



ECMWF Global Data Monitoring Report

September 2017

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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	Aug	Sep	Ident	Time	Aug	Sep
71915	(00)	31	0	01004	(00)	3	19
71915	(12)	31	0	11120	(00)	8	27
-	-	-	-	24343	(00)	13	25
-	-	-	-	24343	(12)	14	25
-	-	-	-	29839	(00)	0	28
-	-	-	-	29839	(12)	1	29
-	-	-	-	30309	(00)	11	28
-	-	-	-	30309	(12)	11	26
-	-	-	-	30965	(00)	14	25
-	-	-	-	30965	(12)	16	27
-	-	-	-	34300	(00)	15	29
-	-	-	-	42971	(00)	15	29
-	-	-	-	48453	(00)	7	23
-	-	-	-	60715	(00)	1	21
-	-	-	-	63985	(12)	13	26
-	-	-	-	67083	(12)	0	17
-	-	-	-	68263	(12)	21	45
-	-	-	-	68424	(00)	30	56
-	-	-	-	68538	(00)	2	57
-	-	-	-	68816	(00)	22	55
-	-	-	-	68816	(12)	19	55
-	-	-	-	70261	(00)	28	45
-	-	-	-	71909	(00)	0	30
-	-	-	-	71909	(12)	0	30
-	-	-	-	74004	(12)	44	29
-	-	-	-	74794	(12)	60	48
-	-	-	-	76394	(12)	6	27
-	-	-	-	78073	(00)	0	16
-	-	-	-	78073	(12)	0	18
-	-	-	-	82532	(00)	19	30
-	-	-	-	83362	(12)	5	23
-	-	-	-	83928	(00)	14	29
-	-	-	-	85469	(00)	61	46
-	-	-	-	88889	(00)	15	28

2.2 Drifting Buoys

Surface pressure observations from **1541** 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.

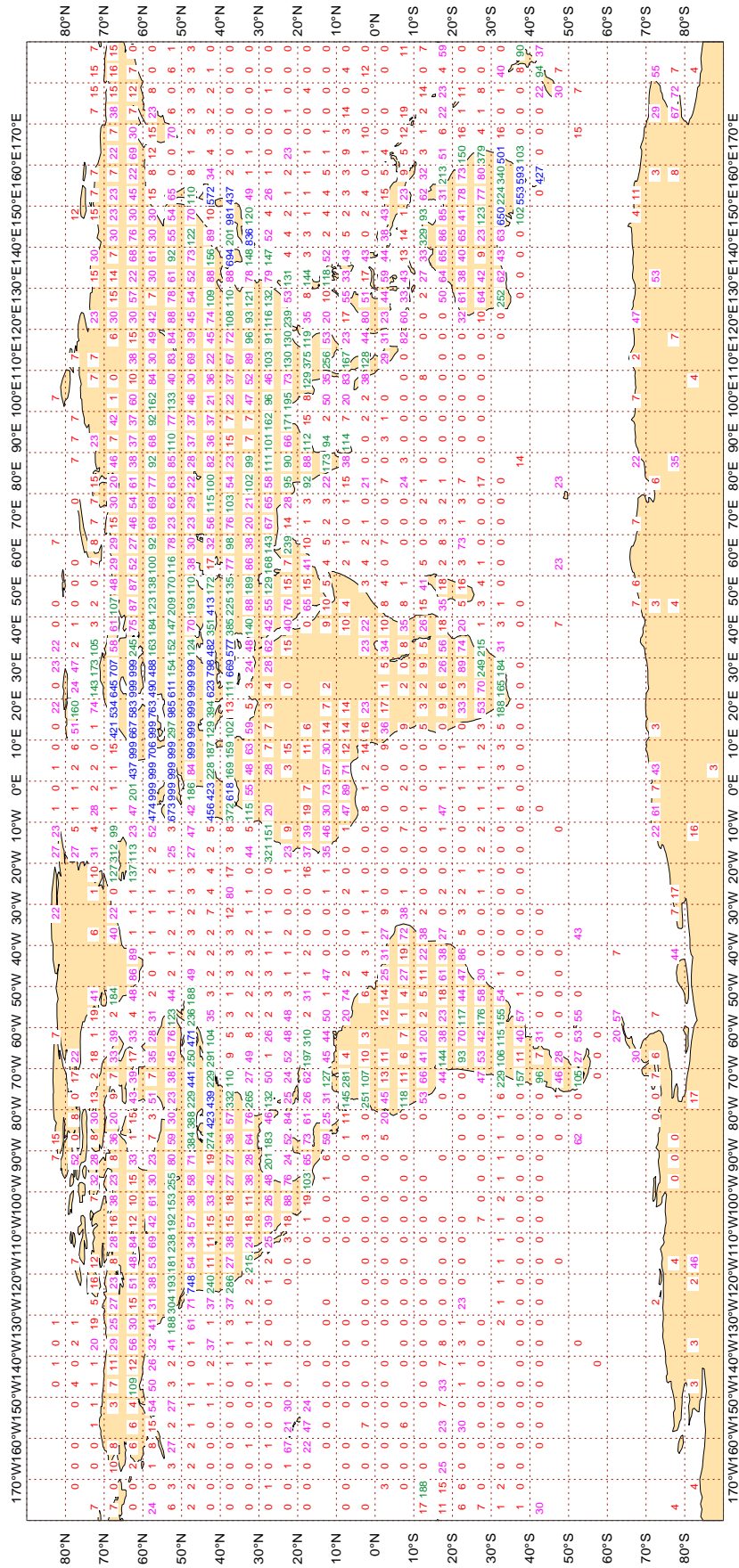
Fig	Parameter	Level/Layer
14	SATOB - Mean observed wind	1000-700 hPa
15	SATOB - Mean observed wind	400-150 hPa
16	SATOB - Mean observed minus first-guess wind	1000-700 hPa
17	SATOB - Mean observed minus first-guess wind	400-150 hPa
18	AIRCRAFT WIND - Mean observed minus first-guess	300-150 hPa

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

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

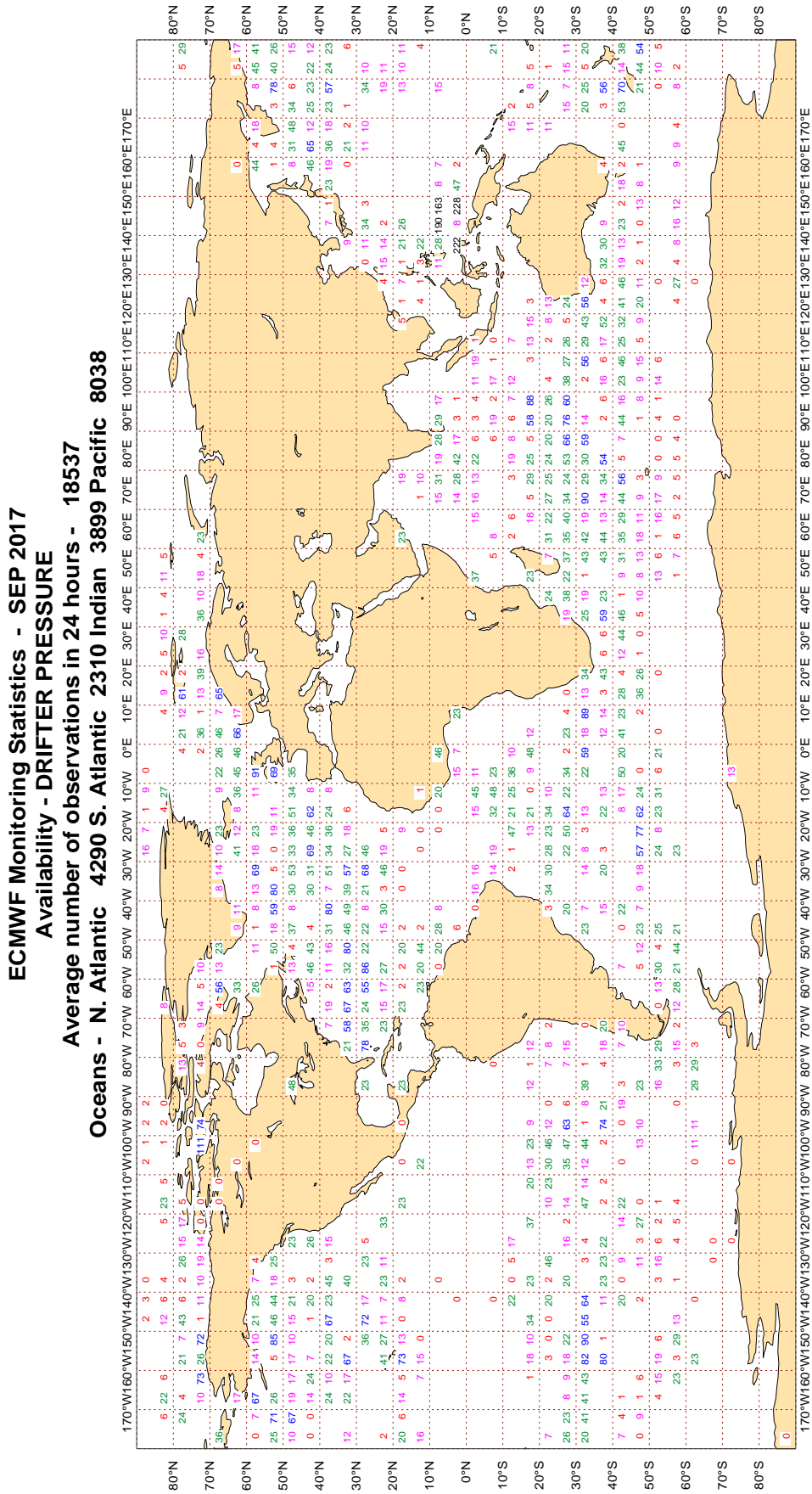
Figure 1

ECMWF Monitoring Statistics - SEP 2017
 Availability - SYNOP/SHIP (manual, auto) pressure
 Average number of observations in 24 hours - 98096
 LAND - WMO Region I: 4348 II: 18723 III: 4451 IV: 7205
 Region V: 8898 VI: 38981 Antarctic: 925
 Oceans - N. Atlantic 8278 S. Atlantic 159 Indian 503 Pacific 5625



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

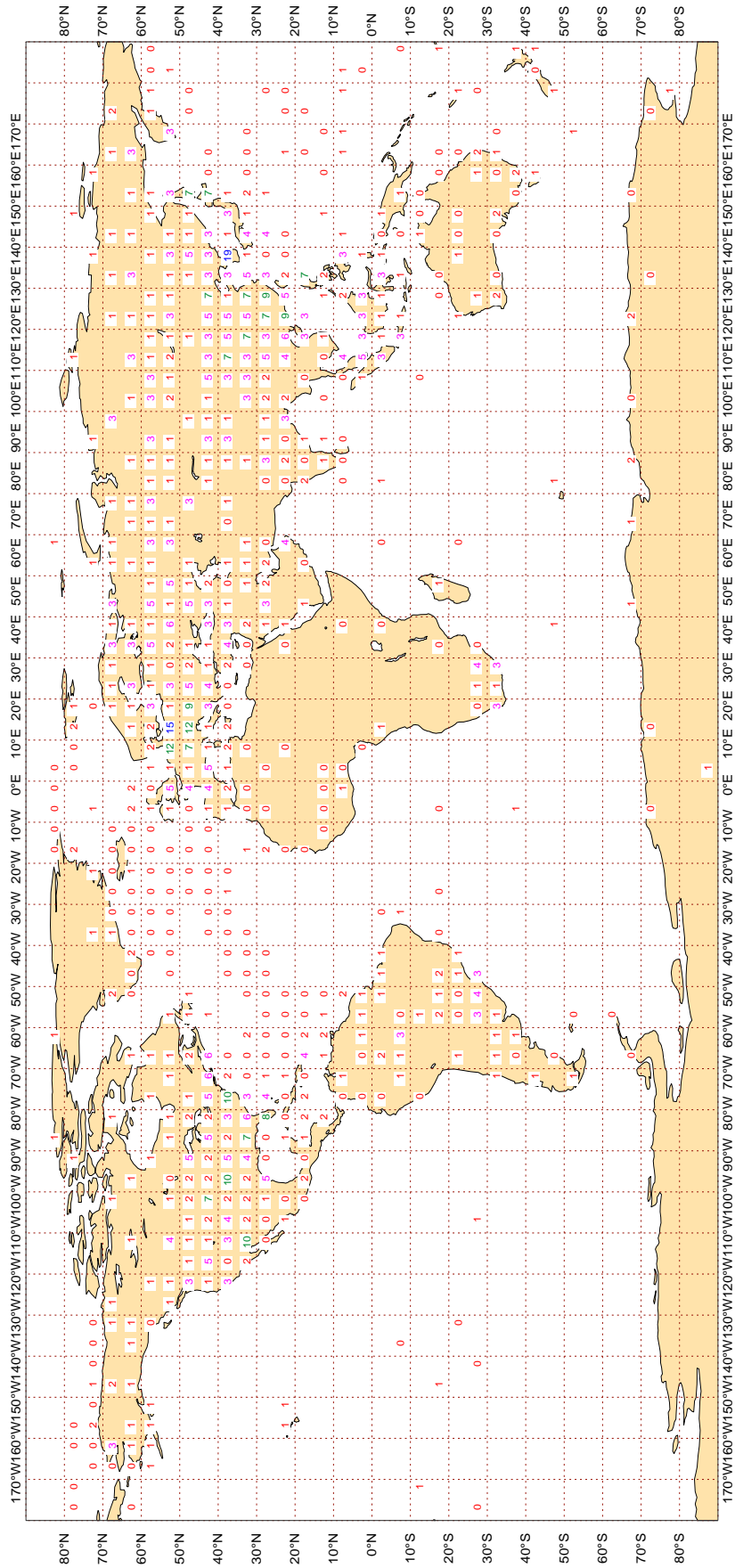
Figure 2



Magics 2.24.2 (64 bit)

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

Figure 3
 ECMWF Monitoring Statistics - SEP 2017
 Availability - TEMP 500 hPa Geopotential
 Average number of observations in 24 hours - 1341
 LAND - WMO Region I: 43 II: 497 III: 79 IV: 299
 Region V: 135 VI: 256 Antarctic: 15
 Oceans - N. Atlantic 13 S. Atlantic 0 Indian 0 Pacific 4

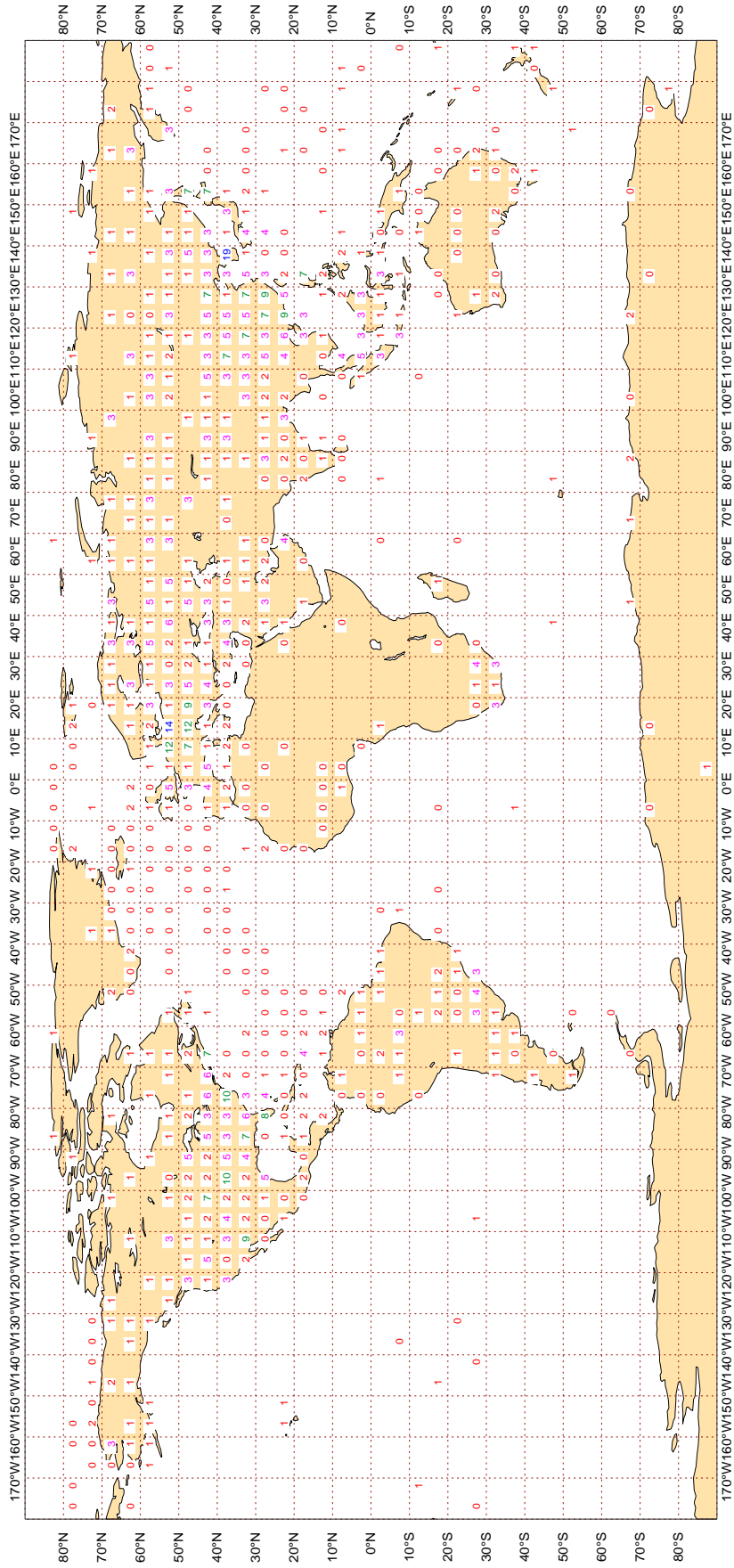


Magics 2.24.2 (64 bit)



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

Figure 4 ECMWF Monitoring Statistics - SEP 2017
 Availability - TEMP/PILOT 300 hPa wind
 Average number of observations in 24 hours - 1329
 LAND - WMO Region I: 42 II: 490 III: 78 IV: 299
 Region V: 134 VI: 255 Antarctic: 15
 Oceans - N. Atlantic 13 S. Atlantic 0 Indian 0 Pacific 4



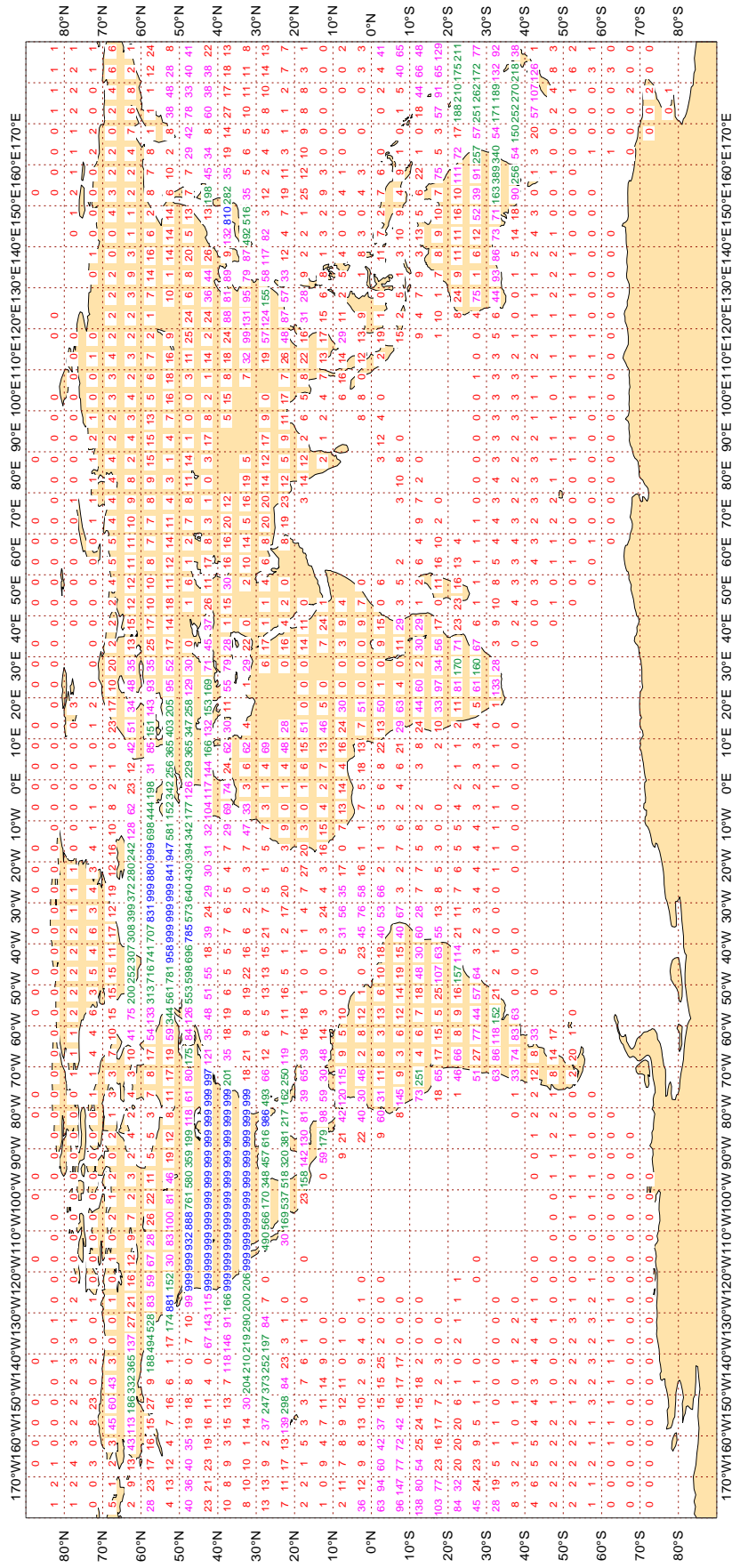
Magics 2.24.2 (64 bit)



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

Figure 5

ECMWF Monitoring Statistics - SEP 2017
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 168076



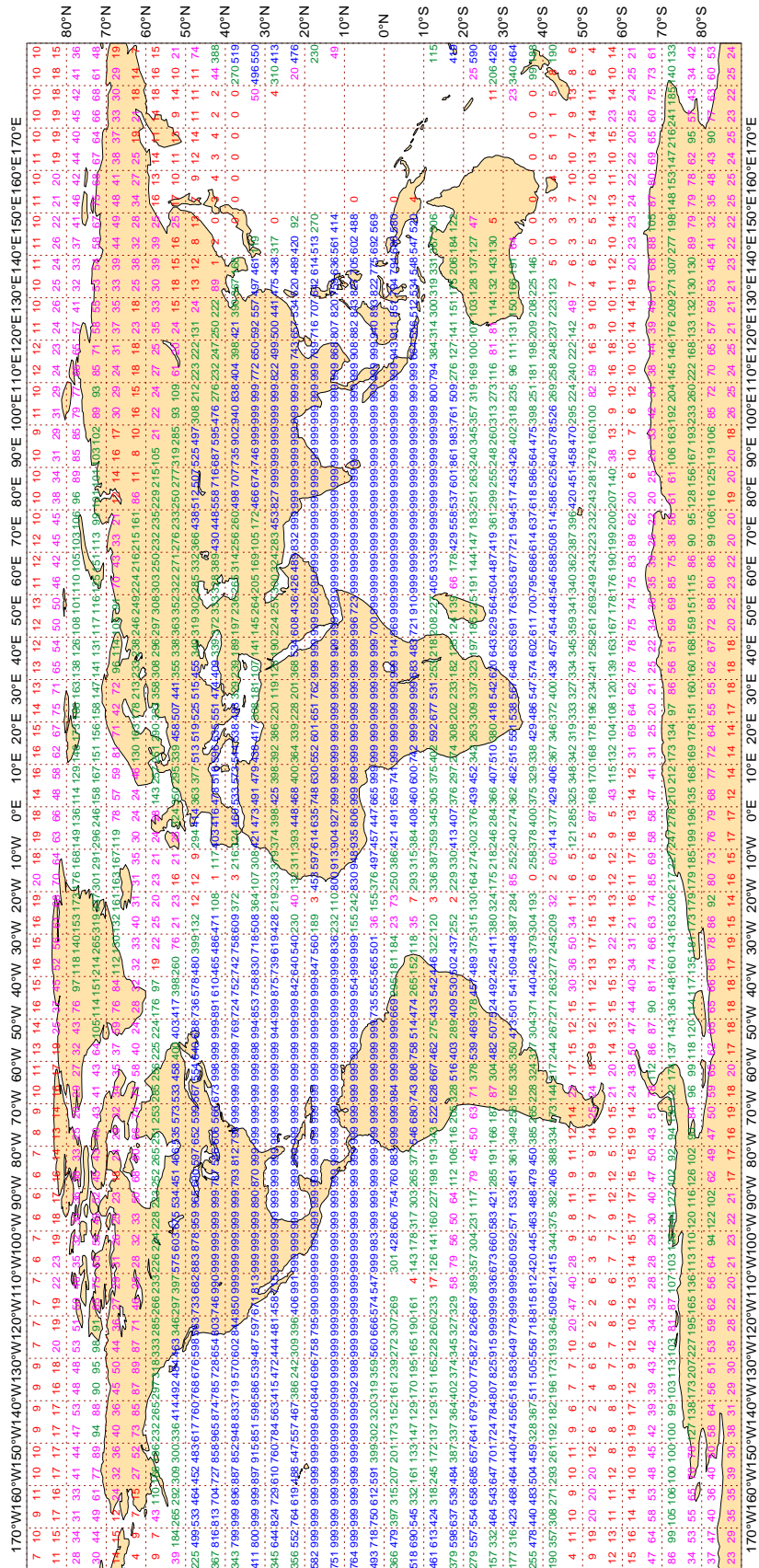
Magics 2.24.2 (64 bit)



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

Figure 6

ECMWF Monitoring Statistics - SEP 2017
Availability - AMV winds 400-150 hPa
Average number of observations in 24 hours - 994347



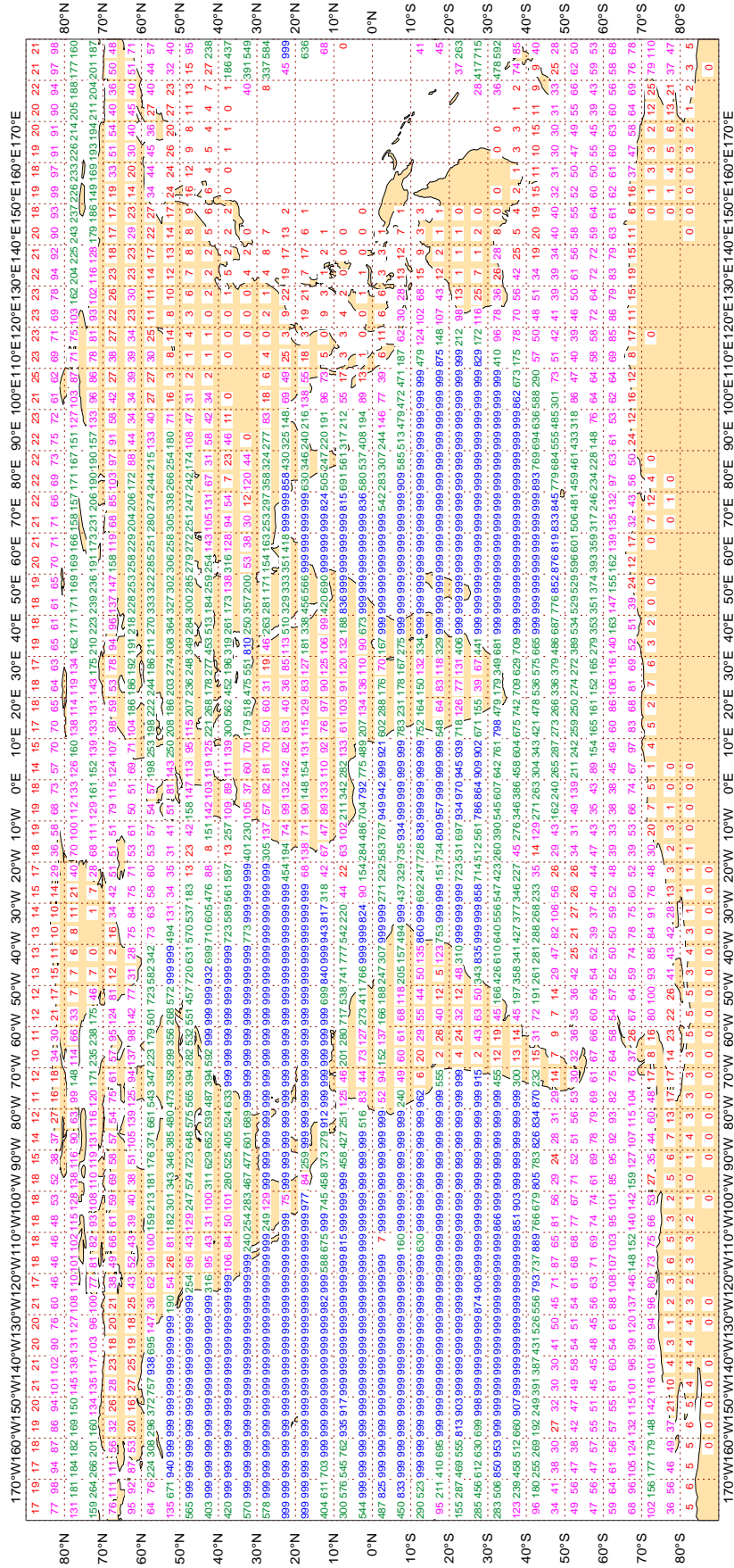
Majics 2.24.2 (64 bit)



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

Figure 7

ECMWF Monitoring Statistics - SEP 2017
Availability - AMV winds 1000-700 hPa
Average number of observations in 24 hours - 1426172



Magics 2.24.2 (64 bit)



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

Figure 8

ECMWF Monitoring Statistics - SEP 2017
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 310012

Table with 180 columns representing longitude (170°W to 170°E) and 18 rows representing latitude (80°N to 80°S). The table contains numerical data representing the average number of observations per 24 hours for NOAA15 ATOVS AMSU-A in September 2017.

Majics 2.24.2 (64 bit)



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

Figure 9.1

ECMWF Monitoring Statistics - SEP 2017
Availability - NOAA18 ATOVS : AMSU-A
Average number of observations in 24 hours - 548887

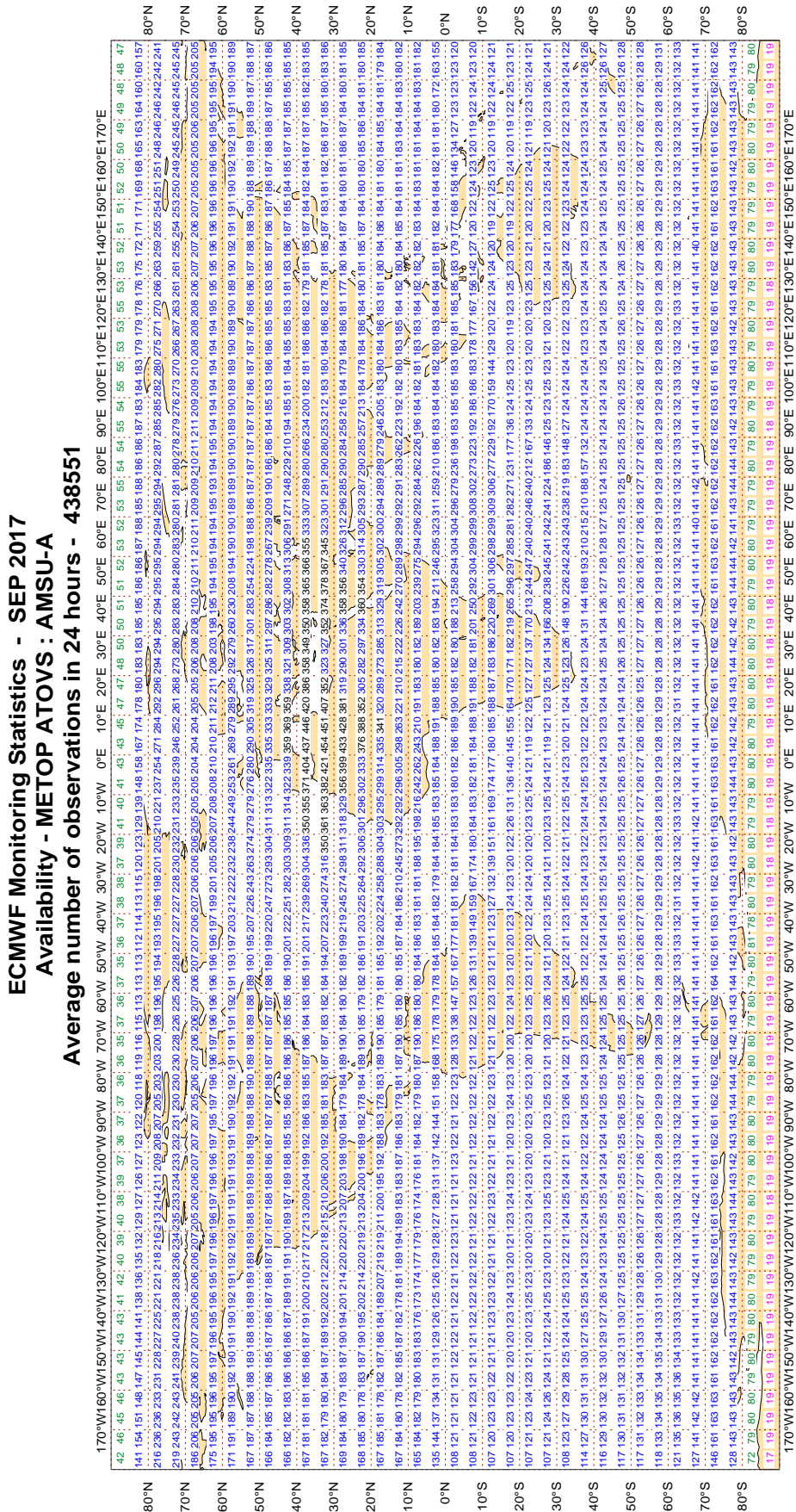
Table with 180 columns representing geographic coordinates (170°W to 170°E) and 180 rows representing latitude (80°N to 80°S). The table contains numerical data representing availability statistics for NOAA18 ATOVS AMSU-A in September 2017.

Magics 2.24.2 (64 bit)



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

Figure 9.3



Majics 2.24.2 (64 bit)



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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : GLOBAL
 PERIOD : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
2HDG2	99	P	SUR	25	0	0.9	5.3	5.4
3FFA5	99	P	SUR	32	0	4.2	3.7	5.6
3FSV5	99	P	SUR	27	0	1.9	4.0	4.4
7JLI	99	P	SUR	18	0	1.0	3.8	3.9
7KAB	99	P	SUR	18	0	1.8	4.0	4.4
9HJD9	99	P	SUR	19	0	0.7	-3.9	3.9
9V2779	99	P	SUR	19	0	1.0	3.4	3.5
9V2909	99	P	SUR	30	0	3.2	3.2	4.5
9V9373	99	P	SUR	67	0	1.0	3.9	4.1
9V9375	99	P	SUR	28	0	1.4	3.7	3.9
9V9725	99	P	SUR	24	0	1.3	3.1	3.4
A8WI3	99	P	SUR	32	0	0.4	-3.3	3.4
AUXE	99	P	SUR	104	103	0.0	0.4	0.4
C6AB9	99	P	SUR	16	9	5.7	-5.1	7.6
C6BR3	99	P	SUR	42	1	1.0	12.6	12.6
C6FM9	99	P	SUR	37	0	1.0	5.7	5.8
C6FN2	99	P	SUR	61	0	1.0	3.9	4.1
C6FN5	99	P	SUR	18	1	0.4	-3.6	3.6
C6SI3	99	P	SUR	25	0	1.0	3.0	3.2
C6UZ6	99	P	SUR	19	0	1.2	3.0	3.3
C6YM5	99	P	SUR	23	0	2.5	3.7	4.5
C6ZJ5	99	P	SUR	33	0	1.3	-3.5	3.7
D5AG9	99	P	SUR	111	0	1.3	3.7	4.0
H3GR	99	P	SUR	42	0	1.3	3.0	3.3
H3VR	99	P	SUR	18	0	1.2	-3.1	3.3
J8AZ3	99	P	SUR	28	0	1.8	3.5	3.9
LAQO7	99	P	SUR	27	0	5.6	1.1	5.7
OZ2049	99	P	SUR	29	0	0.8	-4.8	4.9
PFBF	99	P	SUR	69	0	1.0	3.5	3.6
TCZF2	99	P	SUR	19	0	2.3	-3.4	4.1
UANA	99	P	SUR	21	0	2.3	-3.8	4.4
UAST	99	P	SUR	23	0	2.3	-3.0	3.8

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
UBRI5	99	P	SUR	24	12	5.0	1.0	5.1
UFJN	99	P	SUR	67	1	1.3	-4.7	4.9
UHOM	99	P	SUR	27	2	4.3	-3.4	5.4
UIZZ	99	P	SUR	22	0	2.1	5.6	5.9
V7SY6	99	P	SUR	76	0	2.9	5.5	6.2
VRCS2	99	P	SUR	42	0	1.3	3.7	3.9
VRDN3	99	P	SUR	19	0	1.2	-3.2	3.5
VRDW2	99	P	SUR	84	0	1.1	-4.2	4.3
VRFI2	99	P	SUR	47	0	1.3	7.1	7.2
VRFI7	99	P	SUR	63	0	2.3	4.2	4.7
VRIB2	99	P	SUR	31	0	2.2	6.6	7.0
VRID2	99	P	SUR	64	1	1.0	4.4	4.5
VRKC2	99	P	SUR	38	0	1.4	3.0	3.4
VRLX5	99	P	SUR	16	0	1.4	-4.2	4.5
VRNM9	99	P	SUR	93	1	4.5	5.1	6.8
VRWE8	99	P	SUR	16	0	2.1	-3.2	3.8
VRZK8	99	P	SUR	15	0	1.5	3.0	3.4
VTFG	99	P	SUR	15	0	0.7	13.5	13.5
VTXB	99	P	SUR	82	14	8.5	-6.5	10.7
VWTI	99	P	SUR	99	0	2.9	4.3	5.2
WAIU	99	P	SUR	17	0	1.0	-3.6	3.7
WAPU	99	P	SUR	21	0	3.1	3.9	5.0
WC5932	99	P	SUR	36	8	0.7	-13.9	13.9
WCX8884	99	P	SUR	39	0	0.5	6.5	6.5
WDB3161	99	P	SUR	46	0	1.9	5.3	5.7
WDD9283	99	P	SUR	58	0	2.6	-3.0	4.0
WDG8555	99	P	SUR	18	0	0.7	5.5	5.5
WDH8097	99	P	SUR	18	0	0.4	-4.5	4.5
WDJ4909	99	P	SUR	23	0	1.3	3.2	3.5
WTDH	99	P	SUR	52	0	0.3	-4.1	4.1
YJUP4	99	P	SUR	118	3	5.0	-2.3	5.5

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 : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
34002	99	DIRN	SUR	225	93	0	159.2	58.0	169.4
42023	99	DIRN	SUR	20	1	0	143.4	39.9	148.9
42045	99	DIRN	SUR	146	0	0	18.0	-46.7	50.1
42088	99	DIRN	SUR	123	0	0	48.1	-33.8	58.8
42361	99	DIRN	SUR	101	0	0	14.0	30.4	33.4
44008	99	DIRN	SUR	94	3	0	89.1	3.6	89.2
44037	99	DIRN	SUR	84	0	0	11.3	36.8	38.5
44137	99	DIRN	SUR	55	0	0	21.6	-33.1	39.5
45154	99	DIRN	SUR	80	0	0	21.3	33.3	39.5
45166	99	DIRN	SUR	57	0	0	13.4	-34.6	37.1
46059	99	DIRN	SUR	193	0	0	36.7	-58.3	68.9
46118	99	DIRN	SUR	76	0	0	37.2	43.9	57.5
46120	99	DIRN	SUR	31	0	0	67.3	-43.2	80.0
46207	99	DIRN	SUR	34	0	0	13.6	41.8	44.0

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : GLOBAL
 PERIOD : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
1501517	99	P	SUR	-37	-12	420	0	0.8	-5.6	5.6
2101576	99	P	SUR	20	129	485	485	0.0	0.0	0.0
2301578	99	P	SUR	5	73	115	0	2.7	7.5	8.0
2301581	99	P	SUR	4	73	41	7	3.6	4.5	5.8
3301530	99	P	SUR	-56	-64	430	0	1.9	4.0	4.5
3301531	99	P	SUR	-56	-64	414	0	2.2	4.6	5.1
4500509	99	P	SUR	45	-88	532	532	0.0	0.0	0.0
45179	99	P	SUR	47	-84	27	25	0.0	14.3	14.3
45509	99	P	SUR	45	-88	1380	1380	0.0	0.0	0.0
4601657	99	P	SUR	43	150	185	100	6.2	-9.1	11.0
4700540	99	P	SUR	62	4	213	11	2.0	5.0	5.4
4700551	99	P	SUR	57	-6	357	163	4.6	-0.6	4.7
4700557	99	P	SUR	55	-9	423	0	0.4	-7.9	7.9
4701671	99	P	SUR	70	-67	340	0	0.5	-4.1	4.1
4701672	99	P	SUR	70	-67	298	0	1.0	-4.5	4.6
4701674	99	P	SUR	74	-73	429	0	0.7	-4.5	4.5
47540	99	P	SUR	62	5	258	12	1.9	5.0	5.3
47551	99	P	SUR	57	-6	687	384	6.2	-1.8	6.4
47557	99	P	SUR	55	-9	690	0	0.4	-8.0	8.0
4800270	99	P	SUR	71	-104	390	379	2.5	-11.0	11.2
4801613	99	P	SUR	75	-159	691	1	3.2	10.3	10.8
4801626	99	P	SUR	76	-147	429	133	3.4	-1.6	3.7
48270	99	P	SUR	71	-104	690	614	5.9	-5.1	7.8
5301603	99	P	SUR	5	75	880	880	0.0	0.0	0.0
5600942	99	P	SUR	-26	82	423	92	4.7	-6.2	7.7
5601611	99	P	SUR	-17	99	103	0	1.5	5.9	6.1
56942	99	P	SUR	-26	82	692	132	4.5	-5.5	7.1
6400757	99	P	SUR	61	-26	111	111	0.0	0.0	0.0
64757	99	P	SUR	61	-26	124	124	0.0	0.0	0.0

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : GLOBAL
 PERIOD : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : SEP 2017
 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
23451	99	DIRN	SUR	15	69	118	0	0	14.3	20.6	25.1
23452	99	DIRN	SUR	12	69	147	0	0	97.4	-20.6	99.5
23456	99	DIRN	SUR	18	67	97	0	0	18.0	43.0	46.6
23492	99	DIRN	SUR	11	72	98	0	0	26.9	29.4	39.8
3100231	99	DIRN	SUR	-27	-47	185	0	0	92.7	38.2	100.2
3100262	99	DIRN	SUR	-23	-43	144	1	0	38.2	-41.3	56.3
3101000	99	DIRN	SUR	-24	-42	555	0	0	44.9	-87.5	98.4
31229	99	DIRN	SUR	-3	-38	616	0	0	8.0	-20.3	21.8
31231	99	DIRN	SUR	-27	-47	188	0	0	93.8	34.4	99.9
31262	99	DIRN	SUR	-23	-43	157	1	0	40.7	-44.0	59.9
34002	99	DIRN	SUR	-55	-90	2113	864	0	158.3	60.6	169.5
42019	99	DIRN	SUR	28	-95	626	0	0	12.1	20.9	24.1
42023	99	DIRN	SUR	26	-83	127	15	0	125.2	72.8	144.9
42045	99	DIRN	SUR	26	-97	832	0	0	14.9	-45.5	47.9
42088	99	DIRN	SUR	11	-61	576	0	0	44.5	-28.8	53.0
42090	99	DIRN	SUR	18	-70	39	0	0	17.5	-40.6	44.2
42361	99	DIRN	SUR	28	-93	598	0	0	14.3	30.0	33.3
42365	99	DIRN	SUR	28	-89	255	0	0	22.7	-24.1	33.1
44008	99	DIRN	SUR	41	-69	566	18	0	89.6	6.8	89.8
44037	99	DIRN	SUR	44	-68	496	0	0	12.7	36.9	39.0
44058	99	DIRN	SUR	38	-76	879	0	0	18.0	-25.3	31.0
44063	99	DIRN	SUR	39	-76	654	0	0	31.6	-20.5	37.7
44137	99	DIRN	SUR	42	-62	276	0	0	28.1	-30.8	41.7
45026	99	DIRN	SUR	42	-87	502	0	0	27.5	-21.8	35.1
45154	99	DIRN	SUR	46	-83	471	0	0	23.1	29.0	37.1
45166	99	DIRN	SUR	45	-73	257	0	0	16.4	-35.3	38.9
45173	99	DIRN	SUR	47	-87	537	0	0	23.8	-20.3	31.3
46059	99	DIRN	SUR	38	-130	874	0	0	37.4	-58.1	69.1
46060	99	DIRN	SUR	61	-147	489	0	0	24.1	26.1	35.6
46081	99	DIRN	SUR	61	-148	358	0	0	40.2	20.8	45.2
46118	99	DIRN	SUR	49	-123	504	0	0	32.1	46.5	56.5

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
46120	99	DIRN	SUR	48	-122	125	0	0	50.1	-57.5	76.2
46207	99	DIRN	SUR	51	-130	206	0	0	14.9	43.2	45.7
6101003	99	DIRN	SUR	40	25	88	0	0	43.2	20.7	47.9
6200082	99	DIRN	SUR	44	-8	287	0	0	17.1	37.8	41.5
6200200	99	DIRN	SUR	36	-8	40	0	0	159.3	-35.4	163.2

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

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 AREA : GLOBAL
 PERIOD : SEP 2017
 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
04360	12	Z	1000	66	-38	11	0	5.0	40.8	41.1
04360	00	Z	925	66	-38	22	0	5.1	43.6	43.9
31088	12	Z	50	59	143	29	0	48.6	-124.0	133.2
31538	12	Z	50	50	132	27	0	38.1	-131.8	137.2
36872	12	Z	30	43	77	27	0	81.7	170.3	188.9
38064	12	Z	50	45	66	21	2	92.6	170.0	193.6
38064	00	Z	70	45	66	26	2	83.9	118.6	145.3
42348	00	Z	30	27	76	27	0	20.9	217.0	218.0
43041	00	Z	30	19	82	15	0	12.4	191.5	191.9
43128	00	Z	30	17	78	14	0	62.0	266.8	273.9
43369	00	Z	30	8	73	13	0	8.5	181.6	181.8
47104	00	Z	1000	38	129	28	0	38.7	26.2	46.7
47104	12	Z	1000	38	129	25	0	30.5	24.1	38.9
48568	00	Z	1000	7	101	16	0	4.3	30.2	30.5
89512	00	Z	50	-71	12	28	0	75.7	-132.5	152.6
89592	00	Z	50	-67	93	28	1	77.7	-208.4	222.4
96147	00	Z	850	4	108	28	2	17.6	53.8	56.6
96147	12	Z	925	4	108	25	2	7.2	43.3	43.9
98223	00	Z	30	18	121	22	1	66.4	274.7	282.6
98233	00	Z	1000	18	122	30	0	31.7	26.0	41.0

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 : SEP 2017
 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
33393	00	V	200	50	24	27	0	-7.6	4.0	15.4

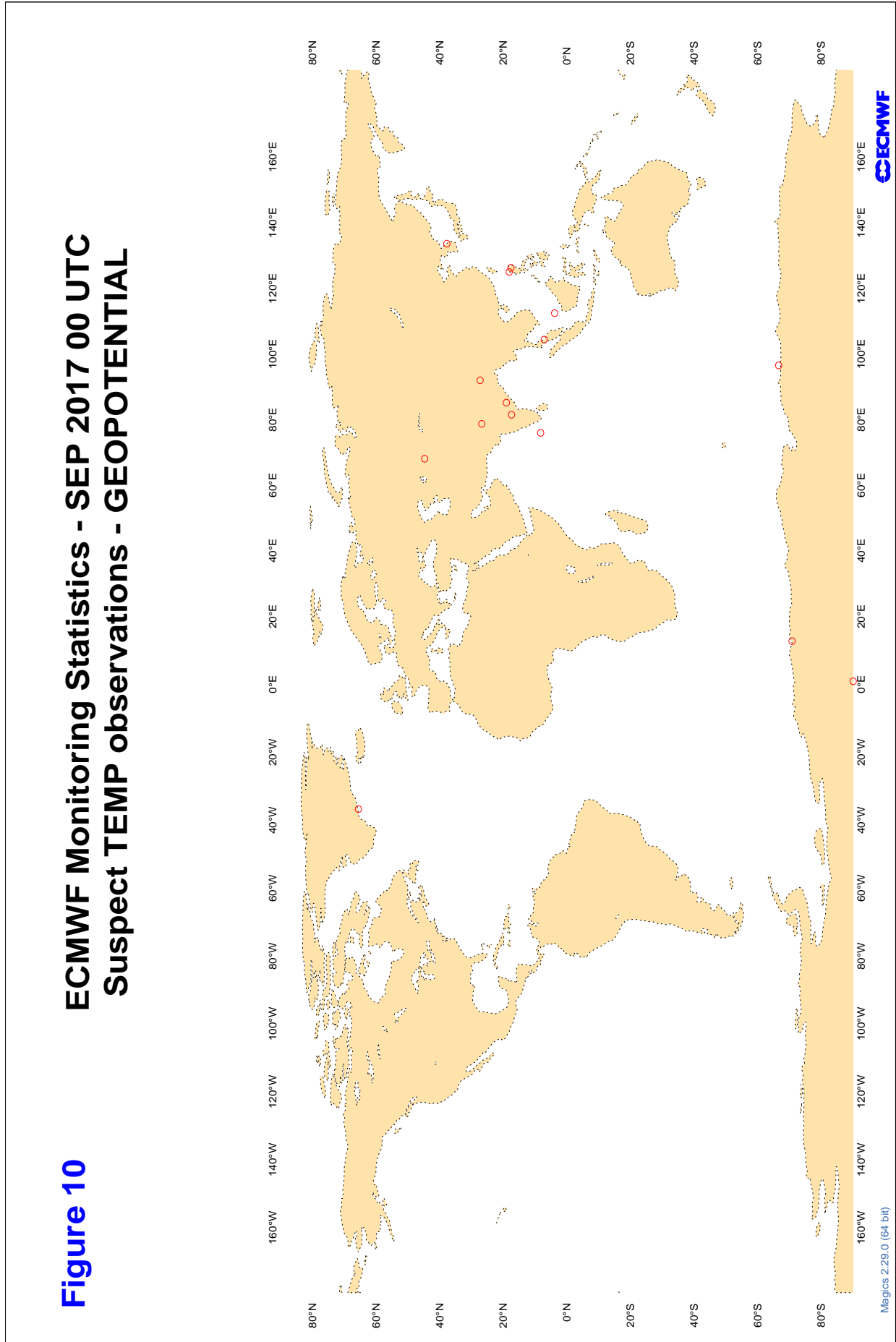
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

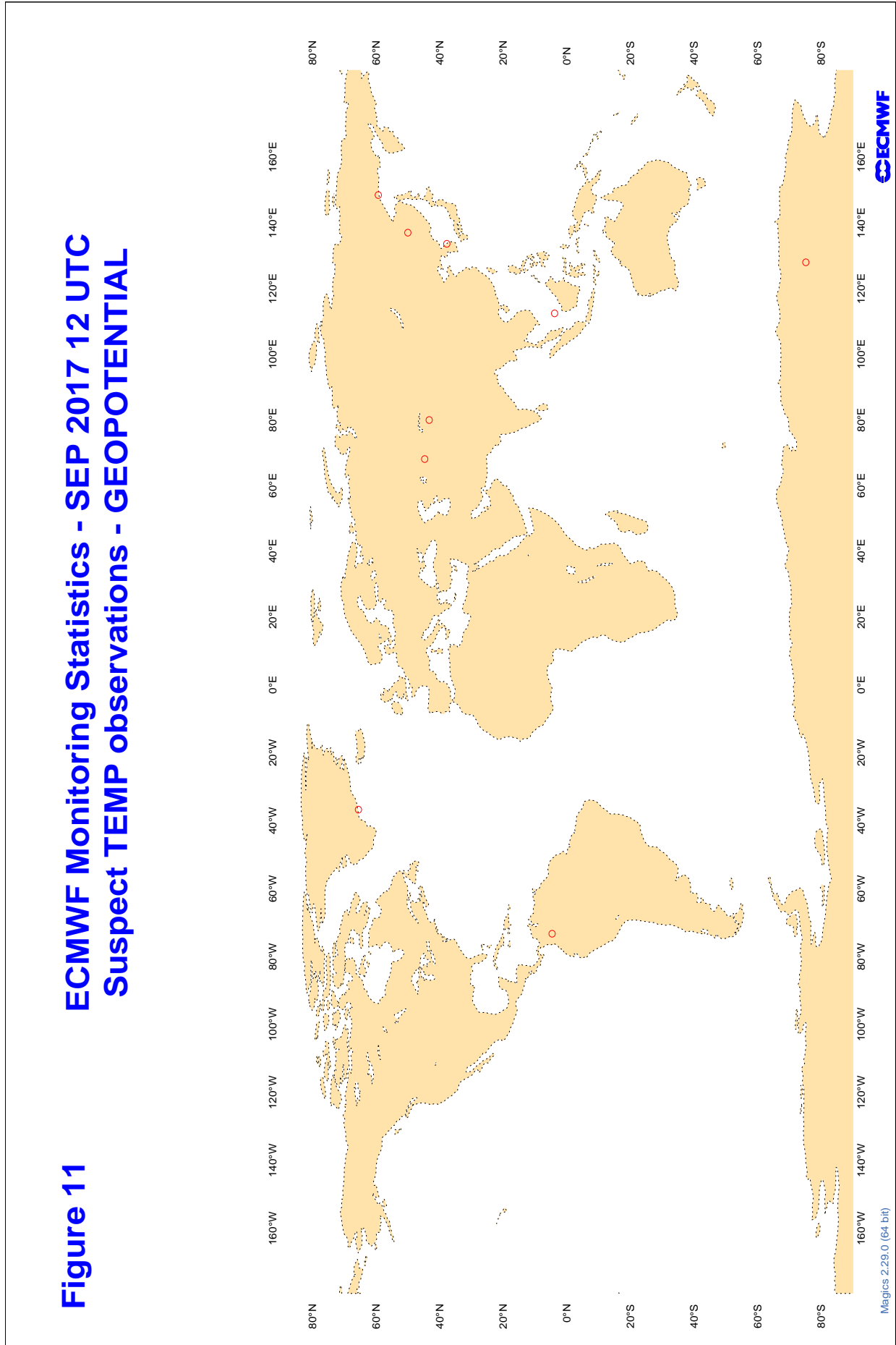
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS ≥ 5 M/S
 NO. OF OBSERVATIONS ≥ 5 , AND,
 ABSOLUTE BIAS ≥ 10 DEGREES, WITH
 STANDARD DEVIATION < 30 DEGREES, AND,
 VERTICAL SPREAD < 10 DEGREES
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
33393	00	DD	50	24	24	21.5	4.2	19.1
57972	00	DD	26	113	12	10.2	4.7	13.4

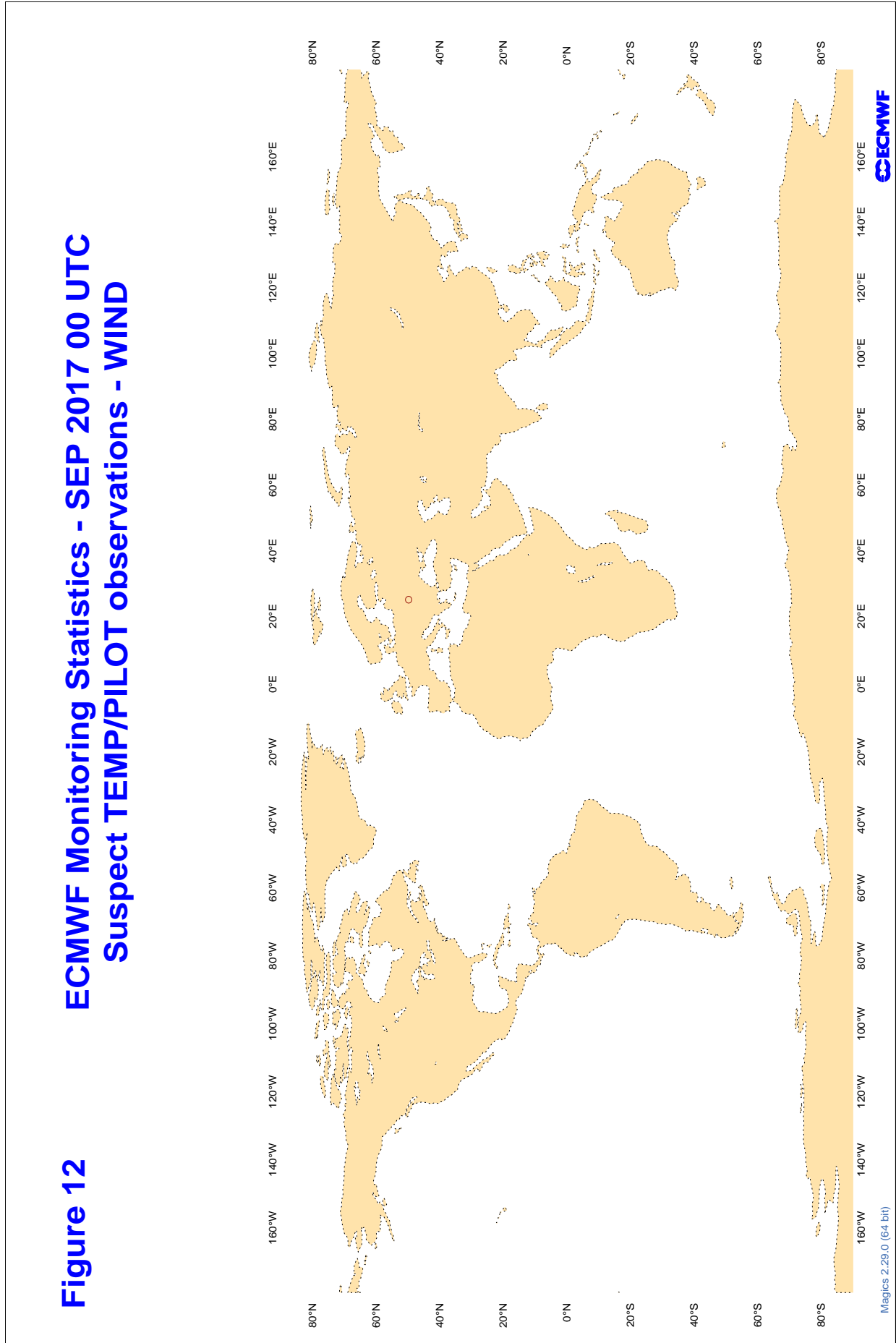
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



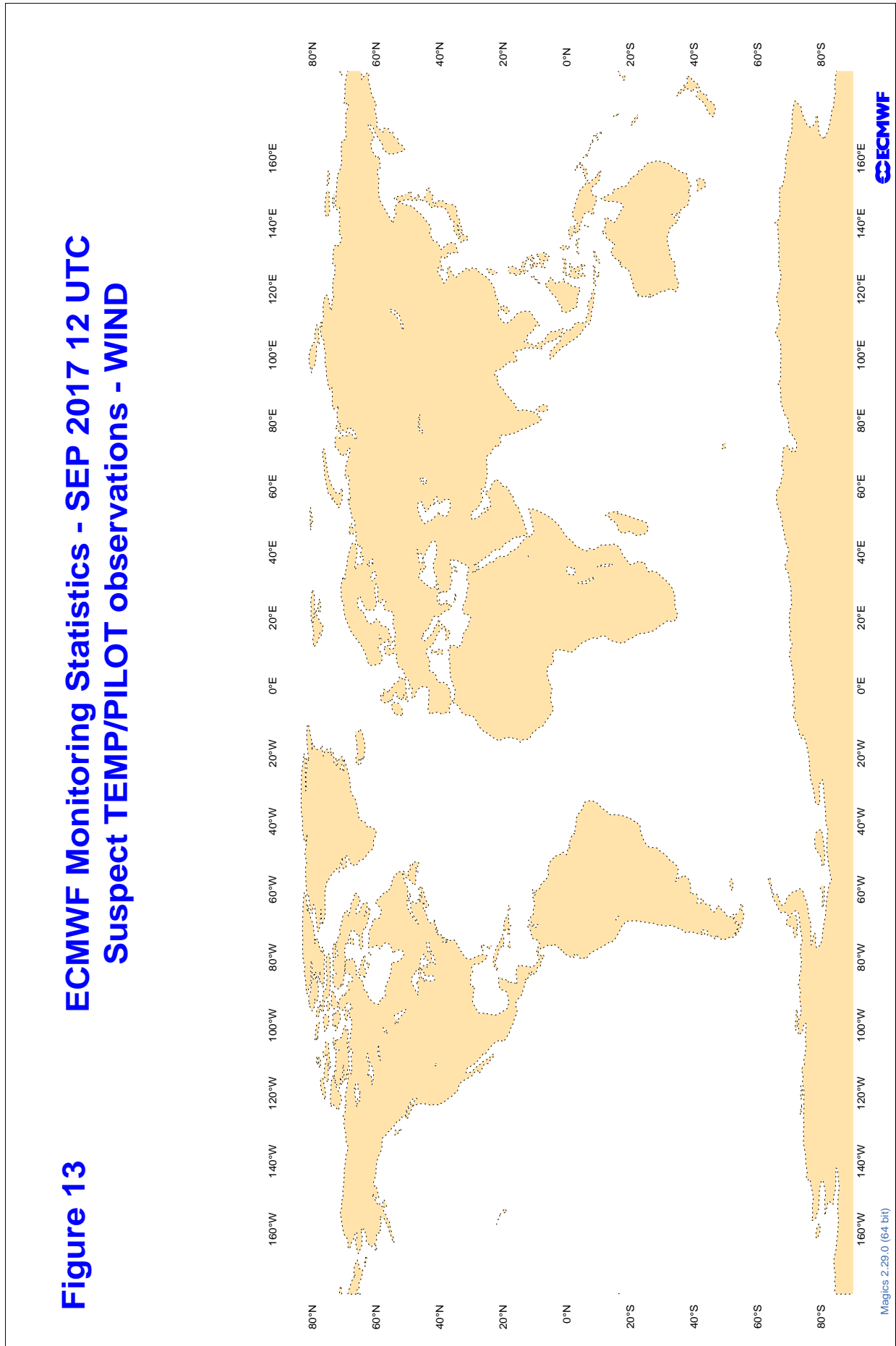
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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 : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASDE02	12	Z	100	7	11.6	8.6
ASDE09	12	Z	100	3	21.3	20.8
ASDK01	12	Z	100	7	25.3	10.5
ASDK01	00	Z	100	5	9.0	4.0
ASDK02	12	Z	100	9	7.9	1.1
ASDK02	00	Z	100	14	10.6	2.7
ASDK03	12	Z	100	11	17.9	17.4
ASDK03	00	Z	100	11	15.7	15.1
ASDK3	12	Z	100	9	9.6	8.0
ASDK3	00	Z	100	10	16.3	14.9
ASES01	12	Z	100	14	26.0	16.1
ASEU01	12	Z	100	5	45.2	38.9
ASEU01	00	Z	100	4	13.2	-1.4
ASEU02	12	Z	100	6	35.5	35.1
ASEU02	00	Z	100	5	35.2	34.1
ASEU04	12	Z	100	8	11.3	-4.6
ASEU04	00	Z	100	7	12.2	-6.9
ASEU2	12	Z	100	1	25.4	25.4
ASFR1	12	Z	100	14	14.8	10.8
ASFR1	00	Z	100	15	18.7	16.8
ASFR2	12	Z	100	14	61.5	34.4
ASFR2	00	Z	100	16	15.8	13.6
ASFR3	12	Z	100	7	19.7	15.5
ASFR3	00	Z	100	6	18.9	15.9
ASFR4	12	Z	100	13	22.0	20.4
ASFR4	00	Z	100	14	19.1	17.0
ASUK3	12	Z	100	1	13.3	-13.3
DBLK	12	Z	100	39	9.7	-2.3
DSQL7	12	Z	100	13	7.0	-3.2
DSQL7	00	Z	100	12	6.6	-3.3
JGQH	12	Z	100	1	4.4	4.4
JGQH	00	Z	100	0	0.0	0.0
JNKN7J	12	Z	100	1	42.1	42.1
JNSR	12	Z	100	9	6.8	-6.3
JNSR	00	Z	100	39	9.1	-7.3
PMKWP	00	Z	100	0	0.0	0.0
PMKWP	12	Z	100	0	0.0	0.0
UJ7N4	12	Z	100	0	0.0	0.0
UJ7N4	00	Z	100	0	0.0	0.0

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
VKB4L5	12	Z	100	9	35.0	33.9
VKB4L5	00	Z	100	3	35.4	34.1
VKB4Q	12	Z	100	2	35.9	35.4
VKB4Q	00	Z	100	1	40.1	40.1
YRLU3	00	Z	100	0	0.0	0.0
YRLU3	12	Z	100	0	0.0	0.0

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

RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 100 HPA
 AREA : GLOBAL
 PERIOD : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

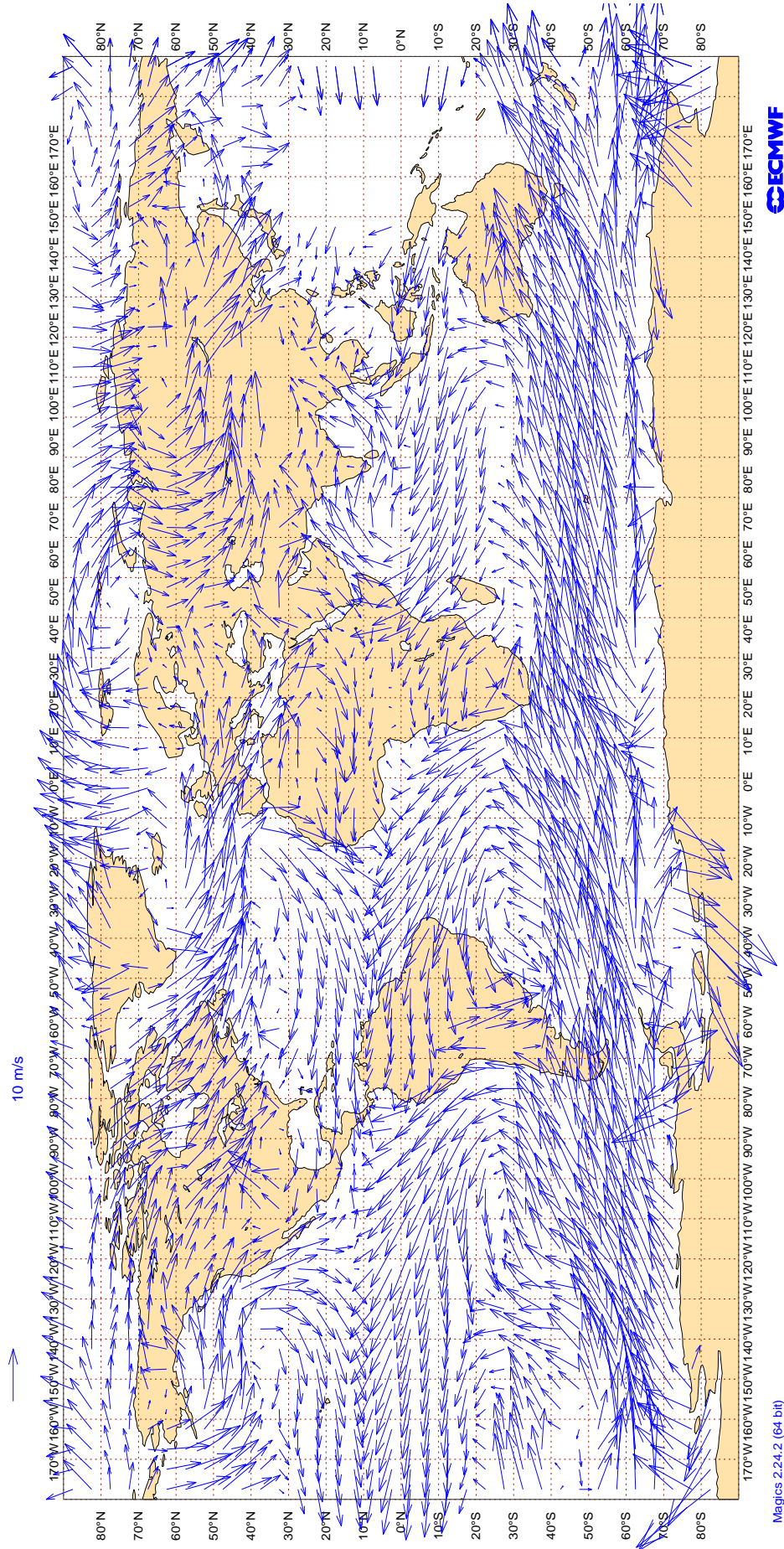
WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASDE02	12	V	100	7	4.3	0.5	1.1
ASDE09	12	V	100	3	5.4	0.1	-0.8
ASDK01	12	V	100	7	2.8	-0.2	-0.7
ASDK01	00	V	100	4	1.6	-0.9	0.4
ASDK02	12	V	100	9	2.2	0.1	-0.6
ASDK02	00	V	100	13	3.8	-1.7	0.2
ASDK03	12	V	100	10	3.6	-0.8	0.0
ASDK03	00	V	100	10	3.8	-0.5	0.1
ASDK3	12	V	100	9	2.8	-0.7	-0.4
ASDK3	00	V	100	10	3.9	-0.8	0.4
ASES01	12	V	100	13	4.0	0.8	1.7
ASEU01	12	V	100	5	4.3	-1.5	1.7
ASEU01	00	V	100	2	2.8	2.4	1.2
ASEU02	12	V	100	5	3.5	1.0	-1.3
ASEU02	00	V	100	5	3.3	1.5	-0.7
ASEU04	12	V	100	3	2.7	0.4	-0.8
ASEU04	00	V	100	7	2.2	-0.5	0.4
ASEU2	12	V	100	1	3.7	-0.9	-3.6
ASFR1	12	V	100	11	3.6	1.5	1.0
ASFR1	00	V	100	11	3.9	-0.8	1.4
ASFR2	12	V	100	11	4.1	-0.8	0.2
ASFR2	00	V	100	11	3.5	-0.6	-0.2
ASFR3	12	V	100	7	3.5	1.3	-1.5
ASFR3	00	V	100	5	7.4	-0.4	0.3
ASFR4	12	V	100	11	3.4	-0.5	1.1
ASFR4	00	V	100	12	3.1	0.7	0.0
ASUK3	12	V	100	1	1.5	-0.5	-1.4
DBLK	12	V	100	23	3.6	2.0	-0.3
DSQL7	12	V	100	9	3.2	0.8	-1.0
DSQL7	00	V	100	9	4.2	0.7	-1.7
JGQH	12	V	100	1	10.0	-9.7	-2.5
JGQH	00	V	100	0	0.0	0.0	0.0
JNKN7J	12	V	100	1	4.9	-1.3	4.7
JNSR	12	V	100	3	2.1	-1.8	-0.5
JNSR	00	V	100	13	3.7	-0.7	0.7
PMKWP	00	V	100	0	0.0	0.0	0.0
PMKWP	12	V	100	0	0.0	0.0	0.0
UJ7N4	12	V	100	0	0.0	0.0	0.0
UJ7N4	00	V	100	0	0.0	0.0	0.0

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
VKB4L5	12	V	100	6	3.8	0.7	1.5
VKB4L5	00	V	100	3	3.6	-1.5	2.5
VKB4Q	12	V	100	2	3.3	-1.4	2.3
VKB4Q	00	V	100	1	3.6	-3.0	1.9
YRLU3	00	V	100	0	0.0	0.0	0.0
YRLU3	12	V	100	0	0.0	0.0	0.0

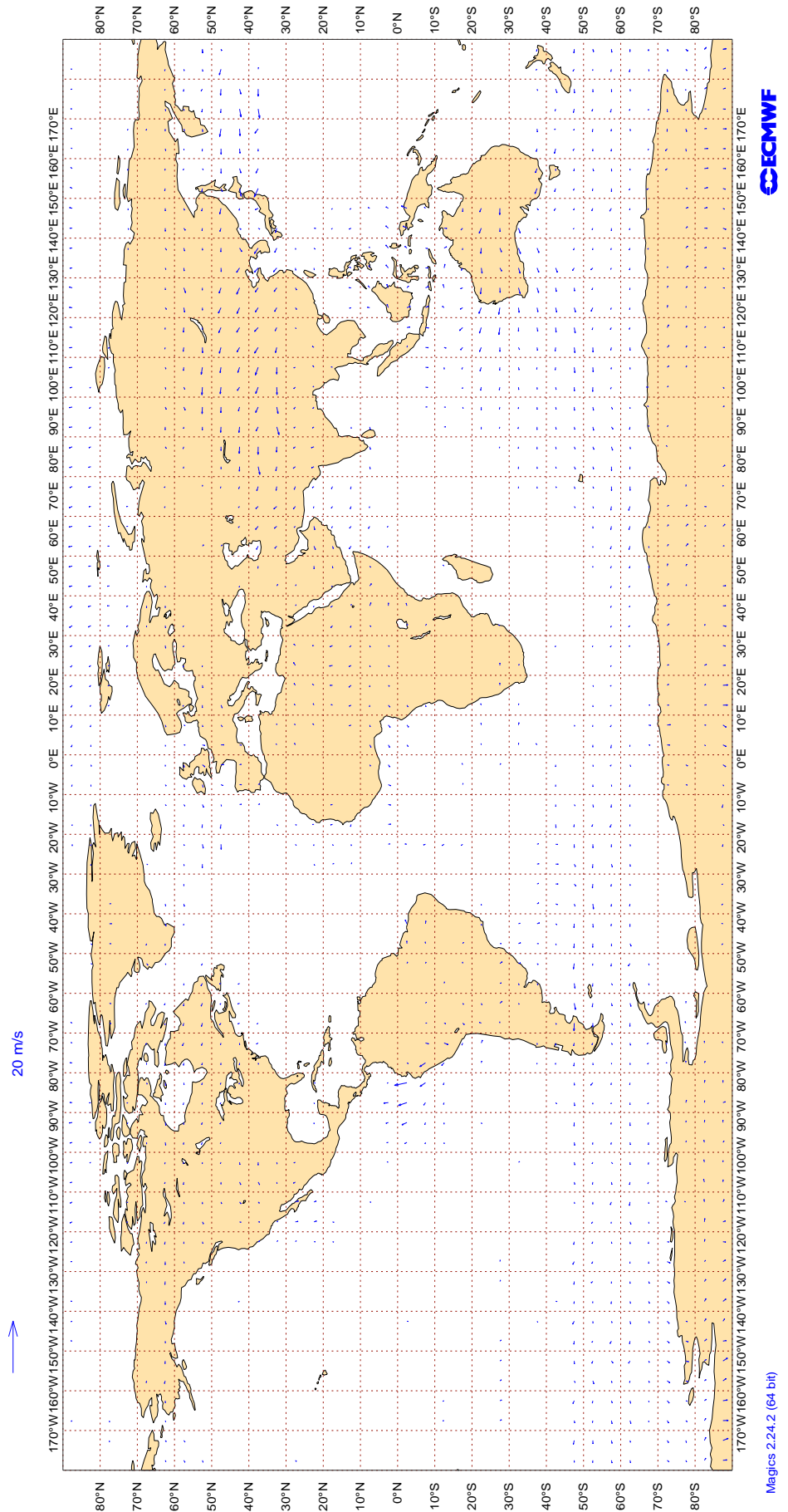
3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

Figure 14
ECMWF Monitoring Statistics: Sep 2017
AMV Winds: 700-1000hPa
Mean Observed Wind



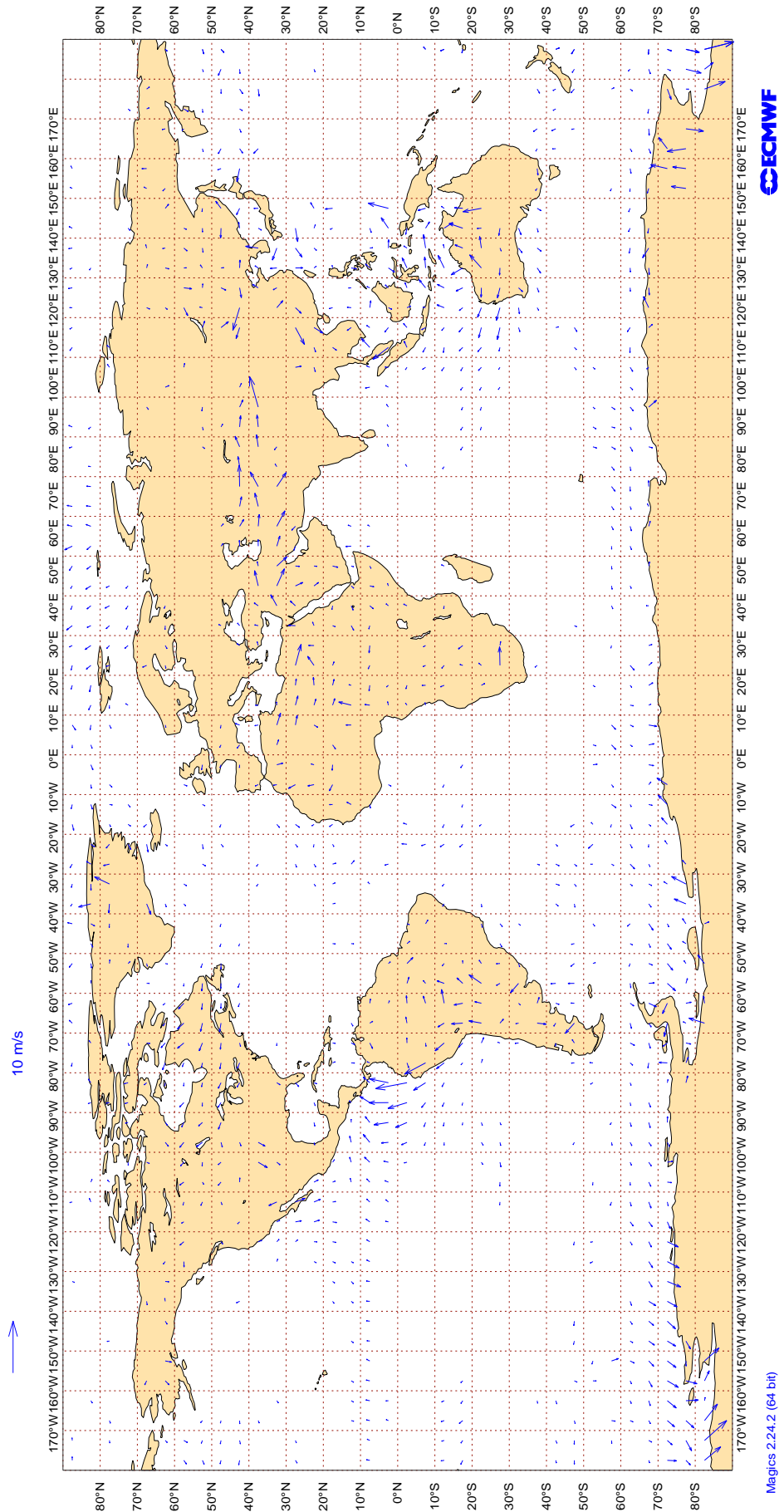
3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

Figure 15
ECMWF Monitoring Statistics: Sep 2017
AMV Winds: 150- 400hPa
Wind bias: Observation - FG



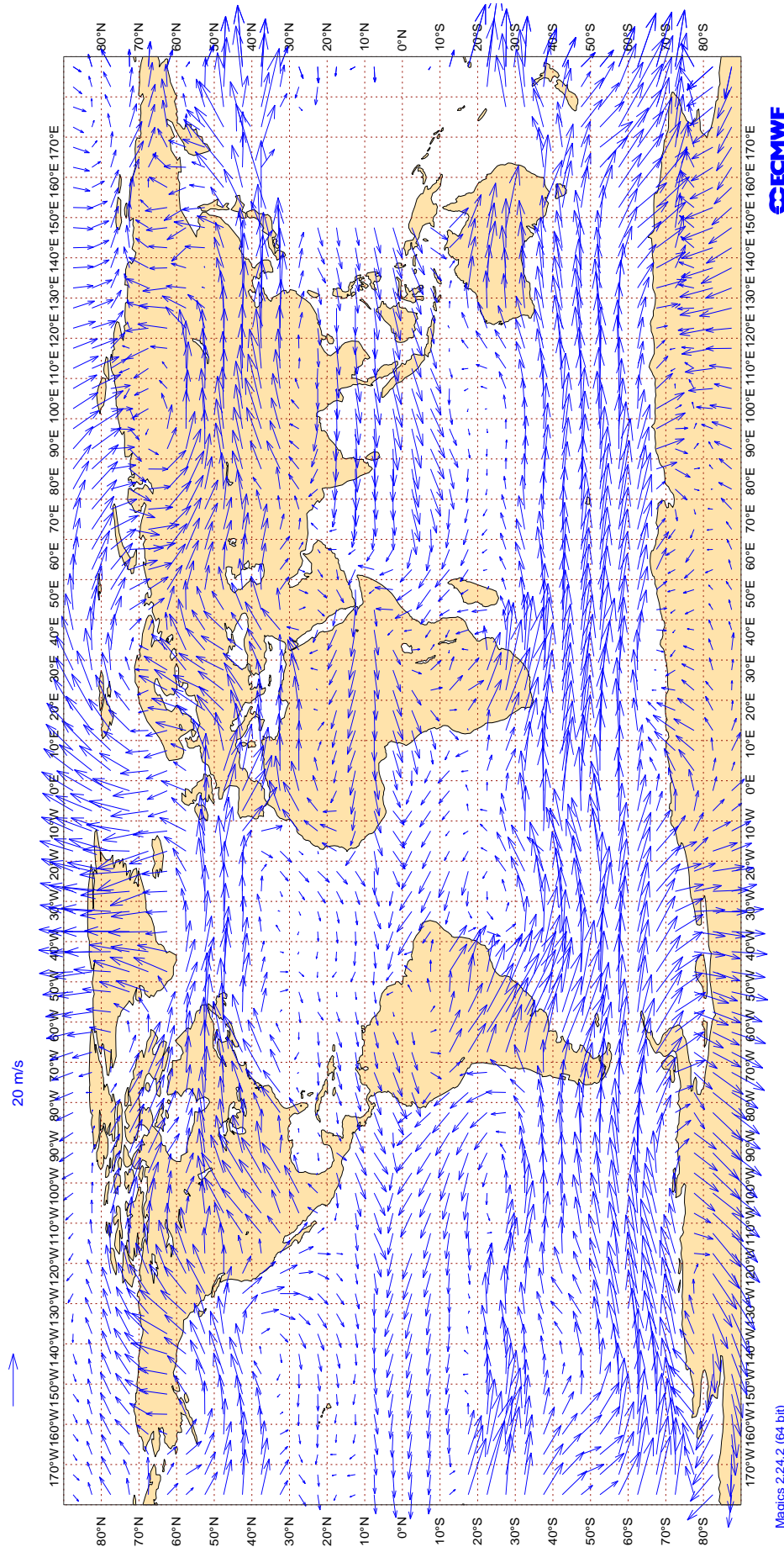
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

Figure 16
ECMWF Monitoring Statistics: Sep 2017
AMV Winds: 700-1000hPa
Wind bias: Observation - FG



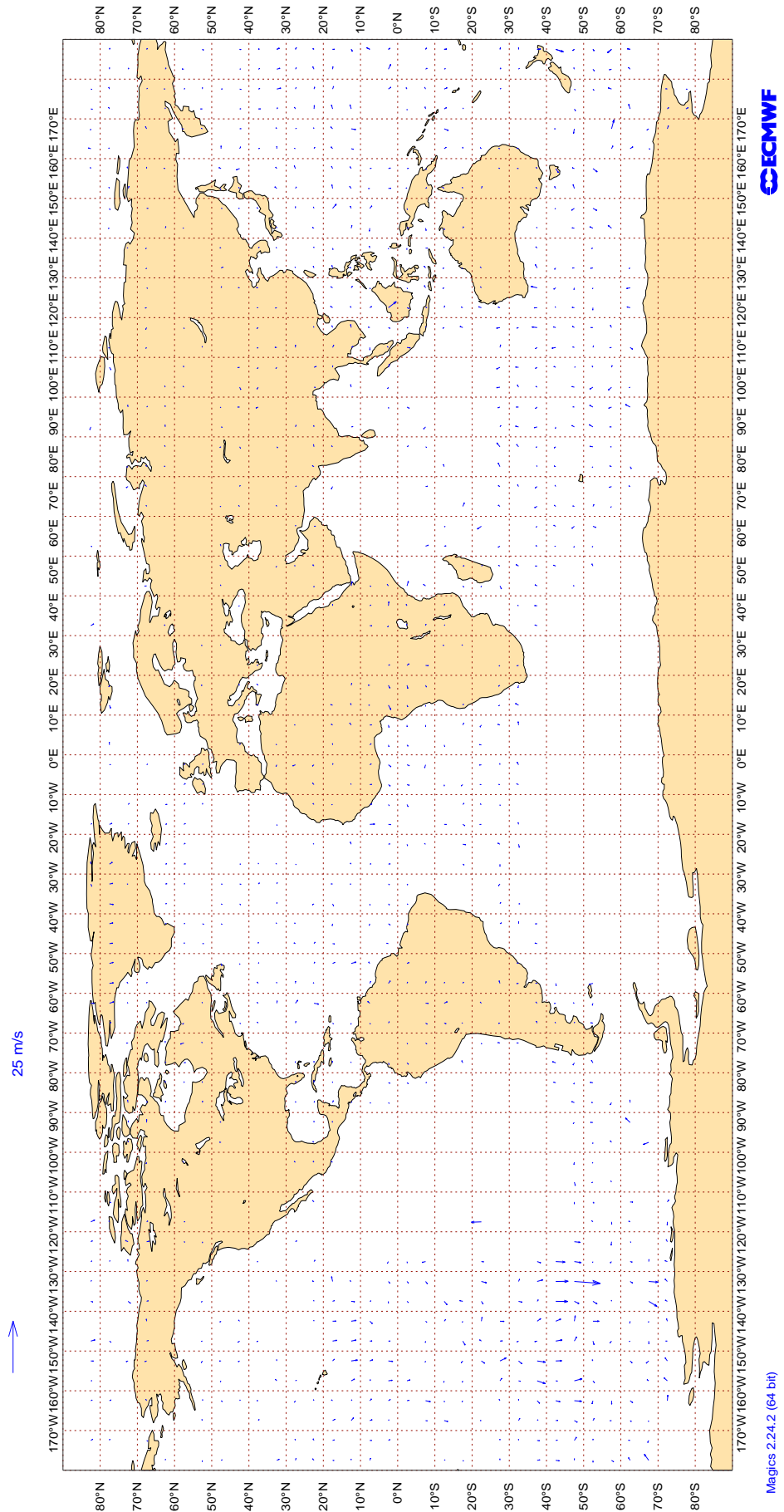
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

Figure 17
ECMWF Monitoring Statistics: Sep 2017
AMV Winds: 150- 400hPa
Mean Observed Wind



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

Figure 18
ECMWF Monitoring Statistics: Sep 2017
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 : SEP 2017
 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	68	0	0	4.7	-0.5
AAL	99	V	300-150	67680	1	0	5.1	0.3
AAR	99	V	300-150	269	0	0	4.4	-1.3
AAY	99	V	300-150	72	0	0	6.0	-0.4
ABD	99	V	300-150	444	0	0	4.3	-0.4
ABW	99	V	300-150	1125	0	0	3.8	-0.4
ABX	99	V	300-150	199	1	1	4.7	-0.1
ACA	99	V	300-150	33839	3	0	6.2	0.2
ACI	99	V	300-150	2241	0	0	3.6	0.4
AEA	99	V	300-150	977	1	0	4.9	0.5
AED	99	V	300-150	27	0	0	3.4	-0.3
AFL	99	V	300-150	2446	0	0	3.3	0.3
AFR	99	V	300-150	31205	0	0	4.2	0.3
AHY	99	V	300-150	330	8	0	9.7	-0.2
AIC	99	V	300-150	1919	2	0	6.3	0.1
AKK	99	V	300-150	43	0	0	4.4	-0.7
AMX	99	V	300-150	3782	13	0	9.8	0.1
ANZ	99	V	300-150	21819	3	0	5.0	0.5
ARZ	99	V	300-150	27	0	0	2.7	-0.4
ASA	99	V	300-150	1001	0	0	4.7	0.3
ASL	99	V	300-150	723	0	0	3.5	0.1
ASY	99	V	300-150	465	0	0	4.5	0.1
ATN	99	V	300-150	26	0	0	5.2	0.7
AUA	99	V	300-150	5189	0	0	4.3	-0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AUH	99	V	300-150	35	17	0	12.0	-0.5
AVA	99	V	300-150	400	8	0	6.0	0.4
AXM	99	V	300-150	263	0	1	6.6	0.7
AXY	99	V	300-150	64	0	0	3.9	0.6
AZA	99	V	300-150	11062	0	0	3.9	0.5
AZG	99	V	300-150	221	0	0	4.0	-0.3
BAH	99	V	300-150	30	0	0	5.5	0.5
BAW	99	V	300-150	55366	2	0	5.4	0.2
BEL	99	V	300-150	3046	0	0	3.5	0.3
BER	99	V	300-150	8870	0	0	3.6	0.5
BLU	99	V	300-150	43	0	0	4.8	-0.3
BMW	99	V	300-150	21	0	0	4.3	-1.1
BOX	99	V	300-150	1195	0	0	3.8	-0.0
BOX	99	V	300-150	25	0	0	3.5	0.2
BRK	99	V	300-150	84	0	0	4.1	0.1
BWJ	99	V	300-150	34	0	3	3.4	0.0
CAJ	99	V	300-150	54	0	0	4.5	0.4
CAL	99	V	300-150	225	0	0	3.4	0.5
CAT	99	V	300-150	42	0	0	7.3	2.7
CAZ	99	V	300-150	159	0	0	4.1	-0.8
CCA	99	V	300-150	887	10	0	6.2	0.5
CEF	99	V	300-150	50	0	0	3.1	0.4
CES	99	V	300-150	1099	0	0	3.3	0.5
CFC	99	V	300-150	351	0	0	4.4	-0.3
CFG	99	V	300-150	4296	0	0	4.2	-0.2
CHH	99	V	300-150	130	0	0	5.0	0.3
CHN	99	V	300-150	22	0	0	3.9	0.3
CJT	99	V	300-150	211	0	0	4.6	-0.6
CKS	99	V	300-150	1584	0	0	4.0	-0.3
CLE	99	V	300-150	23	0	0	4.5	0.0
CLU	99	V	300-150	298	0	0	4.3	-0.2
CLX	99	V	300-150	3603	0	0	4.4	-0.4
CMB	99	V	300-150	1381	0	0	4.3	-0.2
CMR	99	V	300-150	43	0	0	4.0	0.2
CNV	99	V	300-150	249	0	0	3.7	0.9
COB	99	V	300-150	36	0	0	4.2	1.1
CPA	99	V	300-150	992	0	0	3.8	0.7
CRK	99	V	300-150	848	0	0	3.7	0.2
CRL	99	V	300-150	1021	0	0	3.8	0.1
CRV	99	V	300-150	41	0	0	5.7	-2.1
CSC	99	V	300-150	180	0	0	3.4	0.3
CSN	99	V	300-150	758	2	0	5.7	0.4
CTM	99	V	300-150	52	0	0	3.3	0.7

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
CWG	99	V	300-150	21	0	0	2.6	-0.3
CXB	99	V	300-150	36	0	0	3.7	-0.5
DAH	99	V	300-150	952	0	0	3.9	0.5
DAL	99	V	300-150	82867	0	0	3.8	0.1
DCS	99	V	300-150	73	0	0	3.9	0.1
DGX	99	V	300-150	152	0	0	3.6	0.6
DHK	99	V	300-150	1073	0	0	4.7	-0.5
DJT	99	V	300-150	1855	0	0	4.6	0.2
DLH	99	V	300-150	36474	0	0	3.7	0.1
DSO	99	V	300-150	34	0	0	5.2	-0.2
DUB	99	V	300-150	161	0	0	3.9	0.0
EDC	99	V	300-150	62	0	0	4.5	-0.7
EDG	99	V	300-150	56	0	0	4.3	0.4
EDW	99	V	300-150	1688	0	0	3.9	0.6
EIN	99	V	300-150	16281	0	0	3.7	0.3
EJM	99	V	300-150	961	13	0	7.5	0.0
ELY	99	V	300-150	2736	0	0	4.1	-0.1
ETD	99	V	300-150	3931	2	0	5.1	0.0
ETH	99	V	300-150	2178	5	0	7.3	0.2
EWG	99	V	300-150	2598	0	0	3.9	0.3
EXS	99	V	300-150	113	0	0	3.8	0.8
EXU	99	V	300-150	23	0	0	3.9	0.8
FDX	99	V	300-150	5449	0	0	3.7	0.2
FIN	99	V	300-150	760	0	0	3.3	0.3
FJI	99	V	300-150	6067	0	0	4.2	0.5
FWI	99	V	300-150	1044	0	0	3.5	0.2
FYG	99	V	300-150	113	0	0	3.3	0.5
GAF	99	V	300-150	111	0	0	3.5	-0.4
GAJ	99	V	300-150	37	0	0	3.9	1.1
GCR	99	V	300-150	41	0	0	4.0	-0.3
GEC	99	V	300-150	2962	0	0	3.9	0.1
GES	99	V	300-150	97	0	0	4.3	-0.0
GLJ	99	V	300-150	40	0	0	3.1	0.0
GLO	99	V	300-150	41	0	5	10.2	0.3
GOL	99	V	300-150	59	0	0	5.1	-0.3
GTH	99	V	300-150	193	0	0	4.4	0.0
GTI	99	V	300-150	2745	0	0	4.1	-0.2
HAL	99	V	300-150	3777	0	0	3.8	0.6
HRT	99	V	300-150	58	74	0	32.2	0.8
HZS	99	V	300-150	22	0	0	4.5	-1.3
HZS	99	V	300-150	55	0	0	4.6	-0.2
IAM	99	V	300-150	76	0	0	3.7	0.3
IBE	99	V	300-150	3548	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
IBK	99	V	300-150	163	0	1	3.8	0.7
ICE	99	V	300-150	41	2	49	5.3	1.2
ICL	99	V	300-150	649	0	0	5.6	-0.5
ICV	99	V	300-150	395	0	0	4.4	-0.5
IFA	99	V	300-150	31	58	0	24.2	-0.7
IJM	99	V	300-150	51	47	0	9.7	-1.7
ISS	99	V	300-150	1216	0	0	4.2	-0.3
IVY	99	V	300-150	39	0	0	3.5	0.3
JAF	99	V	300-150	1192	5	0	7.0	0.3
JAI	99	V	300-150	1115	0	0	3.5	0.2
JAS	99	V	300-150	83	0	0	4.6	0.0
JJA	99	V	300-150	57	2	5	7.3	1.4
JME	99	V	300-150	57	0	0	5.2	-0.7
JST	99	V	300-150	2891	8	0	9.0	0.3
JTS	99	V	300-150	85	0	0	3.8	-0.2
KAC	99	V	300-150	1150	0	0	3.8	0.4
KAI	99	V	300-150	65	0	0	3.7	0.5
KAL	99	V	300-150	1150	0	0	3.8	0.6
KAY	99	V	300-150	77	0	0	2.9	0.0
KCE	99	V	300-150	93	0	0	3.4	0.8
KFE	99	V	300-150	22	0	0	3.0	1.0
KIW	99	V	300-150	128	0	1	3.3	1.1
KLM	99	V	300-150	18397	1	0	4.8	0.0
KRF	99	V	300-150	44	0	0	3.8	1.2
KUG	99	V	300-150	32	0	0	3.0	-0.5
LAN	99	V	300-150	1769	8	0	7.9	0.4
LCO	99	V	300-150	145	0	0	3.8	-0.2
LEA	99	V	300-150	85	0	0	5.1	-1.3
LNK	99	V	300-150	28	0	0	3.5	-0.0
LOT	99	V	300-150	3125	8	0	9.3	0.0
LUC	99	V	300-150	63	0	0	5.5	-0.6
LXA	99	V	300-150	33	48	0	30.5	0.6
LXJ	99	V	300-150	141	47	0	18.3	0.4
MAS	99	V	300-150	396	0	0	3.8	0.1
MEA	99	V	300-150	43	0	0	4.3	1.8
MLM	99	V	300-150	40	0	0	4.2	0.4
MMD	99	V	300-150	138	0	0	3.2	0.5
MPH	99	V	300-150	695	0	0	3.8	-0.7
MSR	99	V	300-150	1320	0	0	3.9	-0.0
NAF	99	V	300-150	50	0	0	4.2	-0.6
NAX	99	V	300-150	11515	11	0	10.3	0.0
NCA	99	V	300-150	327	0	0	4.0	-0.3
NCR	99	V	300-150	39	3	5	3.7	0.9

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
NJE	99	V	300-150	340	7	0	12.2	0.3
NOS	99	V	300-150	307	0	0	4.6	-0.3
NWS	99	V	300-150	155	0	0	4.2	0.8
OAE	99	V	300-150	193	0	0	5.5	0.6
PAC	99	V	300-150	200	0	0	4.2	0.5
PAL	99	V	300-150	207	1	1	8.8	0.3
PAT	99	V	300-150	24	0	0	2.8	-0.2
PFF	99	V	300-150	48	0	0	4.0	0.7
PIA	99	V	300-150	407	0	0	3.9	0.4
PLF	99	V	300-150	100	0	0	4.2	-0.0
PLM	99	V	300-150	82	0	0	4.8	-0.7
PVJ	99	V	300-150	57	0	0	3.9	-0.1
QAF	99	V	300-150	96	0	0	4.3	-0.2
QFA	99	V	300-150	14640	0	0	4.0	0.2
QQE	99	V	300-150	168	15	0	18.7	0.7
QTR	99	V	300-150	9972	0	0	4.1	0.1
RAM	99	V	300-150	538	5	0	8.0	0.3
RCH	99	V	300-150	5620	0	0	4.6	0.2
RDN	99	V	300-150	39	0	0	3.5	-0.4
REN	99	V	300-150	41	0	0	3.8	0.2
RJA	99	V	300-150	1824	8	0	10.6	-0.2
ROJ	99	V	300-150	106	0	0	3.8	-0.0
ROU	99	V	300-150	14380	0	0	4.3	-0.2
RRR	99	V	300-150	266	0	0	3.3	0.4
RSY	99	V	300-150	50	0	0	3.4	1.0
RZO	99	V	300-150	251	0	0	5.0	0.1
SAM	99	V	300-150	218	0	0	4.6	0.2
SAS	99	V	300-150	4906	0	0	3.3	0.2
SDM	99	V	300-150	156	0	0	4.2	-0.1
SHE	99	V	300-150	73	0	0	4.3	0.8
SIA	99	V	300-150	2847	0	0	3.7	0.2
SIO	99	V	300-150	27	0	0	5.8	1.6
SJE	99	V	300-150	20	0	0	2.6	0.2
SJT	99	V	300-150	21	0	0	3.5	-0.4
SLM	99	V	300-150	180	0	0	3.7	0.2
SNO	99	V	300-150	23	0	0	5.1	0.5
SOO	99	V	300-150	693	0	0	4.1	-0.1
SPA	99	V	300-150	80	0	0	4.0	0.7
SQC	99	V	300-150	663	0	0	4.3	-0.7
SUI	99	V	300-150	42	0	0	4.2	1.0
SVA	99	V	300-150	3090	2	0	5.2	0.1
SVF	99	V	300-150	28	0	0	2.7	-1.1
SVW	99	V	300-150	258	0	0	3.6	0.5

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
SWR	99	V	300-150	12090	0	0	3.7	0.4
TAM	99	V	300-150	350	0	0	3.6	0.0
TAP	99	V	300-150	1366	0	0	4.4	0.8
TAR	99	V	300-150	430	0	0	3.7	0.4
TAY	99	V	300-150	786	0	0	5.3	-0.4
TCX	99	V	300-150	8064	0	0	3.6	0.3
TFL	99	V	300-150	1862	8	0	8.5	0.1
THA	99	V	300-150	195	0	0	3.7	0.5
THT	99	V	300-150	2332	0	0	3.5	0.4
THY	99	V	300-150	8552	0	0	4.0	0.2
TMN	99	V	300-150	65	0	32	3.9	0.8
TOM	99	V	300-150	7462	11	0	9.9	0.1
TOW	99	V	300-150	60	0	0	5.0	0.4
TPJ	99	V	300-150	29	62	0	27.9	0.5
TRE	99	V	300-150	172	0	0	4.1	-0.1
TRK	99	V	300-150	90	0	0	3.8	0.1
TSC	99	V	300-150	19115	0	0	3.8	0.2
TWB	99	V	300-150	44	2	7	9.3	1.8
TWY	99	V	300-150	197	0	0	4.2	-0.2
UAE	99	V	300-150	10884	0	0	4.1	0.2
UAL	99	V	300-150	91246	1	2	5.1	0.1
ULC	99	V	300-150	164	0	0	3.6	0.2
UPS	99	V	300-150	4577	0	0	4.4	-0.1
UZB	99	V	300-150	118	20	0	11.0	-0.1
VIR	99	V	300-150	23760	3	0	5.9	0.1
VJT	99	V	300-150	971	39	0	16.9	0.0
VKG	99	V	300-150	35	0	0	4.2	0.5
VMP	99	V	300-150	35	0	0	2.8	0.8
VOZ	99	V	300-150	6597	0	0	3.5	0.2
VRD	99	V	300-150	23	4	0	3.4	0.1
WGT	99	V	300-150	111	0	0	3.5	0.1
WJA	99	V	300-150	5405	0	0	4.0	0.2
WOW	99	V	300-150	1011	0	1	3.4	0.4
WWI	99	V	300-150	27	0	0	3.4	-0.4
XAX	99	V	300-150	388	0	0	3.4	0.5
XLF	99	V	300-150	1594	0	0	3.8	0.4

4 EUCOS Area Monitoring Statistics

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

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

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

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 50 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	50	27	8.9	7.7
01001	12	Z	50	28	8.7	6.6
01028	12	Z	50	29	43.1	-0.7
01028	00	Z	50	29	6.7	1.3
01400	00	Z	50	26	29.2	25.9
01400	12	Z	50	26	29.0	27.3
01415	00	Z	50	28	15.3	14.8
01415	12	Z	50	30	12.2	11.3
02365	12	Z	50	29	20.9	17.9
02365	00	Z	50	23	13.4	8.9
02591	12	Z	50	18	16.2	15.6
02591	00	Z	50	16	19.7	19.1
02836	12	Z	50	31	10.9	9.5
02836	00	Z	50	30	12.1	11.6
02963	00	Z	50	24	13.8	12.7
02963	12	Z	50	29	21.9	13.8
03005	12	Z	50	30	12.6	10.9
03005	00	Z	50	29	11.7	10.4
03238	00	Z	50	24	12.5	10.7
03238	12	Z	50	1	14.0	14.0
03808	00	Z	50	27	13.9	12.4
03808	12	Z	50	30	15.4	13.9
03918	00	Z	50	28	18.3	17.6
03918	12	Z	50	10	22.8	22.2
03953	00	Z	50	16	45.8	17.4
03953	12	Z	50	16	20.5	15.6
04018	12	Z	50	29	11.8	10.4
04018	00	Z	50	26	10.2	8.2
04220	00	Z	50	30	13.6	9.1
04220	12	Z	50	28	13.0	10.1
04270	12	Z	50	29	9.4	7.0
04270	00	Z	50	27	9.9	9.0
04320	00	Z	50	30	9.4	6.9
04320	12	Z	50	30	12.1	8.8
043201	00	Z	50	0	0.0	0.0
04339	00	Z	50	29	20.2	6.2
04339	12	Z	50	29	19.1	3.1
04360	00	Z	50	5	27.1	15.1
04360	12	Z	50	3	44.8	44.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	50	16	30.5	22.6
06011	00	Z	50	11	15.4	-0.6
06260	12	Z	50	4	15.7	15.5
06260	00	Z	50	29	17.8	16.1
06610	12	Z	50	29	20.5	17.1
06610	00	Z	50	29	19.7	18.4
07110	00	Z	50	18	35.8	35.0
07110	12	Z	50	16	45.9	42.5
07510	00	Z	50	14	41.6	40.9
07510	12	Z	50	12	40.1	38.5
07645	00	Z	50	12	30.3	25.5
07645	12	Z	50	14	34.6	34.2
07761	12	Z	50	15	39.6	38.9
07761	00	Z	50	10	40.1	38.4
08001	00	Z	50	12	20.9	19.2
08001	12	Z	50	29	26.5	23.5
08221	00	Z	50	29	21.9	20.4
08221	12	Z	50	28	22.8	19.6
08302	12	Z	50	29	9.9	6.6
08302	00	Z	50	28	9.4	7.7
08508	12	Z	50	30	42.8	32.3
08522	12	Z	50	30	27.6	21.4
08579	12	Z	50	30	26.9	24.9
10035	00	Z	50	30	27.4	26.8
10035	12	Z	50	31	27.2	26.7
10393	00	Z	50	32	16.4	15.6
10393	12	Z	50	29	14.5	13.5
10410	12	Z	50	30	12.9	12.1
10410	00	Z	50	31	12.6	11.7
10739	00	Z	50	33	15.1	13.4
10739	12	Z	50	31	12.2	9.6
11035	12	Z	50	30	16.5	13.8
11035	00	Z	50	30	22.6	20.6
12982	12	Z	50	29	43.3	41.7
12982	00	Z	50	26	23.1	21.3
16080	12	Z	50	29	17.6	11.9
16080	00	Z	50	30	13.3	11.3
16245	00	Z	50	29	16.2	15.0
16245	12	Z	50	26	19.6	16.0
16320	12	Z	50	27	25.9	23.7
16320	00	Z	50	29	44.4	32.2
16429	00	Z	50	30	19.0	16.8
16429	12	Z	50	31	23.0	15.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16622	00	Z	50	25	26.1	23.8
16754	00	Z	50	30	21.5	20.6
17607	12	Z	50	30	17.4	15.1
26435	00	Z	50	14	14.7	14.0
60018	00	Z	50	30	19.0	17.1
60018	12	Z	50	30	12.7	10.0
ASDE02	12	Z	50	7	21.2	19.8
ASDE09	12	Z	50	1	41.7	41.7
ASDK01	12	Z	50	6	33.5	19.5
ASDK01	00	Z	50	4	20.7	17.0
ASDK02	12	Z	50	9	13.4	11.0
ASDK02	00	Z	50	12	16.5	13.5
ASDK03	12	Z	50	9	26.6	26.1
ASDK03	00	Z	50	10	26.0	25.1
ASDK3	12	Z	50	9	19.5	18.4
ASDK3	00	Z	50	10	26.4	25.4
ASES01	12	Z	50	14	42.1	35.8
ASEU01	12	Z	50	5	85.5	76.7
ASEU01	00	Z	50	2	18.2	-5.4
ASEU02	12	Z	50	2	56.8	56.7
ASEU02	00	Z	50	4	43.5	42.9
ASEU04	12	Z	50	7	18.6	8.6
ASEU04	00	Z	50	7	12.8	4.1
ASEU2	12	Z	50	0	0.0	0.0
ASFR1	12	Z	50	9	30.7	24.8
ASFR1	00	Z	50	5	20.2	19.1
ASFR2	12	Z	50	4	27.2	27.2
ASFR2	00	Z	50	9	29.2	27.9
ASFR3	12	Z	50	4	26.7	24.0
ASFR3	00	Z	50	3	51.3	49.6
ASFR4	12	Z	50	9	36.8	35.9
ASFR4	00	Z	50	4	28.7	27.5
ASUK3	12	Z	50	1	2.3	-2.3
DBLK	12	Z	50	23	16.6	9.5
JNKN7J	12	Z	50	1	52.8	52.8
PMKWP	00	Z	50	0	0.0	0.0
PMKWP	12	Z	50	0	0.0	0.0
UJ7N4	12	Z	50	0	0.0	0.0
UJ7N4	00	Z	50	0	0.0	0.0
VKB4L5	12	Z	50	6	53.8	53.5
VKB4L5	00	Z	50	3	45.0	44.0
VKB4Q	12	Z	50	2	49.0	48.7
VKB4Q	00	Z	50	1	53.7	53.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
YRLU3	00	Z	50	0	0.0	0.0
YRLU3	12	Z	50	0	0.0	0.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 50 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	50	27	3.0	0.7	-0.2
01001	12	V	50	28	3.3	-0.1	-0.5
01028	12	V	50	29	2.8	0.1	-0.9
01028	00	V	50	29	3.8	-0.8	-0.4
01400	00	V	50	25	3.7	0.3	0.0
01400	12	V	50	23	2.7	0.5	-0.4
01415	00	V	50	28	2.8	0.5	-0.3
01415	12	V	50	30	3.5	0.9	0.0
02365	12	V	50	27	2.5	0.5	-0.1
02365	00	V	50	16	2.2	-0.2	0.4
02591	12	V	50	17	2.8	1.0	-0.7
02591	00	V	50	12	3.4	1.0	-0.6
02836	12	V	50	30	2.4	0.6	-0.6
02836	00	V	50	29	2.7	0.9	-0.8
02963	00	V	50	24	3.3	0.5	-0.2
02963	12	V	50	29	3.3	1.1	-0.4
03005	12	V	50	30	3.2	0.7	-0.2
03005	00	V	50	29	3.3	0.7	-0.5
03238	00	V	50	24	3.0	0.0	0.0
03238	12	V	50	1	3.5	3.2	-1.5
03808	00	V	50	26	3.2	0.1	0.0
03808	12	V	50	29	3.9	1.1	0.5
03918	00	V	50	28	2.5	0.8	0.1
03918	12	V	50	10	3.6	0.0	0.2
03953	00	V	50	16	3.2	1.4	0.4
03953	12	V	50	16	3.6	1.1	-0.6
04018	12	V	50	28	2.5	-0.2	0.4
04018	00	V	50	24	3.5	1.1	0.9
04220	00	V	50	30	2.9	0.5	0.0
04220	12	V	50	28	3.0	0.0	0.1
04270	12	V	50	29	3.6	-0.3	-0.3
04270	00	V	50	27	4.0	0.2	0.6
04320	00	V	50	30	3.5	0.9	-1.2
04320	12	V	50	30	3.0	0.0	-0.2
043201	00	V	50	0	0.0	0.0	0.0
04339	00	V	50	29	3.7	0.2	-1.1
04339	12	V	50	29	3.6	0.7	-1.0
04360	00	V	50	5	3.0	1.5	0.1
04360	12	V	50	3	2.3	-0.7	-0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	50	16	3.0	-0.3	-0.1
06011	00	V	50	11	3.0	0.2	-0.8
06260	12	V	50	4	1.7	0.1	-0.1
06260	00	V	50	29	3.5	0.6	0.3
06610	12	V	50	29	3.8	0.5	0.3
06610	00	V	50	29	3.7	-0.2	0.4
07110	00	V	50	18	3.5	0.5	1.4
07110	12	V	50	16	3.2	1.0	1.0
07510	00	V	50	14	3.3	0.6	-0.2
07510	12	V	50	12	3.1	-0.4	-0.9
07645	00	V	50	11	3.9	0.5	0.5
07645	12	V	50	14	4.0	2.2	-0.4
07761	12	V	50	15	5.2	0.8	1.1
07761	00	V	50	10	4.7	1.2	1.1
08001	00	V	50	9	4.9	0.1	2.3
08001	12	V	50	27	3.6	0.6	0.4
08221	00	V	50	29	2.9	0.5	-0.6
08221	12	V	50	28	3.2	0.1	1.1
08302	12	V	50	29	4.0	0.4	0.0
08302	00	V	50	28	4.1	0.4	1.1
08508	12	V	50	30	3.8	0.1	-0.1
08522	12	V	50	30	3.8	0.9	1.2
08579	12	V	50	30	3.9	0.5	1.3
10035	00	V	50	29	3.4	0.0	0.8
10035	12	V	50	30	3.0	0.8	0.0
10393	00	V	50	30	3.5	-0.3	0.1
10393	12	V	50	28	2.9	0.4	0.3
10410	12	V	50	29	3.2	1.0	0.3
10410	00	V	50	29	3.3	0.0	0.3
10739	00	V	50	30	2.9	0.8	0.0
10739	12	V	50	30	3.4	0.6	0.2
11035	12	V	50	30	3.5	1.4	-0.3
11035	00	V	50	30	3.3	1.1	-0.5
12982	12	V	50	29	3.3	0.2	0.1
12982	00	V	50	26	2.9	0.7	0.5
16080	12	V	50	29	3.0	0.7	0.3
16080	00	V	50	30	3.3	0.7	0.2
16245	00	V	50	29	4.1	1.1	1.2
16245	12	V	50	26	4.4	1.3	1.0
16320	12	V	50	27	4.1	2.0	-0.6
16320	00	V	50	27	3.7	1.4	0.1
16429	00	V	50	29	4.1	0.0	1.1
16429	12	V	50	30	4.3	1.6	0.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16622	00	V	50	24	3.7	0.3	0.3
16754	00	V	50	28	3.6	0.6	-0.7
17607	12	V	50	29	3.7	0.6	-0.2
26435	00	V	50	14	2.7	-0.3	0.7
60018	00	V	50	30	3.4	0.6	0.0
60018	12	V	50	30	3.7	0.2	0.5
ASDE02	12	V	50	7	4.1	1.5	2.8
ASDE09	12	V	50	1	3.4	-2.7	2.1
ASDK01	12	V	50	6	2.4	0.0	0.1
ASDK01	00	V	50	4	2.3	0.7	1.5
ASDK02	12	V	50	9	3.1	-0.6	1.0
ASDK02	00	V	50	12	3.2	0.9	0.0
ASDK03	12	V	50	9	2.6	0.3	0.5
ASDK03	00	V	50	10	3.0	-0.5	0.6
ASDK3	12	V	50	9	2.6	-0.4	0.0
ASDK3	00	V	50	10	3.0	0.1	0.4
ASES01	12	V	50	14	2.5	0.7	0.0
ASEU01	12	V	50	3	2.7	0.6	2.1
ASEU01	00	V	50	1	0.7	0.2	0.7
ASEU02	12	V	50	1	2.5	-1.2	2.2
ASEU02	00	V	50	2	4.1	-1.4	0.2
ASEU04	12	V	50	2	3.2	1.8	1.0
ASEU04	00	V	50	5	4.0	1.6	0.2
ASEU2	12	V	50	0	0.0	0.0	0.0
ASFR1	12	V	50	7	2.8	-0.3	0.6
ASFR1	00	V	50	4	3.1	-0.1	-0.8
ASFR2	12	V	50	3	3.2	0.9	-0.5
ASFR2	00	V	50	5	3.7	0.0	1.1
ASFR3	12	V	50	4	4.8	2.1	0.0
ASFR3	00	V	50	2	1.1	-0.3	-0.1
ASFR4	12	V	50	8	3.3	0.9	-0.4
ASFR4	00	V	50	3	2.8	-0.6	0.9
ASUK3	12	V	50	1	2.9	2.3	-1.7
DBLK	12	V	50	23	3.8	-0.1	-1.4
JNKN7J	12	V	50	1	0.8	0.1	-0.8
PMKWP	00	V	50	0	0.0	0.0	0.0
PMKWP	12	V	50	0	0.0	0.0	0.0
UJ7N4	12	V	50	0	0.0	0.0	0.0
UJ7N4	00	V	50	0	0.0	0.0	0.0
VKB4L5	12	V	50	6	2.1	0.3	-0.1
VKB4L5	00	V	50	2	3.8	-1.9	2.7
VKB4Q	12	V	50	2	2.0	-1.2	0.6
VKB4Q	00	V	50	1	4.7	-4.5	1.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
YRLU3	00	V	50	0	0.0	0.0	0.0
YRLU3	12	V	50	0	0.0	0.0	0.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 100 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	100	27	5.4	-3.1
01001	12	Z	100	28	5.4	-3.3
01028	12	Z	100	30	44.3	-13.2
01028	00	Z	100	30	10.7	-9.8
01400	00	Z	100	27	18.1	12.9
01400	12	Z	100	26	12.6	10.8
01415	00	Z	100	28	3.6	1.4
01415	12	Z	100	30	4.5	1.8
02365	12	Z	100	30	9.0	4.1
02365	00	Z	100	31	7.4	-2.5
02591	12	Z	100	19	7.5	6.7
02591	00	Z	100	18	8.1	7.5
02836	12	Z	100	31	4.1	-1.4
02836	00	Z	100	30	2.8	-1.1
02963	00	Z	100	24	3.7	0.6
02963	12	Z	100	29	16.9	2.8
03005	12	Z	100	31	8.6	-1.4
03005	00	Z	100	30	4.4	-1.6
03238	00	Z	100	24	5.3	-2.1
03238	12	Z	100	1	2.0	2.0
03808	00	Z	100	30	4.9	-0.5
03808	12	Z	100	31	4.5	1.9
03918	00	Z	100	28	8.2	6.8
03918	12	Z	100	10	10.4	9.4
03953	00	Z	100	29	23.4	-3.8
03953	12	Z	100	28	10.4	3.1
04018	12	Z	100	29	4.9	-0.1
04018	00	Z	100	27	6.3	-1.1
04220	00	Z	100	30	6.7	-2.0
04220	12	Z	100	28	6.7	0.3
04270	12	Z	100	29	6.2	-2.4
04270	00	Z	100	27	4.3	-1.1
04320	00	Z	100	30	5.1	-2.6
04320	12	Z	100	30	6.4	-0.9
043201	00	Z	100	0	0.0	0.0
04339	00	Z	100	29	18.9	-2.7
04339	12	Z	100	29	17.6	-6.3
04360	00	Z	100	20	23.0	21.0
04360	12	Z	100	18	29.7	29.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	100	30	15.5	6.5
06011	00	Z	100	29	12.7	-6.1
06260	12	Z	100	4	5.4	4.4
06260	00	Z	100	30	6.3	2.1
06610	12	Z	100	30	9.0	1.7
06610	00	Z	100	30	8.7	6.6
07110	00	Z	100	30	19.7	18.9
07110	12	Z	100	29	22.2	20.2
07510	00	Z	100	28	22.2	21.3
07510	12	Z	100	28	27.5	25.5
07645	00	Z	100	31	11.7	9.1
07645	12	Z	100	30	19.0	16.5
07761	12	Z	100	30	26.3	24.3
07761	00	Z	100	30	27.7	25.7
08001	00	Z	100	14	8.5	6.0
08001	12	Z	100	30	14.5	10.9
08221	00	Z	100	30	12.6	10.3
08221	12	Z	100	30	14.6	10.3
08302	12	Z	100	29	7.9	-4.3
08302	00	Z	100	29	5.9	-2.2
08508	12	Z	100	30	28.5	13.4
08522	12	Z	100	30	18.7	11.0
08579	12	Z	100	30	12.4	9.0
10035	00	Z	100	30	14.8	14.2
10035	12	Z	100	31	14.6	14.1
10393	00	Z	100	32	5.4	3.6
10393	12	Z	100	30	4.8	2.0
10410	12	Z	100	31	4.0	0.9
10410	00	Z	100	32	3.6	-1.2
10739	00	Z	100	33	7.3	3.0
10739	12	Z	100	31	6.3	-1.7
11035	12	Z	100	30	7.9	2.2
11035	00	Z	100	30	11.1	7.7
12982	12	Z	100	30	18.2	16.5
12982	00	Z	100	26	11.2	7.8
16080	12	Z	100	30	7.0	-0.7
16080	00	Z	100	30	7.4	-3.4
16245	00	Z	100	29	7.7	3.0
16245	12	Z	100	26	6.0	0.7
16320	12	Z	100	30	14.0	12.3
16320	00	Z	100	29	30.0	19.8
16429	00	Z	100	30	9.3	5.9
16429	12	Z	100	31	14.8	5.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16622	00	Z	100	25	15.3	12.6
16754	00	Z	100	30	14.5	12.7
17607	12	Z	100	30	6.8	-0.3
26435	00	Z	100	15	4.9	2.2
60018	00	Z	100	30	8.6	4.9
60018	12	Z	100	30	6.0	0.7
ASDE02	12	Z	100	7	11.6	8.6
ASDE09	12	Z	100	3	21.3	20.8
ASDK01	12	Z	100	7	25.3	10.5
ASDK01	00	Z	100	5	9.0	4.0
ASDK02	12	Z	100	9	7.9	1.1
ASDK02	00	Z	100	14	10.6	2.7
ASDK03	12	Z	100	11	17.9	17.4
ASDK03	00	Z	100	11	15.7	15.1
ASDK3	12	Z	100	9	9.6	8.0
ASDK3	00	Z	100	10	16.3	14.9
ASES01	12	Z	100	14	26.0	16.1
ASEU01	12	Z	100	5	45.2	38.9
ASEU01	00	Z	100	4	13.2	-1.4
ASEU02	12	Z	100	6	35.5	35.1
ASEU02	00	Z	100	5	35.2	34.1
ASEU04	12	Z	100	8	11.3	-4.6
ASEU04	00	Z	100	7	12.2	-6.9
ASEU2	12	Z	100	1	25.4	25.4
ASFR1	12	Z	100	14	14.8	10.8
ASFR1	00	Z	100	15	18.7	16.8
ASFR2	12	Z	100	14	61.5	34.4
ASFR2	00	Z	100	16	15.8	13.6
ASFR3	12	Z	100	7	19.7	15.5
ASFR3	00	Z	100	6	18.9	15.9
ASFR4	12	Z	100	13	22.0	20.4
ASFR4	00	Z	100	14	19.1	17.0
ASUK3	12	Z	100	1	13.3	-13.3
DBLK	12	Z	100	39	9.7	-2.3
JNKN7J	12	Z	100	1	42.1	42.1
PMKWP	00	Z	100	0	0.0	0.0
PMKWP	12	Z	100	0	0.0	0.0
UJ7N4	12	Z	100	0	0.0	0.0
UJ7N4	00	Z	100	0	0.0	0.0
VKB4L5	12	Z	100	9	35.0	33.9
VKB4L5	00	Z	100	3	35.4	34.1
VKB4Q	12	Z	100	2	35.9	35.4
VKB4Q	00	Z	100	1	40.1	40.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
YRLU3	00	Z	100	0	0.0	0.0
YRLU3	12	Z	100	0	0.0	0.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 100 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	100	27	3.2	-0.1	0.1
01001	12	V	100	28	2.6	0.8	-0.3
01028	12	V	100	30	2.1	0.6	0.1
01028	00	V	100	30	2.6	0.2	-0.4
01400	00	V	100	27	3.2	0.7	0.4
01400	12	V	100	25	3.5	0.7	-0.1
01415	00	V	100	28	2.6	0.1	0.2
01415	12	V	100	30	2.4	0.3	-0.3
02365	12	V	100	30	2.4	0.5	0.3
02365	00	V	100	28	3.0	0.5	-0.3
02591	12	V	100	19	2.9	0.7	0.5
02591	00	V	100	17	2.7	0.2	0.8
02836	12	V	100	30	2.7	-0.2	0.0
02836	00	V	100	29	3.0	0.1	-0.2
02963	00	V	100	24	2.6	0.0	0.2
02963	12	V	100	29	2.6	0.1	-0.3
03005	12	V	100	30	2.3	0.4	0.4
03005	00	V	100	29	2.8	0.2	0.2
03238	00	V	100	24	3.0	0.9	0.0
03238	12	V	100	1	0.9	-0.5	-0.8
03808	00	V	100	29	3.1	0.1	0.2
03808	12	V	100	30	3.1	0.7	0.0
03918	00	V	100	28	3.3	0.5	0.3
03918	12	V	100	10	3.6	0.8	0.0
03953	00	V	100	29	3.8	0.8	-0.3
03953	12	V	100	28	3.2	0.1	-0.1
04018	12	V	100	29	3.6	0.3	0.4
04018	00	V	100	25	2.4	-0.3	0.0
04220	00	V	100	30	2.8	0.0	0.1
04220	12	V	100	28	3.1	0.1	0.7
04270	12	V	100	29	3.0	-0.2	-0.5
04270	00	V	100	27	3.8	-0.8	1.1
04320	00	V	100	30	3.2	0.2	0.3
04320	12	V	100	30	2.8	0.3	-0.8
043201	00	V	100	0	0.0	0.0	0.0
04339	00	V	100	29	3.6	0.8	0.3
04339	12	V	100	29	3.4	-0.1	-0.7
04360	00	V	100	20	3.2	0.4	0.3
04360	12	V	100	18	3.9	0.1	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	100	30	2.7	0.2	-0.3
06011	00	V	100	29	2.5	-0.2	-0.4
06260	12	V	100	4	1.9	-0.9	-0.3
06260	00	V	100	30	2.8	-0.1	0.2
06610	12	V	100	30	3.8	0.5	0.3
06610	00	V	100	30	3.6	-0.3	0.0
07110	00	V	100	28	3.5	0.1	0.8
07110	12	V	100	28	3.2	-0.3	0.4
07510	00	V	100	28	3.0	0.4	0.5
07510	12	V	100	27	4.0	-0.1	0.1
07645	00	V	100	30	4.5	0.9	-1.1
07645	12	V	100	29	4.6	-0.7	0.1
07761	12	V	100	29	4.5	-0.5	-0.3
07761	00	V	100	29	4.9	-0.2	0.0
08001	00	V	100	13	3.7	0.5	-0.3
08001	12	V	100	29	4.6	0.4	1.0
08221	00	V	100	30	3.6	0.6	0.8
08221	12	V	100	29	3.0	0.0	1.4
08302	12	V	100	29	4.3	-0.9	-0.3
08302	00	V	100	29	4.3	-0.5	-1.0
08508	12	V	100	29	3.5	-0.2	0.1
08522	12	V	100	30	3.0	-0.3	-0.5
08579	12	V	100	30	3.9	-0.2	1.2
10035	00	V	100	29	3.3	0.3	0.2
10035	12	V	100	30	3.4	1.1	0.7
10393	00	V	100	30	3.7	0.0	-0.1
10393	12	V	100	30	3.5	0.2	0.1
10410	12	V	100	30	2.9	0.5	-0.4
10410	00	V	100	30	3.1	0.8	0.3
10739	00	V	100	30	4.2	-0.2	0.2
10739	12	V	100	30	4.3	0.6	0.1
11035	12	V	100	30	3.7	0.6	0.0
11035	00	V	100	30	4.6	0.6	0.8
12982	12	V	100	30	3.5	0.3	0.5
12982	00	V	100	26	3.3	0.1	1.1
16080	12	V	100	30	4.5	0.5	-0.2
16080	00	V	100	30	4.2	0.1	0.8
16245	00	V	100	29	3.8	0.0	1.2
16245	12	V	100	26	4.6	0.4	1.0
16320	12	V	100	30	4.7	0.2	0.1
16320	00	V	100	29	5.0	-0.6	-0.8
16429	00	V	100	30	4.3	1.2	0.0
16429	12	V	100	30	3.5	0.0	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16622	00	V	100	25	4.8	0.2	0.8
16754	00	V	100	29	4.4	0.6	1.1
17607	12	V	100	29	3.8	1.1	-0.1
26435	00	V	100	15	3.0	-0.5	-0.2
60018	00	V	100	30	3.9	-0.6	1.2
60018	12	V	100	30	3.5	0.9	0.1
ASDE02	12	V	100	7	4.3	0.5	1.1
ASDE09	12	V	100	3	5.4	0.1	-0.8
ASDK01	12	V	100	7	2.8	-0.2	-0.7
ASDK01	00	V	100	4	1.6	-0.9	0.4
ASDK02	12	V	100	9	2.2	0.1	-0.6
ASDK02	00	V	100	13	3.8	-1.7	0.2
ASDK03	12	V	100	10	3.6	-0.8	0.0
ASDK03	00	V	100	10	3.8	-0.5	0.1
ASDK3	12	V	100	9	2.8	-0.7	-0.4
ASDK3	00	V	100	10	3.9	-0.8	0.4
ASES01	12	V	100	13	4.0	0.8	1.7
ASEU01	12	V	100	5	4.3	-1.5	1.7
ASEU01	00	V	100	2	2.8	2.4	1.2
ASEU02	12	V	100	5	3.5	1.0	-1.3
ASEU02	00	V	100	5	3.3	1.5	-0.7
ASEU04	12	V	100	3	2.7	0.4	-0.8
ASEU04	00	V	100	7	2.2	-0.5	0.4
ASEU2	12	V	100	1	3.7	-0.9	-3.6
ASFR1	12	V	100	11	3.6	1.5	1.0
ASFR1	00	V	100	11	3.9	-0.8	1.4
ASFR2	12	V	100	11	4.1	-0.8	0.2
ASFR2	00	V	100	11	3.5	-0.6	-0.2
ASFR3	12	V	100	7	3.5	1.3	-1.5
ASFR3	00	V	100	5	7.4	-0.4	0.3
ASFR4	12	V	100	11	3.4	-0.5	1.1
ASFR4	00	V	100	12	3.1	0.7	0.0
ASUK3	12	V	100	1	1.5	-0.5	-1.4
DBLK	12	V	100	23	3.6	2.0	-0.3
JNKN7J	12	V	100	1	4.9	-1.3	4.7
PMKWP	00	V	100	0	0.0	0.0	0.0
PMKWP	12	V	100	0	0.0	0.0	0.0
UJ7N4	12	V	100	0	0.0	0.0	0.0
UJ7N4	00	V	100	0	0.0	0.0	0.0
VKB4L5	12	V	100	6	3.8	0.7	1.5
VKB4L5	00	V	100	3	3.6	-1.5	2.5
VKB4Q	12	V	100	2	3.3	-1.4	2.3
VKB4Q	00	V	100	1	3.6	-3.0	1.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
YRLU3	00	V	100	0	0.0	0.0	0.0
YRLU3	12	V	100	0	0.0	0.0	0.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 500 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	500	30	9.4	0.0
01001	12	Z	500	29	4.8	-0.4
01028	12	Z	500	30	4.6	-2.4
01028	00	Z	500	30	5.0	-2.9
01400	00	Z	500	27	17.6	11.5
01400	12	Z	500	27	7.6	5.3
01415	00	Z	500	28	4.6	4.1
01415	12	Z	500	30	4.8	1.8
02365	12	Z	500	30	3.8	0.8
02365	00	Z	500	31	4.4	0.0
02591	12	Z	500	19	9.2	8.3
02591	00	Z	500	18	9.9	9.1
02836	12	Z	500	31	3.8	2.9
02836	00	Z	500	31	4.2	2.5
02963	00	Z	500	24	4.8	3.9
02963	12	Z	500	29	17.7	4.4
03005	12	Z	500	32	3.4	-0.1
03005	00	Z	500	30	2.9	-0.2
03238	00	Z	500	24	4.0	1.2
03238	12	Z	500	1	8.1	8.1
03808	00	Z	500	30	3.1	0.9
03808	12	Z	500	31	3.4	1.7
03918	00	Z	500	29	9.9	9.1
03918	12	Z	500	10	9.5	8.7
03953	00	Z	500	30	7.7	-4.2
03953	12	Z	500	30	6.5	2.4
04018	12	Z	500	30	4.4	-0.5
04018	00	Z	500	29	5.1	-0.6
04220	00	Z	500	30	3.8	-0.7
04220	12	Z	500	30	7.8	-0.1
04270	12	Z	500	30	7.3	-5.5
04270	00	Z	500	30	5.6	-3.7
04320	00	Z	500	30	3.9	1.1
04320	12	Z	500	30	4.0	0.2
043201	00	Z	500	0	0.0	0.0
04339	00	Z	500	30	19.6	1.2
04339	12	Z	500	29	16.4	-5.3
04360	00	Z	500	22	31.5	31.3
04360	12	Z	500	26	32.1	31.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	500	30	10.3	1.2
06011	00	Z	500	30	8.5	-0.7
06260	12	Z	500	4	2.5	1.3
06260	00	Z	500	30	4.3	2.1
06610	12	Z	500	30	5.7	-0.4
06610	00	Z	500	30	4.1	2.9
07110	00	Z	500	31	9.5	7.3
07110	12	Z	500	30	7.1	5.0
07510	00	Z	500	29	10.3	9.5
07510	12	Z	500	29	12.6	10.8
07645	00	Z	500	31	5.1	4.4
07645	12	Z	500	30	8.1	6.8
07761	12	Z	500	30	11.6	10.8
07761	00	Z	500	30	9.8	9.2
08001	00	Z	500	14	10.2	9.9
08001	12	Z	500	31	9.0	8.0
08221	00	Z	500	30	6.5	6.1
08221	12	Z	500	30	8.8	7.4
08302	12	Z	500	30	6.4	-4.6
08302	00	Z	500	29	3.3	-1.1
08508	12	Z	500	30	20.6	7.3
08522	12	Z	500	30	10.1	7.8
08579	12	Z	500	30	8.2	7.5
10035	00	Z	500	31	14.5	14.2
10035	12	Z	500	32	12.6	11.9
10393	00	Z	500	32	3.9	1.2
10393	12	Z	500	30	2.8	-0.4
10410	12	Z	500	31	3.0	-1.0
10410	00	Z	500	32	2.3	-0.1
10739	00	Z	500	33	4.4	0.4
10739	12	Z	500	32	6.2	-2.3
11035	12	Z	500	30	7.2	4.0
11035	00	Z	500	30	8.5	4.4
12982	12	Z	500	30	7.5	4.6
12982	00	Z	500	29	8.5	2.7
16080	12	Z	500	31	5.6	-4.0
16080	00	Z	500	30	4.8	-2.8
16245	00	Z	500	30	4.2	-1.6
16245	12	Z	500	29	4.8	-1.9
16320	12	Z	500	30	13.1	11.3
16320	00	Z	500	30	18.2	16.2
16429	00	Z	500	30	6.0	3.9
16429	12	Z	500	31	14.1	5.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16622	00	Z	500	27	9.9	9.2
16754	00	Z	500	30	5.9	4.5
17607	12	Z	500	30	4.9	3.6
26435	00	Z	500	15	8.1	6.8
60018	00	Z	500	30	3.7	-1.3
60018	12	Z	500	30	3.1	1.3
ASDE02	12	Z	500	7	6.0	5.4
ASDE09	12	Z	500	4	11.6	7.8
ASDK01	12	Z	500	7	30.7	14.4
ASDK01	00	Z	500	5	8.4	7.7
ASDK02	12	Z	500	10	8.3	5.8
ASDK02	00	Z	500	14	8.8	3.2
ASDK03	12	Z	500	11	18.7	18.2
ASDK03	00	Z	500	12	18.4	18.0
ASDK3	12	Z	500	9	11.3	10.2
ASDK3	00	Z	500	11	18.3	15.4
ASES01	12	Z	500	16	20.2	5.4
ASEU01	12	Z	500	5	9.2	8.8
ASEU01	00	Z	500	4	7.9	-0.1
ASEU02	12	Z	500	6	28.8	28.6
ASEU02	00	Z	500	6	28.9	28.2
ASEU04	12	Z	500	8	13.1	-12.2
ASEU04	00	Z	500	7	12.0	-9.9
ASEU2	12	Z	500	1	20.7	20.7
ASFR1	12	Z	500	18	5.3	2.4
ASFR1	00	Z	500	17	8.4	0.9
ASFR2	12	Z	500	17	37.3	17.9
ASFR2	00	Z	500	16	6.1	0.9
ASFR3	12	Z	500	8	6.4	6.2
ASFR3	00	Z	500	6	2.2	1.2
ASFR4	12	Z	500	16	7.5	4.5
ASFR4	00	Z	500	17	7.0	0.1
ASUK3	12	Z	500	4	7.3	-6.1
DBLK	12	Z	500	39	4.6	-2.3
JNKN7J	12	Z	500	1	21.7	21.7
PMKWP	00	Z	500	0	0.0	0.0
PMKWP	12	Z	500	0	0.0	0.0
UJ7N4	12	Z	500	0	0.0	0.0
UJ7N4	00	Z	500	0	0.0	0.0
VKB4L5	12	Z	500	9	30.4	30.1
VKB4L5	00	Z	500	3	30.1	29.7
VKB4Q	12	Z	500	2	29.4	29.2
VKB4Q	00	Z	500	1	28.2	28.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
YRLU3	00	Z	500	0	0.0	0.0
YRLU3	12	Z	500	0	0.0	0.0

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 : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	500	29	2.9	-0.3	-0.2
01001	12	V	500	29	3.0	-0.2	-0.3
01028	12	V	500	30	2.4	0.1	0.0
01028	00	V	500	30	3.1	0.2	-0.4
01400	00	V	500	27	2.6	0.1	0.1
01400	12	V	500	27	2.3	0.4	0.4
01415	00	V	500	28	2.8	-0.2	-0.2
01415	12	V	500	30	2.9	0.3	0.6
02365	12	V	500	30	2.2	0.2	-0.2
02365	00	V	500	27	2.2	-0.4	-0.5
02591	12	V	500	19	2.1	0.0	0.5
02591	00	V	500	17	2.8	0.5	0.1
02836	12	V	500	30	2.6	-0.1	0.2
02836	00	V	500	30	2.5	0.2	0.0
02963	00	V	500	24	2.3	0.5	0.4
02963	12	V	500	29	3.0	0.2	0.0
03005	12	V	500	30	3.4	-0.1	0.0
03005	00	V	500	30	3.4	-0.9	-0.5
03238	00	V	500	24	3.4	-0.5	0.0
03238	12	V	500	1	1.3	1.2	-0.4
03808	00	V	500	30	2.7	0.2	0.5
03808	12	V	500	30	3.1	0.0	-0.7
03918	00	V	500	29	3.6	0.4	-0.1
03918	12	V	500	10	2.7	-1.2	-0.7
03953	00	V	500	30	3.2	0.1	0.4
03953	12	V	500	30	3.4	0.5	0.0
04018	12	V	500	30	3.6	0.0	0.0
04018	00	V	500	27	3.1	-0.3	0.1
04220	00	V	500	30	2.8	0.5	0.1
04220	12	V	500	30	3.8	0.0	-0.6
04270	12	V	500	30	4.6	-0.2	0.8
04270	00	V	500	30	3.3	0.1	0.1
04320	00	V	500	30	3.1	0.7	0.0
04320	12	V	500	30	2.8	-0.1	0.6
043201	00	V	500	0	0.0	0.0	0.0
04339	00	V	500	30	3.0	1.1	-0.3
04339	12	V	500	29	2.8	0.7	-0.1
04360	00	V	500	22	3.2	-0.9	0.3
04360	12	V	500	23	2.1	-0.1	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	500	30	3.3	0.1	0.0
06011	00	V	500	30	3.0	0.3	0.4
06260	12	V	500	4	2.7	-0.5	-0.2
06260	00	V	500	30	2.3	0.2	0.1
06610	12	V	500	30	3.4	-0.2	-0.5
06610	00	V	500	30	2.6	0.4	0.2
07110	00	V	500	30	2.8	-0.4	0.6
07110	12	V	500	30	2.8	0.2	-0.2
07510	00	V	500	29	3.0	0.9	-0.2
07510	12	V	500	29	3.1	-0.5	0.2
07645	00	V	500	30	2.4	0.7	0.5
07645	12	V	500	30	2.6	0.7	0.0
07761	12	V	500	30	2.8	0.2	0.2
07761	00	V	500	30	2.8	1.0	0.2
08001	00	V	500	13	2.7	0.0	0.0
08001	12	V	500	30	4.0	0.4	-0.3
08221	00	V	500	30	3.2	0.0	-0.3
08221	12	V	500	30	2.4	0.5	-0.1
08302	12	V	500	30	3.5	0.3	-0.4
08302	00	V	500	29	2.9	0.2	-0.4
08508	12	V	500	30	2.5	0.2	-0.9
08522	12	V	500	30	2.2	0.6	0.1
08579	12	V	500	30	2.0	0.2	-0.3
10035	00	V	500	30	3.1	0.8	-0.5
10035	12	V	500	30	2.5	-0.6	0.0
10393	00	V	500	30	2.8	0.3	0.5
10393	12	V	500	30	3.6	0.2	0.6
10410	12	V	500	30	2.8	0.4	-0.6
10410	00	V	500	30	2.3	0.3	0.0
10739	00	V	500	30	2.1	0.1	0.1
10739	12	V	500	30	2.8	0.5	0.2
11035	12	V	500	30	2.9	-0.4	0.5
11035	00	V	500	30	3.6	0.3	-0.1
12982	12	V	500	30	3.2	0.1	0.9
12982	00	V	500	29	2.6	0.1	0.1
16080	12	V	500	30	3.7	-0.1	-0.6
16080	00	V	500	30	2.5	0.5	-0.4
16245	00	V	500	30	2.8	-0.1	0.5
16245	12	V	500	29	2.9	0.3	-0.2
16320	12	V	500	30	3.2	0.2	0.4
16320	00	V	500	30	3.3	0.9	0.2
16429	00	V	500	30	3.1	0.3	0.4
16429	12	V	500	30	2.8	0.0	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16622	00	V	500	27	2.7	0.6	0.2
16754	00	V	500	29	2.3	0.4	-0.2
17607	12	V	500	30	2.1	0.2	-0.1
26435	00	V	500	15	2.3	-0.5	-0.3
60018	00	V	500	30	3.5	0.3	0.2
60018	12	V	500	30	2.8	0.0	0.4
ASDE02	12	V	500	7	3.1	0.1	0.3
ASDE09	12	V	500	3	2.1	-0.3	-0.2
ASDK01	12	V	500	7	2.5	0.6	-0.1
ASDK01	00	V	500	4	4.0	0.2	-1.8
ASDK02	12	V	500	10	2.9	-0.1	0.6
ASDK02	00	V	500	13	2.6	-0.2	0.3
ASDK03	12	V	500	10	2.3	0.5	0.8
ASDK03	00	V	500	11	3.0	0.2	-0.3
ASDK3	12	V	500	9	3.8	-1.2	0.3
ASDK3	00	V	500	11	2.8	0.4	0.0
ASES01	12	V	500	16	2.5	0.0	-0.2
ASEU01	12	V	500	5	3.7	-0.1	0.8
ASEU01	00	V	500	4	2.6	0.1	0.9
ASEU02	12	V	500	5	2.7	-1.2	0.5
ASEU02	00	V	500	6	2.5	-0.5	0.5
ASEU04	12	V	500	5	3.6	1.9	-0.4
ASEU04	00	V	500	7	1.9	0.4	0.2
ASEU2	12	V	500	1	2.7	-1.4	-2.3
ASFR1	12	V	500	14	2.8	0.5	0.5
ASFR1	00	V	500	13	3.1	0.0	-0.5
ASFR2	12	V	500	13	6.4	-1.3	0.2
ASFR2	00	V	500	11	2.5	0.3	0.7
ASFR3	12	V	500	7	2.2	-0.7	0.3
ASFR3	00	V	500	5	2.6	0.5	0.2
ASFR4	12	V	500	13	2.9	0.9	0.8
ASFR4	00	V	500	14	3.1	0.3	-0.7
ASUK3	12	V	500	3	3.6	-1.2	-1.2
DBLK	12	V	500	23	2.7	0.2	-0.2
JNKN7J	12	V	500	1	6.8	2.6	-6.3
PMKWP	00	V	500	0	0.0	0.0	0.0
PMKWP	12	V	500	0	0.0	0.0	0.0
UJ7N4	12	V	500	0	0.0	0.0	0.0
UJ7N4	00	V	500	0	0.0	0.0	0.0
VKB4L5	12	V	500	6	2.2	0.3	0.4
VKB4L5	00	V	500	3	3.7	0.8	2.5
VKB4Q	12	V	500	2	3.7	1.1	-0.9
VKB4Q	00	V	500	1	2.5	1.2	2.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
YRLU3	00	V	500	0	0.0	0.0	0.0
YRLU3	12	V	500	0	0.0	0.0	0.0

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 : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	850	32	7.0	-1.6
01001	12	Z	850	30	3.6	-2.3
01028	12	Z	850	30	4.3	-3.1
01028	00	Z	850	30	4.1	-2.4
01400	00	Z	850	27	16.3	9.7
01400	12	Z	850	27	6.4	3.5
01415	00	Z	850	28	4.4	3.9
01415	12	Z	850	30	3.8	2.9
02365	12	Z	850	30	1.9	-0.6
02365	00	Z	850	31	2.1	0.4
02591	12	Z	850	19	8.6	8.2
02591	00	Z	850	18	10.4	10.2
02836	12	Z	850	31	3.4	2.5
02836	00	Z	850	31	4.9	4.1
02963	00	Z	850	24	5.2	4.9
02963	12	Z	850	29	18.5	7.1
03005	12	Z	850	32	2.2	-0.8
03005	00	Z	850	30	2.6	-0.3
03238	00	Z	850	24	4.1	2.7
03238	12	Z	850	1	2.9	2.9
03808	00	Z	850	30	2.6	1.5
03808	12	Z	850	31	3.0	0.6
03918	00	Z	850	29	10.3	10.1
03918	12	Z	850	10	10.6	10.4
03953	00	Z	850	30	3.0	0.6
03953	12	Z	850	30	4.2	2.0
04018	12	Z	850	30	2.3	-0.8
04018	00	Z	850	29	2.1	1.0
04220	00	Z	850	30	3.0	0.8
04220	12	Z	850	30	7.3	2.3
04270	12	Z	850	30	5.9	-2.4
04270	00	Z	850	30	5.4	-3.5
04320	00	Z	850	30	3.4	0.4
04320	12	Z	850	30	2.8	0.8
043201	00	Z	850	1	0.0	0.0
04339	00	Z	850	30	21.4	3.7
04339	12	Z	850	29	16.8	-3.9
04360	00	Z	850	22	41.1	41.0
04360	12	Z	850	29	41.4	41.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	850	30	10.3	4.0
06011	00	Z	850	30	7.0	4.2
06260	12	Z	850	4	2.0	0.4
06260	00	Z	850	30	3.7	2.6
06610	12	Z	850	30	2.9	2.1
06610	00	Z	850	30	4.8	4.5
07110	00	Z	850	31	3.4	2.2
07110	12	Z	850	30	2.4	0.8
07510	00	Z	850	29	6.9	6.5
07510	12	Z	850	30	6.7	6.2
07645	00	Z	850	31	4.2	2.9
07645	12	Z	850	30	4.0	3.1
07761	12	Z	850	30	4.3	3.1
07761	00	Z	850	30	4.2	3.3
08001	00	Z	850	14	7.0	6.7
08001	12	Z	850	31	5.5	4.5
08221	00	Z	850	30	4.2	3.8
08221	12	Z	850	30	3.4	2.8
08302	12	Z	850	31	5.7	-4.7
08302	00	Z	850	30	3.1	-1.9
08508	12	Z	850	30	5.8	3.2
08522	12	Z	850	30	5.1	4.3
08579	12	Z	850	30	3.9	3.1
10035	00	Z	850	31	15.0	14.9
10035	12	Z	850	32	13.2	12.8
10393	00	Z	850	32	2.4	1.5
10393	12	Z	850	30	2.4	1.2
10410	12	Z	850	31	2.5	0.7
10410	00	Z	850	32	2.0	0.8
10739	00	Z	850	33	3.0	0.6
10739	12	Z	850	32	4.3	-1.0
11035	12	Z	850	30	7.6	4.4
11035	00	Z	850	30	9.1	6.9
12982	12	Z	850	30	6.3	4.9
12982	00	Z	850	29	7.4	5.5
16080	12	Z	850	31	4.0	-2.8
16080	00	Z	850	30	3.1	-1.4
16245	00	Z	850	30	2.0	-0.3
16245	12	Z	850	29	3.3	-2.1
16320	12	Z	850	30	15.2	14.6
16320	00	Z	850	30	17.6	16.7
16429	00	Z	850	30	5.9	3.8
16429	12	Z	850	32	15.6	4.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16622	00	Z	850	27	9.6	9.2
16754	00	Z	850	30	4.3	2.8
17607	12	Z	850	30	3.3	2.8
26435	00	Z	850	15	5.5	4.5
60018	00	Z	850	30	4.1	-3.4
60018	12	Z	850	30	4.1	-2.6
ASDE02	12	Z	850	7	2.4	0.5
ASDE09	12	Z	850	5	13.1	9.6
ASDK01	12	Z	850	7	32.0	12.8
ASDK01	00	Z	850	5	10.6	9.3
ASDK02	12	Z	850	11	10.2	6.8
ASDK02	00	Z	850	14	7.2	5.0
ASDK03	12	Z	850	11	21.6	21.4
ASDK03	00	Z	850	12	22.6	22.3
ASDK3	12	Z	850	9	19.9	19.3
ASDK3	00	Z	850	11	26.0	23.3
ASES01	12	Z	850	16	19.6	-2.9
ASEU01	12	Z	850	5	6.6	3.3
ASEU01	00	Z	850	4	3.5	2.1
ASEU02	12	Z	850	6	26.1	26.0
ASEU02	00	Z	850	6	27.6	27.0
ASEU04	12	Z	850	8	15.4	-14.5
ASEU04	00	Z	850	7	14.1	-12.5
ASEU2	12	Z	850	1	28.1	28.1
ASFR1	12	Z	850	18	4.5	-3.7
ASFR1	00	Z	850	17	5.0	-0.5
ASFR2	12	Z	850	17	9.0	4.6
ASFR2	00	Z	850	18	4.1	0.7
ASFR3	12	Z	850	8	2.1	1.1
ASFR3	00	Z	850	6	1.7	1.1
ASFR4	12	Z	850	17	3.6	-1.9
ASFR4	00	Z	850	17	6.1	-4.1
ASUK3	12	Z	850	4	10.0	-9.8
DBLK	12	Z	850	39	3.9	-1.5
JNKN7J	12	Z	850	1	17.3	17.3
PMKWP	00	Z	850	0	0.0	0.0
PMKWP	12	Z	850	0	0.0	0.0
UJ7N4	12	Z	850	0	0.0	0.0
UJ7N4	00	Z	850	0	0.0	0.0
VKB4L5	12	Z	850	9	25.6	25.5
VKB4L5	00	Z	850	3	23.8	23.6
VKB4Q	12	Z	850	2	28.7	28.6
VKB4Q	00	Z	850	1	29.2	29.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
YRLU3	00	Z	850	0	0.0	0.0
YRLU3	12	Z	850	0	0.0	0.0

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 : SEP 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	850	30	3.2	-0.6	0.4
01001	12	V	850	30	3.5	-0.7	0.8
01028	12	V	850	30	2.5	0.6	-0.3
01028	00	V	850	30	2.1	0.4	-0.4
01400	00	V	850	27	2.0	0.7	-0.1
01400	12	V	850	27	1.8	0.0	-0.1
01415	00	V	850	28	2.6	0.1	0.4
01415	12	V	850	30	2.9	-0.6	0.7
02365	12	V	850	30	2.2	0.2	-0.1
02365	00	V	850	27	2.5	-0.7	0.0
02591	12	V	850	19	2.3	0.3	-0.8
02591	00	V	850	17	2.8	0.8	-0.7
02836	12	V	850	30	2.2	0.2	0.0
02836	00	V	850	30	2.1	-0.3	-0.1
02963	00	V	850	24	2.4	0.3	0.2
02963	12	V	850	29	2.9	0.1	0.3
03005	12	V	850	30	3.1	-0.6	0.0
03005	00	V	850	30	2.1	-0.1	0.0
03238	00	V	850	24	2.7	-0.5	-0.4
03238	12	V	850	1	1.4	0.1	1.4
03808	00	V	850	30	2.3	0.3	-0.5
03808	12	V	850	30	3.0	0.5	-0.4
03918	00	V	850	29	2.3	0.3	0.0
03918	12	V	850	10	2.9	1.2	0.2
03953	00	V	850	30	2.4	-0.3	0.5
03953	12	V	850	30	2.6	-0.3	0.0
04018	12	V	850	30	2.6	-0.3	0.1
04018	00	V	850	27	2.6	0.1	-0.5
04220	00	V	850	30	3.2	-0.1	0.3
04220	12	V	850	30	3.8	0.5	-0.4
04270	12	V	850	30	4.0	0.2	0.0
04270	00	V	850	30	3.4	-0.8	-0.1
04320	00	V	850	30	3.3	0.4	-0.5
04320	12	V	850	30	3.4	-0.2	0.7
043201	00	V	850	1	9.1	0.9	-9.1
04339	00	V	850	30	3.7	0.7	0.1
04339	12	V	850	29	4.8	0.8	0.1
04360	00	V	850	22	5.5	1.0	0.0
04360	12	V	850	24	4.5	1.1	0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	850	30	2.8	0.2	0.2
06011	00	V	850	30	2.4	0.1	0.2
06260	12	V	850	4	3.1	2.4	0.9
06260	00	V	850	30	2.4	0.2	-0.3
06610	12	V	850	30	3.3	0.4	-0.7
06610	00	V	850	30	2.5	0.5	0.1
07110	00	V	850	30	2.5	-0.2	0.0
07110	12	V	850	30	2.9	-0.7	0.4
07510	00	V	850	29	2.6	-0.1	0.0
07510	12	V	850	29	2.7	0.4	-0.6
07645	00	V	850	30	2.5	0.2	0.3
07645	12	V	850	30	3.0	0.1	-0.7
07761	12	V	850	30	3.1	-0.9	-0.6
07761	00	V	850	30	4.0	-0.4	-0.4
08001	00	V	850	13	2.3	0.3	-0.6
08001	12	V	850	30	3.0	0.3	-0.5
08221	00	V	850	30	3.2	0.2	1.1
08221	12	V	850	30	2.5	0.8	0.6
08302	12	V	850	30	3.5	-0.4	-0.1
08302	00	V	850	29	3.3	0.4	0.2
08508	12	V	850	30	2.6	0.1	-0.8
08522	12	V	850	30	2.9	-0.2	0.4
08579	12	V	850	29	2.8	0.2	-0.2
10035	00	V	850	30	2.5	-0.1	0.0
10035	12	V	850	30	1.9	0.4	0.4
10393	00	V	850	30	2.1	-0.4	-0.2
10393	12	V	850	30	2.3	-0.6	0.1
10410	12	V	850	30	3.0	-0.5	0.1
10410	00	V	850	30	2.0	0.4	-0.1
10739	00	V	850	30	1.7	-0.1	0.1
10739	12	V	850	30	1.9	-0.3	0.4
11035	12	V	850	30	2.7	0.6	-0.2
11035	00	V	850	30	2.8	0.6	0.2
12982	12	V	850	30	3.4	-0.3	-0.6
12982	00	V	850	29	3.5	-0.2	0.6
16080	12	V	850	30	3.5	0.6	-0.4
16080	00	V	850	30	3.4	0.4	0.0
16245	00	V	850	30	2.8	0.0	0.5
16245	12	V	850	29	4.0	-0.2	0.2
16320	12	V	850	30	3.4	0.3	-0.9
16320	00	V	850	30	3.1	0.1	0.4
16429	00	V	850	30	2.4	-0.1	0.0
16429	12	V	850	30	2.4	-0.7	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16622	00	V	850	27	2.8	0.6	0.0
16754	00	V	850	29	2.3	0.3	-0.5
17607	12	V	850	30	2.9	1.1	-0.1
26435	00	V	850	15	2.3	-0.4	0.4
60018	00	V	850	30	3.6	0.4	1.2
60018	12	V	850	30	3.7	0.2	0.9
ASDE02	12	V	850	7	2.5	0.7	-0.3
ASDE09	12	V	850	4	1.0	0.2	0.1
ASDK01	12	V	850	7	4.2	1.1	-2.2
ASDK01	00	V	850	4	1.0	0.5	0.5
ASDK02	12	V	850	11	2.4	0.1	-0.7
ASDK02	00	V	850	13	2.8	0.5	0.1
ASDK03	12	V	850	10	3.3	-1.6	-0.1
ASDK03	00	V	850	11	1.4	-0.1	0.6
ASDK3	12	V	850	9	3.5	-1.3	-0.8
ASDK3	00	V	850	11	2.5	0.3	0.8
ASES01	12	V	850	16	2.2	0.3	-0.1
ASEU01	12	V	850	5	8.4	-1.0	0.8
ASEU01	00	V	850	4	3.7	0.0	-1.7
ASEU02	12	V	850	5	2.3	1.1	0.3
ASEU02	00	V	850	6	2.9	0.7	-0.1
ASEU04	12	V	850	6	3.3	0.8	0.0
ASEU04	00	V	850	7	3.2	0.2	0.0
ASEU2	12	V	850	1	1.2	-1.2	0.1
ASFR1	12	V	850	14	2.2	-0.4	-0.2
ASFR1	00	V	850	13	2.9	0.2	1.0
ASFR2	12	V	850	13	3.8	-0.9	0.4
ASFR2	00	V	850	12	1.8	-0.1	-0.3
ASFR3	12	V	850	7	2.4	-0.5	0.3
ASFR3	00	V	850	5	2.6	0.3	0.9
ASFR4	12	V	850	14	2.8	-0.6	0.2
ASFR4	00	V	850	14	2.5	0.1	0.6
ASUK3	12	V	850	4	1.3	0.2	-0.1
DBLK	12	V	850	23	3.6	0.0	1.6
JNKN7J	12	V	850	1	1.7	1.7	0.4
PMKWP	00	V	850	0	0.0	0.0	0.0
PMKWP	12	V	850	0	0.0	0.0	0.0
UJ7N4	12	V	850	0	0.0	0.0	0.0
UJ7N4	00	V	850	0	0.0	0.0	0.0
VKB4L5	12	V	850	6	2.1	0.1	-1.5
VKB4L5	00	V	850	3	2.4	-0.3	1.1
VKB4Q	12	V	850	2	1.1	-0.3	-1.1
VKB4Q	00	V	850	1	0.8	0.7	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
YRLU3	00	V	850	0	0.0	0.0	0.0
YRLU3	12	V	850	0	0.0	0.0	0.0

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 : SEP 2017
 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	727	0	0.2	-0.0	0.2
1300001	99	P	SUR	11	-23	684	0	0.5	-0.3	0.6
1300130	99	P	SUR	28	-16	693	0	0.4	0.0	0.4
1300131	99	P	SUR	28	-17	693	0	0.5	0.1	0.5
1300869	99	P	SUR	24	-60	720	0	0.3	-0.0	0.3
1300871	99	P	SUR	29	-70	636	4	0.9	0.3	0.9
1300872	99	P	SUR	35	-42	718	0	0.4	0.3	0.5
1301603	99	P	SUR	19	-22	470	0	0.3	0.4	0.6
1301604	99	P	SUR	10	-26	471	0	0.5	-0.1	0.5
13869	99	P	SUR	24	-60	720	0	0.3	-0.0	0.3
13871	99	P	SUR	29	-70	636	4	0.9	0.3	0.9
13872	99	P	SUR	35	-42	718	0	0.4	0.3	0.5
1501529	99	P	SUR	27	-27	717	0	0.3	0.4	0.5
1501531	99	P	SUR	21	-34	717	0	0.3	0.2	0.4
1501533	99	P	SUR	15	-33	26	0	0.4	-0.1	0.4
1501534	99	P	SUR	24	-31	717	0	0.3	0.1	0.3
1501601	99	P	SUR	15	-61	145	0	0.4	0.0	0.4
2500622	99	P	SUR	74	9	720	0	1.2	-0.7	1.4
25622	99	P	SUR	74	9	720	0	1.2	-0.7	1.4
2600545	99	P	SUR	57	-25	1	1	0.0	0.0	0.0
2601560	99	P	SUR	77	9	720	0	0.5	0.1	0.5
4100139	99	P	SUR	20	-38	660	0	0.4	-0.2	0.4
4100506	99	P	SUR	31	-47	669	0	0.3	-0.1	0.3
4100590	99	P	SUR	38	-20	718	0	0.3	-0.3	0.4
4100597	99	P	SUR	34	-42	720	0	0.9	0.0	1.0
4100707	99	P	SUR	14	-61	719	0	0.5	-1.0	1.1
4100729	99	P	SUR	35	-35	720	0	0.3	0.2	0.4
4100731	99	P	SUR	31	-70	720	5	1.5	-0.4	1.5
4101539	99	P	SUR	29	-68	653	0	0.5	0.3	0.6
4101700	99	P	SUR	35	-37	643	0	0.3	0.4	0.5
4101702	99	P	SUR	27	-55	720	0	0.3	0.2	0.4
4101703	99	P	SUR	26	-58	720	0	0.3	0.5	0.6
4101704	99	P	SUR	18	-67	720	0	0.6	0.7	0.9
4101705	99	P	SUR	31	-43	718	0	0.3	0.1	0.3
4101706	99	P	SUR	36	-42	719	0	0.3	-0.4	0.5
4101707	99	P	SUR	37	-32	720	0	0.3	0.0	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101708	99	P	SUR	33	-34	720	0	0.3	-0.2	0.3
4101709	99	P	SUR	40	-24	720	0	0.2	0.5	0.6
4101710	99	P	SUR	34	-48	718	0	0.3	0.0	0.3
4101711	99	P	SUR	31	-54	720	0	0.4	0.0	0.4
4101712	99	P	SUR	31	-58	705	0	0.3	-0.1	0.3
4101713	99	P	SUR	29	-58	720	0	0.3	-0.1	0.4
4101741	99	P	SUR	24	-59	720	0	0.3	0.5	0.6
4101742	99	P	SUR	22	-43	719	0	0.3	-0.0	0.3
4101743	99	P	SUR	22	-43	719	0	0.4	0.4	0.6
4101744	99	P	SUR	12	-50	720	0	0.5	-0.6	0.8
4101746	99	P	SUR	13	-53	720	0	0.4	-0.1	0.5
41040	99	P	SUR	15	-53	948	0	0.5	-0.4	0.7
41041	99	P	SUR	14	-46	1373	0	0.5	0.1	0.5
41043	99	P	SUR	21	-65	1426	0	0.8	-0.5	0.9
41044	99	P	SUR	22	-59	1424	0	0.4	0.1	0.4
41046	99	P	SUR	24	-68	1429	1	0.9	0.1	0.9
41048	99	P	SUR	32	-70	1420	0	0.8	-0.3	0.8
41049	99	P	SUR	28	-63	720	0	0.4	0.3	0.5
41052	99	P	SUR	18	-65	1712	0	0.7	-1.6	1.7
41053	99	P	SUR	19	-66	1848	0	0.7	-0.6	0.9
41056	99	P	SUR	18	-66	1485	0	1.1	-0.2	1.1
41506	99	P	SUR	31	-47	669	0	0.3	-0.1	0.3
41590	99	P	SUR	38	-20	718	0	0.3	-0.3	0.4
41597	99	P	SUR	34	-42	720	0	0.9	0.0	1.0
41707	99	P	SUR	14	-61	719	0	0.5	-1.0	1.1
41729	99	P	SUR	35	-35	720	0	0.3	0.2	0.4
41731	99	P	SUR	31	-70	720	5	1.5	-0.4	1.5
42059	99	P	SUR	15	-68	1404	0	0.5	-0.2	0.5
42060	99	P	SUR	16	-63	1491	6	1.0	-0.2	1.0
42085	99	P	SUR	18	-67	1380	1	0.6	-0.9	1.1
42088	99	P	SUR	11	-61	1434	0	0.6	0.1	0.6
42090	99	P	SUR	18	-70	59	0	0.7	0.5	0.8
44005	99	P	SUR	43	-69	437	0	0.5	-0.3	0.5
4400510	99	P	SUR	47	-17	1335	0	0.3	0.3	0.5
4400513	99	P	SUR	54	-10	720	0	0.4	-0.4	0.6
4400517	99	P	SUR	26	-35	718	0	0.3	0.4	0.5
4400521	99	P	SUR	29	-32	702	0	0.3	-0.6	0.7
4400746	99	P	SUR	29	-28	720	0	0.3	0.3	0.4
4400765	99	P	SUR	60	2	693	0	0.6	0.3	0.6
4400766	99	P	SUR	22	-28	720	0	0.2	0.0	0.2
4400768	99	P	SUR	27	-56	720	0	0.3	0.5	0.6
4400776	99	P	SUR	26	-45	719	0	0.3	0.6	0.7
4400777	99	P	SUR	36	-51	720	0	0.3	0.1	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4400778	99	P	SUR	30	-25	720	0	0.3	0.5	0.6
4400779	99	P	SUR	53	-10	714	0	0.4	-0.3	0.5
44008	99	P	SUR	41	-69	720	0	0.5	-0.6	0.8
4400839	99	P	SUR	31	-67	720	0	0.7	-0.5	0.9
4400848	99	P	SUR	29	-59	720	0	0.4	0.1	0.4
4400857	99	P	SUR	35	-21	720	0	0.3	0.6	0.6
4400874	99	P	SUR	30	-39	720	0	0.3	0.2	0.4
4400875	99	P	SUR	37	-35	720	0	1.4	0.1	1.5
4400887	99	P	SUR	34	-40	719	0	0.3	-0.1	0.3
4400891	99	P	SUR	32	-52	720	0	0.3	-0.1	0.3
44011	99	P	SUR	41	-67	720	0	0.5	-1.0	1.1
4401501	99	P	SUR	51	-10	720	0	0.4	0.2	0.5
4401503	99	P	SUR	35	-56	720	0	0.3	0.1	0.3
4401525	99	P	SUR	13	-60	519	0	0.5	0.0	0.5
4401527	99	P	SUR	22	-61	719	0	0.4	0.2	0.4
4401529	99	P	SUR	25	-68	720	3	0.7	-0.1	0.7
4401530	99	P	SUR	32	-52	720	0	0.3	-0.4	0.5
4401531	99	P	SUR	31	-61	719	0	0.3	0.3	0.5
4401535	99	P	SUR	52	-19	251	0	1.5	-0.6	1.6
4401536	99	P	SUR	52	-43	666	0	0.5	0.2	0.5
4401537	99	P	SUR	36	-26	705	0	0.2	-0.5	0.5
4401538	99	P	SUR	40	-27	678	0	0.3	-1.7	1.7
4401539	99	P	SUR	36	-48	720	0	0.3	0.0	0.3
4401540	99	P	SUR	29	-63	720	0	0.3	0.2	0.4
4401541	99	P	SUR	33	-65	720	0	0.5	0.0	0.5
4401542	99	P	SUR	32	-61	719	0	0.3	0.4	0.5
4401543	99	P	SUR	29	-65	718	0	0.4	-0.1	0.4
4401546	99	P	SUR	45	-23	718	0	0.3	0.5	0.6
4401548	99	P	SUR	49	-18	720	0	0.3	-0.2	0.4
4401550	99	P	SUR	46	-34	720	0	0.5	-0.3	0.6
4401551	99	P	SUR	35	-43	686	0	0.3	0.4	0.5
4401552	99	P	SUR	43	-24	679	0	0.3	0.1	0.3
4401553	99	P	SUR	55	-40	720	0	0.4	0.2	0.4
4401554	99	P	SUR	56	-33	720	0	0.4	0.4	0.6
4401555	99	P	SUR	57	-23	720	0	0.5	-0.4	0.7
4401556	99	P	SUR	41	-38	720	0	0.3	0.1	0.3
4401557	99	P	SUR	43	-63	720	0	0.4	0.2	0.5
4401558	99	P	SUR	43	-55	720	0	0.4	-0.1	0.4
4401559	99	P	SUR	44	-36	718	0	0.5	0.2	0.6
4401560	99	P	SUR	44	-30	720	0	0.4	0.0	0.4
4401561	99	P	SUR	44	-51	719	0	0.4	-0.0	0.4
4401562	99	P	SUR	40	-36	719	0	0.3	-0.2	0.4
4401563	99	P	SUR	32	-33	718	0	0.3	-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
4401564	99	P	SUR	42	-58	471	0	0.4	0.9	1.0
4401565	99	P	SUR	46	-47	294	0	0.5	0.3	0.6
4401566	99	P	SUR	46	-43	277	0	0.5	0.3	0.6
4401601	99	P	SUR	56	-50	430	0	0.3	0.2	0.4
4401602	99	P	SUR	46	-57	421	0	0.4	0.4	0.6
4401603	99	P	SUR	53	-37	422	0	0.4	0.3	0.5
4401605	99	P	SUR	54	-43	426	0	0.5	-0.2	0.5
4401606	99	P	SUR	50	-26	423	0	0.4	-0.3	0.6
4401609	99	P	SUR	41	-61	427	0	0.4	0.1	0.5
4401611	99	P	SUR	53	-54	428	0	0.4	0.3	0.5
4401613	99	P	SUR	46	-31	426	1	1.3	0.1	1.3
4401616	99	P	SUR	45	-54	428	0	0.5	0.1	0.5
4401629	99	P	SUR	47	-35	419	0	0.5	1.5	1.6
4401631	99	P	SUR	51	-22	427	1	0.5	-0.2	0.5
4401633	99	P	SUR	45	-33	424	0	0.5	0.2	0.5
4401634	99	P	SUR	59	-12	432	0	0.3	-0.0	0.3
4401754	99	P	SUR	64	4	675	0	0.3	0.3	0.5
4401756	99	P	SUR	62	-28	687	0	0.5	0.4	0.6
4401757	99	P	SUR	66	1	686	0	0.3	0.6	0.6
4401758	99	P	SUR	65	6	4	2	9.8	0.1	9.8
4401802	99	P	SUR	44	-57	212	0	0.4	0.2	0.4
44027	99	P	SUR	44	-67	789	0	0.4	-0.2	0.5
44032	99	P	SUR	44	-69	706	0	0.4	-0.6	0.7
44033	99	P	SUR	44	-69	709	0	0.4	-0.5	0.6
44034	99	P	SUR	44	-68	720	0	0.4	-0.5	0.6
44037	99	P	SUR	44	-68	699	0	0.4	-1.0	1.0
44137	99	P	SUR	42	-62	405	0	0.4	-0.0	0.4
44139	99	P	SUR	44	-57	710	0	0.5	0.1	0.5
44150	99	P	SUR	43	-64	666	0	0.4	0.1	0.5
44258	99	P	SUR	45	-63	717	0	0.4	0.1	0.4
44510	99	P	SUR	47	-17	1335	0	0.3	0.3	0.5
44513	99	P	SUR	54	-10	720	0	0.4	-0.4	0.6
44517	99	P	SUR	26	-35	718	0	0.3	0.4	0.5
44521	99	P	SUR	29	-32	702	0	0.3	-0.6	0.7
44746	99	P	SUR	29	-28	720	0	0.3	0.3	0.4
44765	99	P	SUR	60	2	693	0	0.6	0.3	0.6
44766	99	P	SUR	22	-28	720	0	0.2	0.0	0.2
44768	99	P	SUR	27	-56	720	0	0.3	0.5	0.6
44776	99	P	SUR	26	-45	719	0	0.3	0.6	0.7
44777	99	P	SUR	36	-51	720	0	0.3	0.1	0.3
44778	99	P	SUR	30	-25	720	0	0.3	0.5	0.6
44779	99	P	SUR	53	-10	714	0	0.4	-0.4	0.5
44839	99	P	SUR	31	-67	720	0	0.7	-0.5	0.9

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44848	99	P	SUR	29	-59	720	0	0.4	0.1	0.4
44857	99	P	SUR	35	-21	720	0	0.3	0.6	0.6
44874	99	P	SUR	30	-39	720	0	0.3	0.2	0.4
44875	99	P	SUR	37	-35	720	0	1.4	0.1	1.5
44887	99	P	SUR	34	-40	720	0	0.3	-0.1	0.3
44891	99	P	SUR	32	-52	720	0	0.3	-0.1	0.3
45138	99	P	SUR	50	-66	672	0	0.5	0.1	0.5
4700540	99	P	SUR	62	4	213	11	2.0	5.0	5.4
4700546	99	P	SUR	41	-27	421	0	0.4	0.6	0.7
4700551	99	P	SUR	57	-6	357	163	4.6	-0.6	4.7
4700552	99	P	SUR	67	-64	426	0	0.4	-1.7	1.8
4700555	99	P	SUR	44	-21	428	0	0.3	0.1	0.3
4700557	99	P	SUR	55	-9	423	0	0.4	-7.9	7.9
4700560	99	P	SUR	61	-2	318	0	0.3	0.4	0.5
4700562	99	P	SUR	60	0	426	0	0.3	0.5	0.6
4700568	99	P	SUR	46	-10	422	0	0.3	0.2	0.4
4700574	99	P	SUR	41	-16	429	0	0.3	0.2	0.3
4701657	99	P	SUR	80	-66	322	0	1.1	-1.2	1.6
4701668	99	P	SUR	53	-55	427	0	0.4	0.4	0.5
4701669	99	P	SUR	52	-52	426	0	0.4	0.3	0.4
4701670	99	P	SUR	62	-65	420	0	0.5	-1.3	1.4
4701671	99	P	SUR	70	-67	340	0	0.5	-4.1	4.1
4701672	99	P	SUR	70	-67	298	0	1.0	-4.5	4.6
4701675	99	P	SUR	53	-53	720	0	0.5	0.1	0.5
4701676	99	P	SUR	69	-63	720	0	0.5	0.2	0.5
4701677	99	P	SUR	61	-64	718	0	0.4	0.2	0.5
4701678	99	P	SUR	59	-63	720	0	0.5	0.0	0.5
4701679	99	P	SUR	70	-62	719	0	0.3	0.2	0.4
47540	99	P	SUR	62	5	258	12	1.9	5.0	5.3
47546	99	P	SUR	41	-27	689	0	0.4	0.6	0.7
47551	99	P	SUR	57	-6	687	384	6.2	-1.8	6.4
47552	99	P	SUR	67	-64	691	0	0.4	-1.6	1.7
47555	99	P	SUR	44	-21	690	0	0.3	0.1	0.4
47557	99	P	SUR	55	-9	690	0	0.4	-8.0	8.0
47560	99	P	SUR	61	-2	691	0	0.3	0.4	0.5
47562	99	P	SUR	60	0	692	0	0.3	0.5	0.6
47568	99	P	SUR	46	-10	686	0	0.3	0.2	0.4
47574	99	P	SUR	41	-16	691	0	0.3	0.2	0.3
4800274	99	P	SUR	83	-17	442	0	0.4	0.5	0.6
4800276	99	P	SUR	84	-36	431	0	0.4	-0.4	0.5
4800280	99	P	SUR	84	-16	442	0	0.5	-0.1	0.5
4800510	99	P	SUR	86	-26	444	0	0.5	-0.5	0.7
4800600	99	P	SUR	57	-32	708	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
4800631	99	P	SUR	83	10	691	152	1.1	-0.2	1.1
4800770	99	P	SUR	81	-11	387	0	0.4	0.1	0.5
4802011	99	P	SUR	77	-69	92	0	2.7	-0.6	2.8
4802012	99	P	SUR	77	-69	484	0	1.2	-0.5	1.3
4802013	99	P	SUR	77	-69	486	0	1.2	-0.5	1.3
48274	99	P	SUR	83	-17	692	0	0.4	0.4	0.6
48276	99	P	SUR	84	-36	692	0	0.5	-0.4	0.6
48280	99	P	SUR	84	-16	692	0	0.5	-0.1	0.5
48510	99	P	SUR	86	-26	690	0	0.5	-0.6	0.7
48600	99	P	SUR	57	-32	708	0	0.5	-0.1	0.5
48770	99	P	SUR	81	-11	620	0	0.4	0.1	0.5
5483	99	P	SUR	52	3	21	0	1.0	-0.9	1.4
6100001	99	P	SUR	43	8	720	0	0.4	0.2	0.4
6100002	99	P	SUR	42	5	719	0	0.3	0.1	0.3
61001	99	P	SUR	43	8	720	0	0.4	0.2	0.4
6100196	99	P	SUR	42	4	693	0	0.4	0.0	0.4
6100197	99	P	SUR	40	4	693	0	0.4	0.1	0.4
6100198	99	P	SUR	37	-2	693	0	0.3	0.2	0.4
61002	99	P	SUR	42	5	719	0	0.3	0.1	0.3
6100280	99	P	SUR	41	1	693	0	0.4	0.2	0.4
6100281	99	P	SUR	40	0	693	0	0.4	0.2	0.4
6100417	99	P	SUR	38	0	693	0	0.3	0.1	0.3
6100430	99	P	SUR	40	2	693	0	0.4	-0.0	0.4
6101001	99	P	SUR	38	24	236	0	0.6	0.4	0.7
6101003	99	P	SUR	40	25	215	0	0.5	0.3	0.6
6101007	99	P	SUR	36	25	238	0	0.8	0.9	1.2
6101008	99	P	SUR	37	22	215	0	0.5	0.3	0.5
6200024	99	P	SUR	44	-3	693	0	0.3	0.0	0.3
6200025	99	P	SUR	44	-6	693	0	0.4	-0.0	0.4
6200082	99	P	SUR	44	-8	332	0	0.3	0.1	0.3
6200083	99	P	SUR	43	-9	693	0	0.3	-0.1	0.3
6200084	99	P	SUR	42	-9	693	0	0.3	0.1	0.3
6200085	99	P	SUR	36	-7	663	0	0.3	0.3	0.4
6200091	99	P	SUR	53	-5	645	0	0.4	-0.0	0.4
6200093	99	P	SUR	55	-10	720	0	0.5	-0.3	0.6
6200094	99	P	SUR	52	-7	718	0	0.4	0.1	0.4
62001	99	P	SUR	45	-5	718	0	0.3	0.0	0.3
6200191	99	P	SUR	41	-10	31	0	0.3	-0.2	0.3
6200192	99	P	SUR	40	-10	32	0	0.2	-0.7	0.7
6200199	99	P	SUR	40	-9	649	0	0.3	0.5	0.6
6200200	99	P	SUR	36	-8	68	0	0.2	-0.0	0.2
6200513	99	P	SUR	63	-26	720	0	0.5	-0.4	0.6
6200554	99	P	SUR	39	-17	607	0	0.3	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
6200559	99	P	SUR	55	-6	687	0	0.6	-0.2	0.7
6200940	99	P	SUR	28	-33	720	0	0.3	0.1	0.3
6200941	99	P	SUR	18	-50	719	0	0.4	-0.2	0.5
6201030	99	P	SUR	44	-4	210	0	0.4	1.2	1.3
6201070	99	P	SUR	43	-9	53	0	0.8	-2.5	2.6
62023	99	P	SUR	51	-8	703	0	0.4	0.2	0.5
62027	99	P	SUR	49	-2	231	0	0.5	0.0	0.5
62029	99	P	SUR	49	-12	1345	0	0.4	-0.2	0.5
62030	99	P	SUR	50	-4	753	0	0.4	-0.1	0.4
6203503	99	P	SUR	27	-33	721	0	0.3	-0.2	0.4
6203504	99	P	SUR	27	-39	720	0	0.3	0.2	0.4
6203524	99	P	SUR	62	-41	704	0	0.5	0.6	0.8
6203526	99	P	SUR	65	-12	683	0	0.3	0.4	0.5
6203528	99	P	SUR	36	-13	248	0	0.3	0.4	0.5
6203600	99	P	SUR	50	-23	720	0	0.4	-0.0	0.5
6203601	99	P	SUR	48	-22	720	0	0.4	0.1	0.4
6203602	99	P	SUR	58	-31	719	0	0.5	0.1	0.5
6203603	99	P	SUR	54	-36	720	0	0.4	-0.1	0.4
6203604	99	P	SUR	50	-32	719	0	0.5	0.0	0.5
6203605	99	P	SUR	56	-35	719	0	0.4	-0.1	0.4
6203606	99	P	SUR	45	-29	109	0	0.3	0.1	0.3
62050	99	P	SUR	50	-4	720	0	0.4	0.3	0.5
62095	99	P	SUR	53	-16	705	0	0.5	-0.2	0.5
62102	99	P	SUR	58	2	727	0	0.5	0.5	0.7
62103	99	P	SUR	50	-3	725	0	0.4	0.5	0.7
62104	99	P	SUR	57	1	725	0	0.3	0.3	0.4
62105	99	P	SUR	55	-13	639	0	0.5	-0.3	0.6
62107	99	P	SUR	50	-6	1429	0	0.5	0.4	0.6
62111	99	P	SUR	58	0	726	0	0.3	1.3	1.3
62112	99	P	SUR	58	0	727	0	0.3	0.5	0.5
62113	99	P	SUR	58	0	727	0	0.4	0.3	0.5
62114	99	P	SUR	58	0	1419	0	0.3	0.4	0.5
62115	99	P	SUR	58	-3	678	0	0.4	0.4	0.6
62116	99	P	SUR	58	1	724	0	0.4	0.3	0.5
62118	99	P	SUR	58	1	727	0	0.3	0.6	0.7
62119	99	P	SUR	57	2	726	0	0.4	0.2	0.4
62120	99	P	SUR	56	2	724	0	0.3	0.1	0.3
62121	99	P	SUR	54	3	727	0	0.4	0.4	0.6
62122	99	P	SUR	57	2	1434	0	0.3	0.2	0.4
62124	99	P	SUR	54	-4	681	0	0.3	0.2	0.4
62127	99	P	SUR	54	1	726	0	0.3	0.7	0.8
62129	99	P	SUR	58	0	727	0	0.3	0.2	0.4
62130	99	P	SUR	59	1	727	0	0.3	0.1	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62131	99	P	SUR	54	1	641	0	0.3	0.7	0.7
62133	99	P	SUR	57	1	725	0	0.4	0.4	0.6
62134	99	P	SUR	58	1	727	0	0.3	0.5	0.5
62135	99	P	SUR	54	2	727	0	0.3	0.5	0.6
62136	99	P	SUR	54	3	722	0	0.4	0.7	0.8
62138	99	P	SUR	54	0	1434	0	0.4	0.9	1.0
62139	99	P	SUR	53	2	840	0	0.3	0.5	0.5
62140	99	P	SUR	57	1	1433	0	0.3	0.4	0.5
62141	99	P	SUR	59	-1	528	0	1.4	-0.8	1.6
62143	99	P	SUR	58	2	720	0	0.3	0.8	0.9
62144	99	P	SUR	53	2	727	0	0.4	0.4	0.6
62145	99	P	SUR	53	3	1424	0	0.3	0.6	0.7
62146	99	P	SUR	57	2	710	0	0.3	0.4	0.5
62148	99	P	SUR	54	2	727	0	0.4	1.2	1.3
62149	99	P	SUR	54	1	727	0	0.3	0.8	0.9
62150	99	P	SUR	54	1	181	0	0.2	1.3	1.3
62151	99	P	SUR	57	2	1418	0	0.4	0.5	0.6
62152	99	P	SUR	57	2	727	0	0.4	0.5	0.6
62153	99	P	SUR	57	2	1434	0	0.3	0.5	0.5
62154	99	P	SUR	56	2	722	0	0.3	0.2	0.4
62155	99	P	SUR	58	1	707	0	0.3	0.5	0.5
62157	99	P	SUR	58	0	718	0	0.3	0.1	0.3
62160	99	P	SUR	57	2	1375	0	0.4	0.4	0.6
62161	99	P	SUR	58	1	727	0	0.3	-0.0	0.3
62162	99	P	SUR	57	1	727	0	0.3	0.3	0.4
62163	99	P	SUR	48	-8	714	0	0.4	0.2	0.5
62164	99	P	SUR	57	1	726	0	0.3	0.3	0.4
62168	99	P	SUR	58	1	727	0	0.3	0.2	0.4
62170	99	P	SUR	51	2	724	0	0.7	0.2	0.7
62296	99	P	SUR	53	2	691	0	0.3	0.2	0.4
62297	99	P	SUR	59	2	1433	0	0.3	0.2	0.4
62302	99	P	SUR	61	-2	727	0	0.3	0.2	0.4
62304	99	P	SUR	51	2	673	5	0.5	0.3	0.5
62305	99	P	SUR	50	0	722	0	0.4	0.3	0.5
62442	99	P	SUR	49	-16	717	0	0.4	-0.2	0.5
62513	99	P	SUR	63	-26	720	0	0.5	-0.4	0.6
62554	99	P	SUR	39	-17	607	0	0.3	0.2	0.4
62559	99	P	SUR	55	-6	687	0	0.6	-0.2	0.7
62940	99	P	SUR	28	-33	720	0	0.3	0.1	0.3
62941	99	P	SUR	18	-50	720	0	0.4	-0.2	0.5
6301552	99	P	SUR	79	27	718	0	0.4	-0.4	0.6
6301553	99	P	SUR	79	26	720	0	0.4	0.0	0.5
6301554	99	P	SUR	67	10	718	0	0.4	0.2	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6301555	99	P	SUR	72	17	719	0	0.5	0.6	0.8
6301556	99	P	SUR	70	1	719	0	0.6	0.8	1.0
6301557	99	P	SUR	75	11	720	0	0.4	0.7	0.7
63055	99	P	SUR	61	2	695	0	0.4	-0.0	0.4
63056	99	P	SUR	60	2	727	0	0.4	0.6	0.7
63057	99	P	SUR	59	2	726	0	0.3	0.2	0.3
63058	99	P	SUR	53	2	2147	0	0.3	0.4	0.5
63059	99	P	SUR	58	-1	721	0	0.3	0.5	0.6
63101	99	P	SUR	61	1	719	0	0.4	0.5	0.7
63102	99	P	SUR	61	1	727	0	0.3	0.2	0.4
63103	99	P	SUR	61	1	714	0	0.3	0.3	0.5
63104	99	P	SUR	61	2	727	0	0.3	0.7	0.8
63105	99	P	SUR	61	2	727	0	0.3	0.1	0.3
63108	99	P	SUR	61	2	726	0	0.3	0.0	0.3
63109	99	P	SUR	60	2	727	0	0.4	0.1	0.4
63110	99	P	SUR	60	2	727	0	0.4	0.2	0.4
63111	99	P	SUR	61	2	1414	0	0.3	-0.0	0.3
63112	99	P	SUR	61	1	719	0	0.3	-0.0	0.3
63115	99	P	SUR	62	1	715	0	0.4	0.2	0.5
63117	99	P	SUR	61	1	1409	0	0.5	0.7	0.9
63118	99	P	SUR	57	2	1397	0	0.7	-0.3	0.8
63120	99	P	SUR	54	2	691	0	0.3	0.7	0.7
6400524	99	P	SUR	67	13	720	0	0.4	0.3	0.5
6400526	99	P	SUR	49	-39	694	0	0.5	-0.1	0.5
6400528	99	P	SUR	70	36	720	1	0.6	0.4	0.7
6400551	99	P	SUR	54	-42	720	0	0.5	-0.2	0.5
6400562	99	P	SUR	66	0	720	0	0.4	0.2	0.4
6400757	99	P	SUR	61	-26	111	111	0.0	0.0	0.0
6401501	99	P	SUR	67	3	698	0	0.3	0.5	0.6
6401507	99	P	SUR	71	12	412	0	0.3	0.4	0.5
6401508	99	P	SUR	75	11	697	0	0.3	0.6	0.7
6401550	99	P	SUR	68	12	719	0	0.6	0.3	0.6
6401555	99	P	SUR	71	2	719	0	0.3	0.4	0.5
6401556	99	P	SUR	67	-7	720	0	0.4	0.4	0.5
6401557	99	P	SUR	67	-32	720	0	0.5	0.5	0.7
6401558	99	P	SUR	60	-8	720	0	0.3	0.5	0.6
6401559	99	P	SUR	66	-24	720	0	0.6	0.4	0.7
6401560	99	P	SUR	61	-12	720	0	0.3	0.3	0.4
6401561	99	P	SUR	63	-17	639	0	0.4	0.1	0.4
64041	99	P	SUR	61	-3	727	0	0.4	0.2	0.5
64045	99	P	SUR	59	-12	720	1	0.6	-0.1	0.6
64046	99	P	SUR	61	-4	720	0	0.3	0.0	0.3
64524	99	P	SUR	67	13	720	0	0.4	0.3	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
64526	99	P	SUR	48	-39	694	0	0.5	-0.1	0.5
64528	99	P	SUR	70	36	720	1	0.6	0.4	0.7
64551	99	P	SUR	54	-42	720	0	0.5	-0.2	0.5
64562	99	P	SUR	66	0	720	0	0.4	0.2	0.4
64757	99	P	SUR	61	-26	124	124	0.0	0.0	0.0
6500519	99	P	SUR	70	33	717	0	0.4	0.3	0.5
6500596	99	P	SUR	74	17	716	0	0.4	0.7	0.8
6500599	99	P	SUR	72	16	720	0	0.4	0.3	0.5
6500602	99	P	SUR	63	-12	720	0	1.7	0.6	1.8
6501551	99	P	SUR	50	-49	720	0	0.5	0.0	0.5
6501552	99	P	SUR	49	-49	343	0	0.6	0.4	0.7
6501553	99	P	SUR	54	-41	720	0	0.4	0.3	0.5
6501555	99	P	SUR	65	-52	720	0	0.5	-0.2	0.5
6501556	99	P	SUR	55	-41	720	0	0.4	0.3	0.5
65519	99	P	SUR	70	33	717	0	0.4	0.4	0.5
65596	99	P	SUR	74	17	716	0	0.4	0.7	0.8
65599	99	P	SUR	72	16	720	0	0.4	0.3	0.5
65602	99	P	SUR	63	-12	720	0	1.7	0.6	1.8

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 : SEP 2017
 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	683	0	0	1.5	0.5	1.6
1300002	99	SPEED	SUR	20	-23	636	0	0	0.9	0.5	1.0
1300130	99	SPEED	SUR	28	-16	692	0	0	1.0	0.1	1.0
1300131	99	SPEED	SUR	28	-17	693	0	0	2.3	2.8	3.6
4100026	99	SPEED	SUR	12	-38	13	0	0	1.7	0.4	1.8
4100139	99	SPEED	SUR	20	-38	660	0	0	1.0	0.2	1.0
4100300	99	SPEED	SUR	16	-57	462	0	0	1.2	-0.5	1.3
41026	99	SPEED	SUR	12	-38	13	0	0	1.7	0.5	1.8
41040	99	SPEED	SUR	15	-53	1401	0	0	1.3	-0.0	1.3
41041	99	SPEED	SUR	14	-46	1373	0	0	1.4	0.2	1.4
41043	99	SPEED	SUR	21	-65	790	2	0	1.8	-0.9	2.0
41044	99	SPEED	SUR	22	-59	1424	0	0	1.0	-0.4	1.1
41046	99	SPEED	SUR	24	-68	1429	6	0	1.4	-0.2	1.4
41048	99	SPEED	SUR	32	-70	1419	0	0	1.3	0.0	1.3
41049	99	SPEED	SUR	28	-63	720	0	0	1.2	-0.1	1.2
41052	99	SPEED	SUR	18	-65	1758	3	0	1.7	-0.8	1.9
41053	99	SPEED	SUR	19	-66	1848	0	0	1.7	0.3	1.7
41056	99	SPEED	SUR	18	-66	1483	0	0	1.5	-0.7	1.6
41058	99	SPEED	SUR	19	-65	290	0	0	1.2	-0.4	1.3
41300	99	SPEED	SUR	16	-57	462	0	0	1.2	-0.5	1.3
42059	99	SPEED	SUR	15	-68	1424	0	0	1.1	0.2	1.1
42060	99	SPEED	SUR	16	-63	1506	4	0	1.4	-0.4	1.5
42085	99	SPEED	SUR	18	-67	1384	0	0	1.7	0.1	1.7
42088	99	SPEED	SUR	11	-61	1434	0	0	1.6	-1.8	2.4
42090	99	SPEED	SUR	18	-70	59	0	0	1.7	0.1	1.7
44008	99	SPEED	SUR	41	-69	720	18	0	1.4	-0.4	1.5
44032	99	SPEED	SUR	44	-69	705	0	0	1.5	-0.7	1.6
44033	99	SPEED	SUR	44	-69	709	0	0	1.6	-0.4	1.6
44034	99	SPEED	SUR	44	-68	720	0	0	1.4	-0.9	1.6
44037	99	SPEED	SUR	44	-68	699	0	0	1.2	-0.6	1.3
44137	99	SPEED	SUR	42	-62	405	0	0	1.4	0.0	1.4
44139	99	SPEED	SUR	44	-57	711	0	0	1.4	0.0	1.4
44150	99	SPEED	SUR	43	-64	318	0	0	1.3	-0.1	1.3
44258	99	SPEED	SUR	45	-63	718	0	0	1.6	0.3	1.6

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
45138	99	SPEED	SUR	50	-66	678	0	0	1.6	-0.3	1.6
5483	99	SPEED	SUR	52	3	21	0	0	3.7	1.8	4.1
6100001	99	SPEED	SUR	43	8	720	0	0	1.8	-0.3	1.8
6100002	99	SPEED	SUR	42	5	719	0	0	1.3	0.2	1.3
61001	99	SPEED	SUR	43	8	720	0	0	1.9	-0.6	2.0
6100196	99	SPEED	SUR	42	4	633	0	0	1.7	-0.5	1.8
6100197	99	SPEED	SUR	40	4	688	0	0	1.3	-0.3	1.3
6100198	99	SPEED	SUR	37	-2	686	0	0	1.6	-0.6	1.7
61002	99	SPEED	SUR	42	5	719	0	0	1.4	-0.2	1.4
6100280	99	SPEED	SUR	41	1	673	0	0	1.5	-0.7	1.7
6100281	99	SPEED	SUR	40	0	678	0	0	2.1	-0.1	2.1
6100417	99	SPEED	SUR	38	0	692	0	0	1.2	-0.4	1.2
6100430	99	SPEED	SUR	40	2	691	0	0	1.7	0.2	1.8
6101001	99	SPEED	SUR	38	24	236	0	0	1.8	-0.3	1.8
6101003	99	SPEED	SUR	40	25	215	0	0	2.5	-1.2	2.7
6101007	99	SPEED	SUR	36	25	238	0	0	1.5	-0.5	1.5
6101008	99	SPEED	SUR	37	22	215	0	0	1.4	-0.7	1.5
6200024	99	SPEED	SUR	44	-3	688	0	0	1.4	-0.1	1.4
6200025	99	SPEED	SUR	44	-6	683	0	0	1.4	-0.3	1.5
6200082	99	SPEED	SUR	44	-8	332	0	0	1.2	-0.4	1.3
6200083	99	SPEED	SUR	43	-9	692	0	0	1.1	-0.0	1.1
6200084	99	SPEED	SUR	42	-9	678	0	0	1.3	-0.8	1.5
6200085	99	SPEED	SUR	36	-7	690	0	0	1.3	-0.5	1.4
6200091	99	SPEED	SUR	53	-5	645	0	0	2.6	-0.0	2.6
6200093	99	SPEED	SUR	55	-10	720	0	0	1.2	-0.4	1.3
6200094	99	SPEED	SUR	52	-7	718	0	0	1.0	0.1	1.0
62001	99	SPEED	SUR	45	-5	718	0	0	1.1	0.5	1.2
6200191	99	SPEED	SUR	41	-10	31	0	0	1.1	-1.1	1.6
6200192	99	SPEED	SUR	40	-10	32	0	0	0.9	-0.5	1.0
6200199	99	SPEED	SUR	40	-9	649	0	0	1.4	-1.3	1.9
6200200	99	SPEED	SUR	36	-8	68	0	0	1.4	-0.3	1.4
6201030	99	SPEED	SUR	44	-4	209	0	0	1.4	-0.8	1.6
6201070	99	SPEED	SUR	43	-9	53	0	0	1.8	-0.4	1.8
62023	99	SPEED	SUR	51	-8	713	0	0	1.8	-0.2	1.8
62027	99	SPEED	SUR	49	-2	232	0	0	1.2	0.5	1.3
62050	99	SPEED	SUR	50	-4	720	0	0	1.1	0.3	1.2
62095	99	SPEED	SUR	53	-16	705	0	0	1.3	0.0	1.3
62102	99	SPEED	SUR	58	2	727	0	0	1.3	0.2	1.3
62103	99	SPEED	SUR	50	-3	725	0	0	1.4	1.3	1.9
62104	99	SPEED	SUR	57	1	725	0	0	1.1	-0.4	1.2
62105	99	SPEED	SUR	55	-13	594	0	0	1.3	0.4	1.3

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62107	99	SPEED	SUR	50	-6	1429	0	0	1.4	0.8	1.6
62111	99	SPEED	SUR	58	0	726	0	0	1.3	-0.2	1.3
62112	99	SPEED	SUR	58	0	727	0	0	1.4	-0.8	1.6
62113	99	SPEED	SUR	58	0	727	0	0	1.4	0.4	1.5
62114	99	SPEED	SUR	58	0	1433	0	0	1.3	0.5	1.4
62118	99	SPEED	SUR	58	1	727	0	0	1.3	0.5	1.4
62119	99	SPEED	SUR	57	2	726	0	0	1.3	-0.9	1.6
62120	99	SPEED	SUR	56	2	724	0	0	1.1	-0.2	1.1
62121	99	SPEED	SUR	54	3	718	0	0	1.2	-0.4	1.3
62122	99	SPEED	SUR	57	2	1434	0	0	1.1	-0.2	1.1
62129	99	SPEED	SUR	58	0	727	0	0	1.1	-0.1	1.1
62131	99	SPEED	SUR	54	1	641	0	0	1.3	-0.3	1.4
62132	99	SPEED	SUR	56	2	722	0	0	2.1	-1.5	2.6
62133	99	SPEED	SUR	57	1	725	0	0	1.2	-0.0	1.2
62134	99	SPEED	SUR	58	1	727	0	0	1.2	0.1	1.2
62143	99	SPEED	SUR	58	2	720	0	0	1.7	-0.5	1.8
62144	99	SPEED	SUR	53	2	727	0	0	1.7	-0.9	1.9
62145	99	SPEED	SUR	53	3	1424	0	0	1.2	0.0	1.2
62146	99	SPEED	SUR	57	2	710	0	0	1.1	-0.2	1.2
62148	99	SPEED	SUR	54	2	727	0	0	1.5	-0.5	1.6
62149	99	SPEED	SUR	54	1	727	0	0	1.2	0.0	1.2
62150	99	SPEED	SUR	54	1	181	0	0	1.1	-0.7	1.3
62152	99	SPEED	SUR	57	2	727	0	0	1.5	-0.9	1.7
62153	99	SPEED	SUR	57	2	1434	0	0	2.0	-1.2	2.3
62154	99	SPEED	SUR	56	2	718	0	0	1.1	-0.3	1.2
62155	99	SPEED	SUR	58	1	676	0	0	1.3	-0.0	1.3
62163	99	SPEED	SUR	48	-8	714	0	0	1.0	0.2	1.0
62164	99	SPEED	SUR	57	1	726	0	0	1.5	-1.1	1.8
62170	99	SPEED	SUR	51	2	724	0	0	1.7	1.6	2.3
62304	99	SPEED	SUR	51	2	670	0	0	1.7	1.3	2.1
62305	99	SPEED	SUR	50	0	721	0	0	1.5	1.5	2.1
62442	99	SPEED	SUR	49	-16	717	0	0	1.2	-0.2	1.2
63055	99	SPEED	SUR	61	2	695	0	0	1.4	-0.9	1.7
63056	99	SPEED	SUR	60	2	727	0	0	1.3	-0.2	1.3
63057	99	SPEED	SUR	59	2	726	0	0	1.7	-0.1	1.7
63058	99	SPEED	SUR	53	2	1438	0	0	1.2	-0.2	1.2
63101	99	SPEED	SUR	61	1	719	0	0	1.4	-0.2	1.4
63103	99	SPEED	SUR	61	1	714	0	0	1.5	-0.3	1.6
63104	99	SPEED	SUR	61	2	705	0	0	1.4	-0.2	1.4
63105	99	SPEED	SUR	61	2	727	0	0	1.6	-0.5	1.7
63106	99	SPEED	SUR	61	2	727	0	0	1.4	-0.1	1.4

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
63108	99	SPEED	SUR	61	2	726	0	0	1.6	-0.1	1.6
63109	99	SPEED	SUR	60	2	687	0	0	1.3	-0.2	1.3
63110	99	SPEED	SUR	60	2	727	0	0	1.4	0.1	1.5
63112	99	SPEED	SUR	61	1	719	0	0	1.3	-0.6	1.4
63113	99	SPEED	SUR	61	2	727	0	0	1.3	-0.5	1.4
63115	99	SPEED	SUR	62	1	715	0	0	1.6	-0.7	1.7
63117	99	SPEED	SUR	61	1	1409	0	0	1.5	-0.1	1.5
64041	99	SPEED	SUR	61	-3	727	0	0	1.3	-0.0	1.3
64045	99	SPEED	SUR	59	-12	718	0	0	1.3	0.0	1.3
64046	99	SPEED	SUR	61	-4	720	0	0	1.0	0.2	1.0
66021	99	SPEED	SUR	55	14	109	0	0	1.3	0.6	1.5
66022	99	SPEED	SUR	54	14	1056	0	0	1.2	-0.2	1.2
66024	99	SPEED	SUR	55	13	721	0	0	1.4	0.1	1.4

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : SEP 2017
 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	404	0	0	26.1	3.2	26.3
1300002	99	DIRN	SUR	20	-23	623	0	0	10.0	1.4	10.1
1300130	99	DIRN	SUR	28	-16	657	0	0	9.3	2.7	9.6
1300131	99	DIRN	SUR	28	-17	394	0	0	23.9	1.8	24.0
4100026	99	DIRN	SUR	12	-38	13	0	0	16.7	-2.7	17.0
4100139	99	DIRN	SUR	20	-38	653	0	0	10.6	4.9	11.7
41002	99	DIRN	SUR	32	-75	497	0	0	16.5	7.3	18.1
4100300	99	DIRN	SUR	16	-57	451	0	0	16.6	-15.2	22.4
41004	99	DIRN	SUR	33	-79	1014	0	0	16.2	5.5	17.1
41008	99	DIRN	SUR	31	-81	546	0	0	23.0	3.9	23.3
41009	99	DIRN	SUR	29	-80	1009	0	0	20.5	4.0	20.8
41010	99	DIRN	SUR	30	-78	932	0	0	21.2	5.3	21.8
41013	99	DIRN	SUR	33	-78	1138	0	0	18.1	6.9	19.3
41024	99	DIRN	SUR	34	-79	433	0	0	21.5	-12.9	25.1
41025	99	DIRN	SUR	35	-75	571	0	0	26.7	5.5	27.2
41026	99	DIRN	SUR	12	-38	13	0	0	16.5	-4.1	17.0
41029	99	DIRN	SUR	33	-80	585	0	0	19.0	-5.1	19.6
41033	99	DIRN	SUR	32	-80	498	0	0	20.7	-2.9	20.9
41037	99	DIRN	SUR	34	-77	574	0	0	25.3	-1.3	25.3
41038	99	DIRN	SUR	34	-78	552	0	0	21.5	-5.0	22.1
41040	99	DIRN	SUR	15	-53	1291	0	0	16.5	-2.3	16.7
41041	99	DIRN	SUR	14	-46	1124	0	0	17.9	-2.3	18.1
41043	99	DIRN	SUR	21	-65	753	2	0	15.5	-4.6	16.2
41044	99	DIRN	SUR	22	-59	1278	0	0	12.6	0.3	12.6
41046	99	DIRN	SUR	24	-68	1289	6	0	15.5	1.6	15.6
41047	99	DIRN	SUR	28	-72	1179	2	0	15.1	-5.2	16.0
41048	99	DIRN	SUR	32	-70	1051	0	0	11.5	-4.7	12.4
41049	99	DIRN	SUR	28	-63	610	0	0	18.3	6.0	19.3
41052	99	DIRN	SUR	18	-65	1693	3	0	15.9	5.5	16.8
41053	99	DIRN	SUR	19	-66	1241	0	0	24.1	7.9	25.4
41056	99	DIRN	SUR	18	-66	1388	0	0	16.9	4.3	17.5
41058	99	DIRN	SUR	19	-65	277	0	0	11.9	-10.7	16.0

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
41063	99	DIRN	SUR	35	-76	589	0	0	20.9	-7.2	22.1
41064	99	DIRN	SUR	34	-77	552	0	0	19.8	-3.6	20.1
41300	99	DIRN	SUR	16	-57	443	0	0	16.6	-15.2	22.5
42013	99	DIRN	SUR	27	-83	187	0	0	32.0	-0.6	32.0
42023	99	DIRN	SUR	26	-83	127	15	0	125.2	72.8	144.9
42036	99	DIRN	SUR	29	-85	354	0	0	22.6	8.2	24.1
42056	99	DIRN	SUR	20	-85	1156	0	0	21.1	7.5	22.4
42057	99	DIRN	SUR	17	-81	1161	0	0	16.9	3.9	17.3
42058	99	DIRN	SUR	15	-75	1135	0	0	14.0	11.4	18.1
42059	99	DIRN	SUR	15	-68	1345	0	0	12.8	5.2	13.8
42060	99	DIRN	SUR	16	-63	1428	4	0	16.3	5.6	17.2
42085	99	DIRN	SUR	18	-67	1093	0	0	25.7	15.9	30.3
42088	99	DIRN	SUR	11	-61	576	0	0	44.5	-28.8	53.0
42090	99	DIRN	SUR	18	-70	39	0	0	17.5	-40.6	44.2
44007	99	DIRN	SUR	44	-70	499	0	0	27.1	9.3	28.6
44008	99	DIRN	SUR	41	-69	566	18	0	89.6	6.8	89.8
44009	99	DIRN	SUR	39	-75	540	0	0	18.3	15.0	23.6
44013	99	DIRN	SUR	42	-71	507	0	0	26.0	11.0	28.2
44014	99	DIRN	SUR	37	-75	542	0	0	14.6	5.5	15.5
44020	99	DIRN	SUR	41	-70	536	0	0	15.9	3.4	16.2
44022	99	DIRN	SUR	41	-74	141	0	0	14.7	-14.8	20.9
44025	99	DIRN	SUR	40	-73	597	0	0	19.7	0.8	19.7
44029	99	DIRN	SUR	43	-71	640	0	0	26.1	5.6	26.7
44030	99	DIRN	SUR	43	-70	473	0	0	25.2	7.9	26.4
44032	99	DIRN	SUR	44	-69	429	0	0	12.2	17.2	21.1
44033	99	DIRN	SUR	44	-69	386	0	0	16.2	3.8	16.6
44034	99	DIRN	SUR	44	-68	447	0	0	14.3	10.3	17.6
44037	99	DIRN	SUR	44	-68	496	0	0	12.7	36.9	39.0
44039	99	DIRN	SUR	41	-73	179	0	0	22.1	-1.5	22.1
44040	99	DIRN	SUR	41	-74	42	0	0	14.2	-2.7	14.4
44041	99	DIRN	SUR	37	-77	251	0	0	16.0	-6.0	17.1
44042	99	DIRN	SUR	38	-76	844	0	0	23.2	-6.5	24.1
44043	99	DIRN	SUR	39	-76	703	0	0	22.1	-7.6	23.4
44057	99	DIRN	SUR	40	-76	417	0	0	26.2	4.3	26.5
44058	99	DIRN	SUR	38	-76	879	0	0	18.0	-25.3	31.0
44062	99	DIRN	SUR	39	-76	830	0	0	27.2	-16.5	31.8
44063	99	DIRN	SUR	39	-76	654	0	0	31.6	-20.5	37.7
44065	99	DIRN	SUR	40	-74	523	0	0	17.2	3.2	17.5
44066	99	DIRN	SUR	40	-73	630	0	0	17.9	1.5	17.9
44069	99	DIRN	SUR	41	-73	557	0	0	24.2	1.7	24.3
44072	99	DIRN	SUR	37	-76	927	0	0	19.6	-12.6	23.3

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44137	99	DIRN	SUR	42	-62	276	0	0	28.1	-30.8	41.7
44139	99	DIRN	SUR	44	-57	578	0	0	17.1	7.7	18.7
44150	99	DIRN	SUR	43	-64	181	0	0	12.1	12.0	17.0
44258	99	DIRN	SUR	45	-63	531	0	0	24.1	-9.8	26.0
45003	99	DIRN	SUR	45	-83	483	0	0	23.8	4.5	24.2
45005	99	DIRN	SUR	42	-82	779	0	0	17.3	3.0	17.5
45008	99	DIRN	SUR	44	-82	747	0	0	20.8	4.2	21.3
45012	99	DIRN	SUR	44	-77	382	0	0	27.9	3.5	28.1
45132	99	DIRN	SUR	43	-81	388	0	0	19.8	-2.9	20.0
45135	99	DIRN	SUR	44	-77	484	0	0	22.9	1.4	22.9
45137	99	DIRN	SUR	46	-81	400	0	0	20.8	11.1	23.6
45138	99	DIRN	SUR	50	-66	419	0	0	22.0	-0.8	22.0
45139	99	DIRN	SUR	43	-80	264	0	0	20.0	-0.3	20.0
45142	99	DIRN	SUR	43	-79	364	0	0	21.3	-7.0	22.4
45143	99	DIRN	SUR	45	-81	598	0	0	20.9	2.5	21.1
45147	99	DIRN	SUR	42	-83	217	0	0	19.2	-2.3	19.3
45149	99	DIRN	SUR	44	-82	399	0	0	20.2	-2.1	20.3
45151	99	DIRN	SUR	45	-79	283	0	0	24.8	6.3	25.6
45152	99	DIRN	SUR	46	-80	259	0	0	19.2	-5.8	20.1
45154	99	DIRN	SUR	46	-83	471	0	0	23.1	29.0	37.1
45159	99	DIRN	SUR	44	-79	19	0	0	28.5	-1.8	28.5
45162	99	DIRN	SUR	45	-83	362	0	0	25.4	-1.4	25.5
45163	99	DIRN	SUR	44	-84	443	0	0	20.8	-0.5	20.8
45164	99	DIRN	SUR	42	-82	387	0	0	26.7	-11.2	29.0
45165	99	DIRN	SUR	42	-83	513	0	0	21.0	16.5	26.7
45166	99	DIRN	SUR	45	-73	257	0	0	16.4	-35.3	38.9
45167	99	DIRN	SUR	42	-80	367	0	0	28.1	-15.1	31.9
45169	99	DIRN	SUR	42	-82	589	0	0	22.4	-16.3	27.8
45175	99	DIRN	SUR	46	-85	572	0	0	49.9	-15.2	52.2
45176	99	DIRN	SUR	42	-82	593	0	0	26.9	-14.1	30.4
45178	99	DIRN	SUR	45	-73	609	0	0	25.7	-3.1	25.8
45179	99	DIRN	SUR	47	-84	37	0	0	37.1	-4.7	37.4
6100198	99	DIRN	SUR	37	-2	500	0	0	26.4	-1.2	26.5
6100281	99	DIRN	SUR	40	0	327	0	0	38.4	-3.5	38.6
6100417	99	DIRN	SUR	38	0	509	0	0	14.7	2.6	14.9
6200024	99	DIRN	SUR	44	-3	479	0	0	17.3	6.7	18.5
6200025	99	DIRN	SUR	44	-6	433	0	0	22.7	2.7	22.9
6200082	99	DIRN	SUR	44	-8	287	0	0	17.1	37.8	41.5
6200083	99	DIRN	SUR	43	-9	567	0	0	15.9	2.6	16.1
6200084	99	DIRN	SUR	42	-9	346	0	0	15.6	5.7	16.6
6200085	99	DIRN	SUR	36	-7	398	0	0	15.5	8.5	17.6

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
6200091	99	DIRN	SUR	53	-5	552	0	0	17.7	5.5	18.5
6200093	99	DIRN	SUR	55	-10	656	0	0	10.5	0.5	10.5
6200094	99	DIRN	SUR	52	-7	665	0	0	13.9	1.9	14.1
62001	99	DIRN	SUR	45	-5	575	0	0	15.2	4.3	15.8
6200191	99	DIRN	SUR	41	-10	28	0	0	11.2	-6.1	12.7
6200192	99	DIRN	SUR	40	-10	27	0	0	9.2	-6.9	11.5
6200199	99	DIRN	SUR	40	-9	410	0	0	13.7	-4.3	14.3
6200200	99	DIRN	SUR	36	-8	40	0	0	159.3	-35.4	163.2
6201030	99	DIRN	SUR	44	-4	124	0	0	13.6	-10.8	17.3
6201070	99	DIRN	SUR	43	-9	15	0	0	21.4	6.6	22.4
62023	99	DIRN	SUR	51	-8	664	0	0	12.3	12.8	17.7
62027	99	DIRN	SUR	49	-2	204	0	0	21.2	-7.4	22.5
62050	99	DIRN	SUR	50	-4	673	0	0	13.0	2.2	13.1
62095	99	DIRN	SUR	53	-16	659	0	0	20.4	8.5	22.1
62103	99	DIRN	SUR	50	-3	673	0	0	14.5	5.5	15.6
62105	99	DIRN	SUR	55	-13	566	0	0	13.0	6.7	14.6
62107	99	DIRN	SUR	50	-6	1377	0	0	13.9	2.1	14.1
62111	99	DIRN	SUR	58	0	661	0	0	13.6	-0.1	13.6
62112	99	DIRN	SUR	58	0	609	0	0	13.0	7.3	14.9
62114	99	DIRN	SUR	58	0	1326	0	0	13.8	3.1	14.1
62163	99	DIRN	SUR	48	-8	642	0	0	10.6	1.0	10.7
62305	99	DIRN	SUR	50	0	633	0	0	17.5	3.4	17.8
62442	99	DIRN	SUR	49	-16	678	0	0	13.1	-5.9	14.4
64041	99	DIRN	SUR	61	-3	676	0	0	10.3	8.8	13.5
64045	99	DIRN	SUR	59	-12	669	0	0	17.1	8.9	19.3
64046	99	DIRN	SUR	61	-4	644	0	0	10.9	-2.0	11.1

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE02	ASDE09	ASDE09	ASDK01	ASDK02	ASDK03	ASES01	ASEU01	ASEU02
ASEU04	ASFR1	ASFR2	ASFR3	ASFR4	DBLK	DSQL7	JGQH	JNKN7JF
JNSR	KMPLHPW	LRYQE3U	VKB4L5Q	7JUNA4N	01001	01004	01010	01028
01241	01400	01415	01492	02185	02365	02527	02591	02836
02963	03005	03238	03354	03502	03743	03808	03882	03918
03953	04220	04270	04320	04339	04360	04417	06011	06260
06610	07101	07110	07145	07510	07645	07761	08001	08023
08190	08221	08302	08430	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	16045	16080	16113	16144	16245
16320	16429	16546	16622	16754	17030	17064	17095	17220
17281	17351	17516	17607	33008	40179	43599	47102	47104
47138	47155	47169	47186	60018	61901	61980	61998	67083
68263	68424	68442	68538	68816	68842	70200	70261	70316
70326	70398	72201	72206	72208	72214	72233	72240	72248
72251	72261	72265	72317	72327	72363	72364	72365	72426
72440	72476	72489	72501	72518	72520	72528	72558	72562
72632	72634	72645	72649	72659	72662	72672	72712	72747
72764	74389	74494	74560	76903	78897	78954	81405	85442
85469	85586	85799	85934	88889	89002	89564	89571	89611
89642	89859	91212	91592	91925	91938	91948	91958	93112
93417	93817	93844	93997	94120	94150	94170	94203	94294
94299	94302	94312	94326	94332	94374	94403	94430	94461
94510	94578	94610	94637	94638	94653	94659	94672	94711
94767	94776	94802	94821	94866	94910	94975	94995	94996
94998	95527	96996						

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

ASDE02	ASDE09	ASDE09	ASDK01	ASDK02	ASDK03	ASES01	ASEU01	ASEU02
ASEU04	ASFR1	ASFR2	ASFR3	ASFR4	DSQL7	JNKN7JF	KMPLHPW	LRYQE3U
VKB4L5Q	7JUNA4N	07101	08098	14101	15105	17607	19099	33008
47155	76903	94653	94767					

5 Annex - Explanations of figures and tables

5.1 General

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

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

5.2 Data Availability

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

5.3 Data Quality

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

It should be noted that:

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

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

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

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

The corresponding limits for wind (table 8) are:

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

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

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

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

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

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

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

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

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