



ECMWF Global Data Monitoring Report

April 2015

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

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Summary of Revisions (in reverse order)

- Revision 27 (Mar 13) - Monitoring of Radiosondes and ASAPs now includes BUFR encoded observations for those which were assimilated as well as for those without TAC counterpart. Tables 24 and 25 are also added to show the identifiers of these BUFR observations separately.
- Revision 26 (Feb 15) - Selection criteria for SHIPs are modified as per SOT-7/Doc.9.1.1. Different criteria applied to Manual and Automatic SHIPs.
- Revision 25 (Dec 14) - Coverage chart for ATOVS AMSU-A for Noaa_16 removed
- Revision 24 (Aug 06) - North Atlantic Monitoring statistics replaced by EUCOS Area Monitoring Statistics (tables 13 to 23). Airep tables removed from this section.
- Revision 23 (Dec 00) - Coverage charts for Noaa_14 MSU replaced by ATOVS AMSU-A for Noaa_16.
- Revision 22 (Aug 99) - Coverage charts for TOVS thickness 300-100 hPa replaced by (A) TOVS AMSU-A and MSU (Noaa_15 and Noaa_14).
- Revision 21 (May 99) - Monitoring statistics ceased for Noaa_11 as satellite is no more available.
- Revision 20 (Sep 98) - Changes to tables and annex to remove all mention about data usage. Two more levels (50 and 850 hPa) added to the COSNA statistics for Sondes.
- Revision 19 (Jul 98) - From June 29th, 1998 ECMWF model assimilates temperature data instead of geopotential from radiosondes. As a consequence the number of used geopotential data drops to zero in tables 7, 10, 13 and 15.
- Revision 18 (Apr 98) - Changes to tables and annex to introduce the usage of accepted numbers and observations instead of percentage of rejection.

1 Introduction

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

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

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

As recommended at the ninth session of the Commission for Basic Systems at Geneva 1988, lead centres have been appointed for each main type of observation which should liaise with the participating centres and co-ordinate all the results, inform the WMO Secretariat immediately of obvious problems, and produce every six months a consolidated list of observations of that particular type believed to be of low quality. The presently nominated centres are: RSMC Exeter for marine surface observations; RSMC ECMWF for radiosonde and pilot observations; WMC Washington for aircraft and satellite observations.

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

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

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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	Mar	Apr	Ident	Time	Mar	Apr
11120	(00)	27	0	03882	(00)	36	57
40650	(12)	19	0	03882	(12)	5	16
41256	(00)	27	0	06060	(00)	2	19
61024	(12)	24	4	10304	(00)	3	21
80398	(12)	30	7	10954	(00)	1	22
82765	(12)	14	0	10954	(12)	18	35
89571	(00)	17	0	20046	(12)	0	30
-	-	-	-	20292	(12)	0	30
-	-	-	-	20674	(12)	0	29
-	-	-	-	20744	(12)	0	28
-	-	-	-	21432	(00)	0	30
-	-	-	-	21824	(00)	0	28
-	-	-	-	21946	(00)	0	27
-	-	-	-	22113	(12)	0	30
-	-	-	-	22217	(12)	0	30
-	-	-	-	22271	(12)	0	29
-	-	-	-	22522	(12)	0	29
-	-	-	-	22543	(12)	0	30
-	-	-	-	22820	(12)	0	28
-	-	-	-	22845	(12)	0	30
-	-	-	-	23078	(12)	0	29
-	-	-	-	23205	(12)	0	29
-	-	-	-	23330	(12)	0	30
-	-	-	-	23415	(12)	0	30
-	-	-	-	23472	(12)	0	30
-	-	-	-	23802	(12)	0	29
-	-	-	-	23884	(12)	0	27
-	-	-	-	23921	(12)	0	30
-	-	-	-	23933	(12)	0	30
-	-	-	-	23955	(12)	0	27
-	-	-	-	24125	(00)	0	30
-	-	-	-	24266	(00)	2	30
-	-	-	-	24343	(00)	0	28
-	-	-	-	24507	(12)	0	30
-	-	-	-	24641	(00)	0	30
-	-	-	-	24688	(00)	0	30
-	-	-	-	24726	(00)	0	24
-	-	-	-	24908	(12)	0	30
-	-	-	-	24944	(00)	0	30
-	-	-	-	24959	(00)	0	30
-	-	-	-	25123	(00)	0	27
-	-	-	-	25400	(00)	0	30
-	-	-	-	25428	(00)	0	30
-	-	-	-	25703	(00)	0	31
-	-	-	-	25913	(00)	0	30
-	-	-	-	26063	(12)	0	30
-	-	-	-	26298	(12)	0	29
-	-	-	-	26477	(12)	0	30
-	-	-	-	26702	(12)	0	29
-	-	-	-	26781	(12)	0	30
-	-	-	-	27038	(12)	0	30
-	-	-	-	27199	(12)	0	30
-	-	-	-	27459	(12)	0	30
-	-	-	-	27612	(12)	0	26
-	-	-	-	27707	(12)	0	28
-	-	-	-	27730	(12)	0	30
-	-	-	-	27962	(12)	0	30
-	-	-	-	27995	(12)	0	30
-	-	-	-	28225	(12)	0	30
-	-	-	-	28275	(12)	0	30

-	-	-	-	28445	(12)	0	30
-	-	-	-	28661	(12)	0	29
-	-	-	-	28698	(12)	0	30
-	-	-	-	28722	(12)	0	30
-	-	-	-	29231	(12)	0	30
-	-	-	-	29263	(12)	0	29
-	-	-	-	29282	(12)	0	30
-	-	-	-	29572	(12)	0	30
-	-	-	-	29612	(12)	0	29
-	-	-	-	29634	(12)	0	30
-	-	-	-	29698	(12)	0	30
-	-	-	-	29839	(12)	0	30
-	-	-	-	29862	(12)	0	30
-	-	-	-	30054	(00)	0	28
-	-	-	-	30230	(12)	0	30
-	-	-	-	30309	(12)	0	29
-	-	-	-	30372	(00)	0	30
-	-	-	-	30554	(00)	0	30
-	-	-	-	30635	(00)	0	30
-	-	-	-	30673	(00)	0	29
-	-	-	-	30715	(12)	0	30
-	-	-	-	30758	(00)	0	29
-	-	-	-	30935	(00)	0	29
-	-	-	-	30965	(00)	0	29
-	-	-	-	31004	(00)	0	30
-	-	-	-	31088	(00)	0	30
-	-	-	-	31168	(00)	0	30
-	-	-	-	31300	(00)	0	30
-	-	-	-	31369	(00)	0	30
-	-	-	-	31510	(00)	0	26
-	-	-	-	31538	(00)	0	30
-	-	-	-	31736	(00)	0	30
-	-	-	-	31770	(00)	0	30
-	-	-	-	31873	(00)	0	30
-	-	-	-	31977	(00)	0	28
-	-	-	-	32061	(00)	0	30
-	-	-	-	32098	(00)	0	30
-	-	-	-	32150	(00)	0	22
-	-	-	-	32215	(00)	0	29
-	-	-	-	32389	(00)	0	30
-	-	-	-	32477	(00)	0	12
-	-	-	-	32540	(00)	0	30
-	-	-	-	32618	(00)	0	30
-	-	-	-	33041	(12)	0	19
-	-	-	-	34009	(12)	0	29
-	-	-	-	34122	(12)	0	27
-	-	-	-	34172	(12)	0	30
-	-	-	-	34247	(12)	0	27
-	-	-	-	34467	(12)	0	29
-	-	-	-	34731	(12)	0	30
-	-	-	-	34858	(12)	0	28
-	-	-	-	34882	(12)	0	25
-	-	-	-	35121	(12)	0	30
-	-	-	-	36096	(12)	0	28
-	-	-	-	37011	(12)	0	30
-	-	-	-	37055	(12)	0	28
-	-	-	-	37259	(12)	0	29
-	-	-	-	41923	(00)	15	30
-	-	-	-	41923	(12)	14	27
-	-	-	-	42339	(00)	4	28

-	-	-	-	43333	(00)	12	28
-	-	-	-	48327	(00)	6	30
-	-	-	-	61291	(00)	0	29
-	-	-	-	61291	(12)	0	29
-	-	-	-	61442	(12)	18	29
-	-	-	-	64500	(00)	2	25
-	-	-	-	65344	(12)	8	30
-	-	-	-	74004	(00)	14	28
-	-	-	-	74794	(00)	0	22
-	-	-	-	76458	(12)	6	28
-	-	-	-	76612	(12)	1	22
-	-	-	-	78073	(12)	15	29
-	-	-	-	82022	(00)	13	29
-	-	-	-	82099	(00)	13	29
-	-	-	-	82107	(00)	0	17
-	-	-	-	82332	(00)	7	29
-	-	-	-	82332	(12)	12	28
-	-	-	-	82824	(00)	13	29
-	-	-	-	83525	(00)	11	23
-	-	-	-	89571	(12)	15	30
-	-	-	-	98747	(12)	6	23

2.2 Drifting Buoys

Surface pressure observations from **1493** drifting buoys were received during the month.

3 Global monitoring statistics

The following figures and tables provide information on both the availability and quality of various data types as received at ECMWF during the month. A brief description of each figure/table is given below. For a full explanation please refer to the Annex.

3.1 Data Availability

Figures 1-9 are global charts for each data type showing the average number of observations received in 24 hours in 5 degree boxes. The average daily number of observations (global) is also displayed with a breakdown, where appropriate, for each WMO region (figures 1, 3 and 4) and Ocean (figures 1-4).

Fig	Observation Type	Parameter	Level/Layer
1	SYNOP/SHIP	MSL Pressure	Surface
2	DRIFTER	MSL Pressure	Surface
3	TEMP	Geopotential	500 hPa
4	TEMP/PILOT	Wind	300 hPa
5	AIRCRAFT (AIREP/AMDAR etc.)	Wind	300-150 hPa
6	SATOB	Wind	400-150 hPa
7	SATOB	Wind	1000-700 hPa
9	TOVS (120 km) - NOAA14	Thickness	300-100 hPa

(Figure 1 includes data from fixed marine platforms e.g. moored buoys.)

3.2 Data Quality

Tables 1-8 contain lists of suspect stations in the format according to Recommendation 3 CBS-Ext(85).

Tab	Observation Type	Parameter	Level/Layer
1	SHIP	MSL Pressure	Surface
2	SHIP	Wind Speed	Surface
3	SHIP	Wind Direction	Surface
4	DRIFTER	MSL Pressure	Surface
5	DRIFTER	Wind Speed	Surface
6	DRIFTER	Wind Direction	Surface
7	TEMP	Geopotential	1000- 30 hPa
8	TEMP/PILOT	Wind	1000-100 hPa
9	TEMP/PILOT	Wind Direction	500-150 hPa

(SHIP tables include data from fixed marine platforms e.g. moored buoys.)

Figures 10-13 show the locations of suspect stations given in tables 7 and 8.

Fig	Observation Type	Parameter	Observation Time
10	TEMP	Geopotential	00 UTC
11	TEMP	Geopotential	12 UTC
12	TEMP/PILOT	Wind	00 UTC
13	TEMP/PILOT	Wind	12 UTC

Tables 10 and 11 provide quality statistics for all TEMPSHIPS and PILOTSHIPS received during the month.

Tab	Parameter	Observation Time
10	Geopotential	00 and 12 UTC
11	Wind	00 and 12 UTC

Figures 14-18 show global charts of SATOB and aircraft wind statistics in the form of wind vectors averaged over 5 degree boxes.

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

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

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

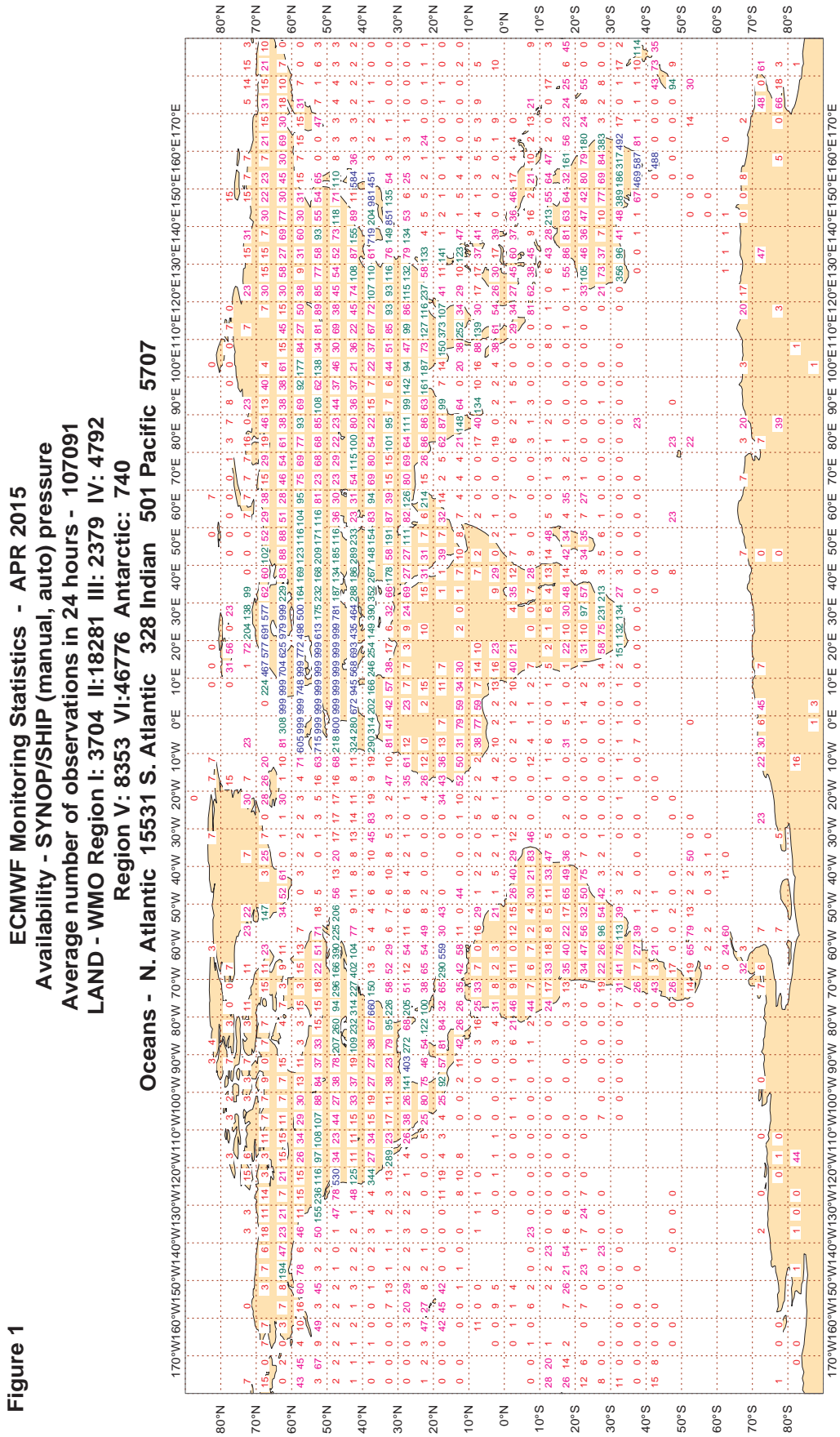


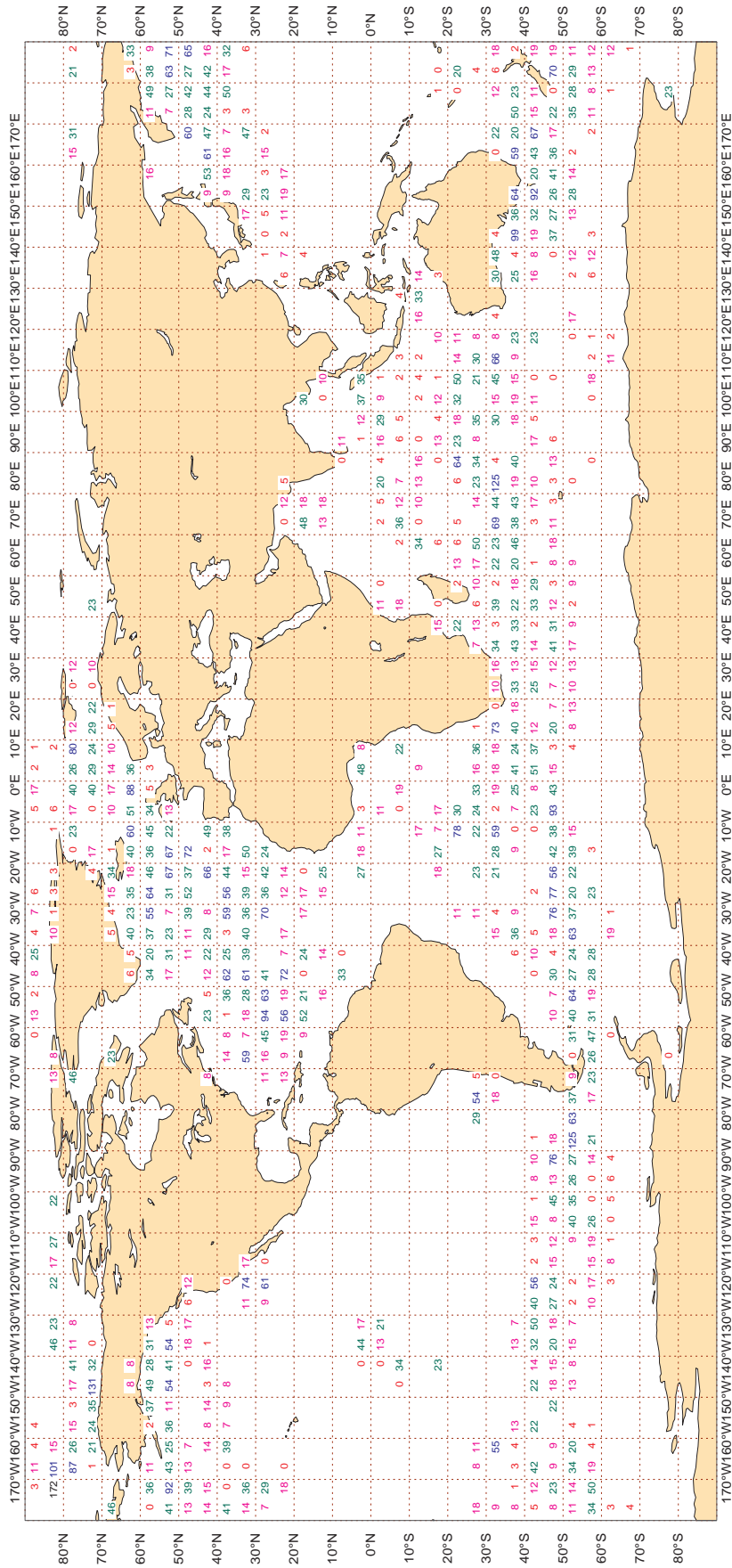
Figure 1



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2

ECMWF Monitoring Statistics - APR 2015
 Availability - DRIFTER PRESSURE
 Average number of observations in 24 hours - 16173
 Oceans - N. Atlantic 4079 S. Atlantic 2278 Indian 3435 Pacific 6380



Magicis 2.22.7 (64 bit)



3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

Figure 3

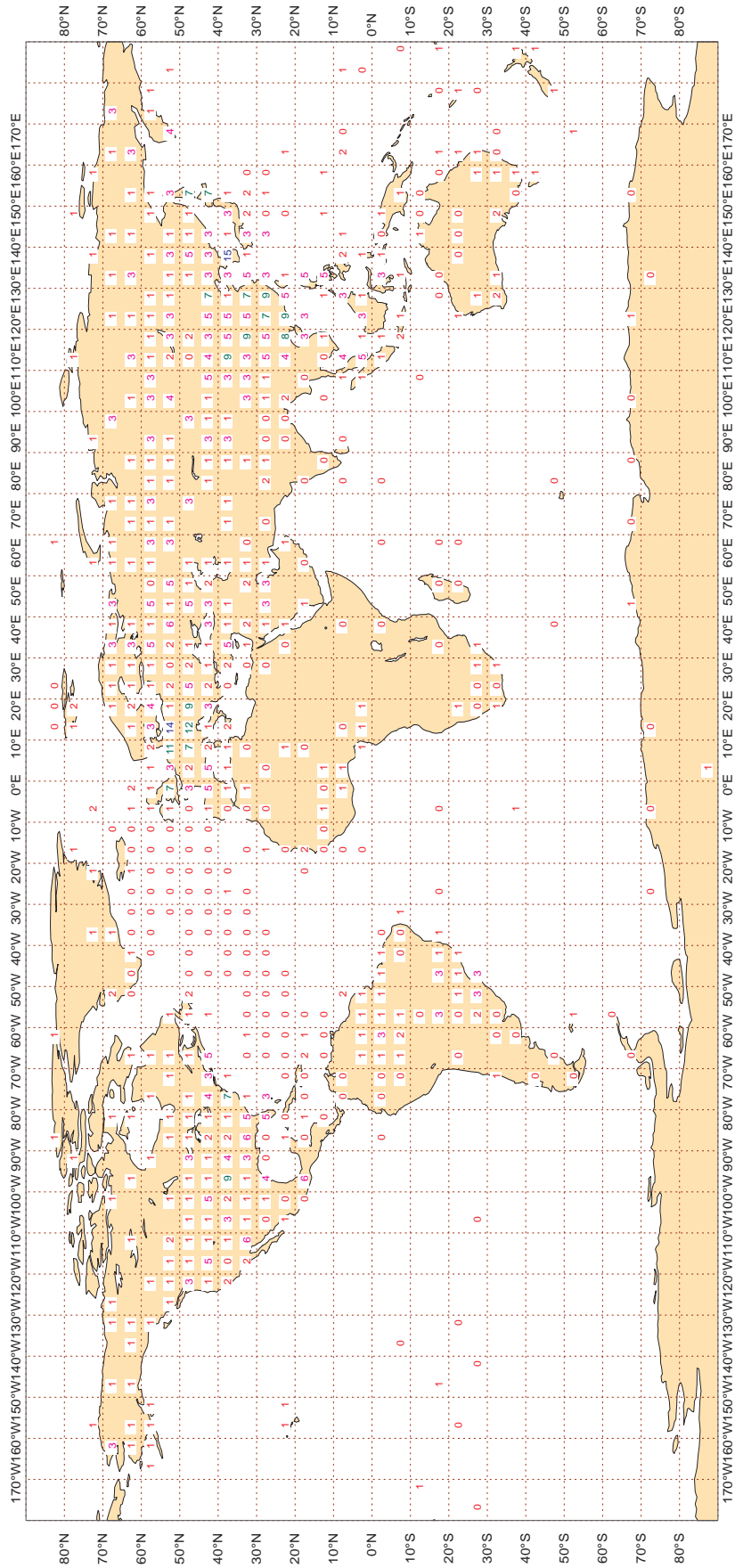
ECMWF Monitoring Statistics - APR 2015
 Availability - TEMP 500 hPa Geopotential

Average number of observations in 24 hours - 1263

LAND - WMO Region I: 49 II: 474 III: 70 IV: 255

Region V: 122 VI: 263 Antarctic: 14

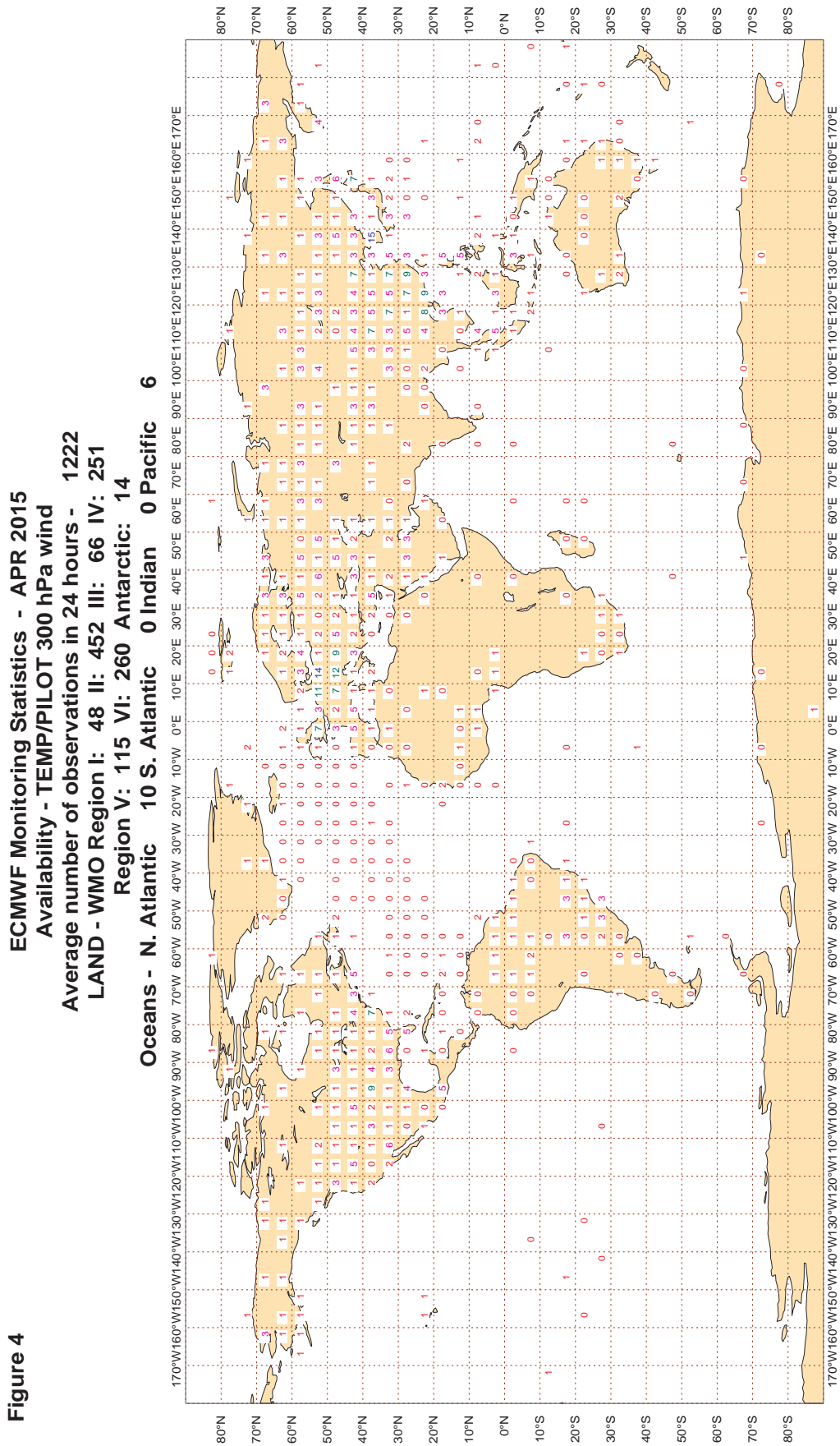
Oceans - N. Atlantic 10 S. Atlantic 0 Indian 0 Pacific 6



Magicis 2.22.7 (64 bit)



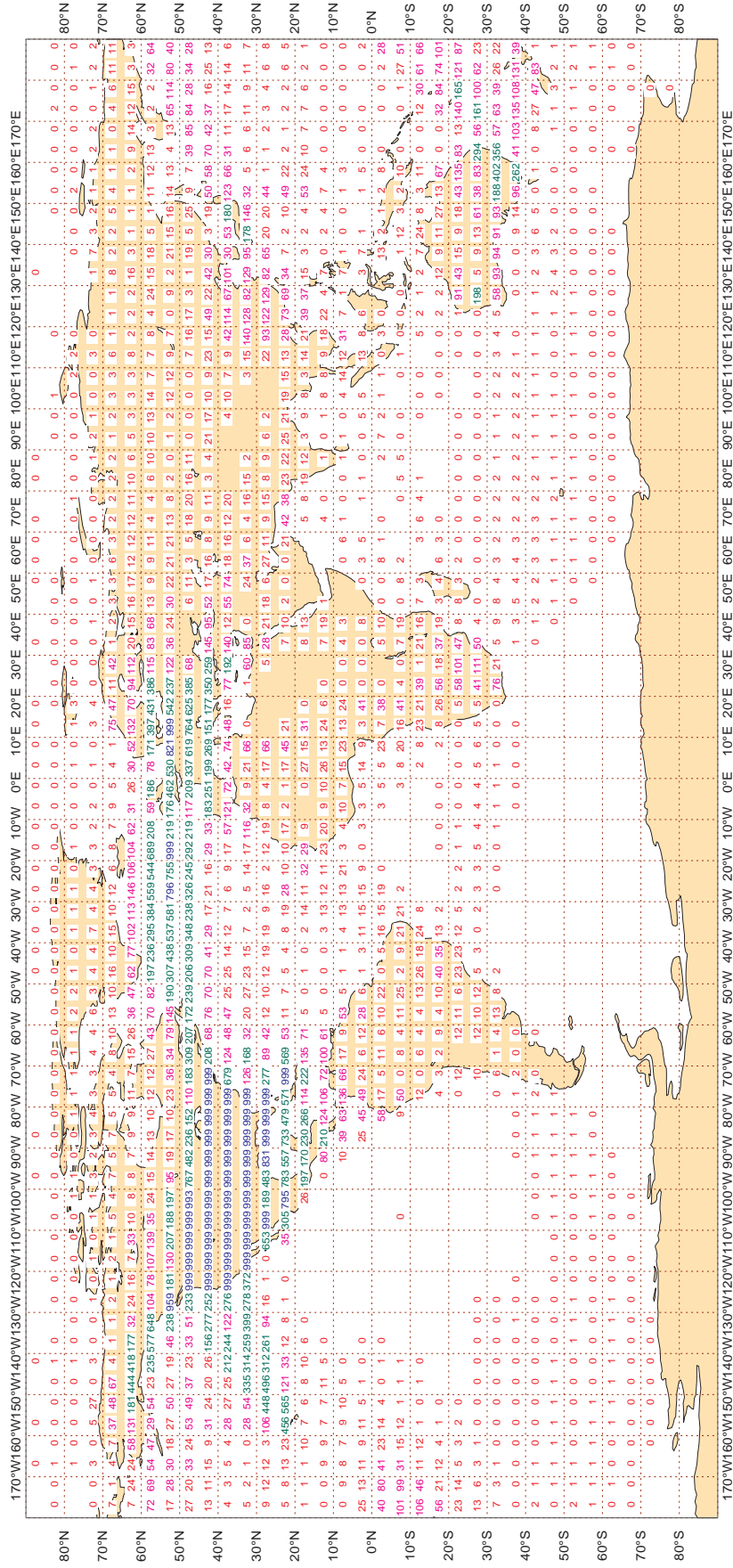
3.2.4 Figure 4 - Availability - TEMP/PILOT 300 hPa wind



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

Figure 5

ECMWF Monitoring Statistics - APR 2015
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 245326



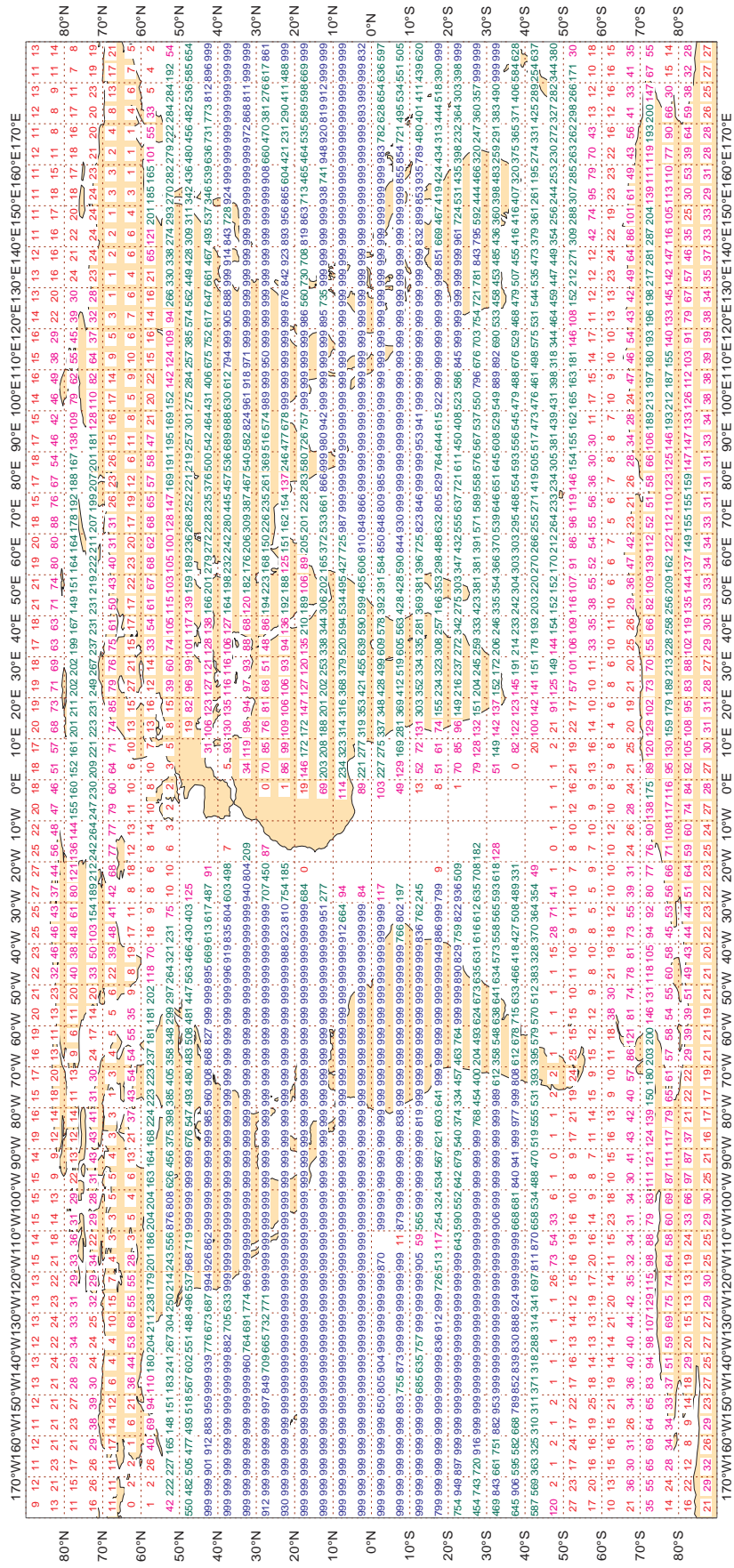
Magicis 2.22.7 (64 bit)



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

Figure 6

ECMWF Monitoring Statistics - APR 2015
Availability - AMV winds 400-150 hPa
Average number of observations in 24 hours - 1304383



Magicis 2.22.7 (64 bit)



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

Figure 8

ECMWF Monitoring Statistics - APR 2015
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 329016

Table with 180 columns representing longitude (170°W to 170°E) and 180 rows representing latitude (80°N to 80°S). The table contains numerical data representing the average number of observations in 24 hours for NOAA15 ATOVS AMSU-A in April 2015.

Magicis 2.22.7 (64 bit)



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

Figure 9.1

ECMWF Monitoring Statistics - APR 2015
Availability - NOAA18 ATOVS : AMSU-A
Average number of observations in 24 hours - 604685

Table with 18 columns representing longitude (170°W to 170°E) and 18 rows representing latitude (80°N to 80°S). The table contains numerical data representing the average number of observations in 24 hours for NOAA18 ATOVS AMSU-A in April 2015.

Magics 2.22.7 (64 bit)



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

Figure 9.2

ECMWF Monitoring Statistics - APR 2015
Availability - AQUA ATOVS : AMSU-A
Average number of observations in 24 hours - 293982

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

Majics 2.22.7 (64 bit)



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

Figure 9.3

ECMWF Monitoring Statistics - APR 2015
Availability - METOP ATOVS : AMSU-A
Average number of observations in 24 hours - 452552

Table with 180 columns representing longitude (170°W to 170°E) and 18 rows representing latitude (80°N to 80°S). The table contains numerical data representing the average number of observations in 24 hours for each geographic grid cell.

Magics 2.22.7 (64 bit)



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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : GLOBAL
 PERIOD : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 15(50), AND,
 Manual (Automatic) ABSOLUTE BIAS >= 3(2) HPA, OR,
 STANDARD DEVIATION >= 5(4) HPA, OR,
 % GROSS ERROR >= 25(15)
 (GROSS ERROR LIMIT = 15 HPA)

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
9V2782	99	P	SUR	27	0	2.3	3.1	3.8
IBCX	99	P	SUR	21	0	1.6	-3.7	4.0

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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : GLOBAL
 PERIOD : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
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3.2.14 Table 3 - Suspect ships and fixed marine platforms: Wind direction (DEGREES)

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 15 (50) (WIND SPEEDS > 3M/S), AND ,
 Manual (Automatic) ABSOLUTE BIAS >= 30 (25) DEGREES, OR,
 STANDARD DEVIATION >= 70 (50) DEGREES
 (GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S)

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
42361	99	DIRN	SUR	21	0	0	22.9	34.5	41.4
61002	99	DIRN	SUR	24	0	0	86.6	13.7	87.7
62118	99	DIRN	SUR	22	0	0	20.4	-33.3	39.1

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : GLOBAL
 PERIOD : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20, AND,
 ABSOLUTE BIAS >= 4 HPA, OR,
 STANDARD DEVIATION >= 6 HPA, OR,
 % GROSS ERROR >= 25
 (GROSS ERROR LIMIT = 15 HPA)

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44608	99	P	SUR	43	-19	21	9	0.2	-0.2	0.3
48627	99	P	SUR	0	0	32	32	0.0	0.0	0.0
48737	99	P	SUR	44	-72	80	80	0.0	0.0	0.0
51620	99	P	SUR	-5	-141	168	168	0.0	0.0	0.0
63641	99	P	SUR	78	6	48	7	6.4	0.5	6.4

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : GLOBAL
 PERIOD : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20, AND,
 ABSOLUTE BIAS >= 5 M/S, OR,
 % GROSS ERROR >= 25
 (GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S)

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
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3.2.17 Table 6 - Suspect drifters: Wind direction (degrees)

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20 (WIND SPEEDS > 3M/S), AND ,
 ABSOLUTE BIAS >= 20 DEGREES, OR,
 STANDARD DEVIATION >= 60 DEGREES
 (GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S)

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
15001	99	DIRN	SUR	-10	-10	131	0	0	12.9	22.1	25.6
23095	99	DIRN	SUR	10	94	22	0	0	23.1	24.5	33.6
31053	99	DIRN	SUR	-32	-50	153	0	7	26.6	45.5	52.7
31260	99	DIRN	SUR	-16	-38	138	0	31	43.3	51.2	67.1
32303	99	DIRN	SUR	5	-95	61	0	3	27.7	31.1	41.6
32316	99	DIRN	SUR	2	-110	71	0	1	28.3	-20.0	34.7
53040	99	DIRN	SUR	-8	95	68	0	99	0.0	92.5	92.5

3.2.18 Table 7 - Suspect radiosondes: Geopotential height (metres)

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 AREA : GLOBAL
 PERIOD : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: AT LEAST 3 LEVELS WITH
 10 OBS AND 100 M WEIGHTED RMS

ONLY THE WORST LEVEL IS SHOWN (WITH UNWEIGHTED RMS)

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
33393	00	Z	250	50	24	13	0	30.5	88.7	93.8
40417	12	Z	1000	26	50	21	0	5.0	42.0	42.3
40417	00	Z	925	26	50	22	0	35.2	28.4	45.2
40430	12	Z	925	25	40	30	0	19.7	39.8	44.4
40430	00	Z	925	25	40	29	0	9.1	41.0	42.0
42182	00	Z	250	29	77	15	2	91.6	22.7	94.4
42410	00	Z	400	26	92	20	1	53.6	-63.9	83.4
43003	00	Z	150	19	73	16	0	147.1	-19.6	148.4
43333	00	Z	30	12	93	27	0	31.0	191.1	193.6
82107	00	Z	1000	0	-67	17	2	20.9	23.7	31.6
91680	12	Z	925	-18	177	30	0	2.5	31.0	31.1
91680	00	Z	1000	-18	177	30	0	7.4	30.2	31.1
96481	12	Z	1000	4	118	29	4	4.0	39.3	39.5
96481	00	Z	1000	4	118	27	3	6.3	39.6	40.1

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

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 AREA : GLOBAL
 PERIOD : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	UBIAS	VBIAS	RMS
78954	12	V	200	13	-59	17	0	-6.9	-1.8	16.1

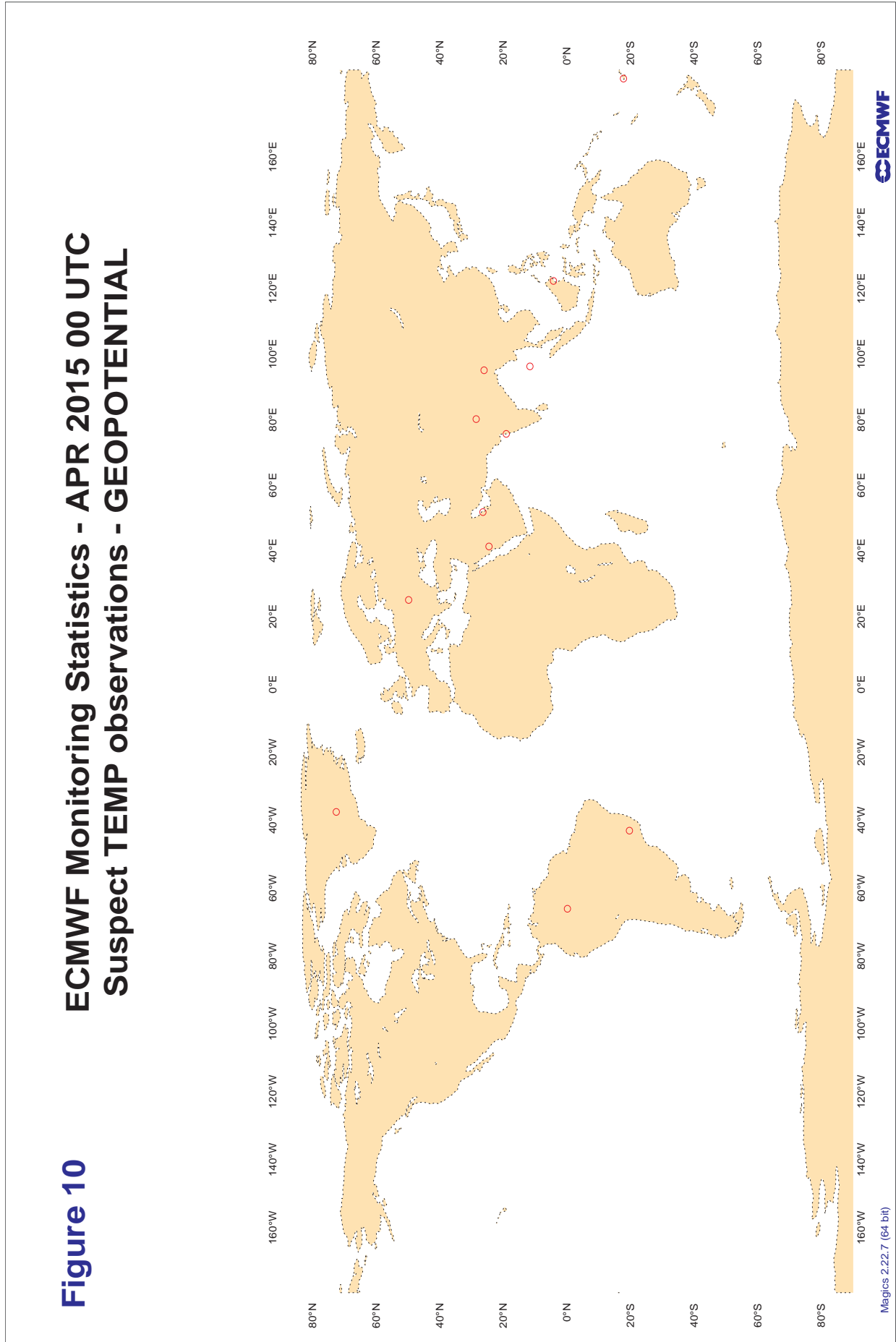
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

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

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

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
48565	00	DD	8	98	19	11.4	8.5	16.1

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



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

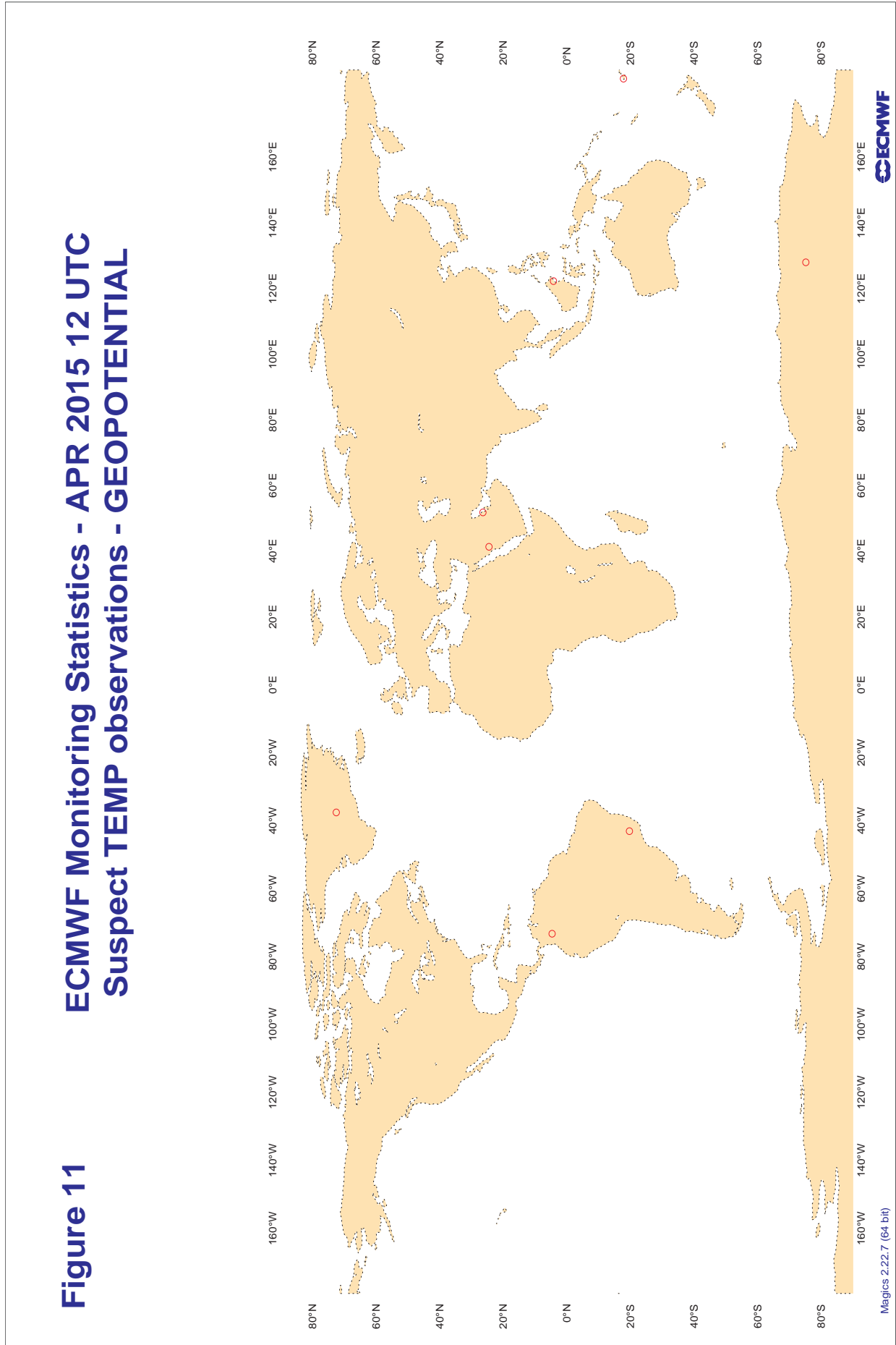
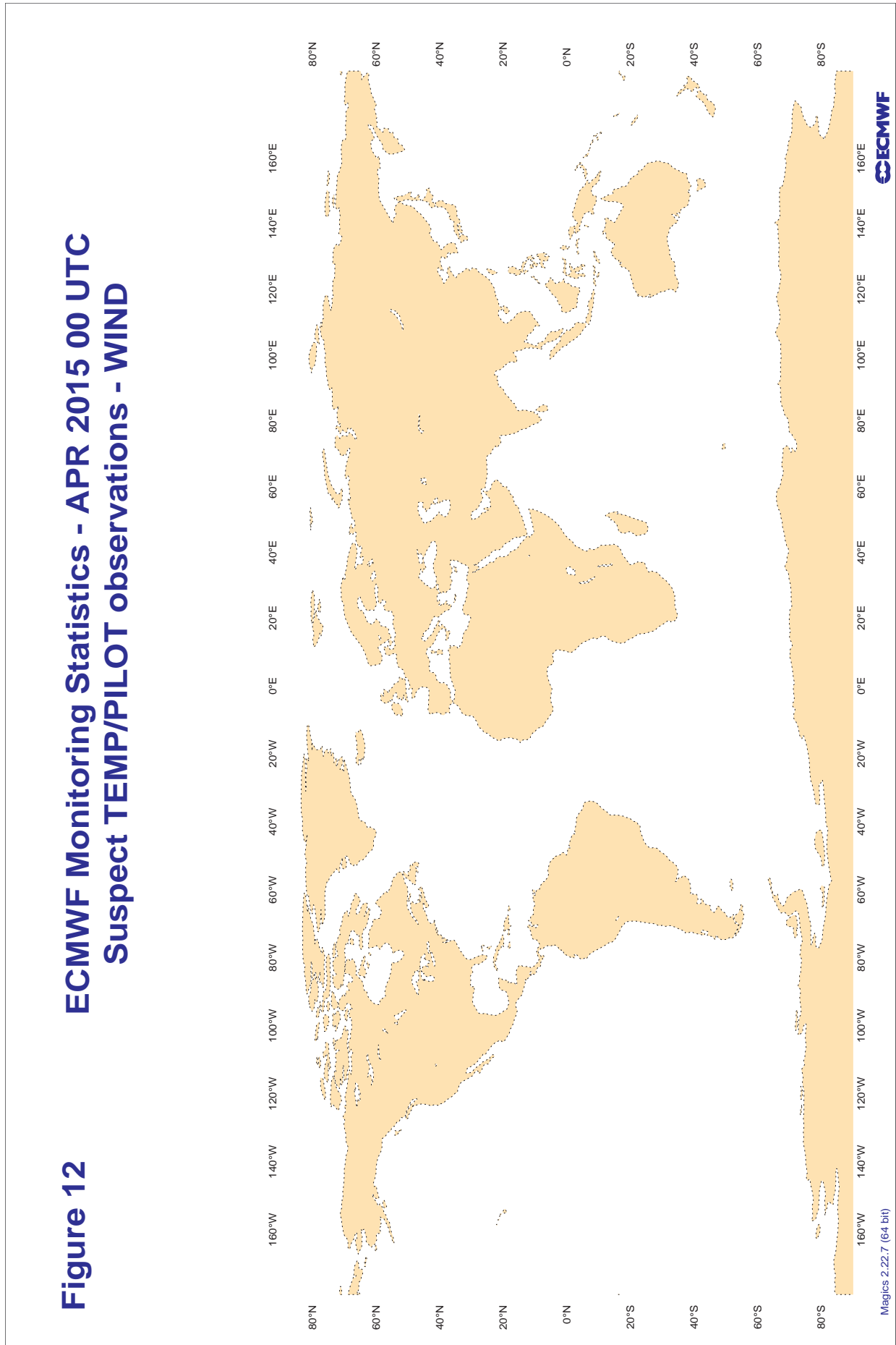
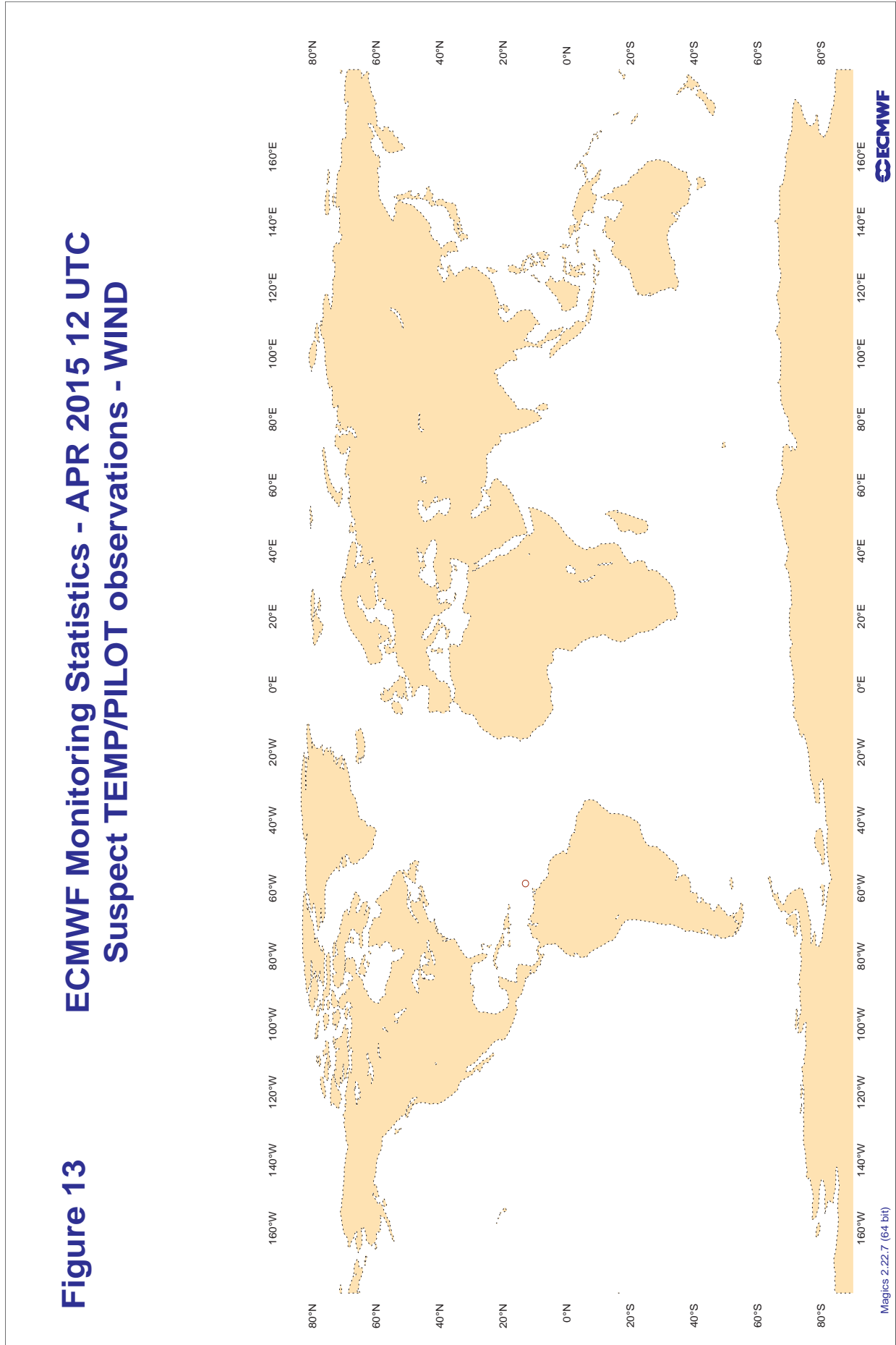


Figure 11 ECMWF Monitoring Statistics - APR 2015 12 UTC
Suspect TEMP observations - GEOPOTENTIAL

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



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



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

RADIOSONDE MONITORING STATISTICS (SHIPS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASDE01	12	Z	100	12	26.9	24.6
ASDE01	00	Z	100	12	34.5	8.0
ASDE02	00	Z	100	23	25.1	24.5
ASDE03	12	Z	100	10	68.4	47.0
ASDE03	00	Z	100	16	44.1	14.1
ASDE04	12	Z	100	3	46.2	45.7
ASDE04	00	Z	100	4	39.0	38.5
ASDE09	12	Z	100	3	41.0	40.1
ASDK1	12	Z	100	7	16.4	15.3
ASDK1	00	Z	100	7	18.1	5.6
ASDK2	00	Z	100	6	10.6	7.3
ASDK2	12	Z	100	7	16.1	13.5
ASDK3	00	Z	100	8	21.5	18.3
ASDK3	12	Z	100	8	26.8	25.3
ASES01	12	Z	100	23	20.9	18.8
ASEU01	12	Z	100	20	30.0	28.0
ASEU01	00	Z	100	7	27.7	26.1
ASEU02	00	Z	100	8	39.9	39.4
ASEU02	12	Z	100	4	41.0	39.5
ASEU03	00	Z	100	8	83.0	48.7
ASEU03	12	Z	100	9	47.0	45.0
ASEU04	12	Z	100	6	23.9	23.0
ASEU04	00	Z	100	7	38.3	17.1
ASEU05	12	Z	100	10	23.9	22.7
ASEU05	00	Z	100	10	25.6	24.9
ASEU06	00	Z	100	5	22.9	-19.0
ASEU06	12	Z	100	5	20.0	10.8
ASFR1	12	Z	100	9	10.3	2.9
ASFR1	00	Z	100	11	11.5	-3.0
ASFR2	12	Z	100	11	14.9	13.3
ASFR2	00	Z	100	7	13.4	9.6
ASFR3	12	Z	100	14	14.4	10.4
ASFR3	00	Z	100	10	14.0	8.0
ASFR4	12	Z	100	8	14.2	13.1
ASFR4	00	Z	100	8	13.3	12.1
JGQH	12	Z	100	2	9.3	4.4
JGQH	00	Z	100	8	15.2	6.9
LGKI	00	Z	100	16	10.3	-6.4
LGKI	12	Z	100	17	12.6	-8.5

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
UKBUC	00	Z	100	0	0.0	0.0

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

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

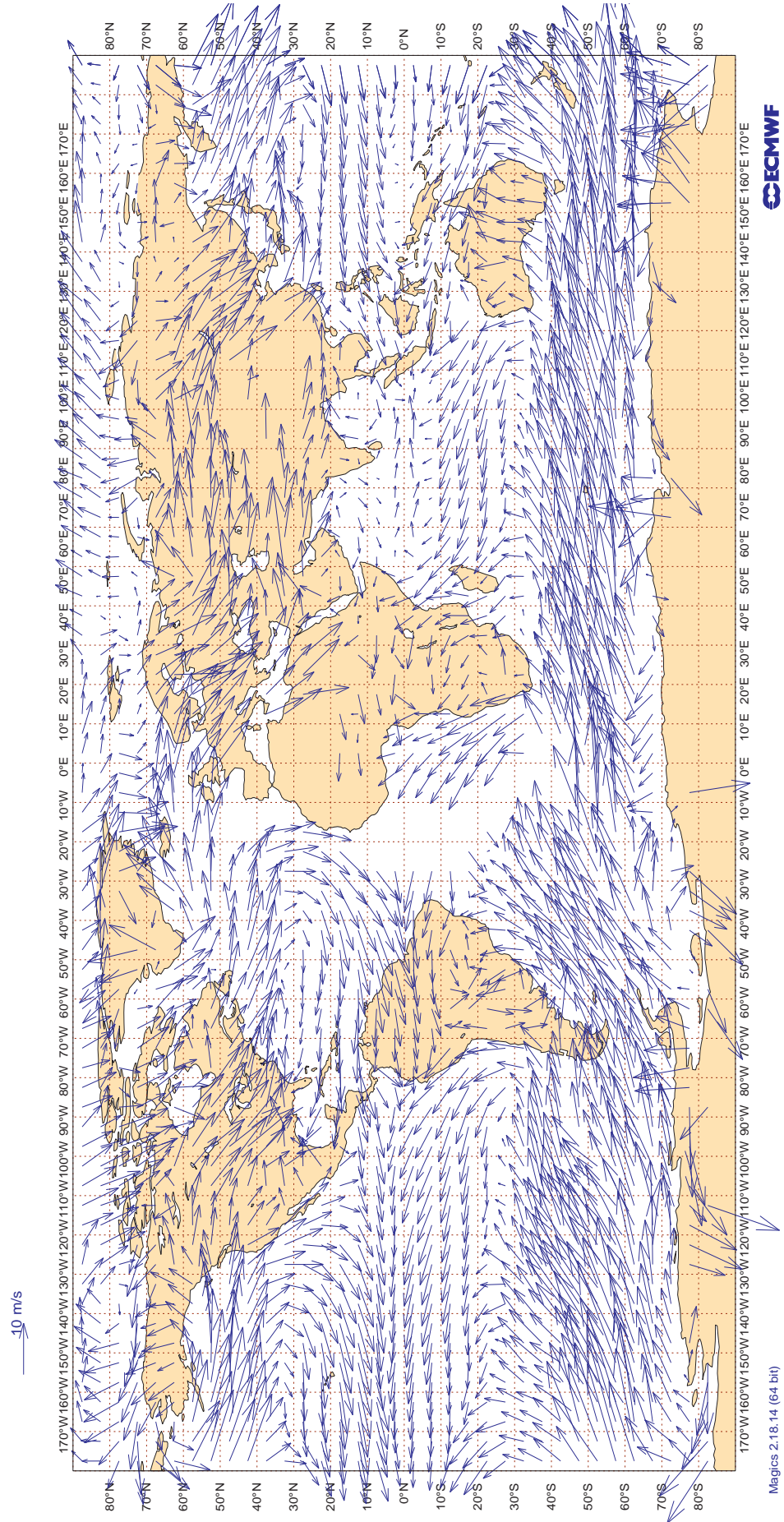
WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASDE01	12	V	100	11	4.1	0.1	-1.5
ASDE01	00	V	100	12	3.5	1.1	1.3
ASDE02	00	V	100	23	4.6	-0.6	0.0
ASDE03	12	V	100	10	3.8	1.8	0.1
ASDE03	00	V	100	16	4.9	-0.3	0.4
ASDE04	12	V	100	3	4.1	1.3	-1.0
ASDE04	00	V	100	4	3.8	0.8	-0.2
ASDE09	12	V	100	3	3.8	-1.9	-1.8
ASDK1	12	V	100	7	2.7	0.0	0.7
ASDK1	00	V	100	6	1.4	0.4	-0.1
ASDK2	00	V	100	6	3.6	1.5	0.2
ASDK2	12	V	100	6	4.5	0.4	0.2
ASDK3	00	V	100	8	2.5	0.4	0.8
ASDK3	12	V	100	8	3.9	1.2	1.6
ASES01	12	V	100	23	5.8	-1.9	0.7
ASEU01	12	V	100	20	4.7	0.4	0.1
ASEU01	00	V	100	7	2.8	-0.3	-0.6
ASEU02	00	V	100	8	2.8	-0.9	1.0
ASEU02	12	V	100	4	3.3	-1.3	-0.4
ASEU03	00	V	100	7	3.0	-0.5	0.7
ASEU03	12	V	100	6	4.5	-2.7	0.6
ASEU04	12	V	100	6	3.4	-0.3	1.0
ASEU04	00	V	100	7	4.2	-0.7	-0.1
ASEU05	12	V	100	10	3.6	-1.1	-1.3
ASEU05	00	V	100	9	3.6	-0.6	0.7
ASEU06	00	V	100	4	3.1	-0.2	-0.7
ASEU06	12	V	100	5	2.3	1.1	0.9
ASFR1	12	V	100	8	4.6	0.7	1.3
ASFR1	00	V	100	10	3.3	-0.3	0.2
ASFR2	12	V	100	10	4.2	-0.9	-1.2
ASFR2	00	V	100	7	3.3	-0.3	0.7
ASFR3	12	V	100	14	3.6	-0.3	-0.7
ASFR3	00	V	100	10	4.0	1.0	1.4
ASFR4	12	V	100	8	3.8	1.1	-1.5
ASFR4	00	V	100	7	3.4	0.7	2.0
JGQH	12	V	100	2	4.6	-2.3	-1.9
JGQH	00	V	100	8	6.0	-1.1	-0.4
LGKI	00	V	100	15	3.0	-0.5	-0.2
LGKI	12	V	100	16	2.9	1.0	-0.3

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
UKBUC	00	V	100	0	0.0	0.0	0.0

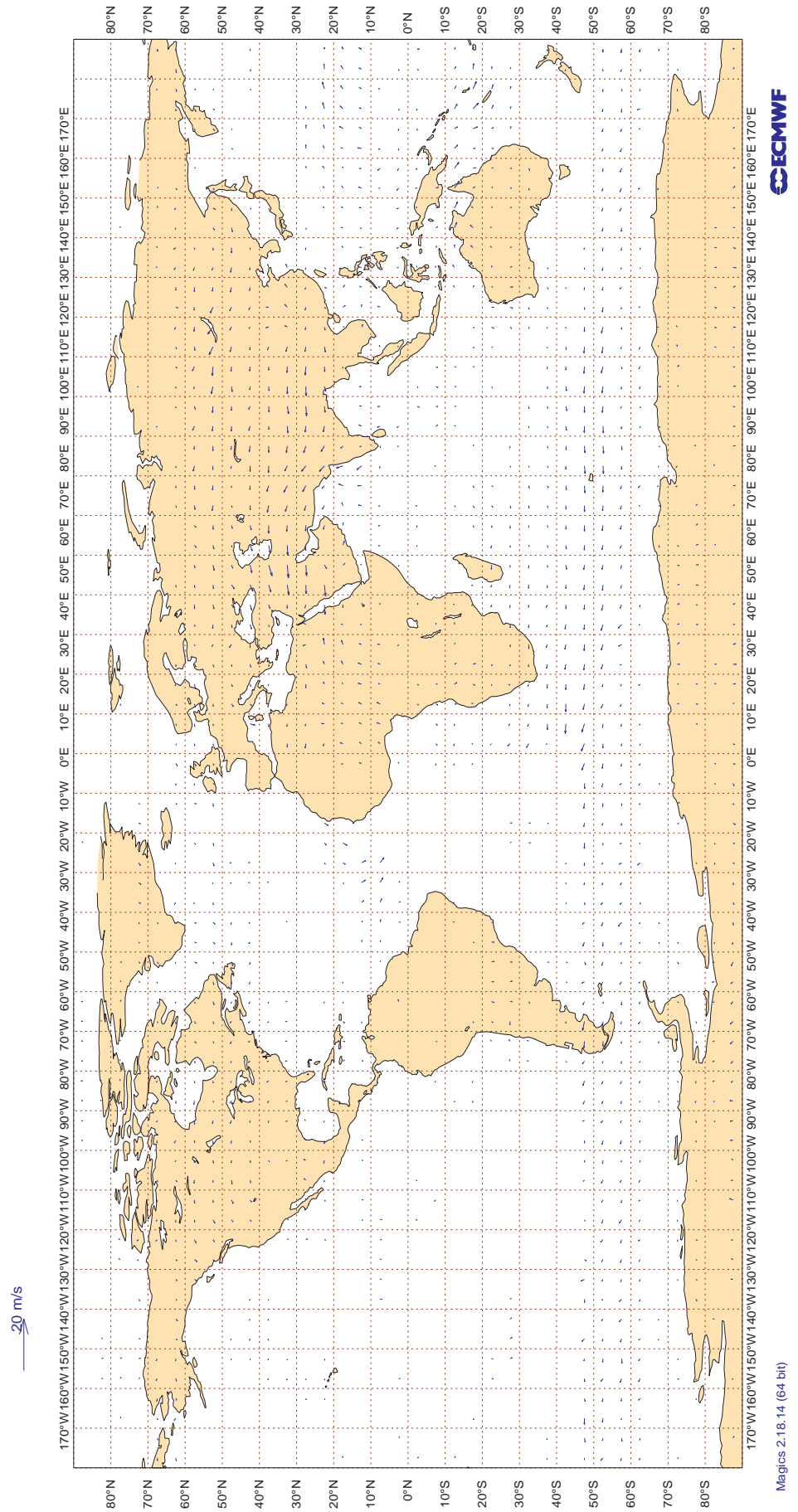
3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

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



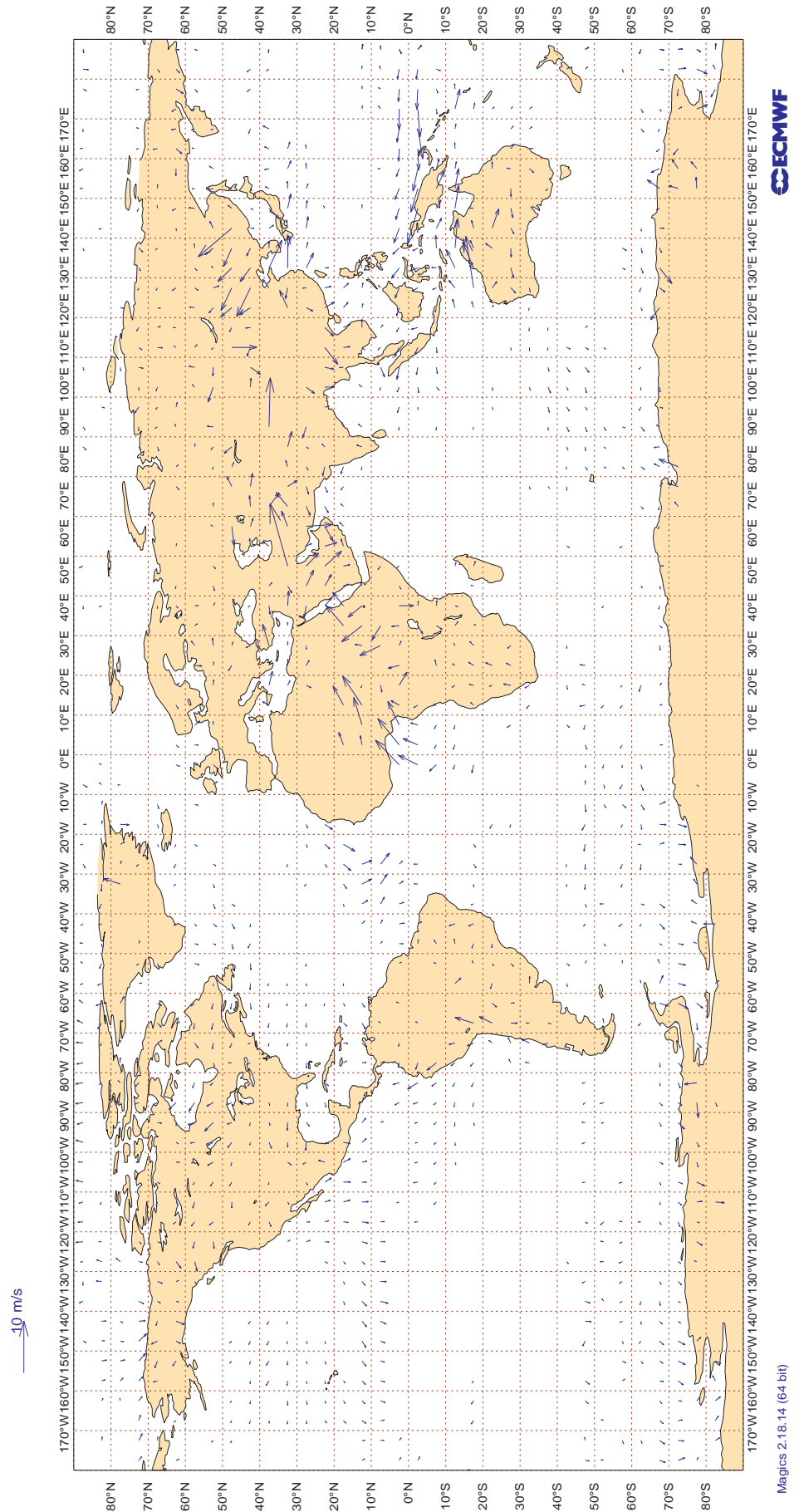
3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

Figure 15
ECMWF Monitoring Statistics: Apr 2015
AMV Winds: 150- 400hPa
Wind bias: Observation - FG

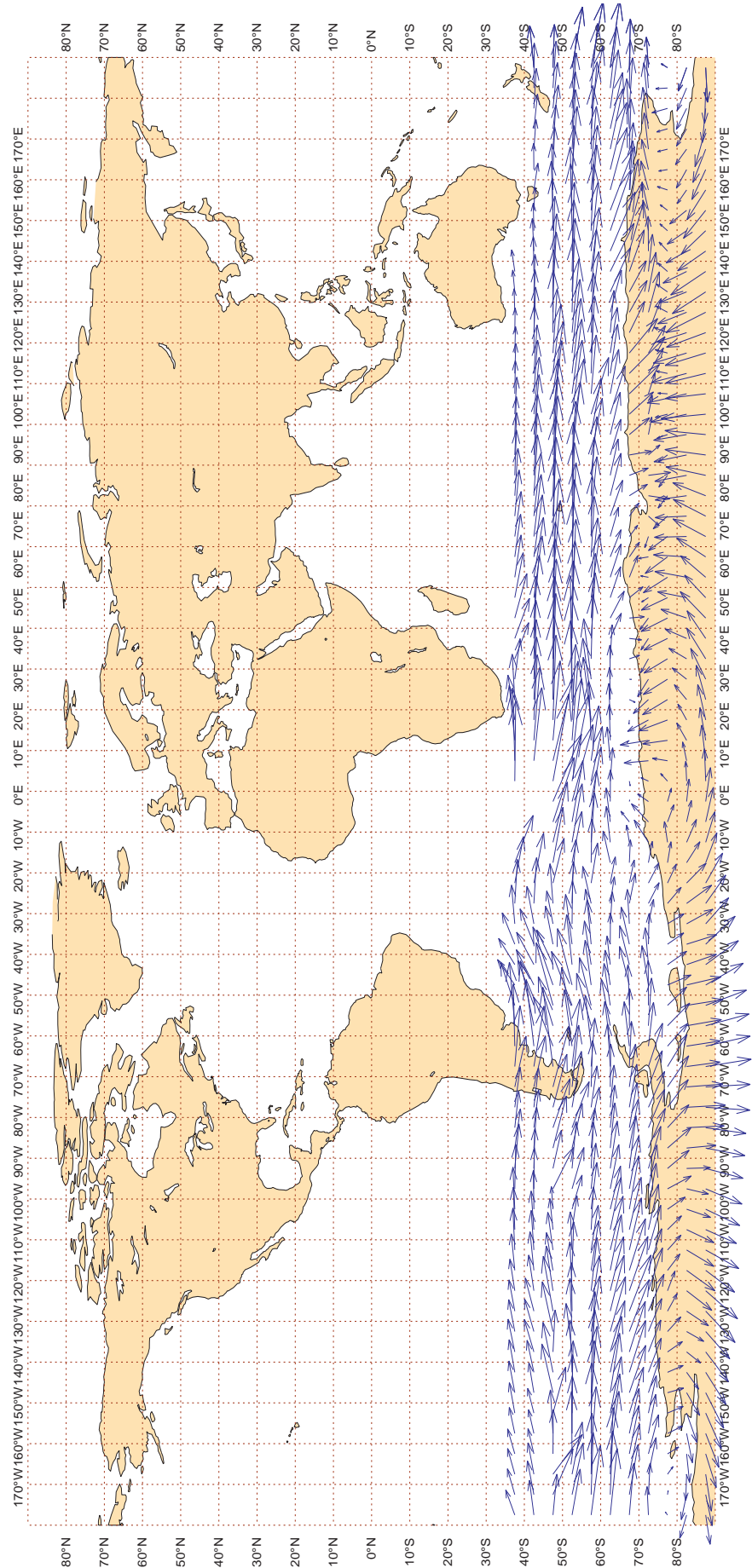


3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

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

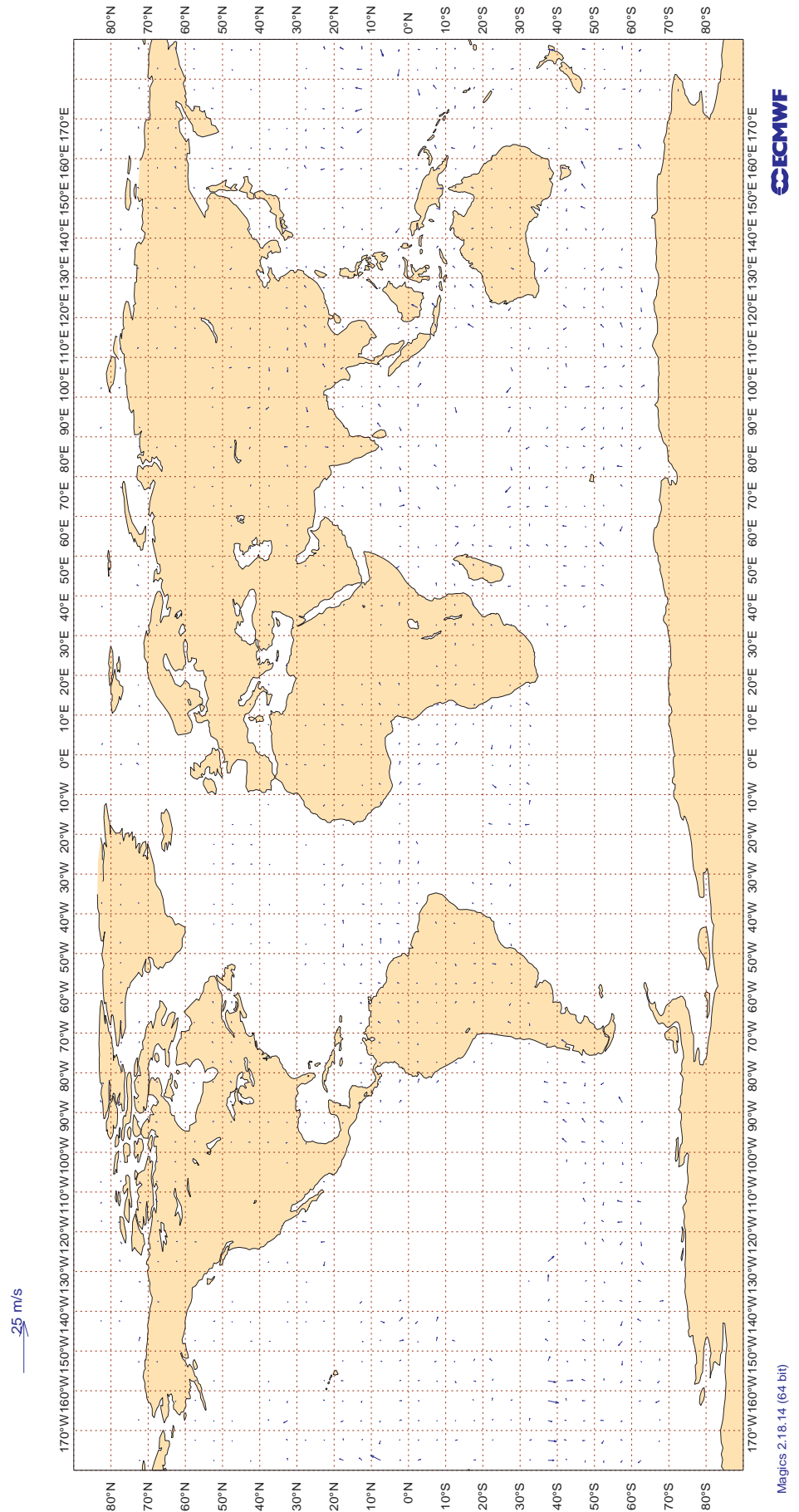


3.2.30 Figure 17 - SATOB Winds: 150- 400hPa



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

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



3.2.32 Table 12 - Airep Monitoring Statistics For Airline Carriers (Global)

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : VECTOR WIND (M/S)
 AREA : GLOBAL
 PERIOD : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20

TIME = 99 => AVERAGE OF ALL OBSERVATIONS
 GROSS ERROR LIMIT ON VECTOR WIND = 40 M/S

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AAL	99	V	300-150	4935	0	0	4.1	-0.1
AAR	99	V	300-150	36	0	0	4.8	0.3
AAY	99	V	300-150	144	0	0	4.2	-0.8
ABW	99	V	300-150	58	0	0	2.9	0.2
ABX	99	V	300-150	39	3	0	4.7	-1.5
ACA	99	V	300-150	2208	1	0	4.9	0.0
ACI	99	V	300-150	657	0	0	4.1	0.4
AFL	99	V	300-150	213	0	0	3.3	0.4
AFR	99	V	300-150	2929	0	0	4.0	0.2
AIC	99	V	300-150	523	0	0	3.8	-0.1
AMX	99	V	300-150	288	32	0	12.3	0.3
ANZ	99	V	300-150	3375	2	0	5.0	0.6
ASA	99	V	300-150	3219	0	0	4.5	0.1
ASY	99	V	300-150	38	0	0	7.1	-1.2
ATN	99	V	300-150	32	0	0	5.3	-0.3
AUA	99	V	300-150	1158	0	0	4.1	-0.6
AVN	99	V	300-150	85	0	0	6.9	-1.1
AWE	99	V	300-150	621	0	0	3.8	0.4
AXM	99	V	300-150	49	0	0	3.9	1.6
AZA	99	V	300-150	618	0	0	4.1	0.5
BAW	99	V	300-150	3959	1	0	5.2	-0.1
BEL	99	V	300-150	400	0	0	4.2	-0.1
BER	99	V	300-150	1404	0	0	4.0	0.5
BOX	99	V	300-150	71	0	0	3.2	1.0
CAL	99	V	300-150	68	0	0	4.8	-0.2
CFG	99	V	300-150	323	0	0	4.0	0.2
CKS	99	V	300-150	309	0	0	4.7	0.4
CLX	99	V	300-150	307	0	0	3.8	0.3
CMB	99	V	300-150	29	0	0	3.5	0.4
CSN	99	V	300-150	186	2	0	6.5	0.0
DAH	99	V	300-150	99	0	0	3.8	0.8

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
DAL	99	V	300-150	8430	0	0	4.3	-0.2
DHK	99	V	300-150	235	0	0	3.8	0.4
DLH	99	V	300-150	4552	0	0	3.9	-0.1
EIN	99	V	300-150	1436	0	0	3.9	-0.2
EJM	99	V	300-150	24	0	0	5.8	-1.0
ELY	99	V	300-150	340	0	0	3.9	0.3
ETD	99	V	300-150	444	0	0	4.0	0.5
ETH	99	V	300-150	29	3	0	7.4	0.7
FDX	99	V	300-150	1254	0	0	4.2	0.5
FIN	99	V	300-150	137	1	0	6.0	0.1
FJI	99	V	300-150	1507	0	0	4.3	0.0
FWI	99	V	300-150	96	0	0	4.3	1.3
GAF	99	V	300-150	32	0	0	4.4	0.2
GEC	99	V	300-150	333	0	0	3.7	0.4
GTI	99	V	300-150	382	0	0	3.9	0.4
HAL	99	V	300-150	765	0	0	5.1	0.7
HBJ	99	V	300-150	20	15	0	12.9	0.9
IBE	99	V	300-150	123	0	0	3.5	0.0
JAF	99	V	300-150	84	12	0	12.5	0.6
JAI	99	V	300-150	462	0	0	3.7	0.5
JAS	99	V	300-150	31	26	0	23.6	-0.3
JST	99	V	300-150	1121	0	0	7.2	0.9
KAC	99	V	300-150	24	0	0	3.1	0.0
KAI	99	V	300-150	27	0	0	4.8	1.0
KAL	99	V	300-150	595	0	0	4.2	0.4
KLM	99	V	300-150	2098	0	0	3.9	-0.3
LAN	99	V	300-150	86	5	0	6.6	0.4
MAS	99	V	300-150	90	0	0	4.9	0.6
MLM	99	V	300-150	26	0	0	3.3	-0.9
MMN	99	V	300-150	34	0	0	4.9	-0.6
MON	99	V	300-150	26	0	0	3.4	0.1
MSR	99	V	300-150	124	0	0	3.4	0.5
NAX	99	V	300-150	127	13	0	16.7	0.9
NCA	99	V	300-150	50	0	0	5.9	-0.7
OAE	99	V	300-150	74	0	1	4.0	-0.3
PAC	99	V	300-150	25	0	0	3.6	-0.2
PAL	99	V	300-150	25	4	0	4.0	0.6
QFA	99	V	300-150	2379	0	0	4.5	-0.3
QTR	99	V	300-150	258	0	0	3.8	0.3
RCH	99	V	300-150	606	0	0	5.0	-0.1
REP	99	V	300-150	30	0	3	5.5	1.3
RJA	99	V	300-150	76	16	0	16.1	-0.2
RRR	99	V	300-150	26	0	0	4.9	2.9

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
SAM	99	V	300-150	38	11	0	11.5	1.2
SAS	99	V	300-150	662	0	0	3.5	0.2
SHE	99	V	300-150	29	0	0	3.5	0.8
SIA	99	V	300-150	282	0	0	4.5	0.5
SQC	99	V	300-150	48	0	0	4.4	-0.5
SVA	99	V	300-150	390	0	0	3.8	0.4
SWR	99	V	300-150	923	0	0	4.1	0.6
TAM	99	V	300-150	151	0	0	3.8	0.1
TAP	99	V	300-150	20	0	0	3.6	-0.3
TAY	99	V	300-150	149	0	0	3.9	0.9
TCV	99	V	300-150	29	3	0	5.4	-1.6
TCX	99	V	300-150	306	0	0	4.1	0.6
THA	99	V	300-150	80	0	1	5.0	0.9
THT	99	V	300-150	95	0	0	3.3	-0.1
THY	99	V	300-150	571	0	0	3.8	0.2
TOM	99	V	300-150	788	14	0	11.6	-0.4
TSC	99	V	300-150	100	0	0	3.9	0.4
TSO	99	V	300-150	204	0	0	3.3	0.3
UAE	99	V	300-150	879	0	0	4.0	0.2
UAL	99	V	300-150	12312	1	0	4.7	-0.2
UPS	99	V	300-150	1039	0	0	4.3	0.2
VHL	99	V	300-150	37	43	0	30.3	-0.2
VIR	99	V	300-150	1465	3	0	5.7	0.0
VJT	99	V	300-150	22	18	0	23.5	0.0
VOZ	99	V	300-150	1310	0	0	4.0	-0.1
VPB	99	V	300-150	39	0	0	4.5	0.1
VPC	99	V	300-150	22	9	0	17.6	1.3
VQB	99	V	300-150	35	23	0	3.9	-0.5
WJA	99	V	300-150	585	0	0	5.2	0.2
XLF	99	V	300-150	64	0	0	3.7	0.0
XOJ	99	V	300-150	31	0	0	6.4	1.3

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 : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	28	15.7	0.3
01001	00	Z	50	30	18.3	2.1
01028	00	Z	50	30	11.8	8.0
01028	12	Z	50	28	15.8	10.4
01400	00	Z	50	17	44.5	33.5
01400	12	Z	50	17	39.1	33.7
01415	12	Z	50	29	21.9	16.2
01415	00	Z	50	29	13.0	4.2
02365	00	Z	50	37	9.1	1.8
02365	12	Z	50	43	11.4	2.8
02591	00	Z	50	31	17.8	15.9
02591	12	Z	50	38	20.0	17.1
02836	00	Z	50	29	11.5	0.8
02836	12	Z	50	30	15.1	4.9
02963	12	Z	50	29	14.5	8.2
02963	00	Z	50	28	12.2	7.8
03005	00	Z	50	30	9.5	1.6
03005	12	Z	50	31	10.8	6.4
03238	00	Z	50	29	17.7	14.5
03238	12	Z	50	11	23.0	22.0
03808	12	Z	50	57	13.2	9.4
03808	00	Z	50	53	10.7	8.2
03918	12	Z	50	7	19.0	16.8
03918	00	Z	50	24	15.6	12.3
03953	12	Z	50	30	21.9	19.6
03953	00	Z	50	30	15.5	12.6
04018	00	Z	50	25	16.7	-1.7
04018	12	Z	50	25	20.6	11.1
04220	00	Z	50	30	17.6	0.7
04220	12	Z	50	28	26.5	19.7
04270	12	Z	50	27	28.4	24.0
04270	00	Z	50	29	17.7	4.6
04320	12	Z	50	30	15.2	-11.5
04320	00	Z	50	29	26.3	-20.5
04339	00	Z	50	28	22.1	20.1
04339	12	Z	50	30	20.4	14.5
04360	00	Z	50	13	17.1	-1.1
04360	12	Z	50	12	24.1	9.9
06011	12	Z	50	21	20.0	13.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	50	21	19.8	-2.4
06260	00	Z	50	27	21.5	18.7
06260	12	Z	50	5	24.7	22.6
06610	00	Z	50	30	19.1	2.6
06610	12	Z	50	30	52.5	21.4
07110	00	Z	50	25	24.4	19.7
07110	12	Z	50	26	33.3	30.9
07510	00	Z	50	18	22.7	19.8
07510	12	Z	50	16	26.6	24.1
07645	12	Z	50	18	70.3	66.7
07645	00	Z	50	10	56.2	54.8
07761	00	Z	50	13	10.7	5.7
07761	12	Z	50	16	16.3	10.8
08001	00	Z	50	26	17.0	15.6
08001	12	Z	50	28	20.7	16.0
08221	00	Z	50	30	19.4	17.3
08221	12	Z	50	30	20.2	17.7
08302	12	Z	50	30	12.0	6.1
08302	00	Z	50	29	11.0	10.1
08508	12	Z	50	27	29.3	27.0
08522	12	Z	50	29	12.9	9.4
08579	12	Z	50	30	25.9	24.1
10035	12	Z	50	29	15.2	11.2
10035	00	Z	50	30	12.4	8.6
10393	00	Z	50	30	14.7	11.0
10393	12	Z	50	30	19.4	13.1
10410	00	Z	50	25	14.4	9.8
10410	12	Z	50	27	17.3	9.2
10739	00	Z	50	30	17.1	13.1
10739	12	Z	50	30	18.1	13.8
11035	12	Z	50	30	13.1	5.7
11035	00	Z	50	29	18.8	10.3
12982	00	Z	50	27	14.0	8.9
12982	12	Z	50	30	43.3	40.8
16044	00	Z	50	30	18.8	11.1
16044	12	Z	50	29	18.0	5.8
16080	12	Z	50	30	9.4	0.9
16080	00	Z	50	30	12.9	4.1
16245	12	Z	50	27	13.0	5.1
16245	00	Z	50	30	44.5	-4.3
16320	00	Z	50	29	9.8	6.1
16320	12	Z	50	29	12.2	5.1
16429	00	Z	50	29	11.2	8.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	50	30	14.3	3.0
16622	00	Z	50	24	39.7	38.2
16754	00	Z	50	25	27.5	25.0
17607	12	Z	50	17	25.4	-24.7
26435	00	Z	50	15	7.3	2.5
60018	00	Z	50	29	17.4	16.0
60018	12	Z	50	30	10.9	5.5
ASDE01	12	Z	50	10	50.6	48.2
ASDE01	00	Z	50	10	42.1	19.4
ASDE02	00	Z	50	23	31.2	30.4
ASDE03	12	Z	50	8	90.5	70.2
ASDE03	00	Z	50	15	47.6	17.4
ASDE04	12	Z	50	3	55.1	53.8
ASDE04	00	Z	50	3	47.1	45.6
ASDE09	12	Z	50	3	53.6	53.2
ASDK1	12	Z	50	6	20.6	17.6
ASDK1	00	Z	50	7	23.8	6.2
ASDK2	00	Z	50	6	13.6	9.9
ASDK2	12	Z	50	6	18.0	16.2
ASDK3	00	Z	50	8	26.7	22.0
ASDK3	12	Z	50	8	30.5	29.2
ASES01	12	Z	50	23	29.3	27.0
ASEU01	12	Z	50	18	41.9	39.1
ASEU01	00	Z	50	5	31.1	29.4
ASEU02	00	Z	50	7	47.0	46.5
ASEU02	12	Z	50	4	47.7	46.5
ASEU03	00	Z	50	7	108.7	61.8
ASEU03	12	Z	50	7	60.8	59.2
ASEU04	12	Z	50	6	37.7	37.2
ASEU04	00	Z	50	4	64.4	31.0
ASEU05	12	Z	50	9	35.2	33.9
ASEU05	00	Z	50	7	33.0	31.9
ASEU06	00	Z	50	4	14.3	-14.3
ASEU06	12	Z	50	5	39.4	33.2
ASFR1	12	Z	50	9	16.6	4.6
ASFR1	00	Z	50	10	15.7	-2.7
ASFR2	12	Z	50	9	20.8	17.0
ASFR2	00	Z	50	6	28.6	27.1
ASFR3	12	Z	50	13	24.5	16.2
ASFR3	00	Z	50	8	19.5	17.3
ASFR4	12	Z	50	8	18.9	17.4
ASFR4	00	Z	50	7	26.6	26.4
LGKI	00	Z	50	16	10.7	-0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
LGKI	12	Z	50	16	11.5	-3.4
UKBUC	00	Z	50	0	0.0	0.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 50 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	28	3.2	-0.6	0.3
01001	00	V	50	29	3.3	-0.4	-0.9
01028	00	V	50	30	2.4	0.0	0.4
01028	12	V	50	28	2.8	-0.9	0.0
01400	00	V	50	11	3.4	1.4	-0.1
01400	12	V	50	13	3.5	0.6	-0.9
01415	12	V	50	28	3.4	0.5	1.0
01415	00	V	50	28	4.5	-0.1	1.4
02365	00	V	50	25	3.9	-0.5	0.4
02365	12	V	50	30	5.3	-0.3	0.9
02591	00	V	50	23	3.2	0.7	-0.9
02591	12	V	50	27	3.3	-0.4	-0.6
02836	00	V	50	29	3.1	-0.5	0.0
02836	12	V	50	29	3.6	-1.0	0.8
02963	12	V	50	29	3.4	0.1	0.2
02963	00	V	50	27	4.4	-0.8	1.1
03005	00	V	50	28	3.2	-0.4	-0.2
03005	12	V	50	30	3.1	0.4	0.4
03238	00	V	50	29	3.5	0.6	0.4
03238	12	V	50	11	3.4	0.2	1.1
03808	12	V	50	30	3.3	0.2	0.1
03808	00	V	50	30	3.4	-0.8	0.6
03918	12	V	50	7	3.3	-1.1	0.9
03918	00	V	50	22	5.5	-0.7	1.3
03953	12	V	50	30	3.0	0.1	0.5
03953	00	V	50	30	3.6	0.3	-0.1
04018	00	V	50	24	3.1	0.9	-0.1
04018	12	V	50	23	3.7	0.5	-0.5
04220	00	V	50	30	2.6	0.3	0.0
04220	12	V	50	28	2.6	0.5	0.5
04270	12	V	50	27	3.1	-0.4	0.0
04270	00	V	50	29	2.6	0.1	0.2
04320	12	V	50	30	2.7	-0.1	0.1
04320	00	V	50	29	3.2	-0.4	0.1
04339	00	V	50	28	2.8	0.7	-0.4
04339	12	V	50	30	3.3	0.2	0.1
04360	00	V	50	13	3.4	-0.7	0.2
04360	12	V	50	12	2.6	0.5	1.1
06011	12	V	50	21	2.7	0.0	0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	50	21	3.2	0.7	0.2
06260	00	V	50	27	3.8	-0.1	1.0
06260	12	V	50	4	2.2	-1.3	0.2
06610	00	V	50	29	8.2	-0.4	1.5
06610	12	V	50	30	5.2	-0.1	0.9
07110	00	V	50	24	3.7	-0.4	0.2
07110	12	V	50	26	2.9	0.5	0.0
07510	00	V	50	17	3.3	1.6	0.4
07510	12	V	50	16	3.6	0.6	-0.3
07645	12	V	50	17	4.2	1.2	-0.5
07645	00	V	50	9	4.0	1.7	-0.5
07761	00	V	50	12	3.3	0.9	0.2
07761	12	V	50	15	3.3	0.3	-0.7
08001	00	V	50	25	2.7	0.1	0.5
08001	12	V	50	26	3.0	-0.5	0.5
08221	00	V	50	30	3.0	0.4	0.2
08221	12	V	50	30	2.5	0.2	-0.1
08302	12	V	50	30	3.5	0.5	0.6
08302	00	V	50	28	2.8	0.6	0.7
08508	12	V	50	26	3.1	-0.6	0.7
08522	12	V	50	29	4.4	0.6	0.3
08579	12	V	50	30	3.0	0.0	-0.2
10035	12	V	50	29	2.9	0.2	0.3
10035	00	V	50	30	4.5	-0.4	1.1
10393	00	V	50	30	3.7	0.7	0.4
10393	12	V	50	30	3.7	1.1	1.1
10410	00	V	50	25	3.2	1.0	0.2
10410	12	V	50	27	3.7	1.0	0.5
10739	00	V	50	29	4.2	0.5	0.3
10739	12	V	50	30	3.7	1.1	-0.1
11035	12	V	50	29	5.3	-0.1	0.8
11035	00	V	50	29	7.8	-0.2	1.2
12982	00	V	50	27	4.8	0.3	1.3
12982	12	V	50	29	5.2	-0.2	0.0
16044	00	V	50	29	5.0	1.1	0.3
16044	12	V	50	29	4.4	0.5	-0.4
16080	12	V	50	30	3.3	0.3	0.3
16080	00	V	50	30	5.0	1.3	-0.2
16245	12	V	50	27	3.7	0.8	-0.4
16245	00	V	50	29	3.9	2.0	0.3
16320	00	V	50	27	3.7	1.4	0.0
16320	12	V	50	28	3.4	0.8	-0.1
16429	00	V	50	27	3.2	1.4	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	50	30	3.5	0.6	-0.4
16622	00	V	50	7	2.6	0.2	0.5
16754	00	V	50	22	4.1	1.0	-0.2
17607	12	V	50	16	5.3	0.0	-0.3
26435	00	V	50	15	2.2	0.4	-0.3
60018	00	V	50	29	3.3	0.4	0.0
60018	12	V	50	30	4.0	0.0	0.2
ASDE01	12	V	50	10	3.7	0.3	-0.8
ASDE01	00	V	50	9	2.3	-0.2	-0.5
ASDE02	00	V	50	23	3.7	0.3	0.6
ASDE03	12	V	50	8	3.3	0.5	0.5
ASDE03	00	V	50	15	3.3	0.4	-0.4
ASDE04	12	V	50	3	4.5	4.1	1.1
ASDE04	00	V	50	3	3.9	1.4	-0.8
ASDE09	12	V	50	3	3.4	2.4	0.4
ASDK1	12	V	50	6	2.1	-1.4	-0.5
ASDK1	00	V	50	6	3.2	0.1	0.3
ASDK2	00	V	50	6	3.7	-0.1	0.9
ASDK2	12	V	50	6	2.4	0.6	-0.9
ASDK3	00	V	50	8	3.0	-1.0	-1.4
ASDK3	12	V	50	8	3.3	-1.0	0.1
ASES01	12	V	50	23	4.0	-0.3	-0.5
ASEU01	12	V	50	18	4.5	-1.1	0.8
ASEU01	00	V	50	5	3.5	-0.1	1.3
ASEU02	00	V	50	7	4.5	-0.2	1.0
ASEU02	12	V	50	4	3.0	0.3	-0.7
ASEU03	00	V	50	7	2.9	1.7	-1.0
ASEU03	12	V	50	7	3.1	0.9	0.4
ASEU04	12	V	50	6	3.1	0.3	1.1
ASEU04	00	V	50	4	2.0	0.0	1.0
ASEU05	12	V	50	7	4.1	0.2	0.9
ASEU05	00	V	50	4	2.8	1.5	0.6
ASEU06	00	V	50	3	2.1	0.7	0.1
ASEU06	12	V	50	5	2.6	0.2	0.7
ASFR1	12	V	50	9	3.2	-0.4	-0.2
ASFR1	00	V	50	10	3.9	-1.4	-1.7
ASFR2	12	V	50	9	3.4	0.9	0.6
ASFR2	00	V	50	6	2.8	0.8	-1.1
ASFR3	12	V	50	13	3.9	1.2	0.1
ASFR3	00	V	50	8	3.2	-0.1	-0.3
ASFR4	12	V	50	8	4.4	-0.3	0.8
ASFR4	00	V	50	7	3.8	1.7	0.3
LGKI	00	V	50	14	3.3	-0.3	-0.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
LGKI	12	V	50	14	3.2	0.6	0.0
UKBUC	00	V	50	0	0.0	0.0	0.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	28	11.9	1.7
01001	00	Z	100	29	10.8	1.6
01028	00	Z	100	30	7.5	4.3
01028	12	Z	100	29	11.2	6.7
01400	00	Z	100	19	36.4	28.2
01400	12	Z	100	22	35.3	31.3
01415	12	Z	100	29	15.7	11.2
01415	00	Z	100	29	11.1	4.5
02365	00	Z	100	41	6.6	1.2
02365	12	Z	100	43	9.0	-0.2
02591	00	Z	100	36	14.4	13.4
02591	12	Z	100	39	16.1	14.6
02836	00	Z	100	30	6.4	1.5
02836	12	Z	100	30	10.7	2.3
02963	12	Z	100	30	10.7	8.2
02963	00	Z	100	30	10.0	5.4
03005	00	Z	100	32	7.9	1.2
03005	12	Z	100	31	8.6	4.9
03238	00	Z	100	30	16.3	14.7
03238	12	Z	100	12	14.8	13.4
03808	12	Z	100	57	8.4	3.8
03808	00	Z	100	56	7.5	4.7
03918	12	Z	100	7	14.8	13.4
03918	00	Z	100	25	11.8	10.1
03953	12	Z	100	30	13.6	12.3
03953	00	Z	100	30	10.6	8.8
04018	00	Z	100	28	11.4	-1.6
04018	12	Z	100	26	15.0	7.0
04220	00	Z	100	29	14.6	-3.5
04220	12	Z	100	30	18.0	13.1
04270	12	Z	100	29	17.3	13.8
04270	00	Z	100	29	9.8	2.5
04320	12	Z	100	30	10.5	-7.1
04320	00	Z	100	29	16.5	-13.2
04339	00	Z	100	28	17.8	16.1
04339	12	Z	100	30	15.5	11.4
04360	00	Z	100	17	9.7	-2.3
04360	12	Z	100	9	16.4	6.7
06011	12	Z	100	26	15.1	10.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	100	23	16.8	-3.0
06260	00	Z	100	29	13.7	11.1
06260	12	Z	100	5	19.1	17.0
06610	00	Z	100	30	13.0	1.7
06610	12	Z	100	30	33.3	12.7
07110	00	Z	100	27	14.7	12.5
07110	12	Z	100	29	20.3	18.4
07510	00	Z	100	27	10.4	6.8
07510	12	Z	100	26	16.0	13.6
07645	12	Z	100	24	49.5	48.1
07645	00	Z	100	21	42.9	40.3
07761	00	Z	100	23	5.7	-1.6
07761	12	Z	100	22	10.1	5.5
08001	00	Z	100	28	13.3	10.7
08001	12	Z	100	30	12.6	9.1
08221	00	Z	100	30	13.9	12.3
08221	12	Z	100	30	14.6	12.0
08302	12	Z	100	30	7.9	0.8
08302	00	Z	100	29	6.3	4.0
08508	12	Z	100	28	25.1	23.1
08522	12	Z	100	29	8.8	6.4
08579	12	Z	100	30	16.4	14.9
10035	12	Z	100	30	9.6	6.9
10035	00	Z	100	30	8.2	5.2
10393	00	Z	100	30	9.2	6.3
10393	12	Z	100	30	9.7	5.5
10410	00	Z	100	25	7.1	4.2
10410	12	Z	100	27	13.2	2.1
10739	00	Z	100	30	12.0	10.1
10739	12	Z	100	30	12.5	9.9
11035	12	Z	100	30	9.6	-1.2
11035	00	Z	100	29	18.6	3.1
12982	00	Z	100	29	7.5	3.4
12982	12	Z	100	30	27.9	26.2
16044	00	Z	100	30	10.5	7.0
16044	12	Z	100	30	14.0	1.9
16080	12	Z	100	30	10.9	0.2
16080	00	Z	100	30	14.2	5.0
16245	12	Z	100	28	9.5	-2.0
16245	00	Z	100	29	46.0	-8.3
16320	00	Z	100	30	7.2	1.5
16320	12	Z	100	30	9.0	0.4
16429	00	Z	100	30	8.5	4.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	100	29	11.5	-3.8
16622	00	Z	100	29	27.3	26.2
16754	00	Z	100	26	19.3	16.5
17607	12	Z	100	33	17.9	-16.5
26435	00	Z	100	15	7.6	4.2
60018	00	Z	100	30	11.8	10.0
60018	12	Z	100	30	6.5	2.9
ASDE01	12	Z	100	12	26.9	24.6
ASDE01	00	Z	100	12	34.5	8.0
ASDE02	00	Z	100	23	25.1	24.5
ASDE03	12	Z	100	10	68.4	47.0
ASDE03	00	Z	100	16	44.1	14.1
ASDE04	12	Z	100	3	46.2	45.7
ASDE04	00	Z	100	4	39.0	38.5
ASDE09	12	Z	100	3	41.0	40.1
ASDK1	12	Z	100	7	16.4	15.3
ASDK1	00	Z	100	7	18.1	5.6
ASDK2	00	Z	100	6	10.6	7.3
ASDK2	12	Z	100	7	16.1	13.5
ASDK3	00	Z	100	8	21.5	18.3
ASDK3	12	Z	100	8	26.8	25.3
ASES01	12	Z	100	23	20.9	18.8
ASEU01	12	Z	100	20	30.0	28.0
ASEU01	00	Z	100	7	27.7	26.1
ASEU02	00	Z	100	8	39.9	39.4
ASEU02	12	Z	100	4	41.0	39.5
ASEU03	00	Z	100	8	83.0	48.7
ASEU03	12	Z	100	9	47.0	45.0
ASEU04	12	Z	100	6	23.9	23.0
ASEU04	00	Z	100	7	38.3	17.1
ASEU05	12	Z	100	10	23.9	22.7
ASEU05	00	Z	100	10	25.6	24.9
ASEU06	00	Z	100	5	22.9	-19.0
ASEU06	12	Z	100	5	20.0	10.8
ASFR1	12	Z	100	9	10.3	2.9
ASFR1	00	Z	100	11	11.5	-3.0
ASFR2	12	Z	100	11	14.9	13.3
ASFR2	00	Z	100	7	13.4	9.6
ASFR3	12	Z	100	14	14.4	10.4
ASFR3	00	Z	100	10	14.0	8.0
ASFR4	12	Z	100	8	14.2	13.1
ASFR4	00	Z	100	8	13.3	12.1
LGKI	00	Z	100	16	10.3	-6.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
LGKI	12	Z	100	17	12.6	-8.5
UKBUC	00	Z	100	0	0.0	0.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	28	2.6	-0.6	-0.3
01001	00	V	100	28	3.6	-0.3	-0.5
01028	00	V	100	30	2.5	-0.4	0.0
01028	12	V	100	28	2.9	0.5	-0.1
01400	00	V	100	13	2.6	0.4	0.8
01400	12	V	100	15	3.2	0.4	-0.5
01415	12	V	100	29	4.2	0.5	-0.6
01415	00	V	100	28	4.8	-0.8	0.5
02365	00	V	100	30	3.5	-0.2	0.5
02365	12	V	100	30	4.0	0.2	-0.5
02591	00	V	100	30	4.2	0.5	-0.3
02591	12	V	100	30	3.4	0.3	-0.1
02836	00	V	100	30	2.4	-0.6	0.0
02836	12	V	100	30	2.7	0.2	-0.1
02963	12	V	100	30	3.7	-0.3	-0.4
02963	00	V	100	30	3.2	0.2	-0.1
03005	00	V	100	30	3.1	-0.2	0.0
03005	12	V	100	30	3.4	0.2	0.0
03238	00	V	100	30	3.6	0.3	0.9
03238	12	V	100	12	3.7	-0.2	1.2
03808	12	V	100	30	3.3	0.1	-0.2
03808	00	V	100	31	3.3	-0.1	0.3
03918	12	V	100	7	4.6	1.0	1.1
03918	00	V	100	23	3.5	0.5	-0.2
03953	12	V	100	30	3.0	0.0	0.3
03953	00	V	100	30	2.5	0.7	0.2
04018	00	V	100	28	5.2	0.3	-0.7
04018	12	V	100	24	4.8	-0.3	-1.4
04220	00	V	100	29	2.8	0.2	-0.1
04220	12	V	100	30	2.7	0.3	0.3
04270	12	V	100	29	3.1	0.4	0.1
04270	00	V	100	29	2.8	0.1	-0.2
04320	12	V	100	30	2.5	0.5	-0.1
04320	00	V	100	29	3.7	-0.9	-0.2
04339	00	V	100	28	2.9	0.2	-0.9
04339	12	V	100	30	4.1	0.3	-0.9
04360	00	V	100	16	3.3	0.4	0.6
04360	12	V	100	9	2.0	-0.4	-0.3
06011	12	V	100	26	3.5	-0.1	-0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	100	23	3.8	1.1	0.4
06260	00	V	100	28	3.5	0.7	0.0
06260	12	V	100	4	4.3	0.9	-1.5
06610	00	V	100	29	3.7	-0.2	-0.3
06610	12	V	100	30	3.9	0.2	0.0
07110	00	V	100	26	3.3	0.3	1.4
07110	12	V	100	29	3.4	0.9	0.5
07510	00	V	100	22	3.1	0.3	0.0
07510	12	V	100	24	2.6	0.5	0.8
07645	12	V	100	22	3.0	0.8	-0.4
07645	00	V	100	16	4.7	2.2	0.0
07761	00	V	100	13	3.2	0.5	0.3
07761	12	V	100	19	2.8	1.2	-0.1
08001	00	V	100	28	3.3	-0.5	0.4
08001	12	V	100	30	2.5	-0.2	0.4
08221	00	V	100	30	2.5	0.3	-0.4
08221	12	V	100	30	3.0	-0.1	-0.7
08302	12	V	100	30	4.1	-0.3	-0.4
08302	00	V	100	28	3.7	0.5	0.8
08508	12	V	100	28	3.4	0.0	-0.3
08522	12	V	100	29	3.9	0.4	0.5
08579	12	V	100	30	2.9	-0.2	0.2
10035	12	V	100	30	2.6	0.3	-0.5
10035	00	V	100	30	3.1	0.3	0.6
10393	00	V	100	30	2.9	0.1	0.0
10393	12	V	100	30	3.8	0.7	-0.3
10410	00	V	100	25	2.9	0.2	0.5
10410	12	V	100	27	3.4	0.6	0.1
10739	00	V	100	29	3.9	-0.1	0.6
10739	12	V	100	30	3.2	0.4	0.8
11035	12	V	100	30	4.3	1.1	0.4
11035	00	V	100	29	6.2	1.8	-0.1
12982	00	V	100	29	5.5	0.8	0.9
12982	12	V	100	28	3.5	0.3	-0.2
16044	00	V	100	29	4.4	1.3	0.6
16044	12	V	100	30	4.3	0.3	-0.4
16080	12	V	100	30	5.8	-0.4	0.8
16080	00	V	100	30	4.5	0.9	1.6
16245	12	V	100	28	3.5	1.5	0.2
16245	00	V	100	28	3.0	0.4	0.0
16320	00	V	100	29	3.5	0.8	0.1
16320	12	V	100	30	4.3	1.2	-0.5
16429	00	V	100	27	4.6	1.0	1.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	100	29	4.0	1.6	-0.3
16622	00	V	100	9	4.0	1.1	-0.4
16754	00	V	100	25	4.9	1.0	0.8
17607	12	V	100	18	3.7	0.5	1.0
26435	00	V	100	15	3.7	0.5	-0.3
60018	00	V	100	29	3.3	-0.2	-0.3
60018	12	V	100	30	3.8	-0.1	-0.6
ASDE01	12	V	100	11	4.1	0.1	-1.5
ASDE01	00	V	100	12	3.5	1.1	1.3
ASDE02	00	V	100	23	4.6	-0.6	0.0
ASDE03	12	V	100	10	3.8	1.8	0.1
ASDE03	00	V	100	16	4.9	-0.3	0.4
ASDE04	12	V	100	3	4.1	1.3	-1.0
ASDE04	00	V	100	4	3.8	0.8	-0.2
ASDE09	12	V	100	3	3.8	-1.9	-1.8
ASDK1	12	V	100	7	2.7	0.0	0.7
ASDK1	00	V	100	6	1.4	0.4	-0.1
ASDK2	00	V	100	6	3.6	1.5	0.2
ASDK2	12	V	100	6	4.5	0.4	0.2
ASDK3	00	V	100	8	2.5	0.4	0.8
ASDK3	12	V	100	8	3.9	1.2	1.6
ASES01	12	V	100	23	5.8	-1.9	0.7
ASEU01	12	V	100	20	4.7	0.4	0.1
ASEU01	00	V	100	7	2.8	-0.3	-0.6
ASEU02	00	V	100	8	2.8	-0.9	1.0
ASEU02	12	V	100	4	3.3	-1.3	-0.4
ASEU03	00	V	100	7	3.0	-0.5	0.7
ASEU03	12	V	100	6	4.5	-2.7	0.6
ASEU04	12	V	100	6	3.4	-0.3	1.0
ASEU04	00	V	100	7	4.2	-0.7	-0.1
ASEU05	12	V	100	10	3.6	-1.1	-1.3
ASEU05	00	V	100	9	3.6	-0.6	0.7
ASEU06	00	V	100	4	3.1	-0.2	-0.7
ASEU06	12	V	100	5	2.3	1.1	0.9
ASFR1	12	V	100	8	4.6	0.7	1.3
ASFR1	00	V	100	10	3.3	-0.3	0.2
ASFR2	12	V	100	10	4.2	-0.9	-1.2
ASFR2	00	V	100	7	3.3	-0.3	0.7
ASFR3	12	V	100	14	3.6	-0.3	-0.7
ASFR3	00	V	100	10	4.0	1.0	1.4
ASFR4	12	V	100	8	3.8	1.1	-1.5
ASFR4	00	V	100	7	3.4	0.7	2.0
LGKI	00	V	100	15	3.0	-0.5	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
LGKI	12	V	100	16	2.9	1.0	-0.3
UKBUC	00	V	100	0	0.0	0.0	0.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 500 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	29	9.6	2.3
01001	00	Z	500	29	7.5	2.5
01028	00	Z	500	30	6.8	4.3
01028	12	Z	500	30	7.4	3.9
01400	00	Z	500	24	28.4	20.2
01400	12	Z	500	25	25.1	22.6
01415	12	Z	500	29	9.9	7.0
01415	00	Z	500	29	8.7	7.0
02365	00	Z	500	41	4.2	2.3
02365	12	Z	500	43	3.4	2.0
02591	00	Z	500	36	11.3	11.0
02591	12	Z	500	39	12.1	11.7
02836	00	Z	500	30	4.3	1.7
02836	12	Z	500	30	6.5	1.8
02963	12	Z	500	30	6.1	4.5
02963	00	Z	500	30	8.5	6.2
03005	00	Z	500	32	5.1	1.1
03005	12	Z	500	32	5.8	2.9
03238	00	Z	500	29	10.3	9.3
03238	12	Z	500	11	9.5	8.3
03808	12	Z	500	58	5.5	2.3
03808	00	Z	500	56	5.4	2.1
03918	12	Z	500	7	12.1	10.3
03918	00	Z	500	25	11.2	9.6
03953	12	Z	500	30	7.4	6.7
03953	00	Z	500	30	6.6	5.5
04018	00	Z	500	29	5.3	2.2
04018	12	Z	500	26	6.4	3.2
04220	00	Z	500	29	7.3	-0.3
04220	12	Z	500	30	10.5	6.0
04270	12	Z	500	30	6.8	4.8
04270	00	Z	500	30	6.0	0.2
04320	12	Z	500	30	6.7	4.1
04320	00	Z	500	29	6.3	1.6
04339	00	Z	500	30	5.8	3.0
04339	12	Z	500	30	6.3	4.4
04360	00	Z	500	20	4.1	0.8
04360	12	Z	500	25	14.2	8.7
06011	12	Z	500	30	25.7	11.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	500	29	9.6	-0.4
06260	00	Z	500	29	6.0	4.6
06260	12	Z	500	5	9.3	8.7
06610	00	Z	500	30	7.7	6.1
06610	12	Z	500	30	8.3	7.3
07110	00	Z	500	27	6.1	4.5
07110	12	Z	500	29	10.2	8.5
07510	00	Z	500	29	5.4	0.9
07510	12	Z	500	31	7.8	5.3
07645	12	Z	500	29	19.7	19.1
07645	00	Z	500	25	15.7	13.8
07761	00	Z	500	30	7.9	-2.7
07761	12	Z	500	34	6.3	2.1
08001	00	Z	500	29	8.3	5.0
08001	12	Z	500	30	8.6	6.7
08221	00	Z	500	30	10.9	9.7
08221	12	Z	500	30	11.3	10.4
08302	12	Z	500	30	5.4	2.6
08302	00	Z	500	29	7.3	5.2
08508	12	Z	500	28	18.4	15.5
08522	12	Z	500	30	8.7	6.8
08579	12	Z	500	29	9.0	7.5
10035	12	Z	500	30	5.7	3.5
10035	00	Z	500	31	4.8	2.3
10393	00	Z	500	30	3.2	0.1
10393	12	Z	500	30	3.7	-0.3
10410	00	Z	500	25	3.5	1.4
10410	12	Z	500	28	10.6	-0.9
10739	00	Z	500	30	9.6	9.2
10739	12	Z	500	30	9.8	9.1
11035	12	Z	500	30	4.5	-0.1
11035	00	Z	500	29	6.1	1.0
12982	00	Z	500	30	6.7	4.4
12982	12	Z	500	30	9.4	8.0
16044	00	Z	500	30	4.6	1.8
16044	12	Z	500	30	6.0	0.2
16080	12	Z	500	30	5.3	-1.3
16080	00	Z	500	30	4.6	0.0
16245	12	Z	500	29	9.5	-7.4
16245	00	Z	500	29	8.2	-4.1
16320	00	Z	500	30	6.2	0.2
16320	12	Z	500	30	6.8	-0.1
16429	00	Z	500	30	4.3	0.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	500	29	5.6	-3.0
16622	00	Z	500	29	17.9	15.4
16754	00	Z	500	27	13.8	11.0
17607	12	Z	500	33	5.3	2.5
26435	00	Z	500	15	7.3	5.3
60018	00	Z	500	30	5.8	4.7
60018	12	Z	500	30	4.7	2.4
ASDE01	12	Z	500	12	6.1	-0.2
ASDE01	00	Z	500	12	10.9	-4.2
ASDE02	00	Z	500	23	15.3	15.1
ASDE03	12	Z	500	11	6.8	2.7
ASDE03	00	Z	500	16	12.0	2.9
ASDE04	12	Z	500	6	33.4	32.7
ASDE04	00	Z	500	7	35.9	35.2
ASDE09	12	Z	500	3	19.2	16.5
ASDK1	12	Z	500	9	8.4	5.7
ASDK1	00	Z	500	8	14.4	9.6
ASDK2	00	Z	500	6	5.4	3.9
ASDK2	12	Z	500	7	10.1	9.2
ASDK3	00	Z	500	8	20.3	18.4
ASDK3	12	Z	500	11	22.5	21.8
ASES01	12	Z	500	24	9.0	4.2
ASEU01	12	Z	500	21	14.3	13.0
ASEU01	00	Z	500	7	13.5	12.9
ASEU02	00	Z	500	8	35.7	35.2
ASEU02	12	Z	500	5	33.4	33.2
ASEU03	00	Z	500	8	21.4	16.2
ASEU03	12	Z	500	9	25.4	18.9
ASEU04	12	Z	500	7	5.6	2.5
ASEU04	00	Z	500	9	14.7	4.0
ASEU05	12	Z	500	11	13.9	12.4
ASEU05	00	Z	500	12	18.2	17.2
ASEU06	00	Z	500	5	34.3	-32.7
ASEU06	12	Z	500	6	32.5	-31.6
ASFR1	12	Z	500	12	5.9	-5.1
ASFR1	00	Z	500	12	11.7	-8.6
ASFR2	12	Z	500	11	10.3	9.1
ASFR2	00	Z	500	8	11.0	9.8
ASFR3	12	Z	500	15	9.3	0.9
ASFR3	00	Z	500	13	6.2	3.2
ASFR4	12	Z	500	10	4.2	1.5
ASFR4	00	Z	500	9	5.6	0.5
LGKI	00	Z	500	17	13.1	-10.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
LGKI	12	Z	500	17	14.3	-13.5
UKBUC	00	Z	500	2	2.4	2.0

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 : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	29	2.7	-0.4	-0.4
01001	00	V	500	28	3.0	-0.5	0.0
01028	00	V	500	30	2.8	-0.1	-0.1
01028	12	V	500	30	2.3	0.0	0.4
01400	00	V	500	24	3.4	0.6	0.0
01400	12	V	500	25	2.7	0.4	-0.2
01415	12	V	500	29	3.1	-0.7	0.0
01415	00	V	500	28	3.1	1.2	0.3
02365	00	V	500	30	2.6	-0.1	-0.1
02365	12	V	500	30	2.5	-0.3	0.7
02591	00	V	500	30	2.5	0.2	0.2
02591	12	V	500	30	2.7	0.1	0.0
02836	00	V	500	30	3.0	-0.4	0.2
02836	12	V	500	30	3.2	0.3	-0.3
02963	12	V	500	30	3.5	0.6	0.2
02963	00	V	500	30	2.9	0.2	-0.5
03005	00	V	500	30	3.4	0.4	0.4
03005	12	V	500	30	3.3	-0.2	-0.3
03238	00	V	500	29	3.7	0.6	0.6
03238	12	V	500	11	2.4	1.1	-0.4
03808	12	V	500	30	2.8	0.3	0.6
03808	00	V	500	31	3.2	-0.3	0.8
03918	12	V	500	7	2.6	0.4	0.4
03918	00	V	500	23	2.6	-0.1	0.3
03953	12	V	500	30	3.3	0.3	0.0
03953	00	V	500	30	3.1	0.6	-0.1
04018	00	V	500	29	2.7	-0.2	-0.2
04018	12	V	500	26	3.3	0.4	0.8
04220	00	V	500	29	2.8	0.8	-0.4
04220	12	V	500	30	2.4	-0.6	0.3
04270	12	V	500	30	3.5	0.4	0.8
04270	00	V	500	30	3.1	0.2	0.2
04320	12	V	500	30	2.6	0.2	0.3
04320	00	V	500	29	3.2	0.2	0.4
04339	00	V	500	30	3.0	-0.4	0.2
04339	12	V	500	30	3.0	0.1	-0.4
04360	00	V	500	20	2.9	0.2	0.3
04360	12	V	500	25	3.3	-0.2	0.4
06011	12	V	500	30	2.8	0.2	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	500	29	2.7	0.4	-0.3
06260	00	V	500	29	2.1	0.3	-0.3
06260	12	V	500	4	3.0	0.5	-1.7
06610	00	V	500	29	3.2	0.4	0.6
06610	12	V	500	30	2.9	0.6	-0.4
07110	00	V	500	26	3.2	-0.5	0.8
07110	12	V	500	29	2.8	-0.3	-0.1
07510	00	V	500	28	3.5	-0.3	0.7
07510	12	V	500	28	3.3	-0.2	-0.2
07645	12	V	500	27	3.3	-0.6	0.6
07645	00	V	500	20	2.9	-0.1	-0.5
07761	00	V	500	27	3.0	0.6	0.8
07761	12	V	500	29	3.1	0.8	-0.3
08001	00	V	500	29	3.1	0.6	0.2
08001	12	V	500	30	3.3	-0.1	-0.4
08221	00	V	500	30	3.1	0.5	0.7
08221	12	V	500	30	3.5	0.2	0.1
08302	12	V	500	30	2.9	0.0	-0.6
08302	00	V	500	29	2.9	0.4	0.2
08508	12	V	500	28	3.4	0.3	-0.8
08522	12	V	500	30	3.4	0.5	0.0
08579	12	V	500	29	2.8	0.5	-0.2
10035	12	V	500	30	2.4	0.3	-0.3
10035	00	V	500	30	2.9	0.2	-0.3
10393	00	V	500	30	2.7	0.0	-0.2
10393	12	V	500	30	2.3	-0.7	-0.3
10410	00	V	500	25	2.6	0.2	0.5
10410	12	V	500	27	2.2	-0.5	0.0
10739	00	V	500	30	2.6	0.2	-0.2
10739	12	V	500	30	3.1	-0.2	-0.8
11035	12	V	500	30	3.0	0.0	0.5
11035	00	V	500	29	3.0	0.3	-1.1
12982	00	V	500	30	4.8	0.3	0.0
12982	12	V	500	30	3.1	-0.4	-0.8
16044	00	V	500	29	2.1	0.6	-0.2
16044	12	V	500	30	3.2	0.0	-0.5
16080	12	V	500	30	2.3	0.4	-0.5
16080	00	V	500	30	2.5	0.6	-0.7
16245	12	V	500	29	2.8	-0.6	-0.2
16245	00	V	500	28	3.4	0.8	-0.2
16320	00	V	500	30	2.8	0.4	-0.2
16320	12	V	500	30	2.6	0.3	0.4
16429	00	V	500	27	3.0	0.5	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	500	29	3.3	0.3	0.3
16622	00	V	500	10	4.2	-1.3	-1.4
16754	00	V	500	26	3.4	0.4	1.4
17607	12	V	500	18	2.9	0.6	0.3
26435	00	V	500	15	3.7	0.4	-0.2
60018	00	V	500	30	2.2	0.2	0.0
60018	12	V	500	30	2.9	1.1	-0.5
ASDE01	12	V	500	12	2.1	0.1	-0.1
ASDE01	00	V	500	12	4.1	-0.2	1.3
ASDE02	00	V	500	23	1.8	-0.2	0.3
ASDE03	12	V	500	11	2.5	0.5	-0.3
ASDE03	00	V	500	16	2.7	0.6	-0.9
ASDE04	12	V	500	4	3.1	-1.9	0.3
ASDE04	00	V	500	6	3.0	-0.3	-0.3
ASDE09	12	V	500	3	1.8	1.1	-0.7
ASDK1	12	V	500	9	2.6	0.5	0.7
ASDK1	00	V	500	7	2.7	0.5	0.8
ASDK2	00	V	500	6	4.9	-1.4	-3.3
ASDK2	12	V	500	7	2.3	0.1	0.4
ASDK3	00	V	500	8	2.1	0.2	0.0
ASDK3	12	V	500	11	2.8	1.2	0.6
ASES01	12	V	500	24	3.0	0.5	0.7
ASEU01	12	V	500	21	2.6	1.0	-0.2
ASEU01	00	V	500	7	2.5	0.4	0.8
ASEU02	00	V	500	8	2.5	0.6	-0.3
ASEU02	12	V	500	5	2.2	-0.1	-0.1
ASEU03	00	V	500	8	2.6	0.4	1.4
ASEU03	12	V	500	8	5.0	-1.5	1.4
ASEU04	12	V	500	7	2.3	0.3	-0.2
ASEU04	00	V	500	9	3.4	-0.2	-0.3
ASEU05	12	V	500	11	3.1	-1.2	-0.4
ASEU05	00	V	500	11	3.4	0.0	-0.6
ASEU06	00	V	500	5	7.2	-3.5	-2.3
ASEU06	12	V	500	6	4.8	-1.2	2.2
ASFR1	12	V	500	12	2.6	-1.0	-0.1
ASFR1	00	V	500	12	4.5	1.5	-0.8
ASFR2	12	V	500	11	2.9	0.3	0.8
ASFR2	00	V	500	8	4.3	0.1	0.5
ASFR3	12	V	500	15	3.9	-0.4	-0.4
ASFR3	00	V	500	13	3.4	-0.3	0.3
ASFR4	12	V	500	10	2.6	0.6	0.0
ASFR4	00	V	500	9	2.1	0.2	-0.1
LGKI	00	V	500	17	2.6	-0.3	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
LGKI	12	V	500	17	2.6	-0.9	-0.1
UKBUC	00	V	500	1	3.2	3.0	1.2

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 : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	29	5.7	-3.1
01001	00	Z	850	29	4.8	-0.7
01028	00	Z	850	30	4.2	0.3
01028	12	Z	850	30	4.1	-0.5
01400	00	Z	850	24	24.8	12.9
01400	12	Z	850	25	21.8	17.6
01415	12	Z	850	29	4.2	3.5
01415	00	Z	850	29	3.5	2.1
02365	00	Z	850	41	4.0	2.9
02365	12	Z	850	43	2.6	1.2
02591	00	Z	850	36	10.1	9.8
02591	12	Z	850	39	9.7	9.4
02836	00	Z	850	30	3.9	2.0
02836	12	Z	850	30	2.6	0.4
02963	12	Z	850	30	3.9	2.4
02963	00	Z	850	30	5.3	3.9
03005	00	Z	850	32	3.3	-0.7
03005	12	Z	850	31	3.2	-0.2
03238	00	Z	850	29	6.3	5.7
03238	12	Z	850	11	6.4	5.9
03808	12	Z	850	58	3.2	2.1
03808	00	Z	850	56	3.6	2.6
03918	12	Z	850	7	8.8	7.9
03918	00	Z	850	25	9.4	8.7
03953	12	Z	850	30	5.1	4.5
03953	00	Z	850	30	5.1	4.6
04018	00	Z	850	30	2.7	-1.0
04018	12	Z	850	28	2.3	0.1
04220	00	Z	850	29	2.8	0.4
04220	12	Z	850	30	8.9	4.1
04270	12	Z	850	30	2.6	1.5
04270	00	Z	850	30	4.0	-1.8
04320	12	Z	850	30	5.7	4.7
04320	00	Z	850	29	5.1	3.6
04339	00	Z	850	30	4.2	-2.9
04339	12	Z	850	30	3.7	-2.1
04360	00	Z	850	26	4.7	-3.7
04360	12	Z	850	28	4.0	-1.1
06011	12	Z	850	30	6.9	3.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	850	30	6.2	0.8
06260	00	Z	850	30	3.5	2.1
06260	12	Z	850	5	4.2	3.9
06610	00	Z	850	30	3.9	2.0
06610	12	Z	850	30	4.0	1.5
07110	00	Z	850	27	3.8	1.7
07110	12	Z	850	29	3.6	1.5
07510	00	Z	850	29	4.7	-3.6
07510	12	Z	850	31	2.9	-0.4
07645	12	Z	850	29	5.4	4.4
07645	00	Z	850	26	3.8	0.9
07761	00	Z	850	30	3.7	-2.3
07761	12	Z	850	34	2.7	-0.3
08001	00	Z	850	29	6.3	0.4
08001	12	Z	850	30	5.6	2.2
08221	00	Z	850	30	5.8	5.0
08221	12	Z	850	30	6.0	5.3
08302	12	Z	850	30	3.4	-1.0
08302	00	Z	850	29	2.9	0.7
08508	12	Z	850	28	13.7	10.9
08522	12	Z	850	30	3.8	2.2
08579	12	Z	850	29	5.0	4.2
10035	12	Z	850	31	4.7	2.2
10035	00	Z	850	31	3.6	1.7
10393	00	Z	850	30	3.0	-0.6
10393	12	Z	850	30	3.2	-2.1
10410	00	Z	850	25	2.4	-0.6
10410	12	Z	850	28	3.5	-1.3
10739	00	Z	850	30	9.0	8.6
10739	12	Z	850	30	8.2	7.6
11035	12	Z	850	30	2.9	-2.1
11035	00	Z	850	29	3.2	-0.1
12982	00	Z	850	30	3.1	0.5
12982	12	Z	850	30	4.4	2.6
16044	00	Z	850	30	3.2	-2.2
16044	12	Z	850	30	5.5	-3.1
16080	12	Z	850	30	5.0	-3.5
16080	00	Z	850	30	3.9	-1.7
16245	12	Z	850	30	12.1	-10.6
16245	00	Z	850	30	9.1	-7.4
16320	00	Z	850	30	6.4	-1.4
16320	12	Z	850	30	6.2	-1.0
16429	00	Z	850	30	4.9	-1.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	850	30	6.5	-4.3
16622	00	Z	850	29	11.0	9.2
16754	00	Z	850	27	6.8	4.5
17607	12	Z	850	33	3.7	0.7
26435	00	Z	850	15	3.5	2.4
60018	00	Z	850	30	3.0	-1.5
60018	12	Z	850	30	3.9	-2.6
ASDE01	12	Z	850	12	9.9	-8.3
ASDE01	00	Z	850	12	11.8	-10.4
ASDE02	00	Z	850	23	10.6	10.3
ASDE03	12	Z	850	11	7.9	-5.6
ASDE03	00	Z	850	16	6.3	-3.6
ASDE04	12	Z	850	9	29.5	28.9
ASDE04	00	Z	850	8	32.6	31.9
ASDE09	12	Z	850	3	16.1	11.2
ASDK1	12	Z	850	9	8.0	5.5
ASDK1	00	Z	850	8	10.4	7.3
ASDK2	00	Z	850	6	5.6	0.6
ASDK2	12	Z	850	7	7.6	6.1
ASDK3	00	Z	850	8	20.9	19.2
ASDK3	12	Z	850	11	22.9	21.7
ASES01	12	Z	850	24	6.0	1.4
ASEU01	12	Z	850	23	9.4	8.1
ASEU01	00	Z	850	7	8.2	7.8
ASEU02	00	Z	850	8	32.7	32.1
ASEU02	12	Z	850	5	31.1	30.9
ASEU03	00	Z	850	8	16.1	11.4
ASEU03	12	Z	850	9	23.2	11.3
ASEU04	12	Z	850	7	4.5	-1.6
ASEU04	00	Z	850	9	5.6	-2.7
ASEU05	12	Z	850	11	10.6	9.0
ASEU05	00	Z	850	12	15.6	14.6
ASEU06	00	Z	850	5	34.4	-26.4
ASEU06	12	Z	850	6	41.7	-41.4
ASFR1	12	Z	850	12	10.9	-9.8
ASFR1	00	Z	850	12	11.9	-11.0
ASFR2	12	Z	850	11	6.5	5.9
ASFR2	00	Z	850	8	5.7	4.5
ASFR3	12	Z	850	15	6.7	-4.7
ASFR3	00	Z	850	13	4.0	-2.0
ASFR4	12	Z	850	11	5.3	-5.0
ASFR4	00	Z	850	10	6.5	-6.0
LGKI	00	Z	850	18	15.4	-13.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
LGKI	12	Z	850	17	16.5	-16.2
UKBUC	00	Z	850	2	7.8	7.3

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 : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	28	4.5	-0.4	0.9
01001	00	V	850	28	4.5	0.1	0.0
01028	00	V	850	30	2.9	-0.4	-0.5
01028	12	V	850	30	4.2	-0.7	0.4
01400	00	V	850	24	2.6	0.4	-0.2
01400	12	V	850	25	2.1	0.5	-0.4
01415	12	V	850	29	3.0	-0.1	-0.3
01415	00	V	850	28	2.6	0.3	0.1
02365	00	V	850	30	2.6	-0.6	0.0
02365	12	V	850	30	3.3	-1.1	0.9
02591	00	V	850	30	2.3	0.3	0.0
02591	12	V	850	30	2.5	0.7	0.4
02836	00	V	850	30	3.3	-0.6	0.2
02836	12	V	850	30	3.4	0.2	1.0
02963	12	V	850	30	3.6	-1.2	0.4
02963	00	V	850	30	2.5	-0.1	0.0
03005	00	V	850	30	2.4	0.3	-0.3
03005	12	V	850	30	3.0	-0.3	0.0
03238	00	V	850	29	3.0	-0.5	-0.2
03238	12	V	850	11	2.3	0.3	0.5
03808	12	V	850	30	2.4	0.6	0.2
03808	00	V	850	31	2.8	0.1	0.2
03918	12	V	850	7	2.5	0.6	0.3
03918	00	V	850	23	2.5	0.0	0.4
03953	12	V	850	30	2.4	0.5	0.7
03953	00	V	850	30	2.8	0.3	0.2
04018	00	V	850	30	2.8	0.5	0.4
04018	12	V	850	28	2.7	0.3	-0.2
04220	00	V	850	29	2.9	-0.5	-0.4
04220	12	V	850	30	3.3	-0.1	-0.2
04270	12	V	850	30	3.1	0.3	0.6
04270	00	V	850	30	4.9	1.4	-0.2
04320	12	V	850	30	3.2	0.1	0.1
04320	00	V	850	29	3.5	-0.5	0.5
04339	00	V	850	30	5.0	0.2	1.1
04339	12	V	850	30	5.2	1.1	1.3
04360	00	V	850	26	3.4	0.6	0.3
04360	12	V	850	28	4.4	1.3	0.0
06011	12	V	850	30	3.6	0.1	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	850	30	2.7	0.3	-0.3
06260	00	V	850	30	2.3	0.1	-0.4
06260	12	V	850	4	2.2	-0.2	-0.9
06610	00	V	850	29	4.0	-0.5	-0.7
06610	12	V	850	30	3.0	0.8	0.4
07110	00	V	850	26	2.8	-0.7	-0.4
07110	12	V	850	29	3.7	-1.2	-0.2
07510	00	V	850	28	3.1	-0.1	-0.8
07510	12	V	850	28	3.7	1.1	0.1
07645	12	V	850	27	3.3	0.0	0.0
07645	00	V	850	20	4.2	-0.9	0.9
07761	00	V	850	27	4.6	0.2	-0.9
07761	12	V	850	29	3.8	0.1	0.4
08001	00	V	850	29	3.2	-0.3	0.4
08001	12	V	850	30	2.7	0.0	0.4
08221	00	V	850	30	3.3	0.3	-0.3
08221	12	V	850	30	2.6	0.5	0.0
08302	12	V	850	30	2.8	0.3	0.2
08302	00	V	850	28	3.5	0.8	-0.3
08508	12	V	850	26	3.7	0.5	-0.6
08522	12	V	850	30	3.0	0.2	-0.2
08579	12	V	850	29	3.3	-0.1	0.5
10035	12	V	850	30	2.3	0.5	0.2
10035	00	V	850	30	2.5	-0.3	-0.3
10393	00	V	850	30	2.5	0.5	0.3
10393	12	V	850	30	2.4	0.1	0.5
10410	00	V	850	25	1.8	0.2	-0.1
10410	12	V	850	27	2.4	0.2	0.1
10739	00	V	850	30	3.3	0.2	0.1
10739	12	V	850	30	2.8	-0.4	0.1
11035	12	V	850	30	2.9	0.1	0.2
11035	00	V	850	29	2.6	-0.1	-0.2
12982	00	V	850	30	3.2	-0.4	-0.3
12982	12	V	850	30	2.9	0.1	-0.3
16044	00	V	850	29	2.8	-0.4	0.6
16044	12	V	850	30	3.1	0.1	0.5
16080	12	V	850	30	3.4	-0.3	-1.2
16080	00	V	850	30	3.6	0.3	-1.2
16245	12	V	850	30	3.8	0.8	-1.0
16245	00	V	850	28	4.3	0.9	0.2
16320	00	V	850	30	3.1	0.3	-1.0
16320	12	V	850	30	2.8	0.8	-0.9
16429	00	V	850	27	2.4	-0.4	0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	850	30	3.1	-0.4	0.7
16622	00	V	850	11	2.6	0.6	0.1
16754	00	V	850	26	3.5	-0.4	0.5
17607	12	V	850	18	3.4	-0.4	-0.7
26435	00	V	850	14	2.8	0.4	-0.4
60018	00	V	850	30	3.0	-1.1	0.1
60018	12	V	850	30	2.4	-0.5	-0.1
ASDE01	12	V	850	12	2.7	-0.6	1.3
ASDE01	00	V	850	12	2.8	0.5	1.3
ASDE02	00	V	850	23	2.3	0.4	0.2
ASDE03	12	V	850	11	3.0	0.9	0.2
ASDE03	00	V	850	16	2.8	-0.4	-0.1
ASDE04	12	V	850	8	4.3	1.3	1.7
ASDE04	00	V	850	7	2.6	0.3	0.3
ASDE09	12	V	850	3	2.5	0.3	-0.2
ASDK1	12	V	850	9	2.4	-0.3	0.7
ASDK1	00	V	850	7	2.3	-0.3	-0.1
ASDK2	00	V	850	6	3.9	1.3	-0.5
ASDK2	12	V	850	7	3.4	-0.6	0.9
ASDK3	00	V	850	8	2.5	-0.2	0.9
ASDK3	12	V	850	11	2.5	0.3	0.1
ASES01	12	V	850	24	3.8	-1.7	-0.9
ASEU01	12	V	850	23	2.7	-0.1	0.2
ASEU01	00	V	850	7	1.3	-0.3	-0.3
ASEU02	00	V	850	8	3.2	0.8	-0.3
ASEU02	12	V	850	5	3.2	1.0	-0.8
ASEU03	00	V	850	8	3.5	0.5	-1.2
ASEU03	12	V	850	8	5.2	-0.9	0.2
ASEU04	12	V	850	7	3.2	-0.6	-0.1
ASEU04	00	V	850	9	2.6	0.0	0.4
ASEU05	12	V	850	11	2.7	-0.3	1.5
ASEU05	00	V	850	11	3.2	0.4	0.0
ASEU06	00	V	850	5	7.4	-3.0	-0.9
ASEU06	12	V	850	6	3.3	-0.9	-0.7
ASFR1	12	V	850	12	2.7	0.6	0.7
ASFR1	00	V	850	12	3.7	0.2	0.4
ASFR2	12	V	850	11	3.6	0.5	0.3
ASFR2	00	V	850	8	1.9	-1.0	-0.4
ASFR3	12	V	850	15	2.7	-0.3	0.7
ASFR3	00	V	850	13	4.2	-1.9	-0.9
ASFR4	12	V	850	11	3.3	-0.1	0.1
ASFR4	00	V	850	10	3.5	-1.6	-1.1
LGKI	00	V	850	18	3.0	-0.4	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
LGKI	12	V	850	17	3.3	-0.1	1.2
UKBUC	00	V	850	1	1.4	1.4	-0.1

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

DRIFTER MONITORING STATISTICS (EUCOS)

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
13001	99	P	SUR	12	-23	132	0	0.3	0.2	0.4
13008	99	P	SUR	15	-38	101	0	0.3	0.2	0.4
13515	99	P	SUR	22	-37	144	0	0.2	0.6	0.6
13517	99	P	SUR	16	-26	150	0	0.3	0.5	0.6
13519	99	P	SUR	16	-31	154	0	0.3	0.4	0.5
13530	99	P	SUR	13	-23	149	0	0.3	0.2	0.4
13531	99	P	SUR	11	-43	140	0	0.3	0.1	0.3
13569	99	P	SUR	31	-33	147	0	0.2	0.0	0.2
13570	99	P	SUR	37	-25	164	0	0.3	0.7	0.8
13572	99	P	SUR	37	-32	168	0	0.3	0.0	0.3
13590	99	P	SUR	36	-24	159	0	0.3	0.5	0.5
13633	99	P	SUR	38	-31	168	0	0.4	-0.6	0.7
13659	99	P	SUR	28	-52	210	0	0.3	0.0	0.3
13660	99	P	SUR	34	-50	210	0	0.6	-0.2	0.6
13661	99	P	SUR	11	-22	210	0	0.3	-0.2	0.4
13662	99	P	SUR	27	-47	210	0	0.3	0.0	0.3
13664	99	P	SUR	20	-46	167	0	0.3	0.6	0.6
13868	99	P	SUR	36	-18	26	0	0.2	0.5	0.6
13869	99	P	SUR	24	-29	210	0	0.2	0.1	0.3
13870	99	P	SUR	34	-16	210	0	0.4	0.6	0.7
13871	99	P	SUR	23	-24	189	0	0.5	0.6	0.8
13872	99	P	SUR	26	-21	210	0	0.3	0.6	0.7
21942	99	P	SUR	29	-25	163	0	0.2	0.3	0.4
25540	99	P	SUR	85	-42	210	0	0.6	-0.4	0.7
25575	99	P	SUR	86	-45	210	0	0.5	-0.1	0.5
25617	99	P	SUR	88	-58	210	0	0.5	-0.5	0.7
25618	99	P	SUR	90	-26	64	0	0.4	0.1	0.4
25620	99	P	SUR	88	8	210	0	0.5	-0.1	0.5
31515	99	P	SUR	12	-52	144	0	0.3	0.6	0.7
31717	99	P	SUR	18	-56	210	0	0.3	0.2	0.4
31863	99	P	SUR	20	-53	208	0	0.4	0.7	0.8
41139	99	P	SUR	20	-38	168	0	0.3	0.1	0.3
41560	99	P	SUR	31	-25	206	0	0.3	0.5	0.6
41564	99	P	SUR	33	-37	155	0	0.4	0.3	0.5
41580	99	P	SUR	16	-43	204	0	0.3	0.5	0.6
41590	99	P	SUR	18	-58	167	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
41591	99	P	SUR	16	-50	142	0	0.3	0.3	0.4
41594	99	P	SUR	20	-43	159	0	0.2	0.6	0.6
41596	99	P	SUR	23	-57	210	0	0.3	0.0	0.3
41597	99	P	SUR	23	-56	210	0	0.4	0.3	0.5
41598	99	P	SUR	23	-46	210	0	0.6	0.1	0.6
41600	99	P	SUR	16	-60	210	0	0.3	0.6	0.7
41632	99	P	SUR	27	-62	210	0	0.4	-0.1	0.4
41705	99	P	SUR	35	-51	210	0	0.4	-0.2	0.4
41706	99	P	SUR	24	-63	210	0	0.3	0.0	0.3
41711	99	P	SUR	32	-49	210	0	0.4	-0.1	0.4
41739	99	P	SUR	32	-67	210	0	0.5	-0.5	0.7
41933	99	P	SUR	36	-50	168	0	0.4	-0.4	0.6
41936	99	P	SUR	35	-58	140	0	0.6	-0.6	0.8
41969	99	P	SUR	22	-45	210	0	0.3	-0.2	0.4
41970	99	P	SUR	29	-61	210	0	0.4	0.2	0.4
41971	99	P	SUR	39	-36	210	0	0.5	-0.2	0.6
41972	99	P	SUR	28	-49	210	0	0.3	0.1	0.3
41975	99	P	SUR	38	-46	160	0	0.5	-0.2	0.5
44505	99	P	SUR	43	-13	372	0	0.4	0.0	0.4
44513	99	P	SUR	50	-33	210	0	0.6	0.3	0.6
44515	99	P	SUR	44	-59	210	0	0.5	0.0	0.5
44516	99	P	SUR	28	-66	156	0	0.4	0.2	0.4
44517	99	P	SUR	48	-32	210	0	0.5	0.1	0.5
44546	99	P	SUR	27	-32	210	0	0.2	-0.1	0.3
44547	99	P	SUR	56	-27	210	0	0.5	0.1	0.5
44548	99	P	SUR	56	-34	210	0	0.4	0.0	0.4
44549	99	P	SUR	50	-24	210	0	0.4	0.3	0.5
44550	99	P	SUR	54	-21	210	0	0.4	0.3	0.5
44551	99	P	SUR	57	-20	210	0	0.5	0.2	0.5
44554	99	P	SUR	31	-45	158	0	0.6	0.2	0.6
44558	99	P	SUR	37	-48	168	0	0.4	0.5	0.6
44560	99	P	SUR	49	-29	157	0	0.6	0.0	0.6
44601	99	P	SUR	50	-22	210	0	0.4	-0.1	0.4
44602	99	P	SUR	54	-12	210	0	0.3	-0.2	0.4
44606	99	P	SUR	49	-24	210	0	0.5	-0.1	0.5
44608	99	P	SUR	43	-19	21	9	0.2	-0.2	0.3
44609	99	P	SUR	47	-32	210	0	0.5	0.3	0.6
44612	99	P	SUR	56	-13	201	0	0.4	-0.1	0.4
44613	99	P	SUR	33	-17	210	0	0.3	-0.2	0.4
44614	99	P	SUR	51	-15	207	0	0.4	0.1	0.4
44620	99	P	SUR	56	-25	210	0	0.5	0.3	0.6
44621	99	P	SUR	57	-15	203	0	0.4	0.6	0.7
44622	99	P	SUR	57	-7	125	0	0.4	-0.2	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44623	99	P	SUR	55	-36	210	0	0.4	-0.2	0.5
44624	99	P	SUR	25	-21	210	0	0.3	-0.1	0.3
44625	99	P	SUR	59	-22	164	0	0.4	0.3	0.5
44725	99	P	SUR	29	-59	210	0	0.3	0.0	0.3
44739	99	P	SUR	43	-41	210	0	0.5	0.3	0.6
44740	99	P	SUR	27	-52	210	0	0.3	-0.2	0.4
44747	99	P	SUR	65	-35	86	0	0.6	-0.1	0.6
44760	99	P	SUR	56	-40	210	0	0.5	-0.3	0.6
44761	99	P	SUR	52	-37	210	0	0.4	-0.6	0.7
44762	99	P	SUR	48	-43	210	0	0.8	0.2	0.8
44763	99	P	SUR	56	-36	210	0	0.4	0.1	0.4
44764	99	P	SUR	52	-45	210	0	0.5	-0.4	0.6
44773	99	P	SUR	24	-58	204	0	0.4	0.1	0.4
44774	99	P	SUR	39	-65	210	0	0.4	0.1	0.4
44775	99	P	SUR	32	-68	210	0	0.5	0.2	0.5
44776	99	P	SUR	40	-52	210	0	0.8	0.3	0.8
44778	99	P	SUR	34	-49	209	0	0.4	0.3	0.5
44779	99	P	SUR	43	-32	55	0	0.4	0.1	0.4
44835	99	P	SUR	43	-24	210	0	0.4	-0.2	0.4
44836	99	P	SUR	54	-26	210	0	0.4	0.0	0.4
44837	99	P	SUR	39	-14	210	0	0.3	0.2	0.4
44839	99	P	SUR	37	-25	210	0	0.3	0.1	0.4
44846	99	P	SUR	36	-33	209	0	0.3	0.4	0.5
44847	99	P	SUR	48	-21	210	0	0.5	0.4	0.6
44848	99	P	SUR	41	-40	210	0	0.4	-0.1	0.4
44863	99	P	SUR	30	-38	210	0	0.3	-0.1	0.3
44866	99	P	SUR	58	-25	210	0	0.5	-0.4	0.6
44867	99	P	SUR	55	-31	210	0	0.5	-0.4	0.7
44868	99	P	SUR	30	-48	210	0	0.4	-0.1	0.4
44871	99	P	SUR	47	-18	209	0	0.3	0.1	0.3
44872	99	P	SUR	51	-33	210	0	0.4	-0.4	0.5
44877	99	P	SUR	36	-26	210	0	0.3	0.1	0.3
44878	99	P	SUR	45	-18	210	0	0.4	0.0	0.4
44880	99	P	SUR	44	-41	181	0	0.6	-0.5	0.8
44885	99	P	SUR	41	-25	210	0	0.4	-0.1	0.4
44887	99	P	SUR	38	-49	210	0	0.5	0.0	0.5
44888	99	P	SUR	43	-25	210	0	0.5	-0.1	0.5
44889	99	P	SUR	32	-45	210	0	0.4	0.0	0.4
44890	99	P	SUR	33	-61	210	0	0.4	-0.1	0.4
44891	99	P	SUR	29	-34	210	0	0.3	0.1	0.3
44892	99	P	SUR	50	-26	210	0	0.4	-0.1	0.4
44896	99	P	SUR	31	-40	210	0	0.3	-0.2	0.3
47503	99	P	SUR	78	-9	210	0	0.6	-0.4	0.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
47585	99	P	SUR	68	-67	209	0	0.4	-0.1	0.4
47586	99	P	SUR	55	-50	210	0	1.7	-0.1	1.7
48568	99	P	SUR	60	-37	210	0	0.7	-0.1	0.7
48597	99	P	SUR	84	-37	178	0	0.7	-0.2	0.7
48778	99	P	SUR	81	-11	210	0	0.4	-0.4	0.6
48779	99	P	SUR	74	-18	209	0	0.5	-0.5	0.6
62091	99	P	SUR	53	-5	209	0	0.3	-0.1	0.4
62092	99	P	SUR	51	-11	209	0	0.3	0.0	0.3
62093	99	P	SUR	55	-10	209	0	0.5	0.0	0.5
62094	99	P	SUR	52	-7	209	0	0.3	-0.1	0.3
62513	99	P	SUR	60	-28	210	0	0.5	0.1	0.5
62514	99	P	SUR	67	-3	210	0	0.5	0.0	0.5
62516	99	P	SUR	28	-22	210	0	0.2	0.3	0.4
62536	99	P	SUR	60	-3	210	0	0.4	-0.4	0.5
62538	99	P	SUR	64	-13	57	0	1.8	-0.9	2.0
62539	99	P	SUR	53	-24	210	0	0.4	0.2	0.5
62551	99	P	SUR	59	-7	210	0	0.4	-0.2	0.4
62552	99	P	SUR	50	-19	209	0	0.3	0.2	0.4
62553	99	P	SUR	76	14	210	0	0.7	0.1	0.7
62677	99	P	SUR	59	-30	210	0	0.4	0.2	0.5
62681	99	P	SUR	39	-12	210	0	0.3	-0.1	0.3
62687	99	P	SUR	76	-3	210	0	0.7	-0.2	0.8
62695	99	P	SUR	26	-34	210	0	0.3	0.4	0.4
62713	99	P	SUR	25	-56	208	0	0.3	-0.2	0.4
62714	99	P	SUR	26	-56	210	0	0.3	-0.3	0.4
62940	99	P	SUR	36	-27	210	0	0.3	0.1	0.3
62941	99	P	SUR	33	-32	210	0	0.3	-0.1	0.3
63546	99	P	SUR	69	-10	210	0	0.9	-0.9	1.3
63640	99	P	SUR	72	40	210	0	0.5	0.3	0.6
63641	99	P	SUR	78	6	48	7	6.4	0.5	6.4
63644	99	P	SUR	75	26	210	0	0.7	-0.4	0.8
64471	99	P	SUR	82	16	210	0	0.4	-0.4	0.6
64472	99	P	SUR	83	16	71	0	0.7	0.0	0.7
64517	99	P	SUR	60	-2	161	0	0.5	0.5	0.7
64518	99	P	SUR	61	-9	210	0	0.4	0.0	0.4
64519	99	P	SUR	61	-5	210	0	0.4	0.4	0.6
64520	99	P	SUR	70	-3	210	16	2.0	-0.5	2.1
64521	99	P	SUR	71	-2	210	0	0.8	-0.2	0.8
64522	99	P	SUR	68	9	210	0	0.4	0.1	0.4
64523	99	P	SUR	64	-5	210	0	0.4	0.4	0.6
64524	99	P	SUR	63	4	210	0	0.6	0.0	0.6
64525	99	P	SUR	70	-8	71	1	2.7	-0.7	2.8
64526	99	P	SUR	61	-20	210	0	0.4	0.3	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
64527	99	P	SUR	62	-17	196	0	0.5	0.6	0.8
64532	99	P	SUR	60	-47	210	0	0.8	-0.2	0.8
64534	99	P	SUR	63	-39	210	0	1.8	1.8	2.5
64535	99	P	SUR	70	-22	210	0	0.5	-0.4	0.7
64546	99	P	SUR	64	-34	182	0	0.5	0.4	0.6
64606	99	P	SUR	63	-9	182	0	0.6	0.6	0.8
64613	99	P	SUR	78	7	210	0	1.0	0.0	1.0
64614	99	P	SUR	59	-24	210	0	0.4	-0.1	0.4
64615	99	P	SUR	80	7	210	0	2.8	0.0	2.8
64620	99	P	SUR	61	-13	210	0	0.3	0.1	0.3
64621	99	P	SUR	63	-16	210	0	0.4	0.3	0.5
64622	99	P	SUR	72	-2	210	0	0.4	0.2	0.5
64623	99	P	SUR	77	9	210	3	2.8	-0.2	2.8
64665	99	P	SUR	76	12	210	0	0.9	0.0	0.9
64666	99	P	SUR	72	7	210	0	0.4	0.4	0.5
64667	99	P	SUR	64	-12	174	0	0.4	0.2	0.4
64668	99	P	SUR	77	2	210	7	3.4	-0.7	3.4
64669	99	P	SUR	65	-23	210	0	0.6	0.0	0.6
64692	99	P	SUR	72	13	210	0	0.3	0.3	0.4
65596	99	P	SUR	56	-47	210	0	0.6	0.4	0.7
65598	99	P	SUR	51	-10	210	0	0.9	0.1	0.9

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 : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
13001	99	SPEED	SUR	12	-23	132	0	0	0.8	0.6	1.0
13002	99	SPEED	SUR	20	-23	133	0	0	0.7	0.1	0.7
13008	99	SPEED	SUR	15	-38	101	0	0	0.7	0.0	0.7
41026	99	SPEED	SUR	12	-38	92	0	0	0.9	-0.1	0.9
41139	99	SPEED	SUR	20	-38	168	0	0	0.9	0.0	0.9
62091	99	SPEED	SUR	53	-5	209	0	0	1.3	-0.2	1.3
62092	99	SPEED	SUR	51	-11	209	0	0	1.1	0.0	1.1
62093	99	SPEED	SUR	55	-10	209	0	0	1.2	0.0	1.2
62094	99	SPEED	SUR	52	-7	209	0	0	1.1	0.0	1.1

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 : APR 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
13001	99	DIRN	SUR	12	-23	128	0	0	10.4	5.2	11.6
13002	99	DIRN	SUR	20	-23	133	0	0	6.6	2.8	7.2
13008	99	DIRN	SUR	15	-38	101	0	0	9.8	-5.7	11.3
41026	99	DIRN	SUR	12	-38	92	0	0	9.4	4.6	10.5
41139	99	DIRN	SUR	20	-38	168	0	0	10.1	10.6	14.7
62091	99	DIRN	SUR	53	-5	147	0	0	11.7	3.6	12.3
62092	99	DIRN	SUR	51	-11	199	0	0	14.3	-5.3	15.2
62093	99	DIRN	SUR	55	-10	174	0	0	13.7	-4.9	14.5
62094	99	DIRN	SUR	52	-7	171	0	0	14.4	6.5	15.8
R	55	-10	174	0	0	13.7	-4.9	14.5			
62094	99	DIRN	SUR	52	-7	171	0	0	14.4	6.5	15.8

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE02	ASDE04	ASES01	ASEU01	ASEU02	ASEU04	ASEU05	02185	02365
02527	02591	03953	06260	10035	10113	10184	10238	10304
10393	10410	10618	10739	10868	10954	10962		

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

ASDE01	ASDE02	ASDE03	ASDE04	ASDE09	ASES01	ASEU01	ASEU02	ASEU03
ASEU04	ASEU05	ASEU06	Baguio	Dalanzad		DavaoAi	Laoag	Legaspi
LumbiaA	Mactan	Muren	PuertoP	Tanay	Ulaan-Ba		Ulaan-Go	
04692	17516	48811	76526					

5 Annex - Explanations of figures and tables

5.1 General

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

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

5.2 Data Availability

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

5.3 Data Quality

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

It should be noted that:

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

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

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

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

The corresponding limits for wind (table 8) are:

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

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

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

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

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

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

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

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

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