



ECMWF Global Data Monitoring Report

December 2015

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

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Summary of Revisions (in reverse order)

- Revision 28 (June 18) - Monitoring of SYNOP and SYNOP-SHIPs now includes BUFR encoded observations for those which were assimilated as well as for those without TAC counterpart.
- Revision 27 (Mar 13) - Monitoring of Radiosondes and ASAPs now includes BUFR encoded observations for those which were assimilated as well as for those without TAC counterpart. Tables 24 and 25 are also added to show the identifiers of these BUFR observations separately.
- Revision 26 (Feb 15) - Selection criteria for SHIPs are modified as per SOT-7/Doc.9.1.1. Different criteria applied to Manual and Automatic SHIPs.
- Revision 25 (Dec 14) - Coverage chart for ATOVS AMSU-A for NOAA_16 removed
- Revision 24 (Aug 06) - North Atlantic Monitoring statistics replaced by EUCOS Area Monitoring Statistics (tables 13 to 23). Airep tables removed from this section.
- Revision 23 (Dec 00) - Coverage charts for NOAA_14 MSU replaced by ATOVS AMSU-A for NOAA_16.
- Revision 22 (Aug 99) - Coverage charts for TOVS thickness 300-100 hPa replaced by (A) TOVS AMSU-A and MSU (NOAA_15 and NOAA_14).
- Revision 21 (May 99) - Monitoring statistics ceased for NOAA_11 as satellite is no more available.
- Revision 20 (Sep 98) - Changes to tables and annex to remove all mention about data usage. Two more levels (50 and 850 hPa) added to the COSNA statistics for Sondes.
- Revision 19 (Jul 98) - From June 29th, 1998 ECMWF model assimilates temperature data instead of geopotential from radiosondes. As a consequence the number of used geopotential data drops to zero in tables 7, 10, 13 and 15.
- Revision 18 (Apr 98) - Changes to tables and annex to introduce the usage of accepted numbers and observations instead of percentage of rejection.

1 Introduction

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

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

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

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

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

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

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

2 Data summary - History of events

2.1 Radiosondes

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

Ident	Time	Nov	Dec	Ident	Time	Nov	Dec
16113	(12)	15	2	29282	(00)	4	28
37789	(00)	30	9	29282	(12)	5	30
41923	(00)	29	17	30309	(00)	9	29
42027	(00)	29	1	30309	(12)	10	30
42874	(00)	30	17	31873	(00)	3	30
43041	(00)	24	1	31977	(00)	3	31
43369	(00)	30	6	42348	(00)	14	28
43599	(12)	13	0	42724	(00)	0	21
48327	(00)	11	0	43014	(00)	0	16
60096	(12)	24	9	43311	(00)	0	12
61291	(00)	12	0	48811	(00)	6	23
61291	(12)	12	0	61687	(12)	0	15
62423	(12)	24	12	71126	(00)	0	21
64500	(12)	24	0	71126	(12)	0	22
67774	(00)	21	0	78486	(12)	0	24
68442	(12)	29	15	80001	(00)	0	21
68538	(12)	27	10	82411	(00)	0	14
72797	(00)	30	19	82411	(12)	3	22
76595	(12)	28	17	83746	(00)	14	28
76743	(00)	22	0	83746	(12)	14	30
78897	(00)	26	0	86218	(12)	15	26
81729	(00)	30	1	96509	(00)	7	27
81729	(12)	26	0	96509	(12)	6	19
82107	(00)	28	16	-	-	-	-
82107	(12)	29	15	-	-	-	-
82400	(00)	20	2	-	-	-	-
82400	(12)	20	3	-	-	-	-
87344	(00)	26	7	-	-	-	-
87344	(12)	29	9	-	-	-	-

2.2 Drifting Buoys

Surface pressure observations from **1479** 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

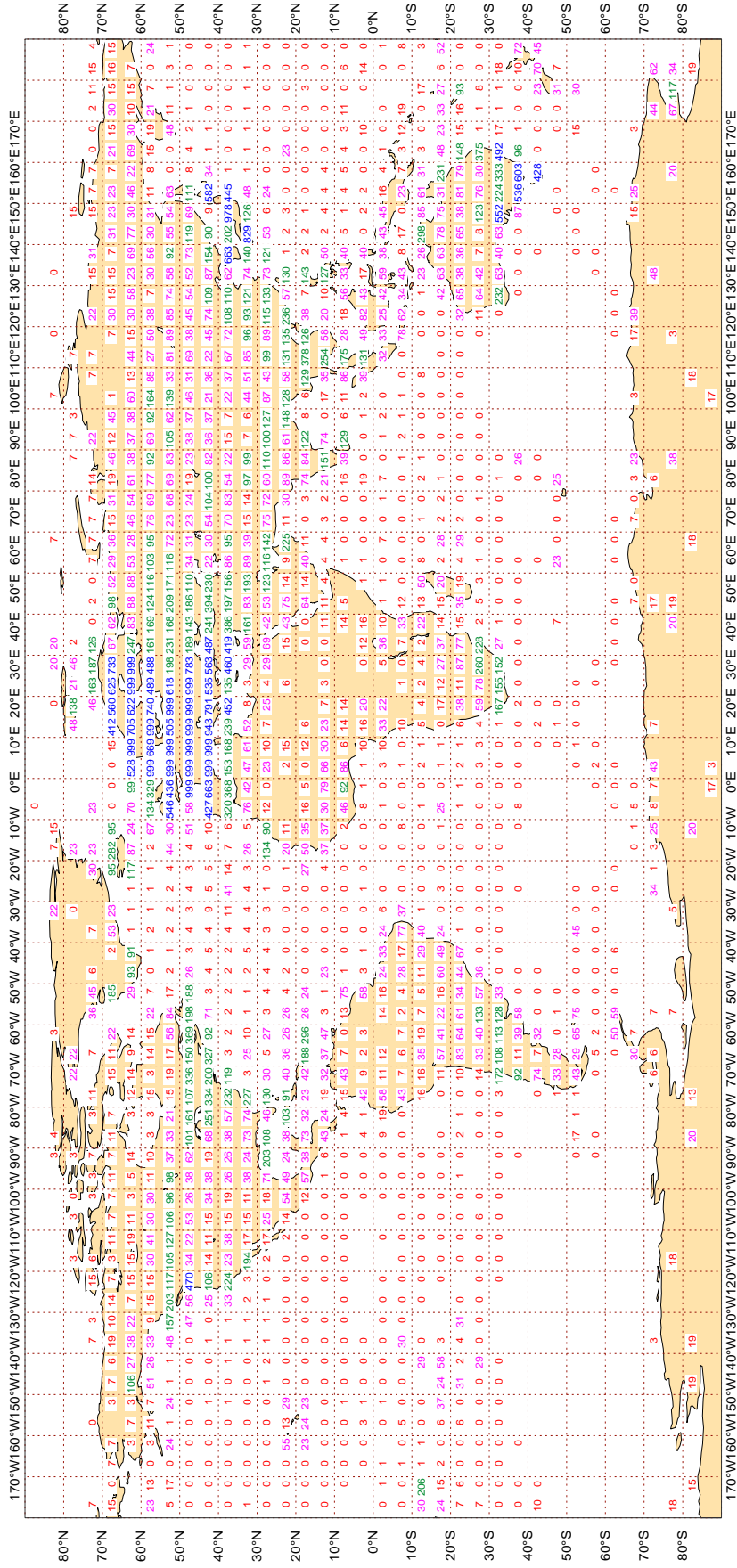
Table 12 provides quality statistics of aircraft wind observations stratified by airline carrier.

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

Figure 1

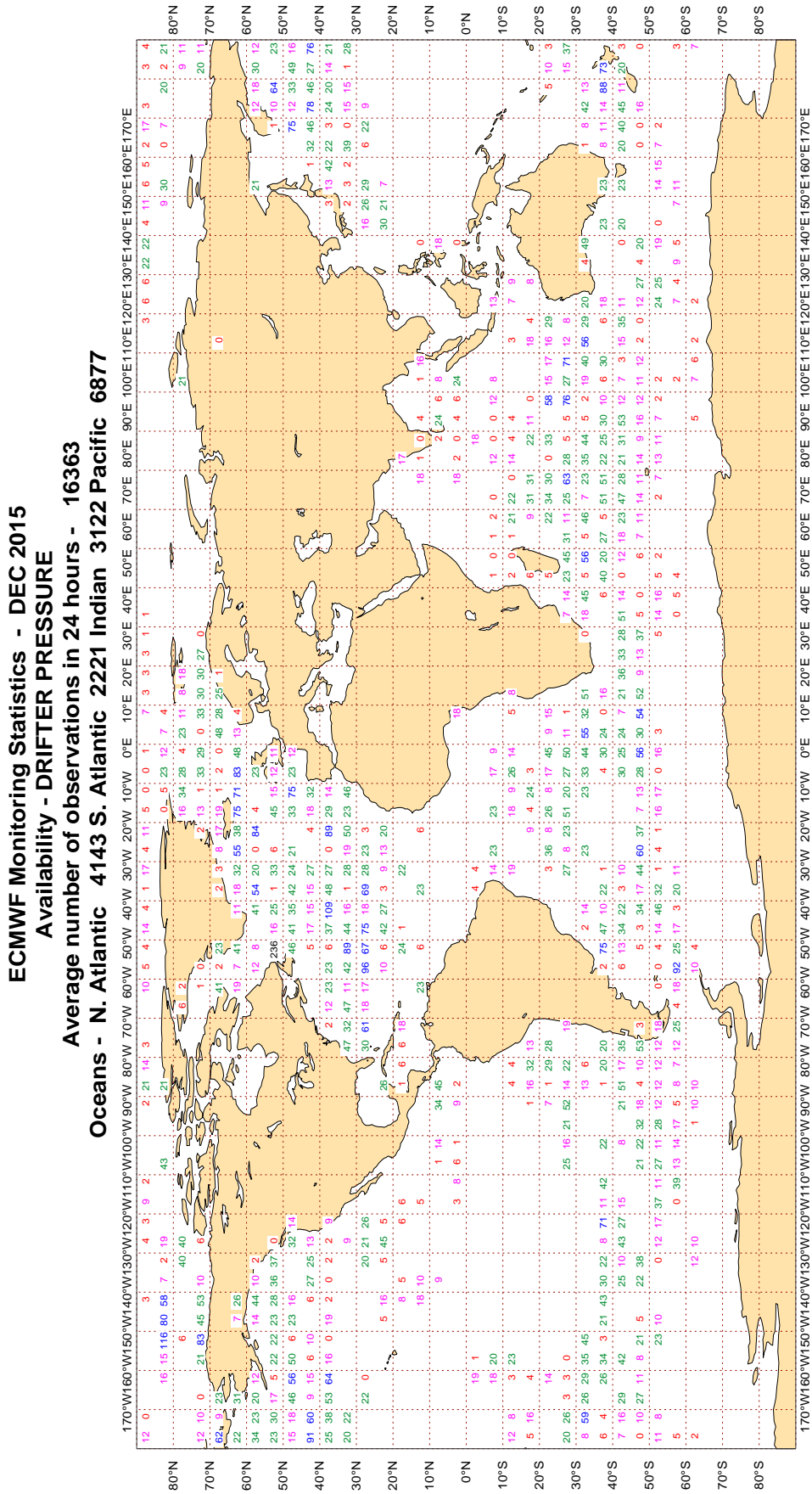
ECMWF Monitoring Statistics - DEC 2015
 Availability - SYNOP/SHIP (manual, auto) pressure
 Average number of observations in 24 hours - 99743
 LAND - WMO Region I: 3987 II: 18353 III: 3064 IV: 4826
 Region V: 8940 VI: 47326 Antarctic: 1152

Oceans - N. Atlantic 7823 S. Atlantic 424 Pacific 3623



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

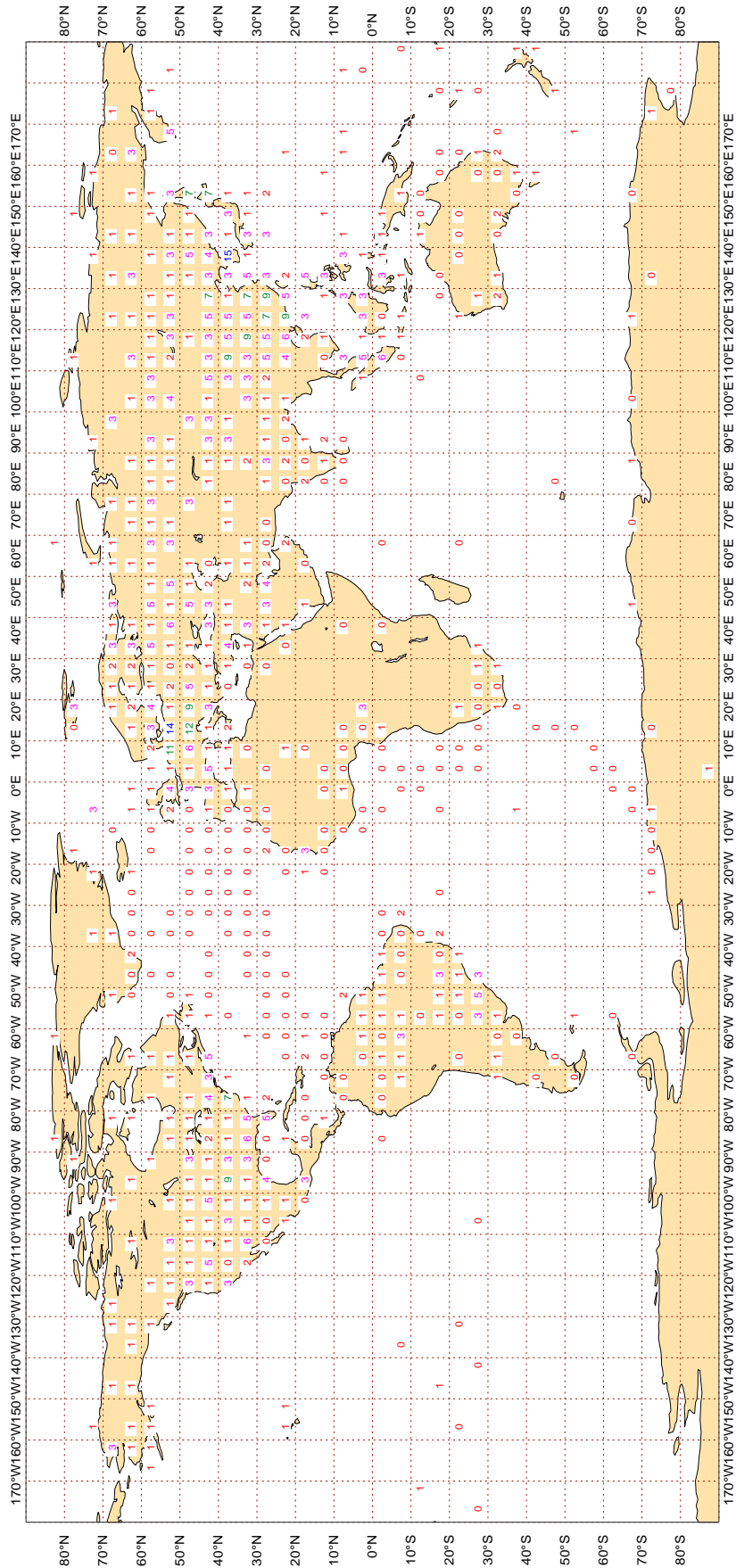
Figure 2



3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

Figure 3

ECMWF Monitoring Statistics - DEC 2015
 Availability - TEMP 500 hPa Geopotential
 Average number of observations in 24 hours - 1286
 LAND - WMO Region I: 45 II: 492 III: 83 IV: 251
 Region V: 128 VI: 254 Antarctic: 17
 Oceans - N. Atlantic 8 S. Atlantic 3 Indian 4 Pacific 0



Magics 2.24.2 (64 bit)



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

Figure 4

ECMWF Monitoring Statistics - DEC 2015

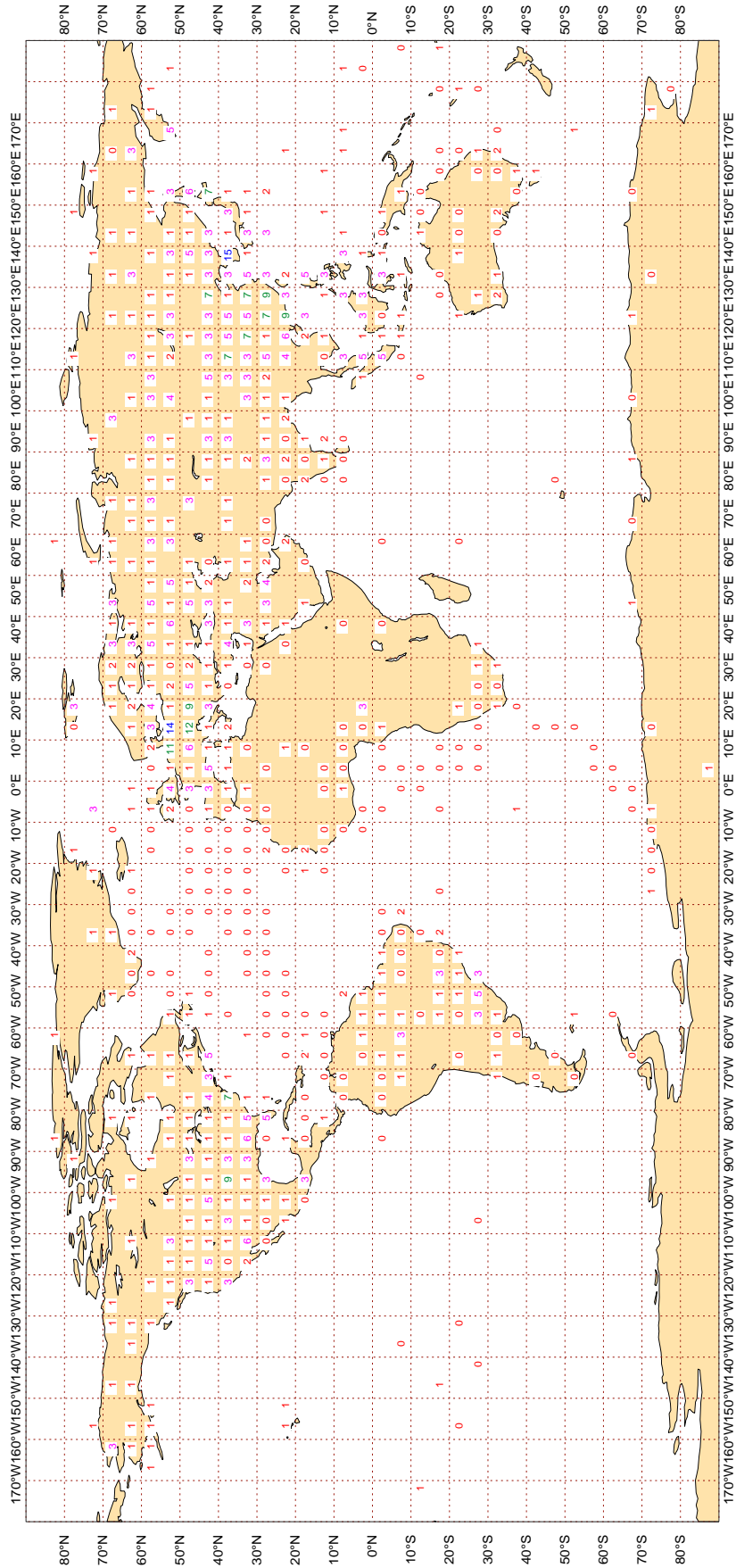
Availability - TEMP/PILOT 300 hPa wind

Average number of observations in 24 hours - 1248

LAND - WMO Region I: 45 II: 468 III: 82 IV: 248

Region V: 120 VI: 251 Antarctic: 17

Oceans - N. Atlantic 8 S. Atlantic 3 Indian 4 Pacific 0



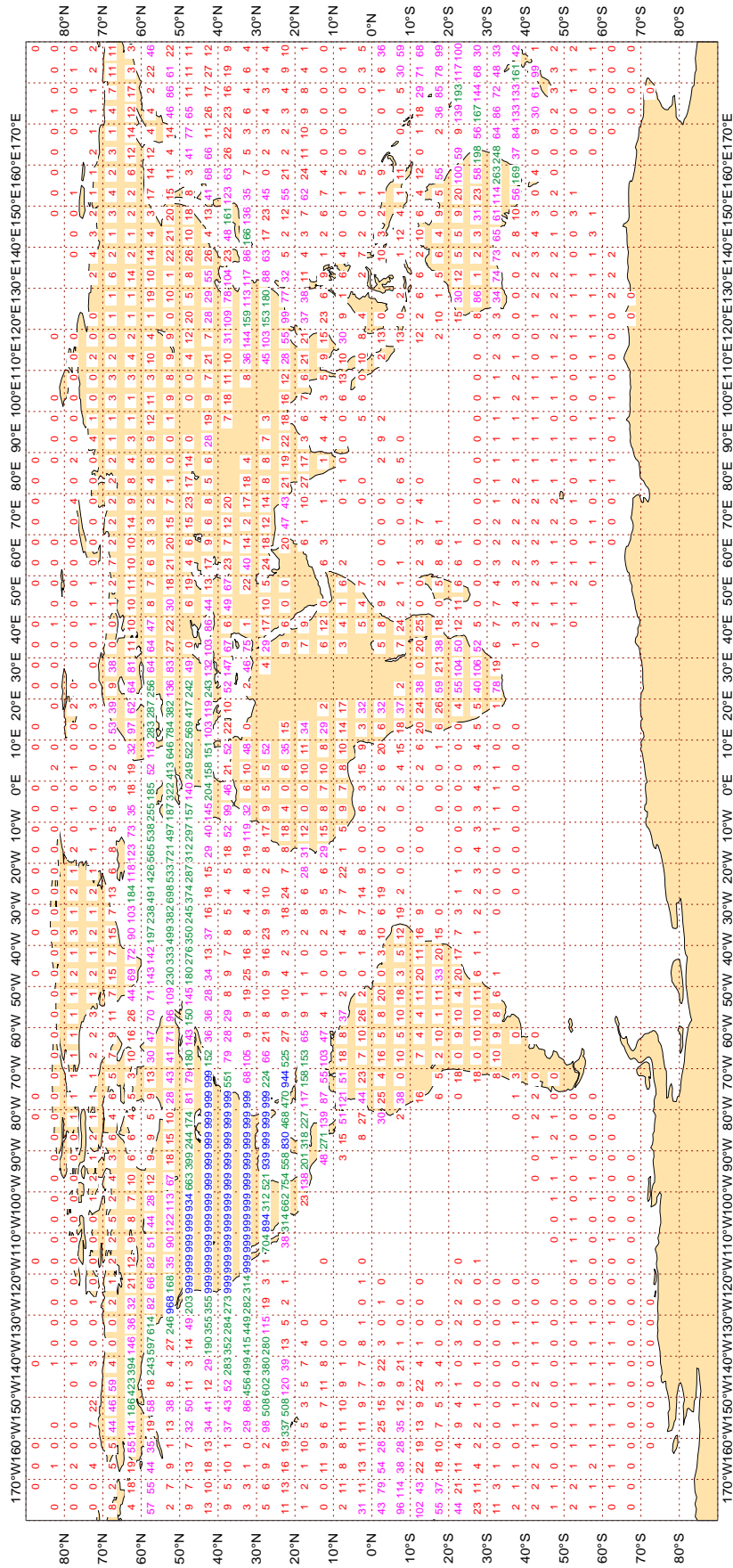
Magics 2.24.2 (64 bit)



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

Figure 5

ECMWF Monitoring Statistics - DEC 2015
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 218337



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

Figure 6

ECMWF Monitoring Statistics - DEC 2015
Availability - AMV winds 400-150 hPa
Average number of observations in 24 hours - 1020874

Table with 17 columns representing longitude (170°W to 170°E) and 17 rows representing latitude (80°N to 80°S). The table contains numerical data representing the average number of observations in 24 hours for SATOB winds at 400-150 hPa.

Majics 2.24.2 (64 bit)



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

Figure 8

ECMWF Monitoring Statistics - DEC 2015
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 336078

Table with 180 columns (representing 2-degree longitude bins from 170°W to 170°E) and 18 rows (representing 2-degree latitude bins from 80°N to 80°S). The table contains numerical data representing the average number of observations per 2-degree bin.

Majics 2.24.2 (64 bit)



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

Figure 9.1

ECMWF Monitoring Statistics - DEC 2015
Availability - NOAA18 ATOVS : AMSU-A
Average number of observations in 24 hours - 519396

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 NOAA18 ATOVS AMSU-A in December 2015.

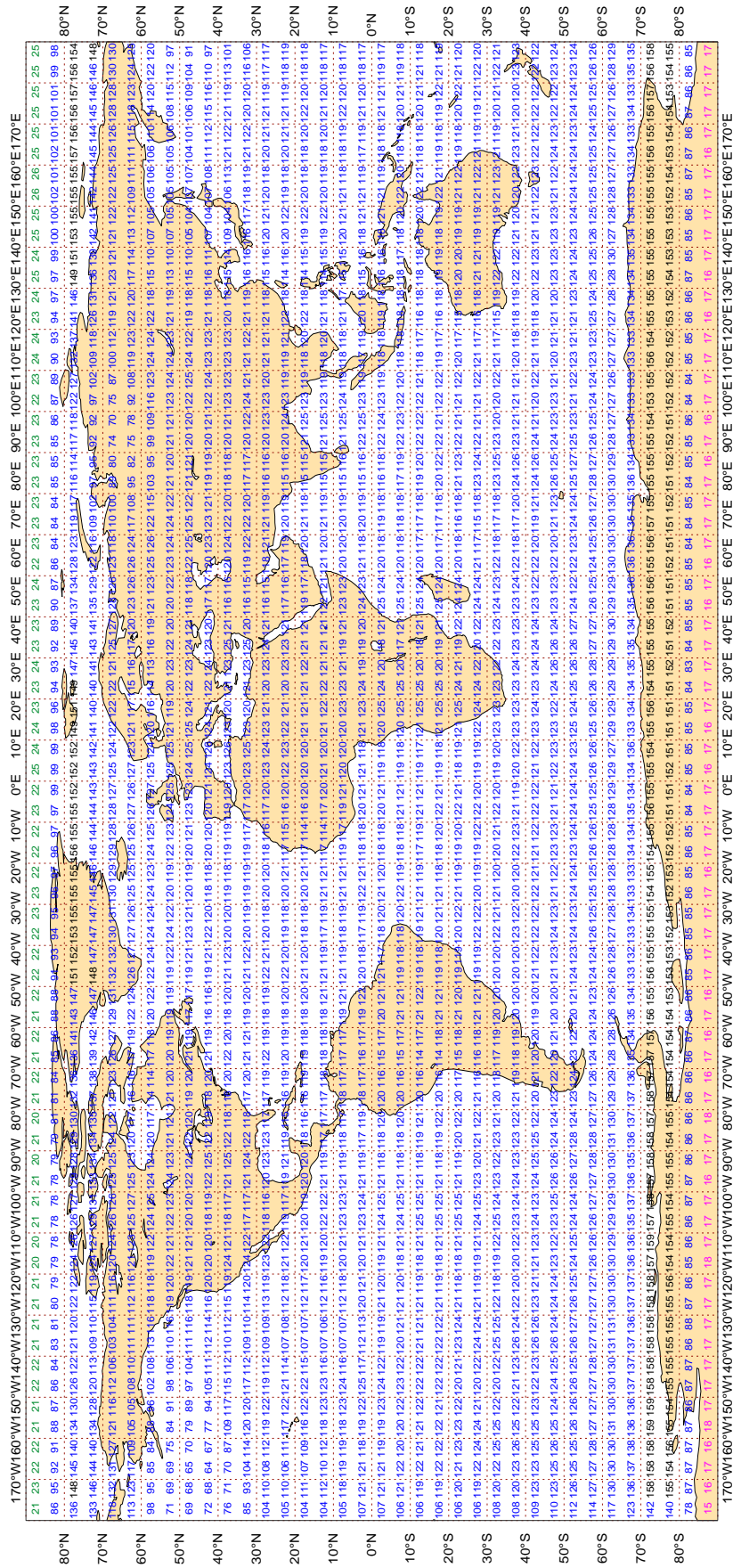
Magics 2.24.2 (64 bit)



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

Figure 9.2

ECMWF Monitoring Statistics - DEC 2015
Availability - AQUA ATOVS : AMSU-A
Average number of observations in 24 hours - 300714



Majics 2.24.2 (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 : DEC 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
3ETA8	99	P	SUR	20	0	1.3	-3.0	3.3
3FAE4	99	P	SUR	95	8	3.1	11.2	11.7
9HRJ9	99	P	SUR	30	0	3.2	-3.1	4.5
A8RW2	99	P	SUR	36	0	0.5	3.2	3.3
C6AX4	99	P	SUR	24	0	1.0	-5.7	5.8
C6FM5	99	P	SUR	43	0	0.7	-3.4	3.5
C6FR3	99	P	SUR	20	0	1.4	-5.1	5.3
C6JT	99	P	SUR	49	0	1.1	-4.9	5.0
C6LU4	99	P	SUR	25	0	2.2	6.2	6.6
C6ZJ5	99	P	SUR	17	0	1.7	3.4	3.8
CQII	99	P	SUR	22	0	0.6	3.2	3.2
CQIS	99	P	SUR	16	0	0.6	-3.1	3.2
KRAU	99	P	SUR	26	0	1.3	3.1	3.4
LAJK7	99	P	SUR	43	0	1.0	4.7	4.8
LAPD7	99	P	SUR	30	0	1.6	5.1	5.3
LAQM7	99	P	SUR	16	0	1.2	-3.1	3.3
ONBF	99	P	SUR	36	0	2.5	3.1	4.0
ONIK	99	P	SUR	68	0	0.9	9.5	9.5
OZ2049	99	P	SUR	32	1	1.5	-4.1	4.4
SMGW	99	P	SUR	30	9	3.4	-2.6	4.3
UASU	99	P	SUR	21	3	4.4	-4.5	6.3
UFLT	99	P	SUR	38	0	0.7	-3.1	3.2
VQGQ4	99	P	SUR	32	0	1.8	3.6	4.0
VRDJ3	99	P	SUR	93	0	0.6	-3.1	3.2
VRDU8	99	P	SUR	24	0	0.5	-3.9	3.9
VRDW2	99	P	SUR	41	0	1.9	5.0	5.4
VRFI7	99	P	SUR	90	2	2.2	4.1	4.7
VRFX5	99	P	SUR	15	0	1.1	4.0	4.2
VRFX8	99	P	SUR	34	2	3.7	-8.2	9.0
VRGO3	99	P	SUR	23	0	2.2	-3.4	4.1
VRGO8	99	P	SUR	23	0	1.6	-3.2	3.6
VRHE3	99	P	SUR	23	1	3.8	5.9	7.0

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
VRID2	99	P	SUR	59	0	1.7	3.1	3.5
VRID5	99	P	SUR	22	0	1.2	6.1	6.2
VRLQ3	99	P	SUR	17	0	1.9	4.0	4.4

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 : DEC 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
46181	99	SPEED	SUR	119	0	0	3.4	5.2	6.2

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 : DEC 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
42002	99	DIRN	SUR	26	0	0	10.7	31.2	33.0

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 : DEC 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
33581	99	P	SUR	-47	-10	400	394	0.0	14.6	14.6
34518	99	P	SUR	-55	-71	346	32	1.8	10.2	10.4
44773	99	P	SUR	52	-50	24	0	3.3	-9.2	9.8
46920	99	P	SUR	31	-129	297	47	3.9	4.2	5.7
47503	99	P	SUR	63	-26	649	590	4.6	11.5	12.4
48513	99	P	SUR	74	176	671	126	7.8	-0.1	7.8
48516	99	P	SUR	71	-171	366	235	4.5	-9.1	10.1
48570	99	P	SUR	68	-176	702	298	9.0	-2.5	9.3
48625	99	P	SUR	75	176	674	103	6.2	0.0	6.2
48643	99	P	SUR	70	-144	690	690	0.0	0.0	0.0
48652	99	P	SUR	71	-156	682	0	2.6	5.0	5.7
51618	99	P	SUR	5	-93	333	1	1.7	11.6	11.8
64532	99	P	SUR	53	-35	552	41	0.7	-13.6	13.6

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 : DEC 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
46181	99	SPEED	SUR	54	-129	710	0	0	3.4	5.3	6.3
52087	99	SPEED	SUR	8	137	24	0	0	1.0	-7.3	7.4

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : DEC 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
23097	99	DIRN	SUR	15	69	153	0	0	20.1	-20.9	29.0
23099	99	DIRN	SUR	13	80	27	0	0	151.5	38.7	156.3
23452	99	DIRN	SUR	12	69	66	0	0	21.1	22.4	30.7
23454	99	DIRN	SUR	10	73	79	0	0	91.2	-119.8	150.6
23460	99	DIRN	SUR	7	88	125	0	0	156.8	-58.2	167.2
23494	99	DIRN	SUR	8	73	67	0	0	21.6	-31.4	38.1
31005	99	DIRN	SUR	-19	-35	38	0	0	156.2	-61.0	167.6
31053	99	DIRN	SUR	-32	-50	364	0	0	27.1	-50.2	57.0
31374	99	DIRN	SUR	-25	-45	308	0	0	34.8	-49.6	60.6
31380	99	DIRN	SUR	-20	-40	416	0	0	27.6	-23.5	36.2
41064	99	DIRN	SUR	34	-77	576	0	0	39.4	-20.7	44.5
42002	99	DIRN	SUR	26	-94	152	0	0	12.4	27.9	30.5
42361	99	DIRN	SUR	28	-93	684	0	0	15.0	28.0	31.7
42362	99	DIRN	SUR	28	-91	508	0	0	19.5	21.7	29.2
45142	99	DIRN	SUR	43	-79	445	0	0	20.8	-22.8	30.9
46120	99	DIRN	SUR	48	-122	247	0	0	39.8	-22.7	45.8
51310	99	DIRN	SUR	-8	-170	492	0	0	72.5	-9.3	73.1
52315	99	DIRN	SUR	8	-180	511	0	0	47.7	68.8	83.7
53040	99	DIRN	SUR	-8	95	138	22	0	103.0	41.7	111.2

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 : DEC 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
06458	00	Z	1000	51	5	16	6	54.3	19.6	57.7
08594	12	Z	1000	17	-23	18	0	2.5	30.7	30.8
38064	00	Z	200	45	66	28	0	66.1	64.0	92.0
38064	12	Z	200	45	66	31	2	47.1	78.9	91.9
40437	00	Z	925	25	47	25	0	4.5	32.9	33.2
43128	00	Z	50	17	78	26	0	49.0	156.6	164.1
43185	00	Z	300	16	81	12	1	67.6	65.7	94.3
43353	00	Z	500	10	76	17	0	30.9	39.4	50.1
76405	12	Z	400	24	-110	26	1	66.7	112.3	130.6
78486	12	Z	200	18	-70	20	0	84.1	-74.9	112.6
80001	12	Z	1000	13	-82	27	0	30.4	-14.7	33.8
96147	12	Z	925	4	108	31	1	8.0	45.4	46.1
96147	00	Z	925	4	108	31	1	12.2	52.3	53.7
96481	00	Z	50	4	118	25	1	80.0	117.2	141.9
98223	00	Z	30	18	121	22	0	43.5	234.7	238.7

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 : DEC 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
06458	00	V	250	51	5	14	0	1.4	-4.9	17.9

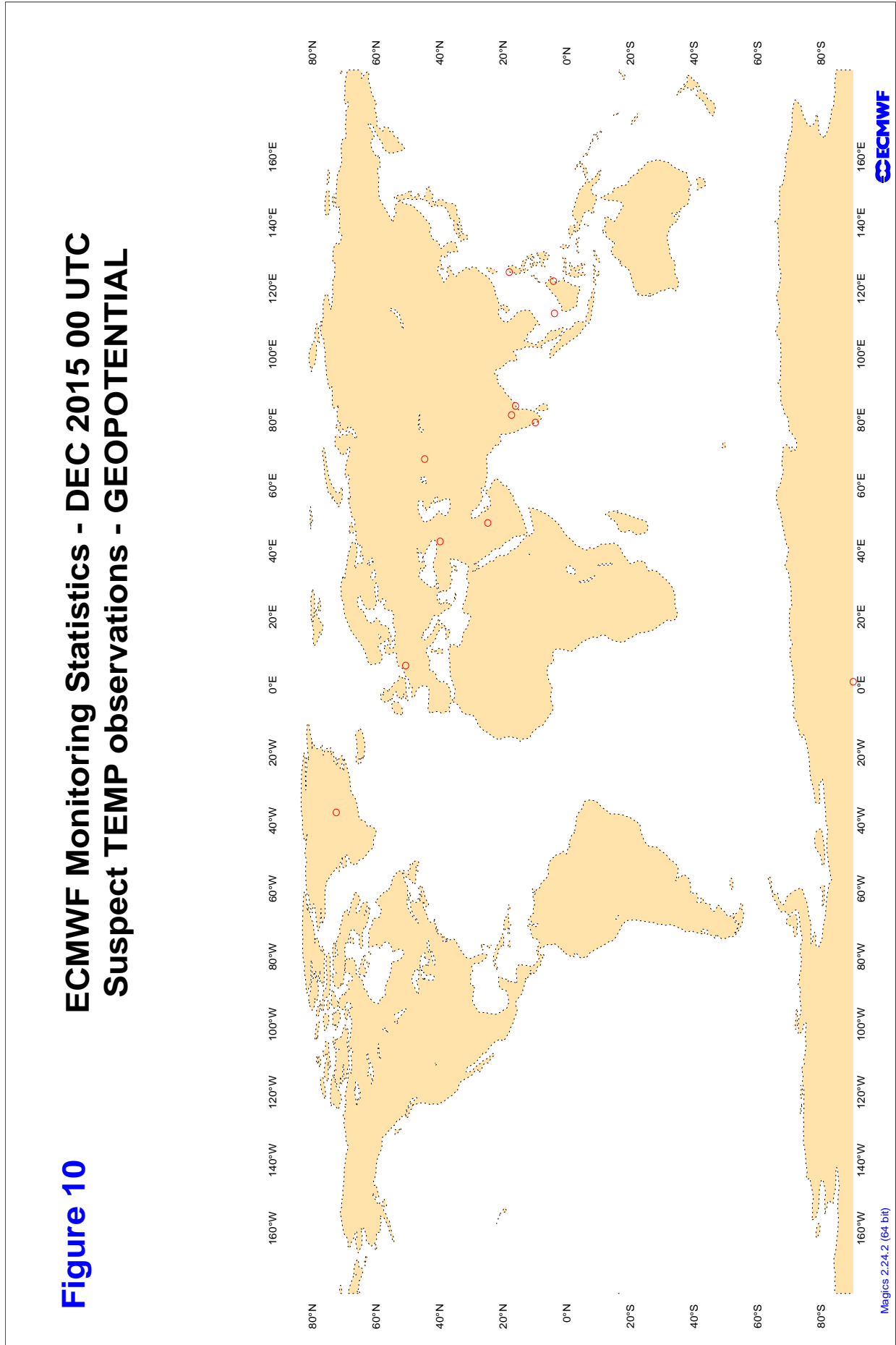
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

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

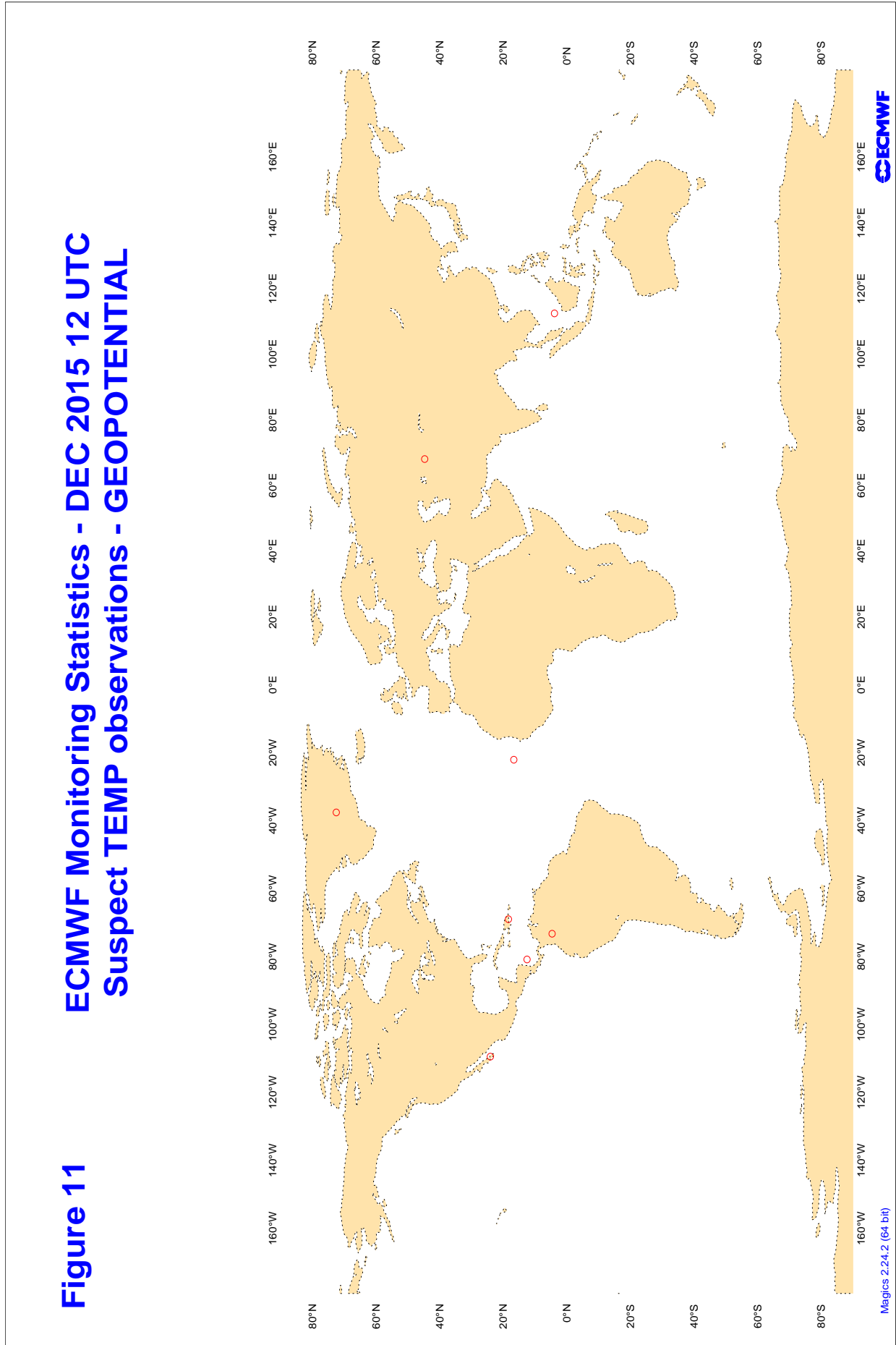
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS \geq 5 M/S
 NO. OF OBSERVATIONS \geq 5, AND,
 ABSOLUTE BIAS \geq 10 DEGREES, WITH
 STANDARD DEVIATION $<$ 30 DEGREES, AND,
 VERTICAL SPREAD $<$ 10 DEGREES
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
54342	12	DD	42	124	31	13.4	1.3	4.4
54342	00	DD	42	124	27	13.3	2.0	5.0

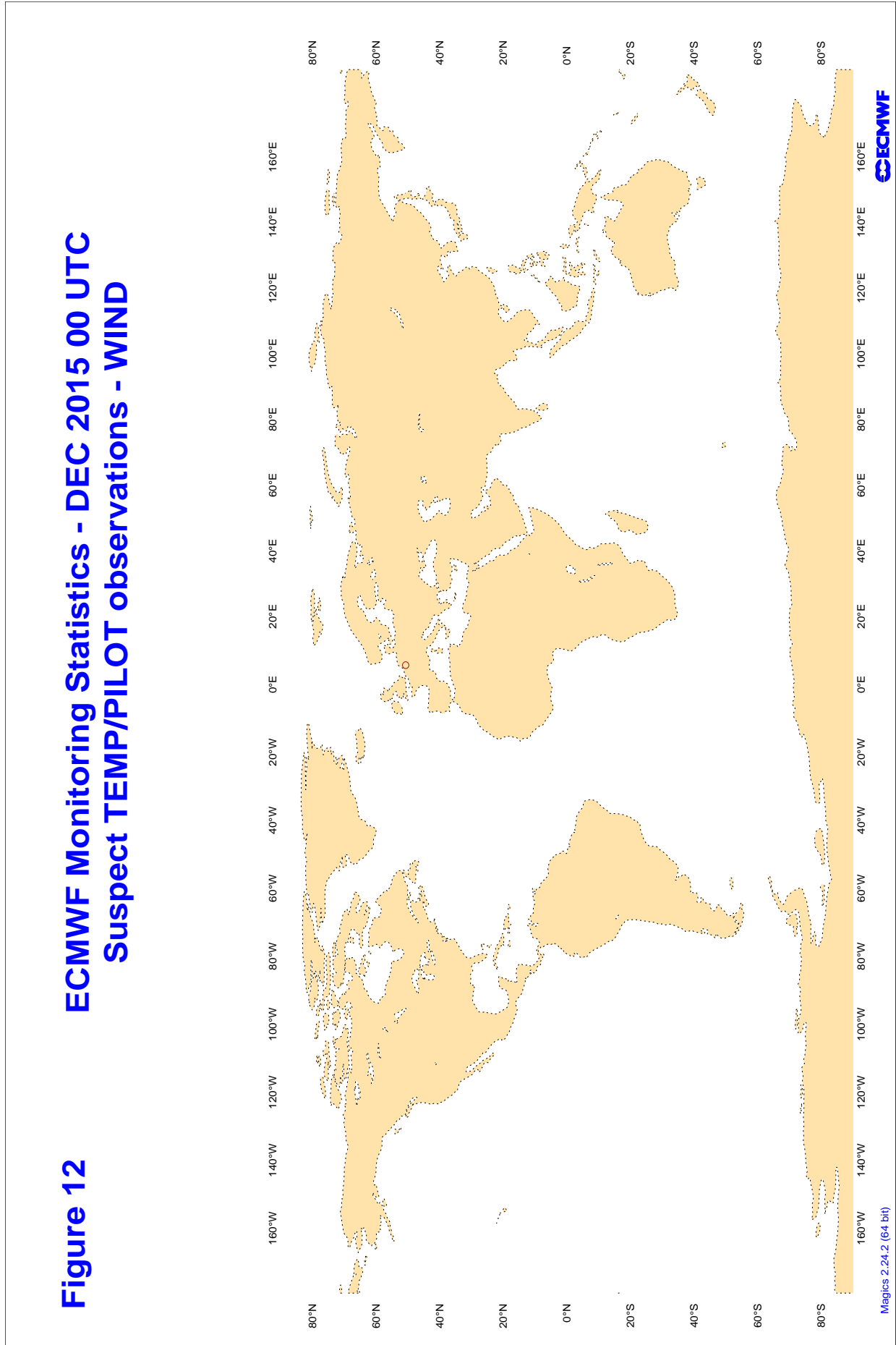
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



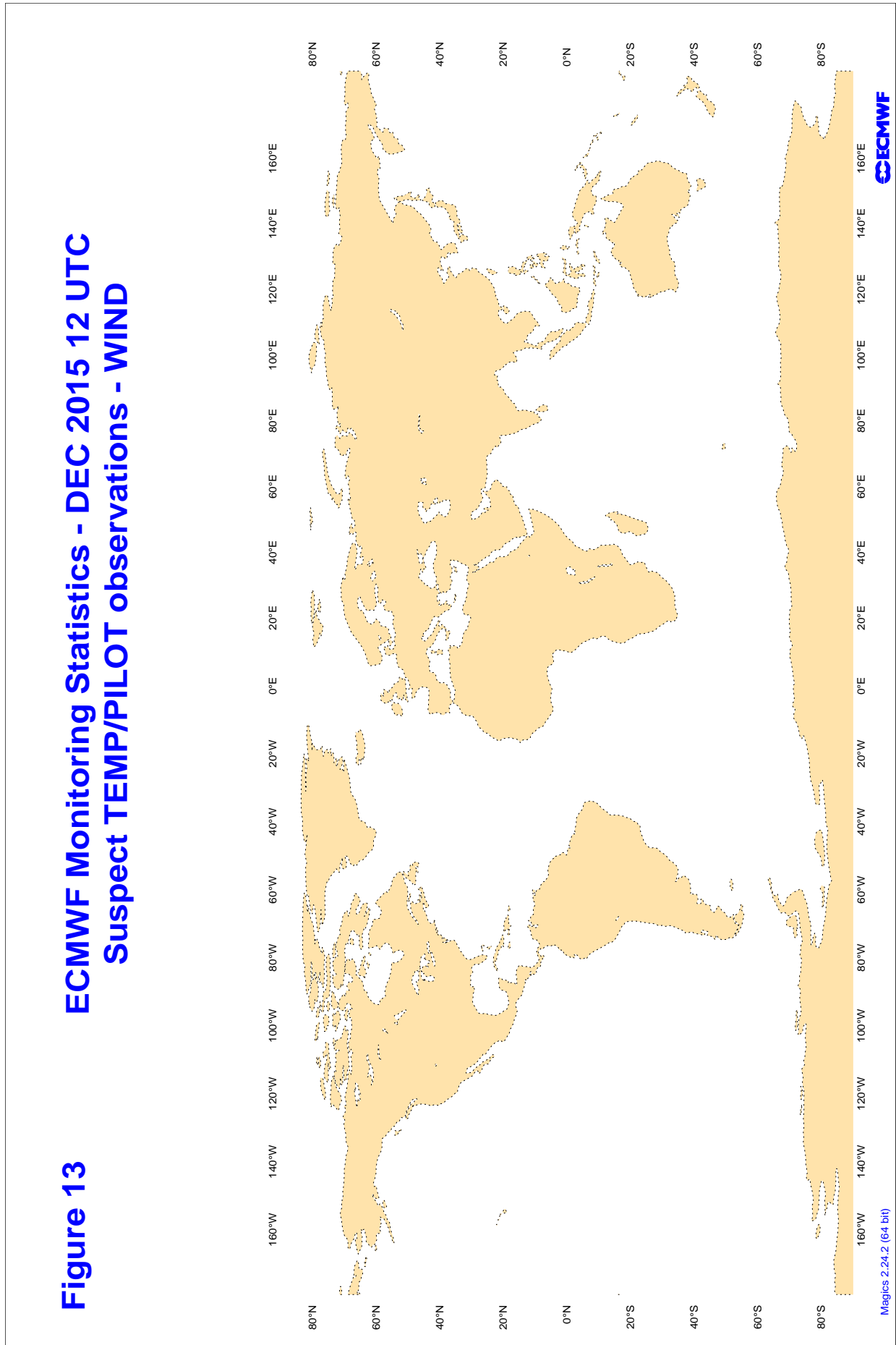
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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



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



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

RADIOSONDE MONITORING STATISTICS (SHIPS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASDE01	00	Z	100	11	15.1	-4.9
ASDE01	12	Z	100	12	29.3	16.6
ASDE02	12	Z	100	21	16.1	14.0
ASDE03	12	Z	100	8	30.4	24.5
ASDE03	00	Z	100	13	13.9	3.8
ASDE04	12	Z	100	13	40.7	38.1
ASDE04	00	Z	100	15	38.9	35.4
ASDE09	12	Z	100	1	14.8	14.8
ASDK01	00	Z	100	2	13.7	6.7
ASDK01	12	Z	100	2	8.8	8.4
ASDK02	12	Z	100	14	18.5	16.4
ASDK02	00	Z	100	15	11.3	8.1
ASDK03	12	Z	100	1	23.4	23.4
ASDK03	00	Z	100	4	27.6	26.6
ASDK1	00	Z	100	2	13.1	1.8
ASDK1	12	Z	100	1	7.4	7.4
ASDK2	00	Z	100	15	13.1	8.1
ASDK2	12	Z	100	12	17.6	13.5
ASDK3	12	Z	100	1	16.9	16.9
ASDK3	00	Z	100	5	21.9	19.4
ASES01	12	Z	100	23	26.0	25.0
ASEU01	12	Z	100	23	19.0	13.5
ASEU01	00	Z	100	2	31.6	29.0
ASEU02	00	Z	100	8	32.1	29.5
ASEU02	12	Z	100	7	42.7	42.0
ASEU03	12	Z	100	3	42.9	40.3
ASEU03	00	Z	100	2	10.6	9.7
ASEU04	12	Z	100	4	19.0	1.0
ASEU04	00	Z	100	5	14.4	3.3
ASEU06	12	Z	100	6	61.5	46.2
ASEU06	00	Z	100	7	17.3	5.7
ASFR1	12	Z	100	11	22.8	18.2
ASFR1	00	Z	100	8	15.1	11.1
ASFR2	12	Z	100	10	27.4	23.4
ASFR2	00	Z	100	7	20.2	16.9
ASFR3	12	Z	100	11	21.0	18.1
ASFR3	00	Z	100	12	14.6	12.7
ASFR4	12	Z	100	3	40.7	39.3
ASFR4	00	Z	100	4	26.6	25.2

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
DBLK	12	Z	100	33	10.0	3.2
EWM	12	Z	100	3	9.6	5.3
EWM	00	Z	100	3	11.3	-6.2
JNSR	12	Z	100	46	12.5	5.2
JNSR	00	Z	100	49	12.1	7.1

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

RADIOSONDE MONITORING STATISTICS (SHIPS)

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

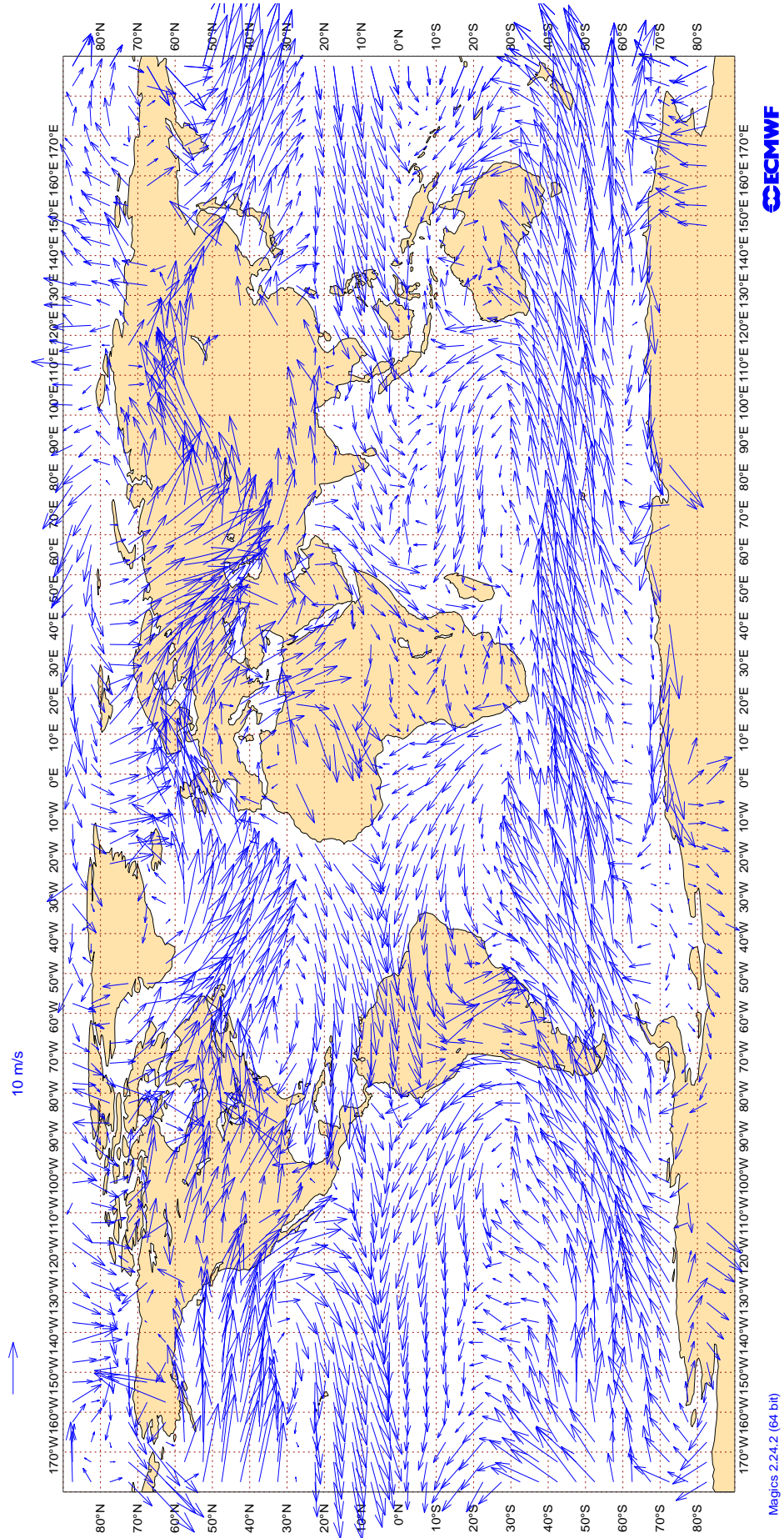
WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASDE01	00	V	100	11	6.2	-1.0	-1.3
ASDE01	12	V	100	10	3.9	-0.8	1.6
ASDE02	12	V	100	20	4.4	0.0	-1.5
ASDE03	12	V	100	8	5.4	0.6	-2.3
ASDE03	00	V	100	11	5.5	-0.1	0.6
ASDE04	12	V	100	13	5.8	-0.4	2.6
ASDE04	00	V	100	12	4.8	-2.0	0.7
ASDE09	12	V	100	1	3.1	0.6	-3.0
ASDK01	00	V	100	2	3.6	-2.9	0.7
ASDK01	12	V	100	2	4.1	2.3	1.1
ASDK02	12	V	100	14	5.7	-0.1	0.1
ASDK02	00	V	100	14	5.0	0.3	-0.6
ASDK03	12	V	100	1	3.2	1.8	-2.7
ASDK03	00	V	100	4	3.8	-0.5	0.0
ASDK1	00	V	100	2	4.2	-3.6	1.0
ASDK1	12	V	100	1	4.4	4.4	0.4
ASDK2	00	V	100	14	4.7	0.0	-0.6
ASDK2	12	V	100	12	4.7	-0.7	-0.5
ASDK3	12	V	100	1	2.7	1.3	-2.4
ASDK3	00	V	100	4	4.0	-0.3	-0.1
ASES01	12	V	100	22	5.1	0.8	0.5
ASEU01	12	V	100	22	4.4	1.0	0.0
ASEU01	00	V	100	2	5.6	1.6	-4.3
ASEU02	00	V	100	7	4.5	-0.1	-2.7
ASEU02	12	V	100	6	5.7	-1.7	-2.9
ASEU03	12	V	100	3	3.9	-2.5	1.3
ASEU03	00	V	100	2	7.4	6.0	-3.5
ASEU04	12	V	100	3	8.0	0.2	3.9
ASEU04	00	V	100	4	4.3	-1.8	0.1
ASEU06	12	V	100	2	6.8	-2.3	3.2
ASEU06	00	V	100	4	10.8	-3.5	2.2
ASFR1	12	V	100	11	4.0	-0.9	0.0
ASFR1	00	V	100	8	4.5	-1.4	0.8
ASFR2	12	V	100	10	3.2	0.1	0.6
ASFR2	00	V	100	6	4.0	1.9	-0.6
ASFR3	12	V	100	10	4.6	-1.6	0.9
ASFR3	00	V	100	12	4.1	1.4	0.7
ASFR4	12	V	100	3	2.4	-2.0	-0.2
ASFR4	00	V	100	4	3.5	1.1	-1.4

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
DBLK	12	V	100	20	2.2	-0.3	-0.4
EWM	12	V	100	3	6.0	0.9	-2.9
EWM	00	V	100	3	7.0	-0.4	-4.4
JNSR	12	V	100	17	5.5	1.7	-1.4
JNSR	00	V	100	17	5.3	0.2	-1.1

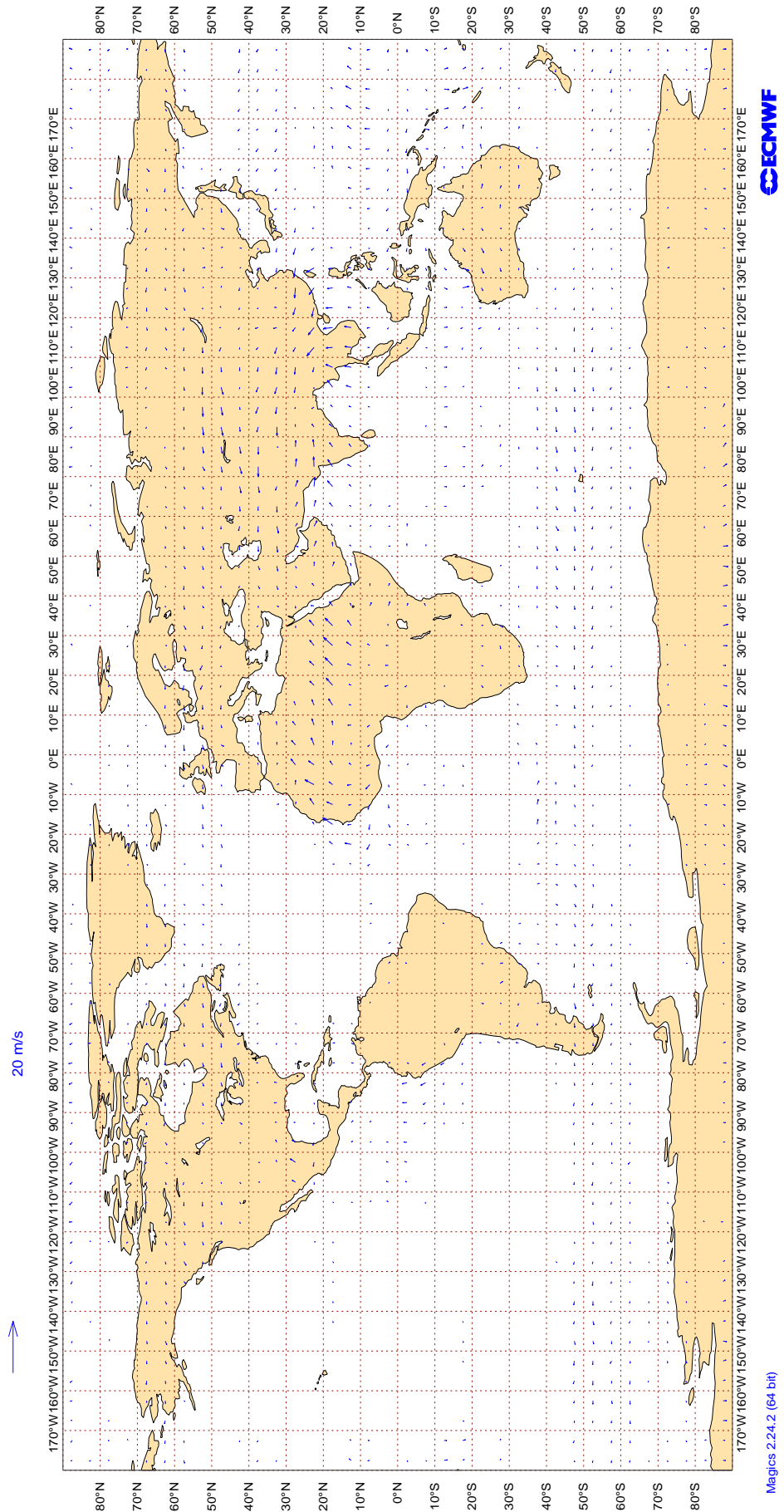
3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

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



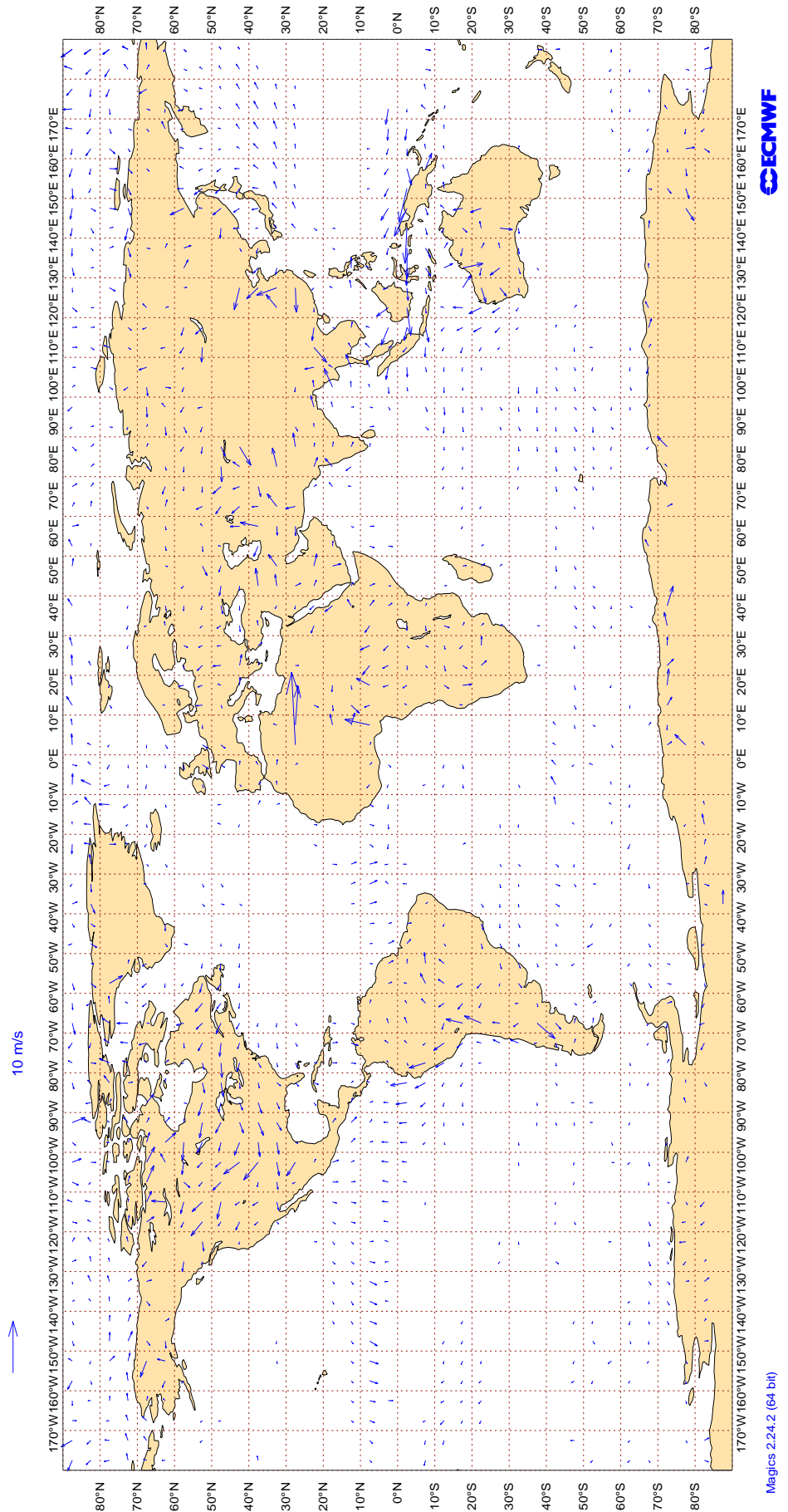
3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

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



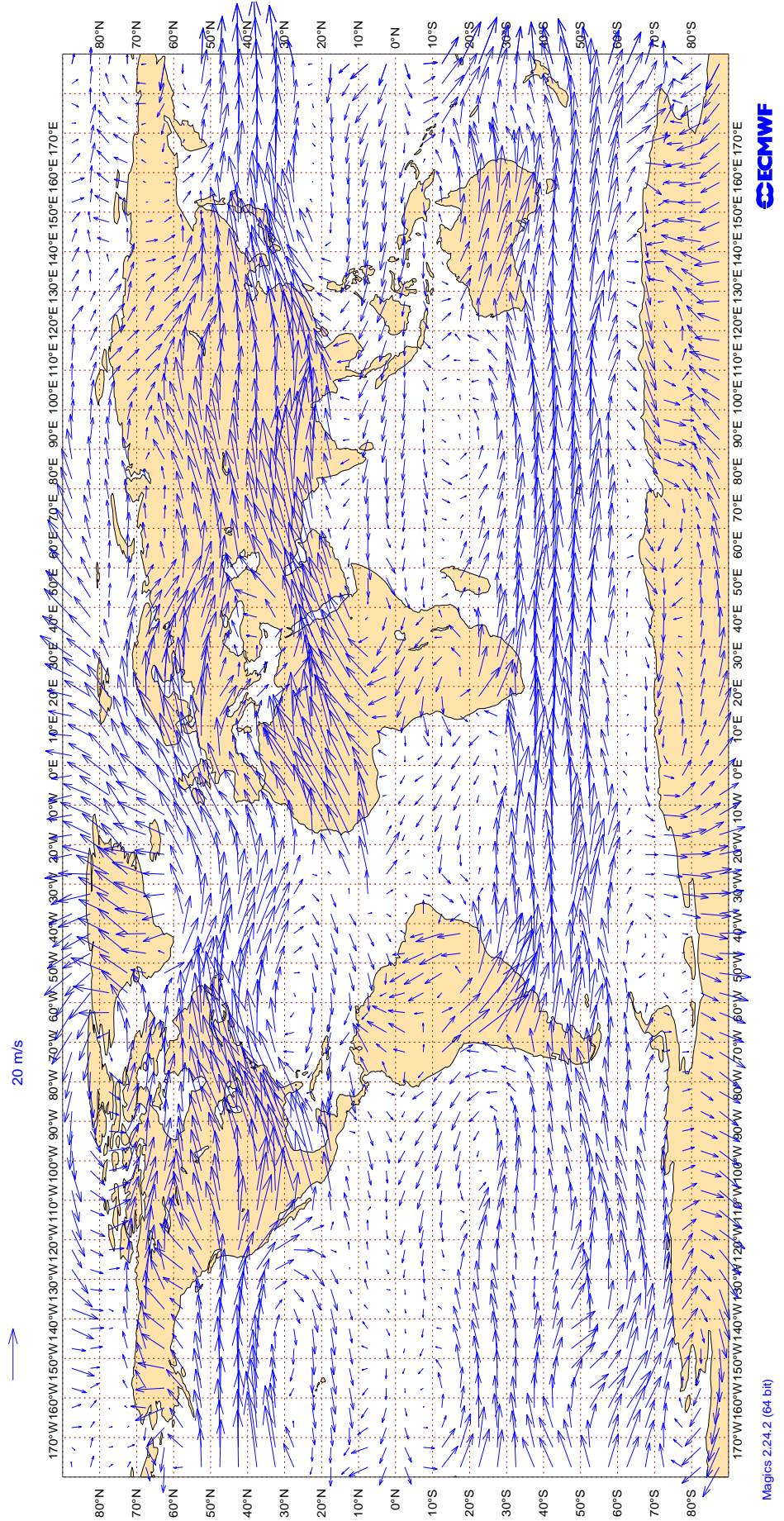
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

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

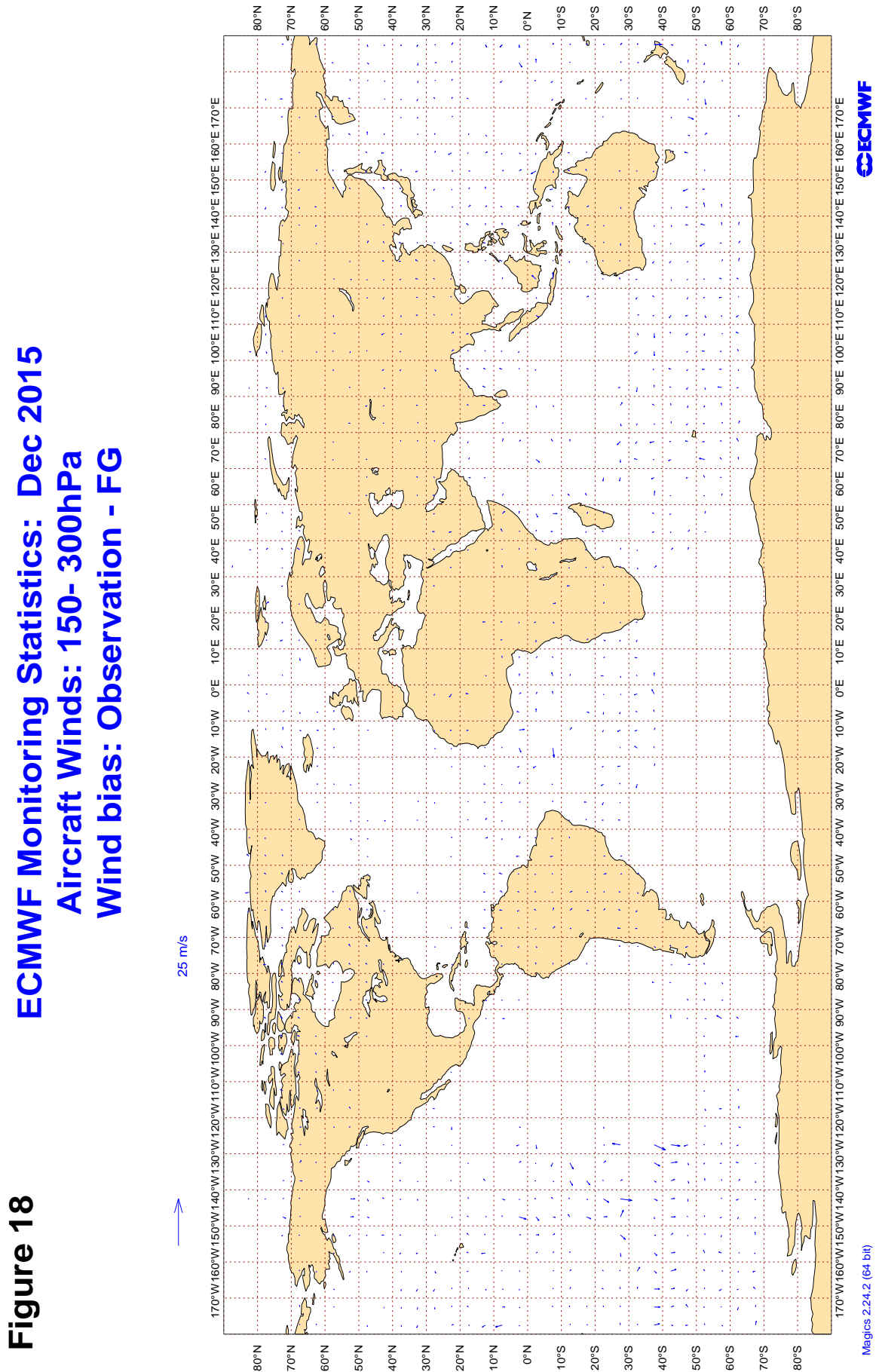


3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

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



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa



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 : DEC 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
AAB	99	V	300-150	59	0	0	4.1	1.5
AAL	99	V	300-150	26614	0	0	4.3	0.1
AAR	99	V	300-150	208	0	0	5.3	-1.0
AAY	99	V	300-150	282	1	0	5.2	0.7
ABW	99	V	300-150	513	0	0	4.4	-0.7
ABX	99	V	300-150	176	0	0	6.9	-0.5
ACA	99	V	300-150	13380	2	0	5.4	-0.1
ACI	99	V	300-150	2922	0	0	4.5	0.6
AEA	99	V	300-150	304	3	0	5.1	0.2
AFL	99	V	300-150	908	0	0	3.1	0.4
AFR	99	V	300-150	17904	0	0	4.2	0.2
AHY	99	V	300-150	188	21	0	13.7	-0.2
AIC	99	V	300-150	829	0	0	3.3	-0.3
AMX	99	V	300-150	1038	22	0	10.9	0.0
ANZ	99	V	300-150	17538	2	0	5.8	0.5
AOJ	99	V	300-150	42	0	0	3.4	1.3
ASA	99	V	300-150	7628	1	0	5.5	0.2
ASY	99	V	300-150	194	0	0	5.9	0.7
AUA	99	V	300-150	2122	0	0	4.7	-0.6
AVA	99	V	300-150	358	0	0	4.2	-0.1
AVN	99	V	300-150	131	1	0	7.0	0.3
AXM	99	V	300-150	134	1	1	5.4	1.2
AZA	99	V	300-150	3702	0	0	4.2	0.3
AZG	99	V	300-150	62	0	0	4.4	0.0
BAH	99	V	300-150	22	0	0	3.8	0.6
BAW	99	V	300-150	28372	1	0	4.9	0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
BEL	99	V	300-150	650	0	0	3.8	0.3
BER	99	V	300-150	4254	0	0	4.0	0.3
BLX	99	V	300-150	129	0	0	4.3	-1.1
BOX	99	V	300-150	309	0	0	3.5	-0.1
BOX	99	V	300-150	34	0	0	3.4	0.5
CAL	99	V	300-150	497	0	0	4.7	0.1
CAO	99	V	300-150	160	0	0	3.9	0.1
CAZ	99	V	300-150	121	0	0	4.8	-0.7
CCA	99	V	300-150	533	0	0	5.0	0.3
CES	99	V	300-150	730	0	0	4.6	0.3
CFC	99	V	300-150	106	0	0	4.2	1.1
CFG	99	V	300-150	2820	0	0	4.5	-0.3
CHH	99	V	300-150	37	0	0	5.8	0.3
CJT	99	V	300-150	107	0	0	4.5	-1.0
CKS	99	V	300-150	1108	0	0	5.2	-0.4
CLX	99	V	300-150	2142	0	0	4.5	-0.4
CMB	99	V	300-150	197	0	0	4.4	-0.5
CNV	99	V	300-150	68	0	0	4.7	0.1
CPA	99	V	300-150	460	0	0	4.0	0.3
CPI	99	V	300-150	40	0	0	5.8	-1.2
CRL	99	V	300-150	797	0	0	4.6	0.1
CRV	99	V	300-150	49	0	0	5.6	1.9
CSN	99	V	300-150	683	6	0	6.5	0.5
CTM	99	V	300-150	34	0	0	4.3	0.2
DAH	99	V	300-150	375	0	0	3.7	-0.1
DAL	99	V	300-150	34129	0	0	4.4	0.0
DHK	99	V	300-150	1064	0	0	4.7	-0.7
DLH	99	V	300-150	14931	0	0	4.0	-0.2
DUB	99	V	300-150	53	0	0	3.8	-0.3
EAV	99	V	300-150	35	60	0	34.3	1.0
EDW	99	V	300-150	441	0	0	4.5	0.3
EIN	99	V	300-150	5551	0	0	4.0	0.1
EJM	99	V	300-150	261	29	0	11.0	0.3
ELY	99	V	300-150	1535	0	0	3.9	-0.2
ETD	99	V	300-150	1648	3	0	5.6	-0.1
ETH	99	V	300-150	1358	10	0	7.1	-0.1
EWG	99	V	300-150	856	0	0	4.6	0.2
FDX	99	V	300-150	3130	0	0	4.3	0.1
FIN	99	V	300-150	326	0	2	3.7	-0.0
FJI	99	V	300-150	5239	0	0	5.2	0.5
FWI	99	V	300-150	1498	0	0	4.3	-0.0
FYG	99	V	300-150	70	0	0	3.3	-0.0
GAF	99	V	300-150	34	0	0	2.5	0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
GEC	99	V	300-150	1282	0	0	4.1	0.1
GLO	99	V	300-150	27	11	4	6.0	1.1
GRL	99	V	300-150	34	3	0	5.5	0.1
GTI	99	V	300-150	1206	0	0	4.5	-0.7
HAL	99	V	300-150	4267	0	0	5.6	0.8
HFY	99	V	300-150	46	0	0	4.3	-0.1
HZA	99	V	300-150	53	0	2	5.8	-0.4
HZM	99	V	300-150	26	0	0	4.2	-1.4
IAM	99	V	300-150	67	0	0	4.6	-0.2
IBE	99	V	300-150	797	0	0	4.3	-0.0
ICL	99	V	300-150	196	0	0	5.4	-0.3
ICV	99	V	300-150	140	0	0	4.5	0.2
IJM	99	V	300-150	35	40	0	7.4	-1.5
JAF	99	V	300-150	671	17	0	8.4	0.5
JAI	99	V	300-150	1308	0	0	3.6	0.2
JAS	99	V	300-150	62	0	0	4.0	-0.0
JJA	99	V	300-150	66	0	2	5.0	0.9
JST	99	V	300-150	3177	2	0	6.6	0.9
KAC	99	V	300-150	550	0	0	4.0	0.3
KAI	99	V	300-150	89	0	0	4.9	0.7
KAL	99	V	300-150	502	0	1	5.5	0.1
KLM	99	V	300-150	10672	0	0	4.1	-0.0
LAE	99	V	300-150	59	0	0	5.1	0.3
LAN	99	V	300-150	1839	13	0	9.6	0.1
LCO	99	V	300-150	66	0	0	3.5	-0.7
LGT	99	V	300-150	24	0	0	3.7	0.0
LOT	99	V	300-150	982	14	0	11.9	-0.5
LXJ	99	V	300-150	40	0	10	8.0	-0.6
MAS	99	V	300-150	290	0	0	3.9	0.5
MJF	99	V	300-150	20	0	0	3.6	0.6
MLM	99	V	300-150	23	65	0	2.1	-0.1
MMD	99	V	300-150	110	0	0	3.8	-0.2
MPH	99	V	300-150	229	0	0	4.3	-1.2
MSR	99	V	300-150	604	0	0	3.9	-0.3
NAX	99	V	300-150	2703	17	0	11.6	-0.4
NCA	99	V	300-150	154	1	0	4.9	-0.9
NJE	99	V	300-150	336	26	0	8.9	-0.2
NOS	99	V	300-150	261	0	0	5.2	0.3
NWS	99	V	300-150	218	0	0	3.6	0.5
OAE	99	V	300-150	151	1	1	4.4	0.2
ORB	99	V	300-150	185	0	0	4.8	0.2
PAC	99	V	300-150	164	0	0	5.3	0.6
PAL	99	V	300-150	63	0	3	5.9	-1.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
PIA	99	V	300-150	132	0	0	3.4	-0.2
PLM	99	V	300-150	22	0	0	4.1	1.0
QFA	99	V	300-150	17836	0	0	5.1	0.5
QTR	99	V	300-150	2868	0	0	3.9	-0.1
RAM	99	V	300-150	46	11	0	8.4	1.0
RCH	99	V	300-150	3274	0	0	4.9	0.1
RJA	99	V	300-150	947	21	0	12.6	-0.1
ROJ	99	V	300-150	30	0	0	4.1	1.0
ROU	99	V	300-150	820	0	0	4.7	-0.2
RRR	99	V	300-150	98	0	0	4.6	0.4
SAM	99	V	300-150	175	6	0	7.2	0.4
SAS	99	V	300-150	1583	0	0	3.3	0.1
SIA	99	V	300-150	1312	0	0	4.2	0.0
SJE	99	V	300-150	27	0	0	5.4	1.9
SLM	99	V	300-150	82	0	0	4.4	1.2
SOL	99	V	300-150	28	0	0	5.0	0.1
SOO	99	V	300-150	436	0	0	4.2	-0.2
SPA	99	V	300-150	115	0	0	4.7	0.2
SQC	99	V	300-150	425	0	0	4.5	-0.7
SVA	99	V	300-150	1765	0	0	4.1	-0.0
SVW	99	V	300-150	44	27	0	3.7	0.5
SWR	99	V	300-150	6660	0	0	4.0	0.1
SXN	99	V	300-150	49	0	0	3.2	-0.1
TAM	99	V	300-150	341	0	0	3.9	-0.0
TAP	99	V	300-150	111	1	1	5.3	-0.1
TAY	99	V	300-150	733	0	0	4.5	0.0
TBJ	99	V	300-150	52	0	0	11.2	1.8
TCV	99	V	300-150	61	2	2	5.3	-0.8
TCX	99	V	300-150	1810	0	0	4.0	0.1
TFL	99	V	300-150	1332	20	0	9.5	0.1
TGM	99	V	300-150	23	39	0	17.1	0.2
THA	99	V	300-150	150	0	0	3.5	0.4
THT	99	V	300-150	3261	0	0	4.8	0.8
THY	99	V	300-150	5138	0	0	4.0	0.2
TJS	99	V	300-150	25	4	0	7.8	-1.7
TMN	99	V	300-150	99	0	1	5.2	1.0
TOM	99	V	300-150	3201	22	0	10.0	0.1
TSC	99	V	300-150	1836	0	0	3.8	0.1
TWB	99	V	300-150	52	0	2	4.5	0.4
TWY	99	V	300-150	94	20	0	8.5	0.4
UAE	99	V	300-150	6098	0	0	3.9	-0.2
UAL	99	V	300-150	46947	1	2	5.2	0.1
UPS	99	V	300-150	2984	0	0	4.5	-0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
VCN	99	V	300-150	20	45	0	12.7	1.4
VIR	99	V	300-150	13144	1	0	4.4	0.0
VJT	99	V	300-150	317	71	0	30.2	0.4
VKG	99	V	300-150	401	0	0	3.7	-0.0
VMP	99	V	300-150	55	51	0	23.3	0.2
VOZ	99	V	300-150	5632	0	0	5.0	0.4
WGT	99	V	300-150	30	0	0	3.6	-0.7
WJA	99	V	300-150	1975	1	1	6.6	-0.0
XLF	99	V	300-150	926	0	0	4.0	0.4

4 EUCOS Area Monitoring Statistics

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

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

Tables 21-23 provides quality statistics of pressure and wind for all DRIFTER reports received in the area 10°N - 90°N, 70°W - 40°E. The statistics are in the same form as tables 4-6.

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	28	15.3	-1.3
01001	00	Z	50	28	11.5	0.7
01028	12	Z	50	24	15.2	4.9
01028	00	Z	50	27	15.2	1.4
01400	00	Z	50	9	78.8	-13.8
01400	12	Z	50	10	28.9	21.5
01415	00	Z	50	26	17.4	1.9
01415	12	Z	50	29	23.3	6.8
02365	12	Z	50	36	21.4	13.1
02365	00	Z	50	31	17.9	9.7
02591	12	Z	50	30	26.1	24.4
02591	00	Z	50	44	22.3	17.8
02836	12	Z	50	37	15.2	4.2
02836	00	Z	50	44	22.4	1.6
02963	12	Z	50	29	20.9	13.0
02963	00	Z	50	30	19.8	12.5
03005	12	Z	50	29	15.2	0.7
03005	00	Z	50	28	17.3	-5.2
03238	00	Z	50	28	21.9	2.2
03238	12	Z	50	11	30.4	19.1
03808	00	Z	50	29	9.2	1.5
03808	12	Z	50	29	14.5	10.0
03918	12	Z	50	17	16.5	11.1
03918	00	Z	50	28	16.6	0.5
03953	12	Z	50	16	17.0	8.0
03953	00	Z	50	16	17.7	5.1
04018	00	Z	50	27	16.4	-0.4
04018	12	Z	50	25	17.2	4.7
04220	12	Z	50	26	12.9	5.0
04220	00	Z	50	29	12.1	6.5
04270	00	Z	50	30	15.4	10.5
04270	12	Z	50	30	16.3	10.1
04320	00	Z	50	29	11.8	6.8
04320	12	Z	50	25	10.3	6.0
04339	00	Z	50	31	19.0	4.5
04339	12	Z	50	28	16.5	6.0
04360	12	Z	50	12	19.0	15.1
04360	00	Z	50	13	21.7	16.1
06011	12	Z	50	11	27.3	6.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	50	10	16.7	-3.4
06260	00	Z	50	30	13.3	7.8
06260	12	Z	50	7	10.6	7.8
06610	00	Z	50	30	11.5	6.0
06610	12	Z	50	30	18.5	6.4
07110	00	Z	50	28	16.0	8.4
07110	12	Z	50	26	27.1	21.5
07510	12	Z	50	29	30.4	27.1
07510	00	Z	50	27	27.5	24.4
07645	12	Z	50	32	23.5	18.2
07645	00	Z	50	30	11.1	2.3
07761	12	Z	50	29	21.3	14.3
07761	00	Z	50	29	10.4	3.4
08001	00	Z	50	30	14.4	11.5
08001	12	Z	50	28	28.4	25.0
08221	00	Z	50	31	15.7	14.2
08221	12	Z	50	31	24.5	20.2
08302	00	Z	50	31	9.8	7.3
08302	12	Z	50	31	15.8	9.6
08508	12	Z	50	24	27.0	22.8
08522	12	Z	50	27	20.5	18.4
08579	12	Z	50	29	25.2	22.6
10035	12	Z	50	30	12.9	8.7
10035	00	Z	50	28	12.0	1.4
10393	12	Z	50	31	13.9	10.4
10393	00	Z	50	31	10.4	4.0
10410	12	Z	50	30	14.9	12.2
10410	00	Z	50	30	7.9	3.1
10739	12	Z	50	29	19.5	17.9
10739	00	Z	50	29	17.0	14.4
11035	12	Z	50	30	36.6	34.1
11035	00	Z	50	27	34.7	33.5
12982	12	Z	50	29	42.8	41.5
12982	00	Z	50	31	14.6	10.7
16044	12	Z	50	31	32.0	8.1
16044	00	Z	50	31	13.0	11.1
16080	00	Z	50	31	16.5	6.5
16080	12	Z	50	31	30.5	5.4
16245	12	Z	50	31	11.7	7.0
16245	00	Z	50	30	11.3	3.0
16320	00	Z	50	30	12.1	9.4
16320	12	Z	50	31	16.1	13.4
16429	00	Z	50	31	13.7	11.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	50	31	16.2	13.7
16622	00	Z	50	29	39.7	38.0
17607	12	Z	50	18	14.6	-9.3
26435	00	Z	50	14	19.5	14.4
60018	12	Z	50	31	16.8	14.8
60018	00	Z	50	30	13.7	11.4
ASDE01	00	Z	50	8	16.9	10.1
ASDE01	12	Z	50	10	29.7	23.7
ASDE03	12	Z	50	7	50.4	42.6
ASDE03	00	Z	50	8	30.0	16.2
ASDE04	12	Z	50	13	45.1	43.1
ASDE04	00	Z	50	10	46.1	41.8
ASDE09	12	Z	50	1	45.5	45.5
ASDK01	00	Z	50	1	3.1	-3.1
ASDK01	12	Z	50	2	12.9	12.7
ASDK02	12	Z	50	3	15.9	15.9
ASDK02	00	Z	50	2	20.7	7.1
ASDK03	12	Z	50	1	14.5	14.5
ASDK03	00	Z	50	4	31.2	31.1
ASDK1	00	Z	50	1	13.5	-13.5
ASDK1	12	Z	50	2	6.7	6.7
ASDK2	00	Z	50	14	18.8	15.5
ASDK2	12	Z	50	13	16.6	14.7
ASDK3	12	Z	50	1	2.5	2.5
ASDK3	00	Z	50	4	28.5	28.5
ASES01	12	Z	50	22	34.0	33.2
ASEU01	12	Z	50	21	29.5	26.0
ASEU01	00	Z	50	2	32.6	32.6
ASEU02	00	Z	50	7	38.0	36.0
ASEU02	12	Z	50	6	55.3	53.9
ASEU03	12	Z	50	2	76.1	75.0
ASEU03	00	Z	50	1	15.8	15.8
ASEU04	12	Z	50	3	24.5	19.8
ASEU04	00	Z	50	4	24.0	4.9
ASEU06	12	Z	50	2	96.9	83.9
ASEU06	00	Z	50	3	5.7	-5.4
ASFR1	12	Z	50	10	25.6	22.7
ASFR1	00	Z	50	7	22.1	16.2
ASFR2	12	Z	50	8	44.7	41.6
ASFR2	00	Z	50	7	30.6	26.8
ASFR3	12	Z	50	10	32.2	28.2
ASFR3	00	Z	50	11	26.8	24.8
ASFR4	12	Z	50	2	59.6	58.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR4	00	Z	50	4	41.7	39.3

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 : DEC 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	27	3.6	0.3	-1.1
01001	00	V	50	26	3.7	0.3	-0.2
01028	12	V	50	23	4.4	-0.4	-2.0
01028	00	V	50	26	3.8	0.2	0.0
01400	00	V	50	3	6.7	-1.2	1.8
01400	12	V	50	7	4.8	0.7	-1.8
01415	00	V	50	25	5.8	-0.3	-0.8
01415	12	V	50	29	6.0	1.0	-1.0
02365	12	V	50	28	5.2	0.0	-1.9
02365	00	V	50	25	6.2	-0.7	-1.4
02591	12	V	50	25	5.8	-0.3	-0.9
02591	00	V	50	27	5.1	0.3	-0.2
02836	12	V	50	29	3.9	0.3	-0.3
02836	00	V	50	27	5.9	0.2	-1.1
02963	12	V	50	27	5.5	-0.5	-1.9
02963	00	V	50	29	5.5	-1.3	-0.6
03005	12	V	50	29	5.3	0.0	0.4
03005	00	V	50	23	4.8	0.4	-0.6
03238	00	V	50	25	6.7	0.7	-0.3
03238	12	V	50	11	5.5	-2.1	0.9
03808	00	V	50	28	4.4	0.3	0.9
03808	12	V	50	29	5.1	-0.7	-0.1
03918	12	V	50	17	5.2	0.2	-0.2
03918	00	V	50	24	5.0	1.3	-1.9
03953	12	V	50	16	3.6	1.0	0.6
03953	00	V	50	14	4.0	1.6	0.4
04018	00	V	50	20	3.1	0.2	0.2
04018	12	V	50	22	4.1	0.2	1.2
04220	12	V	50	26	4.3	0.0	1.8
04220	00	V	50	28	3.7	-0.3	1.1
04270	00	V	50	29	3.9	-0.8	0.7
04270	12	V	50	29	3.7	-0.9	1.2
04320	00	V	50	28	4.8	-0.4	0.6
04320	12	V	50	25	4.7	0.5	-1.0
04339	00	V	50	29	3.5	-0.6	-0.3
04339	12	V	50	27	4.1	0.8	1.0
04360	12	V	50	12	3.1	0.9	-0.6
04360	00	V	50	13	3.9	0.0	0.2
06011	12	V	50	11	2.9	1.4	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	50	10	3.5	0.3	0.6
06260	00	V	50	29	4.3	1.0	-1.0
06260	12	V	50	7	4.7	2.6	-2.1
06610	00	V	50	29	4.0	0.8	0.3
06610	12	V	50	30	3.4	1.1	0.5
07110	00	V	50	26	4.4	0.7	0.5
07110	12	V	50	25	3.7	0.3	0.5
07510	12	V	50	29	2.9	1.2	0.5
07510	00	V	50	27	3.6	0.6	0.2
07645	12	V	50	31	3.5	0.3	-0.1
07645	00	V	50	29	3.4	0.7	0.1
07761	12	V	50	28	3.4	0.8	-0.7
07761	00	V	50	25	3.5	0.2	0.6
08001	00	V	50	28	4.6	-0.3	0.6
08001	12	V	50	26	3.8	1.0	0.9
08221	00	V	50	29	3.8	0.3	0.3
08221	12	V	50	31	4.0	0.2	0.3
08302	00	V	50	30	3.2	0.8	-0.4
08302	12	V	50	31	3.5	0.5	-0.5
08508	12	V	50	24	3.6	0.8	0.2
08522	12	V	50	27	3.7	0.7	0.4
08579	12	V	50	28	3.3	0.9	-0.7
10035	12	V	50	30	4.7	-0.1	-0.3
10035	00	V	50	26	4.8	0.9	0.0
10393	12	V	50	31	5.0	0.4	-0.4
10393	00	V	50	29	4.0	-0.1	0.1
10410	12	V	50	30	4.0	0.8	-0.5
10410	00	V	50	29	4.4	1.0	-1.5
10739	12	V	50	28	3.5	0.7	0.2
10739	00	V	50	28	3.3	-0.1	0.2
11035	12	V	50	30	3.9	0.2	0.0
11035	00	V	50	27	3.9	0.3	-1.4
12982	12	V	50	29	3.4	0.5	-0.3
12982	00	V	50	31	3.0	-0.1	0.1
16044	12	V	50	31	3.3	0.7	0.5
16044	00	V	50	29	4.8	1.1	0.7
16080	00	V	50	29	3.3	0.9	0.2
16080	12	V	50	31	3.6	1.6	0.4
16245	12	V	50	31	3.3	1.0	0.4
16245	00	V	50	29	3.5	1.2	0.7
16320	00	V	50	29	4.4	1.5	-0.8
16320	12	V	50	31	3.3	-0.2	0.6
16429	00	V	50	30	3.1	1.0	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	50	30	2.8	0.7	-0.1
16622	00	V	50	21	3.4	0.5	-0.8
17607	12	V	50	17	3.7	0.9	-0.9
26435	00	V	50	14	4.1	-0.1	-1.6
60018	12	V	50	31	4.5	0.6	1.2
60018	00	V	50	28	3.9	-0.5	-0.1
ASDE01	00	V	50	7	3.8	-0.2	-0.6
ASDE01	12	V	50	9	3.7	0.0	-1.2
ASDE03	12	V	50	7	7.8	-2.2	2.0
ASDE03	00	V	50	8	8.2	-0.2	-0.2
ASDE04	12	V	50	12	3.9	0.4	0.7
ASDE04	00	V	50	10	3.8	-0.3	0.7
ASDE09	12	V	50	1	2.2	-1.3	-1.8
ASDK01	00	V	50	1	5.1	3.9	3.3
ASDK01	12	V	50	2	4.2	-1.6	0.2
ASDK02	12	V	50	3	3.4	0.0	-2.4
ASDK02	00	V	50	1	2.5	0.5	2.4
ASDK03	12	V	50	1	5.3	1.2	5.2
ASDK03	00	V	50	4	4.0	-2.5	1.3
ASDK1	00	V	50	1	3.7	3.5	1.1
ASDK1	12	V	50	2	2.2	-0.8	0.2
ASDK2	00	V	50	13	2.9	-0.1	0.1
ASDK2	12	V	50	13	4.1	0.9	-0.6
ASDK3	12	V	50	1	4.0	1.8	3.6
ASDK3	00	V	50	4	3.9	-2.3	0.9
ASES01	12	V	50	21	4.6	1.0	-0.2
ASEU01	12	V	50	21	4.8	0.6	0.0
ASEU01	00	V	50	2	5.2	-1.2	3.3
ASEU02	00	V	50	7	3.7	-0.2	0.4
ASEU02	12	V	50	6	4.1	0.4	-3.1
ASEU03	12	V	50	1	3.1	-3.1	0.5
ASEU03	00	V	50	1	2.8	-1.8	2.2
ASEU04	12	V	50	3	2.3	-0.1	-0.3
ASEU04	00	V	50	4	3.9	0.0	0.4
ASEU06	12	V	50	2	4.6	-3.9	1.5
ASEU06	00	V	50	3	14.9	-7.1	4.0
ASFR1	12	V	50	10	4.2	-0.6	0.2
ASFR1	00	V	50	7	3.7	-0.4	1.0
ASFR2	12	V	50	8	2.5	-0.1	1.8
ASFR2	00	V	50	6	3.4	-0.4	2.3
ASFR3	12	V	50	10	4.0	-0.4	1.5
ASFR3	00	V	50	11	3.8	0.6	0.5
ASFR4	12	V	50	2	4.1	-0.5	-1.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR4	00	V	50	4	3.5	0.9	-0.6

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 : DEC 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	31	11.7	-0.8
01001	00	Z	100	28	10.1	1.9
01028	12	Z	100	27	8.6	0.3
01028	00	Z	100	27	8.5	0.2
01400	00	Z	100	13	57.5	-2.8
01400	12	Z	100	13	21.9	19.4
01415	00	Z	100	29	15.3	-6.6
01415	12	Z	100	31	15.3	5.4
02365	12	Z	100	39	12.5	8.2
02365	00	Z	100	41	8.4	0.9
02591	12	Z	100	30	16.0	15.0
02591	00	Z	100	44	16.5	12.0
02836	12	Z	100	39	10.8	-1.3
02836	00	Z	100	44	11.2	-4.3
02963	12	Z	100	29	11.2	7.1
02963	00	Z	100	30	10.4	1.6
03005	12	Z	100	30	9.2	-0.1
03005	00	Z	100	30	12.0	-5.3
03238	00	Z	100	30	11.6	5.2
03238	12	Z	100	11	17.5	6.6
03808	00	Z	100	29	7.9	1.3
03808	12	Z	100	31	11.6	6.0
03918	12	Z	100	17	16.6	13.2
03918	00	Z	100	31	14.5	7.1
03953	12	Z	100	28	13.3	8.4
03953	00	Z	100	29	13.4	7.5
04018	00	Z	100	27	11.8	1.6
04018	12	Z	100	27	12.3	7.0
04220	12	Z	100	28	7.4	4.0
04220	00	Z	100	30	23.1	7.2
04270	00	Z	100	30	10.0	5.2
04270	12	Z	100	31	10.7	3.4
04320	00	Z	100	30	9.7	4.8
04320	12	Z	100	26	8.0	5.4
04339	00	Z	100	31	12.7	4.3
04339	12	Z	100	29	10.5	6.3
04360	12	Z	100	19	13.9	9.7
04360	00	Z	100	20	15.9	11.5
06011	12	Z	100	16	15.6	3.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	100	14	11.8	-5.5
06260	00	Z	100	30	9.9	7.0
06260	12	Z	100	7	6.6	3.9
06610	00	Z	100	31	9.4	4.8
06610	12	Z	100	31	13.2	5.0
07110	00	Z	100	30	12.3	6.6
07110	12	Z	100	27	20.1	15.0
07510	12	Z	100	29	20.9	18.0
07510	00	Z	100	28	15.6	13.0
07645	12	Z	100	33	11.7	6.4
07645	00	Z	100	30	6.8	-0.9
07761	12	Z	100	30	15.4	7.7
07761	00	Z	100	29	7.2	0.4
08001	00	Z	100	31	12.0	8.5
08001	12	Z	100	30	21.8	19.4
08221	00	Z	100	31	10.1	9.3
08221	12	Z	100	31	19.0	15.7
08302	00	Z	100	31	6.1	2.4
08302	12	Z	100	32	10.9	4.5
08508	12	Z	100	24	16.6	9.9
08522	12	Z	100	27	12.0	8.6
08579	12	Z	100	29	13.7	11.8
10035	12	Z	100	30	9.5	2.1
10035	00	Z	100	31	8.8	0.2
10393	12	Z	100	31	8.9	3.2
10393	00	Z	100	31	7.4	-1.9
10410	12	Z	100	31	8.8	5.8
10410	00	Z	100	31	6.3	-0.3
10739	12	Z	100	31	13.4	11.2
10739	00	Z	100	32	11.7	9.4
11035	12	Z	100	30	29.6	27.9
11035	00	Z	100	31	28.1	26.2
12982	12	Z	100	29	31.3	28.0
12982	00	Z	100	31	6.1	1.6
16044	12	Z	100	31	30.9	2.7
16044	00	Z	100	31	9.8	5.2
16080	00	Z	100	31	14.7	0.6
16080	12	Z	100	31	29.8	-0.3
16245	12	Z	100	31	6.6	1.3
16245	00	Z	100	31	8.9	-2.2
16320	00	Z	100	31	10.3	5.5
16320	12	Z	100	31	10.4	7.4
16429	00	Z	100	31	8.4	5.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	100	31	11.5	7.3
16622	00	Z	100	30	27.2	25.7
17607	12	Z	100	35	9.1	-6.6
26435	00	Z	100	15	9.4	3.5
60018	12	Z	100	31	10.6	8.4
60018	00	Z	100	31	6.9	3.3
ASDE01	00	Z	100	11	15.1	-4.9
ASDE01	12	Z	100	12	29.3	16.6
ASDE03	12	Z	100	8	30.4	24.5
ASDE03	00	Z	100	13	13.9	3.8
ASDE04	12	Z	100	13	40.7	38.1
ASDE04	00	Z	100	15	38.9	35.4
ASDE09	12	Z	100	1	14.8	14.8
ASDK01	00	Z	100	2	13.7	6.7
ASDK01	12	Z	100	2	8.8	8.4
ASDK02	12	Z	100	14	18.5	16.4
ASDK02	00	Z	100	15	11.3	8.1
ASDK03	12	Z	100	1	23.4	23.4
ASDK03	00	Z	100	4	27.6	26.6
ASDK1	00	Z	100	2	13.1	1.8
ASDK1	12	Z	100	1	7.4	7.4
ASDK2	00	Z	100	15	13.1	8.1
ASDK2	12	Z	100	12	17.6	13.5
ASDK3	12	Z	100	1	16.9	16.9
ASDK3	00	Z	100	5	21.9	19.4
ASES01	12	Z	100	23	26.0	25.0
ASEU01	12	Z	100	23	19.0	13.5
ASEU01	00	Z	100	2	31.6	29.0
ASEU02	00	Z	100	8	32.1	29.5
ASEU02	12	Z	100	7	42.7	42.0
ASEU03	12	Z	100	3	42.9	40.3
ASEU03	00	Z	100	2	10.6	9.7
ASEU04	12	Z	100	4	19.0	1.0
ASEU04	00	Z	100	5	14.4	3.3
ASEU06	12	Z	100	6	61.5	46.2
ASEU06	00	Z	100	7	17.3	5.7
ASFR1	12	Z	100	11	22.8	18.2
ASFR1	00	Z	100	8	15.1	11.1
ASFR2	12	Z	100	10	27.4	23.4
ASFR2	00	Z	100	7	20.2	16.9
ASFR3	12	Z	100	11	21.0	18.1
ASFR3	00	Z	100	12	14.6	12.7
ASFR4	12	Z	100	3	40.7	39.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR4	00	Z	100	4	26.6	25.2

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 : DEC 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	30	3.0	0.2	-0.2
01001	00	V	100	27	5.0	-0.7	-0.6
01028	12	V	100	25	2.8	0.6	-0.5
01028	00	V	100	27	4.1	-0.6	-0.8
01400	00	V	100	7	3.4	2.0	0.0
01400	12	V	100	6	5.5	1.0	2.8
01415	00	V	100	27	5.3	2.1	-0.1
01415	12	V	100	30	6.4	0.6	-0.6
02365	12	V	100	31	4.7	0.0	0.0
02365	00	V	100	29	5.7	1.0	-1.7
02591	12	V	100	27	4.7	0.2	-0.9
02591	00	V	100	29	5.0	-1.5	0.2
02836	12	V	100	31	4.2	-0.4	-0.7
02836	00	V	100	30	3.9	1.2	-0.7
02963	12	V	100	28	6.1	-0.7	-0.6
02963	00	V	100	29	5.8	0.3	-0.2
03005	12	V	100	30	3.6	0.2	-0.9
03005	00	V	100	26	4.7	-0.6	0.0
03238	00	V	100	27	5.2	0.4	0.1
03238	12	V	100	11	6.4	1.3	-2.1
03808	00	V	100	28	4.9	0.5	-0.2
03808	12	V	100	31	4.3	-0.3	0.2
03918	12	V	100	17	5.0	0.1	0.2
03918	00	V	100	27	6.0	-0.4	0.0
03953	12	V	100	28	4.8	-1.0	1.1
03953	00	V	100	27	4.5	-0.6	1.4
04018	00	V	100	23	3.8	0.2	1.0
04018	12	V	100	26	3.6	0.0	1.3
04220	12	V	100	28	3.0	0.0	0.3
04220	00	V	100	29	2.6	0.4	-0.1
04270	00	V	100	29	3.3	0.3	0.5
04270	12	V	100	31	3.5	0.0	0.4
04320	00	V	100	29	4.4	0.0	-0.5
04320	12	V	100	26	4.5	0.1	0.1
04339	00	V	100	29	3.8	-0.7	1.0
04339	12	V	100	29	3.3	-0.2	-0.5
04360	12	V	100	19	3.3	0.2	0.8
04360	00	V	100	20	3.0	-0.1	-0.2
06011	12	V	100	16	2.7	0.8	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	100	14	3.5	0.3	0.1
06260	00	V	100	29	3.8	0.8	-1.3
06260	12	V	100	7	3.7	1.5	0.4
06610	00	V	100	30	3.5	0.7	-0.1
06610	12	V	100	31	3.4	0.4	0.1
07110	00	V	100	27	3.8	-0.5	-0.9
07110	12	V	100	25	3.2	0.4	-0.3
07510	12	V	100	28	3.9	0.3	1.4
07510	00	V	100	27	3.9	-0.3	0.0
07645	12	V	100	25	3.6	0.7	0.9
07645	00	V	100	24	3.5	0.0	0.1
07761	12	V	100	22	3.3	-0.3	-0.2
07761	00	V	100	19	2.9	0.0	0.4
08001	00	V	100	30	4.2	0.6	-0.4
08001	12	V	100	30	5.7	-1.6	-0.5
08221	00	V	100	29	3.0	0.0	-0.2
08221	12	V	100	31	3.8	0.0	0.0
08302	00	V	100	30	3.6	0.0	-0.1
08302	12	V	100	31	3.5	-0.3	0.4
08508	12	V	100	24	3.8	0.1	-0.8
08522	12	V	100	27	5.2	1.6	-1.5
08579	12	V	100	29	5.0	-0.9	0.0
10035	12	V	100	30	4.6	-0.7	0.2
10035	00	V	100	29	5.0	-0.9	-0.1
10393	12	V	100	31	3.3	0.2	-0.5
10393	00	V	100	30	3.5	0.1	0.3
10410	12	V	100	31	3.8	0.1	-0.1
10410	00	V	100	30	3.4	-0.3	-1.3
10739	12	V	100	31	3.4	0.3	-0.1
10739	00	V	100	30	3.9	-1.0	-0.5
11035	12	V	100	30	3.5	0.3	0.5
11035	00	V	100	31	3.6	-0.9	-0.4
12982	12	V	100	29	3.3	0.5	-0.2
12982	00	V	100	30	3.1	-0.4	0.5
16044	12	V	100	31	4.0	-0.2	0.0
16044	00	V	100	29	4.1	-0.8	0.6
16080	00	V	100	29	3.2	0.1	0.1
16080	12	V	100	31	3.4	0.4	0.2
16245	12	V	100	31	3.4	0.1	0.1
16245	00	V	100	30	3.7	0.1	-0.1
16320	00	V	100	30	3.7	1.1	-0.3
16320	12	V	100	31	4.2	0.6	0.9
16429	00	V	100	30	3.6	-0.3	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	100	31	3.6	0.9	-0.5
16622	00	V	100	25	3.4	0.3	-0.4
17607	12	V	100	18	3.9	0.8	0.7
26435	00	V	100	15	3.4	-0.7	0.6
60018	12	V	100	31	5.5	0.1	1.3
60018	00	V	100	30	4.8	0.2	0.0
ASDE01	00	V	100	11	6.2	-1.0	-1.3
ASDE01	12	V	100	10	3.9	-0.8	1.6
ASDE03	12	V	100	8	5.4	0.6	-2.3
ASDE03	00	V	100	11	5.5	-0.1	0.6
ASDE04	12	V	100	13	5.8	-0.4	2.6
ASDE04	00	V	100	12	4.8	-2.0	0.7
ASDE09	12	V	100	1	3.1	0.6	-3.0
ASDK01	00	V	100	2	3.6	-2.9	0.7
ASDK01	12	V	100	2	4.1	2.3	1.1
ASDK02	12	V	100	14	5.7	-0.1	0.1
ASDK02	00	V	100	14	5.0	0.3	-0.6
ASDK03	12	V	100	1	3.2	1.8	-2.7
ASDK03	00	V	100	4	3.8	-0.5	0.0
ASDK1	00	V	100	2	4.2	-3.6	1.0
ASDK1	12	V	100	1	4.4	4.4	0.4
ASDK2	00	V	100	14	4.7	0.0	-0.6
ASDK2	12	V	100	12	4.7	-0.7	-0.5
ASDK3	12	V	100	1	2.7	1.3	-2.4
ASDK3	00	V	100	4	4.0	-0.3	-0.1
ASEU01	12	V	100	22	5.1	0.8	0.5
ASEU01	12	V	100	22	4.4	1.0	0.0
ASEU01	00	V	100	2	5.6	1.6	-4.3
ASEU02	00	V	100	7	4.5	-0.1	-2.7
ASEU02	12	V	100	6	5.7	-1.7	-2.9
ASEU03	12	V	100	3	3.9	-2.5	1.3
ASEU03	00	V	100	2	7.4	6.0	-3.5
ASEU04	12	V	100	3	8.0	0.2	3.9
ASEU04	00	V	100	4	4.3	-1.8	0.1
ASEU06	12	V	100	2	6.8	-2.3	3.2
ASEU06	00	V	100	4	10.8	-3.5	2.2
ASFR1	12	V	100	11	4.0	-0.9	0.0
ASFR1	00	V	100	8	4.5	-1.4	0.8
ASFR2	12	V	100	10	3.2	0.1	0.6
ASFR2	00	V	100	6	4.0	1.9	-0.6
ASFR3	12	V	100	10	4.6	-1.6	0.9
ASFR3	00	V	100	12	4.1	1.4	0.7
ASFR4	12	V	100	3	2.4	-2.0	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR4	00	V	100	4	3.5	1.1	-1.4

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 : DEC 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	31	6.1	1.8
01001	00	Z	500	28	7.4	2.9
01028	12	Z	500	32	8.3	1.4
01028	00	Z	500	28	4.7	1.6
01400	00	Z	500	17	26.3	10.7
01400	12	Z	500	15	20.6	15.1
01415	00	Z	500	30	5.6	3.1
01415	12	Z	500	31	5.3	2.8
02365	12	Z	500	39	5.8	4.0
02365	00	Z	500	41	4.8	2.3
02591	12	Z	500	30	12.1	11.1
02591	00	Z	500	44	10.4	9.6
02836	12	Z	500	39	3.6	-0.6
02836	00	Z	500	44	5.0	-0.8
02963	12	Z	500	29	5.2	3.2
02963	00	Z	500	30	3.3	2.4
03005	12	Z	500	31	7.3	-1.8
03005	00	Z	500	32	6.2	-0.6
03238	00	Z	500	30	9.7	6.8
03238	12	Z	500	11	12.3	6.0
03808	00	Z	500	31	7.3	3.5
03808	12	Z	500	31	8.2	5.0
03918	12	Z	500	18	9.3	7.0
03918	00	Z	500	31	7.6	5.1
03953	12	Z	500	31	10.6	4.7
03953	00	Z	500	32	7.2	2.4
04018	00	Z	500	28	7.4	4.7
04018	12	Z	500	29	8.2	5.6
04220	12	Z	500	29	6.2	4.0
04220	00	Z	500	29	7.0	4.5
04270	00	Z	500	31	5.2	2.4
04270	12	Z	500	31	7.5	3.7
04320	00	Z	500	29	7.1	4.7
04320	12	Z	500	27	7.9	5.0
04339	00	Z	500	31	8.3	3.0
04339	12	Z	500	29	6.6	4.6
04360	12	Z	500	27	5.7	1.0
04360	00	Z	500	27	5.0	1.6
06011	12	Z	500	28	7.8	2.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	500	26	8.9	0.4
06260	00	Z	500	31	6.4	5.1
06260	12	Z	500	7	8.1	7.1
06610	00	Z	500	31	6.9	5.9
06610	12	Z	500	31	6.7	4.6
07110	00	Z	500	30	8.4	0.3
07110	12	Z	500	27	10.9	5.2
07510	12	Z	500	31	7.5	5.7
07510	00	Z	500	30	6.5	2.8
07645	12	Z	500	33	6.8	-1.5
07645	00	Z	500	30	6.9	-3.1
07761	12	Z	500	30	6.3	-0.8
07761	00	Z	500	30	5.3	-2.9
08001	00	Z	500	31	8.7	7.6
08001	12	Z	500	30	11.0	9.9
08221	00	Z	500	31	7.9	7.5
08221	12	Z	500	31	10.3	9.6
08302	00	Z	500	31	2.9	1.7
08302	12	Z	500	32	4.1	1.3
08508	12	Z	500	25	10.8	7.5
08522	12	Z	500	30	12.3	10.4
08579	12	Z	500	29	10.9	9.8
10035	12	Z	500	30	5.2	2.6
10035	00	Z	500	31	9.0	2.7
10393	12	Z	500	31	3.3	1.3
10393	00	Z	500	31	3.8	0.4
10410	12	Z	500	32	5.2	4.0
10410	00	Z	500	31	2.4	0.0
10739	12	Z	500	31	10.1	9.5
10739	00	Z	500	32	10.0	9.7
11035	12	Z	500	31	15.9	15.0
11035	00	Z	500	31	13.5	12.0
12982	12	Z	500	30	9.2	7.3
12982	00	Z	500	31	5.0	1.7
16044	12	Z	500	31	6.3	2.5
16044	00	Z	500	32	4.3	2.4
16080	00	Z	500	31	13.9	-0.8
16080	12	Z	500	31	5.4	0.3
16245	12	Z	500	31	8.0	-5.8
16245	00	Z	500	31	8.0	-5.9
16320	00	Z	500	31	6.5	-0.5
16320	12	Z	500	31	6.3	1.6
16429	00	Z	500	31	5.8	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	500	31	6.3	2.7
16622	00	Z	500	31	17.9	15.5
17607	12	Z	500	37	6.3	3.9
26435	00	Z	500	15	6.1	2.9
60018	12	Z	500	31	3.7	2.3
60018	00	Z	500	31	4.3	2.6
ASDE01	00	Z	500	12	16.1	-8.8
ASDE01	12	Z	500	12	17.9	-12.7
ASDE03	12	Z	500	9	14.5	10.2
ASDE03	00	Z	500	13	4.6	-1.1
ASDE04	12	Z	500	13	27.7	26.3
ASDE04	00	Z	500	15	29.3	28.6
ASDE09	12	Z	500	1	15.0	15.0
ASDK01	00	Z	500	2	16.6	6.8
ASDK01	12	Z	500	2	6.8	4.6
ASDK02	12	Z	500	15	10.6	9.3
ASDK02	00	Z	500	15	10.0	8.4
ASDK03	12	Z	500	1	17.3	17.3
ASDK03	00	Z	500	4	26.4	25.0
ASDK1	00	Z	500	2	11.3	4.1
ASDK1	12	Z	500	1	4.3	-4.3
ASDK2	00	Z	500	15	9.8	8.3
ASDK2	12	Z	500	13	12.9	9.3
ASDK3	12	Z	500	1	14.3	14.3
ASDK3	00	Z	500	5	29.1	27.3
ASES01	12	Z	500	25	9.5	8.4
ASEU01	12	Z	500	23	11.2	2.9
ASEU01	00	Z	500	2	21.8	19.0
ASEU02	00	Z	500	8	25.7	24.9
ASEU02	12	Z	500	7	35.7	35.3
ASEU03	12	Z	500	3	16.7	15.4
ASEU03	00	Z	500	4	17.5	-8.9
ASEU04	12	Z	500	4	15.1	-3.6
ASEU04	00	Z	500	7	7.0	-3.3
ASEU06	12	Z	500	8	11.6	7.8
ASEU06	00	Z	500	7	22.6	1.4
ASFR1	12	Z	500	11	5.8	-0.1
ASFR1	00	Z	500	9	9.7	-4.2
ASFR2	12	Z	500	10	11.8	10.3
ASFR2	00	Z	500	11	10.6	7.3
ASFR3	12	Z	500	13	8.2	0.9
ASFR3	00	Z	500	14	3.7	-0.2
ASFR4	12	Z	500	4	12.4	9.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR4	00	Z	500	4	8.5	7.2

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 : DEC 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	30	3.4	0.0	-0.2
01001	00	V	500	27	2.9	-0.3	-0.9
01028	12	V	500	30	3.1	-0.4	-0.1
01028	00	V	500	28	3.3	-1.1	0.5
01400	00	V	500	15	4.3	0.1	-0.6
01400	12	V	500	14	3.3	0.2	0.7
01415	00	V	500	27	3.3	0.3	0.5
01415	12	V	500	30	3.3	1.0	0.5
02365	12	V	500	31	3.1	0.2	-0.3
02365	00	V	500	29	2.8	-0.1	0.3
02591	12	V	500	27	4.2	0.4	-0.7
02591	00	V	500	29	2.7	-0.2	0.3
02836	12	V	500	31	3.0	-0.6	-0.4
02836	00	V	500	30	2.7	-0.2	0.0
02963	12	V	500	28	3.3	-0.3	-0.4
02963	00	V	500	29	2.9	0.4	-0.6
03005	12	V	500	31	4.7	1.5	0.0
03005	00	V	500	26	4.7	-0.7	1.1
03238	00	V	500	27	4.2	-0.4	0.1
03238	12	V	500	11	4.4	0.8	0.2
03808	00	V	500	29	3.1	0.7	-0.2
03808	12	V	500	31	4.3	0.9	0.1
03918	12	V	500	18	5.2	0.3	0.1
03918	00	V	500	27	4.7	0.0	0.2
03953	12	V	500	31	4.8	0.5	-0.1
03953	00	V	500	30	3.3	-0.5	0.5
04018	00	V	500	24	2.8	-0.3	0.1
04018	12	V	500	29	4.7	0.4	1.8
04220	12	V	500	29	3.5	0.7	-0.5
04220	00	V	500	28	3.3	0.5	0.7
04270	00	V	500	30	4.5	0.4	1.4
04270	12	V	500	31	5.0	0.5	0.6
04320	00	V	500	28	2.5	0.0	0.5
04320	12	V	500	27	3.5	-0.4	-0.5
04339	00	V	500	30	2.9	0.1	0.3
04339	12	V	500	29	3.5	-0.3	0.1
04360	12	V	500	27	3.7	0.4	1.0
04360	00	V	500	27	3.4	0.7	0.2
06011	12	V	500	28	4.7	0.1	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	500	26	3.6	0.0	0.3
06260	00	V	500	29	3.3	0.0	-0.3
06260	12	V	500	7	1.7	0.3	-0.4
06610	00	V	500	30	2.5	0.4	-0.1
06610	12	V	500	31	3.2	0.2	-0.2
07110	00	V	500	28	4.3	-0.5	-0.2
07110	12	V	500	27	3.9	-0.2	0.1
07510	12	V	500	31	2.7	0.0	-0.1
07510	00	V	500	29	2.9	-0.1	0.0
07645	12	V	500	31	3.0	0.6	0.5
07645	00	V	500	29	2.4	0.7	-0.5
07761	12	V	500	30	2.5	-0.1	0.0
07761	00	V	500	27	2.5	0.2	0.0
08001	00	V	500	30	3.6	-0.2	0.8
08001	12	V	500	30	4.0	1.2	-0.1
08221	00	V	500	30	3.1	0.6	-0.1
08221	12	V	500	31	2.6	-0.2	-0.6
08302	00	V	500	30	2.3	0.0	0.2
08302	12	V	500	31	2.9	0.6	-0.1
08508	12	V	500	25	4.3	-0.4	1.3
08522	12	V	500	30	3.6	0.0	-0.2
08579	12	V	500	29	3.1	-1.2	-0.2
10035	12	V	500	30	3.7	0.2	-0.2
10035	00	V	500	29	3.2	0.2	-1.1
10393	12	V	500	31	2.2	0.1	-0.5
10393	00	V	500	30	2.3	0.7	-0.1
10410	12	V	500	31	2.7	1.0	-0.9
10410	00	V	500	30	2.8	0.3	-0.5
10739	12	V	500	31	2.5	0.5	-0.2
10739	00	V	500	30	2.2	0.2	-0.2
11035	12	V	500	31	2.3	0.4	0.0
11035	00	V	500	31	2.3	0.8	-0.3
12982	12	V	500	30	3.3	0.3	-0.2
12982	00	V	500	31	1.9	-0.3	-0.2
16044	12	V	500	31	2.7	0.5	-0.9
16044	00	V	500	30	2.5	0.2	-0.4
16080	00	V	500	29	2.3	0.0	-0.4
16080	12	V	500	31	2.6	0.1	-0.7
16245	12	V	500	31	2.1	0.7	-0.1
16245	00	V	500	30	2.0	-0.1	0.0
16320	00	V	500	30	2.3	0.3	0.3
16320	12	V	500	31	2.8	0.6	-0.3
16429	00	V	500	30	2.4	0.0	-0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	500	31	2.6	0.4	0.3
16622	00	V	500	25	4.0	-0.6	1.1
17607	12	V	500	19	2.2	-0.6	0.6
26435	00	V	500	15	3.2	-0.2	-0.5
60018	12	V	500	31	3.0	0.5	-0.2
60018	00	V	500	30	3.4	-0.4	0.0
ASDE01	00	V	500	12	3.6	0.7	-1.1
ASDE01	12	V	500	11	2.7	-0.8	0.4
ASDE03	12	V	500	9	3.6	1.5	0.9
ASDE03	00	V	500	12	4.4	0.1	-0.5
ASDE04	12	V	500	13	3.2	0.8	0.4
ASDE04	00	V	500	12	3.7	0.8	0.8
ASDE09	12	V	500	1	0.5	0.1	-0.5
ASDK01	00	V	500	2	0.7	0.2	0.6
ASDK01	12	V	500	2	3.1	2.9	0.8
ASDK02	12	V	500	15	3.6	-0.1	0.0
ASDK02	00	V	500	14	2.8	-0.2	-1.3
ASDK03	12	V	500	1	6.5	6.3	-1.6
ASDK03	00	V	500	4	2.1	-0.1	1.3
ASDK1	00	V	500	2	1.0	0.3	0.9
ASDK1	12	V	500	1	3.7	3.7	-0.5
ASDK2	00	V	500	14	2.6	-0.2	-1.1
ASDK2	12	V	500	13	3.7	0.0	0.1
ASDK3	12	V	500	1	2.9	0.4	-2.9
ASDK3	00	V	500	5	4.9	-2.1	0.1
ASES01	12	V	500	24	3.6	0.7	0.9
ASEU01	12	V	500	22	3.3	0.4	-0.2
ASEU01	00	V	500	2	1.8	0.2	1.4
ASEU02	00	V	500	7	3.2	-0.1	-1.1
ASEU02	12	V	500	6	4.4	1.8	1.1
ASEU03	12	V	500	3	2.2	-1.8	0.3
ASEU03	00	V	500	4	3.2	-0.8	-2.7
ASEU04	12	V	500	4	4.8	0.8	1.6
ASEU04	00	V	500	7	4.4	1.0	0.0
ASEU06	12	V	500	8	4.0	0.8	-0.7
ASEU06	00	V	500	6	7.9	-1.7	-2.4
ASFR1	12	V	500	11	4.2	0.5	-0.7
ASFR1	00	V	500	9	3.2	-0.3	1.7
ASFR2	12	V	500	10	3.4	-1.0	0.2
ASFR2	00	V	500	11	2.6	0.3	-0.3
ASFR3	12	V	500	12	5.0	1.2	1.6
ASFR3	00	V	500	14	3.8	1.1	-0.5
ASFR4	12	V	500	4	2.2	-0.1	0.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR4	00	V	500	4	2.2	-1.0	-0.5

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 : DEC 2015
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	31	5.4	1.2
01001	00	Z	850	28	4.7	-1.2
01028	12	Z	850	33	8.7	0.3
01028	00	Z	850	31	4.4	-1.1
01400	00	Z	850	17	18.5	9.8
01400	12	Z	850	15	16.4	8.7
01415	00	Z	850	31	4.6	3.5
01415	12	Z	850	31	4.2	3.2
02365	12	Z	850	39	7.1	5.4
02365	00	Z	850	41	4.6	3.9
02591	12	Z	850	30	8.8	8.6
02591	00	Z	850	44	8.3	7.8
02836	12	Z	850	39	2.8	0.8
02836	00	Z	850	44	2.7	-0.2
02963	12	Z	850	29	4.6	3.5
02963	00	Z	850	30	4.1	3.6
03005	12	Z	850	31	4.1	-1.1
03005	00	Z	850	32	4.7	-1.3
03238	00	Z	850	30	6.6	5.3
03238	12	Z	850	11	5.3	4.7
03808	00	Z	850	31	3.9	1.7
03808	12	Z	850	31	3.6	2.2
03918	12	Z	850	18	5.2	4.2
03918	00	Z	850	31	5.3	4.0
03953	12	Z	850	31	6.5	5.1
03953	00	Z	850	32	6.8	2.9
04018	00	Z	850	29	4.9	1.0
04018	12	Z	850	28	4.2	1.5
04220	12	Z	850	29	4.5	2.0
04220	00	Z	850	29	3.7	1.2
04270	00	Z	850	31	5.5	0.3
04270	12	Z	850	31	4.6	1.4
04320	00	Z	850	29	5.3	-0.6
04320	12	Z	850	27	4.0	-0.8
04339	00	Z	850	30	5.2	-0.2
04339	12	Z	850	29	5.3	-0.1
04360	12	Z	850	29	6.3	-4.2
04360	00	Z	850	29	6.1	-3.5
06011	12	Z	850	30	7.8	4.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	850	28	7.3	3.7
06260	00	Z	850	31	4.3	3.3
06260	12	Z	850	7	3.3	1.8
06610	00	Z	850	31	4.3	2.7
06610	12	Z	850	31	4.3	2.0
07110	00	Z	850	30	3.8	2.1
07110	12	Z	850	27	4.5	2.9
07510	12	Z	850	31	3.1	-2.4
07510	00	Z	850	30	3.5	-2.7
07645	12	Z	850	33	4.3	-3.7
07645	00	Z	850	30	4.4	-3.7
07761	12	Z	850	32	3.9	-2.4
07761	00	Z	850	33	4.6	-3.8
08001	00	Z	850	31	6.9	6.3
08001	12	Z	850	30	7.3	6.2
08221	00	Z	850	31	4.8	4.6
08221	12	Z	850	31	4.4	4.0
08302	00	Z	850	31	3.0	-2.1
08302	12	Z	850	32	3.7	-3.2
08508	12	Z	850	25	8.8	5.4
08522	12	Z	850	30	6.2	5.2
08579	12	Z	850	29	6.0	5.4
10035	12	Z	850	30	3.4	1.6
10035	00	Z	850	31	7.5	1.7
10393	12	Z	850	31	2.1	-1.0
10393	00	Z	850	31	2.0	0.0
10410	12	Z	850	32	2.4	-1.1
10410	00	Z	850	31	2.6	-1.5
10739	12	Z	850	31	6.0	5.8
10739	00	Z	850	32	7.0	6.7
11035	12	Z	850	31	10.9	10.1
11035	00	Z	850	31	10.2	9.1
12982	12	Z	850	30	4.0	1.3
12982	00	Z	850	31	2.7	0.1
16044	12	Z	850	31	6.3	-2.9
16044	00	Z	850	32	4.0	-2.5
16080	00	Z	850	31	14.3	-4.5
16080	12	Z	850	31	5.3	-4.3
16245	12	Z	850	31	10.2	-9.4
16245	00	Z	850	31	11.0	-9.3
16320	00	Z	850	31	8.5	-5.5
16320	12	Z	850	31	7.7	-4.3
16429	00	Z	850	31	5.0	-2.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	850	31	5.2	-1.9
16622	00	Z	850	31	10.0	9.3
17607	12	Z	850	37	3.7	2.8
26435	00	Z	850	15	2.6	1.8
60018	12	Z	850	31	3.1	-1.7
60018	00	Z	850	31	2.7	0.0
ASDE01	00	Z	850	13	20.2	-13.2
ASDE01	12	Z	850	12	25.4	-19.2
ASDE03	12	Z	850	9	15.2	9.0
ASDE03	00	Z	850	13	27.2	2.9
ASDE04	12	Z	850	13	22.2	20.5
ASDE04	00	Z	850	16	20.5	19.1
ASDE09	12	Z	850	1	15.7	15.7
ASDK01	00	Z	850	2	12.0	7.0
ASDK01	12	Z	850	2	5.3	1.1
ASDK02	12	Z	850	15	5.7	3.6
ASDK02	00	Z	850	15	5.9	3.3
ASDK03	12	Z	850	1	16.6	16.6
ASDK03	00	Z	850	4	29.1	27.5
ASDK1	00	Z	850	2	10.0	5.8
ASDK1	12	Z	850	1	7.7	-7.7
ASDK2	00	Z	850	15	6.3	3.6
ASDK2	12	Z	850	13	6.9	4.9
ASDK3	12	Z	850	1	12.9	12.9
ASDK3	00	Z	850	5	27.1	25.3
ASES01	12	Z	850	25	2.0	-0.2
ASEU01	12	Z	850	23	12.9	-4.6
ASEU01	00	Z	850	2	16.9	13.1
ASEU02	00	Z	850	8	24.8	24.2
ASEU02	12	Z	850	7	25.8	25.6
ASEU03	12	Z	850	3	11.2	10.6
ASEU03	00	Z	850	4	23.0	-18.5
ASEU04	12	Z	850	4	10.7	-8.1
ASEU04	00	Z	850	7	5.1	-1.6
ASEU06	12	Z	850	8	5.2	-1.0
ASEU06	00	Z	850	7	16.1	5.6
ASFR1	12	Z	850	11	7.4	-6.6
ASFR1	00	Z	850	9	7.4	-7.0
ASFR2	12	Z	850	10	6.3	5.3
ASFR2	00	Z	850	11	7.3	6.5
ASFR3	12	Z	850	13	4.2	-2.4
ASFR3	00	Z	850	14	3.1	-2.0
ASFR4	12	Z	850	4	4.2	2.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR4	00	Z	850	4	3.0	-1.6

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	30	5.0	0.9	0.7
01001	00	V	850	27	3.7	0.1	-0.1
01028	12	V	850	30	2.7	-0.4	-0.3
01028	00	V	850	29	3.1	-0.8	0.0
01400	00	V	850	15	2.7	0.0	0.5
01400	12	V	850	14	2.8	0.5	-0.4
01415	00	V	850	28	3.7	-0.7	-0.5
01415	12	V	850	30	2.9	0.6	-0.1
02365	12	V	850	31	3.2	0.8	0.1
02365	00	V	850	29	3.6	0.1	-0.5
02591	12	V	850	27	2.2	-0.5	-0.3
02591	00	V	850	29	2.5	-0.4	-0.3
02836	12	V	850	31	2.5	0.0	0.0
02836	00	V	850	30	2.8	-0.1	0.0
02963	12	V	850	28	2.5	-0.4	-0.2
02963	00	V	850	29	2.9	-0.7	-0.5
03005	12	V	850	31	3.0	-0.3	0.3
03005	00	V	850	26	4.1	0.2	0.5
03238	00	V	850	27	3.9	0.4	-0.5
03238	12	V	850	11	2.9	0.1	-1.7
03808	00	V	850	29	3.2	0.3	0.4
03808	12	V	850	31	3.8	-0.5	0.0
03918	12	V	850	18	3.8	0.7	-0.3
03918	00	V	850	27	3.7	0.2	0.0
03953	12	V	850	31	3.8	-0.1	0.8
03953	00	V	850	30	3.7	-0.7	0.4
04018	00	V	850	25	3.3	-0.6	0.0
04018	12	V	850	28	2.9	0.4	-0.1
04220	12	V	850	29	3.5	0.6	0.3
04220	00	V	850	28	3.8	1.4	-0.2
04270	00	V	850	30	3.3	0.0	0.6
04270	12	V	850	31	4.2	0.4	1.3
04320	00	V	850	28	3.4	-0.3	0.1
04320	12	V	850	27	3.3	-0.3	0.1
04339	00	V	850	30	5.3	0.9	2.2
04339	12	V	850	29	6.2	0.5	1.2
04360	12	V	850	29	8.0	5.3	1.5
04360	00	V	850	29	8.1	4.4	1.9
06011	12	V	850	30	2.3	-0.3	-0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	850	27	3.2	-0.9	0.1
06260	00	V	850	30	2.6	0.0	-0.5
06260	12	V	850	7	3.5	0.3	1.0
06610	00	V	850	30	3.1	0.2	-0.3
06610	12	V	850	31	3.0	0.7	-0.3
07110	00	V	850	28	3.3	-0.8	0.4
07110	12	V	850	27	3.7	-0.2	0.9
07510	12	V	850	31	3.8	-0.4	-0.2
07510	00	V	850	29	3.0	-0.3	-0.3
07645	12	V	850	31	2.9	0.0	0.6
07645	00	V	850	29	3.4	-0.3	0.2
07761	12	V	850	30	3.3	0.4	0.1
07761	00	V	850	30	3.9	-1.1	0.4
08001	00	V	850	30	3.5	0.7	-0.5
08001	12	V	850	30	3.4	0.8	-0.1
08221	00	V	850	30	2.5	-0.2	0.0
08221	12	V	850	31	2.1	0.0	-0.4
08302	00	V	850	30	2.0	0.4	0.4
08302	12	V	850	31	2.1	0.3	0.4
08508	12	V	850	25	2.9	0.4	-0.2
08522	12	V	850	30	3.0	1.2	-0.3
08579	12	V	850	29	2.5	0.1	-0.4
10035	12	V	850	30	3.3	-0.5	-0.8
10035	00	V	850	29	3.1	-0.2	-0.5
10393	12	V	850	31	2.3	0.1	-0.2
10393	00	V	850	30	3.0	0.2	-0.3
10410	12	V	850	31	2.2	-0.1	0.2
10410	00	V	850	30	3.4	-0.2	0.1
10739	12	V	850	31	3.2	-1.2	-0.7
10739	00	V	850	30	2.5	-0.6	-0.2
11035	12	V	850	31	3.0	0.0	-0.1
11035	00	V	850	31	2.8	-0.4	-0.2
12982	12	V	850	30	2.3	-0.1	-0.3
12982	00	V	850	31	3.2	0.2	-0.3
16044	12	V	850	31	3.5	0.1	0.7
16044	00	V	850	30	2.6	0.4	0.7
16080	00	V	850	29	3.1	0.7	-0.4
16080	12	V	850	31	3.8	0.7	0.3
16245	12	V	850	31	3.6	0.8	-0.9
16245	00	V	850	30	2.8	1.0	-0.4
16320	00	V	850	30	2.4	0.3	-0.5
16320	12	V	850	31	3.1	0.4	-1.0
16429	00	V	850	30	2.6	-0.1	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	850	31	2.9	0.2	0.2
16622	00	V	850	25	2.9	-0.4	-0.3
17607	12	V	850	19	3.6	0.5	0.7
26435	00	V	850	15	3.0	-0.6	0.5
60018	12	V	850	31	3.3	1.2	0.8
60018	00	V	850	30	2.8	1.3	0.8
ASDE01	00	V	850	13	2.8	-1.3	-0.3
ASDE01	12	V	850	11	3.9	0.5	-0.8
ASDE03	12	V	850	9	3.5	-0.2	1.1
ASDE03	00	V	850	12	3.7	-0.4	-1.6
ASDE04	12	V	850	13	3.0	0.6	-0.3
ASDE04	00	V	850	13	2.0	-0.7	0.0
ASDE09	12	V	850	1	2.4	2.2	-0.9
ASDK01	00	V	850	2	2.3	-0.5	0.5
ASDK01	12	V	850	2	2.1	-1.0	0.3
ASDK02	12	V	850	15	2.3	0.0	-0.1
ASDK02	00	V	850	14	2.8	-0.7	0.3
ASDK03	12	V	850	1	1.5	-0.8	-1.3
ASDK03	00	V	850	4	1.8	0.0	-1.5
ASDK1	00	V	850	2	1.5	-0.5	0.2
ASDK1	12	V	850	1	3.1	-0.8	3.0
ASDK2	00	V	850	14	2.6	-0.5	0.4
ASDK2	12	V	850	13	2.3	0.0	0.3
ASDK3	12	V	850	1	0.7	0.7	0.0
ASDK3	00	V	850	5	1.9	-0.7	-0.6
ASES01	12	V	850	24	2.6	0.1	-0.9
ASEU01	12	V	850	22	3.0	0.8	-0.1
ASEU01	00	V	850	2	3.0	2.1	-0.8
ASEU02	00	V	850	7	3.7	-0.3	-1.3
ASEU02	12	V	850	6	2.4	-0.5	-0.8
ASEU03	12	V	850	3	1.1	0.3	-0.7
ASEU03	00	V	850	4	2.9	0.1	-0.8
ASEU04	12	V	850	4	2.6	-1.0	0.2
ASEU04	00	V	850	7	2.5	-0.2	0.3
ASEU06	12	V	850	8	2.0	-0.2	0.3
ASEU06	00	V	850	4	5.6	-1.7	-0.1
ASFR1	12	V	850	11	2.9	0.3	-0.1
ASFR1	00	V	850	9	3.9	-1.9	-1.0
ASFR2	12	V	850	10	4.0	0.9	-1.3
ASFR2	00	V	850	11	3.0	0.5	-0.1
ASFR3	12	V	850	12	2.9	-1.0	0.4
ASFR3	00	V	850	14	3.4	-0.7	0.8
ASFR4	12	V	850	4	4.9	0.4	-3.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR4	00	V	850	4	2.3	1.2	1.8

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 : DEC 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
03380	99	P	SUR	54	0	744	0	0.4	-0.2	0.5
13008	99	P	SUR	15	-38	103	0	0.3	-0.0	0.3
13515	99	P	SUR	27	-54	527	0	0.3	0.0	0.3
13517	99	P	SUR	16	-50	390	0	0.3	0.0	0.3
13519	99	P	SUR	20	-42	268	0	0.3	0.1	0.3
13530	99	P	SUR	13	-21	220	0	0.4	-0.0	0.4
13569	99	P	SUR	29	-35	418	0	0.4	-0.5	0.6
13570	99	P	SUR	38	-22	656	0	0.4	0.4	0.6
13572	99	P	SUR	33	-33	427	0	0.9	-0.3	0.9
13633	99	P	SUR	31	-26	521	0	0.4	-0.8	0.9
13660	99	P	SUR	31	-50	743	0	1.4	-0.1	1.4
13661	99	P	SUR	15	-31	735	0	0.3	-0.4	0.5
13662	99	P	SUR	30	-52	348	8	1.2	-0.3	1.3
13665	99	P	SUR	23	-21	743	0	0.3	0.1	0.3
13868	99	P	SUR	34	-14	743	0	0.3	0.4	0.5
13869	99	P	SUR	23	-41	743	0	0.3	0.1	0.3
13870	99	P	SUR	32	-14	742	0	0.3	1.2	1.2
13871	99	P	SUR	28	-33	742	0	0.4	0.3	0.5
13872	99	P	SUR	26	-29	742	0	0.4	0.4	0.5
21942	99	P	SUR	29	-42	674	0	0.3	0.1	0.3
25540	99	P	SUR	75	-16	646	0	0.6	-0.7	0.9
25575	99	P	SUR	78	-16	668	0	1.0	0.1	1.0
25617	99	P	SUR	80	-11	724	0	0.9	-1.1	1.4
25618	99	P	SUR	82	-5	743	0	0.8	-0.1	0.8
25620	99	P	SUR	76	-11	149	0	0.4	-0.2	0.5
26537	99	P	SUR	75	7	692	0	2.8	-0.8	3.0
26546	99	P	SUR	83	9	703	0	0.8	0.6	1.0
31515	99	P	SUR	25	-69	633	0	0.4	0.0	0.4
31863	99	P	SUR	25	-57	742	0	0.4	0.7	0.8
41040	99	P	SUR	15	-53	729	0	0.3	-0.8	0.8
41041	99	P	SUR	14	-46	743	0	0.3	-0.4	0.5
41043	99	P	SUR	21	-65	741	0	0.3	-0.4	0.5
41044	99	P	SUR	22	-59	740	0	0.3	-0.4	0.5
41046	99	P	SUR	24	-68	747	0	0.3	-0.1	0.3
41048	99	P	SUR	32	-70	747	0	0.4	-0.6	0.7
41049	99	P	SUR	28	-63	742	0	0.4	-0.2	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
41051	99	P	SUR	18	-65	1480	0	0.4	-0.3	0.5
41052	99	P	SUR	18	-65	1901	0	0.4	-1.3	1.3
41053	99	P	SUR	19	-66	2001	0	0.4	-0.5	0.7
41056	99	P	SUR	18	-66	1825	0	0.4	-0.9	1.0
41139	99	P	SUR	20	-38	204	0	0.2	-0.2	0.3
41300	99	P	SUR	16	-58	701	2	0.4	-0.1	0.4
41564	99	P	SUR	29	-35	368	0	0.3	0.1	0.3
41594	99	P	SUR	28	-63	508	0	0.3	-0.1	0.3
41596	99	P	SUR	27	-69	742	0	0.3	-0.1	0.3
41597	99	P	SUR	24	-59	742	0	0.3	0.2	0.3
41598	99	P	SUR	25	-57	742	0	1.0	0.2	1.0
41635	99	P	SUR	22	-46	743	0	0.3	0.5	0.5
41637	99	P	SUR	17	-51	2	0	0.0	0.5	0.5
41638	99	P	SUR	14	-53	632	0	0.3	0.3	0.4
41706	99	P	SUR	33	-55	743	0	0.4	-0.2	0.5
41707	99	P	SUR	14	-61	736	0	0.3	-1.0	1.1
41708	99	P	SUR	13	-38	742	0	0.3	0.4	0.5
41711	99	P	SUR	33	-36	743	0	0.9	-0.4	1.0
41729	99	P	SUR	36	-58	742	0	0.5	-0.3	0.5
41731	99	P	SUR	26	-54	742	0	0.3	0.2	0.3
41739	99	P	SUR	44	-43	494	88	0.9	-1.0	1.4
41936	99	P	SUR	31	-65	671	0	0.3	-0.9	1.0
41969	99	P	SUR	28	-61	46	0	0.4	-1.3	1.3
41970	99	P	SUR	31	-66	742	0	0.4	-0.0	0.4
41972	99	P	SUR	34	-52	741	0	0.5	-0.3	0.6
41975	99	P	SUR	31	-25	572	1	0.4	-0.1	0.4
42059	99	P	SUR	15	-68	740	0	0.3	-0.3	0.5
42060	99	P	SUR	16	-63	743	0	0.3	-0.2	0.3
42085	99	P	SUR	18	-67	1831	0	0.4	-1.0	1.0
44005	99	P	SUR	43	-69	776	0	0.6	-0.7	0.9
44008	99	P	SUR	41	-69	742	0	0.6	-0.7	0.9
44011	99	P	SUR	41	-67	744	0	0.7	-1.0	1.2
44018	99	P	SUR	42	-70	743	0	0.6	-0.4	0.7
44024	99	P	SUR	42	-66	836	0	0.5	-1.0	1.1
44027	99	P	SUR	44	-67	753	0	0.6	-0.3	0.7
44032	99	P	SUR	44	-69	740	0	0.6	-1.2	1.3
44033	99	P	SUR	44	-69	738	0	0.6	-1.4	1.5
44034	99	P	SUR	44	-68	739	0	0.6	-0.5	0.8
44037	99	P	SUR	44	-68	528	0	0.6	-0.2	0.6
44137	99	P	SUR	42	-62	744	0	0.6	-0.2	0.7
44139	99	P	SUR	44	-57	712	0	0.5	-0.1	0.5
44141	99	P	SUR	43	-58	707	0	0.6	-0.2	0.6
44150	99	P	SUR	43	-64	697	0	0.6	-0.2	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44251	99	P	SUR	46	-53	727	0	0.5	0.1	0.5
44255	99	P	SUR	47	-57	899	0	0.5	0.0	0.5
44258	99	P	SUR	45	-63	60	1	0.6	-0.4	0.7
44513	99	P	SUR	53	-18	743	0	0.7	0.2	0.7
44515	99	P	SUR	47	-43	743	0	0.5	-0.2	0.6
44516	99	P	SUR	41	-51	586	0	0.8	0.2	0.8
44517	99	P	SUR	42	-21	743	0	0.5	0.1	0.5
44519	99	P	SUR	51	-6	28	0	0.3	0.3	0.4
44546	99	P	SUR	27	-48	743	0	0.2	-0.2	0.3
44547	99	P	SUR	60	-14	583	2	2.8	-0.4	2.8
44548	99	P	SUR	60	-21	743	0	0.7	0.2	0.7
44549	99	P	SUR	57	-6	742	0	0.6	-0.7	1.0
44551	99	P	SUR	62	-9	742	0	0.7	-0.0	0.7
44557	99	P	SUR	40	-48	742	0	0.6	0.2	0.6
44558	99	P	SUR	33	-45	545	0	0.4	0.3	0.5
44601	99	P	SUR	48	-12	742	0	0.6	-0.8	1.0
44608	99	P	SUR	47	-16	743	0	0.6	-0.2	0.7
44609	99	P	SUR	47	-17	742	0	0.7	-0.1	0.7
44613	99	P	SUR	25	-35	743	0	0.3	-0.3	0.4
44614	99	P	SUR	53	-16	742	0	0.7	-0.7	1.0
44620	99	P	SUR	60	-11	633	0	0.6	0.2	0.7
44623	99	P	SUR	64	-31	742	0	0.7	-0.2	0.7
44624	99	P	SUR	25	-36	734	0	0.3	-0.3	0.4
44625	99	P	SUR	65	-36	722	0	0.7	0.1	0.7
44670	99	P	SUR	53	-54	669	0	0.5	0.2	0.5
44739	99	P	SUR	39	-43	742	0	0.5	0.1	0.5
44740	99	P	SUR	29	-58	742	0	0.3	-0.4	0.5
44744	99	P	SUR	46	-37	742	0	0.8	-0.7	1.1
44746	99	P	SUR	39	-43	742	0	0.5	0.0	0.5
44747	99	P	SUR	47	-34	742	0	0.9	-0.9	1.2
44760	99	P	SUR	56	-41	742	0	0.6	-1.0	1.2
44761	99	P	SUR	56	-24	742	0	0.7	-0.6	0.9
44762	99	P	SUR	47	-45	742	0	0.5	0.3	0.6
44763	99	P	SUR	64	-28	739	0	0.5	-0.1	0.6
44764	99	P	SUR	55	-22	742	0	0.7	-0.7	1.0
44765	99	P	SUR	46	-47	709	0	0.6	0.3	0.7
44766	99	P	SUR	45	-51	742	0	0.6	0.3	0.6
44768	99	P	SUR	36	-45	742	0	1.2	0.5	1.3
44769	99	P	SUR	36	-63	742	0	0.4	-0.2	0.4
44772	99	P	SUR	54	-49	224	0	0.4	-0.4	0.6
44773	99	P	SUR	52	-50	24	0	3.3	-9.2	9.8
44774	99	P	SUR	36	-50	743	0	0.4	-0.1	0.4
44775	99	P	SUR	35	-67	742	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
44776	99	P	SUR	39	-37	742	0	0.6	0.0	0.6
44777	99	P	SUR	50	-51	224	0	0.5	0.1	0.5
44778	99	P	SUR	36	-44	743	0	0.4	-0.0	0.4
44779	99	P	SUR	48	-52	200	0	0.5	0.1	0.5
44835	99	P	SUR	36	-25	742	0	0.6	-0.6	0.8
44836	99	P	SUR	61	-13	742	0	0.6	0.1	0.6
44837	99	P	SUR	24	-28	742	0	0.3	-0.2	0.3
44839	99	P	SUR	33	-20	742	0	0.3	0.0	0.3
44846	99	P	SUR	37	-25	743	0	0.5	0.2	0.6
44848	99	P	SUR	37	-22	743	0	0.5	0.0	0.5
44863	99	P	SUR	29	-51	742	0	0.3	-0.6	0.7
44866	99	P	SUR	65	-2	743	0	0.5	-0.2	0.6
44867	99	P	SUR	57	-23	743	0	0.6	-0.2	0.7
44868	99	P	SUR	27	-45	743	0	1.4	-0.2	1.4
44869	99	P	SUR	38	-41	739	3	2.5	0.5	2.5
44871	99	P	SUR	46	-9	743	0	1.4	-0.2	1.4
44872	99	P	SUR	63	-13	743	3	1.9	-0.4	2.0
44873	99	P	SUR	41	-39	742	0	0.6	0.3	0.7
44874	99	P	SUR	46	-39	742	0	0.7	-0.3	0.8
44875	99	P	SUR	38	-37	24	0	2.0	2.3	3.0
44878	99	P	SUR	38	-12	742	0	0.4	0.0	0.4
44880	99	P	SUR	48	-16	730	0	0.7	-0.7	1.0
44885	99	P	SUR	34	-23	742	0	0.4	-0.2	0.5
44887	99	P	SUR	35	-51	742	0	0.6	-0.5	0.8
44888	99	P	SUR	39	-13	742	0	0.4	-0.2	0.4
44889	99	P	SUR	32	-55	742	0	0.5	-0.2	0.5
44891	99	P	SUR	28	-51	742	0	0.3	-0.3	0.4
44896	99	P	SUR	31	-51	553	0	0.3	-0.6	0.6
47503	99	P	SUR	63	-26	649	590	4.6	11.5	12.4
47509	99	P	SUR	85	-32	698	0	0.6	0.3	0.7
47539	99	P	SUR	51	-54	661	0	0.5	0.5	0.7
47540	99	P	SUR	53	-53	674	6	0.8	0.5	0.9
47546	99	P	SUR	53	-53	678	21	0.6	0.2	0.6
47549	99	P	SUR	53	-55	679	6	1.3	0.3	1.3
47551	99	P	SUR	62	-61	717	0	0.6	-1.5	1.6
47552	99	P	SUR	67	-63	657	0	0.7	-1.8	1.9
47555	99	P	SUR	52	-55	535	10	0.7	0.4	0.8
47557	99	P	SUR	54	-55	483	2	2.6	0.8	2.7
47560	99	P	SUR	53	-52	535	0	0.4	0.6	0.7
47562	99	P	SUR	55	-52	668	1	0.4	0.5	0.7
47567	99	P	SUR	54	-54	671	0	1.7	0.2	1.8
47568	99	P	SUR	53	-55	676	1	1.1	1.0	1.5
47569	99	P	SUR	51	-53	683	0	0.4	1.0	1.1

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
47574	99	P	SUR	53	-52	484	0	0.5	0.0	0.5
47584	99	P	SUR	52	-54	680	13	1.2	0.4	1.3
47589	99	P	SUR	67	-63	671	0	0.7	-2.1	2.2
48520	99	P	SUR	88	-37	641	0	0.5	0.4	0.7
48568	99	P	SUR	56	-26	664	0	0.6	-0.7	0.9
61001	99	P	SUR	43	8	741	0	0.4	0.3	0.5
62001	99	P	SUR	45	-5	1182	0	0.4	0.0	0.4
62027	99	P	SUR	49	-2	234	0	0.6	-0.0	0.6
62029	99	P	SUR	49	-12	1400	0	0.6	-0.5	0.8
62030	99	P	SUR	50	-4	1307	0	0.5	0.0	0.5
62052	99	P	SUR	49	-6	1	0	0.0	6.9	6.9
62081	99	P	SUR	51	-13	744	0	0.8	-0.5	0.9
62082	99	P	SUR	55	6	3	0	0.2	-0.2	0.3
62086	99	P	SUR	55	6	681	2	0.6	-0.3	0.7
62087	99	P	SUR	55	7	118	0	0.4	-0.1	0.4
62091	99	P	SUR	53	-5	555	23	1.7	-0.1	1.7
62092	99	P	SUR	51	-11	211	0	0.6	-0.2	0.6
62093	99	P	SUR	55	-10	386	0	4.1	1.4	4.3
62094	99	P	SUR	52	-7	332	0	0.6	-0.5	0.8
62095	99	P	SUR	53	-16	1310	0	0.8	-0.1	0.8
62102	99	P	SUR	58	2	744	0	1.0	0.3	1.0
62103	99	P	SUR	50	-3	745	0	0.5	0.3	0.6
62104	99	P	SUR	57	1	744	0	0.6	0.0	0.6
62105	99	P	SUR	55	-13	668	2	1.2	-0.3	1.2
62107	99	P	SUR	50	-6	1364	4	0.9	0.1	0.9
62111	99	P	SUR	58	0	743	0	0.6	1.3	1.4
62112	99	P	SUR	58	0	743	0	0.5	0.1	0.5
62113	99	P	SUR	58	0	743	0	0.9	0.7	1.1
62114	99	P	SUR	58	0	1402	0	0.6	-0.1	0.6
62115	99	P	SUR	58	-3	733	0	0.8	0.1	0.8
62116	99	P	SUR	58	1	743	0	1.0	0.1	1.0
62117	99	P	SUR	58	0	689	0	0.6	0.3	0.6
62118	99	P	SUR	58	1	744	0	0.4	0.5	0.7
62119	99	P	SUR	57	2	730	0	0.7	0.3	0.7
62120	99	P	SUR	56	2	743	0	0.5	-0.2	0.6
62121	99	P	SUR	54	3	741	0	0.7	1.2	1.3
62122	99	P	SUR	57	2	1404	0	0.6	0.2	0.7
62123	99	P	SUR	56	2	1402	0	0.6	-0.1	0.6
62124	99	P	SUR	54	-4	633	0	0.6	-0.1	0.6
62127	99	P	SUR	54	1	744	0	0.5	0.3	0.6
62128	99	P	SUR	59	1	744	0	0.6	-0.1	0.6
62129	99	P	SUR	58	0	743	0	0.8	0.5	1.0
62130	99	P	SUR	59	1	744	0	0.6	-0.3	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62131	99	P	SUR	54	1	744	0	0.6	0.5	0.7
62132	99	P	SUR	56	2	742	0	0.5	0.4	0.7
62133	99	P	SUR	57	1	744	0	1.0	0.3	1.0
62134	99	P	SUR	58	1	744	0	0.5	0.2	0.6
62135	99	P	SUR	54	2	715	0	0.5	0.1	0.5
62136	99	P	SUR	54	3	744	0	0.7	0.8	1.0
62137	99	P	SUR	57	2	685	0	0.8	-0.1	0.8
62138	99	P	SUR	54	0	1402	0	0.7	1.4	1.5
62139	99	P	SUR	53	2	1395	0	0.4	0.2	0.5
62140	99	P	SUR	57	1	1404	0	0.6	0.0	0.6
62141	99	P	SUR	56	-3	744	0	1.0	-1.9	2.1
62143	99	P	SUR	58	2	740	0	0.7	0.5	0.8
62144	99	P	SUR	53	2	743	0	0.5	0.3	0.6
62145	99	P	SUR	53	3	1402	0	0.5	0.2	0.5
62146	99	P	SUR	57	2	736	0	0.8	0.5	1.0
62148	99	P	SUR	54	2	743	0	0.4	1.2	1.3
62149	99	P	SUR	54	1	744	0	0.5	0.7	0.8
62150	99	P	SUR	54	1	703	0	0.4	1.2	1.2
62151	99	P	SUR	57	2	1346	0	0.6	0.2	0.6
62152	99	P	SUR	57	2	744	0	0.6	0.8	1.0
62153	99	P	SUR	57	2	1400	0	0.5	0.0	0.5
62154	99	P	SUR	56	2	744	0	0.5	0.2	0.5
62155	99	P	SUR	58	1	743	0	0.5	0.6	0.8
62157	99	P	SUR	58	0	744	0	0.6	0.1	0.6
62159	99	P	SUR	58	-4	743	0	0.7	-2.4	2.5
62160	99	P	SUR	57	2	632	0	0.6	-0.3	0.7
62161	99	P	SUR	58	1	744	0	0.8	0.3	0.9
62162	99	P	SUR	57	1	740	0	0.6	-0.2	0.6
62163	99	P	SUR	48	-8	743	0	0.5	-0.2	0.5
62164	99	P	SUR	57	1	743	0	0.5	0.1	0.5
62165	99	P	SUR	54	1	736	0	0.5	0.2	0.5
62167	99	P	SUR	53	2	1404	0	0.5	0.0	0.5
62168	99	P	SUR	58	1	569	0	0.5	0.1	0.5
62170	99	P	SUR	51	2	631	0	1.0	-1.0	1.4
62198	99	P	SUR	52	2	819	0	0.5	0.4	0.6
62297	99	P	SUR	59	2	1396	0	0.6	0.1	0.6
62298	99	P	SUR	48	-5	385	0	0.5	0.3	0.6
62301	99	P	SUR	52	-5	742	0	0.6	-0.1	0.6
62303	99	P	SUR	52	-5	1	1	0.0	0.0	0.0
62304	99	P	SUR	51	2	845	1	0.5	0.2	0.5
62305	99	P	SUR	50	0	869	1	0.6	0.3	0.7
62513	99	P	SUR	62	-38	742	0	0.8	-0.1	0.8
62516	99	P	SUR	24	-48	743	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
62539	99	P	SUR	60	-13	742	0	0.7	-0.3	0.8
62552	99	P	SUR	48	-5	741	0	0.4	0.1	0.5
62553	99	P	SUR	56	-37	743	0	0.6	-0.1	0.6
62554	99	P	SUR	45	-18	664	0	0.7	-0.0	0.7
62555	99	P	SUR	48	-16	742	0	0.7	0.0	0.7
62556	99	P	SUR	41	-34	743	0	0.7	0.2	0.8
62557	99	P	SUR	48	-31	742	0	1.0	-0.6	1.2
62681	99	P	SUR	25	-38	494	64	3.0	-1.7	3.5
62695	99	P	SUR	26	-47	743	0	0.4	0.2	0.4
62713	99	P	SUR	30	-59	736	0	0.4	-0.5	0.6
62714	99	P	SUR	32	-55	740	0	0.4	-0.5	0.6
62940	99	P	SUR	38	-32	742	0	0.5	-0.6	0.8
62941	99	P	SUR	34	-22	742	0	0.4	-0.2	0.4
63055	99	P	SUR	61	2	744	0	0.8	0.1	0.8
63056	99	P	SUR	60	2	744	0	0.7	0.5	0.9
63057	99	P	SUR	59	2	744	0	0.5	-0.2	0.6
63058	99	P	SUR	53	2	2145	0	0.5	0.2	0.5
63059	99	P	SUR	58	-1	744	0	0.5	0.3	0.6
63101	99	P	SUR	61	1	744	0	1.0	0.2	1.0
63102	99	P	SUR	61	1	744	0	0.8	0.3	0.9
63103	99	P	SUR	61	1	744	0	0.6	0.3	0.7
63104	99	P	SUR	61	2	744	0	0.6	-0.1	0.6
63105	99	P	SUR	61	2	743	0	0.6	-0.3	0.6
63107	99	P	SUR	61	2	743	0	0.5	-0.4	0.7
63108	99	P	SUR	61	2	744	0	0.8	0.1	0.8
63109	99	P	SUR	60	2	744	0	0.5	-0.3	0.6
63110	99	P	SUR	60	2	744	0	0.8	-0.2	0.9
63111	99	P	SUR	61	2	1396	0	0.7	-0.8	1.0
63112	99	P	SUR	61	1	740	0	0.6	-0.5	0.8
63114	99	P	SUR	61	2	1398	0	0.5	-0.6	0.8
63115	99	P	SUR	62	1	744	0	0.6	-0.3	0.6
63116	99	P	SUR	59	2	705	0	1.4	-0.5	1.5
63117	99	P	SUR	61	1	1404	0	1.1	0.7	1.3
63118	99	P	SUR	52	4	1186	0	0.9	0.1	0.9
63119	99	P	SUR	58	0	104	0	1.3	-0.5	1.4
63120	99	P	SUR	54	2	744	0	0.5	0.4	0.7
63546	99	P	SUR	64	-22	662	27	4.4	0.1	4.4
63560	99	P	SUR	73	-5	674	0	1.4	-0.4	1.5
63561	99	P	SUR	72	-5	675	0	0.5	0.1	0.5
63645	99	P	SUR	75	17	396	0	2.3	-1.4	2.7
63923	99	P	SUR	82	-5	703	3	2.0	-0.2	2.0
64041	99	P	SUR	61	-3	744	0	0.6	-0.2	0.7
64045	99	P	SUR	59	-12	1399	0	0.8	-0.0	0.8

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
64046	99	P	SUR	61	-4	741	0	0.6	-0.1	0.6
64049	99	P	SUR	56	-3	744	0	0.7	-2.3	2.4
64519	99	P	SUR	71	14	742	0	0.7	0.0	0.7
64521	99	P	SUR	73	11	743	0	0.6	-0.2	0.7
64522	99	P	SUR	74	15	742	0	0.9	-0.4	1.0
64523	99	P	SUR	69	3	398	0	0.7	-0.1	0.7
64524	99	P	SUR	67	13	742	0	0.7	0.1	0.7
64525	99	P	SUR	69	-15	576	22	1.9	0.1	1.9
64526	99	P	SUR	61	-54	742	0	0.7	0.0	0.7
64528	99	P	SUR	64	6	743	0	0.5	0.4	0.6
64529	99	P	SUR	55	-10	16	0	1.1	-1.5	1.9
64530	99	P	SUR	73	4	737	0	0.6	0.5	0.8
64532	99	P	SUR	53	-35	552	41	0.7	-13.6	13.6
64537	99	P	SUR	81	-7	235	0	0.8	-0.8	1.1
64538	99	P	SUR	83	-11	677	0	0.8	0.2	0.8
64547	99	P	SUR	67	1	743	0	0.6	0.3	0.7
64549	99	P	SUR	63	-18	742	0	0.8	-0.6	1.0
64550	99	P	SUR	63	-25	368	87	6.0	-0.4	6.0
64551	99	P	SUR	57	-41	737	0	0.9	0.9	1.2
64553	99	P	SUR	62	-3	742	0	0.5	0.0	0.5
64554	99	P	SUR	63	-18	742	0	0.7	0.2	0.7
64555	99	P	SUR	61	-11	742	0	0.6	0.2	0.6
64560	99	P	SUR	62	-15	742	0	0.9	0.2	0.9
64606	99	P	SUR	67	8	719	0	0.7	0.1	0.7
64621	99	P	SUR	64	-25	742	0	0.6	-0.1	0.6
64622	99	P	SUR	71	19	611	0	0.6	-0.1	0.6
64623	99	P	SUR	71	-5	743	0	1.5	-0.5	1.5
64666	99	P	SUR	79	1	743	4	2.4	0.2	2.4
64667	99	P	SUR	61	-1	686	0	0.6	-0.4	0.8
64668	99	P	SUR	69	-18	743	28	2.1	-0.1	2.1
64694	99	P	SUR	61	-33	248	0	2.0	-0.2	2.0
64748	99	P	SUR	88	-45	662	0	0.5	-0.2	0.5
64749	99	P	SUR	88	-1	662	0	0.6	-0.4	0.7
64751	99	P	SUR	86	32	663	0	0.5	-0.3	0.6
65511	99	P	SUR	70	-57	1	0	0.0	14.4	14.4
65512	99	P	SUR	75	-65	137	0	1.4	-0.8	1.6
65514	99	P	SUR	61	-59	576	4	2.4	1.0	2.6
65515	99	P	SUR	65	-56	64	0	5.6	-0.6	5.6
65516	99	P	SUR	76	-68	218	0	0.4	0.2	0.4
65519	99	P	SUR	59	-42	248	0	1.0	-0.3	1.1
65596	99	P	SUR	54	-36	742	0	0.7	-0.1	0.7
65599	99	P	SUR	54	-42	740	0	0.6	-0.3	0.7
65601	99	P	SUR	60	-54	742	0	0.5	0.1	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
65602	99	P	SUR	56	-38	742	0	0.6	-0.6	0.8
65603	99	P	SUR	68	-54	742	3	2.6	0.1	2.6

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : DEC 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
13002	99	SPEED	SUR	20	-23	222	0	0	0.9	0.3	0.9
13008	99	SPEED	SUR	15	-38	103	0	0	0.7	0.3	0.8
41026	99	SPEED	SUR	12	-38	67	0	0	0.8	0.4	0.9
41040	99	SPEED	SUR	15	-53	729	0	0	0.9	-0.1	0.9
41041	99	SPEED	SUR	14	-46	743	0	0	0.8	-0.2	0.8
41043	99	SPEED	SUR	21	-65	741	0	0	0.9	0.0	1.0
41044	99	SPEED	SUR	22	-59	740	0	0	0.9	-0.1	1.0
41046	99	SPEED	SUR	24	-68	747	0	0	1.1	-0.3	1.2
41048	99	SPEED	SUR	32	-70	747	0	0	1.0	-0.3	1.0
41049	99	SPEED	SUR	28	-63	742	0	0	1.1	-0.1	1.1
41051	99	SPEED	SUR	18	-65	1479	0	0	1.1	-0.1	1.1
41052	99	SPEED	SUR	18	-65	1887	0	0	0.9	-0.1	0.9
41053	99	SPEED	SUR	19	-66	2005	0	0	1.5	-0.7	1.6
41056	99	SPEED	SUR	18	-66	1827	0	0	1.2	-0.3	1.2
41139	99	SPEED	SUR	20	-38	204	0	0	1.0	-0.2	1.0
41300	99	SPEED	SUR	16	-58	704	0	0	1.3	0.3	1.4
42059	99	SPEED	SUR	15	-68	740	0	0	0.8	0.2	0.9
42060	99	SPEED	SUR	16	-63	743	0	0	1.0	0.2	1.1
42085	99	SPEED	SUR	18	-67	1842	0	0	1.1	-0.0	1.2
44005	99	SPEED	SUR	43	-69	776	0	0	1.4	0.3	1.5
44008	99	SPEED	SUR	41	-69	742	0	0	1.7	-0.2	1.7
44011	99	SPEED	SUR	41	-67	744	0	0	1.8	-0.5	1.9
44018	99	SPEED	SUR	42	-70	743	0	0	1.4	0.0	1.4
44024	99	SPEED	SUR	42	-66	837	0	0	1.3	0.0	1.3
44027	99	SPEED	SUR	44	-67	753	0	0	1.6	0.6	1.7
44032	99	SPEED	SUR	44	-69	741	0	0	1.6	0.2	1.6
44033	99	SPEED	SUR	44	-69	740	0	0	1.7	1.8	2.5
44034	99	SPEED	SUR	44	-68	740	0	0	1.4	0.4	1.5
44037	99	SPEED	SUR	44	-68	528	0	0	1.3	0.5	1.4
44137	99	SPEED	SUR	42	-62	744	0	0	1.5	1.0	1.8
44139	99	SPEED	SUR	44	-57	719	0	0	1.4	0.1	1.4
44141	99	SPEED	SUR	43	-58	710	0	0	2.3	0.3	2.3
44150	99	SPEED	SUR	43	-64	702	0	0	1.7	0.4	1.7
44251	99	SPEED	SUR	46	-53	728	0	0	1.5	-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
44255	99	SPEED	SUR	47	-57	906	0	0	1.4	0.6	1.5
44258	99	SPEED	SUR	45	-63	94	0	0	1.4	-0.0	1.4
61001	99	SPEED	SUR	43	8	741	0	0	1.6	-0.1	1.6
62001	99	SPEED	SUR	45	-5	1182	0	0	1.4	-0.5	1.5
62027	99	SPEED	SUR	49	-2	213	0	0	1.4	0.2	1.5
62029	99	SPEED	SUR	49	-12	1400	0	0	1.6	0.1	1.6
62081	99	SPEED	SUR	51	-13	744	0	0	1.5	0.2	1.5
62082	99	SPEED	SUR	55	6	3	0	0	0.9	3.1	3.2
62086	99	SPEED	SUR	55	6	718	3	0	1.9	1.3	2.3
62087	99	SPEED	SUR	55	7	118	0	0	1.4	0.6	1.6
62091	99	SPEED	SUR	53	-5	743	0	0	1.6	0.2	1.6
62092	99	SPEED	SUR	51	-11	211	0	0	1.2	-1.0	1.6
62093	99	SPEED	SUR	55	-10	743	0	0	1.6	-0.7	1.7
62094	99	SPEED	SUR	52	-7	332	0	0	1.3	-0.6	1.5
62095	99	SPEED	SUR	53	-16	2	0	0	6.3	-5.4	8.3
62102	99	SPEED	SUR	58	2	744	0	0	1.8	-0.5	1.9
62103	99	SPEED	SUR	50	-3	745	0	0	1.9	0.6	2.0
62104	99	SPEED	SUR	57	1	744	0	0	1.5	-0.4	1.6
62105	99	SPEED	SUR	55	-13	598	0	0	1.3	0.3	1.3
62107	99	SPEED	SUR	50	-6	1362	0	0	2.2	0.4	2.3
62111	99	SPEED	SUR	58	0	742	0	0	2.0	0.4	2.0
62112	99	SPEED	SUR	58	0	743	0	0	2.2	-0.9	2.4
62113	99	SPEED	SUR	58	0	743	3	0	2.0	0.7	2.1
62114	99	SPEED	SUR	58	0	1146	0	0	1.8	0.6	1.9
62117	99	SPEED	SUR	58	0	689	0	0	1.6	0.1	1.6
62118	99	SPEED	SUR	58	1	744	0	0	2.0	1.1	2.3
62119	99	SPEED	SUR	57	2	743	0	0	2.0	-1.3	2.4
62120	99	SPEED	SUR	56	2	743	0	0	1.5	0.9	1.7
62121	99	SPEED	SUR	54	3	741	0	0	1.5	-0.8	1.7
62122	99	SPEED	SUR	57	2	1404	0	0	1.4	-0.3	1.4
62123	99	SPEED	SUR	56	2	1402	0	0	1.5	0.5	1.6
62128	99	SPEED	SUR	59	1	744	0	0	2.2	1.1	2.5
62129	99	SPEED	SUR	58	0	743	0	0	1.4	-0.5	1.5
62131	99	SPEED	SUR	54	1	744	0	0	1.8	-0.0	1.8
62132	99	SPEED	SUR	56	2	742	0	0	1.7	-1.2	2.1
62133	99	SPEED	SUR	57	1	744	0	0	1.5	0.1	1.5
62134	99	SPEED	SUR	58	1	744	0	0	1.7	0.3	1.7
62140	99	SPEED	SUR	57	1	1390	2	0	1.3	0.0	1.3
62143	99	SPEED	SUR	58	2	740	0	0	2.8	-1.5	3.1
62144	99	SPEED	SUR	53	2	743	0	0	2.5	-0.6	2.6
62145	99	SPEED	SUR	53	3	1402	0	0	1.6	0.0	1.6

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
62146	99	SPEED	SUR	57	2	736	0	0	3.7	-3.2	5.0
62148	99	SPEED	SUR	54	2	743	0	0	1.8	-0.1	1.8
62149	99	SPEED	SUR	54	1	744	0	0	1.4	0.8	1.6
62150	99	SPEED	SUR	54	1	703	0	0	1.6	-0.4	1.6
62152	99	SPEED	SUR	57	2	744	0	0	1.9	-1.5	2.4
62153	99	SPEED	SUR	57	2	1400	0	0	3.6	-3.5	5.0
62154	99	SPEED	SUR	56	2	744	0	0	1.5	0.2	1.5
62155	99	SPEED	SUR	58	1	743	0	0	1.5	0.5	1.6
62163	99	SPEED	SUR	48	-8	742	0	0	1.1	0.0	1.1
62164	99	SPEED	SUR	57	1	679	0	0	1.7	-1.8	2.5
62165	99	SPEED	SUR	54	1	737	0	0	1.9	-1.2	2.3
62170	99	SPEED	SUR	51	2	631	0	0	2.1	1.9	2.8
62198	99	SPEED	SUR	52	2	819	0	0	1.8	0.8	2.0
62298	99	SPEED	SUR	48	-5	385	0	0	1.2	-1.1	1.6
62301	99	SPEED	SUR	52	-5	742	0	0	1.2	-0.3	1.2
62303	99	SPEED	SUR	52	-5	1	0	0	0.0	-3.1	3.1
62304	99	SPEED	SUR	51	2	844	1	0	2.4	1.9	3.0
62305	99	SPEED	SUR	50	0	818	0	0	1.8	1.0	2.0
62442	99	SPEED	SUR	49	-16	744	2	0	1.7	-0.1	1.7
63055	99	SPEED	SUR	61	2	744	0	0	1.5	-1.2	1.9
63056	99	SPEED	SUR	60	2	742	0	0	1.6	0.1	1.6
63057	99	SPEED	SUR	59	2	744	0	0	2.3	0.5	2.4
63058	99	SPEED	SUR	53	2	745	0	0	1.2	0.2	1.2
63101	99	SPEED	SUR	61	1	743	0	0	1.8	-1.3	2.2
63104	99	SPEED	SUR	61	2	744	0	0	1.7	-0.2	1.7
63105	99	SPEED	SUR	61	2	743	0	0	1.8	-0.1	1.8
63106	99	SPEED	SUR	61	2	724	0	0	1.5	-0.5	1.6
63107	99	SPEED	SUR	61	2	743	0	0	1.7	-0.0	1.7
63108	99	SPEED	SUR	61	2	744	0	0	1.8	0.6	2.0
63109	99	SPEED	SUR	60	2	743	0	0	1.7	0.5	1.8
63110	99	SPEED	SUR	60	2	744	0	0	1.9	-0.5	2.0
63112	99	SPEED	SUR	61	1	740	0	0	1.5	-0.7	1.7
63113	99	SPEED	SUR	61	2	743	0	0	1.5	-0.4	1.5
63114	99	SPEED	SUR	61	2	1398	0	0	2.0	0.2	2.0
63115	99	SPEED	SUR	62	1	744	0	0	1.4	-0.9	1.7
63117	99	SPEED	SUR	61	1	692	0	0	1.9	-0.1	2.0
63119	99	SPEED	SUR	58	0	104	0	0	2.5	-0.8	2.6
64041	99	SPEED	SUR	61	-3	744	0	0	1.8	-0.1	1.8
64046	99	SPEED	SUR	61	-4	741	0	0	1.7	0.3	1.7
66021	99	SPEED	SUR	55	14	741	0	0	1.5	0.2	1.5
66022	99	SPEED	SUR	54	14	533	0	0	1.3	0.5	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
66024	99	SPEED	SUR	55	13	746	0	0	1.3	0.4	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 : DEC 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
13002	99	DIRN	SUR	20	-23	209	0	0	10.4	11.0	15.1
13008	99	DIRN	SUR	15	-38	102	0	0	7.9	4.0	8.8
41001	99	DIRN	SUR	35	-73	889	0	0	13.9	7.7	15.9
41002	99	DIRN	SUR	32	-75	669	0	0	13.4	-2.8	13.7
41004	99	DIRN	SUR	33	-79	608	0	0	20.3	11.1	23.1
41008	99	DIRN	SUR	31	-81	464	0	0	19.6	7.4	21.0
41009	99	DIRN	SUR	29	-80	761	0	0	17.1	5.4	17.9
41013	99	DIRN	SUR	33	-78	1066	0	0	22.6	13.6	26.4
41024	99	DIRN	SUR	34	-79	360	0	0	19.4	3.8	19.8
41025	99	DIRN	SUR	35	-75	658	0	0	20.2	2.8	20.4
41026	99	DIRN	SUR	12	-38	67	0	0	11.4	-4.4	12.2
41029	99	DIRN	SUR	33	-80	373	0	0	23.5	1.8	23.6
41033	99	DIRN	SUR	32	-80	439	0	0	22.0	3.6	22.3
41037	99	DIRN	SUR	34	-77	522	0	0	24.5	-3.3	24.7
41038	99	DIRN	SUR	34	-78	515	0	0	27.8	-0.5	27.8
41040	99	DIRN	SUR	15	-53	724	0	0	8.7	-0.1	8.7
41041	99	DIRN	SUR	14	-46	726	0	0	8.7	4.2	9.7
41043	99	DIRN	SUR	21	-65	738	0	0	10.1	4.8	11.2
41044	99	DIRN	SUR	22	-59	717	0	0	11.5	-0.4	11.5
41046	99	DIRN	SUR	24	-68	663	0	0	12.8	-0.0	12.8
41047	99	DIRN	SUR	28	-72	635	0	0	22.2	3.8	22.5
41048	99	DIRN	SUR	32	-70	611	0	0	12.1	6.4	13.7
41049	99	DIRN	SUR	28	-63	613	0	0	12.9	9.5	16.0
41051	99	DIRN	SUR	18	-65	1472	0	0	9.8	-10.0	14.0
41052	99	DIRN	SUR	18	-65	1880	0	0	9.4	3.2	10.0
41053	99	DIRN	SUR	19	-66	1724	0	0	14.9	-6.0	16.1
41056	99	DIRN	SUR	18	-66	1811	0	0	11.6	2.2	11.8
41064	99	DIRN	SUR	34	-77	576	0	0	39.4	-20.7	44.5
41139	99	DIRN	SUR	20	-38	187	0	0	10.3	1.2	10.4
41300	99	DIRN	SUR	16	-58	701	0	0	9.9	-3.5	10.5
42013	99	DIRN	SUR	27	-83	1013	0	0	13.0	-5.4	14.1
42022	99	DIRN	SUR	28	-84	974	0	0	13.0	-1.5	13.1

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
42023	99	DIRN	SUR	26	-83	1189	0	0	13.5	-1.9	13.6
42036	99	DIRN	SUR	29	-85	645	0	0	26.7	0.1	26.7
42056	99	DIRN	SUR	20	-85	621	0	0	12.8	3.7	13.4
42057	99	DIRN	SUR	17	-82	724	0	0	13.8	2.4	14.0
42058	99	DIRN	SUR	15	-75	713	0	0	12.3	4.3	13.1
42059	99	DIRN	SUR	15	-68	740	0	0	6.8	-2.8	7.3
42060	99	DIRN	SUR	16	-63	736	0	0	9.3	1.8	9.5
42085	99	DIRN	SUR	18	-67	1841	0	0	13.4	6.1	14.7
44005	99	DIRN	SUR	43	-69	655	0	0	15.2	8.2	17.3
44007	99	DIRN	SUR	44	-70	510	0	0	27.0	8.4	28.2
44008	99	DIRN	SUR	41	-69	601	0	0	14.9	13.2	19.9
44009	99	DIRN	SUR	39	-75	609	0	0	20.6	16.2	26.2
44011	99	DIRN	SUR	41	-67	612	0	0	20.2	6.0	21.1
44013	99	DIRN	SUR	42	-71	571	0	0	17.1	0.5	17.1
44014	99	DIRN	SUR	37	-75	601	0	0	22.8	5.9	23.5
44017	99	DIRN	SUR	41	-72	623	0	0	15.3	0.6	15.3
44018	99	DIRN	SUR	42	-70	636	0	0	16.1	4.8	16.8
44020	99	DIRN	SUR	41	-70	617	0	0	16.1	5.8	17.1
44022	99	DIRN	SUR	41	-74	168	0	0	17.6	14.7	23.0
44024	99	DIRN	SUR	42	-66	712	0	0	15.9	4.7	16.5
44025	99	DIRN	SUR	40	-73	640	0	0	16.0	3.6	16.4
44027	99	DIRN	SUR	44	-67	655	0	0	15.8	8.8	18.1
44029	99	DIRN	SUR	43	-71	951	0	0	17.0	8.3	18.9
44030	99	DIRN	SUR	43	-70	530	0	0	27.6	3.6	27.8
44032	99	DIRN	SUR	44	-69	571	0	0	17.9	7.8	19.5
44033	99	DIRN	SUR	44	-69	457	0	0	17.6	2.4	17.8
44034	99	DIRN	SUR	44	-68	628	0	0	15.8	4.5	16.4
44037	99	DIRN	SUR	44	-68	443	0	0	16.1	7.2	17.6
44039	99	DIRN	SUR	41	-73	589	0	0	19.0	4.0	19.4
44041	99	DIRN	SUR	37	-77	48	0	0	27.3	-2.7	27.5
44042	99	DIRN	SUR	38	-76	503	0	0	19.5	-12.5	23.2
44043	99	DIRN	SUR	39	-76	77	0	0	16.0	-9.3	18.5
44058	99	DIRN	SUR	38	-76	607	0	0	23.2	-3.8	23.5
44059	99	DIRN	SUR	37	-76	150	0	0	10.3	-17.9	20.6
44060	99	DIRN	SUR	41	-72	579	0	0	18.2	3.5	18.5
44062	99	DIRN	SUR	39	-76	526	0	0	23.7	-5.9	24.4
44063	99	DIRN	SUR	39	-76	80	0	0	19.5	-1.4	19.5
44065	99	DIRN	SUR	40	-74	588	0	0	21.3	6.5	22.2
44066	99	DIRN	SUR	40	-73	593	0	0	15.7	7.4	17.4
44069	99	DIRN	SUR	41	-73	390	0	0	23.9	-9.2	25.6
44137	99	DIRN	SUR	42	-62	695	0	0	19.6	3.0	19.8

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
44139	99	DIRN	SUR	44	-57	665	0	0	14.3	12.8	19.2
44141	99	DIRN	SUR	43	-58	630	0	0	18.0	2.7	18.2
44150	99	DIRN	SUR	43	-64	624	0	0	16.3	5.7	17.2
44251	99	DIRN	SUR	46	-53	700	0	0	13.4	11.1	17.4
44255	99	DIRN	SUR	47	-57	832	0	0	12.3	8.1	14.7
44258	99	DIRN	SUR	45	-63	72	0	0	24.7	4.0	25.0
45003	99	DIRN	SUR	45	-83	196	0	0	13.8	0.8	13.8
45005	99	DIRN	SUR	42	-82	206	0	0	14.1	6.3	15.4
45012	99	DIRN	SUR	44	-77	272	0	0	22.7	10.2	24.9
45135	99	DIRN	SUR	44	-77	318	0	0	19.0	-14.6	23.9
45139	99	DIRN	SUR	43	-80	234	0	0	19.3	-16.5	25.4
45142	99	DIRN	SUR	43	-79	445	0	0	20.8	-22.8	30.9
45143	99	DIRN	SUR	45	-81	374	0	0	15.4	-13.6	20.6
45149	99	DIRN	SUR	44	-82	379	0	0	12.8	-8.9	15.6
45159	99	DIRN	SUR	44	-79	230	0	0	21.0	-13.4	24.9
62001	99	DIRN	SUR	45	-5	1061	0	0	14.7	9.8	17.6
62027	99	DIRN	SUR	49	-2	212	0	0	22.0	4.7	22.5
62029	99	DIRN	SUR	49	-12	1355	0	0	16.4	4.6	17.1
62081	99	DIRN	SUR	51	-13	710	0	0	16.3	7.5	17.9
62091	99	DIRN	SUR	53	-5	711	0	0	14.8	-0.1	14.8
62092	99	DIRN	SUR	51	-11	199	0	0	10.5	-0.3	10.5
62093	99	DIRN	SUR	55	-10	717	0	0	15.6	-5.3	16.4
62094	99	DIRN	SUR	52	-7	321	0	0	14.1	3.5	14.5
62095	99	DIRN	SUR	53	-16	1	0	0	0.0	5.1	5.1
62103	99	DIRN	SUR	50	-3	742	0	0	15.4	3.9	15.9
62105	99	DIRN	SUR	55	-13	563	0	0	11.6	2.3	11.9
62107	99	DIRN	SUR	50	-6	1354	0	0	11.9	0.2	11.9
62111	99	DIRN	SUR	58	0	716	0	0	11.5	3.7	12.0
62112	99	DIRN	SUR	58	0	703	0	0	10.5	2.8	10.8
62114	99	DIRN	SUR	58	0	1110	0	0	10.6	6.7	12.5
62117	99	DIRN	SUR	58	0	672	0	0	10.3	3.7	10.9
62163	99	DIRN	SUR	48	-8	741	0	0	11.2	5.6	12.5
62298	99	DIRN	SUR	48	-5	379	0	0	14.4	6.0	15.6
62301	99	DIRN	SUR	52	-5	715	0	0	10.5	-7.0	12.6
62303	99	DIRN	SUR	52	-5	1	0	0	0.0	-8.0	8.0
62305	99	DIRN	SUR	50	0	813	0	0	9.8	4.5	10.8
62442	99	DIRN	SUR	49	-16	716	2	0	17.9	-5.1	18.6
64041	99	DIRN	SUR	61	-3	694	0	0	10.2	16.9	19.8
64046	99	DIRN	SUR	61	-4	687	0	0	11.6	-4.4	12.4

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE02	ASDE04	ASDK01	ASDK02	ASDK03	ASES01	ASEU01	ASEU02	ASEU04
DBLK	01001	01004	01010	01028	01241	01400	01415	01492
02185	02365	02527	02591	02836	02935	02963	03953	06260
08001	08023	08221	08302	08430	10035	10113	10184	10238
10304	10393	10410	10618	10739	10868	10954	10962	60018

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

ASDE01	ASDE02	ASDE03	ASDE04	ASDE09	ASDK01	ASDK02	ASDK03	ASES01
ASEU01	ASEU02	ASEU03	ASEU04	ASEU06	ASFR3	41169	89859	94653
94767								

5 Annex - Explanations of figures and tables

5.1 General

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

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

5.2 Data Availability

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

5.3 Data Quality

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

It should be noted that:

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

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

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

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

The corresponding limits for wind (table 8) are:

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

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

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

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

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

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

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

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

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