ECMWF
Global Data Monitoring Report

September 2015

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 18) – 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 (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 26 (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 25 (Dec 14) – Coverage chart for ATOVS AMSU-A for Noaa_16 removed

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	Aug	Sep	Ident	Time	Aug	Sep
25123	(00)	23	4	24343	(00)	0	24
25123	(12)	23	4	24343	(12)	0	26
29282	(00)	31	12	42410	(12)	2	29
29282	(12)	31	12	42667	(00)	11	29
30554	(00)	20	6	42874	(00)	9	25
30554	(12)	20	5	43003	(12)	12	30
33658	(00)	15	2	43041	(00)	5	26
63450	(12)	21	4	43285	(00)	0	18
63985	(00)	23	2	43295	(00)	14	28
64500	(12)	22	11	43369	(00)	0	17
74626	(00)	59	30	48820	(12)	3	29
78073	(12)	30	1	48855	(12)	0	29
82411	(12)	27	0	48900	(12)	0	29
84008	(12)	30	11	52652	(00)	15	27
91376	(00)	30	13	52652	(12)	11	25
91376	(12)	30	14	63985	(12)	0	28
-	-	-	-	64400	(00)	0	23
-	-	-	-	64400	(12)	0	23
-	-	-	-	68110	(12)	0	21
-	-	-	-	76595	(12)	17	29
-	-	-	-	82400	(00)	5	18
-	-	-	-	82400	(12)	6	20
-	-	-	-	87418	(00)	11	28
-	-	-	-	96645	(00)	1	23
-	-	-	-	96645	(12)	0	18
-	-	-	-	96805	(12)	0	12

2.2 Drifting Buoys

Surface pressure observations from **1546** 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

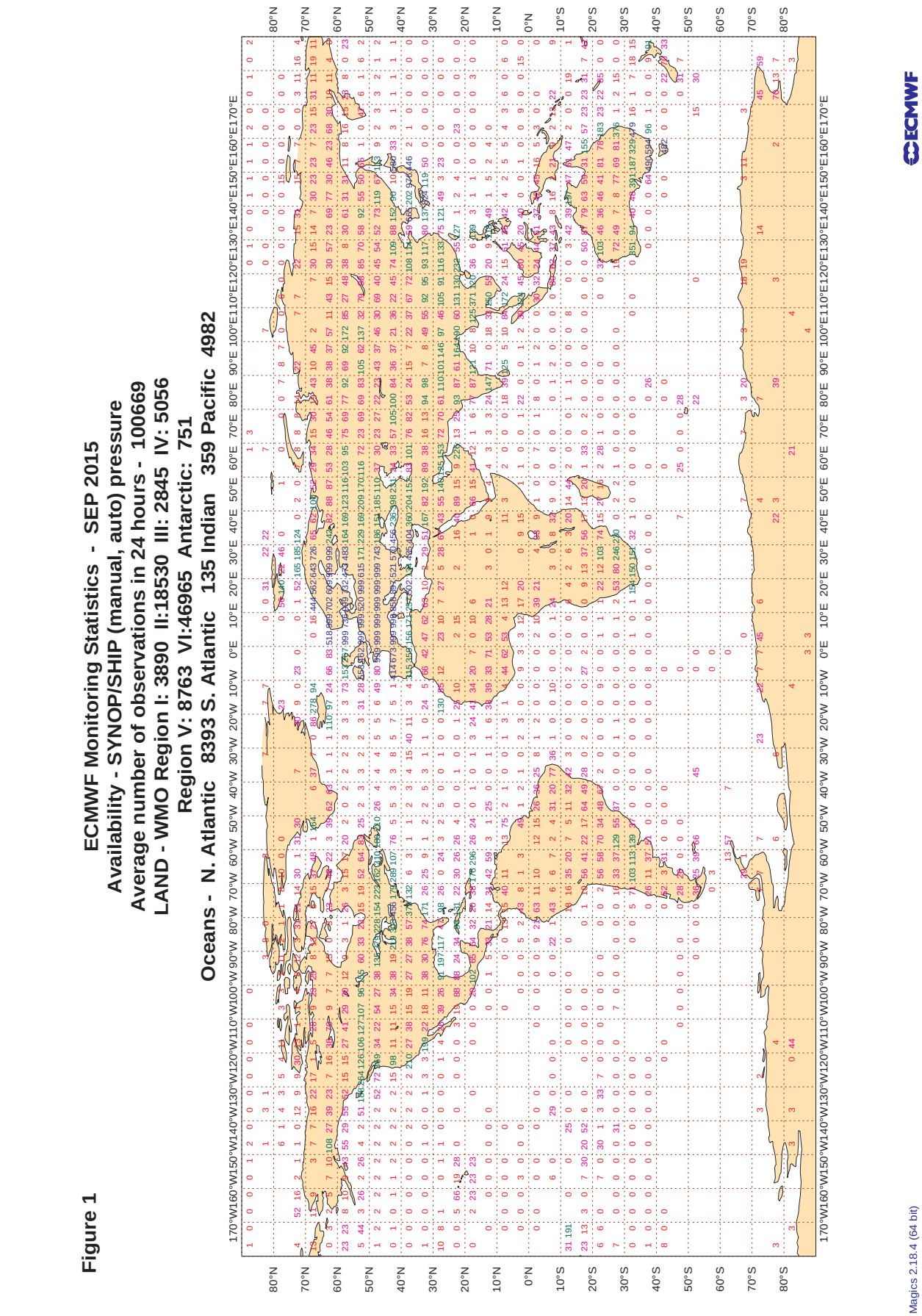


Figure 1

3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

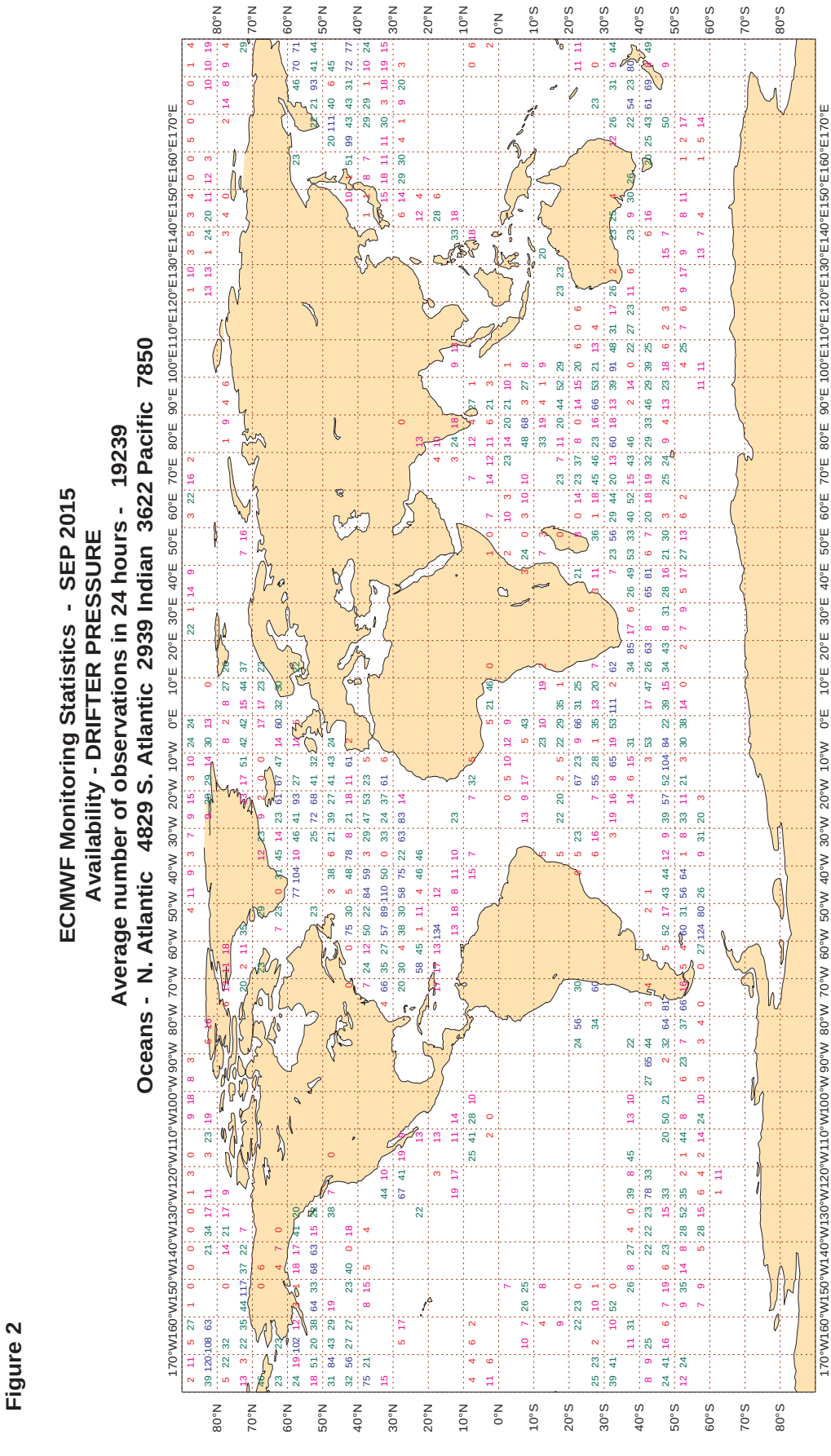


Figure 2

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

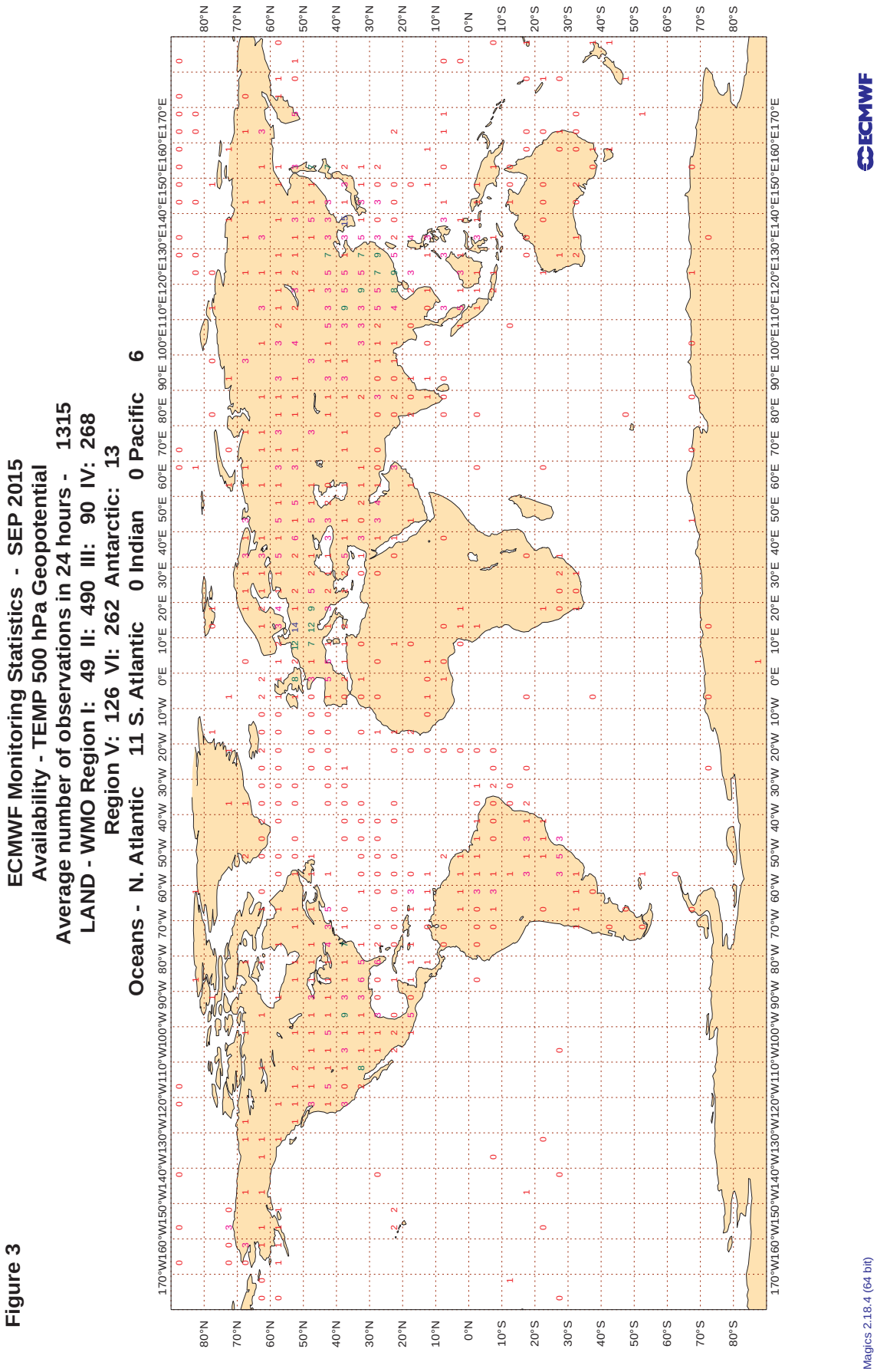


Figure 3

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

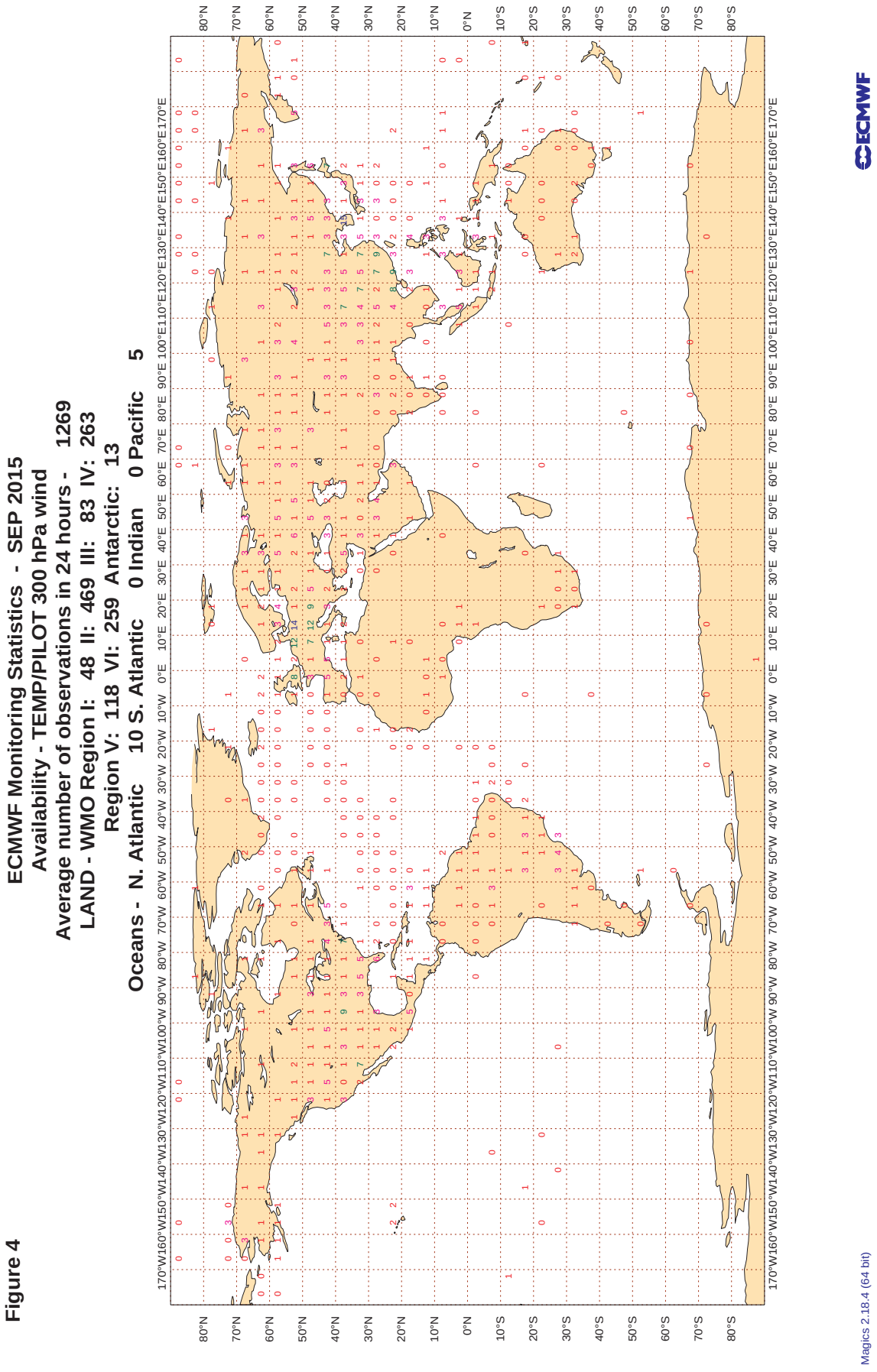


Figure 4

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

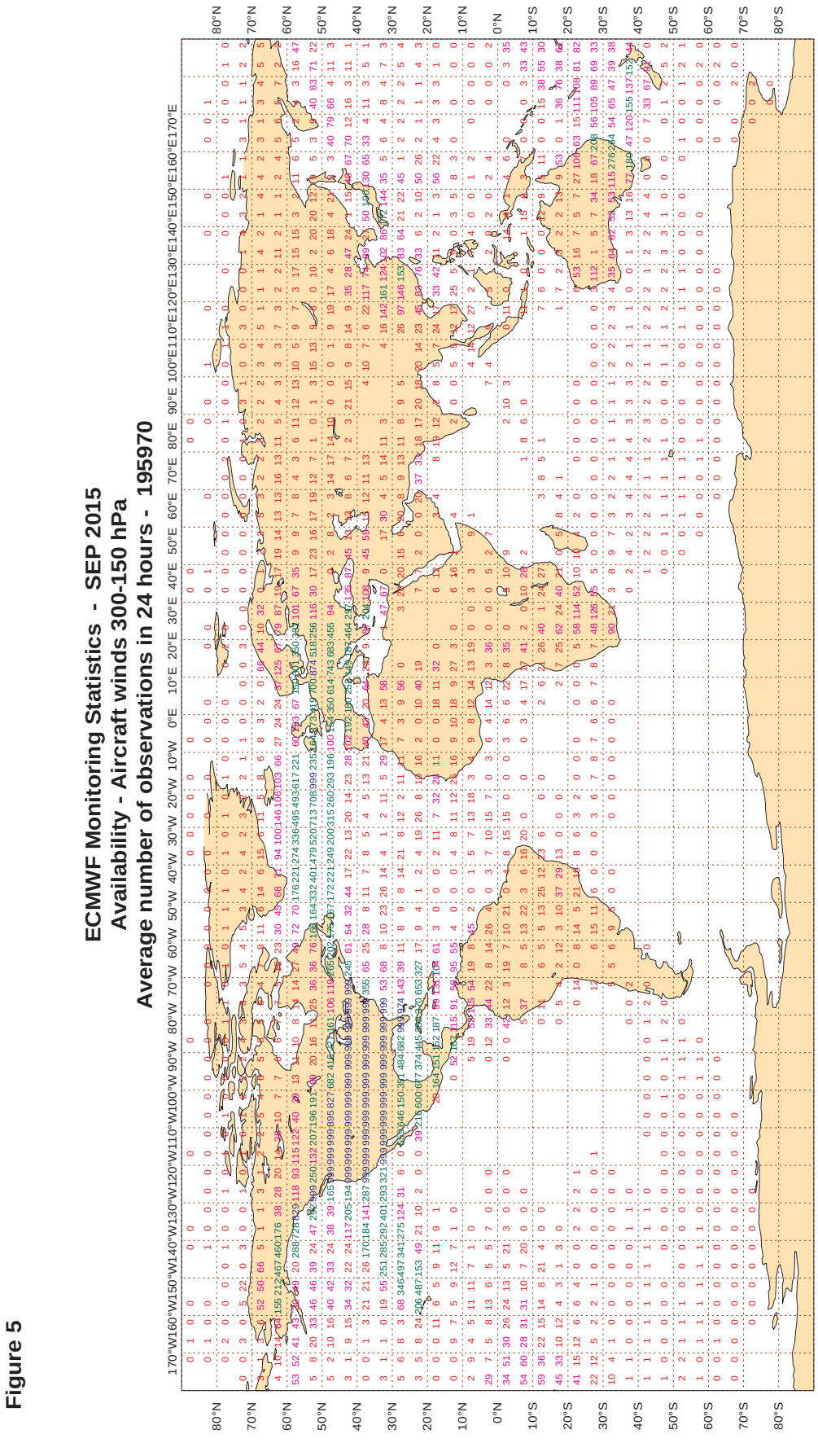


Figure 5

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

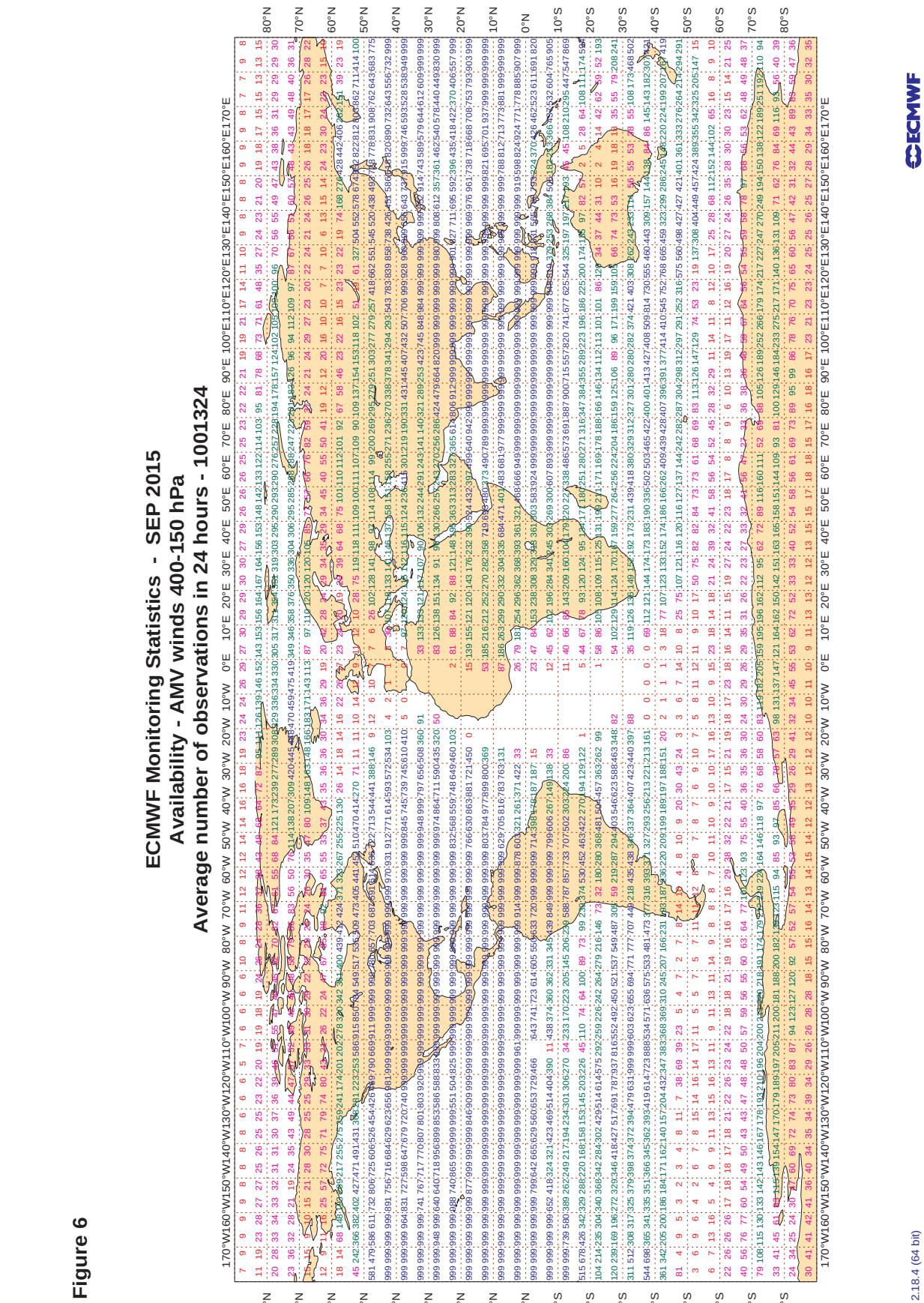


Figure 6

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

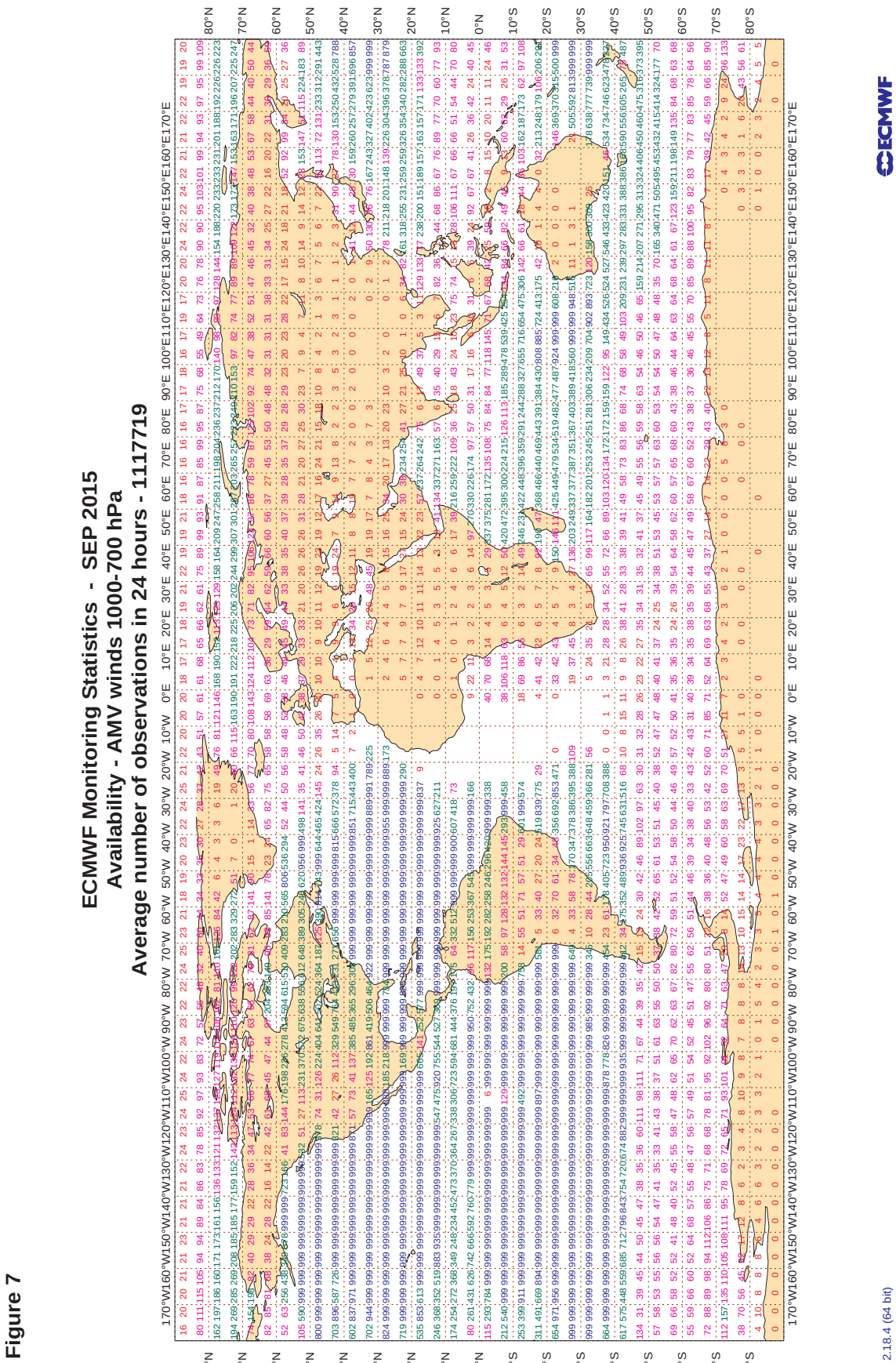
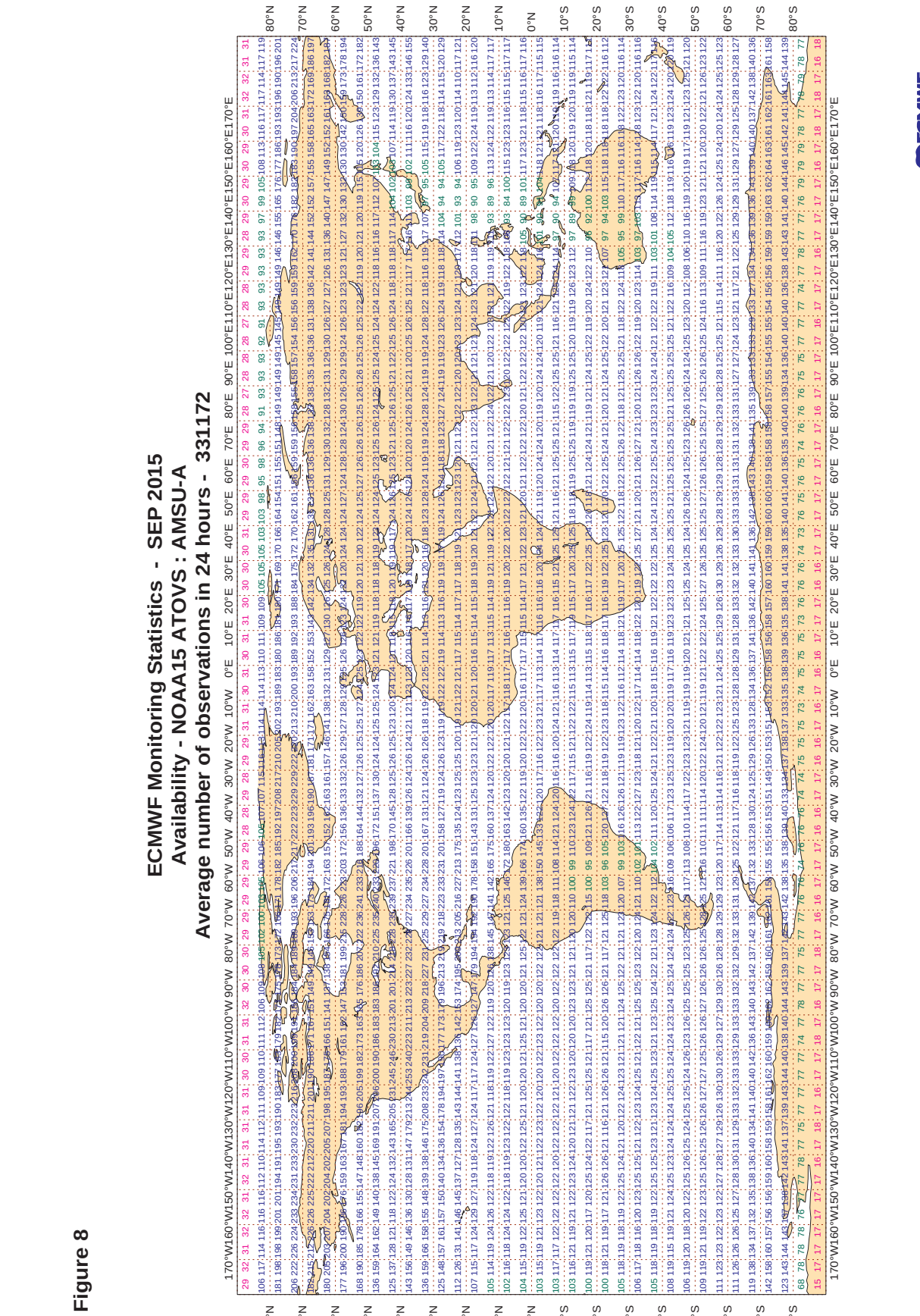
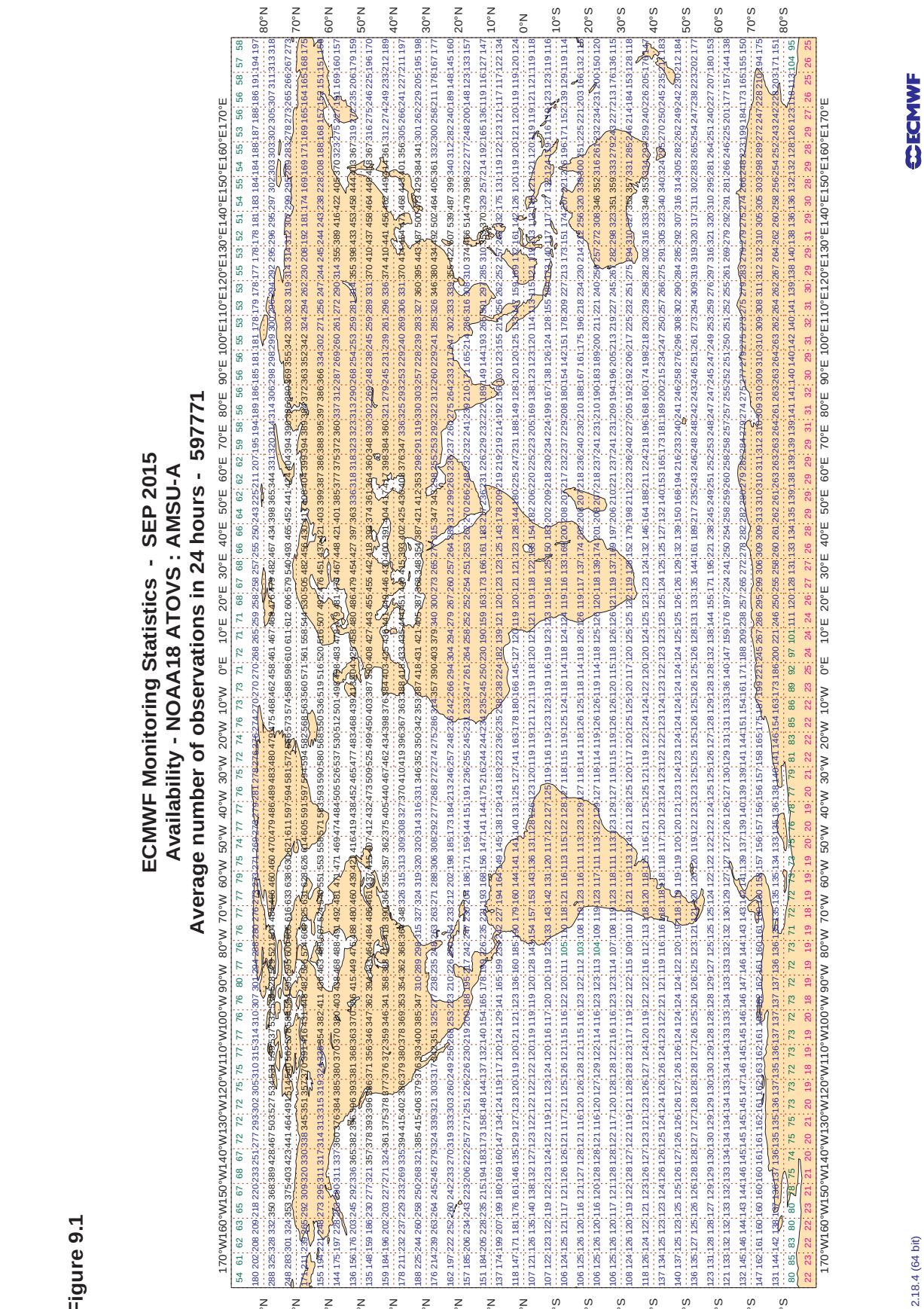


Figure 7

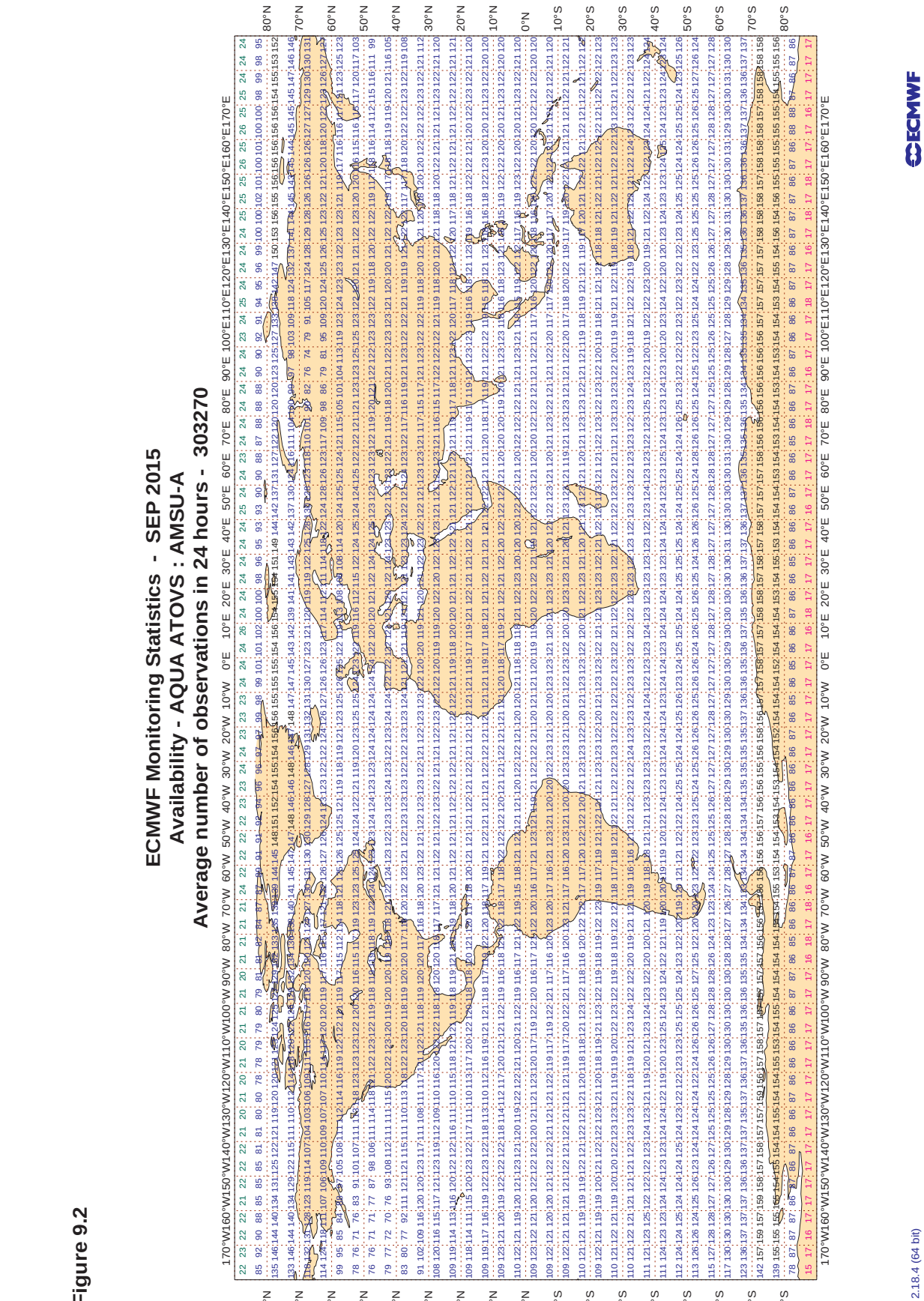
3.2.8 Figure 8 - Availability - NOAA15 ATOVS : AMSU-A



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



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



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

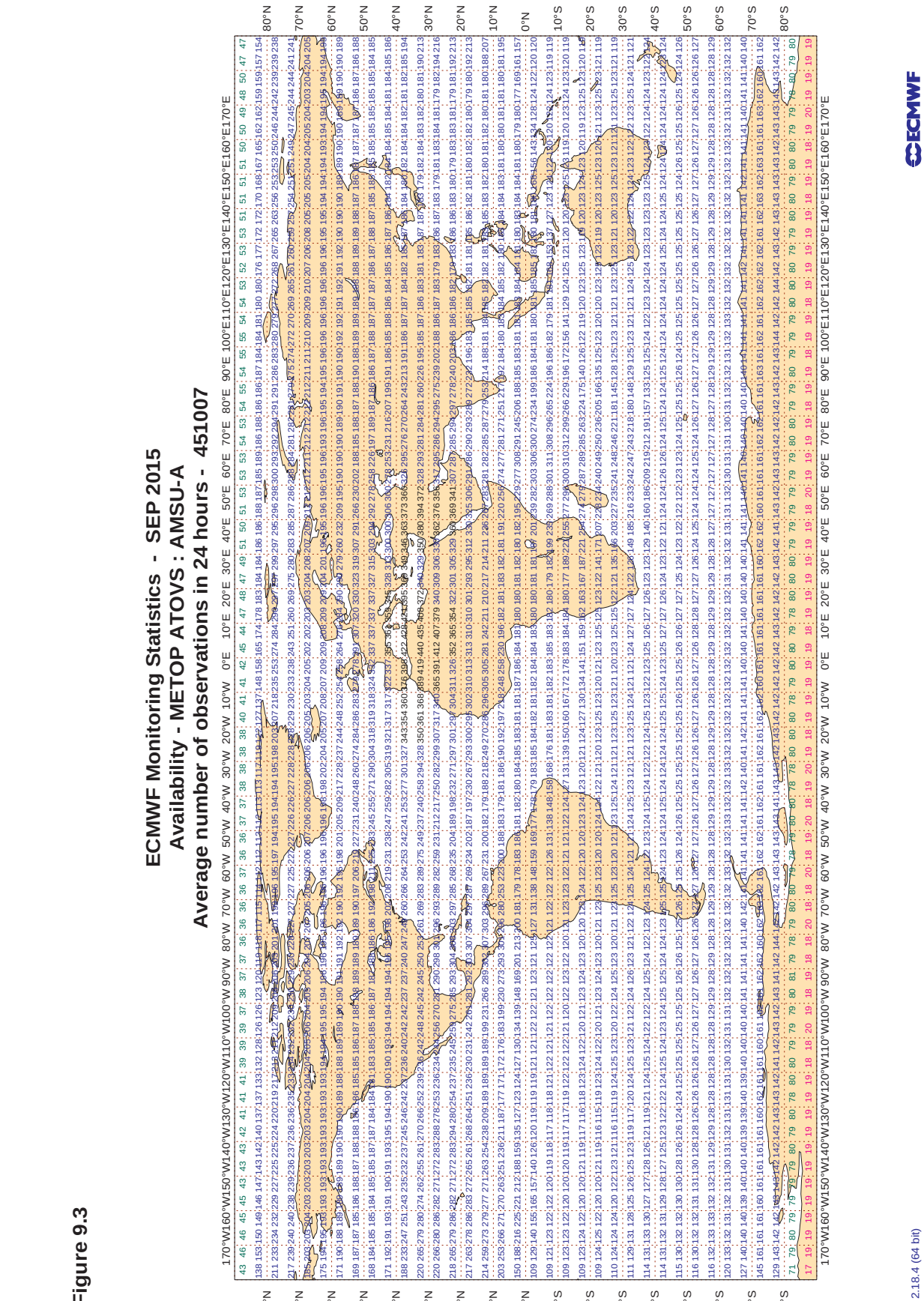


Figure 9.3

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

```
          LIST OF SUSPECT STATIONS        : SHIPS + FIXED MARINE PLATFORMS
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : SURFACE PRESSURE (HPA)
                    AREA                  : GLOBAL
                    PERIOD                : SEP 2015
                    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
UBRI5	99	P	SUR	16	0	1.7	3.0	3.5

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                : SEP 2015
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

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

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

```
          LIST OF SUSPECT STATIONS        : SHIPS + FIXED MARINE PLATFORMS
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
                    AREA                  : GLOBAL
                    PERIOD                : SEP 2015
                    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
45026	99	DIRN	SUR	19	0	0	14.1	-31.3	34.4
45167	99	DIRN	SUR	31	0	0	19.9	-39.8	44.5
45174	99	DIRN	SUR	47	0	0	75.5	38.7	84.9

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

```
          LIST OF SUSPECT STATIONS         : DRIFTER
                    MONITORING CENTRE      : ECMWF
                    ELEMENT MONITORED      : SURFACE PRESSURE (HPA)
                    AREA                   : GLOBAL
                    PERIOD                 : SEP 2015
                    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
15654	99	P	SUR	-40	31	185	38	7.9	1.1	8.0
23668	99	P	SUR	15	65	39	39	0.0	0.0	0.0
26546	99	P	SUR	86	21	210	0	6.1	-1.2	6.2
33630	99	P	SUR	-59	-123	60	19	0.8	-0.5	0.9
46920	99	P	SUR	33	-128	208	207	0.0	14.5	14.5
47508	99	P	SUR	76	-175	40	0	4.3	-9.0	9.9
48513	99	P	SUR	73	-178	210	53	7.3	1.4	7.4
48638	99	P	SUR	73	-162	210	169	7.5	-1.4	7.6
48644	99	P	SUR	70	-148	125	42	7.5	-0.6	7.5
48778	99	P	SUR	70	-24	118	30	5.8	-6.5	8.7
48779	99	P	SUR	57	-46	55	16	6.3	-7.4	9.7
64534	99	P	SUR	57	-32	207	207	0.0	0.0	0.0
64538	99	P	SUR	86	-34	202	193	4.9	-4.9	6.9
64756	99	P	SUR	89	-126	141	141	0.0	0.0	0.0
64757	99	P	SUR	89	-109	141	141	0.0	0.0	0.0
64758	99	P	SUR	89	-126	141	141	0.0	0.0	0.0
64759	99	P	SUR	89	-126	141	141	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                : SEP 2015
                    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

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

```
          LIST OF SUSPECT STATIONS        : DRIFTER
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
                    PERIOD                : SEP 2015
                    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
23099	99	DIRN	SUR	13	80	29	0	0	22.1	37.9	43.9
23451	99	DIRN	SUR	15	69	42	0	0	48.3	-28.0	55.9
23454	99	DIRN	SUR	10	73	45	0	0	163.3	-16.2	164.2
23460	99	DIRN	SUR	7	88	71	0	0	167.7	-14.8	168.3
23491	99	DIRN	SUR	12	93	34	0	0	14.1	37.3	39.9
23497	99	DIRN	SUR	11	72	40	0	0	145.0	69.1	160.6
31053	99	DIRN	SUR	-32	-50	162	0	0	33.8	-58.9	67.9
31374	99	DIRN	SUR	-25	-45	160	0	0	44.1	-42.1	61.0
53040	99	DIRN	SUR	-8	95	204	0	0	164.6	-47.7	171.4

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                 : SEP 2015
                    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
33041	00	Z	200	52	31	27	0	62.4	-50.4	80.2
33041	12	Z	250	52	31	27	0	61.9	-53.9	82.1
33393	00	Z	200	50	24	12	0	27.4	97.1	100.9
33837	00	Z	200	46	31	28	0	40.5	100.1	108.0
40417	00	Z	1000	26	50	24	0	2.8	39.8	39.9
40417	12	Z	1000	26	50	28	0	2.8	40.4	40.5
40430	12	Z	925	25	40	27	0	4.3	45.9	46.1
40430	00	Z	925	25	40	29	0	7.8	42.6	43.3
42874	00	Z	30	21	82	19	0	52.8	181.9	189.4
43041	00	Z	30	19	82	18	0	33.0	192.5	195.3
43128	00	Z	30	17	78	18	0	78.6	224.1	237.5
43333	00	Z	50	12	93	24	0	54.6	161.0	170.0
43371	00	Z	50	8	77	19	0	23.3	149.3	151.1
47058	00	Z	250	39	126	10	2	90.0	113.2	144.6
68906	00	Z	1000	-40	-10	12	0	26.4	23.4	35.3
76405	12	Z	400	24	-110	28	0	72.0	81.4	108.7
89592	00	Z	50	-67	93	25	2	122.7	-109.3	164.3
91680	00	Z	1000	-18	177	28	0	3.4	28.8	29.0
91680	12	Z	1000	-18	177	30	0	2.4	29.4	29.5
96147	00	Z	925	4	108	30	1	30.6	29.9	42.8

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                : SEP 2015
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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


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

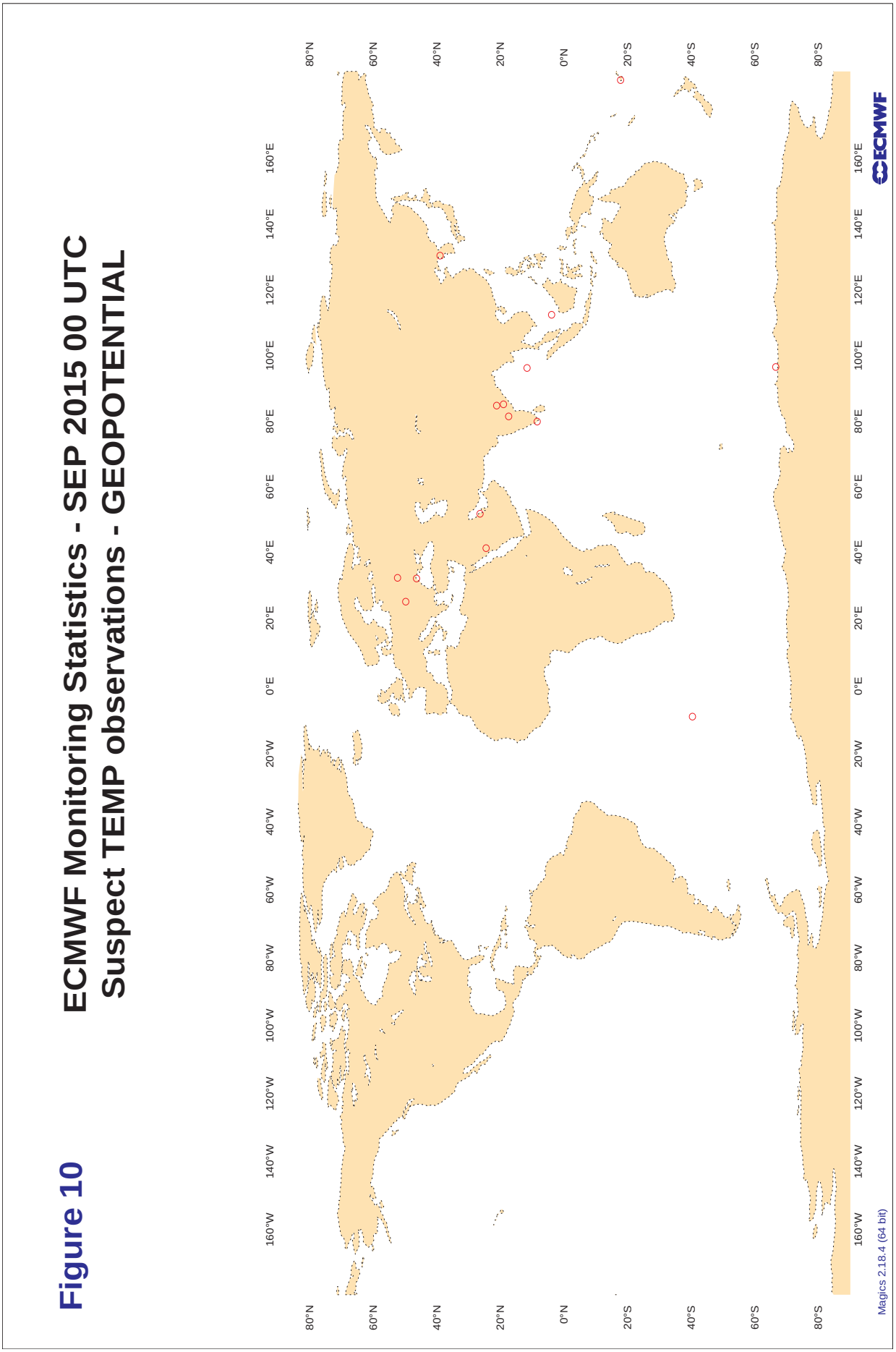
WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	UBIAS	VBIAS	RMS

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

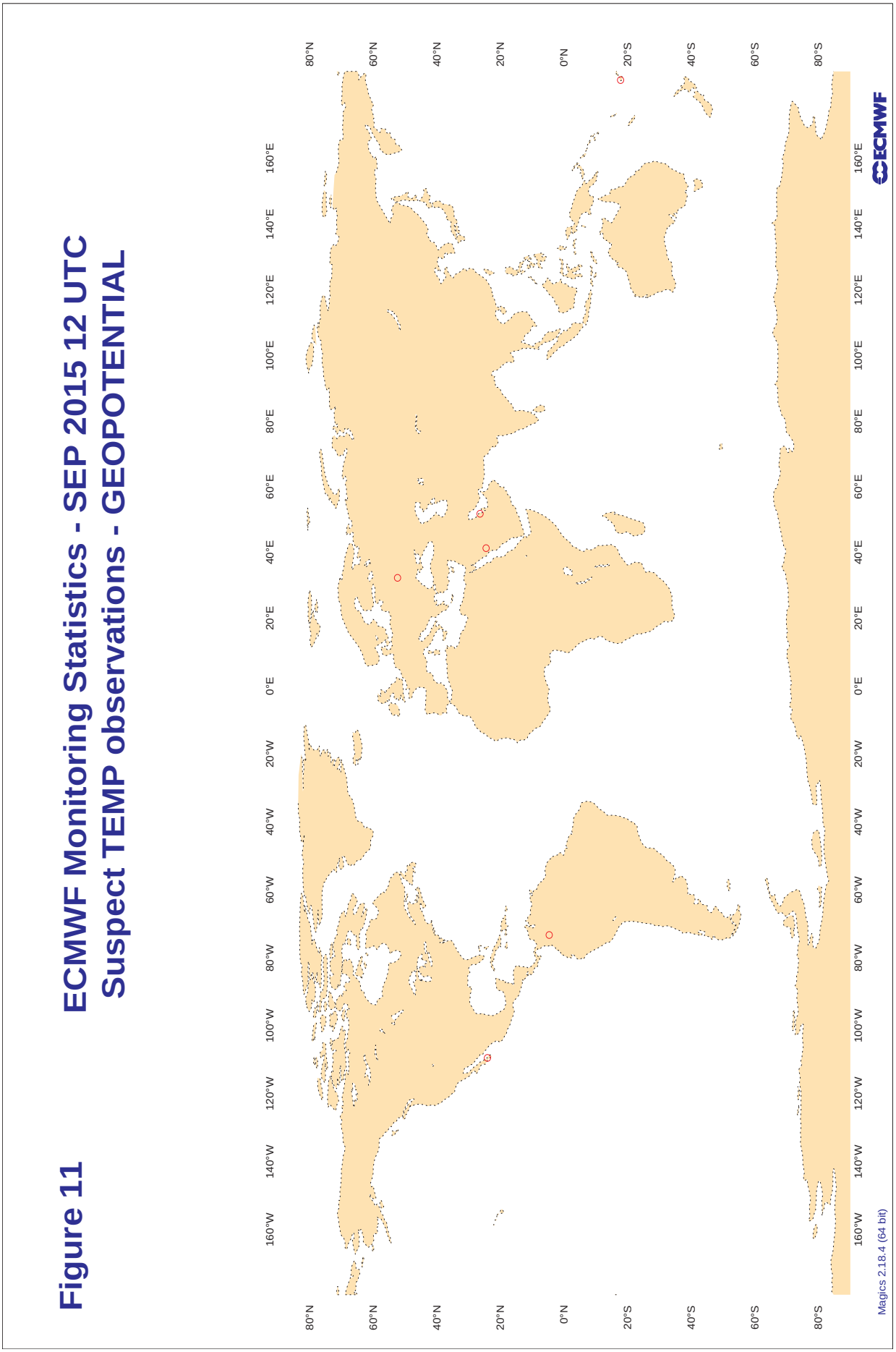
```
          LIST OF SUSPECT STATIONS        : RADIOSONDES
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
                    AREA                  : GLOBAL
                    PERIOD                : SEP 2015
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


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

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

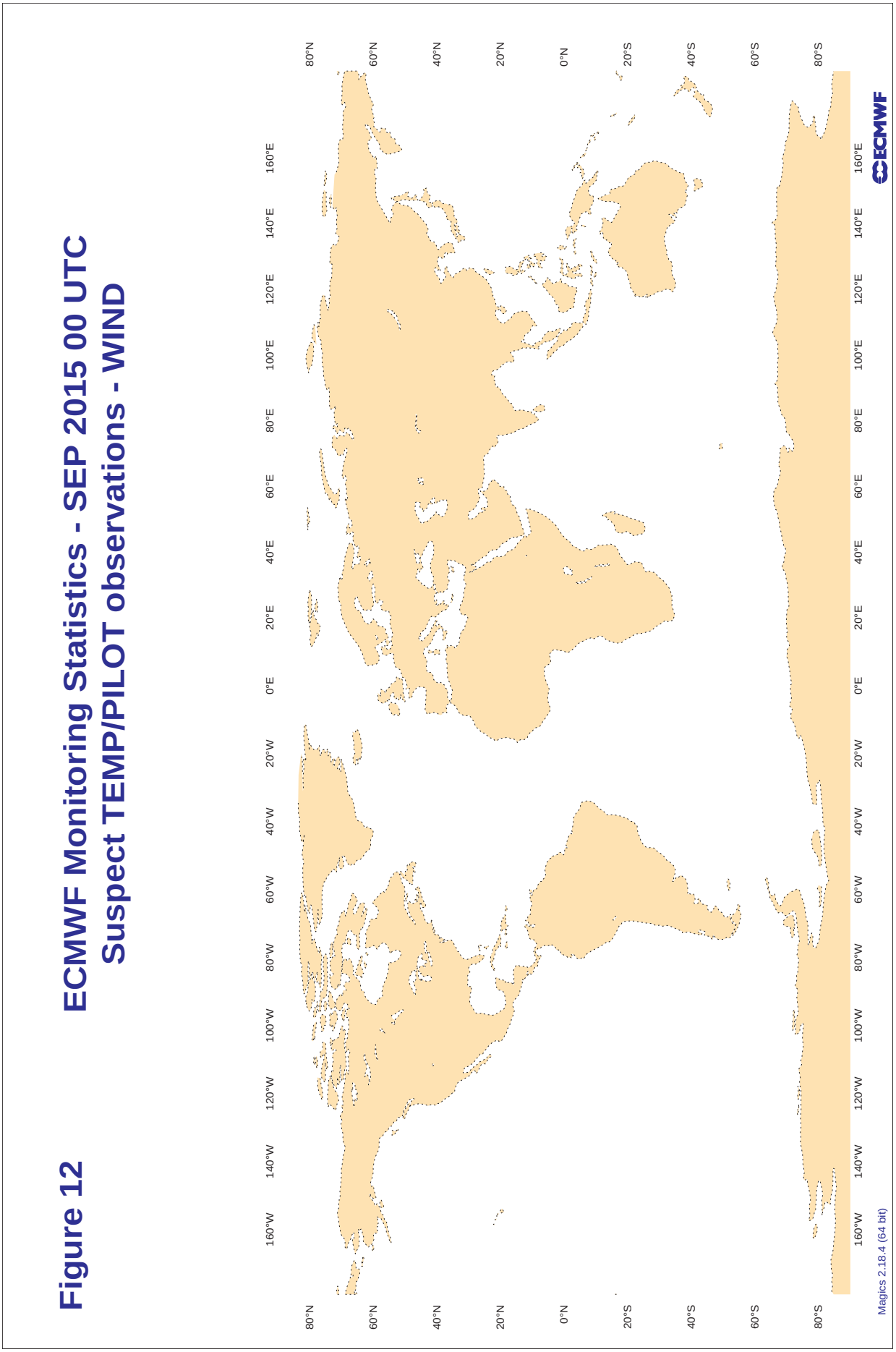
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



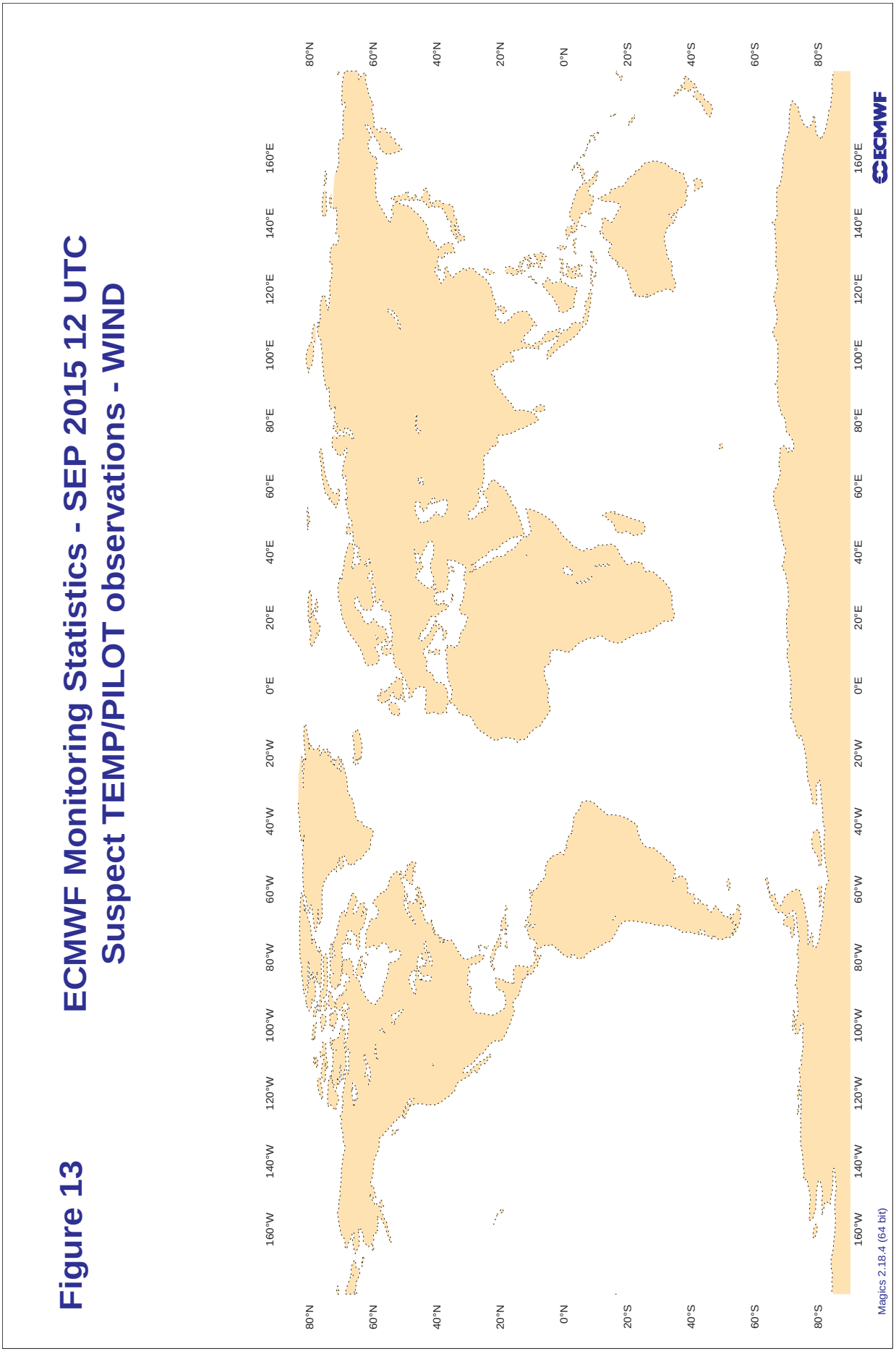
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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



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



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

```
RADIOSONDE MONITORING STATISTICS (SHIPS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 100 HPA
         AREA                  : GLOBAL
         PERIOD                : SEP 2015
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASDE01	12	Z	100	10	19.3	16.8
ASDE01	00	Z	100	8	10.2	-5.6
ASDE02	00	Z	100	10	20.8	18.7
ASDE02	12	Z	100	13	19.9	18.0
ASDE03	12	Z	100	11	51.6	43.8
ASDE03	00	Z	100	13	8.8	3.4
ASDE04	12	Z	100	4	51.4	50.4
ASDE04	00	Z	100	5	47.5	46.2
ASDE09	12	Z	100	2	43.3	42.9
ASDK01	12	Z	100	9	11.5	7.2
ASDK01	00	Z	100	9	9.4	0.7
ASDK02	12	Z	100	8	17.0	11.2
ASDK02	00	Z	100	14	5.6	0.9
ASDK03	12	Z	100	4	30.4	27.7
ASDK03	00	Z	100	5	29.0	26.7
ASDK1	12	Z	100	8	10.6	6.7
ASDK1	00	Z	100	7	9.0	1.9
ASDK2	12	Z	100	7	15.5	11.2
ASDK2	00	Z	100	12	5.7	2.0
ASDK3	12	Z	100	4	31.0	28.4
ASDK3	00	Z	100	6	29.0	26.8
ASEU01	12	Z	100	9	36.9	28.1
ASEU02	12	Z	100	7	36.7	32.4
ASEU02	00	Z	100	6	31.7	28.4
ASEU03	12	Z	100	7	50.3	47.0
ASEU03	00	Z	100	5	36.1	34.3
ASEU04	12	Z	100	6	8.8	3.5
ASEU04	00	Z	100	2	13.3	-11.5
ASEU06	12	Z	100	8	28.0	26.9
ASEU06	00	Z	100	8	11.0	9.1
ASFR1	12	Z	100	11	21.5	18.5
ASFR1	00	Z	100	13	14.3	8.1
ASFR2	12	Z	100	7	22.6	19.4
ASFR2	00	Z	100	7	20.3	12.6
ASFR3	12	Z	100	10	26.3	21.8
ASFR3	00	Z	100	11	12.6	7.8
ASFR4	12	Z	100	11	25.9	24.4
ASFR4	00	Z	100	11	22.5	19.9
DBLK	00	Z	100	11	24.9	10.5

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
DBLK	12	Z	100	41	6.6	1.8
JGQH	12	Z	100	8	12.6	8.6
JGQH	00	Z	100	9	14.2	6.6
JNSR	12	Z	100	26	4.9	-2.5
JNSR	00	Z	100	25	6.2	0.6
UKBUC	00	Z	100	3	41.5	21.8
UKBUC	12	Z	100	1	27.7	27.7

3.2.26 Table 11 - Radiosonde monitoring statistics (SHIPs): Wind (m/s)

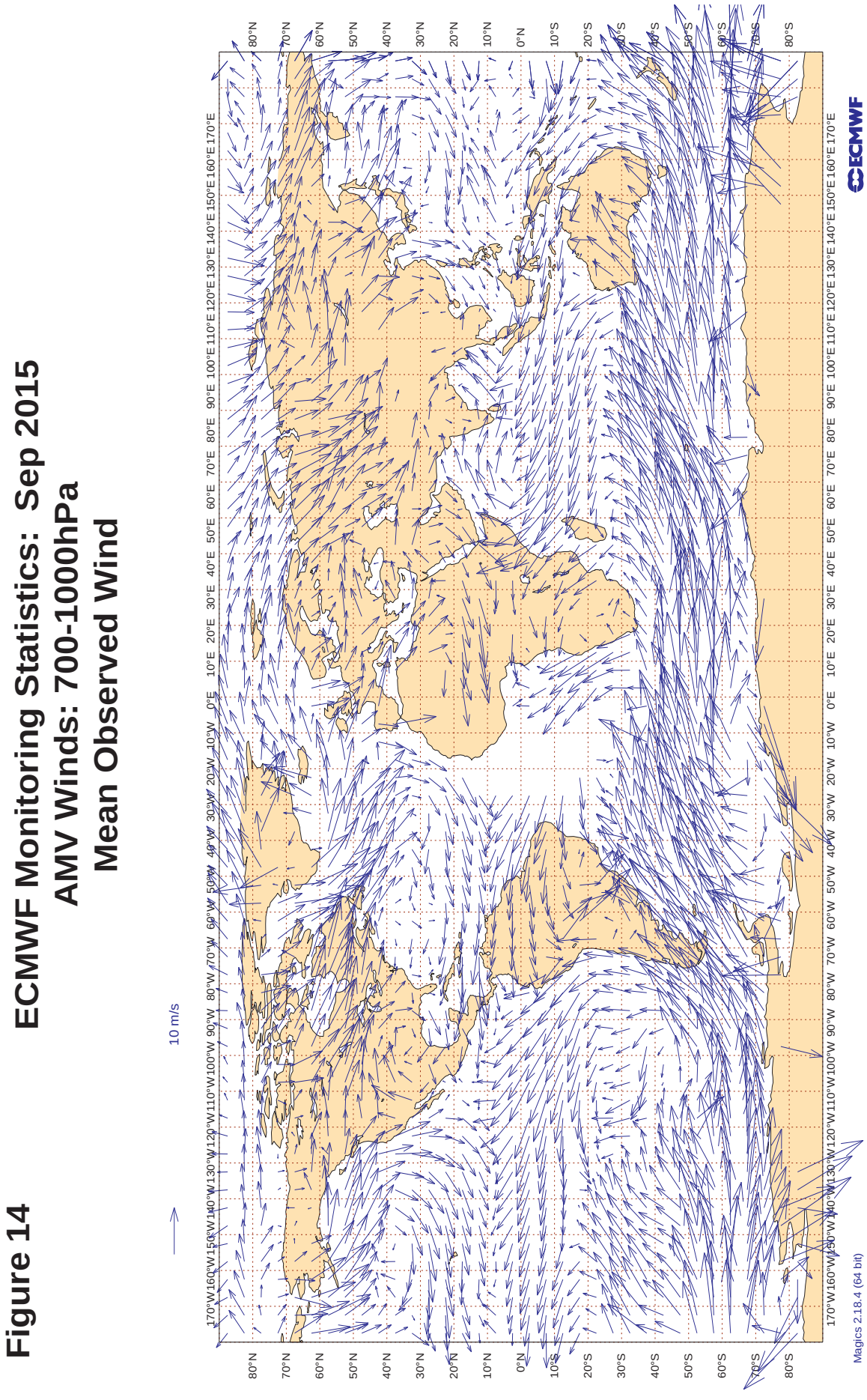
```
RADIOSONDE MONITORING STATISTICS (SHIPS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 100 HPA
         AREA                  : GLOBAL
         PERIOD                : SEP 2015
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASDE01	12	V	100	10	4.0	0.5	0.1
ASDE01	00	V	100	8	2.6	-0.1	-0.1
ASDE02	00	V	100	9	4.8	-1.6	-1.2
ASDE02	12	V	100	4	4.9	1.3	-1.0
ASDE03	12	V	100	10	4.3	-1.3	-0.6
ASDE03	00	V	100	12	3.6	-1.5	0.9
ASDE04	12	V	100	4	2.5	-0.6	0.1
ASDE04	00	V	100	5	4.8	1.1	1.1
ASDE09	12	V	100	2	1.6	-0.2	-0.1
ASDK01	12	V	100	9	2.6	0.0	0.4
ASDK01	00	V	100	8	2.4	-0.4	-0.3
ASDK02	12	V	100	7	2.2	0.4	-0.4
ASDK02	00	V	100	12	2.4	-0.1	0.5
ASDK03	12	V	100	4	3.1	0.0	1.3
ASDK03	00	V	100	5	4.0	2.8	0.4
ASDK1	12	V	100	8	2.5	0.2	0.7
ASDK1	00	V	100	7	2.3	-0.1	-0.8
ASDK2	12	V	100	6	2.2	0.3	0.1
ASDK2	00	V	100	12	2.4	0.1	0.7
ASDK3	12	V	100	4	3.5	-0.3	1.5
ASDK3	00	V	100	6	4.2	2.0	-0.2
ASEU01	12	V	100	5	3.7	-0.5	-1.1
ASEU02	12	V	100	7	3.4	-1.7	1.6
ASEU02	00	V	100	5	6.5	0.1	2.0
ASEU03	12	V	100	6	3.0	-1.2	-0.5
ASEU03	00	V	100	5	5.0	-2.2	2.1
ASEU04	12	V	100	2	2.9	-1.7	0.9
ASEU04	00	V	100	2	1.9	1.6	-0.3
ASEU06	12	V	100	6	3.4	1.4	0.4
ASEU06	00	V	100	7	4.6	-0.8	0.1
ASFR1	12	V	100	11	3.7	0.2	-0.5
ASFR1	00	V	100	13	2.9	-0.7	0.6
ASFR2	12	V	100	7	7.0	-0.4	1.9
ASFR2	00	V	100	7	2.9	0.2	0.6
ASFR3	12	V	100	10	3.1	0.7	0.1
ASFR3	00	V	100	11	3.6	1.3	0.3
ASFR4	12	V	100	10	2.7	0.4	0.4
ASFR4	00	V	100	11	2.4	0.4	1.0
DBLK	00	V	100	10	1.8	0.5	-0.1

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
DBLK	12	V	100	11	2.4	0.4	-0.1
JGQH	12	V	100	8	5.9	-0.5	-1.9
JGQH	00	V	100	9	5.5	-1.3	-1.7
JNSR	12	V	100	26	2.2	-0.1	0.4
JNSR	00	V	100	25	2.1	0.0	0.0
UKBUC	00	V	100	1	3.4	-3.2	1.1
UKBUC	12	V	100	1	0.1	-0.1	-0.1

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa



3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

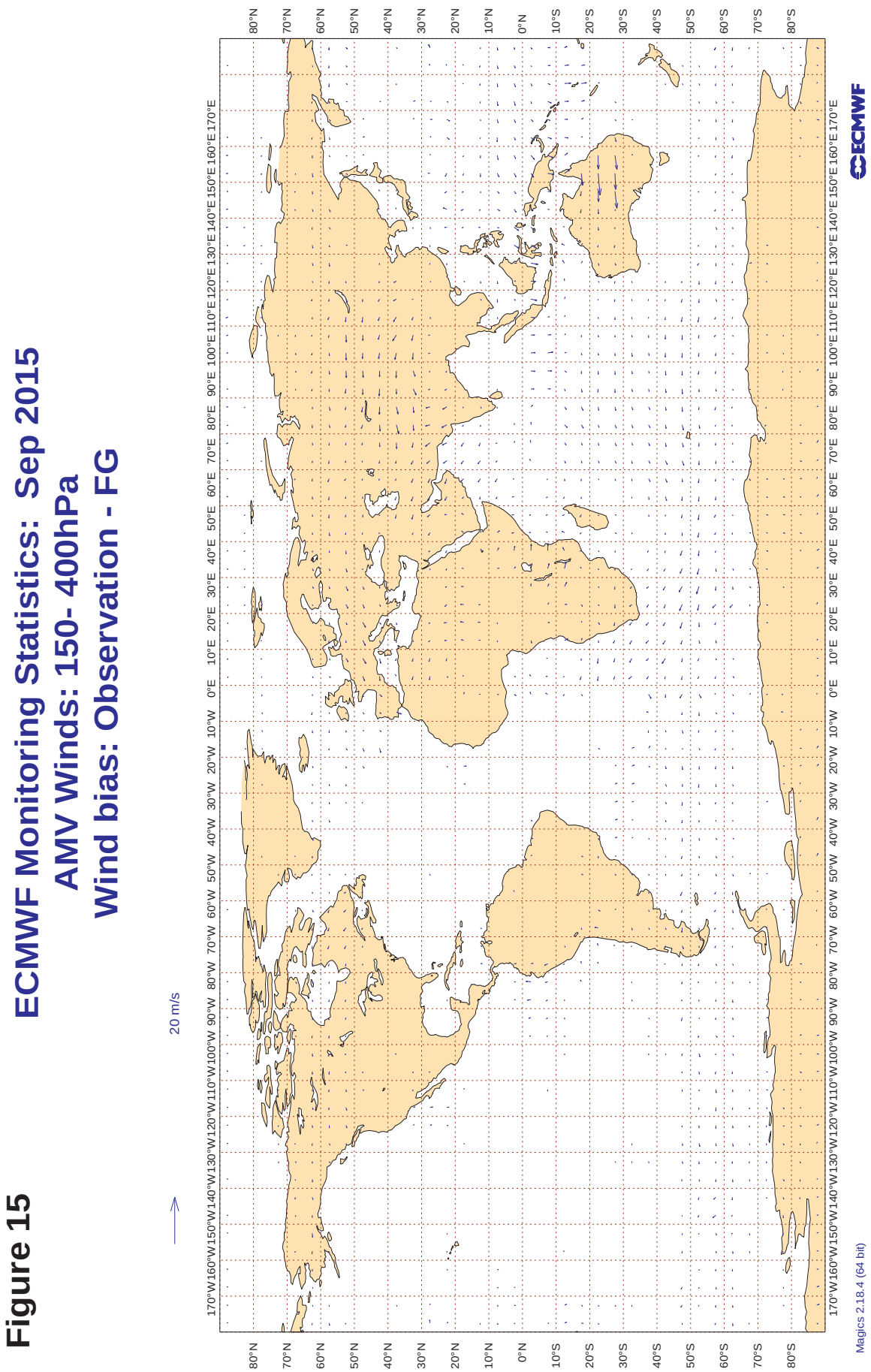


Figure 15

3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

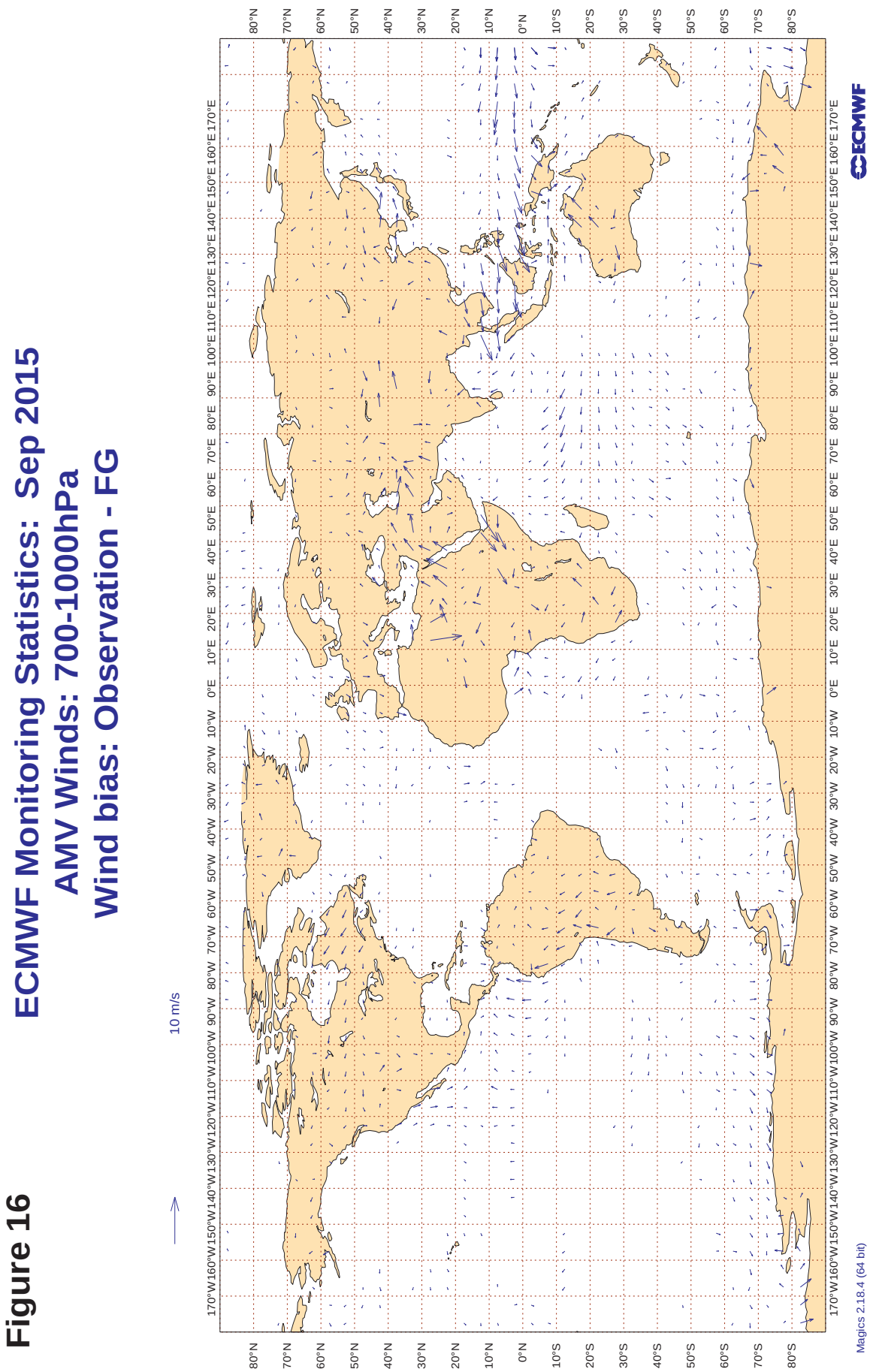


Figure 16

3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

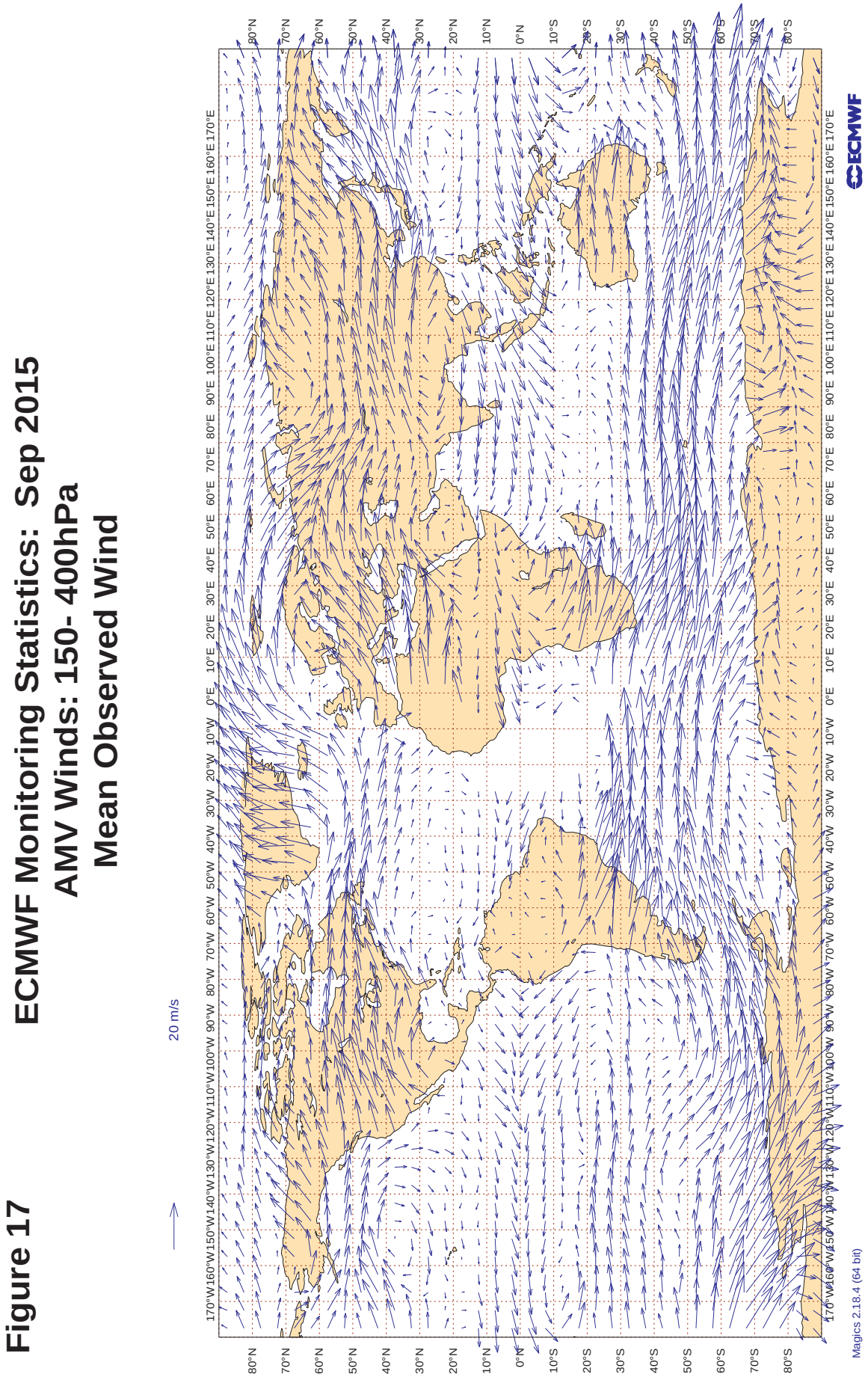


Figure 17

3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

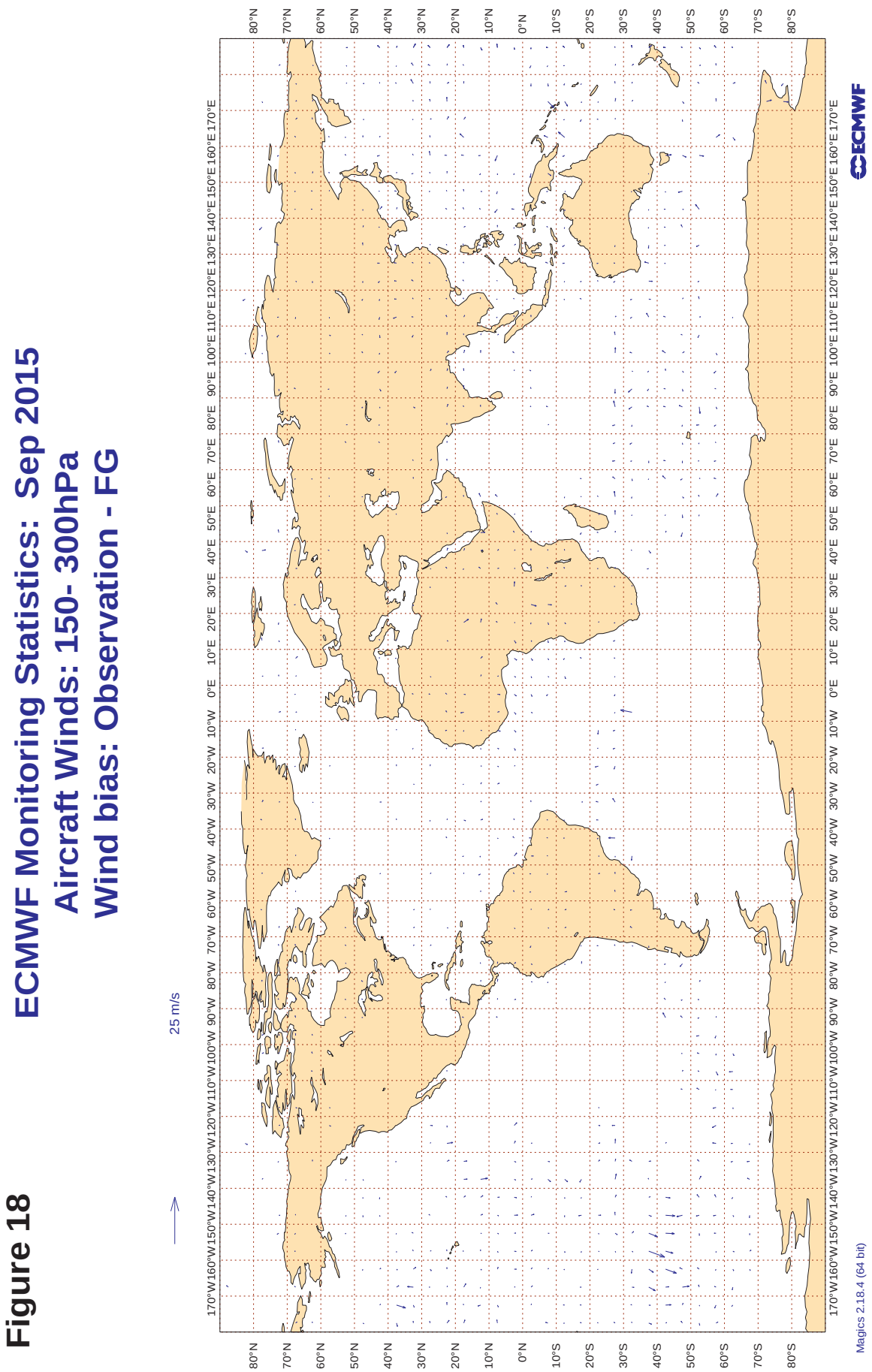


Figure 18

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 : SEP 2015
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
AAL	99	V	300-150	8249	0	0	4.4	-0.2
AAR	99	V	300-150	20	0	0	4.8	-2.8
AAY	99	V	300-150	130	0	1	5.7	-0.6
ABW	99	V	300-150	112	0	0	3.5	-0.9
ABX	99	V	300-150	39	0	0	8.6	0.3
ACA	99	V	300-150	2669	2	0	5.2	-0.3
ACI	99	V	300-150	715	0	0	6.0	0.6
AFL	99	V	300-150	231	0	0	3.4	0.5
AFR	99	V	300-150	2943	0	0	3.9	0.3
AIC	99	V	300-150	339	0	0	3.4	0.0
AMX	99	V	300-150	316	28	0	13.6	-0.2
ANZ	99	V	300-150	3924	1	0	5.6	0.7
ASA	99	V	300-150	2549	0	0	4.8	0.3
ASY	99	V	300-150	31	0	0	6.1	2.4
AUA	99	V	300-150	1177	0	0	4.4	-0.7
AVN	99	V	300-150	50	4	0	5.0	0.5
AXM	99	V	300-150	34	3	0	5.4	0.8
AZA	99	V	300-150	853	0	0	3.9	0.5
BAW	99	V	300-150	3859	0	0	5.1	-0.1
BEL	99	V	300-150	433	0	0	4.0	-0.2
BER	99	V	300-150	1204	0	0	3.8	0.6
BOX	99	V	300-150	74	0	0	3.2	0.7
CAL	99	V	300-150	68	0	0	3.7	1.0
CAZ	99	V	300-150	23	0	0	4.7	-0.1
CES	99	V	300-150	25	0	0	4.7	3.5
CFG	99	V	300-150	285	0	0	4.2	-0.4
CKS	99	V	300-150	324	0	1	4.9	0.1
CLX	99	V	300-150	252	0	0	3.5	0.1
CMB	99	V	300-150	33	0	0	4.0	-1.8
CNV	99	V	300-150	20	0	0	3.6	0.5
CPA	99	V	300-150	22	0	0	3.0	0.0
CRL	99	V	300-150	93	0	0	4.4	-0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
CSN	99	V	300-150	191	1	0	3.9	1.4
DAH	99	V	300-150	233	0	0	4.3	0.8
DAL	99	V	300-150	9818	0	0	4.4	-0.3
DHK	99	V	300-150	182	0	0	4.9	-0.1
DLH	99	V	300-150	4929	0	0	3.8	-0.1
EIN	99	V	300-150	1690	0	0	4.1	-0.1
EJM	99	V	300-150	76	5	0	14.5	-0.5
ELY	99	V	300-150	288	0	0	3.8	-0.2
ETD	99	V	300-150	456	0	0	3.6	0.1
FDX	99	V	300-150	1213	0	0	4.0	0.3
FIN	99	V	300-150	113	0	0	3.3	0.0
FJI	99	V	300-150	1288	1	0	5.9	0.3
FWI	99	V	300-150	128	0	0	3.9	0.4
GEC	99	V	300-150	269	0	0	3.4	0.2
GTI	99	V	300-150	323	0	0	4.5	-0.3
HAL	99	V	300-150	524	0	1	5.1	1.4
IAF	99	V	300-150	23	0	0	4.4	0.8
IBE	99	V	300-150	437	0	0	4.1	0.4
ICL	99	V	300-150	20	0	0	4.3	0.4
JAF	99	V	300-150	68	6	0	9.6	-1.2
JAI	99	V	300-150	459	0	0	3.8	0.5
JST	99	V	300-150	888	1	0	5.1	0.5
KAC	99	V	300-150	20	0	0	2.5	0.3
KAI	99	V	300-150	31	0	0	3.5	0.4
KAL	99	V	300-150	635	0	0	6.5	0.9
KIW	99	V	300-150	57	0	0	6.8	1.7
KLM	99	V	300-150	2270	0	0	3.9	-0.1
LAN	99	V	300-150	122	4	0	10.0	-0.1
LOT	99	V	300-150	113	14	0	13.5	-0.4
MAR	99	V	300-150	21	0	0	3.9	-0.6
MAS	99	V	300-150	114	0	0	3.3	0.5
MMD	99	V	300-150	26	0	0	4.3	0.5
MMN	99	V	300-150	59	0	0	4.7	-1.8
MSR	99	V	300-150	223	0	0	3.7	-0.5
NAX	99	V	300-150	168	14	1	12.6	0.3
NCA	99	V	300-150	44	0	0	3.8	-0.4
NJE	99	V	300-150	27	26	0	4.2	0.3
OAE	99	V	300-150	116	0	0	4.0	-0.1
PAC	99	V	300-150	21	0	0	4.5	-1.1
QFA	99	V	300-150	2344	0	0	4.1	-0.3
QTR	99	V	300-150	270	0	0	3.7	0.2
RCH	99	V	300-150	657	0	0	4.4	0.4
RJA	99	V	300-150	20	10	0	3.0	-0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
ROU	99	V	300-150	823	0	0	4.2	-1.2
SAM	99	V	300-150	45	0	0	3.5	0.4
SAS	99	V	300-150	615	0	0	3.4	0.0
SED	99	V	300-150	22	0	0	4.4	0.9
SIA	99	V	300-150	365	0	0	3.8	0.3
SQC	99	V	300-150	27	0	0	6.3	2.8
SVA	99	V	300-150	359	0	0	3.4	0.1
SWR	99	V	300-150	1009	0	0	4.0	0.5
TAM	99	V	300-150	91	1	0	4.3	0.5
TAP	99	V	300-150	118	0	0	4.6	1.3
TAY	99	V	300-150	104	0	0	2.6	-0.2
TCX	99	V	300-150	601	0	0	4.0	0.7
TFL	99	V	300-150	97	19	0	10.0	0.0
THA	99	V	300-150	108	0	0	3.7	0.5
THT	99	V	300-150	205	0	0	3.4	0.2
THY	99	V	300-150	387	0	0	3.8	0.1
TOM	99	V	300-150	883	9	0	9.2	-0.4
TSC	99	V	300-150	846	0	0	4.2	0.3
TSO	99	V	300-150	241	0	0	3.6	0.0
UAE	99	V	300-150	1278	0	0	3.7	0.0
UAL	99	V	300-150	12534	0	0	4.4	-0.2
UPS	99	V	300-150	876	0	0	4.6	0.1
VHI	99	V	300-150	59	81	0	28.9	-1.2
VIR	99	V	300-150	1773	0	0	4.1	0.2
VJT	99	V	300-150	52	75	0	24.1	0.5
VOZ	99	V	300-150	1186	0	0	4.0	0.2
VPB	99	V	300-150	27	0	0	3.1	0.4
VPC	99	V	300-150	22	0	0	3.4	-1.5
WJA	99	V	300-150	291	1	0	4.7	0.2
XLF	99	V	300-150	58	0	0	2.6	-0.1

4 EUCOS Area Monitoring Statistics

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

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

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

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 :  50 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : SEP 2015
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	30	19.0	8.4
01001	00	Z	50	29	15.1	7.2
01028	12	Z	50	28	12.1	9.0
01028	00	Z	50	28	6.1	-1.2
01400	00	Z	50	26	23.5	21.0
01400	12	Z	50	25	22.0	20.3
01415	00	Z	50	29	10.1	7.6
01415	12	Z	50	29	16.2	13.7
02365	00	Z	50	42	5.5	0.9
02365	12	Z	50	38	9.7	6.2
02591	12	Z	50	40	19.2	18.0
02591	00	Z	50	34	19.9	17.8
02836	12	Z	50	30	21.8	5.9
02836	00	Z	50	29	8.4	4.5
02963	12	Z	50	30	9.0	6.3
02963	00	Z	50	30	12.2	8.2
03005	12	Z	50	30	11.2	7.7
03005	00	Z	50	29	5.7	1.2
03238	00	Z	50	29	13.7	11.2
03238	12	Z	50	13	27.9	22.6
03808	12	Z	50	39	11.8	9.1
03808	00	Z	50	37	9.0	4.7
03918	12	Z	50	14	19.2	17.2
03918	00	Z	50	26	11.2	9.0
03953	12	Z	50	20	30.1	27.9
03953	00	Z	50	11	22.5	18.2
04018	12	Z	50	28	14.3	11.2
04018	00	Z	50	25	9.5	5.7
04220	00	Z	50	30	13.4	1.2
04220	12	Z	50	28	28.0	7.1
04270	12	Z	50	28	15.6	9.1
04270	00	Z	50	29	16.6	-2.1
04320	00	Z	50	30	12.1	5.3
04320	12	Z	50	30	20.1	14.9
04339	12	Z	50	29	16.6	14.2
04339	00	Z	50	29	37.5	26.9
04360	00	Z	50	20	16.8	-2.7
04360	12	Z	50	16	15.7	11.9
06011	12	Z	50	16	16.4	10.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	50	25	18.2	-4.3
06260	12	Z	50	4	8.6	5.1
06260	00	Z	50	29	14.1	12.4
06610	00	Z	50	29	15.9	11.4
06610	12	Z	50	29	21.8	17.6
07110	12	Z	50	24	28.0	24.6
07110	00	Z	50	27	17.9	15.4
07510	00	Z	50	15	24.3	20.0
07510	12	Z	50	12	20.4	17.5
07645	00	Z	50	24	11.2	-2.9
07645	12	Z	50	24	17.6	1.1
07761	12	Z	50	29	22.3	8.5
07761	00	Z	50	27	11.5	7.6
08001	12	Z	50	29	24.4	22.3
08001	00	Z	50	26	20.9	19.3
08221	00	Z	50	28	19.0	14.3
08221	12	Z	50	27	15.5	11.9
08302	00	Z	50	30	10.7	7.0
08302	12	Z	50	30	8.0	3.0
08508	12	Z	50	30	32.4	28.9
08522	12	Z	50	30	14.7	12.5
08579	12	Z	50	28	23.7	22.1
10035	12	Z	50	26	11.8	6.2
10035	00	Z	50	26	8.8	5.6
10393	12	Z	50	30	6.6	3.1
10393	00	Z	50	30	7.8	3.4
10410	12	Z	50	30	11.6	8.2
10410	00	Z	50	30	7.8	3.9
10739	12	Z	50	30	16.5	13.8
10739	00	Z	50	29	11.5	9.3
11035	12	Z	50	30	10.4	6.6
11035	00	Z	50	30	13.5	6.4
12982	00	Z	50	29	8.3	4.7
12982	12	Z	50	27	36.1	34.3
16044	00	Z	50	30	16.7	12.4
16044	12	Z	50	30	18.5	10.5
16080	12	Z	50	30	13.3	4.5
16080	00	Z	50	30	11.0	7.3
16245	12	Z	50	27	12.3	0.1
16245	00	Z	50	30	10.6	5.4
16320	00	Z	50	28	12.2	7.5
16320	12	Z	50	29	13.5	4.3
16429	00	Z	50	30	12.5	9.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	50	29	12.0	3.2
16622	00	Z	50	24	57.3	50.7
16754	00	Z	50	24	38.5	35.4
17607	12	Z	50	20	25.8	-24.5
26435	00	Z	50	15	9.4	5.6
60018	12	Z	50	28	9.6	4.5
60018	00	Z	50	29	11.0	8.7
ASDE01	12	Z	50	10	28.2	25.5
ASDE01	00	Z	50	8	9.5	-2.8
ASDE02	00	Z	50	9	22.6	22.0
ASDE02	12	Z	50	12	28.3	26.5
ASDE03	12	Z	50	8	74.8	64.1
ASDE03	00	Z	50	12	8.6	2.2
ASDE04	12	Z	50	4	52.0	49.9
ASDE04	00	Z	50	5	52.0	51.6
ASDE09	12	Z	50	2	58.2	58.0
ASDK01	12	Z	50	9	16.4	13.1
ASDK01	00	Z	50	7	10.1	6.2
ASDK02	12	Z	50	6	20.8	15.7
ASDK02	00	Z	50	12	9.9	7.5
ASDK03	12	Z	50	0	0.0	0.0
ASDK03	00	Z	50	0	0.0	0.0
ASDK1	12	Z	50	1	4.0	4.0
ASDK1	00	Z	50	0	0.0	0.0
ASDK2	12	Z	50	6	20.6	16.0
ASDK2	00	Z	50	10	11.7	8.3
ASDK3	12	Z	50	3	16.2	13.7
ASDK3	00	Z	50	5	25.6	25.3
ASEU01	12	Z	50	7	52.7	46.4
ASEU02	12	Z	50	6	48.5	43.6
ASEU02	00	Z	50	5	33.0	29.9
ASEU03	12	Z	50	5	62.1	59.7
ASEU03	00	Z	50	3	37.0	34.9
ASEU04	12	Z	50	5	18.6	14.6
ASEU04	00	Z	50	2	11.1	-11.0
ASEU06	12	Z	50	6	41.5	40.5
ASEU06	00	Z	50	6	23.7	16.8
ASFR1	12	Z	50	11	28.2	21.9
ASFR1	00	Z	50	11	26.1	21.1
ASFR2	12	Z	50	6	31.2	28.1
ASFR2	00	Z	50	6	27.0	22.2
ASFR3	12	Z	50	7	53.9	50.7
ASFR3	00	Z	50	8	25.9	23.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR4	12	Z	50	11	41.4	39.3
ASFR4	00	Z	50	9	33.5	29.2
UKBUC	00	Z	50	0	0.0	0.0
UKBUC	12	Z	50	0	0.0	0.0

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                : SEP 2015
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
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WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	30	3.4	-0.4	0.2
01001	00	V	50	29	3.1	0.5	-0.7
01028	12	V	50	28	3.1	0.0	0.1
01028	00	V	50	28	3.2	-0.8	-0.3
01400	00	V	50	23	3.8	1.5	-0.2
01400	12	V	50	25	3.8	-0.7	-0.1
01415	00	V	50	29	3.8	0.1	-0.4
01415	12	V	50	29	3.3	-0.3	0.2
02365	00	V	50	30	3.3	-0.4	0.4
02365	12	V	50	29	3.0	0.3	-0.1
02591	12	V	50	28	2.6	0.9	0.2
02591	00	V	50	29	3.0	0.2	-0.6
02836	12	V	50	29	2.8	0.3	0.0
02836	00	V	50	28	2.9	-0.3	0.3
02963	12	V	50	30	3.0	0.2	-0.6
02963	00	V	50	29	2.3	-0.1	-0.2
03005	12	V	50	30	3.0	0.7	0.6
03005	00	V	50	28	3.0	0.6	-0.3
03238	00	V	50	29	3.5	0.4	-0.8
03238	12	V	50	13	2.8	1.0	-0.8
03808	12	V	50	30	3.1	0.4	0.6
03808	00	V	50	29	2.9	0.3	-0.2
03918	12	V	50	14	3.5	0.5	1.1
03918	00	V	50	25	2.2	0.2	-0.2
03953	12	V	50	20	3.0	0.4	0.6
03953	00	V	50	11	3.3	1.0	0.8
04018	12	V	50	25	3.6	0.3	0.5
04018	00	V	50	23	3.5	0.1	-0.8
04220	00	V	50	30	3.0	0.3	-0.2
04220	12	V	50	28	2.9	-0.2	0.0
04270	12	V	50	28	3.2	-0.1	-0.1
04270	00	V	50	29	3.6	0.4	0.2
04320	00	V	50	30	3.3	0.3	-0.5
04320	12	V	50	29	3.5	0.5	-1.0
04339	12	V	50	29	3.7	-0.1	0.7
04339	00	V	50	29	3.9	0.1	0.0
04360	00	V	50	20	3.0	-0.6	0.3
04360	12	V	50	16	2.9	0.0	0.3
06011	12	V	50	16	2.4	0.4	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	50	25	3.4	-0.5	0.0
06260	12	V	50	4	4.1	3.3	-1.3
06260	00	V	50	28	3.0	0.7	0.0
06610	00	V	50	29	3.2	0.2	0.0
06610	12	V	50	29	3.2	0.9	0.0
07110	12	V	50	24	3.4	0.8	0.0
07110	00	V	50	26	3.8	0.8	0.6
07510	00	V	50	13	4.3	1.8	-0.5
07510	12	V	50	12	3.7	0.8	0.3
07645	00	V	50	22	3.9	-0.3	0.9
07645	12	V	50	24	4.3	0.5	-0.1
07761	12	V	50	29	4.1	0.6	0.1
07761	00	V	50	27	4.5	0.4	0.9
08001	12	V	50	29	2.7	1.1	0.4
08001	00	V	50	25	3.5	0.5	0.2
08221	00	V	50	28	3.3	-0.2	-0.2
08221	12	V	50	27	3.8	0.6	0.9
08302	00	V	50	30	3.3	0.2	0.3
08302	12	V	50	30	3.8	1.0	1.1
08508	12	V	50	30	3.3	0.4	0.1
08522	12	V	50	30	3.8	-0.1	-0.7
08579	12	V	50	28	3.8	-0.3	1.2
10035	12	V	50	26	3.0	0.8	0.4
10035	00	V	50	26	2.8	0.4	0.3
10393	12	V	50	30	3.0	0.4	-0.3
10393	00	V	50	30	3.3	0.6	-0.8
10410	12	V	50	30	2.9	1.2	0.8
10410	00	V	50	30	3.0	0.5	0.4
10739	12	V	50	30	3.6	0.5	0.9
10739	00	V	50	29	3.2	1.2	0.0
11035	12	V	50	30	3.3	0.5	-0.5
11035	00	V	50	30	2.9	-0.1	-0.1
12982	00	V	50	29	3.3	0.3	0.7
12982	12	V	50	26	3.6	1.2	-0.3
16044	00	V	50	30	3.9	0.9	-0.7
16044	12	V	50	30	4.2	1.1	-0.1
16080	12	V	50	30	4.1	0.3	0.0
16080	00	V	50	29	3.7	1.1	-0.1
16245	12	V	50	27	4.6	0.4	0.7
16245	00	V	50	30	4.3	0.2	0.4
16320	00	V	50	28	3.5	0.4	0.2
16320	12	V	50	29	3.7	1.1	0.2
16429	00	V	50	27	3.7	0.9	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	50	29	4.1	0.8	0.1
16622	00	V	50	17	3.3	-0.1	-0.3
16754	00	V	50	21	3.6	0.8	0.5
17607	12	V	50	19	3.7	0.1	-0.2
26435	00	V	50	14	3.4	0.4	0.9
60018	12	V	50	28	3.7	0.4	0.4
60018	00	V	50	29	3.6	0.2	1.0
ASDE01	12	V	50	10	3.1	0.5	0.0
ASDE01	00	V	50	8	4.1	0.3	0.1
ASDE02	00	V	50	9	5.2	0.9	-0.2
ASDE02	12	V	50	1	4.7	-4.1	2.3
ASDE03	12	V	50	8	5.3	-1.7	-1.3
ASDE03	00	V	50	12	2.8	-0.3	-0.8
ASDE04	12	V	50	4	2.2	-1.5	0.6
ASDE04	00	V	50	5	2.9	0.0	-0.7
ASDE09	12	V	50	2	3.4	1.8	0.7
ASDK01	12	V	50	9	4.2	-0.3	2.2
ASDK01	00	V	50	7	3.4	-1.0	0.5
ASDK02	12	V	50	6	2.8	-1.3	-0.3
ASDK02	00	V	50	10	4.1	0.6	-0.9
ASDK03	12	V	50	0	0.0	0.0	0.0
ASDK03	00	V	50	0	0.0	0.0	0.0
ASDK1	12	V	50	1	4.6	-2.1	4.1
ASDK1	00	V	50	0	0.0	0.0	0.0
ASDK2	12	V	50	6	2.9	-1.0	-0.5
ASDK2	00	V	50	9	4.3	0.1	-1.1
ASDK3	12	V	50	3	5.0	-0.8	0.2
ASDK3	00	V	50	5	3.0	-0.1	1.0
ASEU01	12	V	50	4	3.8	-1.4	0.4
ASEU02	12	V	50	6	2.8	-0.5	0.5
ASEU02	00	V	50	5	2.8	0.3	0.9
ASEU03	12	V	50	5	2.8	0.2	-0.6
ASEU03	00	V	50	2	4.9	-1.9	-0.2
ASEU04	12	V	50	1	2.2	1.1	1.9
ASEU04	00	V	50	2	3.9	-2.6	-2.7
ASEU06	12	V	50	6	3.4	1.8	0.9
ASEU06	00	V	50	4	4.5	3.7	0.9
ASFR1	12	V	50	11	4.0	-1.3	0.3
ASFR1	00	V	50	11	3.6	2.2	-0.7
ASFR2	12	V	50	6	4.2	0.3	-1.2
ASFR2	00	V	50	6	3.6	-1.0	1.9
ASFR3	12	V	50	7	3.1	0.1	1.0
ASFR3	00	V	50	8	3.7	0.9	0.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR4	12	V	50	11	4.0	0.3	0.9
ASFR4	00	V	50	9	3.8	0.5	-0.2
UKBUC	00	V	50	0	0.0	0.0	0.0
UKBUC	12	V	50	0	0.0	0.0	0.0

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

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RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 100 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : SEP 2015
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	30	14.6	3.0
01001	00	Z	100	29	11.1	0.2
01028	12	Z	100	29	6.2	3.6
01028	00	Z	100	30	9.1	-7.0
01400	00	Z	100	26	17.2	14.8
01400	12	Z	100	27	14.1	11.3
01415	00	Z	100	29	7.8	3.4
01415	12	Z	100	30	8.2	5.4
02365	00	Z	100	42	5.6	-2.6
02365	12	Z	100	40	5.7	0.9
02591	12	Z	100	41	13.2	11.4
02591	00	Z	100	35	13.5	12.5
02836	12	Z	100	30	15.0	0.7
02836	00	Z	100	30	6.0	0.6
02963	12	Z	100	30	5.2	2.7
02963	00	Z	100	30	7.4	3.7
03005	12	Z	100	30	8.0	2.9
03005	00	Z	100	30	5.9	-3.3
03238	00	Z	100	30	7.6	5.1
03238	12	Z	100	14	19.2	13.3
03808	12	Z	100	39	6.9	2.6
03808	00	Z	100	37	6.1	1.0
03918	12	Z	100	15	12.9	10.7
03918	00	Z	100	27	7.3	3.5
03953	12	Z	100	30	19.8	17.1
03953	00	Z	100	29	13.8	9.3
04018	12	Z	100	28	9.3	5.2
04018	00	Z	100	29	6.4	2.7
04220	00	Z	100	30	11.4	-4.6
04220	12	Z	100	29	24.0	-1.0
04270	12	Z	100	29	12.2	3.6
04270	00	Z	100	29	11.3	-5.3
04320	00	Z	100	30	6.9	2.6
04320	12	Z	100	30	11.4	7.0
04339	12	Z	100	29	11.1	8.3
04339	00	Z	100	30	26.6	16.8
04360	00	Z	100	23	11.0	-2.0
04360	12	Z	100	18	11.2	9.1
06011	12	Z	100	22	9.7	4.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	100	28	13.2	-5.0
06260	12	Z	100	4	6.5	0.6
06260	00	Z	100	29	7.2	5.7
06610	00	Z	100	29	11.5	7.9
06610	12	Z	100	29	15.1	10.4
07110	12	Z	100	27	16.4	14.9
07110	00	Z	100	30	8.4	6.7
07510	00	Z	100	24	10.7	8.5
07510	12	Z	100	19	14.7	12.2
07645	00	Z	100	28	9.9	-5.8
07645	12	Z	100	26	11.8	-3.8
07761	12	Z	100	29	16.4	2.7
07761	00	Z	100	30	7.5	0.4
08001	12	Z	100	30	16.1	13.8
08001	00	Z	100	29	12.5	11.1
08221	00	Z	100	28	11.4	9.0
08221	12	Z	100	31	11.0	7.1
08302	00	Z	100	30	5.0	0.4
08302	12	Z	100	30	7.2	-2.3
08508	12	Z	100	30	21.1	17.3
08522	12	Z	100	30	9.7	6.7
08579	12	Z	100	29	14.1	12.0
10035	12	Z	100	26	7.2	1.1
10035	00	Z	100	26	5.5	1.8
10393	12	Z	100	30	6.1	-2.4
10393	00	Z	100	30	6.8	-1.6
10410	12	Z	100	30	6.6	1.3
10410	00	Z	100	30	5.9	-0.8
10739	12	Z	100	30	9.4	6.8
10739	00	Z	100	31	8.0	5.1
11035	12	Z	100	30	7.8	-2.3
11035	00	Z	100	30	10.3	1.5
12982	00	Z	100	29	6.2	0.4
12982	12	Z	100	29	20.7	18.8
16044	00	Z	100	30	12.1	5.8
16044	12	Z	100	30	12.9	2.8
16080	12	Z	100	30	11.2	-3.2
16080	00	Z	100	30	6.6	2.0
16245	12	Z	100	27	11.9	-5.2
16245	00	Z	100	30	8.1	1.9
16320	00	Z	100	28	9.5	4.3
16320	12	Z	100	29	10.3	-3.1
16429	00	Z	100	30	11.7	8.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	100	29	9.0	-2.7
16622	00	Z	100	27	43.5	38.1
16754	00	Z	100	27	27.8	25.2
17607	12	Z	100	40	21.2	-19.9
26435	00	Z	100	15	5.9	1.5
60018	12	Z	100	30	6.9	3.8
60018	00	Z	100	30	8.6	5.8
ASDE01	12	Z	100	10	19.3	16.8
ASDE01	00	Z	100	8	10.2	-5.6
ASDE02	00	Z	100	10	20.8	18.7
ASDE02	12	Z	100	13	19.9	18.0
ASDE03	12	Z	100	11	51.6	43.8
ASDE03	00	Z	100	13	8.8	3.4
ASDE04	12	Z	100	4	51.4	50.4
ASDE04	00	Z	100	5	47.5	46.2
ASDE09	12	Z	100	2	43.3	42.9
ASDK01	12	Z	100	9	11.5	7.2
ASDK01	00	Z	100	9	9.4	0.7
ASDK02	12	Z	100	8	17.0	11.2
ASDK02	00	Z	100	14	5.6	0.9
ASDK03	12	Z	100	4	30.4	27.7
ASDK03	00	Z	100	5	29.0	26.7
ASDK1	12	Z	100	8	10.6	6.7
ASDK1	00	Z	100	7	9.0	1.9
ASDK2	12	Z	100	7	15.5	11.2
ASDK2	00	Z	100	12	5.7	2.0
ASDK3	12	Z	100	4	31.0	28.4
ASDK3	00	Z	100	6	29.0	26.8
ASEU01	12	Z	100	9	36.9	28.1
ASEU02	12	Z	100	7	36.7	32.4
ASEU02	00	Z	100	6	31.7	28.4
ASEU03	12	Z	100	7	50.3	47.0
ASEU03	00	Z	100	5	36.1	34.3
ASEU04	12	Z	100	6	8.8	3.5
ASEU04	00	Z	100	2	13.3	-11.5
ASEU06	12	Z	100	8	28.0	26.9
ASEU06	00	Z	100	8	11.0	9.1
ASFR1	12	Z	100	11	21.5	18.5
ASFR1	00	Z	100	13	14.3	8.1
ASFR2	12	Z	100	7	22.6	19.4
ASFR2	00	Z	100	7	20.3	12.6
ASFR3	12	Z	100	10	26.3	21.8
ASFR3	00	Z	100	11	12.6	7.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR4	12	Z	100	11	25.9	24.4
ASFR4	00	Z	100	11	22.5	19.9
UKBUC	00	Z	100	3	41.5	21.8
UKBUC	12	Z	100	1	27.7	27.7

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

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 100 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : SEP 2015
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	30	2.8	-0.1	0.4
01001	00	V	100	29	3.3	0.5	-0.2
01028	12	V	100	29	2.8	0.2	-0.4
01028	00	V	100	28	2.5	0.1	-0.2
01400	00	V	100	24	3.7	0.5	0.1
01400	12	V	100	25	2.6	0.4	0.4
01415	00	V	100	29	2.7	-0.2	0.4
01415	12	V	100	29	2.9	-0.3	0.2
02365	00	V	100	30	3.1	0.3	0.0
02365	12	V	100	30	3.0	0.6	0.3
02591	12	V	100	29	2.8	1.0	0.0
02591	00	V	100	30	2.8	0.5	0.0
02836	12	V	100	30	3.6	-0.3	-0.6
02836	00	V	100	30	2.9	-0.2	0.3
02963	12	V	100	30	2.8	0.5	0.2
02963	00	V	100	30	3.0	0.1	0.1
03005	12	V	100	30	3.4	-0.4	-0.6
03005	00	V	100	29	2.9	0.1	-0.1
03238	00	V	100	30	3.3	-0.5	0.4
03238	12	V	100	14	3.2	-0.2	0.2
03808	12	V	100	30	2.7	0.3	0.1
03808	00	V	100	29	2.6	0.5	-0.3
03918	12	V	100	15	2.3	1.0	0.1
03918	00	V	100	26	3.0	-0.3	0.2
03953	12	V	100	30	3.0	0.3	-0.4
03953	00	V	100	29	3.3	0.6	-0.2
04018	12	V	100	28	3.1	0.7	0.2
04018	00	V	100	28	3.2	0.6	-0.4
04220	00	V	100	30	2.8	-0.1	0.4
04220	12	V	100	29	2.8	-0.5	-0.4
04270	12	V	100	29	3.0	-0.6	0.5
04270	00	V	100	29	3.6	0.0	0.5
04320	00	V	100	30	2.9	-0.6	0.6
04320	12	V	100	30	3.6	0.4	-0.3
04339	12	V	100	29	3.7	1.3	0.6
04339	00	V	100	30	3.3	0.6	0.0
04360	00	V	100	23	2.8	0.6	0.6
04360	12	V	100	18	3.1	0.8	1.0
06011	12	V	100	22	2.8	0.0	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	100	28	3.0	0.2	0.1
06260	12	V	100	4	4.1	-1.7	-0.7
06260	00	V	100	28	3.4	-0.6	0.1
06610	00	V	100	29	2.9	0.4	-0.1
06610	12	V	100	29	3.9	0.6	0.0
07110	12	V	100	27	3.6	0.5	0.2
07110	00	V	100	29	3.0	0.6	-0.2
07510	00	V	100	22	3.3	0.9	0.4
07510	12	V	100	17	3.7	0.9	0.5
07645	00	V	100	22	4.3	1.3	1.1
07645	12	V	100	24	4.2	0.2	0.8
07761	12	V	100	16	4.5	1.4	0.6
07761	00	V	100	21	3.6	0.1	1.1
08001	12	V	100	30	4.2	0.4	0.9
08001	00	V	100	29	3.0	0.8	0.1
08221	00	V	100	28	2.9	0.1	0.3
08221	12	V	100	28	3.8	-0.4	1.4
08302	00	V	100	30	3.7	-0.4	-0.6
08302	12	V	100	30	3.9	0.4	0.8
08508	12	V	100	30	3.4	0.0	0.9
08522	12	V	100	30	3.2	1.1	0.1
08579	12	V	100	28	3.0	0.2	0.2
10035	12	V	100	26	3.6	0.8	0.3
10035	00	V	100	26	2.9	0.3	0.3
10393	12	V	100	30	3.4	0.2	0.3
10393	00	V	100	30	2.8	0.2	-0.2
10410	12	V	100	30	2.9	0.4	-1.0
10410	00	V	100	30	3.3	-0.4	-0.3
10739	12	V	100	30	3.7	1.4	-0.2
10739	00	V	100	29	3.4	0.0	0.3
11035	12	V	100	30	2.8	-0.2	-0.1
11035	00	V	100	30	3.2	0.5	0.5
12982	00	V	100	29	3.4	0.4	0.1
12982	12	V	100	29	3.4	0.4	-0.2
16044	00	V	100	30	4.3	-0.5	-0.3
16044	12	V	100	30	3.5	-0.3	-0.8
16080	12	V	100	30	4.1	0.1	0.3
16080	00	V	100	30	3.8	1.1	-0.5
16245	12	V	100	27	3.3	0.3	0.7
16245	00	V	100	30	4.0	0.6	0.0
16320	00	V	100	28	4.0	1.0	1.2
16320	12	V	100	29	4.1	0.1	0.0
16429	00	V	100	27	3.9	0.1	-0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	100	29	4.0	0.2	0.0
16622	00	V	100	19	3.9	-0.1	1.6
16754	00	V	100	26	4.1	-1.0	0.1
17607	12	V	100	22	3.9	0.3	-1.0
26435	00	V	100	15	2.3	-0.4	0.2
60018	12	V	100	29	4.1	0.2	0.9
60018	00	V	100	30	4.2	0.7	0.2
ASDE01	12	V	100	10	4.0	0.5	0.1
ASDE01	00	V	100	8	2.6	-0.1	-0.1
ASDE02	00	V	100	9	4.8	-1.6	-1.2
ASDE02	12	V	100	4	4.9	1.3	-1.0
ASDE03	12	V	100	10	4.3	-1.3	-0.6
ASDE03	00	V	100	12	3.6	-1.5	0.9
ASDE04	12	V	100	4	2.5	-0.6	0.1
ASDE04	00	V	100	5	4.8	1.1	1.1
ASDE09	12	V	100	2	1.6	-0.2	-0.1
ASDK01	12	V	100	9	2.6	0.0	0.4
ASDK01	00	V	100	8	2.4	-0.4	-0.3
ASDK02	12	V	100	7	2.2	0.4	-0.4
ASDK02	00	V	100	12	2.4	-0.1	0.5
ASDK03	12	V	100	4	3.1	0.0	1.3
ASDK03	00	V	100	5	4.0	2.8	0.4
ASDK1	12	V	100	8	2.5	0.2	0.7
ASDK1	00	V	100	7	2.3	-0.1	-0.8
ASDK2	12	V	100	6	2.2	0.3	0.1
ASDK2	00	V	100	12	2.4	0.1	0.7
ASDK3	12	V	100	4	3.5	-0.3	1.5
ASDK3	00	V	100	6	4.2	2.0	-0.2
ASEU01	12	V	100	5	3.7	-0.5	-1.1
ASEU02	12	V	100	7	3.4	-1.7	1.6
ASEU02	00	V	100	5	6.5	0.1	2.0
ASEU03	12	V	100	6	3.0	-1.2	-0.5
ASEU03	00	V	100	5	5.0	-2.2	2.1
ASEU04	12	V	100	2	2.9	-1.7	0.9
ASEU04	00	V	100	2	1.9	1.6	-0.3
ASEU06	12	V	100	6	3.4	1.4	0.4
ASEU06	00	V	100	7	4.6	-0.8	0.1
ASFR1	12	V	100	11	3.7	0.2	-0.5
ASFR1	00	V	100	13	2.9	-0.7	0.6
ASFR2	12	V	100	7	7.0	-0.4	1.9
ASFR2	00	V	100	7	2.9	0.2	0.6
ASFR3	12	V	100	10	3.1	0.7	0.1
ASFR3	00	V	100	11	3.6	1.3	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR4	12	V	100	10	2.7	0.4	0.4
ASFR4	00	V	100	11	2.4	0.4	1.0
UKBUC	00	V	100	1	3.4	-3.2	1.1
UKBUC	12	V	100	1	0.1	-0.1	-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                : SEP 2015
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	30	7.6	0.6
01001	00	Z	500	30	6.5	2.5
01028	12	Z	500	30	5.5	1.4
01028	00	Z	500	31	6.5	-2.8
01400	00	Z	500	26	12.4	10.5
01400	12	Z	500	28	10.6	6.9
01415	00	Z	500	29	4.9	3.5
01415	12	Z	500	30	4.3	1.6
02365	00	Z	500	42	2.5	0.7
02365	12	Z	500	40	2.8	0.7
02591	12	Z	500	41	11.0	10.3
02591	00	Z	500	35	11.4	11.1
02836	12	Z	500	30	6.8	-0.2
02836	00	Z	500	30	5.5	3.5
02963	12	Z	500	30	5.6	3.5
02963	00	Z	500	30	5.9	5.1
03005	12	Z	500	30	6.7	1.6
03005	00	Z	500	30	5.3	-0.8
03238	00	Z	500	30	8.1	7.1
03238	12	Z	500	14	9.8	7.7
03808	12	Z	500	39	5.0	2.3
03808	00	Z	500	37	4.6	1.8
03918	12	Z	500	15	8.7	6.7
03918	00	Z	500	27	7.6	5.0
03953	12	Z	500	30	14.8	11.2
03953	00	Z	500	30	11.5	7.9
04018	12	Z	500	29	5.4	0.5
04018	00	Z	500	30	7.0	4.3
04220	00	Z	500	30	5.0	-1.2
04220	12	Z	500	30	27.2	-4.7
04270	12	Z	500	30	6.8	-2.2
04270	00	Z	500	30	5.6	-0.7
04320	00	Z	500	30	7.1	5.1
04320	12	Z	500	30	9.4	7.4
04339	12	Z	500	29	5.1	1.0
04339	00	Z	500	30	9.2	3.7
04360	00	Z	500	28	6.4	1.3
04360	12	Z	500	28	5.8	3.1
06011	12	Z	500	28	32.9	12.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	500	29	13.3	0.9
06260	12	Z	500	4	3.0	-0.4
06260	00	Z	500	29	5.1	3.2
06610	00	Z	500	29	8.3	6.9
06610	12	Z	500	29	6.1	4.6
07110	12	Z	500	29	7.7	4.0
07110	00	Z	500	30	5.0	0.7
07510	00	Z	500	31	7.3	1.7
07510	12	Z	500	30	6.6	2.7
07645	00	Z	500	30	6.5	-4.4
07645	12	Z	500	28	4.3	-1.2
07761	12	Z	500	29	5.3	-3.3
07761	00	Z	500	30	5.9	-2.9
08001	12	Z	500	30	8.2	7.0
08001	00	Z	500	30	10.0	9.2
08221	00	Z	500	28	6.6	5.3
08221	12	Z	500	31	6.7	5.6
08302	00	Z	500	30	2.5	0.1
08302	12	Z	500	30	4.7	-1.8
08508	12	Z	500	30	14.5	12.0
08522	12	Z	500	30	8.1	6.8
08579	12	Z	500	29	6.5	5.3
10035	12	Z	500	27	4.5	-0.1
10035	00	Z	500	26	4.6	0.8
10393	12	Z	500	30	5.7	-4.0
10393	00	Z	500	31	4.0	-2.0
10410	12	Z	500	30	4.5	-2.3
10410	00	Z	500	30	3.9	-0.9
10739	12	Z	500	30	7.0	5.9
10739	00	Z	500	31	6.8	6.0
11035	12	Z	500	30	4.9	-1.5
11035	00	Z	500	30	6.1	1.4
12982	00	Z	500	30	5.2	1.4
12982	12	Z	500	29	7.5	4.2
16044	00	Z	500	30	7.1	-0.7
16044	12	Z	500	30	6.6	-2.4
16080	12	Z	500	30	9.4	-5.3
16080	00	Z	500	30	5.1	-1.1
16245	12	Z	500	30	10.8	-8.8
16245	00	Z	500	30	8.3	-4.3
16320	00	Z	500	29	8.1	-1.7
16320	12	Z	500	30	8.3	-3.6
16429	00	Z	500	31	7.0	1.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	500	29	5.8	-2.4
16622	00	Z	500	28	24.6	22.7
16754	00	Z	500	28	17.7	15.0
17607	12	Z	500	40	4.7	2.4
26435	00	Z	500	15	5.9	3.9
60018	12	Z	500	31	3.4	2.1
60018	00	Z	500	30	3.1	1.3
ASDE01	12	Z	500	10	6.1	-1.4
ASDE01	00	Z	500	8	11.4	-8.6
ASDE02	00	Z	500	10	10.5	10.3
ASDE02	12	Z	500	13	11.7	10.8
ASDE03	12	Z	500	11	6.7	5.5
ASDE03	00	Z	500	13	7.6	-1.9
ASDE04	12	Z	500	4	40.0	39.5
ASDE04	00	Z	500	5	36.9	36.5
ASDE09	12	Z	500	2	23.5	22.2
ASDK01	12	Z	500	9	8.0	4.4
ASDK01	00	Z	500	9	8.9	4.8
ASDK02	12	Z	500	10	9.7	6.4
ASDK02	00	Z	500	16	5.6	3.2
ASDK03	12	Z	500	4	22.9	22.7
ASDK03	00	Z	500	5	28.1	27.8
ASDK1	12	Z	500	8	9.6	4.5
ASDK1	00	Z	500	7	7.4	4.0
ASDK2	12	Z	500	8	9.1	6.5
ASDK2	00	Z	500	14	8.4	4.5
ASDK3	12	Z	500	4	20.4	19.7
ASDK3	00	Z	500	6	25.2	24.3
ASEU01	12	Z	500	9	27.2	13.7
ASEU02	12	Z	500	7	29.0	24.1
ASEU02	00	Z	500	6	30.6	29.6
ASEU03	12	Z	500	8	40.0	34.6
ASEU03	00	Z	500	6	37.3	31.7
ASEU04	12	Z	500	7	8.1	-4.6
ASEU04	00	Z	500	3	11.6	-9.4
ASEU06	12	Z	500	9	9.9	8.1
ASEU06	00	Z	500	8	7.7	7.0
ASFR1	12	Z	500	12	6.6	0.3
ASFR1	00	Z	500	14	7.3	-3.4
ASFR2	12	Z	500	11	17.6	14.2
ASFR2	00	Z	500	8	12.2	6.2
ASFR3	12	Z	500	12	7.2	3.4
ASFR3	00	Z	500	12	10.3	-2.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR4	12	Z	500	11	6.9	1.1
ASFR4	00	Z	500	12	7.9	4.0
UKBUC	00	Z	500	4	35.1	24.5
UKBUC	12	Z	500	1	12.4	12.4

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                : SEP 2015
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	30	3.4	0.1	-0.3
01001	00	V	500	29	2.8	0.1	-0.4
01028	12	V	500	30	2.7	-0.3	-0.2
01028	00	V	500	30	2.7	-0.3	0.1
01400	00	V	500	26	2.4	-0.4	-0.5
01400	12	V	500	28	2.2	0.5	0.4
01415	00	V	500	29	2.9	0.5	0.0
01415	12	V	500	29	2.8	0.1	-0.4
02365	00	V	500	30	3.0	0.6	-0.1
02365	12	V	500	30	2.3	0.2	0.0
02591	12	V	500	29	2.3	-0.3	0.0
02591	00	V	500	30	2.8	0.0	0.5
02836	12	V	500	30	2.6	-0.5	0.2
02836	00	V	500	30	3.0	-0.2	0.2
02963	12	V	500	30	2.5	0.2	-0.3
02963	00	V	500	30	2.1	0.2	0.0
03005	12	V	500	30	4.0	-0.7	0.4
03005	00	V	500	29	2.7	0.3	0.5
03238	00	V	500	30	2.0	0.3	0.3
03238	12	V	500	14	1.9	0.3	-0.3
03808	12	V	500	30	2.9	0.0	-0.1
03808	00	V	500	29	3.4	0.8	-0.5
03918	12	V	500	15	2.7	0.2	-0.4
03918	00	V	500	26	2.3	-0.1	-0.6
03953	12	V	500	30	2.8	0.1	0.7
03953	00	V	500	30	2.8	0.0	0.2
04018	12	V	500	29	4.0	0.2	-0.4
04018	00	V	500	30	2.6	0.1	0.6
04220	00	V	500	30	2.6	-0.2	0.1
04220	12	V	500	30	2.8	0.4	-0.2
04270	12	V	500	30	4.0	-0.4	-0.6
04270	00	V	500	30	3.3	1.0	-0.7
04320	00	V	500	30	2.9	0.2	0.7
04320	12	V	500	30	4.0	0.3	-0.2
04339	12	V	500	29	3.1	0.1	0.3
04339	00	V	500	30	3.5	0.3	-0.3
04360	00	V	500	28	4.6	0.0	0.3
04360	12	V	500	28	3.9	0.7	0.1
06011	12	V	500	28	3.0	-0.6	-1.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	500	29	2.6	0.5	-0.6
06260	12	V	500	4	2.2	-0.9	-0.5
06260	00	V	500	28	2.4	0.2	0.2
06610	00	V	500	29	2.2	-0.3	0.0
06610	12	V	500	29	2.7	0.9	-0.7
07110	12	V	500	29	2.9	-0.7	0.1
07110	00	V	500	29	3.2	0.2	0.6
07510	00	V	500	27	3.9	-0.3	-0.2
07510	12	V	500	28	3.1	-0.1	0.4
07645	00	V	500	27	4.0	-0.3	0.5
07645	12	V	500	28	3.5	0.7	-0.3
07761	12	V	500	29	3.8	0.6	1.2
07761	00	V	500	30	3.2	-0.4	-0.1
08001	12	V	500	30	2.8	0.2	0.5
08001	00	V	500	30	2.5	0.5	0.6
08221	00	V	500	28	3.4	-0.4	0.3
08221	12	V	500	28	2.6	0.1	0.2
08302	00	V	500	30	3.3	0.4	-0.7
08302	12	V	500	30	3.1	-0.2	0.0
08508	12	V	500	30	2.8	1.0	-0.3
08522	12	V	500	30	2.5	0.1	-0.8
08579	12	V	500	29	2.2	0.2	-0.5
10035	12	V	500	26	4.1	-0.2	-1.2
10035	00	V	500	26	2.5	0.3	-0.2
10393	12	V	500	30	3.1	-0.4	-0.5
10393	00	V	500	31	2.8	0.3	0.7
10410	12	V	500	30	3.7	-0.2	0.4
10410	00	V	500	30	3.1	-0.5	-0.6
10739	12	V	500	30	2.8	0.8	0.0
10739	00	V	500	30	2.8	0.1	0.2
11035	12	V	500	30	3.3	-0.1	-0.1
11035	00	V	500	30	3.4	-0.1	0.6
12982	00	V	500	30	3.3	-0.3	0.7
12982	12	V	500	29	2.9	0.6	-0.6
16044	00	V	500	30	3.0	0.1	0.1
16044	12	V	500	30	3.1	-0.5	0.1
16080	12	V	500	30	3.2	-0.3	-0.3
16080	00	V	500	30	2.7	0.2	0.2
16245	12	V	500	30	2.7	0.3	-0.1
16245	00	V	500	30	3.4	0.3	-0.6
16320	00	V	500	29	3.1	0.3	0.3
16320	12	V	500	30	3.5	0.7	0.1
16429	00	V	500	28	3.2	0.4	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	500	29	2.7	-0.5	0.4
16622	00	V	500	20	3.1	-0.1	0.3
16754	00	V	500	28	2.8	0.1	0.1
17607	12	V	500	22	2.5	0.0	1.0
26435	00	V	500	15	2.4	0.3	-0.2
60018	12	V	500	30	3.5	-0.3	0.0
60018	00	V	500	30	2.1	0.6	-0.5
ASDE01	12	V	500	10	2.4	0.1	-0.6
ASDE01	00	V	500	8	2.9	0.6	-0.2
ASDE02	00	V	500	9	3.2	0.2	0.6
ASDE02	12	V	500	10	3.3	1.2	-0.4
ASDE03	12	V	500	10	3.6	0.6	0.0
ASDE03	00	V	500	12	2.5	-0.1	0.3
ASDE04	12	V	500	4	3.4	-2.9	-0.3
ASDE04	00	V	500	5	2.5	-1.7	-0.2
ASDE09	12	V	500	2	1.7	0.5	0.9
ASDK01	12	V	500	9	4.9	1.2	0.1
ASDK01	00	V	500	8	2.4	-0.1	-0.3
ASDK02	12	V	500	10	2.6	0.4	0.0
ASDK02	00	V	500	14	2.5	0.4	-0.2
ASDK03	12	V	500	4	2.2	-0.3	-0.5
ASDK03	00	V	500	5	3.9	-0.2	-1.3
ASDK1	12	V	500	8	4.7	1.0	0.0
ASDK1	00	V	500	7	2.3	-0.4	-0.4
ASDK2	12	V	500	8	3.1	0.7	-0.8
ASDK2	00	V	500	14	2.5	0.2	-0.4
ASDK3	12	V	500	4	2.3	-0.4	-0.7
ASDK3	00	V	500	6	3.8	-0.9	-0.5
ASEU01	12	V	500	8	3.1	-0.1	-0.3
ASEU02	12	V	500	7	2.1	-0.2	-0.5
ASEU02	00	V	500	5	2.8	1.4	-0.4
ASEU03	12	V	500	8	2.8	1.0	-0.6
ASEU03	00	V	500	6	2.5	0.4	-1.4
ASEU04	12	V	500	5	2.6	-1.3	1.2
ASEU04	00	V	500	3	3.1	1.6	-1.4
ASEU06	12	V	500	8	2.9	0.8	-1.3
ASEU06	00	V	500	8	1.9	0.3	-0.3
ASFR1	12	V	500	12	3.1	-0.4	0.5
ASFR1	00	V	500	14	4.9	0.1	0.2
ASFR2	12	V	500	11	2.8	0.7	-0.5
ASFR2	00	V	500	8	2.9	-1.0	1.0
ASFR3	12	V	500	12	3.7	-0.4	0.9
ASFR3	00	V	500	12	3.6	-1.0	-1.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR4	12	V	500	11	2.8	-0.5	0.4
ASFR4	00	V	500	12	2.5	0.2	-0.7
UKBUC	00	V	500	2	3.1	2.3	0.4
UKBUC	12	V	500	1	1.4	0.8	1.2

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

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RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 850 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : SEP 2015
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	30	4.8	-1.9
01001	00	Z	850	30	4.6	-0.5
01028	12	Z	850	30	4.4	-0.6
01028	00	Z	850	31	4.5	-2.0
01400	00	Z	850	26	9.4	7.5
01400	12	Z	850	28	7.3	5.0
01415	00	Z	850	29	4.0	3.2
01415	12	Z	850	30	3.7	2.1
02365	00	Z	850	42	2.2	1.1
02365	12	Z	850	40	2.0	0.5
02591	12	Z	850	41	9.2	8.8
02591	00	Z	850	35	9.1	8.8
02836	12	Z	850	30	2.7	2.0
02836	00	Z	850	30	4.4	3.6
02963	12	Z	850	30	4.5	4.3
02963	00	Z	850	30	4.9	4.4
03005	12	Z	850	30	4.7	-1.3
03005	00	Z	850	31	3.2	-1.1
03238	00	Z	850	30	5.3	4.9
03238	12	Z	850	14	5.2	4.4
03808	12	Z	850	39	2.4	-0.1
03808	00	Z	850	37	2.6	1.1
03918	12	Z	850	15	5.0	4.1
03918	00	Z	850	27	5.2	4.4
03953	12	Z	850	30	13.3	10.1
03953	00	Z	850	31	15.3	11.3
04018	12	Z	850	29	3.2	-0.6
04018	00	Z	850	30	3.4	0.5
04220	00	Z	850	30	1.8	0.1
04220	12	Z	850	30	8.0	0.3
04270	12	Z	850	30	3.1	-1.9
04270	00	Z	850	30	3.3	-0.9
04320	00	Z	850	30	6.0	4.4
04320	12	Z	850	30	6.4	3.4
04339	12	Z	850	30	4.5	-3.0
04339	00	Z	850	30	4.9	-2.6
04360	00	Z	850	30	4.1	0.4
04360	12	Z	850	29	3.9	-0.7
06011	12	Z	850	29	7.3	3.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	850	29	10.3	3.8
06260	12	Z	850	4	0.8	0.7
06260	00	Z	850	30	3.2	1.7
06610	00	Z	850	30	6.6	6.0
06610	12	Z	850	29	3.2	2.2
07110	12	Z	850	29	2.8	1.4
07110	00	Z	850	30	2.7	0.7
07510	00	Z	850	32	2.8	-1.4
07510	12	Z	850	31	3.3	-1.1
07645	00	Z	850	31	6.4	-2.1
07645	12	Z	850	28	4.7	-2.4
07761	12	Z	850	29	3.8	-2.2
07761	00	Z	850	30	3.5	-1.4
08001	12	Z	850	30	5.0	4.4
08001	00	Z	850	30	6.9	6.3
08221	00	Z	850	28	4.8	4.2
08221	12	Z	850	31	2.9	1.8
08302	00	Z	850	30	2.5	-0.6
08302	12	Z	850	30	3.8	-2.7
08508	12	Z	850	30	10.7	7.8
08522	12	Z	850	30	4.0	3.4
08579	12	Z	850	29	3.3	2.7
10035	12	Z	850	27	2.9	0.5
10035	00	Z	850	26	4.0	1.9
10393	12	Z	850	30	3.1	-2.3
10393	00	Z	850	31	3.4	-2.5
10410	12	Z	850	30	4.1	-2.9
10410	00	Z	850	30	2.9	-1.8
10739	12	Z	850	30	7.3	6.9
10739	00	Z	850	32	8.5	8.3
11035	12	Z	850	30	2.6	-1.1
11035	00	Z	850	30	4.9	1.6
12982	00	Z	850	30	4.3	2.8
12982	12	Z	850	29	5.3	3.8
16044	00	Z	850	30	5.6	-0.2
16044	12	Z	850	30	4.8	-1.2
16080	12	Z	850	30	5.6	-2.3
16080	00	Z	850	30	5.0	-1.0
16245	12	Z	850	30	9.3	-8.7
16245	00	Z	850	30	8.7	-6.2
16320	00	Z	850	29	5.8	-1.9
16320	12	Z	850	30	8.1	-4.9
16429	00	Z	850	31	5.3	-0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	850	29	5.5	-3.5
16622	00	Z	850	28	15.2	14.5
16754	00	Z	850	28	12.1	8.9
17607	12	Z	850	40	3.5	1.7
26435	00	Z	850	15	5.3	4.6
60018	12	Z	850	31	3.9	-3.0
60018	00	Z	850	30	3.3	-2.9
ASDE01	12	Z	850	10	8.7	-7.3
ASDE01	00	Z	850	8	11.5	-7.9
ASDE02	00	Z	850	10	4.4	3.0
ASDE02	12	Z	850	13	5.3	3.3
ASDE03	12	Z	850	11	4.8	-1.2
ASDE03	00	Z	850	13	5.2	-2.7
ASDE04	12	Z	850	4	33.2	32.7
ASDE04	00	Z	850	5	31.5	31.2
ASDE09	12	Z	850	2	24.7	9.8
ASDK01	12	Z	850	9	7.9	3.6
ASDK01	00	Z	850	9	7.5	4.1
ASDK02	12	Z	850	11	6.4	2.8
ASDK02	00	Z	850	16	4.2	0.4
ASDK03	12	Z	850	4	26.2	26.1
ASDK03	00	Z	850	5	25.7	25.2
ASDK1	12	Z	850	8	8.7	3.6
ASDK1	00	Z	850	7	7.0	2.5
ASDK2	12	Z	850	9	6.6	3.1
ASDK2	00	Z	850	14	4.5	0.3
ASDK3	12	Z	850	4	25.4	25.2
ASDK3	00	Z	850	6	24.2	23.2
ASEU01	12	Z	850	9	24.4	9.9
ASEU02	12	Z	850	7	25.1	19.7
ASEU02	00	Z	850	6	26.7	25.7
ASEU03	12	Z	850	8	39.6	32.6
ASEU03	00	Z	850	6	37.3	32.6
ASEU04	12	Z	850	7	9.2	-8.1
ASEU04	00	Z	850	3	12.1	-9.7
ASEU06	12	Z	850	9	5.7	3.4
ASEU06	00	Z	850	8	6.5	5.8
ASFR1	12	Z	850	12	6.3	-5.3
ASFR1	00	Z	850	14	8.9	-7.5
ASFR2	12	Z	850	12	10.6	9.6
ASFR2	00	Z	850	8	8.8	8.4
ASFR3	12	Z	850	12	5.8	-2.2
ASFR3	00	Z	850	12	4.4	-2.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR4	12	Z	850	12	7.6	-4.5
ASFR4	00	Z	850	12	5.4	-1.6
UKBUC	00	Z	850	4	33.1	17.7
UKBUC	12	Z	850	1	4.3	4.3

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

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RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 850 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : SEP 2015
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	30	2.7	-0.4	-0.1
01001	00	V	850	29	3.0	0.7	0.0
01028	12	V	850	30	2.8	0.2	-0.4
01028	00	V	850	30	2.3	0.1	-0.3
01400	00	V	850	26	2.5	0.2	-0.5
01400	12	V	850	28	1.9	0.5	-0.3
01415	00	V	850	29	3.5	0.6	-0.3
01415	12	V	850	29	3.2	0.0	-0.1
02365	00	V	850	30	2.3	-0.1	0.5
02365	12	V	850	30	2.8	0.0	0.3
02591	12	V	850	29	2.8	-0.5	-0.1
02591	00	V	850	30	3.0	0.0	-0.3
02836	12	V	850	30	2.9	0.3	-0.7
02836	00	V	850	30	2.3	0.0	0.3
02963	12	V	850	30	2.9	-0.1	0.1
02963	00	V	850	30	2.1	0.2	-0.4
03005	12	V	850	30	2.9	0.5	0.1
03005	00	V	850	30	2.5	0.1	-0.5
03238	00	V	850	30	2.6	-0.1	0.1
03238	12	V	850	14	2.7	0.5	0.6
03808	12	V	850	30	2.7	0.4	-0.2
03808	00	V	850	29	2.7	0.4	0.0
03918	12	V	850	15	2.0	0.0	0.7
03918	00	V	850	26	2.2	0.1	0.1
03953	12	V	850	30	2.9	-0.2	-0.1
03953	00	V	850	30	2.6	-0.2	0.4
04018	12	V	850	29	2.6	0.3	-0.1
04018	00	V	850	30	3.2	0.6	0.4
04220	00	V	850	30	2.6	0.0	0.4
04220	12	V	850	30	3.0	-0.1	-0.5
04270	12	V	850	30	3.5	-0.3	-0.4
04270	00	V	850	30	4.0	1.1	-1.2
04320	00	V	850	30	3.2	-0.5	0.7
04320	12	V	850	30	3.9	-0.8	0.5
04339	12	V	850	30	5.1	1.5	0.4
04339	00	V	850	30	3.6	0.8	0.3
04360	00	V	850	30	6.0	1.5	0.2
04360	12	V	850	29	4.3	1.0	0.6
06011	12	V	850	29	3.0	0.5	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	850	29	2.7	0.5	-0.8
06260	12	V	850	4	4.1	1.9	-0.4
06260	00	V	850	29	2.8	-0.5	-0.3
06610	00	V	850	29	4.2	1.8	0.6
06610	12	V	850	29	3.4	0.5	0.5
07110	12	V	850	29	3.2	-0.9	-0.1
07110	00	V	850	29	3.0	1.1	-0.1
07510	00	V	850	28	3.0	-0.3	-0.1
07510	12	V	850	29	3.0	-0.1	0.2
07645	00	V	850	28	5.7	-0.8	0.5
07645	12	V	850	28	3.4	-0.5	0.5
07761	12	V	850	29	4.3	-0.8	0.0
07761	00	V	850	30	3.8	-0.9	-0.5
08001	12	V	850	30	2.2	0.0	-0.1
08001	00	V	850	30	3.1	0.4	0.7
08221	00	V	850	28	3.6	-0.3	-0.5
08221	12	V	850	28	2.2	0.1	0.3
08302	00	V	850	30	3.7	0.4	0.6
08302	12	V	850	30	2.9	0.0	0.1
08508	12	V	850	30	3.3	-0.1	0.2
08522	12	V	850	29	2.8	0.1	-0.2
08579	12	V	850	29	2.3	0.6	-0.4
10035	12	V	850	26	2.3	0.3	-0.1
10035	00	V	850	26	2.1	0.5	-0.4
10393	12	V	850	30	2.4	0.0	0.2
10393	00	V	850	31	2.8	0.6	0.2
10410	12	V	850	30	2.3	-0.1	0.2
10410	00	V	850	30	2.6	0.2	0.5
10739	12	V	850	30	3.2	-0.1	0.7
10739	00	V	850	30	2.9	0.6	-0.4
11035	12	V	850	30	3.3	0.0	-0.3
11035	00	V	850	30	3.4	-0.1	-0.6
12982	00	V	850	30	3.0	0.6	0.3
12982	12	V	850	29	3.0	-0.1	0.8
16044	00	V	850	30	3.7	0.9	-0.1
16044	12	V	850	30	3.3	0.5	0.4
16080	12	V	850	30	3.1	0.7	-0.2
16080	00	V	850	30	4.2	0.8	-1.2
16245	12	V	850	30	3.2	0.4	0.0
16245	00	V	850	30	3.1	0.7	-0.3
16320	00	V	850	29	2.9	-0.1	-0.6
16320	12	V	850	30	3.5	1.2	0.4
16429	00	V	850	28	3.1	-0.9	-0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	850	29	3.0	-0.1	0.0
16622	00	V	850	21	2.4	-0.2	-0.5
16754	00	V	850	28	3.1	0.8	-0.5
17607	12	V	850	22	2.8	-0.1	-0.6
26435	00	V	850	15	2.6	-0.1	-0.7
60018	12	V	850	30	2.9	-0.2	-0.1
60018	00	V	850	30	2.8	-0.1	-0.7
ASDE01	12	V	850	10	1.9	-0.1	0.4
ASDE01	00	V	850	8	3.3	-0.9	2.0
ASDE02	00	V	850	9	3.2	0.8	0.0
ASDE02	12	V	850	11	4.2	-0.2	-0.6
ASDE03	12	V	850	10	2.7	-0.1	0.9
ASDE03	00	V	850	12	1.7	0.4	-0.4
ASDE04	12	V	850	4	2.1	-0.7	0.5
ASDE04	00	V	850	5	1.5	-0.4	0.2
ASDE09	12	V	850	2	2.5	0.4	-0.2
ASDK01	12	V	850	9	2.4	-0.1	0.0
ASDK01	00	V	850	8	2.8	-0.4	0.0
ASDK02	12	V	850	10	2.4	-0.4	0.5
ASDK02	00	V	850	14	2.3	-0.2	0.0
ASDK03	12	V	850	4	2.7	0.0	-0.3
ASDK03	00	V	850	5	3.3	-0.9	0.9
ASDK1	12	V	850	8	2.4	-0.6	0.2
ASDK1	00	V	850	7	2.6	-0.5	0.2
ASDK2	12	V	850	9	2.5	-0.3	0.0
ASDK2	00	V	850	14	2.2	-0.2	0.1
ASDK3	12	V	850	4	2.9	0.0	-0.3
ASDK3	00	V	850	6	4.5	-1.9	0.6
ASEU01	12	V	850	8	2.3	0.3	-0.5
ASEU02	12	V	850	7	2.6	1.4	0.7
ASEU02	00	V	850	5	1.8	0.0	0.5
ASEU03	12	V	850	8	2.2	0.5	0.8
ASEU03	00	V	850	6	1.9	0.0	0.5
ASEU04	12	V	850	6	2.1	0.3	-0.3
ASEU04	00	V	850	3	2.7	-2.2	0.2
ASEU06	12	V	850	8	2.6	0.0	0.5
ASEU06	00	V	850	8	3.0	0.3	-0.4
ASFR1	12	V	850	12	2.5	0.4	-0.1
ASFR1	00	V	850	14	2.5	-0.7	0.1
ASFR2	12	V	850	12	3.3	0.6	0.6
ASFR2	00	V	850	8	1.8	0.2	0.0
ASFR3	12	V	850	12	3.3	0.5	0.1
ASFR3	00	V	850	12	2.4	-0.6	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR4	12	V	850	12	3.0	-0.2	-1.2
ASFR4	00	V	850	12	3.1	-0.6	-0.7
UKBUC	00	V	850	2	1.2	-0.3	-0.7
UKBUC	12	V	850	1	1.4	0.1	1.4

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

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DRIFTER MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE      : ECMWF
         ELEMENT MONITORED      : SURFACE PRESSURE (HPA)
         AREA                   : 10N - 90N, 70W - 40E
         PERIOD                 : SEP 2015
         STANDARD OF COMPARISON: FIRST-GUESS FIELD


TIME = 99 => AVERAGE OF ALL OBSERVATIONS
GROSS ERROR LIMIT = 15 HPA
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WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
13001	99	P	SUR	12	-23	108	0	0.4	-0.3	0.5
13008	99	P	SUR	15	-38	79	0	0.3	-0.2	0.4
13515	99	P	SUR	25	-49	190	0	0.3	0.0	0.3
13517	99	P	SUR	13	-40	191	0	0.4	-0.2	0.4
13519	99	P	SUR	23	-40	204	0	1.1	-0.1	1.1
13523	99	P	SUR	16	-70	189	0	0.3	0.2	0.4
13531	99	P	SUR	14	-57	187	0	0.3	-0.5	0.6
13569	99	P	SUR	28	-33	183	0	0.2	-0.1	0.3
13570	99	P	SUR	36	-17	203	0	0.3	0.5	0.6
13572	99	P	SUR	31	-34	210	0	0.3	0.0	0.3
13633	99	P	SUR	34	-30	209	0	0.3	-0.6	0.7
13659	99	P	SUR	32	-46	210	0	1.7	-0.4	1.8
13660	99	P	SUR	28	-44	210	0	0.7	-0.1	0.7
13661	99	P	SUR	12	-28	210	0	0.4	-0.6	0.8
13662	99	P	SUR	33	-49	209	0	0.3	-0.1	0.3
13868	99	P	SUR	33	-15	36	0	0.4	0.2	0.4
13869	99	P	SUR	23	-39	210	0	0.3	0.0	0.3
13870	99	P	SUR	32	-17	210	0	0.3	0.8	0.8
13871	99	P	SUR	25	-33	165	0	0.3	0.5	0.6
13872	99	P	SUR	25	-27	209	0	0.3	0.6	0.7
21942	99	P	SUR	27	-39	204	0	0.3	0.3	0.4
25540	99	P	SUR	82	-14	210	0	0.4	-0.4	0.6
25575	99	P	SUR	83	-21	210	0	0.4	-0.2	0.5
25617	99	P	SUR	85	-31	210	0	0.5	-0.6	0.7
25618	99	P	SUR	86	-12	210	0	0.5	0.0	0.5
25620	99	P	SUR	84	-9	210	0	0.4	-0.3	0.5
25652	99	P	SUR	79	2	146	3	2.7	-1.1	2.9
26537	99	P	SUR	73	1	210	0	0.3	-0.2	0.3
26545	99	P	SUR	85	33	210	0	0.5	0.0	0.5
26546	99	P	SUR	86	21	210	0	6.1	-1.2	6.2
31515	99	P	SUR	23	-66	189	0	0.3	0.1	0.3
31717	99	P	SUR	20	-66	210	0	0.3	-0.1	0.3
31863	99	P	SUR	18	-58	210	0	0.4	0.5	0.6
41139	99	P	SUR	20	-38	128	0	0.3	-0.2	0.3
41564	99	P	SUR	29	-33	188	0	0.3	0.3	0.4
41580	99	P	SUR	23	-50	45	0	0.2	0.3	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
41590	99	P	SUR	30	-69	209	0	0.4	-0.2	0.5
41591	99	P	SUR	20	-54	207	0	0.3	0.0	0.3
41594	99	P	SUR	28	-56	209	0	0.3	0.1	0.3
41596	99	P	SUR	23	-67	208	0	0.4	-0.1	0.4
41597	99	P	SUR	23	-62	210	0	0.3	-0.1	0.3
41600	99	P	SUR	20	-64	210	0	0.3	0.4	0.5
41632	99	P	SUR	24	-65	210	0	0.4	-0.1	0.4
41635	99	P	SUR	22	-42	209	0	0.4	0.4	0.5
41637	99	P	SUR	17	-48	125	0	0.3	0.2	0.3
41638	99	P	SUR	14	-46	80	0	0.3	-0.1	0.3
41705	99	P	SUR	38	-60	210	0	0.9	-0.1	0.9
41706	99	P	SUR	31	-55	210	0	0.3	0.0	0.3
41707	99	P	SUR	12	-52	210	0	0.3	-0.3	0.4
41711	99	P	SUR	35	-43	210	0	0.4	-0.1	0.4
41729	99	P	SUR	34	-69	210	0	0.5	-0.1	0.5
41731	99	P	SUR	28	-55	210	0	0.3	0.0	0.3
41739	99	P	SUR	42	-59	210	0	0.4	-0.3	0.5
41904	99	P	SUR	15	-58	504	0	0.3	0.1	0.4
41908	99	P	SUR	16	-57	258	0	2.7	0.5	2.7
41933	99	P	SUR	38	-34	57	0	0.5	-0.6	0.8
41936	99	P	SUR	33	-54	210	0	0.4	-0.7	0.8
41969	99	P	SUR	29	-59	210	0	0.4	-0.5	0.6
41970	99	P	SUR	29	-67	210	0	0.4	0.2	0.4
41971	99	P	SUR	32	-17	55	7	0.4	-0.2	0.5
41972	99	P	SUR	32	-48	210	0	0.3	0.1	0.3
41975	99	P	SUR	32	-31	207	0	0.3	0.0	0.3
44513	99	P	SUR	50	-22	210	0	0.3	0.3	0.5
44515	99	P	SUR	44	-51	210	0	0.5	0.0	0.5
44516	99	P	SUR	43	-61	196	0	0.3	0.2	0.4
44517	99	P	SUR	46	-20	210	0	0.3	0.2	0.4
44519	99	P	SUR	52	-34	210	0	0.5	-0.2	0.5
44521	99	P	SUR	37	-60	209	0	0.4	-0.4	0.6
44546	99	P	SUR	26	-45	210	0	0.3	-0.1	0.3
44547	99	P	SUR	60	-25	210	0	0.4	0.3	0.5
44548	99	P	SUR	55	-25	210	0	0.3	0.3	0.5
44549	99	P	SUR	52	-19	210	0	0.3	0.3	0.4
44551	99	P	SUR	60	-16	210	0	0.3	0.2	0.4
44557	99	P	SUR	37	-44	210	0	0.3	0.3	0.4
44558	99	P	SUR	32	-44	209	0	0.3	0.6	0.7
44559	99	P	SUR	35	-47	131	0	0.3	0.1	0.3
44601	99	P	SUR	50	-17	210	0	0.3	-0.4	0.5
44606	99	P	SUR	55	-9	132	0	0.3	-0.3	0.4
44608	99	P	SUR	46	-24	210	0	0.4	0.1	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44609	99	P	SUR	49	-18	210	0	0.4	0.3	0.5
44613	99	P	SUR	28	-29	210	0	0.2	-0.2	0.3
44614	99	P	SUR	52	-16	205	0	0.4	0.0	0.4
44620	99	P	SUR	57	-22	210	0	0.4	0.6	0.7
44621	99	P	SUR	58	-2	56	0	0.6	0.2	0.6
44623	99	P	SUR	59	-34	210	0	0.4	-0.2	0.5
44624	99	P	SUR	26	-27	207	0	0.3	-0.1	0.3
44625	99	P	SUR	63	-24	208	0	0.3	0.4	0.5
44670	99	P	SUR	53	-54	210	0	0.4	0.3	0.5
44725	99	P	SUR	37	-53	210	0	0.4	-0.1	0.4
44739	99	P	SUR	36	-48	210	0	0.3	0.3	0.5
44740	99	P	SUR	33	-52	210	0	0.3	-0.2	0.4
44744	99	P	SUR	44	-44	210	0	0.5	-0.2	0.5
44745	99	P	SUR	42	-40	161	0	1.2	0.0	1.2
44746	99	P	SUR	40	-44	210	0	0.3	-0.1	0.3
44761	99	P	SUR	53	-27	210	0	0.4	-0.4	0.5
44762	99	P	SUR	47	-45	210	0	0.5	0.2	0.6
44763	99	P	SUR	58	-36	180	0	0.4	0.1	0.4
44764	99	P	SUR	52	-25	210	0	0.4	-0.3	0.5
44768	99	P	SUR	44	-60	210	0	0.3	0.1	0.3
44769	99	P	SUR	36	-58	210	0	0.4	0.0	0.4
44770	99	P	SUR	52	-28	210	0	0.5	-0.2	0.5
44771	99	P	SUR	49	-25	210	0	0.4	-0.3	0.5
44774	99	P	SUR	37	-48	210	0	0.3	0.0	0.3
44776	99	P	SUR	43	-39	210	0	0.4	0.3	0.5
44778	99	P	SUR	40	-45	210	0	0.3	0.0	0.3
44835	99	P	SUR	39	-21	210	0	0.3	-0.4	0.5
44836	99	P	SUR	57	-22	210	0	0.3	0.1	0.3
44837	99	P	SUR	30	-23	210	0	0.2	-0.1	0.2
44839	99	P	SUR	34	-23	210	0	0.3	-0.1	0.3
44846	99	P	SUR	35	-26	209	0	0.3	0.5	0.6
44847	99	P	SUR	42	-11	210	0	0.3	0.4	0.5
44848	99	P	SUR	39	-29	210	0	0.4	0.2	0.4
44863	99	P	SUR	31	-49	210	0	0.3	-0.3	0.4
44866	99	P	SUR	61	-12	211	0	0.2	-0.2	0.3
44867	99	P	SUR	55	-30	210	0	0.3	-0.2	0.4
44868	99	P	SUR	28	-41	210	0	0.5	-0.2	0.5
44869	99	P	SUR	42	-46	210	0	0.9	0.1	0.9
44871	99	P	SUR	46	-11	210	0	0.4	0.1	0.4
44872	99	P	SUR	58	-24	210	0	0.3	-0.3	0.4
44873	99	P	SUR	42	-44	210	0	0.5	0.4	0.6
44874	99	P	SUR	45	-37	210	0	0.5	-0.2	0.5
44875	99	P	SUR	40	-39	49	0	4.4	-2.7	5.1

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44877	99	P	SUR	34	-16	210	0	0.3	-0.1	0.3
44878	99	P	SUR	42	-11	210	0	0.3	0.1	0.3
44880	99	P	SUR	47	-31	208	0	0.5	-0.3	0.6
44885	99	P	SUR	36	-24	210	0	0.3	-0.1	0.3
44887	99	P	SUR	35	-42	210	0	0.4	-0.1	0.4
44888	99	P	SUR	43	-15	210	0	0.3	-0.1	0.3
44889	99	P	SUR	32	-52	210	0	0.3	0.0	0.3
44890	99	P	SUR	33	-60	210	0	0.4	0.1	0.4
44891	99	P	SUR	25	-45	210	0	0.3	0.0	0.3
44892	99	P	SUR	50	-12	210	0	0.3	0.0	0.3
44896	99	P	SUR	29	-45	209	0	0.3	-0.3	0.4
47503	99	P	SUR	59	-39	210	0	0.8	0.0	0.8
47509	99	P	SUR	86	-55	210	0	0.5	-0.2	0.5
47585	99	P	SUR	68	-67	210	0	0.3	-0.4	0.5
47586	99	P	SUR	49	-27	210	0	1.4	0.2	1.4
48520	99	P	SUR	90	-8	204	0	0.4	0.2	0.5
48568	99	P	SUR	59	-48	210	0	0.4	-0.4	0.5
48597	99	P	SUR	79	-6	204	0	0.6	0.1	0.6
48679	99	P	SUR	84	-24	160	0	0.4	-0.2	0.4
48778	99	P	SUR	70	-24	118	30	5.8	-6.5	8.7
48779	99	P	SUR	57	-46	55	16	6.3	-7.4	9.7
62091	99	P	SUR	53	-5	210	0	0.3	0.0	0.3
62092	99	P	SUR	51	-11	210	0	0.3	0.2	0.4
62093	99	P	SUR	55	-10	209	0	0.4	0.3	0.5
62094	99	P	SUR	52	-7	204	0	0.4	0.0	0.4
62513	99	P	SUR	63	-36	210	0	0.3	0.0	0.3
62516	99	P	SUR	21	-41	210	0	0.4	0.3	0.5
62536	99	P	SUR	63	2	210	0	0.4	-0.3	0.5
62539	99	P	SUR	58	-19	210	0	0.4	0.0	0.4
62552	99	P	SUR	49	-8	210	0	0.3	0.2	0.4
62553	99	P	SUR	66	-29	210	0	0.5	0.0	0.5
62554	99	P	SUR	46	-28	210	0	0.4	0.0	0.4
62555	99	P	SUR	46	-29	210	0	0.4	0.3	0.5
62556	99	P	SUR	40	-37	210	0	0.6	0.5	0.8
62681	99	P	SUR	26	-28	210	0	0.2	0.0	0.2
62695	99	P	SUR	27	-44	210	0	0.3	0.2	0.3
62713	99	P	SUR	34	-56	210	0	0.4	-0.2	0.4
62714	99	P	SUR	32	-54	210	0	0.3	-0.2	0.3
62940	99	P	SUR	38	-32	210	0	0.3	-0.2	0.4
62941	99	P	SUR	34	-22	210	0	0.3	-0.1	0.3
63546	99	P	SUR	63	-22	210	0	0.6	-0.2	0.6
63560	99	P	SUR	74	-4	210	0	0.3	-0.2	0.4
63561	99	P	SUR	73	-5	210	0	0.3	0.1	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
63923	99	P	SUR	86	-13	210	9	3.0	-0.7	3.0
64517	99	P	SUR	59	10	202	0	0.5	0.4	0.7
64518	99	P	SUR	63	6	207	0	0.4	-0.1	0.4
64519	99	P	SUR	70	13	210	0	0.4	0.3	0.5
64521	99	P	SUR	72	-2	210	0	0.3	-0.3	0.4
64522	99	P	SUR	71	9	169	0	0.4	0.2	0.4
64523	99	P	SUR	64	-2	209	0	0.4	0.3	0.5
64524	99	P	SUR	67	13	210	0	0.4	-0.1	0.4
64525	99	P	SUR	70	-12	210	0	0.4	0.0	0.4
64526	99	P	SUR	65	-31	187	0	0.6	0.2	0.6
64527	99	P	SUR	65	-37	207	0	0.6	0.3	0.7
64528	99	P	SUR	63	0	210	0	0.2	0.3	0.4
64529	99	P	SUR	52	-33	210	0	1.1	0.0	1.1
64530	99	P	SUR	64	0	210	0	0.3	0.3	0.4
64532	99	P	SUR	56	-49	210	0	0.4	4.0	4.0
64534	99	P	SUR	57	-32	207	207	0.0	0.0	0.0
64535	99	P	SUR	59	-47	19	0	0.3	0.1	0.3
64537	99	P	SUR	86	-18	90	0	0.6	-0.5	0.7
64538	99	P	SUR	86	-34	202	193	4.9	-4.9	6.9
64547	99	P	SUR	64	-5	210	0	0.3	0.1	0.3
64549	99	P	SUR	63	-18	210	0	0.4	-0.1	0.4
64550	99	P	SUR	62	-41	210	0	0.4	-0.3	0.5
64551	99	P	SUR	60	-41	210	0	0.6	0.1	0.6
64552	99	P	SUR	57	-26	210	0	0.4	0.1	0.4
64553	99	P	SUR	61	-12	113	0	0.3	0.0	0.3
64554	99	P	SUR	63	-17	113	0	0.3	0.2	0.4
64606	99	P	SUR	66	5	210	0	0.6	0.5	0.8
64613	99	P	SUR	69	-20	32	0	0.4	0.3	0.5
64615	99	P	SUR	72	-16	210	0	0.4	0.4	0.6
64620	99	P	SUR	63	-19	175	2	1.3	-0.3	1.3
64621	99	P	SUR	62	-27	196	0	0.4	0.1	0.4
64622	99	P	SUR	71	6	210	0	0.3	0.1	0.3
64623	99	P	SUR	72	-9	210	0	0.3	-0.4	0.5
64666	99	P	SUR	75	10	210	0	0.3	0.3	0.4
64667	99	P	SUR	61	-1	210	0	0.5	-0.2	0.5
64668	99	P	SUR	72	-11	210	0	0.4	0.1	0.4
64692	99	P	SUR	75	6	210	0	0.3	0.3	0.4
65511	99	P	SUR	70	-59	106	0	0.3	-0.1	0.3
65512	99	P	SUR	75	-68	99	0	0.4	0.2	0.5
65513	99	P	SUR	73	-64	99	0	0.3	0.3	0.4
65514	99	P	SUR	61	-50	210	0	0.4	0.3	0.5
65515	99	P	SUR	68	-54	154	0	0.5	0.3	0.6
65516	99	P	SUR	73	-59	210	0	0.3	0.0	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
65518	99	P	SUR	75	-63	162	0	1.9	-0.1	1.9
65596	99	P	SUR	57	-44	209	0	0.5	0.1	0.5
65599	99	P	SUR	57	-45	210	0	0.5	-0.1	0.5
65600	99	P	SUR	63	-53	76	0	0.4	-0.4	0.6
65601	99	P	SUR	59	-46	210	0	0.4	-0.2	0.5
65602	99	P	SUR	58	-43	210	0	0.5	-0.4	0.6
65603	99	P	SUR	65	-53	113	0	0.6	0.1	0.6

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                : SEP 2015
                   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
13001	99	SPEED	SUR	12	-23	108	0	0	1.5	0.9	1.8
13002	99	SPEED	SUR	20	-23	94	0	0	0.7	0.1	0.7
13008	99	SPEED	SUR	15	-38	79	0	0	1.1	0.1	1.1
41026	99	SPEED	SUR	12	-38	80	0	0	1.2	0.3	1.2
41139	99	SPEED	SUR	20	-38	128	0	0	1.0	0.0	1.0
62091	99	SPEED	SUR	53	-5	210	0	0	1.2	-0.3	1.2
62092	99	SPEED	SUR	51	-11	210	0	0	1.4	-0.1	1.4
62093	99	SPEED	SUR	55	-10	209	0	0	1.2	-0.2	1.2
62094	99	SPEED	SUR	52	-7	205	0	0	1.3	-0.2	1.3

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                : SEP 2015
                   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
13001	99	DIRN	SUR	12	-23	58	0	0	27.3	4.1	27.6
13002	99	DIRN	SUR	20	-23	94	0	0	11.8	-1.2	11.9
13008	99	DIRN	SUR	15	-38	68	0	0	18.2	-2.7	18.4
41026	99	DIRN	SUR	12	-38	60	0	0	27.3	3.0	27.4
41139	99	DIRN	SUR	20	-38	119	0	0	11.1	10.4	15.2
62091	99	DIRN	SUR	53	-5	174	0	0	13.2	1.4	13.3
62092	99	DIRN	SUR	51	-11	195	0	0	11.8	-1.2	11.9
62093	99	DIRN	SUR	55	-10	182	0	0	17.2	-6.6	18.4
62094	99	DIRN	SUR	52	-7	165	0	0	13.0	2.9	13.3

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE02	ASDE04	ASDK01	ASDK02	ASDK03	ASEU01	ASEU02	ASEU04	DBLK
01001	01004	01010	01028	01241	01400	01415	01492	02185
02365	02527	02591	03953	06260	08001	08023	08160	08221
08302	08430	10035	10113	10184	10238	10304	10393	10410
10618	10739	10868	10954	10962	60018			

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

ASDE01	ASDE02	ASDE03	ASDE04	ASDE09	ASDK01	ASDK02	ASDK03	ASEU01
ASEU02	ASEU03	ASEU04	ASEU06	DBLK	17516	48811	76526	76743

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.