



ECMWF Global Data Monitoring Report

October 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 co-ordinate all the results, inform the WMO Secretariat immediately of obvious problems, and produce every six months a consolidated list of observations of that particular type believed to be of low quality. The presently nominated centres are: RSMC Exeter for marine surface observations; RSMC ECMWF for radiosonde and pilot observations; WMC Washington for aircraft and satellite observations.

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

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

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	Sep	Oct	Ident	Time	Sep	Oct
01004	(00)	30	0	31510	(00)	1	24
01010	(00)	30	19	31510	(12)	3	26
03882	(00)	16	0	40948	(00)	11	26
17030	(00)	26	10	40948	(12)	12	29
17030	(12)	24	4	42027	(12)	4	31
17064	(00)	19	5	42492	(00)	12	30
17064	(12)	19	4	60096	(12)	10	31
17095	(00)	12	1	61442	(12)	4	16
17130	(00)	25	7	67197	(12)	0	14
17220	(12)	14	1	70133	(12)	0	24
17240	(00)	22	5	70200	(12)	20	31
17240	(12)	20	2	70261	(12)	5	22
17281	(00)	21	10	70398	(00)	6	19
17281	(12)	17	2	74006	(00)	13	43
41883	(00)	25	9	76679	(00)	13	29
41977	(00)	23	10	78807	(00)	0	22
43311	(00)	30	6	82900	(12)	0	29
43311	(12)	30	7	83566	(00)	0	25
48327	(00)	29	9	83566	(12)	0	27
64400	(00)	26	3	89009	(12)	1	16
64400	(12)	29	2	89664	(12)	2	26
64458	(00)	30	12	-	-	-	-
64458	(12)	28	13	-	-	-	-
65344	(12)	14	0	-	-	-	-
65503	(12)	18	0	-	-	-	-
71802	(00)	30	3	-	-	-	-
71802	(12)	30	11	-	-	-	-
71811	(00)	30	9	-	-	-	-
71811	(12)	30	12	-	-	-	-
71925	(12)	30	19	-	-	-	-
74004	(00)	22	9	-	-	-	-
74794	(12)	58	31	-	-	-	-
78073	(00)	30	19	-	-	-	-
80222	(12)	30	7	-	-	-	-
82107	(00)	17	0	-	-	-	-
82107	(12)	16	0	-	-	-	-
83554	(12)	30	18	-	-	-	-
85586	(00)	30	10	-	-	-	-
85586	(12)	30	10	-	-	-	-
93997	(00)	30	14	-	-	-	-
96315	(00)	29	15	-	-	-	-
96315	(12)	29	6	-	-	-	-
96509	(12)	29	12	-	-	-	-
97072	(00)	26	0	-	-	-	-
97072	(12)	26	0	-	-	-	-

2.2 Drifting Buoys

Surface pressure observations from **1231** 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.

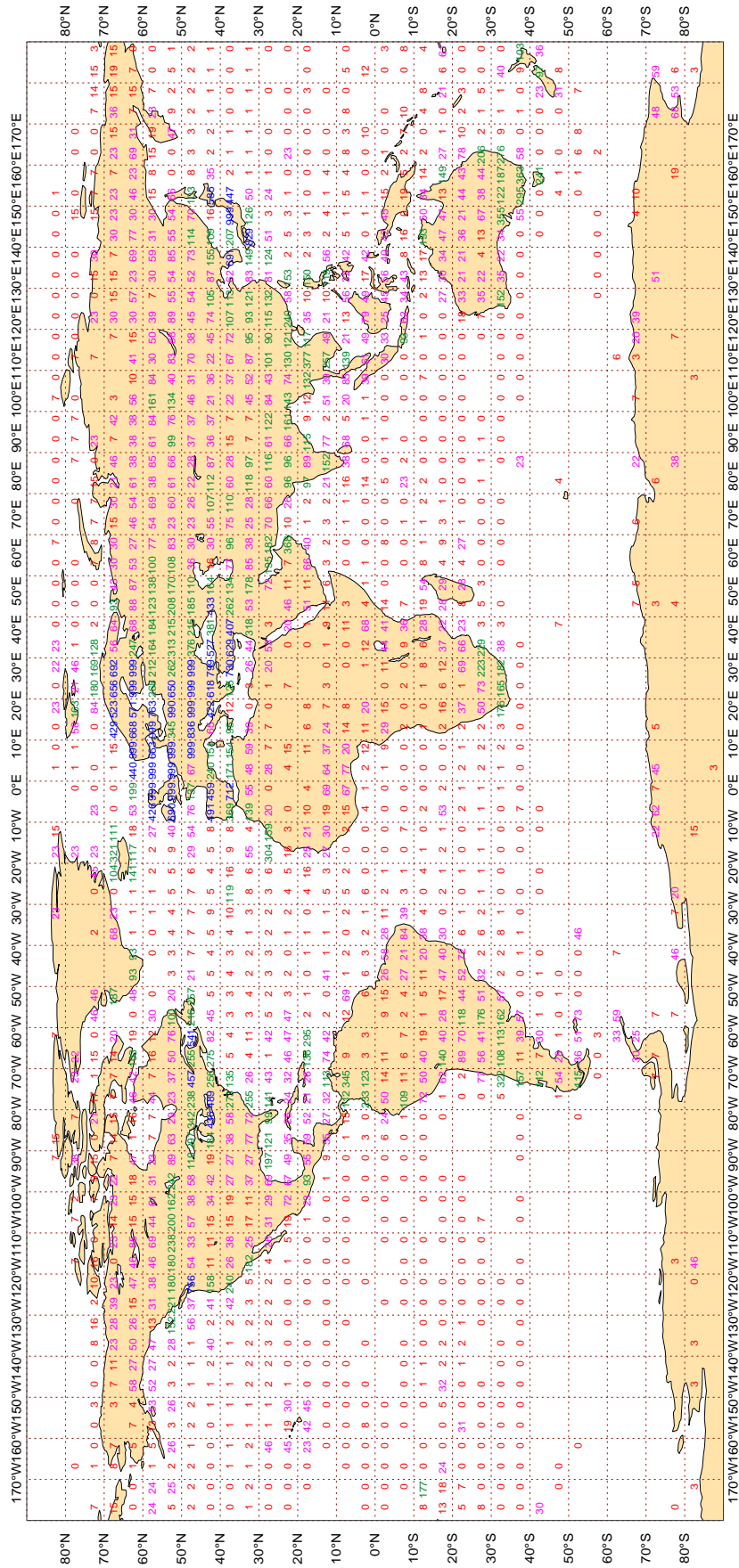
Fig	Parameter	Level/Layer
14	SATOB - Mean observed wind	1000-700 hPa
15	SATOB - Mean observed wind	400-150 hPa
16	SATOB - Mean observed minus first-guess wind	1000-700 hPa
17	SATOB - Mean observed minus first-guess wind	400-150 hPa
18	AIRCRAFT WIND - Mean observed minus first-guess	300-150 hPa

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

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

Figure 1

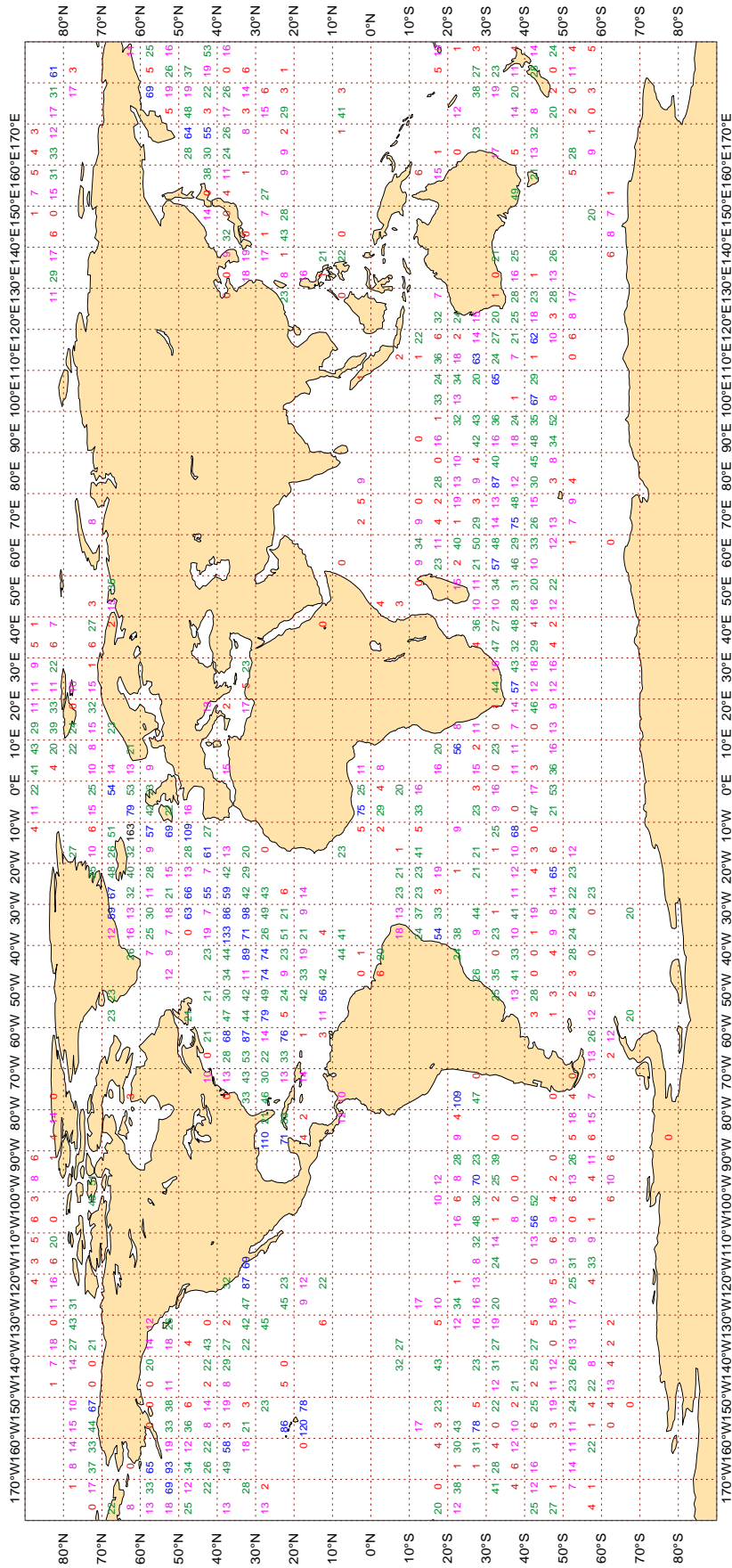
ECMWF Monitoring Statistics - OCT 2018
 Availability - SYNOP/SHIP (manual, auto) pressure
 Average number of observations in 24 hours - 95260
 LAND - WMO Region I: 4140 II:18346 III: 4608 IV: 7066
 Region V: 5844 VI:40102 Antarctic: 968
 Oceans - N. Atlantic 8454 S. Atlantic 284 Indian 435 Pacific 5012



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2

ECMWF Monitoring Statistics - OCT 2018
 Availability - DRIFTER PRESSURE
 Average number of observations in 24 hours - 17632
 Oceans - N. Atlantic 5161 S. Atlantic 2025 Indian 3211 Pacific 7235

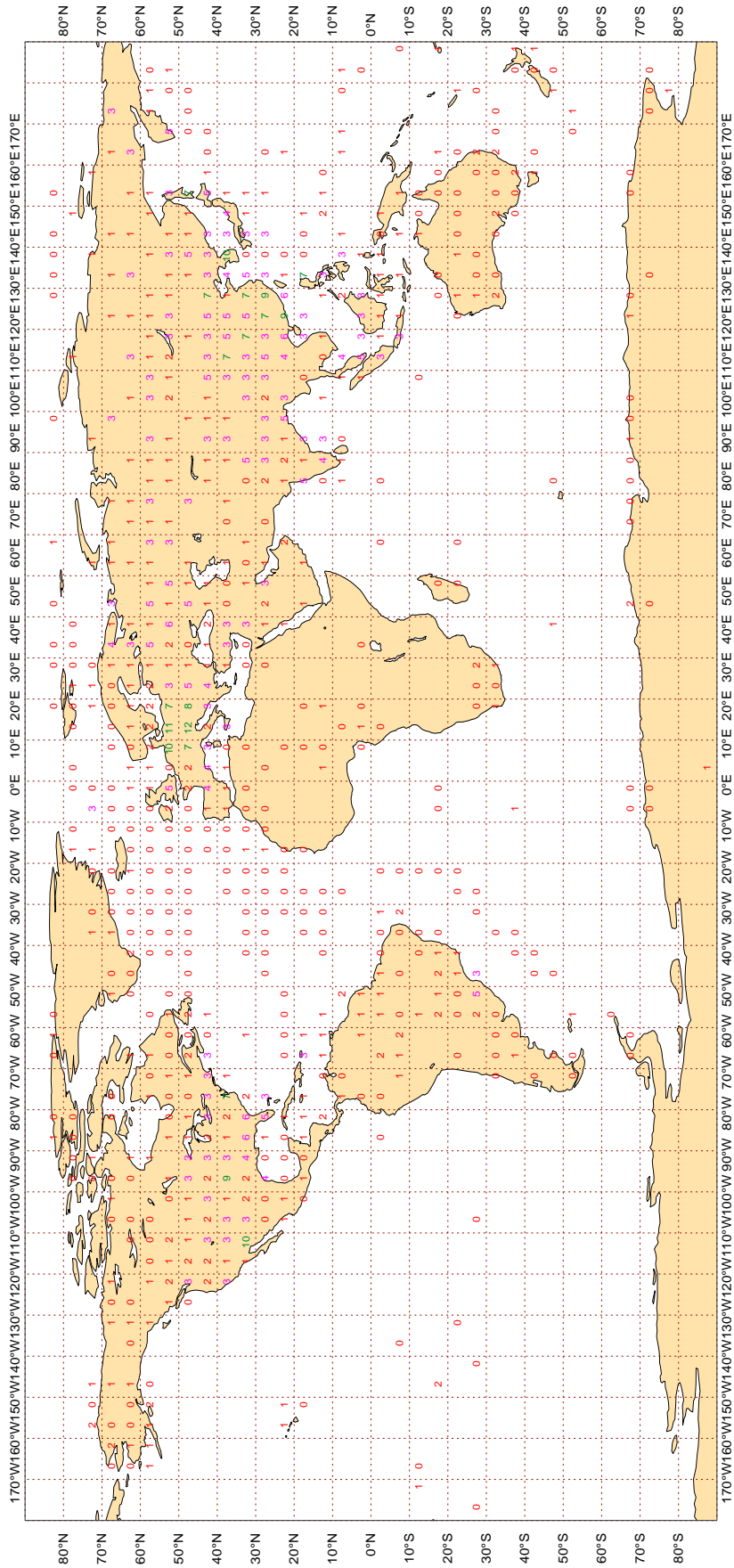


Magics 3.0.4 (64 bit)



3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

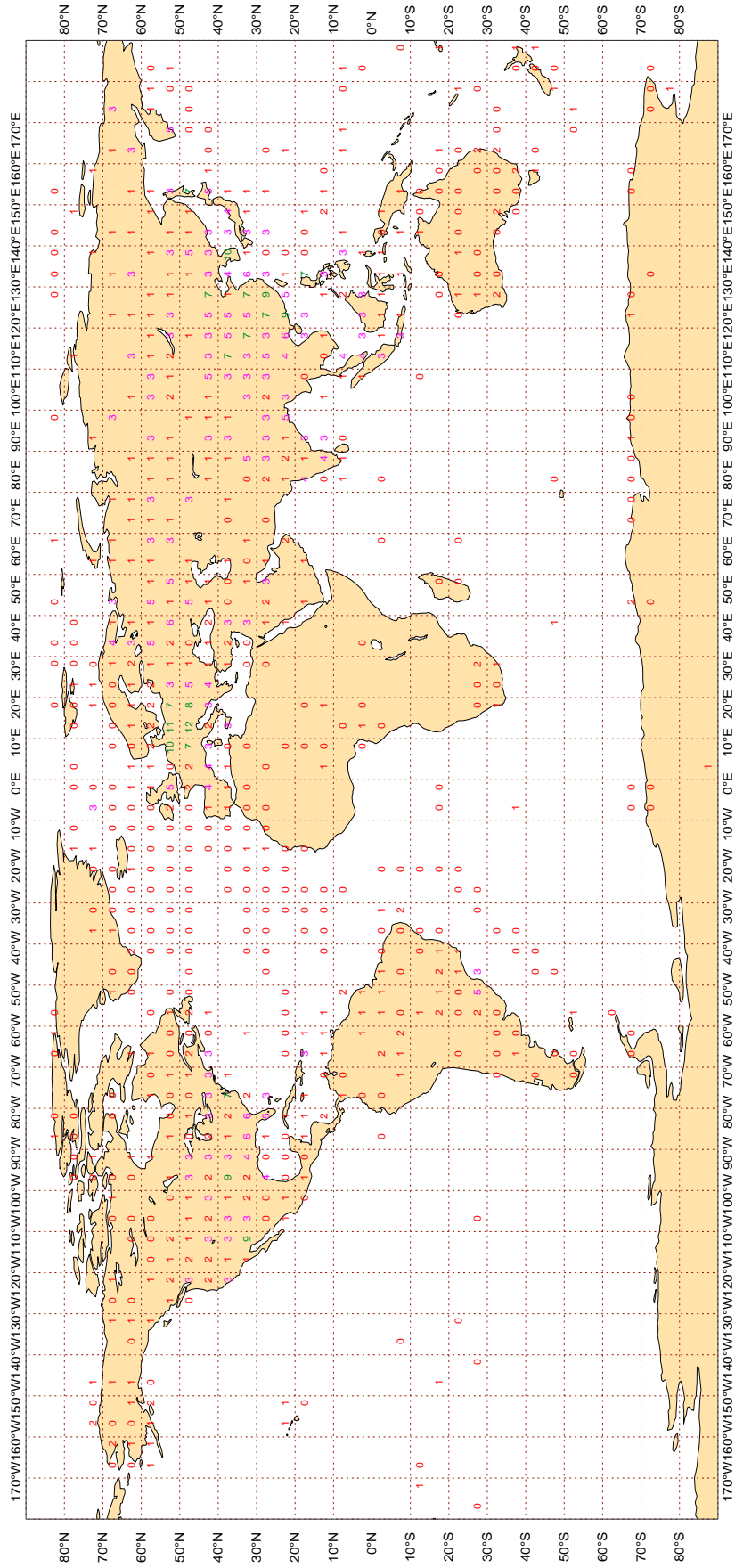
Figure 3 **ECMWF Monitoring Statistics - OCT 2018**
Availability - TEMP 500 hPa Geopotential
Average number of observations in 24 hours - 1285
LAND - WMO Region I: 35 II: 510 III: 73 IV: 252
Region V: 141 VI: 244 Antarctic: 15
Oceans - N. Atlantic 10 S. Atlantic 0 Indian 0 Pacific 4



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

Figure 4

ECMWF Monitoring Statistics - OCT 2018
 Availability - TEMP/PILOT 300 hPa wind
 Average number of observations in 24 hours - 1273
 LAND - WMO Region I: 35 II: 507 III: 72 IV: 251
 Region V: 138 VI: 241 Antarctic: 15
 Oceans - N. Atlantic 9 S. Atlantic 0 Indian 0 Pacific 4



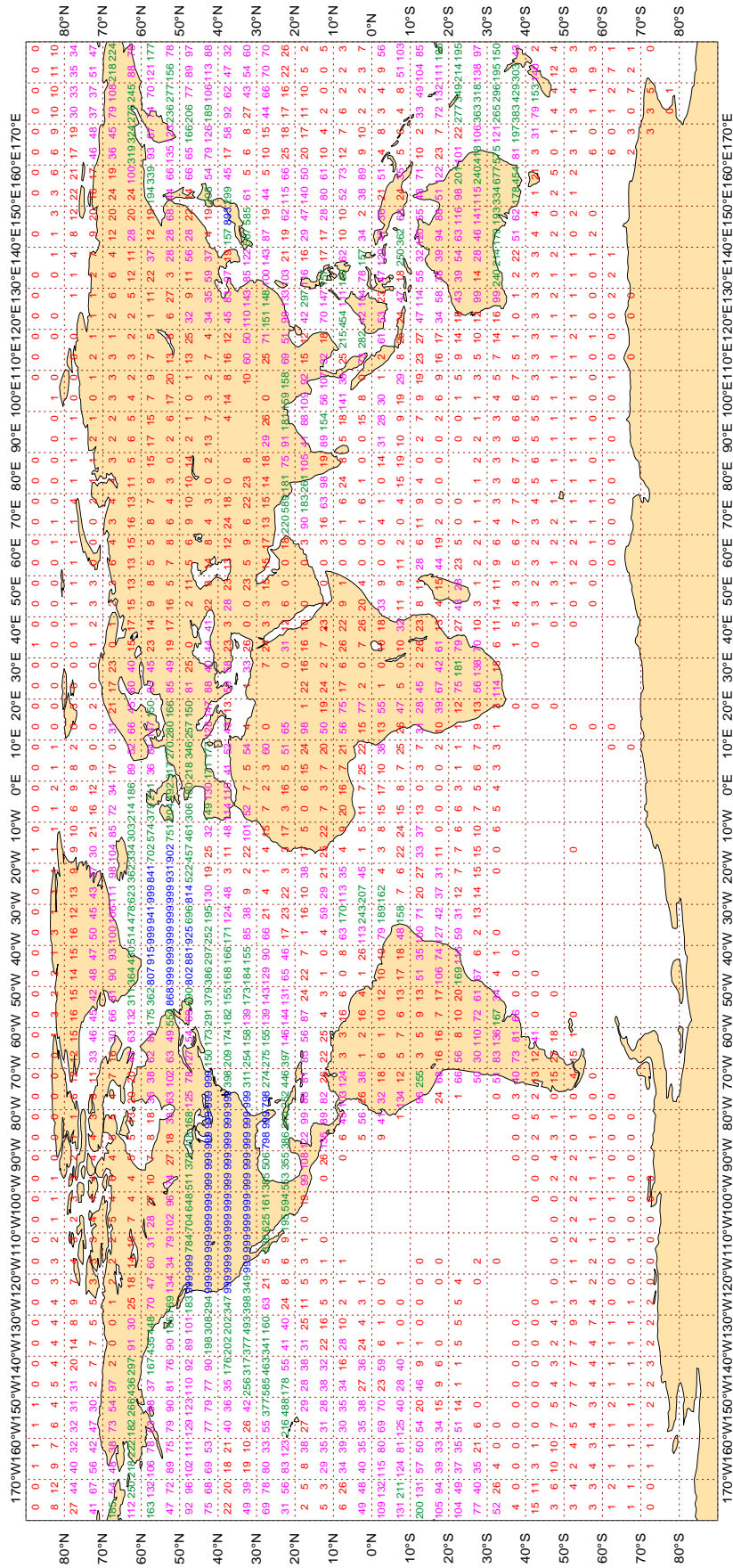
Magics 3.0.4 (64 bit)



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

Figure 5

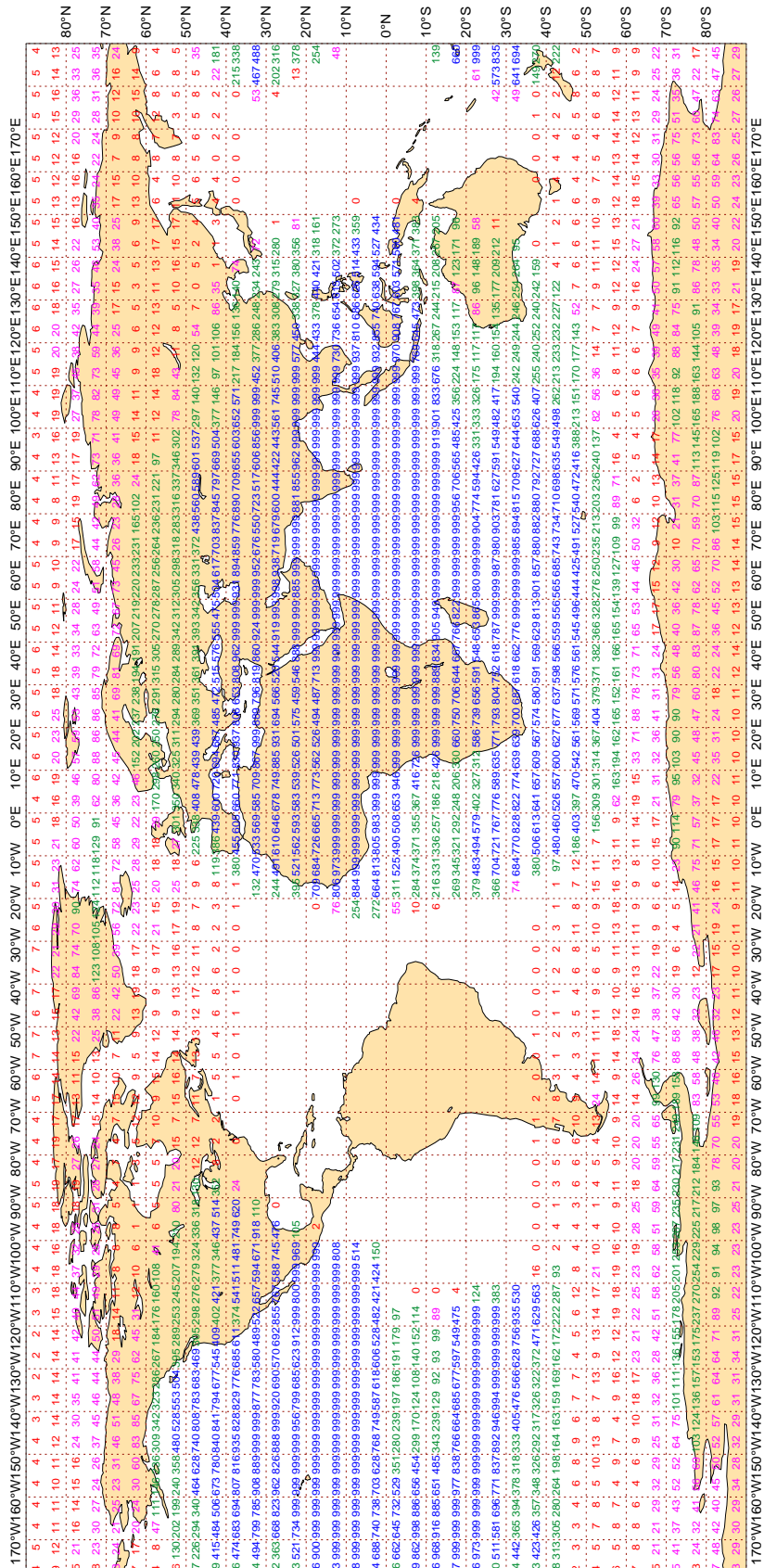
ECMWF Monitoring Statistics - OCT 2018
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 223382



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

Figure 6

ECMWF Monitoring Statistics - OCT 2018
Availability - AMV winds 400-150 hPa
Average number of observations in 24 hours - 793186



Magics 3.0.4 (64 bit)



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

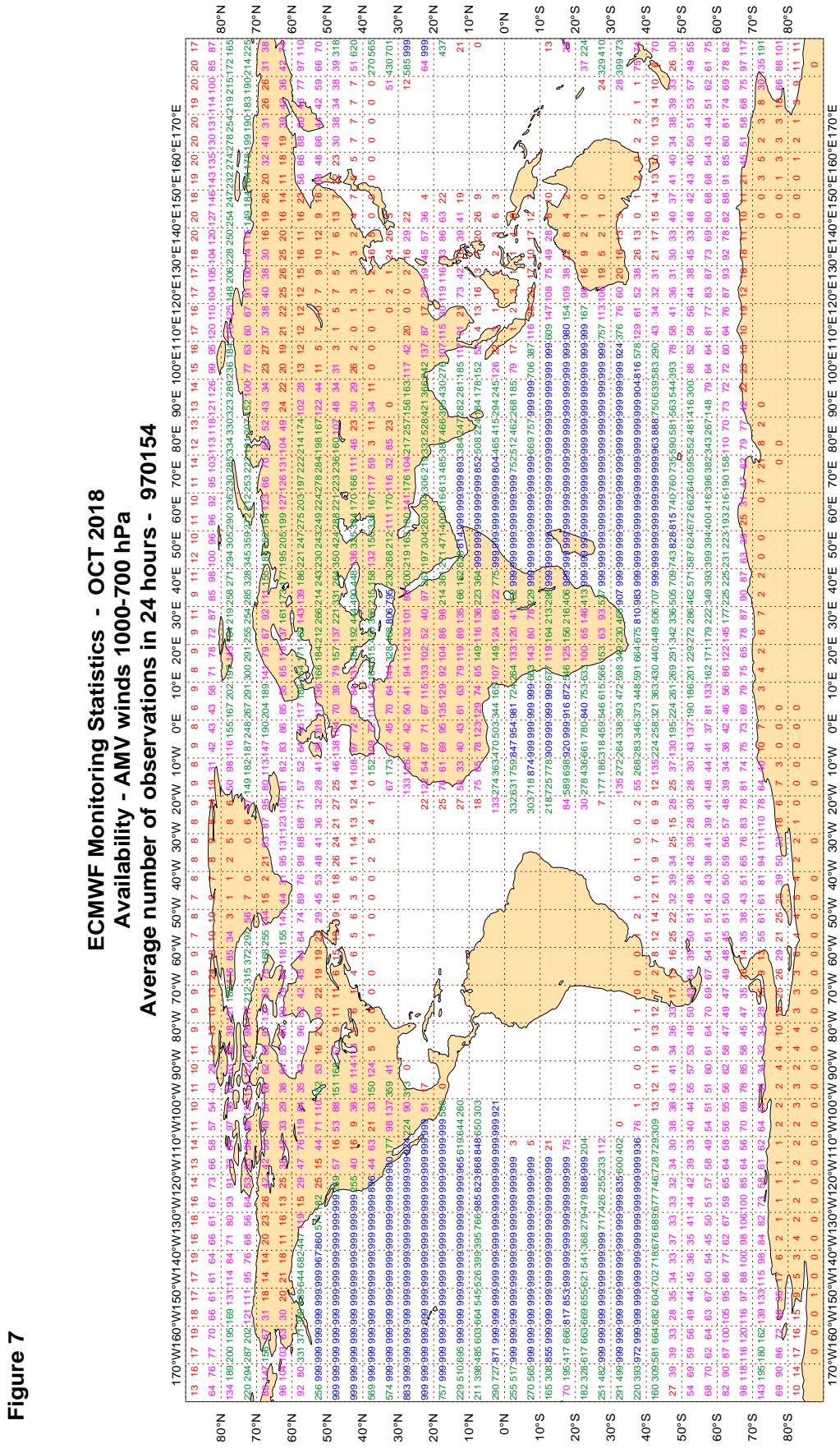


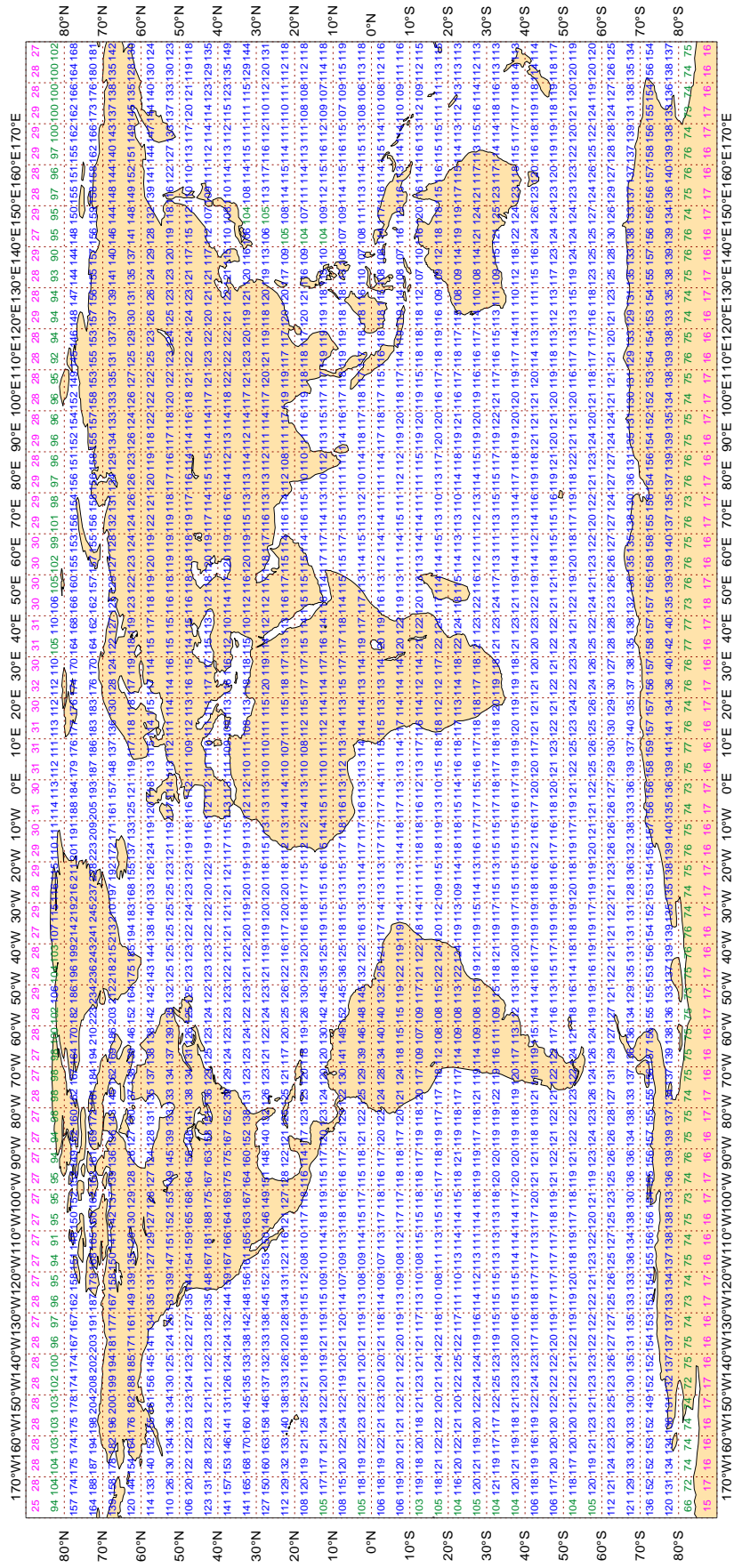
Figure 7



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

Figure 8

ECMWF Monitoring Statistics - OCT 2018
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 310667



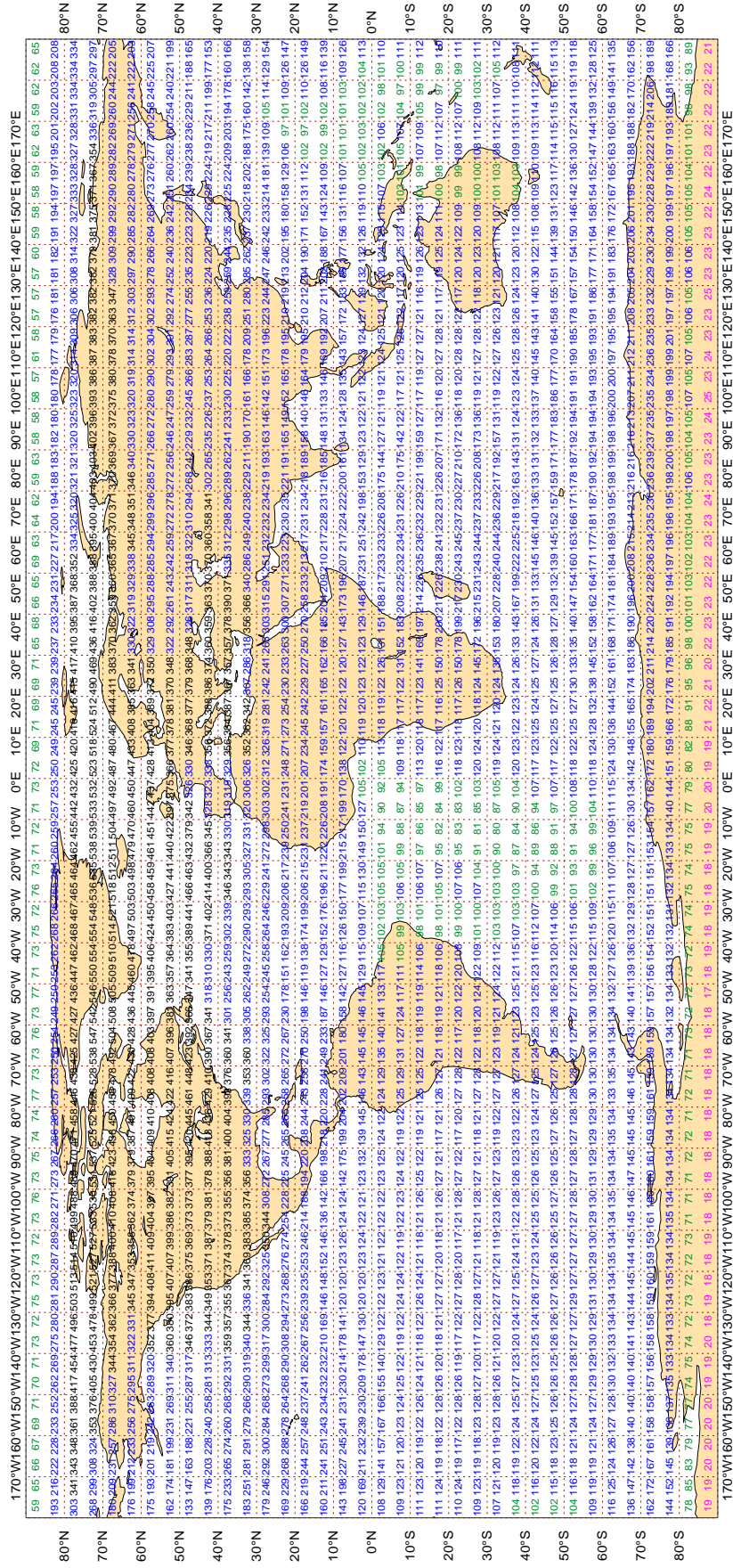
Magics 3.0.4 (64 bit)



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

Figure 9.1

ECMWF Monitoring Statistics - OCT 2018
Availability - NOAA18 ATOVS : AMSU-A
Average number of observations in 24 hours - 522648



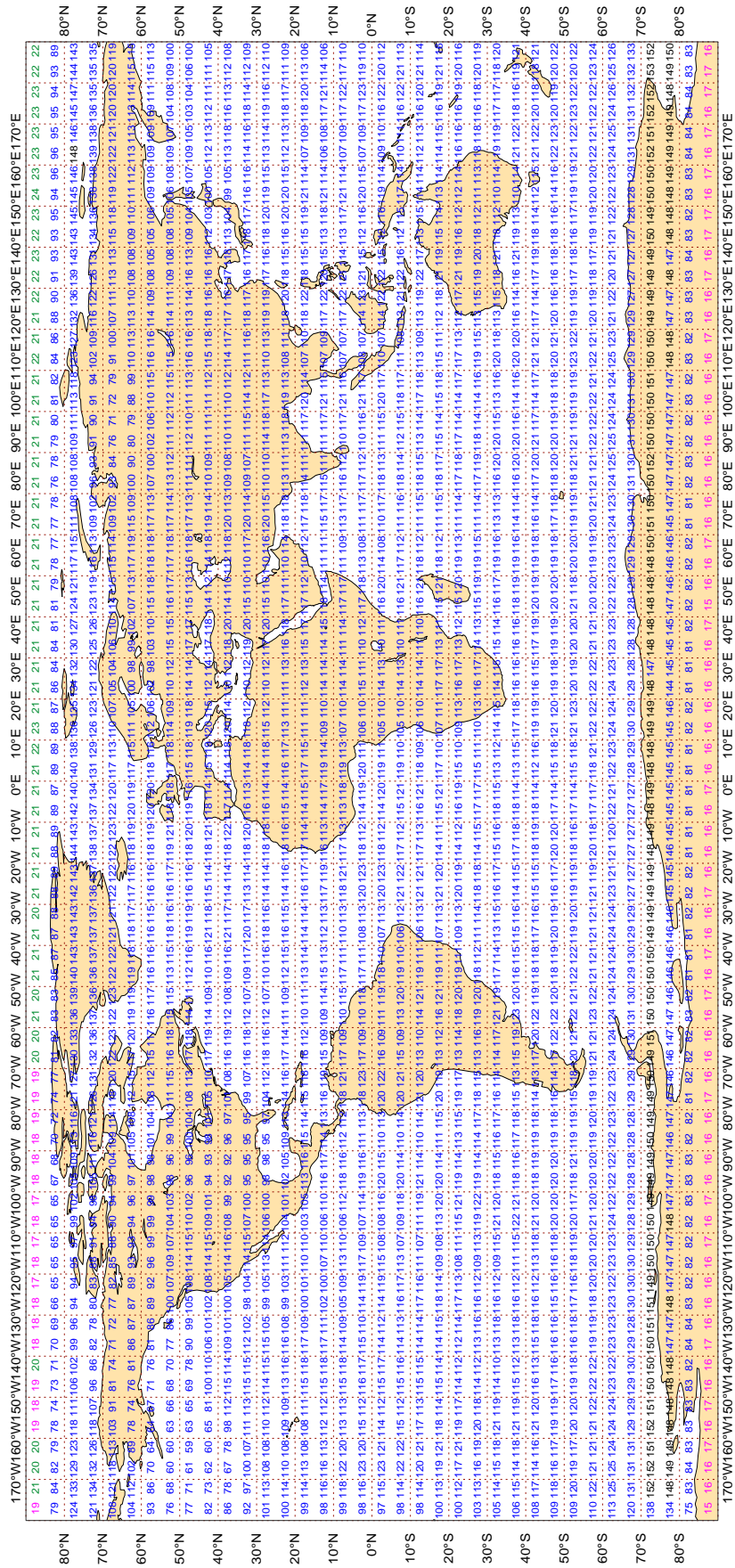
Magics 3.0.4 (64 bit)



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

Figure 9.2

ECMWF Monitoring Statistics - OCT 2018
Availability - AQUA ATOVS : AMSU-A
Average number of observations in 24 hours - 284518



Magics 3.0.4 (64 bit)

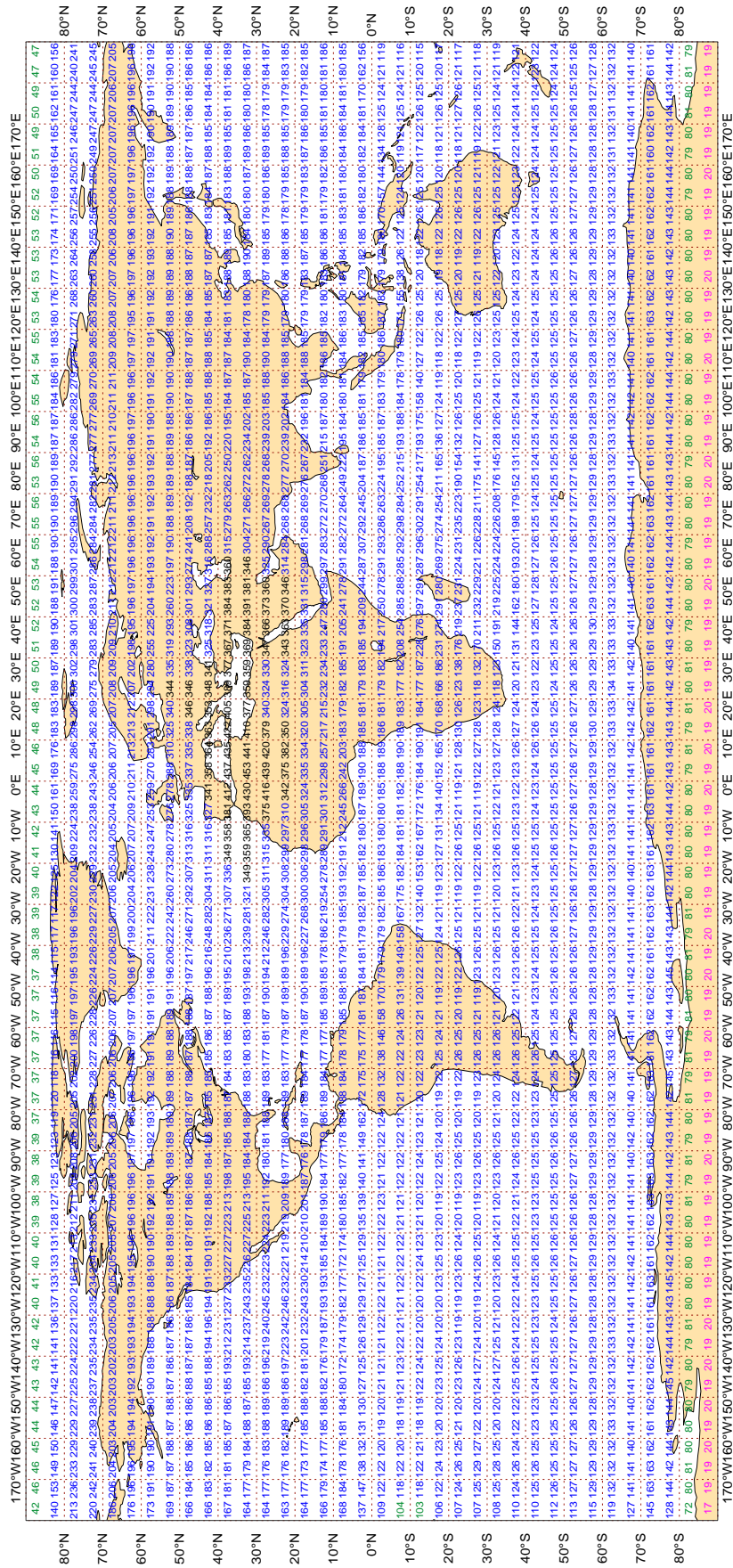


3.2.11 Figure 9.3 - Availability - METOP ATOVS : AMSU-A

Figure 9.3

ECMWF Monitoring Statistics - OCT 2018
Availability - METOP ATOVS : AMSU-A

Average number of observations in 24 hours - 439149



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 : OCT 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
2HDG2	99	P	SUR	32	0	4.0	3.4	5.2
3EMB9	99	P	SUR	18	0	2.3	-3.6	4.3
3ENU5	99	P	SUR	27	0	2.9	4.2	5.1
3FFA5	99	P	SUR	31	0	2.2	5.2	5.6
5BZE2	99	P	SUR	31	0	1.0	4.9	5.0
9HSJ7	99	P	SUR	19	0	2.5	-3.3	4.1
9V5907	99	P	SUR	16	0	2.3	-3.8	4.5
9V9040	99	P	SUR	114	4	5.3	-5.2	7.5
A8PQ7	99	P	SUR	46	0	3.8	6.0	7.2
AUCE	99	P	SUR	113	112	0.0	-8.3	8.3
C6SE8	99	P	SUR	24	0	1.5	-3.9	4.2
C6UC3	99	P	SUR	59	0	1.7	8.4	8.6
CQHW	99	P	SUR	42	0	1.1	-4.1	4.3
HPYE	99	P	SUR	52	0	1.0	-3.3	3.4
MCMB8	99	P	SUR	19	0	1.2	4.1	4.3
ONGI	99	P	SUR	15	0	2.4	-3.3	4.0
OZ2049	99	P	SUR	30	0	1.1	-5.8	5.9
OZWA2	99	P	SUR	42	0	1.4	3.6	3.9
PBAD	99	P	SUR	20	0	1.9	-4.4	4.8
S6LT5	99	P	SUR	15	0	1.7	3.8	4.2
TCZF2	99	P	SUR	33	2	6.9	3.3	7.6
UAEV	99	P	SUR	46	0	1.0	3.4	3.5
UAST	99	P	SUR	15	4	3.7	-3.0	4.8
UBMO9	99	P	SUR	44	0	0.7	3.9	4.0
UBSH5	99	P	SUR	25	0	0.4	-4.3	4.3
UCQX	99	P	SUR	54	30	5.1	9.5	10.8
UFJN	99	P	SUR	51	0	1.3	-3.1	3.3
UGZM	99	P	SUR	22	1	1.0	-3.6	3.7
V7QJ6	99	P	SUR	91	0	1.0	4.0	4.1
V7UU4	99	P	SUR	25	0	2.4	-3.5	4.2
VRCU7	99	P	SUR	49	1	3.4	3.1	4.5
VRDN3	99	P	SUR	15	0	1.2	-4.7	4.9

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
VRFT7	99	P	SUR	63	0	0.8	-4.5	4.5
VRHQ9	99	P	SUR	30	0	1.4	3.1	3.4
VRID2	99	P	SUR	81	0	1.3	5.5	5.7
VRJS2	99	P	SUR	29	0	1.5	-4.7	5.0
VRKQ7	99	P	SUR	43	0	2.1	3.9	4.4
VRLX6	99	P	SUR	36	0	7.6	-0.5	7.6
VRMW7	99	P	SUR	16	0	1.5	4.1	4.4
VRWW5	99	P	SUR	16	0	0.5	-4.8	4.8
VTFG	99	P	SUR	106	0	0.5	-3.1	3.2
VWTI	99	P	SUR	56	0	1.4	12.6	12.7
WCAJ	99	P	SUR	32	0	1.5	4.3	4.5
WDC6925	99	P	SUR	24	0	0.8	3.8	3.9
WDG2803	99	P	SUR	19	0	1.7	-3.1	3.6
WDG8555	99	P	SUR	66	0	1.2	5.8	5.9
WLPI	99	P	SUR	31	1	0.5	-3.5	3.6
WNTL	99	P	SUR	39	0	2.4	4.2	4.9
WPKW	99	P	SUR	47	0	2.3	3.4	4.1

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 : OCT 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
46184	99	SPEED	SUR	43	0	0	4.6	-4.8	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 : OCT 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
45150	99	DIRN	SUR	70	2	0	94.9	79.1	123.5
45154	99	DIRN	SUR	136	0	0	21.0	34.8	40.7
45175	99	DIRN	SUR	145	2	0	81.8	-21.6	84.6
46118	99	DIRN	SUR	31	0	0	61.0	-46.9	76.9

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 : OCT 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
1601515	99	P	SUR	-21	96	303	138	1.4	-0.7	1.6
1701522	99	P	SUR	-27	-38	265	122	5.1	-6.9	8.6
4401554	99	P	SUR	59	-18	52	52	0.0	0.0	0.0
4401807	99	P	SUR	62	-11	725	0	2.8	4.0	4.9
4601662	99	P	SUR	46	164	403	1	3.1	5.0	5.9
4701658	99	P	SUR	71	-98	682	59	7.0	1.8	7.2
4800282	99	P	SUR	71	-156	658	658	0.0	0.0	0.0
4800769	99	P	SUR	70	-101	656	75	7.1	-0.3	7.1
4800770	99	P	SUR	76	-18	555	339	8.5	2.3	8.8
4801617	99	P	SUR	74	-151	637	29	4.6	5.1	6.9
4801625	99	P	SUR	77	166	666	1	5.3	5.1	7.3
48282	99	P	SUR	71	-156	725	725	0.0	0.0	0.0
48769	99	P	SUR	70	-101	721	90	7.3	-0.9	7.3
48770	99	P	SUR	76	-18	610	392	8.5	2.4	8.8
7300651	99	P	SUR	-62	142	43	3	1.8	10.0	10.1
73651	99	P	SUR	-62	142	43	3	1.8	10.0	10.1
7401503	99	P	SUR	-37	-12	739	0	0.8	-5.3	5.4

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : GLOBAL
 PERIOD : OCT 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
3100053	99	SPEED	SUR	-32	-50	400	1	0	3.3	-6.8	7.6
3100231	99	SPEED	SUR	-27	-47	206	68	13	4.9	13.1	13.9
31053	99	SPEED	SUR	-32	-50	402	1	0	3.4	-7.1	7.9
31231	99	SPEED	SUR	-27	-47	206	70	12	5.0	13.0	13.9
46184	99	SPEED	SUR	54	-139	259	0	0	4.9	-5.0	7.0

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : OCT 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
1300130	99	DIRN	SUR	28	-16	452	0	0	98.6	34.5	104.4
2200102	99	DIRN	SUR	35	126	502	1	0	60.5	-17.2	62.9
2200107	99	DIRN	SUR	33	126	642	0	0	34.4	33.7	48.1
2200108	99	DIRN	SUR	36	126	467	2	0	71.7	38.1	81.2
2200189	99	DIRN	SUR	35	130	580	0	0	37.7	-29.1	47.6
2300014	99	DIRN	SUR	2	67	202	0	0	23.6	22.8	32.8
23014	99	DIRN	SUR	2	67	198	0	0	23.9	22.4	32.7
23091	99	DIRN	SUR	18	89	106	0	0	22.4	23.9	32.8
23093	99	DIRN	SUR	16	88	72	3	0	85.0	-137.3	161.4
23451	99	DIRN	SUR	15	69	53	0	0	21.4	23.6	31.9
23460	99	DIRN	SUR	7	88	106	0	0	32.9	34.9	48.0
3100231	99	DIRN	SUR	-27	-47	187	68	0	40.1	87.9	96.7
3100374	99	DIRN	SUR	-23	-43	39	0	0	36.5	-66.5	75.9
31231	99	DIRN	SUR	-27	-47	191	70	0	39.6	87.3	95.9
31374	99	DIRN	SUR	-23	-43	40	0	0	44.0	-73.0	85.2
3200318	99	DIRN	SUR	-5	-110	352	0	0	34.7	35.5	49.6
32318	99	DIRN	SUR	-5	-110	351	0	0	34.5	35.6	49.6
41063	99	DIRN	SUR	35	-76	558	0	0	16.9	-26.5	31.5
41064	99	DIRN	SUR	34	-77	596	0	0	15.2	-22.6	27.3
44058	99	DIRN	SUR	38	-76	1016	0	0	19.0	-27.7	33.6
45150	99	DIRN	SUR	62	-114	333	6	0	87.2	88.4	124.2
45154	99	DIRN	SUR	46	-83	768	0	0	18.9	36.4	41.0
45169	99	DIRN	SUR	42	-82	585	0	0	36.3	-25.4	44.3
45175	99	DIRN	SUR	46	-85	692	6	0	82.6	-22.4	85.6
46083	99	DIRN	SUR	58	-138	625	0	0	16.6	26.6	31.4
46118	99	DIRN	SUR	49	-123	203	0	0	56.7	-55.3	79.2
5300040	99	DIRN	SUR	-8	95	733	0	0	151.8	81.6	172.3
5300056	99	DIRN	SUR	-5	95	682	0	0	134.6	98.7	166.9
53040	99	DIRN	SUR	-8	95	732	0	0	152.5	79.0	171.7
53056	99	DIRN	SUR	-5	95	685	0	0	133.5	99.5	166.5
6101003	99	DIRN	SUR	40	25	146	0	0	45.1	27.0	52.6

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
6200025	99	DIRN	SUR	44	-6	154	0	0	83.1	-1.1	83.1
6200200	99	DIRN	SUR	36	-8	331	9	0	162.7	-42.7	168.2
66022	99	DIRN	SUR	54	14	779	12	0	51.7	27.6	58.6

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 : OCT 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	5.6	78.2	78.4
01400	00	Z	1000	57	3	19	0	5.6	79.5	79.7
04360	12	Z	1000	66	-38	10	0	2.8	39.5	39.6
04360	00	Z	925	66	-38	30	0	2.8	37.9	38.0
28698	00	Z	250	55	73	28	0	35.3	-74.7	82.6
28698	12	Z	200	55	73	24	0	27.0	-86.9	91.0
29263	12	Z	250	58	92	30	0	86.5	-65.3	108.4
29263	00	Z	200	58	92	28	2	117.6	-59.9	132.0
47158	00	Z	30	35	127	29	0	126.3	135.6	185.3
98223	00	Z	30	18	121	29	3	69.8	222.6	233.3
VKB4L5	00	Z	1000	22	-52	14	0	12.5	29.8	32.3
VKB4L5	12	Z	850	20	-56	15	0	15.7	27.4	31.6

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 : OCT 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	UBIAS	VBIAS	RMS
42182	00	V	150	29	77	19	0	-16.4	-2.5	17.9
42182	12	V	150	29	77	31	0	-16.1	-2.1	17.7
42369	00	V	200	27	81	19	0	-4.0	-1.8	15.4

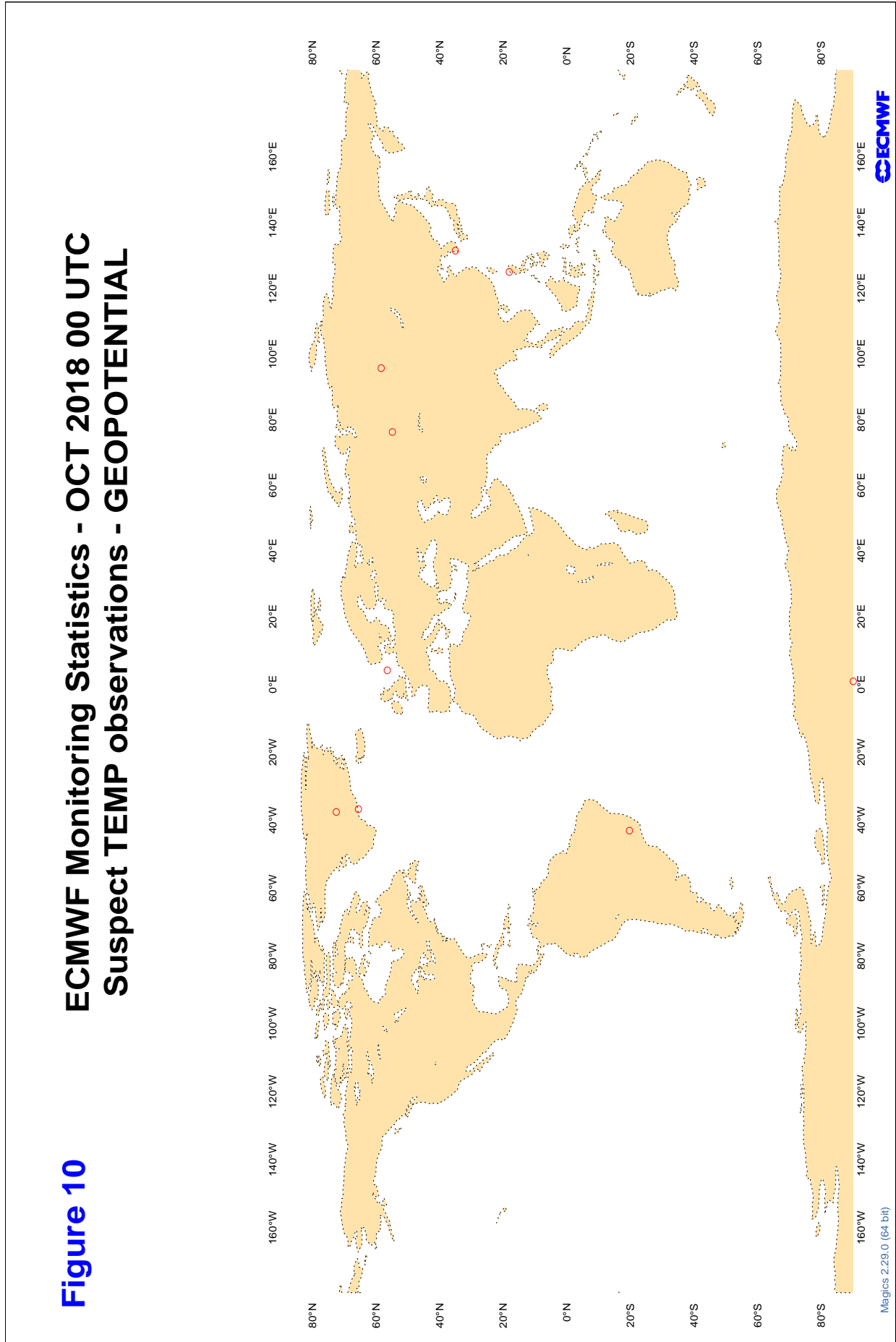
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

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

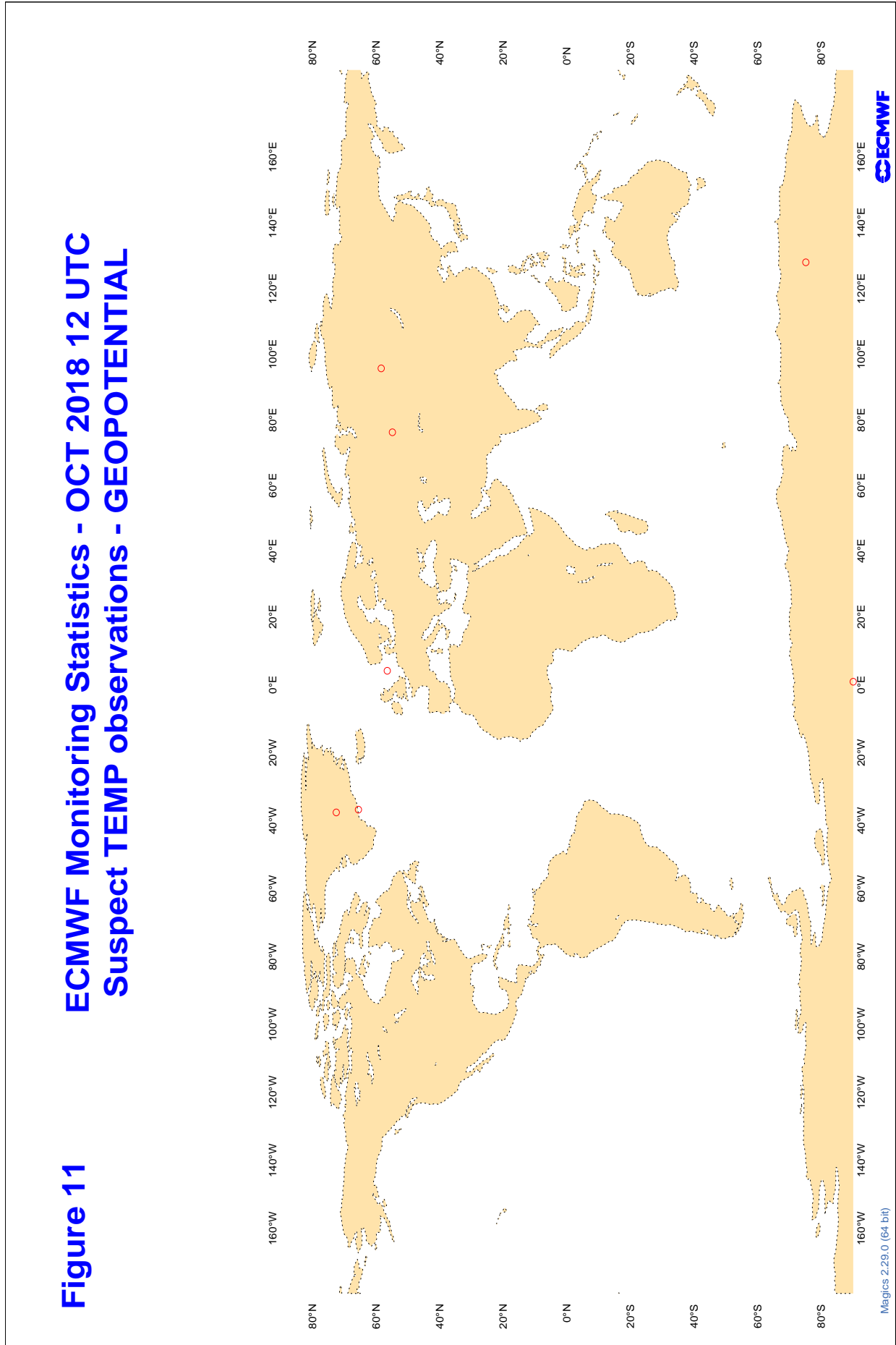
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS ≥ 5 M/S
 NO. OF OBSERVATIONS ≥ 5 , AND,
 ABSOLUTE BIAS ≥ 10 DEGREES, WITH
 STANDARD DEVIATION < 30 DEGREES, AND,
 VERTICAL SPREAD < 10 DEGREES
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
48565	00	DD	8	98	14	12.6	9.6	14.7
56146	00	DD	32	100	25	11.2	8.9	12.1
56146	12	DD	32	100	31	12.9	6.7	12.5

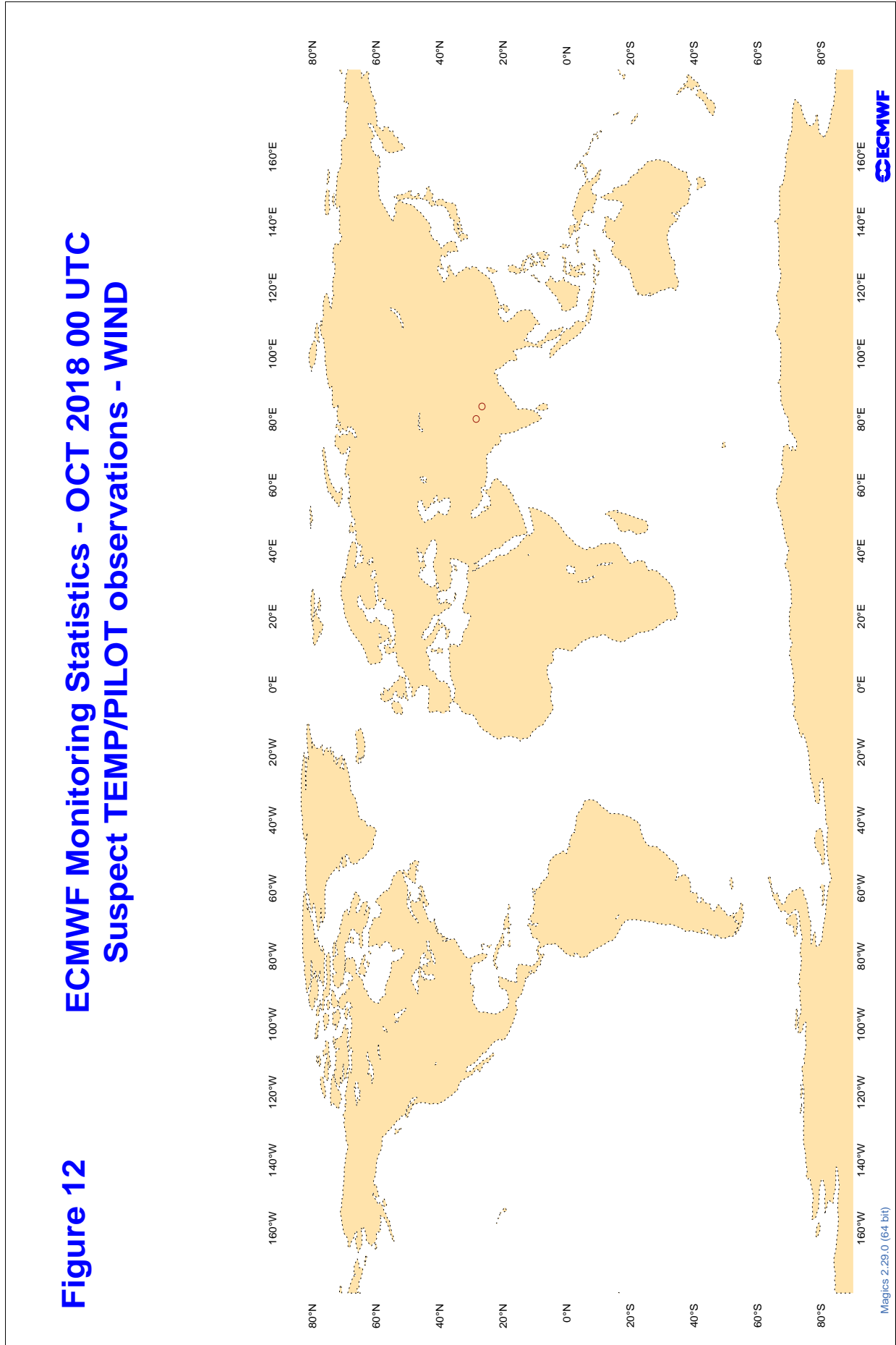
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



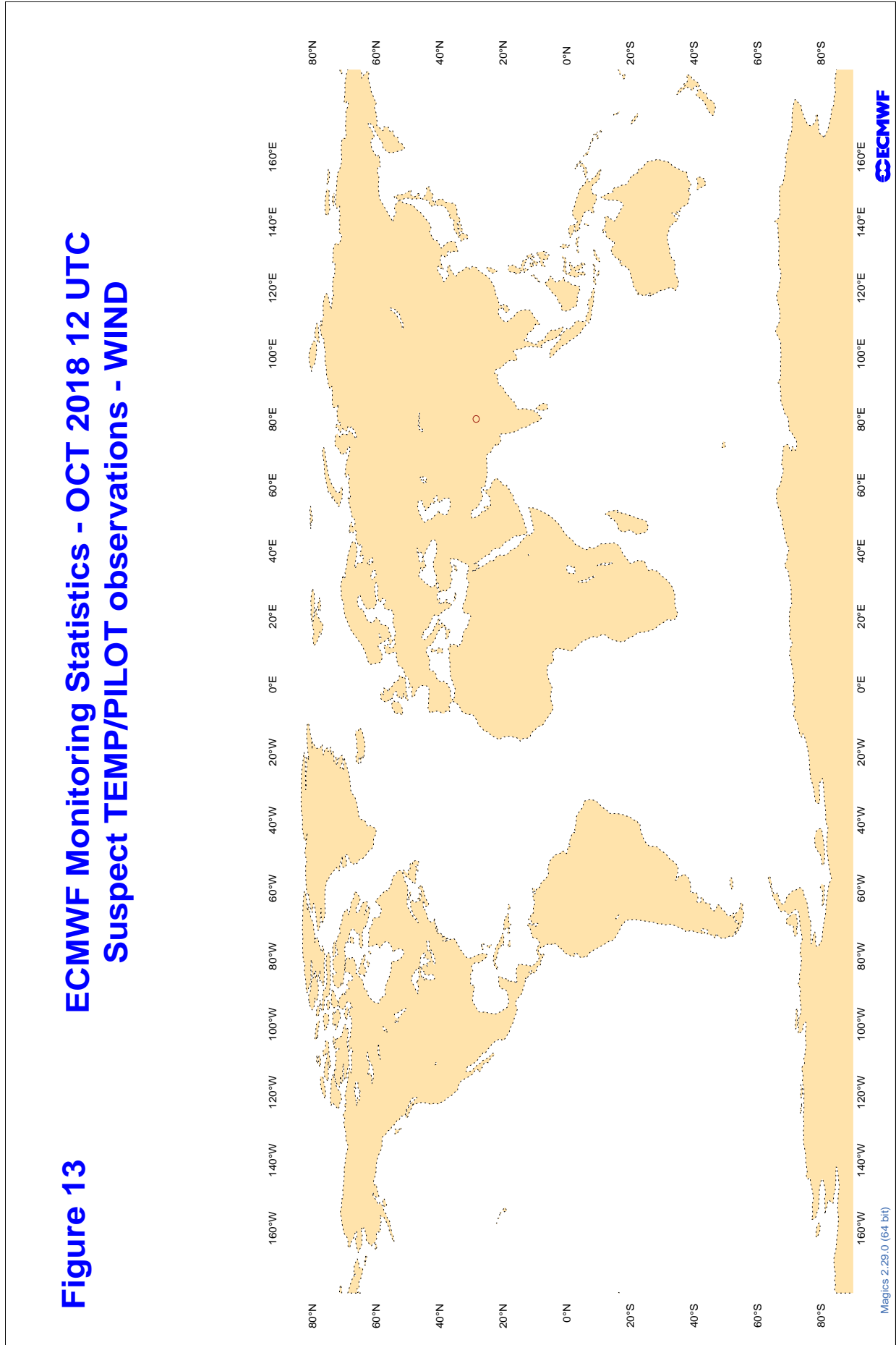
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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 : OCT 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
5QPW8X	00	Z	100	12	20.9	20.4
5QPW8X	12	Z	100	10	19.1	16.5
7HCPVT	12	Z	100	7	31.9	31.0
7HCPVT	00	Z	100	9	27.0	25.2
7JUNA4	12	Z	100	8	19.3	17.8
7JUNA4	00	Z	100	8	8.3	6.5
ASDE09	12	Z	100	1	9.7	9.7
ASUK3	12	Z	100	20	14.8	10.1
DBLK	00	Z	100	3	2.4	0.0
DBLK	12	Z	100	8	4.7	2.8
FHM5UJ	12	Z	100	10	5.3	1.6
FHM5UJ	00	Z	100	9	14.9	8.6
FPUW5G	12	Z	100	7	9.8	-8.5
HTXUH4	12	Z	100	5	13.4	-9.2
HTXUH4	00	Z	100	4	7.0	-1.2
JNSR	12	Z	100	5	8.7	-6.6
JNSR	00	Z	100	5	5.1	0.2
PISTON	00	Z	100	28	14.7	13.6
QCY3TG	12	Z	100	9	30.5	29.2
QCY3TG	00	Z	100	9	21.0	20.7
VKB4L5	12	Z	100	13	48.8	46.8
VKB4L5	00	Z	100	14	50.9	48.9
WDK38H	12	Z	100	12	7.0	-4.3
WDK38H	00	Z	100	2	6.4	-6.2
XQFJRG	12	Z	100	4	8.2	5.9
XQFJRG	00	Z	100	7	21.9	-20.6
XWHDEA	00	Z	100	7	18.5	16.3
XWHDEA	12	Z	100	5	18.9	16.1
YL96W	12	Z	100	4	155.3	155.3
YL96W	00	Z	100	6	219.6	212.7
ZVQEQC	00	Z	100	2	10.9	10.8
ZVQEQC	12	Z	100	10	9.9	6.4

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

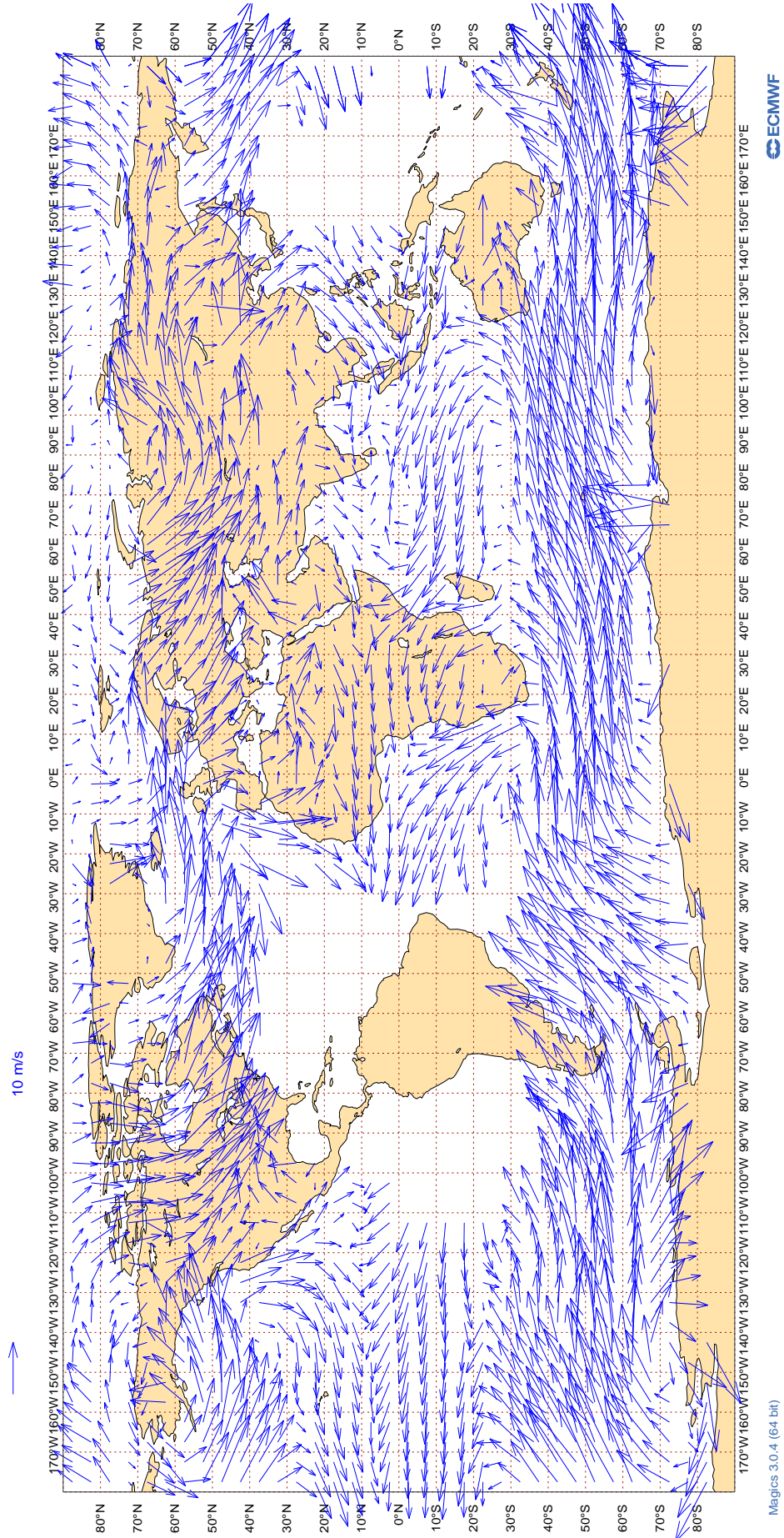
RADIOSONDE MONITORING STATISTICS (SHIPS)

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

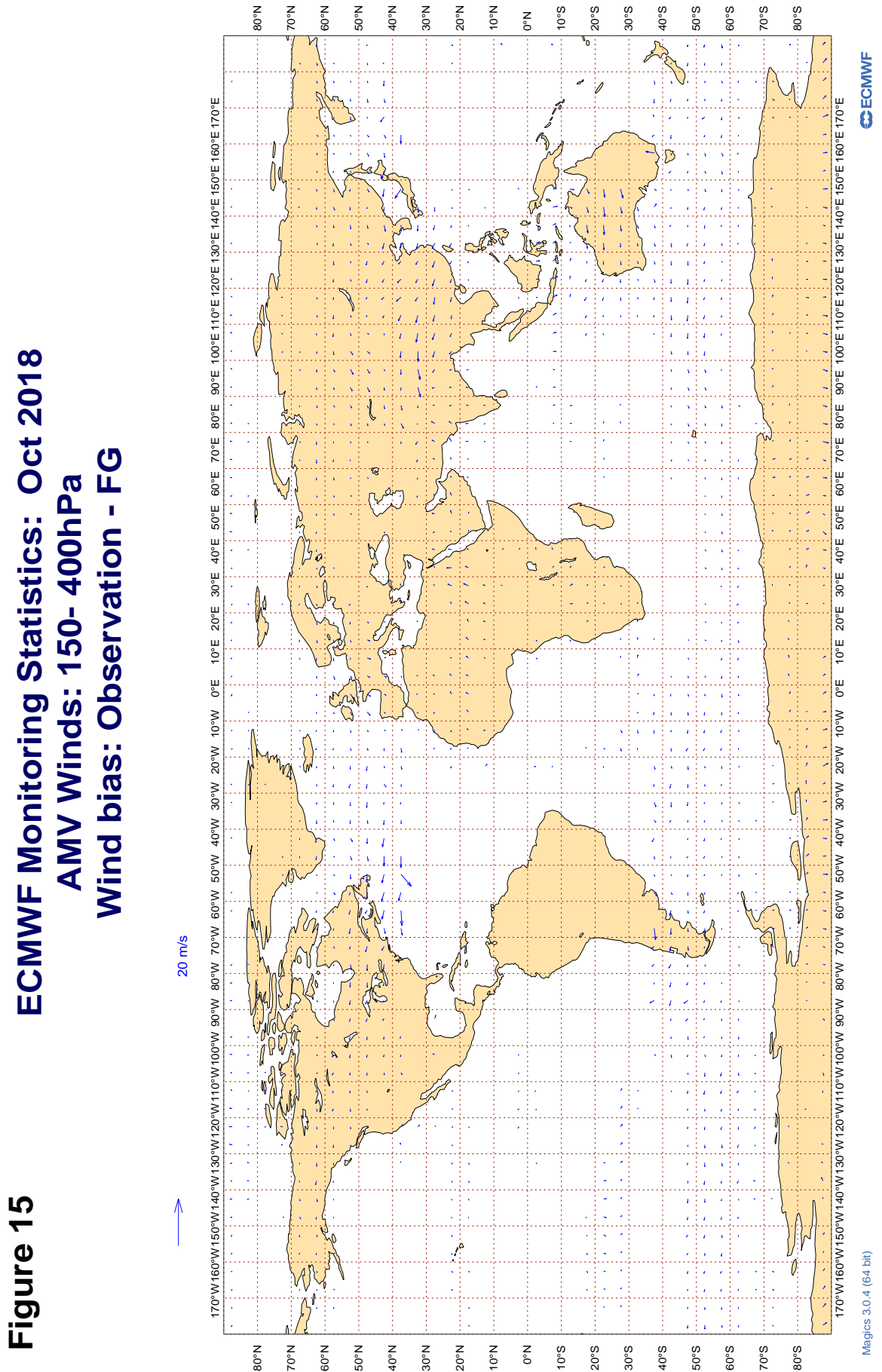
WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
5QPW8X	00	V	100	12	3.1	-0.2	0.1
5QPW8X	12	V	100	9	3.1	-0.2	0.0
7HCPVT	12	V	100	7	3.5	0.8	0.8
7HCPVT	00	V	100	9	3.1	0.1	-0.6
7JUNA4	12	V	100	7	4.6	-0.5	-0.7
7JUNA4	00	V	100	8	3.2	-0.7	-0.9
ASDE09	12	V	100	1	2.5	-1.1	-2.3
ASUK3	12	V	100	19	3.7	0.9	-1.1
DBLK	00	V	100	3	1.4	-0.4	-0.1
DBLK	12	V	100	8	2.8	-1.1	-0.4
FHM5UJ	12	V	100	10	2.9	-0.2	0.3
FHM5UJ	00	V	100	8	2.7	-0.4	-0.3
FPUW5G	12	V	100	7	2.7	-0.2	0.5
HTXUH4	12	V	100	5	5.1	-0.8	0.9
HTXUH4	00	V	100	4	6.1	-2.4	0.8
JNSR	12	V	100	5	5.6	2.2	0.9
JNSR	00	V	100	5	5.4	1.7	-1.1
PISTON	00	V	100	13	6.2	-0.2	2.3
QCY3TG	12	V	100	9	2.5	-0.4	0.0
QCY3TG	00	V	100	9	4.0	1.5	-0.6
VKB4L5	12	V	100	13	4.2	-0.2	0.0
VKB4L5	00	V	100	14	3.0	0.6	0.0
WDK38H	12	V	100	10	2.7	-0.2	0.2
WDK38H	00	V	100	2	3.3	-0.2	2.0
XQFJRG	12	V	100	4	3.4	1.9	0.2
XQFJRG	00	V	100	7	2.1	0.2	-0.5
XWHDEA	00	V	100	6	3.4	-0.4	0.1
XWHDEA	12	V	100	5	4.5	1.6	0.7
YLV96W	12	V	100	4	5.7	-1.3	2.0
YLV96W	00	V	100	6	3.5	-0.3	0.5
ZVQEQC	00	V	100	2	2.9	2.1	1.8
ZVQEQC	12	V	100	10	4.0	1.3	1.7

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

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

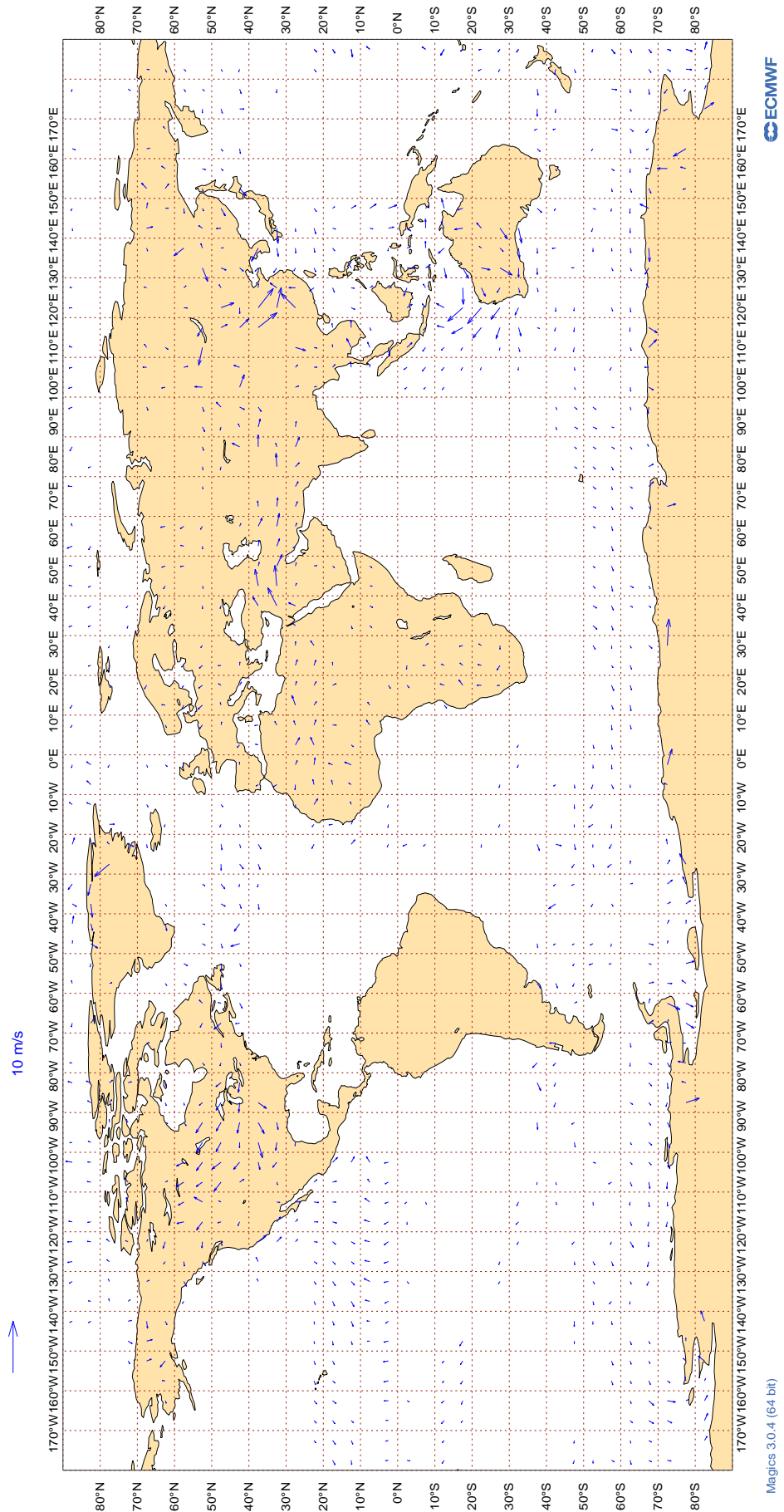


3.2.28 Figure 15 - SATOB Winds: 150- 400hPa



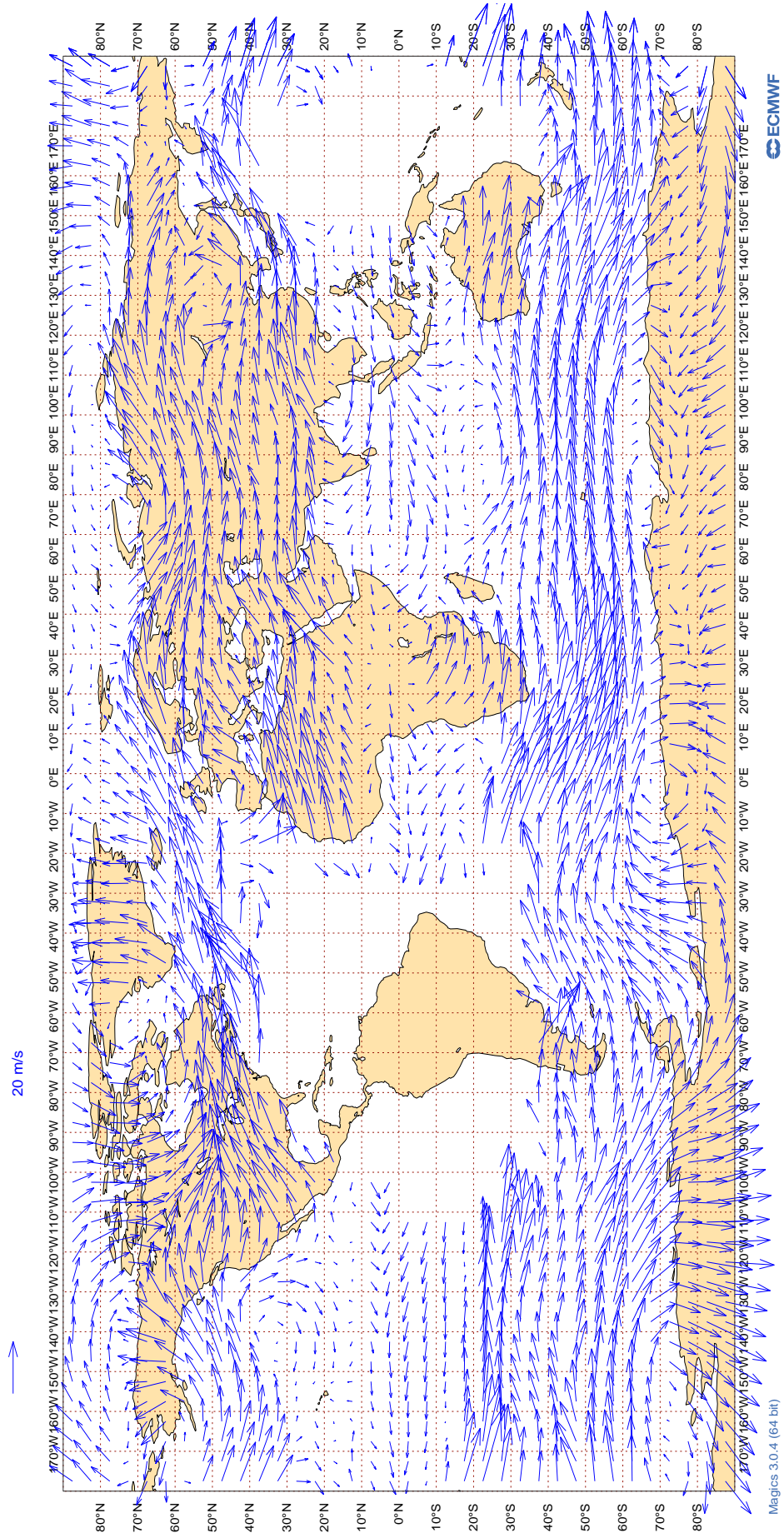
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

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



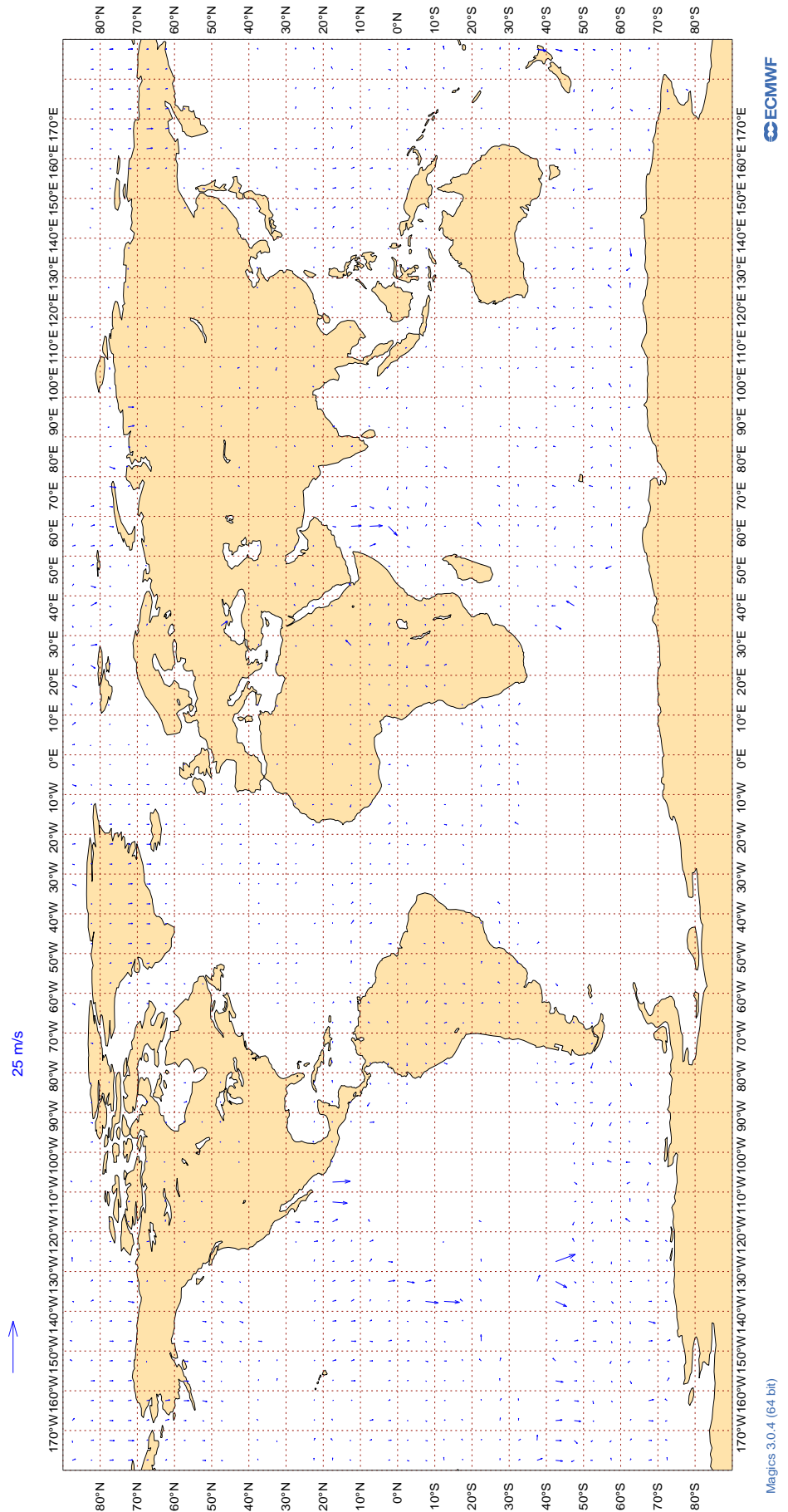
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

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



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

Figure 18
ECMWF Monitoring Statistics: Oct 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 : OCT 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	226	0	0	3.8	0.0
AAL	99	V	300-150	60244	4	0	5.1	0.2
AAR	99	V	300-150	312	0	0	4.5	-1.3
ABD	99	V	300-150	792	0	0	4.4	-0.5
ABW	99	V	300-150	1028	0	0	3.7	-0.9
ACA	99	V	300-150	32560	7	0	5.6	0.2
ACI	99	V	300-150	2889	0	0	4.5	0.8
AEA	99	V	300-150	891	3	0	6.2	0.1
AFL	99	V	300-150	1836	0	0	3.3	0.3
AFR	99	V	300-150	27621	1	0	4.0	0.3
AHY	99	V	300-150	195	29	0	7.9	-0.0
AIC	99	V	300-150	2041	6	0	6.5	0.2
AIZ	99	V	300-150	78	0	0	6.5	1.0
ALK	99	V	300-150	933	0	0	3.6	0.8
AMQ	99	V	300-150	36	100	0	0.0	0.0
AMX	99	V	300-150	3331	20	0	9.0	0.1
ANX	99	V	300-150	21	0	0	3.4	0.7
ANZ	99	V	300-150	25151	1	0	5.0	0.6
AOJ	99	V	300-150	84	0	0	4.1	0.9
ASA	99	V	300-150	40	0	5	8.4	0.5
ASL	99	V	300-150	415	0	0	4.4	0.6
ASV	99	V	300-150	24	4	8	3.9	-0.1
ASY	99	V	300-150	261	0	0	4.3	0.6
ATN	99	V	300-150	117	0	2	4.9	0.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AUA	99	V	300-150	5394	0	0	4.1	-0.3
AUH	99	V	300-150	21	0	0	4.3	2.2
AUI	99	V	300-150	673	0	0	3.9	0.4
AVA	99	V	300-150	468	14	0	10.2	0.1
AVL	99	V	300-150	33	0	0	3.4	0.2
AWC	99	V	300-150	140	0	0	5.5	2.6
AXB	99	V	300-150	44	0	0	4.0	0.4
AXM	99	V	300-150	186	0	3	6.3	1.7
AZA	99	V	300-150	7818	0	0	3.8	0.5
AZG	99	V	300-150	161	0	0	3.9	-0.0
BAH	99	V	300-150	57	0	0	3.5	0.3
BAW	99	V	300-150	53997	4	0	4.7	0.1
BBA	99	V	300-150	34	0	0	3.7	1.3
BBC	99	V	300-150	185	0	0	4.1	0.9
BEL	99	V	300-150	2717	0	0	3.7	0.4
BMW	99	V	300-150	32	0	0	4.5	0.0
BOB	99	V	300-150	59	0	0	4.3	-0.1
BOS	99	V	300-150	1292	0	0	3.9	0.3
BOX	99	V	300-150	1273	0	0	3.7	0.2
BOX	99	V	300-150	94	0	0	3.5	0.5
BRK	99	V	300-150	23	0	0	4.2	0.0
BVR	99	V	300-150	32	0	0	3.1	0.3
CAJ	99	V	300-150	24	0	0	3.5	0.2
CAL	99	V	300-150	379	0	0	4.1	0.7
CAZ	99	V	300-150	148	0	0	3.7	-0.1
CCA	99	V	300-150	825	5	0	5.3	0.4
CEB	99	V	300-150	107	0	0	2.8	0.8
CEF	99	V	300-150	22	0	0	3.0	-0.2
CES	99	V	300-150	1698	0	0	3.9	0.5
CFC	99	V	300-150	219	0	0	4.4	0.0
CFG	99	V	300-150	4073	0	0	4.2	-0.5
CHH	99	V	300-150	244	7	0	9.2	0.1
CJT	99	V	300-150	197	0	0	4.6	-0.1
CKS	99	V	300-150	1589	0	0	3.8	-0.2
CLE	99	V	300-150	66	0	0	4.1	0.1
CLU	99	V	300-150	1036	0	0	4.0	-0.2
CLX	99	V	300-150	3765	0	0	4.0	-0.5
CMB	99	V	300-150	1442	0	0	4.1	-0.4
CNK	99	V	300-150	37	0	0	3.2	0.3
CNV	99	V	300-150	207	0	0	3.3	0.7
COB	99	V	300-150	57	0	0	2.8	-0.2
CPA	99	V	300-150	961	0	0	3.8	0.4
CRK	99	V	300-150	671	0	0	3.9	0.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
CRL	99	V	300-150	700	0	0	4.0	0.5
CRV	99	V	300-150	40	0	0	5.4	-0.2
CSC	99	V	300-150	164	0	0	3.5	0.1
CSN	99	V	300-150	826	4	0	6.3	0.5
CTM	99	V	300-150	61	0	0	3.3	0.6
CXB	99	V	300-150	57	0	0	4.1	0.4
DAH	99	V	300-150	650	0	0	3.6	0.3
DAL	99	V	300-150	67535	0	0	3.7	0.1
DCM	99	V	300-150	23	100	0	0.0	0.0
DGX	99	V	300-150	62	0	0	3.9	-0.8
DHK	99	V	300-150	956	0	0	4.7	-0.2
DJT	99	V	300-150	1872	0	0	4.4	0.2
DLH	99	V	300-150	33142	0	0	3.6	0.1
DSO	99	V	300-150	44	0	0	3.3	-0.5
DUB	99	V	300-150	117	0	0	3.8	0.2
EAU	99	V	300-150	36	0	0	3.3	0.8
EDC	99	V	300-150	76	0	0	4.2	0.5
EDG	99	V	300-150	123	0	0	3.8	0.5
EDG	99	V	300-150	21	0	0	3.2	1.2
EDW	99	V	300-150	2091	0	0	3.9	0.5
EIN	99	V	300-150	16425	0	0	3.7	0.3
EJM	99	V	300-150	878	3	0	4.9	0.3
ELY	99	V	300-150	3596	12	0	6.7	0.1
ETD	99	V	300-150	6651	3	0	5.0	0.5
ETH	99	V	300-150	4070	10	0	6.9	0.3
EUW	99	V	300-150	23	0	0	2.3	0.1
EWG	99	V	300-150	4407	0	0	3.8	0.2
EXS	99	V	300-150	61	0	2	3.6	-0.4
FBU	99	V	300-150	882	0	0	3.9	0.1
FDX	99	V	300-150	6454	0	0	3.8	0.3
FIN	99	V	300-150	915	0	0	3.5	0.2
FJI	99	V	300-150	7759	0	0	4.6	0.7
FWI	99	V	300-150	1098	0	0	3.6	0.5
FYG	99	V	300-150	57	0	0	4.1	0.3
GAF	99	V	300-150	66	0	0	3.1	0.3
GAF	99	V	300-150	28	0	0	2.8	0.9
GAJ	99	V	300-150	54	0	0	3.8	-0.5
GCR	99	V	300-150	68	0	0	3.3	0.7
GEC	99	V	300-150	2834	0	0	3.5	0.1
GES	99	V	300-150	124	2	0	6.5	0.0
GFA	99	V	300-150	699	0	0	3.0	0.5
GIA	99	V	300-150	389	0	0	3.5	0.9
GLO	99	V	300-150	31	10	3	8.2	-0.6

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
GMA	99	V	300-150	27	0	0	4.6	0.1
GOL	99	V	300-150	67	0	0	4.2	0.8
GTH	99	V	300-150	217	0	0	3.9	-0.4
GTI	99	V	300-150	2843	0	0	4.5	-0.4
HAL	99	V	300-150	5093	0	0	4.2	0.8
HRT	99	V	300-150	51	92	0	37.9	0.1
HWA	99	V	300-150	53	0	0	3.8	0.4
HZH	99	V	300-150	70	0	0	4.0	-0.6
HZS	99	V	300-150	36	0	0	3.2	1.0
IAM	99	V	300-150	49	0	0	4.9	0.4
IBE	99	V	300-150	3157	0	0	3.8	0.4
IBG	99	V	300-150	37	0	0	3.3	-0.2
IBK	99	V	300-150	3655	0	0	3.7	0.4
ICE	99	V	300-150	1050	0	0	3.5	0.2
ICL	99	V	300-150	1150	0	0	4.9	-0.6
ICV	99	V	300-150	301	0	0	4.7	-0.8
IFA	99	V	300-150	91	88	0	21.2	-0.2
IJM	99	V	300-150	53	0	0	4.6	0.1
ISS	99	V	300-150	1472	0	0	3.8	0.3
JAF	99	V	300-150	1080	16	0	8.1	0.2
JAI	99	V	300-150	1412	0	0	3.2	0.2
JAS	99	V	300-150	125	0	0	4.1	-0.1
JEF	99	V	300-150	25	0	0	4.5	-1.0
JET	99	V	300-150	70	0	0	4.2	-0.6
JJA	99	V	300-150	37	3	0	8.4	1.8
JME	99	V	300-150	281	0	0	4.4	-0.2
JST	99	V	300-150	2562	0	0	6.2	0.6
JSX	99	V	300-150	20	0	0	2.5	-1.0
KAC	99	V	300-150	1468	0	0	3.6	0.7
KAI	99	V	300-150	56	0	0	5.6	-0.4
KAL	99	V	300-150	1366	1	0	4.8	0.8
KAY	99	V	300-150	41	0	0	3.3	0.2
KCE	99	V	300-150	46	0	0	3.0	0.0
KIW	99	V	300-150	57	0	0	4.8	1.1
KLM	99	V	300-150	18749	5	0	5.0	-0.0
KQA	99	V	300-150	246	3	0	9.8	0.8
LAN	99	V	300-150	2391	9	0	8.5	0.1
LEA	99	V	300-150	45	0	0	4.1	0.5
LNI	99	V	300-150	116	0	0	4.0	1.0
LOT	99	V	300-150	3465	16	0	8.4	-0.3
LUC	99	V	300-150	98	0	0	3.5	-0.3
LXG	99	V	300-150	72	0	0	2.9	0.5
LXJ	99	V	300-150	178	0	0	4.2	-0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
MAS	99	V	300-150	622	0	0	3.4	0.7
MAU	99	V	300-150	162	0	0	4.9	1.5
MED	99	V	300-150	48	0	0	3.9	-1.1
MHV	99	V	300-150	40	0	0	4.2	-0.2
MLM	99	V	300-150	53	0	0	3.8	-0.1
MMD	99	V	300-150	419	0	0	4.1	0.3
MPH	99	V	300-150	673	0	0	3.9	-1.2
MSR	99	V	300-150	1349	0	0	3.3	0.3
NAF	99	V	300-150	31	0	0	4.7	-1.3
NAX	99	V	300-150	11475	16	0	7.8	0.2
NJE	99	V	300-150	496	0	0	4.1	0.5
NOS	99	V	300-150	149	1	0	5.4	-0.6
NRS	99	V	300-150	8295	20	0	7.8	0.1
NWS	99	V	300-150	594	0	0	3.5	0.3
OAE	99	V	300-150	1423	0	0	4.2	0.0
OMA	99	V	300-150	701	1	0	4.8	0.7
PAC	99	V	300-150	694	0	0	4.3	0.0
PAL	99	V	300-150	980	0	0	3.6	0.5
PAT	99	V	300-150	174	0	0	3.7	0.6
PIA	99	V	300-150	134	0	0	3.1	-0.2
PLF	99	V	300-150	53	0	0	4.2	0.1
PLM	99	V	300-150	38	0	0	5.4	-1.3
PRI	99	V	300-150	84	0	0	2.5	1.1
PVJ	99	V	300-150	37	0	0	4.4	-0.2
QFA	99	V	300-150	20980	0	0	4.8	0.5
QQE	99	V	300-150	77	17	0	8.6	0.3
QTR	99	V	300-150	16058	0	0	4.5	0.4
RAM	99	V	300-150	391	13	0	7.0	-0.3
RBA	99	V	300-150	123	1	0	8.4	0.2
RCH	99	V	300-150	4686	0	0	4.6	0.3
RDN	99	V	300-150	95	0	0	3.6	0.3
RJA	99	V	300-150	1405	24	0	9.7	0.1
ROJ	99	V	300-150	76	0	0	4.5	-1.2
ROU	99	V	300-150	6571	0	0	4.4	-0.3
RRR	99	V	300-150	88	0	0	3.3	1.0
RZO	99	V	300-150	76	0	7	4.6	-0.0
SAM	99	V	300-150	211	0	0	4.4	0.4
SAS	99	V	300-150	4805	0	0	3.3	0.2
SAZ	99	V	300-150	39	0	0	4.0	-1.3
SDM	99	V	300-150	61	0	0	4.0	0.8
SHE	99	V	300-150	63	0	0	4.0	0.8
SIA	99	V	300-150	3834	0	0	3.7	0.0
SIO	99	V	300-150	83	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
SLM	99	V	300-150	115	0	0	3.5	0.4
SNO	99	V	300-150	51	0	0	3.1	-0.3
SOO	99	V	300-150	775	0	0	4.0	-0.4
SPA	99	V	300-150	234	0	0	3.6	0.4
SVA	99	V	300-150	4204	0	0	4.3	0.6
SVW	99	V	300-150	143	0	0	4.2	-1.0
SWR	99	V	300-150	11809	0	1	3.9	0.4
TAM	99	V	300-150	115	1	2	5.1	-0.4
TAP	99	V	300-150	1162	0	0	4.0	0.6
TAR	99	V	300-150	306	0	0	3.7	0.5
TAY	99	V	300-150	486	0	0	4.5	0.1
TCV	99	V	300-150	25	0	0	5.8	-0.7
TCX	99	V	300-150	6866	0	0	3.8	0.4
TEU	99	V	300-150	27	0	0	3.0	0.3
TFF	99	V	300-150	54	0	0	4.3	1.6
TFL	99	V	300-150	1929	16	0	8.8	-0.0
TGW	99	V	300-150	47	0	0	4.7	0.7
THA	99	V	300-150	416	3	0	5.5	0.4
THT	99	V	300-150	3904	0	0	3.7	0.5
THY	99	V	300-150	9695	0	0	3.8	0.3
TMN	99	V	300-150	201	0	0	3.5	0.1
TOM	99	V	300-150	6594	18	0	9.1	0.2
TOW	99	V	300-150	61	0	0	4.0	1.3
TSC	99	V	300-150	13834	0	0	3.8	0.3
TUA	99	V	300-150	33	0	0	3.6	-0.3
TWB	99	V	300-150	35	0	0	5.3	0.2
TWY	99	V	300-150	422	0	0	3.8	0.1
UAE	99	V	300-150	18531	0	0	3.7	0.4
UAL	99	V	300-150	79438	2	2	4.8	0.2
ULC	99	V	300-150	152	0	0	4.0	-0.1
UPS	99	V	300-150	4798	0	0	4.2	0.2
UZB	99	V	300-150	112	17	0	6.8	0.3
VCG	99	V	300-150	39	0	0	3.6	0.7
VIR	99	V	300-150	23221	5	0	4.9	0.0
VJT	99	V	300-150	1231	33	0	9.8	0.3
VKG	99	V	300-150	149	0	1	3.7	1.0
VOZ	99	V	300-150	6544	0	0	4.3	0.6
WDY	99	V	300-150	21	0	0	6.3	2.7
WGT	99	V	300-150	114	0	0	2.9	-0.2
WJA	99	V	300-150	5529	0	0	4.1	0.2
WOW	99	V	300-150	4573	0	0	3.4	0.2
XAX	99	V	300-150	360	0	0	3.7	0.2
XLF	99	V	300-150	1031	0	0	3.8	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 : OCT 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	30	16.0	8.8
01001	00	Z	50	29	13.4	10.3
01028	00	Z	50	31	13.0	11.9
01028	12	Z	50	31	12.7	10.9
01400	00	Z	50	18	94.9	94.1
01400	12	Z	50	16	87.8	87.0
01415	00	Z	50	28	18.0	16.0
01415	12	Z	50	30	16.5	12.3
02365	12	Z	50	24	12.3	10.3
02365	00	Z	50	27	17.6	16.8
02591	00	Z	50	29	26.6	25.9
02591	12	Z	50	29	17.3	15.7
02836	00	Z	50	27	18.1	16.1
02836	12	Z	50	30	14.7	12.5
02963	12	Z	50	27	13.8	11.1
02963	00	Z	50	26	18.2	17.3
03005	12	Z	50	30	15.8	10.3
03005	00	Z	50	29	21.6	13.0
03238	00	Z	50	28	20.5	17.8
03808	00	Z	50	27	19.6	19.0
03808	12	Z	50	29	14.3	13.2
03918	12	Z	50	6	17.2	16.2
03918	00	Z	50	31	21.9	20.9
03953	12	Z	50	29	39.1	37.1
03953	00	Z	50	29	36.3	33.4
04018	00	Z	50	30	15.2	12.0
04018	12	Z	50	28	12.9	7.8
04220	12	Z	50	30	13.3	12.3
04220	00	Z	50	28	16.2	14.1
042206	12	Z	50	0	0.0	0.0
04270	12	Z	50	29	13.3	9.9
04270	00	Z	50	27	15.1	10.4
04320	00	Z	50	30	13.0	10.2
04320	12	Z	50	30	12.5	8.9
04339	12	Z	50	31	13.2	9.1
04339	00	Z	50	29	14.2	12.2
04360	00	Z	50	14	33.5	32.0
04360	12	Z	50	17	30.3	28.4
06011	12	Z	50	29	19.8	15.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	50	30	15.3	6.8
06260	12	Z	50	4	19.2	18.8
06260	00	Z	50	31	18.7	17.5
06610	12	Z	50	32	15.4	13.3
06610	00	Z	50	30	20.8	20.1
07110	12	Z	50	28	22.4	20.7
07110	00	Z	50	29	35.4	27.8
07510	00	Z	50	29	32.9	30.5
07510	12	Z	50	29	42.4	38.3
07645	12	Z	50	27	23.5	20.9
07645	00	Z	50	26	21.5	18.0
07761	12	Z	50	30	31.5	29.5
07761	00	Z	50	27	34.6	33.0
08001	12	Z	50	29	29.1	26.2
08001	00	Z	50	30	27.3	26.3
08221	00	Z	50	30	26.2	25.3
08221	12	Z	50	30	20.2	18.6
08302	00	Z	50	26	18.3	17.5
08302	12	Z	50	28	16.8	12.1
08508	12	Z	50	29	19.5	17.6
08522	12	Z	50	31	25.5	24.0
08579	12	Z	50	29	29.1	26.7
10035	12	Z	50	30	21.1	16.4
10393	00	Z	50	31	20.7	19.7
10393	12	Z	50	31	13.8	10.5
10410	00	Z	50	29	17.6	16.4
10410	12	Z	50	30	10.4	7.8
10739	12	Z	50	31	16.3	14.9
10739	00	Z	50	31	23.3	22.4
11035	12	Z	50	27	18.9	17.9
11035	00	Z	50	30	26.2	25.4
12982	00	Z	50	22	24.5	23.3
12982	12	Z	50	20	44.5	42.9
16080	00	Z	50	31	17.8	16.4
16080	12	Z	50	29	14.4	12.6
16245	12	Z	50	31	22.3	19.2
16245	00	Z	50	29	18.1	16.4
16320	00	Z	50	30	24.8	23.0
16320	12	Z	50	31	21.7	17.0
16429	12	Z	50	30	29.2	24.0
16429	00	Z	50	31	24.7	22.0
16622	00	Z	50	25	29.1	28.2
16754	00	Z	50	24	31.1	29.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
17607	12	Z	50	31	23.6	21.0
26435	12	Z	50	5	10.5	7.8
26435	00	Z	50	8	32.1	21.1
5QPW8X	00	Z	50	11	33.7	33.1
5QPW8X	12	Z	50	9	25.4	21.3
60018	00	Z	50	31	25.1	24.4
60018	12	Z	50	31	16.6	15.3
7HCPVT	12	Z	50	5	43.5	42.3
7HCPVT	00	Z	50	8	44.8	44.2
7JUNA4	12	Z	50	6	44.1	42.5
7JUNA4	00	Z	50	8	22.2	18.5
ASDE09	12	Z	50	0	0.0	0.0
ASUK3	12	Z	50	15	25.6	20.9
FHM5UJ	12	Z	50	9	11.9	9.4
FHM5UJ	00	Z	50	7	24.1	20.0
FPUW5G	12	Z	50	7	5.0	3.1
HTXUH4	12	Z	50	5	16.5	7.9
HTXUH4	00	Z	50	4	11.6	7.4
QCY3TG	12	Z	50	9	47.9	46.3
QCY3TG	00	Z	50	9	41.0	40.6
VKB4L5	12	Z	50	13	59.7	56.5
VKB4L5	00	Z	50	13	64.9	63.4
WDK38H	12	Z	50	7	5.7	4.9
WDK38H	00	Z	50	2	5.5	4.9
XQFJRG	12	Z	50	4	31.5	31.2
XQFJRG	00	Z	50	7	17.7	-12.4
XWHDEA	00	Z	50	7	25.8	24.4
XWHDEA	12	Z	50	5	31.3	29.8
YLV96W	12	Z	50	2	0.0	0.0
YLV96W	00	Z	50	5	237.5	237.5
ZVQEQC	00	Z	50	2	18.1	18.1
ZVQEQC	12	Z	50	8	18.1	14.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	30	4.2	1.1	0.0
01001	00	V	50	25	4.1	1.5	-0.1
01028	00	V	50	26	3.4	1.2	0.1
01028	12	V	50	31	3.2	0.4	0.3
01400	00	V	50	16	5.0	-0.1	0.1
01400	12	V	50	16	3.4	-0.2	-0.8
01415	00	V	50	25	4.6	0.1	-1.6
01415	12	V	50	30	4.1	-0.4	0.2
02365	12	V	50	23	4.9	0.2	0.2
02365	00	V	50	24	4.6	0.1	0.7
02591	00	V	50	26	3.4	0.0	-0.2
02591	12	V	50	26	3.0	0.2	-0.1
02836	00	V	50	24	3.3	-0.3	-0.4
02836	12	V	50	30	4.3	-0.5	0.1
02963	12	V	50	23	3.6	0.9	0.9
02963	00	V	50	19	3.7	-0.1	1.0
03005	12	V	50	30	3.9	0.3	0.4
03005	00	V	50	25	3.1	-0.2	0.0
03238	00	V	50	24	3.9	-0.6	-0.2
03808	00	V	50	23	3.7	-0.2	-0.9
03808	12	V	50	28	3.8	0.3	-1.0
03918	12	V	50	5	5.2	-1.8	-0.3
03918	00	V	50	28	4.7	0.2	1.1
03953	12	V	50	29	3.6	0.3	-0.7
03953	00	V	50	26	3.3	-0.4	-0.1
04018	00	V	50	27	4.0	0.6	0.3
04018	12	V	50	28	4.3	0.2	0.1
04220	12	V	50	27	3.8	0.3	0.0
04220	00	V	50	23	3.1	-0.5	0.0
042206	12	V	50	0	0.0	0.0	0.0
04270	12	V	50	28	4.9	0.3	0.5
04270	00	V	50	23	4.5	0.9	0.0
04320	00	V	50	28	2.4	0.2	0.8
04320	12	V	50	30	2.6	0.5	0.1
04339	12	V	50	31	3.8	-0.4	-0.5
04339	00	V	50	25	3.7	-0.3	0.2
04360	00	V	50	14	4.3	1.3	0.1
04360	12	V	50	17	3.5	-1.3	-0.4
06011	12	V	50	29	4.0	0.8	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	50	27	3.5	0.3	-0.2
06260	12	V	50	4	3.5	-2.1	0.1
06260	00	V	50	30	3.4	0.2	-0.2
06610	12	V	50	30	3.9	1.1	-0.3
06610	00	V	50	25	3.6	0.9	-0.4
07110	12	V	50	28	3.8	-0.2	-0.6
07110	00	V	50	25	3.5	0.2	0.2
07510	00	V	50	28	3.6	0.5	0.8
07510	12	V	50	29	3.0	-0.1	0.4
07645	12	V	50	27	3.4	0.7	0.3
07645	00	V	50	21	3.8	0.0	0.5
07761	12	V	50	30	3.5	0.9	-0.6
07761	00	V	50	24	3.8	-0.9	0.3
08001	12	V	50	26	4.3	-0.5	-0.4
08001	00	V	50	23	3.4	-0.7	0.0
08221	00	V	50	24	3.5	0.3	-0.5
08221	12	V	50	30	3.6	0.3	0.0
08302	00	V	50	22	4.0	0.0	0.5
08302	12	V	50	28	3.6	1.0	-0.2
08508	12	V	50	29	3.9	0.6	1.0
08522	12	V	50	31	4.7	0.0	0.1
08579	12	V	50	29	4.0	0.6	0.1
10035	12	V	50	30	4.0	-0.2	0.1
10393	00	V	50	26	3.7	0.5	0.5
10393	12	V	50	31	3.5	-0.2	-0.2
10410	00	V	50	28	3.0	0.0	0.0
10410	12	V	50	30	3.3	0.3	0.2
10739	12	V	50	31	3.5	0.5	-1.0
10739	00	V	50	28	3.7	0.5	0.0
11035	12	V	50	27	3.8	0.9	0.0
11035	00	V	50	28	3.5	0.1	0.5
12982	00	V	50	21	4.4	0.6	0.2
12982	12	V	50	20	3.5	0.6	-1.0
16080	00	V	50	28	3.7	0.1	-0.1
16080	12	V	50	29	3.4	0.5	-0.3
16245	12	V	50	31	3.6	-0.1	0.5
16245	00	V	50	26	4.1	-0.9	0.9
16320	00	V	50	27	3.6	0.4	1.0
16320	12	V	50	31	4.0	0.1	0.0
16429	12	V	50	28	4.1	0.1	-0.2
16429	00	V	50	28	3.8	0.6	0.5
16622	00	V	50	21	4.5	1.7	0.8
16754	00	V	50	20	3.5	1.1	-1.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
17607	12	V	50	19	6.6	0.4	1.7
26435	12	V	50	5	4.0	-0.2	-0.1
26435	00	V	50	8	3.6	-1.4	1.2
5QPW8X	00	V	50	8	3.4	1.7	-1.0
5QPW8X	12	V	50	8	3.8	0.0	-1.0
60018	00	V	50	29	3.9	0.3	0.6
60018	12	V	50	31	3.6	0.5	-0.1
7HCPVT	12	V	50	5	2.6	-0.1	1.7
7HCPVT	00	V	50	8	2.9	-0.5	1.6
7JUNA4	12	V	50	6	4.7	0.3	-0.1
7JUNA4	00	V	50	8	3.8	-0.5	-0.6
ASDE09	12	V	50	0	0.0	0.0	0.0
ASUK3	12	V	50	13	3.7	0.4	-0.8
FHM5UJ	12	V	50	9	3.9	1.5	1.5
FHM5UJ	00	V	50	7	3.8	0.4	0.2
FPUW5G	12	V	50	7	3.0	-0.6	-0.1
HTXUH4	12	V	50	4	2.8	-1.6	0.6
HTXUH4	00	V	50	4	3.1	-1.6	-0.8
QCY3TG	12	V	50	9	2.6	0.0	-0.3
QCY3TG	00	V	50	9	3.5	-0.7	1.4
VKB4L5	12	V	50	13	3.0	-0.5	-1.6
VKB4L5	00	V	50	13	3.7	1.0	1.5
WDK38H	12	V	50	3	2.6	0.7	1.5
WDK38H	00	V	50	1	0.4	-0.3	-0.2
XQFJRG	12	V	50	4	3.4	0.4	1.4
XQFJRG	00	V	50	7	3.8	1.8	-1.2
XWHDEA	00	V	50	6	3.7	0.3	-1.6
XWHDEA	12	V	50	5	2.9	1.5	1.0
YLV96W	12	V	50	2	4.0	-0.9	2.3
YLV96W	00	V	50	5	1.6	-0.3	-0.2
ZVQEQC	00	V	50	2	2.8	2.0	-1.2
ZVQEQC	12	V	50	8	3.2	1.0	2.1

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 : OCT 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	30	11.6	-0.6
01001	00	Z	100	29	7.9	-0.7
01028	00	Z	100	31	3.8	-1.1
01028	12	Z	100	31	6.1	-1.6
01400	00	Z	100	19	81.6	81.0
01400	12	Z	100	20	77.5	76.9
01415	00	Z	100	28	9.7	5.7
01415	12	Z	100	30	15.3	1.8
02365	12	Z	100	28	6.0	1.0
02365	00	Z	100	30	6.9	4.6
02591	00	Z	100	31	12.1	10.8
02591	12	Z	100	31	8.9	7.1
02836	00	Z	100	30	7.1	2.5
02836	12	Z	100	31	5.5	0.3
02963	12	Z	100	31	7.8	1.2
02963	00	Z	100	31	5.1	3.9
03005	12	Z	100	31	9.6	1.8
03005	00	Z	100	32	16.3	-0.6
03238	00	Z	100	30	11.7	7.7
03808	00	Z	100	29	8.7	6.6
03808	12	Z	100	31	7.0	2.7
03918	12	Z	100	6	9.4	6.0
03918	00	Z	100	31	10.7	8.6
03953	12	Z	100	30	20.7	18.1
03953	00	Z	100	30	20.2	17.2
04018	00	Z	100	31	7.6	1.7
04018	12	Z	100	29	7.9	-3.0
04220	12	Z	100	30	5.0	2.1
04220	00	Z	100	29	8.5	3.6
042206	12	Z	100	0	0.0	0.0
04270	12	Z	100	29	7.1	2.7
04270	00	Z	100	29	8.8	0.6
04320	00	Z	100	30	5.0	0.9
04320	12	Z	100	30	7.2	-1.0
04339	12	Z	100	31	7.8	-1.1
04339	00	Z	100	29	5.3	0.3
04360	00	Z	100	18	25.4	24.5
04360	12	Z	100	24	23.8	22.7
06011	12	Z	100	29	12.0	7.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	100	31	10.7	-2.0
06260	12	Z	100	7	6.5	2.2
06260	00	Z	100	31	7.9	4.9
06610	12	Z	100	33	6.9	4.2
06610	00	Z	100	32	8.6	7.3
07110	12	Z	100	28	10.1	7.6
07110	00	Z	100	29	18.7	11.9
07510	00	Z	100	30	16.3	12.9
07510	12	Z	100	30	24.1	19.7
07645	12	Z	100	27	11.0	6.8
07645	00	Z	100	28	25.9	0.7
07761	12	Z	100	31	18.1	15.3
07761	00	Z	100	28	17.8	15.8
08001	12	Z	100	31	11.9	8.3
08001	00	Z	100	30	13.2	11.6
08221	00	Z	100	31	15.2	13.5
08221	12	Z	100	30	11.4	9.7
08302	00	Z	100	26	8.2	5.7
08302	12	Z	100	28	9.5	2.5
08508	12	Z	100	31	12.7	9.8
08522	12	Z	100	31	12.0	9.6
08579	12	Z	100	29	13.1	9.8
10035	12	Z	100	30	15.8	7.1
10393	00	Z	100	32	8.0	6.5
10393	12	Z	100	31	7.9	0.5
10410	00	Z	100	30	7.0	4.0
10410	12	Z	100	30	7.1	-1.4
10739	12	Z	100	31	8.0	4.9
10739	00	Z	100	31	10.9	9.5
11035	12	Z	100	27	11.3	8.7
11035	00	Z	100	30	14.8	13.5
12982	00	Z	100	24	11.2	9.4
12982	12	Z	100	21	23.6	21.2
16080	00	Z	100	31	7.7	4.4
16080	12	Z	100	29	6.1	1.5
16245	12	Z	100	31	12.4	6.2
16245	00	Z	100	29	8.3	5.8
16320	00	Z	100	31	13.0	11.0
16320	12	Z	100	31	15.9	7.8
16429	12	Z	100	31	17.9	11.0
16429	00	Z	100	31	14.3	10.8
16622	00	Z	100	30	19.3	17.7
16754	00	Z	100	29	16.6	13.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
17607	12	Z	100	31	11.5	7.0
26435	12	Z	100	6	5.1	-2.1
26435	00	Z	100	8	25.2	12.4
5QPW8X	00	Z	100	12	20.9	20.4
5QPW8X	12	Z	100	10	19.1	16.5
60018	00	Z	100	31	14.9	13.7
60018	12	Z	100	31	9.3	7.2
7HCPVT	12	Z	100	7	31.9	31.0
7HCPVT	00	Z	100	9	27.0	25.2
7JUNA4	12	Z	100	8	19.3	17.8
7JUNA4	00	Z	100	8	8.3	6.5
ASDE09	12	Z	100	1	9.7	9.7
ASUK3	12	Z	100	20	14.8	10.1
FHM5UJ	12	Z	100	10	5.3	1.6
FHM5UJ	00	Z	100	9	14.9	8.6
FPUW5G	12	Z	100	7	9.8	-8.5
HTXUH4	12	Z	100	5	13.4	-9.2
HTXUH4	00	Z	100	4	7.0	-1.2
QCY3TG	12	Z	100	9	30.5	29.2
QCY3TG	00	Z	100	9	21.0	20.7
VKB4L5	12	Z	100	13	48.8	46.8
VKB4L5	00	Z	100	14	50.9	48.9
WDK38H	12	Z	100	12	7.0	-4.3
WDK38H	00	Z	100	2	6.4	-6.2
XQFJRG	12	Z	100	4	8.2	5.9
XQFJRG	00	Z	100	7	21.9	-20.6
XWHDEA	00	Z	100	7	18.5	16.3
XWHDEA	12	Z	100	5	18.9	16.1
YLV96W	12	Z	100	4	155.3	155.3
YLV96W	00	Z	100	6	219.6	212.7
ZVQEQC	00	Z	100	2	10.9	10.8
ZVQEQC	12	Z	100	10	9.9	6.4

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 : OCT 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	30	2.8	0.0	-0.3
01001	00	V	100	25	3.3	0.0	0.4
01028	00	V	100	26	2.3	0.4	0.0
01028	12	V	100	31	2.5	0.3	-0.1
01400	00	V	100	18	3.8	-0.6	0.3
01400	12	V	100	20	3.5	0.6	0.2
01415	00	V	100	26	5.5	-1.4	1.0
01415	12	V	100	30	7.2	-1.3	0.8
02365	12	V	100	28	4.5	0.7	-0.1
02365	00	V	100	27	3.8	0.2	0.6
02591	00	V	100	31	3.3	-0.3	0.1
02591	12	V	100	31	3.5	-1.2	0.6
02836	00	V	100	27	4.2	-0.3	-0.5
02836	12	V	100	31	2.5	0.0	0.0
02963	12	V	100	31	3.3	-0.3	-0.6
02963	00	V	100	27	3.4	-0.4	0.1
03005	12	V	100	31	4.0	-0.2	0.0
03005	00	V	100	27	2.9	0.0	-0.5
03238	00	V	100	25	4.3	-0.9	-0.4
03808	00	V	100	27	3.6	0.0	0.4
03808	12	V	100	30	3.4	0.1	-0.2
03918	12	V	100	6	2.4	0.8	-1.1
03918	00	V	100	28	4.1	-0.6	0.4
03953	12	V	100	30	3.6	0.6	-0.2
03953	00	V	100	26	4.2	-1.1	-0.2
04018	00	V	100	30	3.8	-0.4	-0.6
04018	12	V	100	29	2.9	-0.3	-0.1
04220	12	V	100	30	2.8	0.4	0.6
04220	00	V	100	26	3.2	-0.1	0.5
042206	12	V	100	0	0.0	0.0	0.0
04270	12	V	100	29	4.8	-1.1	-0.2
04270	00	V	100	28	3.4	0.1	-0.2
04320	00	V	100	28	2.6	-0.9	-0.2
04320	12	V	100	30	2.6	0.0	0.7
04339	12	V	100	31	2.9	0.0	0.6
04339	00	V	100	28	3.4	0.5	-0.8
04360	00	V	100	18	3.3	0.5	0.0
04360	12	V	100	24	2.9	-0.3	0.1
06011	12	V	100	29	3.1	0.0	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	100	29	3.5	0.2	-0.4
06260	12	V	100	7	2.4	-0.5	-0.2
06260	00	V	100	30	3.4	0.4	0.1
06610	12	V	100	30	3.5	0.3	0.9
06610	00	V	100	29	3.9	-0.7	-0.3
07110	12	V	100	28	4.3	0.9	-0.6
07110	00	V	100	25	3.2	0.2	0.2
07510	00	V	100	29	2.8	-0.4	-0.4
07510	12	V	100	30	3.0	-0.2	-0.1
07645	12	V	100	27	3.8	1.3	-0.4
07645	00	V	100	23	4.3	0.5	0.3
07761	12	V	100	31	4.5	0.2	-0.1
07761	00	V	100	25	4.0	0.9	0.1
08001	12	V	100	31	4.0	0.0	0.3
08001	00	V	100	26	3.5	-0.1	-0.5
08221	00	V	100	28	4.1	0.6	0.0
08221	12	V	100	30	3.1	0.1	0.3
08302	00	V	100	22	4.1	-0.7	-0.3
08302	12	V	100	28	3.3	-0.5	0.1
08508	12	V	100	31	3.6	0.5	0.3
08522	12	V	100	31	3.8	1.3	0.2
08579	12	V	100	29	3.9	1.1	0.4
10035	12	V	100	30	3.3	0.1	-0.3
10393	00	V	100	29	3.1	0.2	0.6
10393	12	V	100	31	4.2	0.4	-0.3
10410	00	V	100	29	3.8	0.6	-0.4
10410	12	V	100	30	3.6	-0.2	-0.1
10739	12	V	100	31	3.8	0.4	0.1
10739	00	V	100	28	3.2	-0.4	-0.3
11035	12	V	100	27	3.8	0.4	0.3
11035	00	V	100	28	4.5	0.2	0.3
12982	00	V	100	23	3.7	1.2	-0.3
12982	12	V	100	21	3.3	-0.2	-0.3
16080	00	V	100	27	4.2	-0.5	-0.8
16080	12	V	100	29	3.9	0.6	-0.1
16245	12	V	100	31	3.5	0.9	0.4
16245	00	V	100	27	4.1	1.1	1.5
16320	00	V	100	27	3.7	1.0	1.1
16320	12	V	100	31	3.7	0.1	0.3
16429	12	V	100	31	3.5	0.7	-0.4
16429	00	V	100	28	3.3	0.1	0.7
16622	00	V	100	26	3.7	-0.4	-0.7
16754	00	V	100	26	3.5	0.3	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
17607	12	V	100	24	4.3	0.7	-0.5
26435	12	V	100	6	3.8	0.6	0.7
26435	00	V	100	8	3.8	-1.3	-0.6
5QPW8X	00	V	100	12	3.1	-0.2	0.1
5QPW8X	12	V	100	9	3.1	-0.2	0.0
60018	00	V	100	29	4.2	-0.1	-0.3
60018	12	V	100	31	4.3	0.5	0.6
7HCPVT	12	V	100	7	3.5	0.8	0.8
7HCPVT	00	V	100	9	3.1	0.1	-0.6
7JUNA4	12	V	100	7	4.6	-0.5	-0.7
7JUNA4	00	V	100	8	3.2	-0.7	-0.9
ASDE09	12	V	100	1	2.5	-1.1	-2.3
ASUK3	12	V	100	19	3.7	0.9	-1.1
FHM5UJ	12	V	100	10	2.9	-0.2	0.3
FHM5UJ	00	V	100	8	2.7	-0.4	-0.3
FPUW5G	12	V	100	7	2.7	-0.2	0.5
HTXUH4	12	V	100	5	5.1	-0.8	0.9
HTXUH4	00	V	100	4	6.1	-2.4	0.8
QCY3TG	12	V	100	9	2.5	-0.4	0.0
QCY3TG	00	V	100	9	4.0	1.5	-0.6
VKB4L5	12	V	100	13	4.2	-0.2	0.0
VKB4L5	00	V	100	14	3.0	0.6	0.0
WDK38H	12	V	100	10	2.7	-0.2	0.2
WDK38H	00	V	100	2	3.3	-0.2	2.0
XQFJRG	12	V	100	4	3.4	1.9	0.2
XQFJRG	00	V	100	7	2.1	0.2	-0.5
XWHDEA	00	V	100	6	3.4	-0.4	0.1
XWHDEA	12	V	100	5	4.5	1.6	0.7
YLV96W	12	V	100	4	5.7	-1.3	2.0
YLV96W	00	V	100	6	3.5	-0.3	0.5
ZVQEQC	00	V	100	2	2.9	2.1	1.8
ZVQEQC	12	V	100	10	4.0	1.3	1.7

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 : OCT 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	31	7.8	-1.8
01001	00	Z	500	30	5.1	-0.1
01028	00	Z	500	31	3.3	-1.6
01028	12	Z	500	31	3.8	-2.0
01400	00	Z	500	19	80.3	80.1
01400	12	Z	500	22	77.6	77.3
01415	00	Z	500	28	6.0	3.3
01415	12	Z	500	30	4.6	3.8
02365	12	Z	500	29	4.2	0.4
02365	00	Z	500	30	4.3	2.8
02591	00	Z	500	31	9.9	9.4
02591	12	Z	500	31	9.2	8.8
02836	00	Z	500	31	3.9	1.4
02836	12	Z	500	31	4.1	1.5
02963	12	Z	500	31	3.6	1.9
02963	00	Z	500	31	4.7	3.7
03005	12	Z	500	31	8.7	-1.6
03005	00	Z	500	32	16.5	-3.2
03238	00	Z	500	30	4.5	2.9
03808	00	Z	500	29	4.6	3.4
03808	12	Z	500	31	4.0	2.7
03918	12	Z	500	6	6.9	6.4
03918	00	Z	500	31	8.0	7.2
03953	12	Z	500	31	10.7	8.8
03953	00	Z	500	31	8.4	4.7
04018	00	Z	500	31	4.1	0.4
04018	12	Z	500	31	3.5	-1.9
04220	12	Z	500	30	3.5	0.4
04220	00	Z	500	29	6.1	1.6
042206	12	Z	500	0	0.0	0.0
04270	12	Z	500	30	4.0	-1.7
04270	00	Z	500	31	5.3	-1.6
04320	00	Z	500	30	3.0	0.9
04320	12	Z	500	30	3.5	0.4
04339	12	Z	500	31	5.2	-1.8
04339	00	Z	500	30	4.3	-0.3
04360	00	Z	500	30	31.0	30.7
04360	12	Z	500	29	30.2	29.8
06011	12	Z	500	29	6.2	3.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	500	30	6.3	1.4
06260	12	Z	500	7	3.4	3.0
06260	00	Z	500	31	5.4	1.5
06610	12	Z	500	33	4.1	3.0
06610	00	Z	500	32	5.1	3.8
07110	12	Z	500	29	6.6	2.7
07110	00	Z	500	29	6.1	1.9
07510	00	Z	500	31	6.1	3.8
07510	12	Z	500	30	8.2	6.7
07645	12	Z	500	28	5.9	0.2
07645	00	Z	500	29	4.7	-0.4
07761	12	Z	500	31	6.3	5.0
07761	00	Z	500	30	6.3	3.6
08001	12	Z	500	31	6.9	6.2
08001	00	Z	500	30	5.4	4.6
08221	00	Z	500	31	7.3	6.7
08221	12	Z	500	31	6.6	5.2
08302	00	Z	500	26	3.7	2.1
08302	12	Z	500	28	5.7	-0.9
08508	12	Z	500	31	8.1	7.2
08522	12	Z	500	31	8.7	7.4
08579	12	Z	500	29	7.9	6.9
10035	12	Z	500	31	11.4	7.2
10393	00	Z	500	32	3.9	2.4
10393	12	Z	500	31	3.0	1.0
10410	00	Z	500	30	3.4	2.1
10410	12	Z	500	30	2.5	0.4
10739	12	Z	500	31	6.5	5.8
10739	00	Z	500	31	8.0	6.4
11035	12	Z	500	27	8.6	6.5
11035	00	Z	500	30	11.5	10.1
12982	00	Z	500	24	7.2	6.3
12982	12	Z	500	23	7.4	6.1
16080	00	Z	500	31	3.3	0.7
16080	12	Z	500	31	4.2	-1.5
16245	12	Z	500	31	3.6	-1.2
16245	00	Z	500	30	4.6	-0.3
16320	00	Z	500	31	8.0	5.0
16320	12	Z	500	31	14.1	3.0
16429	12	Z	500	32	16.1	7.1
16429	00	Z	500	31	16.5	8.5
16622	00	Z	500	30	12.5	11.2
16754	00	Z	500	31	9.6	5.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
17607	12	Z	500	31	5.0	3.9
26435	12	Z	500	7	5.2	2.7
26435	00	Z	500	8	29.4	12.8
5QPW8X	00	Z	500	15	23.5	23.1
5QPW8X	12	Z	500	11	21.5	20.8
60018	00	Z	500	31	5.3	4.2
60018	12	Z	500	31	7.0	6.5
7HCPVT	12	Z	500	8	16.9	16.3
7HCPVT	00	Z	500	9	11.3	9.7
7JUNA4	12	Z	500	8	15.2	7.0
7JUNA4	00	Z	500	8	3.4	2.3
ASDE09	12	Z	500	1	17.2	17.2
ASUK3	12	Z	500	22	6.7	0.4
FHM5UJ	12	Z	500	12	8.1	1.7
FHM5UJ	00	Z	500	9	10.2	0.3
FPUW5G	12	Z	500	7	9.2	-8.5
HTXUH4	12	Z	500	6	4.9	-3.2
HTXUH4	00	Z	500	5	6.0	3.9
QCY3TG	12	Z	500	10	13.4	12.4
QCY3TG	00	Z	500	10	8.9	8.1
VKB4L5	12	Z	500	14	36.9	33.8
VKB4L5	00	Z	500	14	40.9	38.4
WDK38H	12	Z	500	15	8.7	-8.0
WDK38H	00	Z	500	2	10.1	-9.8
XQFJRG	12	Z	500	4	6.2	-5.7
XQFJRG	00	Z	500	7	18.5	-16.5
XWHDEA	00	Z	500	7	7.2	-4.5
XWHDEA	12	Z	500	7	7.6	1.6
YLV96W	12	Z	500	7	63.5	56.3
YLV96W	00	Z	500	7	51.6	42.7
ZVQEQC	00	Z	500	2	1.6	1.3
ZVQEQC	12	Z	500	10	5.8	3.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	31	2.8	-0.2	-0.3
01001	00	V	500	29	2.8	0.0	-0.5
01028	00	V	500	30	2.3	-0.3	-0.6
01028	12	V	500	31	2.4	0.3	-0.1
01400	00	V	500	17	2.4	-0.1	0.4
01400	12	V	500	22	3.8	-0.8	0.0
01415	00	V	500	27	3.3	0.7	0.8
01415	12	V	500	30	3.3	0.6	1.0
02365	12	V	500	29	3.2	0.6	-1.0
02365	00	V	500	29	3.7	1.0	0.5
02591	00	V	500	30	2.8	-0.2	-0.2
02591	12	V	500	31	3.2	-0.4	-0.8
02836	00	V	500	30	3.5	0.9	-0.1
02836	12	V	500	31	2.2	-0.2	-0.4
02963	12	V	500	31	2.7	0.5	0.1
02963	00	V	500	30	2.6	0.3	0.6
03005	12	V	500	31	3.7	1.1	0.5
03005	00	V	500	30	3.0	0.9	0.1
03238	00	V	500	29	2.8	0.4	-0.5
03808	00	V	500	28	3.0	-0.3	-0.3
03808	12	V	500	31	3.1	-1.0	-0.3
03918	12	V	500	6	2.1	1.1	0.0
03918	00	V	500	30	3.7	0.4	0.6
03953	12	V	500	31	3.1	0.2	-1.0
03953	00	V	500	28	3.8	0.3	0.1
04018	00	V	500	30	2.9	0.0	0.5
04018	12	V	500	31	2.6	-0.4	0.0
04220	12	V	500	30	2.5	0.5	0.1
04220	00	V	500	28	2.8	-0.6	0.0
042206	12	V	500	0	0.0	0.0	0.0
04270	12	V	500	30	2.9	0.3	-0.5
04270	00	V	500	30	2.9	0.5	0.0
04320	00	V	500	29	2.6	1.0	0.1
04320	12	V	500	30	2.8	0.4	-0.1
04339	12	V	500	31	3.5	-0.8	0.0
04339	00	V	500	29	2.7	-0.3	0.5
04360	00	V	500	30	3.0	0.5	0.6
04360	12	V	500	29	3.2	-0.5	0.3
06011	12	V	500	29	3.0	0.8	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	500	29	3.5	0.8	-0.3
06260	12	V	500	7	1.6	0.3	-0.9
06260	00	V	500	30	2.3	0.4	0.5
06610	12	V	500	31	2.5	-0.4	0.4
06610	00	V	500	30	3.1	-0.5	0.7
07110	12	V	500	29	2.6	0.7	0.0
07110	00	V	500	28	2.5	-0.5	0.8
07510	00	V	500	30	2.9	0.1	0.5
07510	12	V	500	30	3.1	-0.2	0.4
07645	12	V	500	28	2.9	0.1	-0.1
07645	00	V	500	28	2.3	0.2	0.3
07761	12	V	500	31	3.3	0.0	-0.5
07761	00	V	500	29	3.4	-0.1	0.1
08001	12	V	500	31	3.5	-0.3	-0.1
08001	00	V	500	29	3.0	-0.5	-0.2
08221	00	V	500	30	2.8	0.2	0.0
08221	12	V	500	31	3.6	-0.1	-0.4
08302	00	V	500	25	3.6	-0.5	-0.4
08302	12	V	500	28	3.1	-0.1	-0.7
08508	12	V	500	31	2.6	0.3	-0.5
08522	12	V	500	31	2.7	0.3	0.4
08579	12	V	500	29	3.2	0.3	0.3
10035	12	V	500	31	2.2	-0.1	-0.1
10393	00	V	500	30	2.3	0.1	-0.2
10393	12	V	500	31	2.5	0.2	-0.7
10410	00	V	500	29	3.0	0.0	0.6
10410	12	V	500	30	2.2	0.4	-0.1
10739	12	V	500	31	2.1	-0.1	0.0
10739	00	V	500	28	2.5	0.2	0.1
11035	12	V	500	27	3.8	-0.1	-0.3
11035	00	V	500	29	2.1	0.1	0.6
12982	00	V	500	23	2.3	0.1	0.0
12982	12	V	500	23	2.3	0.0	0.0
16080	00	V	500	30	3.4	-0.1	-0.7
16080	12	V	500	31	3.0	0.0	-0.3
16245	12	V	500	31	2.6	0.4	0.4
16245	00	V	500	29	2.9	0.4	-0.1
16320	00	V	500	30	3.3	0.1	-0.2
16320	12	V	500	31	2.9	0.0	0.3
16429	12	V	500	31	3.6	-0.6	0.3
16429	00	V	500	30	3.1	0.7	0.2
16622	00	V	500	29	2.4	0.5	-0.1
16754	00	V	500	29	2.4	0.1	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
17607	12	V	500	23	5.9	0.9	0.2
26435	12	V	500	7	1.9	0.0	-0.3
26435	00	V	500	8	2.8	0.1	-0.4
5QPW8X	00	V	500	15	2.2	-0.7	-0.4
5QPW8X	12	V	500	11	2.5	-0.7	-0.6
60018	00	V	500	30	2.6	0.3	0.9
60018	12	V	500	31	2.8	0.1	0.7
7HCPVT	12	V	500	8	2.9	-1.2	-0.1
7HCPVT	00	V	500	9	2.2	0.5	-0.1
7JUNA4	12	V	500	8	3.3	1.2	1.1
7JUNA4	00	V	500	8	3.0	-0.8	-1.2
ASDE09	12	V	500	1	1.6	-1.0	-1.2
ASUK3	12	V	500	22	2.7	0.6	-0.2
FHM5UJ	12	V	500	12	2.3	0.9	0.2
FHM5UJ	00	V	500	9	6.8	-0.8	1.2
FPUW5G	12	V	500	7	1.6	-0.4	0.9
HTXUH4	12	V	500	6	1.9	1.2	-0.4
HTXUH4	00	V	500	5	3.7	-1.1	1.1
QCY3TG	12	V	500	10	4.6	0.5	1.4
QCY3TG	00	V	500	10	1.9	-0.1	0.4
VKB4L5	12	V	500	14	2.6	0.1	0.7
VKB4L5	00	V	500	14	2.8	0.3	-0.5
WDK38H	12	V	500	15	1.9	0.7	0.0
WDK38H	00	V	500	2	2.2	0.8	-2.0
XQFJRG	12	V	500	4	2.1	-1.6	0.1
XQFJRG	00	V	500	7	3.1	0.2	-1.1
XWHDEA	00	V	500	6	4.1	1.2	1.0
XWHDEA	12	V	500	7	3.8	1.8	-0.3
YLV96W	12	V	500	6	1.5	-0.9	-0.2
YLV96W	00	V	500	7	2.9	-0.2	0.8
ZVQEQC	00	V	500	2	3.1	-2.1	0.8
ZVQEQC	12	V	500	10	2.8	0.4	-0.4

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 : OCT 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	31	3.7	-1.0
01001	00	Z	850	31	3.8	-0.3
01028	00	Z	850	31	2.9	-0.1
01028	12	Z	850	31	3.3	-0.2
01400	00	Z	850	19	79.4	79.2
01400	12	Z	850	23	77.3	77.1
01415	00	Z	850	28	4.2	3.4
01415	12	Z	850	30	5.0	4.2
02365	12	Z	850	29	3.6	2.8
02365	00	Z	850	30	4.0	3.4
02591	00	Z	850	31	9.2	8.8
02591	12	Z	850	31	9.4	9.1
02836	00	Z	850	31	3.2	2.7
02836	12	Z	850	31	3.2	2.3
02963	12	Z	850	31	3.7	3.1
02963	00	Z	850	31	4.4	4.0
03005	12	Z	850	31	7.9	0.2
03005	00	Z	850	32	19.2	-2.2
03238	00	Z	850	30	4.5	3.4
03808	00	Z	850	29	3.5	2.3
03808	12	Z	850	31	3.1	1.6
03918	12	Z	850	6	6.5	5.5
03918	00	Z	850	31	7.2	6.6
03953	12	Z	850	31	6.0	4.6
03953	00	Z	850	31	5.9	4.5
04018	00	Z	850	31	2.3	-0.6
04018	12	Z	850	31	3.1	-1.1
04220	12	Z	850	30	2.9	0.9
04220	00	Z	850	29	5.2	2.2
042206	12	Z	850	1	4.5	4.5
04270	12	Z	850	30	3.2	-0.4
04270	00	Z	850	31	3.1	-0.2
04320	00	Z	850	30	4.4	-0.8
04320	12	Z	850	30	3.5	-0.6
04339	12	Z	850	31	3.6	-0.4
04339	00	Z	850	31	3.5	-0.9
04360	00	Z	850	30	38.0	37.1
04360	12	Z	850	30	37.1	36.9
06011	12	Z	850	30	4.5	2.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	850	31	6.5	4.3
06260	12	Z	850	7	2.0	-0.3
06260	00	Z	850	31	5.5	0.6
06610	12	Z	850	33	2.9	1.3
06610	00	Z	850	32	4.7	3.9
07110	12	Z	850	29	4.2	1.2
07110	00	Z	850	29	3.6	1.8
07510	00	Z	850	31	4.7	3.7
07510	12	Z	850	30	5.2	4.5
07645	12	Z	850	29	3.7	-1.0
07645	00	Z	850	30	3.5	1.4
07761	12	Z	850	31	4.6	3.5
07761	00	Z	850	30	3.5	2.5
08001	12	Z	850	31	4.2	3.0
08001	00	Z	850	30	4.4	2.2
08221	00	Z	850	31	4.3	3.6
08221	12	Z	850	31	5.1	4.6
08302	00	Z	850	26	2.6	-0.2
08302	12	Z	850	28	4.5	-1.9
08508	12	Z	850	31	4.9	4.1
08522	12	Z	850	31	5.8	5.0
08579	12	Z	850	29	4.9	4.4
10035	12	Z	850	31	11.5	6.6
10393	00	Z	850	32	2.2	1.0
10393	12	Z	850	31	2.5	0.5
10410	00	Z	850	30	2.5	-0.2
10410	12	Z	850	30	2.6	-1.0
10739	12	Z	850	31	4.6	4.4
10739	00	Z	850	31	4.8	4.5
11035	12	Z	850	27	8.4	7.5
11035	00	Z	850	30	10.4	9.0
12982	00	Z	850	24	5.6	5.1
12982	12	Z	850	23	5.0	4.3
16080	00	Z	850	31	3.6	0.6
16080	12	Z	850	31	4.3	-2.7
16245	12	Z	850	31	4.2	-3.1
16245	00	Z	850	30	3.4	0.2
16320	00	Z	850	31	8.3	4.9
16320	12	Z	850	31	15.6	2.1
16429	12	Z	850	32	17.2	7.3
16429	00	Z	850	31	17.0	8.5
16622	00	Z	850	30	10.6	9.8
16754	00	Z	850	31	8.3	2.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
17607	12	Z	850	31	3.2	2.1
26435	12	Z	850	7	4.8	3.0
26435	00	Z	850	8	29.1	11.9
5QPW8X	00	Z	850	15	25.4	25.1
5QPW8X	12	Z	850	12	23.2	22.4
60018	00	Z	850	31	2.4	1.1
60018	12	Z	850	31	3.4	2.3
7HCPVT	12	Z	850	8	10.0	9.3
7HCPVT	00	Z	850	9	8.4	7.5
7JUNA4	12	Z	850	9	7.1	0.4
7JUNA4	00	Z	850	8	3.8	-0.4
ASDE09	12	Z	850	1	16.2	16.2
ASUK3	12	Z	850	23	5.9	-4.3
FHM5UJ	12	Z	850	12	9.3	5.0
FHM5UJ	00	Z	850	9	6.3	5.0
FPUW5G	12	Z	850	7	6.9	-6.2
HTXUH4	12	Z	850	6	4.5	-1.1
HTXUH4	00	Z	850	5	4.2	3.3
QCY3TG	12	Z	850	10	5.7	5.0
QCY3TG	00	Z	850	10	4.1	3.7
VKB4L5	12	Z	850	15	31.6	27.4
VKB4L5	00	Z	850	14	34.4	32.0
WDK38H	12	Z	850	15	8.8	-8.1
WDK38H	00	Z	850	2	9.0	-8.9
XQFJRG	12	Z	850	4	10.5	-9.6
XQFJRG	00	Z	850	7	15.6	-14.0
XWHDEA	00	Z	850	7	7.3	-5.6
XWHDEA	12	Z	850	7	6.7	-4.1
YLV96W	12	Z	850	7	22.8	15.1
YLV96W	00	Z	850	7	7.6	6.6
ZVQEQC	00	Z	850	2	2.6	1.6
ZVQEQC	12	Z	850	10	5.1	1.7

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 : OCT 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	31	4.2	-0.1	0.7
01001	00	V	850	30	3.6	0.2	0.2
01028	00	V	850	30	2.4	0.5	0.0
01028	12	V	850	31	2.8	0.0	0.6
01400	00	V	850	17	2.1	0.4	-0.2
01400	12	V	850	23	2.3	0.1	0.0
01415	00	V	850	27	2.8	0.0	-0.6
01415	12	V	850	30	3.0	-0.4	0.7
02365	12	V	850	29	2.9	0.3	-0.4
02365	00	V	850	29	2.6	0.3	0.0
02591	00	V	850	30	2.5	0.1	0.3
02591	12	V	850	31	2.6	-0.2	0.3
02836	00	V	850	30	2.4	0.3	0.6
02836	12	V	850	31	2.8	0.3	0.0
02963	12	V	850	31	2.8	1.1	0.2
02963	00	V	850	30	2.3	0.4	0.0
03005	12	V	850	31	3.7	0.3	-0.1
03005	00	V	850	30	3.2	0.2	0.2
03238	00	V	850	29	2.6	0.2	0.3
03808	00	V	850	28	2.3	-0.2	-0.7
03808	12	V	850	31	2.8	-0.4	-0.2
03918	12	V	850	6	1.5	0.5	-0.6
03918	00	V	850	30	2.8	0.4	-0.2
03953	12	V	850	31	3.1	-0.2	-0.4
03953	00	V	850	28	2.4	0.5	-0.1
04018	00	V	850	30	2.1	0.1	0.7
04018	12	V	850	31	2.8	0.7	0.2
04220	12	V	850	30	2.6	0.1	-0.1
04220	00	V	850	28	2.4	0.0	-0.2
042206	12	V	850	1	2.8	-2.3	1.6
04270	12	V	850	30	3.6	0.5	-0.5
04270	00	V	850	30	2.8	0.7	0.0
04320	00	V	850	29	3.3	-0.5	-0.5
04320	12	V	850	30	3.2	0.1	0.3
04339	12	V	850	31	7.2	1.2	1.5
04339	00	V	850	30	4.8	1.0	0.9
04360	00	V	850	30	5.2	1.9	0.6
04360	12	V	850	30	7.2	2.4	0.7
06011	12	V	850	30	2.3	-0.3	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	850	30	3.4	-0.6	-0.2
06260	12	V	850	7	2.1	0.6	0.3
06260	00	V	850	30	2.4	0.4	-0.4
06610	12	V	850	31	2.8	0.0	-0.1
06610	00	V	850	30	2.8	0.5	-0.1
07110	12	V	850	29	2.6	-0.7	-0.3
07110	00	V	850	28	3.0	0.0	0.3
07510	00	V	850	30	2.3	0.4	0.2
07510	12	V	850	30	2.6	0.0	-0.5
07645	12	V	850	29	3.9	-0.1	0.3
07645	00	V	850	29	4.1	0.0	0.2
07761	12	V	850	31	3.5	0.7	-0.1
07761	00	V	850	29	4.0	0.5	-0.8
08001	12	V	850	31	3.0	0.5	-0.7
08001	00	V	850	29	3.5	-0.1	0.2
08221	00	V	850	30	2.9	0.3	0.4
08221	12	V	850	31	3.1	0.5	1.6
08302	00	V	850	25	3.7	0.9	0.1
08302	12	V	850	28	2.8	-0.1	0.3
08508	12	V	850	31	2.4	0.2	-0.3
08522	12	V	850	31	3.7	0.3	0.6
08579	12	V	850	29	2.5	-0.2	-0.1
10035	12	V	850	31	2.3	-0.2	-0.3
10393	00	V	850	30	2.4	-0.3	0.0
10393	12	V	850	31	2.8	-0.1	-0.1
10410	00	V	850	29	3.0	0.3	-0.2
10410	12	V	850	30	2.4	0.8	-0.3
10739	12	V	850	31	2.3	-0.5	-0.3
10739	00	V	850	28	3.3	0.5	-0.3
11035	12	V	850	27	3.8	0.2	0.0
11035	00	V	850	29	2.8	0.4	-0.4
12982	00	V	850	23	2.9	0.5	1.1
12982	12	V	850	23	3.2	-0.7	-0.2
16080	00	V	850	30	4.0	0.6	-0.8
16080	12	V	850	31	3.7	0.6	-0.9
16245	12	V	850	31	4.0	-0.6	-0.6
16245	00	V	850	29	2.5	-0.2	1.1
16320	00	V	850	30	3.1	0.5	-1.3
16320	12	V	850	31	3.5	0.5	-1.0
16429	12	V	850	31	2.9	0.4	-0.2
16429	00	V	850	30	2.9	-0.5	0.6
16622	00	V	850	29	2.0	0.3	0.1
16754	00	V	850	29	2.9	0.5	-0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
17607	12	V	850	29	2.8	0.6	0.7
26435	12	V	850	7	1.9	0.0	-0.4
26435	00	V	850	8	3.2	-0.1	0.6
5QPW8X	00	V	850	15	2.5	0.2	0.5
5QPW8X	12	V	850	12	2.3	0.2	-0.8
60018	00	V	850	30	3.0	-0.2	0.6
60018	12	V	850	31	3.5	-0.3	0.5
7HCPVT	12	V	850	8	2.6	-0.8	0.3
7HCPVT	00	V	850	9	2.6	0.1	0.7
7JUNA4	12	V	850	9	2.0	0.8	0.2
7JUNA4	00	V	850	8	2.9	-0.2	0.6
ASDE09	12	V	850	1	0.6	-0.6	0.1
ASUK3	12	V	850	22	2.6	-0.3	-0.5
FHM5UJ	12	V	850	12	1.8	0.3	-0.8
FHM5UJ	00	V	850	9	3.0	0.4	0.3
FPUW5G	12	V	850	7	2.7	0.1	0.7
HTXUH4	12	V	850	6	2.8	0.3	0.6
HTXUH4	00	V	850	5	3.0	0.8	2.1
QCY3TG	12	V	850	10	2.3	-0.7	0.0
QCY3TG	00	V	850	10	1.4	-0.5	0.1
VKB4L5	12	V	850	15	3.3	0.4	-0.3
VKB4L5	00	V	850	14	2.5	1.2	0.2
WDK38H	12	V	850	15	2.9	0.2	-1.5
WDK38H	00	V	850	2	2.9	0.9	-1.8
XQFJRG	12	V	850	4	2.0	-0.4	0.0
XQFJRG	00	V	850	7	3.1	-0.1	-1.1
XWHDEA	00	V	850	6	2.3	-0.1	0.8
XWHDEA	12	V	850	7	3.1	-0.1	0.5
YLV96W	12	V	850	6	2.1	-0.7	0.4
YLV96W	00	V	850	7	1.4	0.3	0.4
ZVQEQC	00	V	850	2	1.7	0.0	1.3
ZVQEQC	12	V	850	10	1.4	-0.3	0.5

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : OCT 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	736	0	0.4	-0.2	0.4
1300001	99	P	SUR	11	-23	699	0	0.4	-0.2	0.4
1300008	99	P	SUR	15	-38	603	0	0.4	-0.3	0.5
1300130	99	P	SUR	28	-16	744	0	0.4	0.1	0.4
1300131	99	P	SUR	28	-17	744	0	0.4	-0.2	0.4
1300871	99	P	SUR	36	-59	727	0	0.6	0.2	0.7
1300872	99	P	SUR	39	-35	744	0	0.5	0.3	0.5
1301603	99	P	SUR	23	-50	744	0	0.4	-0.0	0.4
1301605	99	P	SUR	25	-46	743	0	0.4	0.0	0.4
1301606	99	P	SUR	13	-53	698	0	0.4	0.3	0.5
1301607	99	P	SUR	18	-34	743	0	0.3	0.3	0.4
1301608	99	P	SUR	26	-40	744	0	0.3	0.4	0.5
1301609	99	P	SUR	19	-35	744	0	0.3	0.3	0.4
1301610	99	P	SUR	24	-34	744	0	0.3	0.2	0.3
1301611	99	P	SUR	28	-42	743	0	0.4	0.2	0.5
1301612	99	P	SUR	28	-28	744	0	0.3	0.1	0.3
13871	99	P	SUR	36	-59	727	0	0.6	0.2	0.7
13872	99	P	SUR	39	-35	744	0	0.5	0.3	0.5
1501529	99	P	SUR	28	-31	739	0	0.3	0.3	0.5
1501531	99	P	SUR	18	-52	740	0	0.3	-0.2	0.3
1501534	99	P	SUR	26	-56	741	0	0.9	-1.1	1.4
1501580	99	P	SUR	16	-61	46	0	0.3	-3.5	3.5
2601620	99	P	SUR	85	13	742	0	0.5	-0.7	0.8
2601621	99	P	SUR	88	9	742	0	0.5	-0.7	0.9
3100735	99	P	SUR	36	-62	743	2	2.1	0.1	2.1
31735	99	P	SUR	36	-62	743	2	2.1	0.1	2.1
4100139	99	P	SUR	20	-38	702	0	0.3	-0.3	0.4
4100300	99	P	SUR	16	-57	744	0	0.3	0.0	0.3
4100597	99	P	SUR	30	-45	744	0	0.8	0.1	0.8
4100729	99	P	SUR	32	-39	744	0	0.4	-0.0	0.4
4100730	99	P	SUR	39	-36	408	15	0.3	0.5	0.6
4101528	99	P	SUR	36	-42	727	0	0.3	0.6	0.7
4101529	99	P	SUR	29	-67	707	0	0.4	-0.4	0.6
4101530	99	P	SUR	34	-33	698	0	0.4	0.6	0.7
4101531	99	P	SUR	46	-34	684	0	0.4	0.5	0.7
4101532	99	P	SUR	40	-44	707	0	0.4	0.2	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101533	99	P	SUR	50	-46	697	0	0.6	0.6	0.8
4101534	99	P	SUR	51	-38	696	0	0.5	0.3	0.6
4101535	99	P	SUR	41	-62	697	0	0.5	0.0	0.5
4101536	99	P	SUR	47	-35	714	0	0.6	0.1	0.6
4101537	99	P	SUR	43	-32	627	0	0.5	0.5	0.7
4101538	99	P	SUR	27	-64	617	0	0.3	0.4	0.5
4101539	99	P	SUR	36	-64	742	0	0.4	0.1	0.4
4101554	99	P	SUR	29	-60	738	0	0.4	0.4	0.5
4101556	99	P	SUR	36	-38	744	0	0.3	0.5	0.6
4101557	99	P	SUR	37	-36	744	0	0.3	0.3	0.4
4101558	99	P	SUR	31	-21	744	0	0.3	0.5	0.6
4101560	99	P	SUR	37	-48	731	0	0.4	0.6	0.7
4101562	99	P	SUR	34	-52	715	0	0.5	0.4	0.6
4101564	99	P	SUR	32	-44	731	0	0.5	-0.1	0.5
4101565	99	P	SUR	32	-39	710	0	0.3	0.5	0.5
4101566	99	P	SUR	28	-58	642	0	0.4	0.2	0.5
4101567	99	P	SUR	35	-52	694	0	0.5	0.5	0.7
4101568	99	P	SUR	34	-69	713	0	0.4	0.3	0.5
4101570	99	P	SUR	30	-52	715	0	0.4	0.5	0.6
4101571	99	P	SUR	46	-32	705	0	0.5	0.5	0.7
4101572	99	P	SUR	46	-30	725	0	0.5	0.3	0.6
4101574	99	P	SUR	35	-68	636	0	0.4	0.6	0.7
4101576	99	P	SUR	20	-62	743	0	0.4	0.4	0.5
4101579	99	P	SUR	18	-54	744	0	0.9	0.4	1.0
4101594	99	P	SUR	12	-52	744	0	0.3	-0.7	0.7
4101595	99	P	SUR	16	-48	744	0	0.3	0.5	0.6
4101596	99	P	SUR	53	-29	743	0	0.4	0.6	0.7
4101598	99	P	SUR	17	-45	743	0	0.4	0.2	0.4
4101599	99	P	SUR	51	-15	743	0	0.5	0.0	0.5
4101601	99	P	SUR	13	-46	741	0	0.4	0.1	0.4
4101602	99	P	SUR	14	-50	741	0	0.4	0.2	0.4
4101603	99	P	SUR	11	-46	741	0	0.4	0.3	0.5
4101605	99	P	SUR	69	-15	744	1	0.4	0.2	0.4
4101606	99	P	SUR	45	-10	201	0	0.4	0.4	0.6
4101607	99	P	SUR	43	-14	201	0	0.4	0.3	0.5
4101608	99	P	SUR	69	-12	744	0	0.4	0.3	0.6
4101609	99	P	SUR	42	-20	489	0	0.4	0.3	0.5
4101610	99	P	SUR	68	-11	744	0	0.5	0.4	0.6
4101611	99	P	SUR	46	-6	201	0	0.4	0.7	0.8
4101612	99	P	SUR	45	-7	201	0	0.4	0.7	0.8
4101619	99	P	SUR	50	-27	744	0	0.5	0.1	0.5
4101620	99	P	SUR	51	-13	744	0	0.5	0.2	0.5
4101622	99	P	SUR	72	-10	744	0	0.5	0.2	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101623	99	P	SUR	67	-32	744	0	0.5	-0.0	0.5
4101624	99	P	SUR	63	-35	744	0	0.6	0.3	0.6
4101625	99	P	SUR	62	-31	744	0	0.5	0.1	0.5
4101626	99	P	SUR	57	-36	744	0	0.5	0.1	0.5
4101627	99	P	SUR	57	-31	744	0	0.4	-0.0	0.4
4101629	99	P	SUR	64	-27	744	0	0.5	-0.5	0.7
4101700	99	P	SUR	26	-47	744	0	0.4	0.1	0.4
4101702	99	P	SUR	33	-57	600	11	2.4	-0.5	2.4
4101705	99	P	SUR	32	-33	743	0	0.5	0.0	0.5
4101706	99	P	SUR	35	-33	744	0	0.3	-0.6	0.7
4101707	99	P	SUR	34	-32	743	0	0.3	-0.1	0.3
4101708	99	P	SUR	29	-34	744	0	0.3	-0.3	0.5
4101709	99	P	SUR	17	-37	743	0	0.3	0.8	0.9
4101712	99	P	SUR	37	-30	720	0	0.3	0.3	0.4
4101713	99	P	SUR	35	-59	744	0	0.4	-0.2	0.4
4101714	99	P	SUR	33	-36	744	0	0.3	0.0	0.3
4101715	99	P	SUR	30	-51	465	0	1.2	0.4	1.3
4101716	99	P	SUR	28	-51	744	0	0.6	-0.6	0.8
4101717	99	P	SUR	24	-61	743	0	0.3	-0.1	0.3
4101743	99	P	SUR	26	-59	744	0	0.4	0.7	0.8
41041	99	P	SUR	14	-46	1252	0	0.4	0.4	0.6
41043	99	P	SUR	21	-65	1308	0	0.4	0.2	0.5
41044	99	P	SUR	22	-59	1411	0	0.4	0.5	0.6
41046	99	P	SUR	24	-68	1172	0	0.4	0.7	0.8
41049	99	P	SUR	28	-63	1256	0	0.4	0.4	0.5
41052	99	P	SUR	18	-65	1831	0	0.4	-1.3	1.4
41053	99	P	SUR	19	-66	1939	0	0.4	-0.7	0.8
41056	99	P	SUR	18	-66	1947	0	0.4	-0.9	1.0
41300	99	P	SUR	16	-57	744	0	0.3	0.0	0.3
41597	99	P	SUR	30	-45	744	0	0.8	0.1	0.8
41729	99	P	SUR	32	-39	744	0	0.4	-0.0	0.4
41730	99	P	SUR	39	-36	408	15	0.3	0.5	0.6
42060	99	P	SUR	16	-63	2024	0	0.4	-0.0	0.4
42085	99	P	SUR	18	-67	1010	0	0.4	-0.9	1.0
44005	99	P	SUR	43	-69	41	0	0.4	0.0	0.4
4400513	99	P	SUR	54	-10	709	0	0.4	-0.5	0.6
4400517	99	P	SUR	22	-60	743	0	0.3	0.1	0.4
4400521	99	P	SUR	36	-35	700	0	0.3	-0.8	0.9
4400746	99	P	SUR	31	-54	744	0	0.8	0.0	0.8
4400777	99	P	SUR	31	-44	744	1	1.8	0.3	1.8
4400778	99	P	SUR	24	-41	743	0	0.3	0.2	0.4
4400857	99	P	SUR	27	-51	744	0	1.4	0.1	1.4
4400874	99	P	SUR	34	-39	744	0	0.5	0.5	0.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4400875	99	P	SUR	30	-47	15	0	1.8	-7.0	7.2
4400887	99	P	SUR	41	-43	732	0	0.4	-0.4	0.6
4401503	99	P	SUR	36	-56	744	0	0.9	-0.1	0.9
4401527	99	P	SUR	34	-63	744	0	0.4	-0.1	0.4
4401531	99	P	SUR	35	-58	743	0	0.5	0.1	0.5
4401536	99	P	SUR	42	-17	697	0	0.4	0.8	0.9
4401537	99	P	SUR	32	-38	715	0	0.4	-0.5	0.7
4401539	99	P	SUR	39	-38	1438	0	0.4	-0.4	0.5
4401540	99	P	SUR	33	-65	1435	0	0.4	0.2	0.5
4401541	99	P	SUR	39	-29	1434	0	0.4	0.0	0.4
4401542	99	P	SUR	31	-69	1436	0	0.3	0.3	0.5
4401543	99	P	SUR	21	-64	744	0	0.4	-0.1	0.4
4401544	99	P	SUR	36	-59	1438	0	0.4	-0.8	0.9
4401549	99	P	SUR	58	-14	677	0	0.5	-0.1	0.6
4401551	99	P	SUR	37	-33	713	20	0.9	0.3	1.0
4401552	99	P	SUR	20	-27	695	0	0.3	0.2	0.3
4401553	99	P	SUR	62	-9	744	0	0.5	0.3	0.6
4401554	99	P	SUR	59	-18	52	52	0.0	0.0	0.0
4401555	99	P	SUR	59	-5	744	0	0.6	-0.2	0.6
4401556	99	P	SUR	34	-29	744	0	0.4	0.1	0.4
4401557	99	P	SUR	34	-32	744	0	0.4	0.2	0.5
4401558	99	P	SUR	58	-10	742	0	0.4	0.0	0.4
4401559	99	P	SUR	46	-14	744	0	0.9	0.7	1.1
4401560	99	P	SUR	41	-19	743	0	0.4	0.1	0.4
4401561	99	P	SUR	29	-34	743	0	0.4	-0.0	0.4
4401562	99	P	SUR	37	-22	742	0	0.5	-0.1	0.5
4401563	99	P	SUR	27	-37	744	0	0.3	-0.5	0.6
4401564	99	P	SUR	38	-36	744	0	0.7	0.1	0.7
4401565	99	P	SUR	57	-21	744	0	0.7	0.3	0.8
4401566	99	P	SUR	47	-13	744	0	0.8	0.5	1.0
4401570	99	P	SUR	48	-30	742	0	1.0	0.4	1.0
4401571	99	P	SUR	49	-33	743	0	0.5	0.1	0.5
4401601	99	P	SUR	56	-16	680	0	0.7	-0.2	0.7
4401603	99	P	SUR	58	2	111	0	0.3	0.6	0.7
4401605	99	P	SUR	57	-12	682	0	0.5	-0.2	0.5
4401611	99	P	SUR	45	-56	680	0	0.5	0.5	0.7
4401613	99	P	SUR	43	-13	679	0	0.4	0.5	0.6
4401616	99	P	SUR	36	-35	682	0	0.3	-0.1	0.3
4401633	99	P	SUR	41	-17	681	0	0.5	0.2	0.6
4401750	99	P	SUR	59	-13	717	0	0.5	-1.6	1.7
4401751	99	P	SUR	63	-15	703	0	0.5	0.2	0.5
4401753	99	P	SUR	61	-13	640	0	0.5	0.5	0.7
4401755	99	P	SUR	73	15	580	0	0.4	0.5	0.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401799	99	P	SUR	22	-40	739	0	0.3	0.2	0.4
4401802	99	P	SUR	41	-25	682	0	0.7	0.4	0.8
4401803	99	P	SUR	49	-34	743	0	0.5	0.2	0.6
4401804	99	P	SUR	62	-16	714	14	3.4	3.7	5.0
4401806	99	P	SUR	60	-21	45	0	2.4	0.7	2.5
4401807	99	P	SUR	62	-11	725	0	2.8	4.0	4.9
4401808	99	P	SUR	60	-25	46	0	5.3	-1.3	5.5
44027	99	P	SUR	44	-67	751	0	0.6	-0.6	0.8
44032	99	P	SUR	44	-69	728	0	0.5	-1.1	1.2
44033	99	P	SUR	44	-69	740	0	0.6	-0.5	0.8
44034	99	P	SUR	44	-68	745	0	0.5	-0.6	0.8
44037	99	P	SUR	44	-68	738	0	0.5	-1.1	1.2
44137	99	P	SUR	42	-62	739	0	0.5	-0.3	0.6
44139	99	P	SUR	44	-57	731	0	0.5	-0.1	0.5
44150	99	P	SUR	43	-64	722	0	0.5	0.1	0.5
44258	99	P	SUR	45	-63	35	0	0.3	0.0	0.3
44513	99	P	SUR	54	-10	709	0	0.4	-0.5	0.6
44517	99	P	SUR	22	-60	743	0	0.3	0.1	0.4
44521	99	P	SUR	36	-35	700	0	0.3	-0.8	0.9
44746	99	P	SUR	31	-54	744	0	0.8	0.0	0.8
44777	99	P	SUR	31	-44	744	1	1.8	0.3	1.8
44778	99	P	SUR	24	-41	743	0	0.3	0.2	0.4
44857	99	P	SUR	27	-51	744	0	1.4	0.1	1.4
44874	99	P	SUR	34	-39	744	0	0.5	0.5	0.7
44875	99	P	SUR	30	-47	15	0	1.8	-7.0	7.2
44887	99	P	SUR	41	-43	732	0	0.4	-0.4	0.6
45138	99	P	SUR	50	-66	723	1	0.5	-0.0	0.5
4700546	99	P	SUR	29	-44	676	14	3.3	0.0	3.3
4700560	99	P	SUR	73	31	660	0	0.3	0.1	0.3
4701669	99	P	SUR	44	-52	680	0	0.5	0.5	0.8
47546	99	P	SUR	29	-44	736	14	3.2	0.0	3.2
47560	99	P	SUR	73	31	737	0	0.5	0.1	0.5
4800510	99	P	SUR	79	-17	408	0	0.5	-0.3	0.5
4800770	99	P	SUR	76	-18	555	339	8.5	2.3	8.8
4802004	99	P	SUR	66	-15	682	0	0.8	-0.6	1.0
48510	99	P	SUR	79	-17	457	0	0.5	-0.3	0.6
48770	99	P	SUR	76	-18	610	392	8.5	2.4	8.8
6100001	99	P	SUR	43	8	743	0	0.6	-0.1	0.6
6100002	99	P	SUR	42	5	744	0	0.4	-0.1	0.5
61001	99	P	SUR	43	8	743	0	0.6	-0.1	0.6
6100196	99	P	SUR	42	4	181	3	5.3	-3.8	6.5
6100197	99	P	SUR	40	4	744	0	0.5	-0.0	0.5
6100198	99	P	SUR	37	-2	743	0	0.4	0.1	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
61002	99	P	SUR	42	5	744	0	0.4	-0.1	0.5
6100280	99	P	SUR	41	1	744	0	0.5	-0.0	0.5
6100281	99	P	SUR	40	0	744	0	0.6	0.1	0.6
6100417	99	P	SUR	38	0	742	0	0.3	0.1	0.4
6100430	99	P	SUR	40	2	744	0	0.6	-0.2	0.6
6101003	99	P	SUR	40	25	11	0	1.2	1.6	2.0
6101007	99	P	SUR	36	25	223	0	0.5	-0.0	0.5
6101008	99	P	SUR	37	22	143	0	0.6	0.1	0.6
6102501	99	P	SUR	33	19	744	0	0.5	0.2	0.5
6102502	99	P	SUR	32	26	744	0	0.3	0.2	0.4
6102506	99	P	SUR	39	19	501	0	0.4	0.4	0.6
6102623	99	P	SUR	38	2	491	0	0.6	0.3	0.7
6200024	99	P	SUR	44	-3	743	0	0.4	0.1	0.5
6200025	99	P	SUR	44	-6	744	0	0.4	0.1	0.4
6200082	99	P	SUR	44	-8	744	0	0.4	-0.3	0.5
6200083	99	P	SUR	43	-9	744	0	0.5	0.0	0.5
6200084	99	P	SUR	42	-9	744	0	0.7	0.1	0.7
6200085	99	P	SUR	36	-7	742	0	0.4	0.0	0.4
6200091	99	P	SUR	53	-5	698	0	0.5	-0.1	0.5
6200092	99	P	SUR	51	-11	740	0	0.4	-0.1	0.5
6200093	99	P	SUR	55	-10	454	1	0.5	-0.4	0.7
6200094	99	P	SUR	53	-8	739	0	0.7	0.1	0.7
62001	99	P	SUR	45	-5	739	0	0.4	0.1	0.4
6200191	99	P	SUR	41	-10	500	0	0.5	-0.3	0.6
6200192	99	P	SUR	40	-10	40	0	0.3	-0.5	0.6
6200199	99	P	SUR	40	-9	586	0	0.6	0.1	0.6
6200200	99	P	SUR	36	-8	432	0	0.4	0.0	0.4
6200513	99	P	SUR	64	-17	132	0	0.5	0.1	0.5
6200940	99	P	SUR	34	-44	734	0	0.4	-0.2	0.4
6200941	99	P	SUR	32	-59	456	2	0.4	-0.5	0.6
62023	99	P	SUR	51	-8	698	0	2.2	-0.3	2.2
62029	99	P	SUR	49	-12	1479	0	0.5	-0.1	0.5
62030	99	P	SUR	50	-4	1183	0	0.4	-0.0	0.4
6203503	99	P	SUR	41	-37	744	0	0.4	-0.3	0.5
6203504	99	P	SUR	31	-70	742	0	0.4	-0.0	0.4
6203510	99	P	SUR	24	-65	737	0	0.4	-0.0	0.4
6203523	99	P	SUR	67	-4	705	0	0.5	-0.3	0.6
6203525	99	P	SUR	68	-2	689	1	0.5	-0.6	0.8
6203526	99	P	SUR	76	9	704	0	0.4	0.3	0.5
6203527	99	P	SUR	60	-14	706	0	0.5	-2.6	2.7
6203528	99	P	SUR	31	-22	736	0	0.3	0.0	0.3
6203600	99	P	SUR	45	-14	744	0	0.5	0.4	0.6
6203601	99	P	SUR	46	-11	744	0	0.5	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
6203602	99	P	SUR	67	-57	744	0	0.9	0.1	0.9
6203603	99	P	SUR	57	-29	744	0	0.6	0.1	0.7
6203604	99	P	SUR	37	-21	744	0	0.5	0.5	0.7
6203607	99	P	SUR	38	-28	743	0	0.4	0.4	0.6
6203608	99	P	SUR	52	-14	742	0	0.4	0.3	0.5
6203609	99	P	SUR	48	-17	743	0	0.7	0.2	0.7
6203610	99	P	SUR	48	-12	714	0	0.5	0.2	0.5
62050	99	P	SUR	50	-4	747	0	0.4	0.3	0.5
62081	99	P	SUR	51	-13	749	0	0.4	-0.2	0.4
62087	99	P	SUR	54	9	745	0	0.4	-0.1	0.4
62091	99	P	SUR	53	-5	741	0	0.5	-0.1	0.5
62092	99	P	SUR	51	-11	740	0	0.4	-0.1	0.5
62093	99	P	SUR	55	-10	454	1	0.5	-0.4	0.7
62094	99	P	SUR	53	-8	739	0	0.7	0.1	0.7
62095	99	P	SUR	53	-14	142	0	0.4	-0.2	0.5
62102	99	P	SUR	58	2	747	0	0.5	0.2	0.6
62103	99	P	SUR	50	-3	749	0	0.4	0.6	0.7
62104	99	P	SUR	57	1	747	0	0.5	-0.2	0.5
62107	99	P	SUR	50	-6	1479	0	0.4	0.4	0.6
62111	99	P	SUR	58	0	416	0	0.5	1.3	1.4
62112	99	P	SUR	58	0	747	0	0.4	0.2	0.5
62113	99	P	SUR	58	0	747	0	0.6	0.1	0.6
62114	99	P	SUR	58	0	1475	0	0.6	0.1	0.6
62115	99	P	SUR	58	-3	743	0	0.6	0.1	0.7
62116	99	P	SUR	58	1	746	0	0.6	0.0	0.6
62118	99	P	SUR	58	1	746	0	0.4	0.4	0.6
62119	99	P	SUR	57	2	746	0	0.4	0.2	0.5
62120	99	P	SUR	56	2	747	0	0.7	0.0	0.7
62121	99	P	SUR	54	3	729	0	0.5	0.3	0.6
62122	99	P	SUR	57	2	1475	0	0.5	0.1	0.5
62124	99	P	SUR	54	-4	747	0	0.4	0.1	0.4
62127	99	P	SUR	54	1	564	0	0.4	0.6	0.7
62129	99	P	SUR	58	0	747	0	0.5	0.2	0.6
62130	99	P	SUR	59	1	744	0	0.5	-0.2	0.5
62131	99	P	SUR	54	1	747	0	0.4	0.5	0.6
62132	99	P	SUR	56	2	745	0	0.6	0.5	0.8
62133	99	P	SUR	57	1	743	0	0.6	0.2	0.6
62134	99	P	SUR	58	1	747	0	0.4	0.7	0.7
62135	99	P	SUR	54	2	741	0	0.7	0.5	0.8
62136	99	P	SUR	54	3	743	0	0.4	0.7	0.8
62138	99	P	SUR	54	0	1469	0	0.4	0.8	0.9
62139	99	P	SUR	53	2	1467	0	0.4	0.4	0.6
62140	99	P	SUR	57	1	1475	0	0.5	0.1	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62141	99	P	SUR	58	-2	745	0	1.2	-0.5	1.3
62143	99	P	SUR	58	2	747	0	0.5	0.8	1.0
62144	99	P	SUR	53	2	728	0	0.4	0.3	0.5
62145	99	P	SUR	53	3	1475	0	0.4	0.5	0.7
62146	99	P	SUR	57	2	747	0	0.5	0.0	0.5
62148	99	P	SUR	54	2	728	0	0.4	0.8	0.9
62149	99	P	SUR	54	1	747	0	0.4	0.8	0.9
62150	99	P	SUR	54	1	747	0	0.5	1.4	1.5
62151	99	P	SUR	57	2	1428	0	0.4	0.2	0.5
62152	99	P	SUR	57	2	747	0	0.4	0.5	0.7
62153	99	P	SUR	57	2	1475	0	0.5	0.3	0.6
62154	99	P	SUR	56	2	747	0	0.4	0.1	0.4
62155	99	P	SUR	58	1	740	0	0.4	0.5	0.6
62157	99	P	SUR	58	0	743	0	0.5	-0.0	0.5
62160	99	P	SUR	57	2	1475	0	0.5	0.3	0.6
62161	99	P	SUR	58	1	744	0	0.6	0.2	0.6
62162	99	P	SUR	57	1	745	0	0.5	0.0	0.5
62163	99	P	SUR	48	-8	735	0	0.5	0.3	0.6
62164	99	P	SUR	57	1	588	0	0.4	0.2	0.4
62165	99	P	SUR	54	1	747	0	0.5	0.7	0.9
62168	99	P	SUR	58	1	747	0	0.4	0.2	0.4
62170	99	P	SUR	51	2	749	0	0.8	0.2	0.8
62296	99	P	SUR	53	2	744	0	0.4	0.1	0.4
62297	99	P	SUR	59	2	1468	0	0.5	0.1	0.5
62302	99	P	SUR	61	-2	746	0	0.6	-0.1	0.7
62304	99	P	SUR	51	2	750	0	0.4	0.3	0.5
62305	99	P	SUR	50	0	737	0	0.4	0.3	0.5
62442	99	P	SUR	49	-16	715	0	0.6	-0.1	0.6
62513	99	P	SUR	64	-17	128	0	0.5	0.1	0.5
62940	99	P	SUR	34	-44	734	0	0.4	-0.2	0.4
62941	99	P	SUR	32	-59	456	2	0.4	-0.5	0.6
6301555	99	P	SUR	75	24	418	0	1.5	-0.6	1.6
6301558	99	P	SUR	88	14	743	0	0.5	0.9	1.1
6301560	99	P	SUR	82	14	612	0	0.5	0.2	0.6
6301561	99	P	SUR	81	10	744	2	1.4	0.6	1.6
6301562	99	P	SUR	84	15	743	0	0.5	0.0	0.5
6301563	99	P	SUR	87	33	742	0	0.6	0.7	0.9
6301564	99	P	SUR	83	18	742	0	0.5	0.3	0.6
6301592	99	P	SUR	89	37	679	0	0.5	-0.1	0.5
6301596	99	P	SUR	89	32	1085	0	0.5	0.3	0.6
6301598	99	P	SUR	89	25	680	0	0.5	0.2	0.6
6301600	99	P	SUR	89	13	679	0	0.5	0.2	0.5
6301670	99	P	SUR	82	22	657	12	2.3	-0.1	2.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6301671	99	P	SUR	81	16	659	0	1.2	0.2	1.2
63055	99	P	SUR	61	2	746	0	0.6	0.1	0.6
63056	99	P	SUR	60	2	747	0	0.6	0.3	0.7
63057	99	P	SUR	59	2	745	0	0.4	-0.1	0.4
63058	99	P	SUR	53	2	2078	0	0.4	0.4	0.6
63059	99	P	SUR	58	-1	741	0	0.4	0.4	0.6
63101	99	P	SUR	61	1	745	0	0.7	0.1	0.7
63102	99	P	SUR	61	1	744	0	0.6	0.2	0.6
63103	99	P	SUR	61	1	744	0	0.5	0.3	0.5
63104	99	P	SUR	61	2	747	0	0.6	-0.1	0.6
63105	99	P	SUR	61	2	747	0	0.6	-0.2	0.6
63108	99	P	SUR	61	2	747	0	0.6	0.1	0.6
63109	99	P	SUR	60	2	747	0	0.5	-0.4	0.6
63110	99	P	SUR	60	2	673	0	0.7	-0.1	0.7
63111	99	P	SUR	61	2	1445	0	0.5	-0.4	0.6
63112	99	P	SUR	61	1	745	0	0.5	-0.3	0.6
63115	99	P	SUR	62	1	747	0	0.5	0.0	0.5
63117	99	P	SUR	61	1	1471	0	0.7	0.6	0.9
63118	99	P	SUR	58	1	745	0	0.5	-0.2	0.5
63120	99	P	SUR	54	2	743	0	0.4	0.5	0.7
6400562	99	P	SUR	71	-5	744	0	0.5	0.0	0.5
6401502	99	P	SUR	59	-8	703	0	0.4	0.3	0.5
6401503	99	P	SUR	59	-4	710	0	0.4	0.4	0.6
6401504	99	P	SUR	60	-14	699	0	0.5	0.0	0.5
6401505	99	P	SUR	62	-25	710	0	0.5	0.1	0.5
6401506	99	P	SUR	60	-17	707	0	0.5	0.1	0.5
6401507	99	P	SUR	79	11	621	88	4.0	1.7	4.3
6401530	99	P	SUR	68	-31	173	0	3.0	0.8	3.1
6401531	99	P	SUR	66	-35	737	0	0.6	0.2	0.6
6401536	99	P	SUR	69	-24	737	0	0.6	0.2	0.6
6401537	99	P	SUR	68	-27	740	0	0.9	0.2	1.0
6401539	99	P	SUR	68	-32	737	0	0.6	0.3	0.6
6401541	99	P	SUR	69	-25	737	10	1.6	-0.2	1.6
6401542	99	P	SUR	67	-23	683	0	0.5	0.0	0.5
6401543	99	P	SUR	67	-21	345	0	0.5	0.3	0.5
6401544	99	P	SUR	66	-27	736	2	2.0	1.4	2.5
6401545	99	P	SUR	70	-24	692	0	1.6	0.1	1.6
6401550	99	P	SUR	68	12	744	0	0.4	0.1	0.4
6401555	99	P	SUR	73	12	744	0	0.4	0.3	0.5
6401556	99	P	SUR	71	-2	743	0	0.6	0.4	0.7
6401561	99	P	SUR	62	-16	744	0	0.6	0.0	0.6
6401562	99	P	SUR	67	-2	614	1	2.7	-0.5	2.8
6401563	99	P	SUR	61	-41	743	0	1.5	0.1	1.5

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	71	25	43	0	0.3	0.5	0.6
6401565	99	P	SUR	71	18	744	0	1.0	0.1	1.0
6401566	99	P	SUR	63	4	744	0	0.6	0.2	0.7
6401568	99	P	SUR	60	-9	744	0	0.4	0.4	0.6
6401569	99	P	SUR	61	-21	744	0	0.5	0.1	0.5
6401570	99	P	SUR	67	-3	744	0	0.5	0.3	0.6
6401571	99	P	SUR	62	-11	744	0	0.5	0.2	0.5
6401572	99	P	SUR	62	-22	231	0	3.2	0.9	3.3
6401654	99	P	SUR	88	14	682	0	0.5	-0.2	0.5
64041	99	P	SUR	61	-3	747	0	0.5	-0.2	0.6
64045	99	P	SUR	59	-12	774	0	0.6	-0.4	0.7
64046	99	P	SUR	61	-4	739	0	0.4	-0.2	0.5
64562	99	P	SUR	71	-5	744	0	0.5	0.0	0.5
6500596	99	P	SUR	70	-14	744	0	0.6	0.2	0.6
6500602	99	P	SUR	71	35	744	0	0.4	0.2	0.5
6501553	99	P	SUR	57	-6	351	0	2.4	-0.9	2.6
6501555	99	P	SUR	65	-52	744	0	0.5	-0.4	0.7
6501556	99	P	SUR	63	-10	744	0	0.6	0.4	0.7
65596	99	P	SUR	70	-14	744	0	0.6	0.2	0.6
65602	99	P	SUR	71	35	744	0	0.4	0.2	0.5
66023	99	P	SUR	55	11	746	0	0.3	0.0	0.3

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 : OCT 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	699	0	0	1.1	0.7	1.3
1300002	99	SPEED	SUR	20	-23	674	0	0	0.7	0.2	0.8
1300008	99	SPEED	SUR	15	-38	600	0	0	1.0	0.6	1.2
1300130	99	SPEED	SUR	28	-16	734	0	0	1.4	0.0	1.4
4100139	99	SPEED	SUR	20	-38	701	0	0	0.9	0.4	1.0
4100300	99	SPEED	SUR	16	-57	744	0	0	1.0	-0.2	1.0
41041	99	SPEED	SUR	14	-46	1251	0	0	1.0	0.1	1.0
41043	99	SPEED	SUR	21	-65	1333	0	0	1.3	-0.1	1.3
41044	99	SPEED	SUR	22	-59	1410	0	0	1.1	-0.1	1.1
41046	99	SPEED	SUR	24	-68	1170	0	0	1.2	-0.4	1.2
41049	99	SPEED	SUR	28	-63	1208	0	0	1.1	-0.0	1.1
41052	99	SPEED	SUR	18	-65	1831	0	0	1.2	-0.4	1.2
41053	99	SPEED	SUR	19	-66	1939	0	0	1.3	0.5	1.4
41056	99	SPEED	SUR	18	-66	1947	0	0	1.3	-0.5	1.3
41300	99	SPEED	SUR	16	-57	744	0	0	1.1	-0.2	1.1
42060	99	SPEED	SUR	16	-63	2048	0	0	1.2	-0.1	1.2
42085	99	SPEED	SUR	18	-67	992	0	0	1.4	0.1	1.4
44027	99	SPEED	SUR	44	-67	752	0	0	1.4	0.7	1.6
44032	99	SPEED	SUR	44	-69	732	0	0	1.6	0.3	1.6
44033	99	SPEED	SUR	44	-69	740	0	0	1.5	0.4	1.5
44034	99	SPEED	SUR	44	-68	745	0	0	1.6	0.2	1.6
44037	99	SPEED	SUR	44	-68	738	0	0	1.4	0.2	1.4
44137	99	SPEED	SUR	42	-62	750	0	0	1.6	-0.2	1.7
44139	99	SPEED	SUR	44	-57	736	0	0	1.7	-0.3	1.7
44150	99	SPEED	SUR	43	-64	732	0	0	1.6	-0.4	1.6
44258	99	SPEED	SUR	45	-63	35	0	0	1.2	0.5	1.2
45138	99	SPEED	SUR	50	-66	727	0	0	1.3	0.5	1.4
6100001	99	SPEED	SUR	43	8	743	0	0	2.0	-0.3	2.0
6100002	99	SPEED	SUR	42	5	744	0	0	1.7	0.2	1.7
61001	99	SPEED	SUR	43	8	743	0	0	2.1	-0.8	2.3
6100196	99	SPEED	SUR	42	4	735	0	0	1.8	-0.3	1.8
6100198	99	SPEED	SUR	37	-2	733	0	0	1.8	-0.3	1.8
61002	99	SPEED	SUR	42	5	744	0	0	1.8	-0.4	1.8
6100280	99	SPEED	SUR	41	1	740	0	0	2.1	-0.6	2.2

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
6100281	99	SPEED	SUR	40	0	734	0	0	2.3	0.5	2.3
6100417	99	SPEED	SUR	38	0	734	0	0	1.7	-0.0	1.7
6100430	99	SPEED	SUR	40	2	741	0	0	2.0	-0.3	2.0
6101003	99	SPEED	SUR	40	25	191	0	0	2.0	-1.5	2.5
6101007	99	SPEED	SUR	36	25	223	0	0	1.4	0.2	1.4
6101008	99	SPEED	SUR	37	22	144	0	0	1.9	-0.3	1.9
6200024	99	SPEED	SUR	44	-3	739	0	0	1.6	0.3	1.6
6200025	99	SPEED	SUR	44	-6	183	0	0	2.5	0.5	2.5
6200082	99	SPEED	SUR	44	-8	744	0	0	1.5	-0.3	1.6
6200083	99	SPEED	SUR	43	-9	744	0	0	1.2	-0.7	1.4
6200084	99	SPEED	SUR	42	-9	717	0	0	1.5	-0.6	1.6
6200085	99	SPEED	SUR	36	-7	737	0	0	1.4	-0.1	1.4
6200091	99	SPEED	SUR	53	-5	698	0	0	1.4	0.0	1.4
6200092	99	SPEED	SUR	51	-11	740	0	0	1.2	0.1	1.2
6200093	99	SPEED	SUR	55	-10	177	0	0	3.6	-2.0	4.1
6200094	99	SPEED	SUR	53	-8	739	0	0	1.4	0.2	1.4
62001	99	SPEED	SUR	45	-5	739	0	0	1.2	0.6	1.4
6200191	99	SPEED	SUR	41	-10	500	0	0	1.1	0.1	1.2
6200192	99	SPEED	SUR	40	-10	40	0	0	1.5	0.1	1.5
6200199	99	SPEED	SUR	40	-9	586	1	0	1.6	-0.2	1.7
6200200	99	SPEED	SUR	36	-8	432	9	0	1.5	0.2	1.5
6201030	99	SPEED	SUR	44	-4	733	0	0	1.5	-0.2	1.6
62023	99	SPEED	SUR	51	-8	688	0	0	1.8	-0.3	1.8
62029	99	SPEED	SUR	49	-12	1479	2	0	1.1	0.4	1.2
62050	99	SPEED	SUR	50	-4	747	0	0	1.1	0.4	1.1
62081	99	SPEED	SUR	51	-13	749	0	0	1.2	0.1	1.2
62087	99	SPEED	SUR	54	9	745	0	0	2.1	-2.0	2.9
62091	99	SPEED	SUR	53	-5	741	0	0	1.4	0.0	1.4
62092	99	SPEED	SUR	51	-11	740	0	0	1.2	0.1	1.2
62093	99	SPEED	SUR	55	-10	177	0	0	3.5	-2.0	4.1
62094	99	SPEED	SUR	53	-8	739	0	0	1.4	0.3	1.4
62095	99	SPEED	SUR	53	-14	130	0	0	1.9	-0.3	1.9
62102	99	SPEED	SUR	58	2	747	0	0	1.4	-0.1	1.5
62103	99	SPEED	SUR	50	-3	749	0	0	1.4	1.3	1.9
62104	99	SPEED	SUR	57	1	747	0	0	1.4	-0.3	1.5
62107	99	SPEED	SUR	50	-6	1479	0	0	1.8	0.9	2.0
62112	99	SPEED	SUR	58	0	747	0	0	2.4	-1.5	2.8
62113	99	SPEED	SUR	58	0	747	0	0	2.0	0.5	2.0
62114	99	SPEED	SUR	58	0	1475	0	0	1.8	0.9	2.0
62118	99	SPEED	SUR	58	1	747	0	0	1.7	0.7	1.8
62119	99	SPEED	SUR	57	2	746	0	0	1.6	-0.4	1.7

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
62120	99	SPEED	SUR	56	2	747	0	0	1.6	0.2	1.6
62121	99	SPEED	SUR	54	3	729	0	0	1.5	-0.2	1.5
62122	99	SPEED	SUR	57	2	1475	0	0	1.5	-0.4	1.6
62129	99	SPEED	SUR	58	0	747	0	0	1.6	0.1	1.6
62131	99	SPEED	SUR	54	1	747	0	0	2.0	-0.2	2.0
62132	99	SPEED	SUR	56	2	745	0	0	2.6	-2.0	3.3
62133	99	SPEED	SUR	57	1	743	0	0	1.6	0.2	1.6
62134	99	SPEED	SUR	58	1	747	0	0	1.6	0.0	1.6
62140	99	SPEED	SUR	57	1	1475	0	0	1.5	-0.1	1.5
62143	99	SPEED	SUR	58	2	747	0	0	2.6	-1.7	3.1
62144	99	SPEED	SUR	53	2	728	0	0	2.0	-1.0	2.3
62145	99	SPEED	SUR	53	3	1475	0	0	1.5	0.3	1.5
62146	99	SPEED	SUR	57	2	717	0	0	1.4	-0.2	1.4
62149	99	SPEED	SUR	54	1	747	0	0	2.5	-0.8	2.6
62150	99	SPEED	SUR	54	1	747	0	0	2.7	-1.2	3.0
62152	99	SPEED	SUR	57	2	747	0	0	1.8	-1.2	2.1
62153	99	SPEED	SUR	57	2	1475	0	0	2.7	-1.8	3.3
62154	99	SPEED	SUR	56	2	744	0	0	1.7	-0.4	1.7
62155	99	SPEED	SUR	58	1	591	0	0	2.2	0.6	2.3
62163	99	SPEED	SUR	48	-8	735	0	0	1.3	0.1	1.3
62164	99	SPEED	SUR	57	1	574	0	0	1.6	-1.3	2.1
62165	99	SPEED	SUR	54	1	747	0	0	1.5	-0.6	1.6
62170	99	SPEED	SUR	51	2	749	0	0	1.7	1.1	2.0
62304	99	SPEED	SUR	51	2	746	0	0	1.8	1.3	2.2
62305	99	SPEED	SUR	50	0	737	0	0	1.6	1.4	2.1
62442	99	SPEED	SUR	49	-16	715	0	0	1.2	0.2	1.2
63055	99	SPEED	SUR	61	2	747	15	0	1.6	-1.5	2.2
63056	99	SPEED	SUR	60	2	747	0	0	1.4	-0.1	1.4
63057	99	SPEED	SUR	59	2	745	0	0	2.1	0.1	2.1
63058	99	SPEED	SUR	53	2	881	0	0	1.5	0.0	1.5
63101	99	SPEED	SUR	61	1	745	0	0	1.5	-0.7	1.7
63103	99	SPEED	SUR	61	1	744	0	0	1.8	-0.1	1.8
63104	99	SPEED	SUR	61	2	747	0	0	1.5	-0.4	1.5
63105	99	SPEED	SUR	61	2	747	0	0	1.7	-0.3	1.7
63106	99	SPEED	SUR	61	2	746	0	0	1.5	-0.2	1.5
63108	99	SPEED	SUR	61	2	747	0	0	1.9	-0.1	1.9
63109	99	SPEED	SUR	60	2	744	0	0	1.4	0.2	1.4
63110	99	SPEED	SUR	60	2	741	0	0	1.5	-0.7	1.7
63112	99	SPEED	SUR	61	1	745	0	0	1.5	-0.7	1.7
63113	99	SPEED	SUR	61	2	747	0	0	1.6	-0.6	1.7
63115	99	SPEED	SUR	62	1	747	0	0	1.3	-0.8	1.5

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
63117	99	SPEED	SUR	61	1	1471	0	0	1.5	-0.6	1.7
64041	99	SPEED	SUR	61	-3	747	0	0	1.4	-0.3	1.4
64045	99	SPEED	SUR	59	-12	772	0	0	1.5	0.0	1.5
64046	99	SPEED	SUR	61	-4	739	0	0	1.1	0.1	1.1
66021	99	SPEED	SUR	55	14	739	1	0	1.2	0.5	1.3
66022	99	SPEED	SUR	54	14	909	12	0	1.4	-0.2	1.5
66024	99	SPEED	SUR	55	13	742	0	0	1.3	0.7	1.5

4.11 Table 23 - Drifter Monitoring Statistics (EUCOS): Wind direction

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : OCT 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	624	0	0	18.8	4.4	19.3
1300002	99	DIRN	SUR	20	-23	652	0	0	10.5	-2.6	10.9
1300008	99	DIRN	SUR	15	-38	594	0	0	13.5	3.3	13.9
1300130	99	DIRN	SUR	28	-16	452	0	0	98.6	34.5	104.4
4100139	99	DIRN	SUR	20	-38	669	0	0	11.8	1.5	11.9
41002	99	DIRN	SUR	32	-75	179	0	0	16.3	17.6	24.0
4100300	99	DIRN	SUR	16	-57	636	0	0	14.5	4.8	15.3
41004	99	DIRN	SUR	33	-79	109	0	0	13.7	8.0	15.8
41008	99	DIRN	SUR	31	-81	605	0	0	14.8	7.7	16.7
41009	99	DIRN	SUR	29	-80	1229	0	0	16.2	2.8	16.4
41010	99	DIRN	SUR	29	-79	1155	0	0	16.2	6.8	17.6
41013	99	DIRN	SUR	33	-78	1124	0	0	14.4	6.0	15.6
41024	99	DIRN	SUR	34	-79	589	0	0	19.0	-5.3	19.8
41025	99	DIRN	SUR	35	-75	1190	0	0	15.5	3.8	15.9
41029	99	DIRN	SUR	33	-80	949	0	0	18.4	-0.5	18.4
41033	99	DIRN	SUR	32	-80	297	0	0	31.5	7.4	32.3
41037	99	DIRN	SUR	34	-77	584	0	0	15.0	-13.2	20.0
41038	99	DIRN	SUR	34	-78	596	0	0	15.3	-14.5	21.1
41041	99	DIRN	SUR	14	-46	1094	0	0	13.7	-7.4	15.6
41043	99	DIRN	SUR	21	-65	906	0	0	15.9	-10.4	19.0
41044	99	DIRN	SUR	22	-59	1166	0	0	16.6	2.6	16.8
41046	99	DIRN	SUR	24	-68	865	0	0	14.8	3.8	15.2
41047	99	DIRN	SUR	28	-72	1061	0	0	11.8	-3.9	12.5
41049	99	DIRN	SUR	28	-63	907	0	0	12.2	2.4	12.4
41052	99	DIRN	SUR	18	-65	1338	0	0	19.8	5.0	20.4
41053	99	DIRN	SUR	19	-66	998	0	0	21.3	-0.0	21.3
41056	99	DIRN	SUR	18	-66	1342	0	0	20.7	4.4	21.1
41063	99	DIRN	SUR	35	-76	558	0	0	16.9	-26.5	31.5
41064	99	DIRN	SUR	34	-77	596	0	0	15.2	-22.6	27.3
41300	99	DIRN	SUR	16	-57	609	0	0	14.4	4.8	15.1
42013	99	DIRN	SUR	27	-83	906	0	0	17.5	1.0	17.5
42022	99	DIRN	SUR	28	-84	1135	0	0	15.5	3.2	15.8

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
42023	99	DIRN	SUR	26	-83	1025	0	0	15.3	3.9	15.8
42057	99	DIRN	SUR	17	-81	1248	0	0	14.5	2.5	14.7
42060	99	DIRN	SUR	16	-63	1644	0	0	14.1	-2.0	14.2
42085	99	DIRN	SUR	18	-67	737	0	0	21.4	15.4	26.3
44007	99	DIRN	SUR	44	-70	619	0	0	20.7	2.3	20.8
44009	99	DIRN	SUR	39	-75	158	0	0	44.4	3.3	44.5
44013	99	DIRN	SUR	42	-71	657	0	0	36.3	4.5	36.6
44014	99	DIRN	SUR	37	-75	524	0	0	15.7	3.8	16.1
44017	99	DIRN	SUR	41	-72	616	0	0	13.3	8.7	16.0
44018	99	DIRN	SUR	42	-70	668	0	0	25.6	7.2	26.6
44020	99	DIRN	SUR	42	-70	1334	0	0	14.0	3.3	14.4
44022	99	DIRN	SUR	41	-74	377	0	0	17.3	7.5	18.8
44025	99	DIRN	SUR	40	-73	678	0	0	14.8	1.0	14.8
44027	99	DIRN	SUR	44	-67	680	0	0	17.1	8.4	19.0
44029	99	DIRN	SUR	43	-71	793	0	0	26.1	-7.2	27.1
44030	99	DIRN	SUR	43	-70	622	0	0	24.0	1.9	24.1
44032	99	DIRN	SUR	44	-69	645	0	0	23.4	10.3	25.6
44033	99	DIRN	SUR	44	-69	631	0	0	19.0	-1.3	19.0
44034	99	DIRN	SUR	44	-68	655	0	0	20.3	2.9	20.5
44037	99	DIRN	SUR	44	-68	662	0	0	20.5	4.0	20.8
44039	99	DIRN	SUR	41	-73	572	0	0	19.1	-0.5	19.1
44040	99	DIRN	SUR	41	-74	445	0	0	25.0	2.4	25.1
44042	99	DIRN	SUR	38	-76	1078	0	0	18.8	-11.1	21.8
44058	99	DIRN	SUR	38	-76	1016	0	0	19.0	-27.7	33.6
44062	99	DIRN	SUR	39	-76	601	0	0	25.6	-16.2	30.3
44063	99	DIRN	SUR	39	-76	949	0	0	18.6	-13.1	22.7
44064	99	DIRN	SUR	37	-76	1017	0	0	20.6	-19.1	28.1
44065	99	DIRN	SUR	40	-74	1281	0	0	17.0	5.3	17.8
44066	99	DIRN	SUR	40	-73	622	0	0	16.2	2.1	16.3
44069	99	DIRN	SUR	41	-73	670	0	0	20.5	0.6	20.5
44072	99	DIRN	SUR	37	-76	748	0	0	18.9	-11.6	22.2
44137	99	DIRN	SUR	42	-62	661	0	0	16.6	5.0	17.3
44139	99	DIRN	SUR	44	-57	677	0	0	12.6	15.8	20.2
44150	99	DIRN	SUR	43	-64	596	0	0	23.9	-4.2	24.3
44258	99	DIRN	SUR	45	-63	35	0	0	14.0	1.2	14.1
45003	99	DIRN	SUR	45	-83	664	0	0	21.7	2.7	21.9
45005	99	DIRN	SUR	42	-82	1088	0	0	21.4	5.8	22.2
45008	99	DIRN	SUR	44	-82	1105	0	0	14.3	2.9	14.6
45012	99	DIRN	SUR	44	-77	650	0	0	18.2	10.3	20.9
45132	99	DIRN	SUR	43	-81	639	0	0	15.8	1.5	15.9
45135	99	DIRN	SUR	44	-77	835	0	0	17.2	-11.5	20.7

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
45137	99	DIRN	SUR	46	-81	636	0	0	20.0	-3.7	20.4
45138	99	DIRN	SUR	50	-66	629	0	0	14.2	1.3	14.2
45139	99	DIRN	SUR	43	-80	580	0	0	25.5	4.8	25.9
45142	99	DIRN	SUR	43	-79	623	0	0	18.2	-4.3	18.8
45143	99	DIRN	SUR	45	-81	938	0	0	17.8	0.2	17.8
45147	99	DIRN	SUR	42	-83	615	0	0	19.6	-0.5	19.7
45149	99	DIRN	SUR	44	-82	834	0	0	14.6	-8.8	17.0
45151	99	DIRN	SUR	45	-79	598	0	0	16.8	1.5	16.9
45152	99	DIRN	SUR	46	-80	428	0	0	16.1	3.7	16.5
45154	99	DIRN	SUR	46	-83	768	0	0	18.9	36.4	41.0
45159	99	DIRN	SUR	44	-79	544	0	0	23.5	16.9	29.0
45164	99	DIRN	SUR	42	-82	597	1	0	37.6	-9.3	38.7
45165	99	DIRN	SUR	42	-83	389	0	0	34.6	2.2	34.7
45167	99	DIRN	SUR	42	-80	500	0	0	27.2	-15.9	31.5
45169	99	DIRN	SUR	42	-82	585	0	0	36.3	-25.4	44.3
45175	99	DIRN	SUR	46	-85	692	6	0	82.6	-22.4	85.6
45176	99	DIRN	SUR	42	-82	735	0	0	55.1	3.0	55.2
45178	99	DIRN	SUR	45	-73	652	0	0	36.2	-15.9	39.5
6100198	99	DIRN	SUR	37	-2	510	0	0	23.2	-0.8	23.2
6100281	99	DIRN	SUR	40	0	349	0	0	42.6	-2.3	42.7
6100417	99	DIRN	SUR	38	0	443	0	0	18.0	6.6	19.2
6200024	99	DIRN	SUR	44	-3	506	0	0	23.0	9.3	24.8
6200025	99	DIRN	SUR	44	-6	154	0	0	83.1	-1.1	83.1
6200082	99	DIRN	SUR	44	-8	675	0	0	15.6	-1.7	15.7
6200083	99	DIRN	SUR	43	-9	625	0	0	10.9	5.4	12.2
6200084	99	DIRN	SUR	42	-9	490	0	0	13.1	5.6	14.2
6200085	99	DIRN	SUR	36	-7	546	0	0	18.8	9.2	20.9
6200091	99	DIRN	SUR	53	-5	633	0	0	14.7	1.8	14.8
6200092	99	DIRN	SUR	51	-11	699	0	0	17.2	6.0	18.2
6200093	99	DIRN	SUR	55	-10	119	0	0	13.9	7.7	15.9
6200094	99	DIRN	SUR	53	-8	695	0	0	15.4	-0.6	15.4
62001	99	DIRN	SUR	45	-5	663	0	0	13.5	1.3	13.5
6200191	99	DIRN	SUR	41	-10	396	0	0	13.1	-2.6	13.3
6200192	99	DIRN	SUR	40	-10	38	0	0	11.0	-2.7	11.3
6200199	99	DIRN	SUR	40	-9	359	1	0	25.6	-0.1	25.6
6200200	99	DIRN	SUR	36	-8	331	9	0	162.7	-42.7	168.2
6201030	99	DIRN	SUR	44	-4	527	0	0	19.6	-2.1	19.7
62023	99	DIRN	SUR	51	-8	653	0	0	23.0	-2.9	23.2
62029	99	DIRN	SUR	49	-12	1305	2	0	13.3	9.3	16.2
62050	99	DIRN	SUR	50	-4	616	0	0	17.8	1.1	17.8
62081	99	DIRN	SUR	51	-13	681	0	0	12.3	12.0	17.2

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
62091	99	DIRN	SUR	53	-5	662	0	0	14.7	1.6	14.8
62092	99	DIRN	SUR	51	-11	695	0	0	17.4	5.5	18.2
62093	99	DIRN	SUR	55	-10	118	0	0	14.3	7.3	16.0
62094	99	DIRN	SUR	53	-8	686	0	0	15.5	-1.1	15.6
62095	99	DIRN	SUR	53	-14	130	0	0	18.9	16.9	25.4
62103	99	DIRN	SUR	50	-3	666	0	0	18.7	5.9	19.7
62107	99	DIRN	SUR	50	-6	1278	0	0	17.2	5.4	18.0
62112	99	DIRN	SUR	58	0	700	0	0	11.6	1.8	11.8
62114	99	DIRN	SUR	58	0	1427	0	0	11.0	-0.4	11.0
62163	99	DIRN	SUR	48	-8	648	0	0	15.4	-3.9	15.9
62305	99	DIRN	SUR	50	0	644	0	0	19.7	6.4	20.7
62442	99	DIRN	SUR	49	-16	602	0	0	13.2	-5.2	14.2
64041	99	DIRN	SUR	61	-3	708	0	0	9.5	9.8	13.6
64045	99	DIRN	SUR	59	-12	743	0	0	18.3	5.2	19.0
64046	99	DIRN	SUR	61	-4	698	0	0	11.5	-1.1	11.6

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE09	DBLK	FHM5UJH	FPUW5GN	HTXUH4H	PISTON	QCY3TGN	VKB4L5Q	WDK38HS
XQFJRGX	XWHDEAD	YLV96WM	ZVQEQCM	5QPW8XG	7HCPVTB	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	48698	60018	61901	61904	61980	61998	67083	68263
68424	68442	68512	68816	68842	70026	70133	70200	70219
70231	70261	70308	70316	70326	70350	70361	70398	71043
71081	71082	71109	71119	71600	71603	71722	71802	71811
71815	71816	71823	71836	71845	71867	71906	71907	71908
71909	71913	71917	71924	71925	71926	71934	71945	71957
71964	72201	72206	72208	72210	72214	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	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

ASDE09	DBLK	FHM5UJH	FPUW5GN	HTXUH4H	PISTON	QCY3TGN	VKB4L5Q	WDK38HS
XQFJRGX	XWHDEAD	YLV96WM	ZVQEQCM	5QPW8XG	7HCPVTB	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	04360
04417	06011	06260	06610	07110	07145	07510	07645	07761
08001	08190	08221	08302	08508	08522	08579	10035	10113
10184	10238	10393	10410	10548	10618	10739	10771	10868
10962	11010	11120	11240	11520	11952	12374	12843	13275
13388	14015	14240	14430	15420	16045	16080	16144	16245
16320	16429	16546	16754	17607	37789	40179	40186	45004
47138	47155	47401	47412	47582	47600	47646	47678	47741
47778	47807	47827	47909	47918	47945	47971	47991	60018
61901	61904	61980	61998	68263	68512	68842	70133	70200
70316	70326	70350	71043	71082	71109	71600	71722	71823
71845	71867	71906	71907	71908	71913	71917	71924	71926
71934	71945	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	72493	72501	72518
72520	72528	72558	72562	72572	72632	72645	72649	72659
72662	72672	72681	72694	72747	72764	72768	72776	72786
72797	73033	74389	76903	78897	78954	81405	85442	85586
85799	85934	88889	89002	89062	89564	89611	89642	89859
91212	91285	91592	91765	91925	91938	91948	91958	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	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.