



ECMWF Global Data Monitoring Report

April 2021

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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
08536	(00)	16	0	26629	(00)	0	29
17064	(12)	31	18	26708	(00)	1	29
23955	(00)	23	9	26708	(12)	2	30
23955	(12)	26	10	29612	(12)	0	30
60715	(00)	25	4	60096	(12)	6	28
71081	(00)	26	12	89592	(00)	12	27
71081	(12)	28	12	94995	(00)	5	30
71909	(00)	30	5	-	-	-	-
71909	(12)	27	5	-	-	-	-
74494	(00)	11	0	-	-	-	-
76225	(00)	22	1	-	-	-	-
76405	(12)	13	1	-	-	-	-
76679	(00)	21	4	-	-	-	-
80001	(12)	16	0	-	-	-	-
80398	(12)	30	4	-	-	-	-
82281	(12)	30	0	-	-	-	-
82400	(12)	30	15	-	-	-	-
82599	(12)	31	5	-	-	-	-
87344	(12)	31	3	-	-	-	-
87623	(12)	25	2	-	-	-	-
87715	(12)	31	1	-	-	-	-
89009	(12)	24	0	-	-	-	-
89664	(12)	25	0	-	-	-	-
91366	(00)	28	8	-	-	-	-
96011	(00)	29	9	-	-	-	-
96413	(00)	30	9	-	-	-	-
96509	(00)	28	9	-	-	-	-
96645	(00)	20	0	-	-	-	-
96805	(00)	14	0	-	-	-	-
97014	(00)	31	14	-	-	-	-
97502	(00)	31	3	-	-	-	-

2.2 Drifting Buoys

Surface pressure observations from **1793** drifting buoys were received during the month.

3 Global monitoring statistics

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

3.1 Data Availability

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

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

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

3.2 Data Quality

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

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

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

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

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

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

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

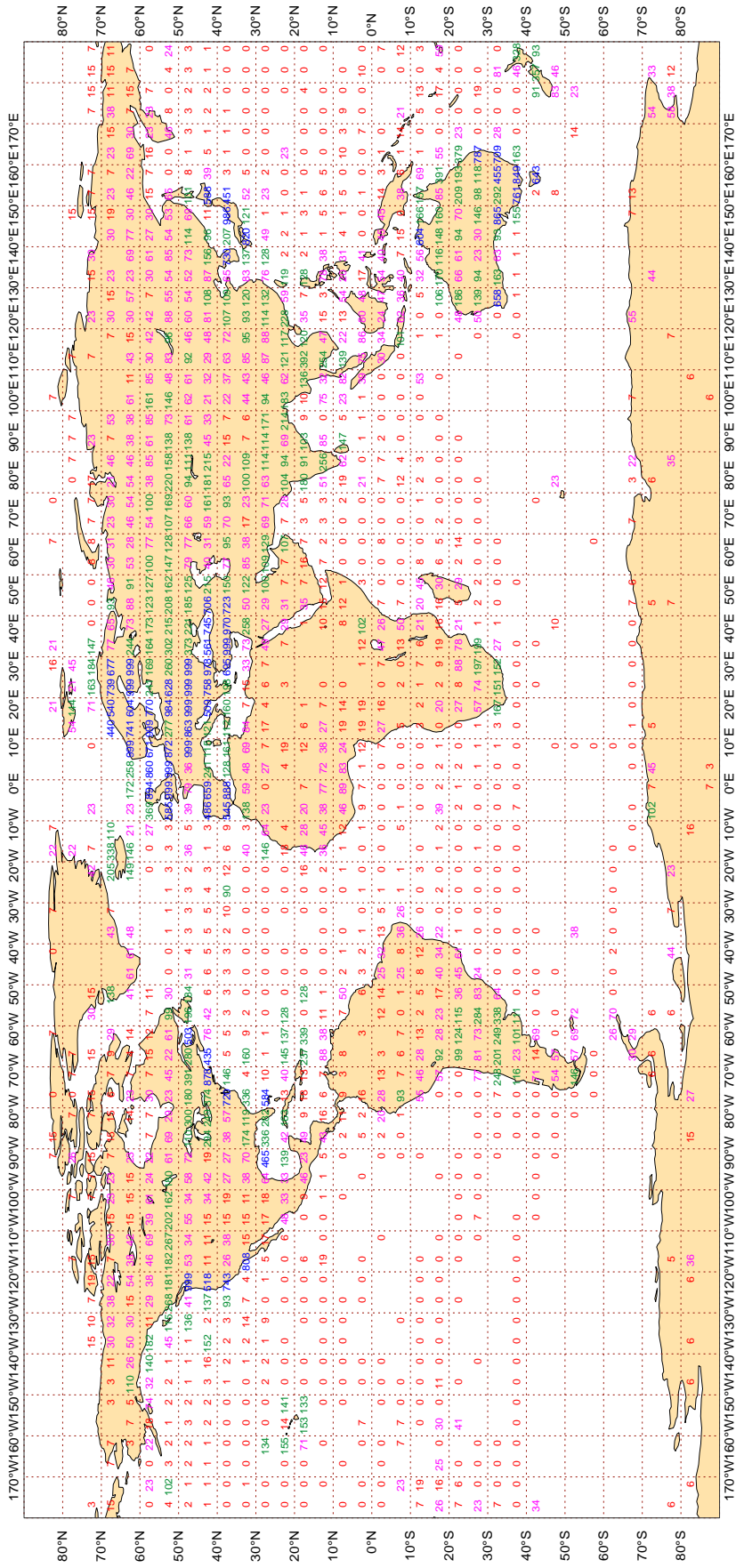
Figures 14-18 show global charts of SATOB and aircraft wind statistics in the form of wind vectors averaged over 5 degree boxes.

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

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

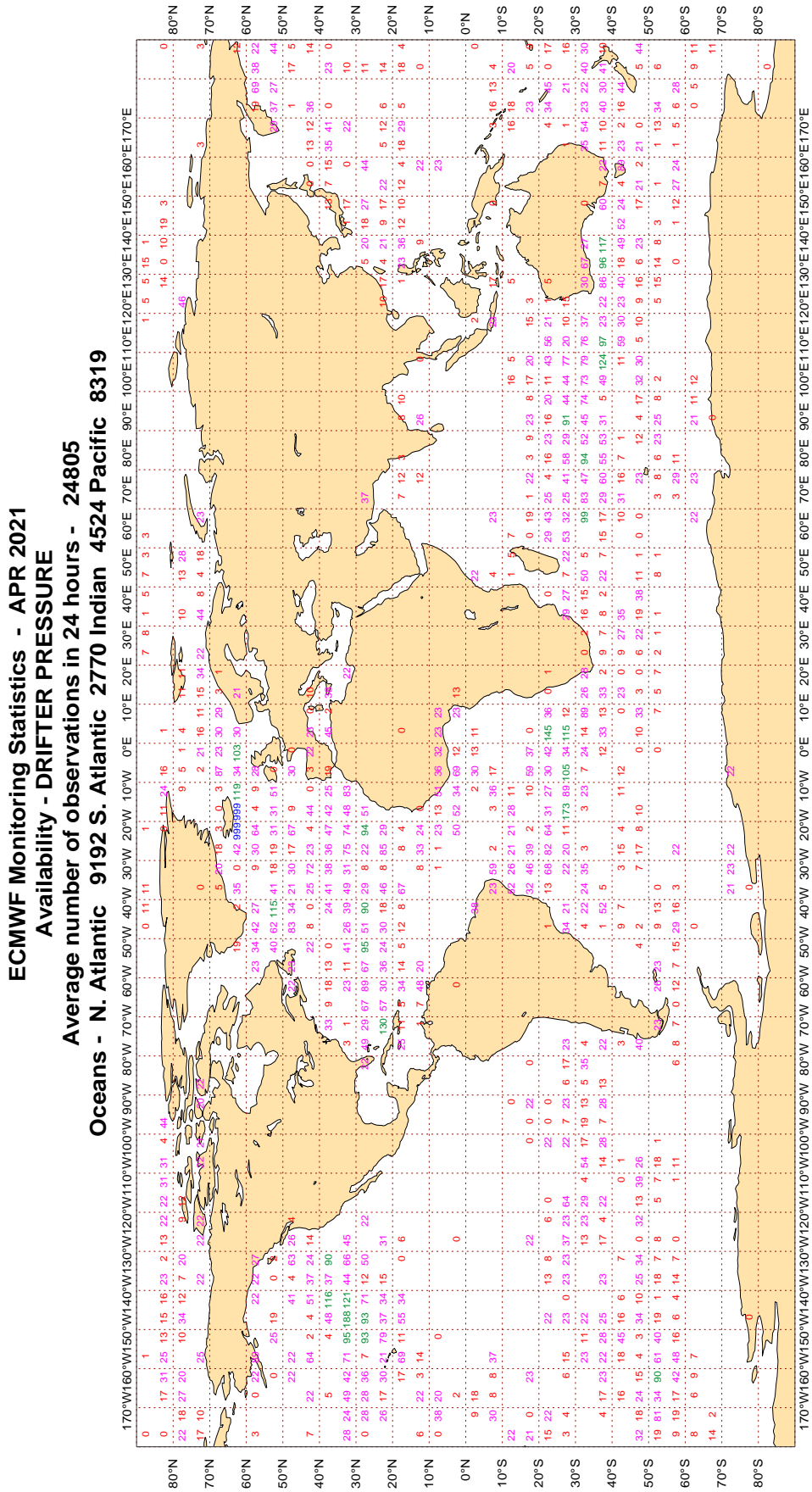
3.2.1 Figure 1 - Availability - SYNOP PRESSURE

Figure 1 ECMWF Monitoring Statistics - APR 2021
 Availability - SYNOP/SHIP (manual, auto) pressure
 Average number of observations in 24 hours - 110699
 LAND - WMO Region I: 4047 II:19429 III: 4164 IV: 6889
 Region V:13978 VI:43329 Antarctic: 1006
 Oceans - N. Atlantic 8335 S. Atlantic 120 Indian 893 Pacific 8508



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2



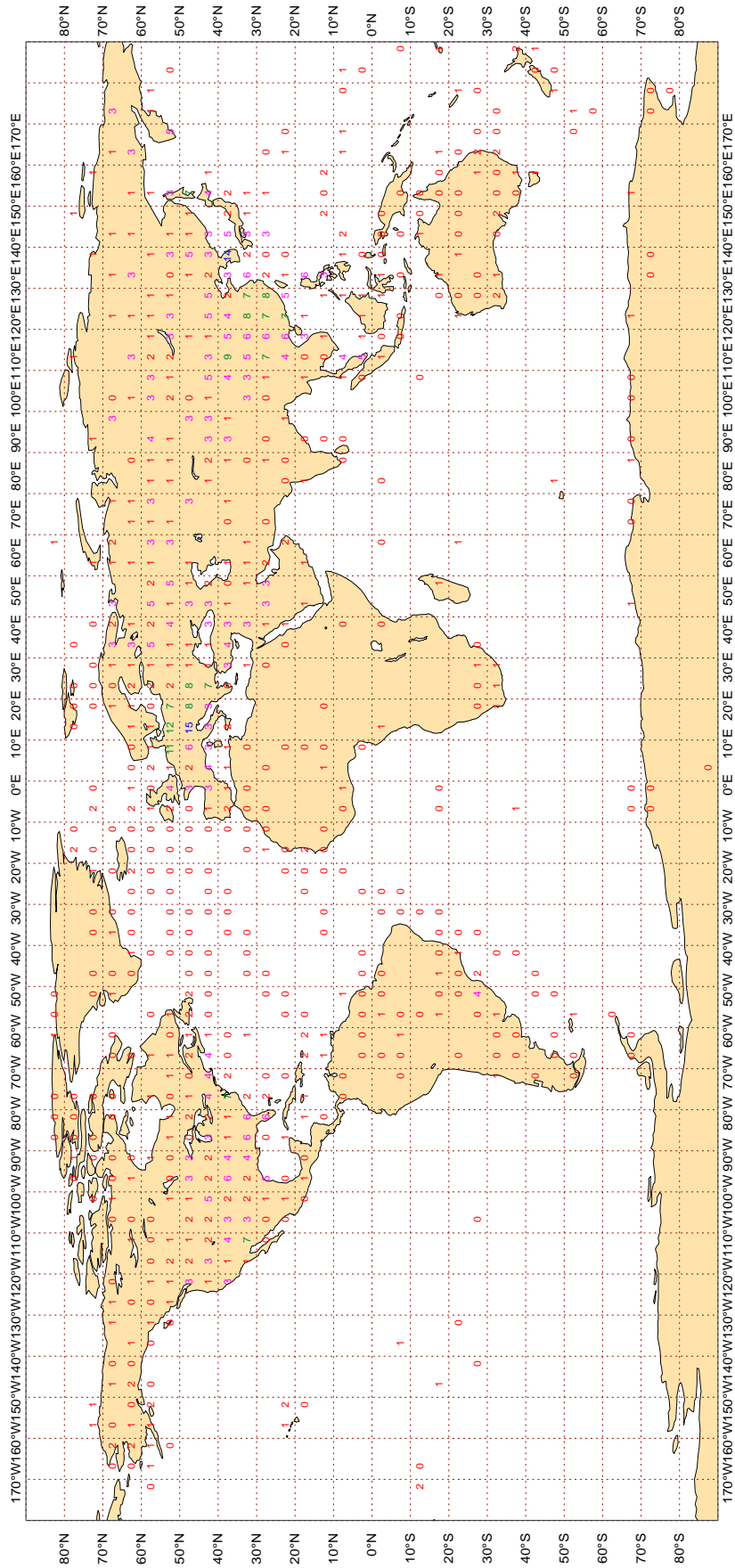
Magics 3.0.4 (64 bit)



3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

Figure 3

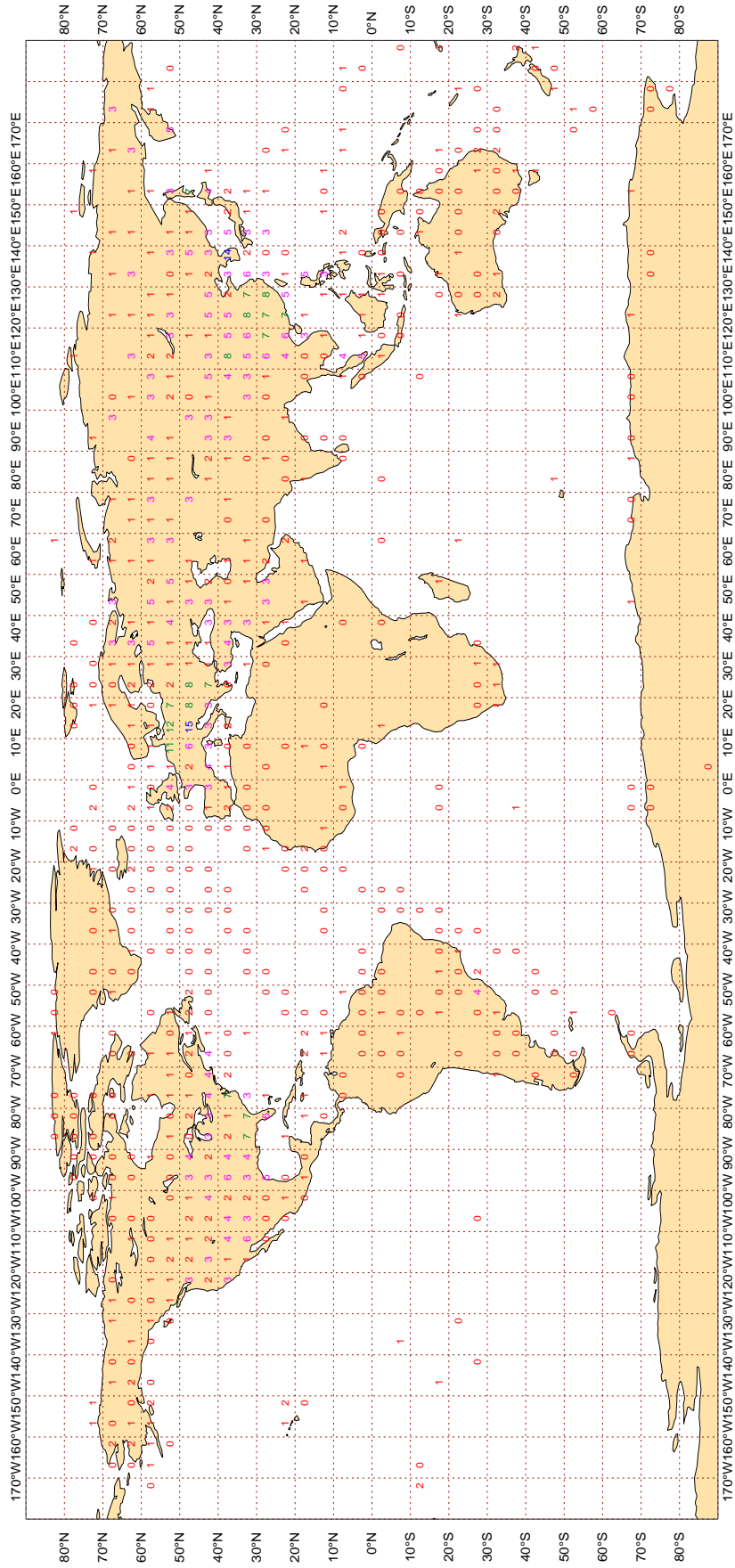
ECMWF Monitoring Statistics - APR 2021
 Availability - TEMP 500 hPa Geopotential
 Average number of observations in 24 hours - 1198
 LAND - WMO Region I: 36 II: 464 III: 44 IV: 256
 Region V: 113 VI: 261 Antarctic: 13
 Oceans - N. Atlantic 10 S. Atlantic 0 Indian 0 Pacific 0



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

Figure 4

ECMWF Monitoring Statistics - APR 2021
 Availability - TEMP/PILOT 300 hPa wind
 Average number of observations in 24 hours - 1196
 LAND - WMO Region I: 37 II: 459 III: 44 IV: 262
 Region V: 112 VI: 259 Antarctic: 13
 Oceans - N. Atlantic 9 S. Atlantic 0 Indian 0 Pacific 0



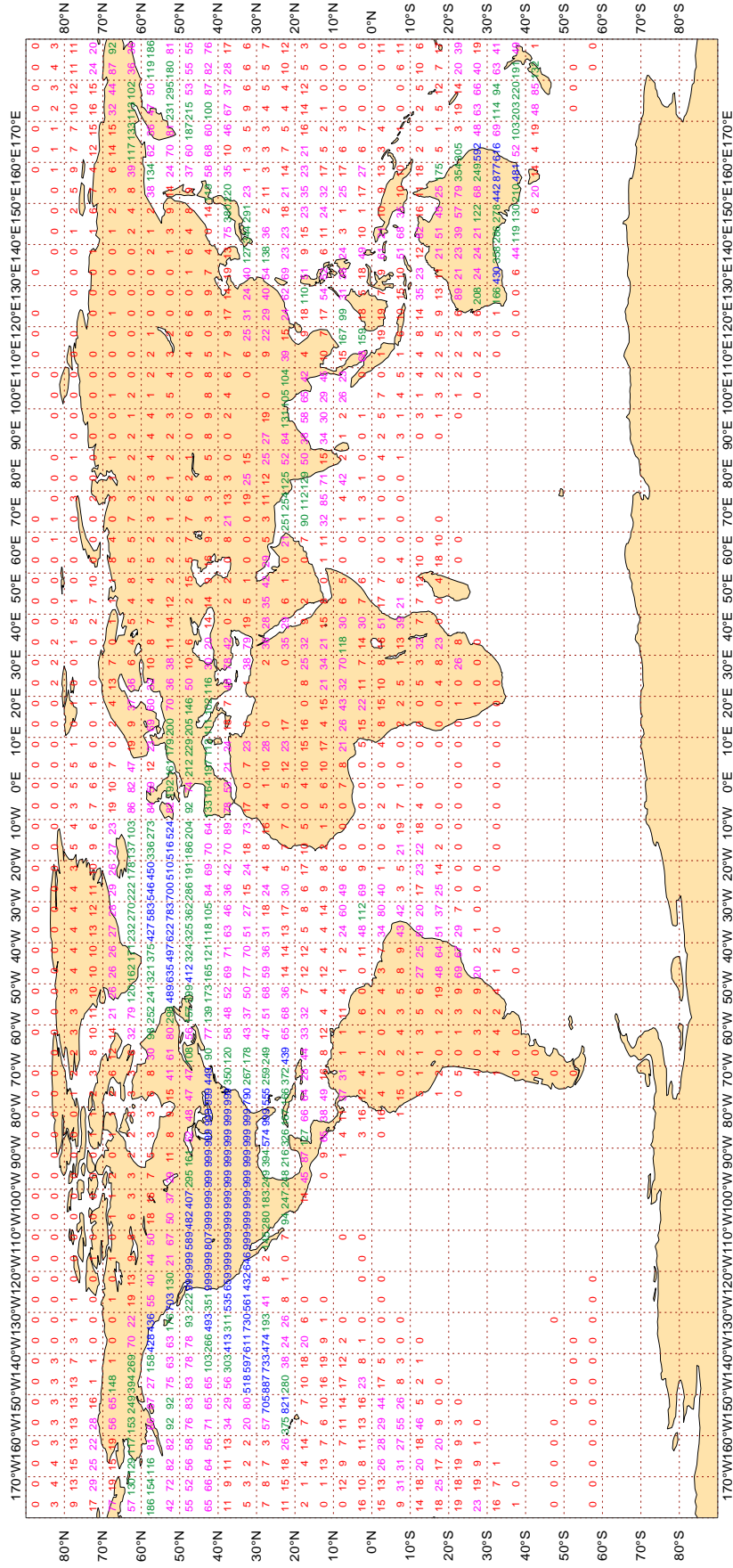
Magics 3.0.4 (64 bit)



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

Figure 5

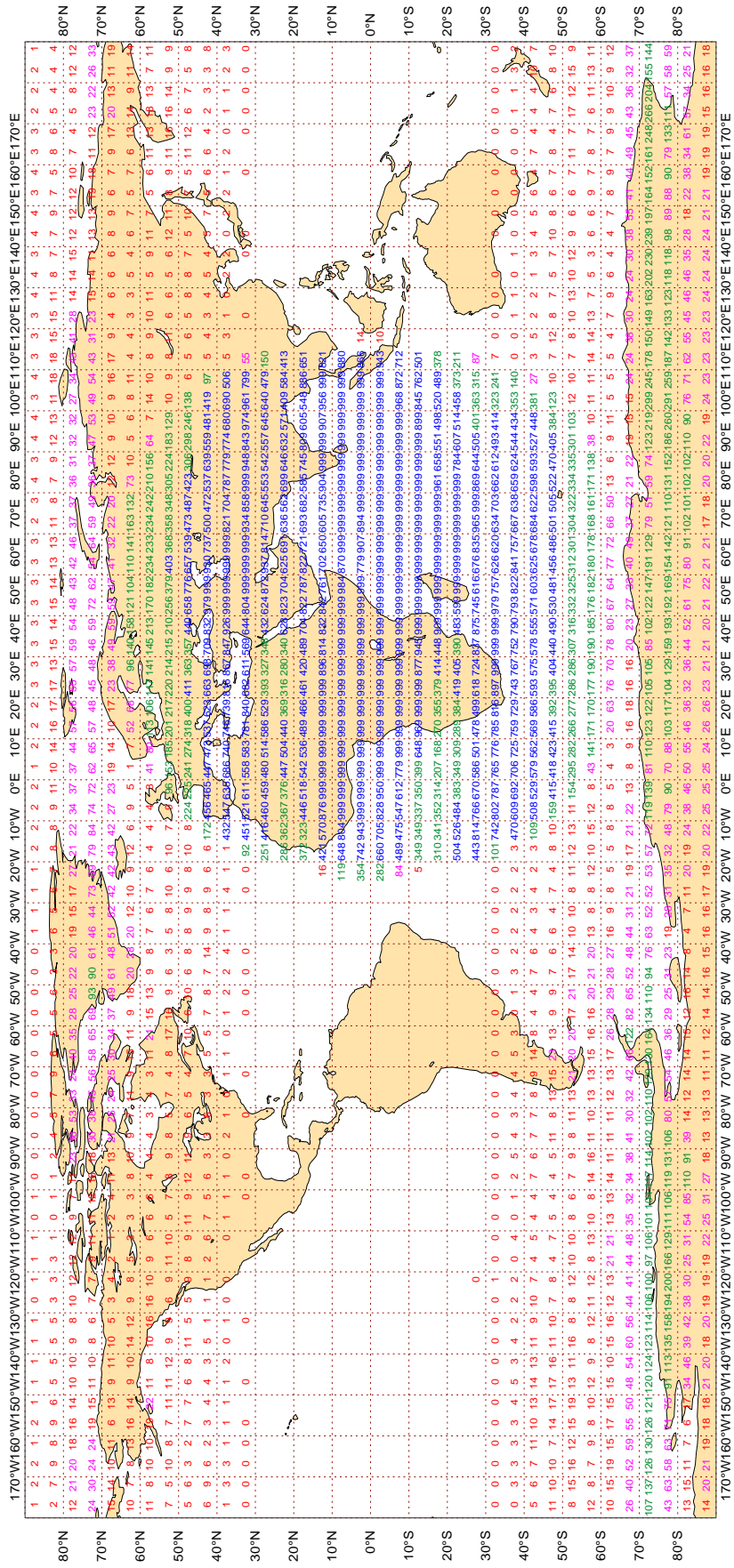
ECMWF Monitoring Statistics - APR 2021
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 128494



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

Figure 6

ECMWF Monitoring Statistics - APR 2021
Availability - AMV winds 400-150 hPa
Average number of observations in 24 hours - 441487



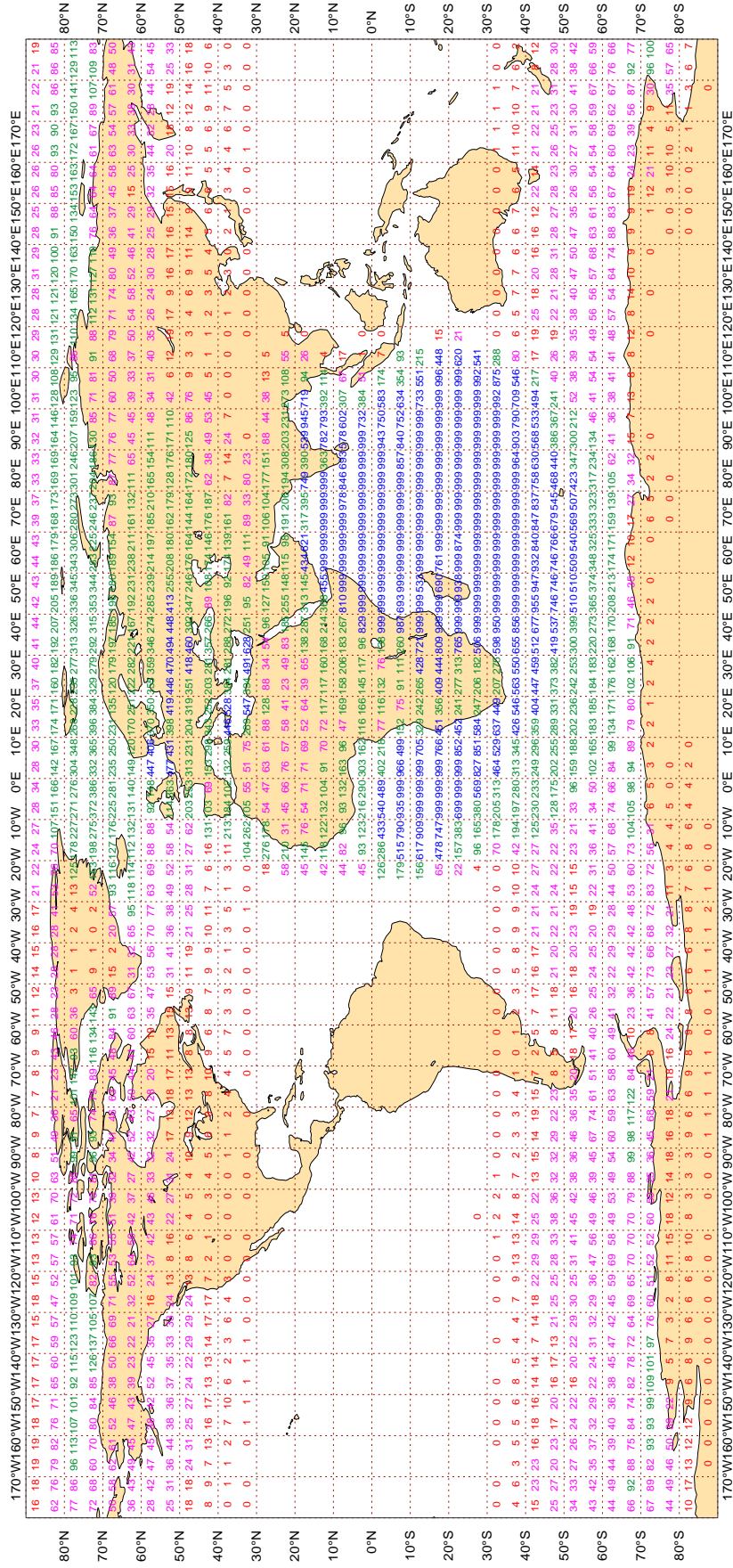
Magics 3.0.4 (64 bit)



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

Figure 7

ECMWF Monitoring Statistics - APR 2021
Availability - AMV winds 1000-700 hPa
Average number of observations in 24 hours - 361348

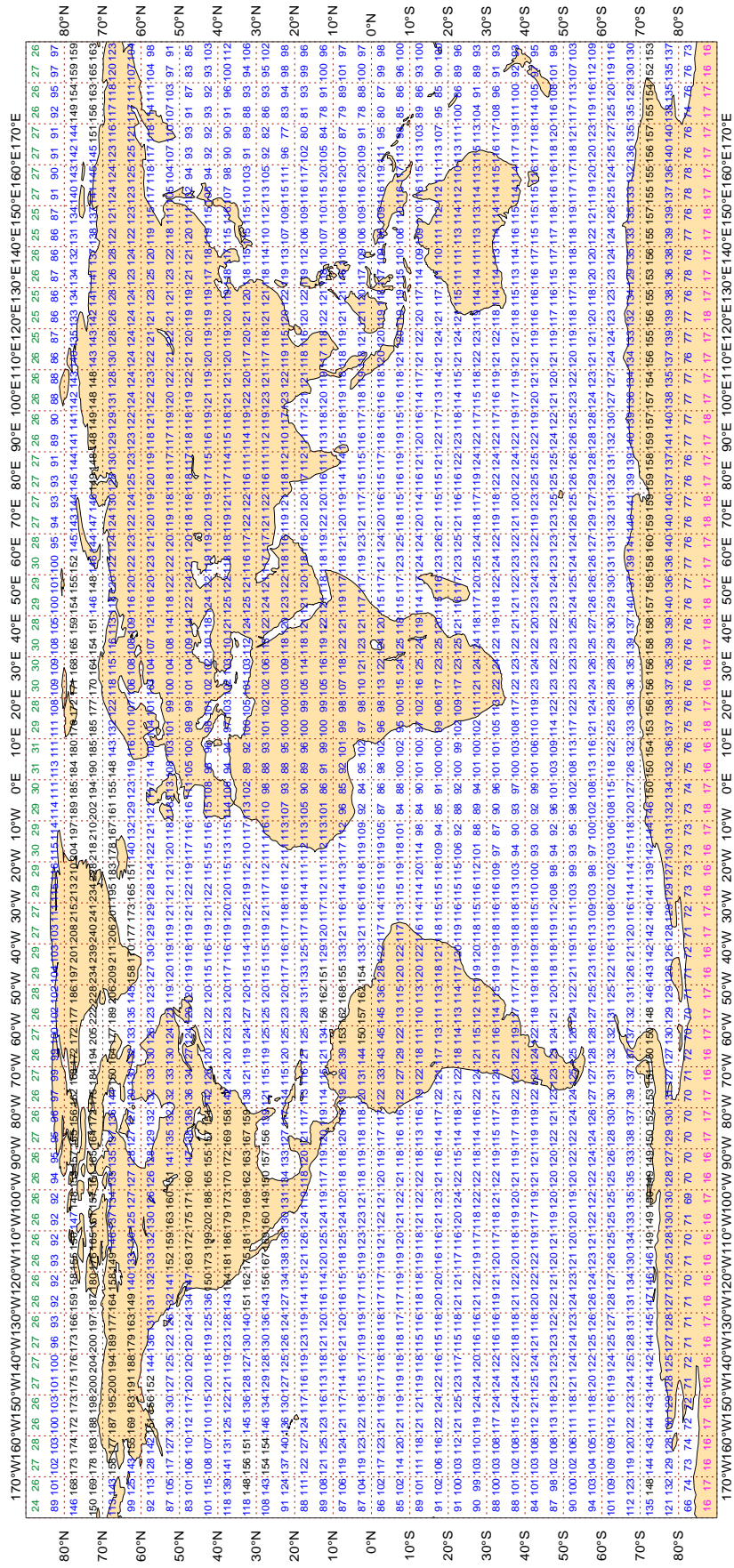


3.2.8 Figure 8 - Availability - NOAA15 ATOVS : AMSU-A

Figure 8

ECMWF Monitoring Statistics - APR 2021
Availability - NOAA15 ATOVS : AMSU-A

Average number of observations in 24 hours - 302104



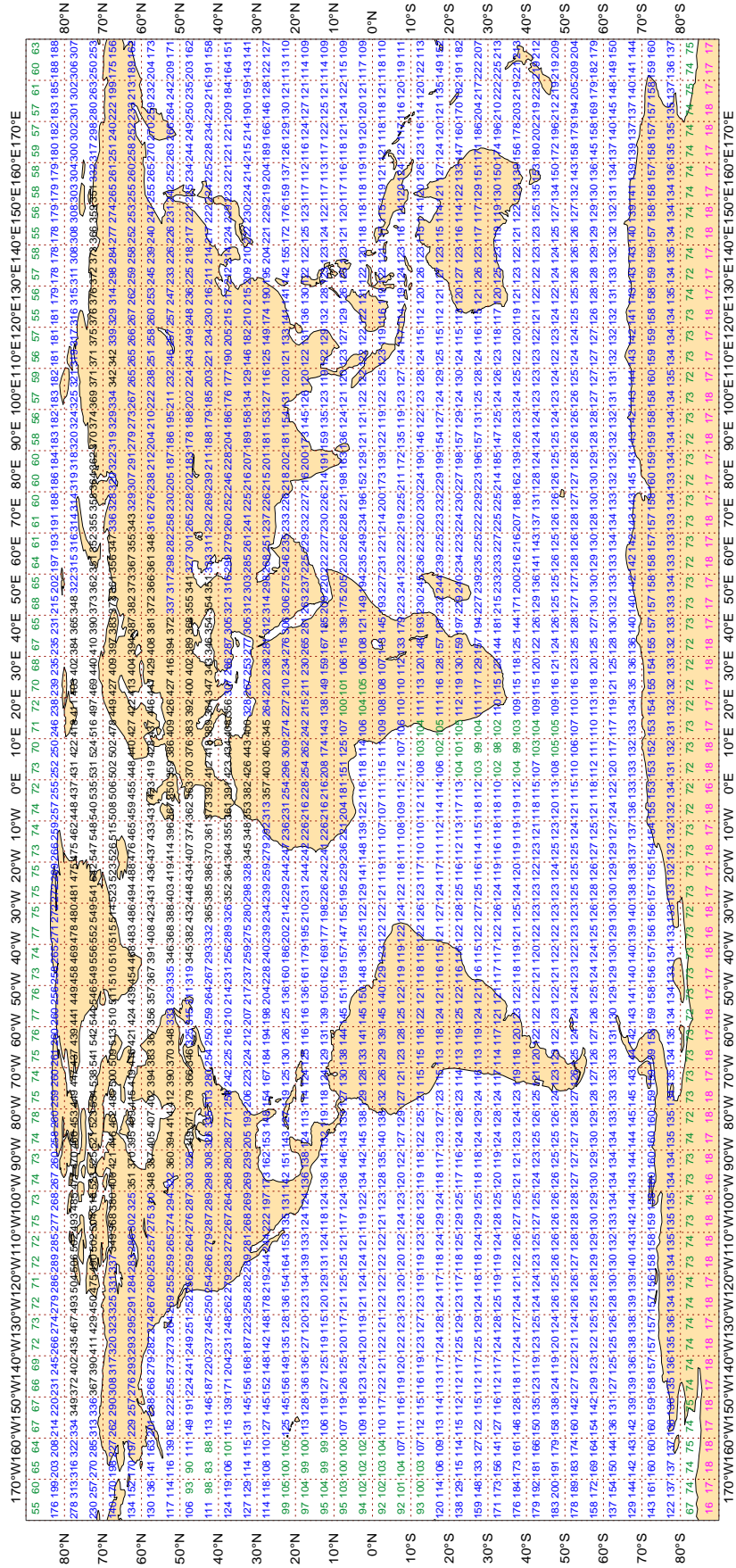
Magics 3.0.4 (64 bit)



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

Figure 9.1

ECMWF Monitoring Statistics - APR 2021
Availability - NOAA18 ATOVS : AMSU-A
Average number of observations in 24 hours - 482022



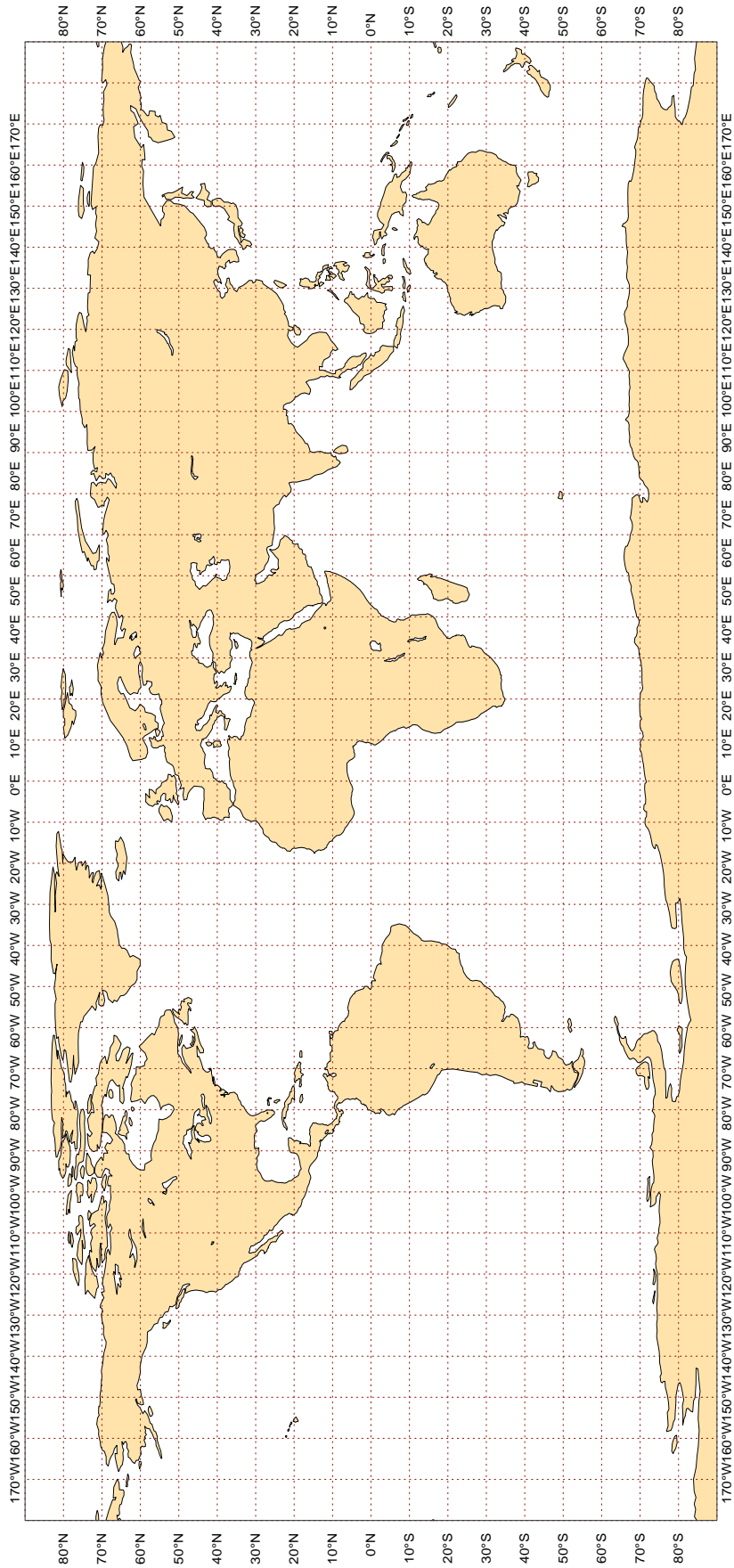
Magics 3.0.4 (64 bit)



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

Figure 9.2

ECMWF Monitoring Statistics - APR 2021
Availability - AQUA ATOVS : AMSU-A
Average number of observations in 24 hours - 0

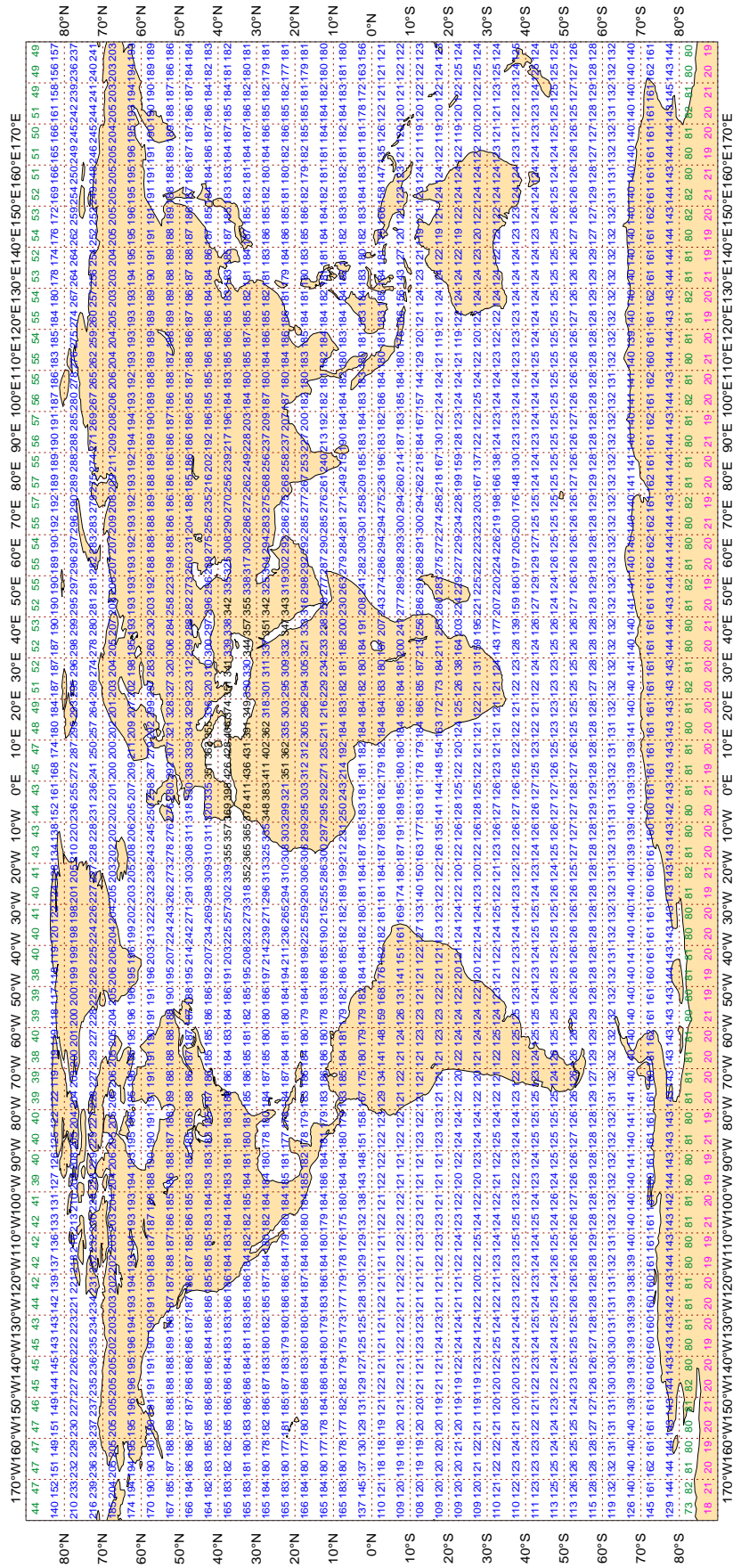


3.2.11 Figure 9.3 - Availability - METOP ATOVS : AMSU-A

Figure 9.3

ECMWF Monitoring Statistics - APR 2021
Availability - METOP ATOVS : AMSU-A

Average number of observations in 24 hours - 433940



Magics 3.0.4 (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 2021
 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
3EVZ8	99	P	SUR	65	0	2.3	3.4	4.1
7KDT	99	P	SUR	15	1	3.7	4.1	5.5
9HA4612	99	P	SUR	16	0	1.7	3.8	4.2
9HA5074	99	P	SUR	22	1	4.2	5.8	7.2
9HA5347	99	P	SUR	19	0	3.3	5.2	6.1
9V2676	99	P	SUR	138	0	2.0	3.7	4.2
9V3286	99	P	SUR	116	0	3.8	6.0	7.1
9V6256	99	P	SUR	16	0	5.4	-2.0	5.8
9V9401	99	P	SUR	18	0	1.2	-6.2	6.4
9V9402	99	P	SUR	99	1	1.2	6.9	7.0
ATVK	99	P	SUR	92	0	0.5	3.7	3.7
AVFX	99	P	SUR	152	0	0.5	3.5	3.5
BKIF	99	P	SUR	56	0	2.4	3.8	4.5
C6LG6	99	P	SUR	138	0	1.2	-3.6	3.8
C6PT7	99	P	SUR	25	2	1.1	4.2	4.3
C6TQ6	99	P	SUR	49	0	1.2	-6.9	7.0
C6YM7	99	P	SUR	23	0	0.9	3.1	3.2
D5HF3	99	P	SUR	22	0	1.3	5.2	5.4
D5HF5	99	P	SUR	31	0	2.8	4.7	5.5
FMFT	99	P	SUR	16	0	5.4	1.7	5.7
JMJRCES	99	P	SUR	18	0	0.4	-6.2	6.2
KRGB	99	P	SUR	26	0	2.1	-3.8	4.4
LAJK7	99	P	SUR	19	0	1.1	3.3	3.4
LANT5	99	P	SUR	21	0	0.9	4.1	4.2
LAQL7	99	P	SUR	46	0	0.8	4.0	4.1
LAQQ7	99	P	SUR	63	0	2.8	5.7	6.4
ONJG	99	P	SUR	49	3	3.1	8.5	9.1
OXLD2	99	P	SUR	22	0	3.8	3.4	5.1
OZ2049	99	P	SUR	46	0	0.7	-8.4	8.4
PBGJ	99	P	SUR	32	0	1.1	-5.0	5.1
S6CH2	99	P	SUR	20	0	1.0	-4.6	4.7
SJA4RSK	99	P	SUR	94	0	0.5	-5.3	5.4

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
UBAW	99	P	SUR	24	2	8.0	-5.9	10.0
UBRW	99	P	SUR	21	1	3.7	-6.7	7.6
UCFT	99	P	SUR	39	9	3.0	3.8	4.9
UIFY	99	P	SUR	35	0	0.5	-5.3	5.3
VRCU7	99	P	SUR	19	0	0.6	-5.2	5.2
VRGO3	99	P	SUR	21	0	3.0	3.8	4.9
VRIB3	99	P	SUR	16	0	1.6	-4.6	4.9
VRNY5	99	P	SUR	98	0	1.2	-3.1	3.3
VROO5	99	P	SUR	54	0	1.3	6.2	6.4
VRRB6	99	P	SUR	96	0	2.9	3.2	4.4
VWFQ	99	P	SUR	88	24	5.1	2.4	5.7
VWXS	99	P	SUR	87	0	1.8	-3.3	3.8
WDG8555	99	P	SUR	56	0	2.2	4.1	4.7
ZCEK6	99	P	SUR	24	0	0.4	3.2	3.2

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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : GLOBAL
 PERIOD : APR 2021
 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
44137	99	SPEED	SUR	106	0	0	4.8	-6.8	8.3

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 2021
 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
44062	99	DIRN	SUR	357	0	0	111.3	0.5	111.3
44072	99	DIRN	SUR	422	0	0	27.7	-62.1	68.0
46001	99	DIRN	SUR	45	1	0	57.5	33.5	66.5
46303	99	DIRN	SUR	59	0	0	19.0	34.5	39.4

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 2021
 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
0022949	99	P	SUR	21	113	339	339	0.0	0.0	0.0
1401761	99	P	SUR	-38	67	716	0	1.9	4.0	4.4
2501666	99	P	SUR	88	52	419	419	0.0	0.0	0.0
2601503	99	P	SUR	82	131	720	685	1.2	-12.8	12.8
4601840	99	P	SUR	39	-145	712	0	3.2	-9.0	9.5
4701658	99	P	SUR	72	-95	657	657	0.0	0.0	0.0
4801628	99	P	SUR	78	-170	649	639	0.5	-12.9	12.9
4801652	99	P	SUR	80	-125	491	322	5.0	-8.2	9.6
4801670	99	P	SUR	81	-167	690	134	8.5	5.5	10.1
4801727	99	P	SUR	85	121	681	681	0.0	0.0	0.0
5601545	99	P	SUR	-29	32	702	0	0.4	-7.5	7.5
5601653	99	P	SUR	-22	115	177	55	3.9	2.6	4.7
6202694	99	P	SUR	37	11	149	0	0.6	-5.0	5.1
7201508	99	P	SUR	-33	151	716	716	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 2021
 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
2200189	99	SPEED	SUR	35	130	715	0	0	3.3	-7.1	7.8
4400069	99	SPEED	SUR	41	-73	743	0	0	2.8	5.8	6.4
44137	99	SPEED	SUR	42	-62	753	0	0	4.9	-6.7	8.3
6101005	99	SPEED	SUR	38	26	153	0	0	3.6	-6.8	7.7

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : APR 2021
 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
1300008	99	DIRN	SUR	15	-38	600	0	0	81.4	4.0	81.5
1500008	99	DIRN	SUR	-20	-10	195	0	0	15.1	-44.2	46.8
2200297	99	DIRN	SUR	34	125	247	0	0	103.3	-19.2	105.1
2200298	99	DIRN	SUR	35	125	476	0	0	32.4	-34.8	47.5
23497	99	DIRN	SUR	11	72	26	0	0	62.0	-43.4	75.7
3100006	99	DIRN	SUR	4	-23	162	0	0	32.4	33.5	46.6
41038	99	DIRN	SUR	34	-78	983	0	0	18.5	-20.1	27.4
4200043	99	DIRN	SUR	29	-95	434	0	0	30.6	23.5	38.6
42043	99	DIRN	SUR	29	-95	802	0	0	31.2	22.7	38.6
42394	99	DIRN	SUR	28	-89	517	0	0	22.5	-21.3	31.0
4400062	99	DIRN	SUR	39	-76	2137	0	0	111.0	2.7	111.0
4400072	99	DIRN	SUR	37	-76	3068	0	0	26.1	-63.8	69.0
44062	99	DIRN	SUR	39	-76	2835	1	0	108.5	-2.6	108.5
44072	99	DIRN	SUR	37	-76	3978	0	0	30.6	-63.4	70.4
44137	99	DIRN	SUR	42	-62	183	0	0	14.5	-28.8	32.3
4600001	99	DIRN	SUR	56	-148	259	9	0	57.7	32.9	66.4
4600014	99	DIRN	SUR	39	-124	1384	0	0	45.4	21.3	50.2
4600060	99	DIRN	SUR	61	-147	341	0	0	32.2	23.7	39.9
4600073	99	DIRN	SUR	55	-172	668	0	0	9.8	20.1	22.4
46001	99	DIRN	SUR	56	-148	486	17	0	57.7	31.6	65.8
46014	99	DIRN	SUR	39	-124	1740	0	0	45.8	20.8	50.3
46060	99	DIRN	SUR	61	-147	610	0	0	32.4	23.8	40.2
46303	99	DIRN	SUR	49	-123	429	0	0	22.4	36.4	42.8
5200311	99	DIRN	SUR	0	-180	647	0	0	16.0	-21.9	27.1
52311	99	DIRN	SUR	0	-180	632	0	0	16.4	-21.7	27.2
5300040	99	DIRN	SUR	-8	95	581	3	0	142.2	80.1	163.2
5300056	99	DIRN	SUR	-5	95	38	0	0	119.6	-38.6	125.6
53040	99	DIRN	SUR	-8	95	572	3	0	138.2	85.2	162.4
53056	99	DIRN	SUR	-5	95	31	0	0	118.0	-36.8	123.6
6101007	99	DIRN	SUR	36	25	47	0	0	60.6	9.1	61.3
6200199	99	DIRN	SUR	40	-9	77	0	0	168.7	19.7	169.8

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
6200200	99	DIRN	SUR	36	-8	234	0	0	158.8	-57.5	168.9
6301004	99	DIRN	SUR	72	20	552	0	0	17.9	23.5	29.6

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

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 AREA : GLOBAL
 PERIOD : APR 2021
 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	00	Z	1000	57	3	29	1	5.7	80.3	80.5
01400	12	Z	1000	57	3	29	0	4.0	80.3	80.4
58203	00	Z	50	33	116	28	1	142.6	113.7	182.4
58424	00	Z	50	31	117	27	1	137.0	102.6	171.2
61052	12	Z	925	13	2	23	1	20.0	29.9	36.0
61687	12	Z	1000	14	-14	17	0	2.8	-40.4	40.5
73110	12	Z	200	45	-64	29	0	108.6	102.6	149.4
73110	00	Z	250	45	-64	30	1	99.2	79.4	127.1
76394	12	Z	200	26	-100	14	0	107.1	98.3	145.4
7JUNA4	00	Z	1000	56	-10	12	0	30.3	-9.2	31.7
98233	12	Z	1000	18	122	19	0	32.4	29.5	43.8
HTXUH4	12	Z	1000	61	-49	11	0	19.7	-31.1	36.8
HTXUH4	00	Z	1000	64	-52	14	0	22.6	-23.4	32.5
LRYQE3	12	Z	1000	56	-12	10	0	6.5	42.2	42.7
YLV96W	00	Z	1000	41	-69	11	1	28.3	53.9	60.9
YLV96W	12	Z	1000	38	-73	13	1	25.2	59.6	64.7

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 2021
 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
34731	00	V	250	47	40	29	0	-4.8	-3.2	15.7
44373	00	V	250	44	104	29	0	-2.8	3.5	16.9
57993	12	V	250	26	115	26	2	4.7	-0.3	15.0

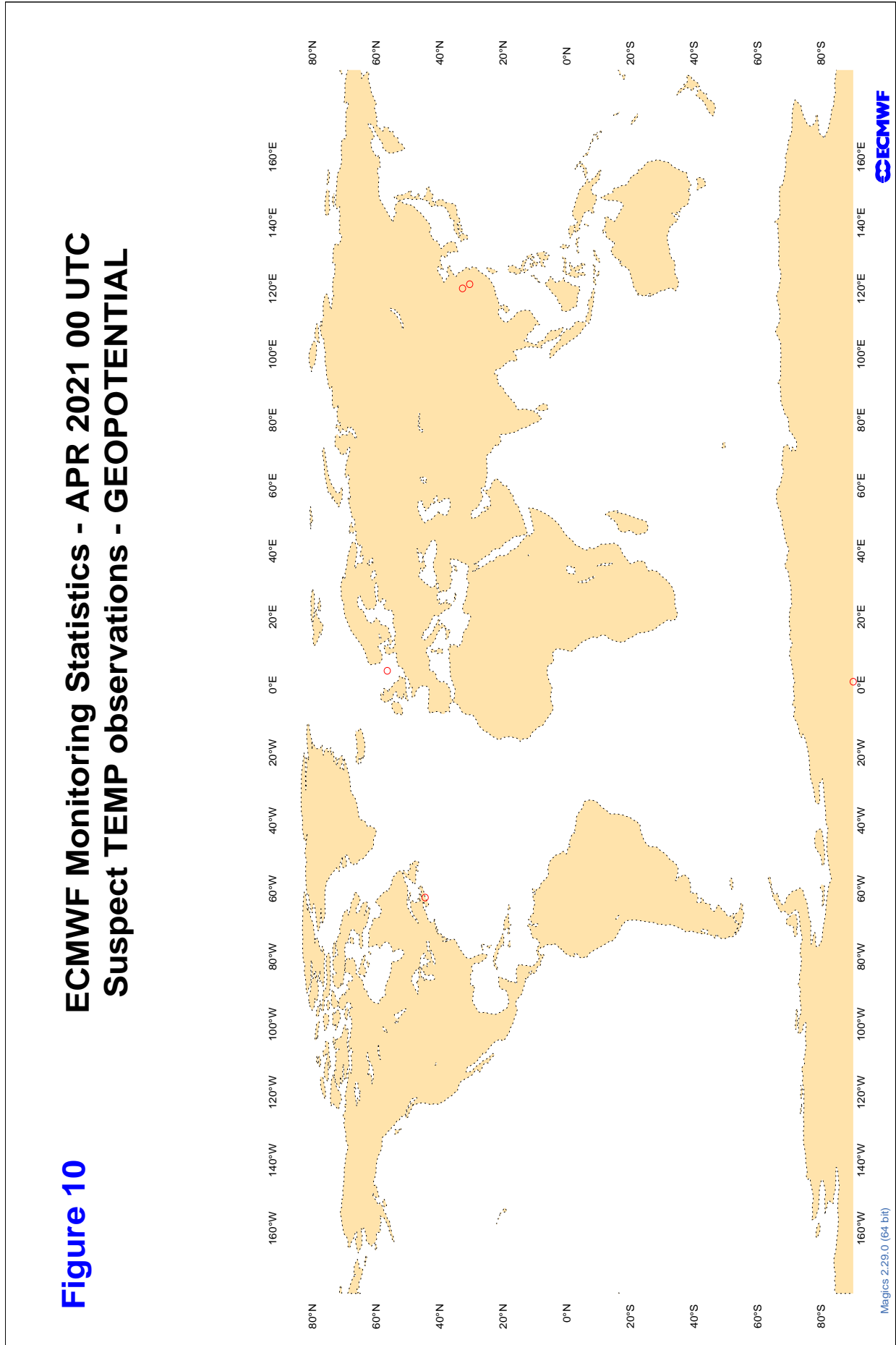
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : APR 2021
 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
33791	12	DD	48	33	28	10.9	2.5	10.5

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



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

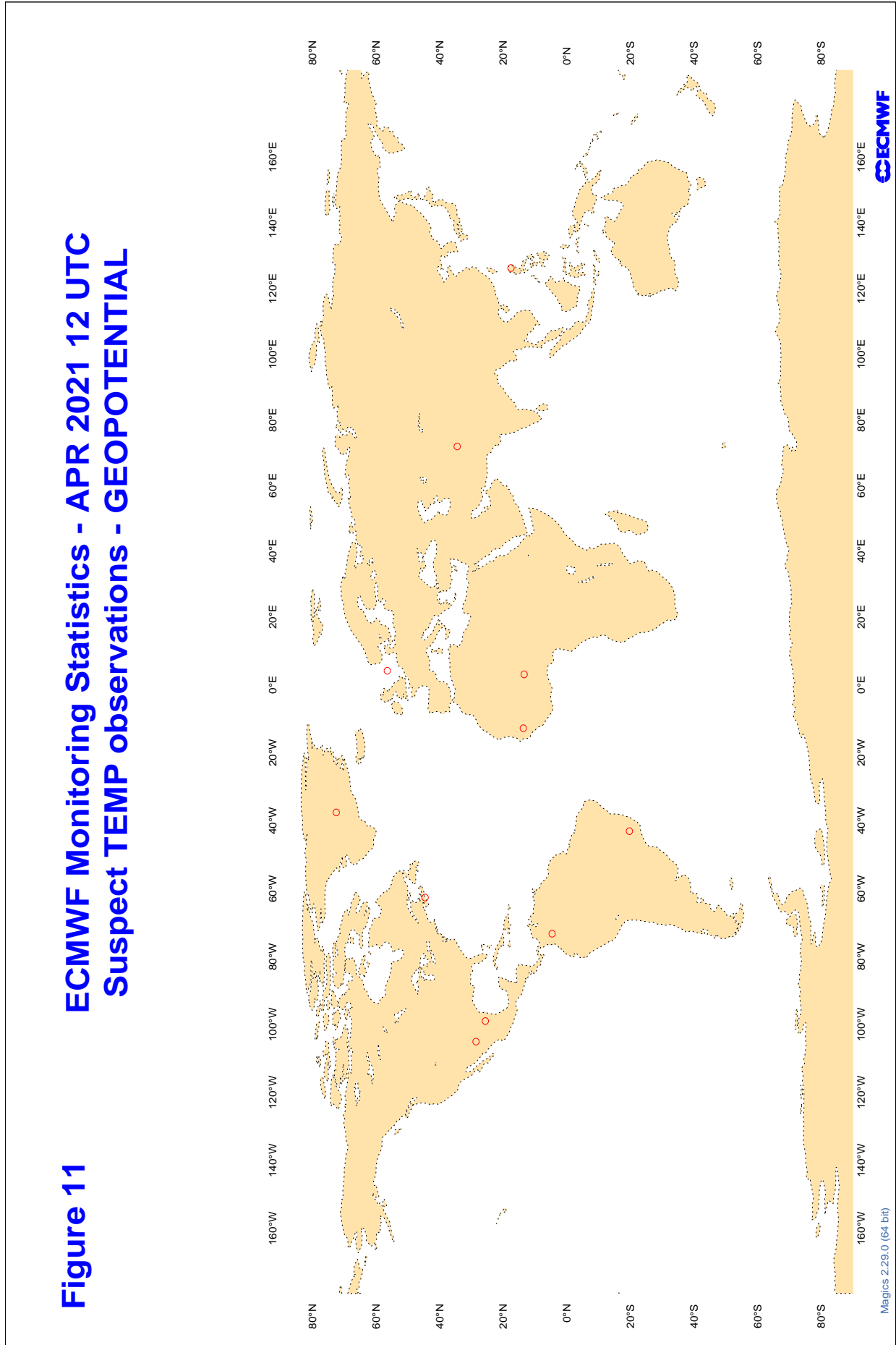
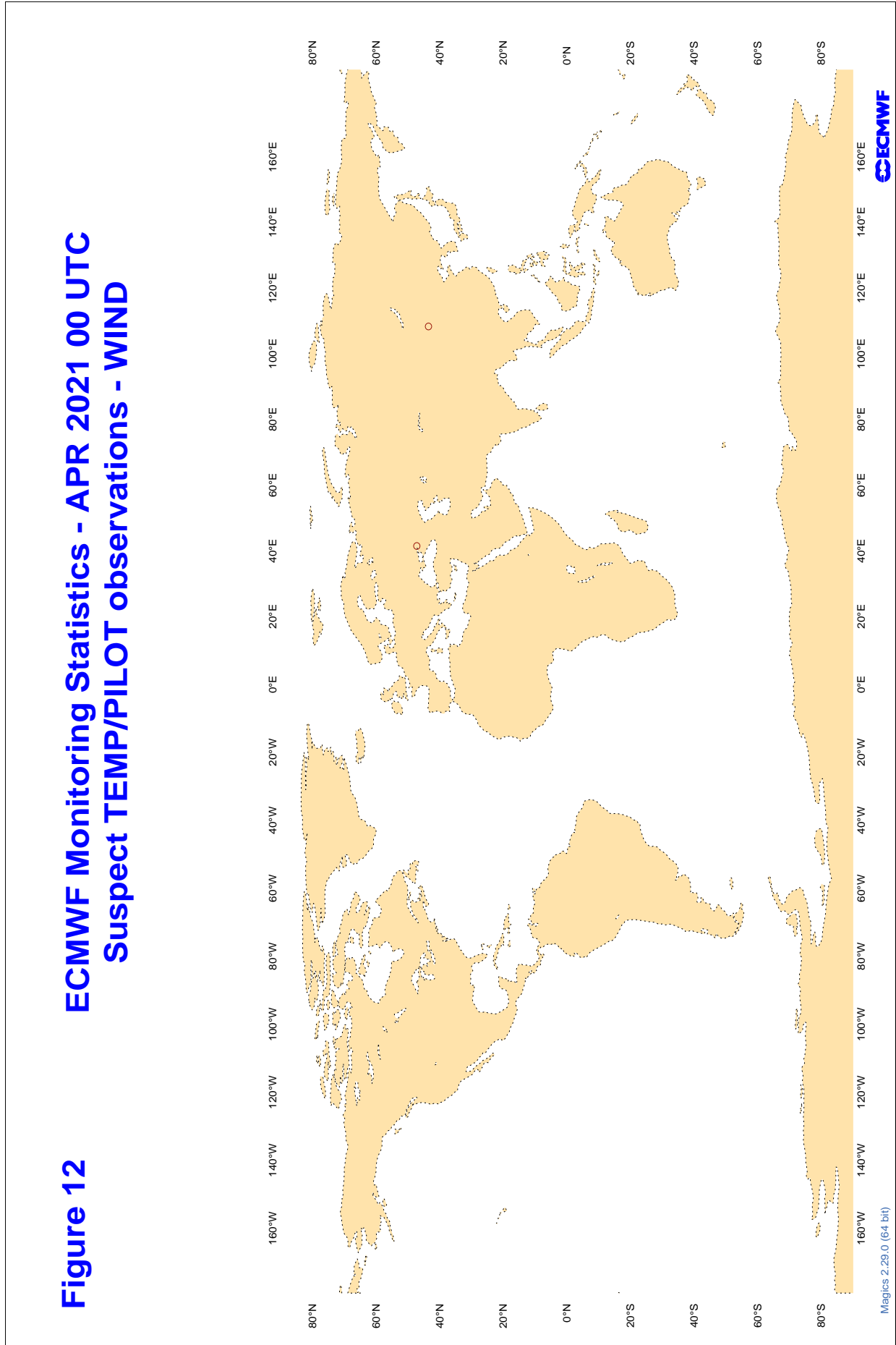
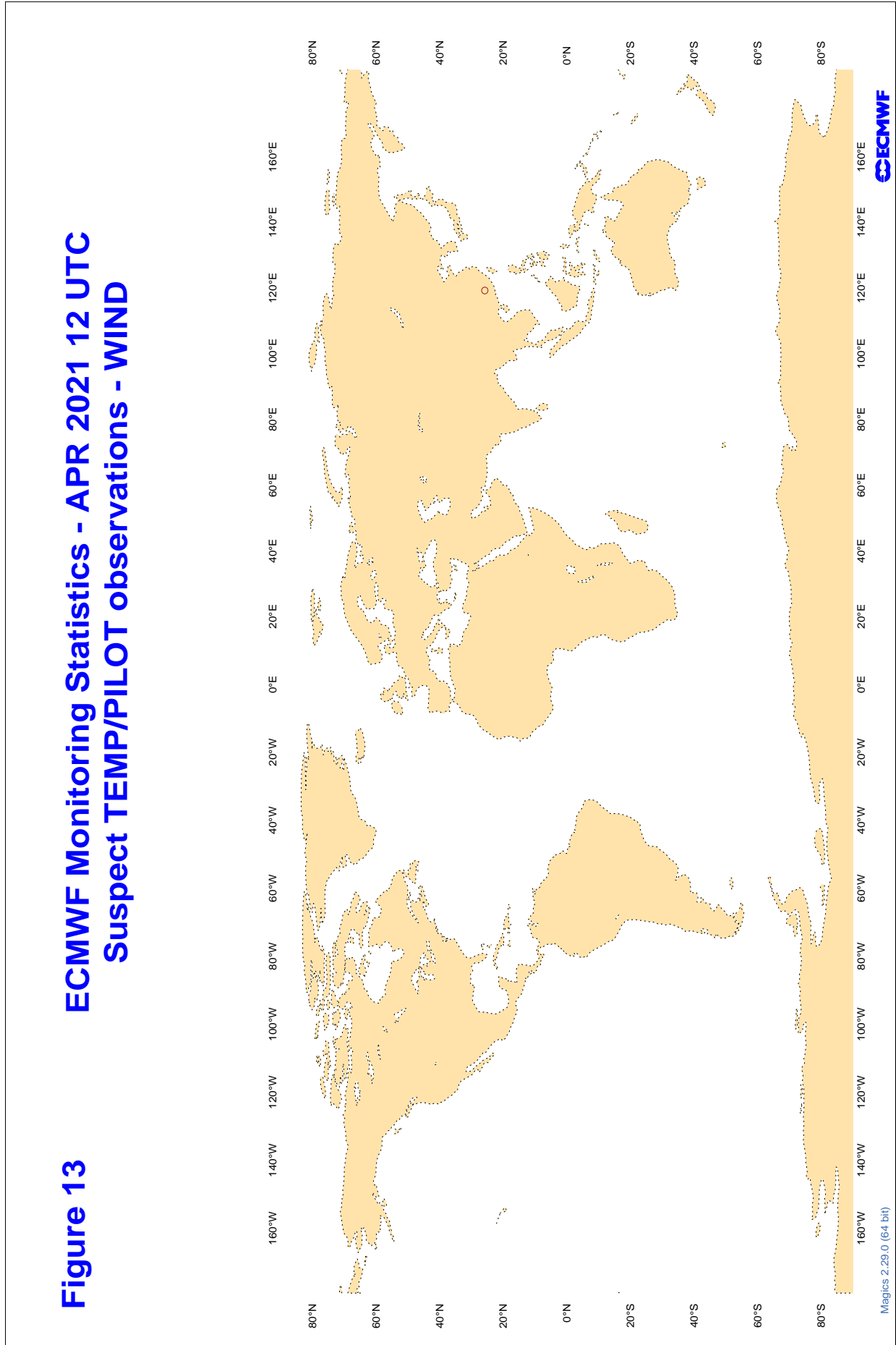


Figure 11 ECMWF Monitoring Statistics - APR 2021 12 UTC
Suspect TEMP observations - GEOPOTENTIAL

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 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	100	15	46.2	22.5
7JUNA4	00	Z	100	11	22.5	-5.6
ASDE09	12	Z	100	3	42.0	38.4
BPMWB2	00	Z	100	6	17.7	5.0
BPMWB2	12	Z	100	7	13.9	2.6
DBLK	12	Z	100	21	6.2	2.2
HTXUH4	12	Z	100	10	33.5	-27.0
HTXUH4	00	Z	100	14	26.5	-18.3
JGQH	00	Z	100	1	9.6	9.6
JGQH	12	Z	100	0	0.0	0.0
JNKN7J	00	Z	100	5	24.3	23.5
JNKN7J	12	Z	100	7	63.9	58.0
KJJF9X	00	Z	100	5	13.3	4.5
KJJF9X	12	Z	100	6	19.6	16.5
KMPLHP	00	Z	100	8	5.3	-3.9
KMPLHP	12	Z	100	8	87.6	77.7
LRYQE3	00	Z	100	9	35.9	34.5
LRYQE3	12	Z	100	10	48.8	47.1
USBOD	00	Z	100	1	13.4	-13.4
USSAL	00	Z	100	0	0.0	0.0
UXK5JT	00	Z	100	5	14.7	13.3
UXK5JT	12	Z	100	6	16.7	14.7
WDK38H	12	Z	100	1	2.6	-2.6
XKQLWQ	12	Z	100	16	56.6	45.5
XQFJRG	00	Z	100	6	19.8	-19.2
XQFJRG	12	Z	100	6	21.2	-19.1
YLV96W	00	Z	100	10	44.0	36.5
YLV96W	12	Z	100	11	82.7	74.7
ZVQEQC	00	Z	100	6	17.1	16.7
ZVQEQC	12	Z	100	11	8.4	6.8

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

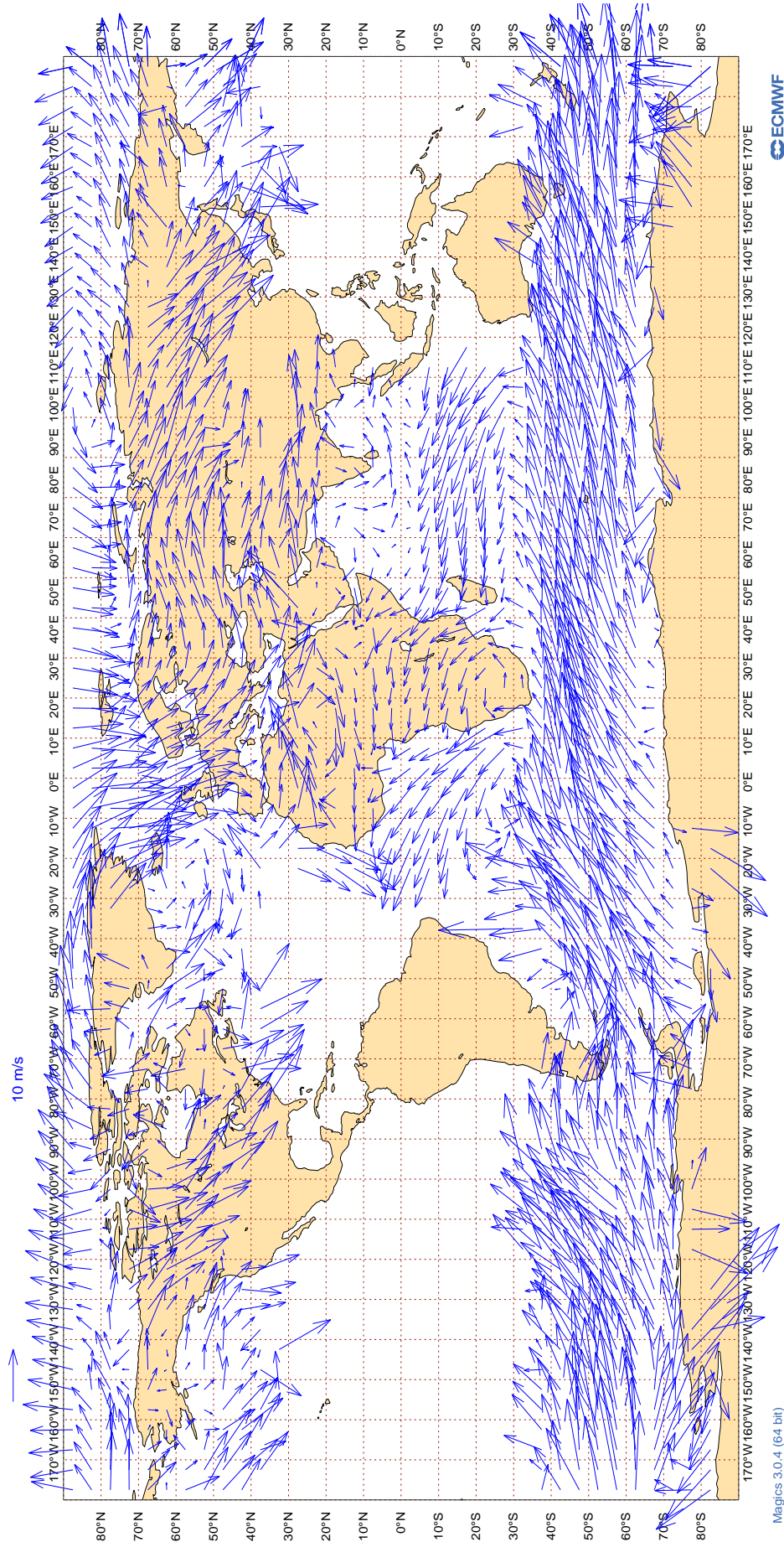
RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 100 HPA
 AREA : GLOBAL
 PERIOD : APR 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	100	15	2.3	0.2	-0.4
7JUNA4	00	V	100	11	2.1	0.2	0.5
ASDE09	12	V	100	3	2.8	-0.7	-0.5
BPMWB2	00	V	100	6	4.7	-2.0	0.3
BPMWB2	12	V	100	7	3.0	-1.4	-0.2
DBLK	12	V	100	21	4.4	-0.3	-1.0
HTXUH4	12	V	100	10	2.6	0.6	-0.6
HTXUH4	00	V	100	14	2.6	-0.1	-0.1
JGQH	00	V	100	1	2.9	2.1	2.0
JGQH	12	V	100	0	0.0	0.0	0.0
JNKN7J	00	V	100	5	2.7	-1.6	0.3
JNKN7J	12	V	100	7	2.8	0.7	-0.4
KJJF9X	00	V	100	5	3.8	1.5	0.8
KJJF9X	12	V	100	6	3.2	0.3	-0.8
KMPLHP	00	V	100	8	3.5	0.8	0.9
KMPLHP	12	V	100	8	1.9	0.5	-1.0
LRYQE3	00	V	100	9	2.3	0.9	0.5
LRYQE3	12	V	100	10	3.1	-0.2	0.5
USBOD	00	V	100	1	2.7	-2.5	-1.1
USSAL	00	V	100	0	0.0	0.0	0.0
UXK5JT	00	V	100	5	3.4	-0.6	0.3
UXK5JT	12	V	100	6	4.5	0.2	0.0
WDK38H	12	V	100	1	1.3	1.0	0.8
XKQLWQ	12	V	100	14	4.1	1.3	1.1
XQFJRG	00	V	100	5	3.8	0.4	-1.7
XQFJRG	12	V	100	5	2.5	-0.9	-0.5
YLV96W	00	V	100	9	4.8	-0.6	-0.4
YLV96W	12	V	100	9	3.4	-0.2	2.2
ZVQEQC	00	V	100	6	4.5	0.4	-1.4
ZVQEQC	12	V	100	11	4.9	0.1	0.6

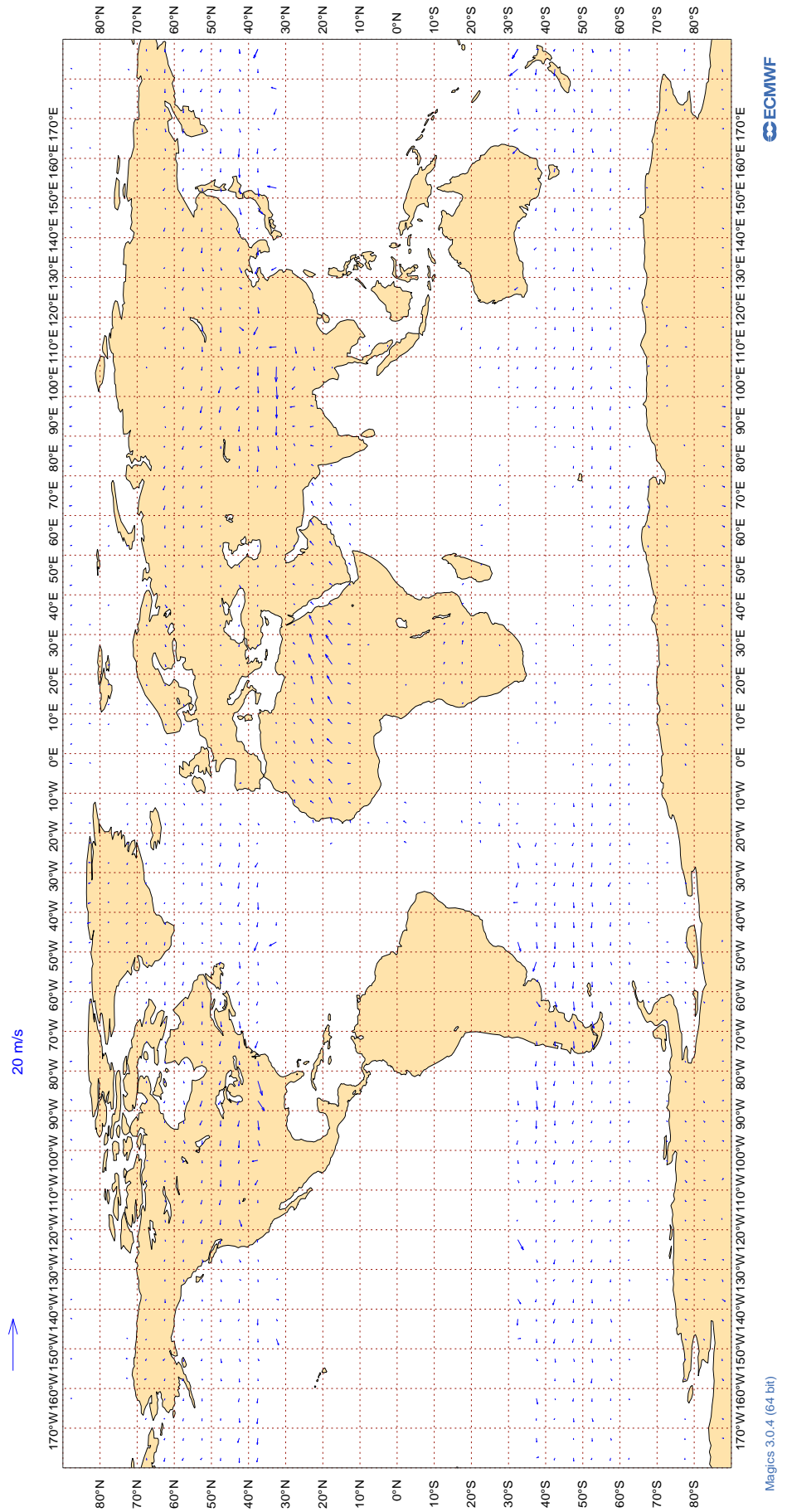
3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

Figure 14
ECMWF Monitoring Statistics: Apr 2021
AMV Winds: 700-1000hPa
Mean Observed Wind



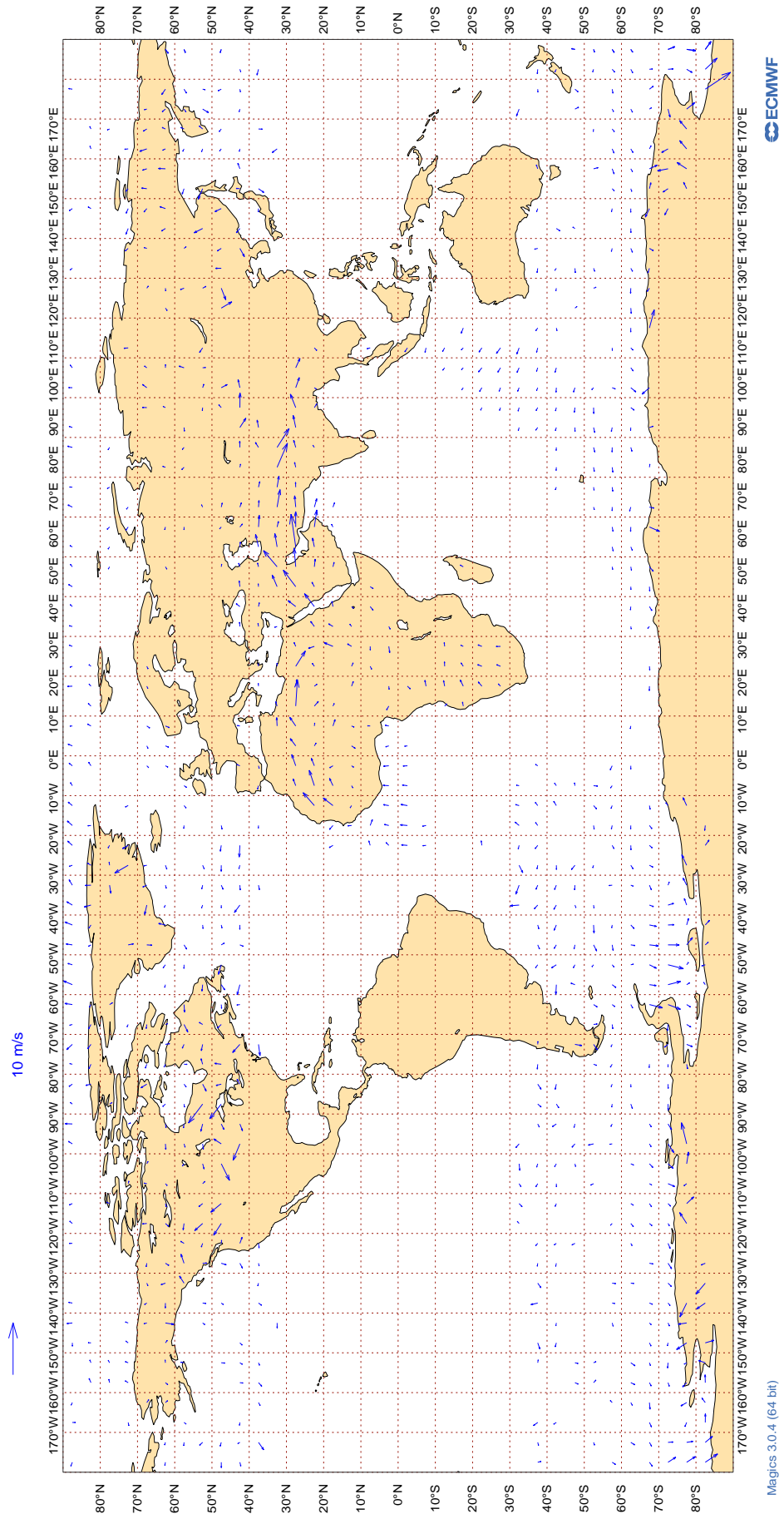
3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

Figure 15
ECMWF Monitoring Statistics: Apr 2021
AMV Winds: 150- 400hPa
Wind bias: Observation - FG



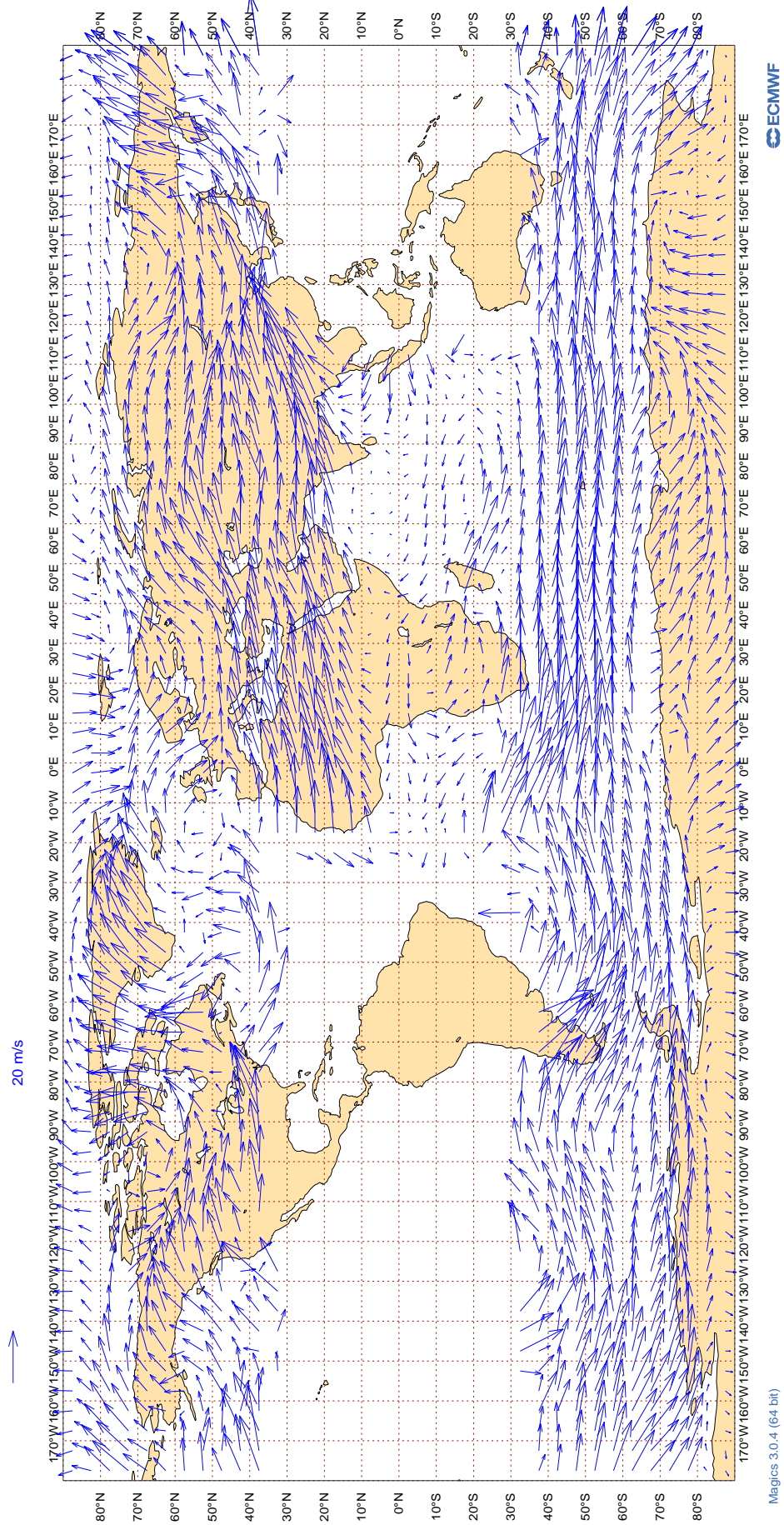
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

Figure 16
ECMWF Monitoring Statistics: Apr 2021
AMV Winds: 700-1000hPa
Wind bias: Observation - FG



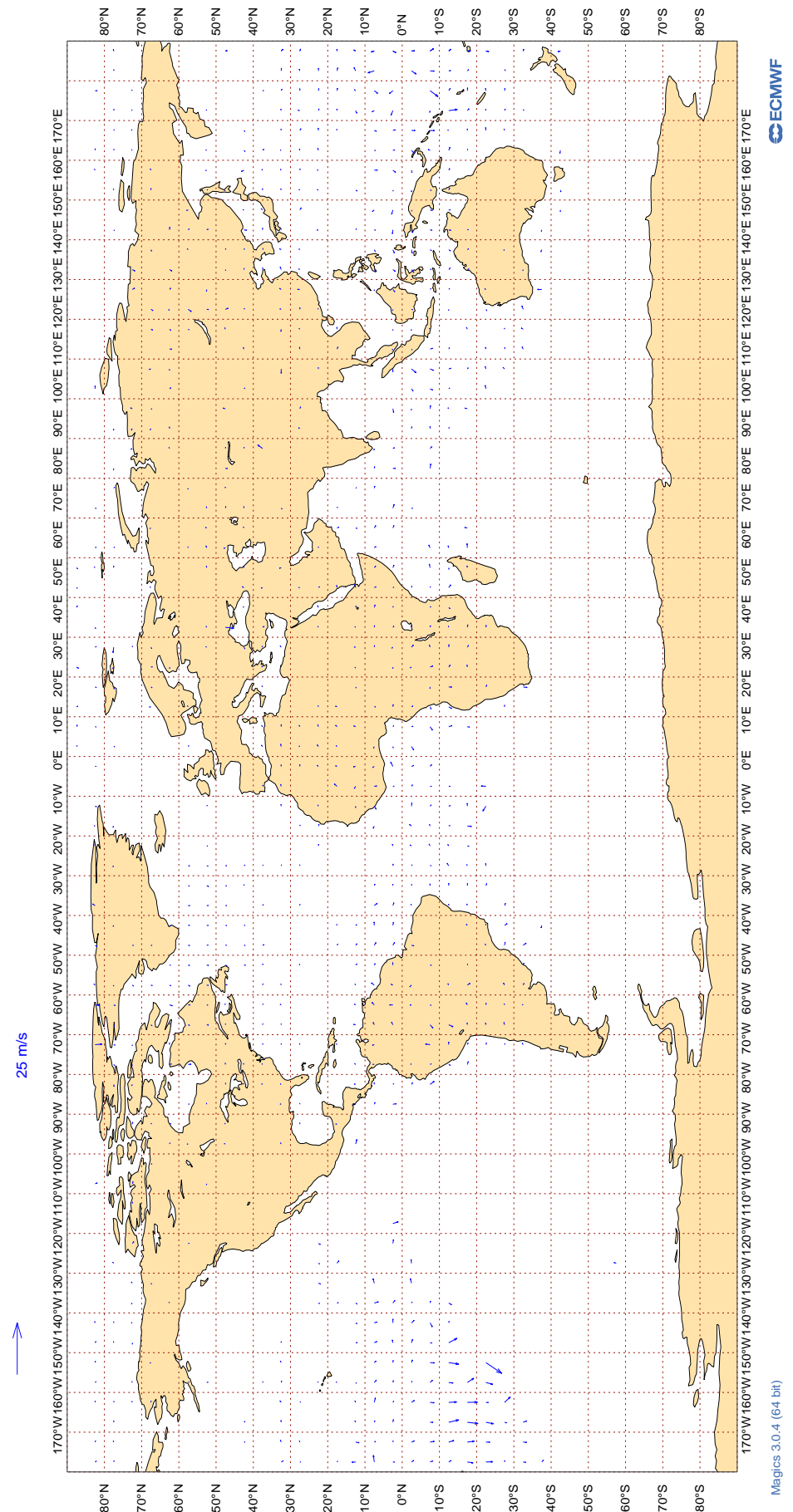
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

Figure 17
ECMWF Monitoring Statistics: Apr 2021
AMV Winds: 150- 400hPa
Mean Observed Wind



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

Figure 18
ECMWF Monitoring Statistics: Apr 2021
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 2021
 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	35	0	0	4.3	0.5
AAL	99	V	300-150	19286	2	0	5.6	0.2
AAR	99	V	300-150	170	0	0	3.1	-0.6
ABB	99	V	300-150	1014	0	0	3.1	0.2
ABD	99	V	300-150	1421	0	0	3.5	-0.3
ABG	99	V	300-150	58	0	0	3.2	0.1
ABP	99	V	300-150	48	0	0	2.7	0.9
ABW	99	V	300-150	815	0	0	3.2	-0.2
ABX	99	V	300-150	330	0	0	3.0	0.2
ACA	99	V	300-150	11596	2	0	6.5	0.1
AEA	99	V	300-150	129	5	0	8.8	-0.0
AFL	99	V	300-150	972	0	0	3.0	0.2
AFR	99	V	300-150	14907	0	0	3.9	0.2
AHO	99	V	300-150	97	0	0	3.0	0.6
AIC	99	V	300-150	1291	2	0	5.2	0.1
AJT	99	V	300-150	283	0	0	3.0	0.1
ALK	99	V	300-150	689	0	0	3.0	0.5
AMX	99	V	300-150	1445	4	0	7.6	0.1
ANZ	99	V	300-150	7718	4	0	6.8	0.9
AOJ	99	V	300-150	83	0	0	3.0	0.4
ASL	99	V	300-150	431	0	0	3.3	0.6
ASY	99	V	300-150	40	0	0	3.6	1.4
ATC	99	V	300-150	63	0	0	4.5	0.5
ATN	99	V	300-150	32	0	0	6.0	-0.8
AUA	99	V	300-150	1288	0	0	3.8	-0.0
AXM	99	V	300-150	43	2	0	4.3	1.3
AYY	99	V	300-150	34	0	0	4.6	0.6

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AZA	99	V	300-150	1612	0	0	3.3	0.3
AZG	99	V	300-150	620	0	0	3.2	-0.1
AZV	99	V	300-150	435	0	0	3.1	0.2
BAF	99	V	300-150	32	0	0	3.0	0.8
BAW	99	V	300-150	17672	2	0	5.9	0.1
BBC	99	V	300-150	208	0	0	4.3	1.1
BCS	99	V	300-150	2378	0	0	3.0	0.3
BLU	99	V	300-150	110	0	0	3.9	-0.1
BOX	99	V	300-150	2603	0	0	3.0	0.1
BTX	99	V	300-150	80	0	0	3.3	0.1
BVR	99	V	300-150	32	0	0	4.2	-0.1
CAL	99	V	300-150	253	0	0	3.8	0.9
CAZ	99	V	300-150	40	0	0	3.3	0.4
CEB	99	V	300-150	83	0	0	3.8	0.1
CES	99	V	300-150	41	5	0	5.0	0.7
CFC	99	V	300-150	536	0	0	3.6	0.2
CFG	99	V	300-150	884	0	0	3.7	0.4
CHG	99	V	300-150	862	0	0	3.9	0.1
CJT	99	V	300-150	1685	0	0	3.3	-0.2
CKS	99	V	300-150	1665	0	0	3.2	-0.0
CLF	99	V	300-150	48	0	0	3.0	0.7
CLU	99	V	300-150	1382	0	0	3.3	-0.3
CLX	99	V	300-150	4134	0	0	3.5	-0.3
CMB	99	V	300-150	1022	0	0	3.5	0.1
CNV	99	V	300-150	103	0	0	2.8	0.3
CPA	99	V	300-150	107	0	0	4.1	0.3
CRL	99	V	300-150	355	0	1	3.8	0.6
CSN	99	V	300-150	210	4	0	5.4	0.6
CTM	99	V	300-150	216	0	0	3.6	0.2
DAL	99	V	300-150	17489	0	0	3.2	0.2
DCS	99	V	300-150	66	0	0	3.5	-0.4
DCW	99	V	300-150	33	0	0	2.8	0.5
DGX	99	V	300-150	63	0	0	2.3	0.3
DHK	99	V	300-150	763	0	0	3.4	-0.2
DLH	99	V	300-150	11806	0	0	3.1	0.2
EAU	99	V	300-150	28	0	0	2.8	-0.7
EDG	99	V	300-150	20	0	0	4.2	0.4
EDW	99	V	300-150	831	0	0	3.2	0.3
EIN	99	V	300-150	2634	0	0	3.0	0.3
EJM	99	V	300-150	139	0	0	3.3	0.4
ELY	99	V	300-150	2050	3	0	7.9	0.2
EMM	99	V	300-150	38	0	0	3.4	0.5
ETD	99	V	300-150	4735	3	0	6.1	0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
ETH	99	V	300-150	3798	1	0	5.1	0.2
FBU	99	V	300-150	157	0	0	5.0	0.9
FDX	99	V	300-150	7672	0	0	3.1	0.2
FGR	99	V	300-150	20	0	0	9.0	0.0
FIN	99	V	300-150	438	0	0	3.4	-0.0
FJI	99	V	300-150	421	0	0	4.6	0.5
FLJ	99	V	300-150	38	0	0	2.9	0.2
FWI	99	V	300-150	482	0	0	3.2	0.4
FYG	99	V	300-150	70	0	0	4.5	0.8
GAF	99	V	300-150	139	0	0	3.1	0.8
GBG	99	V	300-150	24	0	0	3.0	0.2
GCK	99	V	300-150	48	0	0	3.7	0.8
GEC	99	V	300-150	2138	0	0	3.2	0.2
GES	99	V	300-150	141	0	0	7.7	0.0
GFA	99	V	300-150	132	3	0	4.3	0.9
GNJ	99	V	300-150	62	0	0	2.7	-0.0
GOL	99	V	300-150	81	0	0	4.2	0.8
GTI	99	V	300-150	3207	0	0	3.6	-0.0
HAL	99	V	300-150	60	0	2	6.5	0.8
HFM	99	V	300-150	132	0	0	3.7	0.3
HFY	99	V	300-150	28	0	0	2.8	-0.5
HRT	99	V	300-150	25	0	0	2.4	-0.3
HUA	99	V	300-150	32	0	0	3.9	1.0
HWA	99	V	300-150	20	0	0	3.6	-0.1
IAM	99	V	300-150	37	0	0	3.4	-0.2
IBE	99	V	300-150	786	0	0	3.0	0.2
ICE	99	V	300-150	321	0	0	3.6	0.4
ICL	99	V	300-150	134	0	1	4.5	-0.4
ICV	99	V	300-150	338	0	0	3.4	-0.1
IFA	99	V	300-150	194	0	0	3.5	0.4
IJM	99	V	300-150	211	0	0	5.5	0.7
JAF	99	V	300-150	375	1	0	7.3	0.0
JAS	99	V	300-150	32	0	0	3.3	-0.1
JBU	99	V	300-150	23	0	39	4.9	0.2
JCO	99	V	300-150	39	0	0	3.6	-0.8
JET	99	V	300-150	41	0	0	3.2	0.4
JME	99	V	300-150	67	0	0	3.0	0.1
KAC	99	V	300-150	102	0	0	3.0	0.1
KAF	99	V	300-150	77	0	0	4.0	0.8
KAI	99	V	300-150	61	2	0	3.4	0.0
KAY	99	V	300-150	196	0	1	3.0	0.5
KLM	99	V	300-150	14833	2	0	5.6	0.1
KQA	99	V	300-150	92	0	0	4.1	0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
LAN	99	V	300-150	46	2	0	3.1	0.1
LCO	99	V	300-150	412	0	0	3.6	-0.4
LDX	99	V	300-150	48	0	0	3.4	1.0
LEA	99	V	300-150	20	0	0	4.2	0.1
LGT	99	V	300-150	123	0	0	3.2	0.3
LNK	99	V	300-150	47	0	0	3.2	0.8
LOT	99	V	300-150	2244	3	0	8.0	0.1
LXJ	99	V	300-150	221	0	1	3.0	-0.2
MAA	99	V	300-150	140	0	0	3.0	0.1
MAS	99	V	300-150	243	0	0	4.2	0.8
MAU	99	V	300-150	67	0	0	4.0	1.2
MED	99	V	300-150	84	0	0	4.5	0.3
MHV	99	V	300-150	40	0	0	3.0	-1.2
MLM	99	V	300-150	52	0	0	3.1	-0.1
MLT	99	V	300-150	398	0	0	3.0	0.3
MMD	99	V	300-150	274	0	0	3.5	0.5
MPH	99	V	300-150	819	0	0	3.6	-0.4
MSR	99	V	300-150	1256	2	0	5.5	0.2
NAS	99	V	300-150	33	0	0	4.0	2.1
NCR	99	V	300-150	309	0	0	3.4	-0.0
NJE	99	V	300-150	544	0	0	3.3	0.2
NOS	99	V	300-150	621	4	0	7.6	-0.0
NWS	99	V	300-150	289	0	0	3.0	0.3
OAE	99	V	300-150	721	0	0	3.6	0.3
OMA	99	V	300-150	136	0	0	3.9	0.3
PAC	99	V	300-150	860	0	0	3.4	0.5
PAL	99	V	300-150	163	0	0	4.1	0.0
PAP	99	V	300-150	35	0	0	6.3	0.1
PAT	99	V	300-150	34	0	0	5.7	0.7
PEG	99	V	300-150	51	0	0	3.2	-0.7
PIA	99	V	300-150	43	0	0	2.9	-0.2
PJS	99	V	300-150	31	0	3	3.9	-0.4
PLF	99	V	300-150	82	0	0	3.0	-0.3
PLM	99	V	300-150	329	0	0	3.3	0.3
QFA	99	V	300-150	833	0	0	4.6	0.5
QQE	99	V	300-150	182	0	2	3.1	0.0
QTR	99	V	300-150	14395	0	0	3.3	0.2
RAM	99	V	300-150	185	2	0	9.1	-0.2
RCH	99	V	300-150	3466	0	0	4.5	0.6
RJA	99	V	300-150	715	4	0	8.3	0.1
RRR	99	V	300-150	397	0	0	3.1	-0.0
RZO	99	V	300-150	20	0	0	4.0	1.9
SAM	99	V	300-150	203	0	0	3.6	0.9

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
SAS	99	V	300-150	1646	0	0	3.0	0.2
SAZ	99	V	300-150	83	0	0	3.2	-0.0
SCX	99	V	300-150	51	0	2	5.7	0.3
SEY	99	V	300-150	32	0	0	3.3	0.5
SHE	99	V	300-150	51	0	0	3.1	-0.8
SIA	99	V	300-150	1459	0	0	3.6	0.0
SIO	99	V	300-150	74	0	1	3.4	-0.1
SLM	99	V	300-150	50	0	0	2.9	0.5
SOO	99	V	300-150	784	0	0	2.9	0.0
SPA	99	V	300-150	167	0	0	4.3	0.5
STI	99	V	300-150	34	0	0	7.1	1.6
SVA	99	V	300-150	1559	0	0	3.4	0.0
SVF	99	V	300-150	24	0	0	7.0	0.1
SVW	99	V	300-150	156	0	0	2.8	0.5
SWR	99	V	300-150	2614	0	1	3.3	0.3
TAM	99	V	300-150	24	0	0	3.8	1.6
TAP	99	V	300-150	533	0	1	3.2	0.2
TAR	99	V	300-150	36	0	3	3.4	0.2
TAY	99	V	300-150	464	0	0	3.3	-0.1
TFL	99	V	300-150	347	2	0	5.7	-0.1
THT	99	V	300-150	388	2	0	8.1	0.7
THY	99	V	300-150	8690	2	0	5.5	0.1
TJJ	99	V	300-150	32	0	0	2.8	0.7
TMN	99	V	300-150	291	0	0	4.4	0.7
TOM	99	V	300-150	1852	4	0	7.6	0.0
TOW	99	V	300-150	75	0	1	3.1	0.6
TPA	99	V	300-150	311	0	0	3.4	0.9
TWY	99	V	300-150	70	0	0	2.7	0.2
UAE	99	V	300-150	11698	0	0	3.3	0.2
UAL	99	V	300-150	26688	3	2	7.7	0.2
ULC	99	V	300-150	61	0	0	3.2	0.4
UPS	99	V	300-150	4997	0	0	3.3	-0.1
UTN	99	V	300-150	315	0	0	3.4	0.2
UZB	99	V	300-150	70	9	0	6.5	0.3
VCG	99	V	300-150	106	0	0	3.1	1.0
VCJ	99	V	300-150	27	0	0	2.9	0.5
VIR	99	V	300-150	7615	2	0	6.4	0.0
VJT	99	V	300-150	1250	0	0	3.2	0.4
VKG	99	V	300-150	22	0	0	3.0	0.8
VMP	99	V	300-150	25	0	0	4.2	1.7
VTI	99	V	300-150	32	0	0	2.8	0.4
WGN	99	V	300-150	199	0	0	3.6	-0.1
WJA	99	V	300-150	318	6	0	8.2	-0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
WRC	99	V	300-150	98	0	0	3.7	0.2
WWI	99	V	300-150	30	0	0	3.1	0.2
XRO	99	V	300-150	53	0	0	3.3	-0.3

4 EUCOS Area Monitoring Statistics

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

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

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

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 50 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : APR 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	28	10.5	3.6
01001	00	Z	50	30	15.7	-1.1
01028	12	Z	50	30	8.3	-3.1
01028	00	Z	50	29	10.4	-4.0
01400	00	Z	50	22	85.8	85.2
01400	12	Z	50	20	72.8	72.4
01415	00	Z	50	29	9.8	1.4
01415	12	Z	50	29	9.7	-1.9
02365	00	Z	50	25	6.7	2.4
02365	12	Z	50	28	9.3	-6.1
02836	12	Z	50	32	5.1	1.1
02836	00	Z	50	30	5.6	2.3
02963	00	Z	50	30	6.9	3.4
02963	12	Z	50	28	6.5	-3.4
03005	00	Z	50	30	7.4	-2.5
03005	12	Z	50	29	10.4	-7.8
03238	12	Z	50	2	5.4	2.6
03238	00	Z	50	29	7.6	0.6
03808	00	Z	50	30	6.0	4.6
03808	12	Z	50	30	5.7	-0.5
03918	12	Z	50	4	7.7	4.8
03918	00	Z	50	30	8.3	4.7
03953	00	Z	50	30	4.6	2.0
03953	12	Z	50	30	5.6	-1.2
04018	12	Z	50	28	12.1	-4.3
04018	00	Z	50	27	8.2	-1.5
04220	00	Z	50	27	8.8	-2.3
04220	12	Z	50	27	8.3	-2.6
04270	00	Z	50	29	11.0	0.6
04270	12	Z	50	30	15.6	-5.7
04320	12	Z	50	29	10.5	-3.9
04320	00	Z	50	27	13.9	0.1
04339	12	Z	50	29	9.9	-2.0
04339	00	Z	50	27	13.5	0.8
04360	00	Z	50	23	28.4	-3.3
04360	12	Z	50	24	13.5	1.8
06011	00	Z	50	27	12.5	-0.9
06011	12	Z	50	28	18.4	13.2
06260	12	Z	50	5	3.7	-0.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	50	28	6.7	4.4
06610	00	Z	50	29	7.1	5.1
06610	12	Z	50	30	7.0	2.3
07110	00	Z	50	30	8.1	1.9
07110	12	Z	50	29	20.0	8.4
07510	00	Z	50	29	16.9	14.0
07510	12	Z	50	29	29.4	25.1
07645	12	Z	50	26	22.5	18.1
07645	00	Z	50	28	14.1	9.4
07761	12	Z	50	28	16.8	9.6
07761	00	Z	50	30	11.7	-1.7
08001	00	Z	50	30	7.7	6.1
08001	12	Z	50	29	6.8	4.7
08221	12	Z	50	28	10.6	7.8
08221	00	Z	50	30	9.4	7.7
08302	12	Z	50	30	9.5	-6.6
08302	00	Z	50	30	5.0	-1.5
08508	12	Z	50	20	10.2	7.0
08522	12	Z	50	29	6.0	1.6
10035	12	Z	50	30	14.0	12.4
10035	00	Z	50	30	17.9	17.0
10393	00	Z	50	30	7.7	4.1
10393	12	Z	50	30	7.6	-0.1
10410	12	Z	50	30	8.5	-3.0
10410	00	Z	50	30	11.9	4.6
10739	00	Z	50	30	10.6	7.5
10739	12	Z	50	30	8.1	2.3
11035	12	Z	50	29	50.8	44.3
11035	00	Z	50	26	14.1	6.9
12982	12	Z	50	30	7.1	1.6
12982	00	Z	50	30	7.8	4.4
16080	12	Z	50	30	7.7	-2.4
16080	00	Z	50	29	6.0	3.4
16245	00	Z	50	29	6.2	2.4
16245	12	Z	50	28	6.3	-2.0
16429	00	Z	50	30	12.7	9.6
16429	12	Z	50	28	5.9	-2.7
16622	00	Z	50	23	19.0	17.7
16754	00	Z	50	28	16.8	14.0
17607	12	Z	50	26	9.7	7.9
26435	12	Z	50	15	4.8	-2.3
60018	12	Z	50	29	5.8	2.0
60018	00	Z	50	29	11.4	9.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	50	13	75.6	36.7
7JUNA4	00	Z	50	11	20.8	1.9
ASDE09	12	Z	50	1	69.8	69.8
BPMWB2	00	Z	50	5	9.5	1.3
BPMWB2	12	Z	50	6	18.0	7.8
HTXUH4	12	Z	50	9	35.1	-27.5
HTXUH4	00	Z	50	10	16.9	-14.9
JNKN7J	00	Z	50	4	23.0	21.7
JNKN7J	12	Z	50	6	126.4	110.7
KJJF9X	00	Z	50	3	13.5	10.9
KJJF9X	12	Z	50	6	28.1	24.9
KMPLHP	00	Z	50	7	9.4	-6.1
KMPLHP	12	Z	50	7	168.5	155.2
LRYQE3	00	Z	50	9	34.6	32.1
LRYQE3	12	Z	50	10	56.2	51.3
UXK5JT	00	Z	50	5	23.5	21.1
UXK5JT	12	Z	50	5	24.0	22.2
WDK38H	12	Z	50	1	4.0	-4.0
XKQLWQ	12	Z	50	15	49.2	45.2
XQFJRG	00	Z	50	6	19.0	-17.6
XQFJRG	12	Z	50	5	22.7	-20.6
YLV96W	00	Z	50	10	48.9	45.8
YLV96W	12	Z	50	11	130.1	109.8
ZVQEQC	00	Z	50	6	15.7	15.5
ZVQEQC	12	Z	50	11	7.3	6.4

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 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	28	3.7	-0.4	0.5
01001	00	V	50	23	2.9	-0.4	-0.5
01028	12	V	50	30	3.3	0.2	0.2
01028	00	V	50	24	3.9	0.4	-0.6
01400	00	V	50	16	2.7	0.0	-0.8
01400	12	V	50	19	3.3	0.0	-0.4
01415	00	V	50	25	3.3	0.8	-0.8
01415	12	V	50	28	3.5	0.1	-0.1
02365	00	V	50	16	3.9	-0.7	1.5
02365	12	V	50	27	3.7	-0.8	-0.2
02836	12	V	50	30	3.5	0.2	0.4
02836	00	V	50	23	3.9	1.1	0.0
02963	00	V	50	24	3.0	0.5	-0.3
02963	12	V	50	28	3.7	-0.6	0.8
03005	00	V	50	24	3.5	0.0	-0.7
03005	12	V	50	28	3.0	0.2	0.2
03238	12	V	50	2	2.0	0.7	-0.8
03238	00	V	50	23	3.1	0.5	0.6
03808	00	V	50	24	2.4	0.5	0.0
03808	12	V	50	30	3.1	-0.1	-0.2
03918	12	V	50	4	3.1	-0.5	0.7
03918	00	V	50	29	3.7	0.8	0.3
03953	00	V	50	23	3.1	-0.5	0.2
03953	12	V	50	30	3.3	0.2	0.1
04018	12	V	50	28	3.2	-0.5	-0.2
04018	00	V	50	21	3.9	-1.0	0.3
04220	00	V	50	22	4.0	0.8	-0.8
04220	12	V	50	27	3.0	0.1	0.0
04270	00	V	50	24	3.8	0.0	-0.3
04270	12	V	50	30	5.6	-0.2	-0.9
04320	12	V	50	29	4.0	-0.5	0.6
04320	00	V	50	23	4.4	-0.6	-0.5
04339	12	V	50	29	4.0	-0.7	-0.5
04339	00	V	50	23	4.5	0.1	0.5
04360	00	V	50	20	5.3	0.5	-1.1
04360	12	V	50	24	4.4	0.1	0.4
06011	00	V	50	24	3.1	-0.2	0.3
06011	12	V	50	28	3.0	-0.1	0.2
06260	12	V	50	5	2.9	0.3	-0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	50	22	2.5	-0.3	-0.5
06610	00	V	50	24	3.3	-0.2	-0.2
06610	12	V	50	30	2.9	0.4	0.4
07110	00	V	50	24	3.4	0.2	1.0
07110	12	V	50	29	2.9	0.1	0.5
07510	00	V	50	24	2.5	0.5	-0.3
07510	12	V	50	29	3.1	0.6	-0.1
07645	12	V	50	26	3.0	-0.4	-0.7
07645	00	V	50	23	2.8	0.9	-0.4
07761	12	V	50	28	2.8	0.8	0.0
07761	00	V	50	24	3.3	0.7	-0.7
08001	00	V	50	26	2.9	0.9	0.2
08001	12	V	50	29	3.1	0.8	0.3
08221	12	V	50	27	3.3	-0.1	-0.2
08221	00	V	50	26	3.4	0.6	-0.4
08302	12	V	50	29	3.6	0.2	-0.9
08302	00	V	50	25	3.9	0.7	-1.1
08508	12	V	50	20	3.0	0.8	-0.5
08522	12	V	50	29	3.1	0.5	-0.5
10035	12	V	50	30	2.8	0.4	-0.5
10035	00	V	50	27	3.2	0.3	-0.6
10393	00	V	50	26	2.7	-0.3	-0.9
10393	12	V	50	30	3.1	0.9	-0.9
10410	12	V	50	30	2.4	-0.3	-0.7
10410	00	V	50	28	2.6	0.6	0.1
10739	00	V	50	28	3.3	0.3	0.8
10739	12	V	50	30	3.1	0.6	0.2
11035	12	V	50	29	3.5	0.2	-0.5
11035	00	V	50	19	3.5	0.1	-1.0
12982	12	V	50	30	2.9	0.1	0.0
12982	00	V	50	22	3.4	-0.3	0.2
16080	12	V	50	30	3.2	0.3	-0.2
16080	00	V	50	22	3.2	0.5	0.0
16245	00	V	50	20	3.9	1.0	-0.7
16245	12	V	50	27	3.7	0.4	-0.9
16429	00	V	50	24	4.2	-0.2	0.5
16429	12	V	50	28	3.3	-0.3	1.1
16622	00	V	50	19	5.1	-0.9	-0.8
16754	00	V	50	22	4.8	0.9	0.4
17607	12	V	50	25	5.0	-0.4	0.5
26435	12	V	50	15	2.8	0.5	-1.4
60018	12	V	50	28	3.5	0.0	0.3
60018	00	V	50	24	3.8	0.2	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	50	12	3.1	-0.3	0.3
7JUNA4	00	V	50	9	3.4	0.7	1.0
ASDE09	12	V	50	1	3.1	2.9	-1.0
BPMWB2	00	V	50	5	3.3	-0.8	1.0
BPMWB2	12	V	50	6	1.9	-1.0	0.4
HTXUH4	12	V	50	9	3.8	-1.3	1.6
HTXUH4	00	V	50	10	2.6	-0.2	-0.9
JNKN7J	00	V	50	3	2.6	0.0	-1.1
JNKN7J	12	V	50	6	5.1	1.0	0.4
KJJF9X	00	V	50	3	1.8	0.6	0.9
KJJF9X	12	V	50	6	3.6	-1.0	-0.5
KMPLHP	00	V	50	7	2.9	0.4	0.0
KMPLHP	12	V	50	7	4.1	1.8	1.0
LRYQE3	00	V	50	9	3.1	0.2	1.1
LRYQE3	12	V	50	9	3.6	-0.9	-0.1
UXK5JT	00	V	50	5	2.5	0.4	0.3
UXK5JT	12	V	50	5	3.5	-0.6	1.3
WDK38H	12	V	50	0	0.0	0.0	0.0
XKQLWQ	12	V	50	15	2.6	0.4	-0.3
XQFJRG	00	V	50	5	2.3	0.4	-1.1
XQFJRG	12	V	50	5	4.2	1.2	0.1
YL96W	00	V	50	9	5.0	0.8	-0.9
YL96W	12	V	50	11	3.8	0.9	-0.6
ZVQEQC	00	V	50	6	2.5	0.6	-0.4
ZVQEQC	12	V	50	11	3.0	0.1	-0.3

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 100 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : APR 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	31	8.3	-0.1
01001	00	Z	100	30	13.8	-5.4
01028	12	Z	100	30	6.3	-3.9
01028	00	Z	100	29	7.6	-5.6
01400	00	Z	100	25	82.9	82.2
01400	12	Z	100	25	75.1	74.7
01415	00	Z	100	29	7.1	0.8
01415	12	Z	100	29	8.1	-1.6
02365	00	Z	100	30	5.6	-1.2
02365	12	Z	100	30	9.2	-5.9
02836	12	Z	100	32	4.7	-0.7
02836	00	Z	100	30	4.9	-1.4
02963	00	Z	100	30	5.2	-1.1
02963	12	Z	100	30	5.9	-4.0
03005	00	Z	100	31	5.3	-3.1
03005	12	Z	100	30	7.6	-6.1
03238	12	Z	100	2	0.8	-0.8
03238	00	Z	100	30	6.1	-1.5
03808	00	Z	100	30	3.5	2.2
03808	12	Z	100	30	4.4	-1.3
03918	12	Z	100	4	8.9	6.8
03918	00	Z	100	30	6.4	4.3
03953	00	Z	100	30	3.9	-0.4
03953	12	Z	100	30	5.6	-1.6
04018	12	Z	100	28	8.0	-4.1
04018	00	Z	100	28	7.3	-4.7
04220	00	Z	100	27	6.5	-2.4
04220	12	Z	100	27	5.1	-3.4
04270	00	Z	100	29	8.0	-0.3
04270	12	Z	100	30	10.6	-4.0
04320	12	Z	100	29	9.6	-5.3
04320	00	Z	100	29	9.7	-0.6
04339	12	Z	100	29	8.4	1.5
04339	00	Z	100	28	11.2	-0.4
04360	00	Z	100	25	12.8	-9.3
04360	12	Z	100	27	12.2	-4.0
06011	00	Z	100	28	10.8	-0.1
06011	12	Z	100	30	14.2	10.5
06260	12	Z	100	5	5.8	-4.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	100	28	3.8	0.3
06610	00	Z	100	30	6.7	-0.7
06610	12	Z	100	32	5.3	-0.3
07110	00	Z	100	30	6.9	-3.6
07110	12	Z	100	30	12.0	1.9
07510	00	Z	100	30	9.3	6.6
07510	12	Z	100	30	19.3	16.4
07645	12	Z	100	28	12.9	9.1
07645	00	Z	100	29	9.4	3.4
07761	12	Z	100	28	10.0	-1.4
07761	00	Z	100	30	11.7	-7.7
08001	00	Z	100	30	6.1	4.6
08001	12	Z	100	30	4.6	2.8
08221	12	Z	100	30	7.1	4.9
08221	00	Z	100	30	5.6	4.2
08302	12	Z	100	30	8.9	-7.2
08302	00	Z	100	30	6.0	-4.5
08508	12	Z	100	20	8.1	4.9
08522	12	Z	100	29	6.0	3.3
10035	12	Z	100	30	11.7	10.4
10035	00	Z	100	30	13.2	12.1
10393	00	Z	100	32	6.1	-0.2
10393	12	Z	100	30	5.9	-2.2
10410	12	Z	100	30	8.9	-5.3
10410	00	Z	100	30	7.1	0.7
10739	00	Z	100	30	6.0	2.6
10739	12	Z	100	30	6.7	-0.7
11035	12	Z	100	30	30.9	24.6
11035	00	Z	100	30	11.0	4.1
12982	12	Z	100	30	4.5	-0.3
12982	00	Z	100	30	5.0	1.2
16080	12	Z	100	30	7.5	-5.8
16080	00	Z	100	30	4.6	-2.4
16245	00	Z	100	29	6.3	-2.7
16245	12	Z	100	31	6.8	-5.7
16429	00	Z	100	30	9.6	3.3
16429	12	Z	100	29	5.9	-3.2
16622	00	Z	100	28	14.1	11.7
16754	00	Z	100	29	9.9	6.8
17607	12	Z	100	29	6.6	3.9
26435	12	Z	100	15	5.5	-4.1
60018	12	Z	100	29	5.5	3.4
60018	00	Z	100	29	10.5	9.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	100	15	46.2	22.5
7JUNA4	00	Z	100	11	22.5	-5.6
ASDE09	12	Z	100	3	42.0	38.4
BPMWB2	00	Z	100	6	17.7	5.0
BPMWB2	12	Z	100	7	13.9	2.6
HTXUH4	12	Z	100	10	33.5	-27.0
HTXUH4	00	Z	100	14	26.5	-18.3
JNKN7J	00	Z	100	5	24.3	23.5
JNKN7J	12	Z	100	7	63.9	58.0
KJJF9X	00	Z	100	5	13.3	4.5
KJJF9X	12	Z	100	6	19.6	16.5
KMPLHP	00	Z	100	8	5.3	-3.9
KMPLHP	12	Z	100	8	87.6	77.7
LRYQE3	00	Z	100	9	35.9	34.5
LRYQE3	12	Z	100	10	48.8	47.1
UXK5JT	00	Z	100	5	14.7	13.3
UXK5JT	12	Z	100	6	16.7	14.7
WDK38H	12	Z	100	1	2.6	-2.6
XKQLWQ	12	Z	100	16	56.6	45.5
XQFJRG	00	Z	100	6	19.8	-19.2
XQFJRG	12	Z	100	6	21.2	-19.1
YLV96W	00	Z	100	10	44.0	36.5
YLV96W	12	Z	100	11	82.7	74.7
ZVQEQC	00	Z	100	6	17.1	16.7
ZVQEQC	12	Z	100	11	8.4	6.8

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 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	30	2.8	0.4	0.2
01001	00	V	100	24	3.1	-0.2	-0.5
01028	12	V	100	30	2.9	0.2	0.1
01028	00	V	100	24	3.3	0.2	-0.1
01400	00	V	100	16	2.3	0.7	-0.6
01400	12	V	100	22	2.3	0.0	0.1
01415	00	V	100	24	3.2	0.3	-0.3
01415	12	V	100	28	3.3	0.0	0.4
02365	00	V	100	20	2.8	0.1	-0.3
02365	12	V	100	30	3.0	0.9	0.2
02836	12	V	100	30	3.0	0.3	-0.2
02836	00	V	100	23	2.9	0.3	0.4
02963	00	V	100	24	3.5	0.6	-0.2
02963	12	V	100	29	2.8	-0.1	-0.2
03005	00	V	100	24	2.2	0.2	0.1
03005	12	V	100	30	2.6	0.5	-0.2
03238	12	V	100	2	1.4	1.1	-0.3
03238	00	V	100	23	3.2	-0.3	0.3
03808	00	V	100	24	3.0	0.3	-0.8
03808	12	V	100	30	2.2	0.6	-0.2
03918	12	V	100	4	1.6	0.5	-0.5
03918	00	V	100	30	2.9	0.7	0.3
03953	00	V	100	23	2.9	0.0	0.7
03953	12	V	100	30	2.5	0.4	0.3
04018	12	V	100	28	2.9	0.3	0.5
04018	00	V	100	27	2.8	0.0	-1.0
04220	00	V	100	25	2.8	-0.5	0.0
04220	12	V	100	27	2.8	0.7	0.2
04270	00	V	100	24	3.6	-0.3	0.5
04270	12	V	100	30	3.3	0.1	-0.1
04320	12	V	100	29	3.5	0.8	-0.5
04320	00	V	100	26	3.4	-0.2	-0.4
04339	12	V	100	29	3.1	-0.4	0.3
04339	00	V	100	24	3.3	-0.5	0.4
04360	00	V	100	22	3.4	-0.1	0.2
04360	12	V	100	27	3.5	0.6	0.2
06011	00	V	100	22	2.6	-0.2	0.5
06011	12	V	100	30	3.2	-0.4	0.8
06260	12	V	100	5	3.0	0.0	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	100	22	2.8	-0.2	0.1
06610	00	V	100	28	2.5	0.5	0.5
06610	12	V	100	30	2.6	-0.1	-0.6
07110	00	V	100	24	2.5	0.5	0.0
07110	12	V	100	30	2.4	0.6	0.5
07510	00	V	100	24	2.3	0.3	-0.1
07510	12	V	100	30	2.3	0.4	0.1
07645	12	V	100	28	2.8	0.1	0.4
07645	00	V	100	24	3.1	0.2	0.3
07761	12	V	100	28	3.1	0.8	-0.2
07761	00	V	100	24	3.2	1.0	0.2
08001	00	V	100	26	2.8	0.6	-0.1
08001	12	V	100	30	2.5	0.2	0.4
08221	12	V	100	30	2.2	0.1	0.0
08221	00	V	100	26	3.0	0.4	0.3
08302	12	V	100	30	2.8	-0.2	-0.1
08302	00	V	100	25	2.6	0.7	-0.2
08508	12	V	100	20	3.7	-0.1	-0.5
08522	12	V	100	29	2.9	0.7	-0.4
10035	12	V	100	30	2.5	0.2	-0.1
10035	00	V	100	30	2.7	0.1	0.0
10393	00	V	100	30	2.7	-0.1	-0.4
10393	12	V	100	30	2.7	0.0	-0.5
10410	12	V	100	30	2.8	0.0	-0.1
10410	00	V	100	30	3.0	-0.5	0.6
10739	00	V	100	30	2.5	1.2	-0.4
10739	12	V	100	30	3.0	0.6	0.0
11035	12	V	100	29	3.2	-1.0	-0.2
11035	00	V	100	21	2.8	0.5	-0.2
12982	12	V	100	30	2.8	0.1	-0.1
12982	00	V	100	21	2.8	-0.1	0.2
16080	12	V	100	30	2.5	0.5	0.4
16080	00	V	100	29	2.8	0.2	-0.2
16245	00	V	100	24	3.0	0.6	0.1
16245	12	V	100	28	2.5	0.6	-0.4
16429	00	V	100	25	3.9	-0.2	0.2
16429	12	V	100	29	3.1	0.1	0.4
16622	00	V	100	23	3.3	-0.1	0.7
16754	00	V	100	27	3.9	1.1	-0.7
17607	12	V	100	29	6.2	0.8	-0.1
26435	12	V	100	15	2.1	0.2	-0.2
60018	12	V	100	29	3.0	0.4	-0.6
60018	00	V	100	24	3.5	0.3	0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	100	15	2.3	0.2	-0.4
7JUNA4	00	V	100	11	2.1	0.2	0.5
ASDE09	12	V	100	3	2.8	-0.7	-0.5
BPMWB2	00	V	100	6	4.7	-2.0	0.3
BPMWB2	12	V	100	7	3.0	-1.4	-0.2
HTXUH4	12	V	100	10	2.6	0.6	-0.6
HTXUH4	00	V	100	14	2.6	-0.1	-0.1
JNKN7J	00	V	100	5	2.7	-1.6	0.3
JNKN7J	12	V	100	7	2.8	0.7	-0.4
KJJF9X	00	V	100	5	3.8	1.5	0.8
KJJF9X	12	V	100	6	3.2	0.3	-0.8
KMPLHP	00	V	100	8	3.5	0.8	0.9
KMPLHP	12	V	100	8	1.9	0.5	-1.0
LRYQE3	00	V	100	9	2.3	0.9	0.5
LRYQE3	12	V	100	10	3.1	-0.2	0.5
UXK5JT	00	V	100	5	3.4	-0.6	0.3
UXK5JT	12	V	100	6	4.5	0.2	0.0
WDK38H	12	V	100	1	1.3	1.0	0.8
XKQLWQ	12	V	100	14	4.1	1.3	1.1
XQFJRG	00	V	100	5	3.8	0.4	-1.7
XQFJRG	12	V	100	5	2.5	-0.9	-0.5
YL96W	00	V	100	9	4.8	-0.6	-0.4
YL96W	12	V	100	9	3.4	-0.2	2.2
ZVQEQC	00	V	100	6	4.5	0.4	-1.4
ZVQEQC	12	V	100	11	4.9	0.1	0.6

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 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	31	6.4	-2.0
01001	00	Z	500	30	10.9	-6.8
01028	12	Z	500	30	2.8	0.0
01028	00	Z	500	29	3.3	0.4
01400	00	Z	500	29	82.9	82.3
01400	12	Z	500	29	82.6	82.5
01415	00	Z	500	29	5.6	4.1
01415	12	Z	500	29	5.0	3.6
02365	00	Z	500	30	3.3	1.5
02365	12	Z	500	30	3.8	2.3
02836	12	Z	500	32	4.1	1.9
02836	00	Z	500	30	3.7	1.7
02963	00	Z	500	30	3.6	2.5
02963	12	Z	500	30	3.5	2.2
03005	00	Z	500	31	2.4	-0.8
03005	12	Z	500	30	3.4	-0.9
03238	12	Z	500	2	1.5	-0.1
03238	00	Z	500	30	3.4	1.4
03808	00	Z	500	30	4.2	3.7
03808	12	Z	500	30	3.1	1.2
03918	12	Z	500	4	10.4	10.0
03918	00	Z	500	30	8.1	7.2
03953	00	Z	500	30	2.6	1.4
03953	12	Z	500	30	3.6	1.9
04018	12	Z	500	28	3.3	-0.6
04018	00	Z	500	28	3.7	0.5
04220	00	Z	500	27	4.5	1.4
04220	12	Z	500	27	4.3	0.3
04270	00	Z	500	30	6.5	1.0
04270	12	Z	500	30	5.2	-0.3
04320	12	Z	500	29	3.8	-0.3
04320	00	Z	500	29	3.1	0.3
04339	12	Z	500	29	5.0	1.1
04339	00	Z	500	28	5.7	3.2
04360	00	Z	500	29	11.5	-10.2
04360	12	Z	500	28	12.8	-9.6
06011	00	Z	500	30	5.9	4.3
06011	12	Z	500	30	8.2	7.2
06260	12	Z	500	5	3.4	2.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	500	28	2.3	-0.1
06610	00	Z	500	31	3.8	0.6
06610	12	Z	500	32	2.9	1.3
07110	00	Z	500	31	4.6	-3.7
07110	12	Z	500	30	4.9	-0.8
07510	00	Z	500	30	4.9	3.8
07510	12	Z	500	30	8.1	7.3
07645	12	Z	500	30	4.6	1.2
07645	00	Z	500	30	3.0	-0.9
07761	12	Z	500	29	7.2	-4.5
07761	00	Z	500	31	23.6	-3.2
08001	00	Z	500	30	3.6	3.4
08001	12	Z	500	30	3.9	3.3
08221	12	Z	500	30	5.1	4.6
08221	00	Z	500	30	4.9	4.3
08302	12	Z	500	30	6.6	-6.3
08302	00	Z	500	30	5.5	-5.1
08508	12	Z	500	20	9.3	7.4
08522	12	Z	500	30	8.0	7.2
10035	12	Z	500	30	14.5	14.3
10035	00	Z	500	30	15.4	15.2
10393	00	Z	500	35	2.8	1.1
10393	12	Z	500	30	2.6	0.4
10410	12	Z	500	31	3.8	-1.7
10410	00	Z	500	30	2.9	0.0
10739	00	Z	500	30	5.0	4.4
10739	12	Z	500	30	3.7	2.8
11035	12	Z	500	31	16.5	7.7
11035	00	Z	500	31	6.9	5.1
12982	12	Z	500	31	2.6	1.1
12982	00	Z	500	30	3.6	1.5
16080	12	Z	500	30	4.0	-3.0
16080	00	Z	500	30	3.8	-2.4
16245	00	Z	500	29	2.8	-1.9
16245	12	Z	500	32	4.2	-3.5
16429	00	Z	500	30	9.2	3.3
16429	12	Z	500	29	4.1	1.0
16622	00	Z	500	30	11.7	10.8
16754	00	Z	500	30	6.9	5.1
17607	12	Z	500	30	7.2	6.5
26435	12	Z	500	15	2.6	0.3
60018	12	Z	500	29	6.1	5.2
60018	00	Z	500	29	4.9	3.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	500	14	27.2	0.5
7JUNA4	00	Z	500	12	29.3	-3.5
ASDE09	12	Z	500	3	31.7	30.5
BPMWB2	00	Z	500	7	11.1	2.4
BPMWB2	12	Z	500	7	8.4	2.7
HTXUH4	12	Z	500	11	33.5	-27.6
HTXUH4	00	Z	500	14	27.0	-19.0
JNKN7J	00	Z	500	6	32.7	31.8
JNKN7J	12	Z	500	8	39.2	38.9
KJJF9X	00	Z	500	8	9.9	7.8
KJJF9X	12	Z	500	7	10.7	8.4
KMPLHP	00	Z	500	8	2.8	0.4
KMPLHP	12	Z	500	8	11.7	9.1
LRYQE3	00	Z	500	9	44.3	43.2
LRYQE3	12	Z	500	10	43.5	42.6
UXK5JT	00	Z	500	6	7.4	3.2
UXK5JT	12	Z	500	7	10.0	5.9
WDK38H	12	Z	500	1	1.8	1.8
XKQLWQ	12	Z	500	16	42.2	25.4
XQFJRG	00	Z	500	8	21.2	-20.5
XQFJRG	12	Z	500	7	18.5	-17.9
YLV96W	00	Z	500	11	61.9	55.2
YLV96W	12	Z	500	13	66.4	59.5
ZVQEQC	00	Z	500	6	9.6	9.1
ZVQEQC	12	Z	500	11	6.4	5.9

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 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	30	3.9	0.7	-1.5
01001	00	V	500	30	2.8	-0.6	0.0
01028	12	V	500	30	2.0	0.2	-0.4
01028	00	V	500	29	2.4	0.7	-0.3
01400	00	V	500	28	1.7	-0.2	0.3
01400	12	V	500	29	1.8	0.1	-0.1
01415	00	V	500	29	2.7	-0.2	-0.3
01415	12	V	500	29	3.0	0.6	0.2
02365	00	V	500	28	2.4	0.2	0.1
02365	12	V	500	30	2.5	0.8	0.2
02836	12	V	500	30	2.4	-0.2	0.0
02836	00	V	500	30	2.2	0.1	0.3
02963	00	V	500	30	2.3	0.3	-0.3
02963	12	V	500	30	2.6	0.2	0.3
03005	00	V	500	30	2.3	0.4	-0.4
03005	12	V	500	30	3.8	-0.8	0.4
03238	12	V	500	2	1.4	0.7	-0.4
03238	00	V	500	30	2.5	-0.1	-0.5
03808	00	V	500	30	2.3	0.1	-0.9
03808	12	V	500	30	2.3	0.4	-0.1
03918	12	V	500	4	2.1	0.2	0.6
03918	00	V	500	30	1.9	-0.4	-0.6
03953	00	V	500	30	2.1	0.3	0.3
03953	12	V	500	30	2.2	0.1	0.5
04018	12	V	500	28	2.5	-0.2	0.0
04018	00	V	500	28	2.3	0.7	-0.2
04220	00	V	500	27	3.1	-0.4	-0.2
04220	12	V	500	27	2.1	0.4	-0.3
04270	00	V	500	30	2.2	0.1	-0.3
04270	12	V	500	30	2.8	0.7	0.2
04320	12	V	500	29	3.7	-0.2	0.2
04320	00	V	500	29	2.8	0.6	0.0
04339	12	V	500	29	2.7	0.0	0.0
04339	00	V	500	28	2.7	0.5	0.3
04360	00	V	500	29	3.0	0.4	0.0
04360	12	V	500	28	2.9	0.4	0.2
06011	00	V	500	30	2.3	0.5	-0.1
06011	12	V	500	30	3.5	-0.1	0.3
06260	12	V	500	5	1.3	-0.1	-0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	500	27	1.8	0.5	-0.1
06610	00	V	500	29	2.1	0.1	0.3
06610	12	V	500	30	2.3	0.6	-0.6
07110	00	V	500	30	2.5	0.2	-0.7
07110	12	V	500	30	2.8	1.0	0.3
07510	00	V	500	30	2.4	0.4	0.0
07510	12	V	500	30	2.2	0.4	-0.7
07645	12	V	500	30	2.0	0.3	-0.1
07645	00	V	500	30	2.5	0.5	0.2
07761	12	V	500	29	2.8	0.7	0.0
07761	00	V	500	30	2.5	0.8	0.2
08001	00	V	500	30	2.4	-0.3	-0.5
08001	12	V	500	30	2.2	0.3	-0.1
08221	12	V	500	30	2.8	0.3	-0.1
08221	00	V	500	30	2.2	0.0	0.3
08302	12	V	500	30	2.6	0.1	0.0
08302	00	V	500	30	2.8	0.0	0.4
08508	12	V	500	20	4.0	0.0	-0.6
08522	12	V	500	30	2.7	0.0	-0.4
10035	12	V	500	30	2.1	0.7	0.0
10035	00	V	500	30	1.9	0.3	0.0
10393	00	V	500	30	2.5	0.2	-0.3
10393	12	V	500	30	2.2	0.2	0.3
10410	12	V	500	30	2.5	0.7	0.5
10410	00	V	500	30	2.2	0.6	0.1
10739	00	V	500	30	2.1	-0.1	0.1
10739	12	V	500	30	1.7	0.2	-0.1
11035	12	V	500	30	2.5	0.3	0.2
11035	00	V	500	26	2.5	0.6	0.1
12982	12	V	500	30	2.3	0.1	0.2
12982	00	V	500	30	2.9	0.7	0.6
16080	12	V	500	30	2.1	-0.1	-0.6
16080	00	V	500	30	2.3	0.9	-0.3
16245	00	V	500	29	2.3	0.7	0.4
16245	12	V	500	29	2.3	0.2	0.3
16429	00	V	500	30	3.3	0.7	0.9
16429	12	V	500	29	3.7	0.5	0.2
16622	00	V	500	30	3.0	0.5	-0.1
16754	00	V	500	28	3.2	-0.4	0.3
17607	12	V	500	30	2.5	0.5	-0.1
26435	12	V	500	15	2.5	0.1	-0.5
60018	12	V	500	29	1.8	0.5	0.2
60018	00	V	500	29	2.1	0.1	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	500	14	2.0	0.8	0.5
7JUNA4	00	V	500	12	2.7	1.3	-0.2
ASDE09	12	V	500	3	0.9	-0.1	0.8
BPMWB2	00	V	500	7	5.7	2.7	-2.0
BPMWB2	12	V	500	7	5.0	2.1	1.7
HTXUH4	12	V	500	11	2.1	0.2	0.2
HTXUH4	00	V	500	14	1.9	0.0	0.4
JNKN7J	00	V	500	6	2.3	-1.1	-0.1
JNKN7J	12	V	500	8	4.7	1.9	0.4
KJJF9X	00	V	500	8	1.7	0.8	0.5
KJJF9X	12	V	500	7	3.0	1.5	-1.5
KMPLHP	00	V	500	8	3.4	-0.8	-0.3
KMPLHP	12	V	500	8	3.5	1.1	-0.5
LRYQE3	00	V	500	9	2.1	0.4	0.1
LRYQE3	12	V	500	10	2.7	0.1	0.6
UXK5JT	00	V	500	6	2.3	1.0	-0.2
UXK5JT	12	V	500	7	3.4	0.7	0.0
WDK38H	12	V	500	1	0.9	0.6	0.7
XKQLWQ	12	V	500	14	6.4	1.2	2.2
XQFJRG	00	V	500	8	3.5	1.0	0.8
XQFJRG	12	V	500	7	1.3	0.8	0.1
YL96W	00	V	500	11	2.4	-0.6	0.5
YL96W	12	V	500	13	2.3	0.1	0.3
ZVQEQC	00	V	500	6	3.0	-0.6	0.1
ZVQEQC	12	V	500	11	2.9	0.5	-1.0

4.7 Table 19 - Radiosonde Monitoring Statistics (EUCOS): 850 hPa Geopotential height (metres)

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 850 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : APR 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	31	7.6	-5.2
01001	00	Z	850	30	8.2	-5.9
01028	12	Z	850	30	3.2	-0.6
01028	00	Z	850	29	3.7	-1.2
01400	00	Z	850	29	81.2	81.0
01400	12	Z	850	29	81.4	81.3
01415	00	Z	850	29	5.2	4.4
01415	12	Z	850	29	5.0	4.0
02365	00	Z	850	30	2.8	1.7
02365	12	Z	850	30	2.6	2.1
02836	12	Z	850	31	2.6	1.8
02836	00	Z	850	30	2.4	1.4
02963	00	Z	850	30	3.8	3.0
02963	12	Z	850	30	3.4	2.9
03005	00	Z	850	31	2.3	-1.0
03005	12	Z	850	30	2.8	-1.0
03238	12	Z	850	2	2.1	2.1
03238	00	Z	850	30	3.2	2.7
03808	00	Z	850	30	2.7	2.2
03808	12	Z	850	30	2.9	2.0
03918	12	Z	850	4	8.3	8.3
03918	00	Z	850	30	7.1	6.9
03953	00	Z	850	30	2.3	0.1
03953	12	Z	850	30	3.5	0.6
04018	12	Z	850	28	2.8	-1.9
04018	00	Z	850	28	2.1	-0.9
04220	00	Z	850	27	3.2	1.6
04220	12	Z	850	27	3.4	0.6
04270	00	Z	850	30	3.4	0.5
04270	12	Z	850	30	2.3	0.6
04320	12	Z	850	29	5.4	-3.6
04320	00	Z	850	29	4.0	-2.2
04339	12	Z	850	29	5.2	-1.8
04339	00	Z	850	28	5.8	0.0
04360	00	Z	850	28	12.8	-11.9
04360	12	Z	850	28	15.8	-12.4
06011	00	Z	850	31	4.5	4.0
06011	12	Z	850	30	5.1	3.9
06260	12	Z	850	5	2.0	1.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	850	28	1.8	0.7
06610	00	Z	850	31	1.8	0.7
06610	12	Z	850	32	2.7	1.1
07110	00	Z	850	31	2.7	-2.2
07110	12	Z	850	30	2.4	0.5
07510	00	Z	850	30	3.6	2.8
07510	12	Z	850	30	4.5	3.3
07645	12	Z	850	30	2.6	-1.5
07645	00	Z	850	30	2.6	-1.6
07761	12	Z	850	29	5.1	-4.3
07761	00	Z	850	31	4.9	-3.0
08001	00	Z	850	30	2.4	1.1
08001	12	Z	850	31	2.3	0.7
08221	12	Z	850	30	2.8	1.8
08221	00	Z	850	30	2.4	1.6
08302	12	Z	850	30	8.9	-8.6
08302	00	Z	850	30	8.1	-7.9
08508	12	Z	850	20	7.5	5.5
08522	12	Z	850	30	2.1	1.3
10035	12	Z	850	30	15.1	14.9
10035	00	Z	850	30	14.8	14.6
10393	00	Z	850	30	1.9	1.1
10393	12	Z	850	30	2.3	0.8
10410	12	Z	850	31	1.9	0.1
10410	00	Z	850	30	2.2	-0.6
10739	00	Z	850	30	4.0	3.7
10739	12	Z	850	30	4.1	3.6
11035	12	Z	850	31	10.2	9.3
11035	00	Z	850	31	7.7	7.1
12982	12	Z	850	31	2.4	1.4
12982	00	Z	850	30	2.6	1.6
16080	12	Z	850	30	5.1	-4.2
16080	00	Z	850	30	3.7	-2.4
16245	00	Z	850	29	3.3	-2.7
16245	12	Z	850	32	4.4	-3.5
16429	00	Z	850	30	8.8	2.1
16429	12	Z	850	29	2.4	-0.3
16622	00	Z	850	30	9.9	9.6
16754	00	Z	850	30	4.3	0.0
17607	12	Z	850	30	3.0	2.6
26435	12	Z	850	15	2.5	1.0
60018	12	Z	850	29	2.0	0.9
60018	00	Z	850	29	1.9	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	850	14	29.2	-3.3
7JUNA4	00	Z	850	12	31.8	-4.3
ASDE09	12	Z	850	3	34.9	34.8
BPMWB2	00	Z	850	7	6.5	-0.9
BPMWB2	12	Z	850	7	4.5	-1.1
HTXUH4	12	Z	850	11	37.1	-31.3
HTXUH4	00	Z	850	14	30.7	-22.6
JNKN7J	00	Z	850	7	35.8	35.5
JNKN7J	12	Z	850	8	37.8	37.6
KJJF9X	00	Z	850	8	10.6	6.6
KJJF9X	12	Z	850	7	9.0	5.3
KMPLHP	00	Z	850	8	3.7	-1.5
KMPLHP	12	Z	850	8	5.2	0.3
LRYQE3	00	Z	850	9	46.4	45.2
LRYQE3	12	Z	850	10	45.4	44.7
UXK5JT	00	Z	850	6	11.2	4.0
UXK5JT	12	Z	850	7	7.3	2.1
WDK38H	12	Z	850	1	4.9	-4.9
XKQLWQ	12	Z	850	16	25.8	10.2
XQFJRG	00	Z	850	8	21.9	-21.4
XQFJRG	12	Z	850	7	18.6	-18.4
YLV96W	00	Z	850	11	59.9	53.3
YLV96W	12	Z	850	13	63.2	58.4
ZVQEQC	00	Z	850	6	2.8	0.6
ZVQEQC	12	Z	850	11	2.9	1.6

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 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	30	3.3	0.1	0.6
01001	00	V	850	30	2.8	0.1	-0.2
01028	12	V	850	30	3.1	-0.6	0.6
01028	00	V	850	29	3.0	0.7	-0.7
01400	00	V	850	28	2.4	-0.5	0.6
01400	12	V	850	29	2.0	0.3	-0.1
01415	00	V	850	29	2.8	-0.3	-0.4
01415	12	V	850	29	2.5	0.1	-0.4
02365	00	V	850	30	2.1	-0.3	0.0
02365	12	V	850	30	2.3	-0.4	-0.7
02836	12	V	850	30	2.1	0.5	-0.3
02836	00	V	850	30	2.2	0.3	0.1
02963	00	V	850	30	2.3	-0.3	0.1
02963	12	V	850	30	2.4	-0.3	0.0
03005	00	V	850	30	2.4	-0.5	0.7
03005	12	V	850	30	2.5	0.0	0.0
03238	12	V	850	2	1.1	0.4	-0.2
03238	00	V	850	30	2.2	0.0	-0.4
03808	00	V	850	30	2.6	0.0	-0.1
03808	12	V	850	30	3.2	0.8	-0.5
03918	12	V	850	4	2.0	-1.7	-0.5
03918	00	V	850	30	2.4	0.0	0.4
03953	00	V	850	30	2.3	0.0	0.3
03953	12	V	850	30	2.4	0.1	0.0
04018	12	V	850	28	3.0	0.5	0.3
04018	00	V	850	28	3.0	0.5	-0.5
04220	00	V	850	27	3.7	-0.5	-1.2
04220	12	V	850	27	3.0	-0.1	-0.5
04270	00	V	850	30	3.8	0.8	0.4
04270	12	V	850	30	3.8	0.9	-0.1
04320	12	V	850	29	3.8	-0.7	0.0
04320	00	V	850	29	3.1	-0.7	0.2
04339	12	V	850	29	5.6	1.1	-0.4
04339	00	V	850	28	6.8	0.9	0.6
04360	00	V	850	28	4.1	0.9	-0.2
04360	12	V	850	28	5.9	1.9	0.5
06011	00	V	850	30	1.8	-0.1	0.3
06011	12	V	850	30	2.8	0.6	-0.3
06260	12	V	850	5	2.5	0.0	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	850	28	2.1	-0.3	0.0
06610	00	V	850	29	2.3	0.4	-0.7
06610	12	V	850	30	2.9	0.2	0.7
07110	00	V	850	30	2.1	-0.2	0.2
07110	12	V	850	30	2.7	-0.7	0.0
07510	00	V	850	30	2.3	-0.5	-0.4
07510	12	V	850	30	3.0	0.8	0.0
07645	12	V	850	30	3.1	0.3	0.5
07645	00	V	850	30	2.8	0.0	0.2
07761	12	V	850	29	3.0	-0.1	-0.1
07761	00	V	850	30	2.7	0.2	0.2
08001	00	V	850	30	3.0	-0.1	0.6
08001	12	V	850	30	2.6	0.4	0.3
08221	12	V	850	30	3.0	0.8	0.9
08221	00	V	850	30	2.8	0.5	0.1
08302	12	V	850	30	3.2	0.8	0.5
08302	00	V	850	30	2.0	0.1	-0.1
08508	12	V	850	20	5.1	-0.2	0.7
08522	12	V	850	30	2.7	0.1	-0.1
10035	12	V	850	30	2.6	-0.6	0.5
10035	00	V	850	30	2.0	0.3	0.0
10393	00	V	850	30	2.1	0.5	0.2
10393	12	V	850	30	2.8	-0.1	0.3
10410	12	V	850	30	1.9	0.2	-0.1
10410	00	V	850	30	2.1	0.2	0.3
10739	00	V	850	30	2.4	-0.4	-0.1
10739	12	V	850	30	3.1	-0.3	0.4
11035	12	V	850	30	4.5	0.9	-0.1
11035	00	V	850	26	3.1	0.0	-0.5
12982	12	V	850	30	2.5	0.1	0.3
12982	00	V	850	30	2.8	-0.1	-0.1
16080	12	V	850	30	2.9	0.9	-0.3
16080	00	V	850	30	3.2	-0.3	-0.3
16245	00	V	850	29	3.1	0.5	-0.3
16245	12	V	850	29	2.8	0.5	-0.6
16429	00	V	850	30	2.9	-0.4	0.1
16429	12	V	850	29	2.9	0.2	-0.5
16622	00	V	850	30	2.8	0.5	0.2
16754	00	V	850	29	3.4	0.7	0.0
17607	12	V	850	30	3.4	0.9	0.7
26435	12	V	850	15	2.6	0.5	-0.3
60018	12	V	850	29	2.9	-1.0	0.2
60018	00	V	850	29	3.3	-1.1	1.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	850	14	3.4	-1.0	0.1
7JUNA4	00	V	850	12	2.8	-0.6	0.8
ASDE09	12	V	850	3	2.6	1.6	0.5
BPMWB2	00	V	850	7	2.5	0.2	0.3
BPMWB2	12	V	850	7	2.4	0.4	-0.4
HTXUH4	12	V	850	11	1.7	-0.1	0.4
HTXUH4	00	V	850	14	2.3	0.0	0.2
JNKN7J	00	V	850	7	2.1	0.8	-0.8
JNKN7J	12	V	850	8	3.6	-0.9	-0.2
KJJF9X	00	V	850	8	2.9	0.7	-1.1
KJJF9X	12	V	850	7	2.9	0.0	-0.6
KMPLHP	00	V	850	8	2.1	-0.4	0.1
KMPLHP	12	V	850	8	4.1	-2.4	-0.5
LRYQE3	00	V	850	9	2.2	0.0	-0.8
LRYQE3	12	V	850	10	2.5	0.4	-0.2
UXK5JT	00	V	850	6	2.6	0.4	0.7
UXK5JT	12	V	850	7	2.9	1.4	1.3
WDK38H	12	V	850	1	1.5	1.5	-0.3
XKQLWQ	12	V	850	13	7.0	3.3	0.3
XQFJRG	00	V	850	8	2.7	-0.6	1.2
XQFJRG	12	V	850	7	1.9	-1.0	0.5
YL96W	00	V	850	11	2.2	1.0	0.4
YL96W	12	V	850	13	2.4	-0.3	-0.6
ZVQEQC	00	V	850	6	3.4	-1.5	2.7
ZVQEQC	12	V	850	11	3.0	1.1	-0.3

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 2021
 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	1232	0	0.2	-0.4	0.4
0640046	99	P	SUR	60	-4	227	0	0.3	-0.4	0.5
1300001	99	P	SUR	11	-23	594	0	0.3	0.2	0.4
1300008	99	P	SUR	15	-38	600	0	0.2	0.1	0.3
1300130	99	P	SUR	28	-16	701	0	0.3	0.7	0.8
1301569	99	P	SUR	25	-56	696	0	0.3	-0.7	0.7
1301603	99	P	SUR	25	-63	720	0	0.3	-0.1	0.3
1301608	99	P	SUR	27	-60	720	0	0.3	-0.3	0.5
1301610	99	P	SUR	52	-18	720	0	0.5	0.5	0.7
1301612	99	P	SUR	40	-34	719	0	0.4	-0.1	0.4
1301619	99	P	SUR	26	-61	719	0	0.3	0.3	0.4
1701631	99	P	SUR	20	-58	697	0	0.3	0.3	0.4
1701632	99	P	SUR	26	-70	715	0	0.3	0.0	0.3
1701633	99	P	SUR	16	-61	605	0	0.8	0.3	0.8
1701634	99	P	SUR	20	-61	718	0	0.3	-0.1	0.3
1701635	99	P	SUR	20	-63	659	0	0.5	0.1	0.5
2501538	99	P	SUR	68	-25	689	0	0.9	0.2	0.9
4100040	99	P	SUR	15	-53	4128	0	0.3	0.1	0.3
4100043	99	P	SUR	21	-65	4243	0	0.3	0.3	0.4
4100044	99	P	SUR	22	-59	4238	0	0.3	0.2	0.3
4100046	99	P	SUR	24	-68	4243	0	0.3	0.1	0.3
4100048	99	P	SUR	32	-70	4241	0	0.5	0.2	0.5
4100052	99	P	SUR	18	-65	4210	0	0.3	-1.1	1.1
4100053	99	P	SUR	18	-66	4177	0	0.3	-1.0	1.0
4100139	99	P	SUR	20	-38	572	0	0.2	0.1	0.3
4100300	99	P	SUR	16	-57	720	0	0.3	0.1	0.3
4101531	99	P	SUR	25	-38	720	0	0.3	-0.0	0.3
4101564	99	P	SUR	26	-57	705	0	0.3	-0.2	0.3
4101565	99	P	SUR	33	-52	720	0	0.4	0.1	0.4
4101567	99	P	SUR	31	-30	719	0	0.4	0.3	0.5
4101604	99	P	SUR	10	-62	107	0	0.5	0.3	0.6
4101609	99	P	SUR	29	-17	720	0	0.3	-0.0	0.3
4101613	99	P	SUR	26	-26	720	0	0.5	0.4	0.6
4101614	99	P	SUR	26	-24	690	0	0.3	-0.1	0.3
4101616	99	P	SUR	32	-29	720	0	0.3	-0.2	0.4
4101617	99	P	SUR	23	-30	590	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
4101618	99	P	SUR	34	-26	720	0	0.3	-0.1	0.3
4101621	99	P	SUR	33	-34	720	0	0.4	-0.0	0.4
4101627	99	P	SUR	50	-47	720	0	2.6	1.0	2.8
4101652	99	P	SUR	63	-24	1417	0	0.4	-0.3	0.5
4101653	99	P	SUR	76	14	720	0	0.5	-0.5	0.7
4101654	99	P	SUR	65	-10	700	0	0.4	-0.1	0.4
4101655	99	P	SUR	71	33	720	0	0.4	-0.1	0.4
4101656	99	P	SUR	62	-25	720	0	0.3	-0.2	0.4
4101657	99	P	SUR	70	-5	720	0	0.4	-0.2	0.4
4101658	99	P	SUR	62	-14	720	0	0.5	-0.1	0.5
4101661	99	P	SUR	73	31	719	0	0.9	0.6	1.1
4101663	99	P	SUR	37	-43	720	0	0.4	-0.2	0.4
4101664	99	P	SUR	56	-47	720	0	0.4	0.3	0.5
4101690	99	P	SUR	45	-8	143	0	0.4	0.1	0.4
4101696	99	P	SUR	29	-45	720	0	0.3	-0.2	0.4
4101698	99	P	SUR	13	-60	613	0	0.4	0.1	0.4
4101699	99	P	SUR	13	-61	719	0	0.4	-0.2	0.5
4101702	99	P	SUR	37	-64	696	5	2.9	-0.2	2.9
4101707	99	P	SUR	24	-36	720	0	0.3	-0.1	0.3
4101708	99	P	SUR	40	-34	720	0	0.4	0.1	0.4
4101714	99	P	SUR	25	-50	720	0	0.5	-0.2	0.5
4101717	99	P	SUR	47	-24	720	0	0.3	-0.0	0.3
4101718	99	P	SUR	28	-52	720	0	0.3	0.5	0.5
4101719	99	P	SUR	33	-40	720	0	1.6	0.2	1.6
4101720	99	P	SUR	35	-25	720	0	0.3	-0.1	0.3
4101743	99	P	SUR	31	-64	720	0	0.4	-0.1	0.4
4101752	99	P	SUR	50	-25	719	0	0.4	-0.1	0.4
4101753	99	P	SUR	30	-43	720	0	0.4	0.2	0.5
4101755	99	P	SUR	27	-46	720	0	0.3	0.0	0.3
4101756	99	P	SUR	12	-62	685	0	0.4	-0.8	0.9
4101815	99	P	SUR	64	-22	1321	0	2.6	-3.3	4.2
4101821	99	P	SUR	34	-42	239	0	0.4	-0.1	0.4
4101822	99	P	SUR	31	-52	239	0	0.3	0.0	0.3
4101823	99	P	SUR	42	-26	239	0	0.4	0.0	0.4
4101824	99	P	SUR	33	-56	180	0	0.4	-0.3	0.5
4101825	99	P	SUR	35	-58	239	0	0.4	-0.1	0.4
41040	99	P	SUR	15	-53	3958	0	0.3	0.1	0.3
41043	99	P	SUR	21	-65	4220	0	0.3	0.3	0.4
41044	99	P	SUR	22	-59	3946	0	0.3	0.2	0.4
41046	99	P	SUR	24	-68	5964	0	0.3	0.1	0.3
41048	99	P	SUR	32	-70	6665	0	0.5	0.2	0.5
41052	99	P	SUR	18	-65	2812	0	0.4	-1.0	1.1
41053	99	P	SUR	19	-66	2814	0	0.3	-1.0	1.0

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4200060	99	P	SUR	16	-63	4221	0	0.3	-0.1	0.3
4200085	99	P	SUR	18	-67	4107	0	0.3	-0.9	1.0
42060	99	P	SUR	16	-63	3950	0	0.4	-0.1	0.4
42085	99	P	SUR	18	-67	3404	0	0.4	-0.9	1.0
4400005	99	P	SUR	43	-69	705	0	0.5	0.2	0.5
4400008	99	P	SUR	41	-69	4229	0	0.4	0.6	0.7
4400032	99	P	SUR	44	-69	667	0	0.5	-0.3	0.6
4400033	99	P	SUR	44	-69	686	0	0.5	-0.1	0.5
44005	99	P	SUR	43	-69	1961	0	0.5	0.2	0.5
4400777	99	P	SUR	34	-56	720	0	0.3	0.1	0.3
44008	99	P	SUR	41	-69	5825	0	0.4	0.6	0.7
4400857	99	P	SUR	26	-55	720	0	0.9	-0.0	0.9
4401541	99	P	SUR	35	-29	720	12	2.0	0.4	2.0
4401551	99	P	SUR	25	-61	702	0	1.6	-0.2	1.6
4401557	99	P	SUR	32	-39	718	0	0.6	0.1	0.6
4401562	99	P	SUR	25	-66	720	0	0.3	-0.5	0.6
4401563	99	P	SUR	36	-30	719	0	0.4	-0.4	0.6
4401569	99	P	SUR	62	-8	720	0	0.4	0.2	0.5
4401572	99	P	SUR	25	-42	720	0	0.3	0.3	0.4
4401574	99	P	SUR	59	-57	718	0	1.0	0.4	1.1
4401576	99	P	SUR	31	-21	720	0	0.3	0.2	0.3
4401577	99	P	SUR	30	-22	720	0	0.3	0.1	0.3
4401578	99	P	SUR	21	-68	720	0	0.3	-0.0	0.3
4401580	99	P	SUR	33	-15	720	0	0.2	0.3	0.4
4401581	99	P	SUR	28	-46	720	0	0.3	0.3	0.4
4401582	99	P	SUR	37	-18	720	0	0.3	0.2	0.4
4401751	99	P	SUR	71	23	699	0	0.5	-0.0	0.5
4401828	99	P	SUR	53	-17	673	0	0.3	0.3	0.5
4401829	99	P	SUR	43	-19	65	0	0.2	0.5	0.5
4401837	99	P	SUR	37	-27	88	0	0.4	0.1	0.4
4401848	99	P	SUR	41	-38	717	0	0.4	0.0	0.4
4401850	99	P	SUR	50	-39	713	0	0.4	-0.1	0.4
4401851	99	P	SUR	49	-24	688	0	0.4	0.2	0.5
4401854	99	P	SUR	28	-62	720	0	0.3	-0.2	0.3
4401867	99	P	SUR	13	-67	720	0	0.4	0.2	0.4
4401870	99	P	SUR	25	-46	720	0	0.3	-0.0	0.3
4401872	99	P	SUR	22	-50	720	0	0.3	-0.1	0.3
4401873	99	P	SUR	20	-50	720	0	0.4	-0.1	0.5
4401874	99	P	SUR	22	-41	720	0	0.3	0.2	0.3
4401894	99	P	SUR	60	-24	2768	0	0.3	0.1	0.3
4402603	99	P	SUR	39	-53	698	0	0.5	0.1	0.5
4402604	99	P	SUR	50	-44	708	0	0.3	0.0	0.3
4402605	99	P	SUR	55	-25	705	0	0.3	0.1	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4402606	99	P	SUR	53	-48	706	0	0.3	0.3	0.4
4402607	99	P	SUR	50	-44	704	0	0.3	0.1	0.3
4402608	99	P	SUR	53	-43	705	0	0.3	0.2	0.3
4402609	99	P	SUR	52	-46	700	0	0.3	0.2	0.3
4402610	99	P	SUR	45	-47	700	0	0.5	0.1	0.5
4402611	99	P	SUR	46	-45	705	0	0.4	-0.0	0.4
4402612	99	P	SUR	50	-43	709	0	0.3	0.2	0.4
4402613	99	P	SUR	46	-41	695	0	0.3	0.0	0.3
4402614	99	P	SUR	49	-48	703	0	0.4	0.1	0.4
4402615	99	P	SUR	49	-36	709	0	0.3	0.2	0.4
4402616	99	P	SUR	51	-46	708	0	0.3	0.4	0.5
4402617	99	P	SUR	52	-51	701	0	0.3	0.2	0.4
4402618	99	P	SUR	40	-38	695	0	0.4	-0.0	0.4
4402657	99	P	SUR	45	-63	700	0	0.5	-0.8	0.9
4402659	99	P	SUR	47	-57	719	0	0.5	0.7	0.9
4402660	99	P	SUR	45	-35	718	0	0.5	0.5	0.7
4402663	99	P	SUR	47	-38	717	0	0.4	-0.1	0.4
4402665	99	P	SUR	45	-24	718	0	0.3	0.2	0.4
4402687	99	P	SUR	41	-29	719	0	1.2	0.1	1.2
44032	99	P	SUR	44	-69	1233	0	0.5	-0.3	0.6
44033	99	P	SUR	44	-69	1270	0	0.5	-0.1	0.5
44078	99	P	SUR	60	-40	2361	0	0.5	-0.7	0.9
44137	99	P	SUR	42	-62	753	0	0.6	-0.1	0.6
44139	99	P	SUR	44	-57	800	0	0.5	-0.3	0.6
44150	99	P	SUR	43	-64	701	0	0.6	-0.3	0.6
44258	99	P	SUR	45	-63	837	0	0.5	-0.0	0.5
44488	99	P	SUR	45	-61	829	0	0.5	-0.1	0.5
44489	99	P	SUR	46	-61	840	0	0.5	-0.1	0.5
44490	99	P	SUR	45	-66	840	0	0.5	-0.0	0.5
4700546	99	P	SUR	35	-34	679	0	0.6	0.2	0.7
4801625	99	P	SUR	85	-46	720	0	0.4	0.3	0.5
4801723	99	P	SUR	80	2	717	52	2.2	-0.6	2.3
6100001	99	P	SUR	43	8	718	0	0.6	0.1	0.6
6100002	99	P	SUR	42	5	285	0	0.4	0.1	0.4
6100196	99	P	SUR	42	4	353	0	0.5	0.4	0.6
6100197	99	P	SUR	40	4	716	0	0.4	0.6	0.7
6100198	99	P	SUR	37	-2	716	0	0.5	0.3	0.6
6100280	99	P	SUR	41	1	716	0	0.4	0.5	0.6
6100281	99	P	SUR	40	0	707	0	0.4	0.4	0.6
6100417	99	P	SUR	38	0	303	0	0.5	0.4	0.6
6100430	99	P	SUR	40	2	717	0	0.4	0.3	0.6
6101003	99	P	SUR	40	25	153	0	0.5	0.0	0.5
6101005	99	P	SUR	38	26	1	1	0.0	0.0	0.0

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6101007	99	P	SUR	36	25	58	0	0.6	0.2	0.7
6101008	99	P	SUR	37	22	146	0	0.6	-0.2	0.7
6101009	99	P	SUR	35	25	15	15	0.0	0.0	0.0
6102782	99	P	SUR	38	11	701	0	0.4	0.4	0.5
6102784	99	P	SUR	33	18	703	0	0.4	0.1	0.5
6102790	99	P	SUR	38	1	697	0	0.4	0.4	0.6
6200024	99	P	SUR	44	-3	698	0	0.4	0.4	0.5
6200025	99	P	SUR	44	-6	681	4	0.6	0.4	0.7
6200082	99	P	SUR	44	-8	108	0	0.2	0.6	0.6
6200083	99	P	SUR	43	-9	708	0	0.5	0.2	0.5
6200084	99	P	SUR	42	-9	700	0	0.4	0.3	0.5
6200085	99	P	SUR	36	-7	695	0	0.3	0.6	0.7
6200087	99	P	SUR	55	7	375	0	0.3	-0.2	0.4
6200091	99	P	SUR	53	-5	717	0	0.4	-0.2	0.4
6200092	99	P	SUR	51	-11	720	0	0.3	-0.1	0.3
6200093	99	P	SUR	55	-10	720	0	0.3	-0.2	0.4
6200094	99	P	SUR	52	-7	720	0	0.3	-0.0	0.3
6200095	99	P	SUR	53	-16	720	0	0.3	-0.3	0.4
62001	99	P	SUR	45	-5	1465	0	0.2	0.1	0.2
6200199	99	P	SUR	40	-9	412	0	0.3	-0.7	0.8
6200200	99	P	SUR	36	-8	277	19	4.7	-1.0	4.8
6201030	99	P	SUR	44	-4	719	0	0.4	0.2	0.5
6201065	99	P	SUR	54	7	2852	0	0.3	0.8	0.9
6201066	99	P	SUR	55	7	685	0	0.3	0.3	0.4
62023	99	P	SUR	51	-8	1702	0	0.3	-0.2	0.3
6202613	99	P	SUR	20	-57	720	0	0.3	-0.1	0.3
6202614	99	P	SUR	25	-51	720	0	0.7	-0.4	0.8
6202615	99	P	SUR	22	-48	614	0	1.5	-1.1	1.9
6202623	99	P	SUR	69	-6	720	0	0.4	-0.2	0.4
6202624	99	P	SUR	62	-19	720	0	0.3	-0.1	0.3
6202626	99	P	SUR	53	-14	720	0	0.3	0.0	0.3
6202627	99	P	SUR	55	-30	701	0	0.3	-0.0	0.3
6202629	99	P	SUR	42	-32	501	0	0.5	-0.5	0.7
6202630	99	P	SUR	47	-7	720	0	0.2	-0.4	0.5
6202631	99	P	SUR	59	-11	720	0	0.3	0.1	0.3
6202632	99	P	SUR	58	-23	720	0	0.3	-0.0	0.3
6202633	99	P	SUR	62	-15	720	0	0.4	-0.2	0.4
6202634	99	P	SUR	71	12	720	0	0.3	0.0	0.3
6202635	99	P	SUR	66	-10	720	0	0.3	0.2	0.4
6202636	99	P	SUR	63	-4	720	0	0.4	0.4	0.5
6202637	99	P	SUR	67	-7	720	0	0.3	0.0	0.3
6202639	99	P	SUR	31	-25	720	0	0.3	-0.2	0.3
6202643	99	P	SUR	37	-67	720	0	0.4	-0.2	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6202644	99	P	SUR	31	-39	720	0	0.4	-0.4	0.5
6202645	99	P	SUR	26	-63	720	0	0.3	-0.4	0.5
6202646	99	P	SUR	20	-67	720	0	0.3	-0.3	0.4
6202680	99	P	SUR	64	10	667	0	0.4	-0.2	0.4
6202684	99	P	SUR	64	-2	604	0	0.3	0.5	0.6
6202688	99	P	SUR	37	8	86	0	0.4	-2.7	2.7
6202690	99	P	SUR	40	13	638	0	0.6	-0.2	0.6
6202692	99	P	SUR	43	4	719	0	0.4	0.1	0.4
6202694	99	P	SUR	37	11	149	0	0.6	-5.0	5.1
6202696	99	P	SUR	37	1	717	0	0.4	-0.1	0.4
62029	99	P	SUR	49	-12	27	0	0.1	0.0	0.1
6203529	99	P	SUR	34	-44	449	0	0.3	0.2	0.4
6203574	99	P	SUR	56	-19	584	0	0.3	0.2	0.4
6203580	99	P	SUR	73	9	172	0	0.5	0.5	0.7
6203585	99	P	SUR	75	32	511	0	0.6	0.3	0.7
6203588	99	P	SUR	62	-27	705	0	0.4	0.4	0.6
6203601	99	P	SUR	26	-55	719	0	0.3	0.4	0.5
6203607	99	P	SUR	24	-66	719	0	0.3	0.1	0.3
6203612	99	P	SUR	28	-34	720	0	0.3	0.0	0.3
6203613	99	P	SUR	33	-27	720	0	0.3	0.1	0.3
6203614	99	P	SUR	17	-43	720	0	0.3	0.2	0.3
6203615	99	P	SUR	23	-50	108	0	0.2	0.0	0.2
6203616	99	P	SUR	28	-40	108	0	0.2	0.0	0.2
6203617	99	P	SUR	11	-30	720	0	0.3	0.5	0.5
6203621	99	P	SUR	44	-20	230	0	0.3	0.1	0.3
6203622	99	P	SUR	42	-30	228	0	0.4	0.0	0.4
6203624	99	P	SUR	23	-57	719	0	0.3	0.1	0.3
6203625	99	P	SUR	43	-25	229	0	0.4	0.4	0.6
6203626	99	P	SUR	61	-1	719	0	0.4	0.1	0.5
6203627	99	P	SUR	18	-60	108	0	0.4	-0.2	0.5
6203631	99	P	SUR	22	-59	720	0	0.3	-0.3	0.4
6203632	99	P	SUR	27	-23	720	0	0.3	-0.1	0.3
6203633	99	P	SUR	57	-33	720	0	0.4	0.3	0.5
6203634	99	P	SUR	43	-16	720	0	0.3	0.2	0.4
6203636	99	P	SUR	14	-60	720	0	0.3	0.2	0.4
6203637	99	P	SUR	56	-16	720	0	0.6	0.4	0.7
6203639	99	P	SUR	46	-24	719	0	0.3	0.1	0.3
6203640	99	P	SUR	47	-24	720	0	0.3	0.3	0.5
6203641	99	P	SUR	44	-2	720	0	0.3	0.3	0.5
6203643	99	P	SUR	22	-48	720	0	0.3	0.2	0.3
6203644	99	P	SUR	12	-23	543	0	0.4	0.5	0.6
6203730	99	P	SUR	19	-38	705	0	0.2	0.3	0.4
6203732	99	P	SUR	16	-36	699	0	0.2	0.1	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6203733	99	P	SUR	12	-26	706	0	0.3	0.4	0.5
6203735	99	P	SUR	18	-38	701	0	0.3	0.2	0.4
6203737	99	P	SUR	24	-41	706	0	0.3	0.3	0.5
6203753	99	P	SUR	63	-17	700	0	0.3	-0.3	0.5
6203755	99	P	SUR	51	-12	700	0	0.3	-0.1	0.3
6203760	99	P	SUR	54	-11	708	0	0.3	0.0	0.3
6203762	99	P	SUR	26	-21	706	0	0.3	-0.1	0.3
6203763	99	P	SUR	22	-29	708	0	0.3	0.1	0.3
6203764	99	P	SUR	30	-19	707	0	0.3	0.1	0.3
6203765	99	P	SUR	19	-27	706	0	0.3	0.3	0.4
6203766	99	P	SUR	26	-21	702	0	0.3	-1.3	1.3
6203767	99	P	SUR	21	-22	707	0	0.3	-0.1	0.3
6203768	99	P	SUR	36	-11	698	0	0.3	0.3	0.4
6203769	99	P	SUR	34	-11	702	0	0.2	0.2	0.3
6203770	99	P	SUR	35	-13	701	0	0.3	0.2	0.3
6203771	99	P	SUR	26	-21	703	0	0.3	0.2	0.3
6203772	99	P	SUR	21	-26	704	0	0.3	0.3	0.4
6203773	99	P	SUR	23	-25	696	0	0.3	-0.0	0.3
6203774	99	P	SUR	28	-16	694	0	0.4	-0.2	0.4
6203775	99	P	SUR	32	-14	707	0	0.3	0.2	0.3
6203776	99	P	SUR	37	-17	702	0	0.3	-0.0	0.3
6203777	99	P	SUR	33	-13	706	0	0.3	0.2	0.3
62087	99	P	SUR	55	7	720	0	0.3	-0.3	0.4
62091	99	P	SUR	53	-5	717	0	0.4	-0.2	0.4
62092	99	P	SUR	51	-11	717	0	0.3	-0.1	0.3
62093	99	P	SUR	55	-10	717	0	0.3	-0.2	0.4
62094	99	P	SUR	52	-7	717	0	0.3	-0.0	0.3
62095	99	P	SUR	53	-16	717	0	0.3	-0.3	0.4
62102	99	P	SUR	58	2	1199	0	0.3	-0.1	0.3
62103	99	P	SUR	50	-3	1432	2	0.4	-0.1	0.4
62104	99	P	SUR	57	1	1231	0	0.4	-0.3	0.5
62107	99	P	SUR	50	-6	2135	0	0.3	-0.4	0.5
62112	99	P	SUR	58	0	1236	0	0.4	0.0	0.4
62113	99	P	SUR	58	0	1233	0	0.5	-0.4	0.7
62114	99	P	SUR	58	0	2285	0	0.5	0.1	0.5
62115	99	P	SUR	58	-3	1236	0	0.3	-0.3	0.4
62116	99	P	SUR	58	1	1233	0	0.4	-0.2	0.4
62118	99	P	SUR	58	1	1233	0	0.4	0.3	0.5
62119	99	P	SUR	57	2	1231	0	0.3	-0.1	0.3
62120	99	P	SUR	56	2	1231	0	0.5	-0.0	0.5
62121	99	P	SUR	54	3	1095	0	0.2	0.0	0.2
62122	99	P	SUR	57	2	1797	0	0.4	-0.2	0.5
62124	99	P	SUR	54	-4	1237	0	0.3	-0.1	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62127	99	P	SUR	54	1	115	0	0.3	0.5	0.6
62129	99	P	SUR	58	0	1117	0	0.4	-0.3	0.5
62130	99	P	SUR	59	1	1234	0	0.4	-0.3	0.5
62131	99	P	SUR	54	1	1233	0	0.3	0.3	0.4
62132	99	P	SUR	56	2	1231	0	0.4	0.2	0.4
62133	99	P	SUR	57	1	1231	0	0.4	-0.2	0.4
62134	99	P	SUR	58	1	1234	0	0.3	0.3	0.5
62135	99	P	SUR	54	2	1233	0	0.4	0.4	0.6
62138	99	P	SUR	54	0	1798	0	0.3	0.2	0.4
62140	99	P	SUR	57	1	1787	0	0.4	-0.1	0.4
62143	99	P	SUR	58	2	1234	0	0.5	0.6	0.8
62144	99	P	SUR	53	2	1233	0	0.4	-0.0	0.4
62145	99	P	SUR	53	3	1739	0	0.3	0.4	0.5
62146	99	P	SUR	57	2	1232	0	0.4	-0.2	0.4
62148	99	P	SUR	54	2	1233	0	0.5	0.5	0.7
62149	99	P	SUR	54	1	1234	0	0.3	0.6	0.6
62150	99	P	SUR	54	1	960	0	0.2	1.2	1.2
62151	99	P	SUR	57	2	1746	0	0.3	0.0	0.3
62152	99	P	SUR	57	2	1234	0	0.8	0.1	0.8
62153	99	P	SUR	57	2	964	0	0.3	0.3	0.4
62154	99	P	SUR	56	2	1233	0	0.3	-0.3	0.4
62155	99	P	SUR	58	1	1223	0	0.3	0.2	0.4
62157	99	P	SUR	58	0	1234	0	0.4	-0.3	0.5
62160	99	P	SUR	57	2	1754	0	0.3	0.2	0.4
62161	99	P	SUR	58	1	1234	0	0.4	-0.3	0.6
62162	99	P	SUR	57	1	1233	0	0.4	-0.1	0.4
62163	99	P	SUR	48	-8	1459	0	0.3	0.3	0.4
62164	99	P	SUR	57	1	1218	0	0.3	0.4	0.5
62165	99	P	SUR	54	1	1222	0	0.6	0.7	0.9
62168	99	P	SUR	58	1	1235	0	0.4	-0.2	0.4
62296	99	P	SUR	53	2	1233	0	0.4	-0.2	0.4
62297	99	P	SUR	59	2	1799	0	0.4	-0.1	0.4
62302	99	P	SUR	61	-2	1237	0	0.6	-0.5	0.8
62304	99	P	SUR	51	2	1462	0	0.3	-0.1	0.3
62305	99	P	SUR	50	0	1862	0	0.3	-0.0	0.3
62442	99	P	SUR	49	-16	1388	0	0.3	-0.4	0.5
6301003	99	P	SUR	74	24	100	0	0.3	-0.7	0.8
6301004	99	P	SUR	72	20	633	0	0.6	-0.5	0.8
6301511	99	P	SUR	65	-34	690	16	3.5	2.4	4.2
6301564	99	P	SUR	63	-37	720	0	0.9	0.1	0.9
6301567	99	P	SUR	51	-33	720	0	0.4	-0.2	0.4
6301570	99	P	SUR	60	-25	719	0	0.3	0.1	0.3
6301571	99	P	SUR	56	-49	719	0	0.5	0.2	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
63055	99	P	SUR	61	2	1233	0	0.4	-0.3	0.5
63056	99	P	SUR	60	2	1233	0	0.4	-0.1	0.4
63057	99	P	SUR	59	2	1234	0	0.4	-0.3	0.5
63058	99	P	SUR	53	2	2127	0	0.4	0.5	0.6
63059	99	P	SUR	58	-1	1235	0	0.4	0.2	0.5
63101	99	P	SUR	61	1	1234	0	0.5	-0.3	0.5
63102	99	P	SUR	61	1	1233	0	0.5	-0.1	0.5
63103	99	P	SUR	61	1	1233	0	0.4	-0.1	0.4
63104	99	P	SUR	61	2	1233	0	0.5	-0.3	0.6
63108	99	P	SUR	61	2	1208	0	0.5	-0.5	0.7
63109	99	P	SUR	60	2	1234	0	0.4	-0.5	0.7
63110	99	P	SUR	60	2	1234	0	0.4	0.3	0.5
63112	99	P	SUR	61	1	1233	0	0.5	-0.7	0.8
63115	99	P	SUR	62	1	1171	0	0.9	0.2	1.0
63117	99	P	SUR	61	1	1798	0	0.5	-0.0	0.5
63118	99	P	SUR	58	1	1792	0	0.4	-0.2	0.4
6401531	99	P	SUR	56	-53	700	0	0.4	0.2	0.4
6401573	99	P	SUR	58	-42	720	0	0.9	0.8	1.2
6401574	99	P	SUR	66	-31	720	0	1.0	0.1	1.0
6401575	99	P	SUR	69	-13	719	0	2.2	-0.3	2.2
6401576	99	P	SUR	84	-17	719	0	0.4	0.7	0.8
6401577	99	P	SUR	85	-22	719	0	0.4	0.1	0.4
6401578	99	P	SUR	82	-14	720	0	0.6	0.2	0.6
6401795	99	P	SUR	68	-19	18	5	6.7	7.5	10.0
6401838	99	P	SUR	61	-18	681	0	0.3	-0.1	0.3
6401839	99	P	SUR	62	-21	669	0	0.3	0.0	0.3
6401840	99	P	SUR	62	-17	698	0	0.4	0.0	0.4
6401841	99	P	SUR	61	-18	673	0	0.3	0.2	0.3
6401842	99	P	SUR	62	-24	681	0	0.4	-0.2	0.4
6401843	99	P	SUR	62	-19	696	0	0.3	-0.0	0.3
6401844	99	P	SUR	63	-19	699	0	0.3	0.1	0.3
6401845	99	P	SUR	63	-20	6816	0	0.3	0.0	0.3
6401846	99	P	SUR	63	-15	239	0	0.5	-0.3	0.5
6401847	99	P	SUR	63	-16	239	0	0.5	-0.1	0.5
6401848	99	P	SUR	62	-20	572	0	0.3	-0.3	0.4
6401849	99	P	SUR	62	-20	574	0	0.3	-0.4	0.6
6401850	99	P	SUR	63	-18	710	0	0.3	0.0	0.3
6401851	99	P	SUR	63	-19	699	0	0.4	-0.4	0.6
6401852	99	P	SUR	62	-20	568	0	0.4	-0.5	0.6
6401855	99	P	SUR	62	-19	2263	0	0.4	-0.1	0.4
6401856	99	P	SUR	62	-20	2260	0	0.3	-0.4	0.5
6401857	99	P	SUR	63	-21	2287	0	0.3	-0.1	0.3
6401858	99	P	SUR	62	-20	562	0	0.3	-0.0	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6401859	99	P	SUR	63	-13	245	0	0.4	-0.0	0.4
6401860	99	P	SUR	62	-19	565	0	0.3	-0.1	0.3
6401861	99	P	SUR	63	-16	239	0	0.4	-0.1	0.5
6401862	99	P	SUR	64	-13	241	0	0.4	0.1	0.4
6401863	99	P	SUR	63	-20	577	0	0.3	0.0	0.3
6401864	99	P	SUR	63	-20	580	0	0.4	-0.6	0.8
6401865	99	P	SUR	63	-20	583	0	0.3	-0.1	0.3
6401866	99	P	SUR	63	-19	583	0	0.4	-0.5	0.6
6401867	99	P	SUR	63	-21	587	0	0.3	-0.3	0.4
6402539	99	P	SUR	54	-52	705	0	0.4	0.2	0.4
6402540	99	P	SUR	49	-50	660	0	0.4	0.5	0.6
6402541	99	P	SUR	67	-7	585	0	0.3	0.1	0.3
6402542	99	P	SUR	64	-18	700	0	0.4	-0.5	0.7
6402543	99	P	SUR	62	-30	685	0	0.4	0.1	0.4
6402544	99	P	SUR	70	-6	587	0	0.4	0.2	0.4
6402545	99	P	SUR	71	16	712	1	0.4	0.1	0.4
6402546	99	P	SUR	65	-1	484	0	0.3	0.1	0.4
6402547	99	P	SUR	61	-55	623	0	0.4	0.3	0.5
6402548	99	P	SUR	67	5	581	0	0.4	0.2	0.5
6402549	99	P	SUR	66	5	624	0	0.4	0.1	0.4
6402550	99	P	SUR	71	16	681	0	0.4	0.2	0.5
6402551	99	P	SUR	59	-54	700	0	0.4	0.2	0.4
6402552	99	P	SUR	64	1	643	0	0.4	0.2	0.5
6402554	99	P	SUR	62	-5	683	0	0.4	0.4	0.5
6402557	99	P	SUR	64	-6	697	0	0.4	0.2	0.4
6402558	99	P	SUR	63	-5	698	0	0.3	0.2	0.4
6402653	99	P	SUR	62	-20	6665	0	0.3	-0.1	0.4
6402654	99	P	SUR	62	-20	485	0	0.3	-0.1	0.3
6402655	99	P	SUR	62	-20	6656	0	0.3	-0.0	0.3
6402656	99	P	SUR	62	-20	6760	0	0.3	-0.0	0.3
6402657	99	P	SUR	62	-20	6694	0	0.3	0.0	0.3
6402658	99	P	SUR	62	-21	6810	0	0.3	-0.3	0.4
6402659	99	P	SUR	62	-20	6821	0	0.3	-0.1	0.3
6402660	99	P	SUR	63	-19	6754	0	0.3	-0.3	0.4
6402661	99	P	SUR	63	-20	6819	0	0.3	-0.1	0.4
6402662	99	P	SUR	63	-20	476	0	0.4	0.2	0.5
6402663	99	P	SUR	63	-20	6863	0	0.3	-0.3	0.4
6402664	99	P	SUR	63	-19	6836	0	0.4	0.1	0.4
6402665	99	P	SUR	62	-14	703	0	0.4	0.2	0.4
6402666	99	P	SUR	63	-20	6928	0	0.4	-0.1	0.4
6402667	99	P	SUR	63	-20	6926	0	0.3	-0.2	0.4
6402668	99	P	SUR	62	-20	6673	0	0.3	0.2	0.4
6402677	99	P	SUR	62	-20	575	0	0.3	-0.2	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
64041	99	P	SUR	61	-3	1236	0	0.4	-0.3	0.5
64045	99	P	SUR	59	-12	1464	0	0.3	-0.4	0.5
64046	99	P	SUR	61	-4	1465	0	0.3	-0.2	0.4
6600021	99	P	SUR	55	14	154	0	0.4	0.7	0.8
6600022	99	P	SUR	54	14	271	0	0.4	-0.4	0.6
66023	99	P	SUR	54	10	720	0	0.3	0.1	0.3
9202546	99	P	SUR	42	-32	8	0	1.1	1.6	2.0

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 2021
 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
0640046	99	SPEED	SUR	60	-4	227	0	0	1.4	-0.8	1.6
1300001	99	SPEED	SUR	11	-23	594	0	0	0.8	0.5	0.9
1300002	99	SPEED	SUR	20	-23	582	0	0	0.7	-0.1	0.7
1300008	99	SPEED	SUR	15	-38	600	0	0	0.7	-0.1	0.7
1300130	99	SPEED	SUR	28	-16	698	0	0	1.2	-0.0	1.2
4100040	99	SPEED	SUR	15	-53	4127	0	0	0.7	0.1	0.7
4100043	99	SPEED	SUR	21	-65	4240	0	0	1.2	0.5	1.3
4100044	99	SPEED	SUR	22	-59	4238	0	0	1.0	-0.1	1.0
4100046	99	SPEED	SUR	24	-68	3146	0	0	0.7	-0.0	0.7
4100048	99	SPEED	SUR	32	-70	4240	0	0	1.3	0.2	1.3
4100049	99	SPEED	SUR	27	-63	4234	0	0	1.0	-0.1	1.0
4100052	99	SPEED	SUR	18	-65	4210	0	0	1.0	-0.2	1.0
4100053	99	SPEED	SUR	18	-66	4175	0	0	1.5	1.1	1.8
4100056	99	SPEED	SUR	18	-65	4167	0	0	1.0	-0.3	1.1
4100139	99	SPEED	SUR	20	-38	572	0	0	0.8	-0.0	0.8
4100300	99	SPEED	SUR	16	-57	720	0	0	0.9	-0.1	0.9
41040	99	SPEED	SUR	15	-53	3957	0	0	0.7	0.1	0.7
41043	99	SPEED	SUR	21	-65	4217	0	0	1.3	0.3	1.3
41044	99	SPEED	SUR	22	-59	3946	0	0	1.1	-0.2	1.1
41046	99	SPEED	SUR	24	-68	4385	0	0	0.8	-0.1	0.8
41048	99	SPEED	SUR	32	-70	6664	0	0	1.3	-0.1	1.3
41049	99	SPEED	SUR	28	-63	5659	0	0	1.1	-0.2	1.1
41052	99	SPEED	SUR	18	-65	2812	0	0	1.0	-0.0	1.0
41053	99	SPEED	SUR	19	-66	2813	0	0	1.4	0.5	1.5
41056	99	SPEED	SUR	18	-66	2434	0	0	1.1	-0.1	1.1
4200060	99	SPEED	SUR	16	-63	4237	0	0	1.1	0.4	1.2
4200085	99	SPEED	SUR	18	-67	4116	0	0	1.2	-0.3	1.2
42060	99	SPEED	SUR	16	-63	3954	0	0	1.2	0.3	1.2
42085	99	SPEED	SUR	18	-67	3411	0	0	1.2	-0.1	1.2
4400008	99	SPEED	SUR	41	-69	4242	0	0	1.3	0.2	1.4
4400032	99	SPEED	SUR	44	-69	667	0	0	1.6	-0.4	1.6
4400033	99	SPEED	SUR	44	-69	686	0	0	1.7	-0.0	1.7
4400034	99	SPEED	SUR	44	-68	691	0	0	1.6	-0.3	1.6
44008	99	SPEED	SUR	41	-69	5833	0	0	1.4	0.1	1.4

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44027	99	SPEED	SUR	44	-67	7	0	0	1.1	-2.5	2.7
44032	99	SPEED	SUR	44	-69	1233	0	0	1.6	-0.3	1.6
44033	99	SPEED	SUR	44	-69	1270	0	0	1.7	0.2	1.7
44034	99	SPEED	SUR	44	-68	1280	0	0	1.6	-0.3	1.6
44078	99	SPEED	SUR	60	-40	2361	0	0	1.9	-2.0	2.8
44137	99	SPEED	SUR	42	-62	753	0	0	4.9	-6.7	8.3
44258	99	SPEED	SUR	45	-63	833	2	0	2.0	0.2	2.0
44488	99	SPEED	SUR	45	-61	826	0	0	1.7	0.2	1.7
44489	99	SPEED	SUR	46	-61	837	0	0	1.9	1.1	2.2
44490	99	SPEED	SUR	45	-66	839	0	0	1.5	-0.5	1.6
610002	99	SPEED	SUR	42	5	285	0	0	1.3	-0.1	1.3
6100196	99	SPEED	SUR	42	4	346	0	0	1.4	-0.2	1.4
6100197	99	SPEED	SUR	40	4	690	0	0	1.1	-1.1	1.6
6100198	99	SPEED	SUR	37	-2	709	0	0	1.2	-0.3	1.3
6100280	99	SPEED	SUR	41	1	694	0	0	1.6	-0.7	1.7
6100281	99	SPEED	SUR	40	0	694	0	0	1.6	0.4	1.6
6100417	99	SPEED	SUR	38	0	397	0	0	1.2	-0.4	1.3
6100430	99	SPEED	SUR	40	2	708	0	0	1.6	-0.3	1.6
6101003	99	SPEED	SUR	40	25	153	0	0	1.6	-0.3	1.7
6101005	99	SPEED	SUR	38	26	153	0	0	3.6	-6.8	7.7
6101007	99	SPEED	SUR	36	25	146	0	0	3.8	-3.5	5.1
6101008	99	SPEED	SUR	37	22	146	0	0	1.9	-0.4	1.9
6101009	99	SPEED	SUR	35	25	56	0	0	2.4	-3.8	4.6
6200024	99	SPEED	SUR	44	-3	681	0	0	1.3	-0.6	1.4
6200025	99	SPEED	SUR	44	-6	673	0	0	1.3	-1.4	1.9
6200082	99	SPEED	SUR	44	-8	703	0	0	1.2	-0.4	1.3
6200083	99	SPEED	SUR	43	-9	702	0	0	1.3	-0.1	1.3
6200084	99	SPEED	SUR	42	-9	666	0	0	1.4	-0.5	1.5
6200085	99	SPEED	SUR	36	-7	690	0	0	1.2	-0.2	1.2
6200091	99	SPEED	SUR	53	-5	717	0	0	1.0	0.1	1.0
6200092	99	SPEED	SUR	51	-11	720	0	0	1.1	0.9	1.4
6200093	99	SPEED	SUR	55	-10	720	0	0	1.3	0.5	1.4
6200094	99	SPEED	SUR	52	-7	720	0	0	1.0	0.1	1.0
6200095	99	SPEED	SUR	53	-16	720	0	0	1.1	-0.5	1.2
62001	99	SPEED	SUR	45	-5	1465	0	0	1.1	0.8	1.3
6200199	99	SPEED	SUR	40	-9	207	0	0	1.0	-0.1	1.0
6200200	99	SPEED	SUR	36	-8	273	0	0	1.1	0.3	1.2
6201030	99	SPEED	SUR	44	-4	707	0	0	1.2	-0.1	1.2
6201065	99	SPEED	SUR	54	7	1	0	0	0.0	-1.3	1.3
6201066	99	SPEED	SUR	55	7	598	0	0	1.1	0.2	1.2
62023	99	SPEED	SUR	51	-8	1701	0	0	1.3	0.7	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
62029	99	SPEED	SUR	49	-12	27	0	0	2.6	1.6	3.0
62091	99	SPEED	SUR	53	-5	717	0	0	1.1	0.2	1.1
62092	99	SPEED	SUR	51	-11	717	0	0	1.1	1.1	1.6
62093	99	SPEED	SUR	55	-10	717	0	0	1.3	0.7	1.5
62094	99	SPEED	SUR	52	-7	716	0	0	1.0	0.4	1.1
62095	99	SPEED	SUR	53	-16	717	0	0	1.1	-0.2	1.1
62102	99	SPEED	SUR	58	2	1207	0	0	1.2	-0.1	1.2
62103	99	SPEED	SUR	50	-3	1414	0	0	1.3	1.4	1.9
62107	99	SPEED	SUR	50	-6	2135	0	0	1.3	1.3	1.8
62112	99	SPEED	SUR	58	0	1236	0	0	1.4	-0.5	1.5
62113	99	SPEED	SUR	58	0	1233	0	0	1.4	-0.8	1.7
62114	99	SPEED	SUR	58	0	2285	0	0	1.4	0.0	1.4
62118	99	SPEED	SUR	58	1	1233	0	0	1.3	-0.1	1.3
62119	99	SPEED	SUR	57	2	1231	0	0	1.5	-1.2	2.0
62120	99	SPEED	SUR	56	2	1231	0	0	1.1	-0.2	1.1
62121	99	SPEED	SUR	54	3	1095	0	0	1.0	-0.3	1.1
62122	99	SPEED	SUR	57	2	1797	0	0	1.3	-0.4	1.4
62131	99	SPEED	SUR	54	1	1233	0	0	1.5	-0.5	1.5
62132	99	SPEED	SUR	56	2	1231	0	0	3.8	-2.6	4.6
62133	99	SPEED	SUR	57	1	1229	0	0	1.4	-0.4	1.4
62134	99	SPEED	SUR	58	1	1234	0	0	1.3	-0.6	1.4
62140	99	SPEED	SUR	57	1	1787	0	0	1.4	-0.1	1.4
62143	99	SPEED	SUR	58	2	1234	0	0	1.6	-0.6	1.8
62144	99	SPEED	SUR	53	2	1231	0	0	1.2	-0.9	1.5
62145	99	SPEED	SUR	53	3	1739	0	0	1.3	0.1	1.3
62146	99	SPEED	SUR	57	2	1200	0	0	1.5	0.1	1.5
62148	99	SPEED	SUR	54	2	1233	0	0	1.1	-0.4	1.2
62149	99	SPEED	SUR	54	1	1234	0	0	1.0	0.0	1.0
62150	99	SPEED	SUR	54	1	960	0	0	1.9	-1.9	2.7
62152	99	SPEED	SUR	57	2	1234	0	0	1.4	-0.6	1.5
62153	99	SPEED	SUR	57	2	964	0	0	1.5	-1.0	1.8
62154	99	SPEED	SUR	56	2	1231	0	0	1.1	-0.4	1.1
62155	99	SPEED	SUR	58	1	1213	0	0	1.4	-0.8	1.7
62163	99	SPEED	SUR	48	-8	1353	0	0	0.9	0.3	1.0
62164	99	SPEED	SUR	57	1	1218	0	0	1.5	-1.3	2.0
62165	99	SPEED	SUR	54	1	1222	0	0	1.2	-0.4	1.2
62304	99	SPEED	SUR	51	2	1462	0	0	1.3	1.4	1.9
62305	99	SPEED	SUR	50	0	1847	0	0	1.2	1.5	1.9
62442	99	SPEED	SUR	49	-16	1328	0	0	1.0	0.9	1.4
6301003	99	SPEED	SUR	74	24	99	0	0	1.1	-0.2	1.1
6301004	99	SPEED	SUR	72	20	632	0	0	1.7	-0.8	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
63055	99	SPEED	SUR	61	2	1233	0	0	2.0	-1.8	2.7
63056	99	SPEED	SUR	60	2	1233	0	0	1.3	-0.0	1.3
63057	99	SPEED	SUR	59	2	1234	0	0	1.7	-0.2	1.7
63058	99	SPEED	SUR	53	2	1696	0	0	1.2	-0.4	1.2
63101	99	SPEED	SUR	61	1	1232	0	0	1.5	-0.4	1.6
63103	99	SPEED	SUR	61	1	1233	0	0	1.7	-0.6	1.8
63104	99	SPEED	SUR	61	2	1233	0	0	1.4	-0.7	1.5
63106	99	SPEED	SUR	61	2	1116	0	0	2.1	-1.5	2.5
63108	99	SPEED	SUR	61	2	1210	0	0	2.0	-0.9	2.2
63109	99	SPEED	SUR	60	2	1157	0	0	1.5	-0.1	1.5
63110	99	SPEED	SUR	60	2	1232	0	0	1.4	-0.7	1.5
63112	99	SPEED	SUR	61	1	1233	0	0	1.3	-0.8	1.5
63115	99	SPEED	SUR	62	1	1171	0	0	1.5	-0.8	1.7
63117	99	SPEED	SUR	61	1	1798	0	0	1.3	-0.9	1.6
6401850	99	SPEED	SUR	63	-18	710	0	0	1.5	3.0	3.3
6401851	99	SPEED	SUR	63	-19	699	0	0	1.8	2.9	3.4
6401855	99	SPEED	SUR	62	-19	2263	0	0	1.6	2.9	3.3
6401856	99	SPEED	SUR	62	-20	2260	0	0	1.6	2.9	3.3
6401857	99	SPEED	SUR	63	-21	2287	0	0	1.5	2.9	3.3
64041	99	SPEED	SUR	61	-3	1236	0	0	1.4	-0.6	1.5
64045	99	SPEED	SUR	59	-12	1464	0	0	1.1	0.5	1.2
64046	99	SPEED	SUR	61	-4	1465	0	0	1.3	0.6	1.4
6600021	99	SPEED	SUR	55	14	154	0	0	1.3	0.6	1.4
6600022	99	SPEED	SUR	54	14	271	0	0	1.2	0.3	1.2
66021	99	SPEED	SUR	55	14	544	0	0	1.3	0.4	1.4
66023	99	SPEED	SUR	54	10	718	0	0	1.9	-0.3	1.9
9202546	99	SPEED	SUR	42	-32	8	0	0	1.7	0.7	1.8

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 2021
 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
0640046	99	DIRN	SUR	60	-4	219	0	0	11.6	-0.2	11.6
1300001	99	DIRN	SUR	11	-23	590	0	0	7.6	2.0	7.9
1300002	99	DIRN	SUR	20	-23	566	0	0	8.6	-0.1	8.6
1300008	99	DIRN	SUR	15	-38	600	0	0	81.4	4.0	81.5
1300130	99	DIRN	SUR	28	-16	415	0	0	11.8	-4.3	12.6
4100008	99	DIRN	SUR	31	-81	520	0	0	19.8	-1.3	19.8
4100009	99	DIRN	SUR	29	-80	1321	0	0	30.0	7.6	30.9
4100010	99	DIRN	SUR	29	-78	3588	0	0	20.5	7.3	21.8
4100013	99	DIRN	SUR	33	-78	3111	0	0	17.5	-0.5	17.5
4100024	99	DIRN	SUR	34	-78	550	0	0	19.1	-14.8	24.1
4100029	99	DIRN	SUR	33	-80	2244	0	0	17.9	6.5	19.0
4100033	99	DIRN	SUR	32	-80	558	0	0	20.1	9.5	22.2
4100037	99	DIRN	SUR	34	-77	271	0	0	24.9	5.3	25.5
4100038	99	DIRN	SUR	34	-78	550	0	0	18.5	-19.7	27.0
4100040	99	DIRN	SUR	15	-53	3971	0	0	9.1	4.5	10.2
4100043	99	DIRN	SUR	21	-65	3796	0	0	11.4	6.3	13.1
4100044	99	DIRN	SUR	22	-59	3339	0	0	17.4	4.6	18.0
4100046	99	DIRN	SUR	24	-68	2538	0	0	10.6	-1.9	10.7
4100048	99	DIRN	SUR	32	-70	3535	0	0	14.3	2.6	14.5
4100049	99	DIRN	SUR	27	-63	3826	0	0	20.4	5.0	21.0
4100052	99	DIRN	SUR	18	-65	3988	0	0	12.9	5.1	13.8
4100053	99	DIRN	SUR	18	-66	2726	0	0	16.8	3.1	17.1
4100056	99	DIRN	SUR	18	-65	3889	0	0	12.4	4.8	13.3
4100139	99	DIRN	SUR	20	-38	528	0	0	11.0	1.4	11.1
4100300	99	DIRN	SUR	16	-57	664	0	0	10.2	4.3	11.1
41008	99	DIRN	SUR	31	-81	1397	0	0	18.9	-2.0	19.0
41009	99	DIRN	SUR	29	-80	1834	0	0	29.8	6.6	30.5
41010	99	DIRN	SUR	29	-79	4982	0	0	21.8	2.5	21.9
41013	99	DIRN	SUR	33	-78	4078	0	0	18.0	-3.3	18.3
41024	99	DIRN	SUR	34	-79	1011	0	0	19.5	-15.7	25.0
41029	99	DIRN	SUR	33	-80	3105	0	0	18.4	5.5	19.2
41033	99	DIRN	SUR	32	-80	1004	0	0	21.9	9.6	23.9

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
41037	99	DIRN	SUR	34	-77	495	0	0	25.1	4.8	25.6
41038	99	DIRN	SUR	34	-78	983	0	0	18.5	-20.1	27.4
41040	99	DIRN	SUR	15	-53	3767	0	0	9.7	4.1	10.5
41043	99	DIRN	SUR	21	-65	3735	0	0	11.8	6.1	13.3
41044	99	DIRN	SUR	22	-59	3051	0	0	17.9	3.9	18.3
41046	99	DIRN	SUR	24	-68	3380	0	0	10.6	-2.6	11.0
41048	99	DIRN	SUR	32	-70	5420	0	0	14.5	3.3	14.9
41049	99	DIRN	SUR	28	-63	5050	0	0	20.6	4.0	21.0
41052	99	DIRN	SUR	18	-65	2635	0	0	13.3	4.5	14.0
41053	99	DIRN	SUR	19	-66	2006	0	0	16.9	1.1	17.0
41056	99	DIRN	SUR	18	-66	2213	0	0	12.7	5.3	13.8
4200013	99	DIRN	SUR	27	-83	992	0	0	26.3	-2.7	26.4
4200022	99	DIRN	SUR	28	-84	328	0	0	17.6	-5.9	18.6
4200023	99	DIRN	SUR	26	-83	989	0	0	22.6	-1.2	22.7
4200026	99	DIRN	SUR	25	-83	984	0	0	25.1	3.6	25.4
4200036	99	DIRN	SUR	29	-85	2755	0	0	32.5	8.1	33.5
4200056	99	DIRN	SUR	20	-85	4234	0	0	8.2	4.3	9.2
4200060	99	DIRN	SUR	16	-63	3962	0	0	14.1	6.1	15.4
4200085	99	DIRN	SUR	18	-67	3723	0	0	19.3	14.3	24.0
42013	99	DIRN	SUR	27	-83	1323	0	0	27.5	-3.9	27.8
42022	99	DIRN	SUR	28	-84	425	0	0	17.2	-7.9	18.9
42023	99	DIRN	SUR	26	-83	1720	0	0	23.2	-2.1	23.3
42026	99	DIRN	SUR	25	-84	1333	0	0	26.1	2.8	26.2
42036	99	DIRN	SUR	29	-85	3657	0	0	32.3	6.3	32.9
42056	99	DIRN	SUR	20	-85	4259	0	0	8.7	3.5	9.4
42060	99	DIRN	SUR	16	-63	3649	0	0	14.6	5.8	15.7
42085	99	DIRN	SUR	18	-67	3019	0	0	18.5	13.5	22.9
4400007	99	DIRN	SUR	44	-70	2794	0	0	23.7	4.1	24.0
4400008	99	DIRN	SUR	41	-69	3644	0	0	13.8	9.0	16.5
4400013	99	DIRN	SUR	42	-71	3009	0	0	21.1	9.2	23.0
4400014	99	DIRN	SUR	37	-75	3187	0	0	20.1	8.2	21.7
4400017	99	DIRN	SUR	41	-72	3099	0	0	20.3	9.1	22.3
4400025	99	DIRN	SUR	40	-73	3174	0	0	19.7	8.7	21.5
4400029	99	DIRN	SUR	43	-71	498	0	0	21.9	3.5	22.2
4400030	99	DIRN	SUR	43	-70	447	0	0	19.9	-1.3	20.0
4400032	99	DIRN	SUR	44	-69	484	0	0	17.9	11.2	21.1
4400033	99	DIRN	SUR	44	-69	481	0	0	18.1	0.6	18.1
4400034	99	DIRN	SUR	44	-68	542	0	0	17.1	-7.3	18.6
4400039	99	DIRN	SUR	41	-73	475	0	0	21.7	9.4	23.6
4400042	99	DIRN	SUR	38	-76	4341	0	0	31.4	-10.5	33.1
4400062	99	DIRN	SUR	39	-76	2137	0	0	111.0	2.7	111.0

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
440065	99	DIRN	SUR	40	-74	3038	0	0	20.5	8.1	22.1
440072	99	DIRN	SUR	37	-76	3068	0	0	26.1	-63.8	69.0
440073	99	DIRN	SUR	43	-71	376	0	0	20.8	5.4	21.5
440075	99	DIRN	SUR	40	-71	1811	0	0	20.6	-12.6	24.1
440076	99	DIRN	SUR	40	-71	1858	0	0	19.2	-10.9	22.0
440077	99	DIRN	SUR	40	-71	1984	0	0	16.3	-12.9	20.8
44007	99	DIRN	SUR	44	-70	4123	0	0	23.3	4.0	23.7
44008	99	DIRN	SUR	41	-69	4992	0	0	14.2	8.4	16.5
44013	99	DIRN	SUR	42	-71	4517	0	0	21.9	8.0	23.3
44014	99	DIRN	SUR	37	-75	4217	0	0	20.5	7.7	21.9
44017	99	DIRN	SUR	41	-72	4302	0	0	19.6	6.4	20.7
44025	99	DIRN	SUR	40	-73	4587	0	0	19.3	7.5	20.7
44029	99	DIRN	SUR	43	-71	1309	0	0	22.5	1.9	22.6
44030	99	DIRN	SUR	43	-70	819	0	0	21.8	-1.3	21.9
44032	99	DIRN	SUR	44	-69	862	0	0	18.6	10.5	21.3
44033	99	DIRN	SUR	44	-69	865	0	0	19.8	-1.3	19.9
44034	99	DIRN	SUR	44	-68	986	0	0	17.4	-7.8	19.1
44039	99	DIRN	SUR	41	-73	878	0	0	23.4	10.5	25.7
44042	99	DIRN	SUR	38	-76	5677	0	0	32.3	-10.6	34.0
44062	99	DIRN	SUR	39	-76	2835	1	0	108.5	-2.6	108.5
44065	99	DIRN	SUR	40	-74	3974	0	0	20.5	7.3	21.8
44069	99	DIRN	SUR	41	-73	967	0	0	18.1	0.6	18.1
44072	99	DIRN	SUR	37	-76	3978	0	0	30.6	-63.4	70.4
44073	99	DIRN	SUR	43	-71	720	0	0	22.3	5.6	23.0
44075	99	DIRN	SUR	40	-71	2230	0	0	18.7	-13.3	23.0
44076	99	DIRN	SUR	40	-71	2328	0	0	21.0	-10.3	23.4
44077	99	DIRN	SUR	40	-71	2464	0	0	17.1	-12.6	21.2
44078	99	DIRN	SUR	60	-40	2095	0	0	12.1	-19.9	23.3
44137	99	DIRN	SUR	42	-62	183	0	0	14.5	-28.8	32.3
44258	99	DIRN	SUR	45	-63	693	2	0	21.8	-3.0	22.0
44488	99	DIRN	SUR	45	-61	716	0	0	21.0	12.6	24.5
44489	99	DIRN	SUR	46	-61	702	0	0	20.8	6.1	21.7
44490	99	DIRN	SUR	45	-66	761	0	0	20.1	0.8	20.1
4500175	99	DIRN	SUR	46	-85	1525	0	0	26.5	-8.1	27.7
45132	99	DIRN	SUR	43	-81	437	0	0	22.1	0.2	22.1
45135	99	DIRN	SUR	44	-77	460	0	0	21.4	11.7	24.4
45137	99	DIRN	SUR	46	-81	348	0	0	22.0	-1.7	22.1
45139	99	DIRN	SUR	43	-80	325	0	0	37.1	2.2	37.2
45142	99	DIRN	SUR	43	-79	449	0	0	23.6	-1.9	23.7
45143	99	DIRN	SUR	45	-81	350	0	0	21.2	5.4	21.9
45149	99	DIRN	SUR	44	-82	368	0	0	20.1	7.3	21.4

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
45152	99	DIRN	SUR	46	-80	10	0	0	7.5	-7.5	10.6
45154	99	DIRN	SUR	46	-83	47	0	0	16.9	-2.0	17.0
45159	99	DIRN	SUR	44	-79	443	0	0	19.8	3.5	20.1
45175	99	DIRN	SUR	46	-85	2018	0	0	26.0	-9.2	27.6
6100198	99	DIRN	SUR	37	-2	567	0	0	15.1	-1.8	15.2
6100281	99	DIRN	SUR	40	0	352	0	0	24.6	-1.4	24.6
6100417	99	DIRN	SUR	38	0	270	0	0	21.4	-1.4	21.5
6200024	99	DIRN	SUR	44	-3	485	0	0	21.4	-2.5	21.5
6200025	99	DIRN	SUR	44	-6	386	0	0	14.4	-10.7	17.9
6200082	99	DIRN	SUR	44	-8	522	0	0	14.2	-8.9	16.8
6200083	99	DIRN	SUR	43	-9	543	0	0	12.6	-1.7	12.7
6200084	99	DIRN	SUR	42	-9	445	0	0	16.9	-2.6	17.2
6200085	99	DIRN	SUR	36	-7	548	0	0	13.2	5.2	14.2
6200091	99	DIRN	SUR	53	-5	533	0	0	14.6	2.9	14.9
6200092	99	DIRN	SUR	51	-11	664	0	0	9.3	6.4	11.3
6200093	99	DIRN	SUR	55	-10	661	0	0	16.1	3.2	16.5
6200094	99	DIRN	SUR	52	-7	592	0	0	11.8	4.0	12.5
6200095	99	DIRN	SUR	53	-16	665	0	0	12.6	5.6	13.8
62001	99	DIRN	SUR	45	-5	1248	0	0	11.3	4.5	12.2
6200199	99	DIRN	SUR	40	-9	77	0	0	168.7	19.7	169.8
6200200	99	DIRN	SUR	36	-8	234	0	0	158.8	-57.5	168.9
6201030	99	DIRN	SUR	44	-4	490	0	0	17.7	3.0	18.0
62023	99	DIRN	SUR	51	-8	1500	0	0	14.0	3.9	14.5
62029	99	DIRN	SUR	49	-12	24	0	0	19.7	-10.6	22.4
62091	99	DIRN	SUR	53	-5	515	0	0	14.2	2.4	14.4
62092	99	DIRN	SUR	51	-11	658	0	0	9.6	6.0	11.3
62093	99	DIRN	SUR	55	-10	649	0	0	15.9	2.5	16.1
62094	99	DIRN	SUR	52	-7	580	0	0	12.2	3.7	12.8
62095	99	DIRN	SUR	53	-16	650	0	0	12.5	5.2	13.6
62103	99	DIRN	SUR	50	-3	1126	0	0	15.3	6.6	16.6
62107	99	DIRN	SUR	50	-6	1841	0	0	19.0	7.5	20.5
62112	99	DIRN	SUR	58	0	1105	0	0	12.5	0.1	12.5
62114	99	DIRN	SUR	58	0	2050	0	0	12.5	1.4	12.6
62163	99	DIRN	SUR	48	-8	1281	0	0	14.3	-3.8	14.8
62305	99	DIRN	SUR	50	0	1478	0	0	15.0	3.0	15.3
62442	99	DIRN	SUR	49	-16	1272	0	0	11.4	-4.0	12.1
6401850	99	DIRN	SUR	63	-18	594	0	0	27.8	-0.0	27.8
6401851	99	DIRN	SUR	63	-19	521	0	0	39.2	2.7	39.3
6401855	99	DIRN	SUR	62	-19	1706	0	0	30.0	-3.9	30.3
6401856	99	DIRN	SUR	62	-20	1782	0	0	37.7	1.0	37.8
6401857	99	DIRN	SUR	63	-21	1977	0	0	22.9	-3.1	23.1

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
64041	99	DIRN	SUR	61	-3	1158	0	0	11.7	10.0	15.4
64045	99	DIRN	SUR	59	-12	1259	0	0	12.3	3.7	12.9
64046	99	DIRN	SUR	61	-4	1326	0	0	14.5	-2.2	14.7
9202546	99	DIRN	SUR	42	-32	7	0	0	14.0	10.6	17.5

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE09	BPMWB2N	DBLK	HTXUH4H	JNKN7JF	KJJF9XN	KMPLHPW	LRYQE3U	USBOD
UXK5JTU	WDK38HS	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	7JUNA4N	01001	01004
01010	01028	01241	01400	01415	01492	02365	02527	02836
02963	03005	03238	03354	03502	03559	03743	03808	03882
03953	04018	04089	04220	04270	04320	04339	04360	04417
06011	06260	06458	06610	07110	07145	07510	07645	07761
08001	08023	08190	08221	08302	08383	08430	08508	08522
08536	10035	10113	10184	10238	10304	10393	10410	10548
10618	10739	10771	10868	10954	10962	11010	11035	11120
11240	11520	11747	11952	12120	12374	12425	12843	12982
13275	13388	14015	14240	14430	15420	15614	16045	16080
16113	16144	16245	16332	16429	16546	16622	16716	16754
17030	17064	17095	17130	17196	17220	17240	17281	17351
17607	22008	23205	23472	23884	24908	26038	26435	26708
26850	27459	27707	27713	28225	29612	29698	33008	33041
37789	40179	40186	45004	47102	47104	47138	47155	47169
47186	47401	47412	47418	47582	47600	47646	47678	47741
47778	47807	47827	47909	47918	47945	47971	47991	48698
50527	50557	50774	50953	51076	51243	51431	51463	51644
51656	51709	51777	51828	51839	52203	52267	52323	52418
52533	52652	52681	52818	52836	52866	52983	53068	53463
53513	53543	53614	53772	53845	53915	54102	54135	54161
54218	54292	54374	54511	54662	54727	54857	55299	55591
56029	56046	56080	56137	56146	56187	56492	56571	56651
56691	56739	56778	56964	56985	57083	57127	57131	57178
57245	57447	57461	57494	57516	57687	57749	57816	57957
57972	57993	58027	58150	58203	58238	58362	58424	58457
58606	58633	58665	58725	58847	59023	59134	59211	59265
59280	59293	59316	59431	59758	59981	60018	60155	60390
60571	60630	60656	60680	61660	61901	61980	61998	68263
68424	68442	68512	68816	68842	70026	70133	70200	70219
70231	70261	70308	70316	70326	70350	70361	70398	71043
71081	71082	71109	71119	71603	71722	71802	71811	71815
71816	71823	71836	71845	71867	71906	71907	71908	71909
71917	71924	71925	71926	71934	71945	71957	72206	72208
72210	72214	72215	72230	72233	72235	72240	72248	72249
72250	72251	72261	72265	72274	72293	72305	72317	72327
72340	72363	72364	72365	72376	72388	72413	72426	72440
72451	72476	72489	72493	72501	72518	72520	72528	72558
72562	72572	72582	72597	72632	72634	72645	72649	72659
72662	72672	72694	72712	72764	72768	72776	72786	72797
73033	73110	74389	74560	76225	76256	76394	76405	76458
76526	76595	76612	76644	76654	76679	76692	76743	76805
76903	78897	78954	81405	83525	83649	83768	85442	85586
85799	85934	87155	87344	87418	87576	87623	87715	87860
88889	89002	89062	89564	89571	89592	89611	89625	89642
89859	91212	91285	91592	91610	91765	91925	91938	91948
91958	93112	93417	93817	93844	94120	94150	94170	94203
94299	94302	94312	94326	94332	94374	94403	94430	94461
94510	94578	94610	94637	94638	94653	94659	94672	94711
94767	94776	94802	94821	94866	94910	94975	94995	94996
94998	95527	96996						

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

ASDE09	BPMWB2N	DBLK	HTXUH4H	JNKN7JF	KJJF9XN	KMPLHPW	LRYQE3U	USSAL
UXK5JTU	WDK38HS	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	7JUNA4N	01001	01010
01028	01241	01400	01415	01492	02365	02527	02836	02963
03953	06610	07110	07145	07510	07645	07761	08001	08023
08190	08221	08302	08383	08430	08536	11010	11035	11120
11240	17607	40186	47155	51243	51656	52652	53543	56046
56492	56651	57245	59023	59293	61980	61998	72413	76743
76903	78897	81405	89642	89859	91592	91938	93817	94653
94767								

5 Annex - Explanations of figures and tables

5.1 General

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

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

5.2 Data Availability

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

5.3 Data Quality

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

It should be noted that:

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

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

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

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

The corresponding limits for wind (table 8) are:

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

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

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

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

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

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

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

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

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