660	99	P	SUR	36	-17	743	0	0.3	0.3	0.5
4402663	99	P	SUR	47	-17	741	0	0.5	-0.2	0.5
4402665	99	P	SUR	31	-19	743	0	0.3	0.3	0.4
4402670	99	P	SUR	20	-24	731	0	0.3	0.1	0.3
4402671	99	P	SUR	11	-24	735	0	0.3	0.2	0.4
4402672	99	P	SUR	13	-23	736	0	0.3	0.1	0.3
4402673	99	P	SUR	14	-25	729	0	0.3	0.2	0.4
4402674	99	P	SUR	12	-26	732	0	0.3	0.3	0.5
4402675	99	P	SUR	41	-39	733	0	0.6	-0.1	0.6
4402676	99	P	SUR	13	-25	731	0	0.3	0.4	0.5
4402687	99	P	SUR	37	-23	709	0	1.8	0.0	1.8
44027	99	P	SUR	44	-67	2051	0	0.6	-0.1	0.6
4402708	99	P	SUR	12	-24	731	0	0.3	0.3	0.5
4402712	99	P	SUR	68	-66	596	0	0.5	0.2	0.6
4402715	99	P	SUR	66	-62	451	101	5.3	-3.2	6.1
4402717	99	P	SUR	70	-68	353	16	4.5	-3.2	5.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4402718	99	P	SUR	64	-61	679	7	3.1	-0.5	3.1
4402720	99	P	SUR	58	-62	741	3	2.9	0.7	3.0
4402721	99	P	SUR	50	-51	741	0	0.5	0.2	0.5
4402723	99	P	SUR	48	-51	741	0	0.4	0.1	0.4
4402725	99	P	SUR	55	-57	165	3	1.8	-0.1	1.8
4402726	99	P	SUR	59	-67	742	8	3.1	-0.3	3.1
4402727	99	P	SUR	48	-50	741	0	0.4	0.0	0.4
44032	99	P	SUR	44	-69	1361	0	0.6	-0.3	0.7
44033	99	P	SUR	44	-69	1335	0	0.6	0.2	0.6
44034	99	P	SUR	44	-68	1351	0	0.6	-0.5	0.8
4403556	99	P	SUR	47	-49	574	14	3.1	1.4	3.4
4403557	99	P	SUR	47	-49	571	0	0.5	0.5	0.7
4403558	99	P	SUR	45	-52	561	0	0.4	0.3	0.5
4403559	99	P	SUR	47	-50	573	0	0.6	0.6	0.8
44037	99	P	SUR	44	-68	1203	0	0.6	-0.8	1.0
44137	99	P	SUR	42	-62	704	0	0.6	-0.5	0.8
44139	99	P	SUR	44	-57	741	0	0.6	-0.2	0.6
44150	99	P	SUR	43	-64	835	0	0.6	-0.5	0.8
44258	99	P	SUR	45	-63	835	0	0.6	-0.5	0.8
44488	99	P	SUR	45	-61	789	0	0.6	-0.2	0.6
44489	99	P	SUR	46	-61	839	0	0.5	-0.1	0.5
44490	99	P	SUR	45	-66	785	0	0.6	-0.2	0.6
4601782	99	P	SUR	40	-51	742	0	0.6	0.4	0.7
4601810	99	P	SUR	88	-11	456	0	0.6	0.3	0.7
4701738	99	P	SUR	70	-67	689	689	0.0	0.0	0.0
4701739	99	P	SUR	68	-60	532	303	5.1	-0.5	5.1
4801723	99	P	SUR	71	4	743	0	0.4	0.1	0.4
4801727	99	P	SUR	83	22	743	0	0.5	0.4	0.6
6100001	99	P	SUR	43	8	737	0	0.5	-0.3	0.6
6100002	99	P	SUR	42	5	729	0	0.4	-0.2	0.5
6100196	99	P	SUR	42	4	743	0	0.8	0.3	0.9
6100197	99	P	SUR	40	4	743	0	0.5	0.1	0.5
6100198	99	P	SUR	37	-2	743	0	0.5	0.2	0.5
6100280	99	P	SUR	41	1	743	0	0.4	0.3	0.5
6100281	99	P	SUR	40	0	743	0	0.6	-0.2	0.6
6100417	99	P	SUR	38	0	743	0	0.4	0.2	0.5
6100430	99	P	SUR	40	2	743	0	0.7	0.3	0.7
6101003	99	P	SUR	40	25	156	0	0.5	-0.3	0.6
6101005	99	P	SUR	38	26	61	0	0.5	-0.3	0.6
6101007	99	P	SUR	36	25	200	0	0.5	-0.6	0.8
6101008	99	P	SUR	37	22	192	0	0.6	-0.3	0.7
6101009	99	P	SUR	35	25	41	17	0.8	-0.5	0.9
6102784	99	P	SUR	33	19	734	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
6102786	99	P	SUR	36	18	733	0	0.4	0.2	0.4
6102787	99	P	SUR	36	17	740	0	0.5	0.3	0.6
6102788	99	P	SUR	31	18	732	0	0.4	-0.0	0.4
6102789	99	P	SUR	33	16	727	0	0.4	0.3	0.5
6102791	99	P	SUR	37	10	740	0	0.3	-0.2	0.4
6102792	99	P	SUR	39	8	109	0	0.3	-0.3	0.4
6102793	99	P	SUR	38	1	743	0	0.3	0.4	0.5
6102794	99	P	SUR	39	1	304	0	1.7	0.4	1.8
6102795	99	P	SUR	40	3	506	0	0.4	0.1	0.4
6102796	99	P	SUR	40	3	512	0	0.4	-0.0	0.4
6102797	99	P	SUR	39	2	441	0	0.3	0.4	0.5
6102798	99	P	SUR	39	2	433	0	0.3	0.3	0.4
6200024	99	P	SUR	44	-3	729	0	0.6	0.1	0.6
6200025	99	P	SUR	44	-6	641	0	0.7	0.1	0.7
6200082	99	P	SUR	44	-8	635	70	3.0	0.8	3.1
6200083	99	P	SUR	43	-9	743	0	0.6	0.0	0.6
6200084	99	P	SUR	42	-9	731	0	0.5	0.2	0.5
6200085	99	P	SUR	36	-7	743	0	0.4	0.1	0.5
6200086	99	P	SUR	55	6	378	0	0.3	-0.3	0.5
6200087	99	P	SUR	55	7	378	0	0.4	-0.5	0.7
6200091	99	P	SUR	53	-5	497	0	0.5	-0.4	0.7
6200092	99	P	SUR	51	-11	739	0	0.6	-0.3	0.6
6200093	99	P	SUR	55	-10	738	0	0.6	-0.4	0.7
6200094	99	P	SUR	52	-7	740	0	0.5	-0.1	0.5
6200095	99	P	SUR	53	-16	739	0	0.6	-0.4	0.7
62001	99	P	SUR	45	-5	1583	0	0.4	-0.0	0.4
6200200	99	P	SUR	36	-8	79	0	1.5	-4.5	4.7
6201065	99	P	SUR	54	7	288	0	0.3	0.6	0.7
6201066	99	P	SUR	55	7	685	0	0.3	0.3	0.5
6202613	99	P	SUR	28	-67	743	0	0.3	-0.1	0.3
6202614	99	P	SUR	26	-58	743	0	0.3	-0.2	0.3
6202623	99	P	SUR	66	-4	743	0	0.4	-0.1	0.4
6202624	99	P	SUR	61	-19	743	0	0.4	0.0	0.4
6202626	99	P	SUR	53	-10	743	0	1.1	-0.5	1.2
6202627	99	P	SUR	62	-25	736	0	0.5	0.0	0.5
6202629	99	P	SUR	37	-42	682	0	0.4	-0.1	0.4
6202630	99	P	SUR	45	-3	743	0	0.3	-0.0	0.3
6202631	99	P	SUR	60	-3	743	0	0.4	0.1	0.4
6202632	99	P	SUR	60	-25	740	0	0.5	0.0	0.5
6202633	99	P	SUR	62	-5	743	0	0.4	-0.1	0.4
6202635	99	P	SUR	67	10	743	0	0.3	0.1	0.4
6202636	99	P	SUR	71	21	604	13	2.2	1.0	2.4
6202637	99	P	SUR	65	2	743	0	0.6	0.0	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6202639	99	P	SUR	32	-30	743	0	0.3	-0.0	0.3
6202640	99	P	SUR	33	-42	743	0	0.4	-0.5	0.6
6202643	99	P	SUR	28	-64	743	0	0.3	-0.1	0.3
6202644	99	P	SUR	31	-36	743	0	0.3	-0.3	0.5
6202645	99	P	SUR	27	-62	743	0	0.3	-0.3	0.5
62029	99	P	SUR	49	-12	1578	0	0.5	-0.2	0.5
6203507	99	P	SUR	41	-67	742	0	3.6	2.5	4.3
6203508	99	P	SUR	43	-68	743	0	1.0	1.1	1.5
6203516	99	P	SUR	44	-63	730	0	0.6	-0.2	0.6
6203574	99	P	SUR	61	2	731	0	0.4	0.3	0.5
6203588	99	P	SUR	61	-37	729	0	0.6	0.6	0.9
6203601	99	P	SUR	36	-52	743	0	2.3	-0.5	2.3
6203607	99	P	SUR	36	-59	743	18	1.4	-0.0	1.4
6203612	99	P	SUR	29	-41	742	0	0.3	0.2	0.3
6203613	99	P	SUR	26	-42	743	2	1.2	0.5	1.3
6203614	99	P	SUR	25	-59	743	0	0.3	0.3	0.4
6203615	99	P	SUR	22	-60	743	0	0.3	0.2	0.3
6203616	99	P	SUR	25	-41	743	0	0.2	0.3	0.4
6203617	99	P	SUR	15	-34	743	0	0.3	0.5	0.6
6203621	99	P	SUR	40	-22	742	0	0.9	0.1	0.9
6203622	99	P	SUR	42	-31	742	0	0.7	0.4	0.8
6203624	99	P	SUR	24	-67	743	0	0.3	0.2	0.3
6203625	99	P	SUR	43	-32	742	0	0.6	0.5	0.8
6203626	99	P	SUR	60	-1	743	0	0.6	-0.3	0.7
6203627	99	P	SUR	25	-60	743	0	0.3	0.1	0.3
6203632	99	P	SUR	28	-29	743	0	0.3	0.2	0.3
6203633	99	P	SUR	56	-22	742	0	1.2	0.3	1.2
6203634	99	P	SUR	32	-20	743	3	2.1	0.8	2.2
6203635	99	P	SUR	19	-55	743	0	0.2	0.3	0.4
6203637	99	P	SUR	63	6	743	0	1.6	0.5	1.7
6203639	99	P	SUR	42	-21	743	0	0.9	0.0	0.9
6203640	99	P	SUR	39	-21	742	0	0.5	-0.1	0.5
6203643	99	P	SUR	26	-55	743	0	0.3	0.3	0.4
6203644	99	P	SUR	11	-42	743	0	0.3	0.2	0.4
6203650	99	P	SUR	58	9	743	0	0.7	0.2	0.7
6203730	99	P	SUR	23	-43	731	0	0.4	0.6	0.7
6203732	99	P	SUR	16	-53	729	0	0.3	-0.9	0.9
6203734	99	P	SUR	13	-23	728	0	0.4	0.4	0.5
6203735	99	P	SUR	15	-55	727	0	0.7	0.8	1.1
6203737	99	P	SUR	27	-40	728	0	0.6	1.3	1.5
6203747	99	P	SUR	62	-10	733	0	0.4	0.0	0.4
6203748	99	P	SUR	64	8	733	0	0.4	0.2	0.4
6203749	99	P	SUR	64	4	732	0	0.5	0.0	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6203750	99	P	SUR	62	-12	731	0	0.4	0.1	0.4
6203751	99	P	SUR	63	3	734	0	0.8	1.3	1.6
6203752	99	P	SUR	62	-25	732	0	0.5	-0.0	0.5
6203753	99	P	SUR	58	-31	733	0	0.5	-0.1	0.5
6203755	99	P	SUR	47	-6	736	0	0.3	-0.7	0.8
6203760	99	P	SUR	58	5	742	0	0.3	0.2	0.4
6203762	99	P	SUR	24	-26	451	0	0.3	-0.1	0.3
6203764	99	P	SUR	30	-27	593	0	0.3	0.3	0.4
6203765	99	P	SUR	24	-38	735	0	0.3	0.4	0.5
6203766	99	P	SUR	24	-33	229	0	0.3	-2.5	2.5
6203767	99	P	SUR	19	-36	735	0	0.2	-0.3	0.4
6203768	99	P	SUR	32	-13	731	0	0.3	0.4	0.5
6203771	99	P	SUR	24	-27	735	0	0.3	0.1	0.3
6203772	99	P	SUR	24	-41	732	0	0.5	0.2	0.6
6203773	99	P	SUR	30	-39	731	0	0.3	-0.2	0.4
6203774	99	P	SUR	28	-16	449	0	0.4	-0.4	0.5
6203776	99	P	SUR	32	-21	734	0	0.3	0.0	0.3
6203777	99	P	SUR	23	-44	735	0	0.2	0.1	0.2
6203838	99	P	SUR	15	-36	743	0	0.3	0.2	0.4
6203839	99	P	SUR	18	-31	741	0	0.3	-0.1	0.3
6203840	99	P	SUR	20	-27	742	0	0.2	0.2	0.3
6203843	99	P	SUR	27	-16	592	0	0.3	-0.0	0.3
62050	99	P	SUR	50	-4	1485	0	0.4	-0.2	0.5
62081	99	P	SUR	51	-13	1582	0	0.6	-0.3	0.7
62091	99	P	SUR	53	-5	497	0	0.5	-0.4	0.7
62092	99	P	SUR	51	-11	497	0	0.6	-0.3	0.7
62093	99	P	SUR	55	-10	497	0	0.6	-0.4	0.7
62094	99	P	SUR	52	-7	497	0	0.5	-0.1	0.5
62095	99	P	SUR	53	-16	497	0	0.6	-0.5	0.7
62102	99	P	SUR	58	2	1532	0	0.8	0.4	0.9
62103	99	P	SUR	50	-3	1365	0	0.4	-0.3	0.5
62104	99	P	SUR	57	1	1534	0	0.5	-0.0	0.5
62107	99	P	SUR	50	-6	585	0	0.4	-0.3	0.5
62112	99	P	SUR	58	0	1527	0	0.4	0.2	0.4
62113	99	P	SUR	58	0	1532	0	0.5	-0.2	0.5
62114	99	P	SUR	58	0	2853	0	0.4	0.1	0.4
62115	99	P	SUR	58	-3	1482	0	0.4	-0.2	0.5
62116	99	P	SUR	58	1	1534	0	0.6	0.0	0.6
62118	99	P	SUR	58	1	1532	0	0.4	0.3	0.5
62119	99	P	SUR	57	2	1521	0	0.5	-0.0	0.5
62120	99	P	SUR	56	2	1480	0	0.5	-0.2	0.5
62121	99	P	SUR	54	3	1361	0	0.5	0.3	0.6
62122	99	P	SUR	57	2	2224	0	0.5	0.1	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62124	99	P	SUR	54	-4	1528	0	0.4	-0.0	0.5
62127	99	P	SUR	54	1	1533	0	0.3	0.4	0.5
62129	99	P	SUR	58	0	1054	0	0.6	0.0	0.6
62130	99	P	SUR	59	1	1530	0	0.5	-0.3	0.5
62131	99	P	SUR	54	1	1482	0	0.5	0.5	0.7
62132	99	P	SUR	56	2	1530	0	0.5	0.3	0.5
62133	99	P	SUR	57	1	1532	0	0.7	0.2	0.8
62134	99	P	SUR	58	1	1305	0	0.4	0.5	0.6
62135	99	P	SUR	54	2	1530	0	0.4	0.3	0.5
62138	99	P	SUR	54	0	165	0	0.9	0.2	0.9
62140	99	P	SUR	57	1	2153	0	0.5	0.2	0.5
62141	99	P	SUR	58	-4	1514	0	0.4	-0.5	0.7
62143	99	P	SUR	58	2	1530	0	0.4	0.6	0.7
62144	99	P	SUR	53	2	1531	0	0.4	0.1	0.4
62145	99	P	SUR	53	3	2221	0	0.3	0.3	0.4
62146	99	P	SUR	57	2	1530	0	0.5	-0.1	0.5
62148	99	P	SUR	54	2	1051	0	0.6	0.7	0.9
62149	99	P	SUR	54	1	1532	0	0.3	0.6	0.7
62151	99	P	SUR	57	2	1936	0	0.5	0.2	0.6
62152	99	P	SUR	57	2	1501	0	0.5	0.3	0.5
62153	99	P	SUR	57	2	2224	0	0.5	0.3	0.5
62154	99	P	SUR	56	2	1532	0	0.4	-0.1	0.4
62155	99	P	SUR	58	1	1532	0	0.4	0.3	0.5
62157	99	P	SUR	58	0	1476	0	0.4	-0.1	0.4
62160	99	P	SUR	57	2	2223	0	0.5	0.5	0.6
62161	99	P	SUR	58	1	1532	0	0.5	-0.1	0.5
62162	99	P	SUR	57	1	1505	0	0.4	-0.1	0.4
62163	99	P	SUR	48	-8	1581	0	0.4	0.2	0.4
62164	99	P	SUR	57	1	1530	0	0.5	0.3	0.6
62165	99	P	SUR	54	1	1505	0	0.5	0.5	0.7
62168	99	P	SUR	58	1	1532	0	0.4	-0.1	0.4
62170	99	P	SUR	51	2	1595	0	0.3	-0.1	0.3
62296	99	P	SUR	53	2	1531	0	0.3	-0.1	0.3
62297	99	P	SUR	59	2	2222	0	0.5	-0.1	0.5
62302	99	P	SUR	61	-2	1527	0	0.5	-0.2	0.6
62304	99	P	SUR	51	2	1587	0	0.5	-0.2	0.5
62305	99	P	SUR	50	0	1995	0	0.4	-0.1	0.4
62442	99	P	SUR	49	-16	1579	0	0.5	-0.5	0.7
6301001	99	P	SUR	64	5	743	0	0.4	-0.2	0.5
6301003	99	P	SUR	74	24	742	0	0.4	-0.4	0.5
6301004	99	P	SUR	72	20	146	0	0.3	-0.3	0.5
6301510	99	P	SUR	80	16	38	0	0.4	-0.2	0.4
6301511	99	P	SUR	50	-33	710	0	1.5	7.6	7.8

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6301564	99	P	SUR	58	-20	391	0	2.8	1.2	3.1
6301570	99	P	SUR	55	-39	743	0	0.6	0.2	0.6
6301571	99	P	SUR	53	-18	743	0	0.6	0.1	0.6
6301572	99	P	SUR	84	12	743	0	0.6	0.1	0.6
6301573	99	P	SUR	88	-13	742	0	0.6	0.2	0.6
6301574	99	P	SUR	82	4	692	0	0.6	0.3	0.7
6301575	99	P	SUR	88	-11	743	0	0.6	1.1	1.3
6301576	99	P	SUR	85	10	742	0	0.7	-0.2	0.7
6301577	99	P	SUR	67	-13	707	0	0.4	0.4	0.6
6301578	99	P	SUR	69	-11	733	0	0.6	0.3	0.6
6301579	99	P	SUR	69	-9	733	0	0.4	0.2	0.5
6301580	99	P	SUR	68	-13	733	0	0.4	0.1	0.4
63055	99	P	SUR	61	2	1515	0	0.7	-0.3	0.7
63056	99	P	SUR	60	2	1533	0	0.7	0.5	0.9
63057	99	P	SUR	59	2	1533	0	0.4	-0.2	0.5
63058	99	P	SUR	53	2	2636	0	0.4	0.1	0.4
63059	99	P	SUR	58	-1	1528	0	0.4	0.2	0.4
63101	99	P	SUR	61	1	1532	0	0.6	0.1	0.7
63102	99	P	SUR	61	1	1532	0	0.6	-0.2	0.7
63103	99	P	SUR	61	1	1487	0	0.6	0.0	0.6
63108	99	P	SUR	61	2	1515	0	0.6	-0.2	0.7
63109	99	P	SUR	60	2	1533	0	0.5	-0.5	0.7
63110	99	P	SUR	60	2	1529	0	0.6	-0.1	0.6
63111	99	P	SUR	61	2	2214	0	0.5	-0.6	0.8
63112	99	P	SUR	61	1	1532	0	0.4	-0.5	0.7
63115	99	P	SUR	62	1	1531	0	0.6	-0.1	0.6
63117	99	P	SUR	61	1	2226	0	0.7	0.5	0.9
63118	99	P	SUR	58	2	1532	0	0.5	-0.3	0.6
6401531	99	P	SUR	51	-24	728	0	0.5	0.1	0.5
6401573	99	P	SUR	57	-15	743	0	0.5	-0.0	0.5
6401574	99	P	SUR	55	-46	743	0	0.6	-0.0	0.6
6401575	99	P	SUR	65	-1	743	37	1.7	0.5	1.8
6401576	99	P	SUR	72	-22	743	0	0.8	-0.1	0.8
6401578	99	P	SUR	78	-19	743	0	0.6	0.4	0.7
6401592	99	P	SUR	63	-20	743	0	0.6	0.2	0.6
6401759	99	P	SUR	57	-47	743	0	0.5	0.2	0.5
6401760	99	P	SUR	60	-52	743	0	0.5	0.0	0.5
6401761	99	P	SUR	61	-57	742	0	0.6	0.4	0.7
6401762	99	P	SUR	69	1	742	0	0.4	0.2	0.5
6401763	99	P	SUR	64	6	742	0	0.3	0.3	0.5
6401839	99	P	SUR	64	-13	628	0	0.4	0.3	0.5
6401840	99	P	SUR	63	0	677	0	0.3	0.2	0.4
6401842	99	P	SUR	65	-26	702	0	0.5	0.0	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6401843	99	P	SUR	63	-15	685	0	0.4	0.3	0.5
6402539	99	P	SUR	53	-22	728	0	0.5	0.0	0.5
6402541	99	P	SUR	69	-16	554	0	0.4	0.2	0.5
6402543	99	P	SUR	57	-42	698	0	0.5	0.1	0.5
6402544	99	P	SUR	74	3	730	0	0.8	0.1	0.8
6402545	99	P	SUR	74	16	388	0	0.4	0.0	0.4
6402547	99	P	SUR	55	-53	564	0	0.5	0.3	0.5
6402548	99	P	SUR	74	13	666	0	0.4	0.2	0.4
6402549	99	P	SUR	77	9	708	0	1.0	-0.2	1.0
6402550	99	P	SUR	73	32	341	0	0.4	0.1	0.4
6402551	99	P	SUR	57	-55	708	0	0.5	0.1	0.5
6402552	99	P	SUR	65	-3	634	0	0.4	0.3	0.5
6402554	99	P	SUR	64	7	482	0	0.3	0.5	0.6
6402557	99	P	SUR	68	-4	727	0	0.4	0.3	0.5
6402559	99	P	SUR	62	-57	678	0	0.5	0.2	0.6
6402560	99	P	SUR	69	-4	648	0	0.4	0.0	0.4
6402562	99	P	SUR	60	-44	719	0	0.7	-0.1	0.7
6402563	99	P	SUR	64	1	618	0	0.5	0.3	0.6
6402587	99	P	SUR	61	-66	613	0	0.4	0.1	0.5
6402588	99	P	SUR	62	-68	704	27	2.4	-0.4	2.4
6402589	99	P	SUR	64	-61	668	131	4.2	-1.0	4.3
6402590	99	P	SUR	65	-62	651	7	2.4	-0.5	2.5
6402591	99	P	SUR	62	-63	710	0	0.5	0.2	0.5
6402592	99	P	SUR	59	-57	620	0	0.5	-0.8	0.9
6402593	99	P	SUR	65	-54	725	0	0.6	0.1	0.6
6402594	99	P	SUR	62	-58	707	0	0.6	-0.1	0.6
6402596	99	P	SUR	58	-47	533	0	0.5	-0.1	0.5
6402597	99	P	SUR	62	-59	672	0	0.6	-0.2	0.6
6402598	99	P	SUR	62	-56	629	0	0.5	0.0	0.5
6402599	99	P	SUR	61	-58	666	0	0.5	0.1	0.5
6402600	99	P	SUR	84	-35	711	0	0.6	1.3	1.4
6402610	99	P	SUR	60	-45	717	0	0.6	-0.4	0.7
6402611	99	P	SUR	58	-57	558	0	0.5	0.2	0.5
6402612	99	P	SUR	62	-67	712	0	1.6	-0.2	1.6
6402614	99	P	SUR	62	-65	104	0	3.1	1.2	3.4
6402618	99	P	SUR	23	-19	378	0	0.3	0.3	0.4
6402619	99	P	SUR	43	-12	737	0	0.4	0.2	0.4
6402620	99	P	SUR	48	-17	732	0	0.5	0.3	0.6
6402621	99	P	SUR	43	-14	735	0	0.4	0.4	0.5
6402622	99	P	SUR	41	-16	737	0	0.4	0.3	0.5
6402654	99	P	SUR	59	-9	515	0	0.5	-0.1	0.5
6402655	99	P	SUR	63	-8	702	0	0.4	0.2	0.5
6402656	99	P	SUR	61	-42	642	5	3.0	8.2	8.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6402657	99	P	SUR	64	-23	684	0	0.5	0.3	0.5
6402659	99	P	SUR	60	-17	727	0	0.4	0.0	0.4
6402660	99	P	SUR	66	-23	621	0	0.5	-0.5	0.7
6402661	99	P	SUR	60	-16	603	0	0.4	0.1	0.4
6402663	99	P	SUR	59	-29	681	0	0.5	-0.2	0.5
6402665	99	P	SUR	63	1	661	0	0.4	0.4	0.5
6402666	99	P	SUR	64	-21	727	0	0.4	0.0	0.4
6402667	99	P	SUR	60	-25	691	0	0.5	-0.2	0.5
6402668	99	P	SUR	56	-35	728	0	0.6	0.3	0.6
6402678	99	P	SUR	60	-24	138	0	0.5	0.2	0.6
6402679	99	P	SUR	69	-4	120	0	0.4	0.4	0.5
6402680	99	P	SUR	56	-41	249	0	0.5	-0.3	0.6
6402681	99	P	SUR	67	-5	249	0	0.4	0.3	0.5
6402722	99	P	SUR	69	-5	248	0	0.4	0.2	0.4
64041	99	P	SUR	61	-3	1527	0	0.5	-0.2	0.5
64045	99	P	SUR	59	-12	1584	0	0.5	-0.2	0.5
6501545	99	P	SUR	79	11	715	63	2.7	1.1	2.9
6501548	99	P	SUR	80	11	719	0	1.6	-0.1	1.6
6501670	99	P	SUR	76	15	713	0	0.4	0.2	0.4
6501671	99	P	SUR	80	13	721	0	0.5	0.0	0.5
6501674	99	P	SUR	77	7	722	0	0.5	0.1	0.5
6501675	99	P	SUR	75	-2	715	0	0.4	0.2	0.5
6501676	99	P	SUR	77	-1	718	0	2.0	0.0	2.0
6501679	99	P	SUR	75	-5	728	0	0.4	0.2	0.5
6501681	99	P	SUR	65	-40	238	0	0.7	0.4	0.8
6501685	99	P	SUR	79	33	692	17	2.6	0.6	2.7
6501687	99	P	SUR	81	19	720	0	0.4	0.2	0.5
6501689	99	P	SUR	80	13	2955	0	1.2	0.2	1.2
6600021	99	P	SUR	55	14	290	0	0.5	0.6	0.8
6600022	99	P	SUR	54	14	26	0	0.6	-0.6	0.8

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                : DEC 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	610	0	0	0.9	0.6	1.1
1300002	99	SPEED	SUR	20	-23	620	0	0	0.9	0.3	0.9
1300008	99	SPEED	SUR	15	-38	602	0	0	0.8	0.1	0.8
1300130	99	SPEED	SUR	28	-16	731	0	0	1.2	-0.1	1.2
1300131	99	SPEED	SUR	28	-17	734	0	0	1.7	1.2	2.1
1801607	99	SPEED	SUR	41	-58	612	0	0	1.6	-1.0	1.9
1801608	99	SPEED	SUR	37	-61	1358	1	0	2.0	-0.7	2.1
4100040	99	SPEED	SUR	15	-53	4450	0	0	0.9	0.3	0.9
4100043	99	SPEED	SUR	21	-65	4440	0	0	0.9	-0.3	1.0
4100046	99	SPEED	SUR	24	-68	4448	0	0	0.9	-0.0	0.9
4100049	99	SPEED	SUR	27	-63	4452	0	0	1.0	0.0	1.0
4100052	99	SPEED	SUR	18	-65	4384	0	0	0.8	-0.5	1.0
4100053	99	SPEED	SUR	18	-66	4428	0	0	1.5	1.3	2.0
4100056	99	SPEED	SUR	18	-65	4157	0	0	1.0	-1.0	1.4
4100139	99	SPEED	SUR	20	-38	742	0	0	1.0	0.0	1.0
4100300	99	SPEED	SUR	16	-57	742	0	0	0.8	-1.2	1.5
41040	99	SPEED	SUR	15	-53	5127	0	0	0.9	-0.2	0.9
41043	99	SPEED	SUR	21	-65	4527	0	0	1.0	-0.4	1.0
41046	99	SPEED	SUR	24	-68	6287	0	0	1.0	-0.2	1.1
41049	99	SPEED	SUR	28	-63	6216	0	0	1.1	-0.1	1.1
41052	99	SPEED	SUR	18	-65	3129	0	0	0.9	-0.3	0.9
41053	99	SPEED	SUR	19	-66	3223	0	0	1.5	0.6	1.6
41056	99	SPEED	SUR	18	-66	2992	0	0	1.1	-0.7	1.3
4200059	99	SPEED	SUR	15	-67	4452	0	0	0.8	0.5	0.9
4200085	99	SPEED	SUR	18	-67	4119	0	0	1.1	-0.7	1.3
42059	99	SPEED	SUR	15	-68	4404	0	0	0.8	0.1	0.8
42085	99	SPEED	SUR	18	-67	3567	0	0	1.1	-0.2	1.1
4400005	99	SPEED	SUR	43	-69	741	0	0	1.6	0.4	1.6
4400008	99	SPEED	SUR	40	-69	4452	0	0	1.5	0.3	1.5
4400011	99	SPEED	SUR	41	-67	4448	0	0	1.4	0.2	1.4
4400027	99	SPEED	SUR	44	-67	735	0	0	1.5	0.6	1.6
4400032	99	SPEED	SUR	44	-69	740	0	0	1.6	0.4	1.6
4400033	99	SPEED	SUR	44	-69	725	0	0	1.6	0.2	1.6
4400034	99	SPEED	SUR	44	-68	733	0	0	1.5	0.2	1.5

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
4400037	99	SPEED	SUR	43	-68	654	0	0	1.2	-0.1	1.2
44005	99	SPEED	SUR	43	-69	2070	0	0	1.6	0.4	1.7
44008	99	SPEED	SUR	41	-69	6312	0	0	1.5	-0.2	1.5
44011	99	SPEED	SUR	41	-67	6269	0	0	1.5	-0.3	1.5
44027	99	SPEED	SUR	44	-67	2051	0	0	1.5	0.7	1.6
44032	99	SPEED	SUR	44	-69	1361	0	0	1.6	0.4	1.7
44033	99	SPEED	SUR	44	-69	1335	0	0	1.5	0.5	1.6
44034	99	SPEED	SUR	44	-68	1351	0	0	1.5	0.2	1.5
44037	99	SPEED	SUR	44	-68	1203	0	0	1.2	-0.1	1.2
44137	99	SPEED	SUR	42	-62	704	0	0	1.7	-0.9	1.9
44139	99	SPEED	SUR	44	-57	741	0	0	1.2	-0.1	1.2
44150	99	SPEED	SUR	43	-64	835	0	0	1.6	-0.1	1.6
44258	99	SPEED	SUR	45	-63	832	0	0	1.5	0.5	1.6
44488	99	SPEED	SUR	45	-61	110	0	0	2.1	0.6	2.2
44489	99	SPEED	SUR	46	-61	833	0	0	1.5	1.1	1.9
44490	99	SPEED	SUR	45	-66	780	0	0	1.6	-0.1	1.6
6100001	99	SPEED	SUR	43	8	734	0	0	2.1	-0.6	2.2
6100002	99	SPEED	SUR	42	5	729	0	0	1.5	-0.8	1.7
6100196	99	SPEED	SUR	42	4	736	0	0	2.0	-0.4	2.0
6100197	99	SPEED	SUR	40	4	736	0	0	1.4	-0.4	1.5
6100198	99	SPEED	SUR	37	-2	716	0	0	1.6	-0.2	1.6
6100280	99	SPEED	SUR	41	1	736	0	0	1.6	-0.2	1.6
6100281	99	SPEED	SUR	40	0	730	0	0	2.0	0.8	2.2
6100417	99	SPEED	SUR	38	0	731	0	0	1.3	-0.6	1.5
6100430	99	SPEED	SUR	40	2	722	0	0	1.4	-1.0	1.7
6101003	99	SPEED	SUR	40	25	205	0	0	2.1	-0.8	2.3
6101005	99	SPEED	SUR	38	26	64	0	0	2.0	-0.7	2.1
6101007	99	SPEED	SUR	36	25	200	0	0	2.6	0.0	2.7
6101008	99	SPEED	SUR	37	22	193	0	0	2.1	-0.5	2.1
6101009	99	SPEED	SUR	35	25	41	0	0	3.0	1.9	3.6
6200024	99	SPEED	SUR	44	-3	727	0	0	1.8	-0.7	1.9
6200025	99	SPEED	SUR	44	-6	618	0	0	1.6	-0.8	1.8
6200082	99	SPEED	SUR	44	-8	741	0	0	1.4	-0.8	1.6
6200083	99	SPEED	SUR	43	-9	740	0	0	1.6	-1.2	2.0
6200084	99	SPEED	SUR	42	-9	716	0	0	1.3	-1.5	2.0
6200085	99	SPEED	SUR	36	-7	742	0	0	1.2	-0.4	1.3
6200086	99	SPEED	SUR	55	6	379	0	0	1.7	1.6	2.3
6200087	99	SPEED	SUR	55	7	379	0	0	1.5	1.5	2.1
6200091	99	SPEED	SUR	53	-5	497	0	0	1.2	0.3	1.3
6200092	99	SPEED	SUR	51	-11	739	0	0	1.3	0.2	1.3
6200093	99	SPEED	SUR	55	-10	738	0	0	1.3	-0.5	1.5

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
6200094	99	SPEED	SUR	52	-7	740	0	0	1.4	-1.1	1.8
6200095	99	SPEED	SUR	53	-16	739	0	0	1.2	0.2	1.2
62001	99	SPEED	SUR	45	-5	1583	0	0	1.4	0.4	1.5
6200200	99	SPEED	SUR	36	-8	104	0	0	1.2	-0.1	1.2
6201065	99	SPEED	SUR	54	7	3	0	0	0.0	-0.9	0.9
6201066	99	SPEED	SUR	55	7	680	0	0	1.5	0.3	1.6
62029	99	SPEED	SUR	49	-12	1578	0	0	1.3	0.7	1.5
62081	99	SPEED	SUR	51	-13	1580	0	0	1.2	0.8	1.4
62091	99	SPEED	SUR	53	-5	497	0	0	1.3	0.4	1.3
62092	99	SPEED	SUR	51	-11	497	0	0	1.3	0.7	1.4
62093	99	SPEED	SUR	55	-10	497	0	0	1.3	-0.3	1.4
62094	99	SPEED	SUR	52	-7	497	0	0	1.3	-0.7	1.5
62095	99	SPEED	SUR	53	-16	497	0	0	1.2	0.5	1.3
62102	99	SPEED	SUR	58	2	1532	0	0	1.7	0.1	1.7
62103	99	SPEED	SUR	50	-3	1365	0	0	1.6	-0.5	1.7
62104	99	SPEED	SUR	57	1	1534	0	0	1.4	-0.5	1.5
62112	99	SPEED	SUR	58	0	1527	0	0	1.9	-0.5	2.0
62113	99	SPEED	SUR	58	0	1532	0	0	1.8	0.2	1.8
62114	99	SPEED	SUR	58	0	2845	0	0	1.9	0.3	1.9
62118	99	SPEED	SUR	58	1	1532	0	0	1.6	0.5	1.7
62119	99	SPEED	SUR	57	2	1521	0	0	1.9	-0.5	2.0
62120	99	SPEED	SUR	56	2	1480	0	0	1.6	-0.0	1.7
62121	99	SPEED	SUR	54	3	1361	0	0	1.5	-0.7	1.7
62122	99	SPEED	SUR	57	2	2224	0	0	1.8	-0.3	1.8
62131	99	SPEED	SUR	54	1	1482	0	0	2.0	-0.3	2.1
62132	99	SPEED	SUR	56	2	1530	0	0	2.1	-1.2	2.4
62133	99	SPEED	SUR	57	1	1532	0	0	1.5	0.0	1.5
62134	99	SPEED	SUR	58	1	1305	0	0	1.6	-0.1	1.6
62140	99	SPEED	SUR	57	1	2153	0	0	1.4	-0.2	1.4
62143	99	SPEED	SUR	58	2	1530	0	0	1.9	-0.5	2.0
62144	99	SPEED	SUR	53	2	1531	0	0	2.3	-0.5	2.3
62145	99	SPEED	SUR	53	3	2221	0	0	1.8	0.7	2.0
62146	99	SPEED	SUR	57	2	671	2	0	1.6	-0.7	1.8
62148	99	SPEED	SUR	54	2	982	0	0	1.7	-0.8	1.9
62149	99	SPEED	SUR	54	1	1532	0	0	1.4	0.2	1.4
62152	99	SPEED	SUR	57	2	1501	0	0	3.6	-2.8	4.6
62153	99	SPEED	SUR	57	2	2224	0	0	2.5	-1.5	2.9
62154	99	SPEED	SUR	56	2	1532	0	0	1.6	0.0	1.6
62155	99	SPEED	SUR	58	1	1412	0	0	1.5	-0.3	1.5
62164	99	SPEED	SUR	57	1	1530	0	0	1.5	-1.1	1.9
62165	99	SPEED	SUR	54	1	1510	0	0	1.5	-0.3	1.5

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
62170	99	SPEED	SUR	51	2	1589	0	0	1.5	0.9	1.7
62304	99	SPEED	SUR	51	2	1587	0	0	1.5	0.8	1.8
62305	99	SPEED	SUR	50	0	1995	0	0	1.5	0.9	1.7
6301001	99	SPEED	SUR	64	5	742	0	0	1.4	-0.4	1.5
6301003	99	SPEED	SUR	74	24	742	0	0	1.6	-0.2	1.6
6301004	99	SPEED	SUR	72	20	146	0	0	1.4	-4.0	4.2
63055	99	SPEED	SUR	61	2	1515	0	0	1.8	-1.0	2.0
63056	99	SPEED	SUR	60	2	1533	0	0	1.7	0.4	1.8
63057	99	SPEED	SUR	59	2	1533	0	0	2.3	-0.8	2.5
63058	99	SPEED	SUR	53	2	1845	0	0	1.5	0.0	1.5
63101	99	SPEED	SUR	61	1	1532	0	0	1.9	-0.5	2.0
63103	99	SPEED	SUR	61	1	1487	0	0	2.0	-0.6	2.1
63106	99	SPEED	SUR	61	2	1499	0	0	2.2	-1.6	2.8
63108	99	SPEED	SUR	61	2	1515	0	0	2.0	-0.1	2.0
63109	99	SPEED	SUR	60	2	1521	0	0	1.8	0.2	1.8
63110	99	SPEED	SUR	60	2	1531	0	0	1.8	-0.1	1.8
63112	99	SPEED	SUR	61	1	1532	0	0	1.8	-0.6	1.9
63115	99	SPEED	SUR	62	1	1531	0	0	1.5	-0.9	1.7
63117	99	SPEED	SUR	61	1	2226	0	0	1.8	-0.4	1.8
64041	99	SPEED	SUR	61	-3	998	0	0	1.6	-0.3	1.6
64045	99	SPEED	SUR	59	-12	364	9	0	1.8	1.1	2.1
6600021	99	SPEED	SUR	55	14	290	0	0	1.3	0.6	1.4
6600022	99	SPEED	SUR	54	14	26	4	0	1.3	0.6	1.4
66021	99	SPEED	SUR	55	14	137	0	0	1.1	0.6	1.2

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

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          DRIFTER MONITORING STATISTICS (EUCOS)
                   MONITORING CENTRE     : ECMWF
                   ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
                   AREA                  : 10N - 90N, 70W - 40E
                   PERIOD                : DEC 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	595	0	0	9.1	-2.6	9.5
1300002	99	DIRN	SUR	20	-23	570	0	0	9.1	-3.3	9.7
1300008	99	DIRN	SUR	15	-38	601	0	0	94.9	49.8	107.2
1300130	99	DIRN	SUR	28	-16	480	0	0	10.2	5.9	11.8
1300131	99	DIRN	SUR	28	-17	427	0	0	63.3	-79.7	101.8
1801606	99	DIRN	SUR	36	-73	1168	0	0	16.1	2.5	16.3
1801607	99	DIRN	SUR	41	-58	592	0	0	11.0	-0.7	11.1
1801608	99	DIRN	SUR	37	-61	1242	1	0	27.8	-1.2	27.9
4100002	99	DIRN	SUR	32	-75	3741	0	0	15.8	5.7	16.8
4100004	99	DIRN	SUR	33	-79	3735	0	0	18.4	6.5	19.5
4100008	99	DIRN	SUR	31	-81	517	0	0	13.1	2.3	13.3
4100009	99	DIRN	SUR	29	-80	3173	0	0	28.3	2.9	28.5
4100010	99	DIRN	SUR	29	-78	2891	0	0	19.1	8.0	20.7
4100013	99	DIRN	SUR	33	-78	3789	0	0	21.5	5.1	22.1
4100024	99	DIRN	SUR	34	-78	424	0	0	22.1	-13.3	25.8
4100025	99	DIRN	SUR	35	-75	4015	0	0	19.3	4.3	19.8
4100029	99	DIRN	SUR	33	-80	501	0	0	20.9	4.0	21.2
4100033	99	DIRN	SUR	32	-80	493	0	0	22.9	4.3	23.3
4100037	99	DIRN	SUR	34	-77	630	0	0	21.5	7.8	22.8
4100038	99	DIRN	SUR	34	-78	513	0	0	21.4	-12.4	24.8
4100040	99	DIRN	SUR	15	-53	4438	0	0	9.4	4.9	10.6
4100043	99	DIRN	SUR	21	-65	4005	0	0	11.2	2.2	11.4
4100046	99	DIRN	SUR	24	-68	3738	0	0	12.6	-0.5	12.7
4100047	99	DIRN	SUR	27	-71	3489	0	0	14.3	6.5	15.7
4100049	99	DIRN	SUR	27	-63	3747	0	0	15.7	5.0	16.5
4100052	99	DIRN	SUR	18	-65	4310	0	0	9.7	5.2	11.0
4100053	99	DIRN	SUR	18	-66	3422	0	0	14.7	2.0	14.8
4100056	99	DIRN	SUR	18	-65	4006	0	0	12.4	3.9	13.0
4100064	99	DIRN	SUR	34	-77	317	0	0	35.2	5.7	35.7
4100139	99	DIRN	SUR	20	-38	686	0	0	11.6	2.3	11.8
41002	99	DIRN	SUR	32	-75	5116	0	0	17.0	5.1	17.8
4100300	99	DIRN	SUR	16	-57	741	0	0	9.4	8.5	12.7

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
41004	99	DIRN	SUR	33	-79	5750	0	0	18.3	3.4	18.6
41008	99	DIRN	SUR	31	-81	1421	0	0	12.5	1.7	12.6
41009	99	DIRN	SUR	29	-80	4246	0	0	27.9	0.3	27.9
41010	99	DIRN	SUR	29	-79	4512	0	0	18.1	7.3	19.5
41013	99	DIRN	SUR	33	-78	5214	0	0	22.8	5.2	23.4
41024	99	DIRN	SUR	34	-79	764	0	0	22.0	-12.9	25.5
41025	99	DIRN	SUR	35	-76	5634	0	0	18.7	1.5	18.7
41029	99	DIRN	SUR	33	-80	1274	0	0	21.9	4.2	22.3
41033	99	DIRN	SUR	32	-80	877	0	0	21.5	3.9	21.8
41037	99	DIRN	SUR	34	-77	1152	0	0	21.7	6.5	22.7
41038	99	DIRN	SUR	34	-78	911	0	0	20.7	-11.7	23.8
41040	99	DIRN	SUR	15	-53	5109	0	0	9.9	4.6	10.9
41043	99	DIRN	SUR	21	-65	4040	0	0	11.7	-0.0	11.7
41046	99	DIRN	SUR	24	-68	5184	0	0	12.6	2.3	12.9
41047	99	DIRN	SUR	28	-72	4714	0	0	14.6	3.3	15.0
41049	99	DIRN	SUR	28	-63	5108	0	0	16.4	4.4	17.0
41052	99	DIRN	SUR	18	-65	3062	0	0	10.0	4.4	10.9
41053	99	DIRN	SUR	19	-66	2538	0	0	15.4	0.8	15.4
41056	99	DIRN	SUR	18	-66	2863	0	0	12.8	3.9	13.4
41064	99	DIRN	SUR	34	-77	570	0	0	36.8	6.0	37.3
4200013	99	DIRN	SUR	27	-83	819	0	0	16.1	-4.2	16.7
4200022	99	DIRN	SUR	28	-84	594	0	0	14.7	-6.0	15.9
4200036	99	DIRN	SUR	29	-85	3442	0	0	14.8	5.9	15.9
4200056	99	DIRN	SUR	20	-85	4398	0	0	14.2	5.6	15.3
4200059	99	DIRN	SUR	15	-67	4452	0	0	8.0	3.1	8.6
4200085	99	DIRN	SUR	18	-67	3868	0	0	15.2	11.5	19.1
42013	99	DIRN	SUR	27	-83	1060	0	0	15.8	-4.8	16.6
42022	99	DIRN	SUR	28	-84	747	0	0	15.0	-6.6	16.4
42036	99	DIRN	SUR	29	-85	4557	0	0	14.7	3.0	15.0
42056	99	DIRN	SUR	20	-85	4306	0	0	14.6	4.7	15.3
42059	99	DIRN	SUR	15	-68	4404	0	0	8.6	2.1	8.8
42085	99	DIRN	SUR	18	-67	3305	0	0	14.7	11.1	18.4
4400005	99	DIRN	SUR	43	-69	659	0	0	18.1	1.2	18.2
4400007	99	DIRN	SUR	44	-70	3535	0	0	24.1	4.6	24.5
4400008	99	DIRN	SUR	40	-69	3784	0	0	15.0	9.0	17.5
4400009	99	DIRN	SUR	38	-75	3629	0	0	17.9	6.2	18.9
4400011	99	DIRN	SUR	41	-67	4019	0	0	15.7	5.8	16.8
4400013	99	DIRN	SUR	42	-71	3585	0	0	13.9	5.2	14.9
4400014	99	DIRN	SUR	37	-75	2643	0	0	16.5	7.2	18.0
4400017	99	DIRN	SUR	41	-72	3679	0	0	18.2	6.9	19.5
4400020	99	DIRN	SUR	41	-70	3481	0	0	17.2	6.4	18.3

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
4400022	99	DIRN	SUR	41	-74	421	0	0	15.2	7.1	16.8
4400027	99	DIRN	SUR	44	-67	670	0	0	14.1	-2.7	14.3
4400029	99	DIRN	SUR	43	-71	575	0	0	16.6	-1.0	16.6
4400030	99	DIRN	SUR	43	-70	575	0	0	27.4	10.8	29.5
4400032	99	DIRN	SUR	44	-69	659	0	0	20.1	-3.3	20.4
4400033	99	DIRN	SUR	44	-69	631	0	0	26.5	0.1	26.5
4400034	99	DIRN	SUR	44	-68	675	0	0	16.4	6.4	17.6
4400037	99	DIRN	SUR	43	-68	591	0	0	13.1	3.0	13.5
4400039	99	DIRN	SUR	41	-73	453	0	0	18.6	13.5	23.0
4400040	99	DIRN	SUR	41	-74	578	0	0	18.7	2.1	18.8
4400042	99	DIRN	SUR	38	-76	4464	0	0	24.1	3.9	24.4
4400058	99	DIRN	SUR	38	-76	4486	0	0	26.7	3.6	26.9
4400062	99	DIRN	SUR	39	-76	3058	0	0	22.5	-1.1	22.5
4400063	99	DIRN	SUR	39	-76	3403	0	0	21.6	5.7	22.3
4400065	99	DIRN	SUR	40	-74	3653	0	0	14.6	6.0	15.8
4400066	99	DIRN	SUR	40	-73	3773	0	0	12.9	8.4	15.4
4400072	99	DIRN	SUR	37	-76	4772	0	0	33.7	-0.9	33.7
4400073	99	DIRN	SUR	43	-71	196	0	0	33.1	6.0	33.6
4400075	99	DIRN	SUR	40	-71	886	0	0	19.6	-17.2	26.1
4400076	99	DIRN	SUR	40	-71	957	0	0	15.9	-17.3	23.5
4400077	99	DIRN	SUR	40	-71	933	0	0	16.1	-17.7	24.0
44005	99	DIRN	SUR	43	-69	1831	0	0	18.4	1.0	18.4
44007	99	DIRN	SUR	44	-70	5568	0	0	27.7	7.5	28.6
44008	99	DIRN	SUR	41	-69	5278	0	0	16.0	8.8	18.2
44009	99	DIRN	SUR	39	-75	4937	0	0	16.9	5.1	17.7
44011	99	DIRN	SUR	41	-67	5556	0	0	14.9	-3.1	15.2
44013	99	DIRN	SUR	42	-71	5230	0	0	13.7	3.5	14.1
44014	99	DIRN	SUR	37	-75	4342	0	0	15.7	6.7	17.1
44017	99	DIRN	SUR	41	-72	5182	0	0	19.1	6.6	20.2
44020	99	DIRN	SUR	42	-70	4805	0	0	17.5	6.5	18.7
44022	99	DIRN	SUR	41	-74	625	0	0	16.0	7.3	17.6
44027	99	DIRN	SUR	44	-67	1850	0	0	13.9	-3.5	14.4
44029	99	DIRN	SUR	43	-71	1590	0	0	15.9	-0.8	15.9
44030	99	DIRN	SUR	43	-70	1040	0	0	27.2	11.7	29.6
44032	99	DIRN	SUR	44	-69	1203	0	0	19.1	-2.3	19.2
44033	99	DIRN	SUR	44	-69	1130	0	0	25.1	-0.8	25.1
44034	99	DIRN	SUR	44	-68	1230	0	0	16.3	6.2	17.4
44037	99	DIRN	SUR	44	-68	1081	0	0	13.1	2.9	13.4
44039	99	DIRN	SUR	41	-73	815	0	0	18.4	13.6	22.9
44040	99	DIRN	SUR	41	-74	944	0	0	16.1	2.3	16.3
44042	99	DIRN	SUR	38	-76	5832	0	0	24.6	3.9	24.9

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
44058	99	DIRN	SUR	38	-76	5474	0	0	22.7	2.2	22.8
44062	99	DIRN	SUR	39	-76	4232	0	0	23.4	-1.8	23.4
44063	99	DIRN	SUR	39	-76	4414	0	0	22.2	5.2	22.8
44065	99	DIRN	SUR	40	-74	4854	0	0	15.2	5.0	16.1
44066	99	DIRN	SUR	40	-73	5826	0	0	13.1	7.5	15.1
44069	99	DIRN	SUR	41	-73	1282	0	0	24.2	5.5	24.8
44072	99	DIRN	SUR	37	-76	5533	0	0	34.1	-1.2	34.1
44073	99	DIRN	SUR	43	-71	362	0	0	36.7	7.0	37.4
44075	99	DIRN	SUR	40	-71	1126	0	0	19.0	-16.3	25.1
44076	99	DIRN	SUR	40	-71	1222	0	0	16.7	-18.0	24.6
44077	99	DIRN	SUR	40	-71	1163	0	0	15.6	-16.9	23.0
44137	99	DIRN	SUR	42	-62	595	0	0	15.0	-2.5	15.2
44139	99	DIRN	SUR	44	-57	678	0	0	9.8	2.6	10.1
44150	99	DIRN	SUR	43	-64	746	0	0	19.0	7.4	20.4
44258	99	DIRN	SUR	45	-63	720	0	0	15.5	-2.8	15.7
44488	99	DIRN	SUR	45	-61	101	0	0	17.8	8.1	19.5
44489	99	DIRN	SUR	46	-61	715	0	0	14.7	-2.4	14.9
44490	99	DIRN	SUR	45	-66	708	0	0	26.7	-1.0	26.8
4500003	99	DIRN	SUR	45	-83	1757	0	0	16.4	1.7	16.4
4500008	99	DIRN	SUR	44	-82	1857	0	0	14.5	1.8	14.6
45003	99	DIRN	SUR	45	-83	2462	0	0	14.4	2.0	14.6
45008	99	DIRN	SUR	44	-82	2876	0	0	15.2	8.6	17.5
45142	99	DIRN	SUR	43	-79	87	0	0	16.1	-10.8	19.4
45143	99	DIRN	SUR	45	-81	84	0	0	15.8	-1.5	15.8
45151	99	DIRN	SUR	45	-79	48	0	0	21.9	-1.2	22.0
6100198	99	DIRN	SUR	37	-2	507	0	0	24.3	-5.7	25.0
6100281	99	DIRN	SUR	40	0	451	0	0	22.0	3.9	22.4
6100417	99	DIRN	SUR	38	0	538	0	0	14.5	7.4	16.2
6200024	99	DIRN	SUR	44	-3	541	0	0	21.8	6.1	22.6
6200025	99	DIRN	SUR	44	-6	412	0	0	16.6	1.0	16.7
6200082	99	DIRN	SUR	44	-8	657	0	0	11.8	-3.7	12.3
6200083	99	DIRN	SUR	43	-9	623	0	0	13.4	5.9	14.7
6200084	99	DIRN	SUR	42	-9	504	0	0	16.2	12.9	20.7
6200085	99	DIRN	SUR	36	-7	666	0	0	16.7	2.8	16.9
6200091	99	DIRN	SUR	53	-5	439	0	0	15.6	3.3	16.0
6200092	99	DIRN	SUR	51	-11	706	0	0	11.7	4.7	12.6
6200093	99	DIRN	SUR	55	-10	710	0	0	12.7	6.1	14.1
6200094	99	DIRN	SUR	52	-7	704	0	0	12.5	6.1	13.8
6200095	99	DIRN	SUR	53	-16	712	0	0	13.4	0.2	13.4
62001	99	DIRN	SUR	45	-5	1511	0	0	13.4	4.5	14.2
6200200	99	DIRN	SUR	36	-8	95	0	0	168.8	-34.3	172.3

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
62029	99	DIRN	SUR	49	-12	1539	0	0	12.0	6.4	13.6
62081	99	DIRN	SUR	51	-13	1532	0	0	15.8	-4.4	16.4
62091	99	DIRN	SUR	53	-5	426	0	0	15.3	2.4	15.5
62092	99	DIRN	SUR	51	-11	465	0	0	12.3	3.6	12.8
62093	99	DIRN	SUR	55	-10	477	0	0	12.8	4.5	13.6
62094	99	DIRN	SUR	52	-7	461	0	0	12.2	3.7	12.7
62095	99	DIRN	SUR	53	-16	480	0	0	11.6	-1.0	11.7
62103	99	DIRN	SUR	50	-3	1327	0	0	12.9	5.5	14.0
62112	99	DIRN	SUR	58	0	1301	0	0	20.2	-5.7	21.0
62114	99	DIRN	SUR	58	0	2370	0	0	15.9	-0.8	15.9
62305	99	DIRN	SUR	50	0	1908	0	0	13.2	7.1	15.0
64041	99	DIRN	SUR	61	-3	880	0	0	20.1	11.8	23.3
64045	99	DIRN	SUR	59	-12	350	9	0	40.0	-9.5	41.1

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE09	ATGU3FT	BPMWB2N	CHQUR4G	DBLK	FPUW5GN	HTXUH4H	JNKN7JF	KJJF9XN
KMPLHPW	LRYQE3U	USBOD	USYUB	UXK5JTU	WDK38HS	XKQLWQB	XQFJRGX	YLV96WM
ZVQEQCM	2EERVTP	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	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	40186	43599	45004	47102	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	61901	61980	61998
63985	68263	68424	68442	68512	68816	68842	70026	70133
70200	70219	70231	70261	70316	70326	70350	70361	70398
71043	71081	71082	71109	71119	71603	71722	71802	71811
71815	71816	71823	71836	71845	71867	71906	71907	71908
71909	71913	71917	71924	71925	71926	71934	71945	71957
71964	72201	72206	72208	72210	72214	72215	72230	72233
72235	72240	72248	72249	72250	72251	72261	72265	72274
72293	72305	72317	72318	72327	72340	72363	72364	72365
72376	72388	72413	72426	72440	72451	72476	72489	72493
72501	72518	72520	72528	72558	72562	72572	72582	72597
72632	72634	72645	72649	72659	72662	72672	72681	72694
72712	72764	72768	72776	72786	72797	73033	73110	74389
74560	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
87715	87860	88889	89002	89022	89062	89564	89571	89592
89611	89625	89642	89662	89859	91165	91212	91285	91592
91610	91765	91925	91938	91948	91958	93112	93417	93817
93844	94120	94150	94170	94203	94299	94302	94312	94326
94332	94374	94403	94430	94461	94510	94578	94610	94637
94638	94653	94659	94672	94711	94767	94776	94802	94821
94866	94910	94975	94995	94996	94998	95282	95527	96996

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

ASDE09	ATGU3FT	BPMWB2N	CHQUR4G	DBBE	FPUW5GN	HTXUH4H	JNKN7JF	KJJF9XN
KMPLHPW	LRYQE3U	UXK5JTU	WDK38HS	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	2EERVTP
7JUNA4N	01010	01028	01415	01492	02365	02527	02836	02963
03953	06610	07110	07145	07510	07645	07761	08001	08023
08190	08221	08302	08383	08430	08536	11010	11035	11120
11240	17607	40186	44230	47155	50527	50557	50774	50953
51076	51243	51431	51463	51644	51656	51709	51777	51828
51839	52203	52267	52323	52418	52533	52652	52681	52818
52836	52866	52983	53068	53463	53513	53543	53614	53772
53845	53915	54102	54135	54161	54218	54292	54374	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	72413	76743	76903	89642	89859	91925	91938
93817	94653							

5 Annex - Explanations of figures and tables

5.1 General

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

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

5.2 Data Availability

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

5.3 Data Quality

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

It should be noted that:

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

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

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

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

standard pressure level are shown. Units of RMS, standard deviation and bias are hPa in tables 1 and 4, m in table 7 and 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.