



ECMWF Global Data Monitoring Report

August 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	Jul	Aug	Ident	Time	Jul	Aug
02527	(00)	28	14	08430	(00)	11	31
17130	(00)	31	17	40706	(00)	0	21
17130	(12)	31	17	40809	(12)	0	27
17516	(00)	29	17	40811	(12)	0	21
33837	(00)	12	0	48650	(12)	0	31
40430	(00)	14	0	63985	(12)	0	25
43150	(12)	30	0	64650	(00)	8	22
47169	(00)	31	19	64650	(12)	8	26
47169	(12)	30	19	65344	(12)	13	30
47401	(00)	32	18	68263	(00)	6	27
47401	(12)	31	18	68263	(12)	6	26
47412	(00)	31	18	68816	(12)	15	30
47412	(12)	31	18	74006	(00)	8	46
47418	(00)	31	18	74006	(12)	4	21
47418	(12)	31	18	76225	(12)	0	13
47582	(00)	31	19	76458	(12)	20	33
47582	(12)	31	18	76679	(00)	0	25
47600	(00)	33	18	78970	(00)	16	29
47600	(12)	32	18	78970	(12)	18	32
47646	(00)	31	17	82397	(12)	0	18
47646	(12)	31	18	91680	(12)	0	31
47741	(00)	31	19	94461	(12)	0	12
47741	(12)	31	18	96413	(12)	0	31
47778	(00)	31	18	96441	(12)	0	30
47778	(12)	31	18	96481	(12)	0	30
47807	(00)	32	18	97900	(00)	0	26
47807	(12)	32	18	97900	(12)	0	27
47827	(00)	31	18	-	-	-	-
47827	(12)	31	18	-	-	-	-
47909	(00)	31	18	-	-	-	-
47909	(12)	31	18	-	-	-	-
47918	(00)	32	19	-	-	-	-
47918	(12)	32	17	-	-	-	-
47945	(00)	31	16	-	-	-	-
47945	(12)	30	18	-	-	-	-
47971	(00)	31	18	-	-	-	-
47971	(12)	31	18	-	-	-	-
47991	(00)	31	18	-	-	-	-
47991	(12)	31	18	-	-	-	-
60760	(00)	17	0	-	-	-	-
61052	(00)	31	16	-	-	-	-
64500	(12)	25	10	-	-	-	-
70414	(00)	26	11	-	-	-	-
71081	(00)	13	0	-	-	-	-
74004	(00)	40	16	-	-	-	-
76225	(00)	18	1	-	-	-	-
82965	(12)	31	17	-	-	-	-
82983	(12)	30	13	-	-	-	-
83566	(00)	28	9	-	-	-	-
83566	(12)	27	8	-	-	-	-
89512	(00)	21	0	-	-	-	-
91610	(00)	28	0	-	-	-	-

2.2 Drifting Buoys

Surface pressure observations from **1303** 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.

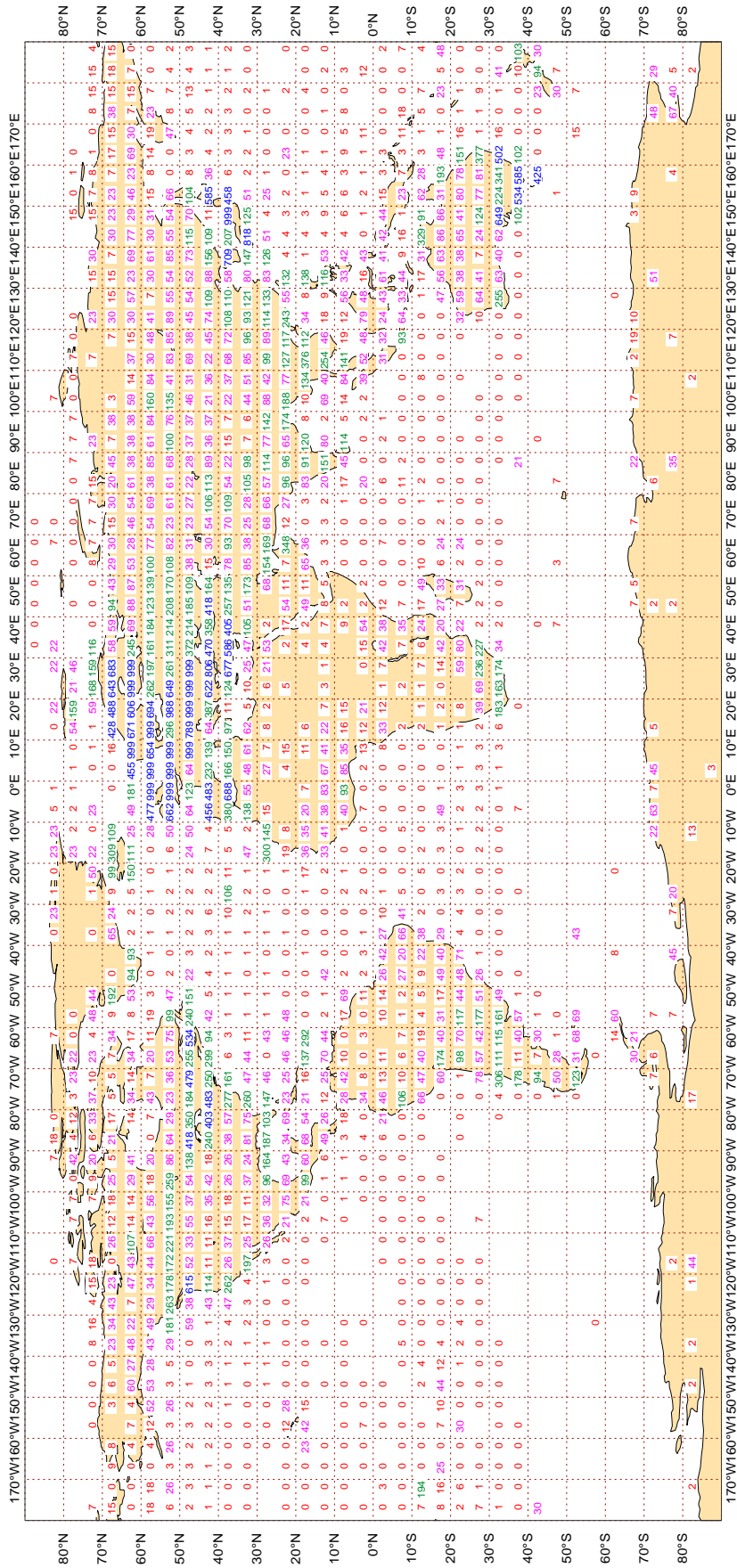
Fig	Parameter	Level/Layer
14	SATOB - Mean observed wind	1000-700 hPa
15	SATOB - Mean observed wind	400-150 hPa
16	SATOB - Mean observed minus first-guess wind	1000-700 hPa
17	SATOB - Mean observed minus first-guess wind	400-150 hPa
18	AIRCRAFT WIND - Mean observed minus first-guess	300-150 hPa

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

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

Figure 1

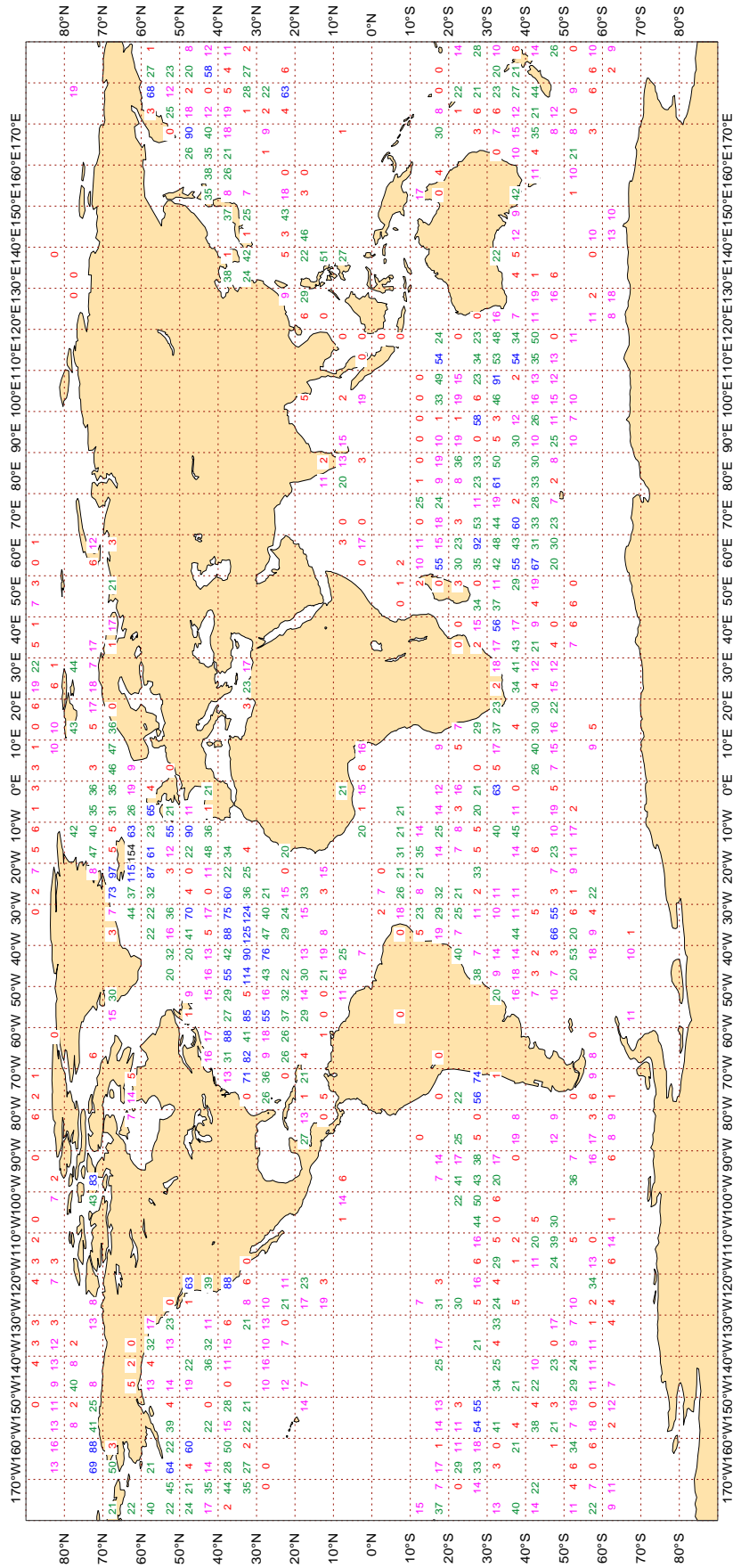
ECMWF Monitoring Statistics - AUG 2018
 Availability - SYNOP/SHIP (manual, auto) pressure
 Average number of observations in 24 hours - 96049
 LAND - WMO Region I: 4310 II:18392 III: 3902 IV: 6867
 Region V: 8692 VI:39281 Antarctic: 860
 Oceans - N. Atlantic 7936 S. Atlantic 198 Indian 383 Pacific 5230



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2

ECMWF Monitoring Statistics - AUG 2018
 Availability - DRIFTER PRESSURE
 Average number of observations in 24 hours - 16371
 Oceans - N. Atlantic 4886 S. Atlantic 1857 Indian 3204 Pacific 6423



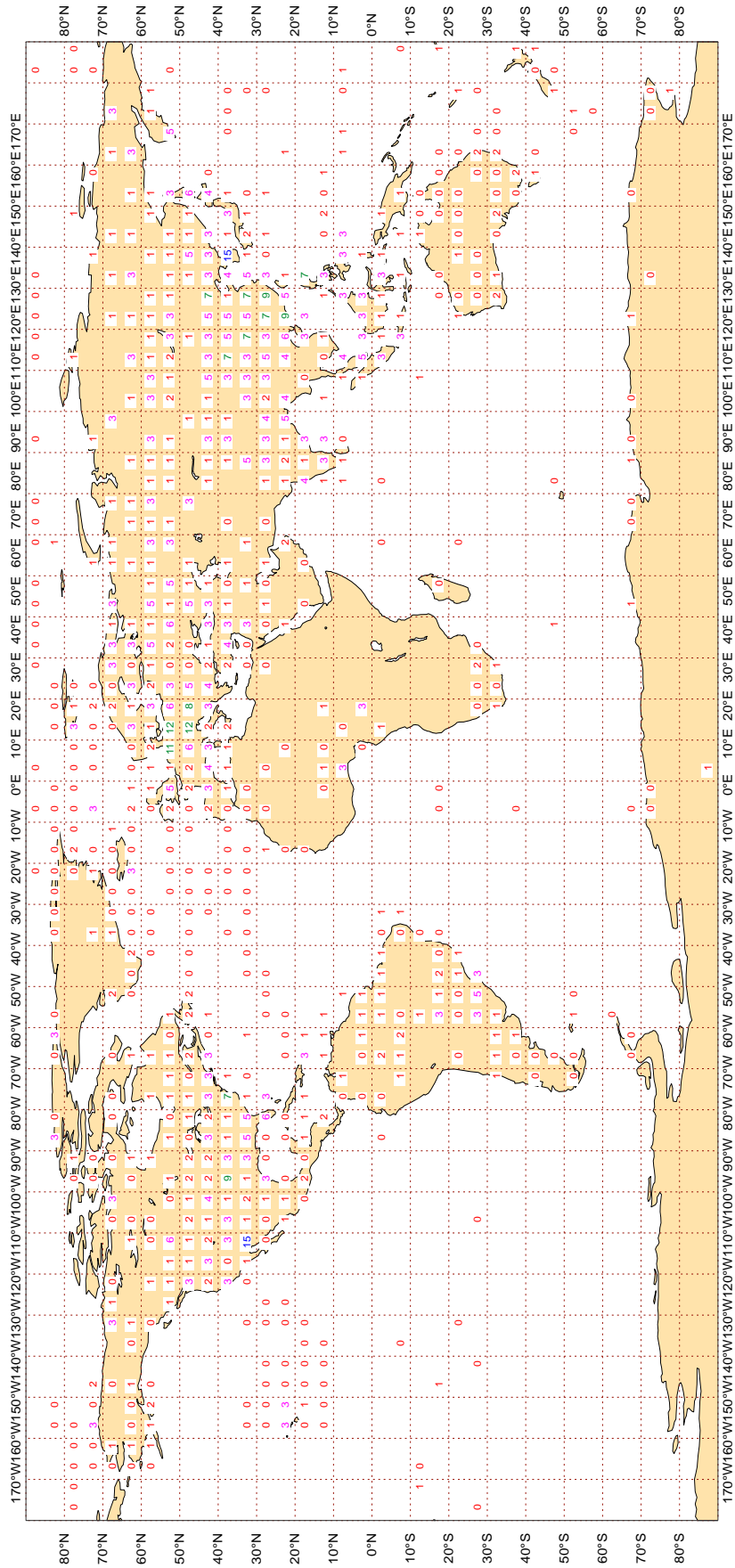
Magicis 2.24.2 (64 bit)



3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

Figure 3

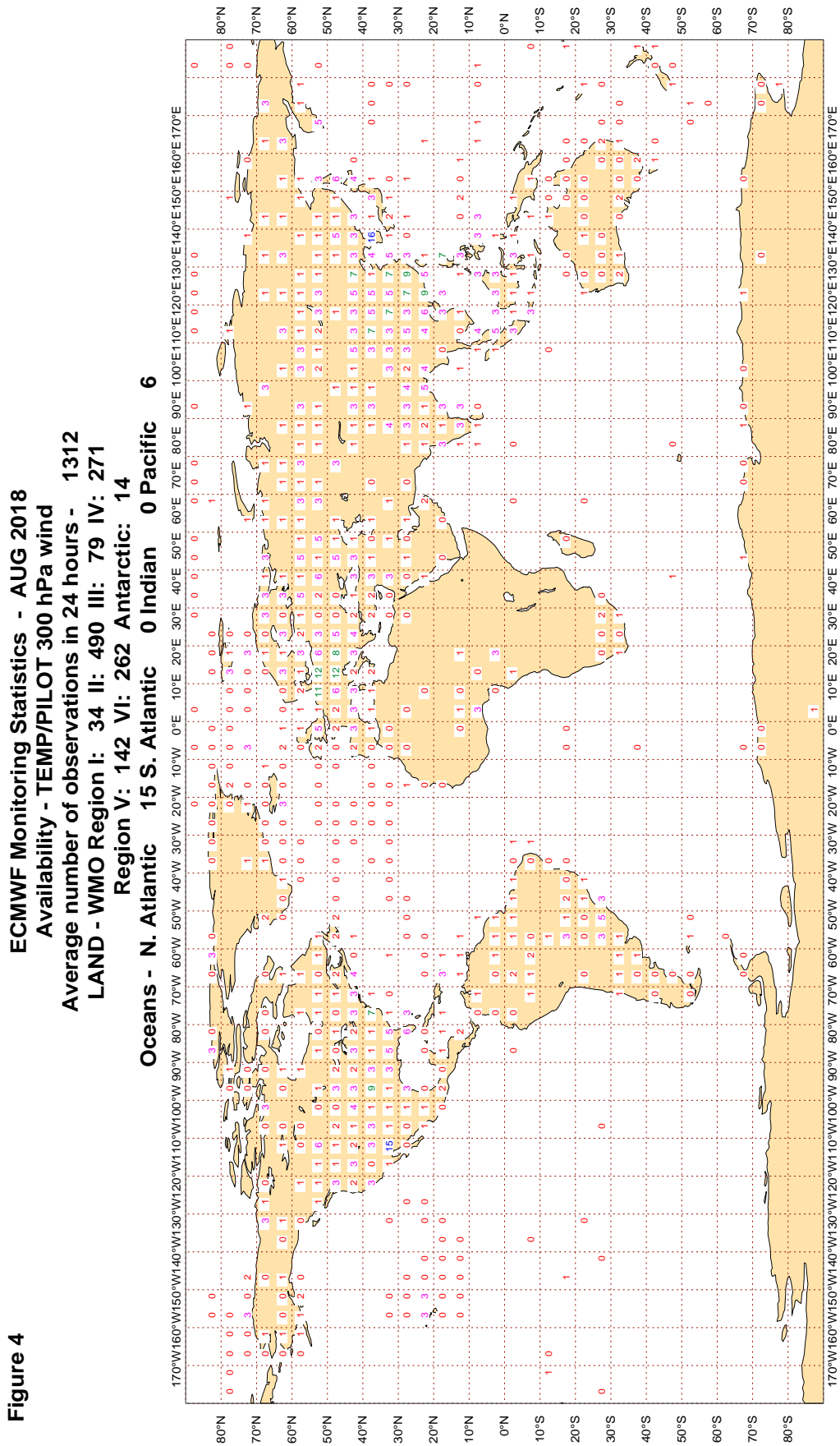
ECMWF Monitoring Statistics - AUG 2018
 Availability - TEMP 500 hPa Geopotential
 Average number of observations in 24 hours - 1328
 LAND - WMO Region I: 35 II: 496 III: 80 IV: 273
 Region V: 144 VI: 266 Antarctic: 14
 Oceans - N. Atlantic 15 S. Atlantic 0 Indian 0 Pacific 6



Magics 2.24.2 (64 bit)



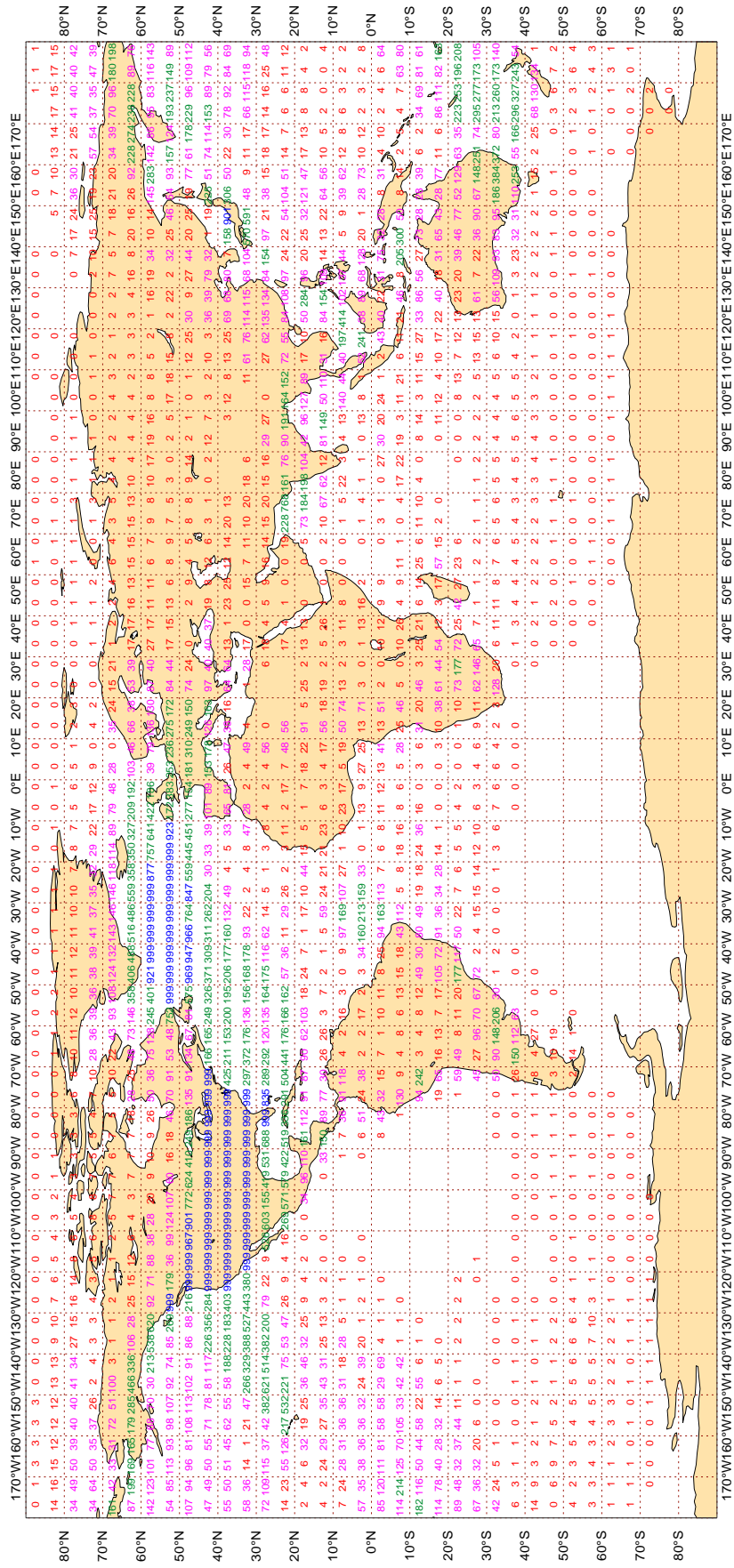
3.2.4 Figure 4 - Availability - TEMP/PILOT 300 hPa wind



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

Figure 5

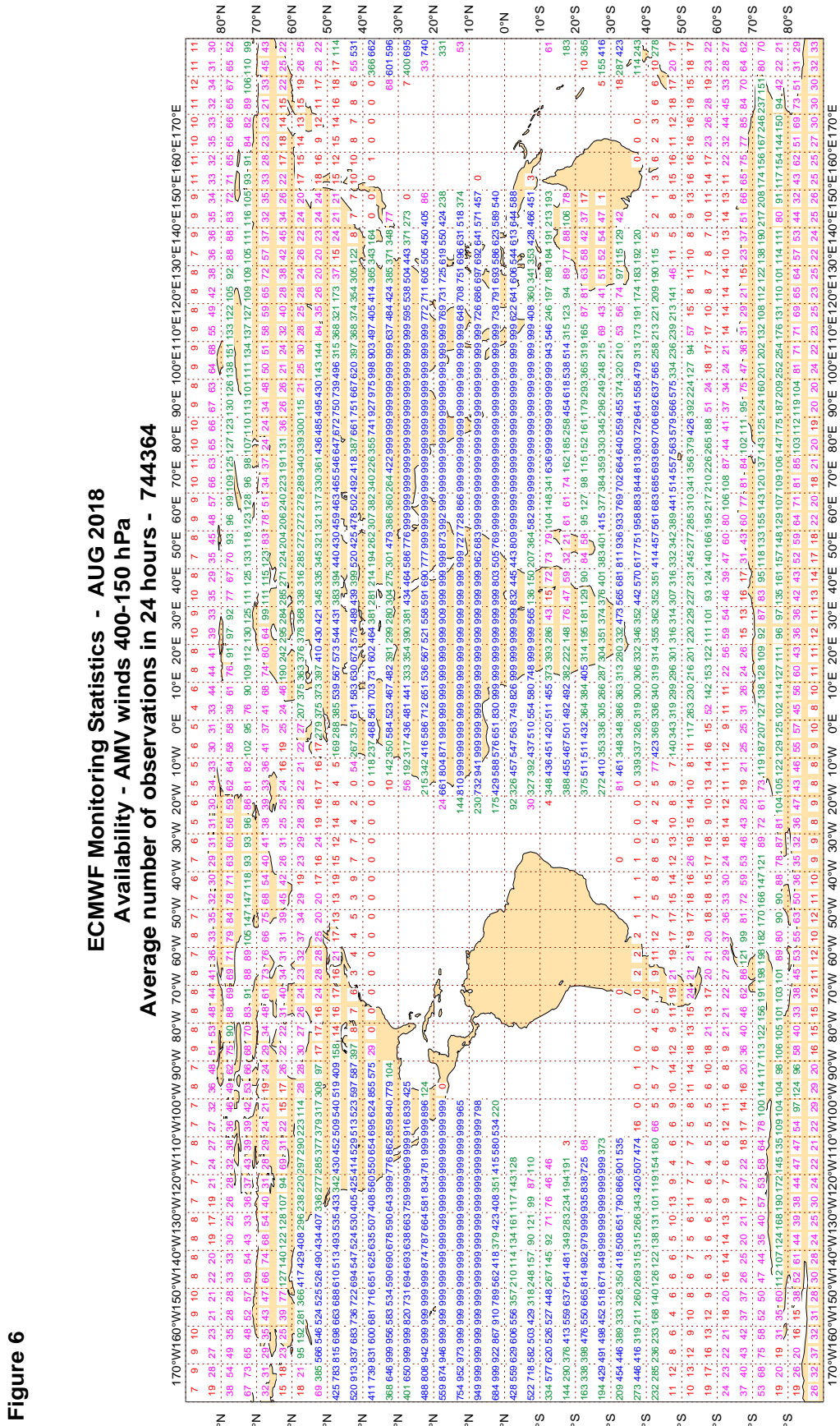
ECMWF Monitoring Statistics - AUG 2018
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 226185



Magics 2.24.2 (64 bit)



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

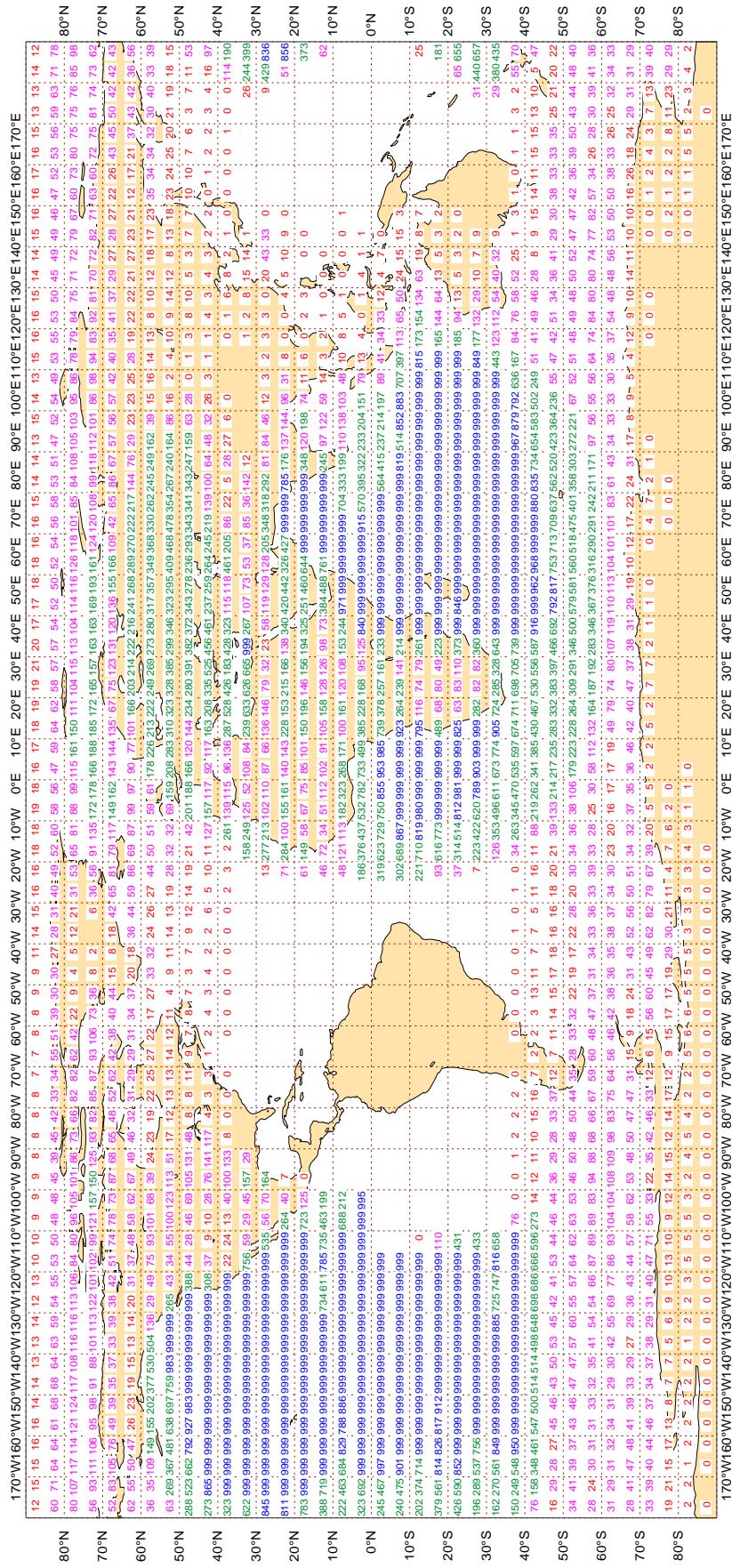


Majics 2.24.2 (64 bit)

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

Figure 7

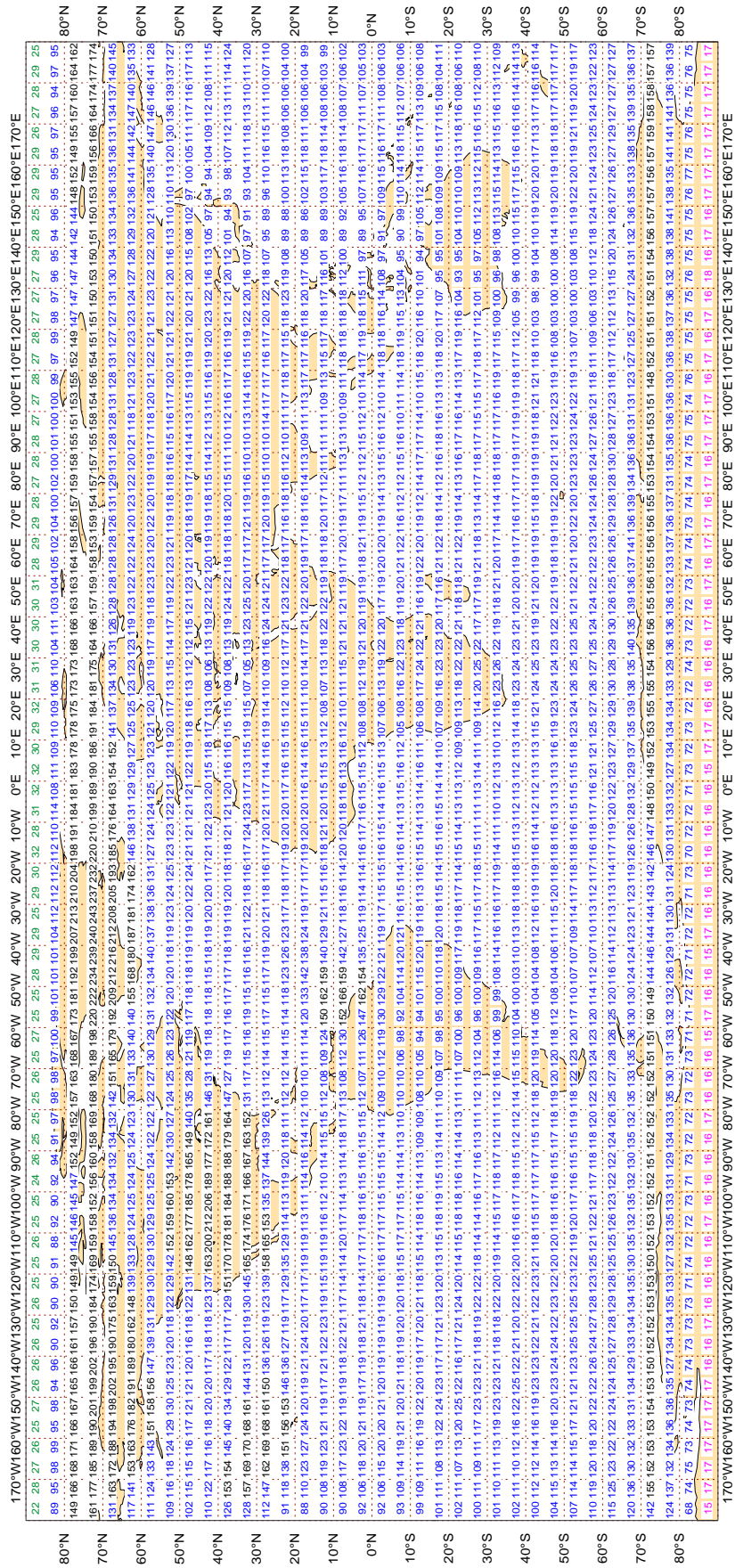
ECMWF Monitoring Statistics - AUG 2018
Availability - AMV winds 1000-700 hPa
Average number of observations in 24 hours - 960634



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

Figure 8

ECMWF Monitoring Statistics - AUG 2018
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 305885



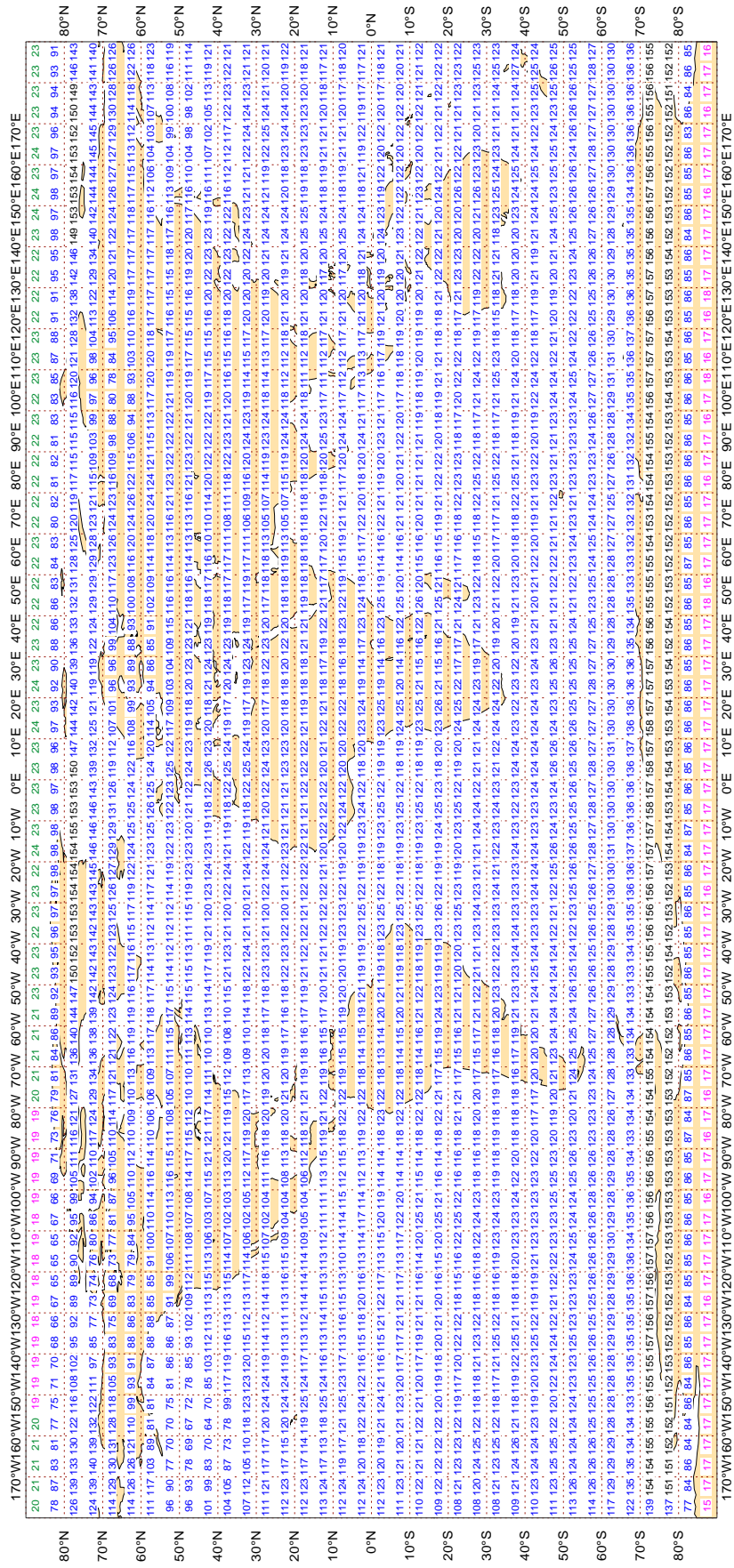
Majics 2.24.2 (64 bit)



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

Figure 9.2

ECMWF Monitoring Statistics - AUG 2018
Availability - AQUA ATOVS : AMSU-A
Average number of observations in 24 hours - 296826



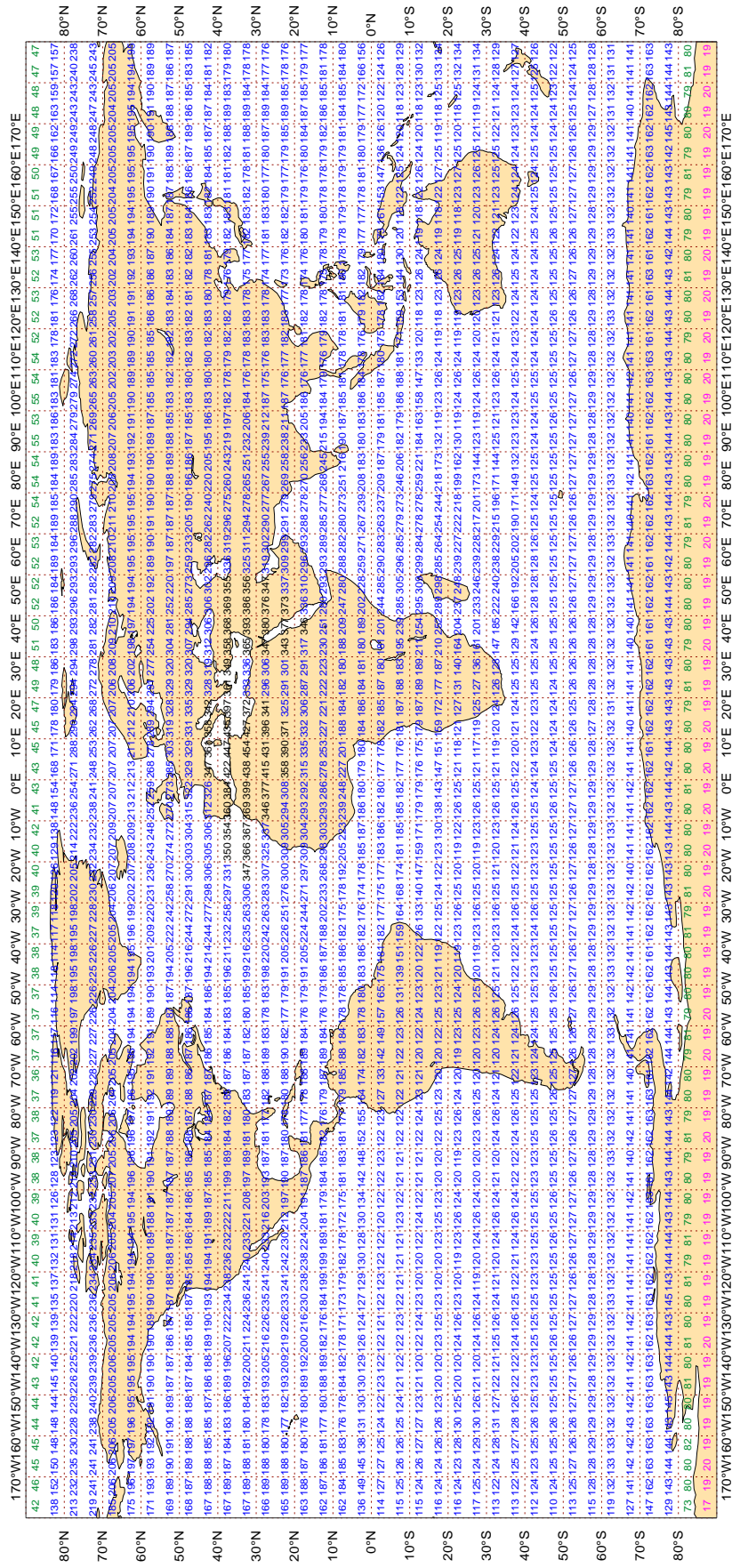
Magics 2.24.2 (64 bit)



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

Figure 9.3

ECMWF Monitoring Statistics - AUG 2018
Availability - METOP ATOVS : AMSU-A
Average number of observations in 24 hours - 436465



Magics 2.24.2 (64 bit)

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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : GLOBAL
 PERIOD : AUG 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
00000	99	P	SUR	81	7	6.0	-0.4	6.0
3ENU5	99	P	SUR	22	1	3.1	4.1	5.1
45028	99	P	SUR	302	0	0.5	3.7	3.7
5BZE2	99	P	SUR	39	0	0.4	4.8	4.8
8PSH	99	P	SUR	130	0	4.2	-3.3	5.3
9HA4638	99	P	SUR	20	0	0.6	4.1	4.1
9HJD9	99	P	SUR	16	0	4.6	-3.0	5.5
9V8839	99	P	SUR	35	0	1.1	-3.2	3.4
9V9401	99	P	SUR	34	0	2.4	-4.5	5.1
9VKQ2	99	P	SUR	29	0	0.8	3.9	4.0
A8KX2	99	P	SUR	42	0	2.2	3.7	4.3
AUYP	99	P	SUR	34	0	6.2	3.8	7.3
C6AB8	99	P	SUR	15	0	2.1	8.1	8.3
C6SE4	99	P	SUR	23	0	1.4	3.8	4.1
C6TQ6	99	P	SUR	33	0	3.7	6.5	7.5
C6UC3	99	P	SUR	25	0	1.1	8.0	8.1
C6UK7	99	P	SUR	38	1	2.9	3.2	4.3
C6WW4	99	P	SUR	30	0	2.0	5.7	6.1
C6YM6	99	P	SUR	46	0	1.8	4.5	4.8
CQAH9	99	P	SUR	34	0	0.8	3.9	4.0
H3GR	99	P	SUR	15	0	2.7	5.4	6.0
ICJA	99	P	SUR	20	0	3.6	-4.3	5.6
KKFW	99	P	SUR	27	0	0.7	-3.2	3.3
KPES	99	P	SUR	44	0	4.5	3.2	5.5
ONDY	99	P	SUR	69	0	3.1	3.0	4.4
ONIK	99	P	SUR	33	0	0.7	3.5	3.6
PCBZ	99	P	SUR	26	0	0.8	-8.2	8.3
S6LT5	99	P	SUR	24	0	2.2	3.5	4.1
TCZF2	99	P	SUR	28	2	4.3	-3.8	5.8
UBSH5	99	P	SUR	62	0	0.9	-3.9	4.0
UCTS	99	P	SUR	74	6	4.2	6.3	7.6
UFJN	99	P	SUR	17	0	1.3	-3.1	3.4

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
V7UT9	99	P	SUR	24	0	1.8	10.3	10.5
VRID2	99	P	SUR	69	0	1.2	6.4	6.5
VRJT8	99	P	SUR	89	0	1.6	7.2	7.4
VRMV3	99	P	SUR	77	0	1.1	3.9	4.1
VRNM9	99	P	SUR	15	0	2.1	8.8	9.0
VRNR5	99	P	SUR	19	0	3.5	4.0	5.3
VTFG	99	P	SUR	107	22	5.1	-5.3	7.4
VWTI	99	P	SUR	129	1	0.7	12.3	12.3
WAZV	99	P	SUR	36	0	2.2	4.7	5.2
WBP3210	99	P	SUR	124	18	7.4	-1.3	7.5
WDC6925	99	P	SUR	23	0	0.4	4.2	4.2
WDG8555	99	P	SUR	44	0	0.8	5.6	5.7
WNFQ	99	P	SUR	17	0	1.7	5.2	5.5
WPKW	99	P	SUR	62	2	2.3	3.7	4.3
XXX	99	P	SUR	612	13	5.3	1.8	5.6

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 : AUG 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
42044	99	SPEED	SUR	21	0	0	0.8	-6.6	6.7

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 : AUG 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
00000	99	DIRN	SUR	15	0	0	81.7	-29.1	86.7
44150	99	DIRN	SUR	57	0	0	12.0	-32.0	34.2
45024	99	DIRN	SUR	96	0	0	26.5	34.9	43.8
45150	99	DIRN	SUR	111	2	0	59.1	129.5	142.4
45166	99	DIRN	SUR	77	0	0	33.6	-42.9	54.5
45169	99	DIRN	SUR	110	0	0	51.3	-31.6	60.2
46082	99	DIRN	SUR	32	0	0	76.1	38.3	85.2
62111	99	DIRN	SUR	16	0	0	12.8	-60.9	62.2

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 : AUG 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
1301000	99	P	SUR	33	-17	1368	1368	0.0	0.0	0.0
1301001	99	P	SUR	33	-17	1123	1123	0.0	0.0	0.0
1501517	99	P	SUR	-37	-12	704	0	0.8	-5.8	5.8
2101507	99	P	SUR	15	128	42	8	3.3	8.0	8.6
3201543	99	P	SUR	-44	15	42	0	3.5	-5.5	6.5
4701660	99	P	SUR	70	-102	350	32	6.1	-2.4	6.5
4701674	99	P	SUR	70	-67	208	0	0.5	-6.0	6.1
4800282	99	P	SUR	71	-156	360	360	0.0	0.0	0.0
4800770	99	P	SUR	78	-15	360	55	2.5	5.4	6.0
4801625	99	P	SUR	78	168	616	0	1.8	10.0	10.2
4801637	99	P	SUR	82	-162	102	15	3.2	-9.2	9.7
48282	99	P	SUR	71	-156	668	668	0.0	0.0	0.0
48770	99	P	SUR	78	-15	673	165	3.4	6.8	7.6
6202400	99	P	SUR	39	-28	462	462	0.0	0.0	0.0
6202402	99	P	SUR	38	-26	834	834	0.0	0.0	0.0
6202404	99	P	SUR	39	-29	367	367	0.0	0.0	0.0

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 : AUG 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
1300131	99	SPEED	SUR	28	-17	708	0	0	2.1	5.0	5.4
23459	99	SPEED	SUR	14	87	130	0	0	1.7	-7.5	7.7
3100053	99	SPEED	SUR	-32	-50	540	0	0	3.9	-5.9	7.1
3100231	99	SPEED	SUR	-27	-47	207	45	9	5.7	12.7	13.9
31053	99	SPEED	SUR	-32	-50	543	0	0	4.0	-6.2	7.3
31231	99	SPEED	SUR	-27	-47	208	45	9	5.7	12.6	13.8
42044	99	SPEED	SUR	26	-97	108	0	0	0.9	-6.7	6.8

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : AUG 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
00000	99	DIRN	SUR	43	-107	67	0	0	60.8	-48.8	77.9
2200107	99	DIRN	SUR	33	126	585	0	0	42.9	21.1	47.8
2200190	99	DIRN	SUR	37	130	451	0	0	41.7	40.6	58.2
23451	99	DIRN	SUR	15	69	71	0	0	13.1	24.9	28.2
23460	99	DIRN	SUR	7	88	194	0	0	28.9	32.2	43.2
23491	99	DIRN	SUR	12	93	247	0	0	10.0	-22.2	24.3
23492	99	DIRN	SUR	11	72	232	0	0	13.5	37.9	40.2
3100231	99	DIRN	SUR	-27	-47	182	45	0	32.7	79.9	86.3
31231	99	DIRN	SUR	-27	-47	183	45	0	32.9	79.2	85.8
42019	99	DIRN	SUR	28	-95	750	0	0	58.1	21.5	62.0
44013	99	DIRN	SUR	42	-71	461	0	0	21.6	22.1	30.9
44027	99	DIRN	SUR	44	-67	454	0	0	17.3	22.9	28.7
44058	99	DIRN	SUR	38	-76	646	0	0	25.1	-25.6	35.9
44062	99	DIRN	SUR	39	-76	726	0	0	28.2	-21.9	35.7
44150	99	DIRN	SUR	43	-64	354	0	0	14.5	-29.9	33.2
45024	99	DIRN	SUR	44	-87	614	0	0	25.8	33.8	42.5
45026	99	DIRN	SUR	42	-87	479	0	0	43.4	-24.8	50.0
45150	99	DIRN	SUR	62	-114	583	8	0	71.6	125.2	144.3
45154	99	DIRN	SUR	46	-83	488	0	0	27.7	20.8	34.7
45166	99	DIRN	SUR	45	-73	569	0	0	26.2	-44.4	51.6
45169	99	DIRN	SUR	42	-82	613	0	0	45.3	-27.7	53.1
46054	99	DIRN	SUR	34	-121	654	0	0	50.8	-21.0	55.0
46081	99	DIRN	SUR	61	-148	190	0	0	59.8	21.2	63.4
46082	99	DIRN	SUR	60	-143	202	0	0	83.2	29.0	88.1
46088	99	DIRN	SUR	48	-123	693	0	0	19.1	23.5	30.3
46092	99	DIRN	SUR	37	-122	455	0	0	26.4	25.3	36.6
46131	99	DIRN	SUR	50	-125	298	0	0	26.3	22.3	34.5
5300040	99	DIRN	SUR	-8	95	685	2	0	169.8	35.6	173.5
5300056	99	DIRN	SUR	-5	95	710	0	0	154.3	65.2	167.6
53040	99	DIRN	SUR	-8	95	685	3	0	168.9	37.7	173.1
53056	99	DIRN	SUR	-5	95	709	0	0	149.3	75.6	167.3

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
6100281	99	DIRN	SUR	40	0	325	0	0	40.6	-21.0	45.7
6101003	99	DIRN	SUR	40	25	179	0	0	32.2	25.6	41.2
6101008	99	DIRN	SUR	37	22	67	0	0	56.5	61.0	83.2
62111	99	DIRN	SUR	58	0	107	0	0	37.4	-60.1	70.8
66022	99	DIRN	SUR	54	14	893	0	0	45.4	26.8	52.7

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 : AUG 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	23	0	5.7	80.3	80.5
01400	00	Z	1000	57	3	23	0	4.0	80.2	80.3
04360	12	Z	925	66	-38	31	0	6.6	42.8	43.3
04360	00	Z	1000	66	-38	18	0	5.0	41.5	41.8
31873	00	Z	150	46	134	31	0	22.8	-87.8	90.7
31873	12	Z	100	46	134	31	0	25.3	-105.3	108.3
34858	12	Z	50	46	43	22	0	86.4	153.7	176.3

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 : AUG 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
34247	00	V	100	50	41	20	0	-14.8	3.6	20.5
34247	12	V	100	50	41	20	0	-16.5	2.2	21.2
48601	12	V	150	5	100	31	0	14.4	3.6	15.9
48601	00	V	150	5	100	31	0	14.2	3.7	15.3

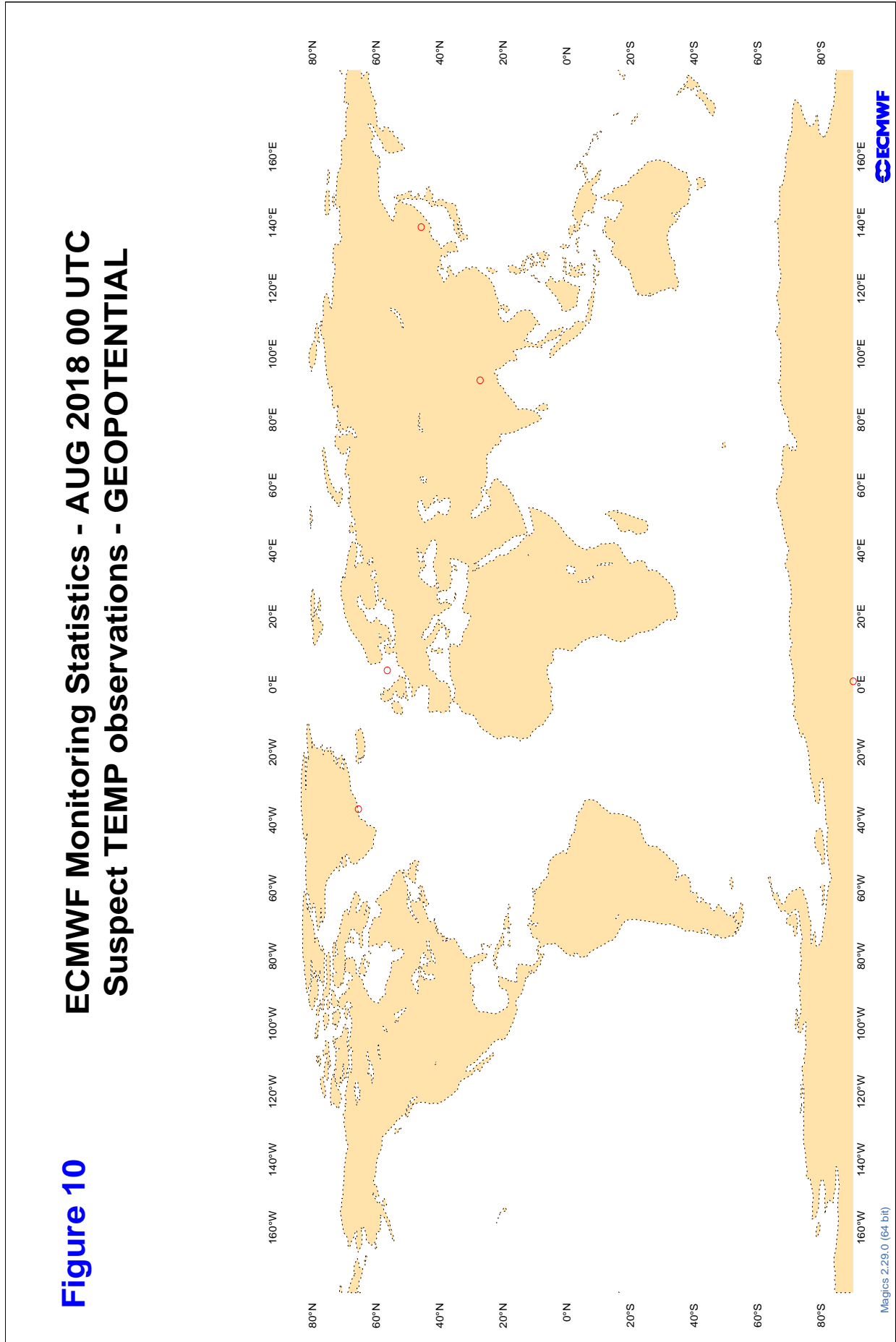
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

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

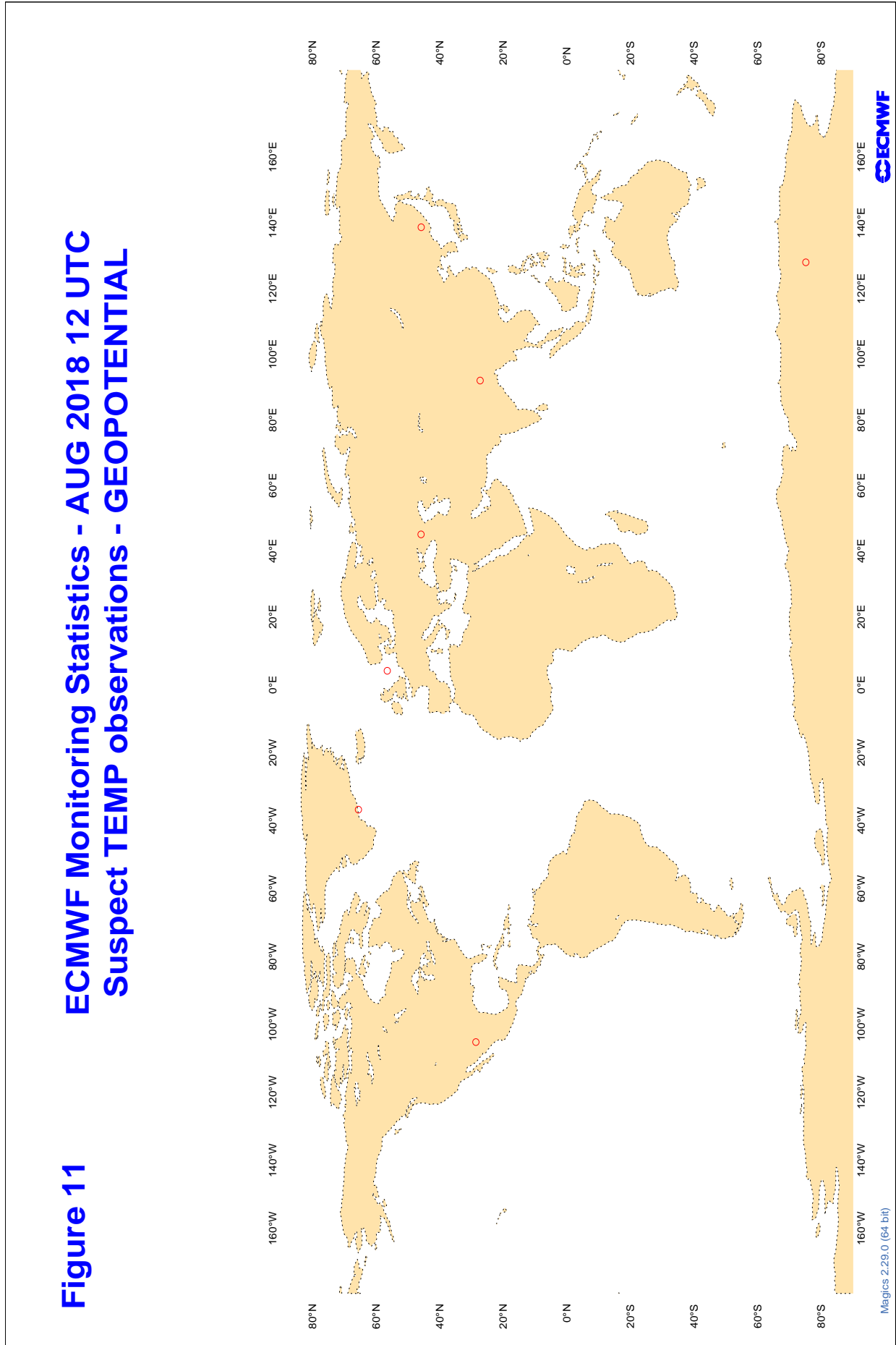
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS \geq 5 M/S
 NO. OF OBSERVATIONS \geq 5, AND,
 ABSOLUTE BIAS \geq 10 DEGREES, WITH
 STANDARD DEVIATION $<$ 30 DEGREES, AND,
 VERTICAL SPREAD $<$ 10 DEGREES
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
48565	00	DD	8	98	23	14.0	2.2	21.0
57816	12	DD	26	107	16	-10.7	5.1	17.7
59431	12	DD	23	109	17	-11.8	9.4	20.1

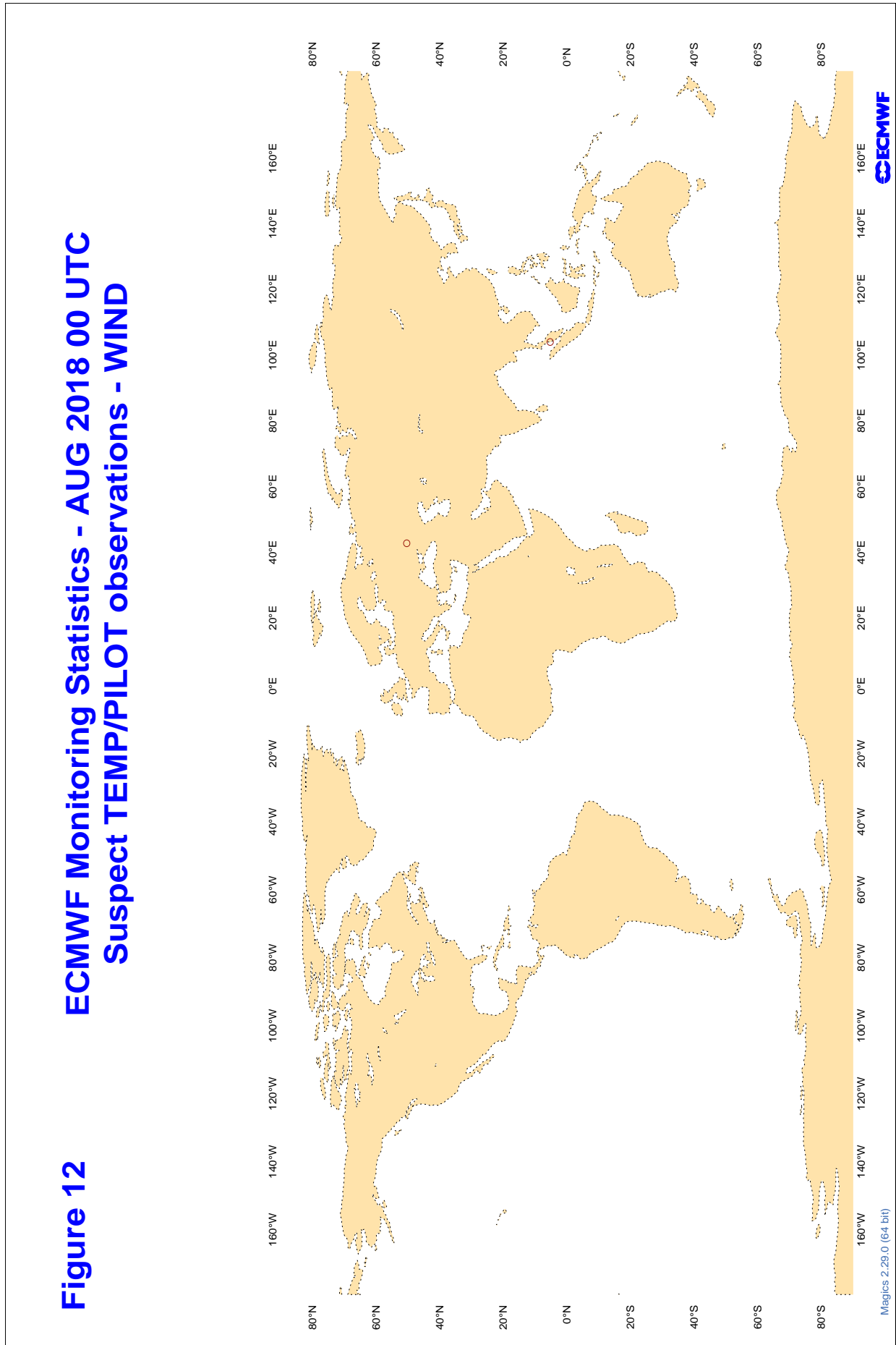
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



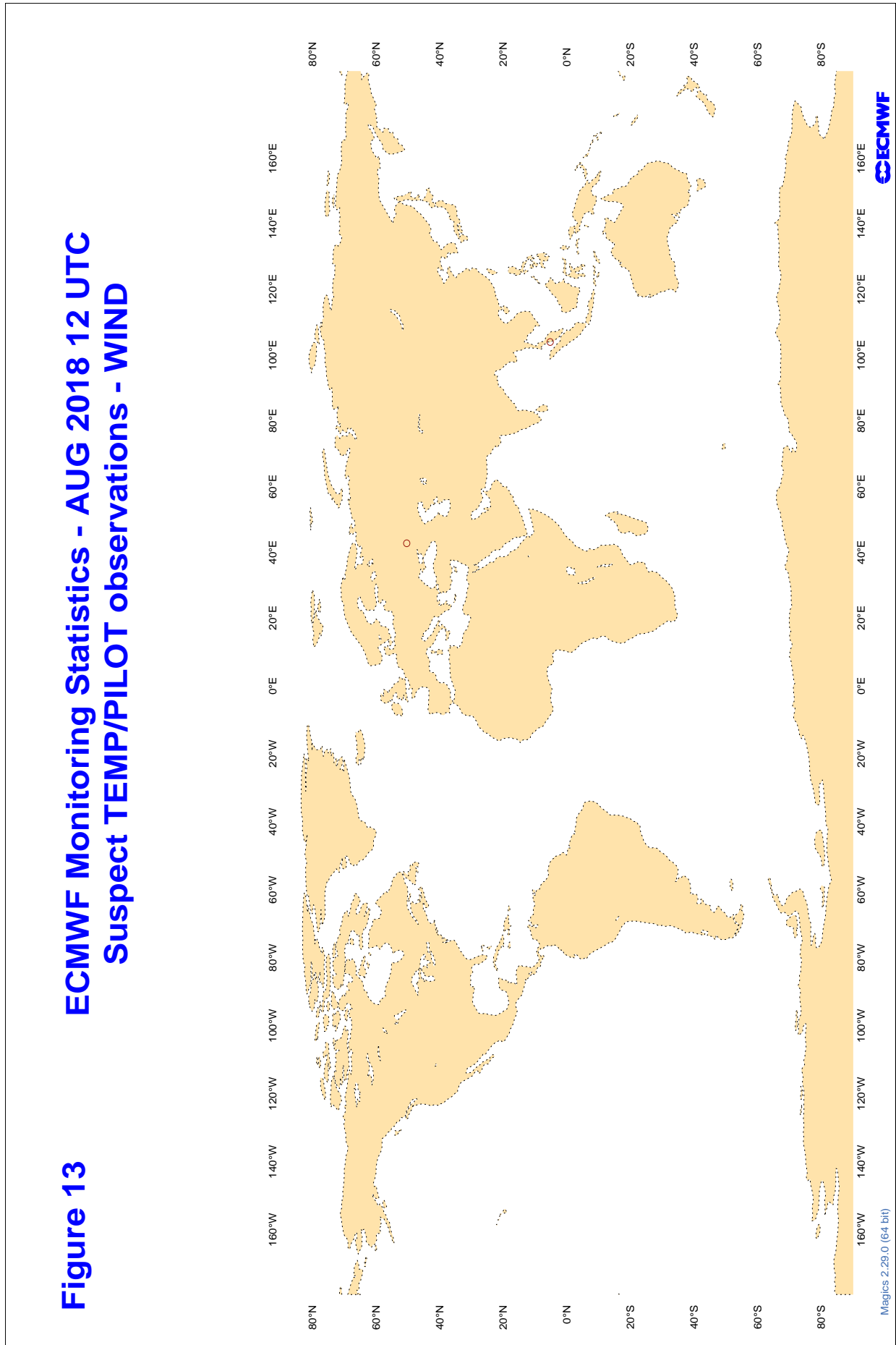
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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



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



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

RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 100 HPA
 AREA : GLOBAL
 PERIOD : AUG 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
5QPW8X	12	Z	100	8	14.5	13.9
5QPW8X	00	Z	100	10	19.1	16.6
7JUNA4	12	Z	100	7	116.7	72.6
7JUNA4	00	Z	100	6	10.2	3.9
ASUK02	12	Z	100	28	7.0	3.6
ASUK02	00	Z	100	16	7.1	4.4
BNSK	00	Z	100	7	9.3	2.5
BNSK	12	Z	100	7	29.4	15.3
DBLK	00	Z	100	27	8.0	3.6
DBLK	12	Z	100	27	6.2	4.1
DSQL7	12	Z	100	18	5.8	-4.9
DSQL7	00	Z	100	20	5.3	-3.9
FHM5H	12	Z	100	10	5.1	-2.2
FHM5H	00	Z	100	9	5.4	-2.6
FHM5UJ	00	Z	100	10	4.9	1.9
FHM5UJ	12	Z	100	10	6.2	4.2
FPUW5G	12	Z	100	17	10.4	-8.9
GHACC	12	Z	100	18	22.4	19.5
GHACC	00	Z	100	18	9.9	6.7
HTXUH	12	Z	100	9	11.5	-9.3
HTXUH	00	Z	100	9	9.9	-3.8
HTXUH4	12	Z	100	10	8.5	-2.6
HTXUH4	00	Z	100	10	12.7	0.8
JGQH	12	Z	100	7	6.4	-1.6
JGQH	00	Z	100	6	9.7	-8.6
JNSR	12	Z	100	0	0.0	0.0
JNSR	00	Z	100	0	0.0	0.0
PISTON	00	Z	100	4	11.9	10.0
QCY3TG	00	Z	100	3	18.5	18.4
QCY3TG	12	Z	100	3	9.0	6.3
VKB4L5	00	Z	100	5	39.8	38.7
VKB4L5	12	Z	100	6	42.5	41.7
WDK38H	12	Z	100	5	17.2	-16.3
XKQLWQ	12	Z	100	14	24.5	22.5
YLV96W	12	Z	100	3	0.0	0.0
YLV96W	00	Z	100	4	0.0	0.0
ZVQEQC	12	Z	100	5	6.9	4.1

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

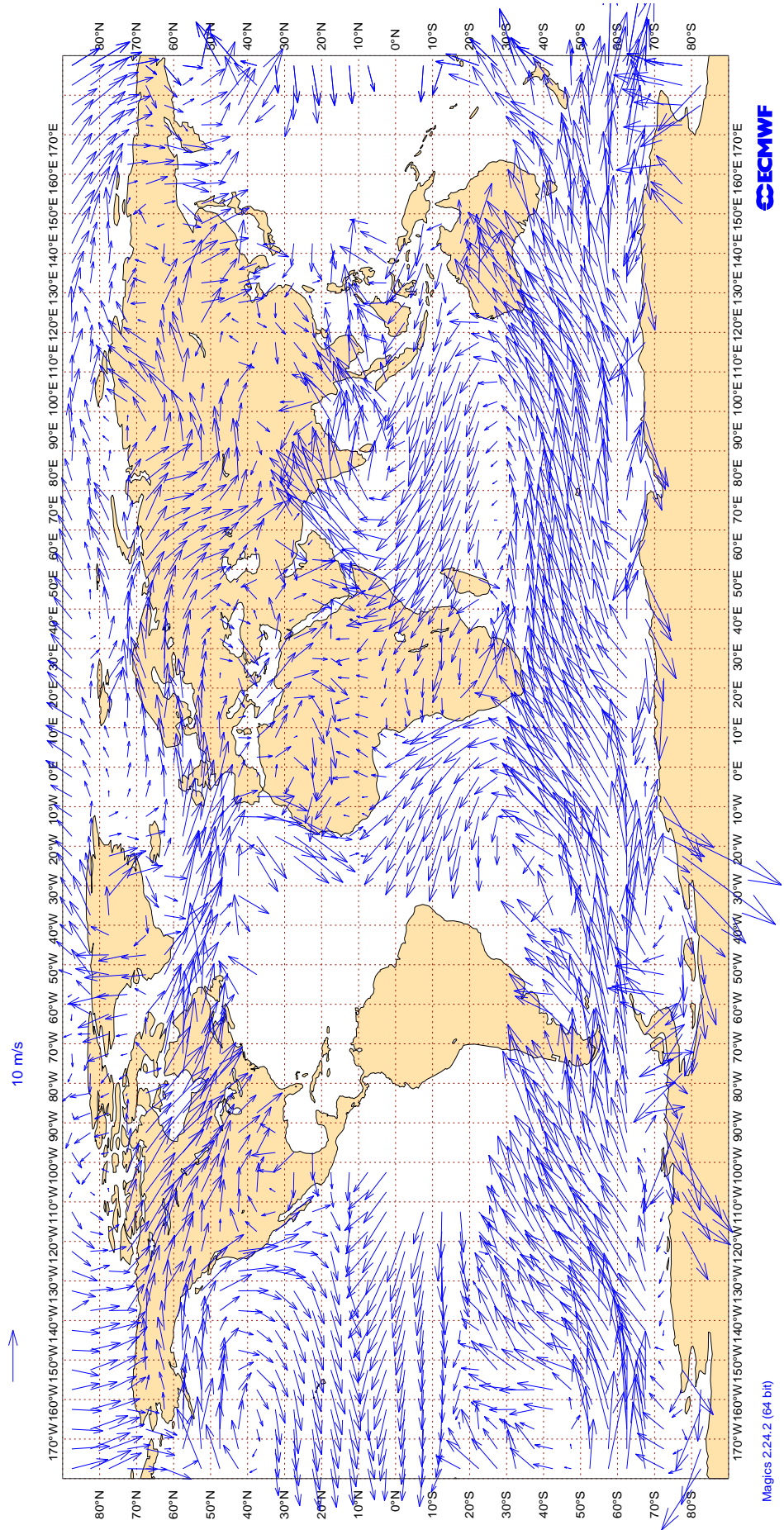
RADIOSONDE MONITORING STATISTICS (SHIPS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
5QPW8X	12	V	100	8	2.3	0.8	0.2
5QPW8X	00	V	100	10	3.2	-0.3	0.6
7JUNA4	12	V	100	7	3.1	0.2	-1.5
7JUNA4	00	V	100	6	4.5	0.3	-1.1
ASUK02	12	V	100	28	2.1	-0.7	-0.2
ASUK02	00	V	100	15	2.6	-0.5	0.0
BNSK	00	V	100	7	2.6	-0.6	-0.7
BNSK	12	V	100	6	1.3	-0.1	0.6
DBLK	00	V	100	27	1.8	-0.1	0.0
DBLK	12	V	100	27	1.9	-0.3	0.4
DSQL7	12	V	100	18	1.8	-0.1	0.0
DSQL7	00	V	100	19	1.6	-0.4	-0.5
FHM5H	12	V	100	10	2.5	-0.3	-0.1
FHM5H	00	V	100	9	2.4	0.2	-0.2
FHM5UJ	00	V	100	10	2.0	-0.1	0.1
FHM5UJ	12	V	100	10	2.3	0.1	0.0
FPUW5G	12	V	100	17	2.8	0.3	0.0
GHACC	12	V	100	18	5.3	1.2	1.9
GHACC	00	V	100	18	4.0	-0.6	-0.1
HTXUH	12	V	100	9	2.8	1.3	0.6
HTXUH	00	V	100	8	3.1	0.4	-0.2
HTXUH4	12	V	100	10	3.0	1.1	1.4
HTXUH4	00	V	100	9	3.8	1.2	0.5
JGQH	12	V	100	7	4.2	1.0	-1.8
JGQH	00	V	100	6	4.2	-3.1	0.2
JNSR	12	V	100	0	0.0	0.0	0.0
JNSR	00	V	100	0	0.0	0.0	0.0
PISTON	00	V	100	2	4.1	1.9	0.7
QCY3TG	00	V	100	3	3.1	-0.2	-0.2
QCY3TG	12	V	100	3	1.5	0.1	-0.1
VKB4L5	00	V	100	5	2.1	-0.1	0.6
VKB4L5	12	V	100	6	3.1	1.2	0.5
WDK38H	12	V	100	5	2.1	0.1	-1.7
XKQLWQ	12	V	100	14	2.8	0.1	-0.6
YLV96W	12	V	100	3	2.1	-0.9	-0.2
YLV96W	00	V	100	4	4.5	-1.5	1.1
ZVQEQC	12	V	100	5	3.0	0.6	-0.8

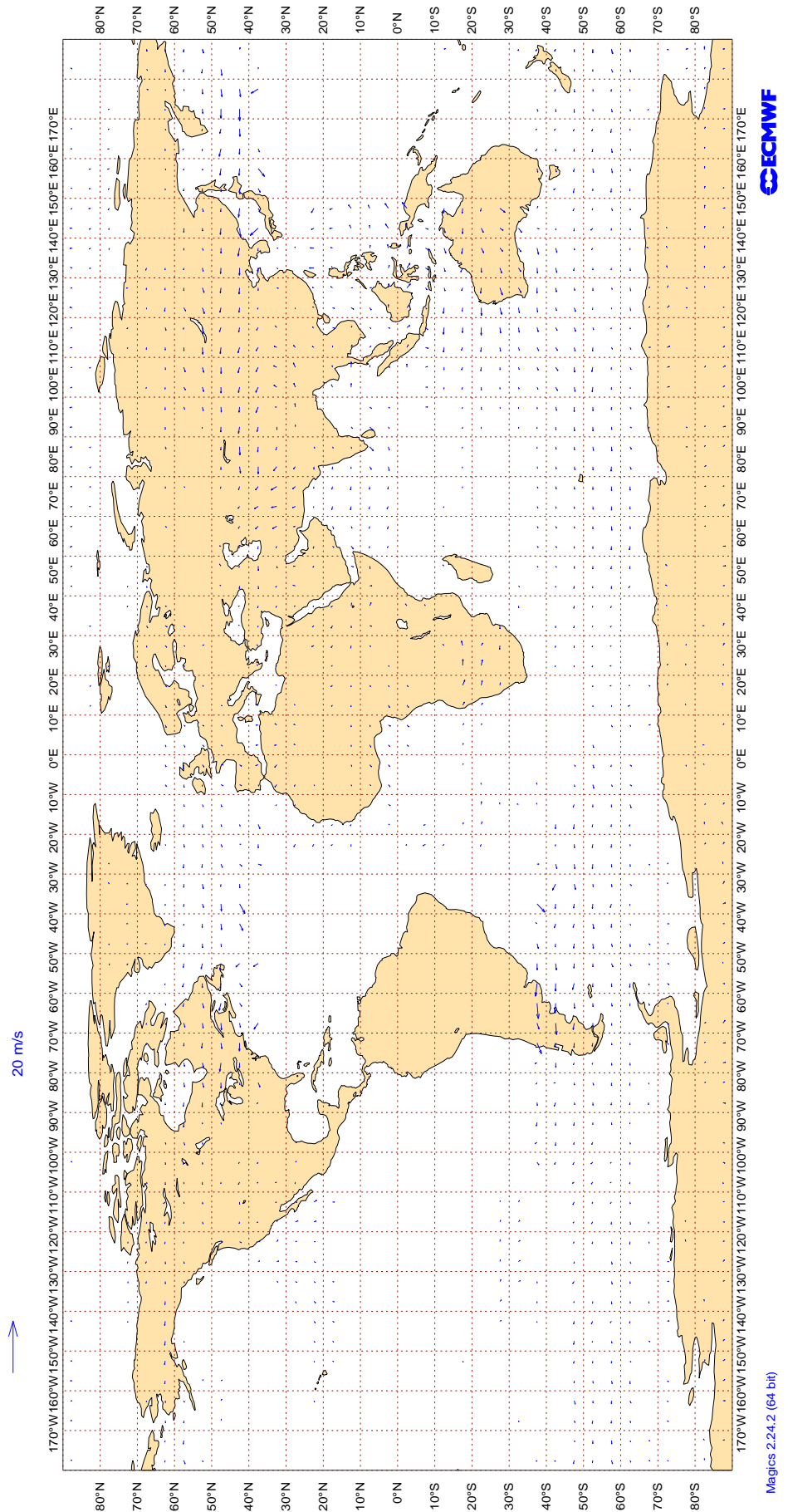
3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

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



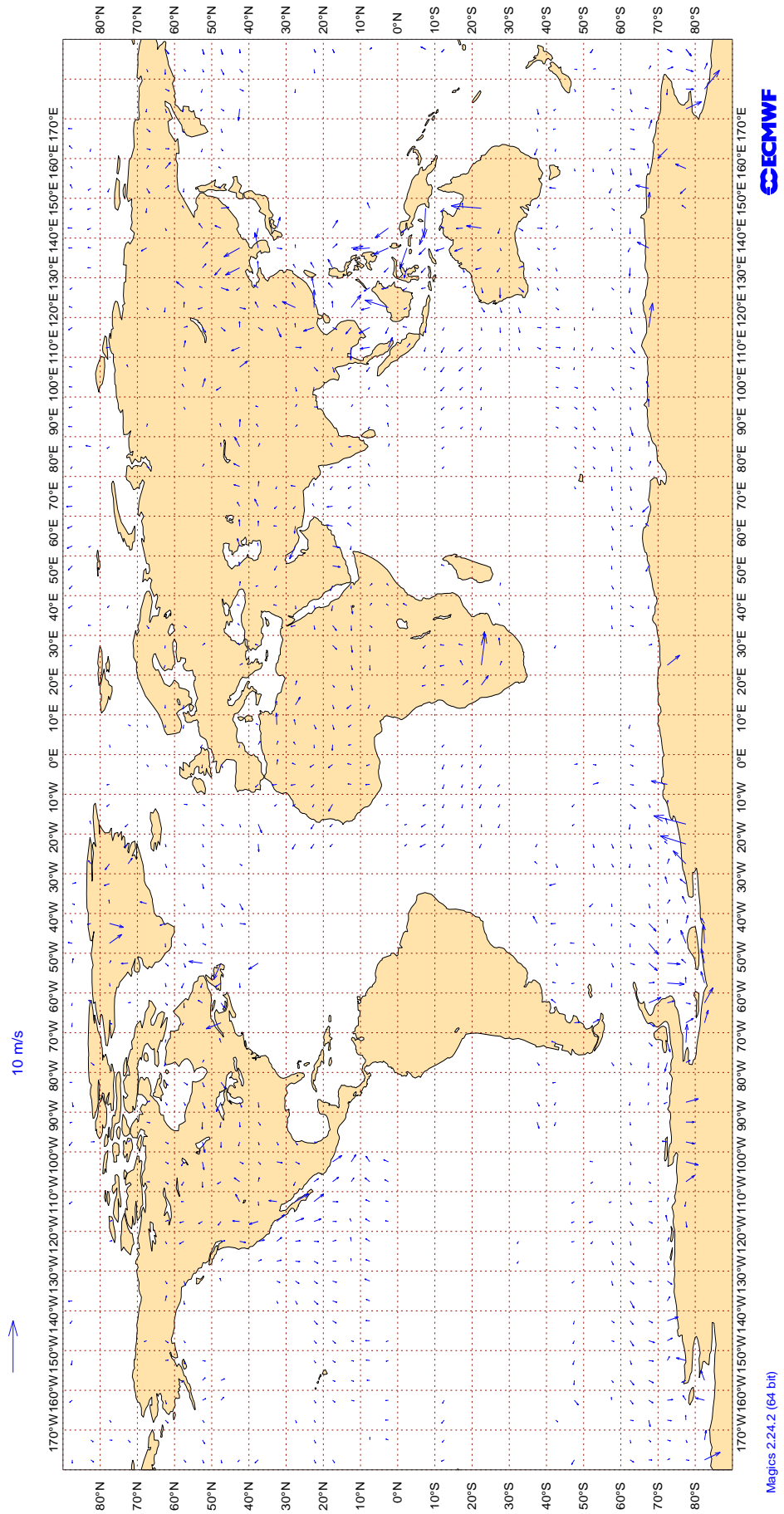
3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

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



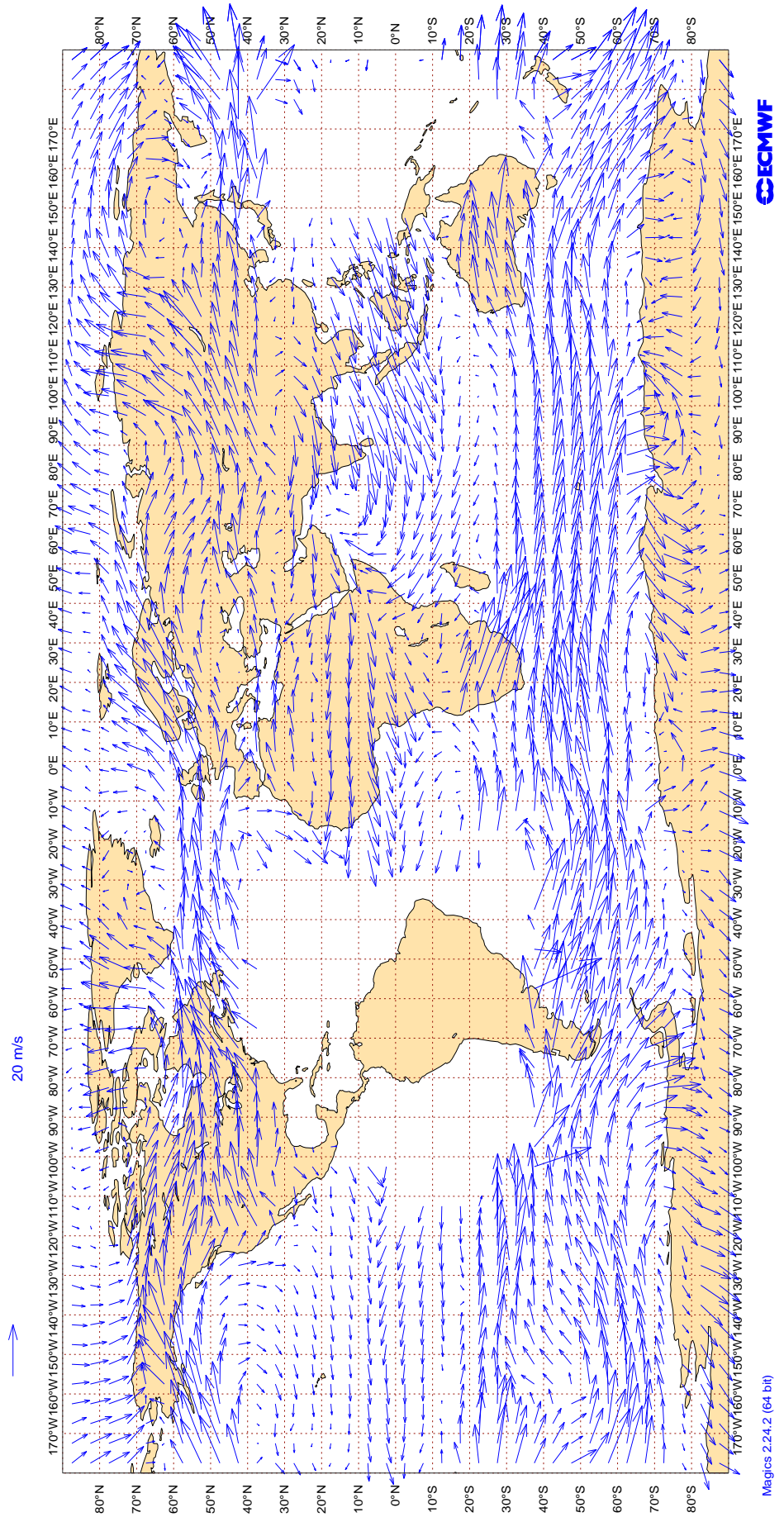
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

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



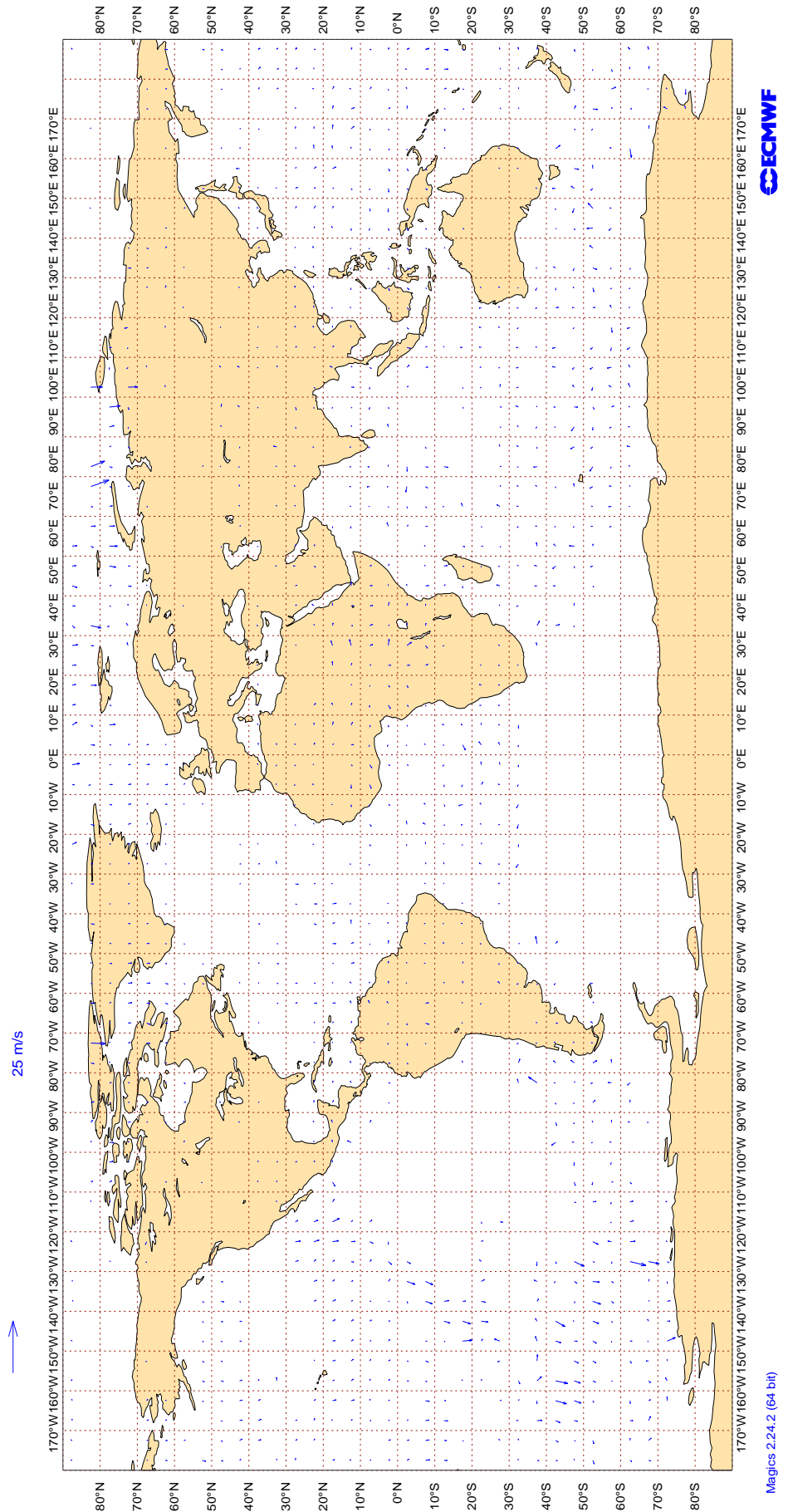
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

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



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

Figure 18
ECMWF Monitoring Statistics: Aug 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 : AUG 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	92	0	0	3.9	-0.9
AAL	99	V	300-150	68726	1	0	4.5	0.2
AAR	99	V	300-150	318	0	0	4.1	-1.3
ABD	99	V	300-150	770	0	0	4.9	-0.5
ABW	99	V	300-150	1051	0	0	3.7	-0.7
ACA	99	V	300-150	39566	1	0	5.2	0.1
ACI	99	V	300-150	2874	0	0	3.5	0.2
AEA	99	V	300-150	1213	0	0	5.0	0.4
AFL	99	V	300-150	2410	0	0	3.4	0.3
AFR	99	V	300-150	31782	0	0	3.8	0.2
AHY	99	V	300-150	171	6	0	7.7	0.4
AIC	99	V	300-150	2264	1	0	4.1	0.0
AIZ	99	V	300-150	37	0	0	6.2	2.2
ALK	99	V	300-150	1030	0	0	3.4	0.6
AMX	99	V	300-150	3678	5	0	7.3	-0.1
ANZ	99	V	300-150	24227	2	0	4.2	0.5
ARL	99	V	300-150	38	0	0	4.2	0.4
ASA	99	V	300-150	31	0	0	4.6	0.5
ASL	99	V	300-150	973	0	0	3.6	0.4
ASY	99	V	300-150	422	0	0	4.5	0.4
ATN	99	V	300-150	136	0	1	3.7	0.8
AUA	99	V	300-150	5376	0	0	4.1	-0.1
AUI	99	V	300-150	551	0	0	3.7	0.5

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	506	1	0	7.4	0.3
AXM	99	V	300-150	246	0	0	5.7	-0.5
AZA	99	V	300-150	9713	0	0	3.7	0.3
AZG	99	V	300-150	153	0	0	3.5	-0.5
BAW	99	V	300-150	55581	1	0	4.3	0.0
BBA	99	V	300-150	44	0	0	3.4	1.0
BEL	99	V	300-150	3070	0	0	3.5	0.3
BFY	99	V	300-150	20	0	0	2.8	-0.8
BMW	99	V	300-150	74	0	0	4.3	0.1
BOS	99	V	300-150	642	0	0	3.7	0.3
BOX	99	V	300-150	1860	0	0	3.6	0.1
BOX	99	V	300-150	55	0	0	3.0	0.3
CAL	99	V	300-150	413	0	0	3.8	0.8
CAT	99	V	300-150	38	0	0	5.5	1.0
CAZ	99	V	300-150	129	0	0	3.6	-0.2
CCA	99	V	300-150	842	6	0	4.7	0.7
CEB	99	V	300-150	89	0	0	3.6	0.8
CES	99	V	300-150	1573	0	0	3.4	0.3
CFC	99	V	300-150	305	0	0	4.4	0.7
CFG	99	V	300-150	6179	0	0	4.1	-0.3
CHH	99	V	300-150	230	0	0	9.2	0.2
CJT	99	V	300-150	237	0	0	4.1	-0.4
CKS	99	V	300-150	1605	0	0	3.9	-0.1
CLF	99	V	300-150	21	0	0	3.5	0.9
CLU	99	V	300-150	645	0	0	3.7	0.1
CLX	99	V	300-150	3361	0	0	3.7	-0.3
CMB	99	V	300-150	1106	0	0	3.7	-0.1
CNK	99	V	300-150	37	0	0	3.4	0.2
CNV	99	V	300-150	174	0	0	3.8	0.3
CPA	99	V	300-150	598	0	0	3.8	0.7
CPI	99	V	300-150	20	0	0	3.8	-2.4
CRK	99	V	300-150	446	0	0	3.8	0.5
CRL	99	V	300-150	1934	0	0	3.6	0.3
CSC	99	V	300-150	209	0	0	3.3	0.7
CSN	99	V	300-150	737	4	0	5.8	0.6
CTM	99	V	300-150	46	0	0	2.9	0.5
CWG	99	V	300-150	36	0	0	4.1	-1.2
DAH	99	V	300-150	1278	0	0	3.7	0.4
DAL	99	V	300-150	84527	0	0	3.7	0.1
DGX	99	V	300-150	39	0	0	3.3	0.2
DHK	99	V	300-150	1127	0	0	4.3	-0.1
DJT	99	V	300-150	1413	0	0	4.4	0.3
DLH	99	V	300-150	35777	0	0	3.6	0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
DUB	99	V	300-150	54	0	0	3.0	0.3
EAU	99	V	300-150	126	2	0	15.0	0.3
EAV	99	V	300-150	23	0	0	4.6	0.8
EDW	99	V	300-150	2354	0	0	3.5	0.3
EIN	99	V	300-150	17232	0	0	3.7	0.3
EJM	99	V	300-150	739	1	0	6.3	-0.0
ELY	99	V	300-150	4581	3	0	5.9	0.1
ETD	99	V	300-150	7326	1	0	4.2	0.0
ETH	99	V	300-150	3514	2	0	4.8	0.3
EUW	99	V	300-150	25	0	0	2.9	-0.3
EWG	99	V	300-150	4523	0	0	3.4	0.3
EXS	99	V	300-150	139	0	1	2.4	-0.0
FBU	99	V	300-150	856	0	0	3.7	0.3
FDX	99	V	300-150	5926	0	0	3.5	0.2
FIN	99	V	300-150	953	0	0	3.4	0.4
FJI	99	V	300-150	6896	0	0	3.7	0.4
FLA	99	V	300-150	55	0	0	4.2	-1.0
FWI	99	V	300-150	1855	0	0	2.9	0.1
FYG	99	V	300-150	60	0	0	3.9	0.4
GAF	99	V	300-150	157	0	0	3.6	0.0
GAJ	99	V	300-150	56	0	0	3.2	0.7
GCK	99	V	300-150	71	0	0	3.9	-0.2
GCR	99	V	300-150	57	0	0	4.0	0.6
GEC	99	V	300-150	2213	0	0	3.4	0.1
GES	99	V	300-150	103	0	0	3.8	0.3
GFA	99	V	300-150	714	0	0	2.9	0.3
GIA	99	V	300-150	647	0	0	3.7	0.4
GLO	99	V	300-150	50	2	2	10.6	0.3
GMA	99	V	300-150	34	0	0	2.8	-0.9
GTH	99	V	300-150	84	0	0	4.2	-0.4
GTI	99	V	300-150	3112	0	0	4.1	-0.5
HAL	99	V	300-150	4995	0	0	3.7	0.4
HRT	99	V	300-150	65	18	0	18.3	-0.2
HWA	99	V	300-150	53	0	0	4.0	-0.6
HZS	99	V	300-150	55	0	0	2.8	0.7
IBE	99	V	300-150	4190	0	0	3.5	0.2
IBG	99	V	300-150	20	0	0	4.4	0.1
IBK	99	V	300-150	2246	0	0	3.9	0.5
ICE	99	V	300-150	1291	0	0	3.8	0.1
ICL	99	V	300-150	681	0	0	4.1	-0.1
ICV	99	V	300-150	219	0	0	3.4	-0.3
IFA	99	V	300-150	41	59	2	27.5	-0.4
IJM	99	V	300-150	44	0	0	5.0	-2.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
ISS	99	V	300-150	1723	0	0	3.8	0.1
IXR	99	V	300-150	53	0	0	3.2	0.5
JAF	99	V	300-150	1088	2	0	6.5	0.0
JAI	99	V	300-150	1615	0	0	3.2	0.2
JAS	99	V	300-150	151	0	0	3.7	0.3
JET	99	V	300-150	61	0	0	3.9	-0.7
JJA	99	V	300-150	38	0	0	5.5	0.2
JML	99	V	300-150	25	0	0	2.8	0.1
JST	99	V	300-150	2252	3	0	8.6	0.2
JTS	99	V	300-150	22	0	0	5.3	2.8
KAC	99	V	300-150	1393	0	0	3.6	0.3
KAI	99	V	300-150	81	0	0	3.5	0.9
KAL	99	V	300-150	1125	0	0	3.6	0.6
KAY	99	V	300-150	70	0	1	3.6	0.6
KCE	99	V	300-150	88	0	0	3.2	0.3
KIW	99	V	300-150	124	0	0	3.8	0.5
KLM	99	V	300-150	18986	1	0	4.6	0.0
KNE	99	V	300-150	35	0	0	4.7	0.4
KQA	99	V	300-150	133	0	0	4.0	0.2
LAN	99	V	300-150	2296	9	0	8.7	0.1
LEA	99	V	300-150	29	0	0	4.0	-0.7
LOT	99	V	300-150	4030	3	0	7.3	-0.2
LSM	99	V	300-150	31	0	0	4.0	0.8
LUC	99	V	300-150	31	0	0	5.7	2.4
LXJ	99	V	300-150	52	2	2	3.7	0.1
MAS	99	V	300-150	790	0	0	3.5	0.3
MAU	99	V	300-150	154	0	0	4.8	0.1
MJF	99	V	300-150	25	0	0	2.5	0.5
MLM	99	V	300-150	29	0	0	2.5	1.1
MMD	99	V	300-150	214	0	0	3.9	-0.2
MPH	99	V	300-150	843	0	0	3.6	-0.7
MSR	99	V	300-150	1550	0	0	3.6	0.3
MXD	99	V	300-150	26	0	0	3.9	0.7
NAX	99	V	300-150	11079	4	0	6.3	-0.1
NJE	99	V	300-150	261	0	0	3.5	-0.4
NOS	99	V	300-150	313	0	0	5.4	-0.6
NRS	99	V	300-150	7847	4	0	6.6	0.0
NWS	99	V	300-150	370	0	0	3.6	0.4
OAE	99	V	300-150	1188	0	0	4.3	0.2
OMA	99	V	300-150	802	0	0	3.7	-0.2
PAC	99	V	300-150	177	0	0	3.9	0.8
PAL	99	V	300-150	1161	0	0	3.6	0.6
PAT	99	V	300-150	25	0	0	3.5	-0.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
PIA	99	V	300-150	136	0	0	3.4	0.3
PJZ	99	V	300-150	44	0	0	3.2	0.6
PLM	99	V	300-150	84	0	0	3.5	-1.7
PRD	99	V	300-150	20	0	20	4.3	-0.9
PRI	99	V	300-150	4468	0	0	3.9	0.2
QAF	99	V	300-150	23	0	0	2.4	-0.5
QFA	99	V	300-150	17853	1	0	4.2	0.1
QID	99	V	300-150	42	0	0	4.8	2.2
QQE	99	V	300-150	46	0	0	3.0	0.1
QTR	99	V	300-150	15403	0	0	3.8	0.1
RAM	99	V	300-150	249	8	0	7.4	-0.2
RBA	99	V	300-150	159	0	0	3.8	0.7
RCH	99	V	300-150	4655	0	0	4.3	0.3
RDN	99	V	300-150	43	0	0	3.5	-0.6
REN	99	V	300-150	39	0	0	3.6	0.4
REU	99	V	300-150	20	0	0	3.6	1.7
RJA	99	V	300-150	2422	5	0	6.4	-0.1
RJE	99	V	300-150	45	0	0	3.0	-0.5
ROJ	99	V	300-150	77	0	0	4.2	0.2
ROM	99	V	300-150	137	0	0	3.7	-0.2
ROU	99	V	300-150	14189	0	0	4.2	-0.1
RRR	99	V	300-150	190	0	0	3.1	0.1
RZO	99	V	300-150	219	0	0	3.7	0.6
SAM	99	V	300-150	136	0	0	4.1	0.2
SAS	99	V	300-150	4901	0	0	3.5	0.2
SCX	99	V	300-150	180	0	0	4.6	0.3
SDM	99	V	300-150	129	0	0	3.8	0.2
SIA	99	V	300-150	3498	0	0	3.8	-0.0
SIS	99	V	300-150	29	0	3	4.3	-0.2
SLM	99	V	300-150	168	0	0	2.8	0.1
SME	99	V	300-150	31	0	0	3.0	-0.3
SOO	99	V	300-150	504	0	0	3.7	-0.0
SPA	99	V	300-150	112	0	0	3.9	0.5
SVA	99	V	300-150	5837	0	0	3.6	0.3
SVW	99	V	300-150	178	0	0	3.9	0.2
SWR	99	V	300-150	11672	0	0	3.7	0.3
TAM	99	V	300-150	371	0	0	3.9	0.2
TAP	99	V	300-150	1854	0	0	3.7	0.9
TAR	99	V	300-150	662	0	0	3.5	0.4
TAY	99	V	300-150	367	0	0	4.7	-0.6
TBJ	99	V	300-150	40	0	0	4.3	0.7
TCX	99	V	300-150	8106	0	0	3.5	0.3
TEU	99	V	300-150	34	0	0	3.8	-0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
TFF	99	V	300-150	82	0	0	5.0	1.5
TFL	99	V	300-150	1744	3	0	7.0	-0.2
TGW	99	V	300-150	85	0	0	3.9	-0.6
THA	99	V	300-150	466	4	0	4.5	0.1
THT	99	V	300-150	4905	0	0	3.5	0.5
THY	99	V	300-150	9846	0	0	3.8	0.1
TMN	99	V	300-150	187	0	0	4.4	0.8
TOM	99	V	300-150	6260	4	0	6.6	-0.1
TOW	99	V	300-150	76	0	0	3.4	0.3
TSC	99	V	300-150	21528	0	0	3.6	0.2
TWB	99	V	300-150	40	0	3	5.8	1.6
TWY	99	V	300-150	230	0	0	3.7	0.7
UAE	99	V	300-150	17983	0	0	3.7	0.1
UAL	99	V	300-150	86777	1	2	4.8	0.1
ULC	99	V	300-150	32	0	0	3.2	0.1
UPS	99	V	300-150	5035	0	0	3.9	0.1
UZB	99	V	300-150	183	2	1	7.9	-0.6
VIR	99	V	300-150	25513	1	0	4.7	0.0
VJT	99	V	300-150	956	43	0	19.8	0.4
VMP	99	V	300-150	79	0	0	3.6	0.0
VOZ	99	V	300-150	6083	0	0	3.4	0.2
WGT	99	V	300-150	94	0	0	4.5	-0.2
WJA	99	V	300-150	6859	0	0	3.9	0.1
WOW	99	V	300-150	3926	0	0	3.3	0.3
XAX	99	V	300-150	341	0	0	3.4	1.2
XLF	99	V	300-150	1810	0	0	3.6	0.3

4 EUCOS Area Monitoring Statistics

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

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

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

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 50 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : AUG 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	30	7.4	5.0
01001	00	Z	50	30	12.8	10.2
01028	12	Z	50	31	5.3	1.3
01028	00	Z	50	31	6.2	5.1
01400	00	Z	50	23	98.9	98.5
01400	12	Z	50	17	86.6	86.1
01415	12	Z	50	28	11.4	8.6
01415	00	Z	50	27	20.0	19.1
02365	12	Z	50	31	6.2	2.8
02365	00	Z	50	25	13.8	13.1
02591	00	Z	50	26	23.6	23.1
02591	12	Z	50	29	12.8	11.0
02836	12	Z	50	31	7.4	3.3
02836	00	Z	50	30	11.4	9.8
02963	12	Z	50	26	8.0	6.9
02963	00	Z	50	18	15.4	14.6
03005	12	Z	50	31	7.6	3.2
03005	00	Z	50	16	11.5	10.5
03238	12	Z	50	1	4.4	4.4
03238	00	Z	50	29	17.5	16.1
03808	00	Z	50	30	16.0	14.9
03808	12	Z	50	30	10.6	8.6
03918	12	Z	50	4	19.3	19.2
03918	00	Z	50	30	21.8	20.7
03953	00	Z	50	30	20.2	15.0
03953	12	Z	50	30	26.8	23.7
04018	12	Z	50	28	8.2	1.9
04018	00	Z	50	29	10.4	8.4
04220	00	Z	50	31	8.5	7.1
04220	12	Z	50	31	5.9	2.6
04270	00	Z	50	29	12.3	8.2
04270	12	Z	50	30	12.2	8.4
04320	00	Z	50	31	7.4	6.2
04320	12	Z	50	31	4.8	3.6
04339	00	Z	50	31	16.1	8.6
04339	12	Z	50	30	5.4	0.4
04360	00	Z	50	31	27.9	21.8
04360	12	Z	50	30	31.6	29.9
06011	12	Z	50	27	15.0	10.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	50	27	21.4	11.7
06260	12	Z	50	6	17.3	15.8
06260	00	Z	50	31	18.6	17.5
06610	00	Z	50	32	24.6	24.1
06610	12	Z	50	32	11.3	9.2
07110	00	Z	50	28	21.3	17.8
07110	12	Z	50	31	19.7	13.8
07510	12	Z	50	22	29.0	27.7
07510	00	Z	50	16	39.2	38.5
07645	00	Z	50	27	23.8	22.6
07645	12	Z	50	27	18.7	11.5
07761	00	Z	50	30	41.6	41.0
07761	12	Z	50	30	33.6	32.2
08001	00	Z	50	25	24.5	23.5
08001	12	Z	50	29	14.7	10.4
08221	00	Z	50	30	24.2	23.3
08221	12	Z	50	30	13.4	12.0
08302	00	Z	50	25	21.7	21.1
08302	12	Z	50	30	9.0	6.9
08508	12	Z	50	26	12.3	11.3
08522	12	Z	50	30	19.5	17.1
08579	12	Z	50	29	25.2	23.7
10035	12	Z	50	30	13.7	11.7
10393	12	Z	50	31	9.9	7.6
10393	00	Z	50	31	20.5	19.7
10410	12	Z	50	31	7.8	5.7
10410	00	Z	50	31	17.1	16.5
10739	12	Z	50	31	13.1	12.0
10739	00	Z	50	31	23.6	22.8
11035	12	Z	50	29	16.1	14.9
11035	00	Z	50	30	28.1	27.8
12982	12	Z	50	21	35.8	31.3
12982	00	Z	50	24	24.6	24.3
16080	12	Z	50	31	8.3	5.1
16080	00	Z	50	30	17.3	16.0
16245	00	Z	50	31	21.5	20.8
16245	12	Z	50	31	14.1	6.6
16320	00	Z	50	31	30.7	29.9
16320	12	Z	50	28	15.8	14.7
16429	00	Z	50	30	25.8	24.6
16429	12	Z	50	30	11.3	10.3
16622	00	Z	50	21	43.2	42.4
16754	00	Z	50	24	29.2	28.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
17607	12	Z	50	30	20.2	16.8
26435	00	Z	50	14	16.3	15.6
5QPW8X	12	Z	50	7	21.0	20.6
5QPW8X	00	Z	50	8	30.1	29.4
60018	12	Z	50	31	12.7	11.0
60018	00	Z	50	31	23.7	23.0
7JUNA4	12	Z	50	7	75.3	66.8
7JUNA4	00	Z	50	4	12.4	9.1
ASUK02	12	Z	50	28	16.8	15.1
ASUK02	00	Z	50	15	18.3	17.1
DBLK	00	Z	50	27	18.2	12.8
DBLK	12	Z	50	27	15.7	14.3
FHM5H	12	Z	50	9	10.2	8.0
FHM5H	00	Z	50	8	11.8	9.8
FHM5UJ	00	Z	50	8	15.5	13.9
FHM5UJ	12	Z	50	9	14.7	13.1
FPUW5G	12	Z	50	17	5.8	-1.8
GHACC	12	Z	50	16	29.9	26.2
GHACC	00	Z	50	14	17.0	15.0
HTXUH	12	Z	50	9	7.9	0.9
HTXUH	00	Z	50	6	11.9	5.2
HTXUH4	12	Z	50	9	10.2	5.2
HTXUH4	00	Z	50	6	19.6	12.1
JNSR	12	Z	50	0	0.0	0.0
JNSR	00	Z	50	0	0.0	0.0
QCY3TG	00	Z	50	3	33.7	33.6
QCY3TG	12	Z	50	3	17.2	12.6
VKB4L5	00	Z	50	5	49.1	48.0
VKB4L5	12	Z	50	5	47.8	46.5
WDK38H	12	Z	50	3	7.8	-3.9
XKQLWQ	12	Z	50	14	39.7	37.9
YLV96W	12	Z	50	2	0.0	0.0
YLV96W	00	Z	50	4	0.0	0.0
ZVQEQC	12	Z	50	4	11.4	10.9

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 50 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : AUG 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	30	2.4	-0.2	-0.6
01001	00	V	50	23	2.2	0.6	-0.3
01028	12	V	50	31	2.9	0.0	-0.7
01028	00	V	50	24	2.3	0.3	-0.6
01400	00	V	50	15	3.0	0.2	0.2
01400	12	V	50	17	2.5	0.5	0.1
01415	12	V	50	28	3.6	0.4	-0.6
01415	00	V	50	23	3.3	0.2	-0.3
02365	12	V	50	29	2.7	0.1	0.2
02365	00	V	50	18	2.9	0.2	0.3
02591	00	V	50	19	2.6	-0.7	0.2
02591	12	V	50	28	2.9	-0.2	-0.9
02836	12	V	50	31	2.6	0.2	-0.4
02836	00	V	50	27	3.3	0.1	-0.4
02963	12	V	50	24	2.8	0.7	-0.3
02963	00	V	50	13	2.6	0.2	-0.5
03005	12	V	50	31	3.0	-0.6	-0.1
03005	00	V	50	13	2.4	0.3	0.0
03238	12	V	50	1	0.4	-0.4	-0.1
03238	00	V	50	21	2.8	0.2	0.6
03808	00	V	50	27	2.9	0.3	-0.2
03808	12	V	50	30	2.6	0.2	-0.2
03918	12	V	50	4	1.2	-0.6	-0.8
03918	00	V	50	23	2.7	0.5	-0.2
03953	00	V	50	23	2.5	0.3	-0.3
03953	12	V	50	30	2.5	0.4	-0.2
04018	12	V	50	28	2.7	0.9	-0.1
04018	00	V	50	21	2.2	1.2	-0.1
04220	00	V	50	24	2.5	0.0	0.5
04220	12	V	50	31	2.2	-0.4	0.6
04270	00	V	50	22	3.4	0.4	0.2
04270	12	V	50	29	3.3	0.7	-0.1
04320	00	V	50	24	2.3	0.1	-0.1
04320	12	V	50	31	2.5	-0.1	0.2
04339	00	V	50	22	2.5	0.3	0.0
04339	12	V	50	30	2.4	0.2	0.0
04360	00	V	50	22	2.7	0.4	0.3
04360	12	V	50	30	2.4	0.2	-0.5
06011	12	V	50	27	2.4	0.3	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	50	19	2.3	-0.9	0.0
06260	12	V	50	6	3.6	0.0	0.2
06260	00	V	50	21	2.9	-0.2	1.1
06610	00	V	50	25	3.7	-0.5	0.0
06610	12	V	50	31	3.3	0.1	-0.1
07110	00	V	50	22	2.5	0.1	-0.1
07110	12	V	50	31	2.8	0.4	-0.2
07510	12	V	50	22	3.2	0.7	-0.8
07510	00	V	50	14	2.6	-0.1	0.8
07645	00	V	50	20	5.6	0.3	0.3
07645	12	V	50	27	3.7	1.0	0.5
07761	00	V	50	20	3.1	0.1	-0.4
07761	12	V	50	30	3.6	0.7	-0.4
08001	00	V	50	17	2.6	-0.4	-0.2
08001	12	V	50	28	3.0	0.5	-0.3
08221	00	V	50	21	4.3	0.8	-0.5
08221	12	V	50	30	3.3	0.8	-0.2
08302	00	V	50	17	3.5	0.4	-0.1
08302	12	V	50	30	3.8	1.1	-0.2
08508	12	V	50	26	3.2	0.2	0.2
08522	12	V	50	30	3.0	0.2	-0.3
08579	12	V	50	29	3.0	0.8	0.2
10035	12	V	50	29	2.8	0.3	-0.5
10393	12	V	50	31	2.8	0.3	-0.2
10393	00	V	50	23	2.8	0.2	0.2
10410	12	V	50	31	3.2	0.1	-0.9
10410	00	V	50	31	2.8	0.1	0.1
10739	12	V	50	31	3.1	-0.1	-0.2
10739	00	V	50	31	3.3	0.3	-0.3
11035	12	V	50	29	2.6	0.2	-0.2
11035	00	V	50	21	3.1	0.1	-0.2
12982	12	V	50	21	3.1	0.3	0.3
12982	00	V	50	19	3.1	0.3	0.3
16080	12	V	50	31	3.6	1.0	-0.4
16080	00	V	50	21	4.0	1.1	1.0
16245	00	V	50	23	3.9	0.9	-0.1
16245	12	V	50	31	4.4	1.0	0.2
16320	00	V	50	22	4.0	0.5	0.4
16320	12	V	50	23	3.1	0.6	-0.3
16429	00	V	50	23	3.5	1.7	-0.3
16429	12	V	50	30	4.3	1.1	-0.4
16622	00	V	50	14	3.3	1.4	-0.2
16754	00	V	50	20	3.6	-0.1	1.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
17607	12	V	50	0	0.0	0.0	0.0
26435	00	V	50	13	2.7	0.4	-0.5
5QPW8X	12	V	50	7	2.1	-0.3	-0.2
5QPW8X	00	V	50	7	1.9	0.9	-0.7
60018	12	V	50	31	3.1	-0.3	1.2
60018	00	V	50	23	3.7	-0.5	0.6
7JUNA4	12	V	50	7	3.4	1.1	-0.9
7JUNA4	00	V	50	4	4.2	-1.3	3.2
ASUK02	12	V	50	28	2.3	0.4	0.6
ASUK02	00	V	50	14	2.6	0.2	0.7
DBLK	00	V	50	27	2.6	0.3	0.1
DBLK	12	V	50	27	2.1	0.4	-0.4
FHM5H	12	V	50	9	3.0	0.8	-0.4
FHM5H	00	V	50	7	2.2	0.4	1.0
FHM5UJ	00	V	50	7	2.5	0.9	0.9
FHM5UJ	12	V	50	9	2.8	1.0	-0.2
FPUW5G	12	V	50	16	2.4	0.1	-0.4
GHACC	12	V	50	16	4.5	0.3	1.8
GHACC	00	V	50	14	3.8	-0.3	-0.6
HTXUH	12	V	50	9	2.3	-0.5	-0.3
HTXUH	00	V	50	6	3.0	-1.1	-0.4
HTXUH4	12	V	50	9	2.0	-0.6	0.1
HTXUH4	00	V	50	6	2.8	-1.5	-0.3
JNSR	12	V	50	0	0.0	0.0	0.0
JNSR	00	V	50	0	0.0	0.0	0.0
QCY3TG	00	V	50	3	1.8	-0.5	0.9
QCY3TG	12	V	50	3	3.7	0.7	-1.3
VKB4L5	00	V	50	5	2.5	1.5	-1.2
VKB4L5	12	V	50	5	3.2	-2.2	1.4
WDK38H	12	V	50	2	3.5	-2.6	-1.6
XKQLWQ	12	V	50	13	2.6	0.7	-1.1
YLV96W	12	V	50	2	2.3	-0.6	0.1
YLV96W	00	V	50	4	3.4	1.5	2.2
ZVQEQC	12	V	50	4	2.7	1.6	0.3

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 : AUG 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	30	5.9	-2.9
01001	00	Z	100	30	6.3	-0.7
01028	12	Z	100	31	8.3	-7.0
01028	00	Z	100	31	5.6	-4.5
01400	00	Z	100	23	86.4	86.0
01400	12	Z	100	20	78.8	78.4
01415	12	Z	100	28	5.4	-0.2
01415	00	Z	100	27	7.6	5.7
02365	12	Z	100	31	6.8	-4.1
02365	00	Z	100	30	4.4	1.4
02591	00	Z	100	30	12.4	11.2
02591	12	Z	100	30	6.0	2.9
02836	12	Z	100	31	7.2	-4.7
02836	00	Z	100	30	5.0	0.7
02963	12	Z	100	29	3.8	-2.2
02963	00	Z	100	29	6.5	4.3
03005	12	Z	100	31	7.5	-5.5
03005	00	Z	100	17	3.7	0.4
03238	12	Z	100	1	2.2	-2.2
03238	00	Z	100	31	6.7	3.0
03808	00	Z	100	31	5.3	3.9
03808	12	Z	100	31	5.2	-0.5
03918	12	Z	100	4	8.4	7.7
03918	00	Z	100	31	10.7	9.3
03953	00	Z	100	31	12.3	0.3
03953	12	Z	100	30	13.6	8.3
04018	12	Z	100	28	8.4	-5.1
04018	00	Z	100	29	5.6	-2.8
04220	00	Z	100	31	3.7	-1.6
04220	12	Z	100	31	5.5	-3.7
04270	00	Z	100	29	7.3	-1.7
04270	12	Z	100	31	8.5	-0.3
04320	00	Z	100	31	4.5	-2.7
04320	12	Z	100	31	5.3	-4.2
04339	00	Z	100	31	13.5	-1.8
04339	12	Z	100	30	8.5	-6.5
04360	00	Z	100	31	19.7	16.0
04360	12	Z	100	30	57.2	33.4
06011	12	Z	100	27	8.0	0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	100	28	10.7	2.0
06260	12	Z	100	6	9.6	6.4
06260	00	Z	100	31	7.5	4.9
06610	00	Z	100	31	10.3	9.6
06610	12	Z	100	32	4.0	1.0
07110	00	Z	100	30	8.8	2.5
07110	12	Z	100	31	11.1	1.6
07510	12	Z	100	31	17.9	17.0
07510	00	Z	100	31	23.0	22.3
07645	00	Z	100	28	10.2	8.3
07645	12	Z	100	28	11.7	1.5
07761	00	Z	100	31	22.6	21.9
07761	12	Z	100	31	17.1	15.4
08001	00	Z	100	30	9.7	6.0
08001	12	Z	100	31	8.1	-1.6
08221	00	Z	100	31	14.5	13.6
08221	12	Z	100	31	5.3	4.1
08302	00	Z	100	25	9.9	8.8
08302	12	Z	100	30	5.2	-0.4
08508	12	Z	100	28	6.5	5.7
08522	12	Z	100	30	7.9	5.5
08579	12	Z	100	29	11.4	8.5
10035	12	Z	100	30	6.8	2.0
10393	12	Z	100	31	3.8	-0.4
10393	00	Z	100	31	9.8	8.7
10410	12	Z	100	31	4.5	-3.1
10410	00	Z	100	31	6.3	4.7
10739	12	Z	100	31	4.9	2.8
10739	00	Z	100	31	13.5	12.8
11035	12	Z	100	29	8.8	7.2
11035	00	Z	100	31	17.2	16.8
12982	12	Z	100	21	20.4	14.1
12982	00	Z	100	24	12.4	11.7
16080	12	Z	100	31	7.0	-4.6
16080	00	Z	100	31	6.8	4.1
16245	00	Z	100	31	11.0	10.1
16245	12	Z	100	31	12.8	-4.1
16320	00	Z	100	31	18.9	17.7
16320	12	Z	100	30	7.6	5.0
16429	00	Z	100	31	13.3	11.8
16429	12	Z	100	31	4.2	0.4
16622	00	Z	100	30	25.8	24.9
16754	00	Z	100	31	17.2	16.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
17607	12	Z	100	31	10.2	5.1
26435	00	Z	100	15	6.7	5.1
5QPW8X	12	Z	100	8	14.5	13.9
5QPW8X	00	Z	100	10	19.1	16.6
60018	12	Z	100	31	8.3	6.9
60018	00	Z	100	31	13.3	13.0
7JUNA4	12	Z	100	7	116.7	72.6
7JUNA4	00	Z	100	6	10.2	3.9
ASUK02	12	Z	100	28	7.0	3.6
ASUK02	00	Z	100	16	7.1	4.4
DBLK	00	Z	100	27	8.0	3.6
DBLK	12	Z	100	27	6.2	4.1
FHM5H	12	Z	100	10	5.1	-2.2
FHM5H	00	Z	100	9	5.4	-2.6
FHM5UJ	00	Z	100	10	4.9	1.9
FHM5UJ	12	Z	100	10	6.2	4.2
FPUW5G	12	Z	100	17	10.4	-8.9
GHACC	12	Z	100	18	22.4	19.5
GHACC	00	Z	100	18	9.9	6.7
HTXUH	12	Z	100	9	11.5	-9.3
HTXUH	00	Z	100	9	9.9	-3.8
HTXUH4	12	Z	100	10	8.5	-2.6
HTXUH4	00	Z	100	10	12.7	0.8
JNSR	12	Z	100	0	0.0	0.0
JNSR	00	Z	100	0	0.0	0.0
QCY3TG	00	Z	100	3	18.5	18.4
QCY3TG	12	Z	100	3	9.0	6.3
VKB4L5	00	Z	100	5	39.8	38.7
VKB4L5	12	Z	100	6	42.5	41.7
WDK38H	12	Z	100	5	17.2	-16.3
XKQLWQ	12	Z	100	14	24.5	22.5
YLV96W	12	Z	100	3	0.0	0.0
YLV96W	00	Z	100	4	0.0	0.0
ZVQEQC	12	Z	100	5	6.9	4.1

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 : AUG 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	30	2.1	0.1	0.0
01001	00	V	100	23	2.2	0.0	0.0
01028	12	V	100	31	2.2	0.7	0.1
01028	00	V	100	24	2.2	0.3	0.1
01400	00	V	100	15	3.0	-0.5	-0.3
01400	12	V	100	20	2.7	0.7	-0.3
01415	12	V	100	28	3.2	-0.1	0.0
01415	00	V	100	26	2.6	0.4	0.1
02365	12	V	100	31	2.9	0.1	-0.5
02365	00	V	100	22	3.0	0.3	0.0
02591	00	V	100	25	2.1	0.2	0.1
02591	12	V	100	30	2.9	0.1	0.1
02836	12	V	100	31	3.0	0.5	0.3
02836	00	V	100	28	2.7	0.7	-0.3
02963	12	V	100	29	2.5	0.2	-0.2
02963	00	V	100	20	2.5	-0.5	-0.2
03005	12	V	100	31	2.8	-0.3	-0.3
03005	00	V	100	14	2.8	-0.1	1.3
03238	12	V	100	1	2.2	2.2	-0.1
03238	00	V	100	22	2.8	0.4	0.3
03808	00	V	100	27	3.0	0.6	1.0
03808	12	V	100	31	3.4	0.4	0.3
03918	12	V	100	4	4.1	-0.3	-0.6
03918	00	V	100	24	2.6	-0.1	0.2
03953	00	V	100	24	2.5	0.7	-0.2
03953	12	V	100	30	2.8	0.8	0.1
04018	12	V	100	28	2.9	-0.1	0.5
04018	00	V	100	25	2.6	0.2	-0.1
04220	00	V	100	23	2.4	0.4	0.1
04220	12	V	100	31	2.4	0.1	0.2
04270	00	V	100	26	3.6	0.2	0.1
04270	12	V	100	31	3.5	0.3	0.8
04320	00	V	100	27	1.5	-0.2	0.1
04320	12	V	100	31	2.3	-0.4	-0.3
04339	00	V	100	27	2.2	-0.4	0.6
04339	12	V	100	30	1.8	0.1	0.0
04360	00	V	100	23	2.9	0.6	0.2
04360	12	V	100	30	2.4	0.0	0.0
06011	12	V	100	27	2.5	0.1	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	100	23	2.6	0.3	-0.3
06260	12	V	100	6	3.4	0.5	0.0
06260	00	V	100	21	3.0	-0.1	0.6
06610	00	V	100	28	3.7	-0.1	1.1
06610	12	V	100	31	2.8	-0.1	0.2
07110	00	V	100	23	2.8	0.4	-0.1
07110	12	V	100	31	2.8	0.4	-0.3
07510	12	V	100	31	3.3	0.5	-0.5
07510	00	V	100	23	3.6	0.9	-0.5
07645	00	V	100	22	3.6	0.9	0.2
07645	12	V	100	28	3.7	0.1	0.6
07761	00	V	100	21	3.4	0.6	-0.3
07761	12	V	100	31	2.9	0.4	0.4
08001	00	V	100	21	2.7	0.3	0.4
08001	12	V	100	31	3.0	-0.3	0.6
08221	00	V	100	22	3.3	0.0	0.5
08221	12	V	100	31	3.8	0.5	0.2
08302	00	V	100	17	3.1	0.9	1.2
08302	12	V	100	30	3.5	0.8	-0.4
08508	12	V	100	28	2.5	0.0	0.7
08522	12	V	100	30	3.7	-0.3	-0.5
08579	12	V	100	29	2.5	0.7	0.0
10035	12	V	100	30	2.6	0.4	0.2
10393	12	V	100	31	3.0	0.4	-0.3
10393	00	V	100	31	2.8	-0.7	-0.1
10410	12	V	100	31	2.6	-0.5	0.3
10410	00	V	100	31	3.0	-0.1	0.2
10739	12	V	100	31	2.8	-0.5	-0.1
10739	00	V	100	31	3.0	-0.2	0.0
11035	12	V	100	29	2.8	0.0	-0.2
11035	00	V	100	23	2.3	0.4	-0.1
12982	12	V	100	21	2.5	0.5	-0.7
12982	00	V	100	20	3.5	1.6	-0.1
16080	12	V	100	31	3.2	0.5	0.3
16080	00	V	100	25	3.3	0.4	0.4
16245	00	V	100	23	3.3	0.1	-0.4
16245	12	V	100	31	3.3	0.1	1.3
16320	00	V	100	22	3.8	-0.3	0.4
16320	12	V	100	30	4.0	0.8	0.6
16429	00	V	100	23	3.5	0.3	0.0
16429	12	V	100	31	4.0	0.0	0.8
16622	00	V	100	23	3.9	-0.2	0.8
16754	00	V	100	23	3.5	0.5	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
17607	12	V	100	0	0.0	0.0	0.0
26435	00	V	100	15	1.4	0.0	0.0
5QPW8X	12	V	100	8	2.3	0.8	0.2
5QPW8X	00	V	100	10	3.2	-0.3	0.6
60018	12	V	100	31	3.8	0.2	-0.3
60018	00	V	100	23	3.8	-0.4	-1.3
7JUNA4	12	V	100	7	3.1	0.2	-1.5
7JUNA4	00	V	100	6	4.5	0.3	-1.1
ASUK02	12	V	100	28	2.1	-0.7	-0.2
ASUK02	00	V	100	15	2.6	-0.5	0.0
DBLK	00	V	100	27	1.8	-0.1	0.0
DBLK	12	V	100	27	1.9	-0.3	0.4
FHM5H	12	V	100	10	2.5	-0.3	-0.1
FHM5H	00	V	100	9	2.4	0.2	-0.2
FHM5UJ	00	V	100	10	2.0	-0.1	0.1
FHM5UJ	12	V	100	10	2.3	0.1	0.0
FPUW5G	12	V	100	17	2.8	0.3	0.0
GHACC	12	V	100	18	5.3	1.2	1.9
GHACC	00	V	100	18	4.0	-0.6	-0.1
HTXUH	12	V	100	9	2.8	1.3	0.6
HTXUH	00	V	100	8	3.1	0.4	-0.2
HTXUH4	12	V	100	10	3.0	1.1	1.4
HTXUH4	00	V	100	9	3.8	1.2	0.5
JNSR	12	V	100	0	0.0	0.0	0.0
JNSR	00	V	100	0	0.0	0.0	0.0
QCY3TG	00	V	100	3	3.1	-0.2	-0.2
QCY3TG	12	V	100	3	1.5	0.1	-0.1
VKB4L5	00	V	100	5	2.1	-0.1	0.6
VKB4L5	12	V	100	6	3.1	1.2	0.5
WDK38H	12	V	100	5	2.1	0.1	-1.7
XKQLWQ	12	V	100	14	2.8	0.1	-0.6
YLV96W	12	V	100	3	2.1	-0.9	-0.2
YLV96W	00	V	100	4	4.5	-1.5	1.1
ZVQEQC	12	V	100	5	3.0	0.6	-0.8

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 : AUG 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	31	5.4	-1.2
01001	00	Z	500	31	6.6	0.1
01028	12	Z	500	31	4.6	-3.9
01028	00	Z	500	31	4.4	-3.3
01400	00	Z	500	23	81.9	81.7
01400	12	Z	500	23	80.0	79.7
01415	12	Z	500	29	3.5	2.0
01415	00	Z	500	27	4.5	3.3
02365	12	Z	500	31	2.2	0.0
02365	00	Z	500	30	3.3	1.8
02591	00	Z	500	30	10.2	9.9
02591	12	Z	500	30	7.5	7.1
02836	12	Z	500	31	3.4	-0.2
02836	00	Z	500	30	3.9	2.0
02963	12	Z	500	31	3.2	1.7
02963	00	Z	500	29	5.0	4.4
03005	12	Z	500	31	5.1	-3.8
03005	00	Z	500	17	3.9	-2.2
03238	12	Z	500	1	6.0	6.0
03238	00	Z	500	31	4.2	3.5
03808	00	Z	500	31	3.4	2.8
03808	12	Z	500	31	2.5	1.2
03918	12	Z	500	4	7.1	6.5
03918	00	Z	500	31	10.7	9.8
03953	00	Z	500	31	10.5	-3.6
03953	12	Z	500	31	7.1	1.4
04018	12	Z	500	28	3.5	-2.7
04018	00	Z	500	29	2.9	0.6
04220	00	Z	500	31	2.9	1.7
04220	12	Z	500	31	3.4	0.3
04270	00	Z	500	30	4.1	-0.1
04270	12	Z	500	31	7.7	0.6
04320	00	Z	500	31	2.6	-0.5
04320	12	Z	500	31	3.5	-1.5
04339	00	Z	500	31	12.9	-0.2
04339	12	Z	500	31	6.6	-4.2
04360	00	Z	500	31	33.3	33.1
04360	12	Z	500	31	35.4	35.0
06011	12	Z	500	30	6.9	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	500	29	4.4	2.3
06260	12	Z	500	6	2.2	0.4
06260	00	Z	500	31	4.7	0.2
06610	00	Z	500	31	4.4	3.5
06610	12	Z	500	32	3.0	1.6
07110	00	Z	500	30	6.0	-0.7
07110	12	Z	500	31	7.1	-0.2
07510	12	Z	500	31	18.8	18.4
07510	00	Z	500	31	17.0	16.5
07645	00	Z	500	30	3.4	-0.1
07645	12	Z	500	30	3.1	0.3
07761	00	Z	500	31	5.0	3.5
07761	12	Z	500	31	7.0	5.9
08001	00	Z	500	30	5.0	3.7
08001	12	Z	500	31	3.7	2.3
08221	00	Z	500	31	7.4	7.1
08221	12	Z	500	31	5.6	5.3
08302	00	Z	500	25	2.8	1.6
08302	12	Z	500	30	2.7	-1.2
08508	12	Z	500	28	6.8	6.3
08522	12	Z	500	31	6.0	5.1
08579	12	Z	500	30	6.7	6.2
10035	12	Z	500	30	5.8	5.2
10393	12	Z	500	31	2.8	0.3
10393	00	Z	500	31	3.8	3.3
10410	12	Z	500	31	2.6	-1.0
10410	00	Z	500	31	2.6	1.8
10739	12	Z	500	31	4.4	3.9
10739	00	Z	500	31	7.3	6.9
11035	12	Z	500	29	10.4	10.0
11035	00	Z	500	31	11.9	11.5
12982	12	Z	500	22	17.7	8.8
12982	00	Z	500	24	7.9	7.4
16080	12	Z	500	31	2.7	-2.0
16080	00	Z	500	31	4.2	-1.4
16245	00	Z	500	31	2.9	0.0
16245	12	Z	500	31	14.5	-4.6
16320	00	Z	500	31	10.0	8.5
16320	12	Z	500	31	7.8	6.7
16429	00	Z	500	31	5.2	3.2
16429	12	Z	500	31	3.2	0.9
16622	00	Z	500	30	13.6	12.8
16754	00	Z	500	31	6.7	5.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
17607	12	Z	500	31	4.4	3.4
26435	00	Z	500	15	6.5	5.2
5QPW8X	12	Z	500	8	20.5	19.7
5QPW8X	00	Z	500	10	21.7	21.3
60018	12	Z	500	31	4.9	4.0
60018	00	Z	500	31	5.5	4.6
7JUNA4	12	Z	500	7	18.1	12.8
7JUNA4	00	Z	500	6	5.9	3.7
ASUK02	12	Z	500	29	4.2	-0.5
ASUK02	00	Z	500	18	5.1	-0.6
DBLK	00	Z	500	27	5.8	5.1
DBLK	12	Z	500	27	5.6	5.1
FHM5H	12	Z	500	10	5.3	0.8
FHM5H	00	Z	500	9	5.1	2.0
FHM5UJ	00	Z	500	10	5.7	4.1
FHM5UJ	12	Z	500	11	7.1	5.7
FPUW5G	12	Z	500	18	9.0	-8.8
GHACC	12	Z	500	19	9.8	7.7
GHACC	00	Z	500	19	5.4	2.5
HTXUH	12	Z	500	9	11.4	-7.0
HTXUH	00	Z	500	9	17.4	-6.4
HTXUH4	12	Z	500	10	4.9	-1.8
HTXUH4	00	Z	500	10	9.2	0.6
JNSR	12	Z	500	0	0.0	0.0
JNSR	00	Z	500	0	0.0	0.0
QCY3TG	00	Z	500	3	5.1	4.8
QCY3TG	12	Z	500	3	12.3	-1.9
VKB4L5	00	Z	500	6	32.9	31.4
VKB4L5	12	Z	500	6	37.7	37.4
WDK38H	12	Z	500	7	19.7	-17.3
XKQLWQ	12	Z	500	15	17.7	15.2
YLV96W	12	Z	500	3	99.9	98.1
YLV96W	00	Z	500	4	58.5	54.3
ZVQEQC	12	Z	500	5	3.4	1.8

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 500 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : AUG 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	31	2.7	-0.4	-0.1
01001	00	V	500	31	2.0	-0.1	0.0
01028	12	V	500	31	2.5	0.9	0.1
01028	00	V	500	31	2.1	0.3	-0.1
01400	00	V	500	22	2.6	0.5	0.6
01400	12	V	500	23	2.4	0.0	-0.3
01415	12	V	500	29	2.5	0.1	0.7
01415	00	V	500	27	3.2	0.9	0.4
02365	12	V	500	31	2.4	-0.1	0.1
02365	00	V	500	30	2.1	0.4	0.2
02591	00	V	500	30	2.3	0.0	-0.1
02591	12	V	500	30	2.6	-0.1	0.9
02836	12	V	500	31	3.0	0.2	0.0
02836	00	V	500	30	3.3	0.6	0.7
02963	12	V	500	31	2.9	0.7	-0.3
02963	00	V	500	29	2.3	0.4	0.0
03005	12	V	500	31	2.7	0.0	0.2
03005	00	V	500	17	3.2	0.4	-0.4
03238	12	V	500	1	4.7	-4.7	0.6
03238	00	V	500	31	2.6	0.7	0.2
03808	00	V	500	31	2.4	0.3	-0.2
03808	12	V	500	31	2.8	0.2	-0.5
03918	12	V	500	4	3.7	-2.3	2.1
03918	00	V	500	31	2.5	0.4	0.2
03953	00	V	500	30	2.5	-0.3	0.5
03953	12	V	500	31	2.1	-0.1	0.2
04018	12	V	500	28	2.3	-0.3	0.6
04018	00	V	500	29	2.3	0.4	0.2
04220	00	V	500	31	2.4	0.4	-0.1
04220	12	V	500	31	2.7	0.0	0.0
04270	00	V	500	30	2.8	-0.1	0.0
04270	12	V	500	31	2.6	0.1	0.5
04320	00	V	500	31	1.7	0.0	0.2
04320	12	V	500	31	2.4	0.3	-0.1
04339	00	V	500	31	2.3	-0.2	-0.4
04339	12	V	500	31	2.8	0.2	0.3
04360	00	V	500	31	2.8	-0.2	0.2
04360	12	V	500	31	2.5	0.0	-0.3
06011	12	V	500	30	2.5	0.2	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	500	29	2.4	-0.7	0.1
06260	12	V	500	6	2.1	0.1	0.9
06260	00	V	500	31	2.8	0.1	0.3
06610	00	V	500	28	2.6	0.5	-0.1
06610	12	V	500	31	2.2	-0.2	-0.7
07110	00	V	500	30	2.5	0.8	0.1
07110	12	V	500	31	2.6	0.3	0.0
07510	12	V	500	31	2.1	0.7	-0.1
07510	00	V	500	31	3.0	0.8	0.2
07645	00	V	500	30	3.8	-0.5	-0.7
07645	12	V	500	30	2.2	0.4	0.1
07761	00	V	500	31	2.3	-0.1	-0.6
07761	12	V	500	31	2.1	0.0	-0.5
08001	00	V	500	30	2.1	0.2	0.0
08001	12	V	500	31	1.8	0.3	0.2
08221	00	V	500	31	2.2	-0.1	0.2
08221	12	V	500	31	2.3	0.1	0.1
08302	00	V	500	25	3.0	0.6	-0.3
08302	12	V	500	30	2.8	0.5	-0.5
08508	12	V	500	28	2.2	0.0	-0.4
08522	12	V	500	30	2.0	-0.2	-0.4
08579	12	V	500	29	2.4	0.9	-0.1
10035	12	V	500	30	2.7	0.7	0.3
10393	12	V	500	31	2.3	0.2	0.4
10393	00	V	500	31	2.2	0.6	-0.3
10410	12	V	500	31	2.3	0.1	0.2
10410	00	V	500	31	2.4	0.3	-0.3
10739	12	V	500	31	2.5	-0.1	-0.7
10739	00	V	500	31	2.3	0.1	-0.2
11035	12	V	500	29	2.1	-0.1	-0.2
11035	00	V	500	31	2.3	0.2	0.2
12982	12	V	500	22	2.1	-0.3	-0.3
12982	00	V	500	24	1.7	0.1	-0.2
16080	12	V	500	31	2.1	0.0	0.5
16080	00	V	500	31	3.1	0.7	0.2
16245	00	V	500	31	2.6	0.0	-0.4
16245	12	V	500	31	2.3	-0.2	0.1
16320	00	V	500	31	2.3	0.3	-0.3
16320	12	V	500	31	2.8	0.9	0.2
16429	00	V	500	31	2.8	0.3	-0.2
16429	12	V	500	31	2.4	-0.1	0.3
16622	00	V	500	27	2.1	-0.3	0.2
16754	00	V	500	27	2.1	0.6	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
17607	12	V	500	2	10.1	-6.6	0.4
26435	00	V	500	15	2.3	0.4	-0.1
5QPW8X	12	V	500	8	1.9	0.4	0.1
5QPW8X	00	V	500	10	2.3	-0.3	0.6
60018	12	V	500	31	2.6	0.3	0.1
60018	00	V	500	31	2.2	0.2	-0.2
7JUNA4	12	V	500	7	1.7	0.7	-0.2
7JUNA4	00	V	500	6	2.1	0.0	0.7
ASUK02	12	V	500	29	2.3	0.4	-0.3
ASUK02	00	V	500	17	2.5	0.3	0.2
DBLK	00	V	500	27	2.0	0.3	-0.4
DBLK	12	V	500	27	2.0	0.2	-0.3
FHM5H	12	V	500	10	2.8	0.6	-0.6
FHM5H	00	V	500	9	4.7	1.4	1.4
FHM5UJ	00	V	500	10	2.9	0.1	1.2
FHM5UJ	12	V	500	11	2.5	0.5	0.0
FPUW5G	12	V	500	18	2.8	0.0	-1.1
GHACC	12	V	500	19	2.8	-0.5	-0.9
GHACC	00	V	500	19	2.7	0.0	0.1
HTXUH	12	V	500	9	2.7	0.0	-0.1
HTXUH	00	V	500	9	2.4	-0.4	-1.2
HTXUH4	12	V	500	10	3.1	1.5	0.7
HTXUH4	00	V	500	10	2.6	-0.2	-0.7
JNSR	12	V	500	0	0.0	0.0	0.0
JNSR	00	V	500	0	0.0	0.0	0.0
QCY3TG	00	V	500	3	1.8	-0.2	0.0
QCY3TG	12	V	500	3	2.1	0.3	0.8
VKB4L5	00	V	500	6	2.5	0.3	-0.1
VKB4L5	12	V	500	6	2.3	-0.2	-0.8
WDK38H	12	V	500	7	1.5	0.3	-0.5
XKQLWQ	12	V	500	15	2.0	0.4	0.2
YLV96W	12	V	500	3	2.4	-0.6	-0.1
YLV96W	00	V	500	4	2.1	-0.7	-0.1
ZVQEQC	12	V	500	5	2.8	1.1	1.1

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 : AUG 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	31	4.9	-0.8
01001	00	Z	850	31	6.2	1.0
01028	12	Z	850	31	4.2	-2.5
01028	00	Z	850	31	3.2	-1.9
01400	00	Z	850	23	81.0	80.8
01400	12	Z	850	23	80.6	80.4
01415	12	Z	850	29	4.4	3.8
01415	00	Z	850	27	4.9	4.3
02365	12	Z	850	31	3.0	1.8
02365	00	Z	850	30	4.4	3.3
02591	00	Z	850	30	10.0	9.9
02591	12	Z	850	30	9.1	8.9
02836	12	Z	850	31	2.8	2.0
02836	00	Z	850	30	4.8	4.1
02963	12	Z	850	31	4.2	3.9
02963	00	Z	850	29	5.2	4.9
03005	12	Z	850	31	2.6	-1.7
03005	00	Z	850	17	2.7	-1.8
03238	12	Z	850	1	8.0	8.0
03238	00	Z	850	31	4.2	3.8
03808	00	Z	850	31	3.6	3.1
03808	12	Z	850	31	2.5	1.5
03918	12	Z	850	4	9.1	8.6
03918	00	Z	850	31	9.8	9.4
03953	00	Z	850	31	3.6	1.2
03953	12	Z	850	31	3.7	1.6
04018	12	Z	850	28	2.2	-1.2
04018	00	Z	850	29	2.3	0.7
04220	00	Z	850	31	3.6	3.0
04220	12	Z	850	31	3.0	1.8
04270	00	Z	850	30	2.6	1.5
04270	12	Z	850	31	8.1	2.0
04320	00	Z	850	31	3.5	2.4
04320	12	Z	850	31	3.2	1.7
04339	00	Z	850	31	14.7	3.0
04339	12	Z	850	31	5.3	-2.3
04360	00	Z	850	31	43.2	42.9
04360	12	Z	850	31	42.4	42.3
06011	12	Z	850	30	4.8	3.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	850	30	5.6	4.8
06260	12	Z	850	6	3.4	0.4
06260	00	Z	850	31	4.4	0.5
06610	00	Z	850	31	4.1	3.5
06610	12	Z	850	32	2.8	2.1
07110	00	Z	850	30	2.8	0.4
07110	12	Z	850	31	2.2	-0.2
07510	12	Z	850	31	16.7	16.6
07510	00	Z	850	31	16.9	16.8
07645	00	Z	850	29	2.9	-0.6
07645	12	Z	850	31	2.4	-0.5
07761	00	Z	850	31	3.9	2.7
07761	12	Z	850	31	3.9	2.4
08001	00	Z	850	30	3.0	2.5
08001	12	Z	850	31	2.2	1.4
08221	00	Z	850	31	5.2	4.8
08221	12	Z	850	31	4.4	3.6
08302	00	Z	850	25	2.8	0.7
08302	12	Z	850	30	2.2	-1.3
08508	12	Z	850	28	3.5	2.7
08522	12	Z	850	31	3.4	2.9
08579	12	Z	850	30	3.8	3.2
10035	12	Z	850	30	4.9	4.6
10393	12	Z	850	31	2.2	0.8
10393	00	Z	850	31	2.2	1.4
10410	12	Z	850	31	2.3	-0.6
10410	00	Z	850	31	2.5	-0.3
10739	12	Z	850	31	4.4	4.1
10739	00	Z	850	31	5.2	4.5
11035	12	Z	850	29	10.5	10.0
11035	00	Z	850	31	10.2	10.0
12982	12	Z	850	22	19.2	10.2
12982	00	Z	850	24	7.3	6.5
16080	12	Z	850	31	2.6	-0.7
16080	00	Z	850	31	3.1	0.0
16245	00	Z	850	31	1.6	-0.5
16245	12	Z	850	31	15.2	-3.4
16320	00	Z	850	31	9.4	7.7
16320	12	Z	850	31	8.4	6.9
16429	00	Z	850	31	4.6	3.2
16429	12	Z	850	31	4.0	2.3
16622	00	Z	850	30	11.4	10.8
16754	00	Z	850	31	4.7	4.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
17607	12	Z	850	31	3.2	2.9
26435	00	Z	850	15	3.4	3.0
5QPW8X	12	Z	850	8	23.2	22.6
5QPW8X	00	Z	850	10	26.5	26.4
60018	12	Z	850	31	3.6	2.2
60018	00	Z	850	31	2.7	2.0
7JUNA4	12	Z	850	7	2.9	0.8
7JUNA4	00	Z	850	6	7.3	4.7
ASUK02	12	Z	850	29	3.8	0.4
ASUK02	00	Z	850	18	3.9	0.0
DBLK	00	Z	850	27	6.7	6.4
DBLK	12	Z	850	27	5.9	5.1
FHM5H	12	Z	850	10	8.0	6.0
FHM5H	00	Z	850	9	9.3	8.2
FHM5UJ	00	Z	850	10	8.1	6.7
FHM5UJ	12	Z	850	11	8.3	7.3
FPUW5G	12	Z	850	18	8.2	-7.9
GHACC	12	Z	850	19	3.1	0.7
GHACC	00	Z	850	19	5.8	-4.2
HTXUH	12	Z	850	9	8.6	1.9
HTXUH	00	Z	850	9	12.4	0.5
HTXUH4	12	Z	850	10	3.9	0.1
HTXUH4	00	Z	850	10	8.4	3.3
JNSR	12	Z	850	0	0.0	0.0
JNSR	00	Z	850	0	0.0	0.0
QCY3TG	00	Z	850	3	5.6	4.2
QCY3TG	12	Z	850	3	3.0	2.9
VKB4L5	00	Z	850	6	30.3	29.0
VKB4L5	12	Z	850	6	34.0	33.7
WDK38H	12	Z	850	7	19.2	-16.8
XKQLWQ	12	Z	850	15	14.2	11.0
YLV96W	12	Z	850	3	16.8	16.7
YLV96W	00	Z	850	4	11.7	11.4
ZVQEQC	12	Z	850	5	1.7	0.1

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 : AUG 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	31	2.8	-0.6	-0.2
01001	00	V	850	31	2.5	-0.4	0.2
01028	12	V	850	31	2.7	-0.4	-0.4
01028	00	V	850	31	2.8	-0.2	0.4
01400	00	V	850	22	2.8	0.4	0.3
01400	12	V	850	23	2.5	0.6	-0.1
01415	12	V	850	29	2.1	0.0	0.5
01415	00	V	850	27	2.0	-0.1	0.8
02365	12	V	850	31	2.3	0.4	-0.4
02365	00	V	850	30	2.4	0.1	0.4
02591	00	V	850	30	2.6	0.1	-0.3
02591	12	V	850	30	2.2	0.0	-0.4
02836	12	V	850	31	2.5	-0.2	-0.5
02836	00	V	850	30	2.7	0.4	0.3
02963	12	V	850	31	2.6	0.0	0.4
02963	00	V	850	29	2.2	0.0	0.2
03005	12	V	850	31	2.3	-0.1	-0.7
03005	00	V	850	17	2.7	-1.5	0.2
03238	12	V	850	1	1.0	0.5	0.9
03238	00	V	850	31	2.5	0.6	0.2
03808	00	V	850	31	2.1	0.1	0.3
03808	12	V	850	31	2.5	-0.1	-0.4
03918	12	V	850	4	2.9	0.2	0.2
03918	00	V	850	31	2.3	0.3	0.2
03953	00	V	850	30	2.3	0.6	0.6
03953	12	V	850	31	2.3	-0.4	0.5
04018	12	V	850	28	2.8	0.3	-0.1
04018	00	V	850	29	2.5	-0.1	0.2
04220	00	V	850	31	3.3	-0.1	0.1
04220	12	V	850	31	2.8	0.3	-0.3
04270	00	V	850	30	2.8	0.2	-0.2
04270	12	V	850	31	3.6	-0.9	0.0
04320	00	V	850	31	2.6	-0.8	-0.4
04320	12	V	850	31	3.5	-0.2	-0.1
04339	00	V	850	31	2.8	-0.3	-0.4
04339	12	V	850	31	3.0	-0.4	-0.5
04360	00	V	850	31	2.8	0.3	0.4
04360	12	V	850	31	3.7	0.3	0.3
06011	12	V	850	30	2.4	-0.1	-0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	850	30	3.0	-0.1	0.1
06260	12	V	850	6	1.4	0.7	0.4
06260	00	V	850	31	3.3	1.0	-0.9
06610	00	V	850	28	3.2	0.9	0.5
06610	12	V	850	31	3.0	0.8	0.3
07110	00	V	850	30	2.0	0.2	-0.1
07110	12	V	850	31	2.7	0.1	-0.7
07510	12	V	850	31	3.4	0.0	0.2
07510	00	V	850	31	3.1	-0.4	-0.4
07645	00	V	850	29	4.2	0.9	-0.3
07645	12	V	850	31	2.8	0.1	-0.1
07761	00	V	850	31	2.3	0.1	0.0
07761	12	V	850	31	2.7	0.2	0.6
08001	00	V	850	30	2.4	1.1	-0.1
08001	12	V	850	31	2.0	0.2	-0.1
08221	00	V	850	31	4.7	1.1	1.4
08221	12	V	850	31	2.3	0.8	0.1
08302	00	V	850	25	2.2	-0.1	-0.3
08302	12	V	850	30	2.8	0.5	0.5
08508	12	V	850	28	2.0	0.1	0.2
08522	12	V	850	31	2.6	-0.4	0.1
08579	12	V	850	29	2.5	0.5	-0.1
10035	12	V	850	30	3.0	0.8	0.1
10393	12	V	850	31	2.7	0.5	0.3
10393	00	V	850	31	3.1	1.1	-0.4
10410	12	V	850	31	2.6	0.4	0.5
10410	00	V	850	31	2.8	0.5	-0.1
10739	12	V	850	31	2.8	0.3	0.3
10739	00	V	850	31	3.7	1.1	0.7
11035	12	V	850	29	2.6	1.3	-0.1
11035	00	V	850	31	3.1	0.4	0.3
12982	12	V	850	22	2.4	-0.1	0.1
12982	00	V	850	24	3.1	0.4	0.3
16080	12	V	850	31	2.9	0.6	-0.6
16080	00	V	850	31	2.8	0.4	-0.5
16245	00	V	850	31	2.8	0.2	-0.5
16245	12	V	850	31	2.6	-0.6	-0.4
16320	00	V	850	31	2.5	-0.2	-0.7
16320	12	V	850	31	2.7	0.2	-1.1
16429	00	V	850	31	2.4	-0.2	-0.1
16429	12	V	850	31	2.3	-0.2	-0.1
16622	00	V	850	27	2.4	-0.2	-0.6
16754	00	V	850	31	2.1	0.0	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
17607	12	V	850	25	3.5	0.3	0.2
26435	00	V	850	15	2.3	-0.4	0.3
5QPW8X	12	V	850	8	3.0	0.6	0.4
5QPW8X	00	V	850	10	3.4	-0.2	0.6
60018	12	V	850	31	3.8	0.9	1.7
60018	00	V	850	31	4.0	1.1	0.4
7JUNA4	12	V	850	7	2.4	1.0	0.1
7JUNA4	00	V	850	6	2.2	0.9	0.0
ASUK02	12	V	850	29	3.6	0.4	-0.2
ASUK02	00	V	850	17	4.4	-0.3	-0.7
DBLK	00	V	850	27	2.7	0.4	-0.5
DBLK	12	V	850	27	2.9	-0.1	-0.2
FHM5H	12	V	850	10	2.2	0.1	-0.9
FHM5H	00	V	850	9	4.1	0.7	0.9
FHM5UJ	00	V	850	10	2.5	0.8	-0.3
FHM5UJ	12	V	850	11	1.8	0.2	-0.1
FPUW5G	12	V	850	18	2.7	-0.4	0.2
GHACC	12	V	850	19	2.4	-0.4	-1.2
GHACC	00	V	850	19	2.8	-0.2	-1.7
HTXUH	12	V	850	9	3.1	0.3	0.4
HTXUH	00	V	850	9	1.9	-0.6	0.3
HTXUH4	12	V	850	10	2.8	-0.7	0.0
HTXUH4	00	V	850	10	3.3	-1.3	0.0
JNSR	12	V	850	0	0.0	0.0	0.0
JNSR	00	V	850	0	0.0	0.0	0.0
QCY3TG	00	V	850	3	2.2	0.8	1.9
QCY3TG	12	V	850	3	1.2	-0.1	0.1
VKB4L5	00	V	850	6	1.7	-0.2	-0.2
VKB4L5	12	V	850	6	1.5	0.2	-0.5
WDK38H	12	V	850	7	2.4	-1.6	-0.6
XKQLWQ	12	V	850	15	2.3	0.1	-1.1
YLV96W	12	V	850	3	3.5	-0.7	2.0
YLV96W	00	V	850	4	1.9	0.5	-0.1
ZVQEQC	12	V	850	5	2.1	0.8	0.4

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : AUG 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	735	0	0.3	0.2	0.3
1300001	99	P	SUR	11	-23	690	0	0.5	-0.1	0.5
1300008	99	P	SUR	15	-38	738	0	0.3	-0.2	0.3
1300130	99	P	SUR	28	-16	722	0	0.3	0.0	0.3
1300131	99	P	SUR	28	-17	725	0	0.4	0.0	0.4
1300871	99	P	SUR	37	-70	604	0	0.3	0.3	0.4
1300872	99	P	SUR	33	-35	724	0	0.2	0.5	0.5
1301000	99	P	SUR	33	-17	1368	1368	0.0	0.0	0.0
1301001	99	P	SUR	33	-17	1123	1123	0.0	0.0	0.0
1301603	99	P	SUR	23	-46	686	0	0.2	0.2	0.3
1301605	99	P	SUR	25	-44	684	0	0.2	0.2	0.3
1301606	99	P	SUR	13	-38	684	0	0.3	0.2	0.4
1301607	99	P	SUR	17	-30	684	0	0.2	0.4	0.5
1301608	99	P	SUR	25	-34	685	0	0.2	0.6	0.7
1301609	99	P	SUR	20	-27	687	0	0.3	0.5	0.6
1301610	99	P	SUR	23	-33	684	0	0.2	0.3	0.4
1301611	99	P	SUR	28	-43	687	0	0.2	0.1	0.3
1301612	99	P	SUR	27	-30	685	0	0.2	0.2	0.3
1301618	99	P	SUR	10	-26	628	1	0.5	-0.1	0.5
13871	99	P	SUR	37	-70	604	0	0.3	0.3	0.4
13872	99	P	SUR	33	-35	724	0	0.2	0.5	0.5
1501529	99	P	SUR	24	-34	707	0	0.2	0.4	0.5
1501531	99	P	SUR	19	-46	703	0	0.2	-0.0	0.2
1501534	99	P	SUR	23	-50	705	0	0.2	-0.6	0.6
1501580	99	P	SUR	16	-60	703	0	0.3	0.2	0.3
2601620	99	P	SUR	87	29	740	0	0.4	-0.8	0.9
2601621	99	P	SUR	89	3	742	0	0.4	-0.7	0.8
27081	99	P	SUR	62	-21	2	0	0.4	-1.2	1.3
3100735	99	P	SUR	34	-69	725	0	0.3	0.2	0.4
31735	99	P	SUR	34	-69	725	0	0.3	0.2	0.4
4100139	99	P	SUR	20	-38	708	0	0.2	-0.2	0.3
4100300	99	P	SUR	16	-57	743	0	0.3	0.1	0.3
4100597	99	P	SUR	28	-40	688	0	0.3	0.2	0.3
4100729	99	P	SUR	30	-35	686	0	0.2	0.3	0.3
4100730	99	P	SUR	38	-33	724	0	0.3	0.4	0.5
4101528	99	P	SUR	39	-47	694	0	0.4	0.6	0.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101529	99	P	SUR	32	-68	721	0	0.3	-0.7	0.7
4101530	99	P	SUR	34	-35	710	0	0.2	0.6	0.6
4101531	99	P	SUR	46	-42	700	0	0.4	0.5	0.6
4101532	99	P	SUR	33	-43	706	0	0.3	0.2	0.4
4101533	99	P	SUR	44	-49	615	0	0.3	0.4	0.5
4101534	99	P	SUR	47	-41	586	0	0.4	0.2	0.4
4101535	99	P	SUR	41	-65	718	0	0.3	0.0	0.3
4101536	99	P	SUR	48	-34	407	0	0.5	0.2	0.6
4101537	99	P	SUR	44	-34	721	0	0.5	0.5	0.7
4101538	99	P	SUR	31	-59	710	0	0.2	0.5	0.6
4101554	99	P	SUR	31	-61	724	0	0.2	0.4	0.5
4101556	99	P	SUR	35	-41	725	0	0.3	0.6	0.7
4101557	99	P	SUR	33	-38	726	0	0.2	0.4	0.4
4101558	99	P	SUR	36	-16	724	0	0.2	0.7	0.8
4101560	99	P	SUR	32	-50	718	0	0.4	0.5	0.7
4101562	99	P	SUR	36	-49	718	0	0.3	0.6	0.7
4101564	99	P	SUR	32	-43	714	0	0.3	0.0	0.3
4101565	99	P	SUR	32	-42	707	0	0.2	0.6	0.6
4101566	99	P	SUR	26	-59	680	0	0.2	0.4	0.5
4101567	99	P	SUR	34	-51	722	0	0.3	0.5	0.6
4101568	99	P	SUR	35	-63	717	0	0.3	0.4	0.5
4101570	99	P	SUR	31	-49	724	0	0.4	0.3	0.5
4101571	99	P	SUR	46	-44	582	0	0.4	0.3	0.5
4101572	99	P	SUR	48	-35	558	0	0.5	0.3	0.5
4101573	99	P	SUR	38	-66	695	0	0.3	0.3	0.5
4101574	99	P	SUR	36	-63	640	0	0.3	0.7	0.8
4101576	99	P	SUR	18	-58	686	0	0.3	0.6	0.7
4101579	99	P	SUR	21	-54	689	0	1.1	0.6	1.3
4101595	99	P	SUR	14	-46	428	0	0.2	0.5	0.6
4101596	99	P	SUR	50	-36	706	0	0.3	0.5	0.6
4101598	99	P	SUR	18	-43	423	0	0.2	0.5	0.5
4101599	99	P	SUR	51	-16	707	0	0.3	-0.0	0.3
4101601	99	P	SUR	12	-43	108	0	0.3	0.1	0.3
4101602	99	P	SUR	10	-47	109	0	0.3	0.1	0.3
4101603	99	P	SUR	11	-45	109	0	0.3	0.3	0.4
4101605	99	P	SUR	70	-10	706	0	0.4	0.1	0.4
4101608	99	P	SUR	69	-9	713	1	0.4	0.2	0.4
4101610	99	P	SUR	68	-9	716	0	0.4	0.4	0.5
4101619	99	P	SUR	51	-36	726	0	0.4	-0.1	0.4
4101620	99	P	SUR	51	-14	728	0	0.3	0.2	0.4
4101622	99	P	SUR	71	-10	646	0	0.3	0.0	0.3
4101623	99	P	SUR	72	-14	637	0	0.3	0.1	0.3
4101624	99	P	SUR	61	-32	725	0	0.4	0.4	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101625	99	P	SUR	60	-33	726	0	0.4	0.3	0.5
4101626	99	P	SUR	59	-39	727	0	0.4	0.1	0.4
4101627	99	P	SUR	58	-31	727	0	0.4	0.0	0.4
4101629	99	P	SUR	60	-29	723	0	0.4	-0.4	0.6
4101700	99	P	SUR	27	-46	685	0	0.2	0.3	0.3
4101702	99	P	SUR	34	-59	725	0	0.2	0.2	0.3
4101704	99	P	SUR	19	-69	152	0	0.5	0.7	0.8
4101705	99	P	SUR	32	-32	724	0	0.2	0.2	0.3
4101706	99	P	SUR	32	-33	725	0	0.2	-0.6	0.7
4101707	99	P	SUR	35	-26	724	0	0.2	0.0	0.2
4101708	99	P	SUR	30	-31	725	0	0.2	-0.2	0.3
4101709	99	P	SUR	18	-26	685	0	0.3	0.9	0.9
4101712	99	P	SUR	34	-30	720	0	0.2	0.2	0.3
4101713	99	P	SUR	34	-59	725	0	0.2	-0.0	0.2
4101714	99	P	SUR	34	-43	725	0	0.3	-0.1	0.3
4101715	99	P	SUR	30	-48	687	0	0.3	0.1	0.3
4101716	99	P	SUR	25	-53	687	0	0.2	-0.8	0.8
4101717	99	P	SUR	22	-60	689	0	0.2	-0.0	0.2
4101743	99	P	SUR	26	-56	686	0	0.2	0.9	0.9
41041	99	P	SUR	14	-46	1288	0	0.3	0.5	0.6
41043	99	P	SUR	21	-65	1433	0	0.3	0.3	0.5
41044	99	P	SUR	22	-59	1518	0	0.3	0.6	0.6
41046	99	P	SUR	24	-68	1297	0	0.3	0.8	0.9
41048	99	P	SUR	32	-70	1315	0	0.3	0.0	0.3
41049	99	P	SUR	28	-63	1354	0	0.3	0.5	0.6
41052	99	P	SUR	18	-65	1903	0	0.4	-1.2	1.2
41053	99	P	SUR	19	-66	1968	0	0.4	-0.6	0.7
41056	99	P	SUR	18	-66	1935	0	0.3	-0.8	0.9
41300	99	P	SUR	16	-57	743	0	0.3	0.1	0.3
41597	99	P	SUR	28	-40	688	0	0.3	0.2	0.3
41729	99	P	SUR	30	-35	686	0	0.2	0.3	0.3
41730	99	P	SUR	38	-33	724	0	0.3	0.4	0.5
42060	99	P	SUR	16	-63	2081	0	0.3	0.0	0.3
42085	99	P	SUR	18	-67	1012	0	0.4	-0.8	0.9
44005	99	P	SUR	43	-69	339	0	0.4	0.1	0.4
4400513	99	P	SUR	54	-10	687	0	0.3	-0.4	0.5
4400517	99	P	SUR	24	-58	699	0	0.2	0.3	0.4
4400521	99	P	SUR	34	-38	705	0	0.2	-0.8	0.8
4400746	99	P	SUR	31	-49	726	0	0.3	-0.0	0.3
4400777	99	P	SUR	32	-47	726	0	0.4	0.1	0.4
4400778	99	P	SUR	24	-37	698	0	0.2	0.5	0.5
44008	99	P	SUR	41	-69	741	0	0.3	-0.4	0.5
4400857	99	P	SUR	25	-48	686	0	0.2	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
4400874	99	P	SUR	30	-46	726	0	0.3	0.3	0.5
4400875	99	P	SUR	27	-44	420	0	0.2	-0.2	0.3
4400887	99	P	SUR	32	-43	715	0	0.3	-0.1	0.3
4400891	99	P	SUR	38	-48	707	0	0.5	-1.1	1.2
4401503	99	P	SUR	34	-62	709	0	0.3	0.0	0.3
4401525	99	P	SUR	13	-61	47	9	2.2	-1.1	2.5
4401527	99	P	SUR	33	-60	707	0	0.2	0.1	0.2
4401531	99	P	SUR	38	-56	709	0	0.3	0.3	0.4
4401536	99	P	SUR	44	-15	682	0	0.3	0.7	0.8
4401537	99	P	SUR	33	-33	697	0	0.2	-0.6	0.6
4401539	99	P	SUR	33	-43	709	0	0.3	-0.2	0.4
4401540	99	P	SUR	35	-58	709	0	0.3	0.3	0.4
4401541	99	P	SUR	38	-29	708	0	0.2	-0.0	0.2
4401542	99	P	SUR	31	-69	708	0	0.3	0.5	0.6
4401543	99	P	SUR	24	-67	523	0	0.3	0.0	0.3
4401544	99	P	SUR	36	-59	708	0	0.3	-0.7	0.7
4401549	99	P	SUR	59	-18	672	0	0.3	-0.1	0.3
4401551	99	P	SUR	35	-35	707	0	0.2	0.4	0.5
4401552	99	P	SUR	24	-18	680	0	0.4	0.6	0.7
4401553	99	P	SUR	62	-18	724	0	0.3	0.2	0.4
4401554	99	P	SUR	58	-21	725	0	0.4	0.4	0.5
4401555	99	P	SUR	58	-11	724	0	0.3	-0.2	0.4
4401556	99	P	SUR	33	-37	725	0	0.2	-0.2	0.2
4401557	99	P	SUR	34	-39	726	0	0.2	0.2	0.3
4401558	99	P	SUR	56	-20	725	0	0.3	-0.1	0.3
4401559	99	P	SUR	46	-11	725	0	0.3	0.3	0.4
4401560	99	P	SUR	40	-18	724	0	0.2	0.1	0.3
4401561	99	P	SUR	33	-25	726	0	0.2	0.1	0.2
4401562	99	P	SUR	38	-21	725	0	0.2	-0.1	0.2
4401563	99	P	SUR	30	-37	696	0	0.2	-0.3	0.4
4401564	99	P	SUR	39	-38	435	0	0.3	-0.2	0.4
4401565	99	P	SUR	55	-23	725	0	0.4	0.2	0.5
4401566	99	P	SUR	48	-13	723	0	0.3	0.5	0.5
4401570	99	P	SUR	49	-33	726	0	0.4	-0.2	0.4
4401571	99	P	SUR	51	-34	721	0	0.4	0.1	0.4
4401601	99	P	SUR	57	-25	355	0	0.4	-0.2	0.5
4401603	99	P	SUR	59	-6	356	0	0.2	0.4	0.5
4401605	99	P	SUR	58	-20	361	0	0.4	-0.2	0.5
4401611	99	P	SUR	47	-54	361	0	0.4	0.5	0.6
4401613	99	P	SUR	45	-9	358	0	0.2	0.5	0.5
4401616	99	P	SUR	35	-37	361	0	0.2	-0.1	0.2
4401633	99	P	SUR	43	-18	361	0	0.2	0.3	0.4
4401750	99	P	SUR	61	-20	700	0	0.3	-1.6	1.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401751	99	P	SUR	60	-21	690	0	0.3	0.4	0.5
4401753	99	P	SUR	61	-19	680	0	0.4	0.4	0.5
4401755	99	P	SUR	67	5	596	0	0.3	0.6	0.7
4401757	99	P	SUR	70	-6	292	0	0.3	0.6	0.6
4401799	99	P	SUR	22	-39	418	0	0.2	0.4	0.5
4401802	99	P	SUR	43	-24	361	0	0.2	0.2	0.3
4401803	99	P	SUR	52	-43	719	0	0.4	0.2	0.4
4401804	99	P	SUR	61	-21	700	0	0.3	0.4	0.5
4401805	99	P	SUR	58	-22	697	0	2.7	2.5	3.7
4401806	99	P	SUR	60	-22	698	0	0.8	0.6	1.0
4401807	99	P	SUR	60	-17	693	0	0.4	0.6	0.7
4401808	99	P	SUR	59	-25	703	0	1.8	1.2	2.1
44027	99	P	SUR	44	-67	760	0	0.4	0.1	0.4
44032	99	P	SUR	44	-69	728	0	0.4	-1.0	1.1
44033	99	P	SUR	44	-69	743	0	0.4	-0.5	0.6
44034	99	P	SUR	44	-68	743	0	0.3	-0.7	0.8
44037	99	P	SUR	44	-68	733	0	0.3	-1.0	1.1
44137	99	P	SUR	42	-62	709	0	0.5	0.0	0.5
44139	99	P	SUR	44	-57	711	0	0.3	0.1	0.4
44150	99	P	SUR	43	-64	708	0	0.3	0.3	0.4
44513	99	P	SUR	54	-10	687	0	0.3	-0.4	0.5
44517	99	P	SUR	24	-58	699	0	0.2	0.3	0.4
44521	99	P	SUR	34	-38	704	0	0.2	-0.8	0.8
44746	99	P	SUR	31	-49	726	0	0.3	-0.0	0.3
44777	99	P	SUR	32	-47	726	0	0.3	0.1	0.4
44778	99	P	SUR	24	-37	698	0	0.2	0.5	0.5
44857	99	P	SUR	25	-48	686	0	0.2	0.4	0.5
44874	99	P	SUR	30	-46	726	0	0.3	0.3	0.5
44875	99	P	SUR	27	-44	420	0	0.2	-0.2	0.3
44887	99	P	SUR	32	-43	715	0	0.3	-0.1	0.3
44891	99	P	SUR	38	-48	707	0	0.5	-1.1	1.2
45138	99	P	SUR	50	-66	713	0	0.6	0.1	0.6
4700546	99	P	SUR	28	-38	353	0	0.2	0.2	0.3
4700560	99	P	SUR	73	22	360	0	0.3	0.3	0.4
4700568	99	P	SUR	44	-1	357	0	0.3	-0.6	0.7
4701668	99	P	SUR	41	-68	359	0	0.3	0.5	0.6
4701669	99	P	SUR	44	-51	361	0	0.4	0.4	0.5
4701674	99	P	SUR	70	-67	208	0	0.5	-6.0	6.1
4701677	99	P	SUR	46	-42	660	0	0.5	-0.3	0.6
47546	99	P	SUR	28	-38	663	2	1.5	0.1	1.5
47560	99	P	SUR	73	22	670	0	0.3	0.2	0.4
47568	99	P	SUR	44	-1	669	0	0.3	-0.6	0.7
4800510	99	P	SUR	78	-14	361	0	0.3	-0.7	0.8

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4800770	99	P	SUR	78	-15	360	55	2.5	5.4	6.0
4802004	99	P	SUR	66	-13	360	0	1.8	0.5	1.9
48510	99	P	SUR	78	-14	671	0	0.4	-0.8	0.8
48770	99	P	SUR	78	-15	673	165	3.4	6.8	7.6
6100001	99	P	SUR	43	8	744	0	0.4	0.2	0.5
6100002	99	P	SUR	42	5	743	0	0.3	0.1	0.4
61001	99	P	SUR	43	8	744	0	0.4	0.2	0.5
6100196	99	P	SUR	42	4	729	0	0.4	0.2	0.5
6100197	99	P	SUR	40	4	726	0	0.3	0.3	0.5
6100198	99	P	SUR	37	-2	710	0	0.4	0.2	0.5
61002	99	P	SUR	42	5	743	0	0.3	0.1	0.4
6100280	99	P	SUR	41	1	699	0	0.4	0.1	0.4
6100281	99	P	SUR	40	0	725	0	0.5	0.2	0.5
6100417	99	P	SUR	38	0	714	0	0.4	0.2	0.4
6100430	99	P	SUR	40	2	715	0	0.4	0.0	0.4
6101001	99	P	SUR	38	24	225	0	0.5	0.3	0.6
6101003	99	P	SUR	40	25	218	0	0.4	0.5	0.7
6101007	99	P	SUR	36	25	225	0	0.4	-0.1	0.4
6101008	99	P	SUR	37	22	165	0	0.4	0.5	0.6
6102501	99	P	SUR	34	19	719	0	0.2	0.3	0.4
6102502	99	P	SUR	33	24	717	0	0.5	0.3	0.6
6200024	99	P	SUR	44	-3	704	0	0.4	0.2	0.4
6200025	99	P	SUR	44	-6	722	0	0.3	0.2	0.4
6200082	99	P	SUR	44	-8	722	0	0.3	-0.0	0.3
6200083	99	P	SUR	43	-9	726	0	0.4	0.0	0.4
6200084	99	P	SUR	42	-9	720	0	0.4	0.1	0.4
6200085	99	P	SUR	36	-7	710	0	0.4	0.3	0.5
6200092	99	P	SUR	51	-11	744	0	0.3	-0.1	0.3
6200093	99	P	SUR	55	-10	743	0	0.4	-0.2	0.4
6200094	99	P	SUR	52	-7	697	0	0.3	0.1	0.3
62001	99	P	SUR	45	-5	739	0	0.3	0.2	0.4
6200191	99	P	SUR	41	-10	706	0	0.4	-0.1	0.4
6200192	99	P	SUR	40	-10	672	0	0.3	-0.5	0.6
6200513	99	P	SUR	64	-17	727	0	0.4	-0.5	0.7
6200940	99	P	SUR	35	-45	716	0	0.3	-0.1	0.3
6200941	99	P	SUR	29	-57	673	0	0.2	-0.4	0.5
62023	99	P	SUR	51	-8	740	0	0.3	0.4	0.4
6202400	99	P	SUR	39	-28	462	462	0.0	0.0	0.0
6202402	99	P	SUR	38	-26	834	834	0.0	0.0	0.0
6202404	99	P	SUR	39	-29	367	367	0.0	0.0	0.0
62029	99	P	SUR	49	-12	1471	0	0.3	-0.0	0.3
62030	99	P	SUR	50	-4	1427	0	0.3	0.1	0.3
6203503	99	P	SUR	36	-40	529	0	0.3	-0.1	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6203504	99	P	SUR	30	-68	687	0	0.3	0.2	0.3
6203510	99	P	SUR	26	-65	706	0	0.3	0.0	0.3
6203523	99	P	SUR	66	0	692	0	0.3	-0.3	0.4
6203525	99	P	SUR	65	0	680	0	0.3	-0.6	0.7
6203526	99	P	SUR	75	13	677	0	0.3	0.2	0.4
6203527	99	P	SUR	58	-26	665	0	0.4	-2.4	2.5
6203528	99	P	SUR	32	-23	714	0	0.3	0.3	0.4
6203529	99	P	SUR	21	-67	683	0	0.3	0.0	0.3
6203600	99	P	SUR	43	-13	725	0	0.3	0.2	0.4
6203601	99	P	SUR	46	-13	724	0	0.3	0.5	0.6
6203602	99	P	SUR	66	-56	726	0	0.4	0.3	0.5
6203603	99	P	SUR	56	-28	726	0	0.4	0.1	0.4
6203604	99	P	SUR	41	-16	725	0	0.2	0.5	0.5
6203607	99	P	SUR	35	-30	723	0	0.2	0.2	0.3
6203608	99	P	SUR	51	-15	727	0	0.3	0.3	0.5
6203609	99	P	SUR	47	-17	723	0	0.3	-0.0	0.3
6203610	99	P	SUR	49	-14	705	0	0.3	0.2	0.3
62050	99	P	SUR	50	-4	749	0	0.3	0.4	0.5
62081	99	P	SUR	51	-13	753	0	0.3	-0.2	0.3
62095	99	P	SUR	53	-16	752	0	0.4	-0.1	0.4
62102	99	P	SUR	58	2	753	0	0.3	0.4	0.5
62103	99	P	SUR	50	-3	753	0	0.3	0.7	0.8
62104	99	P	SUR	57	1	753	0	0.3	0.2	0.4
62107	99	P	SUR	50	-6	1481	4	1.0	0.5	1.1
62111	99	P	SUR	58	0	753	0	0.3	1.5	1.5
62112	99	P	SUR	58	0	753	0	0.3	0.5	0.6
62113	99	P	SUR	58	0	752	0	0.4	0.3	0.5
62114	99	P	SUR	58	0	1482	0	0.3	0.5	0.6
62115	99	P	SUR	58	-3	752	0	0.3	0.5	0.6
62116	99	P	SUR	58	1	753	0	0.3	0.3	0.5
62118	99	P	SUR	58	1	747	0	0.3	0.7	0.8
62119	99	P	SUR	57	2	753	0	0.3	0.4	0.5
62120	99	P	SUR	56	2	730	0	0.3	0.2	0.4
62121	99	P	SUR	54	3	750	0	0.4	0.5	0.7
62122	99	P	SUR	57	2	1434	0	0.3	0.5	0.6
62124	99	P	SUR	54	-4	753	0	0.2	0.2	0.3
62129	99	P	SUR	58	0	753	0	0.4	0.4	0.6
62130	99	P	SUR	59	1	753	0	0.3	0.3	0.4
62131	99	P	SUR	54	1	744	0	0.3	0.7	0.8
62132	99	P	SUR	56	2	719	0	0.3	0.7	0.8
62133	99	P	SUR	57	1	753	0	0.3	0.4	0.5
62134	99	P	SUR	58	1	750	0	0.3	0.6	0.7
62135	99	P	SUR	54	2	753	0	0.3	0.6	0.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62136	99	P	SUR	54	3	678	0	0.3	0.8	0.8
62138	99	P	SUR	54	0	1481	0	0.3	1.1	1.2
62139	99	P	SUR	53	2	1273	0	0.3	0.7	0.7
62140	99	P	SUR	57	1	1478	0	0.3	0.4	0.5
62141	99	P	SUR	58	-2	749	0	0.3	0.2	0.4
62143	99	P	SUR	58	2	753	0	0.3	0.9	1.0
62144	99	P	SUR	53	2	752	0	0.3	0.6	0.7
62145	99	P	SUR	53	3	1482	0	0.4	0.7	0.8
62146	99	P	SUR	57	2	752	0	0.4	0.4	0.6
62148	99	P	SUR	54	2	752	0	0.5	1.1	1.2
62149	99	P	SUR	54	1	722	0	0.3	1.0	1.0
62150	99	P	SUR	54	1	559	0	0.3	1.6	1.7
62151	99	P	SUR	57	2	1481	0	0.3	0.5	0.6
62152	99	P	SUR	57	2	753	0	0.3	0.8	0.8
62153	99	P	SUR	57	2	1358	0	0.3	0.5	0.6
62154	99	P	SUR	56	2	753	0	0.3	0.4	0.5
62155	99	P	SUR	58	1	671	0	0.3	0.7	0.7
62157	99	P	SUR	58	0	753	0	0.3	0.4	0.5
62160	99	P	SUR	57	2	1480	0	0.4	0.7	0.8
62161	99	P	SUR	58	1	752	0	0.4	0.2	0.5
62162	99	P	SUR	57	1	753	0	0.3	0.4	0.5
62163	99	P	SUR	48	-8	736	0	0.4	0.4	0.5
62164	99	P	SUR	57	1	752	0	0.3	0.7	0.8
62165	99	P	SUR	54	1	706	0	0.3	0.9	0.9
62168	99	P	SUR	58	1	753	0	0.3	0.5	0.5
62170	99	P	SUR	51	2	753	0	0.7	0.3	0.8
62296	99	P	SUR	53	2	753	0	0.3	0.4	0.5
62297	99	P	SUR	59	2	1481	0	0.3	0.4	0.5
62302	99	P	SUR	61	-2	183	0	0.3	0.4	0.5
62304	99	P	SUR	51	2	755	0	0.4	0.5	0.6
62305	99	P	SUR	50	0	740	0	0.4	0.4	0.6
62442	99	P	SUR	49	-16	707	0	0.3	0.0	0.3
62513	99	P	SUR	64	-17	727	0	0.4	-0.5	0.7
62940	99	P	SUR	35	-45	716	0	0.3	-0.1	0.3
62941	99	P	SUR	29	-57	673	0	0.2	-0.4	0.5
6301552	99	P	SUR	79	27	720	0	0.4	-0.3	0.5
6301555	99	P	SUR	75	26	719	0	0.3	0.4	0.5
6301561	99	P	SUR	82	10	680	0	0.5	0.2	0.5
6301562	99	P	SUR	86	31	591	40	0.3	-0.3	0.5
6301564	99	P	SUR	85	31	569	18	0.3	0.0	0.3
63055	99	P	SUR	61	2	753	0	0.4	0.3	0.5
63056	99	P	SUR	60	2	753	0	0.3	0.6	0.7
63057	99	P	SUR	59	2	752	0	0.3	0.2	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
63058	99	P	SUR	53	2	2123	0	0.3	0.6	0.7
63059	99	P	SUR	58	-1	751	0	0.3	0.8	0.8
63101	99	P	SUR	61	1	753	0	0.3	0.4	0.5
63102	99	P	SUR	61	1	752	0	0.4	0.3	0.5
63103	99	P	SUR	61	1	753	0	0.3	0.5	0.6
63104	99	P	SUR	61	2	753	0	0.3	0.3	0.4
63105	99	P	SUR	61	2	753	0	0.3	0.1	0.3
63108	99	P	SUR	61	2	753	0	0.4	0.3	0.5
63109	99	P	SUR	60	2	753	0	0.3	0.2	0.4
63110	99	P	SUR	60	2	753	0	0.3	0.1	0.3
63111	99	P	SUR	61	2	1472	0	0.3	0.0	0.3
63112	99	P	SUR	61	1	753	0	0.3	0.0	0.3
63115	99	P	SUR	62	1	753	0	0.3	0.2	0.4
63117	99	P	SUR	61	1	1482	0	0.4	0.6	0.7
63118	99	P	SUR	58	1	753	0	0.3	0.2	0.3
63120	99	P	SUR	54	2	747	0	0.3	0.8	0.8
6400562	99	P	SUR	70	-2	723	0	0.3	0.1	0.3
6401501	99	P	SUR	70	34	617	0	0.4	0.5	0.6
6401502	99	P	SUR	61	-12	684	0	0.4	0.4	0.5
6401503	99	P	SUR	59	-10	691	0	0.4	0.5	0.7
6401504	99	P	SUR	59	-12	699	0	0.3	0.2	0.4
6401505	99	P	SUR	61	-21	693	0	0.3	0.2	0.4
6401506	99	P	SUR	61	-25	696	0	0.4	0.3	0.5
6401507	99	P	SUR	79	11	705	0	0.5	0.1	0.5
6401530	99	P	SUR	68	-24	684	0	0.4	0.2	0.4
6401531	99	P	SUR	67	-25	655	0	0.3	0.2	0.4
6401536	99	P	SUR	69	-25	634	0	0.4	0.1	0.5
6401537	99	P	SUR	69	-25	638	0	0.4	0.0	0.4
6401538	99	P	SUR	69	-24	633	0	0.4	-0.1	0.4
6401539	99	P	SUR	69	-25	635	0	0.4	0.3	0.5
6401540	99	P	SUR	69	-24	627	0	0.5	-0.3	0.6
6401541	99	P	SUR	71	-20	570	0	0.3	0.1	0.3
6401542	99	P	SUR	71	-20	570	0	0.3	-0.0	0.3
6401543	99	P	SUR	71	-20	568	0	0.3	0.1	0.3
6401544	99	P	SUR	71	-19	572	0	0.3	0.5	0.6
6401545	99	P	SUR	72	-22	209	0	0.4	0.2	0.5
6401550	99	P	SUR	68	12	724	0	0.4	0.1	0.4
6401555	99	P	SUR	74	16	719	0	0.3	0.2	0.4
6401556	99	P	SUR	72	-2	725	0	0.3	0.1	0.3
6401557	99	P	SUR	51	-45	721	0	0.8	0.7	1.0
6401561	99	P	SUR	61	-17	725	0	0.3	0.0	0.3
6401562	99	P	SUR	66	2	718	0	0.4	0.3	0.5
6401563	99	P	SUR	65	-28	436	0	0.6	-0.5	0.8

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6401564	99	P	SUR	67	7	719	0	0.4	0.2	0.5
6401565	99	P	SUR	65	4	717	0	0.4	0.1	0.4
6401566	99	P	SUR	62	-2	726	0	0.3	0.2	0.3
6401567	99	P	SUR	64	-22	725	0	0.3	0.2	0.4
6401568	99	P	SUR	61	-8	724	0	0.3	0.3	0.4
6401569	99	P	SUR	62	-22	725	0	0.3	0.1	0.3
6401570	99	P	SUR	67	-5	725	0	0.3	0.2	0.3
6401571	99	P	SUR	62	-12	107	0	0.4	0.1	0.4
6401572	99	P	SUR	63	-18	107	0	0.4	0.1	0.4
6401654	99	P	SUR	88	8	359	0	0.4	-0.2	0.5
6401655	99	P	SUR	82	-64	19	0	0.3	-0.3	0.4
64041	99	P	SUR	61	-3	753	0	0.3	0.3	0.4
64045	99	P	SUR	59	-12	841	1	0.3	-0.2	0.4
64046	99	P	SUR	61	-4	741	0	0.3	0.1	0.3
64562	99	P	SUR	70	-2	723	0	0.3	0.1	0.3
6500596	99	P	SUR	71	-11	714	0	0.5	0.3	0.6
6500602	99	P	SUR	71	22	719	0	0.4	0.4	0.6
6501553	99	P	SUR	56	-7	724	0	0.4	0.2	0.4
6501555	99	P	SUR	65	-52	725	0	0.4	-0.3	0.5
6501556	99	P	SUR	63	-14	726	0	0.4	0.3	0.5
65596	99	P	SUR	72	-11	714	0	0.5	0.3	0.6
65602	99	P	SUR	71	22	719	0	0.4	0.4	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 : AUG 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	690	0	0	1.6	0.2	1.6
1300002	99	SPEED	SUR	20	-23	722	0	0	0.9	0.4	1.0
1300008	99	SPEED	SUR	15	-38	738	0	0	0.9	0.5	1.0
1300130	99	SPEED	SUR	28	-16	722	0	0	0.7	0.1	0.8
1300131	99	SPEED	SUR	28	-17	708	0	0	2.1	5.0	5.4
27081	99	SPEED	SUR	62	-21	2	0	0	1.9	0.8	2.1
4100026	99	SPEED	SUR	12	-38	41	0	0	1.1	0.1	1.1
4100139	99	SPEED	SUR	20	-38	708	0	0	0.8	0.2	0.8
4100300	99	SPEED	SUR	16	-57	743	0	0	0.8	-0.4	0.9
41026	99	SPEED	SUR	12	-38	41	0	0	1.2	0.1	1.2
41041	99	SPEED	SUR	14	-46	1288	0	0	0.9	0.1	0.9
41043	99	SPEED	SUR	21	-65	1443	0	0	0.8	-0.2	0.8
41044	99	SPEED	SUR	22	-59	1518	0	0	0.9	-0.3	0.9
41046	99	SPEED	SUR	24	-68	1294	0	0	0.9	-0.5	1.0
41048	99	SPEED	SUR	32	-70	1314	0	0	0.9	0.1	1.0
41049	99	SPEED	SUR	28	-63	1354	0	0	1.0	-0.3	1.0
41052	99	SPEED	SUR	18	-65	1903	0	0	1.0	-0.5	1.1
41053	99	SPEED	SUR	19	-66	1968	0	0	1.5	0.6	1.6
41056	99	SPEED	SUR	18	-66	1935	0	0	1.1	-0.8	1.3
41300	99	SPEED	SUR	16	-57	743	0	0	0.8	-0.4	0.9
42060	99	SPEED	SUR	16	-63	2094	0	0	1.0	-0.0	1.0
42085	99	SPEED	SUR	18	-67	1002	0	0	1.2	-0.3	1.2
44027	99	SPEED	SUR	44	-67	760	0	0	1.2	-0.7	1.4
44032	99	SPEED	SUR	44	-69	729	0	0	1.4	-0.7	1.5
44033	99	SPEED	SUR	44	-69	743	0	0	1.5	-0.5	1.5
44034	99	SPEED	SUR	44	-68	743	0	0	1.6	-1.3	2.0
44037	99	SPEED	SUR	44	-68	733	0	0	1.3	-0.5	1.4
44137	99	SPEED	SUR	42	-62	710	0	0	1.1	0.1	1.2
44139	99	SPEED	SUR	44	-57	713	0	0	1.3	-0.7	1.5
44150	99	SPEED	SUR	43	-64	533	0	0	1.2	-0.7	1.4
45138	99	SPEED	SUR	50	-66	713	0	0	1.7	-0.2	1.8
6100001	99	SPEED	SUR	43	8	744	0	0	1.7	-0.2	1.7
6100002	99	SPEED	SUR	42	5	743	0	0	1.2	0.5	1.3
61001	99	SPEED	SUR	43	8	744	0	0	1.8	-0.4	1.8

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
6100196	99	SPEED	SUR	42	4	725	0	0	1.7	-0.1	1.7
6100198	99	SPEED	SUR	37	-2	84	0	0	1.6	-1.3	2.0
61002	99	SPEED	SUR	42	5	743	0	0	1.2	0.1	1.2
6100280	99	SPEED	SUR	41	1	687	0	0	1.6	0.1	1.6
6100281	99	SPEED	SUR	40	0	714	0	0	1.9	0.4	1.9
6100417	99	SPEED	SUR	38	0	707	0	0	1.2	-0.2	1.2
6100430	99	SPEED	SUR	40	2	87	0	0	1.4	-0.2	1.4
6101001	99	SPEED	SUR	38	24	225	0	0	1.6	-0.6	1.7
6101003	99	SPEED	SUR	40	25	218	0	0	1.5	-1.5	2.2
6101007	99	SPEED	SUR	36	25	225	0	0	1.3	-0.2	1.3
6101008	99	SPEED	SUR	37	22	166	0	0	1.4	-0.6	1.6
6200024	99	SPEED	SUR	44	-3	692	0	0	1.2	-0.2	1.2
6200025	99	SPEED	SUR	44	-6	718	0	0	1.2	-0.4	1.3
6200082	99	SPEED	SUR	44	-8	721	0	0	1.2	-0.2	1.2
6200083	99	SPEED	SUR	43	-9	719	0	0	1.2	-0.8	1.4
6200084	99	SPEED	SUR	42	-9	715	0	0	1.2	-1.1	1.6
6200085	99	SPEED	SUR	36	-7	708	0	0	1.6	-0.6	1.8
6200092	99	SPEED	SUR	51	-11	744	0	0	0.9	-0.1	0.9
6200093	99	SPEED	SUR	55	-10	743	0	0	1.1	-0.3	1.2
6200094	99	SPEED	SUR	52	-7	697	0	0	1.0	-0.1	1.0
62001	99	SPEED	SUR	45	-5	739	0	0	1.1	0.7	1.3
6200191	99	SPEED	SUR	41	-10	706	0	0	1.1	-0.2	1.1
6200192	99	SPEED	SUR	40	-10	671	0	0	1.0	-0.1	1.0
6201030	99	SPEED	SUR	44	-4	620	0	0	1.1	-0.2	1.2
62023	99	SPEED	SUR	51	-8	740	0	0	1.5	0.2	1.5
62029	99	SPEED	SUR	49	-12	1471	0	0	1.0	0.3	1.0
62050	99	SPEED	SUR	50	-4	749	0	0	1.1	0.5	1.2
62081	99	SPEED	SUR	51	-13	753	0	0	1.0	0.3	1.0
62095	99	SPEED	SUR	53	-16	730	0	0	1.1	0.4	1.2
62102	99	SPEED	SUR	58	2	753	0	0	1.1	-0.4	1.2
62103	99	SPEED	SUR	50	-3	753	0	0	1.2	0.8	1.5
62104	99	SPEED	SUR	57	1	753	0	0	1.2	-0.4	1.2
62107	99	SPEED	SUR	50	-6	1481	0	0	1.2	0.8	1.4
62111	99	SPEED	SUR	58	0	322	0	0	2.1	-2.4	3.2
62112	99	SPEED	SUR	58	0	753	0	0	1.5	-0.7	1.7
62113	99	SPEED	SUR	58	0	752	0	0	1.3	0.2	1.3
62114	99	SPEED	SUR	58	0	1480	0	0	1.3	0.3	1.4
62118	99	SPEED	SUR	58	1	747	0	0	1.1	0.4	1.2
62119	99	SPEED	SUR	57	2	753	0	0	1.2	-0.3	1.3
62120	99	SPEED	SUR	56	2	753	0	0	1.2	-0.2	1.2
62121	99	SPEED	SUR	54	3	726	0	0	1.4	-0.2	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
62122	99	SPEED	SUR	57	2	1434	0	0	1.1	-0.3	1.1
62129	99	SPEED	SUR	58	0	753	0	0	1.2	-0.1	1.2
62131	99	SPEED	SUR	54	1	744	0	0	1.3	0.1	1.3
62132	99	SPEED	SUR	56	2	719	0	0	1.5	-1.2	2.0
62133	99	SPEED	SUR	57	1	753	0	0	1.1	-0.2	1.1
62134	99	SPEED	SUR	58	1	750	0	0	1.1	-0.2	1.1
62140	99	SPEED	SUR	57	1	1470	0	0	1.1	-0.1	1.1
62143	99	SPEED	SUR	58	2	753	0	0	1.7	-1.1	2.0
62144	99	SPEED	SUR	53	2	752	0	0	1.7	-0.6	1.8
62145	99	SPEED	SUR	53	3	1482	0	0	1.4	0.4	1.5
62146	99	SPEED	SUR	57	2	751	0	0	1.3	-0.3	1.4
62148	99	SPEED	SUR	54	2	752	0	0	1.7	-0.1	1.7
62149	99	SPEED	SUR	54	1	723	0	0	2.3	-0.7	2.4
62150	99	SPEED	SUR	54	1	559	0	0	1.7	-0.6	1.8
62152	99	SPEED	SUR	57	2	753	0	0	1.3	-0.9	1.6
62153	99	SPEED	SUR	57	2	1358	0	0	2.0	-1.4	2.5
62154	99	SPEED	SUR	56	2	753	0	0	1.2	-0.6	1.4
62155	99	SPEED	SUR	58	1	666	0	0	2.1	0.7	2.2
62163	99	SPEED	SUR	48	-8	736	0	0	1.0	0.3	1.1
62164	99	SPEED	SUR	57	1	752	0	0	1.4	-0.7	1.5
62165	99	SPEED	SUR	54	1	707	0	0	1.6	-0.5	1.7
62170	99	SPEED	SUR	51	2	753	0	0	1.7	0.8	1.9
62304	99	SPEED	SUR	51	2	750	0	0	1.9	1.4	2.3
62305	99	SPEED	SUR	50	0	740	0	0	1.4	0.8	1.7
62442	99	SPEED	SUR	49	-16	707	0	0	0.9	0.2	0.9
63055	99	SPEED	SUR	61	2	753	0	0	1.1	-0.7	1.3
63056	99	SPEED	SUR	60	2	753	0	0	1.1	-0.4	1.2
63057	99	SPEED	SUR	59	2	752	0	0	1.6	-0.6	1.7
63058	99	SPEED	SUR	53	2	1107	0	0	1.4	0.1	1.4
63101	99	SPEED	SUR	61	1	753	0	0	1.2	-0.5	1.3
63103	99	SPEED	SUR	61	1	753	0	0	1.4	-0.2	1.4
63104	99	SPEED	SUR	61	2	753	0	0	1.2	-0.3	1.2
63105	99	SPEED	SUR	61	2	753	0	0	1.3	-0.1	1.3
63106	99	SPEED	SUR	61	2	753	0	0	1.3	-0.1	1.3
63108	99	SPEED	SUR	61	2	753	0	0	1.3	-0.0	1.3
63109	99	SPEED	SUR	60	2	750	0	0	1.2	-0.2	1.2
63110	99	SPEED	SUR	60	2	753	0	0	1.2	-0.7	1.4
63112	99	SPEED	SUR	61	1	753	0	0	1.2	-0.7	1.3
63113	99	SPEED	SUR	61	2	753	0	0	1.3	-0.5	1.4
63115	99	SPEED	SUR	62	1	753	0	0	1.2	-0.4	1.2
63117	99	SPEED	SUR	61	1	1482	0	0	1.2	-0.5	1.3

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
64041	99	SPEED	SUR	61	-3	753	0	0	1.1	-0.3	1.1
64045	99	SPEED	SUR	59	-12	840	0	0	1.2	0.3	1.2
64046	99	SPEED	SUR	61	-4	741	0	0	1.0	0.5	1.1
66021	99	SPEED	SUR	55	14	690	0	0	1.3	0.6	1.4
66022	99	SPEED	SUR	54	14	1086	0	0	1.7	0.1	1.7
66024	99	SPEED	SUR	55	13	725	0	0	1.4	0.8	1.6

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 : AUG 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	431	0	0	36.4	-3.9	36.6
1300002	99	DIRN	SUR	20	-23	673	0	0	9.0	-1.3	9.1
1300008	99	DIRN	SUR	15	-38	738	0	0	9.3	7.2	11.8
1300130	99	DIRN	SUR	28	-16	711	0	0	9.5	0.2	9.5
1300131	99	DIRN	SUR	28	-17	305	0	0	34.8	10.0	36.2
27081	99	DIRN	SUR	62	-21	2	0	0	5.2	-3.8	6.5
4100026	99	DIRN	SUR	12	-38	28	0	0	21.3	-10.9	23.9
4100139	99	DIRN	SUR	20	-38	703	0	0	8.6	3.3	9.2
41002	99	DIRN	SUR	32	-75	868	0	0	13.4	17.0	21.6
4100300	99	DIRN	SUR	16	-57	742	0	0	15.9	6.1	17.1
41004	99	DIRN	SUR	33	-79	1100	0	0	14.2	1.7	14.3
41008	99	DIRN	SUR	31	-81	554	0	0	22.5	13.4	26.2
41009	99	DIRN	SUR	29	-80	1002	0	0	18.5	5.0	19.1
41010	99	DIRN	SUR	29	-79	1079	0	0	14.4	9.9	17.5
41013	99	DIRN	SUR	33	-78	1116	0	0	18.8	6.6	19.9
41024	99	DIRN	SUR	34	-79	633	0	0	19.6	-14.7	24.5
41025	99	DIRN	SUR	35	-75	1254	0	0	17.2	4.1	17.7
41026	99	DIRN	SUR	12	-38	28	0	0	22.1	-12.2	25.3
41029	99	DIRN	SUR	33	-80	804	0	0	21.4	-12.1	24.6
41033	99	DIRN	SUR	32	-80	578	0	0	21.3	-9.3	23.2
41037	99	DIRN	SUR	34	-77	634	0	0	18.0	-0.1	18.0
41038	99	DIRN	SUR	34	-78	600	0	0	25.0	17.7	30.6
41041	99	DIRN	SUR	14	-46	1269	0	0	8.7	-7.8	11.7
41043	99	DIRN	SUR	21	-65	1390	0	0	10.6	-10.1	14.7
41044	99	DIRN	SUR	22	-59	1351	0	0	10.4	3.7	11.0
41046	99	DIRN	SUR	24	-68	1069	0	0	12.6	2.9	12.9
41047	99	DIRN	SUR	28	-72	966	0	0	16.2	-6.4	17.5
41048	99	DIRN	SUR	32	-70	820	0	0	13.8	-4.9	14.7
41049	99	DIRN	SUR	28	-63	853	0	0	14.6	5.3	15.5
41052	99	DIRN	SUR	18	-65	1889	0	0	10.7	3.6	11.3
41053	99	DIRN	SUR	19	-66	1686	0	0	15.2	0.5	15.2
41056	99	DIRN	SUR	18	-66	1914	0	0	13.1	3.2	13.5

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
41063	99	DIRN	SUR	35	-76	681	0	0	15.8	-8.3	17.8
41064	99	DIRN	SUR	34	-77	587	0	0	18.9	4.0	19.3
41300	99	DIRN	SUR	16	-57	742	0	0	15.9	6.1	17.1
42013	99	DIRN	SUR	27	-83	652	0	0	26.1	3.4	26.3
42022	99	DIRN	SUR	28	-84	747	0	0	26.5	-0.1	26.5
42023	99	DIRN	SUR	26	-83	708	0	0	22.7	7.1	23.7
42056	99	DIRN	SUR	20	-85	1280	0	0	15.9	2.4	16.1
42057	99	DIRN	SUR	17	-81	1424	0	0	10.2	2.1	10.5
42060	99	DIRN	SUR	16	-63	2081	0	0	10.0	1.0	10.0
42085	99	DIRN	SUR	18	-67	988	0	0	13.3	11.9	17.9
44007	99	DIRN	SUR	44	-70	403	0	0	17.8	6.0	18.7
44009	99	DIRN	SUR	39	-75	347	0	0	48.7	-2.1	48.8
44013	99	DIRN	SUR	42	-71	461	0	0	21.6	22.1	30.9
44014	99	DIRN	SUR	37	-75	614	0	0	19.3	2.3	19.4
44017	99	DIRN	SUR	41	-72	492	0	0	16.2	7.8	18.0
44018	99	DIRN	SUR	42	-70	476	0	0	14.8	17.5	22.9
44020	99	DIRN	SUR	42	-70	1265	0	0	17.2	7.6	18.8
44022	99	DIRN	SUR	41	-74	182	0	0	16.9	7.5	18.5
44025	99	DIRN	SUR	40	-73	629	0	0	20.9	3.6	21.2
44027	99	DIRN	SUR	44	-67	454	0	0	17.3	22.9	28.7
44029	99	DIRN	SUR	43	-71	764	0	0	19.5	6.1	20.5
44030	99	DIRN	SUR	43	-70	461	0	0	17.8	11.7	21.3
44032	99	DIRN	SUR	44	-69	403	0	0	16.5	17.3	23.9
44033	99	DIRN	SUR	44	-69	288	0	0	22.5	8.4	24.1
44034	99	DIRN	SUR	44	-68	321	0	0	20.7	17.7	27.2
44037	99	DIRN	SUR	44	-68	512	0	0	17.3	10.8	20.3
44039	99	DIRN	SUR	41	-73	489	0	0	22.6	2.6	22.8
44040	99	DIRN	SUR	41	-74	186	0	0	21.5	-1.1	21.5
44042	99	DIRN	SUR	38	-76	720	0	0	21.4	-6.1	22.2
44058	99	DIRN	SUR	38	-76	646	0	0	25.1	-25.6	35.9
44062	99	DIRN	SUR	39	-76	726	0	0	28.2	-21.9	35.7
44063	99	DIRN	SUR	39	-76	617	0	0	22.9	-15.1	27.4
44064	99	DIRN	SUR	37	-76	773	0	0	29.6	-16.2	33.8
44065	99	DIRN	SUR	40	-74	1122	0	0	20.6	5.4	21.3
44066	99	DIRN	SUR	40	-73	617	0	0	20.9	5.6	21.7
44069	99	DIRN	SUR	41	-73	637	0	0	17.1	-1.3	17.2
44072	99	DIRN	SUR	37	-76	754	0	0	27.7	-10.8	29.8
44137	99	DIRN	SUR	42	-62	591	0	0	16.8	5.9	17.8
44139	99	DIRN	SUR	44	-57	396	0	0	15.0	15.2	21.3
44150	99	DIRN	SUR	43	-64	354	0	0	14.5	-29.9	33.2
45003	99	DIRN	SUR	45	-83	414	0	0	25.5	3.3	25.8

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
45005	99	DIRN	SUR	42	-82	1006	0	0	22.6	6.5	23.5
45008	99	DIRN	SUR	44	-82	787	0	0	23.1	3.2	23.3
45012	99	DIRN	SUR	44	-77	463	0	0	23.2	9.6	25.1
45132	99	DIRN	SUR	43	-81	496	0	0	23.7	0.7	23.7
45135	99	DIRN	SUR	44	-77	645	0	0	25.1	-15.6	29.6
45137	99	DIRN	SUR	46	-81	443	0	0	19.2	-6.9	20.5
45138	99	DIRN	SUR	50	-66	473	0	0	19.1	3.8	19.5
45139	99	DIRN	SUR	43	-80	260	0	0	24.9	0.8	24.9
45142	99	DIRN	SUR	43	-79	534	0	0	24.2	-2.0	24.2
45143	99	DIRN	SUR	45	-81	590	0	0	27.3	-1.0	27.3
45147	99	DIRN	SUR	42	-83	214	0	0	23.5	-2.8	23.7
45149	99	DIRN	SUR	44	-82	451	0	0	28.7	-8.3	29.9
45151	99	DIRN	SUR	45	-79	363	0	0	23.6	3.3	23.8
45152	99	DIRN	SUR	46	-80	149	0	0	24.5	7.3	25.6
45154	99	DIRN	SUR	46	-83	488	0	0	27.7	20.8	34.7
45159	99	DIRN	SUR	44	-79	383	0	0	27.1	16.2	31.6
45162	99	DIRN	SUR	45	-83	473	0	0	27.0	-12.3	29.7
45163	99	DIRN	SUR	44	-84	536	0	0	24.5	-0.7	24.5
45164	99	DIRN	SUR	42	-82	461	0	0	40.8	-11.8	42.4
45165	99	DIRN	SUR	42	-83	623	0	0	37.7	4.4	38.0
45166	99	DIRN	SUR	45	-73	569	0	0	26.2	-44.4	51.6
45167	99	DIRN	SUR	42	-80	745	0	0	28.5	-17.4	33.3
45169	99	DIRN	SUR	42	-82	613	0	0	45.3	-27.7	53.1
45175	99	DIRN	SUR	46	-85	487	0	0	27.8	-5.3	28.3
45176	99	DIRN	SUR	42	-82	632	0	0	27.3	-13.1	30.2
45178	99	DIRN	SUR	45	-73	595	0	0	30.1	-19.1	35.7
6100198	99	DIRN	SUR	37	-2	51	0	0	11.0	-6.3	12.7
6100281	99	DIRN	SUR	40	0	325	0	0	40.6	-21.0	45.7
6100417	99	DIRN	SUR	38	0	424	0	0	14.1	0.0	14.1
6200024	99	DIRN	SUR	44	-3	418	0	0	17.8	6.0	18.8
6200025	99	DIRN	SUR	44	-6	441	0	0	15.1	-1.6	15.2
6200082	99	DIRN	SUR	44	-8	591	0	0	16.2	2.8	16.5
6200083	99	DIRN	SUR	43	-9	530	0	0	14.5	8.8	17.0
6200084	99	DIRN	SUR	42	-9	534	0	0	13.6	7.3	15.4
6200085	99	DIRN	SUR	36	-7	367	0	0	16.0	10.5	19.1
6200092	99	DIRN	SUR	51	-11	693	0	0	12.0	5.9	13.4
6200093	99	DIRN	SUR	55	-10	688	0	0	13.4	3.4	13.8
6200094	99	DIRN	SUR	52	-7	616	0	0	13.0	0.6	13.0
62001	99	DIRN	SUR	45	-5	621	0	0	13.0	2.5	13.2
6200191	99	DIRN	SUR	41	-10	606	0	0	13.5	-0.8	13.6
6200192	99	DIRN	SUR	40	-10	522	0	0	9.7	-3.4	10.3

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
6201030	99	DIRN	SUR	44	-4	376	0	0	15.0	-3.1	15.3
62023	99	DIRN	SUR	51	-8	683	0	0	9.8	11.6	15.2
62029	99	DIRN	SUR	49	-12	1289	0	0	13.3	11.9	17.8
62050	99	DIRN	SUR	50	-4	599	0	0	13.1	1.7	13.2
62081	99	DIRN	SUR	51	-13	692	0	0	12.7	13.5	18.6
62095	99	DIRN	SUR	53	-16	671	0	0	12.1	5.4	13.2
62103	99	DIRN	SUR	50	-3	635	0	0	16.2	4.7	16.9
62107	99	DIRN	SUR	50	-6	1289	0	0	17.5	1.5	17.5
62111	99	DIRN	SUR	58	0	107	0	0	37.4	-60.1	70.8
62112	99	DIRN	SUR	58	0	554	0	0	15.3	2.7	15.6
62114	99	DIRN	SUR	58	0	1246	0	0	15.0	1.0	15.1
62163	99	DIRN	SUR	48	-8	574	0	0	13.9	-5.5	15.0
62305	99	DIRN	SUR	50	0	623	0	0	18.3	2.8	18.6
62442	99	DIRN	SUR	49	-16	651	0	0	11.8	-4.8	12.7
64041	99	DIRN	SUR	61	-3	683	0	0	10.6	8.5	13.6
64045	99	DIRN	SUR	59	-12	739	0	0	12.8	5.0	13.8
64046	99	DIRN	SUR	61	-4	660	0	0	10.7	-1.3	10.8

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASUK02	BNSK	DBLK	DSQL7	FHM5UJH	FPUW5GN	HTXUH4H	JNSR	PGZ76YF
PISTON	QCY3TGN	VKB4L5Q	WDK38HS	XKQLWQB	YLV96WM	ZVQEQCM	5QPW8XG	7JUNA4N
01001	01004	01010	01028	01241	01400	01415	01492	02185
02365	02527	02591	02836	02963	03005	03023	03238	03354
03502	03743	03808	03882	03918	03953	04018	04089	04220
04270	04320	04339	04360	04417	06011	06260	06610	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	14015	14240	14430	15420
15614	16045	16080	16113	16144	16245	16320	16429	16546
16622	16754	17030	17064	17095	17130	17220	17240	17281
17516	17607	33008	37789	40179	40186	43599	45004	47102
47104	47138	47155	47169	47186	47401	47412	47418	47582
47600	47646	47678	47741	47778	47807	47827	47909	47918
47945	47971	47991	60018	61901	61904	61980	61998	67083
68263	68424	68442	68512	68538	68816	68842	70026	70133
70200	70219	70231	70261	70308	70316	70326	70350	70361
70398	71043	71081	71082	71109	71119	71600	71603	71722
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	72215	72230
72233	72235	72240	72248	72249	72250	72251	72261	72265
72274	72293	72317	72327	72340	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	76805	76903	78897	78954	81405	85442	85469
85586	85799	85934	88889	89002	89062	89564	89571	89611
89642	89859	91212	91285	91592	91765	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

ASUK02	BNSK	DBLK	DSQL7	FHM5UJH	FPUW5GN	HTXUH4H	PGZ76YF	PISTON
QCY3TGN	VKB4L5Q	WDK38HS	XKQLWQB	YLV96WM	ZVQEQCM	5QPW8XG	7JUNA4N	01001
01004	01010	01028	01241	01400	01415	01492	02185	02365
02527	02591	02836	02963	03005	03023	03238	03354	03502
03808	03882	03918	03953	04018	04089	04220	04270	04320
04339	04360	04417	06011	06260	06610	07110	07145	07510
07645	07761	08001	08190	08221	08522	10035	10113	10184
10238	10304	10393	10410	10548	10618	10739	10771	11120
11240	11520	11747	12374	12425	12843	13275	14015	14240
16045	16080	16144	16245	16320	16429	16546	16622	16754
17030	17240	17281	17516	17607	33008	40179	40186	45004
47155	60018	61901	61904	61980	61998	67083	68263	68424
68512	68538	70026	70133	70316	70326	70350	71043	71082
71109	71600	71722	71811	71815	71823	71836	71845	71867
71906	71907	71908	71909	71913	71917	71924	71925	71926
71934	71945	71957	71964	72201	72206	72208	72214	72215
72230	72233	72240	72248	72249	72250	72251	72261	72265
72274	72293	72317	72327	72363	72364	72376	72388	72426
72440	72451	72476	72489	72493	72501	72518	72520	72528
72558	72562	72632	72634	72645	72649	72659	72662	72672
72681	72694	72712	72764	72768	72776	72786	72797	73033
74389	74560	76903	78897	78954	81405	85442	85799	85934
88889	89002	89062	89564	89571	89611	89642	89859	91212
91592	91765	91925	91938	91948	91958	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	94975
94995	94996	94998	95527	96996				

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.