ECMWF Global Data Monitoring Report

May 2022

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

Contents

Summary of Revisions (in reverse order)

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

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

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

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

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

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

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

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

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

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

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

1 Introduction

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

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

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

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

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

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

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

2 Data summary - History of events

2.1 Radiosondes

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

Ident	Time	Apr	May	Ident	Time	Apr	May
01004	(00)	15	0	17095	(00)	0	27
04089	(12)	15	0	17095	(12)	6	31
10771	(00)	30	7	28695	(00)	19	31
10771	(12)	30	7	29612	(12)	0	26
30230	(00)	30	18	34122	(00)	13	29
30230	(12)	30	18	34122	(12)	16	29
30309	(00)	30	13	40582	(12)	0	16
30309	(12)	30	17	41316	(00)	2	31
31300	(00)	30	10	47600	(00)	0	22
31510	(00)	30	11	47600	(12)	0	22
31510	(12)	30	11	47741	(00)	5	31
35671	(00)	30	17	47741	(12)	6	31
35671	(12)	29	16	48407	(00)	0	13
40738	(00)	12	0	48568	(00)	0	12
40766	(12)	15	0	48698	(00)	0	27
48097	(12)	26	13	48698	(12)	0	24
60715	(00)	14	1	61415	(12)	17	28
60760	(00)	13	0	65344	(12)	9	28
61415	(00)	17	0	68110	(12)	18	29
61980	(12)	30	2	68842	(00)	0	28
63894	(12)	30	13	68842	(12)	0	29
70414	(00)	13	0	71836	(00)	17	29
78384	(00)	20	0	71836	(12)	16	31
78384	(12)	19	0	72318	(00)	18	31
78970	(00)	30	11	72518	(00)	9	25
78970	(12)	30	10	72518	(12)	13	37
80001	(00)	27	0	72520	(00)	17	31
80001	(12)	26	0	72520	(12)	15	33
82244	(12)	29	17	74794	(12)	33	60
83746	(00)	29	6	76692	(00)	15	30
83746	(12)	29	6	82022	(00)	0	30
83779	(00)	28	0	82026	(00)	3	29
89009	(12)	25	2	82107	(00)	5	25
94430	(00)	17	3	82193	(00)	0	27
-	-	-	-	82400	(00)	15	30
-	-	-	-	82400	(12)	15	31
-	-	-	-	82411	(00)	4	25
-	-	-	-	82532	(00)	0	25
-	-	-	-	82705	(00)	0	21
-	-	-	-	82824	(00)	0	29
-	-	-	-	82965	(12)	7	31
-	-	-	-	83208	(00)	0	23
-	-	-	-	89002	(00)	2	14
-	-	-	-	91680	(12)	20	31
-	-	-	-	98558	(00)	10	23

2.2 Drifting Buoys

Surface pressure observations from **1657** drifting buoys were received during the month.

3 Global monitoring statistics

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

3.1 Data Availability

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

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

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

3.2 Data Quality

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

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

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

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

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

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

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

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

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

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

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

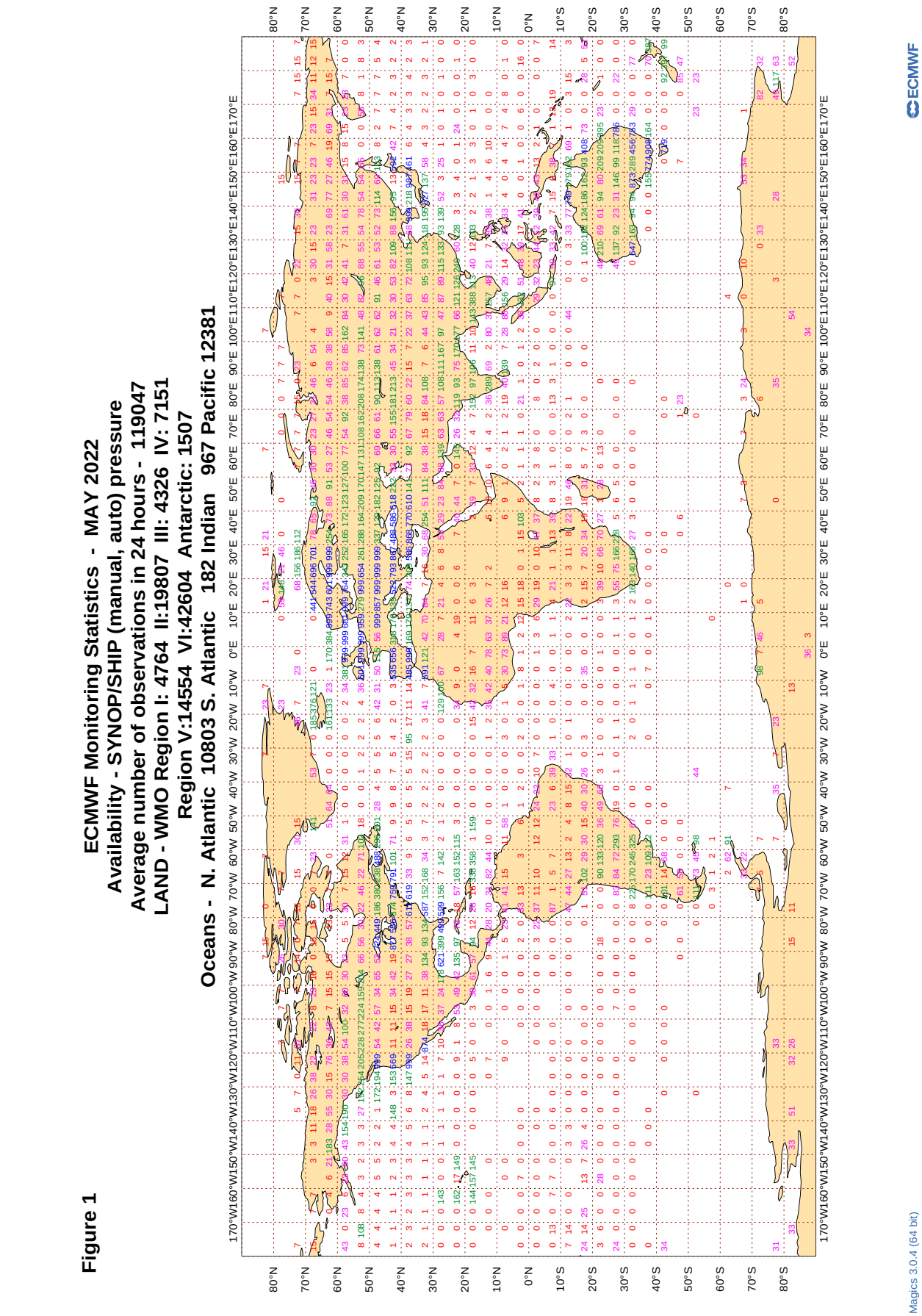


Figure 1

3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

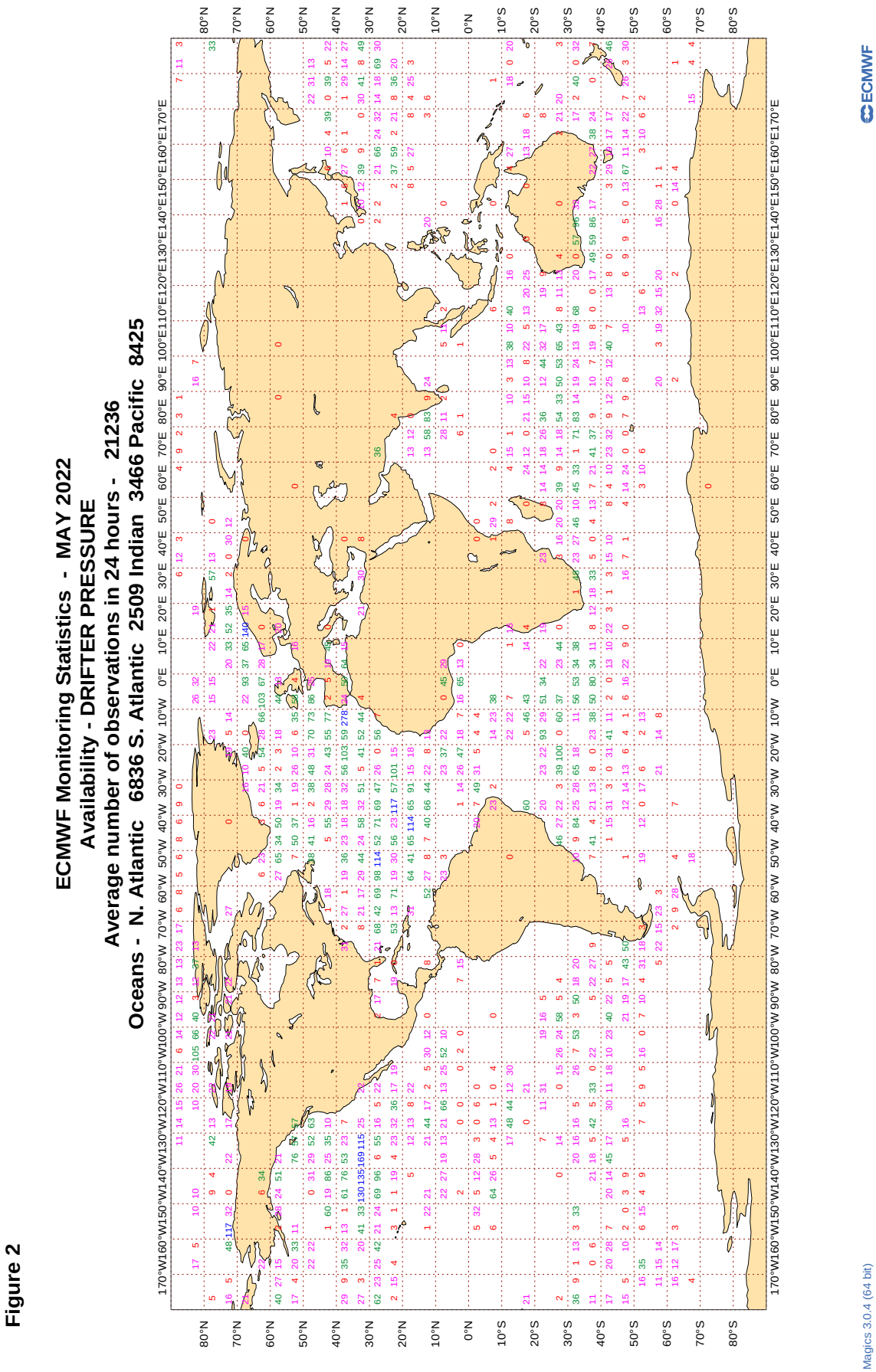


Figure 2

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

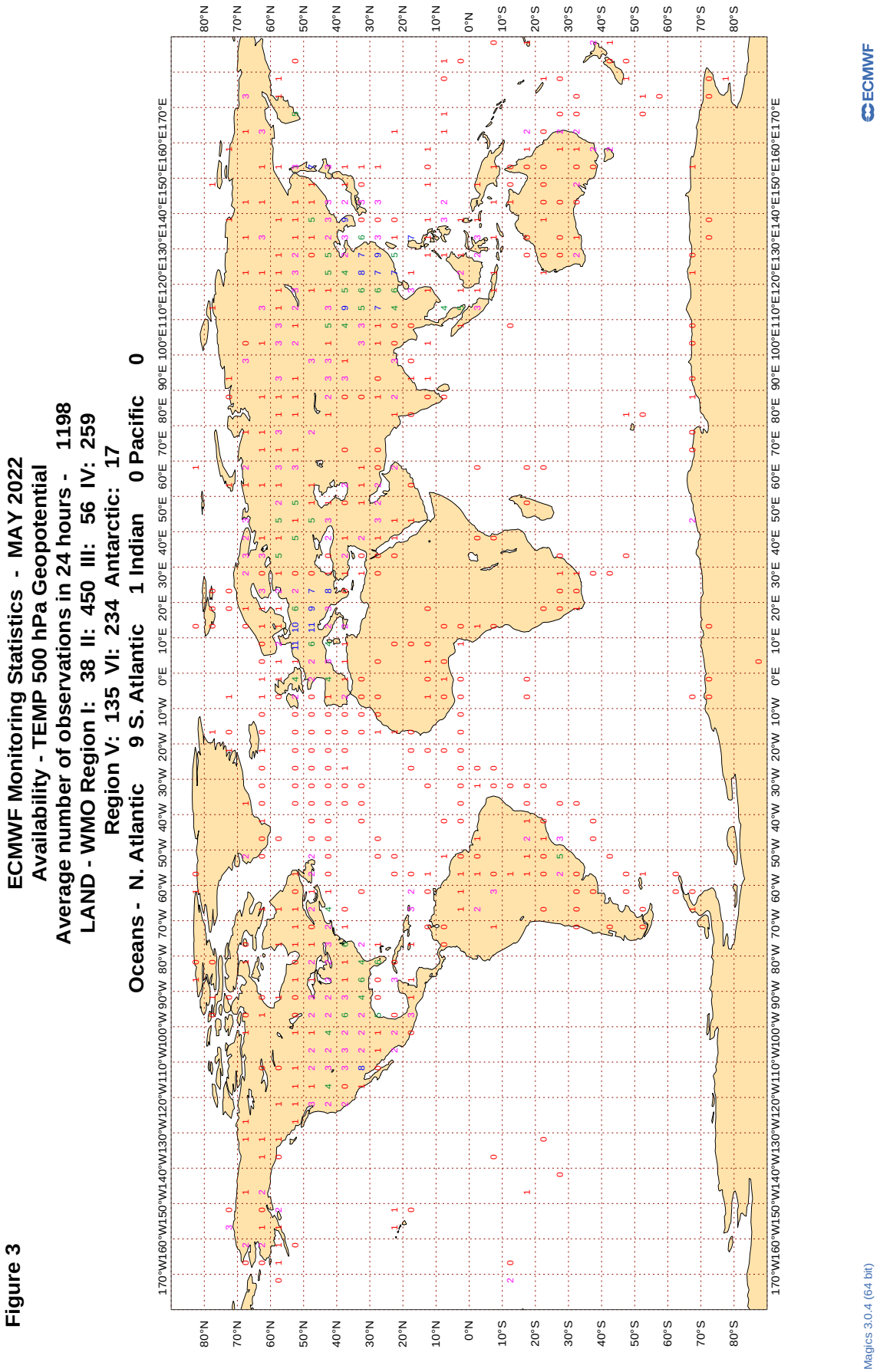


Figure 3

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

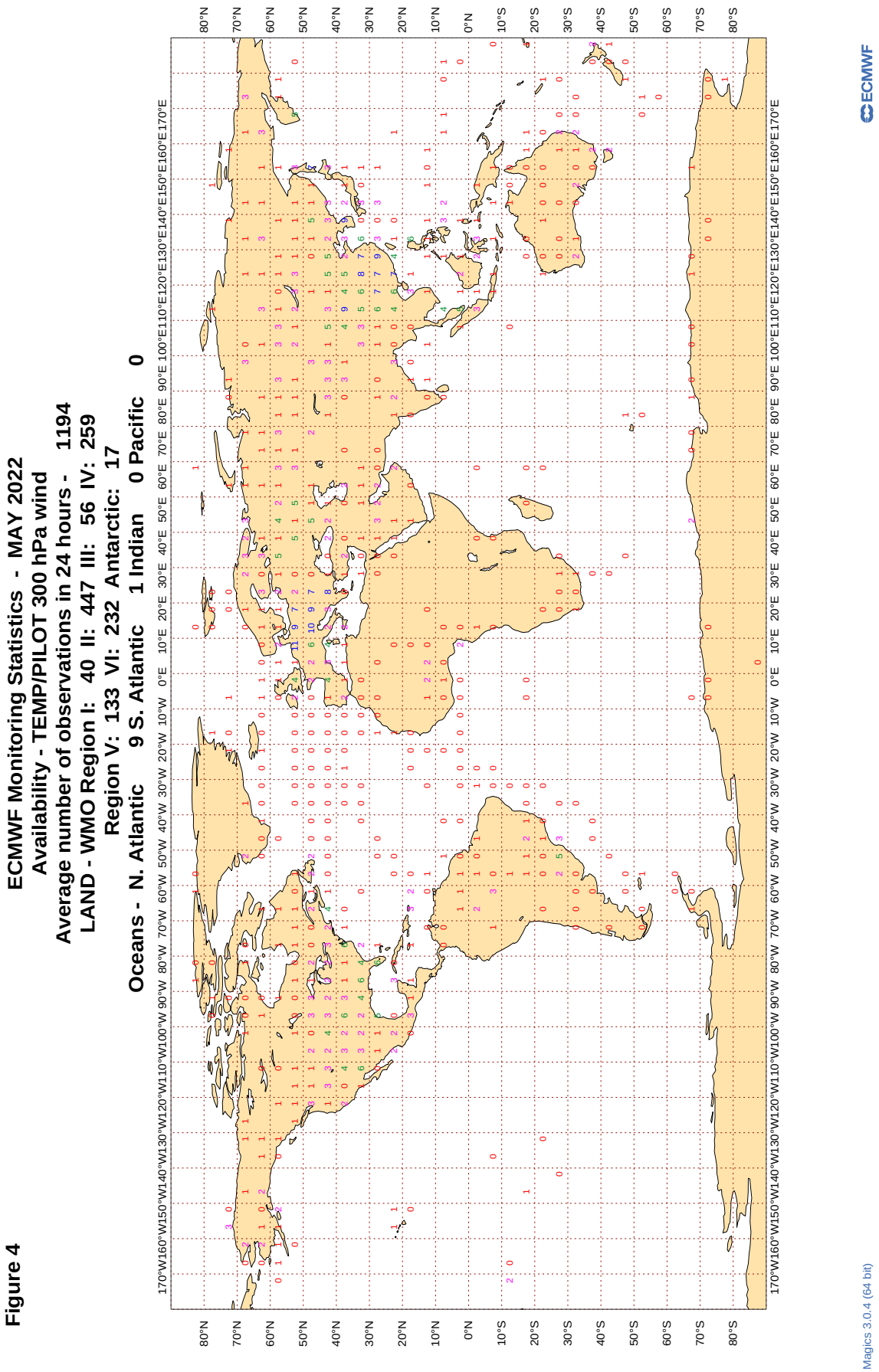


Figure 4

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

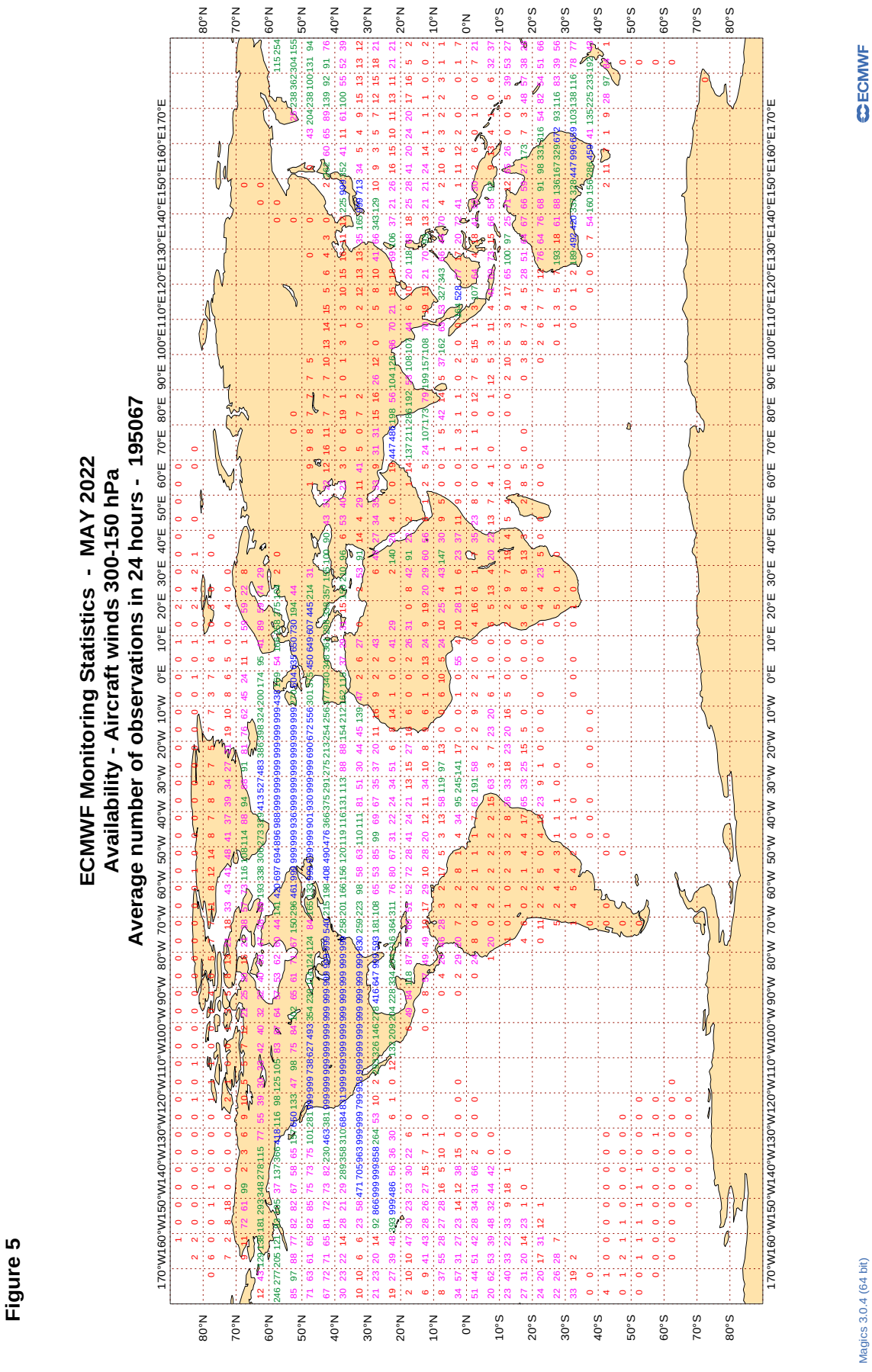


Figure 5

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

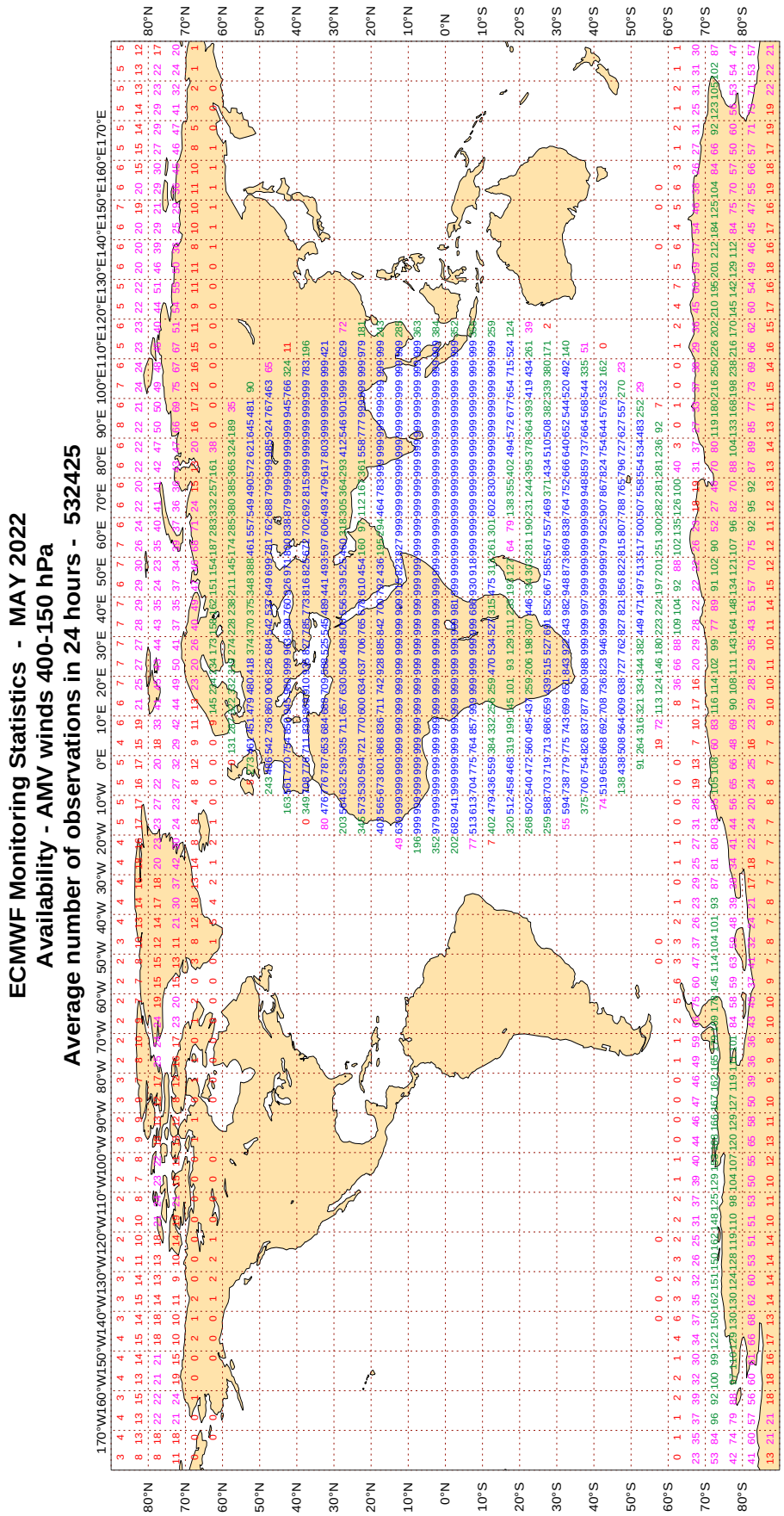


Figure 6

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

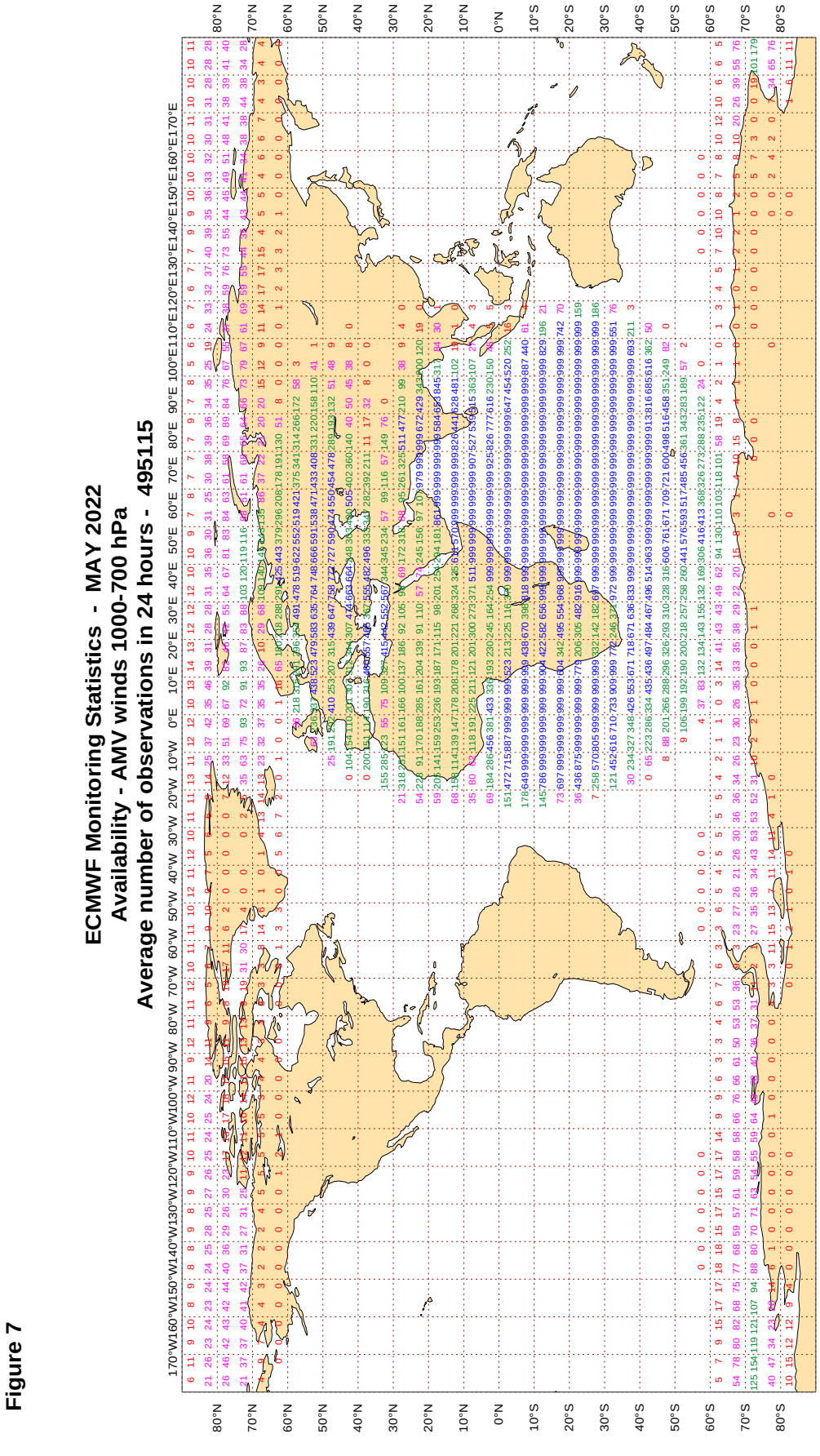
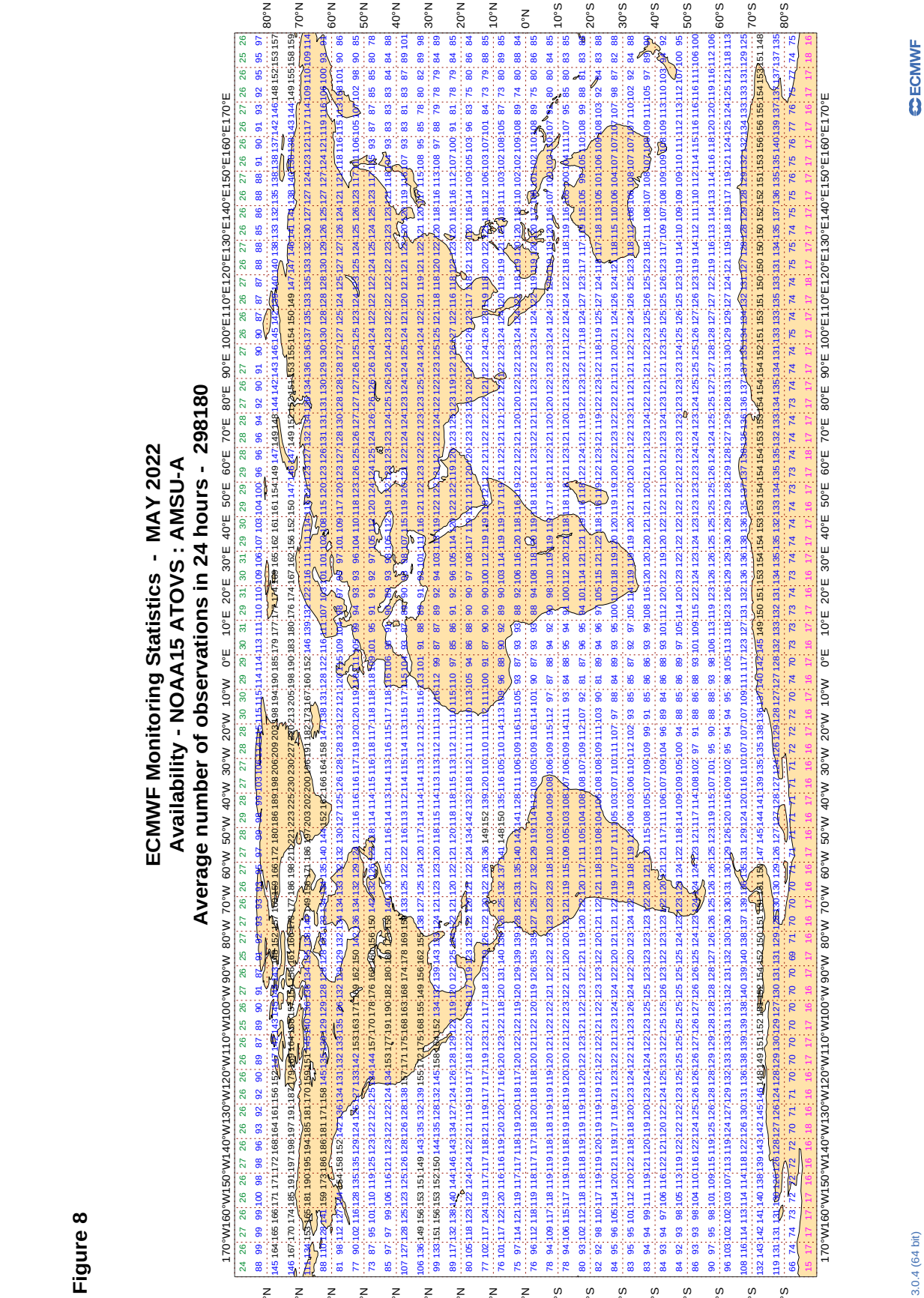


Figure 7

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

Figure 8



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

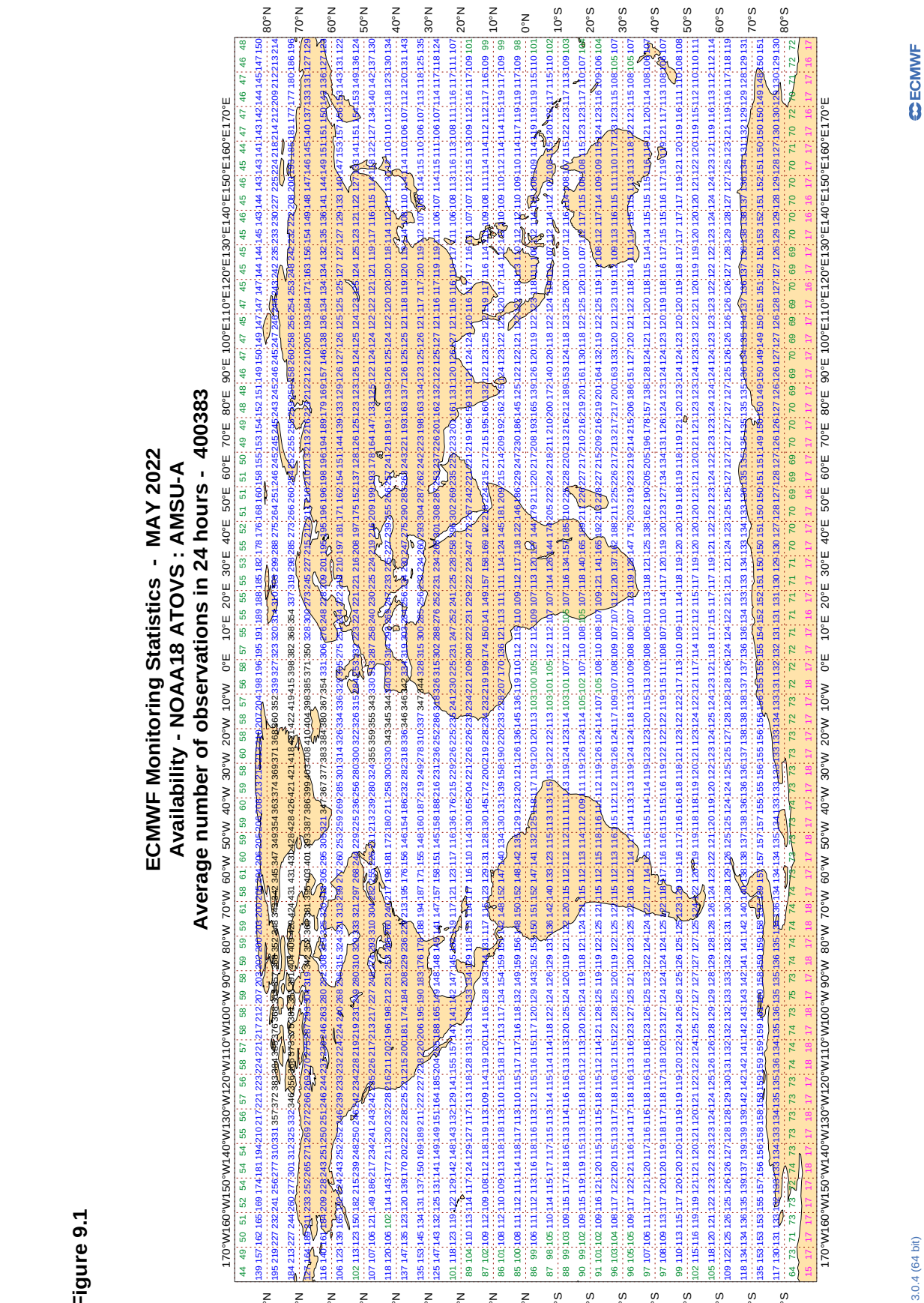


Figure 9.1

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

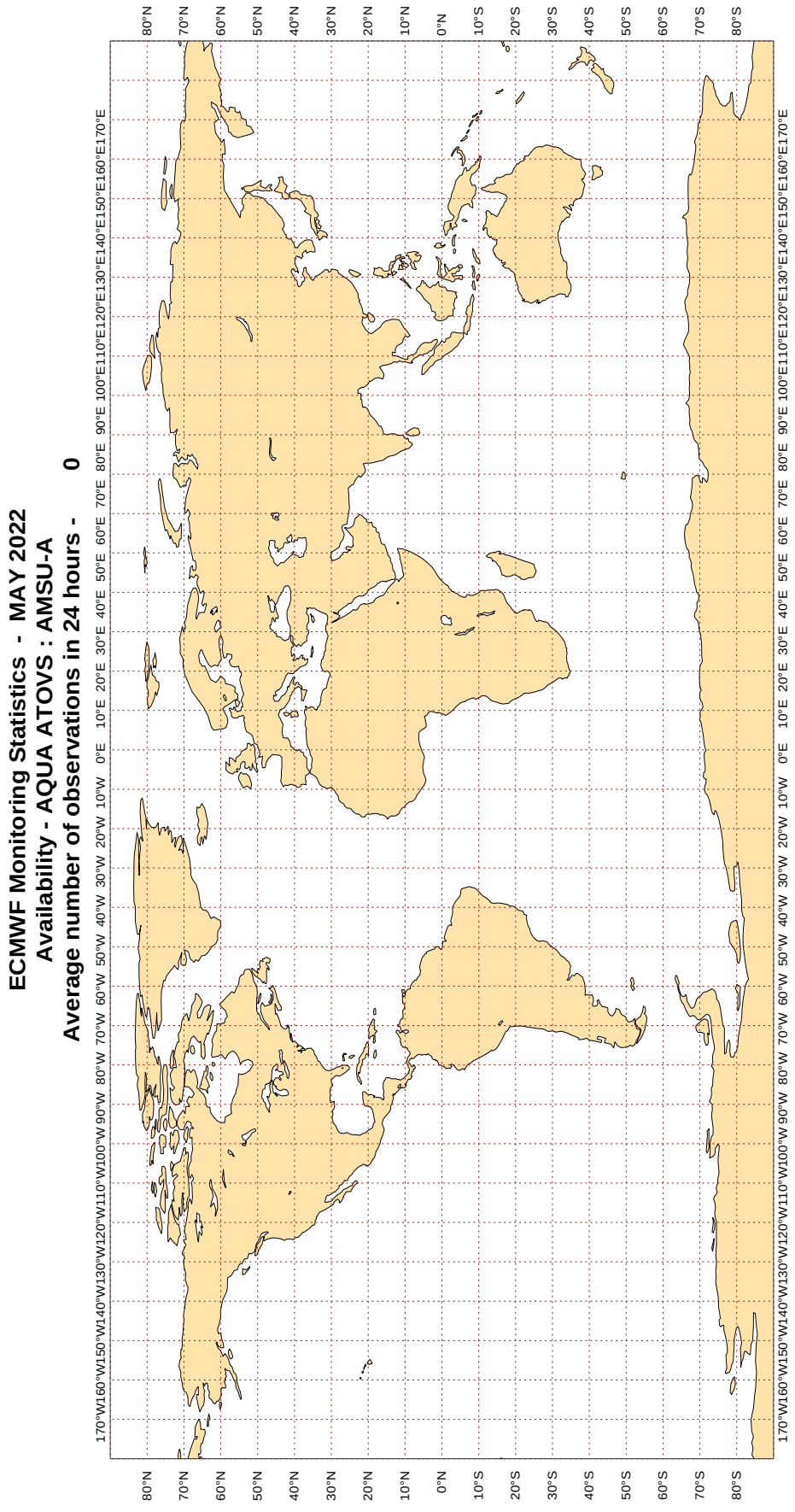


Figure 9.2

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

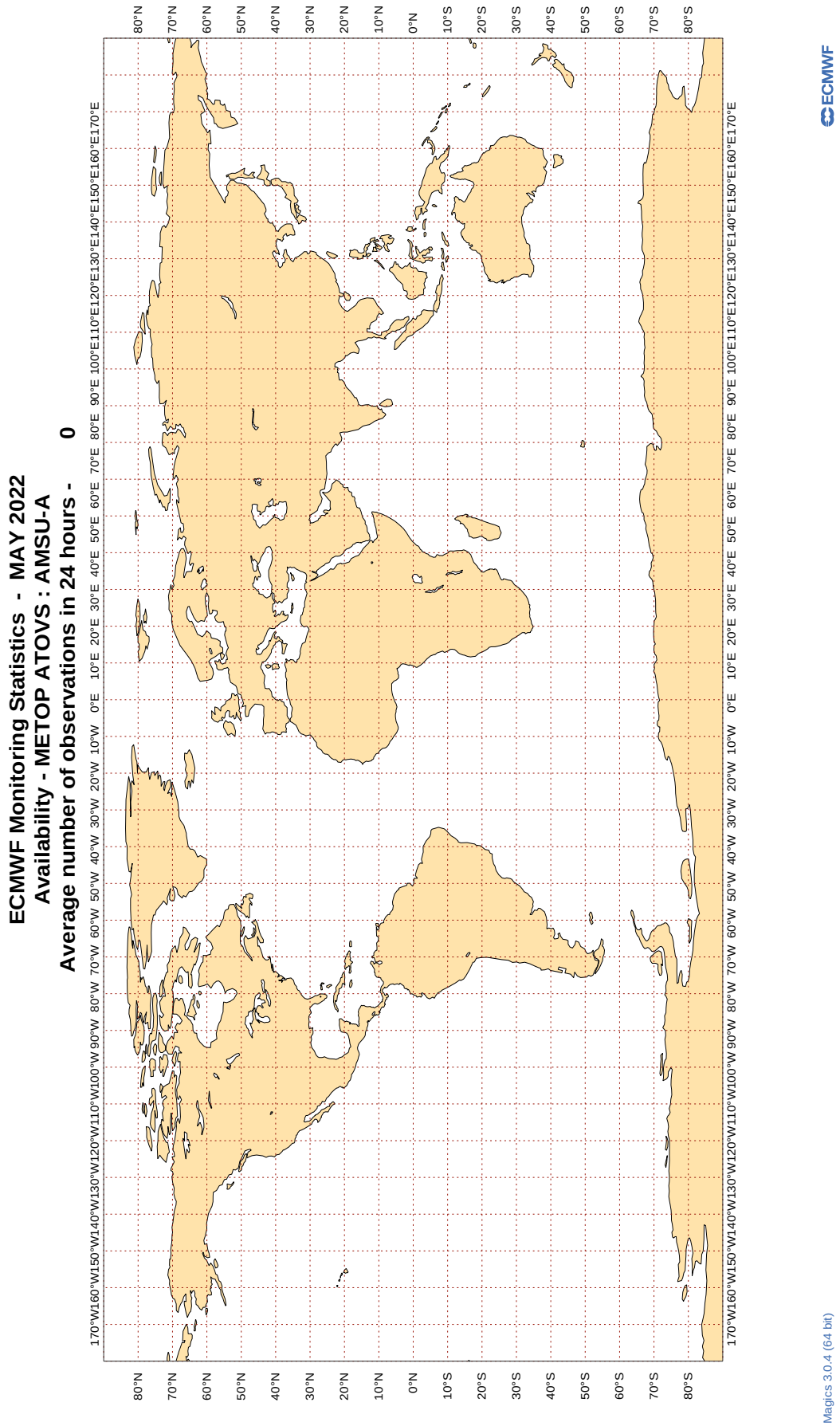


Figure 9.3

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

```
          LIST OF SUSPECT STATIONS        : SHIPS + FIXED MARINE PLATFORMS
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : SURFACE PRESSURE (HPA)
                    AREA                  : GLOBAL
                    PERIOD                : MAY 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
2EIF7	99	P	SUR	38	0	0.8	3.1	3.2
2HDG3	99	P	SUR	91	0	1.2	4.1	4.3
2HFZ7	99	P	SUR	34	0	0.4	4.0	4.0
2IYH3	99	P	SUR	25	0	2.9	5.5	6.2
3E2426	99	P	SUR	80	0	1.2	4.0	4.2
3FFA5	99	P	SUR	42	0	1.0	4.5	4.6
3FJB3	99	P	SUR	105	0	0.7	4.2	4.3
41056	99	P	SUR	305	0	2.0	8.3	8.6
45024	99	P	SUR	857	0	1.4	-3.7	3.9
4XFE	99	P	SUR	37	0	1.3	-3.1	3.3
7JPS2	99	P	SUR	23	0	1.8	3.3	3.8
7JZI	99	P	SUR	23	0	0.5	3.4	3.4
7KIZ	99	P	SUR	27	0	0.6	-4.1	4.1
7KKS	99	P	SUR	41	0	0.6	-4.6	4.7
9HA2066	99	P	SUR	27	0	0.8	-3.6	3.7
9HA4048	99	P	SUR	53	53	0.0	0.0	0.0
9HA4902	99	P	SUR	59	0	2.1	3.7	4.3
9HA5209	99	P	SUR	83	13	2.3	11.0	11.2
9HJB9	99	P	SUR	50	0	2.6	3.9	4.7
9V2676	99	P	SUR	42	0	2.5	3.4	4.2
9V2729	99	P	SUR	23	0	1.2	3.1	3.3
9V3286	99	P	SUR	25	0	1.2	4.5	4.6
9V5223	99	P	SUR	26	0	1.9	3.8	4.2
9V5246	99	P	SUR	26	0	0.6	5.3	5.3
9V5669	99	P	SUR	129	0	1.5	4.7	4.9
9V9400	99	P	SUR	71	0	1.6	-3.5	3.8
9VBN2	99	P	SUR	21	0	0.6	5.2	5.2
ATVK	99	P	SUR	52	52	0.0	0.0	0.0
AVWF	99	P	SUR	25	0	1.3	-3.3	3.6
BKIC	99	P	SUR	189	2	4.7	5.4	7.2
BKIY	99	P	SUR	16	0	0.6	4.6	4.7
BKIZ	99	P	SUR	58	0	0.9	5.2	5.3

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
C6FR3	99	P	SUR	25	0	3.3	-3.2	4.6
C6PZ8	99	P	SUR	35	0	0.6	-4.8	4.9
C6SE5	99	P	SUR	32	0	2.9	-3.2	4.3
C6SW3	99	P	SUR	46	0	3.9	3.4	5.2
CFFO	99	P	SUR	38	6	3.0	5.0	5.8
JMJRCES	99	P	SUR	81	59	3.9	-11.6	12.2
KIAB	99	P	SUR	39	0	2.3	5.3	5.8
LAHR7	99	P	SUR	122	0	1.4	4.2	4.5
LANT5	99	P	SUR	55	0	2.5	3.9	4.6
LAOL5	99	P	SUR	40	0	1.1	-3.4	3.6
LAQJ7	99	P	SUR	132	0	1.3	-4.4	4.5
LAQM7	99	P	SUR	137	0	1.0	5.1	5.2
LAVD4	99	P	SUR	19	0	0.3	3.7	3.7
ONJG	99	P	SUR	68	0	2.9	3.3	4.4
OYGH2	99	P	SUR	32	0	1.6	3.1	3.5
OZ2049	99	P	SUR	82	1	0.7	-9.2	9.2
S6LT3	99	P	SUR	18	0	1.0	4.9	5.0
UASX	99	P	SUR	28	0	3.3	-3.7	4.9
UBAW	99	P	SUR	33	0	1.4	-11.7	11.8
UDKG	99	P	SUR	67	1	4.2	6.0	7.4
V7A5144	99	P	SUR	97	0	2.2	-3.0	3.8
V7EC4	99	P	SUR	26	0	3.0	-3.5	4.6
V7QJ3	99	P	SUR	73	0	3.2	3.6	4.8
V7QS7	99	P	SUR	130	1	1.3	-6.3	6.5
V7TM3	99	P	SUR	47	0	1.3	-4.8	5.0
VABC	99	P	SUR	51	0	3.0	4.8	5.7
VGWM	99	P	SUR	28	0	3.6	4.9	6.1
VRDB3	99	P	SUR	17	0	0.8	-3.5	3.6
VRG07	99	P	SUR	16	0	1.1	-3.9	4.1
VRIB2	99	P	SUR	36	1	0.7	7.3	7.3
VRLA2	99	P	SUR	25	0	1.5	5.4	5.6
VRLJ3	99	P	SUR	19	0	0.5	5.0	5.0
VRLX6	99	P	SUR	32	0	1.4	9.5	9.6
VRNR6	99	P	SUR	22	0	0.3	-5.9	5.9
VROO4	99	P	SUR	17	5	1.7	11.4	11.5
VRPN8	99	P	SUR	46	1	5.3	4.0	6.6
VRPY6	99	P	SUR	34	0	2.5	-3.9	4.6
VRRB6	99	P	SUR	254	0	1.8	4.7	5.0
VRSB5	99	P	SUR	50	0	2.8	4.8	5.5
WDG8555	99	P	SUR	96	0	0.6	-3.8	3.9
WDH7563	99	P	SUR	51	10	6.7	2.8	7.2

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
WRJP	99	P	SUR	47	0	0.4	4.7	4.7
WTEA	99	P	SUR	369	104	3.5	0.1	3.5
ZGFY4	99	P	SUR	24	0	0.7	-11.4	11.4

3.2.13 Table 2 - Suspect ships and fixed marine platforms: Wind speed (m/s)

```
          LIST OF SUSPECT STATIONS        : SHIPS + FIXED MARINE PLATFORMS
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND SPEED (M/S)
                    AREA                  : GLOBAL
                    PERIOD                : MAY 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

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

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                : MAY 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44139	99	DIRN	SUR	61	0	0	16.0	49.7	52.2
45175	99	DIRN	SUR	108	0	0	50.5	32.7	60.2
45196	99	DIRN	SUR	194	0	0	46.4	129.3	137.3
45197	99	DIRN	SUR	219	0	0	36.5	38.5	53.1

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

```
          LIST OF SUSPECT STATIONS         : DRIFTER
                    MONITORING CENTRE      : ECMWF
                    ELEMENT MONITORED      : SURFACE PRESSURE (HPA)
                    AREA                   : GLOBAL
                    PERIOD                 : MAY 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
2302618	99	P	SUR	5	93	647	209	8.4	-6.6	10.7
2302620	99	P	SUR	12	80	619	72	6.7	-1.7	6.9
4100056	99	P	SUR	18	-65	2584	0	2.0	8.3	8.6
41056	99	P	SUR	18	-66	2132	0	2.1	8.3	8.6
4601783	99	P	SUR	53	-139	364	364	0.0	0.0	0.0
4602507	99	P	SUR	53	-166	640	0	1.1	5.6	5.7
4602724	99	P	SUR	51	-128	645	48	7.0	1.4	7.2
4701658	99	P	SUR	72	-95	710	559	3.6	-8.5	9.2
4701738	99	P	SUR	70	-67	698	698	0.0	0.0	0.0
4701744	99	P	SUR	81	-100	742	742	0.0	0.0	0.0
4801670	99	P	SUR	86	-126	711	290	2.9	10.6	11.0
5401586	99	P	SUR	-37	-119	541	156	6.0	-2.6	6.5
5401768	99	P	SUR	-70	163	485	485	0.0	0.0	0.0
5601620	99	P	SUR	-11	41	158	0	1.5	5.2	5.4
6102789	99	P	SUR	31	28	281	1	0.6	-4.2	4.3
6402550	99	P	SUR	75	33	443	38	4.9	4.7	6.8
6402587	99	P	SUR	53	-49	536	0	2.9	6.8	7.4
6402656	99	P	SUR	55	-42	353	38	2.5	11.4	11.7
6501674	99	P	SUR	80	19	632	185	5.8	6.1	8.4
6501689	99	P	SUR	77	29	1838	750	7.8	5.0	9.3

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                : MAY 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
0031260	99	SPEED	SUR	-18	-39	625	0	0	1.7	5.4	5.6

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

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


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


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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300008	99	DIRN	SUR	15	-38	591	0	0	92.9	6.6	93.2
1300131	99	DIRN	SUR	28	-17	369	0	0	37.1	-64.5	74.4
1500008	99	DIRN	SUR	-20	-10	194	0	0	20.6	-32.1	38.2
1801585	99	DIRN	SUR	6	-123	2255	0	0	23.3	56.0	60.7
2200102	99	DIRN	SUR	35	126	384	0	0	90.9	24.7	94.2
23099	99	DIRN	SUR	13	80	417	0	0	107.4	-66.5	126.3
23453	99	DIRN	SUR	8	73	216	0	0	21.4	-42.4	47.5
23454	99	DIRN	SUR	10	73	160	0	0	28.6	-28.1	40.1
23491	99	DIRN	SUR	12	93	75	0	0	148.8	5.0	148.9
23497	99	DIRN	SUR	11	72	193	0	0	29.7	-59.1	66.2
42019	99	DIRN	SUR	28	-95	195	0	0	94.1	114.0	147.8
44025	99	DIRN	SUR	40	-73	119	0	0	87.7	29.4	92.5
44139	99	DIRN	SUR	44	-57	353	0	0	15.3	50.0	52.3
4500001	99	DIRN	SUR	48	-88	2964	0	0	20.8	23.3	31.2
4500004	99	DIRN	SUR	48	-87	3156	0	0	21.8	21.6	30.7
4500006	99	DIRN	SUR	47	-90	2722	0	0	26.4	21.7	34.1
4500022	99	DIRN	SUR	45	-85	102	0	0	62.0	40.1	73.9
45001	99	DIRN	SUR	48	-88	3738	0	0	20.9	23.2	31.2
4500168	99	DIRN	SUR	42	-86	2227	0	0	37.7	32.2	49.6
4500175	99	DIRN	SUR	46	-85	322	0	0	43.5	28.2	51.8
4500196	99	DIRN	SUR	42	-82	1129	0	0	42.8	130.1	136.9
4500197	99	DIRN	SUR	42	-82	1177	0	0	31.2	39.1	50.1
45004	99	DIRN	SUR	48	-87	4503	0	0	22.1	21.2	30.7
45006	99	DIRN	SUR	47	-90	4048	0	0	27.4	20.5	34.2
45022	99	DIRN	SUR	45	-85	159	0	0	75.6	45.2	88.1
45026	99	DIRN	SUR	42	-87	87	0	0	98.3	50.4	110.5
45136	99	DIRN	SUR	49	-87	73	0	0	33.9	28.4	44.2
45149	99	DIRN	SUR	44	-82	495	0	0	22.0	20.3	29.9
45168	99	DIRN	SUR	42	-86	2892	0	0	38.0	31.5	49.3
45175	99	DIRN	SUR	46	-85	750	0	0	49.0	30.2	57.6
45196	99	DIRN	SUR	42	-82	1504	0	0	42.6	130.8	137.5

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
45197	99	DIRN	SUR	42	-82	1708	0	0	30.2	39.8	50.0
46069	99	DIRN	SUR	34	-120	105	0	0	6.4	-45.7	46.2
46072	99	DIRN	SUR	52	-172	91	0	0	68.9	-6.7	69.2
46073	99	DIRN	SUR	55	-172	40	0	0	67.7	-28.5	73.4
46132	99	DIRN	SUR	50	-128	512	0	0	55.0	-30.8	63.0
46146	99	DIRN	SUR	49	-124	386	0	0	41.4	25.0	48.3
46303	99	DIRN	SUR	49	-123	339	0	0	47.4	26.4	54.2
6200084	99	DIRN	SUR	42	-9	555	0	0	90.0	12.1	90.8
6200086	99	DIRN	SUR	55	6	410	0	0	15.4	27.8	31.8
6201065	99	DIRN	SUR	54	7	20	0	0	63.4	-81.6	103.3
6600021	99	DIRN	SUR	55	14	39	0	0	69.6	-12.0	70.6
6600022	99	DIRN	SUR	54	14	192	0	0	33.8	25.3	42.2
66022	99	DIRN	SUR	54	14	604	0	0	41.8	23.8	48.1

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                : MAY 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
01400	12	Z	1000	57	3	30	0	4.0	78.4	78.5
01400	00	Z	1000	57	3	29	0	4.0	79.1	79.2
38064	12	Z	70	45	66	29	1	106.2	110.3	153.1
38341	12	Z	200	43	71	30	1	51.3	61.5	80.1
40582	12	Z	1000	29	48	16	0	17.5	27.0	32.2
42647	12	Z	30	23	73	19	15	36.9	-340.2	342.2
47169	00	Z	30	35	125	16	0	178.6	128.1	219.8
48698	00	Z	150	1	104	11	0	6.1	91.8	92.0
48698	12	Z	200	1	104	15	0	4.0	78.7	78.8
52533	00	Z	50	40	98	30	0	130.6	162.3	208.3
52533	12	Z	50	40	98	31	0	90.8	131.1	159.5
55591	12	Z	50	30	91	23	1	59.4	224.9	232.6
55591	00	Z	50	30	91	29	0	58.6	181.8	191.0
58424	00	Z	50	31	117	31	3	157.0	195.3	250.6
71816	12	Z	1000	53	-60	30	0	15.8	-27.6	31.8
98233	12	Z	1000	18	122	27	1	27.5	9.7	29.2
98233	00	Z	1000	18	122	30	1	30.3	22.9	38.0
98558	12	Z	1000	11	126	18	0	22.4	16.6	27.9
98558	00	Z	1000	11	126	23	0	30.8	30.6	43.4
JNKN7J	12	Z	1000	51	-11	15	0	2.8	39.6	39.7
JNKN7J	00	Z	1000	50	-16	14	0	4.0	39.3	39.5
XKQLWQ	12	Z	500	49	-9	16	1	46.0	40.2	61.1

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                : MAY 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

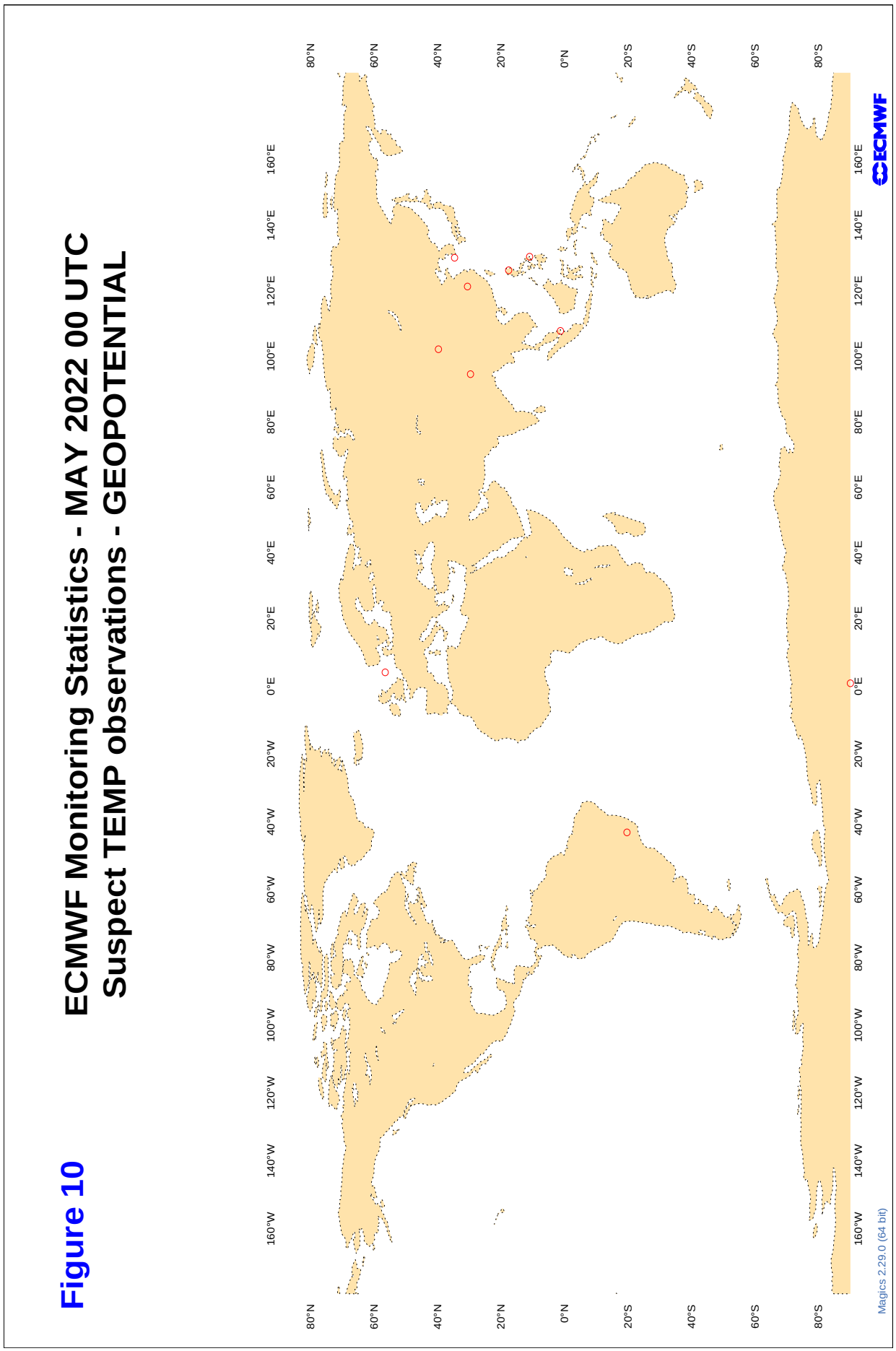
WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	UBIAS	VBIAS	RMS
44373	12	V	200	44	104	26	0	-8.4	4.5	17.9
48407	00	V	100	15	105	13	0	17.6	-4.7	23.4
61442	12	V	925	18	-16	22	8	-6.3	-7.4	18.3
61442	00	V	925	18	-16	19	10	-4.4	-3.9	17.5

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

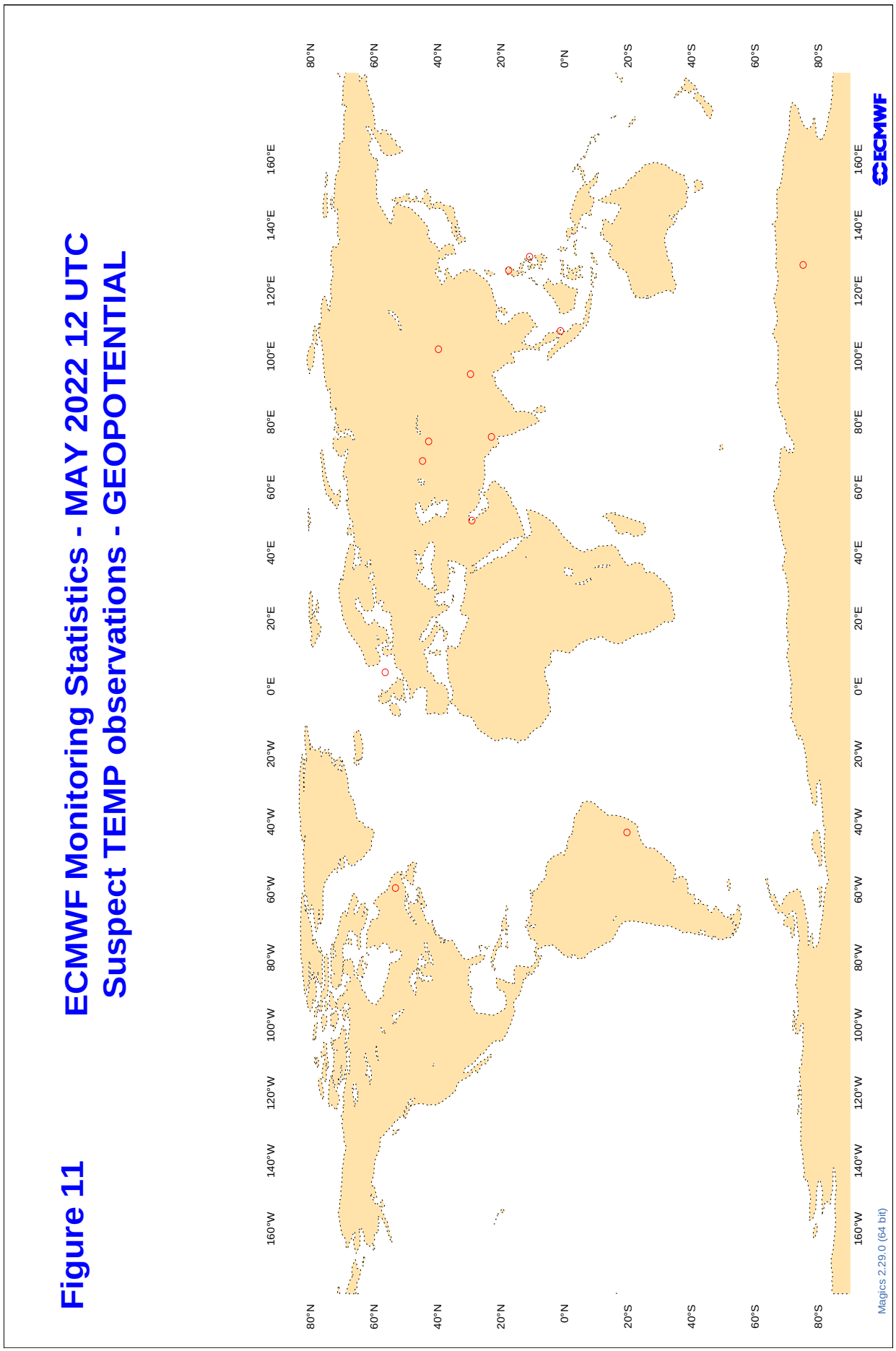
```
          LIST OF SUSPECT STATIONS        : RADIOSONDES
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
                    AREA                  : GLOBAL
                    PERIOD                : MAY 2022
                 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


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

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

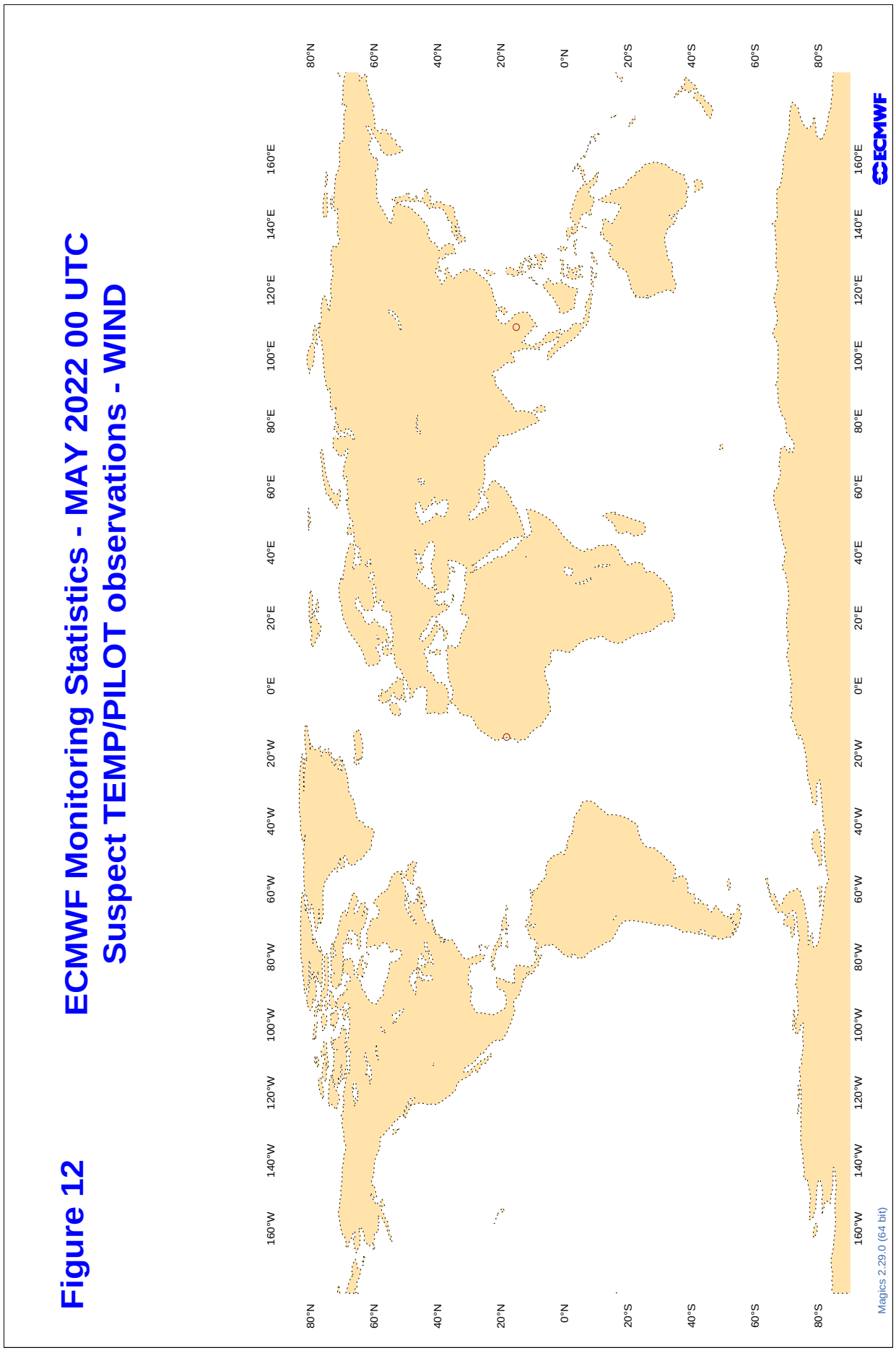
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



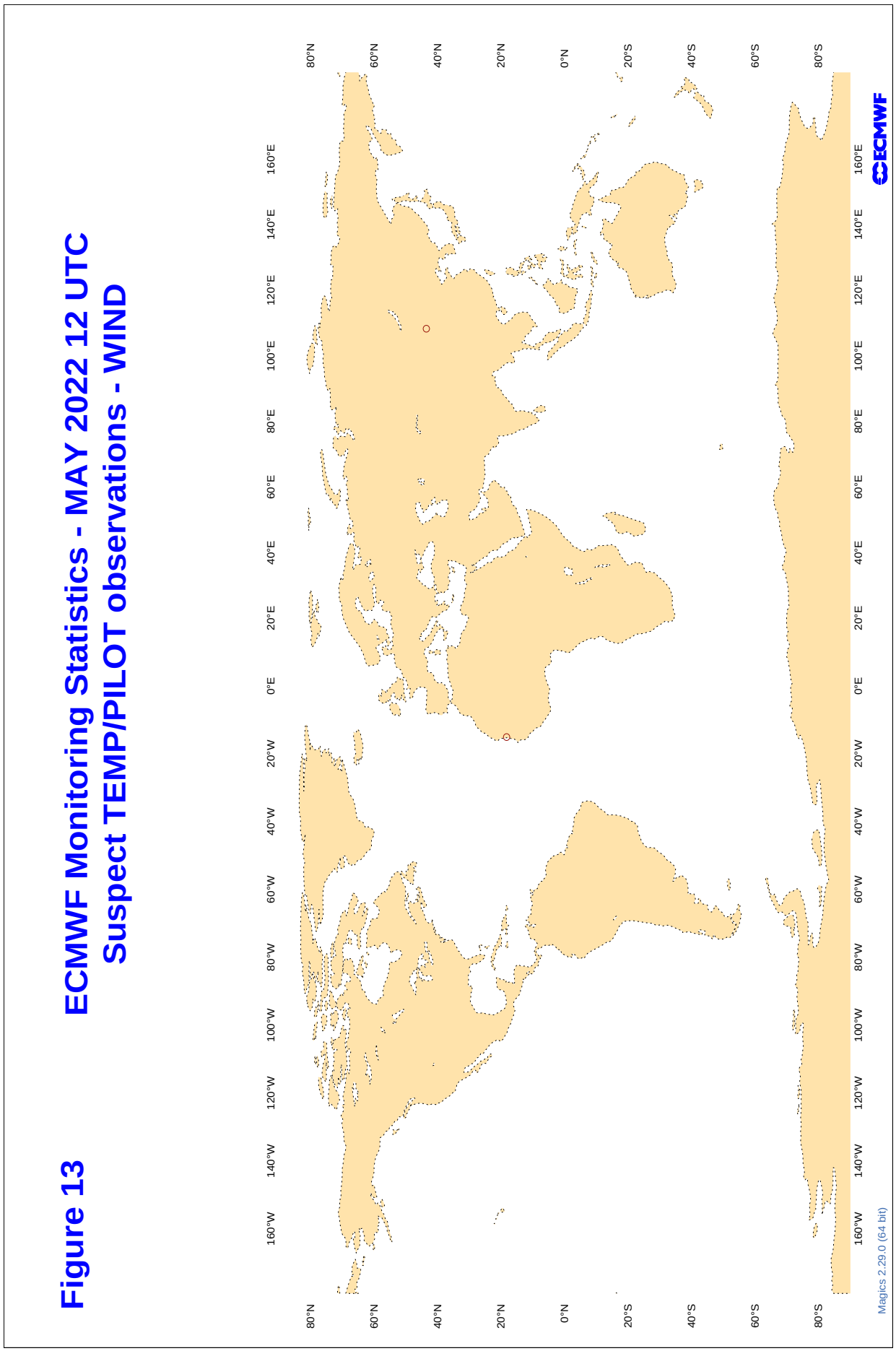
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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



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



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

```
RADIOSONDE MONITORING STATISTICS (SHIPS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 100 HPA
         AREA                  : GLOBAL
         PERIOD                : MAY 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
2EERVT	00	Z	100	9	13.2	-10.6
2EERVT	12	Z	100	9	19.3	-10.4
7JUNA4	12	Z	100	6	14.0	-9.7
7JUNA4	00	Z	100	8	8.5	-6.6
9ZT9MR	12	Z	100	1	9.6	9.6
ASDE09	12	Z	100	4	16.8	15.5
ATGU3F	00	Z	100	6	28.2	-27.4
ATGU3F	12	Z	100	8	38.9	0.3
BPMWB2	12	Z	100	7	14.9	9.1
BPMWB2	00	Z	100	7	10.4	8.3
CHQUR4	12	Z	100	2	25.4	-24.9
CHQUR4	00	Z	100	2	6.9	-6.4
DBLK	12	Z	100	23	20.1	18.8
FPUW5G	12	Z	100	0	0.0	0.0
JNKN7J	12	Z	100	14	21.4	19.5
JNKN7J	00	Z	100	13	22.9	22.6
JPBN	12	Z	100	1	1.9	1.9
JPBN	00	Z	100	1	14.7	14.7
KJJF9X	12	Z	100	6	4.0	-0.5
KJJF9X	00	Z	100	6	7.2	3.3
KMPLHP	12	Z	100	7	87.8	73.2
KMPLHP	00	Z	100	6	20.2	-9.7
LRYQE3	12	Z	100	12	11.6	-9.2
LRYQE3	00	Z	100	11	10.4	-7.6
UXK5JT	12	Z	100	6	19.9	19.0
UXK5JT	00	Z	100	6	12.8	9.5
XKQLWQ	12	Z	100	16	62.8	44.8
XQFJRG	12	Z	100	6	17.5	-11.6
XQFJRG	00	Z	100	4	10.7	-9.6
YLV96W	12	Z	100	7	13.7	-4.2
YLV96W	00	Z	100	3	18.9	-17.9
ZSNO	12	Z	100	4	11.5	10.9
ZVQEQC	00	Z	100	3	7.4	7.2
ZVQEQC	12	Z	100	8	7.1	2.7

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
2EERVT	00	V	100	9	3.6	-0.1	-1.0
2EERVT	12	V	100	9	3.8	-0.3	2.0
7JUNA4	12	V	100	6	3.0	0.5	-0.4
7JUNA4	00	V	100	8	3.0	0.3	-0.6
9ZT9MR	12	V	100	1	3.1	2.5	-1.8
ASDE09	12	V	100	4	2.7	-0.3	-0.2
ATGU3F	00	V	100	6	2.3	0.0	-0.1
ATGU3F	12	V	100	8	2.6	0.5	-0.5
BPMWB2	12	V	100	7	3.6	-1.0	0.9
BPMWB2	00	V	100	7	2.6	-0.3	-0.2
CHQUR4	12	V	100	2	2.1	0.0	-1.5
CHQUR4	00	V	100	2	1.3	1.0	0.7
DBLK	12	V	100	23	3.3	-0.1	-0.1
FPUW5G	12	V	100	0	0.0	0.0	0.0
JNKN7J	12	V	100	14	3.0	0.8	0.1
JNKN7J	00	V	100	13	3.1	-0.3	0.4
JPBN	12	V	100	1	7.0	-4.7	-5.2
JPBN	00	V	100	1	4.7	-2.3	4.1
KJJF9X	12	V	100	6	2.5	-0.7	-1.3
KJJF9X	00	V	100	5	3.1	0.5	2.0
KMPLHP	12	V	100	7	2.7	-1.1	0.0
KMPLHP	00	V	100	6	2.6	-0.4	1.2
LRYQE3	12	V	100	12	3.4	-0.2	1.3
LRYQE3	00	V	100	11	2.5	0.5	-0.2
UXK5JT	12	V	100	6	3.5	-1.3	0.9
UXK5JT	00	V	100	6	2.8	0.7	0.2
XKQLWQ	12	V	100	14	4.6	-0.9	-1.1
XQFJRG	12	V	100	6	4.0	-0.1	-0.9
XQFJRG	00	V	100	4	2.8	-1.8	-0.6
YLV96W	12	V	100	7	3.0	-0.4	0.8
YLV96W	00	V	100	3	2.8	-1.1	0.6
ZSNO	12	V	100	4	5.3	0.5	3.5
ZVQEQC	00	V	100	3	4.2	-1.6	-1.8
ZVQEQC	12	V	100	8	7.6	-3.5	-0.4

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

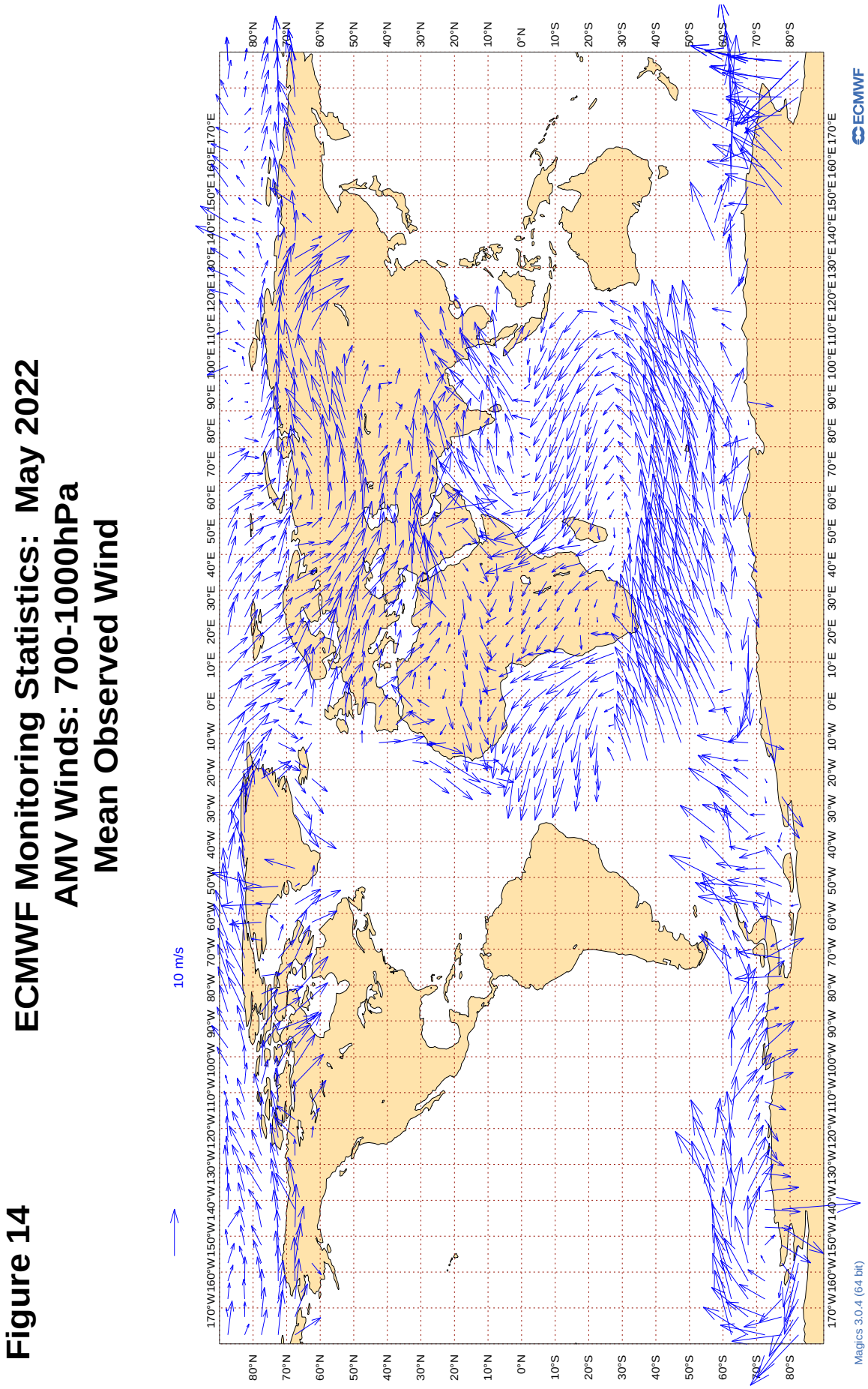


Figure 14

3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

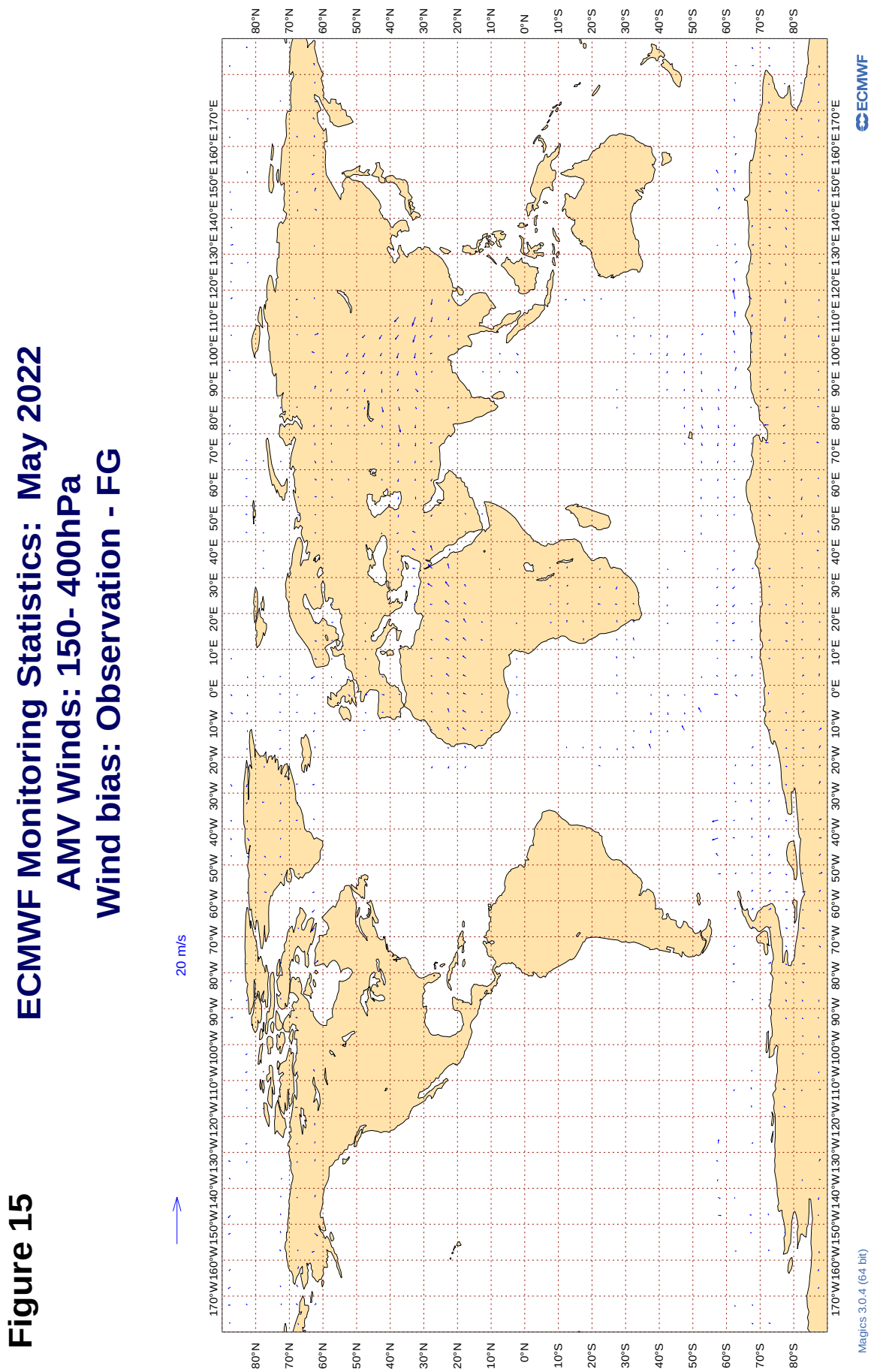


Figure 15

3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

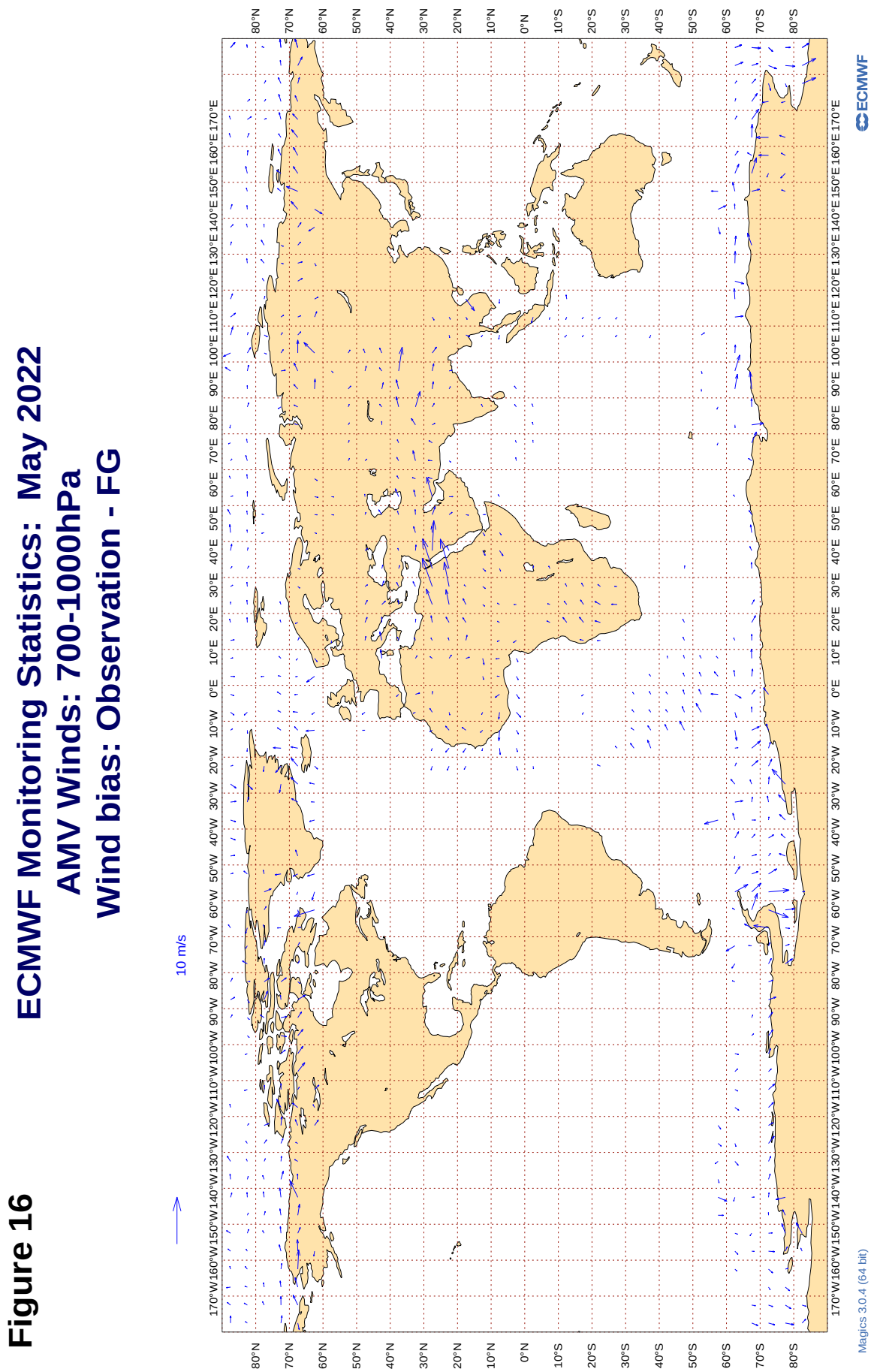


Figure 16

3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

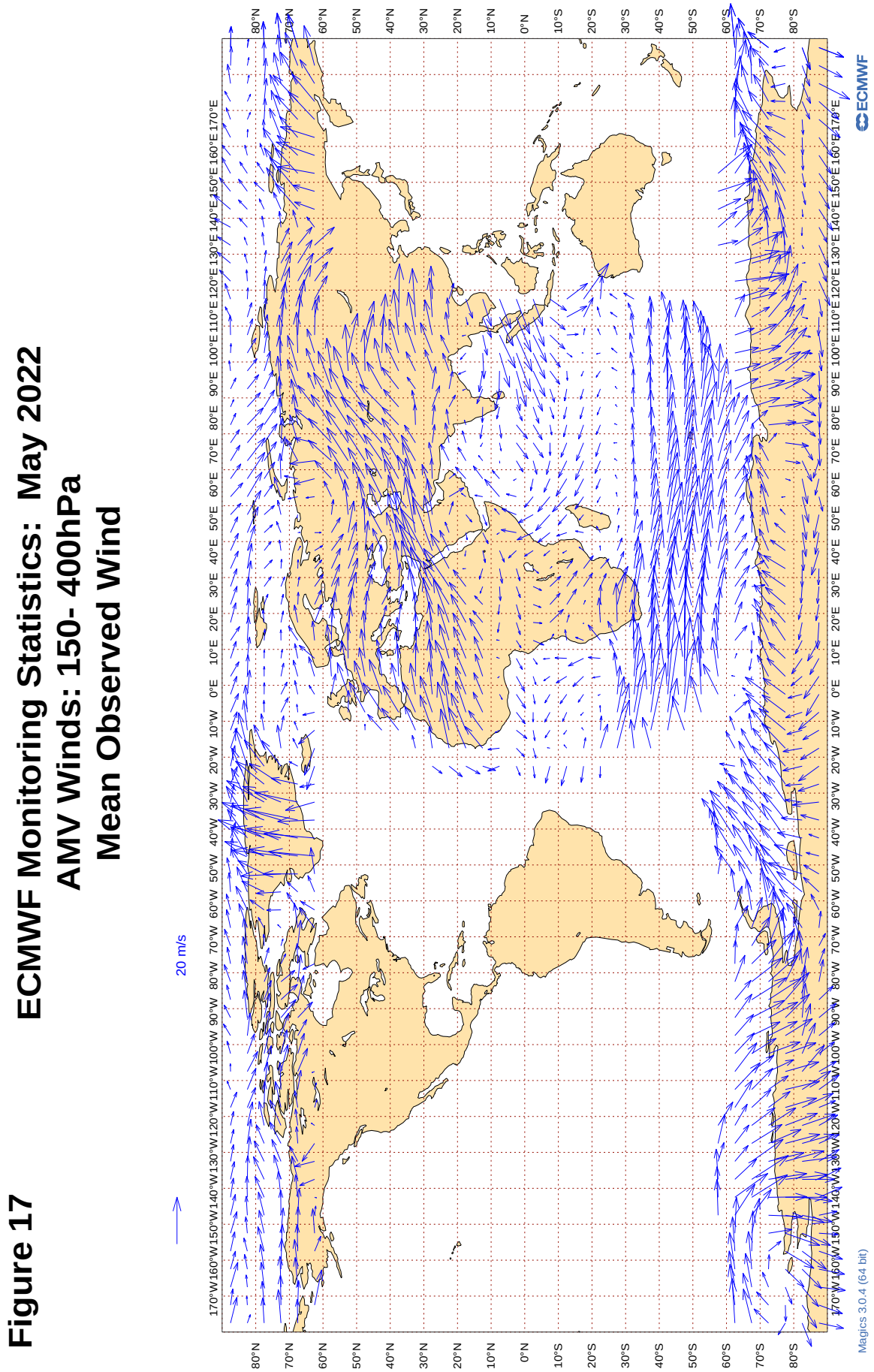


Figure 17

3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

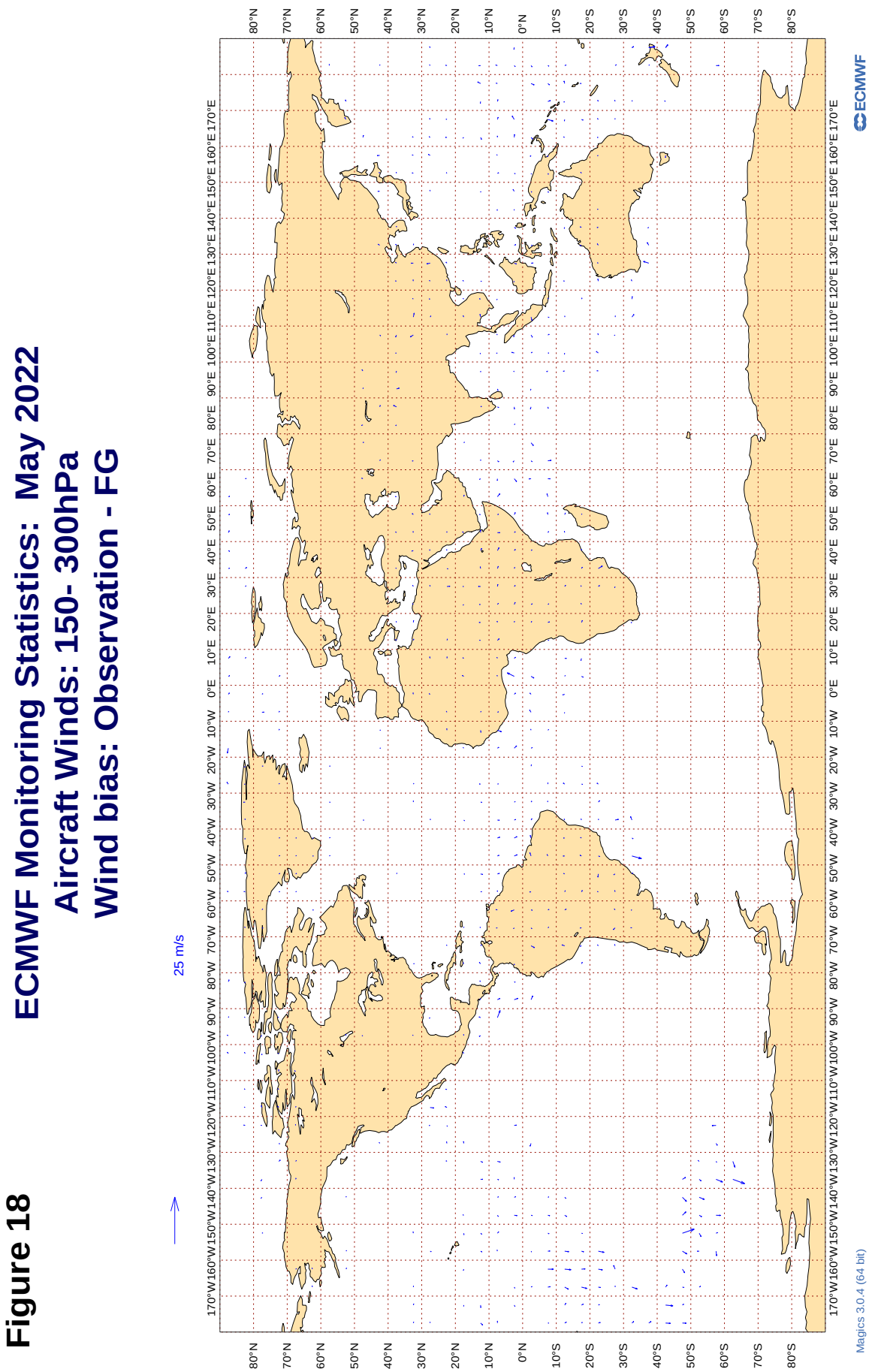


Figure 18

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 : MAY 2022
STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20

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

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AAB	99	V	300-150	117	0	0	3.4	0.2
AAL	99	V	300-150	49845	3	0	5.4	0.2
AAR	99	V	300-150	202	0	0	4.2	-0.3
ABB	99	V	300-150	1965	0	0	2.9	0.2
ABD	99	V	300-150	1064	0	0	3.5	-0.2
ABP	99	V	300-150	34	0	0	3.2	-0.3
ABX	99	V	300-150	344	0	0	3.5	-0.2
ACA	99	V	300-150	26384	3	0	5.8	0.2
ACI	99	V	300-150	222	0	0	5.3	2.3
AEA	99	V	300-150	765	10	0	7.9	0.0
AFR	99	V	300-150	35352	1	0	3.7	0.2
AHO	99	V	300-150	414	0	0	3.5	0.2
AIC	99	V	300-150	2353	1	0	4.8	0.2
AJT	99	V	300-150	1231	0	0	3.1	-0.0
ALE	99	V	300-150	51	0	0	2.9	0.1
ALK	99	V	300-150	2181	0	0	3.3	0.5
AME	99	V	300-150	98	0	0	3.2	0.9
AMX	99	V	300-150	3211	9	0	8.2	-0.2
ANZ	99	V	300-150	11554	3	0	6.3	0.5
AOJ	99	V	300-150	79	0	0	3.4	0.8
ASA	99	V	300-150	71	1	0	3.6	0.6
ASL	99	V	300-150	517	0	0	3.0	0.2
ASP	99	V	300-150	34	0	0	3.5	0.5
ASY	99	V	300-150	139	0	0	5.5	0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
ATC	99	V	300-150	143	0	0	5.0	0.2
ATN	99	V	300-150	206	0	0	4.0	0.5
AUA	99	V	300-150	4768	0	0	3.6	0.1
AVA	99	V	300-150	471	11	0	8.8	0.1
AWC	99	V	300-150	482	0	0	2.9	0.1
AXM	99	V	300-150	254	0	0	4.7	0.9
AXY	99	V	300-150	162	0	0	3.0	0.2
AYJ	99	V	300-150	42	0	0	2.9	0.7
AZG	99	V	300-150	709	0	0	3.4	-0.0
BAF	99	V	300-150	77	0	1	3.6	0.1
BAH	99	V	300-150	40	0	0	3.4	1.4
BAW	99	V	300-150	45201	1	0	4.7	0.1
BBC	99	V	300-150	526	0	0	4.5	0.6
BCS	99	V	300-150	1398	0	0	3.0	0.2
BEL	99	V	300-150	1438	0	0	3.0	0.2
BFF	99	V	300-150	60	0	0	10.2	1.5
BFY	99	V	300-150	133	0	0	3.4	-0.4
BLU	99	V	300-150	32	0	0	4.8	0.1
BMW	99	V	300-150	29	0	0	3.2	-0.5
BOX	99	V	300-150	3543	0	0	3.1	0.2
BOX	99	V	300-150	101	0	0	3.2	0.1
BRK	99	V	300-150	26	0	0	4.0	0.2
BTX	99	V	300-150	48	0	0	3.0	0.6
BVR	99	V	300-150	94	0	0	3.2	0.3
CAL	99	V	300-150	395	0	0	3.6	0.6
CAZ	99	V	300-150	152	0	0	2.9	-0.2
CEB	99	V	300-150	181	0	0	2.6	0.6
CEF	99	V	300-150	31	0	0	3.3	-0.5
CES	99	V	300-150	37	0	0	8.7	-1.2
CFC	99	V	300-150	433	0	0	4.0	0.8
CFG	99	V	300-150	3834	0	0	3.6	-0.0
CHG	99	V	300-150	489	0	0	3.6	-0.3
CHH	99	V	300-150	62	0	0	2.8	0.3
CJT	99	V	300-150	2612	0	0	3.4	-0.0
CKS	99	V	300-150	1132	0	0	3.8	0.4
CLX	99	V	300-150	5585	0	0	3.4	-0.2
CMB	99	V	300-150	1223	0	0	3.1	-0.2
CNK	99	V	300-150	34	0	0	3.0	-0.2
CNV	99	V	300-150	82	0	0	3.0	-0.4
CPA	99	V	300-150	278	0	0	5.7	1.2
CRL	99	V	300-150	984	0	0	2.8	0.1
CRV	99	V	300-150	74	0	0	3.3	0.6
CSC	99	V	300-150	39	0	0	2.7	0.6

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
CSN	99	V	300-150	345	3	0	4.5	0.5
CTM	99	V	300-150	89	0	0	3.3	-0.0
CWG	99	V	300-150	33	0	0	3.5	-0.6
DAH	99	V	300-150	592	0	0	3.0	-0.0
DAL	99	V	300-150	54798	0	0	3.1	0.2
DCM	99	V	300-150	29	0	0	2.9	0.9
DCS	99	V	300-150	31	0	0	3.1	-0.1
DCW	99	V	300-150	35	0	0	3.2	0.6
DHK	99	V	300-150	2070	0	0	3.4	-0.1
DHX	99	V	300-150	60	0	0	2.9	0.9
DJT	99	V	300-150	1835	0	0	3.0	0.2
DLH	99	V	300-150	29708	0	0	3.1	0.1
DSO	99	V	300-150	34	0	0	3.3	-0.5
DTA	99	V	300-150	60	0	0	4.5	0.9
DUB	99	V	300-150	92	0	0	4.0	0.3
EAL	99	V	300-150	170	0	0	3.6	0.1
EAU	99	V	300-150	86	0	0	3.2	-0.2
EAV	99	V	300-150	33	0	0	2.6	0.2
EDC	99	V	300-150	160	0	0	3.4	0.0
EDG	99	V	300-150	387	2	1	6.7	0.1
EDW	99	V	300-150	1248	0	0	3.0	0.2
EIN	99	V	300-150	13892	0	0	3.0	0.2
EJM	99	V	300-150	1198	0	0	3.5	0.0
ELY	99	V	300-150	4999	7	0	7.5	-0.1
EMM	99	V	300-150	24	0	0	4.5	0.8
ETD	99	V	300-150	8987	3	0	5.8	0.2
ETH	99	V	300-150	4970	1	0	4.6	0.2
EUK	99	V	300-150	1995	0	0	3.0	0.3
EUW	99	V	300-150	21	0	0	2.0	-0.7
EVE	99	V	300-150	52	0	2	2.8	1.2
EXS	99	V	300-150	152	0	0	3.0	0.4
FBU	99	V	300-150	1982	0	0	3.5	0.0
FDX	99	V	300-150	7970	0	0	3.1	0.2
FEX	99	V	300-150	36	0	0	4.5	-1.2
FIN	99	V	300-150	1986	0	0	3.1	0.3
FJI	99	V	300-150	1545	0	0	4.5	0.9
FJO	99	V	300-150	31	0	0	3.2	1.1
FPY	99	V	300-150	1417	0	0	2.8	0.2
FWI	99	V	300-150	1489	0	0	3.0	0.1
FXT	99	V	300-150	72	0	0	3.7	-0.1
FYG	99	V	300-150	131	0	1	4.3	0.8
GAF	99	V	300-150	230	0	0	3.0	0.2
GCK	99	V	300-150	147	0	0	2.9	0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
GEC	99	V	300-150	1865	0	0	3.2	0.0
GES	99	V	300-150	103	0	0	3.2	0.3
GFA	99	V	300-150	669	0	0	4.2	0.5
GIA	99	V	300-150	417	0	0	3.4	0.3
GJE	99	V	300-150	105	0	0	3.9	0.1
GKY	99	V	300-150	38	0	0	4.2	-0.5
GLH	99	V	300-150	55	0	0	3.3	-0.5
GMA	99	V	300-150	35	0	0	4.3	0.7
GRP	99	V	300-150	98	0	0	4.0	-0.4
GTI	99	V	300-150	2334	0	0	3.4	-0.2
HAF	99	V	300-150	72	0	0	3.0	-0.2
HAL	99	V	300-150	363	0	1	3.7	0.8
HFM	99	V	300-150	124	0	0	2.8	0.3
HFY	99	V	300-150	106	0	0	2.7	-0.0
HKC	99	V	300-150	84	0	1	6.1	1.3
HRN	99	V	300-150	76	0	0	3.8	-0.3
HRT	99	V	300-150	54	0	0	5.3	-1.1
HUA	99	V	300-150	90	0	0	3.4	1.1
HYP	99	V	300-150	29	0	0	3.2	0.3
HZS	99	V	300-150	31	0	0	5.0	1.9
HZX	99	V	300-150	21	0	0	3.9	0.8
IAM	99	V	300-150	195	0	0	3.6	0.3
IBE	99	V	300-150	5755	0	0	3.0	0.2
ICE	99	V	300-150	6204	0	0	3.1	0.2
ICL	99	V	300-150	787	0	0	3.3	-0.3
ICV	99	V	300-150	442	0	0	3.3	0.0
IFA	99	V	300-150	189	0	0	3.2	-0.1
IJM	99	V	300-150	159	0	0	4.7	-0.2
IND	99	V	300-150	24	0	4	3.8	0.9
ITY	99	V	300-150	4898	0	0	3.2	0.3
JAF	99	V	300-150	1280	5	0	8.6	0.2
JAS	99	V	300-150	195	0	0	3.8	0.5
JBU	99	V	300-150	2189	0	0	3.0	0.3
JCO	99	V	300-150	102	0	0	2.9	0.3
JET	99	V	300-150	39	0	0	2.8	0.3
JME	99	V	300-150	137	0	0	3.6	-0.3
JML	99	V	300-150	32	0	0	3.0	0.0
JNY	99	V	300-150	119	0	0	3.7	-0.3
JST	99	V	300-150	67	0	0	3.7	1.2
KAC	99	V	300-150	926	0	0	3.1	0.3
KAF	99	V	300-150	38	0	0	4.0	-1.3
KAI	99	V	300-150	106	1	0	2.9	0.3
KAL	99	V	300-150	58	0	0	7.6	0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
KAY	99	V	300-150	43	0	0	2.6	0.4
KFE	99	V	300-150	37	0	0	3.8	-0.2
KIW	99	V	300-150	46	0	0	5.2	2.0
KLM	99	V	300-150	18072	3	0	5.4	0.1
KOC	99	V	300-150	69	0	0	2.9	0.4
KQA	99	V	300-150	179	3	0	5.6	0.2
KUG	99	V	300-150	32	0	0	2.7	0.5
LAN	99	V	300-150	571	8	0	7.3	0.2
LCO	99	V	300-150	388	0	0	3.3	-0.9
LDX	99	V	300-150	156	0	1	3.2	0.0
LEA	99	V	300-150	125	0	0	3.5	0.2
LNI	99	V	300-150	719	0	1	3.1	0.2
LNX	99	V	300-150	67	0	0	3.3	-0.1
LOT	99	V	300-150	3592	4	0	8.0	0.0
LSI	99	V	300-150	35	0	0	2.7	-0.3
LUC	99	V	300-150	32	0	0	3.7	-0.7
LXJ	99	V	300-150	741	0	0	3.0	0.2
LYX	99	V	300-150	24	0	0	2.6	0.6
MAA	99	V	300-150	300	0	0	3.4	-0.2
MAS	99	V	300-150	2612	0	0	4.5	0.6
MAU	99	V	300-150	327	0	0	4.5	0.5
MED	99	V	300-150	71	0	1	4.8	0.9
MHV	99	V	300-150	239	0	0	3.3	0.0
MJF	99	V	300-150	117	0	0	3.3	-0.0
MLM	99	V	300-150	60	0	0	3.3	1.1
MMD	99	V	300-150	282	0	0	3.6	0.1
MMF	99	V	300-150	23	0	0	2.4	-0.3
MMZ	99	V	300-150	70	0	0	3.2	0.7
MNB	99	V	300-150	175	0	0	3.1	0.1
MPH	99	V	300-150	856	0	0	3.5	-0.5
MSR	99	V	300-150	2071	3	0	4.6	0.1
NCR	99	V	300-150	605	0	0	3.3	0.2
NJE	99	V	300-150	555	0	0	3.7	0.3
NOJ	99	V	300-150	65	0	0	4.4	0.3
NOS	99	V	300-150	759	7	0	6.7	-0.1
NSH	99	V	300-150	34	0	0	3.3	0.6
NSP	99	V	300-150	144	0	0	8.5	1.4
OAE	99	V	300-150	917	0	0	3.9	0.1
OCN	99	V	300-150	2643	0	0	3.0	0.1
OMA	99	V	300-150	821	0	0	5.2	0.4
PAC	99	V	300-150	572	0	0	3.4	-0.0
PAL	99	V	300-150	421	0	0	3.0	0.5
PAT	99	V	300-150	52	0	0	3.8	-0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
PEG	99	V	300-150	85	0	0	3.9	0.2
PIA	99	V	300-150	118	0	0	2.9	0.2
PJZ	99	V	300-150	32	0	0	3.6	-0.5
PVA	99	V	300-150	254	0	0	3.3	-0.1
PVG	99	V	300-150	43	0	0	3.4	0.2
QFA	99	V	300-150	4043	2	0	6.1	0.5
QQE	99	V	300-150	298	0	0	3.8	0.2
QTR	99	V	300-150	27097	0	0	3.6	0.2
RAM	99	V	300-150	575	6	0	6.9	-0.0
RBA	99	V	300-150	50	0	0	5.7	0.5
RCH	99	V	300-150	4527	0	0	4.6	0.3
RDN	99	V	300-150	82	0	0	3.8	-0.6
RHH	99	V	300-150	63	0	0	7.0	1.8
RJA	99	V	300-150	1882	6	0	7.4	0.3
RKK	99	V	300-150	33	0	0	3.7	0.1
ROJ	99	V	300-150	67	0	0	3.2	-0.1
ROM	99	V	300-150	51	0	0	4.4	1.9
RRR	99	V	300-150	144	0	0	3.3	0.1
RSF	99	V	300-150	36	0	0	2.6	0.9
RYR	99	V	300-150	178	0	0	2.4	-0.3
RZO	99	V	300-150	166	0	2	3.4	-0.2
SAM	99	V	300-150	489	0	0	3.4	-0.3
SAS	99	V	300-150	5178	0	0	2.9	0.2
SAZ	99	V	300-150	105	0	0	2.9	0.3
SCX	99	V	300-150	59	0	0	4.8	0.5
SDE	99	V	300-150	24	0	0	2.6	-0.8
SEY	99	V	300-150	100	0	0	4.1	0.8
SIA	99	V	300-150	9235	0	0	4.3	0.3
SIO	99	V	300-150	108	0	0	3.2	0.2
SJE	99	V	300-150	34	0	0	2.4	0.3
SLM	99	V	300-150	100	0	0	2.9	-0.1
SNO	99	V	300-150	45	0	0	2.9	-0.1
SON	99	V	300-150	75	0	0	2.9	0.3
SPA	99	V	300-150	128	0	0	2.7	-0.2
SUI	99	V	300-150	67	0	0	4.8	-0.9
SVA	99	V	300-150	7284	0	0	3.8	0.3
SVF	99	V	300-150	66	0	0	4.4	0.7
SVW	99	V	300-150	165	0	0	3.5	0.5
SWA	99	V	300-150	29	0	3	6.8	-0.2
SWR	99	V	300-150	7853	0	1	3.1	0.3
SWW	99	V	300-150	89	0	0	2.9	0.2
SYB	99	V	300-150	176	0	0	3.1	0.4
TAM	99	V	300-150	64	0	2	5.2	-0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
TAP	99	V	300-150	2813	0	0	3.3	0.3
TAR	99	V	300-150	280	0	0	2.6	0.1
TAX	99	V	300-150	21	0	0	3.2	0.5
TAY	99	V	300-150	467	0	0	3.3	-0.4
TBJ	99	V	300-150	28	0	0	3.1	0.4
TEU	99	V	300-150	130	0	0	3.2	0.2
TFF	99	V	300-150	49	0	0	3.4	0.4
TFL	99	V	300-150	1406	5	0	7.2	0.3
TGW	99	V	300-150	811	0	0	5.5	0.4
THA	99	V	300-150	458	0	0	5.6	1.0
THT	99	V	300-150	2928	1	0	5.7	0.3
THY	99	V	300-150	17315	2	0	4.6	0.2
TMN	99	V	300-150	354	0	0	4.7	0.8
TOM	99	V	300-150	8332	6	0	7.9	0.0
TOW	99	V	300-150	57	0	2	3.0	-0.0
TPA	99	V	300-150	201	0	0	2.9	0.5
TRK	99	V	300-150	45	0	0	3.3	-0.9
TSC	99	V	300-150	10276	0	0	3.2	0.2
TVR	99	V	300-150	37	0	0	4.6	2.3
TVS	99	V	300-150	33	0	0	3.1	1.0
TWY	99	V	300-150	751	0	0	3.2	-0.0
UAE	99	V	300-150	24391	0	0	3.2	0.3
UAF	99	V	300-150	133	0	0	3.8	0.3
UAL	99	V	300-150	79247	2	1	5.3	0.1
ULC	99	V	300-150	89	0	0	3.5	-0.1
UPS	99	V	300-150	5765	0	0	3.2	-0.1
UZB	99	V	300-150	145	3	0	5.1	-0.1
VCG	99	V	300-150	133	0	0	3.8	0.2
VCJ	99	V	300-150	33	0	0	2.9	0.6
VIR	99	V	300-150	20313	2	0	5.4	0.0
VJT	99	V	300-150	1955	0	0	3.3	0.3
VMP	99	V	300-150	107	0	0	6.1	2.0
VTI	99	V	300-150	187	0	2	2.8	0.4
WAK	99	V	300-150	20	0	0	3.3	0.9
WFL	99	V	300-150	21	0	0	2.7	-1.0
WJA	99	V	300-150	4906	3	0	6.0	0.2
WRC	99	V	300-150	93	0	1	3.2	-0.2
XAX	99	V	300-150	36	0	0	5.2	1.1
XFL	99	V	300-150	50	0	2	3.1	-0.1
XLS	99	V	300-150	21	0	0	4.2	-0.1
XRO	99	V	300-150	197	0	0	3.6	0.0
YEL	99	V	300-150	22	0	0	3.7	2.1

4 EUCOS Area Monitoring Statistics

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

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

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

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RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 :  50 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAY 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
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WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	31	4.6	-1.2
01001	00	Z	50	29	13.9	-6.5
01028	00	Z	50	31	4.0	-1.1
01028	12	Z	50	31	6.4	-4.0
01400	12	Z	50	19	77.0	76.6
01400	00	Z	50	10	80.7	80.5
01415	00	Z	50	29	7.7	3.2
01415	12	Z	50	30	7.0	3.4
02365	00	Z	50	26	8.2	6.5
02365	12	Z	50	27	7.1	-3.6
02836	00	Z	50	31	4.3	1.3
02836	12	Z	50	34	5.7	-2.7
02963	00	Z	50	31	6.4	3.0
02963	12	Z	50	30	8.5	-3.8
03005	12	Z	50	30	6.2	-3.7
03005	00	Z	50	28	24.1	-4.2
03238	00	Z	50	30	6.7	2.6
03238	12	Z	50	3	14.5	11.5
03808	12	Z	50	30	7.0	-0.2
03808	00	Z	50	26	6.9	4.9
03918	00	Z	50	31	10.2	6.4
03918	12	Z	50	6	6.8	2.7
03953	12	Z	50	30	10.3	-6.9
03953	00	Z	50	31	7.9	-5.8
04018	00	Z	50	31	11.1	-2.9
04018	12	Z	50	28	5.7	-2.7
04220	12	Z	50	31	6.3	2.0
04220	00	Z	50	31	6.6	-0.9
04270	00	Z	50	24	14.5	-7.8
04270	12	Z	50	24	10.3	-3.9
04320	00	Z	50	27	19.7	-5.1
04320	12	Z	50	26	12.7	4.6
04339	12	Z	50	24	23.6	4.6
04339	00	Z	50	29	34.3	-0.7
04360	12	Z	50	24	10.7	3.2
04360	00	Z	50	25	16.3	-10.4
06011	00	Z	50	29	10.4	3.7
06011	12	Z	50	30	27.9	23.9
06260	12	Z	50	5	8.8	-1.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	50	29	7.5	2.7
06610	00	Z	50	31	6.2	4.0
06610	12	Z	50	31	7.5	0.7
07110	00	Z	50	31	8.6	-5.2
07110	12	Z	50	30	16.5	-10.2
07510	12	Z	50	31	15.5	0.2
07510	00	Z	50	31	9.4	-3.7
07645	12	Z	50	30	11.2	-9.1
07645	00	Z	50	30	7.5	0.7
07761	12	Z	50	29	18.7	-16.6
07761	00	Z	50	31	8.8	-4.7
08001	00	Z	50	31	9.4	7.8
08001	12	Z	50	31	7.8	2.1
08221	00	Z	50	31	11.2	9.8
08221	12	Z	50	31	7.0	3.7
08302	00	Z	50	31	6.7	1.0
08302	12	Z	50	29	9.3	-7.7
08508	12	Z	50	31	15.0	6.7
08522	12	Z	50	31	5.4	1.0
10035	00	Z	50	29	14.6	13.8
10035	12	Z	50	31	8.8	7.3
10393	12	Z	50	30	6.4	-3.8
10393	00	Z	50	30	7.2	5.4
10410	12	Z	50	29	6.6	-3.4
10410	00	Z	50	32	6.6	2.3
10739	00	Z	50	30	9.8	8.6
10739	12	Z	50	32	5.5	1.0
11035	12	Z	50	31	12.9	2.6
11035	00	Z	50	30	7.6	5.5
12982	00	Z	50	31	8.5	6.8
12982	12	Z	50	30	4.8	2.1
16245	00	Z	50	30	7.0	5.9
16245	12	Z	50	31	5.8	-1.2
16429	12	Z	50	30	6.2	1.5
16429	00	Z	50	29	12.1	10.9
16622	00	Z	50	27	20.1	18.8
16754	00	Z	50	26	24.8	17.5
17607	12	Z	50	26	8.5	3.7
26435	12	Z	50	15	9.3	-0.9
2EERVT	00	Z	50	9	14.1	-10.7
2EERVT	12	Z	50	9	20.3	-10.8
60018	00	Z	50	30	9.0	7.0
60018	12	Z	50	31	6.3	-1.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	50	6	20.1	-15.0
7JUNA4	00	Z	50	6	10.0	-4.5
9ZT9MR	12	Z	50	1	16.5	16.5
ASDE09	12	Z	50	3	19.3	15.2
ATGU3F	00	Z	50	5	25.4	-23.9
ATGU3F	12	Z	50	8	38.1	6.1
BPMWB2	12	Z	50	6	17.5	13.1
BPMWB2	00	Z	50	7	18.3	11.1
CHQUR4	12	Z	50	2	21.7	-21.4
CHQUR4	00	Z	50	1	3.9	-3.9
FPUW5G	12	Z	50	0	0.0	0.0
JNKN7J	12	Z	50	14	22.6	18.8
JNKN7J	00	Z	50	13	23.7	23.2
KJJF9X	12	Z	50	6	5.7	-2.1
KJJF9X	00	Z	50	6	11.9	9.0
KMPLHP	12	Z	50	6	176.5	143.7
KMPLHP	00	Z	50	5	39.4	-1.0
LRYQE3	12	Z	50	12	33.8	-6.2
LRYQE3	00	Z	50	10	11.6	-7.7
UXK5JT	12	Z	50	4	31.2	28.8
UXK5JT	00	Z	50	5	17.7	16.8
XKQLWQ	12	Z	50	14	35.9	28.9
XQFJRG	12	Z	50	6	21.0	-10.4
XQFJRG	00	Z	50	4	8.8	-7.6
YLV96W	12	Z	50	7	20.0	1.3
YLV96W	00	Z	50	3	25.8	-20.2
ZVQEQC	00	Z	50	3	11.3	10.4
ZVQEQC	12	Z	50	8	4.4	2.2

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	31	2.1	0.1	0.0
01001	00	V	50	26	2.3	0.1	0.3
01028	00	V	50	27	2.2	0.0	-0.2
01028	12	V	50	31	2.5	-0.2	-0.1
01400	12	V	50	16	2.9	0.3	-0.5
01400	00	V	50	7	2.0	0.5	-0.1
01415	00	V	50	23	2.7	-0.2	0.0
01415	12	V	50	30	3.0	-0.6	-0.5
02365	00	V	50	23	3.2	-0.8	0.6
02365	12	V	50	27	2.4	0.1	-0.5
02836	00	V	50	25	3.1	-0.1	0.7
02836	12	V	50	31	2.7	0.3	-0.3
02963	00	V	50	25	2.3	-0.2	-0.1
02963	12	V	50	30	3.1	-0.1	-0.1
03005	12	V	50	30	2.5	0.5	0.2
03005	00	V	50	23	2.4	-0.3	0.4
03238	00	V	50	26	2.4	-0.2	-0.1
03238	12	V	50	3	2.2	-1.1	0.8
03808	12	V	50	30	2.9	0.6	-0.3
03808	00	V	50	23	2.8	-0.2	-0.3
03918	00	V	50	24	3.0	-0.6	-0.7
03918	12	V	50	6	2.3	0.0	0.8
03953	12	V	50	30	3.2	0.4	-0.6
03953	00	V	50	25	3.0	0.2	0.1
04018	00	V	50	25	2.7	-0.3	0.4
04018	12	V	50	28	2.3	0.6	0.4
04220	12	V	50	31	2.7	-0.5	0.0
04220	00	V	50	25	2.6	-0.4	0.3
04270	00	V	50	19	2.5	-0.4	0.5
04270	12	V	50	24	2.7	0.4	0.3
04320	00	V	50	18	2.5	-0.2	0.4
04320	12	V	50	26	2.5	-0.2	0.2
04339	12	V	50	24	2.7	0.1	-0.3
04339	00	V	50	23	2.1	0.4	0.1
04360	12	V	50	24	2.1	0.2	0.2
04360	00	V	50	22	2.3	0.1	0.3
06011	00	V	50	24	2.6	0.1	0.9
06011	12	V	50	30	2.5	-0.6	0.4
06260	12	V	50	5	4.3	-1.4	-0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	50	23	2.9	-0.4	0.0
06610	00	V	50	26	2.8	0.0	-0.1
06610	12	V	50	31	2.5	-0.1	0.2
07110	00	V	50	24	2.8	-0.8	0.0
07110	12	V	50	30	2.8	0.4	-0.3
07510	12	V	50	31	3.1	0.1	0.0
07510	00	V	50	25	2.7	-0.6	0.7
07645	12	V	50	30	2.5	0.2	0.1
07645	00	V	50	20	3.3	-0.2	-0.2
07761	12	V	50	29	3.0	0.3	-0.7
07761	00	V	50	24	2.6	0.3	-0.1
08001	00	V	50	23	2.8	0.2	-0.2
08001	12	V	50	31	3.1	0.2	0.3
08221	00	V	50	25	3.6	-0.1	-0.3
08221	12	V	50	31	3.7	-0.4	-0.6
08302	00	V	50	24	3.3	0.5	-0.4
08302	12	V	50	29	3.0	0.2	-0.5
08508	12	V	50	31	3.3	0.4	0.0
08522	12	V	50	31	3.3	0.8	-0.4
10035	00	V	50	27	2.9	-0.2	0.2
10035	12	V	50	31	2.8	0.0	-0.2
10393	12	V	50	30	2.8	-0.5	-0.2
10393	00	V	50	23	2.8	-0.5	0.5
10410	12	V	50	29	3.5	-0.1	-0.6
10410	00	V	50	28	2.9	-0.1	0.1
10739	00	V	50	24	2.6	0.4	-0.2
10739	12	V	50	31	2.6	-0.4	-0.4
11035	12	V	50	31	2.8	-0.5	-0.4
11035	00	V	50	21	3.0	0.3	0.1
12982	00	V	50	23	2.9	-0.6	-0.7
12982	12	V	50	30	2.7	-0.4	0.1
16245	00	V	50	22	3.3	-0.5	0.5
16245	12	V	50	31	3.4	-0.3	-0.6
16429	12	V	50	30	4.2	0.1	-1.9
16429	00	V	50	22	3.4	0.0	-0.1
16622	00	V	50	20	4.0	0.1	-0.5
16754	00	V	50	20	4.3	1.5	0.1
17607	12	V	50	7	2.8	-1.3	0.0
26435	12	V	50	15	3.2	-0.1	-1.2
2EERVT	00	V	50	9	2.6	-0.1	0.8
2EERVT	12	V	50	9	4.2	-0.3	0.9
60018	00	V	50	24	4.3	-0.2	0.4
60018	12	V	50	31	4.0	-0.4	0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	50	6	2.0	0.0	-1.0
7JUNA4	00	V	50	6	3.9	-0.6	0.1
9ZT9MR	12	V	50	1	4.0	-4.0	-0.2
ASDE09	12	V	50	3	2.7	0.5	-2.3
ATGU3F	00	V	50	5	2.3	0.2	-0.9
ATGU3F	12	V	50	8	2.9	0.3	0.9
BPMWB2	12	V	50	6	2.4	-0.4	0.6
BPMWB2	00	V	50	7	4.0	1.1	-0.6
CHQUR4	12	V	50	2	2.2	-0.1	-0.8
CHQUR4	00	V	50	1	0.9	-0.3	0.9
FPUW5G	12	V	50	0	0.0	0.0	0.0
JNKN7J	12	V	50	14	3.3	-0.7	0.0
JNKN7J	00	V	50	13	2.9	-0.8	0.0
KJJF9X	12	V	50	6	3.0	0.6	1.4
KJJF9X	00	V	50	5	2.9	-0.4	1.2
KMPLHP	12	V	50	6	4.2	0.3	0.7
KMPLHP	00	V	50	5	2.5	0.9	1.3
LRYQE3	12	V	50	12	3.5	0.9	0.3
LRYQE3	00	V	50	10	2.5	0.2	-0.1
UXK5JT	12	V	50	4	3.0	-1.2	0.1
UXK5JT	00	V	50	5	3.3	-0.4	-0.4
XKQLWQ	12	V	50	12	3.0	-0.5	-0.4
XQFJRG	12	V	50	6	2.3	-0.2	0.1
XQFJRG	00	V	50	3	2.4	1.0	1.0
YLV96W	12	V	50	7	3.5	-0.3	0.4
YLV96W	00	V	50	3	1.4	-0.5	0.9
ZVQEQC	00	V	50	3	6.1	-4.7	-2.6
ZVQEQC	12	V	50	8	4.0	-2.7	-0.8

4.3 Table 15 - Radiosonde Monitoring Statistics (EUCOS): 100 hPa Geopotential height (metres)

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RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 100 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAY 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	31	6.9	-5.5
01001	00	Z	100	29	14.8	-11.2
01028	00	Z	100	31	6.2	-5.2
01028	12	Z	100	31	7.6	-6.8
01400	12	Z	100	21	73.5	73.2
01400	00	Z	100	18	77.6	77.4
01415	00	Z	100	30	5.0	-0.8
01415	12	Z	100	31	5.2	-1.8
02365	00	Z	100	27	5.5	-0.3
02365	12	Z	100	27	7.7	-5.6
02836	00	Z	100	31	4.9	-3.3
02836	12	Z	100	34	6.0	-4.7
02963	00	Z	100	31	4.8	-2.3
02963	12	Z	100	30	7.5	-5.2
03005	12	Z	100	31	7.8	-6.5
03005	00	Z	100	30	23.0	-6.3
03238	00	Z	100	30	5.6	-1.1
03238	12	Z	100	3	7.3	3.6
03808	12	Z	100	31	6.3	-1.4
03808	00	Z	100	29	4.3	-0.8
03918	00	Z	100	31	7.1	0.6
03918	12	Z	100	6	4.1	-2.4
03953	12	Z	100	31	12.6	-10.3
03953	00	Z	100	31	11.0	-9.5
04018	00	Z	100	31	7.4	-5.2
04018	12	Z	100	30	6.0	-4.2
04220	12	Z	100	31	6.0	0.3
04220	00	Z	100	31	5.2	-3.3
04270	00	Z	100	28	16.0	-12.2
04270	12	Z	100	29	10.4	-6.5
04320	00	Z	100	30	17.6	-6.9
04320	12	Z	100	30	8.0	1.5
04339	12	Z	100	26	18.5	-1.3
04339	00	Z	100	30	26.6	-6.9
04360	12	Z	100	25	8.3	-3.0
04360	00	Z	100	25	16.3	-14.0
06011	00	Z	100	30	6.9	0.2
06011	12	Z	100	30	17.1	14.3
06260	12	Z	100	5	10.7	-7.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	100	29	4.8	-1.5
06610	00	Z	100	31	4.4	-0.2
06610	12	Z	100	31	4.3	-1.1
07110	00	Z	100	31	11.5	-10.1
07110	12	Z	100	31	15.3	-11.9
07510	12	Z	100	31	11.4	-3.3
07510	00	Z	100	31	8.4	-6.2
07645	12	Z	100	30	11.2	-10.0
07645	00	Z	100	30	7.1	-3.4
07761	12	Z	100	30	20.4	-19.2
07761	00	Z	100	31	12.0	-10.1
08001	00	Z	100	31	6.8	3.3
08001	12	Z	100	31	5.8	1.3
08221	00	Z	100	31	6.9	4.9
08221	12	Z	100	31	5.7	2.2
08302	00	Z	100	31	6.6	-3.6
08302	12	Z	100	30	11.5	-10.1
08508	12	Z	100	31	13.7	5.3
08522	12	Z	100	31	4.4	0.8
10035	00	Z	100	31	11.5	10.6
10035	12	Z	100	31	7.1	6.1
10393	12	Z	100	30	5.6	-4.1
10393	00	Z	100	37	4.0	-0.1
10410	12	Z	100	30	8.0	-6.1
10410	00	Z	100	32	5.0	-1.7
10739	00	Z	100	30	6.8	5.5
10739	12	Z	100	32	3.9	-0.5
11035	12	Z	100	31	8.4	-1.4
11035	00	Z	100	30	5.8	3.2
12982	00	Z	100	31	4.8	1.8
12982	12	Z	100	31	3.4	-0.4
16245	00	Z	100	31	4.8	3.3
16245	12	Z	100	31	4.7	-2.6
16429	12	Z	100	31	3.9	-1.4
16429	00	Z	100	29	4.3	2.7
16622	00	Z	100	31	13.5	12.6
16754	00	Z	100	29	19.0	11.5
17607	12	Z	100	30	5.9	2.9
26435	12	Z	100	15	8.4	-4.1
2EERVT	00	Z	100	9	13.2	-10.6
2EERVT	12	Z	100	9	19.3	-10.4
60018	00	Z	100	31	7.2	5.0
60018	12	Z	100	31	4.4	-0.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	100	6	14.0	-9.7
7JUNA4	00	Z	100	8	8.5	-6.6
9ZT9MR	12	Z	100	1	9.6	9.6
ASDE09	12	Z	100	4	16.8	15.5
ATGU3F	00	Z	100	6	28.2	-27.4
ATGU3F	12	Z	100	8	38.9	0.3
BPMWB2	12	Z	100	7	14.9	9.1
BPMWB2	00	Z	100	7	10.4	8.3
CHQUR4	12	Z	100	2	25.4	-24.9
CHQUR4	00	Z	100	2	6.9	-6.4
FPUW5G	12	Z	100	0	0.0	0.0
JNKN7J	12	Z	100	14	21.4	19.5
JNKN7J	00	Z	100	13	22.9	22.6
KJJF9X	12	Z	100	6	4.0	-0.5
KJJF9X	00	Z	100	6	7.2	3.3
KMPLHP	12	Z	100	7	87.8	73.2
KMPLHP	00	Z	100	6	20.2	-9.7
LRYQE3	12	Z	100	12	11.6	-9.2
LRYQE3	00	Z	100	11	10.4	-7.6
UXK5JT	12	Z	100	6	19.9	19.0
UXK5JT	00	Z	100	6	12.8	9.5
XKQLWQ	12	Z	100	16	62.8	44.8
XQFJRG	12	Z	100	6	17.5	-11.6
XQFJRG	00	Z	100	4	10.7	-9.6
YLV96W	12	Z	100	7	13.7	-4.2
YLV96W	00	Z	100	3	18.9	-17.9
ZVQEQC	00	Z	100	3	7.4	7.2
ZVQEQC	12	Z	100	8	7.1	2.7

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	31	1.9	-0.3	-0.3
01001	00	V	100	26	2.2	0.0	0.1
01028	00	V	100	27	2.1	0.1	0.2
01028	12	V	100	31	2.1	0.2	0.1
01400	12	V	100	21	2.1	0.0	-0.4
01400	00	V	100	14	2.3	0.1	-0.6
01415	00	V	100	23	3.1	0.2	-1.0
01415	12	V	100	31	2.8	-0.6	-0.8
02365	00	V	100	23	3.4	-1.1	0.0
02365	12	V	100	27	3.0	-0.3	-0.5
02836	00	V	100	25	2.4	-0.6	-0.7
02836	12	V	100	31	2.2	0.2	-0.2
02963	00	V	100	25	2.7	-0.2	0.3
02963	12	V	100	30	2.8	-0.8	0.1
03005	12	V	100	31	2.5	-0.4	0.2
03005	00	V	100	22	2.6	-0.2	-0.1
03238	00	V	100	26	3.1	0.6	0.8
03238	12	V	100	3	1.7	0.1	0.1
03808	12	V	100	31	2.4	0.8	-0.4
03808	00	V	100	25	2.8	-0.6	-0.4
03918	00	V	100	24	2.3	0.5	0.6
03918	12	V	100	6	2.7	1.2	1.1
03953	12	V	100	31	2.7	0.4	0.2
03953	00	V	100	25	3.3	0.2	-0.8
04018	00	V	100	29	2.8	0.5	0.5
04018	12	V	100	30	2.3	0.6	0.3
04220	12	V	100	31	2.9	0.2	0.6
04220	00	V	100	30	2.6	0.2	-0.1
04270	00	V	100	24	2.4	0.3	0.0
04270	12	V	100	29	3.0	-0.1	0.2
04320	00	V	100	23	2.5	-0.5	0.1
04320	12	V	100	30	2.2	0.6	0.3
04339	12	V	100	26	2.2	0.2	-0.2
04339	00	V	100	25	2.0	0.2	0.2
04360	12	V	100	25	2.1	-0.2	0.2
04360	00	V	100	21	2.2	-0.4	0.2
06011	00	V	100	22	2.1	-0.2	0.2
06011	12	V	100	30	2.7	0.2	0.1
06260	12	V	100	5	2.7	0.0	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	100	23	2.7	0.9	0.1
06610	00	V	100	29	3.1	-0.5	-0.5
06610	12	V	100	31	3.2	-0.4	0.6
07110	00	V	100	24	2.8	1.3	-0.2
07110	12	V	100	31	2.2	0.3	0.2
07510	12	V	100	31	3.0	-0.2	-0.5
07510	00	V	100	25	2.6	0.8	0.6
07645	12	V	100	30	3.0	-0.1	0.3
07645	00	V	100	20	3.3	0.8	-0.4
07761	12	V	100	30	3.3	0.8	0.2
07761	00	V	100	24	2.6	0.4	-0.4
08001	00	V	100	23	2.9	0.2	0.6
08001	12	V	100	31	2.9	-0.1	0.1
08221	00	V	100	25	3.7	0.6	0.5
08221	12	V	100	31	2.9	0.4	-0.5
08302	00	V	100	22	4.1	0.7	0.9
08302	12	V	100	30	3.4	0.4	-0.7
08508	12	V	100	31	3.2	0.3	0.6
08522	12	V	100	31	4.0	0.4	0.5
10035	00	V	100	29	3.0	0.0	0.1
10035	12	V	100	31	2.3	0.1	-0.1
10393	12	V	100	30	2.8	-0.5	-0.4
10393	00	V	100	29	2.6	-0.5	0.1
10410	12	V	100	30	2.7	-0.2	0.0
10410	00	V	100	30	3.0	-0.2	-0.1
10739	00	V	100	28	2.8	-0.3	-0.6
10739	12	V	100	31	3.1	-0.1	-0.4
11035	12	V	100	31	3.0	1.2	-0.8
11035	00	V	100	21	3.3	0.8	0.6
12982	00	V	100	26	2.8	-0.7	-0.2
12982	12	V	100	31	2.7	0.4	-0.1
16245	00	V	100	24	2.9	0.8	0.3
16245	12	V	100	31	3.0	0.5	-0.1
16429	12	V	100	31	4.0	0.0	-0.1
16429	00	V	100	25	3.7	0.5	-0.7
16622	00	V	100	25	3.1	0.3	-0.9
16754	00	V	100	23	3.5	-0.1	0.8
17607	12	V	100	13	4.3	-1.1	-2.0
26435	12	V	100	15	3.0	-0.8	0.3
2EERVT	00	V	100	9	3.6	-0.1	-1.0
2EERVT	12	V	100	9	3.8	-0.3	2.0
60018	00	V	100	24	3.9	0.3	-0.4
60018	12	V	100	31	3.8	-0.8	-1.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	100	6	3.0	0.5	-0.4
7JUNA4	00	V	100	8	3.0	0.3	-0.6
9ZT9MR	12	V	100	1	3.1	2.5	-1.8
ASDE09	12	V	100	4	2.7	-0.3	-0.2
ATGU3F	00	V	100	6	2.3	0.0	-0.1
ATGU3F	12	V	100	8	2.6	0.5	-0.5
BPMWB2	12	V	100	7	3.6	-1.0	0.9
BPMWB2	00	V	100	7	2.6	-0.3	-0.2
CHQUR4	12	V	100	2	2.1	0.0	-1.5
CHQUR4	00	V	100	2	1.3	1.0	0.7
FPUW5G	12	V	100	0	0.0	0.0	0.0
JNKN7J	12	V	100	14	3.0	0.8	0.1
JNKN7J	00	V	100	13	3.1	-0.3	0.4
KJJF9X	12	V	100	6	2.5	-0.7	-1.3
KJJF9X	00	V	100	5	3.1	0.5	2.0
KMPLHP	12	V	100	7	2.7	-1.1	0.0
KMPLHP	00	V	100	6	2.6	-0.4	1.2
LRYQE3	12	V	100	12	3.4	-0.2	1.3
LRYQE3	00	V	100	11	2.5	0.5	-0.2
UXK5JT	12	V	100	6	3.5	-1.3	0.9
UXK5JT	00	V	100	6	2.8	0.7	0.2
XKQLWQ	12	V	100	14	4.6	-0.9	-1.1
XQFJRG	12	V	100	6	4.0	-0.1	-0.9
XQFJRG	00	V	100	4	2.8	-1.8	-0.6
YLV96W	12	V	100	7	3.0	-0.4	0.8
YLV96W	00	V	100	3	2.8	-1.1	0.6
ZVQEQC	00	V	100	3	4.2	-1.6	-1.8
ZVQEQC	12	V	100	8	7.6	-3.5	-0.4

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

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RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 500 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAY 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	31	2.7	-0.6
01001	00	Z	500	30	12.7	-9.1
01028	00	Z	500	31	3.7	-2.2
01028	12	Z	500	31	4.2	0.0
01400	12	Z	500	29	78.9	78.8
01400	00	Z	500	29	79.7	79.6
01415	00	Z	500	31	3.9	2.5
01415	12	Z	500	31	5.0	3.8
02365	00	Z	500	27	3.0	2.1
02365	12	Z	500	27	3.8	3.0
02836	00	Z	500	31	2.7	0.0
02836	12	Z	500	34	3.2	1.3
02963	00	Z	500	31	3.1	2.5
02963	12	Z	500	30	4.1	3.0
03005	12	Z	500	31	4.3	-2.1
03005	00	Z	500	30	25.7	-5.1
03238	00	Z	500	31	3.7	2.4
03238	12	Z	500	3	3.4	3.2
03808	12	Z	500	31	3.5	2.5
03808	00	Z	500	29	4.0	3.2
03918	00	Z	500	31	5.7	4.6
03918	12	Z	500	6	3.2	2.8
03953	12	Z	500	31	4.6	-2.6
03953	00	Z	500	31	4.3	-2.7
04018	00	Z	500	31	2.8	0.6
04018	12	Z	500	31	3.0	0.5
04220	12	Z	500	31	7.1	2.5
04220	00	Z	500	31	4.0	1.1
04270	00	Z	500	30	10.9	-9.6
04270	12	Z	500	29	8.0	-6.6
04320	00	Z	500	30	14.5	-4.9
04320	12	Z	500	30	4.9	0.2
04339	12	Z	500	26	6.3	-4.1
04339	00	Z	500	31	8.2	-7.3
04360	12	Z	500	25	9.7	-8.4
04360	00	Z	500	25	12.6	-11.1
06011	00	Z	500	31	6.6	3.7
06011	12	Z	500	30	8.6	7.7
06260	12	Z	500	5	3.7	0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	500	29	2.0	0.6
06610	00	Z	500	32	2.6	1.0
06610	12	Z	500	31	2.8	1.6
07110	00	Z	500	32	6.3	-5.6
07110	12	Z	500	31	8.6	-6.8
07510	12	Z	500	31	3.1	0.2
07510	00	Z	500	30	4.1	-1.9
07645	12	Z	500	31	5.3	-4.5
07645	00	Z	500	31	5.0	-4.3
07761	12	Z	500	31	9.7	-9.0
07761	00	Z	500	31	8.9	-8.4
08001	00	Z	500	31	4.0	2.7
08001	12	Z	500	31	3.3	2.4
08221	00	Z	500	31	6.0	5.4
08221	12	Z	500	31	6.4	5.7
08302	00	Z	500	31	6.1	-5.2
08302	12	Z	500	30	6.1	-5.5
08508	12	Z	500	31	17.2	9.1
08522	12	Z	500	31	5.9	5.2
10035	00	Z	500	31	14.4	14.0
10035	12	Z	500	32	12.6	12.4
10393	12	Z	500	31	2.6	0.2
10393	00	Z	500	38	2.6	0.9
10410	12	Z	500	30	2.2	-0.6
10410	00	Z	500	32	1.9	0.9
10739	00	Z	500	30	5.5	5.2
10739	12	Z	500	32	4.4	3.5
11035	12	Z	500	31	3.9	-1.5
11035	00	Z	500	32	5.5	2.6
12982	00	Z	500	31	4.2	2.7
12982	12	Z	500	31	3.1	2.3
16245	00	Z	500	31	3.7	3.2
16245	12	Z	500	31	2.7	1.9
16429	12	Z	500	32	3.1	2.4
16429	00	Z	500	31	4.7	3.7
16622	00	Z	500	31	10.9	10.6
16754	00	Z	500	29	18.5	6.8
17607	12	Z	500	31	5.3	4.4
26435	12	Z	500	15	8.9	3.6
2EERVT	00	Z	500	9	11.0	-10.2
2EERVT	12	Z	500	9	9.9	-7.0
60018	00	Z	500	31	4.1	2.9
60018	12	Z	500	31	3.9	2.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	500	7	9.1	-2.4
7JUNA4	00	Z	500	9	5.7	-1.5
9ZT9MR	12	Z	500	1	6.3	-6.3
ASDE09	12	Z	500	3	32.8	32.8
ATGU3F	00	Z	500	6	31.4	-30.7
ATGU3F	12	Z	500	8	45.3	-2.9
BPMWB2	12	Z	500	7	9.5	6.3
BPMWB2	00	Z	500	8	7.1	3.7
CHQUR4	12	Z	500	2	13.5	-13.5
CHQUR4	00	Z	500	3	7.3	-7.3
FPUW5G	12	Z	500	1	1.7	-1.7
JNKN7J	12	Z	500	15	35.3	34.7
JNKN7J	00	Z	500	14	35.1	34.7
KJJF9X	12	Z	500	7	3.2	2.0
KJJF9X	00	Z	500	6	7.3	-3.9
KMPLHP	12	Z	500	10	24.1	8.3
KMPLHP	00	Z	500	11	16.7	2.5
LRYQE3	12	Z	500	13	5.3	-1.0
LRYQE3	00	Z	500	11	4.6	-2.0
UXK5JT	12	Z	500	7	9.8	7.5
UXK5JT	00	Z	500	7	4.5	-0.5
XKQLWQ	12	Z	500	16	61.1	40.2
XQFJRG	12	Z	500	6	11.4	-10.7
XQFJRG	00	Z	500	4	11.3	-9.6
YLV96W	12	Z	500	8	11.1	-8.2
YLV96W	00	Z	500	3	14.0	-12.8
ZVQEQC	00	Z	500	4	5.4	5.2
ZVQEQC	12	Z	500	8	6.8	-0.2

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

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RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 500 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAY 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	31	2.4	0.3	0.0
01001	00	V	500	29	1.7	0.0	-0.1
01028	00	V	500	30	3.3	0.5	-0.3
01028	12	V	500	31	3.1	0.6	0.2
01400	12	V	500	29	2.5	-0.5	-0.3
01400	00	V	500	27	2.7	-0.1	0.2
01415	00	V	500	30	2.4	0.5	0.2
01415	12	V	500	31	2.2	-0.1	0.3
02365	00	V	500	27	2.4	0.6	-0.4
02365	12	V	500	27	2.1	0.3	0.4
02836	00	V	500	30	2.2	0.3	0.5
02836	12	V	500	31	2.6	-0.2	0.0
02963	00	V	500	30	2.3	0.3	0.4
02963	12	V	500	30	2.3	0.2	0.2
03005	12	V	500	31	2.8	-0.1	-0.3
03005	00	V	500	28	2.7	-0.1	0.1
03238	00	V	500	28	2.7	0.3	0.0
03238	12	V	500	3	2.0	-0.6	0.3
03808	12	V	500	31	2.6	0.0	0.3
03808	00	V	500	28	2.1	0.5	-0.3
03918	00	V	500	30	2.5	0.7	0.0
03918	12	V	500	6	1.4	0.3	0.8
03953	12	V	500	31	2.6	0.1	-0.2
03953	00	V	500	30	3.3	-0.3	0.9
04018	00	V	500	30	2.8	-0.7	0.2
04018	12	V	500	31	2.1	0.6	-0.1
04220	12	V	500	31	2.4	0.1	-0.3
04220	00	V	500	30	2.6	0.1	-0.1
04270	00	V	500	29	3.1	0.2	-0.4
04270	12	V	500	29	2.7	0.4	-0.6
04320	00	V	500	29	2.5	0.6	0.3
04320	12	V	500	30	2.6	-0.6	-0.2
04339	12	V	500	26	2.1	0.1	0.1
04339	00	V	500	30	2.2	0.0	0.0
04360	12	V	500	25	3.2	0.1	-0.1
04360	00	V	500	24	1.6	-0.4	0.0
06011	00	V	500	30	3.0	-0.6	0.1
06011	12	V	500	30	3.4	0.6	-0.4
06260	12	V	500	5	5.2	3.0	0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	500	28	2.1	0.3	0.3
06610	00	V	500	31	2.4	0.0	-0.1
06610	12	V	500	31	2.2	0.4	0.4
07110	00	V	500	30	2.5	0.0	0.1
07110	12	V	500	31	2.6	0.4	0.0
07510	12	V	500	31	2.1	-0.2	-0.1
07510	00	V	500	29	2.4	0.0	0.0
07645	12	V	500	31	1.7	0.2	0.2
07645	00	V	500	29	1.9	0.3	0.2
07761	12	V	500	31	2.3	0.1	-0.1
07761	00	V	500	30	2.0	0.0	0.4
08001	00	V	500	30	2.2	0.0	0.0
08001	12	V	500	31	2.1	0.2	0.0
08221	00	V	500	30	2.3	0.7	0.3
08221	12	V	500	31	1.8	0.4	0.1
08302	00	V	500	30	2.8	0.7	0.8
08302	12	V	500	30	2.1	-0.1	-0.6
08508	12	V	500	31	2.8	1.0	0.6
08522	12	V	500	31	2.4	0.0	-0.6
10035	00	V	500	29	2.4	-0.1	-0.2
10035	12	V	500	31	2.2	-0.1	-0.1
10393	12	V	500	30	2.1	-0.1	-0.1
10393	00	V	500	29	2.3	-0.2	-0.3
10410	12	V	500	30	2.5	0.7	0.5
10410	00	V	500	30	2.0	0.2	-0.3
10739	00	V	500	29	2.7	0.5	0.1
10739	12	V	500	31	2.3	0.3	-0.1
11035	12	V	500	31	2.3	0.4	0.1
11035	00	V	500	30	2.5	-0.1	0.1
12982	00	V	500	30	2.6	0.7	0.4
12982	12	V	500	31	2.2	0.1	-0.2
16245	00	V	500	28	2.3	0.2	-0.3
16245	12	V	500	31	1.9	0.2	-0.7
16429	12	V	500	31	3.1	0.5	-0.2
16429	00	V	500	30	2.1	0.3	-0.3
16622	00	V	500	30	2.3	0.1	-0.7
16754	00	V	500	26	3.0	0.8	-0.7
17607	12	V	500	22	3.6	-0.6	0.5
26435	12	V	500	15	2.4	-0.5	-0.4
2EERVT	00	V	500	9	2.2	-0.5	-0.4
2EERVT	12	V	500	9	2.6	-0.2	0.8
60018	00	V	500	30	1.7	0.2	0.0
60018	12	V	500	31	2.2	-0.1	0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	500	7	2.5	0.6	0.1
7JUNA4	00	V	500	9	3.9	0.4	0.4
9ZT9MR	12	V	500	1	2.9	2.9	0.5
ASDE09	12	V	500	3	2.6	-0.7	1.8
ATGU3F	00	V	500	6	1.9	-0.6	0.7
ATGU3F	12	V	500	8	1.7	-0.7	-0.1
BPMWB2	12	V	500	7	3.6	0.1	0.6
BPMWB2	00	V	500	8	4.0	0.8	2.0
CHQUR4	12	V	500	2	1.9	0.3	1.9
CHQUR4	00	V	500	3	1.7	-0.5	0.9
FPUW5G	12	V	500	1	2.3	-2.0	1.1
JNKN7J	12	V	500	15	2.5	0.1	0.3
JNKN7J	00	V	500	14	2.5	-0.1	0.3
KJJF9X	12	V	500	7	2.4	0.4	0.4
KJJF9X	00	V	500	5	2.5	-0.9	1.1
KMPLHP	12	V	500	10	2.9	-0.6	0.1
KMPLHP	00	V	500	11	2.8	0.3	0.9
LRYQE3	12	V	500	13	2.1	0.6	-0.4
LRYQE3	00	V	500	11	2.0	0.0	0.2
UXK5JT	12	V	500	7	1.6	-0.2	-0.2
UXK5JT	00	V	500	7	1.9	-0.3	-0.2
XKQLWQ	12	V	500	14	8.6	-1.1	-0.4
XQFJRG	12	V	500	6	4.6	0.9	0.4
XQFJRG	00	V	500	4	2.4	-1.2	0.6
YLV96W	12	V	500	8	1.7	0.4	0.1
YLV96W	00	V	500	3	3.1	0.1	-0.1
ZVQEQC	00	V	500	4	3.2	-0.4	0.1
ZVQEQC	12	V	500	8	2.1	1.1	1.1

4.7 Table 19 - Radiosonde Monitoring Statistics (EUCOS): 850 hPa Geopotential height (metres)

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 850 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAY 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	31	2.9	-1.9
01001	00	Z	850	29	8.8	-8.1
01028	00	Z	850	31	3.0	-0.3
01028	12	Z	850	31	2.7	-0.7
01400	12	Z	850	30	78.9	78.8
01400	00	Z	850	29	79.7	79.6
01415	00	Z	850	31	3.7	3.4
01415	12	Z	850	31	4.8	4.1
02365	00	Z	850	27	4.1	3.7
02365	12	Z	850	27	3.2	2.7
02836	00	Z	850	31	2.1	1.3
02836	12	Z	850	31	2.9	2.0
02963	00	Z	850	31	3.7	3.3
02963	12	Z	850	30	5.2	4.7
03005	12	Z	850	31	2.5	-0.9
03005	00	Z	850	30	2.9	-1.4
03238	00	Z	850	31	2.7	2.2
03238	12	Z	850	3	3.7	3.4
03808	12	Z	850	31	2.8	1.8
03808	00	Z	850	29	3.0	2.5
03918	00	Z	850	31	5.9	5.3
03918	12	Z	850	6	5.3	4.8
03953	12	Z	850	31	3.1	-1.7
03953	00	Z	850	31	2.5	-0.9
04018	00	Z	850	31	2.0	0.6
04018	12	Z	850	31	2.4	0.1
04220	12	Z	850	31	7.9	3.6
04220	00	Z	850	31	3.1	2.4
04270	00	Z	850	30	8.2	-7.5
04270	12	Z	850	29	6.4	-5.6
04320	00	Z	850	30	14.8	-2.4
04320	12	Z	850	30	4.3	0.5
04339	12	Z	850	26	6.1	-5.5
04339	00	Z	850	31	6.1	-5.6
04360	12	Z	850	25	9.2	-8.8
04360	00	Z	850	27	10.9	-9.7
06011	00	Z	850	31	4.5	3.9
06011	12	Z	850	30	5.6	4.8
06260	12	Z	850	5	1.4	1.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	850	29	2.3	0.6
06610	00	Z	850	32	2.2	1.4
06610	12	Z	850	31	3.0	1.4
07110	00	Z	850	32	3.1	-2.3
07110	12	Z	850	32	3.0	-2.2
07510	12	Z	850	31	4.1	3.2
07510	00	Z	850	31	3.0	2.5
07645	12	Z	850	31	3.0	-2.2
07645	00	Z	850	32	4.1	-3.5
07761	12	Z	850	31	3.8	-3.2
07761	00	Z	850	32	4.6	-4.1
08001	00	Z	850	31	2.2	-0.3
08001	12	Z	850	31	1.9	0.3
08221	00	Z	850	31	3.0	2.5
08221	12	Z	850	31	4.0	3.5
08302	00	Z	850	31	6.8	-6.3
08302	12	Z	850	30	7.3	-7.0
08508	12	Z	850	31	14.5	7.2
08522	12	Z	850	31	3.5	2.8
10035	00	Z	850	31	13.3	13.1
10035	12	Z	850	32	14.2	14.1
10393	12	Z	850	30	2.5	1.6
10393	00	Z	850	30	2.0	0.8
10410	12	Z	850	30	2.5	1.2
10410	00	Z	850	32	1.8	0.3
10739	00	Z	850	30	4.8	4.4
10739	12	Z	850	32	6.2	5.8
11035	12	Z	850	31	3.2	1.5
11035	00	Z	850	32	6.6	3.7
12982	00	Z	850	31	2.6	1.9
12982	12	Z	850	31	3.8	3.4
16245	00	Z	850	31	3.3	2.5
16245	12	Z	850	31	3.1	2.6
16429	12	Z	850	32	2.4	1.9
16429	00	Z	850	31	3.4	2.8
16622	00	Z	850	31	10.6	10.1
16754	00	Z	850	29	16.9	5.6
17607	12	Z	850	31	3.2	2.6
26435	12	Z	850	15	10.4	4.1
2EERVT	00	Z	850	9	7.6	-7.0
2EERVT	12	Z	850	9	9.9	-8.0
60018	00	Z	850	31	2.6	-0.6
60018	12	Z	850	31	2.7	-1.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	850	7	3.0	0.1
7JUNA4	00	Z	850	8	2.7	-1.1
9ZT9MR	12	Z	850	1	3.5	-3.5
ASDE09	12	Z	850	3	38.6	38.6
ATGU3F	00	Z	850	6	26.0	-25.5
ATGU3F	12	Z	850	8	22.1	-21.9
BPMWB2	12	Z	850	8	6.4	5.7
BPMWB2	00	Z	850	8	4.8	4.2
CHQUR4	12	Z	850	2	9.9	-9.9
CHQUR4	00	Z	850	3	5.9	-5.5
FPUW5G	12	Z	850	1	4.8	-4.8
JNKN7J	12	Z	850	15	39.7	39.5
JNKN7J	00	Z	850	14	37.8	37.6
KJJF9X	12	Z	850	7	3.0	1.3
KJJF9X	00	Z	850	6	2.1	-1.2
KMPLHP	12	Z	850	13	20.2	7.3
KMPLHP	00	Z	850	11	17.3	0.4
LRYQE3	12	Z	850	13	5.4	1.2
LRYQE3	00	Z	850	11	4.2	-2.7
UXK5JT	12	Z	850	7	6.2	3.4
UXK5JT	00	Z	850	7	4.7	-3.3
XKQLWQ	12	Z	850	16	32.6	21.0
XQFJRG	12	Z	850	5	11.6	-10.5
XQFJRG	00	Z	850	5	13.1	-11.3
YLV96W	12	Z	850	8	6.5	-5.2
YLV96W	00	Z	850	3	7.2	-7.1
ZVQEQC	00	Z	850	4	2.4	-1.6
ZVQEQC	12	Z	850	8	8.1	-5.5

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

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 850 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAY 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	31	4.7	1.9	0.7
01001	00	V	850	28	4.3	0.8	0.6
01028	00	V	850	30	3.2	0.5	-0.9
01028	12	V	850	31	2.5	0.4	0.4
01400	12	V	850	30	2.5	-0.5	0.6
01400	00	V	850	27	2.6	0.9	0.1
01415	00	V	850	30	2.6	0.0	0.2
01415	12	V	850	31	2.8	-0.1	0.6
02365	00	V	850	27	2.5	0.1	0.2
02365	12	V	850	27	2.5	0.1	0.3
02836	00	V	850	30	2.5	-0.1	0.0
02836	12	V	850	31	2.6	0.8	0.1
02963	00	V	850	30	1.8	0.3	0.1
02963	12	V	850	30	2.4	-0.2	0.1
03005	12	V	850	31	2.5	-0.2	0.5
03005	00	V	850	28	2.5	0.4	-0.2
03238	00	V	850	28	2.5	-0.4	-0.3
03238	12	V	850	3	1.4	0.7	0.6
03808	12	V	850	31	2.3	0.1	0.3
03808	00	V	850	28	2.1	0.4	0.6
03918	00	V	850	30	2.5	0.2	0.0
03918	12	V	850	6	1.9	0.4	0.1
03953	12	V	850	31	2.2	0.7	0.3
03953	00	V	850	30	2.5	0.3	-0.1
04018	00	V	850	30	2.4	0.0	-0.2
04018	12	V	850	31	3.1	0.1	0.2
04220	12	V	850	31	2.5	-0.4	0.6
04220	00	V	850	30	2.7	-0.5	1.0
04270	00	V	850	29	3.1	-0.8	0.1
04270	12	V	850	29	2.7	0.4	-0.5
04320	00	V	850	29	2.6	0.2	-0.4
04320	12	V	850	30	3.2	0.5	-0.7
04339	12	V	850	26	3.7	0.6	-1.0
04339	00	V	850	30	3.5	0.1	-0.1
04360	12	V	850	25	3.8	0.7	0.3
04360	00	V	850	26	3.8	-0.1	0.3
06011	00	V	850	30	2.5	0.3	-0.4
06011	12	V	850	30	2.9	0.4	-0.7
06260	12	V	850	5	2.4	-1.3	-0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	850	28	2.1	-0.2	-0.2
06610	00	V	850	31	2.9	0.5	0.0
06610	12	V	850	31	2.7	0.5	0.3
07110	00	V	850	30	2.1	0.3	-0.1
07110	12	V	850	31	2.5	0.9	0.4
07510	12	V	850	31	3.1	0.5	0.0
07510	00	V	850	30	2.8	0.1	0.2
07645	12	V	850	31	2.5	0.0	0.1
07645	00	V	850	30	2.6	0.1	0.5
07761	12	V	850	31	3.1	0.6	0.1
07761	00	V	850	30	2.6	0.5	0.2
08001	00	V	850	30	2.8	0.7	-0.3
08001	12	V	850	31	2.5	0.2	0.1
08221	00	V	850	30	3.1	0.8	0.4
08221	12	V	850	31	2.9	-0.1	0.0
08302	00	V	850	30	2.7	-0.3	0.2
08302	12	V	850	30	2.5	0.2	0.3
08508	12	V	850	31	2.8	-0.1	0.0
08522	12	V	850	31	2.6	0.2	0.0
10035	00	V	850	29	2.7	-0.2	-0.3
10035	12	V	850	31	2.0	0.3	0.1
10393	12	V	850	30	2.6	0.5	0.2
10393	00	V	850	29	2.7	0.1	-0.7
10410	12	V	850	30	2.7	0.1	0.0
10410	00	V	850	30	2.6	0.8	-0.1
10739	00	V	850	29	3.0	0.3	-0.2
10739	12	V	850	31	3.0	-0.9	-0.2
11035	12	V	850	31	2.4	-0.1	0.0
11035	00	V	850	30	3.3	0.0	0.2
12982	00	V	850	30	2.8	0.2	-0.8
12982	12	V	850	31	2.9	-0.4	-0.5
16245	00	V	850	29	2.7	-0.3	-1.1
16245	12	V	850	31	2.5	-0.7	-0.2
16429	12	V	850	31	3.0	0.7	0.5
16429	00	V	850	30	2.7	0.0	-0.1
16622	00	V	850	30	2.7	-0.4	-0.1
16754	00	V	850	28	3.2	0.4	0.2
17607	12	V	850	31	3.6	0.5	0.0
26435	12	V	850	15	2.2	0.8	0.0
2EERVT	00	V	850	9	2.7	0.4	-0.1
2EERVT	12	V	850	9	3.2	1.0	-1.3
60018	00	V	850	30	3.6	0.0	0.2
60018	12	V	850	31	4.0	-0.4	0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	850	7	2.4	0.2	0.1
7JUNA4	00	V	850	8	4.2	-1.9	0.3
9ZT9MR	12	V	850	1	0.2	0.1	-0.2
ASDE09	12	V	850	3	1.5	1.0	0.0
ATGU3F	00	V	850	6	2.2	-1.2	-0.1
ATGU3F	12	V	850	8	2.7	-0.7	-0.1
BPMWB2	12	V	850	8	1.9	0.0	-0.1
BPMWB2	00	V	850	8	2.6	0.0	-0.8
CHQUR4	12	V	850	2	1.5	0.8	0.6
CHQUR4	00	V	850	3	2.7	0.9	-0.9
FPUW5G	12	V	850	1	0.9	-0.7	0.6
JNKN7J	12	V	850	15	2.5	0.9	0.2
JNKN7J	00	V	850	14	1.7	0.6	0.0
KJJF9X	12	V	850	7	2.4	-0.3	0.5
KJJF9X	00	V	850	5	1.9	0.7	0.1
KMPLHP	12	V	850	13	3.5	0.5	-0.1
KMPLHP	00	V	850	11	2.5	0.7	0.5
LRYQE3	12	V	850	13	2.0	0.5	0.3
LRYQE3	00	V	850	11	2.7	-0.6	-0.6
UXK5JT	12	V	850	7	2.1	-0.2	0.9
UXK5JT	00	V	850	7	2.2	-0.3	-0.2
XKQLWQ	12	V	850	14	6.6	-0.8	-0.1
XQFJRG	12	V	850	5	3.6	-0.4	-0.7
XQFJRG	00	V	850	5	2.2	-0.3	-0.6
YLV96W	12	V	850	8	2.4	0.3	0.4
YLV96W	00	V	850	3	1.3	-0.4	-1.0
ZVQEQC	00	V	850	4	3.6	-2.7	0.1
ZVQEQC	12	V	850	8	3.0	-1.1	-1.0

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

```
DRIFTER MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE      : ECMWF
         ELEMENT MONITORED      : SURFACE PRESSURE (HPA)
         AREA                   : 10N - 90N, 70W - 40E
         PERIOD                 : MAY 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD


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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
03380	99	P	SUR	54	0	2315	0	0.3	-0.2	0.3
1300001	99	P	SUR	11	-23	600	0	0.4	0.2	0.4
1300008	99	P	SUR	15	-38	606	0	0.3	0.2	0.3
1300130	99	P	SUR	28	-16	94	0	0.3	0.2	0.3
1300131	99	P	SUR	28	-17	723	0	0.4	0.1	0.4
1301603	99	P	SUR	37	-50	744	0	0.2	0.0	0.2
1301608	99	P	SUR	28	-57	744	0	0.2	-0.1	0.2
1301610	99	P	SUR	53	-10	501	0	0.3	-0.4	0.5
1301612	99	P	SUR	25	-39	740	0	0.2	-0.1	0.3
1301699	99	P	SUR	27	-34	678	0	0.2	-0.4	0.5
1301700	99	P	SUR	15	-40	693	0	0.3	-0.0	0.3
1301701	99	P	SUR	13	-34	721	0	0.3	0.3	0.4
1301706	99	P	SUR	18	-39	703	0	0.2	0.1	0.2
1301708	99	P	SUR	14	-17	411	0	0.6	-0.1	0.6
1301711	99	P	SUR	10	-28	723	0	0.3	-0.1	0.3
1301712	99	P	SUR	18	-34	724	0	0.2	0.1	0.2
1301713	99	P	SUR	19	-31	723	0	0.3	0.2	0.3
1301714	99	P	SUR	20	-36	724	0	0.2	0.1	0.2
1301718	99	P	SUR	24	-24	725	0	0.3	0.2	0.4
1301719	99	P	SUR	22	-27	722	0	0.3	0.5	0.6
1301720	99	P	SUR	28	-28	724	0	0.2	0.1	0.3
1301721	99	P	SUR	36	-12	8745	1	0.3	-0.2	0.4
1301722	99	P	SUR	17	-30	727	0	0.3	0.1	0.3
1301723	99	P	SUR	38	-11	724	0	0.3	0.7	0.8
1301724	99	P	SUR	34	-18	722	0	0.3	0.0	0.3
1301735	99	P	SUR	28	-41	723	0	0.3	-0.2	0.3
1301736	99	P	SUR	27	-44	722	0	0.2	0.2	0.3
1301737	99	P	SUR	23	-50	723	0	0.3	-0.1	0.3
1301756	99	P	SUR	11	-64	723	0	0.5	-0.5	0.7
1301763	99	P	SUR	11	-32	722	0	0.3	0.3	0.4
1801607	99	P	SUR	40	-66	936	0	0.7	-0.0	0.7
4100040	99	P	SUR	15	-53	4459	0	0.3	0.6	0.7
4100043	99	P	SUR	21	-65	4385	0	0.3	-1.3	1.4
4100044	99	P	SUR	22	-59	4439	0	0.3	0.3	0.4
4100046	99	P	SUR	24	-68	4451	0	0.5	0.3	0.6
4100048	99	P	SUR	32	-70	4444	0	0.4	0.4	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4100049	99	P	SUR	27	-63	4457	0	0.4	-1.1	1.2
4100052	99	P	SUR	18	-65	4263	0	0.3	-1.0	1.1
4100053	99	P	SUR	18	-66	3754	0	0.4	-0.4	0.6
4100056	99	P	SUR	18	-65	2584	0	2.0	8.3	8.6
4100139	99	P	SUR	20	-38	736	0	0.2	0.1	0.2
4100300	99	P	SUR	16	-57	708	0	0.3	-0.0	0.3
4101557	99	P	SUR	41	-17	744	0	0.3	0.1	0.3
4101609	99	P	SUR	21	-33	744	0	0.2	0.0	0.2
4101613	99	P	SUR	26	-47	744	0	0.3	0.3	0.4
4101616	99	P	SUR	30	-36	744	0	0.3	-0.1	0.3
4101618	99	P	SUR	26	-36	744	0	0.2	0.1	0.2
4101621	99	P	SUR	25	-32	744	0	0.2	0.2	0.3
4101654	99	P	SUR	72	8	678	0	0.3	-0.1	0.3
4101656	99	P	SUR	61	-52	534	0	0.8	0.7	1.0
4101657	99	P	SUR	74	3	560	0	0.4	-0.2	0.4
4101659	99	P	SUR	74	38	741	0	0.6	0.1	0.7
4101663	99	P	SUR	32	-34	744	0	0.2	-0.0	0.2
4101664	99	P	SUR	50	-45	744	0	0.3	-0.5	0.6
4101665	99	P	SUR	62	-11	689	0	0.3	-0.3	0.4
4101696	99	P	SUR	34	-43	744	0	0.2	-0.1	0.3
4101702	99	P	SUR	40	-21	744	0	0.3	0.1	0.3
4101714	99	P	SUR	28	-56	682	0	0.2	0.1	0.3
4101717	99	P	SUR	34	-11	744	0	0.3	-0.0	0.3
4101718	99	P	SUR	43	-45	744	0	0.4	0.2	0.5
4101719	99	P	SUR	38	-32	744	0	0.3	0.0	0.3
4101720	99	P	SUR	33	-23	742	0	0.3	-0.3	0.4
4101722	99	P	SUR	13	-37	744	0	0.3	0.2	0.3
4101723	99	P	SUR	26	-61	741	0	0.3	0.0	0.3
4101724	99	P	SUR	17	-67	743	0	0.4	0.1	0.4
4101725	99	P	SUR	16	-60	743	0	0.6	-0.1	0.7
4101726	99	P	SUR	18	-52	744	0	0.3	0.1	0.3
4101743	99	P	SUR	33	-53	744	0	0.2	-0.0	0.2
4101753	99	P	SUR	29	-55	744	0	0.2	0.3	0.4
4101755	99	P	SUR	27	-54	743	0	0.2	0.1	0.3
4101756	99	P	SUR	12	-62	646	0	0.3	-0.8	0.8
4101842	99	P	SUR	68	12	675	0	0.4	-0.3	0.4
4101843	99	P	SUR	65	-1	673	0	0.3	0.0	0.3
4101844	99	P	SUR	15	-47	688	0	0.3	0.2	0.3
4101845	99	P	SUR	61	-9	657	0	0.3	0.2	0.3
4101848	99	P	SUR	21	-65	688	0	0.3	0.3	0.5
4101849	99	P	SUR	10	-53	685	0	0.4	0.2	0.4
4101850	99	P	SUR	45	-10	688	0	0.3	-0.0	0.3
4101851	99	P	SUR	18	-48	672	0	0.2	0.0	0.2

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4102547	99	P	SUR	18	-57	599	0	0.3	0.3	0.5
4102548	99	P	SUR	20	-63	689	0	0.3	-0.0	0.3
4102549	99	P	SUR	18	-51	724	0	0.3	0.4	0.5
4102551	99	P	SUR	13	-44	470	0	0.3	0.0	0.3
4102632	99	P	SUR	26	-68	720	0	0.4	-0.9	1.0
41040	99	P	SUR	15	-53	5511	0	0.3	0.6	0.7
41043	99	P	SUR	21	-65	4877	0	0.4	-1.3	1.4
41044	99	P	SUR	22	-59	3881	0	0.3	0.3	0.5
41046	99	P	SUR	24	-68	6045	0	0.5	0.3	0.6
41048	99	P	SUR	32	-70	6440	0	0.4	0.4	0.6
41049	99	P	SUR	28	-63	5945	0	0.4	-1.1	1.2
41052	99	P	SUR	18	-65	3370	0	0.3	-1.0	1.0
41053	99	P	SUR	19	-66	3116	0	0.4	-0.4	0.6
41056	99	P	SUR	18	-66	2132	0	2.1	8.3	8.6
4200059	99	P	SUR	15	-67	4450	0	0.8	-0.8	1.2
4200060	99	P	SUR	16	-63	4450	0	0.3	0.1	0.3
4200085	99	P	SUR	18	-67	2700	0	0.3	0.0	0.3
4201703	99	P	SUR	43	-38	724	0	0.4	-0.0	0.4
42059	99	P	SUR	15	-68	4925	0	0.8	-0.8	1.2
42060	99	P	SUR	16	-63	3949	0	0.4	0.1	0.4
42085	99	P	SUR	18	-67	2526	0	0.4	-0.0	0.4
4400005	99	P	SUR	43	-69	743	0	0.4	-0.3	0.5
4400008	99	P	SUR	40	-69	4441	0	0.4	-0.8	0.9
4400011	99	P	SUR	41	-67	4443	0	0.4	0.3	0.5
4400027	99	P	SUR	44	-67	739	0	0.4	0.2	0.5
4400032	99	P	SUR	44	-69	743	0	0.5	0.0	0.5
4400033	99	P	SUR	44	-69	743	0	0.5	0.2	0.5
4400034	99	P	SUR	44	-68	743	0	0.5	-0.3	0.5
4400037	99	P	SUR	43	-68	194	0	0.4	-0.8	0.8
44005	99	P	SUR	43	-69	1942	0	0.4	-0.3	0.5
4400777	99	P	SUR	40	-22	744	0	0.3	0.1	0.3
44008	99	P	SUR	41	-69	5757	0	0.4	-0.8	0.9
4400857	99	P	SUR	30	-57	743	0	0.3	0.3	0.4
44011	99	P	SUR	41	-67	5346	0	0.4	0.3	0.5
4401563	99	P	SUR	23	-25	742	0	0.3	-0.3	0.4
4401572	99	P	SUR	28	-65	744	0	0.4	-0.6	0.7
4401576	99	P	SUR	28	-52	742	0	0.2	0.2	0.3
4401581	99	P	SUR	27	-52	743	0	0.3	0.4	0.5
4401582	99	P	SUR	39	-20	744	0	0.3	0.2	0.4
4401584	99	P	SUR	30	-31	744	0	0.2	0.3	0.4
4401585	99	P	SUR	33	-42	744	0	0.3	0.1	0.3
4401848	99	P	SUR	54	-10	641	0	0.4	-0.3	0.5
4401850	99	P	SUR	67	13	646	0	0.4	-0.5	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401851	99	P	SUR	49	-6	662	0	0.3	0.4	0.5
4401859	99	P	SUR	14	-40	744	0	0.3	0.0	0.3
4401864	99	P	SUR	15	-56	680	0	0.3	-0.2	0.4
4401867	99	P	SUR	35	-50	744	0	0.3	0.0	0.3
4401870	99	P	SUR	25	-53	744	0	0.3	-0.0	0.3
4401872	99	P	SUR	30	-57	744	0	0.3	-0.1	0.3
4401874	99	P	SUR	20	-62	744	0	0.3	0.3	0.4
4402603	99	P	SUR	57	-22	707	0	0.4	0.0	0.4
4402604	99	P	SUR	47	-19	642	0	0.3	-0.1	0.3
4402605	99	P	SUR	59	-6	682	0	0.3	0.3	0.4
4402606	99	P	SUR	53	-32	679	0	0.4	0.2	0.4
4402607	99	P	SUR	46	-24	671	0	0.3	-0.0	0.3
4402608	99	P	SUR	57	-34	688	0	0.3	-0.0	0.3
4402609	99	P	SUR	61	-15	674	0	0.3	0.1	0.3
4402610	99	P	SUR	46	-20	431	0	0.5	0.2	0.6
4402611	99	P	SUR	49	-20	687	0	0.3	-0.1	0.3
4402612	99	P	SUR	46	-36	712	0	0.3	0.2	0.4
4402613	99	P	SUR	46	-13	665	0	0.3	-0.1	0.3
4402614	99	P	SUR	54	-11	666	0	0.3	0.1	0.3
4402615	99	P	SUR	48	-13	652	0	0.3	0.3	0.4
4402618	99	P	SUR	24	-51	691	0	0.3	0.1	0.3
4402656	99	P	SUR	38	-39	639	0	0.4	0.2	0.4
4402660	99	P	SUR	34	-12	721	0	0.4	0.3	0.5
4402663	99	P	SUR	45	-11	723	0	0.3	-0.2	0.3
4402665	99	P	SUR	23	-36	723	0	0.2	0.3	0.4
4402670	99	P	SUR	20	-28	704	0	0.2	0.1	0.3
4402671	99	P	SUR	15	-37	679	0	0.3	0.1	0.3
4402672	99	P	SUR	15	-32	687	0	0.3	0.1	0.3
4402673	99	P	SUR	15	-32	675	0	0.3	0.3	0.4
4402674	99	P	SUR	14	-35	689	0	0.3	0.3	0.4
4402675	99	P	SUR	35	-41	673	0	0.3	0.0	0.3
4402676	99	P	SUR	21	-38	684	0	0.2	0.3	0.4
44027	99	P	SUR	44	-67	1927	0	0.4	0.2	0.5
4402717	99	P	SUR	70	-68	189	0	1.1	-1.0	1.5
4402721	99	P	SUR	51	-42	723	0	0.3	-0.0	0.3
4402723	99	P	SUR	46	-52	725	0	0.4	0.1	0.4
4402726	99	P	SUR	51	-50	722	0	0.3	0.0	0.3
4402727	99	P	SUR	47	-31	723	0	0.3	-0.2	0.4
44032	99	P	SUR	44	-69	1249	0	0.5	0.0	0.5
44033	99	P	SUR	44	-69	1249	0	0.5	0.2	0.5
44034	99	P	SUR	44	-68	1248	0	0.5	-0.3	0.5
4403556	99	P	SUR	44	-32	744	0	0.3	0.3	0.5
4403557	99	P	SUR	51	-29	742	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
4403558	99	P	SUR	44	-46	744	0	0.4	0.1	0.4
4403568	99	P	SUR	49	-51	743	0	0.3	0.1	0.3
4403569	99	P	SUR	49	-52	744	0	0.4	0.3	0.5
44037	99	P	SUR	44	-68	324	0	0.4	-0.8	0.8
44137	99	P	SUR	42	-62	722	0	0.4	-0.2	0.5
44139	99	P	SUR	44	-57	737	0	0.4	0.0	0.4
44150	99	P	SUR	43	-64	728	0	0.5	-0.2	0.5
44258	99	P	SUR	45	-63	733	0	0.4	-0.2	0.4
44488	99	P	SUR	45	-61	739	0	0.4	0.1	0.4
44489	99	P	SUR	46	-61	739	0	0.4	0.1	0.4
44490	99	P	SUR	45	-66	700	0	0.5	0.0	0.5
4601782	99	P	SUR	41	-39	643	0	0.3	0.2	0.4
4601813	99	P	SUR	87	39	722	0	0.4	-0.1	0.4
4701518	99	P	SUR	82	-10	710	0	0.4	0.0	0.4
4701519	99	P	SUR	82	-9	711	0	0.4	-0.1	0.4
4701738	99	P	SUR	70	-67	698	698	0.0	0.0	0.0
4801668	99	P	SUR	88	-62	711	0	0.3	0.1	0.3
4801723	99	P	SUR	67	8	723	0	0.3	0.1	0.3
6100001	99	P	SUR	43	8	412	0	0.5	0.1	0.5
6100002	99	P	SUR	42	5	654	0	0.3	0.1	0.3
6100196	99	P	SUR	42	4	723	0	0.3	0.4	0.5
6100197	99	P	SUR	40	4	723	0	0.4	0.4	0.5
6100198	99	P	SUR	37	-2	723	0	0.4	0.5	0.6
6100280	99	P	SUR	41	1	721	0	0.4	0.3	0.5
6100417	99	P	SUR	38	0	635	0	0.4	0.3	0.5
6100430	99	P	SUR	40	2	723	0	0.3	0.4	0.5
6101003	99	P	SUR	40	25	162	0	0.5	0.0	0.5
6101007	99	P	SUR	36	25	124	0	0.5	-0.4	0.6
6101008	99	P	SUR	37	22	161	0	0.5	-0.0	0.5
6102784	99	P	SUR	32	35	282	5	0.4	-0.2	0.4
6102786	99	P	SUR	31	16	686	0	0.5	0.2	0.5
6102787	99	P	SUR	33	26	698	0	0.4	-0.1	0.4
6102789	99	P	SUR	31	28	281	1	0.6	-4.2	4.3
6102792	99	P	SUR	39	8	379	0	0.4	-0.0	0.4
6102793	99	P	SUR	40	2	722	0	0.4	0.6	0.8
6102796	99	P	SUR	41	8	723	0	0.3	0.2	0.4
6102797	99	P	SUR	37	-3	594	0	1.4	-2.8	3.1
6102798	99	P	SUR	37	1	561	0	1.2	-0.5	1.3
6102799	99	P	SUR	41	5	722	0	0.3	0.3	0.5
6102800	99	P	SUR	38	-1	371	0	1.1	0.1	1.2
6102801	99	P	SUR	38	0	722	0	0.4	0.2	0.4
6102802	99	P	SUR	39	2	491	0	0.3	-0.0	0.3
6102803	99	P	SUR	39	1	471	0	0.4	-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
6102804	99	P	SUR	39	1	471	0	0.3	0.3	0.4
6200001	99	P	SUR	45	-5	32	0	0.3	0.1	0.3
6200024	99	P	SUR	44	-3	723	0	0.5	0.4	0.6
6200025	99	P	SUR	44	-6	722	0	0.3	0.4	0.5
6200082	99	P	SUR	44	-8	723	0	0.4	0.2	0.4
6200083	99	P	SUR	43	-9	723	0	0.5	0.2	0.5
6200084	99	P	SUR	42	-9	723	0	0.4	0.3	0.5
6200085	99	P	SUR	36	-7	723	0	0.4	0.3	0.5
6200086	99	P	SUR	55	6	496	0	0.3	-0.1	0.3
6200087	99	P	SUR	55	7	475	0	0.3	-0.2	0.3
6200091	99	P	SUR	53	-5	742	0	0.3	0.0	0.3
6200092	99	P	SUR	51	-11	743	0	0.3	-0.1	0.3
6200093	99	P	SUR	55	-10	742	0	0.4	-0.1	0.4
6200094	99	P	SUR	52	-7	742	0	0.3	0.1	0.3
6200095	99	P	SUR	53	-16	743	0	0.4	-0.2	0.5
62001	99	P	SUR	45	-5	1878	0	0.4	0.0	0.4
6200191	99	P	SUR	41	-10	68	0	0.3	-0.4	0.5
6200199	99	P	SUR	40	-9	42	0	0.3	0.2	0.3
6201065	99	P	SUR	54	7	739	0	0.2	1.0	1.0
6201066	99	P	SUR	55	7	766	0	0.3	0.4	0.5
6202614	99	P	SUR	21	-65	744	0	0.4	-0.1	0.4
6202623	99	P	SUR	67	6	744	0	0.3	-0.3	0.5
6202624	99	P	SUR	61	-8	744	0	0.3	0.1	0.3
6202627	99	P	SUR	62	-21	677	0	0.3	0.0	0.3
6202630	99	P	SUR	45	-3	744	0	0.4	-0.0	0.4
6202632	99	P	SUR	64	-30	743	0	0.4	0.1	0.4
6202633	99	P	SUR	67	7	743	0	0.4	-0.1	0.4
6202635	99	P	SUR	72	36	744	0	0.4	0.2	0.5
6202637	99	P	SUR	66	-7	744	2	0.5	0.1	0.5
6202639	99	P	SUR	29	-33	744	0	0.3	-0.0	0.3
6202640	99	P	SUR	28	-41	744	0	0.3	-0.0	0.3
6202643	99	P	SUR	26	-60	744	0	0.3	-0.1	0.3
6202644	99	P	SUR	30	-43	744	0	0.2	-0.3	0.4
6202645	99	P	SUR	27	-62	744	0	0.3	-0.4	0.5
62029	99	P	SUR	49	-12	1767	0	0.3	-0.0	0.3
6203516	99	P	SUR	42	-62	669	0	0.4	0.0	0.4
6203588	99	P	SUR	57	-47	656	0	0.3	0.6	0.7
6203601	99	P	SUR	37	-47	744	0	0.3	-0.1	0.3
6203607	99	P	SUR	32	-44	744	0	1.3	0.1	1.3
6203612	99	P	SUR	27	-46	742	0	0.3	0.2	0.4
6203614	99	P	SUR	28	-61	744	0	0.3	0.3	0.5
6203615	99	P	SUR	24	-66	744	0	0.4	-0.2	0.4
6203616	99	P	SUR	21	-47	744	0	0.3	0.4	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6203617	99	P	SUR	16	-43	744	0	0.3	0.2	0.3
6203621	99	P	SUR	38	-20	744	0	0.3	-0.1	0.3
6203622	99	P	SUR	46	-28	744	0	0.3	0.2	0.4
6203625	99	P	SUR	39	-23	743	0	0.3	-0.3	0.4
6203626	99	P	SUR	60	-1	375	0	0.2	-0.1	0.3
6203627	99	P	SUR	22	-62	743	0	0.3	0.2	0.3
6203632	99	P	SUR	26	-27	744	0	0.3	0.2	0.3
6203633	99	P	SUR	62	0	744	0	0.3	0.2	0.4
6203634	99	P	SUR	31	-24	744	0	0.3	0.2	0.3
6203635	99	P	SUR	22	-56	744	0	0.3	-0.2	0.3
6203639	99	P	SUR	39	-21	742	0	0.3	-0.1	0.3
6203640	99	P	SUR	33	-16	742	0	0.3	-0.3	0.4
6203642	99	P	SUR	16	-40	744	0	0.3	0.3	0.4
6203643	99	P	SUR	24	-55	744	0	0.3	0.4	0.5
6203649	99	P	SUR	53	-16	472	12	3.4	-1.0	3.6
6203730	99	P	SUR	20	-50	665	0	0.3	0.2	0.3
6203734	99	P	SUR	15	-24	585	0	0.4	0.0	0.5
6203735	99	P	SUR	18	-67	223	0	0.5	0.2	0.5
6203737	99	P	SUR	27	-37	683	0	0.3	0.4	0.5
6203744	99	P	SUR	63	-15	228	0	0.2	0.2	0.3
6203747	99	P	SUR	62	-6	693	0	0.3	0.3	0.4
6203749	99	P	SUR	71	18	682	0	0.4	0.1	0.5
6203750	99	P	SUR	65	7	679	0	0.3	0.1	0.3
6203751	99	P	SUR	76	13	124	0	0.4	0.7	0.8
6203753	99	P	SUR	60	-25	679	0	0.3	-0.2	0.4
6203755	99	P	SUR	46	-8	685	0	0.3	-0.8	0.9
6203760	99	P	SUR	58	11	666	0	0.4	0.3	0.5
6203765	99	P	SUR	22	-39	661	0	0.3	0.5	0.6
6203767	99	P	SUR	18	-42	687	0	0.3	-0.5	0.6
6203768	99	P	SUR	37	-15	481	0	0.3	0.2	0.4
6203771	99	P	SUR	22	-30	689	0	0.2	0.1	0.3
6203772	99	P	SUR	21	-48	692	0	0.3	0.2	0.3
6203773	99	P	SUR	29	-44	687	0	0.2	-0.3	0.4
6203776	99	P	SUR	38	-27	701	0	0.3	-0.0	0.3
6203825	99	P	SUR	64	-5	723	1	0.4	0.1	0.4
6203827	99	P	SUR	63	-13	723	0	0.3	0.2	0.4
6203838	99	P	SUR	15	-45	723	0	0.3	0.3	0.4
6203839	99	P	SUR	19	-37	724	0	0.2	-0.0	0.2
6203840	99	P	SUR	25	-33	722	0	0.2	0.2	0.3
6203841	99	P	SUR	30	-15	722	0	0.3	0.0	0.3
6203842	99	P	SUR	42	-38	722	0	0.4	-0.1	0.4
6203843	99	P	SUR	28	-18	567	0	0.3	-0.7	0.8
6203844	99	P	SUR	42	-20	724	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
6203845	99	P	SUR	41	-43	724	0	0.4	-0.1	0.4
6203846	99	P	SUR	28	-19	723	0	0.3	0.0	0.3
6203848	99	P	SUR	38	-56	722	0	0.3	0.0	0.3
6203849	99	P	SUR	46	-27	723	1	0.4	0.1	0.4
6203850	99	P	SUR	45	-31	720	0	0.4	0.1	0.4
6203851	99	P	SUR	37	-54	723	0	0.3	-0.0	0.3
62050	99	P	SUR	50	-4	1857	0	0.3	-0.1	0.3
62081	99	P	SUR	51	-13	2264	0	0.3	-0.2	0.4
62091	99	P	SUR	53	-5	692	0	0.3	0.0	0.3
62092	99	P	SUR	51	-11	692	0	0.3	-0.1	0.3
62093	99	P	SUR	55	-10	691	0	0.4	-0.2	0.4
62094	99	P	SUR	52	-7	691	0	0.3	0.1	0.3
62095	99	P	SUR	53	-16	692	0	0.4	-0.2	0.5
62102	99	P	SUR	58	2	2316	0	0.3	0.2	0.4
62103	99	P	SUR	50	-3	2339	0	0.4	-0.1	0.4
62104	99	P	SUR	57	1	2293	0	0.3	0.0	0.3
62107	99	P	SUR	50	-6	2989	0	0.3	-0.1	0.3
62112	99	P	SUR	58	0	2348	0	0.2	0.3	0.4
62113	99	P	SUR	58	0	2295	0	0.4	0.1	0.4
62114	99	P	SUR	58	0	3320	0	0.3	0.3	0.4
62115	99	P	SUR	58	-3	2245	0	0.3	0.1	0.3
62116	99	P	SUR	58	1	2311	0	0.4	0.1	0.4
62118	99	P	SUR	58	1	2274	0	0.3	0.5	0.6
62119	99	P	SUR	57	2	2233	0	0.3	0.3	0.4
62120	99	P	SUR	56	2	2176	0	0.3	-0.0	0.3
62121	99	P	SUR	54	3	2304	0	0.3	0.3	0.5
62122	99	P	SUR	57	2	2945	0	0.3	0.2	0.4
62124	99	P	SUR	54	-4	2333	0	0.3	0.1	0.3
62127	99	P	SUR	54	1	2247	0	0.3	0.7	0.8
62129	99	P	SUR	58	0	2298	0	0.4	0.2	0.4
62130	99	P	SUR	59	1	1865	0	0.3	-0.0	0.3
62131	99	P	SUR	54	1	2316	0	0.3	0.6	0.7
62132	99	P	SUR	56	2	2169	0	0.4	0.5	0.7
62133	99	P	SUR	57	1	2250	0	0.4	0.2	0.4
62135	99	P	SUR	54	2	2267	0	0.3	0.4	0.5
62138	99	P	SUR	54	0	2941	0	0.4	0.6	0.7
62140	99	P	SUR	57	1	2909	0	0.3	0.2	0.4
62141	99	P	SUR	58	0	2347	0	0.4	-0.1	0.4
62143	99	P	SUR	58	2	2316	0	0.4	0.7	0.8
62144	99	P	SUR	53	2	2287	0	0.3	0.3	0.5
62145	99	P	SUR	53	3	2871	0	0.3	0.4	0.5
62146	99	P	SUR	57	2	2222	0	0.3	0.0	0.3
62149	99	P	SUR	54	1	2332	0	0.3	0.8	0.9

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62151	99	P	SUR	57	2	2504	0	0.3	0.3	0.4
62152	99	P	SUR	57	2	2207	0	0.3	0.5	0.6
62153	99	P	SUR	57	2	2944	0	1.2	0.9	1.5
62154	99	P	SUR	56	2	2179	0	0.3	0.1	0.3
62155	99	P	SUR	58	1	2311	0	0.3	0.5	0.6
62157	99	P	SUR	58	0	2315	0	0.3	0.1	0.3
62160	99	P	SUR	57	2	2821	0	0.4	0.6	0.7
62161	99	P	SUR	58	1	2169	0	0.4	0.1	0.4
62162	99	P	SUR	57	1	2303	0	0.3	0.1	0.3
62163	99	P	SUR	48	-8	2334	0	0.3	0.3	0.4
62164	99	P	SUR	57	1	2250	0	0.3	0.7	0.7
62165	99	P	SUR	54	1	2269	0	0.3	0.7	0.8
62168	99	P	SUR	58	1	2213	0	0.3	0.2	0.3
62170	99	P	SUR	51	2	2323	0	0.4	0.1	0.4
62296	99	P	SUR	53	2	2240	0	0.3	0.1	0.3
62297	99	P	SUR	59	2	2372	0	0.3	0.1	0.3
62302	99	P	SUR	61	-2	2350	0	0.4	0.0	0.4
62304	99	P	SUR	51	2	2287	0	0.4	-0.2	0.4
62305	99	P	SUR	50	0	2941	0	0.4	0.1	0.4
62442	99	P	SUR	49	-16	2105	0	0.3	-0.2	0.4
6301001	99	P	SUR	64	5	743	0	0.3	-0.2	0.4
6301003	99	P	SUR	74	24	124	0	0.2	-0.6	0.6
6301004	99	P	SUR	72	20	554	0	0.5	-0.3	0.6
6301570	99	P	SUR	62	-7	301	0	0.6	0.2	0.6
6301572	99	P	SUR	68	-21	625	6	2.1	0.1	2.1
6301573	99	P	SUR	82	-10	744	0	0.4	-0.2	0.4
6301575	99	P	SUR	81	-8	743	0	0.4	-0.2	0.4
6301576	99	P	SUR	64	-39	744	0	0.8	-0.5	0.9
6301577	99	P	SUR	68	-1	744	0	0.4	0.1	0.4
63055	99	P	SUR	61	2	2330	0	0.3	-0.1	0.3
63056	99	P	SUR	60	2	2333	0	0.5	0.4	0.6
63057	99	P	SUR	59	2	1531	0	0.3	-0.1	0.3
63058	99	P	SUR	53	2	3744	0	0.6	0.5	0.8
63059	99	P	SUR	58	-1	2304	0	0.3	0.7	0.8
63101	99	P	SUR	61	1	2325	0	0.4	0.2	0.4
63102	99	P	SUR	61	1	2324	0	0.3	0.0	0.3
63103	99	P	SUR	61	1	2323	0	0.3	0.2	0.3
63108	99	P	SUR	61	2	2328	0	0.4	-0.1	0.4
63109	99	P	SUR	60	2	2277	0	0.3	-0.3	0.4
63110	99	P	SUR	60	2	2262	0	0.4	-0.1	0.4
63111	99	P	SUR	61	2	2935	0	0.3	-0.3	0.4
63112	99	P	SUR	61	1	2329	0	0.3	-0.3	0.4
63115	99	P	SUR	62	1	2320	0	0.4	0.0	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
63117	99	P	SUR	61	1	2934	0	0.4	0.4	0.6
63118	99	P	SUR	58	-4	2325	0	0.4	-0.1	0.5
6401531	99	P	SUR	53	-9	660	0	0.3	-0.2	0.4
6401574	99	P	SUR	62	-11	743	0	0.3	0.3	0.4
6401575	99	P	SUR	69	14	744	0	0.3	0.0	0.3
6401576	99	P	SUR	72	-22	628	0	0.4	-0.4	0.6
6401578	99	P	SUR	78	-19	744	0	0.4	-0.1	0.4
6401592	99	P	SUR	63	-1	743	0	0.3	0.1	0.3
6401759	99	P	SUR	55	-41	744	0	0.4	0.2	0.5
6401760	99	P	SUR	60	-52	744	0	0.3	0.1	0.4
6401761	99	P	SUR	56	-54	744	0	0.4	0.3	0.5
6401762	99	P	SUR	65	-5	744	0	0.3	0.2	0.4
6401763	99	P	SUR	66	12	743	0	0.4	-0.5	0.6
6401839	99	P	SUR	69	8	421	0	0.3	0.1	0.3
6401843	99	P	SUR	63	-1	425	0	0.3	0.2	0.3
6402539	99	P	SUR	60	-7	665	0	0.3	0.1	0.3
6402543	99	P	SUR	63	-32	649	0	0.4	0.2	0.5
6402544	99	P	SUR	70	12	655	0	0.3	0.0	0.3
6402547	99	P	SUR	54	-32	659	0	0.3	0.0	0.3
6402550	99	P	SUR	75	33	443	38	4.9	4.7	6.8
6402551	99	P	SUR	58	-53	624	0	0.3	0.3	0.4
6402552	99	P	SUR	67	-3	537	0	0.3	0.1	0.4
6402554	99	P	SUR	71	21	88	0	0.4	0.4	0.6
6402557	99	P	SUR	72	7	631	0	0.3	0.0	0.3
6402560	99	P	SUR	67	-4	619	0	0.3	-0.1	0.3
6402562	99	P	SUR	57	-50	654	0	0.3	0.0	0.3
6402563	99	P	SUR	69	12	607	0	0.3	0.2	0.4
6402587	99	P	SUR	53	-49	536	0	2.9	6.8	7.4
6402592	99	P	SUR	60	-58	551	0	0.4	-0.5	0.6
6402594	99	P	SUR	59	-56	604	0	0.4	0.2	0.4
6402596	99	P	SUR	56	-36	583	0	0.3	-0.1	0.3
6402597	99	P	SUR	55	-52	509	0	0.4	0.0	0.4
6402599	99	P	SUR	52	-49	540	0	0.4	0.1	0.4
6402611	99	P	SUR	47	-43	439	0	0.3	0.2	0.4
6402615	99	P	SUR	16	-42	680	0	0.2	0.2	0.3
6402616	99	P	SUR	21	-38	676	0	0.2	0.3	0.3
6402617	99	P	SUR	22	-35	684	0	0.2	0.3	0.4
6402618	99	P	SUR	21	-27	667	0	0.3	0.3	0.4
6402619	99	P	SUR	40	-11	692	0	0.3	0.2	0.3
6402620	99	P	SUR	47	-11	688	0	0.3	0.5	0.5
6402621	99	P	SUR	44	-13	696	0	0.3	0.4	0.5
6402622	99	P	SUR	39	-14	678	0	0.3	0.2	0.4
6402654	99	P	SUR	59	-10	578	0	0.3	0.1	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6402655	99	P	SUR	66	-2	484	0	0.3	0.1	0.3
6402656	99	P	SUR	55	-42	353	38	2.5	11.4	11.7
6402659	99	P	SUR	70	19	642	0	0.8	0.4	0.9
6402660	99	P	SUR	66	-23	553	0	0.5	-0.6	0.7
6402661	99	P	SUR	63	-15	484	0	0.5	0.1	0.5
6402663	99	P	SUR	67	-20	620	0	0.4	0.1	0.4
6402665	99	P	SUR	68	10	615	0	0.3	0.2	0.4
6402666	99	P	SUR	64	-21	656	0	0.4	-0.3	0.5
6402667	99	P	SUR	64	-20	651	0	0.4	-0.9	1.0
6402668	99	P	SUR	65	2	647	0	0.3	0.5	0.6
64041	99	P	SUR	61	-3	2353	0	0.3	0.0	0.3
64045	99	P	SUR	59	-12	2336	0	0.3	-0.1	0.3
6501670	99	P	SUR	78	7	654	0	0.3	0.1	0.3
6501671	99	P	SUR	79	9	656	0	0.5	-0.0	0.5
6501674	99	P	SUR	80	19	632	185	5.8	6.1	8.4
6501679	99	P	SUR	72	-13	658	0	0.4	0.2	0.4
6501689	99	P	SUR	77	29	1838	750	7.8	5.0	9.3
6600021	99	P	SUR	55	14	5	5	0.0	0.0	0.0
6600022	99	P	SUR	54	14	254	0	0.4	-0.2	0.4

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

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


TIME = 99 => AVERAGE OF ALL OBSERVATIONS


GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S
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WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300001	99	SPEED	SUR	11	-23	600	0	0	0.9	0.5	1.0
1300002	99	SPEED	SUR	20	-23	600	0	0	0.7	0.1	0.7
1300008	99	SPEED	SUR	15	-38	606	0	0	0.7	-0.1	0.7
1300130	99	SPEED	SUR	28	-16	94	0	0	0.6	-0.2	0.6
1300131	99	SPEED	SUR	28	-17	713	0	0	2.0	1.5	2.5
4100040	99	SPEED	SUR	15	-53	4459	0	0	0.6	-0.4	0.7
4100043	99	SPEED	SUR	21	-65	4453	0	0	0.8	-0.1	0.8
4100046	99	SPEED	SUR	24	-68	4446	0	0	1.3	-0.1	1.3
4100048	99	SPEED	SUR	32	-70	3591	0	0	1.2	0.0	1.2
4100049	99	SPEED	SUR	27	-63	4452	0	0	1.1	-0.2	1.1
4100052	99	SPEED	SUR	18	-65	4265	0	0	0.7	-0.2	0.7
4100053	99	SPEED	SUR	18	-66	3754	0	0	1.3	1.4	1.9
4100056	99	SPEED	SUR	18	-65	2584	0	0	1.0	-0.5	1.1
4100139	99	SPEED	SUR	20	-38	736	0	0	0.9	-0.2	0.9
4100300	99	SPEED	SUR	16	-57	705	0	0	0.7	-1.0	1.3
41040	99	SPEED	SUR	15	-53	5511	0	0	0.7	-0.5	0.9
41043	99	SPEED	SUR	21	-65	5090	0	0	0.9	-0.2	0.9
41044	99	SPEED	SUR	22	-59	6	0	0	1.1	-0.7	1.3
41046	99	SPEED	SUR	24	-68	6037	0	0	1.4	-0.2	1.4
41048	99	SPEED	SUR	32	-70	5283	0	0	1.3	-0.0	1.3
41049	99	SPEED	SUR	28	-63	5940	0	0	1.2	-0.3	1.2
41052	99	SPEED	SUR	18	-65	3372	0	0	0.7	-0.1	0.7
41053	99	SPEED	SUR	19	-66	3116	0	0	1.3	0.6	1.4
41056	99	SPEED	SUR	18	-66	2132	0	0	1.0	-0.2	1.0
4200059	99	SPEED	SUR	15	-67	4459	0	0	0.7	0.1	0.7
4200085	99	SPEED	SUR	18	-67	2718	0	0	1.1	-0.6	1.2
42059	99	SPEED	SUR	15	-68	4935	0	0	0.7	-0.0	0.8
42060	99	SPEED	SUR	16	-63	4	0	0	1.0	0.5	1.1
42085	99	SPEED	SUR	18	-67	2540	0	0	1.1	-0.3	1.2
4400005	99	SPEED	SUR	43	-69	743	0	0	1.4	-0.5	1.5
4400008	99	SPEED	SUR	40	-69	4473	0	0	1.3	-0.5	1.4
4400027	99	SPEED	SUR	44	-67	739	0	0	1.4	-0.4	1.5
4400032	99	SPEED	SUR	44	-69	743	0	0	1.5	-0.5	1.6
4400033	99	SPEED	SUR	44	-69	743	0	0	1.5	-0.2	1.5

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4400034	99	SPEED	SUR	44	-68	742	0	0	1.4	-0.8	1.6
4400037	99	SPEED	SUR	43	-68	674	0	0	1.3	-0.5	1.4
44005	99	SPEED	SUR	43	-69	1942	0	0	1.4	-0.5	1.5
44008	99	SPEED	SUR	41	-69	5820	0	0	1.4	-0.6	1.5
44027	99	SPEED	SUR	44	-67	1927	0	0	1.5	-0.3	1.5
44032	99	SPEED	SUR	44	-69	1249	0	0	1.5	-0.4	1.6
44033	99	SPEED	SUR	44	-69	1249	0	0	1.5	0.0	1.5
44034	99	SPEED	SUR	44	-68	1246	0	0	1.4	-0.8	1.6
44037	99	SPEED	SUR	44	-68	1136	0	0	1.4	-0.5	1.5
44137	99	SPEED	SUR	42	-62	722	0	0	1.3	-0.0	1.3
44139	99	SPEED	SUR	44	-57	418	0	0	1.2	0.4	1.2
44150	99	SPEED	SUR	43	-64	728	0	0	1.5	0.0	1.5
44258	99	SPEED	SUR	45	-63	733	0	0	1.7	-0.7	1.8
44489	99	SPEED	SUR	46	-61	739	0	0	1.7	0.5	1.8
44490	99	SPEED	SUR	45	-66	700	0	0	1.7	-0.9	1.9
6100001	99	SPEED	SUR	43	8	623	0	0	1.8	-1.1	2.1
6100002	99	SPEED	SUR	42	5	652	0	0	1.3	-0.6	1.5
6100196	99	SPEED	SUR	42	4	690	0	0	1.6	-0.7	1.8
6100197	99	SPEED	SUR	40	4	660	0	0	1.4	-0.7	1.5
6100198	99	SPEED	SUR	37	-2	707	0	0	1.7	-1.0	2.0
6100280	99	SPEED	SUR	41	1	683	0	0	1.2	-0.6	1.4
6100417	99	SPEED	SUR	38	0	627	0	0	1.1	-0.4	1.2
6100430	99	SPEED	SUR	40	2	682	0	0	1.3	-0.3	1.4
6101003	99	SPEED	SUR	40	25	162	0	0	1.5	-0.2	1.5
6101007	99	SPEED	SUR	36	25	127	0	0	1.6	-0.5	1.7
6101008	99	SPEED	SUR	37	22	161	0	0	1.9	-1.0	2.1
6101009	99	SPEED	SUR	35	25	41	0	0	2.4	-0.1	2.4
6200001	99	SPEED	SUR	45	-5	32	0	0	0.4	-0.5	0.7
6200024	99	SPEED	SUR	44	-3	702	0	0	1.2	-0.5	1.3
6200025	99	SPEED	SUR	44	-6	709	0	0	1.3	-0.5	1.4
6200082	99	SPEED	SUR	44	-8	719	0	0	1.0	-0.6	1.2
6200083	99	SPEED	SUR	43	-9	718	0	0	1.2	-0.7	1.4
6200084	99	SPEED	SUR	42	-9	717	0	0	1.1	-0.5	1.2
6200085	99	SPEED	SUR	36	-7	715	0	0	1.5	-0.8	1.7
6200086	99	SPEED	SUR	55	6	496	0	0	1.4	1.1	1.8
6200087	99	SPEED	SUR	55	7	476	0	0	1.3	1.1	1.7
6200091	99	SPEED	SUR	53	-5	742	0	0	1.3	-0.1	1.3
6200092	99	SPEED	SUR	51	-11	743	0	0	0.9	0.3	0.9
6200093	99	SPEED	SUR	55	-10	742	0	0	1.1	-0.7	1.3
6200094	99	SPEED	SUR	52	-7	742	0	0	1.0	-0.4	1.1
6200095	99	SPEED	SUR	53	-16	743	0	0	1.0	-0.2	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
62001	99	SPEED	SUR	45	-5	1878	0	0	1.3	0.4	1.3
6200191	99	SPEED	SUR	41	-10	68	0	0	1.0	0.1	1.0
6200199	99	SPEED	SUR	40	-9	42	0	0	1.8	-1.2	2.1
6201065	99	SPEED	SUR	54	7	38	0	0	1.0	-0.6	1.2
6201066	99	SPEED	SUR	55	7	766	0	0	1.3	0.4	1.4
62029	99	SPEED	SUR	49	-12	1767	0	0	1.1	0.6	1.2
62050	99	SPEED	SUR	50	-4	18	0	0	0.4	1.0	1.0
62081	99	SPEED	SUR	51	-13	2264	0	0	1.0	0.8	1.2
62091	99	SPEED	SUR	53	-5	692	0	0	1.4	-0.1	1.4
62092	99	SPEED	SUR	51	-11	692	0	0	0.9	0.6	1.1
62093	99	SPEED	SUR	55	-10	691	0	0	1.1	-0.4	1.2
62094	99	SPEED	SUR	52	-7	691	0	0	1.0	-0.2	1.0
62095	99	SPEED	SUR	53	-16	692	0	0	1.0	0.2	1.0
62102	99	SPEED	SUR	58	2	2316	0	0	1.0	0.2	1.0
62103	99	SPEED	SUR	50	-3	2339	0	0	1.3	-0.6	1.5
62104	99	SPEED	SUR	57	1	2293	0	0	1.2	0.1	1.2
62107	99	SPEED	SUR	50	-6	1479	0	0	1.3	-0.0	1.3
62112	99	SPEED	SUR	58	0	2348	0	0	1.3	-0.3	1.4
62113	99	SPEED	SUR	58	0	2295	0	0	1.5	0.5	1.6
62114	99	SPEED	SUR	58	0	3325	0	0	1.3	0.8	1.5
62118	99	SPEED	SUR	58	1	2274	0	0	1.2	0.6	1.4
62119	99	SPEED	SUR	57	2	2233	0	0	1.4	-0.3	1.4
62120	99	SPEED	SUR	56	2	2176	0	0	1.2	0.3	1.2
62121	99	SPEED	SUR	54	3	2304	0	0	1.2	-0.3	1.2
62122	99	SPEED	SUR	57	2	2945	0	0	1.0	0.0	1.0
62129	99	SPEED	SUR	58	0	2298	0	0	1.3	0.4	1.3
62131	99	SPEED	SUR	54	1	2316	0	0	1.8	-0.1	1.8
62132	99	SPEED	SUR	56	2	2169	0	0	2.5	-1.3	2.8
62133	99	SPEED	SUR	57	1	2250	0	0	1.4	0.3	1.4
62140	99	SPEED	SUR	57	1	2884	0	0	1.0	0.1	1.0
62143	99	SPEED	SUR	58	2	2316	0	0	1.6	-0.6	1.7
62144	99	SPEED	SUR	53	2	2287	0	0	1.8	-0.7	1.9
62145	99	SPEED	SUR	53	3	2871	0	0	1.5	1.0	1.8
62146	99	SPEED	SUR	57	2	10	0	0	1.6	-1.2	2.0
62148	99	SPEED	SUR	54	2	2176	0	0	1.8	-0.3	1.8
62149	99	SPEED	SUR	54	1	2332	0	0	1.5	0.1	1.5
62152	99	SPEED	SUR	57	2	2207	0	0	1.9	-0.8	2.1
62153	99	SPEED	SUR	57	2	2944	0	0	2.0	-0.8	2.2
62154	99	SPEED	SUR	56	2	2177	0	0	1.3	0.3	1.3
62155	99	SPEED	SUR	58	1	2068	0	0	1.3	0.1	1.3
62163	99	SPEED	SUR	48	-8	359	0	0	0.7	0.7	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
62164	99	SPEED	SUR	57	1	2250	0	0	1.4	-0.9	1.7
62165	99	SPEED	SUR	54	1	2269	0	0	1.6	-0.2	1.7
62170	99	SPEED	SUR	51	2	2323	0	0	1.5	0.2	1.5
62304	99	SPEED	SUR	51	2	2287	0	0	1.6	0.6	1.7
62305	99	SPEED	SUR	50	0	2941	0	0	1.3	0.3	1.3
62442	99	SPEED	SUR	49	-16	1766	0	0	0.9	0.5	1.0
6301001	99	SPEED	SUR	64	5	743	0	0	1.2	-0.1	1.2
6301003	99	SPEED	SUR	74	24	124	0	0	1.0	-0.2	1.1
6301004	99	SPEED	SUR	72	20	554	0	0	1.2	-0.5	1.3
63055	99	SPEED	SUR	61	2	2330	0	0	1.2	-0.7	1.4
63056	99	SPEED	SUR	60	2	2333	0	0	1.3	0.6	1.5
63057	99	SPEED	SUR	59	2	1531	0	0	1.8	-0.9	2.0
63058	99	SPEED	SUR	53	2	2190	0	0	1.3	0.3	1.4
63101	99	SPEED	SUR	61	1	2325	0	0	1.1	-0.1	1.1
63103	99	SPEED	SUR	61	1	2323	0	0	1.5	0.1	1.5
63106	99	SPEED	SUR	61	2	2135	0	0	1.9	-0.6	2.0
63108	99	SPEED	SUR	61	2	2328	0	0	1.5	0.4	1.5
63109	99	SPEED	SUR	60	2	2227	0	0	1.3	0.6	1.4
63110	99	SPEED	SUR	60	2	2262	0	0	1.2	0.0	1.2
63112	99	SPEED	SUR	61	1	2329	0	0	1.1	0.0	1.2
63115	99	SPEED	SUR	62	1	2320	0	0	1.2	-0.3	1.2
63117	99	SPEED	SUR	61	1	2934	0	0	1.2	-0.0	1.2
64041	99	SPEED	SUR	61	-3	2353	0	0	1.3	-0.2	1.3
64045	99	SPEED	SUR	59	-12	2336	0	0	1.0	0.8	1.2
6600021	99	SPEED	SUR	55	14	61	0	0	1.7	-0.2	1.7
6600022	99	SPEED	SUR	54	14	254	0	0	1.3	-0.1	1.3
66022	99	SPEED	SUR	54	14	870	0	0	1.5	-0.0	1.5

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

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


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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300001	99	DIRN	SUR	11	-23	526	0	0	11.6	1.1	11.6
1300002	99	DIRN	SUR	20	-23	587	0	0	9.0	-2.3	9.2
1300008	99	DIRN	SUR	15	-38	591	0	0	92.9	6.6	93.2
1300130	99	DIRN	SUR	28	-16	94	0	0	6.6	5.4	8.6
1300131	99	DIRN	SUR	28	-17	369	0	0	37.1	-64.5	74.4
1801606	99	DIRN	SUR	36	-76	125	0	0	32.9	10.0	34.4
4100001	99	DIRN	SUR	35	-72	3776	0	0	13.6	10.8	17.4
4100002	99	DIRN	SUR	32	-75	3446	0	0	20.1	5.7	20.9
4100004	99	DIRN	SUR	33	-79	3230	0	0	21.0	3.6	21.3
4100008	99	DIRN	SUR	31	-81	586	0	0	19.3	-2.1	19.4
4100009	99	DIRN	SUR	29	-80	3300	0	0	20.0	3.2	20.3
4100010	99	DIRN	SUR	29	-78	3638	0	0	16.3	9.1	18.6
4100013	99	DIRN	SUR	33	-78	3455	0	0	24.4	7.5	25.5
4100024	99	DIRN	SUR	34	-78	624	0	0	16.7	6.9	18.1
4100025	99	DIRN	SUR	35	-75	3708	0	0	26.3	0.5	26.3
4100029	99	DIRN	SUR	33	-80	607	0	0	19.9	3.4	20.2
4100033	99	DIRN	SUR	32	-80	368	0	0	14.7	4.0	15.3
4100037	99	DIRN	SUR	34	-77	583	0	0	22.7	8.1	24.1
4100038	99	DIRN	SUR	34	-78	595	0	0	23.7	-15.7	28.4
4100040	99	DIRN	SUR	15	-53	4444	0	0	8.4	3.5	9.1
4100043	99	DIRN	SUR	21	-65	4396	0	0	10.3	1.8	10.4
4100046	99	DIRN	SUR	24	-68	4004	0	0	24.3	9.9	26.2
4100047	99	DIRN	SUR	27	-71	3647	0	0	17.4	8.7	19.4
4100048	99	DIRN	SUR	32	-70	3060	0	0	16.9	8.5	18.9
4100049	99	DIRN	SUR	27	-63	3180	0	0	16.3	8.8	18.5
4100052	99	DIRN	SUR	18	-65	4257	0	0	8.5	7.8	11.5
4100053	99	DIRN	SUR	18	-66	3030	0	0	13.7	8.8	16.3
4100056	99	DIRN	SUR	18	-65	2567	0	0	13.6	5.7	14.7
4100064	99	DIRN	SUR	34	-77	585	0	0	19.7	-13.6	24.0
4100066	99	DIRN	SUR	33	-80	557	0	0	20.7	9.5	22.8
41001	99	DIRN	SUR	35	-72	4855	0	0	14.0	9.9	17.1
4100139	99	DIRN	SUR	20	-38	677	0	0	11.3	-0.3	11.3

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
41002	99	DIRN	SUR	32	-75	4487	0	0	20.6	5.7	21.3
4100300	99	DIRN	SUR	16	-57	695	0	0	11.3	-13.7	17.8
41004	99	DIRN	SUR	33	-79	4578	0	0	20.9	2.8	21.1
41008	99	DIRN	SUR	31	-81	1526	0	0	18.3	-2.5	18.4
41009	99	DIRN	SUR	29	-80	4505	0	0	19.8	2.3	19.9
41010	99	DIRN	SUR	29	-79	4800	0	0	17.0	8.6	19.1
41013	99	DIRN	SUR	33	-78	4472	0	0	24.9	7.2	25.9
41024	99	DIRN	SUR	34	-79	1077	0	0	18.0	6.3	19.0
41025	99	DIRN	SUR	35	-76	4629	0	0	26.1	0.2	26.1
41029	99	DIRN	SUR	33	-80	1397	0	0	21.7	2.3	21.8
41033	99	DIRN	SUR	32	-80	629	0	0	15.3	3.4	15.7
41037	99	DIRN	SUR	34	-77	1031	0	0	23.1	7.4	24.2
41038	99	DIRN	SUR	34	-78	1039	0	0	23.5	-15.4	28.1
41040	99	DIRN	SUR	15	-53	5456	0	0	9.0	3.1	9.5
41043	99	DIRN	SUR	21	-65	4946	0	0	10.9	1.5	11.0
41044	99	DIRN	SUR	22	-59	4	0	0	38.2	81.6	90.1
41046	99	DIRN	SUR	24	-68	5370	0	0	25.2	9.0	26.8
41047	99	DIRN	SUR	28	-72	4955	0	0	18.0	8.6	19.9
41048	99	DIRN	SUR	32	-70	4384	0	0	17.7	8.2	19.5
41049	99	DIRN	SUR	28	-63	4093	0	0	15.5	8.5	17.7
41052	99	DIRN	SUR	18	-65	3362	0	0	8.9	7.2	11.5
41053	99	DIRN	SUR	19	-66	2700	0	0	14.1	6.0	15.4
41056	99	DIRN	SUR	18	-66	2103	0	0	13.8	6.5	15.3
41064	99	DIRN	SUR	34	-77	1009	0	0	20.2	-14.6	24.9
41066	99	DIRN	SUR	33	-80	955	0	0	20.1	9.5	22.2
4200013	99	DIRN	SUR	27	-83	876	0	0	23.2	1.3	23.2
4200022	99	DIRN	SUR	28	-84	815	0	0	26.6	-0.5	26.7
4200023	99	DIRN	SUR	26	-83	500	0	0	18.8	-1.6	18.9
4200026	99	DIRN	SUR	25	-83	964	0	0	15.6	-3.9	16.1
4200036	99	DIRN	SUR	29	-85	2416	0	0	26.1	4.8	26.6
4200056	99	DIRN	SUR	20	-85	3812	0	0	13.0	8.5	15.5
4200059	99	DIRN	SUR	15	-67	4459	0	0	7.4	3.1	8.0
4200085	99	DIRN	SUR	18	-67	2699	0	0	15.5	8.9	17.8
42013	99	DIRN	SUR	27	-83	1104	0	0	21.6	0.2	21.6
42022	99	DIRN	SUR	28	-84	1011	0	0	26.7	-0.7	26.7
42023	99	DIRN	SUR	26	-83	782	0	0	19.2	-1.6	19.3
42026	99	DIRN	SUR	25	-84	1247	0	0	15.6	-3.5	16.0
42036	99	DIRN	SUR	29	-85	3194	0	0	26.1	4.0	26.4
42056	99	DIRN	SUR	20	-85	4116	0	0	13.2	7.7	15.3
42059	99	DIRN	SUR	15	-68	4935	0	0	8.0	2.6	8.4
42060	99	DIRN	SUR	16	-63	4	0	0	13.4	92.1	93.0

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
42085	99	DIRN	SUR	18	-67	2516	0	0	14.9	8.0	16.9
4400005	99	DIRN	SUR	43	-69	558	0	0	16.2	7.0	17.7
4400007	99	DIRN	SUR	44	-70	2729	0	0	21.7	9.2	23.5
4400008	99	DIRN	SUR	40	-69	3669	0	0	14.2	15.8	21.2
4400009	99	DIRN	SUR	38	-75	2836	0	0	20.2	8.7	22.0
4400013	99	DIRN	SUR	42	-71	3056	0	0	18.1	9.4	20.4
4400014	99	DIRN	SUR	37	-75	2384	0	0	17.6	14.9	23.0
4400017	99	DIRN	SUR	41	-72	3531	0	0	16.2	13.1	20.8
4400020	99	DIRN	SUR	41	-70	3725	0	0	17.8	6.6	19.0
4400022	99	DIRN	SUR	41	-74	394	0	0	22.3	0.5	22.3
4400027	99	DIRN	SUR	44	-67	559	0	0	17.6	7.1	19.0
4400029	99	DIRN	SUR	43	-71	546	0	0	20.6	4.5	21.1
4400030	99	DIRN	SUR	43	-70	504	0	0	19.0	17.3	25.7
4400032	99	DIRN	SUR	44	-69	490	0	0	20.8	5.8	21.6
4400033	99	DIRN	SUR	44	-69	436	0	0	22.0	3.4	22.3
4400034	99	DIRN	SUR	44	-68	506	0	0	18.6	11.2	21.7
4400037	99	DIRN	SUR	43	-68	485	0	0	19.1	7.1	20.4
4400039	99	DIRN	SUR	41	-73	312	0	0	43.6	8.6	44.4
4400040	99	DIRN	SUR	41	-74	432	0	0	20.0	-6.8	21.2
4400041	99	DIRN	SUR	37	-77	1757	0	0	20.6	0.0	20.6
4400042	99	DIRN	SUR	38	-76	4303	0	0	23.8	1.8	23.9
4400058	99	DIRN	SUR	38	-76	5029	0	0	30.5	-0.3	30.5
4400062	99	DIRN	SUR	39	-76	3823	0	0	24.6	5.0	25.1
4400063	99	DIRN	SUR	39	-76	3675	0	0	24.6	-0.5	24.6
4400064	99	DIRN	SUR	37	-76	2042	0	0	24.9	5.0	25.4
4400065	99	DIRN	SUR	40	-74	3314	0	0	21.4	11.1	24.1
4400072	99	DIRN	SUR	37	-76	4637	0	0	32.1	-2.6	32.2
4400073	99	DIRN	SUR	43	-71	149	0	0	18.2	5.7	19.1
44005	99	DIRN	SUR	43	-69	1383	0	0	15.1	6.0	16.2
44007	99	DIRN	SUR	44	-70	4083	0	0	21.4	8.5	23.0
44008	99	DIRN	SUR	41	-69	4649	0	0	14.7	15.3	21.2
44009	99	DIRN	SUR	39	-75	3775	0	0	20.6	8.2	22.2
44013	99	DIRN	SUR	42	-71	4025	0	0	17.9	8.2	19.6
44014	99	DIRN	SUR	37	-75	3849	0	0	18.3	14.4	23.3
44017	99	DIRN	SUR	41	-72	4590	0	0	16.4	12.5	20.6
44020	99	DIRN	SUR	42	-70	4760	0	0	17.7	5.3	18.5
44022	99	DIRN	SUR	41	-74	550	0	0	23.3	0.9	23.3
44025	99	DIRN	SUR	40	-73	119	0	0	87.7	29.4	92.5
44027	99	DIRN	SUR	44	-67	1437	0	0	18.2	6.1	19.2
44029	99	DIRN	SUR	43	-71	1227	0	0	20.1	3.4	20.4
44030	99	DIRN	SUR	43	-70	810	0	0	19.1	16.7	25.4

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44032	99	DIRN	SUR	44	-69	791	0	0	22.2	6.3	23.0
44033	99	DIRN	SUR	44	-69	691	0	0	19.6	2.0	19.7
44034	99	DIRN	SUR	44	-68	824	0	0	18.9	11.3	22.0
44037	99	DIRN	SUR	44	-68	771	0	0	19.3	6.8	20.5
44039	99	DIRN	SUR	41	-73	509	0	0	43.2	8.7	44.1
44040	99	DIRN	SUR	41	-74	642	0	0	18.5	-7.5	20.0
44041	99	DIRN	SUR	37	-77	2060	0	0	20.7	-0.7	20.8
44042	99	DIRN	SUR	38	-76	4673	0	0	24.7	1.3	24.8
44058	99	DIRN	SUR	38	-76	5440	0	0	28.4	-1.0	28.4
44062	99	DIRN	SUR	39	-76	4968	0	0	24.7	4.9	25.2
44063	99	DIRN	SUR	39	-76	4664	0	0	24.0	-0.5	24.0
44064	99	DIRN	SUR	37	-76	2646	0	0	24.7	4.2	25.1
44065	99	DIRN	SUR	40	-74	4108	0	0	22.3	10.7	24.7
44069	99	DIRN	SUR	41	-73	32	0	0	16.0	5.2	16.9
44072	99	DIRN	SUR	37	-76	5375	0	0	34.9	-3.3	35.0
44073	99	DIRN	SUR	43	-71	240	0	0	23.4	4.3	23.8
44137	99	DIRN	SUR	42	-62	544	0	0	13.5	12.9	18.7
44139	99	DIRN	SUR	44	-57	353	0	0	15.3	50.0	52.3
44150	99	DIRN	SUR	43	-64	529	0	0	19.3	15.7	24.8
44258	99	DIRN	SUR	45	-63	476	0	0	18.2	9.7	20.7
44489	99	DIRN	SUR	46	-61	481	0	0	25.0	6.3	25.8
44490	99	DIRN	SUR	45	-66	515	0	0	21.6	7.9	23.0
4500005	99	DIRN	SUR	42	-82	1959	0	0	21.0	13.5	25.0
4500012	99	DIRN	SUR	44	-77	2253	0	0	23.9	15.8	28.6
4500162	99	DIRN	SUR	45	-83	1347	0	0	17.3	7.5	18.8
4500163	99	DIRN	SUR	44	-84	1281	0	0	25.5	5.9	26.2
4500175	99	DIRN	SUR	46	-85	322	0	0	43.5	28.2	51.8
4500196	99	DIRN	SUR	42	-82	1129	0	0	42.8	130.1	136.9
4500197	99	DIRN	SUR	42	-82	1177	0	0	31.2	39.1	50.1
45005	99	DIRN	SUR	42	-82	2480	0	0	21.6	12.8	25.1
45012	99	DIRN	SUR	44	-77	2665	0	0	24.9	14.9	29.0
45132	99	DIRN	SUR	43	-81	515	0	0	23.9	10.8	26.3
45135	99	DIRN	SUR	44	-77	370	0	0	25.4	16.2	30.2
45137	99	DIRN	SUR	46	-81	409	0	0	24.4	13.7	28.0
45142	99	DIRN	SUR	43	-79	437	0	0	22.7	6.0	23.5
45143	99	DIRN	SUR	45	-81	419	0	0	28.6	11.8	31.0
45149	99	DIRN	SUR	44	-82	495	0	0	22.0	20.3	29.9
45152	99	DIRN	SUR	46	-80	219	0	0	20.5	3.7	20.8
45154	99	DIRN	SUR	46	-83	238	0	0	31.7	16.9	35.9
45159	99	DIRN	SUR	44	-79	309	0	0	22.7	8.7	24.3
45162	99	DIRN	SUR	45	-83	1573	0	0	16.9	7.3	18.4

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
45163	99	DIRN	SUR	44	-84	1794	0	0	23.3	5.5	24.0
45175	99	DIRN	SUR	46	-85	750	0	0	49.0	30.2	57.6
45196	99	DIRN	SUR	42	-82	1504	0	0	42.6	130.8	137.5
45197	99	DIRN	SUR	42	-82	1708	0	0	30.2	39.8	50.0
6100198	99	DIRN	SUR	37	-2	433	0	0	16.5	2.3	16.7
6100417	99	DIRN	SUR	38	0	335	0	0	16.5	7.5	18.1
6200001	99	DIRN	SUR	45	-5	18	0	0	8.5	-9.1	12.4
6200024	99	DIRN	SUR	44	-3	360	0	0	20.4	1.9	20.5
6200025	99	DIRN	SUR	44	-6	485	0	0	11.9	-0.4	11.9
6200082	99	DIRN	SUR	44	-8	574	0	0	15.4	-0.7	15.4
6200083	99	DIRN	SUR	43	-9	539	0	0	11.2	8.5	14.0
6200084	99	DIRN	SUR	42	-9	555	0	0	90.0	12.1	90.8
6200085	99	DIRN	SUR	36	-7	451	0	0	14.1	2.7	14.3
6200091	99	DIRN	SUR	53	-5	578	0	0	15.1	3.3	15.5
6200092	99	DIRN	SUR	51	-11	660	0	0	10.8	2.4	11.0
6200093	99	DIRN	SUR	55	-10	691	0	0	10.6	5.6	12.0
6200094	99	DIRN	SUR	52	-7	649	0	0	12.0	3.9	12.6
6200095	99	DIRN	SUR	53	-16	699	0	0	9.8	3.6	10.5
62001	99	DIRN	SUR	45	-5	1406	0	0	16.2	2.0	16.3
6200191	99	DIRN	SUR	41	-10	65	0	0	18.0	8.1	19.8
6200199	99	DIRN	SUR	40	-9	18	0	0	22.2	29.6	37.0
62029	99	DIRN	SUR	49	-12	1528	0	0	13.9	10.9	17.6
62050	99	DIRN	SUR	50	-4	18	0	0	7.0	0.3	7.0
62081	99	DIRN	SUR	51	-13	2023	0	0	10.3	-4.1	11.0
62091	99	DIRN	SUR	53	-5	552	0	0	15.5	3.2	15.9
62092	99	DIRN	SUR	51	-11	603	0	0	10.5	1.2	10.6
62093	99	DIRN	SUR	55	-10	638	0	0	10.4	5.4	11.7
62094	99	DIRN	SUR	52	-7	614	0	0	12.1	3.3	12.5
62095	99	DIRN	SUR	53	-16	673	0	0	9.8	3.2	10.3
62103	99	DIRN	SUR	50	-3	1706	0	0	19.7	10.2	22.2
62107	99	DIRN	SUR	50	-6	1382	0	0	14.1	2.6	14.3
62112	99	DIRN	SUR	58	0	2123	0	0	11.6	-2.6	11.9
62114	99	DIRN	SUR	58	0	3125	0	0	10.1	-2.2	10.3
62163	99	DIRN	SUR	48	-8	314	0	0	11.4	7.1	13.4
62305	99	DIRN	SUR	50	0	2182	0	0	20.4	10.6	23.0
62442	99	DIRN	SUR	49	-16	1745	0	0	9.8	4.8	10.9
64041	99	DIRN	SUR	61	-3	2152	0	0	10.2	8.2	13.1
64045	99	DIRN	SUR	59	-12	2142	0	0	10.7	-5.4	12.0

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE09	ATGU3FT	BPMWB2N	CHQUR4G	DBLK	FPUW5GN	JNKN7JF	JPBN	KJJF9XN
KMPLHPW	LRYQE3U	UXK5JTU	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	2EERVTP	7JUNA4N
9ZT9MRK	01001	01004	01010	01028	01241	01400	01415	01492
02365	02527	02836	02963	03005	03238	03354	03502	03743
03808	03882	03918	03953	04018	04220	04270	04320	04339
04360	06011	06260	06458	06610	07110	07145	07510	07645
07761	08001	08023	08190	08221	08302	08383	08430	08508
08522	08536	10035	10113	10184	10238	10304	10393	10410
10548	10618	10739	10771	10868	10954	10962	11010	11035
11120	11240	11520	11747	11952	12120	12374	12425	12843
12982	13275	13388	14015	14240	14430	15420	15614	16045
16064	16113	16144	16245	16332	16429	16546	16622	16716
16754	17030	17064	17196	17220	17240	17607	20674	22008
23205	23472	23884	24908	26038	26435	26708	26850	27459
27707	27713	28225	28661	29612	29698	30673	33008	40179
42101	42379	45004	47102	47104	47138	47155	47169	47186
47401	47412	47582	47600	47646	47678	47741	47778	47807
47827	47909	47918	47945	47971	47991	48698	50527	50557
50774	50953	51076	51243	51431	51463	51644	51656	51709
51777	51828	51839	52203	52267	52323	52418	52533	52652
52681	52818	52836	52866	52983	53068	53463	53513	53543
53614	53772	53845	53915	54102	54135	54161	54218	54292
54374	54511	54662	54727	54857	55299	55591	56029	56046
56080	56137	56146	56187	56492	56571	56651	56691	56739
56778	56964	56985	57083	57127	57131	57178	57245	57447
57461	57494	57516	57687	57749	57816	57957	57972	57993
58027	58150	58203	58238	58362	58424	58457	58606	58633
58665	58725	58847	59023	59134	59211	59265	59280	59293
59316	59431	59758	59981	60018	60155	60390	60571	60630
60656	60680	61660	61901	61980	61998	63894	63985	65344
66160	67083	68263	68424	68442	68512	68816	68842	70026
70133	70200	70219	70231	70261	70308	70316	70326	70350
70361	70398	71043	71081	71082	71109	71119	71603	71722
71802	71811	71815	71816	71823	71836	71845	71867	71906
71907	71908	71909	71913	71917	71924	71925	71926	71934
71945	71957	71964	72201	72206	72208	72210	72214	72215
72230	72233	72235	72240	72248	72249	72250	72251	72261
72265	72274	72293	72305	72317	72318	72327	72340	72363
72364	72365	72376	72388	72402	72403	72413	72426	72440
72451	72476	72489	72493	72501	72518	72520	72528	72558
72562	72572	72582	72597	72632	72634	72645	72649	72659
72662	72672	72681	72694	72712	72764	72768	72776	72786
72797	73033	73110	74389	74560	76225	76256	76394	76405
76458	76526	76595	76612	76644	76654	76679	76692	76743
76805	76903	78897	78954	81405	83768	85442	85586	85799
85934	87155	87344	87623	88889	89002	89062	89564	89571
89592	89611	89625	89642	89859	91165	91212	91285	91592
91610	91765	91925	91938	91948	91958	93112	93417	93817
93844	94120	94150	94170	94203	94299	94302	94312	94326
94332	94374	94403	94430	94461	94510	94578	94610	94637
94638	94653	94659	94672	94711	94767	94776	94802	94821
94866	94910	94975	94995	94996	94998	95282	95527	96413
96441	96471	96481	96996					

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

ASDE09	ATGU3FT	BPMWB2N	CHQUR4G	FPUW5GN	JNKN7JF	KJJF9XN	KMPLHPW	LRYQE3U
UXK5JTU	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	2EERVTP	7JUNA4N	9ZT9MRK	01010
01028	01415	01492	02365	02527	02836	02963	03953	06610
07110	07145	07510	07645	07761	08001	08023	08190	08221
08302	08383	08430	08536	11010	11035	11120	11240	17607
47155	50527	50557	50774	50953	51076	51243	51431	51463
51644	51656	51709	51777	51828	51839	52203	52267	52323
52418	52533	52652	52681	52818	52836	52866	52983	53068
53463	53513	53543	53614	53772	53845	53915	54102	54135
54161	54218	54292	54374	54511	54662	54727	54857	55299
55591	56029	56046	56080	56137	56146	56187	56492	56571
56651	56691	56739	56778	56964	56985	57083	57127	57131
57178	57245	57447	57461	57494	57516	57687	57749	57816
57957	57972	57993	58027	58150	58203	58238	58362	58424
58457	58606	58633	58665	58725	58847	59023	59134	59211
59265	59280	59293	59316	59431	59758	59981	63894	65344
66160	72413	76743	76903	89573	89642	89859	91925	91938
91948	93817	94653	94767					

5 Annex - Explanations of figures and tables

5.1 General

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

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

5.2 Data Availability

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

5.3 Data Quality

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

It should be noted that:

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

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

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

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

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

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

The corresponding limits for wind (table 8) are:

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

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

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

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

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

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

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

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

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