



ECMWF Global Data Monitoring Report

March 2018

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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 15) - 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 (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 26 (Dec 14) - Coverage chart for ATOVS AMSU-A for Noaa_16 removed
- Revision 25 (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 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	Feb	Mar	Ident	Time	Feb	Mar
02527	(00)	20	1	30635	(00)	0	28
08430	(00)	28	6	30635	(12)	0	31
31510	(00)	27	15	41256	(00)	5	26
31510	(12)	28	14	42027	(00)	0	30
40800	(00)	27	11	42101	(00)	6	29
40811	(00)	21	0	42647	(12)	0	11
43599	(12)	21	0	42667	(00)	2	28
48453	(00)	24	9	42971	(12)	2	24
48820	(00)	28	17	43014	(00)	0	12
48820	(12)	28	17	43041	(00)	0	17
61052	(12)	26	8	43192	(00)	0	23
63985	(12)	27	9	43295	(00)	1	31
64910	(00)	27	4	43295	(12)	0	25
64910	(12)	25	5	43333	(12)	0	19
70200	(12)	45	30	43371	(00)	5	29
70316	(12)	32	18	43371	(12)	0	23
71934	(12)	28	10	48327	(00)	18	30
74004	(00)	17	0	48453	(12)	0	13
74004	(12)	27	0	48568	(00)	15	26
74005	(00)	19	0	62378	(00)	8	19
74005	(12)	14	0	67083	(00)	9	31
78970	(00)	27	14	67197	(00)	0	17
82599	(00)	27	6	67197	(12)	1	17
82599	(12)	28	5	68538	(12)	48	61
83378	(00)	28	4	70219	(00)	22	37
83378	(12)	28	13	74794	(12)	29	42
83554	(00)	28	13	82107	(00)	7	28
83566	(12)	28	17	82107	(12)	10	29
89009	(12)	22	2	82400	(00)	8	25
89022	(12)	26	0	82400	(12)	9	29
89056	(12)	12	0	83899	(00)	0	22
89664	(12)	26	4	83899	(12)	0	27
91643	(00)	22	6	85442	(12)	28	52
97900	(12)	14	0	85469	(00)	26	51
-	-	-	-	85799	(12)	27	52
-	-	-	-	85934	(12)	29	51
-	-	-	-	89859	(00)	16	31
-	-	-	-	94150	(00)	13	27
-	-	-	-	96315	(00)	20	31

2.2 Drifting Buoys

Surface pressure observations from **1398** 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.

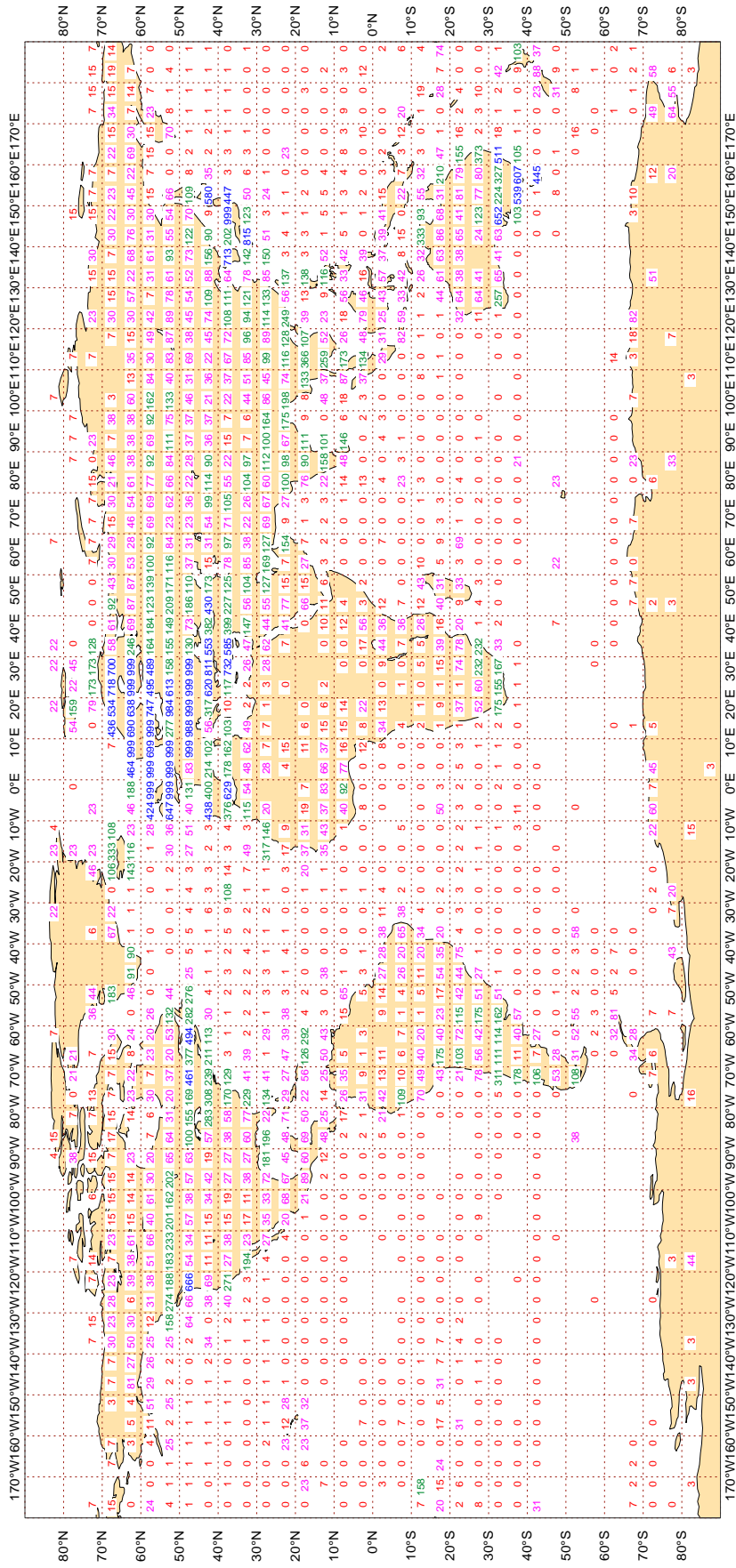
Fig	Parameter	Level/Layer
14	SATOB - Mean observed wind	1000-700 hPa
15	SATOB - Mean observed wind	400-150 hPa
16	SATOB - Mean observed minus first-guess wind	1000-700 hPa
17	SATOB - Mean observed minus first-guess wind	400-150 hPa
18	AIRCRAFT WIND - Mean observed minus first-guess	300-150 hPa

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

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

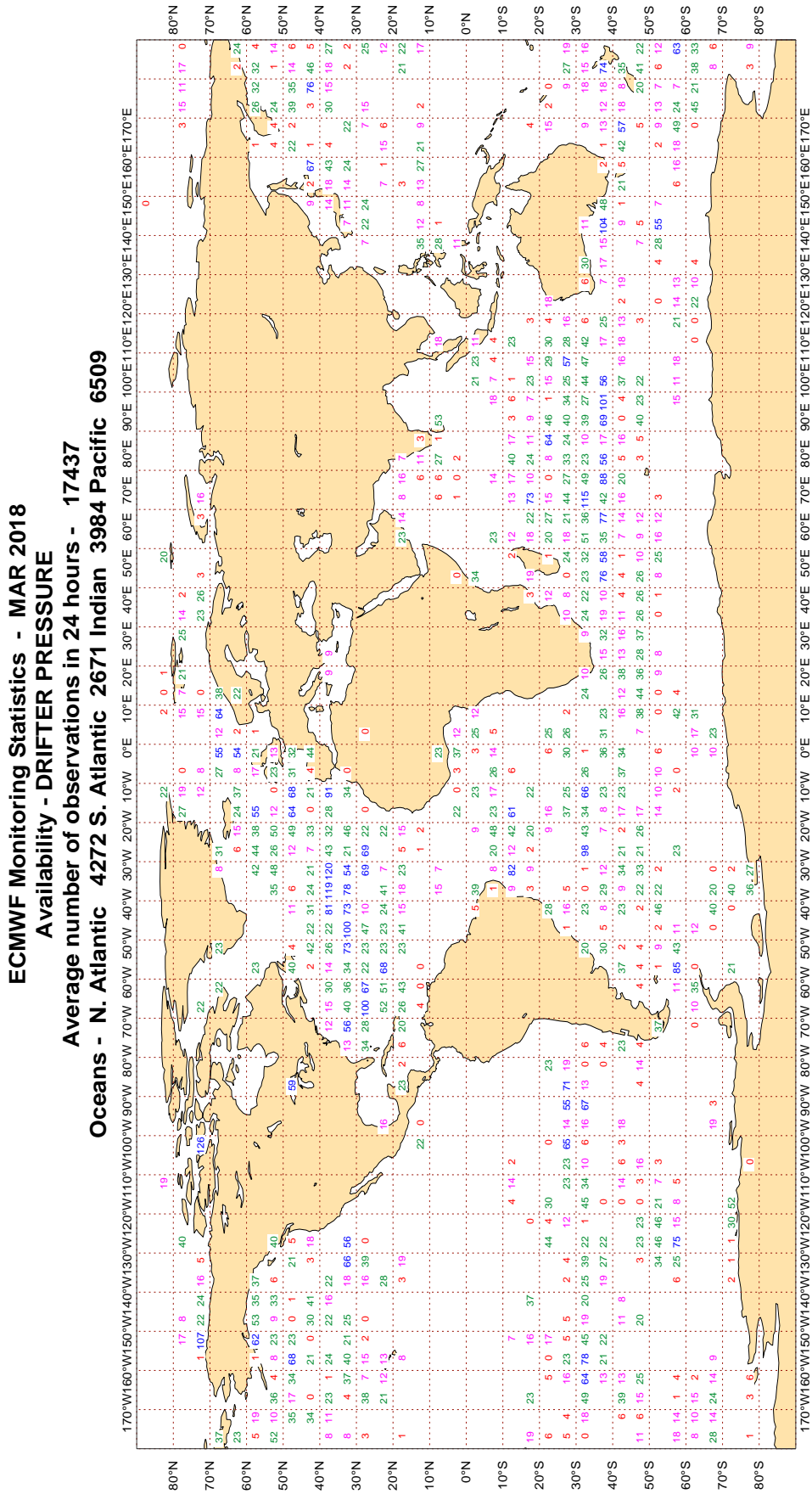
Figure 1

ECMWF Monitoring Statistics - MAR 2018
 Availability - SYNOP/SHIP (manual, auto) pressure
 Average number of observations in 24 hours - 95152
 LAND - WMO Region I: 4377 II:18523 III: 3768 IV: 7173
 Region V: 8780 VI:39527 Antarctic: 1036
 Oceans - N. Atlantic 7246 S. Atlantic 282 Indian 488 Pacific 3952



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2

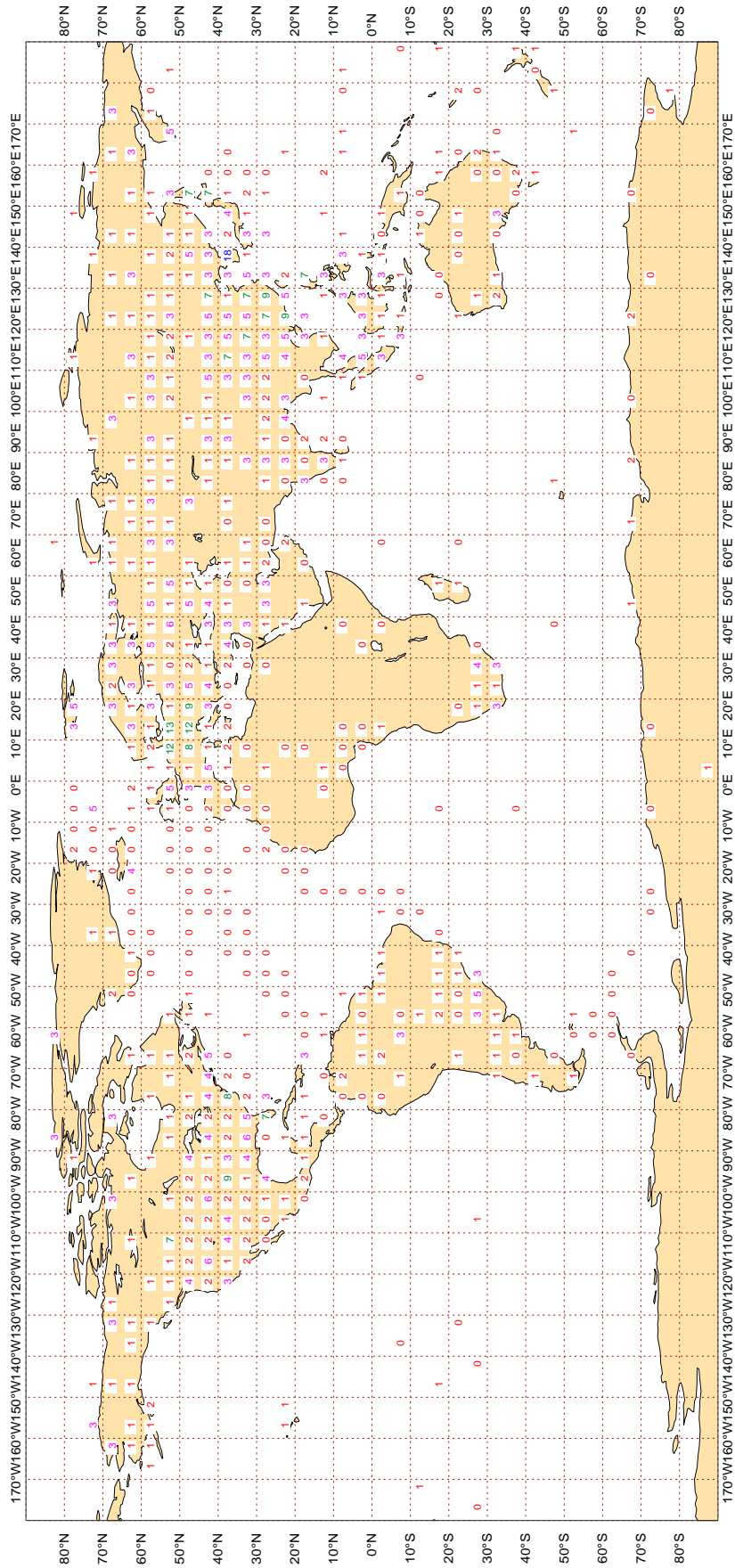


Magicis 2.24.2 (64 bit)

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

Figure 3

ECMWF Monitoring Statistics - MAR 2018
 Availability - TEMP 500 hPa Geopotential
 Average number of observations in 24 hours - 1347
 LAND - WMO Region I: 44 II: 497 III: 74 IV: 283
 Region V: 139 VI: 280 Antarctic: 17
 Oceans - N. Atlantic 10 S. Atlantic 1 Indian 0 Pacific 1



Magics 2.24.2 (64 bit)



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

Figure 4

ECMWF Monitoring Statistics - MAR 2018

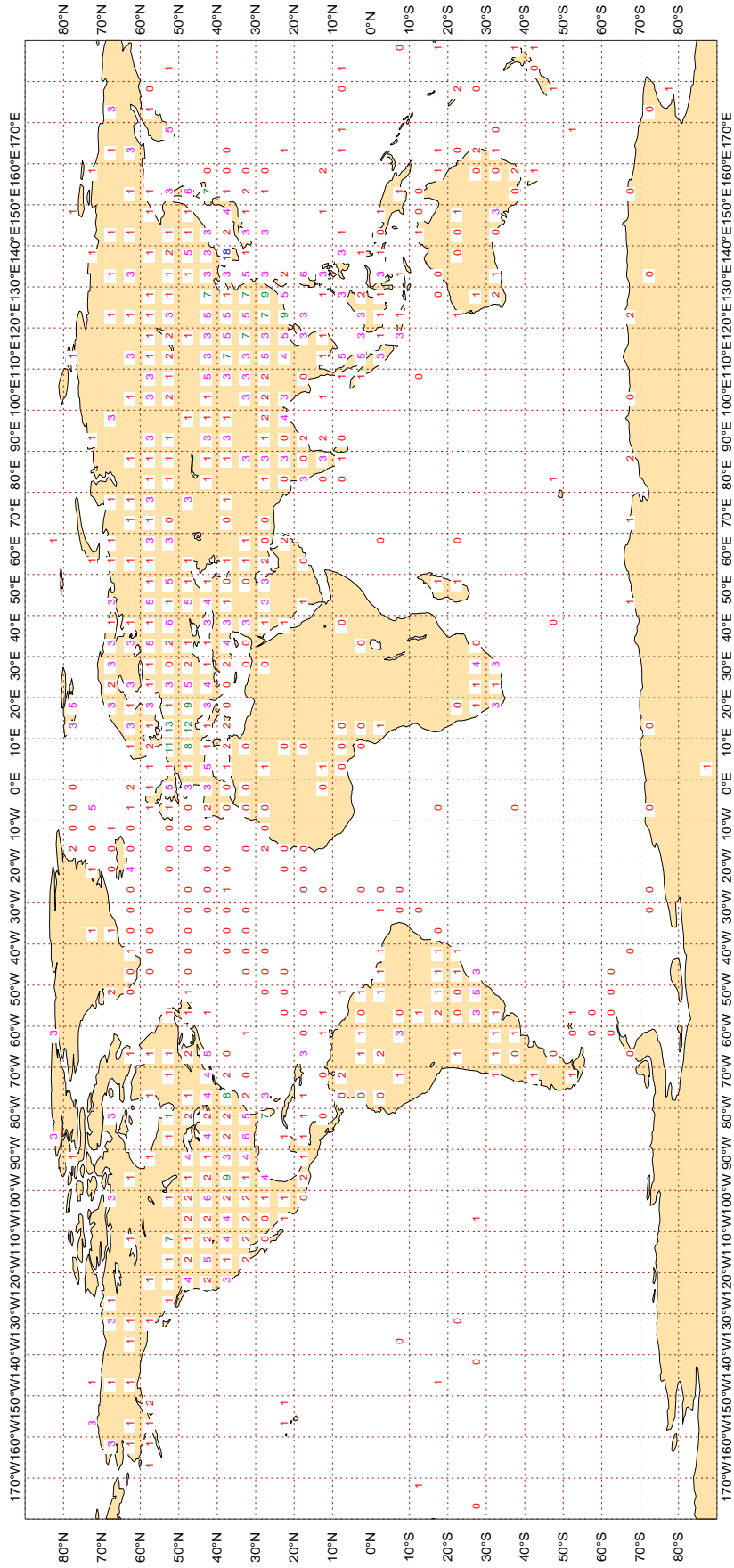
Availability - TEMP/PILOT 300 hPa wind

Average number of observations in 24 hours - 1332

LAND - WMO Region I: 43 II: 489 III: 74 IV: 282

Region V: 138 VI: 278 Antarctic: 17

Oceans - N. Atlantic 9 S. Atlantic 1 Indian 0 Pacific 1



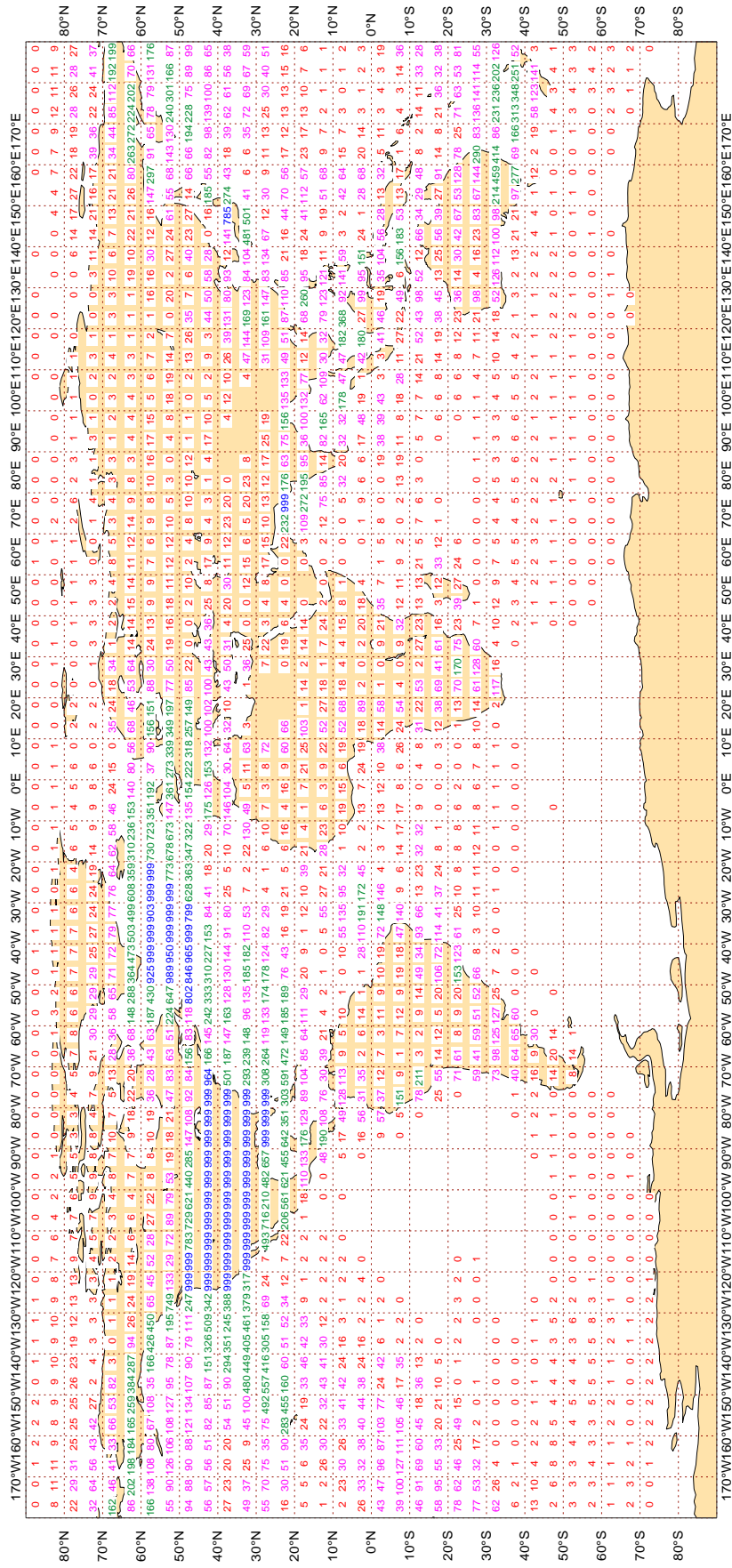
Magics 2.24.2 (64 bit)



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

Figure 5

ECMWF Monitoring Statistics - MAR 2018
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 217699



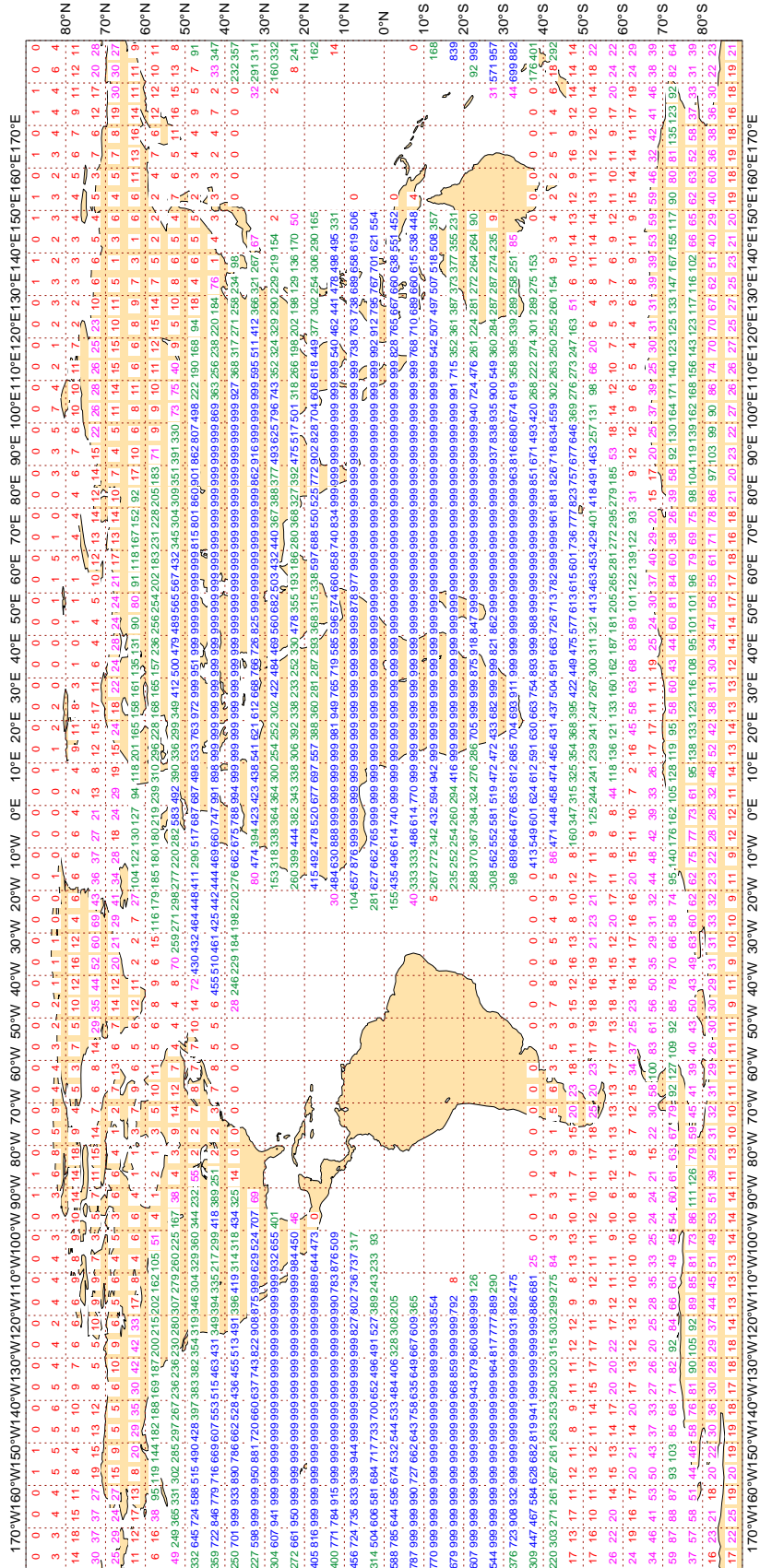
Majics 2.24.2 (64 bit)



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

Figure 6

ECMWF Monitoring Statistics - MAR 2018
Availability - AMV winds 400-150 hPa
Average number of observations in 24 hours - 878132



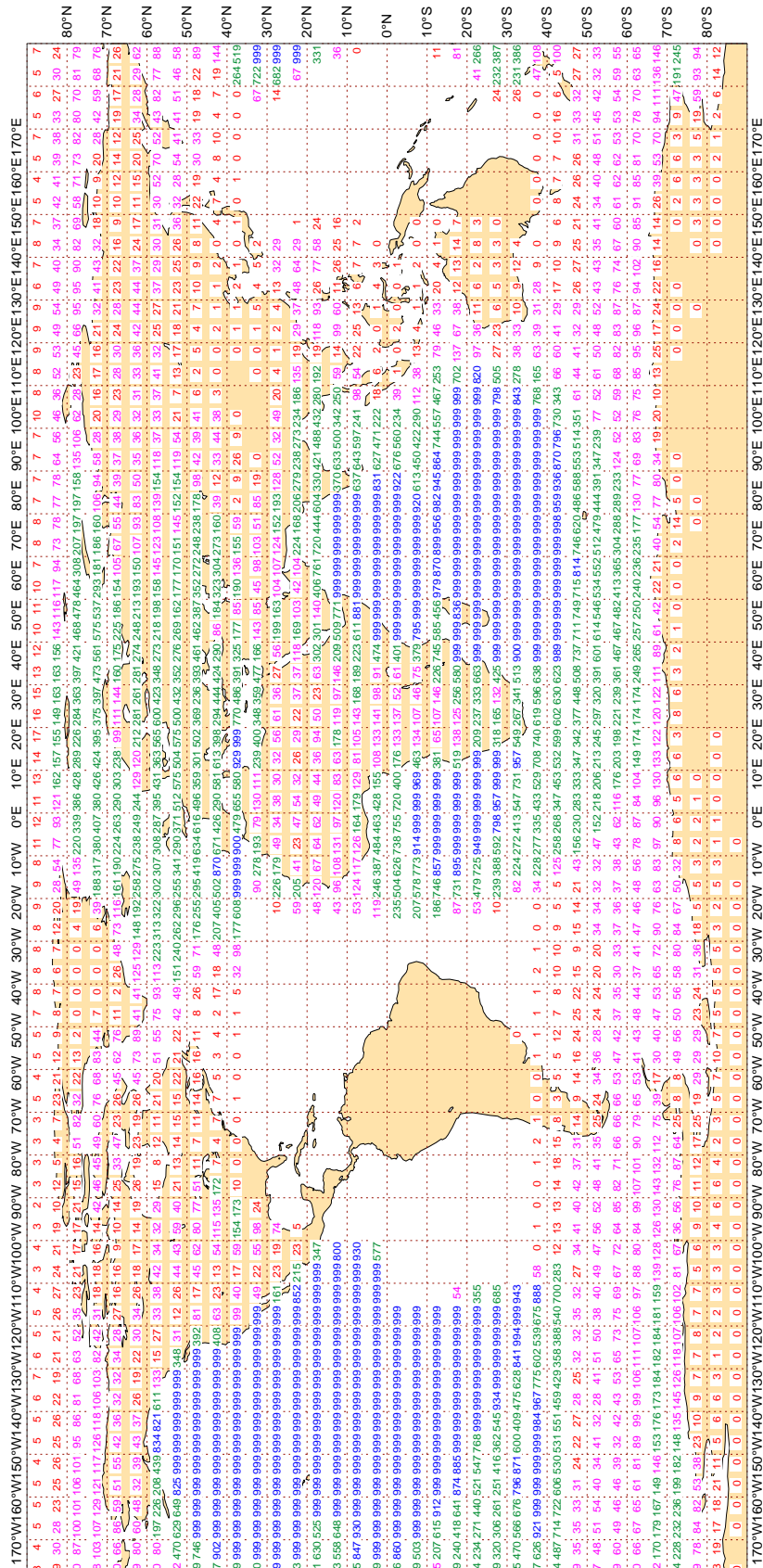
Majics 2.24.2 (64 bit)



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

Figure 7

ECMWF Monitoring Statistics - MAR 2018
Availability - AMV winds 1000-700 hPa
Average number of observations in 24 hours - 891524



Magics 2.24.2 (64 bit)



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

Figure 8

ECMWF Monitoring Statistics - MAR 2018
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 310178

Table with 181 columns representing longitude (170°W to 170°E) and 18 rows representing latitude (80°N to 80°S). The table contains numerical data representing the average number of observations in 24 hours for NOAA15 ATOVS AMSU-A in March 2018.

Majics 2.24.2 (64 bit)



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

Figure 9.1

ECMWF Monitoring Statistics - MAR 2018
Availability - NOAA18 ATOVS : AMSU-A
Average number of observations in 24 hours - 543353

Table with 10 columns representing latitude (80°N to 80°S) and 10 columns representing longitude (170°W to 170°E). The table contains numerical data representing the average number of observations in 24 hours for NOAA18 ATOVS AMSU-A in March 2018.



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 : MAR 2018
 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
2HDG2	99	P	SUR	25	0	2.9	4.5	5.4
42059	99	P	SUR	15	0	1.3	-7.5	7.6
5BZE2	99	P	SUR	41	0	2.3	4.0	4.7
9V5632	99	P	SUR	16	0	1.3	5.3	5.5
9V9289	99	P	SUR	30	0	0.9	3.7	3.8
9V9373	99	P	SUR	18	0	1.5	4.6	4.9
9V9832	99	P	SUR	27	0	0.8	-3.1	3.2
9V9925	99	P	SUR	17	6	6.9	-1.2	7.0
A8SI4	99	P	SUR	18	0	1.9	9.1	9.3
BKIC	99	P	SUR	53	0	1.7	-3.8	4.2
C6AB7	99	P	SUR	15	0	0.9	9.7	9.7
C6BX8	99	P	SUR	42	0	0.5	4.3	4.3
C6FM9	99	P	SUR	55	0	1.1	5.2	5.3
C6FN2	99	P	SUR	15	0	0.6	3.5	3.5
C6FW9	99	P	SUR	19	0	0.6	-3.1	3.2
C6YZ5	99	P	SUR	37	0	2.2	-4.5	5.0
J8AZ3	99	P	SUR	24	0	1.4	3.5	3.8
OZ2049	99	P	SUR	20	0	1.6	-4.7	4.9
SBPQ	99	P	SUR	123	0	1.7	-5.1	5.4
SDIA	99	P	SUR	118	31	4.4	-0.6	4.4
TBWUK34	99	P	SUR	21	0	0.6	-5.1	5.2
UBSH5	99	P	SUR	17	0	2.6	-3.2	4.1
UCFT	99	P	SUR	20	0	0.7	-4.3	4.3
UCTS	99	P	SUR	70	9	5.8	6.0	8.4
UERK	99	P	SUR	17	1	5.1	0.8	5.2
UIZZ	99	P	SUR	80	4	3.0	3.4	4.5
VRAR6	99	P	SUR	24	0	1.3	-3.1	3.4
VRBQ2	99	P	SUR	18	0	1.8	3.3	3.7
VRGO3	99	P	SUR	18	0	1.5	-4.1	4.4
VRGO8	99	P	SUR	15	0	1.4	-5.0	5.2
VRIB2	99	P	SUR	16	0	0.7	4.7	4.7
VRID2	99	P	SUR	50	0	1.3	4.6	4.8

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
VRLA6	99	P	SUR	49	0	2.1	5.6	6.0
VRME6	99	P	SUR	15	0	0.8	-3.5	3.6
VRPY5	99	P	SUR	19	0	1.5	4.5	4.7
VRPY7	99	P	SUR	70	0	1.1	-3.4	3.5
VRVP2	99	P	SUR	72	0	2.0	3.3	3.8
VRYO7	99	P	SUR	28	0	0.9	-5.0	5.0
VTFG	99	P	SUR	120	0	0.7	-3.2	3.3
VTXB	99	P	SUR	119	61	7.5	-4.8	8.9
VWTI	99	P	SUR	49	0	0.9	7.3	7.4
WDB3161	99	P	SUR	37	0	0.7	4.0	4.0
WDE4432	99	P	SUR	17	0	0.5	-3.9	4.0
WDI6469	99	P	SUR	28	0	5.4	-0.5	5.4

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 : MAR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : MAR 2018
 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
34002	99	DIRN	SUR	201	101	0	148.7	86.0	171.8
42365	99	DIRN	SUR	110	0	0	15.9	-34.2	37.7
44037	99	DIRN	SUR	113	0	0	13.7	31.3	34.1
44042	99	DIRN	SUR	65	0	0	137.0	-11.2	137.5
44062	99	DIRN	SUR	191	0	0	21.7	-30.8	37.7
44150	99	DIRN	SUR	17	4	0	59.2	52.7	79.3
46120	99	DIRN	SUR	50	0	0	67.4	-58.2	89.0
46207	99	DIRN	SUR	97	0	0	15.2	42.8	45.4

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 : MAR 2018
 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
1501517	99	P	SUR	-37	-12	739	0	0.6	-5.3	5.3
2200184	99	P	SUR	34	126	741	13	3.7	-4.6	5.9
2301556	99	P	SUR	-14	51	290	24	4.7	4.2	6.3
2301572	99	P	SUR	-29	50	166	10	2.9	5.2	6.0
3301530	99	P	SUR	-43	-36	663	0	2.6	5.1	5.7
3301537	99	P	SUR	-47	-53	40	0	2.2	6.0	6.4
42059	99	P	SUR	35	-128	74	0	1.4	-7.2	7.3
4500509	99	P	SUR	45	-88	1328	1328	0.0	0.0	0.0
45509	99	P	SUR	45	-88	1358	1358	0.0	0.0	0.0
4601520	99	P	SUR	53	-156	169	0	1.1	12.2	12.3
46118	99	P	SUR	49	-123	78	0	5.9	-5.4	8.0
4700560	99	P	SUR	70	11	699	181	4.4	-0.6	4.5
4701674	99	P	SUR	70	-67	724	0	0.5	-6.5	6.6
47560	99	P	SUR	70	11	698	182	4.5	-0.6	4.5
4800282	99	P	SUR	71	-156	662	662	0.0	0.0	0.0
4801622	99	P	SUR	77	167	542	443	4.9	-6.2	7.9
4801626	99	P	SUR	78	170	466	466	0.0	0.0	0.0
4802009	99	P	SUR	64	-32	653	532	5.0	3.7	6.2
4802502	99	P	SUR	83	-114	664	448	5.4	-7.9	9.6
48282	99	P	SUR	71	-156	664	664	0.0	0.0	0.0
5201578	99	P	SUR	9	131	379	57	1.6	12.4	12.5
5501521	99	P	SUR	-31	170	417	1	6.1	-3.7	7.2
5600942	99	P	SUR	-28	83	279	11	2.5	-7.7	8.1
5600946	99	P	SUR	-32	85	208	208	0.0	0.0	0.0
5601611	99	P	SUR	-18	80	683	0	0.5	7.1	7.1
56942	99	P	SUR	-28	83	271	12	2.5	-7.7	8.1
56946	99	P	SUR	-32	85	203	203	0.0	0.0	0.0
6301557	99	P	SUR	81	9	156	0	3.7	5.8	6.9

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : GLOBAL
 PERIOD : MAR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : MAR 2018
 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
1500002	99	DIRN	SUR	0	-10	81	0	0	61.1	-11.4	62.1
23092	99	DIRN	SUR	17	89	55	0	0	68.4	-25.9	73.1
23170	99	DIRN	SUR	15	74	98	0	0	28.1	62.3	68.4
23454	99	DIRN	SUR	10	73	73	0	0	19.6	35.1	40.2
23460	99	DIRN	SUR	7	88	119	0	0	28.7	86.3	90.9
23492	99	DIRN	SUR	11	72	98	0	0	43.8	44.9	62.7
23497	99	DIRN	SUR	11	72	57	0	0	41.7	21.3	46.8
3100006	99	DIRN	SUR	4	-23	322	0	0	34.8	21.7	41.0
3100231	99	DIRN	SUR	-27	-47	139	1	0	162.2	-3.5	162.2
3100374	99	DIRN	SUR	-25	-45	326	0	0	15.5	-24.2	28.7
31231	99	DIRN	SUR	-27	-47	122	1	0	162.0	-12.5	162.5
31374	99	DIRN	SUR	-25	-45	291	0	0	16.1	-25.3	30.0
34002	99	DIRN	SUR	-55	-90	1545	758	0	152.8	75.9	170.6
42059	99	DIRN	SUR	35	-128	72	0	0	14.9	-25.7	29.7
42085	99	DIRN	SUR	18	-67	630	0	0	24.3	24.2	34.3
42361	99	DIRN	SUR	28	-93	713	3	0	19.0	25.9	32.2
42365	99	DIRN	SUR	28	-89	478	0	0	15.4	-33.1	36.5
44037	99	DIRN	SUR	44	-68	650	0	0	12.4	31.4	33.8
44042	99	DIRN	SUR	38	-76	378	9	0	141.9	-5.7	142.0
44058	99	DIRN	SUR	38	-76	509	0	0	14.4	-27.1	30.7
44062	99	DIRN	SUR	39	-76	1092	0	0	20.3	-30.5	36.7
44064	99	DIRN	SUR	37	-76	243	0	0	15.3	-26.4	30.5
44072	99	DIRN	SUR	37	-76	341	0	0	14.9	-20.1	25.0
44150	99	DIRN	SUR	43	-64	100	31	0	78.2	26.2	82.5
46004	99	DIRN	SUR	51	-136	98	0	0	17.1	20.5	26.7
46118	99	DIRN	SUR	49	-123	22	0	0	40.3	-28.5	49.4
46120	99	DIRN	SUR	48	-122	248	0	0	57.6	-56.8	80.9
46206	99	DIRN	SUR	49	-126	676	0	0	20.8	29.0	35.7
46207	99	DIRN	SUR	51	-130	596	0	0	17.4	43.0	46.4
51003	99	DIRN	SUR	19	-161	624	0	0	22.4	20.6	30.4
5300040	99	DIRN	SUR	-8	95	303	5	0	158.5	7.1	158.7

LIST OF SUSPECT STATIONS : DRIFTER
 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
5300056	99	DIRN	SUR	-5	95	236	4	0	160.4	-0.4	160.4
53040	99	DIRN	SUR	-8	95	289	6	0	158.4	10.0	158.7
53056	99	DIRN	SUR	-5	95	237	5	0	160.4	4.0	160.5
6101003	99	DIRN	SUR	40	25	82	0	0	42.8	25.2	49.7
6200200	99	DIRN	SUR	36	-8	601	67	0	149.9	-81.8	170.8

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 : MAR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

ONLY THE WORST LEVEL IS SHOWN (WITH UNWEIGHTED RMS)

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
01400	12	Z	1000	57	3	29	1	20.3	66.9	69.9
01400	00	Z	1000	57	3	29	0	7.7	74.3	74.7
04360	00	Z	1000	66	-38	16	0	11.6	36.4	38.2
04360	12	Z	1000	66	-38	18	0	9.2	38.3	39.4
27707	00	Z	30	54	35	31	0	73.4	-174.6	189.4
28698	00	Z	250	55	73	25	0	50.8	-72.0	88.1
29282	00	Z	50	58	97	20	0	95.5	-116.6	150.7
29282	12	Z	50	58	97	14	0	109.0	-116.7	159.7
38064	12	Z	70	45	66	24	3	72.9	138.8	156.8
38064	00	Z	200	45	66	27	0	58.5	70.6	91.7
43110	00	Z	700	17	73	22	0	8.1	36.3	37.2
47122	00	Z	1000	37	127	31	0	4.5	-50.0	50.2
47122	12	Z	1000	37	127	31	0	4.5	-50.0	50.2
96147	12	Z	925	4	108	25	1	12.3	46.6	48.2
96147	00	Z	850	4	108	29	3	19.7	53.7	57.2
98223	00	Z	30	18	121	25	0	53.3	259.9	265.3

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 : MAR 2018
 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
42182	12	V	150	29	77	31	0	-17.3	-1.0	20.0

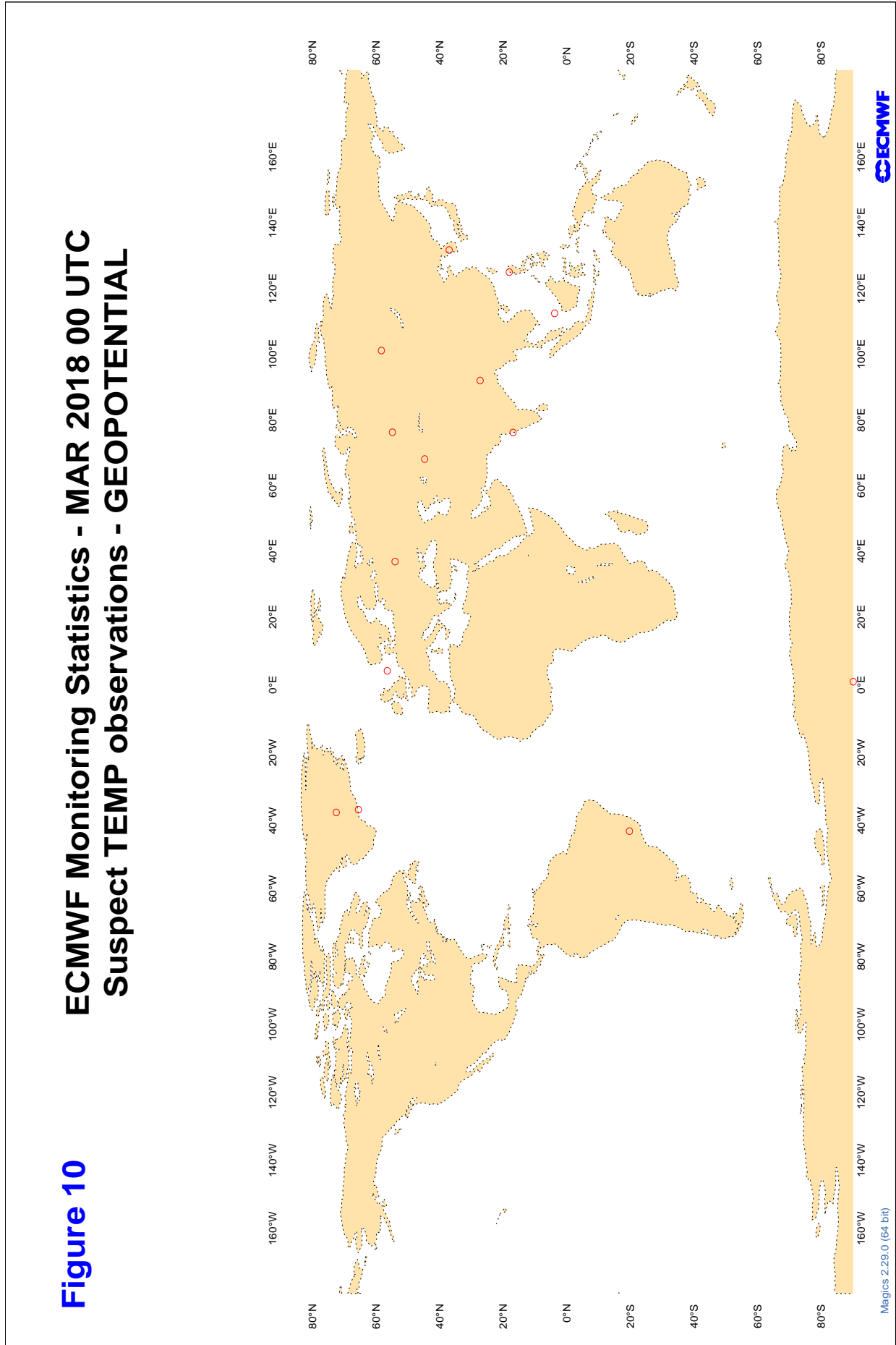
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : MAR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

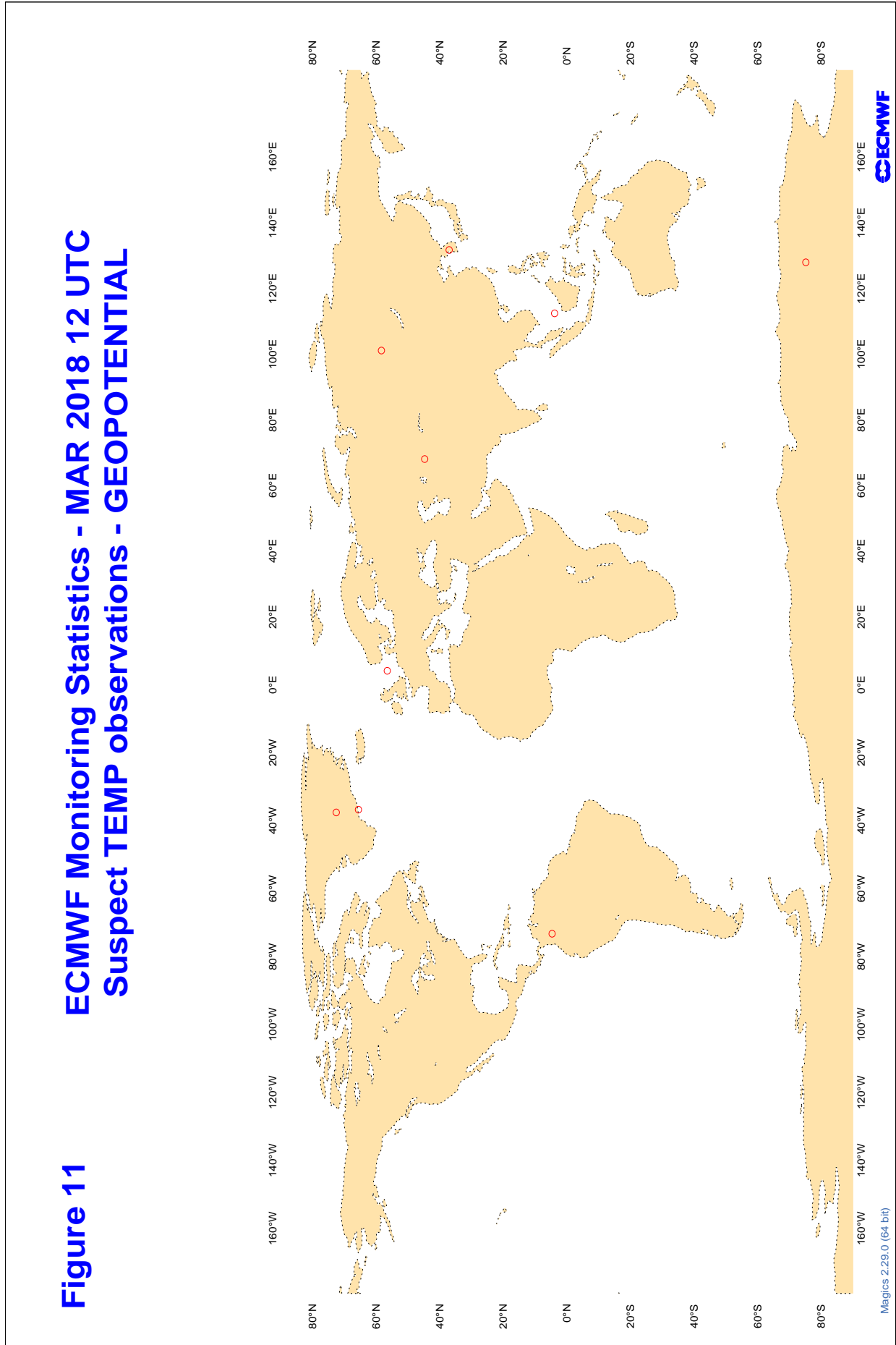
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS \geq 5 M/S
 NO. OF OBSERVATIONS \geq 5, AND,
 ABSOLUTE BIAS \geq 10 DEGREES, WITH
 STANDARD DEVIATION $<$ 30 DEGREES, AND,
 VERTICAL SPREAD $<$ 10 DEGREES
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
48453	12	DD	14	101	7	-12.0	9.6	21.0
57972	00	DD	26	113	30	10.1	3.7	7.2

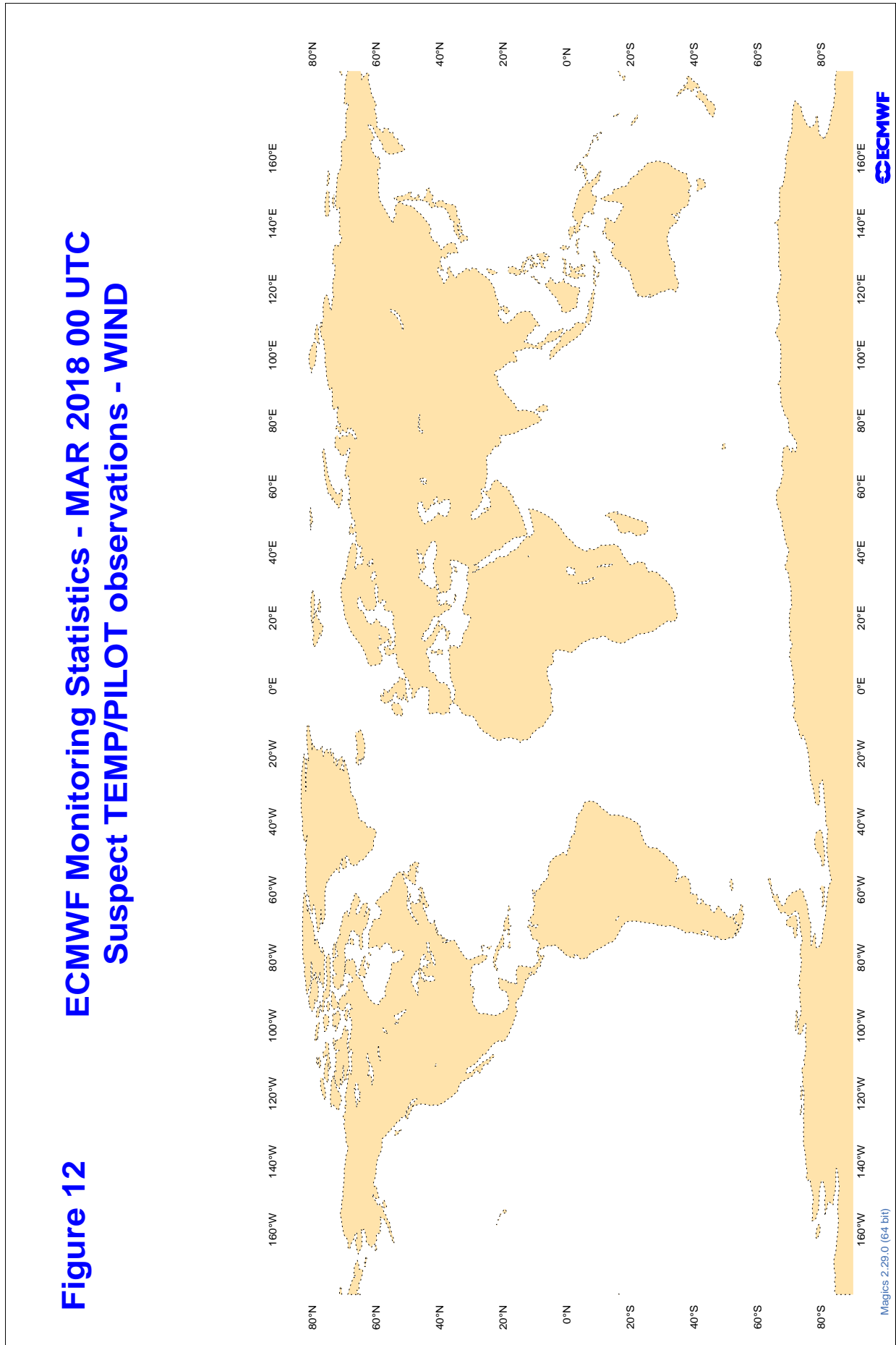
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



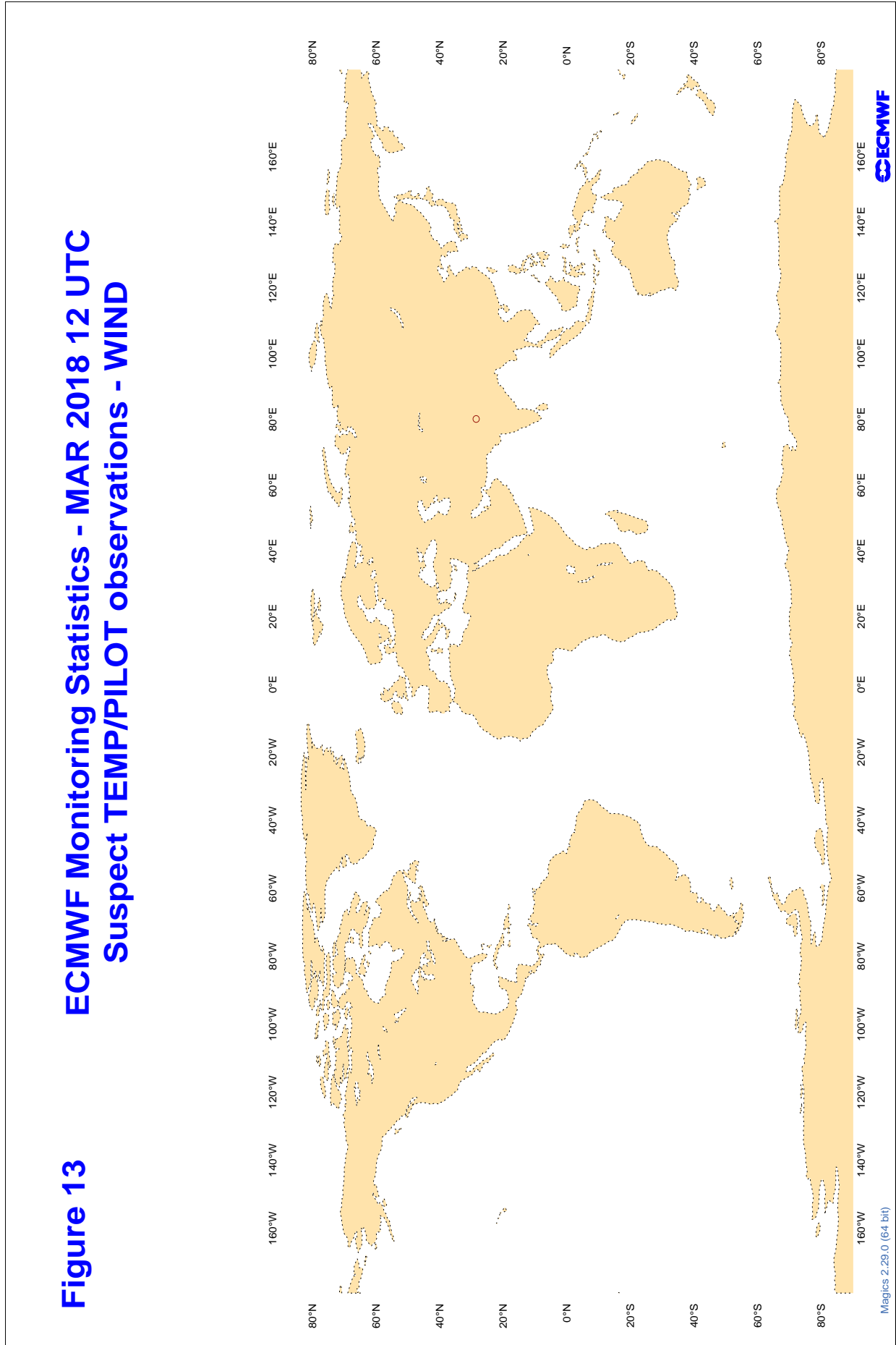
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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 : MAR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
2NKPY5	12	Z	100	4	117.8	-117.8
ASFR1	00	Z	100	11	21.6	17.8
ASFR1	12	Z	100	10	29.4	26.9
ASFR2	12	Z	100	9	32.9	32.6
ASFR2	00	Z	100	9	56.8	38.6
ASFR3	12	Z	100	9	26.8	25.9
ASFR3	00	Z	100	14	23.1	20.9
ASFR4	12	Z	100	11	28.3	26.0
ASFR4	00	Z	100	10	30.6	28.7
ASUK02	12	Z	100	32	12.5	9.7
ASUK02	00	Z	100	9	5.2	1.7
DBLK	12	Z	100	35	10.1	2.3
FHM5UJ	00	Z	100	9	13.8	10.5
FHM5UJ	12	Z	100	10	10.2	9.0
FPUW5G	12	Z	100	9	5.5	-1.7
HTXUH4	12	Z	100	1	3.0	3.0
JGQH	12	Z	100	0	0.0	0.0
JGQH	00	Z	100	2	16.1	15.9
LRYQE3	12	Z	100	2	25.5	25.5
LRYQE3	00	Z	100	4	6.1	-1.8
VKB4L5	12	Z	100	2	41.3	40.6
VKB4L5	00	Z	100	5	38.1	37.9
XKQLWQ	12	Z	100	4	36.8	27.5
XQFJRG	00	Z	100	9	7.3	2.7
XQFJRG	12	Z	100	10	20.4	20.0
YLV96W	12	Z	100	11	35.0	32.1
YLV96W	00	Z	100	7	9.6	-1.3
ZVQEQC	12	Z	100	10	12.3	9.8
ZVQEQC	00	Z	100	8	18.6	18.1

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

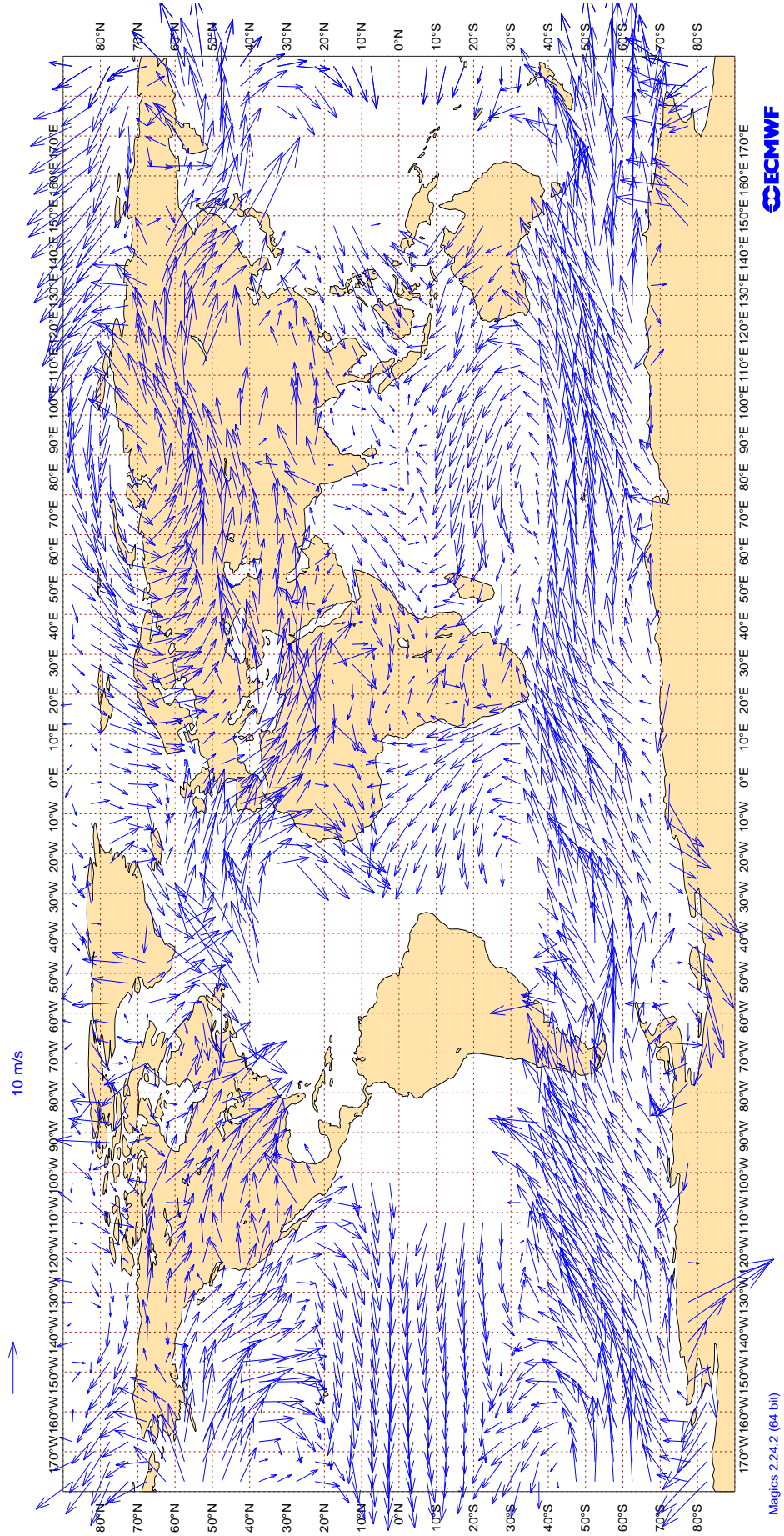
RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 100 HPA
 AREA : GLOBAL
 PERIOD : MAR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
2NKPY5	12	V	100	4	5.3	0.6	3.5
ASFR1	00	V	100	7	3.3	-0.9	0.5
ASFR1	12	V	100	10	4.3	-1.0	2.2
ASFR2	12	V	100	6	4.4	1.8	-0.5
ASFR2	00	V	100	6	2.7	0.6	0.2
ASFR3	12	V	100	7	2.3	0.8	0.3
ASFR3	00	V	100	7	4.3	-0.5	0.6
ASFR4	12	V	100	9	4.5	1.3	-1.9
ASFR4	00	V	100	7	2.1	0.3	-0.2
ASUK02	12	V	100	13	2.4	0.8	-0.6
ASUK02	00	V	100	3	4.4	2.4	0.5
DBLK	12	V	100	24	5.2	0.9	0.1
FHM5UJ	00	V	100	7	2.4	0.1	-0.5
FHM5UJ	12	V	100	8	3.1	-0.7	0.1
FPUW5G	12	V	100	7	4.1	0.3	-2.2
HTXUH4	12	V	100	1	3.4	-3.3	-0.6
JGQH	12	V	100	0	0.0	0.0	0.0
JGQH	00	V	100	1	1.8	-1.8	-0.3
LRYQE3	12	V	100	2	4.8	-0.8	1.7
LRYQE3	00	V	100	3	2.6	0.8	1.1
VKB4L5	12	V	100	2	3.0	1.5	-2.0
VKB4L5	00	V	100	3	5.6	0.9	1.1
XKQLWQ	12	V	100	4	4.1	1.7	1.6
XQFJRG	00	V	100	5	2.1	-0.8	-0.2
XQFJRG	12	V	100	6	3.2	-0.3	0.5
YLV96W	12	V	100	10	3.4	0.2	0.2
YLV96W	00	V	100	6	2.9	-0.9	1.0
ZVQEQC	12	V	100	10	4.7	1.0	-1.7
ZVQEQC	00	V	100	7	4.1	-0.8	-0.1

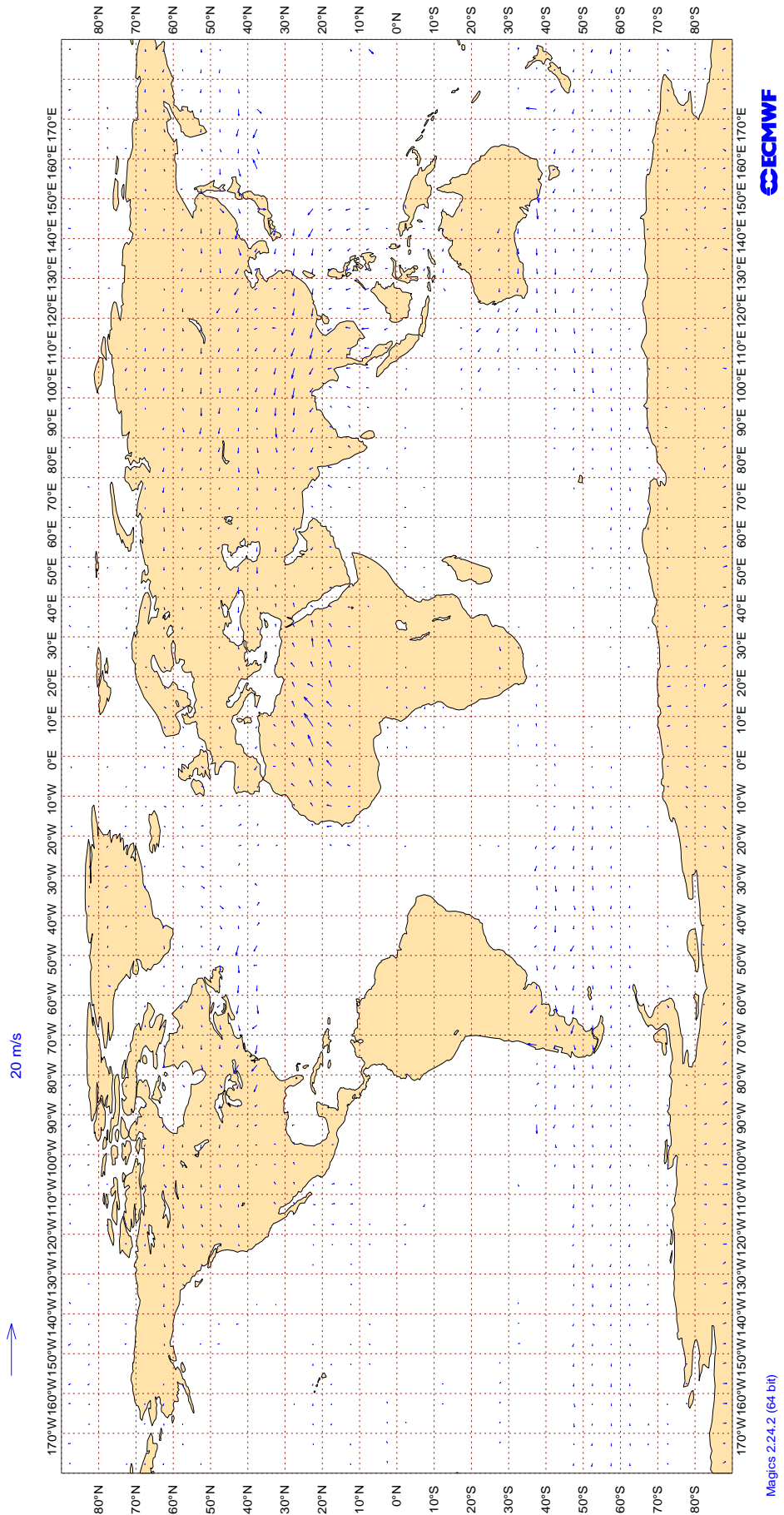
3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

Figure 14
ECMWF Monitoring Statistics: Mar 2018
AMV Winds: 700-1000hPa
Mean Observed Wind



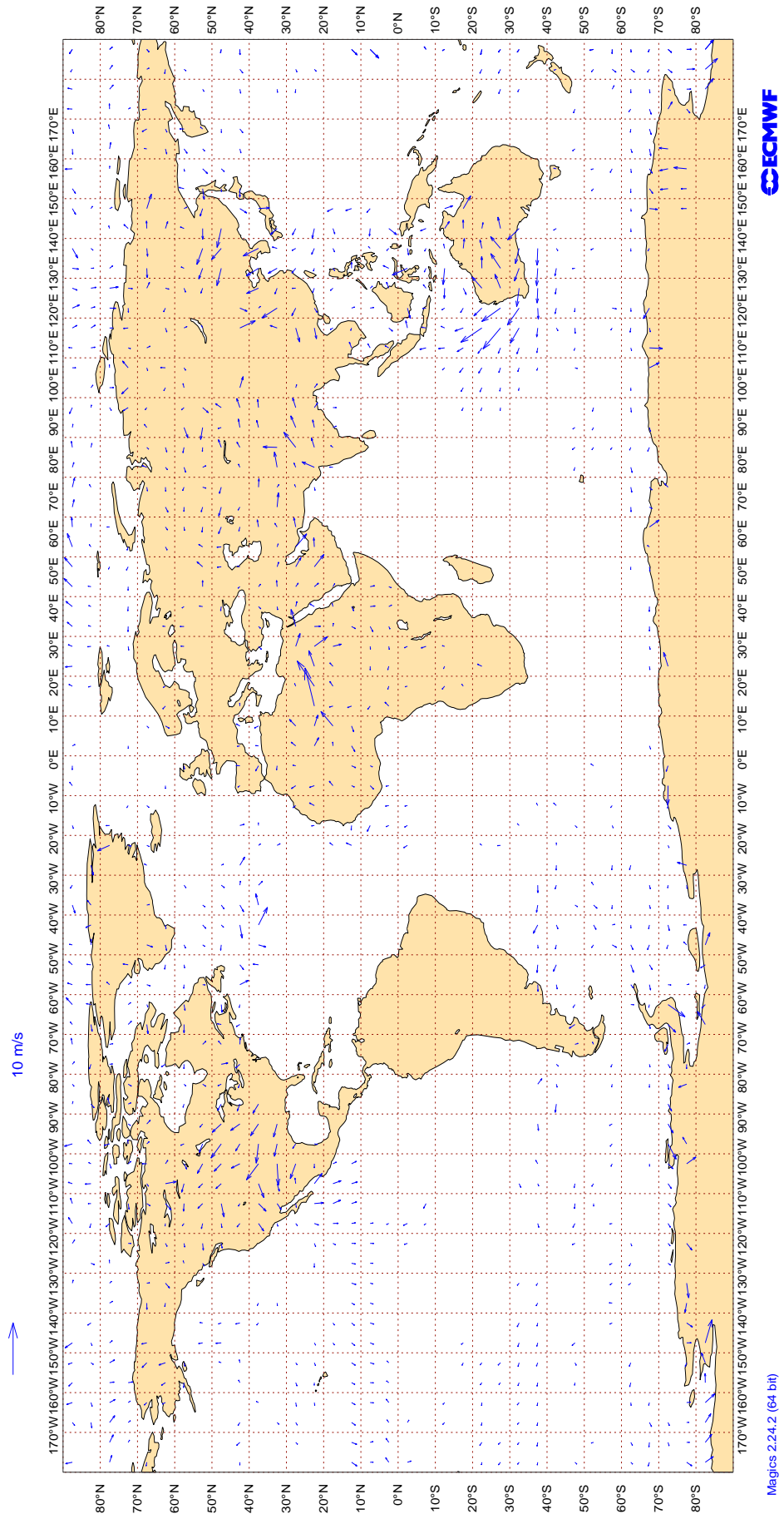
3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

Figure 15
ECMWF Monitoring Statistics: Mar 2018
AMV Winds: 150- 400hPa
Wind bias: Observation - FG



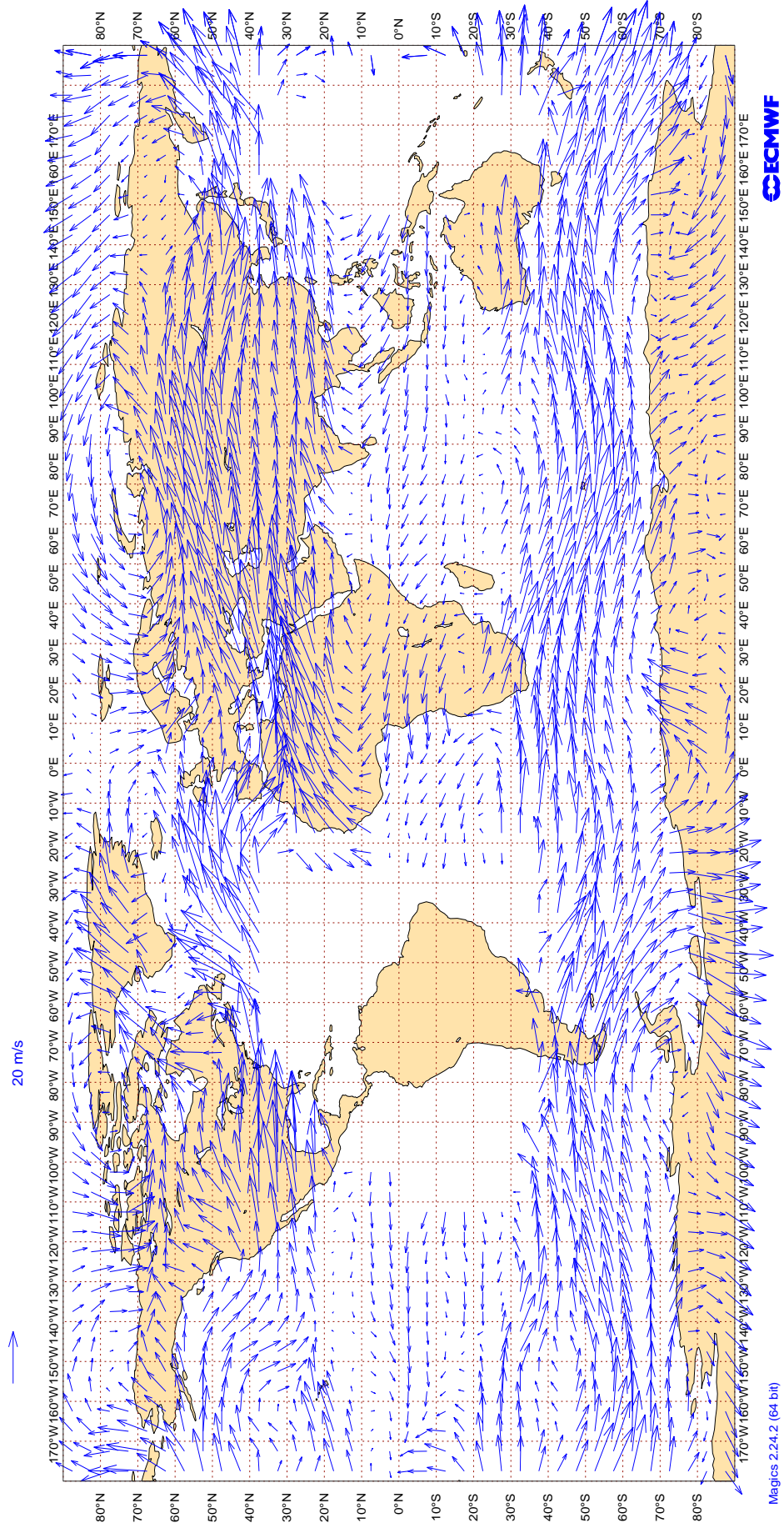
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

Figure 16
ECMWF Monitoring Statistics: Mar 2018
AMV Winds: 700-1000hPa
Wind bias: Observation - FG



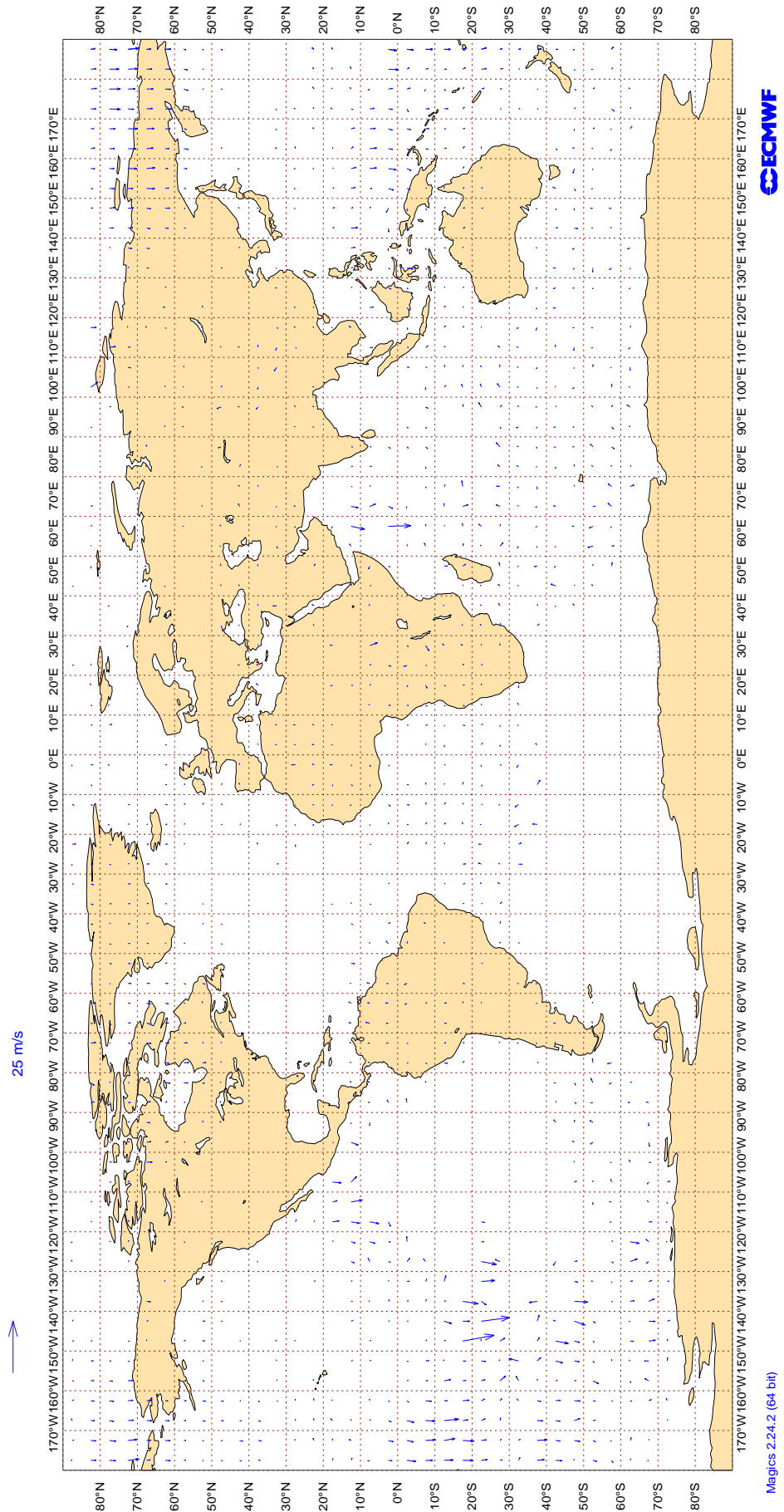
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

Figure 17
ECMWF Monitoring Statistics: Mar 2018
AMV Winds: 150- 400hPa
Mean Observed Wind



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

Figure 18
ECMWF Monitoring Statistics: Mar 2018
Aircraft Winds: 150- 300hPa
Wind bias: Observation - FG



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

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : VECTOR WIND (M/S)
 AREA : GLOBAL
 PERIOD : MAR 2018
 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	74	0	1	4.3	-0.6
AAL	99	V	300-150	40952	1	0	5.6	0.3
AAR	99	V	300-150	308	0	1	5.3	-1.3
ABD	99	V	300-150	531	0	0	4.2	-0.5
ABW	99	V	300-150	999	0	0	3.7	-0.2
ACA	99	V	300-150	23780	2	0	6.8	0.1
ACI	99	V	300-150	396	0	0	5.5	1.2
AEA	99	V	300-150	1203	3	0	7.7	0.5
AFL	99	V	300-150	2440	0	0	3.1	0.3
AFR	99	V	300-150	25133	1	0	4.3	0.2
AHY	99	V	300-150	226	6	0	7.7	-0.0
AIC	99	V	300-150	2065	2	0	5.9	0.2
AKK	99	V	300-150	37	0	0	3.5	0.2
ALK	99	V	300-150	1073	0	0	3.2	0.3
AMX	99	V	300-150	3488	7	0	9.6	0.0
ANZ	99	V	300-150	17696	2	0	7.5	0.7
AOJ	99	V	300-150	49	0	0	3.6	0.4
ASA	99	V	300-150	682	1	1	5.5	0.6
ASL	99	V	300-150	377	0	0	3.5	0.0
ASV	99	V	300-150	24	0	0	5.2	1.7
ASY	99	V	300-150	40	0	0	4.5	-1.6
ATN	99	V	300-150	120	1	1	6.7	0.3
AUA	99	V	300-150	4116	0	0	4.1	-0.0
AUH	99	V	300-150	34	0	0	2.6	-0.6

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AVA	99	V	300-150	530	1	0	8.3	0.5
AWC	99	V	300-150	21	0	0	2.9	-0.4
AXB	99	V	300-150	21	0	0	3.5	1.7
AXM	99	V	300-150	299	0	1	3.8	0.7
AZA	99	V	300-150	5596	0	0	3.5	0.3
AZG	99	V	300-150	292	0	0	3.4	0.1
BAF	99	V	300-150	41	0	0	2.7	-0.8
BAW	99	V	300-150	52208	1	0	5.1	0.1
BBC	99	V	300-150	173	0	0	3.0	1.1
BEL	99	V	300-150	2011	0	0	3.4	0.3
BFY	99	V	300-150	30	0	0	3.6	1.6
BLU	99	V	300-150	23	0	0	2.7	1.0
BMW	99	V	300-150	102	0	0	3.3	-0.2
BOX	99	V	300-150	1274	0	0	3.2	0.0
BPA	99	V	300-150	24	0	0	3.9	0.4
BWJ	99	V	300-150	35	0	0	2.5	0.0
CAF	99	V	300-150	21	0	0	3.4	1.5
CAL	99	V	300-150	337	0	0	4.2	1.0
CAZ	99	V	300-150	109	0	0	3.7	-0.2
CCA	99	V	300-150	352	6	0	10.5	0.6
CEB	99	V	300-150	157	0	0	3.5	0.8
CES	99	V	300-150	397	0	0	3.8	0.0
CFC	99	V	300-150	273	0	0	4.2	0.5
CFG	99	V	300-150	5301	0	0	4.0	0.2
CHH	99	V	300-150	152	0	0	5.2	0.3
CHN	99	V	300-150	31	0	0	2.6	-0.3
CJT	99	V	300-150	245	0	0	3.8	0.1
CKS	99	V	300-150	1749	0	0	3.3	-0.1
CLU	99	V	300-150	540	0	0	3.7	0.0
CLX	99	V	300-150	3445	0	0	3.8	-0.2
CMB	99	V	300-150	1136	0	0	4.0	-0.0
CNK	99	V	300-150	33	0	0	2.3	-0.6
CNV	99	V	300-150	289	0	0	3.7	0.3
CPA	99	V	300-150	750	0	0	3.8	0.2
CRK	99	V	300-150	532	0	0	3.9	0.4
CRL	99	V	300-150	691	0	0	3.9	0.5
CSC	99	V	300-150	207	0	0	4.2	0.5
CSN	99	V	300-150	889	3	0	8.0	0.2
CTM	99	V	300-150	96	0	1	2.9	-0.1
CWG	99	V	300-150	27	0	0	2.4	-0.1
DAH	99	V	300-150	648	0	0	3.2	0.2
DAL	99	V	300-150	52779	0	0	3.6	0.2
DCS	99	V	300-150	21	0	0	2.6	-0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
DGX	99	V	300-150	51	0	0	3.4	0.1
DHK	99	V	300-150	1164	0	0	4.2	-0.1
DJT	99	V	300-150	1514	0	0	4.2	0.2
DLH	99	V	300-150	30664	0	0	3.3	0.1
DSO	99	V	300-150	36	0	0	3.3	-0.9
DUB	99	V	300-150	94	0	0	3.3	-0.4
EAU	99	V	300-150	25	0	0	4.2	0.7
ECC	99	V	300-150	24	0	0	3.0	0.2
EDC	99	V	300-150	110	5	0	10.3	-0.4
EDG	99	V	300-150	68	16	0	20.9	0.6
EDW	99	V	300-150	1216	0	0	3.6	0.2
EIN	99	V	300-150	13457	0	0	3.3	0.2
EJM	99	V	300-150	887	2	0	3.7	0.1
ELY	99	V	300-150	3173	3	0	5.4	0.1
ETD	99	V	300-150	7720	1	0	4.8	0.2
ETH	99	V	300-150	2810	3	0	7.6	0.2
EVE	99	V	300-150	140	0	1	3.5	0.4
EWG	99	V	300-150	2340	0	0	3.6	0.3
FDX	99	V	300-150	6011	0	0	3.3	0.1
FIN	99	V	300-150	1210	0	0	3.1	0.1
FJI	99	V	300-150	982	0	2	5.6	1.0
FWI	99	V	300-150	2049	0	0	3.6	0.4
FYG	99	V	300-150	53	0	0	3.5	0.6
GAF	99	V	300-150	181	0	0	3.1	0.3
GAJ	99	V	300-150	20	0	0	3.0	0.7
GCK	99	V	300-150	35	0	0	3.3	1.0
GCR	99	V	300-150	153	0	0	3.4	0.5
GEC	99	V	300-150	2540	0	0	3.4	0.2
GES	99	V	300-150	143	3	0	8.8	0.1
GFA	99	V	300-150	712	0	0	3.0	0.2
GIA	99	V	300-150	467	0	0	3.5	0.7
GLO	99	V	300-150	21	0	5	7.2	2.5
GMA	99	V	300-150	40	0	0	2.8	0.8
GTH	99	V	300-150	83	0	0	3.8	0.4
GTI	99	V	300-150	3686	0	0	4.1	-0.1
HAL	99	V	300-150	947	0	0	5.1	0.9
HFM	99	V	300-150	40	0	0	4.8	1.1
HHG	99	V	300-150	26	0	0	1.9	0.1
HRT	99	V	300-150	102	23	0	16.1	-0.2
HVN	99	V	300-150	39	0	0	3.4	-0.2
HZM	99	V	300-150	157	0	0	3.3	-0.3
HZS	99	V	300-150	89	0	0	3.4	-0.0
IAM	99	V	300-150	21	0	0	2.7	0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
IBE	99	V	300-150	3742	0	0	3.5	0.1
IBK	99	V	300-150	172	0	2	4.0	0.0
ICL	99	V	300-150	876	0	0	4.2	-0.0
ICV	99	V	300-150	260	0	0	4.6	-0.6
IJM	99	V	300-150	33	0	0	4.2	0.1
ISS	99	V	300-150	352	0	0	4.4	0.2
JAF	99	V	300-150	1056	2	0	6.4	0.5
JAI	99	V	300-150	1674	0	0	3.2	0.4
JAS	99	V	300-150	136	0	0	3.4	0.5
JCB	99	V	300-150	25	0	0	3.3	0.2
JET	99	V	300-150	97	0	0	3.5	0.3
JJA	99	V	300-150	48	0	0	4.6	0.7
JME	99	V	300-150	110	0	0	3.1	0.5
JST	99	V	300-150	24	8	0	14.0	1.5
JTS	99	V	300-150	32	0	0	5.0	-0.9
JUN	99	V	300-150	21	0	0	3.9	1.0
KAC	99	V	300-150	1422	0	0	3.6	0.4
KAI	99	V	300-150	103	1	0	5.1	1.1
KAL	99	V	300-150	391	0	0	4.4	0.3
KAY	99	V	300-150	85	0	0	3.6	-0.4
KIW	99	V	300-150	80	0	0	5.2	0.9
KLM	99	V	300-150	16642	1	0	5.2	0.1
KOJ	99	V	300-150	63	0	0	5.4	0.9
KQA	99	V	300-150	148	13	0	11.3	0.4
LAN	99	V	300-150	2269	11	0	10.5	0.3
LCO	99	V	300-150	108	0	0	3.5	0.0
LEA	99	V	300-150	109	0	0	3.5	1.2
LNI	99	V	300-150	200	0	0	3.0	0.4
LOT	99	V	300-150	2013	1	0	9.8	0.1
LXA	99	V	300-150	20	0	0	2.2	-0.7
LXJ	99	V	300-150	198	0	0	3.4	-0.1
MAS	99	V	300-150	837	0	0	3.1	0.5
MAU	99	V	300-150	53	0	0	4.7	1.5
MJF	99	V	300-150	21	0	0	2.4	0.6
MLM	99	V	300-150	23	0	0	2.8	-0.3
MLN	99	V	300-150	36	0	0	2.8	0.0
MMD	99	V	300-150	437	0	0	3.1	0.0
MPH	99	V	300-150	687	0	0	3.7	-0.4
MSR	99	V	300-150	1485	0	0	3.5	0.2
NAF	99	V	300-150	51	0	0	4.2	0.4
NAX	99	V	300-150	12704	4	0	9.0	-0.0
NCA	99	V	300-150	310	0	0	3.5	-0.2
NJE	99	V	300-150	468	0	0	3.2	-0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
NOS	99	V	300-150	897	2	0	7.0	0.5
NRS	99	V	300-150	1418	4	0	7.3	-0.2
NWS	99	V	300-150	264	0	0	3.1	0.4
OAE	99	V	300-150	832	0	0	4.0	0.3
OLI	99	V	300-150	30	0	0	2.5	-0.1
OMA	99	V	300-150	866	4	0	4.5	0.6
PAC	99	V	300-150	158	0	0	3.8	-0.6
PAL	99	V	300-150	1034	0	0	4.4	0.3
PIA	99	V	300-150	181	0	0	3.4	0.8
PJZ	99	V	300-150	20	0	0	1.8	-0.1
PLF	99	V	300-150	28	0	0	2.5	0.5
PLM	99	V	300-150	114	0	0	4.5	1.6
PNC	99	V	300-150	36	0	0	3.0	0.0
PVJ	99	V	300-150	26	0	0	3.0	-0.3
QAF	99	V	300-150	65	0	2	3.5	0.4
QFA	99	V	300-150	5875	1	0	6.8	0.6
QQE	99	V	300-150	76	3	0	3.6	0.1
QTR	99	V	300-150	15552	0	0	3.9	0.3
RAM	99	V	300-150	620	8	0	7.8	0.7
RBA	99	V	300-150	215	5	0	6.3	0.2
RCH	99	V	300-150	5089	0	0	4.3	0.5
RDN	99	V	300-150	110	0	0	3.3	-0.3
RJA	99	V	300-150	1349	6	0	9.2	-0.2
ROJ	99	V	300-150	103	0	0	3.2	-0.0
ROM	99	V	300-150	37	0	0	2.9	-0.2
ROU	99	V	300-150	399	0	4	4.4	0.9
RRR	99	V	300-150	365	0	0	3.4	0.4
SAM	99	V	300-150	100	0	0	4.0	-0.0
SAS	99	V	300-150	4497	0	0	3.1	0.2
SDM	99	V	300-150	153	0	0	3.3	0.2
SHE	99	V	300-150	139	0	0	3.1	0.3
SIA	99	V	300-150	2978	0	0	3.4	0.2
SIO	99	V	300-150	108	0	0	3.3	0.1
SLM	99	V	300-150	163	0	0	3.5	0.0
SMR	99	V	300-150	20	0	0	5.1	-2.5
SOO	99	V	300-150	507	0	0	3.8	0.3
SPA	99	V	300-150	69	0	0	3.3	-0.1
SPU	99	V	300-150	36	0	0	5.9	1.2
SQC	99	V	300-150	674	0	0	4.1	-0.5
SVA	99	V	300-150	6036	1	0	4.7	0.3
SVW	99	V	300-150	271	0	0	3.3	0.0
SWR	99	V	300-150	10089	0	0	3.4	0.2
SXN	99	V	300-150	83	0	0	3.3	-0.5

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
TAM	99	V	300-150	259	0	0	3.6	0.7
TAP	99	V	300-150	1429	0	0	4.1	-0.1
TAR	99	V	300-150	186	0	0	3.4	0.2
TAY	99	V	300-150	820	0	0	4.1	-0.2
TCX	99	V	300-150	2995	0	0	3.4	0.2
TFL	99	V	300-150	1914	4	0	6.9	0.0
TGW	99	V	300-150	108	16	0	8.2	0.9
THA	99	V	300-150	480	4	0	7.9	0.0
THI	99	V	300-150	38	0	0	4.2	-0.8
THT	99	V	300-150	3645	0	0	4.8	0.7
THY	99	V	300-150	8666	0	0	3.5	0.3
TMN	99	V	300-150	82	0	20	3.6	-0.1
TOM	99	V	300-150	5372	5	0	8.4	0.2
TOW	99	V	300-150	66	0	0	4.0	0.2
TSC	99	V	300-150	3685	0	0	3.3	0.1
TVP	99	V	300-150	147	0	0	3.8	0.6
TWB	99	V	300-150	58	2	2	6.6	0.1
TWY	99	V	300-150	268	0	0	3.3	0.2
UAE	99	V	300-150	16614	0	0	3.5	0.3
UAF	99	V	300-150	26	0	0	2.3	0.0
UAL	99	V	300-150	63697	1	2	5.5	0.2
ULC	99	V	300-150	81	0	0	3.6	-0.4
UPS	99	V	300-150	4883	0	0	3.8	0.1
UZB	99	V	300-150	71	0	0	8.9	-0.3
VCN	99	V	300-150	61	0	0	2.5	0.4
VIR	99	V	300-150	20246	1	0	5.4	0.1
VJT	99	V	300-150	891	26	0	18.9	0.3
VKG	99	V	300-150	704	0	0	3.2	0.2
VMP	99	V	300-150	41	0	0	3.5	-0.3
VOZ	99	V	300-150	989	0	1	4.5	0.4
WJA	99	V	300-150	3016	0	0	5.0	0.0
WOW	99	V	300-150	2467	0	0	2.9	0.3
WWI	99	V	300-150	29	0	0	2.8	0.3
XAX	99	V	300-150	664	0	0	3.6	0.5
XLF	99	V	300-150	1298	0	0	3.6	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 : MAR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	50	30	14.7	7.6
01001	12	Z	50	59	14.8	12.5
01028	12	Z	50	60	15.3	10.8
01028	00	Z	50	30	14.4	10.6
01400	12	Z	50	28	104.5	64.3
01400	00	Z	50	27	84.3	83.2
01415	12	Z	50	30	15.9	13.8
01415	00	Z	50	30	15.7	14.2
02365	12	Z	50	17	15.2	14.2
02365	00	Z	50	13	15.7	12.9
02591	00	Z	50	21	15.7	13.4
02591	12	Z	50	27	18.3	17.2
02836	00	Z	50	32	11.9	6.5
02836	12	Z	50	31	14.2	8.9
02963	12	Z	50	30	16.6	14.6
02963	00	Z	50	26	13.2	11.7
03005	12	Z	50	29	16.8	14.0
03005	00	Z	50	30	15.1	13.4
03238	12	Z	50	2	19.8	-4.7
03238	00	Z	50	31	16.1	11.8
03808	12	Z	50	29	16.5	14.6
03808	00	Z	50	28	17.5	16.3
03918	12	Z	50	9	22.7	21.8
03918	00	Z	50	29	21.8	19.1
03953	12	Z	50	31	27.4	22.3
03953	00	Z	50	29	20.5	17.7
04018	00	Z	50	61	17.3	14.1
04018	12	Z	50	61	14.6	11.1
04220	12	Z	50	30	13.9	11.0
04220	00	Z	50	31	12.5	11.1
04270	00	Z	50	30	19.9	18.5
04270	12	Z	50	31	17.5	15.1
04320	00	Z	50	30	15.7	12.4
04320	12	Z	50	30	19.0	12.2
04339	12	Z	50	29	20.7	15.0
04339	00	Z	50	30	20.6	15.5
04360	12	Z	50	16	57.3	56.4
04360	00	Z	50	14	48.9	47.8
06011	00	Z	50	29	17.7	5.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	50	26	51.3	22.8
06260	00	Z	50	31	14.0	11.9
06260	12	Z	50	4	19.1	17.5
06610	00	Z	50	30	15.4	12.4
06610	12	Z	50	33	18.6	16.1
07110	00	Z	50	30	35.1	32.6
07110	12	Z	50	30	39.3	38.1
07510	12	Z	50	29	63.1	61.6
07510	00	Z	50	30	50.0	47.7
07645	12	Z	50	29	32.1	30.5
07645	00	Z	50	29	28.6	25.0
07761	12	Z	50	29	43.7	41.5
07761	00	Z	50	29	51.6	47.8
08001	00	Z	50	23	23.9	20.7
08001	12	Z	50	27	28.7	26.9
08221	00	Z	50	26	22.4	18.4
08221	12	Z	50	28	26.3	23.8
08302	12	Z	50	30	14.9	12.2
08302	00	Z	50	31	19.1	16.3
08508	12	Z	50	31	19.6	17.8
08522	12	Z	50	27	29.0	26.3
08579	12	Z	50	27	40.0	35.9
10035	12	Z	50	30	27.6	26.6
10035	00	Z	50	30	27.4	26.8
10393	12	Z	50	31	14.4	12.9
10393	00	Z	50	31	19.5	16.0
10410	12	Z	50	30	12.4	10.8
10410	00	Z	50	31	14.1	9.8
10739	00	Z	50	31	13.7	9.1
10739	12	Z	50	31	13.2	11.0
11035	00	Z	50	31	20.1	18.6
11035	12	Z	50	31	21.5	20.2
12982	00	Z	50	22	17.0	11.3
12982	12	Z	50	20	36.4	34.4
16080	12	Z	50	30	36.5	9.3
16080	00	Z	50	31	12.5	9.5
16245	00	Z	50	31	19.5	12.8
16245	12	Z	50	27	22.4	17.9
16320	00	Z	50	30	17.7	15.4
16320	12	Z	50	25	30.9	21.0
16429	00	Z	50	30	15.6	12.4
16429	12	Z	50	28	24.6	20.3
16622	00	Z	50	27	24.0	22.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	50	30	20.1	17.4
17607	12	Z	50	31	22.2	18.7
26435	00	Z	50	9	13.8	9.6
2NKPY5	12	Z	50	4	107.8	-107.7
60018	12	Z	50	30	16.8	14.9
60018	00	Z	50	28	22.4	21.3
ASFR1	00	Z	50	4	41.8	40.9
ASFR1	12	Z	50	7	47.0	44.9
ASFR2	12	Z	50	9	47.8	47.5
ASFR2	00	Z	50	6	85.4	68.0
ASFR3	12	Z	50	7	35.0	33.3
ASFR3	00	Z	50	8	37.5	34.1
ASFR4	12	Z	50	10	41.5	39.9
ASFR4	00	Z	50	6	51.4	50.5
ASUK02	12	Z	50	16	20.4	19.3
ASUK02	00	Z	50	5	13.2	10.6
FHM5UJ	00	Z	50	6	30.1	28.2
FHM5UJ	12	Z	50	8	20.3	18.9
FPUW5G	12	Z	50	7	12.3	5.8
HTXUH4	12	Z	50	0	0.0	0.0
LRVQE3	12	Z	50	2	54.9	54.9
LRVQE3	00	Z	50	1	15.4	15.4
VKB4L5	12	Z	50	2	53.6	53.6
VKB4L5	00	Z	50	2	48.8	48.7
XKQLWQ	12	Z	50	4	43.2	37.7
XQFJRG	00	Z	50	5	19.3	17.5
XQFJRG	12	Z	50	8	35.7	35.1
YLV96W	12	Z	50	6	57.6	55.0
YLV96W	00	Z	50	4	80.1	42.4

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 : MAR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	50	29	2.8	-0.3	-0.3
01001	12	V	50	31	2.8	0.0	0.4
01028	12	V	50	31	3.4	0.0	-0.6
01028	00	V	50	29	2.7	0.4	0.5
01400	12	V	50	28	2.8	-0.2	-0.3
01400	00	V	50	26	3.3	-0.1	-0.2
01415	12	V	50	30	3.3	0.6	0.0
01415	00	V	50	29	3.5	0.1	0.5
02365	12	V	50	12	1.8	-0.4	-0.4
02365	00	V	50	9	2.5	-0.2	0.7
02591	00	V	50	15	2.4	0.2	-0.7
02591	12	V	50	25	3.1	0.7	0.0
02836	00	V	50	29	3.1	0.4	1.2
02836	12	V	50	31	3.5	0.5	-0.6
02963	12	V	50	27	3.0	0.5	0.2
02963	00	V	50	21	2.9	0.5	-0.7
03005	12	V	50	28	3.2	0.4	0.6
03005	00	V	50	28	3.8	1.3	-0.3
03238	12	V	50	2	4.2	1.6	-1.6
03238	00	V	50	30	2.7	1.0	-0.2
03808	12	V	50	29	3.0	0.3	0.1
03808	00	V	50	24	3.0	0.8	0.0
03918	12	V	50	9	4.0	0.6	-0.8
03918	00	V	50	29	3.2	0.4	0.4
03953	12	V	50	31	3.5	1.1	-0.3
03953	00	V	50	29	3.1	1.1	0.3
04018	00	V	50	27	3.3	-0.1	1.1
04018	12	V	50	30	3.5	-0.2	0.0
04220	12	V	50	30	2.8	0.9	-0.3
04220	00	V	50	30	3.5	0.7	0.6
04270	00	V	50	29	4.0	0.0	0.1
04270	12	V	50	31	4.3	-0.2	0.5
04320	00	V	50	29	3.3	-0.2	-1.2
04320	12	V	50	30	4.0	-0.1	-0.6
04339	12	V	50	29	3.5	-0.2	-0.1
04339	00	V	50	29	3.5	0.0	-0.4
04360	12	V	50	16	3.6	0.6	0.5
04360	00	V	50	14	3.7	-0.7	1.0
06011	00	V	50	28	2.8	0.7	-0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	50	26	2.4	-0.2	-0.1
06260	00	V	50	30	2.9	0.5	0.3
06260	12	V	50	4	1.2	-0.3	-0.3
06610	00	V	50	29	3.8	0.7	-0.1
06610	12	V	50	30	4.0	1.1	-0.5
07110	00	V	50	29	3.1	0.5	0.2
07110	12	V	50	30	3.1	0.2	-1.0
07510	12	V	50	29	4.4	1.6	-0.5
07510	00	V	50	29	4.6	2.3	-0.2
07645	12	V	50	29	4.5	1.5	1.0
07645	00	V	50	29	4.5	0.8	-0.4
07761	12	V	50	29	4.5	1.1	-0.8
07761	00	V	50	28	4.0	1.8	-0.4
08001	00	V	50	20	4.6	0.9	0.2
08001	12	V	50	27	4.2	0.9	1.1
08221	00	V	50	25	4.8	1.1	-0.6
08221	12	V	50	28	5.0	0.5	1.2
08302	12	V	50	30	4.0	0.9	-0.1
08302	00	V	50	30	4.5	1.2	-0.1
08508	12	V	50	31	3.6	0.4	1.4
08522	12	V	50	27	3.4	-0.1	0.8
08579	12	V	50	21	4.1	1.3	0.5
10035	12	V	50	30	2.5	0.4	0.6
10035	00	V	50	29	2.8	-0.2	0.0
10393	12	V	50	31	2.6	0.4	0.0
10393	00	V	50	30	2.8	0.8	0.1
10410	12	V	50	30	3.0	0.6	-0.1
10410	00	V	50	29	2.6	0.6	0.0
10739	00	V	50	30	3.2	0.5	0.2
10739	12	V	50	31	3.4	0.8	0.2
11035	00	V	50	30	3.5	1.2	-0.2
11035	12	V	50	31	3.3	0.5	-0.6
12982	00	V	50	21	3.8	0.7	0.4
12982	12	V	50	20	4.6	1.3	-1.0
16080	12	V	50	30	4.2	0.5	0.0
16080	00	V	50	30	4.1	1.0	-0.8
16245	00	V	50	29	4.6	0.2	-1.3
16245	12	V	50	26	3.8	0.7	0.0
16320	00	V	50	29	4.0	1.8	0.4
16320	12	V	50	23	4.0	1.2	-0.1
16429	00	V	50	28	5.0	1.6	-0.6
16429	12	V	50	27	4.5	1.2	1.0
16622	00	V	50	24	4.4	1.1	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	50	25	5.1	0.4	0.2
17607	12	V	50	18	5.1	0.6	-0.9
26435	00	V	50	7	1.8	0.8	-0.8
2NKPY5	12	V	50	4	3.6	2.5	-1.1
60018	12	V	50	30	3.7	-0.3	1.6
60018	00	V	50	26	3.4	-0.5	0.7
ASFR1	00	V	50	4	5.4	-1.6	2.3
ASFR1	12	V	50	7	3.2	-0.6	-1.2
ASFR2	12	V	50	6	3.0	0.9	-0.2
ASFR2	00	V	50	4	4.8	0.2	0.0
ASFR3	12	V	50	5	1.7	-0.2	0.2
ASFR3	00	V	50	6	3.5	-0.7	-1.7
ASFR4	12	V	50	8	3.6	2.1	-1.0
ASFR4	00	V	50	5	5.3	0.6	-0.7
ASUK02	12	V	50	12	3.0	0.9	-0.4
ASUK02	00	V	50	3	2.4	-0.8	-1.0
FHM5UJ	00	V	50	6	3.0	-1.1	0.0
FHM5UJ	12	V	50	7	4.0	1.6	0.3
FPUW5G	12	V	50	7	4.6	1.6	-0.1
HTXUH4	12	V	50	0	0.0	0.0	0.0
LRVQE3	12	V	50	2	2.1	0.5	1.2
LRVQE3	00	V	50	1	4.6	0.8	-4.5
VKB4L5	12	V	50	2	4.3	0.2	1.4
VKB4L5	00	V	50	1	5.5	4.7	-2.9
XKQLWQ	12	V	50	4	4.7	0.5	3.2
XQFJRG	00	V	50	4	3.9	1.6	1.1
XQFJRG	12	V	50	5	2.6	1.0	-1.2
YLV96W	12	V	50	6	3.6	-0.7	1.4
YLV96W	00	V	50	4	4.0	-1.9	-0.5

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 : MAR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	100	31	8.5	-1.0
01001	12	Z	100	59	6.1	2.6
01028	12	Z	100	61	7.6	1.2
01028	00	Z	100	31	7.1	-0.4
01400	12	Z	100	28	73.3	69.8
01400	00	Z	100	27	75.4	74.4
01415	12	Z	100	30	7.9	5.0
01415	00	Z	100	31	7.2	4.7
02365	12	Z	100	28	7.7	5.9
02365	00	Z	100	29	7.6	5.6
02591	00	Z	100	26	9.4	7.5
02591	12	Z	100	28	10.6	9.7
02836	00	Z	100	33	5.2	0.8
02836	12	Z	100	31	6.6	2.6
02963	12	Z	100	31	7.1	4.9
02963	00	Z	100	30	5.4	3.6
03005	12	Z	100	34	6.8	3.1
03005	00	Z	100	31	5.0	1.0
03238	12	Z	100	2	11.3	-5.1
03238	00	Z	100	31	6.9	1.9
03808	12	Z	100	31	7.1	3.3
03808	00	Z	100	34	7.5	2.6
03918	12	Z	100	9	11.4	10.1
03918	00	Z	100	29	11.4	8.7
03953	12	Z	100	31	12.9	9.1
03953	00	Z	100	30	12.0	4.4
04018	00	Z	100	34	7.3	1.9
04018	12	Z	100	30	7.0	1.0
04220	12	Z	100	31	6.3	1.1
04220	00	Z	100	31	5.5	-0.5
04270	00	Z	100	30	9.2	6.2
04270	12	Z	100	31	10.1	5.9
04320	00	Z	100	30	8.1	2.8
04320	12	Z	100	30	13.9	2.5
04339	12	Z	100	29	13.3	5.6
04339	00	Z	100	30	13.7	5.3
04360	12	Z	100	24	42.3	41.7
04360	00	Z	100	20	37.5	35.6
06011	00	Z	100	31	10.9	-0.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	100	27	31.8	9.1
06260	00	Z	100	31	4.9	1.2
06260	12	Z	100	4	6.9	4.1
06610	00	Z	100	31	8.1	2.6
06610	12	Z	100	34	9.6	6.1
07110	00	Z	100	31	16.7	13.9
07110	12	Z	100	30	21.3	19.2
07510	12	Z	100	30	39.9	37.9
07510	00	Z	100	30	31.4	29.0
07645	12	Z	100	30	17.1	14.5
07645	00	Z	100	30	12.8	6.5
07761	12	Z	100	30	25.7	22.5
07761	00	Z	100	30	30.9	26.1
08001	00	Z	100	28	12.1	6.3
08001	12	Z	100	29	15.1	11.8
08221	00	Z	100	28	13.0	7.0
08221	12	Z	100	28	14.8	11.2
08302	12	Z	100	30	11.2	1.1
08302	00	Z	100	31	8.8	3.3
08508	12	Z	100	31	11.2	9.8
08522	12	Z	100	27	20.7	17.8
08579	12	Z	100	27	23.2	18.4
10035	12	Z	100	30	18.3	17.6
10035	00	Z	100	30	18.1	17.5
10393	12	Z	100	31	5.7	3.6
10393	00	Z	100	31	12.8	6.1
10410	12	Z	100	31	4.3	1.7
10410	00	Z	100	31	6.5	0.9
10739	00	Z	100	31	6.8	-1.1
10739	12	Z	100	31	6.4	2.1
11035	00	Z	100	31	9.9	8.6
11035	12	Z	100	31	11.9	10.8
12982	00	Z	100	22	8.9	1.6
12982	12	Z	100	21	20.9	19.7
16080	12	Z	100	31	31.3	-3.8
16080	00	Z	100	31	7.3	-3.4
16245	00	Z	100	31	12.3	-1.6
16245	12	Z	100	31	10.2	1.6
16320	00	Z	100	31	9.7	4.6
16320	12	Z	100	30	21.1	6.1
16429	00	Z	100	31	7.6	0.5
16429	12	Z	100	30	11.5	3.5
16622	00	Z	100	30	13.2	9.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	100	30	11.2	6.0
17607	12	Z	100	31	14.3	6.5
26435	00	Z	100	15	6.0	1.9
2NKPY5	12	Z	100	4	117.8	-117.8
60018	12	Z	100	30	13.4	12.3
60018	00	Z	100	28	13.3	11.4
ASFR1	00	Z	100	11	21.6	17.8
ASFR1	12	Z	100	10	29.4	26.9
ASFR2	12	Z	100	9	32.9	32.6
ASFR2	00	Z	100	9	56.8	38.6
ASFR3	12	Z	100	9	26.8	25.9
ASFR3	00	Z	100	14	23.1	20.9
ASFR4	12	Z	100	11	28.3	26.0
ASFR4	00	Z	100	10	30.6	28.7
ASUK02	12	Z	100	32	12.5	9.7
ASUK02	00	Z	100	9	5.2	1.7
FHM5UJ	00	Z	100	9	13.8	10.5
FHM5UJ	12	Z	100	10	10.2	9.0
FPUW5G	12	Z	100	9	5.5	-1.7
HTXUH4	12	Z	100	1	3.0	3.0
LRYQE3	12	Z	100	2	25.5	25.5
LRYQE3	00	Z	100	4	6.1	-1.8
VKB4L5	12	Z	100	2	41.3	40.6
VKB4L5	00	Z	100	5	38.1	37.9
XKQLWQ	12	Z	100	4	36.8	27.5
XQFJRG	00	Z	100	9	7.3	2.7
XQFJRG	12	Z	100	10	20.4	20.0
YLV96W	12	Z	100	11	35.0	32.1
YLV96W	00	Z	100	7	9.6	-1.3

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 100 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : MAR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	100	30	3.1	0.2	0.1
01001	12	V	100	31	2.5	0.4	0.0
01028	12	V	100	31	2.2	0.4	0.1
01028	00	V	100	30	2.1	-0.4	0.3
01400	12	V	100	28	2.6	0.4	-0.1
01400	00	V	100	27	2.6	0.4	0.3
01415	12	V	100	30	3.5	1.2	-0.1
01415	00	V	100	29	3.3	-0.1	0.4
02365	12	V	100	24	2.8	0.1	-0.3
02365	00	V	100	23	2.8	0.0	0.7
02591	00	V	100	25	2.6	-0.4	0.3
02591	12	V	100	27	2.1	-0.1	-0.2
02836	00	V	100	30	2.5	0.4	0.0
02836	12	V	100	31	2.7	0.2	-0.3
02963	12	V	100	31	2.4	0.5	-0.3
02963	00	V	100	29	2.2	0.1	0.0
03005	12	V	100	31	2.8	0.1	0.1
03005	00	V	100	29	2.2	-0.7	-0.4
03238	12	V	100	2	4.0	0.1	1.7
03238	00	V	100	30	2.5	0.3	0.0
03808	12	V	100	31	3.3	0.6	0.4
03808	00	V	100	26	3.0	0.4	0.5
03918	12	V	100	9	3.0	0.0	-1.2
03918	00	V	100	29	3.0	-0.3	0.0
03953	12	V	100	31	2.6	-0.3	-0.4
03953	00	V	100	30	3.6	0.0	0.1
04018	00	V	100	29	3.0	0.3	-0.2
04018	12	V	100	30	2.9	0.5	0.6
04220	12	V	100	31	2.6	-0.1	0.4
04220	00	V	100	30	2.6	-0.1	0.0
04270	00	V	100	29	3.1	0.3	-0.5
04270	12	V	100	31	3.7	0.1	0.0
04320	00	V	100	29	2.7	-0.5	-0.3
04320	12	V	100	30	2.8	0.0	0.2
04339	12	V	100	29	3.5	0.6	0.7
04339	00	V	100	29	2.8	0.3	0.8
04360	12	V	100	24	3.0	-0.3	0.9
04360	00	V	100	20	2.6	-0.1	-0.5
06011	00	V	100	30	2.5	-0.6	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	100	27	2.7	-0.3	-0.1
06260	00	V	100	30	2.8	0.4	0.5
06260	12	V	100	4	2.1	0.7	1.3
06610	00	V	100	29	4.3	-0.4	-0.8
06610	12	V	100	30	3.9	-0.8	-0.5
07110	00	V	100	30	2.8	-0.2	0.1
07110	12	V	100	30	2.6	0.6	0.4
07510	12	V	100	30	4.3	0.6	-0.6
07510	00	V	100	29	4.0	0.1	0.3
07645	12	V	100	30	4.5	-0.3	0.1
07645	00	V	100	29	4.4	1.1	0.3
07761	12	V	100	30	4.5	-0.2	0.5
07761	00	V	100	29	6.3	1.0	-0.4
08001	00	V	100	25	3.5	0.8	1.4
08001	12	V	100	29	3.3	0.4	0.7
08221	00	V	100	27	6.1	1.8	2.0
08221	12	V	100	28	4.5	0.5	-0.9
08302	12	V	100	30	6.0	0.4	-0.3
08302	00	V	100	30	5.4	0.9	-1.1
08508	12	V	100	31	3.8	0.1	0.7
08522	12	V	100	27	4.3	0.4	1.4
08579	12	V	100	21	4.0	1.0	0.8
10035	12	V	100	30	2.8	0.8	0.3
10035	00	V	100	29	2.5	0.7	0.7
10393	12	V	100	31	2.4	0.0	-0.1
10393	00	V	100	30	2.8	0.8	-0.2
10410	12	V	100	31	2.3	0.1	-0.4
10410	00	V	100	29	2.8	0.3	0.6
10739	00	V	100	30	3.9	0.0	-0.9
10739	12	V	100	31	3.4	0.7	-0.9
11035	00	V	100	30	3.0	-0.2	-0.1
11035	12	V	100	31	3.2	1.2	0.1
12982	00	V	100	21	3.2	0.7	0.2
12982	12	V	100	21	3.1	0.1	-1.1
16080	12	V	100	31	3.2	0.3	-0.4
16080	00	V	100	30	4.3	0.4	-0.2
16245	00	V	100	30	4.8	-0.4	-0.5
16245	12	V	100	30	5.3	0.6	-0.1
16320	00	V	100	30	5.2	1.2	0.8
16320	12	V	100	28	7.2	0.7	-1.6
16429	00	V	100	29	5.6	0.3	0.3
16429	12	V	100	30	6.1	0.7	0.5
16622	00	V	100	27	5.0	0.2	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	100	25	4.7	1.3	0.6
17607	12	V	100	23	5.7	-0.3	-0.5
26435	00	V	100	14	2.3	0.4	-0.6
2NKPY5	12	V	100	4	5.3	0.6	3.5
60018	12	V	100	30	4.3	0.5	1.8
60018	00	V	100	26	3.7	0.5	1.1
ASFR1	00	V	100	7	3.3	-0.9	0.5
ASFR1	12	V	100	10	4.3	-1.0	2.2
ASFR2	12	V	100	6	4.4	1.8	-0.5
ASFR2	00	V	100	6	2.7	0.6	0.2
ASFR3	12	V	100	7	2.3	0.8	0.3
ASFR3	00	V	100	7	4.3	-0.5	0.6
ASFR4	12	V	100	9	4.5	1.3	-1.9
ASFR4	00	V	100	7	2.1	0.3	-0.2
ASUK02	12	V	100	13	2.4	0.8	-0.6
ASUK02	00	V	100	3	4.4	2.4	0.5
FHM5UJ	00	V	100	7	2.4	0.1	-0.5
FHM5UJ	12	V	100	8	3.1	-0.7	0.1
FPUW5G	12	V	100	7	4.1	0.3	-2.2
HTXUH4	12	V	100	1	3.4	-3.3	-0.6
LRYPE3	12	V	100	2	4.8	-0.8	1.7
LRYPE3	00	V	100	3	2.6	0.8	1.1
VKB4L5	12	V	100	2	3.0	1.5	-2.0
VKB4L5	00	V	100	3	5.6	0.9	1.1
XKQLWQ	12	V	100	4	4.1	1.7	1.6
XQFJRG	00	V	100	5	2.1	-0.8	-0.2
XQFJRG	12	V	100	6	3.2	-0.3	0.5
YLV96W	12	V	100	10	3.4	0.2	0.2
YLV96W	00	V	100	6	2.9	-0.9	1.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 500 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : MAR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	500	31	6.3	-1.7
01001	12	Z	500	60	3.8	-0.4
01028	12	Z	500	62	4.6	-2.5
01028	00	Z	500	31	5.1	-3.4
01400	12	Z	500	28	70.6	67.2
01400	00	Z	500	29	75.2	74.3
01415	12	Z	500	30	5.0	2.8
01415	00	Z	500	31	5.0	3.3
02365	12	Z	500	30	6.2	5.6
02365	00	Z	500	33	5.8	5.0
02591	00	Z	500	26	7.4	5.5
02591	12	Z	500	28	7.4	6.8
02836	00	Z	500	33	3.0	0.7
02836	12	Z	500	31	2.6	0.8
02963	12	Z	500	31	3.5	1.9
02963	00	Z	500	31	3.0	2.2
03005	12	Z	500	34	3.5	-0.1
03005	00	Z	500	32	2.9	-0.2
03238	12	Z	500	2	3.6	-3.4
03238	00	Z	500	31	4.7	0.2
03808	12	Z	500	33	4.6	3.1
03808	00	Z	500	36	7.1	0.6
03918	12	Z	500	10	9.2	7.9
03918	00	Z	500	30	9.3	8.5
03953	12	Z	500	31	7.4	6.0
03953	00	Z	500	31	10.3	1.5
04018	00	Z	500	33	3.9	1.6
04018	12	Z	500	30	3.8	0.1
04220	12	Z	500	31	5.4	-0.6
04220	00	Z	500	31	5.2	-1.5
04270	00	Z	500	31	4.2	2.8
04270	12	Z	500	31	6.1	0.2
04320	00	Z	500	30	3.9	0.4
04320	12	Z	500	31	11.6	-0.7
04339	12	Z	500	29	7.5	2.8
04339	00	Z	500	30	13.9	3.9
04360	12	Z	500	26	37.9	37.7
04360	00	Z	500	22	36.6	36.2
06011	00	Z	500	31	16.7	4.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	500	29	21.6	6.8
06260	00	Z	500	31	3.8	0.1
06260	12	Z	500	4	6.6	-3.0
06610	00	Z	500	31	3.6	2.2
06610	12	Z	500	34	4.5	1.8
07110	00	Z	500	31	7.0	2.1
07110	12	Z	500	30	8.2	5.3
07510	12	Z	500	30	18.5	16.5
07510	00	Z	500	31	16.6	15.9
07645	12	Z	500	31	7.6	4.0
07645	00	Z	500	30	5.8	2.1
07761	12	Z	500	31	10.7	8.5
07761	00	Z	500	31	10.0	7.3
08001	00	Z	500	31	6.3	3.6
08001	12	Z	500	31	7.6	5.5
08221	00	Z	500	31	8.6	6.8
08221	12	Z	500	31	9.7	7.1
08302	12	Z	500	30	6.2	1.9
08302	00	Z	500	31	4.0	0.3
08508	12	Z	500	31	9.3	8.2
08522	12	Z	500	31	13.7	9.8
08579	12	Z	500	28	9.1	7.6
10035	12	Z	500	30	14.0	13.6
10035	00	Z	500	30	13.8	13.4
10393	12	Z	500	31	3.8	-0.9
10393	00	Z	500	31	13.7	2.9
10410	12	Z	500	32	3.5	0.2
10410	00	Z	500	32	4.4	0.2
10739	00	Z	500	31	3.0	-0.6
10739	12	Z	500	31	3.2	-0.3
11035	00	Z	500	31	7.0	6.4
11035	12	Z	500	31	6.6	5.7
12982	00	Z	500	22	4.3	2.6
12982	12	Z	500	21	5.8	4.5
16080	12	Z	500	31	4.5	-3.7
16080	00	Z	500	32	3.7	-2.1
16245	00	Z	500	31	4.0	-1.1
16245	12	Z	500	31	4.2	-1.8
16320	00	Z	500	31	6.6	5.2
16320	12	Z	500	31	21.6	3.4
16429	00	Z	500	32	5.7	3.9
16429	12	Z	500	32	5.4	0.6
16622	00	Z	500	31	9.5	8.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	500	30	7.4	1.9
17607	12	Z	500	31	6.4	5.1
26435	00	Z	500	15	3.9	-0.3
2NKPY5	12	Z	500	4	127.5	-127.4
60018	12	Z	500	30	8.1	6.8
60018	00	Z	500	29	5.7	2.6
ASFR1	00	Z	500	17	4.9	-0.6
ASFR1	12	Z	500	16	9.1	7.4
ASFR2	12	Z	500	16	17.3	17.1
ASFR2	00	Z	500	14	17.0	16.8
ASFR3	12	Z	500	10	9.5	8.8
ASFR3	00	Z	500	14	8.1	4.7
ASFR4	12	Z	500	13	9.4	8.6
ASFR4	00	Z	500	16	7.0	5.4
ASUK02	12	Z	500	32	9.4	7.5
ASUK02	00	Z	500	10	11.4	5.3
FHM5UJ	00	Z	500	11	10.6	8.1
FHM5UJ	12	Z	500	10	9.3	8.7
FPUW5G	12	Z	500	9	7.7	-3.1
HTXUH4	12	Z	500	1	10.4	-10.4
LRVQE3	12	Z	500	6	10.8	9.9
LRVQE3	00	Z	500	7	12.6	11.0
VKB4L5	12	Z	500	5	34.0	33.4
VKB4L5	00	Z	500	5	28.3	28.3
XKQLWQ	12	Z	500	4	22.4	15.2
XQFJRG	00	Z	500	12	7.2	-4.4
XQFJRG	12	Z	500	11	9.8	-4.2
YLV96W	12	Z	500	11	10.0	4.9
YLV96W	00	Z	500	10	7.2	-2.9

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 : MAR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	500	30	2.6	0.0	-0.3
01001	12	V	500	31	2.4	-0.1	0.8
01028	12	V	500	31	2.1	0.0	-0.1
01028	00	V	500	30	2.2	0.2	0.0
01400	12	V	500	28	2.5	-0.2	0.0
01400	00	V	500	29	2.3	0.2	0.4
01415	12	V	500	30	2.8	-0.1	0.4
01415	00	V	500	30	2.5	0.0	-0.3
02365	12	V	500	30	2.6	0.0	-0.2
02365	00	V	500	30	2.1	0.0	0.0
02591	00	V	500	25	2.5	-0.1	0.0
02591	12	V	500	28	2.6	0.0	0.2
02836	00	V	500	30	2.8	0.6	-0.5
02836	12	V	500	31	2.5	0.7	-0.2
02963	12	V	500	31	2.6	0.5	-0.6
02963	00	V	500	30	2.1	0.0	0.5
03005	12	V	500	31	2.7	0.3	0.0
03005	00	V	500	30	2.4	0.1	0.4
03238	12	V	500	2	2.6	1.6	-1.5
03238	00	V	500	30	2.7	0.3	0.2
03808	12	V	500	31	3.4	-1.0	0.7
03808	00	V	500	30	3.7	-0.9	-0.4
03918	12	V	500	9	2.7	0.0	0.8
03918	00	V	500	30	3.2	-0.4	1.0
03953	12	V	500	31	3.3	0.8	-0.2
03953	00	V	500	30	3.4	0.3	0.3
04018	00	V	500	29	3.3	0.0	0.5
04018	12	V	500	30	3.9	-0.3	-0.3
04220	12	V	500	31	3.8	0.7	-0.8
04220	00	V	500	30	2.7	0.5	0.1
04270	00	V	500	30	2.7	-0.2	-0.5
04270	12	V	500	31	3.2	0.8	0.7
04320	00	V	500	29	2.6	0.2	-0.1
04320	12	V	500	31	2.3	-0.2	0.1
04339	12	V	500	29	2.4	0.2	0.1
04339	00	V	500	29	2.8	0.4	0.2
04360	12	V	500	26	3.6	0.3	-0.3
04360	00	V	500	22	3.2	0.1	0.0
06011	00	V	500	30	2.8	-0.5	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	500	29	3.0	0.1	-0.7
06260	00	V	500	30	2.8	0.5	0.2
06260	12	V	500	4	3.4	0.4	2.7
06610	00	V	500	30	3.4	0.6	-0.5
06610	12	V	500	31	3.3	0.9	-0.3
07110	00	V	500	30	3.4	0.0	-0.1
07110	12	V	500	30	3.3	0.6	-0.2
07510	12	V	500	30	4.6	0.7	-1.1
07510	00	V	500	30	3.7	0.3	0.3
07645	12	V	500	31	3.2	0.1	0.3
07645	00	V	500	29	3.0	0.0	0.0
07761	12	V	500	30	5.4	0.9	-0.1
07761	00	V	500	30	3.4	0.8	-0.4
08001	00	V	500	30	3.7	0.6	0.6
08001	12	V	500	31	3.3	0.9	-0.5
08221	00	V	500	29	3.3	-0.3	-0.5
08221	12	V	500	29	3.6	-0.3	0.6
08302	12	V	500	30	3.3	-0.9	-0.5
08302	00	V	500	30	4.6	0.8	-0.1
08508	12	V	500	31	3.5	0.4	-0.1
08522	12	V	500	31	3.0	1.4	0.0
08579	12	V	500	26	3.0	-0.3	0.2
10035	12	V	500	30	2.4	0.3	-0.1
10035	00	V	500	29	2.4	0.1	0.5
10393	12	V	500	31	3.0	0.0	-0.3
10393	00	V	500	30	2.6	0.3	-0.2
10410	12	V	500	31	2.7	0.0	-0.3
10410	00	V	500	30	2.4	0.0	0.6
10739	00	V	500	30	3.5	0.1	-0.3
10739	12	V	500	31	2.2	0.6	-0.4
11035	00	V	500	30	2.6	-0.2	-0.1
11035	12	V	500	31	2.9	0.6	0.1
12982	00	V	500	21	3.1	0.6	0.4
12982	12	V	500	21	3.3	1.0	-0.1
16080	12	V	500	31	3.2	-0.3	-0.6
16080	00	V	500	30	3.8	0.0	0.1
16245	00	V	500	30	3.6	0.2	0.0
16245	12	V	500	31	3.4	-0.3	-0.1
16320	00	V	500	30	3.8	0.7	0.2
16320	12	V	500	31	3.7	0.4	0.4
16429	00	V	500	30	3.5	1.2	0.5
16429	12	V	500	30	3.9	0.1	0.1
16622	00	V	500	28	3.5	0.0	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	500	26	2.7	0.3	0.8
17607	12	V	500	24	2.8	0.3	0.0
26435	00	V	500	14	2.2	0.4	-0.4
2NKPY5	12	V	500	4	2.8	1.4	-0.4
60018	12	V	500	30	2.8	0.1	0.4
60018	00	V	500	27	3.3	0.6	0.1
ASFR1	00	V	500	12	2.9	-0.5	0.4
ASFR1	12	V	500	14	3.4	1.0	0.5
ASFR2	12	V	500	11	2.6	-0.9	0.4
ASFR2	00	V	500	10	2.8	0.4	-0.2
ASFR3	12	V	500	8	2.4	1.2	-0.1
ASFR3	00	V	500	7	3.1	0.0	-0.4
ASFR4	12	V	500	11	2.8	0.3	-0.3
ASFR4	00	V	500	12	2.9	-0.5	1.4
ASUK02	12	V	500	14	2.3	-0.5	-0.8
ASUK02	00	V	500	4	3.6	1.5	0.0
FHM5UJ	00	V	500	8	1.8	-0.2	0.3
FHM5UJ	12	V	500	8	2.7	-0.2	-1.5
FPUW5G	12	V	500	7	2.1	-0.1	-1.0
HTXUH4	12	V	500	1	3.4	3.3	-0.9
LRVQE3	12	V	500	4	1.4	0.2	-0.3
LRVQE3	00	V	500	5	17.3	1.0	-4.4
VKB4L5	12	V	500	5	3.1	-0.4	0.3
VKB4L5	00	V	500	3	1.4	0.8	-0.3
XKQLWQ	12	V	500	4	3.1	0.3	0.6
XQFJRG	00	V	500	7	2.4	0.7	0.2
XQFJRG	12	V	500	7	4.4	1.4	0.7
YLV96W	12	V	500	10	3.4	0.1	0.4
YLV96W	00	V	500	9	3.0	1.4	0.9

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 850 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : MAR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	850	31	3.7	-2.1
01001	12	Z	850	60	3.7	-2.2
01028	12	Z	850	62	4.6	-3.6
01028	00	Z	850	31	4.4	-3.8
01400	12	Z	850	28	69.6	66.4
01400	00	Z	850	29	73.9	73.5
01415	12	Z	850	30	4.1	2.5
01415	00	Z	850	31	3.8	2.5
02365	12	Z	850	30	6.8	6.1
02365	00	Z	850	33	6.4	5.7
02591	00	Z	850	26	8.0	7.7
02591	12	Z	850	28	6.8	6.4
02836	00	Z	850	33	2.6	2.0
02836	12	Z	850	31	2.5	1.7
02963	12	Z	850	31	2.9	2.1
02963	00	Z	850	31	3.2	2.6
03005	12	Z	850	34	3.1	-1.1
03005	00	Z	850	32	2.7	-0.4
03238	12	Z	850	2	4.3	-3.1
03238	00	Z	850	31	3.9	2.5
03808	12	Z	850	33	3.1	1.8
03808	00	Z	850	36	4.6	1.1
03918	12	Z	850	10	10.5	9.9
03918	00	Z	850	30	10.1	9.8
03953	12	Z	850	31	6.3	4.6
03953	00	Z	850	31	3.2	2.0
04018	00	Z	850	33	2.5	0.6
04018	12	Z	850	30	2.6	-0.3
04220	12	Z	850	31	4.1	1.7
04220	00	Z	850	31	3.4	1.7
04270	00	Z	850	31	4.5	1.9
04270	12	Z	850	31	6.5	1.3
04320	00	Z	850	30	3.9	-0.1
04320	12	Z	850	31	16.4	-3.2
04339	12	Z	850	29	5.0	1.4
04339	00	Z	850	30	16.0	2.6
04360	12	Z	850	29	40.1	39.9
04360	00	Z	850	22	40.5	39.8
06011	00	Z	850	31	7.0	5.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	850	29	7.5	6.0
06260	00	Z	850	31	3.8	-0.1
06260	12	Z	850	4	4.0	0.6
06610	00	Z	850	31	3.7	2.9
06610	12	Z	850	34	2.9	0.4
07110	00	Z	850	31	3.5	2.4
07110	12	Z	850	31	3.9	1.8
07510	12	Z	850	30	12.2	11.7
07510	00	Z	850	31	12.7	12.2
07645	12	Z	850	31	4.7	3.5
07645	00	Z	850	30	4.3	3.4
07761	12	Z	850	31	4.6	3.0
07761	00	Z	850	31	4.8	3.2
08001	00	Z	850	31	4.3	3.3
08001	12	Z	850	31	4.4	3.7
08221	00	Z	850	31	5.3	4.7
08221	12	Z	850	32	6.3	5.6
08302	12	Z	850	30	2.8	-0.5
08302	00	Z	850	31	3.0	-0.3
08508	12	Z	850	31	6.0	4.6
08522	12	Z	850	31	5.8	4.7
08579	12	Z	850	28	4.2	2.7
10035	12	Z	850	30	13.1	12.9
10035	00	Z	850	30	13.5	13.3
10393	12	Z	850	31	2.6	-0.9
10393	00	Z	850	31	14.4	2.5
10410	12	Z	850	32	3.6	-0.2
10410	00	Z	850	32	3.3	-0.4
10739	00	Z	850	31	2.5	1.1
10739	12	Z	850	31	3.2	-0.3
11035	00	Z	850	31	6.9	6.4
11035	12	Z	850	31	6.6	5.7
12982	00	Z	850	22	4.3	3.4
12982	12	Z	850	21	4.5	3.1
16080	12	Z	850	31	4.3	-3.0
16080	00	Z	850	32	3.2	-1.4
16245	00	Z	850	31	2.9	0.8
16245	12	Z	850	31	3.3	-1.0
16320	00	Z	850	31	9.1	7.9
16320	12	Z	850	31	12.4	8.1
16429	00	Z	850	32	5.9	4.3
16429	12	Z	850	32	3.3	1.5
16622	00	Z	850	31	11.5	10.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	850	30	5.1	0.7
17607	12	Z	850	31	4.0	2.7
26435	00	Z	850	15	3.6	0.9
2NKPY5	12	Z	850	4	0.0	0.0
60018	12	Z	850	30	3.4	1.9
60018	00	Z	850	29	3.3	1.6
ASFR1	00	Z	850	17	4.6	-0.6
ASFR1	12	Z	850	16	4.1	0.1
ASFR2	12	Z	850	16	10.2	9.9
ASFR2	00	Z	850	15	13.3	12.2
ASFR3	12	Z	850	10	3.8	3.2
ASFR3	00	Z	850	14	4.0	2.4
ASFR4	12	Z	850	13	3.1	1.0
ASFR4	00	Z	850	16	2.3	0.5
ASUK02	12	Z	850	33	11.8	10.0
ASUK02	00	Z	850	10	9.1	2.5
FHM5UJ	00	Z	850	11	9.0	8.0
FHM5UJ	12	Z	850	10	9.9	8.6
FPUW5G	12	Z	850	9	7.1	-5.5
HTXUH4	12	Z	850	1	1.1	-1.1
LRYQE3	12	Z	850	6	5.2	4.7
LRYQE3	00	Z	850	7	7.5	6.5
VKB4L5	12	Z	850	5	29.4	29.3
VKB4L5	00	Z	850	5	26.0	26.0
XKQLWQ	12	Z	850	4	16.0	9.3
XQFJRG	00	Z	850	12	10.1	-9.0
XQFJRG	12	Z	850	11	9.9	-9.2
YLV96W	12	Z	850	11	8.8	3.1
YLV96W	00	Z	850	10	8.4	-5.4

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 : MAR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	850	30	5.0	0.7	2.5
01001	12	V	850	30	3.3	-0.2	0.8
01028	12	V	850	31	3.1	0.3	0.4
01028	00	V	850	30	3.5	0.6	0.2
01400	12	V	850	28	2.9	-0.2	0.3
01400	00	V	850	29	2.6	0.2	-0.1
01415	12	V	850	30	2.7	0.0	0.2
01415	00	V	850	30	3.1	0.1	0.8
02365	12	V	850	30	2.5	-0.1	0.1
02365	00	V	850	30	2.4	-0.1	0.0
02591	00	V	850	25	2.4	-0.2	-0.2
02591	12	V	850	28	2.5	0.0	-0.1
02836	00	V	850	30	2.8	0.3	-0.1
02836	12	V	850	31	2.1	0.1	-0.6
02963	12	V	850	31	2.3	-0.4	-0.2
02963	00	V	850	30	2.1	-0.3	-0.4
03005	12	V	850	31	2.5	0.0	0.0
03005	00	V	850	30	2.2	-0.5	0.1
03238	12	V	850	2	1.5	0.7	-1.2
03238	00	V	850	30	2.6	0.1	-0.3
03808	12	V	850	31	2.7	0.4	0.1
03808	00	V	850	30	3.5	0.2	-0.2
03918	12	V	850	9	2.6	0.2	0.5
03918	00	V	850	30	2.3	0.7	0.3
03953	12	V	850	31	3.5	0.6	-0.3
03953	00	V	850	30	2.9	-0.4	0.8
04018	00	V	850	29	3.2	0.5	1.0
04018	12	V	850	30	4.3	0.4	-1.1
04220	12	V	850	31	3.3	0.1	-0.5
04220	00	V	850	30	2.8	0.5	0.0
04270	00	V	850	30	3.4	0.0	0.5
04270	12	V	850	31	3.4	0.1	0.4
04320	00	V	850	29	3.1	-0.2	0.5
04320	12	V	850	31	3.0	-0.5	0.9
04339	12	V	850	29	5.2	0.2	0.2
04339	00	V	850	29	4.9	1.2	0.5
04360	12	V	850	26	5.1	2.6	0.4
04360	00	V	850	22	4.8	1.1	0.8
06011	00	V	850	30	2.7	0.0	-0.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	850	29	3.0	-1.0	-0.6
06260	00	V	850	30	3.1	0.4	-0.5
06260	12	V	850	4	3.8	-2.2	1.8
06610	00	V	850	30	2.7	0.6	-0.2
06610	12	V	850	31	2.4	0.1	0.6
07110	00	V	850	30	2.7	0.0	0.3
07110	12	V	850	30	3.4	-0.5	-0.2
07510	12	V	850	30	3.3	-0.1	0.0
07510	00	V	850	30	3.7	0.8	0.3
07645	12	V	850	31	3.5	0.1	0.3
07645	00	V	850	29	3.4	0.2	-0.2
07761	12	V	850	30	4.2	-1.3	0.9
07761	00	V	850	30	3.5	0.3	0.1
08001	00	V	850	30	3.0	0.4	0.1
08001	12	V	850	31	3.4	0.6	0.3
08221	00	V	850	29	4.3	0.2	-0.7
08221	12	V	850	29	3.3	-0.6	0.1
08302	12	V	850	30	4.3	0.3	0.1
08302	00	V	850	30	4.7	-0.4	0.2
08508	12	V	850	31	2.9	1.1	-1.1
08522	12	V	850	31	3.5	0.4	0.1
08579	12	V	850	26	3.1	-0.4	0.1
10035	12	V	850	30	2.8	0.7	0.2
10035	00	V	850	29	2.8	0.7	0.0
10393	12	V	850	31	2.1	-0.1	0.0
10393	00	V	850	30	3.0	-0.1	-0.5
10410	12	V	850	31	2.5	0.7	0.3
10410	00	V	850	30	2.9	-0.3	-0.5
10739	00	V	850	30	2.7	0.4	-0.1
10739	12	V	850	31	2.8	-0.2	0.0
11035	00	V	850	30	3.3	0.0	-0.2
11035	12	V	850	31	3.9	0.3	0.6
12982	00	V	850	21	3.0	0.5	-0.2
12982	12	V	850	21	3.3	0.1	0.2
16080	12	V	850	31	4.1	1.1	0.2
16080	00	V	850	30	3.6	1.0	-0.3
16245	00	V	850	30	3.4	-0.3	0.7
16245	12	V	850	31	3.2	0.2	0.5
16320	00	V	850	30	3.7	-0.1	-0.1
16320	12	V	850	31	3.8	-0.2	0.6
16429	00	V	850	30	4.0	0.2	0.1
16429	12	V	850	30	3.5	-0.1	0.5
16622	00	V	850	28	3.4	0.3	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	850	25	3.5	0.0	-0.2
17607	12	V	850	30	3.1	0.7	-0.2
26435	00	V	850	13	3.1	-0.5	-0.6
2NKPY5	12	V	850	4	2.4	-1.4	-0.9
60018	12	V	850	30	4.3	0.4	0.4
60018	00	V	850	27	3.8	1.1	0.4
ASFR1	00	V	850	12	4.0	-0.5	0.1
ASFR1	12	V	850	14	3.1	0.7	1.2
ASFR2	12	V	850	11	2.4	1.1	-0.1
ASFR2	00	V	850	10	2.3	0.7	0.2
ASFR3	12	V	850	8	2.2	-0.6	0.2
ASFR3	00	V	850	7	2.9	0.4	-0.3
ASFR4	12	V	850	11	3.1	0.6	-0.2
ASFR4	00	V	850	12	2.2	0.6	0.8
ASUK02	12	V	850	15	3.8	0.2	0.3
ASUK02	00	V	850	4	2.3	0.2	0.6
FHM5UJ	00	V	850	8	3.4	0.5	-1.8
FHM5UJ	12	V	850	8	2.5	0.4	0.4
FPUW5G	12	V	850	7	3.5	0.2	-0.5
HTXUH4	12	V	850	1	1.1	1.1	-0.1
LRVQE3	12	V	850	4	2.6	-0.2	-1.4
LRVQE3	00	V	850	4	3.4	-0.8	0.9
VKB4L5	12	V	850	5	4.6	0.2	-1.7
VKB4L5	00	V	850	3	2.3	1.4	0.3
XKQLWQ	12	V	850	4	5.3	3.4	0.8
XQFJRG	00	V	850	7	3.8	0.8	-0.8
XQFJRG	12	V	850	7	1.9	0.4	0.0
YLV96W	12	V	850	10	2.3	-0.6	0.3
YLV96W	00	V	850	9	10.4	-4.3	-1.3

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 : MAR 2018
 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	723	0	0.4	-0.1	0.4
1300001	99	P	SUR	11	-23	676	0	0.3	0.2	0.3
1300008	99	P	SUR	15	-38	723	0	0.2	-0.1	0.3
1300130	99	P	SUR	28	-16	742	0	0.5	-0.0	0.5
1300131	99	P	SUR	28	-17	744	0	0.4	-0.1	0.5
1300869	99	P	SUR	29	-66	743	0	0.3	-0.2	0.4
1300872	99	P	SUR	35	-42	742	0	0.5	0.1	0.5
1301603	99	P	SUR	20	-36	742	0	0.3	0.4	0.5
1301604	99	P	SUR	15	-29	740	0	0.3	0.5	0.6
1301605	99	P	SUR	22	-35	742	0	0.3	0.2	0.4
1301606	99	P	SUR	17	-33	742	0	0.3	0.5	0.6
1301607	99	P	SUR	15	-26	742	0	0.4	0.6	0.7
1301608	99	P	SUR	20	-22	742	0	0.3	0.7	0.8
1301609	99	P	SUR	28	-21	741	0	0.3	0.4	0.5
1301610	99	P	SUR	27	-28	741	0	0.3	0.3	0.5
1301611	99	P	SUR	28	-30	742	0	0.3	0.0	0.3
1301612	99	P	SUR	27	-32	742	0	0.4	0.2	0.4
13869	99	P	SUR	29	-66	743	0	0.3	-0.2	0.4
13872	99	P	SUR	35	-42	743	0	0.5	0.1	0.5
1501529	99	P	SUR	27	-30	739	0	0.3	0.4	0.5
1501531	99	P	SUR	22	-40	739	0	0.3	0.1	0.3
1501534	99	P	SUR	20	-40	739	0	0.3	-0.2	0.4
1501605	99	P	SUR	12	-63	463	0	0.3	0.0	0.3
1501607	99	P	SUR	14	-59	384	9	1.2	0.3	1.2
2500622	99	P	SUR	62	-26	158	0	3.0	-0.3	3.0
25622	99	P	SUR	62	-26	158	0	3.0	-0.3	3.0
3100735	99	P	SUR	21	-64	742	0	0.3	0.2	0.3
31735	99	P	SUR	21	-64	743	0	0.3	0.2	0.3
4100139	99	P	SUR	20	-38	372	0	0.3	-0.1	0.3
4100597	99	P	SUR	36	-37	738	0	1.2	0.0	1.2
4100729	99	P	SUR	35	-29	742	0	0.5	0.3	0.6
4100730	99	P	SUR	40	-45	742	0	0.6	-0.0	0.6
4100731	99	P	SUR	31	-69	742	0	1.0	-0.5	1.1
4101530	99	P	SUR	39	-36	703	0	0.5	0.2	0.5
4101538	99	P	SUR	36	-54	680	0	0.6	0.3	0.7
4101554	99	P	SUR	27	-58	733	0	0.4	0.4	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101556	99	P	SUR	34	-43	741	0	0.3	0.5	0.6
4101557	99	P	SUR	35	-38	740	0	0.3	0.3	0.4
4101558	99	P	SUR	46	-22	742	0	0.5	0.1	0.5
4101560	99	P	SUR	32	-52	733	0	0.4	0.7	0.8
4101561	99	P	SUR	29	-67	739	0	0.3	-0.0	0.3
4101562	99	P	SUR	37	-44	719	0	0.5	0.5	0.7
4101564	99	P	SUR	31	-46	734	0	0.4	-0.1	0.4
4101565	99	P	SUR	37	-35	671	0	0.4	0.3	0.5
4101566	99	P	SUR	32	-67	657	0	0.5	0.1	0.5
4101567	99	P	SUR	36	-42	707	0	0.5	0.5	0.7
4101568	99	P	SUR	33	-52	702	0	0.5	0.3	0.6
4101570	99	P	SUR	33	-54	722	0	0.4	0.5	0.6
4101573	99	P	SUR	35	-70	649	0	0.6	0.3	0.7
4101574	99	P	SUR	35	-61	590	0	0.6	0.5	0.8
4101575	99	P	SUR	36	-68	658	0	0.6	0.2	0.6
4101576	99	P	SUR	16	-54	742	0	0.3	0.6	0.7
4101577	99	P	SUR	18	-45	742	0	0.3	0.5	0.6
4101579	99	P	SUR	18	-45	337	0	3.5	2.6	4.4
4101580	99	P	SUR	15	-67	741	0	0.3	0.3	0.4
4101700	99	P	SUR	29	-34	742	0	0.4	0.5	0.6
4101702	99	P	SUR	33	-60	322	33	5.1	-1.9	5.5
4101703	99	P	SUR	21	-68	464	0	0.3	0.5	0.6
4101705	99	P	SUR	33	-43	741	0	0.4	0.1	0.4
4101706	99	P	SUR	35	-35	742	0	0.5	-0.2	0.6
4101707	99	P	SUR	37	-36	742	0	0.4	-0.2	0.4
4101708	99	P	SUR	32	-25	742	0	0.4	0.0	0.4
4101709	99	P	SUR	38	-19	742	0	1.0	0.8	1.3
4101710	99	P	SUR	32	-54	742	0	0.4	-0.0	0.4
4101712	99	P	SUR	38	-45	725	0	0.5	0.0	0.5
4101713	99	P	SUR	33	-51	742	0	0.4	-0.0	0.4
4101714	99	P	SUR	33	-40	741	0	0.4	-0.0	0.4
4101715	99	P	SUR	30	-47	742	0	0.3	0.1	0.3
4101716	99	P	SUR	27	-54	742	0	0.5	-0.8	0.9
4101717	99	P	SUR	23	-59	742	0	0.3	-0.2	0.3
4101741	99	P	SUR	18	-64	742	0	0.3	0.5	0.6
4101742	99	P	SUR	22	-68	464	0	0.3	-0.1	0.3
4101743	99	P	SUR	22	-52	741	0	0.4	0.8	0.9
4101744	99	P	SUR	16	-69	742	0	0.3	-0.5	0.6
4101746	99	P	SUR	20	-63	742	0	0.3	0.0	0.3
41040	99	P	SUR	15	-53	36	0	0.3	-0.3	0.5
41041	99	P	SUR	14	-46	1188	0	0.4	0.5	0.6
41043	99	P	SUR	21	-65	1189	0	0.4	-0.2	0.5
41044	99	P	SUR	22	-59	1146	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
41046	99	P	SUR	24	-68	1210	0	0.4	0.3	0.5
41048	99	P	SUR	32	-70	1197	0	0.5	-0.2	0.5
41049	99	P	SUR	28	-63	923	0	0.5	-0.0	0.5
41052	99	P	SUR	18	-65	1952	0	0.3	-1.4	1.5
41053	99	P	SUR	19	-66	1891	0	0.4	-0.7	0.8
41056	99	P	SUR	18	-66	1575	0	0.4	-0.1	0.4
41597	99	P	SUR	36	-37	739	0	1.2	0.0	1.2
41729	99	P	SUR	35	-29	743	0	0.5	0.3	0.6
41730	99	P	SUR	40	-45	743	0	0.6	-0.0	0.6
41731	99	P	SUR	31	-69	743	0	1.0	-0.5	1.1
42060	99	P	SUR	16	-63	115	0	0.4	0.1	0.5
42085	99	P	SUR	18	-67	729	0	0.3	-0.9	0.9
4400513	99	P	SUR	54	-10	743	0	0.5	-0.2	0.5
4400517	99	P	SUR	22	-46	742	0	0.3	0.3	0.4
4400521	99	P	SUR	34	-38	706	0	0.3	-0.8	0.8
4400746	99	P	SUR	30	-38	742	0	0.7	0.4	0.9
4400765	99	P	SUR	64	10	728	8	0.6	0.2	0.6
4400776	99	P	SUR	26	-64	740	0	0.3	0.4	0.5
4400777	99	P	SUR	30	-50	742	0	0.5	0.2	0.5
4400778	99	P	SUR	34	-25	743	0	0.3	0.5	0.6
44008	99	P	SUR	41	-69	738	0	0.7	-0.9	1.1
4400857	99	P	SUR	28	-30	742	0	0.4	0.5	0.7
4400874	99	P	SUR	29	-44	742	0	0.3	0.5	0.6
4400887	99	P	SUR	33	-54	733	0	0.4	-0.2	0.4
4400891	99	P	SUR	35	-61	719	0	0.7	-1.3	1.5
44011	99	P	SUR	42	-55	124	11	1.3	-1.4	2.0
4401503	99	P	SUR	29	-69	742	0	0.4	-0.0	0.4
4401527	99	P	SUR	27	-62	743	0	0.4	-0.0	0.4
4401529	99	P	SUR	24	-67	742	0	0.3	-0.1	0.3
4401531	99	P	SUR	32	-69	743	0	0.4	0.2	0.5
4401536	99	P	SUR	49	-26	714	0	0.5	0.3	0.6
4401537	99	P	SUR	35	-30	599	0	0.3	-0.4	0.5
4401539	99	P	SUR	30	-51	742	0	0.3	-0.1	0.4
4401540	99	P	SUR	31	-61	743	0	0.5	0.2	0.5
4401541	99	P	SUR	42	-37	741	0	0.5	-0.2	0.5
4401542	99	P	SUR	29	-68	741	0	0.4	0.3	0.5
4401543	99	P	SUR	26	-67	660	0	0.3	-0.2	0.4
4401544	99	P	SUR	32	-64	743	0	0.5	-0.6	0.8
4401546	99	P	SUR	43	-12	739	0	0.5	0.7	0.9
4401550	99	P	SUR	51	-21	738	0	0.5	-0.1	0.5
4401551	99	P	SUR	35	-41	739	27	1.3	0.2	1.3
4401552	99	P	SUR	38	-15	742	0	0.5	0.2	0.5
4401553	99	P	SUR	56	-31	742	0	0.4	0.3	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401554	99	P	SUR	54	-31	727	0	0.4	0.5	0.7
4401555	99	P	SUR	57	-17	742	0	0.5	-0.2	0.5
4401556	99	P	SUR	32	-39	742	0	0.4	0.3	0.5
4401557	99	P	SUR	37	-39	741	0	0.4	0.0	0.4
4401558	99	P	SUR	51	-35	742	0	0.4	0.1	0.5
4401559	99	P	SUR	47	-22	742	0	0.6	0.1	0.6
4401560	99	P	SUR	43	-24	742	0	0.5	0.1	0.5
4401561	99	P	SUR	41	-39	742	0	0.4	-0.2	0.5
4401562	99	P	SUR	40	-26	742	0	0.5	-0.0	0.5
4401563	99	P	SUR	31	-34	742	0	0.4	0.3	0.5
4401564	99	P	SUR	38	-37	742	0	0.7	0.7	1.0
4401565	99	P	SUR	52	-28	742	0	0.4	0.2	0.5
4401566	99	P	SUR	53	-23	741	0	0.4	0.4	0.6
4401601	99	P	SUR	52	-37	719	0	0.5	-0.1	0.5
4401602	99	P	SUR	44	-53	725	0	0.5	0.4	0.7
4401603	99	P	SUR	56	-16	729	0	0.4	0.5	0.7
4401605	99	P	SUR	56	-27	729	0	0.5	-0.2	0.5
4401606	99	P	SUR	45	-5	724	0	0.5	0.3	0.5
4401611	99	P	SUR	47	-54	725	0	0.5	0.6	0.8
4401613	99	P	SUR	49	-12	727	0	0.5	0.4	0.6
4401616	99	P	SUR	39	-32	725	0	0.5	-0.1	0.5
4401631	99	P	SUR	49	-5	726	0	1.0	0.2	1.0
4401633	99	P	SUR	46	-16	726	69	2.2	0.2	2.2
4401752	99	P	SUR	66	-28	549	0	0.5	0.5	0.7
4401755	99	P	SUR	62	-4	644	0	0.4	0.6	0.7
4401757	99	P	SUR	67	-5	658	0	0.4	0.5	0.6
4401802	99	P	SUR	40	-43	723	0	0.6	-0.1	0.6
44027	99	P	SUR	44	-67	764	0	0.6	-0.5	0.8
44032	99	P	SUR	44	-69	734	0	0.5	-1.0	1.1
44033	99	P	SUR	44	-69	743	0	0.5	-0.3	0.6
44034	99	P	SUR	44	-68	104	0	0.4	-0.9	1.0
44037	99	P	SUR	44	-68	690	0	0.5	-0.9	1.1
44137	99	P	SUR	42	-62	773	1	0.9	-0.3	0.9
44139	99	P	SUR	44	-57	429	1	0.5	-0.0	0.5
44150	99	P	SUR	43	-64	694	0	0.6	0.0	0.6
44513	99	P	SUR	54	-10	743	0	0.5	-0.2	0.5
44517	99	P	SUR	22	-46	742	0	0.3	0.3	0.4
44521	99	P	SUR	34	-38	705	0	0.3	-0.8	0.8
44746	99	P	SUR	30	-38	743	0	0.7	0.4	0.9
44765	99	P	SUR	64	10	729	8	0.6	0.2	0.6
44776	99	P	SUR	26	-64	740	0	0.3	0.4	0.5
44777	99	P	SUR	30	-50	743	0	0.5	0.2	0.5
44778	99	P	SUR	34	-26	743	0	0.3	0.5	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44857	99	P	SUR	28	-30	743	0	0.4	0.5	0.7
44874	99	P	SUR	29	-44	743	0	0.3	0.5	0.6
44887	99	P	SUR	33	-54	734	0	0.4	-0.2	0.4
44891	99	P	SUR	35	-61	720	0	0.7	-1.3	1.5
4700546	99	P	SUR	38	-26	721	0	0.6	0.8	1.0
4700551	99	P	SUR	57	-6	226	0	0.7	-0.7	1.0
4700555	99	P	SUR	36	-15	727	49	3.3	-0.8	3.4
4700560	99	P	SUR	70	11	699	181	4.4	-0.6	4.5
4700568	99	P	SUR	44	-4	721	0	0.5	0.6	0.8
4700574	99	P	SUR	37	-17	724	0	0.4	0.2	0.5
4701668	99	P	SUR	46	-57	724	0	0.6	0.5	0.8
4701669	99	P	SUR	43	-51	725	0	0.7	0.5	0.8
4701673	99	P	SUR	66	-61	724	0	0.5	-1.5	1.6
4701674	99	P	SUR	70	-67	724	0	0.5	-6.5	6.6
4701677	99	P	SUR	43	-50	741	0	0.6	0.1	0.6
47546	99	P	SUR	38	-26	706	0	0.6	0.8	1.1
47551	99	P	SUR	57	-6	218	0	0.4	-0.8	0.8
47555	99	P	SUR	36	-15	710	50	3.3	-0.7	3.3
47560	99	P	SUR	70	11	698	182	4.5	-0.6	4.5
47568	99	P	SUR	44	-4	701	0	0.6	0.7	0.9
47574	99	P	SUR	37	-17	709	0	0.4	0.2	0.5
4800510	99	P	SUR	80	-11	682	0	0.7	-0.5	0.8
4800770	99	P	SUR	79	-18	504	0	0.6	0.3	0.7
4802004	99	P	SUR	63	-32	723	0	2.9	0.2	2.9
4802009	99	P	SUR	64	-32	653	532	5.0	3.7	6.2
48510	99	P	SUR	80	-11	685	0	0.7	-0.5	0.9
48770	99	P	SUR	79	-18	504	0	0.6	0.3	0.7
6100001	99	P	SUR	43	8	738	0	0.6	-0.1	0.6
6100002	99	P	SUR	42	5	743	0	0.5	0.2	0.6
61001	99	P	SUR	43	8	738	0	0.6	-0.1	0.6
6100196	99	P	SUR	42	4	537	0	0.6	-0.0	0.7
6100197	99	P	SUR	40	4	744	0	0.6	-0.0	0.6
6100198	99	P	SUR	37	-2	743	0	0.5	0.2	0.6
61002	99	P	SUR	42	5	743	0	0.5	0.2	0.6
6100280	99	P	SUR	41	1	744	0	0.6	0.0	0.6
6100281	99	P	SUR	40	0	727	0	0.6	0.2	0.7
6100417	99	P	SUR	38	0	610	7	1.3	0.2	1.3
6100430	99	P	SUR	40	2	744	0	0.5	-0.2	0.5
6101001	99	P	SUR	38	24	144	0	0.8	0.7	1.0
6101003	99	P	SUR	40	25	140	0	0.6	0.5	0.8
6101007	99	P	SUR	36	25	144	0	0.8	2.6	2.8
6101008	99	P	SUR	37	22	116	0	0.6	0.3	0.7
6102501	99	P	SUR	35	18	300	0	0.4	0.5	0.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6102502	99	P	SUR	35	20	300	0	0.4	0.5	0.6
6200024	99	P	SUR	44	-3	451	0	1.6	-0.9	1.8
6200025	99	P	SUR	44	-6	608	17	1.6	-0.1	1.6
6200082	99	P	SUR	44	-8	744	0	0.6	-0.3	0.6
6200083	99	P	SUR	43	-9	743	0	0.6	-0.3	0.7
6200084	99	P	SUR	42	-9	744	0	0.5	-0.2	0.6
6200085	99	P	SUR	36	-7	743	0	0.5	-0.2	0.5
6200091	99	P	SUR	53	-5	744	0	0.6	-0.2	0.7
6200093	99	P	SUR	55	-10	744	0	0.5	-0.2	0.6
6200094	99	P	SUR	52	-7	586	5	1.4	-0.3	1.5
62001	99	P	SUR	45	-5	736	0	0.5	-0.1	0.6
6200191	99	P	SUR	41	-10	635	0	0.5	-0.5	0.7
6200192	99	P	SUR	40	-10	634	0	0.5	-1.1	1.2
6200199	99	P	SUR	40	-9	633	0	0.5	0.1	0.5
6200200	99	P	SUR	36	-8	635	0	0.4	-0.2	0.5
6200513	99	P	SUR	64	-17	667	0	0.7	-0.8	1.1
6200559	99	P	SUR	56	-6	134	23	2.1	-1.0	2.3
6200940	99	P	SUR	28	-49	728	0	0.4	-0.2	0.4
6200941	99	P	SUR	24	-65	635	0	0.3	-0.4	0.5
6201030	99	P	SUR	44	-4	513	0	0.6	0.8	1.0
6201070	99	P	SUR	43	-9	695	0	0.7	-1.0	1.2
62023	99	P	SUR	51	-8	743	0	0.5	0.1	0.5
62029	99	P	SUR	49	-12	1471	0	0.5	-0.2	0.6
6203503	99	P	SUR	26	-49	556	0	0.3	-1.1	1.2
6203504	99	P	SUR	22	-58	721	0	0.3	0.1	0.3
6203510	99	P	SUR	21	-59	739	0	0.3	0.0	0.3
6203523	99	P	SUR	64	-7	696	0	0.4	-0.2	0.4
6203526	99	P	SUR	66	4	695	0	0.4	0.4	0.6
6203528	99	P	SUR	32	-15	728	0	0.3	0.3	0.5
6203529	99	P	SUR	16	-45	740	0	0.3	0.1	0.3
6203600	99	P	SUR	45	-12	742	0	0.5	0.4	0.6
6203601	99	P	SUR	48	-16	741	0	0.5	0.1	0.5
6203602	99	P	SUR	65	-26	742	0	0.4	0.4	0.6
6203603	99	P	SUR	55	-30	742	0	0.4	0.2	0.5
6203604	99	P	SUR	49	-27	741	7	2.2	-0.1	2.2
6203605	99	P	SUR	59	-29	742	0	0.4	0.2	0.5
6203606	99	P	SUR	44	-9	741	0	1.1	0.8	1.4
6203607	99	P	SUR	37	-35	742	0	0.4	-0.2	0.4
62050	99	P	SUR	50	-4	740	0	0.5	0.3	0.5
62081	99	P	SUR	51	-13	743	0	0.4	-0.2	0.5
62082	99	P	SUR	55	6	1	0	0.0	0.0	0.0
62086	99	P	SUR	55	6	742	0	0.5	-0.2	0.5
62095	99	P	SUR	53	-16	973	0	0.5	-0.0	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62102	99	P	SUR	58	2	745	0	0.9	0.8	1.2
62103	99	P	SUR	50	-3	738	0	0.4	0.4	0.6
62104	99	P	SUR	57	1	732	0	0.4	0.1	0.4
62107	99	P	SUR	50	-6	1457	0	0.5	0.3	0.7
62111	99	P	SUR	58	0	745	0	0.4	1.2	1.3
62112	99	P	SUR	58	0	745	0	0.4	0.4	0.5
62113	99	P	SUR	58	0	745	0	0.4	-0.2	0.5
62114	99	P	SUR	58	0	1483	0	0.4	0.3	0.5
62115	99	P	SUR	58	-3	442	0	0.4	0.2	0.5
62116	99	P	SUR	58	1	745	0	0.5	0.2	0.5
62118	99	P	SUR	58	1	741	0	0.3	0.5	0.6
62119	99	P	SUR	57	2	745	0	0.4	-0.0	0.5
62120	99	P	SUR	56	2	738	0	0.5	-0.1	0.5
62121	99	P	SUR	54	3	133	0	0.9	-0.5	1.0
62122	99	P	SUR	57	2	1481	0	0.5	-0.0	0.5
62124	99	P	SUR	54	-4	745	0	0.4	0.2	0.4
62127	99	P	SUR	54	1	745	0	0.5	0.5	0.8
62129	99	P	SUR	58	0	745	0	0.4	-0.1	0.5
62130	99	P	SUR	59	1	745	0	0.4	-0.2	0.4
62131	99	P	SUR	54	1	687	0	0.5	0.8	1.0
62132	99	P	SUR	56	2	745	0	0.5	0.2	0.6
62133	99	P	SUR	57	1	745	0	0.7	0.7	1.0
62134	99	P	SUR	58	1	745	0	0.3	0.4	0.5
62135	99	P	SUR	54	2	528	0	0.5	0.5	0.7
62136	99	P	SUR	54	3	550	0	0.4	0.8	0.9
62138	99	P	SUR	54	0	1479	0	0.5	0.6	0.8
62139	99	P	SUR	53	2	1483	0	0.7	0.2	0.8
62140	99	P	SUR	57	1	1473	0	0.4	0.3	0.5
62141	99	P	SUR	58	-4	737	0	1.0	0.0	1.0
62143	99	P	SUR	58	2	745	0	0.4	0.7	0.8
62144	99	P	SUR	53	2	743	0	0.5	0.2	0.5
62145	99	P	SUR	53	3	1483	0	0.6	0.3	0.7
62146	99	P	SUR	57	2	732	0	0.4	0.3	0.5
62148	99	P	SUR	54	2	743	0	0.6	0.5	0.8
62149	99	P	SUR	54	1	742	0	0.4	1.0	1.0
62150	99	P	SUR	54	1	610	0	0.4	1.3	1.4
62151	99	P	SUR	57	2	1473	0	0.4	0.5	0.6
62152	99	P	SUR	57	2	745	0	0.4	0.3	0.5
62153	99	P	SUR	57	2	1274	0	0.4	0.5	0.7
62154	99	P	SUR	56	2	745	0	0.5	-0.1	0.5
62155	99	P	SUR	58	1	745	0	0.4	0.3	0.5
62157	99	P	SUR	58	0	742	0	0.3	0.0	0.3
62160	99	P	SUR	57	2	1481	0	0.5	0.8	1.0

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62161	99	P	SUR	58	1	744	0	0.4	-0.1	0.4
62162	99	P	SUR	57	1	742	0	0.3	0.1	0.4
62163	99	P	SUR	48	-8	733	0	0.6	0.2	0.7
62164	99	P	SUR	57	1	744	0	0.4	0.3	0.5
62165	99	P	SUR	54	1	726	0	0.5	0.5	0.7
62168	99	P	SUR	58	1	728	0	0.3	0.0	0.3
62170	99	P	SUR	51	2	737	0	0.6	0.1	0.6
62296	99	P	SUR	53	2	721	0	0.6	0.1	0.6
62297	99	P	SUR	59	2	1483	0	0.3	0.0	0.3
62302	99	P	SUR	61	-2	744	0	0.4	-0.1	0.4
62304	99	P	SUR	51	2	711	1	0.5	0.2	0.6
62305	99	P	SUR	50	0	602	1	0.5	0.2	0.5
62442	99	P	SUR	49	-16	738	0	0.6	-0.2	0.6
62513	99	P	SUR	64	-17	668	0	0.7	-0.8	1.0
62559	99	P	SUR	56	-6	134	23	2.1	-1.0	2.3
62940	99	P	SUR	28	-49	729	0	0.4	-0.2	0.4
62941	99	P	SUR	24	-65	636	0	0.3	-0.4	0.5
6301550	99	P	SUR	78	36	260	2	0.5	0.1	0.5
6301552	99	P	SUR	79	27	737	0	0.4	-0.4	0.6
6301555	99	P	SUR	75	31	326	0	2.0	1.2	2.4
6301556	99	P	SUR	75	6	741	0	0.8	0.4	0.9
6301557	99	P	SUR	81	9	156	0	3.7	5.8	6.9
63055	99	P	SUR	61	2	738	0	0.4	-0.1	0.4
63056	99	P	SUR	60	2	744	0	0.5	0.3	0.5
63057	99	P	SUR	59	2	745	0	0.4	0.0	0.4
63058	99	P	SUR	53	2	2210	0	0.5	0.4	0.6
63059	99	P	SUR	58	-1	742	0	0.4	0.3	0.5
63101	99	P	SUR	61	1	745	0	0.4	0.1	0.5
63102	99	P	SUR	61	1	744	0	0.4	0.1	0.4
63103	99	P	SUR	61	1	745	0	0.4	0.1	0.4
63104	99	P	SUR	61	2	745	0	0.4	0.4	0.5
63105	99	P	SUR	61	2	745	0	0.5	-0.1	0.5
63108	99	P	SUR	61	2	735	0	0.5	-0.2	0.5
63109	99	P	SUR	60	2	741	0	0.4	-0.2	0.5
63110	99	P	SUR	60	2	740	0	0.6	0.1	0.6
63111	99	P	SUR	61	2	1454	0	0.4	-0.3	0.5
63112	99	P	SUR	61	1	743	0	0.3	-0.3	0.5
63115	99	P	SUR	62	1	745	0	0.4	-0.1	0.4
63117	99	P	SUR	61	1	1483	0	0.5	0.3	0.6
63118	99	P	SUR	57	1	742	0	0.4	-0.1	0.5
63120	99	P	SUR	54	2	745	0	0.5	0.4	0.7
6400526	99	P	SUR	46	-11	715	0	0.6	-0.2	0.7
6400562	99	P	SUR	66	2	742	0	0.4	0.0	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6401501	99	P	SUR	67	10	683	0	0.4	0.4	0.6
6401507	99	P	SUR	75	16	718	0	0.4	0.5	0.7
6401550	99	P	SUR	68	12	732	0	0.5	0.1	0.5
6401555	99	P	SUR	66	-6	741	0	0.4	0.4	0.6
6401556	99	P	SUR	65	-3	742	0	0.4	0.4	0.6
6401557	99	P	SUR	58	-57	741	0	0.6	0.7	0.9
6401560	99	P	SUR	58	0	742	0	0.3	0.7	0.7
6401561	99	P	SUR	58	-25	742	0	0.5	0.3	0.6
6401562	99	P	SUR	61	-5	742	0	0.6	0.3	0.7
6401563	99	P	SUR	63	-18	144	0	1.5	1.4	2.0
6401564	99	P	SUR	63	-8	742	0	0.5	0.5	0.7
6401565	99	P	SUR	64	-12	742	0	0.4	0.2	0.5
6401566	99	P	SUR	61	-12	467	0	0.4	0.5	0.6
6401567	99	P	SUR	63	-18	469	0	0.4	0.3	0.5
64041	99	P	SUR	61	-3	745	0	0.4	0.0	0.4
64045	99	P	SUR	59	-12	845	1	0.5	-0.1	0.5
64046	99	P	SUR	61	-4	740	0	0.3	0.0	0.3
64526	99	P	SUR	46	-11	716	0	0.6	-0.2	0.7
64562	99	P	SUR	66	2	743	0	0.4	0.0	0.4
6500519	99	P	SUR	70	33	742	0	0.4	-0.3	0.5
6500596	99	P	SUR	75	-8	701	0	1.4	0.5	1.5
6500599	99	P	SUR	72	35	721	0	1.1	0.0	1.1
6500602	99	P	SUR	69	5	742	0	0.4	0.5	0.6
6501551	99	P	SUR	50	-39	742	0	0.5	0.2	0.6
6501553	99	P	SUR	55	-20	742	0	0.4	0.2	0.5
6501555	99	P	SUR	65	-52	742	0	0.5	-0.2	0.6
6501556	99	P	SUR	56	-19	742	0	0.4	0.3	0.5
65519	99	P	SUR	70	33	743	0	0.4	-0.3	0.5
65596	99	P	SUR	75	-8	704	0	1.4	0.5	1.5
65599	99	P	SUR	72	36	722	0	1.1	0.0	1.1
65602	99	P	SUR	69	6	743	0	0.4	0.5	0.6

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 : MAR 2018
 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
1300001	99	SPEED	SUR	11	-23	676	0	0	0.8	0.8	1.1
1300002	99	SPEED	SUR	20	-23	735	0	0	0.8	0.5	0.9
1300008	99	SPEED	SUR	15	-38	723	0	0	0.8	-0.0	0.8
1300130	99	SPEED	SUR	28	-16	734	0	0	1.3	-0.2	1.3
1300131	99	SPEED	SUR	28	-17	738	0	0	2.3	1.7	2.8
4100026	99	SPEED	SUR	12	-38	298	0	0	0.7	-0.9	1.2
4100139	99	SPEED	SUR	20	-38	372	0	0	1.0	0.1	1.0
4100300	99	SPEED	SUR	16	-57	111	0	0	1.3	-0.5	1.4
41026	99	SPEED	SUR	12	-38	298	0	0	0.8	-0.9	1.2
41040	99	SPEED	SUR	15	-53	1173	0	0	0.8	-0.2	0.8
41041	99	SPEED	SUR	14	-46	1187	0	0	0.8	-0.4	0.9
41043	99	SPEED	SUR	21	-65	179	0	0	1.3	-0.1	1.3
41044	99	SPEED	SUR	22	-59	1189	0	0	1.2	-0.1	1.2
41046	99	SPEED	SUR	24	-68	1210	0	0	1.1	-0.0	1.1
41048	99	SPEED	SUR	32	-70	1197	0	0	1.4	-0.3	1.5
41049	99	SPEED	SUR	28	-63	923	0	0	1.3	-0.1	1.3
41052	99	SPEED	SUR	18	-65	1952	0	0	1.0	-0.6	1.1
41053	99	SPEED	SUR	19	-66	1891	0	0	1.4	0.5	1.5
41056	99	SPEED	SUR	18	-66	1579	0	0	1.0	-0.3	1.1
41300	99	SPEED	SUR	16	-57	111	0	0	1.3	-0.4	1.4
42060	99	SPEED	SUR	16	-63	115	0	0	0.8	-0.2	0.9
42085	99	SPEED	SUR	18	-67	779	0	0	1.3	0.1	1.3
44032	99	SPEED	SUR	44	-69	734	0	0	1.3	0.0	1.3
44033	99	SPEED	SUR	44	-69	743	0	0	1.4	0.3	1.4
44034	99	SPEED	SUR	44	-68	104	0	0	1.2	-0.5	1.3
44037	99	SPEED	SUR	44	-68	697	0	0	1.2	0.1	1.2
44137	99	SPEED	SUR	42	-62	776	4	0	1.7	-0.1	1.7
44139	99	SPEED	SUR	44	-57	443	0	0	1.6	-0.1	1.6
44150	99	SPEED	SUR	43	-64	106	31	0	1.3	0.6	1.4
6100001	99	SPEED	SUR	43	8	738	0	0	2.0	0.3	2.0
6100002	99	SPEED	SUR	42	5	743	0	0	1.6	0.3	1.7
61001	99	SPEED	SUR	43	8	738	0	0	2.4	-0.8	2.5
6100197	99	SPEED	SUR	40	4	739	0	0	1.6	-0.3	1.6
6100198	99	SPEED	SUR	37	-2	728	0	0	2.4	-1.1	2.6

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
61002	99	SPEED	SUR	42	5	743	0	0	1.7	-0.3	1.7
6100280	99	SPEED	SUR	41	1	738	0	0	2.0	-1.2	2.3
6100281	99	SPEED	SUR	40	0	740	0	0	2.6	0.8	2.7
6100417	99	SPEED	SUR	38	0	603	0	0	1.7	-0.1	1.8
6100430	99	SPEED	SUR	40	2	741	0	0	1.8	-0.8	2.0
6101001	99	SPEED	SUR	38	24	144	0	0	2.2	-0.6	2.2
6101003	99	SPEED	SUR	40	25	140	0	0	2.6	-2.7	3.7
6101007	99	SPEED	SUR	36	25	144	0	0	2.8	-0.9	3.0
6101008	99	SPEED	SUR	37	22	116	0	0	1.3	-0.2	1.3
6200024	99	SPEED	SUR	44	-3	446	0	0	2.8	-0.3	2.8
6200025	99	SPEED	SUR	44	-6	608	0	0	3.2	-0.5	3.2
6200082	99	SPEED	SUR	44	-8	744	0	0	1.6	-1.1	1.9
6200083	99	SPEED	SUR	43	-9	743	0	0	1.5	-0.3	1.5
6200084	99	SPEED	SUR	42	-9	744	0	0	1.4	-1.1	1.8
6200085	99	SPEED	SUR	36	-7	743	0	0	1.4	-0.2	1.4
6200091	99	SPEED	SUR	53	-5	744	0	0	1.2	0.2	1.2
6200093	99	SPEED	SUR	55	-10	744	0	0	1.3	-0.0	1.3
6200094	99	SPEED	SUR	52	-7	586	0	0	1.8	0.1	1.8
62001	99	SPEED	SUR	45	-5	736	0	0	1.6	0.7	1.7
6200191	99	SPEED	SUR	41	-10	635	0	0	1.4	-0.6	1.5
6200192	99	SPEED	SUR	40	-10	634	0	0	1.3	-0.4	1.3
6200199	99	SPEED	SUR	40	-9	633	0	0	1.5	-0.1	1.5
6200200	99	SPEED	SUR	36	-8	635	67	0	1.2	-0.2	1.2
6201030	99	SPEED	SUR	44	-4	510	0	0	1.8	-0.3	1.8
6201070	99	SPEED	SUR	43	-9	695	0	0	1.6	-0.1	1.6
62023	99	SPEED	SUR	51	-8	742	0	0	1.9	-0.2	1.9
62029	99	SPEED	SUR	49	-12	1471	0	0	1.5	0.3	1.5
62050	99	SPEED	SUR	50	-4	739	0	0	1.7	0.6	1.8
62081	99	SPEED	SUR	51	-13	743	0	0	1.4	0.2	1.4
62082	99	SPEED	SUR	55	6	1	0	0	0.0	1.5	1.5
62086	99	SPEED	SUR	55	6	747	0	0	1.4	1.0	1.7
62095	99	SPEED	SUR	53	-16	973	0	0	1.6	0.4	1.7
62102	99	SPEED	SUR	58	2	745	0	0	1.5	0.5	1.6
62103	99	SPEED	SUR	50	-3	733	0	0	1.8	1.7	2.5
62104	99	SPEED	SUR	57	1	732	0	0	1.3	-1.0	1.7
62107	99	SPEED	SUR	50	-6	1457	0	0	1.6	1.0	1.9
62111	99	SPEED	SUR	58	0	745	0	0	2.2	-0.2	2.2
62112	99	SPEED	SUR	58	0	745	0	0	2.2	-2.4	3.2
62113	99	SPEED	SUR	58	0	745	0	0	1.3	-0.4	1.4
62114	99	SPEED	SUR	58	0	1483	0	0	1.3	0.1	1.3
62118	99	SPEED	SUR	58	1	741	0	0	1.3	0.6	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
62119	99	SPEED	SUR	57	2	745	0	0	2.1	-1.2	2.4
62120	99	SPEED	SUR	56	2	738	0	0	1.5	-0.0	1.5
62121	99	SPEED	SUR	54	3	133	0	0	2.5	1.1	2.7
62122	99	SPEED	SUR	57	2	1479	0	0	1.5	0.4	1.6
62129	99	SPEED	SUR	58	0	745	0	0	1.2	-0.5	1.3
62131	99	SPEED	SUR	54	1	687	0	0	4.1	-2.6	4.9
62132	99	SPEED	SUR	56	2	686	0	0	3.3	-2.8	4.3
62133	99	SPEED	SUR	57	1	745	0	0	1.7	0.3	1.7
62134	99	SPEED	SUR	58	1	744	0	0	1.4	-0.5	1.5
62140	99	SPEED	SUR	57	1	1405	0	0	1.2	-0.4	1.2
62143	99	SPEED	SUR	58	2	745	0	0	1.7	-0.7	1.8
62144	99	SPEED	SUR	53	2	743	0	0	1.8	-0.2	1.8
62145	99	SPEED	SUR	53	3	1483	0	0	1.4	1.0	1.7
62146	99	SPEED	SUR	57	2	552	0	0	1.7	-0.0	1.7
62148	99	SPEED	SUR	54	2	743	0	0	1.4	0.1	1.5
62149	99	SPEED	SUR	54	1	742	0	0	1.8	-0.8	2.0
62150	99	SPEED	SUR	54	1	609	0	0	1.5	-0.6	1.6
62152	99	SPEED	SUR	57	2	745	0	0	1.4	-1.0	1.7
62153	99	SPEED	SUR	57	2	1274	0	0	2.3	-0.6	2.4
62154	99	SPEED	SUR	56	2	745	0	0	1.6	-0.8	1.8
62155	99	SPEED	SUR	58	1	558	0	0	1.9	-0.1	1.9
62163	99	SPEED	SUR	48	-8	733	0	0	1.4	-0.0	1.4
62164	99	SPEED	SUR	57	1	744	0	0	1.8	-1.4	2.3
62165	99	SPEED	SUR	54	1	726	0	0	1.3	-0.4	1.4
62170	99	SPEED	SUR	51	2	737	0	0	1.8	0.8	2.0
62304	99	SPEED	SUR	51	2	707	0	0	1.7	1.1	2.0
62305	99	SPEED	SUR	50	0	602	0	0	2.8	0.5	2.9
62442	99	SPEED	SUR	49	-16	737	1	0	1.7	-0.8	1.9
63055	99	SPEED	SUR	61	2	738	0	0	1.4	-1.2	1.9
63056	99	SPEED	SUR	60	2	744	0	0	1.3	-0.8	1.5
63057	99	SPEED	SUR	59	2	745	0	0	1.6	-0.5	1.7
63058	99	SPEED	SUR	53	2	1481	0	0	1.3	0.4	1.3
63101	99	SPEED	SUR	61	1	743	0	0	1.3	-0.5	1.4
63103	99	SPEED	SUR	61	1	745	0	0	1.4	-0.9	1.7
63104	99	SPEED	SUR	61	2	745	0	0	1.2	-0.6	1.4
63105	99	SPEED	SUR	61	2	745	0	0	1.4	-0.8	1.6
63106	99	SPEED	SUR	61	2	742	0	0	1.3	-0.5	1.4
63108	99	SPEED	SUR	61	2	737	0	0	1.6	-0.9	1.8
63109	99	SPEED	SUR	60	2	722	0	0	1.4	-0.7	1.5
63110	99	SPEED	SUR	60	2	740	0	0	1.6	-0.9	1.8
63112	99	SPEED	SUR	61	1	743	0	0	1.3	-1.0	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
63113	99	SPEED	SUR	61	2	745	0	0	1.2	-1.0	1.5
63115	99	SPEED	SUR	62	1	745	0	0	1.4	-1.0	1.7
63117	99	SPEED	SUR	61	1	1483	0	0	1.2	-0.6	1.3
64041	99	SPEED	SUR	61	-3	745	0	0	1.3	-0.6	1.4
64045	99	SPEED	SUR	59	-12	844	1	0	1.2	0.2	1.2
64046	99	SPEED	SUR	61	-4	740	0	0	1.3	0.7	1.5

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 : MAR 2018
 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
1300001	99	DIRN	SUR	11	-23	676	0	0	7.5	0.9	7.5
1300002	99	DIRN	SUR	20	-23	709	0	0	8.8	1.5	8.9
1300008	99	DIRN	SUR	15	-38	693	0	0	8.4	1.7	8.6
1300130	99	DIRN	SUR	28	-16	607	0	0	12.4	4.3	13.1
1300131	99	DIRN	SUR	28	-17	405	0	0	23.3	0.5	23.3
4100026	99	DIRN	SUR	12	-38	298	0	0	12.4	-12.7	17.8
4100139	99	DIRN	SUR	20	-38	286	0	0	13.3	0.5	13.3
41002	99	DIRN	SUR	32	-75	1116	0	0	18.7	5.5	19.5
4100300	99	DIRN	SUR	16	-57	110	0	0	17.5	-15.7	23.5
41004	99	DIRN	SUR	33	-79	1108	0	0	16.5	5.0	17.2
41008	99	DIRN	SUR	31	-81	613	0	0	24.3	10.5	26.4
41009	99	DIRN	SUR	29	-80	923	0	0	20.7	1.7	20.7
41010	99	DIRN	SUR	29	-79	1056	0	0	12.8	9.0	15.6
41013	99	DIRN	SUR	33	-78	1031	0	0	19.9	4.5	20.4
41024	99	DIRN	SUR	34	-79	556	0	0	18.0	-12.7	22.0
41025	99	DIRN	SUR	35	-75	1062	0	0	14.8	4.3	15.4
41026	99	DIRN	SUR	12	-38	297	0	0	12.9	-13.4	18.6
41029	99	DIRN	SUR	33	-80	581	0	0	17.8	-4.3	18.3
41033	99	DIRN	SUR	32	-80	631	0	0	16.3	-2.3	16.4
41037	99	DIRN	SUR	34	-77	686	0	0	20.8	-4.9	21.4
41038	99	DIRN	SUR	34	-78	607	0	0	14.5	-4.4	15.1
41040	99	DIRN	SUR	15	-53	1163	0	0	10.6	-12.3	16.3
41041	99	DIRN	SUR	14	-46	1185	0	0	9.2	-11.8	15.0
41043	99	DIRN	SUR	21	-65	176	0	0	15.1	-6.3	16.3
41044	99	DIRN	SUR	22	-59	882	0	0	14.9	3.5	15.3
41046	99	DIRN	SUR	24	-68	977	0	0	16.2	4.6	16.8
41047	99	DIRN	SUR	28	-72	1081	0	0	12.7	-3.7	13.2
41048	99	DIRN	SUR	32	-70	1096	0	0	14.5	-6.0	15.7
41049	99	DIRN	SUR	28	-63	809	0	0	22.1	6.4	23.0
41052	99	DIRN	SUR	18	-65	1732	0	0	13.0	4.4	13.7
41053	99	DIRN	SUR	19	-66	1084	0	0	19.4	-0.2	19.4
41056	99	DIRN	SUR	18	-66	1373	0	0	15.7	3.5	16.1

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
41062	99	DIRN	SUR	36	-75	647	8	0	47.6	10.2	48.7
41063	99	DIRN	SUR	35	-76	822	0	0	17.4	-10.9	20.5
41064	99	DIRN	SUR	34	-77	665	0	0	25.8	-13.6	29.2
41300	99	DIRN	SUR	16	-57	108	0	0	17.3	-15.8	23.5
42013	99	DIRN	SUR	27	-83	881	0	0	14.4	-1.2	14.5
42056	99	DIRN	SUR	20	-85	1135	0	0	9.8	3.5	10.4
42057	99	DIRN	SUR	17	-81	1191	0	0	11.2	5.4	12.4
42058	99	DIRN	SUR	15	-75	1247	0	0	8.6	9.0	12.4
42060	99	DIRN	SUR	16	-63	115	0	0	11.8	2.6	12.1
42085	99	DIRN	SUR	18	-67	630	0	0	24.3	24.2	34.3
44007	99	DIRN	SUR	44	-70	664	0	0	16.6	8.7	18.7
44009	99	DIRN	SUR	39	-75	649	23	0	50.2	-1.4	50.2
44013	99	DIRN	SUR	42	-71	691	0	0	15.7	4.4	16.3
44014	99	DIRN	SUR	37	-75	613	0	0	16.1	2.8	16.3
44017	99	DIRN	SUR	41	-72	687	0	0	13.3	13.7	19.1
44020	99	DIRN	SUR	41	-70	679	0	0	12.3	4.5	13.1
44025	99	DIRN	SUR	40	-73	679	0	0	34.2	-8.0	35.2
44030	99	DIRN	SUR	43	-70	622	0	0	15.4	3.2	15.7
44032	99	DIRN	SUR	44	-69	660	0	0	12.9	8.9	15.7
44033	99	DIRN	SUR	44	-69	636	0	0	18.8	-1.5	18.8
44034	99	DIRN	SUR	44	-68	85	0	0	13.1	4.8	13.9
44037	99	DIRN	SUR	44	-68	650	0	0	12.4	31.4	33.8
44039	99	DIRN	SUR	41	-73	679	0	0	17.0	-1.1	17.0
44042	99	DIRN	SUR	38	-76	378	9	0	141.9	-5.7	142.0
44058	99	DIRN	SUR	38	-76	509	0	0	14.4	-27.1	30.7
44062	99	DIRN	SUR	39	-76	1092	0	0	20.3	-30.5	36.7
44064	99	DIRN	SUR	37	-76	243	0	0	15.3	-26.4	30.5
44065	99	DIRN	SUR	40	-74	1018	0	0	15.5	5.0	16.3
44066	99	DIRN	SUR	40	-73	686	0	0	13.6	-0.9	13.6
44072	99	DIRN	SUR	37	-76	341	0	0	14.9	-20.1	25.0
44137	99	DIRN	SUR	42	-62	755	4	0	18.2	-16.1	24.3
44139	99	DIRN	SUR	44	-57	407	0	0	13.0	6.3	14.4
44150	99	DIRN	SUR	43	-64	100	31	0	78.2	26.2	82.5
6100198	99	DIRN	SUR	37	-2	566	0	0	17.5	4.2	18.0
6100281	99	DIRN	SUR	40	0	535	0	0	31.2	0.9	31.2
6100417	99	DIRN	SUR	38	0	542	0	0	17.9	4.5	18.5
6200024	99	DIRN	SUR	44	-3	358	0	0	34.1	1.4	34.2
6200025	99	DIRN	SUR	44	-6	514	0	0	21.3	2.8	21.5
6200082	99	DIRN	SUR	44	-8	726	0	0	14.9	2.9	15.2
6200083	99	DIRN	SUR	43	-9	715	0	0	14.5	10.2	17.7
6200084	99	DIRN	SUR	42	-9	683	0	0	16.2	7.1	17.7

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
6200085	99	DIRN	SUR	36	-7	696	0	0	13.7	8.8	16.3
6200091	99	DIRN	SUR	53	-5	668	0	0	13.5	1.8	13.6
6200093	99	DIRN	SUR	55	-10	687	0	0	13.5	-1.4	13.5
6200094	99	DIRN	SUR	52	-7	515	0	0	20.4	0.8	20.4
62001	99	DIRN	SUR	45	-5	709	0	0	14.9	6.1	16.1
6200191	99	DIRN	SUR	41	-10	616	0	0	12.8	-1.5	12.9
6200192	99	DIRN	SUR	40	-10	598	0	0	12.0	3.1	12.4
6200199	99	DIRN	SUR	40	-9	597	0	0	15.7	1.8	15.8
6200200	99	DIRN	SUR	36	-8	601	67	0	149.9	-81.8	170.8
6201030	99	DIRN	SUR	44	-4	449	0	0	21.4	-13.6	25.4
6201070	99	DIRN	SUR	43	-9	662	0	0	18.5	3.9	18.9
62023	99	DIRN	SUR	51	-8	666	0	0	16.1	8.1	18.0
62029	99	DIRN	SUR	49	-12	1371	0	0	14.3	10.0	17.5
62050	99	DIRN	SUR	50	-4	677	0	0	14.8	1.6	14.9
62081	99	DIRN	SUR	51	-13	683	0	0	13.9	11.9	18.3
62095	99	DIRN	SUR	53	-16	923	0	0	17.5	7.2	18.9
62103	99	DIRN	SUR	50	-3	708	0	0	16.8	6.8	18.1
62107	99	DIRN	SUR	50	-6	1409	0	0	17.2	1.6	17.3
62111	99	DIRN	SUR	58	0	689	0	0	13.1	7.1	14.9
62112	99	DIRN	SUR	58	0	688	0	0	11.3	1.9	11.4
62114	99	DIRN	SUR	58	0	1423	0	0	8.9	0.4	8.9
62163	99	DIRN	SUR	48	-8	678	0	0	13.5	-5.9	14.8
62305	99	DIRN	SUR	50	0	535	0	0	42.6	8.1	43.4
62442	99	DIRN	SUR	49	-16	657	1	0	16.1	-10.6	19.3
64041	99	DIRN	SUR	61	-3	695	0	0	11.8	8.3	14.4
64045	99	DIRN	SUR	59	-12	808	1	0	12.9	7.0	14.7
64046	99	DIRN	SUR	61	-4	701	0	0	15.4	-4.5	16.0

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE09	ASFR1	ASFR2	ASFR3	ASFR4	ASUK02	DBLK	FHM5UJH	FPUW5GN
HTXUH4H	LRVQE3U	VKB4L5Q	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	2NKPY5N	01001
01004	01010	01028	01206	01241	01400	01415	01492	02185
02365	02527	02591	02836	02963	03005	03238	03354	03502
03743	03808	03882	03918	03953	04018	04089	04220	04270
04320	04339	04360	04417	06011	06260	06610	07101	07110
07145	07510	07645	07761	08001	08023	08190	08221	08302
08430	08508	08522	08579	10035	10113	10184	10238	10304
10393	10410	10548	10618	10739	10771	10868	10954	10962
11010	11035	11120	11240	11520	11747	11952	12120	12374
12425	12843	12982	13275	13388	16045	16080	16113	16144
16245	16320	16429	16546	16622	16754	17030	17064	17095
17220	17281	17351	17516	17607	33008	37789	40179	40186
45004	47102	47104	47138	47155	47169	47186	60018	61901
61980	61998	67083	68263	68424	68442	68512	68538	68816
68842	70026	70200	70219	70231	70261	70316	70326	70350
70361	70398	71043	71081	71082	71109	71119	71600	71603
71722	71802	71811	71815	71816	71823	71836	71845	71867
71906	71907	71908	71909	71913	71917	71924	71925	71926
71934	71945	71957	71964	72201	72206	72208	72210	72214
72233	72240	72248	72251	72261	72265	72274	72293	72317
72327	72363	72364	72365	72376	72388	72426	72440	72451
72476	72489	72493	72501	72518	72520	72528	72558	72562
72572	72582	72597	72632	72634	72645	72649	72659	72662
72672	72681	72694	72712	72747	72764	72768	72776	72786
72797	73033	74389	74494	74560	76612	76679	76692	76743
76805	76903	78897	78954	81405	85442	85469	85586	85799
85934	88889	89002	89062	89564	89571	89611	89642	89859
91212	91592	91925	91938	91948	91958	93112	93417	93817
93844	93997	94120	94150	94170	94203	94294	94299	94302
94312	94326	94332	94374	94403	94430	94461	94510	94578
94610	94637	94638	94653	94659	94672	94711	94767	94776
94802	94821	94866	94910	94975	94995	94996	94998	95527
96996								

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

ASDE09	ASFR1	ASFR2	ASFR3	ASFR4	ASUK02	DBLK	FHM5UJH	FPUW5GN
HTXUH4H	LRVQE3U	VKB4L5Q	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	2NKPY5N	01001
01004	01010	01028	01206	01241	01400	01415	01492	02836
02963	07101	08098	14101	15105	17607	19099	40186	47155
48453	73033	76743	76903	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.