ECMWF Global Data Monitoring Report

June 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	May	Jun	Ident	Time	May	Jun
02527	(00)	30	7	17196	(00)	0	29
16754	(00)	29	4	17196	(12)	5	29
17030	(12)	26	1	17351	(00)	12	23
23955	(00)	21	5	40582	(12)	16	30
23955	(12)	20	3	42379	(00)	0	26
25428	(12)	24	0	47138	(00)	4	17
27707	(12)	21	10	47138	(12)	6	19
31088	(00)	31	20	47169	(00)	2	17
31369	(00)	31	0	47778	(00)	13	30
31510	(00)	11	0	47778	(12)	14	29
31510	(12)	11	0	48568	(00)	12	30
31538	(00)	31	0	71934	(12)	6	24
31736	(00)	31	0	74005	(12)	11	38
31770	(12)	31	0	78897	(00)	0	29
35671	(00)	17	0	80028	(12)	2	29
35671	(12)	16	0	80259	(12)	0	27
37055	(00)	22	11	82917	(00)	0	14
40875	(00)	16	0	82917	(12)	0	15
42369	(00)	28	3	87155	(12)	3	23
42667	(00)	18	0	87344	(12)	1	15
43150	(00)	31	11	87860	(12)	0	21
43371	(00)	25	3	89009	(12)	2	25
61291	(00)	28	15	96011	(00)	0	11
61291	(12)	30	13	96147	(00)	0	18
61415	(12)	28	10	96147	(12)	0	19
64400	(00)	30	0	96509	(00)	0	13
64400	(12)	27	0	96645	(00)	0	14
65578	(00)	19	8	96645	(12)	0	16
68538	(12)	23	0	96805	(00)	0	19
71926	(12)	30	12	97502	(00)	0	19
72403	(00)	31	3	-	-	-	-
72403	(12)	31	3	-	-	-	-
72747	(00)	31	3	-	-	-	-
72747	(12)	31	4	-	-	-	-
74005	(00)	17	6	-	-	-	-
76595	(12)	28	12	-	-	-	-
82022	(12)	31	18	-	-	-	-
82107	(12)	26	0	-	-	-	-
89009	(00)	26	2	-	-	-	-
94776	(00)	31	17	-	-	-	-

2.2 Drifting Buoys

Surface pressure observations from **1638** 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

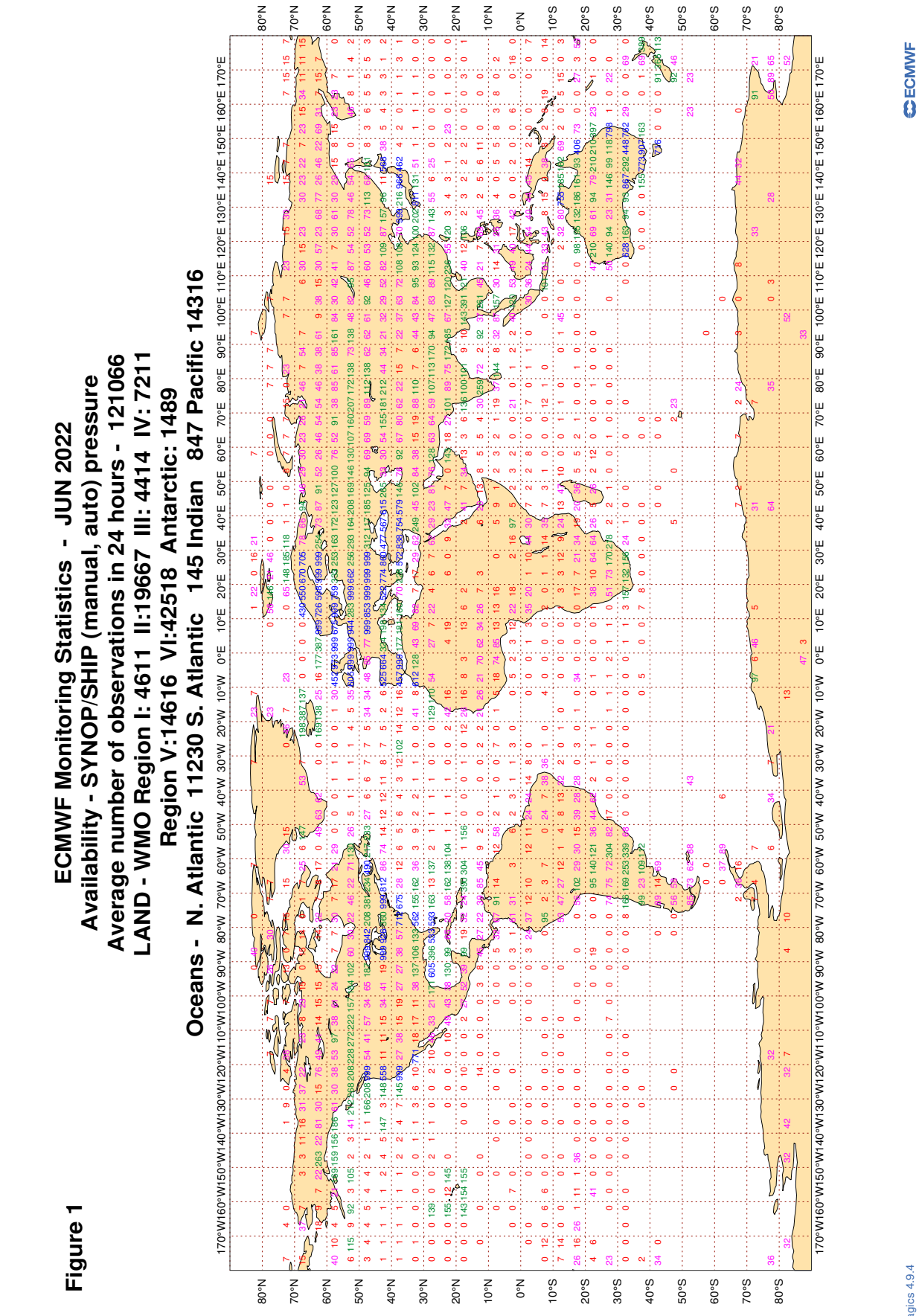


Figure 1

3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

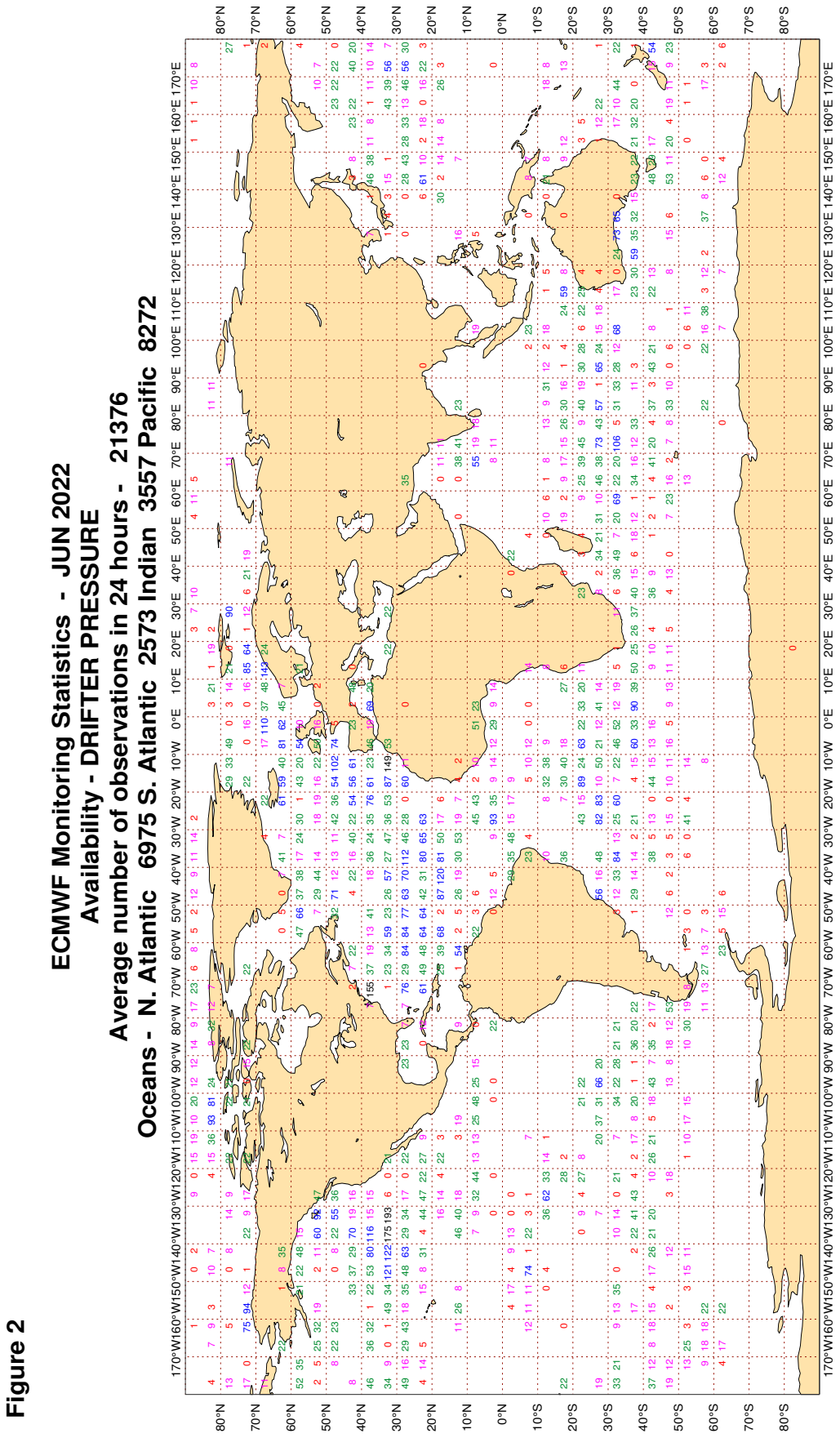


Figure 2

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

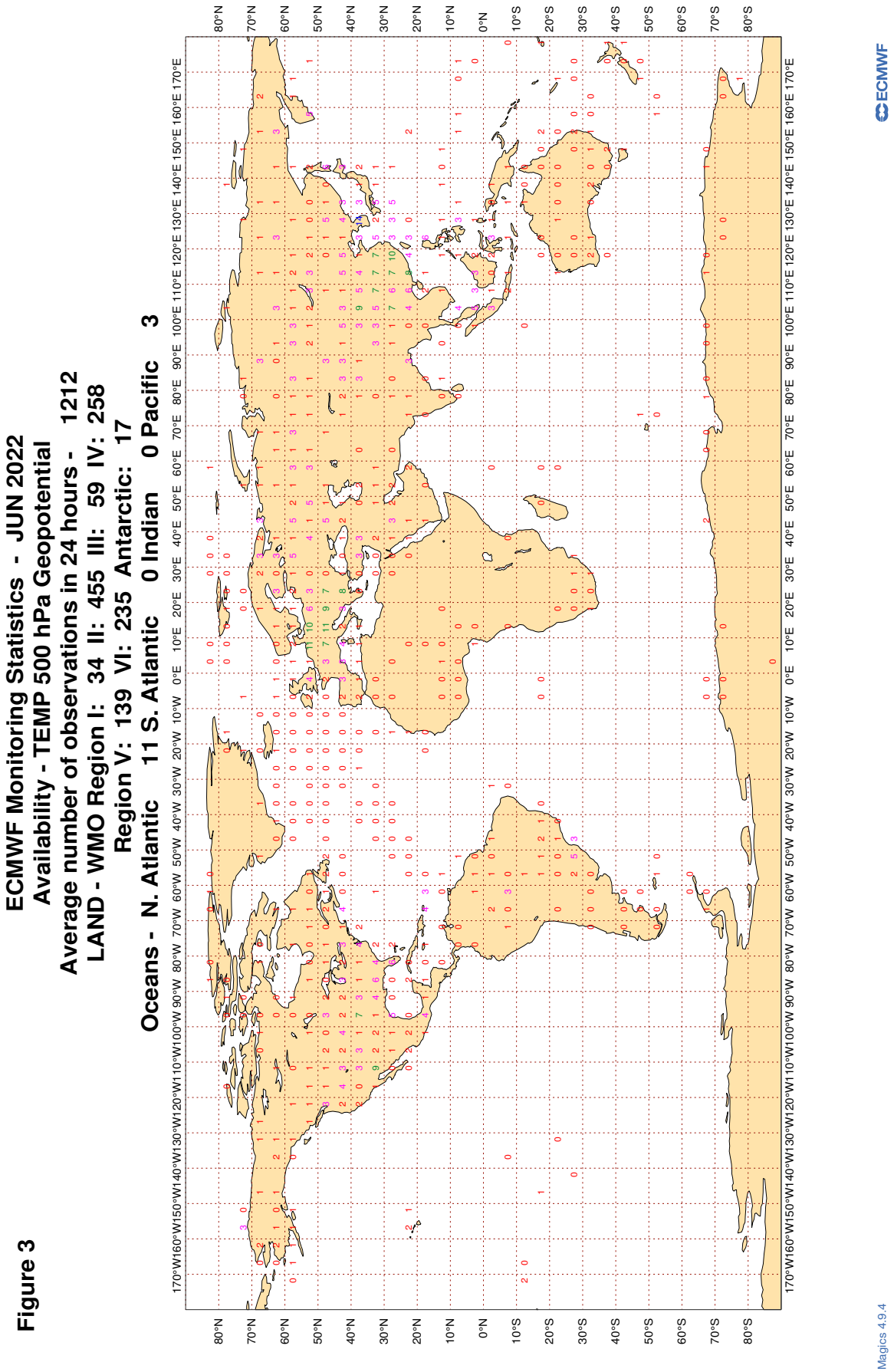


Figure 3

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

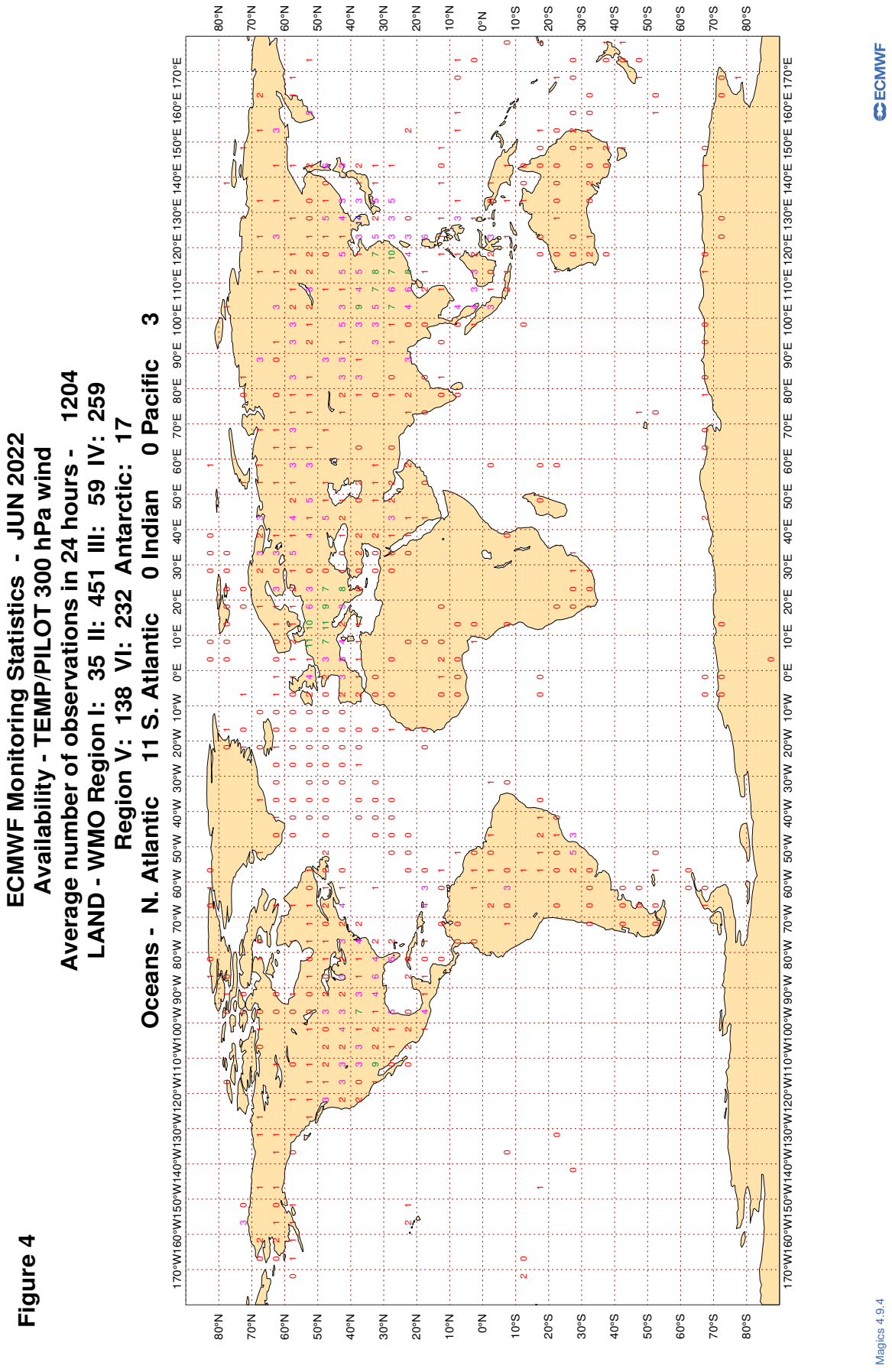


Figure 4

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

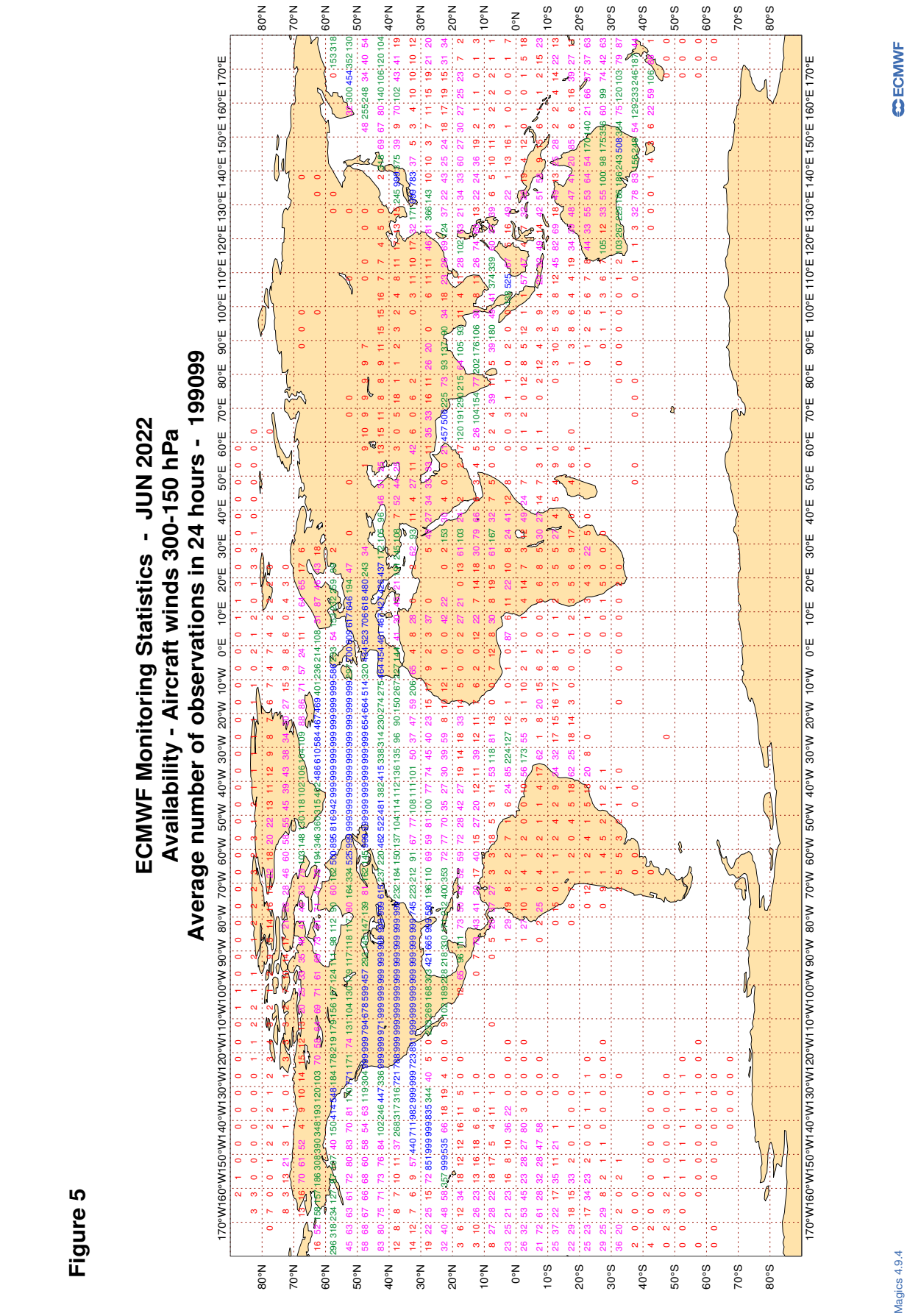


Figure 5

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

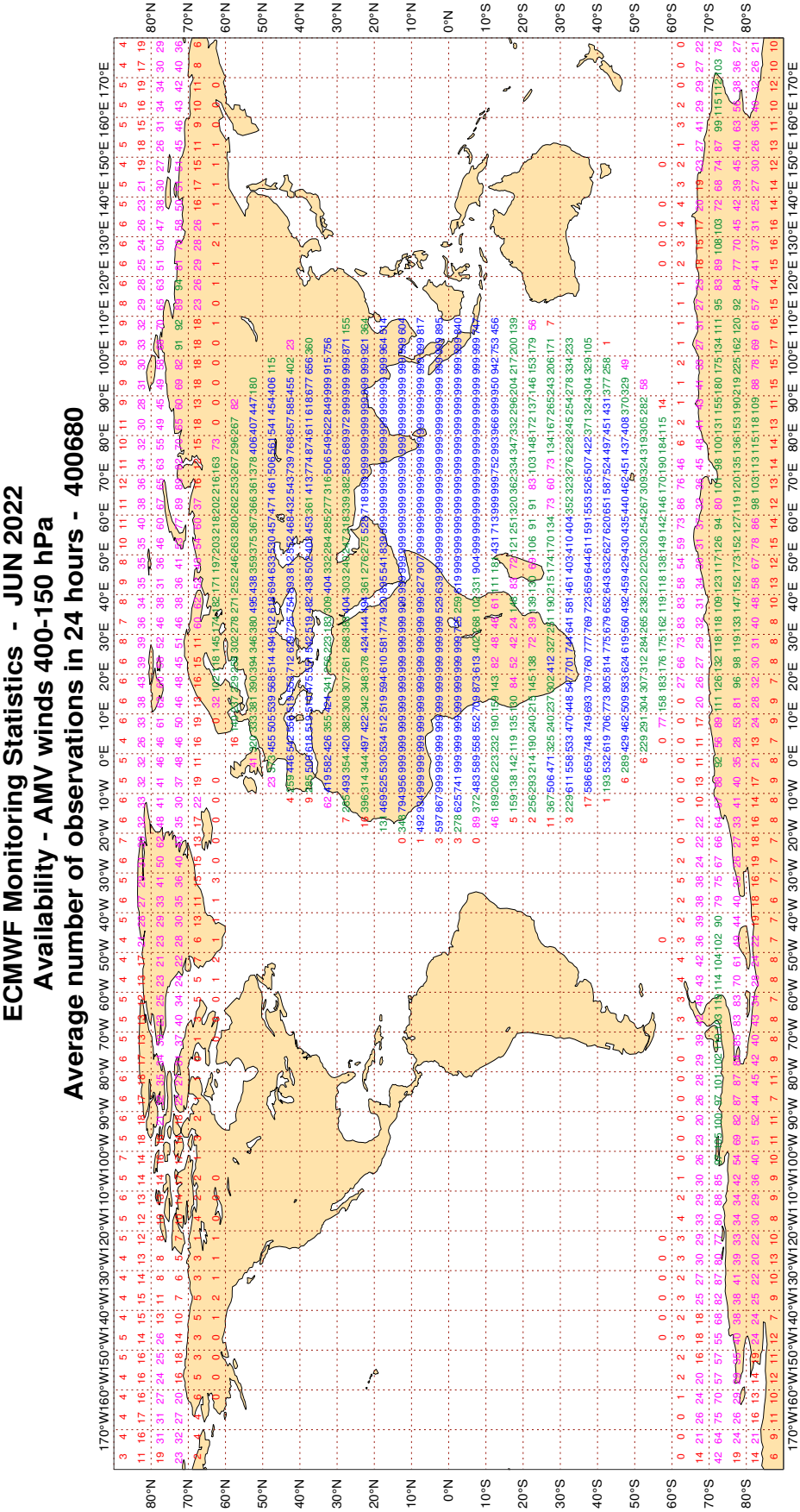


Figure 6

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

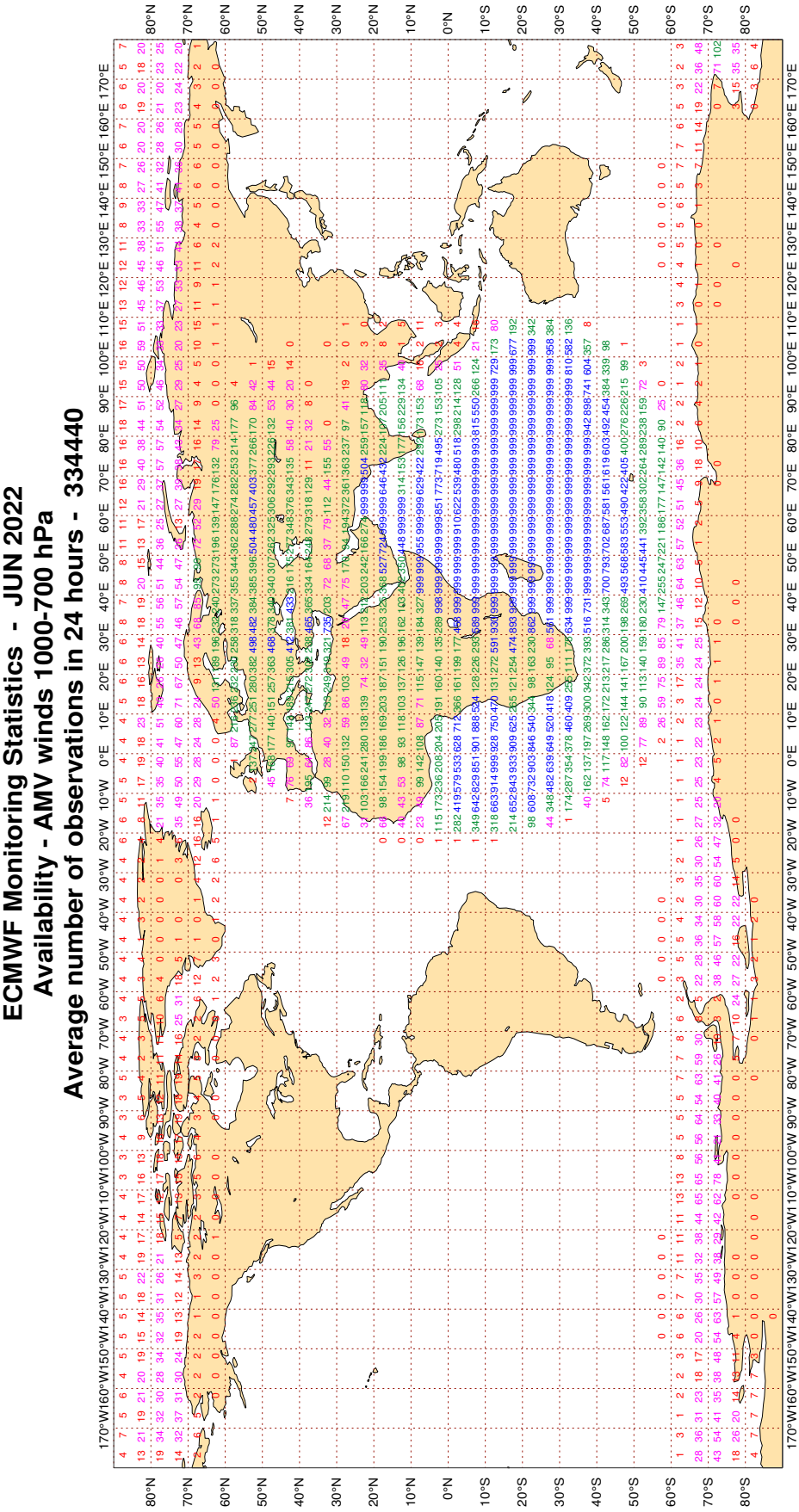
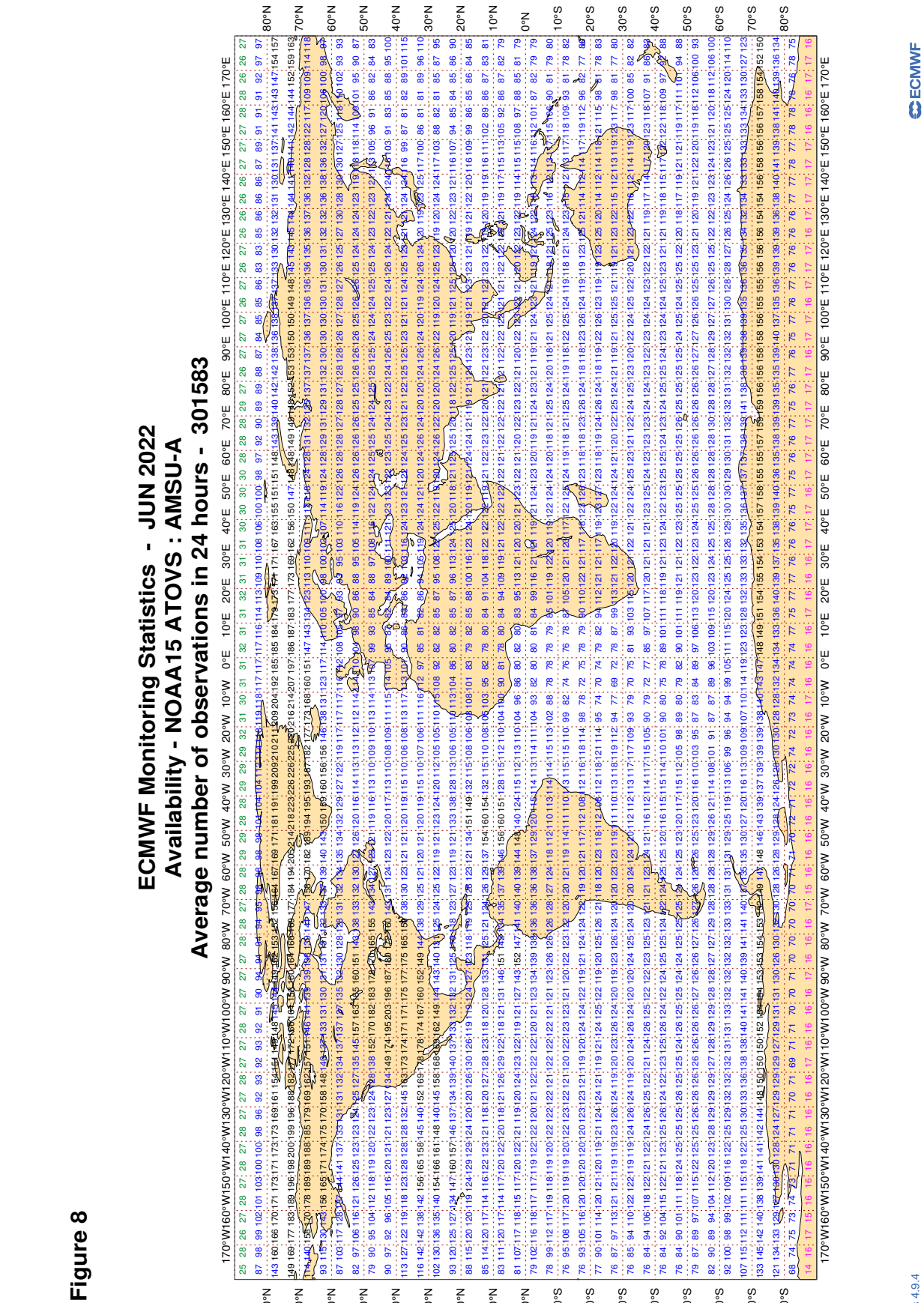


Figure 7

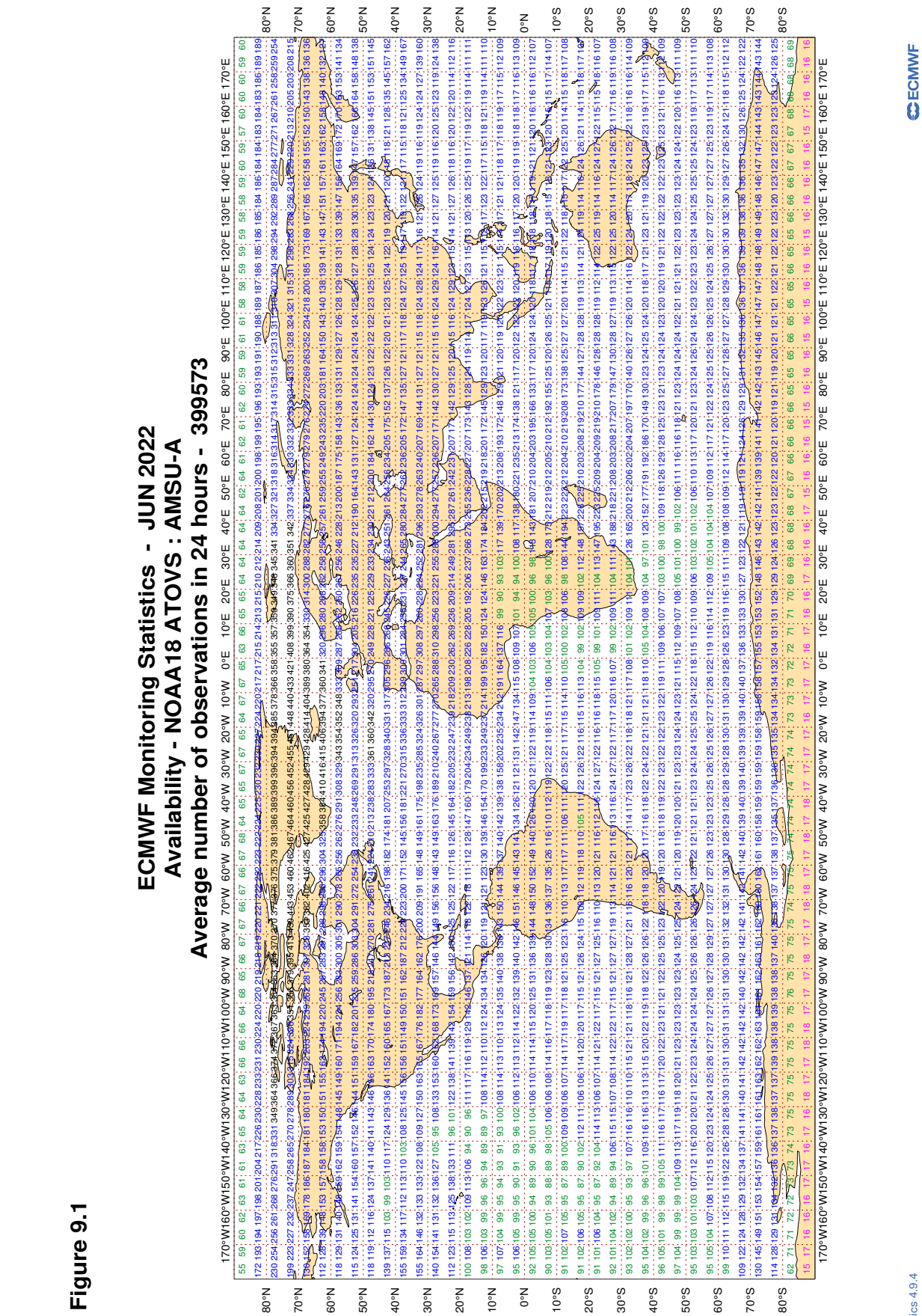
3.2.8 Figure 8 - Availability - NOAA15 ATOVS : AMSU-A

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

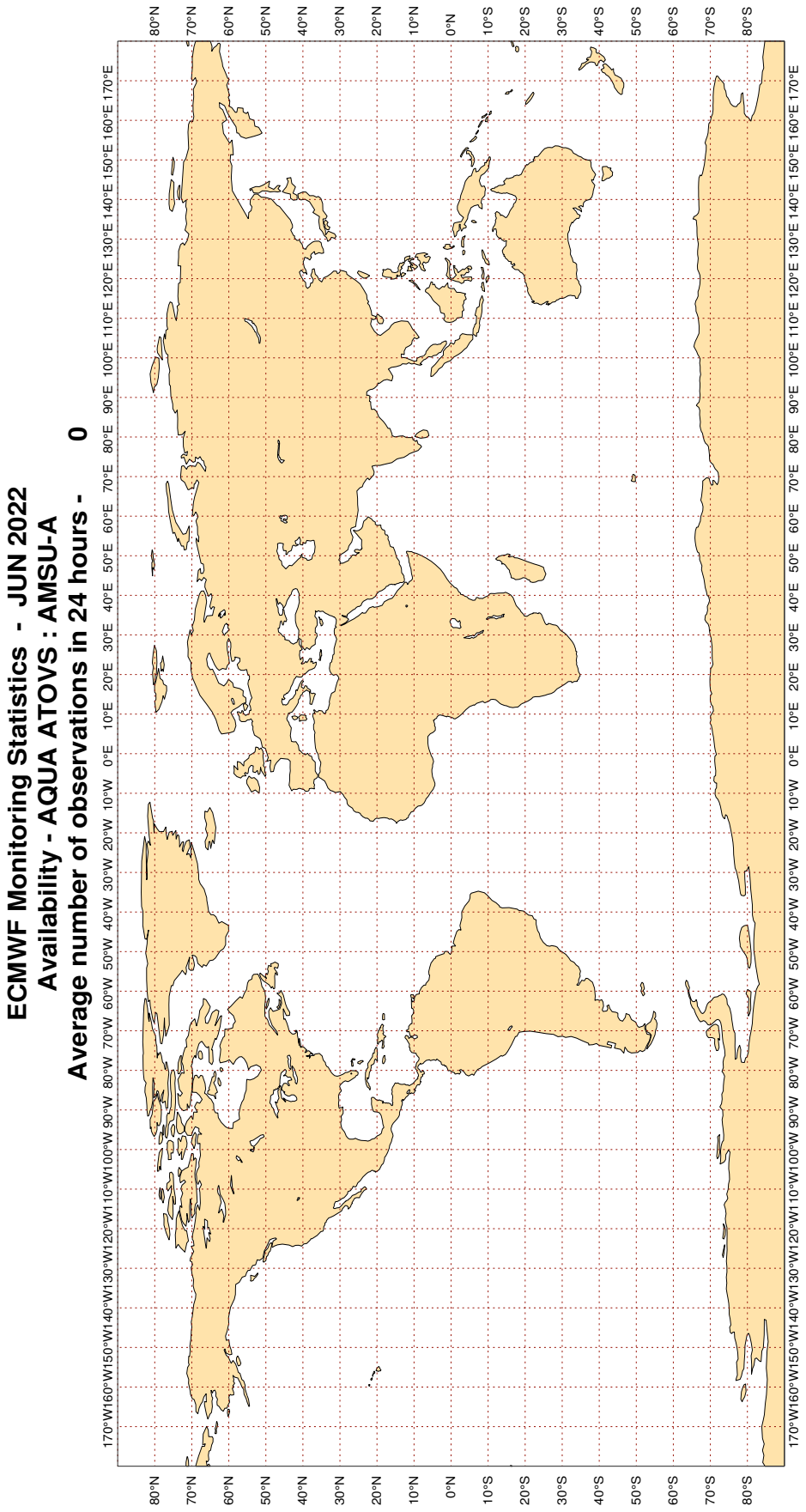


Figure 9.2

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

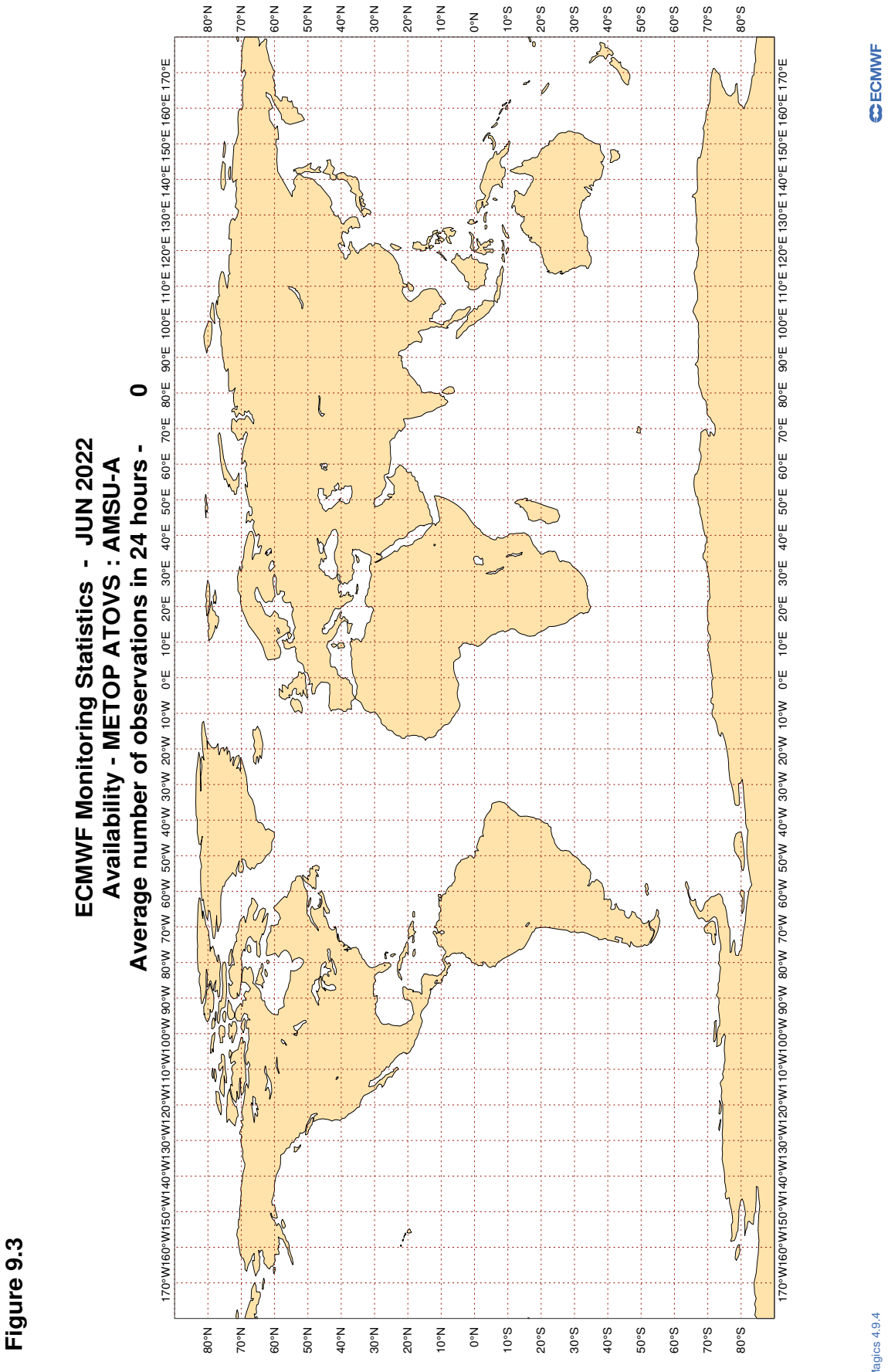


Figure 9.3

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                : JUN 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
3E2032	99	P	SUR	15	0	3.0	3.9	4.9
3E2426	99	P	SUR	125	0	1.2	4.3	4.5
3FFA5	99	P	SUR	24	0	1.5	4.5	4.7
3FJB3	99	P	SUR	104	0	1.3	3.8	4.0
3FSA9	99	P	SUR	69	0	2.4	-6.2	6.6
45024	99	P	SUR	806	0	0.9	-3.4	3.5
7KKS	99	P	SUR	18	0	0.4	-4.5	4.5
7KKU	99	P	SUR	68	0	2.7	3.3	4.3
9HA3182	99	P	SUR	111	2	1.1	3.4	3.5
9HA4048	99	P	SUR	53	18	1.7	8.0	8.2
9HA4777	99	P	SUR	27	0	0.9	6.2	6.2
9HA5197	99	P	SUR	20	0	1.7	4.9	5.2
9HA5209	99	P	SUR	102	22	1.4	12.2	12.3
9HA5370	99	P	SUR	22	0	2.8	3.5	4.5
9V2908	99	P	SUR	124	0	2.3	3.3	4.0
9V5669	99	P	SUR	111	0	1.4	4.8	5.0
9V8776	99	P	SUR	24	0	2.5	6.5	7.0
9V9400	99	P	SUR	65	0	4.3	3.1	5.3
9VBN2	99	P	SUR	16	2	1.2	6.6	6.7
ATVK	99	P	SUR	146	146	0.0	0.0	0.0
AVWF	99	P	SUR	21	11	4.1	0.5	4.1
C6SE5	99	P	SUR	33	0	1.8	-3.0	3.5
C6XB4	99	P	SUR	127	0	0.9	4.1	4.2
CFFO	99	P	SUR	18	0	2.7	3.0	4.0
CQOL	99	P	SUR	34	0	2.8	3.3	4.3
H3WC	99	P	SUR	75	0	3.3	-3.6	4.8
H9LE	99	P	SUR	20	1	3.2	3.0	4.4
HVSHUWK	99	P	SUR	68	0	0.7	11.2	11.2
JASREP	99	P	SUR	118	0	2.2	4.8	5.3
JMJRCES	99	P	SUR	56	36	2.4	-8.6	9.0
KIAB	99	P	SUR	42	0	1.5	6.2	6.4
KSKM	99	P	SUR	23	13	0.2	-2.1	2.1

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
LAHR7	99	P	SUR	59	0	1.3	4.0	4.2
LAPE7	99	P	SUR	149	0	2.4	4.1	4.7
LAQM7	99	P	SUR	36	0	1.0	5.9	6.0
S6LT3	99	P	SUR	25	0	1.5	7.5	7.7
SJA4RSK	99	P	SUR	86	0	0.4	-4.9	4.9
UBSH	99	P	SUR	31	0	1.8	3.3	3.8
V7QS7	99	P	SUR	100	0	0.9	-6.0	6.1
V7TM3	99	P	SUR	16	0	0.9	-5.1	5.2
V7TN7	99	P	SUR	29	0	1.9	-3.3	3.8
V7UX2	99	P	SUR	65	0	2.9	4.7	5.5
VABC	99	P	SUR	40	0	2.7	5.3	6.0
VRCF6	99	P	SUR	15	0	1.0	3.3	3.4
VRCI9	99	P	SUR	21	0	1.4	3.9	4.1
VRGE3	99	P	SUR	15	0	3.2	-3.1	4.4
VRMX7	99	P	SUR	22	0	1.3	8.7	8.8
VRPJ6	99	P	SUR	22	0	2.8	3.4	4.4
VRPY7	99	P	SUR	27	0	0.9	4.4	4.5
VRRB6	99	P	SUR	235	0	4.3	-3.4	5.5
VRTF3	99	P	SUR	26	0	1.1	3.4	3.6
VRUR7	99	P	SUR	60	0	1.5	3.2	3.6
WDG8555	99	P	SUR	80	0	0.5	-3.8	3.9
WDH7561	99	P	SUR	17	2	4.0	4.1	5.7
WDH7563	99	P	SUR	38	14	9.0	0.1	9.0
WDJ3199	99	P	SUR	56	0	2.6	3.0	4.0
WNRD	99	P	SUR	22	0	0.8	3.0	3.2
WRJP	99	P	SUR	47	0	0.7	4.3	4.3
YDVUFGG	99	P	SUR	15	0	0.4	4.3	4.3
ZCHC8	99	P	SUR	59	0	1.3	4.6	4.8
ZGFY4	99	P	SUR	75	0	1.7	-9.5	9.6

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                : JUN 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                : JUN 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
45145	99	DIRN	SUR	46	0	0	21.9	77.2	80.2
45197	99	DIRN	SUR	427	0	0	33.1	37.9	50.3
46146	99	DIRN	SUR	77	0	0	32.8	34.5	47.6

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                 : JUN 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	100	591	335	9.0	-1.5	9.2
2302620	99	P	SUR	12	80	615	69	6.1	-1.5	6.3
4102634	99	P	SUR	26	-80	25	6	8.9	-3.0	9.4
4601783	99	P	SUR	53	-135	256	256	0.0	0.0	0.0
4602724	99	P	SUR	51	-128	35	4	3.2	7.0	7.7
4701658	99	P	SUR	72	-95	495	85	7.5	8.2	11.1
4701738	99	P	SUR	70	-67	699	699	0.0	0.0	0.0
4701744	99	P	SUR	81	-100	622	622	0.0	0.0	0.0
4801670	99	P	SUR	87	-115	687	30	2.4	6.8	7.2
5401550	99	P	SUR	-37	58	83	46	5.2	-3.9	6.5
6402587	99	P	SUR	55	-50	520	16	2.8	8.9	9.3
6402656	99	P	SUR	55	-42	67	7	2.0	11.9	12.1
6501689	99	P	SUR	78	28	2819	2317	1.1	13.8	13.9

3.2.16 Table 5 - Suspect drifters: Wind speed (m/s)

```
          LIST OF SUSPECT STATIONS        : DRIFTER
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND SPEED (M/S)
                    AREA                  : GLOBAL
                    PERIOD                : JUN 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
4400069	99	SPEED	SUR	41	-73	1287	0	0	2.1	5.3	5.7

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

```
          LIST OF SUSPECT STATIONS         : DRIFTER
                    MONITORING CENTRE      : ECMWF
                    ELEMENT MONITORED      : WIND DIRECTION (DEGREES)
                    PERIOD                 : JUN 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	330	0	0	124.9	17.7	126.2
1300131	99	DIRN	SUR	28	-17	378	0	0	62.5	-63.4	89.0
2200102	99	DIRN	SUR	35	126	379	0	0	66.2	40.3	77.5
2200192	99	DIRN	SUR	34	123	619	36	0	136.1	15.6	137.0
2200298	99	DIRN	SUR	35	125	506	0	0	31.5	-44.9	54.8
23093	99	DIRN	SUR	16	88	222	0	0	18.9	20.8	28.2
23099	99	DIRN	SUR	13	80	421	0	0	118.7	-55.3	130.9
23453	99	DIRN	SUR	8	73	220	0	0	15.3	-46.7	49.1
23454	99	DIRN	SUR	10	73	172	0	0	29.2	-47.0	55.3
23491	99	DIRN	SUR	12	93	145	0	0	81.8	-99.4	128.7
23492	99	DIRN	SUR	11	72	54	0	0	37.2	-71.9	80.9
23497	99	DIRN	SUR	11	72	199	0	0	35.6	-74.8	82.8
42019	99	DIRN	SUR	28	-95	50	0	0	102.8	102.2	145.0
4400037	99	DIRN	SUR	43	-68	437	0	0	47.5	22.5	52.6
44025	99	DIRN	SUR	40	-73	29	0	0	104.9	-69.4	125.7
44037	99	DIRN	SUR	44	-68	619	0	0	50.4	21.4	54.8
4500001	99	DIRN	SUR	48	-88	2565	0	0	22.5	26.3	34.6
4500004	99	DIRN	SUR	48	-87	2814	0	0	22.9	23.8	33.1
4500006	99	DIRN	SUR	47	-90	2622	0	0	29.9	21.1	36.6
45001	99	DIRN	SUR	48	-88	3070	0	0	24.6	25.9	35.8
4500168	99	DIRN	SUR	42	-86	1780	0	0	34.8	26.0	43.5
4500186	99	DIRN	SUR	42	-88	1278	0	0	61.1	-2.2	61.1
4500197	99	DIRN	SUR	42	-82	2110	0	0	37.3	38.0	53.2
45004	99	DIRN	SUR	48	-87	3641	0	0	24.7	23.0	33.7
45006	99	DIRN	SUR	47	-90	3337	0	0	31.6	20.8	37.8
45136	99	DIRN	SUR	49	-87	364	0	0	33.4	26.2	42.4
45145	99	DIRN	SUR	52	-97	278	0	0	33.3	73.8	80.9
45149	99	DIRN	SUR	44	-82	458	0	0	31.4	20.3	37.3
45168	99	DIRN	SUR	42	-86	2126	0	0	35.1	27.7	44.7
45186	99	DIRN	SUR	42	-88	1648	0	0	63.1	-1.1	63.1
45197	99	DIRN	SUR	42	-82	2884	0	0	39.0	36.6	53.5

```
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
46145	99	DIRN	SUR	54	-132	495	0	0	16.3	21.4	26.9
46146	99	DIRN	SUR	49	-124	383	0	0	29.1	32.0	43.3
6101009	99	DIRN	SUR	35	25	23	0	0	14.1	-67.3	68.8
6200084	99	DIRN	SUR	42	-9	273	0	0	100.6	-7.5	100.9
6200086	99	DIRN	SUR	55	6	393	0	0	14.8	29.4	33.0
6200199	99	DIRN	SUR	40	-9	371	0	0	19.3	22.4	29.6
6200200	99	DIRN	SUR	36	-8	289	0	0	172.5	-6.7	172.7
6600022	99	DIRN	SUR	54	14	177	0	0	32.3	20.6	38.3

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                : JUN 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	29	0	5.6	79.3	79.5
01400	00	Z	1000	57	3	30	0	5.5	76.8	77.0
17095	12	Z	1000	40	41	29	0	24.1	-30.4	38.8
32477	00	Z	250	54	156	23	6	76.7	35.6	84.6
32477	12	Z	200	54	156	23	5	110.5	14.7	111.5
36003	00	Z	200	52	77	30	1	78.8	40.9	88.8
38064	12	Z	100	45	66	26	1	85.6	116.3	144.4
42647	12	Z	50	23	73	22	7	70.0	-295.1	303.3
42647	00	Z	30	23	73	19	13	174.2	-242.5	298.6
52533	00	Z	50	40	98	29	1	97.7	236.1	255.5
52533	12	Z	30	40	98	24	1	111.5	265.0	287.5
58424	00	Z	70	31	117	29	1	127.1	94.5	158.4
61442	00	Z	700	18	-16	26	5	56.5	1.4	56.5
68842	12	Z	1000	-34	26	29	0	29.3	13.1	32.1
98233	12	Z	1000	18	122	28	0	28.3	14.3	31.7
98233	00	Z	1000	18	122	29	0	24.3	54.3	59.5
98558	12	Z	850	11	126	23	0	23.7	22.7	32.8
98558	00	Z	1000	11	126	23	0	28.3	28.8	40.4
JNKN7J	12	Z	1000	56	-10	16	0	4.1	41.3	41.5
JNKN7J	00	Z	1000	56	-16	13	0	5.0	42.2	42.5

3.2.19 Table 8 - Suspect radiosondes: Wind (m/s)

```
          LIST OF SUSPECT STATIONS        : RADIOSONDES
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND (M/S)
                    AREA                  : GLOBAL
                    PERIOD                : JUN 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
61442	12	V	925	18	-16	13	0	-5.8	-6.3	16.5
61442	00	V	925	18	-16	13	2	-9.4	-6.5	18.3

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                : JUN 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

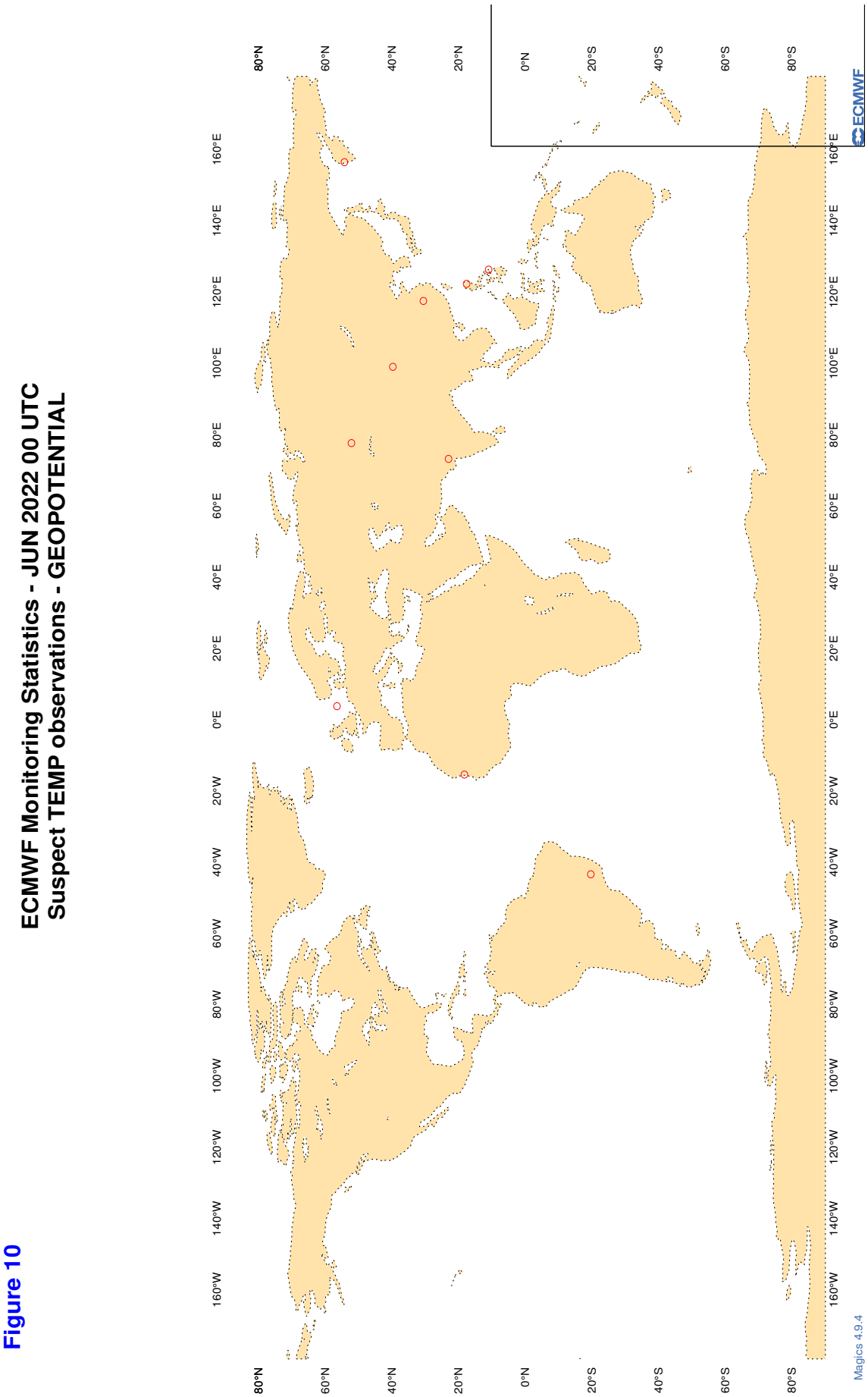
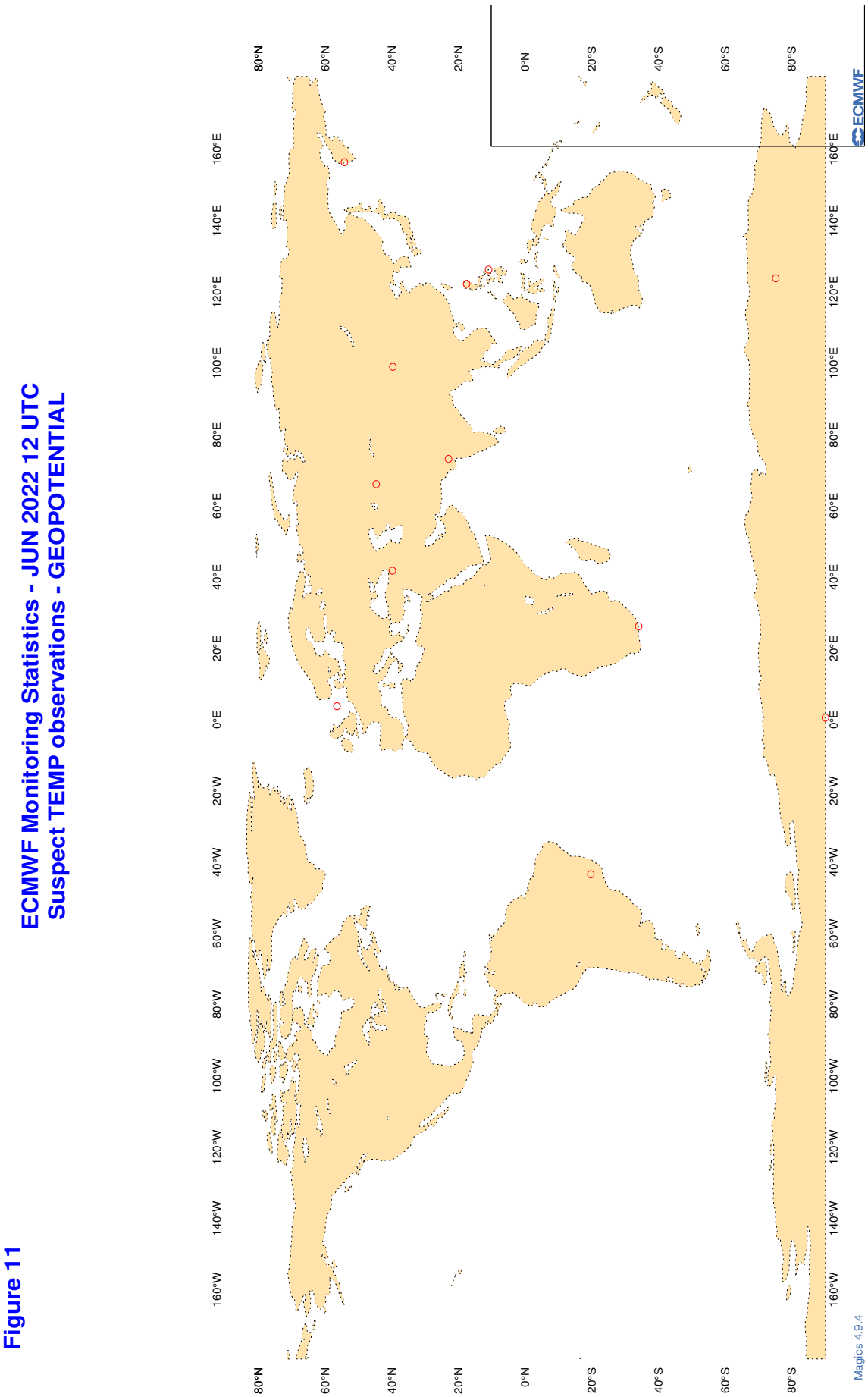
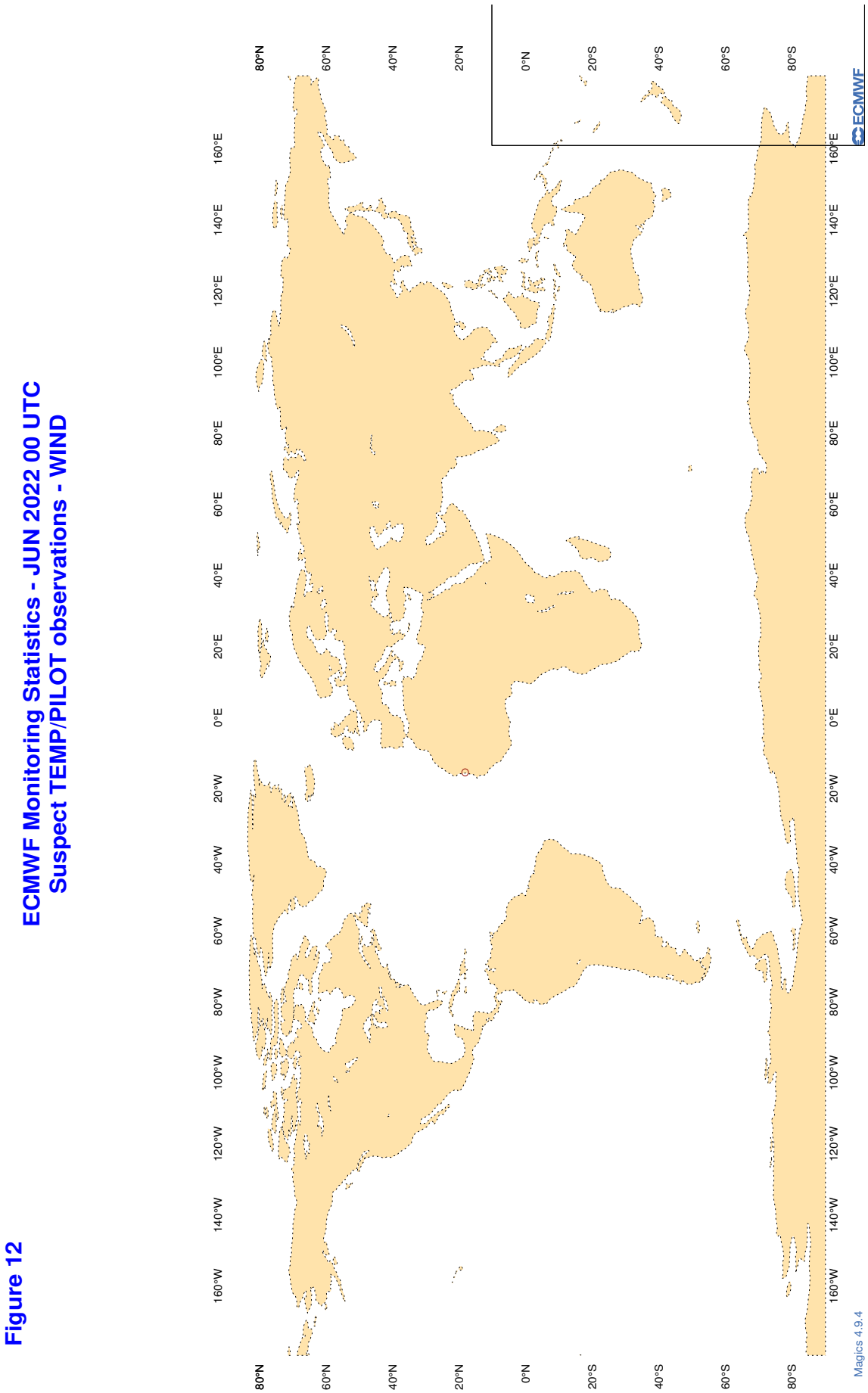


Figure 10

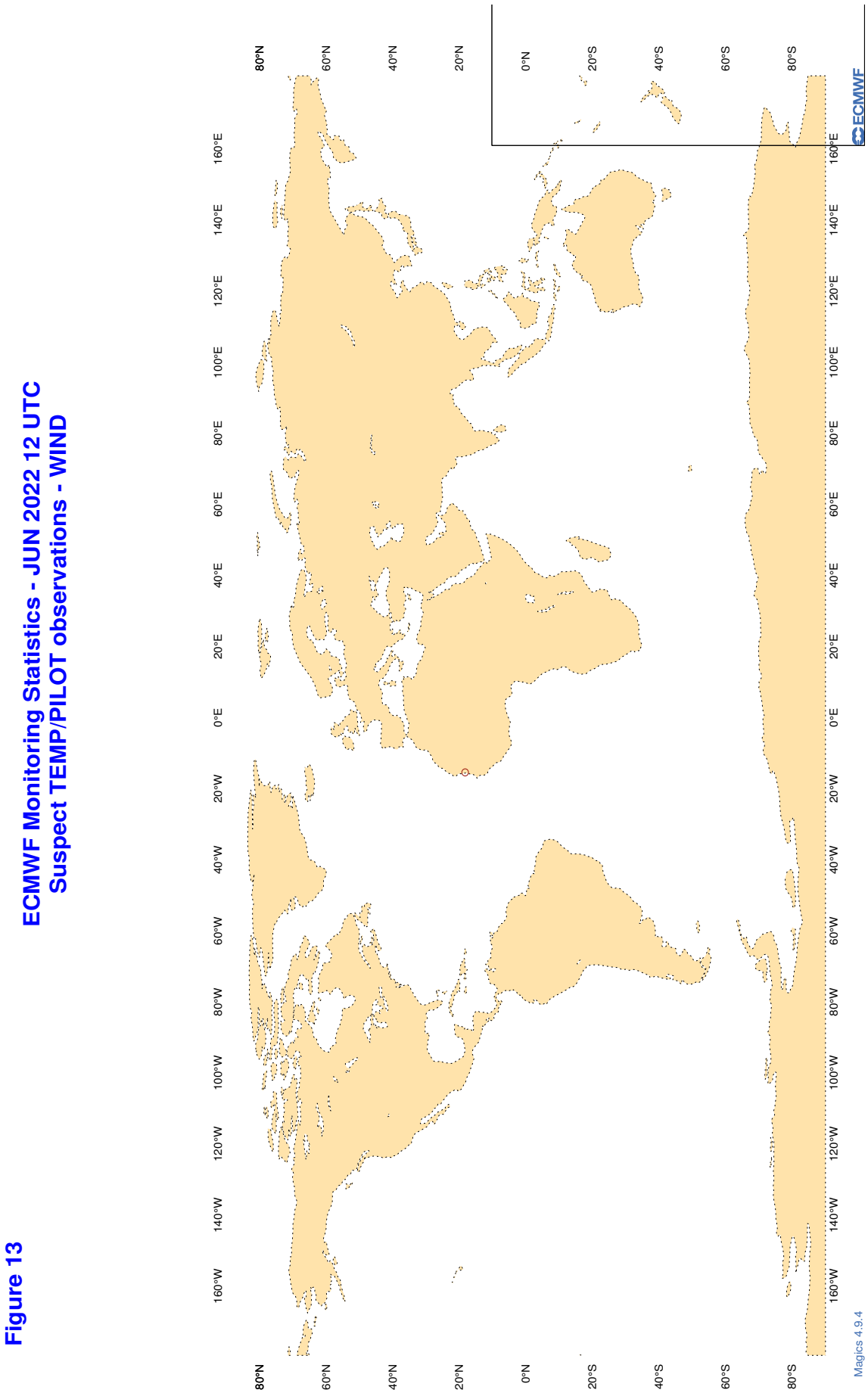
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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



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



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

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
2EERVT	12	Z	100	2	16.4	-15.7
2EERVT	00	Z	100	2	10.4	-9.6
7JUNA4	12	Z	100	10	77.9	68.4
7JUNA4	00	Z	100	7	10.3	-1.2
9ZT9MR	12	Z	100	4	20.7	-20.0
9ZT9MR	00	Z	100	5	24.8	-23.8
ASDE09	12	Z	100	3	9.1	5.6
ATGU3F	12	Z	100	7	21.4	-15.9
ATGU3F	00	Z	100	5	26.9	-26.4
BPMWB2	00	Z	100	0	0.0	0.0
BPMWB2	12	Z	100	0	0.0	0.0
CHQUR4	12	Z	100	4	14.3	-13.6
CHQUR4	00	Z	100	3	18.8	-16.7
DBLK	12	Z	100	1	8.4	8.4
FPUW5G	12	Z	100	18	10.4	-7.7
JGQH	00	Z	100	1	4.5	4.5
JNKN7J	12	Z	100	16	27.3	25.8
JNKN7J	00	Z	100	13	25.9	23.4
JPBN	12	Z	100	5	4.3	-2.8
JPBN	00	Z	100	7	14.4	12.7
JPNAK	12	Z	100	25	8.5	3.6
JPNAK	00	Z	100	27	9.5	0.1
KJJF9X	12	Z	100	6	9.0	0.9
KJJF9X	00	Z	100	6	7.2	2.9
KMPLHP	12	Z	100	8	110.0	86.6
KMPLHP	00	Z	100	9	16.6	-13.4
LRYQE3	12	Z	100	13	10.9	-3.1
LRYQE3	00	Z	100	12	17.4	-13.9
UXK5JT	12	Z	100	9	13.1	11.4
UXK5JT	00	Z	100	8	11.7	10.1
WDK38H	12	Z	100	12	9.8	-9.3
XKQLWQ	12	Z	100	0	0.0	0.0
XQFJRG	12	Z	100	12	15.8	-12.4
XQFJRG	00	Z	100	7	14.7	-13.4
YLV96W	00	Z	100	12	12.1	-6.1
YLV96W	12	Z	100	9	33.8	1.2
ZVQEQC	12	Z	100	24	11.5	6.8

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
2EERVT	12	V	100	2	3.7	-1.7	-1.2
2EERVT	00	V	100	2	1.9	1.3	-0.8
7JUNA4	12	V	100	10	1.9	0.6	-0.6
7JUNA4	00	V	100	7	2.3	1.0	1.4
9ZT9MR	12	V	100	4	3.0	-1.2	-0.2
9ZT9MR	00	V	100	5	2.7	0.2	0.5
ASDE09	12	V	100	3	2.6	0.3	-1.3
ATGU3F	12	V	100	7	2.3	-0.1	0.3
ATGU3F	00	V	100	5	2.5	-1.3	1.2
BPMWB2	00	V	100	0	0.0	0.0	0.0
BPMWB2	12	V	100	0	0.0	0.0	0.0
CHQUR4	12	V	100	4	1.8	-0.2	0.3
CHQUR4	00	V	100	3	2.2	0.8	0.6
DBLK	12	V	100	1	3.5	-2.5	-2.5
FPUW5G	12	V	100	18	2.6	0.8	-0.1
JGQH	00	V	100	1	3.9	2.6	-2.9
JNKN7J	12	V	100	16	2.7	0.1	0.4
JNKN7J	00	V	100	13	3.4	0.4	0.5
JPBN	12	V	100	5	2.7	-1.0	-1.2
JPBN	00	V	100	7	4.1	2.0	-0.7
JPNAK	12	V	100	14	5.3	-1.1	0.5
JPNAK	00	V	100	14	4.2	0.1	-0.7
KJJF9X	12	V	100	6	2.5	0.0	-0.6
KJJF9X	00	V	100	6	3.6	0.3	-0.3
KMPLHP	12	V	100	8	3.4	-1.5	0.0
KMPLHP	00	V	100	9	3.4	0.9	0.7
LRYQE3	12	V	100	13	2.6	-0.7	1.3
LRYQE3	00	V	100	12	2.8	0.9	0.2
UXK5JT	12	V	100	9	3.0	0.0	-1.0
UXK5JT	00	V	100	8	3.2	0.2	1.0
WDK38H	12	V	100	12	1.9	-0.1	-0.4
XKQLWQ	12	V	100	0	0.0	0.0	0.0
XQFJRG	12	V	100	12	2.3	-0.1	-0.1
XQFJRG	00	V	100	7	2.2	0.3	-0.3
YLV96W	00	V	100	12	4.0	0.6	1.7
YLV96W	12	V	100	9	2.2	-0.2	-0.1
ZVQEQC	12	V	100	24	3.6	0.2	-0.3

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

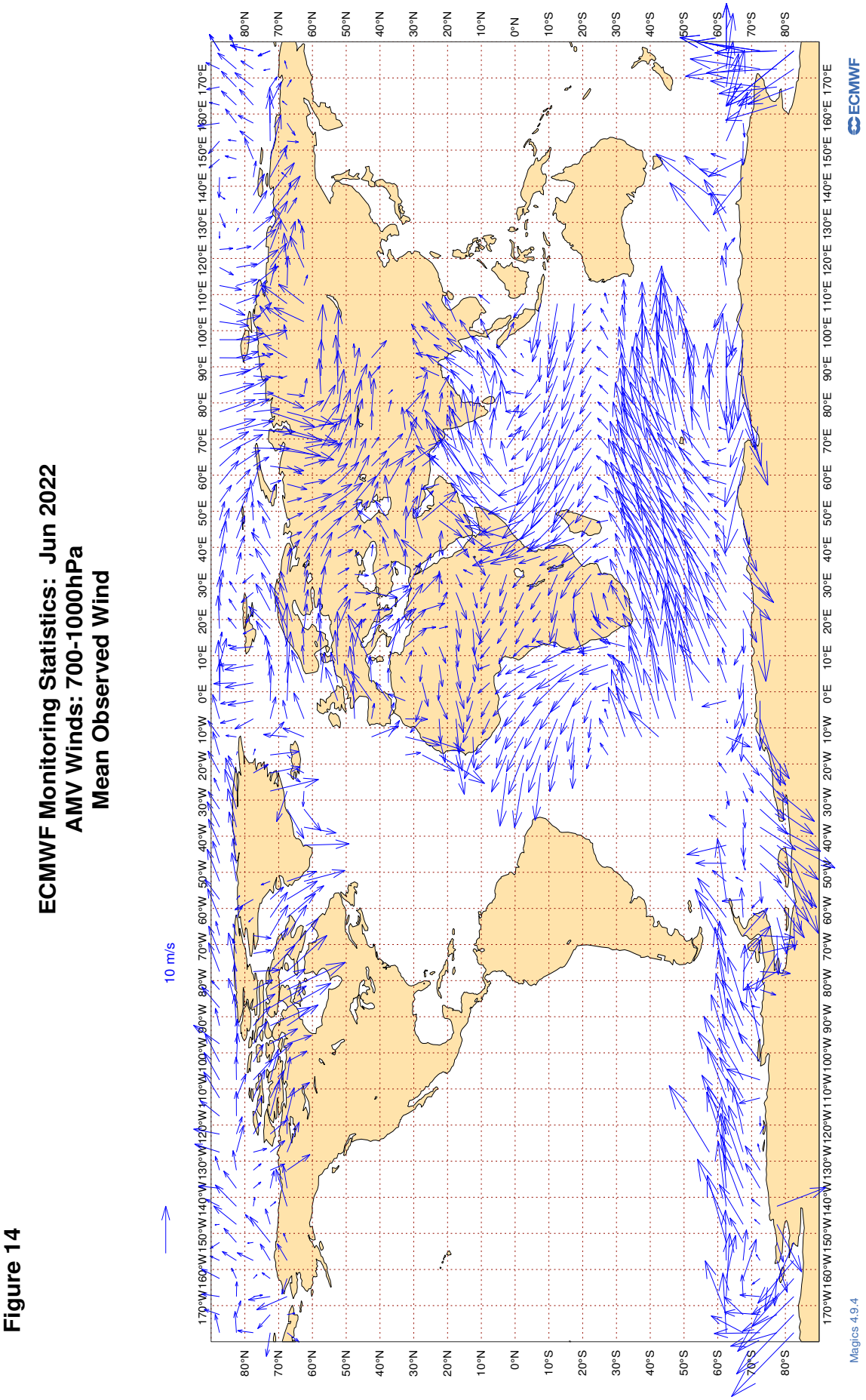


Figure 14

3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

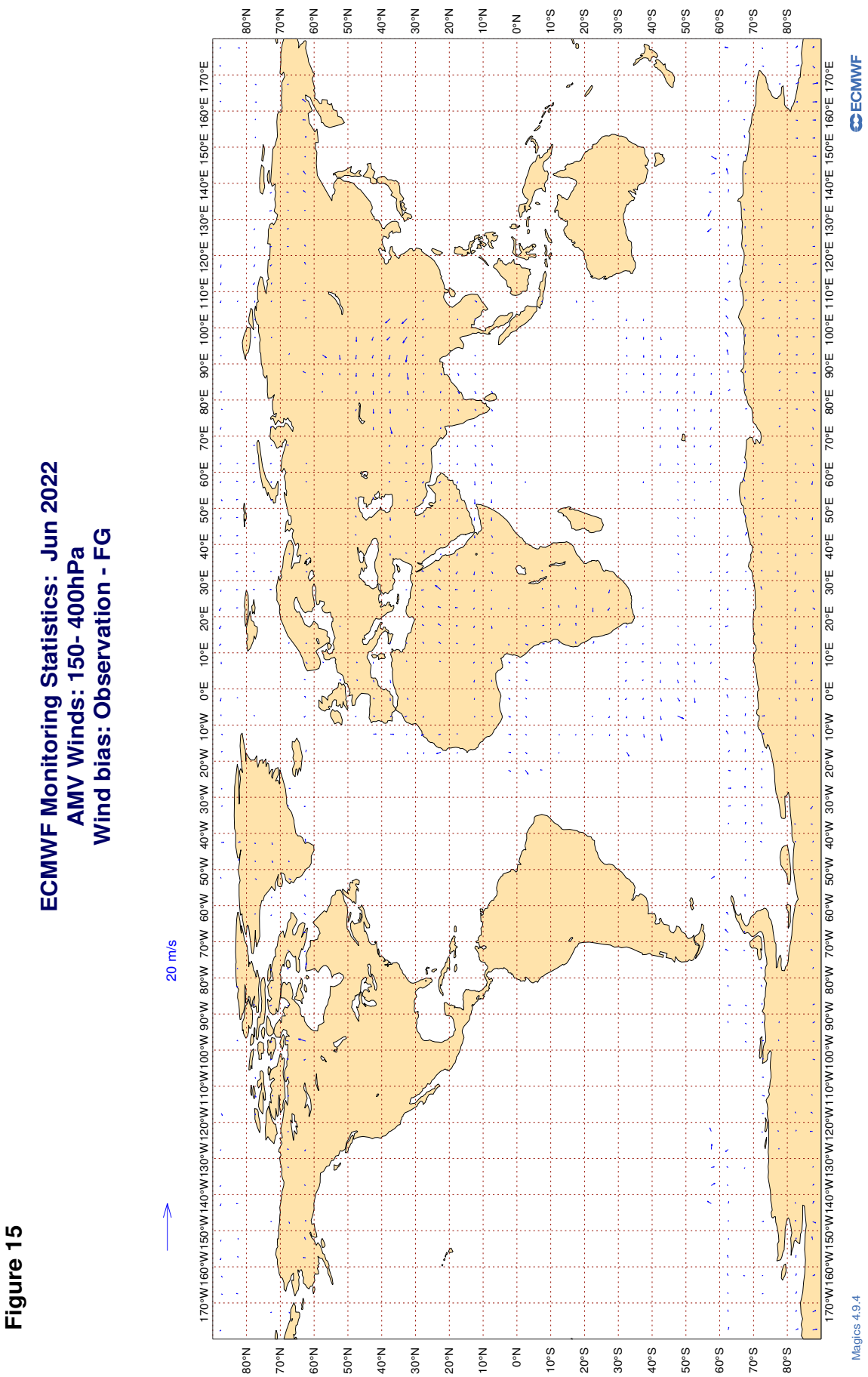


Figure 15

3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

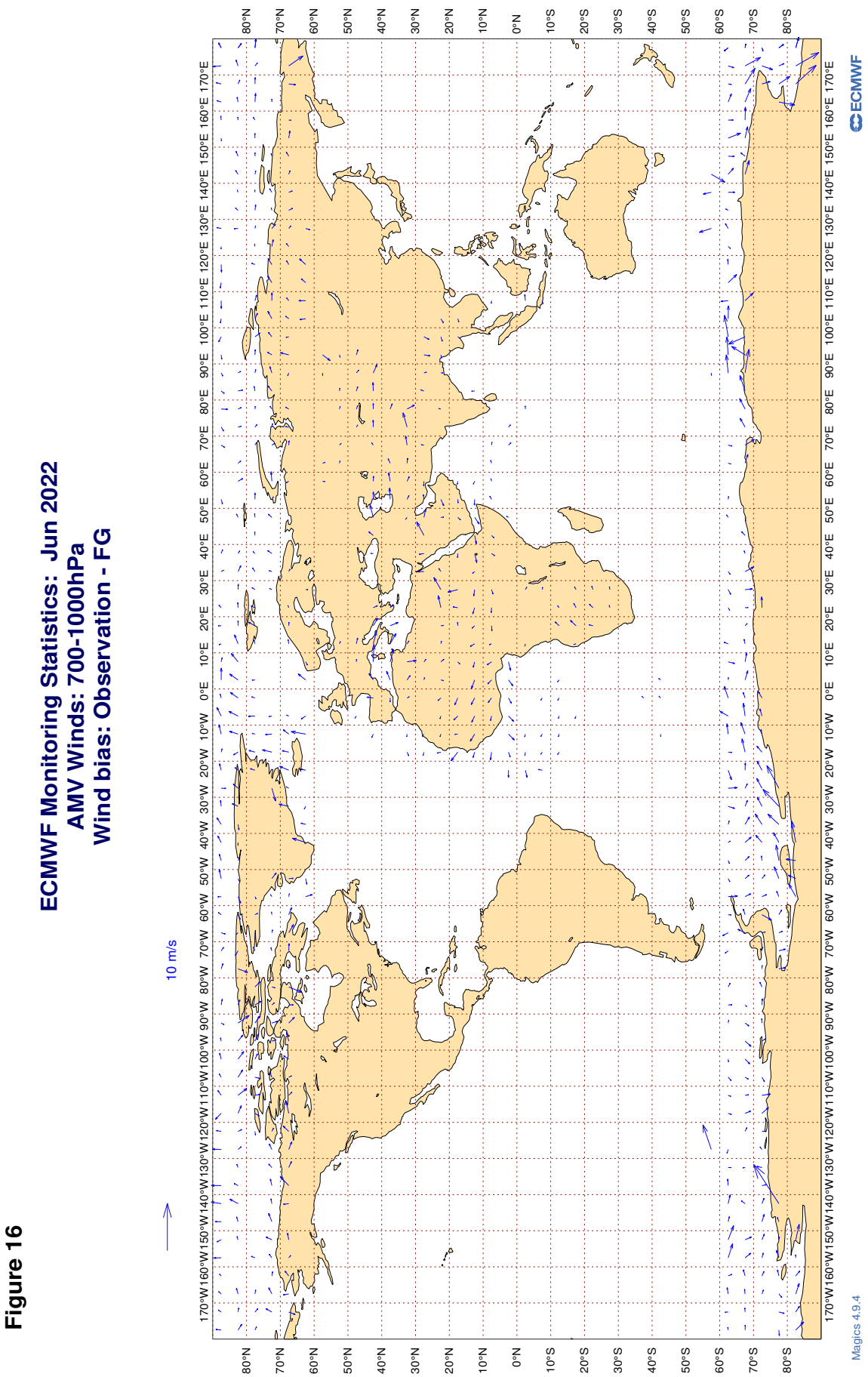


Figure 16

3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

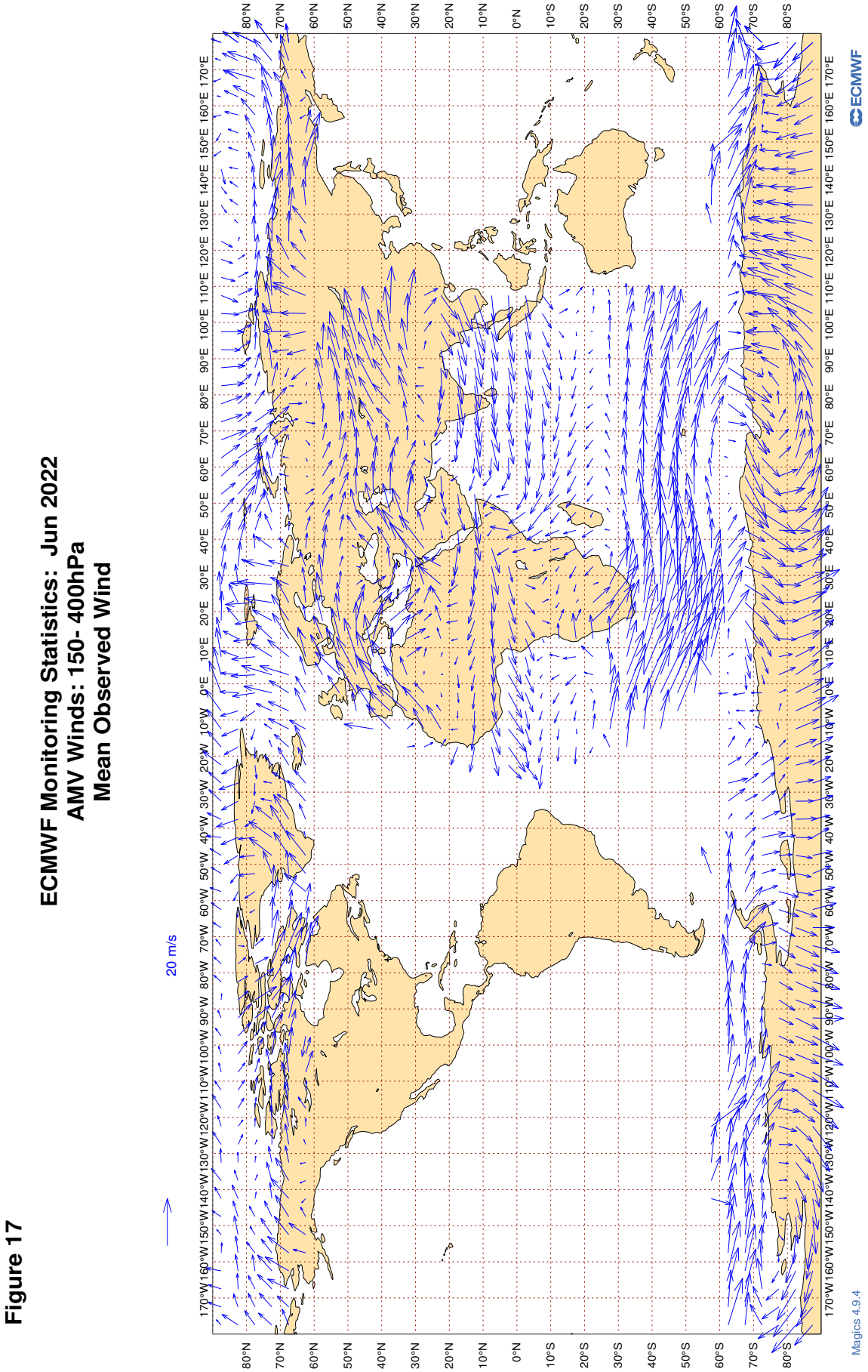


Figure 17

3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

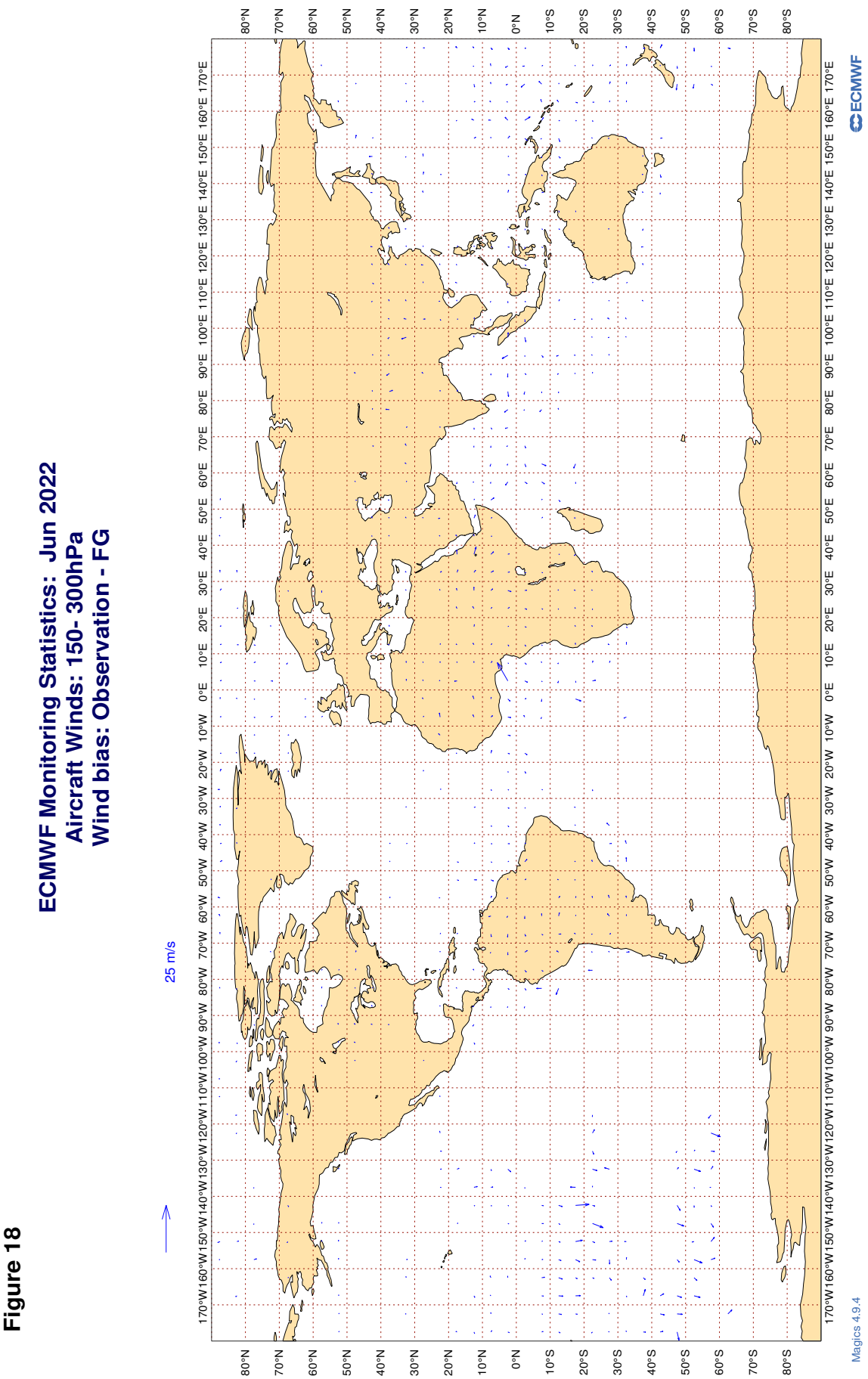


Figure 18

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 : JUN 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	89	0	0	3.5	0.7
AAL	99	V	300-150	50568	3	0	5.0	0.2
AAR	99	V	300-150	202	0	0	3.5	-1.0
ABB	99	V	300-150	2212	0	0	3.0	0.2
ABB	99	V	300-150	28	0	0	5.5	0.8
ABD	99	V	300-150	1328	0	0	3.7	0.0
ABP	99	V	300-150	87	0	0	2.7	-0.7
ABX	99	V	300-150	170	0	0	3.5	0.6
ACA	99	V	300-150	34321	2	0	4.7	0.2
ACI	99	V	300-150	414	0	0	5.5	0.5
AEA	99	V	300-150	580	5	0	5.3	0.1
AFR	99	V	300-150	36216	0	0	3.6	0.2
AHO	99	V	300-150	471	0	0	3.3	0.4
AIC	99	V	300-150	2122	0	0	5.1	0.2
AJT	99	V	300-150	1059	0	0	3.3	0.2
ALK	99	V	300-150	1937	0	0	4.5	0.7
AMX	99	V	300-150	3456	5	0	5.7	0.0
ANZ	99	V	300-150	11560	2	0	5.4	0.4
AOJ	99	V	300-150	157	0	1	3.3	0.0
ASA	99	V	300-150	160	0	1	4.3	0.3
ASL	99	V	300-150	635	0	0	2.9	0.3
ASP	99	V	300-150	55	0	0	3.7	0.3
ASY	99	V	300-150	186	0	0	5.0	0.5
ATC	99	V	300-150	127	0	0	4.4	0.9
ATN	99	V	300-150	220	0	2	3.8	0.5

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AUA	99	V	300-150	4427	0	0	3.6	-0.1
AVA	99	V	300-150	457	5	0	4.5	0.1
AWC	99	V	300-150	57	0	0	3.2	-0.1
AXA	99	V	300-150	23	0	0	3.6	-0.8
AXM	99	V	300-150	194	0	2	5.0	0.3
AXY	99	V	300-150	182	0	1	3.2	0.2
AYJ	99	V	300-150	49	0	0	3.2	-0.2
AYY	99	V	300-150	26	0	0	3.3	0.3
AZG	99	V	300-150	828	0	0	3.6	-0.6
BAH	99	V	300-150	94	0	0	3.6	-0.5
BAW	99	V	300-150	41897	1	0	4.2	0.2
BBC	99	V	300-150	501	0	0	5.4	0.3
BCS	99	V	300-150	1970	0	0	3.2	0.3
BEL	99	V	300-150	1131	0	0	3.5	0.5
BFD	99	V	300-150	39	0	0	3.2	0.2
BFF	99	V	300-150	33	0	0	11.2	5.3
BFY	99	V	300-150	23	0	0	4.5	1.1
BMW	99	V	300-150	59	0	0	3.4	0.1
BOX	99	V	300-150	3421	0	0	3.3	0.0
BOX	99	V	300-150	44	0	0	3.0	-0.2
BRK	99	V	300-150	26	0	0	6.8	1.0
BTX	99	V	300-150	135	0	0	3.2	0.2
BVR	99	V	300-150	33	0	0	2.1	-0.5
CAL	99	V	300-150	348	0	0	3.9	0.7
CAZ	99	V	300-150	248	0	0	3.4	0.4
CEB	99	V	300-150	167	0	1	3.8	0.8
CES	99	V	300-150	38	0	0	3.7	0.5
CFC	99	V	300-150	272	0	0	4.1	0.4
CFG	99	V	300-150	5485	0	0	3.5	-0.1
CHG	99	V	300-150	176	0	0	3.4	-0.5
CHH	99	V	300-150	25	0	0	4.5	-1.2
CJT	99	V	300-150	1963	0	0	3.5	0.0
CKS	99	V	300-150	832	0	0	3.6	0.1
CLX	99	V	300-150	4660	0	0	3.7	-0.2
CMB	99	V	300-150	791	0	0	3.5	0.2
CNK	99	V	300-150	43	0	0	3.0	0.5
CNV	99	V	300-150	203	0	0	3.7	-0.1
COO	99	V	300-150	23	43	0	35.4	0.5
CPA	99	V	300-150	300	0	0	4.8	-0.2
CRL	99	V	300-150	1409	0	0	3.1	0.3
CRV	99	V	300-150	53	0	0	3.0	0.0
CSC	99	V	300-150	54	0	0	4.2	0.6
CSN	99	V	300-150	323	2	0	4.8	1.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
CTM	99	V	300-150	87	0	0	2.8	0.1
CWG	99	V	300-150	56	0	0	2.9	0.4
CXA	99	V	300-150	29	0	0	3.9	-0.2
CXB	99	V	300-150	26	0	0	2.4	0.6
DAH	99	V	300-150	969	0	0	3.0	0.2
DAL	99	V	300-150	62615	0	0	3.1	0.2
DCM	99	V	300-150	45	0	2	3.2	-0.1
DCS	99	V	300-150	88	0	0	3.2	0.5
DGX	99	V	300-150	49	0	0	2.6	0.1
DHK	99	V	300-150	2234	0	0	3.3	0.0
DHX	99	V	300-150	101	0	0	4.5	0.0
DJT	99	V	300-150	1556	0	0	3.2	0.4
DLH	99	V	300-150	28595	0	0	3.2	0.2
DTA	99	V	300-150	31	0	0	3.5	-0.4
DUB	99	V	300-150	70	0	0	2.7	0.0
EAL	99	V	300-150	92	0	0	4.4	1.1
EAU	99	V	300-150	23	0	0	4.0	1.2
EDC	99	V	300-150	56	0	0	4.2	0.0
EDG	99	V	300-150	489	1	0	6.0	0.2
EDW	99	V	300-150	1389	0	0	3.2	0.3
EFF	99	V	300-150	32	0	0	3.2	0.1
EIN	99	V	300-150	14381	0	0	3.0	0.3
EJM	99	V	300-150	1754	0	0	3.6	0.3
ELY	99	V	300-150	4814	7	0	6.3	0.0
ETD	99	V	300-150	8404	2	0	5.5	0.3
ETH	99	V	300-150	5167	1	0	4.7	0.2
EUK	99	V	300-150	1783	0	0	3.0	0.4
EUW	99	V	300-150	33	0	0	2.5	-0.1
EVE	99	V	300-150	144	0	0	3.2	0.1
EXS	99	V	300-150	125	0	0	3.1	-0.1
EXV	99	V	300-150	36	0	0	4.6	0.7
FBU	99	V	300-150	2056	0	0	3.4	0.1
FDX	99	V	300-150	7988	0	0	3.4	0.2
FIN	99	V	300-150	1763	0	0	3.3	0.2
FJI	99	V	300-150	1693	0	0	4.1	0.7
FPY	99	V	300-150	1868	0	0	2.9	0.1
FWI	99	V	300-150	858	0	0	3.3	0.2
FWK	99	V	300-150	22	0	0	3.9	-0.3
FXT	99	V	300-150	65	0	0	2.7	-0.2
FYG	99	V	300-150	31	0	0	2.6	0.5
FYL	99	V	300-150	31	0	0	4.2	-2.1
GAF	99	V	300-150	109	0	0	3.1	1.0
GAJ	99	V	300-150	69	0	0	4.1	-0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
GCK	99	V	300-150	76	0	0	3.4	0.1
GDG	99	V	300-150	22	0	0	2.9	0.2
GEC	99	V	300-150	1936	0	0	3.2	0.2
GES	99	V	300-150	71	0	0	2.9	0.0
GFA	99	V	300-150	888	0	0	5.0	0.6
GIA	99	V	300-150	1326	0	0	4.8	0.8
GJE	99	V	300-150	225	0	0	3.6	0.3
GLH	99	V	300-150	37	0	0	3.1	0.5
GNJ	99	V	300-150	33	0	0	5.0	2.0
GOL	99	V	300-150	128	0	0	4.5	0.6
GRP	99	V	300-150	31	0	0	3.4	2.9
GTI	99	V	300-150	1584	0	0	3.6	-0.3
HAL	99	V	300-150	530	0	1	3.3	0.7
HFM	99	V	300-150	34	0	0	3.0	0.0
HFY	99	V	300-150	66	0	0	3.0	0.5
HKC	99	V	300-150	99	0	0	4.2	0.6
HRN	99	V	300-150	73	0	0	3.5	-0.2
HRT	99	V	300-150	186	0	0	3.4	0.0
HUA	99	V	300-150	31	0	0	3.6	0.5
HZA	99	V	300-150	26	0	0	2.7	0.1
HZS	99	V	300-150	34	0	0	3.5	-1.0
IAM	99	V	300-150	162	0	0	3.8	-0.1
IBE	99	V	300-150	6241	0	0	3.2	0.4
ICE	99	V	300-150	7104	0	0	3.3	0.2
ICL	99	V	300-150	835	0	0	3.7	-0.2
ICV	99	V	300-150	326	0	0	3.6	-0.4
IFA	99	V	300-150	151	0	0	3.9	0.6
IJM	99	V	300-150	146	0	0	3.5	0.6
ITY	99	V	300-150	5374	0	0	3.3	0.3
IXR	99	V	300-150	35	0	0	4.0	-0.5
JAF	99	V	300-150	1198	5	0	6.8	0.1
JAL	99	V	300-150	38	0	0	4.5	0.3
JAS	99	V	300-150	255	0	0	3.4	0.2
JBU	99	V	300-150	2094	0	0	3.0	0.2
JCO	99	V	300-150	97	0	0	3.3	1.0
JCY	99	V	300-150	49	0	0	3.2	0.0
JEF	99	V	300-150	24	0	0	4.0	1.2
JME	99	V	300-150	63	0	0	3.8	0.8
JML	99	V	300-150	21	0	0	2.6	0.2
JNY	99	V	300-150	68	0	0	3.9	0.0
JST	99	V	300-150	53	0	0	3.1	0.3
KAC	99	V	300-150	934	0	0	3.7	0.5
KAF	99	V	300-150	24	0	0	2.8	1.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
KAI	99	V	300-150	170	0	0	3.0	0.5
KAL	99	V	300-150	83	0	0	7.4	2.2
KAY	99	V	300-150	87	0	0	2.8	0.0
KFB	99	V	300-150	30	0	0	3.7	-1.0
KFE	99	V	300-150	65	0	0	2.8	0.2
KIW	99	V	300-150	62	0	0	4.3	0.4
KLM	99	V	300-150	18256	2	0	5.0	0.1
KNE	99	V	300-150	30	0	0	4.4	0.7
KOC	99	V	300-150	74	0	0	3.5	0.5
KQA	99	V	300-150	190	5	0	6.5	0.6
KYE	99	V	300-150	20	0	10	7.3	1.2
LAE	99	V	300-150	199	0	0	3.2	0.1
LAN	99	V	300-150	539	3	0	5.9	0.0
LCO	99	V	300-150	345	0	0	3.1	-0.8
LDX	99	V	300-150	262	0	0	3.4	0.1
LEA	99	V	300-150	90	0	0	3.4	0.1
LHO	99	V	300-150	32	0	0	7.0	2.3
LNI	99	V	300-150	224	0	0	4.8	1.1
LNX	99	V	300-150	52	0	0	3.8	0.0
LOT	99	V	300-150	5003	5	0	6.7	0.1
LSI	99	V	300-150	34	0	0	2.4	0.3
LXG	99	V	300-150	34	0	0	3.0	0.8
LXJ	99	V	300-150	1182	0	0	3.2	0.0
MAA	99	V	300-150	334	0	0	2.9	0.2
MAS	99	V	300-150	2975	0	0	4.8	0.6
MAU	99	V	300-150	317	0	0	5.1	1.2
MED	99	V	300-150	31	0	0	5.0	0.2
MHV	99	V	300-150	199	0	0	3.1	-0.2
MJF	99	V	300-150	59	0	0	2.8	-0.4
MMD	99	V	300-150	262	0	0	3.0	0.1
MMF	99	V	300-150	38	0	0	2.7	0.3
MNB	99	V	300-150	108	0	0	3.2	0.0
MPH	99	V	300-150	780	0	0	3.8	-0.6
MSR	99	V	300-150	2133	2	0	4.0	0.1
MVJ	99	V	300-150	52	0	0	2.9	0.7
NAF	99	V	300-150	51	0	0	4.7	0.6
NAS	99	V	300-150	138	0	0	3.5	0.1
NBT	99	V	300-150	320	4	0	6.5	-0.2
NCR	99	V	300-150	143	0	0	4.0	-0.2
NJE	99	V	300-150	479	0	0	3.6	0.4
NOJ	99	V	300-150	32	0	0	3.2	-0.8
NOS	99	V	300-150	674	7	0	5.4	0.2
NSH	99	V	300-150	26	0	0	3.3	0.8

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
NSP	99	V	300-150	138	0	0	8.6	1.7
NUM	99	V	300-150	38	0	0	3.0	1.2
OAE	99	V	300-150	808	0	0	3.8	0.2
OCN	99	V	300-150	4553	0	0	3.2	0.2
OMA	99	V	300-150	1123	0	0	5.4	0.4
PAC	99	V	300-150	742	0	0	3.5	-0.3
PAL	99	V	300-150	409	0	0	4.0	0.8
PAT	99	V	300-150	52	0	0	2.8	-0.4
PEG	99	V	300-150	81	0	0	3.3	-0.2
PIA	99	V	300-150	154	0	0	2.6	0.1
PLF	99	V	300-150	67	0	0	2.8	0.4
PRD	99	V	300-150	36	0	0	3.2	-0.6
PTA	99	V	300-150	67	0	0	4.0	-0.3
PVA	99	V	300-150	295	0	0	3.4	-0.2
PXT	99	V	300-150	42	0	0	2.9	-0.3
QAF	99	V	300-150	31	0	0	3.0	0.6
QFA	99	V	300-150	4913	2	0	5.6	0.2
QQE	99	V	300-150	287	0	0	3.7	0.2
QTR	99	V	300-150	23859	0	0	4.0	0.2
RAM	99	V	300-150	731	6	0	7.3	0.1
RBA	99	V	300-150	67	0	0	5.5	0.4
RCH	99	V	300-150	4042	0	0	4.1	0.3
RDN	99	V	300-150	67	0	0	2.7	0.1
RHH	99	V	300-150	57	0	0	5.8	-1.0
RJA	99	V	300-150	2870	4	0	7.4	0.1
RKS	99	V	300-150	54	0	0	3.4	0.2
RRR	99	V	300-150	231	0	0	3.6	0.3
RYR	99	V	300-150	462	0	1	3.0	0.1
RZO	99	V	300-150	358	0	1	3.7	0.5
SAM	99	V	300-150	489	0	0	3.4	-0.2
SAS	99	V	300-150	4518	0	0	3.0	0.2
SAZ	99	V	300-150	87	0	0	3.6	0.3
SCX	99	V	300-150	41	0	0	3.0	0.3
SEY	99	V	300-150	44	0	0	4.9	0.2
SHE	99	V	300-150	104	0	0	2.8	0.6
SIA	99	V	300-150	9287	0	0	4.6	0.2
SIO	99	V	300-150	46	0	0	3.5	0.2
SJE	99	V	300-150	52	0	0	2.8	0.1
SLM	99	V	300-150	36	0	0	2.7	0.3
SPA	99	V	300-150	93	0	0	3.3	-0.3
STV	99	V	300-150	20	0	0	3.2	-1.6
SVA	99	V	300-150	7715	0	0	4.3	0.4
SVW	99	V	300-150	157	0	0	3.4	-0.9

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
SWA	99	V	300-150	56	2	4	5.1	-0.5
SWR	99	V	300-150	8320	0	0	3.3	0.4
SWW	99	V	300-150	20	0	0	3.1	-0.4
SYB	99	V	300-150	203	0	0	3.3	0.1
TAG	99	V	300-150	78	0	0	3.8	0.8
TAM	99	V	300-150	76	0	0	4.7	0.2
TAP	99	V	300-150	2952	0	0	3.4	0.4
TAR	99	V	300-150	369	0	0	2.7	0.3
TAY	99	V	300-150	455	0	0	3.5	-0.5
TEU	99	V	300-150	79	0	0	3.2	0.3
TFF	99	V	300-150	71	0	0	3.4	0.2
TFL	99	V	300-150	1391	4	0	5.2	0.2
TGW	99	V	300-150	691	0	0	7.1	0.2
THA	99	V	300-150	538	0	0	4.8	0.4
THT	99	V	300-150	3069	2	0	5.0	0.1
THY	99	V	300-150	17239	2	0	4.3	0.2
TMN	99	V	300-150	322	0	0	4.6	1.1
TOM	99	V	300-150	8042	5	0	6.4	0.0
TOW	99	V	300-150	71	0	1	3.0	0.7
TPA	99	V	300-150	115	0	0	3.1	0.7
TSC	99	V	300-150	13839	0	0	3.2	0.3
TVS	99	V	300-150	77	0	0	2.7	0.0
TWY	99	V	300-150	1274	0	0	3.3	-0.1
UAE	99	V	300-150	22159	0	0	3.9	0.2
UAF	99	V	300-150	45	0	2	3.1	-0.1
UAL	99	V	300-150	81450	2	1	4.7	0.1
ULA	99	V	300-150	29	0	0	3.1	1.2
ULC	99	V	300-150	83	0	0	3.6	0.2
UPS	99	V	300-150	5523	0	0	3.5	-0.2
UZB	99	V	300-150	95	6	0	5.7	-0.2
VCG	99	V	300-150	127	0	0	3.9	0.7
VIR	99	V	300-150	20142	2	0	4.6	0.1
VJT	99	V	300-150	2750	0	0	3.4	0.3
VKG	99	V	300-150	20	0	0	2.4	0.4
VLZ	99	V	300-150	32	0	0	3.0	-0.1
VMP	99	V	300-150	116	0	0	6.4	0.8
VTI	99	V	300-150	186	0	0	4.0	0.7
VXS	99	V	300-150	33	0	0	3.4	0.2
WDY	99	V	300-150	22	0	0	3.2	-1.2
WJA	99	V	300-150	7107	3	0	4.9	0.2
WMN	99	V	300-150	36	0	0	5.7	1.2
WND	99	V	300-150	25	0	0	3.1	0.6
WWI	99	V	300-150	31	0	0	4.2	-1.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
XAX	99	V	300-150	46	0	0	5.2	-0.5
XFL	99	V	300-150	32	0	0	3.3	0.3
XLS	99	V	300-150	81	0	0	3.9	0.7
XOJ	99	V	300-150	31	0	0	2.9	0.2
XRO	99	V	300-150	105	0	0	4.0	0.7

4 EUCOS Area Monitoring Statistics

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

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

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

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RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 :  50 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : JUN 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
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WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	50	27	18.5	-9.5
01001	12	Z	50	28	7.8	-2.2
01028	00	Z	50	30	4.6	-1.0
01028	12	Z	50	31	5.4	-4.0
01400	00	Z	50	19	81.0	80.7
01400	12	Z	50	14	75.6	75.4
01415	12	Z	50	29	7.2	1.8
01415	00	Z	50	28	10.2	7.1
02365	00	Z	50	21	4.7	2.4
02365	12	Z	50	21	6.1	-4.0
02836	00	Z	50	30	5.1	-1.1
02836	12	Z	50	32	7.6	-4.8
02963	12	Z	50	30	7.2	-2.1
02963	00	Z	50	30	7.6	3.9
03005	12	Z	50	29	6.0	-2.6
03005	00	Z	50	25	6.2	-2.0
03238	12	Z	50	5	6.1	-0.9
03238	00	Z	50	28	12.6	2.5
03808	12	Z	50	29	8.2	-0.3
03808	00	Z	50	30	8.2	6.2
03918	00	Z	50	30	11.6	8.5
03918	12	Z	50	6	9.9	5.1
03953	12	Z	50	30	8.8	-4.6
03953	00	Z	50	29	7.8	-4.1
04018	00	Z	50	28	7.8	-5.5
04018	12	Z	50	28	5.6	-3.9
04220	12	Z	50	30	7.0	-0.6
04220	00	Z	50	30	7.4	-0.9
04270	00	Z	50	21	28.0	-22.0
04270	12	Z	50	18	21.9	-14.8
04320	00	Z	50	25	18.7	-7.6
04320	12	Z	50	23	13.5	-2.6
04339	12	Z	50	16	17.8	-7.5
04339	00	Z	50	27	21.1	-15.7
04360	00	Z	50	24	15.1	-11.8
04360	12	Z	50	23	12.5	-7.8
06011	12	Z	50	30	18.4	15.7
06011	00	Z	50	25	10.3	-1.1
06260	12	Z	50	4	6.3	-3.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	50	29	8.2	3.2
06610	12	Z	50	31	6.0	-1.0
06610	00	Z	50	30	6.7	1.3
07110	12	Z	50	30	13.8	-5.0
07110	00	Z	50	28	16.6	-2.8
07510	12	Z	50	28	21.9	2.4
07510	00	Z	50	30	14.7	-7.2
07645	00	Z	50	30	6.7	0.1
07645	12	Z	50	28	14.2	-12.7
07761	00	Z	50	30	21.7	-14.1
07761	12	Z	50	30	30.3	-23.8
08001	00	Z	50	30	9.7	7.3
08001	12	Z	50	30	8.1	2.1
08221	12	Z	50	30	5.9	1.2
08221	00	Z	50	30	12.8	11.3
08302	00	Z	50	29	6.9	-0.3
08302	12	Z	50	30	12.1	-10.4
08508	12	Z	50	29	8.1	3.5
08522	12	Z	50	28	7.0	-2.8
10035	00	Z	50	30	17.0	16.0
10035	12	Z	50	30	8.5	6.6
10393	00	Z	50	25	7.7	5.8
10393	12	Z	50	29	9.0	-5.8
10410	00	Z	50	31	6.6	1.3
10410	12	Z	50	30	8.2	-4.6
10739	12	Z	50	30	7.8	-0.9
10739	00	Z	50	30	9.9	7.2
11035	12	Z	50	30	10.8	-1.6
11035	00	Z	50	29	9.2	6.5
12982	12	Z	50	30	7.4	1.3
12982	00	Z	50	30	9.9	8.8
16245	00	Z	50	30	9.1	7.6
16245	12	Z	50	29	6.9	-3.5
16429	00	Z	50	24	10.9	10.0
16429	12	Z	50	25	5.2	-0.5
16622	00	Z	50	22	17.2	16.3
16754	00	Z	50	4	21.6	20.9
17607	12	Z	50	19	8.4	4.4
26435	12	Z	50	15	3.7	-1.2
2EERVT	12	Z	50	2	14.5	-13.2
2EERVT	00	Z	50	2	8.9	-8.8
60018	00	Z	50	29	9.2	7.8
60018	12	Z	50	28	7.8	-5.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	50	9	148.2	131.8
7JUNA4	00	Z	50	7	15.3	5.0
9ZT9MR	12	Z	50	4	24.8	-23.3
9ZT9MR	00	Z	50	5	20.2	-19.4
ASDE09	12	Z	50	3	12.7	-1.7
ATGU3F	12	Z	50	6	22.5	-5.8
ATGU3F	00	Z	50	3	22.4	-20.2
BPMWB2	00	Z	50	0	0.0	0.0
BPMWB2	12	Z	50	0	0.0	0.0
CHQUR4	12	Z	50	4	13.1	-10.7
CHQUR4	00	Z	50	3	17.4	-10.6
DBLK	12	Z	50	1	9.7	9.7
FPUW5G	12	Z	50	18	8.4	-3.8
JNKN7J	12	Z	50	13	25.8	24.7
JNKN7J	00	Z	50	13	26.2	22.3
KJJF9X	12	Z	50	6	8.5	6.3
KJJF9X	00	Z	50	5	17.7	13.1
KMPLHP	12	Z	50	6	157.3	121.0
KMPLHP	00	Z	50	9	21.9	-15.4
LRYQE3	12	Z	50	11	14.6	2.7
LRYQE3	00	Z	50	13	18.7	-11.2
UXK5JT	12	Z	50	7	18.8	17.8
UXK5JT	00	Z	50	5	14.7	11.4
WDK38H	12	Z	50	11	6.2	-4.2
XKQLWQ	12	Z	50	0	0.0	0.0
XQFJRG	12	Z	50	10	15.2	-10.3
XQFJRG	00	Z	50	4	15.2	-7.5
YLV96W	00	Z	50	12	12.6	-3.1
YLV96W	12	Z	50	9	54.4	7.0
ZVQEQC	12	Z	50	23	6.7	3.9

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	50	21	2.5	-0.3	-1.0
01001	12	V	50	28	2.2	0.0	-0.2
01028	00	V	50	25	2.0	-0.5	0.4
01028	12	V	50	30	2.5	-0.7	-0.1
01400	00	V	50	15	3.0	-0.1	0.4
01400	12	V	50	12	2.9	0.4	-0.5
01415	12	V	50	29	2.7	-0.3	0.6
01415	00	V	50	24	2.6	0.0	-0.2
02365	00	V	50	16	2.4	0.2	-1.1
02365	12	V	50	21	2.6	-0.2	-0.5
02836	00	V	50	21	2.1	-0.2	-0.5
02836	12	V	50	30	2.3	-0.2	-0.5
02963	12	V	50	30	2.4	-0.1	0.2
02963	00	V	50	23	2.5	0.7	0.4
03005	12	V	50	29	2.4	0.3	-0.3
03005	00	V	50	20	2.2	0.0	0.0
03238	12	V	50	5	3.2	1.6	-0.9
03238	00	V	50	23	3.3	-0.5	0.1
03808	12	V	50	29	3.3	0.3	-0.2
03808	00	V	50	23	3.5	-0.1	1.1
03918	00	V	50	23	2.8	0.5	-0.1
03918	12	V	50	6	2.6	0.3	-0.2
03953	12	V	50	30	3.1	0.7	-0.4
03953	00	V	50	22	3.5	0.3	-0.3
04018	00	V	50	24	2.5	0.1	0.3
04018	12	V	50	27	2.7	-0.2	0.6
04220	12	V	50	30	2.5	0.0	-0.2
04220	00	V	50	25	2.6	-0.4	0.4
04270	00	V	50	16	2.9	-0.4	0.1
04270	12	V	50	18	2.7	-0.1	0.1
04320	00	V	50	21	2.2	-0.3	0.0
04320	12	V	50	23	2.2	-0.4	-0.3
04339	12	V	50	16	2.8	0.0	-0.6
04339	00	V	50	23	3.1	-0.1	-0.5
04360	00	V	50	21	2.6	-0.1	0.4
04360	12	V	50	23	2.4	-0.1	0.6
06011	12	V	50	30	3.0	0.3	-0.1
06011	00	V	50	23	3.0	0.1	-0.1
06260	12	V	50	4	3.7	1.2	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	50	25	3.4	0.7	-0.7
06610	12	V	50	30	3.1	0.2	0.2
06610	00	V	50	23	3.8	1.3	0.7
07110	12	V	50	30	3.0	0.2	0.0
07110	00	V	50	22	3.2	0.3	0.0
07510	12	V	50	28	3.0	0.0	0.1
07510	00	V	50	27	3.5	0.4	-0.4
07645	00	V	50	24	3.3	-1.0	-0.1
07645	12	V	50	28	3.1	-0.5	-0.1
07761	00	V	50	26	3.4	-0.3	1.0
07761	12	V	50	30	3.1	0.1	-0.3
08001	00	V	50	25	3.5	-0.3	0.2
08001	12	V	50	30	3.0	0.5	0.0
08221	12	V	50	30	3.7	0.3	-0.7
08221	00	V	50	24	3.1	0.6	-0.2
08302	00	V	50	25	3.3	-0.4	-1.0
08302	12	V	50	30	3.3	-0.3	-1.6
08508	12	V	50	29	2.8	0.1	-0.2
08522	12	V	50	28	3.4	0.2	-0.1
10035	00	V	50	30	3.0	0.0	0.4
10035	12	V	50	30	3.0	-0.1	-0.7
10393	00	V	50	22	3.3	0.3	0.0
10393	12	V	50	29	2.8	0.3	-0.3
10410	00	V	50	28	3.4	0.8	0.2
10410	12	V	50	30	2.8	0.3	0.2
10739	12	V	50	30	3.5	-1.0	-0.1
10739	00	V	50	28	3.5	-0.6	0.3
11035	12	V	50	30	3.5	-0.6	-0.9
11035	00	V	50	22	3.0	0.5	-1.0
12982	12	V	50	30	3.3	-0.1	-0.6
12982	00	V	50	23	3.3	0.1	-0.4
16245	00	V	50	22	3.3	1.1	-0.5
16245	12	V	50	29	2.9	0.3	-0.5
16429	00	V	50	21	3.5	-0.3	0.5
16429	12	V	50	25	2.8	0.2	-0.8
16622	00	V	50	15	3.1	1.0	0.6
16754	00	V	50	3	2.0	-0.7	1.7
17607	12	V	50	7	4.8	1.9	0.2
26435	12	V	50	15	2.7	0.4	-0.3
2EERVT	12	V	50	2	3.3	0.9	0.0
2EERVT	00	V	50	2	2.1	-0.1	1.2
60018	00	V	50	22	3.6	-0.4	0.7
60018	12	V	50	28	3.4	0.9	-0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	50	9	3.7	1.9	-0.5
7JUNA4	00	V	50	7	2.8	-1.1	0.6
9ZT9MR	12	V	50	4	2.8	1.6	-0.4
9ZT9MR	00	V	50	5	2.1	1.0	0.6
ASDE09	12	V	50	3	3.1	-1.3	-2.3
ATGU3F	12	V	50	6	2.5	-0.8	-0.5
ATGU3F	00	V	50	3	2.4	-0.9	0.3
BPMWB2	00	V	50	0	0.0	0.0	0.0
BPMWB2	12	V	50	0	0.0	0.0	0.0
CHQUR4	12	V	50	4	2.7	0.9	-0.3
CHQUR4	00	V	50	3	3.2	1.1	-1.4
DBLK	12	V	50	1	2.0	1.9	-0.6
FPUW5G	12	V	50	16	1.8	0.7	-0.3
JNKN7J	12	V	50	13	3.0	0.8	0.3
JNKN7J	00	V	50	13	2.7	0.8	0.1
KJJF9X	12	V	50	6	3.6	0.0	0.5
KJJF9X	00	V	50	5	3.0	1.1	1.2
KMPLHP	12	V	50	6	2.8	-0.9	-0.1
KMPLHP	00	V	50	9	3.3	-0.1	-0.6
LRYQE3	12	V	50	11	2.9	0.2	0.3
LRYQE3	00	V	50	13	3.2	-0.7	-0.3
UXK5JT	12	V	50	7	2.6	1.1	-0.6
UXK5JT	00	V	50	5	4.0	1.6	0.6
WDK38H	12	V	50	11	1.5	0.4	-0.1
XKQLWQ	12	V	50	0	0.0	0.0	0.0
XQFJRG	12	V	50	10	2.6	1.4	0.3
XQFJRG	00	V	50	4	1.6	0.7	0.2
YLV96W	00	V	50	12	2.3	0.7	-0.2
YLV96W	12	V	50	9	3.9	-0.1	0.4
ZVQEQC	12	V	50	23	4.1	-0.5	0.2

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	100	27	16.3	-12.5
01001	12	Z	100	29	8.9	-5.5
01028	00	Z	100	30	6.3	-5.1
01028	12	Z	100	31	7.3	-6.7
01400	00	Z	100	22	75.7	75.5
01400	12	Z	100	23	75.7	75.4
01415	12	Z	100	29	4.8	-1.8
01415	00	Z	100	28	6.2	0.9
02365	00	Z	100	22	5.3	-4.4
02365	12	Z	100	21	7.2	-6.6
02836	00	Z	100	30	6.2	-4.7
02836	12	Z	100	32	9.1	-7.2
02963	12	Z	100	30	6.3	-4.5
02963	00	Z	100	30	5.5	-1.9
03005	12	Z	100	29	7.2	-5.7
03005	00	Z	100	26	7.2	-5.7
03238	12	Z	100	5	7.6	-5.2
03238	00	Z	100	28	7.9	-0.2
03808	12	Z	100	29	6.0	-2.8
03808	00	Z	100	30	4.4	2.4
03918	00	Z	100	30	7.6	4.2
03918	12	Z	100	6	6.4	0.4
03953	12	Z	100	30	11.4	-8.7
03953	00	Z	100	29	8.4	-6.9
04018	00	Z	100	28	9.6	-7.8
04018	12	Z	100	29	6.9	-5.7
04220	12	Z	100	30	6.8	-1.4
04220	00	Z	100	30	7.4	-1.3
04270	00	Z	100	25	27.0	-23.6
04270	12	Z	100	22	20.9	-17.0
04320	00	Z	100	26	13.9	-9.0
04320	12	Z	100	27	11.5	-5.4
04339	12	Z	100	22	16.3	-11.3
04339	00	Z	100	29	19.7	-16.9
04360	00	Z	100	24	16.1	-14.4
04360	12	Z	100	23	12.8	-10.7
06011	12	Z	100	30	10.8	8.3
06011	00	Z	100	28	10.9	-4.9
06260	12	Z	100	4	8.3	-6.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	100	29	6.5	0.5
06610	12	Z	100	31	6.5	-4.1
06610	00	Z	100	30	6.4	-0.9
07110	12	Z	100	30	12.8	-9.2
07110	00	Z	100	29	14.4	-6.2
07510	12	Z	100	28	13.2	-3.0
07510	00	Z	100	30	10.9	-7.6
07645	00	Z	100	30	8.9	-5.0
07645	12	Z	100	28	14.3	-13.5
07761	00	Z	100	30	21.2	-16.6
07761	12	Z	100	30	29.3	-25.4
08001	00	Z	100	30	7.1	2.9
08001	12	Z	100	30	6.1	-0.4
08221	12	Z	100	30	5.0	0.1
08221	00	Z	100	30	7.3	4.6
08302	00	Z	100	29	7.8	-6.3
08302	12	Z	100	30	12.0	-10.9
08508	12	Z	100	30	6.3	3.6
08522	12	Z	100	29	4.5	-1.3
10035	00	Z	100	30	13.1	12.2
10035	12	Z	100	30	7.5	5.8
10393	00	Z	100	27	6.2	1.5
10393	12	Z	100	30	10.3	-8.6
10410	00	Z	100	31	5.8	-1.0
10410	12	Z	100	30	7.7	-5.4
10739	12	Z	100	30	7.0	-2.8
10739	00	Z	100	30	7.3	4.2
11035	12	Z	100	30	8.2	-4.8
11035	00	Z	100	30	8.4	4.5
12982	12	Z	100	30	5.1	-0.8
12982	00	Z	100	30	7.4	5.9
16245	00	Z	100	30	6.4	3.3
16245	12	Z	100	30	6.0	-4.2
16429	00	Z	100	24	5.2	3.8
16429	12	Z	100	25	4.4	-2.5
16622	00	Z	100	30	14.2	13.4
16754	00	Z	100	4	15.4	15.0
17607	12	Z	100	29	6.9	4.4
26435	12	Z	100	15	5.6	-4.5
2EERVT	12	Z	100	2	16.4	-15.7
2EERVT	00	Z	100	2	10.4	-9.6
60018	00	Z	100	30	8.5	7.6
60018	12	Z	100	30	5.4	-2.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	100	10	77.9	68.4
7JUNA4	00	Z	100	7	10.3	-1.2
9ZT9MR	12	Z	100	4	20.7	-20.0
9ZT9MR	00	Z	100	5	24.8	-23.8
ASDE09	12	Z	100	3	9.1	5.6
ATGU3F	12	Z	100	7	21.4	-15.9
ATGU3F	00	Z	100	5	26.9	-26.4
BPMWB2	00	Z	100	0	0.0	0.0
BPMWB2	12	Z	100	0	0.0	0.0
CHQUR4	12	Z	100	4	14.3	-13.6
CHQUR4	00	Z	100	3	18.8	-16.7
DBLK	12	Z	100	1	8.4	8.4
FPUW5G	12	Z	100	18	10.4	-7.7
JNKN7J	12	Z	100	16	27.3	25.8
JNKN7J	00	Z	100	13	25.9	23.4
KJJF9X	12	Z	100	6	9.0	0.9
KJJF9X	00	Z	100	6	7.2	2.9
KMPLHP	12	Z	100	8	110.0	86.6
KMPLHP	00	Z	100	9	16.6	-13.4
LRYQE3	12	Z	100	13	10.9	-3.1
LRYQE3	00	Z	100	12	17.4	-13.9
UXK5JT	12	Z	100	9	13.1	11.4
UXK5JT	00	Z	100	8	11.7	10.1
WDK38H	12	Z	100	12	9.8	-9.3
XKQLWQ	12	Z	100	0	0.0	0.0
XQFJRG	12	Z	100	12	15.8	-12.4
XQFJRG	00	Z	100	7	14.7	-13.4
YLV96W	00	Z	100	12	12.1	-6.1
YLV96W	12	Z	100	9	33.8	1.2
ZVQEQC	12	Z	100	24	11.5	6.8

4.4 Table 16 - Radiosonde Monitoring Statistics (EUCOS): 100 hPa Wind (m/s)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	100	21	2.1	0.0	-0.1
01001	12	V	100	28	2.8	0.1	-0.1
01028	00	V	100	25	2.4	0.3	0.1
01028	12	V	100	30	2.1	0.8	0.2
01400	00	V	100	16	3.0	0.4	-0.9
01400	12	V	100	20	3.7	0.3	-0.5
01415	12	V	100	29	3.4	0.5	0.2
01415	00	V	100	22	2.8	-0.1	-0.6
02365	00	V	100	16	3.4	0.2	0.2
02365	12	V	100	21	2.5	-0.5	0.4
02836	00	V	100	21	2.8	-0.6	-0.2
02836	12	V	100	30	2.4	-0.7	-0.5
02963	12	V	100	30	2.3	0.3	-0.3
02963	00	V	100	23	2.6	0.1	-0.4
03005	12	V	100	29	2.9	-0.5	0.0
03005	00	V	100	20	2.3	-0.1	-0.3
03238	12	V	100	5	4.6	1.5	-0.7
03238	00	V	100	23	3.1	0.4	-0.3
03808	12	V	100	29	2.6	-0.1	-0.7
03808	00	V	100	23	3.3	1.1	-1.3
03918	00	V	100	23	3.4	0.3	0.2
03918	12	V	100	6	2.9	1.4	-1.5
03953	12	V	100	30	2.6	0.4	-0.9
03953	00	V	100	22	2.7	0.1	0.4
04018	00	V	100	27	2.3	-0.2	-0.2
04018	12	V	100	29	2.6	0.0	0.1
04220	12	V	100	30	2.6	-0.6	-0.5
04220	00	V	100	27	2.2	0.2	-0.1
04270	00	V	100	23	2.5	-0.5	-0.4
04270	12	V	100	22	4.9	-1.3	1.4
04320	00	V	100	18	2.2	-0.7	-0.5
04320	12	V	100	27	2.0	-0.4	0.2
04339	12	V	100	22	2.3	0.1	-0.2
04339	00	V	100	25	2.1	0.2	0.7
04360	00	V	100	20	2.2	0.2	0.5
04360	12	V	100	23	2.9	1.2	0.6
06011	12	V	100	30	2.8	0.1	0.5
06011	00	V	100	25	3.1	0.3	-0.5
06260	12	V	100	4	2.1	1.1	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	100	25	3.3	0.1	-1.1
06610	12	V	100	30	4.1	0.0	-1.1
06610	00	V	100	26	4.5	-0.1	-0.1
07110	12	V	100	30	3.5	1.0	-0.8
07110	00	V	100	23	3.5	0.6	0.2
07510	12	V	100	28	3.1	0.1	0.2
07510	00	V	100	27	3.9	1.0	-0.8
07645	00	V	100	24	3.9	0.6	-0.5
07645	12	V	100	28	3.9	0.5	-0.2
07761	00	V	100	26	5.7	-0.5	0.7
07761	12	V	100	30	3.7	-0.1	-0.2
08001	00	V	100	25	3.6	0.8	-0.3
08001	12	V	100	30	2.7	0.2	0.4
08221	12	V	100	30	4.2	0.6	-1.0
08221	00	V	100	25	5.3	0.1	0.7
08302	00	V	100	25	4.8	0.6	2.5
08302	12	V	100	30	3.4	0.5	-0.4
08508	12	V	100	30	3.5	0.6	-0.6
08522	12	V	100	28	3.9	1.1	0.3
10035	00	V	100	30	2.8	0.5	0.1
10035	12	V	100	30	2.6	-0.2	-0.1
10393	00	V	100	25	3.4	0.0	0.3
10393	12	V	100	29	3.0	-0.1	-0.2
10410	00	V	100	30	2.7	0.3	0.0
10410	12	V	100	30	3.4	-0.6	-0.5
10739	12	V	100	30	3.4	-0.5	-0.8
10739	00	V	100	30	4.0	0.3	0.6
11035	12	V	100	30	3.1	-0.3	-0.4
11035	00	V	100	26	3.4	0.6	-0.4
12982	12	V	100	30	3.0	-0.9	0.5
12982	00	V	100	25	3.9	1.4	0.1
16245	00	V	100	22	4.0	0.2	0.5
16245	12	V	100	30	4.4	-0.3	0.6
16429	00	V	100	22	3.5	0.3	-0.1
16429	12	V	100	25	3.0	-0.5	0.8
16622	00	V	100	22	4.0	0.6	0.3
16754	00	V	100	4	2.8	0.8	0.6
17607	12	V	100	10	3.6	1.1	-0.2
26435	12	V	100	15	2.5	0.0	0.7
2EERVT	12	V	100	2	3.7	-1.7	-1.2
2EERVT	00	V	100	2	1.9	1.3	-0.8
60018	00	V	100	23	3.6	0.1	0.4
60018	12	V	100	30	3.9	0.4	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	100	10	1.9	0.6	-0.6
7JUNA4	00	V	100	7	2.3	1.0	1.4
9ZT9MR	12	V	100	4	3.0	-1.2	-0.2
9ZT9MR	00	V	100	5	2.7	0.2	0.5
ASDE09	12	V	100	3	2.6	0.3	-1.3
ATGU3F	12	V	100	7	2.3	-0.1	0.3
ATGU3F	00	V	100	5	2.5	-1.3	1.2
BPMWB2	00	V	100	0	0.0	0.0	0.0
BPMWB2	12	V	100	0	0.0	0.0	0.0
CHQUR4	12	V	100	4	1.8	-0.2	0.3
CHQUR4	00	V	100	3	2.2	0.8	0.6
DBLK	12	V	100	1	3.5	-2.5	-2.5
FPUW5G	12	V	100	18	2.6	0.8	-0.1
JNKN7J	12	V	100	16	2.7	0.1	0.4
JNKN7J	00	V	100	13	3.4	0.4	0.5
KJJF9X	12	V	100	6	2.5	0.0	-0.6
KJJF9X	00	V	100	6	3.6	0.3	-0.3
KMPLHP	12	V	100	8	3.4	-1.5	0.0
KMPLHP	00	V	100	9	3.4	0.9	0.7
LRYQE3	12	V	100	13	2.6	-0.7	1.3
LRYQE3	00	V	100	12	2.8	0.9	0.2
UXK5JT	12	V	100	9	3.0	0.0	-1.0
UXK5JT	00	V	100	8	3.2	0.2	1.0
WDK38H	12	V	100	12	1.9	-0.1	-0.4
XKQLWQ	12	V	100	0	0.0	0.0	0.0
XQFJRG	12	V	100	12	2.3	-0.1	-0.1
XQFJRG	00	V	100	7	2.2	0.3	-0.3
YLV96W	00	V	100	12	4.0	0.6	1.7
YLV96W	12	V	100	9	2.2	-0.2	-0.1
ZVQEQC	12	V	100	24	3.6	0.2	-0.3

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                : JUN 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
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WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	500	30	10.1	-7.9
01001	12	Z	500	30	4.2	0.0
01028	00	Z	500	30	3.0	-0.8
01028	12	Z	500	31	2.4	-0.4
01400	00	Z	500	30	78.2	78.1
01400	12	Z	500	29	80.2	80.0
01415	12	Z	500	29	4.8	4.2
01415	00	Z	500	28	5.1	4.1
02365	00	Z	500	23	3.2	2.2
02365	12	Z	500	22	3.7	2.4
02836	00	Z	500	30	2.4	0.8
02836	12	Z	500	32	2.9	1.5
02963	12	Z	500	30	5.8	4.6
02963	00	Z	500	30	4.8	4.3
03005	12	Z	500	29	3.5	-0.8
03005	00	Z	500	27	4.4	-1.7
03238	12	Z	500	5	2.6	1.0
03238	00	Z	500	28	5.0	4.0
03808	12	Z	500	29	3.6	1.4
03808	00	Z	500	30	4.5	3.3
03918	00	Z	500	30	7.0	6.2
03918	12	Z	500	6	5.1	5.0
03953	12	Z	500	30	4.5	-2.6
03953	00	Z	500	29	3.8	-2.1
04018	00	Z	500	29	4.3	-0.4
04018	12	Z	500	29	2.8	0.0
04220	12	Z	500	30	7.0	2.2
04220	00	Z	500	30	10.0	4.7
04270	00	Z	500	27	12.7	-11.2
04270	12	Z	500	24	11.9	-10.1
04320	00	Z	500	26	4.4	-2.2
04320	12	Z	500	27	5.4	-0.2
04339	12	Z	500	22	9.2	-7.8
04339	00	Z	500	30	11.3	-9.9
04360	00	Z	500	25	9.6	-8.7
04360	12	Z	500	24	9.0	-8.4
06011	12	Z	500	30	8.6	6.1
06011	00	Z	500	29	6.1	2.1
06260	12	Z	500	4	5.1	4.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	500	30	4.0	1.8
06610	12	Z	500	30	2.3	1.0
06610	00	Z	500	30	3.5	2.4
07110	12	Z	500	31	4.1	-2.2
07110	00	Z	500	29	10.4	-4.3
07510	12	Z	500	29	5.3	0.7
07510	00	Z	500	30	4.4	0.2
07645	00	Z	500	30	4.9	-3.5
07645	12	Z	500	30	5.1	-4.1
07761	00	Z	500	30	12.7	-11.2
07761	12	Z	500	30	12.7	-11.2
08001	00	Z	500	30	4.8	3.7
08001	12	Z	500	30	3.1	1.7
08221	12	Z	500	30	5.7	5.2
08221	00	Z	500	30	8.4	7.7
08302	00	Z	500	29	4.6	-3.1
08302	12	Z	500	30	6.1	-5.5
08508	12	Z	500	30	5.8	4.8
08522	12	Z	500	29	6.0	5.5
10035	00	Z	500	30	14.6	14.5
10035	12	Z	500	30	13.5	13.3
10393	00	Z	500	28	3.1	1.8
10393	12	Z	500	32	2.3	0.4
10410	00	Z	500	31	3.7	1.5
10410	12	Z	500	30	2.4	-0.4
10739	12	Z	500	30	5.8	3.8
10739	00	Z	500	30	6.0	4.1
11035	12	Z	500	30	4.7	-1.4
11035	00	Z	500	32	5.1	2.8
12982	12	Z	500	30	3.8	2.6
12982	00	Z	500	31	4.8	4.1
16245	00	Z	500	30	5.3	4.9
16245	12	Z	500	30	4.3	3.3
16429	00	Z	500	24	5.7	5.1
16429	12	Z	500	26	4.5	3.9
16622	00	Z	500	30	11.1	10.3
16754	00	Z	500	4	7.7	7.6
17607	12	Z	500	30	6.0	5.3
26435	12	Z	500	15	3.4	2.2
2EERVT	12	Z	500	2	14.4	-13.8
2EERVT	00	Z	500	3	19.9	-19.1
60018	00	Z	500	30	4.4	3.8
60018	12	Z	500	30	4.0	2.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	500	11	11.9	6.9
7JUNA4	00	Z	500	11	5.9	-0.6
9ZT9MR	12	Z	500	5	13.1	-12.8
9ZT9MR	00	Z	500	5	10.9	-10.5
ASDE09	12	Z	500	3	24.2	24.1
ATGU3F	12	Z	500	8	21.2	-20.5
ATGU3F	00	Z	500	6	28.7	-27.0
BPMWB2	00	Z	500	1	7.4	7.4
BPMWB2	12	Z	500	1	19.1	19.1
CHQUR4	12	Z	500	4	19.1	-1.3
CHQUR4	00	Z	500	3	5.9	-5.1
DBLK	12	Z	500	1	18.0	18.0
FPUW5G	12	Z	500	21	6.5	-1.6
JNKN7J	12	Z	500	16	37.2	36.7
JNKN7J	00	Z	500	13	34.1	33.2
KJJF9X	12	Z	500	7	9.6	-1.4
KJJF9X	00	Z	500	8	4.6	0.5
KMPLHP	12	Z	500	8	36.7	25.7
KMPLHP	00	Z	500	10	14.9	-2.2
LRYQE3	12	Z	500	13	6.1	-2.2
LRYQE3	00	Z	500	14	8.9	-6.6
UXK5JT	12	Z	500	11	6.7	1.6
UXK5JT	00	Z	500	9	4.7	-0.6
WDK38H	12	Z	500	12	5.2	-4.3
XKQLWQ	12	Z	500	0	0.0	0.0
XQFJRG	12	Z	500	12	8.7	-7.5
XQFJRG	00	Z	500	8	11.4	-9.3
YLV96W	00	Z	500	14	7.7	-2.3
YLV96W	12	Z	500	11	11.0	-1.9
ZVQEQC	12	Z	500	24	8.7	8.3

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	500	30	2.5	0.4	0.3
01001	12	V	500	30	2.6	-0.4	-0.4
01028	00	V	500	30	2.9	-0.7	0.8
01028	12	V	500	30	2.2	-0.1	0.7
01400	00	V	500	29	2.2	-0.7	0.5
01400	12	V	500	29	1.9	0.2	0.1
01415	12	V	500	29	2.1	0.1	0.1
01415	00	V	500	28	1.9	0.4	0.2
02365	00	V	500	23	2.7	-0.3	-0.6
02365	12	V	500	22	2.1	0.2	0.5
02836	00	V	500	30	2.3	0.6	-0.1
02836	12	V	500	30	2.5	0.2	-0.1
02963	12	V	500	30	2.4	0.6	0.0
02963	00	V	500	30	2.1	0.4	-0.2
03005	12	V	500	29	2.6	0.7	0.3
03005	00	V	500	26	2.4	0.6	0.3
03238	12	V	500	5	2.8	0.5	0.6
03238	00	V	500	28	2.9	0.4	0.4
03808	12	V	500	29	2.8	-0.1	0.5
03808	00	V	500	30	3.4	0.5	0.2
03918	00	V	500	30	2.3	0.3	0.1
03918	12	V	500	6	2.5	0.7	-0.7
03953	12	V	500	30	2.9	0.2	0.2
03953	00	V	500	29	2.7	0.2	0.1
04018	00	V	500	29	2.9	-0.8	0.9
04018	12	V	500	29	2.2	0.2	0.9
04220	12	V	500	30	2.3	0.2	0.5
04220	00	V	500	30	2.1	0.1	-0.6
04270	00	V	500	26	2.7	-0.2	0.0
04270	12	V	500	24	3.2	-0.2	-0.4
04320	00	V	500	26	2.3	0.0	0.6
04320	12	V	500	27	2.1	0.8	0.0
04339	12	V	500	22	3.5	0.7	-0.3
04339	00	V	500	30	3.0	-0.5	0.4
04360	00	V	500	25	2.8	0.1	0.6
04360	12	V	500	24	2.5	0.2	0.7
06011	12	V	500	30	2.5	0.0	0.3
06011	00	V	500	29	3.2	-0.4	-0.2
06260	12	V	500	4	2.6	1.1	1.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	500	29	3.3	0.6	-0.3
06610	12	V	500	30	3.0	0.1	-0.4
06610	00	V	500	30	3.8	0.2	0.3
07110	12	V	500	30	3.9	0.4	1.1
07110	00	V	500	29	4.0	0.3	0.1
07510	12	V	500	29	2.9	0.4	0.1
07510	00	V	500	30	3.3	0.6	0.6
07645	00	V	500	30	3.0	0.4	0.3
07645	12	V	500	29	2.5	0.7	0.6
07761	00	V	500	30	3.7	-0.1	0.9
07761	12	V	500	30	3.0	0.2	0.9
08001	00	V	500	30	2.8	0.9	0.1
08001	12	V	500	30	2.2	0.0	0.3
08221	12	V	500	30	1.8	0.3	0.0
08221	00	V	500	30	2.5	-0.3	-0.6
08302	00	V	500	29	2.8	1.1	-0.3
08302	12	V	500	30	2.8	0.7	0.0
08508	12	V	500	30	2.7	-0.4	-0.6
08522	12	V	500	29	2.2	-0.1	0.4
10035	00	V	500	30	2.5	-0.1	0.0
10035	12	V	500	30	1.9	-0.1	-0.1
10393	00	V	500	25	2.6	-0.1	0.2
10393	12	V	500	29	2.3	0.5	0.0
10410	00	V	500	30	2.2	0.3	0.2
10410	12	V	500	30	2.7	0.8	0.6
10739	12	V	500	30	2.9	0.5	-0.1
10739	00	V	500	30	2.9	0.3	0.7
11035	12	V	500	30	3.0	0.2	0.2
11035	00	V	500	30	3.1	-0.6	-0.7
12982	12	V	500	30	2.1	0.0	0.0
12982	00	V	500	30	3.1	0.0	0.3
16245	00	V	500	30	2.9	0.3	-0.4
16245	12	V	500	30	2.4	0.6	0.4
16429	00	V	500	24	2.1	0.7	-0.1
16429	12	V	500	25	3.2	0.2	0.1
16622	00	V	500	30	2.9	0.8	0.1
16754	00	V	500	4	2.3	-0.1	-0.7
17607	12	V	500	25	2.1	0.2	0.4
26435	12	V	500	15	2.3	0.4	-0.5
2EERVT	12	V	500	2	2.5	-0.4	-1.3
2EERVT	00	V	500	3	2.5	-1.0	-1.6
60018	00	V	500	30	1.8	0.1	-0.1
60018	12	V	500	30	1.7	0.3	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	500	11	1.8	0.2	-0.2
7JUNA4	00	V	500	11	3.2	-0.2	1.0
9ZT9MR	12	V	500	5	2.4	0.4	0.8
9ZT9MR	00	V	500	5	2.7	0.9	-0.5
ASDE09	12	V	500	3	2.6	2.0	0.1
ATGU3F	12	V	500	8	1.9	-1.2	0.3
ATGU3F	00	V	500	6	2.1	-0.8	-1.1
BPMWB2	00	V	500	1	2.0	-1.5	-1.3
BPMWB2	12	V	500	1	1.1	-0.9	0.7
CHQUR4	12	V	500	4	2.1	1.3	0.9
CHQUR4	00	V	500	3	2.4	-1.1	1.3
DBLK	12	V	500	1	4.3	3.9	1.7
FPUW5G	12	V	500	21	1.7	0.1	0.3
JNKN7J	12	V	500	16	2.6	-0.4	0.0
JNKN7J	00	V	500	13	2.9	-1.3	0.6
KJJF9X	12	V	500	7	2.5	0.0	-0.6
KJJF9X	00	V	500	8	1.9	-0.2	-0.9
KMPLHP	12	V	500	8	3.7	-0.6	0.6
KMPLHP	00	V	500	10	2.4	-0.4	-0.1
LRYQE3	12	V	500	13	2.6	0.3	-0.7
LRYQE3	00	V	500	14	2.6	0.8	-0.5
UXK5JT	12	V	500	11	3.0	0.2	0.3
UXK5JT	00	V	500	9	4.0	0.4	1.0
WDK38H	12	V	500	12	2.3	0.5	-0.2
XKQLWQ	12	V	500	0	0.0	0.0	0.0
XQFJRG	12	V	500	12	1.5	0.0	0.0
XQFJRG	00	V	500	8	1.9	-0.2	0.5
YLV96W	00	V	500	14	2.0	-0.4	0.5
YLV96W	12	V	500	11	2.6	0.3	1.1
ZVQEQC	12	V	500	24	3.0	0.4	0.2

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	850	32	8.7	-8.1
01001	12	Z	850	30	4.4	-1.5
01028	00	Z	850	30	2.4	1.0
01028	12	Z	850	31	2.6	0.7
01400	00	Z	850	30	77.5	77.4
01400	12	Z	850	29	79.7	79.6
01415	12	Z	850	29	4.7	4.2
01415	00	Z	850	28	4.6	4.2
02365	00	Z	850	23	3.2	2.6
02365	12	Z	850	22	3.7	2.8
02836	00	Z	850	30	4.0	3.1
02836	12	Z	850	30	3.2	2.7
02963	12	Z	850	30	5.6	5.2
02963	00	Z	850	30	4.3	3.8
03005	12	Z	850	29	3.4	-1.8
03005	00	Z	850	27	3.2	-1.4
03238	12	Z	850	5	3.5	3.1
03238	00	Z	850	28	3.6	3.2
03808	12	Z	850	29	2.4	1.5
03808	00	Z	850	30	3.4	3.0
03918	00	Z	850	30	7.2	7.0
03918	12	Z	850	6	5.5	5.4
03953	12	Z	850	30	3.8	-2.4
03953	00	Z	850	29	2.4	-0.4
04018	00	Z	850	29	1.7	0.0
04018	12	Z	850	29	2.0	-0.5
04220	12	Z	850	30	8.5	4.1
04220	00	Z	850	30	10.7	5.3
04270	00	Z	850	28	8.9	-8.3
04270	12	Z	850	24	7.3	-6.3
04320	00	Z	850	26	3.6	0.8
04320	12	Z	850	27	4.7	0.8
04339	12	Z	850	22	7.7	-6.5
04339	00	Z	850	30	7.0	-6.0
04360	00	Z	850	25	8.8	-8.0
04360	12	Z	850	24	8.0	-7.3
06011	12	Z	850	30	5.4	4.1
06011	00	Z	850	29	5.2	3.4
06260	12	Z	850	4	3.3	1.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	850	30	3.4	1.2
06610	12	Z	850	30	3.8	2.5
06610	00	Z	850	30	3.7	2.1
07110	12	Z	850	31	2.6	-1.5
07110	00	Z	850	29	4.4	-0.5
07510	12	Z	850	29	4.6	3.7
07510	00	Z	850	30	3.8	2.7
07645	00	Z	850	30	3.4	-2.4
07645	12	Z	850	30	3.0	-1.2
07761	00	Z	850	30	4.9	-3.8
07761	12	Z	850	30	5.3	-4.9
08001	00	Z	850	30	2.7	1.1
08001	12	Z	850	30	2.0	1.1
08221	12	Z	850	30	4.2	3.7
08221	00	Z	850	30	4.0	3.0
08302	00	Z	850	29	7.8	-7.2
08302	12	Z	850	30	8.2	-7.7
08508	12	Z	850	30	5.4	4.0
08522	12	Z	850	29	3.0	2.4
10035	00	Z	850	30	14.6	14.4
10035	12	Z	850	30	14.0	13.9
10393	00	Z	850	25	2.5	1.1
10393	12	Z	850	29	3.1	2.4
10410	00	Z	850	31	3.1	1.0
10410	12	Z	850	30	2.7	0.7
10739	12	Z	850	30	7.4	5.6
10739	00	Z	850	30	5.5	4.5
11035	12	Z	850	30	4.1	2.4
11035	00	Z	850	32	4.7	3.7
12982	12	Z	850	30	5.0	4.6
12982	00	Z	850	31	4.0	3.3
16245	00	Z	850	30	4.2	3.8
16245	12	Z	850	30	2.7	1.7
16429	00	Z	850	24	3.7	3.5
16429	12	Z	850	26	2.7	2.2
16622	00	Z	850	30	10.6	10.1
16754	00	Z	850	5	2.0	1.3
17607	12	Z	850	30	3.7	3.3
26435	12	Z	850	15	3.4	2.0
2EERVT	12	Z	850	2	14.9	-14.8
2EERVT	00	Z	850	3	16.8	-16.2
60018	00	Z	850	30	2.6	-0.8
60018	12	Z	850	30	2.6	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	850	12	5.2	1.7
7JUNA4	00	Z	850	12	3.9	1.4
9ZT9MR	12	Z	850	5	9.3	-8.4
9ZT9MR	00	Z	850	5	6.5	-5.9
ASDE09	12	Z	850	3	30.6	30.6
ATGU3F	12	Z	850	9	23.7	-22.6
ATGU3F	00	Z	850	6	23.5	-22.7
BPMWB2	00	Z	850	1	14.3	14.3
BPMWB2	12	Z	850	1	12.2	12.2
CHQUR4	12	Z	850	4	11.4	-8.7
CHQUR4	00	Z	850	4	10.4	-8.5
DBLK	12	Z	850	1	17.2	17.2
FPUW5G	12	Z	850	21	6.9	-2.8
JNKN7J	12	Z	850	16	41.0	40.9
JNKN7J	00	Z	850	13	41.2	40.9
KJJF9X	12	Z	850	8	6.6	4.4
KJJF9X	00	Z	850	9	4.6	1.8
KMPLHP	12	Z	850	8	32.8	25.1
KMPLHP	00	Z	850	10	16.1	0.9
LRYQE3	12	Z	850	13	3.4	-0.1
LRYQE3	00	Z	850	14	4.9	-2.9
UXK5JT	12	Z	850	11	5.3	-3.3
UXK5JT	00	Z	850	9	8.0	-3.9
WDK38H	12	Z	850	12	4.9	-3.0
XKQLWQ	12	Z	850	1	14.9	14.9
XQFJRG	12	Z	850	13	7.7	-6.9
XQFJRG	00	Z	850	8	10.1	-8.9
YLV96W	00	Z	850	14	4.1	-0.8
YLV96W	12	Z	850	11	6.0	-2.2
ZVQEQC	12	Z	850	24	4.3	3.2

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	850	30	3.9	0.1	-0.7
01001	12	V	850	30	3.6	0.2	0.9
01028	00	V	850	30	2.5	-0.3	0.4
01028	12	V	850	30	2.9	-0.4	-0.5
01400	00	V	850	29	2.3	-0.2	0.3
01400	12	V	850	29	2.1	0.5	0.5
01415	12	V	850	29	2.5	0.4	-0.2
01415	00	V	850	28	2.5	0.6	0.6
02365	00	V	850	23	2.4	-0.5	-0.2
02365	12	V	850	22	2.4	-0.5	0.1
02836	00	V	850	30	2.3	0.4	0.1
02836	12	V	850	30	2.4	-0.2	-0.6
02963	12	V	850	30	2.2	-0.4	-0.1
02963	00	V	850	30	2.2	0.0	0.1
03005	12	V	850	29	2.2	0.1	0.0
03005	00	V	850	26	2.4	-0.7	0.0
03238	12	V	850	5	1.5	0.5	0.6
03238	00	V	850	28	2.8	-0.2	0.9
03808	12	V	850	29	2.9	0.0	-0.6
03808	00	V	850	30	2.2	-0.4	0.6
03918	00	V	850	30	2.3	-0.3	0.3
03918	12	V	850	6	3.3	0.8	1.0
03953	12	V	850	30	2.8	0.3	0.3
03953	00	V	850	29	2.4	-0.3	0.1
04018	00	V	850	29	3.1	0.6	0.7
04018	12	V	850	29	2.4	0.8	0.0
04220	12	V	850	30	2.4	0.6	-0.8
04220	00	V	850	30	2.4	-0.8	0.4
04270	00	V	850	27	3.3	-0.2	0.3
04270	12	V	850	24	3.5	0.1	-0.9
04320	00	V	850	26	3.6	0.2	0.2
04320	12	V	850	27	3.3	0.8	-0.4
04339	12	V	850	22	3.4	-0.1	-0.4
04339	00	V	850	30	3.2	-0.2	-0.1
04360	00	V	850	25	3.4	0.1	-0.4
04360	12	V	850	24	2.9	0.7	0.6
06011	12	V	850	30	2.7	-0.5	0.0
06011	00	V	850	29	3.0	-0.1	-0.4
06260	12	V	850	4	1.9	-0.7	1.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	850	30	2.6	-0.1	0.7
06610	12	V	850	30	3.3	0.2	1.1
06610	00	V	850	30	2.8	0.9	-0.2
07110	12	V	850	30	2.6	0.0	-0.2
07110	00	V	850	29	2.6	-0.2	0.0
07510	12	V	850	29	2.9	0.2	0.5
07510	00	V	850	30	3.5	-0.1	0.1
07645	00	V	850	30	3.0	-0.5	0.8
07645	12	V	850	29	3.0	-0.5	0.7
07761	00	V	850	30	3.1	0.6	0.1
07761	12	V	850	30	3.5	0.0	0.1
08001	00	V	850	30	2.3	0.6	0.3
08001	12	V	850	30	3.4	0.4	0.9
08221	12	V	850	30	2.0	0.2	0.1
08221	00	V	850	30	4.3	-0.3	0.3
08302	00	V	850	29	4.0	-0.1	-0.7
08302	12	V	850	30	3.0	-0.2	0.2
08508	12	V	850	30	2.8	0.3	-0.8
08522	12	V	850	29	3.4	-0.1	0.2
10035	00	V	850	30	2.3	-0.1	-0.2
10035	12	V	850	30	2.3	0.4	0.2
10393	00	V	850	25	3.6	0.1	-0.6
10393	12	V	850	29	2.8	-0.2	-0.1
10410	00	V	850	30	2.2	-0.1	-0.4
10410	12	V	850	30	3.0	0.4	0.1
10739	12	V	850	30	3.1	-0.8	1.0
10739	00	V	850	30	3.5	0.1	-0.6
11035	12	V	850	30	3.3	-0.2	0.3
11035	00	V	850	30	4.3	-1.6	-0.9
12982	12	V	850	30	2.6	-0.5	0.5
12982	00	V	850	30	2.9	0.5	-0.8
16245	00	V	850	30	2.9	-0.4	0.2
16245	12	V	850	30	2.8	-0.3	0.7
16429	00	V	850	24	3.0	0.0	0.7
16429	12	V	850	25	2.9	-0.5	-0.1
16622	00	V	850	30	3.3	0.5	-0.4
16754	00	V	850	5	3.0	-1.5	0.4
17607	12	V	850	30	2.8	1.1	0.4
26435	12	V	850	15	2.8	1.1	0.0
2EERVT	12	V	850	2	2.1	-0.8	-0.2
2EERVT	00	V	850	3	3.4	2.2	0.8
60018	00	V	850	30	3.0	0.1	0.5
60018	12	V	850	30	3.9	-0.5	0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	850	12	2.6	-0.7	-0.9
7JUNA4	00	V	850	12	2.4	-0.2	0.1
9ZT9MR	12	V	850	5	2.9	0.1	-0.6
9ZT9MR	00	V	850	5	2.9	0.3	-0.9
ASDE09	12	V	850	3	2.5	0.5	0.8
ATGU3F	12	V	850	9	2.0	-0.3	0.2
ATGU3F	00	V	850	6	3.0	-0.4	-0.8
BPMWB2	00	V	850	1	2.1	-1.3	-1.6
BPMWB2	12	V	850	1	4.0	-0.3	-4.0
CHQUR4	12	V	850	4	2.0	-0.7	-0.7
CHQUR4	00	V	850	4	4.0	1.3	0.8
DBLK	12	V	850	1	1.1	-0.9	-0.6
FPUW5G	12	V	850	21	3.5	-0.8	0.1
JNKN7J	12	V	850	16	2.9	0.1	0.2
JNKN7J	00	V	850	13	2.6	-0.5	0.1
KJJF9X	12	V	850	8	2.4	-0.4	-0.3
KJJF9X	00	V	850	9	1.5	0.0	-0.1
KMPLHP	12	V	850	8	1.8	0.2	0.2
KMPLHP	00	V	850	10	2.1	-0.4	-0.3
LRYQE3	12	V	850	13	2.3	0.1	0.3
LRYQE3	00	V	850	14	2.6	0.1	-0.2
UXK5JT	12	V	850	11	1.6	-0.3	-0.1
UXK5JT	00	V	850	9	2.2	0.4	0.5
WDK38H	12	V	850	12	2.8	-1.3	-0.3
XKQLWQ	12	V	850	1	5.7	-0.9	-5.6
XQFJRG	12	V	850	12	2.1	-0.2	-0.3
XQFJRG	00	V	850	8	2.2	0.0	0.1
YLV96W	00	V	850	14	1.9	-0.2	0.2
YLV96W	12	V	850	11	2.4	-0.5	0.0
ZVQEQC	12	V	850	24	3.5	-0.3	0.6

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                 : JUN 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	2200	0	0.3	-0.1	0.3
04194	99	P	SUR	38	-61	14	0	0.5	1.3	1.4
1300001	99	P	SUR	11	-23	568	0	0.4	0.2	0.5
1300008	99	P	SUR	15	-38	330	0	0.3	0.1	0.3
1300130	99	P	SUR	28	-16	493	0	0.3	0.3	0.4
1300131	99	P	SUR	28	-17	704	0	0.4	0.1	0.4
1301603	99	P	SUR	32	-54	719	0	0.4	0.1	0.4
1301608	99	P	SUR	28	-57	718	0	0.3	0.0	0.3
1301610	99	P	SUR	53	-10	273	0	0.3	-0.4	0.5
1301612	99	P	SUR	23	-41	720	0	0.2	0.0	0.2
1301619	99	P	SUR	31	-69	719	0	0.5	-0.2	0.6
1301699	99	P	SUR	28	-33	685	0	0.3	-0.3	0.4
1301700	99	P	SUR	17	-43	681	0	0.3	0.0	0.3
1301701	99	P	SUR	14	-38	272	0	0.3	0.4	0.5
1301706	99	P	SUR	17	-41	697	0	0.3	0.2	0.3
1301708	99	P	SUR	14	-17	64	0	0.8	-0.1	0.8
1301712	99	P	SUR	20	-35	712	0	0.3	0.2	0.4
1301713	99	P	SUR	18	-35	709	0	0.3	0.3	0.5
1301714	99	P	SUR	22	-38	710	0	0.3	0.1	0.3
1301718	99	P	SUR	22	-26	715	0	0.3	0.3	0.4
1301719	99	P	SUR	22	-29	714	0	0.3	0.6	0.6
1301720	99	P	SUR	26	-27	713	0	0.3	0.2	0.4
1301721	99	P	SUR	35	-10	7125	0	0.3	-0.1	0.3
1301722	99	P	SUR	17	-33	715	0	0.3	0.1	0.3
1301723	99	P	SUR	38	-12	713	0	0.3	0.7	0.8
1301724	99	P	SUR	35	-19	712	0	0.2	0.1	0.2
1301735	99	P	SUR	27	-43	711	0	0.2	-0.1	0.3
1301736	99	P	SUR	28	-43	711	0	0.2	0.3	0.4
1301737	99	P	SUR	23	-55	711	0	0.3	0.0	0.3
1301756	99	P	SUR	11	-64	712	0	0.5	-0.8	0.9
1301763	99	P	SUR	11	-32	713	0	0.3	0.2	0.4
1801607	99	P	SUR	36	-69	4193	0	0.7	0.1	0.7
4100040	99	P	SUR	15	-53	4310	0	0.3	0.6	0.7
4100043	99	P	SUR	21	-65	4303	0	0.3	-1.3	1.3
4100044	99	P	SUR	22	-59	4307	0	0.3	0.4	0.5
4100046	99	P	SUR	24	-68	4311	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
4100048	99	P	SUR	32	-70	4283	0	0.6	0.3	0.7
4100049	99	P	SUR	27	-63	4311	0	0.4	-1.2	1.2
4100052	99	P	SUR	18	-65	4148	0	0.3	-0.9	1.0
4100053	99	P	SUR	18	-66	4293	0	0.3	-0.6	0.7
4100139	99	P	SUR	20	-38	702	0	0.3	0.2	0.3
4100300	99	P	SUR	16	-57	688	0	0.3	0.0	0.3
4101557	99	P	SUR	40	-17	719	0	0.3	0.1	0.3
4101609	99	P	SUR	19	-34	719	0	0.3	0.1	0.3
4101613	99	P	SUR	27	-46	719	0	0.3	0.4	0.5
4101616	99	P	SUR	29	-36	719	0	0.5	0.1	0.5
4101618	99	P	SUR	26	-38	719	0	0.3	0.2	0.3
4101621	99	P	SUR	25	-34	719	0	0.2	0.3	0.4
4101654	99	P	SUR	71	11	697	0	0.3	0.1	0.3
4101656	99	P	SUR	60	-55	120	0	1.0	0.8	1.3
4101657	99	P	SUR	73	5	125	0	0.5	0.0	0.5
4101659	99	P	SUR	73	37	666	0	0.8	0.2	0.8
4101663	99	P	SUR	32	-32	719	0	0.2	0.2	0.3
4101664	99	P	SUR	50	-43	719	0	0.4	-0.3	0.5
4101665	99	P	SUR	63	-11	676	0	0.3	-0.3	0.4
4101696	99	P	SUR	32	-44	719	0	0.3	0.1	0.3
4101702	99	P	SUR	40	-22	719	0	0.3	0.3	0.4
4101714	99	P	SUR	27	-56	720	0	0.3	0.2	0.4
4101717	99	P	SUR	32	-11	719	0	0.3	0.0	0.3
4101718	99	P	SUR	43	-45	719	0	0.9	0.7	1.1
4101719	99	P	SUR	39	-31	719	0	0.3	0.3	0.5
4101720	99	P	SUR	33	-23	719	0	0.2	-0.3	0.4
4101722	99	P	SUR	11	-43	717	0	0.3	0.0	0.3
4101723	99	P	SUR	27	-62	720	0	0.4	0.0	0.4
4101724	99	P	SUR	20	-69	719	0	0.3	0.3	0.5
4101725	99	P	SUR	17	-59	719	0	0.3	0.0	0.3
4101726	99	P	SUR	19	-58	719	0	0.3	0.2	0.4
4101728	99	P	SUR	33	-34	39	0	0.2	0.5	0.5
4101743	99	P	SUR	31	-50	719	0	0.3	0.0	0.3
4101753	99	P	SUR	30	-56	719	0	0.3	0.3	0.4
4101755	99	P	SUR	28	-55	719	0	0.3	0.2	0.3
4101756	99	P	SUR	12	-62	657	0	0.4	-0.8	0.9
4101842	99	P	SUR	69	16	678	0	0.4	-0.3	0.5
4101843	99	P	SUR	67	0	680	0	0.3	0.0	0.3
4101844	99	P	SUR	16	-48	676	0	0.3	0.2	0.4
4101845	99	P	SUR	62	-8	681	0	0.3	0.2	0.4
4101848	99	P	SUR	21	-66	669	0	0.4	0.4	0.6
4101849	99	P	SUR	11	-60	680	0	0.3	0.3	0.5
4101850	99	P	SUR	45	-9	688	0	0.4	0.0	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101851	99	P	SUR	19	-50	683	0	0.2	0.1	0.3
4102547	99	P	SUR	15	-60	652	0	0.3	0.3	0.5
4102548	99	P	SUR	21	-63	695	0	0.3	0.0	0.3
4102549	99	P	SUR	18	-56	712	0	0.3	0.5	0.5
4102551	99	P	SUR	15	-46	468	0	0.3	0.0	0.3
4102632	99	P	SUR	26	-68	706	0	0.4	-0.8	0.9
41040	99	P	SUR	15	-53	5145	0	0.3	0.7	0.7
41043	99	P	SUR	21	-65	4535	0	0.3	-1.2	1.3
41044	99	P	SUR	22	-59	3472	0	0.3	0.4	0.5
41046	99	P	SUR	24	-68	5261	0	0.4	0.5	0.6
41048	99	P	SUR	32	-70	5646	0	0.7	0.3	0.7
41049	99	P	SUR	28	-63	5209	0	0.4	-1.2	1.2
41052	99	P	SUR	18	-65	3169	0	0.3	-0.9	0.9
41053	99	P	SUR	19	-66	3406	0	0.4	-0.7	0.7
4200059	99	P	SUR	15	-67	4304	0	0.3	-0.1	0.3
4200060	99	P	SUR	16	-63	4303	0	0.3	0.2	0.4
4200085	99	P	SUR	18	-67	3423	0	0.3	0.2	0.4
4201703	99	P	SUR	44	-33	711	0	0.4	0.1	0.4
42059	99	P	SUR	15	-68	4623	0	0.4	-0.1	0.4
42060	99	P	SUR	16	-63	3561	0	0.3	0.2	0.4
42085	99	P	SUR	18	-67	3254	0	0.3	0.2	0.4
4400005	99	P	SUR	43	-69	719	0	0.4	-0.5	0.7
4400008	99	P	SUR	40	-69	4295	0	0.4	-0.8	0.8
4400011	99	P	SUR	41	-67	4301	0	0.4	0.3	0.5
4400027	99	P	SUR	44	-67	436	0	0.5	0.2	0.5
4400032	99	P	SUR	44	-69	716	0	0.4	0.1	0.4
4400033	99	P	SUR	44	-69	720	0	0.4	0.1	0.4
4400034	99	P	SUR	44	-68	719	0	0.4	-0.3	0.5
44005	99	P	SUR	43	-69	1616	0	0.4	-0.6	0.7
4400777	99	P	SUR	39	-22	719	0	0.3	0.2	0.4
44008	99	P	SUR	41	-69	5042	0	0.4	-0.8	0.8
4400857	99	P	SUR	30	-58	718	0	0.4	0.3	0.5
44011	99	P	SUR	41	-67	4609	0	0.4	0.3	0.5
4401563	99	P	SUR	20	-30	719	0	0.3	-0.3	0.4
4401572	99	P	SUR	31	-63	719	0	1.2	-0.7	1.4
4401576	99	P	SUR	26	-54	719	0	0.3	0.2	0.4
4401581	99	P	SUR	25	-53	719	0	0.3	0.4	0.5
4401582	99	P	SUR	39	-22	719	0	0.3	0.3	0.4
4401584	99	P	SUR	30	-32	720	0	0.2	0.6	0.6
4401585	99	P	SUR	30	-38	719	0	0.2	0.2	0.3
4401848	99	P	SUR	54	-10	647	0	0.4	-0.3	0.5
4401850	99	P	SUR	67	13	652	0	0.4	-0.2	0.4
4401851	99	P	SUR	49	-5	671	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
4401859	99	P	SUR	14	-43	720	0	0.3	0.0	0.3
4401863	99	P	SUR	10	-39	705	0	0.8	0.9	1.2
4401864	99	P	SUR	16	-57	679	0	0.3	0.0	0.3
4401866	99	P	SUR	14	-62	678	0	0.4	0.0	0.4
4401867	99	P	SUR	34	-52	719	0	0.4	0.0	0.4
4401870	99	P	SUR	27	-54	35	0	0.2	-0.2	0.3
4401872	99	P	SUR	29	-57	719	0	0.3	0.0	0.3
4401874	99	P	SUR	21	-60	719	0	0.3	0.4	0.5
4402603	99	P	SUR	58	-20	673	0	0.3	0.0	0.3
4402604	99	P	SUR	45	-17	289	0	0.3	0.0	0.3
4402605	99	P	SUR	59	-4	680	0	0.3	0.3	0.4
4402606	99	P	SUR	53	-28	685	0	0.4	0.2	0.5
4402607	99	P	SUR	47	-24	679	0	0.4	-0.1	0.4
4402608	99	P	SUR	58	-35	686	0	0.4	0.0	0.4
4402609	99	P	SUR	63	-16	686	0	0.3	0.1	0.3
4402611	99	P	SUR	48	-21	650	0	0.4	-0.2	0.5
4402612	99	P	SUR	46	-30	572	0	0.4	0.3	0.5
4402613	99	P	SUR	45	-13	662	0	0.4	-0.2	0.4
4402614	99	P	SUR	56	-6	653	0	0.7	-1.7	1.8
4402615	99	P	SUR	49	-13	656	0	0.3	0.2	0.4
4402618	99	P	SUR	25	-56	687	0	0.3	0.2	0.4
4402656	99	P	SUR	38	-37	650	0	0.6	0.6	0.8
4402660	99	P	SUR	32	-14	713	0	0.3	0.4	0.5
4402663	99	P	SUR	44	-11	710	0	0.4	-0.1	0.4
4402665	99	P	SUR	23	-42	713	0	0.2	0.5	0.5
4402670	99	P	SUR	19	-28	703	0	0.3	0.2	0.3
4402671	99	P	SUR	16	-40	679	0	0.3	0.1	0.3
4402672	99	P	SUR	15	-33	679	0	0.3	0.0	0.3
4402673	99	P	SUR	14	-34	684	0	0.3	0.2	0.4
4402674	99	P	SUR	15	-38	687	0	0.3	0.4	0.5
4402675	99	P	SUR	34	-42	677	0	0.3	0.2	0.4
4402676	99	P	SUR	22	-36	684	0	0.3	0.4	0.5
44027	99	P	SUR	44	-67	1069	0	0.5	0.2	0.5
4402721	99	P	SUR	50	-45	712	0	0.4	0.1	0.4
4402723	99	P	SUR	45	-52	711	0	0.4	0.1	0.4
4402726	99	P	SUR	49	-50	713	0	0.5	0.1	0.5
4402727	99	P	SUR	51	-29	710	0	0.4	-0.1	0.4
44032	99	P	SUR	44	-69	1058	0	0.4	0.0	0.4
44033	99	P	SUR	44	-69	1060	0	0.4	0.1	0.4
44034	99	P	SUR	44	-68	1063	0	0.4	-0.3	0.6
4403556	99	P	SUR	46	-28	720	16	2.4	0.4	2.5
4403557	99	P	SUR	53	-21	718	0	0.4	0.3	0.5
4403558	99	P	SUR	44	-45	719	0	0.5	0.1	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4403568	99	P	SUR	47	-49	720	0	0.4	0.2	0.4
4403569	99	P	SUR	48	-50	719	0	0.4	0.2	0.4
44137	99	P	SUR	42	-62	707	0	0.4	-0.1	0.4
44139	99	P	SUR	44	-57	714	0	0.5	0.2	0.5
44150	99	P	SUR	43	-64	679	0	0.4	-0.1	0.5
44258	99	P	SUR	45	-63	716	0	0.4	-0.1	0.4
44488	99	P	SUR	45	-61	720	0	0.4	0.0	0.4
44489	99	P	SUR	46	-61	657	0	0.4	0.1	0.4
44490	99	P	SUR	45	-66	457	0	0.5	0.1	0.5
4601782	99	P	SUR	39	-34	648	0	0.5	0.6	0.8
4601813	99	P	SUR	86	33	700	0	0.3	0.0	0.3
4701518	99	P	SUR	79	-6	687	0	0.4	0.1	0.4
4701519	99	P	SUR	79	-6	688	0	0.4	-0.1	0.4
4701738	99	P	SUR	70	-67	699	699	0.0	0.0	0.0
4801668	99	P	SUR	87	-35	688	0	0.4	0.1	0.4
4801723	99	P	SUR	69	10	712	0	0.3	0.2	0.3
4801761	99	P	SUR	88	-39	720	0	0.4	0.1	0.4
4801767	99	P	SUR	88	-57	720	0	0.4	-0.5	0.6
6100001	99	P	SUR	43	8	282	0	0.5	0.1	0.5
6100002	99	P	SUR	42	5	614	0	0.5	0.0	0.5
6100196	99	P	SUR	42	4	700	0	0.5	0.4	0.6
6100197	99	P	SUR	40	4	693	0	0.5	0.4	0.7
6100198	99	P	SUR	37	-2	699	0	0.5	0.6	0.7
6100280	99	P	SUR	41	1	707	0	0.4	0.5	0.6
6100281	99	P	SUR	40	0	349	0	0.4	0.6	0.7
6100417	99	P	SUR	38	0	719	0	0.4	0.2	0.4
6100430	99	P	SUR	40	2	719	0	0.4	0.3	0.5
6101003	99	P	SUR	40	25	153	0	0.5	0.2	0.6
6101007	99	P	SUR	36	25	127	0	0.4	-0.4	0.6
6101008	99	P	SUR	37	22	152	0	0.5	0.1	0.5
6102786	99	P	SUR	31	16	686	0	0.3	0.2	0.3
6102787	99	P	SUR	33	27	687	0	0.3	0.0	0.3
6102792	99	P	SUR	39	8	442	0	0.5	0.0	0.5
6102793	99	P	SUR	39	5	713	0	0.5	0.6	0.7
6102796	99	P	SUR	41	8	711	0	0.5	0.2	0.5
6102797	99	P	SUR	37	-3	466	0	0.5	-3.1	3.2
6102798	99	P	SUR	37	3	82	0	0.5	-2.4	2.4
6102799	99	P	SUR	41	5	713	0	0.5	0.3	0.6
6102801	99	P	SUR	36	-2	193	0	0.3	0.1	0.3
6102802	99	P	SUR	39	2	710	0	0.4	-0.1	0.4
6102803	99	P	SUR	39	1	713	0	0.4	-0.4	0.5
6102804	99	P	SUR	39	1	241	0	0.4	0.0	0.4
6200001	99	P	SUR	45	-5	710	0	0.5	0.3	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6200024	99	P	SUR	44	-3	719	0	0.5	0.4	0.7
6200025	99	P	SUR	44	-6	716	0	0.5	0.5	0.7
6200082	99	P	SUR	44	-8	720	0	0.5	0.3	0.5
6200083	99	P	SUR	43	-9	720	0	0.5	0.4	0.7
6200084	99	P	SUR	42	-9	720	0	0.5	0.3	0.6
6200085	99	P	SUR	36	-7	709	0	0.4	0.3	0.5
6200086	99	P	SUR	55	6	477	0	0.3	0.0	0.3
6200087	99	P	SUR	55	7	440	0	0.3	-0.1	0.4
6200091	99	P	SUR	53	-5	718	0	0.3	0.0	0.3
6200092	99	P	SUR	51	-11	718	0	0.4	-0.1	0.4
6200093	99	P	SUR	55	-10	718	0	0.3	-0.2	0.4
6200094	99	P	SUR	52	-7	718	0	0.4	0.1	0.4
6200095	99	P	SUR	53	-16	717	0	0.4	-0.2	0.4
6200191	99	P	SUR	41	-10	409	0	0.5	-0.4	0.7
6200192	99	P	SUR	40	-10	468	0	0.4	0.0	0.4
6200199	99	P	SUR	40	-9	464	0	0.4	0.1	0.4
6200200	99	P	SUR	36	-8	283	0	0.3	0.0	0.3
6201065	99	P	SUR	54	7	821	4	2.6	0.3	2.6
6201066	99	P	SUR	55	7	896	0	0.3	0.4	0.5
6201081	99	P	SUR	38	-9	467	0	0.3	-0.2	0.4
6202614	99	P	SUR	20	-66	717	0	0.4	-0.1	0.4
6202623	99	P	SUR	69	10	719	0	0.3	-0.2	0.4
6202624	99	P	SUR	61	-8	719	0	0.3	0.1	0.3
6202627	99	P	SUR	63	-21	677	0	0.3	0.0	0.3
6202630	99	P	SUR	44	-2	719	0	0.5	0.0	0.5
6202632	99	P	SUR	65	-34	719	0	0.5	0.1	0.5
6202633	99	P	SUR	71	14	719	0	0.3	-0.1	0.3
6202637	99	P	SUR	66	-6	717	0	0.3	0.1	0.3
6202639	99	P	SUR	29	-37	719	0	0.2	0.1	0.2
6202640	99	P	SUR	28	-42	719	0	0.3	0.1	0.3
6202643	99	P	SUR	27	-59	719	0	0.3	0.0	0.3
6202644	99	P	SUR	30	-44	719	0	0.3	-0.2	0.4
6202645	99	P	SUR	28	-64	719	0	0.4	-0.4	0.6
62029	99	P	SUR	49	-12	2142	0	0.4	-0.2	0.4
6203516	99	P	SUR	42	-61	702	0	0.4	-0.1	0.4
6203588	99	P	SUR	56	-45	686	0	0.4	0.6	0.7
6203601	99	P	SUR	34	-43	719	25	2.4	-0.3	2.4
6203607	99	P	SUR	31	-42	719	0	0.2	0.3	0.4
6203612	99	P	SUR	27	-46	719	0	0.3	0.3	0.4
6203614	99	P	SUR	30	-61	719	0	0.4	0.3	0.5
6203615	99	P	SUR	23	-65	718	0	0.4	-0.2	0.4
6203616	99	P	SUR	22	-50	719	0	0.3	0.5	0.6
6203617	99	P	SUR	17	-46	719	0	0.3	0.2	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6203621	99	P	SUR	38	-19	719	0	0.2	0.0	0.2
6203622	99	P	SUR	44	-26	720	0	0.5	0.4	0.7
6203625	99	P	SUR	36	-25	718	0	0.2	-0.1	0.2
6203627	99	P	SUR	23	-62	720	0	0.4	0.2	0.4
6203632	99	P	SUR	26	-25	720	0	0.3	0.3	0.4
6203633	99	P	SUR	65	5	718	0	0.3	0.2	0.4
6203634	99	P	SUR	30	-26	718	0	0.3	0.4	0.5
6203635	99	P	SUR	22	-61	719	0	0.3	0.0	0.3
6203639	99	P	SUR	37	-21	719	0	0.2	0.0	0.2
6203640	99	P	SUR	32	-16	719	0	0.2	-0.2	0.3
6203642	99	P	SUR	17	-42	264	31	3.3	-0.3	3.3
6203643	99	P	SUR	23	-57	719	0	0.3	0.5	0.6
6203730	99	P	SUR	19	-51	653	0	0.3	0.3	0.4
6203734	99	P	SUR	15	-24	207	0	2.6	-0.6	2.7
6203735	99	P	SUR	18	-67	322	0	0.5	0.2	0.6
6203737	99	P	SUR	26	-37	681	0	0.3	0.4	0.5
6203744	99	P	SUR	61	-14	685	0	0.3	0.2	0.4
6203746	99	P	SUR	66	-4	632	0	0.3	0.1	0.3
6203747	99	P	SUR	60	-4	683	0	0.2	0.3	0.4
6203749	99	P	SUR	71	25	552	0	0.3	0.1	0.3
6203750	99	P	SUR	65	9	686	0	0.3	0.3	0.4
6203751	99	P	SUR	76	10	668	0	0.8	0.9	1.2
6203753	99	P	SUR	61	-24	685	0	0.3	-0.2	0.4
6203755	99	P	SUR	45	-10	678	0	0.4	-0.8	0.9
6203760	99	P	SUR	58	11	668	0	0.3	0.2	0.4
6203765	99	P	SUR	22	-39	682	0	0.3	0.8	0.9
6203767	99	P	SUR	19	-42	673	0	0.2	-0.5	0.6
6203768	99	P	SUR	37	-17	662	0	0.2	0.3	0.4
6203771	99	P	SUR	24	-31	679	0	0.3	0.2	0.3
6203772	99	P	SUR	22	-50	682	0	0.3	0.2	0.3
6203773	99	P	SUR	28	-46	675	0	0.3	-0.2	0.4
6203776	99	P	SUR	36	-30	681	0	0.2	0.2	0.3
6203825	99	P	SUR	64	-5	712	0	0.3	0.2	0.3
6203827	99	P	SUR	63	-11	713	0	0.3	0.1	0.3
6203838	99	P	SUR	14	-46	709	0	0.3	0.3	0.4
6203839	99	P	SUR	19	-38	713	0	0.3	0.0	0.3
6203840	99	P	SUR	25	-34	710	0	0.3	0.3	0.4
6203841	99	P	SUR	30	-17	710	0	0.3	0.1	0.3
6203842	99	P	SUR	43	-34	711	0	0.3	0.2	0.4
6203843	99	P	SUR	28	-18	484	0	0.3	-0.7	0.8
6203844	99	P	SUR	46	-18	711	0	0.3	0.3	0.5
6203845	99	P	SUR	40	-45	710	0	0.4	0.0	0.4
6203846	99	P	SUR	28	-18	712	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
6203848	99	P	SUR	37	-58	709	0	0.5	0.2	0.5
6203849	99	P	SUR	43	-26	713	0	0.4	0.1	0.4
6203850	99	P	SUR	45	-27	712	0	0.3	0.1	0.4
6203851	99	P	SUR	36	-53	713	0	0.4	0.0	0.4
6203853	99	P	SUR	58	-16	336	0	0.3	0.0	0.3
6203854	99	P	SUR	55	-17	350	0	0.4	0.2	0.5
6203855	99	P	SUR	60	-15	326	0	0.4	-0.1	0.4
6203856	99	P	SUR	59	-9	338	0	0.4	0.3	0.5
6203857	99	P	SUR	57	-13	343	0	0.3	-0.1	0.3
6203866	99	P	SUR	58	-10	344	0	0.3	0.2	0.4
6203867	99	P	SUR	52	-12	271	0	0.3	0.2	0.3
62050	99	P	SUR	50	-4	1716	0	0.3	0.1	0.4
62081	99	P	SUR	51	-13	2161	0	0.3	0.0	0.3
62091	99	P	SUR	53	-5	717	0	0.3	0.1	0.3
62092	99	P	SUR	51	-11	717	0	0.4	-0.1	0.4
62093	99	P	SUR	55	-10	717	0	0.3	-0.2	0.4
62094	99	P	SUR	52	-7	717	0	0.4	0.1	0.4
62095	99	P	SUR	53	-16	716	0	0.4	-0.2	0.4
62102	99	P	SUR	58	2	2184	0	0.3	0.3	0.4
62103	99	P	SUR	50	-3	2158	0	0.4	-0.1	0.5
62104	99	P	SUR	57	1	2177	0	0.3	0.1	0.3
62107	99	P	SUR	50	-6	2751	0	0.4	-0.1	0.4
62112	99	P	SUR	58	0	2183	0	0.2	0.4	0.5
62113	99	P	SUR	58	0	2190	0	0.4	0.1	0.4
62114	99	P	SUR	58	0	3169	0	0.3	0.4	0.5
62115	99	P	SUR	58	-3	2123	0	0.3	0.1	0.3
62116	99	P	SUR	58	1	2187	0	0.4	0.2	0.4
62118	99	P	SUR	58	1	2191	0	0.2	0.5	0.6
62119	99	P	SUR	57	2	2112	0	0.3	0.2	0.4
62120	99	P	SUR	56	2	1989	0	0.3	0.1	0.3
62121	99	P	SUR	54	3	2174	0	0.4	0.4	0.5
62122	99	P	SUR	57	2	2760	0	0.3	0.2	0.4
62124	99	P	SUR	54	-4	2197	0	0.3	0.2	0.3
62127	99	P	SUR	54	1	2194	0	0.3	0.8	0.8
62129	99	P	SUR	58	0	2186	0	0.4	0.3	0.5
62130	99	P	SUR	59	1	2192	0	0.3	0.1	0.3
62131	99	P	SUR	54	1	2194	0	0.3	0.7	0.7
62132	99	P	SUR	56	2	2044	0	0.3	0.5	0.6
62133	99	P	SUR	57	1	2126	0	0.4	0.3	0.5
62135	99	P	SUR	54	2	2152	0	0.3	0.5	0.6
62138	99	P	SUR	54	0	2763	0	0.3	0.6	0.7
62140	99	P	SUR	57	1	2742	0	0.3	0.3	0.4
62141	99	P	SUR	58	0	2555	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
62143	99	P	SUR	58	2	2189	0	0.3	0.7	0.8
62144	99	P	SUR	53	2	2121	0	0.4	0.4	0.5
62145	99	P	SUR	53	3	2692	0	0.3	0.5	0.6
62146	99	P	SUR	57	2	2144	0	0.3	0.0	0.3
62149	99	P	SUR	54	1	2206	0	0.3	0.9	0.9
62151	99	P	SUR	57	2	2305	0	0.3	0.3	0.4
62152	99	P	SUR	57	2	2068	0	0.3	0.5	0.6
62153	99	P	SUR	57	2	940	0	1.1	1.4	1.8
62154	99	P	SUR	56	2	2057	0	0.3	0.2	0.3
62155	99	P	SUR	58	1	2193	0	0.3	0.5	0.6
62157	99	P	SUR	58	0	2185	0	0.3	0.2	0.3
62160	99	P	SUR	57	2	2642	0	0.3	0.7	0.7
62161	99	P	SUR	58	1	2189	0	0.4	0.1	0.4
62162	99	P	SUR	57	1	2117	0	0.3	0.2	0.4
62163	99	P	SUR	48	-9	2176	0	0.5	-0.1	0.5
62164	99	P	SUR	57	1	2124	0	0.3	0.5	0.6
62165	99	P	SUR	54	1	2176	0	0.3	0.7	0.8
62168	99	P	SUR	58	1	2189	0	0.2	0.3	0.4
62170	99	P	SUR	51	2	2185	0	0.4	0.1	0.4
62296	99	P	SUR	53	2	2095	0	0.3	0.2	0.4
62297	99	P	SUR	59	2	2783	0	0.3	0.2	0.3
62302	99	P	SUR	61	-2	2201	0	0.3	0.1	0.3
62304	99	P	SUR	51	2	2103	0	0.4	-0.2	0.4
62305	99	P	SUR	50	0	2575	0	0.5	0.1	0.5
62442	99	P	SUR	49	-16	2176	0	0.3	-0.2	0.4
6301001	99	P	SUR	64	5	701	0	0.3	-0.2	0.4
6301004	99	P	SUR	72	20	319	0	0.3	-0.3	0.5
6301570	99	P	SUR	62	-7	257	0	0.3	0.3	0.4
6301572	99	P	SUR	64	-36	718	3	2.2	0.2	2.2
6301573	99	P	SUR	79	-6	719	0	0.4	-0.1	0.4
6301575	99	P	SUR	79	-10	715	0	0.4	-0.1	0.4
6301576	99	P	SUR	57	-43	718	0	0.4	-0.7	0.8
6301577	99	P	SUR	67	-3	720	0	0.3	0.2	0.4
63055	99	P	SUR	61	2	2205	0	0.3	0.0	0.3
63056	99	P	SUR	60	2	2213	0	0.4	0.5	0.7
63057	99	P	SUR	59	2	2196	0	0.3	0.1	0.3
63058	99	P	SUR	53	2	3570	0	0.6	0.6	0.9
63059	99	P	SUR	58	-1	2150	0	0.3	0.9	0.9
63101	99	P	SUR	61	1	2207	0	0.4	0.2	0.5
63102	99	P	SUR	61	1	2200	0	0.3	0.1	0.3
63103	99	P	SUR	61	1	2203	0	0.3	0.2	0.4
63108	99	P	SUR	61	2	2210	0	0.4	0.0	0.4
63109	99	P	SUR	60	2	2212	0	0.2	-0.2	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
63110	99	P	SUR	60	2	2213	0	0.3	-0.1	0.3
63111	99	P	SUR	61	2	2771	0	0.3	-0.2	0.4
63112	99	P	SUR	61	1	2214	0	0.3	-0.3	0.4
63115	99	P	SUR	62	1	2188	0	0.3	0.0	0.3
63117	99	P	SUR	61	1	2773	0	0.4	0.5	0.6
63118	99	P	SUR	58	-4	2151	0	0.5	-0.1	0.5
6401531	99	P	SUR	53	-9	640	0	0.3	-0.2	0.4
6401574	99	P	SUR	62	-5	719	0	0.4	0.5	0.6
6401575	99	P	SUR	69	14	719	0	0.4	0.1	0.4
6401578	99	P	SUR	78	-19	674	0	0.4	0.0	0.4
6401592	99	P	SUR	66	3	719	0	0.3	0.1	0.3
6401759	99	P	SUR	54	-42	719	0	0.3	0.3	0.4
6401760	99	P	SUR	59	-51	719	0	0.4	0.1	0.4
6401761	99	P	SUR	58	-53	719	0	0.5	0.4	0.6
6401762	99	P	SUR	66	-5	717	0	0.3	0.2	0.4
6401763	99	P	SUR	66	12	719	0	0.4	-0.4	0.6
6401839	99	P	SUR	69	6	512	0	0.3	0.2	0.4
6401843	99	P	SUR	64	2	526	0	0.3	0.2	0.4
6402539	99	P	SUR	62	1	685	0	0.3	0.2	0.3
6402543	99	P	SUR	63	-33	683	0	0.5	0.2	0.6
6402544	99	P	SUR	69	8	686	0	0.3	0.2	0.4
6402547	99	P	SUR	55	-30	686	0	0.4	0.1	0.4
6402551	99	P	SUR	58	-53	674	0	0.4	0.4	0.5
6402552	99	P	SUR	69	-3	586	0	0.3	0.2	0.4
6402554	99	P	SUR	72	28	31	0	0.3	0.7	0.8
6402557	99	P	SUR	72	5	603	0	0.4	0.2	0.5
6402560	99	P	SUR	69	-4	642	0	0.3	0.0	0.3
6402562	99	P	SUR	57	-51	686	0	0.4	0.1	0.4
6402563	99	P	SUR	70	13	618	0	0.3	0.2	0.4
6402587	99	P	SUR	55	-50	520	16	2.8	8.9	9.3
6402592	99	P	SUR	57	-57	610	0	0.4	-0.6	0.8
6402594	99	P	SUR	59	-58	659	0	0.5	0.1	0.5
6402596	99	P	SUR	56	-36	484	0	0.4	0.0	0.4
6402597	99	P	SUR	51	-50	560	0	0.4	0.2	0.4
6402599	99	P	SUR	52	-50	544	0	0.4	0.3	0.5
6402611	99	P	SUR	51	-43	552	0	0.4	0.3	0.5
6402615	99	P	SUR	17	-42	684	0	0.3	0.3	0.4
6402616	99	P	SUR	24	-38	686	0	0.2	0.3	0.4
6402617	99	P	SUR	25	-37	673	0	0.3	0.4	0.5
6402618	99	P	SUR	21	-28	685	0	0.3	0.4	0.5
6402619	99	P	SUR	41	-12	678	0	0.3	0.2	0.4
6402620	99	P	SUR	47	-8	674	0	0.4	0.5	0.6
6402621	99	P	SUR	44	-13	682	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
6402622	99	P	SUR	41	-15	682	0	0.3	0.2	0.4
6402654	99	P	SUR	60	-8	581	0	0.3	0.1	0.3
6402655	99	P	SUR	66	-1	580	0	0.3	0.2	0.4
6402656	99	P	SUR	55	-42	67	7	2.0	11.9	12.1
6402659	99	P	SUR	70	19	685	0	0.8	0.3	0.9
6402661	99	P	SUR	63	-15	490	0	0.8	0.1	0.8
6402663	99	P	SUR	66	-21	687	0	0.4	-0.1	0.5
6402665	99	P	SUR	70	12	618	0	0.5	0.3	0.6
6402666	99	P	SUR	64	-21	678	0	0.3	-0.4	0.5
6402667	99	P	SUR	64	-20	640	0	0.3	-1.0	1.0
6402668	99	P	SUR	67	9	678	0	0.3	0.6	0.7
64041	99	P	SUR	61	-3	2202	0	0.4	0.1	0.4
64045	99	P	SUR	59	-12	2140	0	0.3	-0.1	0.3
6501670	99	P	SUR	79	7	684	0	0.4	0.1	0.4
6501671	99	P	SUR	79	7	690	2	4.6	0.5	4.6
6501674	99	P	SUR	80	19	683	0	0.3	0.1	0.3
6501679	99	P	SUR	71	-16	685	0	0.4	0.2	0.4
6501689	99	P	SUR	78	28	2819	2317	1.1	13.8	13.9
6600022	99	P	SUR	54	14	259	0	0.3	0.0	0.3
9857860	99	P	SUR	37	-63	5	0	0.2	-1.5	1.5

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

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          DRIFTER MONITORING STATISTICS (EUCOS)
                   MONITORING CENTRE     : ECMWF
                   ELEMENT MONITORED     : WIND SPEED (M/S)
                   AREA                  : 10N - 90N, 70W - 40E
                   PERIOD                : JUN 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
04194	99	SPEED	SUR	38	-61	14	0	0	1.0	0.6	1.2
1300001	99	SPEED	SUR	11	-23	568	0	0	1.2	0.4	1.2
1300002	99	SPEED	SUR	20	-23	593	0	0	0.8	-0.2	0.8
1300008	99	SPEED	SUR	15	-38	330	0	0	0.7	-0.5	0.8
1300130	99	SPEED	SUR	28	-16	493	0	0	0.8	-0.2	0.8
1300131	99	SPEED	SUR	28	-17	702	0	0	2.3	2.1	3.2
4100040	99	SPEED	SUR	15	-53	4307	0	0	0.7	-0.4	0.8
4100043	99	SPEED	SUR	21	-65	4307	0	0	0.8	0.0	0.8
4100046	99	SPEED	SUR	24	-68	4307	0	0	1.1	0.0	1.1
4100048	99	SPEED	SUR	32	-70	2822	0	0	1.4	0.2	1.4
4100049	99	SPEED	SUR	27	-63	4307	0	0	1.3	0.2	1.3
4100052	99	SPEED	SUR	18	-65	4164	0	0	0.7	-0.3	0.8
4100053	99	SPEED	SUR	18	-66	4299	0	0	1.3	1.2	1.7
4100139	99	SPEED	SUR	20	-38	702	0	0	0.8	-0.3	0.9
4100300	99	SPEED	SUR	16	-57	686	0	0	0.7	-1.2	1.4
41040	99	SPEED	SUR	15	-53	5142	0	0	0.8	-0.5	0.9
41043	99	SPEED	SUR	21	-65	4556	0	0	0.9	-0.1	0.9
41044	99	SPEED	SUR	22	-59	6	0	0	1.0	-2.2	2.4
41046	99	SPEED	SUR	24	-68	5257	0	0	1.2	-0.1	1.2
41048	99	SPEED	SUR	32	-70	3859	0	0	1.5	0.1	1.5
41049	99	SPEED	SUR	28	-63	5205	0	0	1.3	0.1	1.3
41052	99	SPEED	SUR	18	-65	3181	0	0	0.8	-0.1	0.8
41053	99	SPEED	SUR	19	-66	3409	0	0	1.3	0.5	1.3
4200059	99	SPEED	SUR	15	-67	4311	0	0	0.9	-0.1	0.9
4200085	99	SPEED	SUR	18	-67	3525	0	0	1.1	-0.5	1.2
42059	99	SPEED	SUR	15	-68	4630	0	0	0.9	-0.2	0.9
42060	99	SPEED	SUR	16	-63	1	0	0	0.0	0.5	0.5
42085	99	SPEED	SUR	18	-67	3320	0	0	1.1	-0.2	1.2
4400005	99	SPEED	SUR	43	-69	719	0	0	1.2	-0.3	1.2
4400008	99	SPEED	SUR	40	-69	4300	0	0	1.3	-0.5	1.5
4400027	99	SPEED	SUR	44	-67	436	0	0	1.3	-0.8	1.5
4400032	99	SPEED	SUR	44	-69	716	0	0	1.3	-0.6	1.4
4400033	99	SPEED	SUR	44	-69	720	0	0	1.5	-0.6	1.7
4400034	99	SPEED	SUR	44	-68	718	0	0	1.4	-0.9	1.6

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4400037	99	SPEED	SUR	43	-68	651	0	0	1.2	-0.7	1.4
44005	99	SPEED	SUR	43	-69	1616	0	0	1.2	-0.2	1.3
44008	99	SPEED	SUR	41	-69	5130	0	0	1.5	-0.6	1.6
44027	99	SPEED	SUR	44	-67	1069	0	0	1.4	-0.7	1.5
44032	99	SPEED	SUR	44	-69	1058	0	0	1.4	-0.5	1.5
44033	99	SPEED	SUR	44	-69	1060	0	0	1.5	-0.3	1.5
44034	99	SPEED	SUR	44	-68	1062	0	0	1.4	-0.8	1.7
44037	99	SPEED	SUR	44	-68	961	0	0	1.3	-0.6	1.4
44137	99	SPEED	SUR	42	-62	707	0	0	2.1	-0.7	2.2
44150	99	SPEED	SUR	43	-64	679	0	0	1.4	-0.1	1.4
44258	99	SPEED	SUR	45	-63	716	0	0	1.5	-0.7	1.7
44488	99	SPEED	SUR	45	-61	557	0	0	1.6	-0.5	1.7
44489	99	SPEED	SUR	46	-61	657	0	0	1.6	0.2	1.6
44490	99	SPEED	SUR	45	-66	457	0	0	1.5	-0.9	1.7
6100001	99	SPEED	SUR	43	8	282	0	0	1.5	-0.3	1.5
6100002	99	SPEED	SUR	42	5	612	0	0	1.4	-0.6	1.5
6100196	99	SPEED	SUR	42	4	675	0	0	1.7	-0.8	1.9
6100197	99	SPEED	SUR	40	4	676	0	0	1.5	-0.3	1.5
6100198	99	SPEED	SUR	37	-2	699	0	0	1.7	-1.4	2.2
6100280	99	SPEED	SUR	41	1	694	0	0	1.4	-0.2	1.5
6100281	99	SPEED	SUR	40	0	334	0	0	2.1	-0.2	2.1
6100417	99	SPEED	SUR	38	0	713	0	0	1.2	-0.3	1.2
6100430	99	SPEED	SUR	40	2	693	0	0	1.5	0.2	1.5
6101003	99	SPEED	SUR	40	25	154	0	0	1.8	-0.4	1.9
6101007	99	SPEED	SUR	36	25	127	0	0	1.5	-0.6	1.6
6101008	99	SPEED	SUR	37	22	152	0	0	1.6	-0.9	1.9
6101009	99	SPEED	SUR	35	25	44	0	0	2.9	-0.3	2.9
6200001	99	SPEED	SUR	45	-5	706	0	0	1.3	-0.7	1.5
6200024	99	SPEED	SUR	44	-3	709	0	0	1.4	-0.4	1.4
6200025	99	SPEED	SUR	44	-6	703	0	0	1.5	-0.5	1.6
6200082	99	SPEED	SUR	44	-8	714	0	0	1.3	-0.4	1.4
6200083	99	SPEED	SUR	43	-9	716	0	0	1.2	-0.7	1.3
6200084	99	SPEED	SUR	42	-9	364	0	0	1.3	-0.5	1.4
6200085	99	SPEED	SUR	36	-7	709	0	0	1.6	-0.5	1.7
6200086	99	SPEED	SUR	55	6	474	0	0	1.4	1.0	1.7
6200087	99	SPEED	SUR	55	7	438	0	0	1.4	0.8	1.6
6200091	99	SPEED	SUR	53	-5	718	0	0	1.2	-0.1	1.2
6200092	99	SPEED	SUR	51	-11	718	0	0	1.0	0.4	1.1
6200093	99	SPEED	SUR	55	-10	718	0	0	1.3	-0.4	1.3
6200094	99	SPEED	SUR	52	-7	718	0	0	1.2	-0.4	1.3
6200095	99	SPEED	SUR	53	-16	717	0	0	0.9	-0.1	0.9

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
6200191	99	SPEED	SUR	41	-10	328	0	0	1.4	0.4	1.4
6200192	99	SPEED	SUR	40	-10	468	0	0	1.1	0.0	1.1
6200199	99	SPEED	SUR	40	-9	464	0	0	1.1	-0.4	1.2
6200200	99	SPEED	SUR	36	-8	318	0	0	1.3	0.2	1.3
6201065	99	SPEED	SUR	54	7	2	0	0	0.0	-1.0	1.0
6201066	99	SPEED	SUR	55	7	896	0	0	1.2	0.1	1.2
6201081	99	SPEED	SUR	38	-9	466	0	0	1.1	0.2	1.1
62029	99	SPEED	SUR	49	-12	2142	0	0	1.1	0.8	1.3
62050	99	SPEED	SUR	50	-4	1689	4	0	1.2	0.7	1.4
62081	99	SPEED	SUR	51	-13	2161	0	0	0.9	0.8	1.2
62091	99	SPEED	SUR	53	-5	717	0	0	1.2	0.0	1.2
62092	99	SPEED	SUR	51	-11	717	0	0	1.0	0.7	1.3
62093	99	SPEED	SUR	55	-10	717	0	0	1.2	-0.1	1.2
62094	99	SPEED	SUR	52	-7	717	0	0	1.2	-0.2	1.2
62095	99	SPEED	SUR	53	-16	716	0	0	0.9	0.2	0.9
62102	99	SPEED	SUR	58	2	2184	0	0	1.0	0.1	1.0
62103	99	SPEED	SUR	50	-3	2158	0	0	1.4	-0.6	1.5
62104	99	SPEED	SUR	57	1	2177	0	0	1.1	0.0	1.1
62107	99	SPEED	SUR	50	-6	2751	0	0	1.3	0.1	1.3
62112	99	SPEED	SUR	58	0	2183	0	0	1.1	0.0	1.1
62113	99	SPEED	SUR	58	0	2190	0	0	1.5	0.6	1.6
62114	99	SPEED	SUR	58	0	3169	0	0	1.3	0.9	1.6
62118	99	SPEED	SUR	58	1	2191	0	0	1.2	0.6	1.3
62119	99	SPEED	SUR	57	2	2112	0	0	1.2	-0.2	1.2
62120	99	SPEED	SUR	56	2	1989	0	0	1.1	0.3	1.1
62121	99	SPEED	SUR	54	3	2174	0	0	1.2	-0.3	1.2
62122	99	SPEED	SUR	57	2	2760	0	0	1.1	-0.1	1.1
62129	99	SPEED	SUR	58	0	2186	0	0	1.4	0.3	1.4
62131	99	SPEED	SUR	54	1	2194	0	0	2.1	-0.5	2.2
62132	99	SPEED	SUR	56	2	2039	0	0	1.7	-0.8	1.9
62133	99	SPEED	SUR	57	1	2126	0	0	1.4	0.1	1.4
62140	99	SPEED	SUR	57	1	2742	0	0	1.0	0.0	1.0
62143	99	SPEED	SUR	58	2	2189	0	0	1.5	-0.4	1.6
62144	99	SPEED	SUR	53	2	2121	0	0	2.0	-0.8	2.2
62145	99	SPEED	SUR	53	3	2692	0	0	1.7	1.0	1.9
62146	99	SPEED	SUR	57	2	580	0	0	1.1	0.1	1.1
62148	99	SPEED	SUR	54	2	2078	0	0	1.5	-0.2	1.5
62149	99	SPEED	SUR	54	1	2206	0	0	1.4	0.2	1.4
62152	99	SPEED	SUR	57	2	2068	0	0	1.4	-0.5	1.5
62153	99	SPEED	SUR	57	2	2679	0	0	2.2	-1.2	2.5
62154	99	SPEED	SUR	56	2	2057	0	0	1.2	0.3	1.2

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62155	99	SPEED	SUR	58	1	1513	0	0	1.1	0.0	1.1
62163	99	SPEED	SUR	48	-9	2174	0	0	1.0	0.6	1.2
62164	99	SPEED	SUR	57	1	2124	0	0	1.2	-0.8	1.5
62165	99	SPEED	SUR	54	1	2176	0	0	1.3	-0.3	1.3
62170	99	SPEED	SUR	51	2	2185	0	0	1.4	0.1	1.4
62304	99	SPEED	SUR	51	2	2101	0	0	1.5	0.4	1.5
62305	99	SPEED	SUR	50	0	2575	0	0	1.4	0.3	1.5
62442	99	SPEED	SUR	49	-16	2176	0	0	0.8	0.6	1.0
6301001	99	SPEED	SUR	64	5	701	0	0	1.1	0.0	1.1
6301004	99	SPEED	SUR	72	20	319	0	0	0.9	-0.5	1.0
63055	99	SPEED	SUR	61	2	2205	0	0	1.2	-0.9	1.5
63056	99	SPEED	SUR	60	2	2213	0	0	1.3	0.7	1.5
63057	99	SPEED	SUR	59	2	2196	0	0	2.0	-0.4	2.0
63058	99	SPEED	SUR	53	2	2022	0	0	1.2	0.3	1.2
63101	99	SPEED	SUR	61	1	2207	0	0	1.3	0.2	1.3
63103	99	SPEED	SUR	61	1	2203	0	0	1.3	0.3	1.3
63106	99	SPEED	SUR	61	2	2077	0	0	1.5	-0.2	1.5
63108	99	SPEED	SUR	61	2	2210	0	0	1.7	0.5	1.8
63109	99	SPEED	SUR	60	2	2091	0	0	1.3	0.5	1.4
63110	99	SPEED	SUR	60	2	2213	0	0	1.2	0.2	1.2
63112	99	SPEED	SUR	61	1	2214	0	0	1.1	0.3	1.2
63115	99	SPEED	SUR	62	1	2188	0	0	1.1	-0.1	1.1
63117	99	SPEED	SUR	61	1	2773	0	0	1.3	0.3	1.3
64041	99	SPEED	SUR	61	-3	2202	0	0	1.2	0.2	1.2
64045	99	SPEED	SUR	59	-12	2142	0	0	1.0	1.0	1.4
6600021	99	SPEED	SUR	55	14	253	0	0	1.2	0.2	1.2
6600022	99	SPEED	SUR	54	14	259	0	0	1.5	-0.2	1.5
66022	99	SPEED	SUR	54	14	827	2	0	1.5	0.0	1.5
9857860	99	SPEED	SUR	37	-63	5	0	0	1.1	1.5	1.8

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

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DRIFTER MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
         AREA                  : 10N - 90N, 70W - 40E
         PERIOD                : JUN 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
04194	99	DIRN	SUR	38	-61	14	0	0	9.1	18.1	20.2
1300001	99	DIRN	SUR	11	-23	421	0	0	17.6	2.9	17.9
1300002	99	DIRN	SUR	20	-23	593	0	0	7.8	-3.9	8.8
1300008	99	DIRN	SUR	15	-38	330	0	0	124.9	17.7	126.2
1300130	99	DIRN	SUR	28	-16	486	0	0	9.2	2.6	9.6
1300131	99	DIRN	SUR	28	-17	378	0	0	62.5	-63.4	89.0
1801605	99	DIRN	SUR	39	-71	130	0	0	18.2	7.8	19.8
4100001	99	DIRN	SUR	35	-72	3529	0	0	20.3	8.1	21.9
4100002	99	DIRN	SUR	32	-75	3304	0	0	22.4	1.3	22.5
4100004	99	DIRN	SUR	33	-79	3255	0	0	23.6	3.7	23.9
4100008	99	DIRN	SUR	31	-81	588	0	0	19.9	-1.8	20.0
4100009	99	DIRN	SUR	29	-80	2888	0	0	21.6	0.3	21.6
4100010	99	DIRN	SUR	29	-78	3136	0	0	18.4	3.3	18.7
4100013	99	DIRN	SUR	33	-78	3352	0	0	23.9	4.8	24.4
4100024	99	DIRN	SUR	34	-78	570	0	0	27.9	-0.7	27.9
4100025	99	DIRN	SUR	35	-75	3567	0	0	23.4	2.4	23.5
4100029	99	DIRN	SUR	33	-80	580	0	0	26.3	1.4	26.4
4100033	99	DIRN	SUR	32	-80	521	0	0	22.9	4.0	23.2
4100037	99	DIRN	SUR	34	-77	579	0	0	20.8	1.3	20.9
4100038	99	DIRN	SUR	34	-78	576	0	0	24.1	0.2	24.1
4100040	99	DIRN	SUR	15	-53	4307	0	0	7.7	3.2	8.4
4100043	99	DIRN	SUR	21	-65	4165	0	0	10.9	1.9	11.0
4100046	99	DIRN	SUR	24	-68	3204	0	0	19.0	7.2	20.3
4100047	99	DIRN	SUR	27	-71	3198	0	0	21.4	5.1	22.0
4100048	99	DIRN	SUR	32	-70	2032	0	0	13.8	3.4	14.2
4100049	99	DIRN	SUR	27	-63	3136	0	0	21.3	7.6	22.6
4100052	99	DIRN	SUR	18	-65	4159	0	0	8.3	7.8	11.4
4100053	99	DIRN	SUR	18	-66	3213	0	0	12.5	13.9	18.7
4100064	99	DIRN	SUR	34	-77	590	0	0	20.8	-19.1	28.3
4100066	99	DIRN	SUR	33	-80	568	0	0	24.7	4.5	25.2
41001	99	DIRN	SUR	35	-72	4101	0	0	20.3	8.0	21.8
4100139	99	DIRN	SUR	20	-38	702	0	0	7.7	0.0	7.7

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
41002	99	DIRN	SUR	32	-75	4027	0	0	22.3	1.2	22.3
4100300	99	DIRN	SUR	16	-57	683	0	0	7.8	-10.9	13.4
41004	99	DIRN	SUR	33	-79	4361	0	0	24.4	3.6	24.7
41008	99	DIRN	SUR	31	-81	1293	0	0	22.7	-2.8	22.9
41009	99	DIRN	SUR	29	-80	3510	0	0	22.3	-0.2	22.3
41010	99	DIRN	SUR	29	-79	3770	0	0	18.1	3.1	18.3
41013	99	DIRN	SUR	33	-78	4051	0	0	24.7	3.1	24.9
41024	99	DIRN	SUR	34	-79	858	0	0	30.6	-2.8	30.7
41025	99	DIRN	SUR	35	-76	3940	0	0	22.8	1.1	22.9
41029	99	DIRN	SUR	33	-80	1136	0	0	27.0	0.6	27.0
41033	99	DIRN	SUR	32	-80	758	0	0	22.2	2.5	22.3
41037	99	DIRN	SUR	34	-77	840	0	0	20.4	0.1	20.4
41038	99	DIRN	SUR	34	-78	828	0	0	22.2	-1.0	22.3
41040	99	DIRN	SUR	15	-53	5140	0	0	8.2	2.5	8.6
41043	99	DIRN	SUR	21	-65	4349	0	0	11.4	1.3	11.4
41044	99	DIRN	SUR	22	-59	1	0	0	0.0	102.7	102.7
41046	99	DIRN	SUR	24	-68	3773	0	0	17.7	6.5	18.8
41047	99	DIRN	SUR	28	-72	3941	0	0	21.7	5.6	22.4
41048	99	DIRN	SUR	32	-70	2747	0	0	16.2	2.3	16.4
41049	99	DIRN	SUR	28	-63	3626	0	0	21.0	6.9	22.1
41052	99	DIRN	SUR	18	-65	3168	0	0	8.8	6.8	11.1
41053	99	DIRN	SUR	19	-66	2815	0	0	13.3	11.8	17.8
41064	99	DIRN	SUR	34	-77	853	0	0	21.4	-19.5	29.0
41066	99	DIRN	SUR	33	-80	846	0	0	25.8	3.8	26.0
4200013	99	DIRN	SUR	27	-83	752	0	0	24.6	-1.6	24.7
4200022	99	DIRN	SUR	28	-84	756	0	0	20.1	-4.5	20.5
4200023	99	DIRN	SUR	26	-83	589	0	0	28.5	1.7	28.5
4200026	99	DIRN	SUR	25	-83	676	0	0	23.6	-1.5	23.6
4200036	99	DIRN	SUR	29	-85	2454	0	0	20.0	0.4	20.0
4200056	99	DIRN	SUR	20	-85	3527	0	0	18.9	6.9	20.2
4200059	99	DIRN	SUR	15	-67	4311	0	0	9.2	4.1	10.0
4200085	99	DIRN	SUR	18	-67	3477	0	0	17.5	9.1	19.7
42013	99	DIRN	SUR	27	-83	863	0	0	24.9	-2.6	25.0
42022	99	DIRN	SUR	28	-84	864	0	0	20.8	-4.3	21.3
42023	99	DIRN	SUR	26	-83	844	0	0	28.1	1.6	28.2
42026	99	DIRN	SUR	25	-84	812	0	0	24.7	-1.5	24.7
42036	99	DIRN	SUR	29	-85	2904	0	0	20.9	-0.3	20.9
42056	99	DIRN	SUR	20	-85	3723	0	0	19.4	6.4	20.4
42059	99	DIRN	SUR	15	-68	4630	0	0	9.7	3.6	10.3
42060	99	DIRN	SUR	16	-63	1	0	0	0.0	91.5	91.5
42085	99	DIRN	SUR	18	-67	3256	0	0	16.9	8.4	18.9

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4400005	99	DIRN	SUR	43	-69	525	0	0	17.9	5.9	18.9
4400007	99	DIRN	SUR	44	-70	2331	0	0	27.4	6.3	28.1
4400008	99	DIRN	SUR	40	-69	2699	0	0	16.4	12.9	20.8
4400009	99	DIRN	SUR	38	-75	3159	0	0	20.7	7.4	22.0
4400013	99	DIRN	SUR	42	-71	2608	0	0	20.3	9.7	22.5
4400014	99	DIRN	SUR	37	-75	2090	0	0	19.3	9.0	21.2
4400017	99	DIRN	SUR	41	-72	2918	0	0	19.9	5.1	20.6
4400018	99	DIRN	SUR	42	-70	1561	0	0	17.2	10.4	20.1
4400020	99	DIRN	SUR	41	-70	3377	0	0	21.5	7.5	22.8
4400022	99	DIRN	SUR	41	-74	355	0	0	19.4	2.1	19.5
4400027	99	DIRN	SUR	44	-67	276	0	0	17.8	11.3	21.0
4400029	99	DIRN	SUR	43	-71	441	0	0	19.0	5.1	19.7
4400030	99	DIRN	SUR	43	-70	437	0	0	20.0	14.5	24.7
4400032	99	DIRN	SUR	44	-69	415	0	0	20.6	5.1	21.2
4400033	99	DIRN	SUR	44	-69	334	0	0	26.9	2.8	27.1
4400034	99	DIRN	SUR	44	-68	403	0	0	19.4	15.9	25.0
4400037	99	DIRN	SUR	43	-68	437	0	0	47.5	22.5	52.6
4400039	99	DIRN	SUR	41	-73	274	0	0	39.8	1.2	39.8
4400040	99	DIRN	SUR	41	-74	440	0	0	18.7	0.5	18.7
4400041	99	DIRN	SUR	37	-77	649	0	0	17.5	2.0	17.6
4400042	99	DIRN	SUR	38	-76	3740	0	0	22.6	6.1	23.4
4400058	99	DIRN	SUR	38	-76	4858	0	0	26.8	-1.1	26.8
4400062	99	DIRN	SUR	39	-76	3613	0	0	19.0	1.3	19.0
4400063	99	DIRN	SUR	39	-76	3633	0	0	22.5	2.1	22.6
4400064	99	DIRN	SUR	37	-76	4145	0	0	23.5	0.9	23.5
4400065	99	DIRN	SUR	40	-74	3068	0	0	19.6	6.4	20.7
4400066	99	DIRN	SUR	40	-73	1800	0	0	15.7	7.7	17.5
4400072	99	DIRN	SUR	37	-76	4272	0	0	25.7	-3.8	26.0
4400075	99	DIRN	SUR	40	-71	2020	0	0	17.8	-11.0	20.9
4400076	99	DIRN	SUR	40	-71	1983	0	0	17.5	-13.0	21.8
4400077	99	DIRN	SUR	40	-71	2075	0	0	15.2	-6.6	16.5
44005	99	DIRN	SUR	43	-69	1122	0	0	17.7	4.3	18.2
44007	99	DIRN	SUR	44	-70	3178	0	0	30.3	6.4	31.0
44008	99	DIRN	SUR	41	-69	2985	0	0	16.7	11.7	20.4
44009	99	DIRN	SUR	39	-75	3768	0	0	22.2	7.5	23.4
44013	99	DIRN	SUR	42	-71	3087	0	0	20.5	8.0	22.0
44014	99	DIRN	SUR	37	-75	2953	0	0	19.4	8.2	21.1
44017	99	DIRN	SUR	41	-72	3467	0	0	21.5	4.9	22.1
44018	99	DIRN	SUR	42	-70	1709	0	0	17.7	9.2	20.0
44020	99	DIRN	SUR	42	-70	3931	0	0	23.0	7.5	24.2
44022	99	DIRN	SUR	41	-74	492	0	0	22.7	3.8	23.0

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
44025	99	DIRN	SUR	40	-73	29	0	0	104.9	-69.4	125.7
44027	99	DIRN	SUR	44	-67	656	0	0	16.7	10.2	19.6
44029	99	DIRN	SUR	43	-71	851	0	0	20.5	4.5	21.0
44030	99	DIRN	SUR	43	-70	638	0	0	20.0	14.3	24.6
44032	99	DIRN	SUR	44	-69	587	0	0	22.1	4.1	22.5
44033	99	DIRN	SUR	44	-69	464	0	0	24.6	2.9	24.8
44034	99	DIRN	SUR	44	-68	564	0	0	17.2	15.0	22.8
44037	99	DIRN	SUR	44	-68	619	0	0	50.4	21.4	54.8
44039	99	DIRN	SUR	41	-73	389	0	0	43.5	2.7	43.6
44040	99	DIRN	SUR	41	-74	658	0	0	16.7	1.3	16.7
44041	99	DIRN	SUR	37	-77	749	0	0	19.0	1.3	19.0
44042	99	DIRN	SUR	38	-76	3711	0	0	21.9	6.0	22.7
44058	99	DIRN	SUR	38	-76	4753	0	0	26.5	0.1	26.5
44062	99	DIRN	SUR	39	-76	4300	0	0	21.5	1.0	21.5
44063	99	DIRN	SUR	39	-76	4158	0	0	22.5	3.8	22.8
44064	99	DIRN	SUR	37	-76	4936	0	0	23.7	1.5	23.8
44065	99	DIRN	SUR	40	-74	3431	0	0	19.2	5.7	20.0
44066	99	DIRN	SUR	40	-73	2206	0	0	16.1	7.5	17.7
44069	99	DIRN	SUR	41	-73	1446	0	0	23.0	-1.6	23.0
44072	99	DIRN	SUR	37	-76	4457	0	0	28.0	-2.8	28.2
44075	99	DIRN	SUR	40	-71	2039	0	0	16.5	-11.2	20.0
44076	99	DIRN	SUR	40	-71	1930	0	0	16.4	-13.9	21.5
44077	99	DIRN	SUR	40	-71	2072	0	0	15.5	-6.5	16.9
44137	99	DIRN	SUR	42	-62	455	0	0	17.6	13.3	22.1
44150	99	DIRN	SUR	43	-64	495	0	0	21.2	17.6	27.6
44258	99	DIRN	SUR	45	-63	363	0	0	17.5	14.8	22.9
44488	99	DIRN	SUR	45	-61	356	0	0	20.6	17.6	27.0
44489	99	DIRN	SUR	46	-61	400	0	0	20.8	6.7	21.9
44490	99	DIRN	SUR	45	-66	305	0	0	24.4	10.9	26.8
4500003	99	DIRN	SUR	45	-83	2740	0	0	22.1	16.9	27.8
4500005	99	DIRN	SUR	42	-82	3043	0	0	30.0	9.1	31.4
4500008	99	DIRN	SUR	44	-82	2370	0	0	26.7	14.8	30.5
4500012	99	DIRN	SUR	44	-77	2691	0	0	23.7	12.0	26.6
4500162	99	DIRN	SUR	45	-83	1323	0	0	31.4	5.6	31.9
4500163	99	DIRN	SUR	44	-84	1563	0	0	32.7	3.1	32.8
4500165	99	DIRN	SUR	42	-83	2525	0	0	42.6	10.1	43.8
4500167	99	DIRN	SUR	42	-80	1392	0	0	26.6	4.7	27.0
4500175	99	DIRN	SUR	46	-85	4452	0	0	39.4	1.3	39.5
4500176	99	DIRN	SUR	42	-82	1717	0	0	42.4	-18.9	46.4
4500196	99	DIRN	SUR	42	-82	1700	0	0	25.3	6.1	26.0
4500197	99	DIRN	SUR	42	-82	2110	0	0	37.3	38.0	53.2

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
45003	99	DIRN	SUR	45	-83	3167	0	0	22.1	15.1	26.8
45005	99	DIRN	SUR	42	-82	3723	0	0	30.2	8.0	31.2
45008	99	DIRN	SUR	44	-82	3054	0	0	27.2	13.3	30.3
45012	99	DIRN	SUR	44	-77	2991	0	0	23.5	11.9	26.4
45132	99	DIRN	SUR	43	-81	485	0	0	21.3	-2.9	21.5
45135	99	DIRN	SUR	44	-77	479	0	0	23.9	5.5	24.5
45137	99	DIRN	SUR	46	-81	489	0	0	21.1	4.9	21.7
45139	99	DIRN	SUR	43	-80	297	0	0	28.0	2.7	28.1
45142	99	DIRN	SUR	43	-79	475	0	0	21.5	-6.4	22.4
45143	99	DIRN	SUR	45	-81	447	0	0	27.5	6.0	28.1
45149	99	DIRN	SUR	44	-82	458	0	0	31.4	20.3	37.3
45151	99	DIRN	SUR	45	-79	341	0	0	20.5	-1.2	20.5
45152	99	DIRN	SUR	46	-80	406	0	0	24.0	-1.5	24.1
45154	99	DIRN	SUR	46	-83	424	0	0	25.0	4.5	25.4
45159	99	DIRN	SUR	44	-79	325	0	0	35.9	1.1	35.9
45162	99	DIRN	SUR	45	-83	1468	0	0	32.1	5.0	32.5
45163	99	DIRN	SUR	44	-84	1947	0	0	32.4	2.5	32.5
45165	99	DIRN	SUR	42	-83	2681	0	0	43.3	8.9	44.2
45167	99	DIRN	SUR	42	-80	1877	0	0	26.1	4.3	26.4
45175	99	DIRN	SUR	46	-85	5601	0	0	43.2	0.5	43.2
45176	99	DIRN	SUR	42	-82	2086	0	0	45.5	-16.9	48.6
45196	99	DIRN	SUR	42	-82	2039	0	0	28.0	6.4	28.7
45197	99	DIRN	SUR	42	-82	2884	0	0	39.0	36.6	53.5
4803912	99	DIRN	SUR	39	-72	1923	0	0	17.0	6.3	18.1
6100198	99	DIRN	SUR	37	-2	448	0	0	21.0	4.2	21.4
6100281	99	DIRN	SUR	40	0	150	0	0	39.6	-8.2	40.5
6100417	99	DIRN	SUR	38	0	481	0	0	17.6	6.1	18.6
6200001	99	DIRN	SUR	45	-5	551	0	0	16.9	-0.8	16.9
6200024	99	DIRN	SUR	44	-3	364	0	0	28.3	-0.6	28.3
6200025	99	DIRN	SUR	44	-6	327	0	0	17.0	3.2	17.3
6200082	99	DIRN	SUR	44	-8	489	0	0	18.8	1.9	18.9
6200083	99	DIRN	SUR	43	-9	478	0	0	19.1	10.2	21.7
6200084	99	DIRN	SUR	42	-9	273	0	0	100.6	-7.5	100.9
6200085	99	DIRN	SUR	36	-7	579	0	0	13.6	5.1	14.5
6200091	99	DIRN	SUR	53	-5	532	0	0	12.0	2.1	12.2
6200092	99	DIRN	SUR	51	-11	663	0	0	11.1	3.2	11.5
6200093	99	DIRN	SUR	55	-10	639	0	0	11.7	6.3	13.3
6200094	99	DIRN	SUR	52	-7	565	0	0	14.2	2.0	14.3
6200095	99	DIRN	SUR	53	-16	672	0	0	8.6	4.0	9.5
6200191	99	DIRN	SUR	41	-10	224	0	0	29.5	-0.8	29.6
6200192	99	DIRN	SUR	40	-10	364	0	0	14.3	-5.8	15.4

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
6200199	99	DIRN	SUR	40	-9	371	0	0	19.3	22.4	29.6
6200200	99	DIRN	SUR	36	-8	289	0	0	172.5	-6.7	172.7
6201081	99	DIRN	SUR	38	-9	396	0	0	13.5	-3.1	13.8
62029	99	DIRN	SUR	49	-12	1845	0	0	13.3	-4.6	14.1
62050	99	DIRN	SUR	50	-4	1424	4	0	19.4	2.5	19.6
62081	99	DIRN	SUR	51	-13	1961	0	0	12.0	-7.5	14.1
62091	99	DIRN	SUR	53	-5	528	0	0	12.4	1.5	12.5
62092	99	DIRN	SUR	51	-11	657	0	0	11.2	2.8	11.5
62093	99	DIRN	SUR	55	-10	632	0	0	12.0	5.7	13.3
62094	99	DIRN	SUR	52	-7	557	0	0	14.4	1.7	14.5
62095	99	DIRN	SUR	53	-16	673	0	0	9.0	3.3	9.6
62103	99	DIRN	SUR	50	-3	1880	0	0	31.0	5.7	31.6
62107	99	DIRN	SUR	50	-6	2315	0	0	16.7	2.1	16.9
62112	99	DIRN	SUR	58	0	1856	0	0	11.0	-2.4	11.3
62114	99	DIRN	SUR	58	0	2738	0	0	11.5	-1.9	11.6
62163	99	DIRN	SUR	48	-9	2129	0	0	13.4	4.8	14.2
62305	99	DIRN	SUR	50	0	2111	0	0	23.0	9.3	24.9
62442	99	DIRN	SUR	49	-16	2009	0	0	12.3	4.8	13.2
64041	99	DIRN	SUR	61	-3	2024	0	0	9.7	7.1	12.1
64045	99	DIRN	SUR	59	-12	1790	0	0	9.8	-6.8	11.9
9857860	99	DIRN	SUR	37	-63	5	0	0	6.3	-21.7	22.6

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE09	ATGU3FT	BPMWB2N	CHQUR4G	DBLK	FPUW5GN	JGQH	JNKN7JF	JPBN
KJJF9XN	KMPLHPW	LRYQE3U	USSIO	UXK5JTU	WDK38HS	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	12575	12843	12982	13275	13388	14015	14240
14430	15420	15614	16045	16064	16113	16144	16245	16332
16429	16546	16622	16716	16754	17030	17064	17220	17240
17607	20674	22008	23205	23472	23884	24908	26038	26435
26708	26850	27459	27707	27713	28225	28661	29612	29698
30557	30673	33008	37789	40179	42369	42667	43150	43371
45004	47102	47104	47138	47155	47169	47186	47401	47412
47582	47600	47646	47678	47741	47778	47807	47827	47909
47911	47918	47945	47971	47991	48657	48698	50527	50557
50774	50953	51076	51243	51431	51463	51644	51656	51709
51777	51828	51839	52203	52267	52323	52418	52533	52652
52681	52818	52836	52866	52983	53068	53463	53513	53543
53614	53772	53845	53915	54102	54135	54161	54218	54292
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	60715	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	72518	72520	72528	72558	72562
72572	72582	72597	72632	72634	72645	72649	72659	72662
72672	72681	72694	72712	72747	72764	72768	72776	72786
72797	73033	73110	74389	74560	76225	76256	76394	76405
76458	76526	76595	76612	76644	76654	76679	76692	76743
76805	76903	78897	78954	81405	82965	83768	85442	85586
85799	85934	87155	87344	87582	87860	88889	89002	89062
89564	89571	89592	89611	89625	89642	89859	91165	91212
91285	91592	91610	91765	91925	91938	91948	91958	93112
93417	93817	93844	94120	94150	94170	94203	94299	94302
94312	94326	94332	94374	94403	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	WDK38HS	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	2EERVTP	7JUNA4N
9ZT9MRK	01010	01028	01415	01492	02365	02527	02836	02963
06610	07110	07145	07510	07645	07761	08001	08023	08190
08221	08302	08383	08430	08536	11010	11035	11120	11240
12575	17607	37789	46757	47155	47911	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	72413	76743	76903	89573
89642	89859	91925	91938	91948	93817	94653	94767	99999

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.