



ECMWF Global Data Monitoring Report

August 2015

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

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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 percentage 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	Jul	Aug	Ident	Time	Jul	Aug
08594	(12)	19	0	01001	(00)	0	31
25428	(00)	14	0	01010	(00)	0	28
25428	(12)	13	0	01028	(00)	0	31
43150	(00)	11	0	01241	(00)	0	29
48820	(12)	15	3	01400	(00)	2	20
48845	(00)	30	4	01415	(00)	0	31
48855	(12)	12	0	02185	(00)	0	42
48900	(12)	11	0	02365	(00)	0	39
68906	(12)	29	6	02365	(12)	32	47
86218	(12)	28	7	02527	(00)	2	41
-	-	-	-	02591	(00)	0	38
-	-	-	-	03953	(00)	2	31
-	-	-	-	06260	(00)	0	32
-	-	-	-	08001	(00)	0	31
-	-	-	-	08023	(00)	1	30
-	-	-	-	08160	(00)	0	28
-	-	-	-	08221	(00)	0	29
-	-	-	-	08302	(00)	0	25
-	-	-	-	08430	(00)	0	31
-	-	-	-	10954	(12)	60	46
-	-	-	-	16113	(12)	16	27
-	-	-	-	17516	(00)	0	27
-	-	-	-	21946	(00)	16	29
-	-	-	-	25400	(00)	19	31
-	-	-	-	26702	(00)	9	29
-	-	-	-	26702	(12)	10	31
-	-	-	-	30309	(00)	14	31
-	-	-	-	30309	(12)	16	30
-	-	-	-	40809	(12)	0	27
-	-	-	-	40875	(00)	16	29
-	-	-	-	40948	(12)	18	31
-	-	-	-	42027	(00)	0	18
-	-	-	-	42101	(00)	19	31
-	-	-	-	42182	(12)	14	31
-	-	-	-	42314	(00)	1	24
-	-	-	-	42348	(00)	0	17
-	-	-	-	42361	(00)	3	31
-	-	-	-	42397	(00)	0	18
-	-	-	-	42492	(00)	0	25
-	-	-	-	42647	(00)	2	28
-	-	-	-	42667	(00)	0	11
-	-	-	-	42809	(00)	3	31
-	-	-	-	42867	(00)	0	25
-	-	-	-	43003	(12)	0	12
-	-	-	-	43128	(00)	0	21
-	-	-	-	43192	(00)	0	29
-	-	-	-	43279	(12)	0	21
-	-	-	-	43295	(00)	0	14
-	-	-	-	43333	(00)	1	29
-	-	-	-	43371	(00)	0	18
-	-	-	-	60018	(00)	1	30
-	-	-	-	68098	(12)	0	17
-	-	-	-	76526	(12)	5	30
-	-	-	-	76595	(12)	0	17
-	-	-	-	78866	(00)	15	31
-	-	-	-	78954	(00)	17	31
-	-	-	-	78970	(00)	2	31
-	-	-	-	78988	(00)	1	31
-	-	-	-	82022	(00)	6	27
-	-	-	-	82022	(12)	5	28

-	-	-	-	82107	(00)	0	24
-	-	-	-	82107	(12)	0	22
-	-	-	-	82900	(12)	10	29
-	-	-	-	83208	(00)	0	19
-	-	-	-	83208	(12)	0	25
-	-	-	-	83229	(12)	8	31
-	-	-	-	83827	(00)	0	27
-	-	-	-	83827	(12)	0	28
-	-	-	-	84132	(12)	3	20
-	-	-	-	87155	(00)	0	20
-	-	-	-	87344	(00)	0	24
-	-	-	-	87344	(12)	13	31
-	-	-	-	87418	(00)	0	11
-	-	-	-	87418	(12)	16	30
-	-	-	-	87576	(00)	0	24
-	-	-	-	87623	(12)	2	32
-	-	-	-	89512	(12)	0	14
-	-	-	-	89592	(12)	0	14
-	-	-	-	91557	(00)	5	21
-	-	-	-	94326	(00)	5	19

2.2 Drifting Buoys

Surface pressure observations from **1528** 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.

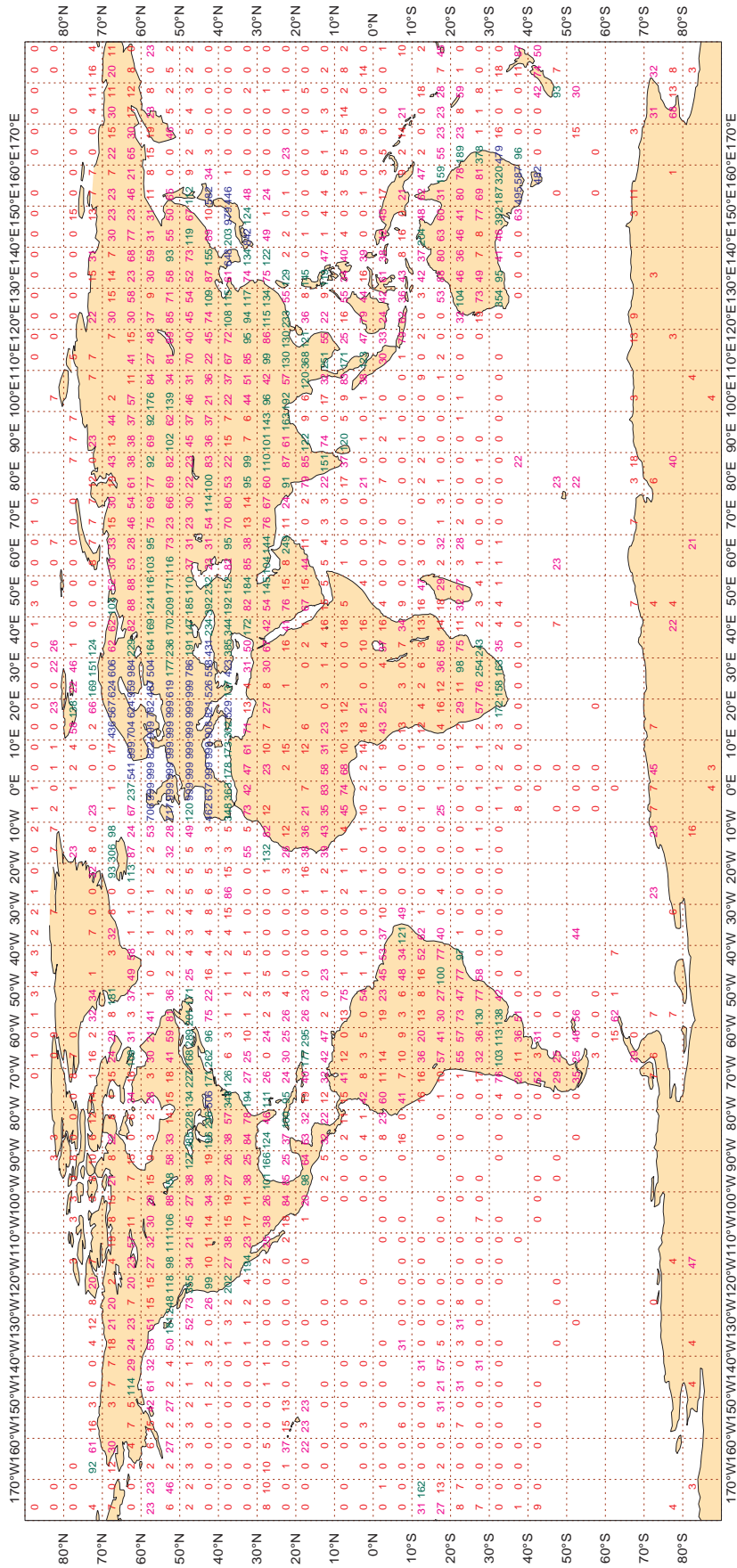
Fig	Parameter	Level/Layer
14	SATOB - Mean observed wind	1000-700 hPa
15	SATOB - Mean observed wind	400-150 hPa
16	SATOB - Mean observed minus first-guess wind	1000-700 hPa
17	SATOB - Mean observed minus first-guess wind	400-150 hPa
18	AIRCRAFT WIND - Mean observed minus first-guess	300-150 hPa

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

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

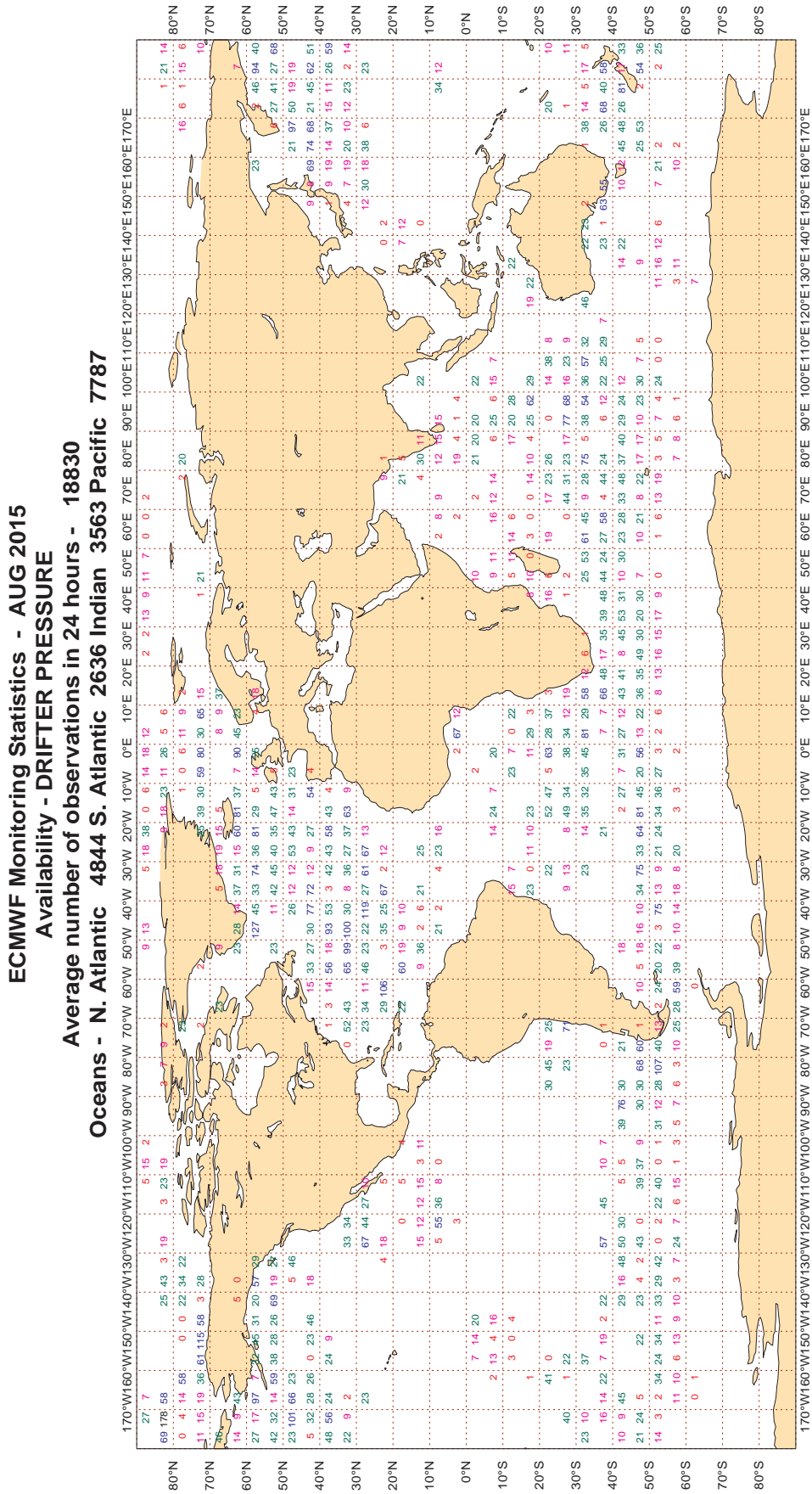
Figure 1

ECMWF Monitoring Statistics - AUG 2015
 Availability - SYNOP/SHIP (manual, auto) pressure
 Average number of observations in 24 hours - 116859
 LAND - WMO Region I: 4090 II:18426 III: 3287 IV: 4871
 Region V: 8811 VI:62816 Antarctic: 697
 Oceans - N. Atlantic 8537 S. Atlantic 142 Indian 396 Pacific 4786



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2



3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

Figure 3

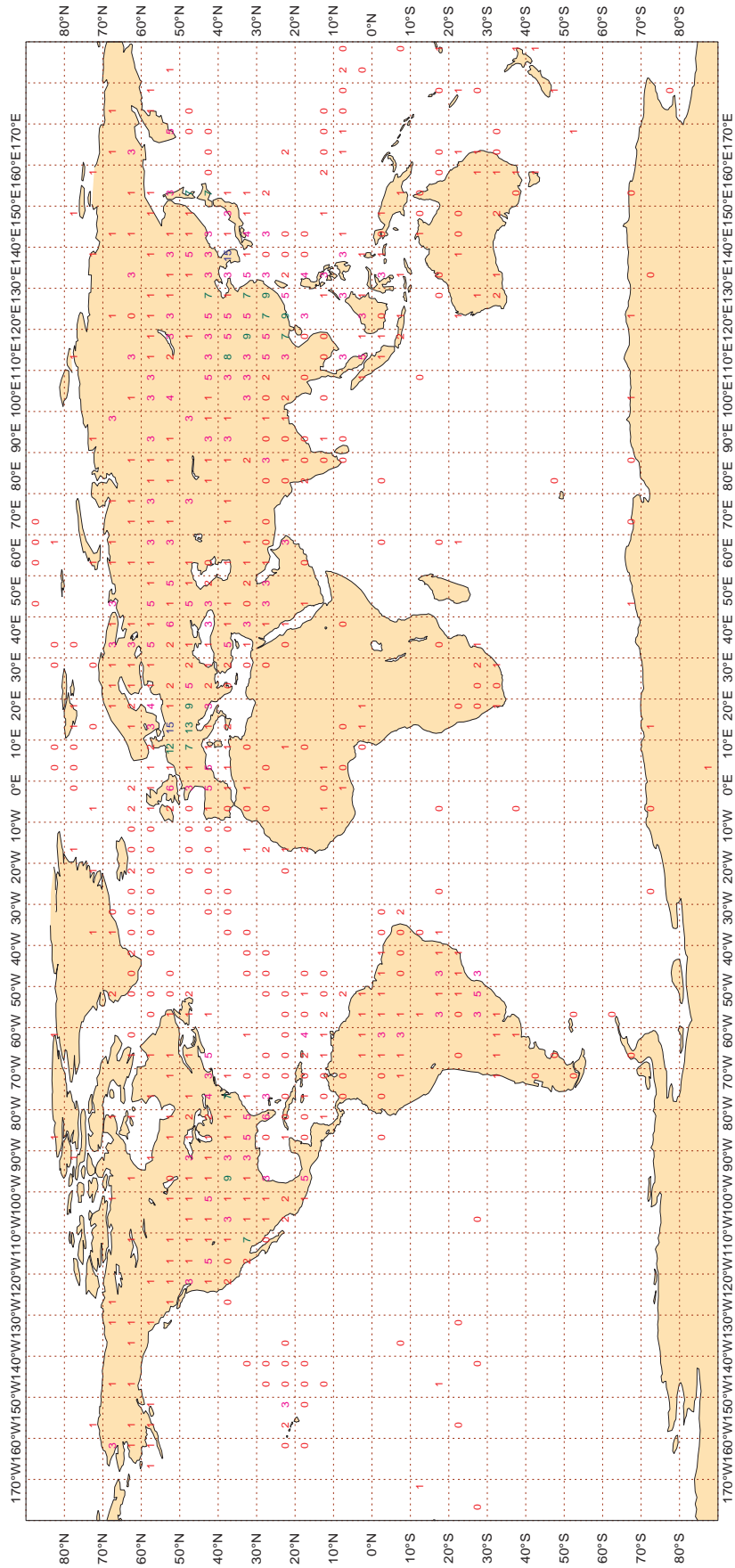
ECMWF Monitoring Statistics - AUG 2015

Availability - TEMP 500 hPa Geopotential
Average number of observations in 24 hours - 1306

LAND - WMO Region I: 47 II: 487 III: 89 IV: 266

Region V: 127 VI: 260 Antarctic: 14

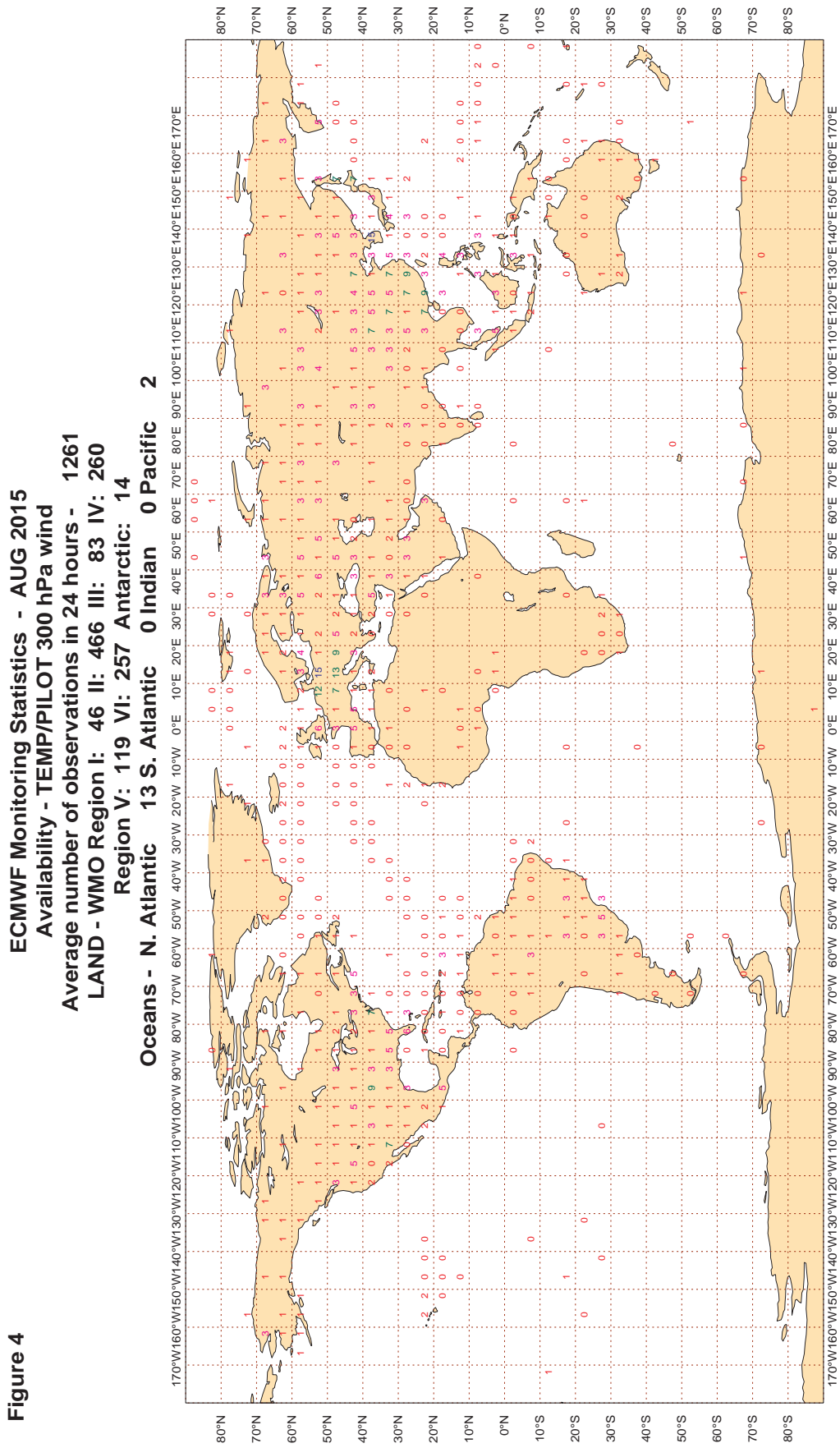
Oceans - N. Atlantic 14 S. Atlantic 0 Indian 0 Pacific 2



Magics 2.18.4 (64 bit)



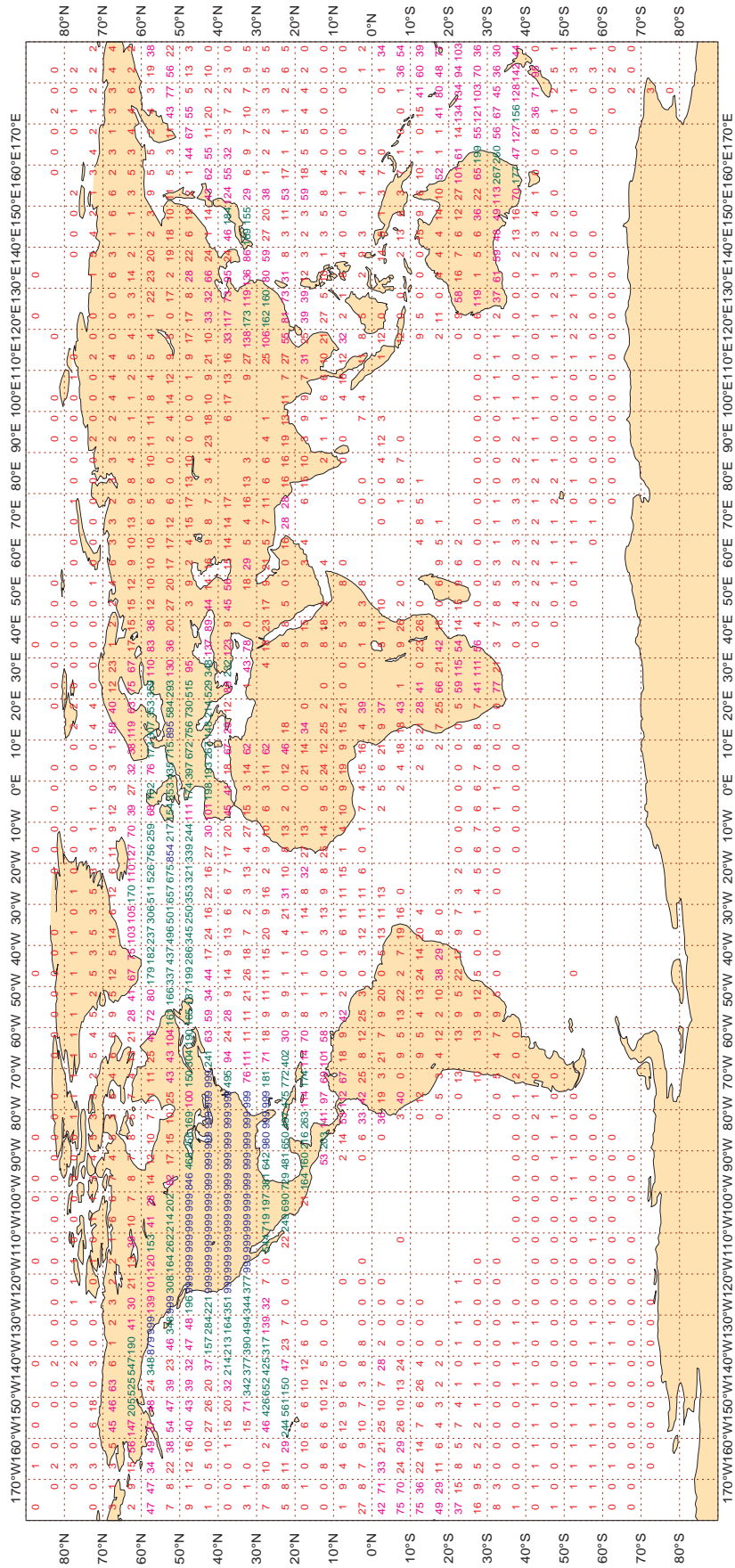
3.2.4 Figure 4 - Availability - TEMP/PILOT 300 hPa wind



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

Figure 5

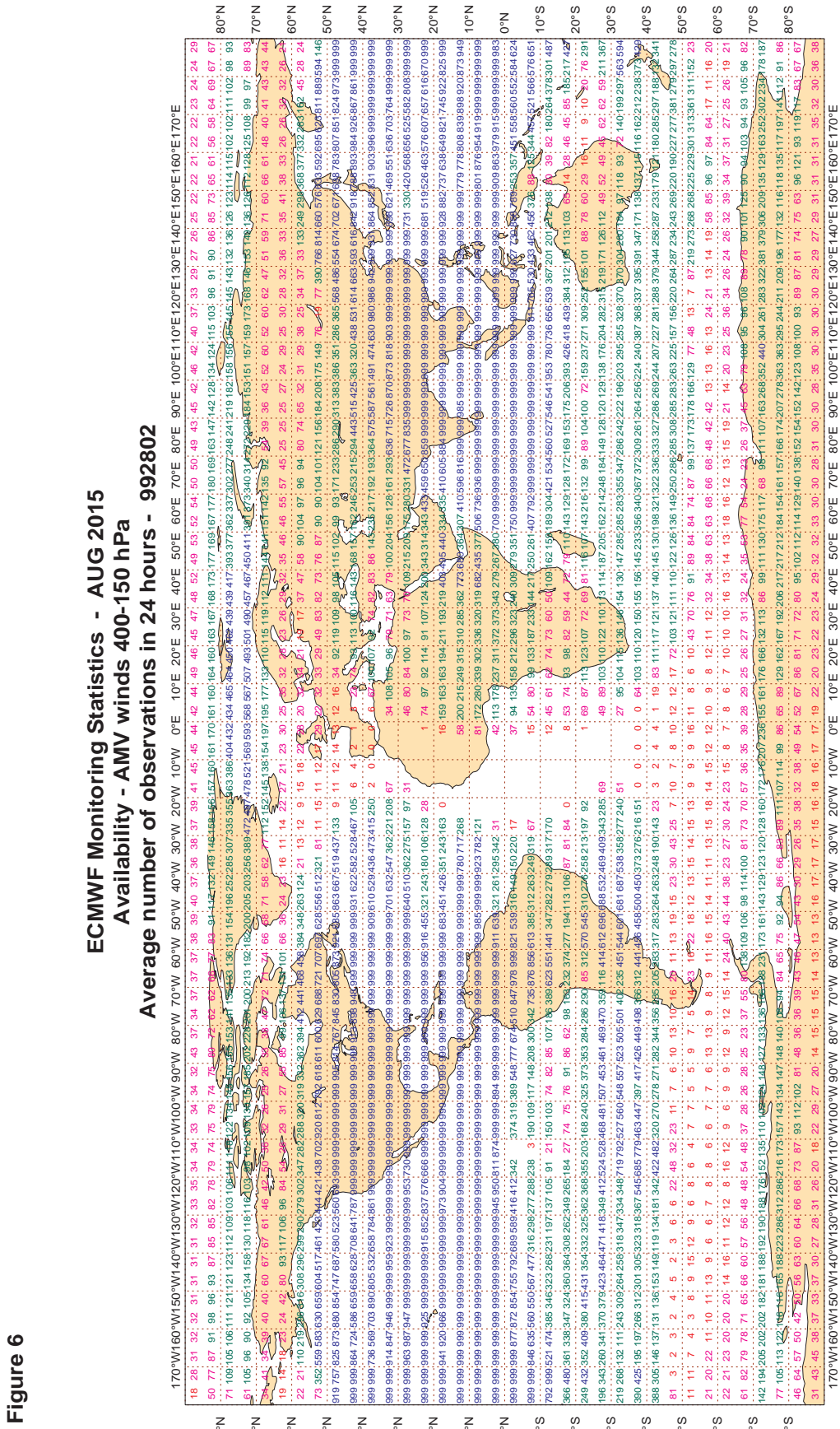
ECMWF Monitoring Statistics - AUG 2015
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 220934



Magics 2.18.4 (64 bit)



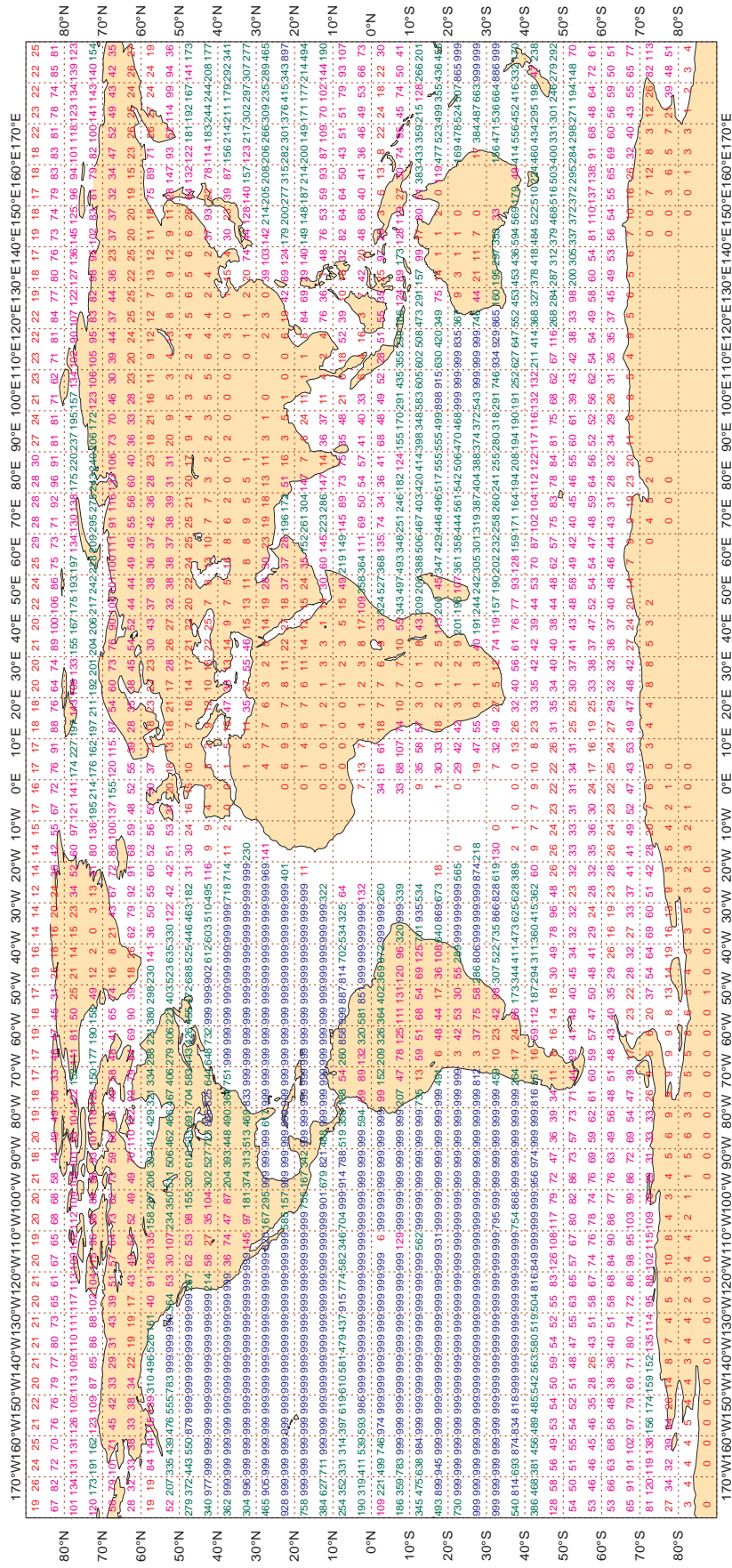
3.2.6 Figure 6 - Availability - SATOB winds 400-150 hPa



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

Figure 7

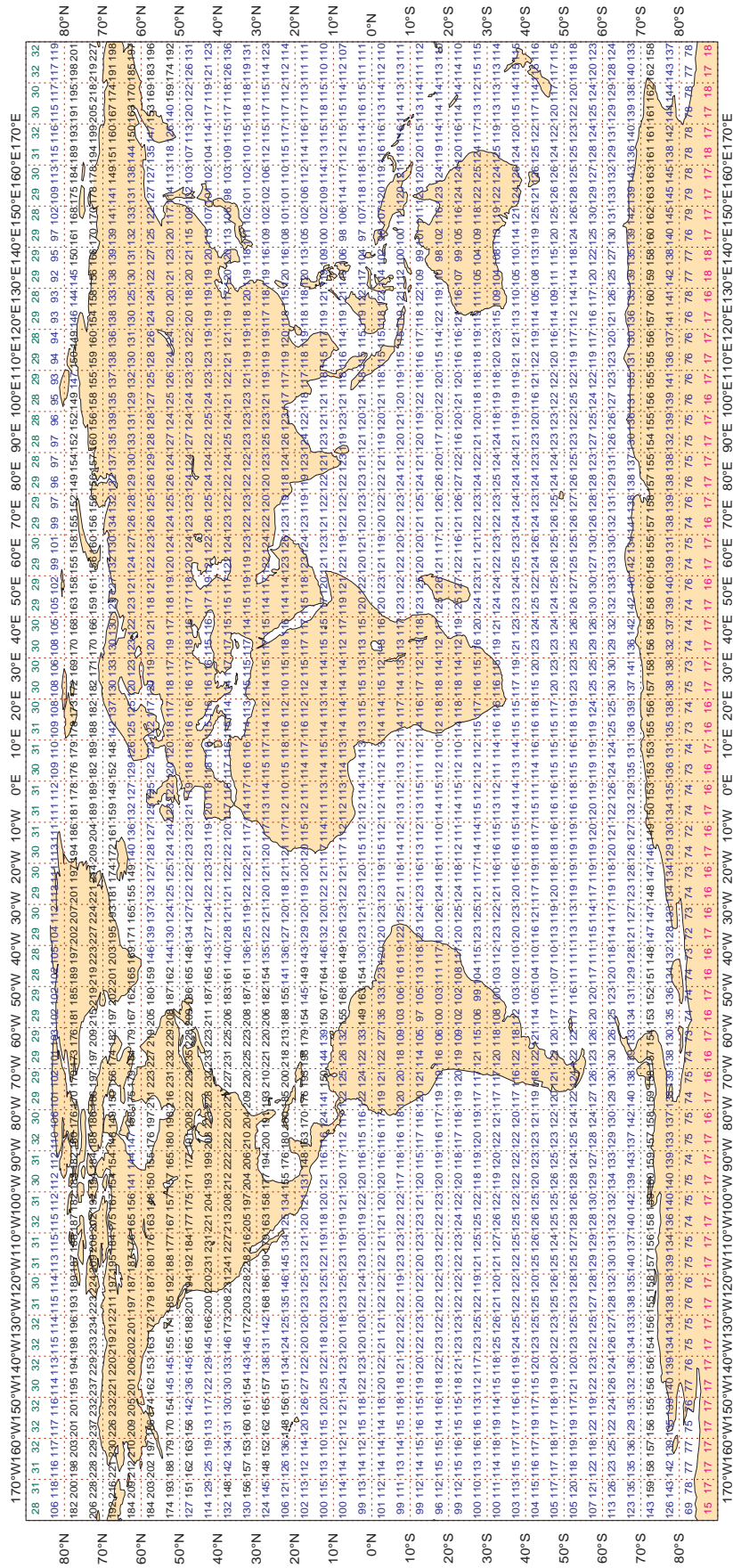
ECMWF Monitoring Statistics - AUG 2015
Availability - AMV winds 1000-700 hPa
Average number of observations in 24 hours - 1137543



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

Figure 8

ECMWF Monitoring Statistics - AUG 2015
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 326860



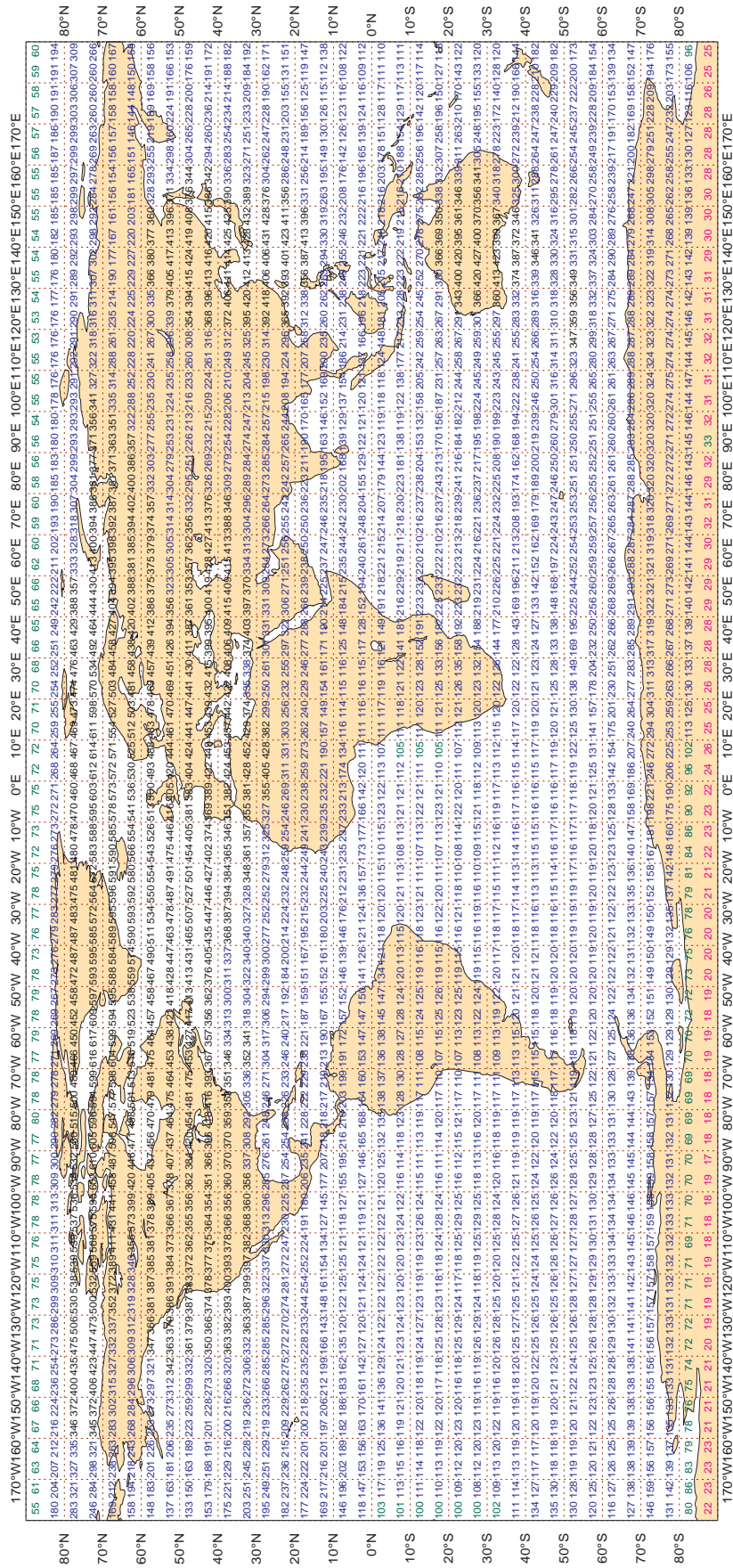
Magics 2.18.4 (64 bit)



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

Figure 9.1

ECMWF Monitoring Statistics - AUG 2015
Availability - NOAA18 ATOVS : AMSU-A
Average number of observations in 24 hours - 596602



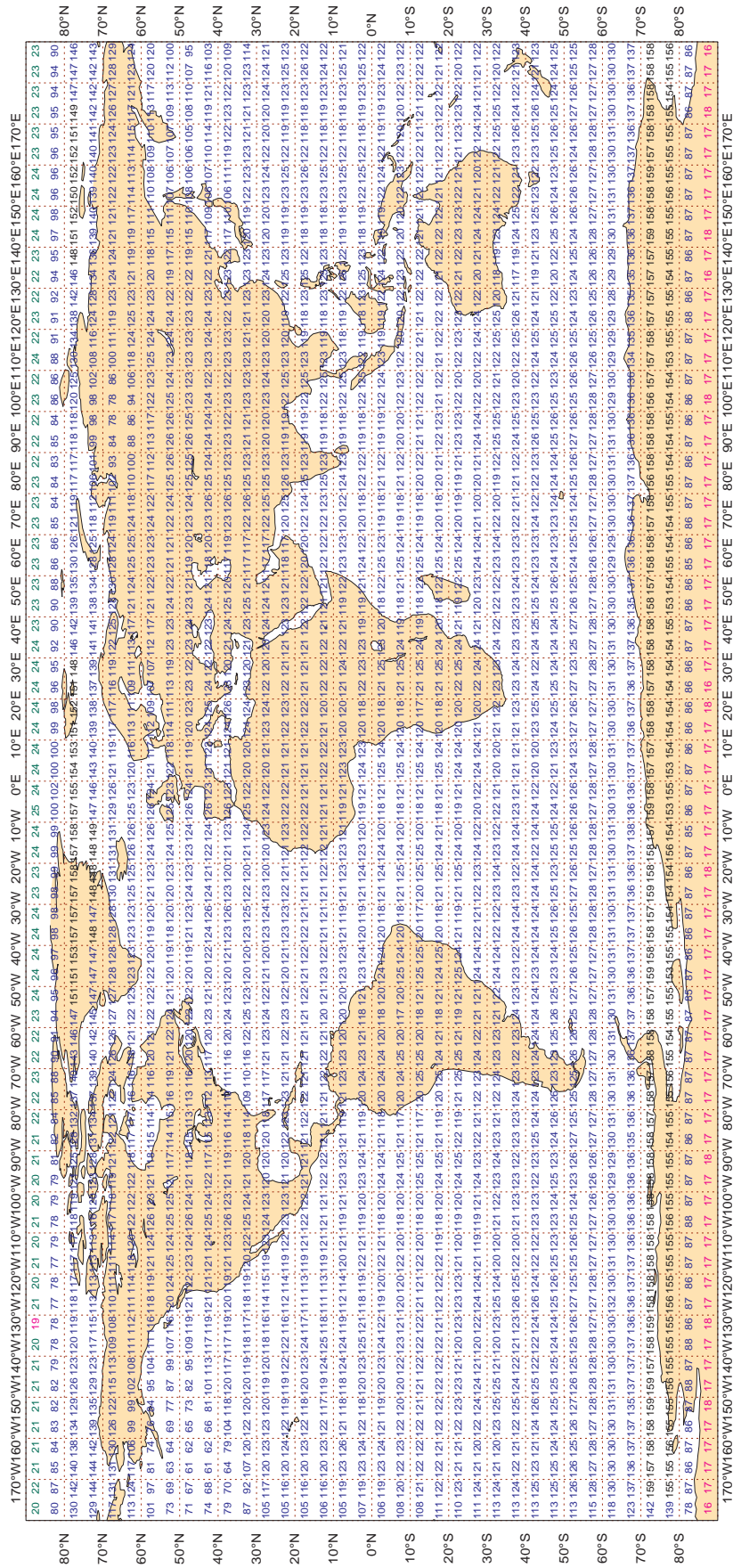
Magics 2.18.4 (64 bit)



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

Figure 9.2

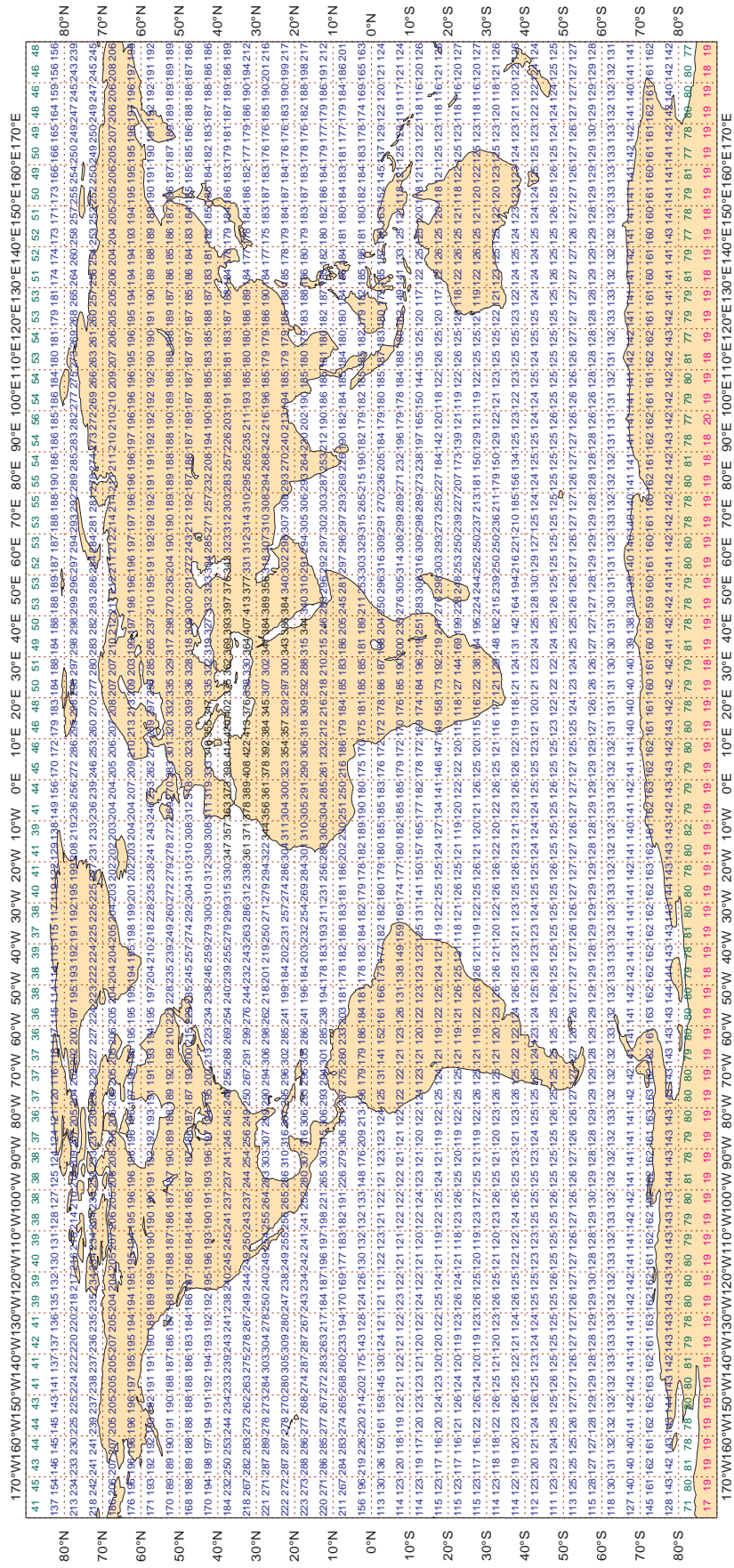
ECMWF Monitoring Statistics - AUG 2015
 Availability - AQUA ATOVS : AMSU-A
 Average number of observations in 24 hours - 303620



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

Figure 9.3

ECMWF Monitoring Statistics - AUG 2015
Availability - METOP ATOVS : AMSU-A
Average number of observations in 24 hours - 452888



Magics 2.18.4 (64 bit)



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 : AUG 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
VRIR7	99	P	SUR	16	0	2.7	4.1	4.9
VRKE9	99	P	SUR	17	0	1.6	3.1	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 : AUG 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 : AUG 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
42369	99	DIRN	SUR	15	0	0	33.4	39.9	52.1
44043	99	DIRN	SUR	24	0	0	31.8	-32.6	45.5
45026	99	DIRN	SUR	25	0	0	15.2	-38.0	41.0
45144	99	DIRN	SUR	15	0	0	52.9	44.9	69.4
45174	99	DIRN	SUR	19	0	0	14.6	43.9	46.3

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 : AUG 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	-38	27	174	20	6.8	-5.4	8.7
46920	99	P	SUR	33	-129	214	200	0.0	14.8	14.8
48627	99	P	SUR	73	-18	80	27	2.0	0.5	2.0
48638	99	P	SUR	71	-159	209	39	8.0	0.4	8.0
48640	99	P	SUR	71	-153	195	81	6.0	0.1	6.0
48779	99	P	SUR	59	-48	217	70	5.7	-4.9	7.5
63923	99	P	SUR	87	-2	208	41	8.6	-2.8	9.1
64534	99	P	SUR	58	-35	246	246	0.0	0.0	0.0
64538	99	P	SUR	87	-25	217	79	2.8	-0.6	2.9

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : GLOBAL
 PERIOD : AUG 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
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3.2.17 Table 6 - Suspect drifters: Wind direction (degrees)

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : AUG 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
23015	99	DIRN	SUR	0	67	34	0	0	56.9	-25.5	62.4
23093	99	DIRN	SUR	16	88	68	0	0	25.3	22.2	33.6
23099	99	DIRN	SUR	13	80	33	0	0	19.2	41.0	45.3
23454	99	DIRN	SUR	10	72	64	0	0	132.7	-95.9	163.7
23460	99	DIRN	SUR	7	88	69	0	0	172.0	2.6	172.0
23491	99	DIRN	SUR	12	93	50	0	0	16.6	35.0	38.8
23492	99	DIRN	SUR	11	72	29	0	0	15.4	137.2	138.0
23497	99	DIRN	SUR	11	72	54	0	0	145.0	83.3	167.2
31053	99	DIRN	SUR	-32	-50	180	0	0	66.6	10.7	67.5
31374	99	DIRN	SUR	-25	-45	170	0	0	29.6	-52.0	59.8
53040	99	DIRN	SUR	-8	95	205	0	0	167.0	31.3	169.9

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 : AUG 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
01400	00	Z	1000	57	3	20	0	27.6	13.6	30.8
22543	12	Z	50	65	41	26	0	45.1	209.4	214.2
22543	00	Z	30	65	41	23	0	66.8	203.3	214.0
30054	12	Z	200	59	113	28	0	72.5	49.5	87.8
30054	00	Z	150	59	113	24	1	98.5	44.4	108.0
33837	00	Z	200	46	31	24	0	55.4	80.6	97.8
40417	12	Z	1000	26	50	27	0	2.8	40.3	40.4
40417	00	Z	1000	26	50	16	0	0.0	40.3	40.3
40430	12	Z	925	25	40	29	1	6.0	44.9	45.3
40430	00	Z	925	25	40	28	0	16.3	41.3	44.4
42314	00	Z	30	27	95	12	0	31.2	185.7	188.3
42397	00	Z	700	27	88	20	1	26.0	-38.1	46.1
43003	00	Z	700	19	73	29	0	28.8	-32.5	43.4
43128	00	Z	30	17	78	17	0	58.7	214.5	222.4
43192	00	Z	50	15	74	14	0	43.7	143.5	150.0
43279	00	Z	1000	13	80	31	0	26.1	16.8	31.0
43333	00	Z	30	12	93	20	0	16.5	193.3	194.0
68906	00	Z	1000	-40	-10	12	0	22.9	20.1	30.5
76405	12	Z	400	24	-110	31	0	72.8	83.0	110.4
84132	12	Z	850	-1	-75	20	0	8.5	40.1	41.0
89512	12	Z	30	-71	12	13	1	204.6	-75.9	218.2
89592	00	Z	30	-67	93	20	1	155.2	-104.5	187.1
91680	00	Z	1000	-18	177	31	0	3.5	30.2	30.4
91680	12	Z	1000	-18	177	30	0	3.5	30.6	30.8
96147	12	Z	925	4	108	31	0	9.6	45.8	46.8
96147	00	Z	925	4	108	31	0	14.0	53.8	55.6
ASDE01	12	Z	400	44	-52	13	0	44.5	41.1	60.6
ASEU03	12	Z	1000	38	-73	10	0	13.6	34.1	36.7
ASEU03	00	Z	925	40	-69	10	0	19.6	32.8	38.2

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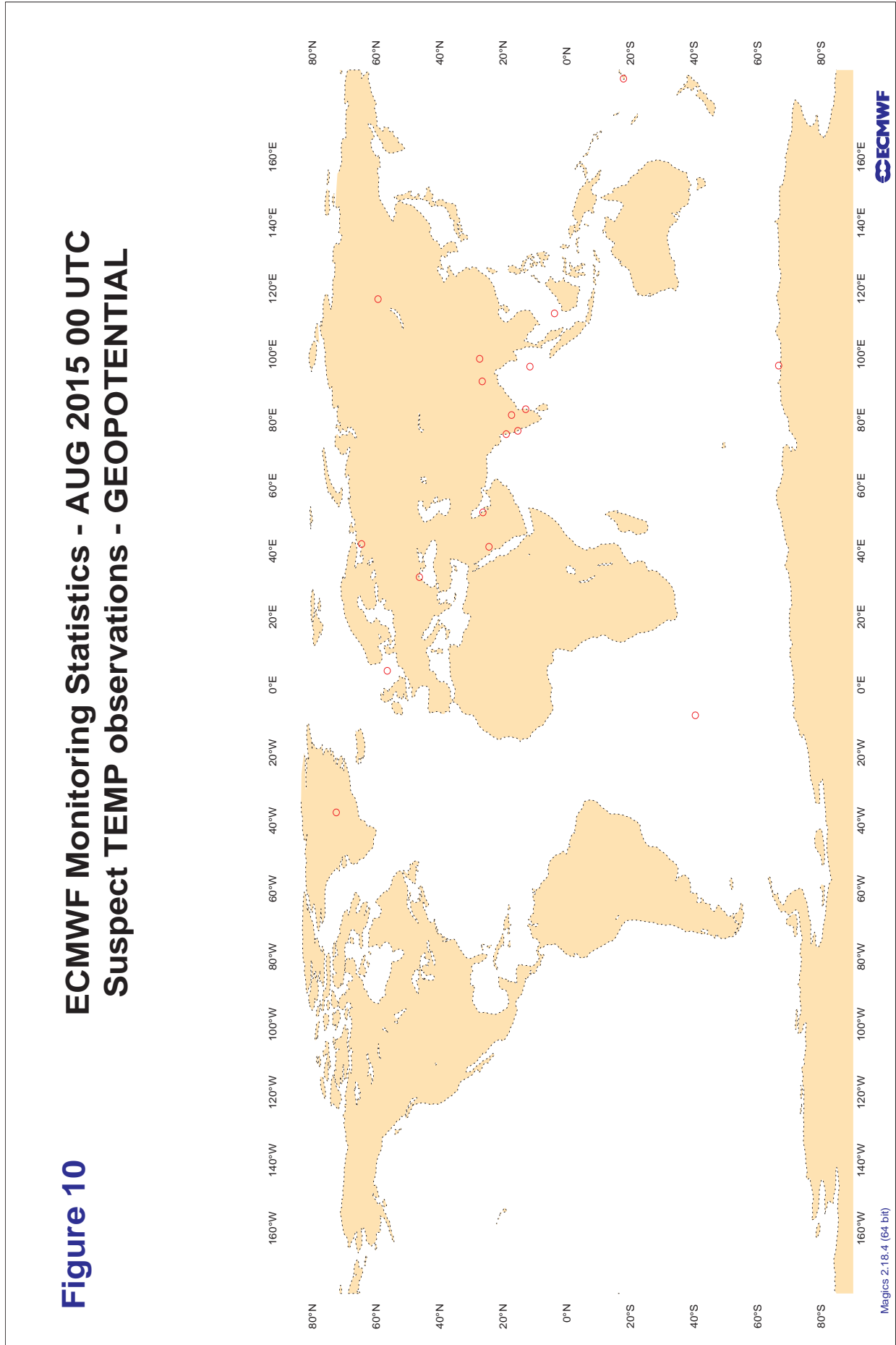
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

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

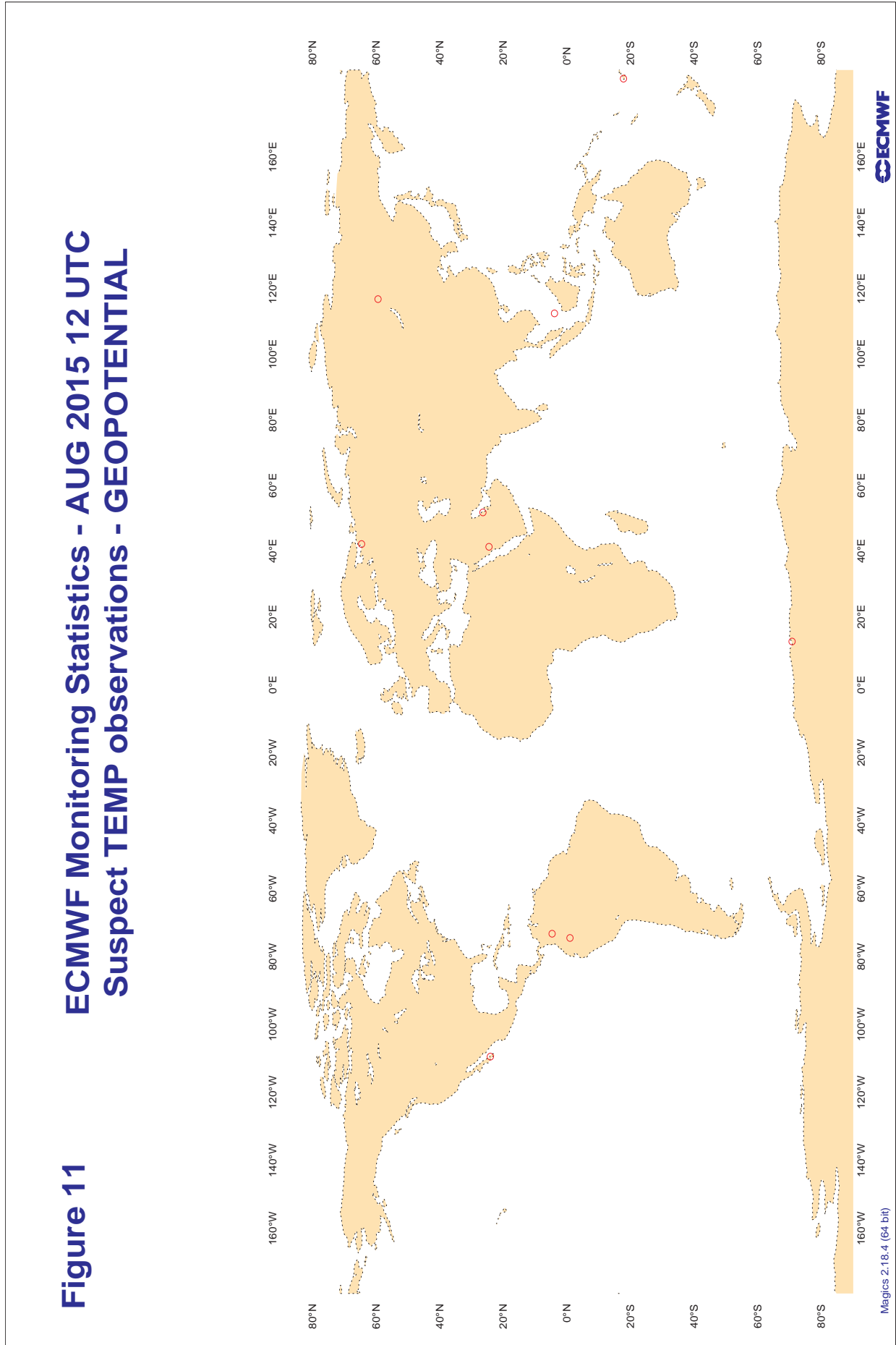
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS \geq 5 M/S
 NO. OF OBSERVATIONS \geq 5, AND,
 ABSOLUTE BIAS \geq 10 DEGREES, WITH
 STANDARD DEVIATION $<$ 30 DEGREES, AND,
 VERTICAL SPREAD $<$ 10 DEGREES
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
78073	12	DD	25	-77	16	-13.3	6.1	23.5

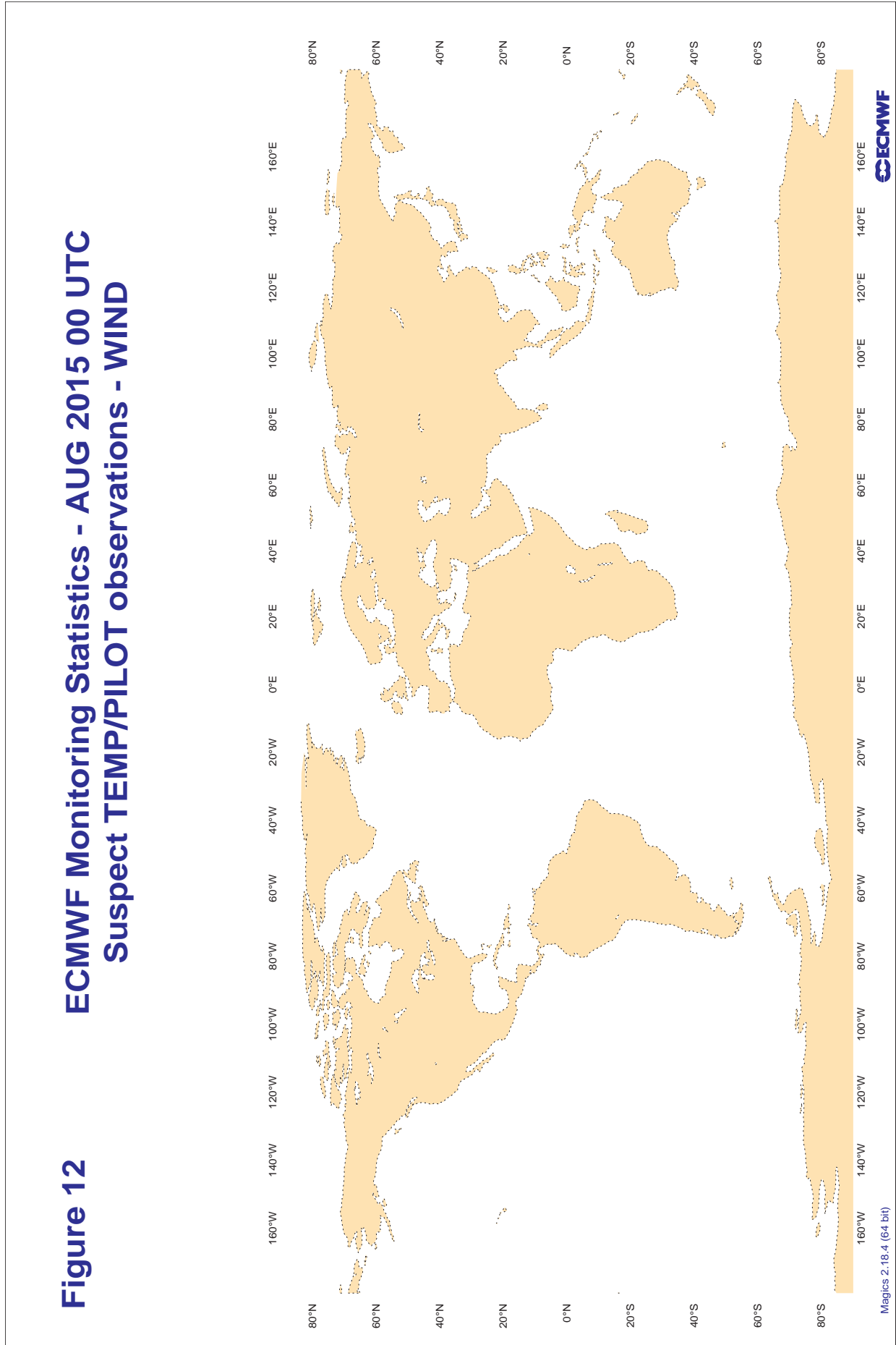
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



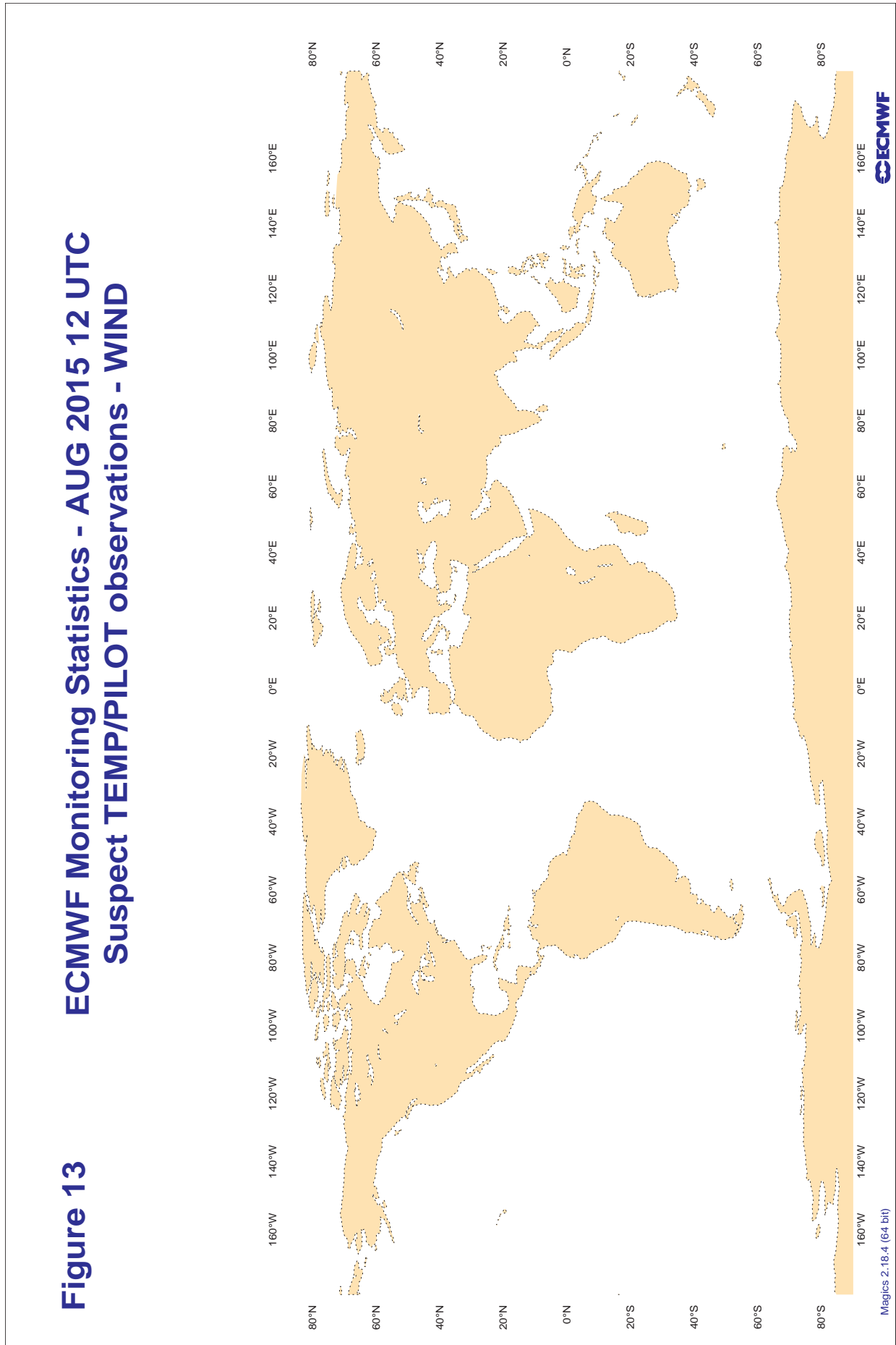
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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 : AUG 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASDE01	12	Z	100	12	93.7	66.1
ASDE01	00	Z	100	12	27.7	19.1
ASDE02	12	Z	100	8	11.5	10.4
ASDE03	12	Z	100	10	26.7	25.2
ASDE03	00	Z	100	13	11.1	7.3
ASDE04	00	Z	100	2	41.0	40.6
ASDE04	12	Z	100	5	46.1	31.8
ASDE09	12	Z	100	2	5.8	0.7
ASDK01	12	Z	100	11	9.6	7.8
ASDK01	00	Z	100	17	9.9	7.6
ASDK02	12	Z	100	10	18.1	11.3
ASDK02	00	Z	100	15	6.0	2.7
ASDK03	12	Z	100	8	26.9	25.2
ASDK03	00	Z	100	7	18.8	17.5
ASDK1	12	Z	100	11	11.0	8.5
ASDK1	00	Z	100	17	11.1	7.0
ASDK2	12	Z	100	10	18.5	9.5
ASDK2	00	Z	100	11	6.9	2.9
ASDK3	12	Z	100	8	26.3	23.9
ASDK3	00	Z	100	7	20.6	19.1
ASES01	12	Z	100	6	26.7	22.9
ASEU01	12	Z	100	9	48.2	9.4
ASEU02	00	Z	100	1	30.6	30.6
ASEU03	12	Z	100	10	81.1	45.2
ASEU03	00	Z	100	10	34.3	30.3
ASEU04	12	Z	100	6	9.9	4.0
ASEU04	00	Z	100	10	7.3	-2.5
ASEU06	12	Z	100	4	35.0	34.7
ASEU06	00	Z	100	6	9.1	6.3
ASFR1	12	Z	100	11	20.9	19.2
ASFR1	00	Z	100	13	15.6	13.4
ASFR2	12	Z	100	8	23.1	21.1
ASFR2	00	Z	100	7	18.9	15.0
ASFR3	12	Z	100	12	13.4	10.6
ASFR3	00	Z	100	13	12.8	9.7
ASFR4	12	Z	100	17	24.2	21.4
ASFR4	00	Z	100	16	18.5	16.6
DBLK	12	Z	100	45	6.5	3.7
EWO	12	Z	100	0	0.0	0.0

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
JGQH	12	Z	100	20	12.4	9.7
JGQH	00	Z	100	19	17.8	14.9
JNSR	12	Z	100	5	4.9	-0.6
JNSR	00	Z	100	4	7.6	-4.9

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 : AUG 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

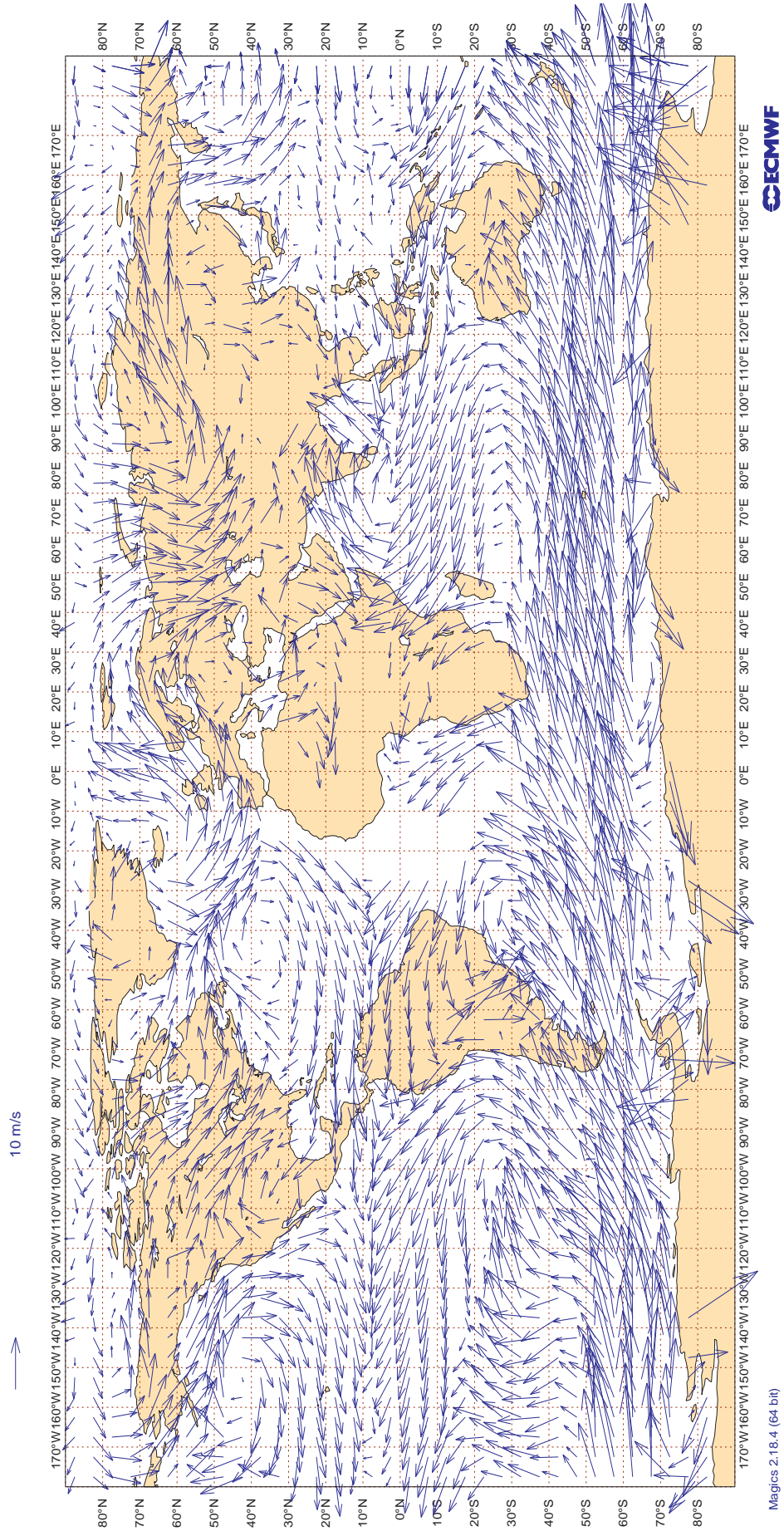
WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASDE01	12	V	100	12	5.6	-0.4	0.0
ASDE01	00	V	100	10	4.5	0.8	-0.7
ASDE02	12	V	100	8	4.5	0.3	-1.6
ASDE03	12	V	100	10	2.4	0.4	0.6
ASDE03	00	V	100	12	3.6	-0.5	-1.1
ASDE04	00	V	100	2	4.9	1.9	0.5
ASDE04	12	V	100	5	3.3	-0.4	-0.1
ASDE09	12	V	100	2	3.1	2.5	0.5
ASDK01	12	V	100	11	3.1	-0.2	0.3
ASDK01	00	V	100	17	2.9	-0.1	0.4
ASDK02	12	V	100	10	2.9	-0.3	-0.4
ASDK02	00	V	100	12	2.9	-0.3	-0.2
ASDK03	12	V	100	8	3.8	-1.0	0.8
ASDK03	00	V	100	7	2.0	0.1	1.0
ASDK1	12	V	100	11	2.9	-0.2	0.0
ASDK1	00	V	100	17	3.0	0.1	0.5
ASDK2	12	V	100	10	2.9	-0.3	-0.4
ASDK2	00	V	100	11	3.0	-0.3	-0.6
ASDK3	12	V	100	8	3.7	-1.0	0.7
ASDK3	00	V	100	7	2.4	0.1	1.2
ASES01	12	V	100	5	4.2	0.4	-1.2
ASEU01	12	V	100	9	3.1	0.0	0.0
ASEU02	00	V	100	1	1.8	-1.4	1.2
ASEU03	12	V	100	9	3.7	0.1	1.4
ASEU03	00	V	100	10	4.5	-1.3	0.4
ASEU04	12	V	100	5	1.8	0.8	1.1
ASEU04	00	V	100	7	3.7	1.1	2.3
ASEU06	12	V	100	3	3.8	-3.3	1.3
ASEU06	00	V	100	4	1.9	0.6	-0.4
ASFR1	12	V	100	10	3.0	0.4	-0.7
ASFR1	00	V	100	13	2.8	-0.3	-0.2
ASFR2	12	V	100	8	3.3	1.4	0.1
ASFR2	00	V	100	7	3.7	-1.2	-0.5
ASFR3	12	V	100	12	3.2	0.7	1.0
ASFR3	00	V	100	12	3.9	1.4	0.9
ASFR4	12	V	100	15	3.1	0.0	1.0
ASFR4	00	V	100	16	4.0	0.0	-0.3
DBLK	12	V	100	25	2.1	-0.4	0.1
EWO	12	V	100	0	0.0	0.0	0.0

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

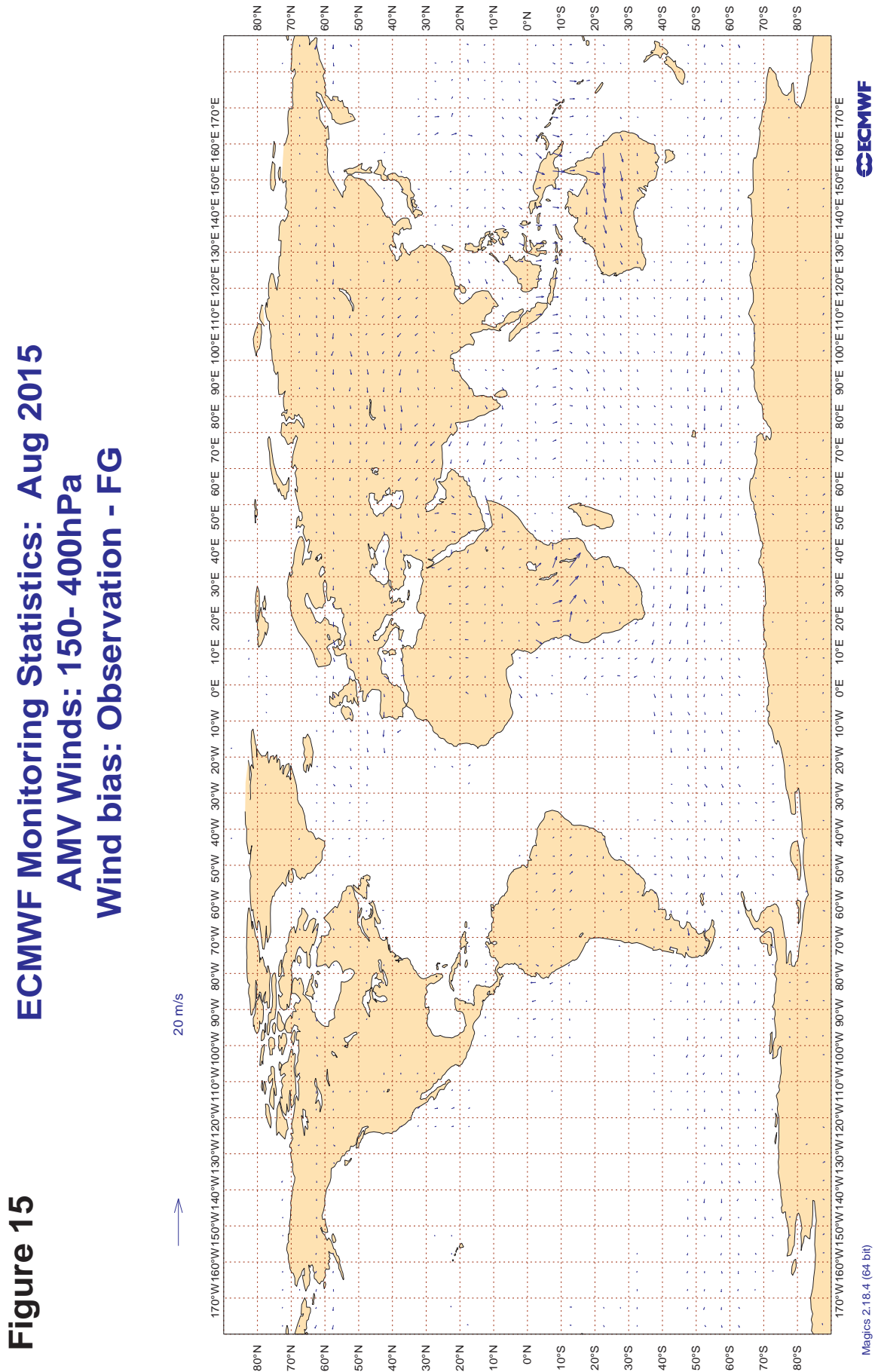
WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
JGQH	12	V	100	20	7.0	0.8	-0.4
JGQH	00	V	100	19	7.1	-1.5	0.2
JNSR	12	V	100	5	2.9	-1.4	0.2
JNSR	00	V	100	4	2.5	0.0	0.7

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

Figure 14 ECMWF Monitoring Statistics: Aug 2015
AMV Winds: 700-1000hPa
Mean Observed Wind

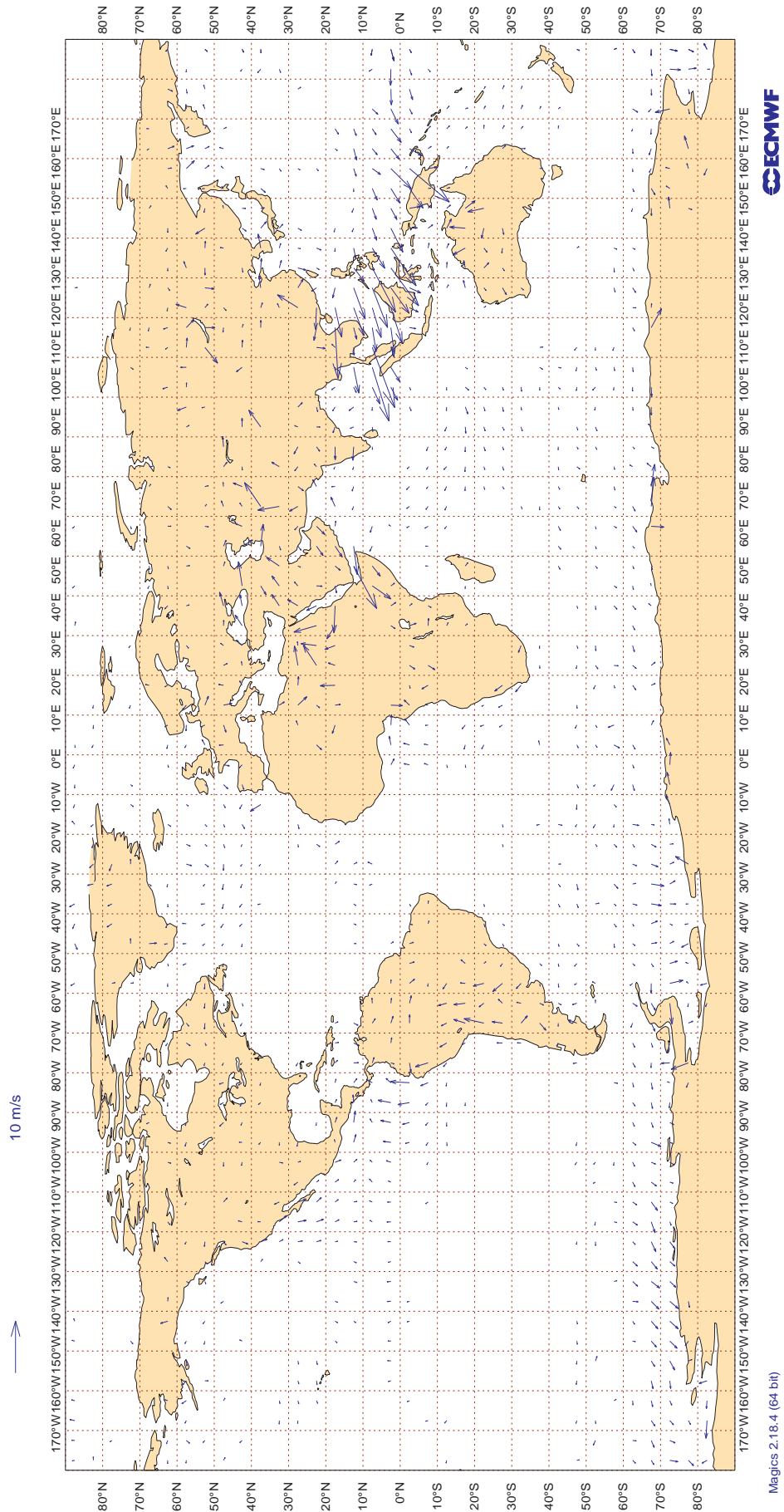


3.2.28 Figure 15 - SATOB Winds: 150- 400hPa



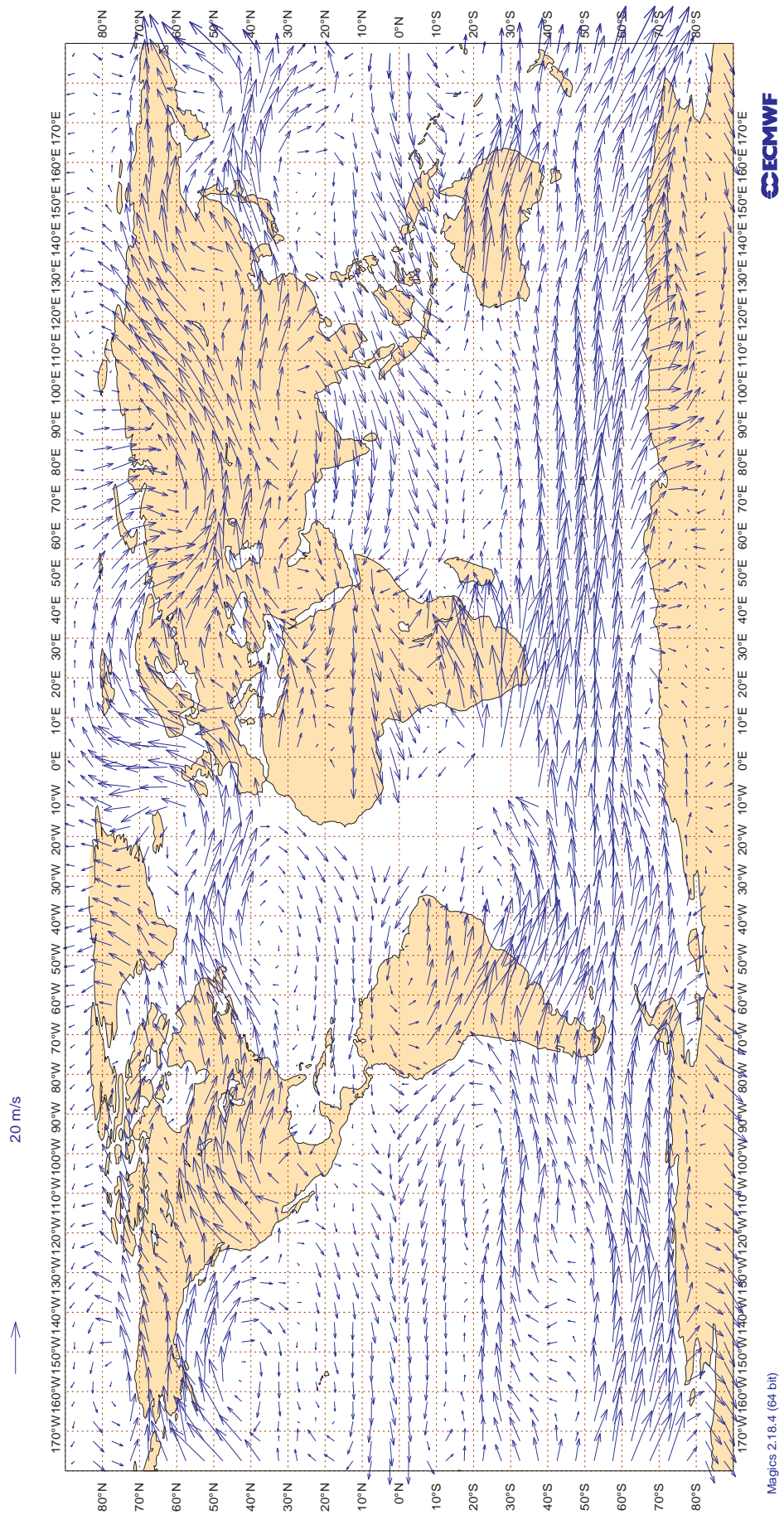
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

Figure 16
ECMWF Monitoring Statistics: Aug 2015
AMV Winds: 700-1000hPa
Wind bias: Observation - FG



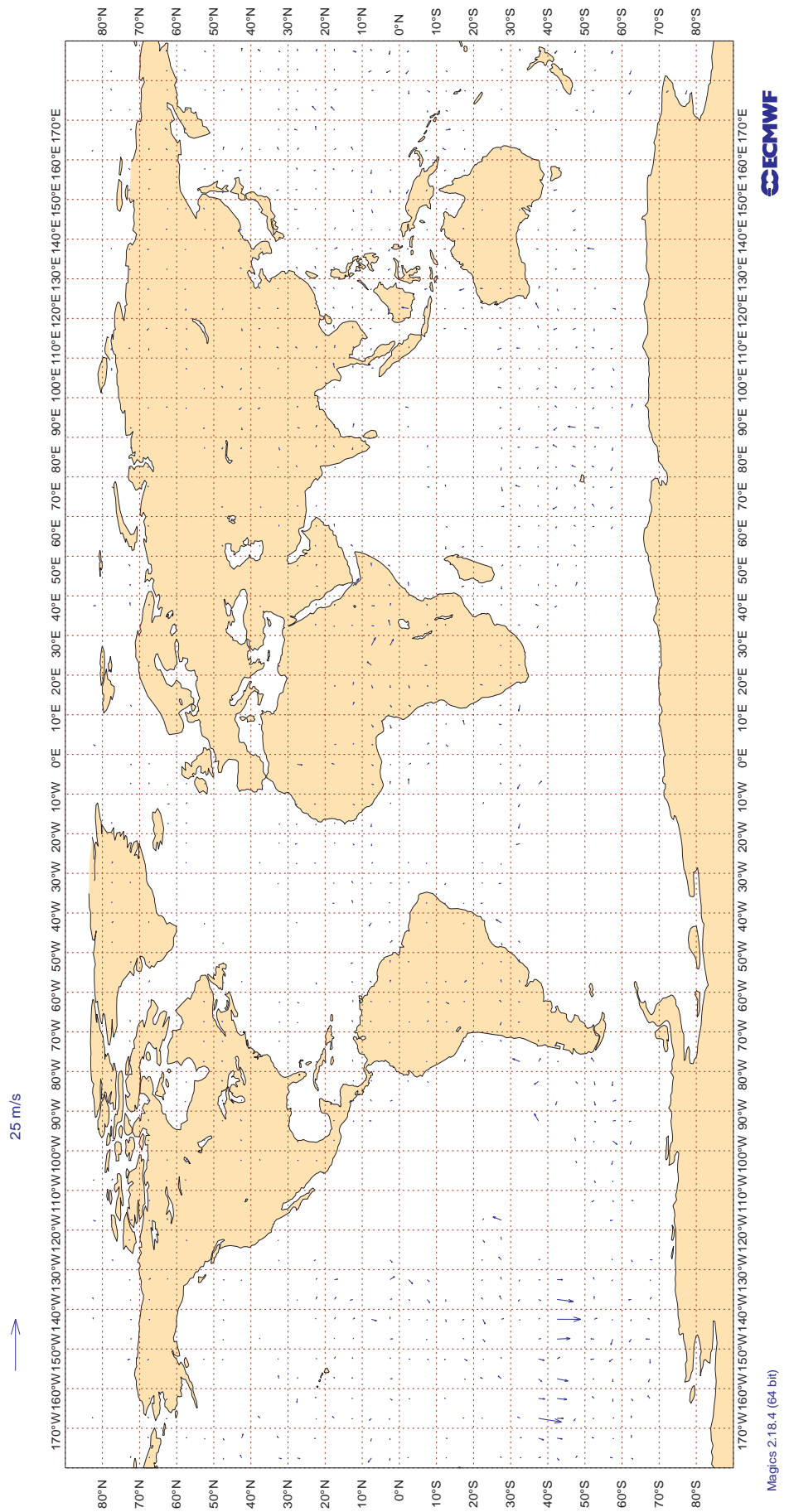
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

Figure 17
ECMWF Monitoring Statistics: Aug 2015
AMV Winds: 150- 400hPa
Mean Observed Wind



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

Figure 18
ECMWF Monitoring Statistics: Aug 2015
Aircraft Winds: 150- 300hPa
Wind bias: Observation - FG



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 : AUG 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	8983	0	0	4.2	-0.1
AAR	99	V	300-150	46	0	0	5.5	-1.3
AAY	99	V	300-150	260	0	0	5.0	0.0
ABW	99	V	300-150	43	0	0	3.3	0.0
ABX	99	V	300-150	47	0	0	7.4	-2.5
ACA	99	V	300-150	2849	0	0	4.3	-0.2
ACI	99	V	300-150	1158	0	0	3.5	0.3
AFL	99	V	300-150	276	0	0	3.5	0.2
AFR	99	V	300-150	3042	0	0	4.0	0.3
AIC	99	V	300-150	464	0	0	3.5	-0.2
AMX	99	V	300-150	286	4	0	8.5	0.3
ANZ	99	V	300-150	4145	0	0	4.0	0.5
ASA	99	V	300-150	2851	0	0	4.6	0.1
ASY	99	V	300-150	185	0	0	4.7	0.1
AUA	99	V	300-150	1300	0	0	4.2	-0.7
AVN	99	V	300-150	78	0	0	7.5	-0.3
AXM	99	V	300-150	47	0	0	6.4	2.8
AZA	99	V	300-150	888	0	0	4.2	1.1
BAW	99	V	300-150	3751	0	0	4.3	-0.1
BEL	99	V	300-150	431	0	0	3.8	0.1
BER	99	V	300-150	1353	0	0	4.0	0.9
BOX	99	V	300-150	95	0	0	3.1	0.1
CAL	99	V	300-150	44	0	0	3.6	0.7
CFC	99	V	300-150	44	0	0	3.7	0.7
CFG	99	V	300-150	414	0	0	4.1	-0.5
CGS	99	V	300-150	26	0	0	4.6	0.5
CKS	99	V	300-150	287	0	0	4.3	0.6
CLX	99	V	300-150	270	0	0	3.5	0.2
CMB	99	V	300-150	44	0	0	3.5	0.4
CRL	99	V	300-150	128	0	0	4.4	1.0
CSN	99	V	300-150	173	0	0	4.6	0.9

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
DAH	99	V	300-150	248	0	0	3.6	0.5
DAL	99	V	300-150	11341	0	0	4.2	-0.4
DHK	99	V	300-150	228	0	0	4.4	0.2
DLH	99	V	300-150	5371	0	0	3.9	0.0
EIN	99	V	300-150	1510	0	0	3.9	-0.2
EJM	99	V	300-150	44	20	0	5.4	0.4
ELY	99	V	300-150	412	0	0	3.9	-0.3
ETD	99	V	300-150	680	0	0	3.3	0.1
ETH	99	V	300-150	55	7	0	6.0	0.1
FDX	99	V	300-150	1305	0	0	3.6	0.2
FIN	99	V	300-150	172	0	0	3.0	0.3
FJI	99	V	300-150	1700	0	0	4.3	0.0
FWI	99	V	300-150	104	0	0	4.6	0.6
GEC	99	V	300-150	323	0	0	3.3	0.2
GLO	99	V	300-150	29	3	0	8.8	1.9
GTI	99	V	300-150	306	0	0	4.0	0.0
HAL	99	V	300-150	455	0	0	4.9	1.0
IAF	99	V	300-150	22	0	0	2.3	-0.3
IBE	99	V	300-150	567	0	0	4.3	0.4
JAF	99	V	300-150	103	0	0	4.9	-0.4
JAI	99	V	300-150	470	0	0	3.8	0.9
JST	99	V	300-150	978	1	0	6.4	0.9
KAI	99	V	300-150	38	0	0	4.1	0.6
KAL	99	V	300-150	673	0	0	4.2	0.8
KLM	99	V	300-150	2334	0	0	3.8	-0.3
LAN	99	V	300-150	98	0	0	3.8	-0.6
LGT	99	V	300-150	37	0	5	4.3	0.3
LOT	99	V	300-150	171	1	0	9.8	-0.6
MAS	99	V	300-150	108	0	0	4.0	0.6
MPH	99	V	300-150	44	0	0	3.4	-1.3
MSR	99	V	300-150	278	0	0	3.6	0.2
NAX	99	V	300-150	153	1	0	8.2	0.3
NCA	99	V	300-150	49	0	0	3.5	-0.9
OAE	99	V	300-150	84	1	0	4.1	-0.3
PAC	99	V	300-150	34	0	0	4.0	0.0
QFA	99	V	300-150	2752	0	0	3.8	0.0
QTR	99	V	300-150	289	0	0	3.8	0.6
RCH	99	V	300-150	730	0	0	5.0	-0.3
RJA	99	V	300-150	24	8	0	4.8	-0.7
ROU	99	V	300-150	1025	0	0	4.3	-1.1
RRR	99	V	300-150	68	0	0	3.3	0.6
SAS	99	V	300-150	947	0	0	3.1	0.0
SIA	99	V	300-150	305	0	0	4.1	0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
SOL	99	V	300-150	20	0	0	4.7	0.5
SOO	99	V	300-150	33	0	0	3.2	0.1
SQC	99	V	300-150	43	0	0	3.7	2.1
SVA	99	V	300-150	367	0	0	3.5	0.0
SWR	99	V	300-150	1030	0	0	4.0	0.6
TAM	99	V	300-150	90	0	0	5.4	-0.1
TAP	99	V	300-150	120	0	0	3.8	0.8
TAY	99	V	300-150	106	0	0	3.3	0.5
TCV	99	V	300-150	20	0	0	6.2	1.0
TCX	99	V	300-150	624	0	0	4.1	0.8
TFL	99	V	300-150	102	0	0	6.6	-1.0
THA	99	V	300-150	79	0	0	3.7	0.4
THT	99	V	300-150	306	0	0	4.1	0.6
THY	99	V	300-150	365	0	0	3.3	0.3
TOM	99	V	300-150	943	2	0	5.6	-0.5
TSC	99	V	300-150	1076	0	0	4.0	0.2
TSO	99	V	300-150	303	0	0	3.1	0.4
UAE	99	V	300-150	1106	0	0	3.6	-0.1
UAL	99	V	300-150	13719	0	0	4.3	-0.2
UPS	99	V	300-150	1110	0	0	4.2	0.2
VHL	99	V	300-150	28	93	0	32.5	3.5
VIR	99	V	300-150	1959	0	0	4.1	0.1
VJT	99	V	300-150	72	22	0	23.9	0.2
VOZ	99	V	300-150	1544	0	0	3.7	0.4
VPB	99	V	300-150	37	0	0	4.8	-1.0
WJA	99	V	300-150	289	0	0	4.4	-0.1
XLF	99	V	300-150	64	0	0	3.2	0.7

4 EUCOS Area Monitoring Statistics

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

Tables 13, 14 (50 hPa level), 15, 16 (100 hPa level) 17, 18 (500 hPa level) 19 and 20 (850 hPa level) provide quality statistics for all TEMPSHIPS and PILOTSHIPS received during the month in the area 10°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 : AUG 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	30	32.4	6.1
01001	00	Z	50	29	9.4	6.7
01028	00	Z	50	30	8.9	6.9
01028	12	Z	50	31	10.6	7.1
01400	12	Z	50	23	21.8	18.6
01400	00	Z	50	20	43.4	32.4
01415	00	Z	50	31	14.8	13.7
01415	12	Z	50	30	15.9	13.7
02365	00	Z	50	39	8.2	7.1
02365	12	Z	50	47	13.1	9.1
02591	12	Z	50	40	21.1	19.1
02591	00	Z	50	38	23.2	22.3
02836	12	Z	50	29	16.2	13.1
02836	00	Z	50	31	12.9	7.5
02963	00	Z	50	31	13.0	12.1
02963	12	Z	50	32	9.2	6.8
03005	12	Z	50	30	9.2	2.6
03005	00	Z	50	30	8.0	5.0
03238	00	Z	50	30	15.1	13.3
03238	12	Z	50	6	27.4	25.5
03808	12	Z	50	35	10.7	6.7
03808	00	Z	50	33	7.3	2.5
03918	00	Z	50	28	16.6	10.6
03918	12	Z	50	19	19.2	17.3
039188	12	Z	50	0	0.0	0.0
03953	12	Z	50	17	38.4	35.8
03953	00	Z	50	15	25.1	22.9
04018	00	Z	50	27	12.4	6.4
04018	12	Z	50	28	15.6	11.4
04220	12	Z	50	29	23.5	13.2
04220	00	Z	50	28	14.2	-0.3
04270	00	Z	50	26	11.4	6.4
04270	12	Z	50	31	13.7	8.0
04320	12	Z	50	28	19.0	15.8
04320	00	Z	50	31	18.1	-0.4
043208	00	Z	50	0	0.0	0.0
04339	00	Z	50	30	40.5	30.6
04339	12	Z	50	30	26.9	15.6
04360	12	Z	50	17	12.4	6.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04360	00	Z	50	17	14.2	2.5
06011	12	Z	50	17	30.9	17.8
06011	00	Z	50	23	22.9	-4.2
06260	12	Z	50	4	12.7	-1.4
06260	00	Z	50	29	16.2	13.8
06610	00	Z	50	31	16.0	11.8
06610	12	Z	50	30	38.6	21.5
066107	12	Z	50	0	0.0	0.0
07110	12	Z	50	24	37.9	33.4
07110	00	Z	50	29	17.2	14.0
07510	00	Z	50	8	25.6	24.0
07510	12	Z	50	11	22.3	20.0
07645	12	Z	50	20	14.0	5.8
07645	00	Z	50	9	15.4	-1.8
07761	12	Z	50	19	15.2	7.5
07761	00	Z	50	19	7.7	2.6
08001	12	Z	50	31	22.6	19.0
08001	00	Z	50	30	25.0	20.6
08221	12	Z	50	27	14.0	7.2
08221	00	Z	50	28	14.8	13.1
08302	12	Z	50	24	11.0	3.5
08302	00	Z	50	25	10.8	7.6
08508	12	Z	50	29	29.0	27.4
08522	12	Z	50	28	19.5	15.7
08579	12	Z	50	29	21.5	18.3
10035	12	Z	50	31	12.0	7.7
10035	00	Z	50	31	8.6	6.1
10393	12	Z	50	31	6.8	1.5
10393	00	Z	50	31	9.2	6.7
10410	00	Z	50	28	8.9	6.7
10410	12	Z	50	31	12.9	5.8
10739	00	Z	50	31	13.7	9.3
10739	12	Z	50	30	15.3	13.4
11035	00	Z	50	29	34.5	32.7
11035	12	Z	50	30	31.4	28.2
12982	12	Z	50	31	43.5	39.0
12982	00	Z	50	30	20.8	11.3
16044	12	Z	50	31	13.6	8.2
16044	00	Z	50	31	15.9	13.5
16080	00	Z	50	31	11.4	7.2
16080	12	Z	50	31	36.8	-8.2
16245	00	Z	50	30	10.0	6.1
16245	12	Z	50	30	10.2	-3.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16320	00	Z	50	28	15.6	11.6
16320	12	Z	50	30	10.5	0.8
16429	00	Z	50	29	13.0	10.8
16429	12	Z	50	27	17.1	5.1
16622	00	Z	50	28	52.4	50.6
16754	00	Z	50	31	32.8	31.6
17607	12	Z	50	19	24.5	-23.2
26435	00	Z	50	14	13.7	13.2
60018	00	Z	50	27	13.0	11.0
60018	12	Z	50	29	10.6	5.9
ASDE01	12	Z	50	12	136.9	102.6
ASDE01	00	Z	50	10	37.6	29.8
ASDE02	12	Z	50	8	15.5	14.1
ASDE03	12	Z	50	9	45.3	43.2
ASDE03	00	Z	50	12	17.3	10.2
ASDE04	00	Z	50	2	49.4	49.2
ASDE04	12	Z	50	5	60.5	46.3
ASDE09	12	Z	50	2	8.0	7.1
ASDK01	12	Z	50	3	15.5	14.1
ASDK01	00	Z	50	6	10.0	9.3
ASDK02	12	Z	50	8	27.8	22.2
ASDK02	00	Z	50	12	10.5	7.5
ASDK03	12	Z	50	0	0.0	0.0
ASDK03	00	Z	50	0	0.0	0.0
ASDK1	12	Z	50	3	17.7	14.5
ASDK1	00	Z	50	6	10.8	10.5
ASDK2	12	Z	50	8	26.2	20.6
ASDK2	00	Z	50	11	13.5	8.4
ASDK3	12	Z	50	7	36.4	34.8
ASDK3	00	Z	50	7	24.3	21.9
ASES01	12	Z	50	5	34.0	32.0
ASEU01	12	Z	50	9	50.1	18.4
ASEU02	00	Z	50	1	45.4	45.4
ASEU03	12	Z	50	9	107.3	80.6
ASEU03	00	Z	50	10	40.9	36.3
ASEU04	12	Z	50	5	14.1	5.2
ASEU04	00	Z	50	6	17.4	-2.4
ASEU06	12	Z	50	2	63.0	62.9
ASEU06	00	Z	50	3	14.3	12.6
ASFR1	12	Z	50	11	37.3	34.5
ASFR1	00	Z	50	13	20.4	17.7
ASFR2	12	Z	50	7	35.0	31.7
ASFR2	00	Z	50	6	21.7	19.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR3	12	Z	50	12	21.0	16.8
ASFR3	00	Z	50	12	23.8	22.4
ASFR4	12	Z	50	16	39.5	34.8
ASFR4	00	Z	50	16	29.3	25.5
DBLK	12	Z	50	25	11.8	9.0
EWO	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 : AUG 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	30	2.3	0.2	-0.2
01001	00	V	50	29	2.6	0.2	-0.1
01028	00	V	50	30	2.8	-0.4	0.2
01028	12	V	50	31	2.6	-0.1	0.4
01400	12	V	50	22	2.7	0.4	0.2
01400	00	V	50	17	3.1	-0.1	-0.3
01415	00	V	50	30	3.0	0.7	-0.3
01415	12	V	50	30	2.8	0.4	-0.5
02365	00	V	50	31	2.9	-0.5	0.1
02365	12	V	50	31	2.7	0.0	-0.3
02591	12	V	50	30	3.0	0.3	-0.5
02591	00	V	50	29	2.7	-0.1	0.0
02836	12	V	50	29	2.5	0.4	0.3
02836	00	V	50	30	2.5	0.1	-0.1
02963	00	V	50	30	3.0	-0.2	0.0
02963	12	V	50	31	3.0	0.2	-0.5
03005	12	V	50	30	3.0	0.3	-0.1
03005	00	V	50	30	3.3	0.1	-0.3
03238	00	V	50	29	3.3	0.2	-0.7
03238	12	V	50	6	2.1	-0.2	0.8
03808	12	V	50	31	3.5	0.9	0.9
03808	00	V	50	30	3.0	0.8	-0.1
03918	00	V	50	28	3.0	0.3	-0.1
03918	12	V	50	19	3.8	0.1	-0.5
039188	12	V	50	0	0.0	0.0	0.0
03953	12	V	50	17	2.8	0.1	0.7
03953	00	V	50	15	2.6	0.2	-0.2
04018	00	V	50	22	2.7	0.5	0.7
04018	12	V	50	25	2.8	-0.6	0.3
04220	12	V	50	29	2.3	0.5	0.1
04220	00	V	50	28	2.6	0.8	0.4
04270	00	V	50	26	3.3	-0.3	0.2
04270	12	V	50	30	2.7	0.1	0.0
04320	12	V	50	28	2.3	-0.1	-0.4
04320	00	V	50	31	2.4	0.0	-0.3
043208	00	V	50	0	0.0	0.0	0.0
04339	00	V	50	29	2.7	-0.1	-0.5
04339	12	V	50	30	3.1	-0.1	-0.4
04360	12	V	50	17	3.7	-0.6	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04360	00	V	50	17	2.6	1.1	-0.5
06011	12	V	50	17	2.7	-0.4	0.1
06011	00	V	50	23	2.5	-0.2	0.0
06260	12	V	50	4	3.8	0.2	-1.6
06260	00	V	50	28	3.1	-0.2	0.3
06610	00	V	50	31	3.7	0.6	0.2
06610	12	V	50	30	3.0	0.2	0.4
066107	12	V	50	0	0.0	0.0	0.0
07110	12	V	50	24	3.7	0.2	-1.4
07110	00	V	50	29	3.7	0.5	-0.5
07510	00	V	50	8	4.8	-0.8	-0.8
07510	12	V	50	10	4.4	2.4	0.8
07645	12	V	50	20	3.3	0.7	-0.1
07645	00	V	50	9	3.2	-0.9	0.2
07761	12	V	50	18	4.0	1.3	0.6
07761	00	V	50	17	3.5	0.3	-0.5
08001	12	V	50	29	3.5	0.4	0.1
08001	00	V	50	30	3.3	0.0	0.3
08221	12	V	50	27	3.9	0.2	0.7
08221	00	V	50	28	3.7	-1.3	0.4
08302	12	V	50	24	3.8	1.1	0.3
08302	00	V	50	25	3.7	-0.1	0.3
08508	12	V	50	25	3.3	-0.7	0.8
08522	12	V	50	28	3.1	0.4	0.2
08579	12	V	50	29	3.5	0.0	1.0
10035	12	V	50	31	3.2	-0.1	0.4
10035	00	V	50	31	2.6	0.2	-0.6
10393	12	V	50	31	2.4	0.4	0.0
10393	00	V	50	31	2.5	0.3	0.4
10410	00	V	50	28	2.8	0.7	0.1
10410	12	V	50	31	3.0	0.5	-0.2
10739	00	V	50	31	2.5	0.2	-0.1
10739	12	V	50	30	2.6	0.7	0.1
11035	00	V	50	29	3.2	0.5	-0.6
11035	12	V	50	30	2.7	-0.1	-0.4
12982	12	V	50	29	3.0	0.7	-0.2
12982	00	V	50	30	3.2	0.2	-0.1
16044	12	V	50	31	3.3	1.1	0.3
16044	00	V	50	29	3.1	0.7	0.3
16080	00	V	50	29	3.0	0.6	0.2
16080	12	V	50	31	2.5	0.5	0.4
16245	00	V	50	30	4.0	1.3	1.2
16245	12	V	50	30	3.5	1.0	1.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16320	00	V	50	28	3.0	0.9	-0.1
16320	12	V	50	30	3.6	1.5	0.2
16429	00	V	50	29	3.8	0.4	0.5
16429	12	V	50	27	4.0	1.4	0.5
16622	00	V	50	18	2.8	-0.7	0.8
16754	00	V	50	28	3.8	1.0	-0.5
17607	12	V	50	17	3.6	0.9	0.0
26435	00	V	50	14	2.5	0.3	0.0
60018	00	V	50	27	4.8	-1.3	-0.2
60018	12	V	50	29	3.4	0.1	0.8
ASDE01	12	V	50	12	3.5	0.2	0.4
ASDE01	00	V	50	10	3.5	0.4	0.2
ASDE02	12	V	50	8	4.6	0.3	0.5
ASDE03	12	V	50	9	3.3	0.5	0.6
ASDE03	00	V	50	11	3.4	0.4	-0.1
ASDE04	00	V	50	2	3.1	-0.8	0.8
ASDE04	12	V	50	5	3.0	-0.5	1.6
ASDE09	12	V	50	2	2.5	-0.2	-1.9
ASDK01	12	V	50	3	2.9	1.1	1.2
ASDK01	00	V	50	6	2.6	0.1	0.4
ASDK02	12	V	50	8	3.0	0.4	0.3
ASDK02	00	V	50	10	2.7	-0.3	0.6
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	3	3.1	1.3	1.5
ASDK1	00	V	50	6	2.3	0.2	0.4
ASDK2	12	V	50	8	3.0	0.6	0.5
ASDK2	00	V	50	10	2.4	-0.1	0.4
ASDK3	12	V	50	7	3.4	0.0	0.1
ASDK3	00	V	50	7	2.0	-1.0	-0.1
ASES01	12	V	50	5	4.4	0.5	1.4
ASEU01	12	V	50	9	2.1	0.2	0.4
ASEU02	00	V	50	1	0.8	-0.7	-0.4
ASEU03	12	V	50	7	4.5	-0.5	1.5
ASEU03	00	V	50	9	3.6	-0.1	0.9
ASEU04	12	V	50	4	3.3	0.2	-0.5
ASEU04	00	V	50	6	4.2	-2.2	2.0
ASEU06	12	V	50	2	1.2	0.5	0.9
ASEU06	00	V	50	3	2.3	-0.2	-0.5
ASFR1	12	V	50	11	3.7	-0.6	-0.2
ASFR1	00	V	50	13	2.3	-0.4	-0.7
ASFR2	12	V	50	7	2.8	1.7	0.4
ASFR2	00	V	50	6	2.6	0.0	-0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR3	12	V	50	12	3.4	0.0	0.9
ASFR3	00	V	50	12	4.1	0.3	-0.7
ASFR4	12	V	50	16	4.0	0.0	-0.7
ASFR4	00	V	50	16	4.0	-0.4	-0.4
DBLK	12	V	50	21	2.6	-0.7	-0.1
EWO	12	V	50	0	0.0	0.0	0.0

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 : AUG 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	31	30.6	-2.9
01001	00	Z	100	30	4.0	0.0
01028	00	Z	100	31	4.4	0.1
01028	12	Z	100	31	6.8	-0.1
01400	12	Z	100	23	14.3	10.3
01400	00	Z	100	20	37.0	22.0
01415	00	Z	100	31	7.4	4.5
01415	12	Z	100	30	7.7	5.3
02365	00	Z	100	39	3.8	1.6
02365	12	Z	100	47	7.0	3.5
02591	12	Z	100	40	14.1	12.4
02591	00	Z	100	38	14.4	13.9
02836	12	Z	100	30	8.8	4.0
02836	00	Z	100	31	7.2	3.5
02963	00	Z	100	31	7.8	5.6
02963	12	Z	100	32	5.4	2.0
03005	12	Z	100	31	8.1	-3.1
03005	00	Z	100	31	5.9	-2.8
03238	00	Z	100	30	9.2	6.3
03238	12	Z	100	6	14.0	13.4
03808	12	Z	100	35	6.7	-0.3
03808	00	Z	100	34	5.8	-1.5
03918	00	Z	100	30	10.4	4.6
03918	12	Z	100	20	10.9	8.6
039188	12	Z	100	0	0.0	0.0
03953	12	Z	100	30	24.0	21.9
03953	00	Z	100	31	16.0	12.2
04018	00	Z	100	28	7.7	1.6
04018	12	Z	100	28	9.7	6.0
04220	12	Z	100	29	15.3	3.6
04220	00	Z	100	30	10.1	-4.6
04270	00	Z	100	27	9.0	1.1
04270	12	Z	100	31	9.0	3.7
04320	12	Z	100	28	10.8	7.4
04320	00	Z	100	31	12.5	-1.5
043208	00	Z	100	1	3.4	-3.4
04339	00	Z	100	30	26.7	19.3
04339	12	Z	100	30	18.5	5.2
04360	12	Z	100	19	10.0	6.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04360	00	Z	100	19	10.8	2.7
06011	12	Z	100	22	16.2	8.1
06011	00	Z	100	23	15.7	-6.6
06260	12	Z	100	4	8.8	-4.5
06260	00	Z	100	31	8.1	5.9
06610	00	Z	100	31	12.7	8.8
06610	12	Z	100	31	43.0	6.0
066107	12	Z	100	0	0.0	0.0
07110	12	Z	100	27	20.3	18.6
07110	00	Z	100	30	9.2	5.3
07510	00	Z	100	24	13.1	10.8
07510	12	Z	100	23	13.1	11.7
07645	12	Z	100	25	9.4	-4.7
07645	00	Z	100	21	10.9	-4.1
07761	12	Z	100	26	8.7	-3.1
07761	00	Z	100	22	11.0	-7.1
08001	12	Z	100	31	13.1	10.6
08001	00	Z	100	31	19.9	14.1
08221	12	Z	100	29	8.0	2.5
08221	00	Z	100	29	10.8	7.3
08302	12	Z	100	24	9.4	-3.1
08302	00	Z	100	25	7.2	4.1
08508	12	Z	100	29	18.9	17.2
08522	12	Z	100	29	11.0	7.2
08579	12	Z	100	31	14.2	7.5
10035	12	Z	100	31	7.3	1.0
10035	00	Z	100	31	6.0	0.3
10393	12	Z	100	31	6.0	-2.9
10393	00	Z	100	32	5.0	-1.5
10410	00	Z	100	30	4.4	0.9
10410	12	Z	100	31	9.7	-1.0
10739	00	Z	100	31	8.3	4.3
10739	12	Z	100	30	8.3	6.0
11035	00	Z	100	30	27.6	26.0
11035	12	Z	100	30	23.1	20.2
12982	12	Z	100	31	23.7	21.9
12982	00	Z	100	30	17.0	6.3
16044	12	Z	100	31	6.5	0.2
16044	00	Z	100	31	9.2	5.9
16080	00	Z	100	30	5.6	2.5
16080	12	Z	100	31	36.4	-12.5
16245	00	Z	100	30	7.6	0.1
16245	12	Z	100	30	12.4	-7.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16320	00	Z	100	28	10.8	5.3
16320	12	Z	100	30	9.5	-2.8
16429	00	Z	100	29	29.5	1.2
16429	12	Z	100	31	14.1	-0.5
16622	00	Z	100	30	36.6	34.9
16754	00	Z	100	31	22.1	20.9
17607	12	Z	100	39	19.4	-18.5
26435	00	Z	100	15	7.6	5.9
60018	00	Z	100	30	9.2	7.6
60018	12	Z	100	31	8.5	2.3
ASDE01	12	Z	100	12	93.7	66.1
ASDE01	00	Z	100	12	27.7	19.1
ASDE02	12	Z	100	8	11.5	10.4
ASDE03	12	Z	100	10	26.7	25.2
ASDE03	00	Z	100	13	11.1	7.3
ASDE04	00	Z	100	2	41.0	40.6
ASDE04	12	Z	100	5	46.1	31.8
ASDE09	12	Z	100	2	5.8	0.7
ASDK01	12	Z	100	11	9.6	7.8
ASDK01	00	Z	100	17	9.9	7.6
ASDK02	12	Z	100	10	18.1	11.3
ASDK02	00	Z	100	15	6.0	2.7
ASDK03	12	Z	100	8	26.9	25.2
ASDK03	00	Z	100	7	18.8	17.5
ASDK1	12	Z	100	11	11.0	8.5
ASDK1	00	Z	100	17	11.1	7.0
ASDK2	12	Z	100	10	18.5	9.5
ASDK2	00	Z	100	11	6.9	2.9
ASDK3	12	Z	100	8	26.3	23.9
ASDK3	00	Z	100	7	20.6	19.1
ASES01	12	Z	100	6	26.7	22.9
ASEU01	12	Z	100	9	48.2	9.4
ASEU02	00	Z	100	1	30.6	30.6
ASEU03	12	Z	100	10	81.1	45.2
ASEU03	00	Z	100	10	34.3	30.3
ASEU04	12	Z	100	6	9.9	4.0
ASEU04	00	Z	100	10	7.3	-2.5
ASEU06	12	Z	100	4	35.0	34.7
ASEU06	00	Z	100	6	9.1	6.3
ASFR1	12	Z	100	11	20.9	19.2
ASFR1	00	Z	100	13	15.6	13.4
ASFR2	12	Z	100	8	23.1	21.1
ASFR2	00	Z	100	7	18.9	15.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR3	12	Z	100	12	13.4	10.6
ASFR3	00	Z	100	13	12.8	9.7
ASFR4	12	Z	100	17	24.2	21.4
ASFR4	00	Z	100	16	18.5	16.6
DBLK	12	Z	100	45	6.5	3.7
EWO	12	Z	100	0	0.0	0.0

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 : AUG 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	31	2.3	0.3	0.0
01001	00	V	100	30	2.6	-0.3	-0.4
01028	00	V	100	31	2.2	-0.5	-0.2
01028	12	V	100	31	2.1	-0.2	-0.5
01400	12	V	100	23	2.6	0.6	0.2
01400	00	V	100	19	3.2	0.1	0.5
01415	00	V	100	31	3.5	-0.2	-0.3
01415	12	V	100	30	3.4	0.2	0.5
02365	00	V	100	31	2.6	0.2	-0.1
02365	12	V	100	31	2.7	0.8	-0.5
02591	12	V	100	30	3.1	0.2	-0.7
02591	00	V	100	31	3.3	-0.3	0.0
02836	12	V	100	30	2.8	0.6	-0.7
02836	00	V	100	31	2.5	0.0	0.0
02963	00	V	100	31	2.7	0.7	-0.6
02963	12	V	100	31	2.7	0.1	-0.3
03005	12	V	100	30	3.5	0.7	0.1
03005	00	V	100	31	2.3	-0.2	-0.2
03238	00	V	100	29	3.5	0.6	0.9
03238	12	V	100	6	1.5	0.6	0.4
03808	12	V	100	31	2.8	-1.0	0.1
03808	00	V	100	31	3.0	0.3	0.3
03918	00	V	100	30	2.5	0.3	0.2
03918	12	V	100	20	3.3	0.1	1.0
039188	12	V	100	0	0.0	0.0	0.0
03953	12	V	100	30	3.0	0.1	0.1
03953	00	V	100	30	2.7	0.1	-0.1
04018	00	V	100	27	2.4	0.4	0.3
04018	12	V	100	28	2.5	0.1	0.3
04220	12	V	100	29	2.8	-0.5	0.1
04220	00	V	100	30	2.5	0.1	0.2
04270	00	V	100	27	3.6	-0.9	0.3
04270	12	V	100	30	2.8	0.4	1.1
04320	12	V	100	28	2.3	-0.2	-0.4
04320	00	V	100	31	1.8	-0.4	-0.1
043208	00	V	100	1	5.3	-0.7	-5.3
04339	00	V	100	30	2.5	0.1	0.0
04339	12	V	100	30	2.6	-0.6	-0.1
04360	12	V	100	19	2.5	0.8	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04360	00	V	100	19	2.5	-0.3	0.8
06011	12	V	100	22	3.2	0.6	0.2
06011	00	V	100	23	2.2	0.1	-0.1
06260	12	V	100	4	3.9	1.2	0.2
06260	00	V	100	29	3.2	1.0	-0.7
06610	00	V	100	31	4.3	0.0	-0.4
06610	12	V	100	31	3.7	-0.6	0.3
066107	12	V	100	0	0.0	0.0	0.0
07110	12	V	100	27	2.4	-0.5	0.2
07110	00	V	100	30	3.5	0.3	0.0
07510	00	V	100	19	4.3	0.1	-0.7
07510	12	V	100	21	2.5	0.3	0.3
07645	12	V	100	23	4.6	0.8	0.7
07645	00	V	100	17	3.4	0.4	-0.5
07761	12	V	100	16	3.6	-0.7	-0.7
07761	00	V	100	15	5.2	0.8	-0.1
08001	12	V	100	30	3.5	-0.6	0.8
08001	00	V	100	31	3.5	-0.3	0.1
08221	12	V	100	29	3.3	-0.3	0.2
08221	00	V	100	29	3.7	-0.2	0.6
08302	12	V	100	24	3.0	0.4	-0.5
08302	00	V	100	25	4.0	0.3	0.9
08508	12	V	100	27	2.9	0.0	0.3
08522	12	V	100	28	4.0	-0.1	-0.7
08579	12	V	100	29	3.1	0.4	-0.3
10035	12	V	100	31	3.2	0.7	0.0
10035	00	V	100	31	3.0	-0.3	-0.2
10393	12	V	100	31	2.9	0.2	0.0
10393	00	V	100	31	2.8	0.3	0.1
10410	00	V	100	30	3.6	0.6	-0.7
10410	12	V	100	31	3.3	-0.2	-0.6
10739	00	V	100	31	2.8	-0.3	-0.3
10739	12	V	100	30	3.2	0.0	0.6
11035	00	V	100	30	2.9	-0.2	-0.4
11035	12	V	100	30	3.5	0.9	-0.7
12982	12	V	100	30	3.3	0.5	0.1
12982	00	V	100	30	3.5	0.0	0.1
16044	12	V	100	31	3.8	-0.4	-0.4
16044	00	V	100	29	3.8	-0.5	-0.2
16080	00	V	100	29	3.5	-0.1	-0.6
16080	12	V	100	31	3.6	1.0	0.2
16245	00	V	100	30	3.8	-0.1	0.0
16245	12	V	100	30	4.1	-0.6	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16320	00	V	100	28	4.1	0.0	-0.3
16320	12	V	100	30	3.4	0.6	0.0
16429	00	V	100	28	3.8	-0.5	0.0
16429	12	V	100	30	3.7	-1.0	0.2
16622	00	V	100	21	3.3	-0.2	0.3
16754	00	V	100	31	4.0	-0.7	0.9
17607	12	V	100	20	3.4	0.2	0.0
26435	00	V	100	15	2.8	1.5	0.5
60018	00	V	100	30	4.9	0.3	0.7
60018	12	V	100	30	5.0	0.7	0.8
ASDE01	12	V	100	12	5.6	-0.4	0.0
ASDE01	00	V	100	10	4.5	0.8	-0.7
ASDE02	12	V	100	8	4.5	0.3	-1.6
ASDE03	12	V	100	10	2.4	0.4	0.6
ASDE03	00	V	100	12	3.6	-0.5	-1.1
ASDE04	00	V	100	2	4.9	1.9	0.5
ASDE04	12	V	100	5	3.3	-0.4	-0.1
ASDE09	12	V	100	2	3.1	2.5	0.5
ASDK01	12	V	100	11	3.1	-0.2	0.3
ASDK01	00	V	100	17	2.9	-0.1	0.4
ASDK02	12	V	100	10	2.9	-0.3	-0.4
ASDK02	00	V	100	12	2.9	-0.3	-0.2
ASDK03	12	V	100	8	3.8	-1.0	0.8
ASDK03	00	V	100	7	2.0	0.1	1.0
ASDK1	12	V	100	11	2.9	-0.2	0.0
ASDK1	00	V	100	17	3.0	0.1	0.5
ASDK2	12	V	100	10	2.9	-0.3	-0.4
ASDK2	00	V	100	11	3.0	-0.3	-0.6
ASDK3	12	V	100	8	3.7	-1.0	0.7
ASDK3	00	V	100	7	2.4	0.1	1.2
ASES01	12	V	100	5	4.2	0.4	-1.2
ASEU01	12	V	100	9	3.1	0.0	0.0
ASEU02	00	V	100	1	1.8	-1.4	1.2
ASEU03	12	V	100	9	3.7	0.1	1.4
ASEU03	00	V	100	10	4.5	-1.3	0.4
ASEU04	12	V	100	5	1.8	0.8	1.1
ASEU04	00	V	100	7	3.7	1.1	2.3
ASEU06	12	V	100	3	3.8	-3.3	1.3
ASEU06	00	V	100	4	1.9	0.6	-0.4
ASFR1	12	V	100	10	3.0	0.4	-0.7
ASFR1	00	V	100	13	2.8	-0.3	-0.2
ASFR2	12	V	100	8	3.3	1.4	0.1
ASFR2	00	V	100	7	3.7	-1.2	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR3	12	V	100	12	3.2	0.7	1.0
ASFR3	00	V	100	12	3.9	1.4	0.9
ASFR4	12	V	100	15	3.1	0.0	1.0
ASFR4	00	V	100	16	4.0	0.0	-0.3
DBLK	12	V	100	25	2.1	-0.4	0.1
EWO	12	V	100	0	0.0	0.0	0.0

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 : AUG 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	31	5.6	0.3
01001	00	Z	500	31	5.9	1.9
01028	00	Z	500	31	3.4	-0.3
01028	12	Z	500	31	5.5	-0.1
01400	12	Z	500	23	7.9	5.6
01400	00	Z	500	20	32.4	16.8
01415	00	Z	500	31	5.7	4.0
01415	12	Z	500	30	3.6	2.2
02365	00	Z	500	39	3.9	2.9
02365	12	Z	500	47	4.2	3.0
02591	12	Z	500	41	12.0	11.7
02591	00	Z	500	38	12.2	12.0
02836	12	Z	500	31	6.0	4.1
02836	00	Z	500	31	5.9	4.9
02963	00	Z	500	31	7.7	6.8
02963	12	Z	500	32	5.5	4.2
03005	12	Z	500	31	5.2	-1.5
03005	00	Z	500	31	6.4	-1.1
03238	00	Z	500	30	8.1	5.6
03238	12	Z	500	6	8.0	5.3
03808	12	Z	500	36	5.0	0.0
03808	00	Z	500	34	4.3	1.8
03918	00	Z	500	30	7.5	5.0
03918	12	Z	500	20	7.8	5.5
039188	12	Z	500	0	0.0	0.0
03953	12	Z	500	33	15.3	12.7
03953	00	Z	500	31	13.2	10.7
04018	00	Z	500	29	5.1	0.1
04018	12	Z	500	28	5.8	3.1
04220	12	Z	500	30	5.2	1.4
04220	00	Z	500	31	5.0	-1.0
04270	00	Z	500	31	6.5	-2.2
04270	12	Z	500	33	4.0	0.1
04320	12	Z	500	31	7.6	6.1
04320	00	Z	500	31	8.0	4.3
043208	00	Z	500	1	4.5	-4.5
04339	00	Z	500	30	9.2	4.4
04339	12	Z	500	31	7.5	0.3
04360	12	Z	500	26	6.2	3.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04360	00	Z	500	23	5.3	0.9
06011	12	Z	500	31	19.5	2.3
06011	00	Z	500	30	8.2	-1.0
06260	12	Z	500	4	2.9	-1.0
06260	00	Z	500	32	6.6	4.8
06610	00	Z	500	31	8.0	6.1
06610	12	Z	500	31	5.7	3.0
066107	12	Z	500	0	0.0	0.0
07110	12	Z	500	30	10.2	1.1
07110	00	Z	500	31	6.1	0.4
07510	00	Z	500	30	5.7	2.3
07510	12	Z	500	31	7.6	2.5
07645	12	Z	500	31	5.6	-2.6
07645	00	Z	500	29	5.6	-3.7
07761	12	Z	500	28	5.6	-1.3
07761	00	Z	500	24	6.0	-3.5
08001	12	Z	500	31	7.9	6.7
08001	00	Z	500	31	18.7	12.2
08221	12	Z	500	29	5.3	4.7
08221	00	Z	500	29	6.7	5.6
08302	12	Z	500	25	7.3	-2.6
08302	00	Z	500	25	2.6	0.9
08508	12	Z	500	29	15.1	13.5
08522	12	Z	500	30	8.6	7.1
08579	12	Z	500	31	9.3	3.8
10035	12	Z	500	32	4.2	1.5
10035	00	Z	500	31	4.5	1.8
10393	12	Z	500	31	3.1	-2.1
10393	00	Z	500	32	3.2	-0.6
10410	00	Z	500	30	4.0	-0.2
10410	12	Z	500	31	3.1	-0.8
10739	00	Z	500	31	8.7	8.0
10739	12	Z	500	30	8.1	7.4
11035	00	Z	500	31	15.8	14.6
11035	12	Z	500	31	14.4	12.7
12982	12	Z	500	31	9.6	7.2
12982	00	Z	500	31	17.6	6.7
16044	12	Z	500	31	5.9	-1.3
16044	00	Z	500	31	5.1	0.1
16080	00	Z	500	32	9.7	3.1
16080	12	Z	500	31	12.4	-5.3
16245	00	Z	500	31	8.4	-5.8
16245	12	Z	500	31	10.1	-7.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16320	00	Z	500	30	7.3	-1.1
16320	12	Z	500	30	5.5	-2.6
16429	00	Z	500	30	5.9	1.2
16429	12	Z	500	33	7.2	-2.1
16622	00	Z	500	31	20.8	20.0
16754	00	Z	500	31	11.7	10.8
17607	12	Z	500	39	4.6	1.9
26435	00	Z	500	15	8.3	7.2
60018	00	Z	500	30	3.7	1.6
60018	12	Z	500	32	4.9	1.2
ASDE01	12	Z	500	13	39.7	28.6
ASDE01	00	Z	500	12	19.9	10.5
ASDE02	12	Z	500	8	6.4	6.0
ASDE03	12	Z	500	12	32.6	11.4
ASDE03	00	Z	500	13	7.8	-0.7
ASDE04	00	Z	500	2	31.3	31.2
ASDE04	12	Z	500	6	26.4	9.2
ASDE09	12	Z	500	2	2.1	-1.7
ASDK01	12	Z	500	12	9.4	6.2
ASDK01	00	Z	500	18	10.3	9.6
ASDK02	12	Z	500	10	6.5	2.7
ASDK02	00	Z	500	15	5.2	3.2
ASDK03	12	Z	500	8	24.4	23.8
ASDK03	00	Z	500	8	22.5	21.1
ASDK1	12	Z	500	12	8.9	4.6
ASDK1	00	Z	500	18	9.7	7.7
ASDK2	12	Z	500	10	4.9	2.6
ASDK2	00	Z	500	11	6.1	2.7
ASDK3	12	Z	500	8	23.5	22.0
ASDK3	00	Z	500	8	22.1	19.5
ASES01	12	Z	500	8	19.5	18.9
ASEU01	12	Z	500	9	46.1	-2.3
ASEU02	00	Z	500	1	29.3	29.3
ASEU03	12	Z	500	11	37.5	31.1
ASEU03	00	Z	500	10	35.0	28.2
ASEU04	12	Z	500	7	7.2	-6.1
ASEU04	00	Z	500	10	6.3	-3.6
ASEU06	12	Z	500	5	10.4	7.2
ASEU06	00	Z	500	7	29.9	14.6
ASFR1	12	Z	500	13	8.0	0.2
ASFR1	00	Z	500	14	5.2	-0.7
ASFR2	12	Z	500	8	12.7	12.3
ASFR2	00	Z	500	7	14.0	10.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR3	12	Z	500	13	8.2	5.2
ASFR3	00	Z	500	13	6.5	-0.5
ASFR4	12	Z	500	17	6.3	2.9
ASFR4	00	Z	500	16	6.0	-3.0
DBLK	12	Z	500	45	3.7	2.2
EWO	12	Z	500	8	5.3	4.1

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 500 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : AUG 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	31	2.8	0.1	0.4
01001	00	V	500	31	2.5	-0.1	-0.2
01028	00	V	500	31	2.1	0.3	0.0
01028	12	V	500	31	2.6	0.1	-0.1
01400	12	V	500	23	2.8	0.0	-0.4
01400	00	V	500	19	2.3	0.0	-0.5
01415	00	V	500	31	2.4	-0.1	0.6
01415	12	V	500	30	2.9	0.1	0.4
02365	00	V	500	31	2.6	0.3	0.0
02365	12	V	500	31	3.1	0.2	0.4
02591	12	V	500	30	2.5	-0.5	0.5
02591	00	V	500	31	2.1	0.0	0.1
02836	12	V	500	31	2.4	-0.2	0.2
02836	00	V	500	31	2.2	-0.2	0.3
02963	00	V	500	31	2.2	0.0	-0.3
02963	12	V	500	31	2.3	0.3	0.3
03005	12	V	500	31	3.0	0.0	0.1
03005	00	V	500	31	3.8	0.3	-0.4
03238	00	V	500	29	2.8	0.0	0.0
03238	12	V	500	6	2.6	0.2	0.1
03808	12	V	500	31	3.2	0.3	0.2
03808	00	V	500	31	3.2	0.3	-0.6
03918	00	V	500	30	2.9	-0.2	0.9
03918	12	V	500	20	3.7	-0.3	-0.8
039188	12	V	500	0	0.0	0.0	0.0
03953	12	V	500	31	2.9	-0.1	0.4
03953	00	V	500	30	3.1	-0.3	0.2
04018	00	V	500	28	2.4	-0.4	-0.1
04018	12	V	500	28	3.4	0.1	-0.3
04220	12	V	500	30	2.6	0.4	-0.3
04220	00	V	500	31	2.4	-0.1	0.0
04270	00	V	500	31	2.7	0.1	0.1
04270	12	V	500	31	2.6	0.0	-0.2
04320	12	V	500	31	2.7	0.3	-0.1
04320	00	V	500	31	2.6	0.3	0.6
043208	00	V	500	1	6.1	1.2	-6.0
04339	00	V	500	29	3.4	0.0	-0.7
04339	12	V	500	31	2.4	0.4	-0.5
04360	12	V	500	26	3.4	0.1	0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04360	00	V	500	23	2.3	-0.3	0.5
06011	12	V	500	31	2.8	0.1	-0.4
06011	00	V	500	30	2.7	-0.7	-0.5
06260	12	V	500	4	1.8	0.6	0.3
06260	00	V	500	30	3.1	0.3	-0.1
06610	00	V	500	31	2.9	0.6	-0.2
06610	12	V	500	31	3.2	0.2	0.6
066107	12	V	500	0	0.0	0.0	0.0
07110	12	V	500	30	3.4	-0.1	-0.1
07110	00	V	500	31	3.3	-0.4	0.0
07510	00	V	500	29	4.5	-0.1	1.3
07510	12	V	500	29	2.8	1.2	0.2
07645	12	V	500	30	3.3	0.4	0.2
07645	00	V	500	27	2.6	0.0	0.4
07761	12	V	500	28	2.7	0.8	-0.6
07761	00	V	500	23	2.6	0.3	-0.3
08001	12	V	500	31	2.4	0.1	0.2
08001	00	V	500	31	3.5	-0.4	0.0
08221	12	V	500	29	2.4	0.5	0.2
08221	00	V	500	29	3.4	0.1	0.6
08302	12	V	500	25	3.7	0.5	0.5
08302	00	V	500	25	3.1	1.2	-0.3
08508	12	V	500	29	2.6	0.8	-0.1
08522	12	V	500	30	2.6	-0.1	-0.1
08579	12	V	500	31	2.3	0.1	0.3
10035	12	V	500	31	2.9	0.3	0.2
10035	00	V	500	31	2.6	-0.3	0.2
10393	12	V	500	31	2.3	0.1	0.5
10393	00	V	500	31	2.2	-0.2	0.0
10410	00	V	500	30	2.5	0.4	0.3
10410	12	V	500	31	2.3	0.1	-0.1
10739	00	V	500	31	3.2	0.3	0.0
10739	12	V	500	30	2.8	0.1	0.5
11035	00	V	500	30	2.3	-0.6	-0.4
11035	12	V	500	31	2.9	0.7	-0.3
12982	12	V	500	31	2.5	-0.3	0.1
12982	00	V	500	31	2.7	0.6	-0.4
16044	12	V	500	31	2.6	-0.3	-0.1
16044	00	V	500	29	2.7	0.2	0.2
16080	00	V	500	31	4.0	0.4	1.0
16080	12	V	500	31	2.4	0.5	0.0
16245	00	V	500	31	2.9	0.0	-0.3
16245	12	V	500	31	2.3	0.0	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16320	00	V	500	30	2.4	0.0	-0.1
16320	12	V	500	30	3.2	-0.3	0.3
16429	00	V	500	29	3.0	0.0	-0.9
16429	12	V	500	31	1.8	0.0	0.1
16622	00	V	500	22	2.7	0.1	0.5
16754	00	V	500	30	2.4	0.0	0.5
17607	12	V	500	20	2.3	0.0	0.5
26435	00	V	500	15	2.3	0.0	0.3
60018	00	V	500	30	3.4	0.1	0.4
60018	12	V	500	31	3.3	1.0	-0.5
ASDE01	12	V	500	13	2.5	-0.3	0.1
ASDE01	00	V	500	10	2.1	0.5	0.2
ASDE02	12	V	500	8	3.6	1.4	-1.5
ASDE03	12	V	500	12	2.9	0.3	0.5
ASDE03	00	V	500	12	2.2	0.6	0.2
ASDE04	00	V	500	2	1.6	-1.0	-1.3
ASDE04	12	V	500	6	1.3	0.1	0.1
ASDE09	12	V	500	2	1.8	0.2	-1.5
ASDK01	12	V	500	12	2.8	0.6	0.1
ASDK01	00	V	500	18	2.3	0.4	-0.4
ASDK02	12	V	500	10	2.9	0.3	-1.3
ASDK02	00	V	500	12	3.6	0.7	-1.4
ASDK03	12	V	500	8	3.5	0.8	-0.6
ASDK03	00	V	500	8	3.5	-0.9	-0.7
ASDK1	12	V	500	12	2.6	0.5	0.1
ASDK1	00	V	500	18	2.4	0.3	-0.4
ASDK2	12	V	500	10	2.8	0.4	-1.4
ASDK2	00	V	500	11	3.5	0.8	-1.6
ASDK3	12	V	500	8	3.2	-0.1	-0.5
ASDK3	00	V	500	8	3.7	-1.4	-1.0
ASES01	12	V	500	7	3.8	0.0	0.7
ASEU01	12	V	500	9	2.6	0.3	0.4
ASEU02	00	V	500	1	1.2	-0.7	1.0
ASEU03	12	V	500	9	2.9	1.5	0.2
ASEU03	00	V	500	10	2.5	-0.3	0.2
ASEU04	12	V	500	6	3.0	0.9	0.4
ASEU04	00	V	500	8	3.2	-0.4	0.1
ASEU06	12	V	500	5	3.2	0.2	-0.6
ASEU06	00	V	500	5	3.2	-0.3	-1.4
ASFR1	12	V	500	13	2.3	-0.8	0.9
ASFR1	00	V	500	14	2.6	-0.6	0.4
ASFR2	12	V	500	8	1.8	0.3	-0.1
ASFR2	00	V	500	7	2.2	-0.4	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR3	12	V	500	13	3.3	-0.6	0.5
ASFR3	00	V	500	13	2.6	-0.5	-0.1
ASFR4	12	V	500	17	2.6	-0.8	0.4
ASFR4	00	V	500	16	2.8	0.2	0.4
DBLK	12	V	500	25	2.6	-0.1	0.1
EWO	12	V	500	8	2.6	0.8	-1.0

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 : AUG 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	31	5.3	-1.0
01001	00	Z	850	31	3.8	-1.2
01028	00	Z	850	31	3.3	-0.8
01028	12	Z	850	31	4.1	-0.7
01400	12	Z	850	23	6.4	3.1
01400	00	Z	850	20	31.5	15.0
01415	00	Z	850	31	4.2	3.8
01415	12	Z	850	30	4.0	3.2
02365	00	Z	850	39	2.3	1.4
02365	12	Z	850	47	3.1	1.9
02591	12	Z	850	41	10.3	10.1
02591	00	Z	850	38	10.5	10.3
02836	12	Z	850	31	4.2	3.1
02836	00	Z	850	31	4.6	4.2
02963	00	Z	850	31	5.8	5.4
02963	12	Z	850	32	5.1	4.8
03005	12	Z	850	31	3.9	-2.3
03005	00	Z	850	31	3.1	-1.8
03238	00	Z	850	30	5.8	5.5
03238	12	Z	850	6	4.8	4.4
03808	12	Z	850	36	2.4	-0.4
03808	00	Z	850	34	2.4	0.4
03918	00	Z	850	30	4.9	4.4
03918	12	Z	850	20	4.8	4.5
039188	12	Z	850	1	2.7	2.7
03953	12	Z	850	33	18.4	17.0
03953	00	Z	850	32	18.8	17.1
04018	00	Z	850	29	2.9	1.1
04018	12	Z	850	28	2.8	0.5
04220	12	Z	850	31	7.1	2.0
04220	00	Z	850	31	2.4	0.4
04270	00	Z	850	31	3.4	-1.5
04270	12	Z	850	33	2.9	0.0
04320	12	Z	850	31	8.1	7.5
04320	00	Z	850	31	8.7	7.8
043208	00	Z	850	1	16.9	-16.9
04339	00	Z	850	31	3.9	-0.4
04339	12	Z	850	31	4.0	-0.9
04360	12	Z	850	26	4.7	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04360	00	Z	850	27	3.8	-1.6
06011	12	Z	850	31	4.1	1.5
06011	00	Z	850	31	3.9	2.3
06260	12	Z	850	4	3.4	-1.0
06260	00	Z	850	32	4.2	2.1
06610	00	Z	850	31	5.6	5.4
06610	12	Z	850	31	3.5	2.6
066107	12	Z	850	1	2.8	2.8
07110	12	Z	850	30	3.0	0.9
07110	00	Z	850	31	3.3	1.4
07510	00	Z	850	30	2.9	-1.7
07510	12	Z	850	33	3.3	-1.7
07645	12	Z	850	32	3.4	-1.7
07645	00	Z	850	30	4.2	-1.6
07761	12	Z	850	28	2.4	-1.4
07761	00	Z	850	26	2.3	-1.2
08001	12	Z	850	31	4.7	3.5
08001	00	Z	850	31	15.6	9.4
08221	12	Z	850	29	2.4	0.9
08221	00	Z	850	29	4.1	3.5
08302	12	Z	850	25	3.9	-2.1
08302	00	Z	850	25	2.2	-0.1
08508	12	Z	850	29	10.6	8.3
08522	12	Z	850	30	3.9	2.1
08579	12	Z	850	31	7.5	0.8
10035	12	Z	850	32	3.2	1.1
10035	00	Z	850	31	3.5	1.7
10393	12	Z	850	31	3.8	-3.4
10393	00	Z	850	32	2.6	-1.7
10410	00	Z	850	31	2.9	-1.6
10410	12	Z	850	31	3.1	-2.4
10739	00	Z	850	31	8.5	8.4
10739	12	Z	850	30	7.6	7.3
11035	00	Z	850	32	10.4	9.4
11035	12	Z	850	31	11.1	9.9
12982	12	Z	850	31	7.1	6.5
12982	00	Z	850	31	17.2	6.6
16044	12	Z	850	31	5.2	-1.7
16044	00	Z	850	31	4.1	-0.5
16080	00	Z	850	32	9.4	2.3
16080	12	Z	850	31	5.5	-3.3
16245	00	Z	850	31	8.8	-7.4
16245	12	Z	850	31	10.5	-8.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16320	00	Z	850	30	7.1	-3.0
16320	12	Z	850	31	5.1	-2.4
16429	00	Z	850	30	4.4	-0.4
16429	12	Z	850	33	5.7	-4.1
16622	00	Z	850	31	14.7	14.3
16754	00	Z	850	31	9.8	9.2
17607	12	Z	850	39	2.6	1.5
26435	00	Z	850	15	6.0	5.8
60018	00	Z	850	30	4.3	-3.3
60018	12	Z	850	32	5.0	-4.0
ASDE01	12	Z	850	13	19.7	11.4
ASDE01	00	Z	850	12	19.1	7.7
ASDE02	12	Z	850	8	3.3	-1.9
ASDE03	12	Z	850	13	4.3	-0.7
ASDE03	00	Z	850	13	4.4	-1.2
ASDE04	00	Z	850	2	28.3	28.1
ASDE04	12	Z	850	6	24.3	5.7
ASDE09	12	Z	850	2	6.1	-5.7
ASDK01	12	Z	850	13	8.9	7.0
ASDK01	00	Z	850	18	9.0	7.7
ASDK02	12	Z	850	10	4.7	0.2
ASDK02	00	Z	850	15	2.8	2.2
ASDK03	12	Z	850	8	26.8	26.5
ASDK03	00	Z	850	8	26.4	25.8
ASDK1	12	Z	850	13	8.4	6.4
ASDK1	00	Z	850	18	8.3	6.8
ASDK2	12	Z	850	10	4.9	-0.7
ASDK2	00	Z	850	11	3.3	2.3
ASDK3	12	Z	850	8	25.8	25.4
ASDK3	00	Z	850	8	25.4	24.4
ASES01	12	Z	850	8	13.4	12.4
ASEU01	12	Z	850	9	8.7	6.8
ASEU02	00	Z	850	1	29.2	29.2
ASEU03	12	Z	850	11	36.2	33.8
ASEU03	00	Z	850	10	39.0	33.4
ASEU04	12	Z	850	7	12.0	-11.4
ASEU04	00	Z	850	10	8.4	-8.0
ASEU06	12	Z	850	5	8.5	0.7
ASEU06	00	Z	850	7	6.3	3.0
ASFR1	12	Z	850	13	5.0	-4.3
ASFR1	00	Z	850	14	6.1	-4.8
ASFR2	12	Z	850	8	9.2	8.0
ASFR2	00	Z	850	7	10.0	8.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR3	12	Z	850	13	4.0	-1.2
ASFR3	00	Z	850	13	3.8	-2.3
ASFR4	12	Z	850	17	9.2	-7.8
ASFR4	00	Z	850	16	9.2	-8.2
DBLK	12	Z	850	45	2.7	1.2
EWO	12	Z	850	8	7.1	6.6

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 : AUG 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	31	3.5	-0.3	0.3
01001	00	V	850	31	3.5	-0.4	0.7
01028	00	V	850	31	3.3	-0.6	-0.2
01028	12	V	850	31	2.8	0.5	-0.2
01400	12	V	850	23	2.1	-0.1	-0.3
01400	00	V	850	19	1.8	0.2	0.2
01415	00	V	850	31	3.0	0.3	0.5
01415	12	V	850	30	3.1	0.6	-0.8
02365	00	V	850	31	2.3	-0.3	0.1
02365	12	V	850	31	2.2	-0.3	0.2
02591	12	V	850	31	2.5	0.0	-0.6
02591	00	V	850	31	2.1	0.4	-0.1
02836	12	V	850	31	2.4	0.0	-0.4
02836	00	V	850	31	2.6	0.3	-0.4
02963	00	V	850	31	2.0	0.2	0.0
02963	12	V	850	31	2.1	-0.1	0.0
03005	12	V	850	31	3.3	-0.4	0.6
03005	00	V	850	31	2.8	0.0	-0.1
03238	00	V	850	29	2.9	0.0	-0.3
03238	12	V	850	6	3.8	1.4	-0.9
03808	12	V	850	31	3.0	0.6	0.9
03808	00	V	850	31	2.9	1.1	-0.1
03918	00	V	850	30	3.1	0.9	0.1
03918	12	V	850	20	2.5	-0.1	0.1
039188	12	V	850	1	7.5	6.7	3.4
03953	12	V	850	31	2.5	-0.5	0.4
03953	00	V	850	30	2.2	0.5	0.1
04018	00	V	850	28	2.7	0.1	0.2
04018	12	V	850	28	3.3	0.0	0.4
04220	12	V	850	31	2.3	0.1	0.7
04220	00	V	850	31	2.8	0.0	0.0
04270	00	V	850	31	2.7	-0.1	0.0
04270	12	V	850	31	2.5	-0.4	-0.4
04320	12	V	850	31	2.8	0.2	0.3
04320	00	V	850	31	2.8	0.2	0.4
043208	00	V	850	1	8.7	5.3	6.9
04339	00	V	850	29	3.6	0.0	0.2
04339	12	V	850	31	4.4	0.7	0.1
04360	12	V	850	26	3.4	1.1	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04360	00	V	850	27	3.9	1.8	0.3
06011	12	V	850	31	2.5	0.4	-1.3
06011	00	V	850	31	2.5	-0.4	-0.5
06260	12	V	850	4	2.9	-0.7	-1.1
06260	00	V	850	30	3.1	0.5	0.6
06610	00	V	850	31	2.9	0.5	0.1
06610	12	V	850	31	3.1	-0.1	0.5
066107	12	V	850	1	4.9	-4.8	0.8
07110	12	V	850	30	2.7	-0.2	-0.3
07110	00	V	850	31	3.1	-0.3	0.0
07510	00	V	850	29	3.3	-0.4	0.2
07510	12	V	850	29	3.8	0.2	-0.5
07645	12	V	850	30	3.1	-0.6	0.6
07645	00	V	850	28	5.0	-0.1	1.0
07761	12	V	850	28	3.7	-0.1	-0.2
07761	00	V	850	25	3.7	-0.9	0.1
08001	12	V	850	31	3.4	-0.1	0.1
08001	00	V	850	31	2.2	0.2	0.2
08221	12	V	850	29	2.8	0.9	0.4
08221	00	V	850	29	3.8	-0.9	0.6
08302	12	V	850	25	3.0	0.1	0.4
08302	00	V	850	25	2.8	0.0	0.4
08508	12	V	850	29	3.2	-0.7	0.0
08522	12	V	850	30	4.0	0.1	0.2
08579	12	V	850	31	2.7	0.8	-0.2
10035	12	V	850	31	3.0	0.1	0.8
10035	00	V	850	31	2.5	0.2	0.6
10393	12	V	850	31	2.7	0.3	0.2
10393	00	V	850	31	3.1	0.8	-0.4
10410	00	V	850	31	2.8	0.4	0.1
10410	12	V	850	31	2.9	0.3	0.0
10739	00	V	850	31	2.9	0.4	0.2
10739	12	V	850	30	2.8	-0.5	0.4
11035	00	V	850	31	3.2	-0.8	-0.1
11035	12	V	850	31	2.5	0.5	-0.1
12982	12	V	850	31	2.4	0.2	-0.2
12982	00	V	850	31	2.6	-0.2	0.4
16044	12	V	850	31	2.9	-0.1	-0.2
16044	00	V	850	29	2.7	-0.1	-0.5
16080	00	V	850	31	3.5	0.5	-0.6
16080	12	V	850	31	2.9	1.0	0.0
16245	00	V	850	31	3.1	-0.4	0.5
16245	12	V	850	31	3.3	-0.5	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16320	00	V	850	30	3.0	0.3	-0.7
16320	12	V	850	31	2.6	-0.4	-0.3
16429	00	V	850	29	2.8	-0.1	0.6
16429	12	V	850	31	2.9	-0.1	1.1
16622	00	V	850	22	3.3	0.6	-1.3
16754	00	V	850	31	2.5	0.0	-0.9
17607	12	V	850	20	3.0	0.7	0.1
26435	00	V	850	15	2.7	-0.2	-0.8
60018	00	V	850	30	4.4	0.8	-1.3
60018	12	V	850	31	3.6	0.5	0.0
ASDE01	12	V	850	13	2.7	0.7	0.7
ASDE01	00	V	850	10	2.2	0.4	0.2
ASDE02	12	V	850	8	2.3	0.8	-0.7
ASDE03	12	V	850	13	2.6	0.8	-0.7
ASDE03	00	V	850	12	2.7	0.2	-0.8
ASDE04	00	V	850	2	1.4	0.5	-0.7
ASDE04	12	V	850	6	2.4	0.2	0.6
ASDE09	12	V	850	2	1.3	0.9	0.4
ASDK01	12	V	850	13	2.5	-0.1	0.1
ASDK01	00	V	850	18	1.8	-0.3	-0.3
ASDK02	12	V	850	10	3.4	-0.3	-0.7
ASDK02	00	V	850	12	3.4	0.1	-0.1
ASDK03	12	V	850	8	2.1	-0.5	-0.1
ASDK03	00	V	850	8	2.1	-0.5	1.4
ASDK1	12	V	850	13	2.8	-0.2	-0.1
ASDK1	00	V	850	18	1.9	-0.4	-0.2
ASDK2	12	V	850	10	3.1	-0.4	-0.6
ASDK2	00	V	850	11	3.5	-0.3	0.1
ASDK3	12	V	850	8	2.5	-0.7	-0.1
ASDK3	00	V	850	8	2.7	-0.6	1.9
ASES01	12	V	850	7	3.1	1.1	-0.3
ASEU01	12	V	850	9	2.2	0.7	-0.3
ASEU02	00	V	850	1	0.8	0.4	0.7
ASEU03	12	V	850	10	2.5	0.8	0.8
ASEU03	00	V	850	10	3.4	0.7	-0.1
ASEU04	12	V	850	7	2.1	-0.7	0.1
ASEU04	00	V	850	8	2.5	0.4	0.1
ASEU06	12	V	850	5	2.5	0.0	1.2
ASEU06	00	V	850	5	2.1	0.6	-1.0
ASFR1	12	V	850	13	2.6	-0.2	0.2
ASFR1	00	V	850	14	2.9	0.7	0.0
ASFR2	12	V	850	8	2.2	0.1	-1.0
ASFR2	00	V	850	7	2.0	-0.1	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR3	12	V	850	13	2.6	0.5	-1.0
ASFR3	00	V	850	13	2.9	-0.3	-0.2
ASFR4	12	V	850	17	2.2	0.2	0.0
ASFR4	00	V	850	16	2.2	0.5	0.0
DBLK	12	V	850	25	2.5	0.1	-0.1
EWO	12	V	850	8	2.8	-0.5	-1.1

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 : AUG 2015
 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
13001	99	P	SUR	12	-23	114	0	0.5	-0.2	0.5
13008	99	P	SUR	15	-38	84	0	0.4	-0.1	0.4
13515	99	P	SUR	24	-46	203	0	0.3	0.2	0.3
13517	99	P	SUR	14	-39	194	0	0.5	-0.1	0.5
13519	99	P	SUR	20	-39	213	0	0.2	0.0	0.2
13523	99	P	SUR	16	-66	199	0	0.4	0.1	0.4
13531	99	P	SUR	12	-53	201	0	0.3	-0.5	0.6
13569	99	P	SUR	27	-31	186	0	0.2	0.1	0.3
13570	99	P	SUR	35	-19	209	0	0.3	0.7	0.7
13572	99	P	SUR	30	-30	216	0	0.2	0.2	0.3
13633	99	P	SUR	34	-29	216	0	0.2	-0.4	0.5
13659	99	P	SUR	36	-47	217	0	0.7	-0.1	0.7
13660	99	P	SUR	29	-43	217	0	0.7	-0.3	0.8
13661	99	P	SUR	13	-27	218	0	0.3	-0.6	0.6
13662	99	P	SUR	30	-48	217	0	0.2	0.0	0.3
13869	99	P	SUR	23	-38	217	0	0.2	0.1	0.3
13870	99	P	SUR	32	-17	217	0	0.4	0.7	0.8
13871	99	P	SUR	24	-31	190	0	0.3	0.7	0.8
13872	99	P	SUR	24	-26	215	0	0.5	0.5	0.7
21942	99	P	SUR	27	-37	212	0	0.2	0.4	0.4
25540	99	P	SUR	83	-15	217	0	0.3	-0.5	0.6
25575	99	P	SUR	84	-17	217	0	0.3	-0.1	0.3
25617	99	P	SUR	85	-25	217	0	0.3	-0.5	0.6
25618	99	P	SUR	87	-1	217	0	0.4	0.1	0.4
25620	99	P	SUR	84	-3	217	0	0.3	-0.3	0.4
25652	99	P	SUR	79	4	218	0	0.3	-0.3	0.4
26537	99	P	SUR	72	-2	210	0	0.6	0.1	0.6
26546	99	P	SUR	86	33	217	0	1.2	0.4	1.3
31515	99	P	SUR	21	-63	194	0	0.2	0.1	0.3
31717	99	P	SUR	20	-65	217	0	0.2	0.1	0.3
31863	99	P	SUR	18	-57	217	0	0.4	0.6	0.7
41139	99	P	SUR	20	-38	128	0	0.2	-0.2	0.3
41564	99	P	SUR	29	-32	195	0	0.3	0.4	0.5
41580	99	P	SUR	23	-50	213	0	0.2	0.4	0.5
41590	99	P	SUR	27	-69	217	0	0.4	-0.3	0.5
41591	99	P	SUR	19	-52	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
41594	99	P	SUR	25	-56	217	0	0.3	0.2	0.3
41596	99	P	SUR	23	-68	206	0	0.2	0.0	0.2
41597	99	P	SUR	22	-62	217	0	0.2	0.1	0.3
41600	99	P	SUR	20	-61	217	0	0.2	0.5	0.6
41632	99	P	SUR	23	-65	217	0	0.3	0.0	0.3
41635	99	P	SUR	20	-42	217	0	0.3	0.5	0.5
41637	99	P	SUR	16	-47	105	0	0.2	0.3	0.4
41638	99	P	SUR	15	-45	160	0	0.3	0.1	0.3
41705	99	P	SUR	34	-56	217	0	0.3	-0.1	0.3
41706	99	P	SUR	30	-58	217	0	0.2	0.1	0.3
41707	99	P	SUR	12	-50	217	0	0.3	-0.2	0.4
41711	99	P	SUR	33	-40	217	0	0.3	-0.1	0.3
41729	99	P	SUR	34	-69	217	0	0.4	-0.3	0.5
41731	99	P	SUR	28	-54	217	0	0.3	0.1	0.3
41739	99	P	SUR	38	-60	217	0	1.5	-0.5	1.5
41904	99	P	SUR	14	-59	151	1	0.5	-0.2	0.5
41905	99	P	SUR	16	-58	102	0	0.7	-0.5	0.8
41908	99	P	SUR	16	-58	67	0	0.3	-0.1	0.4
41933	99	P	SUR	36	-36	165	0	0.3	-0.2	0.3
41936	99	P	SUR	33	-51	217	0	0.2	-0.7	0.8
41969	99	P	SUR	27	-57	217	0	0.3	-0.5	0.5
41970	99	P	SUR	29	-64	217	0	0.4	0.2	0.4
41971	99	P	SUR	36	-15	217	0	0.2	0.2	0.3
41972	99	P	SUR	32	-45	216	0	0.3	0.0	0.3
41975	99	P	SUR	37	-34	216	0	0.2	0.1	0.2
44505	99	P	SUR	34	-16	74	0	0.2	-0.1	0.2
44513	99	P	SUR	50	-22	217	0	0.4	0.3	0.5
44515	99	P	SUR	43	-53	216	0	0.5	-0.1	0.5
44517	99	P	SUR	47	-29	217	0	0.4	0.1	0.5
44519	99	P	SUR	53	-43	217	0	0.5	-0.5	0.7
44521	99	P	SUR	37	-60	216	0	0.3	-0.5	0.6
44546	99	P	SUR	26	-44	217	0	0.2	-0.1	0.2
44547	99	P	SUR	60	-26	217	0	0.4	0.3	0.5
44548	99	P	SUR	56	-26	217	0	0.3	0.2	0.4
44549	99	P	SUR	52	-23	217	0	0.3	0.0	0.3
44550	99	P	SUR	56	-11	168	0	0.5	-0.1	0.5
44551	99	P	SUR	61	-16	217	0	0.4	0.2	0.4
44557	99	P	SUR	39	-52	216	0	0.3	0.3	0.5
44558	99	P	SUR	31	-43	216	0	0.3	0.6	0.7
44559	99	P	SUR	40	-43	213	0	0.3	0.0	0.3
44601	99	P	SUR	50	-17	217	0	0.4	-0.5	0.7
44606	99	P	SUR	53	-13	217	0	0.4	0.0	0.4
44608	99	P	SUR	43	-24	217	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
44609	99	P	SUR	48	-23	217	0	0.3	0.2	0.4
44613	99	P	SUR	28	-26	217	0	0.2	-0.1	0.2
44614	99	P	SUR	52	-19	211	0	0.4	-0.2	0.4
44620	99	P	SUR	58	-22	217	0	0.4	0.3	0.5
44621	99	P	SUR	58	-2	217	0	0.3	0.6	0.7
44623	99	P	SUR	58	-34	217	0	0.4	-0.2	0.5
44624	99	P	SUR	25	-25	214	0	0.3	0.0	0.3
44625	99	P	SUR	63	-23	217	0	0.4	0.4	0.6
44670	99	P	SUR	54	-54	217	0	0.5	0.2	0.6
44725	99	P	SUR	34	-53	217	0	0.3	0.0	0.3
44739	99	P	SUR	37	-49	217	0	0.5	0.1	0.5
44740	99	P	SUR	31	-48	217	0	0.3	-0.2	0.3
44744	99	P	SUR	41	-51	217	0	0.4	-0.3	0.4
44745	99	P	SUR	43	-46	190	0	0.4	-0.1	0.4
44746	99	P	SUR	43	-41	190	0	0.4	-0.1	0.4
44761	99	P	SUR	52	-33	217	0	0.4	-0.4	0.5
44762	99	P	SUR	46	-44	217	0	0.4	0.4	0.6
44763	99	P	SUR	57	-36	180	0	0.4	0.0	0.4
44764	99	P	SUR	52	-32	217	0	0.3	-0.3	0.5
44768	99	P	SUR	44	-60	217	0	0.5	0.0	0.5
44769	99	P	SUR	37	-56	217	0	0.3	0.0	0.3
44770	99	P	SUR	54	-36	217	0	0.5	-0.3	0.6
44771	99	P	SUR	50	-30	217	0	0.3	-0.3	0.5
44773	99	P	SUR	29	-66	44	0	0.3	-0.3	0.4
44774	99	P	SUR	39	-46	217	0	0.3	0.1	0.4
44775	99	P	SUR	33	-68	217	0	0.4	0.2	0.4
44776	99	P	SUR	41	-43	217	0	0.4	0.4	0.6
44778	99	P	SUR	36	-48	217	0	0.3	0.2	0.4
44835	99	P	SUR	40	-21	217	0	0.3	-0.3	0.4
44836	99	P	SUR	56	-23	217	0	0.3	0.0	0.3
44837	99	P	SUR	30	-20	217	0	0.3	0.0	0.3
44839	99	P	SUR	35	-23	217	0	0.4	0.1	0.4
44846	99	P	SUR	34	-28	217	0	0.2	0.6	0.7
44847	99	P	SUR	44	-11	217	0	0.3	0.4	0.5
44848	99	P	SUR	41	-30	216	0	0.4	0.2	0.4
44863	99	P	SUR	29	-48	217	0	0.2	-0.3	0.4
44866	99	P	SUR	59	-16	216	0	0.3	-0.1	0.3
44867	99	P	SUR	56	-32	217	0	0.3	-0.3	0.4
44868	99	P	SUR	28	-42	217	0	0.4	-0.1	0.4
44869	99	P	SUR	40	-50	175	0	0.5	0.4	0.6
44871	99	P	SUR	47	-14	217	0	0.3	0.1	0.3
44872	99	P	SUR	57	-21	217	0	0.3	-0.4	0.5
44873	99	P	SUR	41	-45	182	0	0.5	0.6	0.8

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44874	99	P	SUR	44	-37	190	0	0.4	0.1	0.4
44875	99	P	SUR	42	-40	189	0	0.4	0.5	0.7
44877	99	P	SUR	35	-18	217	0	0.2	0.0	0.2
44878	99	P	SUR	44	-11	217	0	0.3	0.1	0.3
44880	99	P	SUR	50	-37	217	0	0.4	-0.4	0.6
44885	99	P	SUR	38	-23	217	0	0.2	0.1	0.3
44887	99	P	SUR	36	-42	217	0	0.2	-0.1	0.2
44888	99	P	SUR	45	-16	217	0	0.4	-0.1	0.4
44889	99	P	SUR	33	-50	217	0	0.2	0.1	0.3
44890	99	P	SUR	31	-57	217	0	0.3	0.0	0.3
44891	99	P	SUR	25	-40	217	0	0.2	0.0	0.2
44892	99	P	SUR	50	-14	217	0	0.3	0.0	0.3
44896	99	P	SUR	29	-44	217	0	0.3	-0.3	0.4
47503	99	P	SUR	61	-40	217	0	0.4	0.3	0.5
47509	99	P	SUR	86	-47	217	0	0.4	-0.1	0.4
47585	99	P	SUR	68	-67	217	0	0.3	-0.4	0.5
47586	99	P	SUR	51	-37	217	0	1.8	-0.1	1.8
48568	99	P	SUR	60	-49	210	0	0.4	-0.3	0.5
48597	99	P	SUR	81	-10	210	0	0.5	0.1	0.5
48627	99	P	SUR	73	-18	80	27	2.0	0.5	2.0
48679	99	P	SUR	85	-22	207	0	0.3	0.2	0.4
48778	99	P	SUR	71	-25	209	2	3.8	-1.3	4.0
48779	99	P	SUR	59	-48	217	70	5.7	-4.9	7.5
62091	99	P	SUR	53	-5	217	0	0.4	-0.1	0.4
62092	99	P	SUR	51	-11	217	0	0.3	0.0	0.3
62093	99	P	SUR	55	-10	217	0	0.5	0.2	0.5
62094	99	P	SUR	52	-7	216	0	0.3	0.0	0.3
62513	99	P	SUR	62	-31	217	0	0.4	0.1	0.4
62514	99	P	SUR	70	-2	132	0	2.9	-1.7	3.3
62516	99	P	SUR	22	-36	217	0	0.2	0.4	0.5
62536	99	P	SUR	60	1	217	0	0.3	-0.3	0.4
62539	99	P	SUR	57	-19	217	0	0.3	-0.2	0.3
62552	99	P	SUR	49	-10	217	0	0.4	0.1	0.4
62553	99	P	SUR	73	-16	217	0	0.4	0.1	0.4
62554	99	P	SUR	43	-32	190	0	0.3	0.1	0.3
62555	99	P	SUR	45	-30	189	0	0.3	0.4	0.5
62556	99	P	SUR	43	-35	189	0	0.4	0.6	0.7
62681	99	P	SUR	27	-24	217	0	0.2	0.0	0.2
62695	99	P	SUR	26	-42	217	0	0.2	0.3	0.4
62713	99	P	SUR	32	-53	216	0	0.3	-0.2	0.4
62714	99	P	SUR	31	-55	215	0	0.3	-0.2	0.3
62940	99	P	SUR	37	-30	217	0	0.3	0.0	0.3
62941	99	P	SUR	34	-21	217	0	0.2	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
63546	99	P	SUR	63	-16	210	0	0.3	-0.8	0.8
63560	99	P	SUR	74	-4	217	0	0.3	-0.2	0.3
63561	99	P	SUR	73	-4	217	0	0.3	0.2	0.3
63923	99	P	SUR	87	-2	208	41	8.6	-2.8	9.1
64517	99	P	SUR	57	8	213	0	0.6	0.5	0.8
64518	99	P	SUR	63	6	217	0	0.9	0.0	0.9
64519	99	P	SUR	68	10	217	0	0.4	0.4	0.6
64521	99	P	SUR	71	-3	217	0	0.3	-0.2	0.3
64522	99	P	SUR	72	7	168	0	0.4	0.2	0.4
64523	99	P	SUR	64	-3	216	0	0.3	0.3	0.4
64524	99	P	SUR	67	13	216	0	0.3	0.1	0.3
64525	99	P	SUR	70	-10	217	0	0.4	0.0	0.4
64526	99	P	SUR	65	-24	217	0	0.4	0.1	0.4
64527	99	P	SUR	66	-31	211	0	0.4	0.5	0.6
64528	99	P	SUR	63	-7	217	0	0.3	0.3	0.4
64529	99	P	SUR	55	-40	217	0	0.8	-0.2	0.8
64530	99	P	SUR	64	-1	217	0	0.3	0.3	0.4
64532	99	P	SUR	55	-49	217	0	0.5	3.3	3.3
64534	99	P	SUR	58	-35	246	246	0.0	0.0	0.0
64535	99	P	SUR	60	-45	125	0	0.9	0.0	0.9
64537	99	P	SUR	86	-8	93	0	0.4	-0.4	0.6
64538	99	P	SUR	87	-25	217	79	2.8	-0.6	2.9
64546	99	P	SUR	59	-37	91	0	0.5	0.3	0.6
64547	99	P	SUR	64	-5	217	0	0.3	0.2	0.3
64549	99	P	SUR	63	-14	217	0	0.4	-0.1	0.4
64550	99	P	SUR	64	-31	217	0	0.4	-0.1	0.4
64551	99	P	SUR	63	-40	217	0	0.4	-0.1	0.5
64552	99	P	SUR	59	-29	217	0	0.2	0.0	0.3
64606	99	P	SUR	64	1	217	0	0.5	0.4	0.7
64613	99	P	SUR	72	-15	217	0	0.4	0.1	0.4
64614	99	P	SUR	61	-12	188	0	0.3	0.2	0.3
64615	99	P	SUR	71	-13	217	0	0.4	0.4	0.5
64620	99	P	SUR	64	-17	217	0	0.3	0.0	0.3
64621	99	P	SUR	62	-25	193	0	0.3	0.1	0.3
64622	99	P	SUR	70	4	217	0	0.3	0.1	0.3
64623	99	P	SUR	73	-6	217	0	0.3	-0.4	0.5
64665	99	P	SUR	75	-15	21	0	0.3	-0.2	0.4
64666	99	P	SUR	74	10	217	0	0.3	0.5	0.5
64667	99	P	SUR	61	-1	217	0	0.6	-0.3	0.7
64668	99	P	SUR	71	-9	217	0	0.4	0.1	0.4
64692	99	P	SUR	72	7	217	0	0.3	0.4	0.5
65514	99	P	SUR	59	-45	217	0	0.4	0.1	0.4
65515	99	P	SUR	68	-55	85	0	0.3	0.4	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
65516	99	P	SUR	73	-59	22	0	0.2	-0.1	0.2
65596	99	P	SUR	57	-45	217	0	0.4	0.3	0.5
65599	99	P	SUR	56	-47	217	0	0.4	0.0	0.4
65600	99	P	SUR	62	-52	217	0	0.4	-0.3	0.5
65601	99	P	SUR	59	-47	208	0	0.3	-0.2	0.4
65602	99	P	SUR	58	-45	217	0	0.4	-0.4	0.5

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 : AUG 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	114	0	0	1.9	0.8	2.1
13002	99	SPEED	SUR	20	-23	108	0	0	0.7	0.3	0.8
13008	99	SPEED	SUR	15	-38	84	0	0	1.2	0.3	1.3
41026	99	SPEED	SUR	11	-38	81	0	0	1.5	1.0	1.8
41139	99	SPEED	SUR	20	-38	128	0	0	0.9	0.0	0.9
62091	99	SPEED	SUR	53	-5	217	0	0	1.1	-0.1	1.1
62092	99	SPEED	SUR	51	-11	217	0	0	1.2	-0.3	1.2
62093	99	SPEED	SUR	55	-10	217	0	0	1.7	-0.4	1.8
62094	99	SPEED	SUR	52	-7	216	0	0	1.2	-0.1	1.2

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 : AUG 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	70	0	0	31.2	-0.8	31.2
13002	99	DIRN	SUR	20	-23	102	0	0	10.1	5.1	11.3
13008	99	DIRN	SUR	15	-38	81	0	0	14.3	2.5	14.5
41026	99	DIRN	SUR	11	-38	60	0	0	19.8	4.8	20.4
41139	99	DIRN	SUR	20	-38	128	0	0	10.8	11.6	15.8
62091	99	DIRN	SUR	53	-5	159	0	0	12.2	3.2	12.6
62092	99	DIRN	SUR	51	-11	185	0	0	16.6	-1.5	16.6
62093	99	DIRN	SUR	55	-10	187	0	0	11.8	-3.2	12.2
62094	99	DIRN	SUR	52	-7	180	0	0	12.4	3.7	12.9

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE02	ASDE04	ASDE09	ASDK01	ASDK02	ASDK03	ASES01	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	ASES01
ASEU01	ASEU02	ASEU03	ASEU04	ASEU06	DBLK	03814	17516	76526

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.