



ECMWF Global Data Monitoring Report

March 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**

Contents

1	Introduction	3
2	Data summary - History of events	4
2.1	Radiosondes	4
2.2	Drifting Buoys	6
3	Global monitoring statistics	6
3.1	Data Availability	6
3.2	Data Quality	6
3.2.1	Figure 1 - Availability - SYNOP PRESSURE	8
3.2.2	Figure 2 - Availability - DRIFTER PRESSURE	9
3.2.3	Figure 3 - Availability - TEMP 500 hPa geopotential	10
3.2.4	Figure 4 - Availability - TEMP/PILOT 300 hPa wind	11
3.2.5	Figure 5 - Availability - AIRCRAFT winds 300-150 hPa	12
3.2.6	Figure 6 - Availability - SATOB winds 400-150 hPa	13
3.2.7	Figure 7 - Availability - SATOB winds 1000-700 hPa	14
3.2.8	Figure 8 - Availability - NOAA15 ATOVS : AMSU-A	15
3.2.9	Figure 9.1 - Availability - NOAA18 ATOVS : AMSU-A	16
3.2.10	Figure 9.2 - Availability - AQUA ATOVS : AMSU-A	17
3.2.11	Figure 9.3 - Availability - METOP ATOVS : AMSU-A	18
3.2.12	Table 1 - Suspect ships and fixed marine platforms: Surface pressure - (hPa)	19
3.2.13	Table 2 - Suspect ships and fixed marine platforms: Wind speed (m/s)	21
3.2.14	Table 3 - Suspect ships and fixed marine platforms: Wind direction (DEGREES)	22
3.2.15	Table 4 - Suspect drifters: Surface pressure (HPA)	23
3.2.16	Table 5 - Suspect drifters: Wind speed (m/s)	24
3.2.17	Table 6 - Suspect drifters: Wind direction (degrees)	25
3.2.18	Table 7 - Suspect radiosondes: Geopotential height (metres)	26
3.2.19	Table 8 - Suspect radiosondes: Wind (m/s)	27
3.2.20	Table 9 - Suspect radiosondes: Wind direction (degrees)	28
3.2.21	Figure 10 - Suspect TEMP observations - geopotential : 00 UTC	29
3.2.22	Figure 11 - Suspect TEMP observations - geopotential : 12 UTC	30
3.2.23	Figure 12 - Suspect TEMP/PILOT observations - wind : 00 UTC	31
3.2.24	Figure 13 - Suspect TEMP/PILOT observations - wind : 12 UTC	32
3.2.25	Table 10 - Radiosonde monitoring statistics (SHIPs): Geopotential height (metres)	33
3.2.26	Table 11 - Radiosonde monitoring statistics (SHIPs): Wind (m/s)	34
3.2.27	Figure 14 - SATOB Winds: 700-1000hPa	35
3.2.28	Figure 15 - SATOB Winds: 150- 400hPa	36
3.2.29	Figure 16 - SATOB Winds: 700-1000hPa	37
3.2.30	Figure 17 - SATOB Winds: 150- 400hPa	38
3.2.31	Figure 18 - AIRCRAFT Winds: 150- 300hPa	39
3.2.32	Table 12 - Airep Monitoring Statistics For Airline Carriers (Global)	40
4	EUCOS Area Monitoring Statistics	46
4.1	Table 13 - Radiosonde Monitoring Statistics (EUCOS): 50 hPa Geopotential height (metres)	47
4.2	Table 14 - Radiosonde Monitoring Statistics (EUCOS):50 hPa Wind (m/s)	50
4.3	Table 15 - Radiosonde Monitoring Statistics (EUCOS): 100 hPa Geopotential height (metres)	53
4.4	Table 16 - Radiosonde Monitoring Statistics (EUCOS): 100 hPa Wind (m/s)	56
4.5	Table 17 - Radiosonde Monitoring Statistics (EUCOS): 500 hPa Geopotential height (metres)	59
4.6	Table 18 - Radiosonde Monitoring Statistics (EUCOS): 500 hPa Wind (m/s)	62
4.7	Table 19 - Radiosonde Monitoring Statistics (EUCOS): 850 hPa Geopotential height (metres)	65
4.8	Table 20 - Radiosonde Monitoring Statistics (EUCOS): 850 hPa Wind (m/s)	68
4.9	Table 21 - Drifter Monitoring Statistics (EUCOS): Surface pressure (hpa)	71
4.10	Table 22 - Drifter Monitoring Statistics (EUCOS): Wind speed (m/s)	81
4.11	Table 23 - Drifter Monitoring Statistics (EUCOS): Wind direction	84
4.12	Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations	87
4.13	Table 25 - List of BUFR Encoded Radiosonde Stations with no TAC Counterpart	88

5 Annex - Explanations of figures and tables	89
5.1 General	89
5.2 Data Availability	89
5.3 Data Quality	89

Summary of Revisions (in reverse order)

- Revision 28 (June 15) - Monitoring of SYNOP and SYNOP-SHIPs now includes BUFR encoded observations for those which were assimilated as well as for those without TAC counterpart.
- Revision 27 (Feb 15) - Selection criteria for SHIPs are modified as per SOT-7/Doc.9.1.1. Different criteria applied to Manual and Automatic SHIPs.
- Revision 26 (Dec 14) - Coverage chart for ATOVS AMSU-A for Noaa_16 removed
- Revision 25 (Mar 13) - Monitoring of Radiosondes and ASAPs now includes BUFR encoded observations for those which were assimilated as well as for those without TAC counterpart. Tables 24 and 25 are also added to show the identifiers of these BUFR observations separately.
- Revision 24 (Aug 06) - North Atlantic Monitoring statistics replaced by EUCOS Area Monitoring Statistics (tables 13 to 23). Airep tables removed from this section.
- Revision 23 (Dec 00) - Coverage charts for Noaa_14 MSU replaced by ATOVS AMSU-A for Noaa_16.
- Revision 22 (Aug 99) - Coverage charts for TOVS thickness 300-100 hPa replaced by (A)TOVS AMSU-A and MSU (Noaa_15 and Noaa_14).
- Revision 21 (May 99) - Monitoring statistics ceased for Noaa_11 as satellite is no more available.
- Revision 20 (Sep 98) - Changes to tables and annex to remove all mention about data usage. Two more levels (50 and 850 hPa) added to the COSNA statistics for Sondes.
- Revision 19 (Jul 98) - From June 29th, 1998 ECMWF model assimilates temperature data instead of geopotential from radiosondes. As a consequence the number of used geopotential data drops to zero in tables 7, 10, 13 and 15.
- Revision 18 (Apr 98) - Changes to tables and annex to introduce the usage of accepted numbers and observations instead of percentage of rejection.

1 Introduction

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

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

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

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

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

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

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

2 Data summary - History of events

2.1 Radiosondes

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

Ident	Time	Feb	Mar	Ident	Time	Feb	Mar
03743	(12)	21	3	04360	(00)	19	31
16716	(12)	25	7	40766	(12)	0	30
33008	(00)	22	6	42314	(00)	0	21
43014	(00)	23	4	43041	(00)	20	31
68592	(12)	12	0	61901	(12)	11	31
68816	(00)	20	1	64500	(00)	10	23
68816	(12)	23	0	64500	(12)	16	27
89009	(12)	27	6	67083	(00)	18	29
89022	(12)	12	0	67083	(12)	20	31
-	-	-	-	67774	(00)	13	27
-	-	-	-	70414	(12)	15	26
-	-	-	-	74006	(00)	6	20
-	-	-	-	74006	(12)	1	13
-	-	-	-	80001	(00)	8	31
-	-	-	-	80001	(12)	10	26
-	-	-	-	82099	(00)	19	31
-	-	-	-	82099	(12)	18	31
-	-	-	-	82107	(00)	8	25
-	-	-	-	82107	(12)	8	31
-	-	-	-	82532	(00)	5	31
-	-	-	-	82532	(12)	7	31
-	-	-	-	83362	(12)	8	25
-	-	-	-	83612	(00)	17	31
-	-	-	-	83612	(12)	18	31
-	-	-	-	83827	(00)	15	31
-	-	-	-	89664	(00)	2	29
-	-	-	-	91592	(00)	19	32
-	-	-	-	91592	(12)	18	31
-	-	-	-	94430	(00)	5	19
-	-	-	-	94711	(00)	3	16

2.2 Drifting Buoys

Surface pressure observations from **1805** drifting buoys were received during the month.

3 Global monitoring statistics

The following figures and tables provide information on both the availability and quality of various data types as received at ECMWF during the month. A brief description of each figure/table is given below. For a full explanation please refer to the Annex.

3.1 Data Availability

Figures 1-9 are global charts for each data type showing the average number of observations received in 24 hours in 5 degree boxes. The average daily number of observations (global) is also displayed with a breakdown, where appropriate, for each WMO region (figures 1, 3 and 4) and Ocean (figures 1-4).

Fig	Observation Type	Parameter	Level/Layer
1	SYNOP/SHIP	MSL Pressure	Surface
2	DRIFTER	MSL Pressure	Surface
3	TEMP	Geopotential	500 hPa
4	TEMP/PILOT	Wind	300 hPa
5	AIRCRAFT (AIREP/AMDAR etc.)	Wind	300-150 hPa
6	SATOB	Wind	400-150 hPa
7	SATOB	Wind	1000-700 hPa
9	TOVS (120 km) - NOAA14	Thickness	300-100 hPa

(Figure 1 includes data from fixed marine platforms e.g. moored buoys.)

3.2 Data Quality

Tables 1-8 contain lists of suspect stations in the format according to Recommendation 3 CBS-Ext(85).

Tab	Observation Type	Parameter	Level/Layer
1	SHIP	MSL Pressure	Surface
2	SHIP	Wind Speed	Surface
3	SHIP	Wind Direction	Surface
4	DRIFTER	MSL Pressure	Surface
5	DRIFTER	Wind Speed	Surface
6	DRIFTER	Wind Direction	Surface
7	TEMP	Geopotential	1000- 30 hPa
8	TEMP/PILOT	Wind	1000-100 hPa
9	TEMP/PILOT	Wind Direction	500-150 hPa

(SHIP tables include data from fixed marine platforms e.g. moored buoys.)

Figures 10-13 show the locations of suspect stations given in tables 7 and 8.

Fig	Observation Type	Parameter	Observation Time
10	TEMP	Geopotential	00 UTC
11	TEMP	Geopotential	12 UTC
12	TEMP/PILOT	Wind	00 UTC
13	TEMP/PILOT	Wind	12 UTC

Tables 10 and 11 provide quality statistics for all TEMPSHIPS and PILOTSHIPS received during the month.

Tab	Parameter	Observation Time
10	Geopotential	00 and 12 UTC
11	Wind	00 and 12 UTC

Figures 14-18 show global charts of SATOB and aircraft wind statistics in the form of wind vectors averaged over 5 degree boxes.

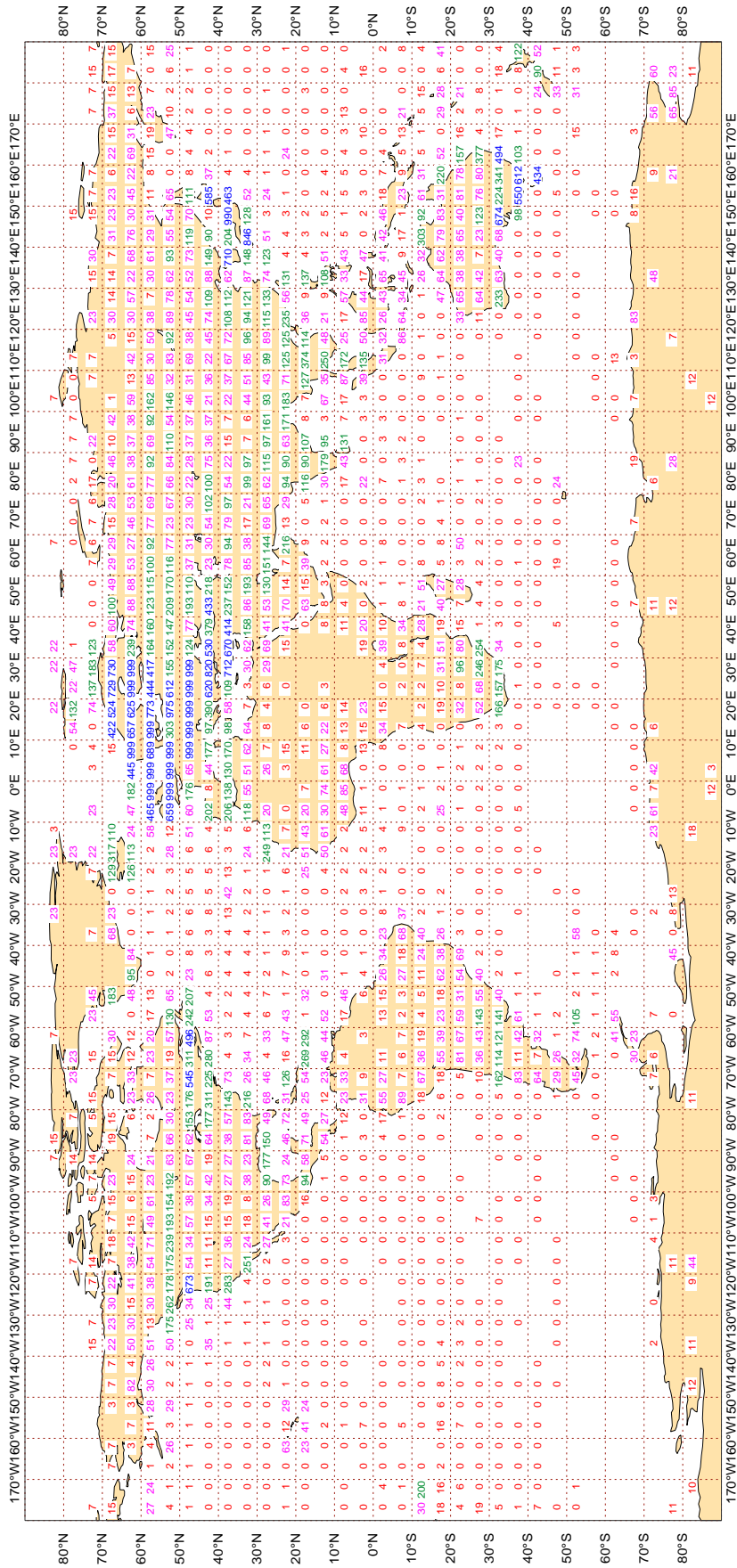
Fig	Parameter	Level/Layer
14	SATOB - Mean observed wind	1000-700 hPa
15	SATOB - Mean observed wind	400-150 hPa
16	SATOB - Mean observed minus first-guess wind	1000-700 hPa
17	SATOB - Mean observed minus first-guess wind	400-150 hPa
18	AIRCRAFT WIND - Mean observed minus first-guess	300-150 hPa

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

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

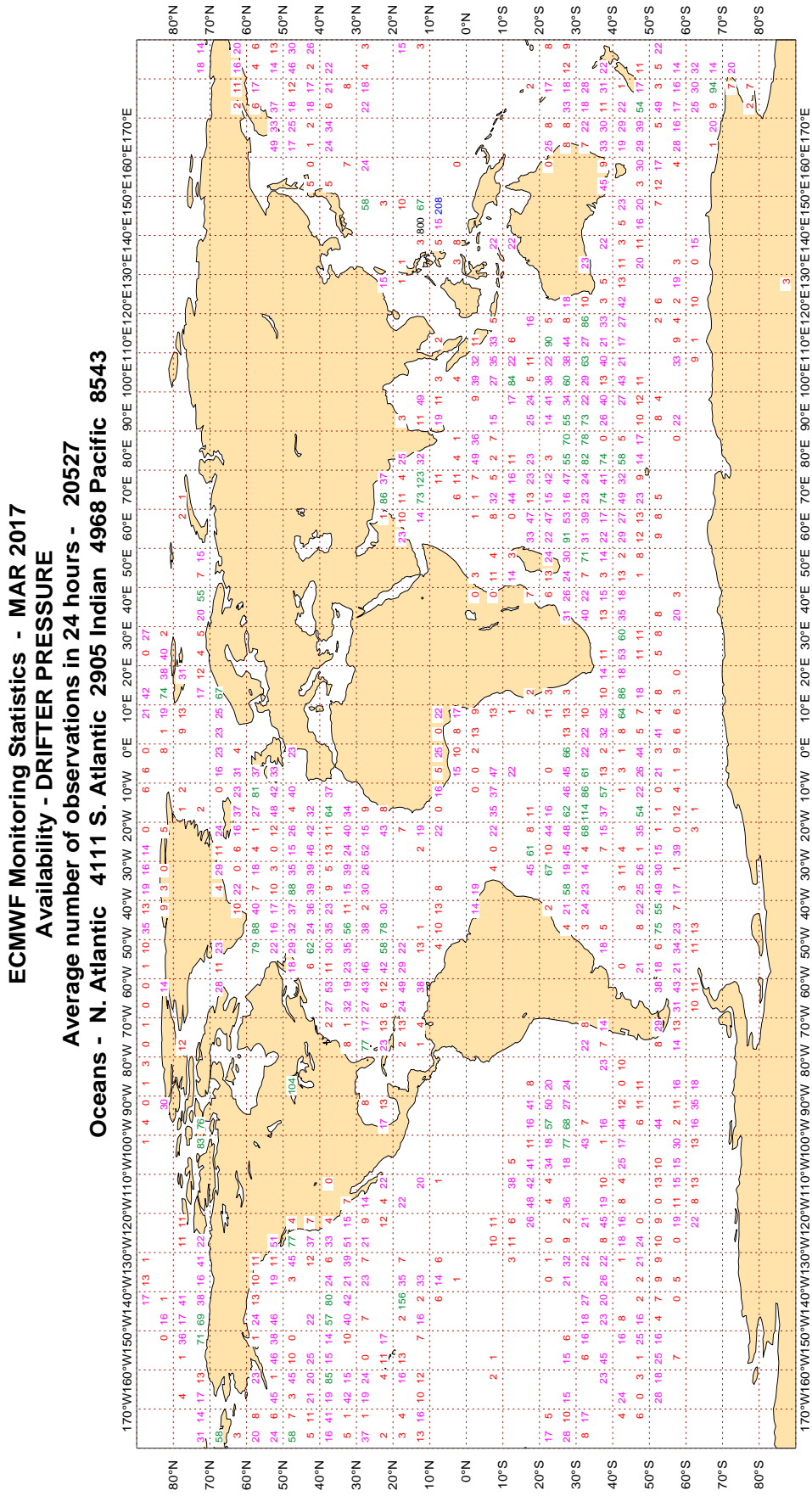
Figure 1

ECMWF Monitoring Statistics - MAR 2017
 Availability - SYNOP/SHIP (manual, auto) pressure
 Average number of observations in 24 hours - 96554
 LAND - WMO Region I: 4322 II:18586 III: 3052 IV: 7032
 Region V: 8749 VI:40804 Antarctic: 1159
 Oceans - N. Atlantic 7899 S. Atlantic 262 Indian 599 Pacific 4089



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2

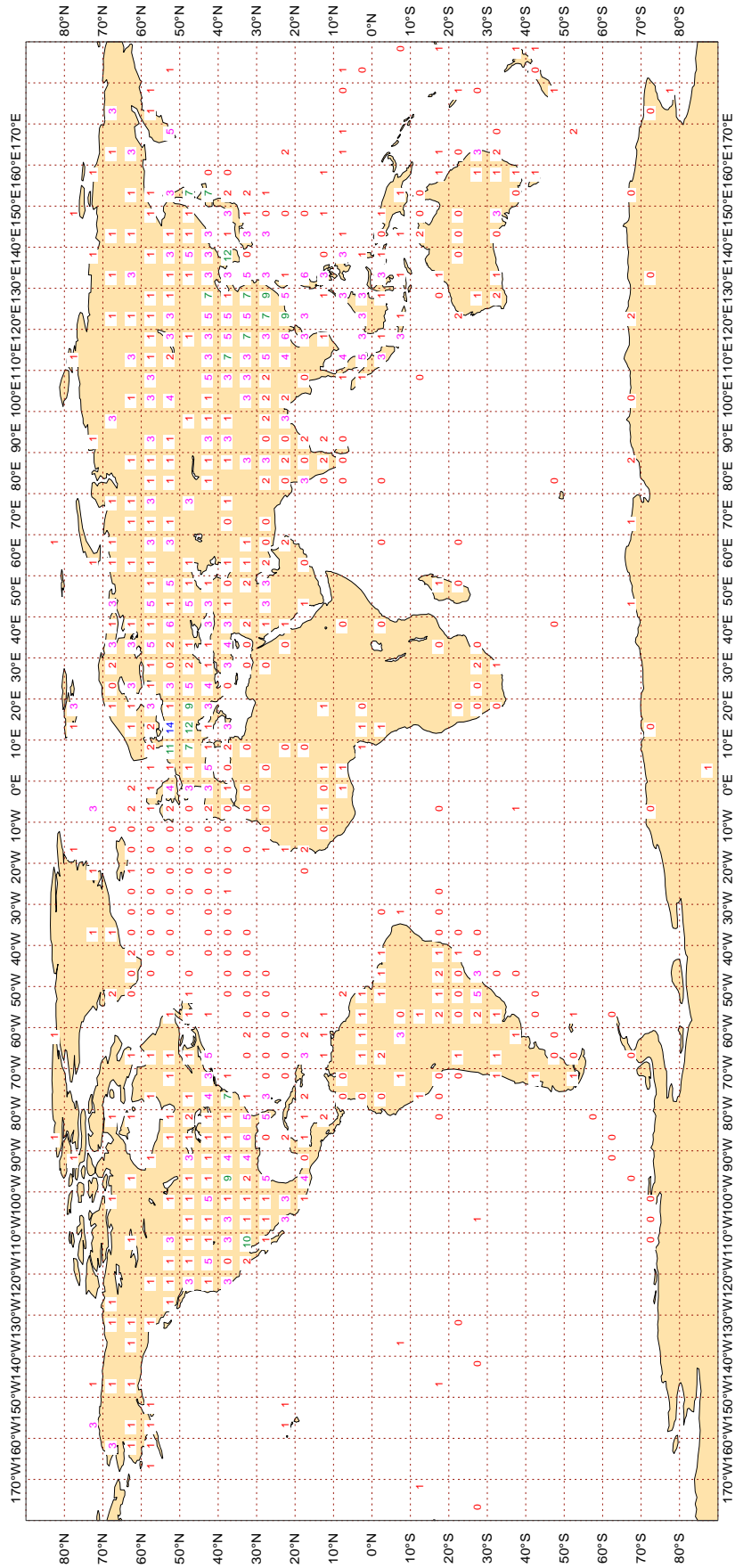


Magics 2.24.2 (64 bit)

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

Figure 3

ECMWF Monitoring Statistics - MAR 2017
 Availability - TEMP 500 hPa Geopotential
 Average number of observations in 24 hours - 1328
 LAND - WMO Region I: 47 II: 492 III: 76 IV: 282
 Region V: 142 VI: 259 Antarctic: 17
 Oceans - N. Atlantic 10 S. Atlantic 1 Indian 0 Pacific 3



Magics 2.24.2 (64 bit)



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

Figure 4

ECMWF Monitoring Statistics - MAR 2017

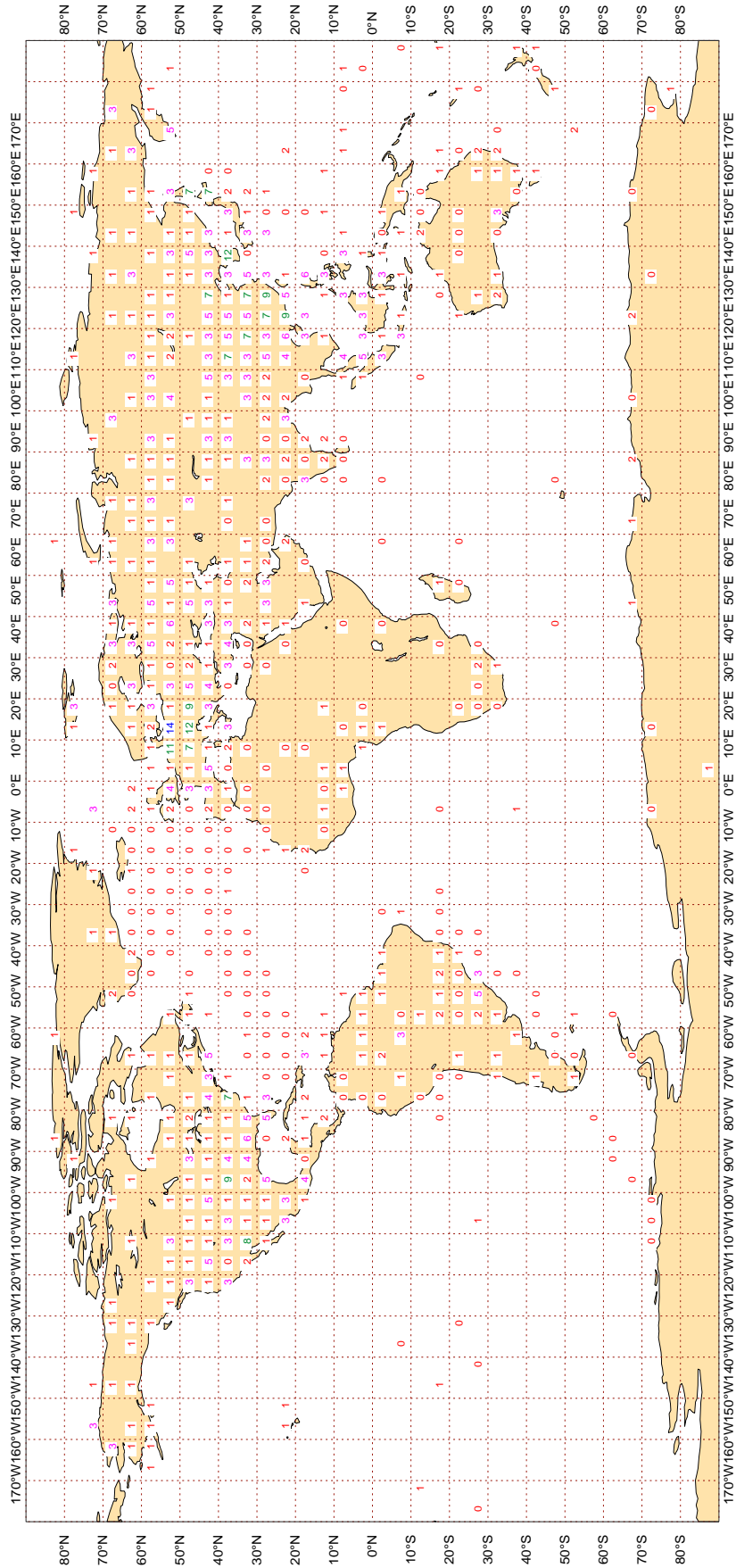
Availability - TEMP/PILOT 300 hPa wind

Average number of observations in 24 hours - 1311

LAND - WMO Region I: 46 II: 487 III: 75 IV: 276

Region V: 141 VI: 256 Antarctic: 17

Oceans - N. Atlantic 10 S. Atlantic 1 Indian 0 Pacific 3



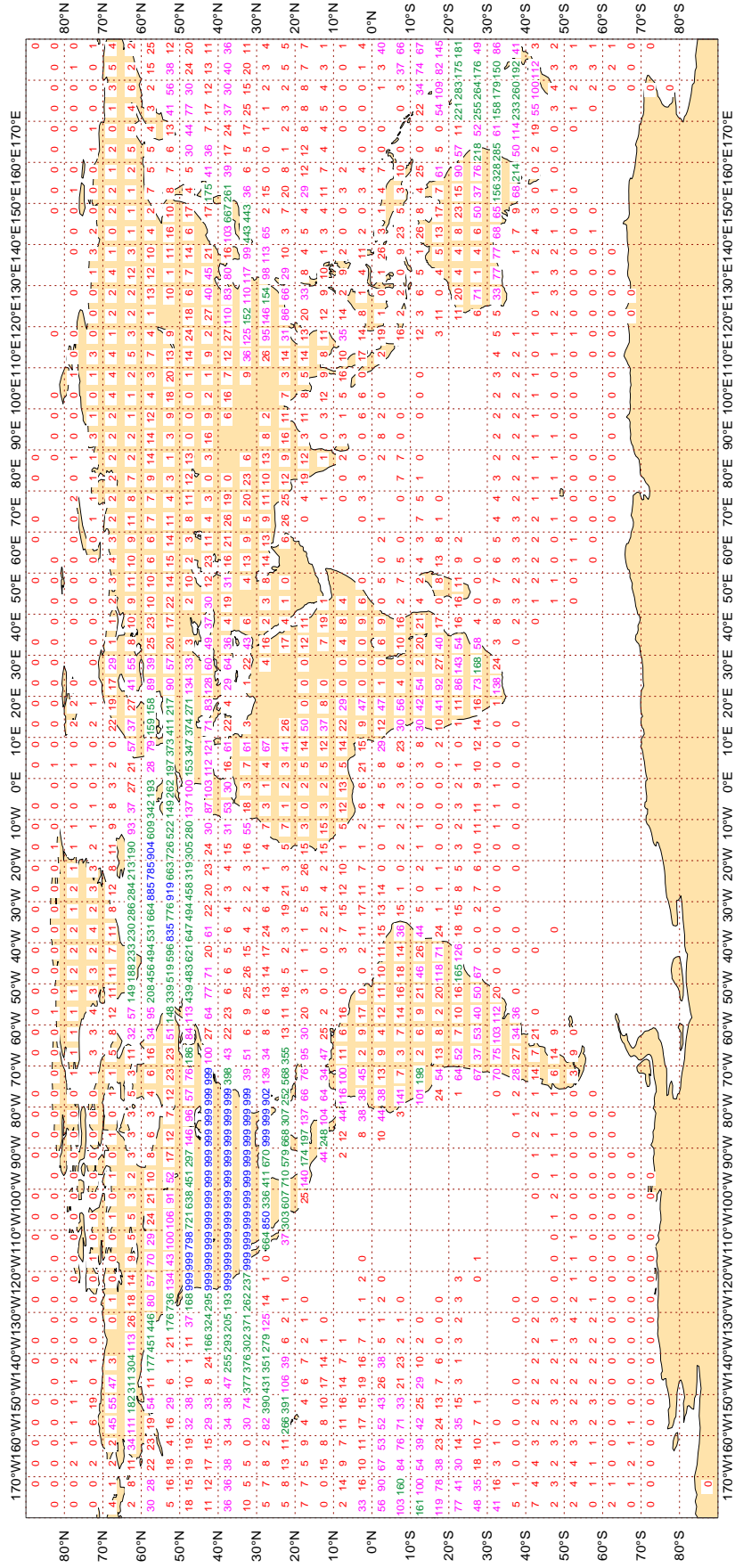
Magics 2.24.2 (64 bit)



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

Figure 5

ECMWF Monitoring Statistics - MAR 2017
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 178624



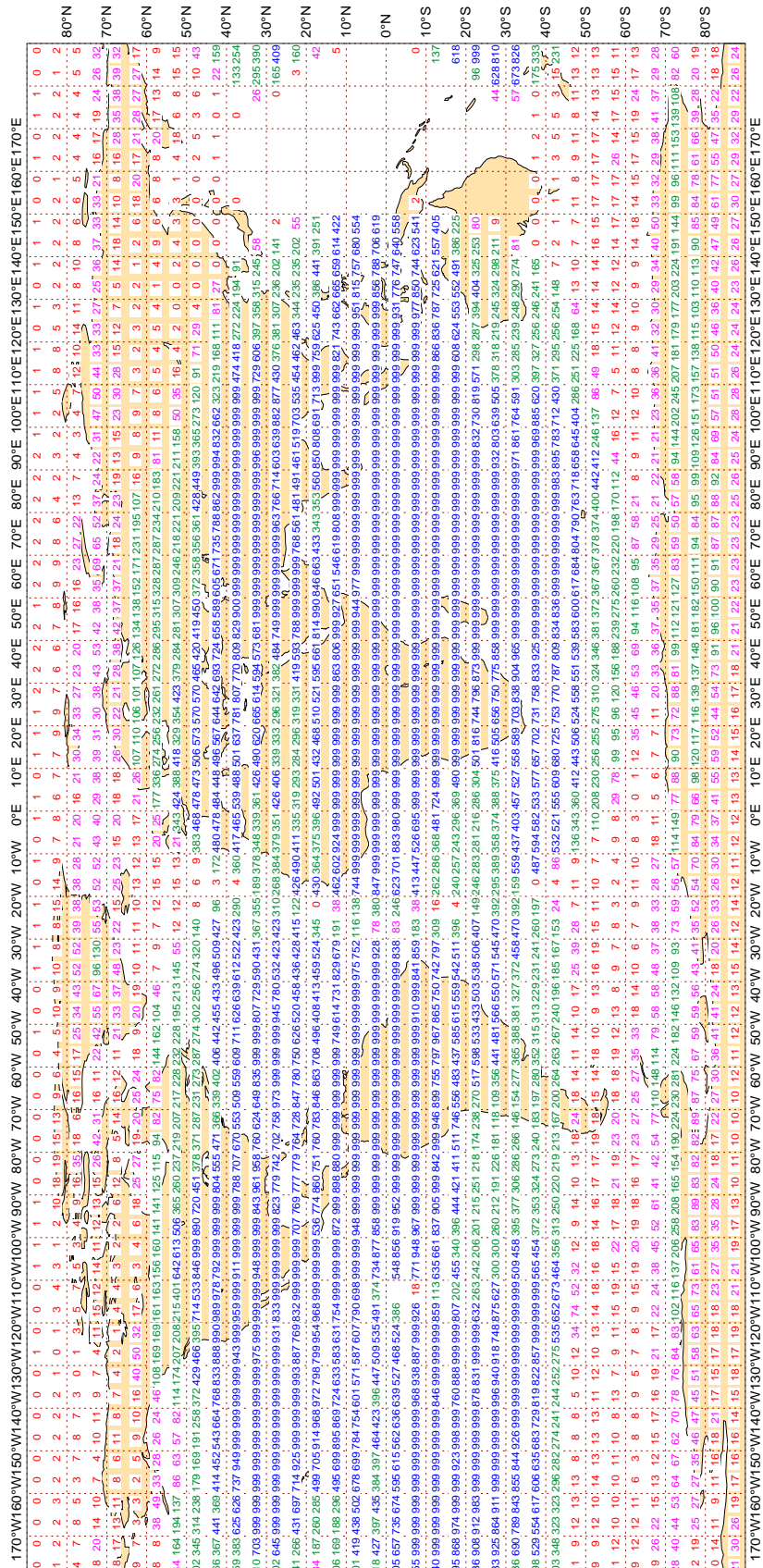
Magics 2.24.2 (64 bit)



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

Figure 6

ECMWF Monitoring Statistics - MAR 2017
Availability - AMV winds 400-150 hPa
Average number of observations in 24 hours - 1102608

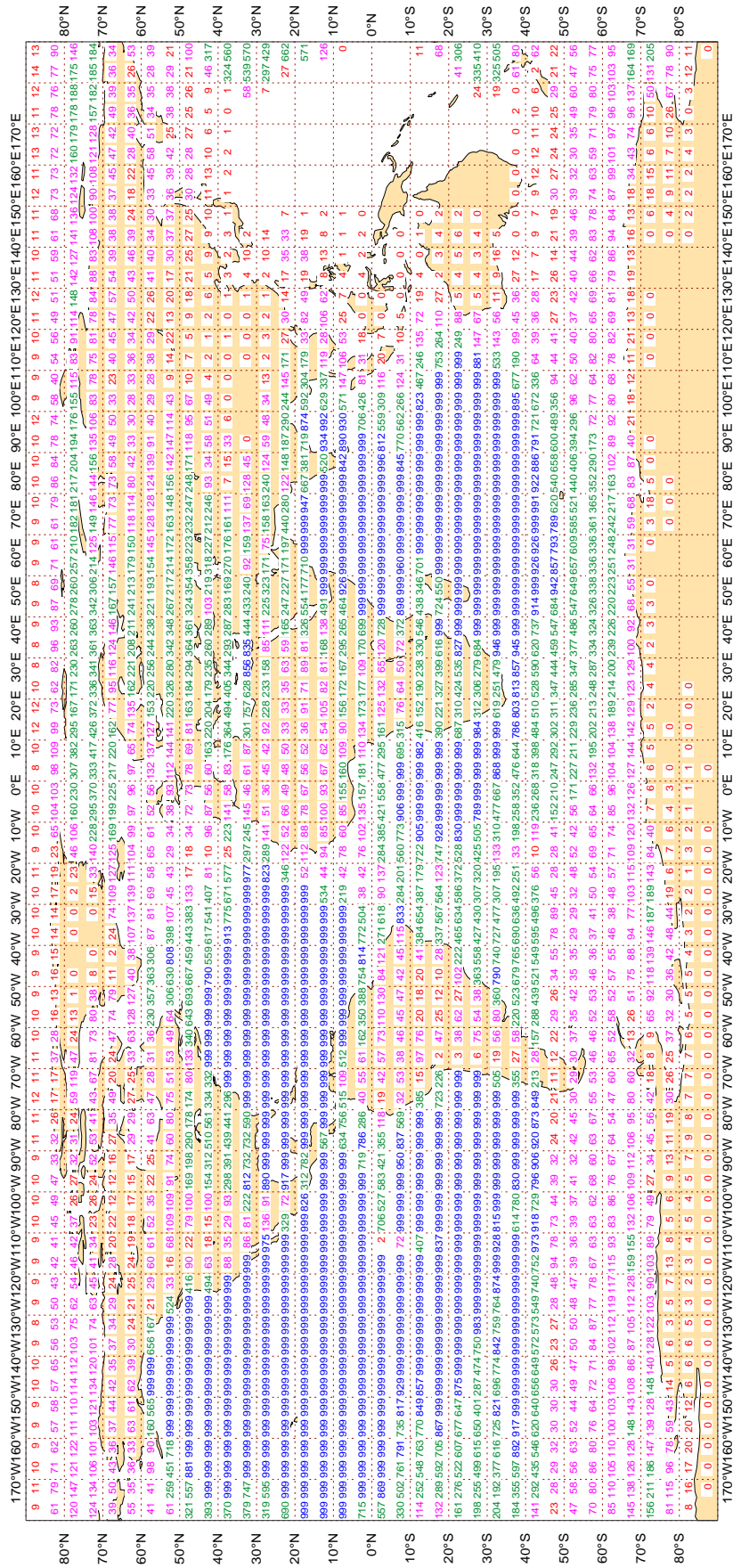


Magics 2.24.2 (64 bit)

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

Figure 7

ECMWF Monitoring Statistics - MAR 2017
Availability - AMV winds 1000-700 hPa
Average number of observations in 24 hours - 1407060



Magics 2.24.2 (64 bit)



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

Figure 8

ECMWF Monitoring Statistics - MAR 2017
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 323171

Table with 17 columns representing longitude (170°W to 170°E) and 17 rows representing latitude (80°N to 80°S). The table contains numerical data representing the average number of observations in 24 hours for NOAA15 ATOVS AMSU-A in March 2017.



Majics 2.24.2 (64 bit)

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

Figure 9.1

ECMWF Monitoring Statistics - MAR 2017
Availability - NOAA18 ATOVS : AMSU-A
Average number of observations in 24 hours - 568498

Table with 180 columns (representing 2-hour intervals from 170°W to 170°E) and 18 rows (representing latitudes from 80°N to 80°S). The table contains numerical data representing the average number of observations per 2-hour interval for each latitude.

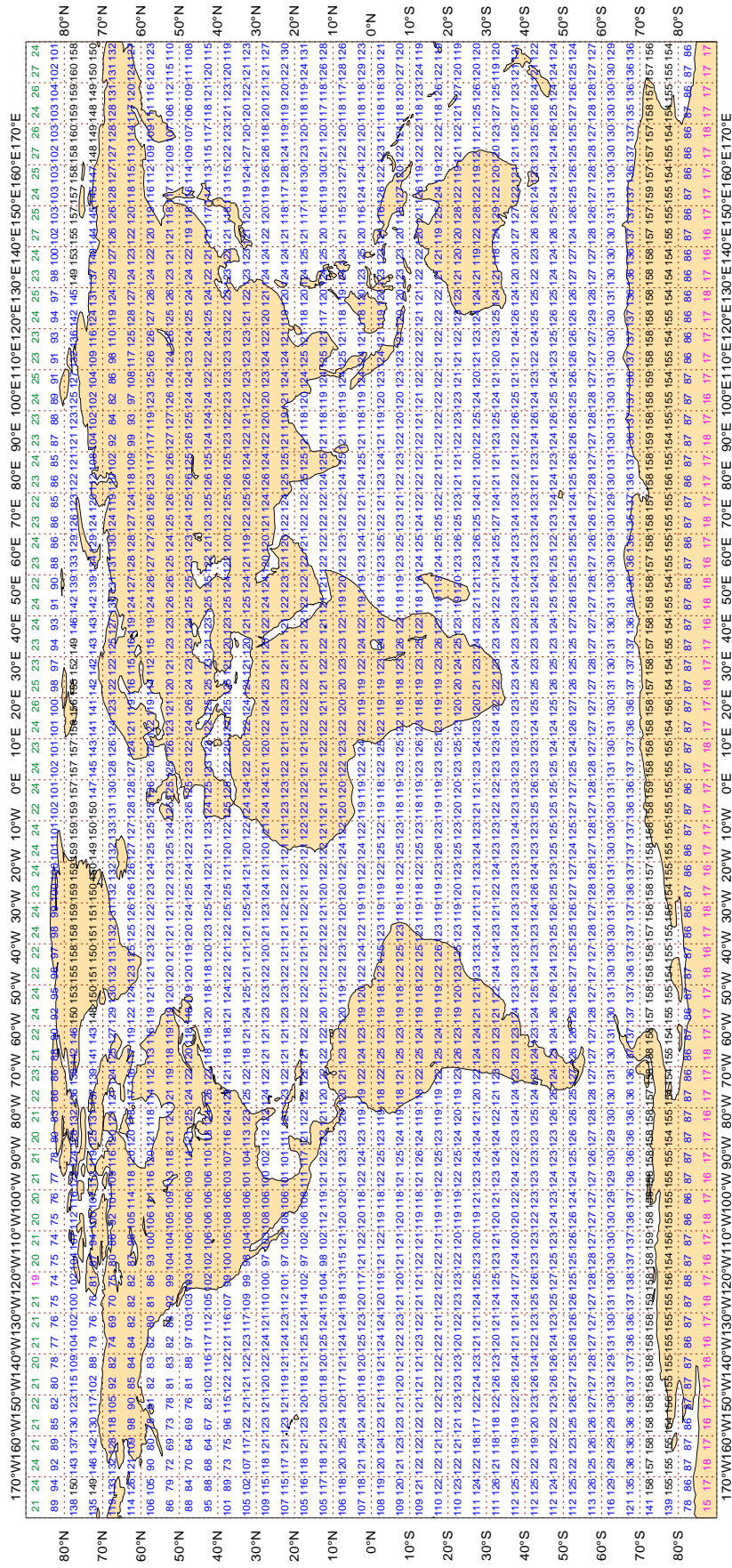
Magics 2.24.2 (64 bit)



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

Figure 9.2

ECMWF Monitoring Statistics - MAR 2017
 Availability - AQUA ATOVS : AMSU-A
 Average number of observations in 24 hours - 303071



Magics 2.24.2 (64 bit)

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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : GLOBAL
 PERIOD : MAR 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
2GNG3	99	P	SUR	36	0	0.9	7.9	8.0
2HDG2	99	P	SUR	33	0	1.1	3.4	3.5
3ENG6	99	P	SUR	15	0	0.6	-4.3	4.3
3ESY5	99	P	SUR	40	1	0.8	3.0	3.1
44066	99	P	SUR	198	13	5.9	0.3	5.9
4XIS	99	P	SUR	16	0	0.8	4.0	4.1
9V2729	99	P	SUR	15	0	1.5	6.0	6.1
9V2734	99	P	SUR	15	0	1.4	3.8	4.0
9V9131	99	P	SUR	74	0	1.6	4.3	4.6
C6AX3	99	P	SUR	64	0	2.6	-4.2	4.9
C6BQ4	99	P	SUR	38	0	0.9	-4.0	4.1
C6BR3	99	P	SUR	25	0	3.2	9.2	9.7
C6FN2	99	P	SUR	15	0	0.5	3.8	3.9
C6FN4	99	P	SUR	25	0	2.4	-3.6	4.3
C6FV4	99	P	SUR	17	0	1.0	9.2	9.2
C6LG5	99	P	SUR	21	0	0.7	4.3	4.3
C6VG8	99	P	SUR	46	0	3.0	-3.0	4.3
C6WW4	99	P	SUR	43	0	0.8	5.0	5.1
C6YM5	99	P	SUR	47	0	1.2	3.3	3.5
C6YM6	99	P	SUR	20	0	1.5	4.5	4.8
DGDD	99	P	SUR	19	0	0.3	-3.9	3.9
H3VR	99	P	SUR	16	0	1.2	-3.8	4.0
J8QB8	99	P	SUR	26	0	1.3	3.1	3.4
KRAU	99	P	SUR	47	0	0.7	5.3	5.3
OZ2049	99	P	SUR	28	0	1.9	-4.9	5.2
UAEV	99	P	SUR	33	0	1.0	3.3	3.5
UBM9	99	P	SUR	16	0	1.7	4.2	4.5
UBMI9	99	P	SUR	29	0	1.5	4.3	4.5
UBMO9	99	P	SUR	30	0	1.5	4.3	4.5
UBRI5	99	P	SUR	27	1	5.0	-4.6	6.8
UBRW	99	P	SUR	24	12	5.7	4.6	7.3
UBXS	99	P	SUR	20	5	1.8	-11.2	11.3

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
UCSJ	99	P	SUR	52	0	0.8	4.0	4.1
V7QJ5	99	P	SUR	19	0	1.4	4.4	4.6
VRB12	99	P	SUR	18	0	2.5	4.2	4.8
VREZ3	99	P	SUR	35	0	2.3	3.1	3.8
VRFI7	99	P	SUR	40	0	1.2	4.3	4.5
VRFJ6	99	P	SUR	16	0	1.6	5.0	5.3
VRFU8	99	P	SUR	36	1	1.7	-7.8	8.0
VRFX8	99	P	SUR	17	0	3.5	-8.4	9.1
VRLQ4	99	P	SUR	21	0	1.5	4.2	4.5
VRLZ3	99	P	SUR	15	0	3.4	-6.0	6.8
VRLZ4	99	P	SUR	16	0	1.7	6.6	6.8
VRMR6	99	P	SUR	27	0	1.8	-4.3	4.7
VRNR5	99	P	SUR	27	0	4.6	6.4	7.9
VRVP2	99	P	SUR	33	0	1.5	-7.2	7.3
VRWN4	99	P	SUR	21	0	1.0	3.8	3.9
VTFG	99	P	SUR	59	0	1.7	5.6	5.8
VWTI	99	P	SUR	133	3	2.0	4.3	4.8
WAIU	99	P	SUR	29	0	1.2	-5.3	5.4
WAZV	99	P	SUR	37	0	1.1	3.0	3.2
WCZ5535	99	P	SUR	18	0	1.0	-4.7	4.8
WDE9586	99	P	SUR	84	0	2.3	-4.0	4.7
WRJP	99	P	SUR	49	0	1.0	-4.0	4.1
WTDH	99	P	SUR	75	0	1.2	-4.6	4.8
WYL4978	99	P	SUR	18	0	0.7	-3.2	3.2

3.2.13 Table 2 - Suspect ships and fixed marine platforms: Wind speed (m/s)

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : GLOBAL
 PERIOD : MAR 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
46132	99	SPEED	SUR	123	0	0	2.3	-4.6	5.2

3.2.14 Table 3 - Suspect ships and fixed marine platforms: Wind direction (DEGREES)

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : MAR 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
42090	99	DIRN	SUR	211	0	0	29.1	-30.4	42.1
44066	99	DIRN	SUR	168	0	0	84.8	0.3	84.8
45169	99	DIRN	SUR	20	0	0	38.1	-39.4	54.8
46092	99	DIRN	SUR	91	0	0	20.3	33.8	39.4
46132	99	DIRN	SUR	45	0	0	11.1	54.7	55.8
46207	99	DIRN	SUR	114	0	0	15.2	54.5	56.6

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : GLOBAL
 PERIOD : MAR 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
1701520	99	P	SUR	-37	-12	497	0	0.7	-5.5	5.6
2300592	99	P	SUR	11	88	1583	1063	1.9	0.9	2.1
2300670	99	P	SUR	17	82	108	108	0.0	0.0	0.0
23592	99	P	SUR	11	88	1561	1049	1.9	0.9	2.1
23670	99	P	SUR	17	82	108	108	0.0	0.0	0.0
2500575	99	P	SUR	61	-24	743	462	0.7	-0.5	0.9
25575	99	P	SUR	61	-24	743	462	0.7	-0.5	0.9
2600568	99	P	SUR	85	26	541	541	0.0	0.0	0.0
26568	99	P	SUR	85	26	693	692	0.0	-15.0	15.0
4401608	99	P	SUR	50	-49	126	0	1.1	6.4	6.5
4500508	99	P	SUR	45	-88	534	534	0.0	0.0	0.0
45508	99	P	SUR	45	-88	1395	1395	0.0	0.0	0.0
45509	99	P	SUR	45	-88	1432	1432	0.0	0.0	0.0
4700539	99	P	SUR	41	-19	267	23	6.4	-1.2	6.5
4700551	99	P	SUR	47	-38	374	109	6.7	-1.4	6.8
47551	99	P	SUR	47	-38	542	222	7.2	-0.2	7.2
4800513	99	P	SUR	71	172	727	725	0.8	-14.2	14.2
4800731	99	P	SUR	70	-98	2448	1397	7.4	-2.7	7.9
4800790	99	P	SUR	73	175	47	47	0.0	0.0	0.0
4800793	99	P	SUR	73	-179	330	102	6.2	-1.8	6.4
4801615	99	P	SUR	71	-130	713	638	6.2	-6.2	8.8
4801617	99	P	SUR	76	-156	714	584	8.0	-5.5	9.7
4801621	99	P	SUR	74	-135	624	181	7.8	-2.6	8.2
48513	99	P	SUR	71	172	723	721	0.8	-14.2	14.2
48731	99	P	SUR	70	-98	2448	1397	7.4	-2.7	7.9
48793	99	P	SUR	73	-179	509	165	6.6	-2.5	7.0
5201519	99	P	SUR	8	138	668	0	4.7	4.6	6.6
5501502	99	P	SUR	-87	116	115	12	3.5	-7.4	8.2
6200092	99	P	SUR	30	-15	369	219	0.5	-0.4	0.6
6400757	99	P	SUR	0	0	242	242	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 : MAR 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
5100016	99	SPEED	SUR	2	-125	39	0	0	0.8	-5.6	5.7
51016	99	SPEED	SUR	2	-125	39	0	0	0.8	-5.7	5.7

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : MAR 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
23093	99	DIRN	SUR	16	88	78	0	0	15.2	22.2	26.9
23451	99	DIRN	SUR	15	69	107	0	0	14.2	43.1	45.3
23454	99	DIRN	SUR	10	73	39	0	0	97.5	0.5	97.5
23492	99	DIRN	SUR	11	72	36	0	0	77.5	-13.9	78.7
23497	99	DIRN	SUR	11	72	23	0	0	25.4	-104.4	107.4
3100051	99	DIRN	SUR	-23	-43	57	0	0	39.5	-21.8	45.1
3100231	99	DIRN	SUR	-27	-47	222	0	0	63.3	47.3	79.0
3100374	99	DIRN	SUR	-25	-45	601	1	0	24.7	-21.5	32.7
3100380	99	DIRN	SUR	-20	-40	545	0	0	28.0	-31.9	42.4
3101000	99	DIRN	SUR	-24	-42	495	0	0	17.6	-34.0	38.3
31051	99	DIRN	SUR	-23	-43	52	0	0	34.3	-24.4	42.1
31231	99	DIRN	SUR	-27	-47	223	0	0	64.8	45.1	78.9
31374	99	DIRN	SUR	-25	-45	591	1	0	25.4	-22.0	33.6
31380	99	DIRN	SUR	-20	-40	527	0	0	28.1	-32.4	42.9
41057	99	DIRN	SUR	20	-71	60	0	0	14.1	71.7	73.1
42090	99	DIRN	SUR	18	-70	1133	0	0	27.9	-28.2	39.7
44066	99	DIRN	SUR	24	-71	865	0	0	81.1	-3.6	81.2
45169	99	DIRN	SUR	42	-82	134	0	0	35.8	-39.8	53.5
46070	99	DIRN	SUR	55	175	473	0	0	32.9	24.5	41.1
46076	99	DIRN	SUR	60	-148	538	0	0	35.2	23.7	42.4
46092	99	DIRN	SUR	37	-122	692	0	0	22.0	33.7	40.3
46118	99	DIRN	SUR	49	-123	446	0	0	60.4	21.7	64.1
46132	99	DIRN	SUR	50	-128	255	0	0	14.1	56.2	57.9
46207	99	DIRN	SUR	51	-130	669	0	0	14.8	54.4	56.4
6101003	99	DIRN	SUR	40	25	49	0	0	70.6	26.6	75.5
62029	99	DIRN	SUR	49	-12	122	0	0	45.1	-20.6	49.6

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

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 AREA : GLOBAL
 PERIOD : MAR 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	00	Z	1000	66	-38	16	0	10.8	38.2	39.7
04360	12	Z	1000	66	-38	16	0	4.1	42.1	42.3
24726	00	Z	50	63	114	18	0	68.0	140.3	155.9
29698	00	Z	50	55	99	29	0	99.7	129.2	163.2
30230	12	Z	50	58	108	14	0	93.8	131.0	161.1
30715	12	Z	50	52	104	28	0	120.9	71.9	140.7
30715	00	Z	50	52	104	28	0	108.5	80.7	135.2
33393	00	Z	200	50	24	25	0	58.5	61.1	84.6
34300	00	Z	50	50	36	19	0	55.4	-166.3	175.3
38064	12	Z	50	45	66	28	3	71.0	125.3	144.0
40437	12	Z	925	25	47	27	0	11.6	32.5	34.5
42299	00	Z	925	27	89	31	0	6.1	-46.8	47.2
43041	00	Z	30	19	82	26	0	11.6	167.3	167.7
43311	00	Z	30	11	73	27	0	22.1	186.6	187.9
47155	12	Z	1000	35	129	27	9	26.1	-64.3	69.4
65202	12	Z	1000	7	3	11	0	3.8	71.1	71.2
89592	00	Z	50	-67	93	29	0	39.3	-151.8	156.8
91680	12	Z	925	-18	177	28	0	2.4	29.8	29.9
96147	12	Z	925	4	108	23	0	8.5	44.9	45.7
96147	00	Z	925	4	108	31	3	10.1	50.7	51.7
98233	00	Z	1000	18	122	25	1	29.7	36.8	47.3
98618	00	Z	300	10	119	18	0	53.7	49.4	73.0

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 : MAR 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
42423	00	V	150	26	90	11	0	-13.2	3.2	16.4
56964	12	V	150	23	101	26	0	-8.4	-2.2	17.3

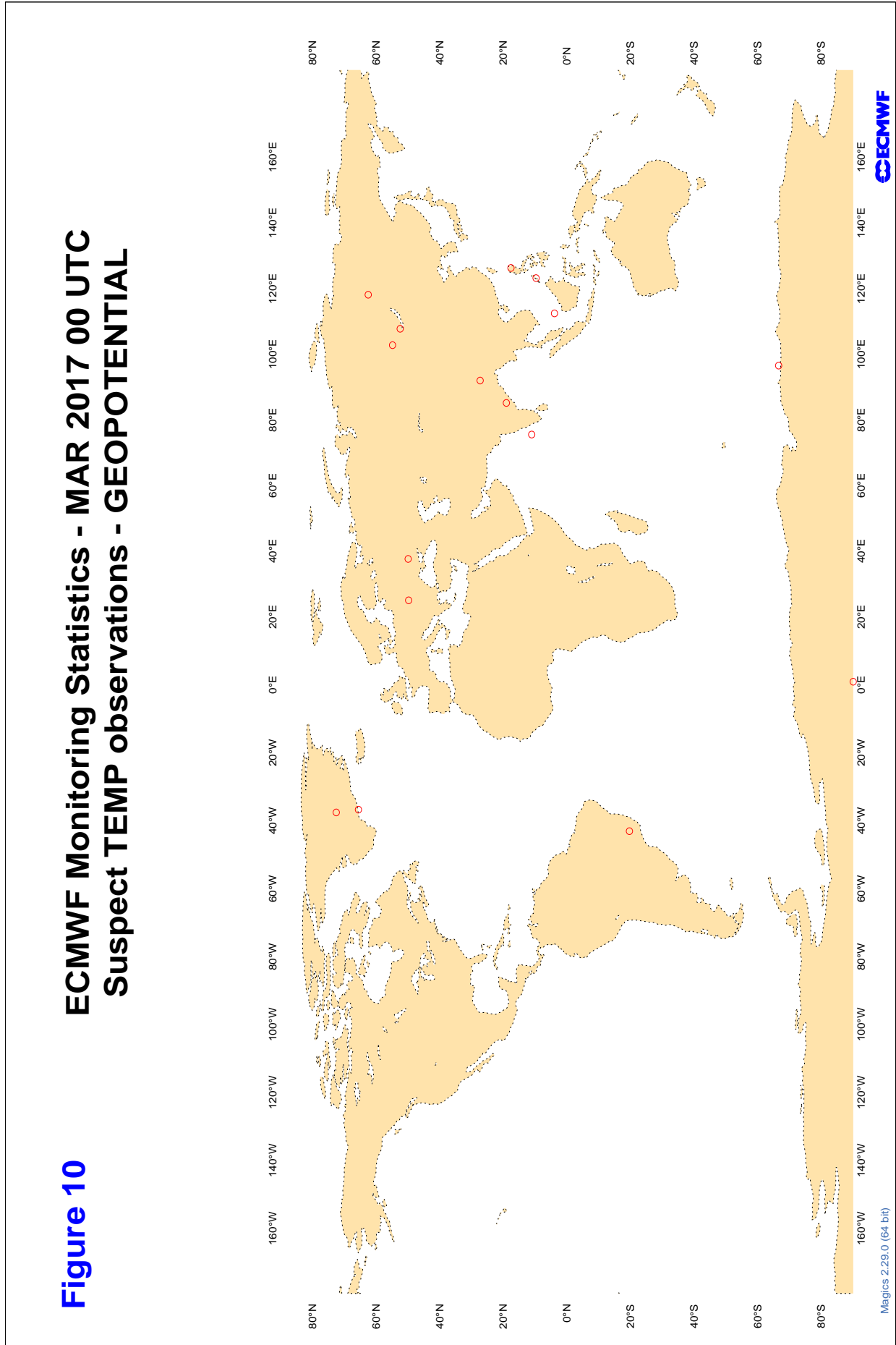
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

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

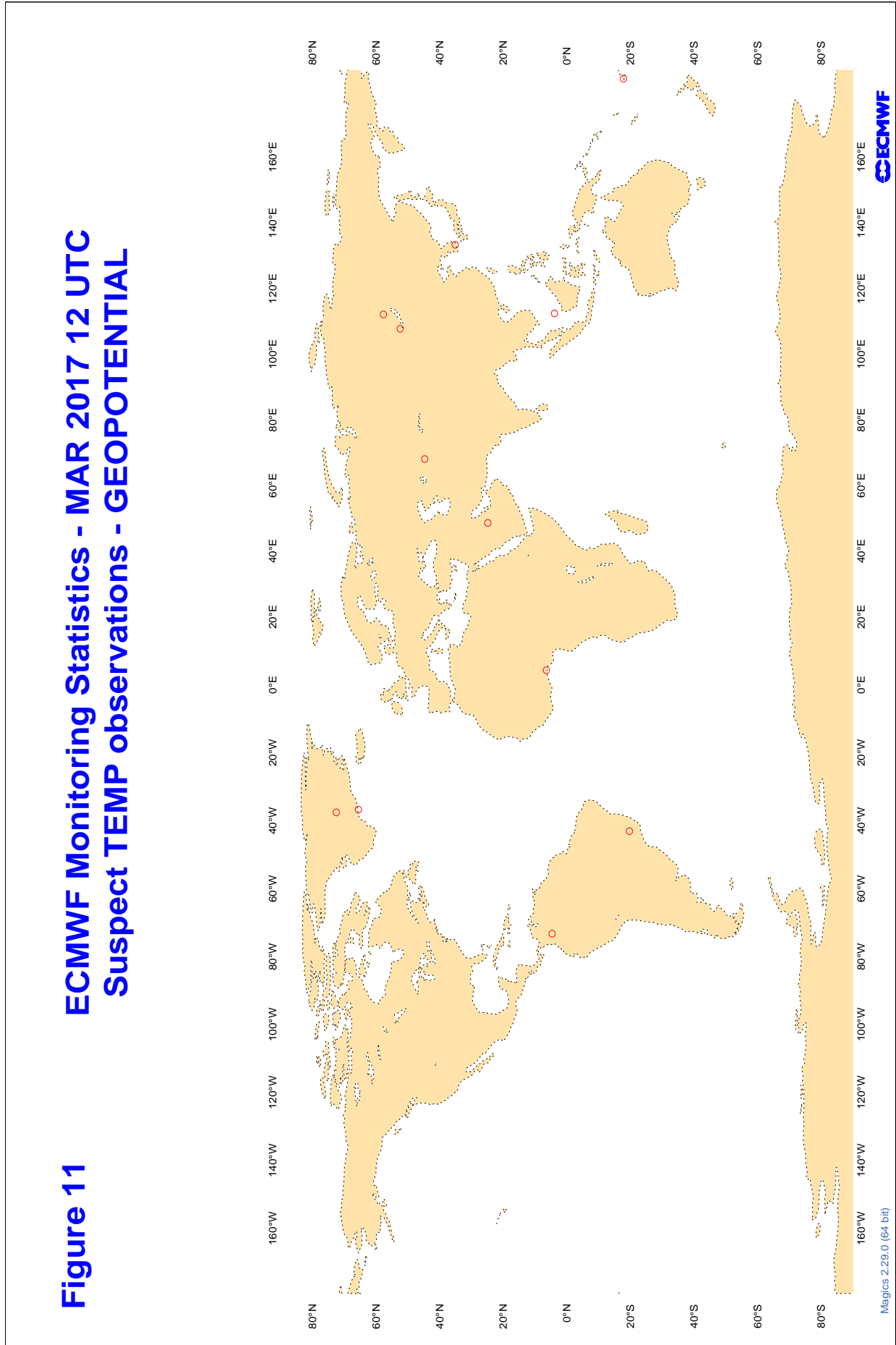
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS \geq 5 M/S
 NO. OF OBSERVATIONS \geq 5, AND,
 ABSOLUTE BIAS \geq 10 DEGREES, WITH
 STANDARD DEVIATION $<$ 30 DEGREES, AND,
 VERTICAL SPREAD $<$ 10 DEGREES
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
57972	12	DD	26	113	31	10.4	1.2	4.7

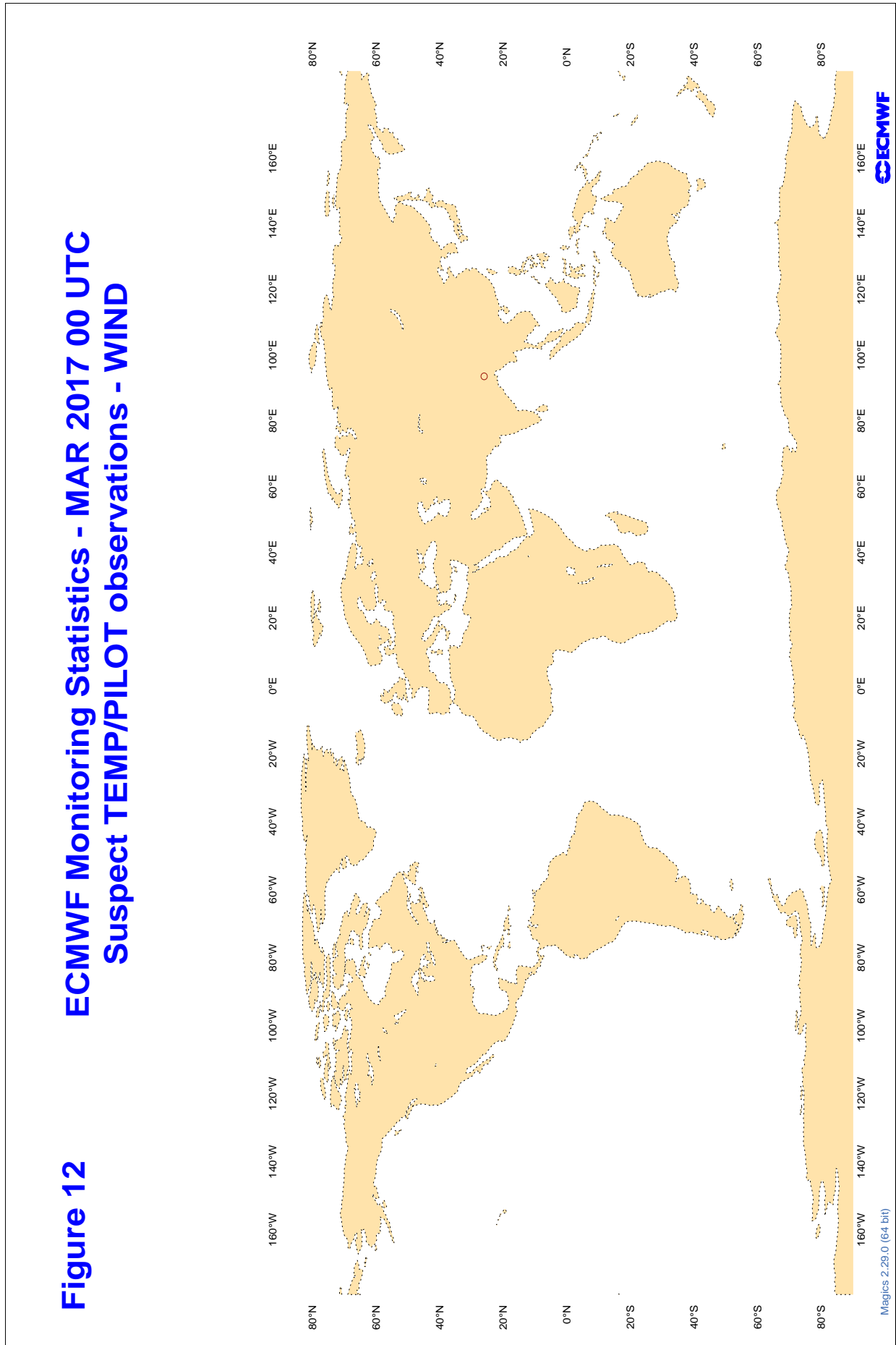
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



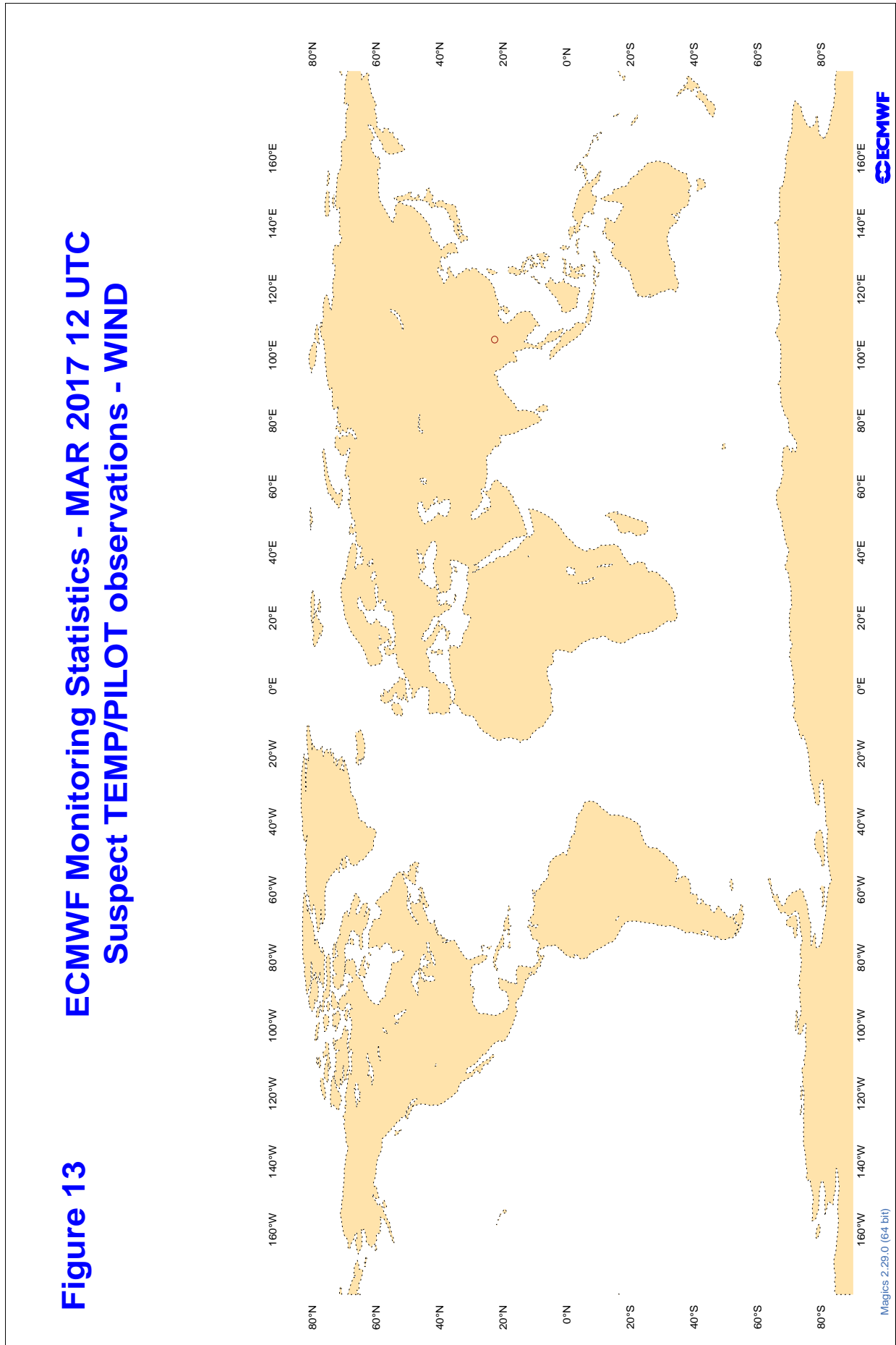
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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



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



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

RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 100 HPA
 AREA : GLOBAL
 PERIOD : MAR 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASDE02	00	Z	100	15	14.7	14.2
ASDE02	12	Z	100	14	11.3	10.0
ASDE03	00	Z	100	3	30.2	26.6
ASDE03	12	Z	100	7	79.2	75.7
ASDK01	00	Z	100	17	8.3	5.5
ASDK01	12	Z	100	19	10.4	3.1
ASDK03	12	Z	100	8	24.1	22.8
ASDK03	00	Z	100	10	22.5	20.9
ASDK1	12	Z	100	15	13.6	-5.9
ASDK1	00	Z	100	16	8.2	-0.5
ASDK3	12	Z	100	7	19.1	15.1
ASDK3	00	Z	100	8	16.0	11.1
ASES01	12	Z	100	27	30.1	29.2
ASEU01	12	Z	100	3	30.6	29.3
ASEU02	00	Z	100	8	34.7	33.9
ASEU02	12	Z	100	9	43.4	41.8
ASEU03	12	Z	100	10	27.7	21.8
ASEU03	00	Z	100	10	81.9	20.9
ASEU04	00	Z	100	10	4.7	2.2
ASEU04	12	Z	100	9	9.5	3.4
ASEU05	00	Z	100	6	34.4	9.3
ASEU05	12	Z	100	10	33.8	23.3
ASEU06	12	Z	100	7	29.4	14.5
ASEU06	00	Z	100	7	42.0	-25.8
ASFR1	00	Z	100	7	14.2	13.5
ASFR1	12	Z	100	10	30.9	24.0
ASFR3	00	Z	100	10	13.4	10.5
ASFR3	12	Z	100	12	18.5	10.7
ASFR4	00	Z	100	22	29.6	26.7
ASFR4	12	Z	100	25	46.6	40.1
DBLK	12	Z	100	33	14.2	11.7
DBLK	00	Z	100	27	8.2	7.2
JGQH	12	Z	100	9	14.6	4.7
JGQH	00	Z	100	8	7.7	3.9

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

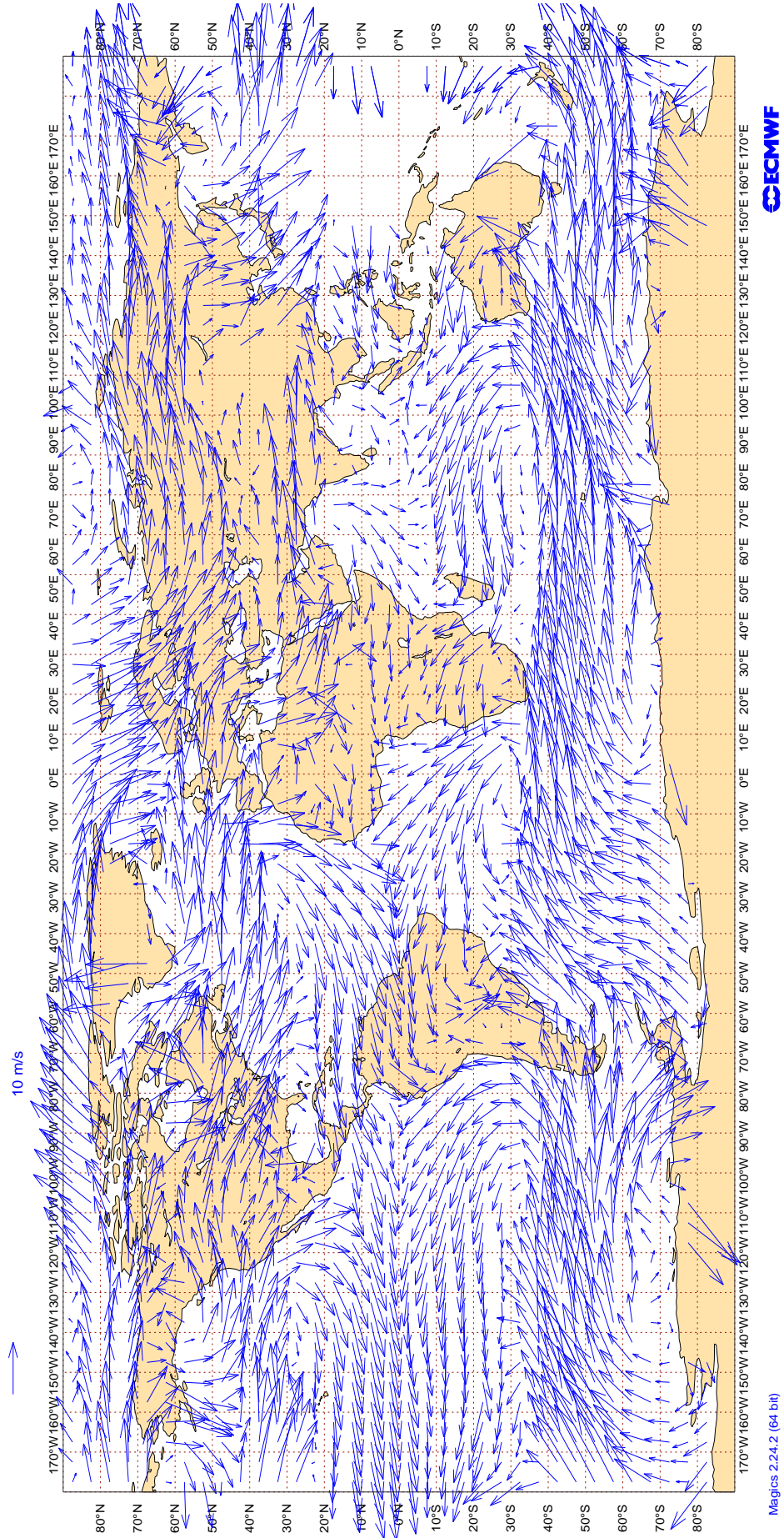
RADIOSONDE MONITORING STATISTICS (SHIPS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASDE02	00	V	100	11	3.3	0.8	0.0
ASDE02	12	V	100	12	3.9	-0.4	-1.2
ASDE03	00	V	100	2	4.1	1.1	0.8
ASDE03	12	V	100	3	7.5	-5.5	2.5
ASDK01	00	V	100	16	3.5	-0.2	0.3
ASDK01	12	V	100	17	4.2	0.4	1.7
ASDK03	12	V	100	7	4.2	0.6	0.3
ASDK03	00	V	100	9	4.5	-0.9	1.6
ASDK1	12	V	100	15	3.5	1.0	0.8
ASDK1	00	V	100	16	2.8	-0.2	0.6
ASDK3	12	V	100	7	3.9	0.3	0.0
ASDK3	00	V	100	8	4.5	-1.2	1.3
ASEU01	12	V	100	22	4.6	1.4	0.3
ASEU01	12	V	100	3	3.3	-0.4	0.9
ASEU02	00	V	100	6	3.7	-1.1	1.2
ASEU02	12	V	100	7	4.0	0.4	-1.5
ASEU03	12	V	100	8	5.0	-0.9	0.1
ASEU03	00	V	100	6	3.0	0.8	-0.4
ASEU04	00	V	100	9	2.8	0.4	-0.4
ASEU04	12	V	100	9	3.3	-0.8	0.3
ASEU05	00	V	100	5	3.3	2.5	0.9
ASEU05	12	V	100	8	4.7	-1.5	-0.7
ASEU06	12	V	100	6	2.4	1.2	-0.2
ASEU06	00	V	100	6	3.8	-1.3	0.0
ASFR1	00	V	100	5	3.5	-1.0	1.8
ASFR1	12	V	100	6	3.4	-0.2	0.2
ASFR3	00	V	100	10	3.5	1.2	-1.2
ASFR3	12	V	100	12	4.4	0.9	-0.2
ASFR4	00	V	100	12	4.2	0.1	1.3
ASFR4	12	V	100	14	4.5	-1.2	-0.2
DBLK	12	V	100	22	3.8	0.4	-0.3
DBLK	00	V	100	15	2.5	-0.4	0.8
JGQH	12	V	100	9	7.2	2.5	0.2
JGQH	00	V	100	8	5.0	2.1	1.7

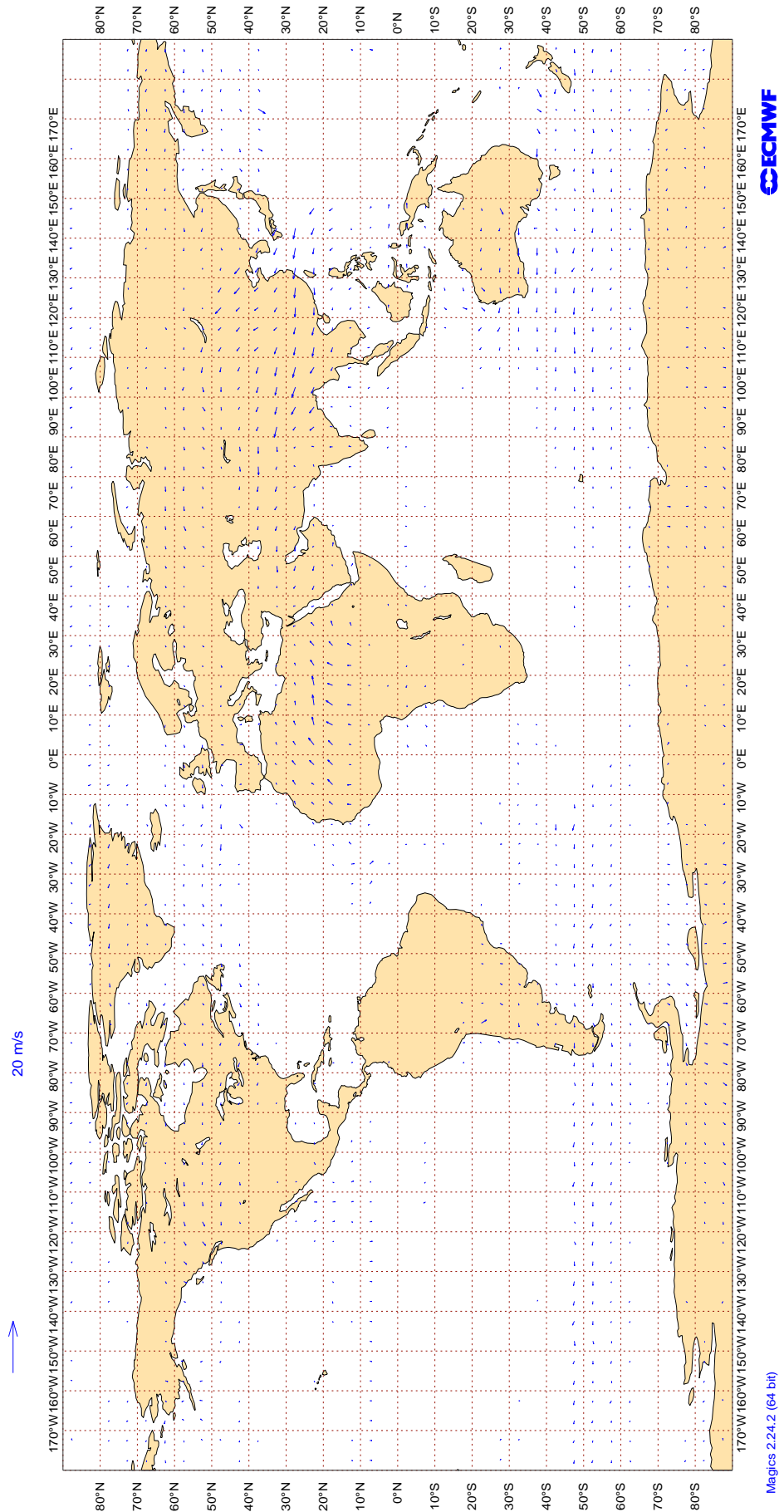
3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

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



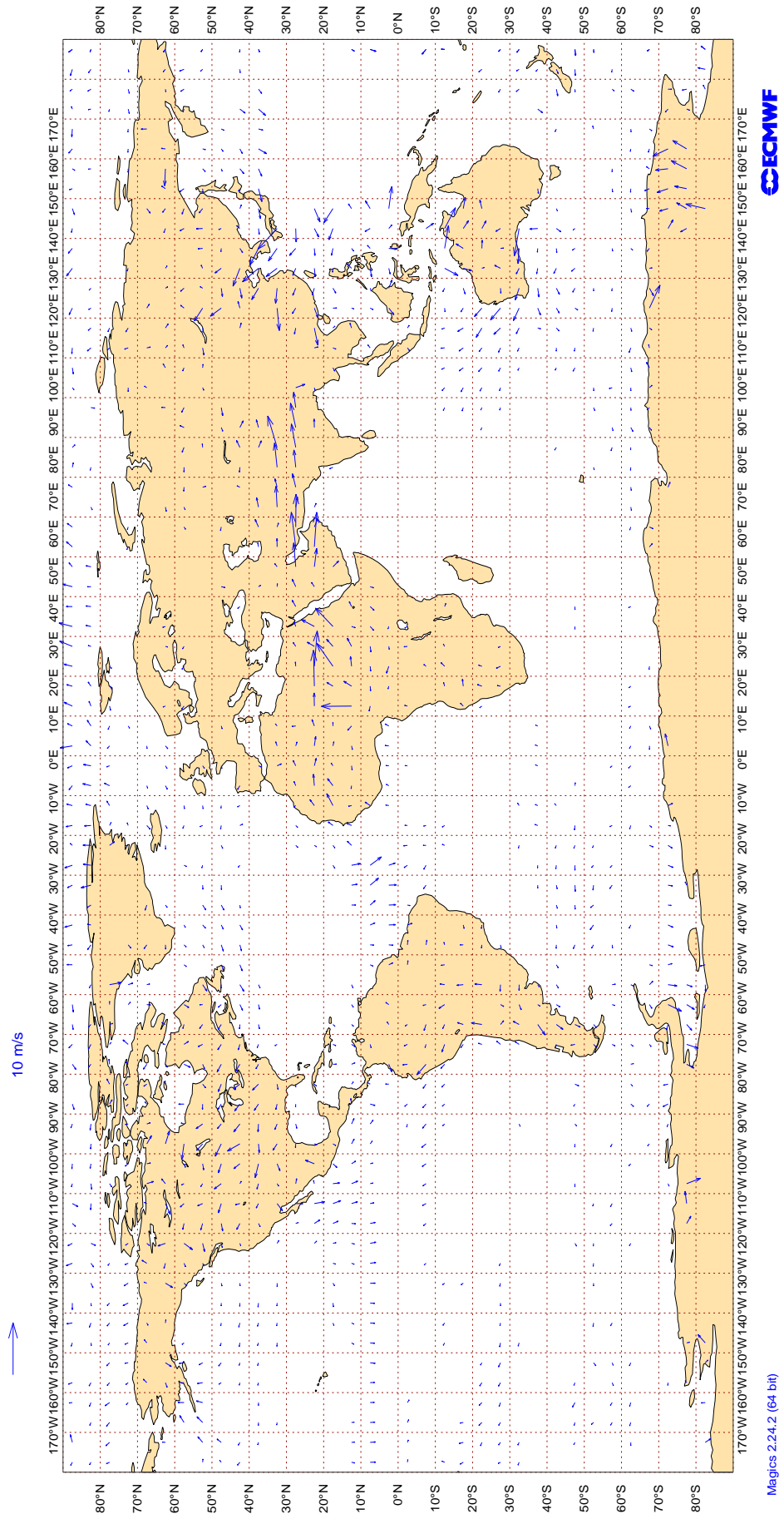
3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

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



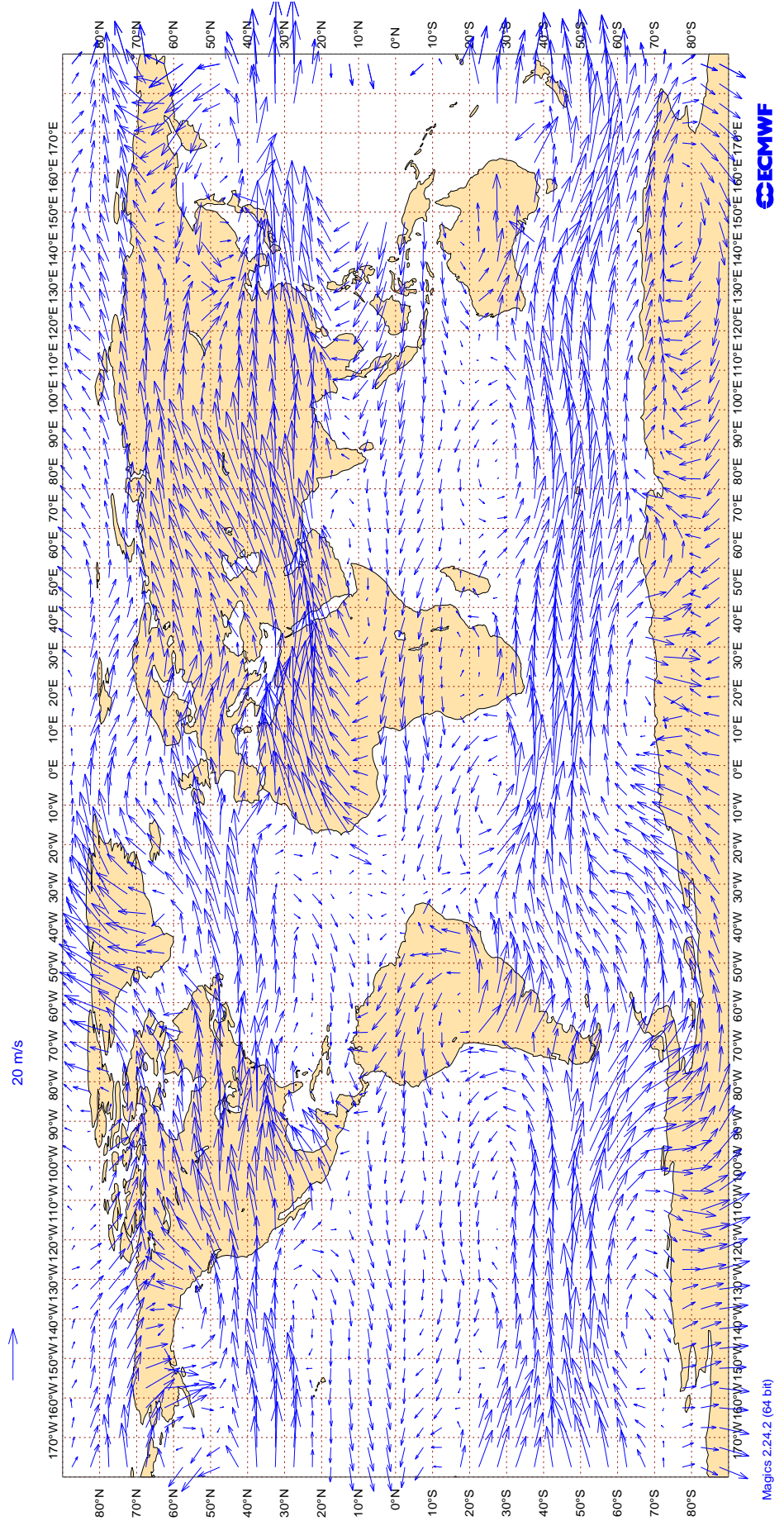
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

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



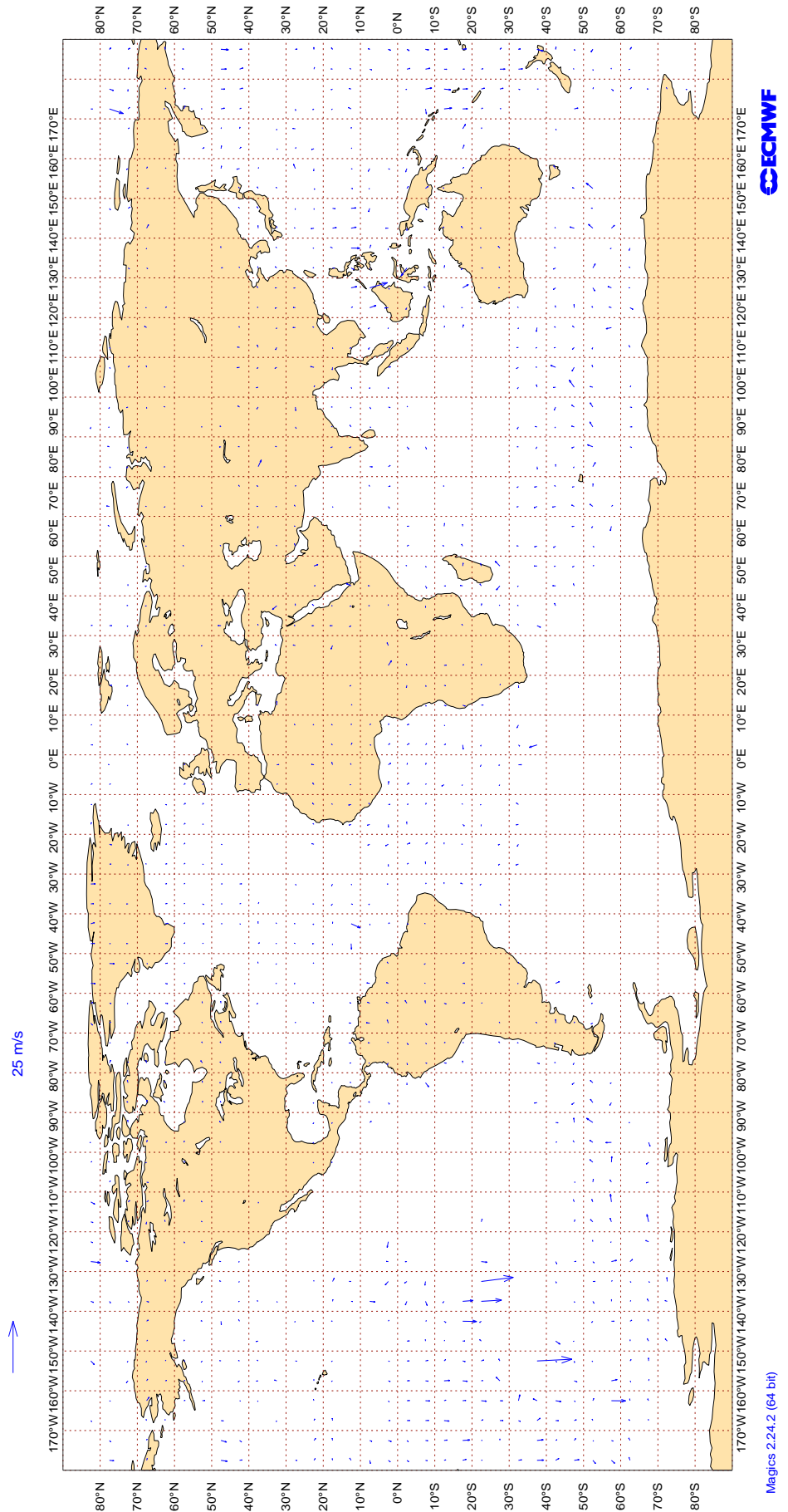
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

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



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

Figure 18
ECMWF Monitoring Statistics: Mar 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 : MAR 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	51	0	0	4.4	-0.1
AAL	99	V	300-150	46457	2	0	5.7	0.4
AAR	99	V	300-150	251	0	0	4.7	-0.9
AAY	99	V	300-150	80	0	0	6.6	0.2
ABD	99	V	300-150	358	0	0	4.2	-0.0
ABW	99	V	300-150	1043	0	0	3.8	-0.7
ABX	99	V	300-150	157	1	1	7.0	-0.3
ACA	99	V	300-150	27785	5	0	7.6	0.3
ACI	99	V	300-150	2454	0	0	4.5	0.6
AEA	99	V	300-150	594	10	0	8.1	0.3
AFL	99	V	300-150	2366	0	0	3.3	0.4
AFR	99	V	300-150	29745	0	0	4.0	0.3
AHY	99	V	300-150	247	21	0	12.3	0.7
AIC	99	V	300-150	1645	5	0	7.0	-0.0
AMX	99	V	300-150	2626	15	0	11.7	0.0
ANZ	99	V	300-150	20440	3	0	8.3	0.6
ASA	99	V	300-150	3964	1	0	5.8	0.4
ASL	99	V	300-150	483	0	0	4.0	0.4
ASY	99	V	300-150	246	0	0	5.7	0.7
AUA	99	V	300-150	3851	0	0	4.6	-0.4
AUH	99	V	300-150	35	3	0	16.5	0.5
AVA	99	V	300-150	361	11	0	8.2	0.6
AVN	99	V	300-150	52	0	0	5.9	1.3
AXM	99	V	300-150	248	0	0	5.6	0.9

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AXY	99	V	300-150	63	0	0	4.4	0.3
AZA	99	V	300-150	5757	0	0	4.1	0.5
AZG	99	V	300-150	183	0	1	3.6	0.4
BAW	99	V	300-150	56080	3	0	6.0	0.3
BBR	99	V	300-150	78	0	5	6.7	0.2
BEL	99	V	300-150	1988	0	0	3.9	0.3
BER	99	V	300-150	8618	0	0	4.1	0.5
BLU	99	V	300-150	50	0	0	4.9	0.2
BLX	99	V	300-150	221	0	0	4.3	-0.5
BMW	99	V	300-150	72	0	0	3.8	-0.6
BOB	99	V	300-150	29	0	0	4.3	0.4
BOX	99	V	300-150	670	0	0	3.7	0.2
BOX	99	V	300-150	91	0	0	4.3	0.1
BVR	99	V	300-150	41	27	0	17.3	0.0
CAL	99	V	300-150	599	0	0	4.9	0.8
CAT	99	V	300-150	21	0	0	8.4	-2.5
CAZ	99	V	300-150	102	0	0	3.5	0.1
CCA	99	V	300-150	1025	15	0	14.5	0.4
CEF	99	V	300-150	43	0	0	3.2	-0.1
CES	99	V	300-150	1209	0	0	4.5	0.3
CFC	99	V	300-150	293	0	0	4.3	0.0
CFG	99	V	300-150	4356	0	0	4.3	-0.1
CHH	99	V	300-150	162	0	0	4.6	0.5
CHN	99	V	300-150	39	0	0	4.7	1.5
CJT	99	V	300-150	162	0	0	4.0	0.1
CKS	99	V	300-150	2281	0	0	4.4	0.0
CLE	99	V	300-150	23	0	0	5.4	-1.9
CLU	99	V	300-150	32	0	0	5.2	0.5
CLX	99	V	300-150	3627	0	0	4.3	-0.3
CMB	99	V	300-150	909	0	0	4.3	-0.3
CNV	99	V	300-150	321	0	0	3.7	0.5
CPA	99	V	300-150	1013	0	0	4.3	0.1
CPI	99	V	300-150	48	0	0	5.3	0.7
CRK	99	V	300-150	871	0	0	4.4	-0.1
CRL	99	V	300-150	667	0	0	4.2	-0.4
CRV	99	V	300-150	44	0	0	4.1	0.8
CSN	99	V	300-150	939	12	0	9.5	0.4
CTM	99	V	300-150	64	0	0	8.3	0.4
CXA	99	V	300-150	42	12	0	14.3	0.9
CXB	99	V	300-150	20	0	0	3.2	-0.0
DAH	99	V	300-150	721	0	0	4.1	0.4
DAL	99	V	300-150	56893	0	0	4.1	0.2
DCS	99	V	300-150	22	0	0	3.8	-0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
DHK	99	V	300-150	1667	0	0	4.4	-0.0
DJT	99	V	300-150	1145	0	0	4.7	0.3
DLH	99	V	300-150	32427	0	0	3.9	0.2
DSO	99	V	300-150	47	0	0	3.8	0.6
DUB	99	V	300-150	90	0	0	3.9	0.3
EDC	99	V	300-150	62	0	0	3.8	0.7
EDW	99	V	300-150	731	0	0	4.5	0.5
EIN	99	V	300-150	13072	0	0	4.0	0.2
EJM	99	V	300-150	809	7	0	11.2	0.1
ELY	99	V	300-150	2831	0	0	3.9	0.1
ESR	99	V	300-150	33	0	0	6.6	-0.6
ETD	99	V	300-150	3737	5	0	5.7	-0.0
ETH	99	V	300-150	2095	16	0	10.1	-0.0
EUW	99	V	300-150	20	0	0	4.2	0.0
EVE	99	V	300-150	21	0	0	4.8	0.5
EWG	99	V	300-150	2584	0	0	4.6	0.2
EXU	99	V	300-150	27	0	0	4.0	0.7
FDX	99	V	300-150	5644	0	0	4.1	0.3
FIN	99	V	300-150	1239	0	0	3.3	0.5
FJI	99	V	300-150	5328	0	0	5.1	0.9
FPG	99	V	300-150	60	0	0	5.1	0.3
FWI	99	V	300-150	1767	0	0	3.8	0.2
FYG	99	V	300-150	39	23	0	21.1	0.4
FYL	99	V	300-150	44	0	0	5.2	1.5
GAF	99	V	300-150	83	11	0	7.3	0.4
GAJ	99	V	300-150	35	0	0	3.6	0.1
GCR	99	V	300-150	147	0	0	4.2	0.4
GEC	99	V	300-150	2948	0	0	3.9	0.2
GES	99	V	300-150	36	61	0	27.0	0.5
GLO	99	V	300-150	49	0	0	8.7	-1.0
GOL	99	V	300-150	78	0	0	4.4	0.6
GTH	99	V	300-150	57	0	0	4.4	-0.8
GTI	99	V	300-150	2687	0	0	4.2	0.0
HAL	99	V	300-150	3645	0	0	5.0	0.7
HRT	99	V	300-150	34	68	0	24.1	0.1
HZM	99	V	300-150	42	0	0	3.5	0.2
HZS	99	V	300-150	107	0	0	4.8	1.0
IAM	99	V	300-150	105	0	0	5.3	1.2
IBE	99	V	300-150	2592	0	0	4.0	0.2
ICL	99	V	300-150	509	0	0	4.8	-0.3
ICV	99	V	300-150	399	0	0	4.3	-0.4
IJM	99	V	300-150	81	0	1	3.6	0.5
ISS	99	V	300-150	228	0	0	4.6	-1.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
JAF	99	V	300-150	1074	8	0	9.3	0.3
JAI	99	V	300-150	1266	0	0	3.7	0.0
JAS	99	V	300-150	147	0	0	3.6	0.1
JBU	99	V	300-150	27	0	156	4.6	0.5
JEF	99	V	300-150	39	0	0	3.5	-0.1
JJA	99	V	300-150	65	0	2	5.4	-0.4
JME	99	V	300-150	160	21	0	8.4	0.0
JST	99	V	300-150	2419	6	0	13.2	0.5
JTS	99	V	300-150	63	0	0	3.9	-0.5
KAC	99	V	300-150	1138	0	0	4.1	0.6
KAI	99	V	300-150	65	0	0	5.5	1.6
KAL	99	V	300-150	1483	0	0	4.3	0.5
KAY	99	V	300-150	22	0	0	5.1	-1.0
KCE	99	V	300-150	24	0	0	2.9	0.1
KFE	99	V	300-150	24	0	0	4.2	-0.5
KIW	99	V	300-150	58	0	0	5.3	2.1
KLM	99	V	300-150	18577	1	0	4.8	0.1
KUG	99	V	300-150	41	0	0	3.3	0.0
LAN	99	V	300-150	1721	17	0	10.9	0.5
LCO	99	V	300-150	115	0	0	5.7	0.5
LDM	99	V	300-150	49	0	0	4.2	-0.6
LEA	99	V	300-150	61	0	0	3.2	0.0
LGT	99	V	300-150	63	0	0	4.3	-0.4
LOT	99	V	300-150	2096	14	0	13.5	0.2
LUC	99	V	300-150	85	27	0	23.0	0.1
LXA	99	V	300-150	46	0	0	4.3	1.3
LXJ	99	V	300-150	288	11	0	12.5	-0.2
MAS	99	V	300-150	284	0	0	4.6	0.6
MHV	99	V	300-150	31	0	0	3.7	-1.2
MJF	99	V	300-150	106	0	0	3.3	0.5
MMD	99	V	300-150	146	0	0	5.0	0.5
MPH	99	V	300-150	578	0	0	4.8	-0.7
MSR	99	V	300-150	1090	0	0	3.8	0.2
MXD	99	V	300-150	21	0	0	4.0	0.7
NAF	99	V	300-150	26	0	0	6.8	2.5
NAX	99	V	300-150	8003	17	0	11.9	0.1
NCA	99	V	300-150	300	0	0	4.1	-0.4
NJE	99	V	300-150	471	26	0	16.6	0.4
NOS	99	V	300-150	854	0	0	6.1	-0.3
NWS	99	V	300-150	496	0	0	4.0	0.5
OAE	99	V	300-150	186	1	0	4.7	0.2
PAC	99	V	300-150	270	0	0	5.1	0.1
PAL	99	V	300-150	160	1	3	7.1	0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
PAT	99	V	300-150	27	0	0	3.1	-1.0
PIA	99	V	300-150	422	0	0	4.0	0.4
PJZ	99	V	300-150	41	0	0	4.4	0.6
PLM	99	V	300-150	32	0	0	4.5	1.3
PNC	99	V	300-150	56	0	0	4.1	0.8
QAF	99	V	300-150	40	0	0	4.0	1.2
QFA	99	V	300-150	17286	0	0	4.9	0.6
QQE	99	V	300-150	24	42	0	27.7	-0.1
QTR	99	V	300-150	8913	0	0	4.0	0.1
RAM	99	V	300-150	520	20	0	11.6	1.1
RCH	99	V	300-150	6147	0	0	4.8	0.3
RJA	99	V	300-150	1163	16	0	12.4	0.0
ROU	99	V	300-150	720	0	1	4.0	0.2
RRR	99	V	300-150	160	0	0	3.8	0.7
RZO	99	V	300-150	140	0	1	5.0	1.3
SAM	99	V	300-150	313	0	0	3.9	0.0
SAS	99	V	300-150	4593	0	0	3.4	0.3
SBE	99	V	300-150	26	0	0	9.0	0.2
SDM	99	V	300-150	30	0	0	3.7	-0.2
SHE	99	V	300-150	36	0	0	4.2	0.3
SIA	99	V	300-150	2789	0	0	4.3	0.3
SIO	99	V	300-150	20	0	0	2.3	-0.0
SJE	99	V	300-150	67	0	0	5.1	0.5
SLM	99	V	300-150	147	0	0	4.1	-0.2
SOO	99	V	300-150	690	0	0	4.5	0.3
SPA	99	V	300-150	90	0	0	3.9	1.2
SQC	99	V	300-150	586	0	0	4.6	-0.6
SVA	99	V	300-150	3463	0	0	3.8	0.2
SVF	99	V	300-150	29	0	0	4.0	0.7
SVW	99	V	300-150	175	0	0	3.4	-0.1
SWR	99	V	300-150	11677	0	0	4.0	0.5
SXN	99	V	300-150	70	0	0	3.7	0.5
TAM	99	V	300-150	370	1	0	3.8	-0.0
TAP	99	V	300-150	1112	0	0	4.5	-0.2
TAR	99	V	300-150	185	0	0	5.0	1.0
TAY	99	V	300-150	883	0	0	5.2	-0.3
TCV	99	V	300-150	51	2	2	6.4	-0.1
TCX	99	V	300-150	2982	0	0	3.9	0.2
TFL	99	V	300-150	2126	13	0	10.2	0.3
TGM	99	V	300-150	134	18	0	8.1	0.9
THA	99	V	300-150	213	0	0	5.0	0.7
THT	99	V	300-150	3245	0	0	5.0	0.9
THY	99	V	300-150	7317	0	0	3.9	0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
TMN	99	V	300-150	82	2	1	4.9	1.0
TOM	99	V	300-150	5555	13	0	10.5	0.4
TRE	99	V	300-150	70	0	0	3.0	-0.0
TRK	99	V	300-150	61	0	0	4.6	-0.1
TSC	99	V	300-150	3490	0	0	4.0	0.2
TVP	99	V	300-150	147	0	0	4.8	1.6
TWB	99	V	300-150	72	0	3	5.9	-0.0
TWY	99	V	300-150	154	29	0	18.6	1.2
UAE	99	V	300-150	11789	0	0	4.2	0.2
UAL	99	V	300-150	76128	2	3	6.5	0.2
ULC	99	V	300-150	76	34	0	25.8	-0.1
UPS	99	V	300-150	5149	0	0	4.2	-0.1
UZB	99	V	300-150	39	0	0	3.2	-0.3
VCN	99	V	300-150	20	0	0	2.7	0.8
VIR	99	V	300-150	23014	5	0	6.7	0.2
VJT	99	V	300-150	556	43	0	24.1	0.0
VKG	99	V	300-150	772	0	0	3.8	0.4
VMP	99	V	300-150	93	56	0	18.7	0.1
VOZ	99	V	300-150	6213	0	0	4.7	0.8
WGT	99	V	300-150	59	0	0	3.2	0.1
WJA	99	V	300-150	3180	0	0	5.6	0.1
WOW	99	V	300-150	389	0	1	3.1	0.1
XAX	99	V	300-150	362	0	0	4.7	0.5
XLF	99	V	300-150	1363	0	0	4.4	0.7

4 EUCOS Area Monitoring Statistics

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

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

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

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	30	22.2	17.2
01001	00	Z	50	31	15.9	5.8
01028	00	Z	50	31	13.2	-0.8
01028	12	Z	50	31	16.1	1.3
01400	00	Z	50	15	22.5	18.4
01400	12	Z	50	16	24.9	21.9
01415	00	Z	50	23	12.1	7.5
01415	12	Z	50	25	17.1	12.2
02365	00	Z	50	14	14.7	9.4
02365	12	Z	50	21	17.4	13.6
02591	00	Z	50	29	17.6	15.9
02591	12	Z	50	30	24.6	22.6
02836	00	Z	50	31	16.4	-0.3
02836	12	Z	50	30	14.8	11.4
02963	12	Z	50	31	8.9	6.3
02963	00	Z	50	31	10.1	6.5
03005	12	Z	50	30	11.9	7.8
03005	00	Z	50	30	14.3	7.6
03238	12	Z	50	6	12.8	-1.2
03238	00	Z	50	27	7.5	1.8
03808	12	Z	50	31	12.1	9.4
03808	00	Z	50	31	11.0	7.1
03918	12	Z	50	11	18.1	14.1
03918	00	Z	50	28	15.5	12.5
03953	00	Z	50	26	16.3	9.5
03953	12	Z	50	29	21.4	17.0
04018	00	Z	50	29	15.6	8.3
04018	12	Z	50	27	12.6	7.5
04220	12	Z	50	30	8.7	6.9
04220	00	Z	50	30	7.9	7.1
04270	12	Z	50	31	10.4	7.1
04270	00	Z	50	29	11.1	7.2
04320	12	Z	50	29	10.9	7.9
04320	00	Z	50	30	12.1	5.9
04339	12	Z	50	31	24.0	17.5
04339	00	Z	50	30	17.1	11.4
04360	12	Z	50	10	37.7	36.4
04360	00	Z	50	11	35.0	33.1
06011	00	Z	50	28	15.9	1.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	50	29	21.6	14.4
06260	00	Z	50	31	11.0	6.5
06260	12	Z	50	4	12.1	11.2
06610	12	Z	50	31	17.7	13.1
06610	00	Z	50	30	19.2	0.4
07110	12	Z	50	31	50.8	49.2
07110	00	Z	50	29	44.6	42.0
07510	00	Z	50	31	35.7	33.3
07510	12	Z	50	30	44.2	41.5
07645	00	Z	50	31	28.4	26.0
07645	12	Z	50	30	28.3	24.7
07761	12	Z	50	29	24.1	20.0
07761	00	Z	50	29	23.9	21.3
08001	12	Z	50	28	30.6	23.5
08001	00	Z	50	22	21.5	18.0
08221	12	Z	50	31	18.9	17.4
08221	00	Z	50	30	18.9	17.4
08302	00	Z	50	29	10.7	7.8
08302	12	Z	50	30	10.2	5.7
08508	12	Z	50	29	31.8	28.3
08522	12	Z	50	29	21.7	19.4
08579	12	Z	50	27	25.6	24.4
10035	00	Z	50	31	10.3	1.8
10035	12	Z	50	31	14.4	6.7
10393	12	Z	50	31	12.0	8.8
10393	00	Z	50	30	11.7	2.8
10410	12	Z	50	32	12.6	8.8
10410	00	Z	50	31	9.8	2.3
10739	12	Z	50	30	20.0	15.6
10739	00	Z	50	31	15.8	13.7
11035	00	Z	50	30	23.4	20.4
11035	12	Z	50	32	15.6	12.2
12982	12	Z	50	29	46.6	43.2
12982	00	Z	50	31	35.8	19.8
16080	00	Z	50	31	10.4	6.6
16080	12	Z	50	28	12.4	9.4
16245	00	Z	50	30	11.6	9.9
16245	12	Z	50	30	10.8	3.1
16320	12	Z	50	30	21.5	19.2
16320	00	Z	50	29	24.3	23.1
16429	12	Z	50	28	12.1	6.0
16429	00	Z	50	32	16.5	10.1
16622	00	Z	50	60	34.5	31.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	50	51	54.4	37.2
16754	12	Z	50	40	34.0	29.2
17607	12	Z	50	30	18.7	15.9
26435	00	Z	50	13	11.9	10.3
60018	12	Z	50	30	17.3	11.5
60018	00	Z	50	30	18.8	16.1
ASDE03	00	Z	50	2	39.1	28.6
ASDE03	12	Z	50	4	155.2	143.3
ASDK01	00	Z	50	15	12.4	10.3
ASDK01	12	Z	50	15	15.1	7.0
ASDK03	12	Z	50	6	29.2	27.0
ASDK03	00	Z	50	7	26.6	23.9
ASDK1	12	Z	50	15	13.9	-1.5
ASDK1	00	Z	50	15	11.2	6.4
ASDK3	12	Z	50	6	21.8	19.2
ASDK3	00	Z	50	7	21.1	18.3
ASES01	12	Z	50	22	37.6	35.2
ASEU01	12	Z	50	3	42.0	40.6
ASEU02	00	Z	50	5	42.0	40.6
ASEU02	12	Z	50	7	45.0	43.6
ASEU03	12	Z	50	8	37.1	34.2
ASEU03	00	Z	50	4	18.5	-7.9
ASEU04	00	Z	50	8	12.4	8.7
ASEU04	12	Z	50	9	18.2	10.8
ASEU05	00	Z	50	3	20.9	10.3
ASEU05	12	Z	50	8	67.3	53.0
ASEU06	12	Z	50	6	42.7	35.4
ASEU06	00	Z	50	5	28.9	-12.4
ASFR1	00	Z	50	6	26.5	26.1
ASFR1	12	Z	50	9	48.1	41.2
ASFR3	00	Z	50	8	25.6	24.2
ASFR3	12	Z	50	11	28.8	22.7
ASFR4	00	Z	50	18	42.2	40.8
ASFR4	12	Z	50	22	60.1	53.0

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 : MAR 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	30	3.7	0.2	-0.3
01001	00	V	50	30	3.9	0.0	-0.7
01028	00	V	50	30	3.7	-0.4	0.1
01028	12	V	50	29	4.4	0.0	0.1
01400	00	V	50	11	3.0	1.0	-0.4
01400	12	V	50	15	2.8	0.2	-0.5
01415	00	V	50	23	4.0	-0.2	1.0
01415	12	V	50	24	5.3	1.5	-0.5
02365	00	V	50	12	4.0	-0.8	0.8
02365	12	V	50	13	3.3	0.9	-0.2
02591	00	V	50	27	4.1	0.4	-0.1
02591	12	V	50	28	2.9	-0.2	0.4
02836	00	V	50	30	4.0	0.1	1.0
02836	12	V	50	29	4.0	-0.7	-0.5
02963	12	V	50	30	3.6	0.2	0.4
02963	00	V	50	28	4.1	0.8	0.0
03005	12	V	50	30	3.5	0.7	0.0
03005	00	V	50	27	4.0	1.7	-0.3
03238	12	V	50	6	2.6	0.5	0.1
03238	00	V	50	26	3.3	0.5	-0.2
03808	12	V	50	31	4.1	0.5	0.7
03808	00	V	50	30	3.6	1.0	-0.3
03918	12	V	50	11	4.6	-1.0	0.4
03918	00	V	50	25	4.3	0.6	1.2
03953	00	V	50	26	3.3	0.7	0.3
03953	12	V	50	29	3.5	0.8	-0.2
04018	00	V	50	25	3.8	0.7	0.2
04018	12	V	50	27	3.9	0.5	-0.6
04220	12	V	50	30	3.4	0.0	-1.0
04220	00	V	50	30	3.9	0.5	0.1
04270	12	V	50	30	3.3	0.8	-0.1
04270	00	V	50	28	3.8	0.0	0.2
04320	12	V	50	29	4.6	-0.6	-1.2
04320	00	V	50	29	4.3	-0.1	-0.1
04339	12	V	50	31	4.3	0.3	-0.4
04339	00	V	50	28	3.7	-0.3	-0.1
04360	12	V	50	10	2.8	0.9	-0.1
04360	00	V	50	10	3.6	-0.4	0.4
06011	00	V	50	28	3.2	0.1	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	50	29	3.4	0.5	0.0
06260	00	V	50	29	3.5	1.0	0.2
06260	12	V	50	4	3.3	2.3	-1.5
06610	12	V	50	31	5.5	0.0	0.1
06610	00	V	50	28	7.1	2.0	-0.7
07110	12	V	50	31	3.0	0.4	-0.3
07110	00	V	50	28	3.6	0.6	0.2
07510	00	V	50	30	3.5	0.7	-0.2
07510	12	V	50	30	3.1	0.2	-0.8
07645	00	V	50	30	4.7	-0.1	0.4
07645	12	V	50	30	5.9	0.3	0.4
07761	12	V	50	29	6.4	0.4	-0.2
07761	00	V	50	28	4.4	1.3	0.3
08001	12	V	50	27	4.6	0.1	0.5
08001	00	V	50	19	4.1	0.4	-0.8
08221	12	V	50	31	4.8	-0.2	-0.3
08221	00	V	50	27	4.0	0.4	-0.1
08302	00	V	50	28	4.9	1.4	0.4
08302	12	V	50	29	4.6	-0.4	0.0
08508	12	V	50	28	4.9	0.5	0.0
08522	12	V	50	29	4.5	0.5	2.2
08579	12	V	50	24	3.8	1.7	-0.2
10035	00	V	50	30	3.9	0.1	0.1
10035	12	V	50	30	4.3	0.6	0.7
10393	12	V	50	31	2.8	-0.1	-0.6
10393	00	V	50	28	3.4	-0.3	0.4
10410	12	V	50	30	3.4	0.3	0.2
10410	00	V	50	28	3.3	0.2	-0.4
10739	12	V	50	30	4.1	0.7	-0.1
10739	00	V	50	28	4.0	0.6	0.1
11035	00	V	50	29	4.2	0.0	0.3
11035	12	V	50	31	3.3	0.6	-0.3
12982	12	V	50	29	4.2	0.5	-0.3
12982	00	V	50	31	3.2	0.4	-0.2
16080	00	V	50	30	4.5	0.3	-0.9
16080	12	V	50	28	4.5	1.0	-0.4
16245	00	V	50	29	3.8	0.3	-0.1
16245	12	V	50	30	3.7	0.6	0.2
16320	12	V	50	30	3.8	0.8	0.3
16320	00	V	50	28	4.4	1.3	0.2
16429	12	V	50	28	4.8	0.4	0.2
16429	00	V	50	28	4.8	1.6	-0.2
16622	00	V	50	22	4.6	0.4	1.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	50	25	4.7	0.1	0.1
16754	12	V	50	19	4.1	0.6	1.5
17607	12	V	50	25	4.5	1.5	-0.3
26435	00	V	50	11	4.3	-0.4	-0.6
60018	12	V	50	30	4.5	-0.2	1.4
60018	00	V	50	29	4.4	1.5	0.2
ASDE03	00	V	50	2	2.6	0.6	1.6
ASDE03	12	V	50	3	4.1	-0.2	0.1
ASDK01	00	V	50	14	2.9	-0.1	-0.5
ASDK01	12	V	50	15	3.0	-0.1	0.2
ASDK03	12	V	50	6	2.2	1.1	-0.3
ASDK03	00	V	50	6	4.1	1.7	1.8
ASDK1	12	V	50	15	3.0	-0.2	-0.2
ASDK1	00	V	50	14	3.0	-0.1	-0.1
ASDK3	12	V	50	6	2.4	0.6	-0.4
ASDK3	00	V	50	6	4.1	1.9	2.2
ASES01	12	V	50	22	4.6	-0.6	-0.6
ASEU01	12	V	50	3	1.5	1.2	0.8
ASEU02	00	V	50	3	3.2	1.3	0.6
ASEU02	12	V	50	6	5.0	0.6	-0.5
ASEU03	12	V	50	7	3.7	1.5	1.4
ASEU03	00	V	50	4	3.7	0.1	-1.2
ASEU04	00	V	50	7	3.6	-0.3	0.3
ASEU04	12	V	50	8	3.2	-0.3	0.4
ASEU05	00	V	50	3	3.9	1.7	-3.3
ASEU05	12	V	50	7	4.1	0.3	0.4
ASEU06	12	V	50	6	3.0	-0.1	0.9
ASEU06	00	V	50	5	4.5	1.2	1.8
ASFR1	00	V	50	4	3.1	0.4	0.5
ASFR1	12	V	50	5	3.2	0.2	-1.2
ASFR3	00	V	50	8	2.2	0.5	-0.1
ASFR3	12	V	50	11	4.8	1.3	-2.4
ASFR4	00	V	50	10	4.5	0.0	0.5
ASFR4	12	V	50	13	3.5	-0.1	-0.8

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	30	11.9	6.9
01001	00	Z	100	31	11.4	0.4
01028	00	Z	100	31	10.7	-3.1
01028	12	Z	100	31	9.1	-0.3
01400	00	Z	100	22	11.6	6.9
01400	12	Z	100	21	21.7	16.6
01415	00	Z	100	26	9.3	-0.7
01415	12	Z	100	29	13.4	4.4
02365	00	Z	100	26	7.8	3.4
02365	12	Z	100	27	14.2	7.9
02591	00	Z	100	31	10.5	9.2
02591	12	Z	100	30	13.9	12.3
02836	00	Z	100	31	10.8	-3.1
02836	12	Z	100	32	8.9	4.3
02963	12	Z	100	31	4.5	-0.2
02963	00	Z	100	31	5.0	2.2
03005	12	Z	100	32	7.4	2.0
03005	00	Z	100	30	11.5	1.3
03238	12	Z	100	6	11.6	2.1
03238	00	Z	100	30	6.6	-1.0
03808	12	Z	100	32	8.3	4.4
03808	00	Z	100	31	6.8	0.6
03918	12	Z	100	11	14.3	8.8
03918	00	Z	100	28	10.0	6.8
03953	00	Z	100	29	11.7	6.3
03953	12	Z	100	29	12.9	9.0
04018	00	Z	100	29	10.7	0.5
04018	12	Z	100	28	8.7	1.7
04220	12	Z	100	30	4.9	0.1
04220	00	Z	100	30	4.2	-0.2
04270	12	Z	100	31	7.1	2.0
04270	00	Z	100	30	8.4	2.8
04320	12	Z	100	29	8.7	6.3
04320	00	Z	100	30	8.7	4.2
04339	12	Z	100	31	19.0	11.1
04339	00	Z	100	30	13.2	7.2
04360	12	Z	100	21	36.5	35.9
04360	00	Z	100	18	31.9	29.9
06011	00	Z	100	30	11.9	-2.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	100	29	11.6	5.6
06260	00	Z	100	31	5.7	1.3
06260	12	Z	100	4	8.8	6.4
06610	12	Z	100	31	11.4	3.0
06610	00	Z	100	32	9.1	0.4
07110	12	Z	100	31	35.6	34.3
07110	00	Z	100	29	30.2	28.6
07510	00	Z	100	31	20.4	18.2
07510	12	Z	100	30	28.5	26.0
07645	00	Z	100	31	15.8	10.8
07645	12	Z	100	31	18.4	13.5
07761	12	Z	100	30	14.6	10.8
07761	00	Z	100	29	14.1	7.0
08001	12	Z	100	30	18.9	13.6
08001	00	Z	100	31	15.2	11.2
08221	12	Z	100	31	12.5	9.4
08221	00	Z	100	30	11.6	9.7
08302	00	Z	100	29	7.0	-2.0
08302	12	Z	100	31	9.5	-0.9
08508	12	Z	100	30	20.8	17.9
08522	12	Z	100	26	15.1	13.5
08579	12	Z	100	22	17.0	15.7
10035	00	Z	100	31	7.6	-2.6
10035	12	Z	100	31	8.1	1.4
10393	12	Z	100	31	6.5	3.0
10393	00	Z	100	31	8.6	-2.4
10410	12	Z	100	32	7.1	2.9
10410	00	Z	100	31	6.9	-3.0
10739	12	Z	100	32	12.8	7.5
10739	00	Z	100	32	10.6	6.3
11035	00	Z	100	32	12.3	9.2
11035	12	Z	100	32	12.4	8.0
12982	12	Z	100	31	28.6	24.4
12982	00	Z	100	31	13.0	9.1
16080	00	Z	100	31	7.6	-0.6
16080	12	Z	100	31	8.7	2.4
16245	00	Z	100	31	7.6	0.5
16245	12	Z	100	30	9.7	-3.1
16320	12	Z	100	31	15.5	13.2
16320	00	Z	100	29	16.7	14.9
16429	12	Z	100	31	11.4	3.2
16429	00	Z	100	36	14.0	2.8
16622	00	Z	100	52	22.1	19.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	100	47	33.5	21.3
16754	12	Z	100	32	19.6	11.8
17607	12	Z	100	31	8.2	5.3
26435	00	Z	100	14	6.1	1.9
60018	12	Z	100	31	12.9	7.0
60018	00	Z	100	30	9.8	6.0
ASDE03	00	Z	100	3	30.2	26.6
ASDE03	12	Z	100	7	79.2	75.7
ASDK01	00	Z	100	17	8.3	5.5
ASDK01	12	Z	100	19	10.4	3.1
ASDK03	12	Z	100	8	24.1	22.8
ASDK03	00	Z	100	10	22.5	20.9
ASDK1	12	Z	100	15	13.6	-5.9
ASDK1	00	Z	100	16	8.2	-0.5
ASDK3	12	Z	100	7	19.1	15.1
ASDK3	00	Z	100	8	16.0	11.1
ASES01	12	Z	100	27	30.1	29.2
ASEU01	12	Z	100	3	30.6	29.3
ASEU02	00	Z	100	8	34.7	33.9
ASEU02	12	Z	100	9	43.4	41.8
ASEU03	12	Z	100	10	27.7	21.8
ASEU03	00	Z	100	10	81.9	20.9
ASEU04	00	Z	100	10	4.7	2.2
ASEU04	12	Z	100	9	9.5	3.4
ASEU05	00	Z	100	6	34.4	9.3
ASEU05	12	Z	100	10	33.8	23.3
ASEU06	12	Z	100	7	29.4	14.5
ASEU06	00	Z	100	7	42.0	-25.8
ASFR1	00	Z	100	7	14.2	13.5
ASFR1	12	Z	100	10	30.9	24.0
ASFR3	00	Z	100	10	13.4	10.5
ASFR3	12	Z	100	12	18.5	10.7
ASFR4	00	Z	100	22	29.6	26.7
ASFR4	12	Z	100	25	46.6	40.1

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	30	3.5	-0.3	-1.2
01001	00	V	100	30	3.1	0.5	-0.3
01028	00	V	100	30	2.3	0.4	0.3
01028	12	V	100	31	2.8	-0.4	0.3
01400	00	V	100	13	3.7	1.0	0.0
01400	12	V	100	14	4.4	0.5	0.7
01415	00	V	100	25	4.1	0.5	-0.9
01415	12	V	100	29	4.4	0.2	-0.2
02365	00	V	100	24	3.5	0.2	0.0
02365	12	V	100	25	4.2	0.0	-0.9
02591	00	V	100	30	3.3	-0.3	-0.2
02591	12	V	100	30	3.5	1.1	-0.1
02836	00	V	100	30	3.2	0.2	0.4
02836	12	V	100	31	3.3	-0.1	0.0
02963	12	V	100	31	2.7	0.2	-0.1
02963	00	V	100	29	4.0	0.0	0.8
03005	12	V	100	31	4.5	0.3	-0.6
03005	00	V	100	29	3.8	-0.5	-0.3
03238	12	V	100	6	7.0	-1.6	-2.8
03238	00	V	100	28	4.7	1.2	-0.8
03808	12	V	100	31	3.8	0.6	-0.6
03808	00	V	100	30	4.7	0.1	-0.9
03918	12	V	100	11	2.9	-0.3	0.2
03918	00	V	100	27	4.0	0.9	-0.4
03953	00	V	100	28	4.3	-1.0	-0.6
03953	12	V	100	29	4.2	1.9	-0.1
04018	00	V	100	28	4.3	1.0	0.8
04018	12	V	100	28	4.0	0.5	0.8
04220	12	V	100	30	3.1	1.1	0.1
04220	00	V	100	30	3.5	0.2	-1.0
04270	12	V	100	31	3.3	-0.7	0.5
04270	00	V	100	29	3.6	0.0	0.3
04320	12	V	100	29	4.1	-0.3	0.5
04320	00	V	100	29	3.5	0.0	-0.6
04339	12	V	100	31	3.3	0.4	-0.1
04339	00	V	100	29	3.2	0.3	0.4
04360	12	V	100	21	3.1	0.7	1.1
04360	00	V	100	16	2.8	0.9	0.2
06011	00	V	100	29	3.4	-0.6	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	100	29	3.5	-0.1	-0.9
06260	00	V	100	30	3.0	-0.1	-0.3
06260	12	V	100	4	3.3	0.6	-1.4
06610	12	V	100	31	4.3	0.4	0.0
06610	00	V	100	30	5.2	-0.2	0.7
07110	12	V	100	31	3.4	0.9	-0.3
07110	00	V	100	28	3.3	0.7	-0.4
07510	00	V	100	30	4.3	0.4	-0.3
07510	12	V	100	30	3.2	-0.2	-0.6
07645	00	V	100	30	6.7	1.0	-0.8
07645	12	V	100	31	4.1	-0.3	0.7
07761	12	V	100	30	5.0	0.3	0.6
07761	00	V	100	28	4.2	1.1	-0.6
08001	12	V	100	29	3.8	-0.9	0.1
08001	00	V	100	26	3.9	-0.7	0.1
08221	12	V	100	31	4.7	0.3	0.2
08221	00	V	100	29	4.3	0.4	0.4
08302	00	V	100	28	4.0	0.0	0.2
08302	12	V	100	31	3.7	0.2	-0.1
08508	12	V	100	30	3.5	-0.1	-0.1
08522	12	V	100	26	4.0	0.9	0.2
08579	12	V	100	21	4.3	0.0	-0.8
10035	00	V	100	30	3.9	-0.6	0.4
10035	12	V	100	31	3.6	0.0	0.1
10393	12	V	100	31	3.9	0.1	0.5
10393	00	V	100	29	2.6	-0.4	0.1
10410	12	V	100	31	3.7	0.1	-0.2
10410	00	V	100	30	4.0	0.1	-0.9
10739	12	V	100	31	3.7	0.3	0.0
10739	00	V	100	28	4.4	0.5	-0.1
11035	00	V	100	30	5.0	-0.2	0.2
11035	12	V	100	31	3.8	-0.2	-0.1
12982	12	V	100	31	3.6	0.7	0.1
12982	00	V	100	31	3.8	-0.3	-1.0
16080	00	V	100	30	4.4	0.4	-0.2
16080	12	V	100	30	5.3	-0.5	1.0
16245	00	V	100	30	4.1	0.6	-0.4
16245	12	V	100	30	4.5	0.1	0.9
16320	12	V	100	30	3.5	1.5	-0.7
16320	00	V	100	28	4.0	0.6	-0.8
16429	12	V	100	31	4.6	1.1	-0.1
16429	00	V	100	28	3.7	1.1	-0.4
16622	00	V	100	23	4.5	0.0	-1.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	100	28	4.5	1.0	0.0
16754	12	V	100	19	5.1	0.9	0.5
17607	12	V	100	30	3.8	1.4	0.1
26435	00	V	100	14	3.3	0.2	0.8
60018	12	V	100	31	5.0	1.2	1.0
60018	00	V	100	29	5.4	-0.2	0.7
ASDE03	00	V	100	2	4.1	1.1	0.8
ASDE03	12	V	100	3	7.5	-5.5	2.5
ASDK01	00	V	100	16	3.5	-0.2	0.3
ASDK01	12	V	100	17	4.2	0.4	1.7
ASDK03	12	V	100	7	4.2	0.6	0.3
ASDK03	00	V	100	9	4.5	-0.9	1.6
ASDK1	12	V	100	15	3.5	1.0	0.8
ASDK1	00	V	100	16	2.8	-0.2	0.6
ASDK3	12	V	100	7	3.9	0.3	0.0
ASDK3	00	V	100	8	4.5	-1.2	1.3
ASES01	12	V	100	22	4.6	1.4	0.3
ASEU01	12	V	100	3	3.3	-0.4	0.9
ASEU02	00	V	100	6	3.7	-1.1	1.2
ASEU02	12	V	100	7	4.0	0.4	-1.5
ASEU03	12	V	100	8	5.0	-0.9	0.1
ASEU03	00	V	100	6	3.0	0.8	-0.4
ASEU04	00	V	100	9	2.8	0.4	-0.4
ASEU04	12	V	100	9	3.3	-0.8	0.3
ASEU05	00	V	100	5	3.3	2.5	0.9
ASEU05	12	V	100	8	4.7	-1.5	-0.7
ASEU06	12	V	100	6	2.4	1.2	-0.2
ASEU06	00	V	100	6	3.8	-1.3	0.0
ASFR1	00	V	100	5	3.5	-1.0	1.8
ASFR1	12	V	100	6	3.4	-0.2	0.2
ASFR3	00	V	100	10	3.5	1.2	-1.2
ASFR3	12	V	100	12	4.4	0.9	-0.2
ASFR4	00	V	100	12	4.2	0.1	1.3
ASFR4	12	V	100	14	4.5	-1.2	-0.2

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	30	6.5	2.3
01001	00	Z	500	31	5.5	1.4
01028	00	Z	500	31	5.2	-1.4
01028	12	Z	500	31	4.0	-0.2
01400	00	Z	500	29	9.1	6.9
01400	12	Z	500	28	24.4	14.8
01415	00	Z	500	26	7.0	5.1
01415	12	Z	500	29	6.8	2.7
02365	00	Z	500	29	5.3	3.7
02365	12	Z	500	27	6.2	4.1
02591	00	Z	500	31	8.8	8.0
02591	12	Z	500	30	9.7	9.1
02836	00	Z	500	31	3.0	0.2
02836	12	Z	500	32	3.7	0.4
02963	12	Z	500	31	3.8	2.8
02963	00	Z	500	32	3.7	2.6
03005	12	Z	500	32	4.1	0.5
03005	00	Z	500	31	11.8	1.9
03238	12	Z	500	6	5.4	4.5
03238	00	Z	500	30	6.0	3.6
03808	12	Z	500	32	5.8	4.2
03808	00	Z	500	31	5.6	4.2
03918	12	Z	500	12	12.3	12.0
03918	00	Z	500	31	11.9	11.3
03953	00	Z	500	31	6.3	1.1
03953	12	Z	500	33	9.0	5.8
04018	00	Z	500	29	5.6	2.2
04018	12	Z	500	28	6.1	2.2
04220	12	Z	500	30	3.8	-0.6
04220	00	Z	500	31	3.5	0.2
04270	12	Z	500	31	5.6	-1.6
04270	00	Z	500	31	5.6	0.1
04320	12	Z	500	31	6.1	4.5
04320	00	Z	500	31	4.9	3.4
04339	12	Z	500	31	18.7	10.4
04339	00	Z	500	31	13.6	7.5
04360	12	Z	500	31	39.3	38.9
04360	00	Z	500	31	38.9	38.6
06011	00	Z	500	31	8.3	-0.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	500	30	5.9	2.5
06260	00	Z	500	31	4.8	3.6
06260	12	Z	500	5	5.1	4.4
06610	12	Z	500	32	5.0	3.0
06610	00	Z	500	32	6.1	3.7
07110	12	Z	500	31	16.0	14.9
07110	00	Z	500	29	14.6	12.7
07510	00	Z	500	31	9.8	7.7
07510	12	Z	500	31	12.7	11.0
07645	00	Z	500	31	6.6	4.1
07645	12	Z	500	31	10.9	7.1
07761	12	Z	500	30	4.6	1.8
07761	00	Z	500	31	3.3	-0.7
08001	12	Z	500	31	11.1	9.6
08001	00	Z	500	31	9.8	9.0
08221	12	Z	500	31	7.3	6.3
08221	00	Z	500	30	7.6	5.7
08302	00	Z	500	29	7.1	-2.9
08302	12	Z	500	31	3.6	-0.7
08508	12	Z	500	31	11.7	9.3
08522	12	Z	500	15	8.0	6.5
08579	12	Z	500	13	7.3	5.9
10035	00	Z	500	31	4.3	1.1
10035	12	Z	500	31	5.5	1.3
10393	12	Z	500	31	3.1	0.7
10393	00	Z	500	32	6.0	-0.7
10410	12	Z	500	32	3.4	1.2
10410	00	Z	500	31	3.7	1.4
10739	12	Z	500	32	9.3	8.1
10739	00	Z	500	32	9.5	8.9
11035	00	Z	500	32	10.1	8.5
11035	12	Z	500	32	9.3	5.9
12982	12	Z	500	31	14.7	6.4
12982	00	Z	500	31	7.7	5.6
16080	00	Z	500	31	2.6	0.4
16080	12	Z	500	33	4.1	-1.7
16245	00	Z	500	31	8.1	-5.5
16245	12	Z	500	30	9.4	-8.2
16320	12	Z	500	31	12.4	11.2
16320	00	Z	500	31	12.9	11.7
16429	12	Z	500	35	7.8	2.8
16429	00	Z	500	36	13.8	-0.9
16622	00	Z	500	36	17.2	14.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	500	38	16.3	9.8
16754	12	Z	500	25	12.7	5.8
17607	12	Z	500	31	4.9	3.8
26435	00	Z	500	15	6.0	2.3
60018	12	Z	500	31	5.0	1.2
60018	00	Z	500	31	3.3	0.1
ASDE03	00	Z	500	3	31.8	30.9
ASDE03	12	Z	500	7	75.5	68.5
ASDK01	00	Z	500	17	9.6	6.1
ASDK01	12	Z	500	21	7.5	0.5
ASDK03	12	Z	500	10	24.4	23.1
ASDK03	00	Z	500	10	23.6	22.2
ASDK1	12	Z	500	16	10.8	-4.7
ASDK1	00	Z	500	16	10.3	-0.3
ASDK3	12	Z	500	7	21.7	16.4
ASDK3	00	Z	500	8	15.5	11.9
ASES01	12	Z	500	28	10.9	10.2
ASEU01	12	Z	500	3	18.7	18.1
ASEU02	00	Z	500	9	26.7	25.8
ASEU02	12	Z	500	9	29.9	29.1
ASEU03	12	Z	500	12	21.4	-7.2
ASEU03	00	Z	500	12	17.2	-2.6
ASEU04	00	Z	500	11	5.1	2.0
ASEU04	12	Z	500	9	5.6	3.7
ASEU05	00	Z	500	8	16.3	-14.6
ASEU05	12	Z	500	10	13.1	-10.9
ASEU06	12	Z	500	7	40.3	-22.2
ASEU06	00	Z	500	8	49.0	-32.2
ASFR1	00	Z	500	9	4.8	0.5
ASFR1	12	Z	500	12	20.5	-5.7
ASFR3	00	Z	500	12	6.4	1.6
ASFR3	12	Z	500	13	7.9	-0.3
ASFR4	00	Z	500	24	10.6	9.9
ASFR4	12	Z	500	26	19.1	11.8

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 500 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : MAR 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	30	2.6	0.6	-0.5
01001	00	V	500	30	2.6	-0.3	-0.6
01028	00	V	500	30	2.6	0.2	-0.3
01028	12	V	500	31	2.7	0.0	-0.2
01400	00	V	500	26	2.5	0.5	-0.4
01400	12	V	500	28	3.1	0.9	-0.2
01415	00	V	500	25	4.0	0.6	-0.2
01415	12	V	500	29	3.1	0.9	0.4
02365	00	V	500	27	2.8	-0.4	0.3
02365	12	V	500	27	4.0	-0.3	0.0
02591	00	V	500	30	3.0	0.3	0.3
02591	12	V	500	30	2.3	-0.3	-0.1
02836	00	V	500	30	2.6	0.4	-0.2
02836	12	V	500	31	2.9	0.4	-0.8
02963	12	V	500	31	2.7	-0.2	-0.2
02963	00	V	500	30	2.9	0.3	-0.5
03005	12	V	500	31	3.5	1.0	-0.9
03005	00	V	500	30	3.0	0.3	-0.6
03238	12	V	500	6	4.6	-1.0	0.2
03238	00	V	500	29	3.6	0.4	0.1
03808	12	V	500	31	3.6	0.6	-0.8
03808	00	V	500	30	3.6	0.2	1.2
03918	12	V	500	12	4.5	1.6	-0.5
03918	00	V	500	30	4.0	0.4	0.0
03953	00	V	500	30	3.5	0.2	0.2
03953	12	V	500	31	4.1	0.3	-0.4
04018	00	V	500	28	3.8	-0.2	-0.4
04018	12	V	500	28	3.7	-0.5	1.1
04220	12	V	500	30	2.8	0.3	0.5
04220	00	V	500	30	2.9	0.2	0.4
04270	12	V	500	31	4.4	0.3	0.0
04270	00	V	500	30	4.7	-0.5	0.1
04320	12	V	500	31	2.4	-0.7	0.0
04320	00	V	500	30	2.8	0.7	0.7
04339	12	V	500	31	3.0	0.8	0.3
04339	00	V	500	30	2.7	0.4	-0.3
04360	12	V	500	31	2.9	0.1	0.5
04360	00	V	500	26	3.5	-0.5	0.6
06011	00	V	500	30	3.4	0.0	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	500	30	3.3	0.5	-0.5
06260	00	V	500	30	2.5	0.6	0.5
06260	12	V	500	5	4.1	0.5	0.6
06610	12	V	500	31	2.6	0.4	0.1
06610	00	V	500	30	2.8	0.6	-0.2
07110	12	V	500	31	3.5	-0.2	0.6
07110	00	V	500	28	3.9	0.8	-0.3
07510	00	V	500	30	3.8	0.1	-0.2
07510	12	V	500	31	2.9	0.5	0.1
07645	00	V	500	30	3.5	0.1	-0.2
07645	12	V	500	30	2.9	0.0	-0.5
07761	12	V	500	30	3.3	0.3	-0.1
07761	00	V	500	30	3.6	0.5	-0.2
08001	12	V	500	31	3.0	0.4	0.5
08001	00	V	500	30	3.3	-0.5	-0.3
08221	12	V	500	31	2.8	-0.5	-0.2
08221	00	V	500	29	3.0	0.0	0.0
08302	00	V	500	28	3.4	0.0	0.5
08302	12	V	500	31	2.3	0.7	0.3
08508	12	V	500	30	3.1	0.7	-0.1
08522	12	V	500	15	2.4	0.4	0.0
08579	12	V	500	13	2.9	-0.2	0.4
10035	00	V	500	30	2.7	-0.4	0.2
10035	12	V	500	31	2.9	-0.1	0.0
10393	12	V	500	31	2.7	0.0	0.1
10393	00	V	500	29	3.0	-0.9	-0.3
10410	12	V	500	31	3.3	0.5	-0.2
10410	00	V	500	30	2.8	0.7	0.4
10739	12	V	500	31	4.0	1.0	-1.0
10739	00	V	500	29	3.3	0.7	-0.3
11035	00	V	500	30	2.9	-0.5	-0.2
11035	12	V	500	31	4.0	0.6	0.0
12982	12	V	500	31	2.7	0.4	-0.5
12982	00	V	500	31	3.7	-0.4	-0.1
16080	00	V	500	30	3.0	-0.7	-0.6
16080	12	V	500	31	3.0	-0.2	-0.2
16245	00	V	500	30	2.8	0.9	0.6
16245	12	V	500	30	3.5	0.3	-0.3
16320	12	V	500	31	4.2	1.1	-0.3
16320	00	V	500	30	3.0	0.2	-0.1
16429	12	V	500	31	2.9	0.0	0.0
16429	00	V	500	30	2.6	0.2	0.4
16622	00	V	500	24	3.5	-0.3	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	500	29	5.8	-0.4	1.0
16754	12	V	500	19	3.1	-0.8	0.4
17607	12	V	500	31	3.7	-0.1	-0.4
26435	00	V	500	15	3.7	0.9	-0.6
60018	12	V	500	31	2.6	0.0	-0.1
60018	00	V	500	30	3.5	0.1	-0.4
ASDE03	00	V	500	3	3.6	-1.3	1.6
ASDE03	12	V	500	5	5.2	1.8	1.3
ASDK01	00	V	500	16	3.7	0.5	-0.5
ASDK01	12	V	500	18	4.4	1.0	-0.2
ASDK03	12	V	500	7	1.5	0.1	-0.5
ASDK03	00	V	500	9	2.8	-0.7	-0.4
ASDK1	12	V	500	16	4.8	1.9	-0.4
ASDK1	00	V	500	16	4.2	0.5	-1.2
ASDK3	12	V	500	7	3.0	0.0	0.1
ASDK3	00	V	500	8	4.5	-0.3	-1.0
ASES01	12	V	500	23	4.1	0.4	0.9
ASEU01	12	V	500	3	4.3	1.7	-1.0
ASEU02	00	V	500	8	2.1	0.6	-0.7
ASEU02	12	V	500	7	3.1	1.1	-0.2
ASEU03	12	V	500	10	3.0	0.3	-1.8
ASEU03	00	V	500	11	3.4	0.8	-0.1
ASEU04	00	V	500	10	3.0	0.3	0.6
ASEU04	12	V	500	9	3.1	0.5	0.0
ASEU05	00	V	500	8	2.9	0.3	1.5
ASEU05	12	V	500	10	2.9	0.0	0.6
ASEU06	12	V	500	7	3.4	1.9	0.7
ASEU06	00	V	500	7	3.9	0.6	0.6
ASFR1	00	V	500	6	3.1	-0.6	1.3
ASFR1	12	V	500	7	3.6	0.6	0.5
ASFR3	00	V	500	12	2.4	0.5	0.3
ASFR3	12	V	500	13	4.1	-0.5	1.4
ASFR4	00	V	500	13	2.8	-0.2	0.4
ASFR4	12	V	500	15	3.5	0.7	1.0

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 : MAR 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	31	4.9	-0.2
01001	00	Z	850	31	4.7	0.0
01028	00	Z	850	31	4.2	-1.7
01028	12	Z	850	31	4.7	-2.3
01400	00	Z	850	29	6.4	4.4
01400	12	Z	850	28	19.4	11.8
01415	00	Z	850	26	4.9	3.6
01415	12	Z	850	29	4.0	3.6
02365	00	Z	850	29	5.6	5.0
02365	12	Z	850	28	4.8	3.5
02591	00	Z	850	31	8.2	8.0
02591	12	Z	850	30	8.2	7.9
02836	00	Z	850	31	1.7	0.7
02836	12	Z	850	32	1.6	0.4
02963	12	Z	850	31	4.2	3.7
02963	00	Z	850	32	4.8	4.3
03005	12	Z	850	32	2.5	0.2
03005	00	Z	850	31	13.0	0.9
03238	12	Z	850	6	5.8	4.8
03238	00	Z	850	30	4.4	3.6
03808	12	Z	850	32	4.9	3.7
03808	00	Z	850	31	4.1	3.1
03918	12	Z	850	12	12.5	12.5
03918	00	Z	850	31	10.6	10.4
03953	00	Z	850	31	4.2	2.0
03953	12	Z	850	33	6.6	4.1
04018	00	Z	850	29	3.1	0.3
04018	12	Z	850	28	3.3	-0.1
04220	12	Z	850	30	3.9	2.3
04220	00	Z	850	31	3.6	2.4
04270	12	Z	850	31	3.3	1.2
04270	00	Z	850	31	3.4	1.0
04320	12	Z	850	31	3.6	0.5
04320	00	Z	850	31	2.9	-0.4
04339	12	Z	850	31	17.6	7.8
04339	00	Z	850	31	13.0	4.9
04360	12	Z	850	33	40.3	40.1
04360	00	Z	850	38	41.5	41.0
06011	00	Z	850	31	5.4	3.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	850	30	4.5	2.7
06260	00	Z	850	31	4.4	3.4
06260	12	Z	850	5	3.7	2.5
06610	12	Z	850	32	3.1	2.0
06610	00	Z	850	32	4.4	3.3
07110	12	Z	850	31	6.1	5.2
07110	00	Z	850	29	6.1	5.2
07510	00	Z	850	31	5.6	4.9
07510	12	Z	850	31	5.5	4.7
07645	00	Z	850	31	3.5	2.5
07645	12	Z	850	31	4.7	3.3
07761	12	Z	850	31	3.6	-1.5
07761	00	Z	850	32	3.5	-2.0
08001	12	Z	850	31	6.0	5.2
08001	00	Z	850	31	7.3	6.8
08221	12	Z	850	31	4.5	3.9
08221	00	Z	850	30	4.2	3.5
08302	00	Z	850	29	4.0	-2.8
08302	12	Z	850	31	3.8	-3.0
08508	12	Z	850	31	7.5	5.5
08522	12	Z	850	10	2.6	2.1
08579	12	Z	850	10	3.8	2.9
10035	00	Z	850	31	3.5	2.0
10035	12	Z	850	32	4.0	1.7
10393	12	Z	850	31	3.2	1.0
10393	00	Z	850	32	4.7	0.3
10410	12	Z	850	32	2.5	-1.1
10410	00	Z	850	31	2.3	-0.8
10739	12	Z	850	32	7.3	7.0
10739	00	Z	850	32	8.5	8.2
11035	00	Z	850	32	8.8	8.2
11035	12	Z	850	32	8.5	7.6
12982	12	Z	850	31	15.3	5.5
12982	00	Z	850	31	6.2	4.5
16080	00	Z	850	31	3.2	-1.6
16080	12	Z	850	33	3.3	-2.5
16245	00	Z	850	31	8.2	-6.8
16245	12	Z	850	30	10.8	-10.0
16320	12	Z	850	31	11.9	10.6
16320	00	Z	850	31	12.9	11.7
16429	12	Z	850	35	6.7	1.1
16429	00	Z	850	36	14.6	-2.7
16622	00	Z	850	31	11.5	9.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	850	29	8.9	6.7
16754	12	Z	850	20	9.0	4.8
17607	12	Z	850	32	3.3	2.5
26435	00	Z	850	15	5.0	4.3
60018	12	Z	850	31	5.0	-2.9
60018	00	Z	850	31	3.7	-2.6
ASDE03	00	Z	850	3	37.7	37.4
ASDE03	12	Z	850	7	40.2	39.9
ASDK01	00	Z	850	17	8.1	7.0
ASDK01	12	Z	850	21	6.9	-0.3
ASDK03	12	Z	850	11	25.6	25.0
ASDK03	00	Z	850	11	24.1	23.1
ASDK1	12	Z	850	16	9.4	-2.6
ASDK1	00	Z	850	16	10.4	7.9
ASDK3	12	Z	850	7	25.6	22.7
ASDK3	00	Z	850	9	22.7	20.6
ASES01	12	Z	850	28	4.0	2.4
ASEU01	12	Z	850	3	12.6	12.1
ASEU02	00	Z	850	9	21.8	21.0
ASEU02	12	Z	850	9	22.5	21.9
ASEU03	12	Z	850	12	22.2	-12.8
ASEU03	00	Z	850	12	19.0	-3.9
ASEU04	00	Z	850	11	4.9	-0.7
ASEU04	12	Z	850	9	4.8	-2.7
ASEU05	00	Z	850	8	18.8	-17.6
ASEU05	12	Z	850	10	18.3	-17.3
ASEU06	12	Z	850	7	47.9	-29.7
ASEU06	00	Z	850	9	56.8	-41.6
ASFR1	00	Z	850	9	4.2	-2.8
ASFR1	12	Z	850	12	8.7	-7.3
ASFR3	00	Z	850	12	3.5	0.2
ASFR3	12	Z	850	13	4.6	-0.7
ASFR4	00	Z	850	24	4.9	4.2
ASFR4	12	Z	850	26	6.3	3.9

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 850 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : MAR 2017
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	30	3.3	0.6	0.2
01001	00	V	850	30	3.5	-0.1	0.5
01028	00	V	850	30	2.8	0.0	0.0
01028	12	V	850	31	3.9	-0.1	-1.2
01400	00	V	850	26	2.6	0.4	-0.1
01400	12	V	850	28	2.1	0.3	0.0
01415	00	V	850	25	2.9	-0.2	-0.3
01415	12	V	850	29	2.9	-0.3	-0.1
02365	00	V	850	27	3.0	-0.1	0.0
02365	12	V	850	27	3.7	-0.4	0.8
02591	00	V	850	30	2.8	-0.2	0.3
02591	12	V	850	30	2.6	-0.6	-0.8
02836	00	V	850	30	2.8	0.5	-0.3
02836	12	V	850	31	3.0	0.1	0.2
02963	12	V	850	31	2.6	-0.5	0.3
02963	00	V	850	30	2.6	0.1	0.7
03005	12	V	850	31	3.2	-0.3	0.4
03005	00	V	850	30	2.9	0.0	-0.2
03238	12	V	850	6	2.9	0.2	0.8
03238	00	V	850	29	2.9	0.2	-0.5
03808	12	V	850	31	3.0	0.3	-0.3
03808	00	V	850	30	2.8	0.0	0.5
03918	12	V	850	12	2.3	-0.4	0.7
03918	00	V	850	30	3.3	0.5	0.2
03953	00	V	850	30	3.1	-0.1	0.2
03953	12	V	850	31	3.9	0.0	0.1
04018	00	V	850	28	3.5	0.6	-0.5
04018	12	V	850	28	3.5	1.1	-0.6
04220	12	V	850	30	2.8	0.9	0.5
04220	00	V	850	30	2.1	0.3	0.2
04270	12	V	850	31	3.9	0.1	-0.1
04270	00	V	850	30	4.3	-1.0	0.5
04320	12	V	850	31	3.3	-0.2	0.8
04320	00	V	850	30	3.5	0.6	0.2
04339	12	V	850	31	2.8	0.3	0.1
04339	00	V	850	30	4.2	1.4	-0.3
04360	12	V	850	31	3.9	-0.2	-0.1
04360	00	V	850	30	4.2	1.3	0.7
06011	00	V	850	30	3.0	-0.3	-0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	850	30	3.0	-0.4	-0.1
06260	00	V	850	30	2.7	-0.6	-0.7
06260	12	V	850	5	2.6	0.5	-1.2
06610	12	V	850	31	4.2	0.3	-0.4
06610	00	V	850	30	3.0	0.7	0.1
07110	12	V	850	31	3.3	0.2	0.5
07110	00	V	850	28	3.6	0.3	0.3
07510	00	V	850	30	3.1	0.0	0.5
07510	12	V	850	31	3.6	0.9	-0.1
07645	00	V	850	30	3.1	-0.6	0.0
07645	12	V	850	31	3.8	-1.1	-0.1
07761	12	V	850	31	3.5	0.5	0.1
07761	00	V	850	30	5.0	-0.3	-0.3
08001	12	V	850	31	3.2	1.0	-0.1
08001	00	V	850	30	3.2	0.5	0.5
08221	12	V	850	31	2.5	0.5	0.2
08221	00	V	850	29	3.0	0.5	-0.2
08302	00	V	850	28	2.5	-0.9	-0.5
08302	12	V	850	31	2.8	0.6	0.3
08508	12	V	850	29	3.3	-0.2	-0.5
08522	12	V	850	10	4.5	1.0	1.2
08579	12	V	850	10	2.7	1.1	-0.7
10035	00	V	850	30	2.1	0.3	-0.1
10035	12	V	850	31	2.7	0.6	-0.2
10393	12	V	850	31	3.0	-0.2	-0.3
10393	00	V	850	29	2.3	-0.5	0.1
10410	12	V	850	31	2.8	0.9	-0.2
10410	00	V	850	30	2.8	0.1	-0.2
10739	12	V	850	31	3.2	-0.5	-0.1
10739	00	V	850	29	2.6	0.1	0.2
11035	00	V	850	30	3.4	0.1	-0.3
11035	12	V	850	31	3.3	-0.1	0.2
12982	12	V	850	31	2.9	-0.4	0.7
12982	00	V	850	31	3.7	0.1	0.0
16080	00	V	850	30	3.4	-0.1	-1.3
16080	12	V	850	31	3.7	0.0	0.3
16245	00	V	850	30	2.7	-0.3	-0.2
16245	12	V	850	30	5.0	-0.3	0.9
16320	12	V	850	31	3.3	0.1	-0.2
16320	00	V	850	30	3.7	0.6	-1.2
16429	12	V	850	31	3.1	-0.3	0.4
16429	00	V	850	30	3.0	-0.1	0.2
16622	00	V	850	24	3.4	0.2	-1.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	850	29	3.4	-0.9	0.2
16754	12	V	850	19	4.5	-0.8	-0.4
17607	12	V	850	31	3.5	1.3	-0.1
26435	00	V	850	14	2.3	0.1	0.0
60018	12	V	850	31	3.7	0.8	0.2
60018	00	V	850	30	3.6	0.0	0.3
ASDE03	00	V	850	3	5.5	1.4	1.1
ASDE03	12	V	850	5	2.6	0.3	1.5
ASDK01	00	V	850	16	2.6	0.1	-0.1
ASDK01	12	V	850	18	2.8	0.3	-0.4
ASDK03	12	V	850	9	2.8	-1.2	0.1
ASDK03	00	V	850	10	2.7	-1.4	0.4
ASDK1	12	V	850	16	3.6	0.6	0.0
ASDK1	00	V	850	16	3.9	0.9	-0.7
ASDK3	12	V	850	7	3.3	-0.1	0.2
ASDK3	00	V	850	9	2.8	-0.4	-0.8
ASES01	12	V	850	23	3.0	0.0	-0.8
ASEU01	12	V	850	3	1.8	-0.2	0.5
ASEU02	00	V	850	8	2.8	0.3	-0.6
ASEU02	12	V	850	7	2.2	-0.3	-1.0
ASEU03	12	V	850	10	2.9	-0.3	1.5
ASEU03	00	V	850	11	5.2	-1.7	-0.6
ASEU04	00	V	850	10	2.6	0.3	-0.9
ASEU04	12	V	850	9	2.8	-0.6	-0.1
ASEU05	00	V	850	8	4.8	0.0	-1.4
ASEU05	12	V	850	10	3.7	0.2	0.4
ASEU06	12	V	850	7	2.9	0.4	-0.9
ASEU06	00	V	850	8	2.3	0.4	0.4
ASFR1	00	V	850	6	4.3	1.6	1.5
ASFR1	12	V	850	7	2.2	-0.5	-1.0
ASFR3	00	V	850	12	3.0	0.5	-0.7
ASFR3	12	V	850	13	4.2	-0.2	-2.1
ASFR4	00	V	850	13	3.5	-0.2	-1.3
ASFR4	12	V	850	15	4.0	0.5	-1.2

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : MAR 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	724	0	0.4	-0.1	0.4
1300001	99	P	SUR	11	-23	618	0	0.3	-0.0	0.3
1300572	99	P	SUR	20	-67	686	0	0.6	0.1	0.6
1300869	99	P	SUR	21	-52	741	0	0.3	-0.0	0.3
1300871	99	P	SUR	22	-56	722	0	0.8	0.4	0.8
1300872	99	P	SUR	32	-52	741	0	2.0	-0.1	2.0
1301500	99	P	SUR	18	-67	721	0	0.4	-0.1	0.4
1301501	99	P	SUR	19	-53	736	0	0.3	0.2	0.4
1301502	99	P	SUR	22	-43	739	0	0.3	0.5	0.6
13572	99	P	SUR	20	-67	686	0	0.6	0.1	0.6
13869	99	P	SUR	21	-52	741	0	0.3	-0.0	0.3
13871	99	P	SUR	22	-56	722	0	0.8	0.4	0.8
13872	99	P	SUR	32	-52	741	0	2.0	-0.1	2.0
1501529	99	P	SUR	24	-20	710	0	0.3	0.5	0.6
1501531	99	P	SUR	21	-24	711	0	0.3	0.4	0.5
1501533	99	P	SUR	11	-23	711	0	0.3	0.4	0.5
1501534	99	P	SUR	23	-23	710	0	0.3	0.2	0.4
2100942	99	P	SUR	22	-47	715	0	0.3	0.3	0.4
21942	99	P	SUR	22	-47	715	0	0.3	0.3	0.4
2500575	99	P	SUR	61	-24	743	462	0.7	-0.5	0.9
2500622	99	P	SUR	85	5	742	0	0.5	-0.4	0.7
2500623	99	P	SUR	86	-15	742	0	0.5	-0.2	0.5
25575	99	P	SUR	61	-24	743	462	0.7	-0.5	0.9
25622	99	P	SUR	85	5	742	0	0.5	-0.4	0.7
25623	99	P	SUR	86	-15	742	0	0.5	-0.2	0.5
2600545	99	P	SUR	68	-26	415	46	4.8	0.7	4.9
2600565	99	P	SUR	86	6	540	0	0.5	0.1	0.5
2600566	99	P	SUR	86	9	541	0	0.5	0.0	0.5
2600568	99	P	SUR	85	26	541	541	0.0	0.0	0.0
2600571	99	P	SUR	85	9	516	0	0.5	-0.3	0.6
2601560	99	P	SUR	85	10	742	0	0.5	0.5	0.7
26545	99	P	SUR	68	-26	553	86	4.9	1.4	5.1
26565	99	P	SUR	86	6	683	0	0.5	0.1	0.5
26566	99	P	SUR	86	9	683	0	0.5	0.0	0.5
26568	99	P	SUR	85	26	693	692	0.0	-15.0	15.0
26571	99	P	SUR	85	9	642	0	0.5	-0.4	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4100139	99	P	SUR	20	-38	473	0	0.5	-0.1	0.5
4100300	99	P	SUR	16	-57	744	0	0.3	0.3	0.4
4100506	99	P	SUR	29	-47	700	0	0.3	-0.0	0.3
4100590	99	P	SUR	41	-34	742	0	0.5	-0.5	0.7
4100597	99	P	SUR	35	-54	378	6	2.9	-0.8	3.0
4100707	99	P	SUR	14	-61	742	0	0.3	-0.8	0.9
4100729	99	P	SUR	41	-36	742	0	0.6	0.1	0.6
4100731	99	P	SUR	29	-65	743	0	0.5	0.4	0.6
4100975	99	P	SUR	28	-56	740	0	0.8	-0.2	0.8
4101700	99	P	SUR	35	-45	742	0	0.5	0.3	0.6
4101702	99	P	SUR	21	-49	742	0	0.3	0.5	0.5
4101703	99	P	SUR	22	-50	742	0	0.3	0.7	0.8
4101704	99	P	SUR	12	-61	742	0	0.4	0.8	0.9
4101705	99	P	SUR	32	-50	702	0	0.4	0.2	0.4
4101706	99	P	SUR	36	-41	680	0	0.5	-0.1	0.5
4101707	99	P	SUR	39	-35	662	0	0.6	0.2	0.6
4101708	99	P	SUR	34	-47	695	0	0.5	0.7	0.9
4101709	99	P	SUR	43	-22	627	0	0.5	0.5	0.7
4101741	99	P	SUR	22	-48	743	0	0.3	0.7	0.8
41040	99	P	SUR	15	-53	998	0	0.4	-0.6	0.7
41041	99	P	SUR	14	-46	940	0	0.4	-0.1	0.5
41043	99	P	SUR	21	-65	1297	0	0.5	0.4	0.6
41044	99	P	SUR	22	-59	1319	0	0.4	-0.2	0.4
41048	99	P	SUR	32	-70	986	0	0.5	-0.7	0.9
41049	99	P	SUR	28	-63	739	0	0.5	-0.2	0.5
41052	99	P	SUR	18	-65	1786	0	0.4	-1.2	1.3
41053	99	P	SUR	19	-66	1843	0	0.4	-0.6	0.7
41056	99	P	SUR	18	-66	1681	0	0.4	-1.0	1.0
41139	99	P	SUR	20	-38	176	0	0.7	0.0	0.7
41300	99	P	SUR	16	-57	744	0	0.3	0.3	0.4
41506	99	P	SUR	29	-47	700	0	0.3	-0.0	0.3
41590	99	P	SUR	41	-34	742	0	0.5	-0.5	0.7
41597	99	P	SUR	35	-54	378	6	2.9	-0.8	3.0
41707	99	P	SUR	14	-61	742	0	0.3	-0.8	0.9
41729	99	P	SUR	41	-36	742	0	0.6	0.1	0.6
41731	99	P	SUR	29	-65	743	0	0.5	0.4	0.6
41975	99	P	SUR	28	-56	740	0	0.8	-0.2	0.8
4201500	99	P	SUR	37	-67	708	5	2.2	0.4	2.3
42059	99	P	SUR	15	-68	1294	0	0.6	0.5	0.8
42060	99	P	SUR	16	-63	710	0	0.5	-0.1	0.5
42085	99	P	SUR	18	-67	1724	0	0.4	-0.9	1.0
42088	99	P	SUR	11	-61	1553	0	0.5	0.2	0.6
42090	99	P	SUR	18	-70	2291	0	0.5	0.0	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44005	99	P	SUR	43	-69	981	0	0.7	-0.2	0.7
4400510	99	P	SUR	46	-40	1293	0	0.6	0.5	0.8
4400513	99	P	SUR	54	-10	741	0	0.5	-0.4	0.7
4400517	99	P	SUR	25	-25	742	0	0.3	0.4	0.5
4400521	99	P	SUR	37	-25	736	1	0.4	-0.5	0.6
4400624	99	P	SUR	28	-62	730	0	0.4	-0.3	0.5
4400670	99	P	SUR	44	-57	129	0	0.5	0.5	0.7
4400746	99	P	SUR	31	-21	741	0	0.3	0.6	0.7
4400765	99	P	SUR	59	-10	739	0	0.7	-0.2	0.7
4400766	99	P	SUR	39	-18	742	0	0.4	0.2	0.5
4400768	99	P	SUR	28	-30	743	0	0.4	0.8	1.0
4400772	99	P	SUR	53	-13	572	0	2.9	-1.6	3.3
4400773	99	P	SUR	47	-4	740	0	0.4	0.7	0.8
4400776	99	P	SUR	31	-28	742	0	0.3	0.7	0.8
4400777	99	P	SUR	35	-51	742	0	0.7	0.0	0.7
4400778	99	P	SUR	38	-19	742	0	0.3	0.6	0.7
4400779	99	P	SUR	51	-21	735	1	1.4	0.0	1.5
4400835	99	P	SUR	28	-46	557	0	0.3	-0.6	0.7
4400839	99	P	SUR	23	-52	743	0	0.3	-0.3	0.4
4400846	99	P	SUR	26	-29	316	0	0.4	0.6	0.7
4400848	99	P	SUR	26	-36	741	0	0.3	0.3	0.5
4400857	99	P	SUR	42	-23	740	0	0.5	0.4	0.6
4400863	99	P	SUR	29	-65	742	0	0.4	-0.7	0.8
4400874	99	P	SUR	31	-32	741	0	0.4	0.4	0.5
4400887	99	P	SUR	32	-50	741	0	0.4	-0.2	0.4
4400889	99	P	SUR	34	-36	742	0	0.4	-0.1	0.4
4400891	99	P	SUR	27	-56	743	0	0.4	-0.5	0.7
4400901	99	P	SUR	55	-15	741	0	0.6	-0.1	0.6
4400904	99	P	SUR	40	-20	741	0	0.4	-0.1	0.4
44011	99	P	SUR	41	-67	742	0	0.6	-0.7	0.9
4401500	99	P	SUR	36	-64	741	0	0.6	0.2	0.7
4401501	99	P	SUR	48	-29	738	0	0.5	0.1	0.5
4401503	99	P	SUR	30	-54	741	0	0.4	0.2	0.5
4401525	99	P	SUR	11	-50	739	0	0.4	0.3	0.5
4401526	99	P	SUR	38	-11	727	0	0.3	0.4	0.5
4401527	99	P	SUR	14	-51	738	0	0.3	0.4	0.5
4401528	99	P	SUR	35	-46	742	0	0.4	0.4	0.6
4401529	99	P	SUR	19	-63	739	0	0.3	0.0	0.3
4401530	99	P	SUR	40	-55	740	0	0.6	-0.5	0.8
4401531	99	P	SUR	19	-59	737	0	0.3	0.5	0.6
4401532	99	P	SUR	35	-67	742	0	0.8	0.8	1.1
4401533	99	P	SUR	16	-62	116	0	0.3	-0.3	0.4
4401534	99	P	SUR	35	-62	737	0	0.5	-0.2	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401535	99	P	SUR	47	-25	598	0	0.5	0.4	0.6
4401536	99	P	SUR	48	-43	665	0	0.7	0.4	0.8
4401537	99	P	SUR	39	-35	680	0	0.5	-0.7	0.8
4401538	99	P	SUR	44	-30	186	0	0.6	-1.9	2.0
4401539	99	P	SUR	38	-59	741	0	0.6	0.3	0.7
4401545	99	P	SUR	35	-60	740	0	0.4	0.5	0.7
4401546	99	P	SUR	45	-38	739	0	0.5	0.7	0.8
4401547	99	P	SUR	31	-67	740	0	0.5	-0.2	0.5
4401548	99	P	SUR	50	-32	736	0	0.6	0.1	0.6
4401550	99	P	SUR	42	-45	641	0	0.7	0.0	0.7
4401551	99	P	SUR	30	-38	736	0	0.3	0.5	0.6
4401552	99	P	SUR	43	-40	740	0	0.7	0.2	0.7
4401553	99	P	SUR	55	-43	739	0	0.6	0.5	0.8
4401554	99	P	SUR	58	-31	726	0	0.6	0.6	0.8
4401555	99	P	SUR	47	-43	741	0	0.8	0.1	0.8
44016	99	P	SUR	45	-46	180	0	0.7	0.4	0.8
4401601	99	P	SUR	58	-52	457	0	0.5	0.2	0.5
4401602	99	P	SUR	47	-55	446	0	0.6	0.6	0.9
4401603	99	P	SUR	55	-40	443	0	0.4	0.4	0.6
4401604	99	P	SUR	56	-52	443	0	0.6	0.2	0.6
4401605	99	P	SUR	55	-46	458	0	0.5	-0.2	0.5
4401606	99	P	SUR	45	-46	536	0	0.7	0.1	0.7
4401608	99	P	SUR	50	-49	126	0	1.1	6.4	6.5
4401609	99	P	SUR	48	-61	529	0	0.8	0.7	1.0
4401612	99	P	SUR	42	-53	451	0	0.6	0.7	0.9
4401613	99	P	SUR	42	-49	463	0	0.6	0.8	1.0
4401616	99	P	SUR	47	-51	534	0	0.6	0.4	0.8
4401625	99	P	SUR	47	-56	436	49	0.8	0.8	1.1
4401629	99	P	SUR	51	-49	447	0	0.7	1.7	1.9
4401631	99	P	SUR	46	-44	526	0	0.5	0.1	0.6
4401633	99	P	SUR	45	-47	524	0	0.6	0.4	0.7
4401634	99	P	SUR	54	-25	461	0	0.5	-0.3	0.6
4401757	99	P	SUR	63	-14	294	0	0.4	0.5	0.6
4401758	99	P	SUR	65	-11	540	0	0.4	0.6	0.7
44024	99	P	SUR	42	-66	893	0	0.5	-1.1	1.2
44027	99	P	SUR	44	-67	776	0	0.6	-0.2	0.7
44032	99	P	SUR	44	-69	738	0	0.7	-0.2	0.7
44033	99	P	SUR	44	-69	548	0	1.6	-0.4	1.6
44034	99	P	SUR	44	-68	630	0	0.6	-0.5	0.8
44139	99	P	SUR	44	-57	722	0	0.6	0.2	0.6
44150	99	P	SUR	43	-64	612	0	0.6	0.1	0.6
44251	99	P	SUR	46	-53	714	0	1.4	1.1	1.8
44258	99	P	SUR	45	-63	693	0	0.7	0.0	0.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44510	99	P	SUR	46	-40	1293	0	0.6	0.5	0.8
44513	99	P	SUR	54	-10	741	0	0.5	-0.4	0.7
44517	99	P	SUR	25	-25	742	0	0.3	0.4	0.5
44521	99	P	SUR	37	-25	736	1	0.4	-0.5	0.6
44624	99	P	SUR	28	-62	730	0	0.4	-0.3	0.5
44670	99	P	SUR	44	-57	316	0	0.6	0.5	0.8
44746	99	P	SUR	31	-21	741	0	0.3	0.6	0.7
44765	99	P	SUR	59	-10	739	0	0.7	-0.2	0.7
44766	99	P	SUR	39	-18	742	0	0.4	0.2	0.5
44768	99	P	SUR	28	-30	743	0	0.4	0.8	1.0
44772	99	P	SUR	53	-13	572	0	2.9	-1.6	3.3
44773	99	P	SUR	47	-4	740	0	0.4	0.7	0.8
44776	99	P	SUR	31	-28	742	0	0.3	0.7	0.8
44777	99	P	SUR	35	-50	742	0	0.7	0.0	0.7
44778	99	P	SUR	38	-19	742	0	0.3	0.6	0.7
44779	99	P	SUR	51	-21	735	1	1.4	0.0	1.5
44835	99	P	SUR	28	-46	557	0	0.3	-0.6	0.7
44839	99	P	SUR	23	-52	743	0	0.3	-0.3	0.4
44846	99	P	SUR	26	-29	316	0	0.4	0.6	0.7
44848	99	P	SUR	26	-36	741	0	0.3	0.3	0.5
44857	99	P	SUR	42	-22	740	0	0.5	0.4	0.6
44863	99	P	SUR	29	-65	742	0	0.4	-0.7	0.8
44874	99	P	SUR	31	-32	741	0	0.4	0.4	0.5
44887	99	P	SUR	32	-50	741	0	0.4	-0.2	0.4
44889	99	P	SUR	34	-36	742	0	0.4	-0.1	0.4
44891	99	P	SUR	27	-56	743	0	0.4	-0.5	0.7
44901	99	P	SUR	55	-15	741	0	0.6	-0.1	0.6
44904	99	P	SUR	40	-20	741	0	0.4	-0.1	0.4
4700539	99	P	SUR	41	-19	267	23	6.4	-1.2	6.5
4700540	99	P	SUR	58	-10	450	0	0.6	0.8	1.0
4700546	99	P	SUR	44	-55	454	0	0.6	0.6	0.8
4700551	99	P	SUR	47	-38	374	109	6.7	-1.4	6.8
4700552	99	P	SUR	67	-63	370	0	0.5	-1.5	1.6
4700555	99	P	SUR	48	-41	439	0	0.8	-0.3	0.9
4700557	99	P	SUR	51	-17	446	0	0.4	0.0	0.4
4700560	99	P	SUR	56	-12	261	0	0.5	0.2	0.6
4700562	99	P	SUR	58	-13	431	0	0.5	0.4	0.6
4700568	99	P	SUR	47	-15	456	0	0.7	0.8	1.1
4700569	99	P	SUR	54	-12	199	0	1.4	-0.5	1.5
4700574	99	P	SUR	43	-31	450	0	0.7	0.4	0.8
4701656	99	P	SUR	70	-62	453	0	0.5	-1.7	1.7
4701657	99	P	SUR	80	-65	466	0	0.6	-1.1	1.2
47539	99	P	SUR	41	-19	408	26	5.6	-0.8	5.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
47540	99	P	SUR	58	-10	545	0	0.6	0.8	1.0
47546	99	P	SUR	44	-55	555	0	0.6	0.7	0.9
47551	99	P	SUR	47	-38	542	222	7.2	-0.2	7.2
47552	99	P	SUR	67	-63	518	0	0.5	-1.5	1.6
47555	99	P	SUR	48	-41	544	0	0.9	-0.5	1.0
47557	99	P	SUR	51	-17	545	0	0.5	0.0	0.5
47560	99	P	SUR	56	-12	409	0	0.6	0.1	0.6
47562	99	P	SUR	58	-13	533	0	0.6	0.3	0.7
47568	99	P	SUR	47	-15	542	0	0.7	0.7	1.0
47569	99	P	SUR	54	-12	302	0	1.1	-0.6	1.2
47574	99	P	SUR	43	-31	546	0	0.7	0.2	0.8
4800276	99	P	SUR	85	-58	303	0	0.6	-0.1	0.6
4800508	99	P	SUR	85	-49	2797	0	0.5	0.3	0.6
4800520	99	P	SUR	76	-15	199	0	0.6	0.1	0.6
4800600	99	P	SUR	66	-33	502	0	0.6	0.1	0.6
4800664	99	P	SUR	55	-55	742	0	0.6	0.6	0.9
4800770	99	P	SUR	85	-55	463	0	0.5	0.5	0.8
48276	99	P	SUR	85	-58	484	0	0.6	-0.1	0.6
48508	99	P	SUR	85	-49	2797	0	0.5	0.3	0.6
48520	99	P	SUR	76	-15	199	0	0.6	0.1	0.6
48600	99	P	SUR	66	-33	502	0	0.6	0.1	0.6
48664	99	P	SUR	55	-55	742	0	0.6	0.6	0.9
48770	99	P	SUR	85	-55	661	0	0.6	0.6	0.8
6100001	99	P	SUR	43	8	744	0	0.6	0.0	0.6
6100002	99	P	SUR	42	5	743	0	0.4	-0.0	0.4
61001	99	P	SUR	43	8	743	0	0.6	0.0	0.6
61002	99	P	SUR	42	5	743	0	0.4	-0.0	0.4
6101003	99	P	SUR	40	25	107	0	1.0	-3.0	3.2
6101007	99	P	SUR	36	25	234	0	0.6	3.0	3.0
6200091	99	P	SUR	53	-5	744	0	0.5	-0.1	0.5
6200092	99	P	SUR	30	-15	369	219	0.5	-0.4	0.6
6200093	99	P	SUR	55	-10	650	19	0.6	-0.4	0.7
6200094	99	P	SUR	52	-7	36	0	0.5	-0.3	0.6
62001	99	P	SUR	45	-5	740	0	0.5	-0.1	0.5
6200513	99	P	SUR	64	-37	742	0	0.8	-0.0	0.8
6200554	99	P	SUR	39	-15	701	0	0.4	0.5	0.7
6200556	99	P	SUR	26	-29	722	0	0.4	-0.2	0.4
6200558	99	P	SUR	51	-12	731	0	0.5	0.1	0.5
6200559	99	P	SUR	48	-19	523	0	0.7	-0.1	0.7
6200560	99	P	SUR	17	-62	697	0	0.3	0.3	0.5
6200940	99	P	SUR	32	-17	742	0	0.3	0.2	0.4
6200941	99	P	SUR	24	-41	743	0	0.3	-0.1	0.3
62027	99	P	SUR	49	-2	249	0	0.6	0.0	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62029	99	P	SUR	49	-12	1392	0	0.7	-0.2	0.7
6203503	99	P	SUR	30	-20	737	0	0.3	0.3	0.4
6203504	99	P	SUR	32	-24	737	0	0.3	0.4	0.5
62050	99	P	SUR	50	-4	744	0	0.5	0.2	0.5
62082	99	P	SUR	55	6	1	0	0.0	0.3	0.3
62086	99	P	SUR	55	6	723	1	0.3	0.0	0.3
62095	99	P	SUR	53	-16	744	1	0.5	-0.3	0.6
62102	99	P	SUR	58	2	724	0	0.7	0.2	0.7
62103	99	P	SUR	50	-3	744	0	0.5	0.5	0.7
62104	99	P	SUR	57	1	724	0	0.4	0.0	0.4
62105	99	P	SUR	55	-13	701	1	0.7	-0.6	0.9
62107	99	P	SUR	50	-6	1477	4	0.6	0.3	0.7
62111	99	P	SUR	58	0	724	0	0.5	0.4	0.6
62112	99	P	SUR	58	0	722	0	0.5	0.2	0.5
62113	99	P	SUR	58	0	722	0	0.5	0.3	0.6
62114	99	P	SUR	58	0	1441	0	0.6	0.0	0.6
62115	99	P	SUR	58	-3	708	0	0.6	-0.1	0.6
62116	99	P	SUR	58	1	721	0	0.5	-0.0	0.5
62117	99	P	SUR	58	0	721	0	0.4	0.2	0.5
62118	99	P	SUR	58	1	724	0	0.4	0.4	0.6
62119	99	P	SUR	57	2	724	0	0.5	0.2	0.6
62120	99	P	SUR	56	2	724	0	0.5	-0.2	0.5
62121	99	P	SUR	54	3	724	0	0.4	0.4	0.5
62122	99	P	SUR	57	2	1445	0	0.4	0.2	0.5
62124	99	P	SUR	54	-4	724	0	0.5	-0.1	0.5
62128	99	P	SUR	59	1	724	0	0.5	-0.0	0.5
62129	99	P	SUR	58	0	723	0	0.5	0.1	0.5
62130	99	P	SUR	59	1	645	0	0.5	-0.2	0.5
62131	99	P	SUR	54	1	540	0	0.4	0.6	0.7
62132	99	P	SUR	56	2	724	0	0.5	0.5	0.7
62133	99	P	SUR	57	1	724	0	0.6	0.1	0.6
62134	99	P	SUR	58	1	724	0	0.4	0.3	0.5
62135	99	P	SUR	54	2	721	0	0.4	0.4	0.6
62136	99	P	SUR	54	3	724	0	0.4	0.7	0.8
62137	99	P	SUR	57	2	716	0	0.4	-0.1	0.4
62138	99	P	SUR	54	0	1445	0	0.4	0.9	1.0
62139	99	P	SUR	53	2	1429	0	0.4	0.4	0.6
62140	99	P	SUR	57	1	1443	0	0.5	0.1	0.5
62141	99	P	SUR	58	-4	714	0	0.6	-2.4	2.4
62143	99	P	SUR	58	2	721	0	0.5	0.6	0.8
62144	99	P	SUR	53	2	724	0	0.4	0.4	0.6
62145	99	P	SUR	53	3	1407	0	0.4	0.5	0.6
62146	99	P	SUR	57	2	695	0	0.6	0.4	0.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62148	99	P	SUR	54	2	724	0	0.5	1.2	1.3
62149	99	P	SUR	54	1	724	0	0.4	0.8	0.9
62150	99	P	SUR	54	1	669	0	0.4	1.3	1.4
62151	99	P	SUR	57	2	1443	0	0.4	0.2	0.5
62152	99	P	SUR	57	2	722	0	0.4	0.5	0.7
62153	99	P	SUR	57	2	1417	0	0.4	0.2	0.5
62154	99	P	SUR	56	2	724	0	0.4	0.0	0.4
62155	99	P	SUR	58	1	707	0	0.4	0.5	0.6
62157	99	P	SUR	58	0	721	0	0.5	0.7	0.8
62160	99	P	SUR	57	2	1439	0	0.5	0.1	0.5
62161	99	P	SUR	58	1	724	0	0.5	0.1	0.5
62162	99	P	SUR	57	1	710	0	0.4	-0.0	0.4
62163	99	P	SUR	48	-8	739	0	0.5	0.2	0.5
62164	99	P	SUR	57	1	724	0	0.4	0.2	0.5
62165	99	P	SUR	54	1	724	0	0.4	0.5	0.7
62167	99	P	SUR	53	2	1427	0	0.4	0.3	0.5
62168	99	P	SUR	58	1	724	0	0.4	0.1	0.4
62170	99	P	SUR	51	2	743	0	0.6	0.2	0.6
62296	99	P	SUR	53	2	724	0	0.4	0.2	0.4
62297	99	P	SUR	59	2	1409	0	0.4	-0.0	0.4
62302	99	P	SUR	61	-2	724	0	0.6	-0.2	0.6
62304	99	P	SUR	51	2	709	3	0.4	0.3	0.5
62305	99	P	SUR	50	0	810	2	0.4	0.2	0.5
62513	99	P	SUR	64	-37	742	0	0.8	-0.0	0.8
62554	99	P	SUR	39	-15	701	0	0.4	0.5	0.7
62556	99	P	SUR	26	-29	722	0	0.4	-0.2	0.4
62558	99	P	SUR	51	-12	731	0	0.5	0.2	0.5
62559	99	P	SUR	48	-19	523	0	0.7	-0.1	0.7
62560	99	P	SUR	17	-62	697	0	0.3	0.3	0.5
62940	99	P	SUR	32	-17	742	0	0.3	0.2	0.4
62941	99	P	SUR	24	-41	743	0	0.3	-0.1	0.3
6300646	99	P	SUR	71	31	743	0	0.4	0.4	0.5
6301551	99	P	SUR	74	36	743	0	0.8	0.4	0.9
6301552	99	P	SUR	84	19	743	0	0.5	0.3	0.6
6301553	99	P	SUR	86	26	742	0	0.6	0.5	0.8
63055	99	P	SUR	61	2	724	0	0.6	0.0	0.6
63056	99	P	SUR	60	2	724	0	0.6	0.2	0.6
63057	99	P	SUR	59	2	724	0	0.5	-0.2	0.5
63058	99	P	SUR	53	2	2159	0	0.4	0.4	0.6
63059	99	P	SUR	58	-1	724	0	0.4	0.3	0.5
63101	99	P	SUR	61	1	724	0	0.7	-0.0	0.7
63102	99	P	SUR	61	1	704	0	0.5	0.2	0.6
63103	99	P	SUR	61	1	724	0	0.5	0.2	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
63104	99	P	SUR	61	2	724	0	0.6	-0.1	0.6
63105	99	P	SUR	61	2	724	0	0.5	-0.1	0.5
63108	99	P	SUR	61	2	724	0	0.6	-0.0	0.6
63109	99	P	SUR	60	2	724	0	0.4	-0.2	0.5
63110	99	P	SUR	60	2	724	0	0.6	-0.2	0.6
63111	99	P	SUR	61	2	1444	0	0.6	-0.5	0.7
63112	99	P	SUR	61	1	724	0	0.5	-0.4	0.6
63115	99	P	SUR	62	1	724	0	0.5	-0.1	0.5
63117	99	P	SUR	61	1	1445	0	0.6	0.4	0.7
63118	99	P	SUR	62	1	725	0	0.8	-0.5	1.0
63119	99	P	SUR	56	-3	55	0	0.9	-0.1	0.9
63120	99	P	SUR	54	2	1	0	0.0	0.6	0.6
63646	99	P	SUR	71	31	743	0	0.4	0.4	0.5
6400476	99	P	SUR	83	-62	83	0	1.8	-0.2	1.8
6400524	99	P	SUR	67	13	743	0	0.5	-0.0	0.5
6400526	99	P	SUR	57	-53	732	0	1.2	0.5	1.3
6400528	99	P	SUR	72	33	742	0	0.4	0.3	0.5
6400530	99	P	SUR	80	15	742	0	0.7	0.4	0.8
6400547	99	P	SUR	78	6	742	0	0.6	0.2	0.6
6400551	99	P	SUR	58	-47	741	5	1.9	-0.5	2.0
6400562	99	P	SUR	64	-10	442	0	1.0	-0.3	1.1
6400666	99	P	SUR	66	-21	402	0	1.9	0.0	1.9
6400777	99	P	SUR	78	17	504	0	0.7	-0.8	1.0
6401501	99	P	SUR	65	-8	688	0	0.4	0.4	0.6
6401550	99	P	SUR	68	12	743	0	0.4	-0.2	0.5
6401552	99	P	SUR	65	-30	741	0	0.6	1.3	1.5
6401554	99	P	SUR	67	9	743	0	0.4	-0.1	0.5
6401555	99	P	SUR	66	2	741	0	0.6	0.5	0.8
6401556	99	P	SUR	66	-2	742	0	0.7	0.5	0.8
6401557	99	P	SUR	63	-19	741	0	0.5	0.2	0.5
64041	99	P	SUR	61	-3	722	0	0.6	-0.1	0.6
64045	99	P	SUR	59	-12	1026	0	0.6	-0.2	0.7
64046	99	P	SUR	61	-4	744	0	0.4	0.0	0.4
64476	99	P	SUR	83	-62	76	0	1.8	-0.3	1.8
64524	99	P	SUR	67	13	743	0	0.5	-0.0	0.5
64526	99	P	SUR	57	-53	732	0	1.2	0.5	1.3
64528	99	P	SUR	72	33	742	0	0.4	0.3	0.5
64530	99	P	SUR	80	15	742	0	0.7	0.4	0.8
64547	99	P	SUR	78	6	742	0	0.6	0.2	0.6
64551	99	P	SUR	58	-47	741	5	1.9	-0.5	2.0
64562	99	P	SUR	64	-10	442	0	1.0	-0.3	1.1
64666	99	P	SUR	66	-21	402	0	1.9	0.0	1.9
64777	99	P	SUR	78	17	493	0	0.7	-0.8	1.1

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6500514	99	P	SUR	57	-20	742	0	0.6	0.0	0.6
6500515	99	P	SUR	65	-23	373	20	2.7	-1.3	3.0
6500519	99	P	SUR	71	20	743	0	0.6	0.0	0.6
6500596	99	P	SUR	71	14	743	0	0.8	0.1	0.8
6500599	99	P	SUR	65	9	742	0	0.5	0.1	0.5
6500602	99	P	SUR	62	-16	741	0	0.5	0.4	0.7
6501551	99	P	SUR	57	-52	741	0	0.6	0.3	0.7
6501552	99	P	SUR	56	-48	742	0	0.6	0.8	1.0
6501553	99	P	SUR	57	-48	738	0	0.6	0.6	0.8
6501555	99	P	SUR	65	-52	741	0	0.5	-0.2	0.5
6501556	99	P	SUR	56	-47	742	0	0.6	0.6	0.8
65514	99	P	SUR	57	-20	742	0	0.6	0.0	0.6
65515	99	P	SUR	65	-23	373	20	2.7	-1.3	3.0
65519	99	P	SUR	71	19	743	0	0.6	0.0	0.6
65596	99	P	SUR	71	14	743	0	0.8	0.1	0.8
65599	99	P	SUR	65	9	742	0	0.5	0.1	0.5
65602	99	P	SUR	62	-17	741	0	0.5	0.4	0.7

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : MAR 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	618	0	0	0.9	0.9	1.2
1300002	99	SPEED	SUR	20	-23	557	0	0	1.0	0.4	1.0
13002	99	SPEED	SUR	20	-23	149	0	0	1.0	-0.0	1.0
4100026	99	SPEED	SUR	11	-38	282	0	0	0.9	0.0	1.0
4100139	99	SPEED	SUR	20	-38	473	0	0	1.0	-0.0	1.0
4100300	99	SPEED	SUR	16	-57	744	0	0	0.8	-0.7	1.1
41026	99	SPEED	SUR	12	-38	282	0	0	1.0	0.1	1.0
41040	99	SPEED	SUR	15	-53	998	0	0	1.1	-0.4	1.1
41041	99	SPEED	SUR	14	-46	940	0	0	0.9	-0.2	0.9
41043	99	SPEED	SUR	21	-65	1311	0	0	1.4	-0.3	1.4
41044	99	SPEED	SUR	22	-59	1317	0	0	1.1	-0.2	1.1
41048	99	SPEED	SUR	32	-70	986	0	0	1.3	-0.1	1.3
41049	99	SPEED	SUR	28	-63	739	0	0	1.4	0.0	1.4
41052	99	SPEED	SUR	18	-65	1786	0	0	1.2	-0.5	1.3
41053	99	SPEED	SUR	19	-66	1843	0	0	1.3	0.5	1.4
41056	99	SPEED	SUR	18	-66	1685	0	0	1.3	-0.7	1.5
41139	99	SPEED	SUR	20	-38	176	0	0	1.0	-0.2	1.1
41300	99	SPEED	SUR	16	-57	744	0	0	0.9	-0.6	1.1
42059	99	SPEED	SUR	15	-68	1299	0	0	1.1	-0.1	1.1
42060	99	SPEED	SUR	16	-63	715	0	0	1.2	-0.1	1.2
42085	99	SPEED	SUR	18	-67	1724	0	0	1.3	-0.1	1.3
42088	99	SPEED	SUR	11	-61	1553	0	0	1.3	-2.6	2.9
42090	99	SPEED	SUR	18	-70	2291	0	0	1.7	0.1	1.7
44024	99	SPEED	SUR	42	-66	921	0	0	1.5	-0.2	1.5
44032	99	SPEED	SUR	44	-69	742	0	0	1.7	0.3	1.8
44033	99	SPEED	SUR	44	-69	600	0	0	1.7	0.2	1.7
44034	99	SPEED	SUR	44	-68	729	0	0	1.5	-0.2	1.5
44139	99	SPEED	SUR	44	-57	729	0	0	1.5	-0.3	1.5
44150	99	SPEED	SUR	43	-64	235	0	0	1.6	-0.4	1.7
44251	99	SPEED	SUR	46	-53	722	0	0	1.6	0.5	1.6
44258	99	SPEED	SUR	45	-63	630	0	0	1.7	0.4	1.7
6100001	99	SPEED	SUR	43	8	744	0	0	1.6	-0.0	1.6
6100002	99	SPEED	SUR	42	5	738	0	0	2.4	0.3	2.4
61001	99	SPEED	SUR	43	8	743	0	0	1.9	-0.8	2.0

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
61002	99	SPEED	SUR	42	5	738	0	0	1.6	-0.6	1.7
6101003	99	SPEED	SUR	40	25	107	0	0	1.8	-1.8	2.5
6101007	99	SPEED	SUR	36	25	234	0	0	1.9	-0.8	2.1
6200091	99	SPEED	SUR	53	-5	744	0	0	1.4	-0.4	1.5
6200092	99	SPEED	SUR	30	-15	369	0	0	4.0	-4.3	5.9
6200093	99	SPEED	SUR	55	-10	650	0	0	1.6	-0.5	1.7
6200094	99	SPEED	SUR	52	-7	744	0	0	1.3	-0.2	1.3
62001	99	SPEED	SUR	45	-5	740	0	0	1.4	0.6	1.5
62027	99	SPEED	SUR	49	-2	249	1	0	1.8	0.1	1.8
62029	99	SPEED	SUR	49	-12	124	0	0	2.3	3.5	4.2
62050	99	SPEED	SUR	50	-4	744	0	0	1.3	0.1	1.3
62082	99	SPEED	SUR	55	6	1	0	0	0.0	0.6	0.6
62086	99	SPEED	SUR	55	6	725	0	0	1.4	0.2	1.4
62095	99	SPEED	SUR	53	-16	744	0	0	1.4	0.1	1.4
62102	99	SPEED	SUR	58	2	724	0	0	1.4	-0.1	1.4
62104	99	SPEED	SUR	57	1	724	0	0	1.4	-0.2	1.4
62105	99	SPEED	SUR	55	-13	666	0	0	1.4	0.4	1.4
62107	99	SPEED	SUR	50	-6	1475	0	0	1.8	0.8	2.0
62111	99	SPEED	SUR	58	0	724	0	0	1.5	0.2	1.5
62112	99	SPEED	SUR	58	0	722	0	0	2.2	-1.3	2.5
62113	99	SPEED	SUR	58	0	722	0	0	1.6	0.5	1.7
62114	99	SPEED	SUR	58	0	1441	0	0	1.5	0.8	1.7
62117	99	SPEED	SUR	58	0	720	0	0	1.3	0.0	1.3
62118	99	SPEED	SUR	58	1	724	0	0	1.4	0.7	1.5
62119	99	SPEED	SUR	57	2	724	0	0	1.5	0.1	1.5
62120	99	SPEED	SUR	56	2	724	0	0	1.5	0.6	1.6
62121	99	SPEED	SUR	54	3	724	0	0	1.3	0.2	1.3
62122	99	SPEED	SUR	57	2	1445	0	0	1.2	0.0	1.2
62128	99	SPEED	SUR	59	1	724	0	0	1.6	0.5	1.6
62129	99	SPEED	SUR	58	0	723	0	0	1.4	0.0	1.4
62131	99	SPEED	SUR	54	1	540	0	0	2.2	-0.6	2.2
62132	99	SPEED	SUR	56	2	724	0	0	1.9	-1.3	2.3
62133	99	SPEED	SUR	57	1	724	0	0	1.5	0.4	1.5
62134	99	SPEED	SUR	58	1	724	0	0	1.3	-0.0	1.3
62140	99	SPEED	SUR	57	1	1165	0	0	1.3	0.2	1.3
62143	99	SPEED	SUR	58	2	721	0	0	1.7	-0.3	1.7
62144	99	SPEED	SUR	53	2	724	0	0	2.0	-0.2	2.0
62145	99	SPEED	SUR	53	3	1407	0	0	1.8	1.3	2.2
62146	99	SPEED	SUR	57	2	692	0	0	1.5	0.2	1.5
62148	99	SPEED	SUR	54	2	724	0	0	1.9	-0.2	1.9
62149	99	SPEED	SUR	54	1	724	0	0	1.4	0.2	1.4

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62150	99	SPEED	SUR	54	1	669	0	0	1.6	-0.5	1.7
62152	99	SPEED	SUR	57	2	722	0	0	1.8	-1.2	2.1
62153	99	SPEED	SUR	57	2	1417	0	0	3.0	-2.2	3.8
62154	99	SPEED	SUR	56	2	724	0	0	1.5	0.0	1.5
62155	99	SPEED	SUR	58	1	682	0	0	1.5	0.2	1.5
62163	99	SPEED	SUR	48	-8	739	0	0	1.2	0.1	1.2
62164	99	SPEED	SUR	57	1	724	0	0	1.5	-1.1	1.9
62165	99	SPEED	SUR	54	1	724	0	0	1.6	-0.4	1.7
62170	99	SPEED	SUR	51	2	743	0	0	2.0	1.6	2.6
62304	99	SPEED	SUR	51	2	703	0	0	2.1	1.2	2.5
62305	99	SPEED	SUR	50	0	810	0	0	1.8	1.7	2.4
63055	99	SPEED	SUR	61	2	724	0	0	1.3	-1.1	1.7
63056	99	SPEED	SUR	60	2	721	0	0	1.3	-0.2	1.4
63057	99	SPEED	SUR	59	2	724	0	0	2.0	-0.4	2.1
63058	99	SPEED	SUR	53	2	1446	0	0	1.6	0.5	1.7
63101	99	SPEED	SUR	61	1	724	0	0	1.7	-0.6	1.8
63103	99	SPEED	SUR	61	1	724	0	0	1.8	-0.4	1.8
63104	99	SPEED	SUR	61	2	724	0	0	1.5	-0.5	1.6
63105	99	SPEED	SUR	61	2	724	0	0	1.5	-0.3	1.5
63106	99	SPEED	SUR	61	2	723	0	0	1.5	-0.2	1.5
63108	99	SPEED	SUR	61	2	724	0	0	1.7	-0.2	1.7
63109	99	SPEED	SUR	60	2	717	0	0	1.4	0.1	1.4
63110	99	SPEED	SUR	60	2	724	0	0	1.5	-0.5	1.5
63112	99	SPEED	SUR	61	1	724	0	0	1.5	-0.8	1.8
63113	99	SPEED	SUR	61	2	724	0	0	1.5	-0.8	1.7
63115	99	SPEED	SUR	62	1	724	0	0	1.6	-0.8	1.8
63117	99	SPEED	SUR	61	1	1445	0	0	1.6	-0.6	1.7
63119	99	SPEED	SUR	56	-3	55	0	0	2.4	-0.9	2.6
64041	99	SPEED	SUR	61	-3	719	0	0	1.4	-0.4	1.4
66021	99	SPEED	SUR	55	14	743	0	0	1.3	-0.2	1.3
66024	99	SPEED	SUR	55	13	723	0	0	1.3	0.0	1.3

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : MAR 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	605	0	0	9.9	2.4	10.2
1300002	99	DIRN	SUR	20	-23	554	0	0	8.0	1.0	8.1
13002	99	DIRN	SUR	20	-23	145	0	0	8.6	2.8	9.0
4100026	99	DIRN	SUR	11	-38	282	0	0	10.3	-0.7	10.3
4100139	99	DIRN	SUR	20	-38	466	0	0	13.0	3.5	13.5
41002	99	DIRN	SUR	32	-75	686	0	0	14.8	8.5	17.1
4100300	99	DIRN	SUR	16	-57	724	0	0	10.6	-13.4	17.1
41004	99	DIRN	SUR	33	-79	705	0	0	19.5	7.9	21.0
41008	99	DIRN	SUR	31	-81	605	0	0	18.9	13.4	23.1
41013	99	DIRN	SUR	33	-78	1190	0	0	13.8	8.8	16.4
41024	99	DIRN	SUR	34	-79	253	0	0	18.3	-5.9	19.2
41025	99	DIRN	SUR	35	-75	672	0	0	15.7	0.3	15.7
41026	99	DIRN	SUR	12	-38	282	0	0	10.3	-1.4	10.4
41029	99	DIRN	SUR	33	-80	542	0	0	20.7	-1.6	20.8
41033	99	DIRN	SUR	32	-80	573	0	0	21.9	3.1	22.2
41037	99	DIRN	SUR	34	-77	622	0	0	21.5	-1.5	21.5
41038	99	DIRN	SUR	34	-78	584	0	0	19.9	0.8	19.9
41040	99	DIRN	SUR	15	-53	958	0	0	11.7	-5.7	13.0
41041	99	DIRN	SUR	14	-46	939	0	0	9.7	-4.1	10.5
41043	99	DIRN	SUR	21	-65	1213	0	0	14.5	10.8	18.1
41044	99	DIRN	SUR	22	-59	1243	0	0	12.2	3.8	12.8
41046	99	DIRN	SUR	22	-73	907	0	0	10.0	6.5	11.9
41047	99	DIRN	SUR	28	-72	1177	0	0	15.9	5.2	16.7
41048	99	DIRN	SUR	32	-70	899	0	0	14.6	7.5	16.5
41049	99	DIRN	SUR	28	-63	690	0	0	17.6	4.8	18.2
41052	99	DIRN	SUR	18	-65	1649	0	0	17.0	3.4	17.3
41053	99	DIRN	SUR	19	-66	1297	0	0	24.0	2.4	24.2
41056	99	DIRN	SUR	18	-66	1490	0	0	17.2	2.8	17.5
41057	99	DIRN	SUR	20	-71	60	0	0	14.1	71.7	73.1
41064	99	DIRN	SUR	34	-77	614	0	0	17.2	-6.8	18.5
41139	99	DIRN	SUR	20	-38	174	0	0	12.3	-0.2	12.3
41300	99	DIRN	SUR	16	-57	716	0	0	10.4	-13.6	17.2

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
42013	99	DIRN	SUR	27	-83	530	0	0	17.7	-5.2	18.4
42022	99	DIRN	SUR	28	-84	879	0	0	17.8	-0.0	17.8
42023	99	DIRN	SUR	26	-83	843	0	0	15.5	1.1	15.5
42036	99	DIRN	SUR	29	-85	545	0	0	17.2	-0.7	17.2
42056	99	DIRN	SUR	20	-85	1225	0	0	10.0	3.9	10.7
42057	99	DIRN	SUR	17	-81	1086	0	0	16.0	6.8	17.4
42058	99	DIRN	SUR	15	-75	1073	0	0	8.6	7.9	11.7
42059	99	DIRN	SUR	15	-68	1172	0	0	11.0	1.7	11.1
42060	99	DIRN	SUR	16	-63	603	0	0	12.6	3.9	13.2
42085	99	DIRN	SUR	18	-67	1340	0	0	20.0	5.7	20.8
42088	99	DIRN	SUR	11	-61	1026	0	0	13.6	-15.7	20.8
42090	99	DIRN	SUR	18	-70	1133	0	0	27.9	-28.2	39.7
44007	99	DIRN	SUR	44	-70	641	0	0	17.4	6.0	18.4
44013	99	DIRN	SUR	42	-71	666	0	0	17.4	8.4	19.3
44014	99	DIRN	SUR	37	-75	637	0	0	15.0	2.3	15.2
44020	99	DIRN	SUR	41	-70	352	0	0	13.8	8.5	16.2
44024	99	DIRN	SUR	42	-66	849	0	0	13.0	6.0	14.3
44025	99	DIRN	SUR	40	-73	701	0	0	14.3	2.5	14.5
44029	99	DIRN	SUR	43	-71	930	0	0	16.9	5.0	17.7
44030	99	DIRN	SUR	43	-70	640	0	0	15.9	3.5	16.3
44032	99	DIRN	SUR	44	-69	652	0	0	14.4	1.3	14.4
44033	99	DIRN	SUR	44	-69	492	0	0	18.1	-0.4	18.1
44034	99	DIRN	SUR	44	-68	658	0	0	15.0	6.0	16.2
44039	99	DIRN	SUR	41	-73	579	0	0	20.1	3.1	20.3
44040	99	DIRN	SUR	41	-74	461	0	0	14.3	-0.2	14.3
44041	99	DIRN	SUR	37	-77	392	0	0	18.5	5.1	19.2
44042	99	DIRN	SUR	38	-76	912	0	0	21.4	-11.4	24.2
44058	99	DIRN	SUR	38	-76	350	0	0	24.4	-19.7	31.4
44062	99	DIRN	SUR	39	-76	928	0	0	27.9	-18.4	33.4
44065	99	DIRN	SUR	40	-74	646	0	0	15.3	6.2	16.6
44066	99	DIRN	SUR	24	-71	865	0	0	81.1	-3.6	81.2
44072	99	DIRN	SUR	37	-76	942	0	0	27.3	-11.9	29.8
44139	99	DIRN	SUR	44	-57	684	0	0	14.8	8.0	16.8
44150	99	DIRN	SUR	43	-64	219	0	0	11.2	6.6	13.0
44251	99	DIRN	SUR	46	-53	660	0	0	13.7	12.7	18.6
44258	99	DIRN	SUR	45	-63	579	0	0	16.6	3.7	17.0
45169	99	DIRN	SUR	42	-82	134	0	0	35.8	-39.8	53.5
45176	99	DIRN	SUR	42	-82	35	0	0	34.8	-0.8	34.8
6200091	99	DIRN	SUR	53	-5	678	0	0	14.1	2.5	14.3
6200092	99	DIRN	SUR	30	-15	148	0	0	9.7	9.9	13.9
6200093	99	DIRN	SUR	55	-10	570	0	0	11.5	0.1	11.5

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
6200094	99	DIRN	SUR	52	-7	686	0	0	15.0	3.9	15.5
62001	99	DIRN	SUR	45	-5	634	0	0	16.4	5.6	17.3
62027	99	DIRN	SUR	49	-2	216	1	0	18.7	-6.2	19.7
62029	99	DIRN	SUR	49	-12	122	0	0	45.1	-20.6	49.6
62050	99	DIRN	SUR	50	-4	657	0	0	13.7	2.5	13.9
62095	99	DIRN	SUR	53	-16	699	0	0	15.5	8.4	17.6
62105	99	DIRN	SUR	55	-13	604	0	0	17.0	4.5	17.6
62107	99	DIRN	SUR	50	-6	1383	0	0	17.6	1.3	17.7
62111	99	DIRN	SUR	58	0	620	0	0	12.3	-2.5	12.5
62112	99	DIRN	SUR	58	0	608	0	0	12.7	2.6	13.0
62114	99	DIRN	SUR	58	0	1289	0	0	10.9	0.2	10.9
62117	99	DIRN	SUR	58	0	623	0	0	11.6	3.9	12.2
62163	99	DIRN	SUR	48	-8	679	0	0	10.3	0.9	10.3
62305	99	DIRN	SUR	50	0	750	0	0	19.5	7.0	20.7
63119	99	DIRN	SUR	56	-3	38	0	0	46.2	-16.2	48.9
64041	99	DIRN	SUR	61	-3	691	0	0	10.2	9.5	13.9

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE02	ASDE03	ASDE09	ASDE09	ASDK01	ASDK03	ASES01	ASEU01	ASEU02
ASEU03	ASEU04	ASEU05	ASEU06	ASFR1	ASFR3	ASFR4	DBLK	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	04417
06011	06260	06610	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	16045	16080	16113	16144	16245	16320
16429	16546	16622	16716	16754	17607	33008	43599	47102
47104	47138	47155	47169	47186	60018	61901	61980	61998
76743	76903	78897	81405	85442	85469	85586	85799	85934
89002	89564	89571	89611	89642	89859	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				

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

ASDE02	ASDE03	ASDE09	ASDE09	ASDK01	ASDK03	ASES01	ASEU01	ASEU02
ASEU03	ASEU04	ASEU05	ASEU06	ASFR1	ASFR3	ASFR4	DBLK	17607
33008	47155	76743	76903	94653	94767			

5 Annex - Explanations of figures and tables

5.1 General

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

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

5.2 Data Availability

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

5.3 Data Quality

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

It should be noted that:

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

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

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

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

The corresponding limits for wind (table 8) are:

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

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

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

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

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

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

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

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

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