



ECMWF Global Data Monitoring Report

February 2016

*This paper has not been published
and has only a very limited circulation.*

*Permission to quote from it should be
obtained from the ECMWF.*

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

Contents

1	Introduction	3
2	Data summary - History of events	4
2.1	Radiosondes	4
2.2	Drifting Buoys	6
3	Global monitoring statistics	6
3.1	Data Availability	6
3.2	Data Quality	6
3.2.1	Figure 1 - Availability - SYNOP PRESSURE	8
3.2.2	Figure 2 - Availability - DRIFTER PRESSURE	9
3.2.3	Figure 3 - Availability - TEMP 500 hPa geopotential	10
3.2.4	Figure 4 - Availability - TEMP/PILOT 300 hPa wind	11
3.2.5	Figure 5 - Availability - AIRCRAFT winds 300-150 hPa	12
3.2.6	Figure 6 - Availability - SATOB winds 400-150 hPa	13
3.2.7	Figure 7 - Availability - SATOB winds 1000-700 hPa	14
3.2.8	Figure 8 - Availability - NOAA15 ATOVS : AMSU-A	15
3.2.9	Figure 9.1 - Availability - NOAA18 ATOVS : AMSU-A	16
3.2.10	Figure 9.2 - Availability - AQUA ATOVS : AMSU-A	17
3.2.11	Figure 9.3 - Availability - METOP ATOVS : AMSU-A	18
3.2.12	Table 1 - Suspect ships and fixed marine platforms: Surface pressure - (hPa)	19
3.2.13	Table 2 - Suspect ships and fixed marine platforms: Wind speed (m/s)	21
3.2.14	Table 3 - Suspect ships and fixed marine platforms: Wind direction (DEGREES)	22
3.2.15	Table 4 - Suspect drifters: Surface pressure (HPA)	23
3.2.16	Table 5 - Suspect drifters: Wind speed (m/s)	24
3.2.17	Table 6 - Suspect drifters: Wind direction (degrees)	25
3.2.18	Table 7 - Suspect radiosondes: Geopotential height (metres)	26
3.2.19	Table 8 - Suspect radiosondes: Wind (m/s)	27
3.2.20	Table 9 - Suspect radiosondes: Wind direction (degrees)	28
3.2.21	Figure 10 - Suspect TEMP observations - geopotential : 00 UTC	29
3.2.22	Figure 11 - Suspect TEMP observations - geopotential : 12 UTC	30
3.2.23	Figure 12 - Suspect TEMP/PILOT observations - wind : 00 UTC	31
3.2.24	Figure 13 - Suspect TEMP/PILOT observations - wind : 12 UTC	32
3.2.25	Table 10 - Radiosonde monitoring statistics (SHIPs): Geopotential height (metres)	33
3.2.26	Table 11 - Radiosonde monitoring statistics (SHIPs): Wind (m/s)	35
3.2.27	Figure 14 - SATOB Winds: 700-1000hPa	37
3.2.28	Figure 15 - SATOB Winds: 150- 400hPa	38
3.2.29	Figure 16 - SATOB Winds: 700-1000hPa	39
3.2.30	Figure 17 - SATOB Winds: 150- 400hPa	40
3.2.31	Figure 18 - AIRCRAFT Winds: 150- 300hPa	41
3.2.32	Table 12 - Airep Monitoring Statistics For Airline Carriers (Global)	42
4	EUCOS Area Monitoring Statistics	46
4.1	Table 13 - Radiosonde Monitoring Statistics (EUCOS): 50 hPa Geopotential height (metres)	47
4.2	Table 14 - Radiosonde Monitoring Statistics (EUCOS):50 hPa Wind (m/s)	50
4.3	Table 15 - Radiosonde Monitoring Statistics (EUCOS): 100 hPa Geopotential height (metres)	53
4.4	Table 16 - Radiosonde Monitoring Statistics (EUCOS): 100 hPa Wind (m/s)	56
4.5	Table 17 - Radiosonde Monitoring Statistics (EUCOS): 500 hPa Geopotential height (metres)	59
4.6	Table 18 - Radiosonde Monitoring Statistics (EUCOS): 500 hPa Wind (m/s)	62
4.7	Table 19 - Radiosonde Monitoring Statistics (EUCOS): 850 hPa Geopotential height (metres)	65
4.8	Table 20 - Radiosonde Monitoring Statistics (EUCOS): 850 hPa Wind (m/s)	68
4.9	Table 21 - Drifter Monitoring Statistics (EUCOS): Surface pressure (hpa)	71
4.10	Table 22 - Drifter Monitoring Statistics (EUCOS): Wind speed (m/s)	79
4.11	Table 23 - Drifter Monitoring Statistics (EUCOS): Wind direction	82
4.12	Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations	85
4.13	Table 25 - List of BUFR Encoded Radiosonde Stations with no TAC Counterpart	86

5 Annex - Explanations of figures and tables	87
5.1 General	87
5.2 Data Availability	87
5.3 Data Quality	87

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 coordinate all the results, inform the WMO Secretariat immediately of obvious problems, and produce every six months a consolidated list of observations of that particular type believed to be of low quality. The presently nominated centres are: RSMC Exeter for marine surface observations; RSMC ECMWF for radiosonde and pilot observations; WMC Washington for aircraft and satellite observations.

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

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

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

2 Data summary - History of events

2.1 Radiosondes

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

Ident	Time	Jan	Feb	Ident	Time	Jan	Feb
40582	(12)	17	0	06458	(00)	18	30
42314	(00)	27	4	16754	(00)	8	26
42492	(00)	17	3	40706	(12)	0	19
42667	(00)	20	0	41256	(00)	0	22
43346	(00)	28	2	42027	(00)	10	24
44373	(00)	23	0	42111	(00)	7	21
44373	(12)	23	0	42348	(00)	11	29
60760	(12)	22	0	42361	(00)	9	24
64400	(12)	29	7	42379	(00)	8	20
76256	(12)	26	3	42874	(00)	12	29
76644	(12)	30	0	43041	(00)	7	18
76654	(12)	29	6	43150	(00)	4	29
76679	(00)	21	2	43333	(00)	0	24
76692	(00)	15	1	43369	(00)	3	26
78988	(12)	27	3	43371	(00)	0	26
83928	(00)	30	10	60096	(12)	0	25
83928	(12)	31	8	64500	(12)	0	20
89662	(00)	31	8	72393	(00)	4	19
89662	(12)	29	7	76612	(12)	10	22
91643	(00)	24	6	78762	(12)	5	21
-	-	-	-	82400	(00)	0	14
-	-	-	-	82400	(12)	1	15
-	-	-	-	82917	(00)	0	23
-	-	-	-	83208	(00)	0	26
-	-	-	-	89512	(12)	0	13
-	-	-	-	89592	(12)	0	13
-	-	-	-	89859	(00)	2	27
-	-	-	-	91557	(00)	10	25
-	-	-	-	91610	(00)	11	27
-	-	-	-	96315	(00)	11	28
-	-	-	-	96315	(12)	11	29
-	-	-	-	96645	(00)	12	29
-	-	-	-	96645	(12)	12	23
-	-	-	-	96996	(00)	18	29

2.2 Drifting Buoys

Surface pressure observations from **1466** 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.

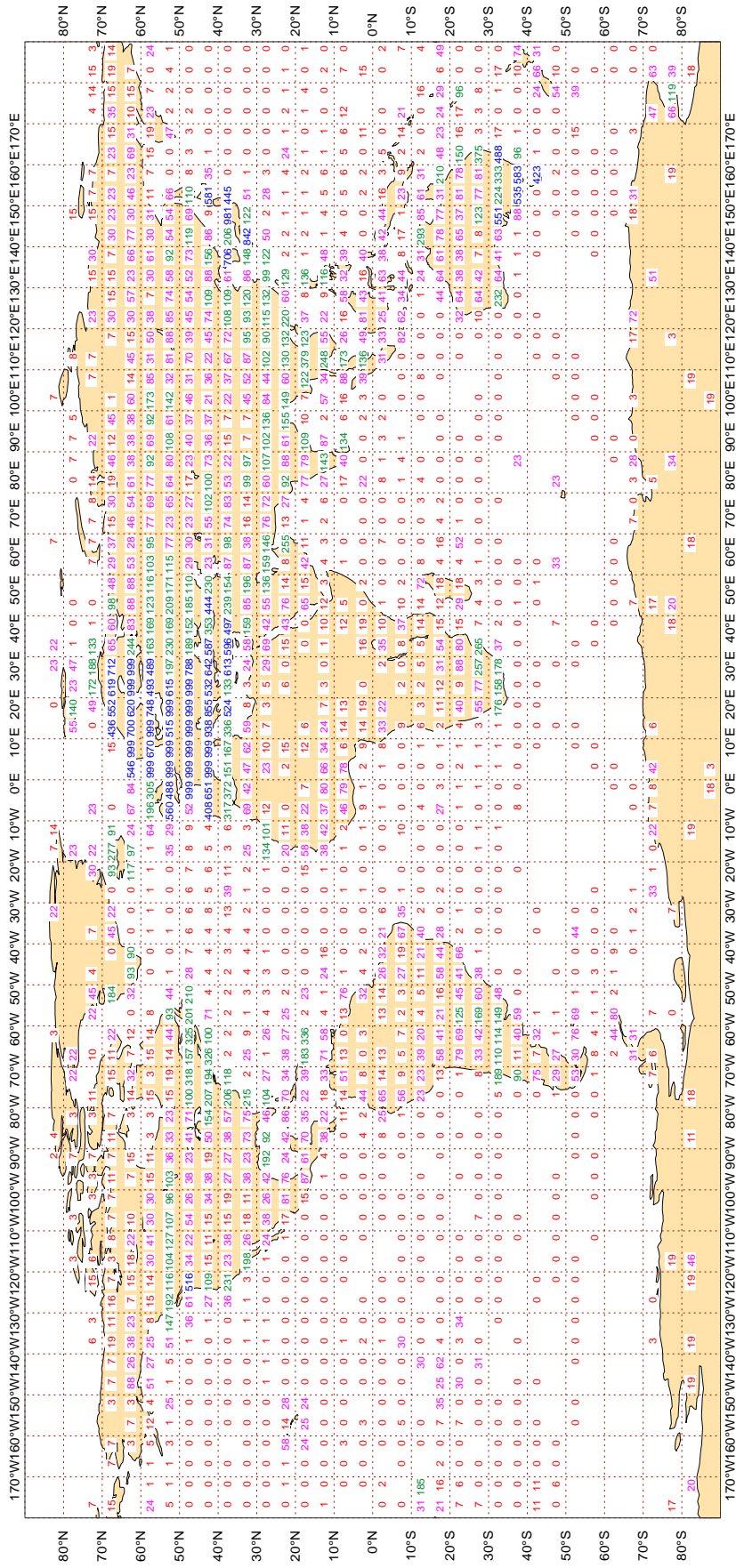
Fig	Parameter	Level/Layer
14	SATOB - Mean observed wind	1000-700 hPa
15	SATOB - Mean observed wind	400-150 hPa
16	SATOB - Mean observed minus first-guess wind	1000-700 hPa
17	SATOB - Mean observed minus first-guess wind	400-150 hPa
18	AIRCRAFT WIND - Mean observed minus first-guess	300-150 hPa

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

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

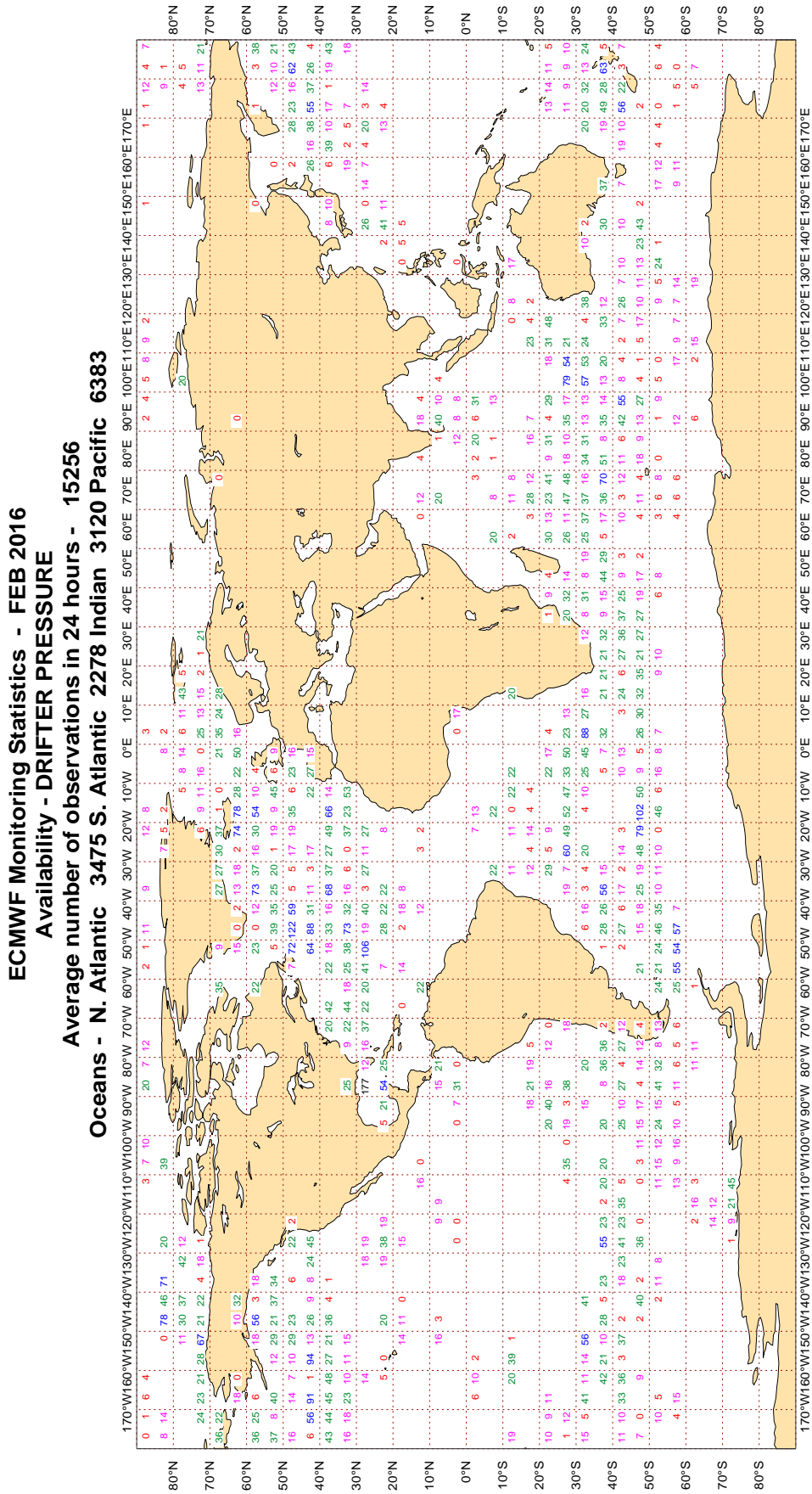
Figure 1

ECMWF Monitoring Statistics - FEB 2016
 Availability - SYNOP/SHIP (manual, auto) pressure
 Average number of observations in 24 hours - 101039
 LAND - WMO Region I: 4083 II:18527 III: 3254 IV: 5074
 Region V: 8899 VI:48122 Antarctic: 1289
 Oceans - N. Atlantic 7726 S. Atlantic 266 Indian 547 Pacific 3254



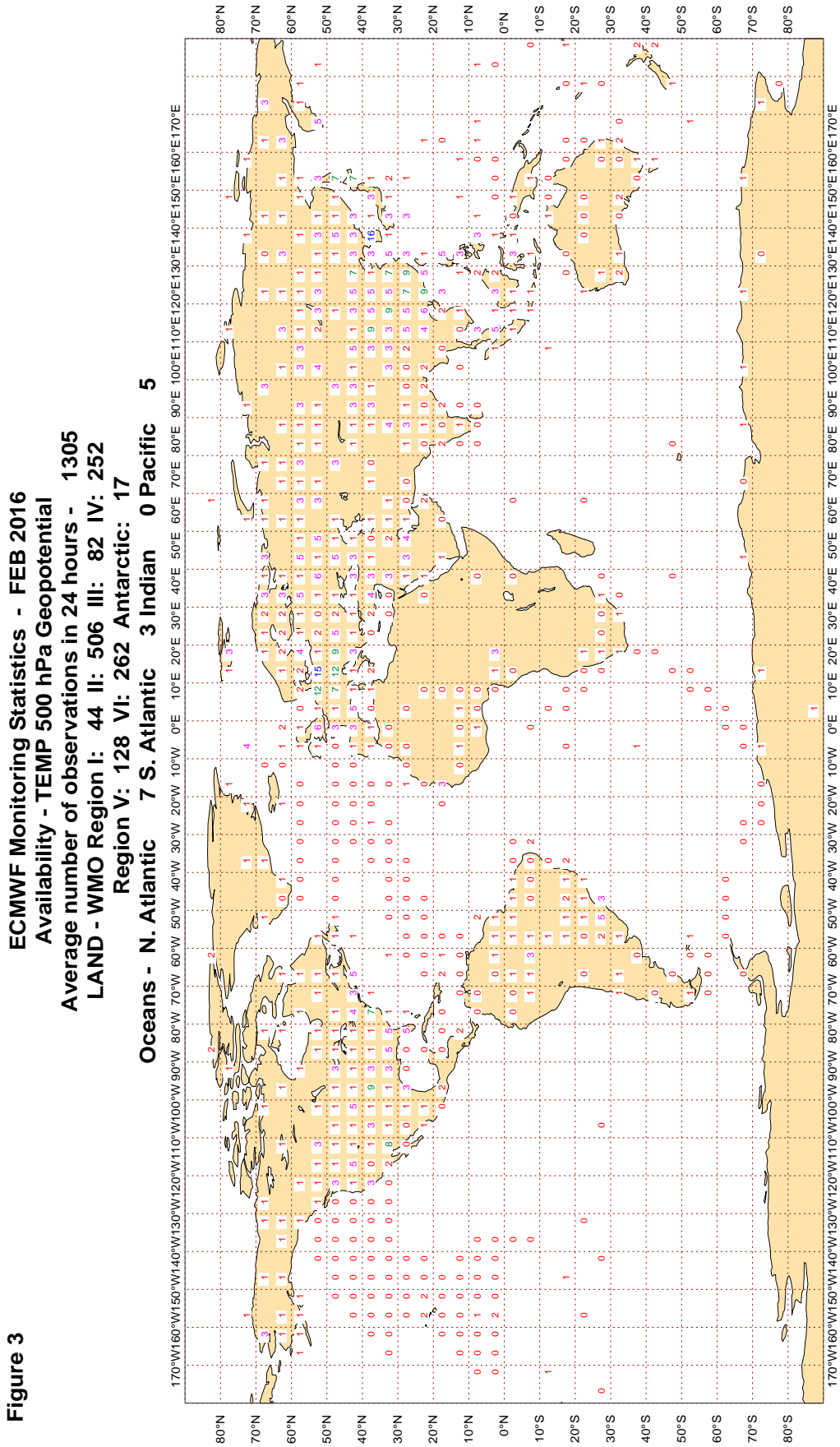
3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2

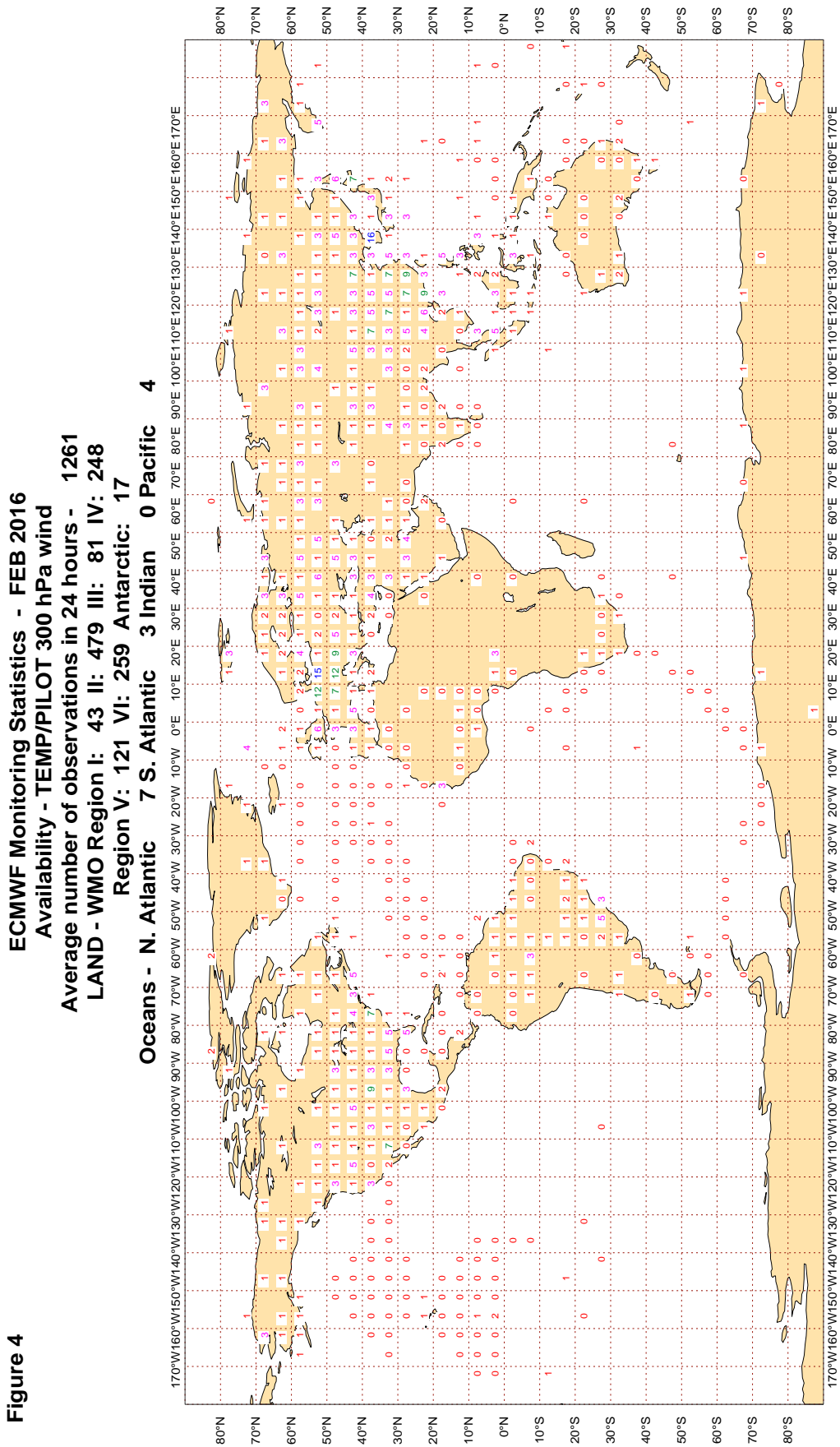


Magics 2.24.2 (64 bit)

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential



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

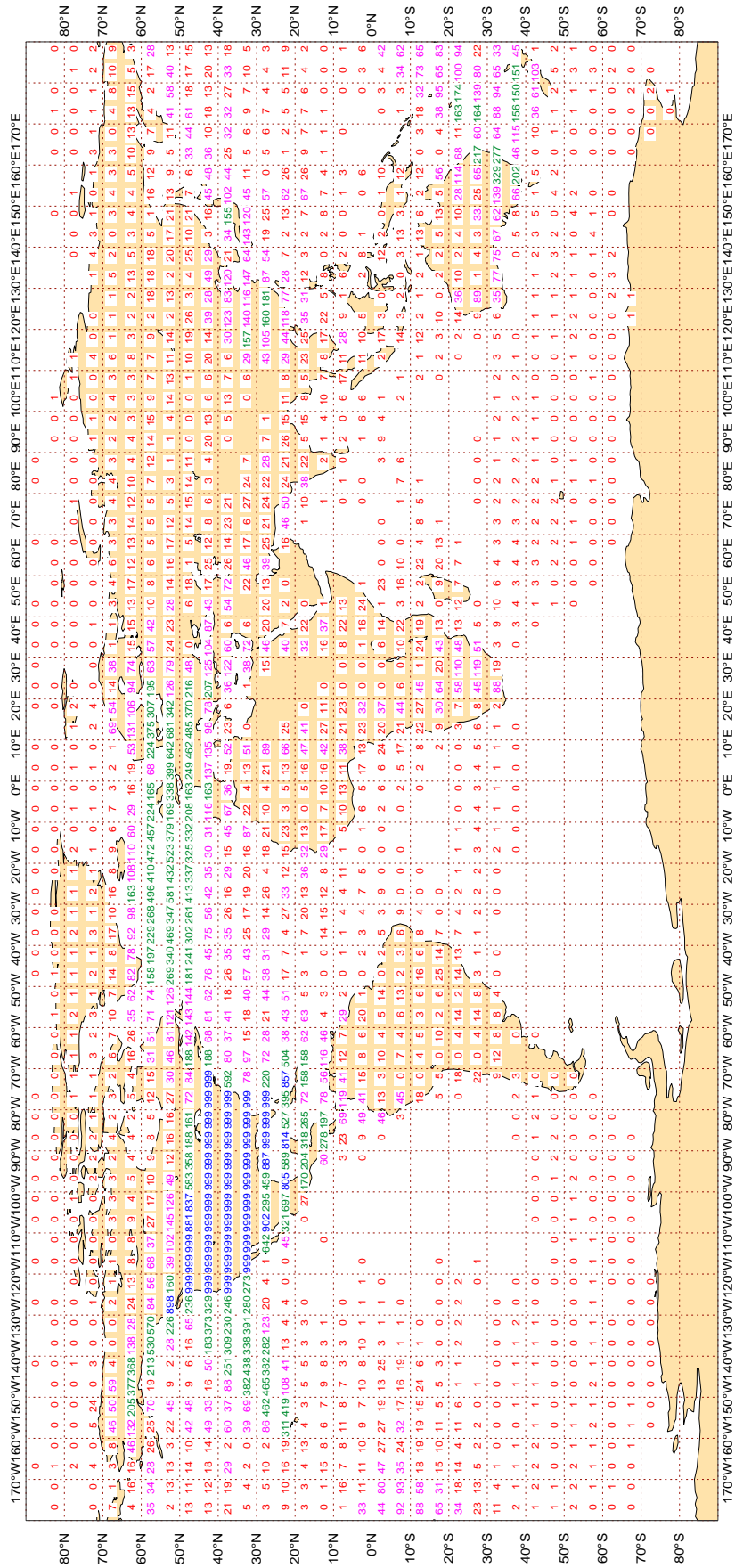


Magics 2.24.2 (64 bit)

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

Figure 5

ECMWF Monitoring Statistics - FEB 2016
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 203661



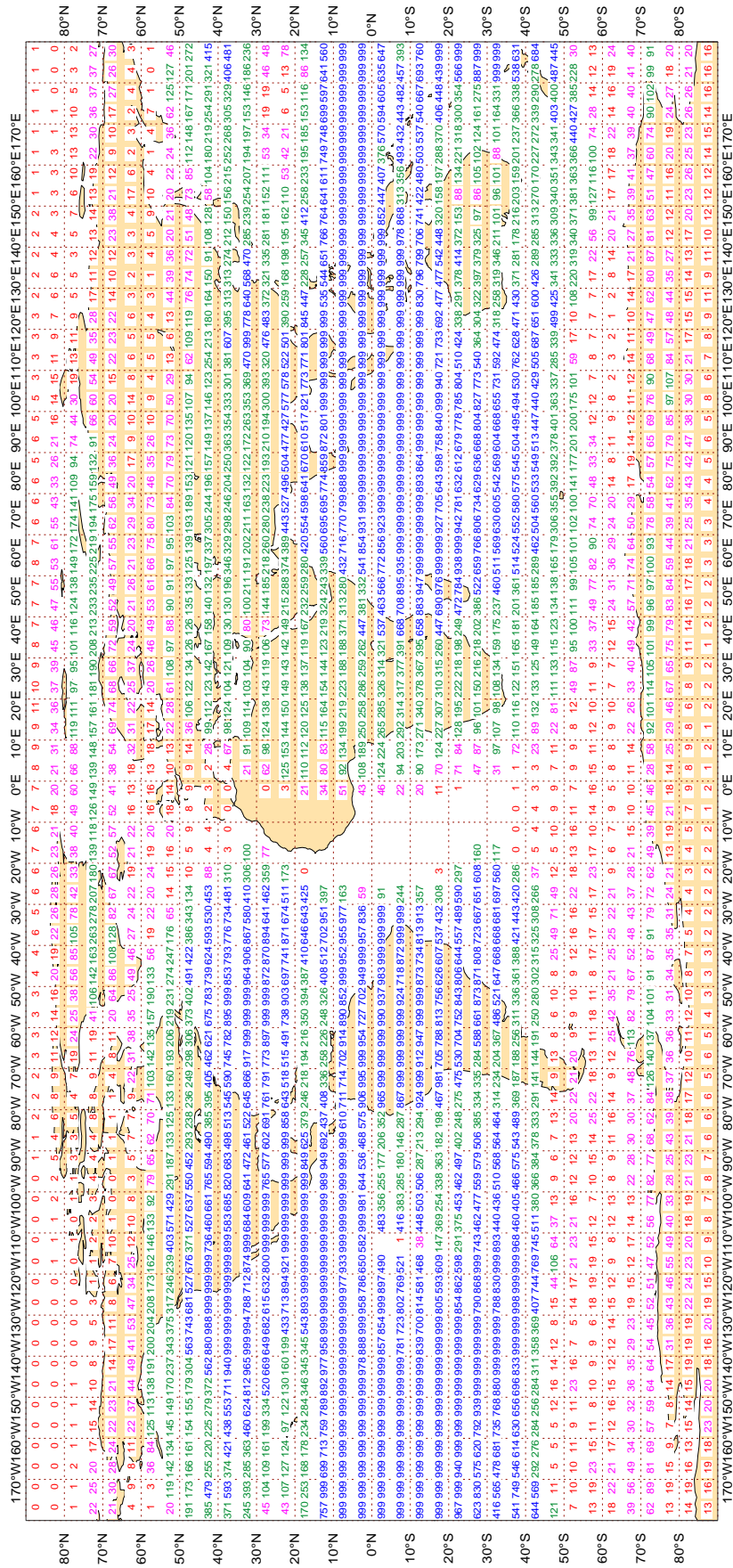
Magicis 2.24.2 (64 bit)



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

Figure 6

ECMWF Monitoring Statistics - FEB 2016
Availability - AMV winds 400-150 hPa
Average number of observations in 24 hours - 839317



Majics 2.24.2 (64 bit)



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

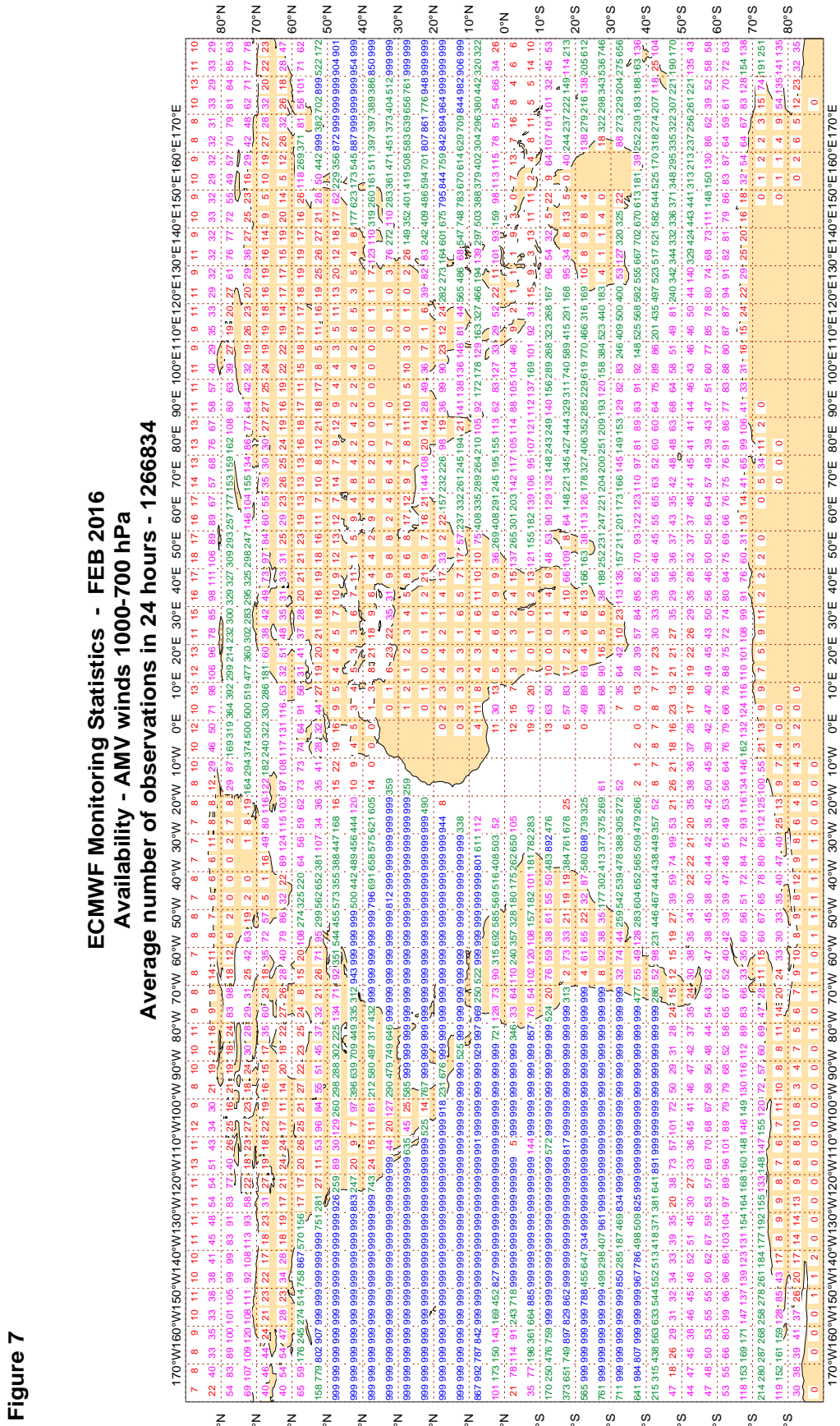


Figure 7



Magics 2.24.2 (64 bit)

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

Figure 8

ECMWF Monitoring Statistics - FEB 2016
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 327496

Table with 180 columns representing longitude (170°W to 170°E) and 18 rows representing latitude (80°N to 80°S). The table contains numerical data representing the average number of observations in 24 hours for NOAA15 ATOVS AMSU-A in February 2016.



Majics 2.24.2 (64 bit)

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

Figure 9.3

ECMWF Monitoring Statistics - FEB 2016
Availability - METOP ATOVS : AMSU-A
Average number of observations in 24 hours - 438149

Table with columns for latitude (80°N to 70°S) and longitude (170°W to 170°E) and a grid of numerical values representing observation counts.



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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : GLOBAL
 PERIOD : FEB 2016
 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
3EBV	99	P	SUR	41	0	0.9	3.0	3.1
9V2737	99	P	SUR	16	0	0.8	-5.0	5.0
9V2781	99	P	SUR	33	1	2.1	3.5	4.1
9V3291	99	P	SUR	22	0	2.8	-3.3	4.3
9V7645	99	P	SUR	29	1	4.5	3.9	5.9
AGRF	99	P	SUR	21	10	7.6	3.2	8.3
AVLZ	99	P	SUR	15	0	2.0	3.8	4.3
C6JT	99	P	SUR	27	0	1.3	-3.7	3.9
C6WJ9	99	P	SUR	59	0	0.9	3.0	3.1
C6ZJ8	99	P	SUR	23	0	0.9	5.1	5.2
DVRF	99	P	SUR	96	53	8.3	4.2	9.3
LAPD7	99	P	SUR	22	0	1.9	5.3	5.6
LAQQ7	99	P	SUR	19	0	0.7	3.8	3.8
ONDY	99	P	SUR	55	0	1.1	-5.9	6.0
ONIK	99	P	SUR	30	1	1.2	8.2	8.2
OZ2049	99	P	SUR	31	0	1.1	-4.5	4.6
UASX	99	P	SUR	18	1	1.7	7.5	7.7
UBRW	99	P	SUR	33	13	6.1	7.7	9.8
UBVF4	99	P	SUR	49	0	1.0	-7.0	7.1
UCSJ	99	P	SUR	31	1	0.9	3.1	3.2
UFLT	99	P	SUR	34	2	1.1	-3.0	3.2
V7FJ8	99	P	SUR	50	0	1.2	-3.2	3.4
V7UT6	99	P	SUR	15	0	2.0	3.3	3.9
V7UT8	99	P	SUR	18	0	3.6	4.5	5.7
VQUQ4	99	P	SUR	29	0	2.8	3.1	4.2
VRBJ9	99	P	SUR	20	0	2.0	9.7	9.9
VRCX7	99	P	SUR	78	0	4.0	4.8	6.2
VRDU8	99	P	SUR	28	0	1.0	-3.9	4.0
VRDW2	99	P	SUR	68	0	1.1	4.7	4.8
VRFI7	99	P	SUR	39	0	1.2	3.9	4.1
VRKE9	99	P	SUR	51	0	2.2	4.2	4.8
VRLZ4	99	P	SUR	26	0	2.3	3.1	3.9

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
VTGB	99	P	SUR	74	74	0.0	0.0	0.0
VTZJ	99	P	SUR	35	0	0.4	3.2	3.2
WACW	99	P	SUR	34	1	1.3	3.4	3.6
WGAX	99	P	SUR	28	15	0.7	2.9	3.0
WMKN	99	P	SUR	68	0	1.8	-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 : FEB 2016
 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
62086	99	SPEED	SUR	87	0	0	5.0	-9.1	10.3

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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : FEB 2016
 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
46125	99	DIRN	SUR	67	0	0	27.1	35.1	44.3

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 : FEB 2016
 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
13660	99	P	SUR	32	-50	29	9	5.5	-4.1	6.8
14905	99	P	SUR	-9	61	40	35	2.6	11.7	12.0
26545	99	P	SUR	82	1	663	254	1.8	0.6	1.9
33587	99	P	SUR	-51	-38	350	28	4.9	7.7	9.2
47503	99	P	SUR	57	-42	325	325	0.0	0.0	0.0
48513	99	P	SUR	74	173	588	137	8.2	1.9	8.4
48570	99	P	SUR	68	-176	631	178	7.6	-2.7	8.0
48643	99	P	SUR	70	-144	651	643	1.0	-12.7	12.8
48652	99	P	SUR	71	-156	623	117	4.6	-5.4	7.1
63546	99	P	SUR	64	-22	178	45	5.1	-2.3	5.6
63923	99	P	SUR	71	-19	667	249	7.1	-2.8	7.7
64532	99	P	SUR	54	-18	561	0	1.9	-11.3	11.4
64538	99	P	SUR	72	-21	389	115	5.1	-1.6	5.4
64561	99	P	SUR	61	-12	24	17	2.1	-8.3	8.5

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : GLOBAL
 PERIOD : FEB 2016
 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
62086	99	SPEED	SUR	55	6	510	0	0	5.0	-9.3	10.6

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : FEB 2016
 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
23095	99	DIRN	SUR	10	94	180	0	0	13.2	20.4	24.3
23097	99	DIRN	SUR	15	69	106	0	0	44.2	-28.8	52.7
23099	99	DIRN	SUR	13	80	72	0	0	21.5	-35.9	41.8
23170	99	DIRN	SUR	15	74	47	0	0	30.9	43.8	53.6
23454	99	DIRN	SUR	10	73	112	0	0	85.2	-128.7	154.3
23460	99	DIRN	SUR	7	88	182	0	0	161.2	-54.1	170.1
23492	99	DIRN	SUR	11	72	146	0	0	116.8	117.0	165.3
23497	99	DIRN	SUR	11	72	120	0	0	36.7	-41.3	55.2
31007	99	DIRN	SUR	0	-23	30	0	0	23.6	20.4	31.2
31053	99	DIRN	SUR	-32	-50	203	0	0	23.5	-55.6	60.4
31260	99	DIRN	SUR	-16	-38	22	0	0	160.8	-6.1	160.9
31374	99	DIRN	SUR	-25	-45	37	0	0	60.2	-21.1	63.8
42361	99	DIRN	SUR	28	-93	604	0	0	16.9	27.4	32.2
42362	99	DIRN	SUR	28	-91	419	0	0	11.7	24.4	27.0
44059	99	DIRN	SUR	37	-76	350	0	0	12.8	-24.0	27.2
46125	99	DIRN	SUR	48	-123	376	0	0	32.4	35.7	48.2
52004	99	DIRN	SUR	-5	165	545	0	0	24.0	25.0	34.7
53040	99	DIRN	SUR	-8	95	39	9	0	122.3	-8.8	122.6
62127	99	DIRN	SUR	54	1	122	0	0	15.6	20.6	25.9

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 : FEB 2016
 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
33658	00	Z	70	48	26	11	0	60.1	121.9	135.9
43295	00	Z	150	13	78	19	0	30.8	83.7	89.2
43311	00	Z	30	11	73	11	0	16.1	185.7	186.4
76405	12	Z	400	24	-110	21	0	63.7	42.7	76.7
78384	12	Z	250	19	-81	25	0	65.0	-29.6	71.4
78486	12	Z	250	18	-70	27	1	71.6	-36.3	80.3
83362	12	Z	250	-16	-56	17	0	95.0	92.8	132.8
91680	12	Z	925	-18	177	19	0	4.3	31.2	31.5
96147	12	Z	925	4	108	27	0	16.2	53.2	55.6
96147	00	Z	925	4	108	28	2	12.2	49.2	50.7
97072	12	Z	1000	-1	120	29	0	32.1	12.8	34.6
97072	00	Z	1000	-1	120	29	0	30.1	20.4	36.4
98223	00	Z	30	18	121	26	0	65.5	236.5	245.4
ASDE01	00	Z	1000	44	-56	10	0	18.5	-26.5	32.3
ASDK03	12	Z	925	60	-7	10	0	33.9	6.8	34.6

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

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 AREA : GLOBAL
 PERIOD : FEB 2016
 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
33393	00	V	150	50	24	15	0	-3.7	0.3	15.1
42339	12	V	100	26	73	11	0	-3.5	-5.3	16.5

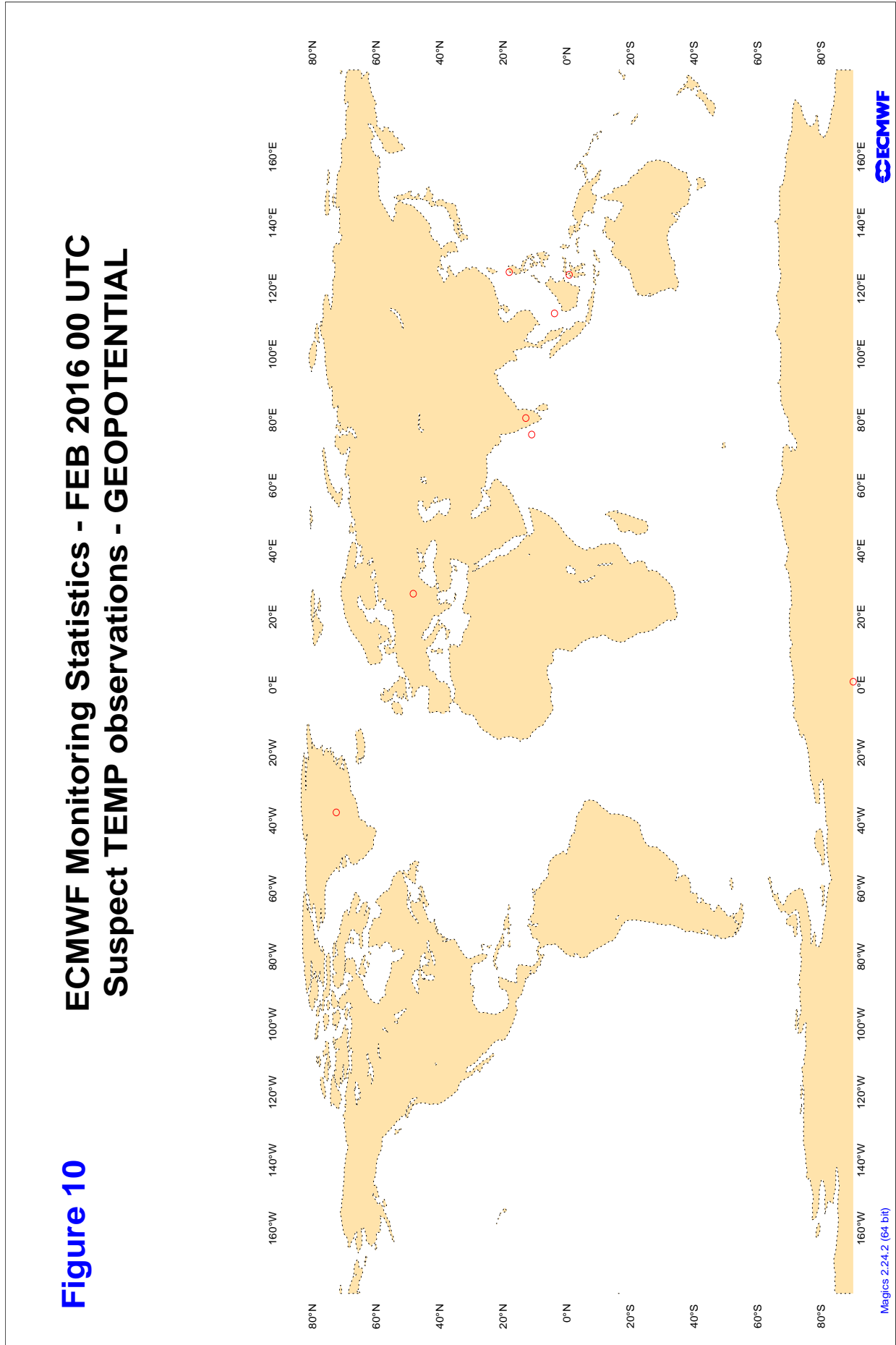
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : FEB 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

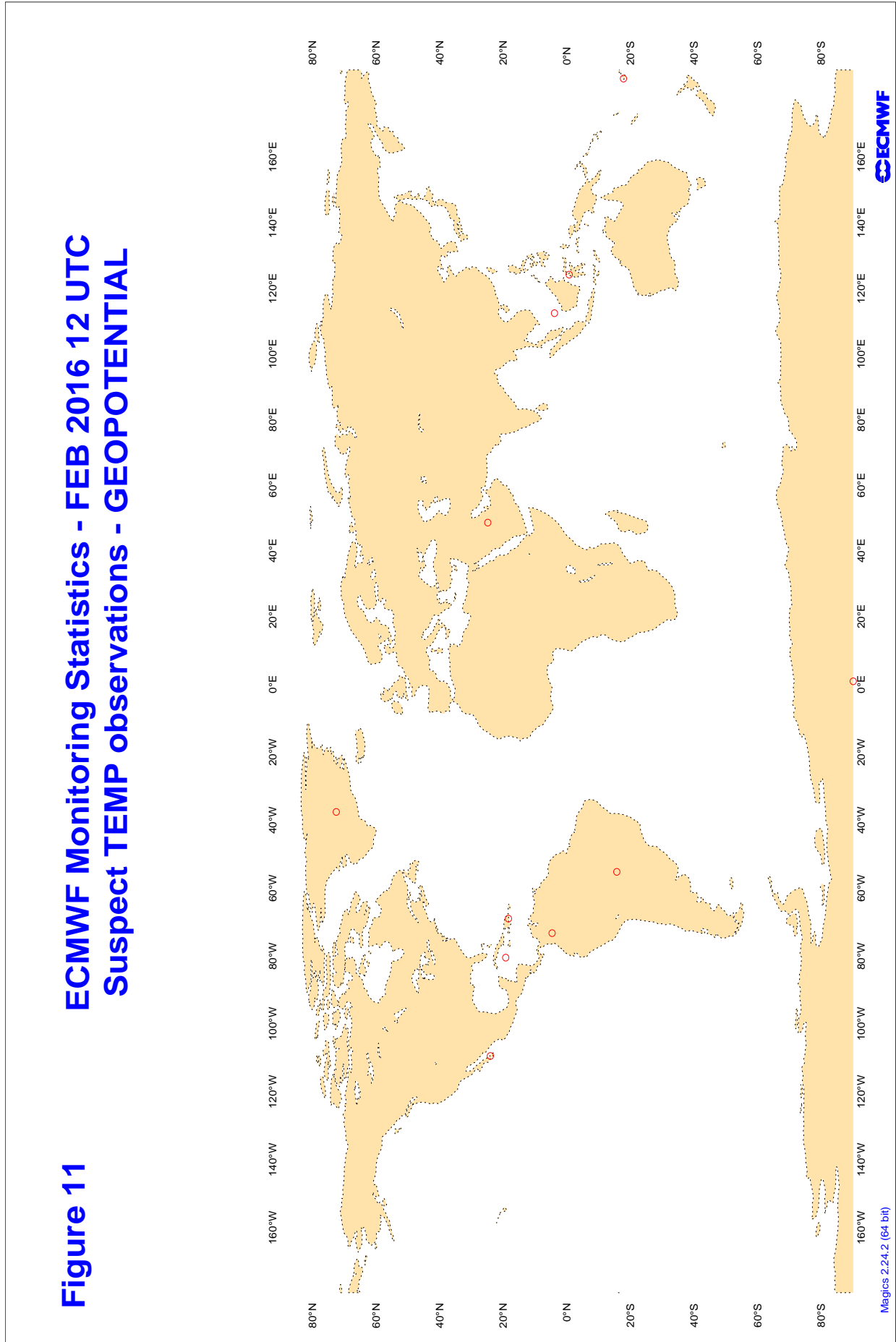
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS \geq 5 M/S
 NO. OF OBSERVATIONS \geq 5, AND,
 ABSOLUTE BIAS \geq 10 DEGREES, WITH
 STANDARD DEVIATION $<$ 30 DEGREES, AND,
 VERTICAL SPREAD $<$ 10 DEGREES
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
57972	12	DD	26	113	29	10.1	1.1	4.1

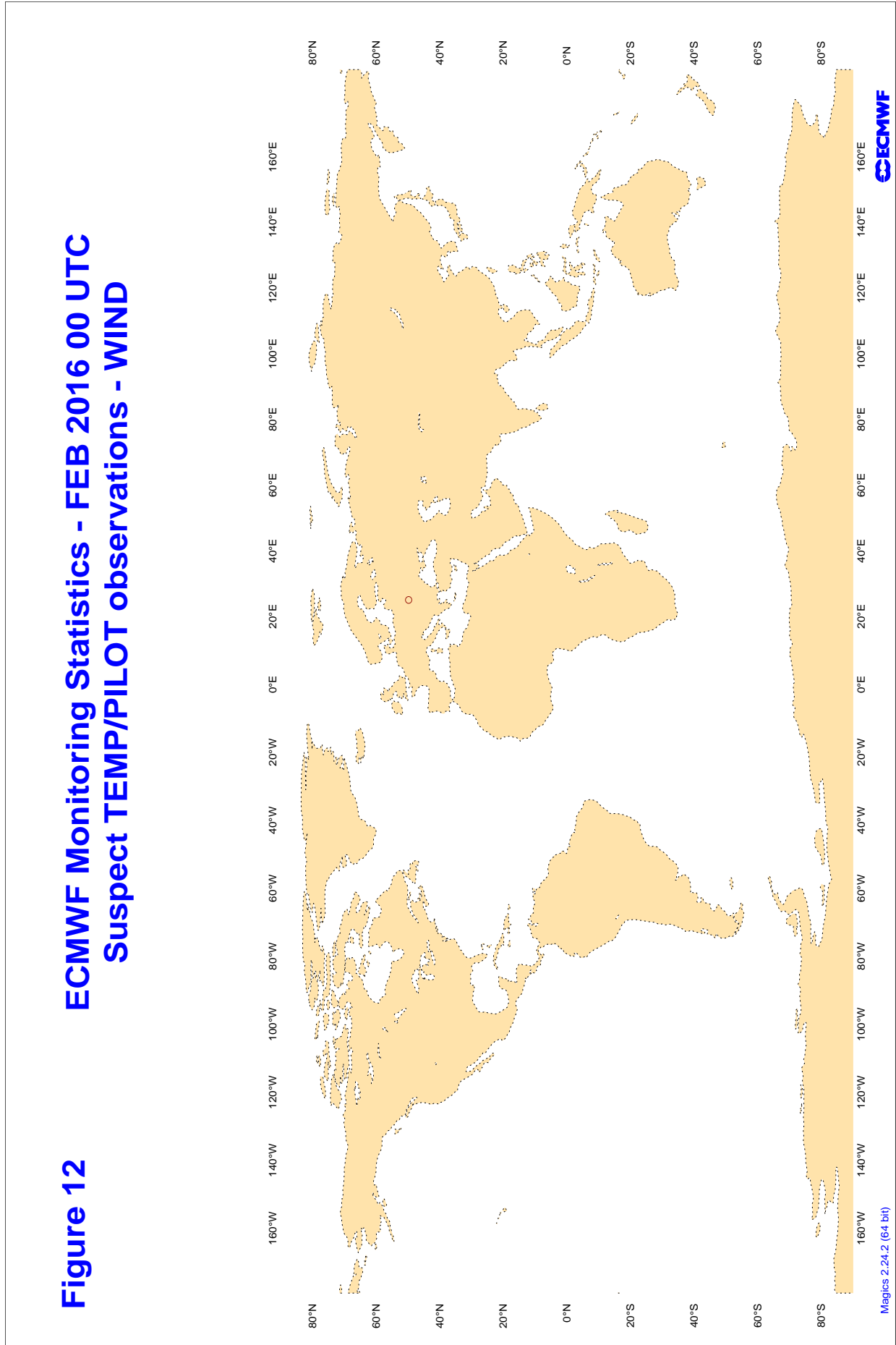
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



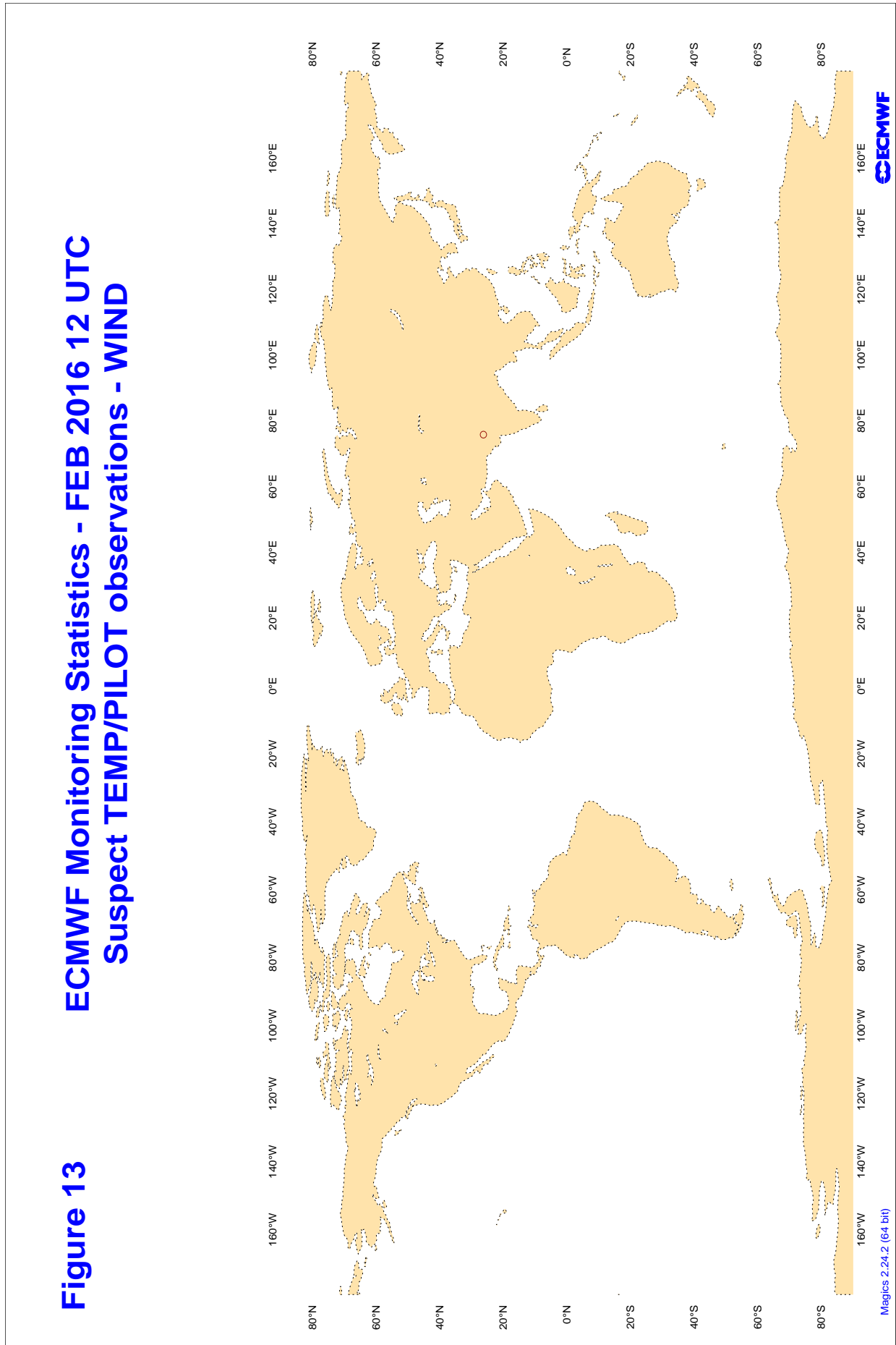
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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



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



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

RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 100 HPA
 AREA : GLOBAL
 PERIOD : FEB 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASDE01	12	Z	100	9	23.3	11.8
ASDE01	00	Z	100	9	29.8	-24.4
ASDE02	12	Z	100	2	7.4	7.3
ASDE03	12	Z	100	15	25.3	21.8
ASDE03	00	Z	100	16	12.5	8.0
ASDE04	12	Z	100	11	37.3	32.8
ASDE04	00	Z	100	12	20.4	16.5
ASDE09	12	Z	100	5	19.0	17.5
ASDK02	12	Z	100	17	13.1	9.7
ASDK02	00	Z	100	15	13.1	8.0
ASDK03	12	Z	100	8	27.2	27.0
ASDK03	00	Z	100	10	25.8	23.8
ASDK2	00	Z	100	13	14.3	7.6
ASDK2	12	Z	100	13	13.2	9.0
ASDK3	12	Z	100	5	26.9	26.5
ASDK3	00	Z	100	6	20.2	17.7
ASES01	12	Z	100	21	33.6	32.1
ASEU02	12	Z	100	6	46.8	46.5
ASEU02	00	Z	100	7	41.6	39.2
ASEU03	12	Z	100	7	67.3	52.7
ASEU03	00	Z	100	8	18.9	9.0
ASEU04	12	Z	100	7	25.2	16.6
ASEU04	00	Z	100	8	9.8	-7.6
ASEU06	12	Z	100	7	31.3	23.6
ASEU06	00	Z	100	12	36.7	-2.8
ASFR1	12	Z	100	13	16.4	15.2
ASFR1	00	Z	100	14	14.2	10.7
ASFR2	12	Z	100	4	24.4	22.7
ASFR2	00	Z	100	4	19.0	17.3
ASFR3	12	Z	100	9	19.2	18.0
ASFR3	00	Z	100	6	16.4	15.7
ASFR4	12	Z	100	10	23.4	17.7
ASFR4	00	Z	100	8	23.2	22.3
CXENR	12	Z	100	17	25.4	22.8
CXENR	00	Z	100	17	24.0	21.1
DBLK	12	Z	100	33	12.4	8.9
JGQH	12	Z	100	5	19.0	17.4
JGQH	00	Z	100	6	19.1	13.2
WTEC	12	Z	100	21	22.8	11.9

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
WTEC	00	Z	100	18	14.4	6.1

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

RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 100 HPA
 AREA : GLOBAL
 PERIOD : FEB 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

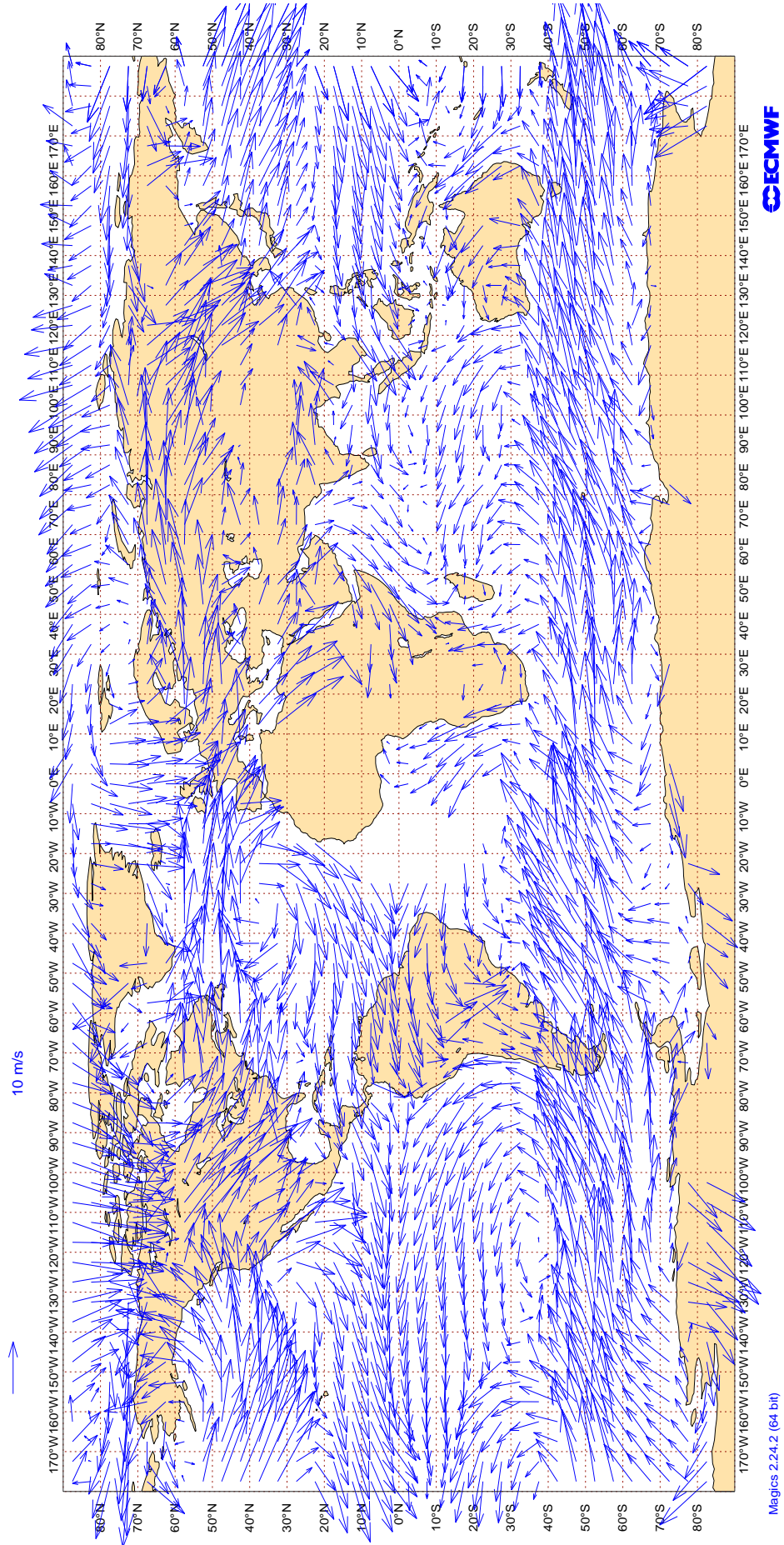
WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASDE01	12	V	100	8	4.2	-0.1	-0.5
ASDE01	00	V	100	7	3.8	0.4	-0.5
ASDE02	12	V	100	2	3.9	-0.4	2.1
ASDE03	12	V	100	11	6.3	-2.9	-1.8
ASDE03	00	V	100	13	5.3	-0.8	-1.1
ASDE04	12	V	100	10	5.9	0.3	-0.5
ASDE04	00	V	100	10	5.3	-2.1	0.0
ASDE09	12	V	100	3	5.0	0.9	0.6
ASDK02	12	V	100	15	5.1	-0.4	0.1
ASDK02	00	V	100	14	4.1	0.0	-0.4
ASDK03	12	V	100	5	3.7	-0.5	-0.8
ASDK03	00	V	100	6	4.4	-1.0	-2.5
ASDK2	00	V	100	13	4.1	-0.1	-0.7
ASDK2	12	V	100	13	5.4	-0.8	-0.4
ASDK3	12	V	100	4	4.1	-1.2	-1.8
ASDK3	00	V	100	6	4.9	-0.9	-3.1
ASES01	12	V	100	19	5.3	-0.5	0.6
ASEU02	12	V	100	6	3.8	-2.2	-0.6
ASEU02	00	V	100	7	5.7	-1.6	-2.4
ASEU03	12	V	100	4	5.0	0.5	2.3
ASEU03	00	V	100	6	6.0	-1.8	1.8
ASEU04	12	V	100	7	3.6	0.0	1.1
ASEU04	00	V	100	6	4.0	1.0	2.7
ASEU06	12	V	100	6	3.7	0.1	0.6
ASEU06	00	V	100	11	8.0	-2.9	4.3
ASFR1	12	V	100	13	4.2	0.1	-0.8
ASFR1	00	V	100	11	3.2	0.0	-0.5
ASFR2	12	V	100	4	5.6	-1.9	1.5
ASFR2	00	V	100	4	3.5	2.0	0.6
ASFR3	12	V	100	7	5.3	1.1	1.1
ASFR3	00	V	100	6	5.2	0.3	0.6
ASFR4	12	V	100	9	5.8	-0.8	-0.2
ASFR4	00	V	100	7	5.2	-1.9	1.9
CXENR	12	V	100	17	7.1	-1.5	0.4
CXENR	00	V	100	17	7.6	-1.8	0.3
DBLK	12	V	100	19	5.4	-1.2	0.3
JGQH	12	V	100	5	5.8	-0.2	1.3
JGQH	00	V	100	6	6.7	-0.1	0.5
WTEC	12	V	100	8	14.0	-6.0	-2.0

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

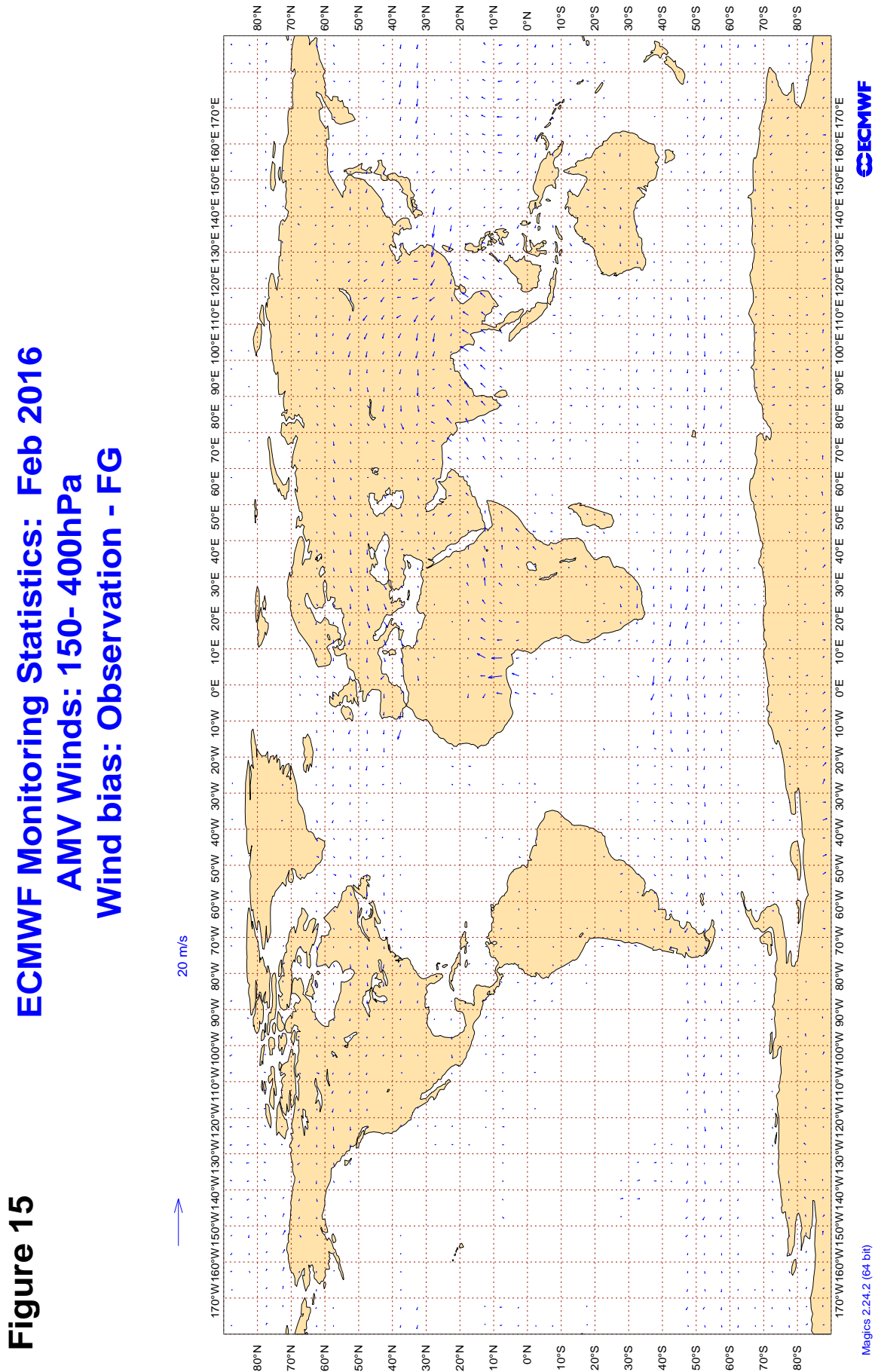
WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
WTEC	00	V	100	8	3.1	1.0	-1.8

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

Figure 14
ECMWF Monitoring Statistics: Feb 2016
AMV Winds: 700-1000hPa
Mean Observed Wind

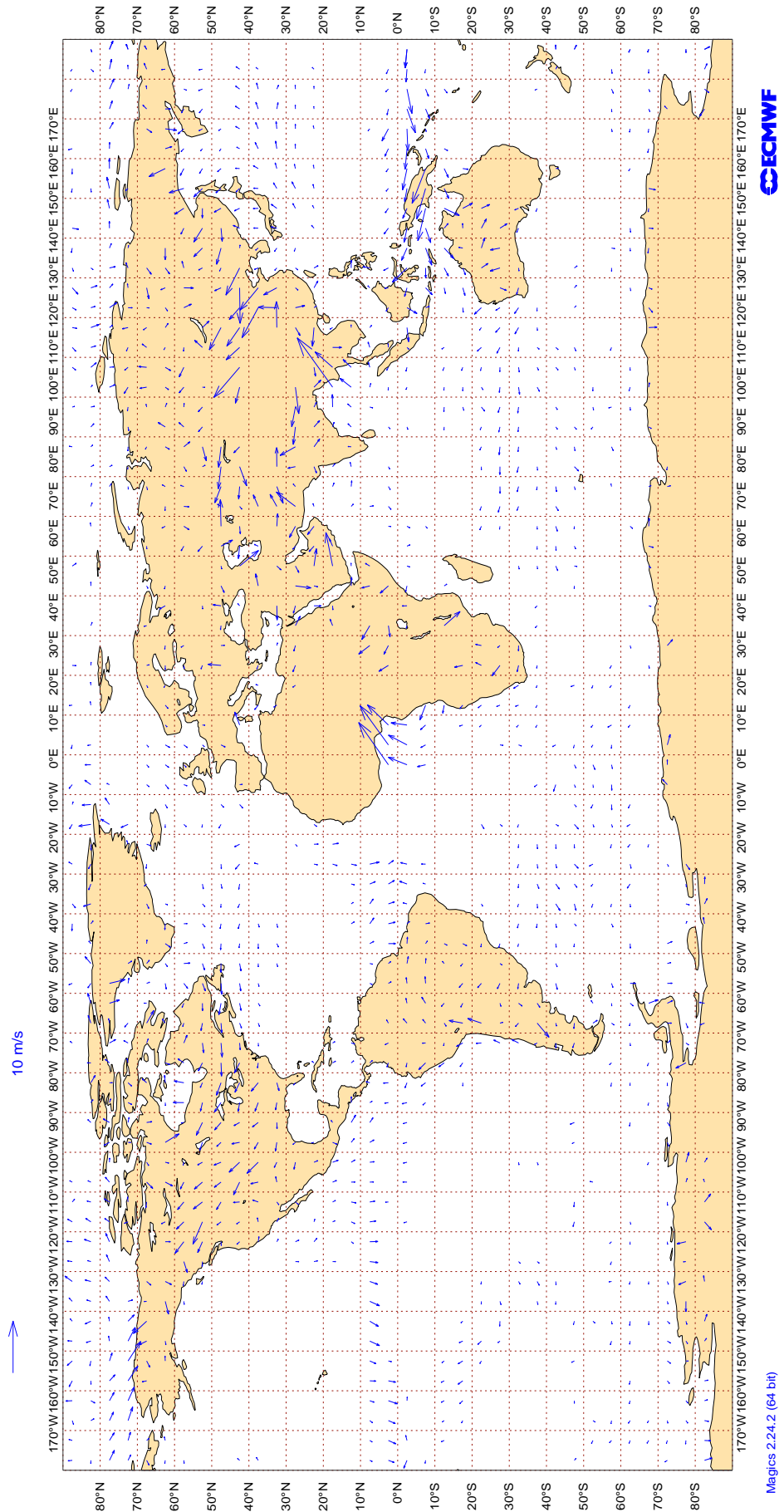


3.2.28 Figure 15 - SATOB Winds: 150- 400hPa



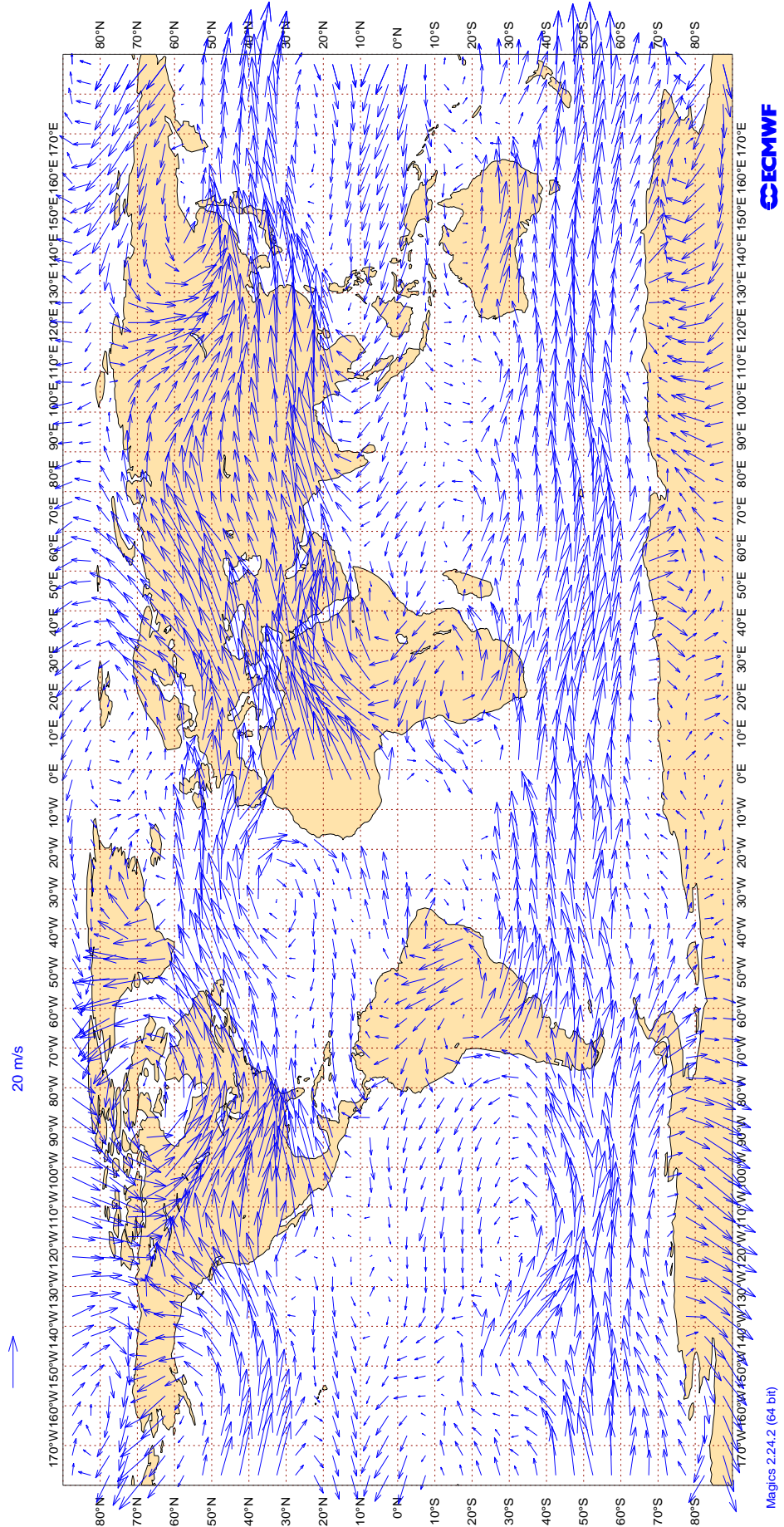
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

Figure 16
ECMWF Monitoring Statistics: Feb 2016
AMV Winds: 700-1000hPa
Wind bias: Observation - FG



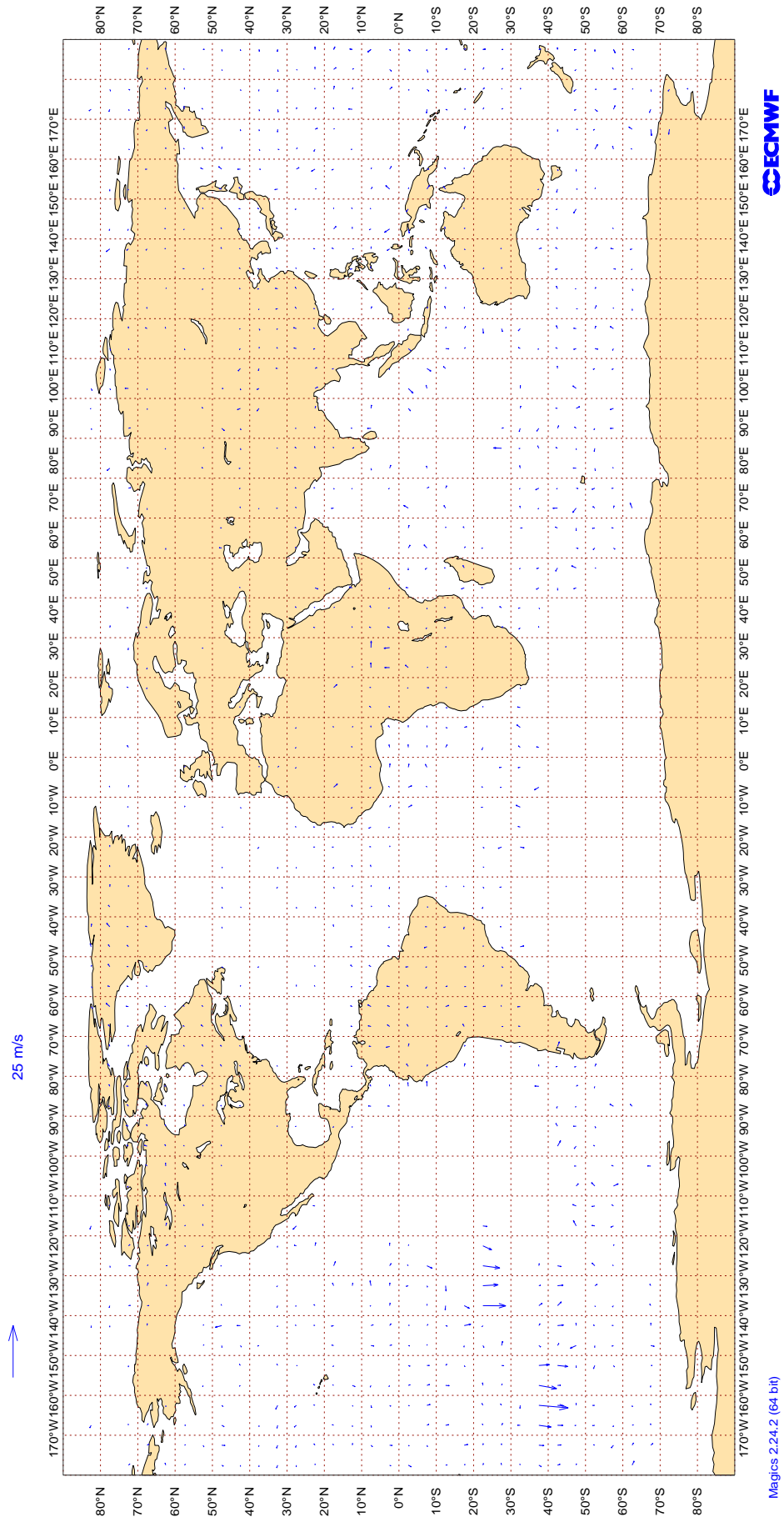
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

Figure 17
ECMWF Monitoring Statistics: Feb 2016
AMV Winds: 150- 400hPa
Mean Observed Wind



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

Figure 18
ECMWF Monitoring Statistics: Feb 2016
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 : FEB 2016
 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	21004	0	0	4.5	0.3
AAR	99	V	300-150	207	0	0	5.0	-1.3
AAY	99	V	300-150	193	2	0	5.0	0.4
ABW	99	V	300-150	517	0	0	4.4	-0.8
ABX	99	V	300-150	147	1	0	6.6	-0.2
ACA	99	V	300-150	10961	1	0	4.8	0.1
ACI	99	V	300-150	2416	0	0	4.7	0.6
AEA	99	V	300-150	273	0	0	5.5	0.3
AFL	99	V	300-150	888	0	0	3.6	0.5
AFR	99	V	300-150	16243	0	0	4.0	0.3
AHY	99	V	300-150	106	11	0	10.2	0.2
AIC	99	V	300-150	895	0	0	3.8	-0.3
AMX	99	V	300-150	988	7	0	7.0	0.1
ANZ	99	V	300-150	15996	0	0	5.5	0.5
AOJ	99	V	300-150	33	0	0	2.9	0.3
ASA	99	V	300-150	7052	1	0	5.8	0.3
ASY	99	V	300-150	565	0	0	5.8	1.0
AUA	99	V	300-150	1673	0	0	4.7	-0.4
AVA	99	V	300-150	368	0	0	4.2	0.3
AVN	99	V	300-150	113	1	1	5.6	1.0
AXM	99	V	300-150	132	0	0	5.5	0.4
AZA	99	V	300-150	2362	0	0	4.6	0.5
AZG	99	V	300-150	29	0	0	5.5	-1.2
BAF	99	V	300-150	41	0	2	5.2	-0.5
BAW	99	V	300-150	26531	1	0	4.6	0.2
BEL	99	V	300-150	553	0	0	4.2	0.5
BER	99	V	300-150	3457	0	0	4.3	0.6
BGH	99	V	300-150	37	0	0	2.9	0.5

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
 (CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
BLX	99	V	300-150	101	0	0	5.3	-1.3
BOX	99	V	300-150	339	0	0	3.8	-0.2
CAL	99	V	300-150	462	0	0	4.7	-0.1
CAO	99	V	300-150	78	1	0	3.8	-0.0
CAZ	99	V	300-150	93	0	0	3.4	-0.2
CCA	99	V	300-150	691	0	0	5.0	0.7
CES	99	V	300-150	1646	0	0	4.8	0.8
CFC	99	V	300-150	107	0	0	4.5	0.1
CFG	99	V	300-150	2534	0	0	4.2	-0.2
CJT	99	V	300-150	71	0	1	4.6	-1.3
CKS	99	V	300-150	1008	0	0	5.3	-0.1
CLX	99	V	300-150	1966	0	0	4.2	-0.2
CMB	99	V	300-150	345	0	0	4.8	-1.1
CNV	99	V	300-150	128	0	0	4.0	-0.5
CPA	99	V	300-150	431	0	0	4.2	0.4
CRL	99	V	300-150	615	0	0	4.3	0.6
CRV	99	V	300-150	22	0	0	5.0	-0.5
CSN	99	V	300-150	794	0	0	5.4	0.4
CTM	99	V	300-150	64	0	0	3.9	-0.9
DAH	99	V	300-150	324	0	0	4.0	0.3
DAL	99	V	300-150	27940	0	0	4.4	0.0
DGX	99	V	300-150	21	0	0	2.4	1.1
DHK	99	V	300-150	793	0	0	4.7	-0.6
DLH	99	V	300-150	13787	0	0	4.2	0.1
EDW	99	V	300-150	343	0	0	4.7	0.6
EIN	99	V	300-150	3388	0	0	4.1	0.2
EJM	99	V	300-150	250	23	1	7.1	0.2
ELY	99	V	300-150	1192	0	0	4.2	0.0
ETD	99	V	300-150	1777	2	0	4.7	-0.1
ETH	99	V	300-150	1080	9	0	7.0	0.1
EWG	99	V	300-150	836	0	0	4.3	0.2
FDX	99	V	300-150	3057	0	0	4.4	0.3
FIN	99	V	300-150	480	0	0	4.0	0.4
FJI	99	V	300-150	3838	0	0	5.3	0.7
FWI	99	V	300-150	1213	0	0	4.1	0.4
FYG	99	V	300-150	45	0	0	4.0	1.2
GEC	99	V	300-150	1510	0	0	4.1	0.1
GES	99	V	300-150	52	50	0	3.6	0.2
GLO	99	V	300-150	36	0	3	8.3	0.5
GMA	99	V	300-150	25	92	0	35.5	-0.5
GRI	99	V	300-150	21	0	0	3.6	-0.8
GRL	99	V	300-150	35	0	0	4.2	1.8
GTI	99	V	300-150	1339	0	0	4.5	-0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
HAL	99	V	300-150	3088	0	0	5.3	0.8
HZM	99	V	300-150	46	0	0	6.2	2.2
IAM	99	V	300-150	69	0	0	4.7	-0.3
IBE	99	V	300-150	819	0	0	3.9	0.3
ICL	99	V	300-150	222	0	0	5.4	-1.3
ICV	99	V	300-150	166	0	0	4.4	0.2
JAF	99	V	300-150	557	4	0	4.6	-0.3
JAI	99	V	300-150	1223	0	0	3.9	0.3
JAS	99	V	300-150	59	5	0	13.5	-0.1
JJA	99	V	300-150	59	0	3	5.2	0.3
JME	99	V	300-150	26	0	0	4.2	-0.3
JST	99	V	300-150	2314	1	0	9.4	0.8
KAC	99	V	300-150	414	0	0	4.4	0.4
KAI	99	V	300-150	61	0	0	6.2	-0.3
KAL	99	V	300-150	1373	0	0	5.1	0.5
KIW	99	V	300-150	74	0	0	8.0	1.5
KLM	99	V	300-150	9064	0	0	4.2	0.0
LAE	99	V	300-150	68	0	0	5.0	-0.4
LAN	99	V	300-150	1569	12	0	11.7	0.1
LCO	99	V	300-150	74	0	0	4.6	-1.1
LEA	99	V	300-150	56	0	0	4.2	-0.0
LOT	99	V	300-150	797	10	0	8.1	-0.2
LUC	99	V	300-150	22	100	0	0.0	0.0
LXJ	99	V	300-150	25	44	4	11.3	-0.0
MAS	99	V	300-150	263	0	0	4.3	0.7
MMD	99	V	300-150	76	0	0	4.3	-1.1
MPH	99	V	300-150	268	0	0	4.5	-0.9
MSR	99	V	300-150	488	0	0	4.3	0.3
NAX	99	V	300-150	2465	7	0	7.5	-0.1
NCA	99	V	300-150	107	0	0	5.3	-1.3
NJE	99	V	300-150	175	22	0	13.9	-0.4
NOS	99	V	300-150	525	0	0	5.0	-1.1
NWS	99	V	300-150	134	0	0	3.5	0.1
OAE	99	V	300-150	245	2	2	5.3	0.3
ORB	99	V	300-150	89	0	0	3.7	0.9
PAC	99	V	300-150	234	0	0	4.4	0.1
PAL	99	V	300-150	94	1	0	6.8	0.1
PAT	99	V	300-150	23	0	0	2.8	-0.3
PIA	99	V	300-150	109	0	0	4.1	0.9
PLM	99	V	300-150	39	0	0	3.5	0.3
QFA	99	V	300-150	16487	0	0	5.3	0.4
QTR	99	V	300-150	2621	0	0	4.4	0.1
RCH	99	V	300-150	3344	0	0	5.4	0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
RJA	99	V	300-150	644	8	0	5.9	0.2
ROU	99	V	300-150	153	0	1	4.6	-0.1
RRR	99	V	300-150	85	0	0	4.2	0.1
SAM	99	V	300-150	131	19	0	4.1	0.5
SAS	99	V	300-150	1457	0	0	3.7	-0.3
SHE	99	V	300-150	60	0	0	3.9	-1.4
SIA	99	V	300-150	1207	0	0	4.2	0.2
SLM	99	V	300-150	35	0	3	3.3	0.7
SOO	99	V	300-150	394	0	0	4.4	0.2
SPA	99	V	300-150	100	0	0	6.8	2.3
SQC	99	V	300-150	349	0	0	4.8	-0.8
SVA	99	V	300-150	1573	0	0	4.3	0.2
SVW	99	V	300-150	73	16	0	5.0	-0.2
SWR	99	V	300-150	5760	0	0	4.2	0.4
SXN	99	V	300-150	21	0	0	3.8	-1.3
TAM	99	V	300-150	336	0	0	3.4	0.2
TAP	99	V	300-150	74	0	1	5.1	0.3
TAY	99	V	300-150	868	0	0	4.7	0.3
TCV	99	V	300-150	37	5	0	5.5	0.8
TCX	99	V	300-150	1438	0	0	4.2	0.5
TFL	99	V	300-150	1176	6	0	5.0	0.3
TGM	99	V	300-150	45	27	0	6.7	-0.1
THA	99	V	300-150	141	0	0	4.7	0.3
THT	99	V	300-150	2764	0	0	5.0	0.6
THY	99	V	300-150	3752	0	0	4.5	0.2
TOM	99	V	300-150	3046	4	0	5.6	0.1
TSC	99	V	300-150	1716	0	0	4.2	0.1
TWB	99	V	300-150	43	0	0	7.3	1.5
TWY	99	V	300-150	47	51	0	18.4	0.6
UAE	99	V	300-150	5531	0	0	4.4	-0.1
UAL	99	V	300-150	38692	0	2	5.4	0.2
UPS	99	V	300-150	3035	0	0	4.8	0.4
VIR	99	V	300-150	11291	1	0	4.9	0.4
VJT	99	V	300-150	199	73	0	29.3	0.2
VKG	99	V	300-150	543	0	0	3.9	0.5
VMP	99	V	300-150	61	44	0	13.9	0.2
VOZ	99	V	300-150	5358	0	0	5.1	0.4
WJA	99	V	300-150	1878	1	1	6.5	0.3
XLF	99	V	300-150	905	0	0	4.2	0.4

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 : FEB 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	50	25	10.8	4.2
01001	12	Z	50	25	17.1	13.8
01028	00	Z	50	24	9.2	-0.2
01028	12	Z	50	25	9.0	4.8
01400	00	Z	50	9	42.6	38.1
01400	12	Z	50	9	39.4	32.4
01415	12	Z	50	29	21.9	10.5
01415	00	Z	50	26	22.2	1.7
02365	12	Z	50	24	25.0	6.5
02365	00	Z	50	25	34.0	5.4
02591	12	Z	50	38	24.4	18.0
02591	00	Z	50	31	15.0	6.5
02836	00	Z	50	35	33.0	-18.6
02836	12	Z	50	40	26.8	-9.9
02963	12	Z	50	34	21.0	3.5
02963	00	Z	50	25	16.6	-3.2
03005	12	Z	50	28	24.0	14.5
03005	00	Z	50	19	11.3	5.0
03238	12	Z	50	9	26.5	13.6
03238	00	Z	50	24	22.3	13.6
03808	12	Z	50	28	29.9	20.4
03808	00	Z	50	27	14.8	5.5
03918	12	Z	50	11	30.8	21.0
03918	00	Z	50	18	20.4	5.1
03953	12	Z	50	16	41.0	39.7
03953	00	Z	50	13	28.5	24.8
04018	00	Z	50	22	18.3	5.8
04018	12	Z	50	23	21.6	12.0
04220	00	Z	50	27	17.1	2.9
04220	12	Z	50	26	17.5	-3.5
04270	00	Z	50	28	19.7	-3.9
04270	12	Z	50	27	19.6	3.3
04320	12	Z	50	29	11.4	6.9
04320	00	Z	50	27	10.5	7.5
04339	00	Z	50	28	12.2	7.5
04339	12	Z	50	27	18.9	15.9
04360	00	Z	50	10	16.1	12.8
04360	12	Z	50	12	16.8	10.7
06011	12	Z	50	14	20.6	13.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	50	12	14.7	5.4
06260	12	Z	50	5	17.2	11.7
06260	00	Z	50	26	14.0	4.8
06610	12	Z	50	29	21.8	7.6
06610	00	Z	50	26	12.4	0.4
07110	12	Z	50	22	33.3	25.9
07110	00	Z	50	14	19.1	11.5
07510	00	Z	50	15	33.4	29.7
07510	12	Z	50	17	38.9	36.1
07645	00	Z	50	20	26.5	6.3
07645	12	Z	50	21	17.3	9.8
07761	12	Z	50	25	24.1	17.0
07761	00	Z	50	25	23.6	0.9
08001	12	Z	50	23	39.6	35.7
08001	00	Z	50	22	31.4	19.4
08221	00	Z	50	29	19.6	13.9
08221	12	Z	50	27	28.5	24.5
08302	00	Z	50	24	16.7	10.2
08302	12	Z	50	27	18.8	15.8
08508	12	Z	50	28	31.9	29.7
08522	12	Z	50	25	16.0	11.2
08579	12	Z	50	27	28.5	25.5
08579	00	Z	50	1	18.0	18.0
10035	00	Z	50	26	15.5	-0.7
10035	12	Z	50	29	19.8	10.3
10393	12	Z	50	27	16.2	9.4
10393	00	Z	50	27	10.2	0.1
10410	00	Z	50	26	16.3	0.2
10410	12	Z	50	29	19.6	12.1
10739	00	Z	50	27	20.4	11.4
10739	12	Z	50	29	26.7	21.7
11035	12	Z	50	30	19.2	8.5
11035	00	Z	50	25	17.0	0.2
12982	12	Z	50	27	80.7	59.9
12982	00	Z	50	26	16.2	5.7
16044	12	Z	50	29	22.9	18.0
16044	00	Z	50	29	20.2	14.0
16080	00	Z	50	27	15.2	7.3
16080	12	Z	50	29	34.1	1.9
16245	12	Z	50	29	15.9	2.0
16245	00	Z	50	27	15.8	1.8
16320	00	Z	50	28	20.8	6.8
16320	12	Z	50	25	19.4	5.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	50	28	16.7	7.2
16429	00	Z	50	28	20.0	10.8
16622	00	Z	50	25	40.8	37.5
16754	00	Z	50	24	22.7	18.4
17607	12	Z	50	21	14.3	-7.0
26435	00	Z	50	13	9.6	1.4
60018	00	Z	50	28	13.4	10.7
60018	12	Z	50	28	17.3	11.7
ASDE01	12	Z	50	8	35.1	22.8
ASDE01	00	Z	50	6	36.4	-28.3
ASDE03	12	Z	50	10	39.7	34.2
ASDE03	00	Z	50	9	13.2	6.5
ASDE04	12	Z	50	10	51.7	45.3
ASDE04	00	Z	50	10	29.8	25.7
ASDE09	12	Z	50	3	37.7	36.8
ASDK03	12	Z	50	5	31.1	30.7
ASDK03	00	Z	50	5	24.2	20.9
ASDK3	12	Z	50	5	29.1	27.7
ASDK3	00	Z	50	5	20.4	13.8
ASES01	12	Z	50	18	40.3	39.2
ASEU02	12	Z	50	6	59.1	58.6
ASEU02	00	Z	50	7	51.0	49.5
ASEU03	12	Z	50	5	123.1	89.6
ASEU03	00	Z	50	5	21.4	14.6
ASEU04	12	Z	50	5	24.2	21.4
ASEU04	00	Z	50	5	19.5	-14.3
ASEU06	12	Z	50	5	29.9	22.0
ASEU06	00	Z	50	8	48.7	-1.9
ASFR1	12	Z	50	11	26.2	24.4
ASFR1	00	Z	50	11	24.3	23.3
ASFR2	12	Z	50	3	34.7	34.3
ASFR2	00	Z	50	3	39.7	35.9
ASFR3	12	Z	50	7	30.1	29.0
ASFR3	00	Z	50	5	27.6	26.6
ASFR4	12	Z	50	9	38.1	33.3
ASFR4	00	Z	50	7	34.7	33.0

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 : FEB 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	50	25	3.2	-0.3	0.1
01001	12	V	50	25	3.4	0.9	0.4
01028	00	V	50	21	3.6	0.6	-0.2
01028	12	V	50	24	3.8	1.1	-0.6
01400	00	V	50	4	3.3	-0.5	-0.3
01400	12	V	50	6	3.4	2.2	1.0
01415	12	V	50	29	4.4	1.0	1.1
01415	00	V	50	23	4.5	1.6	-0.8
02365	12	V	50	20	4.4	1.6	0.3
02365	00	V	50	14	4.4	3.2	1.2
02591	12	V	50	25	4.1	1.1	0.0
02591	00	V	50	22	4.0	0.2	0.7
02836	00	V	50	23	4.5	0.8	-0.4
02836	12	V	50	29	4.6	-0.1	-0.6
02963	12	V	50	29	3.7	0.7	0.8
02963	00	V	50	24	3.7	1.4	0.4
03005	12	V	50	28	3.5	0.7	0.9
03005	00	V	50	19	4.0	0.3	1.7
03238	12	V	50	8	6.4	-0.3	2.6
03238	00	V	50	21	5.1	0.1	1.5
03808	12	V	50	28	4.1	-0.2	0.1
03808	00	V	50	26	4.4	0.3	0.8
03918	12	V	50	10	4.5	0.6	2.3
03918	00	V	50	18	4.8	1.1	0.7
03953	12	V	50	16	4.1	-0.6	1.5
03953	00	V	50	13	4.1	-1.4	-0.1
04018	00	V	50	20	4.3	1.2	-0.2
04018	12	V	50	20	3.3	1.0	0.5
04220	00	V	50	26	2.7	0.0	0.2
04220	12	V	50	25	4.2	0.5	0.4
04270	00	V	50	26	4.4	0.6	1.2
04270	12	V	50	27	3.8	0.3	-1.0
04320	12	V	50	28	3.7	1.0	-0.7
04320	00	V	50	27	3.2	0.1	0.7
04339	00	V	50	28	3.3	0.7	-0.8
04339	12	V	50	27	4.1	0.4	-1.0
04360	00	V	50	10	3.9	1.1	0.8
04360	12	V	50	12	4.2	-0.5	-0.6
06011	12	V	50	14	3.4	2.0	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	50	12	3.1	-0.2	-0.5
06260	12	V	50	5	4.2	2.6	-0.4
06260	00	V	50	24	3.8	-0.1	-0.4
06610	12	V	50	29	4.1	1.5	0.5
06610	00	V	50	25	7.2	1.1	1.6
07110	12	V	50	22	3.9	1.0	0.6
07110	00	V	50	14	4.0	-0.1	0.3
07510	00	V	50	14	4.0	2.1	0.3
07510	12	V	50	17	6.3	2.3	-0.2
07645	00	V	50	19	6.5	2.0	0.2
07645	12	V	50	21	4.6	1.2	0.4
07761	12	V	50	25	6.2	1.0	0.8
07761	00	V	50	25	6.9	0.0	1.9
08001	12	V	50	20	6.2	1.0	1.0
08001	00	V	50	16	3.9	0.4	1.0
08221	00	V	50	23	4.5	1.0	0.8
08221	12	V	50	24	4.5	1.0	1.4
08302	00	V	50	24	4.6	0.5	1.2
08302	12	V	50	27	4.3	-0.1	1.7
08508	12	V	50	28	3.8	-1.0	-0.5
08522	12	V	50	25	3.6	0.7	0.6
08579	12	V	50	26	5.9	-0.2	-0.3
08579	00	V	50	1	5.4	2.9	4.5
10035	00	V	50	22	4.3	0.4	-0.3
10035	12	V	50	29	4.5	1.4	1.5
10393	12	V	50	27	3.4	0.4	-0.3
10393	00	V	50	26	3.7	1.3	-0.1
10410	00	V	50	24	3.8	1.3	0.1
10410	12	V	50	29	5.0	1.3	0.3
10739	00	V	50	26	5.0	1.2	1.9
10739	12	V	50	29	4.7	0.8	0.3
11035	12	V	50	29	6.8	0.3	-0.1
11035	00	V	50	24	5.7	1.5	-0.9
12982	12	V	50	27	5.3	1.2	-1.1
12982	00	V	50	22	5.5	2.5	0.3
16044	12	V	50	29	6.0	1.3	0.2
16044	00	V	50	28	6.4	1.4	-1.7
16080	00	V	50	27	5.6	1.2	0.7
16080	12	V	50	29	4.9	1.3	-0.3
16245	12	V	50	29	4.4	0.0	0.0
16245	00	V	50	27	6.3	1.2	1.6
16320	00	V	50	27	5.2	0.8	-1.1
16320	12	V	50	24	5.2	-0.1	1.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	50	28	4.1	0.0	-0.7
16429	00	V	50	28	5.6	1.5	-0.3
16622	00	V	50	22	5.5	-0.4	-0.3
16754	00	V	50	22	5.1	0.1	2.1
17607	12	V	50	20	3.5	-0.2	0.3
26435	00	V	50	11	3.7	1.4	0.2
60018	00	V	50	28	3.5	0.4	0.4
60018	12	V	50	28	3.8	1.0	-0.2
ASDE01	12	V	50	8	3.1	0.0	-1.1
ASDE01	00	V	50	6	2.8	-0.1	-1.4
ASDE03	12	V	50	10	3.2	-0.2	0.2
ASDE03	00	V	50	9	4.2	-0.8	0.8
ASDE04	12	V	50	9	5.6	-1.8	-1.1
ASDE04	00	V	50	10	3.7	-0.1	-0.9
ASDE09	12	V	50	3	3.0	-1.4	0.1
ASDK03	12	V	50	3	3.1	-1.7	-0.2
ASDK03	00	V	50	3	3.1	0.3	0.0
ASDK3	12	V	50	3	4.0	-1.2	0.3
ASDK3	00	V	50	3	3.3	1.3	-1.2
ASES01	12	V	50	18	4.0	1.3	1.1
ASEU02	12	V	50	6	5.0	-2.3	-0.6
ASEU02	00	V	50	7	5.8	0.3	-0.8
ASEU03	12	V	50	3	3.6	-0.8	0.8
ASEU03	00	V	50	5	3.8	-0.5	0.0
ASEU04	12	V	50	5	3.8	0.6	0.2
ASEU04	00	V	50	5	2.7	0.4	0.0
ASEU06	12	V	50	4	3.6	0.8	1.1
ASEU06	00	V	50	7	14.7	-3.5	1.7
ASFR1	12	V	50	11	3.1	-1.3	-0.4
ASFR1	00	V	50	11	4.5	-1.2	-1.2
ASFR2	12	V	50	2	4.8	2.8	1.2
ASFR2	00	V	50	3	2.7	1.3	-0.1
ASFR3	12	V	50	7	3.4	-0.6	-0.2
ASFR3	00	V	50	5	3.7	1.9	-1.4
ASFR4	12	V	50	9	4.7	-2.4	-0.7
ASFR4	00	V	50	7	5.0	-0.6	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 : FEB 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	100	29	8.2	-0.4
01001	12	Z	100	30	11.6	8.5
01028	00	Z	100	25	7.7	-2.7
01028	12	Z	100	26	5.7	2.5
01400	00	Z	100	10	24.9	22.1
01400	12	Z	100	10	22.2	19.3
01415	12	Z	100	30	12.2	4.1
01415	00	Z	100	29	11.5	0.3
02365	12	Z	100	29	11.2	2.9
02365	00	Z	100	31	22.7	4.4
02591	12	Z	100	40	15.6	12.4
02591	00	Z	100	33	9.4	4.1
02836	00	Z	100	42	15.6	-7.5
02836	12	Z	100	41	14.0	-6.3
02963	12	Z	100	34	9.1	2.2
02963	00	Z	100	33	10.1	-2.1
03005	12	Z	100	30	11.7	5.1
03005	00	Z	100	27	7.9	-2.2
03238	12	Z	100	10	30.7	3.5
03238	00	Z	100	27	17.0	4.4
03808	12	Z	100	29	15.6	10.4
03808	00	Z	100	29	10.6	4.2
03918	12	Z	100	12	17.9	15.1
03918	00	Z	100	27	12.3	2.2
03953	12	Z	100	29	22.6	17.5
03953	00	Z	100	29	16.6	8.6
04018	00	Z	100	23	11.2	2.3
04018	12	Z	100	25	14.3	8.1
04220	00	Z	100	28	9.6	1.1
04220	12	Z	100	27	10.2	1.5
04270	00	Z	100	29	16.5	2.2
04270	12	Z	100	27	15.4	5.8
04320	12	Z	100	29	8.2	4.7
04320	00	Z	100	28	8.9	6.1
04339	00	Z	100	28	8.6	4.7
04339	12	Z	100	27	14.6	12.9
04360	00	Z	100	23	16.4	13.2
04360	12	Z	100	18	13.7	11.1
06011	12	Z	100	17	9.5	4.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	100	20	8.4	2.3
06260	12	Z	100	5	16.1	13.9
06260	00	Z	100	27	11.1	2.6
06610	12	Z	100	29	15.3	1.3
06610	00	Z	100	29	16.2	-3.6
07110	12	Z	100	28	22.1	19.0
07110	00	Z	100	23	11.4	3.8
07510	00	Z	100	25	22.4	19.1
07510	12	Z	100	23	32.8	28.9
07645	00	Z	100	26	11.8	-5.3
07645	12	Z	100	25	13.0	5.5
07761	12	Z	100	25	19.5	10.9
07761	00	Z	100	26	27.3	-8.3
08001	12	Z	100	28	24.3	21.6
08001	00	Z	100	27	15.8	12.0
08221	00	Z	100	30	17.6	11.7
08221	12	Z	100	30	20.5	17.3
08302	00	Z	100	27	10.5	3.0
08302	12	Z	100	27	12.2	9.6
08508	12	Z	100	29	22.1	19.8
08522	12	Z	100	27	12.7	7.4
08579	12	Z	100	28	17.5	11.6
08579	00	Z	100	1	18.7	18.7
10035	00	Z	100	29	10.5	-3.7
10035	12	Z	100	29	9.9	3.0
10393	12	Z	100	29	8.6	3.3
10393	00	Z	100	30	8.0	-2.5
10410	00	Z	100	26	9.8	-2.4
10410	12	Z	100	29	9.8	4.4
10739	00	Z	100	30	12.9	6.4
10739	12	Z	100	29	17.7	12.7
11035	12	Z	100	31	11.3	-3.0
11035	00	Z	100	32	12.7	-5.2
12982	12	Z	100	28	63.6	38.7
12982	00	Z	100	29	13.3	-2.4
16044	12	Z	100	29	14.7	7.0
16044	00	Z	100	29	15.7	6.0
16080	00	Z	100	29	13.0	-4.3
16080	12	Z	100	29	31.1	-5.6
16245	12	Z	100	29	13.9	-6.0
16245	00	Z	100	29	13.1	-5.1
16320	00	Z	100	29	18.5	2.4
16320	12	Z	100	28	12.1	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	100	28	18.0	-0.1
16429	00	Z	100	28	15.3	1.3
16622	00	Z	100	27	26.1	22.4
16754	00	Z	100	26	18.7	11.0
17607	12	Z	100	41	12.6	-6.5
26435	00	Z	100	13	6.2	-1.4
60018	00	Z	100	29	9.9	5.1
60018	12	Z	100	29	13.7	8.9
ASDE01	12	Z	100	9	23.3	11.8
ASDE01	00	Z	100	9	29.8	-24.4
ASDE03	12	Z	100	15	25.3	21.8
ASDE03	00	Z	100	16	12.5	8.0
ASDE04	12	Z	100	11	37.3	32.8
ASDE04	00	Z	100	12	20.4	16.5
ASDE09	12	Z	100	5	19.0	17.5
ASDK03	12	Z	100	8	27.2	27.0
ASDK03	00	Z	100	10	25.8	23.8
ASDK3	12	Z	100	5	26.9	26.5
ASDK3	00	Z	100	6	20.2	17.7
ASES01	12	Z	100	21	33.6	32.1
ASEU02	12	Z	100	6	46.8	46.5
ASEU02	00	Z	100	7	41.6	39.2
ASEU03	12	Z	100	7	67.3	52.7
ASEU03	00	Z	100	8	18.9	9.0
ASEU04	12	Z	100	7	25.2	16.6
ASEU04	00	Z	100	8	9.8	-7.6
ASEU06	12	Z	100	7	31.3	23.6
ASEU06	00	Z	100	12	36.7	-2.8
ASFR1	12	Z	100	13	16.4	15.2
ASFR1	00	Z	100	14	14.2	10.7
ASFR2	12	Z	100	4	24.4	22.7
ASFR2	00	Z	100	4	19.0	17.3
ASFR3	12	Z	100	9	19.2	18.0
ASFR3	00	Z	100	6	16.4	15.7
ASFR4	12	Z	100	10	23.4	17.7
ASFR4	00	Z	100	8	23.2	22.3

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 100 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : FEB 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	100	29	2.6	-0.4	-0.1
01001	12	V	100	29	3.0	0.0	0.7
01028	00	V	100	24	3.4	0.2	-0.4
01028	12	V	100	25	2.9	0.0	0.6
01400	00	V	100	7	2.1	1.0	0.7
01400	12	V	100	8	4.3	0.4	2.2
01415	12	V	100	29	3.3	0.0	0.1
01415	00	V	100	28	3.6	0.4	0.5
02365	12	V	100	23	3.6	1.6	0.1
02365	00	V	100	23	3.8	0.6	-0.3
02591	12	V	100	28	3.7	0.8	0.5
02591	00	V	100	26	3.5	1.1	0.2
02836	00	V	100	28	3.0	0.4	-0.5
02836	12	V	100	29	3.0	0.3	-0.3
02963	12	V	100	29	3.3	0.8	0.0
02963	00	V	100	29	3.3	0.3	0.3
03005	12	V	100	28	3.6	0.8	-0.1
03005	00	V	100	26	3.5	0.1	1.0
03238	12	V	100	10	6.9	2.0	0.5
03238	00	V	100	23	5.1	0.5	-0.6
03808	12	V	100	29	4.7	1.2	0.3
03808	00	V	100	27	3.4	0.4	0.2
03918	12	V	100	12	3.6	0.9	0.4
03918	00	V	100	25	3.7	-0.1	0.6
03953	12	V	100	29	3.7	0.3	0.1
03953	00	V	100	29	4.2	1.0	-0.1
04018	00	V	100	20	3.9	-0.6	0.6
04018	12	V	100	25	3.2	0.4	0.1
04220	00	V	100	27	3.9	-0.1	0.3
04220	12	V	100	27	3.4	-0.3	0.7
04270	00	V	100	28	4.5	-0.6	-0.4
04270	12	V	100	27	3.4	-0.2	0.3
04320	12	V	100	29	3.1	0.6	-0.1
04320	00	V	100	28	2.5	-0.3	-0.3
04339	00	V	100	28	3.0	0.4	-0.6
04339	12	V	100	27	3.0	0.2	0.4
04360	00	V	100	23	2.8	-1.1	0.8
04360	12	V	100	18	2.9	-0.2	0.0
06011	12	V	100	17	3.1	0.8	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	100	20	2.5	0.2	-0.2
06260	12	V	100	5	4.0	1.6	0.6
06260	00	V	100	27	3.8	-0.2	1.2
06610	12	V	100	29	4.2	1.0	-0.2
06610	00	V	100	28	6.6	0.3	-1.0
07110	12	V	100	28	4.0	-0.3	1.8
07110	00	V	100	21	3.5	0.5	1.0
07510	00	V	100	22	5.0	1.9	0.3
07510	12	V	100	21	5.0	1.8	1.3
07645	00	V	100	22	5.7	1.9	-0.5
07645	12	V	100	24	4.4	0.6	0.4
07761	12	V	100	24	5.3	-0.5	0.8
07761	00	V	100	25	5.9	1.0	0.0
08001	12	V	100	28	5.0	0.4	0.8
08001	00	V	100	25	4.7	-0.5	0.6
08221	00	V	100	22	5.8	0.5	0.8
08221	12	V	100	25	5.7	-0.7	0.3
08302	00	V	100	26	5.4	-0.1	-0.5
08302	12	V	100	27	4.8	-0.2	-0.1
08508	12	V	100	29	5.3	-1.2	-0.6
08522	12	V	100	27	5.5	0.7	1.3
08579	12	V	100	26	5.0	1.2	0.4
08579	00	V	100	1	4.8	-2.3	4.2
10035	00	V	100	29	4.1	-0.4	0.6
10035	12	V	100	29	3.5	0.7	0.9
10393	12	V	100	29	4.0	1.0	1.5
10393	00	V	100	29	4.8	0.0	0.2
10410	00	V	100	26	4.4	0.3	0.5
10410	12	V	100	29	4.0	1.3	0.0
10739	00	V	100	29	4.5	0.0	-0.1
10739	12	V	100	29	4.0	-0.6	0.2
11035	12	V	100	29	5.8	0.1	0.5
11035	00	V	100	29	5.1	-0.2	1.0
12982	12	V	100	28	4.7	-0.1	1.0
12982	00	V	100	26	5.6	0.3	-1.4
16044	12	V	100	29	5.1	0.7	0.9
16044	00	V	100	29	5.1	1.1	0.8
16080	00	V	100	29	4.5	1.1	-0.8
16080	12	V	100	29	6.6	0.7	0.2
16245	12	V	100	29	4.7	0.9	0.8
16245	00	V	100	29	5.4	0.3	1.9
16320	00	V	100	27	6.2	-0.1	-0.2
16320	12	V	100	27	4.8	1.6	-0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	100	28	6.2	1.0	-1.3
16429	00	V	100	28	5.5	0.4	1.3
16622	00	V	100	25	4.9	-0.2	0.7
16754	00	V	100	26	5.7	-0.9	0.0
17607	12	V	100	21	4.9	0.3	-1.4
26435	00	V	100	13	3.1	0.3	-0.7
60018	00	V	100	29	4.9	0.8	1.3
60018	12	V	100	29	4.7	1.1	2.5
ASDE01	12	V	100	8	4.2	-0.1	-0.5
ASDE01	00	V	100	7	3.8	0.4	-0.5
ASDE03	12	V	100	11	6.3	-2.9	-1.8
ASDE03	00	V	100	13	5.3	-0.8	-1.1
ASDE04	12	V	100	10	5.9	0.3	-0.5
ASDE04	00	V	100	10	5.3	-2.1	0.0
ASDE09	12	V	100	3	5.0	0.9	0.6
ASDK03	12	V	100	5	3.7	-0.5	-0.8
ASDK03	00	V	100	6	4.4	-1.0	-2.5
ASDK3	12	V	100	4	4.1	-1.2	-1.8
ASDK3	00	V	100	6	4.9	-0.9	-3.1
ASES01	12	V	100	19	5.3	-0.5	0.6
ASEU02	12	V	100	6	3.8	-2.2	-0.6
ASEU02	00	V	100	7	5.7	-1.6	-2.4
ASEU03	12	V	100	4	5.0	0.5	2.3
ASEU03	00	V	100	6	6.0	-1.8	1.8
ASEU04	12	V	100	7	3.6	0.0	1.1
ASEU04	00	V	100	6	4.0	1.0	2.7
ASEU06	12	V	100	6	3.7	0.1	0.6
ASEU06	00	V	100	11	8.0	-2.9	4.3
ASFR1	12	V	100	13	4.2	0.1	-0.8
ASFR1	00	V	100	11	3.2	0.0	-0.5
ASFR2	12	V	100	4	5.6	-1.9	1.5
ASFR2	00	V	100	4	3.5	2.0	0.6
ASFR3	12	V	100	7	5.3	1.1	1.1
ASFR3	00	V	100	6	5.2	0.3	0.6
ASFR4	12	V	100	9	5.8	-0.8	-0.2
ASFR4	00	V	100	7	5.2	-1.9	1.9

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 500 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : FEB 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	500	29	7.7	-1.0
01001	12	Z	500	30	5.8	3.0
01028	00	Z	500	28	6.3	2.1
01028	12	Z	500	29	4.7	0.6
01400	00	Z	500	14	21.5	17.0
01400	12	Z	500	12	12.9	11.3
01415	12	Z	500	30	8.1	4.7
01415	00	Z	500	29	6.0	4.4
02365	12	Z	500	30	6.0	4.3
02365	00	Z	500	32	8.6	5.8
02591	12	Z	500	40	9.4	9.0
02591	00	Z	500	33	9.4	8.3
02836	00	Z	500	42	4.3	1.2
02836	12	Z	500	41	4.5	0.8
02963	12	Z	500	34	4.9	3.3
02963	00	Z	500	33	4.7	3.4
03005	12	Z	500	29	9.2	2.2
03005	00	Z	500	28	6.2	4.1
03238	12	Z	500	10	6.1	5.4
03238	00	Z	500	27	8.5	6.2
03808	12	Z	500	29	10.8	8.7
03808	00	Z	500	31	7.1	4.2
03918	12	Z	500	12	11.0	10.2
03918	00	Z	500	27	8.1	6.7
03953	12	Z	500	29	10.8	8.5
03953	00	Z	500	29	8.2	4.0
04018	00	Z	500	23	6.5	4.6
04018	12	Z	500	27	6.9	4.6
04220	00	Z	500	28	10.3	4.3
04220	12	Z	500	27	8.8	4.7
04270	00	Z	500	29	6.4	-0.7
04270	12	Z	500	28	8.4	3.6
04320	12	Z	500	29	10.5	8.4
04320	00	Z	500	29	8.7	7.1
04339	00	Z	500	28	7.6	4.8
04339	12	Z	500	27	10.7	6.5
04360	00	Z	500	28	5.8	1.5
04360	12	Z	500	25	7.3	3.4
06011	12	Z	500	27	29.6	12.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	500	28	6.7	4.6
06260	12	Z	500	5	5.5	4.6
06260	00	Z	500	29	4.9	3.2
06610	12	Z	500	29	6.0	4.3
06610	00	Z	500	29	6.9	4.0
07110	12	Z	500	27	7.8	5.0
07110	00	Z	500	26	6.5	1.2
07510	00	Z	500	28	8.4	6.2
07510	12	Z	500	27	12.9	9.2
07645	00	Z	500	27	6.3	-1.1
07645	12	Z	500	29	7.5	-1.0
07761	12	Z	500	26	10.6	3.1
07761	00	Z	500	26	10.0	-1.4
08001	12	Z	500	28	11.4	10.5
08001	00	Z	500	27	11.9	11.0
08221	00	Z	500	30	8.2	5.9
08221	12	Z	500	30	10.9	9.3
08302	00	Z	500	27	3.8	-0.4
08302	12	Z	500	27	6.2	3.0
08508	12	Z	500	29	17.4	15.0
08522	12	Z	500	28	12.7	10.7
08579	12	Z	500	29	9.7	8.1
08579	00	Z	500	1	7.2	7.2
10035	00	Z	500	29	5.1	-2.1
10035	12	Z	500	29	4.1	1.8
10393	12	Z	500	29	3.1	0.1
10393	00	Z	500	30	3.8	-0.5
10410	00	Z	500	28	4.1	-0.5
10410	12	Z	500	29	4.0	0.4
10739	00	Z	500	30	7.8	6.9
10739	12	Z	500	29	9.6	8.3
11035	12	Z	500	31	6.7	-2.5
11035	00	Z	500	31	7.6	-4.3
12982	12	Z	500	28	8.9	5.0
12982	00	Z	500	29	6.8	1.9
16044	12	Z	500	29	6.9	4.4
16044	00	Z	500	29	6.8	3.2
16080	00	Z	500	29	5.6	-2.2
16080	12	Z	500	29	5.5	-1.6
16245	12	Z	500	29	9.0	-6.9
16245	00	Z	500	29	9.1	-6.5
16320	00	Z	500	29	15.1	-2.4
16320	12	Z	500	29	6.9	-2.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	500	30	9.2	-2.8
16429	00	Z	500	28	7.9	-0.8
16622	00	Z	500	28	21.0	17.1
16754	00	Z	500	26	13.7	8.4
17607	12	Z	500	41	8.0	5.2
26435	00	Z	500	14	6.6	1.3
60018	00	Z	500	29	4.4	2.4
60018	12	Z	500	29	5.1	3.0
ASDE01	12	Z	500	10	19.8	-4.0
ASDE01	00	Z	500	11	31.5	-22.0
ASDE03	12	Z	500	15	11.2	7.8
ASDE03	00	Z	500	17	11.9	6.5
ASDE04	12	Z	500	11	28.4	23.9
ASDE04	00	Z	500	12	20.7	15.3
ASDE09	12	Z	500	5	9.8	6.4
ASDK03	12	Z	500	10	30.8	11.5
ASDK03	00	Z	500	12	24.3	24.0
ASDK3	12	Z	500	6	31.5	15.6
ASDK3	00	Z	500	7	25.9	25.7
ASES01	12	Z	500	22	20.5	20.1
ASEU02	12	Z	500	7	32.9	32.7
ASEU02	00	Z	500	7	35.6	35.0
ASEU03	12	Z	500	7	12.6	11.9
ASEU03	00	Z	500	13	17.0	-0.4
ASEU04	12	Z	500	7	9.6	-4.1
ASEU04	00	Z	500	10	7.6	-4.8
ASEU06	12	Z	500	9	12.6	10.0
ASEU06	00	Z	500	12	22.8	14.3
ASFR1	12	Z	500	13	4.0	1.0
ASFR1	00	Z	500	18	8.0	-3.3
ASFR2	12	Z	500	6	15.9	15.0
ASFR2	00	Z	500	6	14.9	14.7
ASFR3	12	Z	500	9	4.9	2.7
ASFR3	00	Z	500	9	8.7	-4.3
ASFR4	12	Z	500	10	8.9	-1.6
ASFR4	00	Z	500	9	4.8	0.5

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 500 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : FEB 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	500	29	2.5	-0.1	0.6
01001	12	V	500	29	3.0	0.2	0.8
01028	00	V	500	27	3.1	-0.4	-0.1
01028	12	V	500	28	3.0	0.0	-0.2
01400	00	V	500	12	2.6	-0.2	-0.9
01400	12	V	500	12	3.3	1.2	-0.1
01415	12	V	500	29	2.8	0.2	0.5
01415	00	V	500	28	2.5	-0.2	0.6
02365	12	V	500	24	3.1	0.9	-0.2
02365	00	V	500	25	3.3	0.5	0.2
02591	12	V	500	28	2.8	0.2	0.5
02591	00	V	500	26	2.7	-0.1	1.0
02836	00	V	500	29	2.7	-0.2	0.0
02836	12	V	500	29	3.0	0.2	0.5
02963	12	V	500	29	3.5	0.1	0.5
02963	00	V	500	29	3.1	0.0	0.2
03005	12	V	500	29	3.1	-0.1	-0.4
03005	00	V	500	26	3.4	0.8	-0.1
03238	12	V	500	10	3.7	-0.2	-1.2
03238	00	V	500	23	3.0	0.5	-0.7
03808	12	V	500	29	3.6	0.5	0.7
03808	00	V	500	28	3.7	0.6	0.6
03918	12	V	500	12	3.5	1.5	-0.7
03918	00	V	500	25	2.6	0.1	0.7
03953	12	V	500	29	3.4	0.2	0.2
03953	00	V	500	29	3.7	-0.2	0.4
04018	00	V	500	21	3.1	-0.7	-0.7
04018	12	V	500	27	3.3	0.3	0.6
04220	00	V	500	27	2.7	0.5	0.5
04220	12	V	500	27	3.8	-0.6	-0.4
04270	00	V	500	29	4.4	0.1	-0.5
04270	12	V	500	28	4.3	-1.1	0.0
04320	12	V	500	29	2.7	0.4	-0.1
04320	00	V	500	29	2.8	0.4	-0.1
04339	00	V	500	28	3.2	-0.8	-0.2
04339	12	V	500	27	2.9	-0.9	0.1
04360	00	V	500	28	3.6	-0.3	0.9
04360	12	V	500	25	2.9	0.0	0.4
06011	12	V	500	27	3.3	-0.5	-0.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	500	28	2.6	0.0	-0.4
06260	12	V	500	5	2.1	-0.2	1.1
06260	00	V	500	29	2.4	0.4	-0.1
06610	12	V	500	29	3.6	0.4	0.7
06610	00	V	500	28	3.0	-0.3	0.6
07110	12	V	500	27	3.3	0.8	0.1
07110	00	V	500	26	4.1	0.8	1.1
07510	00	V	500	26	3.7	0.5	0.4
07510	12	V	500	27	3.0	0.1	0.2
07645	00	V	500	27	3.3	-0.2	0.3
07645	12	V	500	28	4.1	0.3	0.7
07761	12	V	500	26	3.8	-0.6	-0.7
07761	00	V	500	26	3.6	0.2	0.7
08001	12	V	500	28	2.8	0.7	0.4
08001	00	V	500	26	4.5	0.1	1.2
08221	00	V	500	23	3.2	0.2	-0.7
08221	12	V	500	23	3.2	0.0	0.4
08302	00	V	500	27	3.3	-0.5	0.3
08302	12	V	500	27	3.8	0.1	-0.1
08508	12	V	500	29	3.1	0.8	-0.2
08522	12	V	500	28	3.0	1.1	0.6
08579	12	V	500	29	3.0	0.1	-0.1
08579	00	V	500	1	5.8	-5.1	2.7
10035	00	V	500	29	3.1	0.1	-0.4
10035	12	V	500	29	3.1	0.1	-0.2
10393	12	V	500	29	2.7	0.9	0.0
10393	00	V	500	29	3.2	1.2	-0.5
10410	00	V	500	27	2.7	-0.1	0.0
10410	12	V	500	29	3.7	0.3	0.0
10739	00	V	500	29	2.8	0.5	-0.1
10739	12	V	500	29	3.7	0.7	-0.6
11035	12	V	500	29	3.7	0.5	0.2
11035	00	V	500	29	4.0	1.0	-1.1
12982	12	V	500	28	4.3	0.9	-0.2
12982	00	V	500	27	3.0	0.7	0.3
16044	12	V	500	29	3.4	0.2	-0.1
16044	00	V	500	29	3.1	0.2	0.0
16080	00	V	500	29	4.0	0.5	0.2
16080	12	V	500	29	3.3	-0.2	0.4
16245	12	V	500	29	3.5	0.1	-0.5
16245	00	V	500	29	3.4	0.4	0.1
16320	00	V	500	28	3.3	1.1	-0.3
16320	12	V	500	29	2.9	0.4	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	500	29	3.4	0.2	-0.1
16429	00	V	500	28	3.3	0.2	0.2
16622	00	V	500	26	6.5	0.8	0.1
16754	00	V	500	26	6.7	1.1	1.1
17607	12	V	500	21	2.2	0.0	-0.7
26435	00	V	500	14	3.7	0.5	0.1
60018	00	V	500	29	3.2	0.4	0.2
60018	12	V	500	29	4.3	1.4	-0.2
ASDE01	12	V	500	9	4.9	-0.9	1.5
ASDE01	00	V	500	8	4.6	-0.3	0.5
ASDE03	12	V	500	12	3.3	-1.2	0.0
ASDE03	00	V	500	15	3.2	0.0	0.6
ASDE04	12	V	500	10	5.0	0.5	-1.0
ASDE04	00	V	500	10	3.1	-0.8	-0.8
ASDE09	12	V	500	3	3.5	-2.1	1.4
ASDK03	12	V	500	7	4.2	0.4	1.5
ASDK03	00	V	500	7	3.6	-0.6	0.1
ASDK3	12	V	500	6	4.0	0.3	0.5
ASDK3	00	V	500	7	4.0	-0.2	0.6
ASES01	12	V	500	20	3.3	0.5	-0.7
ASEU02	12	V	500	7	3.3	0.0	0.6
ASEU02	00	V	500	7	2.1	0.3	-0.7
ASEU03	12	V	500	6	5.7	1.3	1.8
ASEU03	00	V	500	12	3.0	-0.7	0.8
ASEU04	12	V	500	7	4.3	0.7	0.2
ASEU04	00	V	500	8	4.8	1.3	1.6
ASEU06	12	V	500	9	4.0	0.8	-1.5
ASEU06	00	V	500	11	5.3	0.9	-1.2
ASFR1	12	V	500	13	3.0	-0.7	0.9
ASFR1	00	V	500	14	4.1	0.2	0.2
ASFR2	12	V	500	6	2.8	-0.1	-0.7
ASFR2	00	V	500	6	2.7	-0.5	0.9
ASFR3	12	V	500	8	5.5	-2.2	-0.5
ASFR3	00	V	500	8	4.3	-0.1	0.4
ASFR4	12	V	500	9	3.2	-0.8	-1.0
ASFR4	00	V	500	9	4.0	-1.0	0.9

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 850 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : FEB 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	850	29	3.9	-0.1
01001	12	Z	850	30	5.7	-0.3
01028	00	Z	850	28	5.4	1.2
01028	12	Z	850	29	2.6	-1.0
01400	00	Z	850	14	18.6	13.9
01400	12	Z	850	12	9.8	8.8
01415	12	Z	850	30	3.8	3.3
01415	00	Z	850	29	4.6	4.0
02365	12	Z	850	30	4.8	4.3
02365	00	Z	850	32	5.7	4.7
02591	12	Z	850	40	8.6	8.3
02591	00	Z	850	33	8.4	8.2
02836	00	Z	850	42	2.5	1.9
02836	12	Z	850	41	2.8	1.8
02963	12	Z	850	34	3.4	2.9
02963	00	Z	850	33	4.3	3.8
03005	12	Z	850	29	5.2	0.3
03005	00	Z	850	28	3.3	0.7
03238	12	Z	850	10	7.1	5.9
03238	00	Z	850	27	6.5	5.8
03808	12	Z	850	29	5.0	4.1
03808	00	Z	850	31	4.6	2.4
03918	12	Z	850	12	6.8	6.4
03918	00	Z	850	27	5.2	4.7
03953	12	Z	850	29	5.7	4.1
03953	00	Z	850	29	4.1	2.3
04018	00	Z	850	23	4.4	1.6
04018	12	Z	850	27	4.0	2.1
04220	00	Z	850	28	9.3	2.5
04220	12	Z	850	27	4.3	1.5
04270	00	Z	850	29	5.8	0.0
04270	12	Z	850	28	4.6	1.9
04320	12	Z	850	29	5.8	2.8
04320	00	Z	850	29	4.8	0.4
04339	00	Z	850	28	5.0	1.8
04339	12	Z	850	27	5.4	1.3
04360	00	Z	850	29	5.6	-3.4
04360	12	Z	850	28	5.4	-1.6
06011	12	Z	850	29	9.5	6.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	850	28	5.8	4.0
06260	12	Z	850	5	2.7	2.3
06260	00	Z	850	29	3.5	2.4
06610	12	Z	850	29	5.2	4.3
06610	00	Z	850	29	5.4	4.5
07110	12	Z	850	28	4.2	2.9
07110	00	Z	850	26	4.4	2.8
07510	00	Z	850	29	4.5	1.9
07510	12	Z	850	29	5.4	1.6
07645	00	Z	850	27	3.3	-0.4
07645	12	Z	850	29	4.4	0.8
07761	12	Z	850	26	4.4	1.3
07761	00	Z	850	26	4.8	0.1
08001	12	Z	850	28	7.2	6.9
08001	00	Z	850	27	7.3	6.8
08221	00	Z	850	30	4.8	3.9
08221	12	Z	850	30	5.0	4.3
08302	00	Z	850	27	3.8	-2.6
08302	12	Z	850	27	3.7	-2.2
08508	12	Z	850	29	12.3	9.3
08522	12	Z	850	28	5.5	4.8
08579	12	Z	850	29	4.6	3.7
08579	00	Z	850	1	4.9	4.9
10035	00	Z	850	29	3.2	-1.1
10035	12	Z	850	29	2.9	0.9
10393	12	Z	850	30	3.0	1.2
10393	00	Z	850	30	2.6	0.2
10410	00	Z	850	28	3.0	-0.9
10410	12	Z	850	29	3.1	-1.5
10739	00	Z	850	30	7.5	6.9
10739	12	Z	850	29	7.4	7.0
11035	12	Z	850	31	5.5	-1.9
11035	00	Z	850	31	3.7	-1.5
12982	12	Z	850	28	7.2	4.7
12982	00	Z	850	29	4.0	1.3
16044	12	Z	850	29	4.6	0.4
16044	00	Z	850	29	5.2	1.3
16080	00	Z	850	29	5.5	-3.5
16080	12	Z	850	29	4.2	-2.9
16245	12	Z	850	29	8.7	-7.2
16245	00	Z	850	29	8.5	-6.7
16320	00	Z	850	29	14.1	-3.8
16320	12	Z	850	29	5.6	-2.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	850	30	9.4	-5.6
16429	00	Z	850	29	6.4	-2.6
16622	00	Z	850	28	13.6	10.6
16754	00	Z	850	26	7.7	3.8
17607	12	Z	850	41	3.8	1.9
26435	00	Z	850	14	2.8	1.1
60018	00	Z	850	29	4.1	-2.3
60018	12	Z	850	30	4.5	-2.7
ASDE01	12	Z	850	10	20.0	-11.9
ASDE01	00	Z	850	11	32.7	-22.9
ASDE03	12	Z	850	15	7.6	1.3
ASDE03	00	Z	850	17	10.1	2.0
ASDE04	12	Z	850	11	22.6	17.6
ASDE04	00	Z	850	12	18.1	12.5
ASDE09	12	Z	850	5	6.2	4.1
ASDK03	12	Z	850	10	31.6	9.8
ASDK03	00	Z	850	12	27.8	27.7
ASDK3	12	Z	850	6	31.8	14.4
ASDK3	00	Z	850	7	27.7	27.5
ASES01	12	Z	850	22	14.5	13.9
ASEU02	12	Z	850	8	27.7	27.4
ASEU02	00	Z	850	8	28.8	27.8
ASEU03	12	Z	850	7	6.2	1.7
ASEU03	00	Z	850	13	18.5	-4.5
ASEU04	12	Z	850	8	11.5	-7.8
ASEU04	00	Z	850	10	11.9	-8.3
ASEU06	12	Z	850	9	11.2	4.5
ASEU06	00	Z	850	12	12.3	5.8
ASFR1	12	Z	850	13	4.8	-3.6
ASFR1	00	Z	850	18	5.3	-4.1
ASFR2	12	Z	850	6	9.1	8.8
ASFR2	00	Z	850	6	8.5	8.2
ASFR3	12	Z	850	9	3.8	-0.5
ASFR3	00	Z	850	9	6.4	-3.4
ASFR4	12	Z	850	11	9.1	-6.8
ASFR4	00	Z	850	10	5.5	-3.5

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 850 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : FEB 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	850	29	4.9	1.4	0.0
01001	12	V	850	29	3.8	1.0	0.1
01028	00	V	850	27	2.8	0.3	0.0
01028	12	V	850	28	2.8	-0.4	0.1
01400	00	V	850	12	2.0	-0.3	-0.2
01400	12	V	850	12	2.2	0.0	-0.4
01415	12	V	850	29	2.3	-0.4	-0.4
01415	00	V	850	28	2.3	-0.6	0.0
02365	12	V	850	23	3.1	-0.1	-0.4
02365	00	V	850	25	3.0	-0.3	0.7
02591	12	V	850	28	2.9	0.4	-0.1
02591	00	V	850	26	2.4	-0.1	-0.3
02836	00	V	850	29	2.5	-0.1	0.3
02836	12	V	850	29	2.7	-0.2	-0.3
02963	12	V	850	29	2.6	0.4	0.3
02963	00	V	850	29	2.2	-0.2	0.0
03005	12	V	850	29	3.3	-0.4	0.3
03005	00	V	850	26	2.6	-0.2	0.2
03238	12	V	850	10	3.1	-1.5	-0.1
03238	00	V	850	23	2.4	0.4	0.2
03808	12	V	850	29	3.1	-0.1	-0.2
03808	00	V	850	28	3.2	-0.8	0.3
03918	12	V	850	12	3.3	-0.2	0.3
03918	00	V	850	25	2.4	-0.1	0.2
03953	12	V	850	29	2.9	0.3	0.5
03953	00	V	850	29	4.1	0.0	0.7
04018	00	V	850	21	3.9	0.3	-0.6
04018	12	V	850	27	3.4	0.4	0.0
04220	00	V	850	27	2.9	-0.1	-0.1
04220	12	V	850	27	3.5	0.2	0.3
04270	00	V	850	29	4.9	0.4	0.8
04270	12	V	850	28	4.9	0.8	0.9
04320	12	V	850	29	3.4	0.6	-0.1
04320	00	V	850	29	3.8	0.1	0.3
04339	00	V	850	28	6.2	2.5	2.0
04339	12	V	850	27	5.9	1.5	1.5
04360	00	V	850	29	6.2	1.4	0.6
04360	12	V	850	28	7.8	3.6	0.8
06011	12	V	850	29	3.2	0.0	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	850	28	3.0	-0.1	-0.2
06260	12	V	850	5	3.9	-0.4	-2.1
06260	00	V	850	29	2.7	0.4	-1.0
06610	12	V	850	29	3.1	1.1	-0.3
06610	00	V	850	28	3.8	1.5	-0.1
07110	12	V	850	28	3.3	-0.1	-0.4
07110	00	V	850	26	3.6	0.0	0.3
07510	00	V	850	26	3.3	-0.2	0.8
07510	12	V	850	27	3.5	-0.4	0.6
07645	00	V	850	27	3.8	-0.4	0.1
07645	12	V	850	28	4.1	-0.5	1.9
07761	12	V	850	26	4.1	-1.3	0.4
07761	00	V	850	26	4.6	-0.4	0.8
08001	12	V	850	28	2.9	0.1	0.8
08001	00	V	850	26	3.0	-0.3	0.6
08221	00	V	850	23	4.0	1.0	-0.1
08221	12	V	850	23	3.7	0.1	-0.6
08302	00	V	850	27	3.5	0.6	0.7
08302	12	V	850	27	4.6	0.0	1.4
08508	12	V	850	29	3.0	0.3	-0.4
08522	12	V	850	28	5.0	0.6	0.1
08579	12	V	850	29	3.0	0.8	-0.6
08579	00	V	850	1	3.5	3.2	1.5
10035	00	V	850	29	2.8	0.7	0.1
10035	12	V	850	29	2.5	0.2	0.0
10393	12	V	850	29	2.4	0.5	0.5
10393	00	V	850	29	2.5	0.0	-0.2
10410	00	V	850	27	1.9	0.1	-0.2
10410	12	V	850	29	2.6	0.0	0.2
10739	00	V	850	29	3.0	0.2	-0.2
10739	12	V	850	29	4.0	0.0	-0.9
11035	12	V	850	29	3.8	-0.4	-0.3
11035	00	V	850	29	4.2	-0.3	-0.1
12982	12	V	850	27	3.7	-0.3	-0.1
12982	00	V	850	28	4.3	-0.1	0.2
16044	12	V	850	29	3.5	0.3	0.0
16044	00	V	850	29	4.3	0.2	-0.8
16080	00	V	850	29	3.7	1.4	-0.6
16080	12	V	850	29	3.2	0.5	0.1
16245	12	V	850	29	4.0	0.2	0.8
16245	00	V	850	29	4.0	0.5	-0.5
16320	00	V	850	28	3.7	0.1	0.0
16320	12	V	850	29	3.5	0.7	-0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	850	29	3.5	-0.6	1.3
16429	00	V	850	29	3.4	-0.3	0.2
16622	00	V	850	26	5.1	0.3	0.1
16754	00	V	850	26	3.9	-0.6	0.0
17607	12	V	850	21	3.3	0.7	0.6
26435	00	V	850	14	2.5	-1.2	0.6
60018	00	V	850	29	3.2	-0.3	-0.4
60018	12	V	850	29	3.9	-0.3	0.0
ASDE01	12	V	850	9	3.4	-0.2	-1.6
ASDE01	00	V	850	9	3.4	0.7	-0.1
ASDE03	12	V	850	12	4.9	1.8	0.0
ASDE03	00	V	850	15	2.7	0.9	-0.2
ASDE04	12	V	850	10	3.3	-0.8	-0.7
ASDE04	00	V	850	10	3.1	0.8	-0.2
ASDE09	12	V	850	3	1.7	-1.3	0.3
ASDK03	12	V	850	7	3.9	1.4	1.4
ASDK03	00	V	850	7	5.3	-0.2	0.4
ASDK3	12	V	850	6	3.1	0.5	1.6
ASDK3	00	V	850	7	5.6	-0.5	0.2
ASES01	12	V	850	20	2.7	0.0	-0.1
ASEU02	12	V	850	7	2.5	0.6	0.2
ASEU02	00	V	850	8	2.2	0.0	0.6
ASEU03	12	V	850	6	1.8	-0.8	-0.2
ASEU03	00	V	850	12	2.3	0.2	-0.6
ASEU04	12	V	850	8	3.7	-0.4	0.0
ASEU04	00	V	850	8	3.4	1.2	0.1
ASEU06	12	V	850	9	2.3	0.5	-0.3
ASEU06	00	V	850	9	5.7	0.4	2.1
ASFR1	12	V	850	13	2.9	0.8	0.1
ASFR1	00	V	850	15	3.4	0.8	0.8
ASFR2	12	V	850	6	3.2	-1.2	0.0
ASFR2	00	V	850	6	2.9	1.1	-0.9
ASFR3	12	V	850	8	2.4	-0.8	0.1
ASFR3	00	V	850	8	5.0	-0.6	-0.5
ASFR4	12	V	850	10	3.8	-0.9	-0.3
ASFR4	00	V	850	10	2.4	0.0	0.4

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : FEB 2016
 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
002	99	P	SUR	72	16	2	0	0.7	0.5	0.8
02031	99	P	SUR	65	-11	2	0	0.1	-0.4	0.4
03380	99	P	SUR	54	0	672	0	0.4	-0.2	0.5
13008	99	P	SUR	15	-38	88	0	0.6	-0.1	0.6
13515	99	P	SUR	28	-53	519	0	0.4	0.1	0.4
13517	99	P	SUR	18	-57	443	0	0.3	0.0	0.3
13519	99	P	SUR	20	-46	272	1	0.3	0.2	0.4
13530	99	P	SUR	14	-26	179	0	0.4	0.0	0.4
13569	99	P	SUR	30	-36	139	2	0.3	-0.1	0.3
13570	99	P	SUR	39	-16	593	0	0.4	0.5	0.7
13572	99	P	SUR	35	-21	458	0	0.3	0.1	0.3
13633	99	P	SUR	32	-22	491	0	0.3	-0.6	0.6
13659	99	P	SUR	37	-27	320	0	0.3	0.0	0.3
13660	99	P	SUR	32	-50	29	9	5.5	-4.1	6.8
13661	99	P	SUR	16	-39	502	0	1.1	-0.3	1.2
13665	99	P	SUR	24	-23	672	0	0.4	0.3	0.5
13868	99	P	SUR	33	-14	672	0	0.3	0.5	0.6
13869	99	P	SUR	23	-42	672	0	0.3	0.3	0.4
13871	99	P	SUR	30	-33	651	0	0.4	0.8	0.8
13872	99	P	SUR	25	-30	672	0	0.3	0.6	0.7
21942	99	P	SUR	29	-46	611	0	0.3	0.3	0.4
25575	99	P	SUR	66	-34	580	0	0.7	-0.5	0.9
25617	99	P	SUR	68	-27	543	0	1.7	-0.7	1.8
25618	99	P	SUR	71	-18	3	0	0.3	0.6	0.7
26537	99	P	SUR	76	8	507	3	2.1	0.4	2.2
26545	99	P	SUR	82	1	663	254	1.8	0.6	1.9
26546	99	P	SUR	76	-12	614	24	2.0	0.8	2.1
31602	99	P	SUR	25	36	1	0	0.0	0.4	0.4
31863	99	P	SUR	24	-58	555	0	0.3	0.5	0.7
41040	99	P	SUR	15	-53	667	0	0.3	-0.7	0.7
41041	99	P	SUR	14	-46	668	0	0.3	-0.4	0.5
41043	99	P	SUR	21	-65	670	0	0.3	-0.3	0.5
41044	99	P	SUR	22	-59	667	0	0.4	-0.3	0.5
41046	99	P	SUR	24	-68	695	0	0.4	-0.2	0.5
41048	99	P	SUR	32	-70	693	0	0.6	-0.8	1.0
41049	99	P	SUR	28	-63	666	0	0.4	-0.4	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
41051	99	P	SUR	18	-65	1466	0	0.4	-0.1	0.4
41052	99	P	SUR	18	-65	1568	0	0.4	-1.1	1.2
41053	99	P	SUR	19	-66	1774	0	0.4	-0.4	0.6
41056	99	P	SUR	18	-66	1661	0	0.4	-0.8	0.9
41139	99	P	SUR	20	-38	198	0	0.3	-0.2	0.4
41300	99	P	SUR	16	-58	8	1	1.7	0.1	1.7
41594	99	P	SUR	32	-62	475	0	0.5	-0.3	0.6
41597	99	P	SUR	24	-56	672	0	0.4	0.2	0.4
41598	99	P	SUR	28	-60	672	0	1.2	-0.2	1.2
41635	99	P	SUR	20	-49	671	0	0.3	0.6	0.7
41706	99	P	SUR	35	-54	672	0	0.6	0.0	0.6
41707	99	P	SUR	14	-61	670	0	0.3	-0.9	1.0
41708	99	P	SUR	14	-42	672	0	0.4	0.3	0.5
41711	99	P	SUR	35	-20	672	0	0.4	0.1	0.4
41729	99	P	SUR	35	-57	672	0	0.6	-0.0	0.6
41731	99	P	SUR	27	-55	672	0	0.4	0.2	0.4
41936	99	P	SUR	31	-64	74	0	0.4	-1.0	1.1
41970	99	P	SUR	33	-69	670	0	0.5	-0.2	0.6
41972	99	P	SUR	32	-46	672	0	0.3	0.0	0.3
41975	99	P	SUR	30	-23	532	0	0.3	0.2	0.3
42059	99	P	SUR	15	-68	672	0	0.4	-0.1	0.4
42060	99	P	SUR	16	-63	672	0	0.3	0.0	0.3
42085	99	P	SUR	18	-67	1703	0	0.4	-0.8	0.8
44005	99	P	SUR	43	-69	718	0	0.6	-0.9	1.1
44008	99	P	SUR	41	-69	671	0	0.7	-0.8	1.0
44011	99	P	SUR	41	-67	671	0	0.7	-1.2	1.3
44018	99	P	SUR	42	-70	671	0	0.7	-0.4	0.8
44024	99	P	SUR	42	-66	705	0	0.7	-1.0	1.2
44027	99	P	SUR	44	-67	695	0	0.8	-0.4	0.9
44032	99	P	SUR	44	-69	669	0	0.6	-1.3	1.5
44033	99	P	SUR	44	-69	664	0	0.6	-1.4	1.5
44034	99	P	SUR	44	-68	598	0	0.7	-0.5	0.9
44037	99	P	SUR	44	-68	439	6	0.6	-0.3	0.7
44137	99	P	SUR	42	-62	683	0	0.8	-0.1	0.8
44139	99	P	SUR	44	-57	642	0	0.9	-0.0	0.9
44141	99	P	SUR	43	-58	632	0	0.8	-0.1	0.8
44150	99	P	SUR	43	-64	624	0	0.7	-0.1	0.7
44251	99	P	SUR	46	-53	647	0	0.7	0.1	0.7
44255	99	P	SUR	47	-57	527	0	0.8	-0.1	0.8
44258	99	P	SUR	45	-63	35	0	0.7	-0.1	0.7
44513	99	P	SUR	54	-12	672	0	0.6	0.4	0.7
44515	99	P	SUR	52	-45	672	0	0.6	-0.1	0.6
44516	99	P	SUR	42	-41	479	0	0.5	0.3	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44517	99	P	SUR	41	-15	672	0	0.3	0.4	0.5
44521	99	P	SUR	41	-53	512	0	0.6	-0.6	0.8
44546	99	P	SUR	28	-47	671	0	0.3	-0.1	0.3
44547	99	P	SUR	63	-16	672	0	1.3	0.2	1.3
44548	99	P	SUR	63	-23	672	0	0.6	0.3	0.7
44549	99	P	SUR	57	-6	12	0	2.6	-1.8	3.1
44551	99	P	SUR	64	-1	672	0	0.5	0.1	0.5
44557	99	P	SUR	38	-49	672	0	0.6	0.3	0.7
44558	99	P	SUR	30	-43	496	0	0.4	0.7	0.8
44601	99	P	SUR	52	-5	190	0	0.6	-0.6	0.8
44608	99	P	SUR	49	-7	672	0	0.5	0.2	0.5
44609	99	P	SUR	50	-7	208	0	0.6	0.2	0.6
44613	99	P	SUR	26	-39	672	0	0.3	-0.0	0.3
44614	99	P	SUR	53	-15	664	0	0.7	-0.4	0.8
44624	99	P	SUR	26	-42	658	0	0.3	-0.1	0.3
44625	99	P	SUR	57	-40	666	0	0.6	0.3	0.7
44670	99	P	SUR	47	-51	650	0	0.9	0.4	1.0
44739	99	P	SUR	35	-35	671	0	0.4	0.8	0.9
44740	99	P	SUR	30	-54	672	0	0.3	-0.3	0.4
44744	99	P	SUR	46	-33	673	0	0.8	-0.0	0.8
44746	99	P	SUR	35	-37	672	0	0.9	1.0	1.3
44747	99	P	SUR	47	-24	672	0	0.5	-0.1	0.5
44760	99	P	SUR	53	-38	507	0	0.9	-0.7	1.1
44761	99	P	SUR	57	-18	672	0	0.6	-0.5	0.8
44763	99	P	SUR	65	-36	364	0	0.8	0.1	0.8
44764	99	P	SUR	58	-19	672	0	0.6	-0.5	0.8
44765	99	P	SUR	47	-45	648	0	0.8	0.7	1.0
44766	99	P	SUR	43	-51	672	0	1.0	0.2	1.0
44768	99	P	SUR	37	-41	672	0	0.4	1.0	1.0
44769	99	P	SUR	35	-68	672	0	0.7	-0.5	0.9
44772	99	P	SUR	51	-45	672	0	0.5	-0.2	0.6
44773	99	P	SUR	51	-29	440	0	0.8	-0.4	0.9
44775	99	P	SUR	32	-69	672	0	0.5	0.0	0.5
44776	99	P	SUR	39	-29	671	0	0.4	0.8	0.8
44777	99	P	SUR	44	-49	672	0	1.0	0.5	1.1
44778	99	P	SUR	36	-42	672	0	0.3	0.4	0.5
44779	99	P	SUR	47	-55	672	0	0.9	0.3	1.0
44835	99	P	SUR	35	-23	672	0	0.3	-0.2	0.4
44836	99	P	SUR	63	-2	672	0	0.5	0.2	0.5
44837	99	P	SUR	22	-36	672	0	0.3	-0.1	0.3
44839	99	P	SUR	35	-17	672	0	0.3	0.0	0.3
44846	99	P	SUR	36	-22	670	0	0.3	0.7	0.8
44848	99	P	SUR	36	-21	670	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
44863	99	P	SUR	26	-54	672	0	0.4	-0.5	0.7
44866	99	P	SUR	69	0	672	0	0.5	-0.2	0.6
44867	99	P	SUR	59	-18	504	7	0.9	-0.2	0.9
44868	99	P	SUR	25	-51	672	0	0.4	0.2	0.4
44872	99	P	SUR	63	-18	88	20	2.7	-2.1	3.5
44873	99	P	SUR	37	-38	672	0	0.4	1.4	1.4
44874	99	P	SUR	44	-42	672	0	1.1	0.4	1.2
44878	99	P	SUR	42	-9	672	0	0.6	0.1	0.6
44880	99	P	SUR	52	-6	87	0	0.4	-0.1	0.4
44885	99	P	SUR	37	-15	672	0	0.3	-0.1	0.3
44887	99	P	SUR	34	-44	672	0	0.3	0.0	0.3
44888	99	P	SUR	44	-7	672	0	0.5	-0.2	0.5
44889	99	P	SUR	33	-50	672	0	0.3	-0.1	0.3
44890	99	P	SUR	29	-68	672	0	0.4	-0.2	0.5
44891	99	P	SUR	27	-52	672	0	0.4	-0.2	0.4
44896	99	P	SUR	33	-48	552	0	0.5	-0.5	0.7
44901	99	P	SUR	43	-50	272	0	0.7	0.1	0.7
44902	99	P	SUR	44	-48	272	0	0.6	0.3	0.7
44903	99	P	SUR	45	-43	197	0	0.6	-0.0	0.6
44904	99	P	SUR	45	-40	248	1	0.7	-0.1	0.7
47503	99	P	SUR	57	-42	325	325	0.0	0.0	0.0
47509	99	P	SUR	84	-26	469	0	0.6	0.2	0.7
47539	99	P	SUR	42	-51	662	0	1.1	0.7	1.3
47540	99	P	SUR	47	-47	643	0	0.8	0.7	1.0
47546	99	P	SUR	47	-52	661	0	1.0	0.5	1.1
47549	99	P	SUR	46	-48	659	0	1.0	0.4	1.0
47551	99	P	SUR	57	-61	667	0	0.7	-1.7	1.8
47552	99	P	SUR	67	-63	457	0	0.6	-1.5	1.6
47555	99	P	SUR	47	-52	670	0	0.7	0.5	0.8
47557	99	P	SUR	49	-51	658	0	0.7	0.1	0.7
47560	99	P	SUR	46	-45	671	0	0.9	0.7	1.1
47562	99	P	SUR	52	-47	646	0	0.6	0.5	0.8
47567	99	P	SUR	49	-50	659	0	0.9	0.7	1.1
47568	99	P	SUR	46	-48	548	0	1.0	1.2	1.6
47569	99	P	SUR	42	-50	567	0	0.8	0.9	1.2
47574	99	P	SUR	43	-49	662	0	1.1	0.4	1.2
47584	99	P	SUR	45	-50	668	0	0.7	0.3	0.8
47589	99	P	SUR	67	-63	597	0	0.7	-1.8	1.9
48520	99	P	SUR	87	-38	275	0	0.6	0.2	0.6
48568	99	P	SUR	59	-15	602	0	2.1	-0.2	2.1
61001	99	P	SUR	43	8	669	0	0.7	0.6	0.9
62001	99	P	SUR	45	-5	1105	0	0.5	0.1	0.5
62027	99	P	SUR	49	-2	182	0	0.6	0.0	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62030	99	P	SUR	50	-4	271	0	0.5	0.1	0.5
62050	99	P	SUR	50	-4	1	0	0.0	0.1	0.1
62081	99	P	SUR	51	-13	672	0	0.6	-0.4	0.7
62082	99	P	SUR	55	6	2	0	0.3	-0.7	0.8
62086	99	P	SUR	55	6	499	0	0.4	-0.3	0.5
62091	99	P	SUR	53	-5	588	1	0.6	-0.2	0.7
62093	99	P	SUR	55	-10	12	2	1.1	13.2	13.2
62095	99	P	SUR	53	-16	1016	0	0.7	0.0	0.7
62102	99	P	SUR	58	2	672	0	0.4	-0.0	0.4
62103	99	P	SUR	50	-3	672	0	0.6	0.3	0.7
62104	99	P	SUR	57	1	669	0	0.5	-0.1	0.5
62105	99	P	SUR	55	-13	524	0	0.7	-0.2	0.7
62107	99	P	SUR	50	-6	1309	0	0.6	0.2	0.6
62111	99	P	SUR	58	0	671	0	0.5	1.4	1.5
62112	99	P	SUR	58	0	672	0	0.5	0.2	0.5
62113	99	P	SUR	58	0	672	0	0.8	0.4	0.9
62114	99	P	SUR	58	0	1341	0	0.6	0.1	0.6
62115	99	P	SUR	58	-3	667	0	0.6	0.0	0.6
62116	99	P	SUR	58	1	664	0	0.6	-0.0	0.6
62117	99	P	SUR	58	0	670	0	0.4	0.2	0.5
62118	99	P	SUR	58	1	669	0	0.4	0.5	0.7
62119	99	P	SUR	57	2	668	0	0.7	0.2	0.7
62120	99	P	SUR	56	2	670	0	0.5	-0.0	0.5
62121	99	P	SUR	54	3	670	0	0.7	0.6	0.9
62122	99	P	SUR	57	2	1315	0	0.6	0.1	0.6
62123	99	P	SUR	56	2	1341	0	0.6	-0.1	0.6
62124	99	P	SUR	54	-4	651	0	0.5	-0.1	0.5
62127	99	P	SUR	54	1	644	0	0.5	0.4	0.6
62128	99	P	SUR	59	1	649	0	0.6	0.1	0.6
62129	99	P	SUR	58	0	672	0	0.8	0.3	0.8
62130	99	P	SUR	59	1	671	0	0.5	-0.2	0.5
62131	99	P	SUR	54	1	326	0	0.3	0.4	0.5
62132	99	P	SUR	56	2	634	0	0.6	0.5	0.8
62133	99	P	SUR	57	1	668	0	0.6	0.0	0.6
62134	99	P	SUR	58	1	672	0	0.5	0.3	0.5
62135	99	P	SUR	54	2	671	0	0.5	0.2	0.6
62136	99	P	SUR	54	3	671	0	0.5	0.5	0.8
62137	99	P	SUR	57	2	534	12	0.9	-0.2	0.9
62138	99	P	SUR	54	0	1339	0	0.7	1.0	1.2
62139	99	P	SUR	53	2	1339	0	0.4	0.2	0.5
62140	99	P	SUR	57	1	1329	0	0.5	-0.0	0.5
62141	99	P	SUR	56	-3	661	0	1.5	-1.4	2.0
62143	99	P	SUR	58	2	672	0	0.6	0.6	0.9

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62144	99	P	SUR	53	2	671	0	0.5	0.3	0.6
62145	99	P	SUR	53	3	1341	0	0.5	0.4	0.6
62146	99	P	SUR	57	2	659	0	0.9	0.5	1.0
62148	99	P	SUR	54	2	671	0	0.5	1.1	1.2
62149	99	P	SUR	54	1	672	0	0.4	0.7	0.8
62150	99	P	SUR	54	1	672	0	0.5	1.2	1.3
62151	99	P	SUR	57	2	1341	0	0.4	0.1	0.4
62152	99	P	SUR	57	2	672	0	0.6	0.7	0.9
62153	99	P	SUR	57	2	1273	0	0.5	0.2	0.5
62154	99	P	SUR	56	2	671	0	0.4	-0.0	0.4
62155	99	P	SUR	58	1	672	0	0.5	0.5	0.7
62157	99	P	SUR	58	0	671	0	0.5	-0.0	0.5
62159	99	P	SUR	58	-4	655	0	0.5	-2.3	2.4
62160	99	P	SUR	57	2	1341	0	0.5	-0.2	0.5
62162	99	P	SUR	57	1	656	0	0.5	-0.2	0.5
62163	99	P	SUR	48	-8	671	0	0.4	-0.1	0.5
62164	99	P	SUR	57	1	668	0	0.4	0.1	0.4
62165	99	P	SUR	54	1	667	0	0.5	0.4	0.7
62166	99	P	SUR	53	3	668	0	0.4	0.4	0.6
62167	99	P	SUR	53	2	1337	0	0.5	0.1	0.5
62168	99	P	SUR	58	1	668	0	0.5	0.0	0.5
62170	99	P	SUR	51	2	671	0	1.0	-0.7	1.2
62198	99	P	SUR	52	2	723	0	0.5	0.4	0.6
62296	99	P	SUR	53	2	663	0	0.5	-0.0	0.5
62297	99	P	SUR	59	2	1339	0	0.4	0.0	0.5
62301	99	P	SUR	52	-5	673	0	0.5	0.2	0.5
62302	99	P	SUR	61	-2	181	1	0.4	-0.1	0.4
62303	99	P	SUR	52	-5	665	6	0.6	0.6	0.8
62304	99	P	SUR	51	2	741	1	0.5	0.3	0.5
62305	99	P	SUR	50	0	750	1	0.6	0.3	0.7
62513	99	P	SUR	58	-38	672	0	0.9	-0.0	0.9
62539	99	P	SUR	63	-12	672	0	1.5	0.1	1.5
62553	99	P	SUR	57	-27	672	0	0.7	-0.1	0.7
62554	99	P	SUR	46	-18	672	0	0.6	0.4	0.7
62555	99	P	SUR	46	-12	672	0	0.6	0.4	0.7
62556	99	P	SUR	41	-30	672	0	0.6	1.1	1.2
62557	99	P	SUR	51	-23	671	0	0.7	-0.1	0.7
62695	99	P	SUR	25	-49	16	0	0.7	-9.0	9.0
62713	99	P	SUR	29	-56	670	0	0.4	-0.4	0.5
62714	99	P	SUR	32	-52	669	0	0.4	-0.4	0.6
62886	99	P	SUR	55	6	1	0	0.0	-0.1	0.1
62940	99	P	SUR	37	-34	672	0	0.4	0.0	0.4
62941	99	P	SUR	35	-15	672	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
63055	99	P	SUR	61	2	672	0	0.6	0.0	0.6
63056	99	P	SUR	60	2	672	0	0.5	0.2	0.6
63057	99	P	SUR	59	2	670	0	0.5	-0.2	0.5
63058	99	P	SUR	53	2	2014	0	0.4	0.3	0.5
63059	99	P	SUR	58	-1	671	0	0.5	0.3	0.6
63101	99	P	SUR	61	1	671	0	0.6	0.1	0.6
63102	99	P	SUR	61	1	671	0	0.6	0.1	0.6
63103	99	P	SUR	61	1	671	0	0.5	0.2	0.5
63104	99	P	SUR	61	2	672	0	0.5	0.0	0.5
63105	99	P	SUR	61	2	671	0	0.6	0.0	0.7
63107	99	P	SUR	61	2	608	0	0.5	-0.3	0.5
63108	99	P	SUR	61	2	672	0	0.6	-0.1	0.6
63109	99	P	SUR	60	2	669	0	0.5	-0.1	0.5
63110	99	P	SUR	60	2	666	0	0.5	-0.2	0.5
63111	99	P	SUR	61	2	1327	0	0.6	-0.5	0.8
63112	99	P	SUR	61	1	664	0	0.4	-0.4	0.6
63114	99	P	SUR	61	2	1333	0	0.5	-0.3	0.6
63115	99	P	SUR	62	1	670	0	0.6	0.2	0.6
63116	99	P	SUR	58	-4	46	0	0.9	-1.5	1.7
63117	99	P	SUR	61	1	1337	0	0.7	0.4	0.8
63118	99	P	SUR	62	1	531	0	0.6	-0.5	0.8
63119	99	P	SUR	58	0	91	0	0.6	-0.6	0.9
63120	99	P	SUR	54	2	669	0	0.5	0.4	0.6
63546	99	P	SUR	64	-22	178	45	5.1	-2.3	5.6
63561	99	P	SUR	72	0	615	0	0.6	0.2	0.7
63645	99	P	SUR	77	11	81	0	4.1	-3.0	5.1
63923	99	P	SUR	71	-19	667	249	7.1	-2.8	7.7
64041	99	P	SUR	61	-3	672	0	0.5	-0.0	0.5
64045	99	P	SUR	59	-12	1298	0	0.6	0.0	0.7
64046	99	P	SUR	61	-4	422	0	0.4	0.1	0.4
64519	99	P	SUR	76	15	665	1	0.5	0.3	0.6
64521	99	P	SUR	74	16	672	2	3.0	0.0	3.0
64523	99	P	SUR	70	3	503	5	0.8	-0.1	0.8
64524	99	P	SUR	67	13	672	0	0.5	-0.1	0.5
64525	99	P	SUR	67	-23	504	0	1.3	0.2	1.3
64526	99	P	SUR	59	-53	480	0	1.7	-0.5	1.8
64528	99	P	SUR	66	9	672	0	0.4	0.4	0.6
64530	99	P	SUR	75	9	671	0	0.6	0.4	0.7
64532	99	P	SUR	54	-18	561	0	1.9	-11.3	11.4
64537	99	P	SUR	69	-22	4	0	0.4	1.0	1.1
64538	99	P	SUR	72	-21	389	115	5.1	-1.6	5.4
64547	99	P	SUR	69	4	671	0	0.5	0.2	0.5
64549	99	P	SUR	64	-24	672	0	0.7	-0.2	0.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
64550	99	P	SUR	63	-36	117	2	3.4	-0.4	3.4
64551	99	P	SUR	55	-38	672	0	0.9	0.7	1.1
64553	99	P	SUR	65	4	672	0	0.4	0.0	0.4
64554	99	P	SUR	64	-24	672	0	0.5	0.5	0.7
64555	99	P	SUR	61	-8	672	0	0.5	0.3	0.6
64560	99	P	SUR	62	-21	672	0	0.7	0.3	0.8
64561	99	P	SUR	61	-12	24	17	2.1	-8.3	8.5
64562	99	P	SUR	63	-17	656	0	0.5	0.0	0.5
64606	99	P	SUR	72	26	672	0	0.4	0.5	0.7
64621	99	P	SUR	65	-27	408	0	0.7	-0.1	0.7
64623	99	P	SUR	71	-10	424	1	3.5	-2.2	4.1
64666	99	P	SUR	77	-3	672	0	2.4	0.6	2.5
64667	99	P	SUR	61	-1	640	0	0.6	-0.4	0.7
64668	99	P	SUR	60	-42	171	0	0.6	-0.2	0.7
64694	99	P	SUR	62	-33	552	22	2.6	-0.6	2.7
64748	99	P	SUR	88	-50	473	0	0.6	-0.4	0.7
64749	99	P	SUR	87	-19	614	0	0.6	-0.6	0.9
64751	99	P	SUR	85	2	231	0	0.6	-0.5	0.8
65514	99	P	SUR	54	-52	672	0	1.0	0.4	1.0
65515	99	P	SUR	57	-49	272	0	2.3	-0.7	2.4
65519	99	P	SUR	57	-33	672	0	0.6	0.3	0.7
65596	99	P	SUR	55	-25	665	0	0.7	0.1	0.7
65599	99	P	SUR	51	-35	672	0	0.8	-0.1	0.8
65601	99	P	SUR	59	-55	672	0	1.0	-0.0	1.0
65602	99	P	SUR	56	-36	672	0	0.7	-0.4	0.8
65603	99	P	SUR	68	-54	279	9	1.0	0.1	1.0

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : FEB 2016
 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
002	99	SPEED	SUR	72	16	2	0	0	1.4	-1.1	1.8
02031	99	SPEED	SUR	65	-11	2	0	0	0.0	1.6	1.6
13002	99	SPEED	SUR	20	-23	200	0	0	0.9	-0.1	0.9
13008	99	SPEED	SUR	15	-38	88	0	0	1.1	0.1	1.1
31602	99	SPEED	SUR	25	36	1	0	0	0.0	-7.3	7.3
41026	99	SPEED	SUR	12	-38	66	0	0	0.9	0.3	0.9
41040	99	SPEED	SUR	15	-53	667	0	0	0.9	-0.1	1.0
41041	99	SPEED	SUR	14	-46	668	0	0	0.8	-0.1	0.8
41043	99	SPEED	SUR	21	-65	670	0	0	1.3	0.1	1.3
41044	99	SPEED	SUR	22	-59	667	0	0	1.5	0.0	1.5
41046	99	SPEED	SUR	24	-68	695	0	0	1.4	0.4	1.4
41048	99	SPEED	SUR	32	-70	693	0	0	1.3	-0.5	1.4
41049	99	SPEED	SUR	28	-63	666	0	0	1.5	-0.1	1.5
41051	99	SPEED	SUR	18	-65	1466	0	0	1.2	0.1	1.2
41052	99	SPEED	SUR	18	-65	1568	0	0	1.2	-0.2	1.3
41053	99	SPEED	SUR	19	-66	1774	0	0	1.7	-0.1	1.7
41056	99	SPEED	SUR	18	-66	1664	0	0	1.1	0.1	1.1
41139	99	SPEED	SUR	20	-38	198	0	0	1.1	-0.2	1.1
41300	99	SPEED	SUR	16	-58	5	0	0	1.0	0.8	1.3
42059	99	SPEED	SUR	15	-68	672	0	0	0.8	0.0	0.8
42060	99	SPEED	SUR	16	-63	672	0	0	1.3	0.2	1.3
42085	99	SPEED	SUR	18	-67	1718	0	0	1.3	0.0	1.3
44005	99	SPEED	SUR	43	-69	721	0	0	1.5	0.0	1.5
44008	99	SPEED	SUR	41	-69	671	0	0	2.0	-0.3	2.0
44018	99	SPEED	SUR	42	-70	671	0	0	1.5	0.1	1.5
44024	99	SPEED	SUR	42	-66	712	0	0	1.8	-0.4	1.8
44027	99	SPEED	SUR	44	-67	695	0	0	1.4	0.5	1.5
44032	99	SPEED	SUR	44	-69	670	0	0	1.6	-0.0	1.7
44033	99	SPEED	SUR	44	-69	665	0	0	2.1	2.0	2.9
44034	99	SPEED	SUR	44	-68	671	0	0	1.6	0.1	1.7
44037	99	SPEED	SUR	44	-68	464	0	0	1.5	-0.0	1.5
44137	99	SPEED	SUR	42	-62	683	0	0	2.1	-0.0	2.1
44139	99	SPEED	SUR	44	-57	646	2	0	2.0	-0.2	2.0
44141	99	SPEED	SUR	43	-58	640	1	0	2.2	0.0	2.2

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44150	99	SPEED	SUR	43	-64	627	0	0	2.2	-0.4	2.3
44251	99	SPEED	SUR	46	-53	651	0	0	1.6	-0.7	1.7
44255	99	SPEED	SUR	47	-57	529	0	0	1.8	0.4	1.9
44258	99	SPEED	SUR	45	-63	45	0	0	1.7	-0.5	1.7
61001	99	SPEED	SUR	43	8	667	0	0	2.1	0.1	2.1
62001	99	SPEED	SUR	45	-5	1103	0	0	1.4	-0.1	1.4
62027	99	SPEED	SUR	49	-2	151	1	1	1.8	0.0	1.8
62050	99	SPEED	SUR	50	-4	1	0	0	0.0	4.4	4.4
62081	99	SPEED	SUR	51	-13	672	0	0	1.2	0.0	1.2
62082	99	SPEED	SUR	55	6	2	0	0	2.3	-11.2	11.4
62086	99	SPEED	SUR	55	6	510	0	0	5.0	-9.3	10.6
62091	99	SPEED	SUR	53	-5	588	0	0	1.2	-0.2	1.2
62093	99	SPEED	SUR	55	-10	586	0	0	1.8	-0.7	1.9
62102	99	SPEED	SUR	58	2	672	0	0	1.6	-0.5	1.7
62103	99	SPEED	SUR	50	-3	671	0	0	1.8	1.1	2.1
62104	99	SPEED	SUR	57	1	669	0	0	1.5	-0.5	1.6
62105	99	SPEED	SUR	55	-13	566	0	0	1.6	0.5	1.7
62107	99	SPEED	SUR	50	-6	1305	0	0	2.1	0.9	2.3
62111	99	SPEED	SUR	58	0	670	0	0	1.7	0.0	1.7
62112	99	SPEED	SUR	58	0	672	0	0	2.4	-1.4	2.8
62113	99	SPEED	SUR	58	0	672	0	0	3.2	-2.4	4.0
62114	99	SPEED	SUR	58	0	1337	0	0	1.7	0.3	1.8
62117	99	SPEED	SUR	58	0	670	0	0	1.4	-0.4	1.5
62118	99	SPEED	SUR	58	1	669	0	0	2.0	0.1	2.0
62119	99	SPEED	SUR	57	2	668	0	0	1.7	-1.2	2.1
62120	99	SPEED	SUR	56	2	670	0	0	1.6	-0.3	1.7
62121	99	SPEED	SUR	54	3	670	0	0	1.5	-0.4	1.5
62122	99	SPEED	SUR	57	2	1315	0	0	1.4	-0.3	1.5
62123	99	SPEED	SUR	56	2	1341	0	0	1.6	0.0	1.6
62127	99	SPEED	SUR	54	1	154	0	0	1.5	-0.5	1.6
62128	99	SPEED	SUR	59	1	671	0	0	1.6	0.1	1.6
62129	99	SPEED	SUR	58	0	672	0	0	1.6	-0.6	1.7
62131	99	SPEED	SUR	54	1	326	0	0	2.0	-1.4	2.4
62132	99	SPEED	SUR	56	2	670	0	0	2.6	-2.4	3.6
62133	99	SPEED	SUR	57	1	668	0	0	1.5	-0.7	1.7
62134	99	SPEED	SUR	58	1	672	0	0	1.6	-0.3	1.7
62140	99	SPEED	SUR	57	1	1329	0	0	1.6	-0.2	1.6
62143	99	SPEED	SUR	58	2	672	0	0	2.2	-1.0	2.4
62144	99	SPEED	SUR	53	2	671	0	0	1.9	-0.7	2.0
62145	99	SPEED	SUR	53	3	1341	0	0	1.7	-0.9	2.0
62146	99	SPEED	SUR	57	2	659	0	0	3.2	-2.8	4.2

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62148	99	SPEED	SUR	54	2	671	0	0	2.0	-0.5	2.1
62149	99	SPEED	SUR	54	1	672	0	0	1.4	0.1	1.4
62150	99	SPEED	SUR	54	1	672	0	0	2.1	-1.0	2.3
62152	99	SPEED	SUR	57	2	672	0	0	1.8	-1.5	2.3
62153	99	SPEED	SUR	57	2	1273	0	0	2.2	-2.4	3.2
62154	99	SPEED	SUR	56	2	671	0	0	1.5	-1.0	1.8
62155	99	SPEED	SUR	58	1	224	0	0	1.8	0.3	1.8
62163	99	SPEED	SUR	48	-8	670	0	0	1.3	0.0	1.3
62164	99	SPEED	SUR	57	1	668	0	0	1.7	-1.6	2.3
62165	99	SPEED	SUR	54	1	667	0	0	1.8	-1.3	2.2
62170	99	SPEED	SUR	51	2	671	0	0	2.0	1.9	2.8
62198	99	SPEED	SUR	52	2	723	0	0	1.7	1.3	2.1
62301	99	SPEED	SUR	52	-5	673	0	0	1.2	-0.1	1.2
62303	99	SPEED	SUR	52	-5	663	0	0	1.2	1.0	1.5
62304	99	SPEED	SUR	51	2	742	0	0	2.3	2.1	3.2
62305	99	SPEED	SUR	50	0	728	0	0	2.2	0.5	2.3
62442	99	SPEED	SUR	49	-16	462	0	0	1.5	0.1	1.5
62886	99	SPEED	SUR	55	6	1	0	0	0.0	-16.7	16.7
63055	99	SPEED	SUR	61	2	672	0	0	1.6	-1.3	2.1
63056	99	SPEED	SUR	60	2	671	0	0	1.6	-0.3	1.7
63057	99	SPEED	SUR	59	2	670	0	0	2.2	-0.2	2.2
63058	99	SPEED	SUR	53	2	673	0	0	1.4	-0.1	1.4
63101	99	SPEED	SUR	61	1	666	0	0	1.6	-1.1	2.0
63104	99	SPEED	SUR	61	2	672	0	0	1.6	-0.7	1.8
63105	99	SPEED	SUR	61	2	671	0	0	1.7	-0.7	1.9
63106	99	SPEED	SUR	61	2	328	0	0	1.7	-1.0	2.0
63107	99	SPEED	SUR	61	2	671	0	0	1.8	-0.8	2.0
63108	99	SPEED	SUR	61	2	672	0	0	1.8	-0.7	1.9
63109	99	SPEED	SUR	60	2	651	0	0	1.6	-0.0	1.7
63110	99	SPEED	SUR	60	2	666	0	0	1.7	-1.0	2.0
63112	99	SPEED	SUR	61	1	664	0	0	1.6	-1.0	1.8
63113	99	SPEED	SUR	61	2	671	0	0	1.6	-0.8	1.8
63114	99	SPEED	SUR	61	2	1333	0	0	1.8	-0.5	1.9
63115	99	SPEED	SUR	62	1	670	0	0	1.4	-1.1	1.8
63117	99	SPEED	SUR	61	1	1337	0	0	1.6	-0.8	1.8
63119	99	SPEED	SUR	58	0	91	0	0	2.4	0.4	2.4
64041	99	SPEED	SUR	61	-3	672	0	0	1.4	-0.8	1.6
64046	99	SPEED	SUR	61	-4	422	0	0	1.5	0.5	1.6
66021	99	SPEED	SUR	55	14	670	1	0	1.2	0.2	1.2
66024	99	SPEED	SUR	55	13	206	0	0	1.3	-0.3	1.4

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : FEB 2016
 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
02031	99	DIRN	SUR	65	-11	2	0	0	4.5	16.8	17.4
13002	99	DIRN	SUR	20	-23	200	0	0	10.1	10.6	14.6
13008	99	DIRN	SUR	15	-38	88	0	0	9.1	4.1	10.0
41001	99	DIRN	SUR	35	-73	910	1	0	16.3	3.9	16.8
41002	99	DIRN	SUR	32	-75	678	0	0	15.2	-10.6	18.5
41004	99	DIRN	SUR	33	-79	656	0	0	17.0	8.2	18.9
41008	99	DIRN	SUR	31	-81	560	0	0	23.6	5.5	24.2
41009	99	DIRN	SUR	29	-80	622	0	0	13.1	2.3	13.3
41013	99	DIRN	SUR	33	-78	1169	0	0	22.4	10.5	24.8
41024	99	DIRN	SUR	34	-79	315	0	0	20.9	0.5	20.9
41025	99	DIRN	SUR	35	-75	641	0	0	21.1	0.3	21.1
41026	99	DIRN	SUR	12	-38	66	0	0	7.1	-6.8	9.8
41029	99	DIRN	SUR	33	-80	548	0	0	39.1	4.8	39.4
41033	99	DIRN	SUR	32	-80	513	0	0	29.6	3.8	29.8
41037	99	DIRN	SUR	34	-77	506	0	0	34.3	-15.4	37.6
41038	99	DIRN	SUR	34	-78	620	0	0	28.0	-1.2	28.1
41040	99	DIRN	SUR	15	-53	663	0	0	12.4	-0.5	12.4
41041	99	DIRN	SUR	14	-46	668	0	0	7.6	5.1	9.1
41043	99	DIRN	SUR	21	-65	599	0	0	16.5	4.0	17.0
41044	99	DIRN	SUR	22	-59	611	0	0	16.0	0.0	16.0
41046	99	DIRN	SUR	24	-68	608	0	0	20.6	0.9	20.6
41047	99	DIRN	SUR	28	-72	610	0	0	13.4	2.4	13.6
41048	99	DIRN	SUR	32	-70	641	0	0	13.1	11.6	17.5
41049	99	DIRN	SUR	28	-63	611	0	0	21.2	10.9	23.8
41051	99	DIRN	SUR	18	-65	1290	0	0	13.9	-10.2	17.3
41052	99	DIRN	SUR	18	-65	1363	0	0	14.6	4.0	15.2
41053	99	DIRN	SUR	19	-66	1199	0	0	19.7	-1.7	19.8
41056	99	DIRN	SUR	18	-66	1477	0	0	13.8	1.8	13.9
41139	99	DIRN	SUR	20	-38	198	0	0	9.2	0.5	9.2
41300	99	DIRN	SUR	16	-58	5	0	0	33.4	-14.6	36.5
42013	99	DIRN	SUR	27	-83	871	0	0	16.6	-5.4	17.4
42022	99	DIRN	SUR	28	-84	959	0	0	17.2	-0.8	17.2

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
42023	99	DIRN	SUR	26	-83	971	0	0	16.3	-5.6	17.3
42036	99	DIRN	SUR	29	-85	598	0	0	13.1	-0.1	13.1
42056	99	DIRN	SUR	20	-85	646	0	0	12.3	3.0	12.6
42057	99	DIRN	SUR	17	-82	654	0	0	11.0	3.1	11.5
42058	99	DIRN	SUR	15	-75	668	0	0	7.9	3.4	8.6
42059	99	DIRN	SUR	15	-68	659	0	0	9.0	-3.8	9.8
42060	99	DIRN	SUR	16	-63	583	0	0	14.0	2.3	14.2
42085	99	DIRN	SUR	18	-67	1385	0	0	24.0	6.9	25.0
44005	99	DIRN	SUR	43	-69	661	0	0	12.4	5.1	13.4
44007	99	DIRN	SUR	44	-70	590	0	0	21.0	8.0	22.5
44008	99	DIRN	SUR	41	-69	606	0	0	17.9	10.8	20.9
44013	99	DIRN	SUR	42	-71	609	0	0	16.1	0.5	16.1
44014	99	DIRN	SUR	37	-75	604	0	0	22.7	3.3	23.0
44017	99	DIRN	SUR	41	-72	596	0	0	12.4	5.0	13.4
44018	99	DIRN	SUR	42	-70	602	0	0	13.6	2.0	13.8
44020	99	DIRN	SUR	41	-70	586	0	0	14.2	7.6	16.1
44024	99	DIRN	SUR	42	-66	638	0	0	20.5	3.7	20.9
44025	99	DIRN	SUR	40	-73	606	0	0	13.6	3.3	14.0
44027	99	DIRN	SUR	44	-67	664	0	0	15.4	7.0	16.9
44029	99	DIRN	SUR	43	-71	940	0	0	22.8	9.3	24.7
44030	99	DIRN	SUR	43	-70	592	0	0	26.0	5.7	26.6
44032	99	DIRN	SUR	44	-69	606	0	0	17.7	7.7	19.3
44033	99	DIRN	SUR	44	-69	526	0	0	19.2	0.9	19.3
44034	99	DIRN	SUR	44	-68	610	0	0	16.4	1.3	16.4
44037	99	DIRN	SUR	44	-68	422	0	0	17.9	5.2	18.6
44039	99	DIRN	SUR	41	-73	672	0	0	17.0	3.0	17.3
44041	99	DIRN	SUR	37	-77	98	0	0	16.2	2.7	16.4
44042	99	DIRN	SUR	38	-76	634	0	0	21.6	-14.3	25.9
44058	99	DIRN	SUR	38	-76	896	0	0	18.7	-7.3	20.0
44059	99	DIRN	SUR	37	-76	350	0	0	12.8	-24.0	27.2
44060	99	DIRN	SUR	41	-72	660	0	0	16.4	5.3	17.2
44062	99	DIRN	SUR	39	-76	684	0	0	21.0	-4.9	21.6
44065	99	DIRN	SUR	40	-74	581	0	0	14.2	4.9	15.0
44137	99	DIRN	SUR	42	-62	643	0	0	16.7	1.9	16.8
44139	99	DIRN	SUR	44	-57	565	2	0	23.9	12.5	26.9
44141	99	DIRN	SUR	43	-58	586	1	0	26.1	0.8	26.1
44150	99	DIRN	SUR	43	-64	585	0	0	17.9	4.6	18.5
44251	99	DIRN	SUR	46	-53	597	0	0	14.4	13.4	19.7
44255	99	DIRN	SUR	47	-57	480	0	0	14.0	8.4	16.3
44258	99	DIRN	SUR	45	-63	35	0	0	16.4	-0.1	16.4
62001	99	DIRN	SUR	45	-5	1028	0	0	15.1	8.7	17.4

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62027	99	DIRN	SUR	49	-2	141	1	0	31.1	-3.3	31.3
62050	99	DIRN	SUR	50	-4	1	0	0	0.0	14.7	14.7
62081	99	DIRN	SUR	51	-13	637	0	0	13.9	9.7	17.0
62091	99	DIRN	SUR	53	-5	564	0	0	12.3	4.2	13.0
62093	99	DIRN	SUR	55	-10	538	0	0	16.8	-1.1	16.8
62103	99	DIRN	SUR	50	-3	638	0	0	17.7	-1.1	17.7
62105	99	DIRN	SUR	55	-13	520	0	0	17.8	1.3	17.9
62107	99	DIRN	SUR	50	-6	1267	0	0	19.2	-1.6	19.3
62111	99	DIRN	SUR	58	0	589	0	0	14.0	2.8	14.3
62112	99	DIRN	SUR	58	0	555	0	0	13.8	3.0	14.1
62114	99	DIRN	SUR	58	0	1203	0	0	13.5	3.5	14.0
62117	99	DIRN	SUR	58	0	599	0	0	12.5	6.1	13.9
62163	99	DIRN	SUR	48	-8	654	0	0	15.7	4.5	16.3
62301	99	DIRN	SUR	52	-5	629	0	0	12.7	-5.8	13.9
62303	99	DIRN	SUR	52	-5	606	0	0	15.7	4.2	16.3
62305	99	DIRN	SUR	50	0	646	0	0	13.2	2.3	13.4
62442	99	DIRN	SUR	49	-16	460	0	0	13.3	-6.8	15.0
64041	99	DIRN	SUR	61	-3	599	0	0	12.1	18.0	21.7
64046	99	DIRN	SUR	61	-4	365	0	0	13.0	-3.3	13.4

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE02	ASDE04	ASDK02	ASDK03	ASES01	ASEU02	ASEU04	DBLK	01001
01004	01010	01028	01241	01400	01415	01492	02185	02365
02527	02591	02836	02935	02963	03953	06260	08001	08023
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	ASDK02	ASDK03	ASES01	ASEU02
ASEU03	ASEU04	ASEU06	ASFR1	ASFR3	ASFR4	DBLK	01492	07618
14420	17196	47155	68994	89859	94767			

5 Annex - Explanations of figures and tables

5.1 General

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

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

5.2 Data Availability

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

5.3 Data Quality

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

It should be noted that:

- (i) all results are based on software that may undergo further development;
- (ii) although the quality of the ECMWF first-guess fields is of a generally high standard this is only true to a limited extent in the tropics, where small-scale processes such as convection are of much greater importance than in mid-latitudes, and the observations will sometimes not be representative of the scales of motion given by the first-guess;
- (iii) the first-guess fields themselves will vary in accuracy depending on the density and quality of data, particularly in the upstream regions and over Antarctica and the southern hemisphere mid-latitudes. Direct comparisons between stations (or airlines) should preferably be restricted to observations in a reasonably homogeneous climatic region.

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

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

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

The corresponding limits for wind (table 8) are:

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

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

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

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

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

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

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

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

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