



ECMWF Global Data Monitoring Report

June 2021

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

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Summary of Revisions (in reverse order)

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

1 Introduction

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

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

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

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

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

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

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

2 Data summary - History of events

2.1 Radiosondes

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

Ident	Time	May	Jun	Ident	Time	May	Jun
04417	(12)	30	5	34858	(00)	1	25
08536	(12)	31	20	34858	(12)	2	26
16080	(00)	23	0	48097	(12)	4	25
16080	(12)	24	0	72582	(00)	8	21
17130	(12)	18	1	76692	(00)	4	16
17220	(00)	23	1	78897	(00)	0	28
17281	(12)	17	0	80001	(12)	9	28
20674	(00)	31	1	83525	(12)	11	28
20674	(12)	31	0	83928	(00)	0	17
24507	(00)	30	10	83928	(12)	0	20
24507	(12)	31	8	-	-	-	-
29572	(00)	31	15	-	-	-	-
29572	(12)	28	8	-	-	-	-
33008	(00)	16	0	-	-	-	-
42647	(00)	21	2	-	-	-	-
43279	(00)	27	0	-	-	-	-
43371	(00)	21	2	-	-	-	-
48327	(00)	29	18	-	-	-	-
61442	(12)	20	0	-	-	-	-
61980	(12)	23	0	-	-	-	-
64500	(12)	22	0	-	-	-	-
65548	(12)	14	0	-	-	-	-
65578	(00)	30	12	-	-	-	-
65578	(12)	29	11	-	-	-	-
72210	(00)	44	30	-	-	-	-
72240	(00)	42	29	-	-	-	-
78762	(12)	20	3	-	-	-	-
82599	(12)	31	2	-	-	-	-
83768	(12)	29	17	-	-	-	-
85586	(00)	26	15	-	-	-	-
91348	(00)	30	9	-	-	-	-
91348	(12)	31	9	-	-	-	-

2.2 Drifting Buoys

Surface pressure observations from **1743** 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.

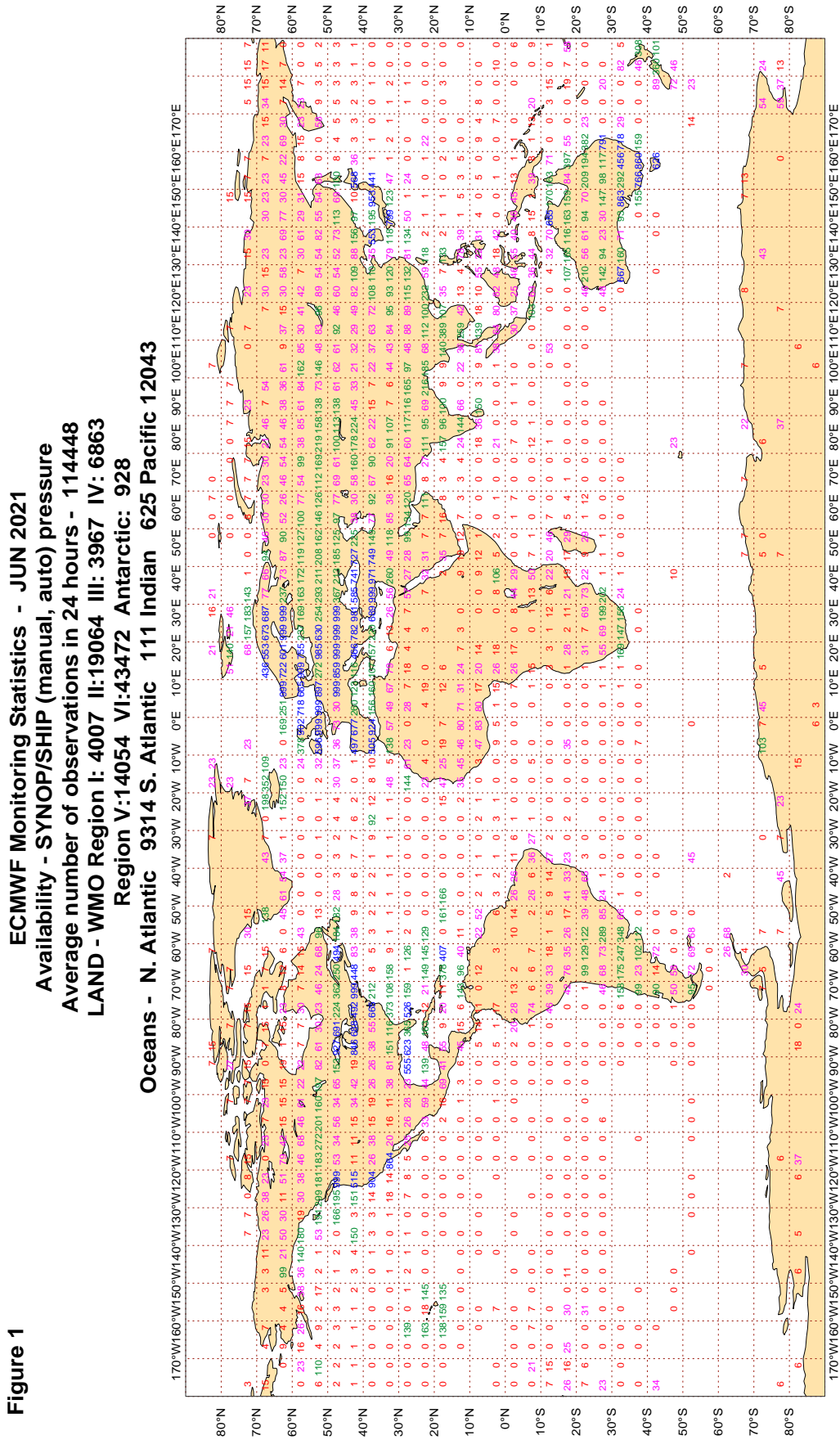
Tab	Parameter	Observation Time
10	Geopotential	00 and 12 UTC
11	Wind	00 and 12 UTC

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

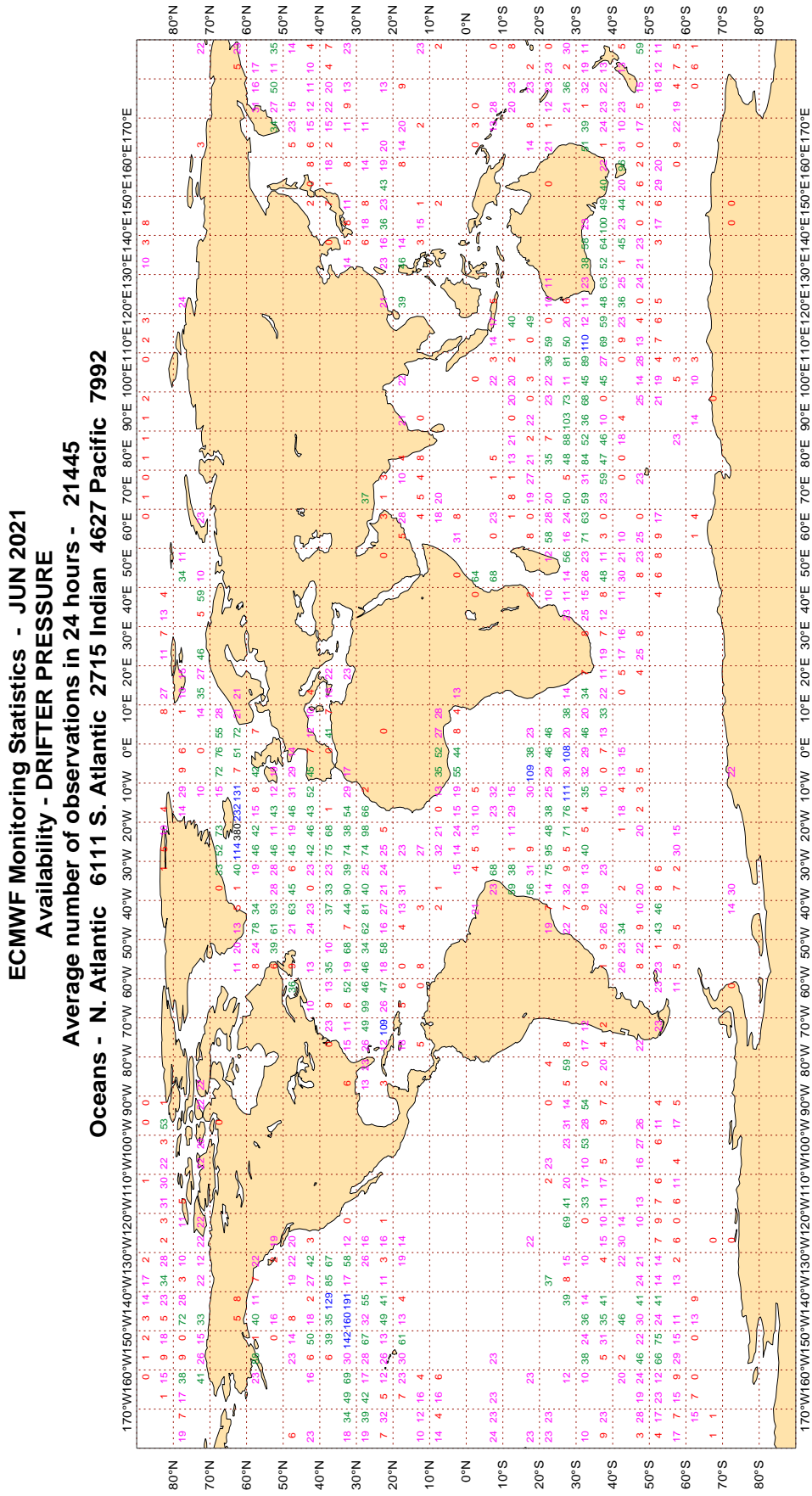
Table 12 provides quality statistics of aircraft wind observations stratified by airline carrier.

3.2.1 Figure 1 - Availability - SYNOP PRESSURE



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

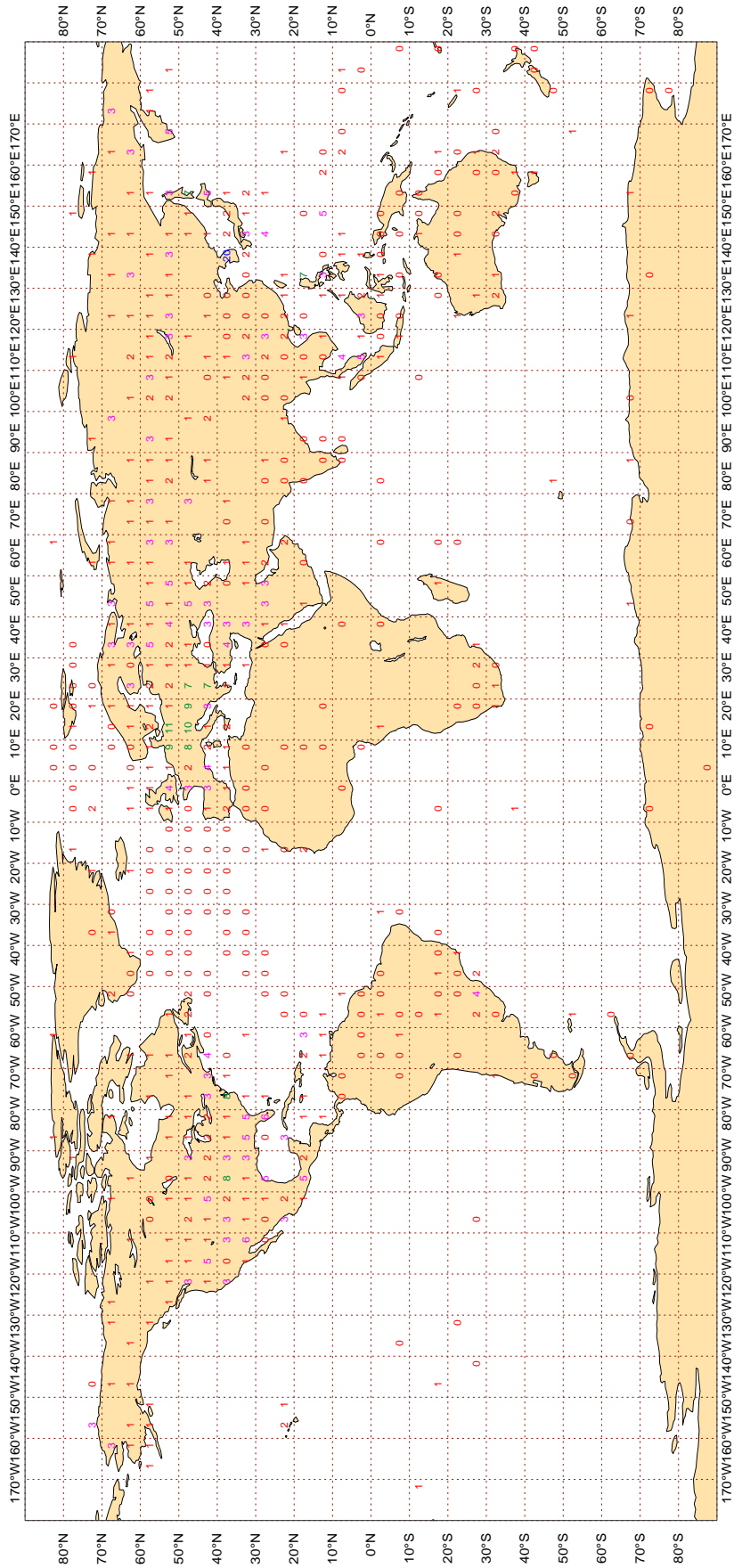
Figure 2



3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

Figure 3

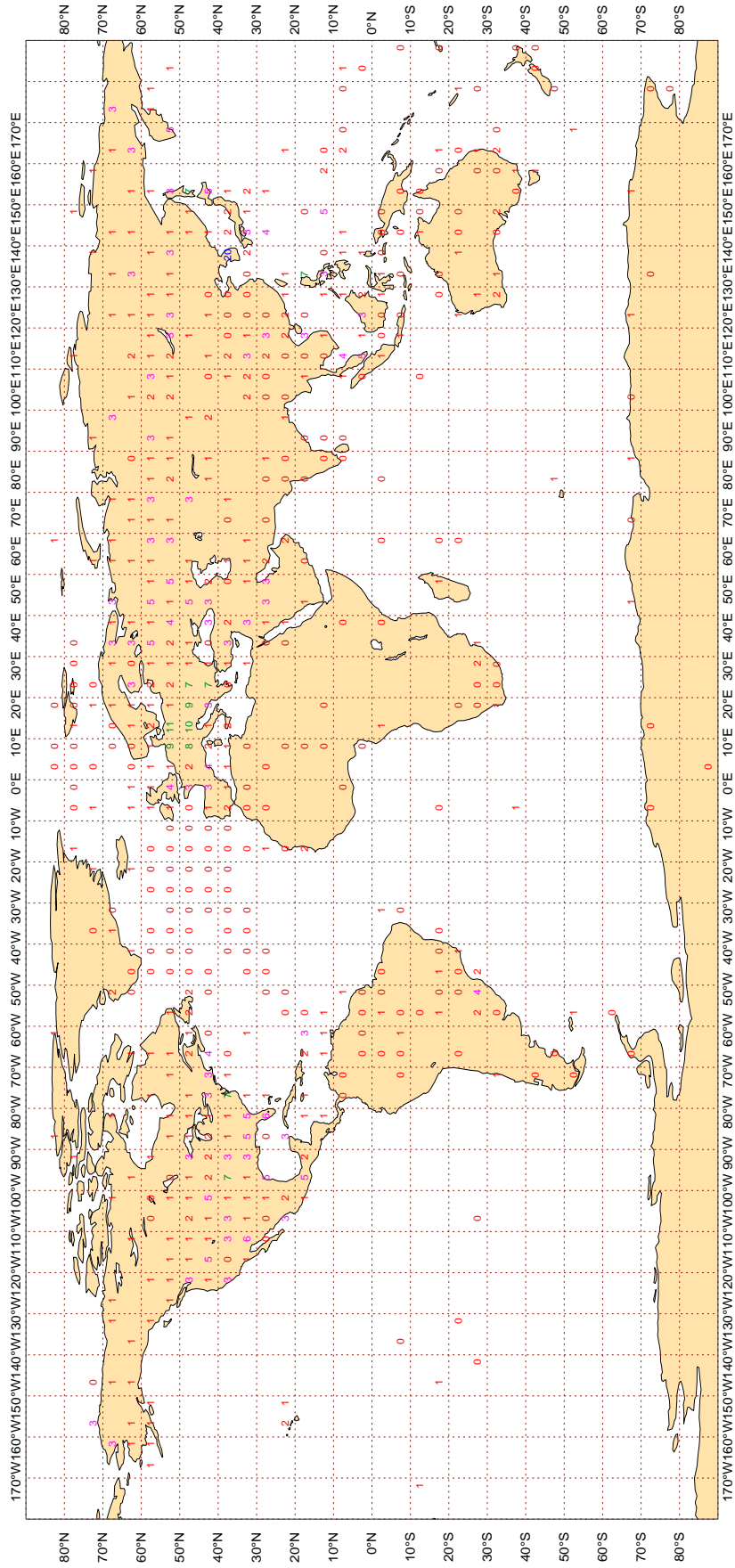
ECMWF Monitoring Statistics - JUN 2021
 Availability - TEMP 500 hPa Geopotential
 Average number of observations in 24 hours - 1039
 LAND - WMO Region I: 34 II: 306 III: 47 IV: 267
 Region V: 111 VI: 245 Antarctic: 13
 Oceans - N. Atlantic 11 S. Atlantic 0 Indian 0 Pacific 5



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

Figure 4

ECMWF Monitoring Statistics - JUN 2021
Availability - TEMP/PILOT 300 hPa wind
Average number of observations in 24 hours - 1027
LAND - WMO Region I: 34 II: 299 III: 47 IV: 265
Region V: 110 VI: 243 Antarctic: 13
Oceans - N. Atlantic 10 S. Atlantic 0 Indian 0 Pacific 5



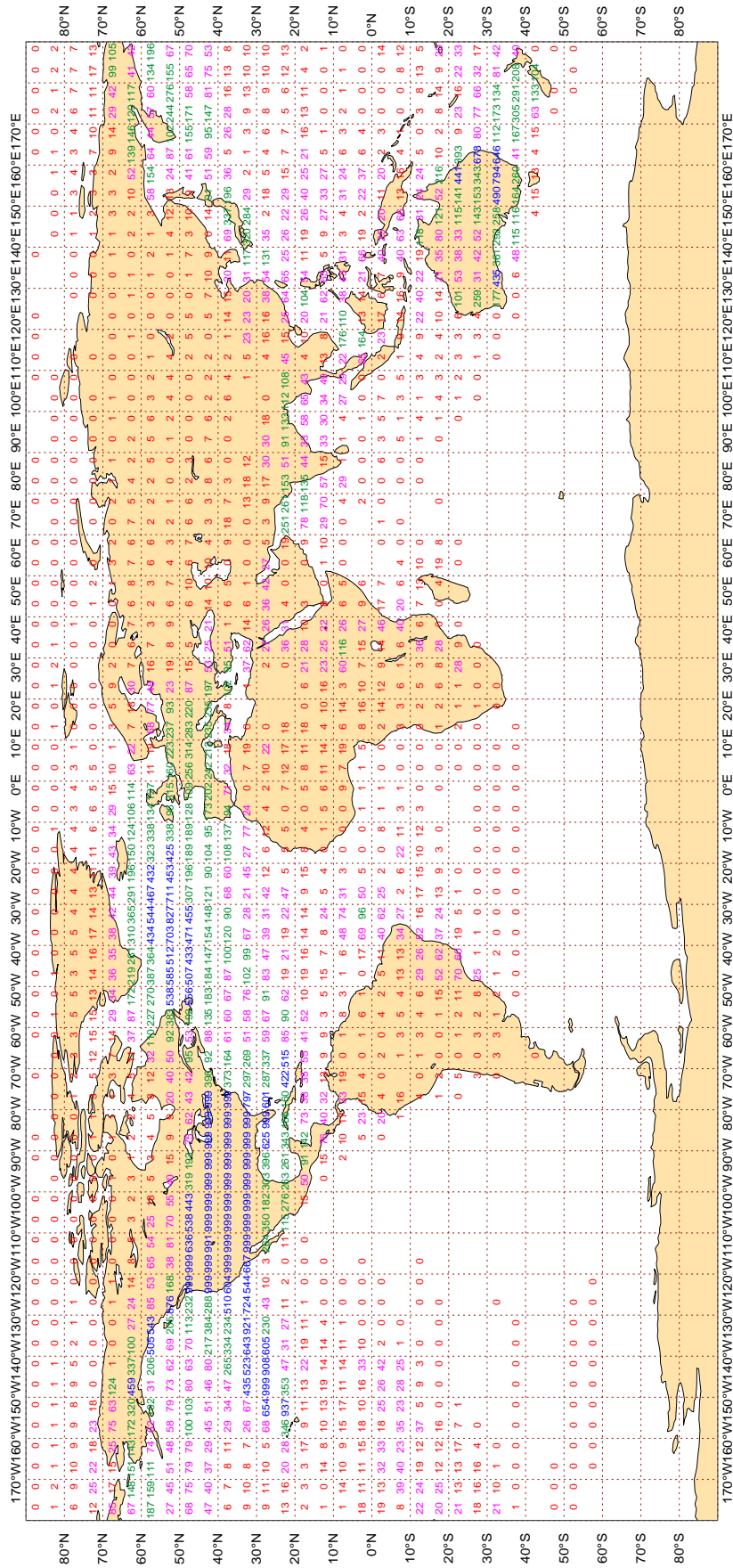
Magics 3.0.4 (64 bit)



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

Figure 5

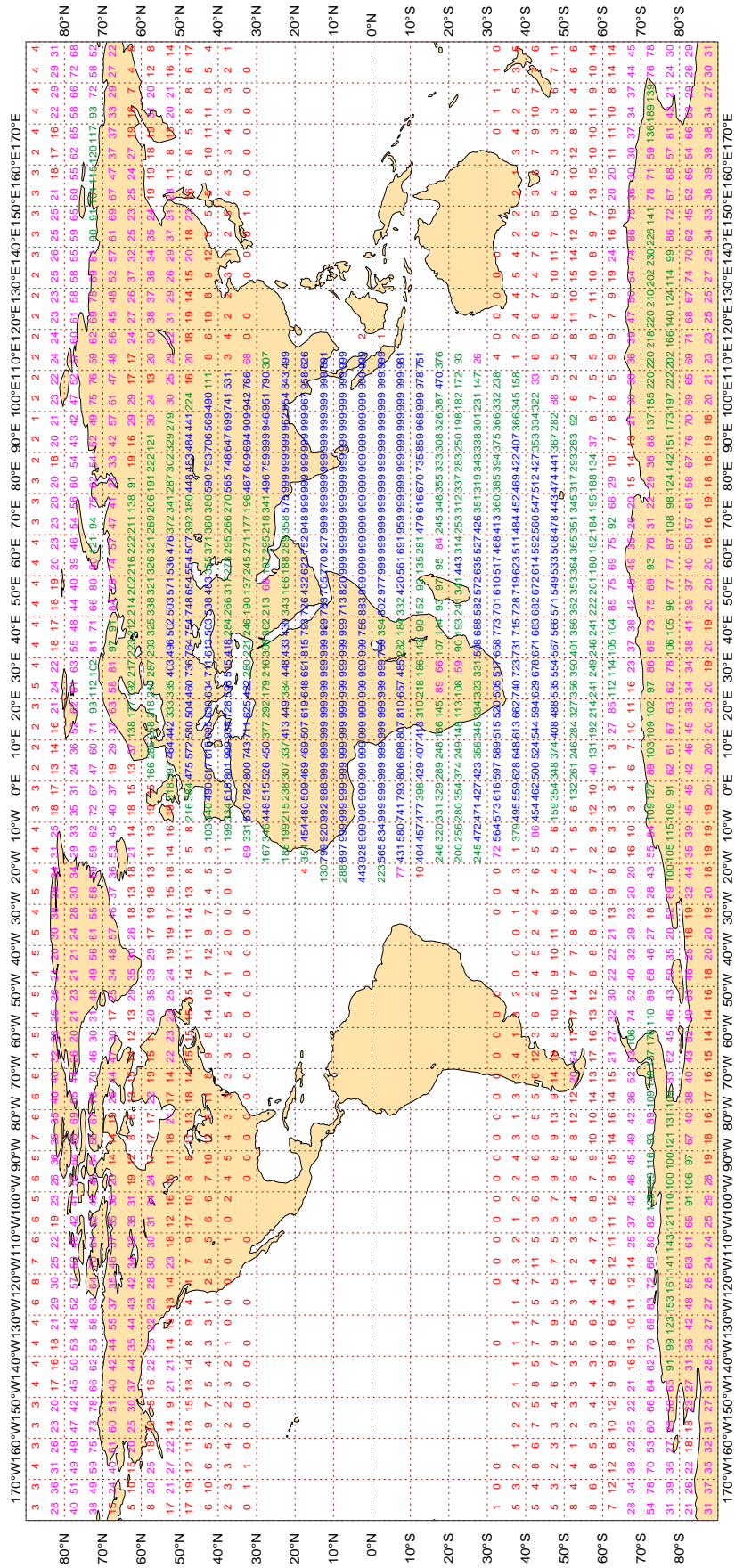
ECMWF Monitoring Statistics - JUN 2021
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 137267



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

Figure 6

ECMWF Monitoring Statistics - JUN 2021
Availability - AMV winds 400-150 hPa
Average number of observations in 24 hours - 387218



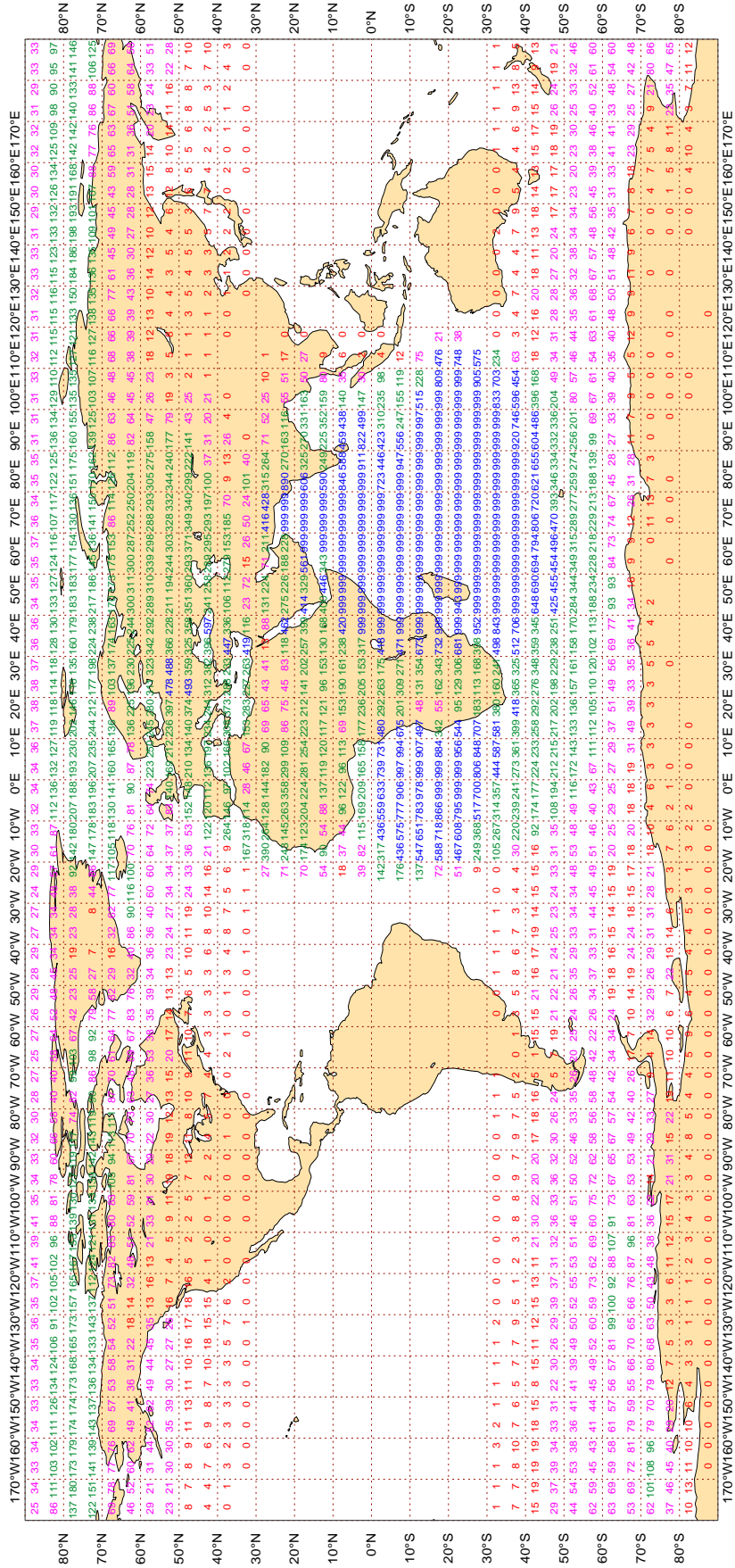
Magics 3.0.4 (64 bit)



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

Figure 7

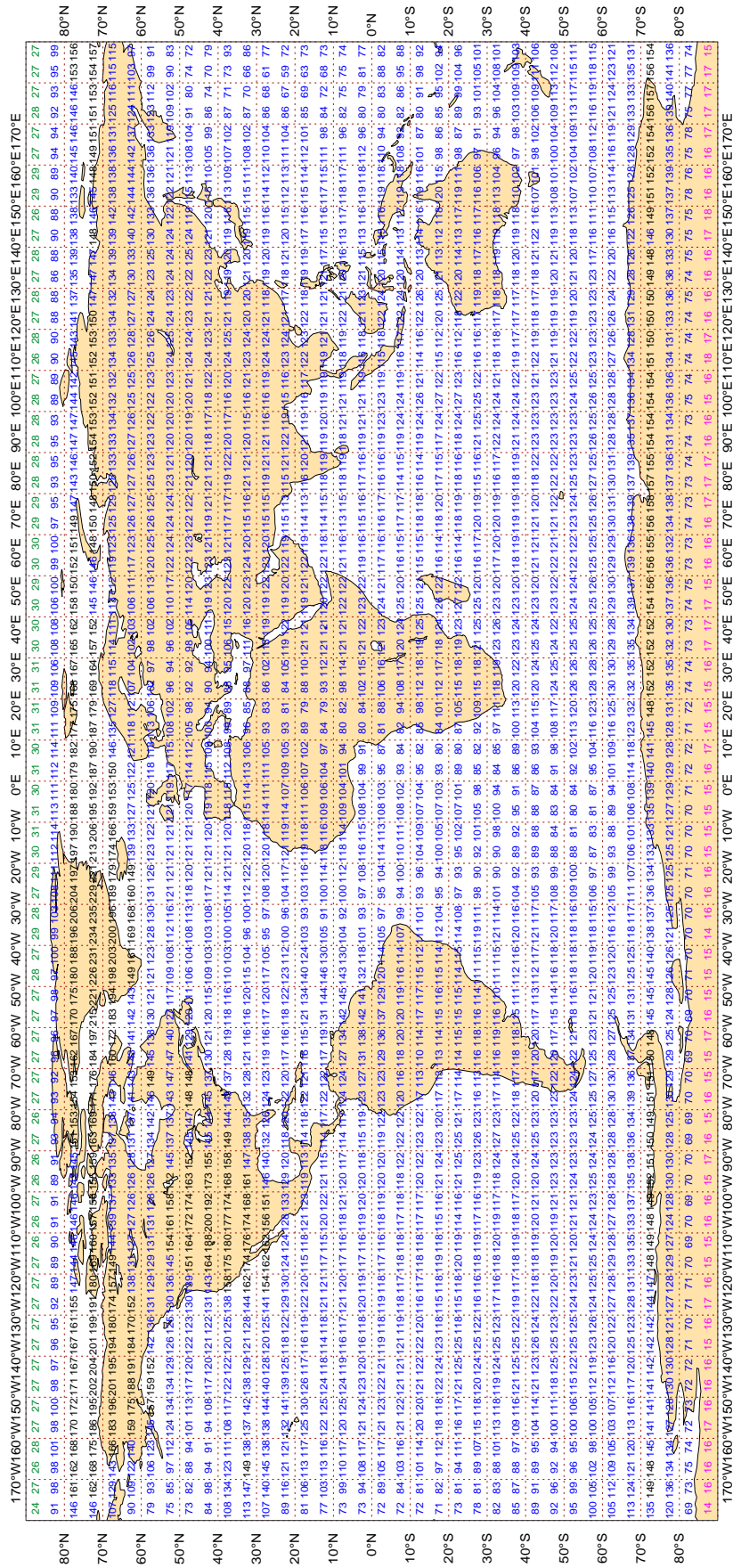
ECMWF Monitoring Statistics - JUN 2021
Availability - AMV winds 1000-700 hPa
Average number of observations in 24 hours - 388502



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

Figure 8

ECMWF Monitoring Statistics - JUN 2021
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 297839



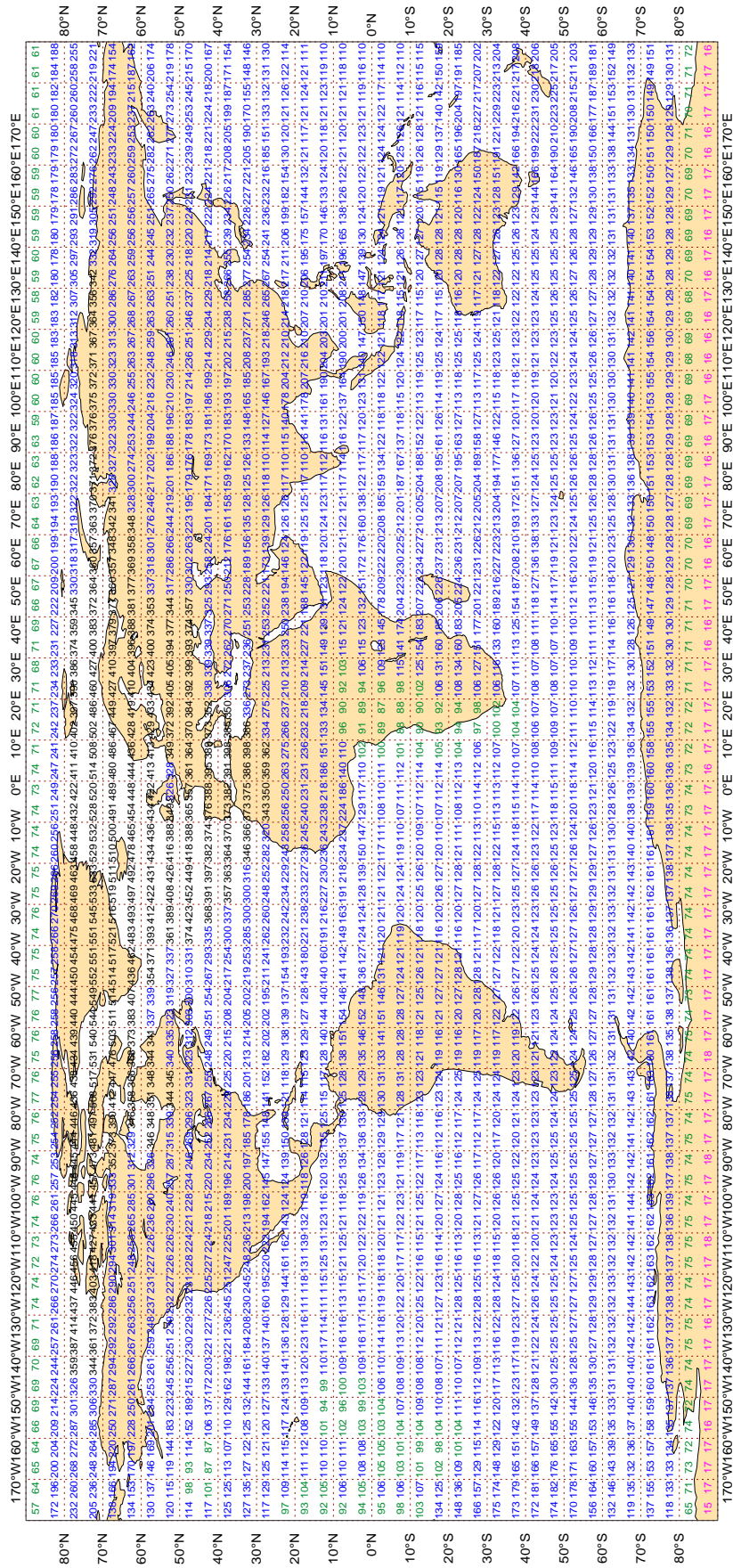
Magics 3.0.4 (64 bit)



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

Figure 9.1

ECMWF Monitoring Statistics - JUN 2021
 Availability - NOAA18 ATOVS : AMSU-A
 Average number of observations in 24 hours - 466079



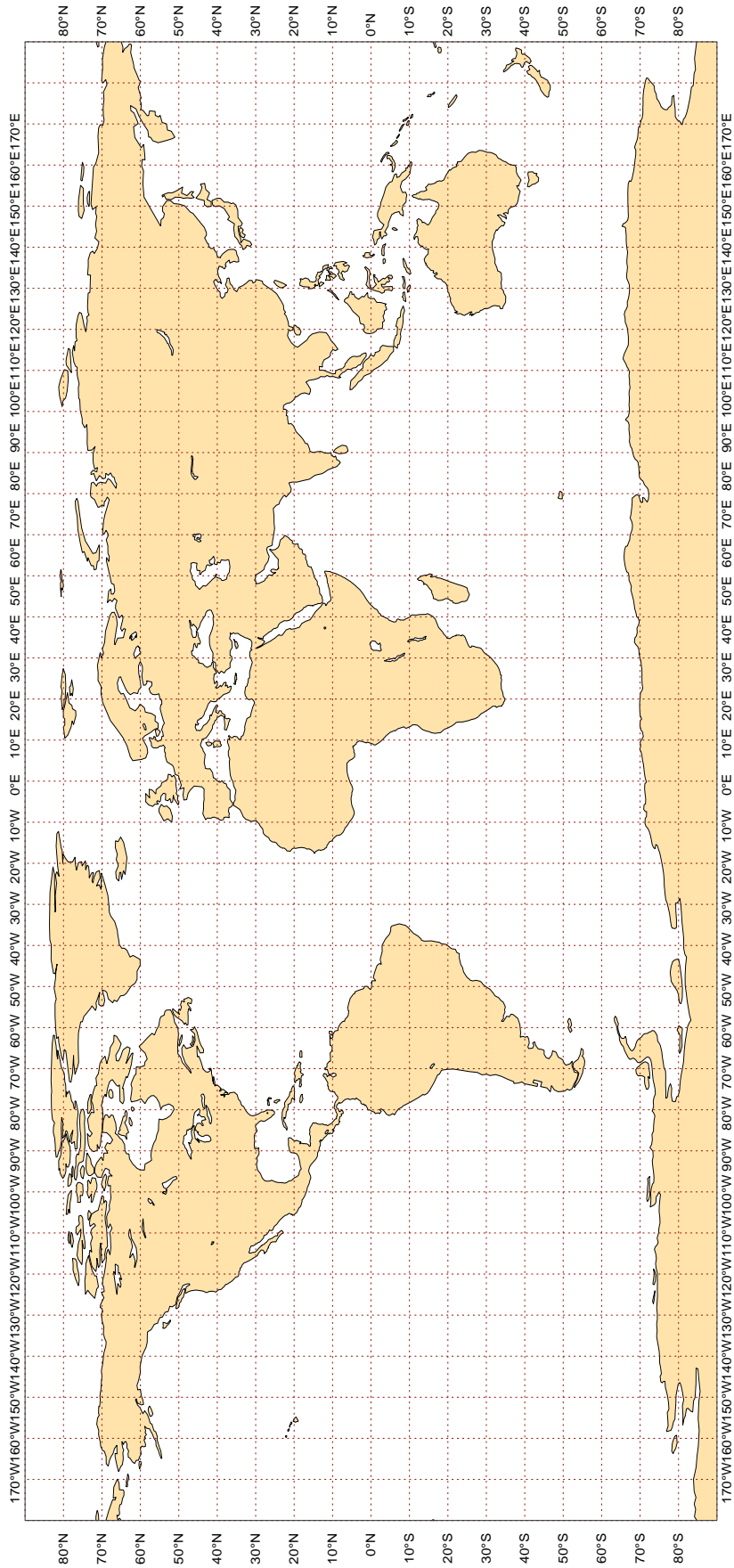
Magics 3.0.4 (64 bit)



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

Figure 9.2

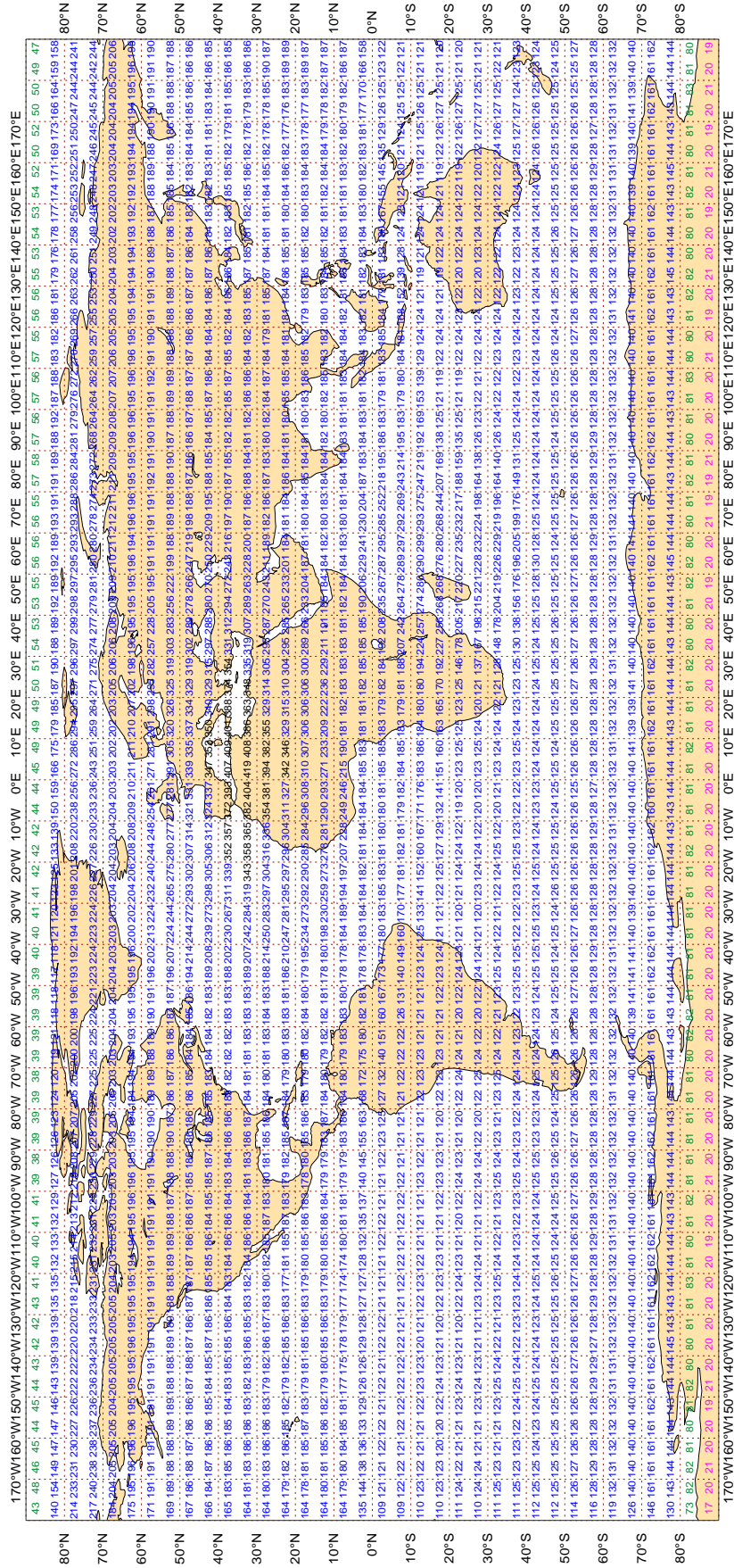
ECMWF Monitoring Statistics - JUN 2021
Availability - AQUA ATOVS : AMSU-A
Average number of observations in 24 hours - 0



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

Figure 9.3

ECMWF Monitoring Statistics - JUN 2021
Availability - METOP ATOVS : AMSU-A
Average number of observations in 24 hours - 427718



Magics 3.0.4 (64 bit)



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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : GLOBAL
 PERIOD : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
2HDG2	99	P	SUR	26	0	2.4	3.3	4.1
3EDZ7	99	P	SUR	30	0	0.9	-6.5	6.6
3FFH5	99	P	SUR	25	4	6.1	-4.8	7.8
9HA5074	99	P	SUR	27	0	2.5	7.8	8.2
9HY07	99	P	SUR	29	0	1.8	3.6	4.0
9V2676	99	P	SUR	146	1	1.2	10.6	10.7
9V9402	99	P	SUR	31	0	2.1	3.1	3.8
AVFX	99	P	SUR	62	0	0.5	3.5	3.5
BKIC	99	P	SUR	26	0	1.4	3.7	4.0
C6AV5	99	P	SUR	30	0	0.9	-5.4	5.5
C6LG6	99	P	SUR	130	0	0.5	-3.6	3.7
C6SY3	99	P	SUR	30	0	1.7	3.4	3.8
D5HF3	99	P	SUR	45	0	0.9	6.1	6.2
D5HF5	99	P	SUR	72	0	4.2	5.6	7.0
H3WC	99	P	SUR	17	0	1.4	-3.7	4.0
JMJRCES	99	P	SUR	119	0	0.8	-5.9	5.9
KIAB	99	P	SUR	56	0	1.8	3.4	3.8
LAQQ7	99	P	SUR	51	0	1.4	3.8	4.1
LAZU5	99	P	SUR	26	0	0.4	3.3	3.3
OWLD2	99	P	SUR	28	0	1.5	-3.8	4.1
OZ2049	99	P	SUR	40	0	0.7	-8.5	8.5
PHET	99	P	SUR	49	0	2.1	-3.6	4.1
SJA4RSK	99	P	SUR	119	0	0.6	-4.6	4.6
UBVP6	99	P	SUR	18	0	1.7	3.4	3.8
UDAD	99	P	SUR	47	3	6.3	-0.8	6.3
UDKG	99	P	SUR	23	0	3.0	7.3	7.9
UHOM	99	P	SUR	36	0	6.3	-1.8	6.6
UHXO	99	P	SUR	17	0	1.9	4.9	5.2
V7DR9	99	P	SUR	75	0	1.0	3.9	4.0
VABC	99	P	SUR	19	0	3.3	3.5	4.8
VC6750	99	P	SUR	39	0	6.6	-1.5	6.7
VRCI8	99	P	SUR	27	0	1.4	-4.3	4.5

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
VRCU7	99	P	SUR	32	0	0.6	-5.5	5.6
VRCX7	99	P	SUR	17	0	1.5	6.6	6.8
VRGO6	99	P	SUR	19	0	2.0	3.2	3.8
VRHM2	99	P	SUR	18	1	2.6	4.4	5.1
VRJZ9	99	P	SUR	80	0	1.4	5.3	5.5
VRLJ3	99	P	SUR	46	0	1.0	7.6	7.7
VRMX7	99	P	SUR	17	0	1.0	7.6	7.7
VRNR6	99	P	SUR	22	0	0.5	-5.2	5.2
VROO4	99	P	SUR	18	2	1.1	8.8	8.9
VRQS3	99	P	SUR	72	0	0.8	4.1	4.2
VRUR7	99	P	SUR	18	0	0.7	-3.9	4.0
WDC6923	99	P	SUR	121	0	1.7	5.6	5.9
WDDI	99	P	SUR	42	0	0.6	3.6	3.7
WRJP	99	P	SUR	47	0	1.2	4.1	4.3

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 : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
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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 : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44025	99	DIRN	SUR	461	0	0	22.9	46.3	51.7
44137	99	DIRN	SUR	85	0	0	12.9	-35.0	37.3
45023	99	DIRN	SUR	227	0	0	24.3	34.8	42.5
45186	99	DIRN	SUR	23	0	0	141.0	35.7	145.5
46081	99	DIRN	SUR	29	0	0	44.2	31.9	54.5
46303	99	DIRN	SUR	45	0	0	31.8	42.7	53.2

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : GLOBAL
 PERIOD : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
0022606	99	P	SUR	34	126	137	137	0.0	0.0	0.0
1401721	99	P	SUR	-28	79	718	421	3.5	-10.6	11.1
1401761	99	P	SUR	-38	67	694	0	2.8	4.4	5.2
1401762	99	P	SUR	-50	-165	576	0	3.1	4.7	5.6
1601531	99	P	SUR	-26	58	660	210	5.2	6.5	8.3
1701640	99	P	SUR	-23	-42	241	241	0.0	0.0	0.0
4601592	99	P	SUR	-36	-98	718	211	5.6	-5.8	8.0
4601840	99	P	SUR	38	-142	710	468	0.9	-13.9	13.9
4701658	99	P	SUR	72	-95	700	0	4.9	5.6	7.5
4801652	99	P	SUR	80	-122	118	118	0.0	0.0	0.0
4801670	99	P	SUR	83	-160	682	129	1.6	5.8	6.1
4801727	99	P	SUR	87	89	268	268	0.0	0.0	0.0
5102756	99	P	SUR	28	-133	397	0	0.3	-4.1	4.1
5401737	99	P	SUR	-9	-172	695	492	2.1	-0.7	2.2
5501568	99	P	SUR	-41	175	178	115	0.0	-14.6	14.6
5501670	99	P	SUR	-63	58	184	58	2.3	-0.6	2.3
5601545	99	P	SUR	-29	32	716	0	0.4	-7.7	7.8
6101009	99	P	SUR	35	25	42	42	0.0	0.0	0.0
6202692	99	P	SUR	42	3	42	15	1.6	-1.4	2.1
6301511	99	P	SUR	56	-53	689	0	1.7	7.0	7.2
7201508	99	P	SUR	-33	151	717	717	0.0	0.0	0.0
7201511	99	P	SUR	-22	168	714	0	0.3	-4.8	4.9

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 : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
0031260	99	SPEED	SUR	-18	-39	45	0	0	2.2	5.9	6.3
6101005	99	SPEED	SUR	38	26	139	0	0	2.6	-5.6	6.2

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300008	99	DIRN	SUR	15	-38	596	0	0	94.5	84.8	126.9
1300131	99	DIRN	SUR	28	-17	417	0	0	100.1	-27.6	103.9
2200297	99	DIRN	SUR	34	125	459	0	0	93.4	-9.1	93.9
2200298	99	DIRN	SUR	35	125	339	0	0	27.0	-39.9	48.2
23491	99	DIRN	SUR	12	93	204	0	0	54.4	-112.1	124.6
23497	99	DIRN	SUR	11	72	61	0	0	98.2	-73.1	122.4
42394	99	DIRN	SUR	28	-89	418	0	0	20.7	-24.2	31.8
4400025	99	DIRN	SUR	40	-73	2834	0	0	24.1	44.4	50.6
44025	99	DIRN	SUR	40	-73	4034	0	0	24.7	44.1	50.5
44137	99	DIRN	SUR	42	-62	597	0	0	14.2	-35.6	38.3
44488	99	DIRN	SUR	45	-61	587	0	0	24.2	22.4	32.9
4500001	99	DIRN	SUR	48	-88	1484	0	0	27.8	21.9	35.4
4500023	99	DIRN	SUR	47	-89	1302	0	0	26.7	38.1	46.5
4500168	99	DIRN	SUR	42	-86	1684	0	0	44.2	23.4	50.0
4500186	99	DIRN	SUR	42	-88	127	0	0	145.6	26.9	148.0
4500187	99	DIRN	SUR	42	-88	90	14	0	69.2	-5.0	69.4
45023	99	DIRN	SUR	47	-89	1789	0	0	26.6	36.5	45.2
45168	99	DIRN	SUR	42	-86	2289	0	0	46.6	20.3	50.9
45186	99	DIRN	SUR	42	-88	161	0	0	145.8	33.4	149.6
45187	99	DIRN	SUR	43	-88	112	19	0	71.0	2.3	71.1
4600081	99	DIRN	SUR	61	-148	172	0	0	44.9	35.9	57.6
46081	99	DIRN	SUR	61	-148	309	0	0	44.7	33.8	56.1
46303	99	DIRN	SUR	49	-123	320	0	0	31.3	44.7	54.6
5300040	99	DIRN	SUR	-8	95	510	5	0	147.7	66.6	162.0
53040	99	DIRN	SUR	-8	95	495	7	0	143.6	74.5	161.8
6200200	99	DIRN	SUR	36	-8	574	0	0	166.4	-40.0	171.1
62140	99	DIRN	SUR	57	1	1242	0	0	46.1	-35.5	58.2
6301003	99	DIRN	SUR	74	24	497	0	0	15.1	24.1	28.4
6301004	99	DIRN	SUR	72	20	537	0	0	13.3	27.8	30.8
6401855	99	DIRN	SUR	64	-23	429	0	0	38.3	-26.8	46.8
6401856	99	DIRN	SUR	65	-25	556	3	0	45.5	-30.1	54.6

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
6600022	99	DIRN	SUR	54	14	149	0	0	57.9	-88.6	105.8

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 : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

ONLY THE WORST LEVEL IS SHOWN (WITH UNWEIGHTED RMS)

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
01400	00	Z	1000	57	3	27	0	5.8	82.6	82.8
01400	12	Z	1000	57	3	27	0	4.0	80.6	80.7
17351	12	Z	50	37	35	10	1	100.5	116.8	154.1
24343	00	Z	200	67	123	28	3	87.9	102.6	135.1
24343	12	Z	200	67	123	25	0	63.4	106.2	123.7
40437	12	Z	850	25	47	30	0	5.2	33.3	33.7
55591	12	Z	50	30	91	28	0	92.7	170.1	193.7
55591	00	Z	50	30	91	28	0	76.6	146.5	165.3
76644	12	Z	1000	21	-90	28	0	3.4	29.2	29.4
76644	00	Z	1000	21	-90	25	0	3.4	29.5	29.7
80222	12	Z	1000	5	-74	27	1	8.1	-82.4	82.8
83566	12	Z	1000	-20	-44	30	0	3.7	-67.7	67.8
89009	00	Z	1000	-90	0	30	22	14.0	-81.5	82.7
89625	12	Z	1000	-75	123	30	26	6.1	-94.2	94.4
98233	12	Z	1000	18	122	30	0	28.5	18.3	33.9
98233	00	Z	1000	18	122	29	0	28.6	23.0	36.7

3.2.19 Table 8 - Suspect radiosondes: Wind (m/s)

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 AREA : GLOBAL
 PERIOD : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	UBIAS	VBIAS	RMS
44373	12	V	200	44	104	24	1	-10.4	-0.6	18.9

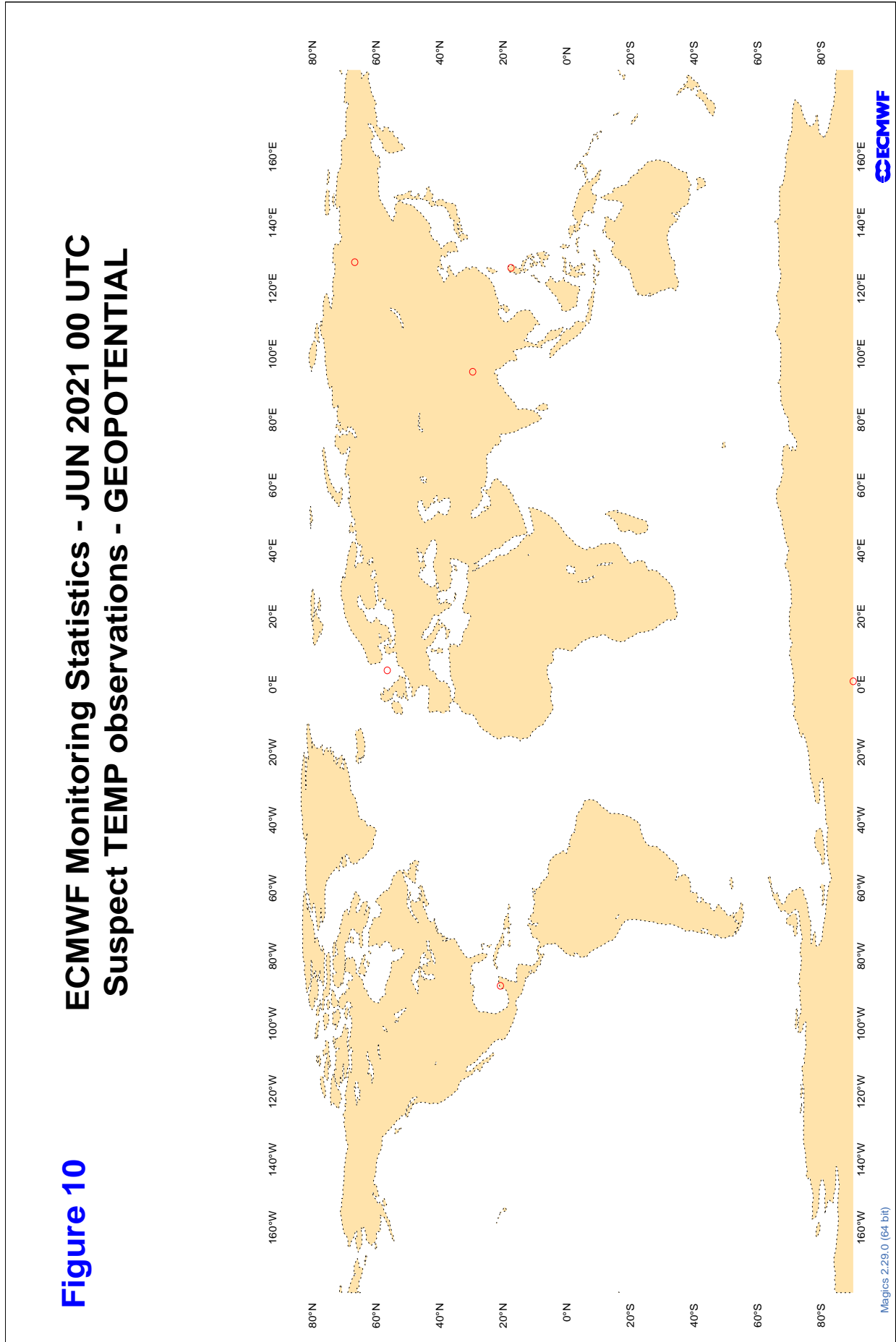
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

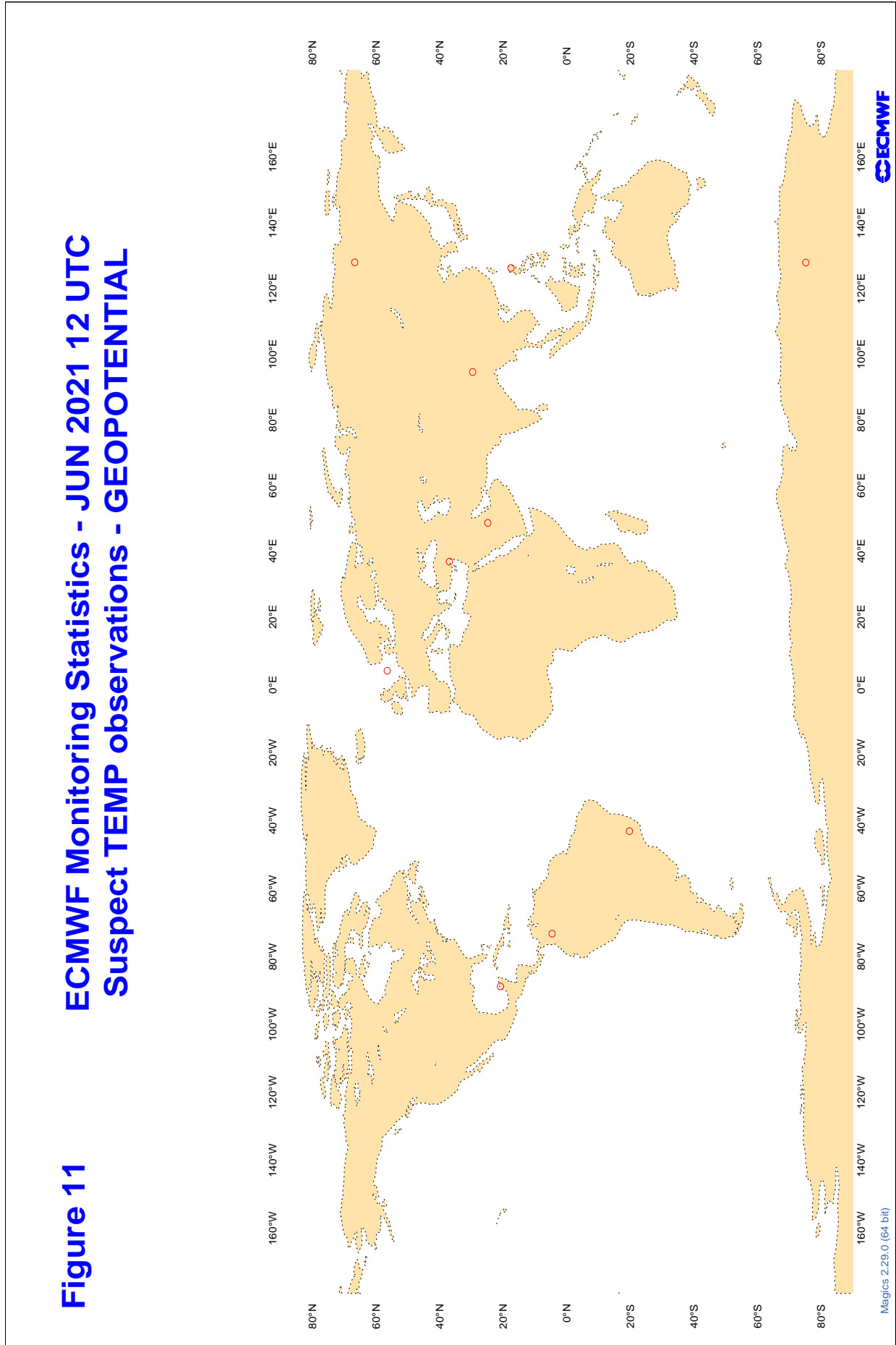
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS \geq 5 M/S
 NO. OF OBSERVATIONS \geq 5, AND,
 ABSOLUTE BIAS \geq 10 DEGREES, WITH
 STANDARD DEVIATION $<$ 30 DEGREES, AND,
 VERTICAL SPREAD $<$ 10 DEGREES
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
22820	12	DD	62	34	26	-10.4	4.2	15.8

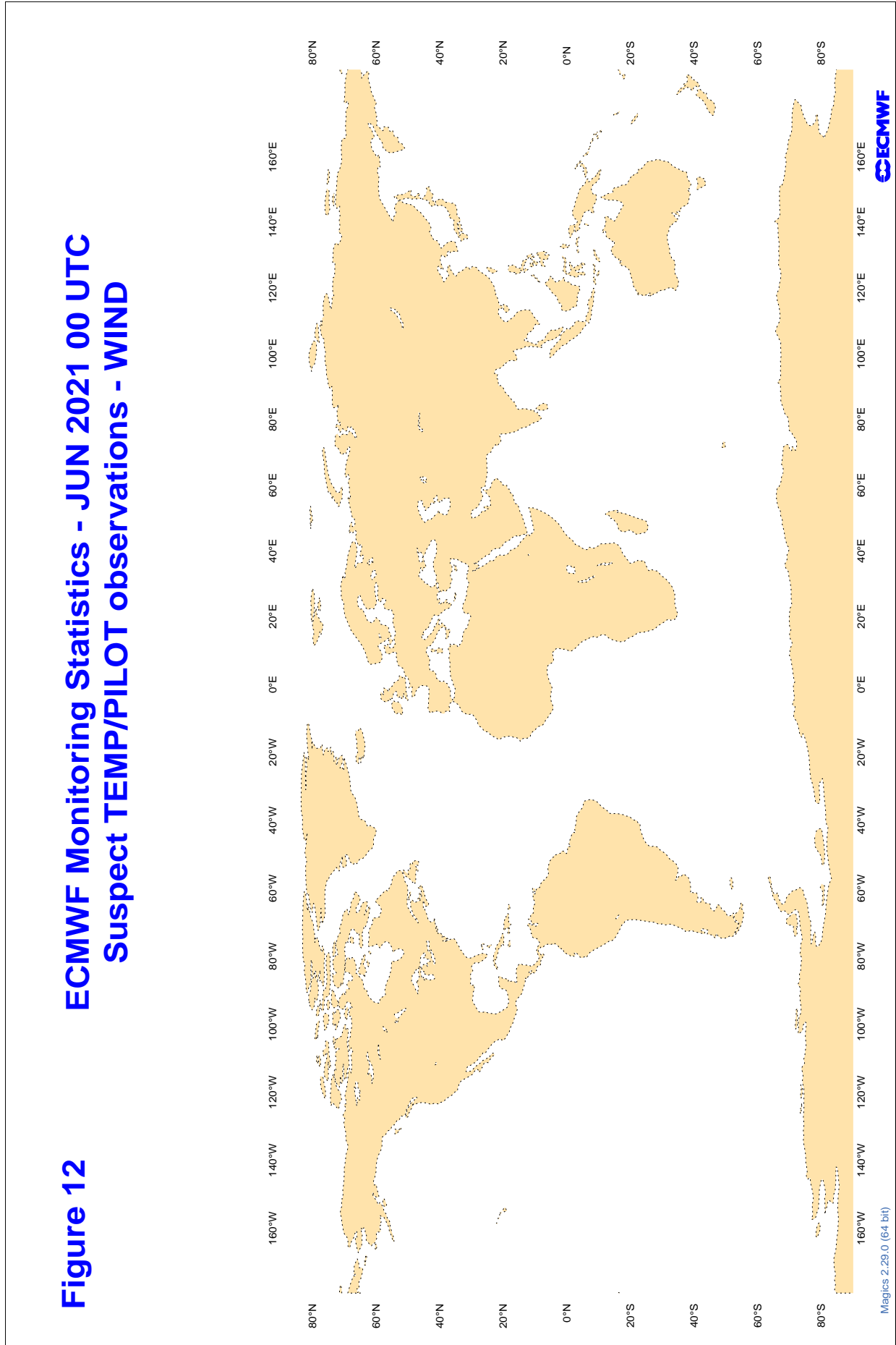
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



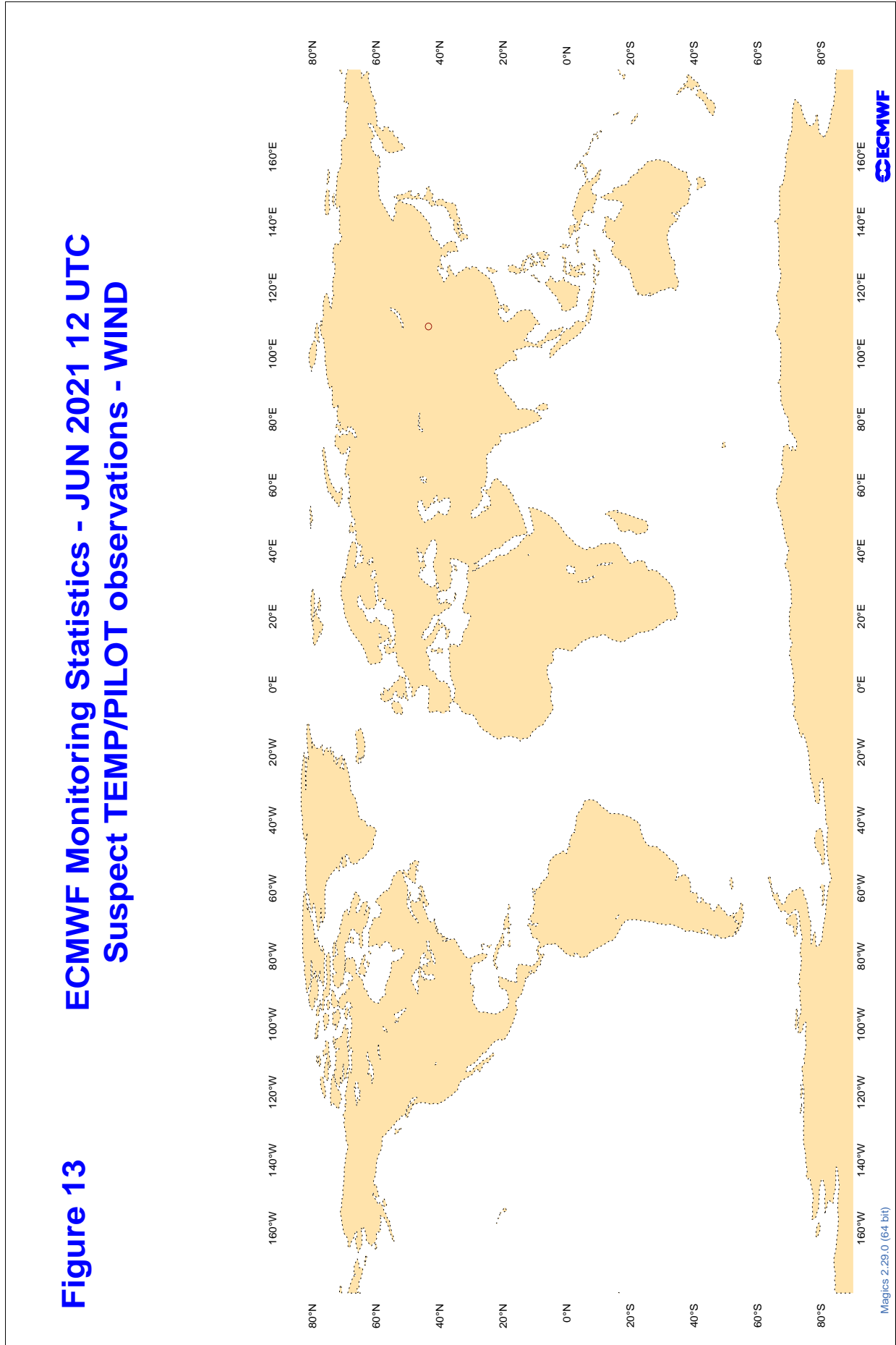
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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 : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
4DC8UU	12	Z	100	0	0.0	0.0
7JUNA4	00	Z	100	8	23.7	6.9
7JUNA4	12	Z	100	7	81.4	69.6
ASDE09	12	Z	100	7	50.8	48.1
BPMWB2	12	Z	100	9	17.6	9.3
BPMWB2	00	Z	100	9	14.9	-1.1
DBLK	12	Z	100	23	9.9	-8.2
FPUW5G	12	Z	100	12	4.9	-3.8
HTXUH4	00	Z	100	3	22.4	-22.3
HTXUH4	12	Z	100	5	19.5	-18.5
JGQH	00	Z	100	2	10.8	10.7
JGQH	12	Z	100	2	2.9	-0.1
JNKN7J	00	Z	100	5	22.0	20.5
JNKN7J	12	Z	100	4	55.5	53.9
JNSR	00	Z	100	50	11.2	8.2
JNSR	12	Z	100	50	11.8	9.0
KJJF9X	00	Z	100	2	8.0	-0.2
KJJF9X	12	Z	100	5	12.4	11.6
KMPLHP	00	Z	100	7	64.9	55.3
KMPLHP	12	Z	100	6	120.4	117.8
LRYQE3	00	Z	100	7	34.3	19.8
LRYQE3	12	Z	100	9	49.5	36.4
UXK5JT	12	Z	100	8	13.2	5.4
UXK5JT	00	Z	100	8	11.6	0.7
VKB4L5	00	Z	100	3	25.1	24.9
VKB4L5	12	Z	100	9	27.1	24.2
WDK38H	12	Z	100	17	9.9	-8.3
XQFJRG	00	Z	100	6	9.8	-5.4
XQFJRG	12	Z	100	7	13.0	-10.1
YL96W	12	Z	100	9	17.9	11.5
YL96W	00	Z	100	8	20.8	10.2
ZVQEQC	12	Z	100	20	7.5	5.3

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

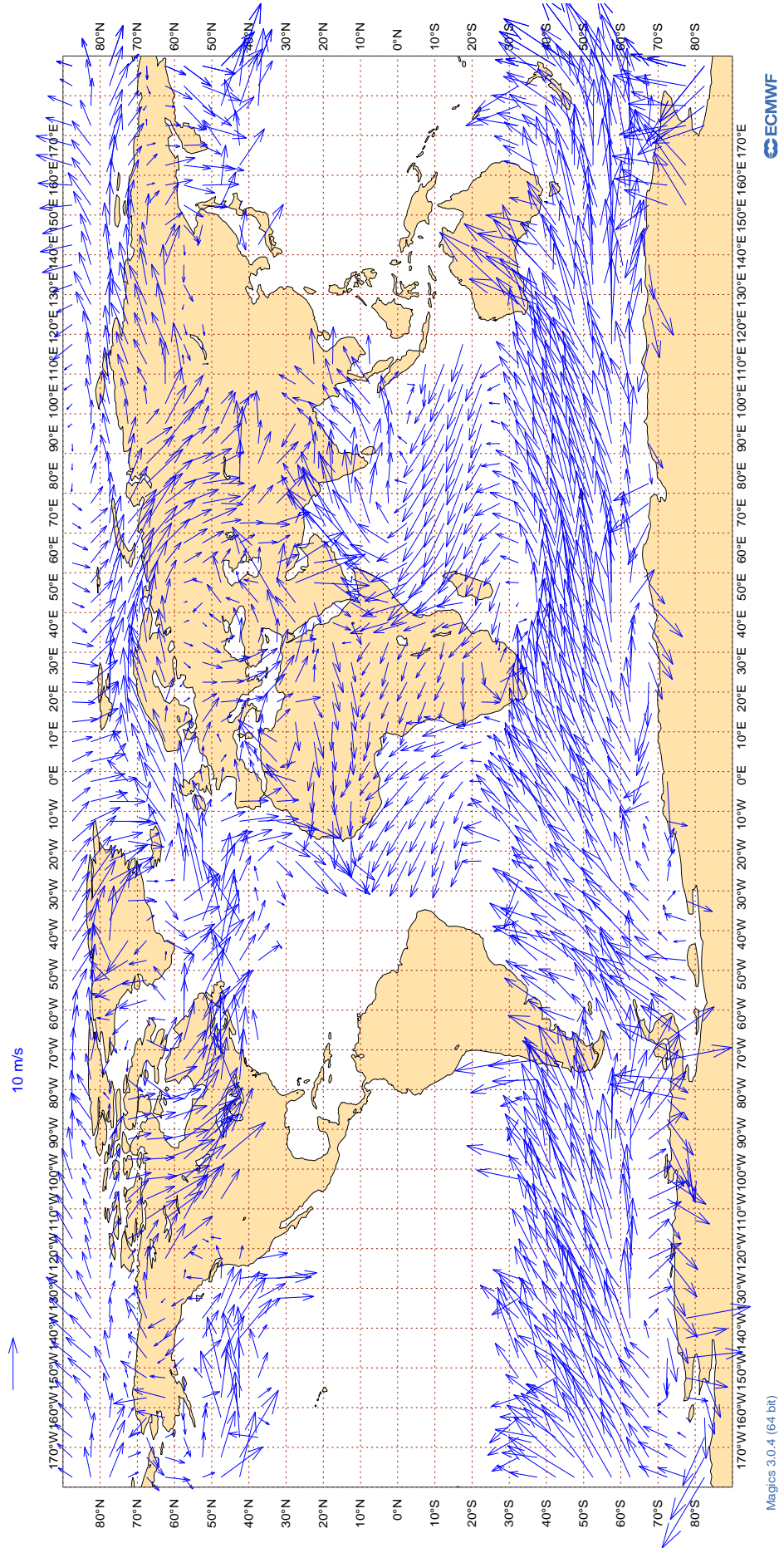
RADIOSONDE MONITORING STATISTICS (SHIPS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
4DC8UU	12	V	100	0	0.0	0.0	0.0
7JUNA4	00	V	100	8	2.9	0.8	0.8
7JUNA4	12	V	100	7	2.0	-0.6	1.3
ASDE09	12	V	100	7	2.0	0.7	0.3
BPMWB2	12	V	100	9	3.2	-0.4	1.1
BPMWB2	00	V	100	9	2.3	0.8	0.8
DBLK	12	V	100	23	2.0	-0.6	0.3
FPUW5G	12	V	100	12	4.2	-1.1	0.1
HTXUH4	00	V	100	3	3.0	0.7	-1.7
HTXUH4	12	V	100	5	1.7	0.6	-0.4
JGQH	00	V	100	2	2.6	0.0	-1.6
JGQH	12	V	100	2	3.9	1.3	3.4
JNKN7J	00	V	100	5	2.7	0.9	-1.1
JNKN7J	12	V	100	4	2.8	-0.5	-0.4
JNSR	00	V	100	21	4.9	-0.2	0.3
JNSR	12	V	100	20	5.3	1.0	-1.3
KJJF9X	00	V	100	2	1.2	0.5	0.8
KJJF9X	12	V	100	5	3.5	-0.3	0.6
KMPLHP	00	V	100	7	3.0	0.5	0.4
KMPLHP	12	V	100	6	2.1	-1.1	0.6
LRYQE3	00	V	100	7	2.6	0.4	0.1
LRYQE3	12	V	100	9	3.0	-0.4	-0.5
UXK5JT	12	V	100	8	3.5	-0.5	2.6
UXK5JT	00	V	100	8	2.9	0.0	1.6
VKB4L5	00	V	100	3	2.2	0.1	1.2
VKB4L5	12	V	100	9	3.0	0.8	1.9
WDK38H	12	V	100	16	2.7	0.0	-0.6
XQFJRG	00	V	100	6	2.1	0.6	0.1
XQFJRG	12	V	100	7	2.0	0.5	0.6
YL96W	12	V	100	9	3.1	0.3	0.7
YL96W	00	V	100	8	3.0	0.1	0.1
ZVQEQC	12	V	100	20	3.1	-0.2	-0.5

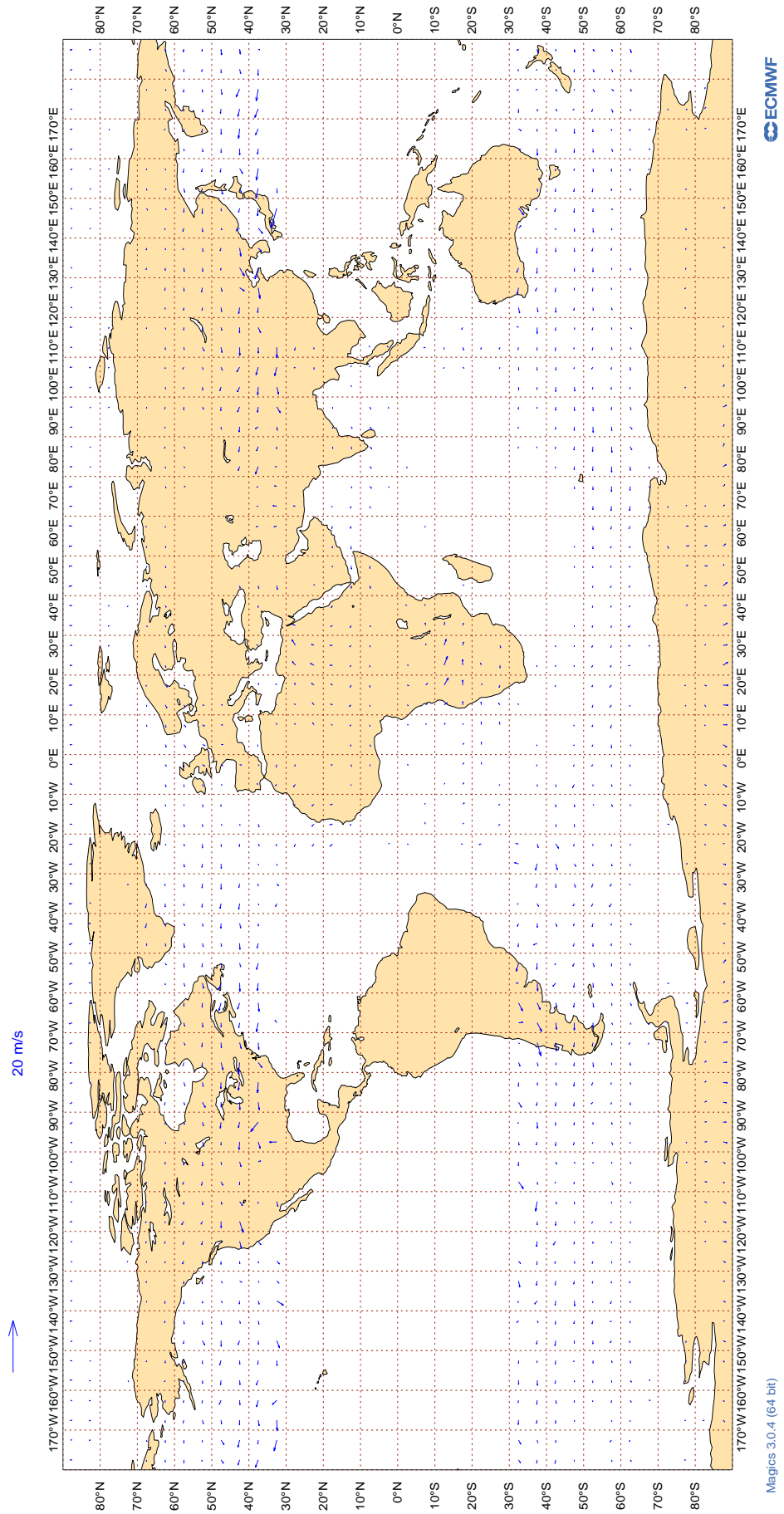
3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

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



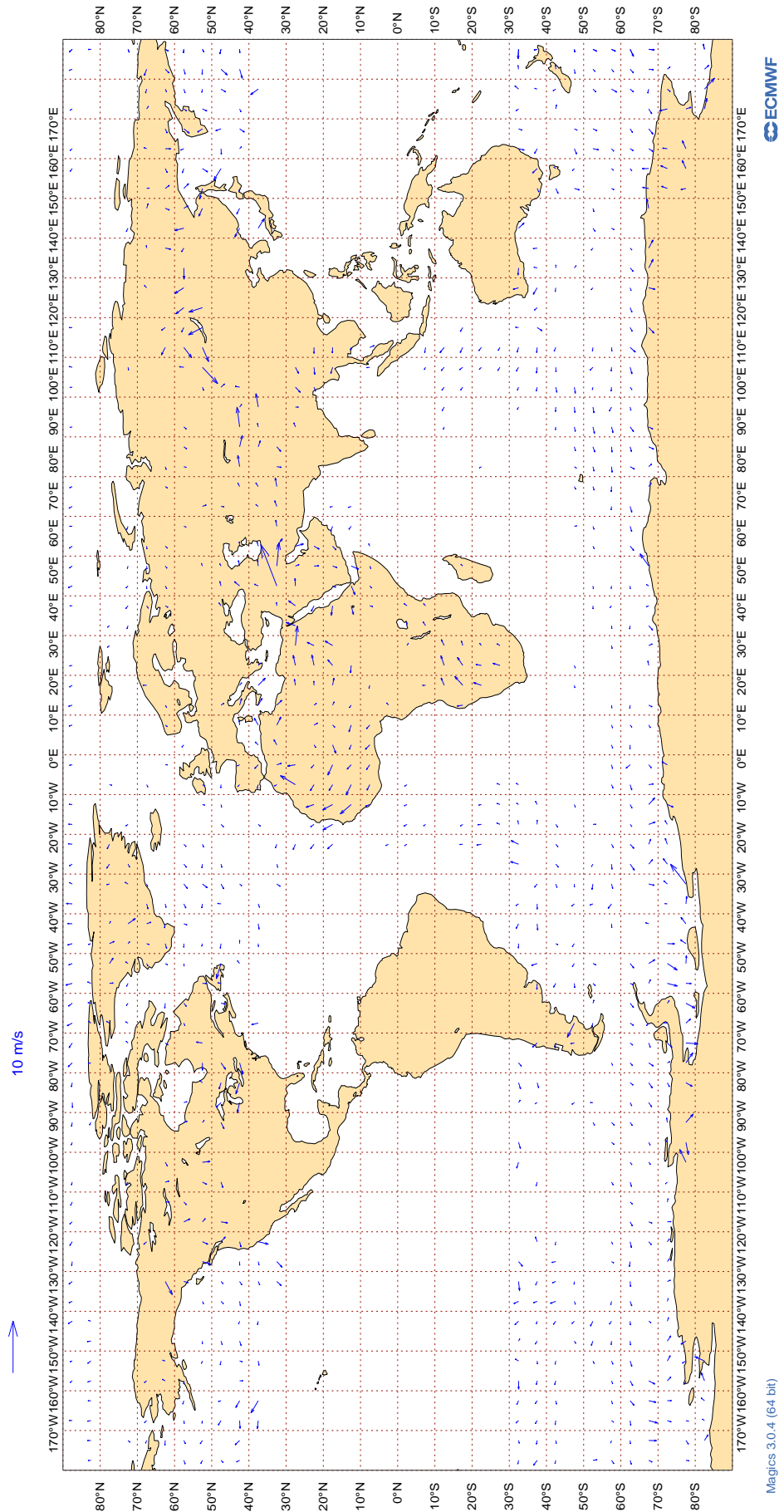
3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

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



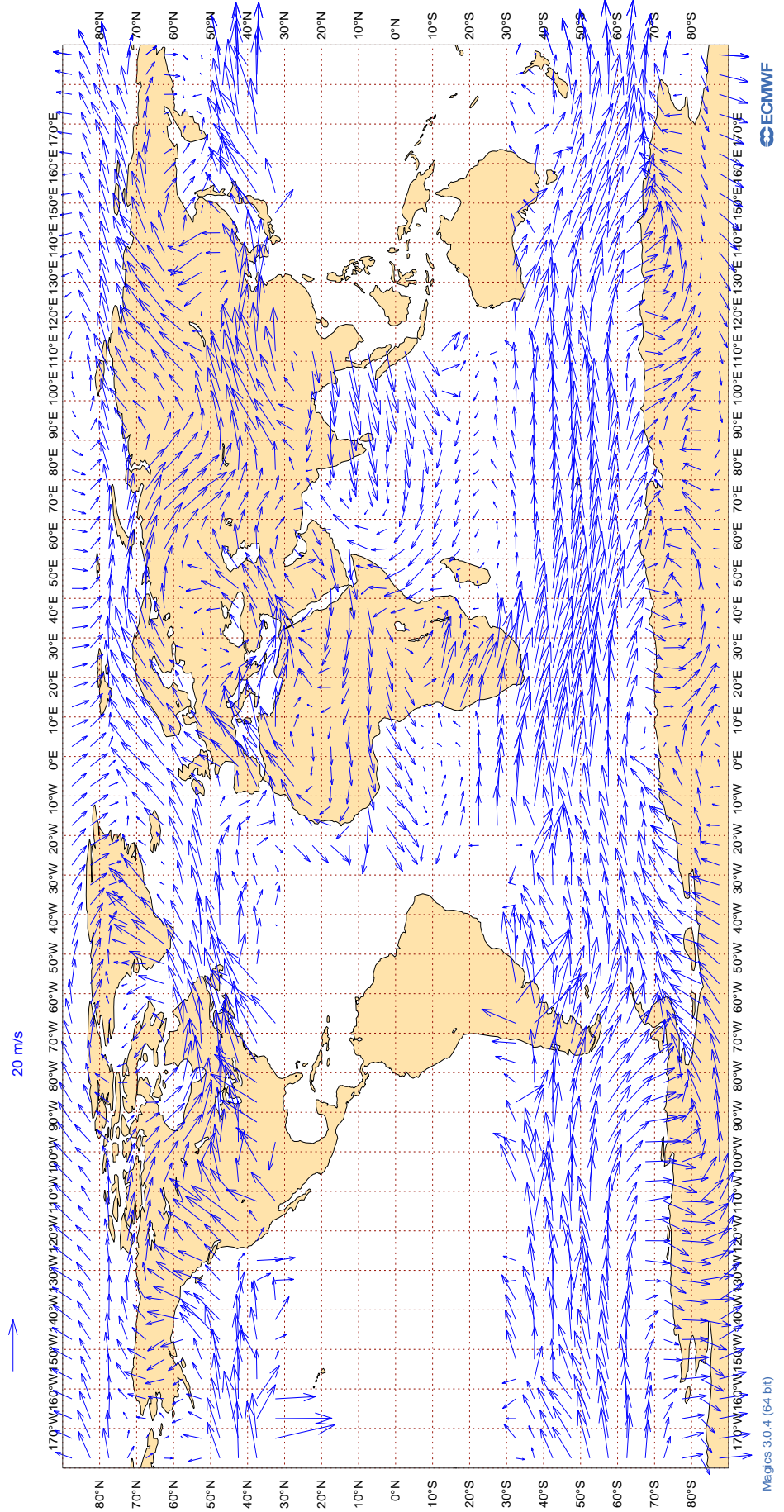
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

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



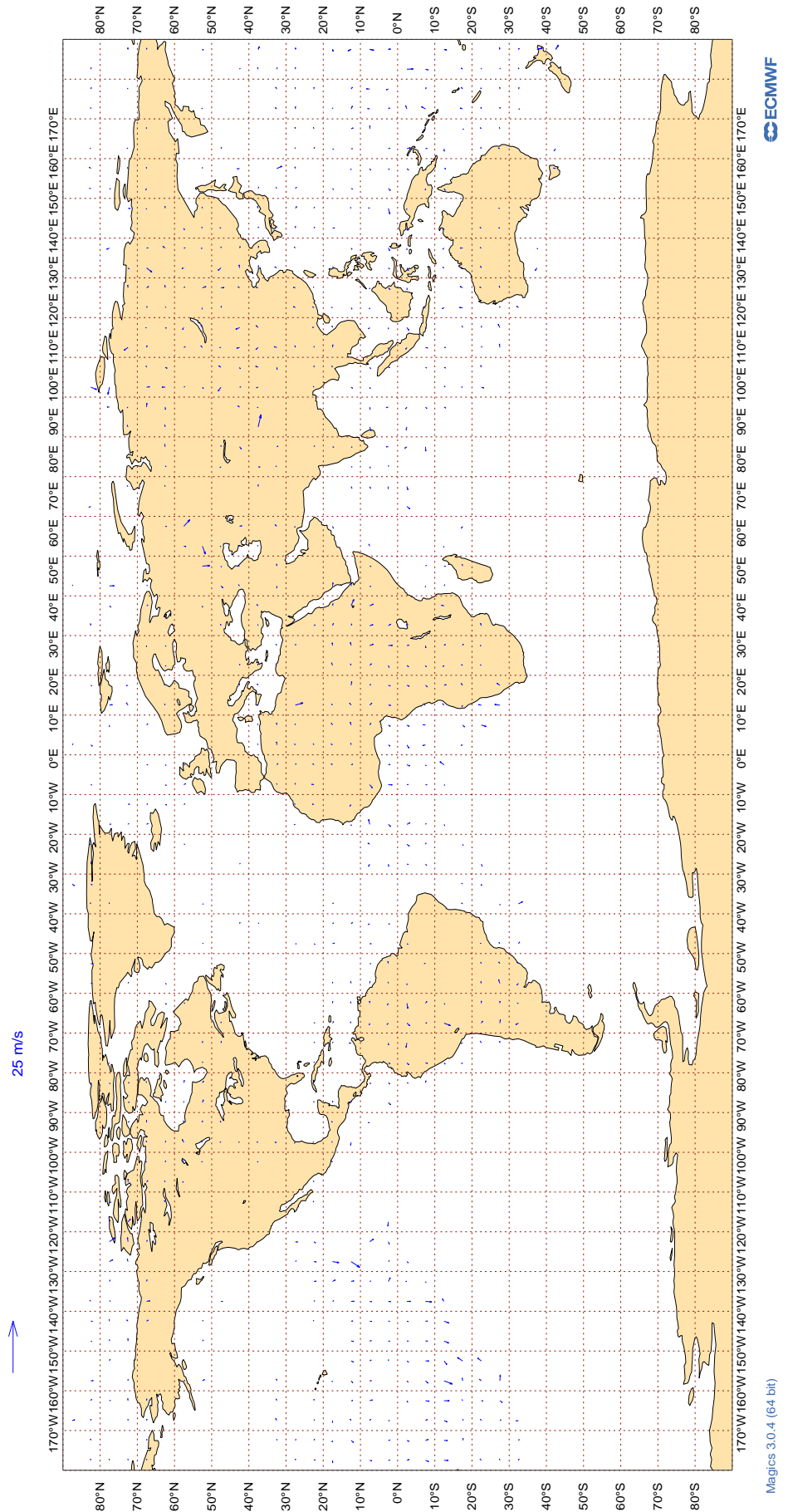
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

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



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

Figure 18
ECMWF Monitoring Statistics: Jun 2021
Aircraft Winds: 150- 300hPa
Wind bias: Observation - FG



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

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : VECTOR WIND (M/S)
 AREA : GLOBAL
 PERIOD : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20

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

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AAL	99	V	300-150	19275	3	0	5.3	0.3
AAR	99	V	300-150	178	0	0	3.7	-1.3
ABB	99	V	300-150	1594	0	0	2.8	0.2
ABD	99	V	300-150	538	0	0	4.2	-0.6
ABG	99	V	300-150	114	0	0	3.3	0.7
ABP	99	V	300-150	60	0	2	3.3	0.6
ABW	99	V	300-150	734	0	0	3.6	-0.2
ABX	99	V	300-150	364	0	0	3.3	0.4
ACA	99	V	300-150	10787	4	0	5.3	0.1
ACI	99	V	300-150	48	0	0	3.3	0.7
ACP	99	V	300-150	31	0	0	4.7	3.1
AEA	99	V	300-150	85	7	1	7.4	-0.5
AFL	99	V	300-150	1387	0	0	3.4	0.2
AFR	99	V	300-150	15203	1	0	4.0	0.2
AHO	99	V	300-150	113	5	1	6.8	0.3
AIC	99	V	300-150	619	2	0	5.7	0.3
AJT	99	V	300-150	204	0	0	3.8	0.1
ALK	99	V	300-150	836	0	1	3.8	0.6
AMX	99	V	300-150	1075	6	0	6.9	-0.1
ANZ	99	V	300-150	8633	4	0	6.3	0.6
AOJ	99	V	300-150	89	0	0	3.0	0.3
ASA	99	V	300-150	24	8	0	3.9	0.4
ASL	99	V	300-150	545	0	0	3.5	0.5
ATN	99	V	300-150	86	0	0	5.6	-0.1
AUA	99	V	300-150	2278	0	0	3.8	0.2
AUH	99	V	300-150	32	13	0	4.0	0.7

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AXY	99	V	300-150	51	0	0	2.5	-0.0
AZA	99	V	300-150	1892	0	0	3.4	0.5
AZG	99	V	300-150	600	0	0	3.4	0.1
AZV	99	V	300-150	698	0	0	3.6	0.3
BAW	99	V	300-150	15148	4	0	5.7	0.1
BBA	99	V	300-150	24	0	0	3.2	-0.4
BBC	99	V	300-150	102	0	0	7.9	0.1
BCS	99	V	300-150	1990	0	0	3.1	0.5
BEL	99	V	300-150	462	0	0	3.1	0.2
BFF	99	V	300-150	34	0	0	10.7	6.5
BLU	99	V	300-150	84	0	0	4.5	1.4
BMW	99	V	300-150	44	0	0	3.2	-0.1
BOX	99	V	300-150	2660	0	0	3.3	0.2
BOX	99	V	300-150	46	0	0	3.3	0.2
BPA	99	V	300-150	50	0	0	2.9	1.1
BTX	99	V	300-150	58	0	0	3.6	-0.2
CAL	99	V	300-150	302	0	0	4.1	0.8
CAZ	99	V	300-150	86	0	0	3.3	0.0
CEB	99	V	300-150	54	0	0	3.7	0.2
CES	99	V	300-150	54	0	0	4.6	0.5
CFC	99	V	300-150	507	0	0	3.8	0.3
CFG	99	V	300-150	898	0	0	3.8	-0.3
CHG	99	V	300-150	657	0	0	4.1	0.1
CJT	99	V	300-150	1334	0	0	3.7	0.1
CKS	99	V	300-150	1450	0	0	3.5	-0.0
CLE	99	V	300-150	20	0	0	3.2	0.6
CLU	99	V	300-150	1123	0	0	3.7	-0.2
CLX	99	V	300-150	3831	0	0	3.7	-0.2
CMB	99	V	300-150	659	0	0	3.8	0.4
CNV	99	V	300-150	145	0	0	3.0	0.4
CPA	99	V	300-150	180	0	1	4.1	0.3
CRL	99	V	300-150	531	0	0	3.2	0.6
CSN	99	V	300-150	382	2	0	5.8	0.9
CTM	99	V	300-150	86	0	0	3.8	0.6
CXB	99	V	300-150	32	0	0	2.9	0.2
DAL	99	V	300-150	19402	0	0	3.2	0.3
DHK	99	V	300-150	896	1	0	5.0	-0.2
DJT	99	V	300-150	185	0	0	2.9	0.4
DLH	99	V	300-150	14166	0	0	3.2	0.0
DSO	99	V	300-150	41	0	2	3.3	-0.3
EAU	99	V	300-150	26	0	0	3.3	0.1
EDC	99	V	300-150	25	0	0	2.8	-0.2
EDG	99	V	300-150	97	0	1	4.1	0.6

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
EDW	99	V	300-150	194	0	0	3.6	0.3
EIN	99	V	300-150	2757	0	0	3.0	0.4
EJM	99	V	300-150	634	0	0	3.6	0.4
ELY	99	V	300-150	2960	7	0	6.5	0.0
ETD	99	V	300-150	4885	4	0	5.1	0.2
ETH	99	V	300-150	4279	2	0	4.6	0.4
EVE	99	V	300-150	20	0	0	3.5	1.0
FAF	99	V	300-150	96	0	0	3.9	0.6
FBU	99	V	300-150	312	0	0	3.6	0.3
FDX	99	V	300-150	6806	0	0	3.2	0.4
FIN	99	V	300-150	436	0	0	3.0	-0.2
FJI	99	V	300-150	449	0	0	3.8	0.7
FLJ	99	V	300-150	64	0	0	3.3	-0.5
FWI	99	V	300-150	621	0	0	2.8	0.1
GAF	99	V	300-150	105	0	0	2.9	0.3
GCK	99	V	300-150	52	0	0	3.5	0.5
GEC	99	V	300-150	1574	0	0	3.5	0.2
GES	99	V	300-150	65	0	0	3.9	0.5
GFA	99	V	300-150	240	0	0	6.8	0.2
GJE	99	V	300-150	36	0	0	3.3	-0.3
GNJ	99	V	300-150	34	0	0	3.8	-0.2
GRP	99	V	300-150	48	0	0	3.5	1.2
GTI	99	V	300-150	1975	0	0	3.8	0.1
HAL	99	V	300-150	83	0	1	3.7	0.8
HFM	99	V	300-150	171	0	0	3.5	0.3
HRT	99	V	300-150	76	0	0	4.7	0.2
HUA	99	V	300-150	61	0	0	4.0	0.4
IBE	99	V	300-150	1239	0	0	3.6	0.5
ICE	99	V	300-150	2051	0	0	3.6	0.2
ICL	99	V	300-150	64	0	2	5.2	0.4
ICV	99	V	300-150	297	0	0	4.1	-0.3
IFA	99	V	300-150	81	0	0	3.8	-0.3
IFC	99	V	300-150	31	0	0	4.3	0.0
IJM	99	V	300-150	108	0	0	4.2	-0.3
JAF	99	V	300-150	201	3	0	8.0	0.2
JAS	99	V	300-150	48	0	0	3.0	0.9
JBU	99	V	300-150	27	0	19	2.4	-0.1
JCL	99	V	300-150	45	0	0	3.7	0.2
JCY	99	V	300-150	23	0	0	5.6	-2.5
JET	99	V	300-150	38	0	0	3.1	0.5
KAC	99	V	300-150	154	0	0	3.7	0.9
KAF	99	V	300-150	78	0	0	4.1	-0.1
KAI	99	V	300-150	63	0	0	2.6	0.7

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
KAL	99	V	300-150	24	0	0	3.5	1.1
KAR	99	V	300-150	124	0	0	3.5	0.4
KAY	99	V	300-150	211	0	0	3.1	0.7
KLM	99	V	300-150	12925	3	0	4.9	0.2
KQA	99	V	300-150	190	2	0	7.2	0.6
KUG	99	V	300-150	23	0	0	3.0	1.3
LAN	99	V	300-150	40	0	0	4.1	1.0
LCO	99	V	300-150	304	0	0	3.9	-0.9
LDX	99	V	300-150	81	0	0	3.0	-0.2
LGT	99	V	300-150	156	0	0	4.2	0.0
LNK	99	V	300-150	110	0	0	4.1	0.2
LOT	99	V	300-150	2515	5	0	7.4	0.1
LXJ	99	V	300-150	384	0	0	3.6	0.2
MAS	99	V	300-150	199	0	0	3.9	0.6
MAU	99	V	300-150	134	0	0	5.2	1.2
MED	99	V	300-150	92	0	0	3.3	0.4
MHV	99	V	300-150	47	0	0	4.0	1.4
MLM	99	V	300-150	72	0	0	2.6	-0.1
MLN	99	V	300-150	23	0	0	2.2	-0.0
MLT	99	V	300-150	409	0	0	3.3	0.2
MMD	99	V	300-150	183	0	0	3.2	-0.0
MMF	99	V	300-150	43	0	0	2.6	-0.0
MPH	99	V	300-150	491	0	0	3.8	-1.2
MSR	99	V	300-150	1595	4	0	4.7	0.4
NAF	99	V	300-150	33	0	0	4.2	-1.8
NCR	99	V	300-150	357	0	0	3.9	0.1
NJE	99	V	300-150	455	0	0	3.4	0.5
NOJ	99	V	300-150	32	0	0	2.1	-0.3
NOS	99	V	300-150	568	5	0	6.9	-0.0
NSP	99	V	300-150	32	0	0	9.2	1.4
NWS	99	V	300-150	249	0	0	3.0	0.4
OAE	99	V	300-150	734	0	0	3.9	0.3
OMA	99	V	300-150	191	0	0	4.1	0.5
PAC	99	V	300-150	569	0	0	3.5	0.0
PAL	99	V	300-150	221	0	0	3.8	0.6
PAT	99	V	300-150	32	0	0	3.7	0.5
PEG	99	V	300-150	61	0	0	3.0	1.4
PGN	99	V	300-150	31	0	0	4.1	1.2
PIA	99	V	300-150	37	0	0	2.8	-0.1
PLF	99	V	300-150	74	0	0	3.1	0.2
PLM	99	V	300-150	75	0	1	4.8	0.9
PVG	99	V	300-150	23	0	0	4.7	0.4
QAF	99	V	300-150	107	0	0	3.0	0.8

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
QFA	99	V	300-150	1141	0	0	5.4	0.7
QQE	99	V	300-150	93	0	0	3.4	0.3
QTR	99	V	300-150	15214	0	0	3.7	0.3
RAM	99	V	300-150	434	3	0	5.9	0.2
RCH	99	V	300-150	5021	0	0	4.7	0.4
RJA	99	V	300-150	1220	7	0	7.3	-0.1
ROM	99	V	300-150	47	0	0	3.0	0.2
RRR	99	V	300-150	228	0	0	3.4	0.2
RUN	99	V	300-150	80	0	0	3.5	-0.2
RYR	99	V	300-150	94	0	1	3.2	0.2
RZO	99	V	300-150	63	0	2	3.7	0.5
SAM	99	V	300-150	276	0	0	3.5	-0.0
SAS	99	V	300-150	1632	0	0	3.1	-0.1
SAZ	99	V	300-150	53	0	0	3.6	0.1
SCX	99	V	300-150	430	0	0	4.5	0.6
SIA	99	V	300-150	1575	0	0	3.9	-0.1
SLM	99	V	300-150	44	0	0	2.3	-0.3
SOO	99	V	300-150	675	0	0	3.3	0.1
SPA	99	V	300-150	108	0	0	3.7	0.5
SVA	99	V	300-150	2639	0	0	3.8	0.3
SVW	99	V	300-150	126	0	0	3.0	0.2
SWA	99	V	300-150	107	4	3	5.8	0.1
SWR	99	V	300-150	2975	0	2	3.5	0.3
SYB	99	V	300-150	62	0	0	3.3	0.6
TAG	99	V	300-150	36	0	0	3.4	0.6
TAM	99	V	300-150	27	0	0	3.7	-0.5
TAP	99	V	300-150	606	0	0	3.7	0.9
TAR	99	V	300-150	145	0	0	3.2	0.4
TAY	99	V	300-150	382	0	0	3.7	0.2
TFL	99	V	300-150	563	4	0	7.5	-0.2
THT	99	V	300-150	1970	0	0	5.7	0.4
THY	99	V	300-150	9397	2	0	4.5	0.2
TIT	99	V	300-150	20	0	0	3.0	-1.3
TMN	99	V	300-150	272	0	0	4.6	0.6
TOM	99	V	300-150	650	7	0	8.5	0.1
TOW	99	V	300-150	52	0	0	3.5	0.3
TPA	99	V	300-150	255	0	0	3.7	0.8
TWY	99	V	300-150	365	0	0	3.7	-0.0
UAE	99	V	300-150	12225	0	0	3.6	0.3
UAF	99	V	300-150	55	0	0	4.5	0.5
UAL	99	V	300-150	29952	5	2	6.2	0.2
ULC	99	V	300-150	35	0	0	4.2	-0.0
UPS	99	V	300-150	4872	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
UTN	99	V	300-150	79	0	0	3.4	-0.2
UZB	99	V	300-150	112	12	0	5.5	0.0
VAJ	99	V	300-150	28	0	0	3.2	0.7
VAL	99	V	300-150	22	0	0	5.0	0.6
VIR	99	V	300-150	7257	3	0	5.5	-0.0
VJT	99	V	300-150	1347	0	0	3.3	0.4
VMP	99	V	300-150	31	0	0	7.2	-0.2
WGN	99	V	300-150	166	0	0	3.4	0.5
WJA	99	V	300-150	235	9	0	7.9	-0.0
WRC	99	V	300-150	139	0	0	3.1	-0.1
WWI	99	V	300-150	128	0	0	4.6	1.1
XFL	99	V	300-150	22	0	0	3.9	-0.5

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 : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	50	28	13.6	-9.4
01001	12	Z	50	30	17.6	-3.1
01028	12	Z	50	29	9.5	-7.8
01028	00	Z	50	30	10.2	-3.6
01400	12	Z	50	24	76.3	76.0
01400	00	Z	50	25	86.8	86.7
01415	12	Z	50	30	8.6	-2.0
01415	00	Z	50	28	9.4	6.8
02365	12	Z	50	29	9.4	-6.5
02365	00	Z	50	24	6.0	1.2
02836	12	Z	50	31	9.3	-5.5
02836	00	Z	50	29	5.6	-1.3
02963	00	Z	50	30	7.3	2.4
02963	12	Z	50	30	8.1	-5.7
03005	12	Z	50	30	8.2	-5.1
03005	00	Z	50	30	8.6	-1.2
03238	12	Z	50	2	2.7	-1.5
03238	00	Z	50	27	6.0	3.7
03808	12	Z	50	29	14.1	1.4
03808	00	Z	50	29	6.7	4.9
03918	00	Z	50	30	6.8	1.5
03918	12	Z	50	1	8.7	8.7
03953	00	Z	50	30	5.7	1.3
03953	12	Z	50	29	7.0	-3.0
04018	00	Z	50	30	9.1	-5.9
04018	12	Z	50	29	8.9	-5.1
04220	12	Z	50	30	7.7	-1.4
04220	00	Z	50	30	8.2	-2.4
04270	12	Z	50	30	7.2	-2.8
04270	00	Z	50	28	7.6	-3.9
04320	00	Z	50	30	11.9	-8.8
04320	12	Z	50	30	8.1	-6.5
04339	12	Z	50	30	15.8	-5.4
04339	00	Z	50	30	7.4	-5.2
04360	12	Z	50	28	13.2	3.8
04360	00	Z	50	23	16.4	-14.3
06011	12	Z	50	27	13.3	10.7
06011	00	Z	50	26	10.8	1.4
06260	00	Z	50	30	8.2	5.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	50	9	6.8	0.6
06610	12	Z	50	32	5.9	0.8
06610	00	Z	50	20	8.7	6.2
07110	12	Z	50	29	21.1	8.0
07110	00	Z	50	27	6.4	1.9
07510	00	Z	50	28	11.3	-3.2
07510	12	Z	50	29	16.9	7.2
07645	12	Z	50	29	15.1	10.8
07645	00	Z	50	30	14.7	9.0
07761	12	Z	50	26	15.1	-4.9
07761	00	Z	50	23	17.4	0.0
08001	00	Z	50	30	11.2	9.9
08001	12	Z	50	30	7.7	3.4
08221	12	Z	50	30	6.1	1.1
08221	00	Z	50	29	13.6	12.3
08302	12	Z	50	30	13.4	-11.2
08302	00	Z	50	19	6.0	1.7
08508	12	Z	50	23	5.2	3.0
08522	12	Z	50	30	7.4	-1.0
10035	12	Z	50	30	13.1	11.1
10035	00	Z	50	29	18.8	17.7
10393	00	Z	50	16	8.0	5.4
10393	12	Z	50	31	7.6	-2.2
10410	12	Z	50	30	8.5	-4.9
10410	00	Z	50	30	11.6	5.5
10739	12	Z	50	52	7.1	-0.1
10739	00	Z	50	30	10.8	8.1
11035	00	Z	50	24	14.3	13.0
11035	12	Z	50	29	5.9	2.6
12982	00	Z	50	30	10.8	9.5
12982	12	Z	50	30	7.6	-1.0
16245	00	Z	50	23	9.7	8.6
16245	12	Z	50	30	6.5	-2.3
16429	12	Z	50	29	6.9	0.4
16429	00	Z	50	26	13.7	11.6
16622	00	Z	50	28	19.2	18.2
16754	00	Z	50	25	14.5	13.8
17607	12	Z	50	25	7.1	4.7
26435	12	Z	50	11	4.8	-2.4
4DC8UU	12	Z	50	0	0.0	0.0
60018	00	Z	50	25	10.4	9.2
60018	12	Z	50	26	6.5	-1.6
7JUNA4	00	Z	50	0	0.0	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	50	0	0.0	0.0
ASDE09	12	Z	50	6	69.0	66.0
BPMWB2	12	Z	50	8	23.0	19.5
BPMWB2	00	Z	50	8	16.0	0.7
DBLK	12	Z	50	23	9.8	-7.9
FPUW5G	12	Z	50	10	5.3	-3.4
HTXUH4	00	Z	50	3	18.6	-18.4
HTXUH4	12	Z	50	3	14.2	-13.3
JNKN7J	00	Z	50	0	0.0	0.0
JNKN7J	12	Z	50	0	0.0	0.0
KJJF9X	00	Z	50	2	0.3	0.1
KJJF9X	12	Z	50	5	22.4	21.3
KMPLHP	00	Z	50	0	0.0	0.0
KMPLHP	12	Z	50	0	0.0	0.0
LRYQE3	00	Z	50	4	42.4	40.5
LRYQE3	12	Z	50	5	89.3	78.4
UXK5JT	12	Z	50	8	20.0	8.8
UXK5JT	00	Z	50	8	15.7	5.3
VKB4L5	00	Z	50	3	29.9	28.5
VKB4L5	12	Z	50	8	24.4	22.1
WDK38H	12	Z	50	15	7.5	-4.9
XQFJRG	00	Z	50	6	9.4	-1.9
XQFJRG	12	Z	50	5	13.6	-13.3
YLV96W	12	Z	50	2	47.8	35.0
YLV96W	00	Z	50	0	0.0	0.0
ZVQEQC	12	Z	50	20	7.6	3.4

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 50 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	50	23	2.4	-0.3	0.0
01001	12	V	50	30	2.5	-0.7	0.1
01028	12	V	50	29	2.7	0.0	-0.3
01028	00	V	50	25	3.0	-0.2	0.3
01400	12	V	50	23	2.8	0.0	-0.3
01400	00	V	50	19	2.5	0.4	-0.2
01415	12	V	50	29	2.7	0.1	-0.2
01415	00	V	50	28	3.2	0.4	0.5
02365	12	V	50	29	3.3	-0.2	0.1
02365	00	V	50	24	2.8	0.6	0.5
02836	12	V	50	30	3.2	0.0	0.0
02836	00	V	50	22	3.0	0.1	-0.2
02963	00	V	50	23	2.6	0.1	0.3
02963	12	V	50	30	2.8	0.2	-0.2
03005	12	V	50	30	2.9	-0.4	-0.3
03005	00	V	50	24	3.3	-0.6	0.6
03238	12	V	50	2	4.1	-0.5	-0.4
03238	00	V	50	21	2.7	-0.1	0.3
03808	12	V	50	29	3.1	0.0	-0.7
03808	00	V	50	25	2.7	-0.1	-0.3
03918	00	V	50	30	3.1	0.3	0.3
03918	12	V	50	1	3.5	-2.6	2.4
03953	00	V	50	26	3.0	0.7	0.1
03953	12	V	50	29	2.6	0.4	-0.2
04018	00	V	50	25	2.7	0.3	-0.4
04018	12	V	50	29	3.0	0.3	0.2
04220	12	V	50	30	2.5	0.0	0.2
04220	00	V	50	25	2.2	-0.5	0.6
04270	12	V	50	30	2.4	0.3	-0.1
04270	00	V	50	25	2.2	-0.2	-0.2
04320	00	V	50	26	2.7	0.3	-0.1
04320	12	V	50	30	2.4	-0.3	0.0
04339	12	V	50	30	2.6	0.1	-0.1
04339	00	V	50	25	2.5	-0.2	-0.2
04360	12	V	50	28	2.6	-0.5	0.1
04360	00	V	50	20	2.4	0.5	0.1
06011	12	V	50	27	2.9	0.0	0.3
06011	00	V	50	23	2.5	-0.3	0.9
06260	00	V	50	25	3.0	-0.1	0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	50	9	2.7	0.6	1.0
06610	12	V	50	30	3.0	0.1	0.0
06610	00	V	50	19	3.3	-0.9	-1.0
07110	12	V	50	29	2.6	-0.1	-0.7
07110	00	V	50	23	2.8	0.2	-0.1
07510	00	V	50	26	2.9	0.0	0.2
07510	12	V	50	29	2.6	0.0	0.3
07645	12	V	50	29	3.4	0.5	0.2
07645	00	V	50	24	3.3	0.0	-0.1
07761	12	V	50	26	2.9	-0.3	-0.5
07761	00	V	50	20	3.5	0.1	1.0
08001	00	V	50	23	2.6	-0.3	-0.5
08001	12	V	50	30	3.5	-0.2	-0.1
08221	12	V	50	30	3.4	0.3	-0.6
08221	00	V	50	27	3.7	0.4	-0.1
08302	12	V	50	29	3.5	-0.3	-0.1
08302	00	V	50	17	3.3	0.4	-0.9
08508	12	V	50	23	3.1	0.0	0.5
08522	12	V	50	30	3.8	0.9	-0.3
10035	12	V	50	30	2.8	-0.5	-0.8
10035	00	V	50	27	2.8	-0.1	-0.3
10393	00	V	50	13	3.6	-0.7	-0.1
10393	12	V	50	30	3.2	-0.6	-0.6
10410	12	V	50	30	3.2	0.6	-0.5
10410	00	V	50	25	3.3	0.2	0.0
10739	12	V	50	30	3.0	0.5	0.1
10739	00	V	50	30	3.2	0.4	-0.1
11035	00	V	50	21	3.7	0.0	0.3
11035	12	V	50	29	3.7	0.1	0.0
12982	00	V	50	23	3.2	-0.5	-0.4
12982	12	V	50	30	4.0	-0.5	-0.3
16245	00	V	50	22	3.7	-0.5	0.0
16245	12	V	50	30	3.6	-0.1	-0.6
16429	12	V	50	29	3.3	1.0	0.3
16429	00	V	50	22	2.9	0.1	0.0
16622	00	V	50	24	3.0	0.7	0.2
16754	00	V	50	20	3.6	-0.2	-0.4
17607	12	V	50	8	2.3	0.4	-0.4
26435	12	V	50	11	2.6	-0.2	-1.3
4DC8UU	12	V	50	0	0.0	0.0	0.0
60018	00	V	50	20	3.1	-0.3	-0.9
60018	12	V	50	26	3.5	0.4	0.4
7JUNA4	00	V	50	0	0.0	0.0	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	50	0	0.0	0.0	0.0
ASDE09	12	V	50	6	3.1	-0.1	-2.0
BPMWB2	12	V	50	8	2.5	-0.7	-0.6
BPMWB2	00	V	50	8	3.3	0.3	0.0
DBLK	12	V	50	23	2.3	0.3	0.6
FPUW5G	12	V	50	9	2.3	0.3	-0.8
HTXUH4	00	V	50	3	4.0	-0.7	-0.9
HTXUH4	12	V	50	2	2.8	-0.5	1.4
JNKN7J	00	V	50	0	0.0	0.0	0.0
JNKN7J	12	V	50	0	0.0	0.0	0.0
KJFF9X	00	V	50	2	3.7	-3.5	-1.0
KJFF9X	12	V	50	5	1.9	0.2	-0.4
KMPLHP	00	V	50	0	0.0	0.0	0.0
KMPLHP	12	V	50	0	0.0	0.0	0.0
LRYQE3	00	V	50	4	2.4	1.1	1.6
LRYQE3	12	V	50	5	3.7	0.2	0.6
UXK5JT	12	V	50	8	2.8	0.2	1.5
UXK5JT	00	V	50	8	2.4	-1.1	0.0
VKB4L5	00	V	50	3	1.8	0.6	-0.2
VKB4L5	12	V	50	8	3.2	-0.8	0.2
WDK38H	12	V	50	13	3.5	0.4	-1.3
XQFJRG	00	V	50	6	4.7	-0.6	0.3
XQFJRG	12	V	50	5	2.5	0.1	-2.1
YLV96W	12	V	50	2	2.0	1.3	1.2
YLV96W	00	V	50	0	0.0	0.0	0.0
ZVQEQC	12	V	50	20	3.1	-0.8	0.1

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 : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	100	29	16.3	-13.8
01001	12	Z	100	31	14.6	-7.6
01028	12	Z	100	30	9.9	-8.6
01028	00	Z	100	30	11.4	-6.0
01400	12	Z	100	26	75.9	75.7
01400	00	Z	100	26	84.9	84.7
01415	12	Z	100	30	7.1	-3.4
01415	00	Z	100	28	7.0	2.3
02365	12	Z	100	30	10.6	-8.3
02365	00	Z	100	26	4.5	-2.6
02836	12	Z	100	31	9.4	-8.2
02836	00	Z	100	29	7.1	-5.4
02963	00	Z	100	30	5.4	-3.0
02963	12	Z	100	30	9.3	-7.6
03005	12	Z	100	30	7.9	-6.4
03005	00	Z	100	31	6.9	-4.3
03238	12	Z	100	3	5.8	1.7
03238	00	Z	100	28	5.4	-0.5
03808	12	Z	100	30	12.7	-0.8
03808	00	Z	100	30	4.6	2.0
03918	00	Z	100	30	4.7	-1.5
03918	12	Z	100	1	4.4	4.4
03953	00	Z	100	30	5.4	-1.8
03953	12	Z	100	29	6.1	-4.5
04018	00	Z	100	30	9.8	-8.3
04018	12	Z	100	29	7.3	-5.3
04220	12	Z	100	30	7.4	-2.1
04220	00	Z	100	30	6.9	-3.3
04270	12	Z	100	30	6.7	-3.9
04270	00	Z	100	28	6.7	-5.5
04320	00	Z	100	30	11.0	-9.8
04320	12	Z	100	30	8.4	-7.7
04339	12	Z	100	30	16.2	-7.8
04339	00	Z	100	30	8.0	-7.0
04360	12	Z	100	28	9.5	-3.3
04360	00	Z	100	24	18.6	-17.1
06011	12	Z	100	29	9.9	6.4
06011	00	Z	100	27	7.7	-0.7
06260	00	Z	100	30	5.3	1.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	100	9	5.0	-0.7
06610	12	Z	100	33	4.8	-1.9
06610	00	Z	100	20	5.0	1.4
07110	12	Z	100	29	11.9	-1.2
07110	00	Z	100	29	6.6	-3.6
07510	00	Z	100	29	11.5	-6.3
07510	12	Z	100	29	12.0	-1.2
07645	12	Z	100	30	10.2	2.4
07645	00	Z	100	30	7.9	1.0
07761	12	Z	100	27	15.1	-8.0
07761	00	Z	100	24	15.6	-6.3
08001	00	Z	100	30	7.2	4.7
08001	12	Z	100	30	5.2	-0.1
08221	12	Z	100	30	4.9	-0.8
08221	00	Z	100	29	7.9	6.3
08302	12	Z	100	30	12.7	-11.5
08302	00	Z	100	19	5.6	-2.9
08508	12	Z	100	27	5.7	3.8
08522	12	Z	100	30	6.0	0.8
10035	12	Z	100	30	11.1	10.2
10035	00	Z	100	29	15.6	14.7
10393	00	Z	100	19	5.7	2.8
10393	12	Z	100	31	6.3	-3.4
10410	12	Z	100	30	7.2	-6.1
10410	00	Z	100	30	9.0	1.1
10739	12	Z	100	52	5.4	-1.6
10739	00	Z	100	30	8.2	5.5
11035	00	Z	100	29	10.9	9.1
11035	12	Z	100	29	5.0	0.1
12982	00	Z	100	30	6.7	5.2
12982	12	Z	100	30	7.2	-4.3
16245	00	Z	100	23	5.3	4.1
16245	12	Z	100	30	5.8	-4.7
16429	12	Z	100	29	6.1	-2.6
16429	00	Z	100	27	9.8	6.5
16622	00	Z	100	30	14.5	13.3
16754	00	Z	100	26	10.7	9.1
17607	12	Z	100	28	6.4	3.0
26435	12	Z	100	11	7.3	-6.7
4DC8UU	12	Z	100	0	0.0	0.0
60018	00	Z	100	25	9.3	7.8
60018	12	Z	100	26	6.7	2.3
7JUNA4	00	Z	100	8	23.7	6.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	100	7	81.4	69.6
ASDE09	12	Z	100	7	50.8	48.1
BPMWB2	12	Z	100	9	17.6	9.3
BPMWB2	00	Z	100	9	14.9	-1.1
DBLK	12	Z	100	23	9.9	-8.2
FPUW5G	12	Z	100	12	4.9	-3.8
HTXUH4	00	Z	100	3	22.4	-22.3
HTXUH4	12	Z	100	5	19.5	-18.5
JNKN7J	00	Z	100	5	22.0	20.5
JNKN7J	12	Z	100	4	55.5	53.9
KJJF9X	00	Z	100	2	8.0	-0.2
KJJF9X	12	Z	100	5	12.4	11.6
KMPLHP	00	Z	100	7	64.9	55.3
KMPLHP	12	Z	100	6	120.4	117.8
LRYQE3	00	Z	100	7	34.3	19.8
LRYQE3	12	Z	100	9	49.5	36.4
UXK5JT	12	Z	100	8	13.2	5.4
UXK5JT	00	Z	100	8	11.6	0.7
VKB4L5	00	Z	100	3	25.1	24.9
VKB4L5	12	Z	100	9	27.1	24.2
WDK38H	12	Z	100	17	9.9	-8.3
XQFJRG	00	Z	100	6	9.8	-5.4
XQFJRG	12	Z	100	7	13.0	-10.1
YLV96W	12	Z	100	9	17.9	11.5
YLV96W	00	Z	100	8	20.8	10.2
ZVQEQC	12	Z	100	20	7.5	5.3

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 : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	100	23	2.2	0.4	0.3
01001	12	V	100	30	2.6	-0.1	0.0
01028	12	V	100	30	2.5	0.3	-0.1
01028	00	V	100	25	2.6	0.5	0.8
01400	12	V	100	24	3.9	0.6	-0.4
01400	00	V	100	20	2.3	0.0	0.8
01415	12	V	100	30	2.5	0.2	0.2
01415	00	V	100	27	3.0	0.2	-0.3
02365	12	V	100	30	2.5	0.1	-0.5
02365	00	V	100	25	3.1	0.0	-0.1
02836	12	V	100	30	2.4	0.3	-0.6
02836	00	V	100	22	2.5	-0.3	0.0
02963	00	V	100	23	2.4	-0.7	-0.2
02963	12	V	100	30	2.8	0.1	-0.7
03005	12	V	100	30	2.4	0.2	-0.3
03005	00	V	100	24	2.6	0.1	-0.4
03238	12	V	100	2	1.5	-0.7	1.3
03238	00	V	100	21	3.2	0.7	-0.2
03808	12	V	100	30	2.3	0.7	0.1
03808	00	V	100	26	2.5	0.5	-0.2
03918	00	V	100	30	3.5	0.3	0.6
03918	12	V	100	1	0.8	0.0	-0.8
03953	00	V	100	26	2.5	0.3	-0.7
03953	12	V	100	29	3.0	1.6	0.2
04018	00	V	100	30	3.0	0.7	0.5
04018	12	V	100	29	3.0	0.7	-0.4
04220	12	V	100	30	2.1	-0.3	-0.2
04220	00	V	100	28	2.3	0.0	0.2
04270	12	V	100	30	2.4	1.0	0.4
04270	00	V	100	28	3.0	0.6	0.9
04320	00	V	100	25	2.2	-0.1	-0.1
04320	12	V	100	30	2.7	-0.4	0.2
04339	12	V	100	30	2.7	-0.3	0.0
04339	00	V	100	28	2.8	0.1	-0.4
04360	12	V	100	28	2.8	-0.2	0.2
04360	00	V	100	21	2.3	0.4	-0.3
06011	12	V	100	29	2.5	0.5	-0.1
06011	00	V	100	23	2.5	0.7	-0.3
06260	00	V	100	25	2.9	-0.1	-0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	100	9	3.1	0.6	-0.2
06610	12	V	100	30	3.3	0.0	-0.4
06610	00	V	100	20	3.3	0.9	-0.5
07110	12	V	100	29	2.5	0.3	-0.2
07110	00	V	100	23	2.8	0.6	0.3
07510	00	V	100	27	3.3	0.2	-0.5
07510	12	V	100	29	3.4	0.3	-0.2
07645	12	V	100	30	3.4	0.1	0.2
07645	00	V	100	24	3.5	0.3	0.3
07761	12	V	100	27	3.3	0.7	0.4
07761	00	V	100	21	4.0	1.8	-0.5
08001	00	V	100	23	2.6	0.9	-0.3
08001	12	V	100	30	3.3	0.6	-0.9
08221	12	V	100	30	3.0	0.2	-0.4
08221	00	V	100	27	3.4	1.2	-0.3
08302	12	V	100	30	3.3	0.6	-0.1
08302	00	V	100	17	3.7	0.9	0.3
08508	12	V	100	27	2.9	0.0	0.7
08522	12	V	100	30	3.4	0.0	0.4
10035	12	V	100	30	2.3	0.3	-0.7
10035	00	V	100	29	2.8	0.5	-0.1
10393	00	V	100	17	3.1	0.5	-0.1
10393	12	V	100	30	2.5	0.0	0.1
10410	12	V	100	30	3.2	0.5	-0.3
10410	00	V	100	30	3.3	0.1	0.4
10739	12	V	100	30	3.1	0.6	0.0
10739	00	V	100	30	3.1	0.1	-0.4
11035	00	V	100	23	3.4	0.6	0.1
11035	12	V	100	29	2.8	0.2	-0.6
12982	00	V	100	22	3.9	1.2	-0.6
12982	12	V	100	30	2.7	-0.3	-0.3
16245	00	V	100	20	4.0	0.2	-0.8
16245	12	V	100	30	3.7	0.8	0.5
16429	12	V	100	29	3.2	0.4	-0.8
16429	00	V	100	24	3.5	0.8	1.2
16622	00	V	100	23	3.8	-0.1	-0.4
16754	00	V	100	22	4.2	0.6	-0.4
17607	12	V	100	8	4.4	0.3	0.5
26435	12	V	100	11	2.3	-1.2	-0.2
4DC8UU	12	V	100	0	0.0	0.0	0.0
60018	00	V	100	20	3.0	-0.4	-0.4
60018	12	V	100	26	4.0	0.4	-0.3
7JUNA4	00	V	100	8	2.9	0.8	0.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	100	7	2.0	-0.6	1.3
ASDE09	12	V	100	7	2.0	0.7	0.3
BPMWB2	12	V	100	9	3.2	-0.4	1.1
BPMWB2	00	V	100	9	2.3	0.8	0.8
DBLK	12	V	100	23	2.0	-0.6	0.3
FPUW5G	12	V	100	12	4.2	-1.1	0.1
HTXUH4	00	V	100	3	3.0	0.7	-1.7
HTXUH4	12	V	100	5	1.7	0.6	-0.4
JNKN7J	00	V	100	5	2.7	0.9	-1.1
JNKN7J	12	V	100	4	2.8	-0.5	-0.4
KJFF9X	00	V	100	2	1.2	0.5	0.8
KJFF9X	12	V	100	5	3.5	-0.3	0.6
KMPLHP	00	V	100	7	3.0	0.5	0.4
KMPLHP	12	V	100	6	2.1	-1.1	0.6
LRYQE3	00	V	100	7	2.6	0.4	0.1
LRYQE3	12	V	100	9	3.0	-0.4	-0.5
UXK5JT	12	V	100	8	3.5	-0.5	2.6
UXK5JT	00	V	100	8	2.9	0.0	1.6
VKB4L5	00	V	100	3	2.2	0.1	1.2
VKB4L5	12	V	100	9	3.0	0.8	1.9
WDK38H	12	V	100	16	2.7	0.0	-0.6
XQFJRG	00	V	100	6	2.1	0.6	0.1
XQFJRG	12	V	100	7	2.0	0.5	0.6
YLV96W	12	V	100	9	3.1	0.3	0.7
YLV96W	00	V	100	8	3.0	0.1	0.1
ZVQEQC	12	V	100	20	3.1	-0.2	-0.5

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 : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	500	30	13.3	-11.1
01001	12	Z	500	32	12.8	-7.8
01028	12	Z	500	30	4.1	-2.5
01028	00	Z	500	30	9.5	-0.7
01400	12	Z	500	26	82.0	81.8
01400	00	Z	500	27	84.8	84.6
01415	12	Z	500	30	4.8	3.9
01415	00	Z	500	28	4.5	4.1
02365	12	Z	500	30	2.4	0.1
02365	00	Z	500	26	2.6	1.0
02836	12	Z	500	31	2.4	0.8
02836	00	Z	500	30	2.6	1.6
02963	00	Z	500	30	4.4	3.9
02963	12	Z	500	30	3.8	2.7
03005	12	Z	500	30	3.3	-1.9
03005	00	Z	500	31	4.1	-1.7
03238	12	Z	500	4	2.2	1.6
03238	00	Z	500	28	4.8	4.0
03808	12	Z	500	31	14.5	4.6
03808	00	Z	500	30	4.7	4.4
03918	00	Z	500	30	8.5	7.1
03918	12	Z	500	1	9.7	9.7
03953	00	Z	500	30	3.4	1.6
03953	12	Z	500	30	4.1	0.0
04018	00	Z	500	30	3.9	-1.5
04018	12	Z	500	30	4.1	-2.1
04220	12	Z	500	30	6.3	1.9
04220	00	Z	500	30	8.2	3.6
04270	12	Z	500	30	3.1	-1.6
04270	00	Z	500	29	2.8	-1.0
04320	00	Z	500	30	2.9	-1.5
04320	12	Z	500	30	4.9	-2.4
04339	12	Z	500	30	15.7	-3.6
04339	00	Z	500	30	4.0	-1.1
04360	12	Z	500	28	9.3	-8.3
04360	00	Z	500	26	10.1	-9.5
06011	12	Z	500	29	7.3	3.8
06011	00	Z	500	28	5.0	1.6
06260	00	Z	500	30	3.1	1.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	500	10	3.6	1.4
06610	12	Z	500	34	3.0	0.7
06610	00	Z	500	21	3.9	2.3
07110	12	Z	500	30	6.3	-2.8
07110	00	Z	500	29	15.4	-0.5
07510	00	Z	500	29	5.7	-2.2
07510	12	Z	500	29	5.7	-0.3
07645	12	Z	500	30	5.4	1.1
07645	00	Z	500	30	3.6	-0.5
07761	12	Z	500	30	11.3	-0.3
07761	00	Z	500	28	3.9	-1.7
08001	00	Z	500	30	4.3	3.2
08001	12	Z	500	30	2.9	1.1
08221	12	Z	500	30	4.2	3.0
08221	00	Z	500	29	6.2	5.5
08302	12	Z	500	30	7.8	-7.3
08302	00	Z	500	19	4.9	-3.9
08508	12	Z	500	27	7.5	6.6
08522	12	Z	500	30	5.9	5.2
10035	12	Z	500	31	15.2	15.0
10035	00	Z	500	29	16.5	15.9
10393	00	Z	500	22	2.9	1.9
10393	12	Z	500	31	2.4	0.2
10410	12	Z	500	30	2.6	-1.4
10410	00	Z	500	30	2.7	1.4
10739	12	Z	500	41	4.1	3.5
10739	00	Z	500	31	6.6	5.7
11035	00	Z	500	29	9.2	8.8
11035	12	Z	500	30	7.5	7.1
12982	00	Z	500	30	5.1	4.3
12982	12	Z	500	30	3.2	1.9
16245	00	Z	500	23	4.7	4.2
16245	12	Z	500	30	2.4	1.6
16429	12	Z	500	29	6.1	3.4
16429	00	Z	500	28	10.0	6.5
16622	00	Z	500	30	11.7	11.2
16754	00	Z	500	26	6.3	4.8
17607	12	Z	500	30	5.8	5.3
26435	12	Z	500	11	2.7	0.9
4DC8UU	12	Z	500	1	3.6	3.6
60018	00	Z	500	25	6.1	5.3
60018	12	Z	500	26	5.7	4.9
7JUNA4	00	Z	500	10	28.7	16.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	500	7	13.5	8.3
ASDE09	12	Z	500	6	35.2	32.3
BPMWB2	12	Z	500	11	7.9	6.4
BPMWB2	00	Z	500	11	7.9	0.5
DBLK	12	Z	500	23	7.1	-3.5
FPUW5G	12	Z	500	13	4.7	-3.2
HTXUH4	00	Z	500	4	23.4	-23.1
HTXUH4	12	Z	500	5	20.2	-20.0
JNKN7J	00	Z	500	5	34.3	34.1
JNKN7J	12	Z	500	4	39.3	38.0
KJFF9X	00	Z	500	3	8.0	5.9
KJFF9X	12	Z	500	5	4.4	2.7
KMPLHP	00	Z	500	8	52.2	50.0
KMPLHP	12	Z	500	7	53.5	52.8
LRYQE3	00	Z	500	7	39.0	24.3
LRYQE3	12	Z	500	9	36.5	24.6
UXK5JT	12	Z	500	9	6.9	-0.5
UXK5JT	00	Z	500	8	7.3	-1.3
VKB4L5	00	Z	500	8	29.0	28.3
VKB4L5	12	Z	500	9	28.9	27.4
WDK38H	12	Z	500	18	9.2	-8.6
XQFJRG	00	Z	500	6	9.1	-5.3
XQFJRG	12	Z	500	7	9.8	-5.9
YLV96W	12	Z	500	10	5.9	1.6
YLV96W	00	Z	500	9	12.0	0.3
ZVQEQC	12	Z	500	21	6.1	5.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 500 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	500	30	2.3	0.6	-0.3
01001	12	V	500	30	2.4	-0.2	-0.3
01028	12	V	500	30	2.8	0.5	-0.1
01028	00	V	500	30	2.6	0.3	0.3
01400	12	V	500	26	2.7	-0.1	0.3
01400	00	V	500	27	2.4	0.1	-0.1
01415	12	V	500	30	2.3	0.8	0.3
01415	00	V	500	28	2.6	0.2	-0.1
02365	12	V	500	30	2.3	0.2	-0.1
02365	00	V	500	25	2.4	0.7	0.3
02836	12	V	500	30	2.1	0.6	0.0
02836	00	V	500	30	2.3	0.2	-0.1
02963	00	V	500	30	2.1	0.2	0.1
02963	12	V	500	30	3.7	-0.1	-0.9
03005	12	V	500	30	2.4	0.6	-0.5
03005	00	V	500	30	2.3	0.6	0.4
03238	12	V	500	3	1.5	-0.3	-0.4
03238	00	V	500	28	2.0	0.2	0.4
03808	12	V	500	30	3.0	0.6	-0.1
03808	00	V	500	30	2.5	0.0	0.7
03918	00	V	500	30	2.1	0.0	-0.2
03918	12	V	500	1	1.5	-1.4	-0.5
03953	00	V	500	30	2.6	0.0	0.6
03953	12	V	500	30	2.5	0.3	0.4
04018	00	V	500	30	2.1	0.2	0.4
04018	12	V	500	30	2.6	0.3	0.6
04220	12	V	500	30	2.7	0.3	-0.4
04220	00	V	500	30	2.3	-0.6	-0.6
04270	12	V	500	30	2.1	0.3	0.2
04270	00	V	500	28	2.8	0.7	-0.5
04320	00	V	500	30	2.5	-0.4	-0.7
04320	12	V	500	30	2.2	0.1	0.0
04339	12	V	500	30	2.9	-0.2	0.5
04339	00	V	500	30	2.3	0.1	-0.1
04360	12	V	500	28	3.2	0.6	-0.1
04360	00	V	500	26	2.2	-0.3	-0.3
06011	12	V	500	29	2.1	0.2	0.1
06011	00	V	500	28	2.6	0.1	-0.3
06260	00	V	500	28	3.1	-0.1	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	500	10	2.3	0.0	0.4
06610	12	V	500	30	2.5	0.6	-0.2
06610	00	V	500	21	4.0	0.4	-0.7
07110	12	V	500	29	3.0	0.7	0.3
07110	00	V	500	29	2.3	-0.2	-0.2
07510	00	V	500	29	4.2	-0.3	0.6
07510	12	V	500	29	3.1	0.2	-0.2
07645	12	V	500	30	2.0	0.1	0.3
07645	00	V	500	30	2.1	-0.1	0.1
07761	12	V	500	30	2.1	0.6	0.0
07761	00	V	500	27	3.4	-0.1	-0.1
08001	00	V	500	30	2.5	-0.3	0.5
08001	12	V	500	30	2.2	0.0	0.1
08221	12	V	500	30	2.1	0.5	-0.1
08221	00	V	500	29	2.5	0.7	0.6
08302	12	V	500	30	2.1	0.4	0.2
08302	00	V	500	19	2.9	0.3	1.5
08508	12	V	500	27	2.8	0.7	-0.4
08522	12	V	500	30	2.2	0.5	-0.3
10035	12	V	500	30	2.9	-0.8	-0.1
10035	00	V	500	29	2.5	-0.1	0.3
10393	00	V	500	19	2.5	0.1	-0.6
10393	12	V	500	30	2.6	0.3	-0.4
10410	12	V	500	30	2.2	0.0	0.1
10410	00	V	500	30	3.0	0.8	0.0
10739	12	V	500	30	2.5	0.5	0.2
10739	00	V	500	30	3.3	-0.4	0.1
11035	00	V	500	27	2.6	-0.4	0.6
11035	12	V	500	29	2.3	0.4	0.0
12982	00	V	500	30	2.3	0.2	0.4
12982	12	V	500	30	2.1	-0.6	0.0
16245	00	V	500	23	2.9	0.9	0.3
16245	12	V	500	30	2.9	0.2	-0.5
16429	12	V	500	29	4.4	1.2	-0.6
16429	00	V	500	28	3.5	0.5	0.0
16622	00	V	500	30	2.1	0.2	-0.4
16754	00	V	500	25	2.6	0.9	0.5
17607	12	V	500	29	2.5	0.8	-0.3
26435	12	V	500	11	1.9	-0.5	0.7
4DC8UU	12	V	500	1	0.9	0.7	0.6
60018	00	V	500	25	2.5	0.5	0.6
60018	12	V	500	26	2.6	0.1	0.0
7JUNA4	00	V	500	10	2.6	0.1	0.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	500	7	1.5	0.2	0.1
ASDE09	12	V	500	6	4.0	0.2	1.4
BPMWB2	12	V	500	11	2.4	0.8	0.2
BPMWB2	00	V	500	11	2.8	1.2	0.0
DBLK	12	V	500	23	3.2	0.1	0.5
FPUW5G	12	V	500	13	2.3	0.0	0.6
HTXUH4	00	V	500	4	3.3	1.7	-1.4
HTXUH4	12	V	500	5	1.6	0.3	0.8
JNKN7J	00	V	500	5	2.4	-0.4	0.7
JNKN7J	12	V	500	4	2.4	-0.7	0.4
KJFF9X	00	V	500	3	1.1	0.4	0.8
KJFF9X	12	V	500	5	3.0	-1.4	0.8
KMPLHP	00	V	500	8	1.8	1.2	0.0
KMPLHP	12	V	500	7	1.6	-0.4	0.4
LRYQE3	00	V	500	7	2.6	0.9	-0.4
LRYQE3	12	V	500	9	2.1	0.5	0.0
UXK5JT	12	V	500	9	3.2	-1.0	-0.2
UXK5JT	00	V	500	8	2.3	0.7	-0.4
VKB4L5	00	V	500	8	2.2	0.5	0.3
VKB4L5	12	V	500	9	2.6	0.0	-0.6
WDK38H	12	V	500	18	2.3	0.1	0.0
XQFJRG	00	V	500	6	2.5	-0.7	0.2
XQFJRG	12	V	500	7	2.1	1.1	-0.5
YLV96W	12	V	500	10	2.6	0.0	-0.7
YLV96W	00	V	500	9	2.3	0.4	0.5
ZVQEQC	12	V	500	21	1.8	0.0	0.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

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

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	850	30	8.0	-6.7
01001	12	Z	850	32	8.8	-8.0
01028	12	Z	850	30	2.5	0.1
01028	00	Z	850	30	9.2	1.4
01400	12	Z	850	27	81.7	81.6
01400	00	Z	850	27	83.3	83.1
01415	12	Z	850	30	5.3	4.0
01415	00	Z	850	28	4.2	3.6
02365	12	Z	850	30	2.7	1.7
02365	00	Z	850	26	3.2	2.2
02836	12	Z	850	30	2.7	1.0
02836	00	Z	850	30	2.7	2.1
02963	00	Z	850	30	3.6	3.2
02963	12	Z	850	30	4.4	3.8
03005	12	Z	850	30	2.7	-1.7
03005	00	Z	850	31	3.3	-1.6
03238	12	Z	850	4	2.1	1.9
03238	00	Z	850	28	4.3	3.6
03808	12	Z	850	31	16.2	4.6
03808	00	Z	850	30	3.4	2.8
03918	00	Z	850	30	7.1	6.7
03918	12	Z	850	1	9.9	9.9
03953	00	Z	850	30	2.2	0.8
03953	12	Z	850	30	2.9	-0.5
04018	00	Z	850	30	2.6	0.2
04018	12	Z	850	30	2.4	-1.0
04220	12	Z	850	30	6.9	2.8
04220	00	Z	850	30	8.9	4.7
04270	12	Z	850	30	2.8	0.5
04270	00	Z	850	30	3.8	0.8
04320	00	Z	850	30	3.3	2.1
04320	12	Z	850	30	3.2	1.5
04339	12	Z	850	30	16.6	-2.5
04339	00	Z	850	30	3.7	0.8
04360	12	Z	850	28	8.7	-8.3
04360	00	Z	850	27	7.3	-6.8
06011	12	Z	850	29	4.3	3.1
06011	00	Z	850	29	4.6	2.7
06260	00	Z	850	30	5.4	-0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	850	9	1.3	0.7
06610	12	Z	850	34	2.3	1.0
06610	00	Z	850	21	3.9	2.8
07110	12	Z	850	30	2.5	-1.5
07110	00	Z	850	31	3.4	-1.9
07510	00	Z	850	29	4.4	0.9
07510	12	Z	850	29	4.3	3.5
07645	12	Z	850	30	3.2	-0.8
07645	00	Z	850	30	2.9	-0.8
07761	12	Z	850	30	2.0	0.0
07761	00	Z	850	29	2.3	0.7
08001	00	Z	850	30	2.1	0.2
08001	12	Z	850	30	2.0	-0.5
08221	12	Z	850	30	2.4	1.7
08221	00	Z	850	29	3.6	2.0
08302	12	Z	850	30	9.3	-9.0
08302	00	Z	850	19	7.8	-7.1
08508	12	Z	850	27	4.6	3.8
08522	12	Z	850	30	3.4	2.7
10035	12	Z	850	31	15.8	15.7
10035	00	Z	850	29	15.7	15.4
10393	00	Z	850	17	2.8	1.0
10393	12	Z	850	30	2.4	1.3
10410	12	Z	850	30	2.2	-0.2
10410	00	Z	850	30	2.6	0.0
10739	12	Z	850	42	6.1	5.4
10739	00	Z	850	31	7.6	6.3
11035	00	Z	850	30	8.0	7.5
11035	12	Z	850	30	9.0	8.8
12982	00	Z	850	30	3.6	2.9
12982	12	Z	850	31	3.5	3.0
16245	00	Z	850	23	4.0	3.5
16245	12	Z	850	30	1.9	0.8
16429	12	Z	850	29	4.1	1.3
16429	00	Z	850	28	8.1	4.1
16622	00	Z	850	30	10.5	10.2
16754	00	Z	850	26	2.4	0.4
17607	12	Z	850	30	3.3	2.8
26435	12	Z	850	11	2.9	1.8
4DC8UU	12	Z	850	1	4.3	4.3
60018	00	Z	850	25	3.0	-1.3
60018	12	Z	850	26	3.7	0.4
7JUNA4	00	Z	850	10	29.3	19.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	850	7	11.2	3.9
ASDE09	12	Z	850	6	34.0	31.2
BPMWB2	12	Z	850	11	5.5	4.9
BPMWB2	00	Z	850	11	4.2	1.8
DBLK	12	Z	850	23	6.0	-0.7
FPUW5G	12	Z	850	13	7.2	-5.7
HTXUH4	00	Z	850	4	23.9	-23.3
HTXUH4	12	Z	850	5	19.1	-18.7
JNKN7J	00	Z	850	5	37.5	37.3
JNKN7J	12	Z	850	4	39.8	39.4
KJFF9X	00	Z	850	3	5.4	5.2
KJFF9X	12	Z	850	5	4.0	0.8
KMPLHP	00	Z	850	8	56.7	55.3
KMPLHP	12	Z	850	7	50.4	49.1
LRYQE3	00	Z	850	7	43.2	27.2
LRYQE3	12	Z	850	9	36.9	25.3
UXK5JT	12	Z	850	9	3.0	-2.1
UXK5JT	00	Z	850	8	6.2	-1.6
VKB4L5	00	Z	850	8	24.4	23.8
VKB4L5	12	Z	850	9	26.8	25.2
WDK38H	12	Z	850	18	9.3	-8.9
XQFJRG	00	Z	850	6	9.0	-6.2
XQFJRG	12	Z	850	7	9.1	-6.6
YLV96W	12	Z	850	10	5.9	-2.4
YLV96W	00	Z	850	10	14.6	3.2
ZVQEQC	12	Z	850	21	2.3	0.2

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 : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	850	30	3.5	-0.2	-0.2
01001	12	V	850	30	3.0	0.4	-0.1
01028	12	V	850	30	2.8	0.0	-0.4
01028	00	V	850	30	2.7	0.3	0.1
01400	12	V	850	27	2.2	0.3	0.2
01400	00	V	850	27	1.7	0.2	0.2
01415	12	V	850	30	3.0	0.9	0.1
01415	00	V	850	28	2.5	0.6	-0.3
02365	12	V	850	30	3.7	1.1	0.3
02365	00	V	850	26	3.3	0.5	-0.6
02836	12	V	850	30	3.5	0.6	-0.3
02836	00	V	850	30	2.4	0.1	0.6
02963	00	V	850	30	2.2	-0.1	0.3
02963	12	V	850	30	2.7	-0.5	-0.5
03005	12	V	850	30	2.7	0.2	-0.4
03005	00	V	850	30	2.3	0.3	-0.3
03238	12	V	850	3	1.2	0.3	0.0
03238	00	V	850	28	1.6	0.4	0.3
03808	12	V	850	30	2.5	0.2	-0.3
03808	00	V	850	30	2.7	0.1	0.0
03918	00	V	850	30	2.5	0.2	0.0
03918	12	V	850	1	1.8	-1.8	-0.3
03953	00	V	850	30	2.8	0.1	0.7
03953	12	V	850	30	2.6	0.2	0.6
04018	00	V	850	30	2.3	0.2	-0.5
04018	12	V	850	30	2.8	-0.5	0.5
04220	12	V	850	30	2.9	-0.6	0.0
04220	00	V	850	30	3.0	0.2	0.0
04270	12	V	850	30	3.4	0.3	-0.4
04270	00	V	850	30	2.7	-0.2	0.0
04320	00	V	850	30	3.4	1.0	-0.2
04320	12	V	850	30	2.8	0.2	-0.9
04339	12	V	850	30	3.1	0.1	-0.1
04339	00	V	850	30	4.0	-0.2	-0.8
04360	12	V	850	28	4.3	-0.2	-0.9
04360	00	V	850	27	3.3	0.7	0.4
06011	12	V	850	29	2.6	0.7	-0.7
06011	00	V	850	29	2.5	0.1	-0.6
06260	00	V	850	29	2.9	0.1	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	850	9	2.3	0.2	-0.6
06610	12	V	850	30	2.3	-0.1	-0.1
06610	00	V	850	21	3.3	-0.6	-0.4
07110	12	V	850	29	2.7	-0.7	-0.3
07110	00	V	850	30	2.7	0.0	-0.6
07510	00	V	850	29	4.9	1.3	0.0
07510	12	V	850	29	3.2	1.0	0.3
07645	12	V	850	30	2.9	-0.3	0.3
07645	00	V	850	30	3.3	-0.2	0.6
07761	12	V	850	30	2.3	0.6	0.3
07761	00	V	850	28	2.7	-0.1	0.4
08001	00	V	850	30	2.7	0.4	0.7
08001	12	V	850	30	2.2	0.5	0.5
08221	12	V	850	30	2.3	0.2	0.2
08221	00	V	850	29	5.2	-0.4	-0.2
08302	12	V	850	30	2.5	0.2	-0.2
08302	00	V	850	19	3.6	0.0	0.4
08508	12	V	850	27	2.4	0.4	-0.5
08522	12	V	850	30	3.4	0.3	1.5
10035	12	V	850	30	2.4	1.0	-0.2
10035	00	V	850	29	2.5	0.3	0.4
10393	00	V	850	17	2.8	0.2	-0.3
10393	12	V	850	30	2.3	0.0	-0.2
10410	12	V	850	30	2.2	0.1	-0.2
10410	00	V	850	30	3.0	0.0	0.5
10739	12	V	850	30	2.4	0.3	0.1
10739	00	V	850	30	3.8	0.6	0.0
11035	00	V	850	27	2.7	0.0	-0.4
11035	12	V	850	30	2.3	0.5	0.5
12982	00	V	850	30	2.4	0.5	0.5
12982	12	V	850	30	2.1	0.0	0.0
16245	00	V	850	23	3.5	0.4	-0.3
16245	12	V	850	30	3.0	0.0	-0.3
16429	12	V	850	29	3.2	-0.4	0.2
16429	00	V	850	28	4.0	-0.2	-0.1
16622	00	V	850	30	3.0	0.6	-0.8
16754	00	V	850	26	1.9	-0.2	0.5
17607	12	V	850	29	2.8	-0.4	0.5
26435	12	V	850	11	2.6	0.3	-0.4
4DC8UU	12	V	850	1	1.8	1.1	1.4
60018	00	V	850	25	3.6	0.6	0.5
60018	12	V	850	26	4.1	-0.3	1.0
7JUNA4	00	V	850	10	3.2	0.3	0.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	850	7	1.4	-0.1	0.0
ASDE09	12	V	850	6	1.8	0.7	-0.3
BPMWB2	12	V	850	11	2.5	0.4	0.8
BPMWB2	00	V	850	11	2.6	0.2	-0.1
DBLK	12	V	850	23	2.5	0.1	-0.4
FPUW5G	12	V	850	13	2.4	1.1	0.2
HTXUH4	00	V	850	4	2.7	-0.7	1.5
HTXUH4	12	V	850	5	2.1	-0.1	-0.5
JNKN7J	00	V	850	5	2.1	-0.2	0.5
JNKN7J	12	V	850	4	2.5	-0.1	-1.2
KJFF9X	00	V	850	3	2.1	0.0	0.6
KJFF9X	12	V	850	5	2.8	0.4	-0.3
KMPLHP	00	V	850	8	3.0	-1.0	1.5
KMPLHP	12	V	850	7	2.4	-1.0	0.7
LRYQE3	00	V	850	7	2.3	0.3	0.5
LRYQE3	12	V	850	9	3.7	0.8	2.3
UXK5JT	12	V	850	9	1.8	-0.5	0.3
UXK5JT	00	V	850	8	1.8	-0.2	-0.2
VKB4L5	00	V	850	8	2.5	0.1	1.5
VKB4L5	12	V	850	9	2.7	-0.1	0.3
WDK38H	12	V	850	18	2.7	0.5	0.8
XQFJRG	00	V	850	6	2.3	-0.3	-0.4
XQFJRG	12	V	850	7	2.8	0.4	0.4
YLV96W	12	V	850	10	2.5	0.3	-0.3
YLV96W	00	V	850	10	2.1	-0.8	-0.6
ZVQEQC	12	V	850	21	1.9	0.0	0.1

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

GROSS ERROR LIMIT = 15 HPA

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
03380	99	P	SUR	54	0	1093	0	0.3	-0.0	0.3
0640046	99	P	SUR	60	-4	95	0	0.3	-0.1	0.3
1300001	99	P	SUR	11	-23	590	0	0.4	0.2	0.5
1300008	99	P	SUR	15	-38	596	0	0.2	0.1	0.3
1300130	99	P	SUR	28	-16	720	0	0.3	1.0	1.0
1300131	99	P	SUR	28	-17	720	0	0.4	0.1	0.5
1301569	99	P	SUR	23	-63	711	0	0.3	-0.4	0.5
1301603	99	P	SUR	31	-61	720	0	0.3	0.0	0.3
1301608	99	P	SUR	33	-55	720	0	0.3	-0.2	0.4
1301610	99	P	SUR	54	-18	720	0	0.3	0.2	0.4
1301612	99	P	SUR	39	-30	720	0	0.3	0.0	0.3
1301619	99	P	SUR	29	-58	720	0	0.3	0.5	0.5
1701631	99	P	SUR	20	-61	717	0	0.3	0.5	0.6
1701632	99	P	SUR	27	-68	717	0	0.3	0.3	0.5
1701634	99	P	SUR	23	-65	718	0	0.3	0.2	0.4
1701635	99	P	SUR	20	-69	655	0	0.7	0.4	0.8
4100040	99	P	SUR	15	-53	4318	0	0.3	0.4	0.5
4100041	99	P	SUR	14	-46	4315	0	0.3	0.1	0.3
4100043	99	P	SUR	21	-65	4315	0	0.4	-0.7	0.8
4100044	99	P	SUR	22	-59	4295	0	0.2	0.4	0.4
4100046	99	P	SUR	24	-68	4317	0	0.3	0.4	0.5
4100048	99	P	SUR	32	-70	4314	0	0.4	0.3	0.5
4100049	99	P	SUR	27	-63	3973	0	0.3	-0.5	0.5
4100052	99	P	SUR	18	-65	3994	0	0.3	-1.1	1.1
4100053	99	P	SUR	18	-66	4019	0	0.4	-0.3	0.5
4100056	99	P	SUR	18	-65	3994	0	0.3	-0.5	0.6
4100139	99	P	SUR	20	-38	590	0	0.3	0.2	0.3
4100300	99	P	SUR	16	-57	719	0	0.3	0.2	0.4
4101531	99	P	SUR	25	-43	720	0	0.2	0.0	0.2
4101556	99	P	SUR	24	-68	720	0	0.3	0.1	0.3
4101565	99	P	SUR	34	-41	720	0	0.2	0.3	0.4
4101567	99	P	SUR	31	-31	719	0	0.2	0.5	0.5
4101609	99	P	SUR	28	-19	720	0	0.4	0.2	0.4
4101613	99	P	SUR	26	-31	720	0	0.3	0.5	0.5
4101614	99	P	SUR	28	-25	720	0	0.3	0.1	0.3
4101616	99	P	SUR	31	-28	716	0	0.2	0.0	0.2

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101618	99	P	SUR	32	-22	720	0	0.2	0.3	0.4
4101621	99	P	SUR	35	-29	720	0	0.2	0.2	0.3
4101627	99	P	SUR	49	-46	720	0	1.0	-0.2	1.0
4101630	99	P	SUR	33	-37	599	0	0.2	0.2	0.3
4101652	99	P	SUR	62	-21	720	0	0.3	-0.1	0.4
4101653	99	P	SUR	76	13	720	0	0.3	-0.4	0.5
4101654	99	P	SUR	63	-2	716	0	0.3	0.1	0.3
4101655	99	P	SUR	70	38	720	0	0.3	-0.0	0.3
4101656	99	P	SUR	63	-27	720	0	0.3	-0.0	0.3
4101657	99	P	SUR	68	-6	720	0	0.3	-0.1	0.3
4101658	99	P	SUR	61	-17	720	0	0.4	0.1	0.4
4101661	99	P	SUR	70	36	716	0	0.8	-0.8	1.1
4101663	99	P	SUR	38	-42	720	0	0.3	0.0	0.3
4101664	99	P	SUR	57	-49	720	0	0.4	0.2	0.4
4101696	99	P	SUR	30	-42	720	0	0.2	-0.0	0.2
4101698	99	P	SUR	13	-60	253	0	0.4	0.1	0.5
4101702	99	P	SUR	38	-58	625	9	2.5	-0.6	2.6
4101707	99	P	SUR	24	-45	720	0	0.2	-0.0	0.2
4101708	99	P	SUR	42	-31	720	0	0.3	0.1	0.3
4101714	99	P	SUR	26	-52	719	0	0.3	-0.1	0.3
4101717	99	P	SUR	48	-21	720	0	0.3	-0.0	0.3
4101718	99	P	SUR	30	-53	720	0	0.3	0.6	0.7
4101719	99	P	SUR	32	-35	719	0	0.2	0.0	0.2
4101720	99	P	SUR	35	-21	720	0	0.3	-0.4	0.5
4101743	99	P	SUR	37	-58	695	19	2.5	-0.6	2.6
4101752	99	P	SUR	49	-22	720	0	0.3	-0.1	0.3
4101753	99	P	SUR	28	-46	720	0	0.2	0.3	0.4
4101755	99	P	SUR	29	-42	720	0	0.2	0.1	0.2
4101756	99	P	SUR	12	-62	8	0	0.3	-1.0	1.1
4101815	99	P	SUR	64	-22	720	0	0.4	0.1	0.5
4101850	99	P	SUR	44	-8	498	0	0.3	0.1	0.4
4102627	99	P	SUR	30	-63	240	0	0.3	0.2	0.4
4102628	99	P	SUR	31	-60	239	0	0.3	0.3	0.4
4102629	99	P	SUR	36	-37	240	0	0.2	0.0	0.2
41040	99	P	SUR	15	-53	4974	0	0.4	0.4	0.5
41041	99	P	SUR	15	-46	5157	0	0.4	0.0	0.4
41043	99	P	SUR	21	-65	4449	0	0.4	-0.7	0.8
41044	99	P	SUR	22	-59	4011	0	0.3	0.4	0.5
41046	99	P	SUR	24	-68	6145	0	0.3	0.4	0.5
41048	99	P	SUR	32	-70	6633	0	0.4	0.3	0.5
41049	99	P	SUR	28	-63	5551	0	0.3	-0.5	0.6
41052	99	P	SUR	18	-65	2637	0	0.4	-1.0	1.1
41053	99	P	SUR	19	-66	2670	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
41056	99	P	SUR	18	-66	2638	0	0.4	-0.6	0.7
4200059	99	P	SUR	15	-67	4305	0	0.4	-0.8	0.9
4200060	99	P	SUR	16	-63	4305	0	0.3	0.0	0.3
4200085	99	P	SUR	18	-67	3966	0	0.4	0.2	0.4
42059	99	P	SUR	15	-68	4287	0	0.4	-0.8	0.9
42060	99	P	SUR	16	-63	3946	0	0.4	0.1	0.4
42085	99	P	SUR	18	-67	3155	0	0.4	0.2	0.4
4400005	99	P	SUR	43	-69	49	0	0.3	0.7	0.8
4400008	99	P	SUR	41	-69	4236	0	0.5	0.3	0.6
4400011	99	P	SUR	41	-67	883	0	0.3	0.4	0.5
4400027	99	P	SUR	44	-67	75	0	0.3	0.5	0.6
4400032	99	P	SUR	44	-69	688	0	0.5	0.3	0.6
4400033	99	P	SUR	44	-69	681	0	0.4	0.2	0.5
4400034	99	P	SUR	44	-68	374	0	0.4	0.4	0.6
44005	99	P	SUR	43	-69	126	0	0.3	0.7	0.8
4400777	99	P	SUR	32	-54	720	0	0.3	0.2	0.3
44008	99	P	SUR	41	-69	5846	0	0.5	0.3	0.6
4400857	99	P	SUR	28	-55	720	0	0.3	0.4	0.5
44011	99	P	SUR	41	-67	1229	0	0.3	0.4	0.5
4401540	99	P	SUR	33	-27	649	0	0.7	0.4	0.8
4401541	99	P	SUR	36	-26	245	0	0.2	0.0	0.2
4401551	99	P	SUR	27	-62	401	0	2.3	2.0	3.0
4401557	99	P	SUR	30	-35	720	0	0.2	0.2	0.3
4401562	99	P	SUR	25	-68	720	0	0.3	-0.3	0.4
4401563	99	P	SUR	34	-27	720	0	0.2	-0.2	0.3
4401569	99	P	SUR	61	-1	720	0	0.3	0.3	0.4
4401572	99	P	SUR	27	-48	720	0	0.2	0.4	0.5
4401574	99	P	SUR	55	-58	719	0	0.5	-0.6	0.8
4401576	99	P	SUR	29	-23	720	0	0.3	0.4	0.5
4401577	99	P	SUR	27	-25	720	0	0.3	0.3	0.4
4401581	99	P	SUR	26	-41	720	0	0.2	0.4	0.5
4401582	99	P	SUR	38	-20	718	0	0.3	0.3	0.4
4401751	99	P	SUR	71	23	715	0	0.4	-0.3	0.4
4401753	99	P	SUR	72	14	1	1	0.0	0.0	0.0
4401828	99	P	SUR	57	-21	661	0	0.3	0.3	0.5
4401837	99	P	SUR	37	-26	607	0	0.3	0.2	0.4
4401848	99	P	SUR	43	-42	716	0	0.4	0.2	0.4
4401850	99	P	SUR	52	-28	718	0	0.3	-0.1	0.3
4401851	99	P	SUR	50	-21	711	0	0.3	0.1	0.3
4401854	99	P	SUR	28	-64	720	0	0.3	-0.1	0.3
4401870	99	P	SUR	28	-47	720	0	0.2	0.1	0.2
4401872	99	P	SUR	20	-51	720	0	0.2	0.1	0.2
4401873	99	P	SUR	23	-56	703	0	0.5	0.0	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401874	99	P	SUR	23	-37	720	0	0.2	0.3	0.4
4401894	99	P	SUR	61	-20	458	0	0.3	0.3	0.4
4402603	99	P	SUR	42	-49	716	0	0.4	0.2	0.5
4402604	99	P	SUR	51	-45	714	0	0.4	-0.1	0.4
4402605	99	P	SUR	55	-22	714	0	0.3	0.1	0.3
4402606	99	P	SUR	54	-47	716	0	0.4	0.3	0.5
4402607	99	P	SUR	49	-44	715	0	0.5	-0.0	0.5
4402608	99	P	SUR	53	-41	715	0	0.5	0.1	0.6
4402609	99	P	SUR	54	-42	714	0	0.4	0.1	0.4
4402610	99	P	SUR	46	-37	715	0	0.4	0.0	0.4
4402611	99	P	SUR	46	-43	715	0	0.5	-0.2	0.5
4402612	99	P	SUR	48	-40	715	0	0.4	0.2	0.4
4402613	99	P	SUR	50	-29	716	0	0.4	-0.0	0.4
4402614	99	P	SUR	47	-43	715	0	0.4	0.0	0.4
4402615	99	P	SUR	48	-29	716	0	0.3	0.1	0.4
4402616	99	P	SUR	51	-39	714	0	0.4	0.2	0.5
4402617	99	P	SUR	45	-49	716	0	0.4	0.1	0.4
4402618	99	P	SUR	38	-35	714	0	0.3	0.2	0.3
4402657	99	P	SUR	45	-63	717	0	0.4	-0.8	0.9
4402659	99	P	SUR	47	-60	717	0	0.4	0.5	0.7
4402660	99	P	SUR	45	-30	718	0	0.3	0.2	0.3
4402663	99	P	SUR	50	-39	718	0	0.5	-0.2	0.5
4402665	99	P	SUR	44	-20	718	0	0.3	0.3	0.4
4402687	99	P	SUR	42	-31	718	0	0.3	0.1	0.3
44027	99	P	SUR	44	-67	200	0	0.3	0.5	0.6
44032	99	P	SUR	44	-69	1267	0	0.6	0.3	0.7
44033	99	P	SUR	44	-69	1253	0	0.4	0.2	0.5
44034	99	P	SUR	44	-68	690	0	0.5	0.4	0.6
44078	99	P	SUR	60	-40	1582	0	0.5	-0.6	0.8
44137	99	P	SUR	42	-62	839	0	0.5	0.1	0.5
44139	99	P	SUR	44	-57	834	0	0.5	-0.1	0.5
44150	99	P	SUR	43	-64	803	0	0.4	-0.2	0.4
44258	99	P	SUR	45	-63	824	0	0.4	-0.1	0.4
44488	99	P	SUR	45	-61	834	0	0.4	0.0	0.4
44489	99	P	SUR	46	-61	831	0	0.4	0.0	0.4
44490	99	P	SUR	45	-66	809	0	0.4	0.1	0.5
4700546	99	P	SUR	35	-28	708	3	3.2	-0.2	3.2
4801625	99	P	SUR	84	-31	649	0	0.6	0.2	0.6
4801723	99	P	SUR	68	-5	718	0	0.3	0.1	0.3
6100001	99	P	SUR	43	8	720	0	0.3	0.3	0.4
6100002	99	P	SUR	42	5	621	0	0.4	0.2	0.4
6100196	99	P	SUR	42	4	720	0	0.4	0.6	0.7
6100197	99	P	SUR	40	4	720	0	0.5	0.7	0.8

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6100198	99	P	SUR	37	-2	719	0	0.5	0.3	0.6
6100280	99	P	SUR	41	1	720	0	0.4	0.4	0.6
6100281	99	P	SUR	40	0	712	0	0.5	0.4	0.6
6100417	99	P	SUR	38	0	720	0	0.5	0.4	0.7
6100430	99	P	SUR	40	2	167	0	0.3	0.5	0.6
6101003	99	P	SUR	40	25	137	0	0.4	0.0	0.4
6101005	99	P	SUR	38	26	7	7	0.0	0.0	0.0
6101007	99	P	SUR	36	25	5	0	0.7	-0.2	0.8
6101008	99	P	SUR	37	22	134	0	0.4	-0.0	0.4
6101009	99	P	SUR	35	25	42	42	0.0	0.0	0.0
6102782	99	P	SUR	36	17	711	0	0.3	0.3	0.4
6102784	99	P	SUR	33	15	713	0	0.3	0.2	0.4
6102791	99	P	SUR	39	2	718	0	0.5	0.3	0.6
6102792	99	P	SUR	38	2	718	0	0.5	0.2	0.5
6200024	99	P	SUR	44	-3	720	0	0.4	0.5	0.7
6200025	99	P	SUR	44	-6	87	0	3.1	0.9	3.2
6200082	99	P	SUR	44	-8	549	0	0.4	0.4	0.6
6200083	99	P	SUR	43	-9	720	0	0.4	0.2	0.5
6200084	99	P	SUR	42	-9	720	0	0.4	0.3	0.5
6200085	99	P	SUR	36	-7	719	0	0.3	0.7	0.8
6200087	99	P	SUR	55	7	405	0	0.4	-0.1	0.4
6200091	99	P	SUR	53	-5	718	0	0.3	0.0	0.3
6200092	99	P	SUR	51	-11	719	0	0.3	-0.0	0.3
6200093	99	P	SUR	55	-10	719	0	0.3	-0.1	0.3
6200094	99	P	SUR	52	-7	720	0	0.3	0.2	0.3
6200095	99	P	SUR	53	-16	718	0	0.3	-0.2	0.4
62001	99	P	SUR	45	-5	1560	0	0.3	0.1	0.4
6200199	99	P	SUR	40	-9	706	0	0.3	-0.6	0.7
6200200	99	P	SUR	36	-8	577	0	2.9	-2.2	3.7
6201030	99	P	SUR	44	-4	572	0	0.4	0.4	0.6
6201065	99	P	SUR	54	7	3327	0	0.4	1.2	1.2
6201066	99	P	SUR	55	7	807	0	0.4	0.4	0.6
62023	99	P	SUR	51	-8	1789	0	0.3	0.1	0.3
6202613	99	P	SUR	23	-59	720	0	0.3	0.1	0.3
6202614	99	P	SUR	26	-52	720	0	0.5	-0.2	0.5
6202623	99	P	SUR	68	-4	720	0	0.3	-0.2	0.4
6202624	99	P	SUR	62	-23	720	0	0.4	0.0	0.4
6202626	99	P	SUR	52	-13	720	0	0.3	0.1	0.3
6202627	99	P	SUR	55	-30	714	0	0.3	-0.0	0.3
6202629	99	P	SUR	42	-35	23	0	0.5	-1.0	1.1
6202630	99	P	SUR	47	-6	720	0	0.5	-0.4	0.6
6202631	99	P	SUR	57	-10	720	0	0.3	0.2	0.4
6202632	99	P	SUR	58	-27	720	0	0.3	0.0	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6202633	99	P	SUR	62	-13	720	0	0.4	-0.0	0.4
6202634	99	P	SUR	74	15	720	0	0.3	-0.1	0.3
6202635	99	P	SUR	65	-11	720	0	0.4	0.3	0.5
6202636	99	P	SUR	63	1	720	0	0.3	0.6	0.6
6202637	99	P	SUR	65	-5	720	0	0.3	0.1	0.4
6202638	99	P	SUR	26	-68	12	0	0.2	-0.1	0.2
6202639	99	P	SUR	33	-25	720	0	0.2	0.0	0.2
6202643	99	P	SUR	37	-67	720	0	0.4	-0.1	0.4
6202644	99	P	SUR	29	-37	720	0	0.2	-0.2	0.3
6202645	99	P	SUR	28	-60	720	0	0.3	-0.2	0.3
6202680	99	P	SUR	64	10	677	0	0.3	-0.3	0.4
6202684	99	P	SUR	64	1	617	0	0.3	0.5	0.6
6202688	99	P	SUR	37	8	66	0	0.6	-2.8	2.9
6202690	99	P	SUR	40	13	635	0	1.7	-1.4	2.2
6202692	99	P	SUR	42	3	42	15	1.6	-1.4	2.1
6202696	99	P	SUR	38	0	718	0	0.5	-0.2	0.5
62029	99	P	SUR	49	-13	1565	0	0.3	0.1	0.3
6203507	99	P	SUR	42	-69	143	0	0.3	0.5	0.6
6203508	99	P	SUR	43	-67	173	0	0.3	0.5	0.7
6203513	99	P	SUR	44	-60	214	0	0.4	0.6	0.7
6203516	99	P	SUR	44	-58	218	0	0.5	0.2	0.5
6203574	99	P	SUR	56	-28	675	0	0.4	0.3	0.5
6203585	99	P	SUR	74	33	162	0	0.4	0.2	0.4
6203588	99	P	SUR	64	-28	715	0	0.3	0.6	0.7
6203601	99	P	SUR	29	-51	720	0	0.3	0.7	0.8
6203612	99	P	SUR	28	-36	720	0	0.2	0.1	0.3
6203613	99	P	SUR	31	-26	720	0	0.8	0.4	0.9
6203614	99	P	SUR	17	-44	720	0	0.3	0.3	0.4
6203615	99	P	SUR	23	-52	720	0	0.2	0.2	0.3
6203616	99	P	SUR	29	-41	719	0	0.2	0.1	0.2
6203617	99	P	SUR	13	-30	720	0	0.3	0.4	0.5
6203621	99	P	SUR	43	-21	720	0	0.3	0.2	0.4
6203622	99	P	SUR	42	-31	718	0	0.3	-0.0	0.3
6203624	99	P	SUR	23	-57	720	0	0.2	0.3	0.4
6203625	99	P	SUR	42	-25	719	0	0.3	0.4	0.5
6203626	99	P	SUR	60	-1	720	0	0.3	0.0	0.3
6203627	99	P	SUR	21	-61	720	0	0.3	0.1	0.3
6203631	99	P	SUR	22	-61	719	0	0.3	0.0	0.3
6203632	99	P	SUR	28	-22	719	0	0.3	0.1	0.3
6203633	99	P	SUR	55	-33	720	0	0.3	0.2	0.4
6203634	99	P	SUR	42	-15	720	0	0.2	0.1	0.3
6203636	99	P	SUR	18	-67	718	0	0.4	0.5	0.6
6203637	99	P	SUR	57	-13	719	0	0.3	0.2	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6203639	99	P	SUR	45	-19	720	0	0.3	0.3	0.4
6203640	99	P	SUR	45	-19	720	0	0.3	0.3	0.4
6203641	99	P	SUR	44	-5	720	0	0.3	0.3	0.5
6203643	99	P	SUR	23	-52	720	0	0.2	0.4	0.5
6203644	99	P	SUR	12	-27	720	0	0.3	0.4	0.5
6203730	99	P	SUR	21	-39	717	0	0.2	0.4	0.5
6203732	99	P	SUR	17	-38	713	0	0.2	0.2	0.3
6203735	99	P	SUR	16	-37	715	0	0.3	0.4	0.4
6203737	99	P	SUR	26	-41	716	0	0.2	0.5	0.6
6203751	99	P	SUR	62	-13	691	0	0.5	0.7	0.8
6203752	99	P	SUR	63	-18	716	0	0.3	-0.0	0.3
6203753	99	P	SUR	62	-21	714	0	0.3	-0.2	0.4
6203755	99	P	SUR	50	-10	718	0	0.3	-0.2	0.3
6203760	99	P	SUR	58	-10	714	0	0.3	0.1	0.3
6203762	99	P	SUR	26	-26	719	0	0.3	0.1	0.3
6203764	99	P	SUR	30	-19	716	0	0.3	0.3	0.4
6203765	99	P	SUR	21	-31	715	0	0.3	0.4	0.5
6203766	99	P	SUR	25	-21	716	0	0.4	-1.3	1.4
6203767	99	P	SUR	19	-26	717	0	0.3	-0.1	0.3
6203768	99	P	SUR	34	-10	714	0	0.3	0.5	0.6
6203769	99	P	SUR	34	-11	714	0	0.3	0.4	0.5
6203771	99	P	SUR	25	-23	713	0	0.3	0.3	0.5
6203772	99	P	SUR	21	-29	716	0	0.3	0.4	0.5
6203773	99	P	SUR	26	-27	717	0	0.3	0.1	0.3
6203774	99	P	SUR	28	-16	395	0	0.4	-0.7	0.8
6203775	99	P	SUR	29	-17	718	0	0.3	0.5	0.6
6203776	99	P	SUR	33	-16	717	0	0.3	0.0	0.3
6203777	99	P	SUR	31	-19	716	0	0.3	0.3	0.4
62050	99	P	SUR	50	-4	1554	0	0.3	0.0	0.3
62081	99	P	SUR	51	-13	1558	0	0.3	-0.2	0.3
62091	99	P	SUR	53	-5	718	0	0.3	0.0	0.3
62092	99	P	SUR	51	-11	718	0	0.3	-0.0	0.3
62093	99	P	SUR	55	-10	717	0	0.3	-0.1	0.3
62094	99	P	SUR	52	-7	718	0	0.3	0.2	0.3
62095	99	P	SUR	53	-16	717	0	0.3	-0.2	0.4
62102	99	P	SUR	58	2	1103	0	0.2	0.2	0.3
62103	99	P	SUR	50	-3	1553	0	0.3	0.1	0.3
62104	99	P	SUR	57	1	1104	0	0.2	0.1	0.3
62107	99	P	SUR	50	-6	2233	0	0.3	-0.3	0.4
62112	99	P	SUR	58	0	1106	0	0.3	0.4	0.5
62113	99	P	SUR	58	0	1103	0	0.3	0.1	0.3
62114	99	P	SUR	58	0	2858	0	0.3	0.4	0.5
62115	99	P	SUR	58	-3	1106	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
62116	99	P	SUR	58	1	1104	0	0.3	0.1	0.3
62118	99	P	SUR	58	1	1103	0	0.3	0.5	0.6
62119	99	P	SUR	57	2	1080	0	0.3	0.1	0.3
62120	99	P	SUR	56	2	1103	0	0.3	0.1	0.3
62121	99	P	SUR	54	3	1103	0	0.3	0.3	0.5
62122	99	P	SUR	57	2	1573	0	0.3	0.2	0.3
62124	99	P	SUR	54	-4	1104	0	0.3	0.2	0.3
62129	99	P	SUR	58	0	1103	0	0.3	0.2	0.3
62130	99	P	SUR	59	1	1088	0	0.3	0.1	0.3
62131	99	P	SUR	54	1	1103	0	0.3	0.6	0.7
62132	99	P	SUR	56	2	1103	0	0.3	0.4	0.5
62133	99	P	SUR	57	1	1104	0	0.3	0.2	0.3
62134	99	P	SUR	58	1	1101	0	0.3	0.6	0.7
62135	99	P	SUR	54	2	1093	0	0.4	0.6	0.7
62138	99	P	SUR	54	0	1564	0	0.3	0.6	0.7
62140	99	P	SUR	57	1	1573	0	0.2	0.3	0.4
62143	99	P	SUR	58	2	1104	0	0.3	0.6	0.7
62144	99	P	SUR	53	2	1104	0	0.3	0.3	0.5
62145	99	P	SUR	53	3	1477	0	0.4	0.5	0.6
62146	99	P	SUR	57	2	1072	0	0.3	-0.0	0.3
62148	99	P	SUR	54	2	1103	0	0.4	1.2	1.3
62149	99	P	SUR	54	1	1085	0	0.3	0.9	0.9
62150	99	P	SUR	54	1	1089	0	0.3	1.5	1.5
62151	99	P	SUR	57	2	1459	0	0.2	0.3	0.4
62152	99	P	SUR	57	2	948	0	0.3	0.4	0.5
62153	99	P	SUR	57	2	1159	0	0.3	0.4	0.5
62154	99	P	SUR	56	2	1104	0	0.3	0.2	0.3
62155	99	P	SUR	58	1	973	0	0.2	0.5	0.5
62157	99	P	SUR	58	0	1101	0	0.3	0.2	0.3
62160	99	P	SUR	57	2	1436	0	0.2	0.5	0.6
62161	99	P	SUR	58	1	1099	0	0.3	0.0	0.3
62162	99	P	SUR	57	1	1104	0	0.3	0.3	0.4
62163	99	P	SUR	48	-8	1545	0	0.3	0.4	0.5
62164	99	P	SUR	57	1	1090	0	0.3	0.8	0.8
62165	99	P	SUR	54	1	1085	0	0.3	0.8	0.8
62168	99	P	SUR	58	1	1063	0	0.3	0.2	0.4
62296	99	P	SUR	53	2	1104	0	0.4	0.2	0.4
62297	99	P	SUR	59	2	1332	0	0.3	0.2	0.3
62302	99	P	SUR	61	-2	1106	0	0.3	0.1	0.3
62304	99	P	SUR	51	2	1550	0	0.5	0.1	0.5
62305	99	P	SUR	50	0	668	0	0.4	0.0	0.4
62442	99	P	SUR	49	-16	1554	0	0.3	-0.3	0.4
6301001	99	P	SUR	64	5	718	0	0.3	-0.1	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6301003	99	P	SUR	74	24	566	0	0.4	-0.4	0.6
6301004	99	P	SUR	72	20	651	0	0.3	-0.2	0.4
6301511	99	P	SUR	56	-53	689	0	1.7	7.0	7.2
6301564	99	P	SUR	57	-45	719	0	0.5	0.2	0.5
6301567	99	P	SUR	50	-32	720	0	0.9	-0.2	1.0
6301570	99	P	SUR	62	-28	719	0	0.3	0.2	0.3
6301571	99	P	SUR	53	-55	719	0	0.4	0.3	0.5
63055	99	P	SUR	61	2	1103	0	0.3	0.0	0.3
63056	99	P	SUR	60	2	1103	0	0.3	0.4	0.5
63057	99	P	SUR	59	2	1103	0	0.3	0.0	0.3
63058	99	P	SUR	53	2	1868	0	0.4	0.7	0.8
63059	99	P	SUR	58	-1	1099	0	0.3	0.6	0.7
63101	99	P	SUR	61	1	1103	0	0.3	0.2	0.3
63102	99	P	SUR	61	1	1103	0	0.3	0.1	0.3
63103	99	P	SUR	61	1	1103	0	0.3	0.3	0.4
63104	99	P	SUR	61	2	1103	0	0.3	0.1	0.3
63108	99	P	SUR	61	2	1100	0	0.3	-0.0	0.3
63109	99	P	SUR	60	2	1103	0	0.3	-0.2	0.3
63110	99	P	SUR	60	2	1103	0	0.3	0.7	0.8
63111	99	P	SUR	61	2	1563	0	0.3	-0.1	0.3
63112	99	P	SUR	61	1	1103	0	0.3	-0.2	0.3
63115	99	P	SUR	62	1	1103	0	0.3	0.1	0.3
63117	99	P	SUR	61	1	1570	0	0.3	0.4	0.5
63118	99	P	SUR	58	1	1565	0	0.3	0.0	0.3
6401531	99	P	SUR	55	-53	717	0	0.4	0.3	0.5
6401573	99	P	SUR	56	-47	719	0	0.4	-0.0	0.4
6401574	99	P	SUR	59	-46	720	0	0.4	0.5	0.7
6401575	99	P	SUR	62	-12	720	5	2.6	-0.2	2.6
6401576	99	P	SUR	78	-9	718	0	0.4	-0.1	0.4
6401577	99	P	SUR	79	-4	720	0	0.4	0.2	0.4
6401578	99	P	SUR	78	-14	720	0	0.4	-0.1	0.4
6401580	99	P	SUR	82	27	720	0	0.4	-0.0	0.4
6401838	99	P	SUR	64	-17	702	0	0.4	-0.2	0.5
6401839	99	P	SUR	62	-19	656	0	0.3	0.1	0.3
6401840	99	P	SUR	61	-15	680	0	0.4	0.2	0.4
6401841	99	P	SUR	61	-15	656	0	0.4	0.3	0.5
6401842	99	P	SUR	58	-31	673	0	0.4	-0.0	0.4
6401843	99	P	SUR	62	-21	695	0	0.3	0.1	0.3
6401844	99	P	SUR	64	-22	716	0	0.3	0.2	0.4
6401845	99	P	SUR	63	-22	699	0	0.3	0.2	0.4
6401846	99	P	SUR	61	-18	240	0	0.3	-0.2	0.4
6401847	99	P	SUR	61	-18	241	0	0.4	0.0	0.4
6401848	99	P	SUR	62	-21	132	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
6401850	99	P	SUR	62	-25	697	0	2.9	0.3	2.9
6401851	99	P	SUR	63	-18	703	68	4.2	-2.7	5.0
6401852	99	P	SUR	65	-25	239	0	0.4	-0.4	0.5
6401855	99	P	SUR	64	-23	598	0	0.3	0.1	0.4
6401856	99	P	SUR	65	-25	709	14	2.8	0.8	2.9
6401857	99	P	SUR	63	-23	708	16	3.0	1.2	3.2
6401858	99	P	SUR	64	-25	240	0	0.4	0.1	0.4
6401859	99	P	SUR	60	-12	240	0	0.4	0.2	0.5
6401860	99	P	SUR	63	-18	240	0	1.9	0.1	1.9
6401861	99	P	SUR	62	-20	240	0	0.3	0.0	0.3
6401862	99	P	SUR	60	-15	240	0	0.4	0.2	0.5
6401863	99	P	SUR	65	-25	240	0	0.4	0.1	0.4
6401864	99	P	SUR	64	-29	168	0	0.4	-0.1	0.4
6401865	99	P	SUR	65	-26	240	0	0.4	0.1	0.4
6401866	99	P	SUR	62	-21	132	0	0.3	-0.0	0.3
6402539	99	P	SUR	49	-43	718	0	0.5	-0.0	0.5
6402541	99	P	SUR	67	-9	540	0	0.3	0.2	0.4
6402542	99	P	SUR	64	-18	716	0	0.4	-0.5	0.7
6402543	99	P	SUR	65	-31	691	0	0.3	0.1	0.3
6402544	99	P	SUR	69	5	656	0	0.3	0.2	0.4
6402545	99	P	SUR	74	13	635	0	0.4	0.0	0.4
6402546	99	P	SUR	64	3	634	0	0.3	0.2	0.3
6402547	99	P	SUR	60	-57	685	0	0.4	0.5	0.6
6402548	99	P	SUR	68	2	677	0	0.3	0.1	0.3
6402549	99	P	SUR	72	15	660	0	0.3	0.0	0.3
6402550	99	P	SUR	73	15	686	0	0.3	0.1	0.3
6402551	99	P	SUR	60	-51	711	0	0.4	0.3	0.5
6402552	99	P	SUR	66	-5	687	0	0.3	0.3	0.4
6402554	99	P	SUR	61	2	713	0	0.3	0.5	0.6
6402557	99	P	SUR	63	-1	718	0	0.3	0.3	0.4
6402558	99	P	SUR	65	1	708	0	0.3	0.2	0.4
6402559	99	P	SUR	67	-30	704	0	0.4	0.2	0.5
6402560	99	P	SUR	66	-9	698	0	0.3	0.0	0.3
6402619	99	P	SUR	44	-11	427	0	0.3	0.3	0.5
6402620	99	P	SUR	45	-11	583	0	0.3	0.5	0.5
6402621	99	P	SUR	44	-8	600	0	0.3	0.4	0.5
6402622	99	P	SUR	44	-9	561	0	0.3	0.2	0.4
6402623	99	P	SUR	82	10	386	0	0.3	-0.0	0.3
6402624	99	P	SUR	81	23	444	0	0.3	0.1	0.3
6402625	99	P	SUR	79	7	295	0	0.3	0.1	0.3
6402626	99	P	SUR	81	11	480	0	0.3	-0.2	0.4
6402653	99	P	SUR	64	-21	700	0	0.4	0.0	0.4
6402654	99	P	SUR	61	-22	656	0	0.3	-0.1	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6402655	99	P	SUR	62	-24	681	0	0.5	0.0	0.5
6402656	99	P	SUR	64	-21	710	0	0.3	0.1	0.4
6402657	99	P	SUR	63	-20	692	0	0.4	0.2	0.4
6402658	99	P	SUR	64	-23	712	0	0.3	-0.1	0.3
6402659	99	P	SUR	63	-22	703	0	0.3	0.0	0.3
6402660	99	P	SUR	64	-23	704	0	0.3	-0.1	0.4
6402661	99	P	SUR	61	-22	671	0	0.3	0.0	0.3
6402663	99	P	SUR	62	-20	703	0	0.3	-0.1	0.3
6402664	99	P	SUR	63	-20	694	0	0.4	0.3	0.5
6402665	99	P	SUR	61	-13	575	0	0.4	0.3	0.5
6402666	99	P	SUR	64	-21	718	0	0.3	-0.6	0.7
6402667	99	P	SUR	63	-22	710	0	0.3	-0.2	0.3
6402668	99	P	SUR	64	-27	718	0	0.3	0.3	0.5
6402677	99	P	SUR	62	-28	239	0	0.4	-0.1	0.4
6402678	99	P	SUR	65	-38	241	0	0.5	0.2	0.5
6402679	99	P	SUR	67	-10	240	0	0.3	0.2	0.4
64041	99	P	SUR	61	-3	1106	0	0.3	0.1	0.3
64045	99	P	SUR	59	-12	1559	0	0.3	-0.3	0.4
64046	99	P	SUR	61	-4	1559	0	0.3	-0.0	0.3
6600021	99	P	SUR	55	14	254	0	0.3	0.4	0.5
6600022	99	P	SUR	54	14	216	0	0.4	-0.2	0.4

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 : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
0640046	99	SPEED	SUR	60	-4	95	0	0	1.0	-0.5	1.1
1300001	99	SPEED	SUR	11	-23	590	0	0	1.1	0.6	1.2
1300002	99	SPEED	SUR	20	-23	596	0	0	0.8	0.1	0.8
1300008	99	SPEED	SUR	15	-38	596	0	0	0.7	-0.1	0.7
1300130	99	SPEED	SUR	28	-16	720	0	0	0.8	-0.4	0.9
1300131	99	SPEED	SUR	28	-17	714	0	0	2.2	2.6	3.4
4100040	99	SPEED	SUR	15	-53	4318	0	0	0.9	0.4	1.0
4100041	99	SPEED	SUR	14	-46	4294	0	0	0.7	0.2	0.8
4100043	99	SPEED	SUR	21	-65	4311	0	0	0.8	0.3	0.8
4100044	99	SPEED	SUR	22	-59	4295	0	0	0.7	-0.1	0.7
4100046	99	SPEED	SUR	24	-68	4315	0	0	0.8	0.1	0.8
4100048	99	SPEED	SUR	32	-70	4308	0	0	1.1	-0.1	1.1
4100049	99	SPEED	SUR	27	-63	4260	0	0	0.8	-0.2	0.8
4100052	99	SPEED	SUR	18	-65	3994	0	0	0.8	0.0	0.8
4100053	99	SPEED	SUR	18	-66	4019	0	0	1.4	1.4	1.9
4100056	99	SPEED	SUR	18	-65	4017	0	0	1.2	-0.7	1.4
4100139	99	SPEED	SUR	20	-38	590	0	0	0.8	-0.1	0.8
4100300	99	SPEED	SUR	16	-57	719	0	0	0.8	-0.2	0.8
41040	99	SPEED	SUR	15	-53	4974	0	0	0.9	-0.0	0.9
41041	99	SPEED	SUR	15	-46	5133	0	0	0.8	-0.3	0.8
41043	99	SPEED	SUR	21	-65	4445	0	0	0.8	0.1	0.8
41044	99	SPEED	SUR	22	-59	4011	0	0	0.8	-0.2	0.8
41046	99	SPEED	SUR	24	-68	6143	0	0	0.9	-0.0	0.9
41048	99	SPEED	SUR	32	-70	6616	0	0	1.1	-0.4	1.2
41049	99	SPEED	SUR	28	-63	5945	0	0	0.9	-0.2	0.9
41052	99	SPEED	SUR	18	-65	2637	0	0	0.9	0.2	0.9
41053	99	SPEED	SUR	19	-66	2670	0	0	1.4	0.6	1.5
41056	99	SPEED	SUR	18	-66	2652	0	0	1.2	-0.5	1.3
4200059	99	SPEED	SUR	15	-67	4304	0	0	0.8	0.3	0.8
4200060	99	SPEED	SUR	16	-63	3039	0	0	0.9	0.5	1.0
4200085	99	SPEED	SUR	18	-67	3998	0	0	1.3	-0.5	1.4
42059	99	SPEED	SUR	15	-68	4286	0	0	0.8	-0.0	0.8
42060	99	SPEED	SUR	16	-63	2978	0	0	1.0	0.4	1.1
42085	99	SPEED	SUR	18	-67	3181	0	0	1.3	-0.1	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
4400005	99	SPEED	SUR	43	-69	49	0	0	0.9	-1.0	1.3
4400008	99	SPEED	SUR	41	-69	3081	0	0	1.3	-1.1	1.7
4400011	99	SPEED	SUR	41	-67	883	0	0	0.8	-1.0	1.2
4400027	99	SPEED	SUR	44	-67	75	0	0	1.3	-1.0	1.6
4400032	99	SPEED	SUR	44	-69	688	0	0	1.4	-1.3	1.9
4400033	99	SPEED	SUR	44	-69	684	0	0	1.7	-0.9	1.9
4400034	99	SPEED	SUR	44	-68	689	0	0	1.5	-1.7	2.2
44005	99	SPEED	SUR	43	-69	126	0	0	1.0	-0.9	1.3
44008	99	SPEED	SUR	41	-69	4292	0	0	1.3	-1.3	1.9
44011	99	SPEED	SUR	41	-67	1227	0	0	0.8	-1.3	1.5
44027	99	SPEED	SUR	44	-67	200	0	0	1.3	-0.9	1.6
44032	99	SPEED	SUR	44	-69	1267	0	0	1.5	-1.3	1.9
44033	99	SPEED	SUR	44	-69	1259	0	0	1.6	-0.6	1.7
44034	99	SPEED	SUR	44	-68	1267	0	0	1.5	-1.7	2.2
44078	99	SPEED	SUR	60	-40	1582	0	0	1.4	-1.2	1.9
44137	99	SPEED	SUR	42	-62	839	0	0	2.5	-1.3	2.8
44258	99	SPEED	SUR	45	-63	824	0	0	1.6	-0.5	1.7
44488	99	SPEED	SUR	45	-61	834	0	0	1.8	-0.8	2.0
44489	99	SPEED	SUR	46	-61	831	0	0	1.7	-0.3	1.7
44490	99	SPEED	SUR	45	-66	808	0	0	1.5	-1.3	2.0
6100001	99	SPEED	SUR	43	8	717	0	0	1.3	-0.0	1.3
6100002	99	SPEED	SUR	42	5	677	0	0	1.2	-0.3	1.2
6100196	99	SPEED	SUR	42	4	717	0	0	1.6	-0.6	1.7
6100197	99	SPEED	SUR	40	4	667	0	0	1.4	-0.5	1.5
6100198	99	SPEED	SUR	37	-2	711	0	0	1.5	-0.7	1.7
6100280	99	SPEED	SUR	41	1	687	0	0	1.5	-0.4	1.5
6100281	99	SPEED	SUR	40	0	711	0	0	1.7	0.4	1.8
6100417	99	SPEED	SUR	38	0	715	0	0	1.4	-0.2	1.4
6100430	99	SPEED	SUR	40	2	158	0	0	1.5	-0.2	1.5
6101003	99	SPEED	SUR	40	25	137	0	0	1.4	0.2	1.4
6101005	99	SPEED	SUR	38	26	139	0	0	2.6	-5.6	6.2
6101007	99	SPEED	SUR	36	25	130	0	0	1.8	-4.4	4.7
6101008	99	SPEED	SUR	37	22	134	0	0	1.5	-1.3	2.0
6101009	99	SPEED	SUR	35	25	119	0	0	1.6	-3.2	3.6
6200024	99	SPEED	SUR	44	-3	695	0	0	1.5	-0.5	1.6
6200025	99	SPEED	SUR	44	-6	711	0	0	1.3	-0.4	1.4
6200082	99	SPEED	SUR	44	-8	549	0	0	1.0	-0.1	1.0
6200083	99	SPEED	SUR	43	-9	713	0	0	1.0	-0.5	1.1
6200084	99	SPEED	SUR	42	-9	717	0	0	1.3	-0.6	1.4
6200085	99	SPEED	SUR	36	-7	708	0	0	1.3	0.0	1.3
6200091	99	SPEED	SUR	53	-5	718	0	0	1.2	0.0	1.2

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
6200092	99	SPEED	SUR	51	-11	719	0	0	0.9	0.8	1.2
6200093	99	SPEED	SUR	55	-10	719	0	0	0.9	0.4	1.0
6200094	99	SPEED	SUR	52	-7	720	0	0	0.9	0.1	0.9
6200095	99	SPEED	SUR	53	-16	718	0	0	0.8	-0.1	0.8
62001	99	SPEED	SUR	45	-5	1560	0	0	1.2	0.4	1.3
6200200	99	SPEED	SUR	36	-8	708	0	0	1.0	0.2	1.0
6201030	99	SPEED	SUR	44	-4	568	0	0	1.3	0.1	1.3
6201065	99	SPEED	SUR	54	7	8	0	0	1.3	-1.7	2.2
6201066	99	SPEED	SUR	55	7	762	0	0	1.3	0.1	1.3
62023	99	SPEED	SUR	51	-8	1789	0	0	1.3	0.6	1.4
62029	99	SPEED	SUR	49	-13	1565	0	0	1.1	0.7	1.3
62081	99	SPEED	SUR	51	-13	1558	0	0	0.8	0.8	1.1
62091	99	SPEED	SUR	53	-5	718	0	0	1.2	0.0	1.2
62092	99	SPEED	SUR	51	-11	718	0	0	1.0	1.0	1.4
62093	99	SPEED	SUR	55	-10	717	0	0	0.9	0.6	1.1
62094	99	SPEED	SUR	52	-7	718	0	0	0.9	0.3	1.0
62095	99	SPEED	SUR	53	-16	717	0	0	0.9	0.2	0.9
62102	99	SPEED	SUR	58	2	1103	0	0	1.1	0.1	1.1
62103	99	SPEED	SUR	50	-3	1553	0	0	1.3	1.0	1.6
62107	99	SPEED	SUR	50	-6	2230	0	0	1.2	0.4	1.2
62112	99	SPEED	SUR	58	0	1106	0	0	1.1	-0.1	1.1
62113	99	SPEED	SUR	58	0	1103	0	0	1.5	0.5	1.6
62114	99	SPEED	SUR	58	0	2858	0	0	1.4	0.6	1.6
62118	99	SPEED	SUR	58	1	1103	0	0	1.3	0.5	1.4
62119	99	SPEED	SUR	57	2	1080	0	0	1.4	-0.6	1.5
62120	99	SPEED	SUR	56	2	1103	0	0	1.2	0.2	1.3
62121	99	SPEED	SUR	54	3	1103	0	0	1.1	0.2	1.2
62122	99	SPEED	SUR	57	2	1573	0	0	1.0	-0.2	1.0
62131	99	SPEED	SUR	54	1	1103	0	0	2.1	-0.4	2.1
62132	99	SPEED	SUR	56	2	1103	0	0	2.1	-1.2	2.5
62133	99	SPEED	SUR	57	1	1104	0	0	1.2	0.3	1.3
62134	99	SPEED	SUR	58	1	1101	0	0	1.3	0.0	1.3
62140	99	SPEED	SUR	57	1	1573	0	0	1.0	0.0	1.0
62143	99	SPEED	SUR	58	2	1104	0	0	1.4	-0.5	1.5
62144	99	SPEED	SUR	53	2	1104	0	0	1.5	-0.5	1.6
62145	99	SPEED	SUR	53	3	1477	0	0	1.6	1.3	2.1
62146	99	SPEED	SUR	57	2	891	0	0	1.0	-0.0	1.0
62148	99	SPEED	SUR	54	2	1103	0	0	1.3	-0.0	1.3
62149	99	SPEED	SUR	54	1	1085	0	0	1.3	0.3	1.4
62150	99	SPEED	SUR	54	1	1089	0	0	1.9	-1.4	2.3
62152	99	SPEED	SUR	57	2	81	15	17	4.1	0.6	4.2

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
62153	99	SPEED	SUR	57	2	1159	0	0	1.6	-0.8	1.8
62154	99	SPEED	SUR	56	2	1104	0	0	1.3	0.1	1.3
62155	99	SPEED	SUR	58	1	958	0	0	1.4	-0.5	1.5
62163	99	SPEED	SUR	48	-8	43	0	0	1.2	1.3	1.8
62164	99	SPEED	SUR	57	1	1090	0	0	1.2	-0.6	1.3
62165	99	SPEED	SUR	54	1	1085	0	0	1.3	-0.1	1.3
62304	99	SPEED	SUR	51	2	1550	0	0	1.6	1.3	2.0
62305	99	SPEED	SUR	50	0	668	0	0	1.2	0.8	1.5
6301001	99	SPEED	SUR	64	5	717	0	0	1.0	0.1	1.0
6301003	99	SPEED	SUR	74	24	566	0	0	0.9	-0.1	1.0
6301004	99	SPEED	SUR	72	20	651	0	0	1.1	-0.5	1.2
63055	99	SPEED	SUR	61	2	1103	0	0	1.0	-0.3	1.1
63056	99	SPEED	SUR	60	2	1103	0	0	1.3	0.3	1.4
63057	99	SPEED	SUR	59	2	1103	0	0	1.7	0.2	1.7
63058	99	SPEED	SUR	53	2	1394	0	0	1.5	0.3	1.5
63101	99	SPEED	SUR	61	1	1103	0	0	1.2	-0.2	1.2
63103	99	SPEED	SUR	61	1	1103	0	0	1.3	-0.2	1.3
63104	99	SPEED	SUR	61	2	1103	0	0	1.2	-0.2	1.2
63106	99	SPEED	SUR	61	2	972	0	0	1.3	-0.4	1.3
63108	99	SPEED	SUR	61	2	1100	0	0	1.4	-0.0	1.4
63109	99	SPEED	SUR	60	2	1033	0	0	1.3	0.3	1.4
63110	99	SPEED	SUR	60	2	1103	0	0	1.2	-0.1	1.2
63112	99	SPEED	SUR	61	1	1103	0	0	1.1	-0.2	1.1
63115	99	SPEED	SUR	62	1	1103	0	0	1.1	-0.2	1.1
63117	99	SPEED	SUR	61	1	1570	0	0	1.1	-0.2	1.2
6401850	99	SPEED	SUR	62	-25	697	0	0	1.1	3.0	3.2
6401851	99	SPEED	SUR	63	-18	703	0	0	1.8	2.8	3.4
6401855	99	SPEED	SUR	64	-23	598	0	0	1.9	3.1	3.6
6401856	99	SPEED	SUR	65	-25	709	3	0	1.3	2.8	3.2
6401857	99	SPEED	SUR	63	-23	708	0	0	1.3	3.0	3.3
64041	99	SPEED	SUR	61	-3	1106	0	0	1.3	0.1	1.3
64045	99	SPEED	SUR	59	-12	1559	0	0	0.9	0.4	0.9
64046	99	SPEED	SUR	61	-4	1559	0	0	1.0	0.5	1.1
6600021	99	SPEED	SUR	55	14	254	0	0	1.3	0.1	1.3
6600022	99	SPEED	SUR	54	14	216	0	0	1.3	-0.3	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 : JUN 2021
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
0640046	99	DIRN	SUR	60	-4	86	0	0	10.8	2.3	11.0
1300001	99	DIRN	SUR	11	-23	470	0	0	14.2	3.6	14.7
1300002	99	DIRN	SUR	20	-23	596	0	0	8.3	0.3	8.3
1300008	99	DIRN	SUR	15	-38	596	0	0	94.5	84.8	126.9
1300130	99	DIRN	SUR	28	-16	715	0	0	10.5	-3.8	11.1
1300131	99	DIRN	SUR	28	-17	417	0	0	100.1	-27.6	103.9
29063	99	DIRN	SUR	26	-80	1	1	0	0.0	79.4	79.4
4100001	99	DIRN	SUR	35	-72	1328	0	0	16.5	-2.4	16.7
4100002	99	DIRN	SUR	32	-75	2923	0	0	22.1	8.9	23.8
4100008	99	DIRN	SUR	31	-81	615	0	0	22.5	1.5	22.6
4100010	99	DIRN	SUR	29	-78	3625	0	0	16.1	8.3	18.1
4100013	99	DIRN	SUR	33	-78	3301	0	0	18.2	8.0	19.9
4100024	99	DIRN	SUR	34	-78	578	0	0	22.9	-10.2	25.1
4100029	99	DIRN	SUR	33	-80	2356	0	0	18.7	3.2	18.9
4100033	99	DIRN	SUR	32	-80	637	0	0	22.1	8.2	23.6
4100037	99	DIRN	SUR	34	-77	541	0	0	24.1	11.1	26.5
4100038	99	DIRN	SUR	34	-78	561	0	0	26.7	-13.1	29.7
4100040	99	DIRN	SUR	15	-53	4318	0	0	7.8	4.7	9.1
4100041	99	DIRN	SUR	14	-46	4292	0	0	7.7	4.7	9.1
4100043	99	DIRN	SUR	21	-65	4227	0	0	8.8	4.6	10.0
4100044	99	DIRN	SUR	22	-59	4276	0	0	8.7	4.3	9.8
4100046	99	DIRN	SUR	24	-68	4138	0	0	9.5	4.3	10.5
4100047	99	DIRN	SUR	27	-71	3377	0	0	12.0	6.5	13.6
4100048	99	DIRN	SUR	32	-70	3575	0	0	12.7	3.0	13.0
4100049	99	DIRN	SUR	27	-63	3715	0	0	15.0	6.5	16.4
4100052	99	DIRN	SUR	18	-65	3985	0	0	10.0	8.5	13.1
4100053	99	DIRN	SUR	18	-66	3242	0	0	14.9	2.4	15.1
4100056	99	DIRN	SUR	18	-65	4005	0	0	13.6	9.0	16.3
4100064	99	DIRN	SUR	34	-77	281	0	0	39.8	8.2	40.7
41001	99	DIRN	SUR	35	-72	2000	0	0	16.1	1.8	16.2
4100139	99	DIRN	SUR	20	-38	590	0	0	8.1	3.3	8.8
41002	99	DIRN	SUR	32	-75	4064	0	0	21.8	8.6	23.5

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4100300	99	DIRN	SUR	16	-57	719	0	0	8.2	7.1	10.8
41008	99	DIRN	SUR	31	-81	1638	0	0	22.7	1.0	22.8
41010	99	DIRN	SUR	29	-79	5064	0	0	16.8	5.1	17.5
41013	99	DIRN	SUR	33	-78	4286	0	0	18.3	4.5	18.9
41024	99	DIRN	SUR	34	-79	1054	0	0	23.8	-10.5	26.0
41029	99	DIRN	SUR	33	-80	3164	0	0	19.6	2.8	19.8
41033	99	DIRN	SUR	32	-80	1142	0	0	21.2	7.8	22.6
41037	99	DIRN	SUR	34	-77	969	0	0	22.4	10.9	24.9
41038	99	DIRN	SUR	34	-78	992	0	0	25.8	-13.5	29.2
41040	99	DIRN	SUR	15	-53	4974	0	0	8.4	5.0	9.8
41041	99	DIRN	SUR	15	-46	5126	0	0	8.3	4.6	9.5
41043	99	DIRN	SUR	21	-65	4329	0	0	9.5	2.9	10.0
41044	99	DIRN	SUR	22	-59	3990	0	0	9.6	4.0	10.4
41046	99	DIRN	SUR	24	-68	5827	0	0	10.0	5.1	11.2
41047	99	DIRN	SUR	27	-72	4926	0	0	11.5	4.2	12.2
41048	99	DIRN	SUR	32	-70	5229	0	0	13.2	2.3	13.4
41049	99	DIRN	SUR	28	-63	4976	0	0	14.6	5.7	15.7
41052	99	DIRN	SUR	18	-65	2628	0	0	10.6	8.0	13.2
41053	99	DIRN	SUR	19	-66	2266	0	0	15.1	1.8	15.2
41056	99	DIRN	SUR	18	-66	2629	0	0	14.1	9.4	17.0
41064	99	DIRN	SUR	34	-77	493	0	0	40.9	7.1	41.5
4200013	99	DIRN	SUR	27	-83	248	0	0	26.2	-8.2	27.4
4200022	99	DIRN	SUR	28	-84	943	0	0	20.6	-1.8	20.7
4200023	99	DIRN	SUR	26	-83	1084	0	0	19.4	-5.5	20.1
4200026	99	DIRN	SUR	25	-83	1123	0	0	18.2	-3.7	18.5
4200036	99	DIRN	SUR	29	-85	3028	0	0	24.5	6.5	25.3
4200056	99	DIRN	SUR	20	-85	4233	0	0	10.5	3.7	11.2
4200058	99	DIRN	SUR	14	-75	4311	0	0	5.7	4.8	7.5
4200059	99	DIRN	SUR	15	-67	4304	0	0	8.5	5.7	10.2
4200060	99	DIRN	SUR	16	-63	3013	0	0	26.7	1.9	26.7
4200085	99	DIRN	SUR	18	-67	3965	0	0	14.2	10.0	17.4
42013	99	DIRN	SUR	27	-83	335	0	0	23.8	-8.4	25.3
42022	99	DIRN	SUR	28	-84	1232	0	0	20.4	-2.6	20.6
42023	99	DIRN	SUR	26	-83	1784	0	0	19.0	-6.0	19.9
42026	99	DIRN	SUR	25	-84	1510	0	0	18.2	-3.7	18.5
42036	99	DIRN	SUR	29	-85	4324	0	0	24.4	4.3	24.8
42056	99	DIRN	SUR	20	-85	4881	0	0	11.0	3.1	11.4
42058	99	DIRN	SUR	14	-75	4376	0	0	6.5	0.2	6.5
42059	99	DIRN	SUR	15	-68	4285	0	0	9.4	10.6	14.1
42060	99	DIRN	SUR	16	-63	2954	0	0	27.1	1.4	27.1
42085	99	DIRN	SUR	18	-67	3122	0	0	13.7	9.9	16.9

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4400005	99	DIRN	SUR	43	-69	49	0	0	11.4	5.6	12.7
4400007	99	DIRN	SUR	44	-70	3091	0	0	20.4	10.5	22.9
4400008	99	DIRN	SUR	41	-69	2432	0	0	15.7	17.7	23.6
4400011	99	DIRN	SUR	41	-67	624	0	0	9.4	15.0	17.7
4400013	99	DIRN	SUR	42	-71	2364	0	0	22.9	13.4	26.6
4400014	99	DIRN	SUR	37	-75	2427	0	0	15.6	9.6	18.3
4400017	99	DIRN	SUR	41	-72	3630	0	0	16.1	9.1	18.5
4400020	99	DIRN	SUR	41	-70	142	0	0	6.3	12.1	13.6
4400022	99	DIRN	SUR	41	-74	210	0	0	23.5	3.7	23.8
4400025	99	DIRN	SUR	40	-73	2834	0	0	24.1	44.4	50.6
4400027	99	DIRN	SUR	44	-67	57	0	0	12.0	3.3	12.5
4400029	99	DIRN	SUR	43	-71	528	0	0	21.2	5.4	21.9
4400030	99	DIRN	SUR	43	-70	514	0	0	19.3	6.1	20.2
4400032	99	DIRN	SUR	44	-69	517	0	0	27.6	-2.8	27.7
4400033	99	DIRN	SUR	44	-69	404	0	0	23.6	6.4	24.5
4400034	99	DIRN	SUR	44	-68	480	0	0	20.2	7.2	21.4
4400039	99	DIRN	SUR	41	-73	281	0	0	22.2	14.8	26.7
4400040	99	DIRN	SUR	41	-74	450	0	0	22.3	2.8	22.5
4400058	99	DIRN	SUR	38	-76	4629	0	0	20.3	2.0	20.4
4400062	99	DIRN	SUR	39	-76	4352	0	0	17.0	1.0	17.0
4400063	99	DIRN	SUR	39	-76	3882	0	0	18.7	-1.2	18.8
4400065	99	DIRN	SUR	40	-74	3432	0	0	16.8	9.7	19.4
4400072	99	DIRN	SUR	37	-76	4310	0	0	23.1	0.8	23.1
4400073	99	DIRN	SUR	43	-71	19	0	0	13.3	13.3	18.9
4400075	99	DIRN	SUR	40	-71	3240	0	0	13.5	-12.3	18.3
4400076	99	DIRN	SUR	40	-71	2987	0	0	13.3	-12.9	18.6
4400077	99	DIRN	SUR	40	-71	3335	0	0	12.5	-14.7	19.3
44005	99	DIRN	SUR	43	-69	123	0	0	11.4	4.7	12.3
44007	99	DIRN	SUR	44	-70	4651	0	0	20.5	10.7	23.1
44008	99	DIRN	SUR	41	-69	3216	0	0	16.3	17.1	23.6
44011	99	DIRN	SUR	41	-67	818	0	0	9.6	6.0	11.3
44013	99	DIRN	SUR	42	-71	3699	0	0	21.9	12.1	25.0
44014	99	DIRN	SUR	37	-75	3122	0	0	15.8	8.5	17.9
44017	99	DIRN	SUR	41	-72	4818	0	0	16.3	8.6	18.4
44020	99	DIRN	SUR	42	-70	199	0	0	7.1	13.1	14.9
44022	99	DIRN	SUR	41	-74	322	0	0	24.3	7.0	25.3
44025	99	DIRN	SUR	40	-73	4034	0	0	24.7	44.1	50.5
44027	99	DIRN	SUR	44	-67	145	0	0	12.8	-0.2	12.8
44029	99	DIRN	SUR	43	-71	1355	0	0	22.3	5.6	22.9
44030	99	DIRN	SUR	43	-70	903	0	0	21.1	6.5	22.0
44032	99	DIRN	SUR	44	-69	891	0	0	27.1	-2.9	27.3

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
44033	99	DIRN	SUR	44	-69	695	0	0	21.6	6.4	22.5
44034	99	DIRN	SUR	44	-68	819	0	0	18.8	6.9	20.0
44039	99	DIRN	SUR	41	-73	484	0	0	21.9	14.5	26.2
44040	99	DIRN	SUR	41	-74	652	0	0	18.7	6.9	19.9
44058	99	DIRN	SUR	38	-76	5722	0	0	20.4	2.3	20.6
44062	99	DIRN	SUR	39	-76	5986	0	0	19.1	1.4	19.2
44063	99	DIRN	SUR	39	-76	5105	0	0	20.4	0.2	20.4
44065	99	DIRN	SUR	40	-74	4450	0	0	17.3	9.1	19.5
44069	99	DIRN	SUR	41	-73	106	0	0	13.5	-6.8	15.1
44072	99	DIRN	SUR	37	-76	5175	0	0	26.1	1.5	26.1
44073	99	DIRN	SUR	43	-71	36	0	0	13.2	14.4	19.5
44075	99	DIRN	SUR	40	-71	3824	0	0	13.9	-12.8	18.9
44076	99	DIRN	SUR	40	-71	3605	0	0	13.9	-12.8	18.9
44077	99	DIRN	SUR	40	-71	4001	0	0	13.7	-14.8	20.2
44078	99	DIRN	SUR	60	-40	1350	0	0	11.4	-17.6	21.0
44137	99	DIRN	SUR	42	-62	597	0	0	14.2	-35.6	38.3
44258	99	DIRN	SUR	45	-63	601	0	0	16.8	5.3	17.7
44488	99	DIRN	SUR	45	-61	587	0	0	24.2	22.4	32.9
44489	99	DIRN	SUR	46	-61	552	0	0	26.3	14.4	29.9
44490	99	DIRN	SUR	45	-66	736	0	0	21.2	10.5	23.7
4500003	99	DIRN	SUR	45	-83	1981	0	0	17.8	11.7	21.3
4500005	99	DIRN	SUR	42	-82	1696	0	0	25.6	12.4	28.5
4500008	99	DIRN	SUR	44	-82	1791	0	0	22.0	6.8	23.0
4500012	99	DIRN	SUR	44	-77	1616	0	0	22.2	18.7	29.0
4500162	99	DIRN	SUR	45	-83	1145	0	0	27.8	7.9	28.9
4500163	99	DIRN	SUR	44	-84	1466	0	0	25.8	5.2	26.3
4500165	99	DIRN	SUR	42	-83	2590	0	0	35.1	7.2	35.8
4500175	99	DIRN	SUR	46	-85	3994	0	0	28.5	-5.8	29.1
45003	99	DIRN	SUR	45	-83	2552	0	0	18.4	12.1	22.0
45005	99	DIRN	SUR	42	-82	2305	0	0	24.8	12.7	27.8
45008	99	DIRN	SUR	44	-82	2641	0	0	23.1	9.9	25.2
45012	99	DIRN	SUR	44	-77	2303	0	0	19.5	13.9	23.9
45132	99	DIRN	SUR	43	-81	533	0	0	19.0	5.0	19.6
45135	99	DIRN	SUR	44	-77	535	0	0	22.9	9.3	24.7
45137	99	DIRN	SUR	46	-81	539	0	0	18.7	4.8	19.3
45139	99	DIRN	SUR	43	-80	459	0	0	18.4	-2.9	18.6
45142	99	DIRN	SUR	43	-79	579	0	0	23.6	3.0	23.8
45143	99	DIRN	SUR	45	-81	467	0	0	22.2	9.2	24.1
45147	99	DIRN	SUR	42	-83	455	0	0	23.9	19.5	30.8
45149	99	DIRN	SUR	44	-82	442	0	0	21.6	8.0	23.1
45151	99	DIRN	SUR	45	-79	414	0	0	18.6	5.9	19.5

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
45152	99	DIRN	SUR	46	-80	466	0	0	19.0	-12.9	23.0
45154	99	DIRN	SUR	46	-83	462	0	0	20.5	1.7	20.5
45159	99	DIRN	SUR	44	-79	400	0	0	32.9	4.6	33.2
45162	99	DIRN	SUR	45	-83	1324	0	0	27.6	6.9	28.4
45163	99	DIRN	SUR	44	-84	2018	0	0	26.5	4.9	26.9
45165	99	DIRN	SUR	42	-83	3105	0	0	34.8	6.5	35.4
45175	99	DIRN	SUR	46	-85	5484	0	0	29.2	-6.0	29.8
6100198	99	DIRN	SUR	37	-2	515	0	0	20.8	8.0	22.3
6100281	99	DIRN	SUR	40	0	220	0	0	37.6	-7.3	38.3
6100417	99	DIRN	SUR	38	0	488	0	0	17.2	-0.5	17.2
6200024	99	DIRN	SUR	44	-3	327	0	0	23.8	4.4	24.2
6200025	99	DIRN	SUR	44	-6	483	0	0	15.9	-2.4	16.1
6200082	99	DIRN	SUR	44	-8	480	0	0	14.3	0.7	14.3
6200083	99	DIRN	SUR	43	-9	590	0	0	11.5	-3.4	12.0
6200084	99	DIRN	SUR	42	-9	606	0	0	11.5	-2.3	11.7
6200085	99	DIRN	SUR	36	-7	467	0	0	18.1	2.4	18.2
6200091	99	DIRN	SUR	53	-5	534	0	0	13.2	0.9	13.2
6200092	99	DIRN	SUR	51	-11	633	0	0	10.7	2.9	11.1
6200093	99	DIRN	SUR	55	-10	671	0	0	9.4	1.9	9.6
6200094	99	DIRN	SUR	52	-7	572	0	0	13.6	1.1	13.7
6200095	99	DIRN	SUR	53	-16	647	0	0	10.5	-5.0	11.6
62001	99	DIRN	SUR	45	-5	1218	0	0	20.8	3.0	21.0
6200200	99	DIRN	SUR	36	-8	574	0	0	166.4	-40.0	171.1
6201030	99	DIRN	SUR	44	-4	279	0	0	19.6	2.0	19.7
62023	99	DIRN	SUR	51	-8	1592	0	0	17.4	5.7	18.3
62029	99	DIRN	SUR	49	-13	1216	0	0	13.5	-10.1	16.9
62081	99	DIRN	SUR	51	-13	1460	0	0	10.6	-8.4	13.5
62091	99	DIRN	SUR	53	-5	524	0	0	12.6	0.5	12.6
62092	99	DIRN	SUR	51	-11	622	0	0	10.9	2.6	11.2
62093	99	DIRN	SUR	55	-10	665	0	0	9.9	1.4	10.0
62094	99	DIRN	SUR	52	-7	553	0	0	14.1	0.6	14.1
62095	99	DIRN	SUR	53	-16	641	0	0	10.9	-5.5	12.2
62103	99	DIRN	SUR	50	-3	1167	0	0	19.3	12.6	23.0
62107	99	DIRN	SUR	50	-6	1905	0	0	15.9	3.0	16.2
62112	99	DIRN	SUR	58	0	887	0	0	13.5	-5.1	14.4
62114	99	DIRN	SUR	58	0	2388	0	0	14.8	-4.0	15.3
62163	99	DIRN	SUR	48	-8	19	0	0	9.8	0.0	9.8
62305	99	DIRN	SUR	50	0	444	0	0	21.1	6.8	22.2
6401850	99	DIRN	SUR	62	-25	599	0	0	25.5	-10.2	27.5
6401851	99	DIRN	SUR	63	-18	536	0	0	53.2	8.2	53.9
6401855	99	DIRN	SUR	64	-23	429	0	0	38.3	-26.8	46.8

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
6401856	99	DIRN	SUR	65	-25	556	3	0	45.5	-30.1	54.6
6401857	99	DIRN	SUR	63	-23	617	0	0	24.4	-7.1	25.4
64041	99	DIRN	SUR	61	-3	1000	0	0	14.0	8.5	16.4
64045	99	DIRN	SUR	59	-12	1419	0	0	10.0	6.1	11.7
64046	99	DIRN	SUR	61	-4	1384	0	0	10.7	0.0	10.7
6763004	99	DIRN	SUR	37	-76	7	0	0	4.9	15.5	16.3

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE09	BPMWB2N	DBLK	FPUW5GN	HTXUH4H	JNKN7JF	KJJF9XN	KMPLHPW	LRYQE3U
UXK5JTU	VKB4L5Q	WDK38HS	XQFJRGX	YLV96WM	ZVQEQCM	4DC8UUK	7JUNA4N	01001
01004	01010	01028	01241	01400	01415	01492	02365	02527
02836	02963	03005	03238	03354	03502	03743	03808	03882
03953	04018	04220	04270	04320	04339	04360	04417	06011
06260	06458	06610	07110	07145	07510	07645	07761	08001
08023	08190	08221	08302	08383	08430	08508	08522	08536
10035	10113	10184	10238	10304	10393	10410	10548	10618
10739	10771	10868	10954	10962	11010	11035	11120	11240
11520	11747	11952	12120	12374	12425	12843	12982	13275
13388	14015	14240	14430	15420	15614	16045	16064	16113
16144	16245	16332	16429	16546	16622	16716	16754	17030
17095	17196	17220	17240	17351	17607	20674	22008	23205
23472	23884	24908	26038	26435	26708	26850	27459	27707
27713	28225	28661	29612	29698	30673	33041	37789	40179
40186	43599	45004	47102	47104	47138	47155	47169	47186
47401	47412	47418	47582	47600	47646	47678	47741	47778
47807	47827	47909	47918	47945	47971	47991	48698	50527
50557	50774	50953	51076	51243	51431	51463	51644	51656
51709	51777	51828	51839	52203	52267	52323	52418	52533
52652	52681	52818	52836	52866	52983	53068	53463	53513
53543	53614	53772	53845	53915	54102	54135	54161	54218
54292	54374	54511	54662	54727	54857	55299	55591	56029
56046	56080	56137	56146	56187	56492	56571	56651	56691
56739	56778	56964	56985	57083	57127	57131	57178	57245
57447	57461	57494	57516	57687	57749	57816	57957	57972
57993	58027	58150	58203	58238	58362	58424	58457	58606
58633	58665	58725	58847	59023	59134	59211	59265	59280
59293	59316	59431	59758	59981	60018	60155	60390	60571
60630	60656	60680	61660	61901	61980	61998	63985	68263
68424	68442	68512	68816	68842	70026	70133	70200	70219
70231	70261	70308	70316	70326	70350	70361	70398	71033
71043	71081	71082	71109	71119	71603	71722	71802	71811
71815	71816	71823	71836	71845	71867	71906	71907	71908
71909	71913	71917	71924	71925	71926	71934	71945	71957
72206	72208	72210	72214	72215	72230	72233	72235	72240
72248	72249	72250	72251	72261	72265	72274	72293	72305
72317	72327	72340	72363	72364	72365	72376	72388	72413
72426	72440	72451	72476	72489	72493	72501	72518	72520
72528	72558	72562	72572	72582	72597	72632	72634	72645
72649	72659	72662	72672	72694	72712	72764	72768	72776
72786	72797	73033	73110	74389	74560	76225	76256	76394
76405	76458	76526	76595	76612	76644	76654	76679	76692
76743	76805	76903	78384	78897	78954	81405	83649	83768
85442	85586	85799	85934	87155	87576	87860	88889	89002
89062	89564	89571	89592	89611	89625	89642	89859	91212
91285	91592	91610	91765	91925	91938	91948	91958	93112
93417	93817	93844	94120	94150	94170	94203	94299	94302
94312	94326	94332	94374	94403	94430	94461	94510	94578
94610	94637	94638	94653	94659	94672	94711	94767	94776
94802	94821	94866	94910	94975	94995	94996	94998	95527
96996								

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

ASDE09	BPMWB2N	DBLK	FPUW5GN	HTXUH4H	JNKN7JF	KJJF9XN	KMPLHPW	LRYQE3U
UXK5JTU	VKB4L5Q	WDK38HS	XQFJRGX	YLV96WM	ZVQEQCM	4DC8UUK	7JUNA4N	01001
01004	01010	01028	01241	01400	01415	01492	02365	02527
02836	02963	03953	06610	07110	07145	07510	07645	07761
08001	08023	08190	08221	08302	08383	08430	08536	11010
11035	11120	11240	17607	40186	47155	51243	51656	52652
53543	56046	56492	56651	57245	59023	59293	61980	61998
71033	72413	76743	76903	78897	81405	89642	89859	91592
91938	93817	94653	94767					

5 Annex - Explanations of figures and tables

5.1 General

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

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

5.2 Data Availability

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

5.3 Data Quality

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

It should be noted that:

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

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

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

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

The corresponding limits for wind (table 8) are:

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

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

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

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

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

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

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

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

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