ECMWF Global Data Monitoring Report

February 2018

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	Jan	Feb	Ident	Time	Jan	Feb
30935	(00)	26	10	01001	(12)	30	53
30935	(12)	27	9	01004	(00)	2	28
40948	(12)	30	14	01028	(12)	32	56
42348	(00)	21	8	02185	(12)	1	15
43063	(00)	23	0	41977	(00)	1	16
43333	(00)	30	8	60760	(00)	4	23
67083	(00)	26	9	62423	(12)	0	11
67083	(12)	29	9	68424	(12)	0	12
68263	(00)	55	31	68538	(12)	60	48
68906	(00)	25	1	70361	(12)	8	35
72214	(00)	25	10	74005	(00)	6	19
72214	(12)	22	11	89859	(00)	1	16
72393	(00)	39	11	96315	(00)	0	20
72493	(00)	28	17	96315	(12)	0	21
72582	(00)	31	18	96996	(00)	15	28
72582	(12)	31	20	-	-	-	-
78807	(00)	27	3	-	-	-	-
83612	(00)	30	16	-	-	-	-
83612	(12)	29	14	-	-	-	-
85442	(12)	40	28	-	-	-	-
85469	(00)	47	26	-	-	-	-
85799	(12)	43	27	-	-	-	-
85934	(12)	41	29	-	-	-	-
89662	(00)	24	9	-	-	-	-
89662	(12)	24	7	-	-	-	-
91610	(00)	28	0	-	-	-	-
96805	(12)	31	14	-	-	-	-
97900	(12)	27	14	-	-	-	-

2.2 Drifting Buoys

Surface pressure observations from **1414** 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

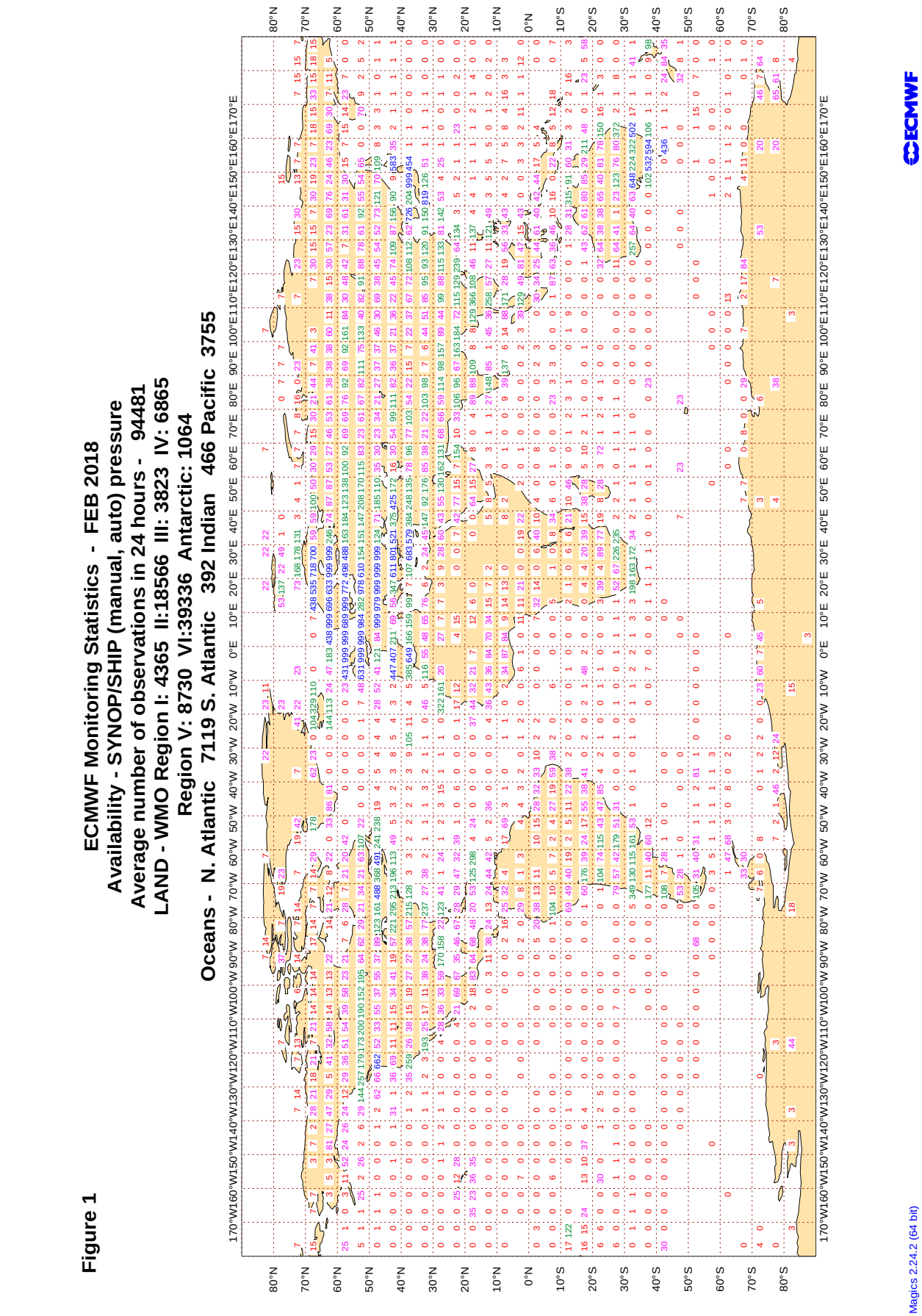


Figure 1

3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

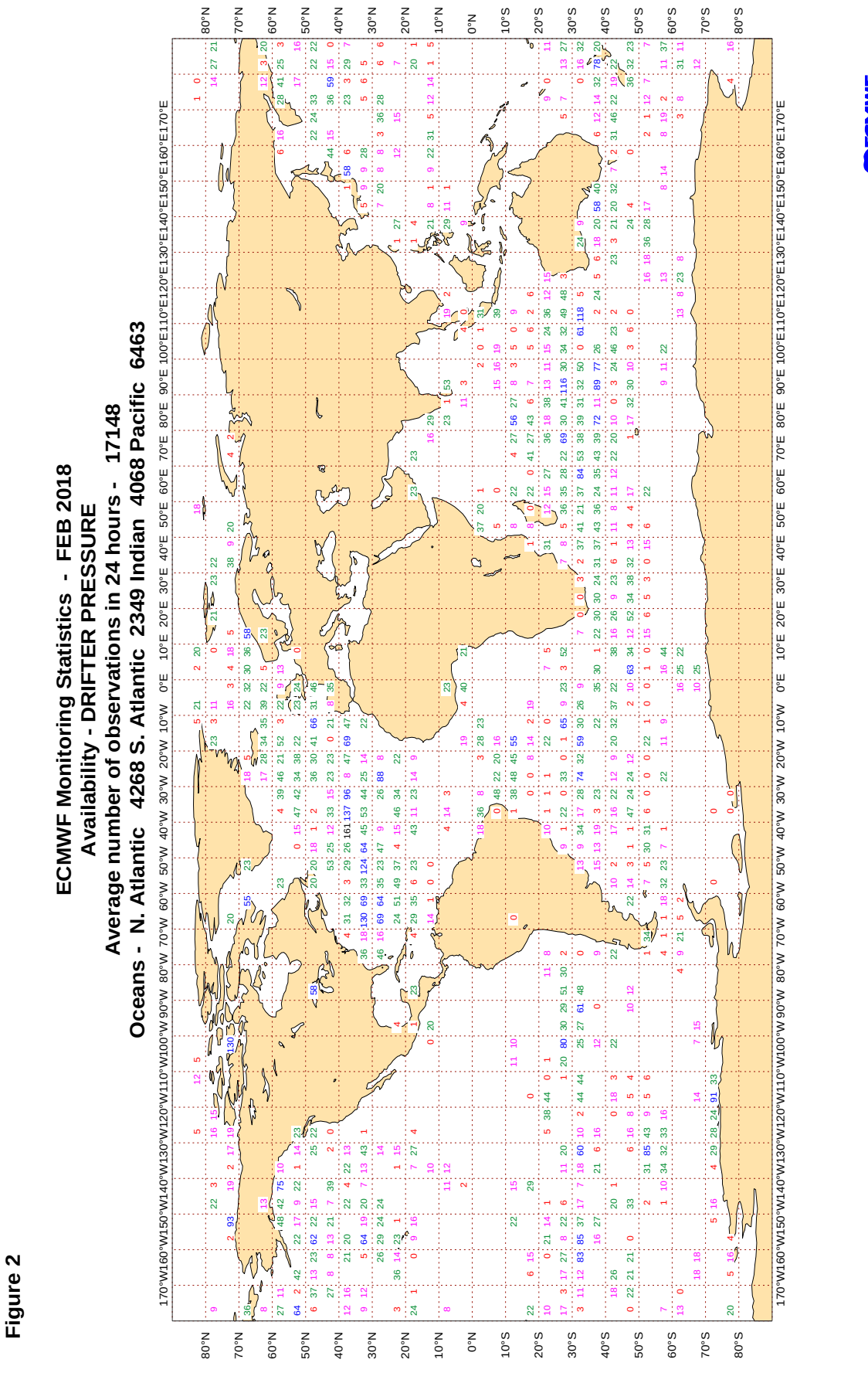


Figure 2

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

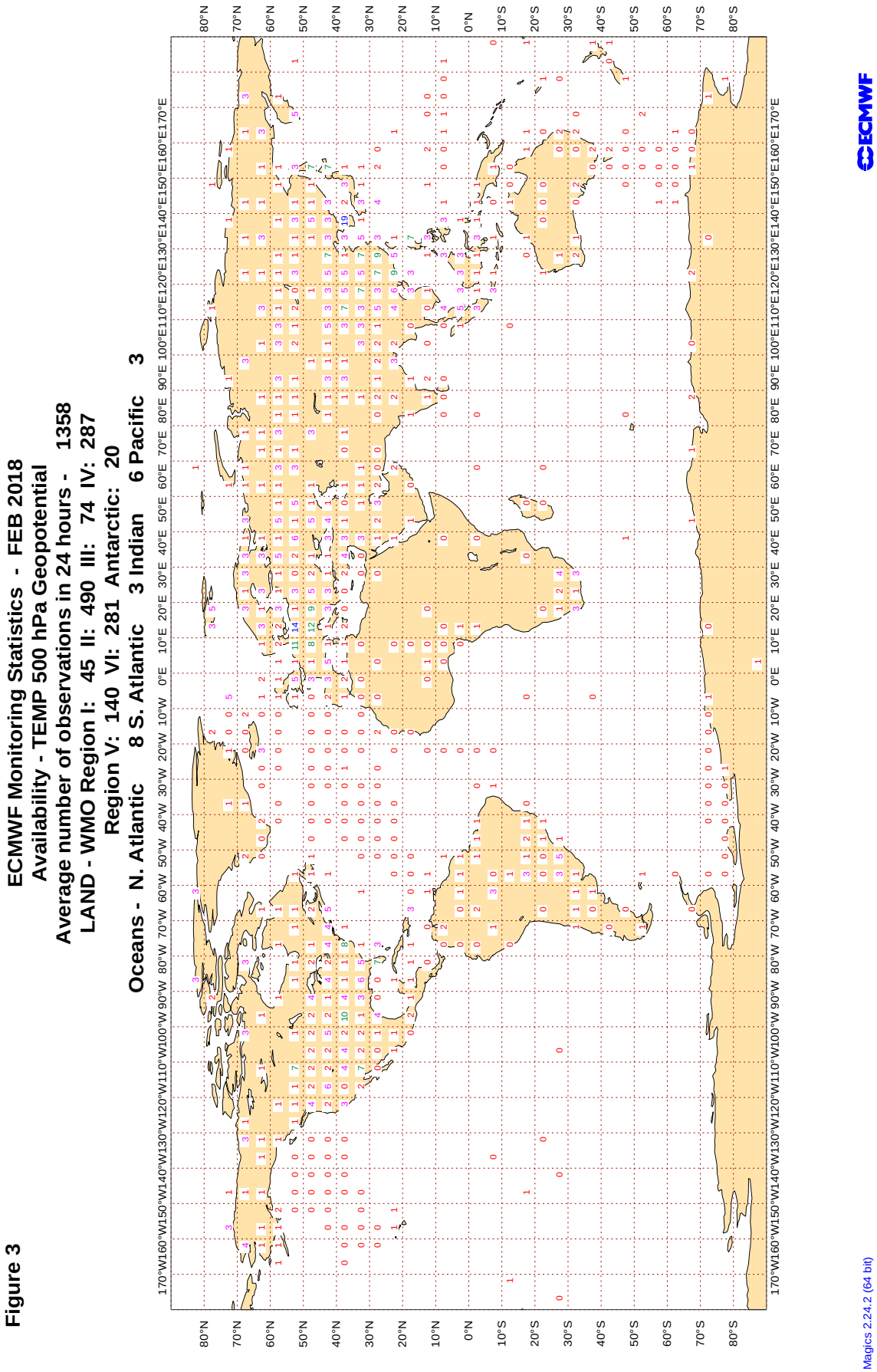


Figure 3

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

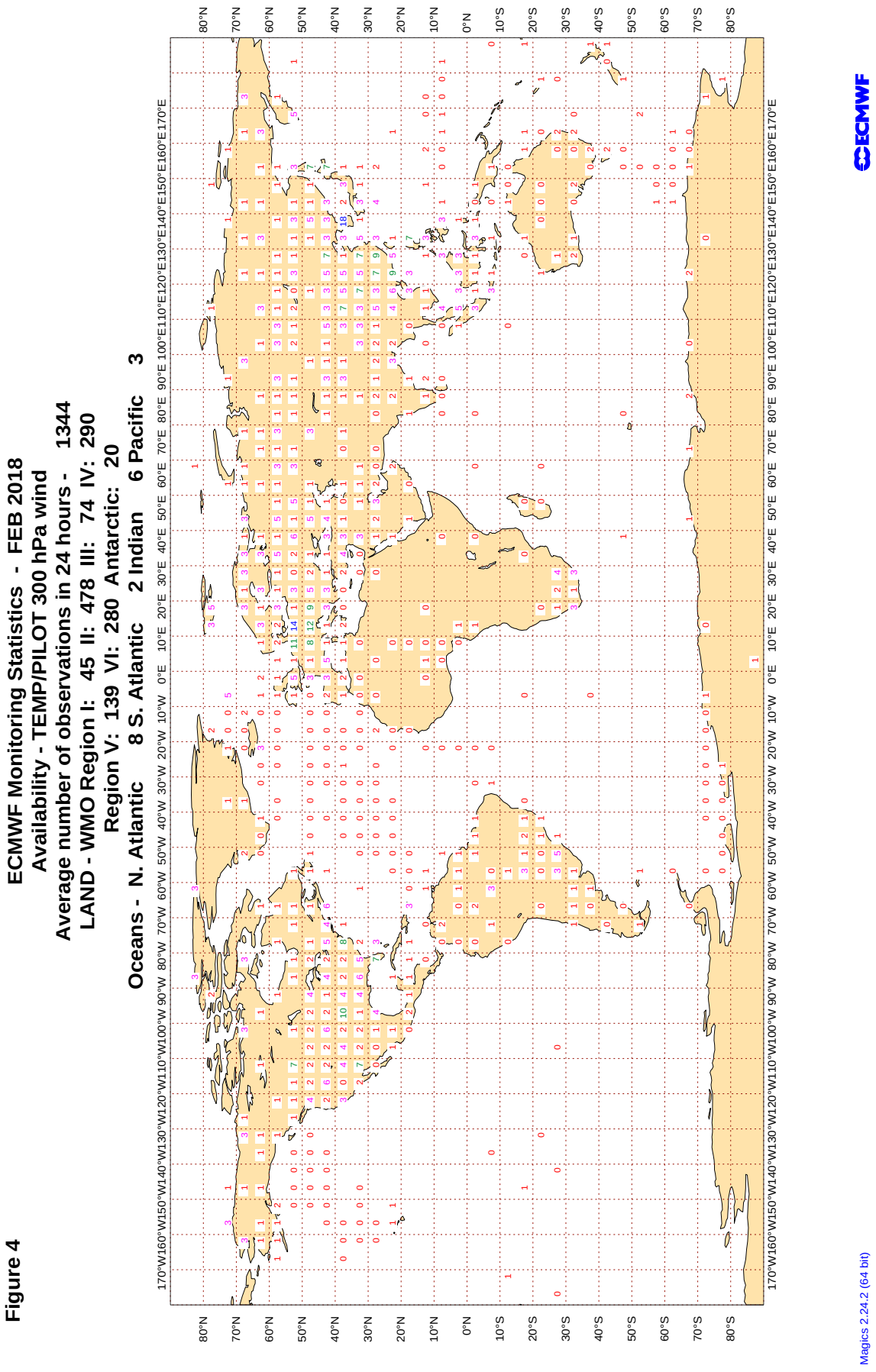


Figure 4

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

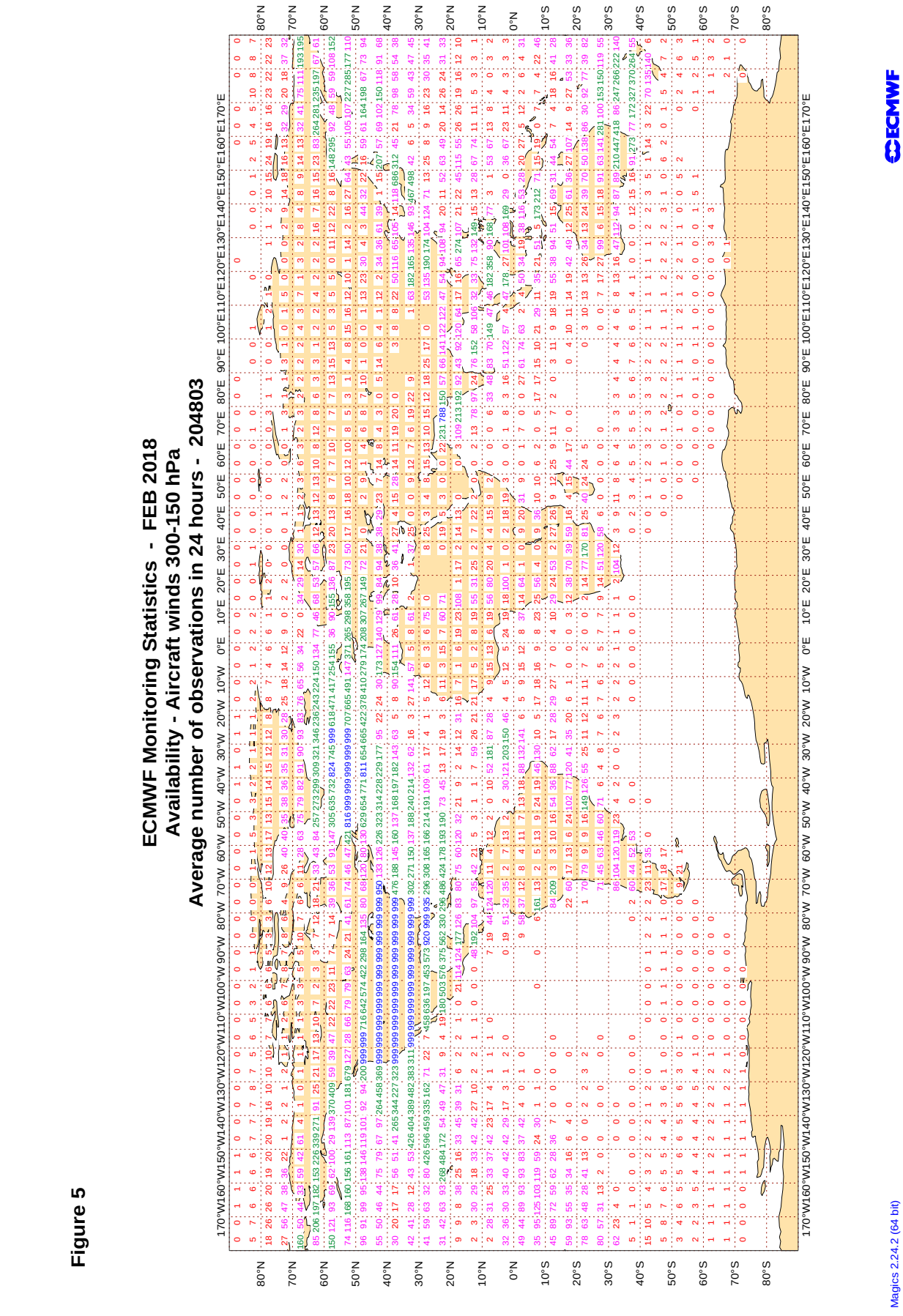


Figure 5

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

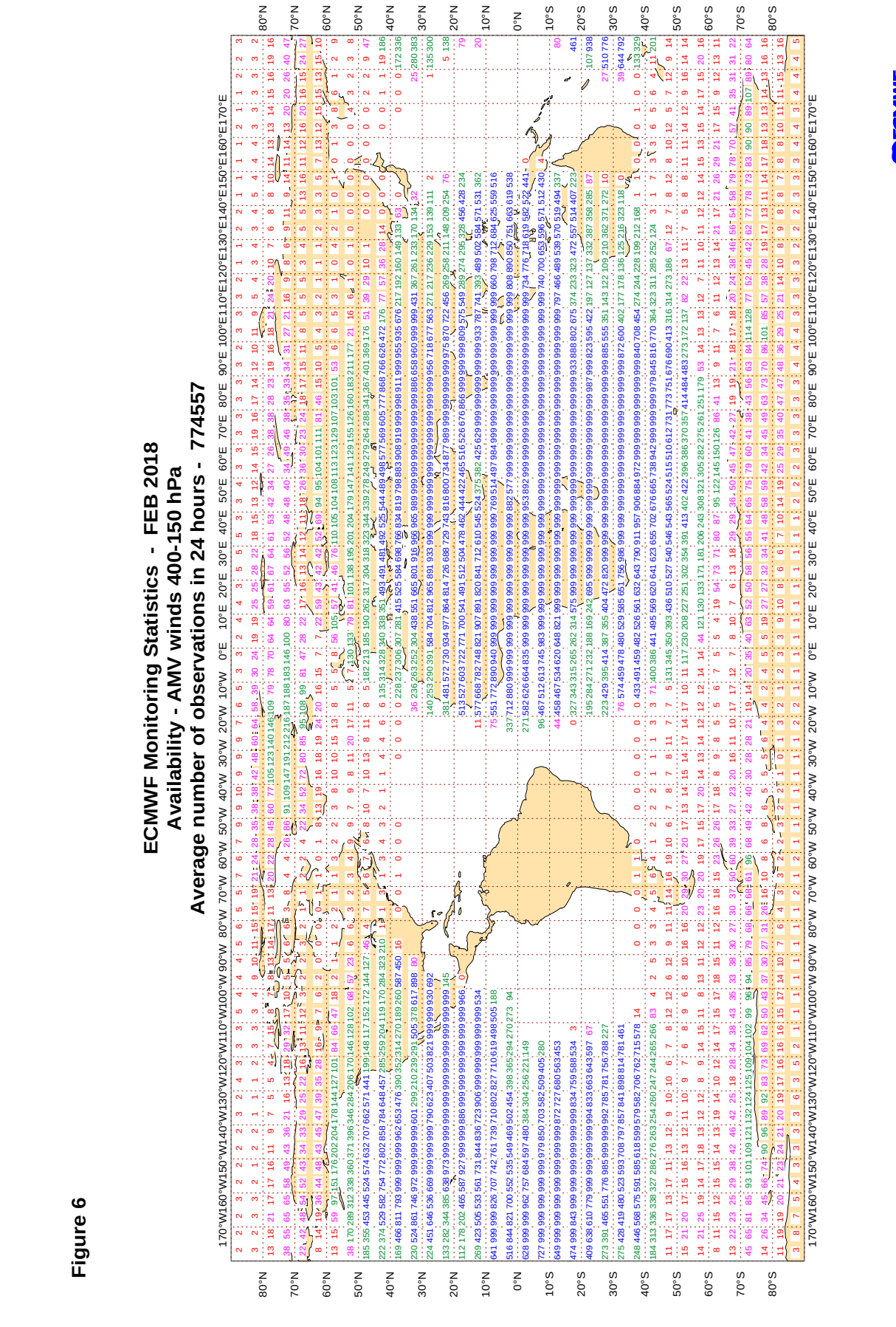


Figure 6

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

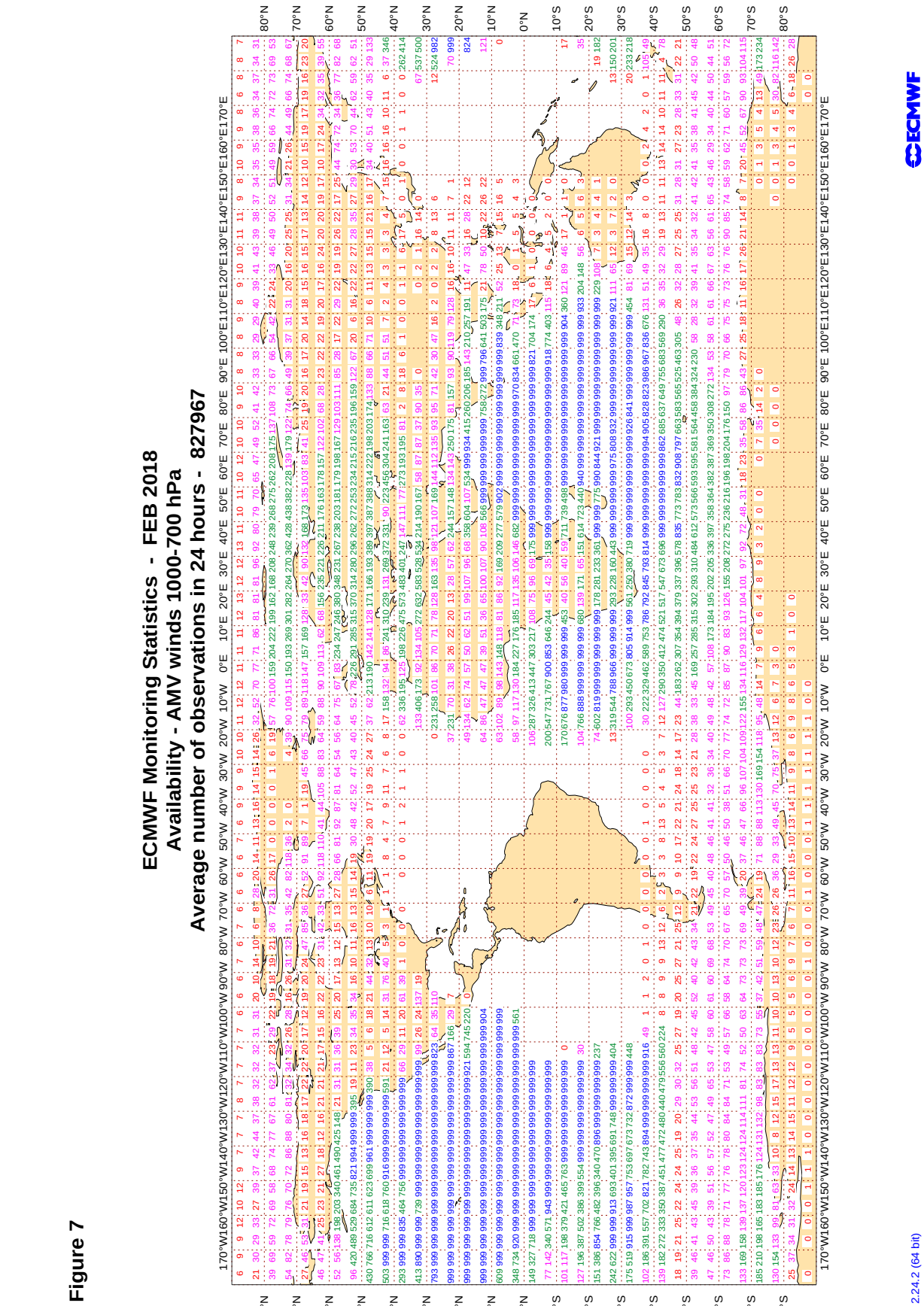
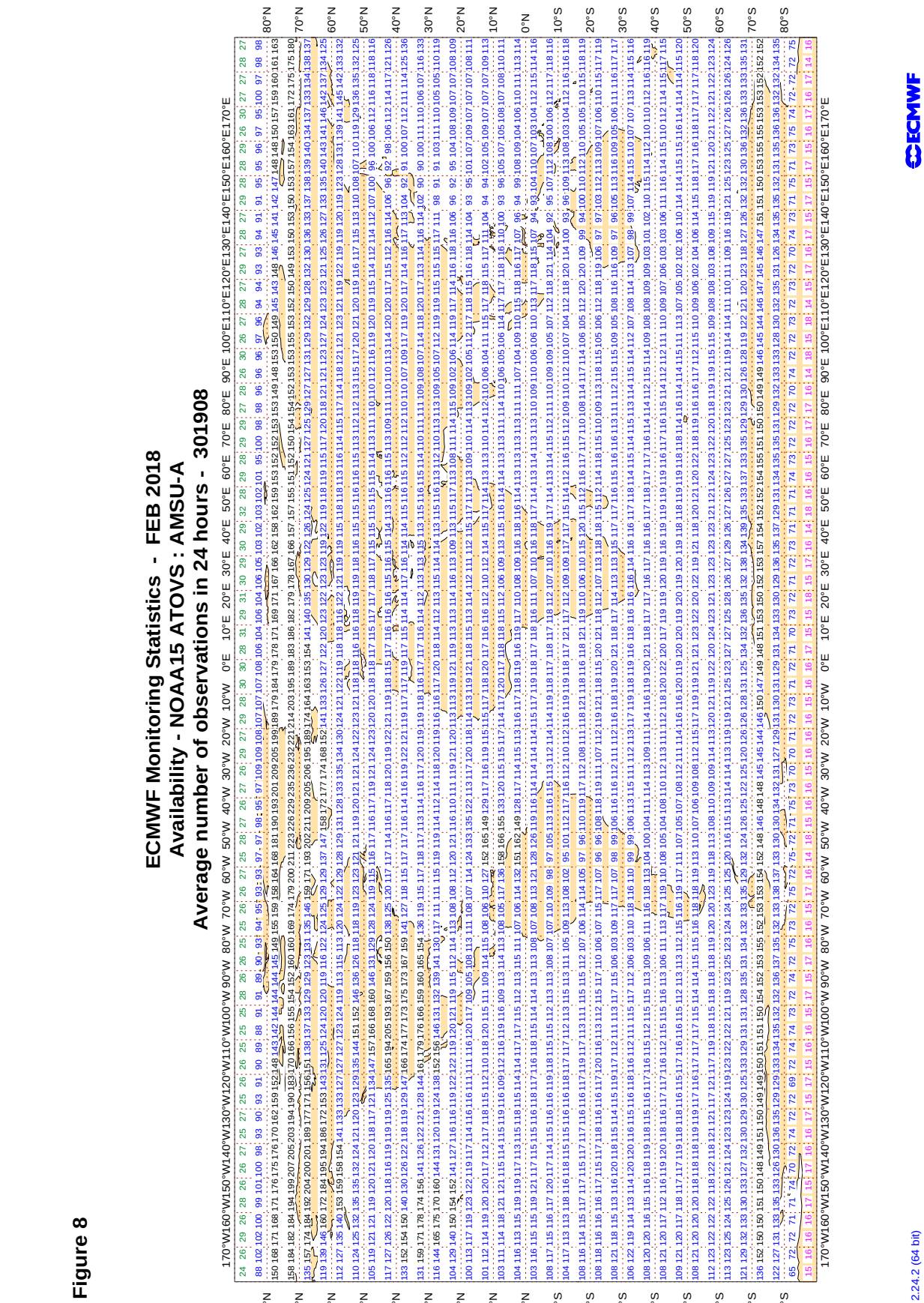


Figure 7

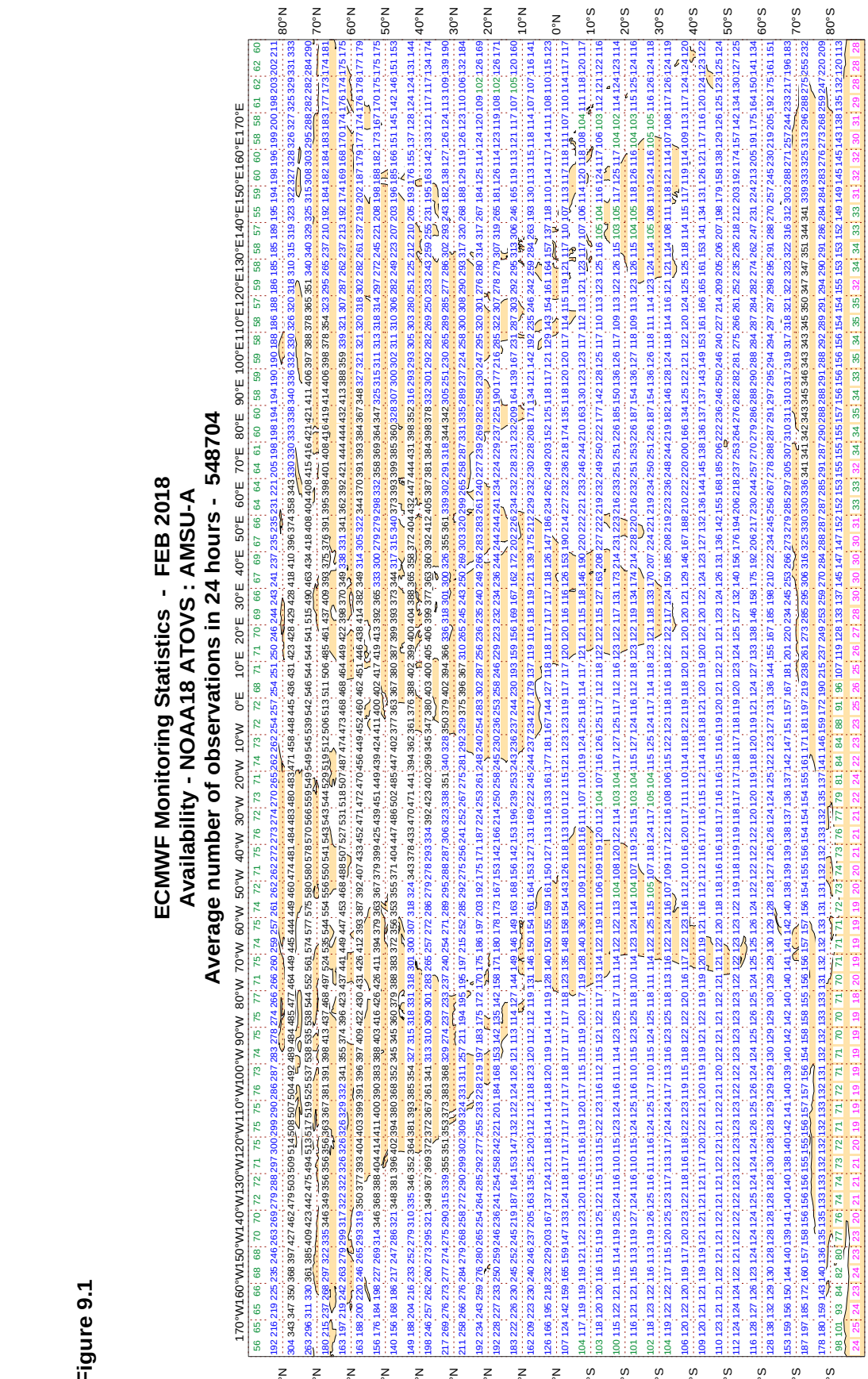
3.2.8 Figure 8 - Availability - NOAA15 ATOVS : AMSU-A

Figure 8



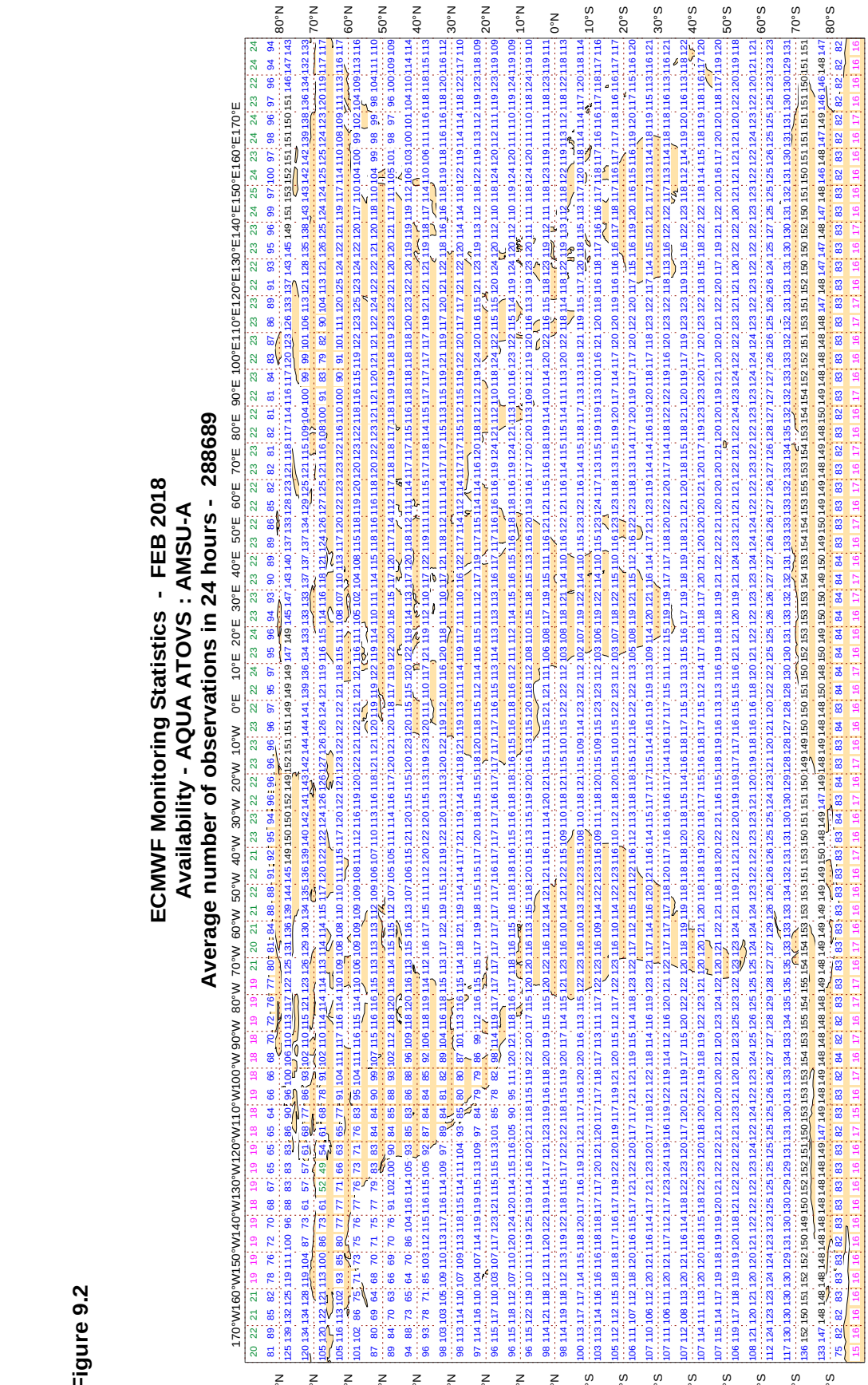
3.2.9 Figure 9.1 - Availability - NOAA18 ATOVS : AMSU-A

Figure 9.1

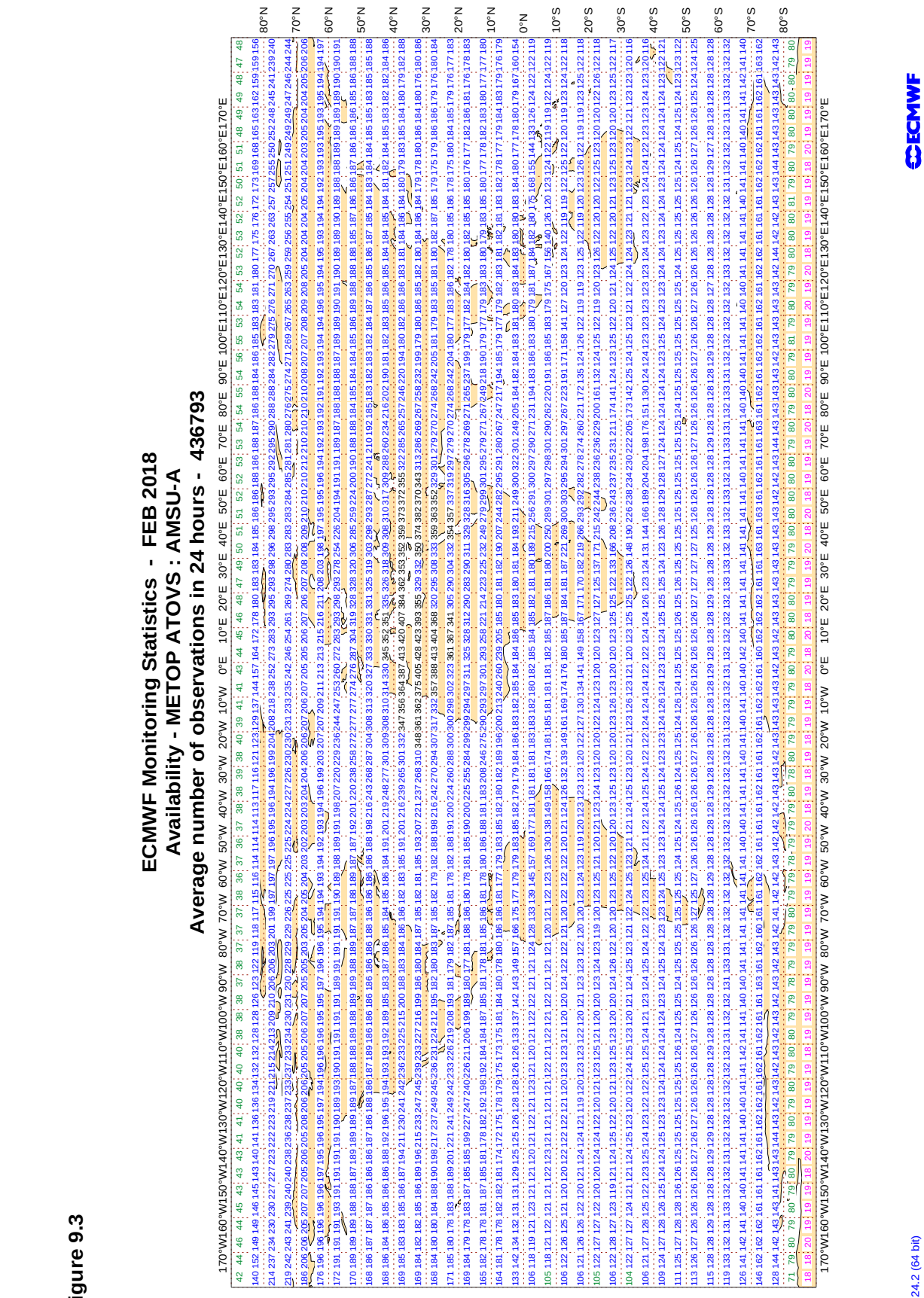


3.2.10 Figure 9.2 - Availability - AQUA ATOVS : AMSU-A

Figure 9.2



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



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                : FEB 2018
                    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
3FPB5	99	P	SUR	20	0	0.6	3.0	3.1
3FSV5	99	P	SUR	54	0	3.8	3.7	5.3
9V5632	99	P	SUR	21	0	1.1	5.6	5.7
9V9832	99	P	SUR	34	0	0.7	-3.7	3.8
AUYJ	99	P	SUR	102	0	2.6	3.9	4.7
AUYL	99	P	SUR	17	0	1.7	10.5	10.6
C6AB7	99	P	SUR	18	0	1.3	9.7	9.8
C6AV5	99	P	SUR	23	0	1.4	-3.0	3.3
C6BQ4	99	P	SUR	15	0	3.4	5.8	6.8
C6UC3	99	P	SUR	58	0	1.1	3.3	3.5
D5KF6	99	P	SUR	20	0	0.8	-4.4	4.5
ELPX7	99	P	SUR	30	0	3.0	6.5	7.2
ICIC	99	P	SUR	20	2	6.1	4.4	7.5
LAJS6	99	P	SUR	33	0	1.1	-3.1	3.3
LAQJ7	99	P	SUR	49	0	1.1	3.2	3.4
OZ2049	99	P	SUR	18	0	2.2	-4.3	4.8
PFBF	99	P	SUR	21	0	0.4	3.0	3.1
S6LT5	99	P	SUR	22	0	3.5	5.5	6.5
SDIA	99	P	SUR	107	18	5.6	-2.1	6.0
UAEV	99	P	SUR	27	0	1.0	3.0	3.2
UBXS	99	P	SUR	83	0	2.7	4.3	5.0
UCFT	99	P	SUR	34	0	0.7	-3.1	3.2
UCJP	99	P	SUR	17	6	3.4	-10.8	11.3
UGYU	99	P	SUR	54	0	1.9	-3.2	3.8
UIZZ	99	P	SUR	99	2	1.9	3.0	3.5
VRCU7	99	P	SUR	17	0	2.0	6.7	7.0
VRID2	99	P	SUR	27	0	1.8	4.5	4.8
VROV2	99	P	SUR	16	0	2.4	-7.3	7.7
VRVP2	99	P	SUR	107	0	1.6	3.0	3.5
VTXB	99	P	SUR	107	33	7.4	-3.0	8.0
VTXF	99	P	SUR	18	0	1.0	-4.6	4.8
WAIU	99	P	SUR	25	0	4.5	-3.6	5.7

```
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
WDB3161	99	P	SUR	52	0	1.9	4.6	5.0
WDC6736	99	P	SUR	15	0	3.7	3.4	5.1
WDG8555	99	P	SUR	33	4	1.2	5.1	5.2
WDI6469	99	P	SUR	18	0	1.1	-6.6	6.7

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

```
          LIST OF SUSPECT STATIONS        : SHIPS + FIXED MARINE PLATFORMS
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND SPEED (M/S)
                    AREA                  : GLOBAL
                    PERIOD                : FEB 2018
                    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
42365	99	SPEED	SUR	75	0	0	2.7	-4.3	5.1

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                : FEB 2018
                    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
34002	99	DIRN	SUR	232	96	0	139.6	98.5	170.8
42365	99	DIRN	SUR	33	0	0	36.3	-34.5	50.1
44037	99	DIRN	SUR	102	0	0	16.5	31.4	35.5
44042	99	DIRN	SUR	145	0	0	151.5	-3.9	151.5
46120	99	DIRN	SUR	101	0	0	75.4	-39.1	84.9
46207	99	DIRN	SUR	97	0	0	14.9	41.0	43.6

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                 : FEB 2018
                    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
1501517	99	P	SUR	-37	-12	646	0	0.5	-5.4	5.4
2200185	99	P	SUR	37	125	659	208	5.5	2.8	6.2
2301558	99	P	SUR	4	96	59	39	0.5	-14.0	14.0
3301530	99	P	SUR	-47	-37	608	0	2.2	4.5	5.0
3301537	99	P	SUR	-39	-54	183	22	3.4	4.8	5.9
3401538	99	P	SUR	-77	-157	139	21	8.3	1.6	8.5
4500509	99	P	SUR	45	-88	1134	1134	0.0	0.0	0.0
45509	99	P	SUR	45	-88	1169	1169	0.0	0.0	0.0
4700552	99	P	SUR	68	-63	477	477	0.0	0.0	0.0
4701659	99	P	SUR	71	-104	250	250	0.0	0.0	0.0
4701674	99	P	SUR	70	-67	605	0	0.5	-6.4	6.4
47552	99	P	SUR	68	-63	543	543	0.0	0.0	0.0
4800282	99	P	SUR	71	-156	45	45	0.0	0.0	0.0
4800790	99	P	SUR	80	161	72	72	0.0	0.0	0.0
4801622	99	P	SUR	77	171	477	342	8.8	-1.5	8.9
4801626	99	P	SUR	78	174	380	380	0.0	0.0	0.0
4801711	99	P	SUR	78	165	138	130	0.0	-14.6	14.6
4802009	99	P	SUR	63	-40	589	184	7.4	2.3	7.7
4802502	99	P	SUR	83	-111	557	207	6.0	6.0	8.5
48282	99	P	SUR	71	-156	45	45	0.0	0.0	0.0
5201578	99	P	SUR	8	129	571	0	1.8	9.6	9.8
5501569	99	P	SUR	-46	168	84	59	0.2	-0.8	0.8
5600942	99	P	SUR	-28	85	596	16	2.3	-9.0	9.3
5600946	99	P	SUR	-32	88	596	596	0.0	0.0	0.0
5601611	99	P	SUR	-11	86	569	0	0.5	6.4	6.4
56942	99	P	SUR	-28	85	599	16	2.3	-9.0	9.3
56946	99	P	SUR	-32	88	593	593	0.0	0.0	0.0

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                : FEB 2018
                    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
6101003	99	SPEED	SUR	40	25	54	0	0	2.7	-5.4	6.0

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

```
          LIST OF SUSPECT STATIONS         : DRIFTER
                    MONITORING CENTRE      : ECMWF
                    ELEMENT MONITORED      : WIND DIRECTION (DEGREES)
                    PERIOD                 : FEB 2018
                    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
2200184	99	DIRN	SUR	34	126	561	1	0	68.7	-22.1	72.2
2300001	99	DIRN	SUR	-1	86	68	0	0	23.3	24.2	33.7
23001	99	DIRN	SUR	-1	86	65	0	0	22.3	24.5	33.1
23092	99	DIRN	SUR	17	89	28	0	0	122.7	27.6	125.8
23093	99	DIRN	SUR	16	88	64	0	0	12.9	22.3	25.8
23170	99	DIRN	SUR	15	74	54	0	0	60.2	46.6	76.1
23454	99	DIRN	SUR	10	73	52	0	0	22.5	39.7	45.7
23492	99	DIRN	SUR	11	72	72	0	0	62.9	43.9	76.7
3100231	99	DIRN	SUR	-27	-47	108	0	0	139.1	6.2	139.2
31231	99	DIRN	SUR	-27	-47	110	0	0	138.0	10.2	138.3
31262	99	DIRN	SUR	-23	-43	62	1	0	29.7	-20.2	35.9
34002	99	DIRN	SUR	-55	-90	1956	847	0	138.7	100.2	171.1
42019	99	DIRN	SUR	28	-95	623	0	0	15.2	27.3	31.3
42044	99	DIRN	SUR	26	-97	179	0	0	24.0	-31.3	39.4
42085	99	DIRN	SUR	18	-67	694	0	0	13.7	27.6	30.8
42361	99	DIRN	SUR	28	-93	612	0	0	13.1	26.7	29.7
42365	99	DIRN	SUR	28	-89	129	0	0	39.0	-34.9	52.3
44033	99	DIRN	SUR	44	-69	362	0	0	61.4	20.5	64.7
44037	99	DIRN	SUR	44	-68	593	0	0	13.9	30.8	33.8
44042	99	DIRN	SUR	38	-76	739	0	0	149.9	-6.3	150.0
44058	99	DIRN	SUR	38	-76	665	0	0	22.0	-22.4	31.4
44064	99	DIRN	SUR	37	-76	296	0	0	24.7	-20.5	32.1
46120	99	DIRN	SUR	48	-122	529	0	0	69.7	-51.7	86.8
46131	99	DIRN	SUR	50	-125	310	0	0	26.0	20.7	33.2
46207	99	DIRN	SUR	51	-130	577	0	0	13.7	42.3	44.4
5200007	99	DIRN	SUR	-8	165	365	0	0	26.4	20.4	33.4
5300040	99	DIRN	SUR	-8	95	68	0	0	143.2	-8.8	143.5
5300056	99	DIRN	SUR	-5	95	300	0	0	165.4	4.3	165.4
53040	99	DIRN	SUR	-8	95	64	0	0	141.1	-8.8	141.4
53056	99	DIRN	SUR	-5	95	298	0	0	165.3	6.0	165.4
6101003	99	DIRN	SUR	40	25	23	0	0	105.1	-36.1	111.1

```
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
6200200	99	DIRN	SUR	36	-8	95	9	0	162.4	-48.3	169.4

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                : FEB 2018
                    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	21	0	15.9	68.9	70.7
01400	00	Z	1000	57	3	22	0	31.7	55.7	64.1
04360	12	Z	925	66	-38	23	0	5.1	43.3	43.6
04360	00	Z	925	66	-38	23	0	5.1	43.9	44.2
21946	12	Z	50	71	148	27	0	39.0	-143.7	148.9
21946	00	Z	50	71	148	28	0	44.1	-120.5	128.3
24641	00	Z	200	64	122	26	0	60.8	-57.1	83.4
24641	12	Z	50	64	122	23	0	35.7	-139.3	143.8
24944	12	Z	50	60	120	27	0	70.9	-160.1	175.1
24944	00	Z	50	60	120	25	0	81.9	-115.4	141.5
27707	00	Z	50	54	35	26	0	48.8	-127.7	136.7
34122	00	Z	30	52	39	21	0	60.8	-169.1	179.7
34858	00	Z	50	46	43	20	0	70.5	-142.5	159.0
47122	12	Z	1000	37	127	27	0	7.0	-48.9	49.4
47122	00	Z	1000	37	127	28	0	0.0	-50.0	50.0
5QPW8X	12	Z	850	59	-14	16	0	17.3	32.6	36.9
96147	12	Z	925	4	108	22	1	6.5	41.6	42.1
96147	00	Z	925	4	108	25	3	16.6	49.5	52.2
98223	00	Z	30	18	121	21	3	81.2	285.8	297.1

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

```
          LIST OF SUSPECT STATIONS        : RADIOSONDES
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND (M/S)
                    AREA                  : GLOBAL
                    PERIOD                : FEB 2018
                    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
```

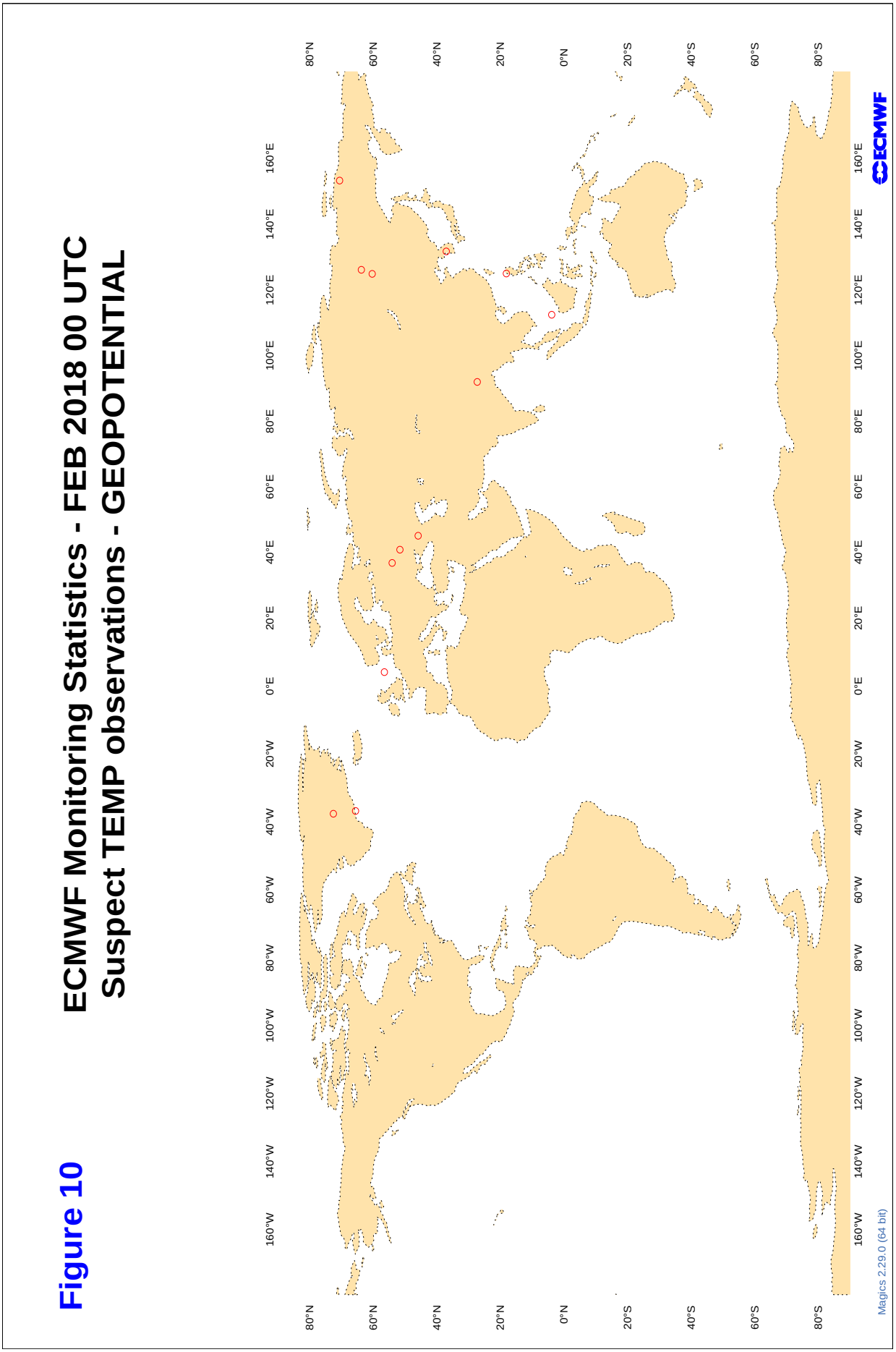
WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	UBIAS	VBIAS	RMS
42182	12	V	150	29	77	28	0	-14.1	-2.3	18.3
42182	00	V	100	29	77	17	0	-11.0	-2.0	15.1

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

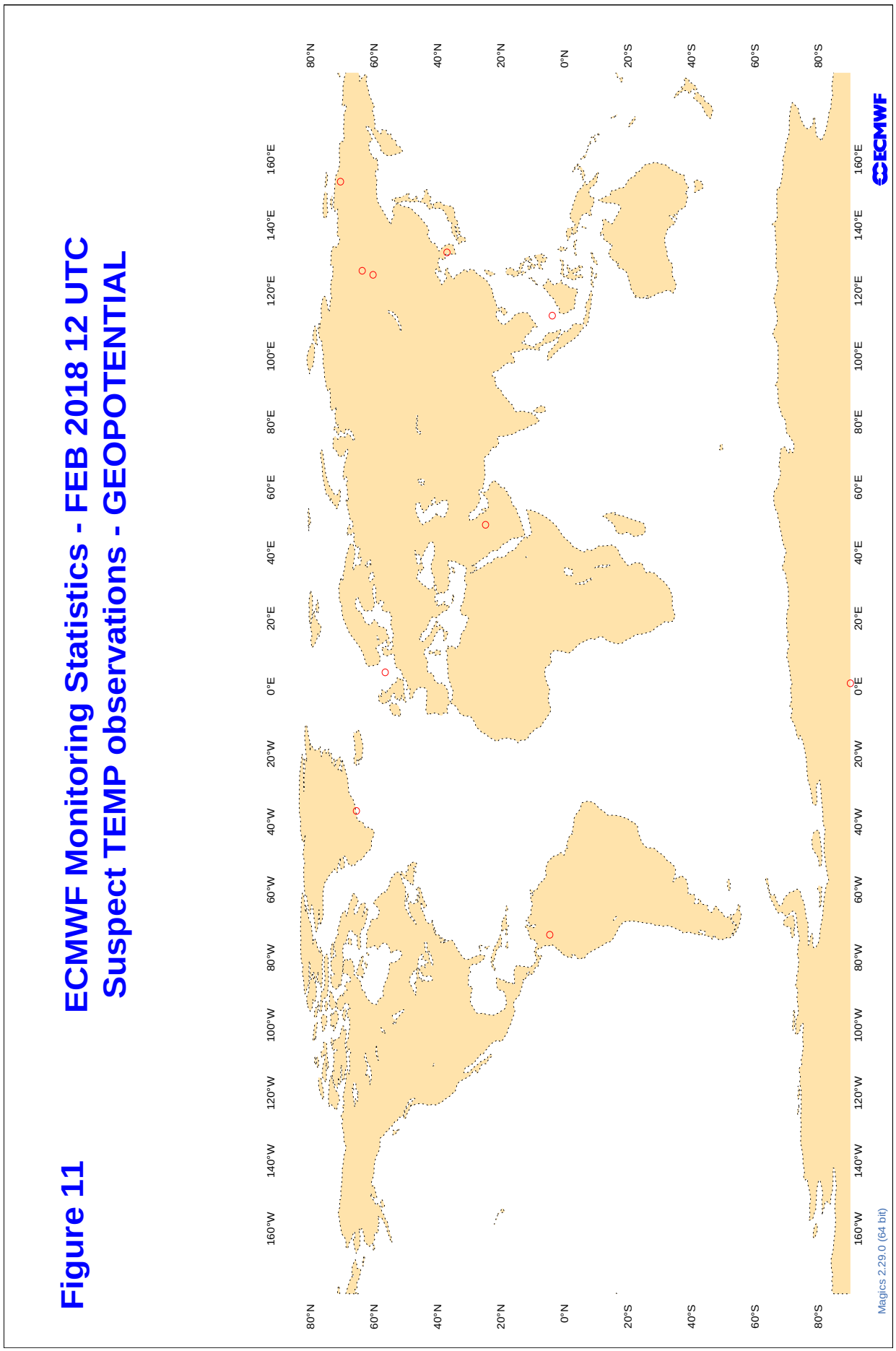
```
          LIST OF SUSPECT STATIONS        : RADIOSONDES
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
                    AREA                  : GLOBAL
                    PERIOD                : FEB 2018
                    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
57972	00	DD	26	113	28	10.1	0.8	3.7

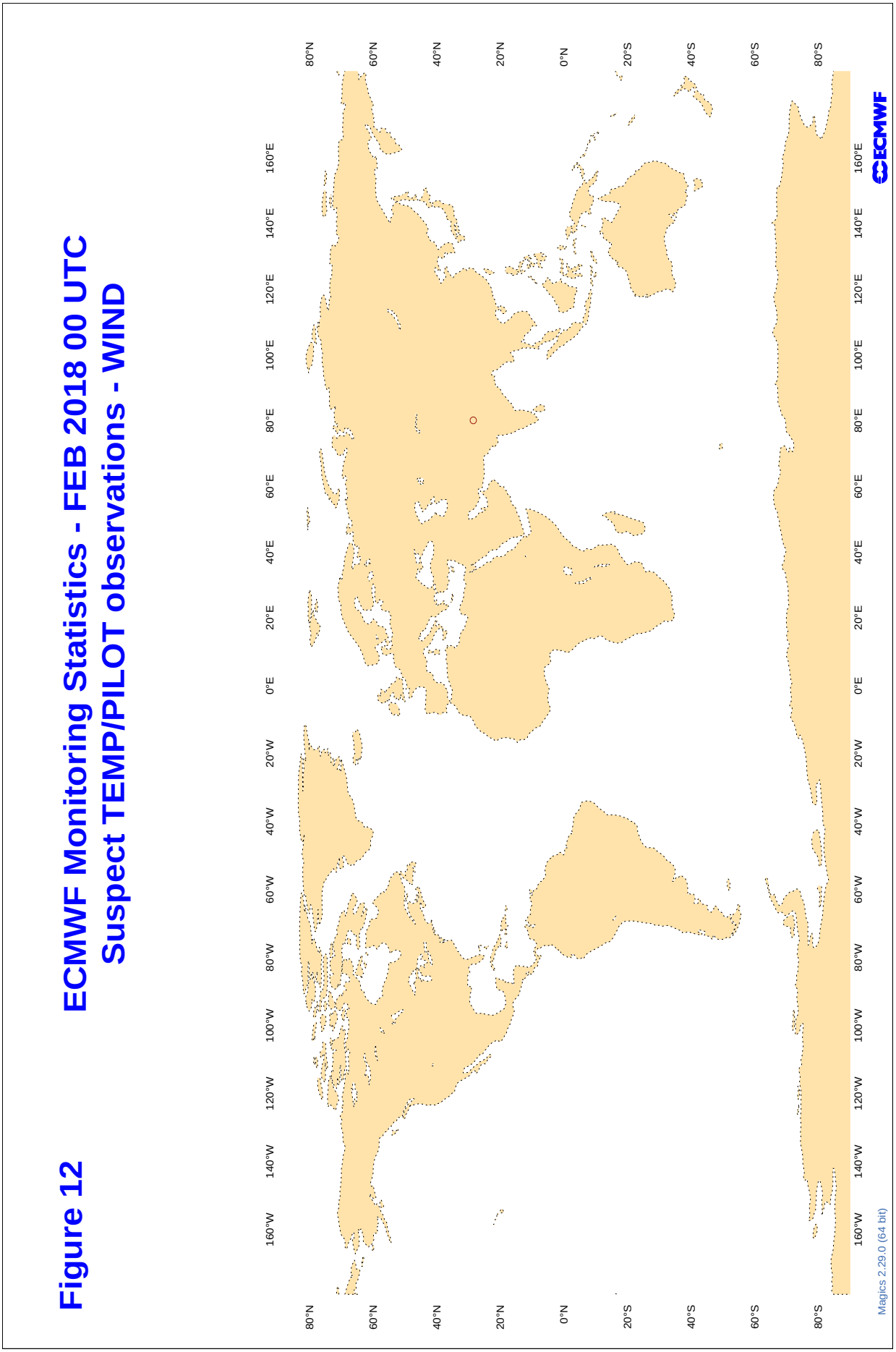
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



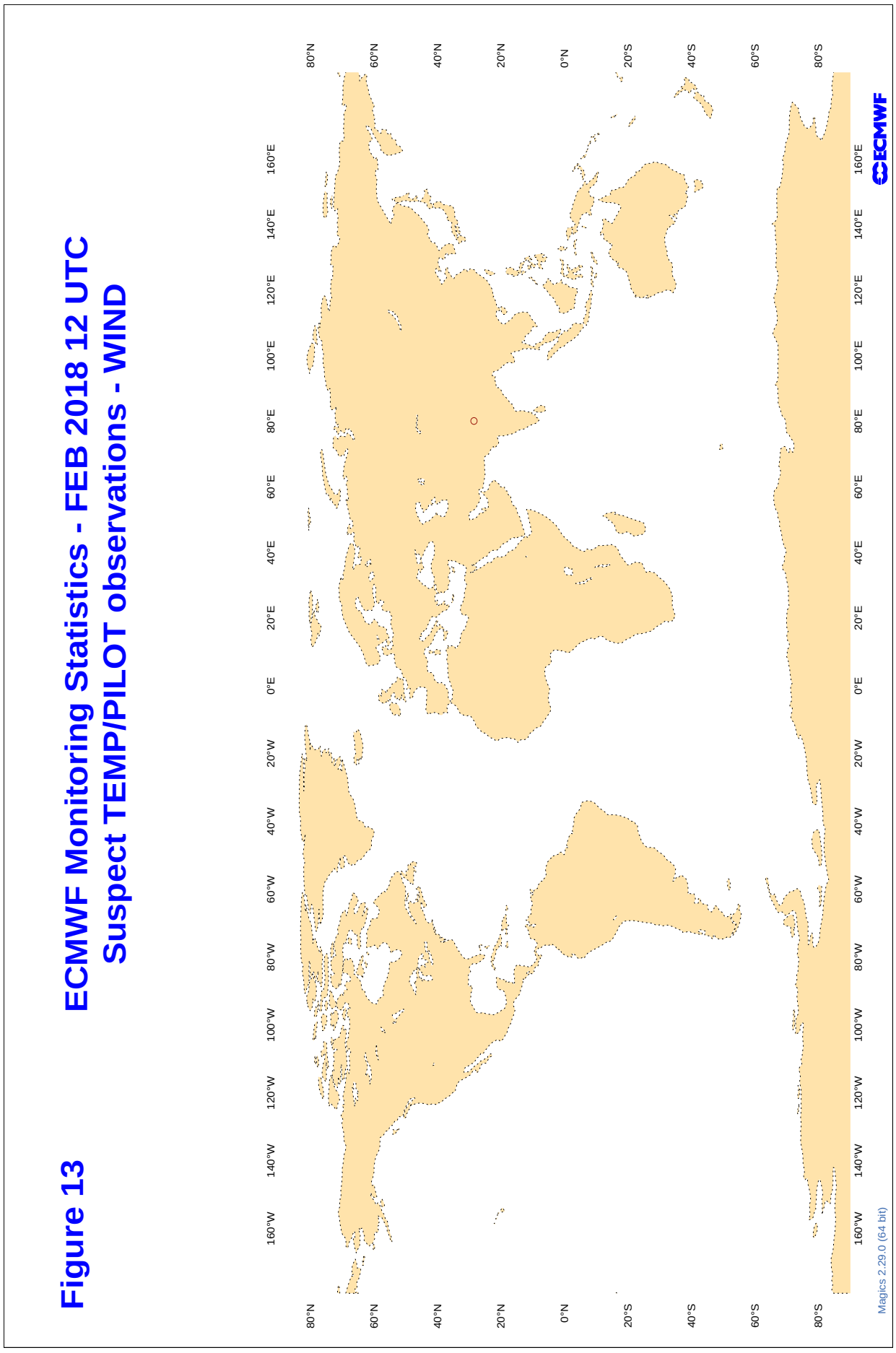
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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



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



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

```
RADIOSONDE MONITORING STATISTICS (SHIPS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 100 HPA
         AREA                  : GLOBAL
         PERIOD                : FEB 2018
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

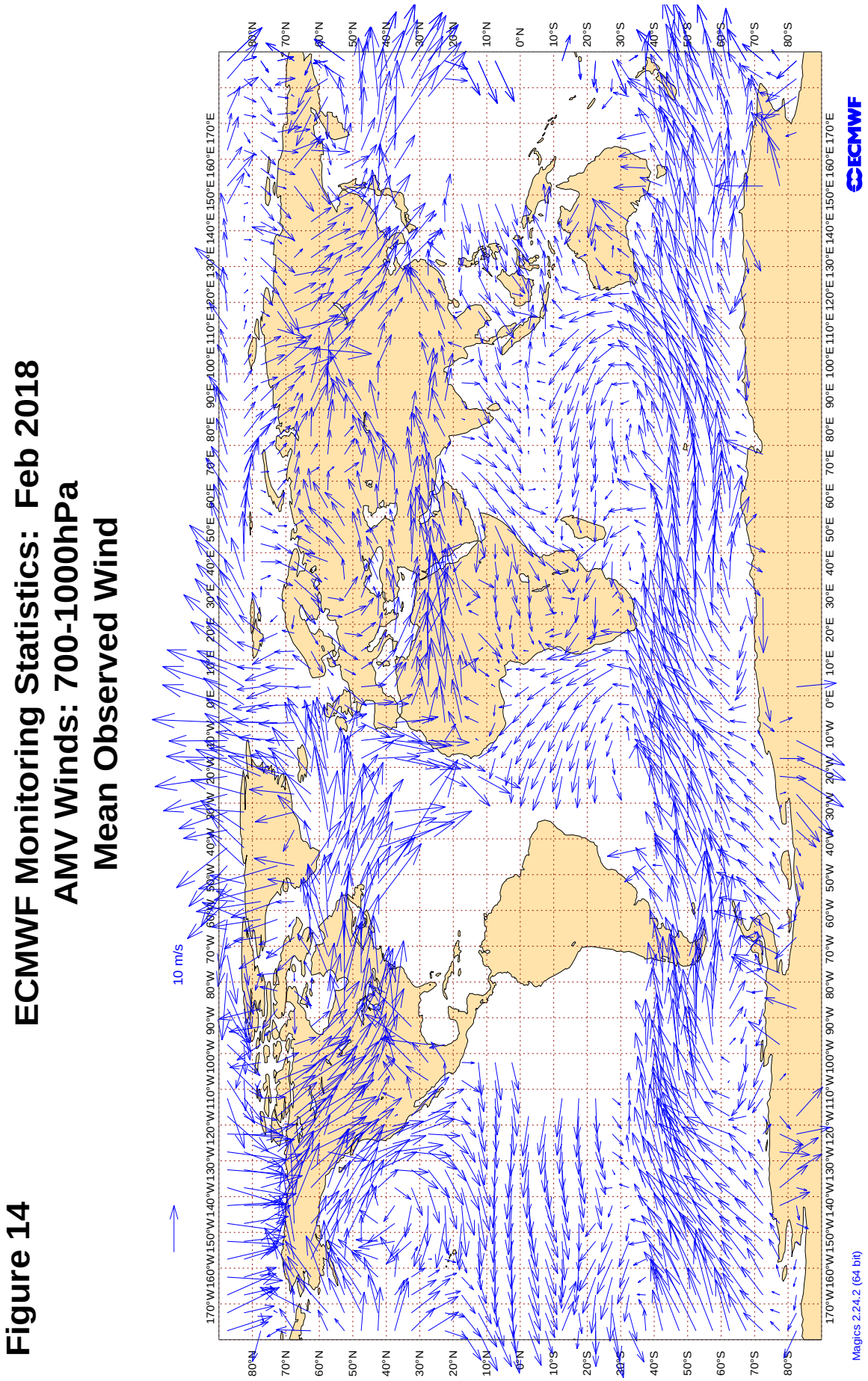
WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
5QPW8X	12	Z	100	14	34.3	31.4
5QPW8X	00	Z	100	9	28.2	24.8
7JUNA4	12	Z	100	1	11.1	11.1
ASDE09	00	Z	100	2	47.8	47.8
ASDE09	12	Z	100	5	58.7	53.7
ASFR1	00	Z	100	9	20.0	15.0
ASFR1	12	Z	100	7	27.9	26.9
ASFR2	12	Z	100	6	37.2	35.7
ASFR2	00	Z	100	8	32.5	31.8
ASFR3	12	Z	100	9	27.1	25.9
ASFR3	00	Z	100	10	28.7	28.1
ASFR4	00	Z	100	13	30.0	28.2
ASFR4	12	Z	100	9	36.4	34.9
ASUK02	12	Z	100	15	21.1	-15.3
DBLK	12	Z	100	32	10.9	7.8
FHM5UJ	12	Z	100	2	130.1	-80.0
FHM5UJ	00	Z	100	6	58.8	-21.8
FPUW5G	12	Z	100	4	3.4	-2.8
JGQH	00	Z	100	11	14.1	12.4
JGQH	12	Z	100	11	22.9	22.5
KMPLHP	12	Z	100	2	41.5	39.8
KMPLHP	00	Z	100	2	7.1	6.0
LRYQE3	12	Z	100	1	21.0	21.0
RCOSSE	12	Z	100	41	21.0	-15.1
RCOSSE	00	Z	100	35	18.8	-14.0
SOCR3	12	Z	100	34	21.3	-15.0
SOCR3	00	Z	100	31	19.3	-15.1
VKB4L5	00	Z	100	5	33.3	33.2
VKB4L5	12	Z	100	7	39.8	39.1
XQFJRG	00	Z	100	8	20.3	15.9
XQFJRG	12	Z	100	7	19.5	17.5
YLV96W	12	Z	100	6	78.2	48.7
YLV96W	00	Z	100	7	43.5	22.0
ZVQEQC	12	Z	100	18	30.3	5.2

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                : FEB 2018
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
5QPW8X	12	V	100	9	4.5	-1.9	1.3
5QPW8X	00	V	100	8	5.5	-2.6	1.0
7JUNA4	12	V	100	1	0.6	-0.4	-0.5
ASDE09	00	V	100	1	1.0	-1.0	0.1
ASDE09	12	V	100	3	3.5	0.7	1.0
ASFR1	00	V	100	7	5.2	1.4	-2.2
ASFR1	12	V	100	6	4.5	0.5	-0.7
ASFR2	12	V	100	6	3.2	1.1	-0.4
ASFR2	00	V	100	7	3.3	0.4	-0.7
ASFR3	12	V	100	9	2.6	-0.7	-0.5
ASFR3	00	V	100	10	2.4	0.1	-0.4
ASFR4	00	V	100	10	5.0	-0.2	2.0
ASFR4	12	V	100	9	4.8	0.5	-0.9
ASUK02	12	V	100	11	4.5	0.2	0.9
DBLK	12	V	100	28	2.5	-0.4	-0.4
FHM5UJ	12	V	100	2	3.0	0.0	1.6
FHM5UJ	00	V	100	4	3.7	0.9	2.0
FPUW5G	12	V	100	4	4.1	1.1	1.0
JGQH	00	V	100	4	8.3	2.7	-1.1
JGQH	12	V	100	5	7.5	0.6	0.7
KMPLHP	12	V	100	2	7.8	-5.6	-1.7
KMPLHP	00	V	100	2	4.1	0.5	-1.2
LRYQE3	12	V	100	1	3.1	1.9	-2.4
RCOSSE	12	V	100	20	3.0	0.3	0.3
RCOSSE	00	V	100	20	3.3	0.5	-0.4
SOCR3	12	V	100	20	3.3	0.5	0.0
SOCR3	00	V	100	19	3.3	0.4	-0.1
VKB4L5	00	V	100	4	5.1	3.4	-1.6
VKB4L5	12	V	100	6	5.1	1.9	-2.4
XQFJRG	00	V	100	5	4.0	-2.5	-0.3
XQFJRG	12	V	100	7	5.5	-1.4	0.4
YLV96W	12	V	100	5	5.8	-1.4	-0.1
YLV96W	00	V	100	6	4.1	0.3	-1.7
ZVQEQC	12	V	100	17	5.4	1.0	-0.1

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa



3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

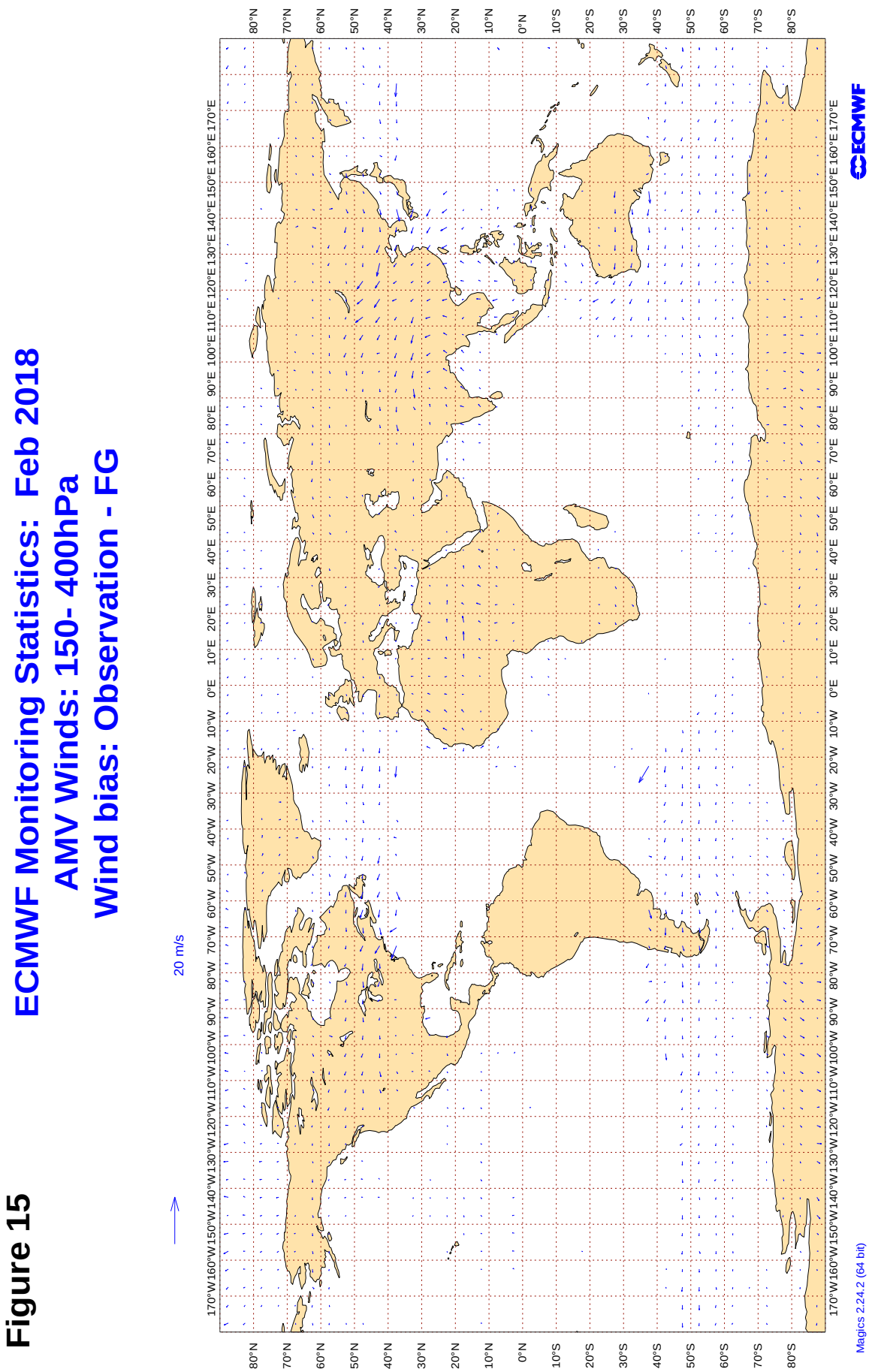


Figure 15

3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

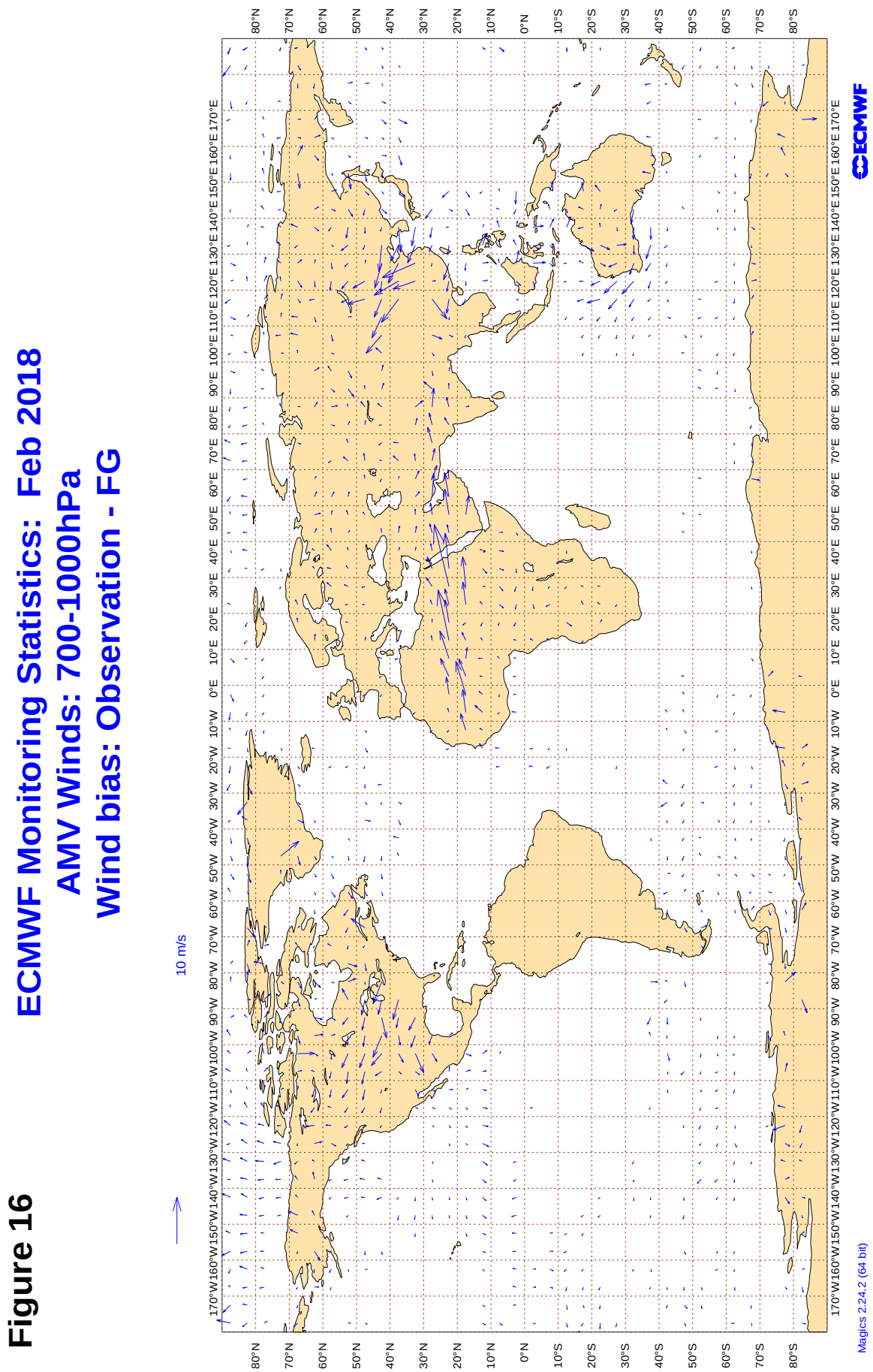


Figure 16

3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

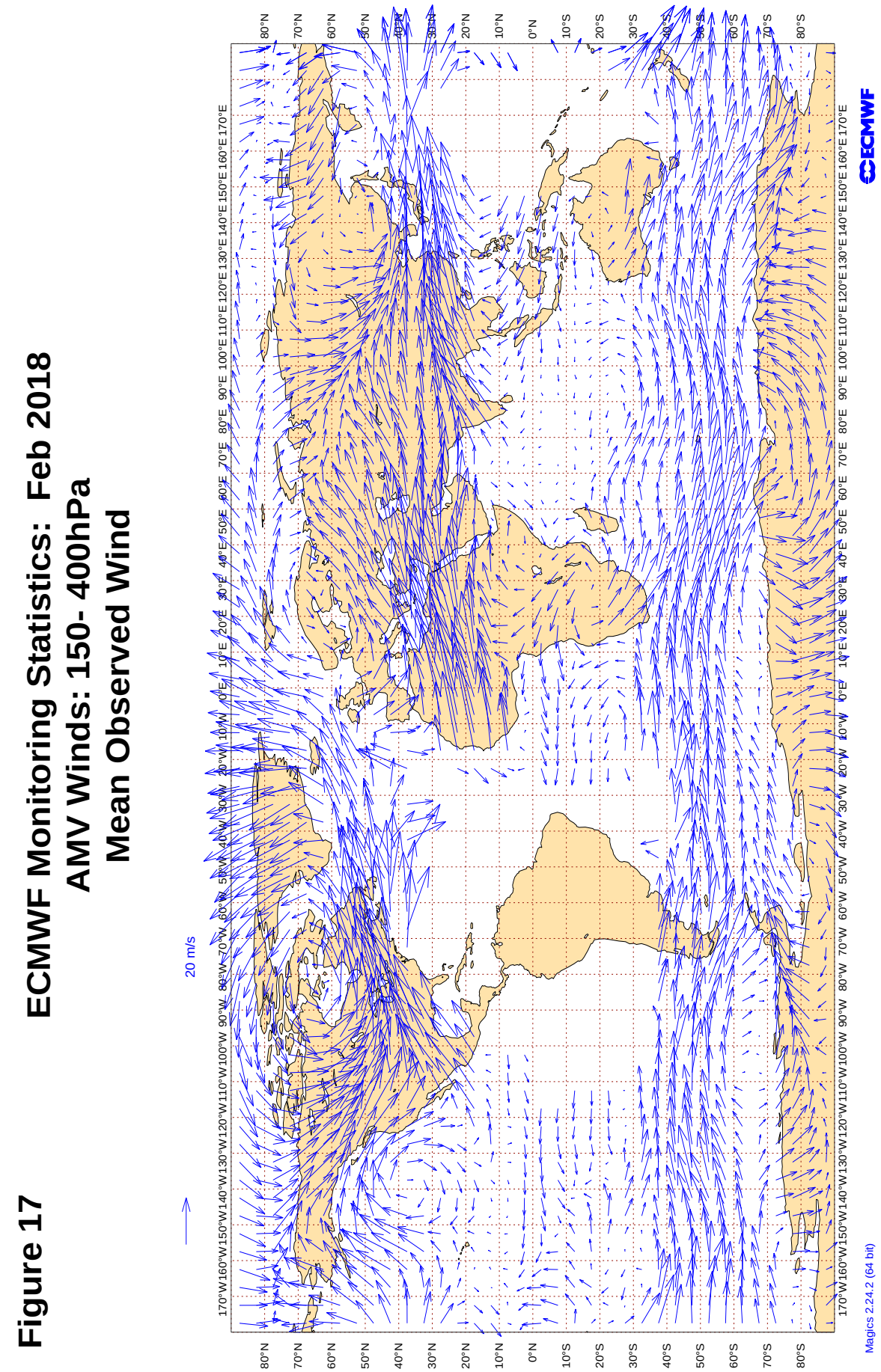


Figure 17

3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

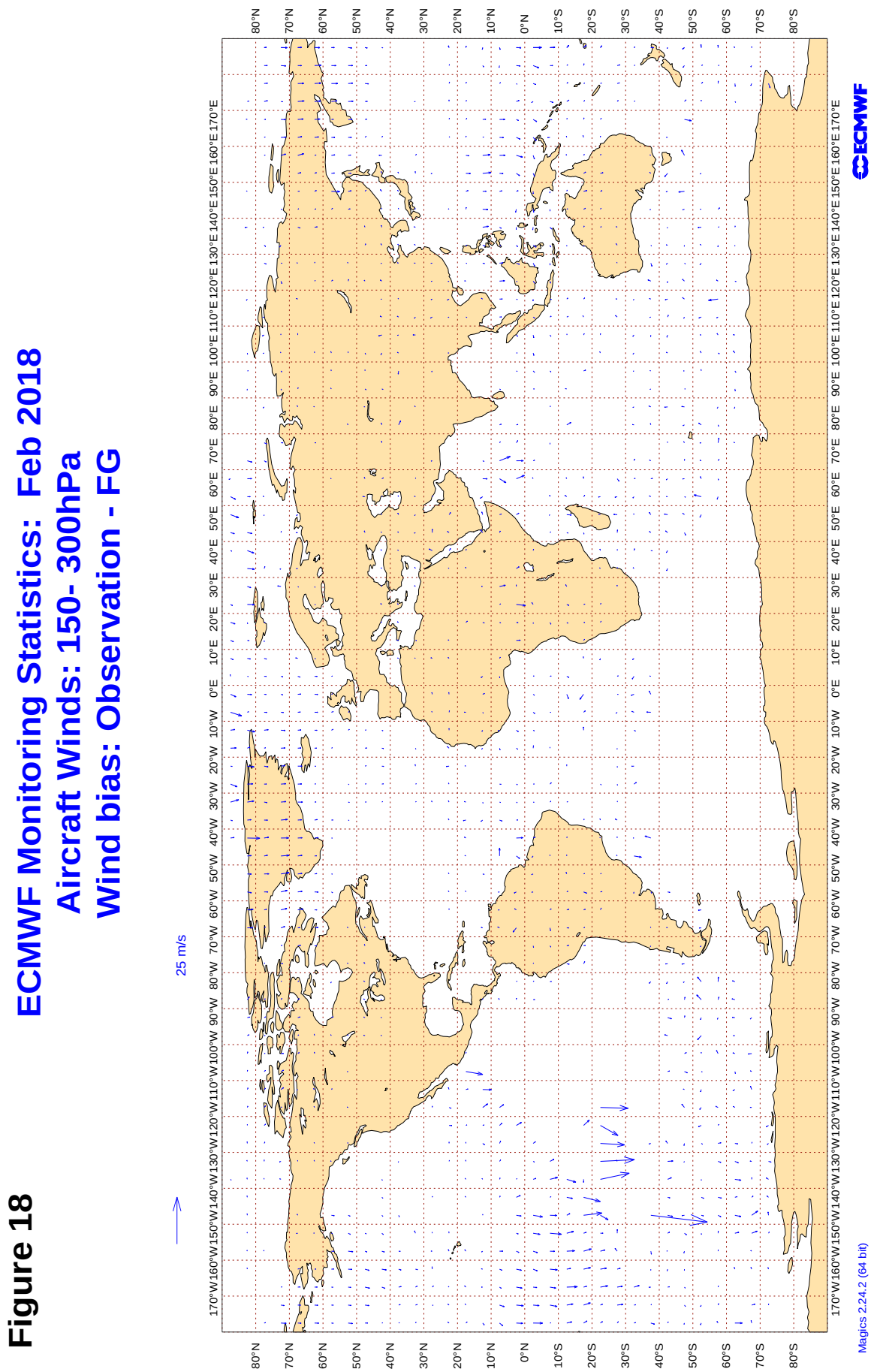


Figure 18

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 : FEB 2018
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	29	0	0	4.3	-1.3
AAL	99	V	300-150	31284	3	0	7.3	0.3
AAR	99	V	300-150	258	0	0	4.8	-1.2
ABD	99	V	300-150	258	0	0	4.3	-0.6
ABP	99	V	300-150	33	0	0	4.1	0.6
ABW	99	V	300-150	797	0	0	3.5	-0.6
ACA	99	V	300-150	19000	10	0	7.2	0.0
ACI	99	V	300-150	451	0	0	4.9	0.3
AEA	99	V	300-150	592	2	0	6.3	-0.2
AFL	99	V	300-150	2178	0	0	3.3	0.4
AFR	99	V	300-150	21864	2	0	4.6	0.2
AHO	99	V	300-150	23	0	0	3.0	0.9
AHY	99	V	300-150	164	34	0	12.2	-0.5
AIC	99	V	300-150	1948	5	0	5.3	0.2
ALK	99	V	300-150	1012	0	0	3.9	0.4
AMX	99	V	300-150	2404	15	0	10.0	-0.1
ANZ	99	V	300-150	15605	2	0	7.6	0.6
ASA	99	V	300-150	555	1	2	6.2	0.4
ASL	99	V	300-150	267	0	0	3.4	0.2
ASY	99	V	300-150	57	0	0	4.8	1.0
ATN	99	V	300-150	135	2	1	5.4	0.5
AUA	99	V	300-150	2581	0	0	4.3	-0.3
AVA	99	V	300-150	310	2	0	11.1	0.0
AXB	99	V	300-150	21	0	0	3.8	1.4
AXM	99	V	300-150	224	0	0	5.0	0.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AXY	99	V	300-150	22	0	0	2.7	1.2
AZA	99	V	300-150	3561	0	0	3.7	0.3
AZG	99	V	300-150	288	0	0	3.4	-0.2
BAF	99	V	300-150	21	0	0	4.9	1.4
BAW	99	V	300-150	44269	5	0	5.5	0.1
BBA	99	V	300-150	30	0	0	3.8	-0.7
BBC	99	V	300-150	76	0	0	4.5	1.0
BEL	99	V	300-150	1431	0	0	3.5	0.5
BLU	99	V	300-150	71	0	0	4.3	0.1
BMW	99	V	300-150	53	0	0	4.4	-0.1
BON	99	V	300-150	23	0	0	5.2	0.6
BOX	99	V	300-150	1227	0	0	3.4	0.1
BOX	99	V	300-150	34	0	0	3.7	0.8
BRK	99	V	300-150	34	0	0	9.9	-0.7
BWJ	99	V	300-150	77	0	0	8.6	2.1
CAF	99	V	300-150	39	0	0	4.5	-0.2
CAL	99	V	300-150	462	0	0	3.9	0.6
CAT	99	V	300-150	37	0	0	8.0	1.0
CAZ	99	V	300-150	51	0	0	3.7	0.1
CCA	99	V	300-150	408	3	0	8.8	0.4
CEB	99	V	300-150	75	0	0	4.2	0.7
CEF	99	V	300-150	26	0	0	3.0	0.2
CES	99	V	300-150	373	0	0	3.4	0.5
CFC	99	V	300-150	199	0	0	4.2	-0.4
CFG	99	V	300-150	4676	0	0	4.0	-0.4
CHH	99	V	300-150	175	0	0	3.5	0.5
CJT	99	V	300-150	288	0	0	4.4	0.3
CKS	99	V	300-150	1494	0	0	3.6	-0.2
CLU	99	V	300-150	313	0	0	3.7	-0.0
CLX	99	V	300-150	2820	0	0	3.8	-0.5
CMB	99	V	300-150	559	0	0	3.9	-0.1
CNV	99	V	300-150	238	0	0	4.1	0.3
CPA	99	V	300-150	1238	0	0	3.8	0.3
CRK	99	V	300-150	788	0	0	3.7	0.4
CRL	99	V	300-150	859	0	0	4.0	0.3
CRV	99	V	300-150	26	0	0	4.8	-0.2
CSC	99	V	300-150	182	0	0	3.3	0.1
CSN	99	V	300-150	973	1	0	6.8	0.5
DAH	99	V	300-150	538	0	0	3.6	0.3
DAL	99	V	300-150	40659	0	0	3.7	0.1
DCS	99	V	300-150	60	0	0	4.1	0.1
DHK	99	V	300-150	927	0	0	4.4	-0.4
DJT	99	V	300-150	1128	0	0	4.2	0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
DLH	99	V	300-150	24698	0	0	3.5	0.1
DSO	99	V	300-150	40	0	0	4.2	-1.6
EDC	99	V	300-150	25	8	0	20.1	-0.7
EDW	99	V	300-150	970	0	0	3.7	0.6
EIN	99	V	300-150	8972	0	0	3.6	0.2
EJM	99	V	300-150	308	0	0	3.9	0.3
ELY	99	V	300-150	2615	6	0	6.4	0.1
ETD	99	V	300-150	6969	3	0	5.0	0.2
ETH	99	V	300-150	2669	13	0	7.5	0.2
EVA	99	V	300-150	22	0	0	9.4	-0.9
EWG	99	V	300-150	1891	0	0	3.7	0.3
FDX	99	V	300-150	4278	0	0	3.6	0.2
FIN	99	V	300-150	1068	0	0	3.3	0.3
FJI	99	V	300-150	1041	0	1	5.6	1.0
FWI	99	V	300-150	1897	0	0	3.6	0.3
FYG	99	V	300-150	49	0	0	3.6	-0.2
GAF	99	V	300-150	26	0	0	4.0	0.6
GAJ	99	V	300-150	21	0	0	3.3	-0.6
GCK	99	V	300-150	34	0	0	4.0	0.2
GCR	99	V	300-150	147	0	0	3.4	0.5
GEC	99	V	300-150	1988	0	0	3.5	-0.0
GES	99	V	300-150	77	27	0	8.5	0.0
GFA	99	V	300-150	520	0	0	4.0	0.2
GIA	99	V	300-150	434	0	0	3.8	0.2
GOL	99	V	300-150	39	0	0	4.8	0.1
GTH	99	V	300-150	53	0	0	3.6	-0.2
GTI	99	V	300-150	2812	0	0	4.0	-0.3
GZP	99	V	300-150	28	0	0	3.9	-0.7
HAG	99	V	300-150	58	0	0	4.8	-1.1
HAL	99	V	300-150	1012	0	0	5.2	1.4
HRT	99	V	300-150	35	89	0	23.2	-0.5
HZM	99	V	300-150	50	0	0	4.0	-0.1
HZS	99	V	300-150	20	0	0	2.6	-0.3
HZS	99	V	300-150	41	0	0	3.8	0.0
IAM	99	V	300-150	104	0	0	5.1	-1.5
IBE	99	V	300-150	1585	0	0	3.7	0.4
IBK	99	V	300-150	173	0	3	3.7	0.4
ICE	99	V	300-150	112	0	4	5.5	-0.9
ICL	99	V	300-150	580	0	0	4.6	-0.2
ICV	99	V	300-150	198	0	0	4.1	-0.6
IFA	99	V	300-150	22	100	0	0.0	0.0
IJM	99	V	300-150	80	0	0	4.5	0.6
ISS	99	V	300-150	266	0	0	4.3	-0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
JAF	99	V	300-150	858	8	0	9.5	-0.3
JAI	99	V	300-150	1491	0	0	3.6	0.1
JAS	99	V	300-150	132	0	0	3.8	-0.1
JJA	99	V	300-150	43	0	2	6.9	0.6
JME	99	V	300-150	109	0	0	4.4	0.9
JST	99	V	300-150	68	0	1	10.9	0.5
KAC	99	V	300-150	1496	0	0	4.0	0.5
KAI	99	V	300-150	77	0	0	5.4	0.2
KAL	99	V	300-150	462	0	0	3.8	0.4
KAY	99	V	300-150	72	0	0	4.7	0.2
KCE	99	V	300-150	37	0	0	3.9	0.0
KIW	99	V	300-150	65	0	0	5.0	0.3
KLM	99	V	300-150	14542	4	0	5.0	-0.0
KQA	99	V	300-150	133	5	0	9.4	0.1
LAN	99	V	300-150	2134	12	0	11.2	0.3
LCO	99	V	300-150	121	0	0	3.6	-0.3
LDM	99	V	300-150	28	0	0	4.1	0.6
LEA	99	V	300-150	58	0	0	3.0	-0.7
LNI	99	V	300-150	174	0	0	3.8	-0.0
LNX	99	V	300-150	48	0	0	3.8	-0.3
LOT	99	V	300-150	2067	27	0	12.5	-0.3
LXG	99	V	300-150	25	0	0	3.8	-0.9
LXJ	99	V	300-150	149	0	0	4.0	0.3
MAS	99	V	300-150	725	0	0	4.1	0.4
MAU	99	V	300-150	50	0	0	5.0	0.7
MLM	99	V	300-150	82	0	0	3.5	0.4
MMD	99	V	300-150	315	0	0	3.4	0.4
MPH	99	V	300-150	607	0	0	4.0	-0.6
MSR	99	V	300-150	1266	0	0	3.8	0.3
NAR	99	V	300-150	31	0	0	3.8	0.6
NAX	99	V	300-150	11429	19	0	10.0	-0.1
NCA	99	V	300-150	261	1	0	4.0	-0.5
NJE	99	V	300-150	320	0	0	3.8	0.3
NOS	99	V	300-150	668	1	0	6.6	-1.0
NRS	99	V	300-150	38	18	0	4.6	-0.1
NWS	99	V	300-150	401	0	0	3.5	0.7
OAE	99	V	300-150	821	0	0	4.3	-0.1
OLI	99	V	300-150	55	0	0	3.9	0.3
OMA	99	V	300-150	692	4	0	4.7	0.8
PAC	99	V	300-150	104	0	0	3.7	0.4
PAL	99	V	300-150	945	0	0	4.5	0.2
PAT	99	V	300-150	46	0	0	5.4	-0.4
PIA	99	V	300-150	256	0	0	3.5	-0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
PRD	99	V	300-150	22	0	0	3.3	1.0
QAF	99	V	300-150	35	0	0	4.1	2.0
QFA	99	V	300-150	5648	1	0	7.1	0.7
QQE	99	V	300-150	66	0	0	4.7	-0.5
QTR	99	V	300-150	13213	0	0	3.9	0.2
RAM	99	V	300-150	219	7	0	12.6	0.0
RBA	99	V	300-150	177	6	0	5.0	0.5
RCH	99	V	300-150	4445	0	0	4.7	0.4
RDN	99	V	300-150	30	0	0	2.9	-0.2
REN	99	V	300-150	42	0	0	4.1	1.1
RJA	99	V	300-150	990	21	0	10.2	-0.0
RMA	99	V	300-150	55	0	0	3.7	0.2
ROJ	99	V	300-150	67	34	0	3.1	-0.0
ROU	99	V	300-150	146	0	3	4.1	-0.3
RRR	99	V	300-150	247	0	0	3.6	-0.0
SAM	99	V	300-150	124	0	0	3.2	0.4
SAS	99	V	300-150	4017	0	0	3.3	0.2
SDM	99	V	300-150	178	0	0	3.6	-0.2
SEY	99	V	300-150	25	0	0	5.6	0.8
SHE	99	V	300-150	132	0	0	4.4	0.7
SIA	99	V	300-150	2661	0	0	3.7	0.2
SIO	99	V	300-150	25	0	0	2.5	-0.1
SLM	99	V	300-150	148	0	0	3.2	0.4
SOO	99	V	300-150	634	0	0	3.7	-0.0
SPA	99	V	300-150	78	0	0	3.4	-0.0
SQC	99	V	300-150	516	0	0	4.5	-0.6
SSG	99	V	300-150	55	0	0	3.5	0.2
SVA	99	V	300-150	4834	3	0	4.9	0.3
SVW	99	V	300-150	157	0	0	4.0	0.1
SWR	99	V	300-150	9276	0	0	3.6	0.4
SXN	99	V	300-150	68	0	0	4.2	0.8
TAM	99	V	300-150	256	0	0	3.0	0.6
TAP	99	V	300-150	1150	0	0	4.0	0.5
TAR	99	V	300-150	146	0	0	3.0	0.3
TAY	99	V	300-150	684	0	0	4.3	-0.0
TBJ	99	V	300-150	23	0	0	4.1	-0.4
TCX	99	V	300-150	2049	0	0	3.7	0.2
TFL	99	V	300-150	1710	11	0	9.3	0.2
TGW	99	V	300-150	85	5	0	3.8	1.0
THA	99	V	300-150	426	3	0	8.9	0.2
THT	99	V	300-150	3280	0	0	4.7	1.0
THY	99	V	300-150	7561	0	0	3.7	0.2
TMN	99	V	300-150	70	0	11	5.0	0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
TOM	99	V	300-150	4441	11	0	10.5	-0.1
TOW	99	V	300-150	66	0	0	3.5	0.8
TRE	99	V	300-150	22	0	0	5.7	2.2
TSC	99	V	300-150	2867	0	0	3.7	0.2
TVP	99	V	300-150	88	0	0	4.1	0.9
TWB	99	V	300-150	50	2	2	6.9	-0.0
TWY	99	V	300-150	86	0	0	3.4	0.9
UAE	99	V	300-150	15388	0	0	3.9	0.2
UAF	99	V	300-150	48	0	0	4.5	0.5
UAL	99	V	300-150	51804	2	2	5.8	0.2
ULC	99	V	300-150	122	0	0	3.5	0.4
UPS	99	V	300-150	3493	0	0	4.0	-0.1
UZB	99	V	300-150	71	38	0	11.5	0.2
VCN	99	V	300-150	44	0	0	4.4	-0.6
VIR	99	V	300-150	14393	4	0	5.2	0.0
VJT	99	V	300-150	776	45	0	14.9	0.0
VKG	99	V	300-150	628	0	0	3.6	0.5
VOZ	99	V	300-150	888	0	0	4.7	0.8
WJA	99	V	300-150	2697	0	0	5.1	0.2
WOW	99	V	300-150	1634	0	0	3.2	0.1
WWI	99	V	300-150	33	0	0	3.8	1.2
XAX	99	V	300-150	584	0	0	3.8	0.3
XLF	99	V	300-150	969	0	0	3.7	0.5
XRO	99	V	300-150	47	0	0	4.4	-0.8

4 EUCOS Area Monitoring Statistics

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

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

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

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 :  50 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : FEB 2018
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	44	18.9	4.0
01001	00	Z	50	23	18.4	-0.8
01028	12	Z	50	50	15.4	10.0
01028	00	Z	50	23	10.2	5.3
01400	00	Z	50	20	85.4	75.7
01400	12	Z	50	20	91.7	87.2
01415	00	Z	50	28	23.6	20.9
01415	12	Z	50	28	27.0	20.2
02365	12	Z	50	20	24.0	19.2
02365	00	Z	50	14	22.5	15.7
02591	12	Z	50	24	23.3	21.2
02591	00	Z	50	20	20.9	16.8
02836	00	Z	50	23	16.0	11.5
02836	12	Z	50	28	19.5	15.5
02963	00	Z	50	26	20.7	17.8
02963	12	Z	50	27	23.8	20.1
03005	00	Z	50	28	18.7	13.9
03005	12	Z	50	28	21.7	16.5
03238	00	Z	50	27	22.4	16.6
03238	12	Z	50	3	14.1	11.4
03808	12	Z	50	27	20.1	17.6
03808	00	Z	50	26	23.9	13.9
03918	12	Z	50	4	25.1	21.8
03918	00	Z	50	28	23.0	20.1
03953	12	Z	50	28	28.3	21.5
03953	00	Z	50	23	28.3	20.4
04018	12	Z	50	42	22.9	2.2
04018	00	Z	50	47	38.0	-0.8
04220	00	Z	50	28	13.8	0.3
04220	12	Z	50	28	11.4	1.0
04270	12	Z	50	27	52.1	11.3
04270	00	Z	50	28	39.8	7.3
04320	12	Z	50	27	34.1	-5.3
04320	00	Z	50	26	20.7	6.4
04339	12	Z	50	21	21.6	-1.1
04339	00	Z	50	25	33.4	-10.9
04360	12	Z	50	9	49.4	45.3
04360	00	Z	50	9	40.8	30.1
06011	12	Z	50	25	29.9	21.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	50	28	34.1	20.4
06260	00	Z	50	28	18.6	16.3
06260	12	Z	50	5	15.0	13.2
06610	00	Z	50	26	13.1	7.4
06610	12	Z	50	24	18.1	12.9
07110	12	Z	50	27	43.4	41.1
07110	00	Z	50	27	38.6	37.3
07510	00	Z	50	27	50.0	47.8
07510	12	Z	50	27	61.4	59.9
07645	00	Z	50	27	27.8	25.4
07645	12	Z	50	28	28.9	26.0
07761	00	Z	50	24	40.6	37.4
07761	12	Z	50	26	50.1	49.1
08001	00	Z	50	24	23.5	21.4
08001	12	Z	50	26	34.9	33.0
08221	00	Z	50	27	18.7	16.9
08221	12	Z	50	28	21.2	19.6
08302	12	Z	50	28	12.6	9.3
08302	00	Z	50	28	14.6	11.4
08508	12	Z	50	27	22.2	20.7
08522	12	Z	50	25	37.0	32.9
08579	12	Z	50	28	35.5	33.1
10035	12	Z	50	28	29.3	27.2
10035	00	Z	50	27	29.9	29.0
10393	12	Z	50	28	15.1	13.1
10393	00	Z	50	28	15.7	13.5
10410	00	Z	50	27	16.5	14.7
10410	12	Z	50	28	14.6	13.1
10739	12	Z	50	28	14.7	11.3
10739	00	Z	50	28	14.7	13.7
11035	12	Z	50	28	19.7	18.1
11035	00	Z	50	28	19.2	17.7
12982	12	Z	50	27	36.9	35.7
12982	00	Z	50	27	64.5	16.5
16080	12	Z	50	28	18.1	15.3
16080	00	Z	50	28	13.7	6.9
16245	00	Z	50	27	14.2	11.1
16245	12	Z	50	27	20.9	18.3
16320	12	Z	50	26	19.2	15.8
16320	00	Z	50	25	18.2	13.8
16429	12	Z	50	27	49.8	22.8
16429	00	Z	50	28	14.9	11.2
16622	00	Z	50	19	22.9	15.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	50	24	23.3	19.6
17607	12	Z	50	27	26.6	24.9
26435	00	Z	50	12	17.6	12.5
5QPW8X	12	Z	50	9	54.5	46.3
5QPW8X	00	Z	50	8	44.2	35.0
60018	12	Z	50	27	22.1	18.4
60018	00	Z	50	27	20.3	18.3
7JUNA4	12	Z	50	0	0.0	0.0
ASDE09	00	Z	50	0	0.0	0.0
ASDE09	12	Z	50	2	53.2	50.7
ASFR1	00	Z	50	5	36.4	36.1
ASFR1	12	Z	50	5	42.8	38.8
ASFR2	12	Z	50	5	56.5	54.4
ASFR2	00	Z	50	7	54.5	54.1
ASFR3	12	Z	50	9	45.2	44.6
ASFR3	00	Z	50	9	47.3	46.5
ASFR4	00	Z	50	10	46.5	45.9
ASFR4	12	Z	50	8	55.3	53.7
ASUK02	12	Z	50	8	12.3	-2.8
FHM5UJ	12	Z	50	2	120.2	-70.2
FHM5UJ	00	Z	50	3	76.0	-14.2
FPUW5G	12	Z	50	4	8.4	4.9
KMPLHP	12	Z	50	2	79.1	78.9
KMPLHP	00	Z	50	2	15.6	13.5
LRYQE3	12	Z	50	1	34.0	34.0
VKB4L5	00	Z	50	2	39.6	39.0
VKB4L5	12	Z	50	5	52.9	52.4
XQFJRG	00	Z	50	5	36.7	27.5
XQFJRG	12	Z	50	7	47.7	44.8
YLV96W	12	Z	50	2	76.7	74.8
YLV96W	00	Z	50	3	14.6	12.4
ZVQEQC	12	Z	50	16	31.2	12.6

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                : FEB 2018
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	23	4.6	0.0	-0.6
01001	00	V	50	22	4.3	-0.7	-0.4
01028	12	V	50	24	5.7	-0.5	-2.3
01028	00	V	50	21	4.1	-0.8	-0.4
01400	00	V	50	20	3.8	-0.3	0.1
01400	12	V	50	18	3.9	1.5	0.3
01415	00	V	50	28	3.8	0.0	-0.3
01415	12	V	50	28	4.1	-0.1	0.2
02365	12	V	50	16	3.7	-0.7	-0.1
02365	00	V	50	12	3.2	-0.5	-0.5
02591	12	V	50	24	2.9	-0.3	-1.2
02591	00	V	50	15	3.0	-0.2	0.3
02836	00	V	50	22	3.1	-0.5	-1.3
02836	12	V	50	28	3.9	-0.4	0.2
02963	00	V	50	17	3.8	0.6	0.5
02963	12	V	50	24	2.8	-0.9	0.2
03005	00	V	50	26	4.0	-0.8	0.5
03005	12	V	50	27	3.9	-0.4	0.4
03238	00	V	50	25	3.8	0.2	-0.4
03238	12	V	50	2	4.6	3.6	-1.9
03808	12	V	50	27	3.5	-0.4	0.4
03808	00	V	50	26	3.5	0.1	0.3
03918	12	V	50	4	4.3	2.2	-0.8
03918	00	V	50	28	4.8	0.1	-0.3
03953	12	V	50	28	3.3	0.0	-0.1
03953	00	V	50	23	3.5	-0.6	0.2
04018	12	V	50	23	5.1	-0.3	-1.1
04018	00	V	50	24	6.8	0.2	-1.4
04220	00	V	50	27	5.5	-1.4	0.5
04220	12	V	50	28	5.0	-1.8	1.6
04270	12	V	50	26	8.8	-0.8	0.3
04270	00	V	50	28	7.9	-0.9	2.5
04320	12	V	50	27	6.1	-2.0	0.0
04320	00	V	50	26	5.1	-1.0	0.1
04339	12	V	50	21	6.6	-0.8	1.3
04339	00	V	50	25	7.5	-1.0	2.5
04360	12	V	50	9	6.4	-1.9	-1.0
04360	00	V	50	9	4.9	-1.0	0.3
06011	12	V	50	25	5.0	-0.8	1.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	50	28	4.6	-0.9	-0.6
06260	00	V	50	27	3.5	0.7	0.3
06260	12	V	50	5	4.6	3.1	-1.0
06610	00	V	50	26	3.6	0.7	0.4
06610	12	V	50	24	4.3	2.0	-0.6
07110	12	V	50	27	3.3	0.4	0.2
07110	00	V	50	27	3.6	0.2	-0.7
07510	00	V	50	27	4.2	0.8	1.1
07510	12	V	50	27	2.9	0.9	0.4
07645	00	V	50	27	4.2	1.2	0.3
07645	12	V	50	28	4.2	0.9	-0.3
07761	00	V	50	23	3.8	0.9	0.0
07761	12	V	50	26	4.0	0.2	-1.0
08001	00	V	50	21	3.5	-0.6	0.1
08001	12	V	50	23	4.2	0.2	0.2
08221	00	V	50	27	3.0	0.3	-0.2
08221	12	V	50	28	4.3	1.5	-0.2
08302	12	V	50	28	3.9	1.4	-0.3
08302	00	V	50	28	3.6	0.3	0.7
08508	12	V	50	27	3.6	-0.3	0.5
08522	12	V	50	25	4.0	0.9	0.8
08579	12	V	50	26	3.3	0.4	-0.2
10035	12	V	50	28	3.0	-0.5	0.0
10035	00	V	50	27	3.5	1.1	0.3
10393	12	V	50	28	3.2	0.6	0.7
10393	00	V	50	28	2.8	-0.2	0.4
10410	00	V	50	27	3.6	0.3	0.2
10410	12	V	50	28	2.8	0.2	0.3
10739	12	V	50	28	3.5	1.1	0.0
10739	00	V	50	28	4.3	0.7	0.6
11035	12	V	50	28	3.0	1.0	-0.5
11035	00	V	50	28	4.4	0.1	0.6
12982	12	V	50	27	2.7	1.6	0.0
12982	00	V	50	27	2.9	0.9	1.1
16080	12	V	50	28	3.4	0.7	-0.4
16080	00	V	50	28	3.4	0.7	0.1
16245	00	V	50	27	3.7	1.2	0.7
16245	12	V	50	27	3.8	0.9	-0.7
16320	12	V	50	26	3.5	1.0	0.0
16320	00	V	50	23	2.9	0.7	0.4
16429	12	V	50	27	3.8	0.0	0.9
16429	00	V	50	28	4.5	1.2	1.3
16622	00	V	50	16	4.8	0.7	0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	50	19	4.2	0.5	1.0
17607	12	V	50	16	3.9	-0.2	0.3
26435	00	V	50	9	3.5	-0.4	-0.4
5QPW8X	12	V	50	8	5.4	-2.5	1.1
5QPW8X	00	V	50	8	6.0	-2.1	3.3
60018	12	V	50	27	4.4	0.5	0.6
60018	00	V	50	27	4.0	0.9	-0.4
7JUNA4	12	V	50	0	0.0	0.0	0.0
ASDE09	00	V	50	0	0.0	0.0	0.0
ASDE09	12	V	50	2	3.4	-0.3	0.7
ASFR1	00	V	50	5	4.4	0.0	0.1
ASFR1	12	V	50	5	7.3	-0.2	-0.2
ASFR2	12	V	50	5	3.8	0.6	-0.3
ASFR2	00	V	50	7	4.0	0.0	-1.4
ASFR3	12	V	50	9	2.9	0.3	0.2
ASFR3	00	V	50	9	2.7	-0.2	0.2
ASFR4	00	V	50	10	3.8	1.1	1.6
ASFR4	12	V	50	8	3.5	-0.2	-0.2
ASUK02	12	V	50	7	5.9	-0.2	-0.2
FHM5UJ	12	V	50	2	1.6	0.8	-0.1
FHM5UJ	00	V	50	3	4.7	1.9	0.2
FPUW5G	12	V	50	4	3.6	-1.7	0.5
KMPLHP	12	V	50	2	4.8	0.9	-4.7
KMPLHP	00	V	50	2	4.5	2.9	1.7
LRYQE3	12	V	50	1	1.3	-0.7	-1.1
VKB4L5	00	V	50	0	0.0	0.0	0.0
VKB4L5	12	V	50	3	5.1	2.7	1.6
XQFJRG	00	V	50	5	4.6	-1.6	-0.9
XQFJRG	12	V	50	7	4.1	-0.3	-2.9
YLV96W	12	V	50	2	4.9	-1.0	4.6
YLV96W	00	V	50	3	4.4	0.4	3.2
ZVQEQC	12	V	50	16	5.4	1.2	1.0

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                : FEB 2018
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	48	9.3	0.2
01001	00	Z	100	26	9.6	-2.6
01028	12	Z	100	56	6.8	-1.3
01028	00	Z	100	28	8.5	-3.9
01400	00	Z	100	21	67.4	58.1
01400	12	Z	100	21	76.8	73.8
01415	00	Z	100	28	12.7	8.7
01415	12	Z	100	28	11.8	7.4
02365	12	Z	100	27	7.5	5.4
02365	00	Z	100	26	10.0	4.4
02591	12	Z	100	26	10.7	9.7
02591	00	Z	100	26	9.1	6.0
02836	00	Z	100	26	9.1	2.0
02836	12	Z	100	28	7.2	3.6
02963	00	Z	100	28	7.3	4.5
02963	12	Z	100	28	8.3	6.0
03005	00	Z	100	30	7.0	1.3
03005	12	Z	100	31	7.1	4.0
03238	00	Z	100	28	7.2	3.3
03238	12	Z	100	3	5.5	4.1
03808	12	Z	100	28	7.8	4.8
03808	00	Z	100	29	9.7	4.3
03918	12	Z	100	4	14.4	11.4
03918	00	Z	100	28	12.6	10.1
03953	12	Z	100	28	13.1	6.5
03953	00	Z	100	26	13.5	3.1
04018	12	Z	100	23	17.6	-3.4
04018	00	Z	100	24	21.7	-11.8
04220	00	Z	100	28	6.5	-1.2
04220	12	Z	100	28	7.9	-1.4
04270	12	Z	100	27	26.4	4.7
04270	00	Z	100	28	22.1	1.0
04320	12	Z	100	27	29.3	-9.5
04320	00	Z	100	26	12.4	2.7
04339	12	Z	100	22	19.2	-9.9
04339	00	Z	100	27	17.6	-5.2
04360	12	Z	100	16	37.6	34.7
04360	00	Z	100	15	31.4	27.3
06011	12	Z	100	26	17.7	10.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	100	28	25.0	11.9
06260	00	Z	100	28	7.7	4.1
06260	12	Z	100	5	8.8	4.3
06610	00	Z	100	28	9.3	-0.5
06610	12	Z	100	28	8.7	2.9
07110	12	Z	100	28	25.6	24.3
07110	00	Z	100	27	22.2	20.4
07510	00	Z	100	28	30.1	28.6
07510	12	Z	100	28	41.8	40.4
07645	00	Z	100	27	13.7	10.9
07645	12	Z	100	28	15.5	13.1
07761	00	Z	100	24	24.7	22.2
07761	12	Z	100	27	32.5	31.7
08001	00	Z	100	28	10.3	6.9
08001	12	Z	100	28	16.8	15.3
08221	00	Z	100	27	9.2	8.6
08221	12	Z	100	28	12.3	10.8
08302	12	Z	100	28	6.3	0.7
08302	00	Z	100	28	8.9	1.1
08508	12	Z	100	27	13.4	11.1
08522	12	Z	100	25	23.1	19.0
08579	12	Z	100	28	20.3	18.7
10035	12	Z	100	28	18.6	17.1
10035	00	Z	100	28	17.7	16.9
10393	12	Z	100	28	6.6	1.3
10393	00	Z	100	28	5.4	1.9
10410	00	Z	100	28	7.2	4.1
10410	12	Z	100	28	5.3	3.0
10739	12	Z	100	28	6.4	2.8
10739	00	Z	100	28	4.6	1.4
11035	12	Z	100	28	9.3	7.0
11035	00	Z	100	28	8.3	5.7
12982	12	Z	100	28	19.3	18.1
12982	00	Z	100	28	12.5	-4.4
16080	12	Z	100	28	6.6	2.5
16080	00	Z	100	28	11.0	-4.2
16245	00	Z	100	27	9.2	-1.6
16245	12	Z	100	28	8.8	2.1
16320	12	Z	100	26	11.5	6.9
16320	00	Z	100	27	9.8	5.2
16429	12	Z	100	27	28.8	7.4
16429	00	Z	100	28	11.2	-1.7
16622	00	Z	100	26	14.2	4.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	100	26	14.0	8.7
17607	12	Z	100	28	13.6	10.5
26435	00	Z	100	13	4.5	0.2
5QPW8X	12	Z	100	14	34.3	31.4
5QPW8X	00	Z	100	9	28.2	24.8
60018	12	Z	100	28	15.2	11.8
60018	00	Z	100	27	11.7	8.5
7JUNA4	12	Z	100	1	11.1	11.1
ASDE09	00	Z	100	2	47.8	47.8
ASDE09	12	Z	100	5	58.7	53.7
ASFR1	00	Z	100	9	20.0	15.0
ASFR1	12	Z	100	7	27.9	26.9
ASFR2	12	Z	100	6	37.2	35.7
ASFR2	00	Z	100	8	32.5	31.8
ASFR3	12	Z	100	9	27.1	25.9
ASFR3	00	Z	100	10	28.7	28.1
ASFR4	00	Z	100	13	30.0	28.2
ASFR4	12	Z	100	9	36.4	34.9
ASUK02	12	Z	100	15	21.1	-15.3
FHM5UJ	12	Z	100	2	130.1	-80.0
FHM5UJ	00	Z	100	6	58.8	-21.8
FPUW5G	12	Z	100	4	3.4	-2.8
KMPLHP	12	Z	100	2	41.5	39.8
KMPLHP	00	Z	100	2	7.1	6.0
LRYQE3	12	Z	100	1	21.0	21.0
VKB4L5	00	Z	100	5	33.3	33.2
VKB4L5	12	Z	100	7	39.8	39.1
XQFJRG	00	Z	100	8	20.3	15.9
XQFJRG	12	Z	100	7	19.5	17.5
YLV96W	12	Z	100	6	78.2	48.7
YLV96W	00	Z	100	7	43.5	22.0
ZVQEQC	12	Z	100	18	30.3	5.2

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

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 100 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : FEB 2018
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	25	4.1	0.2	-1.0
01001	00	V	100	25	4.3	-1.1	-0.2
01028	12	V	100	28	2.7	0.8	-0.3
01028	00	V	100	28	2.9	0.3	0.1
01400	00	V	100	21	3.5	-0.3	0.5
01400	12	V	100	21	4.0	-0.6	0.9
01415	00	V	100	28	3.9	-0.4	-0.1
01415	12	V	100	28	4.4	0.2	-0.4
02365	12	V	100	26	2.5	0.3	-0.3
02365	00	V	100	24	2.6	-0.3	-0.2
02591	12	V	100	26	3.3	0.4	0.1
02591	00	V	100	25	2.9	0.5	-0.3
02836	00	V	100	25	2.9	-0.1	-0.4
02836	12	V	100	28	2.7	0.4	0.2
02963	00	V	100	27	3.0	0.3	-0.2
02963	12	V	100	28	2.9	0.4	-0.3
03005	00	V	100	27	4.2	-0.4	0.0
03005	12	V	100	28	4.0	1.0	0.6
03238	00	V	100	28	4.3	0.2	-0.1
03238	12	V	100	3	1.6	0.9	-1.2
03808	12	V	100	28	3.7	0.2	0.6
03808	00	V	100	27	3.4	0.2	0.2
03918	12	V	100	4	3.8	-0.5	-1.7
03918	00	V	100	28	4.2	0.9	0.3
03953	12	V	100	28	4.5	-0.7	-0.5
03953	00	V	100	26	3.8	-0.3	-0.4
04018	12	V	100	23	4.8	-0.5	1.4
04018	00	V	100	24	6.3	-0.6	1.5
04220	00	V	100	28	3.8	-0.7	-0.7
04220	12	V	100	28	4.2	-1.1	0.3
04270	12	V	100	27	6.1	-2.1	0.4
04270	00	V	100	28	7.4	-0.5	-1.3
04320	12	V	100	27	4.7	-1.2	-1.1
04320	00	V	100	26	4.3	-0.6	-0.8
04339	12	V	100	22	4.6	-0.5	0.8
04339	00	V	100	27	4.4	-0.7	-0.5
04360	12	V	100	16	2.8	0.2	0.2
04360	00	V	100	15	3.9	-1.2	0.1
06011	12	V	100	26	3.7	0.5	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	100	28	4.0	-0.3	0.4
06260	00	V	100	28	3.2	0.5	-0.4
06260	12	V	100	5	4.0	2.6	-1.3
06610	00	V	100	26	3.7	1.4	-0.5
06610	12	V	100	27	4.0	1.1	0.2
07110	12	V	100	28	3.6	-0.2	0.0
07110	00	V	100	27	3.4	0.6	-0.7
07510	00	V	100	28	3.0	0.1	-0.9
07510	12	V	100	28	4.1	0.2	0.7
07645	00	V	100	27	3.7	0.3	0.6
07645	12	V	100	28	4.9	1.0	1.6
07761	00	V	100	23	4.8	0.6	0.5
07761	12	V	100	27	3.4	0.6	-0.2
08001	00	V	100	28	4.0	-0.5	-0.4
08001	12	V	100	28	5.2	1.7	0.9
08221	00	V	100	27	4.8	1.0	1.0
08221	12	V	100	28	3.8	0.4	0.2
08302	12	V	100	28	3.6	0.3	0.3
08302	00	V	100	28	4.7	0.0	0.1
08508	12	V	100	27	3.2	-0.5	0.6
08522	12	V	100	25	4.0	0.9	0.7
08579	12	V	100	27	3.3	1.2	0.7
10035	12	V	100	28	2.9	0.5	0.0
10035	00	V	100	28	3.0	0.4	0.8
10393	12	V	100	28	2.7	0.5	0.2
10393	00	V	100	28	2.8	-0.3	-0.1
10410	00	V	100	28	4.1	-0.5	0.7
10410	12	V	100	28	2.4	0.3	0.6
10739	12	V	100	28	3.7	0.7	0.3
10739	00	V	100	28	3.0	0.1	0.3
11035	12	V	100	28	3.4	0.6	-1.0
11035	00	V	100	28	3.3	0.4	0.2
12982	12	V	100	28	3.0	0.3	0.5
12982	00	V	100	28	3.1	1.3	-0.2
16080	12	V	100	28	3.2	0.4	0.5
16080	00	V	100	28	4.3	0.4	-0.3
16245	00	V	100	27	5.1	1.2	0.0
16245	12	V	100	28	4.6	1.4	1.0
16320	12	V	100	26	5.0	-0.5	-0.2
16320	00	V	100	27	6.3	0.5	0.8
16429	12	V	100	27	4.6	0.9	1.2
16429	00	V	100	28	4.4	0.7	1.5
16622	00	V	100	26	4.6	1.2	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	100	24	5.0	-1.0	-0.9
17607	12	V	100	20	4.5	0.2	-0.6
26435	00	V	100	13	2.3	-0.9	0.1
5QPW8X	12	V	100	9	4.5	-1.9	1.3
5QPW8X	00	V	100	8	5.5	-2.6	1.0
60018	12	V	100	27	4.5	1.3	0.3
60018	00	V	100	27	4.5	1.7	0.6
7JUNA4	12	V	100	1	0.6	-0.4	-0.5
ASDE09	00	V	100	1	1.0	-1.0	0.1
ASDE09	12	V	100	3	3.5	0.7	1.0
ASFR1	00	V	100	7	5.2	1.4	-2.2
ASFR1	12	V	100	6	4.5	0.5	-0.7
ASFR2	12	V	100	6	3.2	1.1	-0.4
ASFR2	00	V	100	7	3.3	0.4	-0.7
ASFR3	12	V	100	9	2.6	-0.7	-0.5
ASFR3	00	V	100	10	2.4	0.1	-0.4
ASFR4	00	V	100	10	5.0	-0.2	2.0
ASFR4	12	V	100	9	4.8	0.5	-0.9
ASUK02	12	V	100	11	4.5	0.2	0.9
FHM5UJ	12	V	100	2	3.0	0.0	1.6
FHM5UJ	00	V	100	4	3.7	0.9	2.0
FPUW5G	12	V	100	4	4.1	1.1	1.0
KMPLHP	12	V	100	2	7.8	-5.6	-1.7
KMPLHP	00	V	100	2	4.1	0.5	-1.2
LRYQE3	12	V	100	1	3.1	1.9	-2.4
VKB4L5	00	V	100	4	5.1	3.4	-1.6
VKB4L5	12	V	100	6	5.1	1.9	-2.4
XQFJRG	00	V	100	5	4.0	-2.5	-0.3
XQFJRG	12	V	100	7	5.5	-1.4	0.4
YLV96W	12	V	100	5	5.8	-1.4	-0.1
YLV96W	00	V	100	6	4.1	0.3	-1.7
ZVQEQC	12	V	100	17	5.4	1.0	-0.1

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

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 500 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : FEB 2018
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	53	7.1	1.8
01001	00	Z	500	28	8.6	4.4
01028	12	Z	500	56	3.7	-2.1
01028	00	Z	500	28	4.0	-2.1
01400	00	Z	500	22	65.4	57.6
01400	12	Z	500	21	72.0	69.9
01415	00	Z	500	28	4.3	2.6
01415	12	Z	500	28	5.6	3.4
02365	12	Z	500	28	5.5	4.8
02365	00	Z	500	27	4.8	3.5
02591	12	Z	500	27	6.4	5.5
02591	00	Z	500	26	5.7	4.3
02836	00	Z	500	28	3.6	0.6
02836	12	Z	500	28	3.5	-0.1
02963	00	Z	500	28	2.7	0.8
02963	12	Z	500	28	3.0	1.3
03005	00	Z	500	31	5.6	-2.0
03005	12	Z	500	31	5.8	0.2
03238	00	Z	500	28	6.5	1.8
03238	12	Z	500	3	6.1	-2.0
03808	12	Z	500	28	5.7	3.5
03808	00	Z	500	29	3.9	1.7
03918	12	Z	500	4	11.4	11.4
03918	00	Z	500	28	11.1	9.8
03953	12	Z	500	29	6.1	2.0
03953	00	Z	500	28	7.9	-0.7
04018	12	Z	500	25	5.4	-0.8
04018	00	Z	500	24	5.1	-0.5
04220	00	Z	500	28	5.7	-1.5
04220	12	Z	500	28	4.3	-0.4
04270	12	Z	500	28	9.2	-3.7
04270	00	Z	500	28	15.9	-6.1
04320	12	Z	500	28	27.4	-6.7
04320	00	Z	500	27	3.8	0.4
04339	12	Z	500	25	8.4	-0.7
04339	00	Z	500	27	14.1	1.2
04360	12	Z	500	21	40.1	39.0
04360	00	Z	500	22	40.8	40.2
06011	12	Z	500	27	21.5	11.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	500	28	25.1	16.0
06260	00	Z	500	28	3.8	1.0
06260	12	Z	500	5	4.5	2.6
06610	00	Z	500	28	2.5	0.3
06610	12	Z	500	28	2.4	-0.1
07110	12	Z	500	29	9.9	9.2
07110	00	Z	500	27	7.8	6.7
07510	00	Z	500	28	13.1	12.4
07510	12	Z	500	28	17.8	16.7
07645	00	Z	500	28	5.2	1.4
07645	12	Z	500	28	5.2	4.0
07761	00	Z	500	27	8.9	7.0
07761	12	Z	500	28	12.3	11.2
08001	00	Z	500	28	6.7	5.1
08001	12	Z	500	28	9.2	8.4
08221	00	Z	500	27	6.5	5.3
08221	12	Z	500	28	9.2	8.4
08302	12	Z	500	29	5.8	-1.8
08302	00	Z	500	28	4.1	-2.1
08508	12	Z	500	27	8.2	6.8
08522	12	Z	500	28	12.4	10.2
08579	12	Z	500	28	7.9	7.0
10035	12	Z	500	28	13.7	12.8
10035	00	Z	500	29	13.5	13.2
10393	12	Z	500	28	3.0	-0.6
10393	00	Z	500	28	2.9	-0.5
10410	00	Z	500	28	3.2	1.3
10410	12	Z	500	28	3.5	-0.4
10739	12	Z	500	28	3.0	-0.2
10739	00	Z	500	28	2.4	-0.3
11035	12	Z	500	28	6.8	6.5
11035	00	Z	500	28	6.2	5.5
12982	12	Z	500	28	6.4	4.3
12982	00	Z	500	28	4.9	2.0
16080	12	Z	500	28	4.8	-3.8
16080	00	Z	500	28	5.8	-4.2
16245	00	Z	500	27	4.5	-2.6
16245	12	Z	500	28	4.6	-2.4
16320	12	Z	500	28	7.3	4.8
16320	00	Z	500	28	5.9	3.8
16429	12	Z	500	29	4.5	1.9
16429	00	Z	500	28	4.4	1.4
16622	00	Z	500	28	8.7	6.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	500	28	5.8	1.3
17607	12	Z	500	28	7.9	6.9
26435	00	Z	500	14	4.5	-1.0
5QPW8X	12	Z	500	14	26.4	25.6
5QPW8X	00	Z	500	9	24.2	23.5
60018	12	Z	500	29	10.1	7.0
60018	00	Z	500	27	8.0	4.5
7JUNA4	12	Z	500	1	2.8	-2.8
ASDE09	00	Z	500	2	40.7	40.7
ASDE09	12	Z	500	7	29.7	27.6
ASFR1	00	Z	500	12	7.3	2.9
ASFR1	12	Z	500	8	10.6	8.1
ASFR2	12	Z	500	8	16.6	16.1
ASFR2	00	Z	500	10	17.5	17.0
ASFR3	12	Z	500	9	32.6	19.7
ASFR3	00	Z	500	10	9.7	9.3
ASFR4	00	Z	500	15	6.9	5.8
ASFR4	12	Z	500	11	9.8	8.6
ASUK02	12	Z	500	15	13.0	-9.3
FHM5UJ	12	Z	500	2	9.7	9.7
FHM5UJ	00	Z	500	8	19.1	-4.8
FPUW5G	12	Z	500	4	9.1	-7.0
KMPLHP	12	Z	500	2	7.3	7.2
KMPLHP	00	Z	500	2	0.2	-0.1
LRYQE3	12	Z	500	1	4.1	4.1
VKB4L5	00	Z	500	5	31.0	30.8
VKB4L5	12	Z	500	7	34.1	33.4
XQFJRG	00	Z	500	8	3.6	2.9
XQFJRG	12	Z	500	7	5.5	-1.2
YLV96W	12	Z	500	7	8.5	-1.4
YLV96W	00	Z	500	7	3.7	-2.2
ZVQEQC	12	Z	500	19	26.9	-3.2

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

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 500 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : FEB 2018
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	27	3.0	-0.7	-0.1
01001	00	V	500	28	3.2	-0.2	0.0
01028	12	V	500	28	2.5	-0.3	-0.2
01028	00	V	500	28	2.7	-0.3	0.1
01400	00	V	500	21	2.8	0.1	-0.4
01400	12	V	500	21	2.9	0.9	0.4
01415	00	V	500	28	3.3	-0.3	0.5
01415	12	V	500	28	3.5	-0.5	-0.9
02365	12	V	500	28	2.5	0.5	-0.1
02365	00	V	500	27	2.4	-0.2	0.4
02591	12	V	500	27	3.3	0.0	0.2
02591	00	V	500	26	2.1	-0.5	0.1
02836	00	V	500	28	2.1	0.0	0.3
02836	12	V	500	28	2.1	-0.7	-0.2
02963	00	V	500	28	2.3	-0.2	-0.3
02963	12	V	500	28	2.5	0.1	-0.5
03005	00	V	500	28	3.3	-0.2	-0.5
03005	12	V	500	28	3.0	-0.7	0.2
03238	00	V	500	28	2.9	0.1	0.4
03238	12	V	500	3	5.7	0.8	-3.7
03808	12	V	500	28	2.8	-0.3	1.1
03808	00	V	500	28	3.1	0.5	-0.6
03918	12	V	500	4	2.6	1.0	-0.7
03918	00	V	500	28	3.6	0.0	0.3
03953	12	V	500	28	5.3	-0.8	-0.9
03953	00	V	500	27	2.7	-0.3	-0.2
04018	12	V	500	24	3.3	0.1	0.5
04018	00	V	500	24	3.2	-0.9	-0.7
04220	00	V	500	28	4.0	0.6	-0.3
04220	12	V	500	28	3.1	-0.6	0.1
04270	12	V	500	28	3.8	0.5	0.5
04270	00	V	500	28	3.1	0.4	1.1
04320	12	V	500	28	3.5	-0.8	0.0
04320	00	V	500	27	3.6	0.9	0.8
04339	12	V	500	25	3.7	-0.4	0.4
04339	00	V	500	27	3.9	-0.3	1.1
04360	12	V	500	21	4.5	-1.6	0.6
04360	00	V	500	21	4.9	0.7	1.3
06011	12	V	500	27	3.1	-0.2	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	500	28	2.4	-0.4	0.0
06260	00	V	500	28	3.0	-0.1	-0.6
06260	12	V	500	5	2.0	-0.1	0.4
06610	00	V	500	28	3.3	-0.3	-0.4
06610	12	V	500	28	3.4	-0.4	-0.5
07110	12	V	500	28	2.5	0.2	0.8
07110	00	V	500	27	2.5	0.2	-0.2
07510	00	V	500	28	3.0	0.5	0.4
07510	12	V	500	28	2.9	0.5	-0.2
07645	00	V	500	28	2.9	0.2	-0.1
07645	12	V	500	28	3.2	-0.1	-1.2
07761	00	V	500	26	3.4	-0.2	0.0
07761	12	V	500	28	3.5	0.7	0.2
08001	00	V	500	28	4.6	-0.5	-0.7
08001	12	V	500	28	3.7	0.7	0.4
08221	00	V	500	27	2.9	0.3	0.3
08221	12	V	500	28	3.5	0.3	-1.0
08302	12	V	500	28	4.1	0.6	-0.3
08302	00	V	500	28	3.4	-0.8	-0.3
08508	12	V	500	27	3.5	0.3	-0.8
08522	12	V	500	28	2.9	0.8	0.3
08579	12	V	500	28	3.1	-0.5	-0.4
10035	12	V	500	28	2.3	-0.1	-0.3
10035	00	V	500	28	2.9	-0.4	-0.3
10393	12	V	500	28	2.5	-0.3	0.5
10393	00	V	500	28	2.2	0.2	0.1
10410	00	V	500	28	2.4	0.1	-0.1
10410	12	V	500	28	2.8	-0.3	-0.3
10739	12	V	500	28	2.5	0.6	0.1
10739	00	V	500	28	1.9	0.1	-0.3
11035	12	V	500	28	2.8	0.3	0.6
11035	00	V	500	28	1.9	0.1	0.5
12982	12	V	500	28	2.6	-0.1	0.0
12982	00	V	500	28	3.3	-0.4	0.7
16080	12	V	500	28	3.4	0.4	0.0
16080	00	V	500	28	2.9	-0.6	-0.4
16245	00	V	500	27	3.4	1.1	-0.3
16245	12	V	500	28	3.2	0.0	-0.4
16320	12	V	500	27	4.6	0.7	0.7
16320	00	V	500	28	4.4	0.2	-0.2
16429	12	V	500	28	4.1	-0.4	-0.6
16429	00	V	500	28	4.0	0.3	0.3
16622	00	V	500	28	3.2	1.0	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	500	26	4.2	-0.2	1.2
17607	12	V	500	27	3.5	1.1	0.2
26435	00	V	500	14	2.3	0.6	-0.2
5QPW8X	12	V	500	9	3.1	-0.7	0.4
5QPW8X	00	V	500	8	2.8	-0.5	1.1
60018	12	V	500	27	3.6	1.2	0.2
60018	00	V	500	27	3.7	0.8	0.6
7JUNA4	12	V	500	1	2.7	-2.5	-0.9
ASDE09	00	V	500	1	5.0	-1.1	4.9
ASDE09	12	V	500	4	1.9	0.4	0.2
ASFR1	00	V	500	10	3.5	0.6	2.1
ASFR1	12	V	500	8	2.6	0.3	0.0
ASFR2	12	V	500	8	3.9	0.3	0.3
ASFR2	00	V	500	9	3.3	0.3	-0.4
ASFR3	12	V	500	9	2.7	0.5	-0.2
ASFR3	00	V	500	10	2.3	0.8	1.2
ASFR4	00	V	500	12	2.3	-0.1	-0.6
ASFR4	12	V	500	11	3.6	-0.1	-1.1
ASUK02	12	V	500	11	5.0	0.6	-0.5
FHM5UJ	12	V	500	2	4.2	0.0	2.6
FHM5UJ	00	V	500	5	4.8	-0.6	3.9
FPUW5G	12	V	500	4	6.2	3.0	-2.9
KMPLHP	12	V	500	2	2.4	-0.1	-0.5
KMPLHP	00	V	500	2	5.8	-3.7	0.6
LRYQE3	12	V	500	1	1.7	-1.1	-1.3
VKB4L5	00	V	500	4	3.4	-0.5	-0.4
VKB4L5	12	V	500	6	2.9	0.5	0.0
XQFJRG	00	V	500	5	6.1	4.0	-0.6
XQFJRG	12	V	500	7	3.7	0.2	-0.6
YLV96W	12	V	500	6	2.4	0.4	-0.4
YLV96W	00	V	500	6	2.2	-0.1	0.3
ZVQEQC	12	V	500	18	4.0	2.3	-0.9

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                : FEB 2018
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	57	3.8	1.3
01001	00	Z	850	28	5.5	3.3
01028	12	Z	850	56	3.6	-2.3
01028	00	Z	850	28	4.2	-2.4
01400	00	Z	850	22	64.3	56.1
01400	12	Z	850	21	71.1	69.2
01415	00	Z	850	28	4.2	3.5
01415	12	Z	850	28	4.7	3.7
02365	12	Z	850	28	5.7	5.3
02365	00	Z	850	27	6.8	6.3
02591	12	Z	850	27	7.3	7.1
02591	00	Z	850	26	7.7	7.4
02836	00	Z	850	28	3.1	2.3
02836	12	Z	850	28	2.4	1.6
02963	00	Z	850	28	3.4	2.1
02963	12	Z	850	28	2.8	1.2
03005	00	Z	850	31	4.7	-0.9
03005	12	Z	850	31	2.9	-0.4
03238	00	Z	850	28	3.3	2.4
03238	12	Z	850	3	4.2	0.0
03808	12	Z	850	28	3.4	2.0
03808	00	Z	850	29	2.8	1.5
03918	12	Z	850	4	10.2	10.1
03918	00	Z	850	28	10.2	10.0
03953	12	Z	850	29	9.4	1.9
03953	00	Z	850	28	4.6	2.2
04018	12	Z	850	25	4.1	-0.6
04018	00	Z	850	24	4.0	-1.4
04220	00	Z	850	28	4.2	2.0
04220	12	Z	850	28	4.3	2.2
04270	12	Z	850	29	6.3	-1.5
04270	00	Z	850	28	14.6	-3.9
04320	12	Z	850	28	3.9	-1.3
04320	00	Z	850	27	4.8	1.0
04339	12	Z	850	25	7.1	2.4
04339	00	Z	850	27	16.7	3.8
04360	12	Z	850	23	41.8	39.9
04360	00	Z	850	23	41.2	39.2
06011	12	Z	850	27	23.3	14.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	850	28	27.8	18.2
06260	00	Z	850	28	4.3	0.6
06260	12	Z	850	5	1.7	1.1
06610	00	Z	850	28	2.9	2.4
06610	12	Z	850	28	3.3	1.7
07110	12	Z	850	29	3.9	2.5
07110	00	Z	850	28	4.1	2.7
07510	00	Z	850	28	8.4	7.8
07510	12	Z	850	28	10.3	9.7
07645	00	Z	850	28	3.1	0.4
07645	12	Z	850	28	4.1	1.2
07761	00	Z	850	28	4.4	1.2
07761	12	Z	850	29	6.0	3.1
08001	00	Z	850	28	3.8	2.3
08001	12	Z	850	28	3.7	2.8
08221	00	Z	850	27	3.9	3.3
08221	12	Z	850	28	4.5	3.5
08302	12	Z	850	29	4.2	-2.9
08302	00	Z	850	28	3.2	-1.9
08508	12	Z	850	28	6.5	4.8
08522	12	Z	850	28	5.9	4.7
08579	12	Z	850	28	4.1	3.4
10035	12	Z	850	28	13.9	13.5
10035	00	Z	850	29	14.0	13.9
10393	12	Z	850	28	1.8	-0.5
10393	00	Z	850	28	2.5	0.1
10410	00	Z	850	28	2.4	0.5
10410	12	Z	850	28	2.5	1.0
10739	12	Z	850	28	2.3	-0.3
10739	00	Z	850	28	2.4	1.1
11035	12	Z	850	28	6.5	5.3
11035	00	Z	850	28	6.5	5.8
12982	12	Z	850	28	4.5	2.8
12982	00	Z	850	28	5.1	4.2
16080	12	Z	850	28	5.3	-4.5
16080	00	Z	850	28	4.9	-4.0
16245	00	Z	850	27	3.3	-1.4
16245	12	Z	850	28	3.9	-2.5
16320	12	Z	850	28	7.3	6.1
16320	00	Z	850	28	5.8	4.3
16429	12	Z	850	29	4.0	2.1
16429	00	Z	850	28	4.7	2.4
16622	00	Z	850	28	9.7	9.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	850	28	5.3	1.9
17607	12	Z	850	28	5.1	4.3
26435	00	Z	850	14	2.7	-0.3
5QPW8X	12	Z	850	16	36.9	32.6
5QPW8X	00	Z	850	9	23.6	23.3
60018	12	Z	850	29	4.3	1.5
60018	00	Z	850	27	3.1	1.2
7JUNA4	12	Z	850	1	2.7	-2.7
ASDE09	00	Z	850	2	43.3	43.3
ASDE09	12	Z	850	7	32.4	30.9
ASFR1	00	Z	850	13	4.2	1.8
ASFR1	12	Z	850	12	5.9	-0.2
ASFR2	12	Z	850	10	11.3	10.9
ASFR2	00	Z	850	12	12.8	12.0
ASFR3	12	Z	850	9	4.4	3.6
ASFR3	00	Z	850	10	4.8	4.3
ASFR4	00	Z	850	15	4.4	-0.6
ASFR4	12	Z	850	11	4.5	-1.2
ASUK02	12	Z	850	15	11.7	-8.7
FHM5UJ	12	Z	850	2	6.8	6.8
FHM5UJ	00	Z	850	8	10.8	1.9
FPUW5G	12	Z	850	4	7.7	-7.5
KMPLHP	12	Z	850	2	6.8	6.1
KMPLHP	00	Z	850	2	3.5	2.9
LRYQE3	12	Z	850	0	0.0	0.0
VKB4L5	00	Z	850	5	28.1	28.0
VKB4L5	12	Z	850	7	29.1	28.7
XQFJRG	00	Z	850	8	7.0	-5.7
XQFJRG	12	Z	850	7	7.1	-5.8
YLV96W	12	Z	850	7	8.3	-1.1
YLV96W	00	Z	850	7	5.8	-1.6
ZVQEQC	12	Z	850	19	28.0	-9.7

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                : FEB 2018
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	28	3.5	-0.1	-0.1
01001	00	V	850	28	3.5	0.0	0.1
01028	12	V	850	28	2.8	-0.4	0.2
01028	00	V	850	28	2.8	0.6	0.4
01400	00	V	850	21	2.6	0.7	-0.6
01400	12	V	850	21	2.7	0.5	0.3
01415	00	V	850	28	2.9	-0.2	0.1
01415	12	V	850	28	3.3	-0.2	0.1
02365	12	V	850	28	2.7	0.3	-0.5
02365	00	V	850	27	2.7	0.7	-0.5
02591	12	V	850	27	3.0	-0.3	-0.6
02591	00	V	850	26	2.4	0.3	0.2
02836	00	V	850	28	2.1	0.4	0.2
02836	12	V	850	28	2.4	-0.2	0.4
02963	00	V	850	28	2.9	0.8	0.2
02963	12	V	850	28	2.6	-0.2	0.1
03005	00	V	850	28	2.7	0.2	0.2
03005	12	V	850	28	2.6	-0.3	0.1
03238	00	V	850	28	3.9	-0.7	-0.3
03238	12	V	850	3	3.3	-0.6	-1.0
03808	12	V	850	28	3.0	0.4	0.0
03808	00	V	850	28	2.2	-0.2	0.1
03918	12	V	850	4	1.8	-0.2	1.1
03918	00	V	850	28	3.0	-0.5	0.1
03953	12	V	850	28	3.1	0.6	-0.2
03953	00	V	850	27	2.3	0.2	0.3
04018	12	V	850	24	3.6	0.1	0.5
04018	00	V	850	24	4.0	1.7	0.0
04220	00	V	850	28	3.1	-0.2	0.0
04220	12	V	850	28	3.3	0.4	0.4
04270	12	V	850	28	4.3	1.1	1.5
04270	00	V	850	28	3.9	-0.1	0.7
04320	12	V	850	28	4.9	0.3	0.1
04320	00	V	850	27	4.9	1.1	0.7
04339	12	V	850	25	5.9	0.7	0.8
04339	00	V	850	27	5.9	1.3	1.1
04360	12	V	850	21	7.2	2.7	2.2
04360	00	V	850	22	11.1	4.0	2.2
06011	12	V	850	27	2.7	0.1	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	850	28	2.8	-0.2	-0.2
06260	00	V	850	28	2.5	-0.1	-0.3
06260	12	V	850	5	2.6	-1.0	-2.2
06610	00	V	850	28	2.4	0.9	0.2
06610	12	V	850	28	2.8	0.4	-0.1
07110	12	V	850	28	2.3	0.0	0.0
07110	00	V	850	27	2.6	0.4	-0.1
07510	00	V	850	28	3.3	-0.1	0.0
07510	12	V	850	28	3.0	0.5	-0.4
07645	00	V	850	28	3.1	0.8	-0.2
07645	12	V	850	28	3.1	-0.2	0.2
07761	00	V	850	27	3.8	0.9	0.7
07761	12	V	850	28	2.5	0.1	-0.5
08001	00	V	850	28	3.0	0.2	0.0
08001	12	V	850	28	3.3	0.8	0.3
08221	00	V	850	27	3.4	0.9	0.6
08221	12	V	850	28	3.5	-0.5	0.5
08302	12	V	850	28	3.5	0.5	0.4
08302	00	V	850	28	3.6	0.9	-0.1
08508	12	V	850	28	2.8	0.5	0.0
08522	12	V	850	28	4.4	0.7	1.4
08579	12	V	850	28	2.7	0.4	-0.3
10035	12	V	850	28	2.2	-0.2	-0.4
10035	00	V	850	28	2.3	0.1	-0.3
10393	12	V	850	28	2.7	-0.1	-0.3
10393	00	V	850	28	2.7	-0.4	-0.8
10410	00	V	850	28	2.3	0.4	-0.1
10410	12	V	850	28	2.3	-0.4	0.1
10739	12	V	850	28	2.5	-0.5	-0.2
10739	00	V	850	28	2.3	-0.7	0.1
11035	12	V	850	28	2.9	0.0	0.9
11035	00	V	850	28	2.6	0.3	0.0
12982	12	V	850	28	2.9	0.4	-0.4
12982	00	V	850	28	2.9	0.5	-0.1
16080	12	V	850	28	3.1	0.6	-0.8
16080	00	V	850	28	4.3	1.4	-0.3
16245	00	V	850	27	3.1	0.3	0.3
16245	12	V	850	28	4.0	0.1	0.1
16320	12	V	850	27	3.4	0.3	0.6
16320	00	V	850	28	2.8	0.3	0.1
16429	12	V	850	28	4.5	-0.3	-0.4
16429	00	V	850	28	3.0	-0.2	0.2
16622	00	V	850	28	3.5	0.0	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	850	27	4.3	0.0	-0.8
17607	12	V	850	28	3.8	0.8	-0.4
26435	00	V	850	14	2.6	-0.7	0.8
5QPW8X	12	V	850	10	3.1	-0.2	1.2
5QPW8X	00	V	850	8	3.3	0.9	1.2
60018	12	V	850	27	3.6	-0.5	0.0
60018	00	V	850	27	4.7	-0.9	0.6
7JUNA4	12	V	850	1	1.0	1.0	0.3
ASDE09	00	V	850	1	7.5	-7.4	-1.3
ASDE09	12	V	850	4	1.8	0.2	0.2
ASFR1	00	V	850	11	2.2	-0.1	0.2
ASFR1	12	V	850	12	3.1	-0.2	0.9
ASFR2	12	V	850	10	3.5	0.3	-1.3
ASFR2	00	V	850	11	4.2	-1.5	-1.1
ASFR3	12	V	850	9	1.8	-0.2	-0.3
ASFR3	00	V	850	10	3.5	1.3	1.4
ASFR4	00	V	850	12	3.6	0.3	-0.2
ASFR4	12	V	850	11	2.8	0.6	0.5
ASUK02	12	V	850	11	3.4	0.5	-0.4
FHM5UJ	12	V	850	2	5.9	-3.4	-1.6
FHM5UJ	00	V	850	5	7.1	-0.7	1.6
FPUW5G	12	V	850	4	2.9	0.0	0.9
KMPLHP	12	V	850	2	2.0	-1.7	0.9
KMPLHP	00	V	850	2	1.4	1.4	-0.1
LRYQE3	12	V	850	0	0.0	0.0	0.0
VKB4L5	00	V	850	4	2.0	-1.0	-0.9
VKB4L5	12	V	850	6	3.0	-0.7	0.5
XQFJRG	00	V	850	5	4.2	-1.7	0.1
XQFJRG	12	V	850	7	4.9	-0.4	0.0
YLV96W	12	V	850	6	3.3	0.6	0.3
YLV96W	00	V	850	6	2.6	-0.5	0.1
ZVQEQC	12	V	850	18	3.1	0.4	-0.3

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                 : FEB 2018
         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	664	0	0.3	-0.2	0.4
1300001	99	P	SUR	11	-23	505	0	0.4	0.0	0.4
1300008	99	P	SUR	15	-38	669	0	0.4	-0.2	0.4
1300130	99	P	SUR	28	-16	656	0	0.4	-0.2	0.5
1300131	99	P	SUR	28	-17	654	0	0.5	-0.3	0.6
1300869	99	P	SUR	28	-64	672	0	0.3	0.0	0.3
1300872	99	P	SUR	40	-49	671	1	1.5	0.4	1.5
1301603	99	P	SUR	20	-35	671	0	0.3	0.3	0.4
1301604	99	P	SUR	16	-27	670	0	0.4	0.3	0.5
1301605	99	P	SUR	23	-34	671	0	0.3	0.2	0.3
1301606	99	P	SUR	17	-32	670	0	0.4	0.4	0.5
1301607	99	P	SUR	16	-25	671	0	0.4	0.2	0.5
1301608	99	P	SUR	21	-22	670	0	0.4	0.5	0.7
1301609	99	P	SUR	27	-23	670	0	0.3	0.3	0.4
1301610	99	P	SUR	27	-26	670	0	0.3	0.2	0.4
1301611	99	P	SUR	27	-29	671	0	0.3	-0.0	0.3
1301612	99	P	SUR	27	-32	659	0	0.3	0.0	0.3
13869	99	P	SUR	28	-64	672	0	0.3	0.0	0.3
13872	99	P	SUR	40	-49	671	1	1.5	0.4	1.5
1501529	99	P	SUR	28	-29	646	0	0.3	0.2	0.4
1501531	99	P	SUR	22	-39	645	0	0.3	0.0	0.3
1501534	99	P	SUR	21	-38	646	0	0.3	-0.2	0.3
1501607	99	P	SUR	12	-54	671	0	1.1	0.1	1.1
1501609	99	P	SUR	17	-69	278	0	0.4	1.0	1.1
2500622	99	P	SUR	56	-39	672	1	1.7	-0.9	1.9
25622	99	P	SUR	56	-39	672	1	1.7	-0.9	1.9
3100735	99	P	SUR	20	-63	671	0	0.2	0.4	0.4
31735	99	P	SUR	20	-63	671	0	0.2	0.4	0.4
4100139	99	P	SUR	20	-38	633	0	0.3	-0.3	0.4
4100597	99	P	SUR	36	-41	660	0	0.8	0.1	0.8
4100729	99	P	SUR	37	-32	671	0	1.5	0.5	1.6
4100730	99	P	SUR	40	-45	561	0	0.8	0.7	1.0
4100731	99	P	SUR	32	-68	671	0	0.3	-0.3	0.4
4101529	99	P	SUR	34	-67	646	0	0.3	-0.5	0.6
4101530	99	P	SUR	37	-36	632	0	0.5	0.3	0.6
4101538	99	P	SUR	38	-50	618	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
4101554	99	P	SUR	29	-61	663	0	0.3	0.5	0.6
4101556	99	P	SUR	38	-43	671	0	0.4	0.5	0.6
4101557	99	P	SUR	36	-42	670	0	0.4	0.2	0.4
4101558	99	P	SUR	46	-25	671	0	0.5	0.2	0.5
4101560	99	P	SUR	33	-54	665	0	0.3	0.8	0.9
4101561	99	P	SUR	31	-64	665	0	0.3	0.3	0.4
4101562	99	P	SUR	36	-42	653	0	0.4	0.6	0.7
4101564	99	P	SUR	34	-46	659	0	0.3	-0.0	0.3
4101565	99	P	SUR	37	-36	518	0	0.5	0.4	0.6
4101566	99	P	SUR	30	-70	638	0	0.3	0.3	0.4
4101567	99	P	SUR	36	-44	548	0	0.4	0.6	0.7
4101568	99	P	SUR	35	-53	556	0	0.3	0.5	0.6
4101569	99	P	SUR	30	-70	657	0	0.3	0.2	0.4
4101570	99	P	SUR	33	-58	644	0	0.3	0.5	0.6
4101573	99	P	SUR	35	-69	611	0	0.4	0.4	0.5
4101574	99	P	SUR	35	-60	591	0	0.3	0.7	0.8
4101575	99	P	SUR	34	-68	610	0	0.3	0.2	0.4
4101576	99	P	SUR	15	-55	671	0	0.3	0.6	0.6
4101577	99	P	SUR	19	-43	670	0	0.3	0.5	0.5
4101578	99	P	SUR	12	-70	315	0	0.3	0.5	0.6
4101580	99	P	SUR	15	-59	670	0	0.3	0.4	0.5
4101700	99	P	SUR	31	-34	671	0	0.5	0.5	0.7
4101702	99	P	SUR	34	-59	536	2	1.0	0.5	1.1
4101703	99	P	SUR	22	-65	615	0	1.7	1.1	2.0
4101705	99	P	SUR	33	-43	671	0	0.4	0.3	0.5
4101706	99	P	SUR	33	-38	671	0	0.6	-0.1	0.6
4101707	99	P	SUR	38	-33	671	0	0.7	0.3	0.8
4101708	99	P	SUR	34	-26	671	0	0.6	0.2	0.6
4101709	99	P	SUR	40	-20	671	0	1.3	0.7	1.5
4101710	99	P	SUR	33	-54	671	0	0.5	0.3	0.6
4101712	99	P	SUR	40	-48	650	0	0.7	0.5	0.8
4101713	99	P	SUR	34	-55	671	0	0.4	0.2	0.4
4101714	99	P	SUR	34	-41	670	0	0.5	0.2	0.5
4101715	99	P	SUR	29	-47	659	0	0.3	0.3	0.5
4101716	99	P	SUR	26	-51	656	0	0.3	-1.0	1.1
4101717	99	P	SUR	22	-58	564	0	0.3	-0.0	0.3
4101741	99	P	SUR	19	-62	671	0	0.3	0.6	0.7
4101743	99	P	SUR	21	-51	671	0	0.2	1.0	1.0
4101744	99	P	SUR	18	-66	671	0	0.2	-0.4	0.5
4101746	99	P	SUR	20	-61	671	0	0.3	0.2	0.3
41040	99	P	SUR	15	-53	666	0	0.4	-0.4	0.6
41041	99	P	SUR	14	-46	1038	0	0.4	0.3	0.5
41043	99	P	SUR	21	-65	876	0	0.4	-0.2	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
41044	99	P	SUR	22	-59	1060	0	0.3	0.2	0.4
41046	99	P	SUR	24	-68	1046	0	0.3	0.5	0.6
41048	99	P	SUR	32	-70	1049	0	0.4	0.0	0.4
41049	99	P	SUR	28	-63	668	0	0.3	0.4	0.5
41052	99	P	SUR	18	-65	1787	0	0.3	-1.5	1.5
41053	99	P	SUR	19	-66	1724	0	0.3	-0.8	0.8
41056	99	P	SUR	18	-66	1522	0	0.3	-0.1	0.3
41597	99	P	SUR	36	-41	660	0	0.8	0.1	0.8
41729	99	P	SUR	37	-32	671	0	1.5	0.5	1.6
41730	99	P	SUR	40	-46	561	0	0.8	0.7	1.0
41731	99	P	SUR	32	-68	671	0	0.3	-0.3	0.4
42085	99	P	SUR	18	-67	718	0	0.3	-0.8	0.9
4400510	99	P	SUR	44	-4	264	0	1.1	0.7	1.3
4400513	99	P	SUR	54	-10	671	0	0.6	-0.6	0.8
4400517	99	P	SUR	25	-43	670	0	0.3	0.3	0.4
4400521	99	P	SUR	35	-41	648	0	0.4	-0.9	1.0
4400746	99	P	SUR	36	-36	671	1	1.7	0.9	1.9
4400765	99	P	SUR	64	10	671	0	0.8	0.4	0.9
4400776	99	P	SUR	27	-57	671	0	0.2	0.7	0.7
4400777	99	P	SUR	30	-47	671	0	0.4	0.5	0.6
4400778	99	P	SUR	34	-31	670	0	0.4	0.5	0.6
44008	99	P	SUR	41	-69	669	0	0.6	-0.8	1.0
4400857	99	P	SUR	29	-28	671	1	1.4	0.6	1.5
4400874	99	P	SUR	31	-43	671	0	0.5	0.7	0.8
4400887	99	P	SUR	34	-49	665	0	0.3	-0.2	0.4
4400891	99	P	SUR	34	-63	671	0	0.4	-0.8	0.8
44011	99	P	SUR	42	-60	675	0	0.9	-1.1	1.4
4401501	99	P	SUR	52	-4	636	1	2.1	-0.6	2.2
4401503	99	P	SUR	28	-67	672	0	0.3	0.2	0.3
4401527	99	P	SUR	28	-61	669	0	0.3	0.1	0.3
4401529	99	P	SUR	26	-67	669	0	0.2	0.1	0.2
4401531	99	P	SUR	34	-68	672	0	0.3	0.4	0.5
4401536	99	P	SUR	48	-28	633	1	0.7	0.2	0.7
4401537	99	P	SUR	36	-31	401	0	0.5	-0.5	0.7
4401539	99	P	SUR	33	-53	672	0	0.3	-0.1	0.3
4401540	99	P	SUR	33	-64	669	0	0.3	0.3	0.5
4401541	99	P	SUR	44	-43	672	0	0.6	-0.1	0.6
4401542	99	P	SUR	31	-66	671	0	0.3	0.5	0.6
4401543	99	P	SUR	27	-69	672	0	0.2	0.0	0.2
4401544	99	P	SUR	32	-62	670	0	0.3	-0.4	0.5
4401546	99	P	SUR	45	-11	671	0	0.4	0.6	0.7
4401550	99	P	SUR	51	-23	672	6	1.8	-0.2	1.8
4401551	99	P	SUR	38	-44	671	0	1.7	0.5	1.8

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401552	99	P	SUR	40	-15	671	0	0.4	0.2	0.5
4401553	99	P	SUR	56	-35	671	0	0.7	0.2	0.7
4401554	99	P	SUR	54	-34	653	0	0.7	0.5	0.9
4401555	99	P	SUR	56	-20	671	0	0.6	-0.4	0.7
4401556	99	P	SUR	33	-38	671	0	0.6	0.6	0.9
4401557	99	P	SUR	37	-39	671	0	0.5	0.4	0.6
4401558	99	P	SUR	50	-42	671	0	0.8	0.2	0.9
4401559	99	P	SUR	45	-24	384	0	1.4	1.0	1.7
4401560	99	P	SUR	41	-23	671	0	0.9	0.7	1.1
4401561	99	P	SUR	43	-46	671	0	0.6	0.1	0.7
4401562	99	P	SUR	40	-26	671	0	0.8	0.5	0.9
4401563	99	P	SUR	31	-34	671	0	0.4	0.4	0.6
4401564	99	P	SUR	39	-38	671	0	1.5	0.7	1.6
4401565	99	P	SUR	50	-34	671	0	0.9	0.3	0.9
4401566	99	P	SUR	52	-31	669	0	0.9	0.5	1.0
4401601	99	P	SUR	53	-41	603	0	0.7	-0.1	0.7
4401602	99	P	SUR	44	-53	595	1	0.8	0.5	0.9
4401603	99	P	SUR	55	-20	602	0	0.6	0.2	0.7
4401605	99	P	SUR	55	-30	599	0	0.6	-0.4	0.7
4401606	99	P	SUR	48	-6	600	0	0.4	0.3	0.5
4401611	99	P	SUR	45	-55	598	22	1.5	0.7	1.6
4401613	99	P	SUR	49	-14	599	0	0.5	0.3	0.6
4401616	99	P	SUR	41	-32	600	0	0.9	0.6	1.0
4401631	99	P	SUR	50	-5	599	0	0.5	0.1	0.5
4401633	99	P	SUR	47	-19	600	14	2.1	0.6	2.2
4401752	99	P	SUR	65	-28	485	0	0.9	0.8	1.2
4401755	99	P	SUR	63	-12	525	0	0.5	0.6	0.8
4401757	99	P	SUR	67	-7	584	0	0.4	0.8	0.9
4401802	99	P	SUR	43	-55	600	0	0.9	0.7	1.2
44027	99	P	SUR	44	-67	705	0	0.6	-0.3	0.7
44032	99	P	SUR	44	-69	621	0	0.5	-0.8	0.9
44033	99	P	SUR	44	-69	633	0	0.5	0.3	0.6
44037	99	P	SUR	44	-68	628	0	0.5	-0.9	1.0
44137	99	P	SUR	42	-62	668	0	0.5	-0.2	0.6
44139	99	P	SUR	44	-57	326	0	0.5	-0.1	0.5
44150	99	P	SUR	43	-64	616	0	0.6	-0.1	0.6
44510	99	P	SUR	44	-4	264	0	1.1	0.7	1.3
44513	99	P	SUR	54	-10	671	0	0.6	-0.6	0.8
44517	99	P	SUR	25	-43	670	0	0.3	0.3	0.4
44521	99	P	SUR	35	-41	660	0	0.3	-0.9	1.0
44746	99	P	SUR	36	-36	671	1	1.7	0.9	1.9
44765	99	P	SUR	64	10	671	0	0.8	0.4	0.9
44776	99	P	SUR	27	-57	671	0	0.2	0.7	0.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44777	99	P	SUR	30	-47	671	0	0.4	0.5	0.6
44778	99	P	SUR	34	-31	670	0	0.4	0.5	0.6
44857	99	P	SUR	29	-28	671	1	1.4	0.6	1.5
44874	99	P	SUR	31	-43	671	0	0.5	0.7	0.8
44887	99	P	SUR	34	-49	665	0	0.3	-0.2	0.4
44891	99	P	SUR	34	-63	671	0	0.4	-0.8	0.8
4700546	99	P	SUR	39	-25	599	0	0.8	1.4	1.7
4700551	99	P	SUR	57	-6	2	0	0.0	10.6	10.6
4700552	99	P	SUR	68	-63	477	477	0.0	0.0	0.0
4700555	99	P	SUR	39	-13	599	0	1.4	0.6	1.6
4700560	99	P	SUR	66	12	582	0	0.9	0.8	1.2
4700568	99	P	SUR	45	-5	599	0	0.4	0.6	0.7
4700574	99	P	SUR	37	-17	601	0	0.4	0.3	0.5
4701668	99	P	SUR	46	-57	599	0	0.8	0.9	1.2
4701669	99	P	SUR	44	-51	599	0	1.3	0.8	1.5
4701673	99	P	SUR	69	-64	602	0	0.5	-1.8	1.8
4701674	99	P	SUR	70	-67	605	0	0.5	-6.4	6.4
4701677	99	P	SUR	48	-50	657	2	0.9	0.5	1.0
47546	99	P	SUR	39	-25	596	0	0.8	1.4	1.7
47552	99	P	SUR	68	-63	543	543	0.0	0.0	0.0
47555	99	P	SUR	38	-13	599	0	1.4	0.6	1.6
47560	99	P	SUR	66	12	584	0	0.9	0.8	1.2
47568	99	P	SUR	45	-5	597	0	0.4	0.6	0.7
47574	99	P	SUR	37	-17	599	0	0.4	0.3	0.5
4800510	99	P	SUR	82	-12	576	0	0.5	-0.3	0.6
4800770	99	P	SUR	79	-18	366	0	0.8	0.3	0.8
4802004	99	P	SUR	64	-40	601	0	3.9	-0.3	4.0
4802009	99	P	SUR	63	-40	589	184	7.4	2.3	7.7
48510	99	P	SUR	82	-12	582	0	0.5	-0.3	0.6
48770	99	P	SUR	79	-18	375	0	0.8	0.3	0.8
6100001	99	P	SUR	43	8	672	0	0.6	-0.5	0.8
6100002	99	P	SUR	42	5	670	0	0.4	-0.0	0.4
61001	99	P	SUR	43	8	672	0	0.6	-0.5	0.8
6100196	99	P	SUR	42	4	655	0	0.6	-0.6	0.8
6100197	99	P	SUR	40	4	656	0	0.4	-0.3	0.5
6100198	99	P	SUR	37	-2	302	0	0.4	0.0	0.4
61002	99	P	SUR	42	5	670	0	0.4	-0.0	0.4
6100280	99	P	SUR	41	1	656	0	0.5	-0.3	0.6
6100281	99	P	SUR	40	0	647	0	0.5	-0.3	0.5
6100417	99	P	SUR	38	0	656	0	0.4	-0.1	0.4
6100430	99	P	SUR	40	2	656	0	0.4	-0.5	0.6
6101001	99	P	SUR	38	24	54	0	0.5	0.6	0.8
6101003	99	P	SUR	40	25	54	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
6101007	99	P	SUR	36	25	52	0	0.6	2.9	3.0
6101008	99	P	SUR	37	22	48	0	0.5	0.1	0.5
6200024	99	P	SUR	44	-3	656	0	0.5	-0.2	0.6
6200025	99	P	SUR	44	-6	656	0	0.5	-0.2	0.6
6200082	99	P	SUR	44	-8	625	0	0.6	-0.3	0.7
6200083	99	P	SUR	43	-9	656	0	0.5	-0.3	0.6
6200084	99	P	SUR	42	-9	656	0	0.4	-0.3	0.5
6200085	99	P	SUR	36	-7	656	0	0.4	0.0	0.4
6200091	99	P	SUR	53	-5	59	0	0.5	-0.5	0.7
6200093	99	P	SUR	55	-10	663	0	0.7	-0.7	1.0
62001	99	P	SUR	45	-5	669	0	0.4	-0.1	0.4
6200191	99	P	SUR	41	-10	132	0	0.4	-0.5	0.6
6200192	99	P	SUR	40	-10	132	0	0.4	-1.0	1.1
6200199	99	P	SUR	40	-9	132	0	0.4	0.2	0.5
6200200	99	P	SUR	36	-8	132	0	0.4	-0.0	0.4
6200513	99	P	SUR	63	-24	671	2	1.3	-0.3	1.3
6200554	99	P	SUR	37	-19	94	0	0.3	0.5	0.6
6200559	99	P	SUR	56	-6	643	0	0.9	-0.1	0.9
6200940	99	P	SUR	29	-45	671	0	0.3	0.0	0.3
6200941	99	P	SUR	25	-62	631	0	0.2	-0.2	0.3
6201030	99	P	SUR	44	-4	226	0	0.3	1.0	1.0
6201070	99	P	SUR	43	-9	662	0	0.7	-1.5	1.7
62023	99	P	SUR	51	-8	672	0	0.4	0.1	0.5
62029	99	P	SUR	49	-12	1328	0	0.5	-0.3	0.6
6203503	99	P	SUR	28	-45	625	0	0.3	-0.8	0.8
6203504	99	P	SUR	25	-52	670	0	0.3	0.3	0.4
6203510	99	P	SUR	21	-58	644	0	0.2	0.2	0.3
6203523	99	P	SUR	64	-12	621	0	0.5	-0.2	0.6
6203526	99	P	SUR	65	2	621	0	0.4	0.6	0.7
6203528	99	P	SUR	32	-13	657	0	0.4	0.3	0.5
6203529	99	P	SUR	16	-40	662	0	0.3	0.0	0.3
6203600	99	P	SUR	46	-13	671	0	0.4	0.3	0.5
6203601	99	P	SUR	48	-16	671	0	0.5	0.3	0.6
6203602	99	P	SUR	64	-25	671	0	0.7	0.5	0.8
6203603	99	P	SUR	54	-33	671	0	0.7	0.1	0.7
6203604	99	P	SUR	49	-29	670	0	0.9	0.4	0.9
6203605	99	P	SUR	60	-30	670	0	0.8	0.3	0.8
6203606	99	P	SUR	46	-7	670	0	1.4	0.8	1.6
6203607	99	P	SUR	38	-33	671	0	0.7	0.3	0.8
62050	99	P	SUR	50	-4	669	0	0.5	0.2	0.5
62081	99	P	SUR	51	-13	671	0	0.6	-0.5	0.8
62082	99	P	SUR	55	6	4	0	0.2	0.0	0.2
62086	99	P	SUR	55	6	490	0	0.6	-0.2	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62095	99	P	SUR	53	-15	725	1	0.6	-0.4	0.8
62102	99	P	SUR	58	2	668	0	0.5	0.3	0.6
62103	99	P	SUR	50	-3	670	0	0.5	0.4	0.6
62104	99	P	SUR	57	1	663	0	0.4	-0.2	0.4
62107	99	P	SUR	50	-6	1330	0	0.8	0.2	0.8
62111	99	P	SUR	58	0	668	0	0.4	1.1	1.2
62112	99	P	SUR	58	0	668	0	0.3	0.2	0.4
62113	99	P	SUR	58	0	668	0	0.6	-0.0	0.6
62114	99	P	SUR	58	0	1330	0	0.4	0.1	0.5
62116	99	P	SUR	58	1	668	0	0.7	0.1	0.7
62118	99	P	SUR	58	1	668	0	0.4	0.4	0.5
62119	99	P	SUR	57	2	668	0	0.5	0.0	0.5
62120	99	P	SUR	56	2	649	0	0.5	-0.2	0.5
62121	99	P	SUR	54	3	668	0	0.7	0.3	0.8
62122	99	P	SUR	57	2	1328	0	0.5	-0.1	0.5
62124	99	P	SUR	54	-4	666	0	0.4	0.0	0.4
62127	99	P	SUR	54	1	664	0	0.4	0.5	0.6
62129	99	P	SUR	58	0	668	0	0.6	0.1	0.6
62130	99	P	SUR	59	1	666	0	0.4	-0.2	0.4
62131	99	P	SUR	54	1	582	0	0.5	0.6	0.8
62132	99	P	SUR	56	2	668	0	0.5	0.3	0.6
62133	99	P	SUR	57	1	668	0	0.6	0.2	0.7
62134	99	P	SUR	58	1	668	0	0.4	0.2	0.4
62135	99	P	SUR	54	2	668	0	0.4	0.4	0.6
62136	99	P	SUR	54	3	586	0	0.4	0.6	0.7
62138	99	P	SUR	54	0	1330	2	0.5	0.7	0.9
62139	99	P	SUR	53	2	1329	0	0.4	0.2	0.5
62140	99	P	SUR	57	1	1316	0	0.4	0.1	0.5
62141	99	P	SUR	58	-4	661	0	0.6	-2.2	2.3
62143	99	P	SUR	58	2	668	0	0.5	0.7	0.8
62144	99	P	SUR	53	2	668	0	0.4	0.1	0.4
62145	99	P	SUR	53	3	1330	0	0.4	0.4	0.6
62146	99	P	SUR	57	2	628	0	0.5	0.2	0.5
62148	99	P	SUR	54	2	668	0	0.6	0.8	1.0
62149	99	P	SUR	54	1	664	0	0.3	0.7	0.8
62150	99	P	SUR	54	1	650	0	0.4	1.2	1.3
62151	99	P	SUR	57	2	1325	0	0.5	0.2	0.5
62152	99	P	SUR	57	2	668	0	0.5	0.3	0.5
62153	99	P	SUR	57	2	1304	0	0.4	0.3	0.5
62154	99	P	SUR	56	2	668	0	0.5	-0.1	0.5
62155	99	P	SUR	58	1	668	0	0.4	0.3	0.5
62157	99	P	SUR	58	0	668	0	0.4	-0.0	0.4
62160	99	P	SUR	57	2	1329	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
62161	99	P	SUR	58	1	667	0	0.6	0.1	0.6
62162	99	P	SUR	57	1	667	0	0.4	-0.0	0.4
62163	99	P	SUR	48	-8	663	0	0.5	0.2	0.5
62164	99	P	SUR	57	1	664	0	0.4	0.4	0.5
62165	99	P	SUR	54	1	664	0	0.5	0.5	0.7
62168	99	P	SUR	58	1	662	0	0.4	0.0	0.4
62170	99	P	SUR	51	2	669	0	0.7	0.1	0.7
62296	99	P	SUR	53	2	668	0	0.4	0.1	0.4
62297	99	P	SUR	59	2	1324	0	0.4	0.1	0.4
62302	99	P	SUR	61	-2	668	0	0.5	0.0	0.5
62304	99	P	SUR	51	2	615	3	0.5	0.2	0.5
62305	99	P	SUR	50	0	609	1	0.5	0.3	0.6
62442	99	P	SUR	49	-16	668	0	0.5	-0.3	0.6
62513	99	P	SUR	63	-24	671	2	1.3	-0.3	1.3
62554	99	P	SUR	37	-19	94	0	0.3	0.5	0.6
62559	99	P	SUR	56	-6	643	0	0.9	-0.1	0.9
62940	99	P	SUR	29	-45	671	0	0.3	0.0	0.3
62941	99	P	SUR	25	-62	631	0	0.2	-0.2	0.3
6301552	99	P	SUR	79	27	666	0	0.6	-0.3	0.7
6301555	99	P	SUR	75	30	671	0	1.0	1.0	1.4
6301556	99	P	SUR	72	3	671	0	0.9	0.7	1.1
6301557	99	P	SUR	80	6	671	0	1.1	1.0	1.5
63055	99	P	SUR	61	2	667	0	0.6	-0.1	0.6
63056	99	P	SUR	60	2	668	0	0.6	0.4	0.7
63057	99	P	SUR	59	2	668	0	0.4	-0.1	0.4
63058	99	P	SUR	53	2	2002	0	0.4	0.3	0.5
63059	99	P	SUR	58	-1	668	0	0.4	0.3	0.5
63101	99	P	SUR	61	1	668	0	0.6	0.4	0.7
63102	99	P	SUR	61	1	668	0	0.4	0.1	0.5
63103	99	P	SUR	61	1	668	0	0.4	0.2	0.4
63104	99	P	SUR	61	2	668	0	0.4	0.5	0.7
63105	99	P	SUR	61	2	668	0	0.4	-0.2	0.5
63108	99	P	SUR	61	2	668	0	0.5	-0.1	0.5
63109	99	P	SUR	60	2	668	0	0.4	-0.2	0.5
63110	99	P	SUR	60	2	667	0	0.5	-0.0	0.5
63111	99	P	SUR	61	2	1309	0	0.5	-0.3	0.6
63112	99	P	SUR	61	1	668	0	0.4	-0.3	0.5
63115	99	P	SUR	62	1	668	0	0.4	-0.1	0.4
63117	99	P	SUR	61	1	1330	0	0.8	0.7	1.1
63118	99	P	SUR	57	1	660	0	0.5	-0.2	0.5
63120	99	P	SUR	54	2	667	0	0.4	0.4	0.6
6400526	99	P	SUR	48	-11	660	0	0.5	0.2	0.6
6400562	99	P	SUR	63	-3	671	0	1.1	0.6	1.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6400760	99	P	SUR	54	9	9	0	0.2	-0.5	0.5
6401501	99	P	SUR	66	9	619	0	0.4	0.7	0.8
6401507	99	P	SUR	75	17	628	0	0.5	0.5	0.7
6401550	99	P	SUR	68	12	649	0	1.0	0.7	1.2
6401555	99	P	SUR	66	-5	671	0	0.5	0.9	1.0
6401556	99	P	SUR	64	-5	671	0	1.0	0.9	1.4
6401557	99	P	SUR	58	-58	671	0	0.8	0.3	0.9
6401560	99	P	SUR	58	-2	671	0	0.6	0.8	1.0
6401561	99	P	SUR	58	-28	671	0	0.6	0.2	0.6
6401562	99	P	SUR	63	-6	671	0	0.8	0.0	0.8
6401563	99	P	SUR	62	-20	351	0	1.3	1.1	1.7
6401564	99	P	SUR	63	-12	671	0	0.5	0.5	0.7
6401565	99	P	SUR	62	-17	671	0	0.7	0.3	0.8
64041	99	P	SUR	61	-3	666	0	0.5	-0.2	0.5
64045	99	P	SUR	59	-12	673	1	0.6	-0.4	0.7
64046	99	P	SUR	61	-4	672	0	0.4	-0.1	0.4
64526	99	P	SUR	48	-11	660	0	0.5	0.2	0.6
64562	99	P	SUR	63	-2	671	0	1.1	0.6	1.3
64760	99	P	SUR	54	9	9	0	0.2	-0.5	0.5
6500519	99	P	SUR	70	33	671	0	0.7	0.2	0.7
6500596	99	P	SUR	73	-5	612	0	1.4	0.6	1.5
6500599	99	P	SUR	73	33	668	0	0.6	0.8	1.0
6500602	99	P	SUR	67	3	671	0	0.5	0.7	0.8
6501551	99	P	SUR	51	-46	671	0	0.7	0.2	0.7
6501553	99	P	SUR	54	-26	671	0	0.7	0.1	0.7
6501555	99	P	SUR	65	-52	672	0	0.8	-0.5	1.0
6501556	99	P	SUR	55	-22	671	0	0.5	0.2	0.6
65519	99	P	SUR	70	33	671	0	0.7	0.2	0.7
65596	99	P	SUR	73	-5	612	0	1.4	0.6	1.5
65599	99	P	SUR	73	33	668	0	0.6	0.8	1.0
65602	99	P	SUR	67	3	671	0	0.5	0.7	0.8
72082	99	P	SUR	55	6	1	0	0.0	0.0	0.0

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

```
          DRIFTER MONITORING STATISTICS (EUCOS)
                   MONITORING CENTRE     : ECMWF
                   ELEMENT MONITORED     : WIND SPEED (M/S)
                   AREA                  : 10N - 90N, 70W - 40E
                   PERIOD                : FEB 2018
                   STANDARD OF COMPARISON: FIRST-GUESS FIELD


TIME = 99 => AVERAGE OF ALL OBSERVATIONS


GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S
```

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300001	99	SPEED	SUR	11	-23	505	0	0	0.9	0.1	0.9
1300002	99	SPEED	SUR	20	-23	669	0	0	1.0	0.5	1.1
1300008	99	SPEED	SUR	15	-38	669	0	0	1.0	0.1	1.0
1300130	99	SPEED	SUR	28	-16	654	0	0	1.4	-0.2	1.4
1300131	99	SPEED	SUR	28	-17	653	0	0	2.5	1.4	2.8
4100026	99	SPEED	SUR	12	-38	278	0	0	0.9	-0.6	1.1
4100139	99	SPEED	SUR	20	-38	633	0	0	1.1	0.2	1.1
4100300	99	SPEED	SUR	16	-57	606	0	0	0.9	-0.6	1.1
41026	99	SPEED	SUR	12	-38	277	0	0	0.9	-0.6	1.1
41040	99	SPEED	SUR	15	-53	1040	0	0	0.9	0.0	1.0
41041	99	SPEED	SUR	14	-46	1038	0	0	0.9	-0.2	0.9
41044	99	SPEED	SUR	22	-59	1060	0	0	0.9	-0.4	1.0
41046	99	SPEED	SUR	24	-68	1043	0	0	0.9	-0.3	0.9
41048	99	SPEED	SUR	32	-70	1047	0	0	1.2	-0.1	1.2
41049	99	SPEED	SUR	28	-63	668	0	0	1.1	0.0	1.1
41052	99	SPEED	SUR	18	-65	1787	0	0	1.1	-1.1	1.5
41053	99	SPEED	SUR	19	-66	1724	0	0	1.5	0.7	1.7
41056	99	SPEED	SUR	18	-66	1522	0	0	1.3	-1.4	1.9
41300	99	SPEED	SUR	16	-57	606	0	0	0.9	-0.6	1.1
42085	99	SPEED	SUR	18	-67	718	0	0	1.3	-0.1	1.3
44032	99	SPEED	SUR	44	-69	659	0	0	1.5	-0.4	1.5
44033	99	SPEED	SUR	44	-69	481	0	0	1.6	-0.1	1.6
44037	99	SPEED	SUR	44	-68	634	0	0	1.3	-0.2	1.4
44137	99	SPEED	SUR	42	-62	673	0	0	1.6	-0.0	1.6
44139	99	SPEED	SUR	44	-57	328	0	0	1.6	-0.7	1.8
44150	99	SPEED	SUR	43	-64	619	0	0	1.7	-0.3	1.7
6100001	99	SPEED	SUR	43	8	672	0	0	1.8	0.1	1.8
6100002	99	SPEED	SUR	42	5	670	0	0	1.4	0.9	1.6
61001	99	SPEED	SUR	43	8	672	0	0	2.2	-1.0	2.4
6100197	99	SPEED	SUR	40	4	656	0	0	1.6	-0.1	1.6
6100198	99	SPEED	SUR	37	-2	272	0	0	1.3	-1.4	1.9
61002	99	SPEED	SUR	42	5	670	0	0	1.4	0.2	1.4
6100280	99	SPEED	SUR	41	1	651	0	0	1.8	-0.9	2.0
6100281	99	SPEED	SUR	40	0	653	0	0	2.5	0.9	2.7

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
6100417	99	SPEED	SUR	38	0	654	0	0	1.8	0.2	1.8
6100430	99	SPEED	SUR	40	2	652	0	0	1.9	-0.3	2.0
6101001	99	SPEED	SUR	38	24	54	0	0	1.8	-0.4	1.8
6101003	99	SPEED	SUR	40	25	54	0	0	2.7	-5.4	6.0
6101007	99	SPEED	SUR	36	25	52	0	0	2.1	-0.2	2.1
6101008	99	SPEED	SUR	37	22	48	0	0	1.8	-0.1	1.8
6200024	99	SPEED	SUR	44	-3	656	0	0	1.6	-0.4	1.7
6200025	99	SPEED	SUR	44	-6	654	0	0	1.6	-0.3	1.6
6200082	99	SPEED	SUR	44	-8	625	0	0	1.2	-0.8	1.4
6200083	99	SPEED	SUR	43	-9	656	0	0	1.3	-0.3	1.3
6200084	99	SPEED	SUR	42	-9	655	0	0	1.5	-0.4	1.6
6200085	99	SPEED	SUR	36	-7	647	0	0	1.4	-0.1	1.4
6200091	99	SPEED	SUR	53	-5	59	0	0	1.0	0.3	1.1
6200092	99	SPEED	SUR	51	-11	264	0	0	1.5	-0.7	1.7
6200093	99	SPEED	SUR	55	-10	663	0	0	1.6	-0.4	1.6
62001	99	SPEED	SUR	45	-5	669	0	0	1.3	0.8	1.5
6200191	99	SPEED	SUR	41	-10	132	0	0	1.4	-0.2	1.5
6200192	99	SPEED	SUR	40	-10	132	0	0	1.3	0.1	1.3
6200199	99	SPEED	SUR	40	-9	132	0	0	1.4	0.3	1.4
6200200	99	SPEED	SUR	36	-8	132	9	0	1.1	0.2	1.1
6201030	99	SPEED	SUR	44	-4	226	0	0	1.2	-0.5	1.3
6201070	99	SPEED	SUR	43	-9	662	0	0	1.7	-0.0	1.7
62023	99	SPEED	SUR	51	-8	672	0	0	1.6	0.0	1.6
62029	99	SPEED	SUR	49	-12	1328	0	0	1.2	0.3	1.3
62050	99	SPEED	SUR	50	-4	669	0	0	1.1	0.8	1.3
62081	99	SPEED	SUR	51	-13	671	0	0	1.3	-0.2	1.3
62082	99	SPEED	SUR	55	6	5	0	0	0.4	1.6	1.7
62086	99	SPEED	SUR	55	6	498	0	0	1.4	0.9	1.7
62095	99	SPEED	SUR	53	-15	724	0	0	1.6	0.6	1.7
62102	99	SPEED	SUR	58	2	668	0	0	1.5	-0.3	1.6
62103	99	SPEED	SUR	50	-3	669	0	0	1.6	1.6	2.3
62104	99	SPEED	SUR	57	1	663	0	0	1.3	-0.9	1.6
62107	99	SPEED	SUR	50	-6	1330	0	0	1.5	1.3	2.0
62111	99	SPEED	SUR	58	0	667	0	0	1.7	-0.3	1.8
62112	99	SPEED	SUR	58	0	668	0	0	1.9	-0.8	2.1
62113	99	SPEED	SUR	58	0	668	0	0	1.5	0.1	1.5
62114	99	SPEED	SUR	58	0	1330	0	0	1.5	0.2	1.5
62118	99	SPEED	SUR	58	1	668	0	0	1.4	0.3	1.4
62119	99	SPEED	SUR	57	2	668	0	0	1.8	-0.9	2.0
62120	99	SPEED	SUR	56	2	650	0	0	1.5	-0.4	1.6
62121	99	SPEED	SUR	54	3	668	0	0	1.6	-0.1	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
62122	99	SPEED	SUR	57	2	1328	0	0	1.4	-0.4	1.4
62129	99	SPEED	SUR	58	0	668	0	0	1.3	-0.4	1.3
62131	99	SPEED	SUR	54	1	582	0	0	3.1	-1.3	3.4
62132	99	SPEED	SUR	56	2	666	0	0	3.0	-1.9	3.6
62133	99	SPEED	SUR	57	1	668	0	0	1.3	-0.4	1.4
62134	99	SPEED	SUR	58	1	668	0	0	1.2	-0.4	1.3
62140	99	SPEED	SUR	57	1	1316	0	0	1.4	-0.5	1.5
62143	99	SPEED	SUR	58	2	668	0	0	2.0	-1.0	2.2
62144	99	SPEED	SUR	53	2	668	0	0	1.8	-0.9	2.0
62145	99	SPEED	SUR	53	3	1330	0	0	1.4	0.3	1.4
62146	99	SPEED	SUR	57	2	612	0	0	1.8	-0.5	1.9
62148	99	SPEED	SUR	54	2	668	0	0	1.7	-0.4	1.7
62149	99	SPEED	SUR	54	1	664	0	0	1.7	-0.1	1.7
62150	99	SPEED	SUR	54	1	650	0	0	2.5	-1.2	2.8
62152	99	SPEED	SUR	57	2	668	0	0	1.7	-1.1	2.0
62153	99	SPEED	SUR	57	2	1304	0	0	2.4	-1.1	2.6
62154	99	SPEED	SUR	56	2	664	0	0	1.6	-0.8	1.8
62155	99	SPEED	SUR	58	1	604	0	0	2.1	0.4	2.2
62163	99	SPEED	SUR	48	-8	663	0	0	1.2	-0.2	1.2
62164	99	SPEED	SUR	57	1	664	0	0	1.6	-1.6	2.2
62165	99	SPEED	SUR	54	1	664	0	0	1.6	-0.7	1.7
62170	99	SPEED	SUR	51	2	669	0	0	1.8	1.5	2.3
62304	99	SPEED	SUR	51	2	610	0	0	1.6	1.6	2.3
62305	99	SPEED	SUR	50	0	608	0	0	1.5	1.7	2.3
62442	99	SPEED	SUR	49	-16	668	0	0	1.4	-1.1	1.7
63055	99	SPEED	SUR	61	2	667	0	0	1.4	-1.1	1.8
63056	99	SPEED	SUR	60	2	668	0	0	1.5	-0.6	1.7
63057	99	SPEED	SUR	59	2	668	0	0	1.5	-0.5	1.6
63058	99	SPEED	SUR	53	2	1334	0	0	1.3	-0.2	1.4
63101	99	SPEED	SUR	61	1	667	0	0	1.4	-0.7	1.6
63103	99	SPEED	SUR	61	1	668	0	0	1.8	-0.0	1.8
63104	99	SPEED	SUR	61	2	668	0	0	1.4	-0.4	1.5
63105	99	SPEED	SUR	61	2	668	0	0	1.6	-0.1	1.6
63106	99	SPEED	SUR	61	2	668	0	0	1.5	-0.7	1.7
63108	99	SPEED	SUR	61	2	668	0	0	1.6	-0.3	1.7
63109	99	SPEED	SUR	60	2	659	0	0	1.4	-0.4	1.5
63110	99	SPEED	SUR	60	2	666	0	0	1.4	-0.8	1.7
63112	99	SPEED	SUR	61	1	668	0	0	1.3	-1.0	1.6
63113	99	SPEED	SUR	61	2	668	0	0	1.4	-0.6	1.5
63115	99	SPEED	SUR	62	1	668	0	0	1.4	-1.0	1.8
63117	99	SPEED	SUR	61	1	1330	0	0	1.4	-0.6	1.5

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
64041	99	SPEED	SUR	61	-3	666	0	0	1.3	-0.7	1.5
64045	99	SPEED	SUR	59	-12	669	1	0	1.5	0.0	1.5
64046	99	SPEED	SUR	61	-4	672	0	0	1.4	0.3	1.4
72082	99	SPEED	SUR	55	6	1	0	0	0.0	-0.9	0.9

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

```
DRIFTER MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
         AREA                  : 10N - 90N, 70W - 40E
         PERIOD                : FEB 2018
         STANDARD OF COMPARISON: FIRST-GUESS FIELD


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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300001	99	DIRN	SUR	11	-23	468	0	0	9.4	-1.3	9.5
1300002	99	DIRN	SUR	20	-23	623	0	0	10.9	0.3	10.9
1300008	99	DIRN	SUR	15	-38	620	0	0	10.3	1.7	10.4
1300130	99	DIRN	SUR	28	-16	599	0	0	13.6	1.0	13.6
1300131	99	DIRN	SUR	28	-17	402	0	0	33.3	-15.3	36.6
4100026	99	DIRN	SUR	12	-38	267	0	0	10.1	-6.5	12.0
4100139	99	DIRN	SUR	20	-38	598	0	0	11.2	3.2	11.7
41002	99	DIRN	SUR	32	-75	607	0	0	15.0	10.6	18.3
4100300	99	DIRN	SUR	16	-57	605	0	0	9.3	-14.3	17.1
41004	99	DIRN	SUR	33	-79	746	0	0	17.2	7.4	18.7
41008	99	DIRN	SUR	31	-81	374	0	0	22.7	13.4	26.3
41009	99	DIRN	SUR	29	-80	787	0	0	19.8	4.1	20.2
41010	99	DIRN	SUR	29	-79	25	0	0	15.8	-0.3	15.8
41013	99	DIRN	SUR	33	-78	832	0	0	20.4	6.2	21.4
41024	99	DIRN	SUR	34	-79	329	0	0	18.9	-9.8	21.3
41025	99	DIRN	SUR	35	-75	940	0	0	30.9	7.8	31.9
41026	99	DIRN	SUR	12	-38	262	0	0	10.3	-6.7	12.3
41029	99	DIRN	SUR	33	-80	547	0	0	21.9	5.4	22.6
41033	99	DIRN	SUR	32	-80	365	0	0	21.2	6.9	22.3
41037	99	DIRN	SUR	34	-77	555	0	0	22.4	-1.3	22.4
41038	99	DIRN	SUR	34	-78	387	0	0	22.8	1.0	22.8
41040	99	DIRN	SUR	15	-53	1034	0	0	11.6	-7.2	13.6
41041	99	DIRN	SUR	14	-46	1028	0	0	9.2	-12.9	15.8
41044	99	DIRN	SUR	22	-59	1022	0	0	9.1	3.0	9.6
41046	99	DIRN	SUR	24	-68	999	0	0	11.8	4.4	12.6
41047	99	DIRN	SUR	28	-72	745	0	0	14.3	-3.0	14.7
41048	99	DIRN	SUR	32	-70	845	0	0	15.4	-1.7	15.5
41049	99	DIRN	SUR	28	-63	502	0	0	12.4	8.0	14.8
41052	99	DIRN	SUR	18	-65	1772	0	0	9.9	4.5	10.9
41053	99	DIRN	SUR	19	-66	1582	0	0	13.6	-3.7	14.1
41056	99	DIRN	SUR	18	-66	1510	0	0	11.3	3.3	11.8
41063	99	DIRN	SUR	35	-76	703	0	0	23.3	-8.8	24.9

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
41064	99	DIRN	SUR	34	-77	529	0	0	25.3	-4.7	25.7
41300	99	DIRN	SUR	16	-57	605	0	0	9.3	-14.3	17.1
42013	99	DIRN	SUR	27	-83	450	0	0	17.6	1.6	17.6
42056	99	DIRN	SUR	20	-85	1010	0	0	9.7	5.0	10.9
42057	99	DIRN	SUR	17	-81	1043	0	0	11.0	2.3	11.2
42058	99	DIRN	SUR	15	-75	1129	0	0	5.6	7.6	9.5
42085	99	DIRN	SUR	18	-67	694	0	0	13.7	27.6	30.8
44007	99	DIRN	SUR	44	-70	563	0	0	16.9	5.5	17.8
44009	99	DIRN	SUR	39	-75	557	0	0	16.8	16.9	23.8
44013	99	DIRN	SUR	42	-71	608	0	0	21.7	11.0	24.3
44014	99	DIRN	SUR	37	-75	549	0	0	16.1	4.5	16.7
44017	99	DIRN	SUR	41	-72	123	0	0	15.3	11.0	18.9
44020	99	DIRN	SUR	41	-70	573	0	0	14.8	6.3	16.0
44025	99	DIRN	SUR	40	-73	613	0	0	18.1	3.3	18.4
44030	99	DIRN	SUR	43	-70	553	0	0	15.8	5.7	16.8
44032	99	DIRN	SUR	44	-69	560	0	0	14.7	9.3	17.4
44033	99	DIRN	SUR	44	-69	362	0	0	61.4	20.5	64.7
44037	99	DIRN	SUR	44	-68	593	0	0	13.9	30.8	33.8
44039	99	DIRN	SUR	41	-73	423	0	0	21.5	4.1	21.9
44042	99	DIRN	SUR	38	-76	739	0	0	149.9	-6.3	150.0
44058	99	DIRN	SUR	38	-76	665	0	0	22.0	-22.4	31.4
44062	99	DIRN	SUR	39	-76	748	0	0	36.5	-5.9	36.9
44064	99	DIRN	SUR	37	-76	296	0	0	24.7	-20.5	32.1
44065	99	DIRN	SUR	40	-74	551	0	0	21.8	9.3	23.7
44066	99	DIRN	SUR	40	-73	633	0	0	16.1	6.3	17.3
44072	99	DIRN	SUR	37	-76	669	0	0	20.1	-10.0	22.4
44137	99	DIRN	SUR	42	-62	642	0	0	18.4	-15.8	24.2
44139	99	DIRN	SUR	44	-57	298	0	0	15.2	8.5	17.4
44150	99	DIRN	SUR	43	-64	580	0	0	12.2	8.9	15.1
6100198	99	DIRN	SUR	37	-2	152	0	0	14.3	-0.3	14.3
6100281	99	DIRN	SUR	40	0	325	0	0	37.6	-12.9	39.8
6100417	99	DIRN	SUR	38	0	454	0	0	20.8	6.8	21.8
6200024	99	DIRN	SUR	44	-3	532	0	0	20.8	6.5	21.8
6200025	99	DIRN	SUR	44	-6	562	0	0	20.4	-0.4	20.4
6200082	99	DIRN	SUR	44	-8	566	0	0	13.3	3.1	13.7
6200083	99	DIRN	SUR	43	-9	566	0	0	13.2	2.0	13.4
6200084	99	DIRN	SUR	42	-9	540	0	0	21.3	7.1	22.5
6200085	99	DIRN	SUR	36	-7	460	0	0	19.9	3.3	20.2
6200091	99	DIRN	SUR	53	-5	59	0	0	9.7	1.0	9.7
6200092	99	DIRN	SUR	51	-11	258	0	0	18.8	9.7	21.1
6200093	99	DIRN	SUR	55	-10	640	0	0	13.1	-0.1	13.1

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
62001	99	DIRN	SUR	45	-5	640	0	0	13.0	1.2	13.1
6200191	99	DIRN	SUR	41	-10	121	0	0	22.4	-8.2	23.8
6200192	99	DIRN	SUR	40	-10	120	0	0	12.8	4.3	13.5
6200199	99	DIRN	SUR	40	-9	112	0	0	13.2	0.3	13.2
6200200	99	DIRN	SUR	36	-8	95	9	0	162.4	-48.3	169.4
6201030	99	DIRN	SUR	44	-4	191	0	0	18.4	-15.3	24.0
6201070	99	DIRN	SUR	43	-9	502	0	0	23.7	-3.3	24.0
62023	99	DIRN	SUR	51	-8	642	0	0	11.7	10.4	15.6
62029	99	DIRN	SUR	49	-12	1282	0	0	11.0	10.3	15.0
62050	99	DIRN	SUR	50	-4	654	0	0	11.7	2.0	11.8
62081	99	DIRN	SUR	51	-13	643	0	0	11.5	11.2	16.0
62095	99	DIRN	SUR	53	-15	696	0	0	13.6	8.3	16.0
62103	99	DIRN	SUR	50	-3	647	0	0	14.2	6.4	15.6
62107	99	DIRN	SUR	50	-6	1330	0	0	14.1	2.1	14.3
62111	99	DIRN	SUR	58	0	614	0	0	18.4	2.9	18.6
62112	99	DIRN	SUR	58	0	615	0	0	11.8	5.1	12.8
62114	99	DIRN	SUR	58	0	1248	0	0	11.6	1.3	11.6
62163	99	DIRN	SUR	48	-8	645	0	0	11.6	-3.7	12.2
62305	99	DIRN	SUR	50	0	567	0	0	14.8	5.0	15.6
62442	99	DIRN	SUR	49	-16	638	0	0	13.0	-12.8	18.2
64041	99	DIRN	SUR	61	-3	623	0	0	13.1	10.8	17.0
64045	99	DIRN	SUR	59	-12	655	1	0	13.2	4.1	13.8
64046	99	DIRN	SUR	61	-4	640	0	0	13.0	-3.1	13.4

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE09	ASFR1	ASFR2	ASFR3	ASFR4	ASUK02	DBLK	FHM5UJH	FPUW5GN
JGQH	KMPLHPW	LRYQE3U	SOCRATES		VKB4L5Q	XQFJRGX	YLV96WM	ZVQEQCM
5QPW8XG	7JUNA4N	01001	01004	01010	01028	01206	01241	01400
01415	01492	02185	02365	02527	02591	02836	02963	03005
03238	03354	03502	03743	03808	03882	03918	03953	04018
04089	04220	04270	04320	04339	04360	04417	06011	06260
06610	07101	07110	07145	07510	07645	07761	08001	08023
08190	08221	08302	08430	08508	08522	08579	10035	10113
10184	10238	10304	10393	10410	10548	10618	10739	10771
10868	10954	10962	11010	11035	11120	11240	11520	11747
11952	12120	12374	12425	12843	12982	13275	13388	16045
16080	16113	16144	16245	16320	16429	16546	16622	16716
16754	17030	17064	17095	17220	17281	17351	17516	17607
33008	37789	40179	40186	43599	47102	47104	47138	47155
47169	47186	60018	61901	61980	61998	67083	68263	68424
68442	68512	68538	68816	68842	70026	70200	70219	70231
70261	70316	70326	70350	70361	70398	71109	71600	71603
71722	71802	71811	71836	71845	71867	71906	71909	71913
71924	71925	71934	71945	71957	71964	72201	72206	72208
72210	72214	72233	72240	72248	72251	72261	72265	72274
72293	72317	72327	72363	72364	72365	72376	72388	72426
72440	72451	72476	72489	72493	72501	72518	72520	72528
72558	72562	72572	72582	72597	72632	72634	72645	72649
72659	72662	72672	72681	72694	72712	72747	72764	72768
72776	72786	72797	74389	74494	74560	76612	76679	76692
76743	76805	76903	78897	78954	81405	85442	85469	85586
85799	85934	88889	89002	89022	89564	89571	89611	89642
89859	91212	91592	91925	91938	91948	91958	93112	93417
93817	93844	93997	94120	94150	94170	94203	94294	94299
94302	94312	94326	94332	94374	94403	94430	94461	94510
94578	94610	94637	94638	94653	94659	94672	94711	94767
94776	94802	94821	94866	94910	94975	94995	94996	94998
95527	96996							

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

ASDE09	ASFR1	ASFR2	ASFR3	ASFR4	ASUK02	DBLK	FHM5UJH	FPUW5GN
KMPLHPW	LRYQE3U	SOCRATES		VKB4L5Q	XQFJRGX	YLV96WM	ZVQEQCM	5QPW8XG
7JUNA4N	01001	01004	01010	01028	01206	01241	01400	01415
01492	02836	02963	07101	08098	14101	15105	17607	19099
47155	73033	76743	76903	85469	94653	94767		

5 Annex - Explanations of figures and tables

5.1 General

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

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

5.2 Data Availability

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

5.3 Data Quality

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

It should be noted that:

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

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

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

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

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

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

The corresponding limits for wind (table 8) are:

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

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

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

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

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

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

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

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

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