



ECMWF Global Data Monitoring Report

August 2019

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

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Summary of Revisions (in reverse order)

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

1 Introduction

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

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

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

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

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

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

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

2 Data summary - History of events

2.1 Radiosondes

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

Ident	Time	Jul	Aug	Ident	Time	Jul	Aug
03743	(12)	24	11	29612	(12)	0	30
04360	(00)	30	0	43014	(00)	0	18
23205	(00)	24	0	61052	(00)	0	29
23472	(00)	31	12	61052	(12)	0	29
23472	(12)	31	9	61687	(12)	10	22
43192	(00)	29	7	63741	(00)	0	22
43311	(00)	22	3	63741	(12)	0	23
43466	(12)	25	0	64500	(12)	32	43
43599	(00)	25	0	67083	(00)	16	31
43599	(12)	26	0	70133	(00)	5	23
48565	(00)	30	0	70133	(12)	10	30
65578	(00)	22	0	70231	(00)	3	31
65578	(12)	21	0	70231	(12)	9	31
67083	(12)	11	0	70261	(00)	3	32
67197	(12)	20	0	70308	(00)	3	30
68816	(00)	28	15	70326	(00)	3	31
68816	(12)	29	11	70326	(12)	3	31
71600	(12)	31	20	71823	(00)	5	29
72230	(00)	17	2	71823	(12)	5	31
72230	(12)	23	3	72317	(00)	7	20
74004	(00)	25	12	72476	(00)	20	34
74004	(12)	35	18	72476	(12)	18	41
74455	(00)	17	5	82107	(00)	19	31
74455	(12)	16	4	82107	(12)	18	29
74646	(00)	57	11	83554	(00)	19	30
74646	(12)	65	10	83554	(12)	18	31
78954	(00)	31	6	83566	(00)	9	30
78954	(12)	29	15	83566	(12)	11	30
82026	(00)	30	4	89859	(00)	1	16
82026	(12)	29	4	-	-	-	-
82397	(12)	18	0	-	-	-	-
91765	(00)	43	26	-	-	-	-
91765	(12)	40	10	-	-	-	-

2.2 Drifting Buoys

Surface pressure observations from **1851** 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.

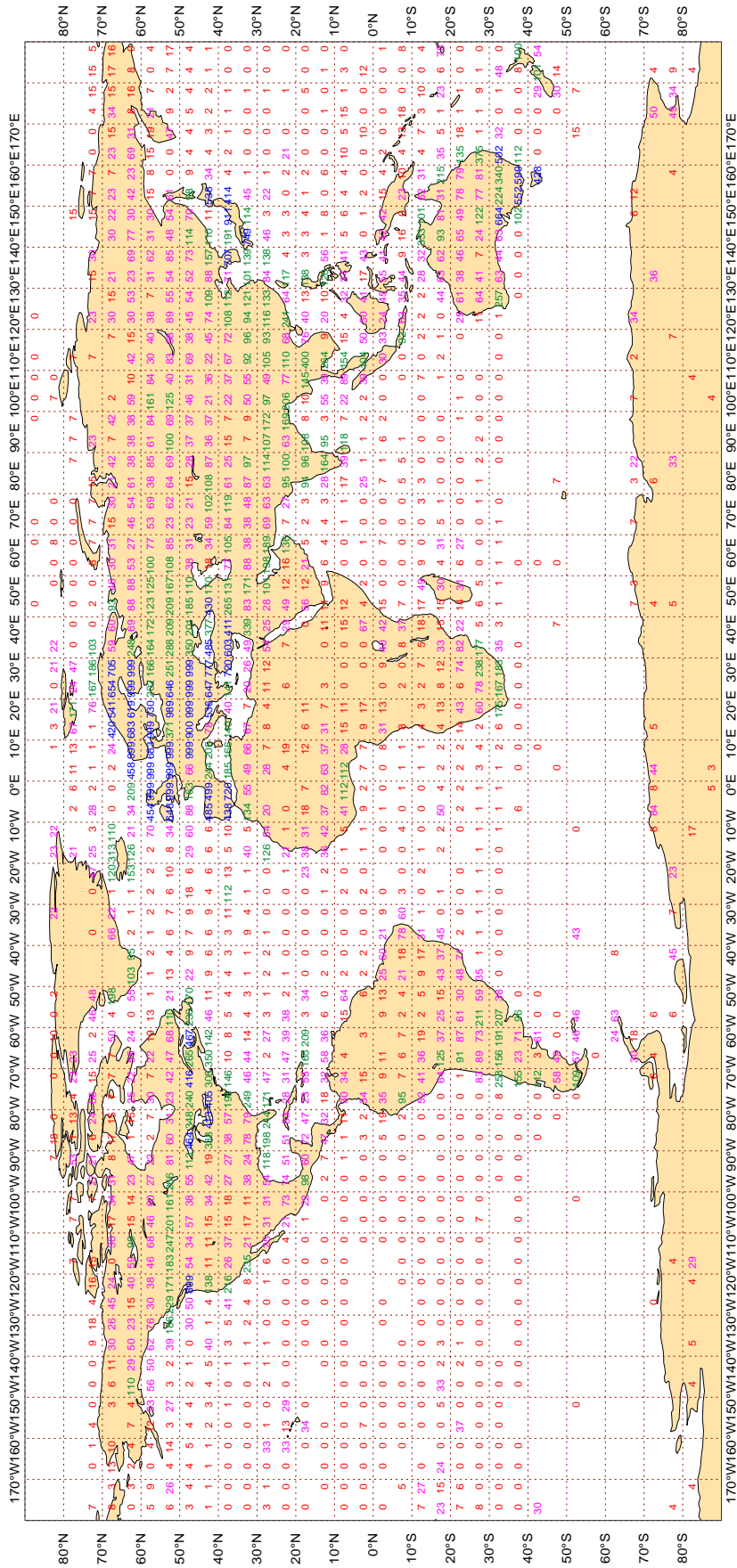
Fig	Parameter	Level/Layer
14	SATOB - Mean observed wind	1000-700 hPa
15	SATOB - Mean observed wind	400-150 hPa
16	SATOB - Mean observed minus first-guess wind	1000-700 hPa
17	SATOB - Mean observed minus first-guess wind	400-150 hPa
18	AIRCRAFT WIND - Mean observed minus first-guess	300-150 hPa

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

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

Figure 1

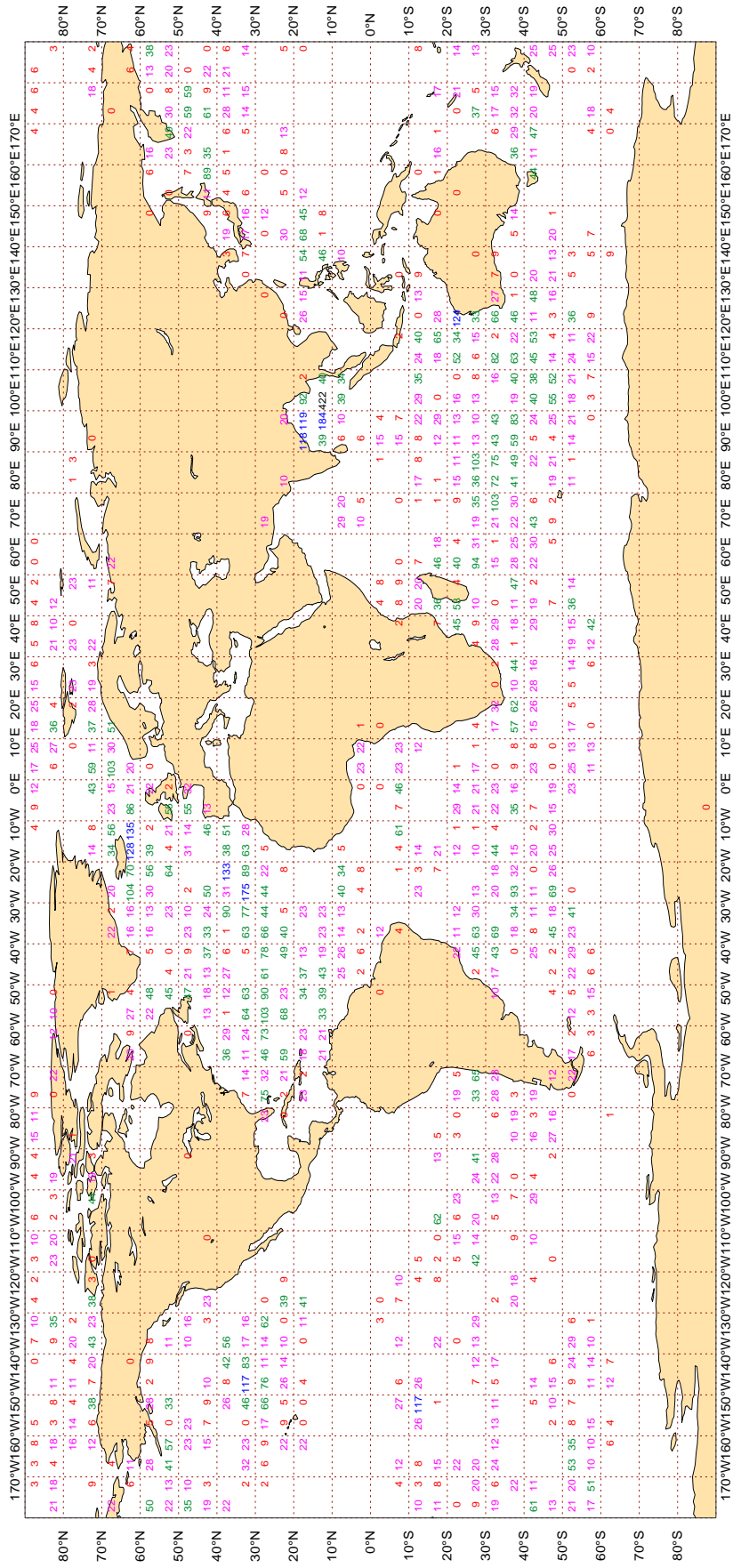
ECMWF Monitoring Statistics - AUG 2019
 Availability - SYNOP/SHIP (manual, auto) pressure
 Average number of observations in 24 hours - 98052
 LAND - WMO Region I: 4098 II:17977 III: 4022 IV: 7173
 Region V: 8731 VI:39901 Antarctic: 835
 Oceans - N. Atlantic 8722 S. Atlantic 220 Indian 555 Pacific 5818



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2

ECMWF Monitoring Statistics - AUG 2019
Availability - DRIFTER PRESSURE
Average number of observations in 24 hours - 18967
Oceans - N. Atlantic 5418 S. Atlantic 2052 Indian 5282 Pacific 6215



Magics 3.0.4 (64 bit)



3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

Figure 3

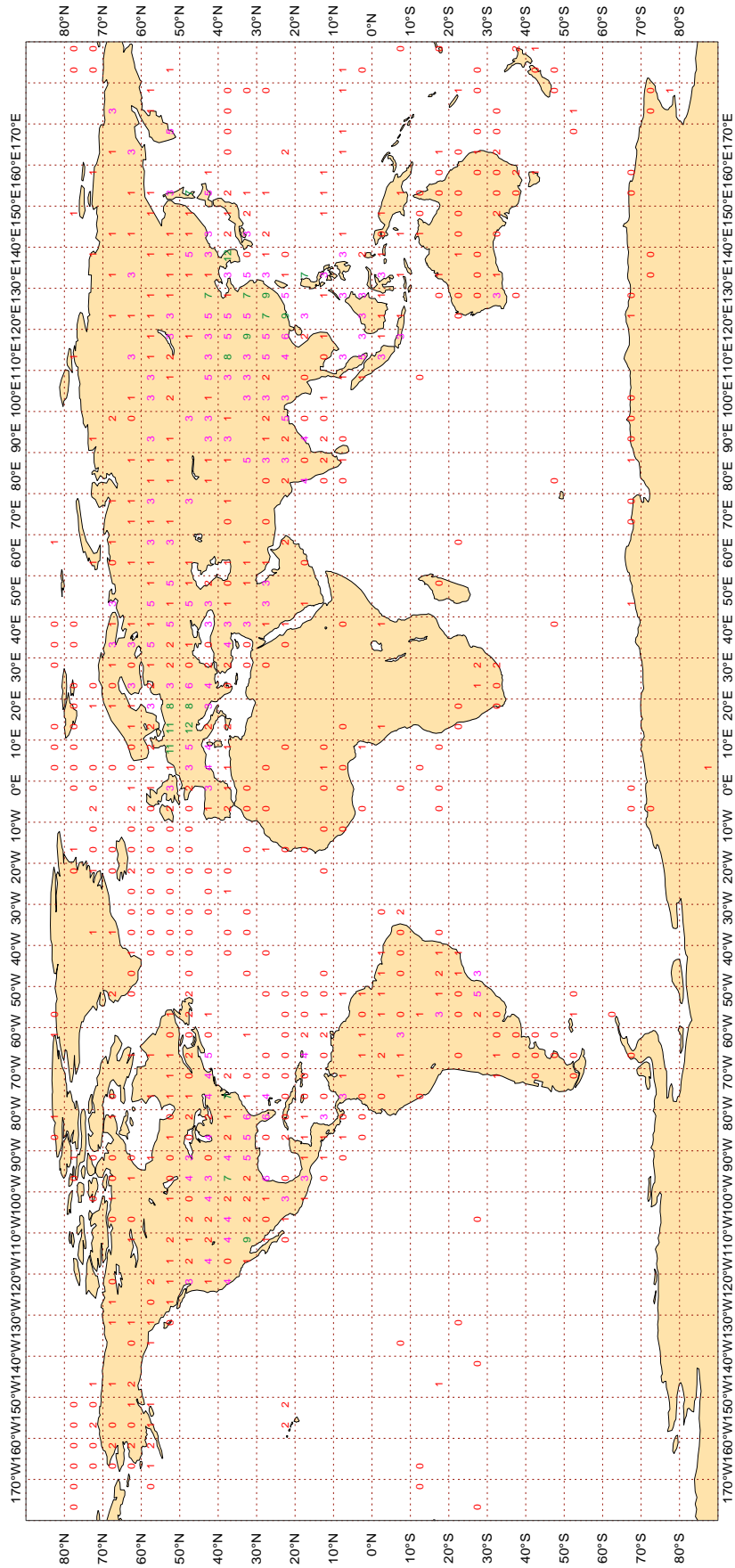
ECMWF Monitoring Statistics - AUG 2019

Availability - TEMP 500 hPa Geopotential
Average number of observations in 24 hours - 1337

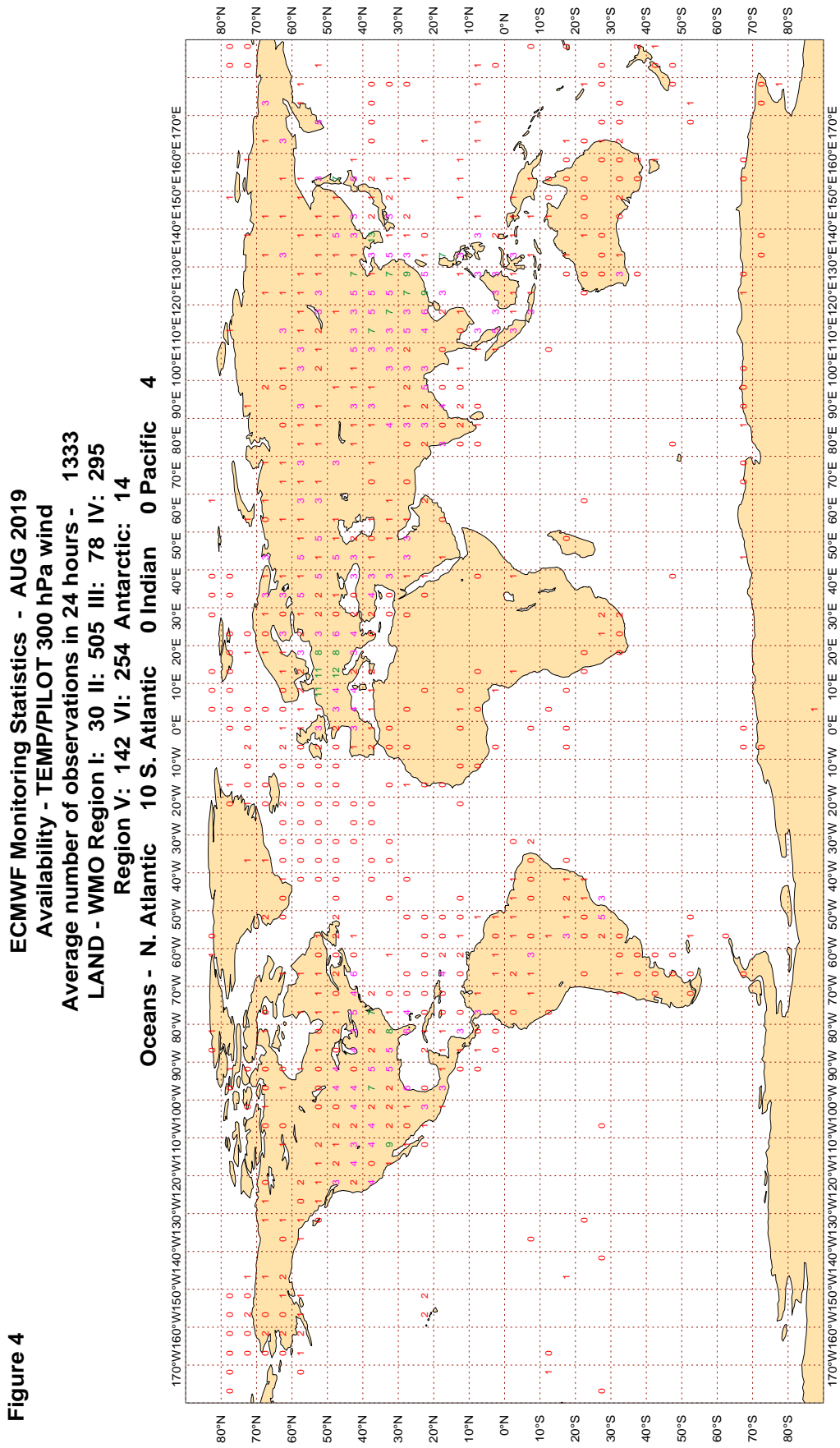
LAND - WMO Region I: 31 II: 518 III: 79 IV: 282

Region V: 143 VI: 256 Antarctic: 14

Oceans - N. Atlantic 10 S. Atlantic 0 Indian 0 Pacific 4



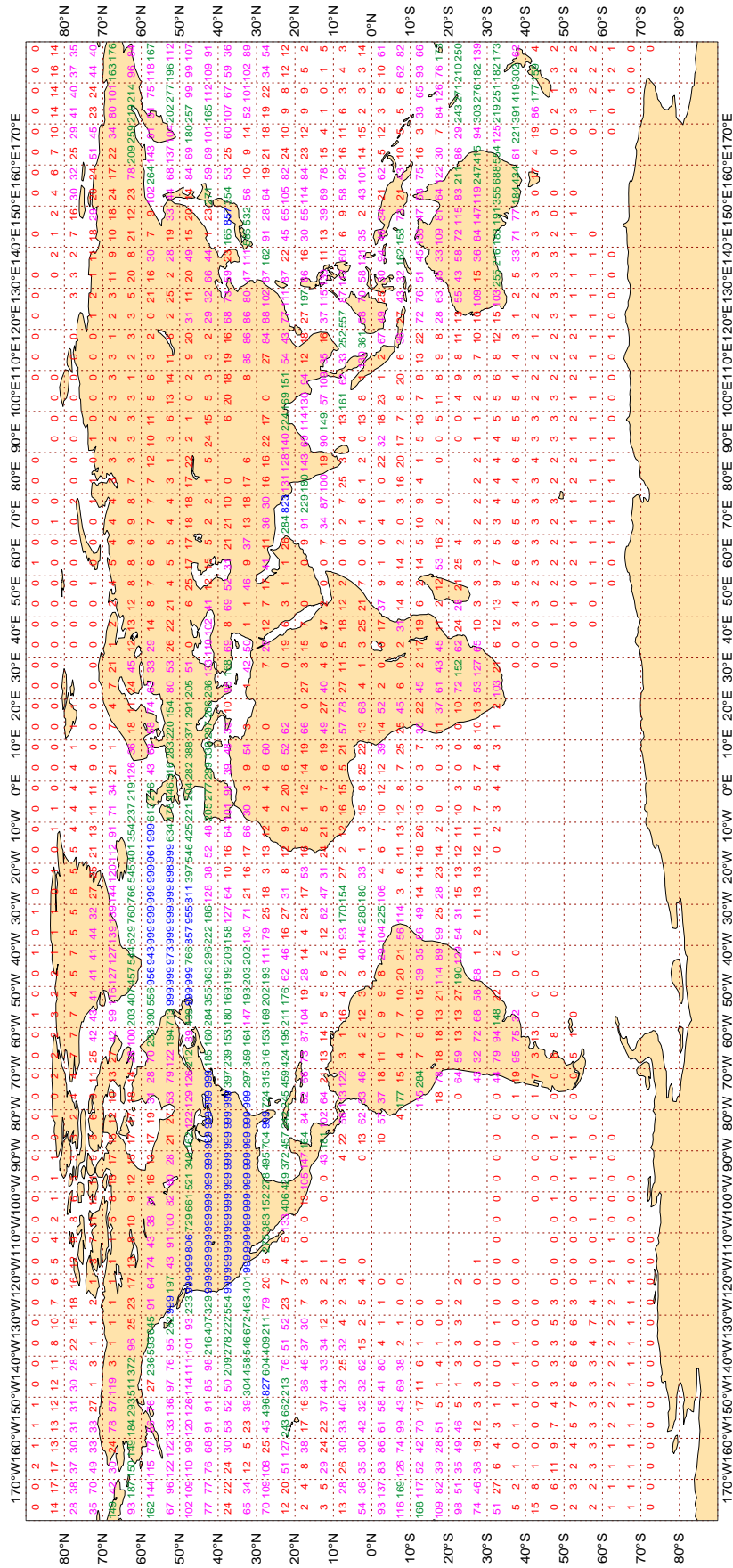
3.2.4 Figure 4 - Availability - TEMP/PILOT 300 hPa wind



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

Figure 5

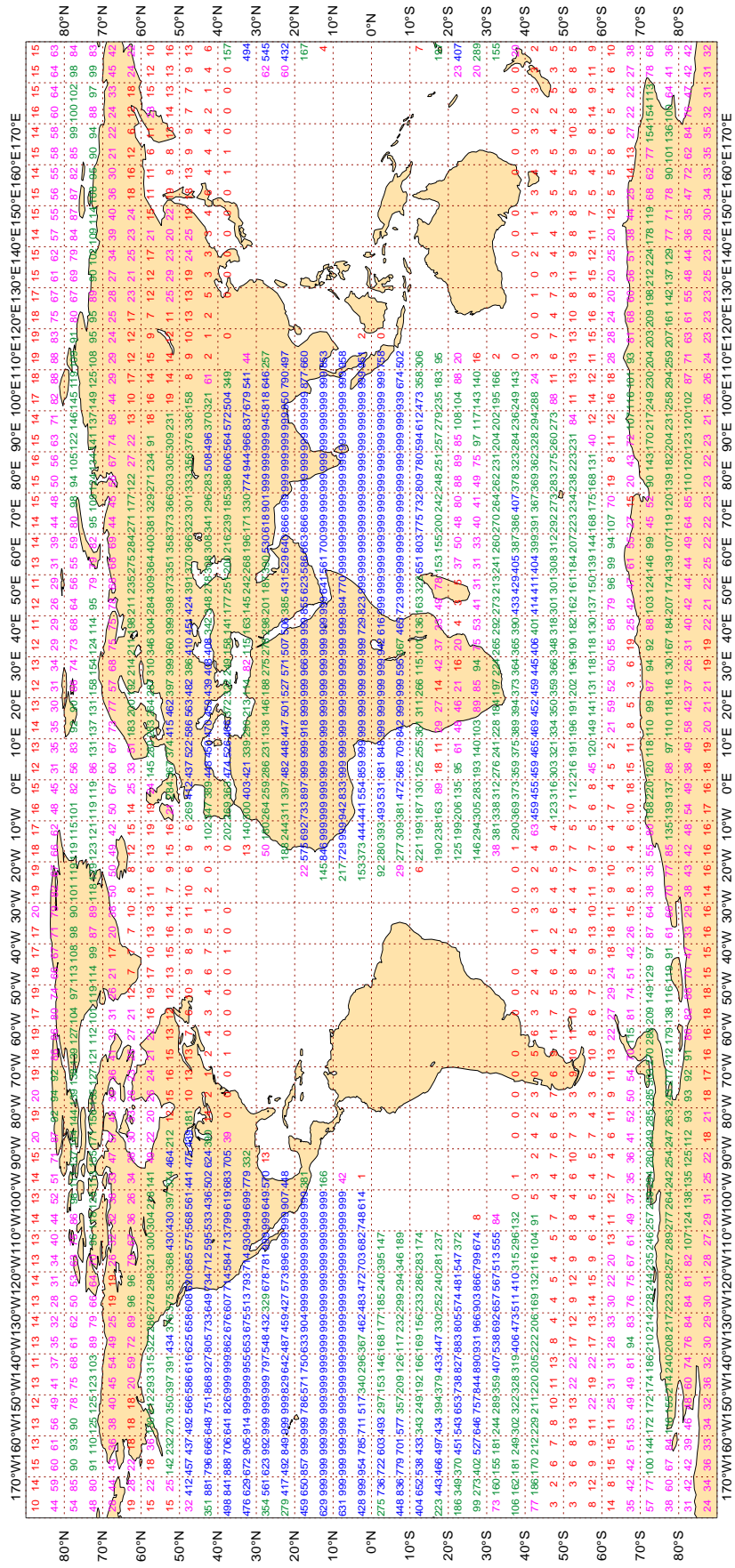
ECMWF Monitoring Statistics - AUG 2019
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 233950



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

Figure 6

ECMWF Monitoring Statistics - AUG 2019
Availability - AMV winds 400-150 hPa
Average number of observations in 24 hours - 584181



Magics 3.0.4 (64 bit)



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

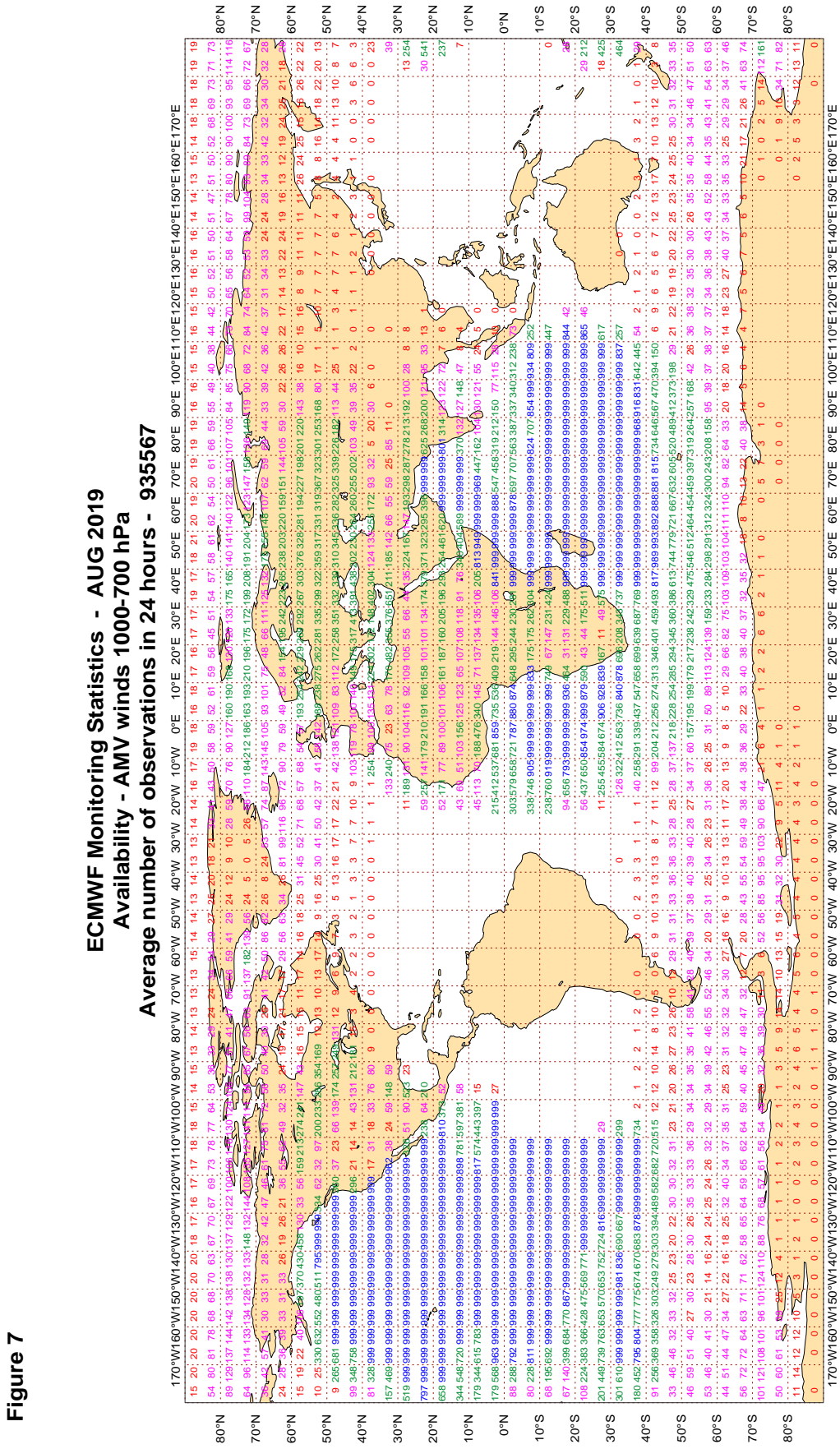


Figure 7

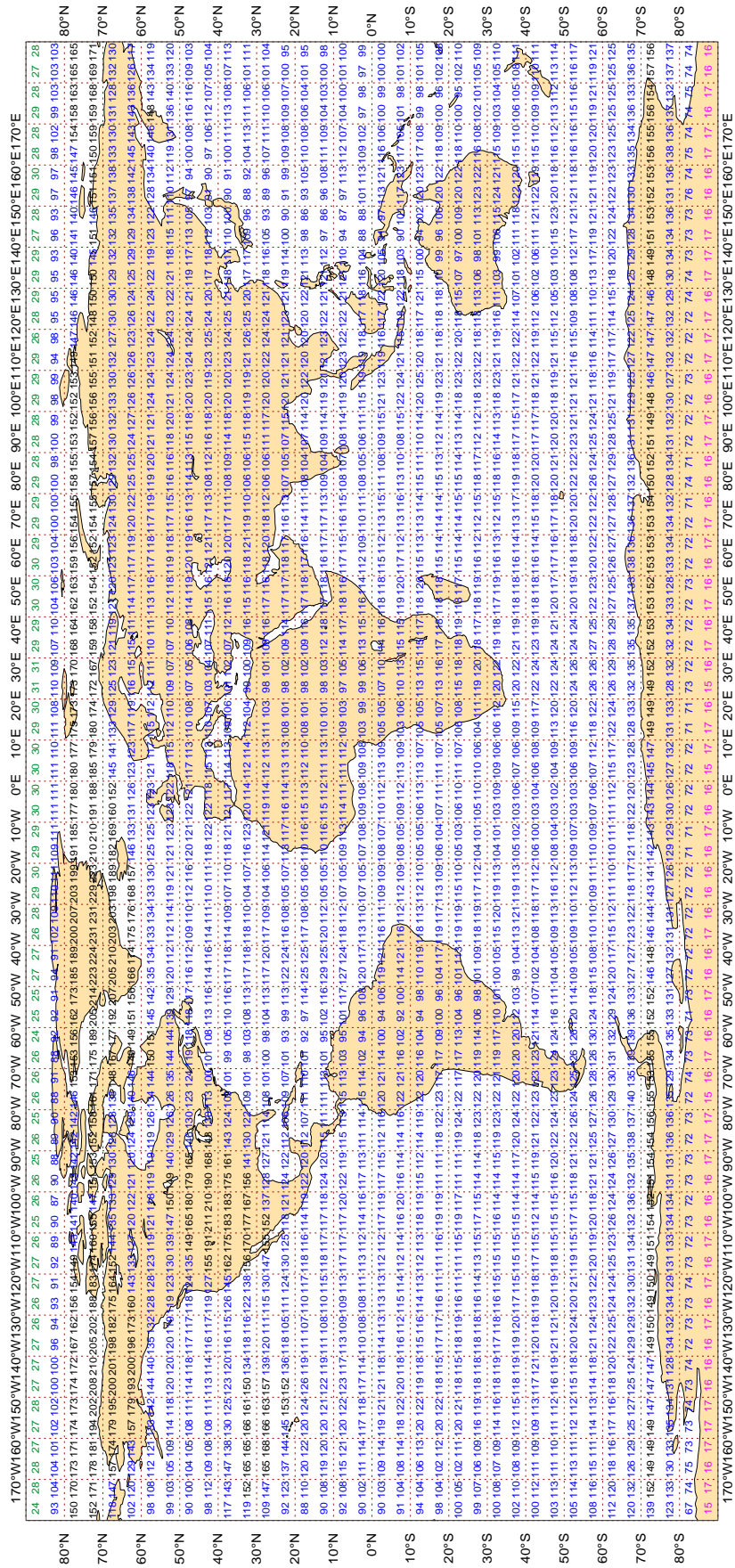


3.2.8 Figure 8 - Availability - NOAA15 ATOVS : AMSU-A

Figure 8

ECMWF Monitoring Statistics - AUG 2019
Availability - NOAA15 ATOVS : AMSU-A

Average number of observations in 24 hours - 299763



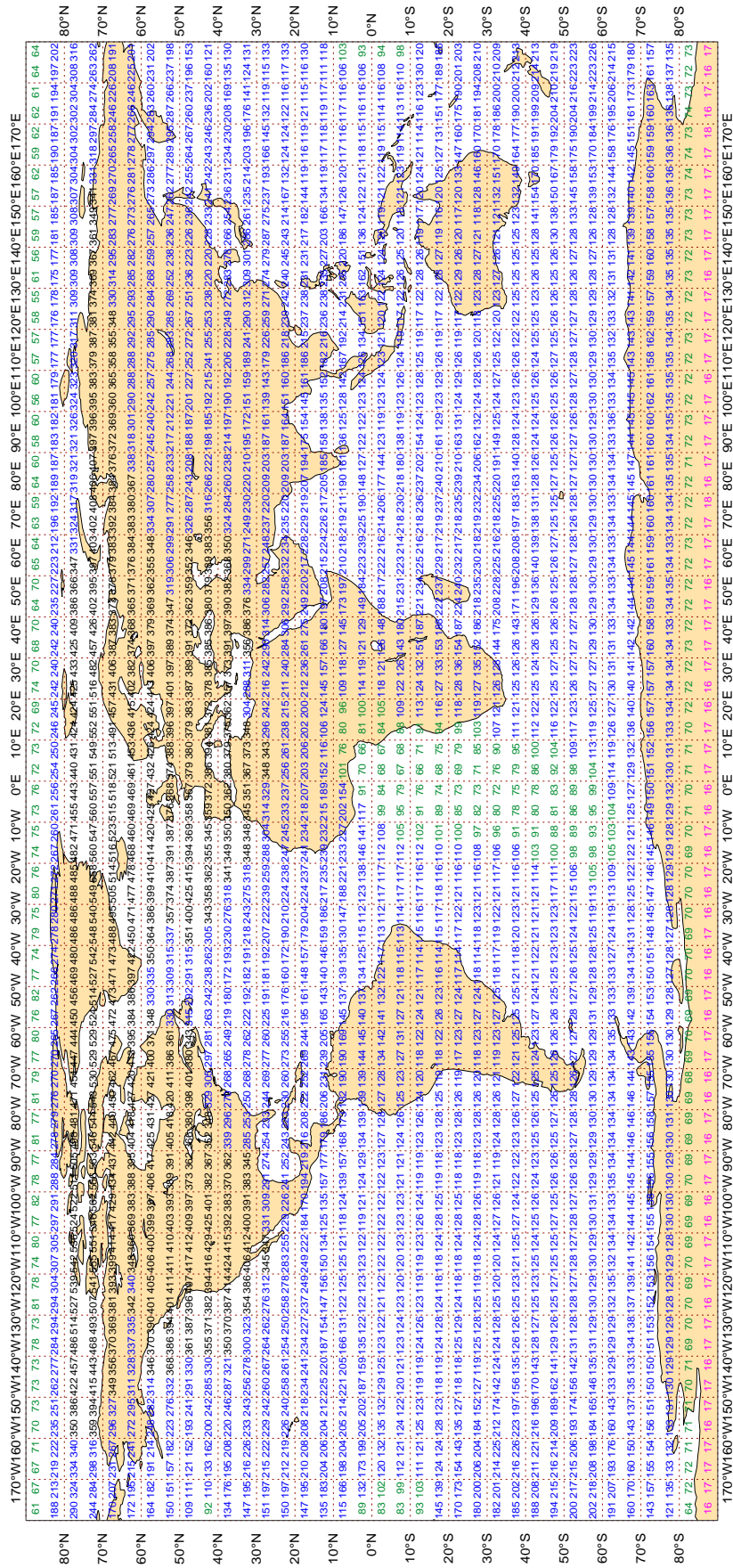
Magics 3.0.4 (64 bit)



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

Figure 9.1

ECMWF Monitoring Statistics - AUG 2019
Availability - NOAA18 ATOVs : AMSU-A
Average number of observations in 24 hours - 515695



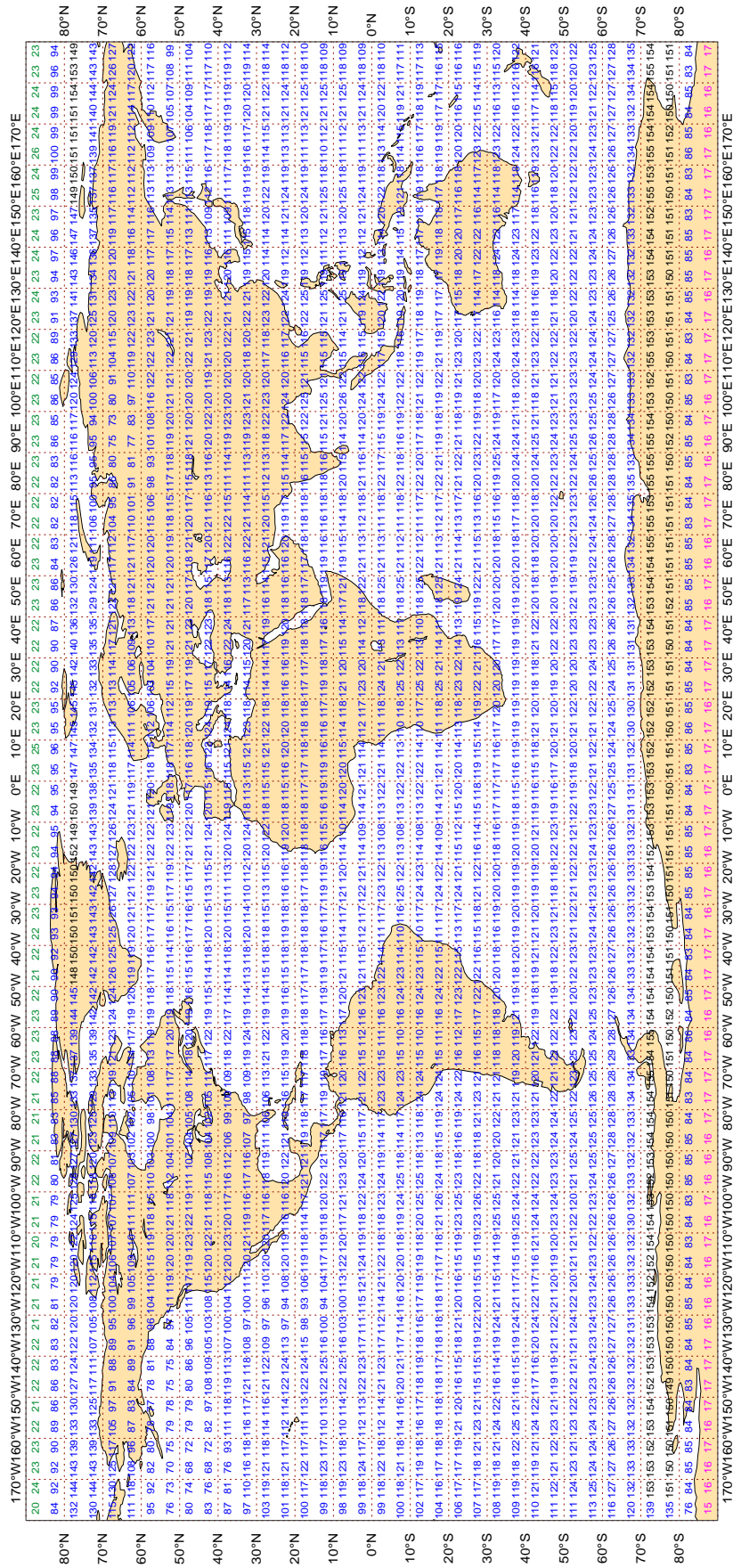
Magics 3.0.4 (64 bit)



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

Figure 9.2

ECMWF Monitoring Statistics - AUG 2019
Availability - AQUA ATOVS : AMSU-A
Average number of observations in 24 hours - 294492



Magics 3.0.4 (64 bit)

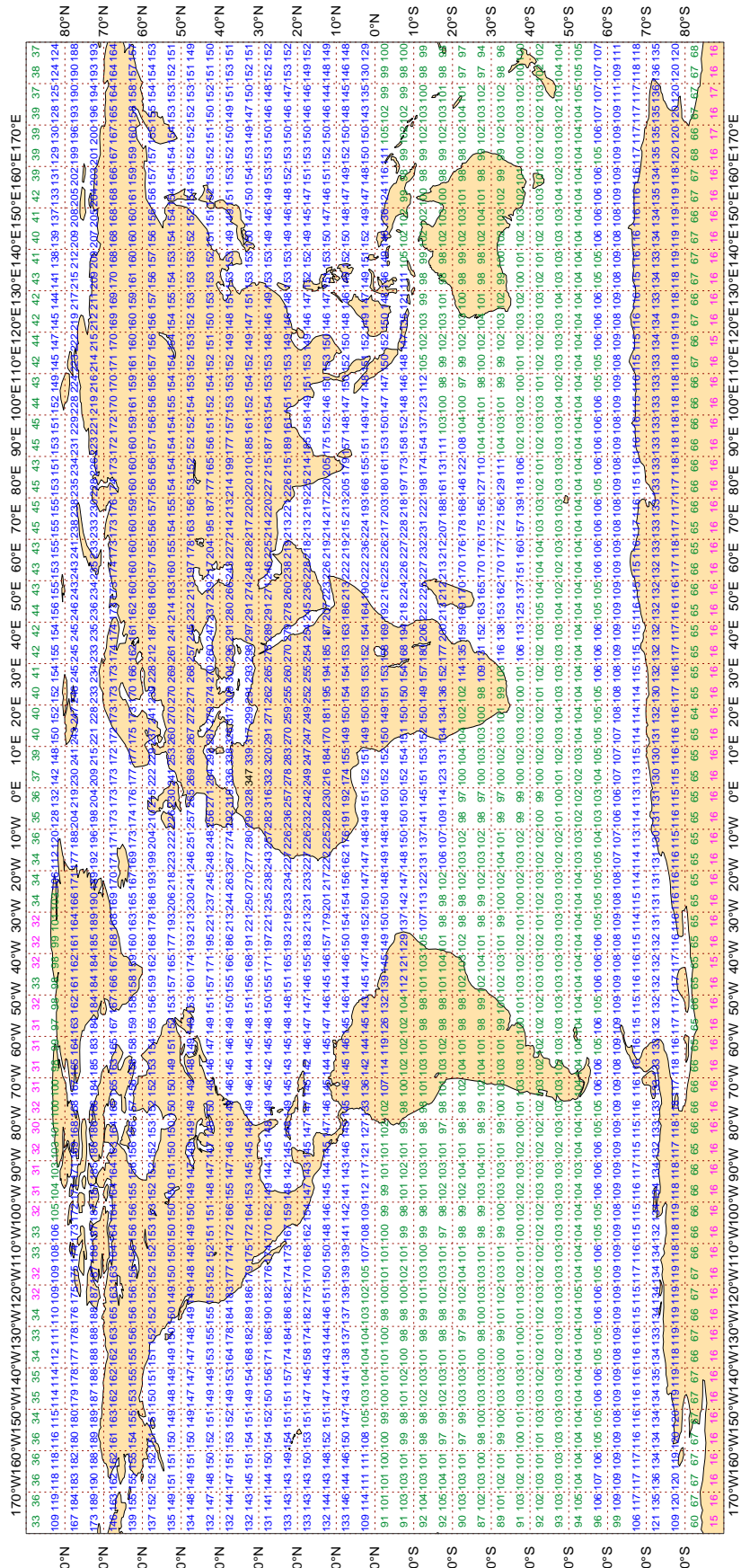


3.2.11 Figure 9.3 - Availability - METOP ATOVS : AMSU-A

Figure 9.3

ECMWF Monitoring Statistics - AUG 2019
Availability - METOP ATOVS : AMSU-A

Average number of observations in 24 hours - 354194



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 : AUG 2019
 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
2FRK7	99	P	SUR	25	0	2.7	6.3	6.8
3FFA5	99	P	SUR	28	1	10.9	2.8	11.3
4XFC	99	P	SUR	32	0	1.7	3.3	3.7
8TAP	99	P	SUR	30	2	5.5	1.0	5.6
9HA4330	99	P	SUR	26	0	2.4	-4.0	4.7
9HJB9	99	P	SUR	44	0	0.8	4.0	4.1
9HJC9	99	P	SUR	52	0	0.9	-3.7	3.8
9V9778	99	P	SUR	55	0	3.5	-3.0	4.6
9V9793	99	P	SUR	37	0	0.6	5.0	5.0
9VFL3	99	P	SUR	41	0	1.3	-3.2	3.4
A8OS6	99	P	SUR	30	0	1.7	3.6	4.0
ATVK	99	P	SUR	94	31	4.6	1.2	4.8
AUCE	99	P	SUR	101	57	6.6	3.8	7.6
AUYI	99	P	SUR	17	0	1.6	3.0	3.5
AWUU	99	P	SUR	28	0	2.8	4.0	4.8
BNPC	99	P	SUR	41	4	4.2	5.5	6.9
BQHZ	99	P	SUR	79	5	4.8	4.1	6.3
C6CX3	99	P	SUR	88	0	2.5	3.9	4.7
C6FU4	99	P	SUR	31	0	0.6	6.0	6.0
C6FV8	99	P	SUR	39	0	1.1	-4.0	4.2
C6SE5	99	P	SUR	27	0	1.2	-3.3	3.5
C6SY3	99	P	SUR	18	0	3.8	3.8	5.4
CQHW	99	P	SUR	29	0	1.0	-3.8	3.9
D5HF2	99	P	SUR	64	0	1.2	-3.0	3.3
D5HF3	99	P	SUR	120	0	1.6	3.5	3.8
D5LW3	99	P	SUR	20	0	1.5	4.4	4.7
HC2083	99	P	SUR	16	0	0.7	4.6	4.6
J8QB8	99	P	SUR	64	0	0.9	3.6	3.7
LAIG7	99	P	SUR	24	0	2.5	3.8	4.6
OWWS2	99	P	SUR	34	0	1.2	5.0	5.1
OXGX2	99	P	SUR	19	0	5.3	-0.4	5.4
OXSQ2	99	P	SUR	32	0	1.5	-4.0	4.3

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
OZ2049	99	P	SUR	32	0	1.5	-6.5	6.7
OZBY2	99	P	SUR	54	0	2.4	3.3	4.1
OZDJ2	99	P	SUR	20	0	0.5	-3.6	3.6
TBWUK73	99	P	SUR	15	0	0.3	4.1	4.1
UBSH8	99	P	SUR	21	0	1.9	-3.2	3.7
UCUE	99	P	SUR	56	0	1.4	3.8	4.0
UFJN	99	P	SUR	27	0	0.7	-3.8	3.8
VRBH6	99	P	SUR	16	0	1.3	7.9	8.0
VRBI2	99	P	SUR	18	0	1.7	5.3	5.5
VRCU7	99	P	SUR	27	0	0.8	-4.4	4.4
VRFS2	99	P	SUR	21	0	0.8	-4.4	4.5
VRFX2	99	P	SUR	59	0	0.9	-4.1	4.2
VRIB3	99	P	SUR	61	1	1.5	-5.9	6.0
VRLA6	99	P	SUR	37	0	4.2	-3.1	5.2
VRMW7	99	P	SUR	75	0	1.3	5.1	5.2
VRWN4	99	P	SUR	15	0	0.6	-4.7	4.8
VTFG	99	P	SUR	56	0	0.6	-3.2	3.3
VTWS	99	P	SUR	28	17	4.6	4.6	6.5
VWSK	99	P	SUR	114	0	0.5	-3.2	3.2
VWTI	99	P	SUR	35	0	1.2	-4.2	4.4
WADN	99	P	SUR	26	0	0.5	3.4	3.4
WDI3177	99	P	SUR	19	0	0.5	3.6	3.7
WDJ3199	99	P	SUR	40	0	2.3	4.5	5.1
WXY6216	99	P	SUR	56	56	0.0	0.0	0.0
ZDNC7	99	P	SUR	32	0	4.0	3.1	5.0

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 : AUG 2019
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : AUG 2019
 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
44072	99	DIRN	SUR	142	0	0	26.0	-76.6	80.9
45141	99	DIRN	SUR	73	0	0	22.2	36.5	42.7
45150	99	DIRN	SUR	72	0	0	27.9	90.5	94.7
45166	99	DIRN	SUR	112	0	0	42.8	-38.6	57.6
45175	99	DIRN	SUR	149	0	0	71.2	-25.4	75.6
45176	99	DIRN	SUR	149	0	0	103.6	15.2	104.8
46118	99	DIRN	SUR	22	0	0	30.9	-51.5	60.1
62140	99	DIRN	SUR	183	0	0	43.5	-34.5	55.5
66022	99	DIRN	SUR	126	0	0	50.9	34.4	61.5

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 : AUG 2019
 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
1601651	99	P	SUR	-51	70	226	226	0.0	0.0	0.0
1601654	99	P	SUR	-51	70	52	52	0.0	0.0	0.0
1701540	99	P	SUR	-34	18	49	0	1.2	-4.2	4.4
2301714	99	P	SUR	25	62	638	123	7.0	-1.8	7.2
2301719	99	P	SUR	22	89	639	264	8.4	-3.9	9.3
2501641	99	P	SUR	88	15	724	289	4.1	2.1	4.5
3101544	99	P	SUR	-38	-39	60	0	1.4	4.9	5.1
4500001	99	P	SUR	48	-88	4443	4443	0.0	0.0	0.0
4500002	99	P	SUR	45	-86	4156	4156	0.0	0.0	0.0
4500003	99	P	SUR	45	-83	741	740	0.0	0.2	0.2
4500004	99	P	SUR	48	-87	4442	4442	0.0	0.0	0.0
4500005	99	P	SUR	42	-82	4454	4454	0.0	0.0	0.0
4500006	99	P	SUR	47	-90	735	735	0.0	0.0	0.0
4500007	99	P	SUR	43	-87	4440	4440	0.0	0.0	0.0
4500008	99	P	SUR	44	-82	4438	4438	0.0	0.0	0.0
4500012	99	P	SUR	44	-77	4429	0	0.4	-9.3	9.3
4500026	99	P	SUR	42	-87	4381	4381	0.0	0.0	0.0
4500029	99	P	SUR	43	-86	4404	4404	0.0	0.0	0.0
4500168	99	P	SUR	42	-86	4399	4399	0.0	0.0	0.0
4701658	99	P	SUR	70	-97	734	82	6.8	-1.3	6.9
4800770	99	P	SUR	64	-38	728	728	0.0	0.0	0.0
5401543	99	P	SUR	-36	-105	350	106	4.6	-1.5	4.9
5501596	99	P	SUR	-62	-162	343	96	1.7	-0.2	1.7
6101001	99	P	SUR	38	24	166	10	7.7	1.4	7.8
6203584	99	P	SUR	64	-28	546	236	5.7	6.7	8.8

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 : AUG 2019
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : AUG 2019
 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
0062087	99	DIRN	SUR	55	7	202	0	0	12.6	-59.1	60.5
0066022	99	DIRN	SUR	54	14	190	0	0	47.0	25.0	53.2
1500001	99	DIRN	SUR	-10	-10	707	0	0	87.8	-56.9	104.6
1500002	99	DIRN	SUR	0	-10	261	0	0	159.8	18.0	160.8
15002	99	DIRN	SUR	0	-10	251	0	0	159.7	17.0	160.6
2300007	99	DIRN	SUR	8	89	167	0	0	128.9	-15.8	129.9
23093	99	DIRN	SUR	16	88	180	0	0	25.9	-20.2	32.9
23451	99	DIRN	SUR	15	69	99	0	0	26.8	-20.1	33.5
23452	99	DIRN	SUR	12	69	135	0	0	9.5	23.7	25.5
23456	99	DIRN	SUR	18	67	132	1	0	170.8	-19.8	172.0
23459	99	DIRN	SUR	14	87	189	0	0	14.3	-26.7	30.3
23492	99	DIRN	SUR	11	72	154	0	0	40.5	-48.8	63.4
3100003	99	DIRN	SUR	-8	-31	254	0	0	13.2	23.5	27.0
3100231	99	DIRN	SUR	-27	-47	181	3	0	97.4	-65.5	117.4
31003	99	DIRN	SUR	-8	-31	253	0	0	13.5	23.0	26.6
31231	99	DIRN	SUR	-27	-47	182	3	0	98.0	-65.2	117.7
4100064	99	DIRN	SUR	34	-77	564	0	0	20.9	-23.9	31.8
41064	99	DIRN	SUR	34	-77	556	0	0	21.5	-24.4	32.5
4400013	99	DIRN	SUR	42	-71	340	0	0	26.6	22.3	34.8
4400072	99	DIRN	SUR	37	-76	2648	0	0	34.0	-73.8	81.3
44013	99	DIRN	SUR	42	-71	326	0	0	25.2	22.4	33.7
44063	99	DIRN	SUR	39	-76	258	0	0	35.3	-24.2	42.8
44072	99	DIRN	SUR	37	-76	685	0	0	33.9	-75.3	82.6
44139	99	DIRN	SUR	44	-57	563	0	0	12.4	-24.9	27.8
4500024	99	DIRN	SUR	44	-87	2445	0	0	26.7	25.1	36.7
4500166	99	DIRN	SUR	45	-73	1632	0	0	25.6	-39.9	47.4
4500168	99	DIRN	SUR	42	-86	2278	0	0	40.5	25.6	47.9
4500175	99	DIRN	SUR	46	-85	2638	0	0	70.0	-25.8	74.6
4500176	99	DIRN	SUR	42	-82	2539	0	0	104.7	8.9	105.1
45024	99	DIRN	SUR	44	-87	700	0	0	26.0	25.4	36.3
45141	99	DIRN	SUR	61	-115	451	0	0	21.7	36.0	42.0

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
45149	99	DIRN	SUR	44	-82	493	0	0	24.0	22.9	33.1
45150	99	DIRN	SUR	62	-114	429	0	0	25.4	93.9	97.3
45166	99	DIRN	SUR	45	-73	516	0	0	30.4	-39.6	50.0
45168	99	DIRN	SUR	42	-86	462	0	0	43.9	25.2	50.7
45175	99	DIRN	SUR	46	-85	593	0	0	69.7	-24.6	73.9
45176	99	DIRN	SUR	42	-82	861	0	0	103.9	4.9	104.0
4600081	99	DIRN	SUR	61	-148	100	0	0	72.6	-11.4	73.5
4600087	99	DIRN	SUR	48	-125	269	0	0	32.7	24.0	40.6
4600118	99	DIRN	SUR	49	-123	127	0	0	38.0	-51.9	64.3
46081	99	DIRN	SUR	61	-148	89	0	0	67.0	-18.8	69.5
46087	99	DIRN	SUR	49	-125	117	0	0	26.3	25.6	36.7
46088	99	DIRN	SUR	48	-123	447	0	0	22.0	22.6	31.5
46118	99	DIRN	SUR	49	-123	126	0	0	39.0	-51.9	64.9
46120	99	DIRN	SUR	48	-122	50	0	0	16.2	-22.3	27.6
5300040	99	DIRN	SUR	-8	95	715	0	0	173.6	-11.9	174.0
5300056	99	DIRN	SUR	-5	95	702	1	0	147.8	88.4	172.2
53040	99	DIRN	SUR	-8	95	715	0	0	173.5	2.2	173.6
53056	99	DIRN	SUR	-5	95	700	0	0	149.2	85.1	171.8
6101001	99	DIRN	SUR	38	24	89	0	0	89.4	-5.6	89.5
6101003	99	DIRN	SUR	40	25	180	0	0	37.8	38.0	53.6
62140	99	DIRN	SUR	57	1	1076	0	0	46.0	-34.4	57.4
66022	99	DIRN	SUR	54	14	716	0	0	52.4	28.9	59.9

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 : AUG 2019
 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	23	0	4.0	80.7	80.8
01400	12	Z	1000	57	3	20	0	4.0	80.6	80.7
20046	12	Z	200	81	58	31	2	92.2	41.9	101.3
28695	12	Z	200	55	73	25	0	59.1	81.5	100.7
38064	12	Z	70	45	66	22	2	76.9	120.8	143.2
40437	12	Z	925	25	47	30	0	9.7	32.8	34.2
40437	00	Z	850	25	47	31	0	5.7	32.6	33.1
42634	00	Z	850	23	70	28	0	3.2	50.4	50.5
42724	00	Z	400	24	91	30	0	24.6	50.4	56.1
42726	00	Z	925	24	93	24	0	32.7	-7.8	33.6
61687	12	Z	1000	14	-14	22	0	3.9	-38.3	38.5
76394	00	Z	200	26	-100	30	0	82.2	187.8	205.0
98233	00	Z	1000	18	122	30	0	26.2	54.3	60.3
JNKN7J	12	Z	925	54	-25	10	0	3.1	47.0	47.1

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 : AUG 2019
 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
44373	12	V	250	44	104	30	0	-7.0	1.2	15.1

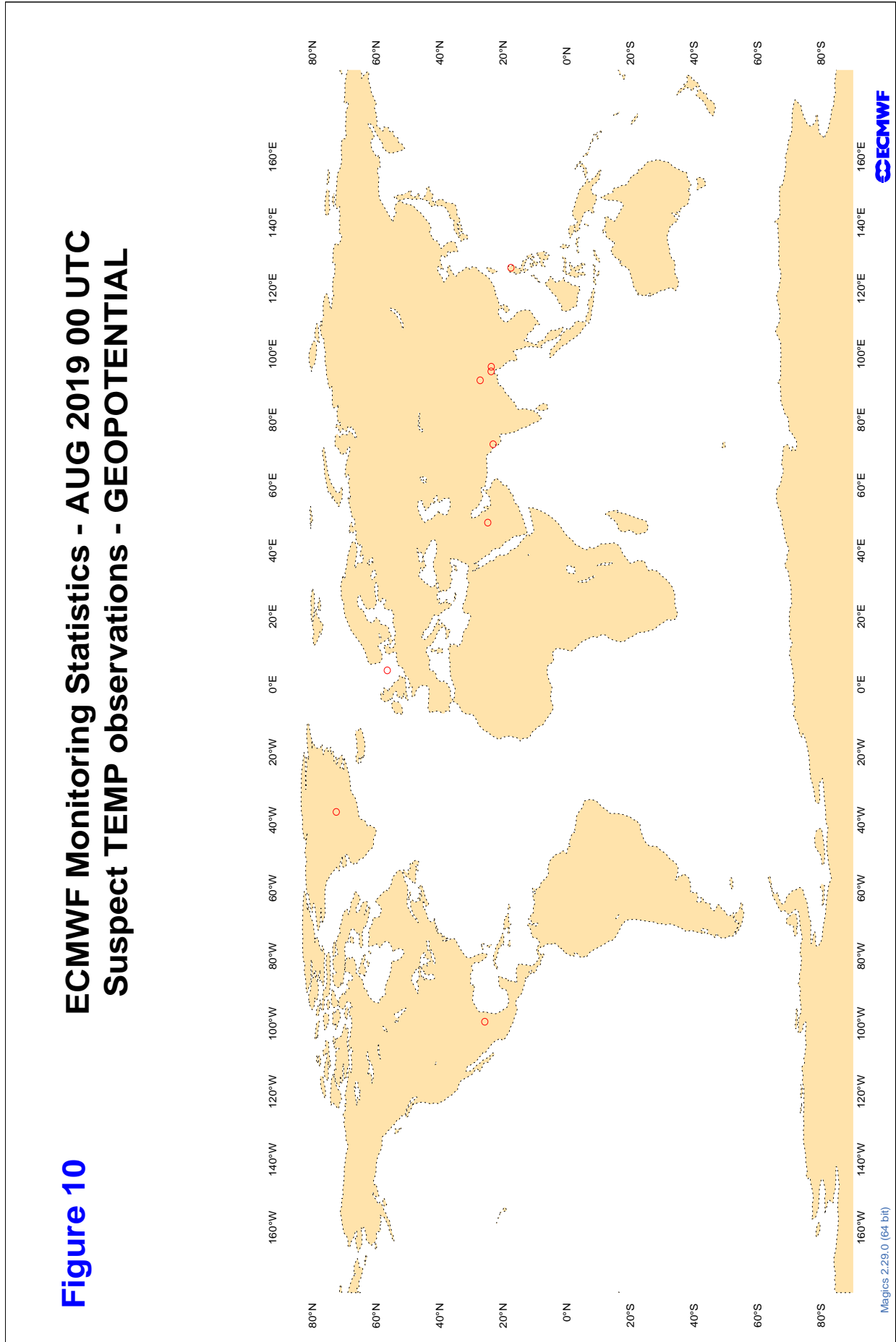
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : AUG 2019
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

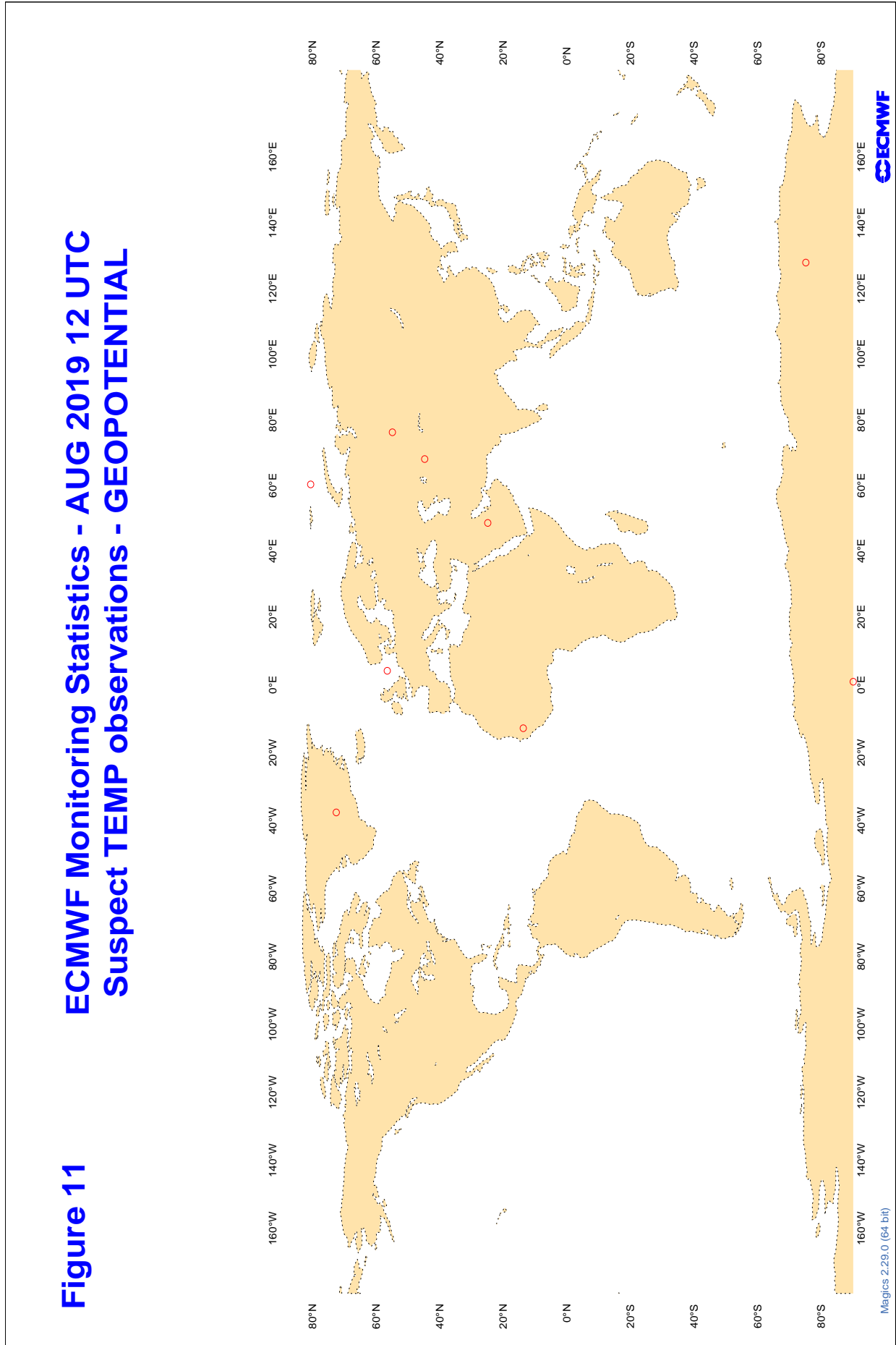
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS ≥ 5 M/S
 NO. OF OBSERVATIONS ≥ 5 , AND,
 ABSOLUTE BIAS ≥ 10 DEGREES, WITH
 STANDARD DEVIATION < 30 DEGREES, AND,
 VERTICAL SPREAD < 10 DEGREES
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
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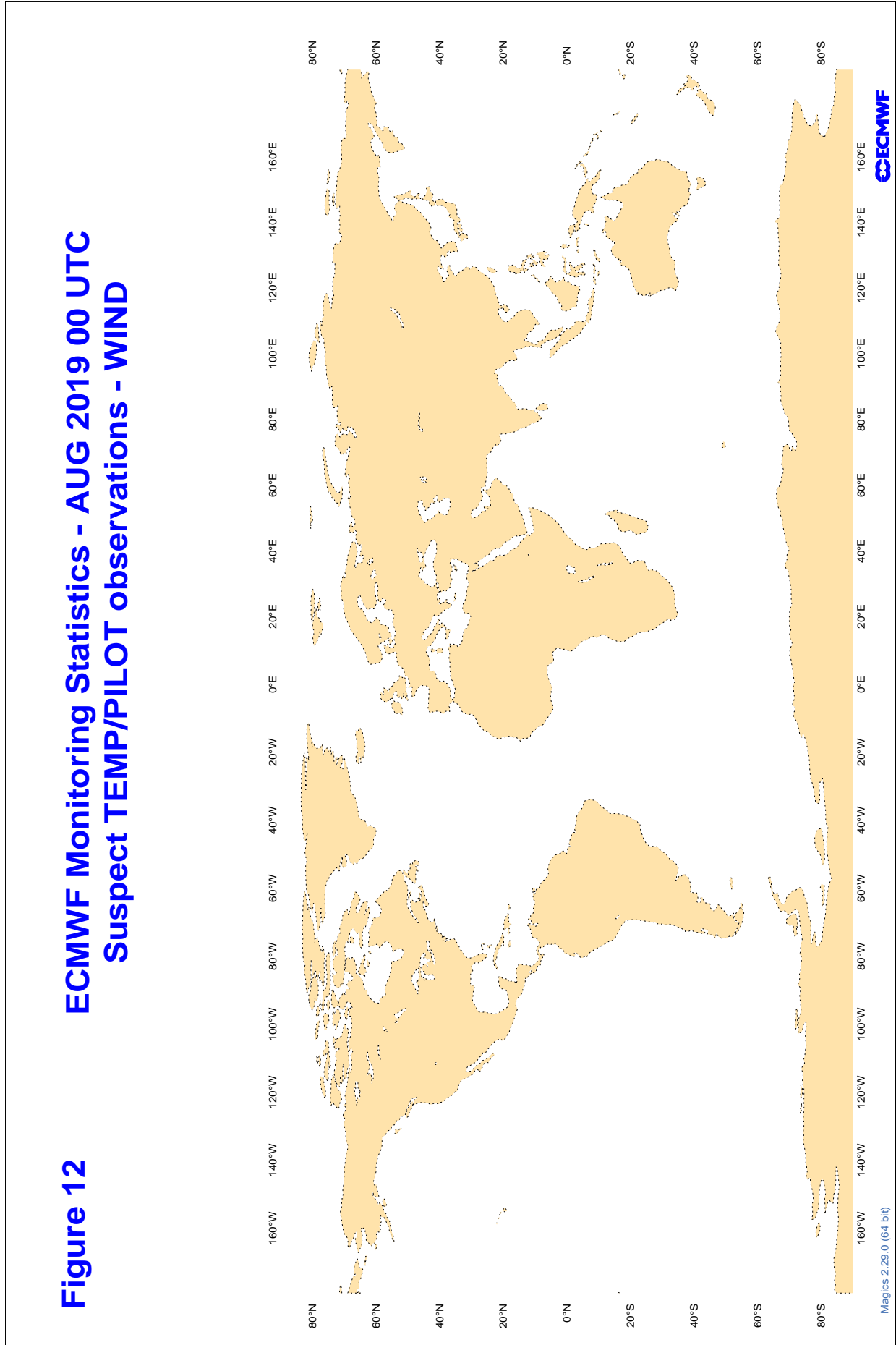
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



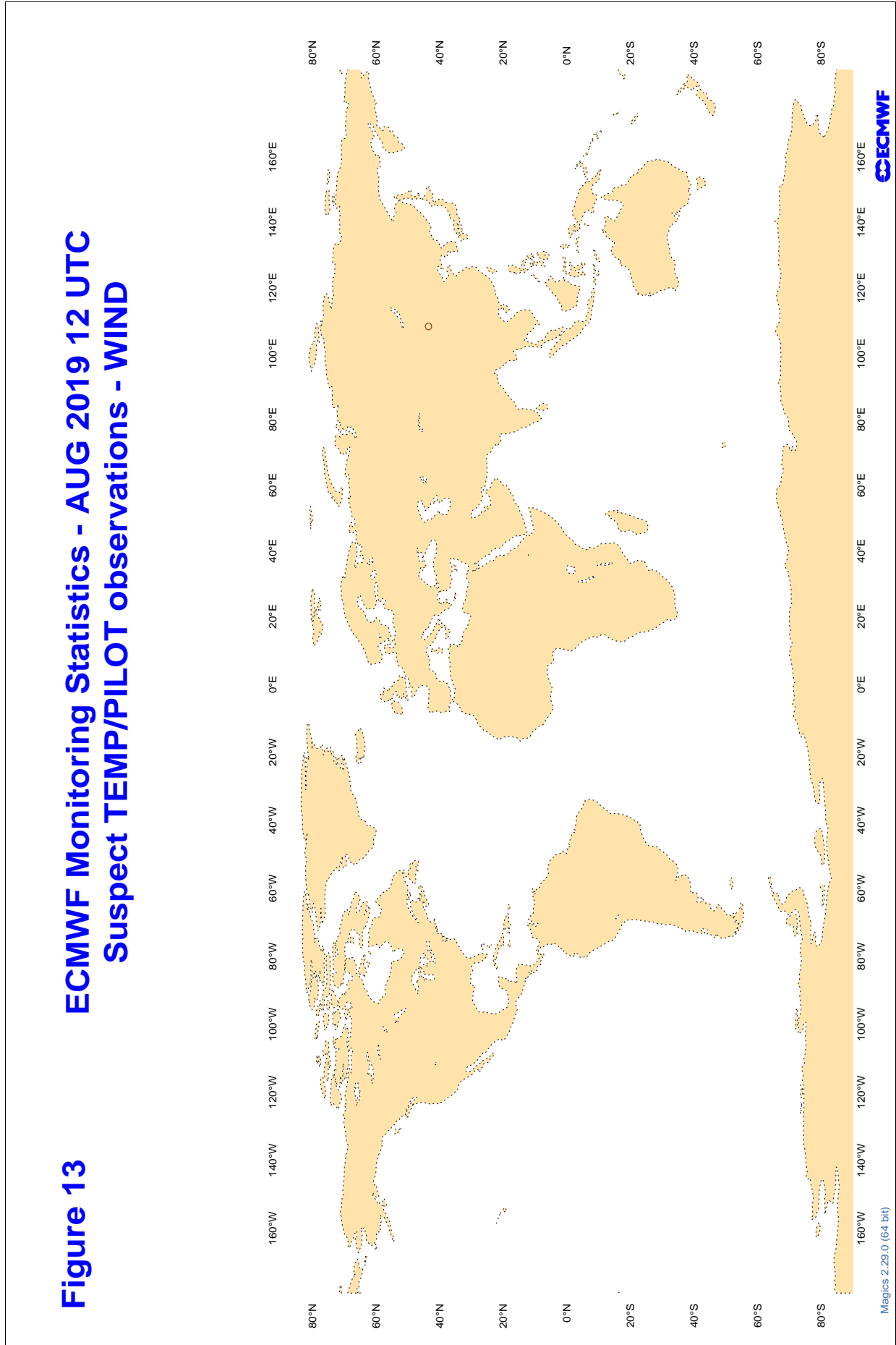
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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



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



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

RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 100 HPA
 AREA : GLOBAL
 PERIOD : AUG 2019
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
5QPW8X	12	Z	100	13	17.4	15.1
5QPW8X	00	Z	100	11	31.7	17.5
ASDE09	12	Z	100	1	21.7	21.7
DBLK	12	Z	100	18	9.8	-7.1
DSQL7	12	Z	100	22	7.8	-6.5
DSQL7	00	Z	100	22	9.3	-7.3
ERTOCT	12	Z	100	1	19.8	19.8
ERTOCT	00	Z	100	1	14.1	14.1
ERTOUN	12	Z	100	19	9.5	-1.9
ERTOUN	00	Z	100	20	7.8	1.6
FHM5UJ	12	Z	100	8	5.3	-0.1
FHM5UJ	00	Z	100	7	7.4	3.0
FPUW5G	12	Z	100	16	6.9	4.8
HTXUH4	12	Z	100	8	7.3	-0.7
HTXUH4	00	Z	100	7	6.2	3.4
JGQH	12	Z	100	0	0.0	0.0
JGQH	00	Z	100	2	5.8	-5.2
JNKN7J	12	Z	100	9	60.4	57.9
JNKN7J	00	Z	100	8	36.8	36.5
KJJF9X	12	Z	100	12	25.1	22.0
KJJF9X	00	Z	100	11	28.6	27.3
KMPLHP	12	Z	100	5	25.3	22.5
KMPLHP	00	Z	100	6	5.9	2.5
WDK38H	12	Z	100	11	8.3	-7.9
XKQLWQ	12	Z	100	19	18.3	15.9
XQFJRG	12	Z	100	1	5.8	5.8
XQFJRG	00	Z	100	1	6.4	-6.4
YLV96W	12	Z	100	4	78.1	74.0
YLV96W	00	Z	100	3	67.1	66.0
ZCTSER	12	Z	100	7	20.2	18.6
ZCTSER	00	Z	100	2	14.3	13.7
ZVQEQC	12	Z	100	7	15.1	14.4

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

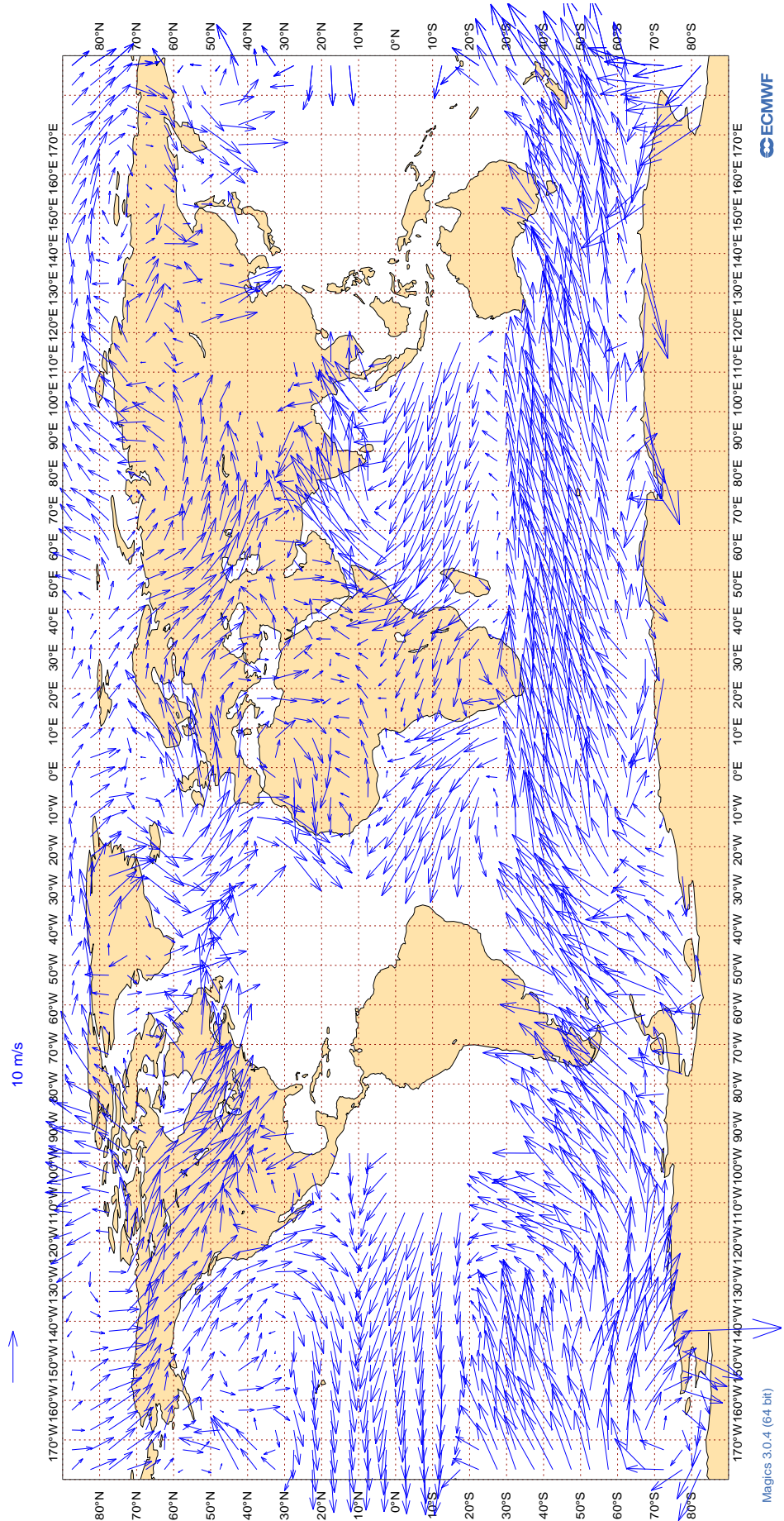
RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 100 HPA
 AREA : GLOBAL
 PERIOD : AUG 2019
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
5QPW8X	12	V	100	13	2.1	0.0	0.6
5QPW8X	00	V	100	11	2.6	-0.2	0.4
ASDE09	12	V	100	1	1.6	-0.6	1.5
DBLK	12	V	100	18	2.5	-0.1	0.4
DSQL7	12	V	100	22	1.5	-0.4	0.0
DSQL7	00	V	100	22	2.1	0.5	-0.5
ERTOCT	12	V	100	1	3.8	2.4	-2.9
ERTOCT	00	V	100	1	6.3	3.5	5.2
ERTOUN	12	V	100	18	6.1	-2.7	0.3
ERTOUN	00	V	100	20	4.5	-1.0	1.2
FHM5UJ	12	V	100	8	2.7	0.0	-0.7
FHM5UJ	00	V	100	7	2.7	-0.1	1.1
FPUW5G	12	V	100	16	2.3	-0.5	-0.3
HTXUH4	12	V	100	8	2.2	-0.1	0.2
HTXUH4	00	V	100	7	2.0	-0.6	0.6
JGQH	12	V	100	0	0.0	0.0	0.0
JGQH	00	V	100	2	3.1	2.3	0.5
JNKN7J	12	V	100	9	2.8	0.3	-1.3
JNKN7J	00	V	100	7	2.6	-0.2	0.1
KJJF9X	12	V	100	12	2.5	0.1	-0.7
KJJF9X	00	V	100	11	3.5	-0.1	0.8
KMPLHP	12	V	100	5	4.1	0.7	-1.1
KMPLHP	00	V	100	6	2.2	-0.7	0.9
WDK38H	12	V	100	10	1.7	-0.1	0.6
XKQLWQ	12	V	100	19	3.3	-0.5	0.1
XQFJRG	12	V	100	1	5.2	4.0	3.4
XQFJRG	00	V	100	1	1.6	0.4	1.5
YLV96W	12	V	100	4	3.6	-0.2	1.2
YLV96W	00	V	100	3	3.1	0.7	2.2
ZCTSER	12	V	100	7	5.6	0.4	0.0
ZCTSER	00	V	100	1	0.4	-0.4	-0.1
ZVQEQC	12	V	100	7	3.7	0.8	-0.8

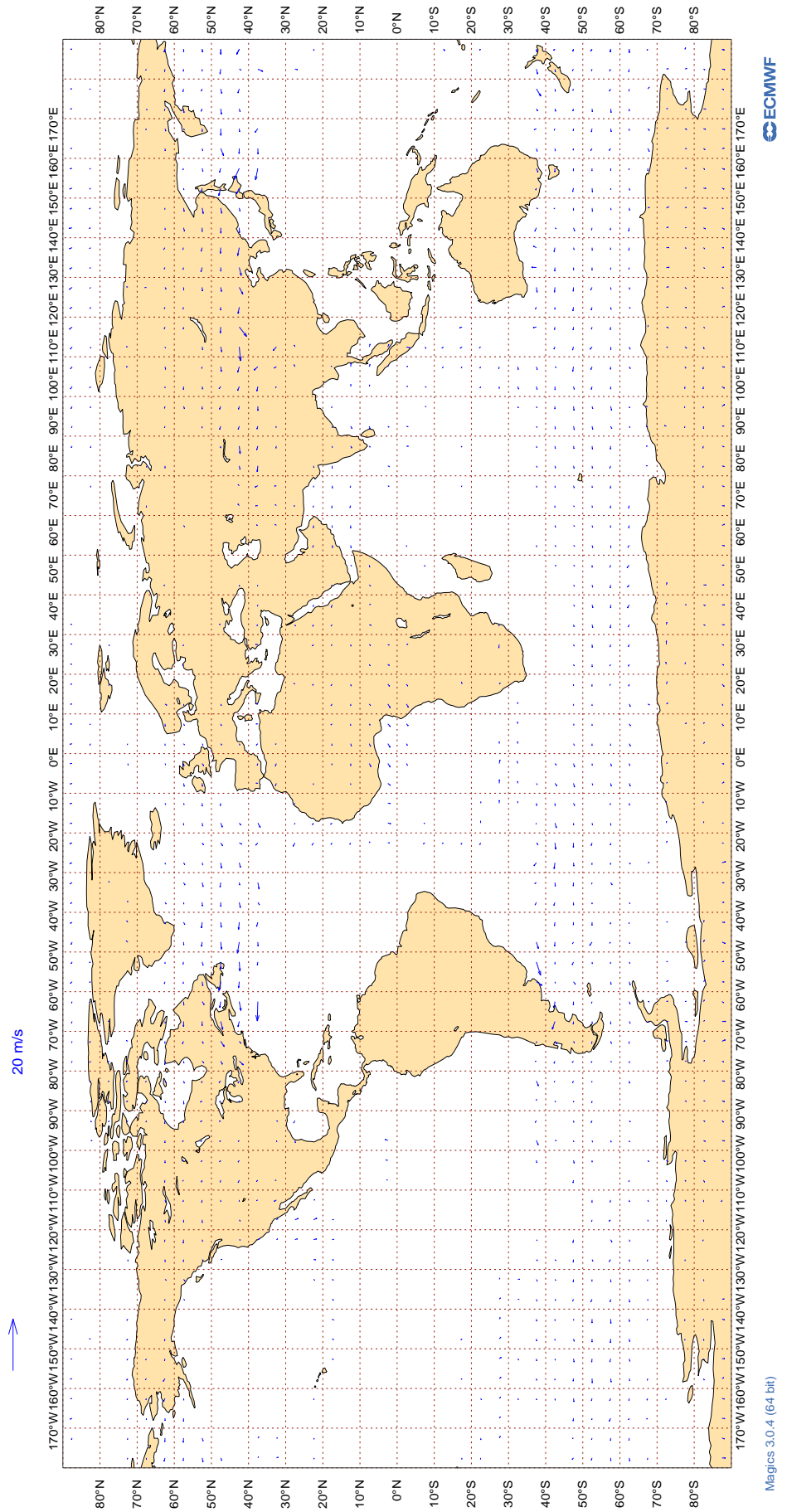
3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

Figure 14
ECMWF Monitoring Statistics: Aug 2019
AMV Winds: 700-1000hPa
Mean Observed Wind



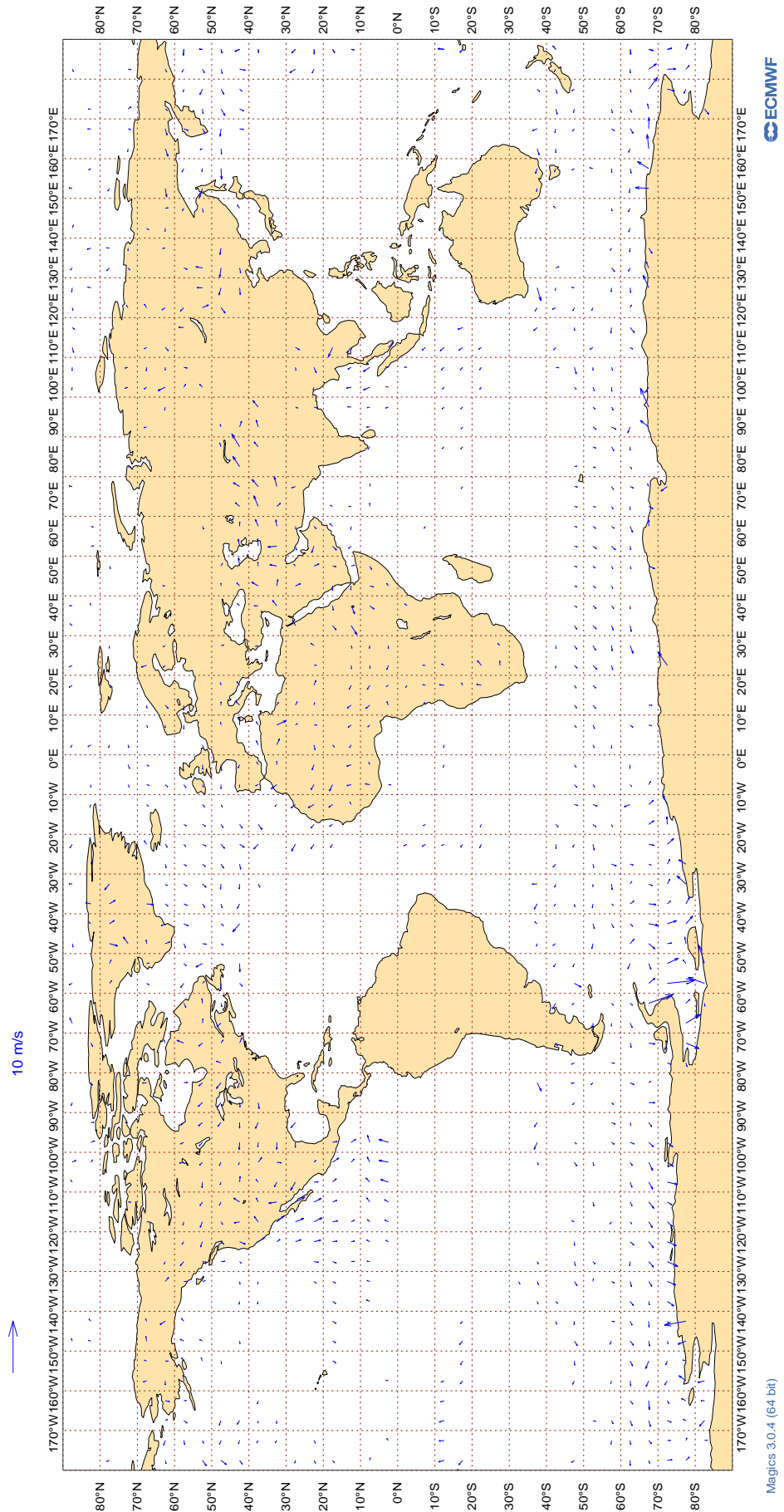
3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

Figure 15
ECMWF Monitoring Statistics: Aug 2019
AMV Winds: 150- 400hPa
Wind bias: Observation - FG



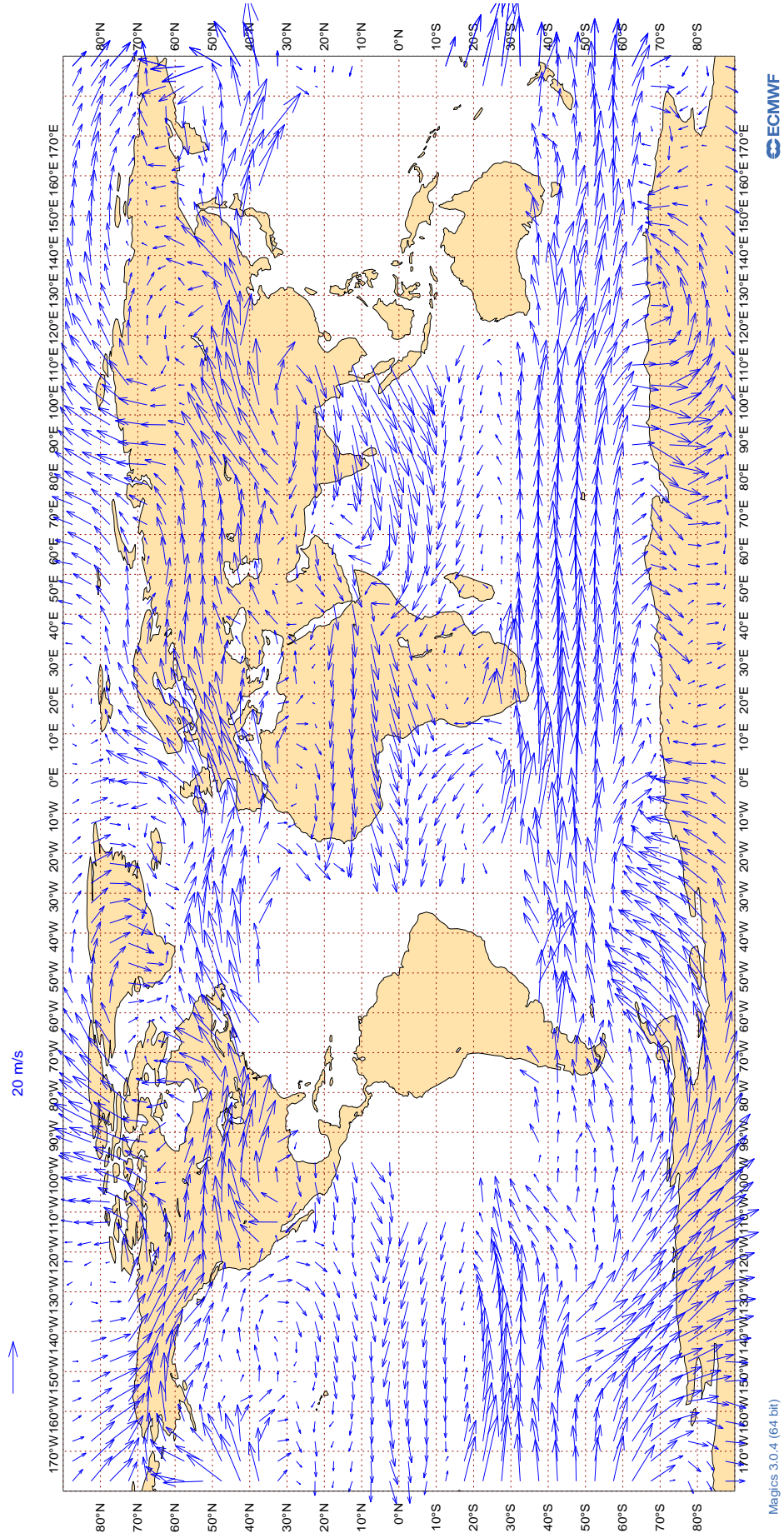
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

Figure 16
ECMWF Monitoring Statistics: Aug 2019
AMV Winds: 700-1000hPa
Wind bias: Observation - FG



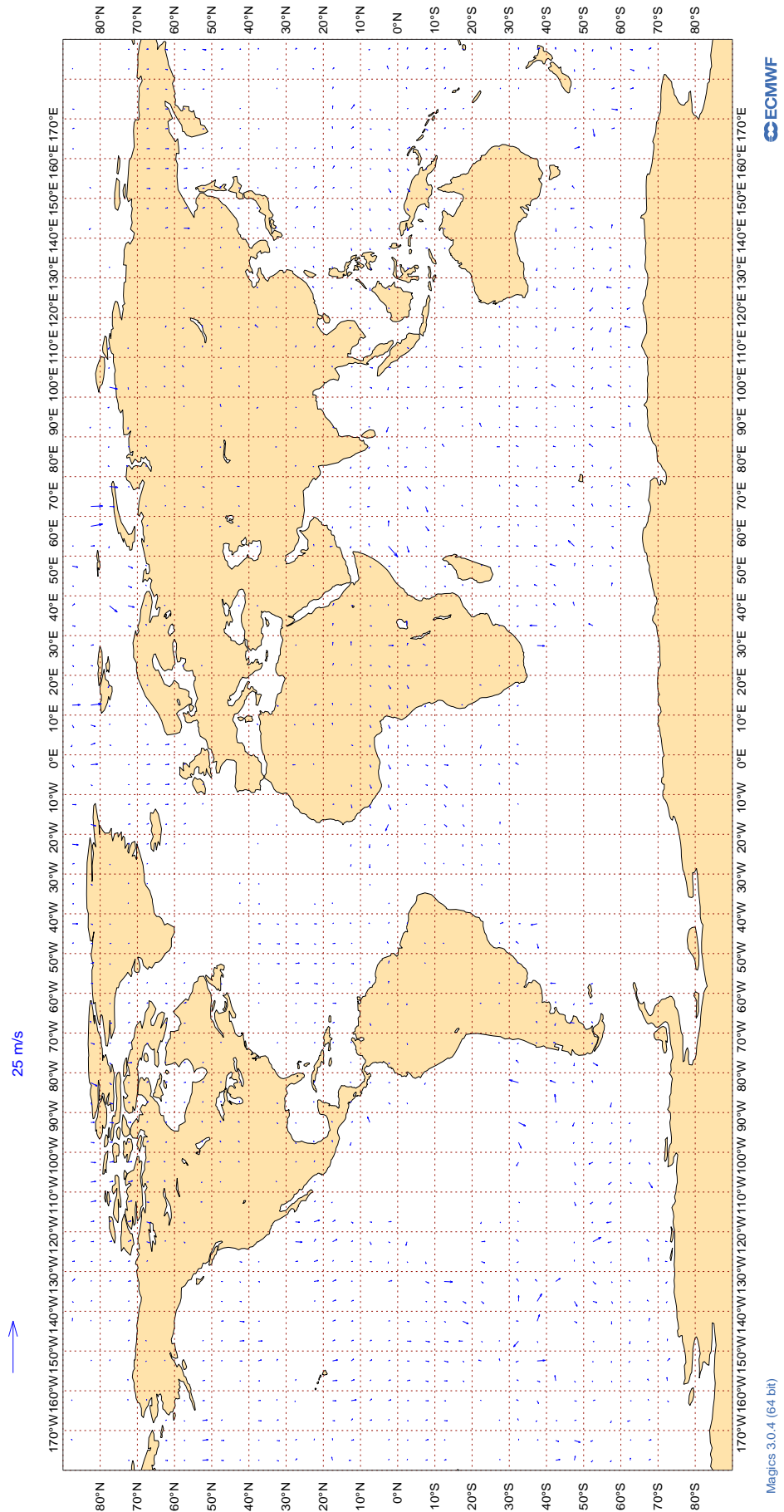
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

Figure 17 **ECMWF Monitoring Statistics: Aug 2019**
AMV Winds: 150- 400hPa
Mean Observed Wind



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

Figure 18
ECMWF Monitoring Statistics: Aug 2019
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 : AUG 2019
 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	53	0	0	3.4	0.2
AAL	99	V	300-150	68164	1	0	4.7	0.2
AAR	99	V	300-150	262	0	0	4.1	-1.6
ABB	99	V	300-150	66	0	0	2.2	-0.1
ABD	99	V	300-150	561	0	0	4.0	-0.2
ABG	99	V	300-150	87	0	0	3.2	0.4
ABP	99	V	300-150	28	0	0	3.2	0.3
ABW	99	V	300-150	698	0	0	3.4	-0.6
ACA	99	V	300-150	36257	1	0	4.9	0.2
ACI	99	V	300-150	3216	0	0	3.3	0.2
AEA	99	V	300-150	838	2	0	4.1	0.1
AFL	99	V	300-150	2312	0	0	3.1	0.3
AFR	99	V	300-150	32474	0	0	3.7	0.3
AHO	99	V	300-150	41	0	0	3.7	1.5
AHY	99	V	300-150	181	5	0	6.1	0.0
AIC	99	V	300-150	1744	0	0	3.8	0.2
AIZ	99	V	300-150	51	0	0	5.8	0.5
ALK	99	V	300-150	1104	0	0	4.3	0.6
AMX	99	V	300-150	3776	5	0	7.0	0.0
ANZ	99	V	300-150	30274	2	0	4.1	0.5
ASA	99	V	300-150	38	0	8	5.5	0.0
ASL	99	V	300-150	808	0	0	3.3	0.5
ASY	99	V	300-150	893	0	0	3.9	0.2
ATC	99	V	300-150	53	0	0	4.1	1.0
ATN	99	V	300-150	177	0	1	5.9	0.5
AUA	99	V	300-150	5654	0	0	3.8	-0.1
AUH	99	V	300-150	47	0	0	3.8	-0.2
AUI	99	V	300-150	1106	0	0	2.9	0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AVA	99	V	300-150	658	3	0	5.7	-0.0
AXM	99	V	300-150	165	0	1	5.3	0.2
AZA	99	V	300-150	10195	0	0	3.2	0.4
AZG	99	V	300-150	250	0	0	3.2	-0.3
BAW	99	V	300-150	54364	1	0	4.2	0.1
BBC	99	V	300-150	212	0	0	4.2	-0.5
BCS	99	V	300-150	326	0	0	2.5	0.1
BEL	99	V	300-150	2760	0	0	3.2	0.3
BJN	99	V	300-150	20	0	0	3.6	-0.7
BLU	99	V	300-150	25	0	0	2.8	0.5
BOS	99	V	300-150	1516	0	0	3.3	0.3
BOX	99	V	300-150	2784	0	0	3.3	0.1
BOX	99	V	300-150	145	0	0	3.9	-0.2
BPA	99	V	300-150	49	0	2	3.6	0.1
BRK	99	V	300-150	21	0	0	5.2	0.5
BVR	99	V	300-150	27	0	0	2.4	-0.2
BWJ	99	V	300-150	23	0	0	2.7	0.9
CAL	99	V	300-150	437	0	0	3.9	0.7
CAR	99	V	300-150	34	0	0	3.4	1.5
CAT	99	V	300-150	49	0	0	5.9	0.6
CAZ	99	V	300-150	135	0	0	3.2	0.7
CCA	99	V	300-150	791	8	0	4.5	0.9
CEB	99	V	300-150	75	0	0	4.6	1.5
CES	99	V	300-150	2058	0	0	3.4	0.2
CFC	99	V	300-150	402	0	0	4.0	0.4
CFG	99	V	300-150	6187	0	0	3.9	-0.2
CHH	99	V	300-150	211	1	0	6.6	0.4
CJT	99	V	300-150	141	0	0	4.6	0.3
CKS	99	V	300-150	1607	0	0	3.4	-0.0
CLF	99	V	300-150	62	0	0	10.5	-0.2
CLU	99	V	300-150	490	0	0	3.3	-0.3
CLX	99	V	300-150	3177	0	0	3.6	-0.5
CMB	99	V	300-150	649	0	0	3.6	0.2
CNK	99	V	300-150	49	0	0	2.5	0.0
CNV	99	V	300-150	87	0	0	3.1	0.8
COO	99	V	300-150	107	0	0	2.9	-0.1
CPA	99	V	300-150	846	0	0	3.9	0.7
CPI	99	V	300-150	42	0	0	4.6	0.4
CRL	99	V	300-150	2167	0	0	3.4	0.3
CSC	99	V	300-150	256	0	0	3.5	0.5
CSN	99	V	300-150	1001	2	0	4.7	0.7
CTM	99	V	300-150	78	0	0	3.8	0.3
DAH	99	V	300-150	1153	0	0	3.3	0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
DAL	99	V	300-150	84841	0	0	3.3	0.2
DCS	99	V	300-150	32	0	0	3.3	0.1
DGX	99	V	300-150	47	0	0	3.2	0.0
DHK	99	V	300-150	969	0	0	4.7	-0.4
DJT	99	V	300-150	1615	0	0	3.5	0.5
DLH	99	V	300-150	33970	0	0	3.2	0.1
DUB	99	V	300-150	103	0	0	2.7	-0.5
EAU	99	V	300-150	68	0	0	2.8	0.3
EDC	99	V	300-150	37	0	0	2.8	-0.4
EDG	99	V	300-150	208	4	0	8.4	0.2
EDW	99	V	300-150	2186	0	0	3.3	0.3
EIN	99	V	300-150	16746	0	0	3.2	0.2
EJM	99	V	300-150	919	3	0	4.0	0.1
ELY	99	V	300-150	4542	3	0	5.7	0.1
EMM	99	V	300-150	33	0	0	3.5	0.4
ETD	99	V	300-150	6009	1	0	4.3	0.2
ETH	99	V	300-150	3710	1	0	5.0	0.4
EUW	99	V	300-150	50	0	0	3.8	0.4
EWG	99	V	300-150	4636	0	0	3.2	0.3
EXS	99	V	300-150	142	0	0	2.9	-0.0
FBU	99	V	300-150	848	0	0	3.8	0.5
FDX	99	V	300-150	6450	0	0	3.3	0.2
FEX	99	V	300-150	35	0	0	3.2	0.8
FIN	99	V	300-150	890	0	0	2.9	0.4
FJI	99	V	300-150	8089	0	0	3.7	0.6
FRE	99	V	300-150	35	0	0	3.5	0.5
FRH	99	V	300-150	66	0	0	4.3	0.0
FWI	99	V	300-150	2035	0	0	3.2	0.3
FYG	99	V	300-150	54	0	0	4.0	0.9
FYL	99	V	300-150	37	0	0	4.2	0.5
GAJ	99	V	300-150	42	0	0	2.8	0.1
GCK	99	V	300-150	76	0	0	3.2	-0.4
GEC	99	V	300-150	2220	0	0	3.3	0.2
GES	99	V	300-150	40	0	0	2.7	-0.1
GFA	99	V	300-150	690	0	0	3.8	0.2
GIA	99	V	300-150	720	0	0	4.4	0.7
GLJ	99	V	300-150	25	0	0	3.2	0.2
GLO	99	V	300-150	36	6	3	12.3	0.5
GOL	99	V	300-150	47	0	0	5.6	-2.7
GTH	99	V	300-150	119	0	0	3.2	0.4
GTI	99	V	300-150	2722	0	0	3.7	-0.2
HAL	99	V	300-150	4253	0	0	4.0	0.8
HRT	99	V	300-150	60	0	0	3.0	-0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
IBE	99	V	300-150	4822	0	0	3.4	0.5
IBK	99	V	300-150	1070	0	0	3.0	0.4
ICE	99	V	300-150	999	0	0	3.9	0.4
ICL	99	V	300-150	677	0	0	4.6	-0.2
ICV	99	V	300-150	199	0	0	3.5	-1.1
IFA	99	V	300-150	32	0	6	3.7	0.7
IJM	99	V	300-150	44	0	0	5.3	0.2
ISS	99	V	300-150	3214	0	0	3.4	0.3
IXR	99	V	300-150	39	0	0	3.0	0.2
JAD	99	V	300-150	69	0	0	3.6	-0.0
JAF	99	V	300-150	1055	4	0	6.2	0.2
JAS	99	V	300-150	95	0	1	2.9	0.3
JCL	99	V	300-150	32	0	0	3.3	1.0
JCO	99	V	300-150	33	0	0	2.4	0.3
JET	99	V	300-150	87	0	0	3.6	-0.8
JJA	99	V	300-150	61	0	5	6.8	0.7
JME	99	V	300-150	20	0	0	2.8	0.9
JST	99	V	300-150	2489	2	0	7.9	0.3
KAC	99	V	300-150	1320	0	0	3.3	0.3
KAI	99	V	300-150	106	0	0	3.5	-0.4
KAL	99	V	300-150	1294	2	0	4.4	0.6
KAY	99	V	300-150	132	0	1	3.8	0.3
KCE	99	V	300-150	49	0	0	2.6	0.1
KFS	99	V	300-150	37	68	0	28.3	0.6
KIW	99	V	300-150	159	0	0	4.2	0.4
KLM	99	V	300-150	18195	1	0	4.2	0.1
KNE	99	V	300-150	126	0	0	4.6	-0.0
KQA	99	V	300-150	231	4	0	4.6	0.1
KTK	99	V	300-150	350	0	0	3.5	0.3
LAN	99	V	300-150	2427	8	0	6.2	-0.1
LCO	99	V	300-150	48	0	0	4.3	-1.6
LOT	99	V	300-150	5191	3	0	5.6	0.0
LSM	99	V	300-150	34	0	0	3.0	-0.5
LUC	99	V	300-150	20	0	0	3.7	-0.3
LWG	99	V	300-150	34	0	0	2.8	0.4
LXJ	99	V	300-150	224	10	0	10.4	0.6
MAS	99	V	300-150	641	0	0	4.0	0.5
MAU	99	V	300-150	265	0	0	6.0	1.6
MED	99	V	300-150	103	0	0	3.3	0.2
MHV	99	V	300-150	101	0	0	3.6	0.8
MJF	99	V	300-150	41	0	0	2.8	0.2
MLT	99	V	300-150	32	100	0	0.0	0.0
MMD	99	V	300-150	248	0	0	3.5	0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
MPH	99	V	300-150	714	0	0	3.6	-0.7
MSR	99	V	300-150	2211	1	0	4.1	0.3
NAX	99	V	300-150	14201	5	0	6.6	0.0
NCA	99	V	300-150	134	1	0	3.6	-0.7
NJE	99	V	300-150	227	0	0	2.9	0.4
NOS	99	V	300-150	340	4	0	6.9	-0.5
NRS	99	V	300-150	8938	3	0	6.2	0.2
NWS	99	V	300-150	215	0	0	3.0	0.3
OAE	99	V	300-150	1119	0	0	3.9	0.0
OLI	99	V	300-150	29	0	0	3.7	-0.1
OMA	99	V	300-150	706	0	0	5.3	0.7
PAC	99	V	300-150	106	0	1	4.0	0.2
PAL	99	V	300-150	658	0	0	4.4	1.1
PAO	99	V	300-150	28	0	36	5.5	0.1
PAT	99	V	300-150	55	0	0	3.9	-0.6
PEG	99	V	300-150	42	0	0	2.7	-0.5
PIA	99	V	300-150	166	0	0	3.0	-0.2
PLM	99	V	300-150	92	0	2	3.4	-0.8
QAF	99	V	300-150	49	0	0	2.6	0.8
QFA	99	V	300-150	18548	1	0	5.0	0.1
QQE	99	V	300-150	119	0	0	4.5	1.6
QTR	99	V	300-150	15437	0	0	3.7	0.2
RAM	99	V	300-150	801	4	0	4.3	0.2
RBA	99	V	300-150	110	0	0	5.8	0.8
RCH	99	V	300-150	3788	0	0	4.2	0.5
REN	99	V	300-150	36	0	0	2.9	-0.2
RJA	99	V	300-150	2096	4	0	6.8	-0.1
RJE	99	V	300-150	21	0	0	6.4	-1.1
ROJ	99	V	300-150	120	0	0	3.4	0.9
ROU	99	V	300-150	12990	0	0	3.9	-0.1
RRR	99	V	300-150	325	0	0	3.3	0.0
RWD	99	V	300-150	42	0	0	2.7	0.4
RZO	99	V	300-150	221	0	2	3.7	0.4
SAM	99	V	300-150	384	0	0	3.7	0.1
SAS	99	V	300-150	4914	0	0	2.8	0.1
SAZ	99	V	300-150	22	0	0	3.4	1.9
SCX	99	V	300-150	467	0	0	3.9	0.6
SEY	99	V	300-150	114	0	0	4.1	0.2
SIA	99	V	300-150	3480	0	0	3.4	0.0
SIS	99	V	300-150	29	0	3	3.4	0.0
SJT	99	V	300-150	44	0	0	3.2	-0.1
SLM	99	V	300-150	144	0	0	2.8	0.3
SMO	99	V	300-150	20	0	0	4.1	1.8

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
SOO	99	V	300-150	603	0	0	3.3	0.2
SPA	99	V	300-150	87	0	0	3.5	0.1
SVA	99	V	300-150	5311	0	0	3.6	0.4
SVW	99	V	300-150	80	0	0	3.6	-0.1
SWA	99	V	300-150	56	0	5	3.1	-0.3
SWR	99	V	300-150	11060	0	0	3.3	0.3
TAM	99	V	300-150	23	0	0	7.6	-0.3
TAP	99	V	300-150	2028	0	0	3.5	0.3
TAR	99	V	300-150	629	0	0	2.9	0.5
TAY	99	V	300-150	322	0	0	4.0	0.3
TCX	99	V	300-150	7035	0	0	3.0	0.3
TFF	99	V	300-150	21	0	5	5.8	-0.1
TFL	99	V	300-150	1543	5	0	6.4	0.1
TGW	99	V	300-150	85	0	0	4.7	0.5
THA	99	V	300-150	412	7	0	4.6	0.2
THT	99	V	300-150	4171	2	0	5.8	0.4
THY	99	V	300-150	9283	0	0	3.5	0.2
TMN	99	V	300-150	207	0	0	3.7	0.3
TOM	99	V	300-150	6229	4	0	6.6	0.1
TOW	99	V	300-150	79	0	0	3.7	-0.6
TPA	99	V	300-150	153	0	0	3.2	0.0
TRE	99	V	300-150	38	0	0	4.5	-1.0
TSC	99	V	300-150	21728	0	0	3.2	0.2
TWB	99	V	300-150	29	0	3	5.6	0.6
TWY	99	V	300-150	481	0	0	3.6	0.5
UAE	99	V	300-150	17113	0	0	3.6	0.2
UAL	99	V	300-150	86791	1	1	5.0	0.2
UPS	99	V	300-150	4572	0	0	3.7	0.1
UZB	99	V	300-150	172	3	0	4.5	-0.2
VCN	99	V	300-150	143	0	0	3.1	0.1
VIR	99	V	300-150	25568	1	0	4.6	0.1
VJT	99	V	300-150	932	0	0	3.4	0.5
VMP	99	V	300-150	41	0	0	6.6	-1.5
VOZ	99	V	300-150	6492	0	0	3.5	0.2
WGT	99	V	300-150	153	0	0	3.2	0.4
WJA	99	V	300-150	6270	1	0	4.3	0.2
WWI	99	V	300-150	31	0	0	3.2	0.5
XLF	99	V	300-150	1960	0	0	3.2	0.3
XRO	99	V	300-150	91	0	0	3.3	0.4

4 EUCOS Area Monitoring Statistics

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

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

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

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 50 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : AUG 2019
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	29	5.7	0.6
01001	00	Z	50	31	8.1	4.5
01028	12	Z	50	31	9.0	1.2
01028	00	Z	50	31	6.0	4.0
01400	12	Z	50	18	85.9	85.7
01400	00	Z	50	23	96.9	96.7
014007	12	Z	50	0	0.0	0.0
014008	12	Z	50	0	0.0	0.0
014008	12	Z	50	0	0.0	0.0
01415	00	Z	50	29	16.3	15.4
01415	12	Z	50	31	8.3	6.8
014151	12	Z	50	0	0.0	0.0
02365	12	Z	50	26	5.8	2.8
02365	00	Z	50	23	11.7	10.5
02591	12	Z	50	27	10.5	9.0
02591	00	Z	50	30	20.6	20.2
02836	00	Z	50	31	10.5	7.6
02836	12	Z	50	31	6.9	1.1
02963	00	Z	50	31	15.3	14.9
02963	12	Z	50	28	5.3	3.7
03005	00	Z	50	31	11.7	8.3
03005	12	Z	50	30	7.7	2.3
03238	00	Z	50	27	15.9	12.5
03808	00	Z	50	29	16.9	15.2
03808	12	Z	50	30	8.4	6.0
03918	12	Z	50	2	18.2	17.7
03918	00	Z	50	25	18.3	16.9
039185	00	Z	50	0	0.0	0.0
03953	00	Z	50	25	19.7	9.9
03953	12	Z	50	28	35.1	30.6
04018	12	Z	50	31	7.0	0.0
04018	00	Z	50	29	8.5	8.0
04220	12	Z	50	29	7.3	4.7
04220	00	Z	50	31	8.1	6.4
04270	00	Z	50	30	8.0	5.8
04270	12	Z	50	30	6.4	3.5
04320	00	Z	50	31	15.1	4.1
04320	12	Z	50	31	5.7	2.9
04339	00	Z	50	29	6.7	5.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04339	12	Z	50	30	9.0	0.2
04360	12	Z	50	26	11.5	3.2
06011	12	Z	50	31	16.0	13.3
06011	00	Z	50	31	17.3	14.5
06260	00	Z	50	31	15.2	13.8
06260	12	Z	50	5	7.5	6.8
06610	00	Z	50	31	18.9	18.2
06610	12	Z	50	31	10.7	8.2
07110	00	Z	50	31	14.9	9.7
07110	12	Z	50	31	14.2	9.4
07510	00	Z	50	25	33.7	32.8
07510	12	Z	50	27	23.7	21.7
07645	00	Z	50	25	26.0	24.5
07645	12	Z	50	30	22.4	19.6
07761	12	Z	50	30	27.0	24.9
07761	00	Z	50	28	33.5	32.4
08001	12	Z	50	29	13.8	11.6
08001	00	Z	50	30	19.8	19.0
08221	12	Z	50	29	17.5	16.9
08221	00	Z	50	29	22.2	21.4
082218	00	Z	50	0	0.0	0.0
08302	12	Z	50	31	11.1	4.3
08302	00	Z	50	31	14.1	13.0
08508	12	Z	50	29	15.4	14.6
08522	12	Z	50	31	12.7	10.8
08579	12	Z	50	30	17.3	16.7
10035	12	Z	50	31	12.0	11.3
10393	00	Z	50	31	17.8	16.4
10393	12	Z	50	31	8.4	6.3
10410	00	Z	50	30	13.5	12.6
10410	12	Z	50	30	6.6	5.1
10739	00	Z	50	30	19.6	19.1
10739	12	Z	50	31	12.0	10.1
11035	00	Z	50	30	24.9	23.5
11035	12	Z	50	34	26.9	22.8
12982	00	Z	50	27	24.5	23.3
12982	12	Z	50	31	40.5	31.4
16080	00	Z	50	31	16.2	15.8
16080	12	Z	50	30	7.2	3.7
16245	00	Z	50	31	19.4	18.9
16245	12	Z	50	30	8.4	5.6
16320	12	Z	50	31	17.9	12.9
16320	00	Z	50	31	26.4	25.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	00	Z	50	31	23.4	22.8
16429	12	Z	50	31	11.5	10.3
16622	00	Z	50	29	32.5	32.0
16754	00	Z	50	29	27.3	27.0
17607	12	Z	50	28	13.9	12.1
26435	12	Z	50	15	3.7	1.8
5QPW8X	12	Z	50	11	22.6	20.9
5QPW8X	00	Z	50	10	40.6	32.8
60018	00	Z	50	28	20.8	20.1
60018	12	Z	50	31	11.0	10.2
ASDE09	12	Z	50	0	0.0	0.0
DBLK	12	Z	50	18	6.7	-0.5
ERTOCT	12	Z	50	0	0.0	0.0
ERTOCT	00	Z	50	0	0.0	0.0
ERTOUN	12	Z	50	17	9.7	6.1
ERTOUN	00	Z	50	19	11.1	9.1
FHM5UJ	12	Z	50	5	7.9	4.8
FHM5UJ	00	Z	50	7	13.2	11.9
FPUW5G	12	Z	50	13	15.2	14.6
HTXUH4	12	Z	50	8	10.4	3.8
HTXUH4	00	Z	50	7	14.6	12.3
JNKN7J	12	Z	50	9	93.3	87.1
JNKN7J	00	Z	50	8	45.9	45.5
KJJF9X	12	Z	50	11	37.7	35.3
KJJF9X	00	Z	50	11	43.8	42.5
KMPLHP	12	Z	50	4	45.0	42.3
KMPLHP	00	Z	50	4	12.7	9.3
WDK38H	12	Z	50	9	4.0	-0.8
XKQLWQ	12	Z	50	19	31.0	29.0
XQFJRG	12	Z	50	1	30.9	30.9
XQFJRG	00	Z	50	1	1.3	1.3
YLV96W	12	Z	50	3	101.0	97.0
YLV96W	00	Z	50	3	77.7	76.5
ZCTSER	12	Z	50	2	24.9	24.9
ZCTSER	00	Z	50	1	16.2	16.2
ZVQEQC	12	Z	50	7	19.8	19.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 50 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : AUG 2019
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	29	2.8	0.0	0.0
01001	00	V	50	24	2.9	0.7	0.0
01028	12	V	50	31	2.3	-0.2	-0.1
01028	00	V	50	25	2.9	0.1	-0.2
01400	12	V	50	18	2.7	0.1	-0.6
01400	00	V	50	20	3.1	0.2	0.7
014007	12	V	50	0	0.0	0.0	0.0
014008	12	V	50	0	0.0	0.0	0.0
014008	12	V	50	0	0.0	0.0	0.0
01415	00	V	50	25	3.0	0.3	0.1
01415	12	V	50	31	2.8	0.3	0.1
014151	12	V	50	0	0.0	0.0	0.0
02365	12	V	50	26	3.0	0.0	0.0
02365	00	V	50	16	2.9	0.3	-0.1
02591	12	V	50	27	3.1	-0.2	-0.3
02591	00	V	50	24	3.1	-0.3	0.5
02836	00	V	50	27	2.6	-0.4	-0.3
02836	12	V	50	31	2.3	-0.2	-0.2
02963	00	V	50	25	3.0	-0.3	-0.5
02963	12	V	50	28	3.0	-0.4	0.0
03005	00	V	50	25	3.5	0.4	-0.5
03005	12	V	50	30	2.5	0.5	-0.6
03238	00	V	50	21	3.6	-0.3	-0.2
03808	00	V	50	22	2.9	0.0	0.0
03808	12	V	50	30	3.1	0.5	-0.8
03918	12	V	50	2	2.9	-0.6	1.4
03918	00	V	50	17	2.5	0.2	-0.1
039185	00	V	50	0	0.0	0.0	0.0
03953	00	V	50	21	2.6	0.5	0.2
03953	12	V	50	28	2.9	0.5	0.3
04018	12	V	50	31	2.7	-0.3	0.2
04018	00	V	50	27	2.7	0.1	0.1
04220	12	V	50	29	2.7	-0.9	0.3
04220	00	V	50	23	3.2	-0.6	0.5
04270	00	V	50	25	2.5	0.5	-0.1
04270	12	V	50	30	3.0	0.5	-0.1
04320	00	V	50	25	2.3	-0.4	0.2
04320	12	V	50	31	2.3	-0.4	0.3
04339	00	V	50	23	2.6	0.6	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04339	12	V	50	30	2.8	0.3	0.3
04360	12	V	50	26	2.2	-0.6	-0.1
06011	12	V	50	31	2.8	0.0	-0.2
06011	00	V	50	25	2.7	0.0	0.4
06260	00	V	50	26	2.5	0.2	0.0
06260	12	V	50	5	3.4	1.6	-0.9
06610	00	V	50	25	3.3	0.3	0.0
06610	12	V	50	31	3.6	0.5	-0.4
07110	00	V	50	26	3.1	0.1	-0.6
07110	12	V	50	31	2.5	0.7	-0.7
07510	00	V	50	22	2.5	-0.1	0.2
07510	12	V	50	27	2.9	0.3	-0.5
07645	00	V	50	19	2.6	-0.2	-0.6
07645	12	V	50	30	3.6	-0.2	-1.0
07761	12	V	50	30	3.3	1.2	-0.4
07761	00	V	50	24	3.3	-0.1	0.5
08001	12	V	50	28	2.8	0.5	-0.7
08001	00	V	50	23	3.2	-0.1	0.2
08221	12	V	50	29	3.5	0.9	-0.1
08221	00	V	50	24	2.5	1.2	0.4
082218	00	V	50	0	0.0	0.0	0.0
08302	12	V	50	31	3.7	1.1	-0.1
08302	00	V	50	24	3.6	0.0	0.3
08508	12	V	50	29	2.7	0.4	-0.2
08522	12	V	50	31	3.2	0.2	0.4
08579	12	V	50	30	3.0	1.1	0.7
10035	12	V	50	31	2.7	0.2	-0.3
10393	00	V	50	27	3.0	0.1	0.3
10393	12	V	50	30	2.8	0.4	0.1
10410	00	V	50	30	2.7	0.3	0.4
10410	12	V	50	30	2.6	-0.2	-0.1
10739	00	V	50	29	2.3	0.2	0.4
10739	12	V	50	31	3.1	0.5	0.0
11035	00	V	50	24	2.5	0.5	-0.3
11035	12	V	50	30	2.6	0.1	0.3
12982	00	V	50	24	2.9	0.4	0.1
12982	12	V	50	31	3.0	0.7	0.2
16080	00	V	50	23	3.5	-0.3	0.0
16080	12	V	50	30	3.3	0.2	-0.2
16245	00	V	50	25	4.0	0.3	0.2
16245	12	V	50	29	3.6	1.3	-0.2
16320	12	V	50	31	2.6	0.5	-0.5
16320	00	V	50	24	3.9	1.2	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	00	V	50	25	3.7	0.7	-0.4
16429	12	V	50	31	3.4	0.4	-0.5
16622	00	V	50	21	3.1	0.7	0.5
16754	00	V	50	24	4.1	0.3	-0.4
17607	12	V	50	20	3.5	-0.6	-0.5
26435	12	V	50	14	2.4	-0.1	0.0
5QPW8X	12	V	50	11	2.2	-0.1	0.0
5QPW8X	00	V	50	8	1.8	0.3	0.1
60018	00	V	50	22	3.2	-0.6	0.2
60018	12	V	50	30	4.0	0.2	0.3
ASDE09	12	V	50	0	0.0	0.0	0.0
DBLK	12	V	50	18	3.0	-0.2	-0.8
ERTOCT	12	V	50	0	0.0	0.0	0.0
ERTOCT	00	V	50	0	0.0	0.0	0.0
ERTOUN	12	V	50	16	5.5	-0.2	-1.6
ERTOUN	00	V	50	18	4.9	-0.2	-0.3
FHM5UJ	12	V	50	5	2.9	0.6	0.9
FHM5UJ	00	V	50	7	2.8	1.5	-0.8
FPUW5G	12	V	50	10	2.9	0.5	0.1
HTXUH4	12	V	50	8	3.0	0.6	0.6
HTXUH4	00	V	50	7	2.8	0.5	-1.3
JNKN7J	12	V	50	9	2.1	0.5	-0.5
JNKN7J	00	V	50	8	2.1	0.1	-0.6
KJJF9X	12	V	50	11	3.2	-0.3	0.8
KJJF9X	00	V	50	11	2.6	-0.8	0.7
KMPLHP	12	V	50	4	3.6	1.7	1.1
KMPLHP	00	V	50	4	3.9	2.1	1.7
WDK38H	12	V	50	8	2.8	-0.3	0.3
XKQLWQ	12	V	50	18	3.9	1.0	-0.2
XQFJRG	12	V	50	1	3.6	1.9	3.1
XQFJRG	00	V	50	1	3.6	3.0	1.9
YLV96W	12	V	50	3	1.4	0.4	-0.3
YLV96W	00	V	50	3	2.5	1.5	0.6
ZCTSER	12	V	50	2	6.9	-1.4	-1.5
ZCTSER	00	V	50	1	4.9	-1.5	4.7
ZVQEQC	12	V	50	6	2.1	1.0	-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 : AUG 2019
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	30	7.0	-5.6
01001	00	Z	100	31	6.9	-3.8
01028	12	Z	100	31	6.9	-4.9
01028	00	Z	100	31	6.3	-4.4
01400	12	Z	100	18	79.4	79.2
01400	00	Z	100	23	85.2	85.0
014007	12	Z	100	0	0.0	0.0
014008	12	Z	100	0	0.0	0.0
014008	12	Z	100	0	0.0	0.0
01415	00	Z	100	30	6.7	3.6
01415	12	Z	100	31	3.7	0.3
014151	12	Z	100	0	0.0	0.0
02365	12	Z	100	28	5.1	-3.3
02365	00	Z	100	26	5.2	1.8
02591	12	Z	100	28	5.0	2.4
02591	00	Z	100	31	10.8	10.1
02836	00	Z	100	31	5.0	-0.5
02836	12	Z	100	31	6.8	-4.4
02963	00	Z	100	31	5.5	4.5
02963	12	Z	100	29	4.5	-3.5
03005	00	Z	100	31	5.6	-1.6
03005	12	Z	100	30	6.6	-4.3
03238	00	Z	100	27	6.8	2.0
03808	00	Z	100	31	6.8	3.7
03808	12	Z	100	31	5.3	-1.2
03918	12	Z	100	2	9.7	7.3
03918	00	Z	100	29	9.8	5.9
039185	00	Z	100	0	0.0	0.0
03953	00	Z	100	25	10.5	0.0
03953	12	Z	100	28	16.5	11.7
04018	12	Z	100	31	7.6	-5.2
04018	00	Z	100	29	3.1	-1.6
04220	12	Z	100	29	4.4	-1.1
04220	00	Z	100	31	4.5	-1.1
04270	00	Z	100	30	5.4	-2.1
04270	12	Z	100	30	4.9	-2.9
04320	00	Z	100	31	13.4	-1.7
04320	12	Z	100	31	5.5	-3.4
04339	00	Z	100	30	5.1	-3.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04339	12	Z	100	30	7.5	-5.0
04360	12	Z	100	26	9.2	-5.0
06011	12	Z	100	31	7.6	4.8
06011	00	Z	100	31	8.4	3.7
06260	00	Z	100	31	7.9	4.2
06260	12	Z	100	5	5.7	-2.4
06610	00	Z	100	31	7.3	6.4
06610	12	Z	100	31	4.8	0.8
07110	00	Z	100	31	8.2	-0.8
07110	12	Z	100	31	8.6	-1.5
07510	00	Z	100	27	16.4	15.4
07510	12	Z	100	28	11.8	10.0
07645	00	Z	100	28	12.1	10.0
07645	12	Z	100	31	10.1	7.1
07761	12	Z	100	31	14.7	12.0
07761	00	Z	100	29	19.9	18.7
08001	12	Z	100	31	7.5	4.1
08001	00	Z	100	31	9.7	8.0
08221	12	Z	100	31	8.8	7.9
08221	00	Z	100	31	13.1	12.3
082218	00	Z	100	0	0.0	0.0
08302	12	Z	100	31	7.8	-4.0
08302	00	Z	100	31	6.2	3.1
08508	12	Z	100	29	9.6	8.5
08522	12	Z	100	31	6.0	4.6
08579	12	Z	100	30	11.5	10.7
10035	12	Z	100	31	4.9	3.0
10393	00	Z	100	31	7.4	5.3
10393	12	Z	100	31	5.0	-0.3
10410	00	Z	100	31	5.4	3.5
10410	12	Z	100	30	5.1	-3.9
10739	00	Z	100	30	11.8	10.8
10739	12	Z	100	32	7.4	2.7
11035	00	Z	100	30	15.8	14.4
11035	12	Z	100	34	17.0	13.0
12982	00	Z	100	29	14.7	12.9
12982	12	Z	100	31	14.8	12.8
16080	00	Z	100	31	6.4	4.7
16080	12	Z	100	31	7.8	-4.0
16245	00	Z	100	31	9.4	8.7
16245	12	Z	100	31	5.8	-2.9
16320	12	Z	100	31	9.8	4.2
16320	00	Z	100	31	16.8	15.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	00	Z	100	31	13.2	12.5
16429	12	Z	100	31	5.1	1.3
16622	00	Z	100	31	22.4	21.8
16754	00	Z	100	29	19.1	18.7
17607	12	Z	100	30	7.1	3.8
26435	12	Z	100	15	5.2	-3.8
5QPW8X	12	Z	100	13	17.4	15.1
5QPW8X	00	Z	100	11	31.7	17.5
60018	00	Z	100	31	12.5	11.8
60018	12	Z	100	31	8.4	7.6
ASDE09	12	Z	100	1	21.7	21.7
DBLK	12	Z	100	18	9.8	-7.1
ERTOCT	12	Z	100	1	19.8	19.8
ERTOCT	00	Z	100	1	14.1	14.1
ERTOUN	12	Z	100	19	9.5	-1.9
ERTOUN	00	Z	100	20	7.8	1.6
FHM5UJ	12	Z	100	8	5.3	-0.1
FHM5UJ	00	Z	100	7	7.4	3.0
FPUW5G	12	Z	100	16	6.9	4.8
HTXUH4	12	Z	100	8	7.3	-0.7
HTXUH4	00	Z	100	7	6.2	3.4
JNKN7J	12	Z	100	9	60.4	57.9
JNKN7J	00	Z	100	8	36.8	36.5
KJJF9X	12	Z	100	12	25.1	22.0
KJJF9X	00	Z	100	11	28.6	27.3
KMPLHP	12	Z	100	5	25.3	22.5
KMPLHP	00	Z	100	6	5.9	2.5
WDK38H	12	Z	100	11	8.3	-7.9
XKQLWQ	12	Z	100	19	18.3	15.9
XQFJRG	12	Z	100	1	5.8	5.8
XQFJRG	00	Z	100	1	6.4	-6.4
YLV96W	12	Z	100	4	78.1	74.0
YLV96W	00	Z	100	3	67.1	66.0
ZCTSER	12	Z	100	7	20.2	18.6
ZCTSER	00	Z	100	2	14.3	13.7
ZVQEQC	12	Z	100	7	15.1	14.4

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 100 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : AUG 2019
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	30	2.1	0.0	-0.3
01001	00	V	100	24	2.4	0.3	-0.1
01028	12	V	100	31	2.0	-0.1	-0.4
01028	00	V	100	26	2.8	0.4	0.1
01400	12	V	100	18	2.4	0.8	-0.2
01400	00	V	100	20	2.3	0.3	0.0
014007	12	V	100	0	0.0	0.0	0.0
014008	12	V	100	0	0.0	0.0	0.0
014008	12	V	100	0	0.0	0.0	0.0
01415	00	V	100	26	3.2	1.1	0.7
01415	12	V	100	31	2.6	-0.1	0.3
014151	12	V	100	0	0.0	0.0	0.0
02365	12	V	100	27	3.4	1.1	-0.3
02365	00	V	100	19	3.0	0.9	0.3
02591	12	V	100	27	3.6	0.3	0.1
02591	00	V	100	26	3.4	-0.8	-0.4
02836	00	V	100	27	2.6	0.2	-0.1
02836	12	V	100	31	1.9	0.0	0.2
02963	00	V	100	25	3.8	1.5	-0.3
02963	12	V	100	29	2.9	-0.3	-0.9
03005	00	V	100	25	2.6	0.0	0.0
03005	12	V	100	30	2.8	0.5	-0.5
03238	00	V	100	21	3.1	0.6	-0.9
03808	00	V	100	22	2.8	0.5	0.4
03808	12	V	100	31	3.2	-0.7	0.9
03918	12	V	100	2	2.1	-1.0	1.3
03918	00	V	100	19	2.4	-0.3	-0.3
039185	00	V	100	0	0.0	0.0	0.0
03953	00	V	100	21	2.8	-0.6	0.6
03953	12	V	100	28	3.0	0.4	-0.1
04018	12	V	100	31	2.1	-0.3	0.4
04018	00	V	100	28	1.9	0.3	0.6
04220	12	V	100	29	2.5	-0.2	0.5
04220	00	V	100	25	2.8	-0.1	0.2
04270	00	V	100	28	2.2	-0.2	1.1
04270	12	V	100	30	2.5	0.2	0.3
04320	00	V	100	28	2.1	-0.1	-0.5
04320	12	V	100	31	2.2	0.2	0.0
04339	00	V	100	29	2.5	-0.1	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04339	12	V	100	30	2.6	0.1	-0.3
04360	12	V	100	26	2.5	0.5	0.2
06011	12	V	100	31	2.4	0.0	-0.4
06011	00	V	100	29	2.2	0.5	0.2
06260	00	V	100	26	3.7	0.3	0.3
06260	12	V	100	5	1.7	-0.4	-0.9
06610	00	V	100	30	3.8	-0.5	0.1
06610	12	V	100	31	3.3	0.6	0.3
07110	00	V	100	26	3.3	0.8	0.2
07110	12	V	100	31	3.3	0.4	-0.5
07510	00	V	100	24	3.4	0.6	0.4
07510	12	V	100	28	3.1	0.5	0.2
07645	00	V	100	21	4.0	0.9	0.0
07645	12	V	100	31	3.2	-0.3	0.5
07761	12	V	100	31	3.8	0.6	0.3
07761	00	V	100	25	3.4	1.1	-0.2
08001	12	V	100	30	3.1	0.2	0.0
08001	00	V	100	24	3.4	-0.1	-0.2
08221	12	V	100	31	3.3	1.3	-0.9
08221	00	V	100	26	3.6	0.7	0.8
082218	00	V	100	0	0.0	0.0	0.0
08302	12	V	100	31	3.5	0.0	-0.2
08302	00	V	100	24	4.0	0.6	0.2
08508	12	V	100	29	3.2	-0.4	0.9
08522	12	V	100	31	2.6	0.4	-0.6
08579	12	V	100	30	3.4	-0.2	0.1
10035	12	V	100	31	3.0	-0.1	-0.6
10393	00	V	100	31	3.8	1.1	-0.9
10393	12	V	100	31	3.0	-0.4	-0.3
10410	00	V	100	31	3.0	0.5	0.9
10410	12	V	100	30	3.1	0.7	-0.7
10739	00	V	100	29	3.3	-0.5	0.2
10739	12	V	100	31	3.2	0.4	-0.5
11035	00	V	100	25	3.7	0.0	-0.3
11035	12	V	100	31	3.3	0.0	-0.5
12982	00	V	100	26	3.6	0.2	0.1
12982	12	V	100	31	3.2	1.3	0.1
16080	00	V	100	26	4.3	-0.5	-0.1
16080	12	V	100	31	3.4	0.1	-0.6
16245	00	V	100	25	3.8	-0.3	-0.2
16245	12	V	100	31	3.7	-0.6	0.4
16320	12	V	100	31	3.7	0.2	-0.4
16320	00	V	100	24	4.0	0.3	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	00	V	100	25	3.2	0.3	0.0
16429	12	V	100	31	3.8	-0.4	0.5
16622	00	V	100	22	3.7	-0.7	-0.6
16754	00	V	100	24	3.3	0.8	0.7
17607	12	V	100	21	2.7	0.9	0.2
26435	12	V	100	15	3.0	0.1	-0.6
5QPW8X	12	V	100	13	2.1	0.0	0.6
5QPW8X	00	V	100	11	2.6	-0.2	0.4
60018	00	V	100	24	4.0	-0.5	0.6
60018	12	V	100	31	3.9	-0.4	-0.3
ASDE09	12	V	100	1	1.6	-0.6	1.5
DBLK	12	V	100	18	2.5	-0.1	0.4
ERTOCT	12	V	100	1	3.8	2.4	-2.9
ERTOCT	00	V	100	1	6.3	3.5	5.2
ERTOUN	12	V	100	18	6.1	-2.7	0.3
ERTOUN	00	V	100	20	4.5	-1.0	1.2
FHM5UJ	12	V	100	8	2.7	0.0	-0.7
FHM5UJ	00	V	100	7	2.7	-0.1	1.1
FPUW5G	12	V	100	16	2.3	-0.5	-0.3
HTXUH4	12	V	100	8	2.2	-0.1	0.2
HTXUH4	00	V	100	7	2.0	-0.6	0.6
JNKN7J	12	V	100	9	2.8	0.3	-1.3
JNKN7J	00	V	100	7	2.6	-0.2	0.1
KJJF9X	12	V	100	12	2.5	0.1	-0.7
KJJF9X	00	V	100	11	3.5	-0.1	0.8
KMPLHP	12	V	100	5	4.1	0.7	-1.1
KMPLHP	00	V	100	6	2.2	-0.7	0.9
WDK38H	12	V	100	10	1.7	-0.1	0.6
XKQLWQ	12	V	100	19	3.3	-0.5	0.1
XQFJRG	12	V	100	1	5.2	4.0	3.4
XQFJRG	00	V	100	1	1.6	0.4	1.5
YLV96W	12	V	100	4	3.6	-0.2	1.2
YLV96W	00	V	100	3	3.1	0.7	2.2
ZCTSER	12	V	100	7	5.6	0.4	0.0
ZCTSER	00	V	100	1	0.4	-0.4	-0.1
ZVQEQC	12	V	100	7	3.7	0.8	-0.8

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 : AUG 2019
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	31	4.1	-2.8
01001	00	Z	500	31	4.1	-1.4
01028	12	Z	500	31	3.3	-1.9
01028	00	Z	500	31	3.3	-1.6
01400	12	Z	500	20	82.2	82.1
01400	00	Z	500	23	81.0	80.8
014007	12	Z	500	4	12.8	12.0
014008	12	Z	500	1	4.6	4.6
014008	12	Z	500	2	4.6	3.8
01415	00	Z	500	30	4.1	2.8
01415	12	Z	500	31	3.9	2.8
014151	12	Z	500	0	0.0	0.0
02365	12	Z	500	28	3.6	1.3
02365	00	Z	500	26	4.1	2.1
02591	12	Z	500	28	7.6	6.9
02591	00	Z	500	31	9.0	8.6
02836	00	Z	500	31	3.5	1.9
02836	12	Z	500	31	2.5	0.3
02963	00	Z	500	31	4.2	3.7
02963	12	Z	500	30	2.8	1.7
03005	00	Z	500	31	3.6	-1.6
03005	12	Z	500	31	4.0	-2.8
03238	00	Z	500	27	4.3	2.5
03808	00	Z	500	31	3.8	2.3
03808	12	Z	500	31	3.4	1.3
03918	12	Z	500	2	7.8	7.6
03918	00	Z	500	29	6.7	6.1
039185	00	Z	500	0	0.0	0.0
03953	00	Z	500	31	5.3	1.4
03953	12	Z	500	34	18.8	4.8
04018	12	Z	500	31	3.4	-2.0
04018	00	Z	500	30	2.8	-0.6
04220	12	Z	500	30	3.2	1.2
04220	00	Z	500	31	4.4	1.9
04270	00	Z	500	31	3.4	-0.8
04270	12	Z	500	31	3.5	-1.6
04320	00	Z	500	31	12.8	1.9
04320	12	Z	500	31	3.0	0.1
04339	00	Z	500	31	3.1	-0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04339	12	Z	500	30	6.0	-2.6
04360	12	Z	500	27	10.8	-10.1
06011	12	Z	500	31	4.9	3.1
06011	00	Z	500	31	5.5	2.6
06260	00	Z	500	31	3.0	0.6
06260	12	Z	500	6	2.8	1.3
06610	00	Z	500	32	3.8	2.9
06610	12	Z	500	31	2.1	1.2
07110	00	Z	500	31	8.3	-3.8
07110	12	Z	500	32	7.3	-4.1
07510	00	Z	500	27	7.5	7.0
07510	12	Z	500	29	7.0	5.0
07645	00	Z	500	29	3.4	1.6
07645	12	Z	500	31	3.9	2.2
07761	12	Z	500	32	4.6	3.7
07761	00	Z	500	30	16.6	6.4
08001	12	Z	500	31	3.8	3.1
08001	00	Z	500	31	4.1	3.6
08221	12	Z	500	31	6.3	5.7
08221	00	Z	500	31	7.5	6.8
082218	00	Z	500	0	0.0	0.0
08302	12	Z	500	32	5.3	-4.6
08302	00	Z	500	31	2.7	-0.7
08508	12	Z	500	30	6.6	5.7
08522	12	Z	500	31	8.3	8.0
08579	12	Z	500	31	9.8	9.1
10035	12	Z	500	31	4.2	3.5
10393	00	Z	500	31	2.4	0.6
10393	12	Z	500	31	3.6	-0.7
10410	00	Z	500	31	2.2	0.5
10410	12	Z	500	30	2.7	-2.0
10739	00	Z	500	30	5.5	5.0
10739	12	Z	500	32	5.9	3.8
11035	00	Z	500	30	11.3	9.1
11035	12	Z	500	34	14.9	10.6
12982	00	Z	500	31	7.7	5.9
12982	12	Z	500	31	8.1	7.0
16080	00	Z	500	31	3.5	0.3
16080	12	Z	500	31	3.2	-1.5
16245	00	Z	500	31	2.8	-0.6
16245	12	Z	500	31	3.4	-2.7
16320	12	Z	500	31	8.2	3.6
16320	00	Z	500	31	10.4	7.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	00	Z	500	31	5.9	4.8
16429	12	Z	500	32	4.8	3.2
16622	00	Z	500	31	12.7	12.2
16754	00	Z	500	31	7.1	6.6
17607	12	Z	500	30	4.9	4.0
26435	12	Z	500	15	3.0	-0.3
5QPW8X	12	Z	500	13	23.2	21.8
5QPW8X	00	Z	500	11	37.2	21.5
60018	00	Z	500	31	6.5	5.5
60018	12	Z	500	31	7.4	6.5
ASDE09	12	Z	500	1	12.6	12.6
DBLK	12	Z	500	18	5.4	-2.9
ERTOCT	12	Z	500	1	16.2	16.2
ERTOCT	00	Z	500	1	7.4	7.4
ERTOUN	12	Z	500	21	7.4	-5.1
ERTOUN	00	Z	500	20	7.3	-6.8
FHM5UJ	12	Z	500	9	4.7	1.8
FHM5UJ	00	Z	500	7	3.5	1.8
FPUW5G	12	Z	500	17	6.2	5.4
HTXUH4	12	Z	500	9	7.1	2.0
HTXUH4	00	Z	500	8	6.8	1.6
JNKN7J	12	Z	500	10	42.5	42.2
JNKN7J	00	Z	500	9	39.8	39.5
KJJF9X	12	Z	500	12	20.2	17.5
KJJF9X	00	Z	500	11	20.7	18.3
KMPLHP	12	Z	500	6	12.1	2.7
KMPLHP	00	Z	500	5	4.6	-0.6
WDK38H	12	Z	500	12	8.5	-8.1
XKQLWQ	12	Z	500	19	9.2	7.4
XQFJRG	12	Z	500	4	10.0	-9.7
XQFJRG	00	Z	500	4	13.7	-13.6
YLV96W	12	Z	500	5	72.0	65.0
YLV96W	00	Z	500	4	63.7	55.5
ZCTSER	12	Z	500	7	17.4	16.7
ZCTSER	00	Z	500	7	10.1	7.9
ZVQEQC	12	Z	500	7	8.7	8.3

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 : AUG 2019
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	31	2.0	0.2	0.1
01001	00	V	500	31	2.4	-0.1	0.1
01028	12	V	500	31	1.8	0.5	0.0
01028	00	V	500	31	2.5	-0.1	0.2
01400	12	V	500	20	2.0	0.0	-0.3
01400	00	V	500	22	2.2	0.2	0.2
014007	12	V	500	4	4.6	-1.2	-0.6
014008	12	V	500	1	4.1	-4.0	0.9
014008	12	V	500	2	3.9	1.8	-3.1
01415	00	V	500	30	2.4	-0.1	-0.1
01415	12	V	500	31	2.3	0.0	0.1
014151	12	V	500	0	0.0	0.0	0.0
02365	12	V	500	28	2.3	0.3	-0.4
02365	00	V	500	26	2.7	0.1	-0.1
02591	12	V	500	28	2.1	0.2	0.2
02591	00	V	500	31	2.0	-0.1	0.1
02836	00	V	500	31	2.3	0.0	0.2
02836	12	V	500	31	2.5	0.2	-0.2
02963	00	V	500	31	2.1	-0.1	0.1
02963	12	V	500	30	1.7	0.5	-0.1
03005	00	V	500	31	3.1	0.4	0.3
03005	12	V	500	31	3.0	0.7	0.5
03238	00	V	500	27	2.4	0.2	-0.1
03808	00	V	500	30	2.8	-0.7	0.0
03808	12	V	500	31	3.3	0.4	0.3
03918	12	V	500	2	2.1	-1.2	1.5
03918	00	V	500	27	2.8	0.1	0.5
039185	00	V	500	0	0.0	0.0	0.0
03953	00	V	500	31	3.7	-0.5	0.3
03953	12	V	500	31	2.7	0.5	-0.1
04018	12	V	500	31	2.3	0.2	0.0
04018	00	V	500	30	2.4	-0.7	-0.4
04220	12	V	500	30	2.1	0.0	0.2
04220	00	V	500	31	1.8	-0.2	-0.2
04270	00	V	500	31	2.5	-0.4	0.1
04270	12	V	500	31	3.3	0.2	-0.3
04320	00	V	500	31	2.8	0.3	0.4
04320	12	V	500	31	2.0	-0.2	0.0
04339	00	V	500	31	2.5	-0.3	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04339	12	V	500	30	2.6	0.2	0.2
04360	12	V	500	27	2.3	0.2	0.5
06011	12	V	500	31	2.2	-0.1	0.2
06011	00	V	500	31	2.4	0.3	-0.4
06260	00	V	500	31	2.3	0.5	0.5
06260	12	V	500	6	2.1	-0.5	-0.4
06610	00	V	500	31	2.8	0.2	0.5
06610	12	V	500	31	2.5	0.2	-0.2
07110	00	V	500	31	2.6	0.4	-0.2
07110	12	V	500	31	2.6	0.2	0.0
07510	00	V	500	27	2.2	0.2	0.0
07510	12	V	500	29	2.1	0.2	0.1
07645	00	V	500	29	2.6	0.6	0.9
07645	12	V	500	31	2.6	1.1	0.0
07761	12	V	500	31	1.8	0.3	0.1
07761	00	V	500	30	2.5	0.6	0.1
08001	12	V	500	31	2.1	0.6	0.7
08001	00	V	500	31	1.9	0.0	-0.2
08221	12	V	500	31	2.4	0.3	-0.2
08221	00	V	500	31	3.0	-0.1	0.5
082218	00	V	500	0	0.0	0.0	0.0
08302	12	V	500	31	2.6	-0.5	-0.1
08302	00	V	500	31	2.6	0.1	0.3
08508	12	V	500	30	2.8	0.1	0.0
08522	12	V	500	31	2.5	-0.2	0.0
08579	12	V	500	31	2.3	0.2	-0.1
10035	12	V	500	31	2.5	-0.2	-0.3
10393	00	V	500	31	3.4	1.0	0.4
10393	12	V	500	31	2.6	0.5	-0.3
10410	00	V	500	31	2.2	0.4	0.3
10410	12	V	500	30	2.9	0.6	-0.6
10739	00	V	500	30	2.9	0.9	-0.7
10739	12	V	500	31	3.3	0.5	-0.1
11035	00	V	500	30	4.1	-0.6	0.4
11035	12	V	500	31	2.3	-0.3	0.2
12982	00	V	500	31	2.7	-0.5	0.7
12982	12	V	500	31	2.3	0.0	0.1
16080	00	V	500	31	2.3	0.4	-0.1
16080	12	V	500	31	2.8	0.0	0.2
16245	00	V	500	31	2.6	0.4	-0.1
16245	12	V	500	31	2.1	0.4	0.1
16320	12	V	500	31	2.1	-0.2	0.6
16320	00	V	500	31	1.8	0.2	0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	00	V	500	31	2.3	-0.1	0.4
16429	12	V	500	31	1.9	0.2	0.6
16622	00	V	500	31	2.5	1.1	0.4
16754	00	V	500	27	2.0	0.0	-0.2
17607	12	V	500	22	2.0	0.3	-0.2
26435	12	V	500	15	2.7	-0.2	0.3
5QPW8X	12	V	500	13	2.1	0.0	-0.9
5QPW8X	00	V	500	11	2.4	0.7	0.5
60018	00	V	500	30	3.6	-0.5	0.8
60018	12	V	500	31	2.7	0.4	-0.1
ASDE09	12	V	500	1	2.4	0.8	2.3
DBLK	12	V	500	18	3.1	-0.9	0.0
ERTOCT	12	V	500	1	1.0	0.2	-1.0
ERTOCT	00	V	500	1	2.0	1.9	0.6
ERTOUN	12	V	500	21	4.5	-1.0	1.0
ERTOUN	00	V	500	20	2.5	-0.4	0.0
FHM5UJ	12	V	500	9	2.1	0.3	0.3
FHM5UJ	00	V	500	7	2.2	-0.3	0.1
FPUW5G	12	V	500	17	1.7	-0.6	-0.1
HTXUH4	12	V	500	9	3.1	-0.7	-0.2
HTXUH4	00	V	500	8	1.8	-0.1	-0.1
JNKN7J	12	V	500	10	2.3	-0.1	-0.2
JNKN7J	00	V	500	9	2.1	-0.5	1.0
KJJF9X	12	V	500	12	2.6	1.2	-0.3
KJJF9X	00	V	500	11	2.6	0.0	0.3
KMPLHP	12	V	500	6	2.1	0.0	-0.7
KMPLHP	00	V	500	5	4.2	0.2	3.2
WDK38H	12	V	500	12	2.7	-0.4	1.0
XKQLWQ	12	V	500	19	2.4	-0.1	-0.3
XQFJRG	12	V	500	3	1.5	0.8	0.3
XQFJRG	00	V	500	4	1.3	-0.6	0.7
YLV96W	12	V	500	5	2.4	-0.8	0.9
YLV96W	00	V	500	4	2.4	0.3	-0.4
ZCTSER	12	V	500	7	3.0	0.8	0.3
ZCTSER	00	V	500	5	3.0	-0.9	-1.2
ZVQEQC	12	V	500	7	2.7	0.7	-0.2

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 850 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : AUG 2019
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	31	4.8	-3.3
01001	00	Z	850	31	3.2	-1.7
01028	12	Z	850	31	2.5	0.9
01028	00	Z	850	31	2.8	0.9
01400	12	Z	850	20	81.7	81.6
01400	00	Z	850	23	81.5	81.4
014007	12	Z	850	4	3.9	3.7
014008	12	Z	850	1	0.9	-0.9
014008	12	Z	850	2	7.9	-7.2
01415	00	Z	850	30	4.8	4.3
01415	12	Z	850	31	4.0	3.3
014151	12	Z	850	1	10.2	10.2
02365	12	Z	850	28	3.9	3.2
02365	00	Z	850	26	4.1	3.7
02591	12	Z	850	28	9.2	9.1
02591	00	Z	850	31	9.1	8.8
02836	00	Z	850	31	4.0	3.6
02836	12	Z	850	31	3.1	2.2
02963	00	Z	850	31	4.0	3.7
02963	12	Z	850	30	3.6	3.2
03005	00	Z	850	31	2.2	-0.9
03005	12	Z	850	32	3.1	-1.6
03238	00	Z	850	27	4.4	3.9
03808	00	Z	850	31	3.9	3.2
03808	12	Z	850	31	3.2	2.9
03918	12	Z	850	2	7.1	7.0
03918	00	Z	850	29	7.4	6.9
039185	00	Z	850	1	0.0	0.0
03953	00	Z	850	31	4.0	2.8
03953	12	Z	850	34	5.0	4.0
04018	12	Z	850	31	2.1	-0.6
04018	00	Z	850	30	2.5	1.3
04220	12	Z	850	30	3.7	2.8
04220	00	Z	850	31	4.8	3.6
04270	00	Z	850	31	2.5	0.9
04270	12	Z	850	31	1.9	1.1
04320	00	Z	850	31	14.7	4.9
04320	12	Z	850	31	3.8	1.6
04339	00	Z	850	31	3.2	0.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
04339	12	Z	850	30	3.9	0.4
04360	12	Z	850	34	10.5	-6.6
06011	12	Z	850	31	4.9	4.3
06011	00	Z	850	31	5.5	4.9
06260	00	Z	850	31	2.7	1.3
06260	12	Z	850	6	3.1	2.7
06610	00	Z	850	32	4.6	4.0
06610	12	Z	850	31	3.0	2.4
07110	00	Z	850	31	2.4	-1.4
07110	12	Z	850	32	2.7	-1.8
07510	00	Z	850	27	5.3	4.8
07510	12	Z	850	29	5.1	4.6
07645	00	Z	850	30	2.3	0.5
07645	12	Z	850	31	2.1	0.6
07761	12	Z	850	32	2.2	0.5
07761	00	Z	850	30	2.3	0.4
08001	12	Z	850	31	2.6	1.8
08001	00	Z	850	31	3.0	1.4
08221	12	Z	850	31	4.8	4.3
08221	00	Z	850	31	4.6	3.9
082218	00	Z	850	1	0.0	0.0
08302	12	Z	850	32	6.0	-5.5
08302	00	Z	850	31	4.3	-3.6
08508	12	Z	850	30	3.3	2.7
08522	12	Z	850	31	11.5	7.9
08579	12	Z	850	31	7.0	6.8
10035	12	Z	850	31	5.3	5.1
10393	00	Z	850	31	2.6	0.8
10393	12	Z	850	32	2.2	1.0
10410	00	Z	850	31	2.2	0.0
10410	12	Z	850	30	2.1	-0.3
10739	00	Z	850	30	5.6	5.1
10739	12	Z	850	32	4.1	3.8
11035	00	Z	850	30	11.2	7.9
11035	12	Z	850	33	17.0	12.0
12982	00	Z	850	31	5.1	4.5
12982	12	Z	850	31	6.9	6.7
16080	00	Z	850	31	2.5	1.0
16080	12	Z	850	31	2.5	-0.8
16245	00	Z	850	31	1.9	-0.7
16245	12	Z	850	31	2.3	-1.4
16320	12	Z	850	31	8.9	4.2
16320	00	Z	850	31	9.8	5.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	00	Z	850	31	6.2	5.1
16429	12	Z	850	32	6.0	4.6
16622	00	Z	850	31	11.8	11.6
16754	00	Z	850	31	5.2	4.3
17607	12	Z	850	30	3.6	3.0
26435	12	Z	850	15	3.8	1.9
5QPW8X	12	Z	850	13	27.5	26.2
5QPW8X	00	Z	850	11	27.8	17.6
60018	00	Z	850	32	3.1	2.2
60018	12	Z	850	31	3.5	2.9
ASDE09	12	Z	850	1	10.3	10.3
DBLK	12	Z	850	18	5.0	-1.8
ERTOCT	12	Z	850	1	11.8	11.8
ERTOCT	00	Z	850	1	8.8	8.8
ERTOUN	12	Z	850	21	8.2	-7.0
ERTOUN	00	Z	850	20	11.2	-10.7
FHM5UJ	12	Z	850	9	4.9	1.5
FHM5UJ	00	Z	850	7	6.0	3.7
FPUW5G	12	Z	850	17	8.5	7.7
HTXUH4	12	Z	850	9	8.0	3.7
HTXUH4	00	Z	850	8	8.6	4.9
JNKN7J	12	Z	850	10	45.7	45.6
JNKN7J	00	Z	850	9	45.6	45.4
KJJF9X	12	Z	850	12	19.1	15.1
KJJF9X	00	Z	850	11	20.2	17.6
KMPLHP	12	Z	850	6	8.2	5.0
KMPLHP	00	Z	850	5	4.0	3.3
WDK38H	12	Z	850	12	9.3	-7.7
XKQLWQ	12	Z	850	19	5.5	2.5
XQFJRG	12	Z	850	4	10.2	-9.8
XQFJRG	00	Z	850	4	11.7	-11.3
YLV96W	12	Z	850	5	76.0	67.6
YLV96W	00	Z	850	4	73.9	64.2
ZCTSER	12	Z	850	7	13.6	13.2
ZCTSER	00	Z	850	7	9.0	7.4
ZVQEQC	12	Z	850	7	4.5	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 : AUG 2019
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	31	3.6	-0.5	0.5
01001	00	V	850	31	4.3	0.1	0.3
01028	12	V	850	31	2.8	0.4	0.8
01028	00	V	850	31	2.3	0.0	0.3
01400	12	V	850	20	2.5	0.3	0.3
01400	00	V	850	23	2.0	0.2	-0.3
014007	12	V	850	4	3.5	-2.5	-0.7
014008	12	V	850	1	0.9	-0.4	0.8
014008	12	V	850	2	2.8	-0.7	1.6
01415	00	V	850	30	3.1	0.3	-0.1
01415	12	V	850	31	2.5	-0.2	0.4
014151	12	V	850	0	0.0	0.0	0.0
02365	12	V	850	28	2.7	-0.1	-0.4
02365	00	V	850	26	2.2	-0.4	-0.1
02591	12	V	850	28	2.3	0.3	0.0
02591	00	V	850	31	2.5	-0.7	-0.2
02836	00	V	850	31	2.1	-0.2	-0.4
02836	12	V	850	31	2.8	-0.2	-0.2
02963	00	V	850	31	2.6	-0.3	-0.5
02963	12	V	850	30	2.2	0.1	0.4
03005	00	V	850	31	2.5	0.3	0.3
03005	12	V	850	31	2.9	0.0	0.7
03238	00	V	850	27	2.2	0.4	0.3
03808	00	V	850	30	2.4	-0.1	0.4
03808	12	V	850	31	2.3	-0.2	-0.1
03918	12	V	850	2	2.6	2.0	-0.5
03918	00	V	850	27	2.6	0.3	0.1
039185	00	V	850	1	19.1	2.3	-19.0
03953	00	V	850	31	2.7	0.2	0.5
03953	12	V	850	31	2.3	-0.2	-0.5
04018	12	V	850	31	3.3	-0.3	0.0
04018	00	V	850	30	2.8	0.3	0.4
04220	12	V	850	30	2.2	-0.3	0.2
04220	00	V	850	31	3.2	-0.3	0.2
04270	00	V	850	31	3.2	-0.4	0.0
04270	12	V	850	31	3.6	-0.4	-0.7
04320	00	V	850	31	2.5	0.2	0.2
04320	12	V	850	31	2.9	-0.1	0.3
04339	00	V	850	31	3.5	-0.7	-1.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
04339	12	V	850	30	4.0	1.1	-0.2
04360	12	V	850	29	3.1	0.5	0.1
06011	12	V	850	31	2.6	0.0	0.2
06011	00	V	850	31	2.4	0.2	0.2
06260	00	V	850	31	2.9	0.3	0.0
06260	12	V	850	6	3.7	-0.7	-1.6
06610	00	V	850	31	3.8	0.5	-0.2
06610	12	V	850	31	2.6	0.7	-0.3
07110	00	V	850	31	2.7	-0.2	-0.3
07110	12	V	850	31	2.2	-0.3	-0.9
07510	00	V	850	27	3.3	-0.8	0.3
07510	12	V	850	29	2.7	-0.5	0.5
07645	00	V	850	30	2.9	0.0	0.7
07645	12	V	850	31	2.8	0.2	0.4
07761	12	V	850	31	2.1	-0.8	0.3
07761	00	V	850	30	2.8	0.5	0.4
08001	12	V	850	31	3.2	0.3	0.8
08001	00	V	850	31	2.3	1.0	0.5
08221	12	V	850	31	2.3	0.6	0.2
08221	00	V	850	31	3.5	-0.1	0.1
082218	00	V	850	1	29.4	27.5	10.3
08302	12	V	850	31	3.5	1.1	0.4
08302	00	V	850	31	2.5	-0.7	0.3
08508	12	V	850	30	2.8	-0.1	0.5
08522	12	V	850	31	3.4	-0.1	1.0
08579	12	V	850	31	2.2	0.4	-0.5
10035	12	V	850	31	2.2	0.8	0.1
10393	00	V	850	31	2.9	0.6	-0.3
10393	12	V	850	31	2.4	0.2	0.1
10410	00	V	850	31	2.9	0.7	0.0
10410	12	V	850	30	3.8	-0.5	0.0
10739	00	V	850	30	2.1	0.2	0.2
10739	12	V	850	31	2.5	-0.2	0.1
11035	00	V	850	30	3.2	0.5	-0.8
11035	12	V	850	31	3.4	0.8	0.6
12982	00	V	850	31	2.6	0.1	0.1
12982	12	V	850	31	2.6	-0.2	0.4
16080	00	V	850	31	3.0	0.2	-0.7
16080	12	V	850	31	3.5	1.1	-0.2
16245	00	V	850	31	2.3	0.5	-0.6
16245	12	V	850	31	2.4	-0.6	-0.6
16320	12	V	850	31	2.4	0.2	-0.6
16320	00	V	850	31	2.7	0.4	-1.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	00	V	850	31	2.2	-0.1	0.4
16429	12	V	850	31	2.6	0.0	0.2
16622	00	V	850	31	3.0	-0.4	-0.9
16754	00	V	850	28	2.1	-1.1	0.3
17607	12	V	850	29	2.3	0.4	-0.3
26435	12	V	850	15	2.5	0.3	0.5
5QPW8X	12	V	850	13	2.8	-0.1	0.7
5QPW8X	00	V	850	11	3.3	0.8	-0.1
60018	00	V	850	31	3.8	1.9	1.1
60018	12	V	850	31	3.3	1.1	0.4
ASDE09	12	V	850	1	1.2	1.2	0.1
DBLK	12	V	850	18	2.2	0.5	0.4
ERTOCT	12	V	850	1	1.6	-1.1	-1.1
ERTOCT	00	V	850	1	3.5	3.1	1.7
ERTOUN	12	V	850	21	3.3	-0.8	-0.9
ERTOUN	00	V	850	20	2.8	0.6	0.6
FHM5UJ	12	V	850	9	2.7	0.2	0.4
FHM5UJ	00	V	850	7	2.2	-0.2	0.7
FPUW5G	12	V	850	17	2.8	-0.4	0.8
HTXUH4	12	V	850	9	4.1	1.0	1.1
HTXUH4	00	V	850	8	3.2	0.9	-1.1
JNKN7J	12	V	850	10	2.9	0.0	-0.3
JNKN7J	00	V	850	9	2.0	-0.3	0.0
KJJF9X	12	V	850	12	2.1	0.1	-0.1
KJJF9X	00	V	850	11	1.8	0.4	0.6
KMPLHP	12	V	850	6	2.6	-0.2	0.4
KMPLHP	00	V	850	5	2.8	0.3	1.8
WDK38H	12	V	850	12	2.4	0.3	0.1
XKQLWQ	12	V	850	19	2.6	-0.1	0.1
XQFJRG	12	V	850	4	1.9	0.4	-0.8
XQFJRG	00	V	850	4	2.9	-0.7	0.2
YLV96W	12	V	850	5	1.7	0.4	1.1
YLV96W	00	V	850	4	1.8	-0.6	1.2
ZCTSER	12	V	850	7	3.1	-1.9	-0.9
ZCTSER	00	V	850	5	5.0	3.0	0.3
ZVQEQC	12	V	850	7	3.0	1.0	1.5

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : AUG 2019
 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
0000000	99	P	SUR	10	-54	3	0	1.9	-2.4	3.0
0062087	99	P	SUR	55	7	318	0	0.3	-0.2	0.3
0066022	99	P	SUR	54	14	259	0	0.4	-0.1	0.4
0066023	99	P	SUR	55	11	328	0	0.3	0.2	0.3
0066024	99	P	SUR	55	13	6	0	0.4	0.3	0.5
03380	99	P	SUR	54	0	775	0	0.3	-0.0	0.3
0640046	99	P	SUR	60	-4	742	0	0.3	-0.1	0.4
1300001	99	P	SUR	11	-23	708	0	0.4	-0.1	0.4
1300008	99	P	SUR	15	-38	730	0	0.3	-0.2	0.3
1300130	99	P	SUR	28	-16	744	0	0.3	0.0	0.3
1300131	99	P	SUR	28	-17	566	0	0.4	0.2	0.5
1301569	99	P	SUR	25	-37	740	0	0.2	0.0	0.2
1301603	99	P	SUR	32	-57	727	0	0.3	0.0	0.3
1301605	99	P	SUR	26	-60	728	0	0.4	0.2	0.4
1301607	99	P	SUR	20	-53	724	0	0.3	0.5	0.6
1301608	99	P	SUR	27	-44	737	0	0.3	1.1	1.1
1301609	99	P	SUR	22	-67	719	0	0.3	0.5	0.6
1301610	99	P	SUR	22	-56	740	0	0.3	0.3	0.4
1301612	99	P	SUR	25	-45	740	0	0.2	0.2	0.3
1301618	99	P	SUR	17	-34	741	0	0.3	0.2	0.4
1301619	99	P	SUR	31	-22	720	0	0.2	0.5	0.5
1301620	99	P	SUR	12	-37	740	0	0.3	0.2	0.3
1402554	99	P	SUR	23	-68	740	0	0.4	0.4	0.6
1402559	99	P	SUR	28	-51	740	0	0.4	0.4	0.5
1501531	99	P	SUR	29	-59	735	0	0.4	-0.2	0.4
1501534	99	P	SUR	23	-67	733	0	0.4	-1.1	1.2
1501581	99	P	SUR	18	-65	738	0	0.3	0.2	0.4
2501641	99	P	SUR	88	15	724	289	4.1	2.1	4.5
2501643	99	P	SUR	89	-2	733	0	0.4	-0.2	0.5
2501644	99	P	SUR	88	36	732	0	0.4	-0.5	0.6
2501645	99	P	SUR	89	-5	733	0	0.4	-0.1	0.4
2501647	99	P	SUR	89	-3	735	0	0.4	-0.1	0.4
2501653	99	P	SUR	88	22	733	0	0.4	-0.2	0.4
2501661	99	P	SUR	84	13	742	0	0.4	-0.1	0.4
2601623	99	P	SUR	76	32	745	0	0.4	-0.1	0.4
2601624	99	P	SUR	81	10	740	4	0.4	-0.0	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
2601625	99	P	SUR	77	24	745	0	2.0	0.5	2.1
3100735	99	P	SUR	35	-66	727	1	0.8	0.2	0.9
3101532	99	P	SUR	12	-68	689	0	0.5	-0.0	0.5
31735	99	P	SUR	35	-66	725	1	0.8	0.2	0.9
3732621	99	P	SUR	35	25	243	0	0.4	-0.6	0.7
4100040	99	P	SUR	15	-53	4195	0	0.4	-0.7	0.8
4100043	99	P	SUR	21	-65	4290	0	0.3	0.3	0.4
4100044	99	P	SUR	22	-59	4327	0	0.3	0.4	0.5
4100046	99	P	SUR	24	-68	4207	0	0.6	-0.2	0.6
4100048	99	P	SUR	32	-70	4088	0	0.4	-0.7	0.8
4100049	99	P	SUR	27	-63	4400	0	0.7	0.1	0.7
4100052	99	P	SUR	18	-65	4113	0	0.5	-1.2	1.3
4100053	99	P	SUR	18	-66	3463	0	0.5	-0.6	0.8
4100056	99	P	SUR	18	-65	3276	0	0.5	-0.6	0.8
4100139	99	P	SUR	20	-38	730	0	0.3	-0.2	0.3
4100300	99	P	SUR	16	-58	717	0	0.3	0.0	0.3
4100597	99	P	SUR	32	-33	724	0	0.2	0.2	0.3
4100729	99	P	SUR	33	-23	727	0	0.2	0.1	0.3
4100730	99	P	SUR	33	-24	725	0	0.2	0.4	0.4
4101529	99	P	SUR	28	-61	742	0	0.4	-0.9	1.0
4101530	99	P	SUR	31	-26	730	0	0.2	0.6	0.6
4101531	99	P	SUR	37	-18	744	0	0.3	0.7	0.7
4101533	99	P	SUR	55	-22	710	0	0.4	0.7	0.8
4101536	99	P	SUR	41	-27	741	0	0.3	0.3	0.4
4101537	99	P	SUR	38	-14	741	0	0.3	0.3	0.4
4101539	99	P	SUR	42	-36	741	0	0.3	0.2	0.4
4101554	99	P	SUR	26	-60	741	0	0.4	0.5	0.6
4101556	99	P	SUR	34	-14	682	0	0.3	0.9	0.9
4101557	99	P	SUR	34	-30	743	0	0.2	0.3	0.4
4101558	99	P	SUR	23	-54	743	0	0.3	0.6	0.7
4101560	99	P	SUR	38	-33	743	0	0.4	0.5	0.6
4101562	99	P	SUR	31	-52	698	0	0.3	0.7	0.8
4101564	99	P	SUR	28	-43	731	0	0.2	0.2	0.3
4101565	99	P	SUR	27	-30	600	0	0.2	0.7	0.7
4101567	99	P	SUR	38	-49	744	0	0.4	0.2	0.5
4101570	99	P	SUR	29	-59	744	0	0.4	0.4	0.5
4101572	99	P	SUR	50	-14	696	0	0.3	0.5	0.7
4101573	99	P	SUR	33	-40	743	0	0.3	0.3	0.4
4101596	99	P	SUR	59	-3	733	0	0.3	0.6	0.6
4101598	99	P	SUR	16	-61	713	0	0.4	-0.4	0.6
4101604	99	P	SUR	10	-62	691	0	0.5	-0.2	0.5
4101606	99	P	SUR	43	-9	295	0	0.4	-0.4	0.5
4101607	99	P	SUR	42	-15	744	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
4101608	99	P	SUR	62	-7	542	0	0.3	0.3	0.4
4101609	99	P	SUR	34	-23	744	0	0.3	0.3	0.4
4101610	99	P	SUR	66	-9	744	0	0.3	0.3	0.4
4101613	99	P	SUR	37	-22	744	0	0.3	0.6	0.7
4101614	99	P	SUR	35	-24	744	0	0.3	0.1	0.3
4101615	99	P	SUR	16	-45	302	0	0.2	0.2	0.3
4101616	99	P	SUR	36	-23	744	0	0.3	0.2	0.3
4101617	99	P	SUR	31	-26	744	1	0.2	0.5	0.5
4101618	99	P	SUR	36	-24	744	0	0.3	0.4	0.5
4101619	99	P	SUR	52	-10	472	1	2.9	0.8	3.0
4101620	99	P	SUR	51	-7	744	0	0.3	0.5	0.6
4101621	99	P	SUR	38	-36	744	0	0.4	0.1	0.4
4101622	99	P	SUR	70	-14	744	0	0.3	0.1	0.3
4101623	99	P	SUR	57	-54	744	0	0.3	0.1	0.3
4101625	99	P	SUR	67	-55	63	0	0.4	0.5	0.6
4101627	99	P	SUR	61	-29	744	0	0.3	-0.0	0.3
4101630	99	P	SUR	12	-48	295	0	0.3	-0.1	0.3
4101662	99	P	SUR	63	-12	744	0	0.3	0.1	0.3
4101663	99	P	SUR	63	-19	744	0	0.4	-0.1	0.4
4101664	99	P	SUR	61	-27	744	0	0.3	0.1	0.3
4101666	99	P	SUR	62	-13	744	0	0.3	-0.1	0.3
4101690	99	P	SUR	51	-53	733	0	0.3	0.2	0.4
4101700	99	P	SUR	29	-56	720	0	0.4	-0.6	0.7
4101702	99	P	SUR	37	-65	725	0	0.6	-0.2	0.7
4101705	99	P	SUR	30	-30	726	0	0.2	0.1	0.2
4101706	99	P	SUR	34	-27	728	0	0.2	-0.7	0.7
4101707	99	P	SUR	35	-32	738	0	0.2	-0.3	0.3
4101708	99	P	SUR	27	-52	727	0	0.3	-0.5	0.5
4101712	99	P	SUR	35	-32	729	0	0.2	-0.1	0.2
4101713	99	P	SUR	35	-62	725	0	0.4	-0.3	0.5
4101714	99	P	SUR	30	-31	730	0	0.2	0.0	0.2
4101715	99	P	SUR	29	-50	740	0	0.5	-0.5	0.7
4101716	99	P	SUR	25	-53	740	0	0.3	-0.8	0.8
4101717	99	P	SUR	26	-57	740	0	0.3	-0.1	0.3
4101718	99	P	SUR	30	-27	739	0	0.2	0.1	0.3
4101719	99	P	SUR	33	-61	734	0	0.3	-0.0	0.3
4101720	99	P	SUR	45	-55	727	0	0.4	0.4	0.6
4101721	99	P	SUR	37	-53	738	0	0.4	0.3	0.5
4101742	99	P	SUR	33	-41	723	0	0.2	-0.0	0.2
4101743	99	P	SUR	29	-63	721	0	0.4	0.7	0.8
4101752	99	P	SUR	14	-48	733	0	0.3	0.0	0.3
4101753	99	P	SUR	21	-22	130	0	0.3	0.4	0.5
4101754	99	P	SUR	13	-45	739	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
4101755	99	P	SUR	21	-22	130	0	0.3	0.4	0.5
4101756	99	P	SUR	10	-41	736	0	0.4	-0.0	0.4
4101760	99	P	SUR	32	-53	740	0	0.5	0.3	0.5
4101762	99	P	SUR	27	-68	740	0	0.5	0.2	0.6
4101764	99	P	SUR	75	17	93	0	0.7	0.2	0.7
4101765	99	P	SUR	60	-10	718	0	0.6	0.2	0.7
4101767	99	P	SUR	14	-32	738	0	0.4	0.3	0.5
41040	99	P	SUR	15	-53	1087	0	0.4	-0.3	0.5
41043	99	P	SUR	21	-65	1165	0	0.4	0.7	0.8
41044	99	P	SUR	22	-59	1160	0	0.3	0.8	0.8
41046	99	P	SUR	24	-68	1275	0	0.6	0.3	0.7
41048	99	P	SUR	32	-70	1173	0	0.4	-0.3	0.5
41049	99	P	SUR	28	-63	817	0	0.4	0.8	0.9
41052	99	P	SUR	18	-65	1531	0	0.5	-1.2	1.3
41053	99	P	SUR	19	-66	1351	0	0.5	-0.6	0.8
41056	99	P	SUR	18	-66	1276	0	0.5	-0.7	0.8
41300	99	P	SUR	16	-57	717	0	0.3	0.0	0.3
41597	99	P	SUR	32	-33	724	0	0.2	0.2	0.3
41729	99	P	SUR	33	-23	727	0	0.2	0.1	0.3
41730	99	P	SUR	33	-24	724	0	0.2	0.4	0.4
4200059	99	P	SUR	15	-67	4096	0	0.4	0.0	0.4
4200085	99	P	SUR	18	-67	2578	0	0.4	-0.8	0.9
42059	99	P	SUR	15	-68	1171	0	0.4	0.4	0.6
42085	99	P	SUR	18	-67	1320	0	0.4	-0.8	0.9
4400005	99	P	SUR	43	-69	740	0	0.4	0.4	0.5
4400008	99	P	SUR	41	-69	4446	0	0.4	0.1	0.4
4400011	99	P	SUR	41	-67	4429	0	0.4	-0.2	0.5
4400027	99	P	SUR	44	-67	740	0	0.4	-0.1	0.4
4400032	99	P	SUR	44	-69	740	0	0.4	-1.1	1.2
4400033	99	P	SUR	44	-69	743	0	0.4	-0.4	0.5
4400034	99	P	SUR	44	-68	718	0	0.4	-0.0	0.4
4400037	99	P	SUR	43	-68	356	0	0.4	-0.3	0.5
44005	99	P	SUR	43	-69	780	0	0.4	0.4	0.5
4400513	99	P	SUR	54	-10	622	0	0.3	-0.4	0.5
4400517	99	P	SUR	29	-68	743	0	0.4	0.1	0.5
4400521	99	P	SUR	27	-38	685	0	0.2	-0.9	0.9
4400746	99	P	SUR	33	-28	733	0	0.4	-0.1	0.4
4400777	99	P	SUR	27	-48	727	0	0.3	0.3	0.5
44008	99	P	SUR	41	-69	1470	0	0.5	0.5	0.7
4400857	99	P	SUR	32	-29	723	0	0.2	0.4	0.5
4400874	99	P	SUR	34	-32	721	0	0.2	-0.5	0.6
44011	99	P	SUR	41	-67	1430	0	0.5	0.3	0.5
4401531	99	P	SUR	38	-30	742	0	0.3	0.3	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401536	99	P	SUR	31	-19	732	0	0.4	0.8	0.9
4401537	99	P	SUR	27	-46	715	0	0.4	-0.8	0.8
4401539	99	P	SUR	37	-16	743	0	0.6	-0.1	0.6
4401540	99	P	SUR	33	-42	743	0	0.2	0.2	0.3
4401541	99	P	SUR	29	-33	743	0	0.2	-0.1	0.2
4401549	99	P	SUR	66	13	546	1	2.0	-0.5	2.0
4401551	99	P	SUR	32	-24	708	0	0.2	0.3	0.4
4401556	99	P	SUR	24	-34	725	0	0.3	0.1	0.3
4401557	99	P	SUR	30	-34	727	0	0.2	0.3	0.3
4401558	99	P	SUR	66	12	726	0	0.4	-0.0	0.4
4401559	99	P	SUR	46	-6	724	0	0.3	0.4	0.5
4401561	99	P	SUR	28	-44	725	0	0.3	0.1	0.3
4401562	99	P	SUR	27	-27	725	0	0.2	-0.2	0.3
4401563	99	P	SUR	28	-51	723	0	0.3	-0.5	0.5
4401564	99	P	SUR	37	-24	722	0	0.3	0.3	0.4
4401565	99	P	SUR	62	-20	727	0	0.4	0.0	0.4
4401567	99	P	SUR	54	-21	740	0	0.3	0.2	0.4
4401568	99	P	SUR	53	-24	740	0	0.4	0.2	0.4
4401569	99	P	SUR	53	-33	736	0	0.4	0.1	0.4
4401570	99	P	SUR	46	-17	733	0	0.3	0.0	0.3
4401572	99	P	SUR	47	-39	737	0	0.3	0.2	0.4
4401573	99	P	SUR	50	-24	740	0	0.3	0.0	0.3
4401574	99	P	SUR	57	-35	740	0	0.5	-0.0	0.5
4401575	99	P	SUR	49	-46	726	0	0.4	0.3	0.5
4401576	99	P	SUR	43	-29	741	0	0.3	0.3	0.4
4401577	99	P	SUR	42	-44	742	0	0.4	-0.0	0.4
4401578	99	P	SUR	44	-35	740	0	0.3	-0.1	0.3
4401579	99	P	SUR	43	-38	736	0	0.4	-0.0	0.4
4401580	99	P	SUR	47	-47	464	0	0.3	0.2	0.4
4401581	99	P	SUR	39	-60	458	0	0.6	-0.2	0.6
4401582	99	P	SUR	43	-52	463	0	0.4	0.1	0.4
4401583	99	P	SUR	43	-52	434	0	0.4	0.2	0.5
4401584	99	P	SUR	43	-53	27	0	0.2	0.2	0.2
4401611	99	P	SUR	40	-44	734	0	0.4	0.1	0.4
4401613	99	P	SUR	31	-14	733	0	0.3	0.7	0.7
4401750	99	P	SUR	67	5	723	0	0.4	-1.3	1.3
4401751	99	P	SUR	65	-2	701	0	0.4	0.3	0.5
4401753	99	P	SUR	63	1	646	0	0.3	0.6	0.7
4401799	99	P	SUR	23	-56	723	0	0.3	0.4	0.5
4401802	99	P	SUR	34	-18	733	0	0.2	0.2	0.3
4401821	99	P	SUR	62	-65	202	0	0.5	0.1	0.5
4401822	99	P	SUR	62	-69	204	0	0.5	0.5	0.7
4401823	99	P	SUR	61	-69	252	0	0.5	0.3	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401824	99	P	SUR	62	-66	198	0	0.5	0.3	0.5
4401853	99	P	SUR	12	-56	542	0	0.5	0.0	0.5
4401856	99	P	SUR	12	-56	542	0	0.4	0.0	0.5
4401860	99	P	SUR	10	-54	26	0	0.3	-3.7	3.7
4401893	99	P	SUR	49	-52	735	0	0.3	0.4	0.5
4401894	99	P	SUR	52	-52	725	0	0.3	0.5	0.6
44027	99	P	SUR	44	-67	778	0	0.4	-0.1	0.4
44032	99	P	SUR	44	-69	742	0	0.4	-1.1	1.1
44033	99	P	SUR	44	-69	745	0	0.4	-0.4	0.5
44034	99	P	SUR	44	-68	720	0	0.4	-0.0	0.4
44037	99	P	SUR	44	-68	357	0	0.4	-0.3	0.5
44137	99	P	SUR	42	-62	729	0	0.5	0.0	0.5
44139	99	P	SUR	44	-57	732	0	0.4	-0.0	0.4
44150	99	P	SUR	43	-64	739	0	0.5	0.2	0.5
44258	99	P	SUR	45	-63	741	0	0.5	0.0	0.5
44513	99	P	SUR	54	-10	622	0	0.3	-0.4	0.5
44517	99	P	SUR	29	-68	743	0	0.4	0.1	0.5
44521	99	P	SUR	27	-38	685	0	0.2	-0.9	0.9
44746	99	P	SUR	33	-28	732	0	0.4	-0.1	0.4
44777	99	P	SUR	27	-48	727	0	0.3	0.3	0.5
44857	99	P	SUR	32	-29	722	0	0.2	0.4	0.5
44874	99	P	SUR	34	-32	721	0	0.2	-0.5	0.6
45138	99	P	SUR	50	-66	742	0	0.4	-0.1	0.4
4602501	99	P	SUR	70	0	741	0	0.4	0.1	0.4
4602502	99	P	SUR	71	1	724	0	0.4	0.2	0.4
4602504	99	P	SUR	70	3	740	0	0.4	0.3	0.5
4700546	99	P	SUR	30	-55	712	0	0.3	0.1	0.3
4701669	99	P	SUR	45	-19	734	0	0.3	0.2	0.4
4800770	99	P	SUR	64	-38	728	728	0.0	0.0	0.0
4802505	99	P	SUR	84	-62	735	0	0.4	-0.1	0.4
5301764	99	P	SUR	63	-15	738	0	0.6	0.2	0.6
5301765	99	P	SUR	61	-10	740	0	0.4	0.3	0.5
6100001	99	P	SUR	43	8	716	0	0.4	0.4	0.6
6100002	99	P	SUR	42	5	719	0	0.3	0.0	0.3
61001	99	P	SUR	43	8	716	0	0.4	0.4	0.6
6100196	99	P	SUR	42	4	743	0	0.4	0.2	0.4
6100197	99	P	SUR	40	4	744	0	0.4	0.3	0.5
6100198	99	P	SUR	37	-2	743	0	0.4	0.3	0.5
61002	99	P	SUR	42	5	719	0	0.3	0.0	0.3
6100280	99	P	SUR	41	1	742	0	0.3	0.2	0.4
6100281	99	P	SUR	40	0	744	0	0.4	0.2	0.5
6100417	99	P	SUR	38	0	743	0	0.4	0.4	0.5
6100430	99	P	SUR	40	2	743	0	0.4	0.0	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6101001	99	P	SUR	38	24	166	10	7.7	1.4	7.8
6101003	99	P	SUR	40	25	245	1	0.4	0.9	1.0
6101005	99	P	SUR	38	26	248	0	0.4	0.8	0.9
6101008	99	P	SUR	37	22	218	0	0.4	0.6	0.8
6200024	99	P	SUR	44	-3	744	0	0.4	0.2	0.5
6200025	99	P	SUR	44	-6	744	0	0.4	0.1	0.4
6200082	99	P	SUR	44	-8	740	0	0.3	0.0	0.3
6200083	99	P	SUR	43	-9	744	0	0.3	0.1	0.3
6200084	99	P	SUR	42	-9	744	0	0.3	0.4	0.5
6200085	99	P	SUR	36	-7	744	0	0.4	0.3	0.5
6200091	99	P	SUR	53	-5	739	0	0.4	-0.0	0.4
6200092	99	P	SUR	51	-11	738	0	0.4	-0.2	0.4
6200093	99	P	SUR	55	-10	738	0	0.4	-0.1	0.4
6200094	99	P	SUR	52	-7	741	0	0.4	0.2	0.5
6200095	99	P	SUR	53	-16	736	0	0.4	-0.4	0.6
62001	99	P	SUR	45	-5	767	0	0.3	0.3	0.4
6200191	99	P	SUR	41	-10	521	0	0.4	-0.3	0.5
6200192	99	P	SUR	40	-10	542	0	0.3	-0.2	0.4
6200200	99	P	SUR	36	-8	436	0	0.3	-0.2	0.4
62010	99	P	SUR	55	7	1	0	0.0	0.4	0.4
6201030	99	P	SUR	44	-4	669	0	0.4	0.1	0.4
62023	99	P	SUR	51	-8	742	0	0.3	0.1	0.3
6202638	99	P	SUR	18	-44	302	0	0.2	0.0	0.2
6202639	99	P	SUR	21	-41	302	0	0.2	0.5	0.5
6202640	99	P	SUR	21	-43	744	0	0.2	0.3	0.4
6202641	99	P	SUR	14	-54	744	0	0.3	0.4	0.5
6202642	99	P	SUR	17	-49	744	0	0.3	0.1	0.3
6202643	99	P	SUR	18	-47	744	0	0.3	0.2	0.3
6202644	99	P	SUR	23	-41	744	0	0.2	0.3	0.4
6202647	99	P	SUR	14	-47	302	0	0.2	-0.1	0.2
6202675	99	P	SUR	58	-21	684	0	0.4	0.1	0.4
6202676	99	P	SUR	61	-20	732	0	0.3	0.2	0.4
6202677	99	P	SUR	60	-24	722	0	0.4	0.1	0.4
6202678	99	P	SUR	57	-27	702	0	0.5	0.2	0.5
6202679	99	P	SUR	60	-30	687	0	0.3	0.2	0.4
6202680	99	P	SUR	59	-21	721	0	0.4	0.0	0.4
6202681	99	P	SUR	59	-18	733	0	0.4	0.1	0.5
6202682	99	P	SUR	59	-17	727	0	0.4	-0.0	0.5
6202683	99	P	SUR	59	-21	718	0	0.4	0.2	0.5
6202684	99	P	SUR	60	-19	720	0	0.4	0.3	0.5
62029	99	P	SUR	49	-12	1331	0	0.3	0.1	0.3
62030	99	P	SUR	50	-4	625	0	0.5	-1.7	1.7
6203503	99	P	SUR	45	-10	743	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
6203523	99	P	SUR	69	4	680	0	0.4	-0.8	0.8
6203525	99	P	SUR	72	17	191	0	0.3	-0.6	0.7
6203528	99	P	SUR	27	-24	713	0	0.3	-0.2	0.3
6203574	99	P	SUR	64	-27	735	0	0.3	0.4	0.5
6203576	99	P	SUR	64	-53	726	0	0.4	0.5	0.6
6203577	99	P	SUR	66	-17	734	0	0.3	0.3	0.5
6203579	99	P	SUR	65	-40	734	0	0.5	0.1	0.5
6203580	99	P	SUR	67	-12	721	0	0.4	0.3	0.5
6203581	99	P	SUR	63	-7	713	0	0.3	-0.0	0.3
6203582	99	P	SUR	61	-24	719	0	0.3	0.2	0.4
6203583	99	P	SUR	61	-27	719	0	0.4	0.0	0.4
6203584	99	P	SUR	64	-28	546	236	5.7	6.7	8.8
6203585	99	P	SUR	68	-19	368	0	0.3	0.4	0.5
6203586	99	P	SUR	68	-13	337	0	0.3	0.5	0.6
6203587	99	P	SUR	64	-14	272	0	0.3	-0.2	0.3
6203588	99	P	SUR	63	-21	233	0	0.4	0.7	0.8
6203601	99	P	SUR	37	-12	720	0	0.3	0.8	0.8
6203607	99	P	SUR	31	-34	731	0	0.2	0.2	0.3
6203608	99	P	SUR	49	-7	731	0	0.3	0.2	0.4
6203609	99	P	SUR	43	-14	738	0	0.3	-0.0	0.3
6203610	99	P	SUR	49	-6	740	0	0.4	0.3	0.5
6203706	99	P	SUR	28	-64	740	0	0.6	0.3	0.7
6203707	99	P	SUR	30	-30	739	0	0.3	0.4	0.4
6203708	99	P	SUR	27	-39	739	0	0.5	0.4	0.6
6203710	99	P	SUR	62	-13	739	0	0.4	0.1	0.4
6203711	99	P	SUR	63	-17	742	0	1.0	-0.1	1.0
6203715	99	P	SUR	73	20	740	0	0.4	0.2	0.4
62050	99	P	SUR	50	-4	768	0	0.3	0.3	0.4
62081	99	P	SUR	51	-13	776	0	0.3	-0.1	0.3
62091	99	P	SUR	53	-5	739	0	0.4	-0.0	0.4
62092	99	P	SUR	51	-11	737	0	0.4	-0.1	0.4
62093	99	P	SUR	55	-10	737	0	0.4	-0.1	0.4
62094	99	P	SUR	52	-7	739	0	0.4	0.2	0.5
62095	99	P	SUR	53	-16	735	0	0.4	-0.4	0.6
62102	99	P	SUR	58	2	776	0	0.3	0.4	0.5
62103	99	P	SUR	50	-3	775	0	0.3	0.7	0.7
62104	99	P	SUR	57	1	776	0	0.3	0.2	0.4
62105	99	P	SUR	55	-13	1199	0	0.6	-0.3	0.7
62107	99	P	SUR	50	-6	1348	0	0.6	0.5	0.8
62112	99	P	SUR	58	0	772	0	0.3	0.6	0.7
62113	99	P	SUR	58	0	776	0	0.4	0.3	0.6
62114	99	P	SUR	58	0	1347	0	0.4	0.5	0.6
62115	99	P	SUR	58	-3	775	0	0.3	0.3	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62116	99	P	SUR	58	1	776	0	0.4	0.4	0.5
62118	99	P	SUR	58	1	776	0	0.3	0.7	0.7
62119	99	P	SUR	57	2	775	0	0.4	0.4	0.5
62120	99	P	SUR	56	2	774	0	0.3	0.2	0.3
62121	99	P	SUR	54	3	775	0	0.5	0.6	0.8
62122	99	P	SUR	57	2	1345	0	0.3	0.4	0.5
62124	99	P	SUR	54	-4	775	0	0.3	0.2	0.3
62127	99	P	SUR	54	1	208	0	0.3	0.8	0.9
62129	99	P	SUR	58	0	758	0	0.4	0.5	0.6
62130	99	P	SUR	59	1	776	0	0.3	0.3	0.4
62131	99	P	SUR	54	1	776	0	0.3	0.7	0.8
62132	99	P	SUR	56	2	624	0	0.3	0.7	0.7
62133	99	P	SUR	57	1	775	0	0.4	0.5	0.6
62134	99	P	SUR	58	1	768	0	0.3	0.8	0.8
62135	99	P	SUR	54	2	772	0	0.3	0.5	0.6
62136	99	P	SUR	54	3	771	0	0.4	0.8	0.9
62138	99	P	SUR	54	0	1347	0	0.4	1.2	1.2
62139	99	P	SUR	53	2	170	0	0.3	0.7	0.7
62140	99	P	SUR	57	1	1056	0	0.3	0.4	0.5
62141	99	P	SUR	58	-4	754	0	0.5	-1.9	2.0
62143	99	P	SUR	58	2	776	0	0.3	0.9	1.0
62144	99	P	SUR	53	2	775	0	0.3	0.6	0.7
62145	99	P	SUR	53	3	1345	0	0.3	0.6	0.7
62146	99	P	SUR	57	2	751	0	0.4	0.2	0.4
62148	99	P	SUR	54	2	776	0	0.4	0.8	0.9
62149	99	P	SUR	54	1	775	0	0.3	0.9	1.0
62150	99	P	SUR	54	1	776	0	0.3	1.5	1.5
62151	99	P	SUR	57	2	1343	0	0.3	0.5	0.6
62152	99	P	SUR	57	2	775	0	0.4	0.7	0.8
62153	99	P	SUR	57	2	1335	0	0.3	0.5	0.6
62154	99	P	SUR	56	2	775	0	0.3	0.5	0.5
62155	99	P	SUR	58	1	750	0	0.3	0.7	0.7
62157	99	P	SUR	58	0	776	0	0.3	0.4	0.5
62160	99	P	SUR	57	2	1344	0	0.3	0.6	0.7
62161	99	P	SUR	58	1	763	0	0.5	0.3	0.6
62162	99	P	SUR	57	1	760	0	0.3	0.4	0.5
62163	99	P	SUR	48	-8	731	0	0.3	0.5	0.5
62165	99	P	SUR	54	1	759	0	0.3	0.8	0.8
62168	99	P	SUR	58	1	768	0	0.3	0.4	0.5
62296	99	P	SUR	53	2	773	0	0.3	0.4	0.5
62297	99	P	SUR	59	2	1346	0	0.3	0.4	0.5
62302	99	P	SUR	61	-2	775	0	0.3	0.3	0.5
62304	99	P	SUR	51	2	403	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
62305	99	P	SUR	50	0	773	0	0.3	0.3	0.5
62442	99	P	SUR	49	-16	769	0	0.3	0.2	0.4
6301501	99	P	SUR	83	10	214	0	0.3	0.2	0.3
6301504	99	P	SUR	82	40	737	0	0.4	-0.1	0.4
6301505	99	P	SUR	83	6	731	0	0.4	0.1	0.4
6301507	99	P	SUR	81	31	692	17	3.5	1.1	3.7
6301558	99	P	SUR	66	-15	735	0	0.5	0.5	0.7
6301562	99	P	SUR	59	-52	720	0	0.3	0.2	0.4
6301563	99	P	SUR	61	-56	722	0	0.3	0.8	0.8
6301564	99	P	SUR	64	-12	732	0	0.3	0.4	0.5
6301681	99	P	SUR	70	1	740	0	0.3	0.1	0.4
6301682	99	P	SUR	70	-3	725	0	0.8	0.6	1.0
63055	99	P	SUR	61	2	776	0	0.4	0.1	0.4
63056	99	P	SUR	60	2	776	0	0.3	0.6	0.7
63057	99	P	SUR	59	2	776	0	0.3	0.2	0.3
63058	99	P	SUR	53	2	2228	0	0.3	0.5	0.6
63059	99	P	SUR	58	-1	776	0	0.3	0.7	0.8
63101	99	P	SUR	61	1	776	0	0.3	0.4	0.5
63102	99	P	SUR	61	1	763	0	0.4	0.2	0.4
63103	99	P	SUR	61	1	776	0	0.3	0.4	0.5
63104	99	P	SUR	61	2	776	0	0.3	0.3	0.4
63108	99	P	SUR	61	2	776	0	0.4	0.1	0.4
63109	99	P	SUR	60	2	776	0	0.3	-0.0	0.3
63110	99	P	SUR	60	2	776	0	0.3	0.1	0.4
63111	99	P	SUR	61	2	1341	0	0.4	-0.0	0.4
63112	99	P	SUR	61	1	776	0	0.3	-0.0	0.3
63115	99	P	SUR	62	1	776	0	0.3	0.2	0.4
63117	99	P	SUR	61	1	1347	0	0.4	0.7	0.8
63118	99	P	SUR	57	2	1345	0	0.3	0.2	0.3
63120	99	P	SUR	54	2	771	0	0.3	0.7	0.8
6401502	99	P	SUR	74	14	708	0	0.3	0.3	0.4
6401503	99	P	SUR	65	3	660	0	0.3	0.5	0.6
6401506	99	P	SUR	66	2	704	0	0.3	0.5	0.6
6401531	99	P	SUR	59	-36	733	0	0.3	0.2	0.4
6401539	99	P	SUR	57	-59	515	0	0.3	0.5	0.5
6401556	99	P	SUR	71	18	730	0	0.3	0.2	0.3
6401561	99	P	SUR	66	1	726	0	0.4	0.1	0.4
6401565	99	P	SUR	71	30	723	0	0.4	0.0	0.4
6401568	99	P	SUR	62	-7	740	0	0.3	0.2	0.4
6401569	99	P	SUR	65	0	740	0	0.3	0.2	0.4
6401570	99	P	SUR	68	10	739	0	0.3	0.1	0.3
64041	99	P	SUR	61	-3	776	0	0.3	0.3	0.5
64045	99	P	SUR	59	-12	958	0	0.4	-0.3	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
64046	99	P	SUR	61	-4	759	0	0.3	0.0	0.3
6501556	99	P	SUR	73	13	731	0	0.3	0.3	0.4
66023	99	P	SUR	55	11	815	0	0.3	0.2	0.3

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : AUG 2019
 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
0062087	99	SPEED	SUR	55	7	215	0	0	1.3	0.9	1.6
0066022	99	SPEED	SUR	54	14	259	0	0	1.5	0.1	1.5
0066023	99	SPEED	SUR	55	11	328	0	0	1.7	1.4	2.2
0066024	99	SPEED	SUR	55	13	163	0	0	1.3	0.5	1.4
0640046	99	SPEED	SUR	60	-4	740	0	0	1.3	-0.7	1.4
1300001	99	SPEED	SUR	11	-23	708	0	0	1.5	-0.2	1.5
1300002	99	SPEED	SUR	20	-23	722	0	0	0.8	0.1	0.8
1300008	99	SPEED	SUR	15	-38	730	0	0	0.9	0.5	1.0
1300131	99	SPEED	SUR	28	-17	562	0	0	2.3	3.0	3.8
3732621	99	SPEED	SUR	35	25	245	0	0	1.3	1.2	1.8
4100026	99	SPEED	SUR	12	-38	272	0	0	1.2	0.5	1.3
4100040	99	SPEED	SUR	15	-53	4191	0	0	1.0	0.2	1.1
4100043	99	SPEED	SUR	21	-65	4288	0	0	1.0	-0.0	1.0
4100044	99	SPEED	SUR	22	-59	4327	0	0	1.0	0.0	1.0
4100046	99	SPEED	SUR	24	-68	3714	0	0	1.2	0.2	1.2
4100048	99	SPEED	SUR	32	-70	4087	0	0	1.3	-0.1	1.3
4100049	99	SPEED	SUR	27	-63	4395	0	0	1.2	0.1	1.2
4100052	99	SPEED	SUR	18	-65	4115	0	0	1.2	-0.5	1.3
4100053	99	SPEED	SUR	18	-66	3463	0	0	1.6	1.2	2.0
4100056	99	SPEED	SUR	18	-65	3276	0	0	1.3	-0.8	1.5
4100139	99	SPEED	SUR	20	-38	730	0	0	0.8	-0.1	0.8
4100300	99	SPEED	SUR	16	-58	717	0	0	1.0	-0.1	1.0
41026	99	SPEED	SUR	12	-38	271	0	0	1.2	0.5	1.3
41040	99	SPEED	SUR	15	-53	1085	0	0	1.1	-0.2	1.1
41043	99	SPEED	SUR	21	-65	1168	0	0	1.0	-0.1	1.0
41044	99	SPEED	SUR	22	-59	1164	0	0	1.0	-0.3	1.1
41046	99	SPEED	SUR	24	-68	1076	0	0	1.2	0.2	1.2
41048	99	SPEED	SUR	32	-70	1184	0	0	1.4	-0.2	1.4
41049	99	SPEED	SUR	28	-63	1481	0	0	1.4	0.1	1.4
41052	99	SPEED	SUR	18	-65	1533	0	0	1.3	-0.4	1.3
41053	99	SPEED	SUR	19	-66	1351	0	0	1.6	0.5	1.7
41056	99	SPEED	SUR	18	-66	1276	0	0	1.3	-0.5	1.4
41300	99	SPEED	SUR	16	-57	717	0	0	1.0	-0.0	1.0
4200059	99	SPEED	SUR	15	-67	4095	0	0	0.8	0.3	0.8

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
4200085	99	SPEED	SUR	18	-67	2631	0	0	1.2	-0.2	1.2
42059	99	SPEED	SUR	15	-68	1185	0	0	0.8	0.1	0.8
42085	99	SPEED	SUR	18	-67	1342	0	0	1.3	0.1	1.3
4400005	99	SPEED	SUR	43	-69	740	0	0	1.3	-0.8	1.5
4400008	99	SPEED	SUR	41	-69	4446	0	0	1.6	-0.1	1.6
4400011	99	SPEED	SUR	41	-67	4425	0	0	1.4	-0.2	1.5
4400027	99	SPEED	SUR	44	-67	740	0	0	1.2	-0.7	1.4
4400032	99	SPEED	SUR	44	-69	740	0	0	1.3	-0.9	1.6
4400033	99	SPEED	SUR	44	-69	743	0	0	1.3	-0.5	1.4
4400034	99	SPEED	SUR	44	-68	718	0	0	1.2	-1.4	1.8
4400037	99	SPEED	SUR	43	-68	356	0	0	1.1	-0.1	1.1
44005	99	SPEED	SUR	43	-69	780	0	0	1.3	-0.7	1.5
44008	99	SPEED	SUR	41	-69	1476	0	0	1.6	-0.6	1.7
44011	99	SPEED	SUR	41	-67	1427	0	0	1.4	-0.5	1.5
44027	99	SPEED	SUR	44	-67	778	0	0	1.3	-0.6	1.4
44032	99	SPEED	SUR	44	-69	742	0	0	1.4	-0.8	1.6
44033	99	SPEED	SUR	44	-69	745	0	0	1.3	-0.3	1.3
44034	99	SPEED	SUR	44	-68	720	0	0	1.3	-1.3	1.8
44037	99	SPEED	SUR	44	-68	357	0	0	1.1	-0.1	1.1
44139	99	SPEED	SUR	44	-57	732	0	0	1.1	-0.4	1.2
44150	99	SPEED	SUR	43	-64	735	0	0	1.4	0.1	1.4
44258	99	SPEED	SUR	45	-63	741	0	0	1.5	-0.6	1.6
45138	99	SPEED	SUR	50	-66	742	0	0	1.5	-0.0	1.5
6100001	99	SPEED	SUR	43	8	716	0	0	1.5	-0.4	1.5
6100002	99	SPEED	SUR	42	5	719	0	0	1.2	0.2	1.2
61001	99	SPEED	SUR	43	8	716	0	0	1.6	-0.6	1.7
6100196	99	SPEED	SUR	42	4	732	0	0	1.4	-0.7	1.6
6100197	99	SPEED	SUR	40	4	734	0	0	1.3	0.1	1.3
6100198	99	SPEED	SUR	37	-2	727	0	0	1.6	-1.0	1.8
61002	99	SPEED	SUR	42	5	719	0	0	1.3	-0.2	1.3
6100280	99	SPEED	SUR	41	1	699	0	0	1.2	-0.4	1.3
6100281	99	SPEED	SUR	40	0	736	0	0	1.8	0.0	1.8
6100417	99	SPEED	SUR	38	0	735	0	0	1.1	-0.3	1.2
6100430	99	SPEED	SUR	40	2	721	0	0	1.4	0.2	1.5
6101001	99	SPEED	SUR	38	24	166	0	0	3.3	-1.7	3.7
6101003	99	SPEED	SUR	40	25	245	0	0	1.8	-1.2	2.2
6101005	99	SPEED	SUR	38	26	248	0	0	1.3	-0.5	1.4
6101007	99	SPEED	SUR	36	25	1	0	0	0.0	-1.1	1.1
6101008	99	SPEED	SUR	37	22	218	0	0	1.4	-0.3	1.4
6200024	99	SPEED	SUR	44	-3	734	0	0	1.2	0.1	1.2
6200025	99	SPEED	SUR	44	-6	740	0	0	1.3	-0.2	1.3

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
6200082	99	SPEED	SUR	44	-8	740	0	0	1.0	-0.4	1.0
6200083	99	SPEED	SUR	43	-9	742	0	0	1.0	-0.4	1.0
6200084	99	SPEED	SUR	42	-9	740	0	0	1.0	-0.3	1.0
6200085	99	SPEED	SUR	36	-7	736	0	0	1.5	-0.6	1.6
6200091	99	SPEED	SUR	53	-5	739	0	0	1.2	-0.1	1.2
6200092	99	SPEED	SUR	51	-11	738	0	0	1.0	-0.2	1.0
6200093	99	SPEED	SUR	55	-10	738	0	0	1.2	0.0	1.2
6200094	99	SPEED	SUR	52	-7	741	0	0	0.9	0.1	0.9
6200095	99	SPEED	SUR	53	-16	736	0	0	1.1	-0.3	1.2
62001	99	SPEED	SUR	45	-5	767	0	0	1.0	0.5	1.1
6200192	99	SPEED	SUR	40	-10	545	0	0	1.0	-0.3	1.0
6200200	99	SPEED	SUR	36	-8	616	0	0	1.2	0.1	1.2
62010	99	SPEED	SUR	55	7	1	0	0	0.0	0.3	0.3
6201030	99	SPEED	SUR	44	-4	661	0	0	1.3	-0.1	1.3
62023	99	SPEED	SUR	51	-8	733	0	0	1.7	0.4	1.7
62029	99	SPEED	SUR	49	-12	1331	0	0	0.8	0.5	1.0
62050	99	SPEED	SUR	50	-4	768	0	0	1.1	0.3	1.1
62081	99	SPEED	SUR	51	-13	777	0	0	1.0	0.6	1.2
62091	99	SPEED	SUR	53	-5	739	0	0	1.2	-0.1	1.2
62092	99	SPEED	SUR	51	-11	737	0	0	1.1	-0.1	1.1
62093	99	SPEED	SUR	55	-10	737	0	0	1.2	0.0	1.2
62094	99	SPEED	SUR	52	-7	739	0	0	1.0	0.1	1.0
62095	99	SPEED	SUR	53	-16	735	0	0	1.2	-0.4	1.3
62102	99	SPEED	SUR	58	2	776	0	0	1.2	-0.9	1.5
62103	99	SPEED	SUR	50	-3	757	0	0	1.4	0.9	1.7
62104	99	SPEED	SUR	57	1	776	0	0	1.2	-0.2	1.2
62105	99	SPEED	SUR	55	-13	1199	0	0	1.1	0.1	1.1
62107	99	SPEED	SUR	50	-6	1348	0	0	1.4	0.6	1.6
62112	99	SPEED	SUR	58	0	772	0	0	1.3	-0.2	1.3
62113	99	SPEED	SUR	58	0	776	0	0	1.4	0.6	1.5
62114	99	SPEED	SUR	58	0	1347	0	0	1.3	0.7	1.5
62118	99	SPEED	SUR	58	1	776	0	0	1.3	0.5	1.4
62119	99	SPEED	SUR	57	2	775	0	0	1.2	-0.2	1.2
62120	99	SPEED	SUR	56	2	774	0	0	1.2	0.1	1.2
62122	99	SPEED	SUR	57	2	1345	0	0	1.1	-0.2	1.2
62129	99	SPEED	SUR	58	0	758	0	0	1.2	0.2	1.2
62131	99	SPEED	SUR	54	1	776	0	0	1.3	-0.0	1.3
62132	99	SPEED	SUR	56	2	622	0	0	1.8	-1.9	2.6
62133	99	SPEED	SUR	57	1	775	0	0	1.4	0.0	1.4
62134	99	SPEED	SUR	58	1	768	0	0	1.2	0.2	1.2
62140	99	SPEED	SUR	57	1	1166	0	0	1.1	-0.0	1.1

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
62143	99	SPEED	SUR	58	2	776	0	0	1.7	-0.7	1.8
62144	99	SPEED	SUR	53	2	775	0	0	1.7	-0.5	1.8
62145	99	SPEED	SUR	53	3	1345	0	0	1.4	0.6	1.5
62146	99	SPEED	SUR	57	2	751	0	0	1.1	-0.0	1.1
62148	99	SPEED	SUR	54	2	776	0	0	1.5	-0.2	1.5
62149	99	SPEED	SUR	54	1	775	0	0	2.0	-0.3	2.0
62150	99	SPEED	SUR	54	1	776	0	0	1.6	-0.2	1.6
62152	99	SPEED	SUR	57	2	775	0	0	1.3	-0.4	1.3
62153	99	SPEED	SUR	57	2	1335	0	0	1.6	-0.7	1.8
62154	99	SPEED	SUR	56	2	774	0	0	1.3	-0.1	1.3
62155	99	SPEED	SUR	58	1	746	0	0	1.5	-0.5	1.6
62163	99	SPEED	SUR	48	-8	731	0	0	0.8	0.2	0.9
62165	99	SPEED	SUR	54	1	760	0	0	1.4	-0.4	1.4
62305	99	SPEED	SUR	50	0	773	0	0	2.0	0.4	2.0
62442	99	SPEED	SUR	49	-16	769	0	0	0.9	0.0	1.0
63055	99	SPEED	SUR	61	2	776	0	0	1.1	-0.8	1.3
63056	99	SPEED	SUR	60	2	776	0	0	1.1	0.0	1.1
63057	99	SPEED	SUR	59	2	776	0	0	1.5	0.2	1.6
63058	99	SPEED	SUR	53	2	1448	0	0	1.3	0.0	1.3
63101	99	SPEED	SUR	61	1	776	0	0	1.2	-0.2	1.3
63103	99	SPEED	SUR	61	1	776	0	0	1.4	-0.2	1.5
63104	99	SPEED	SUR	61	2	776	0	0	1.3	-0.2	1.3
63108	99	SPEED	SUR	61	2	776	0	0	1.5	-0.1	1.5
63109	99	SPEED	SUR	60	2	728	0	0	1.1	0.2	1.1
63110	99	SPEED	SUR	60	2	776	0	0	1.2	-0.2	1.2
63112	99	SPEED	SUR	61	1	776	0	0	1.2	-0.5	1.3
63113	99	SPEED	SUR	61	2	776	0	0	1.1	-0.5	1.2
63115	99	SPEED	SUR	62	1	776	0	0	1.3	-0.5	1.4
63117	99	SPEED	SUR	61	1	1347	0	0	1.2	-0.1	1.2
64041	99	SPEED	SUR	61	-3	776	0	0	1.4	-0.2	1.4
64045	99	SPEED	SUR	59	-12	958	0	0	2.3	-0.3	2.3
64046	99	SPEED	SUR	61	-4	761	0	0	1.2	0.3	1.2
66021	99	SPEED	SUR	55	14	536	0	0	1.3	0.5	1.4
66022	99	SPEED	SUR	54	14	984	0	0	1.6	0.1	1.6
66023	99	SPEED	SUR	55	11	815	0	0	1.7	0.8	1.8
66024	99	SPEED	SUR	55	13	742	0	0	1.3	0.7	1.4

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : AUG 2019
 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	645	0	0	15.7	2.3	15.9
1300001	99	DIRN	SUR	11	-23	517	0	0	23.8	-3.5	24.1
1300002	99	DIRN	SUR	20	-23	638	0	0	9.9	-0.9	9.9
1300008	99	DIRN	SUR	15	-38	601	0	0	12.0	5.2	13.1
1300131	99	DIRN	SUR	28	-17	381	0	0	26.3	0.0	26.3
4100001	99	DIRN	SUR	35	-73	3736	0	0	23.8	9.1	25.5
4100002	99	DIRN	SUR	32	-75	3723	0	0	20.8	7.9	22.2
4100004	99	DIRN	SUR	33	-79	2894	0	0	26.1	7.0	27.0
4100008	99	DIRN	SUR	31	-81	526	0	0	19.1	-2.7	19.3
4100009	99	DIRN	SUR	29	-80	3014	0	0	27.2	12.0	29.7
4100010	99	DIRN	SUR	29	-78	3220	0	0	27.3	8.1	28.5
4100013	99	DIRN	SUR	33	-78	3204	0	0	23.7	3.8	24.1
4100024	99	DIRN	SUR	34	-78	585	0	0	24.2	-5.8	24.9
4100025	99	DIRN	SUR	35	-75	3352	0	0	23.7	4.3	24.1
4100026	99	DIRN	SUR	12	-38	195	0	0	17.6	7.0	19.0
4100029	99	DIRN	SUR	33	-80	610	0	0	22.1	-14.4	26.4
4100033	99	DIRN	SUR	32	-80	560	0	0	23.7	-14.7	27.9
4100037	99	DIRN	SUR	34	-77	503	0	0	28.6	-17.6	33.6
4100038	99	DIRN	SUR	34	-78	582	0	0	23.5	-4.6	24.0
4100040	99	DIRN	SUR	15	-53	3922	0	0	15.6	6.0	16.7
4100043	99	DIRN	SUR	21	-65	4230	0	0	12.5	-7.9	14.8
4100044	99	DIRN	SUR	22	-59	4294	0	0	11.3	5.0	12.3
4100046	99	DIRN	SUR	24	-68	3622	0	0	13.7	7.3	15.5
4100047	99	DIRN	SUR	28	-71	3727	0	0	18.0	-6.5	19.1
4100048	99	DIRN	SUR	32	-70	3148	0	0	16.7	10.3	19.6
4100049	99	DIRN	SUR	27	-63	2386	0	0	21.9	4.1	22.2
4100052	99	DIRN	SUR	18	-65	4049	0	0	11.3	6.1	12.8
4100053	99	DIRN	SUR	18	-66	2296	0	0	15.4	5.2	16.2
4100056	99	DIRN	SUR	18	-65	3184	0	0	20.3	5.5	21.0
4100064	99	DIRN	SUR	34	-77	564	0	0	20.9	-23.9	31.8
41001	99	DIRN	SUR	35	-73	1001	0	0	25.2	10.6	27.4
4100139	99	DIRN	SUR	20	-38	722	0	0	9.7	3.0	10.2

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
41002	99	DIRN	SUR	32	-75	849	0	0	19.9	9.8	22.2
4100300	99	DIRN	SUR	16	-58	701	0	0	13.2	5.7	14.4
41004	99	DIRN	SUR	33	-79	807	0	0	27.3	2.7	27.4
41008	99	DIRN	SUR	31	-81	535	0	0	19.4	-3.1	19.6
41009	99	DIRN	SUR	29	-80	716	0	0	27.1	8.8	28.5
41010	99	DIRN	SUR	29	-79	771	0	0	28.5	7.4	29.4
41013	99	DIRN	SUR	33	-78	808	0	0	21.6	3.9	21.9
41024	99	DIRN	SUR	34	-79	539	0	0	25.6	-7.5	26.7
41025	99	DIRN	SUR	35	-75	879	0	0	22.8	3.2	23.0
41026	99	DIRN	SUR	12	-38	190	0	0	18.7	6.9	19.9
41029	99	DIRN	SUR	33	-80	693	0	0	23.2	-16.0	28.2
41033	99	DIRN	SUR	32	-80	545	0	0	24.7	-14.3	28.6
41037	99	DIRN	SUR	34	-77	498	0	0	30.4	-17.7	35.1
41038	99	DIRN	SUR	34	-78	531	0	0	26.6	-4.6	27.0
41040	99	DIRN	SUR	15	-53	953	0	0	15.7	7.3	17.3
41043	99	DIRN	SUR	21	-65	1148	0	0	11.7	-9.0	14.8
41044	99	DIRN	SUR	22	-59	1138	0	0	11.3	4.5	12.2
41046	99	DIRN	SUR	24	-68	1046	0	0	14.0	6.5	15.4
41047	99	DIRN	SUR	28	-72	984	0	0	18.3	-8.9	20.4
41048	99	DIRN	SUR	32	-70	904	0	0	16.8	8.5	18.8
41049	99	DIRN	SUR	28	-63	744	0	0	24.1	3.0	24.3
41052	99	DIRN	SUR	18	-65	1498	0	0	11.5	5.7	12.9
41053	99	DIRN	SUR	19	-66	992	0	0	17.3	3.2	17.6
41056	99	DIRN	SUR	18	-66	1222	0	0	20.4	6.3	21.4
41064	99	DIRN	SUR	34	-77	556	0	0	21.5	-24.4	32.5
41300	99	DIRN	SUR	16	-57	696	0	0	13.0	5.5	14.1
4200013	99	DIRN	SUR	27	-83	861	0	0	24.5	-1.3	24.5
4200022	99	DIRN	SUR	28	-84	1006	0	0	20.7	3.8	21.0
4200023	99	DIRN	SUR	26	-83	722	0	0	30.7	-6.8	31.5
4200026	99	DIRN	SUR	25	-83	602	0	0	17.9	3.1	18.2
4200036	99	DIRN	SUR	29	-85	2998	0	0	21.4	12.4	24.7
4200056	99	DIRN	SUR	20	-85	3625	0	0	15.4	6.8	16.9
4200057	99	DIRN	SUR	17	-81	3871	0	0	11.2	0.5	11.2
4200058	99	DIRN	SUR	15	-75	4284	0	0	5.2	5.8	7.7
4200059	99	DIRN	SUR	15	-67	4025	0	0	9.2	-6.4	11.2
4200085	99	DIRN	SUR	18	-67	2528	0	0	20.5	16.5	26.3
42013	99	DIRN	SUR	27	-83	842	0	0	25.3	-2.1	25.4
42022	99	DIRN	SUR	28	-84	939	0	0	20.6	3.3	20.9
42023	99	DIRN	SUR	26	-83	637	0	0	30.4	-7.3	31.2
42026	99	DIRN	SUR	25	-84	552	0	0	17.7	2.9	17.9
42036	99	DIRN	SUR	29	-85	908	0	0	19.2	10.9	22.1

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
42056	99	DIRN	SUR	20	-85	1038	0	0	15.2	4.6	15.9
42057	99	DIRN	SUR	17	-81	996	0	0	11.8	1.1	11.8
42058	99	DIRN	SUR	15	-75	1154	0	0	6.3	4.3	7.6
42059	99	DIRN	SUR	15	-68	1164	0	0	9.4	-8.6	12.7
42085	99	DIRN	SUR	18	-67	1282	0	0	18.4	14.7	23.5
4400005	99	DIRN	SUR	43	-69	495	0	0	17.8	10.8	20.8
4400007	99	DIRN	SUR	44	-70	392	0	0	28.6	3.4	28.8
4400008	99	DIRN	SUR	41	-69	3012	0	0	18.5	10.5	21.3
4400009	99	DIRN	SUR	38	-75	428	0	0	20.6	12.7	24.2
4400011	99	DIRN	SUR	41	-67	2744	0	0	21.8	6.6	22.8
4400013	99	DIRN	SUR	42	-71	340	0	0	26.6	22.3	34.8
4400014	99	DIRN	SUR	37	-75	466	0	0	22.7	3.1	22.9
4400017	99	DIRN	SUR	41	-72	2353	0	0	18.6	4.7	19.2
4400018	99	DIRN	SUR	42	-70	516	0	0	19.7	13.9	24.1
4400020	99	DIRN	SUR	41	-70	1632	0	0	18.6	2.4	18.8
4400022	99	DIRN	SUR	41	-74	39	0	0	21.4	-1.3	21.4
4400025	99	DIRN	SUR	40	-73	540	0	0	20.2	-0.3	20.2
4400027	99	DIRN	SUR	44	-67	483	0	0	16.8	10.0	19.5
4400029	99	DIRN	SUR	43	-71	476	0	0	17.9	6.0	18.9
4400030	99	DIRN	SUR	43	-70	474	0	0	24.5	9.1	26.1
4400032	99	DIRN	SUR	44	-69	442	0	0	18.5	9.6	20.9
4400033	99	DIRN	SUR	44	-69	337	0	0	27.5	4.9	27.9
4400034	99	DIRN	SUR	44	-68	348	0	0	21.9	12.2	25.1
4400037	99	DIRN	SUR	43	-68	289	0	0	13.4	8.9	16.1
4400040	99	DIRN	SUR	41	-74	77	0	0	24.7	1.5	24.8
4400042	99	DIRN	SUR	38	-76	197	0	0	18.8	2.0	18.9
4400058	99	DIRN	SUR	38	-76	84	0	0	13.5	-13.0	18.7
4400062	99	DIRN	SUR	39	-76	1271	0	0	33.9	-15.9	37.5
4400063	99	DIRN	SUR	39	-76	1376	0	0	35.1	-19.9	40.3
4400064	99	DIRN	SUR	37	-76	2431	0	0	28.0	-14.4	31.5
4400065	99	DIRN	SUR	40	-74	3002	0	0	23.7	7.2	24.8
4400066	99	DIRN	SUR	40	-73	3359	0	0	18.6	6.4	19.7
4400072	99	DIRN	SUR	37	-76	2648	0	0	34.0	-73.8	81.3
4400073	99	DIRN	SUR	43	-71	435	0	0	26.1	13.7	29.4
44005	99	DIRN	SUR	43	-69	498	0	0	19.2	9.7	21.5
44007	99	DIRN	SUR	44	-70	393	0	0	28.8	3.5	29.0
44008	99	DIRN	SUR	41	-69	942	0	0	18.7	9.2	20.9
44009	99	DIRN	SUR	39	-75	434	0	0	20.8	12.1	24.1
44011	99	DIRN	SUR	41	-67	752	0	0	19.6	7.5	21.0
44013	99	DIRN	SUR	42	-71	326	0	0	25.2	22.4	33.7
44014	99	DIRN	SUR	37	-75	478	0	0	23.2	2.3	23.3

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44017	99	DIRN	SUR	41	-72	742	0	0	16.8	5.0	17.5
44018	99	DIRN	SUR	42	-70	520	0	0	18.6	13.8	23.2
44020	99	DIRN	SUR	42	-70	737	0	0	19.3	0.8	19.3
44022	99	DIRN	SUR	41	-74	17	0	0	24.2	-6.5	25.1
44025	99	DIRN	SUR	40	-73	547	0	0	20.4	-0.5	20.4
44027	99	DIRN	SUR	44	-67	482	0	0	16.2	9.0	18.5
44029	99	DIRN	SUR	43	-71	586	0	0	18.8	5.8	19.7
44030	99	DIRN	SUR	43	-70	434	0	0	25.5	7.4	26.5
44032	99	DIRN	SUR	44	-69	411	0	0	20.3	9.6	22.5
44033	99	DIRN	SUR	44	-69	304	0	0	27.7	5.9	28.3
44034	99	DIRN	SUR	44	-68	327	0	0	22.4	10.5	24.7
44037	99	DIRN	SUR	44	-68	274	0	0	13.8	9.0	16.5
44040	99	DIRN	SUR	41	-74	24	0	0	24.0	0.9	24.0
44042	99	DIRN	SUR	38	-76	39	0	0	17.5	-2.2	17.6
44058	99	DIRN	SUR	38	-76	38	0	0	25.5	-11.6	28.0
44062	99	DIRN	SUR	39	-76	465	0	0	35.5	-17.6	39.6
44063	99	DIRN	SUR	39	-76	258	0	0	35.3	-24.2	42.8
44064	99	DIRN	SUR	37	-76	664	0	0	28.5	-16.7	33.1
44065	99	DIRN	SUR	40	-74	769	0	0	24.3	4.2	24.7
44066	99	DIRN	SUR	40	-73	1035	0	0	18.7	3.6	19.0
44069	99	DIRN	SUR	41	-73	544	0	0	26.1	-0.0	26.1
44072	99	DIRN	SUR	37	-76	685	0	0	33.9	-75.3	82.6
44073	99	DIRN	SUR	43	-71	412	0	0	28.5	14.2	31.8
44139	99	DIRN	SUR	44	-57	563	0	0	12.4	-24.9	27.8
44150	99	DIRN	SUR	43	-64	584	0	0	17.0	-4.9	17.6
44258	99	DIRN	SUR	45	-63	498	0	0	17.7	-8.6	19.7
4500003	99	DIRN	SUR	45	-83	468	0	0	22.6	-0.4	22.6
4500005	99	DIRN	SUR	42	-82	3118	0	0	23.9	5.3	24.5
4500008	99	DIRN	SUR	44	-82	2760	0	0	21.6	2.2	21.7
4500012	99	DIRN	SUR	44	-77	3061	0	0	19.4	7.8	21.0
4500162	99	DIRN	SUR	45	-83	990	0	0	23.6	3.0	23.8
4500163	99	DIRN	SUR	44	-84	1444	0	0	24.3	-1.6	24.3
4500165	99	DIRN	SUR	42	-83	2614	0	0	43.7	10.6	44.9
4500166	99	DIRN	SUR	45	-73	1632	0	0	25.6	-39.9	47.4
4500169	99	DIRN	SUR	42	-82	2927	0	0	35.7	-14.1	38.3
4500175	99	DIRN	SUR	46	-85	2638	0	0	70.0	-25.8	74.6
4500176	99	DIRN	SUR	42	-82	2539	0	0	104.7	8.9	105.1
4500178	99	DIRN	SUR	45	-73	446	0	0	28.3	-9.0	29.7
45003	99	DIRN	SUR	45	-83	452	0	0	23.0	-2.0	23.1
45005	99	DIRN	SUR	42	-82	820	0	0	25.8	5.3	26.3
45008	99	DIRN	SUR	44	-82	908	0	0	22.6	2.6	22.8

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
45012	99	DIRN	SUR	44	-77	1013	0	0	18.8	1.9	18.9
45132	99	DIRN	SUR	43	-81	523	0	0	24.3	-6.0	25.0
45135	99	DIRN	SUR	44	-77	542	0	0	22.1	1.8	22.2
45137	99	DIRN	SUR	46	-81	549	0	0	17.6	-4.7	18.2
45138	99	DIRN	SUR	50	-66	497	0	0	14.9	1.2	15.0
45142	99	DIRN	SUR	43	-79	558	0	0	27.0	-6.1	27.7
45143	99	DIRN	SUR	45	-81	505	0	0	18.6	-0.1	18.6
45147	99	DIRN	SUR	42	-83	188	0	0	24.7	1.4	24.7
45149	99	DIRN	SUR	44	-82	493	0	0	24.0	22.9	33.1
45151	99	DIRN	SUR	45	-79	434	0	0	19.2	3.8	19.5
45152	99	DIRN	SUR	46	-80	401	0	0	19.6	-0.6	19.6
45154	99	DIRN	SUR	46	-83	484	0	0	20.3	0.9	20.3
45159	99	DIRN	SUR	44	-79	365	0	0	29.1	3.7	29.3
45162	99	DIRN	SUR	45	-83	389	0	0	21.6	3.4	21.9
45163	99	DIRN	SUR	44	-84	556	0	0	24.4	-3.2	24.6
45165	99	DIRN	SUR	42	-83	523	0	0	43.8	8.8	44.6
45166	99	DIRN	SUR	45	-73	516	0	0	30.4	-39.6	50.0
45169	99	DIRN	SUR	42	-82	613	0	0	36.4	-14.4	39.1
45175	99	DIRN	SUR	46	-85	593	0	0	69.7	-24.6	73.9
45176	99	DIRN	SUR	42	-82	861	0	0	103.9	4.9	104.0
45178	99	DIRN	SUR	45	-73	290	0	0	36.3	-9.0	37.4
6100198	99	DIRN	SUR	37	-2	343	0	0	16.7	-0.6	16.7
6100281	99	DIRN	SUR	40	0	275	0	0	40.7	-5.2	41.0
6100417	99	DIRN	SUR	38	0	399	0	0	14.9	0.2	14.9
6200024	99	DIRN	SUR	44	-3	324	0	0	23.2	4.2	23.6
6200025	99	DIRN	SUR	44	-6	425	0	0	15.7	-1.5	15.7
6200082	99	DIRN	SUR	44	-8	551	0	0	12.1	8.8	15.0
6200083	99	DIRN	SUR	43	-9	561	0	0	10.6	-1.5	10.7
6200084	99	DIRN	SUR	42	-9	540	0	0	9.0	-1.2	9.1
6200085	99	DIRN	SUR	36	-7	439	0	0	18.8	4.4	19.3
6200091	99	DIRN	SUR	53	-5	619	0	0	12.2	4.0	12.8
6200092	99	DIRN	SUR	51	-11	689	0	0	12.1	7.1	14.1
6200093	99	DIRN	SUR	55	-10	647	0	0	12.6	1.8	12.8
6200094	99	DIRN	SUR	52	-7	660	0	0	10.6	-0.9	10.6
6200095	99	DIRN	SUR	53	-16	670	0	0	11.7	1.6	11.8
62001	99	DIRN	SUR	45	-5	570	0	0	13.0	4.3	13.7
6200192	99	DIRN	SUR	40	-10	470	0	0	11.0	-6.5	12.8
6200200	99	DIRN	SUR	36	-8	493	0	0	12.8	7.5	14.8
6201030	99	DIRN	SUR	44	-4	308	0	0	17.7	-6.7	18.9
62023	99	DIRN	SUR	51	-8	689	0	0	10.2	13.3	16.8
62029	99	DIRN	SUR	49	-12	1246	0	0	9.5	6.7	11.6

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62050	99	DIRN	SUR	50	-4	644	0	0	11.4	3.7	12.0
62081	99	DIRN	SUR	51	-13	749	0	0	9.5	6.0	11.2
62091	99	DIRN	SUR	53	-5	606	0	0	12.4	3.8	13.0
62092	99	DIRN	SUR	51	-11	677	0	0	11.4	6.6	13.2
62093	99	DIRN	SUR	55	-10	635	0	0	13.2	1.3	13.2
62094	99	DIRN	SUR	52	-7	649	0	0	10.4	-1.5	10.5
62095	99	DIRN	SUR	53	-16	667	0	0	11.8	0.9	11.8
62103	99	DIRN	SUR	50	-3	652	0	0	17.0	6.3	18.2
62105	99	DIRN	SUR	55	-13	1070	0	0	14.8	8.1	16.8
62107	99	DIRN	SUR	50	-6	1190	0	0	14.7	2.1	14.9
62112	99	DIRN	SUR	58	0	654	0	0	13.9	-2.0	14.1
62114	99	DIRN	SUR	58	0	1201	0	0	13.8	-2.3	14.0
62163	99	DIRN	SUR	48	-8	586	0	0	11.8	-0.8	11.8
62305	99	DIRN	SUR	50	0	601	0	0	19.4	5.3	20.1
62442	99	DIRN	SUR	49	-16	741	0	0	11.7	0.5	11.7
64041	99	DIRN	SUR	61	-3	681	0	0	12.4	7.3	14.4
64045	99	DIRN	SUR	59	-12	789	0	0	14.2	4.6	15.0
64046	99	DIRN	SUR	61	-4	644	0	0	14.3	0.2	14.3

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

	ASDE09	DSQL7	FHM5UJH	FPUW5GN	HTXUH4H	JNKN7JF	KJJF9XN	KMPLHPW
WDK38HS	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	5QPW8XG	01001	01004	01010
01028	01241	01400	01415	01492	02185	02365	02527	02591
02836	02963	03005	03238	03354	03502	03743	03808	03882
03918	03953	04018	04220	04270	04320	04339	04360	06011
06060	06260	06458	06610	07110	07145	07510	07645	07761
08001	08023	08190	08221	08302	08383	08430	08508	08522
08579	10035	10113	10184	10238	10304	10393	10410	10548
10618	10739	10771	10868	10954	10962	11010	11035	11120
11240	11520	11747	11952	12120	12374	12425	12843	12982
13275	13388	14015	14240	14430	15420	15614	16045	16080
16113	16144	16245	16320	16429	16546	16622	16716	16754
17030	17064	17095	17130	17220	17240	17281	17516	17607
22008	23205	23472	23884	26038	26435	27707	27713	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	60018	60155	60390	60571	60630	60656	60680	61052
61901	61980	61998	67083	68263	68424	68442	68538	68816
68842	70026	70133	70200	70219	70231	70261	70308	70316
70326	70350	70361	70398	71043	71081	71082	71109	71110
71119	71600	71603	71722	71802	71811	71815	71816	71836
71845	71867	71906	71907	71908	71909	71917	71924	71925
71926	71934	71945	71957	71964	72201	72206	72208	72210
72214	72215	72230	72233	72235	72240	72248	72249	72250
72251	72261	72265	72274	72293	72317	72327	72340	72363
72364	72365	72376	72388	72426	72440	72451	72476	72489
72493	72501	72518	72520	72528	72558	72562	72572	72582
72597	72632	72634	72645	72649	72659	72662	72672	72694
72712	72747	72764	72768	72776	72786	72797	73033	74389
74494	74560	76225	76405	76458	76526	76612	76679	76692
76743	76805	76903	78897	78954	81405	82765	82900	82983
85442	85469	85586	85799	85934	87155	87344	87418	87576
87623	87715	87860	88889	89002	89062	89564	89571	89611
89625	89642	89859	91212	91285	91592	91765	91925	91938
91948	91958	93112	93417	93817	93844	93997	94120	94150
94170	94203	94294	94299	94302	94312	94326	94332	94374
94403	94430	94461	94510	94578	94610	94637	94638	94653
94659	94672	94711	94767	94776	94802	94821	94866	94910
94975	94995	94996	94998	95527	96996			

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

	/////	ASDE09	DBLK	DSQL7	FHM5UJH	FPUW5GN	HTXUH4H	JNKN7JF
KJJF9XN	KMPLHPW	OTRECSTC		OTREC_NU		OTREC_Nu		STCZOTRE
WDK38HS	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	labtest	5QPW8XG	01001	01010
01028	01241	01400	01415	01492	02836	02963	06610	07110
07145	07510	07645	07761	17607	40186	47155	61998	71110
73033	73110	76743	76903	89642	93817	94653		

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.