



ECMWF Global Data Monitoring Report

April 2018

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**European Centre for Medium-Range Weather Forecasts
Europäisches Zentrum für mittelfristige Wettervorhersage
Centre européen pour les prévisions météorologiques à moyen terme**

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Summary of Revisions (in reverse order)

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

1 Introduction

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

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

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

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

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

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

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

2 Data summary - History of events

2.1 Radiosondes

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

Ident	Time	Mar	Apr	Ident	Time	Mar	Apr
01001	(12)	60	30	06060	(00)	3	16
01004	(00)	30	0	10304	(00)	4	19
01028	(12)	62	30	10954	(00)	4	18
01206	(00)	26	5	32618	(00)	7	30
01206	(12)	26	5	32618	(12)	7	29
02185	(12)	19	0	42314	(00)	2	14
10035	(00)	30	1	42339	(12)	0	36
33041	(00)	31	4	42348	(12)	0	26
40800	(00)	11	0	42369	(12)	0	28
57679	(00)	31	0	42379	(12)	0	26
57679	(12)	31	0	42492	(12)	0	18
64500	(12)	30	17	42647	(00)	10	28
68263	(00)	32	1	42647	(12)	11	29
68263	(12)	53	0	42667	(12)	0	27
68442	(12)	58	45	42701	(12)	0	31
68816	(00)	61	0	42874	(00)	0	18
68816	(12)	56	0	43041	(00)	17	28
70261	(00)	39	27	43041	(12)	1	26
70261	(12)	39	24	43128	(00)	10	23
70398	(12)	29	8	43311	(00)	3	29
71126	(00)	30	10	43311	(12)	0	27
76743	(00)	20	4	43346	(12)	0	12
78970	(00)	14	0	43353	(12)	0	24
78970	(12)	19	1	43369	(12)	0	27
82965	(12)	30	17	60096	(12)	9	28
83525	(12)	29	10	67197	(00)	17	28
88889	(00)	30	11	67197	(12)	17	29
97502	(00)	24	4	72214	(00)	21	34
-	-	-	-	72214	(12)	23	34
-	-	-	-	72261	(00)	11	23
-	-	-	-	72493	(00)	26	38
-	-	-	-	78988	(00)	0	18
-	-	-	-	78988	(12)	0	18
-	-	-	-	80001	(00)	0	18
-	-	-	-	80001	(12)	0	19
-	-	-	-	82917	(00)	0	24
-	-	-	-	82917	(12)	0	24
-	-	-	-	82983	(12)	0	19

2.2 Drifting Buoys

Surface pressure observations from **1388** 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

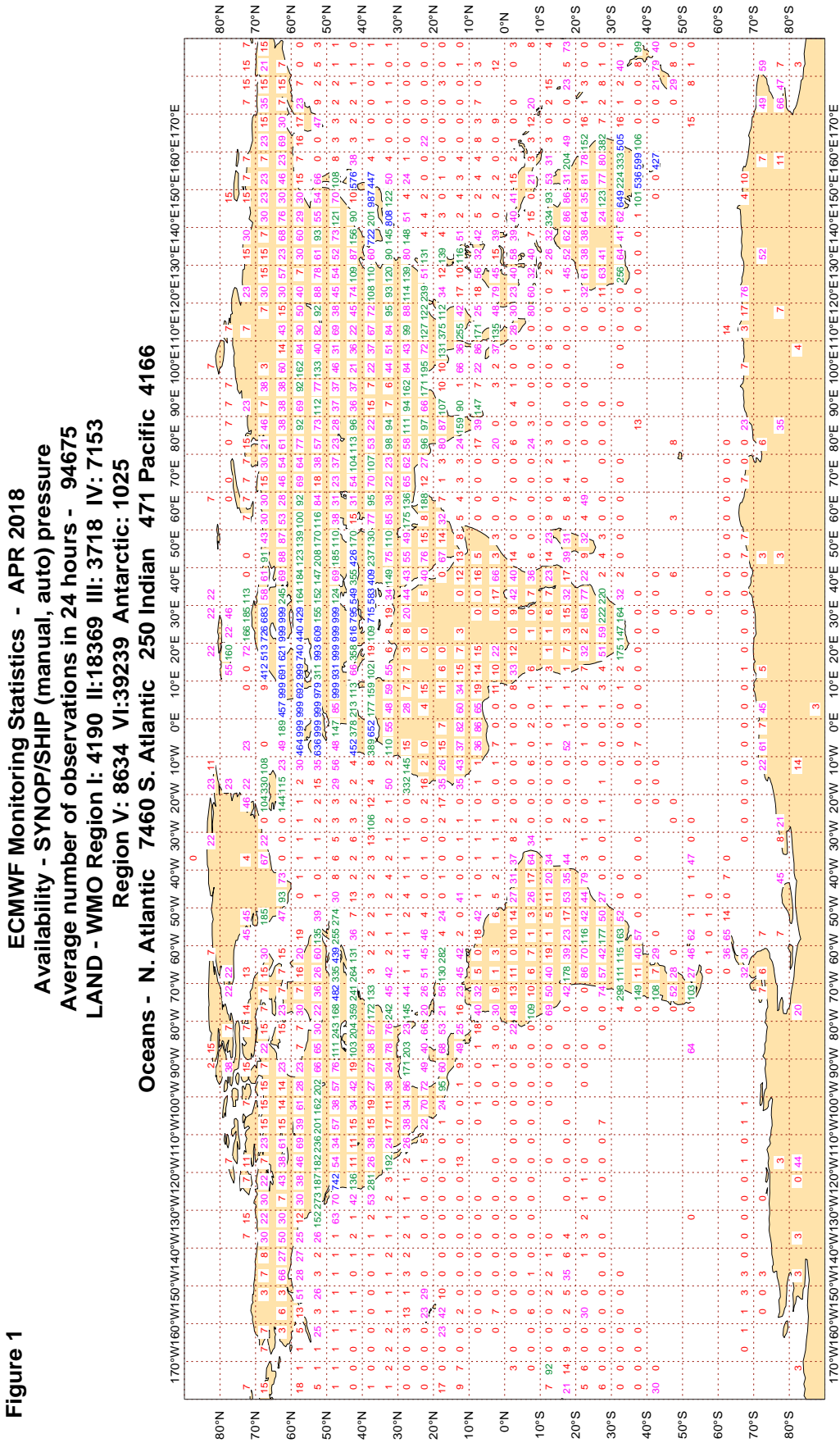
Figures 14-18 show global charts of SATOB and aircraft wind statistics in the form of wind vectors averaged over 5 degree boxes.

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.

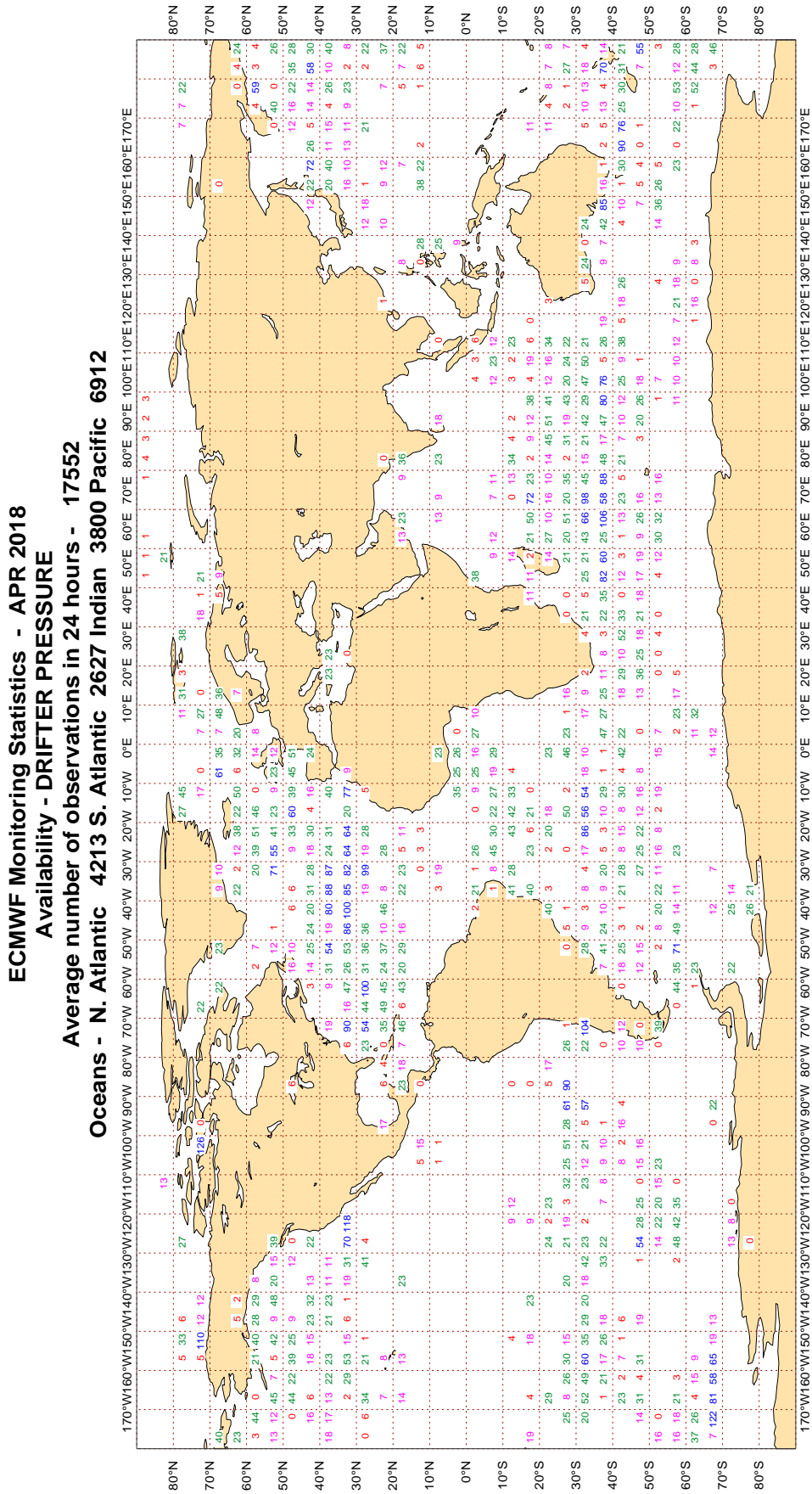
3.2.1 Figure 1 - Availability - SYNOP PRESSURE

Figure 1



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2



3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

Figure 3

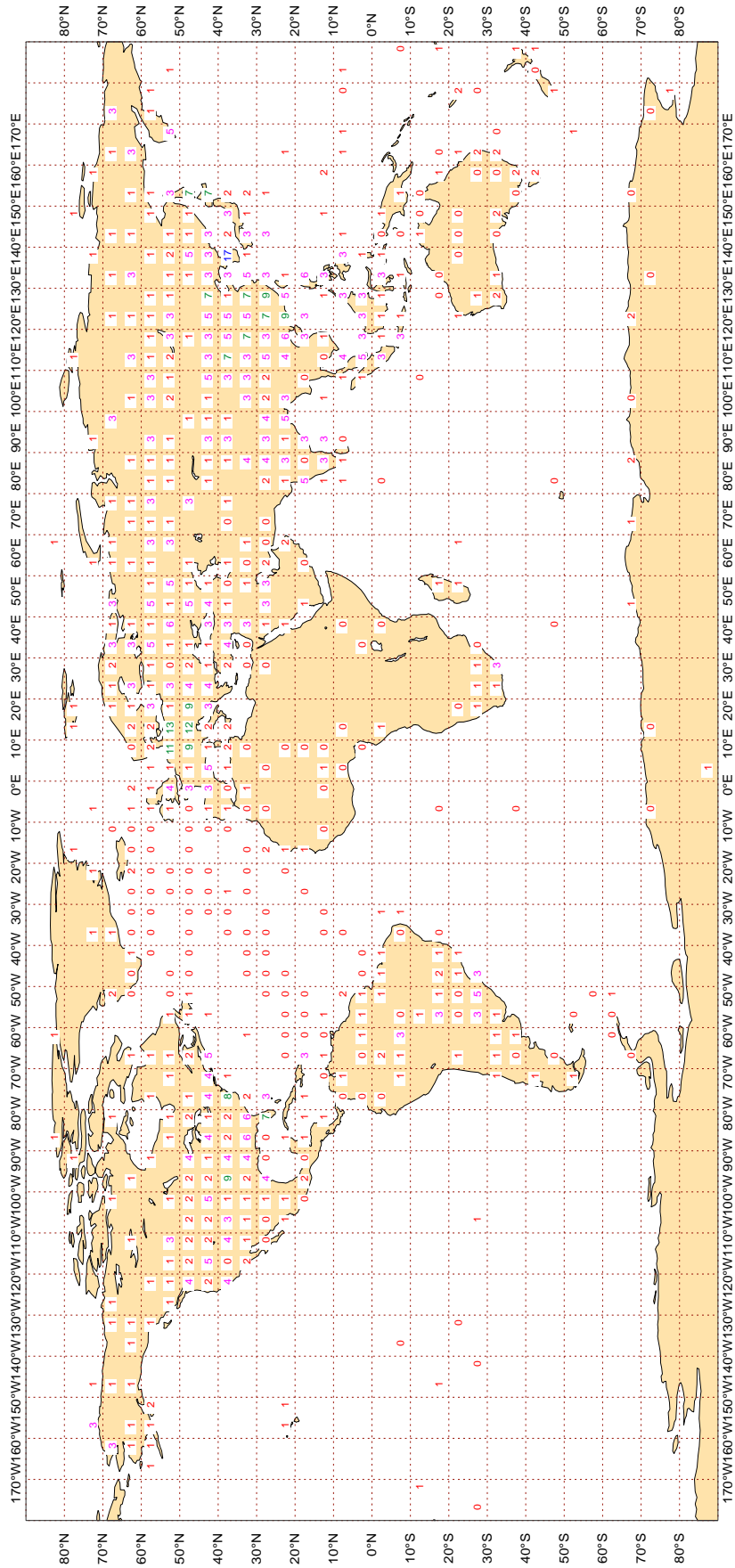
ECMWF Monitoring Statistics - APR 2018

Availability - TEMP 500 hPa Geopotential
Average number of observations in 24 hours - 1318

LAND - WMO Region I: 38 II: 517 III: 79 IV: 264

Region V: 136 VI: 255 Antarctic: 16

Oceans - N. Atlantic 11 S. Atlantic 2 Indian 0 Pacific 0



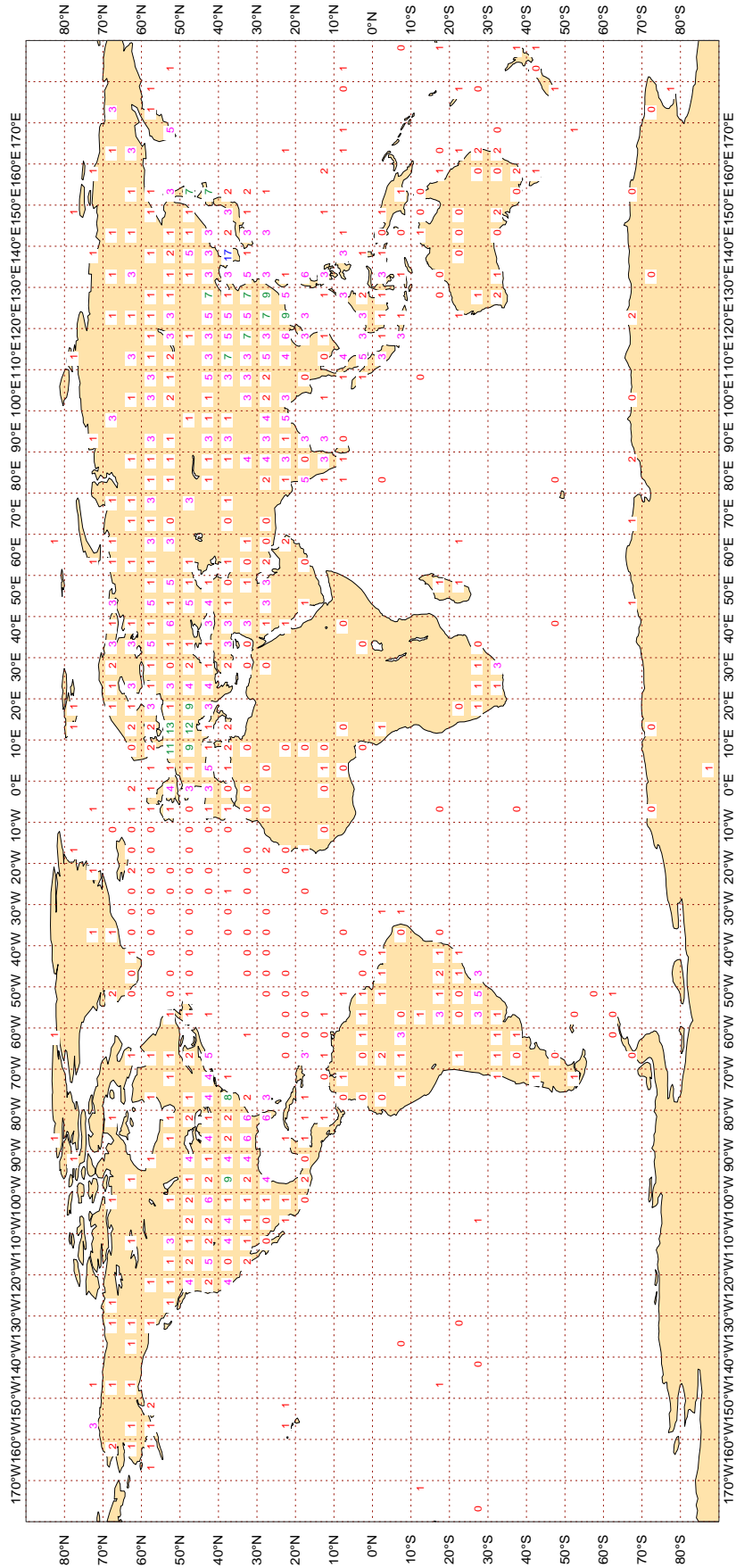
Magics 2.24.2 (64 bit)



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

Figure 4

ECMWF Monitoring Statistics - APR 2018
 Availability - TEMP/PILOT 300 hPa wind
 Average number of observations in 24 hours - 1304
 LAND - WMO Region I: 37 II: 509 III: 78 IV: 264
 Region V: 135 VI: 253 Antarctic: 16
 Oceans - N. Atlantic 10 S. Atlantic 2 Indian 0 Pacific 0



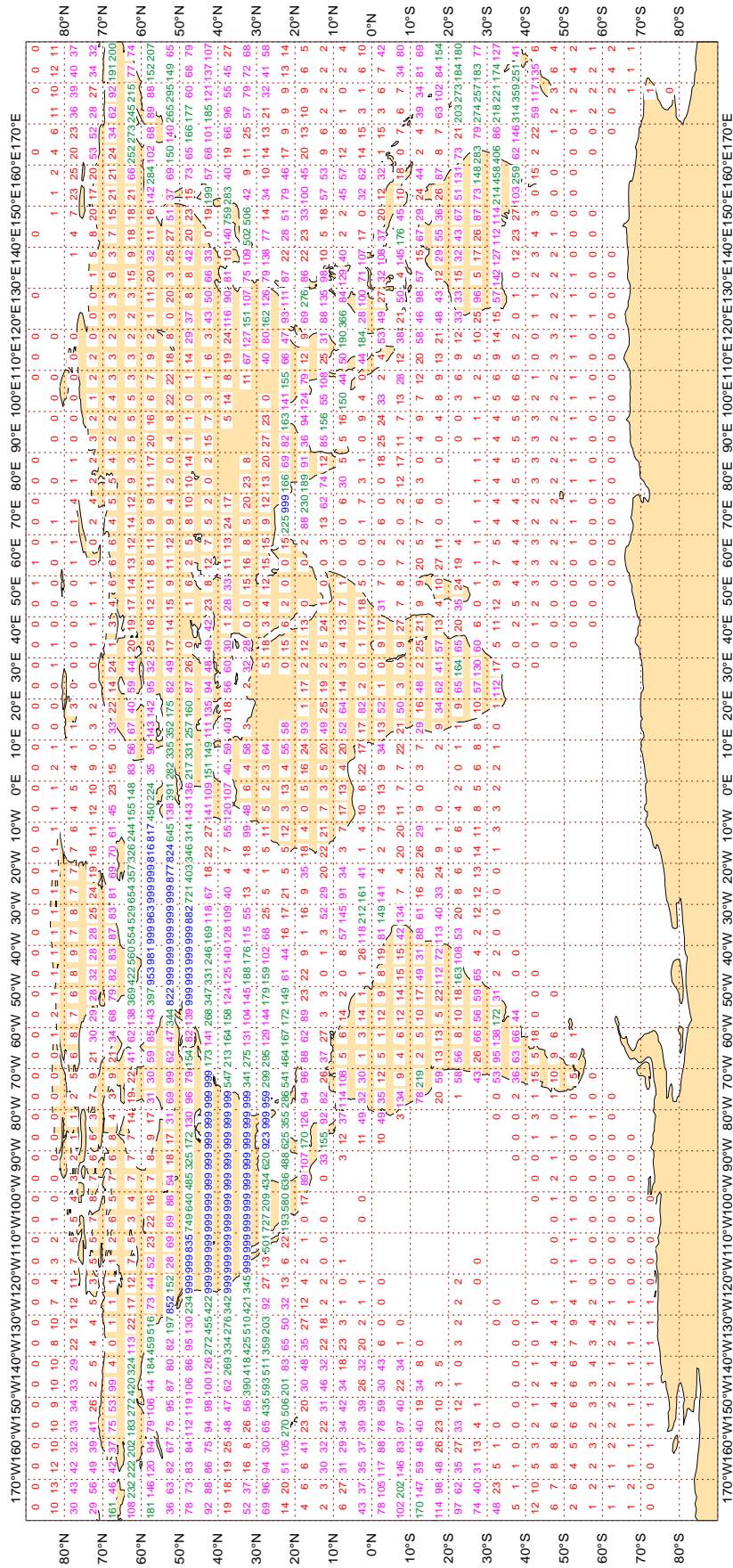
Magics 2.24.2 (64 bit)



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

Figure 5

ECMWF Monitoring Statistics - APR 2018
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 224272



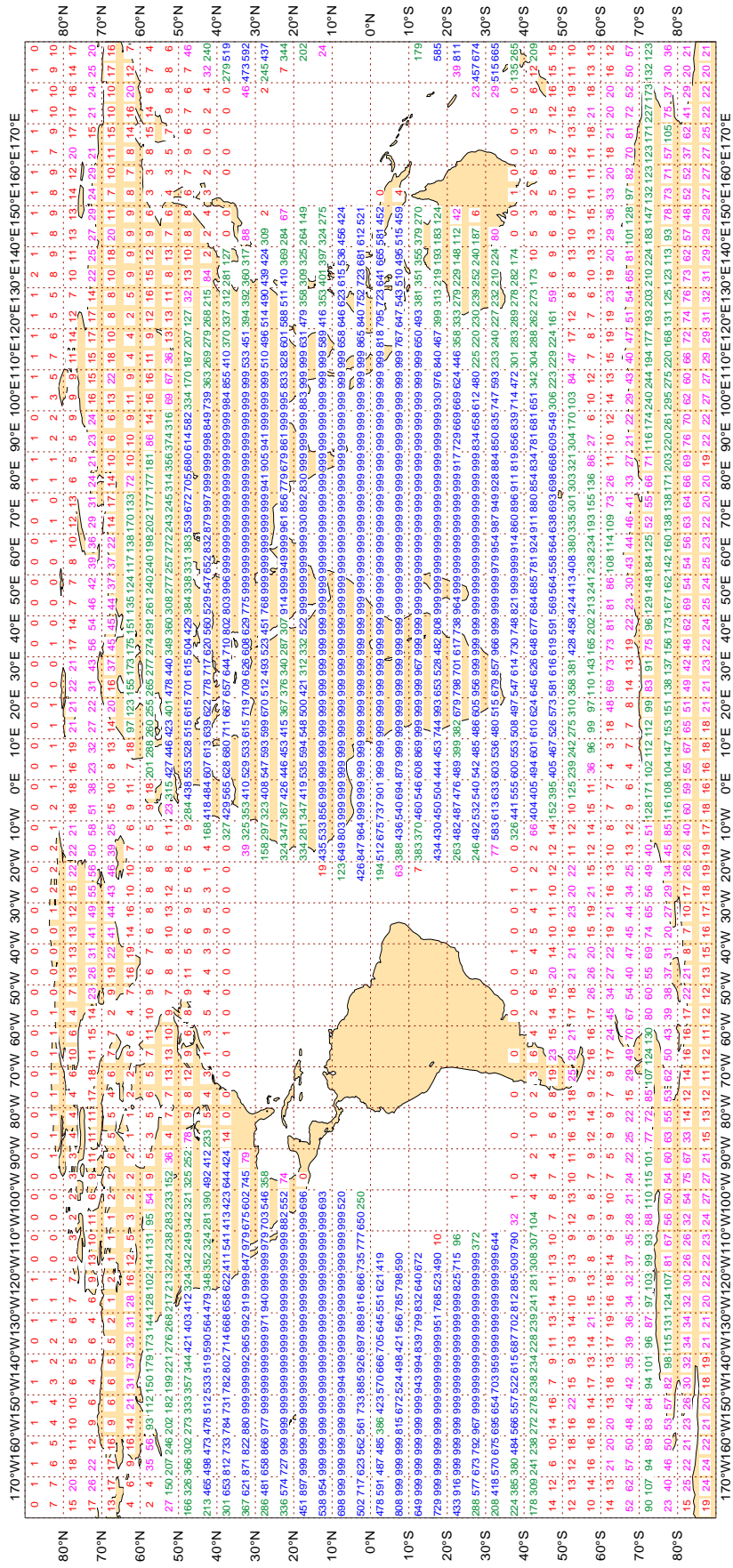
Magics 2.24.2 (64 bit)



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

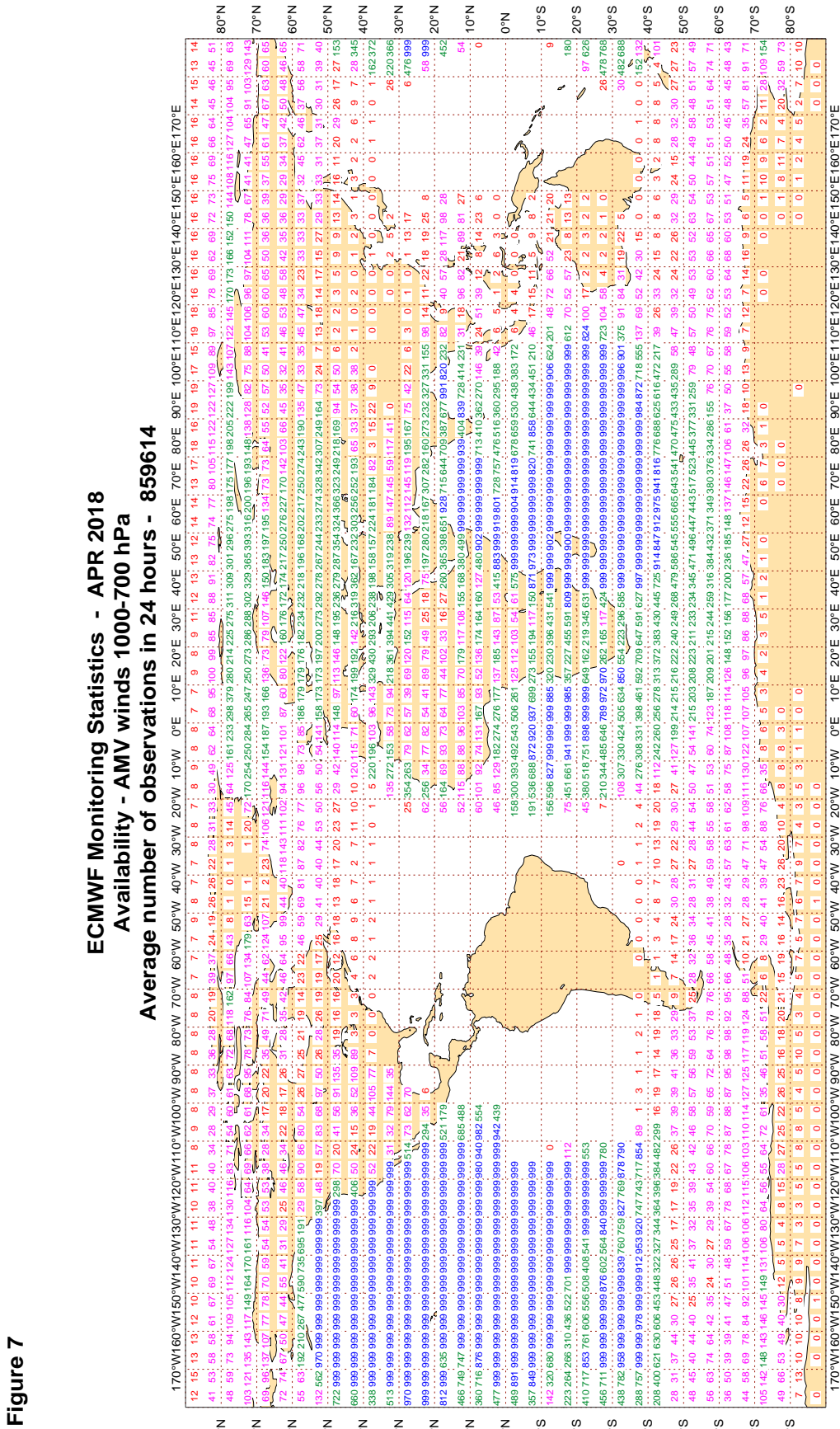
Figure 6

ECMWF Monitoring Statistics - APR 2018
Availability - AMV winds 400-150 hPa
Average number of observations in 24 hours - 878051



Majics 2.24.2 (64 bit)

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



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

Figure 8

ECMWF Monitoring Statistics - APR 2018
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 309391

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 April 2018.

Majics 2.24.2 (64 bit)



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

Figure 9.1

ECMWF Monitoring Statistics - APR 2018
Availability - NOAA18 ATOVS : AMSU-A
Average number of observations in 24 hours - 534171

Table with 180 columns (representing 15-degree longitude bins from 170°W to 170°E) and 18 rows (representing 5-degree latitude bins from 80°N to 80°S). The table contains numerical data representing the average number of observations per 24-hour period for each geographic bin.

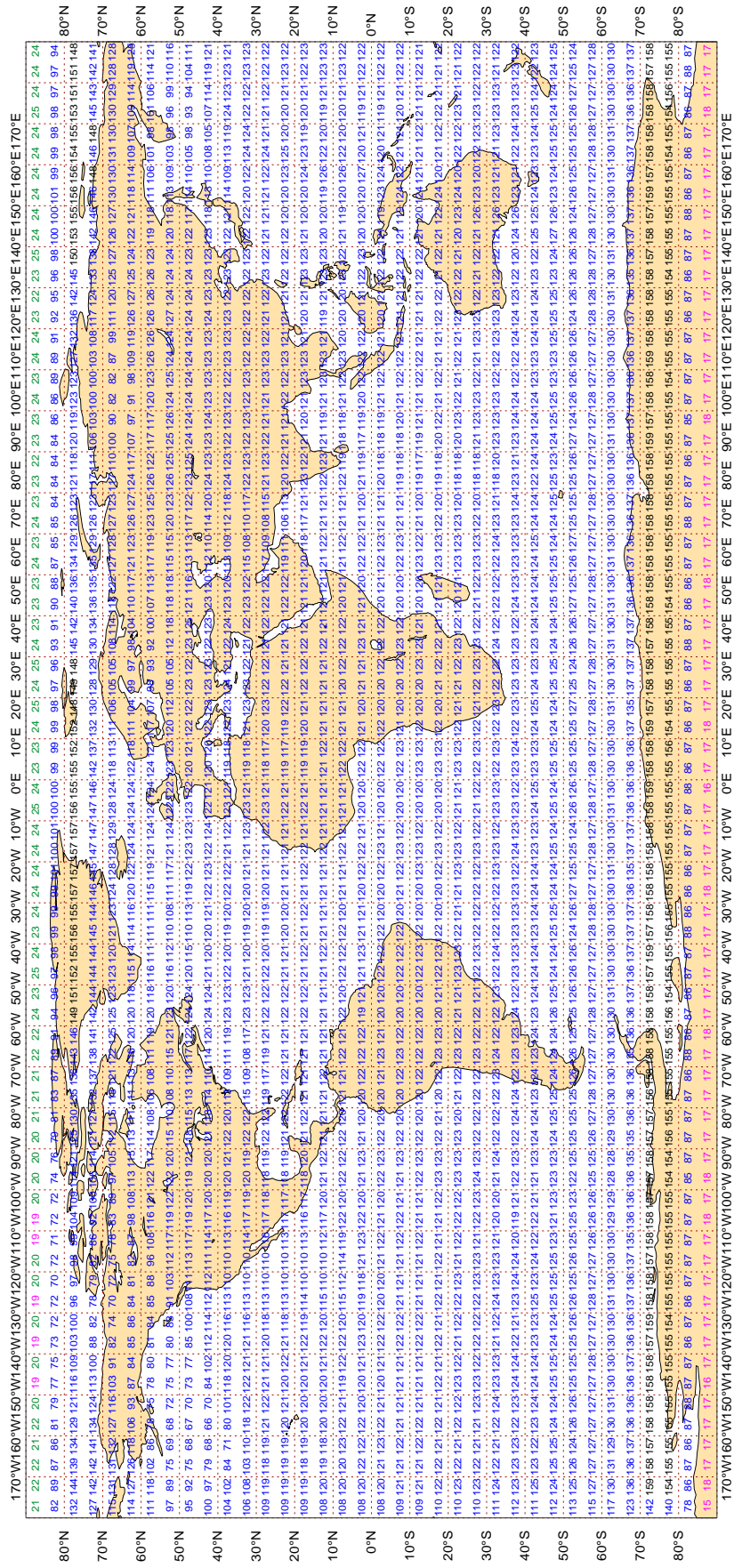
Majics 2.24.2 (64 bit)



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

Figure 9.2

ECMWF Monitoring Statistics - APR 2018
Availability - AQUA ATOVS : AMSU-A
Average number of observations in 24 hours - 301221



Magics 2.24.2 (64 bit)



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

Figure 9.3

ECMWF Monitoring Statistics - APR 2018
Availability - METOP ATOVS : AMSU-A
Average number of observations in 24 hours - 436574

Table with 180 columns representing longitude (170°W to 170°E) and 18 rows representing latitude (80°N to 80°S). The table contains numerical data representing the average number of observations in 24 hours for each geographic grid cell.



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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
5BZE2	99	P	SUR	28	0	1.3	5.5	5.7
9V2782	99	P	SUR	45	0	1.2	3.7	3.8
9V9793	99	P	SUR	16	0	1.5	6.5	6.7
9V9926	99	P	SUR	23	0	1.6	4.0	4.3
AUFI	99	P	SUR	22	0	1.0	7.7	7.7
AUYP	99	P	SUR	17	0	6.6	2.7	7.2
C6AB7	99	P	SUR	22	0	1.1	11.2	11.3
C6DF6	99	P	SUR	16	0	0.5	-4.5	4.6
C6FM9	99	P	SUR	49	0	2.1	4.0	4.5
C6FN5	99	P	SUR	37	0	1.8	-3.1	3.6
C6FW9	99	P	SUR	16	0	0.8	-3.6	3.7
C6UC3	99	P	SUR	37	0	2.7	7.5	7.9
C6YA7	99	P	SUR	21	0	3.2	6.5	7.2
J8AZ3	99	P	SUR	40	0	0.7	3.3	3.4
KGTX	99	P	SUR	43	0	2.5	-3.3	4.2
ONBG	99	P	SUR	21	0	1.4	3.8	4.0
OZ2049	99	P	SUR	17	0	0.6	-5.0	5.1
SBPQ	99	P	SUR	120	0	0.5	-6.2	6.2
UBMO9	99	P	SUR	25	0	1.0	4.5	4.6
UCFT	99	P	SUR	31	0	1.7	-4.5	4.8
UGZM	99	P	SUR	17	0	1.0	-3.3	3.5
V7GR8	99	P	SUR	18	0	1.2	3.0	3.3
VRGO3	99	P	SUR	40	1	3.4	-3.3	4.7
VRGO7	99	P	SUR	17	0	0.6	-3.9	4.0
VRIB2	99	P	SUR	37	0	1.8	4.7	5.0
VRID2	99	P	SUR	67	0	1.3	5.1	5.2
VRID6	99	P	SUR	15	0	2.8	3.6	4.5
VRLA6	99	P	SUR	31	0	1.7	4.8	5.1
VRLZ4	99	P	SUR	24	0	3.3	-3.3	4.7
VRNA8	99	P	SUR	15	0	1.2	5.3	5.5
VRNR5	99	P	SUR	18	0	0.8	5.4	5.4
VROB9	99	P	SUR	52	0	2.0	3.0	3.6

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
VRPY5	99	P	SUR	45	0	2.3	3.7	4.3
VRZK9	99	P	SUR	16	0	1.4	-3.3	3.6
VTFG	99	P	SUR	115	1	0.6	-3.9	3.9
VTSG	99	P	SUR	19	0	0.0	14.3	14.3
VTXB	99	P	SUR	107	72	2.9	9.4	9.9
VWTI	99	P	SUR	119	0	1.0	7.7	7.8
WCAJ	99	P	SUR	21	0	3.1	4.5	5.5
WCX8884	99	P	SUR	17	0	0.9	5.9	6.0
WDB3161	99	P	SUR	46	0	0.9	3.8	4.0
WDC6925	99	P	SUR	19	0	1.7	3.8	4.1
WDE4432	99	P	SUR	17	0	0.5	-4.2	4.2
YJUP4	99	P	SUR	40	20	2.3	-12.2	12.4

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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : GLOBAL
 PERIOD : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
46004	99	SPEED	SUR	24	0	0	4.1	-5.5	6.8

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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
34002	99	DIRN	SUR	249	85	0	168.5	32.6	171.6
42361	99	DIRN	SUR	102	0	0	18.9	30.2	35.7
44037	99	DIRN	SUR	94	0	0	16.6	36.7	40.3
46120	99	DIRN	SUR	119	0	0	66.5	-60.5	89.9
46206	99	DIRN	SUR	145	0	0	25.4	66.0	70.7
46207	99	DIRN	SUR	110	0	0	26.4	34.2	43.2

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : GLOBAL
 PERIOD : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
1301000	99	P	SUR	33	-17	304	304	0.0	0.0	0.0
1301001	99	P	SUR	33	-17	320	320	0.0	0.0	0.0
1501517	99	P	SUR	-37	-12	716	0	0.6	-5.5	5.6
1501528	99	P	SUR	-52	-42	126	32	7.6	1.8	7.8
1501582	99	P	SUR	-3	-41	80	21	2.4	-1.8	3.0
2301559	99	P	SUR	-5	93	84	53	1.4	12.5	12.6
3300944	99	P	SUR	-49	94	88	4	5.6	-4.5	7.2
3301530	99	P	SUR	-44	-37	616	5	2.9	5.6	6.3
33944	99	P	SUR	-49	93	88	4	5.6	-4.5	7.2
3401505	99	P	SUR	-35	-115	88	50	6.0	-7.2	9.3
4400765	99	P	SUR	64	10	225	108	3.6	2.0	4.1
44765	99	P	SUR	64	10	224	108	3.6	2.0	4.1
4500509	99	P	SUR	45	-88	113	113	0.0	0.0	0.0
45509	99	P	SUR	45	-88	116	116	0.0	0.0	0.0
4601520	99	P	SUR	52	-152	191	0	0.8	11.9	12.0
4701674	99	P	SUR	70	-67	702	0	0.5	-6.2	6.2
4800282	99	P	SUR	71	-156	675	675	0.0	0.0	0.0
4801622	99	P	SUR	78	159	307	221	4.0	-9.7	10.5
4801626	99	P	SUR	79	161	279	279	0.0	0.0	0.0
4802012	99	P	SUR	34	-122	1462	1190	0.4	0.2	0.4
4802502	99	P	SUR	83	-113	417	203	7.2	-0.1	7.2
48282	99	P	SUR	71	-156	687	687	0.0	0.0	0.0
5401517	99	P	SUR	-63	-62	49	31	3.2	9.6	10.1
5401589	99	P	SUR	-74	-120	484	173	7.9	0.3	7.9
5601611	99	P	SUR	-19	79	694	0	0.4	7.4	7.4
6202402	99	P	SUR	38	-26	393	393	0.0	0.0	0.0
6202403	99	P	SUR	39	-31	428	428	0.0	0.0	0.0
6202404	99	P	SUR	39	-29	235	235	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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
46004	99	SPEED	SUR	51	-136	124	0	0	4.0	-6.3	7.4

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20 (WIND SPEEDS > 3M/S), AND ,
 ABSOLUTE BIAS >= 20 DEGREES, OR,
 STANDARD DEVIATION >= 60 DEGREES
 (GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S)

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
2200106	99	DIRN	SUR	36	130	641	0	0	29.4	-20.2	35.7
23092	99	DIRN	SUR	18	89	68	0	0	17.8	25.4	31.0
23093	99	DIRN	SUR	16	88	73	0	0	14.8	23.5	27.8
23095	99	DIRN	SUR	11	94	70	0	0	18.4	20.2	27.3
23170	99	DIRN	SUR	15	74	94	0	0	33.5	66.4	74.3
23451	99	DIRN	SUR	15	69	59	0	0	16.7	23.7	29.0
23454	99	DIRN	SUR	10	73	43	0	0	22.8	31.5	38.9
23460	99	DIRN	SUR	7	88	36	0	0	67.9	55.3	87.6
23492	99	DIRN	SUR	11	72	88	0	0	31.7	33.9	46.4
23497	99	DIRN	SUR	11	72	58	0	0	26.6	29.3	39.6
3100229	99	DIRN	SUR	-3	-38	127	0	0	13.7	-86.7	87.8
3100231	99	DIRN	SUR	-27	-47	126	0	0	104.8	21.3	106.9
3100374	99	DIRN	SUR	-25	-45	359	0	0	21.6	-28.6	35.9
3101000	99	DIRN	SUR	-13	-39	150	0	0	34.1	-81.9	88.7
31229	99	DIRN	SUR	-3	-38	127	0	0	14.1	-87.0	88.1
31231	99	DIRN	SUR	-27	-47	125	0	0	104.4	20.2	106.3
31374	99	DIRN	SUR	-25	-45	350	0	0	22.1	-29.4	36.8
34002	99	DIRN	SUR	-55	-90	1874	647	0	167.7	30.2	170.4
42019	99	DIRN	SUR	28	-95	575	0	0	15.0	22.0	26.6
42044	99	DIRN	SUR	26	-97	55	0	0	10.5	-41.5	42.8
42085	99	DIRN	SUR	18	-67	399	0	0	16.6	27.7	32.3
42361	99	DIRN	SUR	28	-93	605	2	0	19.7	28.8	34.9
42365	99	DIRN	SUR	28	-89	211	0	0	20.5	-29.3	35.7
44037	99	DIRN	SUR	44	-68	566	0	0	17.5	35.0	39.2
44058	99	DIRN	SUR	38	-76	204	0	0	21.5	-25.2	33.1
44064	99	DIRN	SUR	37	-76	238	0	0	22.6	-20.2	30.3
45026	99	DIRN	SUR	42	-87	101	0	0	62.1	-17.5	64.5
46004	99	DIRN	SUR	51	-136	21	0	0	9.9	39.2	40.5
46100	99	DIRN	SUR	47	-125	1203	0	0	46.5	20.0	50.6
46118	99	DIRN	SUR	49	-123	378	0	0	41.3	-23.6	47.6
46120	99	DIRN	SUR	48	-122	551	0	0	62.0	-51.8	80.8

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 (CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
46206	99	DIRN	SUR	49	-126	646	0	0	29.3	64.0	70.4
46207	99	DIRN	SUR	51	-130	665	0	0	25.2	35.4	43.5
5300040	99	DIRN	SUR	-8	95	500	0	0	153.1	51.5	161.5
5300056	99	DIRN	SUR	-5	95	277	0	0	156.0	38.4	160.7
53040	99	DIRN	SUR	-8	95	496	0	0	151.6	54.5	161.1
53056	99	DIRN	SUR	-5	95	272	0	0	153.4	47.4	160.6
6200200	99	DIRN	SUR	36	-8	545	29	0	154.6	-68.4	169.0

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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

ONLY THE WORST LEVEL IS SHOWN (WITH UNWEIGHTED RMS)

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
01400	12	Z	1000	57	3	24	0	12.8	73.7	74.8
01400	00	Z	1000	57	3	25	1	34.5	51.3	61.8
04360	00	Z	925	66	-38	26	0	5.1	42.7	43.0
04360	12	Z	925	66	-38	29	0	2.9	42.6	42.7
06458	00	Z	1000	51	5	27	0	31.5	12.5	33.9
28698	00	Z	250	55	73	29	0	39.0	-88.8	97.0
28698	12	Z	250	55	73	27	0	34.2	-65.6	74.0
33317	00	Z	200	50	27	26	0	41.5	80.2	90.3
38064	12	Z	200	45	66	28	0	64.5	57.9	86.7
40437	12	Z	925	25	47	29	3	7.3	32.5	33.3
43110	00	Z	700	17	73	27	0	8.3	42.3	43.1
47122	12	Z	1000	37	127	30	1	4.5	-51.0	51.2
47122	00	Z	1000	37	127	30	0	3.0	-46.1	46.2
78988	12	Z	50	12	-69	10	2	103.9	169.7	199.0
96147	12	Z	925	4	108	25	1	11.3	44.6	46.0
96147	00	Z	925	4	108	27	1	9.5	49.9	50.8
VKB4L5	12	Z	1000	38	6	13	0	12.8	28.8	31.5
VKB4L5	00	Z	925	37	1	13	0	5.5	30.5	31.0

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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	UBIAS	VBIAS	RMS
42182	12	V	200	29	77	30	0	-11.9	1.1	16.2

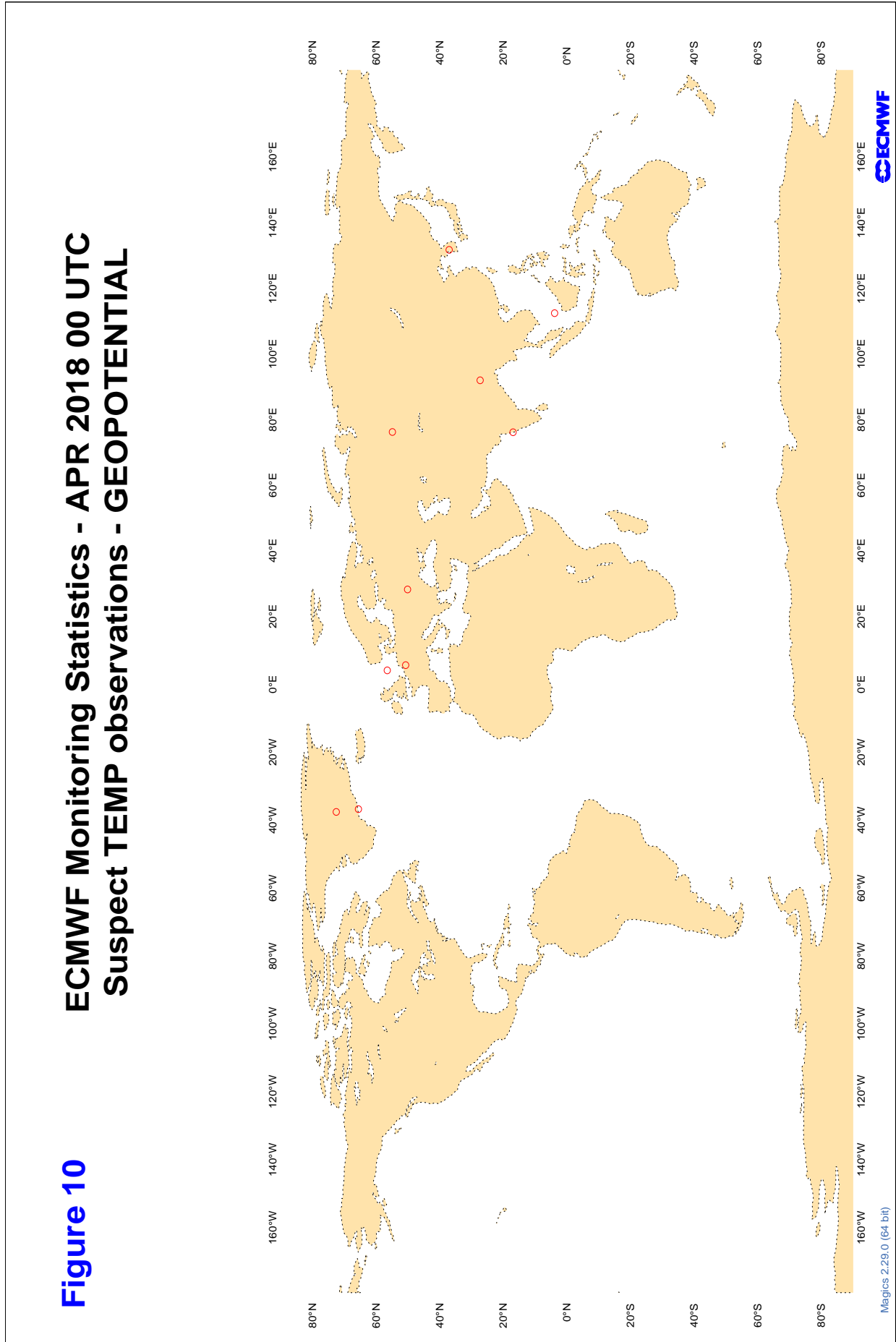
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

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

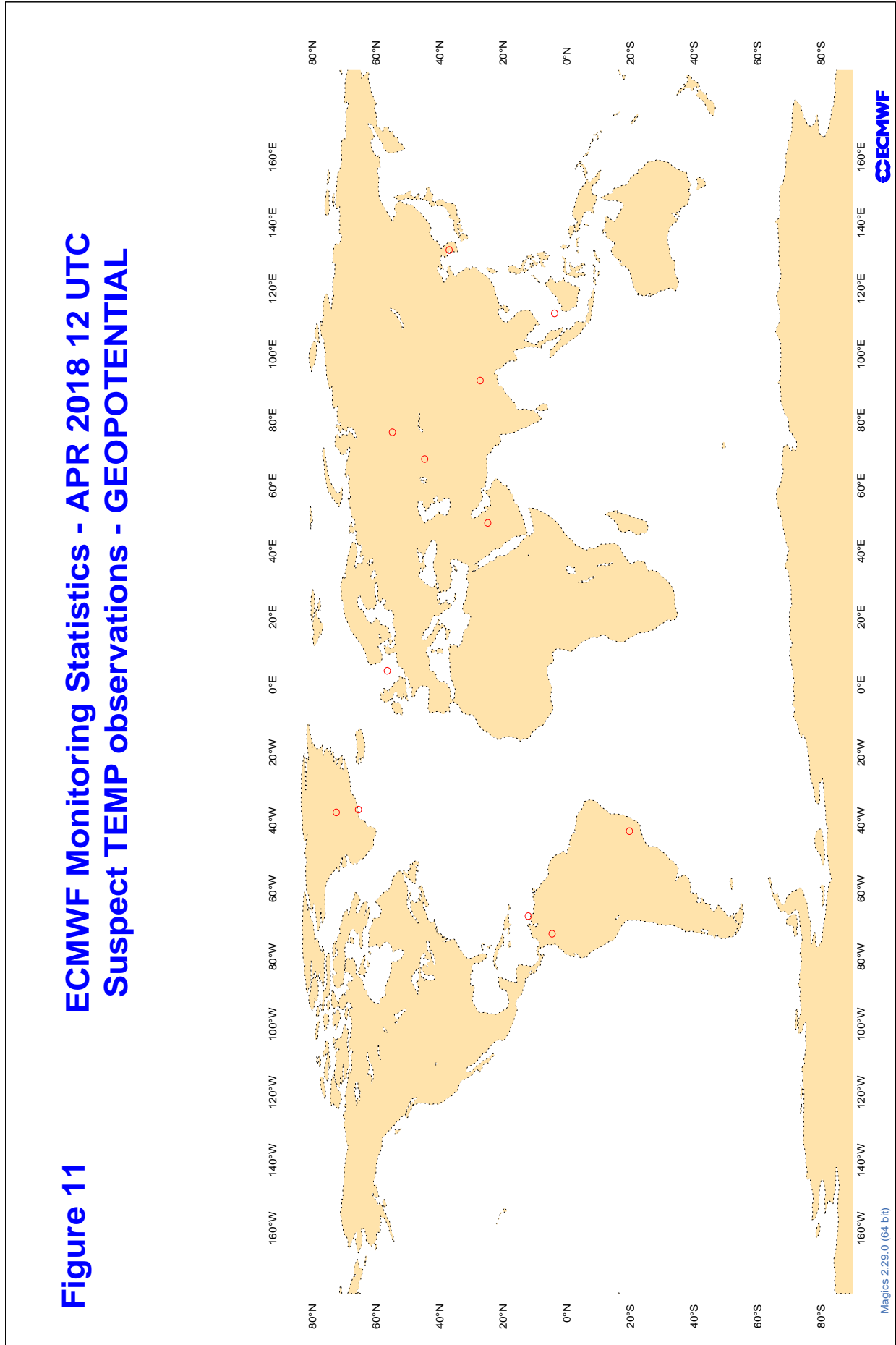
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS \geq 5 M/S
 NO. OF OBSERVATIONS \geq 5, AND,
 ABSOLUTE BIAS \geq 10 DEGREES, WITH
 STANDARD DEVIATION $<$ 30 DEGREES, AND,
 VERTICAL SPREAD $<$ 10 DEGREES
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
57972	00	DD	26	113	29	10.6	3.4	6.2
57972	12	DD	26	113	30	10.1	1.2	4.7

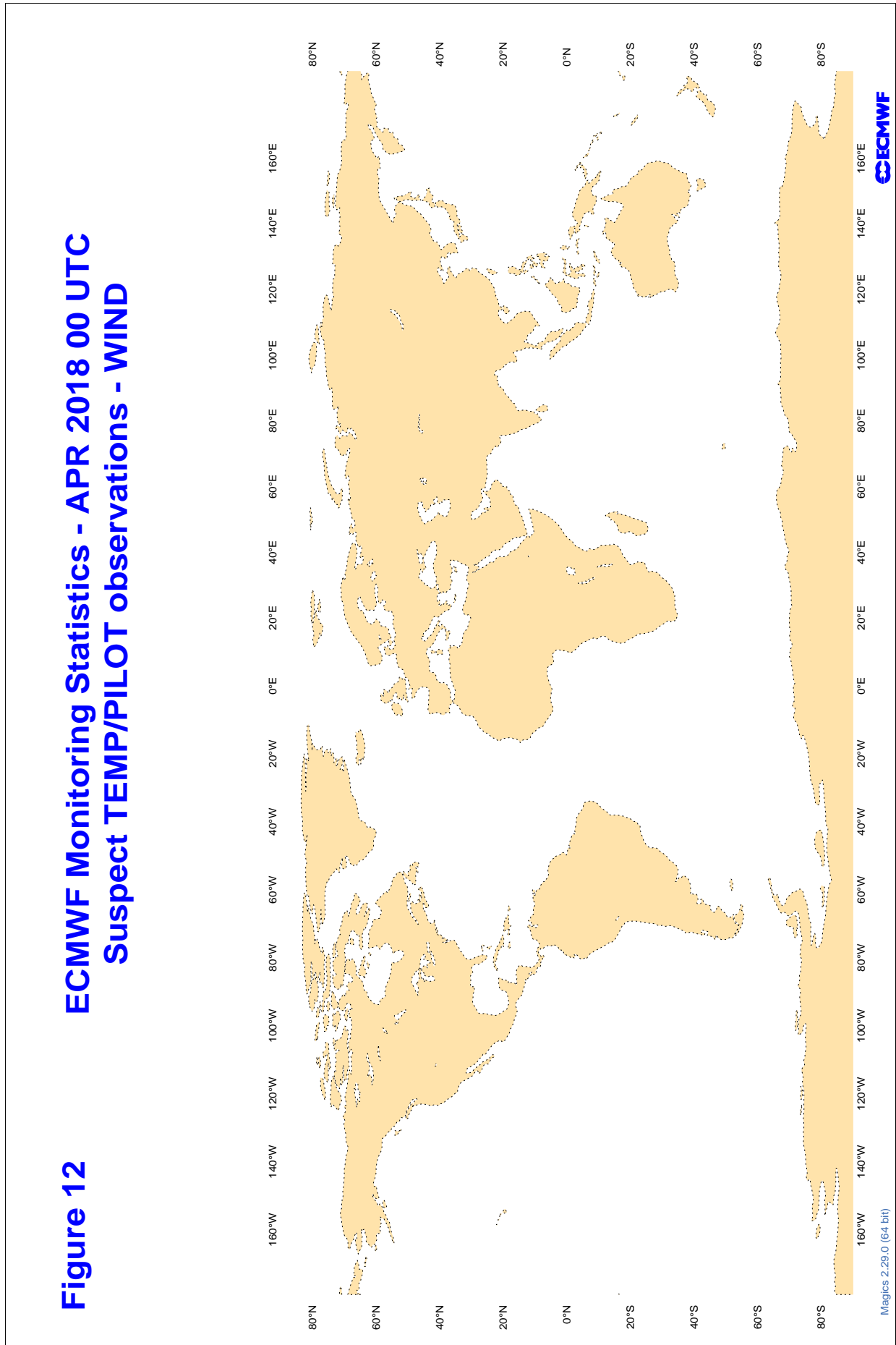
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



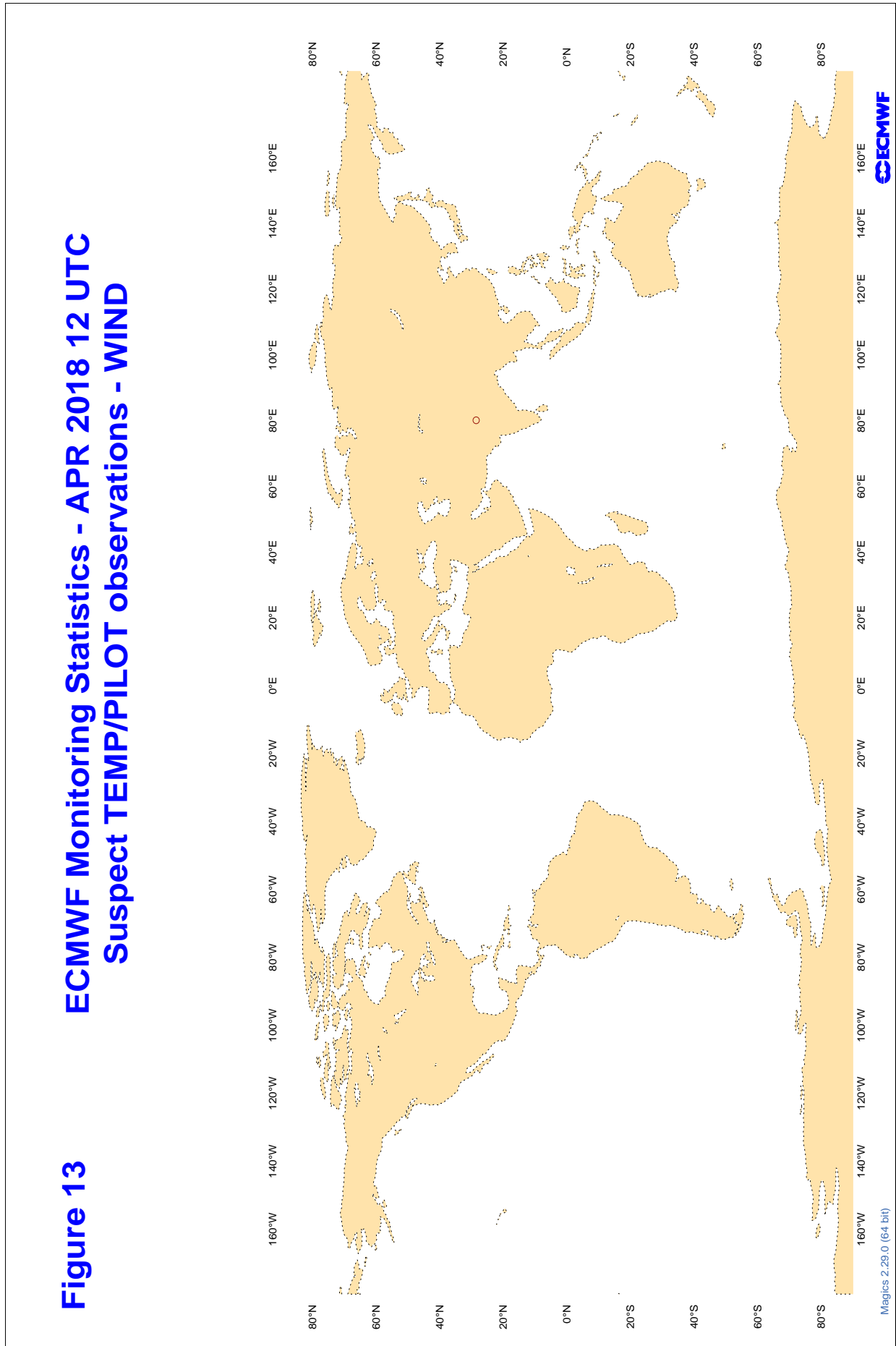
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
5QPW8X	12	Z	100	15	24.0	21.6
5QPW8X	00	Z	100	12	26.0	0.7
ASFR2	00	Z	100	0	0.0	0.0
ASFR2	12	Z	100	0	0.0	0.0
ASFR3	12	Z	100	8	27.8	27.2
ASFR3	00	Z	100	11	26.1	24.7
ASFR4	00	Z	100	5	24.5	22.8
ASFR4	12	Z	100	5	27.7	24.2
DBLK	12	Z	100	56	10.6	3.4
FHM5UJ	00	Z	100	18	7.5	5.1
FHM5UJ	12	Z	100	17	9.4	7.7
FPUW5G	12	Z	100	15	9.9	3.5
HTXUH4	00	Z	100	10	10.1	0.8
HTXUH4	12	Z	100	4	9.0	4.5
JGQH	00	Z	100	0	0.0	0.0
VKB4L5	12	Z	100	13	50.9	48.0
VKB4L5	00	Z	100	13	49.6	48.9
XKQLWQ	12	Z	100	17	25.5	24.5
XQFJRG	00	Z	100	14	8.3	5.9
XQFJRG	12	Z	100	11	22.4	17.8
XWHDEA	12	Z	100	10	37.8	28.6
XWHDEA	00	Z	100	11	16.0	14.3
YLV96W	00	Z	100	3	11.4	10.7
YLV96W	12	Z	100	3	67.6	61.0
ZVQEQC	12	Z	100	7	20.0	18.2

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

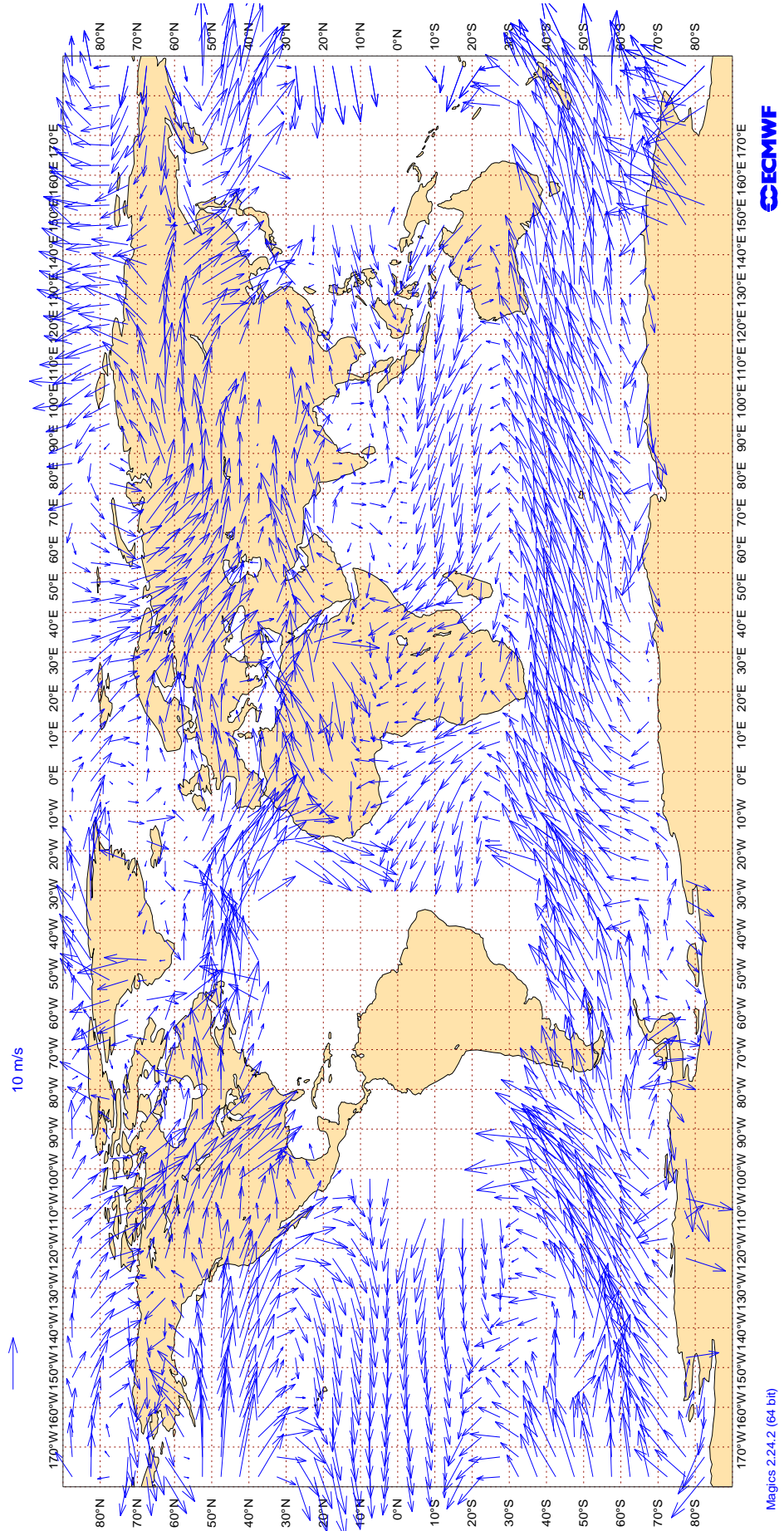
RADIOSONDE MONITORING STATISTICS (SHIPS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
5QPW8X	12	V	100	11	3.2	-0.3	1.1
5QPW8X	00	V	100	7	2.4	0.8	-0.7
ASFR2	00	V	100	0	0.0	0.0	0.0
ASFR2	12	V	100	0	0.0	0.0	0.0
ASFR3	12	V	100	7	3.8	-2.2	-0.5
ASFR3	00	V	100	10	3.3	1.1	-1.4
ASFR4	00	V	100	5	2.9	1.3	1.8
ASFR4	12	V	100	4	3.1	1.1	-1.1
DBLK	12	V	100	30	3.0	0.1	0.6
FHM5UJ	00	V	100	11	2.9	-0.2	0.9
FHM5UJ	12	V	100	17	2.9	0.8	0.0
FPUW5G	12	V	100	13	3.4	0.4	-0.5
HTXUH4	00	V	100	7	2.3	-0.1	0.5
HTXUH4	12	V	100	4	4.3	-0.8	2.4
JGQH	00	V	100	0	0.0	0.0	0.0
VKB4L5	12	V	100	11	3.0	0.6	-0.3
VKB4L5	00	V	100	10	2.5	1.4	0.0
XKQLWQ	12	V	100	15	4.7	1.6	0.3
XQFJRG	00	V	100	7	5.2	-0.7	-1.7
XQFJRG	12	V	100	5	5.1	-0.8	-2.3
XWHDEA	12	V	100	10	2.3	-0.3	-0.5
XWHDEA	00	V	100	9	3.3	0.4	0.2
YLV96W	00	V	100	2	4.9	1.5	-0.1
YLV96W	12	V	100	2	4.8	2.6	0.3
ZVQEQC	12	V	100	7	5.3	-0.9	-1.6

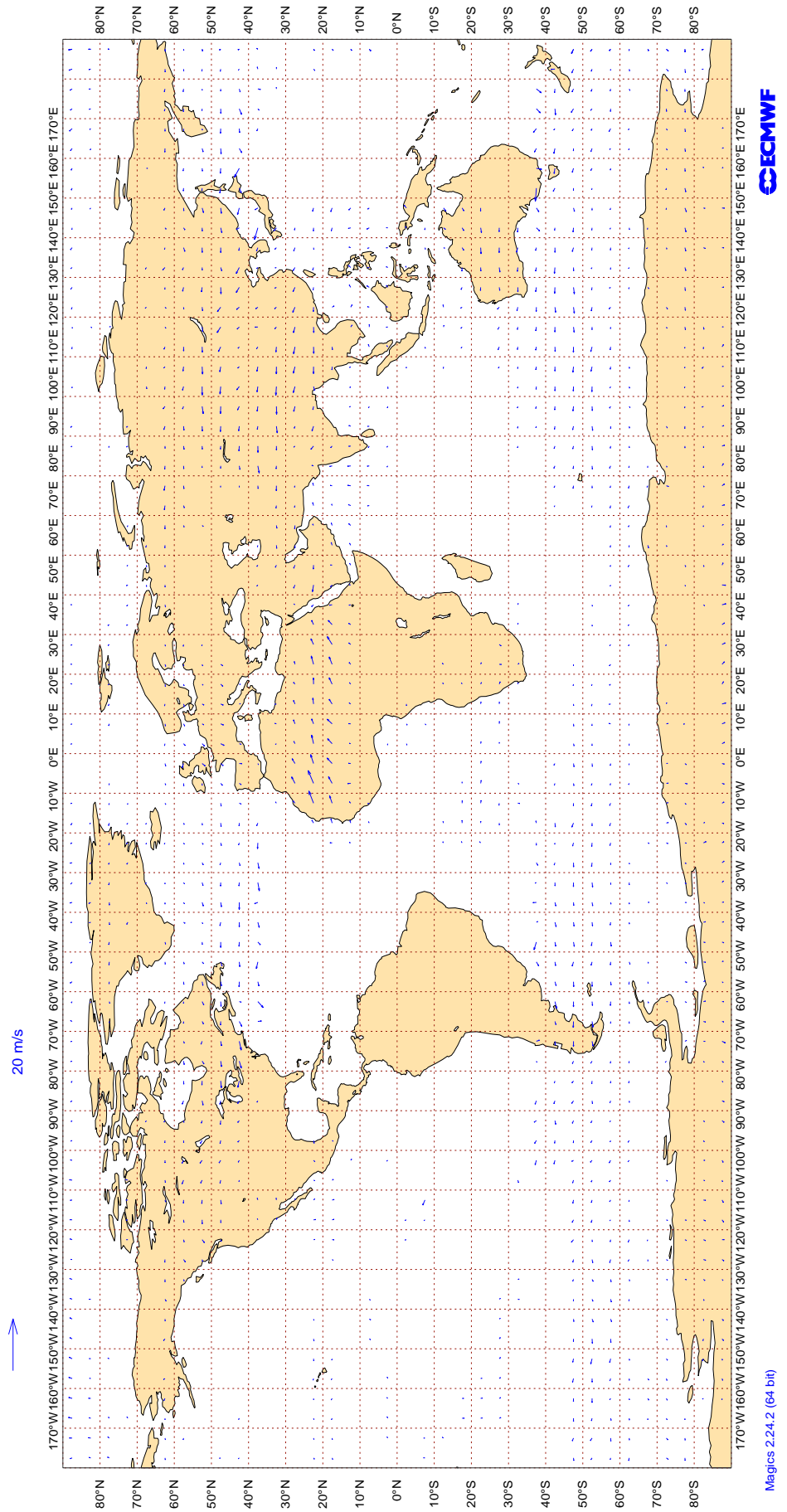
3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

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



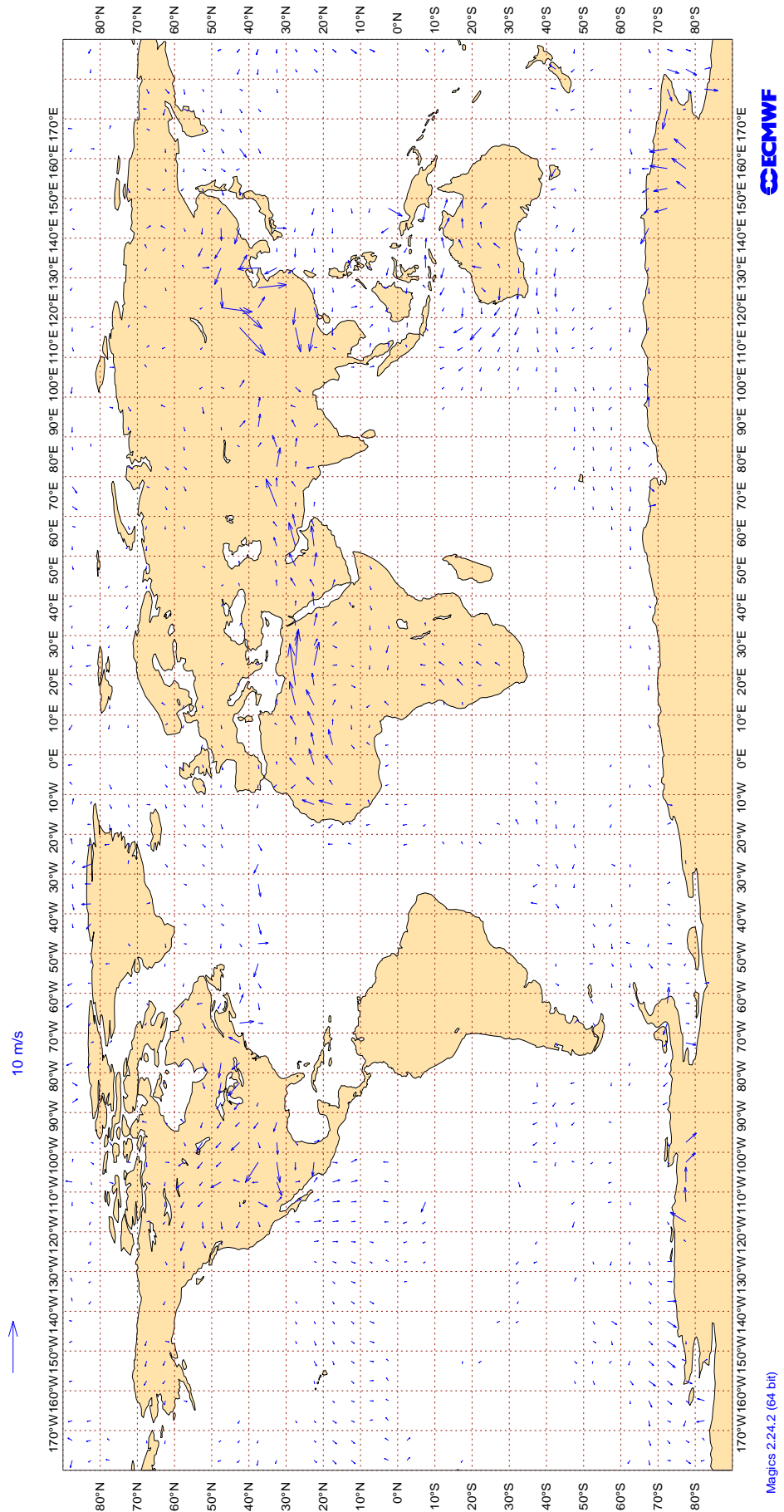
3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

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



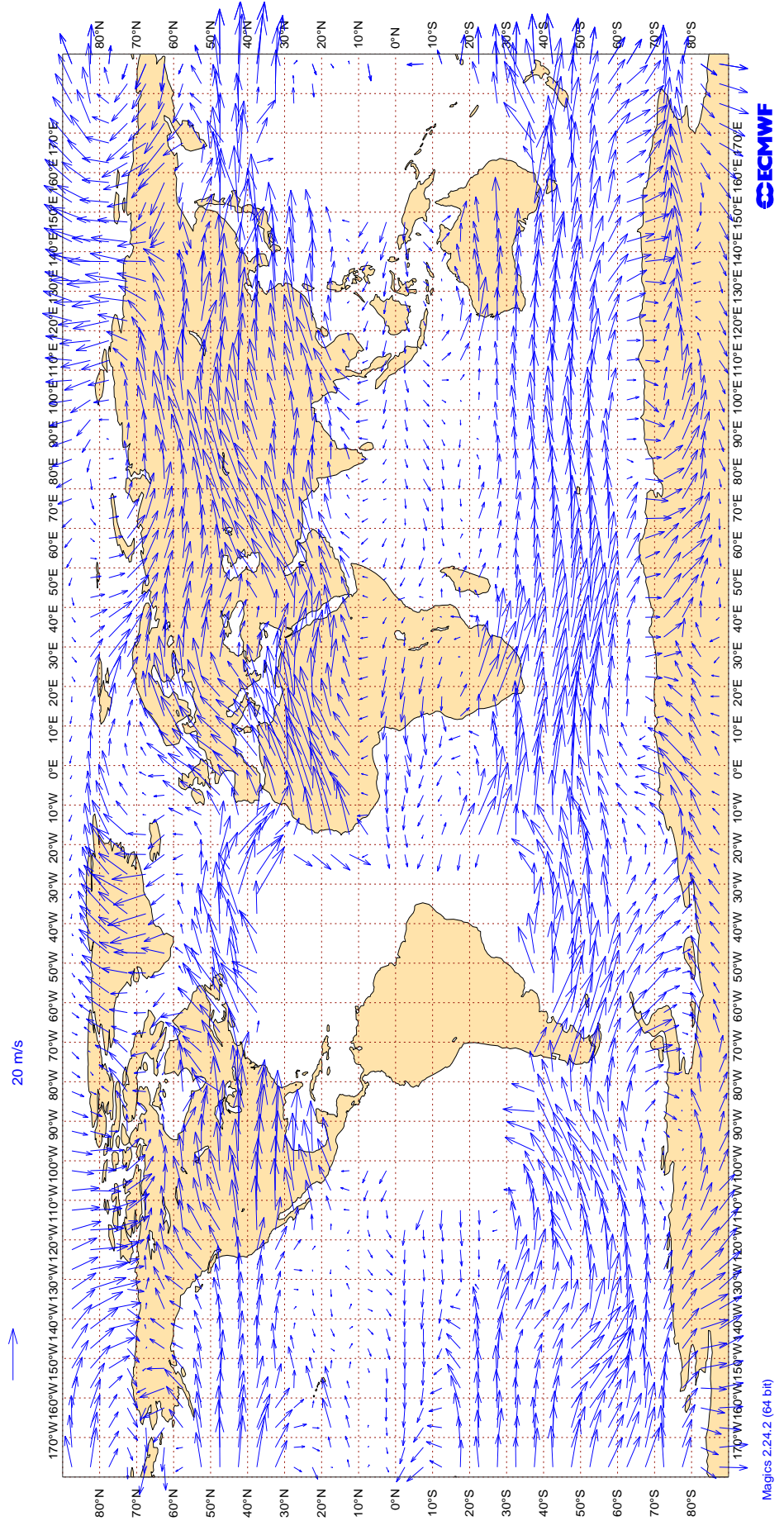
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

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



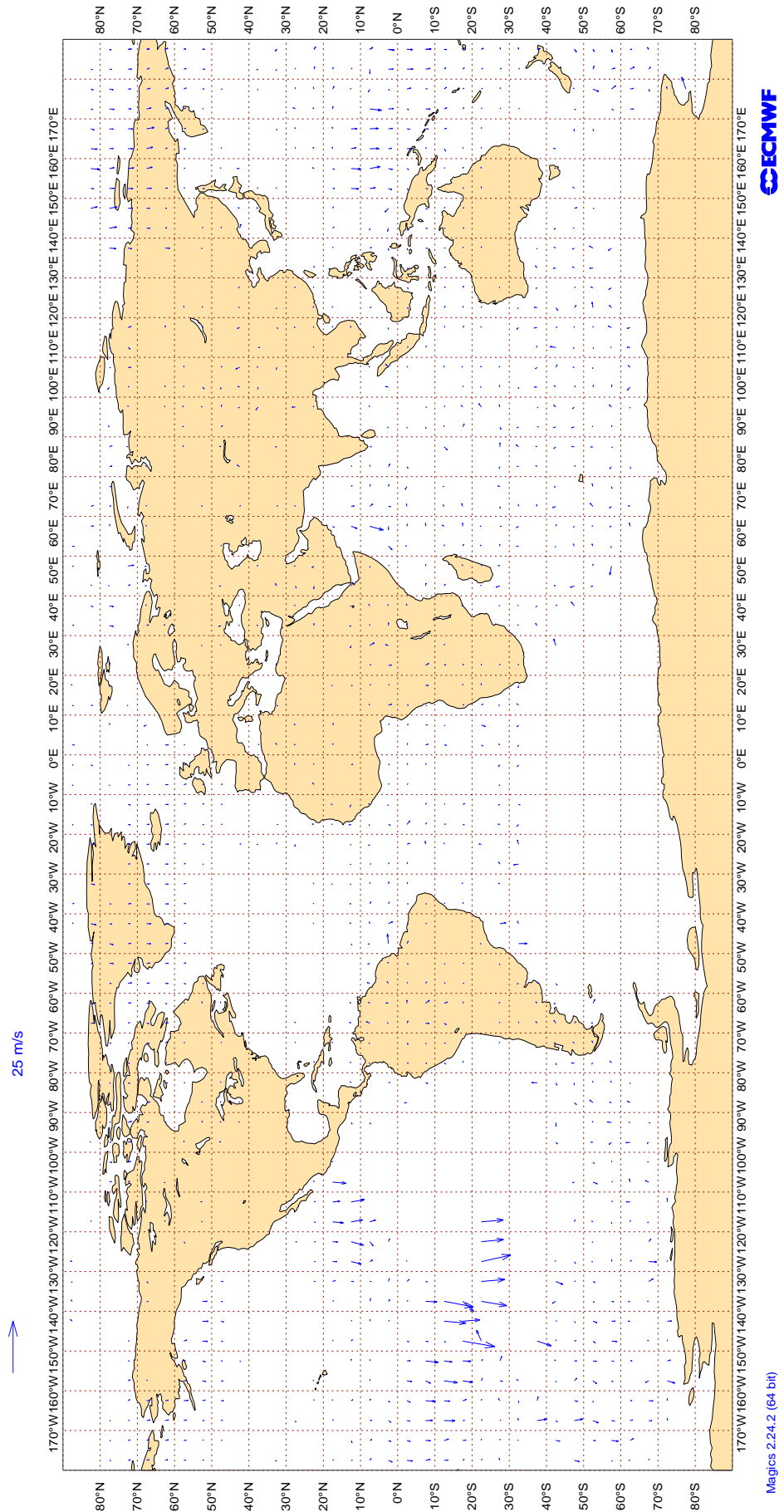
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

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



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

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



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

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : VECTOR WIND (M/S)
 AREA : GLOBAL
 PERIOD : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20

TIME = 99 => AVERAGE OF ALL OBSERVATIONS
 GROSS ERROR LIMIT ON VECTOR WIND = 40 M/S

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AAB	99	V	300-150	68	0	1	4.6	-0.4
AAL	99	V	300-150	51127	1	0	5.6	0.3
AAR	99	V	300-150	311	0	0	4.2	-1.3
ABD	99	V	300-150	721	0	0	4.3	-0.6
ABP	99	V	300-150	62	0	0	3.4	-0.1
ABW	99	V	300-150	943	0	0	3.6	-0.1
ACA	99	V	300-150	26164	3	0	8.4	0.2
ACI	99	V	300-150	2087	0	0	3.8	0.6
AEA	99	V	300-150	493	1	0	4.1	0.3
AFL	99	V	300-150	2149	0	0	3.0	0.4
AFR	99	V	300-150	23931	1	0	4.7	0.4
AHY	99	V	300-150	236	5	0	8.5	0.0
AIC	99	V	300-150	1973	2	0	6.0	0.3
ALK	99	V	300-150	1070	0	0	3.0	0.5
AMX	99	V	300-150	3200	11	0	9.7	0.1
ANZ	99	V	300-150	22286	1	0	7.0	0.6
ASA	99	V	300-150	646	0	0	5.2	-0.0
ASL	99	V	300-150	478	0	0	3.3	0.1
ASY	99	V	300-150	136	0	0	4.6	0.1
ATN	99	V	300-150	104	1	3	3.8	0.4
AUA	99	V	300-150	5545	0	0	4.0	-0.0
AUI	99	V	300-150	138	0	0	3.5	0.5
AVA	99	V	300-150	428	12	0	8.4	0.4
AWC	99	V	300-150	20	0	0	5.0	-3.6
AXB	99	V	300-150	30	0	0	3.1	1.2
AXM	99	V	300-150	275	0	0	4.2	0.8
AZA	99	V	300-150	7383	0	0	3.5	0.5

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AZG	99	V	300-150	231	0	0	3.4	-0.1
BAH	99	V	300-150	58	0	0	4.0	1.1
BAW	99	V	300-150	55774	1	0	5.4	0.2
BBC	99	V	300-150	161	0	0	2.9	1.2
BEL	99	V	300-150	2826	0	0	3.3	0.4
BFD	99	V	300-150	39	0	0	2.8	0.2
BLU	99	V	300-150	125	0	0	3.8	0.8
BMW	99	V	300-150	79	0	0	2.8	-0.2
BOX	99	V	300-150	1720	0	0	3.2	0.2
BRK	99	V	300-150	20	0	0	8.7	1.7
BVR	99	V	300-150	27	0	0	2.8	-0.5
CAF	99	V	300-150	38	0	0	4.0	-1.3
CAL	99	V	300-150	393	0	0	4.0	0.7
CAT	99	V	300-150	25	0	0	7.1	1.0
CAZ	99	V	300-150	85	0	0	3.7	-0.2
CCA	99	V	300-150	871	2	0	4.4	0.6
CEB	99	V	300-150	154	0	0	2.9	0.5
CES	99	V	300-150	1425	0	0	3.6	0.2
CFC	99	V	300-150	234	0	0	3.1	0.2
CFG	99	V	300-150	3338	0	0	3.9	0.0
CHH	99	V	300-150	116	0	0	4.0	0.5
CJT	99	V	300-150	324	0	0	4.6	0.5
CKS	99	V	300-150	1529	0	0	3.5	0.3
CLE	99	V	300-150	109	0	0	4.5	0.6
CLU	99	V	300-150	590	0	0	3.5	-0.2
CLX	99	V	300-150	3305	0	0	3.6	-0.2
CMB	99	V	300-150	1022	0	0	3.7	-0.0
CNK	99	V	300-150	34	0	0	2.5	-0.2
CNV	99	V	300-150	220	0	0	3.8	0.5
CPA	99	V	300-150	777	0	0	3.5	0.2
CRK	99	V	300-150	686	0	0	3.7	0.5
CRL	99	V	300-150	612	0	0	3.8	0.4
CRV	99	V	300-150	32	0	0	6.2	-3.7
CSC	99	V	300-150	161	0	1	4.3	0.9
CSN	99	V	300-150	662	5	0	6.1	0.6
CTM	99	V	300-150	119	0	0	3.5	0.5
CWG	99	V	300-150	36	0	3	2.6	0.0
CXB	99	V	300-150	61	0	0	4.2	0.1
DAH	99	V	300-150	572	0	0	3.2	0.5
DAL	99	V	300-150	60963	0	0	3.4	0.2
DHK	99	V	300-150	1016	0	0	4.1	-0.0
DJT	99	V	300-150	1817	0	0	4.1	0.1
DLH	99	V	300-150	32997	0	0	3.3	0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
 (CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
DSO	99	V	300-150	20	0	0	3.2	-0.2
DUB	99	V	300-150	193	0	1	3.2	0.0
ECC	99	V	300-150	29	0	0	4.6	0.1
EDC	99	V	300-150	192	0	0	3.3	0.3
EDG	99	V	300-150	87	0	0	11.6	0.2
EDW	99	V	300-150	1741	0	0	3.4	0.4
EIN	99	V	300-150	16229	0	0	3.3	0.3
EJM	99	V	300-150	875	0	0	4.1	0.5
ELY	99	V	300-150	3266	3	0	6.3	0.2
ETD	99	V	300-150	6854	1	0	4.4	0.3
ETH	99	V	300-150	3080	3	0	7.5	0.2
EWG	99	V	300-150	2422	0	0	3.9	0.2
EXU	99	V	300-150	40	0	0	2.5	-0.1
FAM	99	V	300-150	21	10	0	3.5	-0.6
FDX	99	V	300-150	5729	0	0	3.5	0.2
FIN	99	V	300-150	707	0	0	2.9	0.2
FJI	99	V	300-150	4802	0	0	4.6	0.6
FLC	99	V	300-150	49	0	0	4.4	2.2
FPG	99	V	300-150	42	0	0	4.7	1.2
FWI	99	V	300-150	1561	0	0	3.4	0.2
FYG	99	V	300-150	94	0	0	3.2	0.9
GAF	99	V	300-150	141	0	0	3.2	0.5
GAJ	99	V	300-150	38	0	0	3.0	-0.5
GCR	99	V	300-150	68	0	0	3.9	0.7
GEC	99	V	300-150	2691	0	0	3.4	0.3
GES	99	V	300-150	133	0	0	3.6	0.4
GFA	99	V	300-150	758	0	0	2.7	0.1
GIA	99	V	300-150	437	0	0	3.3	0.8
GLJ	99	V	300-150	25	0	0	3.3	-0.6
GLO	99	V	300-150	55	2	2	9.6	1.3
GOL	99	V	300-150	61	0	0	4.5	0.4
GTH	99	V	300-150	64	0	0	3.0	0.1
GTI	99	V	300-150	3669	0	0	3.7	-0.2
HAL	99	V	300-150	3801	0	0	4.3	0.9
HRT	99	V	300-150	33	73	0	33.4	-0.2
HZM	99	V	300-150	113	0	0	3.5	0.1
HZS	99	V	300-150	41	0	0	3.1	0.4
HZS	99	V	300-150	111	0	0	3.4	0.2
IAM	99	V	300-150	46	0	0	2.9	0.5
IBE	99	V	300-150	2300	0	0	3.3	0.4
IBK	99	V	300-150	223	0	1	3.4	0.2
ICL	99	V	300-150	805	0	0	4.0	-0.2
ICV	99	V	300-150	331	0	0	4.0	0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
IFA	99	V	300-150	79	52	0	30.3	-0.0
IJM	99	V	300-150	86	0	1	5.2	0.9
ISS	99	V	300-150	204	0	0	4.2	-0.3
JAF	99	V	300-150	1048	5	0	6.9	0.3
JAI	99	V	300-150	1610	0	0	3.2	0.4
JAS	99	V	300-150	204	0	0	4.8	0.8
JET	99	V	300-150	26	0	0	4.1	-0.1
JJA	99	V	300-150	58	0	2	5.7	1.3
JME	99	V	300-150	130	0	0	3.1	-0.1
JST	99	V	300-150	1993	2	0	10.0	0.4
JUN	99	V	300-150	80	0	0	3.0	-0.3
KAC	99	V	300-150	1548	0	0	3.5	0.5
KAI	99	V	300-150	64	2	0	4.8	0.3
KAL	99	V	300-150	1258	0	0	3.7	0.8
KAY	99	V	300-150	219	0	0	3.5	0.3
KCE	99	V	300-150	52	0	0	3.2	0.4
KFE	99	V	300-150	27	0	0	3.1	0.5
KIW	99	V	300-150	222	0	0	4.4	0.8
KLM	99	V	300-150	18348	2	0	6.0	0.2
KQA	99	V	300-150	171	0	0	7.3	0.6
LAN	99	V	300-150	2143	10	0	11.0	0.2
LEA	99	V	300-150	64	0	0	3.5	0.7
LGT	99	V	300-150	51	0	0	3.6	-0.4
LNI	99	V	300-150	122	0	1	3.2	0.4
LNK	99	V	300-150	49	0	0	3.6	0.4
LOT	99	V	300-150	2401	6	0	13.2	-0.0
LUC	99	V	300-150	61	0	0	3.2	0.1
LXG	99	V	300-150	55	0	0	3.3	-0.0
MAS	99	V	300-150	907	0	0	3.4	0.4
MAU	99	V	300-150	128	0	0	4.9	1.2
MHV	99	V	300-150	37	0	0	3.3	1.2
MMD	99	V	300-150	273	0	0	3.3	0.2
MNB	99	V	300-150	39	0	0	2.7	-0.2
MPH	99	V	300-150	669	0	0	3.7	-0.5
MSR	99	V	300-150	1207	0	0	3.2	0.2
NAX	99	V	300-150	9144	8	0	10.7	0.0
NCA	99	V	300-150	288	0	0	3.7	-0.8
NJE	99	V	300-150	406	0	0	3.3	0.2
NOS	99	V	300-150	618	4	0	6.8	0.3
NRS	99	V	300-150	7861	7	0	10.7	0.1
NWS	99	V	300-150	494	0	0	2.9	0.5
OAE	99	V	300-150	847	0	0	3.8	0.2
OMA	99	V	300-150	806	0	0	3.7	0.5

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
OPM	99	V	300-150	35	0	0	2.9	-0.4
OSY	99	V	300-150	51	0	0	3.9	-0.1
PAC	99	V	300-150	179	1	0	4.0	0.0
PAL	99	V	300-150	1200	0	0	3.7	0.5
PAT	99	V	300-150	35	0	0	3.5	-0.8
PIA	99	V	300-150	198	0	0	2.9	-0.1
PLF	99	V	300-150	28	0	0	2.7	-0.3
PLM	99	V	300-150	52	0	0	3.5	-0.2
PNC	99	V	300-150	36	0	0	3.5	-0.9
QAF	99	V	300-150	82	0	0	3.0	0.4
QFA	99	V	300-150	17853	0	0	5.5	0.7
QQE	99	V	300-150	265	3	0	4.9	0.3
QTR	99	V	300-150	15994	0	0	3.5	0.3
RAM	99	V	300-150	440	9	0	6.5	0.8
RBA	99	V	300-150	151	2	0	3.8	0.1
RCH	99	V	300-150	4029	0	0	4.4	0.3
RDN	99	V	300-150	114	0	0	3.2	0.4
REN	99	V	300-150	52	0	0	3.1	0.5
RJA	99	V	300-150	1534	7	0	12.0	-0.1
RKS	99	V	300-150	24	0	0	3.2	0.9
ROJ	99	V	300-150	78	1	0	5.5	0.3
ROU	99	V	300-150	2274	0	0	4.0	0.4
RRR	99	V	300-150	326	0	0	3.3	0.5
RZO	99	V	300-150	92	0	2	4.1	0.7
SAM	99	V	300-150	39	0	0	3.3	1.0
SAM	99	V	300-150	21	0	0	3.7	1.1
SAS	99	V	300-150	4803	0	0	3.0	0.2
SDM	99	V	300-150	96	0	0	3.4	0.6
SHE	99	V	300-150	61	0	0	3.3	-0.5
SIA	99	V	300-150	3560	0	0	3.7	0.0
SIO	99	V	300-150	87	0	0	3.8	0.3
SLM	99	V	300-150	128	0	0	3.5	0.5
SOO	99	V	300-150	450	0	0	3.2	-0.1
SPA	99	V	300-150	198	0	0	3.2	0.1
SSG	99	V	300-150	37	0	0	2.8	0.1
SUI	99	V	300-150	36	0	0	5.1	-0.5
SVA	99	V	300-150	5674	1	0	4.6	0.4
SVW	99	V	300-150	276	0	0	4.0	-0.2
SWR	99	V	300-150	10938	0	0	3.4	0.5
TAM	99	V	300-150	354	0	0	3.3	0.5
TAP	99	V	300-150	1406	0	0	3.8	0.2
TAR	99	V	300-150	280	0	0	3.2	0.7
TAY	99	V	300-150	507	0	0	4.3	-0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
TCX	99	V	300-150	4542	0	0	3.4	0.4
TEU	99	V	300-150	31	0	0	3.4	0.3
TFL	99	V	300-150	1458	8	0	9.1	0.2
TGW	99	V	300-150	95	0	0	3.0	0.2
THA	99	V	300-150	401	3	0	4.7	0.6
THT	99	V	300-150	3717	0	0	4.5	0.6
THY	99	V	300-150	10061	0	0	3.5	0.4
TMN	99	V	300-150	60	0	23	3.2	1.2
TOM	99	V	300-150	6121	8	0	10.0	0.1
TOW	99	V	300-150	69	0	0	3.1	0.3
TRE	99	V	300-150	49	0	0	4.3	1.2
TRK	99	V	300-150	33	0	0	3.0	0.2
TSC	99	V	300-150	4602	0	0	3.4	0.2
TWB	99	V	300-150	47	0	2	6.3	1.5
TWY	99	V	300-150	258	0	0	3.7	-0.1
UAE	99	V	300-150	16173	0	0	3.4	0.3
UAL	99	V	300-150	73608	1	2	5.9	0.3
ULC	99	V	300-150	57	0	0	3.0	0.1
UPS	99	V	300-150	5072	0	0	3.7	0.3
UZB	99	V	300-150	78	0	0	11.4	0.4
VCG	99	V	300-150	22	0	0	2.4	-0.4
VCN	99	V	300-150	22	0	0	4.8	-0.3
VIR	99	V	300-150	24757	2	0	5.4	0.2
VJT	99	V	300-150	951	39	0	20.6	0.2
VKG	99	V	300-150	178	0	0	3.4	0.2
VMP	99	V	300-150	60	0	0	4.4	1.5
VOZ	99	V	300-150	5891	0	0	4.1	0.6
WGN	99	V	300-150	21	0	10	6.1	-0.7
WGT	99	V	300-150	91	0	0	3.2	0.3
WJA	99	V	300-150	3149	0	0	4.8	0.2
WOW	99	V	300-150	2384	0	0	2.8	0.2
WWI	99	V	300-150	39	0	0	4.5	-0.5
XAX	99	V	300-150	541	0	0	3.4	0.4
XLF	99	V	300-150	1323	0	0	3.4	0.3
ZON	99	V	300-150	22	0	0	5.8	-0.8

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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	50	30	16.3	14.3
01001	12	Z	50	30	18.5	16.2
01028	12	Z	50	28	10.2	6.5
01028	00	Z	50	29	7.5	4.7
01400	00	Z	50	20	71.5	59.3
01400	12	Z	50	21	87.7	86.2
01415	12	Z	50	30	18.3	17.1
01415	00	Z	50	30	16.1	11.9
02365	00	Z	50	13	21.4	20.5
02365	12	Z	50	16	15.2	14.4
02591	12	Z	50	28	19.4	18.7
02591	00	Z	50	24	20.5	19.6
02836	00	Z	50	29	9.8	4.4
02836	12	Z	50	29	11.7	8.8
02963	12	Z	50	28	15.0	14.0
02963	00	Z	50	23	14.9	13.9
03005	12	Z	50	29	15.2	13.4
03005	00	Z	50	29	13.8	12.7
03238	12	Z	50	4	18.2	17.0
03238	00	Z	50	26	14.2	13.3
03808	12	Z	50	24	14.7	13.2
03808	00	Z	50	27	15.9	14.8
03918	00	Z	50	30	22.3	20.2
03918	12	Z	50	4	29.3	27.9
03953	12	Z	50	29	29.6	26.3
03953	00	Z	50	27	20.0	16.1
04018	00	Z	50	56	16.1	14.9
04018	12	Z	50	57	13.3	12.0
04220	00	Z	50	30	14.4	14.0
04220	12	Z	50	29	17.5	15.7
04270	00	Z	50	30	16.0	14.5
04270	12	Z	50	29	22.0	14.5
04320	00	Z	50	29	15.7	13.6
04320	12	Z	50	30	18.2	17.0
04339	12	Z	50	30	21.0	18.1
04339	00	Z	50	29	16.4	15.1
04360	12	Z	50	16	51.5	50.2
04360	00	Z	50	14	46.4	45.8
06011	00	Z	50	21	17.0	11.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	50	22	29.4	27.0
06260	12	Z	50	4	16.6	16.4
06260	00	Z	50	30	17.8	13.6
06610	00	Z	50	29	18.3	17.5
06610	12	Z	50	29	16.2	14.7
07110	12	Z	50	28	41.3	40.8
07110	00	Z	50	26	41.1	40.2
07510	00	Z	50	28	49.4	48.1
07510	12	Z	50	26	60.2	58.9
07645	00	Z	50	29	29.5	26.5
07645	12	Z	50	29	39.1	37.6
07761	00	Z	50	24	37.5	36.7
07761	12	Z	50	25	33.1	32.1
08001	12	Z	50	29	24.9	22.9
08001	00	Z	50	27	22.1	21.2
08221	00	Z	50	29	21.9	21.2
08221	12	Z	50	30	22.0	20.4
08302	00	Z	50	29	16.4	14.2
08302	12	Z	50	30	14.3	12.5
08508	12	Z	50	30	21.2	19.1
08522	12	Z	50	30	26.4	24.2
08579	12	Z	50	27	32.7	31.1
10035	12	Z	50	30	28.6	27.6
10035	00	Z	50	1	28.9	28.9
10393	12	Z	50	30	13.0	11.3
10393	00	Z	50	30	15.1	14.1
10410	00	Z	50	29	16.8	15.9
10410	12	Z	50	29	13.4	10.9
10739	12	Z	50	30	14.0	12.6
10739	00	Z	50	29	15.4	14.2
11035	12	Z	50	30	18.1	17.5
11035	00	Z	50	30	24.0	23.4
12982	00	Z	50	13	16.1	11.5
12982	12	Z	50	11	33.8	32.7
16080	00	Z	50	30	15.1	13.4
16080	12	Z	50	30	14.6	13.3
16245	00	Z	50	30	14.1	12.3
16245	12	Z	50	28	17.4	14.4
16320	00	Z	50	29	20.2	18.2
16320	12	Z	50	27	21.0	18.7
16429	00	Z	50	29	16.4	15.3
16429	12	Z	50	29	23.0	18.5
16622	00	Z	50	22	27.6	23.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	50	27	27.7	25.5
17607	12	Z	50	30	23.4	20.4
26435	00	Z	50	12	16.1	13.8
5QPW8X	12	Z	50	10	119.0	-5.6
5QPW8X	00	Z	50	6	30.4	7.1
60018	12	Z	50	29	17.1	15.7
60018	00	Z	50	30	23.8	22.5
ASFR2	00	Z	50	0	0.0	0.0
ASFR2	12	Z	50	0	0.0	0.0
ASFR3	12	Z	50	4	38.7	38.6
ASFR3	00	Z	50	9	42.4	41.8
ASFR4	00	Z	50	3	48.2	44.6
ASFR4	12	Z	50	4	45.5	42.5
FHM5UJ	00	Z	50	11	26.8	23.2
FHM5UJ	12	Z	50	17	20.8	19.6
FPUW5G	12	Z	50	13	17.1	14.6
HTXUH4	00	Z	50	6	17.1	15.2
HTXUH4	12	Z	50	4	22.2	20.7
VKB4L5	12	Z	50	11	62.4	60.0
VKB4L5	00	Z	50	10	58.9	58.3
XKQLWQ	12	Z	50	15	33.9	32.4
XQFJRG	00	Z	50	9	20.6	17.8
XQFJRG	12	Z	50	9	34.7	32.5
XWHDEA	12	Z	50	8	60.7	47.9
XWHDEA	00	Z	50	4	26.9	26.3
YLV96W	00	Z	50	1	13.3	13.3
YLV96W	12	Z	50	1	79.7	79.7
ZVQEQC	12	Z	50	7	26.4	25.0

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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	50	30	3.0	0.4	0.3
01001	12	V	50	30	2.8	0.5	-0.2
01028	12	V	50	28	3.5	-0.8	0.4
01028	00	V	50	29	2.4	-0.5	-0.3
01400	00	V	50	18	3.0	1.2	-0.2
01400	12	V	50	19	3.4	0.8	0.4
01415	12	V	50	30	2.7	0.2	-0.7
01415	00	V	50	30	2.9	0.4	-0.3
02365	00	V	50	9	3.2	-1.5	-0.8
02365	12	V	50	12	2.5	0.1	-0.5
02591	12	V	50	27	2.6	0.4	-0.4
02591	00	V	50	14	3.3	1.1	0.2
02836	00	V	50	25	3.2	0.2	0.1
02836	12	V	50	28	3.0	0.0	-0.6
02963	12	V	50	25	3.1	-0.5	-0.6
02963	00	V	50	19	3.1	-0.9	0.2
03005	12	V	50	29	2.9	0.3	-0.3
03005	00	V	50	29	3.1	-0.4	-0.2
03238	12	V	50	4	2.1	0.0	0.6
03238	00	V	50	26	4.0	1.4	1.1
03808	12	V	50	23	3.3	0.9	0.3
03808	00	V	50	26	3.5	0.3	0.9
03918	00	V	50	29	3.4	0.9	-0.1
03918	12	V	50	4	3.6	-0.6	-1.3
03953	12	V	50	29	3.4	0.8	-0.7
03953	00	V	50	27	3.2	0.2	0.3
04018	00	V	50	26	2.8	0.3	0.2
04018	12	V	50	28	2.9	-0.3	0.3
04220	00	V	50	30	3.3	0.3	0.0
04220	12	V	50	29	3.1	0.2	-0.2
04270	00	V	50	30	3.2	0.2	0.3
04270	12	V	50	29	3.8	-1.0	0.7
04320	00	V	50	29	3.3	0.2	-1.0
04320	12	V	50	30	3.2	0.5	-0.7
04339	12	V	50	30	3.0	0.5	-0.3
04339	00	V	50	29	3.6	0.2	-0.4
04360	12	V	50	16	3.8	0.3	-0.2
04360	00	V	50	14	3.4	1.2	0.0
06011	00	V	50	21	3.1	1.0	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	50	22	2.8	0.7	-0.9
06260	12	V	50	4	4.0	-0.1	-2.0
06260	00	V	50	29	3.4	1.0	-0.2
06610	00	V	50	29	2.8	0.7	-0.2
06610	12	V	50	29	3.1	0.5	0.3
07110	12	V	50	28	3.5	0.9	-0.6
07110	00	V	50	26	4.0	0.9	0.0
07510	00	V	50	28	3.5	0.4	-0.2
07510	12	V	50	26	3.6	1.4	-0.4
07645	00	V	50	29	3.5	0.3	-0.3
07645	12	V	50	29	3.2	0.1	-0.6
07761	00	V	50	24	3.7	-0.1	0.7
07761	12	V	50	25	4.6	1.1	-1.4
08001	12	V	50	28	3.6	0.1	0.5
08001	00	V	50	24	3.5	0.4	1.6
08221	00	V	50	27	4.3	1.3	0.1
08221	12	V	50	29	3.8	0.8	-0.3
08302	00	V	50	29	4.1	0.6	-0.7
08302	12	V	50	29	3.3	0.2	0.3
08508	12	V	50	30	3.1	-0.1	0.1
08522	12	V	50	28	3.3	-0.1	0.8
08579	12	V	50	25	4.1	0.1	-0.6
10035	12	V	50	30	2.8	0.2	-0.1
10035	00	V	50	1	2.0	1.5	-1.3
10393	12	V	50	30	3.1	0.7	0.0
10393	00	V	50	30	2.9	0.7	0.6
10410	00	V	50	29	3.2	0.5	-0.3
10410	12	V	50	29	3.7	0.5	0.0
10739	12	V	50	29	2.8	0.6	-0.2
10739	00	V	50	28	3.4	0.4	0.5
11035	12	V	50	30	2.7	0.3	-0.5
11035	00	V	50	29	3.3	0.9	-0.3
12982	00	V	50	13	3.3	1.0	0.2
12982	12	V	50	11	4.6	1.3	-1.2
16080	00	V	50	30	3.1	0.6	0.7
16080	12	V	50	30	4.0	0.5	0.2
16245	00	V	50	30	3.5	0.7	0.9
16245	12	V	50	28	3.5	1.3	-0.1
16320	00	V	50	28	3.3	0.7	-0.1
16320	12	V	50	27	3.0	1.1	0.1
16429	00	V	50	28	4.4	1.0	-0.3
16429	12	V	50	29	4.2	1.1	-0.2
16622	00	V	50	19	3.8	0.9	-0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	50	27	4.8	2.4	-0.9
17607	12	V	50	9	3.5	0.5	0.6
26435	00	V	50	11	2.8	-0.5	0.1
5QPW8X	12	V	50	9	2.9	-0.4	-0.5
5QPW8X	00	V	50	4	3.3	-2.1	-2.0
60018	12	V	50	29	3.5	0.3	0.1
60018	00	V	50	28	3.7	-0.2	1.1
ASFR2	00	V	50	0	0.0	0.0	0.0
ASFR2	12	V	50	0	0.0	0.0	0.0
ASFR3	12	V	50	4	4.3	-0.6	-2.6
ASFR3	00	V	50	9	4.2	-0.1	-1.7
ASFR4	00	V	50	3	5.1	1.1	-0.7
ASFR4	12	V	50	4	2.4	0.1	0.9
FHM5UJ	00	V	50	8	2.2	0.1	0.1
FHM5UJ	12	V	50	17	2.8	-0.3	-0.3
FPUW5G	12	V	50	12	3.2	-0.4	0.3
HTXUH4	00	V	50	5	3.0	2.1	0.8
HTXUH4	12	V	50	3	2.8	0.9	1.6
VKB4L5	12	V	50	8	3.1	0.2	0.3
VKB4L5	00	V	50	9	4.3	0.7	0.4
XKQLWQ	12	V	50	15	3.6	-0.3	-0.7
XQFJRG	00	V	50	7	2.2	0.3	1.4
XQFJRG	12	V	50	5	2.9	-0.8	0.1
XWHDEA	12	V	50	8	3.9	-0.8	1.0
XWHDEA	00	V	50	4	3.4	1.3	1.7
YLV96W	00	V	50	1	1.3	-1.3	-0.3
YLV96W	12	V	50	1	9.7	-9.7	0.1
ZVQEQC	12	V	50	7	4.3	-0.4	2.2

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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	100	30	7.5	3.5
01001	12	Z	100	30	8.6	5.4
01028	12	Z	100	30	4.0	-0.9
01028	00	Z	100	30	5.0	-3.6
01400	00	Z	100	25	63.8	51.7
01400	12	Z	100	24	77.8	76.5
01415	12	Z	100	30	7.6	5.8
01415	00	Z	100	30	7.6	2.0
02365	00	Z	100	25	8.9	6.4
02365	12	Z	100	26	8.9	5.7
02591	12	Z	100	28	9.1	8.2
02591	00	Z	100	27	9.7	9.1
02836	00	Z	100	30	7.0	-2.0
02836	12	Z	100	30	4.1	1.3
02963	12	Z	100	30	5.5	3.9
02963	00	Z	100	29	5.8	3.6
03005	12	Z	100	31	5.4	0.7
03005	00	Z	100	36	3.7	0.3
03238	12	Z	100	4	4.6	3.1
03238	00	Z	100	28	4.6	1.5
03808	12	Z	100	30	5.3	3.0
03808	00	Z	100	29	5.2	1.9
03918	00	Z	100	30	10.8	8.6
03918	12	Z	100	4	15.9	14.4
03953	12	Z	100	29	14.3	9.6
03953	00	Z	100	29	8.9	0.1
04018	00	Z	100	32	5.6	1.8
04018	12	Z	100	30	3.8	1.0
04220	00	Z	100	30	3.9	2.8
04220	12	Z	100	30	9.9	5.8
04270	00	Z	100	30	7.7	4.2
04270	12	Z	100	30	13.4	3.5
04320	00	Z	100	30	6.8	3.0
04320	12	Z	100	30	8.4	7.1
04339	12	Z	100	30	10.0	7.0
04339	00	Z	100	29	8.4	4.2
04360	12	Z	100	24	42.2	40.9
04360	00	Z	100	22	35.5	34.4
06011	00	Z	100	24	16.2	-2.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	100	22	15.3	11.8
06260	12	Z	100	4	6.9	6.6
06260	00	Z	100	30	10.3	2.7
06610	00	Z	100	30	7.5	5.9
06610	12	Z	100	30	7.5	4.0
07110	12	Z	100	30	23.3	22.8
07110	00	Z	100	26	22.0	20.9
07510	00	Z	100	29	31.0	30.0
07510	12	Z	100	28	40.0	39.2
07645	00	Z	100	30	13.7	11.0
07645	12	Z	100	29	20.7	19.7
07761	00	Z	100	25	19.1	17.6
07761	12	Z	100	25	17.8	16.2
08001	12	Z	100	30	11.5	8.4
08001	00	Z	100	30	8.4	6.2
08221	00	Z	100	30	10.7	8.7
08221	12	Z	100	30	10.9	8.8
08302	00	Z	100	29	6.3	2.0
08302	12	Z	100	30	5.6	-0.5
08508	12	Z	100	30	12.9	11.0
08522	12	Z	100	30	15.6	12.6
08579	12	Z	100	28	15.5	14.1
10035	12	Z	100	30	18.9	17.7
10035	00	Z	100	1	17.4	17.4
10393	12	Z	100	31	8.3	4.0
10393	00	Z	100	30	5.9	4.4
10410	00	Z	100	30	4.7	3.1
10410	12	Z	100	29	5.6	1.0
10739	12	Z	100	30	5.2	2.9
10739	00	Z	100	30	6.2	3.8
11035	12	Z	100	30	11.2	9.8
11035	00	Z	100	30	13.9	13.2
12982	00	Z	100	13	9.0	3.6
12982	12	Z	100	12	18.2	17.1
16080	00	Z	100	30	5.7	1.5
16080	12	Z	100	30	4.8	1.1
16245	00	Z	100	30	6.2	1.6
16245	12	Z	100	29	7.3	2.8
16320	00	Z	100	29	10.3	8.4
16320	12	Z	100	30	11.0	7.8
16429	00	Z	100	30	7.7	4.2
16429	12	Z	100	30	10.5	5.4
16622	00	Z	100	30	18.5	15.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	100	29	15.6	12.7
17607	12	Z	100	30	12.9	6.8
26435	00	Z	100	15	7.4	4.4
5QPW8X	12	Z	100	15	24.0	21.6
5QPW8X	00	Z	100	12	26.0	0.7
60018	12	Z	100	30	13.3	11.9
60018	00	Z	100	32	14.6	13.1
ASFR2	00	Z	100	0	0.0	0.0
ASFR2	12	Z	100	0	0.0	0.0
ASFR3	12	Z	100	8	27.8	27.2
ASFR3	00	Z	100	11	26.1	24.7
ASFR4	00	Z	100	5	24.5	22.8
ASFR4	12	Z	100	5	27.7	24.2
FHM5UJ	00	Z	100	18	7.5	5.1
FHM5UJ	12	Z	100	17	9.4	7.7
FPUW5G	12	Z	100	15	9.9	3.5
HTXUH4	00	Z	100	10	10.1	0.8
HTXUH4	12	Z	100	4	9.0	4.5
VKB4L5	12	Z	100	13	50.9	48.0
VKB4L5	00	Z	100	13	49.6	48.9
XKQLWQ	12	Z	100	17	25.5	24.5
XQFJRG	00	Z	100	14	8.3	5.9
XQFJRG	12	Z	100	11	22.4	17.8
XWHDEA	12	Z	100	10	37.8	28.6
XWHDEA	00	Z	100	11	16.0	14.3
YLV96W	00	Z	100	3	11.4	10.7
YLV96W	12	Z	100	3	67.6	61.0
ZVQEQC	12	Z	100	7	20.0	18.2

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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	100	30	1.9	0.0	0.5
01001	12	V	100	30	3.0	0.4	-0.6
01028	12	V	100	30	2.4	-0.1	-0.3
01028	00	V	100	30	3.1	0.0	-0.5
01400	00	V	100	23	4.0	0.6	-0.6
01400	12	V	100	24	2.8	0.5	-0.1
01415	12	V	100	30	2.8	0.1	-0.1
01415	00	V	100	30	2.9	-0.2	0.6
02365	00	V	100	22	3.1	0.9	-0.2
02365	12	V	100	23	3.0	0.6	0.1
02591	12	V	100	28	3.5	-0.6	-0.7
02591	00	V	100	27	3.7	-0.9	-0.5
02836	00	V	100	30	2.7	1.0	-0.4
02836	12	V	100	30	3.0	0.3	-0.5
02963	12	V	100	30	2.8	0.4	-0.6
02963	00	V	100	28	2.6	0.6	-0.6
03005	12	V	100	30	2.9	0.3	0.1
03005	00	V	100	30	2.5	0.1	0.1
03238	12	V	100	4	3.7	1.9	1.2
03238	00	V	100	27	4.0	1.7	0.2
03808	12	V	100	29	3.2	-0.9	0.4
03808	00	V	100	29	3.3	0.0	0.5
03918	00	V	100	30	3.7	0.2	0.7
03918	12	V	100	4	3.4	-0.1	0.5
03953	12	V	100	29	3.0	0.3	-0.2
03953	00	V	100	29	3.2	0.5	1.0
04018	00	V	100	30	3.3	0.0	-0.1
04018	12	V	100	29	2.8	0.4	0.1
04220	00	V	100	30	2.9	1.0	-0.3
04220	12	V	100	30	2.6	0.4	0.2
04270	00	V	100	30	4.4	-0.8	-0.4
04270	12	V	100	30	3.4	-0.3	-0.4
04320	00	V	100	30	2.7	-0.4	0.0
04320	12	V	100	30	2.6	0.3	0.5
04339	12	V	100	30	2.9	-0.1	1.1
04339	00	V	100	29	2.8	0.3	-0.5
04360	12	V	100	24	2.9	0.2	0.0
04360	00	V	100	21	3.3	-0.3	0.1
06011	00	V	100	24	2.7	0.7	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	100	22	2.5	-0.1	-0.3
06260	12	V	100	4	3.2	0.9	0.2
06260	00	V	100	29	3.2	0.2	-0.3
06610	00	V	100	30	3.6	0.2	0.1
06610	12	V	100	30	4.2	0.2	0.5
07110	12	V	100	29	3.2	-0.6	-1.1
07110	00	V	100	26	3.0	0.2	0.1
07510	00	V	100	29	3.0	-0.4	-0.1
07510	12	V	100	28	3.7	0.5	0.0
07645	00	V	100	30	3.8	0.0	-0.1
07645	12	V	100	29	4.4	0.5	0.0
07761	00	V	100	25	3.6	-0.3	0.5
07761	12	V	100	25	4.6	1.9	-1.3
08001	12	V	100	30	3.7	0.1	0.4
08001	00	V	100	30	3.0	0.0	0.1
08221	00	V	100	27	3.3	0.1	0.0
08221	12	V	100	30	3.4	0.6	0.4
08302	00	V	100	29	4.3	0.6	0.1
08302	12	V	100	30	4.5	0.5	0.4
08508	12	V	100	30	3.8	-0.5	0.4
08522	12	V	100	30	3.9	1.0	1.0
08579	12	V	100	27	3.3	0.4	0.5
10035	12	V	100	30	3.2	0.2	-0.9
10035	00	V	100	1	2.4	0.2	2.4
10393	12	V	100	30	3.0	0.1	0.1
10393	00	V	100	30	2.9	0.1	-0.2
10410	00	V	100	30	2.8	-0.1	0.2
10410	12	V	100	29	3.3	0.4	-0.1
10739	12	V	100	30	3.4	0.3	0.4
10739	00	V	100	30	4.1	-0.1	0.5
11035	12	V	100	30	3.7	-0.1	0.2
11035	00	V	100	30	3.2	-0.7	-0.4
12982	00	V	100	13	3.1	0.8	0.7
12982	12	V	100	12	2.7	-0.1	-0.6
16080	00	V	100	30	3.8	0.5	0.7
16080	12	V	100	30	3.8	-0.7	-0.3
16245	00	V	100	30	3.6	-0.4	1.2
16245	12	V	100	29	4.5	-0.5	-0.9
16320	00	V	100	29	3.4	0.9	0.2
16320	12	V	100	29	3.5	0.8	-0.3
16429	00	V	100	29	3.7	0.9	0.7
16429	12	V	100	30	4.5	0.0	-0.9
16622	00	V	100	29	3.5	0.6	-0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	100	29	4.1	1.5	-0.8
17607	12	V	100	12	4.5	-2.2	-1.0
26435	00	V	100	15	3.6	0.1	-0.1
5QPW8X	12	V	100	11	3.2	-0.3	1.1
5QPW8X	00	V	100	7	2.4	0.8	-0.7
60018	12	V	100	30	4.6	0.9	1.5
60018	00	V	100	29	4.5	0.6	0.4
ASFR2	00	V	100	0	0.0	0.0	0.0
ASFR2	12	V	100	0	0.0	0.0	0.0
ASFR3	12	V	100	7	3.8	-2.2	-0.5
ASFR3	00	V	100	10	3.3	1.1	-1.4
ASFR4	00	V	100	5	2.9	1.3	1.8
ASFR4	12	V	100	4	3.1	1.1	-1.1
FHM5UJ	00	V	100	11	2.9	-0.2	0.9
FHM5UJ	12	V	100	17	2.9	0.8	0.0
FPUW5G	12	V	100	13	3.4	0.4	-0.5
HTXUH4	00	V	100	7	2.3	-0.1	0.5
HTXUH4	12	V	100	4	4.3	-0.8	2.4
VKB4L5	12	V	100	11	3.0	0.6	-0.3
VKB4L5	00	V	100	10	2.5	1.4	0.0
XKQLWQ	12	V	100	15	4.7	1.6	0.3
XQFJRG	00	V	100	7	5.2	-0.7	-1.7
XQFJRG	12	V	100	5	5.1	-0.8	-2.3
XWHDEA	12	V	100	10	2.3	-0.3	-0.5
XWHDEA	00	V	100	9	3.3	0.4	0.2
YLV96W	00	V	100	2	4.9	1.5	-0.1
YLV96W	12	V	100	2	4.8	2.6	0.3
ZVQEQC	12	V	100	7	5.3	-0.9	-1.6

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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	500	30	5.9	1.5
01001	12	Z	500	30	6.7	2.7
01028	12	Z	500	30	3.3	-1.1
01028	00	Z	500	30	4.4	-3.0
01400	00	Z	500	25	61.2	50.4
01400	12	Z	500	24	77.1	76.0
01415	12	Z	500	30	3.7	2.6
01415	00	Z	500	30	4.8	3.5
02365	00	Z	500	30	6.9	5.6
02365	12	Z	500	29	6.2	5.2
02591	12	Z	500	28	9.2	8.8
02591	00	Z	500	27	8.9	8.5
02836	00	Z	500	30	5.9	0.7
02836	12	Z	500	30	3.5	1.3
02963	12	Z	500	30	3.9	3.4
02963	00	Z	500	30	5.1	3.5
03005	12	Z	500	31	3.8	-0.7
03005	00	Z	500	36	3.1	-0.8
03238	12	Z	500	4	3.2	1.4
03238	00	Z	500	28	3.4	1.8
03808	12	Z	500	30	3.8	2.3
03808	00	Z	500	29	4.1	2.1
03918	00	Z	500	30	9.5	8.5
03918	12	Z	500	4	9.2	9.2
03953	12	Z	500	30	8.5	1.7
03953	00	Z	500	30	6.0	1.5
04018	00	Z	500	31	3.4	0.3
04018	12	Z	500	31	3.4	0.1
04220	00	Z	500	30	3.5	1.5
04220	12	Z	500	30	9.8	2.0
04270	00	Z	500	30	3.6	1.3
04270	12	Z	500	30	11.2	-1.4
04320	00	Z	500	30	3.6	1.8
04320	12	Z	500	30	4.5	1.8
04339	12	Z	500	30	5.3	2.0
04339	00	Z	500	29	6.8	1.4
04360	12	Z	500	27	40.1	39.8
04360	00	Z	500	24	38.8	38.4
06011	00	Z	500	28	7.4	5.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	500	25	11.1	8.1
06260	12	Z	500	4	8.2	7.2
06260	00	Z	500	30	7.4	0.0
06610	00	Z	500	30	4.4	3.3
06610	12	Z	500	30	3.4	1.0
07110	12	Z	500	30	9.4	7.5
07110	00	Z	500	27	9.0	7.3
07510	00	Z	500	30	17.7	17.2
07510	12	Z	500	30	19.7	18.1
07645	00	Z	500	30	6.2	4.8
07645	12	Z	500	30	9.1	8.2
07761	00	Z	500	25	6.9	5.4
07761	12	Z	500	25	6.8	5.7
08001	12	Z	500	30	4.5	3.1
08001	00	Z	500	30	5.4	4.5
08221	00	Z	500	31	8.0	7.2
08221	12	Z	500	30	7.7	5.2
08302	00	Z	500	29	3.1	1.5
08302	12	Z	500	31	3.4	-0.6
08508	12	Z	500	30	8.3	6.3
08522	12	Z	500	30	9.2	7.3
08579	12	Z	500	29	7.7	5.4
10035	12	Z	500	31	15.8	15.4
10035	00	Z	500	1	14.3	14.3
10393	12	Z	500	33	2.7	0.7
10393	00	Z	500	30	4.0	1.6
10410	00	Z	500	31	3.2	1.9
10410	12	Z	500	30	3.7	0.3
10739	12	Z	500	30	3.0	0.6
10739	00	Z	500	30	3.8	1.6
11035	12	Z	500	30	7.9	6.9
11035	00	Z	500	30	10.3	9.8
12982	00	Z	500	13	5.0	4.2
12982	12	Z	500	13	6.7	5.6
16080	00	Z	500	30	3.1	-0.1
16080	12	Z	500	30	3.3	-2.2
16245	00	Z	500	30	2.3	0.0
16245	12	Z	500	32	3.5	-1.5
16320	00	Z	500	30	9.1	7.6
16320	12	Z	500	31	9.1	6.9
16429	00	Z	500	30	5.9	3.7
16429	12	Z	500	30	5.5	4.0
16622	00	Z	500	30	10.6	9.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	500	30	8.2	6.3
17607	12	Z	500	30	6.9	4.6
26435	00	Z	500	15	5.1	2.1
5QPW8X	12	Z	500	15	22.7	20.3
5QPW8X	00	Z	500	15	25.5	4.3
60018	12	Z	500	31	7.5	6.4
60018	00	Z	500	32	6.0	4.2
ASFR2	00	Z	500	3	16.8	16.0
ASFR2	12	Z	500	5	19.0	18.8
ASFR3	12	Z	500	9	13.2	12.9
ASFR3	00	Z	500	12	9.5	9.0
ASFR4	00	Z	500	5	7.2	2.4
ASFR4	12	Z	500	9	8.3	6.4
FHM5UJ	00	Z	500	18	8.0	6.7
FHM5UJ	12	Z	500	17	7.3	5.8
FPUW5G	12	Z	500	16	4.6	2.6
HTXUH4	00	Z	500	10	14.2	8.0
HTXUH4	12	Z	500	4	4.7	3.9
VKB4L5	12	Z	500	13	41.2	39.0
VKB4L5	00	Z	500	13	38.4	37.8
XKQLWQ	12	Z	500	17	11.1	10.0
XQFJRG	00	Z	500	15	8.8	-6.0
XQFJRG	12	Z	500	12	3.6	-0.6
XWHDEA	12	Z	500	11	9.6	8.6
XWHDEA	00	Z	500	14	6.6	5.8
YLV96W	00	Z	500	2	5.8	3.2
YLV96W	12	Z	500	8	17.4	13.5
ZVQEQC	12	Z	500	8	7.7	6.7

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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	500	30	2.8	1.0	-0.2
01001	12	V	500	30	2.9	0.4	-0.8
01028	12	V	500	30	2.1	0.5	0.2
01028	00	V	500	30	2.4	0.3	-0.7
01400	00	V	500	23	2.3	0.6	0.7
01400	12	V	500	24	2.8	0.0	0.7
01415	12	V	500	30	2.1	-0.2	0.0
01415	00	V	500	30	2.5	0.6	0.5
02365	00	V	500	30	2.9	0.5	-0.5
02365	12	V	500	29	3.1	0.2	0.0
02591	12	V	500	28	2.9	-0.2	-0.6
02591	00	V	500	27	2.0	0.1	-0.3
02836	00	V	500	30	2.8	0.4	-0.3
02836	12	V	500	30	2.6	0.9	-0.1
02963	12	V	500	30	2.3	0.1	-0.5
02963	00	V	500	30	2.3	0.2	0.2
03005	12	V	500	30	2.8	0.2	0.2
03005	00	V	500	30	2.4	0.1	0.5
03238	12	V	500	4	2.0	-0.6	-0.5
03238	00	V	500	28	3.0	0.1	0.0
03808	12	V	500	29	3.7	-0.4	0.0
03808	00	V	500	29	2.9	0.2	0.4
03918	00	V	500	30	2.9	-0.1	0.4
03918	12	V	500	4	2.1	0.2	-0.8
03953	12	V	500	29	3.3	0.4	0.4
03953	00	V	500	30	3.1	-0.1	-0.3
04018	00	V	500	30	2.4	0.0	0.2
04018	12	V	500	30	2.6	0.0	-0.1
04220	00	V	500	30	2.6	0.0	0.1
04220	12	V	500	30	2.6	0.0	-0.1
04270	00	V	500	30	2.8	-0.2	0.4
04270	12	V	500	30	2.8	-0.2	0.0
04320	00	V	500	30	2.1	0.3	0.3
04320	12	V	500	30	2.4	0.0	0.2
04339	12	V	500	30	2.5	-0.4	-0.4
04339	00	V	500	29	1.9	0.3	-0.2
04360	12	V	500	27	2.0	0.2	0.0
04360	00	V	500	23	2.9	0.7	-0.3
06011	00	V	500	28	2.9	-0.7	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	500	24	3.1	-0.4	0.4
06260	12	V	500	4	3.6	1.6	-0.9
06260	00	V	500	29	2.9	-0.3	0.3
06610	00	V	500	30	2.7	0.7	0.2
06610	12	V	500	30	3.2	0.6	0.2
07110	12	V	500	29	2.8	0.2	0.2
07110	00	V	500	27	2.5	0.5	-0.2
07510	00	V	500	30	3.6	1.2	-0.1
07510	12	V	500	30	3.4	0.5	0.0
07645	00	V	500	30	2.9	0.1	0.4
07645	12	V	500	29	3.3	-0.5	0.6
07761	00	V	500	25	2.7	0.1	-0.5
07761	12	V	500	25	2.8	0.3	0.0
08001	12	V	500	30	2.5	0.1	0.0
08001	00	V	500	30	2.9	0.0	0.6
08221	00	V	500	29	4.5	-0.3	-0.4
08221	12	V	500	30	2.6	0.1	0.3
08302	00	V	500	29	2.8	-0.2	-0.2
08302	12	V	500	30	3.1	0.4	0.1
08508	12	V	500	30	2.8	0.6	-0.3
08522	12	V	500	30	3.0	0.1	-0.8
08579	12	V	500	29	3.5	0.0	-0.5
10035	12	V	500	30	2.4	0.0	0.4
10035	00	V	500	1	3.3	2.9	1.6
10393	12	V	500	30	2.1	-0.2	-0.5
10393	00	V	500	30	2.5	-0.3	-0.2
10410	00	V	500	30	3.3	-0.3	0.6
10410	12	V	500	30	2.9	0.1	0.5
10739	12	V	500	30	2.6	0.4	0.0
10739	00	V	500	30	2.5	-0.1	-0.4
11035	12	V	500	30	3.1	0.2	0.2
11035	00	V	500	30	3.2	-0.2	0.3
12982	00	V	500	13	2.7	-0.8	0.1
12982	12	V	500	13	2.8	0.5	-0.6
16080	00	V	500	30	2.7	-0.1	-0.2
16080	12	V	500	30	3.1	-0.3	0.1
16245	00	V	500	30	2.3	-0.2	0.5
16245	12	V	500	30	3.6	-0.1	-1.1
16320	00	V	500	30	2.9	0.2	-0.2
16320	12	V	500	30	3.3	0.7	-0.3
16429	00	V	500	29	2.8	0.0	0.1
16429	12	V	500	30	2.8	0.2	0.7
16622	00	V	500	30	3.0	0.2	-0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	500	30	2.5	0.3	0.1
17607	12	V	500	24	3.2	1.1	0.2
26435	00	V	500	15	3.0	-0.7	0.7
5QPW8X	12	V	500	11	4.1	-1.0	0.8
5QPW8X	00	V	500	9	3.4	-1.0	0.4
60018	12	V	500	30	3.0	0.4	0.1
60018	00	V	500	30	2.3	0.2	0.2
ASFR2	00	V	500	3	3.0	0.0	1.3
ASFR2	12	V	500	5	2.1	0.2	0.9
ASFR3	12	V	500	8	2.8	0.5	-0.6
ASFR3	00	V	500	11	1.9	-0.4	-0.2
ASFR4	00	V	500	5	4.0	-0.7	0.4
ASFR4	12	V	500	7	2.3	-0.1	-0.1
FHM5UJ	00	V	500	12	2.3	-0.2	-0.2
FHM5UJ	12	V	500	17	2.3	0.2	0.2
FPUW5G	12	V	500	14	3.8	0.0	-0.7
HTXUH4	00	V	500	7	1.7	-0.6	0.7
HTXUH4	12	V	500	4	2.2	-1.2	1.0
VKB4L5	12	V	500	11	2.8	0.3	0.9
VKB4L5	00	V	500	10	2.4	0.7	0.9
XKQLWQ	12	V	500	15	2.7	0.7	0.3
XQFJRG	00	V	500	7	4.6	-0.7	-0.1
XQFJRG	12	V	500	6	4.6	0.8	-2.6
XWHDEA	12	V	500	11	3.3	-0.2	-0.3
XWHDEA	00	V	500	12	1.7	-0.1	-0.1
YLV96W	00	V	500	2	0.9	0.0	-0.4
YLV96W	12	V	500	6	2.0	0.3	0.7
ZVQEQC	12	V	500	8	3.1	-0.8	1.2

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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	850	30	5.8	0.6
01001	12	Z	850	30	6.0	0.9
01028	12	Z	850	30	3.4	-2.6
01028	00	Z	850	30	4.1	-3.2
01400	00	Z	850	25	61.2	50.1
01400	12	Z	850	24	75.7	74.6
01415	12	Z	850	30	3.6	3.0
01415	00	Z	850	30	3.9	3.2
02365	00	Z	850	30	6.7	6.0
02365	12	Z	850	29	5.0	4.4
02591	12	Z	850	28	8.7	8.3
02591	00	Z	850	27	8.2	7.9
02836	00	Z	850	30	3.1	2.5
02836	12	Z	850	30	3.0	1.4
02963	12	Z	850	30	4.1	3.4
02963	00	Z	850	30	3.5	3.3
03005	12	Z	850	31	2.3	-1.1
03005	00	Z	850	36	2.4	-1.0
03238	12	Z	850	4	2.6	2.3
03238	00	Z	850	28	4.1	3.7
03808	12	Z	850	30	2.6	1.1
03808	00	Z	850	29	2.9	1.6
03918	00	Z	850	30	10.7	10.5
03918	12	Z	850	4	11.4	11.3
03953	12	Z	850	30	3.7	2.9
03953	00	Z	850	30	3.1	1.5
04018	00	Z	850	31	2.2	0.6
04018	12	Z	850	30	2.0	-0.3
04220	00	Z	850	30	3.4	2.4
04220	12	Z	850	30	10.5	0.1
04270	00	Z	850	30	3.6	1.5
04270	12	Z	850	30	5.8	1.0
04320	00	Z	850	30	3.4	-0.9
04320	12	Z	850	30	3.2	0.7
04339	12	Z	850	30	4.3	1.8
04339	00	Z	850	30	5.4	1.1
04360	12	Z	850	29	41.2	40.7
04360	00	Z	850	26	42.0	41.9
06011	00	Z	850	29	6.0	5.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	850	27	7.0	6.1
06260	12	Z	850	4	5.9	4.6
06260	00	Z	850	30	5.6	-0.5
06610	00	Z	850	30	3.2	2.3
06610	12	Z	850	30	3.5	1.7
07110	12	Z	850	30	3.9	2.5
07110	00	Z	850	27	4.4	3.2
07510	00	Z	850	30	13.8	13.4
07510	12	Z	850	30	14.6	14.4
07645	00	Z	850	30	4.6	3.4
07645	12	Z	850	31	4.8	3.9
07761	00	Z	850	25	3.8	3.1
07761	12	Z	850	25	3.2	2.0
08001	12	Z	850	30	3.7	2.2
08001	00	Z	850	30	3.7	2.6
08221	00	Z	850	31	5.5	4.6
08221	12	Z	850	30	5.0	4.3
08302	00	Z	850	29	2.5	0.7
08302	12	Z	850	31	2.7	-0.8
08508	12	Z	850	30	4.8	3.3
08522	12	Z	850	30	5.5	4.2
08579	12	Z	850	29	4.5	3.7
10035	12	Z	850	31	16.0	15.6
10035	00	Z	850	1	14.2	14.2
10393	12	Z	850	33	2.4	0.3
10393	00	Z	850	30	2.4	1.1
10410	00	Z	850	31	4.4	0.2
10410	12	Z	850	30	3.0	0.3
10739	12	Z	850	30	2.4	0.8
10739	00	Z	850	30	2.3	0.5
11035	12	Z	850	30	7.3	6.8
11035	00	Z	850	30	8.7	8.2
12982	00	Z	850	13	5.5	5.0
12982	12	Z	850	13	4.3	3.6
16080	00	Z	850	30	2.9	0.1
16080	12	Z	850	30	3.2	-1.7
16245	00	Z	850	30	2.3	-0.1
16245	12	Z	850	32	3.5	-0.1
16320	00	Z	850	30	9.1	7.3
16320	12	Z	850	31	8.5	6.2
16429	00	Z	850	30	4.3	3.7
16429	12	Z	850	30	4.4	3.0
16622	00	Z	850	30	9.4	8.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16754	00	Z	850	30	4.4	2.4
17607	12	Z	850	30	4.0	2.9
26435	00	Z	850	15	2.8	1.8
5QPW8X	12	Z	850	15	24.2	21.6
5QPW8X	00	Z	850	17	28.0	6.6
60018	12	Z	850	31	3.2	1.9
60018	00	Z	850	32	3.7	1.2
ASFR2	00	Z	850	8	9.6	8.6
ASFR2	12	Z	850	8	9.4	8.9
ASFR3	12	Z	850	9	6.7	6.4
ASFR3	00	Z	850	13	4.6	3.5
ASFR4	00	Z	850	6	2.9	-2.0
ASFR4	12	Z	850	9	5.5	-2.4
FHM5UJ	00	Z	850	18	10.2	7.7
FHM5UJ	12	Z	850	17	6.9	5.6
FPUW5G	12	Z	850	16	3.3	-1.5
HTXUH4	00	Z	850	10	14.4	10.0
HTXUH4	12	Z	850	4	4.4	3.9
VKB4L5	12	Z	850	13	33.3	30.6
VKB4L5	00	Z	850	13	31.6	31.1
XKQLWQ	12	Z	850	18	4.2	3.0
XQFJRG	00	Z	850	15	9.0	-6.6
XQFJRG	12	Z	850	12	9.9	-8.6
XWHDEA	12	Z	850	12	5.5	3.0
XWHDEA	00	Z	850	16	4.0	3.2
YLV96W	00	Z	850	3	8.1	5.9
YLV96W	12	Z	850	11	13.0	3.3
ZVQEQC	12	Z	850	8	4.7	3.5

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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	850	30	5.7	0.3	1.0
01001	12	V	850	30	5.4	0.8	0.0
01028	12	V	850	30	3.1	0.5	-0.8
01028	00	V	850	30	3.4	0.7	-0.8
01400	00	V	850	23	2.0	0.1	-0.4
01400	12	V	850	24	2.7	1.1	0.2
01415	12	V	850	30	2.4	-0.5	-0.2
01415	00	V	850	30	2.3	0.3	0.4
02365	00	V	850	30	2.3	-0.4	-0.1
02365	12	V	850	29	3.3	0.1	-0.1
02591	12	V	850	28	2.8	-0.2	-0.4
02591	00	V	850	27	2.5	0.4	-0.4
02836	00	V	850	30	2.3	0.1	-0.3
02836	12	V	850	30	2.7	0.7	-0.8
02963	12	V	850	30	2.7	-0.2	0.3
02963	00	V	850	30	2.0	0.2	0.0
03005	12	V	850	30	3.3	0.5	-0.1
03005	00	V	850	30	2.5	-0.6	-0.3
03238	12	V	850	4	3.0	0.7	-0.2
03238	00	V	850	28	2.5	0.2	-0.6
03808	12	V	850	29	2.6	-0.3	0.3
03808	00	V	850	29	2.1	0.0	-0.1
03918	00	V	850	30	2.6	0.4	-0.1
03918	12	V	850	4	4.5	0.7	0.4
03953	12	V	850	29	3.3	0.2	0.4
03953	00	V	850	30	2.9	0.1	1.0
04018	00	V	850	30	3.3	-0.6	0.5
04018	12	V	850	30	3.4	0.2	-0.3
04220	00	V	850	30	3.0	-0.3	0.0
04220	12	V	850	30	2.8	0.7	-0.1
04270	00	V	850	30	2.8	-0.3	-0.8
04270	12	V	850	30	3.2	-0.5	0.3
04320	00	V	850	30	2.8	-0.2	0.9
04320	12	V	850	30	2.6	-0.7	0.1
04339	12	V	850	30	4.1	0.4	-0.9
04339	00	V	850	30	3.9	0.3	0.1
04360	12	V	850	27	3.7	-0.2	0.5
04360	00	V	850	23	4.5	1.3	0.3
06011	00	V	850	29	2.7	0.1	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	850	27	2.8	-0.5	-0.3
06260	12	V	850	4	2.8	0.2	-1.3
06260	00	V	850	29	2.6	0.2	0.3
06610	00	V	850	30	3.7	0.8	0.0
06610	12	V	850	30	3.6	1.3	-0.4
07110	12	V	850	29	3.1	-0.1	0.6
07110	00	V	850	27	2.5	0.2	0.2
07510	00	V	850	30	4.2	-0.7	0.7
07510	12	V	850	30	3.0	0.3	0.3
07645	00	V	850	30	3.4	0.1	0.2
07645	12	V	850	30	3.3	0.3	0.1
07761	00	V	850	25	2.8	-0.2	-0.8
07761	12	V	850	25	3.0	0.2	-0.3
08001	12	V	850	30	2.6	0.3	0.7
08001	00	V	850	30	2.8	0.8	1.1
08221	00	V	850	29	3.6	0.1	-0.7
08221	12	V	850	30	2.8	0.3	0.5
08302	00	V	850	29	3.0	-0.9	0.3
08302	12	V	850	30	3.2	1.0	0.7
08508	12	V	850	30	2.9	0.0	-0.5
08522	12	V	850	30	4.2	-0.2	2.0
08579	12	V	850	29	3.6	-0.8	0.0
10035	12	V	850	30	2.8	0.1	-0.7
10035	00	V	850	1	0.7	-0.6	-0.3
10393	12	V	850	30	2.8	0.0	-0.3
10393	00	V	850	30	3.1	0.3	0.1
10410	00	V	850	30	2.8	0.0	0.2
10410	12	V	850	30	2.9	0.1	0.0
10739	12	V	850	30	2.7	-0.3	0.1
10739	00	V	850	30	2.4	0.1	0.1
11035	12	V	850	30	3.6	-0.5	0.6
11035	00	V	850	30	3.1	0.4	0.0
12982	00	V	850	13	4.1	0.6	0.5
12982	12	V	850	13	2.9	0.0	-0.4
16080	00	V	850	30	3.5	0.7	-0.4
16080	12	V	850	30	2.6	-0.2	-0.4
16245	00	V	850	30	2.8	-0.1	0.1
16245	12	V	850	30	3.0	0.3	0.2
16320	00	V	850	30	2.9	-0.2	-0.2
16320	12	V	850	30	2.5	0.6	-0.6
16429	00	V	850	29	2.7	-0.3	-0.1
16429	12	V	850	30	2.7	-0.7	0.0
16622	00	V	850	30	2.8	0.4	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16754	00	V	850	30	2.3	0.1	-0.4
17607	12	V	850	29	3.5	0.5	0.1
26435	00	V	850	15	2.5	-0.4	-0.1
5QPW8X	12	V	850	11	2.3	0.6	-0.2
5QPW8X	00	V	850	10	2.9	-1.1	-0.6
60018	12	V	850	30	3.7	-0.2	0.9
60018	00	V	850	30	4.6	-0.3	1.8
ASFR2	00	V	850	8	2.7	0.8	0.2
ASFR2	12	V	850	8	1.8	-0.3	-0.3
ASFR3	12	V	850	8	1.9	0.3	-0.6
ASFR3	00	V	850	12	2.6	-0.6	-0.4
ASFR4	00	V	850	6	2.7	-1.5	0.7
ASFR4	12	V	850	7	2.3	0.7	-0.3
FHM5UJ	00	V	850	12	2.8	0.1	-0.4
FHM5UJ	12	V	850	17	4.3	0.1	-0.9
FPUW5G	12	V	850	14	3.8	-0.6	0.4
HTXUH4	00	V	850	7	2.4	-1.3	0.4
HTXUH4	12	V	850	4	3.3	-0.8	0.7
VKB4L5	12	V	850	11	1.9	1.1	0.1
VKB4L5	00	V	850	10	1.8	0.1	-0.2
XKQLWQ	12	V	850	16	2.6	0.2	-0.3
XQFJRG	00	V	850	7	2.0	0.3	-0.7
XQFJRG	12	V	850	7	4.1	2.2	-0.4
XWHDEA	12	V	850	12	2.0	0.1	-0.5
XWHDEA	00	V	850	14	2.9	0.0	0.0
YLV96W	00	V	850	2	2.1	1.0	-0.1
YLV96W	12	V	850	6	2.3	-1.1	-0.8
ZVQEQC	12	V	850	8	2.7	0.1	1.1

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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

GROSS ERROR LIMIT = 15 HPA

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
03380	99	P	SUR	54	0	669	0	0.3	-0.0	0.3
1300001	99	P	SUR	11	-23	706	0	0.3	0.1	0.4
1300008	99	P	SUR	15	-38	711	0	0.3	-0.1	0.3
1300130	99	P	SUR	28	-16	33	0	0.3	0.4	0.5
1300131	99	P	SUR	28	-17	718	0	0.4	-0.3	0.5
1300869	99	P	SUR	27	-63	718	0	0.3	-0.2	0.3
1300872	99	P	SUR	36	-38	719	0	0.5	0.4	0.6
1301000	99	P	SUR	33	-17	304	304	0.0	0.0	0.0
1301001	99	P	SUR	33	-17	320	320	0.0	0.0	0.0
1301603	99	P	SUR	19	-36	719	0	0.3	0.5	0.5
1301604	99	P	SUR	15	-30	716	0	0.3	0.4	0.5
1301605	99	P	SUR	23	-38	718	0	0.2	0.2	0.3
1301606	99	P	SUR	16	-34	719	0	0.3	0.6	0.7
1301607	99	P	SUR	15	-25	718	0	0.3	0.5	0.7
1301608	99	P	SUR	22	-26	719	0	0.3	0.7	0.7
1301609	99	P	SUR	27	-22	719	0	0.3	0.5	0.6
1301610	99	P	SUR	27	-31	719	0	0.2	0.4	0.4
1301611	99	P	SUR	27	-31	719	0	0.2	0.0	0.2
1301612	99	P	SUR	29	-32	719	0	0.3	0.3	0.4
13869	99	P	SUR	27	-63	718	0	0.3	-0.2	0.3
13872	99	P	SUR	36	-37	719	0	0.5	0.4	0.6
1501529	99	P	SUR	25	-30	715	0	0.3	0.5	0.5
1501531	99	P	SUR	21	-42	712	0	0.3	0.1	0.3
1501534	99	P	SUR	22	-42	716	0	0.3	-0.4	0.5
2500622	99	P	SUR	58	-27	344	0	0.5	-0.6	0.8
25622	99	P	SUR	58	-27	344	0	0.5	-0.6	0.8
3100735	99	P	SUR	21	-63	718	0	0.3	0.2	0.4
31735	99	P	SUR	21	-63	718	0	0.3	0.2	0.4
4100300	99	P	SUR	16	-57	153	0	0.3	-0.0	0.3
4100597	99	P	SUR	36	-33	719	1	1.1	0.7	1.3
4100729	99	P	SUR	35	-26	719	0	0.4	0.4	0.6
4100730	99	P	SUR	43	-45	719	0	0.5	0.4	0.7
4100731	99	P	SUR	28	-70	719	0	0.4	-0.6	0.7
4101530	99	P	SUR	38	-34	681	0	0.3	0.5	0.6
4101538	99	P	SUR	37	-56	600	0	0.5	0.3	0.5
4101554	99	P	SUR	28	-58	714	0	0.3	0.4	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101556	99	P	SUR	33	-41	719	0	0.2	0.6	0.7
4101557	99	P	SUR	33	-33	718	0	0.3	0.4	0.5
4101558	99	P	SUR	45	-17	719	0	0.4	0.5	0.6
4101560	99	P	SUR	31	-49	713	0	0.3	0.8	0.8
4101561	99	P	SUR	28	-69	719	0	0.4	0.0	0.4
4101562	99	P	SUR	37	-43	680	0	0.7	0.3	0.8
4101564	99	P	SUR	32	-43	713	0	0.2	0.0	0.2
4101565	99	P	SUR	37	-37	669	0	0.3	0.5	0.5
4101566	99	P	SUR	30	-63	654	0	0.4	0.2	0.4
4101567	99	P	SUR	37	-44	682	0	0.4	0.7	0.8
4101568	99	P	SUR	37	-52	656	0	0.4	0.3	0.5
4101570	99	P	SUR	30	-54	702	0	0.3	0.5	0.6
4101574	99	P	SUR	35	-61	640	0	0.4	0.6	0.7
4101576	99	P	SUR	16	-55	717	0	0.3	0.5	0.6
4101577	99	P	SUR	19	-49	718	0	0.3	0.4	0.5
4101700	99	P	SUR	29	-33	719	0	0.3	0.5	0.6
4101702	99	P	SUR	34	-53	464	0	0.5	-0.0	0.5
4101703	99	P	SUR	21	-69	719	0	0.8	0.6	1.0
4101705	99	P	SUR	36	-43	719	0	0.3	0.2	0.3
4101706	99	P	SUR	34	-30	718	0	0.4	-0.2	0.5
4101707	99	P	SUR	36	-35	719	0	0.3	-0.0	0.3
4101708	99	P	SUR	31	-25	719	0	0.3	-0.0	0.3
4101709	99	P	SUR	35	-14	719	0	0.9	0.8	1.2
4101710	99	P	SUR	33	-51	493	0	0.3	0.0	0.3
4101712	99	P	SUR	35	-45	696	0	0.4	0.2	0.5
4101713	99	P	SUR	38	-52	719	0	0.4	-0.0	0.4
4101714	99	P	SUR	32	-40	718	0	0.3	0.1	0.4
4101715	99	P	SUR	28	-47	719	0	0.3	0.1	0.3
4101716	99	P	SUR	26	-54	719	0	0.3	-1.0	1.0
4101717	99	P	SUR	20	-59	719	0	0.3	-0.1	0.3
4101741	99	P	SUR	17	-65	719	0	0.4	0.5	0.6
4101742	99	P	SUR	21	-70	719	0	0.4	-0.2	0.4
4101743	99	P	SUR	24	-52	719	0	0.3	0.8	0.9
4101746	99	P	SUR	17	-64	719	0	0.4	0.0	0.4
41040	99	P	SUR	15	-53	735	0	0.4	1.3	1.4
41041	99	P	SUR	14	-46	1244	0	0.4	0.5	0.6
41043	99	P	SUR	21	-65	1321	0	0.4	0.0	0.4
41044	99	P	SUR	22	-59	1334	0	0.3	0.3	0.4
41046	99	P	SUR	24	-68	1273	0	0.4	0.4	0.6
41048	99	P	SUR	32	-70	1245	0	0.6	-0.1	0.6
41049	99	P	SUR	28	-63	1243	0	0.4	0.2	0.4
41052	99	P	SUR	18	-65	1917	0	0.4	-1.4	1.5
41053	99	P	SUR	19	-66	1360	0	0.4	-0.7	0.8

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
41056	99	P	SUR	18	-66	1367	0	0.4	-0.2	0.4
41300	99	P	SUR	16	-57	153	0	0.3	-0.0	0.3
41597	99	P	SUR	36	-33	719	1	1.1	0.7	1.3
41729	99	P	SUR	35	-26	719	0	0.4	0.4	0.6
41730	99	P	SUR	43	-45	719	0	0.5	0.4	0.7
41731	99	P	SUR	28	-70	719	0	0.4	-0.6	0.7
42060	99	P	SUR	16	-63	1305	0	0.5	0.0	0.5
42085	99	P	SUR	18	-67	426	0	0.4	-0.9	1.0
44005	99	P	SUR	43	-69	369	0	0.5	-0.2	0.5
4400513	99	P	SUR	54	-10	717	0	0.4	-0.3	0.5
4400517	99	P	SUR	22	-49	718	0	0.3	0.3	0.4
4400521	99	P	SUR	35	-34	687	0	0.3	-0.7	0.7
4400746	99	P	SUR	30	-38	719	0	0.3	0.5	0.5
4400765	99	P	SUR	64	10	225	108	3.6	2.0	4.1
4400776	99	P	SUR	27	-62	718	0	0.4	0.4	0.6
4400777	99	P	SUR	30	-47	719	0	0.3	0.3	0.4
4400778	99	P	SUR	32	-24	717	0	0.3	0.5	0.6
44008	99	P	SUR	41	-69	722	0	0.6	-0.7	0.9
4400857	99	P	SUR	27	-31	719	0	0.2	0.6	0.7
4400874	99	P	SUR	31	-44	719	0	0.4	0.7	0.8
4400887	99	P	SUR	33	-48	705	0	0.4	-0.1	0.4
4400891	99	P	SUR	39	-57	696	0	0.9	-0.8	1.2
4401503	99	P	SUR	28	-68	718	0	0.4	0.1	0.4
4401527	99	P	SUR	28	-61	717	0	0.3	-0.0	0.3
4401529	99	P	SUR	22	-68	656	0	0.3	0.0	0.3
4401531	99	P	SUR	31	-62	718	0	0.3	0.2	0.4
4401536	99	P	SUR	45	-22	681	0	0.4	0.5	0.6
4401537	99	P	SUR	32	-26	647	0	0.3	-0.3	0.5
4401539	99	P	SUR	33	-45	716	0	0.3	-0.1	0.3
4401540	99	P	SUR	31	-61	717	0	0.3	0.1	0.3
4401541	99	P	SUR	42	-33	716	0	0.3	-0.1	0.3
4401543	99	P	SUR	23	-65	546	0	0.3	-0.1	0.3
4401544	99	P	SUR	32	-58	717	0	0.3	-0.6	0.7
4401550	99	P	SUR	52	-18	718	0	0.5	-0.1	0.5
4401551	99	P	SUR	35	-37	707	0	0.4	0.5	0.7
4401552	99	P	SUR	37	-12	719	0	0.3	0.3	0.5
4401553	99	P	SUR	54	-33	719	0	0.4	0.2	0.5
4401554	99	P	SUR	54	-30	718	0	0.5	0.4	0.6
4401555	99	P	SUR	57	-18	719	0	0.5	-0.3	0.6
4401556	99	P	SUR	32	-37	718	0	0.4	0.3	0.5
4401557	99	P	SUR	39	-38	719	0	0.3	0.1	0.4
4401558	99	P	SUR	52	-32	719	0	0.5	0.0	0.5
4401559	99	P	SUR	48	-17	719	0	0.5	0.3	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401560	99	P	SUR	42	-22	718	0	0.3	0.3	0.4
4401561	99	P	SUR	42	-31	719	0	0.3	-0.0	0.3
4401562	99	P	SUR	39	-24	719	0	0.3	-0.0	0.3
4401563	99	P	SUR	30	-35	719	0	0.3	0.1	0.4
4401564	99	P	SUR	39	-37	719	0	0.8	1.1	1.4
4401565	99	P	SUR	52	-27	719	0	0.4	0.3	0.5
4401566	99	P	SUR	50	-24	719	0	0.5	0.4	0.6
4401601	99	P	SUR	52	-35	700	0	0.5	-0.2	0.5
4401602	99	P	SUR	42	-54	500	0	0.5	-0.0	0.5
4401603	99	P	SUR	55	-17	698	0	0.4	0.4	0.5
4401605	99	P	SUR	55	-26	699	0	0.4	-0.3	0.5
4401606	99	P	SUR	46	-2	371	0	0.4	0.3	0.5
4401611	99	P	SUR	46	-57	699	0	0.5	0.6	0.8
4401613	99	P	SUR	47	-10	699	0	0.9	0.5	1.0
4401616	99	P	SUR	38	-32	700	0	0.5	0.1	0.5
4401631	99	P	SUR	50	-4	398	0	0.4	0.1	0.4
4401633	99	P	SUR	47	-15	697	0	0.4	-0.1	0.4
4401752	99	P	SUR	66	-33	611	0	0.5	0.6	0.8
4401755	99	P	SUR	64	-2	669	0	0.3	0.5	0.6
4401757	99	P	SUR	68	-7	569	0	0.5	0.5	0.7
44018	99	P	SUR	42	-70	151	0	0.6	-0.0	0.6
4401802	99	P	SUR	42	-46	696	0	0.9	0.4	1.0
44027	99	P	SUR	44	-67	733	0	0.6	0.0	0.6
44032	99	P	SUR	44	-69	692	0	0.5	-1.0	1.1
44033	99	P	SUR	44	-69	717	0	0.5	-0.2	0.5
44034	99	P	SUR	44	-68	718	0	0.4	-0.9	1.0
44037	99	P	SUR	44	-68	679	0	0.4	-0.9	1.0
44137	99	P	SUR	42	-62	724	1	0.6	-0.1	0.6
44139	99	P	SUR	44	-57	391	0	0.5	-0.0	0.5
44150	99	P	SUR	43	-64	715	1	0.5	-0.0	0.5
44513	99	P	SUR	54	-10	717	0	0.4	-0.3	0.5
44517	99	P	SUR	22	-49	718	0	0.3	0.3	0.4
44521	99	P	SUR	35	-34	687	0	0.3	-0.7	0.7
44746	99	P	SUR	30	-38	719	0	0.3	0.5	0.5
44765	99	P	SUR	64	10	224	108	3.6	2.0	4.1
44776	99	P	SUR	27	-62	718	0	0.4	0.4	0.6
44777	99	P	SUR	30	-47	719	0	0.3	0.3	0.4
44778	99	P	SUR	32	-24	717	0	0.3	0.5	0.6
44857	99	P	SUR	27	-31	719	0	0.2	0.6	0.7
44874	99	P	SUR	31	-44	719	0	0.4	0.7	0.8
44887	99	P	SUR	33	-48	705	0	0.4	-0.1	0.4
44891	99	P	SUR	39	-57	696	0	0.9	-0.8	1.2
4700546	99	P	SUR	36	-26	669	0	0.5	0.8	0.9

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4700555	99	P	SUR	34	-11	699	0	0.3	0.5	0.6
4700560	99	P	SUR	70	5	695	69	3.0	-0.7	3.1
4700568	99	P	SUR	44	-2	686	0	0.4	0.5	0.7
4700574	99	P	SUR	35	-15	700	0	0.3	0.3	0.4
4701668	99	P	SUR	45	-59	699	0	0.7	0.4	0.8
4701669	99	P	SUR	44	-52	702	0	0.5	0.5	0.7
4701673	99	P	SUR	65	-64	703	0	0.7	-1.2	1.4
4701674	99	P	SUR	70	-67	702	0	0.5	-6.2	6.2
4701677	99	P	SUR	45	-42	719	0	0.5	0.3	0.6
47546	99	P	SUR	36	-26	681	0	0.4	0.8	0.9
47555	99	P	SUR	34	-11	715	0	0.3	0.5	0.6
47560	99	P	SUR	70	5	716	68	3.0	-0.7	3.1
47568	99	P	SUR	44	-2	697	0	0.4	0.5	0.7
47574	99	P	SUR	35	-15	716	0	0.3	0.3	0.4
4800510	99	P	SUR	79	-12	700	0	0.4	-0.5	0.7
4800770	99	P	SUR	78	-16	474	0	0.4	0.2	0.5
4802004	99	P	SUR	60	-30	699	0	4.4	-2.8	5.2
48510	99	P	SUR	79	-12	713	0	0.4	-0.5	0.7
48770	99	P	SUR	78	-16	487	0	0.5	0.2	0.5
6100001	99	P	SUR	43	8	711	0	0.4	0.2	0.5
6100002	99	P	SUR	42	5	715	0	0.4	0.5	0.7
61001	99	P	SUR	43	8	710	0	0.4	0.2	0.5
6100197	99	P	SUR	40	4	719	0	0.4	0.3	0.5
6100198	99	P	SUR	37	-2	719	0	0.6	0.3	0.7
61002	99	P	SUR	42	5	715	0	0.4	0.5	0.7
6100280	99	P	SUR	41	1	719	0	0.4	0.3	0.5
6100281	99	P	SUR	40	0	710	0	0.5	0.4	0.6
6100430	99	P	SUR	40	2	719	0	0.4	0.2	0.5
6101001	99	P	SUR	38	24	46	0	0.5	0.6	0.8
6101003	99	P	SUR	40	25	44	0	0.4	0.5	0.7
6101007	99	P	SUR	36	25	48	0	0.8	1.9	2.1
6101008	99	P	SUR	37	22	40	0	0.6	0.4	0.7
6102501	99	P	SUR	35	17	719	0	0.4	0.4	0.6
6102502	99	P	SUR	35	21	719	0	0.4	0.5	0.6
6200025	99	P	SUR	44	-6	443	0	0.4	0.3	0.5
6200082	99	P	SUR	44	-8	719	0	0.5	0.1	0.5
6200083	99	P	SUR	43	-9	719	0	0.5	-0.0	0.5
6200084	99	P	SUR	42	-9	717	0	0.5	-0.1	0.5
6200085	99	P	SUR	36	-7	719	0	0.5	0.2	0.5
6200091	99	P	SUR	53	-5	719	0	0.5	0.0	0.5
6200092	99	P	SUR	51	-11	421	0	0.4	-0.2	0.5
6200093	99	P	SUR	55	-10	719	0	0.5	-0.2	0.5
6200094	99	P	SUR	52	-7	719	3	1.5	-0.2	1.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62001	99	P	SUR	45	-5	719	0	0.4	0.0	0.4
6200191	99	P	SUR	41	-10	700	1	0.4	-0.3	0.5
6200192	99	P	SUR	40	-10	699	0	0.5	-0.8	0.9
6200199	99	P	SUR	40	-9	700	0	0.5	0.5	0.7
6200200	99	P	SUR	36	-8	699	0	0.4	0.1	0.4
6200513	99	P	SUR	64	-17	687	0	0.4	-0.7	0.8
6200940	99	P	SUR	31	-48	704	0	0.3	-0.1	0.3
6200941	99	P	SUR	24	-65	587	0	0.3	-0.3	0.4
6201030	99	P	SUR	44	-4	363	0	0.4	1.1	1.2
6201070	99	P	SUR	43	-9	603	0	0.7	-1.1	1.3
62023	99	P	SUR	51	-8	723	0	0.4	0.2	0.4
6202402	99	P	SUR	38	-26	393	393	0.0	0.0	0.0
6202403	99	P	SUR	39	-31	428	428	0.0	0.0	0.0
6202404	99	P	SUR	39	-29	235	235	0.0	0.0	0.0
62029	99	P	SUR	49	-12	1437	0	0.4	-0.1	0.4
6203503	99	P	SUR	29	-49	540	0	0.7	-0.6	1.0
6203504	99	P	SUR	23	-58	718	0	0.3	0.1	0.3
6203510	99	P	SUR	20	-59	715	0	0.3	0.0	0.3
6203523	99	P	SUR	63	0	701	0	0.3	-0.2	0.4
6203525	99	P	SUR	63	-11	336	0	0.4	-0.5	0.7
6203526	99	P	SUR	68	9	650	0	0.4	0.3	0.5
6203528	99	P	SUR	30	-15	705	0	0.3	0.4	0.5
6203529	99	P	SUR	16	-48	715	0	0.3	0.0	0.3
6203600	99	P	SUR	45	-12	719	0	0.4	0.4	0.5
6203601	99	P	SUR	48	-17	719	0	0.5	0.3	0.5
6203602	99	P	SUR	65	-33	719	0	0.5	0.4	0.6
6203603	99	P	SUR	55	-31	719	0	0.4	0.2	0.4
6203604	99	P	SUR	46	-25	719	0	0.5	0.3	0.6
6203605	99	P	SUR	60	-30	718	0	0.3	0.2	0.4
6203606	99	P	SUR	44	-4	717	0	0.4	0.6	0.7
6203607	99	P	SUR	36	-35	718	0	0.4	-0.0	0.4
62050	99	P	SUR	50	-4	723	0	0.4	0.3	0.5
62081	99	P	SUR	51	-13	725	0	0.4	-0.2	0.4
62082	99	P	SUR	55	6	1	0	0.0	-0.0	0.0
62086	99	P	SUR	55	6	717	0	0.4	-0.0	0.4
62087	99	P	SUR	55	6	1	0	0.0	0.8	0.8
62095	99	P	SUR	53	-16	724	0	0.5	-0.1	0.5
62102	99	P	SUR	58	2	707	0	0.4	0.3	0.5
62103	99	P	SUR	50	-3	725	0	0.4	0.5	0.7
62104	99	P	SUR	57	1	707	0	0.3	0.1	0.3
62107	99	P	SUR	50	-6	1438	2	0.4	0.4	0.6
62111	99	P	SUR	58	0	704	0	0.4	1.3	1.4
62112	99	P	SUR	58	0	707	0	0.3	0.4	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62113	99	P	SUR	58	0	707	0	0.4	-0.1	0.5
62114	99	P	SUR	58	0	1402	0	0.4	0.3	0.5
62115	99	P	SUR	58	-3	686	0	0.4	0.3	0.5
62116	99	P	SUR	58	1	707	0	0.4	0.2	0.5
62118	99	P	SUR	58	1	701	0	0.3	0.5	0.6
62119	99	P	SUR	57	2	705	0	0.4	0.1	0.4
62120	99	P	SUR	56	2	703	0	0.5	-0.0	0.5
62121	99	P	SUR	54	3	82	0	0.5	0.6	0.8
62122	99	P	SUR	57	2	1402	0	0.4	0.2	0.4
62124	99	P	SUR	54	-4	707	0	0.3	0.2	0.4
62127	99	P	SUR	54	1	707	0	0.4	0.7	0.8
62129	99	P	SUR	58	0	707	0	0.4	0.1	0.5
62130	99	P	SUR	59	1	707	0	0.3	0.0	0.3
62131	99	P	SUR	54	1	639	0	0.4	0.7	0.8
62132	99	P	SUR	56	2	707	0	0.4	0.3	0.5
62133	99	P	SUR	57	1	707	0	0.4	0.3	0.6
62134	99	P	SUR	58	1	702	0	0.3	0.4	0.5
62135	99	P	SUR	54	2	707	0	0.5	0.6	0.8
62136	99	P	SUR	54	3	707	0	0.4	0.8	0.8
62138	99	P	SUR	54	0	1172	0	0.4	0.8	1.0
62139	99	P	SUR	53	2	1401	0	0.4	0.4	0.6
62140	99	P	SUR	57	1	1398	0	0.3	0.3	0.5
62141	99	P	SUR	61	2	665	0	0.3	0.2	0.4
62143	99	P	SUR	58	2	707	0	0.4	0.7	0.8
62144	99	P	SUR	53	2	707	0	0.4	0.3	0.5
62145	99	P	SUR	53	3	1400	0	0.5	0.5	0.7
62146	99	P	SUR	57	2	690	0	0.4	0.3	0.5
62148	99	P	SUR	54	2	707	0	0.4	0.5	0.7
62149	99	P	SUR	54	1	707	0	0.4	0.9	1.0
62150	99	P	SUR	54	1	622	0	0.4	1.4	1.4
62151	99	P	SUR	57	2	1398	0	0.3	0.4	0.5
62152	99	P	SUR	57	2	706	0	0.4	0.4	0.6
62153	99	P	SUR	57	2	1394	0	0.4	0.5	0.6
62154	99	P	SUR	56	2	707	0	0.4	0.1	0.4
62155	99	P	SUR	58	1	639	0	0.4	0.4	0.6
62157	99	P	SUR	58	0	707	0	0.4	0.1	0.4
62160	99	P	SUR	57	2	1394	0	0.4	0.5	0.7
62161	99	P	SUR	58	1	706	0	0.4	-0.0	0.4
62162	99	P	SUR	57	1	660	0	0.3	0.2	0.4
62163	99	P	SUR	48	-8	717	0	0.4	0.2	0.4
62164	99	P	SUR	57	1	705	0	0.4	0.5	0.6
62165	99	P	SUR	54	1	676	0	0.4	0.6	0.8
62168	99	P	SUR	58	1	706	0	0.4	0.1	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62170	99	P	SUR	51	2	725	0	0.7	0.1	0.8
62296	99	P	SUR	53	2	706	0	0.4	0.2	0.5
62297	99	P	SUR	59	2	1400	0	0.3	0.2	0.4
62302	99	P	SUR	61	-2	705	0	0.4	0.0	0.4
62304	99	P	SUR	51	2	715	1	0.5	0.3	0.6
62305	99	P	SUR	50	0	698	0	0.5	0.2	0.5
62442	99	P	SUR	49	-16	721	0	0.5	-0.1	0.5
62513	99	P	SUR	64	-17	687	0	0.4	-0.7	0.8
62940	99	P	SUR	31	-48	704	0	0.3	-0.1	0.3
62941	99	P	SUR	24	-65	587	0	0.3	-0.3	0.4
6301552	99	P	SUR	79	27	719	0	0.4	-0.2	0.4
6301555	99	P	SUR	76	28	464	0	2.5	0.7	2.6
6301556	99	P	SUR	77	10	719	0	0.7	-0.4	0.8
63055	99	P	SUR	61	2	707	0	0.3	-0.0	0.3
63056	99	P	SUR	60	2	707	0	0.4	0.3	0.5
63057	99	P	SUR	59	2	707	0	0.3	0.0	0.3
63058	99	P	SUR	53	2	2108	0	0.4	0.5	0.6
63059	99	P	SUR	58	-1	706	0	0.3	0.6	0.7
63101	99	P	SUR	61	1	707	0	0.4	0.2	0.4
63102	99	P	SUR	61	1	707	0	0.3	0.2	0.4
63103	99	P	SUR	61	1	707	0	0.3	0.2	0.4
63104	99	P	SUR	61	2	707	0	0.4	0.2	0.4
63105	99	P	SUR	61	2	707	0	0.3	-0.0	0.3
63108	99	P	SUR	61	2	707	0	0.4	-0.1	0.4
63109	99	P	SUR	60	2	707	0	0.3	-0.0	0.3
63110	99	P	SUR	60	2	707	0	0.4	-0.0	0.4
63111	99	P	SUR	61	2	1373	0	0.3	-0.2	0.4
63112	99	P	SUR	61	1	707	0	0.3	-0.2	0.4
63115	99	P	SUR	62	1	707	0	0.3	0.0	0.3
63117	99	P	SUR	61	1	1402	0	0.4	0.4	0.6
63118	99	P	SUR	57	1	706	0	0.4	0.0	0.4
63120	99	P	SUR	54	2	706	0	0.4	0.6	0.7
6400526	99	P	SUR	46	-8	649	0	0.4	0.1	0.4
6400528	99	P	SUR	69	37	463	0	1.0	0.4	1.1
6400562	99	P	SUR	66	-5	719	0	0.4	0.0	0.4
6401501	99	P	SUR	69	9	614	0	0.4	0.3	0.5
6401507	99	P	SUR	76	17	709	0	0.4	0.3	0.5
6401550	99	P	SUR	68	12	717	0	0.3	0.0	0.3
6401555	99	P	SUR	67	-7	718	0	0.5	0.4	0.7
6401556	99	P	SUR	66	-1	719	0	0.4	0.2	0.5
6401557	99	P	SUR	56	-57	718	0	0.5	0.3	0.6
6401560	99	P	SUR	58	-1	719	0	0.3	0.6	0.7
6401561	99	P	SUR	58	-21	718	0	0.4	0.2	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6401562	99	P	SUR	62	-2	718	0	0.4	0.4	0.5
6401563	99	P	SUR	63	-22	464	0	0.8	0.7	1.0
6401564	99	P	SUR	63	-4	719	0	0.4	0.4	0.5
6401565	99	P	SUR	63	-13	719	0	0.4	0.2	0.5
6401566	99	P	SUR	61	-11	719	0	0.3	0.5	0.6
6401567	99	P	SUR	63	-21	718	0	0.3	0.2	0.4
64041	99	P	SUR	61	-3	706	0	0.4	0.1	0.4
64045	99	P	SUR	59	-12	827	0	0.6	0.0	0.6
64046	99	P	SUR	61	-4	722	0	0.4	-0.0	0.4
64526	99	P	SUR	46	-8	649	0	0.4	0.1	0.4
64528	99	P	SUR	69	37	463	0	1.0	0.4	1.1
64562	99	P	SUR	66	-5	719	0	0.4	0.0	0.4
6500519	99	P	SUR	70	33	582	0	0.4	0.0	0.4
6500596	99	P	SUR	72	-10	573	0	1.3	0.6	1.5
6500602	99	P	SUR	68	6	719	0	0.4	0.4	0.5
6501551	99	P	SUR	51	-34	719	0	0.5	0.1	0.5
6501553	99	P	SUR	53	-23	719	0	0.5	0.1	0.5
6501555	99	P	SUR	65	-52	719	0	0.4	-0.4	0.6
6501556	99	P	SUR	56	-22	719	0	0.4	0.2	0.5
65519	99	P	SUR	70	33	582	0	0.4	0.0	0.4
65596	99	P	SUR	72	-10	573	0	1.3	0.6	1.5
65602	99	P	SUR	68	6	719	0	0.4	0.4	0.5

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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300001	99	SPEED	SUR	11	-23	706	0	0	0.7	0.5	0.9
1300002	99	SPEED	SUR	20	-23	527	0	0	1.0	0.2	1.0
1300008	99	SPEED	SUR	15	-38	711	0	0	0.9	-0.1	0.9
1300131	99	SPEED	SUR	28	-17	714	0	0	2.4	1.8	3.0
4100026	99	SPEED	SUR	12	-38	287	0	0	0.8	-0.9	1.2
4100300	99	SPEED	SUR	16	-57	153	0	0	0.9	-0.4	1.0
41026	99	SPEED	SUR	12	-38	287	0	0	0.9	-0.9	1.2
41040	99	SPEED	SUR	15	-53	1244	0	0	0.9	-0.0	0.9
41041	99	SPEED	SUR	14	-46	1244	0	0	0.8	-0.4	0.9
41043	99	SPEED	SUR	21	-65	1321	0	0	0.9	-0.1	0.9
41044	99	SPEED	SUR	22	-59	1333	0	0	0.9	-0.3	0.9
41046	99	SPEED	SUR	24	-68	1273	0	0	1.0	-0.2	1.0
41048	99	SPEED	SUR	32	-70	1245	2	0	1.4	-0.1	1.4
41049	99	SPEED	SUR	28	-63	1233	0	0	1.4	0.2	1.4
41052	99	SPEED	SUR	18	-65	1917	0	0	0.8	-0.3	0.9
41053	99	SPEED	SUR	19	-66	1358	0	0	1.5	0.5	1.6
41056	99	SPEED	SUR	18	-66	1367	0	0	1.1	-0.4	1.2
41300	99	SPEED	SUR	16	-57	153	0	0	0.9	-0.3	1.0
42060	99	SPEED	SUR	16	-63	1302	0	0	1.2	-0.1	1.2
42085	99	SPEED	SUR	18	-67	426	0	0	1.3	-0.1	1.3
44018	99	SPEED	SUR	42	-70	151	0	0	2.0	-0.9	2.2
44027	99	SPEED	SUR	44	-67	491	0	0	1.4	-0.2	1.4
44032	99	SPEED	SUR	44	-69	692	0	0	1.8	-0.3	1.8
44033	99	SPEED	SUR	44	-69	717	0	0	1.6	0.1	1.6
44034	99	SPEED	SUR	44	-68	719	0	0	1.6	-0.5	1.6
44037	99	SPEED	SUR	44	-68	685	0	0	1.3	-0.3	1.3
44137	99	SPEED	SUR	42	-62	734	0	0	1.4	-0.1	1.5
44139	99	SPEED	SUR	44	-57	392	0	0	1.5	-0.5	1.6
6100001	99	SPEED	SUR	43	8	711	0	0	1.8	-0.3	1.8
6100002	99	SPEED	SUR	42	5	715	0	0	1.3	-0.1	1.3
61001	99	SPEED	SUR	43	8	710	0	0	1.9	-0.9	2.1
6100197	99	SPEED	SUR	40	4	713	0	0	1.3	-0.5	1.4
6100198	99	SPEED	SUR	37	-2	708	0	0	1.8	-1.2	2.2
61002	99	SPEED	SUR	42	5	715	0	0	1.4	-0.6	1.5

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
6100280	99	SPEED	SUR	41	1	686	0	0	1.5	-1.1	1.8
6100281	99	SPEED	SUR	40	0	712	0	0	2.0	0.2	2.0
6100430	99	SPEED	SUR	40	2	696	0	0	1.7	-0.6	1.8
6101001	99	SPEED	SUR	38	24	46	0	0	2.2	-1.2	2.5
6101003	99	SPEED	SUR	40	25	44	0	0	2.3	-1.7	2.8
6101007	99	SPEED	SUR	36	25	48	0	0	1.8	-0.8	2.0
6101008	99	SPEED	SUR	37	22	40	0	0	1.9	-1.6	2.5
6200025	99	SPEED	SUR	44	-6	431	0	0	1.3	-0.5	1.4
6200082	99	SPEED	SUR	44	-8	715	0	0	1.4	-0.7	1.5
6200083	99	SPEED	SUR	43	-9	719	0	0	1.5	-0.0	1.5
6200084	99	SPEED	SUR	42	-9	714	0	0	1.4	-0.3	1.5
6200085	99	SPEED	SUR	36	-7	715	0	0	1.5	-0.2	1.5
6200091	99	SPEED	SUR	53	-5	719	0	0	1.5	-0.2	1.5
6200092	99	SPEED	SUR	51	-11	421	0	0	1.2	-0.3	1.3
6200093	99	SPEED	SUR	55	-10	719	0	0	1.2	-0.2	1.2
6200094	99	SPEED	SUR	52	-7	719	0	0	1.4	0.2	1.4
62001	99	SPEED	SUR	45	-5	719	0	0	1.3	0.7	1.4
6200191	99	SPEED	SUR	41	-10	700	0	0	1.3	-0.0	1.3
6200192	99	SPEED	SUR	40	-10	699	0	0	1.3	-0.1	1.3
6200199	99	SPEED	SUR	40	-9	700	0	0	1.5	-0.1	1.5
6200200	99	SPEED	SUR	36	-8	698	29	0	1.4	0.1	1.4
6201030	99	SPEED	SUR	44	-4	343	0	0	1.8	-0.5	1.8
6201070	99	SPEED	SUR	43	-9	603	0	0	1.6	-0.1	1.6
62023	99	SPEED	SUR	51	-8	723	0	0	2.2	-0.5	2.2
62029	99	SPEED	SUR	49	-12	1437	0	0	1.3	0.3	1.3
62050	99	SPEED	SUR	50	-4	722	0	0	1.3	0.6	1.4
62081	99	SPEED	SUR	51	-13	725	0	0	1.3	0.2	1.3
62082	99	SPEED	SUR	55	6	1	0	0	0.0	1.5	1.5
62086	99	SPEED	SUR	55	6	720	0	0	1.2	-0.0	1.2
62087	99	SPEED	SUR	55	6	1	0	0	0.0	3.5	3.5
62095	99	SPEED	SUR	53	-16	724	0	0	1.3	0.4	1.4
62102	99	SPEED	SUR	58	2	707	0	0	1.3	0.6	1.4
62103	99	SPEED	SUR	50	-3	723	0	0	1.5	1.4	2.0
62104	99	SPEED	SUR	57	1	707	0	0	1.2	0.0	1.2
62107	99	SPEED	SUR	50	-6	1438	0	0	1.5	1.1	1.8
62111	99	SPEED	SUR	58	0	704	0	0	1.6	-0.2	1.6
62112	99	SPEED	SUR	58	0	707	0	0	2.0	-1.1	2.3
62113	99	SPEED	SUR	58	0	707	0	0	1.6	0.9	1.8
62114	99	SPEED	SUR	58	0	1402	0	0	1.5	1.1	1.9
62118	99	SPEED	SUR	58	1	701	0	0	1.2	0.9	1.5
62119	99	SPEED	SUR	57	2	706	0	0	1.9	-0.2	1.9

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62120	99	SPEED	SUR	56	2	707	0	0	1.4	0.8	1.6
62121	99	SPEED	SUR	54	3	84	0	0	1.2	0.5	1.3
62122	99	SPEED	SUR	57	2	1400	0	0	1.3	0.4	1.3
62129	99	SPEED	SUR	58	0	707	0	0	1.4	0.4	1.5
62131	99	SPEED	SUR	54	1	639	0	0	2.1	-0.4	2.2
62132	99	SPEED	SUR	56	2	641	0	0	2.9	-2.2	3.6
62133	99	SPEED	SUR	57	1	706	0	0	1.4	0.7	1.6
62134	99	SPEED	SUR	58	1	702	0	0	1.3	0.7	1.5
62140	99	SPEED	SUR	57	1	949	0	0	1.1	0.3	1.2
62143	99	SPEED	SUR	58	2	707	0	0	1.6	-0.1	1.6
62144	99	SPEED	SUR	53	2	707	0	0	2.0	-0.4	2.1
62145	99	SPEED	SUR	53	3	1400	0	0	1.7	1.8	2.5
62146	99	SPEED	SUR	57	2	690	0	0	1.2	0.2	1.3
62148	99	SPEED	SUR	54	2	707	0	0	1.6	0.0	1.6
62149	99	SPEED	SUR	54	1	707	0	0	1.8	-0.0	1.8
62150	99	SPEED	SUR	54	1	622	0	0	2.0	-0.6	2.1
62152	99	SPEED	SUR	57	2	707	0	0	1.3	-0.4	1.4
62153	99	SPEED	SUR	57	2	1394	0	0	2.2	-1.0	2.5
62154	99	SPEED	SUR	56	2	707	0	0	1.6	0.3	1.6
62155	99	SPEED	SUR	58	1	524	0	0	1.8	1.1	2.1
62163	99	SPEED	SUR	48	-8	717	0	0	1.1	0.1	1.1
62164	99	SPEED	SUR	57	1	705	0	0	1.6	-1.2	2.0
62165	99	SPEED	SUR	54	1	676	0	0	1.4	-0.2	1.4
62170	99	SPEED	SUR	51	2	725	0	0	1.8	0.7	2.0
62304	99	SPEED	SUR	51	2	707	0	0	1.7	1.0	2.0
62305	99	SPEED	SUR	50	0	220	0	0	1.8	0.8	2.0
62442	99	SPEED	SUR	49	-16	720	0	0	1.5	-1.3	2.0
63055	99	SPEED	SUR	61	2	707	0	0	1.3	-0.5	1.4
63056	99	SPEED	SUR	60	2	707	0	0	1.4	0.3	1.5
63057	99	SPEED	SUR	59	2	707	0	0	1.7	0.2	1.7
63058	99	SPEED	SUR	53	2	1392	0	0	1.6	0.8	1.8
63101	99	SPEED	SUR	61	1	707	0	0	1.3	0.0	1.3
63103	99	SPEED	SUR	61	1	707	0	0	1.5	-0.0	1.5
63104	99	SPEED	SUR	61	2	706	0	0	1.3	0.1	1.3
63105	99	SPEED	SUR	61	2	707	0	0	1.4	0.1	1.4
63106	99	SPEED	SUR	61	2	706	0	0	1.3	0.3	1.3
63108	99	SPEED	SUR	61	2	707	0	0	1.7	0.2	1.7
63109	99	SPEED	SUR	60	2	658	0	0	1.5	0.6	1.6
63110	99	SPEED	SUR	60	2	707	0	0	1.4	0.0	1.4
63112	99	SPEED	SUR	61	1	707	0	0	1.2	-0.2	1.2
63113	99	SPEED	SUR	61	2	707	0	0	1.3	-0.0	1.3

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
63115	99	SPEED	SUR	62	1	707	0	0	1.3	-0.3	1.3
63117	99	SPEED	SUR	61	1	1402	0	0	1.3	0.1	1.3
64041	99	SPEED	SUR	61	-3	706	0	0	1.6	0.0	1.6
64045	99	SPEED	SUR	59	-12	826	0	0	1.1	0.1	1.1
64046	99	SPEED	SUR	61	-4	722	0	0	1.2	0.5	1.2

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 : APR 2018
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

TIME = 99 => AVERAGE OF ALL OBSERVATIONS
 GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S
 WIND SPEEDS > 3M/S USED

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300001	99	DIRN	SUR	11	-23	706	0	0	7.3	0.2	7.3
1300002	99	DIRN	SUR	20	-23	527	0	0	7.2	-1.8	7.5
1300008	99	DIRN	SUR	15	-38	711	0	0	8.1	0.7	8.2
1300131	99	DIRN	SUR	28	-17	275	0	0	48.5	-20.0	52.4
4100026	99	DIRN	SUR	12	-38	287	0	0	7.5	-17.7	19.3
41002	99	DIRN	SUR	32	-75	1201	0	0	17.7	6.1	18.7
4100300	99	DIRN	SUR	16	-57	152	0	0	11.2	1.0	11.2
41004	99	DIRN	SUR	33	-79	1030	0	0	13.9	5.0	14.7
41008	99	DIRN	SUR	31	-81	615	0	0	21.4	8.7	23.1
41009	99	DIRN	SUR	29	-80	915	0	0	20.3	3.1	20.5
41010	99	DIRN	SUR	29	-79	1078	0	0	18.1	11.6	21.5
41013	99	DIRN	SUR	33	-78	985	0	0	16.2	8.4	18.2
41024	99	DIRN	SUR	34	-79	525	0	0	19.4	-7.0	20.7
41025	99	DIRN	SUR	35	-75	1078	0	0	20.9	4.8	21.5
41026	99	DIRN	SUR	12	-38	287	0	0	7.9	-18.3	19.9
41029	99	DIRN	SUR	33	-80	729	0	0	17.3	-0.3	17.3
41033	99	DIRN	SUR	32	-80	573	0	0	17.3	3.5	17.6
41037	99	DIRN	SUR	34	-77	580	0	0	21.5	-1.0	21.6
41038	99	DIRN	SUR	34	-78	495	0	0	18.1	-4.2	18.6
41040	99	DIRN	SUR	15	-53	1234	0	0	8.9	-11.5	14.5
41041	99	DIRN	SUR	14	-46	1244	0	0	8.8	-11.9	14.8
41043	99	DIRN	SUR	21	-65	1280	0	0	10.6	-11.1	15.3
41044	99	DIRN	SUR	22	-59	1317	0	0	10.4	5.7	11.8
41046	99	DIRN	SUR	24	-68	1119	0	0	9.9	2.1	10.2
41047	99	DIRN	SUR	28	-72	1017	0	0	19.6	-1.0	19.7
41048	99	DIRN	SUR	32	-70	1070	2	0	23.3	-5.7	24.0
41049	99	DIRN	SUR	28	-63	1043	0	0	14.5	9.0	17.1
41052	99	DIRN	SUR	18	-65	1877	0	0	11.0	5.5	12.3
41053	99	DIRN	SUR	19	-66	997	0	0	14.6	-1.4	14.6
41056	99	DIRN	SUR	18	-66	1307	0	0	12.8	1.6	12.9
41063	99	DIRN	SUR	35	-76	732	0	0	26.3	-10.0	28.2
41064	99	DIRN	SUR	34	-77	539	0	0	20.2	-1.1	20.2

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
41300	99	DIRN	SUR	16	-57	152	0	0	11.2	1.0	11.2
42013	99	DIRN	SUR	27	-83	573	0	0	15.8	-4.0	16.3
42056	99	DIRN	SUR	20	-85	1079	0	0	10.5	2.8	10.9
42057	99	DIRN	SUR	17	-81	1226	0	0	10.9	0.5	10.9
42058	99	DIRN	SUR	15	-75	1294	0	0	7.1	7.3	10.2
42060	99	DIRN	SUR	16	-63	1269	0	0	11.8	-2.4	12.0
42085	99	DIRN	SUR	18	-67	399	0	0	16.6	27.7	32.3
44007	99	DIRN	SUR	44	-70	551	0	0	21.5	8.0	22.9
44009	99	DIRN	SUR	39	-75	600	0	0	24.5	9.6	26.3
44013	99	DIRN	SUR	42	-71	539	0	0	20.4	11.2	23.3
44014	99	DIRN	SUR	37	-75	580	0	0	18.8	3.8	19.2
44017	99	DIRN	SUR	41	-72	566	0	0	18.8	8.4	20.6
44018	99	DIRN	SUR	42	-70	94	0	0	28.3	12.9	31.1
44020	99	DIRN	SUR	41	-70	603	0	0	19.3	2.5	19.5
44025	99	DIRN	SUR	40	-73	557	0	0	14.8	3.0	15.1
44027	99	DIRN	SUR	44	-67	386	0	0	15.0	12.0	19.2
44030	99	DIRN	SUR	43	-70	550	0	0	23.3	6.5	24.2
44032	99	DIRN	SUR	44	-69	541	0	0	17.7	13.8	22.4
44033	99	DIRN	SUR	44	-69	516	0	0	20.9	-0.1	20.9
44034	99	DIRN	SUR	44	-68	562	0	0	18.3	5.1	19.0
44037	99	DIRN	SUR	44	-68	566	0	0	17.5	35.0	39.2
44039	99	DIRN	SUR	41	-73	571	0	0	20.7	1.6	20.8
44040	99	DIRN	SUR	41	-74	58	0	0	15.2	-4.1	15.7
44042	99	DIRN	SUR	38	-76	687	0	0	21.3	-5.2	21.9
44058	99	DIRN	SUR	38	-76	204	0	0	21.5	-25.2	33.1
44062	99	DIRN	SUR	39	-76	1074	0	0	30.3	-17.0	34.8
44064	99	DIRN	SUR	37	-76	238	0	0	22.6	-20.2	30.3
44065	99	DIRN	SUR	40	-74	916	0	0	19.7	6.6	20.8
44066	99	DIRN	SUR	40	-73	594	0	0	19.1	4.2	19.6
44072	99	DIRN	SUR	37	-76	275	0	0	28.4	-9.3	29.9
44137	99	DIRN	SUR	42	-62	690	0	0	17.9	-12.5	21.8
44139	99	DIRN	SUR	44	-57	337	0	0	16.0	8.0	17.9
45135	99	DIRN	SUR	44	-77	93	0	0	20.3	-0.8	20.4
45139	99	DIRN	SUR	43	-80	57	0	0	29.0	2.2	29.1
45159	99	DIRN	SUR	44	-79	77	0	0	22.0	13.0	25.6
6100198	99	DIRN	SUR	37	-2	569	0	0	15.0	-0.2	15.0
6100281	99	DIRN	SUR	40	0	414	0	0	23.6	4.4	24.0
6200025	99	DIRN	SUR	44	-6	204	0	0	17.7	2.6	17.9
6200082	99	DIRN	SUR	44	-8	530	0	0	15.5	3.1	15.8
6200083	99	DIRN	SUR	43	-9	590	0	0	16.6	6.7	17.9
6200084	99	DIRN	SUR	42	-9	615	0	0	15.5	8.1	17.5

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
6200085	99	DIRN	SUR	36	-7	556	0	0	22.9	4.0	23.3
6200091	99	DIRN	SUR	53	-5	588	0	0	12.9	1.8	13.0
6200092	99	DIRN	SUR	51	-11	373	0	0	9.8	5.9	11.5
6200093	99	DIRN	SUR	55	-10	618	0	0	11.6	-0.3	11.6
6200094	99	DIRN	SUR	52	-7	606	0	0	18.1	0.8	18.1
62001	99	DIRN	SUR	45	-5	526	0	0	18.1	2.7	18.3
6200191	99	DIRN	SUR	41	-10	622	0	0	18.5	-0.5	18.5
6200192	99	DIRN	SUR	40	-10	611	0	0	16.0	2.5	16.2
6200199	99	DIRN	SUR	40	-9	578	0	0	18.1	-0.4	18.1
6200200	99	DIRN	SUR	36	-8	545	29	0	154.6	-68.4	169.0
6201030	99	DIRN	SUR	44	-4	207	0	0	24.7	-16.6	29.8
6201070	99	DIRN	SUR	43	-9	439	0	0	17.8	1.7	17.9
62023	99	DIRN	SUR	51	-8	631	0	0	13.4	8.9	16.0
62029	99	DIRN	SUR	49	-12	1200	0	0	12.9	10.4	16.5
62050	99	DIRN	SUR	50	-4	552	0	0	14.4	3.7	14.8
62081	99	DIRN	SUR	51	-13	650	0	0	20.3	12.0	23.6
62095	99	DIRN	SUR	53	-16	643	0	0	12.0	11.5	16.6
62103	99	DIRN	SUR	50	-3	623	0	0	20.1	11.2	23.0
62107	99	DIRN	SUR	50	-6	1261	0	0	16.0	3.7	16.4
62111	99	DIRN	SUR	58	0	590	0	0	13.3	5.5	14.4
62112	99	DIRN	SUR	58	0	582	0	0	13.0	1.8	13.1
62114	99	DIRN	SUR	58	0	1266	0	0	11.5	-2.3	11.7
62163	99	DIRN	SUR	48	-8	612	0	0	10.8	-3.8	11.4
62305	99	DIRN	SUR	50	0	185	0	0	24.9	10.8	27.2
62442	99	DIRN	SUR	49	-16	645	0	0	15.8	-11.6	19.6
64041	99	DIRN	SUR	61	-3	613	0	0	15.4	7.2	17.0
64045	99	DIRN	SUR	59	-12	740	0	0	15.0	8.8	17.4
64046	99	DIRN	SUR	61	-4	662	0	0	12.9	-1.7	13.0

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASFR2	ASFR3	ASFR4	DBLK	FHM5UJH	FPUW5GN	HTXUH4H	JGQH	VKB4L5Q
XKQLWQB	XQFJRGX	XWHDEAD	YLV96WM	ZVQEQCM	5QPW8XG	01001	01004	01010
01028	01206	01241	01400	01415	01492	02185	02365	02527
02591	02836	02963	03005	03238	03354	03502	03743	03808
03882	03918	03953	04018	04089	04220	04270	04320	04339
04360	04417	06011	06260	06610	07101	07110	07145	07510
07645	07761	08001	08023	08190	08221	08302	08430	08508
08522	08579	10035	10113	10184	10238	10304	10393	10410
10548	10618	10739	10771	10868	10954	10962	11010	11035
11120	11240	11520	11747	11952	12120	12374	12425	12843
12982	13275	13388	16045	16080	16113	16144	16245	16320
16429	16546	16622	16754	17030	17064	17095	17220	17281
17351	17516	17607	33008	37789	40179	40186	43599	45004
47102	47104	47138	47155	47169	47186	60018	61901	61980
61998	67083	68263	68424	68442	68512	68538	68842	70026
70200	70219	70231	70261	70316	70326	70350	70361	70398
71043	71081	71082	71109	71119	71600	71603	71722	71802
71811	71815	71816	71823	71836	71845	71867	71906	71907
71908	71909	71913	71917	71924	71925	71926	71934	71945
71957	71964	72201	72206	72208	72210	72214	72233	72240
72248	72251	72261	72265	72274	72293	72317	72327	72363
72364	72365	72376	72388	72426	72440	72451	72476	72489
72493	72501	72518	72520	72528	72558	72562	72572	72582
72597	72632	72634	72645	72649	72659	72662	72672	72681
72694	72712	72747	72764	72768	72776	72786	72797	73033
74389	74494	74560	76612	76679	76692	76743	76805	76903
78897	78954	81405	85442	85469	85586	85799	85934	88889
89002	89062	89564	89571	89611	89642	89859	91212	91592
91925	91938	91948	91958	93112	93417	93817	93844	93997
94120	94150	94170	94203	94294	94299	94302	94312	94326
94332	94374	94403	94430	94461	94510	94578	94610	94637
94638	94653	94659	94672	94711	94767	94776	94802	94821
94866	94910	94975	94995	94996	94998	95527	96996	

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

ASFR2	ASFR3	ASFR4	DBLK	FHM5UJH	FPUW5GN	HTXUH4H	VKB4L5Q	XKQLWQB
XQFJRGX	XWHDEAD	YLV96WM	ZVQEQCM	5QPW8XG	01001	01004	01010	01028
01206	01241	01400	01415	01492	02836	02963	06610	07101
08098	14101	15105	17607	19099	40186	47155	48565	61904
68263	73033	76743	76903	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.