



# ECMWF Global Data Monitoring Report

February 2014

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

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### Summary of Revisions (in reverse order)

- Revision 24 (Aug 06) - North Atlantic Monitoring statistics replaced by EUCOS Area Monitoring Statistics (tables 13 to 23). Airep tables removed from this section.
- Revision 23 (Dec 00) - Coverage charts for Noaa\_14 MSU replaced by ATOVS AMSU-A for Noaa\_16.
- Revision 22 (Aug 99) - Coverage charts for TOVS thickness 300-100 hPa replaced by (A)TOVS AMSU-A and MSU (Noaa\_15 and Noaa\_14).
- Revision 21 (May 99) - Monitoring statistics ceased for Noaa\_11 as satellite is no more available.
- Revision 20 (Sep 98) - Changes to tables and annex to remove all mention about data usage. Two more levels (50 and 850 hPa) added to the COSNA statistics for Sondes.
- Revision 19 (Jul 98) - From June 29th, 1998 ECMWF model assimilates temperature data instead of geopotential from radiosondes. As a consequence the number of used geopotential data drops to zero in tables 7, 10, 13 and 15.
- Revision 18 (Apr 98) - Changes to tables and annex to introduce the usage of accepted numbers and observations instead of precentage of rejection.

## 1 Introduction

The ECMWF global data monitoring report is a monthly publication intended to give an overview of the availability and quality of observations from the Global Observing System within the World Weather Watch of the World Meteorological Organisation. It should be recognised that the statistics given in this report refer to data as received at ECMWF in time for the appropriate analysis. The annex of the report gives further explanations of the methods applied to compile the statistics and on the reference used to establish the quality of observations.

The information presented on data quality is based on differences between observations and the values of the most recent ECMWF forecast ("first guess") of the same parameter. Depending on the time of the observation, the forecast range is between 9 and 15 hours. It should be recognised that although the quality of the first-guess is of a generally high standard this is only true to a limited extent in certain areas, such as the tropics and data-sparse areas of both northern and southern hemispheres. The data quality results should therefore be used with care when assessing the absolute quality of a particular observing platform. Other indicators such as long-term trends of station performance, particularly in comparison with nearby stations, can be more useful in this respect.

The global monitoring results presented in this report are meant to serve a wider meteorological community as well as to support special WMO programmes such as TOGA and EUCOS. The contents of the report may therefore be adapted for special requirements as necessary.

As recommended at the ninth session of the Commission for Basic Systems at Geneva 1988, lead centres have been appointed for each main type of observation which should liaise with the participating centres and 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, Operations Department  
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
31538	(12)	25	0	16144	(12)	0	20
33345	(12)	31	2	16716	(00)	0	25
42701	(00)	19	0	16754	(12)	15	27
74004	(12)	19	0	21432	(12)	14	26
76654	(00)	30	7	23205	(00)	15	28
76654	(12)	29	6	23205	(12)	16	27
78807	(00)	13	0	24125	(00)	9	26
78954	(12)	30	6	24125	(12)	9	27
82411	(00)	13	0	25428	(12)	0	28
82411	(12)	29	0	30230	(00)	14	27
83827	(00)	26	3	30230	(12)	14	27
83827	(12)	26	1	37099	(00)	3	28
89662	(00)	27	6	37099	(12)	4	27
-	-	-	-	40948	(00)	0	16
-	-	-	-	40948	(12)	0	14
-	-	-	-	41316	(00)	9	25
-	-	-	-	44373	(00)	3	28
-	-	-	-	44373	(12)	3	28
-	-	-	-	63985	(00)	0	14
-	-	-	-	76805	(12)	0	18
-	-	-	-	78384	(12)	0	13
-	-	-	-	78583	(12)	15	28
-	-	-	-	82107	(00)	2	24
-	-	-	-	82678	(12)	7	27
-	-	-	-	83362	(00)	2	21
-	-	-	-	83362	(12)	9	24
-	-	-	-	83612	(00)	0	21
-	-	-	-	83612	(12)	0	23
-	-	-	-	87047	(12)	0	17
-	-	-	-	91610	(00)	14	25

## 2.2 Drifting Buoys

Surface pressure observations from **1207** 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

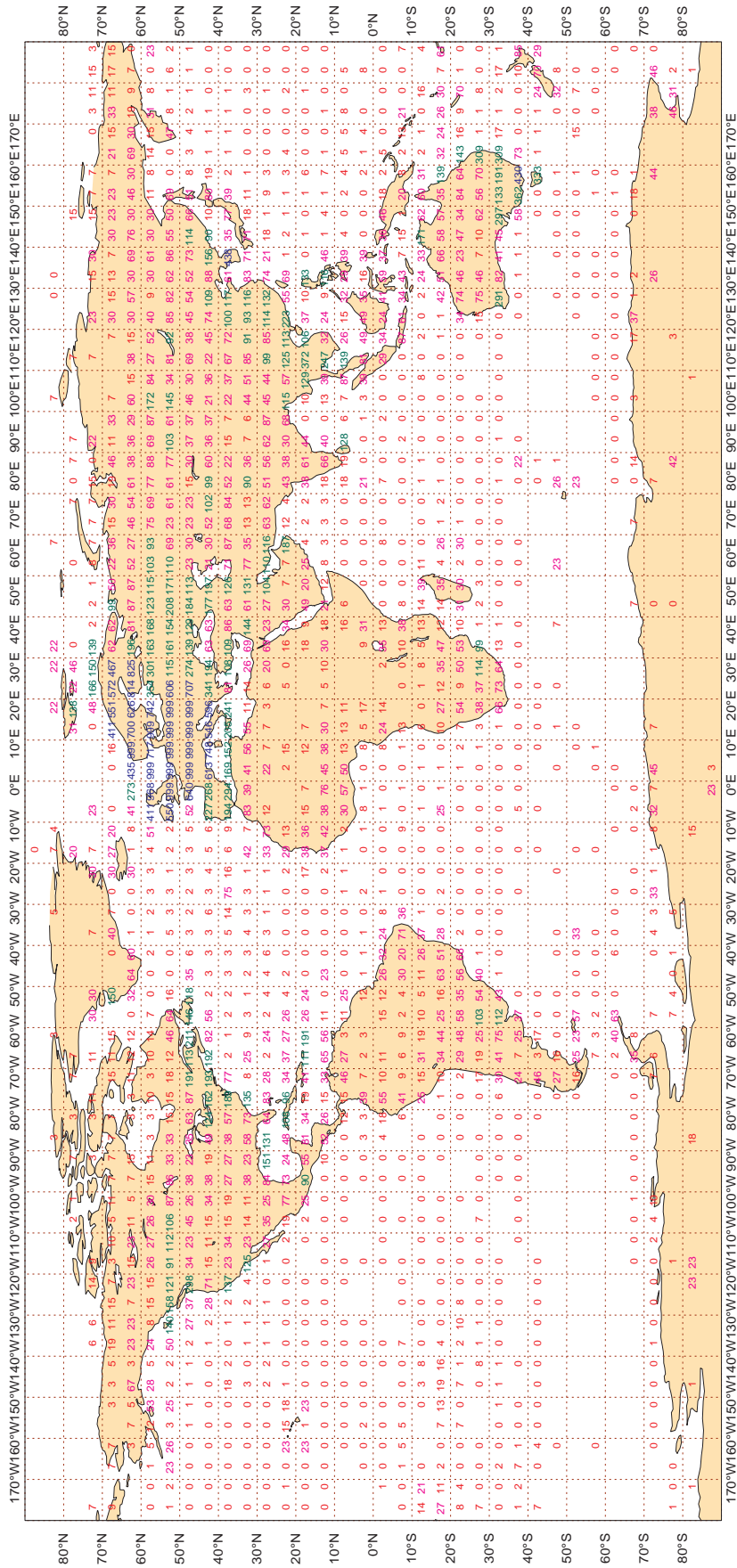
Table 12 provides quality statistics of aircraft wind observations stratified by airline carrier.



3.2.1 Figure 1 - Availability - SYNOP PRESSURE

Figure 1

ECMWF Monitoring Statistics - FEB 2014  
 Availability - SYNOP/SHIP (manual, auto) pressure  
 Average number of observations in 24 hours - 81675  
 LAND - WMO Region I: 3147 II:13561 III: 2351 IV: 4752  
 Region V: 6788 VI:40983 Antarctic: 763  
 Oceans - N. Atlantic 6011 S. Atlantic 256 Indian 387 Pacific 2675

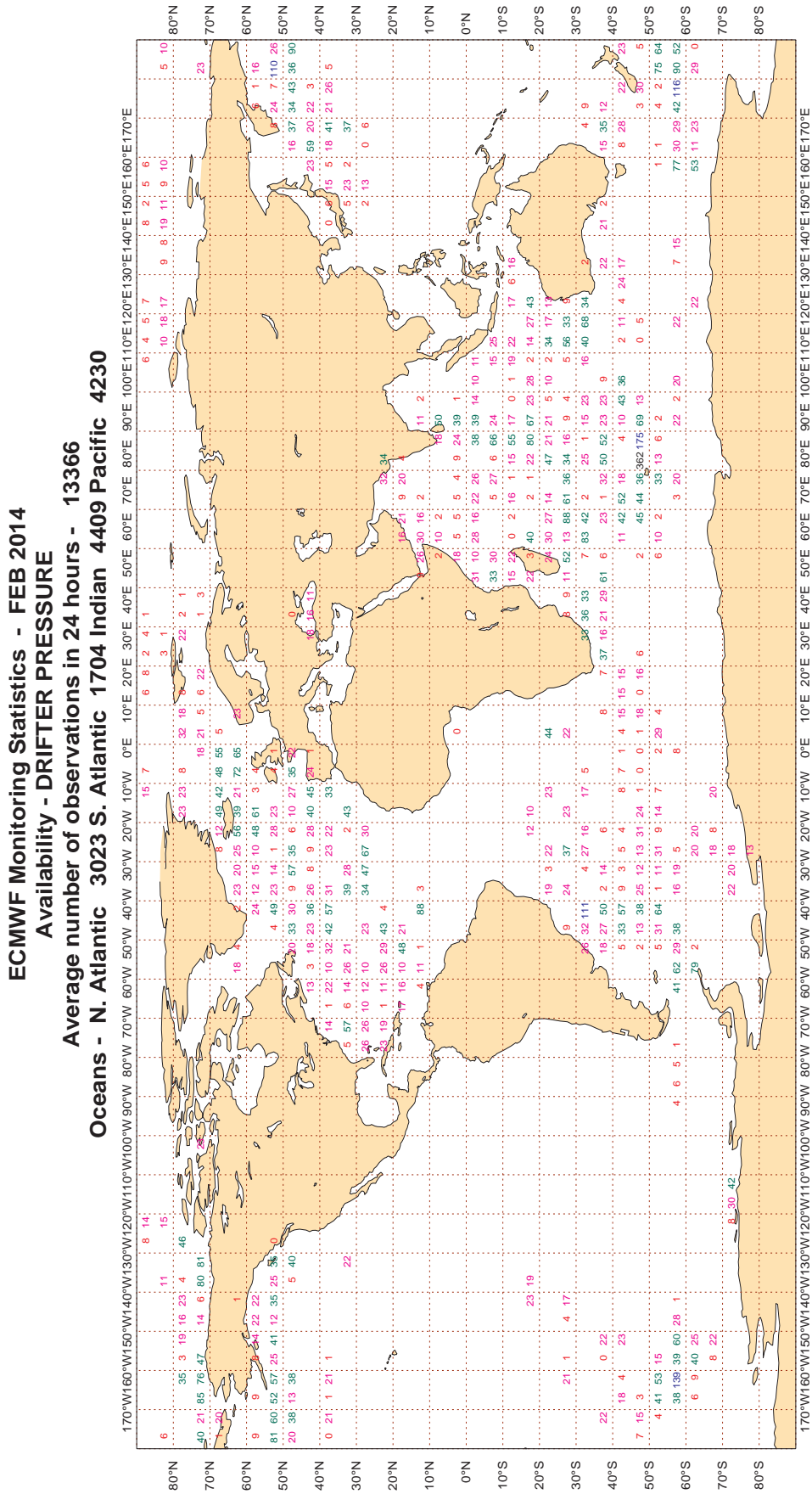


Magics 2.18.14 (64 bit)



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

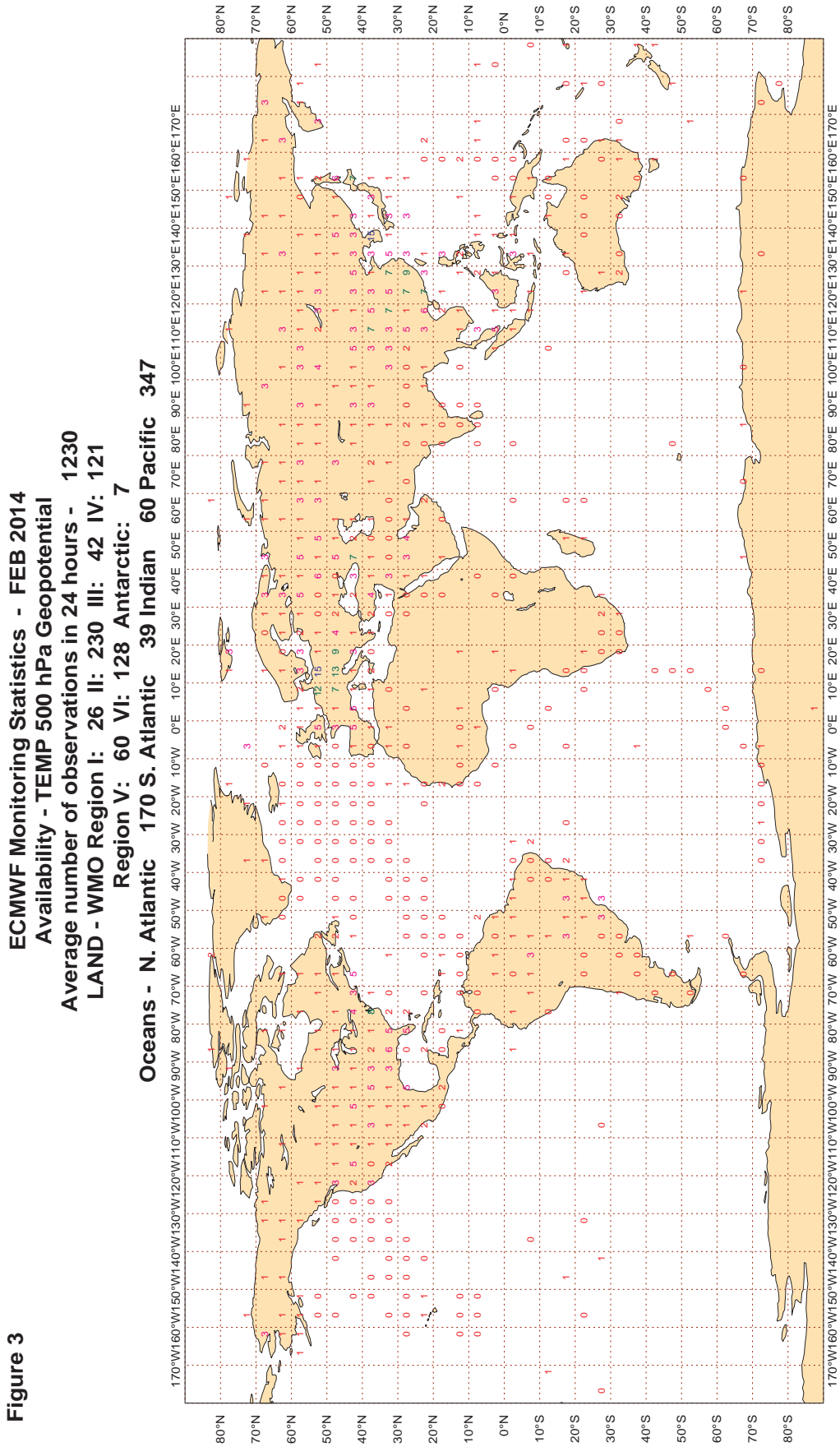
Figure 2



Magicis 2.18.14 (64 bit)



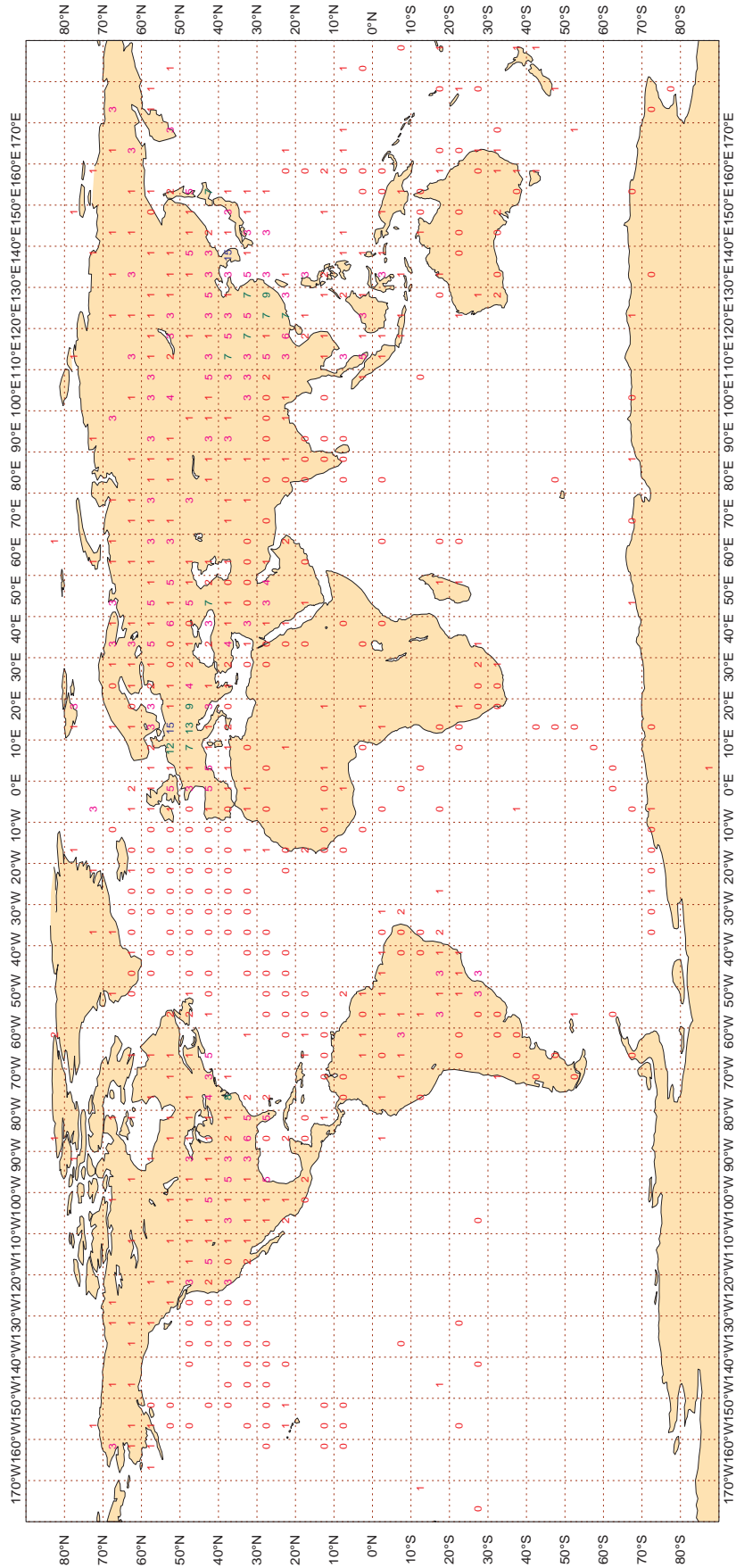
3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential



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

Figure 4

ECMWF Monitoring Statistics - FEB 2014  
 Availability - TEMP/PILOT 300 hPa wind  
 Average number of observations in 24 hours - 1215  
 LAND - WMO Region I: 25 II: 225 III: 42 IV: 120  
 Region V: 59 VI: 127 Antarctic: 7  
 Oceans - N. Atlantic 169 S. Atlantic 39 Indian 60 Pacific 342



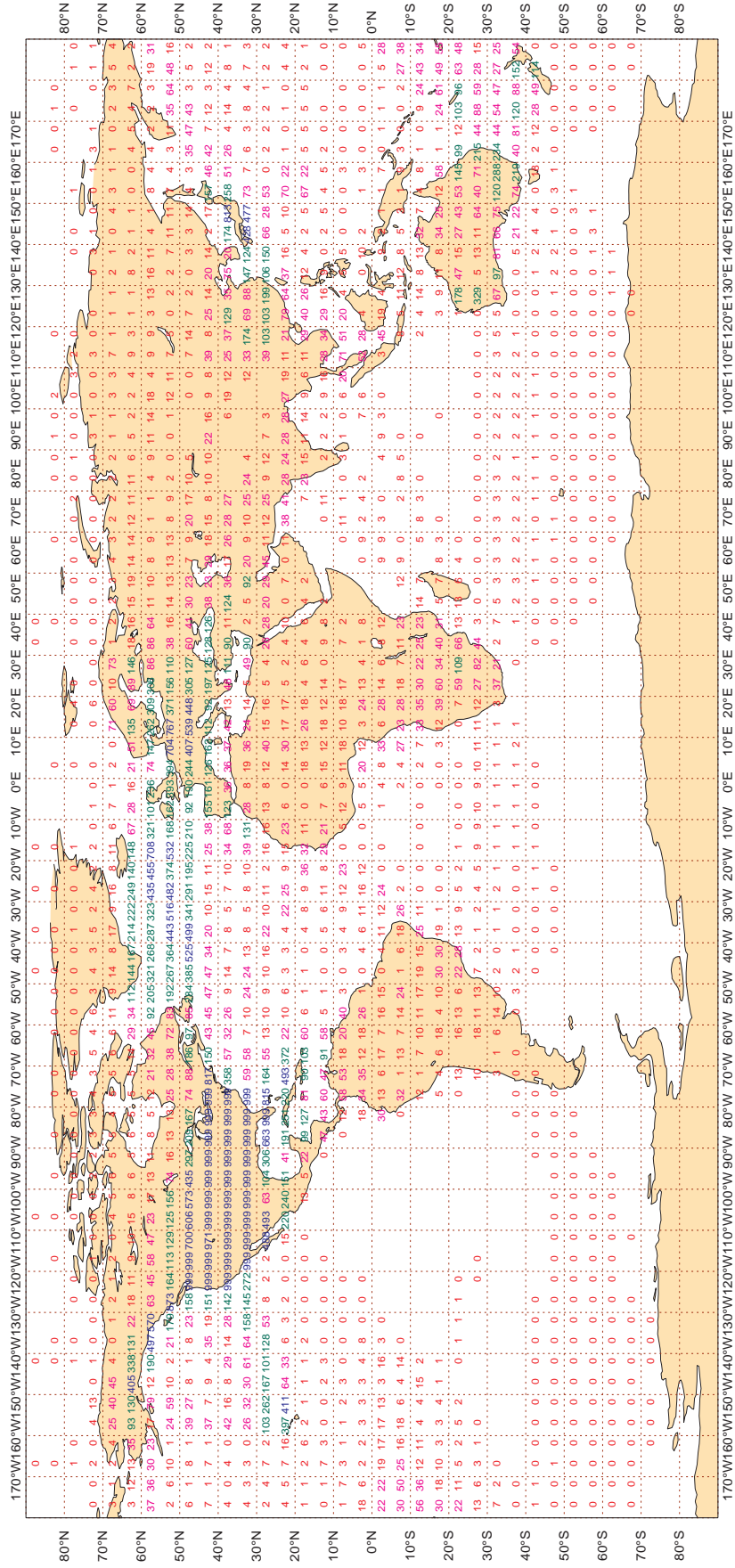
Magics 2.18.14 (64 bit)



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

Figure 5

ECMWF Monitoring Statistics - FEB 2014  
Availability - Aircraft winds 300-150 hPa  
Average number of observations in 24 hours - 130679



Magics 2.18.14 (64 bit)

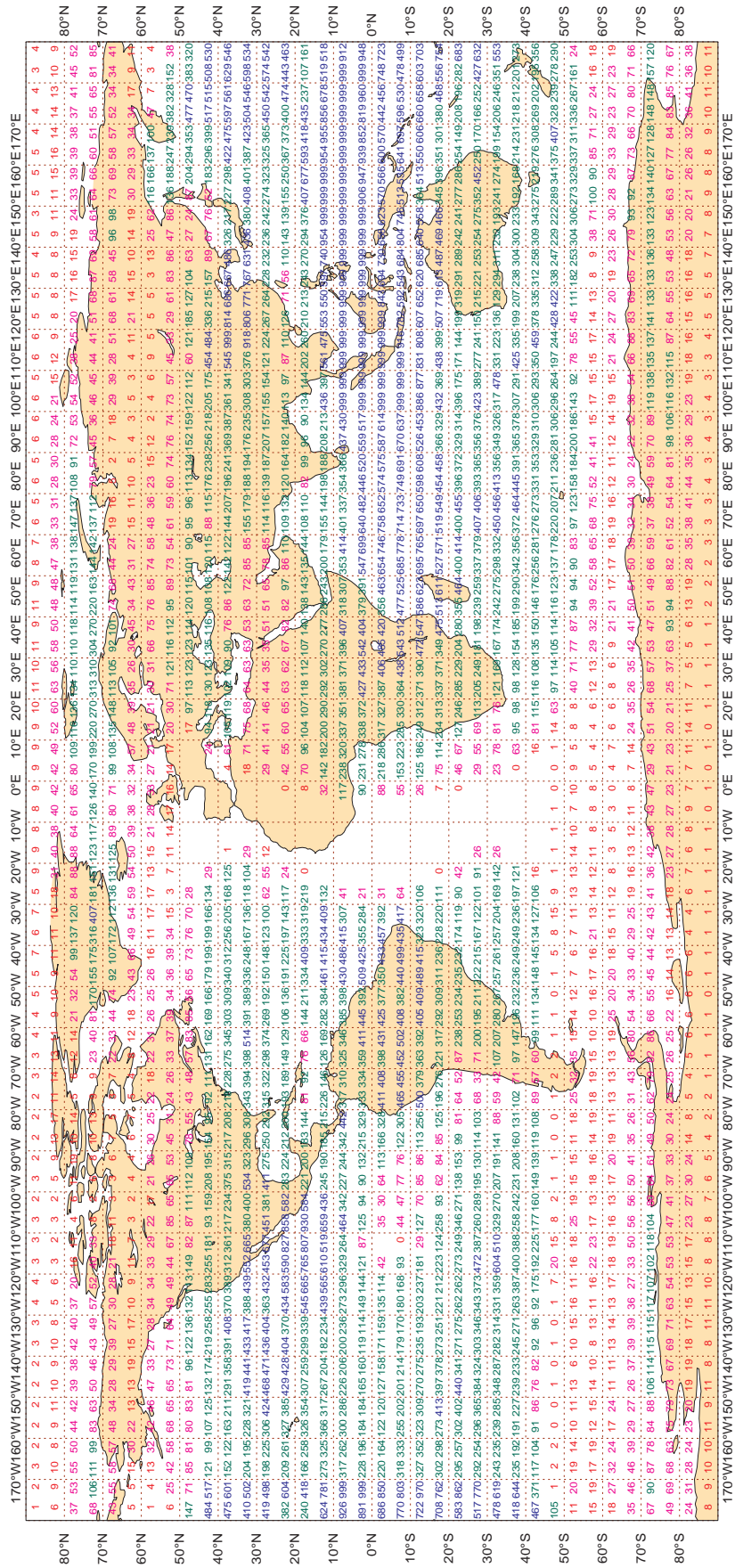




3.2.6 Figure 6 - Availability - SATOB winds 400-150 hPa

Figure 6

ECMWF Monitoring Statistics - FEB 2014  
Availability - AMV winds 400-150 hPa  
Average number of observations in 24 hours - 486107



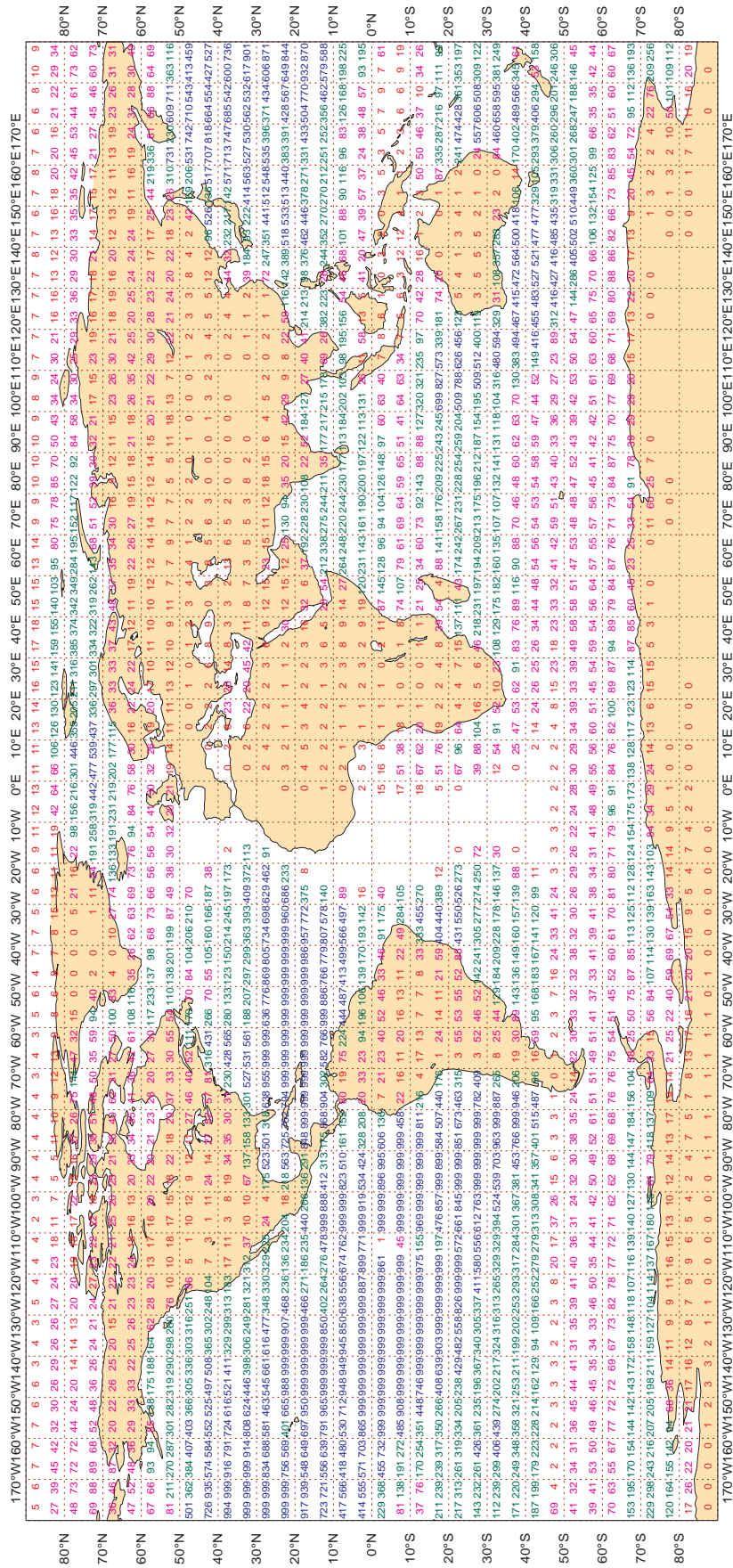
Magicis 2.18.14 (64 bit)



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

Figure 7

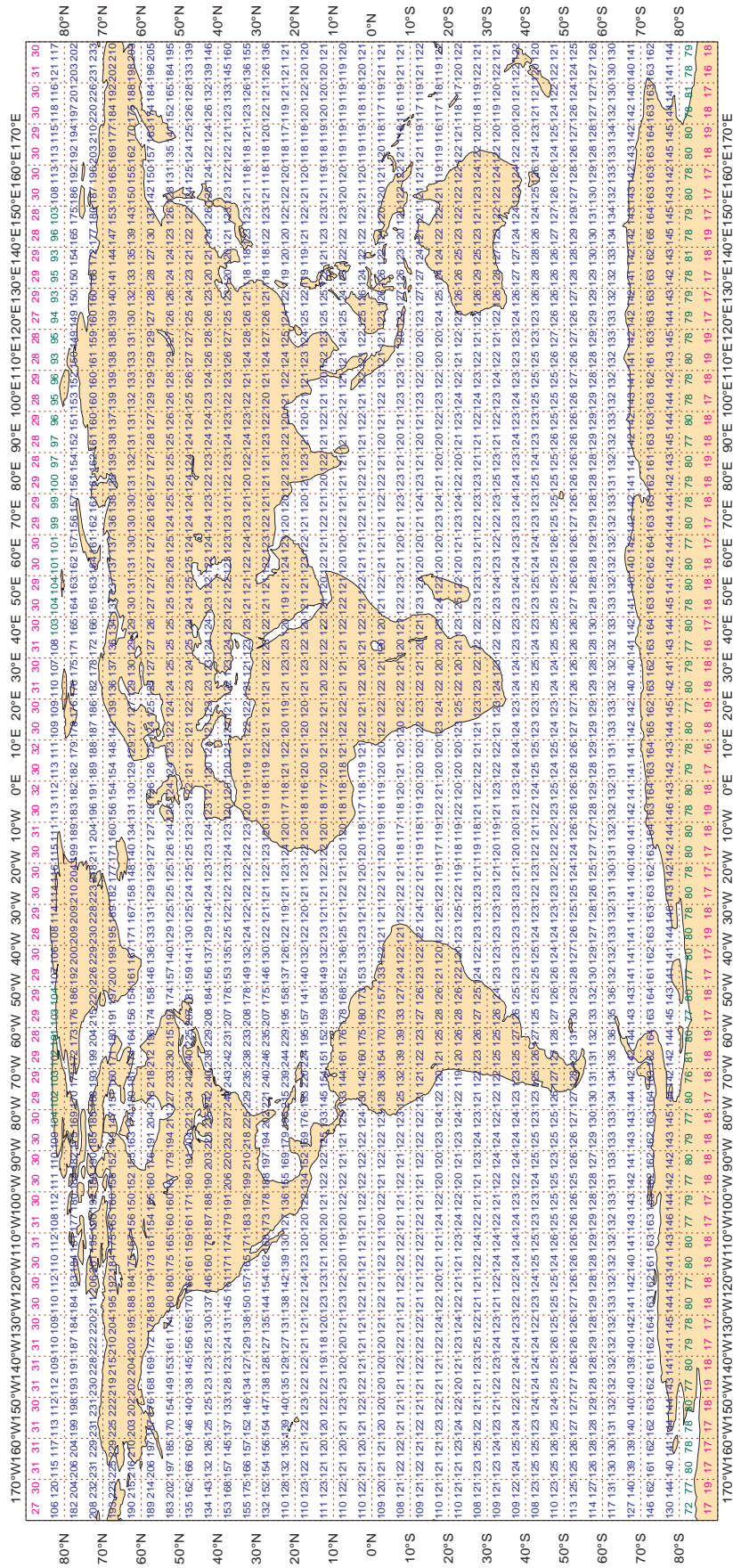
ECMWF Monitoring Statistics - FEB 2014  
Availability - AMV winds 1000-700 hPa  
Average number of observations in 24 hours - 463034



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

Figure 8

ECMWF Monitoring Statistics - FEB 2014  
Availability - NOAA15 ATOVS : AMSU-A  
Average number of observations in 24 hours - 336346

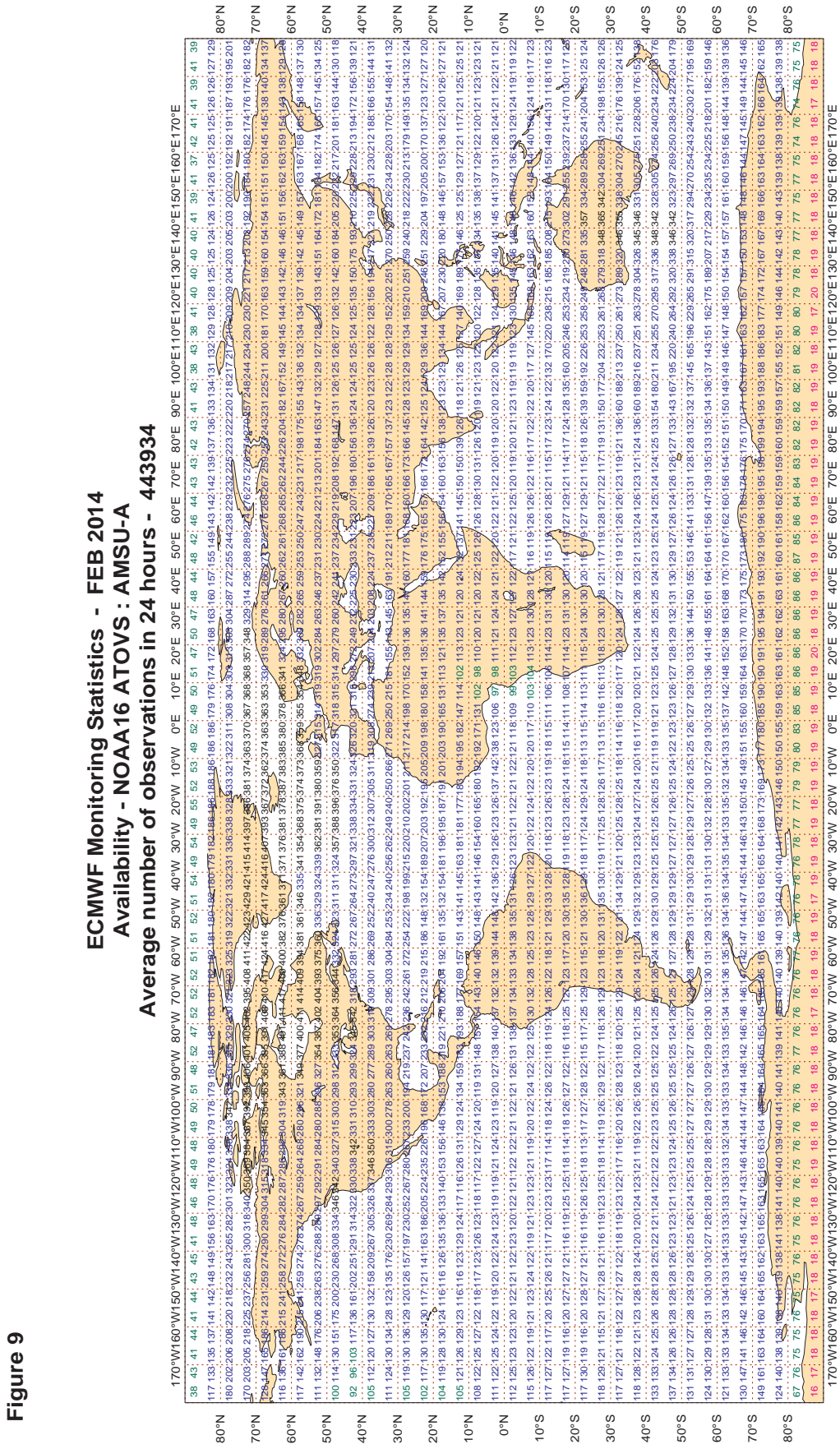


Magics 2.18.14 (64 bit)





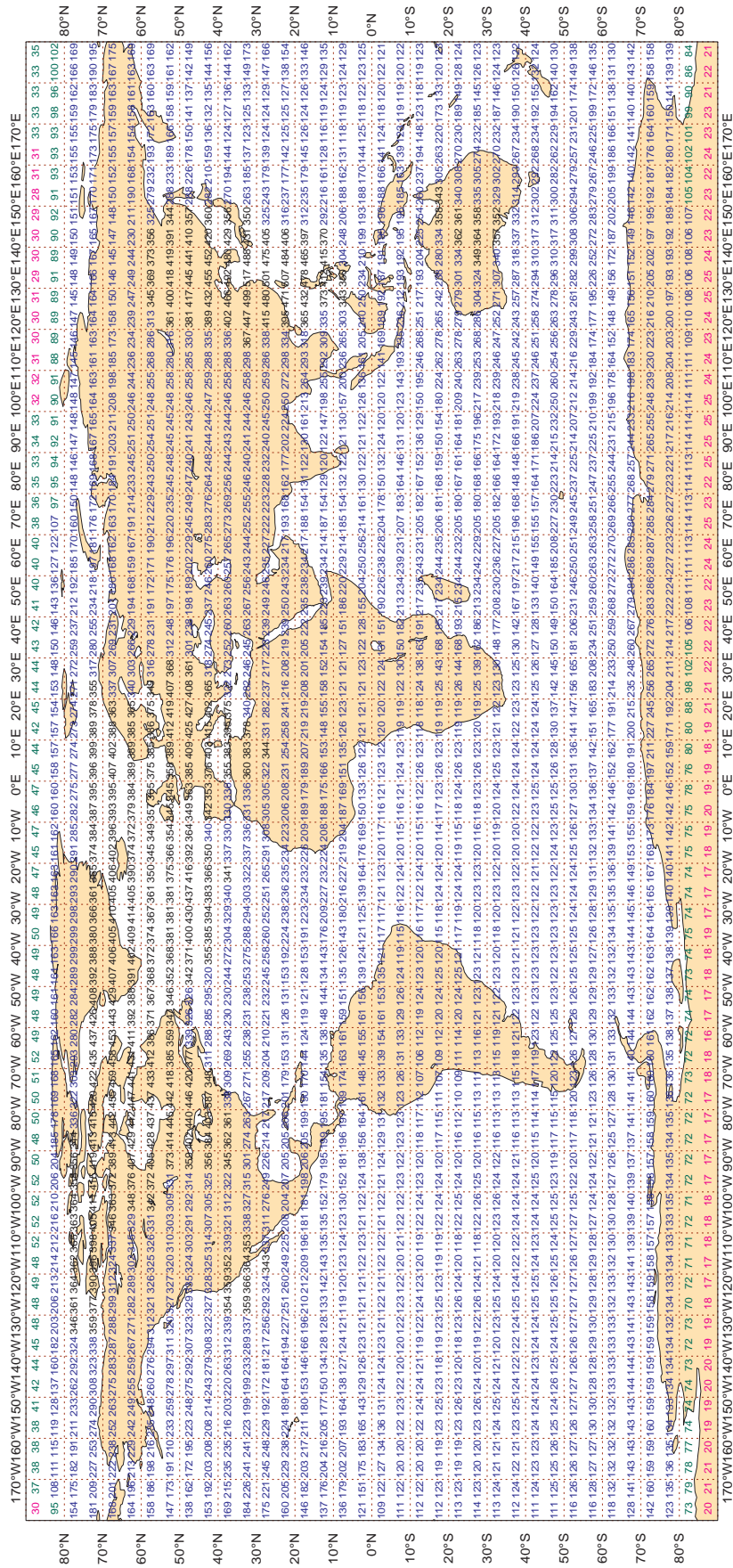
3.2.9 Figure 9 - Availability - NOAA16 ATOVS : AMSU-A



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

Figure 9.1

ECMWF Monitoring Statistics - FEB 2014  
Availability - NOAA18 ATOVS : AMSU-A  
Average number of observations in 24 hours - 505471



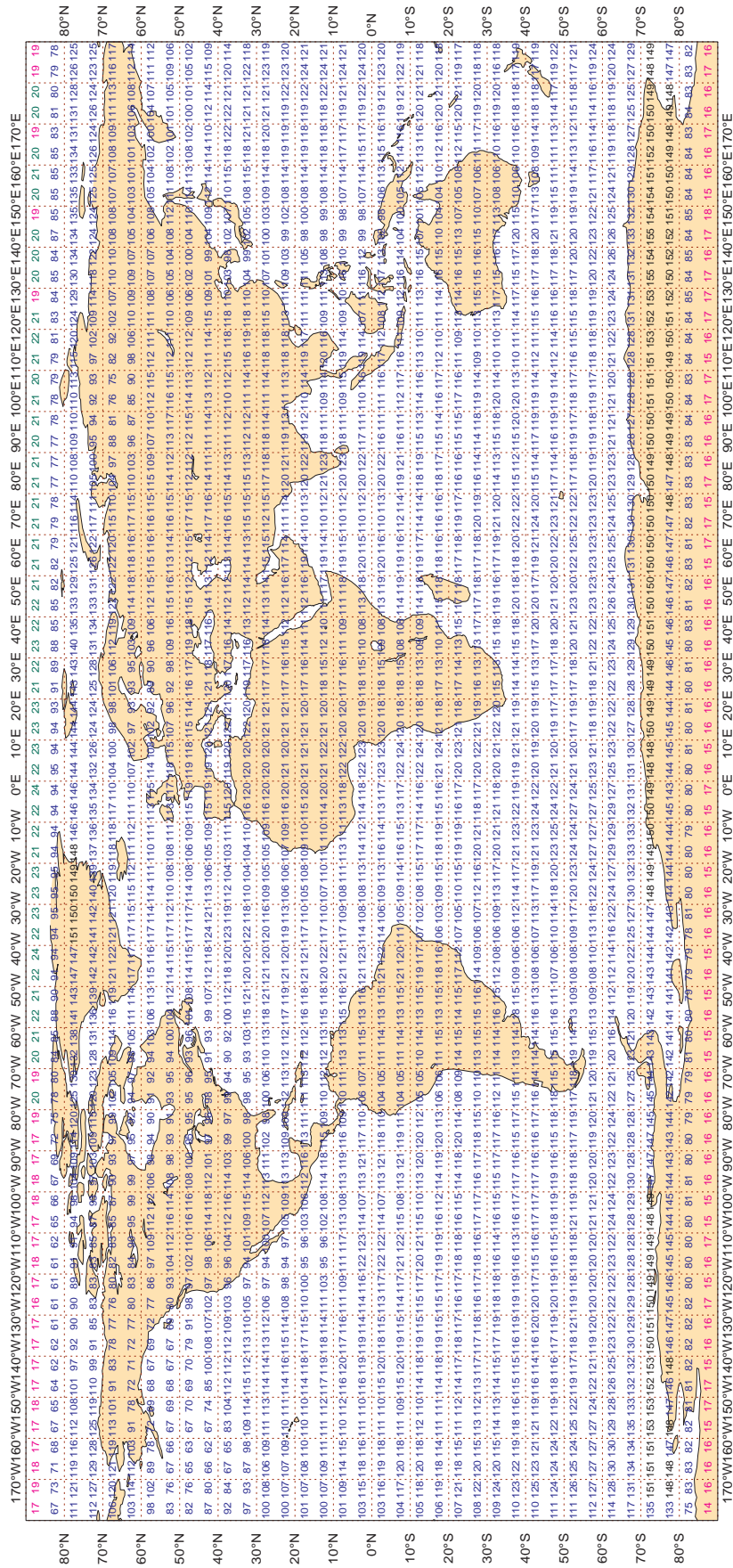
Magnics 2.18.14 (64 bit)



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

Figure 9.2

ECMWF Monitoring Statistics - FEB 2014  
Availability - AQUA ATOVS : AMSU-A  
Average number of observations in 24 hours - 282476



Magics 2.18.14 (64 bit)

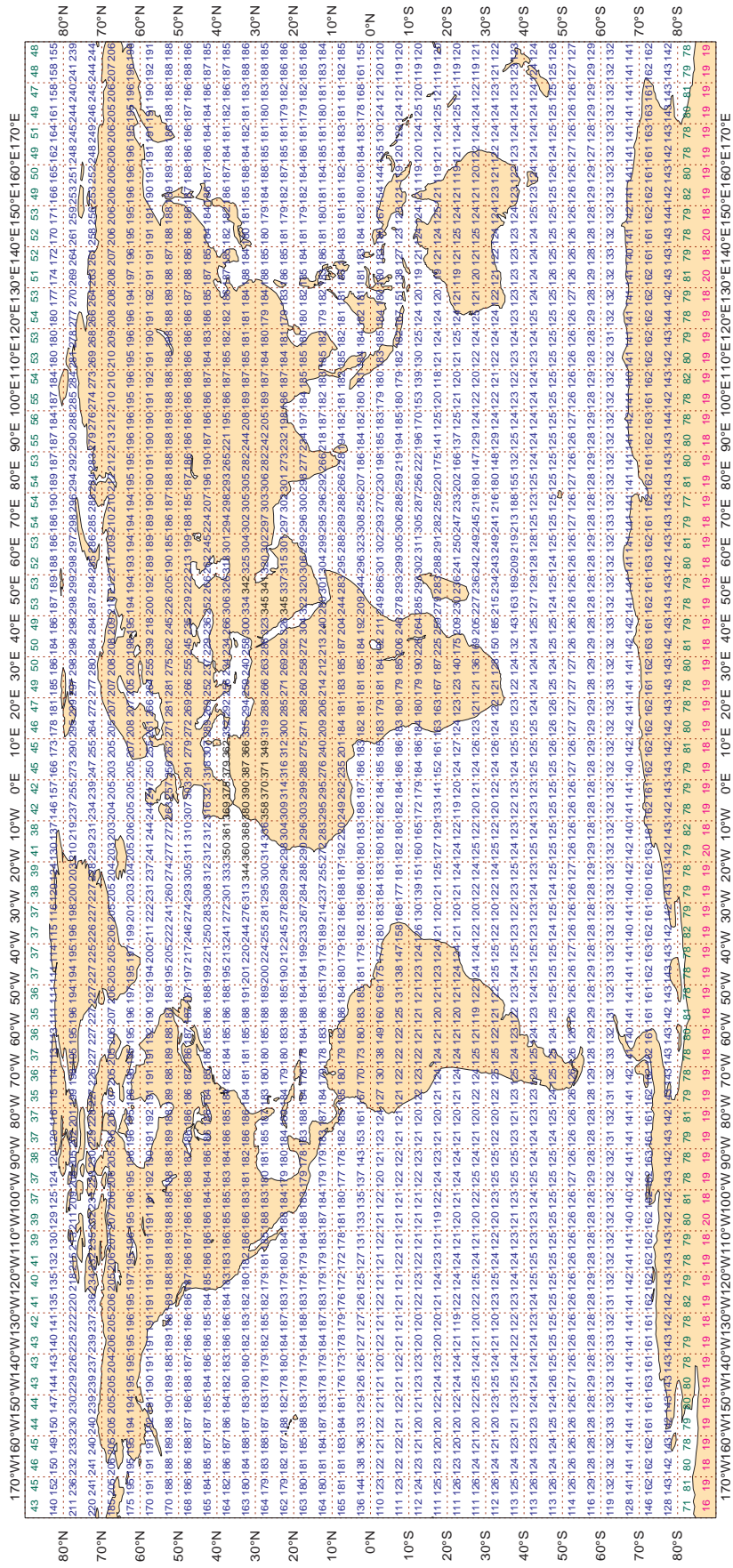




3.2.12 Figure 9.3 - Availability - METOP ATOVS : AMSU-A

Figure 9.3

ECMWF Monitoring Statistics - FEB 2014  
Availability - METOP ATOVS : AMSU-A  
Average number of observations in 24 hours - 431560



Magics 2.18.14 (64 bit)



**3.2.13 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 2014  
 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 00, 06, 12 AND 18 UTC OBSERVATIONS

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
3FPS9	99	P	SUR	20	0	1.5	-6.0	6.2
WCX7445	99	P	SUR	24	9	3.9	2.3	4.5

**3.2.14 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 2014  
 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 00, 06, 12 AND 18 UTC OBSERVATIONS

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

### 3.2.15 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 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20 (WIND SPEEDS > 3M/S), AND ,  
 ABSOLUTE BIAS >= 30 DEGREES, OR,  
 STANDARD DEVIATION >= 80 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
--------------	-------------	-----	-------	------------	--------------	------------	----	------	-----

**3.2.16 Table 4 - Suspect drifters: Surface pressure (HPA)**

LIST OF SUSPECT STATIONS : DRIFTER  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)  
 AREA : GLOBAL  
 PERIOD : FEB 2014  
 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
15547	99	P	SUR	-27	-16	196	49	1.3	-0.1	1.3
46540	99	P	SUR	54	-155	126	119	0.0	0.9	0.9
46589	99	P	SUR	51	-172	132	46	0.8	-0.3	0.9
71613	99	P	SUR	-62	-57	126	39	0.5	0.2	0.5



**3.2.17 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 2014  
 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
31053	99	SPEED	SUR	-32	-50	180	0	0	3.1	-6.8	7.5
46181	99	SPEED	SUR	54	-129	71	0	0	2.0	8.1	8.4
62087	99	SPEED	SUR	55	7	63	0	0	3.1	-7.8	8.4

**3.2.18 Table 6 - Suspect drifters: Wind direction (degrees)**

LIST OF SUSPECT STATIONS : DRIFTER  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)  
 PERIOD : FEB 2014  
 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
23002	99	DIRN	SUR	2	81	48	0	0	14.3	61.7	63.4
23097	99	DIRN	SUR	15	69	41	0	0	12.9	21.7	25.2
23497	99	DIRN	SUR	11	72	21	0	10	26.1	-26.2	37.0
31007	99	DIRN	SUR	0	-23	90	0	0	23.4	-27.2	35.9
31052	99	DIRN	SUR	-8	-35	153	0	0	18.1	-21.7	28.2
42364	99	DIRN	SUR	29	-88	140	0	3	12.7	25.4	28.4
42365	99	DIRN	SUR	28	-89	91	0	0	17.6	-25.0	30.6
42369	99	DIRN	SUR	27	-90	158	0	7	18.6	28.5	34.0
44059	99	DIRN	SUR	37	-76	27	0	0	10.7	-22.5	24.9
44062	99	DIRN	SUR	39	-76	109	0	1	21.2	-20.0	29.2
46092	99	DIRN	SUR	37	-122	78	0	1	19.6	28.7	34.8
46131	99	DIRN	SUR	50	-125	86	0	5	21.1	-34.6	40.5
53005	99	DIRN	SUR	-8	80	94	0	9	23.8	48.0	53.5
62086	99	DIRN	SUR	55	6	80	18	89	55.4	41.3	69.2

**3.2.19 Table 7 - Suspect radiosondes: Geopotential height (metres)**

LIST OF SUSPECT STATIONS : RADIOSONDES  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)  
 AREA : GLOBAL  
 PERIOD : FEB 2014  
 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
04417	00	Z	1000	73	-38	28	21	6.0	-91.2	91.4
04417	12	Z	1000	73	-38	27	23	7.0	-80.6	80.9
06458	00	Z	200	51	5	26	2	122.5	145.6	190.3
16716	00	Z	1000	38	24	25	0	5.0	-30.6	31.0
23933	00	Z	300	61	69	19	0	37.8	-73.9	83.0
23933	12	Z	200	61	69	20	0	76.1	-69.4	103.0
25703	12	Z	250	63	152	27	1	48.5	-72.0	86.8
25703	00	Z	250	63	152	24	1	48.0	-63.5	79.6
38064	00	Z	500	45	66	23	2	60.9	31.6	68.6
40706	12	Z	50	38	46	24	0	37.1	140.6	145.4
40745	12	Z	50	36	60	18	2	33.0	340.5	342.1
40841	12	Z	50	30	57	15	1	46.3	333.3	336.5
42182	12	Z	200	29	77	22	4	111.0	-11.8	111.6
43369	00	Z	50	8	73	22	0	22.6	140.6	142.4
68842	12	Z	1000	-34	26	26	0	25.0	18.7	31.2
97014	12	Z	1000	2	125	25	0	23.7	19.7	30.8
ASDK2	12	Z	850	-24	9	14	0	4.5	34.2	34.5

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

LIST OF SUSPECT STATIONS : RADIOSONDES  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 AREA : GLOBAL  
 PERIOD : FEB 2014  
 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
38064	00	V	250	45	66	19	0	-3.0	-0.3	16.1
42182	12	V	100	29	77	16	0	-5.4	-1.2	16.7
42410	00	V	500	26	92	11	0	-12.6	2.4	20.4

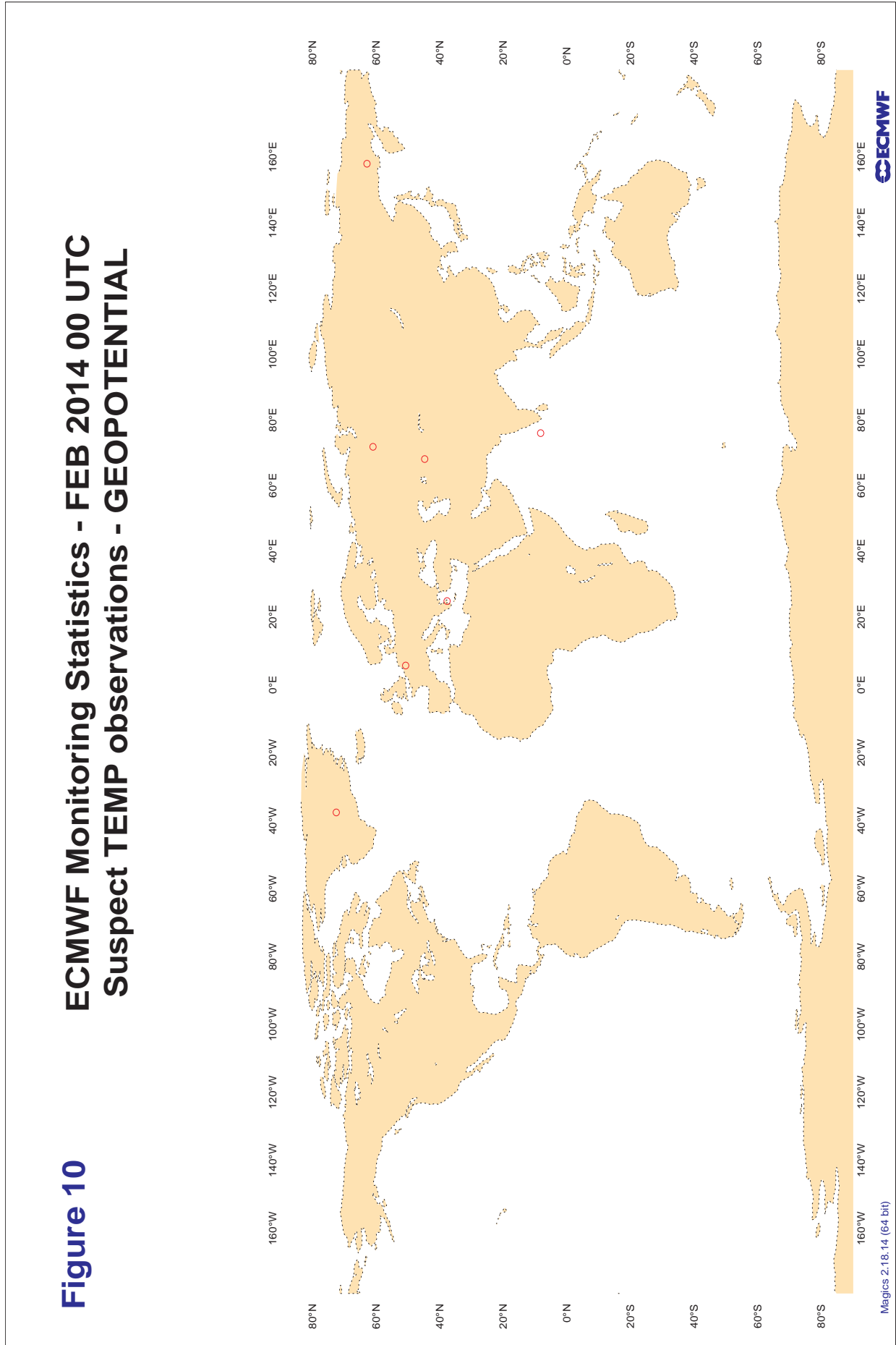
**3.2.21 Table 9 - Suspect radiosondes: Wind direction (degrees)**

LIST OF SUSPECT STATIONS : RADIOSONDES  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)  
 AREA : GLOBAL  
 PERIOD : FEB 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

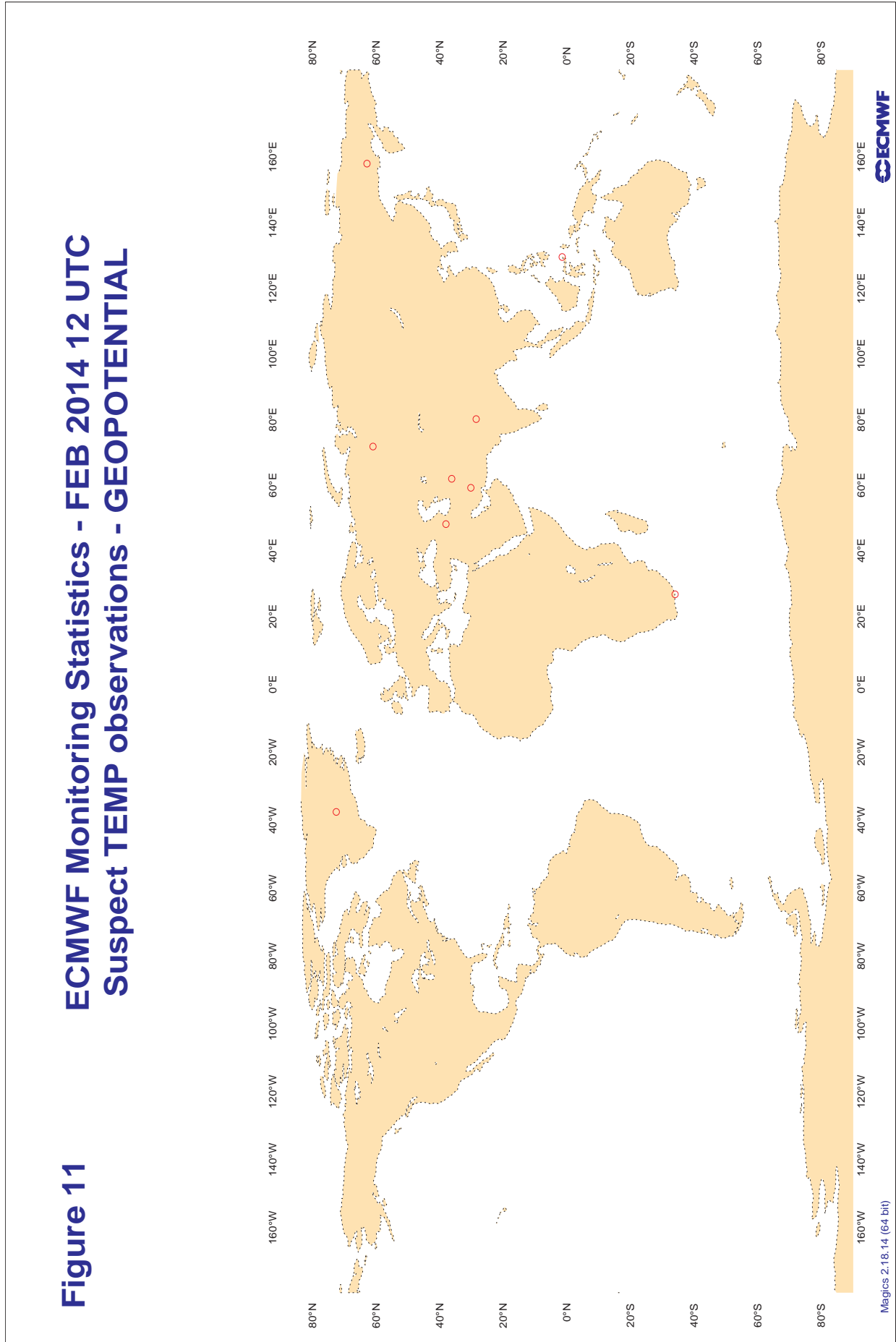
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS  $\geq$  5 M/S  
 NO. OF OBSERVATIONS  $\geq$  5, AND,  
 ABSOLUTE BIAS  $\geq$  10 DEGREES, WITH  
 STANDARD DEVIATION  $<$  30 DEGREES, AND,  
 VERTICAL SPREAD  $<$  10 DEGREES  
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
37860	00	DD	41	50	8	10.5	8.4	13.4
82705	12	DD	-8	-73	14	10.6	7.9	26.3

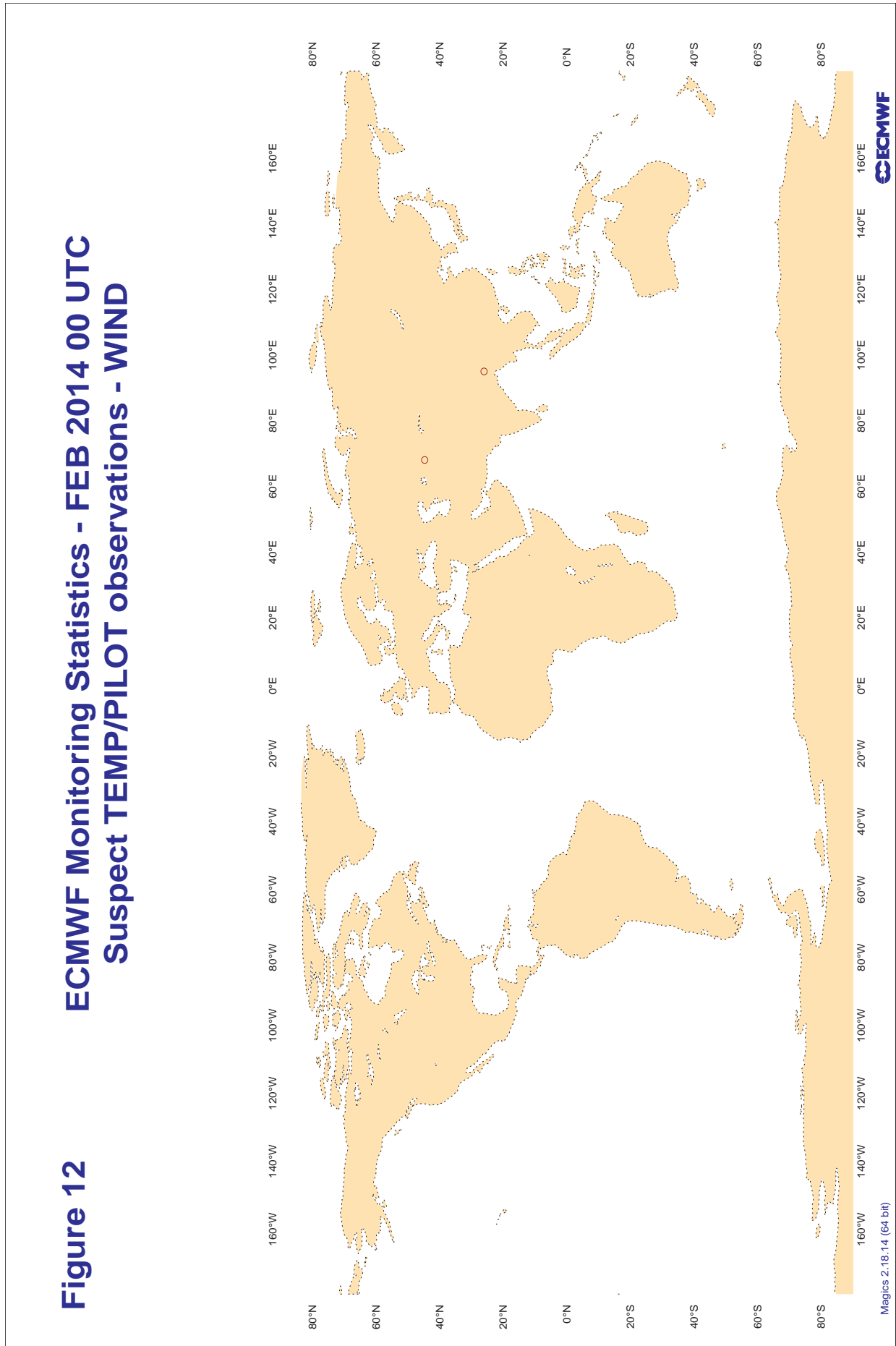
3.2.22 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



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

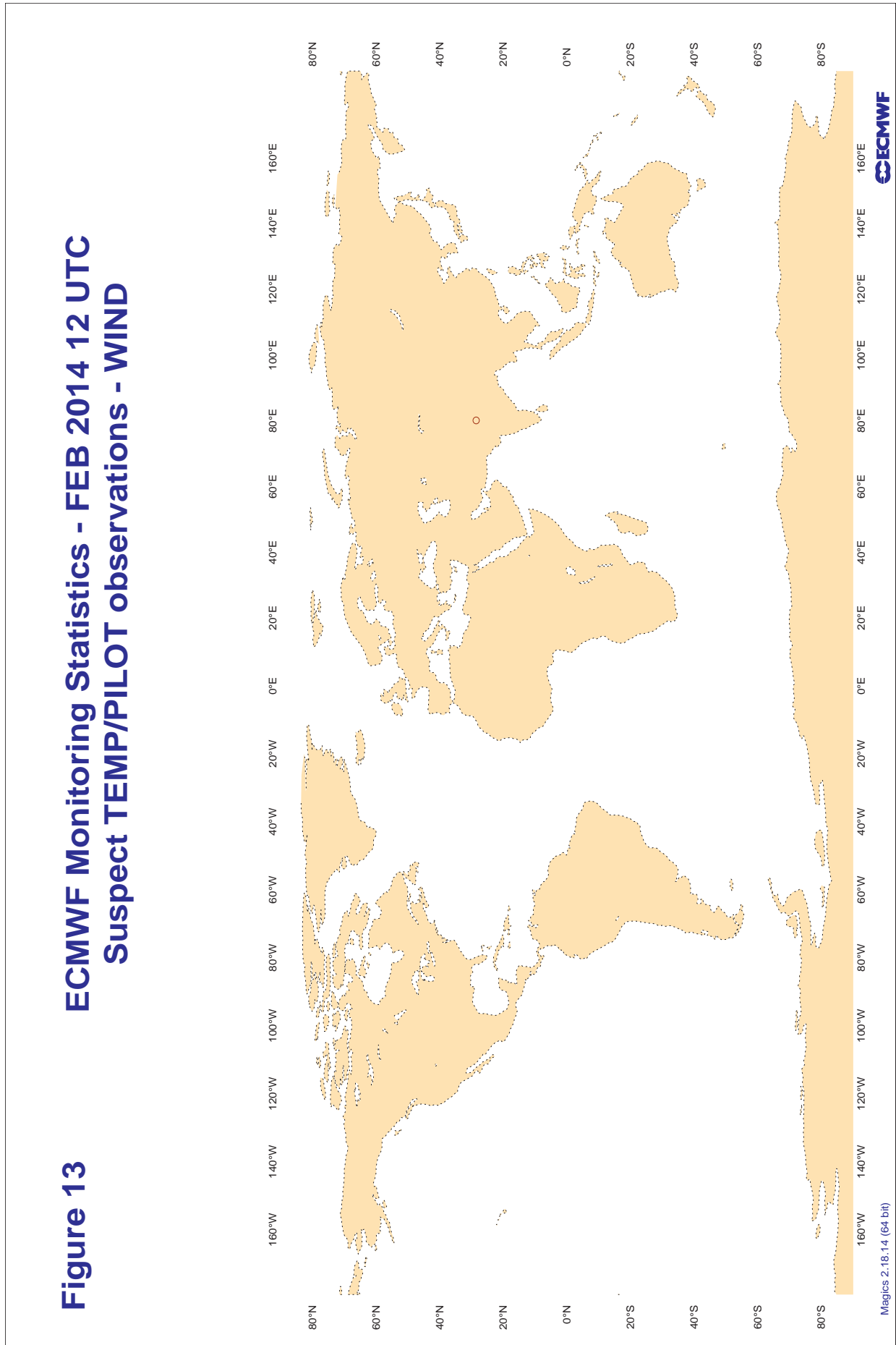


3.2.24 Figure 12 - Suspect TEMP/PILOT observations - wind : 00 UTC





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



**3.2.26 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 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASDE01	12	Z	100	6	50.9	49.2
ASDE01	00	Z	100	7	68.7	57.0
ASDE02	12	Z	100	8	36.2	27.9
ASDE03	12	Z	100	9	23.6	20.1
ASDE03	00	Z	100	6	21.5	15.0
ASDE04	00	Z	100	1	6.8	6.8
ASDE04	12	Z	100	1	6.9	6.9
ASDE09	12	Z	100	2	25.2	24.6
ASDK1	12	Z	100	5	34.7	31.0
ASDK1	00	Z	100	9	38.1	32.6
ASDK2	00	Z	100	5	58.0	57.8
ASDK2	12	Z	100	13	61.0	60.0
ASDK3	12	Z	100	1	30.4	30.4
ASDK3	00	Z	100	3	6.1	5.7
ASES1	12	Z	100	16	25.0	22.2
ASEU01	12	Z	100	7	18.7	17.7
ASEU02	12	Z	100	5	48.9	47.5
ASEU02	00	Z	100	6	39.4	35.3
ASEU03	12	Z	100	5	38.6	37.3
ASEU03	00	Z	100	4	34.9	33.9
ASEU04	12	Z	100	4	26.1	19.0
ASEU04	00	Z	100	4	12.5	-3.8
ASEU05	12	Z	100	11	29.5	19.9
ASEU05	00	Z	100	10	28.4	24.3
ASEU06	12	Z	100	3	45.6	45.1
ASEU06	00	Z	100	3	36.3	28.2
ASFR1	12	Z	100	12	36.9	30.6
ASFR1	00	Z	100	9	21.1	15.8
ASFR2	12	Z	100	9	24.6	23.9
ASFR2	00	Z	100	11	21.3	17.1
ASFR3	12	Z	100	9	11.9	9.8
ASFR3	00	Z	100	7	12.0	9.0
ASFR4	12	Z	100	10	28.6	26.8
ASFR4	00	Z	100	10	22.1	20.8
DBLK	12	Z	100	26	19.6	18.5
JGQH	12	Z	100	12	15.8	14.2
JGQH	00	Z	100	10	13.3	11.1

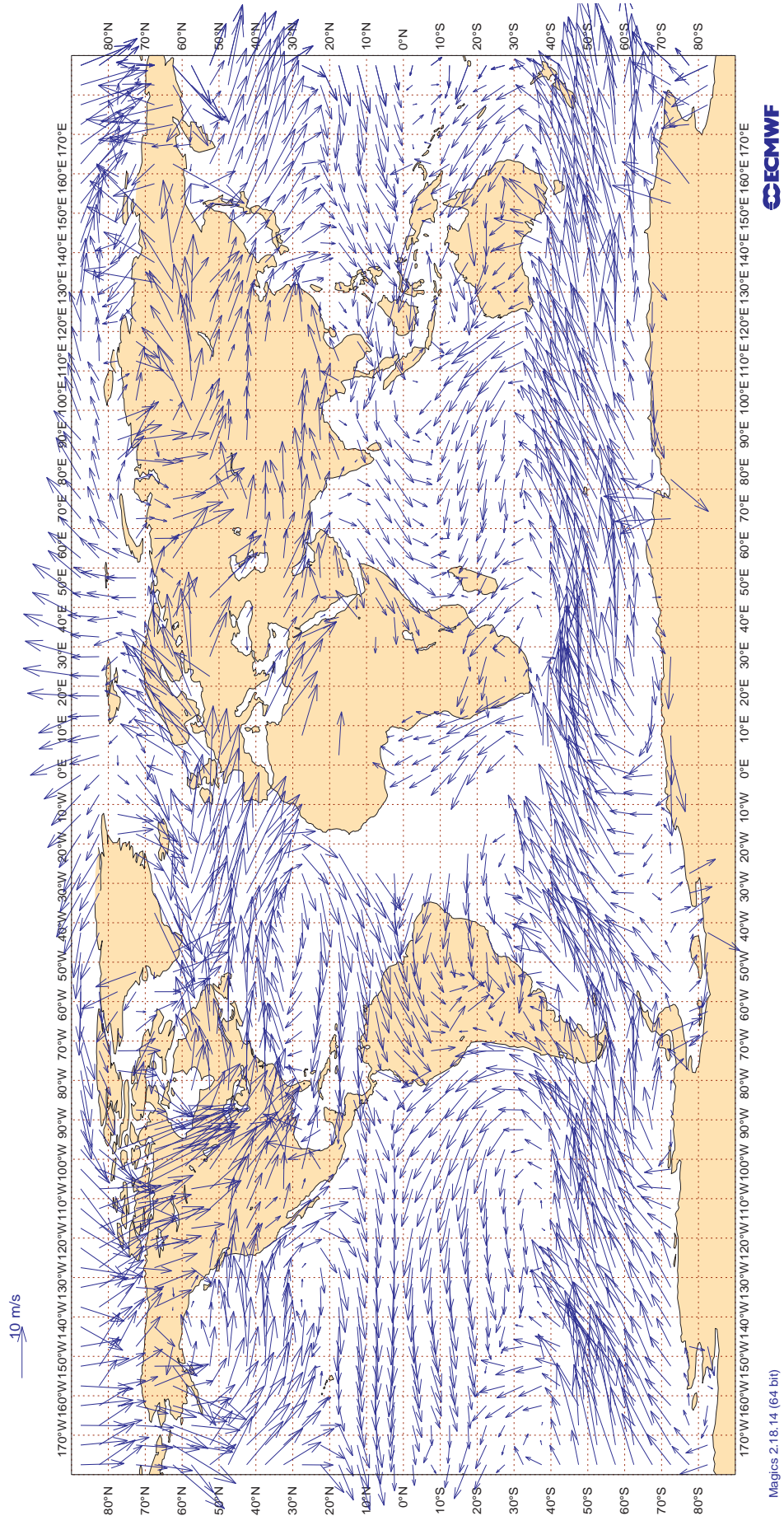
3.2.27 Table 11 - Radiosonde monitoring statistics (SHIPs): Wind (m/s)

RADIOSONDE MONITORING STATISTICS (SHIPS)  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 LEVEL : 100 HPA  
 AREA : GLOBAL  
 PERIOD : FEB 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASDE01	12	V	100	6	4.3	1.5	-0.4
ASDE01	00	V	100	6	4.9	-0.4	2.7
ASDE02	12	V	100	8	4.7	-1.4	0.3
ASDE03	12	V	100	9	5.1	-1.5	-0.5
ASDE03	00	V	100	6	3.3	-1.6	1.2
ASDE04	00	V	100	1	3.2	-3.2	0.5
ASDE04	12	V	100	1	3.0	-3.0	0.2
ASDE09	12	V	100	2	2.9	2.2	0.9
ASDK1	12	V	100	3	2.0	0.0	1.3
ASDK1	00	V	100	6	2.5	0.3	1.1
ASDK2	00	V	100	3	7.2	3.1	4.8
ASDK2	12	V	100	12	4.8	-0.5	-0.6
ASDK3	12	V	100	1	1.3	-1.1	-0.6
ASDK3	00	V	100	3	2.2	0.3	-1.3
ASES1	12	V	100	16	4.7	1.8	-0.2
ASEU01	12	V	100	7	4.1	0.6	-0.4
ASEU02	12	V	100	5	3.4	-0.1	0.0
ASEU02	00	V	100	6	5.9	1.5	-0.2
ASEU03	12	V	100	5	5.3	-1.3	0.4
ASEU03	00	V	100	4	5.9	-2.1	-2.5
ASEU04	12	V	100	4	4.4	-1.6	1.3
ASEU04	00	V	100	4	3.1	1.3	-1.8
ASEU05	12	V	100	11	4.1	0.9	0.5
ASEU05	00	V	100	10	3.3	-0.1	0.6
ASEU06	12	V	100	3	5.1	-0.8	1.5
ASEU06	00	V	100	3	3.0	0.3	1.1
ASFR1	12	V	100	12	3.1	0.2	1.4
ASFR1	00	V	100	9	3.8	0.3	2.1
ASFR2	12	V	100	9	2.9	0.3	-0.6
ASFR2	00	V	100	11	3.2	-0.4	-0.7
ASFR3	12	V	100	9	3.3	1.3	0.2
ASFR3	00	V	100	7	3.3	1.1	0.1
ASFR4	12	V	100	10	4.1	-0.6	-0.3
ASFR4	00	V	100	10	3.9	-0.1	1.6
DBLK	12	V	100	26	2.1	0.0	0.3
JGQH	12	V	100	12	4.6	-2.3	-0.9
JGQH	00	V	100	10	6.0	-1.8	-1.1

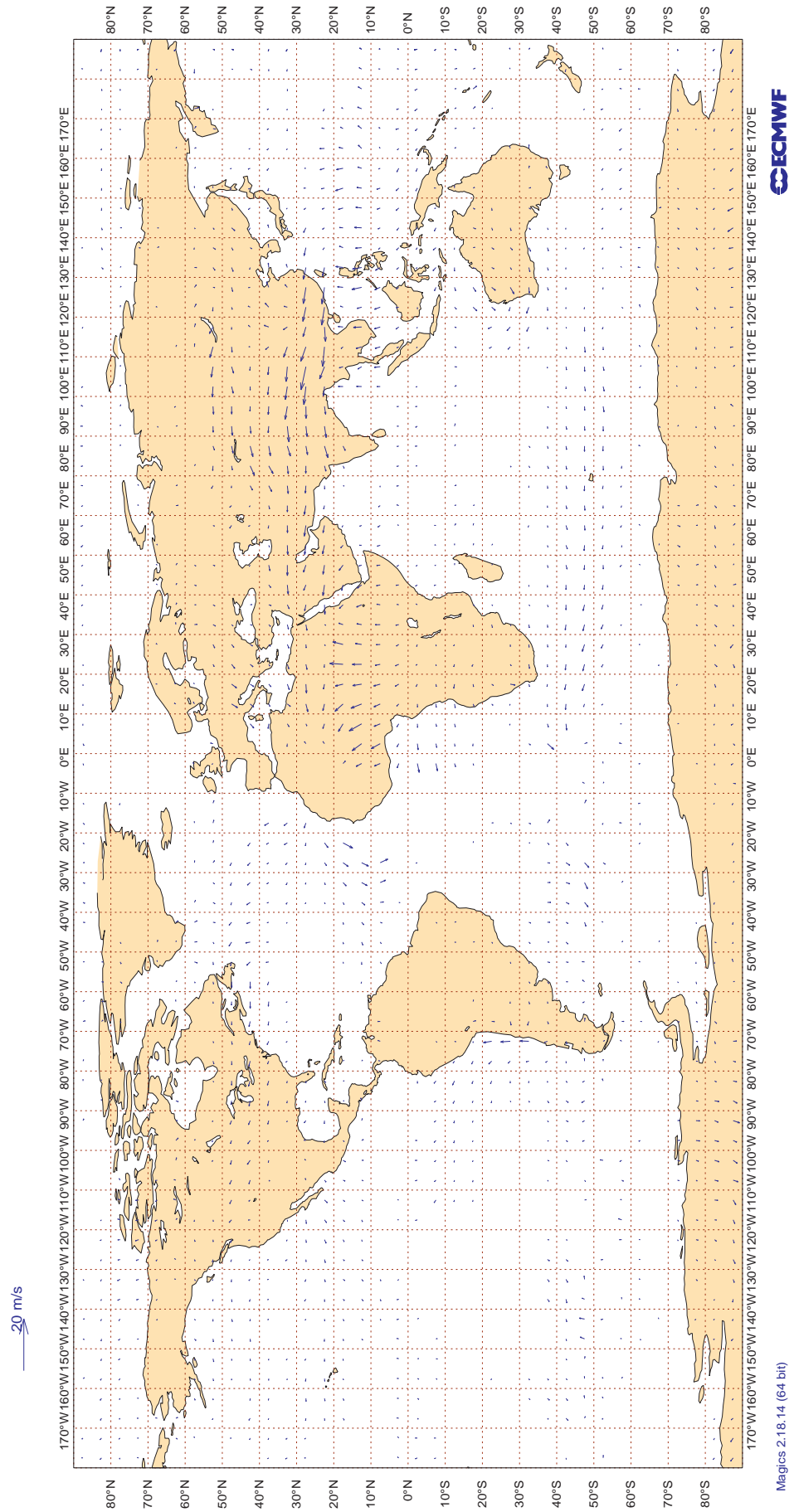
3.2.28 Figure 14 - SATOB Winds: 700-1000hPa

**Figure 14** ECMWF Monitoring Statistics: Feb 2014  
AMV Winds: 700-1000hPa  
Mean Observed Wind



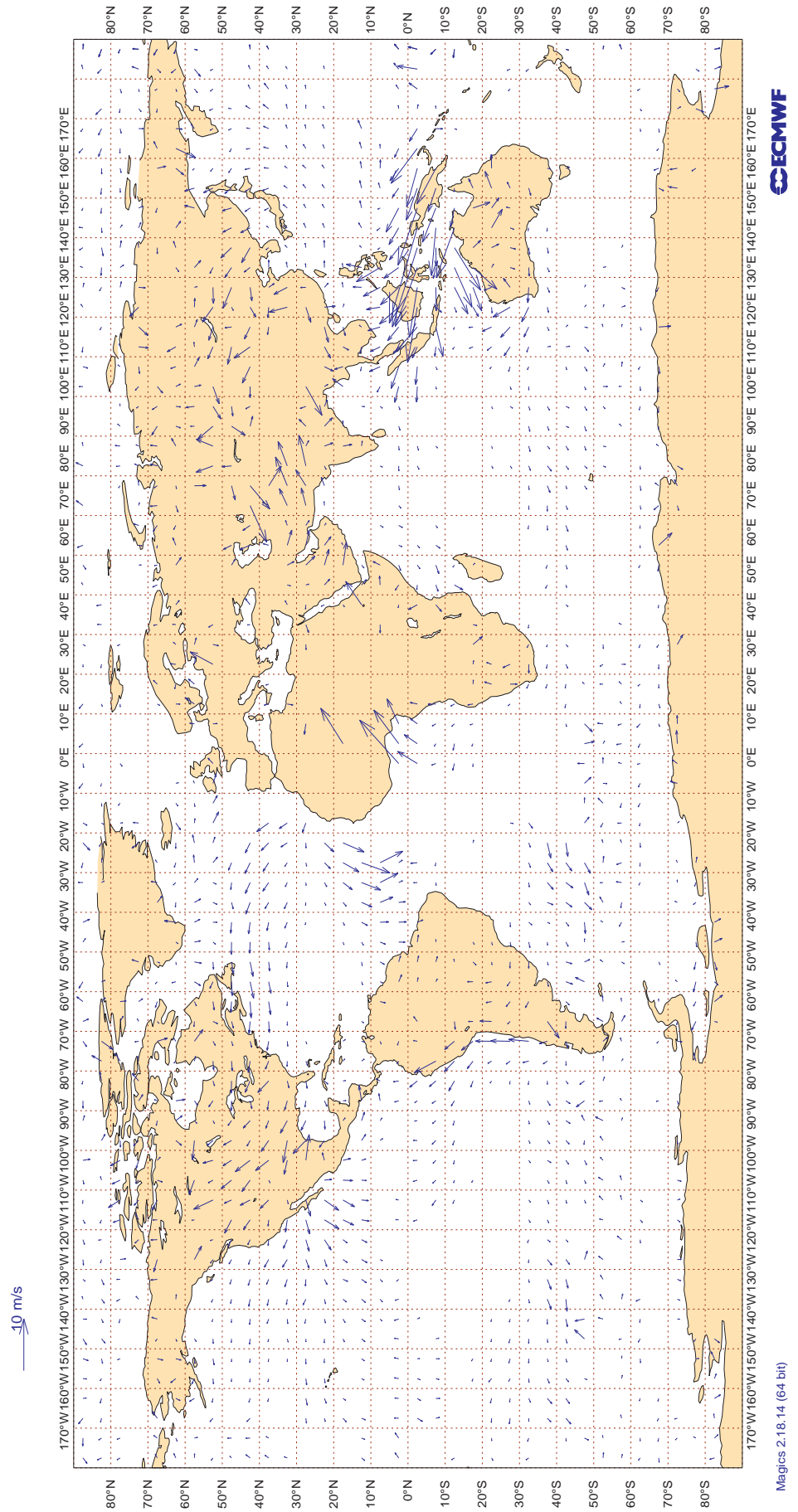
3.2.29 Figure 15 - SATOB Winds: 150- 400hPa

**Figure 15**  
**ECMWF Monitoring Statistics: Feb 2014**  
**AMV Winds: 150- 400hPa**  
**Wind bias: Observation - FG**



3.2.30 Figure 16 - SATOB Winds: 700-1000hPa

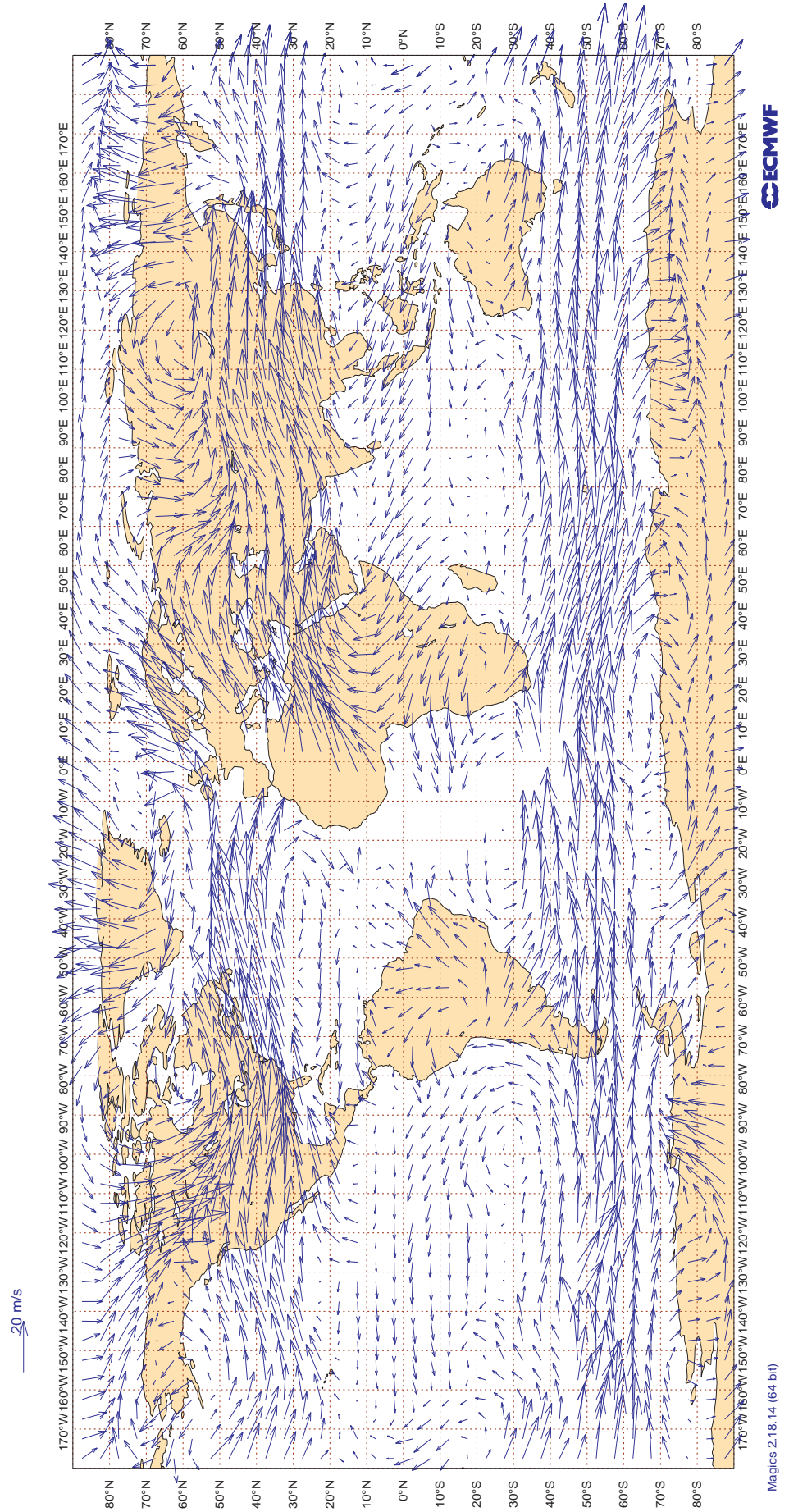
**Figure 16**  
**ECMWF Monitoring Statistics: Feb 2014**  
**AMV Winds: 700-1000hPa**  
**Wind bias: Observation - FG**





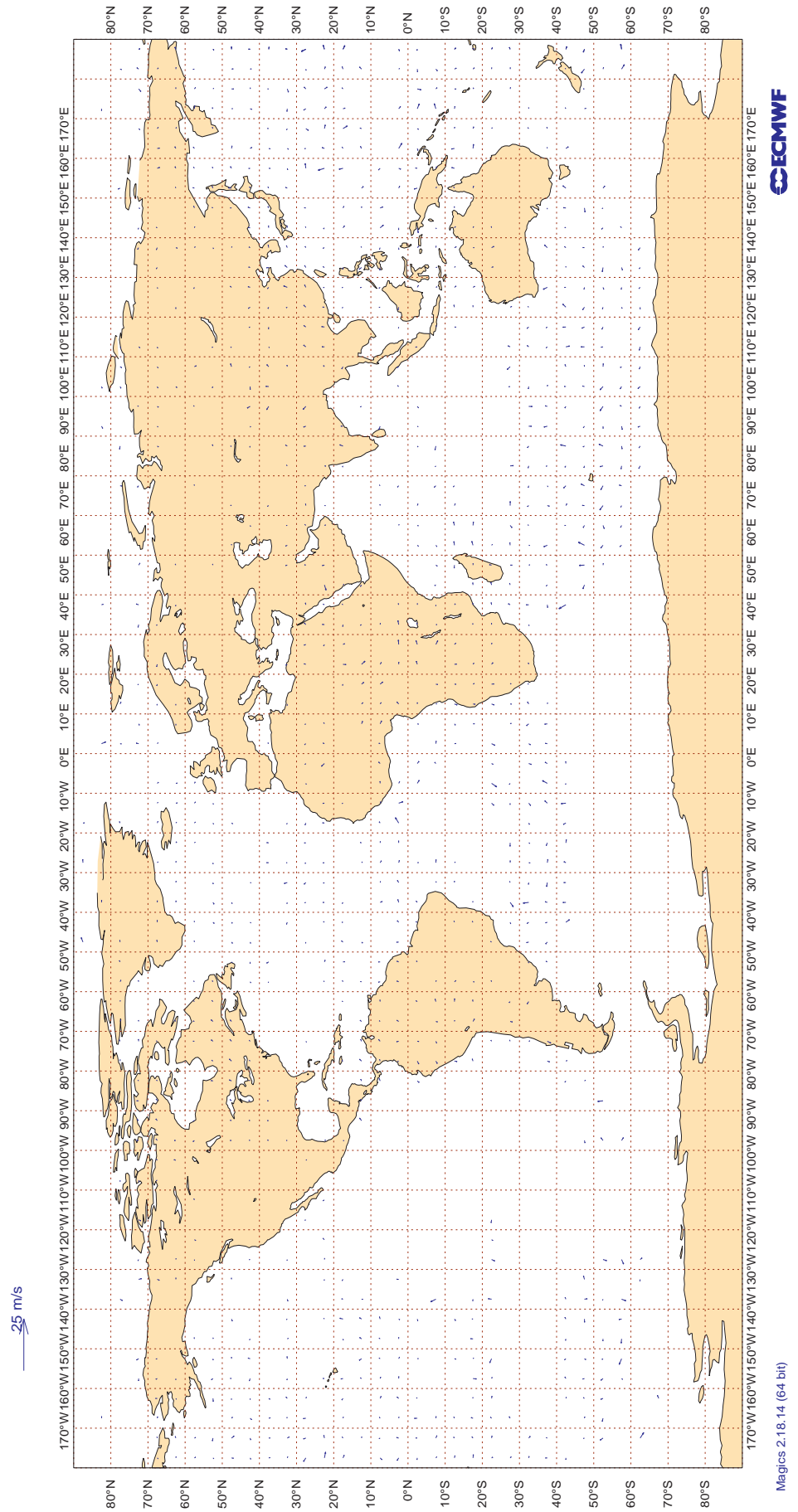
3.2.31 Figure 17 - SATOB Winds: 150- 400hPa

**Figure 17**  
**ECMWF Monitoring Statistics: Feb 2014**  
**AMV Winds: 150- 400hPa**  
**Mean Observed Wind**



3.2.32 Figure 18 - AIRCRAFT Winds: 150- 300hPa

**Figure 18**  
**ECMWF Monitoring Statistics: Feb 2014**  
**Aircraft Winds: 150- 300hPa**  
**Wind bias: Observation - FG**





### 3.2.33 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 2014  
 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	3192	0	0	4.5	-0.8
AAY	99	V	300-150	174	0	0	5.3	-0.1
ABW	99	V	300-150	40	0	0	2.8	0.2
ACA	99	V	300-150	2087	1	0	4.4	-0.3
ACI	99	V	300-150	665	0	0	3.7	0.6
AFL	99	V	300-150	924	0	0	4.1	0.3
AFR	99	V	300-150	2958	1	0	4.8	0.1
AIC	99	V	300-150	1020	1	0	4.0	-0.3
AMX	99	V	300-150	277	10	0	14.5	-0.1
ANZ	99	V	300-150	2100	0	0	4.1	0.4
ASA	99	V	300-150	2776	0	0	5.8	0.5
ASY	99	V	300-150	101	0	0	3.7	-0.6
ATN	99	V	300-150	22	5	0	4.5	0.3
AUA	99	V	300-150	943	1	0	4.8	-2.0
AVN	99	V	300-150	74	0	0	4.0	-0.8
AWE	99	V	300-150	1511	1	0	4.4	0.8
AXM	99	V	300-150	21	0	0	5.6	1.3
AZA	99	V	300-150	361	1	0	5.1	0.7
BAW	99	V	300-150	4375	1	0	4.6	-0.2
BER	99	V	300-150	1542	1	0	4.7	1.0
BLX	99	V	300-150	100	3	0	4.0	-1.3
BOX	99	V	300-150	85	0	0	3.3	-0.2
CAL	99	V	300-150	39	0	0	3.7	-0.3
CES	99	V	300-150	20	5	0	11.5	0.1
CFG	99	V	300-150	245	2	1	5.5	-0.6
CGC	99	V	300-150	21	57	0	34.1	-1.9
CKS	99	V	300-150	423	0	0	4.1	-0.4
CLX	99	V	300-150	336	0	0	4.5	-0.4
CNV	99	V	300-150	41	2	0	6.4	0.2
CPA	99	V	300-150	31	0	0	2.8	0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
CSN	99	V	300-150	175	10	0	10.8	-0.1
DAH	99	V	300-150	112	1	0	3.7	0.2
DAL	99	V	300-150	9525	0	0	4.4	-0.5
DHK	99	V	300-150	338	1	1	4.7	-0.2
DLH	99	V	300-150	4645	1	0	4.9	-0.2
EIN	99	V	300-150	866	0	0	4.3	-0.2
EJM	99	V	300-150	80	15	0	8.0	-1.1
ELY	99	V	300-150	449	0	0	4.2	0.3
ETH	99	V	300-150	66	11	0	6.3	-0.8
FDX	99	V	300-150	1527	0	0	4.1	0.3
FIN	99	V	300-150	412	1	0	4.5	0.4
FJI	99	V	300-150	988	0	0	4.2	0.1
FWI	99	V	300-150	78	0	0	5.4	-0.6
GEC	99	V	300-150	571	1	0	3.9	-0.1
GLJ	99	V	300-150	22	50	0	15.9	0.7
GTI	99	V	300-150	261	1	0	3.7	-0.1
HAL	99	V	300-150	963	0	0	5.6	0.6
IBE	99	V	300-150	145	1	0	4.2	0.6
ICV	99	V	300-150	50	0	0	3.8	1.5
JAF	99	V	300-150	109	1	0	5.3	-0.9
JAI	99	V	300-150	632	2	0	5.4	0.6
JST	99	V	300-150	827	0	0	4.5	0.4
KAI	99	V	300-150	30	0	0	5.6	0.5
KAL	99	V	300-150	206	0	0	6.7	1.6
KLM	99	V	300-150	2017	0	0	4.4	-0.7
LAN	99	V	300-150	81	0	0	3.5	0.0
LOT	99	V	300-150	196	3	0	9.5	-0.4
MAR	99	V	300-150	21	67	0	30.6	0.8
MAS	99	V	300-150	92	0	0	3.6	0.3
MMN	99	V	300-150	52	0	0	4.5	0.8
MSR	99	V	300-150	293	1	0	4.3	0.5
NAX	99	V	300-150	60	2	0	11.4	-0.3
NVR	99	V	300-150	23	0	0	4.5	0.7
NWS	99	V	300-150	65	2	0	3.8	0.2
OAE	99	V	300-150	71	1	1	5.2	-0.3
PAL	99	V	300-150	312	1	0	7.6	-0.9
PIA	99	V	300-150	120	2	0	4.7	-0.3
PIR	99	V	300-150	23	43	0	30.5	26.9
QFA	99	V	300-150	1146	0	0	4.3	0.1
QTR	99	V	300-150	184	2	0	5.0	0.0
RCH	99	V	300-150	576	1	0	4.9	0.1
RJA	99	V	300-150	115	1	1	6.8	0.1
RZO	99	V	300-150	20	0	0	8.0	-1.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
SAS	99	V	300-150	1242	0	0	4.1	-0.1
SIA	99	V	300-150	391	1	0	3.5	0.3
SIO	99	V	300-150	23	4	0	2.8	0.4
SLM	99	V	300-150	27	0	0	4.1	0.2
SOO	99	V	300-150	31	0	0	4.3	0.7
SQC	99	V	300-150	32	0	0	5.8	-1.8
SVA	99	V	300-150	488	0	0	4.6	0.3
SWR	99	V	300-150	1078	0	0	4.9	0.3
TAM	99	V	300-150	46	0	0	5.2	1.2
TAP	99	V	300-150	27	7	0	6.0	-0.2
TAY	99	V	300-150	69	0	0	3.4	-0.2
TFL	99	V	300-150	87	0	0	5.5	-1.5
THA	99	V	300-150	129	0	0	3.4	-0.3
THT	99	V	300-150	291	0	0	5.5	0.6
THY	99	V	300-150	350	0	0	4.1	0.8
TOM	99	V	300-150	378	3	0	6.1	-0.5
TSC	99	V	300-150	148	1	1	5.4	0.6
TSO	99	V	300-150	331	0	0	5.0	-0.1
UAE	99	V	300-150	799	0	0	4.2	-0.3
UAL	99	V	300-150	11755	1	0	5.0	-0.8
UPS	99	V	300-150	793	0	0	4.5	0.1
VIR	99	V	300-150	1845	0	0	4.3	-0.5
VJT	99	V	300-150	22	100	0	0.0	0.0
VOZ	99	V	300-150	191	1	0	3.6	0.3
WJA	99	V	300-150	424	1	0	6.2	0.3
XLF	99	V	300-150	27	0	0	7.0	3.2

## 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 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	27	13.5	6.4
01001	00	Z	50	25	13.7	8.7
01028	00	Z	50	28	12.7	6.7
01028	12	Z	50	26	14.4	9.2
01152	00	Z	50	25	9.8	-1.0
01152	12	Z	50	26	12.1	-1.1
01400	00	Z	50	17	40.4	5.3
01400	12	Z	50	22	28.4	-7.4
01415	00	Z	50	28	23.4	-16.0
01415	12	Z	50	26	23.6	-3.0
02365	12	Z	50	12	15.8	-2.4
02365	00	Z	50	11	12.3	2.0
02591	00	Z	50	24	16.8	-3.3
02591	12	Z	50	24	15.5	4.7
02836	00	Z	50	23	10.7	1.2
02836	12	Z	50	28	9.8	4.7
02963	00	Z	50	24	14.5	-5.5
02963	12	Z	50	26	16.0	-2.7
03005	12	Z	50	26	21.7	-7.6
03005	00	Z	50	24	22.8	-9.2
03238	00	Z	50	23	16.5	-1.5
03238	12	Z	50	1	20.8	20.8
03808	00	Z	50	26	13.7	2.6
03808	12	Z	50	26	15.9	7.2
03918	00	Z	50	26	19.1	0.9
03918	12	Z	50	10	38.1	1.9
03953	00	Z	50	28	17.4	7.9
03953	12	Z	50	26	20.6	13.5
04018	12	Z	50	27	16.7	0.1
04018	00	Z	50	25	23.6	1.5
04220	12	Z	50	16	27.4	-14.9
04220	00	Z	50	22	26.8	-5.3
04270	12	Z	50	27	19.8	16.9
04270	00	Z	50	28	33.2	23.7
04320	12	Z	50	26	14.2	-7.5
04320	00	Z	50	28	19.3	-6.0
04339	00	Z	50	23	17.7	8.9
04339	12	Z	50	26	18.5	14.8
04360	00	Z	50	8	21.8	17.7

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04360	12	Z	50	22	21.5	16.6
06011	12	Z	50	26	25.4	-2.3
06011	00	Z	50	23	25.1	-16.7
06260	00	Z	50	14	14.2	3.4
06260	12	Z	50	4	19.8	16.3
06610	00	Z	50	28	23.4	7.0
06610	12	Z	50	28	22.7	5.9
07110	00	Z	50	24	22.5	12.8
07110	12	Z	50	17	36.7	31.8
07510	00	Z	50	20	11.9	4.8
07510	12	Z	50	20	16.7	11.8
07645	12	Z	50	21	32.0	29.2
07645	00	Z	50	21	21.2	20.0
07761	00	Z	50	18	28.2	25.4
07761	12	Z	50	16	25.6	17.0
08001	12	Z	50	23	31.2	24.1
08001	00	Z	50	15	16.1	8.6
08221	12	Z	50	25	24.7	21.0
08221	00	Z	50	25	22.1	18.4
08302	00	Z	50	26	12.9	9.1
08302	12	Z	50	27	15.3	10.9
08508	12	Z	50	18	69.2	49.1
08522	12	Z	50	26	19.9	16.7
08579	12	Z	50	28	23.2	21.6
10035	00	Z	50	26	12.3	-5.6
10035	12	Z	50	26	18.3	-3.4
10393	00	Z	50	28	10.0	-4.0
10393	12	Z	50	28	12.7	1.0
10410	00	Z	50	24	17.5	-1.0
10410	12	Z	50	27	16.7	3.5
10739	00	Z	50	27	18.5	9.7
10739	12	Z	50	27	18.6	11.7
11035	00	Z	50	27	14.7	2.0
11035	12	Z	50	28	13.3	8.4
12982	00	Z	50	25	12.7	6.3
16044	12	Z	50	28	21.3	16.4
16044	00	Z	50	28	19.1	11.3
16080	00	Z	50	28	17.2	3.9
16080	12	Z	50	28	17.7	11.4
16245	12	Z	50	23	19.7	16.4
16245	00	Z	50	28	17.3	10.5
16320	00	Z	50	28	13.2	7.3
16320	12	Z	50	28	12.5	5.9

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	50	27	16.7	13.3
16429	00	Z	50	27	17.7	16.0
16622	12	Z	50	20	38.2	36.2
16754	12	Z	50	27	37.8	35.3
17607	12	Z	50	25	20.4	-18.0
26435	00	Z	50	14	11.7	-3.1
60018	12	Z	50	26	9.7	1.4
60018	00	Z	50	26	15.7	11.7
ASDE01	12	Z	50	6	66.9	64.9
ASDE01	00	Z	50	4	90.7	83.4
ASDE03	12	Z	50	8	37.4	32.8
ASDE03	00	Z	50	4	27.9	23.3
ASDE04	00	Z	50	1	13.9	13.9
ASDE04	12	Z	50	1	18.6	18.6
ASDE09	12	Z	50	2	29.7	29.7
ASDK1	12	Z	50	5	39.1	33.8
ASDK1	00	Z	50	5	62.6	51.8
ASDK2	00	Z	50	3	58.0	57.9
ASDK3	12	Z	50	5	37.5	37.0
ASDK3	00	Z	50	5	15.5	13.6
ASES1	12	Z	50	16	32.3	30.5
ASEU01	12	Z	50	6	30.0	29.4
ASEU02	12	Z	50	5	61.7	60.1
ASEU02	00	Z	50	6	46.4	43.9
ASEU03	12	Z	50	5	48.7	45.4
ASEU03	00	Z	50	4	35.3	29.6
ASEU04	12	Z	50	4	34.6	30.7
ASEU04	00	Z	50	4	18.1	-5.3
ASEU05	12	Z	50	11	45.6	32.5
ASEU05	00	Z	50	9	35.1	28.6
ASEU06	12	Z	50	3	63.6	59.5
ASEU06	00	Z	50	3	43.0	42.0
ASFR1	12	Z	50	11	62.4	50.6
ASFR1	00	Z	50	7	37.0	35.9
ASFR2	12	Z	50	8	34.4	33.7
ASFR2	00	Z	50	12	36.5	33.1
ASFR3	12	Z	50	8	23.4	20.9
ASFR3	00	Z	50	8	23.1	21.6
ASFR4	12	Z	50	10	42.3	40.1
ASFR4	00	Z	50	10	36.4	34.9

**4.2 Table 14 - Radiosonde Monitoring Statistics (EUCOS):50 hPa Wind (m/s)**

## RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 LEVEL : 50 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : FEB 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	27	3.7	1.1	-0.3
01001	00	V	50	17	3.7	-0.5	0.2
01028	00	V	50	27	3.2	-0.7	0.2
01028	12	V	50	25	3.3	-0.4	0.7
01152	00	V	50	22	4.0	-2.3	-1.1
01152	12	V	50	25	3.0	0.5	-1.9
01400	00	V	50	9	4.3	2.0	-1.5
01400	12	V	50	18	4.3	1.0	0.4
01415	00	V	50	27	5.0	0.7	-0.9
01415	12	V	50	25	4.3	0.6	0.6
02365	12	V	50	12	3.5	-0.2	-1.4
02365	00	V	50	11	3.4	0.1	-0.6
02591	00	V	50	23	3.9	0.9	-0.3
02591	12	V	50	24	3.9	1.4	-0.8
02836	00	V	50	21	3.3	-0.5	-0.5
02836	12	V	50	27	4.0	-0.9	-0.1
02963	00	V	50	21	4.7	-0.2	-1.7
02963	12	V	50	24	4.0	0.1	-2.3
03005	12	V	50	26	4.0	-0.6	0.1
03005	00	V	50	23	3.4	-0.2	0.3
03238	00	V	50	23	4.9	1.0	-0.7
03238	12	V	50	1	5.7	-2.1	5.3
03808	00	V	50	24	5.6	0.8	0.0
03808	12	V	50	26	4.8	-0.1	-0.8
03918	00	V	50	25	4.7	1.4	1.0
03918	12	V	50	10	4.5	-0.7	1.3
03953	00	V	50	27	4.5	0.0	-0.4
03953	12	V	50	25	4.5	0.7	0.1
04018	12	V	50	26	3.7	0.1	0.5
04018	00	V	50	22	3.2	-0.5	-0.4
04220	12	V	50	16	3.3	-1.6	0.5
04220	00	V	50	22	4.0	-0.1	0.6
04270	12	V	50	27	4.0	-0.2	0.8
04270	00	V	50	28	3.9	0.0	-0.4
04320	12	V	50	26	3.3	-0.2	0.5
04320	00	V	50	28	3.2	-0.3	-0.3
04339	00	V	50	15	6.3	1.1	0.6
04339	12	V	50	7	6.2	-1.1	-2.2
04360	00	V	50	8	4.5	1.2	0.4



RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04360	12	V	50	22	4.2	0.3	-0.6
06011	12	V	50	25	11.5	2.3	0.0
06011	00	V	50	23	3.6	-0.4	-0.4
06260	00	V	50	10	4.4	1.5	-0.5
06260	12	V	50	4	4.0	3.1	-1.7
06610	00	V	50	27	5.1	2.0	-0.2
06610	12	V	50	28	5.4	0.4	-0.3
07110	00	V	50	23	5.0	0.0	1.4
07110	12	V	50	17	4.1	-0.2	0.8
07510	00	V	50	20	4.7	0.9	0.4
07510	12	V	50	20	4.3	-0.5	0.4
07645	12	V	50	21	4.0	0.1	-0.4
07645	00	V	50	21	3.9	0.1	0.2
07761	00	V	50	18	4.4	0.0	-0.7
07761	12	V	50	16	4.4	0.7	0.5
08001	12	V	50	21	4.6	0.3	0.2
08001	00	V	50	13	5.2	0.1	-0.1
08221	12	V	50	25	4.8	-0.4	-0.3
08221	00	V	50	24	4.5	-0.9	-0.2
08302	00	V	50	25	3.8	0.1	0.9
08302	12	V	50	27	3.8	-0.4	-0.5
08508	12	V	50	18	4.2	-1.9	0.5
08522	12	V	50	26	3.8	-0.4	-0.6
08579	12	V	50	26	4.5	-1.2	-0.5
10035	00	V	50	24	4.6	1.2	-0.3
10035	12	V	50	26	4.2	1.3	0.3
10393	00	V	50	27	4.6	1.3	-0.8
10393	12	V	50	28	4.7	2.0	-0.4
10410	00	V	50	24	4.7	1.2	1.0
10410	12	V	50	27	5.0	1.0	-1.2
10739	00	V	50	27	6.3	1.7	-0.3
10739	12	V	50	27	5.7	0.2	-1.2
11035	00	V	50	27	5.0	0.7	0.1
11035	12	V	50	28	5.0	1.7	-1.1
12982	00	V	50	22	4.0	1.0	1.2
16044	12	V	50	28	4.1	1.9	-0.8
16044	00	V	50	27	3.8	1.6	-0.7
16080	00	V	50	28	4.8	2.1	-0.7
16080	12	V	50	28	4.3	1.8	-0.9
16245	12	V	50	22	4.4	0.7	0.5
16245	00	V	50	27	3.4	0.0	0.4
16320	00	V	50	27	4.2	0.7	-0.7
16320	12	V	50	27	4.0	0.8	-0.9

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	50	27	4.9	0.0	-0.8
16429	00	V	50	27	4.5	1.0	-0.4
16622	12	V	50	19	8.1	1.8	-0.5
16754	12	V	50	26	4.2	0.6	-0.6
17607	12	V	50	19	3.5	-0.3	-0.6
26435	00	V	50	13	2.6	0.5	0.0
60018	12	V	50	26	3.4	-0.2	-0.7
60018	00	V	50	26	4.0	-0.4	1.2
ASDE01	12	V	50	4	4.0	2.4	1.8
ASDE01	00	V	50	4	5.4	-0.3	2.4
ASDE03	12	V	50	4	4.6	2.0	-3.7
ASDE03	00	V	50	3	2.1	-0.9	1.0
ASDE04	00	V	50	1	2.2	-2.2	0.2
ASDE04	12	V	50	1	2.6	-2.3	1.3
ASDE09	12	V	50	2	3.9	3.1	-1.3
ASDK1	12	V	50	2	5.3	0.3	4.8
ASDK1	00	V	50	2	2.4	-0.6	0.8
ASDK2	00	V	50	1	2.8	-0.5	-2.8
ASDK3	12	V	50	5	2.8	1.3	1.2
ASDK3	00	V	50	5	2.6	0.9	0.6
ASES1	12	V	50	16	4.2	0.7	-1.2
ASEU01	12	V	50	6	3.1	0.2	0.5
ASEU02	12	V	50	5	3.2	1.7	0.1
ASEU02	00	V	50	6	3.3	0.8	-0.7
ASEU03	12	V	50	4	5.8	-0.8	4.1
ASEU03	00	V	50	4	6.4	-0.3	3.2
ASEU04	12	V	50	4	2.4	-0.2	-0.3
ASEU04	00	V	50	3	2.8	1.3	0.5
ASEU05	12	V	50	9	4.6	0.9	0.9
ASEU05	00	V	50	8	4.6	0.2	1.4
ASEU06	12	V	50	3	4.3	-1.9	-2.1
ASEU06	00	V	50	2	6.5	-1.3	5.4
ASFR1	12	V	50	11	4.7	-1.8	2.1
ASFR1	00	V	50	7	3.4	-1.1	0.6
ASFR2	12	V	50	8	4.3	0.4	-0.6
ASFR2	00	V	50	12	4.9	-0.1	0.0
ASFR3	12	V	50	8	2.9	0.5	-1.4
ASFR3	00	V	50	8	3.5	-1.8	0.2
ASFR4	12	V	50	10	3.9	-1.5	0.0
ASFR4	00	V	50	10	3.1	-0.3	-1.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)  
 LEVEL : 100 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : FEB 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	28	8.4	1.0
01001	00	Z	100	28	8.8	2.9
01028	00	Z	100	28	10.5	4.9
01028	12	Z	100	27	9.2	5.9
01152	00	Z	100	27	6.8	0.9
01152	12	Z	100	27	7.8	2.1
01400	00	Z	100	19	37.3	9.9
01400	12	Z	100	22	17.4	-3.6
01415	00	Z	100	28	10.5	-3.0
01415	12	Z	100	28	13.4	2.5
02365	12	Z	100	14	10.5	1.2
02365	00	Z	100	14	6.8	4.3
02591	00	Z	100	25	8.7	2.8
02591	12	Z	100	24	14.0	9.9
02836	00	Z	100	28	8.2	1.1
02836	12	Z	100	28	8.9	5.6
02963	00	Z	100	28	10.2	-3.3
02963	12	Z	100	27	8.3	-0.1
03005	12	Z	100	28	12.4	-1.2
03005	00	Z	100	28	10.5	-3.0
03238	00	Z	100	26	9.4	1.1
03238	12	Z	100	1	11.7	-11.7
03808	00	Z	100	27	10.1	1.7
03808	12	Z	100	29	10.1	1.4
03918	00	Z	100	28	15.1	3.8
03918	12	Z	100	10	18.8	7.1
03953	00	Z	100	27	11.2	6.2
03953	12	Z	100	27	13.9	6.9
04018	12	Z	100	27	10.9	1.8
04018	00	Z	100	27	17.0	2.4
04220	12	Z	100	22	16.6	-11.1
04220	00	Z	100	23	17.8	-3.3
04270	12	Z	100	27	19.3	17.4
04270	00	Z	100	27	24.9	18.2
04320	12	Z	100	28	10.6	-5.8
04320	00	Z	100	28	14.1	-3.0
04339	00	Z	100	25	14.5	5.8
04339	12	Z	100	26	8.9	3.8
04360	00	Z	100	17	18.2	14.7

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04360	12	Z	100	24	15.2	13.0
06011	12	Z	100	26	18.0	-5.6
06011	00	Z	100	25	15.6	-8.6
06260	00	Z	100	28	9.5	3.1
06260	12	Z	100	4	10.4	3.5
06610	00	Z	100	28	15.7	6.2
06610	12	Z	100	28	16.0	1.2
07110	00	Z	100	27	13.8	5.5
07110	12	Z	100	25	22.6	17.4
07510	00	Z	100	26	15.6	-0.2
07510	12	Z	100	26	10.8	5.5
07645	12	Z	100	25	21.3	18.7
07645	00	Z	100	22	12.3	11.1
07761	00	Z	100	21	15.8	12.8
07761	12	Z	100	23	17.9	10.7
08001	12	Z	100	24	23.9	12.8
08001	00	Z	100	22	11.6	3.3
08221	12	Z	100	26	21.5	17.0
08221	00	Z	100	25	15.8	12.7
08302	00	Z	100	27	8.5	3.4
08302	12	Z	100	27	9.3	4.8
08508	12	Z	100	20	49.6	35.5
08522	12	Z	100	26	15.4	11.9
08579	12	Z	100	28	13.2	11.7
10035	00	Z	100	29	10.4	-2.1
10035	12	Z	100	29	10.6	0.7
10393	00	Z	100	28	9.7	-2.7
10393	12	Z	100	28	8.5	-1.2
10410	00	Z	100	26	9.7	-1.4
10410	12	Z	100	27	10.3	-0.1
10739	00	Z	100	27	12.5	8.2
10739	12	Z	100	28	12.4	7.5
11035	00	Z	100	28	9.8	1.2
11035	12	Z	100	29	8.5	4.4
12982	00	Z	100	26	8.9	3.8
16044	12	Z	100	28	13.7	6.9
16044	00	Z	100	28	13.9	7.5
16080	00	Z	100	28	11.4	-0.5
16080	12	Z	100	28	11.5	5.9
16245	12	Z	100	23	11.5	7.2
16245	00	Z	100	28	12.9	4.3
16320	00	Z	100	28	12.1	7.1
16320	12	Z	100	28	11.2	1.8

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	100	28	12.2	7.6
16429	00	Z	100	28	11.5	8.6
16622	12	Z	100	21	25.3	24.0
16754	12	Z	100	27	23.2	21.1
17607	12	Z	100	35	13.1	-9.4
26435	00	Z	100	14	6.2	1.1
60018	12	Z	100	27	6.5	-1.6
60018	00	Z	100	26	11.1	7.1
ASDE01	12	Z	100	6	50.9	49.2
ASDE01	00	Z	100	7	68.7	57.0
ASDE03	12	Z	100	9	23.6	20.1
ASDE03	00	Z	100	6	21.5	15.0
ASDE04	00	Z	100	1	6.8	6.8
ASDE04	12	Z	100	1	6.9	6.9
ASDE09	12	Z	100	2	25.2	24.6
ASDK1	12	Z	100	5	34.7	31.0
ASDK1	00	Z	100	9	38.1	32.6
ASDK2	00	Z	100	5	58.0	57.8
ASDK3	12	Z	100	1	30.4	30.4
ASDK3	00	Z	100	3	6.1	5.7
ASES1	12	Z	100	16	25.0	22.2
ASEU01	12	Z	100	7	18.7	17.7
ASEU02	12	Z	100	5	48.9	47.5
ASEU02	00	Z	100	6	39.4	35.3
ASEU03	12	Z	100	5	38.6	37.3
ASEU03	00	Z	100	4	34.9	33.9
ASEU04	12	Z	100	4	26.1	19.0
ASEU04	00	Z	100	4	12.5	-3.8
ASEU05	12	Z	100	11	29.5	19.9
ASEU05	00	Z	100	10	28.4	24.3
ASEU06	12	Z	100	3	45.6	45.1
ASEU06	00	Z	100	3	36.3	28.2
ASFR1	12	Z	100	12	36.9	30.6
ASFR1	00	Z	100	9	21.1	15.8
ASFR2	12	Z	100	9	24.6	23.9
ASFR2	00	Z	100	11	21.3	17.1
ASFR3	12	Z	100	9	11.9	9.8
ASFR3	00	Z	100	7	12.0	9.0
ASFR4	12	Z	100	10	28.6	26.8
ASFR4	00	Z	100	10	22.1	20.8

**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 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	28	2.8	0.5	0.1
01001	00	V	100	28	3.0	0.6	-1.1
01028	00	V	100	28	2.5	-0.3	0.3
01028	12	V	100	27	2.4	0.3	-0.2
01152	00	V	100	27	3.5	-0.3	-0.4
01152	12	V	100	26	3.5	0.2	-0.2
01400	00	V	100	19	3.6	0.2	-0.7
01400	12	V	100	22	2.9	0.1	-0.1
01415	00	V	100	27	3.4	-0.4	-0.1
01415	12	V	100	28	3.7	0.5	0.3
02365	12	V	100	14	2.9	0.2	0.2
02365	00	V	100	14	4.0	1.0	0.3
02591	00	V	100	25	3.1	0.9	0.2
02591	12	V	100	24	3.4	0.5	-0.6
02836	00	V	100	28	3.6	-0.4	-0.3
02836	12	V	100	28	3.6	1.0	-0.2
02963	00	V	100	27	3.4	0.6	-0.4
02963	12	V	100	25	2.8	0.3	-0.3
03005	12	V	100	28	3.3	0.5	0.8
03005	00	V	100	27	2.9	0.0	0.2
03238	00	V	100	26	3.9	0.3	0.4
03238	12	V	100	1	3.5	3.5	-0.5
03808	00	V	100	25	4.7	-0.1	0.6
03808	12	V	100	27	3.9	0.1	0.5
03918	00	V	100	27	3.7	0.5	0.9
03918	12	V	100	10	3.9	1.4	0.9
03953	00	V	100	27	4.6	1.4	-0.6
03953	12	V	100	27	4.3	0.1	-0.3
04018	12	V	100	27	2.6	0.7	-0.4
04018	00	V	100	26	3.3	0.5	-0.4
04220	12	V	100	22	3.1	-0.5	-0.7
04220	00	V	100	23	3.1	-0.3	-0.3
04270	12	V	100	27	3.3	-0.4	-0.4
04270	00	V	100	27	3.2	-0.2	0.7
04320	12	V	100	28	3.0	-0.7	0.2
04320	00	V	100	28	3.3	0.0	0.0
04339	00	V	100	15	8.1	0.7	0.3
04339	12	V	100	7	4.7	0.9	0.7
04360	00	V	100	17	2.4	0.6	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04360	12	V	100	24	3.7	1.0	-0.7
06011	12	V	100	26	8.9	3.1	0.0
06011	00	V	100	25	2.8	-0.2	-0.2
06260	00	V	100	27	4.0	0.7	0.0
06260	12	V	100	4	2.9	1.3	0.1
06610	00	V	100	27	5.1	0.2	-1.1
06610	12	V	100	28	4.5	1.4	-0.1
07110	00	V	100	26	4.3	0.1	1.4
07110	12	V	100	25	3.7	0.0	0.4
07510	00	V	100	25	4.5	-0.8	0.7
07510	12	V	100	26	4.3	0.6	0.3
07645	12	V	100	24	3.7	0.6	-0.2
07645	00	V	100	21	4.2	0.3	-0.8
07761	00	V	100	20	3.9	1.1	0.9
07761	12	V	100	23	5.3	-0.1	0.3
08001	12	V	100	24	5.9	1.0	1.0
08001	00	V	100	22	5.1	0.2	1.7
08221	12	V	100	26	6.3	-1.2	-1.2
08221	00	V	100	25	6.0	-1.1	0.6
08302	00	V	100	27	5.8	0.3	-0.5
08302	12	V	100	27	4.4	-0.8	-0.4
08508	12	V	100	19	4.9	-0.8	0.0
08522	12	V	100	26	4.5	0.0	-0.7
08579	12	V	100	28	4.0	-0.2	0.0
10035	00	V	100	26	3.7	0.0	-0.1
10035	12	V	100	28	3.2	-0.1	1.0
10393	00	V	100	27	4.0	0.1	0.5
10393	12	V	100	28	4.2	1.2	-0.2
10410	00	V	100	26	4.2	-0.1	-0.2
10410	12	V	100	27	3.8	1.2	0.7
10739	00	V	100	27	3.4	-0.1	-1.1
10739	12	V	100	28	4.6	0.6	-0.5
11035	00	V	100	28	3.3	0.1	-0.5
11035	12	V	100	28	4.5	0.0	-1.3
12982	00	V	100	21	3.5	1.1	-0.1
16044	12	V	100	28	4.6	1.1	-0.4
16044	00	V	100	28	4.2	0.8	-0.5
16080	00	V	100	28	4.4	0.8	-0.4
16080	12	V	100	28	4.7	-0.2	0.1
16245	12	V	100	23	4.8	1.6	-0.3
16245	00	V	100	27	4.9	0.3	-0.7
16320	00	V	100	27	4.8	0.1	-1.0
16320	12	V	100	27	4.8	1.2	-0.9



RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	100	28	4.8	1.3	-0.1
16429	00	V	100	28	5.4	1.4	0.7
16622	12	V	100	20	4.6	-0.4	-0.1
16754	12	V	100	27	3.9	1.3	-0.3
17607	12	V	100	19	4.8	0.2	0.1
26435	00	V	100	14	4.1	-0.7	-0.2
60018	12	V	100	27	3.7	-0.3	-0.1
60018	00	V	100	26	3.9	0.1	0.7
ASDE01	12	V	100	6	4.3	1.5	-0.4
ASDE01	00	V	100	6	4.9	-0.4	2.7
ASDE03	12	V	100	9	5.1	-1.5	-0.5
ASDE03	00	V	100	6	3.3	-1.6	1.2
ASDE04	00	V	100	1	3.2	-3.2	0.5
ASDE04	12	V	100	1	3.0	-3.0	0.2
ASDE09	12	V	100	2	2.9	2.2	0.9
ASDK1	12	V	100	3	2.0	0.0	1.3
ASDK1	00	V	100	6	2.5	0.3	1.1
ASDK2	00	V	100	3	7.2	3.1	4.8
ASDK3	12	V	100	1	1.3	-1.1	-0.6
ASDK3	00	V	100	3	2.2	0.3	-1.3
ASES1	12	V	100	16	4.7	1.8	-0.2
ASEU01	12	V	100	7	4.1	0.6	-0.4
ASEU02	12	V	100	5	3.4	-0.1	0.0
ASEU02	00	V	100	6	5.9	1.5	-0.2
ASEU03	12	V	100	5	5.3	-1.3	0.4
ASEU03	00	V	100	4	5.9	-2.1	-2.5
ASEU04	12	V	100	4	4.4	-1.6	1.3
ASEU04	00	V	100	4	3.1	1.3	-1.8
ASEU05	12	V	100	11	4.1	0.9	0.5
ASEU05	00	V	100	10	3.3	-0.1	0.6
ASEU06	12	V	100	3	5.1	-0.8	1.5
ASEU06	00	V	100	3	3.0	0.3	1.1
ASFR1	12	V	100	12	3.1	0.2	1.4
ASFR1	00	V	100	9	3.8	0.3	2.1
ASFR2	12	V	100	9	2.9	0.3	-0.6
ASFR2	00	V	100	11	3.2	-0.4	-0.7
ASFR3	12	V	100	9	3.3	1.3	0.2
ASFR3	00	V	100	7	3.3	1.1	0.1
ASFR4	12	V	100	10	4.1	-0.6	-0.3
ASFR4	00	V	100	10	3.9	-0.1	1.6

#### 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 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	28	7.1	2.8
01001	00	Z	500	28	7.2	2.9
01028	00	Z	500	28	9.8	7.4
01028	12	Z	500	27	9.0	5.9
01152	00	Z	500	27	7.7	5.9
01152	12	Z	500	27	8.6	5.9
01400	00	Z	500	19	8.4	3.7
01400	12	Z	500	22	14.5	1.3
01415	00	Z	500	28	8.3	5.1
01415	12	Z	500	28	8.4	5.4
02365	12	Z	500	14	9.1	5.9
02365	00	Z	500	14	9.8	8.5
02591	00	Z	500	25	12.3	11.7
02591	12	Z	500	24	15.2	14.4
02836	00	Z	500	28	6.7	4.7
02836	12	Z	500	28	7.3	4.8
02963	00	Z	500	28	5.9	2.2
02963	12	Z	500	28	6.3	1.9
03005	12	Z	500	28	5.6	2.3
03005	00	Z	500	28	5.1	2.9
03238	00	Z	500	26	9.3	7.8
03238	12	Z	500	1	12.7	12.7
03808	00	Z	500	27	7.2	2.7
03808	12	Z	500	31	6.0	3.0
03918	00	Z	500	28	10.6	7.9
03918	12	Z	500	11	13.2	11.8
03953	00	Z	500	28	10.4	7.5
03953	12	Z	500	28	9.8	4.7
04018	12	Z	500	27	6.8	5.8
04018	00	Z	500	27	9.1	6.7
04220	12	Z	500	27	12.6	1.8
04220	00	Z	500	26	7.9	0.8
04270	12	Z	500	28	12.0	9.8
04270	00	Z	500	27	13.6	11.2
04320	12	Z	500	28	7.5	5.8
04320	00	Z	500	28	9.4	6.8
04339	00	Z	500	27	6.1	2.0
04339	12	Z	500	28	8.3	2.5
04360	00	Z	500	24	10.3	7.4

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04360	12	Z	500	26	8.4	6.2
06011	12	Z	500	28	6.2	0.1
06011	00	Z	500	26	6.7	0.9
06260	00	Z	500	28	8.2	5.5
06260	12	Z	500	4	10.9	7.6
06610	00	Z	500	28	9.7	8.4
06610	12	Z	500	28	7.8	6.0
07110	00	Z	500	28	9.1	1.5
07110	12	Z	500	27	7.9	5.1
07510	00	Z	500	28	7.0	0.0
07510	12	Z	500	28	7.1	1.8
07645	12	Z	500	28	8.8	4.1
07645	00	Z	500	28	7.2	0.0
07761	00	Z	500	28	9.4	5.2
07761	12	Z	500	28	9.4	6.8
08001	12	Z	500	25	13.5	5.8
08001	00	Z	500	25	11.4	6.1
08221	12	Z	500	26	13.8	10.7
08221	00	Z	500	25	11.4	10.6
08302	00	Z	500	27	6.1	2.1
08302	12	Z	500	27	7.8	3.8
08508	12	Z	500	23	24.2	20.7
08522	12	Z	500	28	10.5	8.3
08579	12	Z	500	28	8.2	7.0
10035	00	Z	500	30	7.9	5.1
10035	12	Z	500	29	6.6	1.8
10393	00	Z	500	30	6.1	3.0
10393	12	Z	500	28	5.2	2.0
10410	00	Z	500	26	5.5	2.5
10410	12	Z	500	27	3.3	0.8
10739	00	Z	500	27	14.2	8.5
10739	12	Z	500	28	10.2	9.0
11035	00	Z	500	28	5.6	2.3
11035	12	Z	500	28	6.0	1.6
12982	00	Z	500	27	8.5	6.9
16044	12	Z	500	28	6.9	5.0
16044	00	Z	500	28	9.0	7.8
16080	00	Z	500	28	6.3	2.4
16080	12	Z	500	29	7.1	3.7
16245	12	Z	500	25	8.3	6.8
16245	00	Z	500	28	9.1	6.3
16320	00	Z	500	28	8.6	6.1
16320	12	Z	500	28	7.8	3.0

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	500	28	7.3	5.5
16429	00	Z	500	28	10.2	9.0
16622	12	Z	500	23	16.5	15.0
16754	12	Z	500	27	13.9	11.4
17607	12	Z	500	36	7.3	4.6
26435	00	Z	500	14	7.0	4.6
60018	12	Z	500	27	6.1	-2.6
60018	00	Z	500	26	5.3	-0.5
ASDE01	12	Z	500	6	35.6	34.4
ASDE01	00	Z	500	7	41.8	41.3
ASDE03	12	Z	500	9	13.5	13.0
ASDE03	00	Z	500	6	12.5	2.9
ASDE04	00	Z	500	1	4.4	4.4
ASDE04	12	Z	500	1	6.7	6.7
ASDE09	12	Z	500	2	18.0	17.0
ASDK1	12	Z	500	7	22.6	21.0
ASDK1	00	Z	500	12	26.2	22.6
ASDK2	00	Z	500	6	44.0	43.8
ASDK3	12	Z	500	1	9.8	9.8
ASDK3	00	Z	500	3	12.1	9.0
ASES1	12	Z	500	16	13.3	12.2
ASEU01	12	Z	500	7	13.0	11.9
ASEU02	12	Z	500	8	40.9	40.3
ASEU02	00	Z	500	9	34.9	31.8
ASEU03	12	Z	500	5	31.7	31.0
ASEU03	00	Z	500	4	26.7	26.4
ASEU04	12	Z	500	6	11.3	5.8
ASEU04	00	Z	500	6	10.7	-5.0
ASEU05	12	Z	500	11	18.0	16.6
ASEU05	00	Z	500	10	25.3	22.2
ASEU06	12	Z	500	8	35.4	34.6
ASEU06	00	Z	500	7	37.6	36.6
ASFR1	12	Z	500	13	7.9	3.2
ASFR1	00	Z	500	9	8.9	1.5
ASFR2	12	Z	500	13	6.0	1.7
ASFR2	00	Z	500	11	7.6	-0.7
ASFR3	12	Z	500	9	11.3	-3.2
ASFR3	00	Z	500	8	14.1	-10.6
ASFR4	12	Z	500	11	9.6	8.3
ASFR4	00	Z	500	11	8.4	3.8

**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 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	28	2.8	0.4	-0.2
01001	00	V	500	28	2.9	-0.7	-0.4
01028	00	V	500	28	3.3	-0.4	0.1
01028	12	V	500	27	3.0	-1.2	-0.2
01152	00	V	500	27	3.6	0.0	-0.1
01152	12	V	500	26	4.0	-0.4	-0.6
01400	00	V	500	19	3.6	0.7	-1.0
01400	12	V	500	22	2.8	0.5	-0.8
01415	00	V	500	27	3.6	0.4	0.7
01415	12	V	500	28	3.5	-0.5	-0.8
02365	12	V	500	14	2.4	0.4	0.0
02365	00	V	500	14	2.6	0.0	0.5
02591	00	V	500	25	3.9	-0.4	0.4
02591	12	V	500	24	3.1	0.5	0.4
02836	00	V	500	28	3.2	0.4	0.3
02836	12	V	500	28	2.7	0.3	0.2
02963	00	V	500	28	2.8	-0.4	-0.2
02963	12	V	500	26	2.9	0.5	-0.8
03005	12	V	500	28	4.2	0.3	-0.4
03005	00	V	500	27	2.6	1.0	0.7
03238	00	V	500	26	2.8	-0.6	-0.9
03238	12	V	500	1	5.5	5.4	1.1
03808	00	V	500	25	4.5	0.2	0.3
03808	12	V	500	27	5.0	0.2	0.6
03918	00	V	500	27	4.4	-0.2	1.0
03918	12	V	500	11	5.2	1.3	0.1
03953	00	V	500	28	6.1	1.2	0.7
03953	12	V	500	26	4.1	0.5	0.4
04018	12	V	500	27	3.8	-0.7	0.2
04018	00	V	500	26	2.7	-0.2	0.4
04220	12	V	500	27	3.9	0.0	-0.6
04220	00	V	500	26	3.6	-0.5	-1.3
04270	12	V	500	28	3.2	-0.4	0.5
04270	00	V	500	27	4.2	-0.5	0.0
04320	12	V	500	28	2.9	-0.7	0.0
04320	00	V	500	28	2.4	0.1	-0.2
04339	00	V	500	18	9.2	-0.4	1.8
04339	12	V	500	11	14.1	4.4	-1.2
04360	00	V	500	24	3.3	0.1	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04360	12	V	500	26	4.7	0.6	-1.0
06011	12	V	500	28	3.9	-0.1	-0.3
06011	00	V	500	26	3.1	-0.1	-0.4
06260	00	V	500	28	3.5	-0.2	-0.5
06260	12	V	500	4	2.8	1.0	-0.5
06610	00	V	500	27	3.3	1.0	0.7
06610	12	V	500	28	4.2	0.2	-0.1
07110	00	V	500	26	4.3	0.3	0.5
07110	12	V	500	27	4.6	0.4	-0.2
07510	00	V	500	28	4.3	-0.4	0.7
07510	12	V	500	28	4.7	-0.3	0.5
07645	12	V	500	28	4.0	1.0	0.4
07645	00	V	500	28	4.2	1.8	0.9
07761	00	V	500	27	3.5	-0.1	-0.1
07761	12	V	500	28	3.4	0.1	-0.1
08001	12	V	500	25	4.5	1.2	-0.7
08001	00	V	500	25	4.2	0.0	0.8
08221	12	V	500	26	4.3	0.2	0.0
08221	00	V	500	25	3.8	-0.1	-0.5
08302	00	V	500	27	3.7	-0.4	0.0
08302	12	V	500	27	4.2	-0.2	0.3
08508	12	V	500	23	4.1	0.3	0.8
08522	12	V	500	28	3.9	0.1	0.1
08579	12	V	500	28	3.2	1.3	-0.1
10035	00	V	500	28	3.0	0.2	0.1
10035	12	V	500	28	2.9	-0.3	-0.3
10393	00	V	500	28	2.9	0.5	-0.1
10393	12	V	500	28	3.4	0.9	0.0
10410	00	V	500	26	3.6	-0.6	-1.0
10410	12	V	500	27	4.1	1.0	0.3
10739	00	V	500	27	3.9	1.0	0.0
10739	12	V	500	28	3.9	1.5	0.2
11035	00	V	500	28	3.8	0.1	0.4
11035	12	V	500	28	3.5	0.2	0.8
12982	00	V	500	25	2.8	0.3	-0.1
16044	12	V	500	28	2.9	0.4	0.2
16044	00	V	500	28	3.3	-0.5	-0.6
16080	00	V	500	28	3.8	0.7	0.1
16080	12	V	500	27	3.5	1.1	0.2
16245	12	V	500	25	4.3	-0.4	0.4
16245	00	V	500	27	4.0	-0.1	-0.2
16320	00	V	500	27	3.3	-0.1	0.0
16320	12	V	500	28	3.3	0.6	0.8

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	500	28	3.7	0.4	-0.5
16429	00	V	500	28	3.3	0.8	0.1
16622	12	V	500	22	4.9	-0.3	0.2
16754	12	V	500	27	4.5	-0.6	0.1
17607	12	V	500	20	3.3	1.0	0.3
26435	00	V	500	14	3.5	-0.4	-0.4
60018	12	V	500	27	3.0	0.4	0.3
60018	00	V	500	26	3.0	0.3	0.4
ASDE01	12	V	500	6	5.2	0.2	1.3
ASDE01	00	V	500	7	4.2	0.5	-1.0
ASDE03	12	V	500	9	4.3	-0.7	0.4
ASDE03	00	V	500	6	3.7	-1.3	0.5
ASDE04	00	V	500	1	2.8	0.7	2.7
ASDE04	12	V	500	1	1.5	0.8	-1.3
ASDE09	12	V	500	2	3.4	2.3	-1.7
ASDK1	12	V	500	6	7.0	-4.8	1.3
ASDK1	00	V	500	12	5.2	-1.9	1.0
ASDK2	00	V	500	5	2.2	1.3	0.0
ASDK3	12	V	500	1	2.3	1.6	-1.7
ASDK3	00	V	500	3	4.2	0.3	-2.6
ASES1	12	V	500	16	2.7	1.0	0.8
ASEU01	12	V	500	7	2.6	0.5	0.1
ASEU02	12	V	500	8	3.9	1.1	-0.4
ASEU02	00	V	500	9	3.4	1.7	1.3
ASEU03	12	V	500	5	3.4	-0.1	1.9
ASEU03	00	V	500	4	5.5	0.9	-1.3
ASEU04	12	V	500	6	3.3	0.3	-1.1
ASEU04	00	V	500	5	3.7	0.9	0.4
ASEU05	12	V	500	11	4.8	0.3	-1.8
ASEU05	00	V	500	10	2.3	-0.7	-1.1
ASEU06	12	V	500	8	3.5	0.6	-1.3
ASEU06	00	V	500	7	5.8	0.7	-1.0
ASFR1	12	V	500	13	3.0	-0.2	0.5
ASFR1	00	V	500	9	3.1	1.1	-1.6
ASFR2	12	V	500	13	2.7	-0.4	-0.2
ASFR2	00	V	500	11	3.2	-0.8	1.0
ASFR3	12	V	500	9	3.4	0.3	-0.5
ASFR3	00	V	500	8	2.1	0.1	0.1
ASFR4	12	V	500	11	2.8	-0.8	-0.1
ASFR4	00	V	500	11	3.4	-0.3	0.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)  
 LEVEL : 850 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : FEB 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	28	5.2	0.4
01001	00	Z	850	28	4.8	-0.7
01028	00	Z	850	28	6.2	2.9
01028	12	Z	850	27	4.3	1.0
01152	00	Z	850	27	4.7	3.0
01152	12	Z	850	27	3.6	1.9
01400	00	Z	850	19	6.8	1.5
01400	12	Z	850	22	6.7	-2.1
01415	00	Z	850	28	4.7	1.7
01415	12	Z	850	28	3.7	2.4
02365	12	Z	850	14	3.6	2.6
02365	00	Z	850	14	5.4	4.5
02591	00	Z	850	25	8.9	8.8
02591	12	Z	850	24	10.4	10.0
02836	00	Z	850	28	3.6	2.6
02836	12	Z	850	28	3.3	1.7
02963	00	Z	850	28	3.3	-0.2
02963	12	Z	850	28	2.8	-0.3
03005	12	Z	850	28	3.0	0.5
03005	00	Z	850	28	3.2	0.8
03238	00	Z	850	26	7.5	6.4
03238	12	Z	850	1	1.0	1.0
03808	00	Z	850	27	3.1	0.8
03808	12	Z	850	31	4.2	2.1
03918	00	Z	850	28	7.5	6.8
03918	12	Z	850	11	10.1	9.1
03953	00	Z	850	27	8.0	4.1
03953	12	Z	850	28	12.8	5.7
04018	12	Z	850	27	4.7	3.3
04018	00	Z	850	27	3.8	3.1
04220	12	Z	850	27	10.1	1.9
04220	00	Z	850	27	4.8	-1.3
04270	12	Z	850	28	4.5	0.6
04270	00	Z	850	27	4.3	0.6
04320	12	Z	850	28	6.0	4.4
04320	00	Z	850	28	5.0	3.8
04339	00	Z	850	27	4.2	0.4
04339	12	Z	850	28	3.5	-1.2
04360	00	Z	850	24	6.3	1.7



RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04360	12	Z	850	26	5.3	1.2
06011	12	Z	850	28	5.2	4.3
06011	00	Z	850	26	5.5	4.5
06260	00	Z	850	28	5.0	2.4
06260	12	Z	850	4	3.3	3.0
06610	00	Z	850	28	3.2	2.1
06610	12	Z	850	28	4.6	2.9
07110	00	Z	850	28	3.0	0.2
07110	12	Z	850	27	4.7	1.8
07510	00	Z	850	28	3.6	-2.2
07510	12	Z	850	28	2.5	-0.5
07645	12	Z	850	28	3.6	-1.0
07645	00	Z	850	28	3.1	-2.5
07761	00	Z	850	28	4.0	1.9
07761	12	Z	850	28	5.7	4.7
08001	12	Z	850	25	10.0	2.7
08001	00	Z	850	25	7.5	2.6
08221	12	Z	850	26	8.3	7.3
08221	00	Z	850	25	7.4	6.2
08302	00	Z	850	27	3.9	-1.4
08302	12	Z	850	27	3.4	1.0
08508	12	Z	850	23	15.9	14.2
08522	12	Z	850	28	4.4	3.6
08579	12	Z	850	28	4.4	3.9
10035	00	Z	850	30	4.1	0.0
10035	12	Z	850	29	4.0	0.5
10393	00	Z	850	30	3.7	-2.6
10393	12	Z	850	28	3.5	-2.9
10410	00	Z	850	26	2.8	-1.3
10410	12	Z	850	27	3.1	-2.1
10739	00	Z	850	27	7.9	6.2
10739	12	Z	850	28	7.8	7.3
11035	00	Z	850	28	5.7	-3.9
11035	12	Z	850	28	4.4	-2.4
12982	00	Z	850	27	3.6	2.3
16044	12	Z	850	28	3.9	2.3
16044	00	Z	850	28	2.7	1.3
16080	00	Z	850	28	4.4	-1.8
16080	12	Z	850	29	3.8	-0.9
16245	12	Z	850	27	5.8	3.4
16245	00	Z	850	28	5.8	3.0
16320	00	Z	850	28	5.3	0.7
16320	12	Z	850	28	6.8	0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	850	28	4.5	3.2
16429	00	Z	850	28	5.4	4.3
16622	12	Z	850	23	13.4	12.3
16754	12	Z	850	27	9.3	7.0
17607	12	Z	850	36	4.5	2.7
26435	00	Z	850	14	2.5	1.7
60018	12	Z	850	27	9.5	-9.1
60018	00	Z	850	27	9.1	-8.5
ASDE01	12	Z	850	6	31.0	29.8
ASDE01	00	Z	850	7	38.0	37.3
ASDE03	12	Z	850	10	10.8	9.0
ASDE03	00	Z	850	6	9.5	3.9
ASDE04	00	Z	850	1	2.8	-2.8
ASDE04	12	Z	850	1	2.0	2.0
ASDE09	12	Z	850	3	14.3	9.7
ASDK1	12	Z	850	7	41.2	-0.9
ASDK1	00	Z	850	12	17.7	12.5
ASDK2	00	Z	850	6	34.4	34.3
ASDK3	12	Z	850	1	1.9	1.9
ASDK3	00	Z	850	3	7.4	0.9
ASES1	12	Z	850	16	5.8	5.4
ASEU01	12	Z	850	7	4.7	3.5
ASEU02	12	Z	850	8	32.2	31.7
ASEU02	00	Z	850	9	29.1	25.7
ASEU03	12	Z	850	5	26.9	26.4
ASEU03	00	Z	850	5	27.8	27.6
ASEU04	12	Z	850	6	6.7	4.0
ASEU04	00	Z	850	6	10.1	-7.2
ASEU05	12	Z	850	11	16.4	15.3
ASEU05	00	Z	850	10	23.0	21.1
ASEU06	12	Z	850	8	34.6	33.7
ASEU06	00	Z	850	8	34.4	34.0
ASFR1	12	Z	850	13	5.2	-3.1
ASFR1	00	Z	850	10	3.8	-2.4
ASFR2	12	Z	850	13	7.9	-6.6
ASFR2	00	Z	850	11	8.1	-7.2
ASFR3	12	Z	850	9	10.4	-8.7
ASFR3	00	Z	850	8	12.5	-11.9
ASFR4	12	Z	850	11	4.7	-0.7
ASFR4	00	Z	850	11	3.5	-1.8

**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 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	28	3.9	0.7	0.1
01001	00	V	850	28	3.2	-0.1	1.1
01028	00	V	850	28	2.6	-0.4	-0.1
01028	12	V	850	27	3.0	-0.6	-0.8
01152	00	V	850	27	5.2	-1.3	0.0
01152	12	V	850	26	4.3	-1.9	1.1
01400	00	V	850	19	2.2	0.5	-0.5
01400	12	V	850	22	2.7	-0.6	0.0
01415	00	V	850	27	2.9	-0.1	-0.4
01415	12	V	850	28	2.6	0.7	-0.9
02365	12	V	850	14	2.7	0.6	-0.2
02365	00	V	850	14	2.6	-0.2	-0.1
02591	00	V	850	25	2.3	0.2	0.5
02591	12	V	850	24	2.0	0.1	-0.4
02836	00	V	850	28	2.9	1.0	-0.4
02836	12	V	850	28	2.9	-0.3	1.1
02963	00	V	850	28	3.1	-0.9	0.0
02963	12	V	850	26	2.3	0.0	-0.3
03005	12	V	850	28	2.9	0.5	0.5
03005	00	V	850	27	2.6	-0.3	0.4
03238	00	V	850	26	2.5	0.4	-0.1
03238	12	V	850	1	1.7	0.4	1.7
03808	00	V	850	25	4.3	0.2	0.2
03808	12	V	850	27	4.4	0.2	0.3
03918	00	V	850	27	4.3	0.9	-0.5
03918	12	V	850	11	3.3	0.0	0.4
03953	00	V	850	26	3.2	-0.2	0.2
03953	12	V	850	28	3.5	0.9	-0.2
04018	12	V	850	27	4.4	0.6	-0.9
04018	00	V	850	26	3.9	0.5	-0.8
04220	12	V	850	27	2.8	0.0	0.5
04220	00	V	850	27	3.3	-0.2	0.1
04270	12	V	850	28	4.5	-0.2	0.4
04270	00	V	850	27	4.3	0.8	0.6
04320	12	V	850	28	3.8	-0.3	0.8
04320	00	V	850	28	3.7	-1.2	0.2
04339	00	V	850	19	10.2	1.8	2.4
04339	12	V	850	14	9.7	5.0	2.3
04360	00	V	850	24	9.3	5.4	1.7

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04360	12	V	850	26	10.2	6.5	1.4
06011	12	V	850	28	5.4	-1.2	-1.2
06011	00	V	850	26	2.8	-0.2	0.0
06260	00	V	850	28	3.2	0.0	-1.0
06260	12	V	850	4	2.0	-0.2	0.3
06610	00	V	850	27	3.7	0.0	-0.1
06610	12	V	850	28	3.8	0.5	0.7
07110	00	V	850	26	4.4	0.6	0.3
07110	12	V	850	27	2.9	0.5	0.8
07510	00	V	850	28	3.4	-0.3	0.2
07510	12	V	850	28	3.4	-0.2	0.5
07645	12	V	850	28	5.2	0.5	-0.3
07645	00	V	850	28	3.8	-0.5	1.7
07761	00	V	850	27	3.3	-1.0	0.8
07761	12	V	850	28	4.0	-1.0	0.0
08001	12	V	850	25	4.0	-0.1	-0.6
08001	00	V	850	25	4.0	1.0	0.3
08221	12	V	850	26	3.3	-0.7	-0.2
08221	00	V	850	25	3.6	1.4	-0.2
08302	00	V	850	27	3.9	0.5	-0.5
08302	12	V	850	27	3.6	-0.3	0.9
08508	12	V	850	23	2.8	-0.3	-0.5
08522	12	V	850	27	3.6	0.2	-0.1
08579	12	V	850	28	3.3	0.4	-0.2
10035	00	V	850	28	2.5	-1.0	0.3
10035	12	V	850	28	3.3	-0.8	-0.7
10393	00	V	850	28	2.5	-0.2	0.3
10393	12	V	850	28	2.4	-0.2	-0.2
10410	00	V	850	26	3.0	0.5	-0.6
10410	12	V	850	27	3.6	0.1	0.0
10739	00	V	850	27	4.2	0.9	-0.8
10739	12	V	850	28	3.7	-1.0	-0.6
11035	00	V	850	28	3.3	0.5	0.6
11035	12	V	850	28	3.6	1.0	0.0
12982	00	V	850	24	4.0	0.1	-0.5
16044	12	V	850	27	3.5	0.1	0.2
16044	00	V	850	28	4.0	0.2	-0.2
16080	00	V	850	28	2.9	0.6	0.1
16080	12	V	850	28	3.6	1.1	-0.2
16245	12	V	850	26	3.3	-0.1	-0.2
16245	00	V	850	27	3.4	0.1	1.1
16320	00	V	850	27	3.8	0.2	-0.5
16320	12	V	850	28	3.5	0.5	-0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	850	28	2.7	-0.2	-0.3
16429	00	V	850	28	3.8	-0.5	0.2
16622	12	V	850	21	3.0	0.4	-0.4
16754	12	V	850	27	3.4	-0.2	-1.0
17607	12	V	850	19	2.6	0.6	0.2
26435	00	V	850	14	2.9	-0.1	0.9
60018	12	V	850	27	3.6	-0.4	-1.3
60018	00	V	850	27	4.1	0.3	0.0
ASDE01	12	V	850	6	7.1	-3.9	-0.1
ASDE01	00	V	850	7	3.0	-1.0	-0.5
ASDE03	12	V	850	9	3.2	-1.1	-0.8
ASDE03	00	V	850	6	3.2	1.5	0.3
ASDE04	00	V	850	1	1.2	1.2	0.0
ASDE04	12	V	850	1	1.6	0.2	1.6
ASDE09	12	V	850	3	2.6	0.7	-0.3
ASDK1	12	V	850	7	2.6	1.1	-0.3
ASDK1	00	V	850	12	3.0	-1.1	0.5
ASDK2	00	V	850	5	2.5	0.5	-1.1
ASDK3	12	V	850	1	1.6	1.4	-0.8
ASDK3	00	V	850	3	2.4	2.1	0.3
ASES1	12	V	850	16	2.7	-0.1	-0.4
ASEU01	12	V	850	7	2.1	0.0	-0.2
ASEU02	12	V	850	8	3.7	0.1	0.5
ASEU02	00	V	850	9	3.0	0.5	0.4
ASEU03	12	V	850	5	3.7	0.5	0.0
ASEU03	00	V	850	5	2.3	0.8	-0.2
ASEU04	12	V	850	6	4.1	-2.0	0.4
ASEU04	00	V	850	6	3.2	0.2	1.5
ASEU05	12	V	850	11	2.9	0.5	1.2
ASEU05	00	V	850	10	2.7	1.4	0.6
ASEU06	12	V	850	8	3.4	0.6	-0.1
ASEU06	00	V	850	8	3.2	-0.5	-0.2
ASFR1	12	V	850	13	3.9	0.5	1.2
ASFR1	00	V	850	10	3.0	-0.3	-0.9
ASFR2	12	V	850	13	3.3	-0.5	0.3
ASFR2	00	V	850	11	3.2	0.3	0.5
ASFR3	12	V	850	9	2.6	-0.9	0.9
ASFR3	00	V	850	8	3.2	0.3	0.0
ASFR4	12	V	850	11	2.4	0.1	0.0
ASFR4	00	V	850	11	2.9	1.0	0.5

#### 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 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

TIME = 99 => AVERAGE OF ALL OBSERVATIONS  
 GROSS ERROR LIMIT = 15 HPA

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
03380	99	P	SUR	54	0	63	0	0.3	-0.1	0.3
12050	99	P	SUR	34	32	196	0	0.3	0.1	0.3
13001	99	P	SUR	11	-23	136	0	0.3	0.1	0.3
13008	99	P	SUR	15	-38	86	0	0.3	-0.1	0.3
13600	99	P	SUR	25	-63	194	0	0.4	0.7	0.8
13659	99	P	SUR	27	-29	196	0	0.3	0.1	0.3
13660	99	P	SUR	22	-46	196	0	0.5	0.1	0.5
13661	99	P	SUR	22	-40	2	0	0.0	0.1	0.1
13662	99	P	SUR	26	-25	196	0	0.3	0.1	0.3
13664	99	P	SUR	25	-27	194	0	0.3	0.4	0.5
13665	99	P	SUR	18	-64	188	0	0.6	-0.2	0.6
13666	99	P	SUR	13	-55	142	5	3.2	-1.4	3.5
25622	99	P	SUR	87	-7	196	0	0.7	-0.1	0.7
26535	99	P	SUR	88	32	196	0	0.5	-0.3	0.6
26556	99	P	SUR	79	-14	196	0	0.7	-0.4	0.8
41040	99	P	SUR	15	-53	196	0	0.3	0.1	0.3
41041	99	P	SUR	14	-46	196	0	0.4	0.2	0.4
41043	99	P	SUR	21	-65	196	0	0.3	0.0	0.3
41044	99	P	SUR	22	-59	196	0	0.3	0.0	0.3
41046	99	P	SUR	24	-68	196	0	0.2	0.0	0.3
41048	99	P	SUR	32	-70	196	0	0.7	-0.4	0.8
41049	99	P	SUR	28	-63	195	0	0.4	-0.1	0.4
41051	99	P	SUR	18	-65	140	0	0.6	0.4	0.8
41052	99	P	SUR	18	-65	196	0	0.4	-0.6	0.7
41053	99	P	SUR	19	-66	187	0	0.2	-0.7	0.7
41056	99	P	SUR	18	-66	196	0	0.4	-0.6	0.7
41139	99	P	SUR	20	-38	161	0	0.3	-0.1	0.3
41300	99	P	SUR	16	-58	169	0	0.2	-0.5	0.5
41560	99	P	SUR	42	-22	193	0	0.8	0.2	0.8
41596	99	P	SUR	21	-45	196	0	0.2	0.0	0.3
41632	99	P	SUR	20	-52	196	0	0.3	0.0	0.3
41636	99	P	SUR	38	-63	77	1	4.6	-2.4	5.2
41705	99	P	SUR	28	-46	196	0	0.2	0.0	0.2
41706	99	P	SUR	17	-54	196	0	0.3	0.1	0.3
41707	99	P	SUR	19	-50	196	0	0.2	0.3	0.4
41708	99	P	SUR	18	-60	196	0	0.2	0.3	0.4

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
41709	99	P	SUR	19	-58	196	0	0.2	0.0	0.2
41711	99	P	SUR	18	-51	196	0	0.3	0.2	0.3
41736	99	P	SUR	13	-43	392	0	0.3	0.6	0.7
41737	99	P	SUR	26	-38	121	0	0.3	0.7	0.8
41800	99	P	SUR	26	-37	129	0	0.3	0.7	0.8
41929	99	P	SUR	39	-44	192	0	0.7	-0.3	0.7
41932	99	P	SUR	33	-70	187	0	0.6	-0.5	0.8
41957	99	P	SUR	37	-64	196	0	0.4	-0.5	0.6
41958	99	P	SUR	34	-53	195	0	0.4	-0.3	0.5
41969	99	P	SUR	41	-40	196	0	0.9	-0.5	1.0
41970	99	P	SUR	31	-58	185	0	0.3	0.0	0.3
41971	99	P	SUR	40	-54	170	0	0.6	-0.3	0.7
41972	99	P	SUR	33	-39	196	0	0.3	0.2	0.3
41999	99	P	SUR	32	-52	168	0	0.3	0.3	0.4
42059	99	P	SUR	15	-68	196	0	0.2	0.8	0.8
42060	99	P	SUR	16	-63	194	0	0.2	0.0	0.2
42085	99	P	SUR	18	-67	190	0	0.3	-0.6	0.6
44027	99	P	SUR	44	-67	195	0	0.6	-0.5	0.8
44032	99	P	SUR	44	-69	195	0	0.7	-0.6	0.9
44033	99	P	SUR	44	-69	132	0	0.9	-0.3	0.9
44034	99	P	SUR	44	-68	191	0	1.2	-0.3	1.3
44037	99	P	SUR	44	-68	178	0	0.7	-0.3	0.8
44137	99	P	SUR	42	-62	190	0	0.7	-0.2	0.7
44139	99	P	SUR	44	-57	185	0	0.6	-0.1	0.6
44141	99	P	SUR	43	-58	194	0	0.6	-0.1	0.6
44150	99	P	SUR	43	-64	181	0	0.7	-0.2	0.7
44251	99	P	SUR	46	-53	189	0	0.8	0.1	0.8
44258	99	P	SUR	45	-63	190	0	0.6	-0.3	0.6
44514	99	P	SUR	43	-42	190	0	0.9	0.4	1.0
44516	99	P	SUR	34	-57	144	0	0.4	0.1	0.4
44546	99	P	SUR	45	-29	196	0	0.5	-0.3	0.6
44551	99	P	SUR	43	-12	196	0	0.6	-0.3	0.7
44554	99	P	SUR	41	-39	195	0	0.9	0.3	1.0
44602	99	P	SUR	55	-38	196	0	0.6	0.0	0.6
44605	99	P	SUR	50	-25	196	0	0.9	-0.3	0.9
44607	99	P	SUR	46	-13	196	0	0.6	-0.3	0.7
44610	99	P	SUR	50	-36	195	0	0.8	0.1	0.8
44612	99	P	SUR	51	-41	195	0	0.5	-0.2	0.6
44613	99	P	SUR	47	-34	196	0	0.8	-0.4	0.9
44621	99	P	SUR	55	-40	119	0	0.6	0.1	0.6
44624	99	P	SUR	45	-19	195	0	0.7	-0.4	0.8
44690	99	P	SUR	53	-47	196	0	1.6	-0.4	1.6
44724	99	P	SUR	56	-24	196	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
44725	99	P	SUR	25	-24	132	0	1.3	-0.1	1.3
44740	99	P	SUR	30	-33	196	0	0.3	0.0	0.3
44741	99	P	SUR	37	-27	196	0	0.4	0.0	0.4
44745	99	P	SUR	46	-49	195	0	0.6	0.0	0.6
44747	99	P	SUR	58	-45	169	0	0.6	-0.5	0.8
44762	99	P	SUR	53	-4	16	0	0.4	0.3	0.5
44763	99	P	SUR	57	-12	58	0	0.6	-0.1	0.6
44764	99	P	SUR	45	-35	196	0	0.7	-0.3	0.8
44765	99	P	SUR	48	-32	196	0	0.8	0.0	0.8
44767	99	P	SUR	28	-32	196	0	0.3	0.1	0.3
44770	99	P	SUR	49	-14	176	0	0.7	0.2	0.7
44771	99	P	SUR	56	-20	196	0	0.5	-0.1	0.5
44773	99	P	SUR	41	-25	196	0	0.7	-0.2	0.7
44846	99	P	SUR	37	-46	195	0	0.7	0.3	0.8
44847	99	P	SUR	39	-50	195	0	0.7	0.2	0.7
44848	99	P	SUR	38	-46	196	0	0.6	0.2	0.6
44849	99	P	SUR	39	-62	196	0	0.6	-0.3	0.6
44850	99	P	SUR	40	-57	146	7	3.0	0.1	3.0
44863	99	P	SUR	40	-37	189	0	0.5	-0.1	0.5
44868	99	P	SUR	32	-38	196	0	0.3	0.3	0.4
44869	99	P	SUR	29	-26	196	0	0.3	0.5	0.6
44870	99	P	SUR	40	-18	196	0	0.5	-0.2	0.5
44874	99	P	SUR	44	-16	196	0	0.5	-0.2	0.6
44875	99	P	SUR	30	-32	196	0	0.4	0.6	0.8
44876	99	P	SUR	39	-56	196	0	0.6	0.3	0.7
44877	99	P	SUR	49	-42	169	0	0.5	-0.3	0.6
44878	99	P	SUR	48	-46	169	0	0.5	-0.1	0.5
44879	99	P	SUR	51	-33	162	0	0.7	-0.4	0.8
44880	99	P	SUR	47	-52	169	0	0.6	-0.1	0.6
47564	99	P	SUR	64	-40	195	0	2.6	0.0	2.6
47565	99	P	SUR	61	-42	27	0	0.7	0.8	1.1
48520	99	P	SUR	76	-19	196	0	0.5	0.2	0.5
61002	99	P	SUR	42	5	196	0	0.4	0.7	0.8
61690	99	P	SUR	42	32	196	0	0.5	0.4	0.7
61691	99	P	SUR	44	30	194	0	0.5	0.3	0.5
62001	99	P	SUR	45	-5	196	0	0.6	0.0	0.6
62023	99	P	SUR	51	-8	196	0	0.5	-0.1	0.5
62027	99	P	SUR	49	-2	80	0	1.1	0.3	1.1
62050	99	P	SUR	50	-4	170	0	0.8	0.2	0.8
62082	99	P	SUR	55	6	2	0	0.0	-0.3	0.3
62083	99	P	SUR	55	7	1	0	0.0	-2.1	2.1
62086	99	P	SUR	55	6	79	1	0.7	-0.3	0.8
62087	99	P	SUR	55	7	63	0	5.7	0.2	5.7



DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62091	99	P	SUR	53	-5	4	0	0.5	-0.4	0.7
62093	99	P	SUR	55	-10	195	0	0.7	0.1	0.7
62094	99	P	SUR	52	-7	196	0	0.7	-0.2	0.8
62102	99	P	SUR	58	2	196	0	0.9	0.3	1.0
62103	99	P	SUR	50	-3	191	0	0.6	0.3	0.6
62104	99	P	SUR	57	1	196	0	0.6	0.2	0.6
62105	99	P	SUR	55	-13	196	0	0.6	0.1	0.6
62107	99	P	SUR	50	-6	196	0	0.6	0.3	0.6
62111	99	P	SUR	58	0	196	0	0.7	0.4	0.8
62112	99	P	SUR	58	0	196	0	0.4	0.5	0.6
62113	99	P	SUR	58	0	196	0	0.8	0.3	0.8
62114	99	P	SUR	58	0	196	0	0.5	0.1	0.5
62115	99	P	SUR	58	-3	187	0	0.6	0.2	0.6
62116	99	P	SUR	58	1	196	0	0.9	0.6	1.1
62117	99	P	SUR	58	0	161	0	0.7	0.3	0.7
62118	99	P	SUR	58	1	196	0	0.3	-0.5	0.6
62119	99	P	SUR	57	2	52	0	0.5	0.3	0.6
62120	99	P	SUR	56	2	196	0	0.4	-0.1	0.4
62121	99	P	SUR	54	3	83	0	0.9	1.3	1.6
62122	99	P	SUR	57	2	196	0	0.5	0.3	0.5
62123	99	P	SUR	56	2	168	0	0.5	0.0	0.5
62124	99	P	SUR	54	-4	169	0	0.5	0.0	0.5
62127	99	P	SUR	54	1	140	0	0.5	0.3	0.6
62128	99	P	SUR	59	1	196	0	0.4	0.1	0.4
62129	99	P	SUR	58	0	196	0	0.7	0.2	0.8
62130	99	P	SUR	59	1	162	0	0.5	-0.4	0.6
62131	99	P	SUR	54	1	196	0	0.7	0.4	0.8
62132	99	P	SUR	56	2	82	0	0.5	0.2	0.5
62133	99	P	SUR	57	1	196	0	1.0	0.4	1.1
62134	99	P	SUR	58	1	85	0	0.4	0.3	0.5
62135	99	P	SUR	54	2	162	0	0.6	0.1	0.6
62136	99	P	SUR	54	3	162	0	0.8	0.9	1.2
62137	99	P	SUR	58	-4	27	0	0.8	-0.6	1.0
62138	99	P	SUR	54	0	162	0	0.8	0.5	1.0
62139	99	P	SUR	53	2	186	0	0.5	0.0	0.5
62140	99	P	SUR	57	1	91	0	0.6	0.6	0.8
62141	99	P	SUR	57	1	196	0	0.4	-0.2	0.5
62142	99	P	SUR	53	2	34	0	0.3	0.1	0.4
62143	99	P	SUR	58	2	196	0	0.5	0.3	0.6
62144	99	P	SUR	53	2	195	0	0.5	0.4	0.7
62145	99	P	SUR	53	3	195	0	0.5	0.2	0.5
62146	99	P	SUR	57	2	196	0	0.6	0.0	0.6
62147	99	P	SUR	58	-1	166	0	0.4	-0.1	0.4

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62149	99	P	SUR	54	1	196	0	0.5	0.5	0.7
62150	99	P	SUR	54	1	192	0	0.5	1.0	1.1
62151	99	P	SUR	57	2	169	0	0.4	0.3	0.5
62152	99	P	SUR	57	2	196	0	0.6	0.5	0.8
62153	99	P	SUR	57	2	196	0	0.4	0.1	0.4
62154	99	P	SUR	56	2	196	0	0.4	0.2	0.5
62155	99	P	SUR	58	1	196	0	0.4	0.5	0.7
62156	99	P	SUR	56	-3	195	0	0.6	0.7	0.9
62157	99	P	SUR	58	0	187	0	0.5	0.1	0.6
62159	99	P	SUR	61	-2	182	0	0.4	0.6	0.8
62161	99	P	SUR	58	1	187	0	0.7	0.0	0.7
62162	99	P	SUR	57	1	196	0	0.4	0.0	0.4
62163	99	P	SUR	48	-8	193	0	0.5	0.1	0.5
62164	99	P	SUR	57	1	196	0	0.4	0.2	0.4
62165	99	P	SUR	54	1	192	0	0.6	0.0	0.6
62166	99	P	SUR	53	3	162	0	0.4	1.2	1.2
62167	99	P	SUR	53	2	162	0	0.5	-0.1	0.5
62168	99	P	SUR	58	1	196	0	0.4	0.0	0.4
62170	99	P	SUR	51	2	179	0	0.6	0.4	0.7
62296	99	P	SUR	53	2	147	0	0.4	0.1	0.4
62297	99	P	SUR	59	2	162	0	0.4	0.0	0.4
62301	99	P	SUR	52	-5	196	0	0.5	0.2	0.5
62303	99	P	SUR	52	-5	151	0	0.6	-0.4	0.7
62304	99	P	SUR	51	2	196	1	0.5	0.3	0.6
62305	99	P	SUR	50	0	196	0	0.6	0.3	0.6
62504	99	P	SUR	55	-16	75	0	1.7	0.5	1.8
62507	99	P	SUR	48	-9	196	0	0.5	0.4	0.6
62508	99	P	SUR	45	-4	196	0	0.5	0.5	0.7
62512	99	P	SUR	37	-24	196	0	0.4	0.0	0.4
62514	99	P	SUR	64	-13	196	0	0.4	0.1	0.4
62516	99	P	SUR	36	-14	196	0	0.3	0.1	0.4
62520	99	P	SUR	22	-70	196	0	0.3	0.1	0.3
62534	99	P	SUR	51	-20	196	0	0.7	-0.2	0.8
62553	99	P	SUR	61	-21	196	0	0.7	0.3	0.7
62556	99	P	SUR	22	-50	196	0	0.8	0.0	0.8
62678	99	P	SUR	57	-27	132	0	1.1	0.0	1.1
62680	99	P	SUR	59	-18	196	0	0.4	-0.1	0.4
62681	99	P	SUR	49	-48	196	0	0.6	-0.2	0.6
62684	99	P	SUR	76	5	13	0	0.3	-0.1	0.3
62686	99	P	SUR	69	0	196	0	0.4	-0.1	0.4
62687	99	P	SUR	70	0	196	0	0.4	0.2	0.5
62695	99	P	SUR	42	-17	196	0	0.5	-0.2	0.5
62713	99	P	SUR	31	-20	196	0	0.3	0.2	0.3

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62714	99	P	SUR	34	-21	196	0	0.3	0.1	0.3
63055	99	P	SUR	61	2	196	0	0.4	-0.1	0.4
63056	99	P	SUR	60	2	193	0	1.0	0.6	1.2
63057	99	P	SUR	59	2	195	0	0.4	0.0	0.4
63058	99	P	SUR	53	2	205	0	0.5	0.2	0.5
63059	99	P	SUR	58	-1	16	0	0.3	0.4	0.5
63101	99	P	SUR	61	1	196	0	0.7	0.5	0.8
63102	99	P	SUR	61	1	162	0	0.4	-0.1	0.4
63103	99	P	SUR	61	1	196	0	0.5	-0.6	0.8
63104	99	P	SUR	61	2	138	0	0.4	0.2	0.4
63105	99	P	SUR	61	2	1	0	0.0	-0.3	0.3
63107	99	P	SUR	61	2	196	0	0.4	0.0	0.4
63108	99	P	SUR	61	2	196	0	0.4	-0.1	0.4
63109	99	P	SUR	60	2	195	0	0.4	-0.2	0.5
63110	99	P	SUR	60	2	196	0	1.3	0.6	1.4
63111	99	P	SUR	61	2	162	0	0.4	-0.4	0.6
63112	99	P	SUR	61	1	196	0	0.4	-0.2	0.4
63113	99	P	SUR	61	2	79	0	0.4	0.1	0.4
63114	99	P	SUR	61	2	196	0	0.4	-0.1	0.4
63115	99	P	SUR	62	1	196	0	0.4	-0.1	0.4
63116	99	P	SUR	55	8	41	0	0.3	-0.6	0.7
63117	99	P	SUR	61	1	195	0	0.7	0.4	0.8
63118	99	P	SUR	61	-2	131	0	0.4	-0.2	0.4
63119	99	P	SUR	58	0	25	0	0.8	1.2	1.4
63120	99	P	SUR	54	2	155	0	0.4	1.0	1.1
63544	99	P	SUR	82	24	41	4	5.9	0.6	5.9
63552	99	P	SUR	76	-6	41	0	2.3	-1.4	2.7
63635	99	P	SUR	76	-6	41	0	0.8	0.2	0.8
63639	99	P	SUR	72	38	71	0	2.6	0.7	2.6
63640	99	P	SUR	75	30	196	0	0.8	0.6	1.0
63642	99	P	SUR	73	2	196	3	2.4	0.3	2.4
64041	99	P	SUR	61	-3	196	0	0.4	0.2	0.5
64045	99	P	SUR	59	-12	195	0	0.5	0.2	0.5
64046	99	P	SUR	61	-4	195	0	0.8	0.1	0.8
64049	99	P	SUR	57	1	196	0	0.8	0.5	1.0
64516	99	P	SUR	74	14	196	0	0.4	-0.2	0.4
64518	99	P	SUR	76	7	196	0	0.7	0.0	0.7
64519	99	P	SUR	63	7	196	0	0.4	-0.6	0.8
64520	99	P	SUR	67	-3	196	0	0.5	0.0	0.5
64521	99	P	SUR	75	4	195	0	1.7	-0.2	1.7
64525	99	P	SUR	64	-5	196	0	0.6	0.1	0.6
64526	99	P	SUR	68	-13	196	0	0.4	0.1	0.4
64606	99	P	SUR	67	-8	45	0	0.2	-0.2	0.3

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
64607	99	P	SUR	69	-5	196	0	0.4	0.1	0.4
64611	99	P	SUR	60	-24	196	0	0.7	-0.2	0.7
64613	99	P	SUR	63	-4	196	0	0.4	0.1	0.4
64614	99	P	SUR	63	-20	196	0	0.4	0.0	0.4
64615	99	P	SUR	63	-10	196	0	0.5	0.5	0.7
64616	99	P	SUR	62	-22	196	0	0.5	0.3	0.6
64620	99	P	SUR	57	-25	196	0	0.4	0.0	0.4
64621	99	P	SUR	63	-5	196	0	0.6	0.2	0.6
64622	99	P	SUR	67	-9	196	0	0.4	0.2	0.4
64623	99	P	SUR	71	14	196	0	0.5	-0.3	0.6
64662	99	P	SUR	67	-22	181	0	0.5	-0.1	0.6
64663	99	P	SUR	67	-14	196	0	0.6	0.6	0.8
64664	99	P	SUR	68	-16	196	0	0.4	0.2	0.4
64665	99	P	SUR	66	-10	196	0	0.3	0.3	0.4
64666	99	P	SUR	64	-10	196	0	0.6	0.3	0.7
64667	99	P	SUR	63	-31	152	0	0.4	-0.3	0.5
64668	99	P	SUR	63	-9	196	0	0.6	0.3	0.7
64669	99	P	SUR	64	-17	196	0	0.4	0.0	0.4
64670	99	P	SUR	61	-29	126	0	0.4	0.1	0.4
64691	99	P	SUR	59	-33	126	0	0.6	0.0	0.6
64692	99	P	SUR	62	-13	22	0	0.4	0.3	0.5
64693	99	P	SUR	63	-17	1	0	0.0	-0.1	0.1
65592	99	P	SUR	61	-54	196	0	0.6	-0.2	0.7

**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 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
13001	99	SPEED	SUR	11	-23	136	0	0	0.8	0.5	0.9
13002	99	SPEED	SUR	20	-23	146	0	0	0.8	-0.2	0.8
13008	99	SPEED	SUR	15	-38	86	0	0	0.9	-0.4	1.0
41040	99	SPEED	SUR	15	-53	196	0	0	1.1	-0.3	1.2
41041	99	SPEED	SUR	14	-46	196	0	0	0.9	-0.4	0.9
41044	99	SPEED	SUR	22	-59	196	0	0	1.0	-0.1	1.0
41046	99	SPEED	SUR	24	-68	196	0	0	1.0	-0.1	1.0
41048	99	SPEED	SUR	32	-70	196	0	0	1.4	-0.5	1.5
41049	99	SPEED	SUR	28	-63	195	0	0	1.0	0.0	1.0
41051	99	SPEED	SUR	18	-65	196	0	0	1.1	0.0	1.1
41052	99	SPEED	SUR	18	-65	196	0	0	0.8	0.1	0.8
41053	99	SPEED	SUR	19	-66	187	0	0	1.3	0.1	1.3
41056	99	SPEED	SUR	18	-66	196	0	0	1.2	0.0	1.2
41139	99	SPEED	SUR	20	-38	161	0	0	1.0	-0.2	1.1
41300	99	SPEED	SUR	16	-58	170	0	0	1.0	-1.0	1.4
42059	99	SPEED	SUR	15	-68	196	0	0	0.7	0.3	0.7
42060	99	SPEED	SUR	16	-63	194	0	0	0.9	0.6	1.1
42085	99	SPEED	SUR	18	-67	190	0	0	1.0	1.2	1.6
44027	99	SPEED	SUR	44	-67	195	0	0	1.6	0.0	1.6
44032	99	SPEED	SUR	44	-69	196	0	0	1.4	0.1	1.4
44033	99	SPEED	SUR	44	-69	196	0	0	1.5	1.1	1.9
44034	99	SPEED	SUR	44	-68	195	0	0	1.3	0.1	1.3
44037	99	SPEED	SUR	44	-68	178	0	0	1.4	0.2	1.4
44137	99	SPEED	SUR	42	-62	192	0	0	5.7	-3.7	6.8
44139	99	SPEED	SUR	44	-57	185	0	0	1.6	0.2	1.6
44141	99	SPEED	SUR	43	-58	196	0	0	1.9	-0.3	1.9
44150	99	SPEED	SUR	43	-64	189	0	0	2.0	0.8	2.1
44251	99	SPEED	SUR	46	-53	191	0	0	1.4	-0.1	1.4
44258	99	SPEED	SUR	45	-63	191	0	0	1.5	0.1	1.5
61002	99	SPEED	SUR	42	5	191	0	0	1.3	0.4	1.4
62001	99	SPEED	SUR	45	-5	196	0	0	1.7	-0.3	1.8
62023	99	SPEED	SUR	51	-8	196	0	0	2.1	0.1	2.1
62027	99	SPEED	SUR	49	-2	81	0	0	2.1	-0.3	2.1
62050	99	SPEED	SUR	50	-4	96	0	0	1.4	-0.4	1.5

## DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62082	99	SPEED	SUR	55	6	3	0	0	0.9	1.9	2.1
62083	99	SPEED	SUR	55	7	1	0	0	0.0	-2.4	2.4
62086	99	SPEED	SUR	55	6	82	18	0	1.8	1.1	2.1
62087	99	SPEED	SUR	55	7	63	0	0	3.1	-7.8	8.4
62091	99	SPEED	SUR	53	-5	4	0	0	2.6	-0.1	2.6
62093	99	SPEED	SUR	55	-10	195	0	0	1.4	-0.6	1.5
62094	99	SPEED	SUR	52	-7	196	0	0	1.4	-0.7	1.6
62102	99	SPEED	SUR	58	2	196	0	0	1.9	-0.1	1.9
62103	99	SPEED	SUR	50	-3	190	0	0	1.7	0.3	1.7
62104	99	SPEED	SUR	57	1	196	0	0	1.0	-0.5	1.1
62105	99	SPEED	SUR	55	-13	196	0	0	1.6	0.3	1.6
62107	99	SPEED	SUR	50	-6	196	0	0	1.7	-0.5	1.8
62111	99	SPEED	SUR	58	0	196	0	0	1.7	-0.5	1.7
62112	99	SPEED	SUR	58	0	196	0	0	1.9	-1.7	2.5
62113	99	SPEED	SUR	58	0	196	0	0	1.4	0.3	1.5
62114	99	SPEED	SUR	58	0	196	0	0	1.3	0.3	1.4
62116	99	SPEED	SUR	58	1	56	0	0	1.0	-0.2	1.0
62117	99	SPEED	SUR	58	0	161	0	0	1.3	-0.2	1.3
62118	99	SPEED	SUR	58	1	196	0	0	2.4	-0.2	2.4
62119	99	SPEED	SUR	57	2	52	0	0	1.2	-1.0	1.5
62120	99	SPEED	SUR	56	2	196	0	0	1.1	0.3	1.1
62122	99	SPEED	SUR	57	2	196	0	0	1.2	-0.4	1.3
62123	99	SPEED	SUR	56	2	168	0	0	1.3	0.0	1.3
62128	99	SPEED	SUR	59	1	196	0	0	1.7	0.9	1.9
62129	99	SPEED	SUR	58	0	196	0	0	1.3	-0.3	1.3
62131	99	SPEED	SUR	54	1	196	0	0	1.8	-1.5	2.3
62132	99	SPEED	SUR	56	2	82	0	0	1.3	-0.9	1.6
62133	99	SPEED	SUR	57	1	196	0	0	1.2	-0.1	1.2
62134	99	SPEED	SUR	58	1	85	0	0	2.0	-0.5	2.0
62141	99	SPEED	SUR	57	1	1	0	0	0.0	5.9	5.9
62142	99	SPEED	SUR	53	2	34	0	0	0.9	-0.6	1.1
62143	99	SPEED	SUR	58	2	196	0	0	2.6	-1.4	2.9
62144	99	SPEED	SUR	53	2	195	0	0	3.0	-0.7	3.1
62145	99	SPEED	SUR	53	3	195	0	0	1.5	-0.2	1.5
62146	99	SPEED	SUR	57	2	196	0	0	3.5	-3.6	5.0
62149	99	SPEED	SUR	54	1	196	0	0	1.4	1.4	1.9
62150	99	SPEED	SUR	54	1	195	0	0	1.6	0.0	1.6
62152	99	SPEED	SUR	57	2	196	0	0	2.0	-1.7	2.6
62153	99	SPEED	SUR	57	2	196	0	0	2.3	-0.3	2.3
62154	99	SPEED	SUR	56	2	196	0	0	1.3	0.0	1.3
62155	99	SPEED	SUR	58	1	196	0	0	1.4	0.4	1.4

## 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
62163	99	SPEED	SUR	48	-8	192	0	0	1.6	-0.3	1.6
62164	99	SPEED	SUR	57	1	196	0	0	1.6	-1.6	2.3
62165	99	SPEED	SUR	54	1	192	0	0	2.0	-1.0	2.3
62170	99	SPEED	SUR	51	2	177	0	0	2.2	0.3	2.3
62301	99	SPEED	SUR	52	-5	196	0	0	1.2	1.0	1.6
62303	99	SPEED	SUR	52	-5	146	0	0	1.4	1.1	1.8
62304	99	SPEED	SUR	51	2	195	0	0	2.3	1.9	3.0
62305	99	SPEED	SUR	50	0	194	1	1	1.9	1.7	2.5
63055	99	SPEED	SUR	61	2	196	0	0	1.5	-1.4	2.0
63056	99	SPEED	SUR	60	2	193	0	0	1.3	0.3	1.3
63057	99	SPEED	SUR	59	2	195	0	0	2.0	0.7	2.1
63058	99	SPEED	SUR	53	2	132	0	0	1.3	0.3	1.3
63101	99	SPEED	SUR	61	1	196	0	0	1.5	-0.7	1.6
63103	99	SPEED	SUR	61	1	111	0	0	1.3	0.1	1.3
63104	99	SPEED	SUR	61	2	138	0	0	1.5	-0.3	1.6
63105	99	SPEED	SUR	61	2	1	0	0	0.0	-0.5	0.4
63106	99	SPEED	SUR	61	2	115	0	0	1.4	-1.1	1.8
63107	99	SPEED	SUR	61	2	154	0	0	1.7	-0.8	1.8
63108	99	SPEED	SUR	61	2	196	0	0	1.4	0.0	1.4
63109	99	SPEED	SUR	60	2	193	0	0	1.6	0.5	1.7
63110	99	SPEED	SUR	60	2	196	0	0	1.9	0.1	1.9
63112	99	SPEED	SUR	61	1	196	0	0	1.4	-0.8	1.6
63113	99	SPEED	SUR	61	2	79	0	0	1.5	-0.6	1.6
63114	99	SPEED	SUR	61	2	196	0	0	1.8	0.2	1.8
63115	99	SPEED	SUR	62	1	196	0	0	1.5	-1.3	2.0
63117	99	SPEED	SUR	61	1	195	0	0	1.4	-0.2	1.4
63119	99	SPEED	SUR	58	0	25	0	0	2.5	0.3	2.5
64041	99	SPEED	SUR	61	-3	196	0	0	1.4	-0.6	1.5
64045	99	SPEED	SUR	59	-12	195	0	0	1.6	0.7	1.7
64046	99	SPEED	SUR	61	-4	196	0	0	1.7	1.0	2.0
66021	99	SPEED	SUR	55	14	192	0	0	1.2	0.0	1.2
66024	99	SPEED	SUR	55	13	194	0	0	1.2	-0.7	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 2014  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
13001	99	DIRN	SUR	11	-23	136	0	0	5.4	8.5	10.1
13002	99	DIRN	SUR	20	-23	146	0	0	8.0	7.6	11.0
13008	99	DIRN	SUR	15	-38	86	0	0	8.7	-4.3	9.6
41008	99	DIRN	SUR	31	-81	128	0	1	25.4	6.4	26.2
41009	99	DIRN	SUR	29	-80	136	0	1	25.6	3.8	25.8
41012	99	DIRN	SUR	30	-81	101	0	1	20.1	8.1	21.6
41013	99	DIRN	SUR	33	-78	163	0	4	20.9	8.8	22.7
41024	99	DIRN	SUR	34	-79	42	0	0	25.1	2.5	25.3
41025	99	DIRN	SUR	35	-75	106	0	0	21.2	5.9	22.0
41029	99	DIRN	SUR	33	-80	66	0	3	28.0	5.4	28.5
41033	99	DIRN	SUR	32	-80	61	0	2	24.7	9.5	26.5
41036	99	DIRN	SUR	34	-77	169	0	2	16.5	5.8	17.5
41037	99	DIRN	SUR	34	-77	77	0	3	18.3	-5.2	19.0
41038	99	DIRN	SUR	34	-78	66	0	0	16.9	-1.8	17.0
41040	99	DIRN	SUR	15	-53	196	0	0	9.3	1.5	9.4
41041	99	DIRN	SUR	14	-46	196	0	0	7.2	1.4	7.4
41044	99	DIRN	SUR	22	-59	195	0	0	8.9	-0.9	8.9
41046	99	DIRN	SUR	24	-68	161	0	0	10.2	-2.6	10.5
41047	99	DIRN	SUR	28	-72	157	0	1	15.9	1.6	15.9
41048	99	DIRN	SUR	32	-70	163	0	1	17.0	7.4	18.6
41049	99	DIRN	SUR	28	-63	167	0	0	16.2	4.9	16.9
41051	99	DIRN	SUR	18	-65	196	0	0	9.7	-10.1	14.0
41052	99	DIRN	SUR	18	-65	196	0	0	7.6	0.2	7.6
41053	99	DIRN	SUR	19	-66	174	0	0	13.8	-8.1	16.0
41056	99	DIRN	SUR	18	-66	196	0	0	10.9	4.6	11.8
41139	99	DIRN	SUR	20	-38	161	0	0	9.4	-0.1	9.4
41300	99	DIRN	SUR	16	-58	169	0	1	13.6	2.2	13.7
42022	99	DIRN	SUR	28	-84	68	0	34	30.5	-5.2	30.9
42036	99	DIRN	SUR	29	-85	109	0	3	21.3	1.9	21.4
42056	99	DIRN	SUR	20	-85	170	0	0	11.7	-6.3	13.3
42057	99	DIRN	SUR	17	-82	178	0	0	9.8	4.0	10.5
42058	99	DIRN	SUR	15	-75	196	0	0	6.5	-4.1	7.7



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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
42059	99	DIRN	SUR	15	-68	196	0	0	6.7	-7.7	10.2
42060	99	DIRN	SUR	16	-63	194	0	0	9.9	-2.7	10.3
42085	99	DIRN	SUR	18	-67	189	0	0	9.0	-4.6	10.1
44007	99	DIRN	SUR	44	-70	170	0	0	15.7	3.6	16.1
44013	99	DIRN	SUR	42	-71	165	0	0	16.7	-1.3	16.7
44014	99	DIRN	SUR	37	-75	169	0	0	15.2	5.6	16.2
44017	99	DIRN	SUR	41	-72	177	0	0	12.5	2.7	12.8
44022	99	DIRN	SUR	41	-74	43	0	0	21.0	-0.9	21.0
44027	99	DIRN	SUR	44	-67	169	0	0	13.5	0.6	13.5
44029	99	DIRN	SUR	43	-71	172	0	1	15.5	4.9	16.2
44030	99	DIRN	SUR	43	-70	172	0	1	14.9	7.9	16.9
44032	99	DIRN	SUR	44	-69	167	0	0	16.2	0.7	16.3
44033	99	DIRN	SUR	44	-69	158	0	0	14.1	4.6	14.8
44034	99	DIRN	SUR	44	-68	176	0	0	13.4	3.9	14.0
44037	99	DIRN	SUR	44	-68	156	0	0	13.2	3.2	13.6
44039	99	DIRN	SUR	41	-73	105	0	1	15.7	8.9	18.0
44040	99	DIRN	SUR	41	-74	95	0	0	16.4	1.4	16.5
44041	99	DIRN	SUR	37	-77	2	0	0	2.9	-25.4	25.5
44042	99	DIRN	SUR	38	-76	108	0	0	18.8	-15.4	24.3
44058	99	DIRN	SUR	38	-76	113	0	0	19.0	-13.6	23.4
44059	99	DIRN	SUR	37	-76	27	0	0	10.7	-22.5	24.9
44060	99	DIRN	SUR	41	-72	135	0	1	13.1	-0.4	13.1
44062	99	DIRN	SUR	39	-76	109	0	1	21.2	-20.0	29.2
44063	99	DIRN	SUR	39	-76	94	0	1	19.4	-14.2	24.0
44064	99	DIRN	SUR	37	-76	136	0	1	19.1	2.9	19.4
44065	99	DIRN	SUR	40	-74	159	0	1	19.2	9.5	21.4
44066	99	DIRN	SUR	40	-73	179	0	1	12.2	0.0	12.2
44068	99	DIRN	SUR	37	-77	4	0	0	13.2	-5.5	14.3
44137	99	DIRN	SUR	42	-62	93	0	1	15.6	-2.8	15.8
44139	99	DIRN	SUR	44	-57	173	0	0	18.5	15.2	23.9
44141	99	DIRN	SUR	43	-58	175	0	0	15.6	6.1	16.7
44150	99	DIRN	SUR	43	-64	170	0	0	17.8	10.7	20.8
44251	99	DIRN	SUR	46	-53	180	0	2	15.4	-7.3	17.0
44258	99	DIRN	SUR	45	-63	159	0	0	17.4	6.9	18.7
62001	99	DIRN	SUR	45	-5	185	0	0	11.7	1.7	11.8
62023	99	DIRN	SUR	51	-8	196	0	0	12.1	-4.7	13.0
62027	99	DIRN	SUR	49	-2	78	0	0	34.5	14.6	37.5
62050	99	DIRN	SUR	50	-4	95	0	0	12.1	-5.1	13.2
62091	99	DIRN	SUR	53	-5	4	0	0	16.6	-13.8	21.6
62093	99	DIRN	SUR	55	-10	193	0	0	13.9	-7.1	15.6
62094	99	DIRN	SUR	52	-7	193	0	0	9.4	0.3	9.4

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
62103	99	DIRN	SUR	50	-3	185	0	1	14.7	-2.6	14.9
62105	99	DIRN	SUR	55	-13	185	0	0	16.5	-0.6	16.5
62107	99	DIRN	SUR	50	-6	193	0	0	12.8	-3.5	13.3
62111	99	DIRN	SUR	58	0	191	0	0	11.3	-2.5	11.6
62112	99	DIRN	SUR	58	0	186	0	0	9.4	4.1	10.3
62114	99	DIRN	SUR	58	0	193	0	0	11.1	5.9	12.6
62117	99	DIRN	SUR	58	0	156	0	0	10.0	4.1	10.8
62163	99	DIRN	SUR	48	-8	192	0	0	14.3	6.9	15.8
62301	99	DIRN	SUR	52	-5	195	0	0	9.7	-1.4	9.8
62303	99	DIRN	SUR	52	-5	144	0	0	16.1	-4.5	16.7
62305	99	DIRN	SUR	50	0	194	1	0	13.1	-0.3	13.1
63119	99	DIRN	SUR	58	0	25	0	0	14.2	-2.3	14.4
64041	99	DIRN	SUR	61	-3	191	0	0	10.6	6.4	12.4
64045	99	DIRN	SUR	59	-12	182	0	0	12.3	-0.7	12.3
64046	99	DIRN	SUR	61	-4	193	0	1	14.7	-5.9	15.8

## 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  $\text{ms}^{-1}$  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	$35\text{ms}^{-1}$
925	$35\text{ms}^{-1}$
850	$35\text{ms}^{-1}$
700	$40\text{ms}^{-1}$
500	$45\text{ms}^{-1}$
400	$50\text{ms}^{-1}$
300	$60\text{ms}^{-1}$
250	$60\text{ms}^{-1}$
200	$50\text{ms}^{-1}$
150	$50\text{ms}^{-1}$
100	$45\text{ms}^{-1}$

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.