ECMWF Global Data Monitoring Report

December 2023

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

Contents

Summary of Revisions (in reverse order)

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

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

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

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

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

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

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

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

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

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

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

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

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

1 Introduction

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

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

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

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

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

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

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

2 Data summary - History of events

2.1 Radiosondes

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

Ident	Time	Nov	Dec	Ident	Time	Nov	Dec
03882	(00)	30	10	04089	(12)	17	28
20046	(00)	30	8	21824	(12)	15	31
20046	(12)	28	8	40875	(00)	7	26
20744	(12)	28	15	42361	(12)	29	45
42079	(00)	14	1	42874	(12)	24	35
42123	(00)	24	1	47600	(00)	0	13
42123	(12)	30	1	48453	(00)	9	22
42339	(00)	30	1	48601	(00)	7	31
42339	(12)	29	2	48601	(12)	8	30
42348	(00)	28	0	48615	(00)	5	29
42348	(12)	28	2	48650	(00)	12	31
42379	(00)	29	0	48650	(12)	2	29
42379	(12)	25	0	48657	(00)	3	29
42647	(00)	29	0	60096	(12)	0	29
42647	(12)	30	1	60760	(00)	30	45
42667	(00)	28	1	68592	(00)	16	27
42667	(12)	25	1	71934	(00)	18	31
42675	(00)	27	1	72250	(00)	19	30
42867	(00)	30	3	72250	(12)	19	31
42867	(12)	30	1	72317	(00)	1	28
42971	(00)	28	0	72317	(12)	2	27
42971	(12)	18	1	82026	(00)	0	25
43014	(00)	29	1	82026	(12)	0	27
43063	(00)	21	4	82107	(00)	1	22
43063	(12)	30	3	82107	(12)	2	22
43128	(00)	28	6	82193	(00)	0	28
43128	(12)	27	2	82193	(12)	0	28
43346	(00)	27	0	89022	(12)	0	16
43346	(12)	29	1	91765	(00)	15	31
76394	(12)	26	0	96413	(00)	10	28
78486	(00)	30	10	96413	(12)	4	29
78486	(12)	29	14	96441	(00)	10	29
78897	(00)	31	5	96471	(00)	6	30
80259	(12)	24	1	96471	(12)	3	30
82099	(00)	19	0	96481	(00)	9	31
87418	(12)	29	18	96805	(00)	17	29
94150	(00)	17	4	96805	(12)	19	30
94299	(12)	30	19	97502	(00)	17	28
98444	(12)	19	0	-	-	-	-

2.2 Drifting Buoys

Surface pressure observations from **1430** drifting buoys were received during the month.

3 Global monitoring statistics

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

3.1 Data Availability

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

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

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

3.2 Data Quality

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

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

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

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

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

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

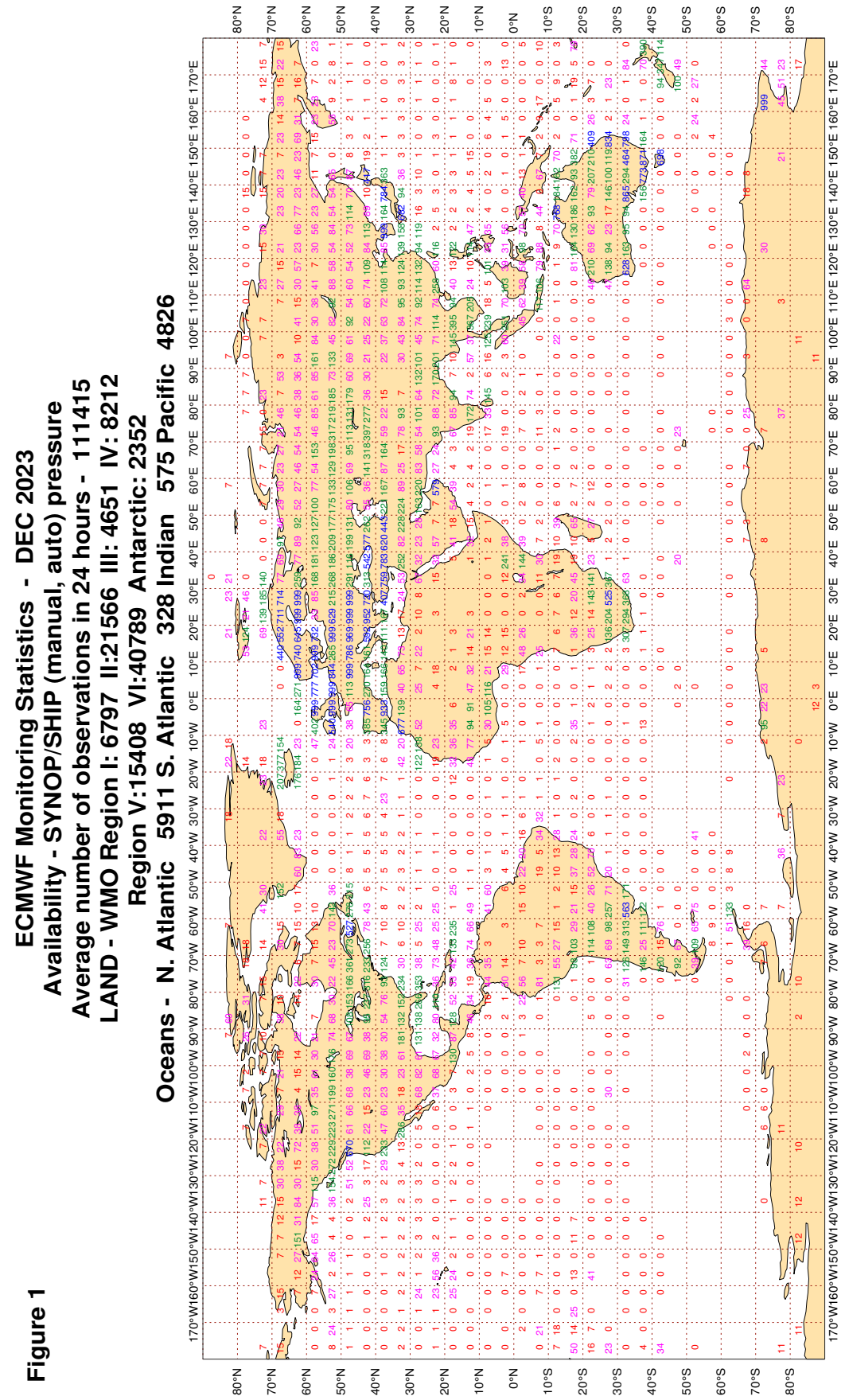
Tab	Parameter	Observation Time
10	Geopotential	00 and 12 UTC
11	Wind	00 and 12 UTC

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

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

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

3.2.1 Figure 1 - Availability - SYNOP PRESSURE



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

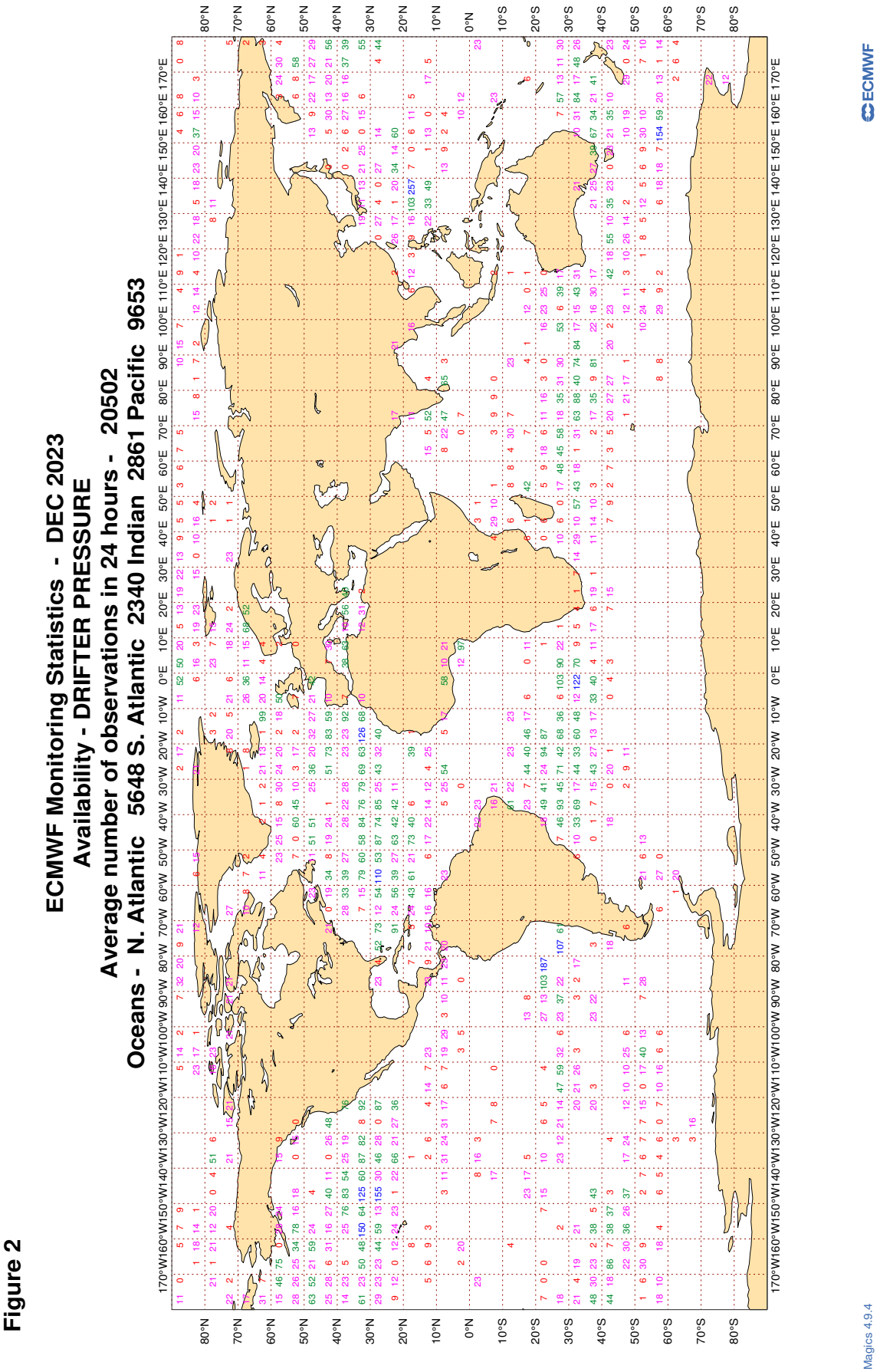


Figure 2

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

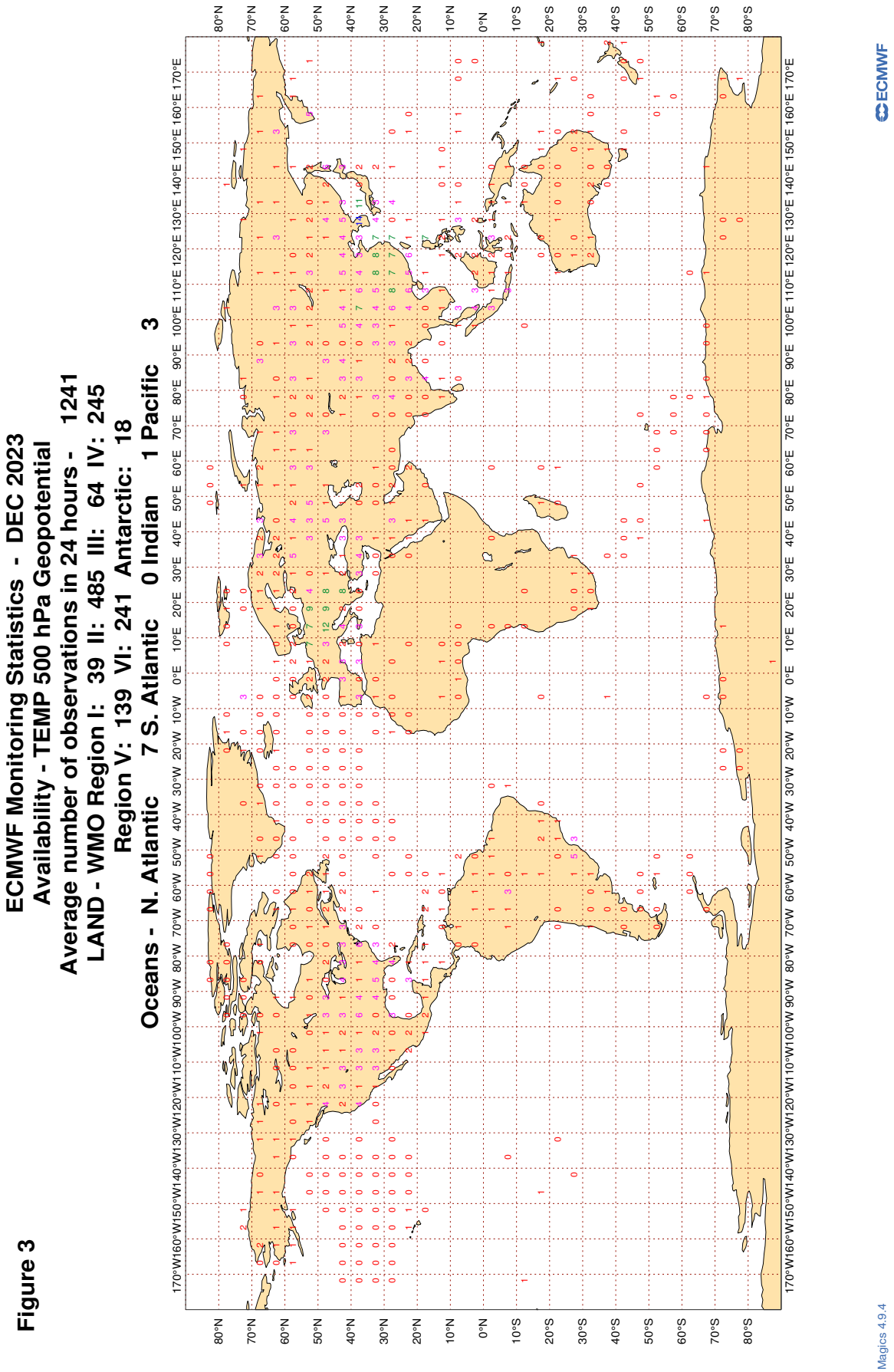


Figure 3

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

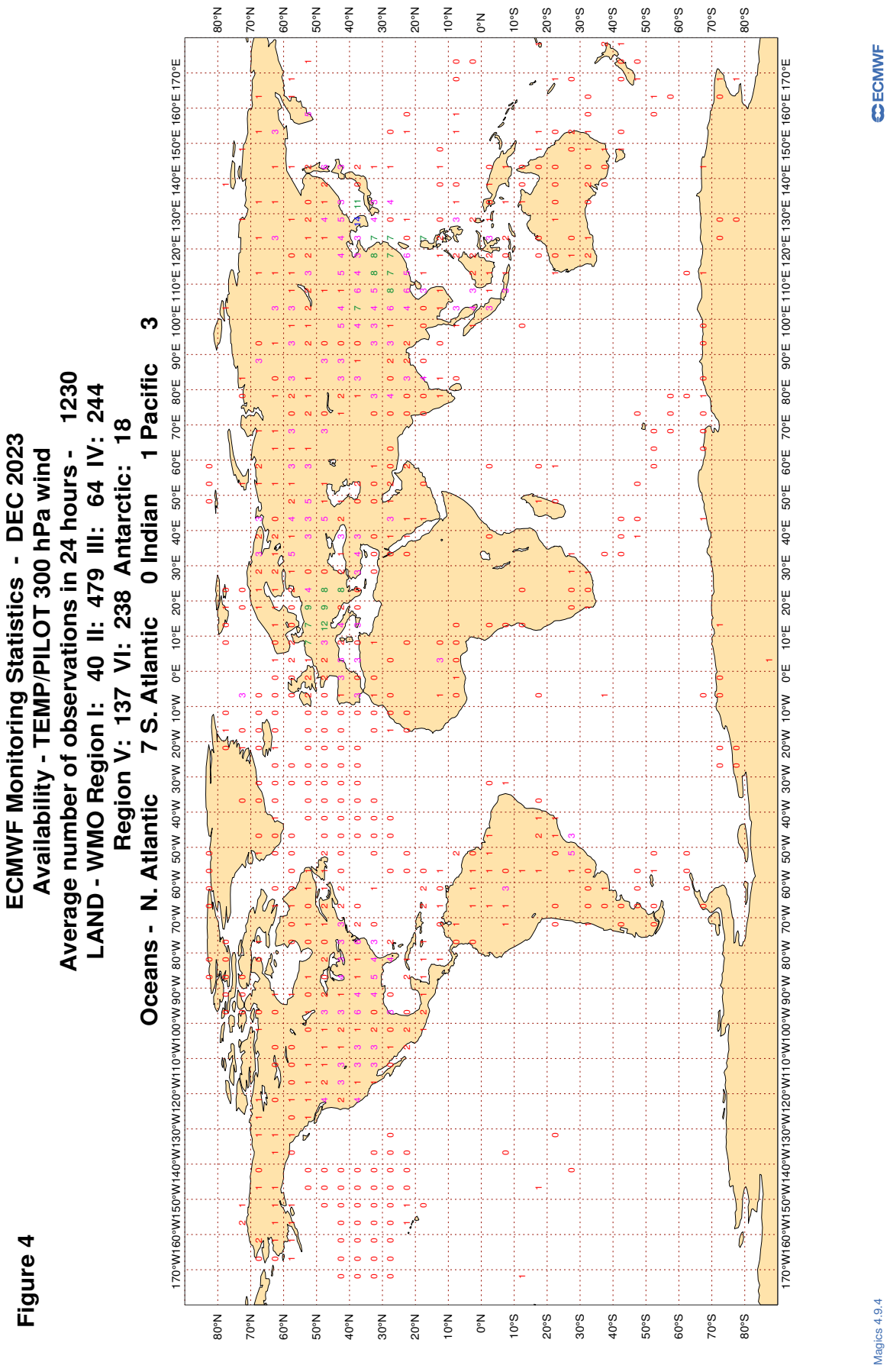


Figure 4

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

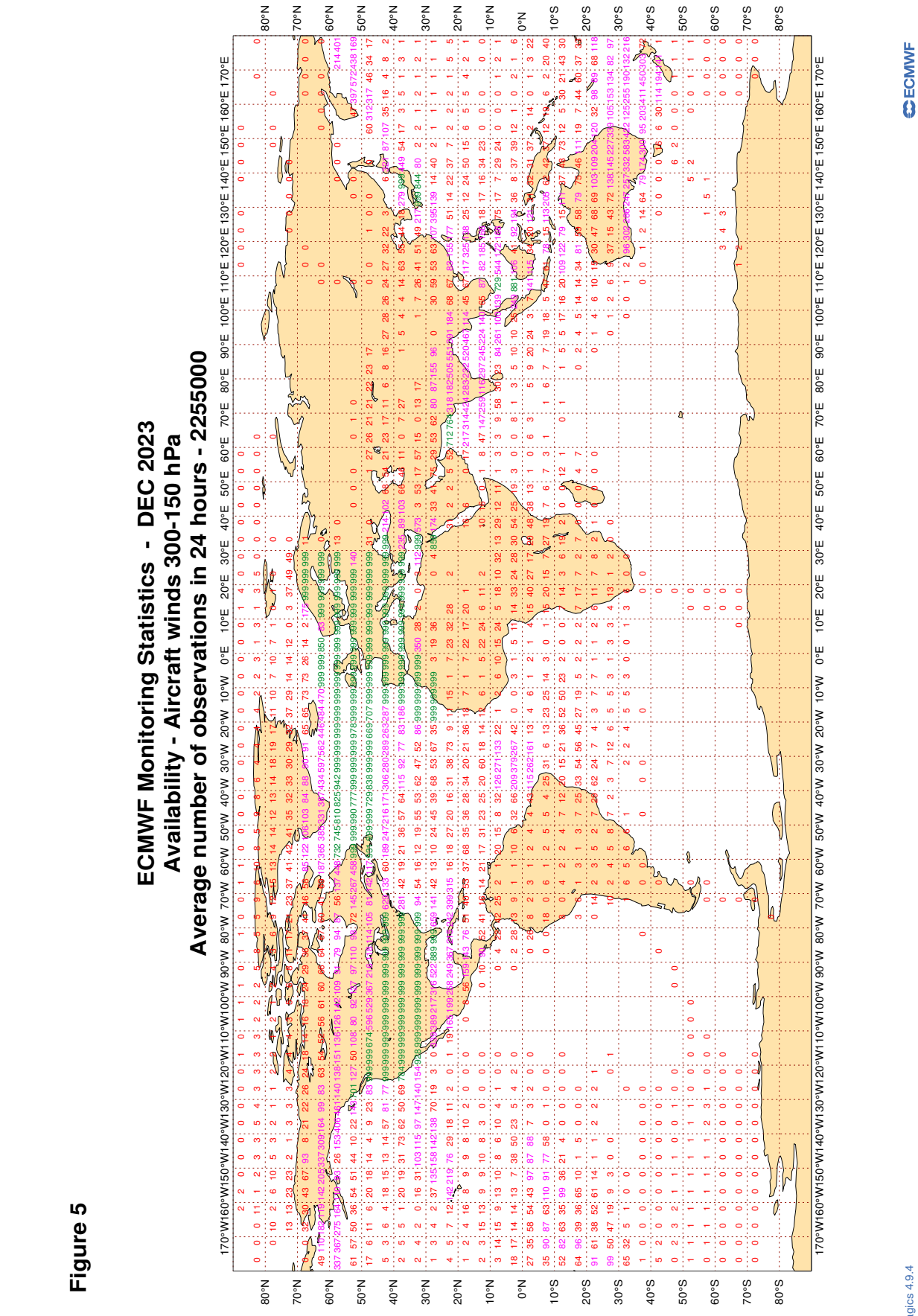
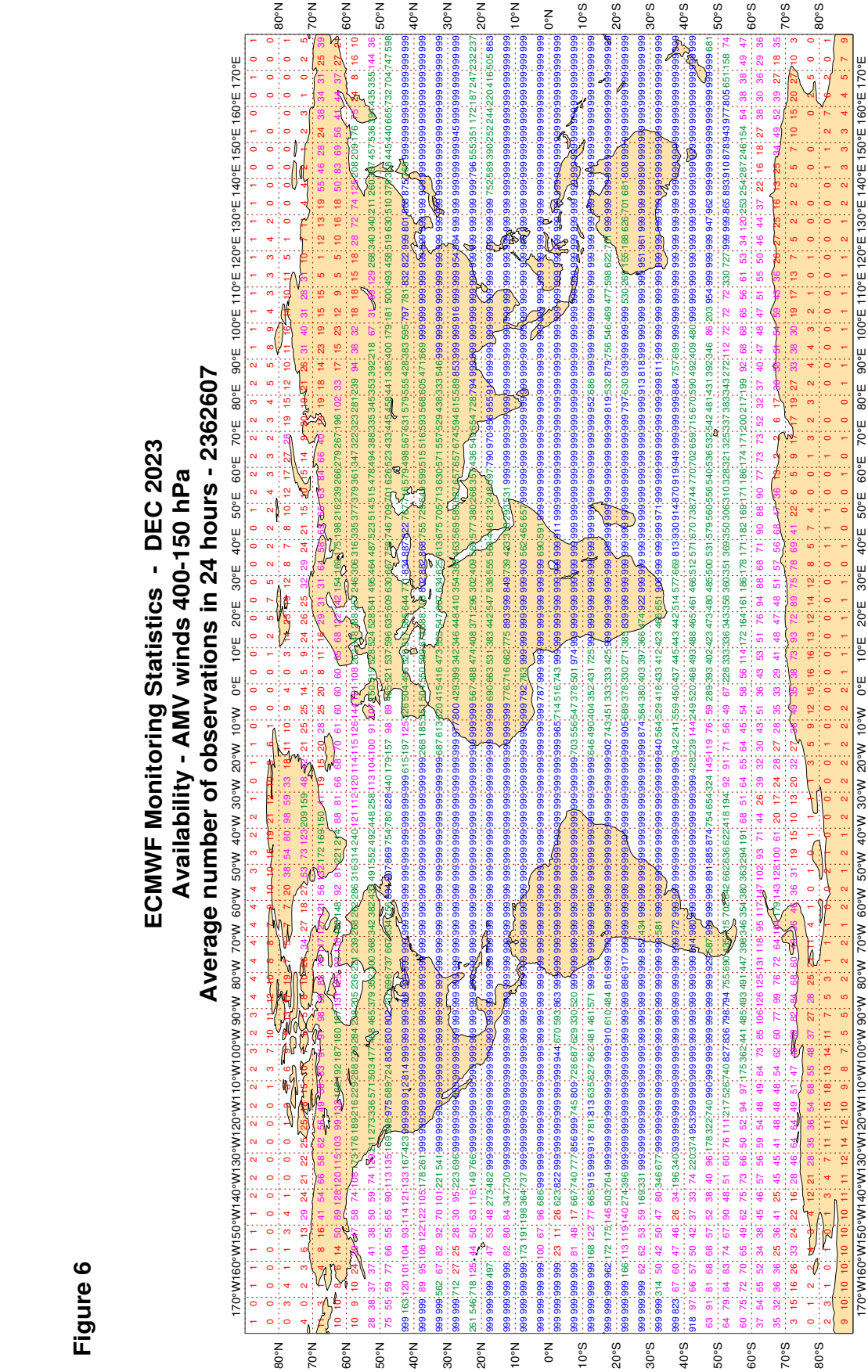


Figure 5

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

Figure 6



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

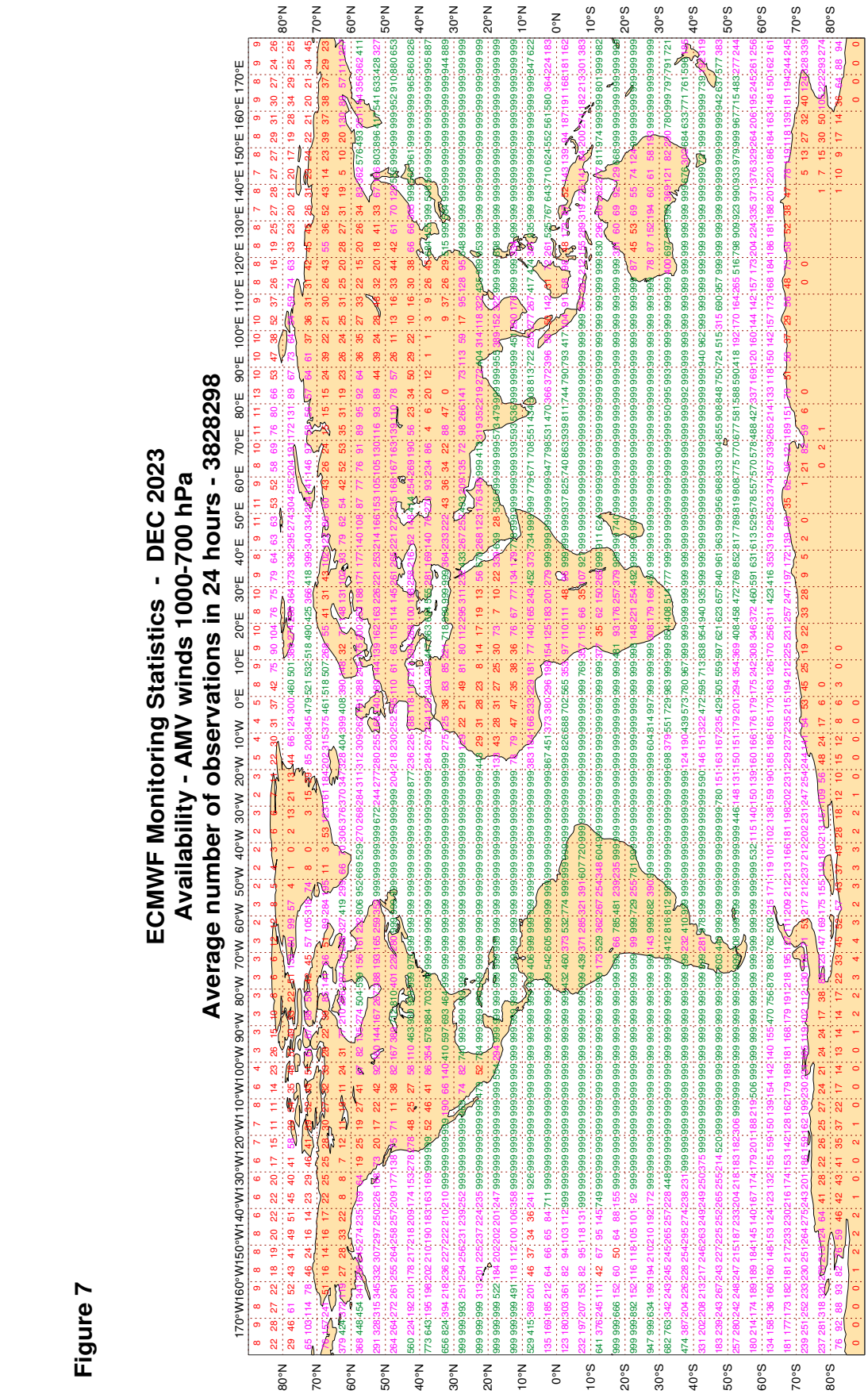
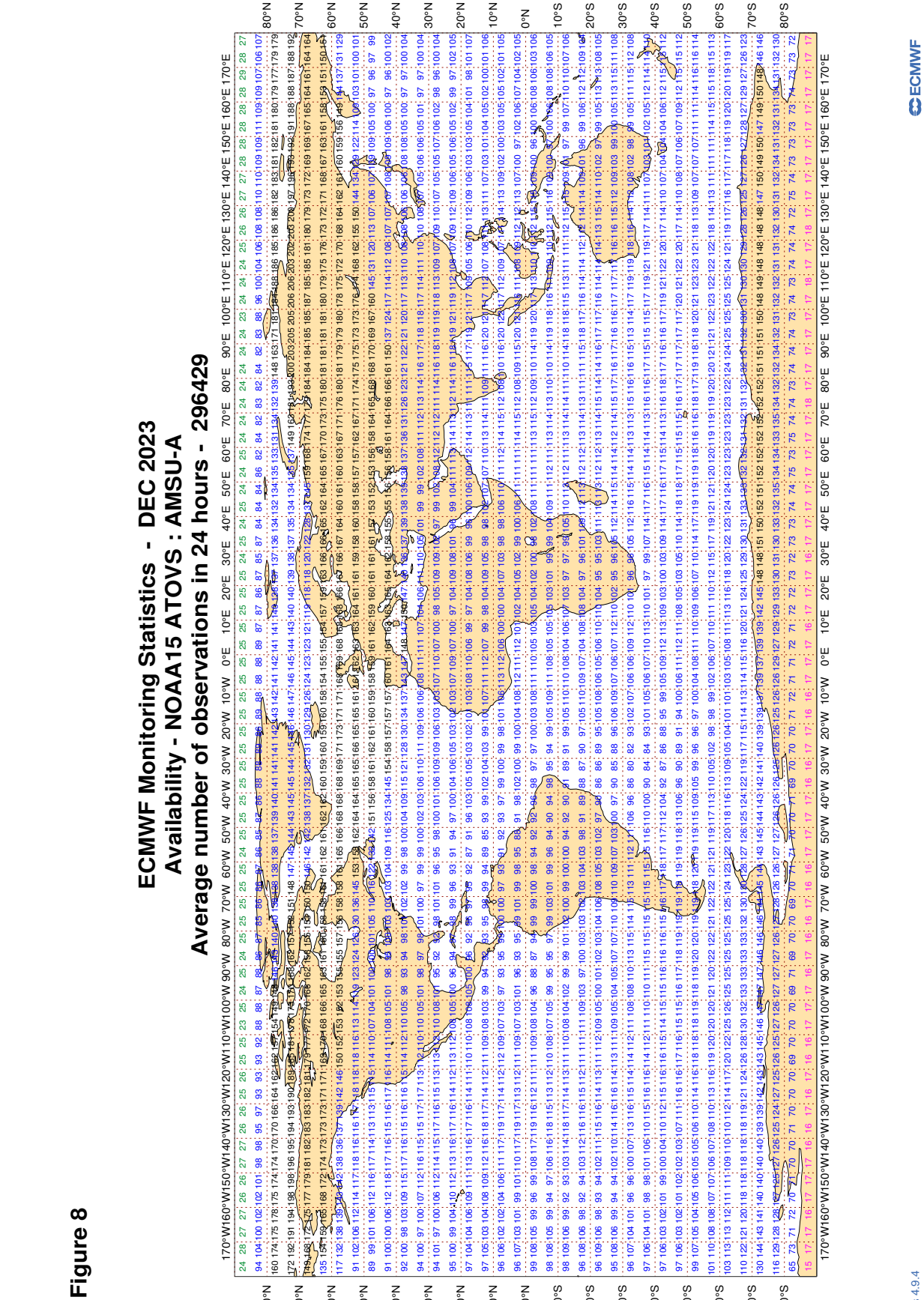


Figure 7

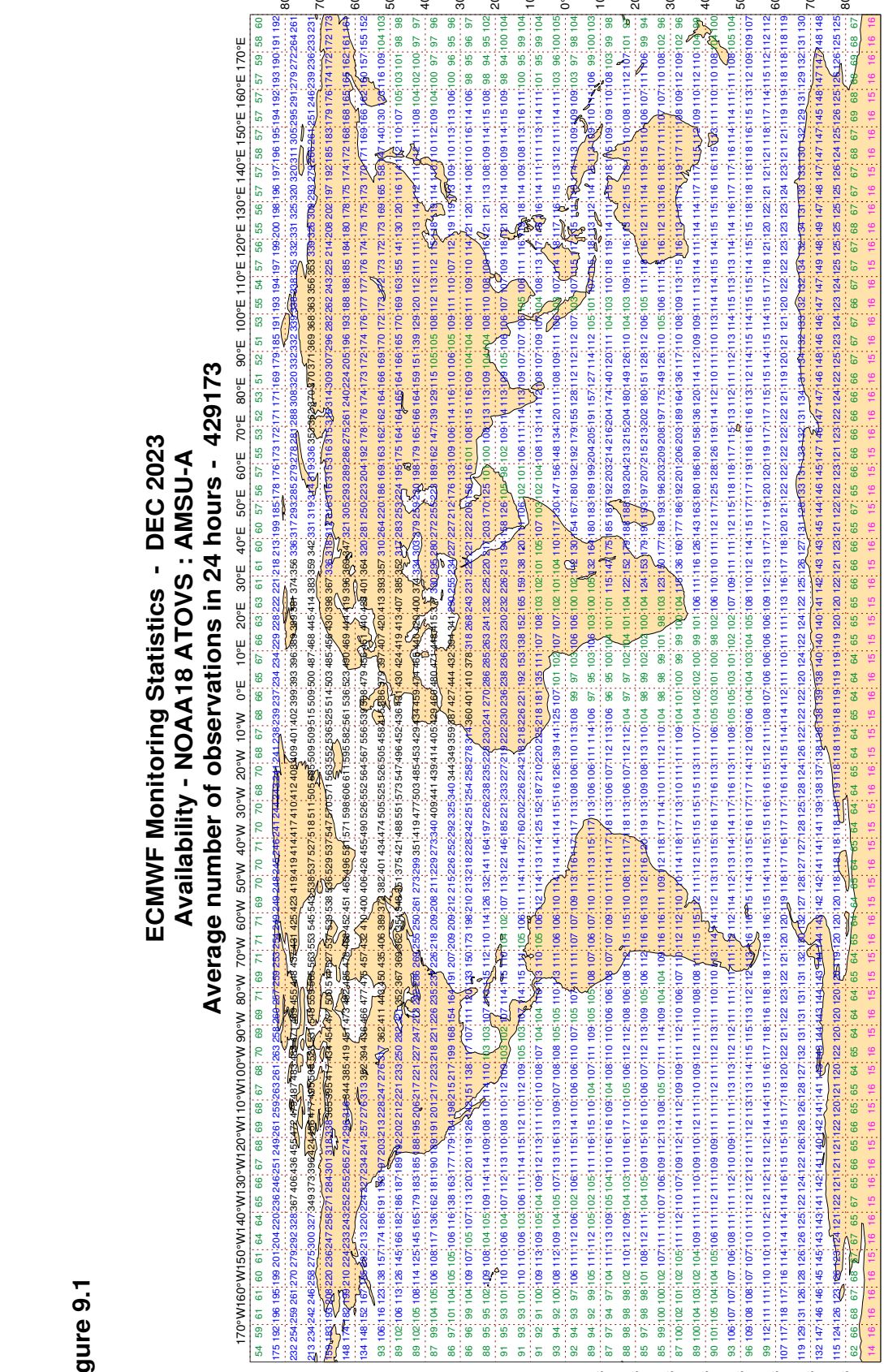
3.2.8 Figure 8 - Availability - NOAA15 ATOVS : AMSU-A

Figure 8



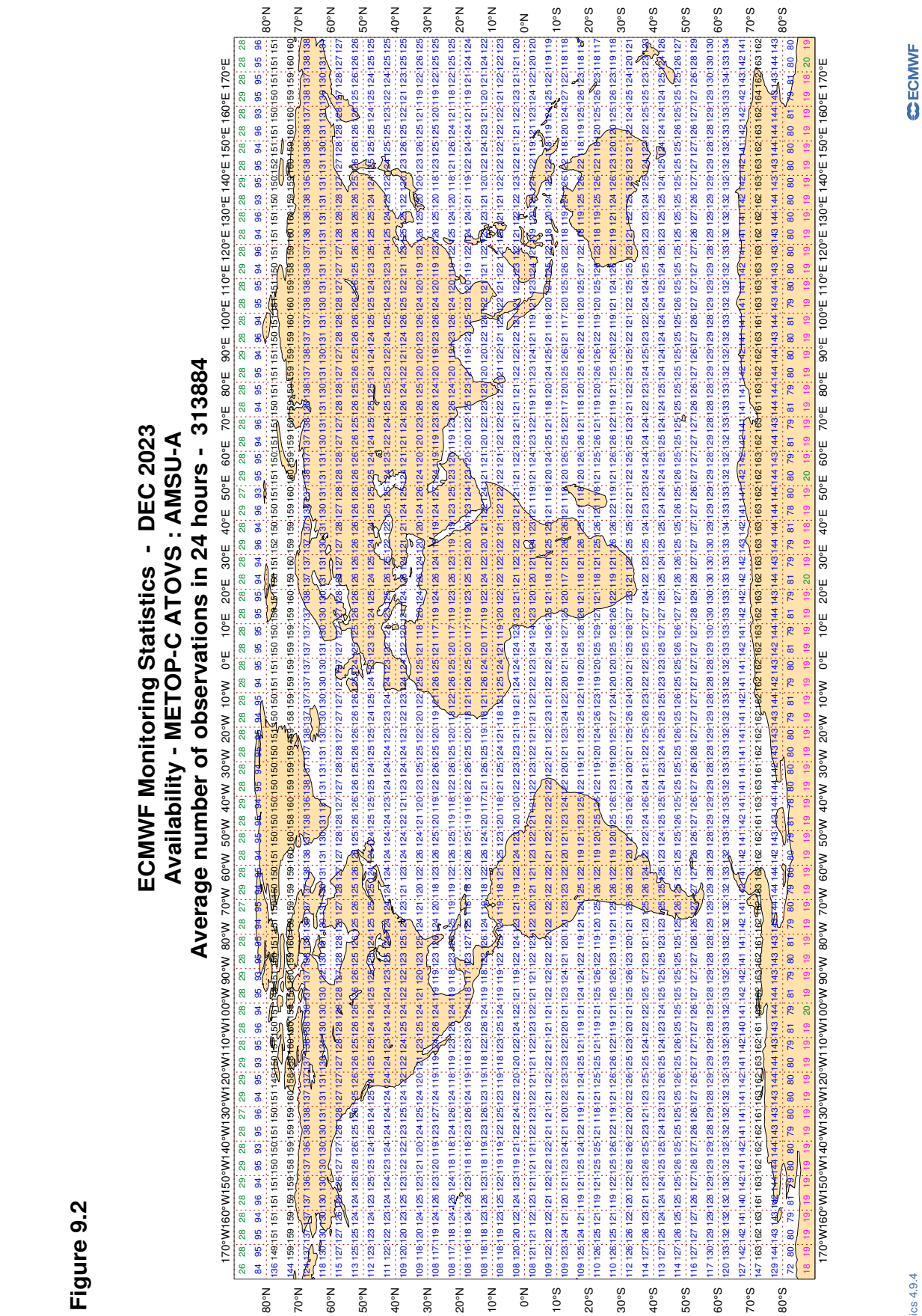
3.2.9 Figure 9.1 - Availability - NOAA18 ATOVS : AMSU-A

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

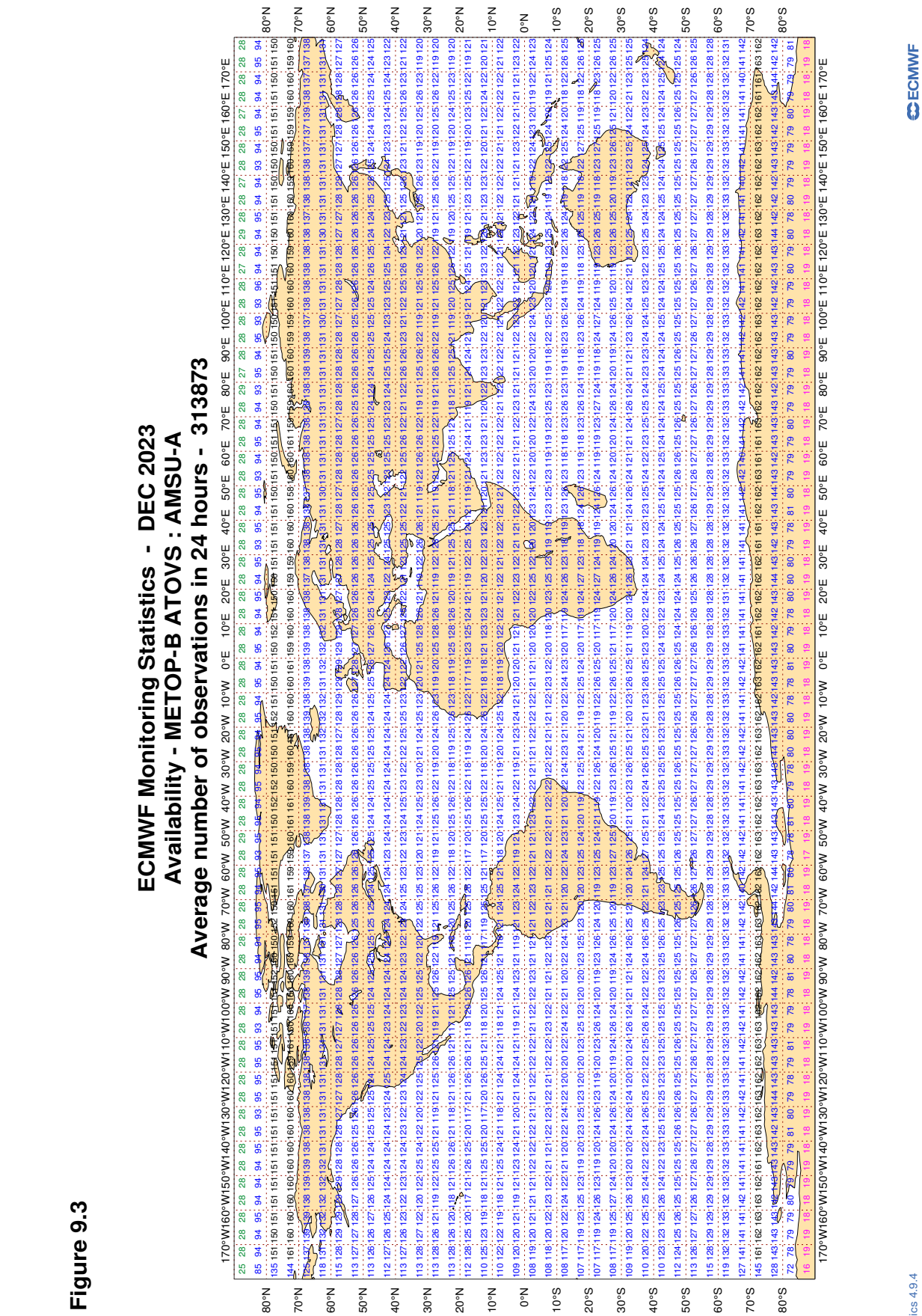


Figure 9.3

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 2023
                    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
3FFG7	99	P	SUR	64	0	0.8	3.5	3.6
3FUY2	99	P	SUR	42	0	1.1	-3.7	3.9
7JJG	99	P	SUR	28	0	2.4	3.5	4.2
7JUN	99	P	SUR	38	0	1.6	-3.6	4.0
9HA2800	99	P	SUR	21	18	5.9	-5.6	8.2
9HA3062	99	P	SUR	29	0	1.8	-4.7	5.1
9HA4638	99	P	SUR	22	0	1.6	7.5	7.7
9HA4902	99	P	SUR	32	0	2.5	8.8	9.1
9HA5063	99	P	SUR	95	0	3.5	4.5	5.7
9HJB9	99	P	SUR	60	0	1.7	4.1	4.4
9V7015	99	P	SUR	31	0	2.4	3.2	4.0
9V8705	99	P	SUR	40	0	1.7	-5.0	5.3
9V8839	99	P	SUR	22	0	2.0	3.2	3.8
9V9404	99	P	SUR	63	0	1.3	8.9	9.0
A8IF2	99	P	SUR	20	0	0.7	-3.8	3.8
AUYL	99	P	SUR	20	0	1.7	6.4	6.7
BNPC	99	P	SUR	40	4	6.4	-1.7	6.7
BNSK	99	P	SUR	49	48	0.0	1.3	1.3
C6DP9	99	P	SUR	17	0	2.1	4.9	5.3
C6FB3	99	P	SUR	19	0	1.0	-6.9	7.0
C6PZ8	99	P	SUR	38	0	0.6	-3.2	3.2
C6SE5	99	P	SUR	18	0	0.5	-3.9	3.9
C6TQ6	99	P	SUR	25	0	4.4	-3.3	5.5
H3WC	99	P	SUR	18	1	1.9	-6.4	6.7
KIAB	99	P	SUR	27	1	0.8	3.7	3.8
LAHR7	99	P	SUR	35	0	1.8	3.1	3.6
LAMG7	99	P	SUR	18	0	2.0	-4.5	4.9
LAQJ7	99	P	SUR	65	0	0.9	-3.7	3.8
LAQL7	99	P	SUR	19	0	1.0	3.6	3.7
NWS0003	99	P	SUR	122	0	5.5	-4.1	6.8
OBAA	99	P	SUR	45	0	0.6	-6.7	6.8
OWLD2	99	P	SUR	22	0	1.5	-3.6	3.9

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
S6CH6	99	P	SUR	23	0	0.8	6.0	6.0
UAST	99	P	SUR	17	8	4.3	-4.1	5.9
UBRW	99	P	SUR	50	5	5.1	-6.0	7.9
UBSH	99	P	SUR	21	0	1.1	-3.8	4.0
UDAD	99	P	SUR	30	0	1.3	7.3	7.5
UGYU	99	P	SUR	87	0	1.2	-3.4	3.6
V7A4490	99	P	SUR	15	0	0.8	5.9	5.9
V7A6085	99	P	SUR	21	0	1.7	4.3	4.6
V7BN9	99	P	SUR	36	0	2.6	5.3	5.9
V7DJ7	99	P	SUR	24	5	3.0	12.2	12.5
V7QT7	99	P	SUR	28	0	1.9	6.3	6.6
V7UU3	99	P	SUR	43	6	5.7	-2.4	6.1
VRCB4	99	P	SUR	19	0	2.4	-4.3	4.9
VRCG8	99	P	SUR	15	0	1.3	6.8	6.9
VREX4	99	P	SUR	16	0	1.1	10.6	10.6
VRFU9	99	P	SUR	26	0	2.4	-5.3	5.8
VRGO6	99	P	SUR	27	0	2.1	-3.8	4.3
VRGO8	99	P	SUR	20	0	2.0	4.5	4.9
VRIB2	99	P	SUR	16	0	1.1	5.0	5.1
VRJH7	99	P	SUR	16	0	2.6	6.1	6.7
VRJU8	99	P	SUR	17	0	1.3	3.0	3.3
VRLJ4	99	P	SUR	19	0	2.3	8.0	8.4
VRLZ3	99	P	SUR	15	0	3.0	4.1	5.0
VRNR5	99	P	SUR	88	1	3.3	3.4	4.8
VRRB5	99	P	SUR	17	0	1.9	6.1	6.4
VRTF2	99	P	SUR	23	0	2.3	3.5	4.2
VRTO4	99	P	SUR	20	0	0.6	8.3	8.3
VRTU3	99	P	SUR	28	0	0.5	4.7	4.7
VTSJ	99	P	SUR	16	0	1.7	-8.4	8.6
WCY2920	99	P	SUR	108	0	1.2	-4.7	4.9
WDF2493	99	P	SUR	112	0	0.5	4.0	4.1
WDK5676	99	P	SUR	238	0	1.0	-3.5	3.7
WGEB	99	P	SUR	123	0	0.7	6.6	6.6
WQVZ	99	P	SUR	17	0	0.8	3.0	3.2
WTED	99	P	SUR	76	9	6.3	-4.6	7.8
WYM9567	99	P	SUR	115	0	0.8	-3.1	3.2

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 2023
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

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

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

```
          LIST OF SUSPECT STATIONS        : SHIPS + FIXED MARINE PLATFORMS
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
                    AREA                  : GLOBAL
                    PERIOD                : DEC 2023
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44489	99	DIRN	SUR	94	0	0	15.0	-34.2	37.4
46083	99	DIRN	SUR	53	4	0	46.7	-33.1	57.2
46145	99	DIRN	SUR	70	1	0	19.7	-43.6	47.8
46204	99	DIRN	SUR	108	0	0	19.6	40.7	45.2

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

```
          LIST OF SUSPECT STATIONS         : DRIFTER
                    MONITORING CENTRE      : ECMWF
                    ELEMENT MONITORED      : SURFACE PRESSURE (HPA)
                    AREA                   : GLOBAL
                    PERIOD                 : DEC 2023
                    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
0022684	99	P	SUR	31	125	728	195	5.6	-2.8	6.2
0022948	99	P	SUR	29	133	643	372	3.9	-10.5	11.1
0022949	99	P	SUR	18	116	608	7	3.9	-6.2	7.3
0022951	99	P	SUR	26	126	671	25	4.5	-6.7	8.0
0022952	99	P	SUR	26	124	427	341	1.8	-12.1	12.3
1301704	99	P	SUR	3	7	744	0	3.3	7.2	8.0
1501727	99	P	SUR	-16	-39	744	0	0.4	-7.4	7.4
1501729	99	P	SUR	-24	-39	744	268	0.5	-14.5	14.5
1601701	99	P	SUR	-63	-61	718	350	0.7	0.3	0.8
1701718	99	P	SUR	12	-41	734	495	1.0	13.4	13.5
1801664	99	P	SUR	-2	43	105	105	0.0	0.0	0.0
1801790	99	P	SUR	6	80	134	0	0.3	-6.1	6.1
2101820	99	P	SUR	34	-178	744	202	7.2	-0.9	7.2
2300094	99	P	SUR	13	84	162	0	0.6	-5.5	5.5
23094	99	P	SUR	13	84	171	0	0.6	-5.5	5.5
2802061	99	P	SUR	81	29	582	377	5.5	2.6	6.0
2802107	99	P	SUR	50	-162	738	94	6.2	2.7	6.8
3301702	99	P	SUR	-40	-28	744	34	6.7	0.5	6.8
3401636	99	P	SUR	-29	-120	744	0	0.3	-4.5	4.5
3801565	99	P	SUR	-11	56	312	312	0.0	0.0	0.0
3801709	99	P	SUR	53	-169	490	138	3.2	10.6	11.1
4101656	99	P	SUR	47	-22	115	33	0.9	-13.3	13.4
4101729	99	P	SUR	33	-54	343	90	4.9	0.2	4.9
4403558	99	P	SUR	46	-2	77	42	7.7	-6.0	9.8
4601776	99	P	SUR	29	-131	744	207	7.0	-7.0	9.9
4601855	99	P	SUR	54	165	742	298	5.0	-3.1	5.9
4602563	99	P	SUR	30	-169	742	75	1.3	12.4	12.5
4701536	99	P	SUR	74	-172	83	83	0.0	0.0	0.0
4701558	99	P	SUR	79	-18	61	0	0.4	-4.5	4.5
4801636	99	P	SUR	75	-138	634	570	2.7	-10.7	11.0
4801771	99	P	SUR	73	-67	542	542	0.0	0.0	0.0
4802657	99	P	SUR	71	-158	135	135	0.0	0.0	0.0

LIST OF SUSPECT STATIONS : DRIFTER
MONITORING CENTRE : ECMWF
ELEMENT MONITORED : SURFACE PRESSURE (HPA)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	ME LAT	N LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	
4802662	99	P	SUR	70	-125	721	609	7.6	0.2	7.6
4804078	99	P	SUR	-35	105	659	0	2.2	4.9	5.4
5102637	99	P	SUR	6	-77	663	250	5.2	-4.4	6.8
5102809	99	P	SUR	10	-109	744	744	0.0	0.0	0.0
5103563	99	P	SUR	32	-155	567	133	7.9	-1.9	8.2
5201807	99	P	SUR	15	136	224	50	0.9	13.2	13.2
5501735	99	P	SUR	-48	-157	731	731	0.0	0.0	0.0
6801915	99	P	SUR	46	-179	732	202	6.6	3.7	7.6

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 2023
                    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
2100229	99	SPEED	SUR	37	131	581	0	0	4.3	-6.8	8.1
6400046	99	SPEED	SUR	61	-4	440	0	0	3.7	6.0	7.0

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 2023
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
2200185	99	DIRN	SUR	37	125	396	4	0	61.0	38.2	71.9
2300093	99	DIRN	SUR	16	88	92	0	0	33.3	24.2	41.2
2300094	99	DIRN	SUR	13	84	76	0	0	37.8	-62.0	72.6
2300095	99	DIRN	SUR	10	94	161	0	0	13.7	24.9	28.4
2300452	99	DIRN	SUR	12	69	74	0	0	74.2	61.6	96.5
2300460	99	DIRN	SUR	7	88	90	0	0	103.1	55.6	117.2
23093	99	DIRN	SUR	16	88	94	0	0	32.2	24.5	40.4
23094	99	DIRN	SUR	13	84	83	0	0	51.3	-55.5	75.6
23095	99	DIRN	SUR	10	94	168	0	0	13.8	25.1	28.6
23099	99	DIRN	SUR	13	80	99	0	0	59.9	35.5	69.6
23452	99	DIRN	SUR	12	69	81	0	0	76.4	54.5	93.9
23460	99	DIRN	SUR	7	88	90	0	0	101.8	59.5	117.9
23492	99	DIRN	SUR	11	72	52	0	0	36.5	-120.4	125.8
3200319	99	DIRN	SUR	-8	-110	731	0	0	8.0	-21.3	22.7
32319	99	DIRN	SUR	-8	-110	730	0	0	8.5	-21.2	22.8
4200040	99	DIRN	SUR	29	-88	4064	0	0	23.2	27.1	35.7
42040	99	DIRN	SUR	29	-88	668	0	0	22.8	26.7	35.1
4400033	99	DIRN	SUR	44	-69	600	3	0	19.1	20.1	27.7
4400488	99	DIRN	SUR	45	-61	505	0	0	15.0	-30.3	33.8
4400489	99	DIRN	SUR	45	-61	506	0	0	13.6	-34.8	37.3
44488	99	DIRN	SUR	45	-61	551	0	0	15.7	-31.4	35.1
44489	99	DIRN	SUR	46	-61	555	0	0	14.5	-35.4	38.2
4600083	99	DIRN	SUR	58	-138	308	22	0	49.2	-36.4	61.2
4600145	99	DIRN	SUR	54	-132	429	0	0	18.2	-42.3	46.0
4600204	99	DIRN	SUR	51	-129	657	0	0	19.9	42.1	46.5
4600303	99	DIRN	SUR	49	-123	417	0	0	24.1	21.1	32.0
46083	99	DIRN	SUR	58	-138	316	23	0	49.2	-37.0	61.5
46145	99	DIRN	SUR	54	-132	421	1	0	20.3	-41.6	46.3
46204	99	DIRN	SUR	51	-129	651	0	0	20.8	41.2	46.1
46303	99	DIRN	SUR	49	-123	433	0	0	25.0	21.7	33.1
6200086	99	DIRN	SUR	55	7	354	0	0	16.5	23.4	28.7

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
6600022	99	DIRN	SUR	54	14	181	0	0	45.8	55.1	71.7

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 2023
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
01400	12	Z	1000	57	3	27	1	12.1	73.1	74.1
01400	00	Z	1000	57	3	28	0	3.9	75.5	75.6
23884	12	Z	250	62	90	20	0	24.3	-68.2	72.4
23884	00	Z	250	62	90	20	0	58.9	-47.7	75.8
37055	00	Z	200	44	43	17	1	105.0	30.5	109.3
38341	00	Z	200	43	71	15	5	138.7	-87.1	163.8
38341	12	Z	250	43	71	13	1	121.8	-80.1	145.8
40766	00	Z	400	34	47	27	1	56.0	38.1	67.7
42056	12	Z	925	33	75	22	0	27.7	27.3	38.9
42410	12	Z	925	26	92	29	0	22.6	22.2	31.7
42724	00	Z	1000	24	91	28	1	28.3	11.3	30.5
43041	00	Z	925	19	82	26	2	23.9	23.8	33.7
48698	12	Z	150	1	104	11	0	6.1	92.9	93.1
65548	12	Z	925	7	-8	30	0	6.4	33.7	34.3
68994	12	Z	1000	-47	38	24	0	14.2	27.8	31.2
76458	12	Z	1000	23	-106	26	1	31.7	-23.6	39.5
78486	12	Z	1000	18	-70	14	0	2.5	31.2	31.3
82824	12	Z	1000	-9	-64	31	0	39.7	22.7	45.7
82824	00	Z	1000	-9	-64	29	0	41.1	21.7	46.5
91212	12	Z	1000	13	145	32	0	28.2	12.9	31.0
91680	12	Z	1000	-18	177	29	0	2.5	31.8	31.9
91680	00	Z	1000	-18	177	30	0	2.5	31.4	31.5
96315	00	Z	1000	5	115	31	0	8.0	53.1	53.7
JNKN7J	12	Z	1000	49	-42	10	0	16.3	33.2	37.0
KMPLHP	12	Z	1000	46	-53	10	0	14.8	60.2	62.0
KMPLHP	00	Z	1000	46	-58	12	0	15.8	58.3	60.4

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 2023
                    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
27459	12	V	100	56	44	14	0	-9.5	-1.7	17.3
38341	12	V	200	43	71	9	3	-29.4	2.0	39.7
38341	00	V	150	43	71	6	5	-39.0	5.6	41.3
40179	12	V	300	32	35	11	0	-5.8	-1.8	18.0
42027	00	V	150	34	75	20	1	-11.0	0.0	20.4
47122	12	V	150	37	127	22	5	-17.9	-1.3	29.4
47122	00	V	100	37	127	26	2	-4.3	-0.1	15.6
48407	00	V	1000	15	105	14	6	-8.8	12.6	20.2

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 2023
                    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
43333	00	DD	12	93	5	-15.5	4.9	12.8
48327	00	DD	19	99	30	-10.1	2.3	8.3
48407	00	DD	15	105	19	11.4	9.9	14.3
54340	00	DD	42	124	27	-10.9	0.8	6.3
54340	12	DD	42	124	30	-14.0	3.3	15.4

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

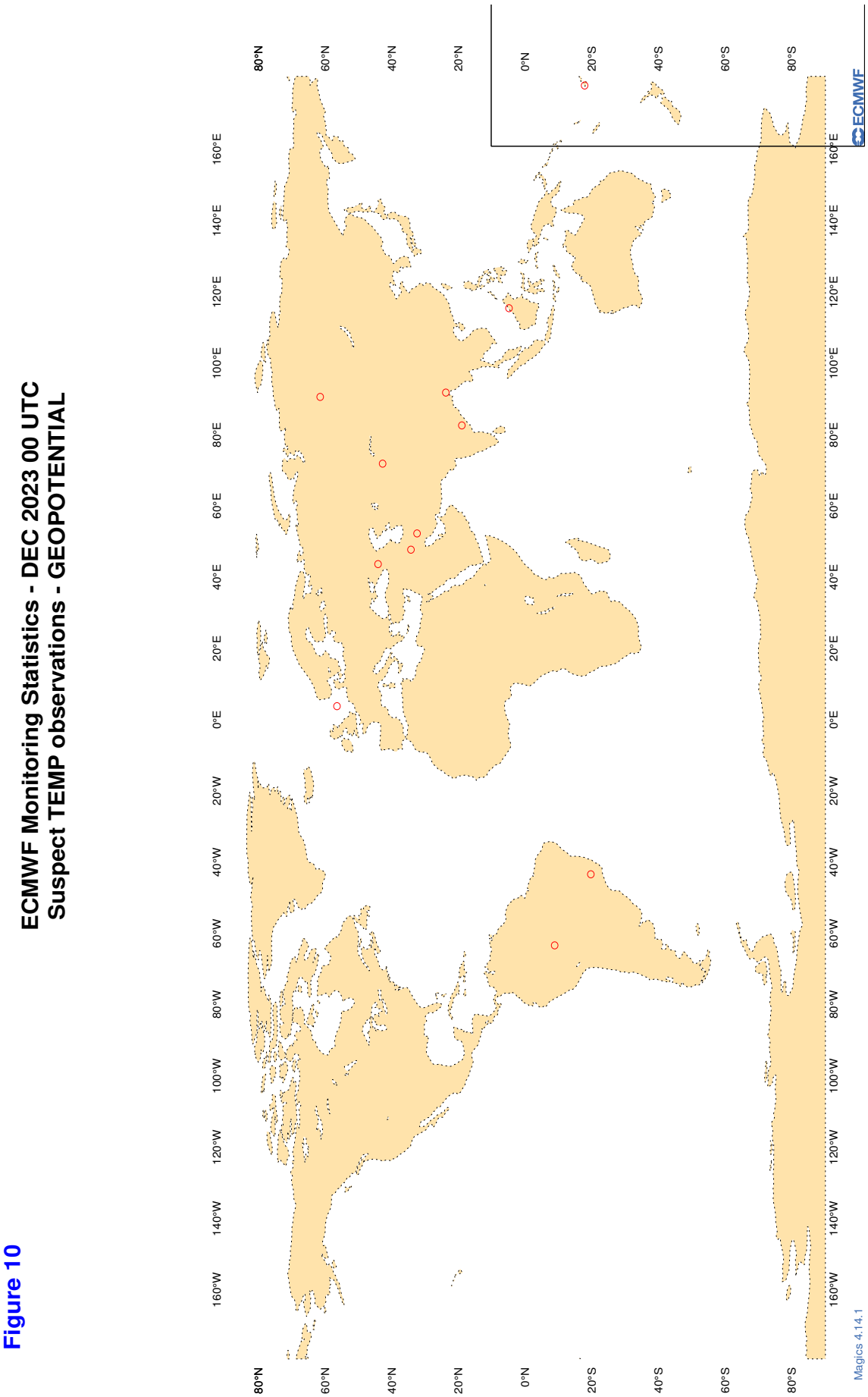
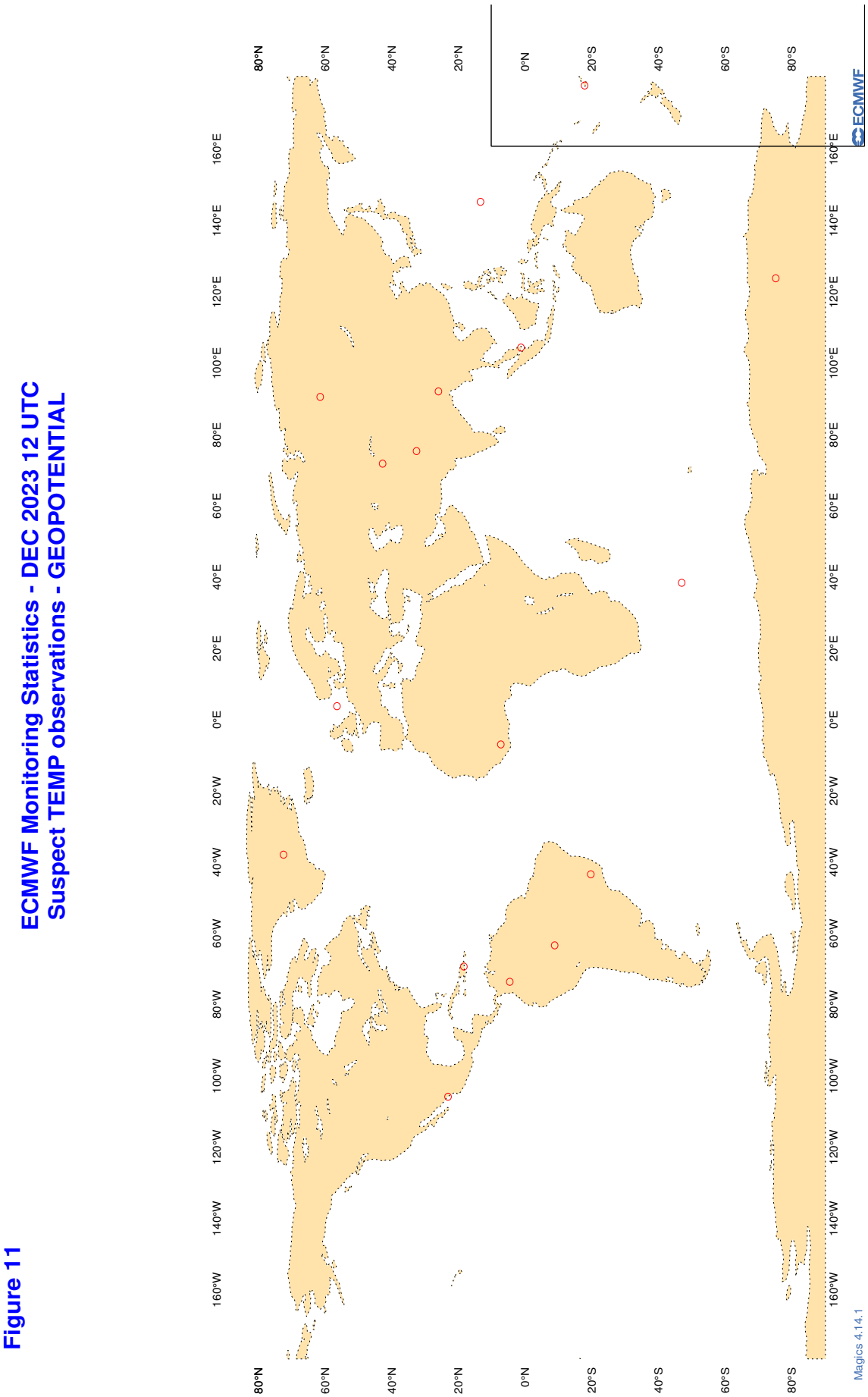
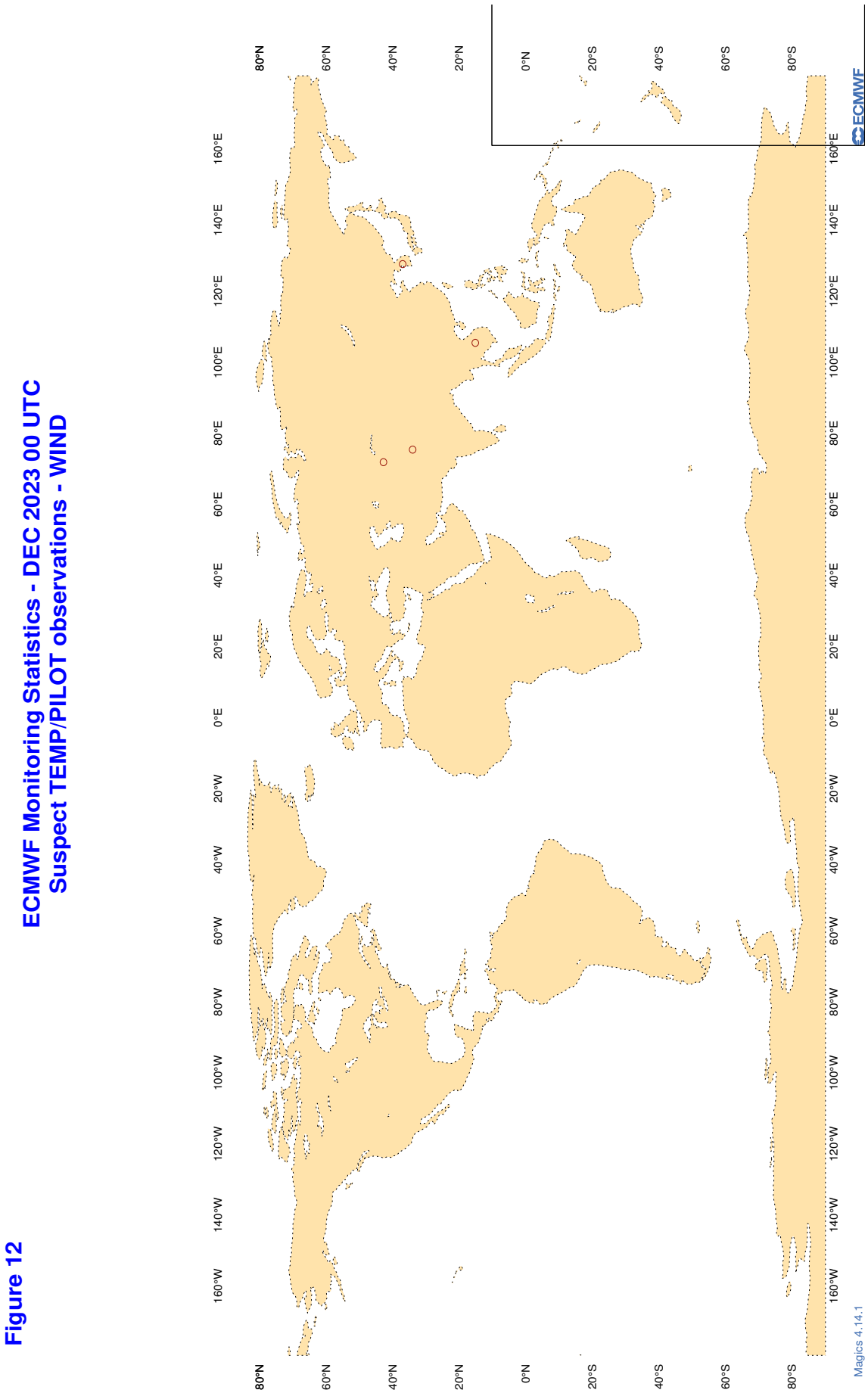


Figure 10

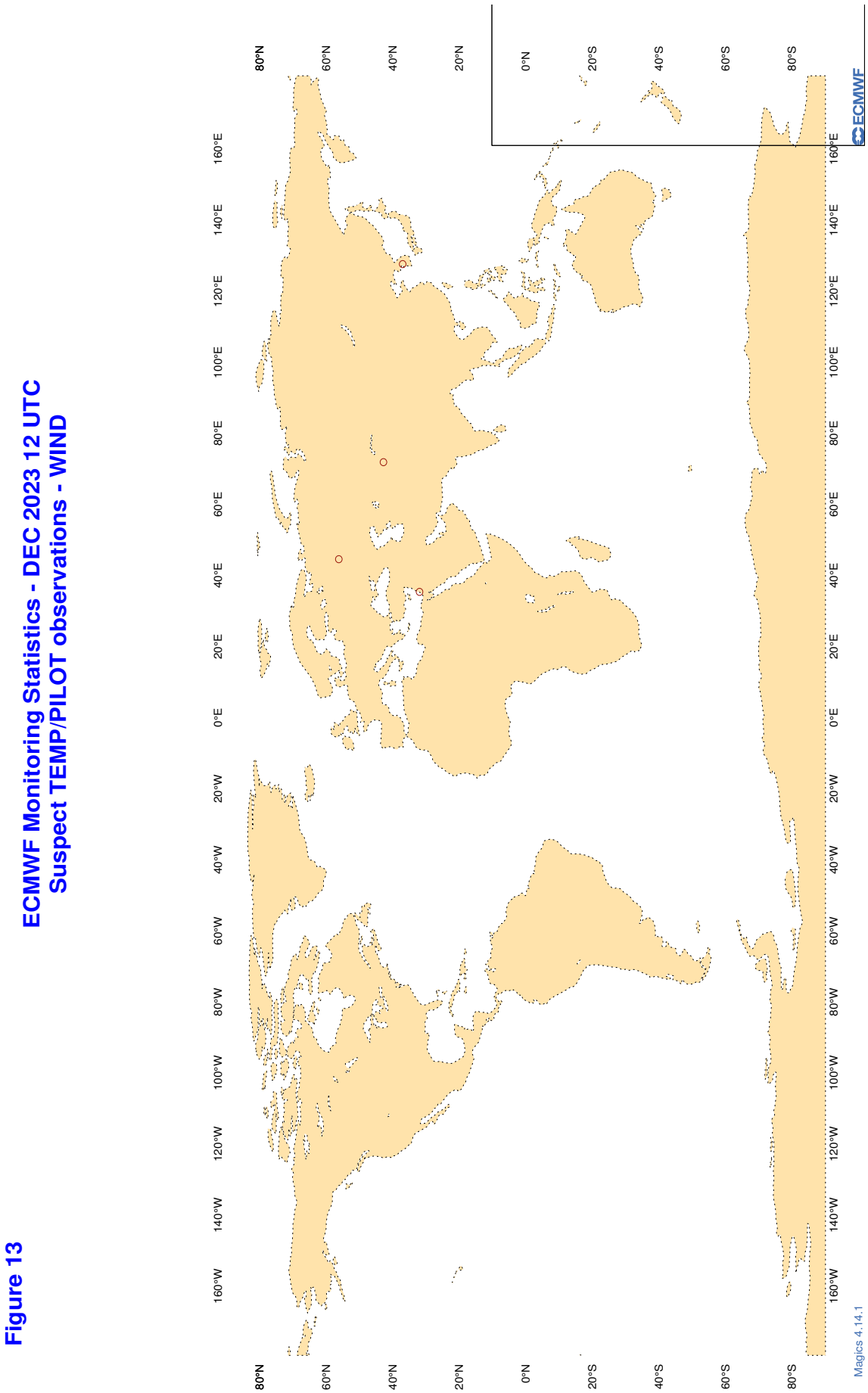
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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



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



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

```
RADIOSONDE MONITORING STATISTICS (SHIPS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 100 HPA
         AREA                  : GLOBAL
         PERIOD                : DEC 2023
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	00	Z	100	7	11.3	-5.5
7JUNA4	12	Z	100	9	15.9	2.3
ATGU3F	00	Z	100	10	45.2	-14.5
ATGU3F	12	Z	100	13	30.1	-27.9
BPMWB2	00	Z	100	7	14.2	-12.0
BPMWB2	12	Z	100	10	12.0	-4.8
DBLK	00	Z	100	0	0.0	0.0
DBLK	12	Z	100	29	15.6	14.9
GQBZLZ	00	Z	100	2	36.8	-36.8
GQBZLZ	12	Z	100	5	77.4	-61.9
JNKN7J	12	Z	100	8	33.2	21.4
JNKN7J	00	Z	100	8	22.7	19.8
KJJF9X	12	Z	100	11	92.5	-28.1
KJJF9X	00	Z	100	8	8.8	-1.7
KMPLHP	12	Z	100	10	49.5	47.0
KMPLHP	00	Z	100	12	41.5	36.1
LAGY8	00	Z	100	2	22.1	21.5
LAGZ8	12	Z	100	2	55.1	54.2
LRYQE3	00	Z	100	5	7.8	-6.9
LRYQE3	12	Z	100	4	44.0	27.6
UBQW2	00	Z	100	16	33.7	-32.8
USBOD	00	Z	100	4	13.8	-11.5
USBOD	12	Z	100	6	14.2	-8.2
USTAC	12	Z	100	10	14.3	-5.9
USTAC	00	Z	100	9	21.7	-14.5
USYUB	00	Z	100	4	6.8	-2.2
USYUB	12	Z	100	5	10.1	-6.1
UXK5JT	00	Z	100	5	10.9	-6.2
UXK5JT	12	Z	100	4	32.2	-12.7
XKQLWQ	12	Z	100	25	49.9	34.5
YLV96W	12	Z	100	9	22.0	9.8
YLV96W	00	Z	100	10	16.0	1.5
ZVQEQC	12	Z	100	3	5.6	3.5

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 2023
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	00	V	100	7	3.6	-1.1	-0.5
7JUNA4	12	V	100	9	4.7	-0.6	1.7
ATGU3F	00	V	100	10	2.1	-0.3	-0.5
ATGU3F	12	V	100	13	3.6	-0.5	0.3
BPMWB2	00	V	100	7	4.6	-0.3	-0.5
BPMWB2	12	V	100	10	2.6	-1.0	-0.6
DBLK	00	V	100	0	0.0	0.0	0.0
DBLK	12	V	100	29	2.8	0.1	-0.2
GQBZLZ	00	V	100	2	2.8	1.6	-1.5
GQBZLZ	12	V	100	5	2.2	-0.4	-0.7
JNKN7J	12	V	100	8	3.8	0.7	-1.8
JNKN7J	00	V	100	8	5.0	0.5	1.3
KJJF9X	12	V	100	11	3.8	0.2	0.4
KJJF9X	00	V	100	8	13.0	-3.8	-2.1
KMPLHP	12	V	100	10	4.0	0.1	-1.5
KMPLHP	00	V	100	12	4.5	-0.4	1.3
LAGY8	00	V	100	2	1.9	0.8	-1.6
LAGZ8	12	V	100	2	1.3	0.8	0.8
LRYQE3	00	V	100	5	2.3	0.8	0.5
LRYQE3	12	V	100	4	3.0	-1.4	-1.2
UBQW2	00	V	100	16	2.7	0.1	0.7
USBOD	00	V	100	3	5.8	0.6	-3.1
USBOD	12	V	100	3	3.1	0.0	-2.0
USTAC	12	V	100	5	4.4	1.9	-0.6
USTAC	00	V	100	5	7.2	-3.6	1.7
USYUB	00	V	100	2	3.8	-0.3	-3.6
USYUB	12	V	100	3	4.9	2.2	3.6
UXK5JT	00	V	100	5	5.1	-1.3	1.1
UXK5JT	12	V	100	4	4.4	-0.8	-2.0
XKQLWQ	12	V	100	25	6.0	-1.4	-0.6
YLV96W	12	V	100	9	3.0	0.0	0.8
YLV96W	00	V	100	10	3.3	-0.5	0.6
ZVQEQC	12	V	100	3	2.3	0.8	0.4

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

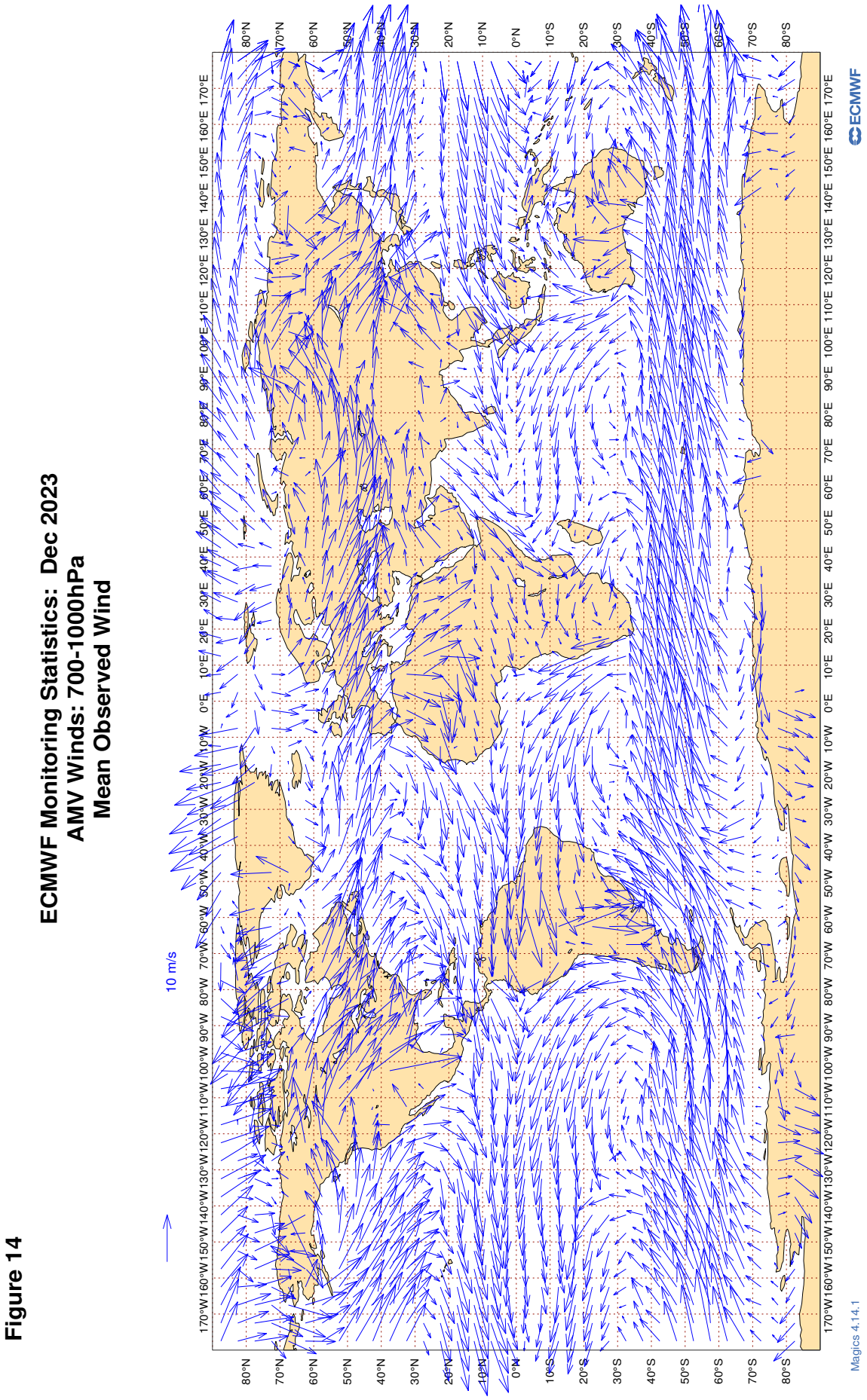


Figure 14

3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

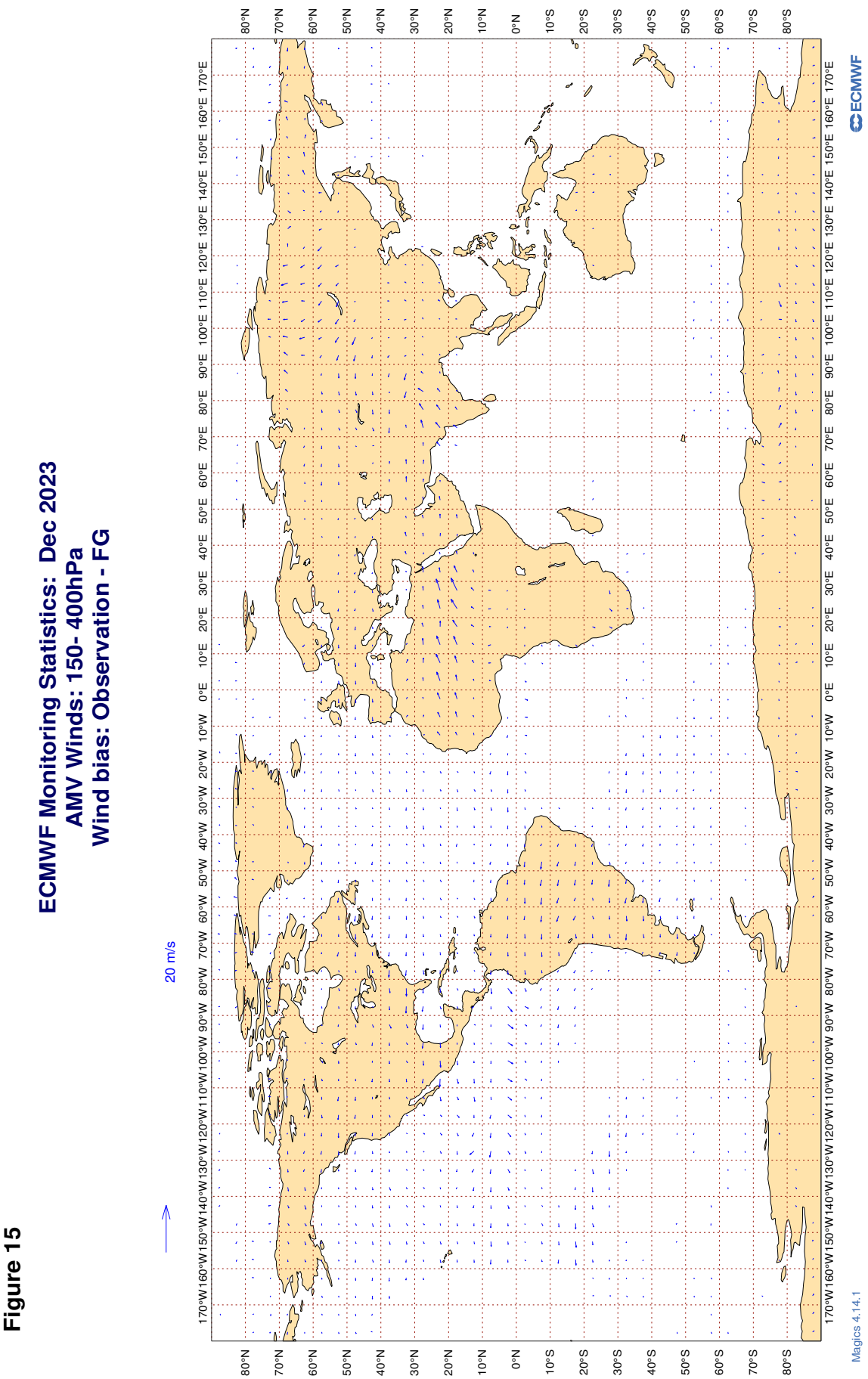


Figure 15

3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

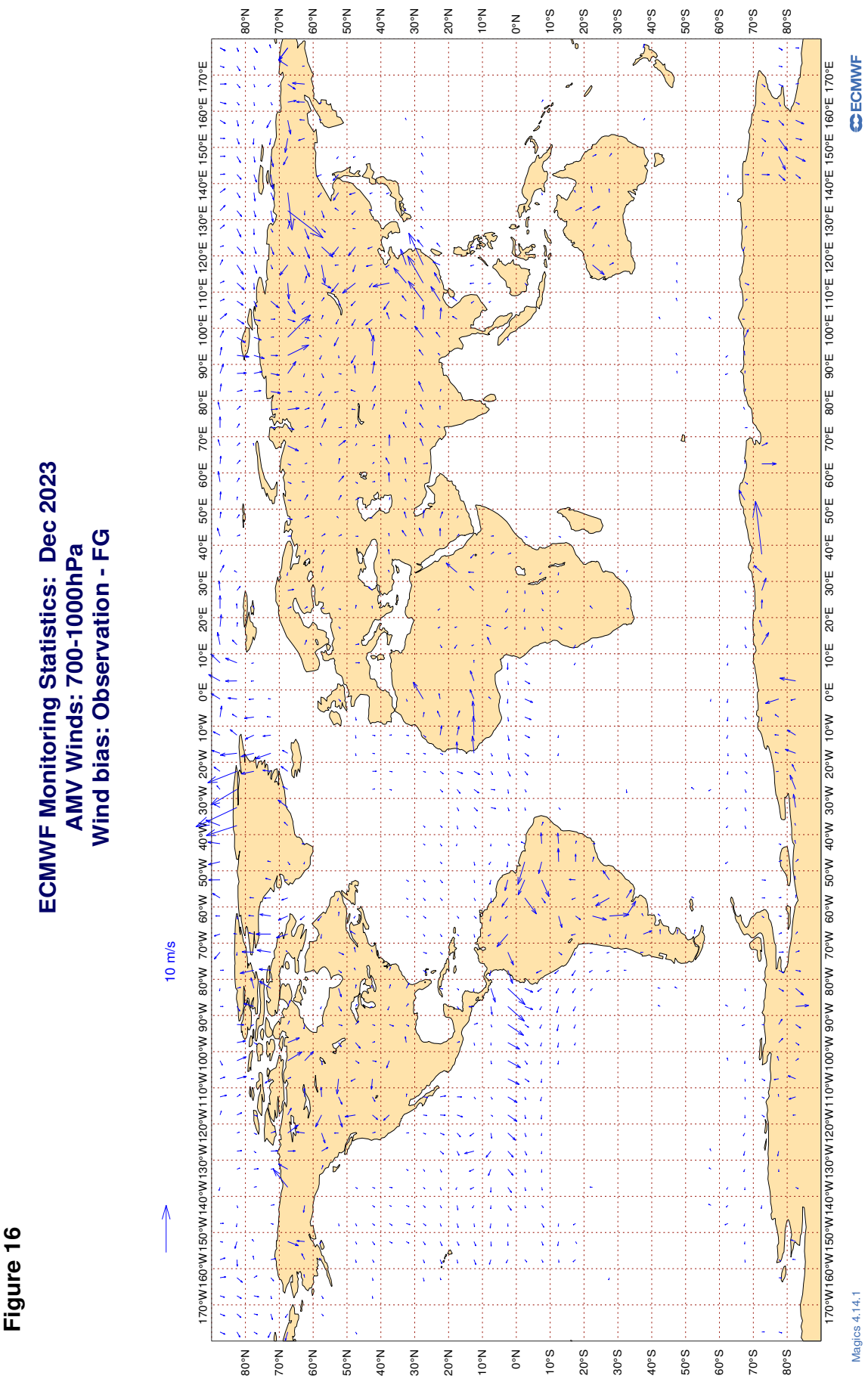


Figure 16

3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

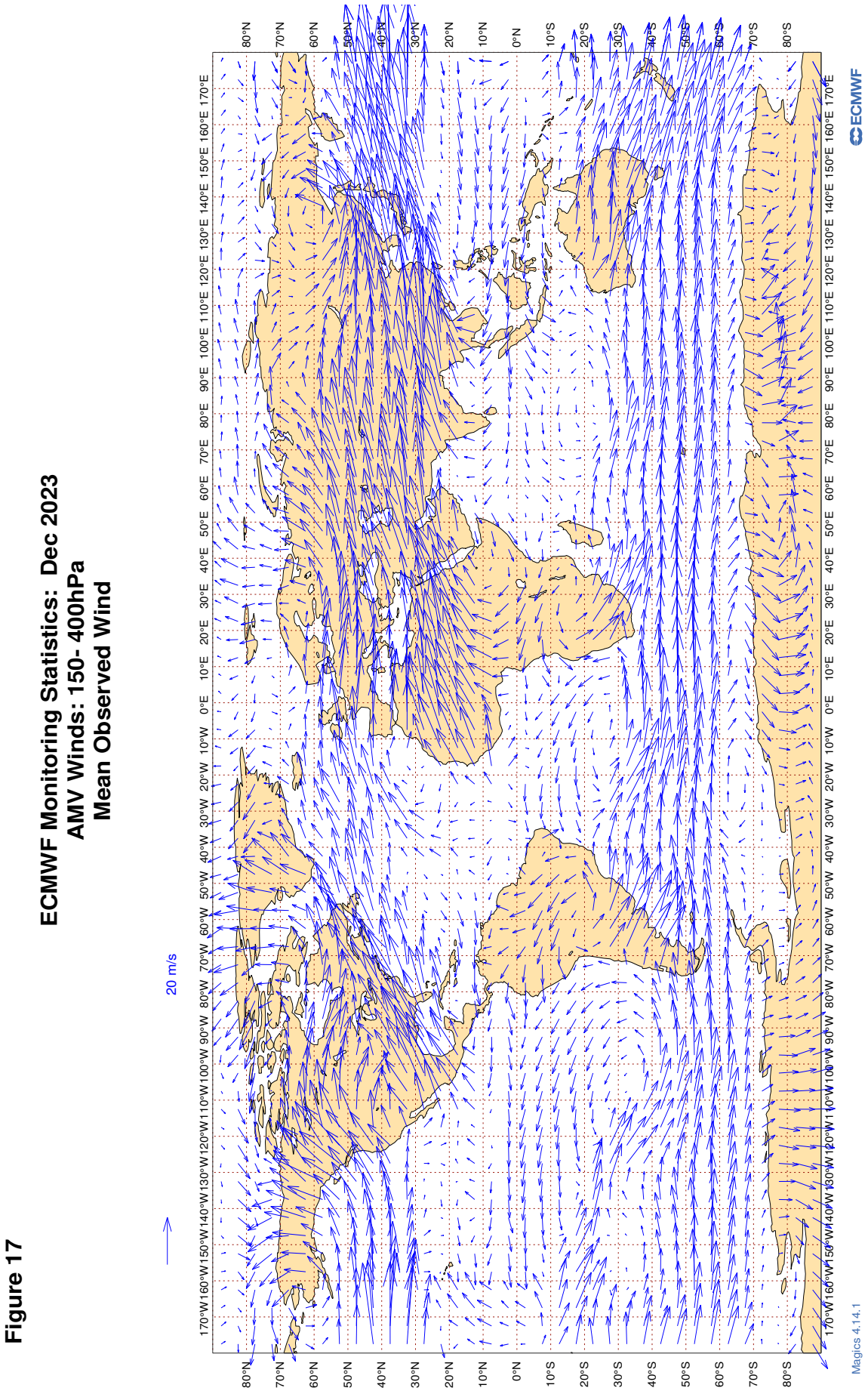


Figure 17

3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

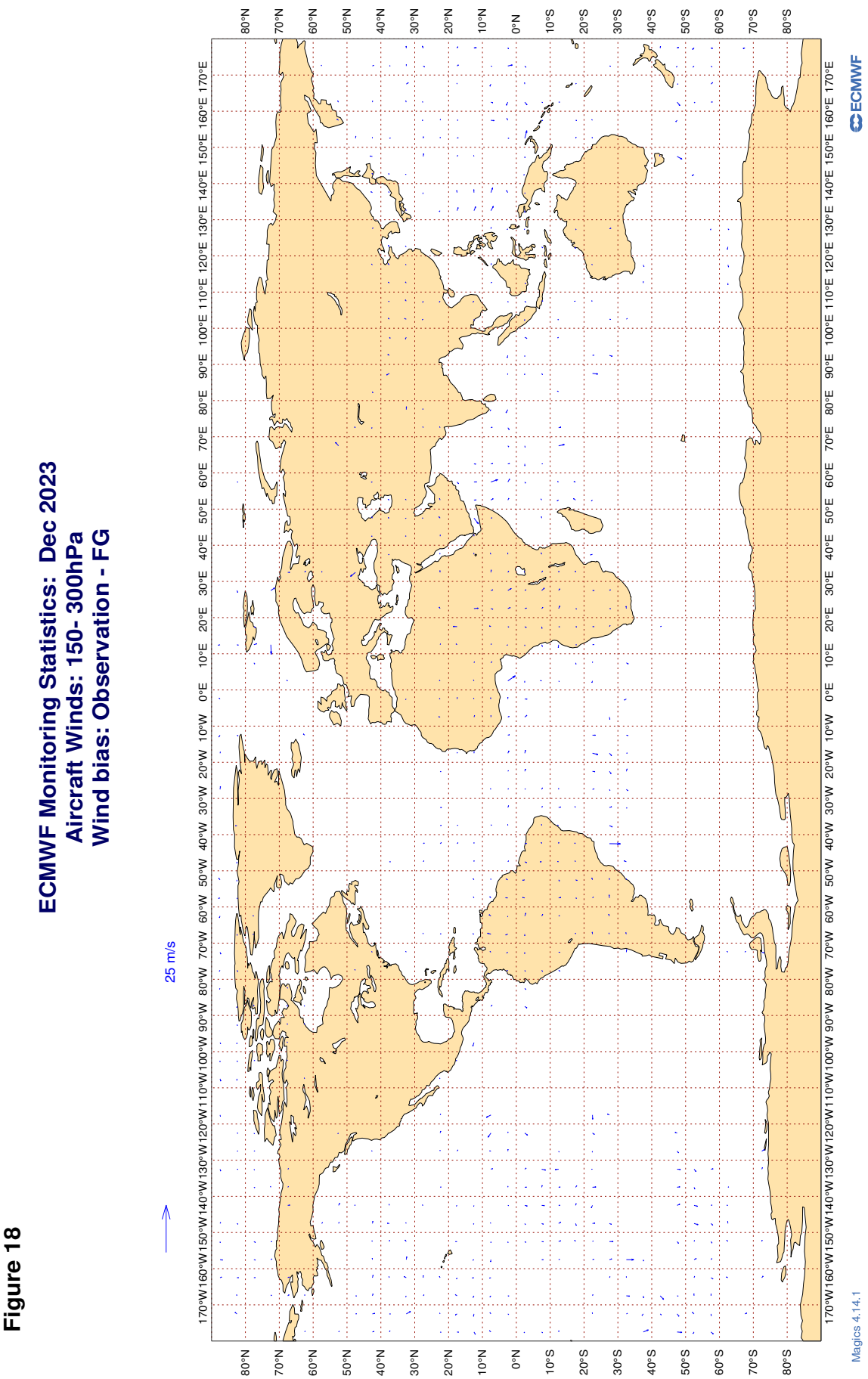


Figure 18

3.2.32 Table 12 - Airep Monitoring Statistics For Airline Carriers (Global)

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
MONITORING CENTRE : ECMWF
ELEMENT MONITORED : VECTOR WIND (M/S)
AREA : GLOBAL
PERIOD : DEC 2023
STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20

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

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AAB	99	V	300-150	78	0	0	4.0	-0.6
AAL	99	V	300-150	43700	4	0	4.7	0.1
AAR	99	V	300-150	221	0	0	3.3	-0.7
ABB	99	V	300-150	732	0	0	3.3	0.3
ABD	99	V	300-150	1515	0	0	3.8	-0.2
ABP	99	V	300-150	74	0	0	4.1	0.2
ACA	99	V	300-150	26366	3	0	4.2	0.0
ACI	99	V	300-150	444	0	0	5.0	0.9
AEA	99	V	300-150	586	11	3	5.2	-0.1
AFR	99	V	300-150	35572	1	0	4.0	0.1
AHY	99	V	300-150	21	0	0	7.4	-4.0
AIB	99	V	300-150	25	0	0	3.7	0.1
AIC	99	V	300-150	5285	3	0	5.1	0.1
AJO	99	V	300-150	39	0	0	4.4	0.8
AJT	99	V	300-150	229	0	0	3.3	0.3
AKB	99	V	300-150	39	0	0	3.8	0.5
ALK	99	V	300-150	1568	0	0	3.3	0.5
AMX	99	V	300-150	4935	12	0	6.3	0.0
ANA	99	V	300-150	192	0	0	4.7	0.2
ANZ	99	V	300-150	18175	0	0	4.4	0.4
AOJ	99	V	300-150	243	0	0	3.4	0.4
ARL	99	V	300-150	27	0	0	3.4	-1.2
ASA	99	V	300-150	91	0	1	5.6	0.3
ASL	99	V	300-150	862	0	0	3.4	0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
ASY	99	V	300-150	92	0	0	6.3	1.1
ATC	99	V	300-150	271	6	0	9.3	0.2
ATG	99	V	300-150	320	1	0	3.7	1.3
ATN	99	V	300-150	122	0	3	5.0	0.1
AUA	99	V	300-150	3655	0	0	3.7	0.0
AVA	99	V	300-150	491	10	1	5.6	-0.1
AVL	99	V	300-150	37	0	0	3.1	0.6
AWC	99	V	300-150	147	0	0	3.9	0.6
AXM	99	V	300-150	96	0	0	3.7	0.9
AXY	99	V	300-150	89	0	0	3.7	-0.3
AZG	99	V	300-150	1075	0	0	3.9	-0.3
BAF	99	V	300-150	35	0	0	3.0	0.6
BAH	99	V	300-150	21	0	0	3.4	1.3
BAW	99	V	300-150	47567	2	0	4.1	0.0
BBC	99	V	300-150	949	7	0	3.9	0.2
BCS	99	V	300-150	1957	0	0	3.7	0.5
BEL	99	V	300-150	727	0	0	3.5	0.2
BFF	99	V	300-150	33	0	0	11.3	1.5
BLU	99	V	300-150	23	0	0	4.0	-0.2
BLX	99	V	300-150	520	10	0	7.6	0.1
BOX	99	V	300-150	4697	0	0	3.4	0.0
BOX	99	V	300-150	38	0	0	4.5	-0.2
BQA	99	V	300-150	35	0	0	4.7	0.6
BTX	99	V	300-150	53	0	0	2.5	-0.1
BVR	99	V	300-150	31	0	0	3.2	0.4
CAL	99	V	300-150	1601	0	0	4.0	0.6
CAZ	99	V	300-150	64	0	0	3.4	0.8
CBJ	99	V	300-150	151	0	0	3.6	0.6
CCA	99	V	300-150	130	0	0	3.3	0.6
CEB	99	V	300-150	905	0	0	3.0	0.3
CES	99	V	300-150	1358	0	0	3.7	0.3
CFC	99	V	300-150	373	0	0	3.8	-0.4
CFG	99	V	300-150	5182	0	0	3.6	0.1
CHG	99	V	300-150	276	0	0	3.7	-0.2
CHH	99	V	300-150	289	0	0	4.4	0.5
CJT	99	V	300-150	917	0	0	4.3	-0.5
CKS	99	V	300-150	284	0	0	3.6	-0.2
CLX	99	V	300-150	5316	0	0	3.9	-0.5
CLY	99	V	300-150	23	0	0	2.4	0.3
CMB	99	V	300-150	1261	0	0	3.8	-0.2
CND	99	V	300-150	332	0	0	4.1	-0.1
CNK	99	V	300-150	26	0	0	3.8	0.1
CNV	99	V	300-150	94	0	0	3.4	0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
COL	99	V	300-150	37	0	0	3.6	0.6
CPA	99	V	300-150	2790	0	0	3.8	0.3
CRL	99	V	300-150	1090	0	0	3.4	0.2
CRV	99	V	300-150	65	0	0	5.5	-0.5
CSC	99	V	300-150	880	0	0	3.4	0.4
CSG	99	V	300-150	36	0	0	5.2	-1.7
CSN	99	V	300-150	668	3	0	5.9	0.4
CSS	99	V	300-150	145	0	0	3.3	0.4
CTM	99	V	300-150	63	0	0	3.7	0.9
CTV	99	V	300-150	83	0	0	3.2	0.7
CWG	99	V	300-150	55	0	0	2.9	0.4
CXA	99	V	300-150	56	5	0	3.1	0.5
CXB	99	V	300-150	27	0	0	7.3	-3.1
DAH	99	V	300-150	845	0	0	3.3	0.1
DAL	99	V	300-150	52806	0	0	3.4	0.1
DCS	99	V	300-150	54	0	0	3.4	1.1
DGX	99	V	300-150	42	0	0	3.8	-0.4
DHK	99	V	300-150	4548	0	0	3.5	-0.2
DHX	99	V	300-150	916	0	0	3.5	0.7
DJT	99	V	300-150	1529	0	0	3.5	0.0
DLH	99	V	300-150	23934	1	0	3.7	0.0
DSO	99	V	300-150	33	0	0	3.0	-0.6
DUB	99	V	300-150	22	0	0	4.0	0.8
EAL	99	V	300-150	35	0	0	4.1	-1.1
EAU	99	V	300-150	93	0	0	3.5	0.2
EDC	99	V	300-150	153	0	0	3.5	-0.4
EDW	99	V	300-150	1658	0	0	3.6	0.2
EIN	99	V	300-150	15664	0	0	3.3	0.2
EJM	99	V	300-150	662	0	0	3.6	0.3
ELY	99	V	300-150	4984	10	0	6.4	0.0
ETD	99	V	300-150	15003	4	0	5.0	0.2
ETH	99	V	300-150	7460	3	0	5.8	0.2
EUK	99	V	300-150	1644	0	0	3.4	0.1
EUW	99	V	300-150	50	0	0	3.8	-0.2
EVA	99	V	300-150	1496	2	0	7.0	1.5
EVE	99	V	300-150	163	0	1	3.6	0.5
EXS	99	V	300-150	3088	0	0	3.2	0.0
EXV	99	V	300-150	196	0	0	2.9	0.4
FBU	99	V	300-150	2154	0	0	3.9	0.1
FDX	99	V	300-150	7451	0	0	3.4	0.1
FFM	99	V	300-150	42	0	0	4.1	1.2
FIN	99	V	300-150	3008	0	0	3.8	0.3
FJI	99	V	300-150	3160	0	0	4.4	0.7

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
FJO	99	V	300-150	46	0	0	3.2	0.4
FPY	99	V	300-150	3561	0	0	3.3	0.2
FRV	99	V	300-150	31	0	0	2.1	0.3
FWI	99	V	300-150	2124	0	0	3.7	0.0
FWK	99	V	300-150	32	0	0	3.6	-0.8
FYG	99	V	300-150	161	0	0	3.3	0.1
GAF	99	V	300-150	34	0	0	5.2	1.7
GCK	99	V	300-150	91	0	0	3.4	-0.3
GEC	99	V	300-150	1645	0	0	3.3	0.1
GES	99	V	300-150	105	0	0	3.5	-0.4
GFA	99	V	300-150	1626	4	0	5.9	0.4
GIA	99	V	300-150	904	0	0	3.5	0.6
GJE	99	V	300-150	38	0	0	4.5	-0.4
GLJ	99	V	300-150	34	0	0	3.4	0.5
GNJ	99	V	300-150	83	0	1	3.3	0.0
GRP	99	V	300-150	30	0	0	4.3	-0.4
GSM	99	V	300-150	62	0	0	3.6	0.1
GTI	99	V	300-150	1993	0	0	3.8	-0.2
HAL	99	V	300-150	1085	0	0	4.6	0.5
HCR	99	V	300-150	20	0	0	2.3	-0.9
HFM	99	V	300-150	67	0	0	3.8	1.0
HGO	99	V	300-150	44	0	0	4.3	2.8
HIM	99	V	300-150	42	0	0	2.5	0.2
HKC	99	V	300-150	168	0	0	3.0	0.2
HLF	99	V	300-150	64	0	0	2.2	0.6
HMZ	99	V	300-150	43	0	0	4.6	1.8
HRT	99	V	300-150	64	0	0	4.5	0.6
HUE	99	V	300-150	86	0	0	6.2	0.5
HVN	99	V	300-150	1273	1	0	4.8	0.7
HYP	99	V	300-150	37	0	0	4.8	0.3
HZS	99	V	300-150	34	0	0	4.0	-0.5
IAM	99	V	300-150	62	0	0	5.4	-2.3
IBE	99	V	300-150	4649	0	1	3.5	0.2
ICE	99	V	300-150	6874	0	0	3.3	0.2
ICL	99	V	300-150	60	0	0	3.4	0.2
ICV	99	V	300-150	465	0	0	3.8	-0.6
IFA	99	V	300-150	407	0	0	3.7	-0.2
IGA	99	V	300-150	105	0	0	3.8	0.6
IGO	99	V	300-150	77	0	0	4.9	0.3
IJM	99	V	300-150	180	0	0	4.2	0.0
IND	99	V	300-150	24	0	0	3.7	0.3
ITY	99	V	300-150	4875	0	0	3.7	0.2
JAF	99	V	300-150	684	11	0	6.1	0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
JAL	99	V	300-150	139	0	0	4.8	0.1
JAS	99	V	300-150	28	0	0	3.7	0.1
JBD	99	V	300-150	39	0	0	4.0	-0.8
JBU	99	V	300-150	8591	0	0	3.5	0.2
JCO	99	V	300-150	44	0	0	3.4	0.5
JCY	99	V	300-150	24	0	0	3.6	-0.1
JEF	99	V	300-150	41	0	0	4.4	-0.2
JET	99	V	300-150	82	0	0	3.6	0.0
JME	99	V	300-150	54	0	0	3.8	-0.7
JML	99	V	300-150	39	0	0	3.6	0.9
JNY	99	V	300-150	35	0	0	3.4	0.5
JST	99	V	300-150	469	0	0	4.2	0.3
KAC	99	V	300-150	2599	0	0	3.3	0.4
KAF	99	V	300-150	73	0	0	4.0	0.0
KAI	99	V	300-150	123	2	0	5.6	0.2
KAL	99	V	300-150	831	0	0	4.0	0.3
KAY	99	V	300-150	117	0	0	3.4	0.5
KCE	99	V	300-150	73	0	0	3.6	1.0
KIW	99	V	300-150	78	0	0	5.7	0.6
KLM	99	V	300-150	18090	5	0	5.1	0.1
KOC	99	V	300-150	68	0	0	3.7	0.7
KQA	99	V	300-150	666	6	1	7.3	0.4
KRF	99	V	300-150	32	0	0	4.7	0.3
KRH	99	V	300-150	33	0	0	4.6	1.3
LAE	99	V	300-150	189	0	1	4.1	-0.7
LAL	99	V	300-150	85	0	0	3.3	-0.3
LCO	99	V	300-150	564	0	0	3.9	-0.7
LDX	99	V	300-150	151	0	0	3.7	0.8
LNI	99	V	300-150	933	0	0	3.2	0.4
LNX	99	V	300-150	102	0	0	3.3	0.4
LOT	99	V	300-150	4283	7	0	5.6	0.0
LPE	99	V	300-150	133	6	2	4.3	0.1
LRA	99	V	300-150	35	0	0	3.0	-0.2
LUC	99	V	300-150	156	0	0	3.8	0.4
LXJ	99	V	300-150	228	0	0	3.8	0.1
MAS	99	V	300-150	6841	0	0	3.6	0.5
MAU	99	V	300-150	540	0	0	4.6	1.1
MDN	99	V	300-150	25	0	0	3.8	0.8
MED	99	V	300-150	59	0	0	3.7	-0.4
MJF	99	V	300-150	29	0	0	3.0	0.5
MLM	99	V	300-150	47	0	2	5.0	1.3
MLT	99	V	300-150	393	0	0	3.6	0.2
MMD	99	V	300-150	412	0	0	4.0	-0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
MMF	99	V	300-150	26	0	0	4.6	0.7
MMZ	99	V	300-150	43	0	0	5.6	1.7
MNB	99	V	300-150	416	0	0	3.3	0.0
MPH	99	V	300-150	473	0	0	3.8	-1.1
MSR	99	V	300-150	2313	6	0	5.2	0.0
MXD	99	V	300-150	76	0	0	3.8	0.6
NBT	99	V	300-150	1194	10	0	6.0	0.0
NCR	99	V	300-150	512	0	0	3.7	0.1
NEW	99	V	300-150	75	0	0	3.4	0.9
NJE	99	V	300-150	521	0	0	3.6	0.3
NOJ	99	V	300-150	72	0	0	4.6	0.8
NOS	99	V	300-150	1439	11	0	6.3	-0.1
NSP	99	V	300-150	36	0	0	3.4	0.0
NUM	99	V	300-150	133	0	0	3.8	0.0
OAE	99	V	300-150	396	0	0	4.3	-0.3
OCN	99	V	300-150	4696	0	0	3.5	0.1
OLI	99	V	300-150	51	0	0	3.2	0.2
OMA	99	V	300-150	3269	4	0	5.9	0.3
ORF	99	V	300-150	57	0	0	2.7	0.3
PAC	99	V	300-150	217	0	0	3.8	-0.4
PAL	99	V	300-150	2183	0	0	3.1	0.2
PAT	99	V	300-150	22	0	0	3.8	-1.8
PEG	99	V	300-150	81	0	0	3.6	-0.2
PIA	99	V	300-150	347	0	0	3.1	-0.1
PLF	99	V	300-150	37	0	0	3.9	-1.5
PUE	99	V	300-150	237	0	1	3.2	0.0
PVA	99	V	300-150	170	0	0	3.3	-0.2
QAF	99	V	300-150	66	0	0	3.8	0.2
QFA	99	V	300-150	5779	1	0	5.2	0.5
QFX	99	V	300-150	112	0	0	4.2	0.1
QQE	99	V	300-150	294	0	0	3.3	0.0
QTR	99	V	300-150	39285	1	0	3.9	0.2
RAM	99	V	300-150	668	11	0	4.9	0.3
RBA	99	V	300-150	370	6	0	7.4	0.1
RCH	99	V	300-150	2656	0	0	4.8	0.4
RCR	99	V	300-150	88	0	0	3.5	0.2
RDN	99	V	300-150	58	0	0	3.6	-0.2
RHH	99	V	300-150	83	0	0	4.5	-0.4
RJA	99	V	300-150	2003	14	0	6.8	-0.2
ROJ	99	V	300-150	84	0	0	3.5	-0.4
ROM	99	V	300-150	31	0	0	5.3	-3.1
RRR	99	V	300-150	180	0	0	4.3	0.1
RSF	99	V	300-150	34	0	0	5.7	0.9

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
RYR	99	V	300-150	1089	0	0	3.2	-0.2
RZO	99	V	300-150	302	0	3	4.1	0.3
SAM	99	V	300-150	395	0	0	3.6	0.3
SAS	99	V	300-150	5464	0	0	3.3	0.2
SAZ	99	V	300-150	167	0	0	4.2	0.5
SCX	99	V	300-150	67	0	3	6.4	0.6
SEY	99	V	300-150	78	0	0	4.6	1.2
SIA	99	V	300-150	14292	0	0	3.9	0.3
SIO	99	V	300-150	97	0	0	3.8	-0.1
SJE	99	V	300-150	20	0	0	3.1	-0.9
SKV	99	V	300-150	44	0	0	3.7	0.0
SLM	99	V	300-150	99	0	1	3.0	0.0
SON	99	V	300-150	72	0	1	2.8	0.8
SUS	99	V	300-150	35	0	0	4.5	1.3
SVA	99	V	300-150	11646	2	0	4.3	0.4
SVW	99	V	300-150	296	0	0	3.3	-0.1
SWR	99	V	300-150	11008	0	1	3.7	0.1
SWW	99	V	300-150	102	0	0	4.7	0.0
SYB	99	V	300-150	144	0	0	3.2	0.5
TAG	99	V	300-150	44	0	0	3.7	-0.3
TAM	99	V	300-150	115	3	1	2.8	0.1
TAP	99	V	300-150	2702	0	2	3.6	0.2
TAR	99	V	300-150	269	0	0	3.5	0.5
TAY	99	V	300-150	557	0	0	4.1	-0.7
TEU	99	V	300-150	115	0	0	3.8	0.0
TFF	99	V	300-150	48	0	0	4.1	-1.2
TFL	99	V	300-150	1619	11	0	5.8	0.0
TGW	99	V	300-150	1056	3	0	5.9	0.4
THA	99	V	300-150	5709	0	0	4.3	0.3
THT	99	V	300-150	2903	1	0	6.5	0.6
THY	99	V	300-150	22404	2	0	4.2	0.1
TJS	99	V	300-150	58	0	0	2.9	-0.8
TMN	99	V	300-150	406	0	0	4.5	0.6
TOM	99	V	300-150	4969	10	0	5.9	0.0
TRK	99	V	300-150	31	0	0	2.6	-0.1
TSC	99	V	300-150	6469	0	0	3.4	0.3
TVR	99	V	300-150	59	0	0	3.8	-0.1
TWY	99	V	300-150	514	0	0	3.8	0.3
UAE	99	V	300-150	33625	0	0	3.4	0.3
UAF	99	V	300-150	92	0	0	5.3	0.9
UAG	99	V	300-150	38	11	0	9.5	0.1
UAL	99	V	300-150	67440	2	1	4.7	0.1
UBT	99	V	300-150	3204	11	0	6.6	0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
UGD	99	V	300-150	42	0	0	2.7	-0.1
UKN	99	V	300-150	44	0	0	3.8	0.4
ULC	99	V	300-150	47	0	0	3.6	-0.5
UPS	99	V	300-150	6450	0	0	3.7	-0.1
URO	99	V	300-150	68	0	0	3.2	-0.3
USY	99	V	300-150	35	0	0	2.6	0.0
UZB	99	V	300-150	708	3	0	5.3	0.5
VCG	99	V	300-150	91	0	0	3.9	0.5
VCJ	99	V	300-150	60	0	0	3.6	0.0
VIR	99	V	300-150	20750	3	0	4.4	0.1
VJC	99	V	300-150	174	0	0	3.1	-0.2
VJH	99	V	300-150	511	3	0	5.4	0.0
VJT	99	V	300-150	1517	0	0	3.6	0.2
VKG	99	V	300-150	146	0	0	3.1	0.0
VLZ	99	V	300-150	62	0	0	3.8	0.4
VTI	99	V	300-150	3024	0	0	3.1	0.3
VXS	99	V	300-150	72	0	0	4.2	0.9
WAZ	99	V	300-150	22	0	0	3.4	0.1
WFL	99	V	300-150	333	0	1	3.2	0.4
WGN	99	V	300-150	74	0	0	2.5	0.0
WJA	99	V	300-150	825	4	0	5.5	0.0
XAX	99	V	300-150	1179	0	0	3.7	0.4

4 EUCOS Area Monitoring Statistics

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

Tables 13, 14 (50 hPa level), 15, 16 (100 hPa level) 17, 18 (500 hPa level) 19 and 20 (850 hPa level) provide quality statistics for all TEMPSHIPS and PILOTSHIPS received during the month in the area $10\,^{\circ}$N - $90\,^{\circ}$N, $70\,^{\circ}$W - $40\,^{\circ}$E and for TEMPS and PILOTS from selected land stations within the same area. The statistics are in the same form as tables 10 and 11.
Tables 21-23 provides quality statistics of pressure and wind for all DRIFTER reports received in the area $10\,^{\circ}$N - $90\,^{\circ}$N, $70\,^{\circ}$W - $40\,^{\circ}$E. The statistics are in the same form as tables 4-6.

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

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 :  50 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : DEC 2023
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	29	9.4	3.6
01001	00	Z	50	26	21.1	-17.1
01028	00	Z	50	26	4.9	-0.1
01028	12	Z	50	29	5.8	0.0
01400	00	Z	50	15	75.5	74.9
01400	12	Z	50	19	73.5	72.1
01415	12	Z	50	30	12.5	4.4
01415	00	Z	50	30	11.2	-0.1
02365	12	Z	50	20	4.4	-1.7
02365	00	Z	50	20	5.9	-2.2
02591	00	Z	50	13	10.1	8.3
02591	12	Z	50	15	10.1	3.7
02836	00	Z	50	24	4.6	0.2
02836	12	Z	50	31	8.0	-1.3
02963	00	Z	50	31	5.5	-0.8
02963	12	Z	50	31	7.0	-3.7
03005	12	Z	50	30	10.3	-5.2
03005	00	Z	50	26	9.2	-2.1
03238	12	Z	50	4	14.4	8.8
03238	00	Z	50	30	16.1	1.4
03808	00	Z	50	29	8.2	4.3
03808	12	Z	50	30	12.2	7.3
03918	00	Z	50	27	9.0	1.6
03918	12	Z	50	4	16.5	15.7
03953	12	Z	50	31	15.3	-5.5
03953	00	Z	50	30	10.9	-6.9
04018	00	Z	50	25	11.5	-0.3
04018	12	Z	50	21	10.8	-1.3
04220	12	Z	50	29	20.5	-18.2
04220	00	Z	50	31	20.5	-18.5
04270	12	Z	50	26	23.0	-19.4
04270	00	Z	50	29	27.4	-20.9
04320	00	Z	50	28	12.4	-7.9
04320	12	Z	50	31	11.6	-8.3
04339	00	Z	50	28	14.5	-9.4
04339	12	Z	50	25	12.0	-7.8
04360	00	Z	50	18	13.8	-11.0
04360	12	Z	50	16	29.4	-0.9
06011	12	Z	50	29	22.4	-20.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	50	3	8.8	-2.0
06260	00	Z	50	27	9.0	-1.4
06610	00	Z	50	29	26.5	8.9
06610	12	Z	50	30	13.4	8.0
07110	00	Z	50	24	35.1	-32.9
07110	12	Z	50	27	30.6	-24.8
07510	00	Z	50	25	36.4	-30.3
07510	12	Z	50	28	31.5	-24.8
07645	12	Z	50	26	17.8	-5.9
07645	00	Z	50	28	15.6	-6.9
07761	12	Z	50	28	23.2	5.9
07761	00	Z	50	30	20.4	-1.9
08001	12	Z	50	30	8.8	4.5
08001	00	Z	50	29	9.1	3.4
08221	12	Z	50	31	13.3	6.7
08221	00	Z	50	30	10.9	6.1
08302	00	Z	50	28	8.1	-1.6
08302	12	Z	50	29	10.1	-3.8
08508	12	Z	50	29	8.1	1.6
08522	12	Z	50	31	8.1	5.2
10035	00	Z	50	30	13.4	10.4
10035	12	Z	50	31	14.1	10.2
10393	00	Z	50	30	14.4	-7.1
10393	12	Z	50	30	12.7	-6.0
10410	12	Z	50	31	9.6	2.5
10410	00	Z	50	30	12.0	-3.2
10739	00	Z	50	31	12.6	2.4
10739	12	Z	50	31	8.1	3.8
11035	00	Z	50	26	15.6	0.6
11035	12	Z	50	31	24.1	17.9
12982	00	Z	50	28	8.4	2.0
12982	12	Z	50	31	10.2	-1.8
16245	12	Z	50	30	10.0	4.8
16245	00	Z	50	30	15.5	6.0
16429	12	Z	50	31	9.6	2.1
16429	00	Z	50	30	10.2	8.2
16622	00	Z	50	20	13.9	8.0
16622	12	Z	50	2	31.6	31.5
16754	00	Z	50	26	10.1	2.3
17607	12	Z	50	24	16.0	-2.4
26435	12	Z	50	11	7.6	-4.9
60018	00	Z	50	31	8.5	7.4
60018	12	Z	50	31	6.3	3.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	00	Z	50	4	13.8	-10.9
7JUNA4	12	Z	50	8	29.2	10.8
ATGU3F	00	Z	50	8	29.2	-27.6
ATGU3F	12	Z	50	12	33.5	-29.7
BPMWB2	00	Z	50	7	10.9	-8.5
BPMWB2	12	Z	50	10	20.5	0.9
GQBZLZ	00	Z	50	1	38.4	-38.4
GQBZLZ	12	Z	50	5	77.3	-60.7
JNKN7J	12	Z	50	8	59.5	38.1
JNKN7J	00	Z	50	8	21.9	14.0
KJJF9X	12	Z	50	10	95.5	-29.4
KJJF9X	00	Z	50	8	7.4	3.2
KMPLHP	12	Z	50	9	56.3	53.1
KMPLHP	00	Z	50	12	39.8	33.8
LRYQE3	00	Z	50	4	11.8	-7.2
LRYQE3	12	Z	50	2	135.2	135.2
UXK5JT	00	Z	50	5	13.4	-8.6
UXK5JT	12	Z	50	4	30.0	-1.3
XKQLWQ	12	Z	50	25	109.3	55.8
YLV96W	12	Z	50	6	54.5	17.9
YLV96W	00	Z	50	8	15.6	1.0
ZVQEQC	12	Z	50	3	8.2	1.3

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

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 :  50 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : DEC 2023
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	26	3.2	-0.5	-0.7
01001	00	V	50	24	2.7	0.2	-0.1
01028	00	V	50	23	3.3	-0.5	-0.4
01028	12	V	50	26	2.8	-0.4	-0.7
01400	00	V	50	12	3.9	1.3	-0.6
01400	12	V	50	18	2.6	0.5	0.0
01415	12	V	50	30	4.3	-0.3	0.3
01415	00	V	50	27	3.8	-0.1	0.4
02365	12	V	50	20	3.5	1.2	0.5
02365	00	V	50	18	2.6	0.6	-0.8
02591	00	V	50	11	3.9	0.3	0.5
02591	12	V	50	14	3.1	0.3	-0.5
02836	00	V	50	22	3.0	0.0	0.5
02836	12	V	50	25	3.3	-0.8	-0.7
02963	00	V	50	29	2.6	-0.1	-0.4
02963	12	V	50	31	3.8	0.1	0.2
03005	12	V	50	30	3.3	0.1	0.9
03005	00	V	50	24	3.8	0.2	-0.2
03238	12	V	50	4	3.1	-1.3	1.1
03238	00	V	50	25	4.0	-0.2	-0.5
03808	00	V	50	27	4.1	0.3	-1.0
03808	12	V	50	29	4.4	-0.5	0.1
03918	00	V	50	25	4.0	0.6	-0.4
03918	12	V	50	4	3.2	0.7	-0.1
03953	12	V	50	31	3.5	0.0	0.4
03953	00	V	50	26	3.0	0.2	0.4
04018	00	V	50	22	4.1	0.5	-0.4
04018	12	V	50	21	3.2	0.8	0.5
04220	12	V	50	29	3.5	0.2	-0.3
04220	00	V	50	29	4.0	-0.1	-0.5
04270	12	V	50	26	3.2	-0.1	0.2
04270	00	V	50	24	6.4	0.9	0.9
04320	00	V	50	28	2.6	-0.3	0.1
04320	12	V	50	31	2.3	0.5	0.3
04339	00	V	50	24	3.4	0.1	0.5
04339	12	V	50	24	3.0	0.5	-0.1
04360	00	V	50	17	3.5	0.1	0.0
04360	12	V	50	16	3.6	0.3	0.2
06011	12	V	50	29	3.7	-0.1	0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	50	3	3.8	-2.4	1.2
06260	00	V	50	24	4.0	0.2	-0.2
06610	00	V	50	28	4.7	0.8	-0.9
06610	12	V	50	30	5.5	-0.1	0.6
07110	00	V	50	23	3.9	0.3	-0.2
07110	12	V	50	27	4.0	-0.5	-1.2
07510	00	V	50	24	3.9	0.0	-0.2
07510	12	V	50	28	4.0	0.5	0.4
07645	12	V	50	26	4.7	1.5	0.7
07645	00	V	50	25	3.5	0.2	0.4
07761	12	V	50	28	4.2	2.1	-0.3
07761	00	V	50	28	4.7	-0.5	0.6
08001	12	V	50	29	3.0	-0.4	0.2
08001	00	V	50	27	4.1	-0.3	-0.2
08221	12	V	50	31	3.5	0.2	0.1
08221	00	V	50	30	4.0	0.6	-0.2
08302	00	V	50	27	4.0	0.5	0.5
08302	12	V	50	29	4.1	-0.2	-0.4
08508	12	V	50	29	3.7	0.5	-0.6
08522	12	V	50	31	3.7	0.1	0.6
10035	00	V	50	27	3.2	0.3	-0.1
10035	12	V	50	31	4.0	0.0	-0.8
10393	00	V	50	28	3.4	0.4	-0.7
10393	12	V	50	30	3.7	0.8	-0.8
10410	12	V	50	30	3.3	-0.3	0.1
10410	00	V	50	27	4.6	-0.8	0.6
10739	00	V	50	30	4.2	-0.1	-0.5
10739	12	V	50	30	4.6	0.8	0.9
11035	00	V	50	24	3.6	-0.5	-0.3
11035	12	V	50	31	4.6	0.8	0.4
12982	00	V	50	25	4.0	-0.4	0.4
12982	12	V	50	31	4.2	0.3	-0.2
16245	12	V	50	30	5.0	-0.6	-0.5
16245	00	V	50	28	5.5	-0.6	0.0
16429	12	V	50	31	4.0	0.9	0.6
16429	00	V	50	27	4.3	-0.6	0.8
16622	00	V	50	17	4.1	0.2	-0.8
16622	12	V	50	2	4.9	0.6	2.2
16754	00	V	50	19	4.1	0.4	0.0
17607	12	V	50	7	13.1	-6.1	0.9
26435	12	V	50	10	3.8	1.2	-1.5
60018	00	V	50	30	3.6	-0.4	-0.3
60018	12	V	50	31	4.4	-0.5	0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	00	V	50	4	1.9	0.0	0.5
7JUNA4	12	V	50	8	3.7	-0.3	1.0
ATGU3F	00	V	50	8	2.6	-0.5	-0.3
ATGU3F	12	V	50	12	3.3	0.7	1.2
BPMWB2	00	V	50	7	3.8	-0.4	-0.9
BPMWB2	12	V	50	10	2.7	-0.4	-0.2
GQBZLZ	00	V	50	1	8.4	5.0	6.7
GQBZLZ	12	V	50	5	3.6	-2.1	0.9
JNKN7J	12	V	50	8	4.1	-1.1	1.9
JNKN7J	00	V	50	8	3.4	0.4	0.3
KJJF9X	12	V	50	10	3.8	-0.1	1.0
KJJF9X	00	V	50	8	5.9	-0.4	0.2
KMPLHP	12	V	50	9	3.8	0.8	0.7
KMPLHP	00	V	50	12	4.0	0.9	-0.1
LRYQE3	00	V	50	4	4.4	2.0	-1.0
LRYQE3	12	V	50	2	5.3	2.1	-2.0
UXK5JT	00	V	50	5	3.2	-0.2	-0.5
UXK5JT	12	V	50	4	6.3	-0.3	-4.1
XKQLWQ	12	V	50	25	5.4	0.1	-0.5
YLV96W	12	V	50	6	2.9	0.9	0.4
YLV96W	00	V	50	8	4.7	-1.4	0.2
ZVQEQC	12	V	50	2	1.6	-0.6	0.2

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 2023
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	29	8.7	5.0
01001	00	Z	100	30	19.4	-16.6
01028	00	Z	100	29	4.7	-1.8
01028	12	Z	100	29	4.3	-0.2
01400	00	Z	100	18	73.3	73.0
01400	12	Z	100	21	72.1	71.0
01415	12	Z	100	31	9.0	1.0
01415	00	Z	100	30	13.6	-1.4
02365	12	Z	100	20	3.1	-1.6
02365	00	Z	100	20	5.0	-0.3
02591	00	Z	100	14	8.6	6.1
02591	12	Z	100	15	7.9	4.0
02836	00	Z	100	30	4.6	-0.2
02836	12	Z	100	34	5.2	-1.9
02963	00	Z	100	31	3.5	-1.8
02963	12	Z	100	31	5.4	-2.8
03005	12	Z	100	32	8.1	-3.2
03005	00	Z	100	29	5.9	-2.7
03238	12	Z	100	4	6.9	3.5
03238	00	Z	100	31	12.3	-0.4
03808	00	Z	100	30	7.0	2.0
03808	12	Z	100	30	8.3	3.4
03918	00	Z	100	29	8.9	1.9
03918	12	Z	100	4	10.1	8.9
03953	12	Z	100	31	11.6	-5.5
03953	00	Z	100	30	9.9	-7.6
04018	00	Z	100	26	6.6	0.7
04018	12	Z	100	24	6.3	0.2
04220	12	Z	100	31	17.2	-15.2
04220	00	Z	100	31	17.5	-15.9
04270	12	Z	100	29	25.4	-21.6
04270	00	Z	100	30	32.2	-23.6
04320	00	Z	100	29	9.5	-6.4
04320	12	Z	100	30	8.5	-6.5
04339	00	Z	100	28	14.3	-11.9
04339	12	Z	100	27	12.9	-10.4
04360	00	Z	100	20	13.5	-11.5
04360	12	Z	100	19	16.7	-8.7
06011	12	Z	100	31	20.9	-19.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	100	3	3.3	-3.2
06260	00	Z	100	28	7.7	-3.1
06610	00	Z	100	32	11.0	0.5
06610	12	Z	100	31	18.1	1.6
07110	00	Z	100	28	30.3	-28.7
07110	12	Z	100	28	28.0	-24.6
07510	00	Z	100	28	29.4	-28.1
07510	12	Z	100	28	23.1	-19.7
07645	12	Z	100	27	39.8	5.2
07645	00	Z	100	30	14.2	-8.3
07761	12	Z	100	29	15.8	1.6
07761	00	Z	100	30	16.3	-3.5
08001	12	Z	100	31	7.9	5.2
08001	00	Z	100	30	8.0	3.4
08221	12	Z	100	31	9.2	4.8
08221	00	Z	100	30	9.1	3.8
08302	00	Z	100	28	8.8	-5.6
08302	12	Z	100	29	11.1	-5.2
08508	12	Z	100	29	7.4	4.8
08522	12	Z	100	31	9.2	8.1
10035	00	Z	100	31	12.4	10.2
10035	12	Z	100	31	12.5	10.5
10393	00	Z	100	31	9.5	-4.5
10393	12	Z	100	31	8.7	-2.8
10410	12	Z	100	31	7.9	-3.4
10410	00	Z	100	30	13.3	-5.1
10739	00	Z	100	32	7.7	1.3
10739	12	Z	100	31	9.3	3.4
11035	00	Z	100	30	12.4	0.9
11035	12	Z	100	31	14.6	6.3
12982	00	Z	100	29	8.7	-2.0
12982	12	Z	100	31	10.7	-2.4
16245	12	Z	100	30	5.1	0.9
16245	00	Z	100	31	9.6	-0.6
16429	12	Z	100	31	6.0	2.4
16429	00	Z	100	30	6.2	2.9
16622	00	Z	100	24	10.5	5.9
16622	12	Z	100	2	18.0	17.5
16754	00	Z	100	30	7.8	1.4
17607	12	Z	100	27	12.8	-2.3
26435	12	Z	100	15	5.8	-0.9
60018	00	Z	100	31	5.7	3.7
60018	12	Z	100	31	6.7	4.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	00	Z	100	7	11.3	-5.5
7JUNA4	12	Z	100	9	15.9	2.3
ATGU3F	00	Z	100	10	45.2	-14.5
ATGU3F	12	Z	100	13	30.1	-27.9
BPMWB2	00	Z	100	7	14.2	-12.0
BPMWB2	12	Z	100	10	12.0	-4.8
GQBZLZ	00	Z	100	2	36.8	-36.8
GQBZLZ	12	Z	100	5	77.4	-61.9
JNKN7J	12	Z	100	8	33.2	21.4
JNKN7J	00	Z	100	8	22.7	19.8
KJJF9X	12	Z	100	11	92.5	-28.1
KJJF9X	00	Z	100	8	8.8	-1.7
KMPLHP	12	Z	100	10	49.5	47.0
KMPLHP	00	Z	100	12	41.5	36.1
LRYQE3	00	Z	100	5	7.8	-6.9
LRYQE3	12	Z	100	4	44.0	27.6
UXK5JT	00	Z	100	5	10.9	-6.2
UXK5JT	12	Z	100	4	32.2	-12.7
XKQLWQ	12	Z	100	25	49.9	34.5
YLV96W	12	Z	100	9	22.0	9.8
YLV96W	00	Z	100	10	16.0	1.5
ZVQEQC	12	Z	100	3	5.6	3.5

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 2023
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	29	2.5	0.2	-0.2
01001	00	V	100	26	2.4	-0.7	0.1
01028	00	V	100	27	2.6	-0.8	-0.3
01028	12	V	100	29	2.1	-0.2	-0.3
01400	00	V	100	15	3.0	0.1	-0.8
01400	12	V	100	20	3.1	0.2	-0.4
01415	12	V	100	31	3.3	-0.5	0.0
01415	00	V	100	30	3.6	0.4	-1.3
02365	12	V	100	20	2.2	0.1	0.2
02365	00	V	100	19	2.4	0.2	-0.1
02591	00	V	100	14	3.8	-0.1	0.1
02591	12	V	100	15	3.5	0.1	-1.0
02836	00	V	100	28	2.5	0.6	-0.2
02836	12	V	100	31	2.5	0.1	-0.8
02963	00	V	100	30	2.8	-0.1	0.2
02963	12	V	100	31	2.7	0.6	-0.4
03005	12	V	100	31	2.7	-0.6	-0.7
03005	00	V	100	25	3.3	0.4	-0.4
03238	12	V	100	4	3.1	1.3	-0.6
03238	00	V	100	25	3.7	-0.4	0.4
03808	00	V	100	28	4.1	0.6	0.3
03808	12	V	100	30	4.1	-0.6	0.3
03918	00	V	100	27	4.1	0.5	-0.7
03918	12	V	100	4	3.4	2.6	-0.7
03953	12	V	100	31	3.9	-0.3	0.8
03953	00	V	100	27	4.2	0.2	-0.4
04018	00	V	100	25	2.8	0.7	-0.1
04018	12	V	100	23	2.8	0.6	0.3
04220	12	V	100	31	2.8	-0.6	0.2
04220	00	V	100	30	2.2	0.0	0.7
04270	12	V	100	29	3.7	-0.3	0.0
04270	00	V	100	29	3.5	0.5	-0.1
04320	00	V	100	29	2.7	-0.6	0.2
04320	12	V	100	30	2.8	0.6	0.5
04339	00	V	100	27	2.8	0.5	-0.1
04339	12	V	100	27	2.3	0.5	0.0
04360	00	V	100	20	3.4	-0.3	0.6
04360	12	V	100	19	3.0	1.1	-0.1
06011	12	V	100	31	3.0	-0.3	0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	100	3	3.3	-2.4	-0.6
06260	00	V	100	26	3.1	0.7	0.1
06610	00	V	100	30	3.8	-0.1	-0.6
06610	12	V	100	31	3.6	0.4	0.9
07110	00	V	100	27	3.3	-0.1	-0.2
07110	12	V	100	28	4.0	0.6	-0.4
07510	00	V	100	26	3.8	-0.5	0.9
07510	12	V	100	28	3.7	-0.8	-0.4
07645	12	V	100	27	4.0	-0.3	-0.2
07645	00	V	100	26	4.3	-0.9	0.0
07761	12	V	100	29	4.4	0.3	-0.3
07761	00	V	100	28	4.3	1.4	-0.6
08001	12	V	100	31	3.7	-0.5	-1.6
08001	00	V	100	28	3.8	0.2	0.2
08221	12	V	100	31	4.7	-0.1	0.4
08221	00	V	100	30	4.7	0.1	0.4
08302	00	V	100	27	4.7	0.9	-0.2
08302	12	V	100	29	4.2	-0.2	0.2
08508	12	V	100	29	3.7	0.2	-0.6
08522	12	V	100	31	3.0	-0.3	-0.1
10035	00	V	100	30	3.1	0.3	0.0
10035	12	V	100	31	3.3	-0.2	-0.5
10393	00	V	100	30	3.7	-0.2	0.3
10393	12	V	100	31	3.3	0.2	-0.6
10410	12	V	100	31	4.1	0.3	-0.4
10410	00	V	100	30	4.3	-0.3	-0.2
10739	00	V	100	30	3.8	0.4	-1.1
10739	12	V	100	31	3.5	0.1	1.1
11035	00	V	100	28	3.4	0.3	0.2
11035	12	V	100	31	4.2	-0.4	-0.2
12982	00	V	100	27	3.7	0.7	-0.1
12982	12	V	100	31	4.0	0.2	-0.2
16245	12	V	100	30	4.3	0.8	0.5
16245	00	V	100	29	4.1	0.1	-0.5
16429	12	V	100	31	4.7	0.0	0.6
16429	00	V	100	29	4.3	0.3	0.4
16622	00	V	100	21	3.1	0.5	0.3
16622	12	V	100	2	5.2	3.5	-2.0
16754	00	V	100	27	4.1	-0.4	0.4
17607	12	V	100	11	13.2	-6.0	0.9
26435	12	V	100	13	2.5	-0.8	0.3
60018	00	V	100	30	3.4	-0.1	1.4
60018	12	V	100	31	3.7	-0.3	-1.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	00	V	100	7	3.6	-1.1	-0.5
7JUNA4	12	V	100	9	4.7	-0.6	1.7
ATGU3F	00	V	100	10	2.1	-0.3	-0.5
ATGU3F	12	V	100	13	3.6	-0.5	0.3
BPMWB2	00	V	100	7	4.6	-0.3	-0.5
BPMWB2	12	V	100	10	2.6	-1.0	-0.6
GQBZLZ	00	V	100	2	2.8	1.6	-1.5
GQBZLZ	12	V	100	5	2.2	-0.4	-0.7
JNKN7J	12	V	100	8	3.8	0.7	-1.8
JNKN7J	00	V	100	8	5.0	0.5	1.3
KJJF9X	12	V	100	11	3.8	0.2	0.4
KJJF9X	00	V	100	8	13.0	-3.8	-2.1
KMPLHP	12	V	100	10	4.0	0.1	-1.5
KMPLHP	00	V	100	12	4.5	-0.4	1.3
LRYQE3	00	V	100	5	2.3	0.8	0.5
LRYQE3	12	V	100	4	3.0	-1.4	-1.2
UXK5JT	00	V	100	5	5.1	-1.3	1.1
UXK5JT	12	V	100	4	4.4	-0.8	-2.0
XKQLWQ	12	V	100	25	6.0	-1.4	-0.6
YLV96W	12	V	100	9	3.0	0.0	0.8
YLV96W	00	V	100	10	3.3	-0.5	0.6
ZVQEQC	12	V	100	3	2.3	0.8	0.4

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 2023
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	32	9.0	6.2
01001	00	Z	500	30	11.5	-10.2
01028	00	Z	500	31	3.9	-0.8
01028	12	Z	500	30	5.5	-1.9
01400	00	Z	500	28	77.8	77.5
01400	12	Z	500	27	75.9	74.6
01415	12	Z	500	31	4.8	3.3
01415	00	Z	500	30	7.5	4.5
02365	12	Z	500	20	3.2	2.2
02365	00	Z	500	20	4.4	2.3
02591	00	Z	500	14	7.9	7.4
02591	12	Z	500	16	8.6	7.8
02836	00	Z	500	31	3.8	2.3
02836	12	Z	500	35	2.8	1.4
02963	00	Z	500	31	3.1	1.5
02963	12	Z	500	31	3.3	2.0
03005	12	Z	500	32	3.6	-1.6
03005	00	Z	500	30	3.1	-0.8
03238	12	Z	500	4	5.6	3.4
03238	00	Z	500	32	5.4	3.6
03808	00	Z	500	30	5.4	4.1
03808	12	Z	500	30	4.9	3.9
03918	00	Z	500	29	10.1	8.8
03918	12	Z	500	4	8.6	8.1
03953	12	Z	500	31	6.3	1.3
03953	00	Z	500	31	3.6	0.0
04018	00	Z	500	26	3.3	2.2
04018	12	Z	500	25	3.7	0.6
04220	12	Z	500	31	7.4	-5.9
04220	00	Z	500	31	8.6	-7.0
04270	12	Z	500	32	10.8	-9.4
04270	00	Z	500	31	13.5	-10.3
04320	00	Z	500	30	4.2	0.6
04320	12	Z	500	31	4.2	-0.8
04339	00	Z	500	28	9.1	-8.2
04339	12	Z	500	29	9.5	-7.2
04360	00	Z	500	20	11.7	-11.4
04360	12	Z	500	19	10.9	-10.3
06011	12	Z	500	31	8.7	-6.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	500	3	4.2	3.7
06260	00	Z	500	30	2.9	-0.1
06610	00	Z	500	32	3.2	2.0
06610	12	Z	500	31	3.8	1.2
07110	00	Z	500	29	12.7	-11.7
07110	12	Z	500	32	14.2	-12.8
07510	00	Z	500	29	6.7	-5.8
07510	12	Z	500	32	6.9	-4.1
07645	12	Z	500	34	4.5	0.8
07645	00	Z	500	34	3.6	0.0
07761	12	Z	500	30	6.0	2.9
07761	00	Z	500	31	4.9	-0.3
08001	12	Z	500	31	4.9	3.5
08001	00	Z	500	30	4.9	3.4
08221	12	Z	500	31	5.1	4.1
08221	00	Z	500	30	4.3	3.7
08302	00	Z	500	28	5.9	-5.2
08302	12	Z	500	29	5.7	-4.8
08508	12	Z	500	29	7.5	6.7
08522	12	Z	500	31	7.7	7.5
10035	00	Z	500	31	14.1	13.6
10035	12	Z	500	31	14.1	13.7
10393	00	Z	500	31	3.0	0.5
10393	12	Z	500	31	3.8	-0.3
10410	12	Z	500	31	3.6	-0.2
10410	00	Z	500	30	3.4	0.5
10739	00	Z	500	33	5.3	4.0
10739	12	Z	500	31	6.7	5.3
11035	00	Z	500	32	5.2	-0.9
11035	12	Z	500	31	6.3	-0.5
12982	00	Z	500	30	3.5	-0.2
12982	12	Z	500	31	2.9	1.0
16245	12	Z	500	30	3.8	2.5
16245	00	Z	500	31	4.0	1.3
16429	12	Z	500	31	4.3	3.3
16429	00	Z	500	31	3.3	2.4
16622	00	Z	500	27	9.8	9.1
16622	12	Z	500	2	11.2	9.7
16754	00	Z	500	30	5.4	1.8
17607	12	Z	500	27	2.8	1.3
26435	12	Z	500	15	2.6	0.5
60018	00	Z	500	31	4.1	3.5
60018	12	Z	500	31	4.3	3.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	00	Z	500	8	8.1	3.0
7JUNA4	12	Z	500	9	4.6	-1.7
ATGU3F	00	Z	500	13	41.6	-7.2
ATGU3F	12	Z	500	14	24.6	-23.6
BPMWB2	00	Z	500	7	8.2	-7.8
BPMWB2	12	Z	500	10	5.4	-3.9
GQBZLZ	00	Z	500	2	24.2	-24.2
GQBZLZ	12	Z	500	5	35.4	-31.6
JNKN7J	12	Z	500	10	34.2	29.7
JNKN7J	00	Z	500	8	32.6	32.3
KJJF9X	12	Z	500	11	39.6	13.0
KJJF9X	00	Z	500	9	7.2	-3.2
KMPLHP	12	Z	500	10	55.6	53.2
KMPLHP	00	Z	500	12	54.8	51.6
LRYQE3	00	Z	500	5	3.2	0.6
LRYQE3	12	Z	500	5	7.2	4.5
UXK5JT	00	Z	500	6	6.8	-4.1
UXK5JT	12	Z	500	4	35.7	-19.3
XKQLWQ	12	Z	500	25	31.8	23.1
YLV96W	12	Z	500	12	8.0	-4.8
YLV96W	00	Z	500	11	5.6	-3.0
ZVQEQC	12	Z	500	3	3.4	3.1

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 2023
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	31	2.3	0.3	-0.4
01001	00	V	500	29	2.3	0.3	-0.2
01028	00	V	500	30	2.2	-0.4	-0.1
01028	12	V	500	30	3.1	-0.3	0.1
01400	00	V	500	27	3.7	-0.2	-0.2
01400	12	V	500	27	2.5	1.2	-0.3
01415	12	V	500	31	3.4	0.5	0.5
01415	00	V	500	29	3.3	0.4	-0.8
02365	12	V	500	20	2.4	0.1	0.3
02365	00	V	500	19	2.3	-0.6	0.4
02591	00	V	500	14	1.9	0.3	0.6
02591	12	V	500	16	2.6	0.0	-0.1
02836	00	V	500	30	3.3	0.7	0.0
02836	12	V	500	31	2.1	0.2	0.4
02963	00	V	500	30	2.2	0.0	-0.1
02963	12	V	500	31	2.1	0.2	-0.2
03005	12	V	500	31	2.5	0.0	-0.4
03005	00	V	500	28	3.3	0.4	0.4
03238	12	V	500	4	3.6	0.8	0.4
03238	00	V	500	30	3.6	1.0	-0.9
03808	00	V	500	29	2.4	0.5	0.4
03808	12	V	500	30	3.6	0.3	-0.1
03918	00	V	500	28	3.2	-0.3	-0.6
03918	12	V	500	4	2.5	-1.7	0.3
03953	12	V	500	31	4.3	-0.6	0.6
03953	00	V	500	29	3.8	0.3	0.1
04018	00	V	500	25	3.2	-0.2	0.3
04018	12	V	500	25	3.4	1.0	1.0
04220	12	V	500	31	2.3	-0.3	0.4
04220	00	V	500	30	2.5	0.4	0.2
04270	12	V	500	31	5.1	-0.6	0.1
04270	00	V	500	30	5.3	-0.1	-0.4
04320	00	V	500	29	3.0	0.0	-0.3
04320	12	V	500	31	2.5	-0.2	0.4
04339	00	V	500	27	2.5	0.2	0.1
04339	12	V	500	29	2.2	-0.3	-0.1
04360	00	V	500	20	2.5	-1.0	0.4
04360	12	V	500	19	3.0	-0.5	0.4
06011	12	V	500	31	2.6	-0.4	0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	500	3	3.3	-0.1	-1.8
06260	00	V	500	28	2.6	0.1	-0.7
06610	00	V	500	30	3.8	0.6	0.7
06610	12	V	500	31	3.0	0.4	-0.4
07110	00	V	500	29	3.5	-0.5	-0.1
07110	12	V	500	30	2.5	0.1	0.0
07510	00	V	500	29	2.3	0.3	0.2
07510	12	V	500	30	2.9	0.7	-0.6
07645	12	V	500	31	2.1	0.3	-0.1
07645	00	V	500	30	3.6	-0.9	0.4
07761	12	V	500	29	2.5	-0.3	0.0
07761	00	V	500	30	2.7	-0.3	-0.9
08001	12	V	500	31	2.2	-0.1	0.2
08001	00	V	500	29	3.1	0.1	-0.1
08221	12	V	500	31	1.8	0.2	0.3
08221	00	V	500	30	2.0	0.2	0.5
08302	00	V	500	27	2.3	-0.5	-0.3
08302	12	V	500	29	2.1	-0.1	-0.1
08508	12	V	500	29	3.0	0.5	0.6
08522	12	V	500	31	2.3	0.3	-0.2
10035	00	V	500	30	3.0	-0.2	-0.5
10035	12	V	500	31	2.9	-0.3	-0.3
10393	00	V	500	30	2.8	0.2	0.2
10393	12	V	500	31	2.3	0.7	-0.3
10410	12	V	500	31	2.1	0.1	0.0
10410	00	V	500	30	2.4	-0.6	-0.2
10739	00	V	500	30	3.3	0.0	-0.5
10739	12	V	500	31	2.8	0.0	-0.9
11035	00	V	500	29	3.1	0.3	0.5
11035	12	V	500	31	3.0	0.4	-0.2
12982	00	V	500	29	2.6	0.1	-0.2
12982	12	V	500	31	2.5	0.0	-0.2
16245	12	V	500	30	2.5	0.6	0.2
16245	00	V	500	30	2.6	0.2	0.3
16429	12	V	500	31	3.0	0.6	0.4
16429	00	V	500	29	2.3	0.1	-0.4
16622	00	V	500	26	3.0	-0.1	0.0
16622	12	V	500	2	1.5	0.7	1.2
16754	00	V	500	28	2.5	0.1	0.1
17607	12	V	500	27	2.8	0.2	-0.1
26435	12	V	500	15	2.6	0.7	-0.3
60018	00	V	500	30	2.2	0.4	-0.4
60018	12	V	500	31	1.8	0.6	0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	00	V	500	8	3.4	-0.7	1.3
7JUNA4	12	V	500	9	2.2	-0.1	0.1
ATGU3F	00	V	500	13	3.0	0.4	1.0
ATGU3F	12	V	500	14	2.5	0.1	-0.1
BPMWB2	00	V	500	7	2.4	0.9	0.5
BPMWB2	12	V	500	10	2.6	0.9	1.0
GQBZLZ	00	V	500	2	16.4	7.0	0.2
GQBZLZ	12	V	500	5	2.5	0.5	1.3
JNKN7J	12	V	500	10	2.6	-0.9	0.3
JNKN7J	00	V	500	8	2.0	0.2	-0.6
KJJF9X	12	V	500	11	3.4	1.3	0.0
KJJF9X	00	V	500	8	2.9	0.4	-0.1
KMPLHP	12	V	500	10	4.5	1.8	0.5
KMPLHP	00	V	500	12	2.5	0.6	0.2
LRYQE3	00	V	500	5	4.9	-1.2	1.1
LRYQE3	12	V	500	5	2.5	0.0	0.2
UXK5JT	00	V	500	6	2.3	-1.3	0.2
UXK5JT	12	V	500	4	5.9	-1.9	-1.5
XKQLWQ	12	V	500	25	5.6	0.4	-1.0
YLV96W	12	V	500	12	3.4	0.4	0.0
YLV96W	00	V	500	11	2.8	0.1	-0.7
ZVQEQC	12	V	500	3	1.1	-0.8	-0.2

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 2023
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	32	8.3	5.3
01001	00	Z	850	30	10.1	-9.4
01028	00	Z	850	31	2.5	-0.6
01028	12	Z	850	30	3.1	-0.9
01400	00	Z	850	28	76.9	76.8
01400	12	Z	850	27	74.7	73.7
01415	12	Z	850	31	4.4	2.8
01415	00	Z	850	30	4.7	3.4
02365	12	Z	850	20	4.1	3.4
02365	00	Z	850	20	4.1	3.5
02591	00	Z	850	14	6.1	5.6
02591	12	Z	850	16	7.5	7.0
02836	00	Z	850	31	2.7	1.6
02836	12	Z	850	35	3.0	2.1
02963	00	Z	850	31	2.0	1.2
02963	12	Z	850	31	2.6	1.9
03005	12	Z	850	32	3.9	-1.1
03005	00	Z	850	30	3.1	-0.8
03238	12	Z	850	4	3.6	3.0
03238	00	Z	850	32	4.5	2.4
03808	00	Z	850	30	4.3	3.8
03808	12	Z	850	30	4.3	2.6
03918	00	Z	850	29	7.8	7.3
03918	12	Z	850	4	8.8	8.2
03953	12	Z	850	31	4.0	0.2
03953	00	Z	850	31	3.5	-1.2
04018	00	Z	850	26	2.2	-0.3
04018	12	Z	850	25	4.0	0.1
04220	12	Z	850	31	6.4	-5.4
04220	00	Z	850	31	7.2	-6.1
04270	12	Z	850	32	8.1	-6.1
04270	00	Z	850	31	8.3	-7.2
04320	00	Z	850	30	3.1	-1.0
04320	12	Z	850	31	3.9	-0.8
04339	00	Z	850	28	10.5	-9.8
04339	12	Z	850	29	10.7	-8.1
04360	00	Z	850	20	11.5	-11.0
04360	12	Z	850	19	12.7	-11.9
06011	12	Z	850	31	5.1	-3.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	850	3	4.7	3.1
06260	00	Z	850	30	3.1	0.2
06610	00	Z	850	33	2.8	1.3
06610	12	Z	850	31	2.9	1.8
07110	00	Z	850	29	4.9	-3.6
07110	12	Z	850	32	5.3	-3.4
07510	00	Z	850	29	2.9	0.8
07510	12	Z	850	32	4.8	0.3
07645	12	Z	850	33	3.3	-0.9
07645	00	Z	850	34	2.3	-0.5
07761	12	Z	850	30	3.7	2.1
07761	00	Z	850	31	2.8	0.4
08001	12	Z	850	31	3.1	1.3
08001	00	Z	850	30	2.8	0.7
08221	12	Z	850	31	1.7	0.5
08221	00	Z	850	30	2.9	1.3
08302	00	Z	850	28	8.2	-8.1
08302	12	Z	850	29	9.3	-9.1
08508	12	Z	850	29	5.4	4.3
08522	12	Z	850	31	4.3	3.2
10035	00	Z	850	31	13.7	13.3
10035	12	Z	850	31	12.7	12.4
10393	00	Z	850	31	2.2	0.0
10393	12	Z	850	31	3.1	0.3
10410	12	Z	850	31	3.0	-0.7
10410	00	Z	850	30	2.8	0.6
10739	00	Z	850	33	4.4	3.4
10739	12	Z	850	31	4.3	2.7
11035	00	Z	850	33	4.0	-1.7
11035	12	Z	850	31	4.0	0.4
12982	00	Z	850	30	3.0	-0.2
12982	12	Z	850	31	2.7	0.1
16245	12	Z	850	30	3.0	1.9
16245	00	Z	850	31	2.4	1.5
16429	12	Z	850	31	2.8	1.7
16429	00	Z	850	32	2.0	1.1
16622	00	Z	850	27	9.0	8.7
16622	12	Z	850	2	9.2	9.2
16754	00	Z	850	30	2.7	1.4
17607	12	Z	850	27	1.7	-0.2
26435	12	Z	850	15	2.0	0.1
60018	00	Z	850	31	2.5	-0.2
60018	12	Z	850	31	1.8	-0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	00	Z	850	9	4.9	2.9
7JUNA4	12	Z	850	10	3.7	-0.2
ATGU3F	00	Z	850	13	29.3	-28.7
ATGU3F	12	Z	850	16	26.2	-25.5
BPMWB2	00	Z	850	7	7.8	-7.4
BPMWB2	12	Z	850	10	6.3	-5.7
GQBZLZ	00	Z	850	3	21.4	-21.3
GQBZLZ	12	Z	850	6	22.5	-17.8
JNKN7J	12	Z	850	10	37.1	33.0
JNKN7J	00	Z	850	9	35.0	34.6
KJJF9X	12	Z	850	11	3.9	-0.7
KJJF9X	00	Z	850	9	7.8	-5.4
KMPLHP	12	Z	850	10	61.6	59.8
KMPLHP	00	Z	850	12	58.9	56.1
LRYQE3	00	Z	850	5	5.0	-1.9
LRYQE3	12	Z	850	5	6.6	-0.5
UXK5JT	00	Z	850	6	6.7	-1.5
UXK5JT	12	Z	850	4	23.1	-13.8
XKQLWQ	12	Z	850	25	15.2	10.0
YLV96W	12	Z	850	12	7.0	-3.9
YLV96W	00	Z	850	11	5.0	-2.8
ZVQEQC	12	Z	850	3	1.5	-1.0

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

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 850 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : DEC 2023
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	31	3.6	-0.2	-1.2
01001	00	V	850	29	3.3	0.0	0.1
01028	00	V	850	30	2.2	-0.6	-0.3
01028	12	V	850	30	3.3	0.9	-0.5
01400	00	V	850	27	3.0	-0.4	0.4
01400	12	V	850	27	2.4	0.0	-0.1
01415	12	V	850	31	3.6	0.1	0.1
01415	00	V	850	29	2.4	0.2	-0.2
02365	12	V	850	20	2.4	-0.1	0.3
02365	00	V	850	19	2.4	0.1	0.0
02591	00	V	850	14	2.3	0.0	0.0
02591	12	V	850	16	2.4	-0.2	-0.5
02836	00	V	850	30	2.8	-0.8	-0.1
02836	12	V	850	31	2.2	-0.1	0.4
02963	00	V	850	30	2.5	-0.1	0.3
02963	12	V	850	31	2.4	0.1	0.0
03005	12	V	850	31	2.8	0.0	0.4
03005	00	V	850	28	2.4	0.5	0.3
03238	12	V	850	4	2.8	1.0	-0.1
03238	00	V	850	30	2.5	0.1	-0.1
03808	00	V	850	29	2.5	-0.2	-0.3
03808	12	V	850	30	3.2	0.3	-0.6
03918	00	V	850	28	3.2	0.4	-0.2
03918	12	V	850	4	5.2	2.6	1.4
03953	12	V	850	31	2.9	-0.2	0.5
03953	00	V	850	29	3.2	0.2	0.2
04018	00	V	850	25	2.9	-0.1	0.2
04018	12	V	850	25	3.4	1.4	0.5
04220	12	V	850	31	4.1	-0.2	-0.2
04220	00	V	850	30	2.6	-0.7	-0.3
04270	12	V	850	31	4.1	1.3	0.5
04270	00	V	850	30	5.6	2.0	-0.2
04320	00	V	850	29	3.4	-0.9	0.3
04320	12	V	850	31	2.9	0.0	0.1
04339	00	V	850	27	4.1	0.5	0.8
04339	12	V	850	29	4.3	0.9	0.5
04360	00	V	850	20	3.1	-0.1	1.1
04360	12	V	850	19	4.2	1.5	0.0
06011	12	V	850	31	3.6	-0.3	-0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	850	3	2.6	0.6	0.4
06260	00	V	850	28	3.0	-0.3	-0.5
06610	00	V	850	31	4.0	-0.1	0.1
06610	12	V	850	31	3.2	-0.2	-0.3
07110	00	V	850	29	3.0	0.3	-0.2
07110	12	V	850	30	2.8	0.5	-0.3
07510	00	V	850	29	2.1	-0.3	-0.2
07510	12	V	850	30	3.0	-0.2	-0.9
07645	12	V	850	30	3.7	-1.7	1.2
07645	00	V	850	30	2.6	-0.3	0.4
07761	12	V	850	29	4.7	0.2	0.5
07761	00	V	850	30	3.8	-0.3	0.7
08001	12	V	850	31	3.1	0.5	0.6
08001	00	V	850	29	2.8	0.2	0.3
08221	12	V	850	31	2.8	-0.1	0.0
08221	00	V	850	30	3.4	0.0	0.7
08302	00	V	850	27	2.8	0.4	0.1
08302	12	V	850	29	2.9	0.0	0.1
08508	12	V	850	29	3.2	0.0	0.0
08522	12	V	850	31	3.0	-0.3	0.3
10035	00	V	850	30	3.4	0.1	-0.3
10035	12	V	850	31	2.1	-0.2	0.5
10393	00	V	850	30	2.7	-0.1	0.2
10393	12	V	850	31	2.5	0.0	0.0
10410	12	V	850	31	2.8	-0.1	0.2
10410	00	V	850	30	2.1	0.0	-0.1
10739	00	V	850	30	3.2	-0.7	-0.6
10739	12	V	850	31	2.8	-0.5	0.2
11035	00	V	850	30	3.7	-0.5	-0.2
11035	12	V	850	31	3.5	-0.3	0.3
12982	00	V	850	29	3.2	-0.3	0.6
12982	12	V	850	31	2.5	-0.4	0.7
16245	12	V	850	30	2.7	-0.4	0.2
16245	00	V	850	30	3.0	0.4	0.4
16429	12	V	850	31	2.6	-0.3	0.1
16429	00	V	850	30	2.4	-0.1	-0.1
16622	00	V	850	26	2.8	0.2	-0.2
16622	12	V	850	2	1.6	0.4	-0.5
16754	00	V	850	29	2.8	0.1	0.4
17607	12	V	850	27	2.4	0.6	-0.4
26435	12	V	850	15	2.2	0.9	-0.3
60018	00	V	850	30	2.8	0.1	0.1
60018	12	V	850	31	3.2	0.6	-1.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	00	V	850	9	3.2	0.0	0.0
7JUNA4	12	V	850	10	3.3	0.5	-0.3
ATGU3F	00	V	850	13	3.6	0.2	-0.6
ATGU3F	12	V	850	15	4.6	-0.3	-1.1
BPMWB2	00	V	850	7	2.0	-0.1	0.5
BPMWB2	12	V	850	10	1.9	0.0	-0.1
GQBZLZ	00	V	850	2	3.4	-2.0	2.0
GQBZLZ	12	V	850	6	15.0	6.8	-0.1
JNKN7J	12	V	850	10	2.3	-0.5	-1.0
JNKN7J	00	V	850	9	2.8	0.4	-0.6
KJJF9X	12	V	850	11	9.0	3.3	-1.3
KJJF9X	00	V	850	8	2.6	0.3	1.1
KMPLHP	12	V	850	10	3.6	0.0	-0.7
KMPLHP	00	V	850	12	3.7	0.5	1.5
LRYQE3	00	V	850	5	2.7	1.3	-0.6
LRYQE3	12	V	850	5	4.8	-0.2	-1.9
UXK5JT	00	V	850	6	1.8	-0.4	0.4
UXK5JT	12	V	850	4	5.7	-1.4	-1.4
XKQLWQ	12	V	850	25	4.9	1.5	0.1
YLV96W	12	V	850	12	2.8	0.4	-0.6
YLV96W	00	V	850	11	3.5	-0.7	0.3
ZVQEQC	12	V	850	3	3.3	-2.0	0.7

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 2023
         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	1486	0	0.5	-0.5	0.7
1300001	99	P	SUR	11	-23	604	0	0.3	0.2	0.3
1300008	99	P	SUR	15	-38	598	0	0.4	0.0	0.4
1300130	99	P	SUR	28	-16	744	0	0.3	0.3	0.5
1300131	99	P	SUR	28	-17	742	0	0.4	0.0	0.4
1301608	99	P	SUR	33	-57	744	1	1.1	0.0	1.1
1301619	99	P	SUR	37	-25	743	0	0.6	0.0	0.6
1301622	99	P	SUR	13	-46	743	0	0.3	0.0	0.3
1301629	99	P	SUR	23	-47	743	0	0.4	-0.2	0.4
1301700	99	P	SUR	24	-57	744	0	0.3	-0.3	0.4
1301706	99	P	SUR	20	-69	744	0	0.3	-0.2	0.4
1301712	99	P	SUR	24	-62	744	0	0.3	-0.1	0.3
1301714	99	P	SUR	24	-58	744	0	0.3	0.0	0.3
1301718	99	P	SUR	31	-45	744	0	0.4	0.1	0.4
1301719	99	P	SUR	27	-54	744	0	0.3	0.5	0.6
1301723	99	P	SUR	18	-53	744	0	0.3	0.7	0.7
1301725	99	P	SUR	23	-35	744	0	0.4	-0.1	0.5
1301726	99	P	SUR	23	-41	744	0	0.5	-0.1	0.5
1301731	99	P	SUR	26	-41	743	0	0.4	0.0	0.4
1301735	99	P	SUR	31	-43	744	0	0.4	-0.8	0.9
1301736	99	P	SUR	24	-39	744	0	0.4	0.1	0.4
1301737	99	P	SUR	26	-56	744	0	0.3	-0.2	0.3
1301763	99	P	SUR	13	-37	1	1	0.0	0.0	0.0
1301767	99	P	SUR	32	-18	743	0	0.3	-0.5	0.6
1301769	99	P	SUR	29	-21	744	0	0.3	1.1	1.2
1301770	99	P	SUR	30	-21	744	0	0.3	0.1	0.3
1301771	99	P	SUR	33	-16	741	0	0.3	-1.3	1.3
1301773	99	P	SUR	37	-12	744	0	0.3	0.0	0.3
1301774	99	P	SUR	30	-59	744	0	0.4	0.1	0.4
1301777	99	P	SUR	41	-29	744	0	0.4	0.3	0.5
1301778	99	P	SUR	31	-21	744	0	0.3	0.0	0.3
1301779	99	P	SUR	23	-52	744	0	0.3	-0.1	0.3
1301783	99	P	SUR	18	-57	744	0	0.3	0.2	0.4
1301792	99	P	SUR	19	-46	738	0	0.4	-0.7	0.8
1301793	99	P	SUR	57	-21	731	0	0.5	-0.1	0.5
1301794	99	P	SUR	42	-17	729	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
1301795	99	P	SUR	16	-40	712	0	0.4	-0.2	0.4
1301796	99	P	SUR	17	-41	715	0	0.4	0.0	0.4
1301797	99	P	SUR	18	-45	724	0	0.4	0.1	0.4
1301798	99	P	SUR	33	-23	744	0	0.4	0.3	0.5
1301799	99	P	SUR	30	-28	730	0	0.3	0.1	0.3
1301803	99	P	SUR	60	-7	370	0	0.6	0.2	0.7
1301804	99	P	SUR	61	-13	355	0	0.5	0.2	0.5
1501638	99	P	SUR	17	-21	744	0	1.9	-0.1	1.9
1701715	99	P	SUR	15	-51	711	0	0.4	-0.3	0.5
1701718	99	P	SUR	12	-41	734	495	1.0	13.4	13.5
1801671	99	P	SUR	49	-46	742	0	0.5	0.0	0.5
1801678	99	P	SUR	50	-45	726	0	0.7	0.2	0.7
1801681	99	P	SUR	35	17	744	0	0.3	-0.2	0.4
1801735	99	P	SUR	47	-4	743	0	0.3	0.3	0.5
1801768	99	P	SUR	86	-1	733	0	0.5	0.2	0.5
2601716	99	P	SUR	82	36	212	0	0.5	-0.7	0.8
2801966	99	P	SUR	36	13	736	0	0.3	0.0	0.3
2801988	99	P	SUR	33	-14	744	0	0.3	-0.1	0.3
2802061	99	P	SUR	81	29	582	377	5.5	2.6	6.0
2802066	99	P	SUR	86	6	733	0	0.5	0.1	0.5
2802075	99	P	SUR	41	-49	732	0	0.9	0.3	1.0
2802076	99	P	SUR	59	-36	744	0	0.4	-0.8	0.9
2802077	99	P	SUR	59	-34	743	0	0.4	0.1	0.4
3801550	99	P	SUR	74	-18	733	69	0.7	-0.5	0.9
3801569	99	P	SUR	46	-47	730	0	0.5	0.2	0.5
3801572	99	P	SUR	36	19	739	0	0.3	-0.2	0.4
3801576	99	P	SUR	35	17	732	0	0.3	-0.6	0.7
3801596	99	P	SUR	38	-44	744	0	0.4	-0.1	0.4
3801665	99	P	SUR	87	31	733	0	0.4	0.4	0.5
4100040	99	P	SUR	15	-53	4412	0	0.3	-0.7	0.8
4100043	99	P	SUR	21	-65	4415	0	0.3	-0.7	0.8
4100044	99	P	SUR	22	-59	4410	0	0.3	-0.6	0.7
4100046	99	P	SUR	24	-68	4415	0	0.4	0.0	0.4
4100049	99	P	SUR	28	-63	4416	0	0.3	-0.7	0.7
4100052	99	P	SUR	18	-65	3981	0	0.3	-1.0	1.1
4100053	99	P	SUR	18	-66	4319	0	0.3	-0.8	0.9
4100056	99	P	SUR	18	-65	226	0	0.3	-0.9	1.0
4100139	99	P	SUR	20	-38	734	0	0.5	0.0	0.5
4100300	99	P	SUR	16	-57	716	0	0.3	0.0	0.3
4101618	99	P	SUR	38	-59	598	0	0.5	-0.1	0.5
4101656	99	P	SUR	47	-22	115	33	0.9	-13.3	13.4
4101663	99	P	SUR	32	-32	678	0	0.3	-0.2	0.4
4101665	99	P	SUR	68	-7	744	0	0.4	-0.2	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101696	99	P	SUR	30	-37	656	0	0.4	-0.2	0.5
4101717	99	P	SUR	16	-62	648	0	0.4	-1.3	1.4
4101719	99	P	SUR	20	-46	743	0	0.4	-0.2	0.5
4101725	99	P	SUR	18	-63	744	0	0.2	-0.1	0.3
4101727	99	P	SUR	26	-44	743	0	1.7	-0.3	1.7
4101728	99	P	SUR	28	-39	744	0	0.8	0.3	0.8
4101729	99	P	SUR	33	-54	343	90	4.9	0.2	4.9
4101730	99	P	SUR	15	-20	744	0	0.3	0.3	0.4
4101743	99	P	SUR	37	-12	744	2	2.0	0.5	2.1
4101753	99	P	SUR	37	-44	744	0	0.8	0.5	0.9
4101755	99	P	SUR	33	-47	744	0	0.9	0.3	1.0
4101756	99	P	SUR	12	-62	520	0	0.3	-0.7	0.7
4101842	99	P	SUR	69	16	192	0	0.3	-0.7	0.7
4101843	99	P	SUR	76	11	744	0	0.7	-0.1	0.7
4101845	99	P	SUR	68	-2	744	0	0.4	0.2	0.5
4101848	99	P	SUR	38	-67	744	0	0.5	0.1	0.5
4101851	99	P	SUR	30	-58	744	0	0.4	-0.6	0.7
4102547	99	P	SUR	27	-66	744	0	0.3	0.2	0.4
4102557	99	P	SUR	15	-68	740	0	0.3	0.2	0.3
4102561	99	P	SUR	14	-67	743	0	0.3	0.0	0.3
41040	99	P	SUR	15	-53	743	0	0.3	-0.7	0.8
41043	99	P	SUR	21	-65	744	0	0.3	-0.7	0.8
41044	99	P	SUR	22	-59	742	0	0.3	-0.6	0.7
41046	99	P	SUR	24	-68	744	0	0.3	0.0	0.3
41049	99	P	SUR	28	-63	744	0	0.3	-0.6	0.7
41052	99	P	SUR	18	-65	693	0	0.3	-1.0	1.1
41053	99	P	SUR	19	-66	743	0	0.3	-0.8	0.9
41056	99	P	SUR	18	-66	230	0	0.3	-0.9	1.0
4200059	99	P	SUR	15	-67	4416	0	0.3	-0.6	0.6
4200060	99	P	SUR	16	-63	4415	0	0.3	-0.3	0.4
4200085	99	P	SUR	18	-67	3407	0	0.3	-0.8	0.8
42059	99	P	SUR	15	-68	744	0	0.3	-0.6	0.6
42060	99	P	SUR	16	-63	744	0	0.2	-0.3	0.4
42085	99	P	SUR	18	-67	727	0	0.3	-0.8	0.8
4400005	99	P	SUR	43	-69	4414	0	0.4	-0.5	0.7
4400008	99	P	SUR	40	-69	4417	0	0.5	-0.9	1.0
4400011	99	P	SUR	41	-67	1520	0	0.4	-0.6	0.7
4400027	99	P	SUR	44	-67	4415	0	0.4	-0.8	1.0
4400033	99	P	SUR	44	-69	708	0	0.5	-1.1	1.2
4400034	99	P	SUR	44	-68	241	0	1.3	-0.4	1.3
4400037	99	P	SUR	43	-68	715	0	0.5	0.1	0.5
4400150	99	P	SUR	43	-64	717	0	0.5	-0.1	0.5
4400488	99	P	SUR	45	-61	582	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
4400489	99	P	SUR	45	-61	617	0	0.5	-0.1	0.5
44005	99	P	SUR	43	-69	744	0	0.5	-0.5	0.7
44008	99	P	SUR	41	-69	743	0	0.5	-0.9	1.1
44011	99	P	SUR	41	-67	260	0	0.4	-0.6	0.7
4401581	99	P	SUR	34	-65	744	0	1.3	0.1	1.3
4401582	99	P	SUR	28	-46	744	0	0.9	0.3	0.9
4401584	99	P	SUR	31	-44	743	0	0.9	0.0	0.9
4401585	99	P	SUR	29	-58	744	0	0.3	-0.1	0.3
4401587	99	P	SUR	80	26	507	0	3.9	-1.1	4.0
4401588	99	P	SUR	69	15	743	0	0.5	-0.5	0.7
4401864	99	P	SUR	29	-59	557	0	0.3	-0.3	0.4
4402603	99	P	SUR	67	15	7	0	0.2	-1.1	1.1
4402613	99	P	SUR	34	-12	744	0	0.3	-0.5	0.5
4402618	99	P	SUR	33	-61	744	0	0.4	0.1	0.4
4402656	99	P	SUR	36	-34	744	0	0.6	0.3	0.6
4402660	99	P	SUR	25	-56	744	0	0.3	0.3	0.4
4402663	99	P	SUR	31	-16	744	0	0.3	-0.1	0.3
4402670	99	P	SUR	21	-62	744	0	0.3	-0.3	0.4
4402672	99	P	SUR	19	-57	744	0	0.3	-0.2	0.3
4402674	99	P	SUR	29	-65	744	0	0.3	0.1	0.3
4402675	99	P	SUR	26	-45	744	0	0.4	-0.2	0.5
4402676	99	P	SUR	30	-35	744	0	0.4	0.1	0.4
44027	99	P	SUR	44	-67	744	0	0.5	-0.9	1.0
4402721	99	P	SUR	32	-12	744	0	0.3	0.2	0.3
4402726	99	P	SUR	50	-26	744	0	0.5	-0.2	0.5
4402729	99	P	SUR	47	-43	742	0	0.6	0.1	0.6
4402730	99	P	SUR	39	-35	744	0	0.4	0.0	0.4
4402731	99	P	SUR	47	-47	744	0	1.0	0.7	1.2
4402732	99	P	SUR	44	-13	744	0	0.3	0.0	0.3
4402733	99	P	SUR	44	-57	744	0	0.7	0.6	1.0
4402735	99	P	SUR	46	-34	744	0	0.9	-0.3	0.9
4402736	99	P	SUR	42	-15	743	0	0.3	-0.1	0.3
4402737	99	P	SUR	53	-45	744	0	0.8	0.1	0.8
4402738	99	P	SUR	48	-53	215	0	0.5	-0.8	1.0
4402739	99	P	SUR	47	-42	744	0	0.6	0.2	0.7
4402740	99	P	SUR	47	-63	743	0	0.4	0.3	0.6
4402741	99	P	SUR	47	-29	743	0	0.6	0.0	0.6
4402742	99	P	SUR	45	-16	744	0	0.3	-0.2	0.4
4402743	99	P	SUR	45	-30	742	0	0.7	-0.6	0.9
4402744	99	P	SUR	40	-40	740	0	0.7	0.4	0.8
4402747	99	P	SUR	43	-28	744	0	0.4	0.2	0.5
4402749	99	P	SUR	52	-40	744	0	0.6	-0.1	0.6
4402750	99	P	SUR	54	-38	744	0	0.6	-0.5	0.8

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4402878	99	P	SUR	37	-62	371	0	0.5	0.3	0.5
4402879	99	P	SUR	37	-53	630	0	0.5	0.4	0.6
4402880	99	P	SUR	35	-35	59	0	0.4	0.5	0.6
4402881	99	P	SUR	48	-18	661	0	0.4	0.0	0.4
4402882	99	P	SUR	33	-54	720	0	0.4	0.3	0.5
4402885	99	P	SUR	31	-47	669	0	0.4	0.5	0.7
44033	99	P	SUR	44	-69	719	0	0.5	-1.1	1.2
44034	99	P	SUR	44	-68	251	0	1.2	-0.4	1.3
4403558	99	P	SUR	46	-2	77	42	7.7	-6.0	9.8
4403568	99	P	SUR	35	-38	733	0	0.4	0.2	0.5
4403569	99	P	SUR	42	-22	733	0	0.9	0.2	1.0
44037	99	P	SUR	44	-68	726	0	0.5	0.1	0.5
44078	99	P	SUR	60	-40	744	0	0.7	-1.1	1.3
44150	99	P	SUR	43	-64	717	0	0.5	-0.1	0.5
44258	99	P	SUR	45	-63	733	0	0.5	-0.2	0.5
44488	99	P	SUR	45	-61	650	0	0.5	-0.2	0.6
44489	99	P	SUR	46	-61	686	0	0.5	-0.1	0.5
4601782	99	P	SUR	28	-27	744	0	0.3	0.4	0.5
4701554	99	P	SUR	86	-1	732	0	0.5	-0.2	0.5
4701555	99	P	SUR	86	8	733	0	0.5	-0.1	0.5
4701558	99	P	SUR	79	-18	61	0	0.4	-4.5	4.5
4701560	99	P	SUR	86	2	733	0	0.5	0.0	0.5
4701561	99	P	SUR	86	8	733	0	0.5	0.2	0.6
4801763	99	P	SUR	83	-27	706	0	0.6	0.1	0.6
4801771	99	P	SUR	73	-67	542	542	0.0	0.0	0.0
4802506	99	P	SUR	56	-9	723	0	0.5	0.0	0.5
4802592	99	P	SUR	86	-22	731	0	0.5	-0.1	0.5
4802602	99	P	SUR	59	-28	733	0	0.5	-0.2	0.6
4802603	99	P	SUR	82	13	731	0	0.5	0.1	0.5
4802663	99	P	SUR	66	-61	396	0	0.5	0.0	0.5
4802664	99	P	SUR	84	-54	732	0	0.4	0.0	0.4
4803978	99	P	SUR	75	-14	733	0	0.6	-0.4	0.8
4804002	99	P	SUR	36	14	734	0	0.3	-0.5	0.6
5801972	99	P	SUR	51	-51	737	0	0.5	-0.1	0.5
5801976	99	P	SUR	42	-51	737	0	0.5	0.1	0.5
5801983	99	P	SUR	36	-19	739	0	0.4	0.2	0.4
5802034	99	P	SUR	47	-7	744	0	0.3	0.0	0.3
5802061	99	P	SUR	86	2	733	0	0.5	0.2	0.6
5802068	99	P	SUR	46	-55	733	0	0.6	0.6	0.8
5802077	99	P	SUR	31	-62	743	0	0.4	-0.1	0.5
6100001	99	P	SUR	43	8	732	0	0.5	-0.1	0.5
6100002	99	P	SUR	42	5	744	0	0.4	-0.3	0.5
6100196	99	P	SUR	42	4	744	0	0.4	0.5	0.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6100197	99	P	SUR	40	4	6	0	0.1	0.3	0.3
6100198	99	P	SUR	37	-2	743	0	0.3	0.2	0.4
6100280	99	P	SUR	41	1	744	0	0.4	0.1	0.4
6100281	99	P	SUR	40	0	744	0	0.5	0.2	0.5
6100417	99	P	SUR	38	0	744	0	0.3	0.3	0.4
6100430	99	P	SUR	40	2	744	0	0.3	0.3	0.4
6101007	99	P	SUR	36	25	204	0	0.5	-0.5	0.7
6101031	99	P	SUR	42	8	744	0	0.5	0.0	0.5
6200001	99	P	SUR	45	-5	744	0	0.3	-0.1	0.3
6200024	99	P	SUR	44	-3	744	0	0.5	0.2	0.5
6200025	99	P	SUR	44	-6	744	0	1.2	0.0	1.2
6200029	99	P	SUR	49	-12	742	0	0.4	-0.4	0.6
6200050	99	P	SUR	50	-4	744	0	0.4	-0.2	0.5
6200081	99	P	SUR	51	-13	709	0	0.4	-0.3	0.5
6200082	99	P	SUR	44	-8	744	0	0.5	0.0	0.5
6200083	99	P	SUR	43	-9	743	0	0.5	0.0	0.5
6200084	99	P	SUR	42	-9	743	0	0.4	0.1	0.5
6200085	99	P	SUR	36	-7	744	0	0.4	0.2	0.5
6200086	99	P	SUR	55	7	371	0	0.4	-0.4	0.5
6200087	99	P	SUR	55	7	18	0	0.2	-0.5	0.6
6200091	99	P	SUR	53	-5	743	0	0.5	-0.5	0.7
6200092	99	P	SUR	51	-11	743	0	0.4	-0.3	0.5
6200093	99	P	SUR	55	-10	742	0	0.5	-0.5	0.7
6200094	99	P	SUR	52	-7	743	0	0.5	-0.3	0.6
6200095	99	P	SUR	53	-16	742	0	0.6	-0.6	0.8
6200103	99	P	SUR	50	-3	744	0	0.4	-0.5	0.6
6200163	99	P	SUR	47	-8	745	0	0.4	-0.2	0.4
6200191	99	P	SUR	41	-10	684	0	0.4	-0.6	0.7
6200192	99	P	SUR	40	-10	684	0	0.5	-0.5	0.7
6200199	99	P	SUR	40	-9	651	0	0.4	-0.7	0.8
6200200	99	P	SUR	36	-8	247	0	2.3	-0.9	2.5
6201065	99	P	SUR	54	7	677	0	0.3	1.1	1.1
6201066	99	P	SUR	55	7	739	0	0.4	0.3	0.5
6201081	99	P	SUR	38	-9	717	0	0.4	-0.5	0.6
6202597	99	P	SUR	45	-25	744	0	0.7	0.3	0.8
6202598	99	P	SUR	42	-24	744	0	0.7	0.3	0.8
6202637	99	P	SUR	63	-12	744	0	0.4	0.0	0.4
6202639	99	P	SUR	30	-32	690	0	0.3	-0.3	0.4
6202644	99	P	SUR	40	-43	238	3	3.9	-1.3	4.1
62029	99	P	SUR	49	-12	1487	0	0.4	-0.4	0.6
6203516	99	P	SUR	41	-18	744	0	0.8	0.2	0.8
6203607	99	P	SUR	31	-25	744	0	0.3	0.2	0.4
6203612	99	P	SUR	35	-55	744	0	0.5	0.3	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6203613	99	P	SUR	47	-5	477	0	1.4	0.7	1.5
6203621	99	P	SUR	28	-39	742	0	1.1	0.0	1.1
6203624	99	P	SUR	42	-58	260	0	0.6	-0.1	0.6
6203625	99	P	SUR	30	-38	744	0	0.5	-0.1	0.5
6203632	99	P	SUR	31	-52	744	0	1.2	0.4	1.2
6203634	99	P	SUR	32	-33	744	0	0.6	0.3	0.6
6203639	99	P	SUR	30	-27	744	17	2.7	0.8	2.9
6203640	99	P	SUR	26	-70	742	0	1.6	-0.2	1.6
6203651	99	P	SUR	41	-18	743	0	0.5	0.4	0.6
6203655	99	P	SUR	84	40	707	0	0.5	-0.2	0.5
6203656	99	P	SUR	86	2	742	0	0.5	0.4	0.6
6203660	99	P	SUR	84	3	744	0	0.5	0.1	0.5
6203661	99	P	SUR	87	21	743	0	0.4	0.0	0.5
6203667	99	P	SUR	85	26	744	0	0.6	-0.1	0.6
6203669	99	P	SUR	80	16	744	0	0.6	0.0	0.6
6203741	99	P	SUR	62	-2	742	0	0.5	0.1	0.5
6203744	99	P	SUR	73	14	715	0	0.4	0.4	0.5
6203753	99	P	SUR	56	-52	744	0	0.6	-0.4	0.7
6203755	99	P	SUR	28	-19	744	0	0.3	-0.5	0.6
6203768	99	P	SUR	28	-30	744	0	0.3	0.2	0.3
6203771	99	P	SUR	27	-43	744	0	0.5	-0.1	0.5
6203772	99	P	SUR	25	-69	744	0	0.3	0.0	0.3
6203773	99	P	SUR	36	-63	744	0	0.5	-0.7	0.9
6203823	99	P	SUR	62	-15	354	0	0.5	0.3	0.6
6203824	99	P	SUR	62	-12	744	0	0.4	0.9	1.0
6203825	99	P	SUR	63	-10	744	0	0.4	0.2	0.5
6203826	99	P	SUR	63	-15	744	0	0.4	0.0	0.4
6203827	99	P	SUR	66	12	705	0	0.5	-0.1	0.5
6203839	99	P	SUR	33	-53	744	0	0.4	-0.3	0.5
6203840	99	P	SUR	26	-51	744	0	0.4	0.0	0.4
6203842	99	P	SUR	29	-29	744	0	0.3	0.0	0.3
6203844	99	P	SUR	43	-22	744	0	0.4	0.3	0.5
6203845	99	P	SUR	57	-7	744	0	0.5	-0.4	0.6
6203846	99	P	SUR	30	-30	744	0	0.3	-0.2	0.4
6203848	99	P	SUR	56	-14	744	0	0.5	-0.1	0.5
6203849	99	P	SUR	26	-44	744	0	0.4	-0.1	0.4
6203853	99	P	SUR	70	7	744	1	0.5	0.0	0.5
6203854	99	P	SUR	58	-46	744	0	0.6	0.2	0.7
6203855	99	P	SUR	68	12	744	0	0.4	-0.4	0.5
6203861	99	P	SUR	26	-46	744	0	0.4	0.0	0.4
6203864	99	P	SUR	69	-9	744	0	1.3	0.0	1.3
6203865	99	P	SUR	61	-40	744	0	0.6	-0.1	0.6
6203866	99	P	SUR	69	15	744	0	0.4	-0.1	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6203888	99	P	SUR	12	-33	744	0	0.4	-0.1	0.4
6203890	99	P	SUR	10	-22	744	0	0.3	0.0	0.3
6204603	99	P	SUR	41	7	682	0	0.5	0.5	0.7
6204604	99	P	SUR	39	5	709	0	0.3	-0.9	1.0
6204607	99	P	SUR	37	9	135	0	0.4	-3.1	3.1
6204609	99	P	SUR	41	3	728	0	0.3	-0.6	0.6
6204610	99	P	SUR	39	1	742	0	0.3	0.0	0.3
6204611	99	P	SUR	38	2	732	0	0.3	0.2	0.4
62050	99	P	SUR	50	-4	1487	0	0.5	-0.3	0.5
62081	99	P	SUR	51	-13	1487	0	0.5	-0.3	0.5
62091	99	P	SUR	53	-5	743	0	0.5	-0.5	0.7
62092	99	P	SUR	51	-11	743	0	0.4	-0.3	0.5
62093	99	P	SUR	55	-10	742	0	0.6	-0.5	0.7
62094	99	P	SUR	52	-7	743	0	0.5	-0.3	0.6
62095	99	P	SUR	53	-16	742	0	0.6	-0.6	0.8
62102	99	P	SUR	58	2	1486	0	0.9	0.3	1.0
62103	99	P	SUR	50	-3	1487	0	0.4	-0.5	0.7
62104	99	P	SUR	57	1	1486	0	0.6	-0.1	0.6
62105	99	P	SUR	55	-13	1488	0	0.9	-0.4	1.0
62107	99	P	SUR	50	-6	220	0	0.3	-0.3	0.5
62112	99	P	SUR	58	0	1486	0	0.5	0.2	0.5
62113	99	P	SUR	58	0	1486	0	0.7	-0.1	0.7
62114	99	P	SUR	58	0	766	0	0.6	0.0	0.6
62115	99	P	SUR	58	-3	1482	0	0.5	-0.2	0.5
62116	99	P	SUR	58	1	1486	0	0.6	-0.2	0.6
62118	99	P	SUR	58	1	1486	0	0.4	0.3	0.5
62119	99	P	SUR	57	2	1486	0	0.5	0.0	0.5
62120	99	P	SUR	56	2	1486	0	0.5	-0.3	0.6
62121	99	P	SUR	54	3	1486	0	0.6	0.3	0.7
62122	99	P	SUR	57	2	1486	0	0.5	0.0	0.5
62124	99	P	SUR	54	-4	1486	0	0.6	-0.2	0.7
62127	99	P	SUR	54	1	1486	0	0.5	-0.2	0.6
62128	99	P	SUR	59	1	2	0	0.0	-0.8	0.8
62129	99	P	SUR	58	0	1486	0	0.6	0.0	0.7
62130	99	P	SUR	59	1	1486	0	0.4	-0.4	0.6
62131	99	P	SUR	54	1	230	0	0.4	0.7	0.8
62132	99	P	SUR	56	2	1486	0	0.7	0.3	0.8
62133	99	P	SUR	57	1	1486	0	0.9	0.1	0.9
62134	99	P	SUR	58	1	1486	0	0.4	0.2	0.5
62135	99	P	SUR	54	2	1332	0	0.7	0.1	0.7
62140	99	P	SUR	57	1	1486	0	0.6	0.0	0.6
62143	99	P	SUR	58	2	1486	0	0.6	0.7	0.9
62144	99	P	SUR	53	2	1486	0	0.5	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
62145	99	P	SUR	53	3	1486	0	0.5	0.2	0.5
62146	99	P	SUR	57	2	1486	0	0.6	0.1	0.6
62148	99	P	SUR	54	2	1462	0	0.6	0.8	1.0
62149	99	P	SUR	54	1	1486	0	0.5	0.1	0.5
62151	99	P	SUR	57	2	1485	0	0.5	0.2	0.5
62152	99	P	SUR	57	2	1486	0	0.5	0.4	0.6
62153	99	P	SUR	57	2	1242	0	0.4	0.1	0.4
62154	99	P	SUR	56	2	1486	0	0.4	-0.2	0.4
62155	99	P	SUR	58	1	1486	0	0.5	0.4	0.6
62157	99	P	SUR	58	0	1486	0	0.5	-0.2	0.6
62160	99	P	SUR	57	2	1482	0	0.6	0.1	0.7
62161	99	P	SUR	58	1	1486	0	0.6	-0.4	0.8
62162	99	P	SUR	57	1	1486	0	0.5	-0.2	0.6
62163	99	P	SUR	48	-9	1487	0	0.4	-0.2	0.4
62164	99	P	SUR	57	1	1486	0	0.5	0.3	0.5
62165	99	P	SUR	54	1	1486	0	0.6	0.0	0.6
62168	99	P	SUR	58	1	1486	0	0.4	-0.1	0.4
62170	99	P	SUR	51	2	1488	0	0.4	-0.2	0.5
62297	99	P	SUR	59	2	1486	0	0.5	-0.2	0.5
62302	99	P	SUR	61	-2	1470	0	0.8	-0.2	0.8
62304	99	P	SUR	51	2	1488	0	0.5	-0.1	0.5
62305	99	P	SUR	50	0	1488	0	0.5	-0.4	0.6
6301001	99	P	SUR	64	5	740	0	0.4	-0.1	0.4
6301008	99	P	SUR	68	15	713	0	0.4	-0.8	0.9
6301572	99	P	SUR	51	-8	237	5	3.5	0.2	3.5
6301575	99	P	SUR	46	-23	744	0	0.4	0.3	0.6
6301577	99	P	SUR	66	1	743	0	0.4	-0.1	0.4
63055	99	P	SUR	61	2	1486	0	0.6	0.0	0.6
63056	99	P	SUR	60	2	1486	0	0.6	0.3	0.7
63057	99	P	SUR	59	2	1486	0	0.4	-0.2	0.5
63058	99	P	SUR	53	2	819	0	0.5	-0.2	0.5
63059	99	P	SUR	58	-1	1478	0	0.5	0.1	0.5
63101	99	P	SUR	61	1	1486	0	0.7	0.1	0.7
63102	99	P	SUR	61	1	1486	0	0.6	0.1	0.6
63103	99	P	SUR	61	1	1108	0	1.8	0.6	1.9
63108	99	P	SUR	61	2	1484	0	0.7	0.0	0.7
63109	99	P	SUR	60	2	1486	0	0.5	-0.6	0.8
63110	99	P	SUR	60	2	1322	0	0.7	-0.3	0.8
63111	99	P	SUR	61	2	1476	0	0.6	-0.5	0.8
63112	99	P	SUR	61	1	1440	0	0.6	-0.5	0.7
63115	99	P	SUR	62	1	1486	0	0.8	0.2	0.8
63117	99	P	SUR	61	1	1486	0	0.7	0.4	0.8
63118	99	P	SUR	58	1	1478	0	0.5	-0.5	0.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6400045	99	P	SUR	59	-12	1181	0	0.6	-0.6	0.8
6400046	99	P	SUR	61	-4	1184	0	0.5	-0.5	0.7
6400081	99	P	SUR	49	-12	2	0	0.0	-0.5	0.5
6401583	99	P	SUR	59	-33	743	0	0.5	-0.1	0.5
6401584	99	P	SUR	61	-23	743	0	0.4	0.1	0.5
6401590	99	P	SUR	70	32	742	0	0.5	-0.5	0.7
6401592	99	P	SUR	68	-5	744	0	0.4	0.4	0.6
6401759	99	P	SUR	56	-31	744	0	0.6	-0.3	0.7
6401762	99	P	SUR	68	-8	95	0	0.2	0.3	0.4
6401763	99	P	SUR	66	12	744	0	0.4	0.0	0.4
6402551	99	P	SUR	48	-9	742	0	0.4	0.2	0.4
6402597	99	P	SUR	59	-29	192	0	0.3	-0.2	0.4
6402615	99	P	SUR	26	-61	744	0	0.3	0.1	0.3
6402616	99	P	SUR	30	-42	744	0	0.4	-0.2	0.5
6402617	99	P	SUR	30	-46	744	0	0.3	0.3	0.4
6402618	99	P	SUR	24	-49	744	0	0.4	0.0	0.4
6402619	99	P	SUR	31	-13	744	0	0.3	0.0	0.3
6402621	99	P	SUR	34	-18	744	0	0.3	0.4	0.5
6402622	99	P	SUR	32	-20	744	0	0.3	0.1	0.3
64041	99	P	SUR	61	-3	1486	0	0.6	-0.1	0.6
64045	99	P	SUR	59	-12	1483	0	0.5	-0.5	0.7
64046	99	P	SUR	61	-4	1487	0	0.5	-0.3	0.6
6600021	99	P	SUR	55	14	14	0	0.3	-1.1	1.1
6600022	99	P	SUR	54	14	193	0	0.5	-0.6	0.8
6600023	99	P	SUR	55	11	246	0	0.4	-0.3	0.5
6600024	99	P	SUR	55	13	22	0	0.3	-1.4	1.4
6801786	99	P	SUR	36	19	744	0	0.3	0.2	0.3
6801790	99	P	SUR	36	-14	737	0	0.4	0.0	0.4
6801791	99	P	SUR	33	-39	743	0	0.5	0.3	0.6
6801906	99	P	SUR	71	-69	725	0	0.6	-0.7	0.9
7801552	99	P	SUR	71	-4	733	60	2.0	-0.3	2.0
7801588	99	P	SUR	37	-14	741	0	0.4	0.2	0.4
7801591	99	P	SUR	40	-10	738	0	0.3	0.1	0.3
7801592	99	P	SUR	36	19	612	0	0.4	0.2	0.4
9308649	99	P	SUR	38	6	4	0	0.6	1.4	1.5

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 2023
                   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	604	0	0	0.7	0.6	0.9
1300002	99	SPEED	SUR	20	-23	604	0	0	0.7	0.1	0.8
1300008	99	SPEED	SUR	15	-38	598	0	0	0.9	0.1	0.9
1300130	99	SPEED	SUR	28	-16	732	0	0	1.5	-0.1	1.5
1300131	99	SPEED	SUR	28	-17	733	0	0	1.9	1.0	2.2
4100026	99	SPEED	SUR	12	-38	301	0	0	0.8	0.0	0.8
4100040	99	SPEED	SUR	15	-53	4413	0	0	1.0	0.1	1.0
4100043	99	SPEED	SUR	21	-65	4410	0	0	1.2	0.0	1.2
4100044	99	SPEED	SUR	22	-59	4413	0	0	1.2	0.0	1.2
4100046	99	SPEED	SUR	24	-68	4414	0	0	1.3	0.1	1.3
4100049	99	SPEED	SUR	28	-63	4416	0	0	1.2	-0.1	1.2
4100052	99	SPEED	SUR	18	-65	4045	0	0	0.9	-0.3	1.0
4100053	99	SPEED	SUR	18	-66	4319	0	0	1.4	0.2	1.4
4100056	99	SPEED	SUR	18	-65	226	0	0	1.1	-0.4	1.1
4100139	99	SPEED	SUR	20	-38	734	0	0	1.3	0.1	1.3
4100300	99	SPEED	SUR	16	-57	703	0	0	0.9	-0.1	0.9
41040	99	SPEED	SUR	15	-53	743	0	0	1.1	0.2	1.1
41043	99	SPEED	SUR	21	-65	742	0	0	1.2	0.0	1.2
41044	99	SPEED	SUR	22	-59	744	0	0	1.2	0.0	1.2
41046	99	SPEED	SUR	24	-68	744	0	0	1.3	0.1	1.3
41049	99	SPEED	SUR	28	-63	744	0	0	1.2	-0.1	1.2
41052	99	SPEED	SUR	18	-65	710	0	0	1.0	-0.2	1.0
41053	99	SPEED	SUR	19	-66	743	0	0	1.5	-0.3	1.6
41056	99	SPEED	SUR	18	-66	230	0	0	1.1	-0.2	1.1
4200059	99	SPEED	SUR	15	-67	4415	0	0	0.7	0.0	0.7
4200060	99	SPEED	SUR	16	-63	4414	0	0	0.8	0.0	0.8
4200085	99	SPEED	SUR	18	-67	3472	0	0	1.3	-0.2	1.3
42059	99	SPEED	SUR	15	-68	743	0	0	0.8	0.1	0.8
42060	99	SPEED	SUR	16	-63	744	0	0	0.8	0.0	0.8
42085	99	SPEED	SUR	18	-67	729	0	0	1.3	0.3	1.3
4400005	99	SPEED	SUR	43	-69	4414	0	0	1.2	0.0	1.2
4400008	99	SPEED	SUR	40	-69	4414	0	0	1.4	0.0	1.4
4400011	99	SPEED	SUR	41	-67	1523	0	0	1.4	-0.4	1.5
4400027	99	SPEED	SUR	44	-67	4415	0	0	1.1	0.2	1.1

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4400032	99	SPEED	SUR	44	-69	369	0	0	1.2	0.4	1.3
4400033	99	SPEED	SUR	44	-69	708	3	0	1.4	0.3	1.4
4400034	99	SPEED	SUR	44	-68	693	0	0	1.2	0.2	1.2
4400037	99	SPEED	SUR	43	-68	717	0	0	1.1	0.0	1.1
4400150	99	SPEED	SUR	43	-64	716	0	0	1.4	0.2	1.5
4400488	99	SPEED	SUR	45	-61	582	0	0	1.7	0.5	1.8
4400489	99	SPEED	SUR	45	-61	616	0	0	1.6	1.6	2.2
44005	99	SPEED	SUR	43	-69	744	0	0	1.3	-0.1	1.3
44008	99	SPEED	SUR	41	-69	743	0	0	1.5	0.0	1.5
44011	99	SPEED	SUR	41	-67	262	0	0	1.4	-0.3	1.5
44027	99	SPEED	SUR	44	-67	744	0	0	1.1	0.3	1.2
44032	99	SPEED	SUR	44	-69	379	0	0	1.3	0.5	1.4
44033	99	SPEED	SUR	44	-69	719	3	0	1.4	0.7	1.6
44034	99	SPEED	SUR	44	-68	704	0	0	1.2	0.2	1.2
44037	99	SPEED	SUR	44	-68	728	0	0	1.2	0.1	1.2
44078	99	SPEED	SUR	60	-40	743	0	0	2.0	-2.3	3.1
44150	99	SPEED	SUR	43	-64	716	0	0	1.5	0.1	1.5
44258	99	SPEED	SUR	45	-63	733	0	0	1.3	0.7	1.5
44488	99	SPEED	SUR	45	-61	649	0	0	1.7	1.0	2.0
44489	99	SPEED	SUR	46	-61	684	0	0	1.6	1.8	2.4
6100001	99	SPEED	SUR	43	8	728	0	0	1.8	0.0	1.8
6100002	99	SPEED	SUR	42	5	744	0	0	1.4	0.2	1.4
6100196	99	SPEED	SUR	42	4	720	0	0	1.8	-0.2	1.8
6100197	99	SPEED	SUR	40	4	5	0	0	0.6	0.3	0.7
6100198	99	SPEED	SUR	37	-2	717	0	0	1.4	-0.4	1.5
6100280	99	SPEED	SUR	41	1	733	0	0	1.7	-1.0	2.0
6100417	99	SPEED	SUR	38	0	716	0	0	1.2	-0.7	1.4
6100430	99	SPEED	SUR	40	2	707	0	0	1.6	-1.2	2.0
6101007	99	SPEED	SUR	36	25	204	0	0	2.3	-0.1	2.3
6101008	99	SPEED	SUR	37	22	202	0	0	2.2	-4.8	5.3
6101031	99	SPEED	SUR	42	8	744	0	0	1.3	0.1	1.3
6200001	99	SPEED	SUR	45	-5	739	0	0	1.2	-0.7	1.4
6200024	99	SPEED	SUR	44	-3	739	0	0	1.7	-0.3	1.7
6200025	99	SPEED	SUR	44	-6	725	0	0	1.5	-0.7	1.7
6200029	99	SPEED	SUR	49	-12	742	0	0	1.2	0.3	1.2
6200050	99	SPEED	SUR	50	-4	743	0	0	1.3	0.0	1.3
6200081	99	SPEED	SUR	51	-13	707	0	0	1.3	-0.2	1.3
6200082	99	SPEED	SUR	44	-8	736	0	0	1.2	-1.2	1.7
6200083	99	SPEED	SUR	43	-9	734	0	0	1.0	-0.3	1.0
6200084	99	SPEED	SUR	42	-9	715	0	0	1.1	-0.8	1.4
6200085	99	SPEED	SUR	36	-7	729	0	0	1.0	0.0	1.0

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
6200086	99	SPEED	SUR	55	7	369	0	0	1.9	1.8	2.6
6200087	99	SPEED	SUR	55	7	18	0	0	1.2	0.9	1.5
6200091	99	SPEED	SUR	53	-5	743	0	0	1.3	0.4	1.4
6200092	99	SPEED	SUR	51	-11	743	0	0	1.3	0.2	1.3
6200093	99	SPEED	SUR	55	-10	742	0	0	1.5	-0.6	1.6
6200094	99	SPEED	SUR	52	-7	743	0	0	1.3	0.1	1.3
6200095	99	SPEED	SUR	53	-16	742	0	0	1.4	-0.8	1.6
6200103	99	SPEED	SUR	50	-3	744	4	0	1.4	-0.3	1.5
6200163	99	SPEED	SUR	47	-8	584	0	0	1.1	-0.5	1.2
6200191	99	SPEED	SUR	41	-10	462	0	0	1.6	-0.2	1.6
6200192	99	SPEED	SUR	40	-10	684	0	0	1.3	0.3	1.3
6200199	99	SPEED	SUR	40	-9	651	0	0	1.3	0.5	1.4
6200200	99	SPEED	SUR	36	-8	291	0	0	1.0	0.2	1.0
6201065	99	SPEED	SUR	54	7	677	0	0	1.6	-0.5	1.7
6201066	99	SPEED	SUR	55	7	739	0	0	1.5	0.4	1.6
62029	99	SPEED	SUR	49	-12	1487	0	0	1.2	0.2	1.2
62050	99	SPEED	SUR	50	-4	1485	0	0	1.3	0.7	1.5
62081	99	SPEED	SUR	51	-13	1483	0	0	1.3	0.7	1.4
62091	99	SPEED	SUR	53	-5	743	0	0	1.3	0.8	1.5
62092	99	SPEED	SUR	51	-11	743	0	0	1.3	0.2	1.3
62093	99	SPEED	SUR	55	-10	742	0	0	1.5	-0.5	1.6
62094	99	SPEED	SUR	52	-7	743	0	0	1.3	0.2	1.3
62095	99	SPEED	SUR	53	-16	742	0	0	1.4	-0.7	1.5
62102	99	SPEED	SUR	58	2	1486	0	0	1.8	0.2	1.8
62103	99	SPEED	SUR	50	-3	1487	10	0	1.5	-0.6	1.6
62104	99	SPEED	SUR	57	1	1486	0	0	1.4	-0.7	1.5
62105	99	SPEED	SUR	55	-13	1488	0	0	1.5	0.3	1.5
62107	99	SPEED	SUR	50	-6	122	0	0	1.1	0.2	1.1
62112	99	SPEED	SUR	58	0	1486	0	0	2.2	-1.1	2.5
62113	99	SPEED	SUR	58	0	1486	0	0	1.7	-0.2	1.7
62114	99	SPEED	SUR	58	0	766	0	0	1.9	0.3	1.9
62118	99	SPEED	SUR	58	1	1486	0	0	1.7	0.7	1.9
62119	99	SPEED	SUR	57	2	1486	0	0	2.6	-1.6	3.0
62120	99	SPEED	SUR	56	2	1486	0	0	1.6	-0.6	1.7
62121	99	SPEED	SUR	54	3	1486	0	0	1.5	-0.5	1.6
62122	99	SPEED	SUR	57	2	1484	0	0	1.4	0.0	1.4
62128	99	SPEED	SUR	59	1	2	0	0	0.0	-5.4	5.4
62129	99	SPEED	SUR	58	0	1486	0	0	1.7	0.1	1.7
62131	99	SPEED	SUR	54	1	230	0	0	2.9	-2.2	3.7
62133	99	SPEED	SUR	57	1	1482	0	0	1.5	-0.1	1.5
62134	99	SPEED	SUR	58	1	1486	0	0	1.6	-0.2	1.6

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62140	99	SPEED	SUR	57	1	1484	0	0	1.5	-0.1	1.5
62143	99	SPEED	SUR	58	2	1486	0	0	2.2	-1.0	2.4
62144	99	SPEED	SUR	53	2	1486	0	0	2.5	-0.7	2.6
62145	99	SPEED	SUR	53	3	1486	0	0	1.8	0.7	1.9
62146	99	SPEED	SUR	57	2	1486	0	0	1.7	-0.2	1.7
62148	99	SPEED	SUR	54	2	1462	0	0	2.3	-0.7	2.4
62149	99	SPEED	SUR	54	1	1486	0	0	1.5	0.2	1.5
62152	99	SPEED	SUR	57	2	1486	0	0	1.8	-1.6	2.4
62154	99	SPEED	SUR	56	2	1486	0	0	1.5	0.1	1.5
62155	99	SPEED	SUR	58	1	1486	0	0	1.7	0.6	1.8
62163	99	SPEED	SUR	48	-9	1166	0	0	1.1	0.1	1.1
62164	99	SPEED	SUR	57	1	1486	0	0	1.8	-1.5	2.4
62165	99	SPEED	SUR	54	1	1486	0	0	2.1	-1.0	2.3
62170	99	SPEED	SUR	51	2	1488	0	0	1.6	1.2	2.0
62304	99	SPEED	SUR	51	2	1480	0	0	1.9	1.5	2.4
6301001	99	SPEED	SUR	64	5	740	0	0	1.6	0.1	1.6
6301008	99	SPEED	SUR	68	15	721	0	0	2.0	0.5	2.0
63055	99	SPEED	SUR	61	2	1486	0	0	1.7	-1.2	2.1
63056	99	SPEED	SUR	60	2	1484	0	0	1.7	0.3	1.7
63057	99	SPEED	SUR	59	2	1486	0	0	2.6	-0.7	2.7
63058	99	SPEED	SUR	53	2	817	0	0	1.4	0.3	1.5
63101	99	SPEED	SUR	61	1	1480	0	0	1.6	-0.5	1.7
63103	99	SPEED	SUR	61	1	1468	2	0	1.7	-0.4	1.8
63108	99	SPEED	SUR	61	2	1482	0	0	1.8	-0.2	1.8
63109	99	SPEED	SUR	60	2	1486	0	0	1.8	0.3	1.8
63110	99	SPEED	SUR	60	2	1484	0	0	1.7	-0.4	1.8
63112	99	SPEED	SUR	61	1	1436	0	0	1.6	-0.5	1.7
63115	99	SPEED	SUR	62	1	1486	0	0	1.8	-0.4	1.8
63117	99	SPEED	SUR	61	1	1486	2	0	1.5	-0.5	1.6
6400045	99	SPEED	SUR	59	-12	1181	0	0	3.5	-1.8	4.0
6400046	99	SPEED	SUR	61	-4	440	0	0	3.7	6.0	7.0
6400081	99	SPEED	SUR	49	-12	2	0	0	0.0	4.3	4.3
64041	99	SPEED	SUR	61	-3	1486	0	0	1.5	-0.3	1.5
64045	99	SPEED	SUR	59	-12	1481	0	0	1.4	0.6	1.5
6600021	99	SPEED	SUR	55	14	14	0	0	1.6	0.2	1.6
6600022	99	SPEED	SUR	54	14	193	0	0	1.3	0.1	1.3
6600023	99	SPEED	SUR	55	11	247	0	0	1.4	1.9	2.3
6600024	99	SPEED	SUR	55	13	12	0	0	0.7	1.2	1.4
9308649	99	SPEED	SUR	38	6	4	0	0	1.0	-1.5	1.8

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 2023
         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	603	0	0	8.7	2.7	9.1
1300002	99	DIRN	SUR	20	-23	575	0	0	8.7	-1.1	8.8
1300008	99	DIRN	SUR	15	-38	581	0	0	11.1	3.3	11.6
1300130	99	DIRN	SUR	28	-16	517	0	0	15.0	5.8	16.1
1300131	99	DIRN	SUR	28	-17	514	0	0	17.7	7.3	19.2
4100001	99	DIRN	SUR	35	-72	2223	0	0	13.2	8.1	15.5
4100002	99	DIRN	SUR	32	-75	4278	0	0	11.3	4.0	12.0
4100004	99	DIRN	SUR	33	-79	4142	0	0	14.4	5.2	15.3
4100008	99	DIRN	SUR	31	-81	3605	0	0	16.7	10.5	19.7
4100009	99	DIRN	SUR	29	-80	4191	0	0	13.0	4.0	13.6
4100013	99	DIRN	SUR	33	-78	4181	0	0	14.4	6.5	15.8
4100024	99	DIRN	SUR	34	-78	560	0	0	16.2	8.0	18.0
4100025	99	DIRN	SUR	35	-75	4100	0	0	13.5	8.3	15.8
4100026	99	DIRN	SUR	12	-38	301	0	0	10.0	3.7	10.7
4100029	99	DIRN	SUR	33	-80	589	0	0	19.6	-5.5	20.4
4100033	99	DIRN	SUR	32	-80	590	0	0	19.5	-14.6	24.3
4100037	99	DIRN	SUR	34	-77	679	0	0	14.5	1.4	14.6
4100038	99	DIRN	SUR	34	-78	617	0	0	18.2	3.7	18.6
4100040	99	DIRN	SUR	15	-53	3279	0	0	14.4	6.4	15.8
4100043	99	DIRN	SUR	21	-65	3778	0	0	13.8	4.8	14.6
4100044	99	DIRN	SUR	22	-59	3687	0	0	15.3	8.8	17.7
4100046	99	DIRN	SUR	24	-68	3888	0	0	14.8	4.7	15.5
4100047	99	DIRN	SUR	27	-71	4141	0	0	17.2	5.2	18.0
4100049	99	DIRN	SUR	28	-63	4026	0	0	13.6	6.8	15.3
4100052	99	DIRN	SUR	18	-65	3402	0	0	12.5	5.3	13.5
4100053	99	DIRN	SUR	18	-66	2892	0	0	16.4	7.9	18.3
4100056	99	DIRN	SUR	18	-65	178	0	0	15.7	6.0	16.8
4100064	99	DIRN	SUR	34	-77	679	0	0	16.0	0.7	16.0
4100068	99	DIRN	SUR	28	-80	185	0	0	14.1	3.1	14.5
4100069	99	DIRN	SUR	29	-81	584	0	0	23.1	7.3	24.2
41001	99	DIRN	SUR	35	-72	374	0	0	12.7	7.9	15.0
4100139	99	DIRN	SUR	20	-38	644	0	0	20.2	4.6	20.7

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
41002	99	DIRN	SUR	32	-75	715	0	0	12.0	4.2	12.7
4100300	99	DIRN	SUR	16	-57	539	0	0	11.8	-12.6	17.3
41004	99	DIRN	SUR	33	-79	695	0	0	14.6	5.2	15.5
41008	99	DIRN	SUR	31	-81	603	0	0	16.7	9.7	19.3
41009	99	DIRN	SUR	29	-80	701	0	0	12.9	4.1	13.5
41013	99	DIRN	SUR	33	-78	706	0	0	13.5	7.0	15.2
41024	99	DIRN	SUR	34	-79	565	0	0	18.2	8.7	20.1
41025	99	DIRN	SUR	35	-76	684	0	0	13.9	8.5	16.3
41029	99	DIRN	SUR	33	-80	596	0	0	19.4	-5.9	20.3
41033	99	DIRN	SUR	32	-80	586	0	0	20.0	-14.6	24.8
41037	99	DIRN	SUR	34	-77	685	0	0	15.9	1.0	15.9
41038	99	DIRN	SUR	34	-78	628	0	0	18.8	5.1	19.5
41040	99	DIRN	SUR	15	-53	542	0	0	14.9	5.9	16.0
41043	99	DIRN	SUR	21	-65	628	0	0	14.2	4.2	14.8
41044	99	DIRN	SUR	22	-59	606	0	0	16.0	8.0	17.8
41046	99	DIRN	SUR	24	-68	653	0	0	14.8	4.6	15.5
41047	99	DIRN	SUR	28	-72	689	0	0	17.8	4.9	18.4
41049	99	DIRN	SUR	28	-63	674	0	0	13.3	6.6	14.8
41052	99	DIRN	SUR	18	-65	595	0	0	12.5	4.4	13.2
41053	99	DIRN	SUR	19	-66	496	0	0	18.0	7.1	19.4
41056	99	DIRN	SUR	18	-66	178	0	0	16.6	5.6	17.5
41064	99	DIRN	SUR	34	-77	680	0	0	16.8	1.7	16.9
41068	99	DIRN	SUR	28	-80	189	0	0	14.5	3.1	14.9
41069	99	DIRN	SUR	29	-81	580	0	0	22.5	7.8	23.8
4200013	99	DIRN	SUR	27	-83	1226	0	0	25.2	-8.3	26.5
4200022	99	DIRN	SUR	28	-84	1369	0	0	15.7	-5.7	16.7
4200023	99	DIRN	SUR	26	-83	1342	0	0	13.7	-4.5	14.4
4200026	99	DIRN	SUR	25	-83	1330	0	0	15.3	-3.5	15.7
4200036	99	DIRN	SUR	29	-85	4042	0	0	19.9	1.7	20.0
4200056	99	DIRN	SUR	20	-85	4186	0	0	13.2	0.3	13.2
4200057	99	DIRN	SUR	17	-82	3988	0	0	13.0	2.5	13.3
4200058	99	DIRN	SUR	15	-75	4232	0	0	9.0	6.8	11.3
4200059	99	DIRN	SUR	15	-67	4389	0	0	8.4	2.1	8.7
4200060	99	DIRN	SUR	16	-63	4036	0	0	9.7	4.9	10.9
4200085	99	DIRN	SUR	18	-67	2665	0	0	14.5	12.1	18.9
42013	99	DIRN	SUR	27	-83	608	0	0	22.6	-6.9	23.7
42022	99	DIRN	SUR	28	-84	691	0	0	17.8	-5.5	18.6
42023	99	DIRN	SUR	26	-83	679	0	0	15.4	-3.6	15.8
42026	99	DIRN	SUR	25	-84	672	0	0	17.2	-2.4	17.4
42036	99	DIRN	SUR	29	-85	672	0	0	19.9	1.8	20.0
42056	99	DIRN	SUR	20	-85	705	0	0	13.8	-0.1	13.8

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
42057	99	DIRN	SUR	17	-82	664	0	0	13.1	2.3	13.3
42058	99	DIRN	SUR	15	-75	714	0	0	9.7	6.5	11.7
42059	99	DIRN	SUR	15	-68	731	0	0	8.6	1.9	8.8
42060	99	DIRN	SUR	16	-63	664	0	0	9.9	4.1	10.7
42085	99	DIRN	SUR	18	-67	534	0	0	14.7	10.0	17.8
4400005	99	DIRN	SUR	43	-69	3795	0	0	12.8	3.3	13.2
4400007	99	DIRN	SUR	44	-70	3346	0	0	17.6	3.8	18.0
4400008	99	DIRN	SUR	40	-69	3856	0	0	13.3	16.3	21.1
4400009	99	DIRN	SUR	38	-75	3759	0	0	15.3	5.6	16.3
4400011	99	DIRN	SUR	41	-67	1313	0	0	20.7	0.2	20.7
4400013	99	DIRN	SUR	42	-71	3530	0	0	13.2	6.1	14.5
4400014	99	DIRN	SUR	37	-75	3636	0	0	14.6	7.2	16.2
4400018	99	DIRN	SUR	42	-70	3678	0	0	14.5	6.6	15.9
4400020	99	DIRN	SUR	41	-70	3479	0	0	14.7	4.1	15.3
4400022	99	DIRN	SUR	41	-74	704	0	0	13.0	9.5	16.1
4400027	99	DIRN	SUR	44	-67	3969	0	0	11.1	8.0	13.8
4400029	99	DIRN	SUR	43	-71	602	0	0	14.4	-1.4	14.4
4400030	99	DIRN	SUR	43	-70	581	0	0	14.2	1.8	14.3
4400032	99	DIRN	SUR	44	-69	344	0	0	16.4	0.2	16.4
4400033	99	DIRN	SUR	44	-69	600	3	0	19.1	20.1	27.7
4400034	99	DIRN	SUR	44	-68	631	0	0	11.4	-2.9	11.8
4400037	99	DIRN	SUR	43	-68	616	0	0	12.0	5.0	13.0
4400039	99	DIRN	SUR	41	-73	439	0	0	33.8	3.7	34.0
4400041	99	DIRN	SUR	37	-77	1079	0	0	25.4	-1.1	25.4
4400042	99	DIRN	SUR	38	-76	4102	0	0	25.6	3.1	25.8
4400043	99	DIRN	SUR	39	-76	1594	0	0	24.4	9.4	26.2
4400058	99	DIRN	SUR	38	-76	3311	1	0	26.8	5.4	27.3
4400062	99	DIRN	SUR	39	-76	4078	0	0	28.0	-1.4	28.1
4400063	99	DIRN	SUR	39	-76	3002	0	0	21.3	4.9	21.8
4400064	99	DIRN	SUR	37	-76	4365	0	0	19.0	6.7	20.1
4400072	99	DIRN	SUR	37	-76	4038	0	0	21.0	6.4	21.9
4400073	99	DIRN	SUR	43	-71	595	0	0	12.0	2.2	12.2
4400150	99	DIRN	SUR	43	-64	605	0	0	16.8	10.3	19.7
4400488	99	DIRN	SUR	45	-61	505	0	0	15.0	-30.3	33.8
4400489	99	DIRN	SUR	45	-61	506	0	0	13.6	-34.8	37.3
44005	99	DIRN	SUR	43	-69	622	0	0	14.4	3.0	14.7
44007	99	DIRN	SUR	44	-70	561	0	0	17.9	5.1	18.6
44008	99	DIRN	SUR	41	-69	644	0	0	14.6	16.2	21.8
44009	99	DIRN	SUR	39	-75	619	0	0	16.0	5.3	16.8
44011	99	DIRN	SUR	41	-67	224	0	0	20.7	-0.3	20.8
44013	99	DIRN	SUR	42	-71	573	0	0	13.1	4.7	13.9

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
44014	99	DIRN	SUR	37	-75	612	0	0	15.5	7.5	17.2
44018	99	DIRN	SUR	42	-70	603	0	0	15.3	6.3	16.5
44020	99	DIRN	SUR	42	-70	570	0	0	15.4	3.6	15.8
44022	99	DIRN	SUR	41	-74	197	0	0	12.7	10.6	16.5
44027	99	DIRN	SUR	44	-67	663	0	0	11.7	7.5	13.9
44029	99	DIRN	SUR	43	-71	599	0	0	16.6	-1.8	16.7
44030	99	DIRN	SUR	43	-70	586	0	0	14.4	2.0	14.6
44032	99	DIRN	SUR	44	-69	346	0	0	16.6	0.7	16.7
44033	99	DIRN	SUR	44	-69	598	3	0	19.5	19.1	27.3
44034	99	DIRN	SUR	44	-68	642	0	0	12.0	-2.8	12.3
44037	99	DIRN	SUR	44	-68	617	0	0	12.6	5.0	13.6
44039	99	DIRN	SUR	41	-73	429	0	0	33.3	2.1	33.3
44041	99	DIRN	SUR	37	-77	112	0	0	20.0	1.2	20.1
44042	99	DIRN	SUR	38	-76	433	0	0	24.1	4.7	24.6
44043	99	DIRN	SUR	39	-76	182	0	0	25.6	8.6	27.0
44058	99	DIRN	SUR	38	-76	308	0	0	26.9	3.3	27.2
44062	99	DIRN	SUR	39	-76	470	0	0	26.8	0.2	26.8
44063	99	DIRN	SUR	39	-76	326	0	0	23.0	5.2	23.6
44064	99	DIRN	SUR	37	-76	512	0	0	21.1	6.4	22.0
44072	99	DIRN	SUR	37	-76	447	0	0	20.2	6.5	21.2
44073	99	DIRN	SUR	43	-71	136	0	0	13.7	2.9	14.0
44078	99	DIRN	SUR	60	-40	721	0	0	12.2	-19.8	23.2
44150	99	DIRN	SUR	43	-64	600	0	0	17.3	9.5	19.7
44258	99	DIRN	SUR	45	-63	640	0	0	12.3	-3.6	12.8
44488	99	DIRN	SUR	45	-61	551	0	0	15.7	-31.4	35.1
44489	99	DIRN	SUR	46	-61	555	0	0	14.5	-35.4	38.2
4500005	99	DIRN	SUR	42	-82	95	0	0	15.0	15.9	21.8
4500012	99	DIRN	SUR	44	-77	2049	0	0	23.2	12.0	26.1
4500137	99	DIRN	SUR	46	-81	70	0	0	14.7	-2.9	15.0
4500143	99	DIRN	SUR	45	-81	66	0	0	18.1	-2.5	18.3
45005	99	DIRN	SUR	42	-82	16	0	0	17.1	16.4	23.7
45012	99	DIRN	SUR	44	-77	345	0	0	24.6	11.8	27.2
45137	99	DIRN	SUR	46	-81	68	0	0	15.0	-2.5	15.2
45143	99	DIRN	SUR	45	-81	65	0	0	18.7	-4.1	19.2
45149	99	DIRN	SUR	44	-82	67	0	0	21.8	-11.5	24.6
6100198	99	DIRN	SUR	37	-2	358	0	0	21.8	4.2	22.2
6100417	99	DIRN	SUR	38	0	441	0	0	15.2	0.3	15.2
6200001	99	DIRN	SUR	45	-5	671	0	0	11.3	3.1	11.7
6200024	99	DIRN	SUR	44	-3	500	0	0	21.3	-0.4	21.3
6200025	99	DIRN	SUR	44	-6	447	0	0	18.8	2.2	18.9
6200029	99	DIRN	SUR	49	-12	733	0	0	10.3	-5.9	11.8

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
6200050	99	DIRN	SUR	50	-4	723	0	0	10.3	0.7	10.3
6200081	99	DIRN	SUR	51	-13	683	0	0	9.9	-6.5	11.8
6200082	99	DIRN	SUR	44	-8	603	0	0	11.4	2.0	11.6
6200083	99	DIRN	SUR	43	-9	610	0	0	12.3	-14.4	18.9
6200084	99	DIRN	SUR	42	-9	525	0	0	12.8	-0.6	12.8
6200085	99	DIRN	SUR	36	-7	459	0	0	18.2	6.6	19.3
6200091	99	DIRN	SUR	53	-5	703	0	0	11.4	2.6	11.7
6200092	99	DIRN	SUR	51	-11	699	0	0	11.0	7.5	13.3
6200093	99	DIRN	SUR	55	-10	685	0	0	15.2	1.8	15.3
6200094	99	DIRN	SUR	52	-7	707	0	0	10.7	0.4	10.7
6200095	99	DIRN	SUR	53	-16	722	0	0	12.2	-2.5	12.5
6200103	99	DIRN	SUR	50	-3	723	4	0	33.3	7.2	34.0
6200163	99	DIRN	SUR	47	-8	565	0	0	16.9	5.0	17.6
6200191	99	DIRN	SUR	41	-10	352	0	0	16.7	0.4	16.7
6200192	99	DIRN	SUR	40	-10	579	0	0	15.4	-4.9	16.2
6200199	99	DIRN	SUR	40	-9	509	0	0	16.6	5.6	17.5
6200200	99	DIRN	SUR	36	-8	153	0	0	17.3	4.2	17.8
62029	99	DIRN	SUR	49	-12	1467	0	0	10.5	-5.8	12.0
62050	99	DIRN	SUR	50	-4	1441	0	0	10.8	1.0	10.8
62081	99	DIRN	SUR	51	-13	1437	0	0	10.3	-6.8	12.4
62091	99	DIRN	SUR	53	-5	697	0	0	11.5	1.8	11.7
62092	99	DIRN	SUR	51	-11	699	0	0	11.6	7.0	13.6
62093	99	DIRN	SUR	55	-10	678	0	0	15.4	1.1	15.4
62094	99	DIRN	SUR	52	-7	707	0	0	11.3	0.2	11.3
62095	99	DIRN	SUR	53	-16	717	0	0	12.6	-3.0	12.9
62103	99	DIRN	SUR	50	-3	1446	10	0	33.3	7.2	34.1
62105	99	DIRN	SUR	55	-13	1383	0	0	18.5	-7.4	19.9
62107	99	DIRN	SUR	50	-6	122	0	0	6.0	0.6	6.0
62112	99	DIRN	SUR	58	0	1354	0	0	14.0	-3.0	14.3
62114	99	DIRN	SUR	58	0	672	0	0	11.6	1.7	11.7
62163	99	DIRN	SUR	48	-9	1128	0	0	17.2	5.0	18.0
6400045	99	DIRN	SUR	59	-12	1089	0	0	12.5	-7.7	14.6
6400046	99	DIRN	SUR	61	-4	25	0	0	11.6	-1.4	11.7
64041	99	DIRN	SUR	61	-3	1286	0	0	12.1	9.1	15.2
64045	99	DIRN	SUR	59	-12	1415	0	0	13.9	-7.5	15.8

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ATGU3FT	BPMWB2N	DBLK	FPUW5GN	GQBZLZL	JNKN7JF	KJJF9XN	KMPLHPW	LAGY8
LAGZ8	LRYQE3U	USBOD	USTAC	USYUB	UXK5JTU	XKQLWQB	YLV96WM	ZVQEQCM
7JUNA4N	01001	01004	01010	01028	01241	01400	01415	01492
02185	02365	02527	02591	02836	02963	03005	03238	03354
03502	03743	03808	03882	03918	03953	04018	04089	04220
04270	04320	04339	04360	04417	06011	06260	06458	06610
07110	07145	07510	07645	07761	08001	08023	08190	08221
08302	08383	08430	08508	08522	08536	10035	10113	10184
10238	10304	10393	10410	10548	10618	10739	10771	10868
10954	10962	11010	11035	11120	11240	11520	11747	11952
12120	12374	12425	12575	12843	12982	13275	13388	14015
14240	14430	15420	15614	16045	16064	16113	16144	16224
16245	16332	16429	16546	16622	16716	16754	17030	17064
17095	17196	17220	17240	17351	17516	17607	20674	22008
22820	22845	23205	23472	23884	23921	23955	24641	24908
26038	26435	26477	26629	26708	27459	27707	27713	27962
28225	28445	28661	28695	29612	29698	30557	30673	30935
31004	31770	31873	31977	34122	34172	34731	35121	35671
40179	40186	42079	42101	42123	42314	42339	42348	42369
42379	42647	42675	42867	42971	43014	43063	43128	43150
43333	43346	45004	47102	47104	47138	47155	47169	47186
47191	47230	47401	47412	47582	47600	47646	47678	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
54340	54374	54511	54662	54727	54857	55299	55591	56029
56046	56080	56137	56146	56187	56492	56571	56651	56691
56739	56778	56964	56985	57083	57127	57131	57178	57245
57461	57494	57516	57541	57687	57749	57816	57957	57972
57993	58027	58150	58203	58238	58362	58424	58457	58606
58633	58665	58725	58847	58968	58974	59023	59134	59211
59265	59280	59293	59316	59362	59431	59758	59981	60018
60096	60155	60253	60715	60760	61901	61980	61998	63985
65344	66160	67083	68263	68424	68442	68512	68816	68842
70026	70133	70200	70219	70231	70261	70273	70308	70316
70326	70350	70361	70398	71043	71081	71082	71109	71119
71603	71722	71802	71811	71815	71816	71823	71845	71867
71906	71907	71908	71909	71913	71917	71924	71925	71926
71934	71945	71957	71964	72201	72202	72206	72208	72210
72215	72230	72233	72235	72240	72248	72249	72250	72251
72265	72274	72293	72305	72317	72318	72327	72340	72357
72363	72364	72365	72376	72388	72402	72403	72413	72426
72440	72451	72456	72476	72489	72493	72501	72518	72520
72528	72558	72562	72572	72582	72597	72632	72634	72645
72649	72659	72662	72672	72681	72694	72712	72747	72764
72768	72776	72786	72797	73033	73110	73111	74389	74455
74560	76225	76256	76405	76458	76526	76595	76612	76644
76654	76679	76692	76743	76903	78384	78397	78486	78583
78866	78897	78954	78970	80001	81405	82965	85442	85799
85934	87155	87344	87418	87582	87623	87715	87860	88889
89002	89022	89055	89564	89571	89592	89611	89625	89642
89662	91165	91212	91285	91334	91348	91376	91408	91413
91592	91610	91925	91938	91948	91958	93112	93417	93817
93844	94001	94120	94150	94155	94170	94203	94299	94302
94312	94326	94332	94403	94430	94461	94510	94578	94610
94637	94638	94653	94659	94672	94711	94767	94776	94802
94821	94866	94910	94975	94995	94996	94998	95282	95527

96996

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

ATGU3FT	BPMWB2N	DBLK	FPUW5GN	GQBZLZL	JNKN7JF	KJJF9XN	KMPLHPW	LAGY8
LAGZ8	LRYQE3U	UXK5JTU	XKQLWQB	YLV96WM	ZVQEQCM	7JUNA4N	01001	01004
01010	01028	01241	01400	01415	01492	02836	02963	06610
07110	07145	07510	07645	07761	08001	08023	08190	08221
08302	08383	08430	08508	08522	08536	11010	11035	11120
11240	12575	17607	40186	47191	48698	50527	50557	50774
50953	51076	51243	51431	51463	51644	51656	51709	51777
51828	51839	52203	52267	52323	52418	52533	52652	52681
52818	52836	52866	52983	53068	53463	53513	53543	53614
53772	53845	53915	54102	54135	54161	54218	54292	54340
54374	54511	54662	54727	54857	55299	55591	56029	56046
56080	56137	56146	56187	56492	56571	56651	56691	56739
56778	56964	56985	57083	57127	57131	57178	57245	57461
57494	57516	57541	57687	57749	57816	57957	57972	57993
58027	58150	58203	58238	58362	58424	58457	58606	58633
58665	58725	58847	58968	58974	59023	59134	59211	59265
59280	59293	59316	59362	59431	59758	59981	60253	72413
73111	76743	76903	89002	89642	91925	91938	91948	91958
94001	94653	94767						

5 Annex - Explanations of figures and tables

5.1 General

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

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

5.2 Data Availability

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

5.3 Data Quality

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

It should be noted that:

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

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

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

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

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

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

The corresponding limits for wind (table 8) are:

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

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

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

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

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

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

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

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

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