



ECMWF Global Data Monitoring Report

September 2020

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

Contents

1	Introduction	3
2	Data summary - History of events	4
2.1	Radiosondes	4
2.2	Drifting Buoys	6
3	Global monitoring statistics	6
3.1	Data Availability	6
3.2	Data Quality	6
3.2.1	Figure 1 - Availability - SYNOP PRESSURE	8
3.2.2	Figure 2 - Availability - DRIFTER PRESSURE	9
3.2.3	Figure 3 - Availability - TEMP 500 hPa geopotential	10
3.2.4	Figure 4 - Availability - TEMP/PILOT 300 hPa wind	11
3.2.5	Figure 5 - Availability - AIRCRAFT winds 300-150 hPa	12
3.2.6	Figure 6 - Availability - SATOB winds 400-150 hPa	13
3.2.7	Figure 7 - Availability - SATOB winds 1000-700 hPa	14
3.2.8	Figure 8 - Availability - NOAA15 ATOVS : AMSU-A	15
3.2.9	Figure 9.1 - Availability - NOAA18 ATOVS : AMSU-A	16
3.2.10	Figure 9.2 - Availability - AQUA ATOVS : AMSU-A	17
3.2.11	Figure 9.3 - Availability - METOP ATOVS : AMSU-A	18
3.2.12	Table 1 - Suspect ships and fixed marine platforms: Surface pressure - (hPa)	19
3.2.13	Table 2 - Suspect ships and fixed marine platforms: Wind speed (m/s)	21
3.2.14	Table 3 - Suspect ships and fixed marine platforms: Wind direction (DEGREES)	22
3.2.15	Table 4 - Suspect drifters: Surface pressure (HPA)	23
3.2.16	Table 5 - Suspect drifters: Wind speed (m/s)	24
3.2.17	Table 6 - Suspect drifters: Wind direction (degrees)	25
3.2.18	Table 7 - Suspect radiosondes: Geopotential height (metres)	27
3.2.19	Table 8 - Suspect radiosondes: Wind (m/s)	28
3.2.20	Table 9 - Suspect radiosondes: Wind direction (degrees)	29
3.2.21	Figure 10 - Suspect TEMP observations - geopotential : 00 UTC	30
3.2.22	Figure 11 - Suspect TEMP observations - geopotential : 12 UTC	31
3.2.23	Figure 12 - Suspect TEMP/PILOT observations - wind : 00 UTC	32
3.2.24	Figure 13 - Suspect TEMP/PILOT observations - wind : 12 UTC	33
3.2.25	Table 10 - Radiosonde monitoring statistics (SHIPs): Geopotential height (metres)	34
3.2.26	Table 11 - Radiosonde monitoring statistics (SHIPs): Wind (m/s)	35
3.2.27	Figure 14 - SATOB Winds: 700-1000hPa	36
3.2.28	Figure 15 - SATOB Winds: 150- 400hPa	37
3.2.29	Figure 16 - SATOB Winds: 700-1000hPa	38
3.2.30	Figure 17 - SATOB Winds: 150- 400hPa	39
3.2.31	Figure 18 - AIRCRAFT Winds: 150- 300hPa	40
3.2.32	Table 12 - Airep Monitoring Statistics For Airline Carriers (Global)	41
4	EUCOS Area Monitoring Statistics	46
4.1	Table 13 - Radiosonde Monitoring Statistics (EUCOS): 50 hPa Geopotential height (metres)	47
4.2	Table 14 - Radiosonde Monitoring Statistics (EUCOS):50 hPa Wind (m/s)	50
4.3	Table 15 - Radiosonde Monitoring Statistics (EUCOS): 100 hPa Geopotential height (metres)	53
4.4	Table 16 - Radiosonde Monitoring Statistics (EUCOS): 100 hPa Wind (m/s)	56
4.5	Table 17 - Radiosonde Monitoring Statistics (EUCOS): 500 hPa Geopotential height (metres)	59
4.6	Table 18 - Radiosonde Monitoring Statistics (EUCOS): 500 hPa Wind (m/s)	62
4.7	Table 19 - Radiosonde Monitoring Statistics (EUCOS): 850 hPa Geopotential height (metres)	65
4.8	Table 20 - Radiosonde Monitoring Statistics (EUCOS): 850 hPa Wind (m/s)	68
4.9	Table 21 - Drifter Monitoring Statistics (EUCOS): Surface pressure (hpa)	71
4.10	Table 22 - Drifter Monitoring Statistics (EUCOS): Wind speed (m/s)	82
4.11	Table 23 - Drifter Monitoring Statistics (EUCOS): Wind direction	86
4.12	Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations	92
4.13	Table 25 - List of BUFR Encoded Radiosonde Stations with no TAC Counterpart	93

5 Annex - Explanations of figures and tables	94
5.1 General	94
5.2 Data Availability	94
5.3 Data Quality	94

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	Aug	Sep	Ident	Time	Aug	Sep
04417	(00)	31	1	03743	(12)	0	19
37011	(00)	28	5	30230	(00)	4	30
37011	(12)	30	5	30230	(12)	5	29
57461	(00)	31	0	40179	(00)	0	19
57461	(12)	31	0	40179	(12)	1	17
57749	(00)	31	0	41316	(00)	16	30
57749	(12)	31	0	43599	(12)	2	19
58457	(00)	31	0	70219	(00)	18	30
58457	(12)	31	0	72645	(00)	19	39
58847	(00)	32	0	72645	(12)	19	34
58847	(12)	31	0	78988	(00)	6	28
61980	(00)	31	2	78988	(12)	7	24
72240	(00)	28	0	80001	(00)	0	20
72240	(12)	33	2	80001	(12)	0	23
72747	(00)	34	10	83566	(12)	0	29
72747	(12)	31	7	83649	(12)	17	30
78384	(12)	29	7	83768	(12)	14	27
78970	(00)	12	1	85469	(00)	0	19
78970	(12)	21	2	89859	(00)	3	14
80398	(12)	19	0	94995	(00)	3	30
-	-	-	-	96581	(00)	18	29
-	-	-	-	98646	(00)	12	29
-	-	-	-	98646	(12)	11	28

2.2 Drifting Buoys

Surface pressure observations from 1977 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.

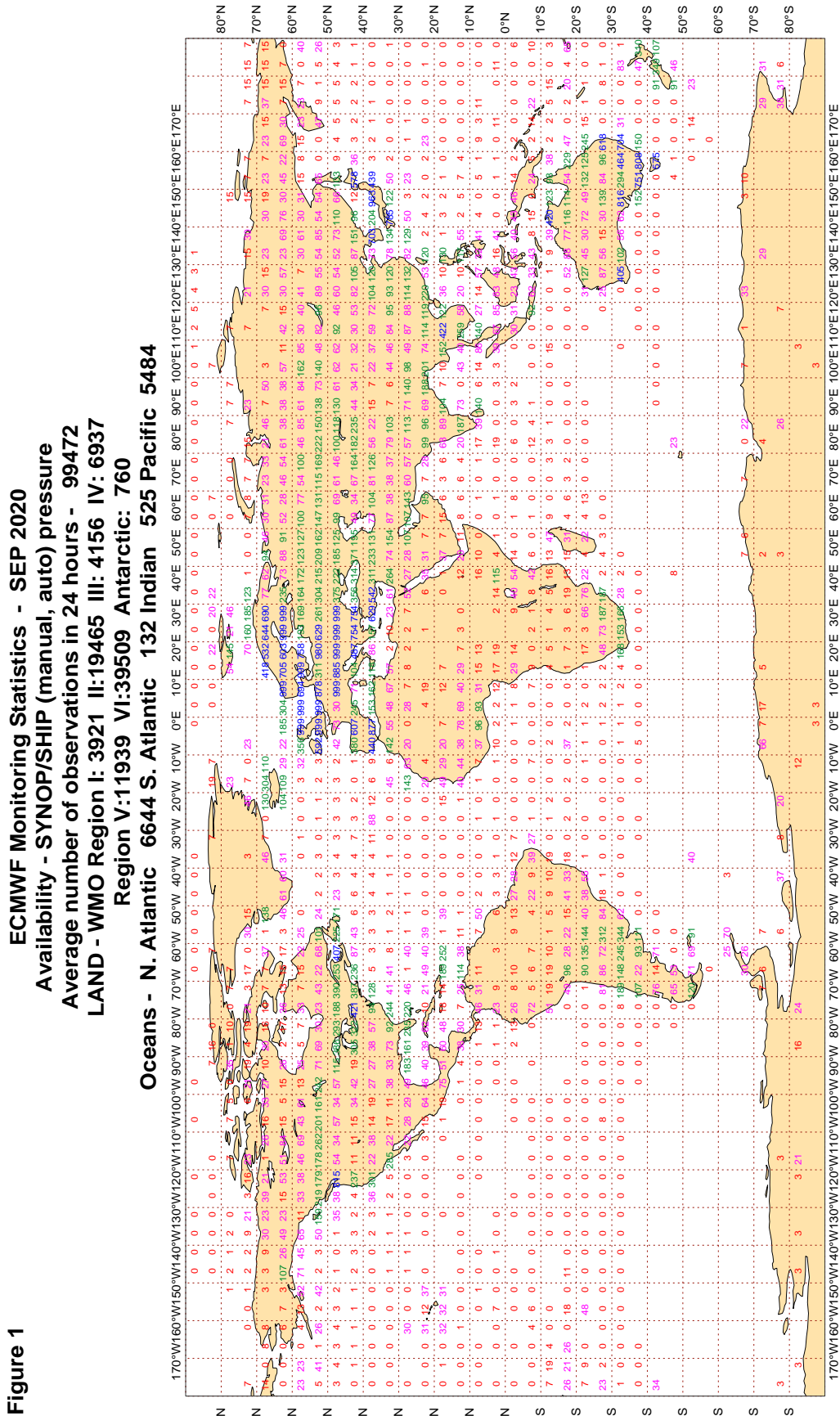
Tab	Parameter	Observation Time
10	Geopotential	00 and 12 UTC
11	Wind	00 and 12 UTC

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

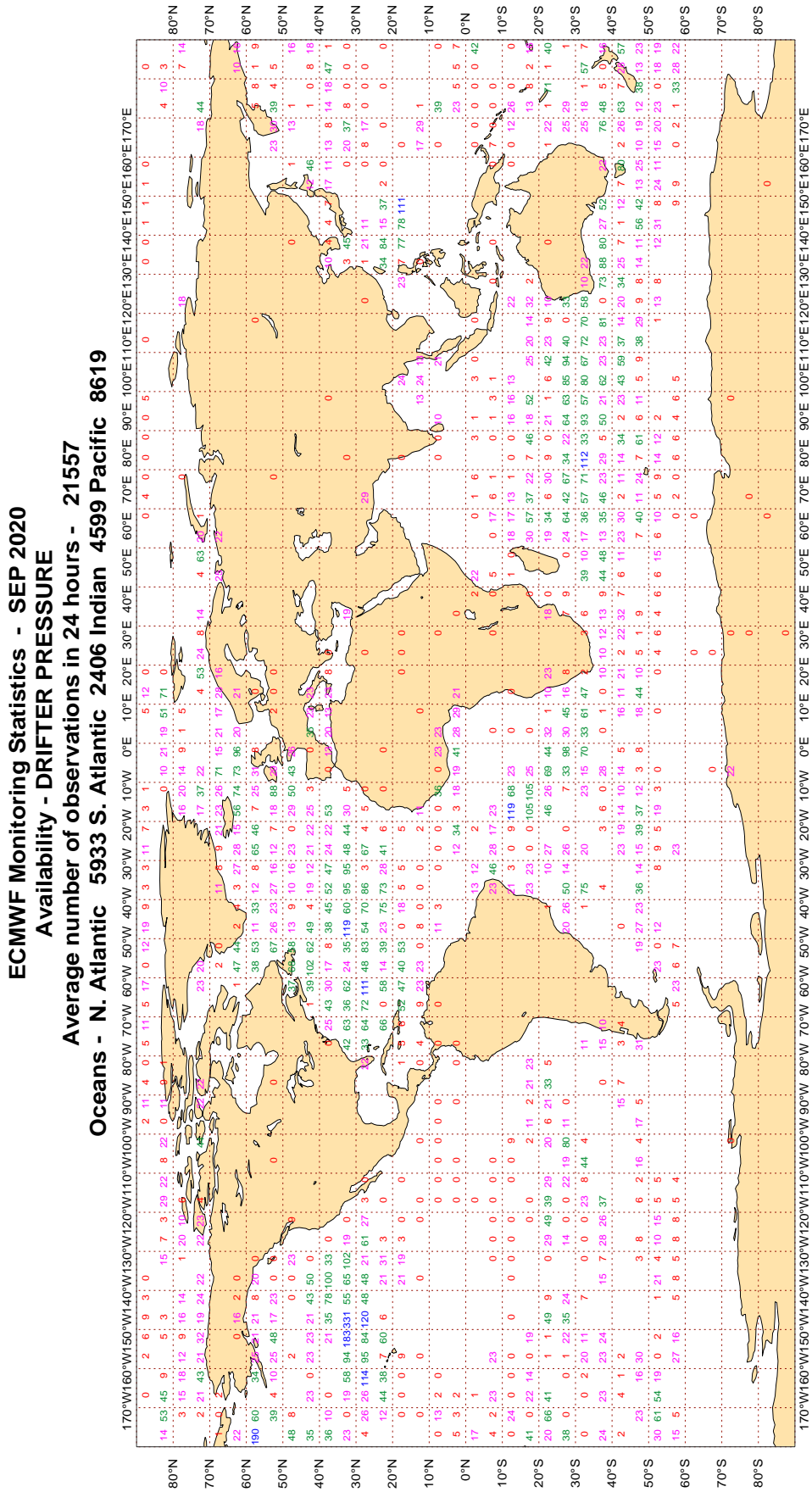
Table 12 provides quality statistics of aircraft wind observations stratified by airline carrier.

3.2.1 Figure 1 - Availability - SYNOP PRESSURE



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2



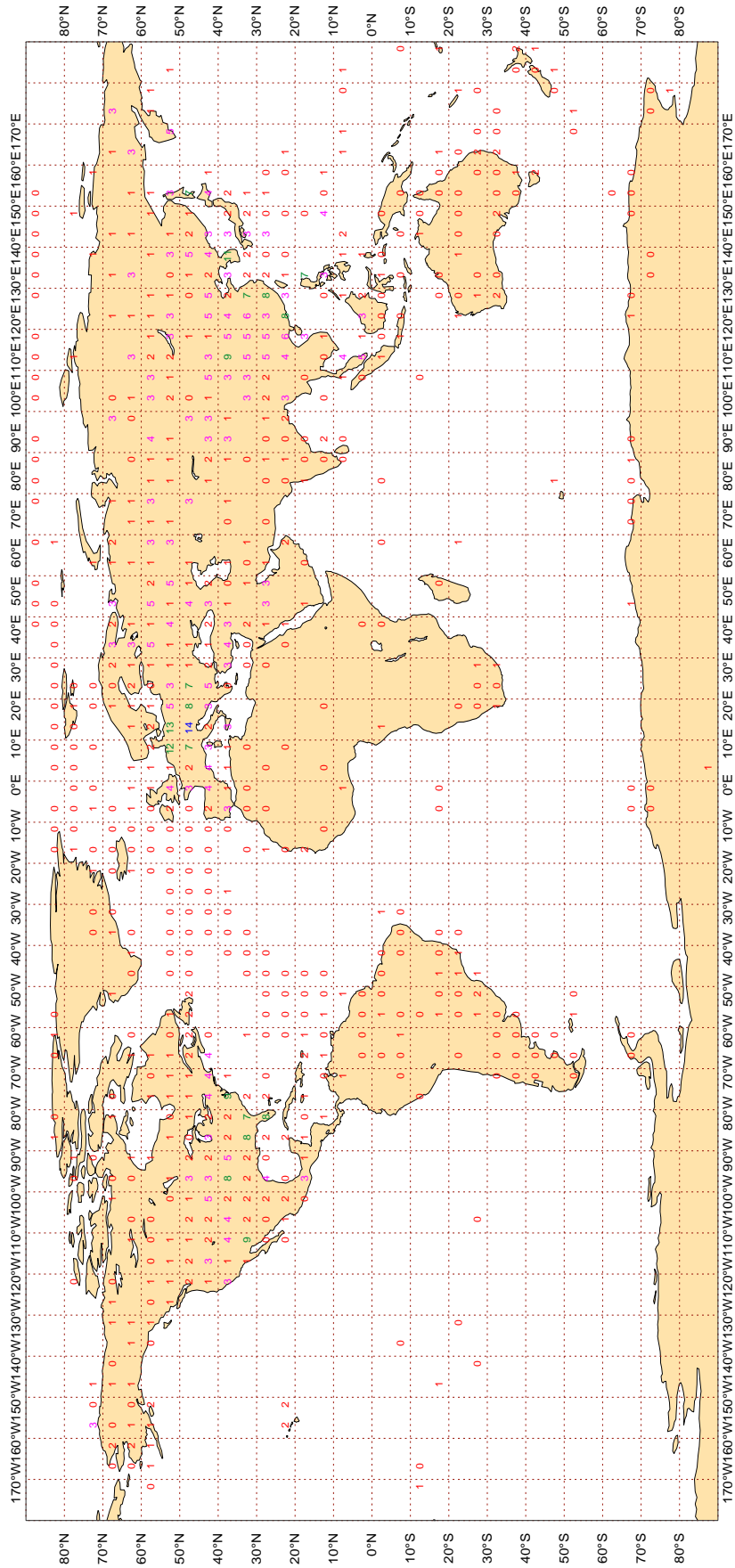
Magics 3.0.4 (64 bit)



3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

Figure 3

ECMWF Monitoring Statistics - SEP 2020
 Availability - TEMP 500 hPa Geopotential
 Average number of observations in 24 hours - 1219
 LAND - WMO Region I: 29 II: 453 III: 53 IV: 274
 Region V: 121 VI: 259 Antarctic: 14
 Oceans - N. Atlantic 10 S. Atlantic 0 Indian 0 Pacific 7



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

Figure 4

ECMWF Monitoring Statistics - SEP 2020

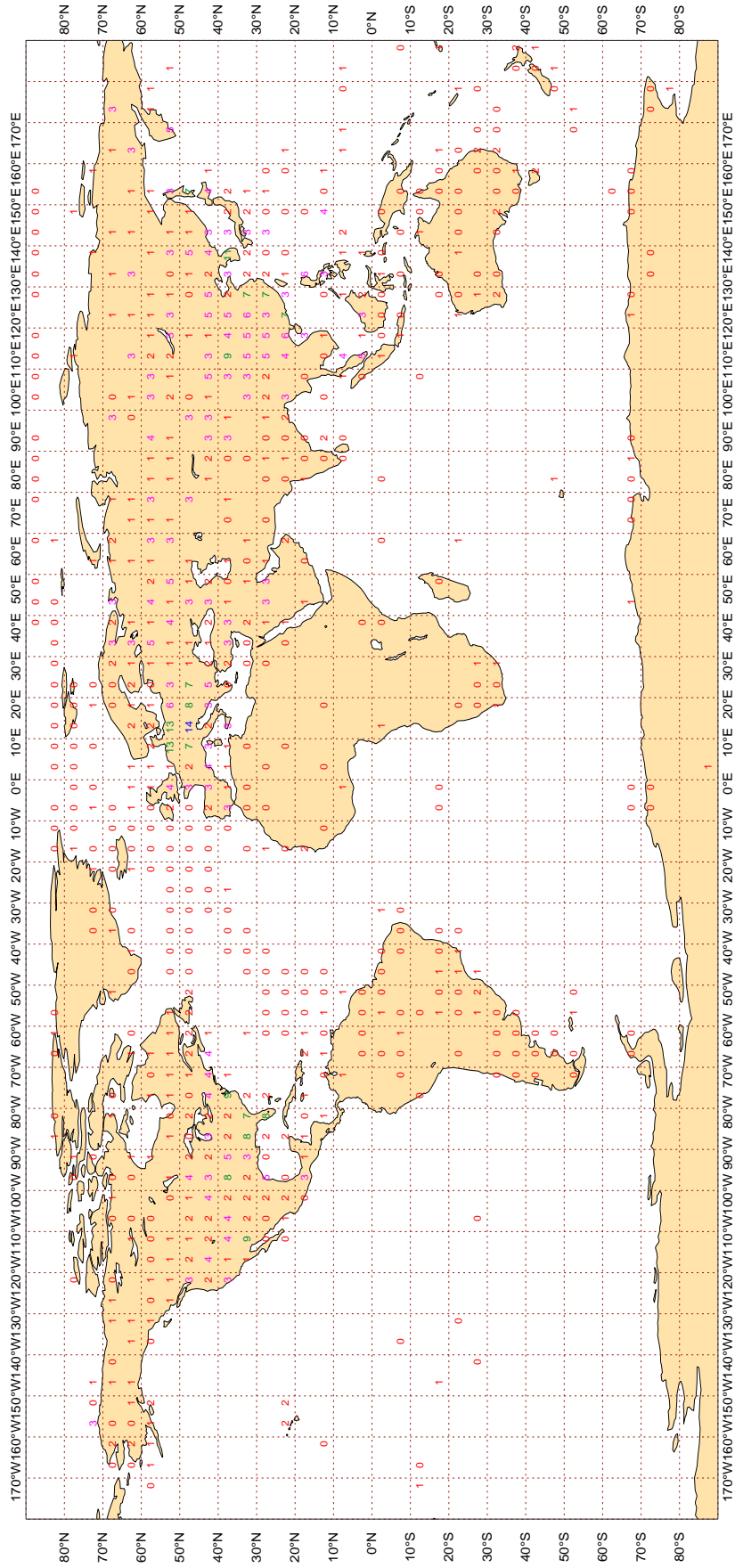
Availability - TEMP/PILOT 300 hPa wind

Average number of observations in 24 hours - 1218

LAND - WMO Region I: 29 II: 449 III: 53 IV: 281

Region V: 120 VI: 256 Antarctic: 14

Oceans - N. Atlantic 10 S. Atlantic 0 Indian 0 Pacific 7



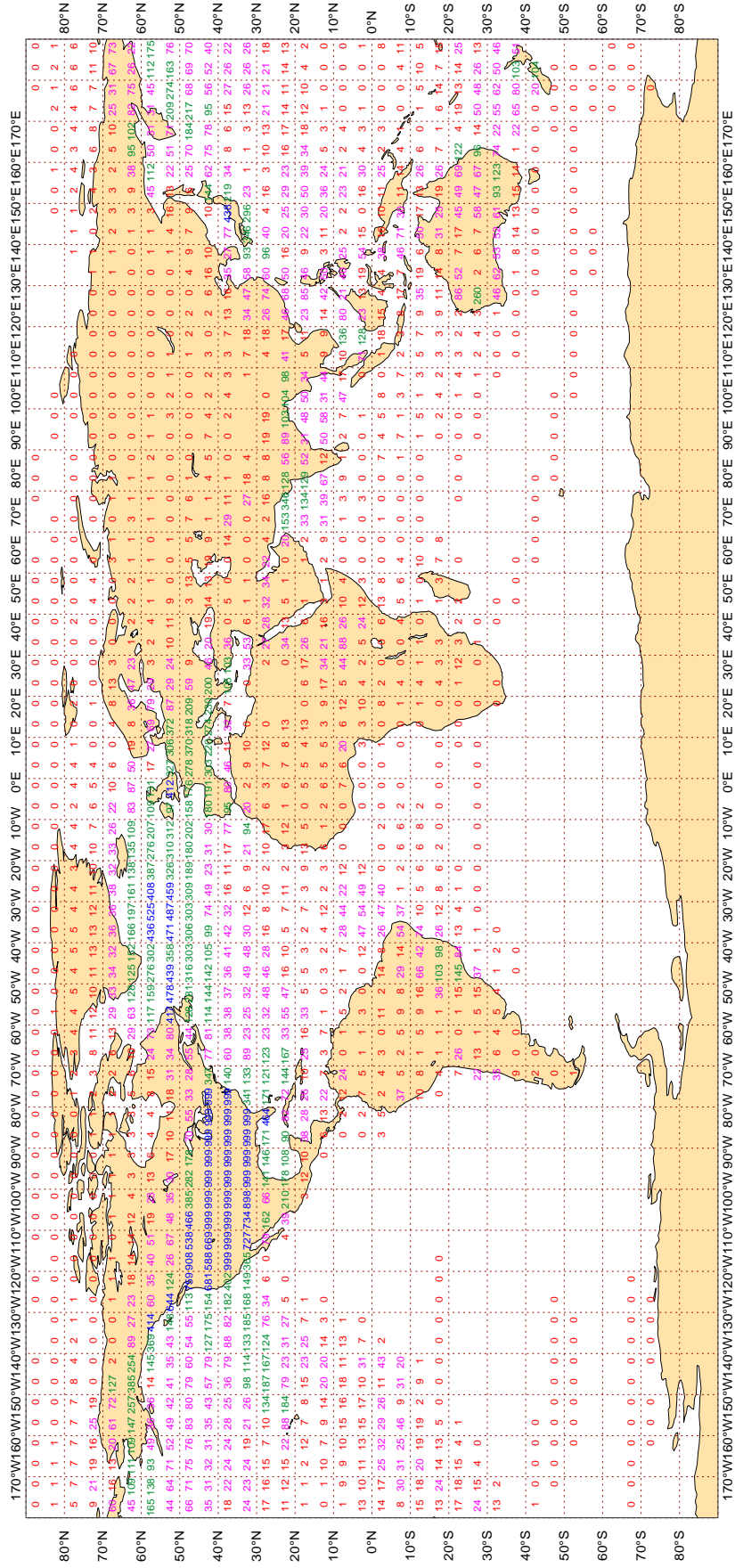
Magics 3.0.4 (64 bit)



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

Figure 5

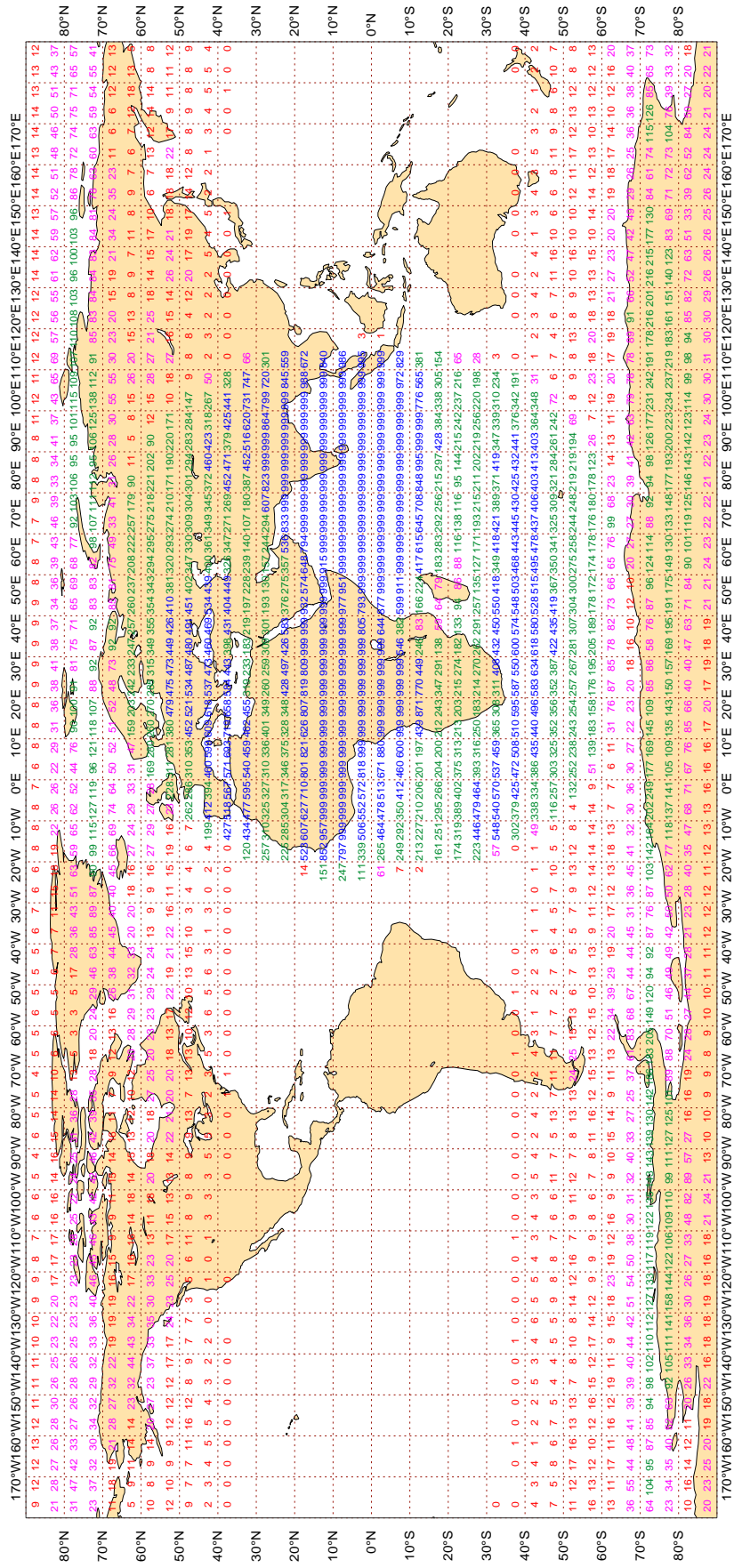
ECMWF Monitoring Statistics - SEP 2020
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 95267



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

Figure 6

ECMWF Monitoring Statistics - SEP 2020
Availability - AMV winds 400-150 hPa
Average number of observations in 24 hours - 397438



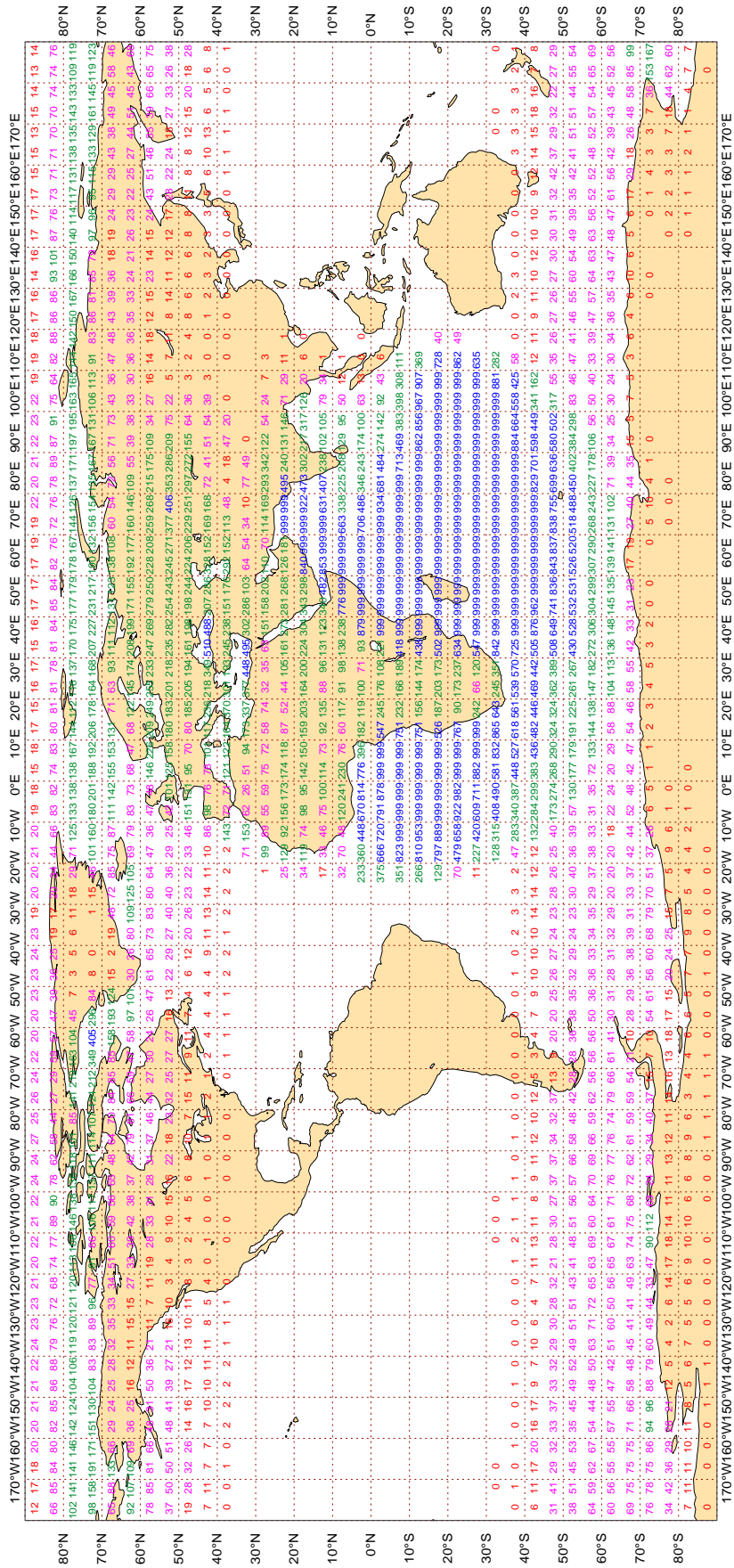
Magics 3.0.4 (64 bit)



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

Figure 7

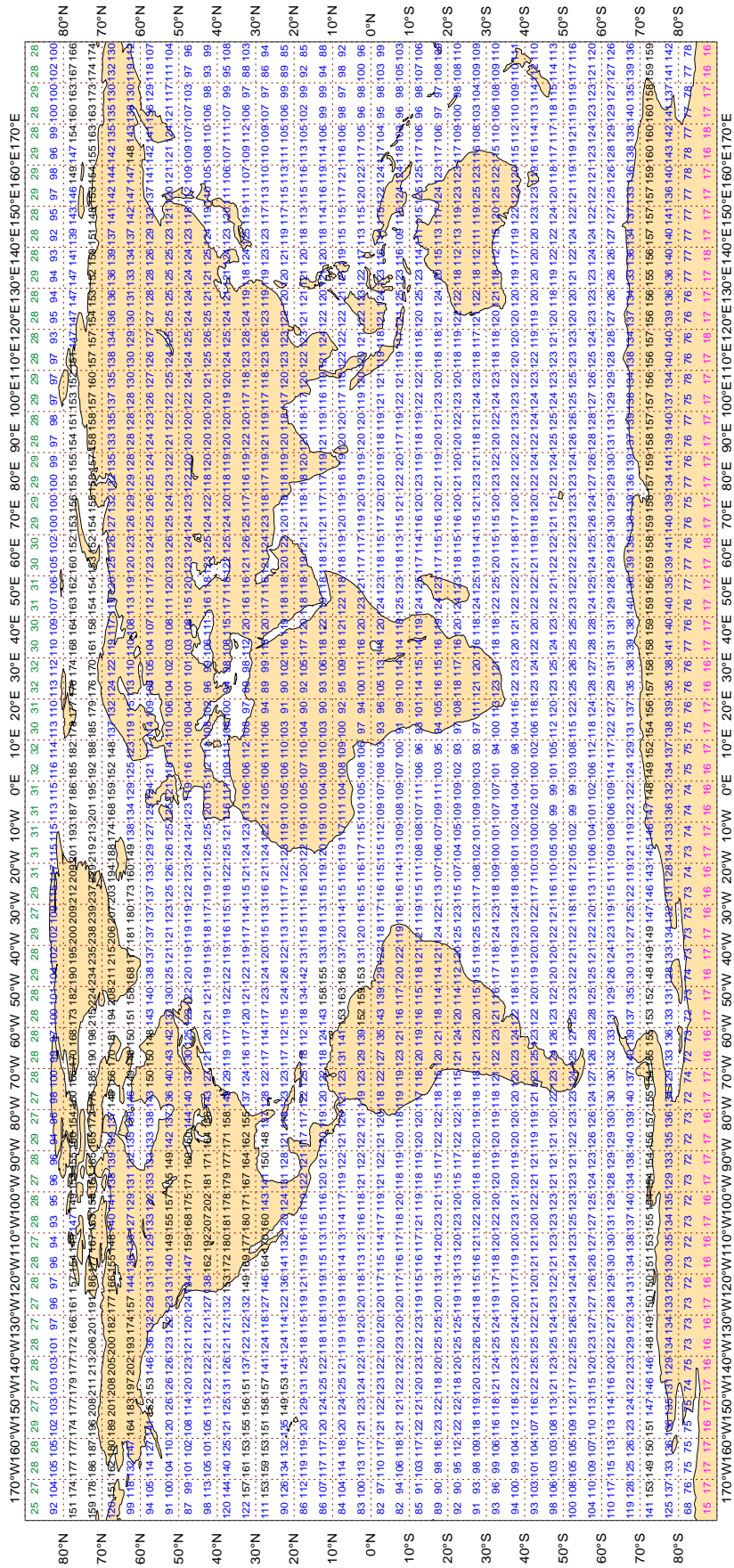
ECMWF Monitoring Statistics - SEP 2020
Availability - AMV winds 1000-700 hPa
Average number of observations in 24 hours - 397659



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

Figure 8

ECMWF Monitoring Statistics - SEP 2020
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 308585



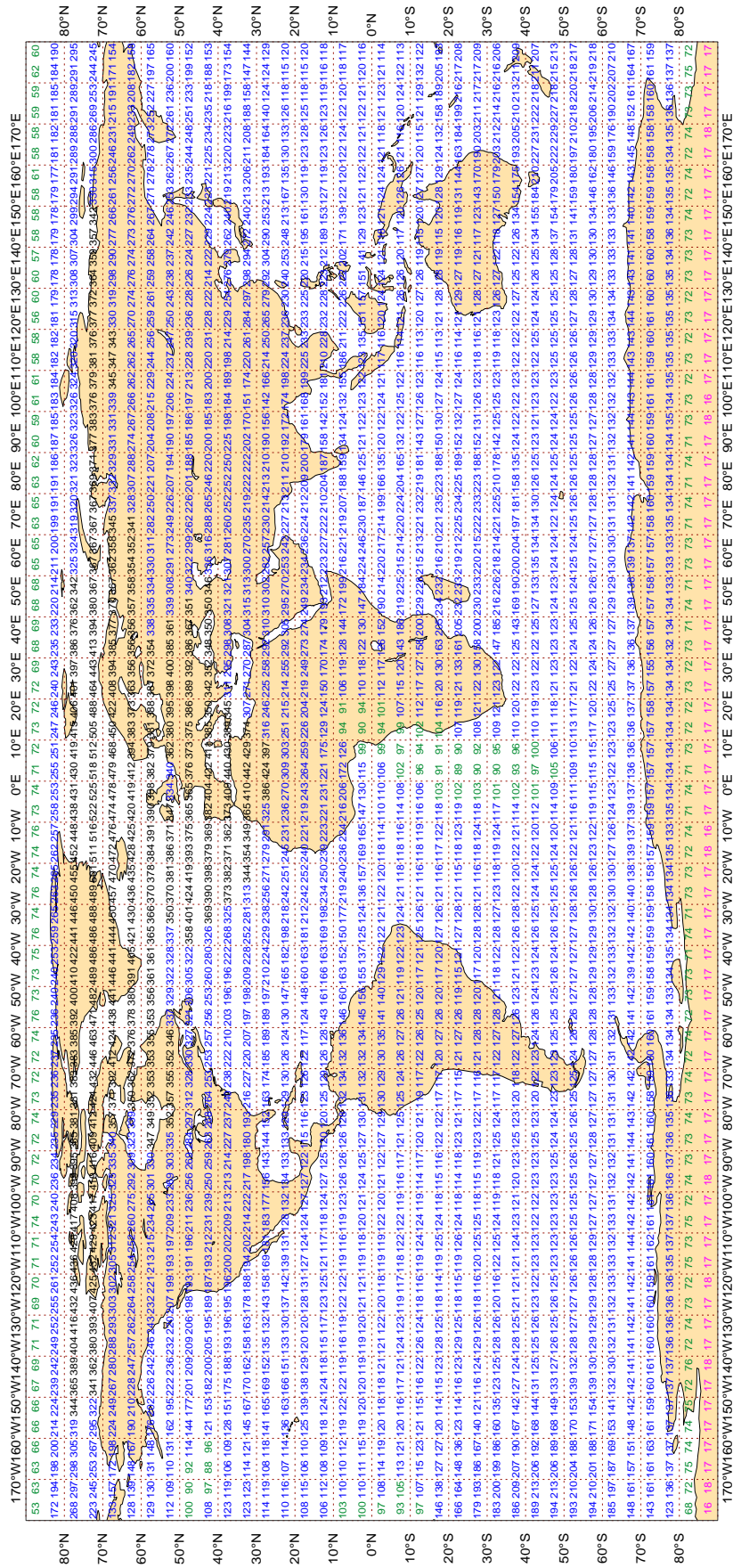
Magics 3.0.4 (64 bit)



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

Figure 9.1

ECMWF Monitoring Statistics - SEP 2020
 Availability - NOAA18 ATOVS : AMSU-A
 Average number of observations in 24 hours - 476070



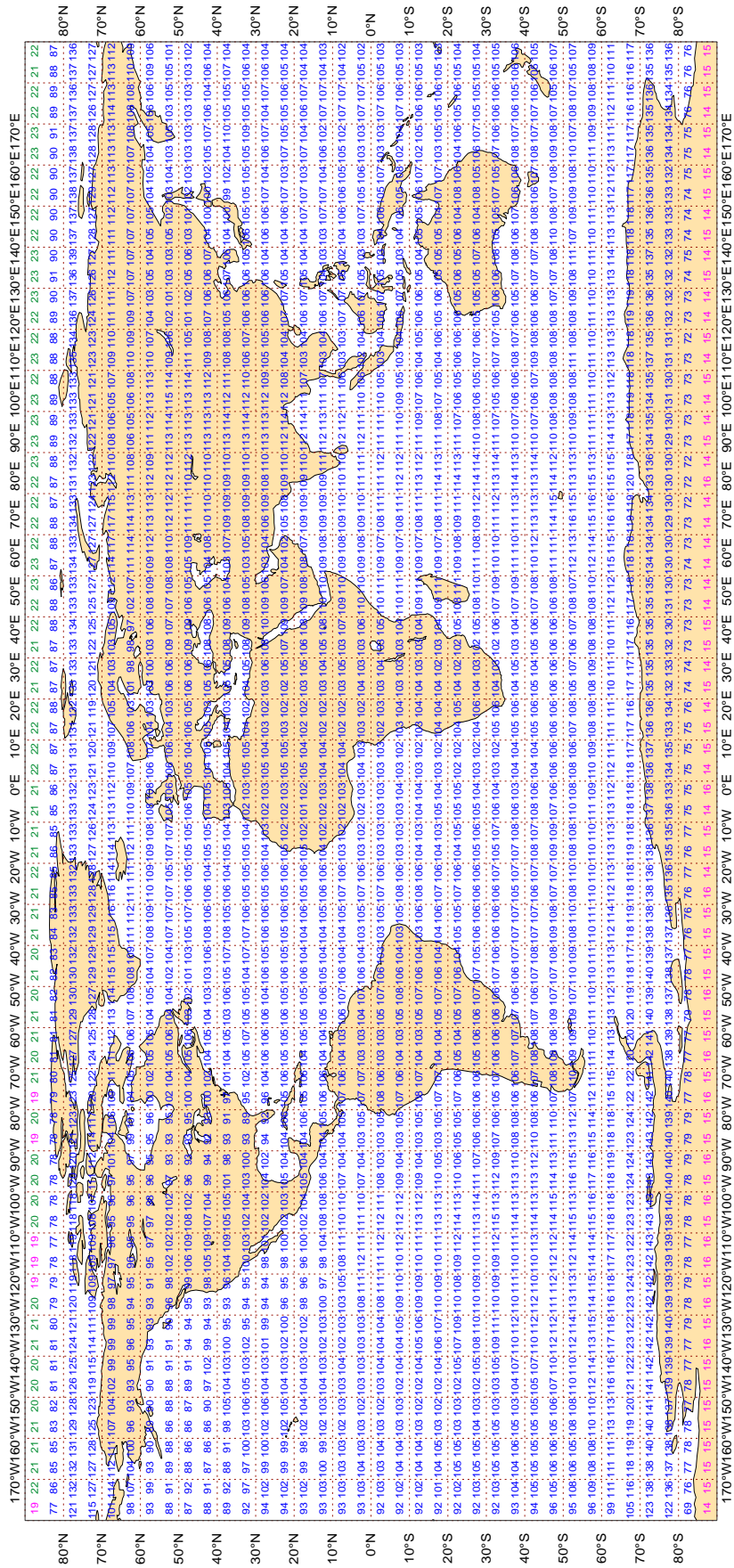
Magics 3.0.4 (64 bit)



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

Figure 9.2

ECMWF Monitoring Statistics - SEP 2020
Availability - AQUA ATOVS : AMSU-A
Average number of observations in 24 hours - 268045



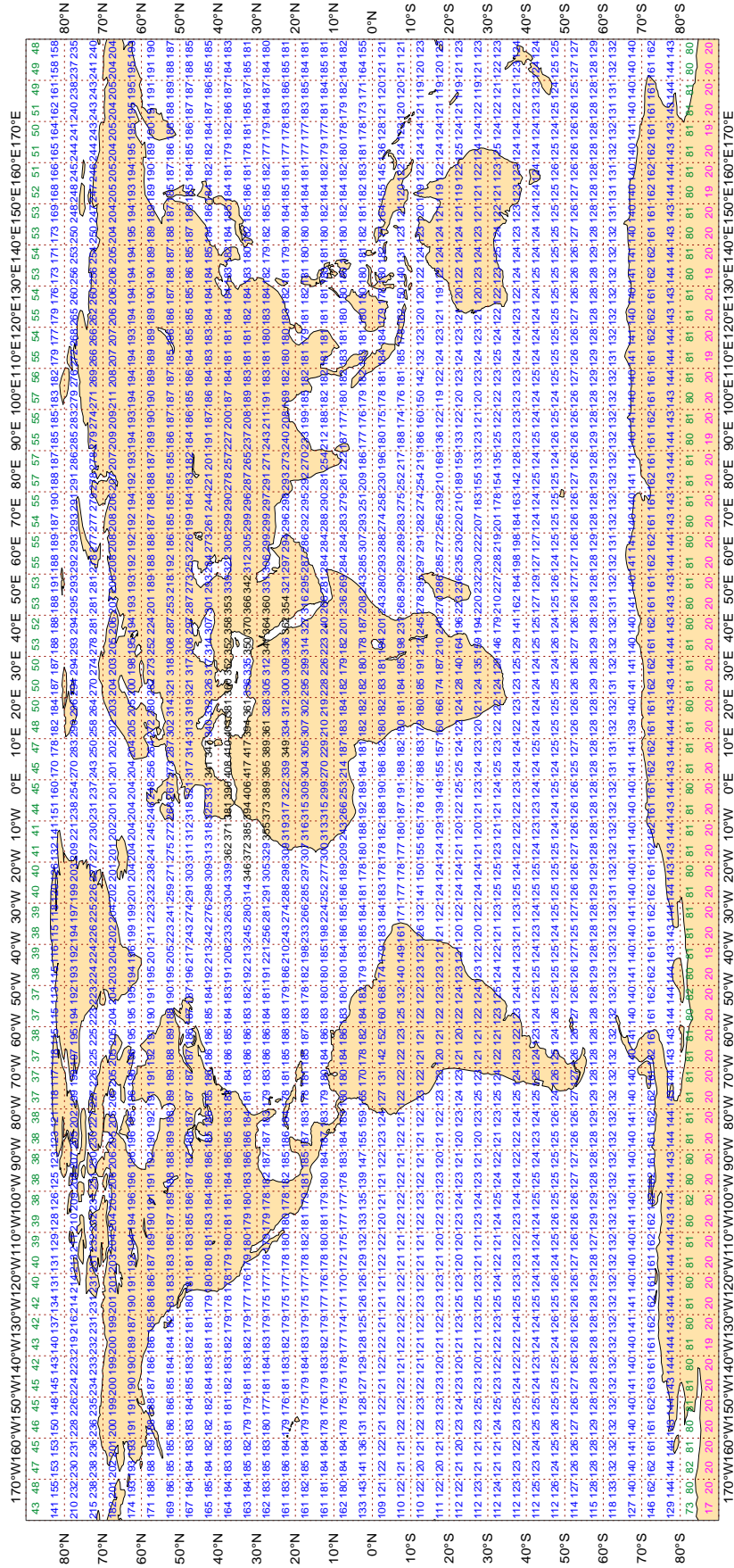
Magics 3.0.4 (64 bit)



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

Figure 9.3

ECMWF Monitoring Statistics - SEP 2020
Availability - METOP ATOVS : AMSU-A
Average number of observations in 24 hours - 433090



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 : SEP 2020
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
2FRK7	99	P	SUR	33	0	2.1	5.4	5.8
3FNF4	99	P	SUR	18	0	2.0	5.0	5.4
3FPS9	99	P	SUR	20	0	0.6	3.2	3.3
3FVW3	99	P	SUR	21	0	0.5	-3.8	3.8
3FWH8	99	P	SUR	20	0	0.8	4.0	4.0
42001	99	P	SUR	166	0	2.2	3.5	4.1
8PSH	99	P	SUR	120	0	0.8	3.5	3.6
9HA4975	99	P	SUR	26	0	1.6	5.8	6.0
9V2191	99	P	SUR	15	0	1.9	3.6	4.1
9V2676	99	P	SUR	28	0	5.2	4.0	6.5
9V3092	99	P	SUR	32	0	1.1	-3.9	4.1
9V6218	99	P	SUR	22	0	2.5	6.1	6.6
9V8827	99	P	SUR	40	0	2.3	3.2	4.0
9VHK7	99	P	SUR	44	0	1.3	9.8	9.9
ATVK	99	P	SUR	117	0	0.4	3.3	3.4
C6AX3	99	P	SUR	28	0	2.2	-3.0	3.7
C6DP6	99	P	SUR	43	0	0.9	4.0	4.1
C6DP9	99	P	SUR	41	0	2.8	6.6	7.1
C6ED5	99	P	SUR	20	0	2.4	4.2	4.8
C6JT	99	P	SUR	23	0	1.1	3.2	3.4
D5LW6	99	P	SUR	30	0	1.8	-3.1	3.6
D5SU3	99	P	SUR	22	0	0.4	-3.1	3.2
KGTX	99	P	SUR	45	0	1.6	-3.6	3.9
KLUX	99	P	SUR	28	0	1.9	3.6	4.1
KRAU	99	P	SUR	32	0	0.6	3.7	3.8
LAHR7	99	P	SUR	26	0	3.0	3.7	4.7
LAMP5	99	P	SUR	37	0	1.8	4.5	4.9
LAQM7	99	P	SUR	36	0	1.6	3.8	4.1
LAQQ7	99	P	SUR	57	0	2.5	4.0	4.7
LAZV5	99	P	SUR	113	0	2.0	4.5	5.0
OWZW2	99	P	SUR	20	0	1.7	4.8	5.1
OZ2049	99	P	SUR	38	0	0.9	-7.5	7.5

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
PBGJ	99	P	SUR	20	0	3.9	-3.2	5.0
PJWM	99	P	SUR	22	0	0.4	4.5	4.5
S6CH6	99	P	SUR	18	5	0.6	9.3	9.3
S6NY3	99	P	SUR	74	3	1.7	6.1	6.3
UBUO6	99	P	SUR	29	0	2.5	-3.0	3.9
UBVP6	99	P	SUR	18	0	0.8	3.9	4.0
V7DJ5	99	P	SUR	82	0	2.9	-3.4	4.4
V7SD8	99	P	SUR	22	0	1.1	5.8	5.9
VRCI9	99	P	SUR	33	0	1.4	3.3	3.6
VRFX2	99	P	SUR	20	0	1.7	-4.8	5.0
VRGO3	99	P	SUR	16	0	2.5	4.7	5.3
VRJS2	99	P	SUR	27	0	0.6	-5.3	5.3
VRLJ2	99	P	SUR	27	0	1.7	-4.8	5.1
VRNS2	99	P	SUR	41	0	2.0	-3.5	4.0
VRPT4	99	P	SUR	17	0	0.9	-4.0	4.1
VRR14	99	P	SUR	30	0	2.0	6.8	7.2
VTWS	99	P	SUR	106	106	0.0	0.0	0.0
VWXS	99	P	SUR	99	0	2.1	3.1	3.8
WAZV	99	P	SUR	19	0	2.4	6.2	6.7
WDDI	99	P	SUR	65	0	1.1	3.4	3.6
WDH6745	99	P	SUR	18	0	2.2	3.1	3.8
WDJ3199	99	P	SUR	17	0	1.3	5.5	5.7
ZCBD4	99	P	SUR	22	1	5.1	-2.0	5.5

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 : SEP 2020
 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
--------------	-------------	-----	-------	------------	--------------	------------	----	------	-----

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 : SEP 2020
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44072	99	DIRN	SUR	169	0	0	19.8	-67.2	70.1
44139	99	DIRN	SUR	96	1	0	19.3	-32.9	38.1
44150	99	DIRN	SUR	94	0	0	13.2	-33.0	35.5
45141	99	DIRN	SUR	86	0	0	17.5	36.9	40.8
45150	99	DIRN	SUR	93	0	0	30.6	83.7	89.1
45161	99	DIRN	SUR	63	0	0	81.0	6.0	81.2
45169	99	DIRN	SUR	72	0	0	31.0	-36.8	48.1
45175	99	DIRN	SUR	173	0	0	102.8	-13.3	103.6
45188	99	DIRN	SUR	59	0	0	120.9	109.3	163.0
46081	99	DIRN	SUR	36	0	0	38.7	37.7	54.0

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 : SEP 2020
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
0022949	99	P	SUR	34	125	591	434	2.7	-0.1	2.7
0022960	99	P	SUR	33	125	550	550	0.0	0.0	0.0
1401764	99	P	SUR	-33	79	720	0	1.2	-4.2	4.3
1601540	99	P	SUR	-44	168	241	0	1.7	-5.9	6.1
1601572	99	P	SUR	-29	59	369	2	3.4	4.7	5.8
1701546	99	P	SUR	-36	89	632	0	1.9	5.2	5.5
2501540	99	P	SUR	73	158	583	582	0.0	5.8	5.8
2501668	99	P	SUR	83	160	576	563	8.6	2.3	8.9
3100866	99	P	SUR	-40	-6	23	23	0.0	0.0	0.0
4100729	99	P	SUR	29	-39	399	132	0.7	13.2	13.2
4601592	99	P	SUR	-38	-127	720	222	6.0	-4.0	7.2
4701658	99	P	SUR	72	-95	705	0	1.1	7.0	7.1
4801652	99	P	SUR	84	-121	572	572	0.0	0.0	0.0
4801670	99	P	SUR	79	-170	638	102	3.1	5.6	6.4
4801680	99	P	SUR	73	-161	197	51	1.7	-1.7	2.4
4801725	99	P	SUR	48	-122	195	32	5.9	-4.6	7.5
5102719	99	P	SUR	33	-159	719	0	0.4	-4.8	4.8
5601551	99	P	SUR	-16	60	55	55	0.0	0.0	0.0
5601623	99	P	SUR	24	-12	131	71	0.3	0.1	0.3
6301543	99	P	SUR	67	43	79	50	2.4	2.5	3.5

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 : SEP 2020
 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
4101808	99	SPEED	SUR	28	-64	457	0	0	4.4	-5.4	7.0
4101810	99	SPEED	SUR	29	-62	533	0	0	4.7	-6.0	7.6
5300041	99	SPEED	SUR	-8	100	3924	0	0	3.2	-5.5	6.4

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : SEP 2020
 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
1500008	99	DIRN	SUR	-20	-10	190	0	0	15.8	25.9	30.3
23091	99	DIRN	SUR	18	89	109	0	0	19.1	-26.1	32.3
23099	99	DIRN	SUR	13	80	157	0	1	28.1	36.0	45.6
23451	99	DIRN	SUR	15	69	185	0	0	13.0	-33.6	36.0
23452	99	DIRN	SUR	12	69	211	0	0	14.7	-42.1	44.6
23453	99	DIRN	SUR	8	73	208	0	0	16.8	-31.2	35.4
23454	99	DIRN	SUR	10	73	205	0	1	25.8	36.9	45.0
23497	99	DIRN	SUR	11	72	179	9	92	17.5	-79.6	81.5
3100005	99	DIRN	SUR	-19	-35	176	0	0	10.8	-22.4	24.8
4200043	99	DIRN	SUR	29	-95	1177	0	0	22.4	-22.8	32.0
42043	99	DIRN	SUR	29	-95	1167	0	0	22.8	-23.5	32.7
4300001	99	DIRN	SUR	8	-110	580	0	0	15.5	29.8	33.6
43001	99	DIRN	SUR	8	-110	552	0	0	16.0	29.6	33.7
4400029	99	DIRN	SUR	43	-71	590	0	0	13.3	-20.9	24.8
4400072	99	DIRN	SUR	37	-76	3388	0	3	16.2	-64.2	66.2
44029	99	DIRN	SUR	43	-71	1143	0	0	13.9	-20.8	25.0
44072	99	DIRN	SUR	37	-76	2147	0	4	16.3	-64.3	66.3
44078	99	DIRN	SUR	60	-40	1513	0	0	12.4	-22.3	25.5
44137	99	DIRN	SUR	42	-62	995	0	0	12.5	-25.8	28.7
44139	99	DIRN	SUR	44	-57	1055	2	1	11.8	-29.3	31.6
44150	99	DIRN	SUR	43	-64	1049	0	0	13.2	-34.4	36.9
4500013	99	DIRN	SUR	43	-88	902	0	1	28.2	25.2	37.8
4500023	99	DIRN	SUR	47	-89	3026	0	2	34.1	-26.3	43.1
4500169	99	DIRN	SUR	42	-82	1300	0	3	28.3	-28.4	40.1
45013	99	DIRN	SUR	43	-88	1233	0	1	27.5	24.2	36.7
45023	99	DIRN	SUR	47	-89	1466	0	2	35.2	-26.4	44.0
45141	99	DIRN	SUR	61	-115	914	0	1	16.4	37.3	40.8
45150	99	DIRN	SUR	62	-114	991	0	13	14.8	80.2	81.5
45169	99	DIRN	SUR	42	-82	1007	0	3	27.6	-29.5	40.4
4600060	99	DIRN	SUR	61	-147	460	0	0	27.6	21.5	35.0
4600081	99	DIRN	SUR	61	-148	219	0	6	37.1	28.3	46.7

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
4600118	99	DIRN	SUR	49	-123	173	0	3	36.0	-20.2	41.2
46060	99	DIRN	SUR	61	-147	825	0	0	27.3	20.8	34.4
46075	99	DIRN	SUR	54	-161	1159	0	0	10.9	-20.3	23.0
46081	99	DIRN	SUR	61	-148	393	0	6	36.5	29.3	46.8
46088	99	DIRN	SUR	48	-123	916	0	1	26.2	20.2	33.1
46207	99	DIRN	SUR	51	-130	1048	2	1	14.1	23.0	27.0
5100014	99	DIRN	SUR	-5	-140	508	0	1	28.3	-20.3	34.8
51014	99	DIRN	SUR	-5	-140	498	0	1	28.2	-20.2	34.7
5300041	99	DIRN	SUR	-8	100	1467	0	45	13.9	81.7	82.8
5300056	99	DIRN	SUR	-5	95	518	0	98	69.1	-25.3	73.6
53056	99	DIRN	SUR	-5	95	509	0	99	56.9	-35.3	67.0
6100280	99	DIRN	SUR	41	1	114	0	9	30.5	25.8	40.0
6101007	99	DIRN	SUR	36	25	181	0	2	27.2	43.4	51.2
6200199	99	DIRN	SUR	40	-9	357	0	99	63.5	15.8	65.4
6301004	99	DIRN	SUR	72	20	556	0	0	17.8	27.8	33.1

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 : SEP 2020
 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	20.8	73.0	75.9
01400	12	Z	1000	57	3	25	0	5.6	79.3	79.5
24688	12	Z	400	63	143	22	1	49.6	-27.1	56.5
60715	00	Z	200	37	10	24	1	84.2	43.8	94.9
61687	12	Z	1000	14	-14	20	0	2.8	-39.9	40.0
71957	00	Z	70	68	-134	30	5	114.1	72.7	135.3
97014	00	Z	1000	2	125	30	0	33.7	13.6	36.3
98233	12	Z	1000	18	122	30	0	31.0	30.5	43.5
JNKN7J	12	Z	1000	51	-17	13	0	5.1	43.5	43.8
JNKN7J	00	Z	1000	51	-12	10	0	4.9	39.4	39.7
VKB4L5	12	Z	1000	43	-11	10	0	2.5	31.4	31.5
YLV96W	00	Z	925	41	-69	10	0	14.6	39.7	42.3
YLV96W	12	Z	1000	46	-53	11	0	7.3	44.2	44.8

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 : SEP 2020
 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
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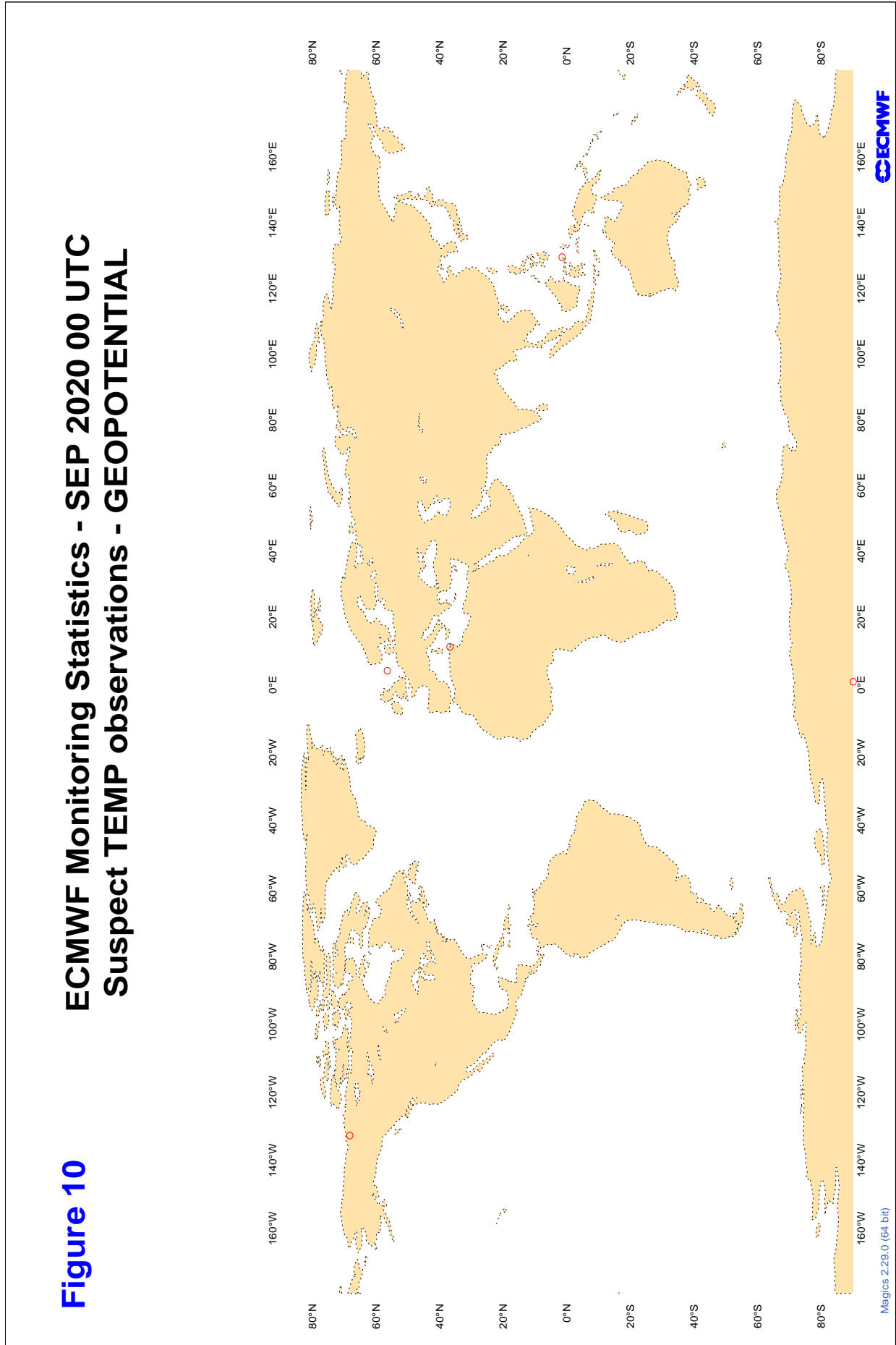
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : SEP 2020
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

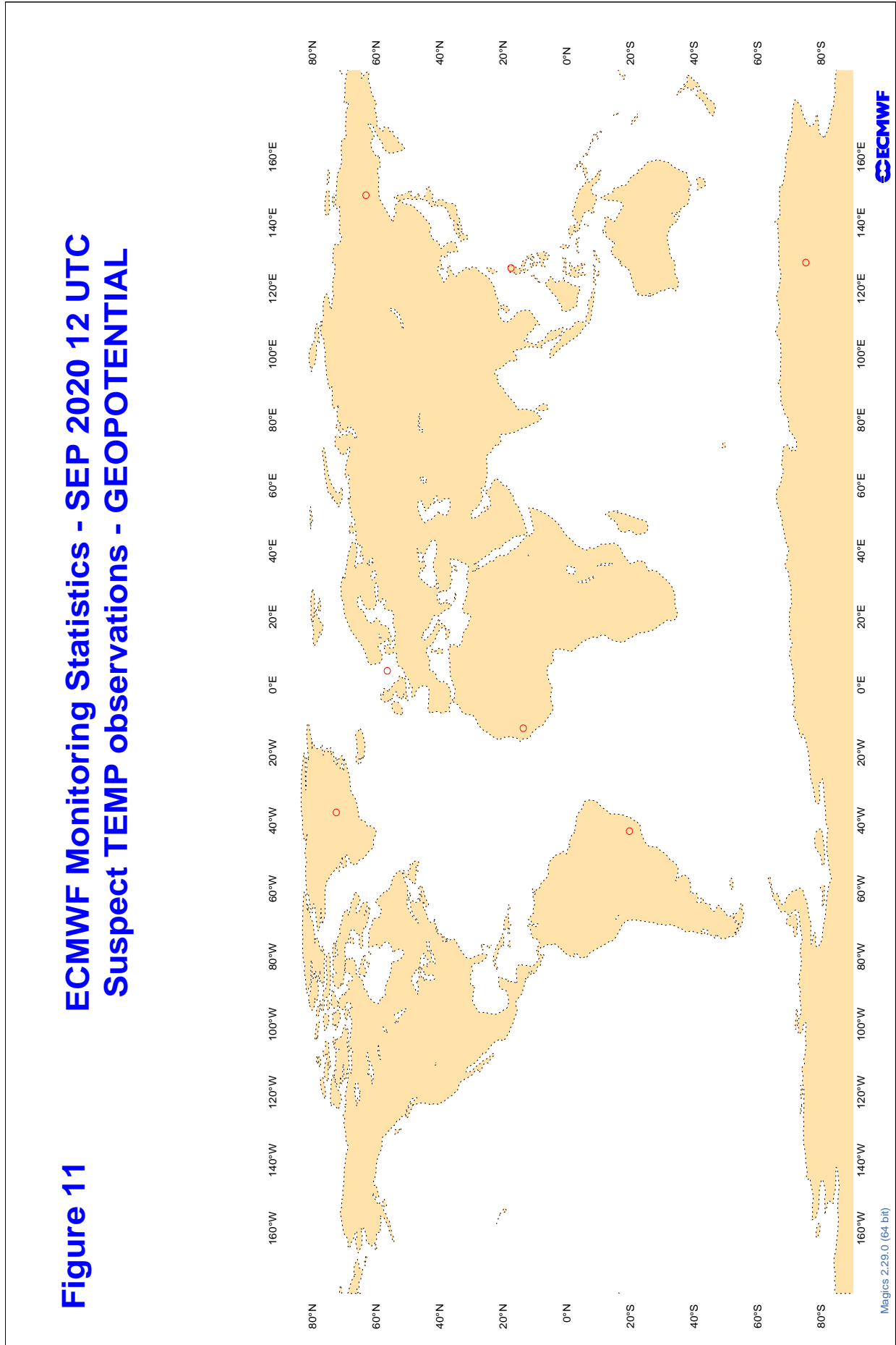
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS \geq 5 M/S
 NO. OF OBSERVATIONS \geq 5, AND,
 ABSOLUTE BIAS \geq 10 DEGREES, WITH
 STANDARD DEVIATION $<$ 30 DEGREES, AND,
 VERTICAL SPREAD $<$ 10 DEGREES
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
48565	00	DD	8	98	20	12.8	3.2	15.3
59431	12	DD	23	109	15	-11.4	8.6	13.9
DBLK	00	DD	88	115	22	-14.4	3.3	26.3

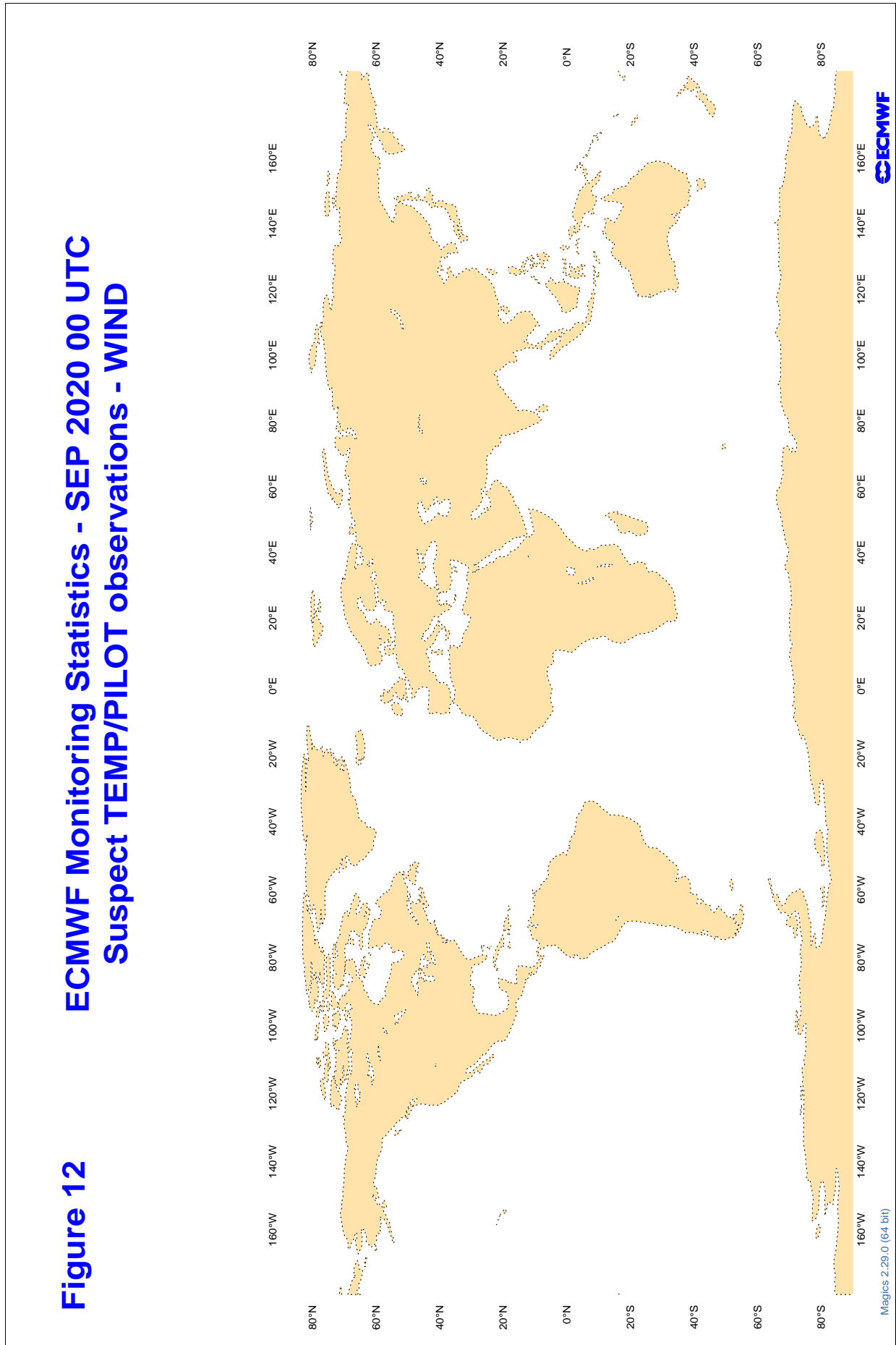
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



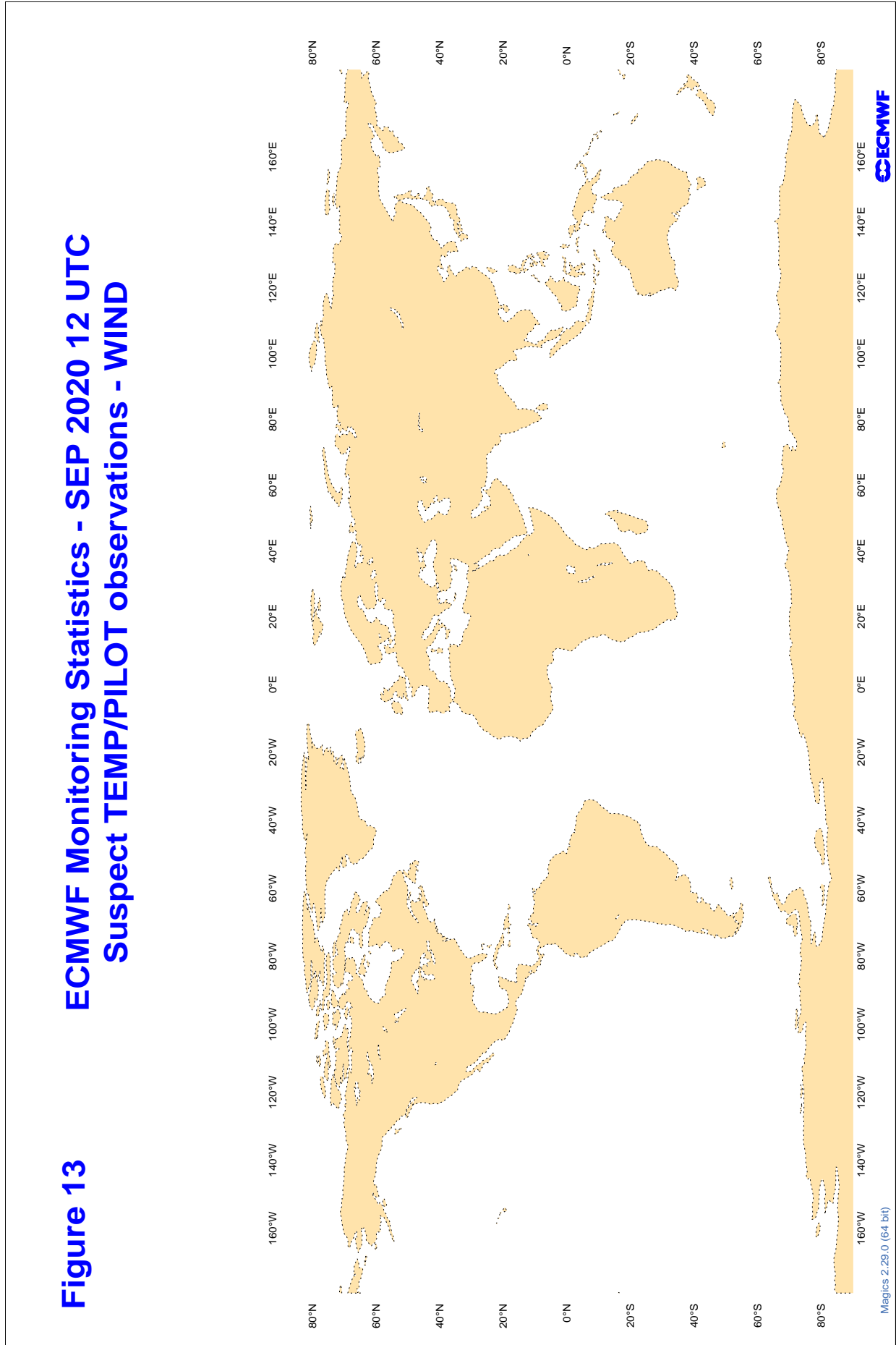
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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 : SEP 2020
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
7JUNA4	12	Z	100	4	20.2	12.0
7JUNA4	00	Z	100	2	1.8	-1.4
ASDE09	12	Z	100	4	11.0	3.4
BPMWB2	12	Z	100	1	4.9	4.9
BPMWB2	00	Z	100	0	0.0	0.0
DBLK	12	Z	100	25	7.6	-6.8
DBLK	00	Z	100	27	7.0	-5.6
FPUW5G	12	Z	100	8	6.8	1.7
HTXUH4	12	Z	100	2	2.8	1.0
HTXUH4	00	Z	100	1	5.8	-5.8
JGQH	12	Z	100	0	0.0	0.0
JGQH	00	Z	100	2	19.2	17.5
JNKN7J	12	Z	100	10	58.2	55.9
JNKN7J	00	Z	100	9	34.1	32.1
JNSR	00	Z	100	29	12.0	9.5
JNSR	12	Z	100	27	11.4	9.7
KJJF9X	12	Z	100	8	27.9	27.0
KJJF9X	00	Z	100	7	10.5	10.3
KMPLHP	00	Z	100	5	10.5	-2.6
KMPLHP	12	Z	100	4	72.4	72.0
LRYQE3	12	Z	100	12	44.3	35.7
LRYQE3	00	Z	100	9	14.9	4.6
UXK5JT	00	Z	100	3	9.8	8.3
UXK5JT	12	Z	100	4	18.8	12.5
VKB4L5	12	Z	100	10	36.8	35.9
VKB4L5	00	Z	100	9	39.9	39.2
WDK38H	00	Z	100	12	10.1	-9.7
WDK38H	12	Z	100	17	10.4	-9.5
XKQLWQ	12	Z	100	12	26.2	23.6
XQFJRG	12	Z	100	5	11.0	-10.0
XQFJRG	00	Z	100	6	17.4	-16.2
YLV96W	12	Z	100	3	52.0	51.6
YLV96W	00	Z	100	4	36.6	35.2
ZVQEQC	12	Z	100	10	94.9	-33.0

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

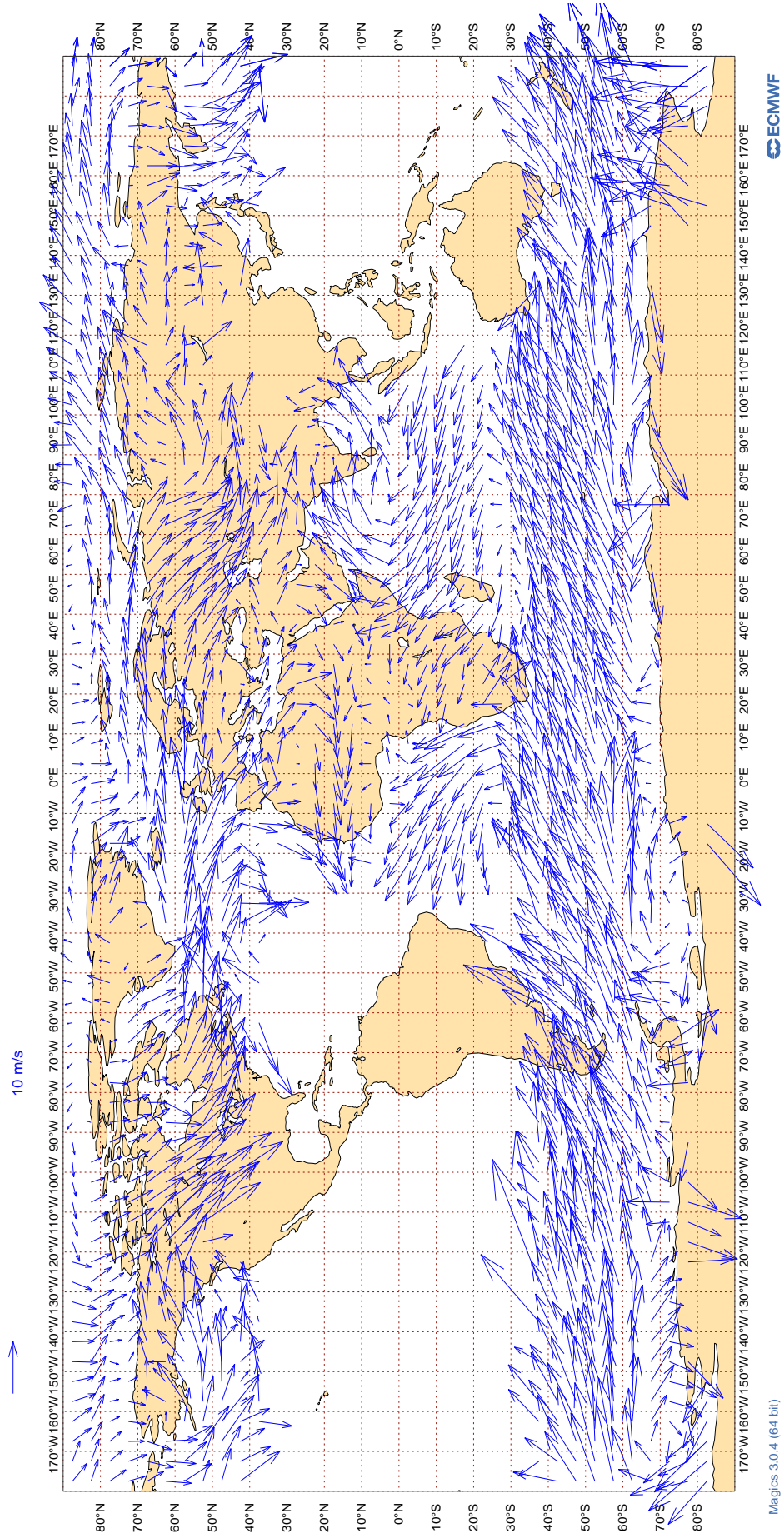
RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 100 HPA
 AREA : GLOBAL
 PERIOD : SEP 2020
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
7JUNA4	12	V	100	4	2.8	-1.1	0.0
7JUNA4	00	V	100	2	1.5	0.2	-0.4
ASDE09	12	V	100	4	1.5	-0.5	0.1
BPMWB2	12	V	100	1	5.5	-4.7	-2.9
BPMWB2	00	V	100	0	0.0	0.0	0.0
DBLK	12	V	100	23	4.3	-0.8	-2.0
DBLK	00	V	100	25	3.7	-0.2	-1.8
FPUW5G	12	V	100	8	3.4	2.3	0.1
HTXUH4	12	V	100	2	1.4	-0.1	0.7
HTXUH4	00	V	100	1	2.0	0.5	1.9
JGQH	12	V	100	0	0.0	0.0	0.0
JGQH	00	V	100	2	7.5	-1.7	1.6
JNKN7J	12	V	100	10	3.2	-1.3	-0.9
JNKN7J	00	V	100	9	4.8	-1.4	0.6
JNSR	00	V	100	10	4.5	0.2	0.6
JNSR	12	V	100	9	5.9	0.9	1.6
KJJF9X	12	V	100	8	3.2	-0.1	0.5
KJJF9X	00	V	100	7	2.9	-0.7	1.0
KMPLHP	00	V	100	5	3.5	0.2	1.1
KMPLHP	12	V	100	3	3.2	-1.3	-1.5
LRYQE3	12	V	100	12	3.5	0.6	1.1
LRYQE3	00	V	100	9	4.6	1.9	-0.6
UXK5JT	00	V	100	3	4.5	-2.3	3.1
UXK5JT	12	V	100	4	3.6	1.4	-0.9
VKB4L5	12	V	100	9	3.0	0.0	-1.2
VKB4L5	00	V	100	9	3.2	0.2	0.2
WDK38H	00	V	100	11	2.2	-0.6	0.3
WDK38H	12	V	100	17	2.3	0.0	-0.4
XKQLWQ	12	V	100	12	2.4	0.0	0.4
XQFJRG	12	V	100	5	3.2	1.0	-0.1
XQFJRG	00	V	100	6	4.2	2.3	-1.4
YL96W	12	V	100	3	4.2	0.2	-2.7
YL96W	00	V	100	4	4.7	0.9	-3.9
ZVQEQC	12	V	100	10	3.8	1.5	-0.3

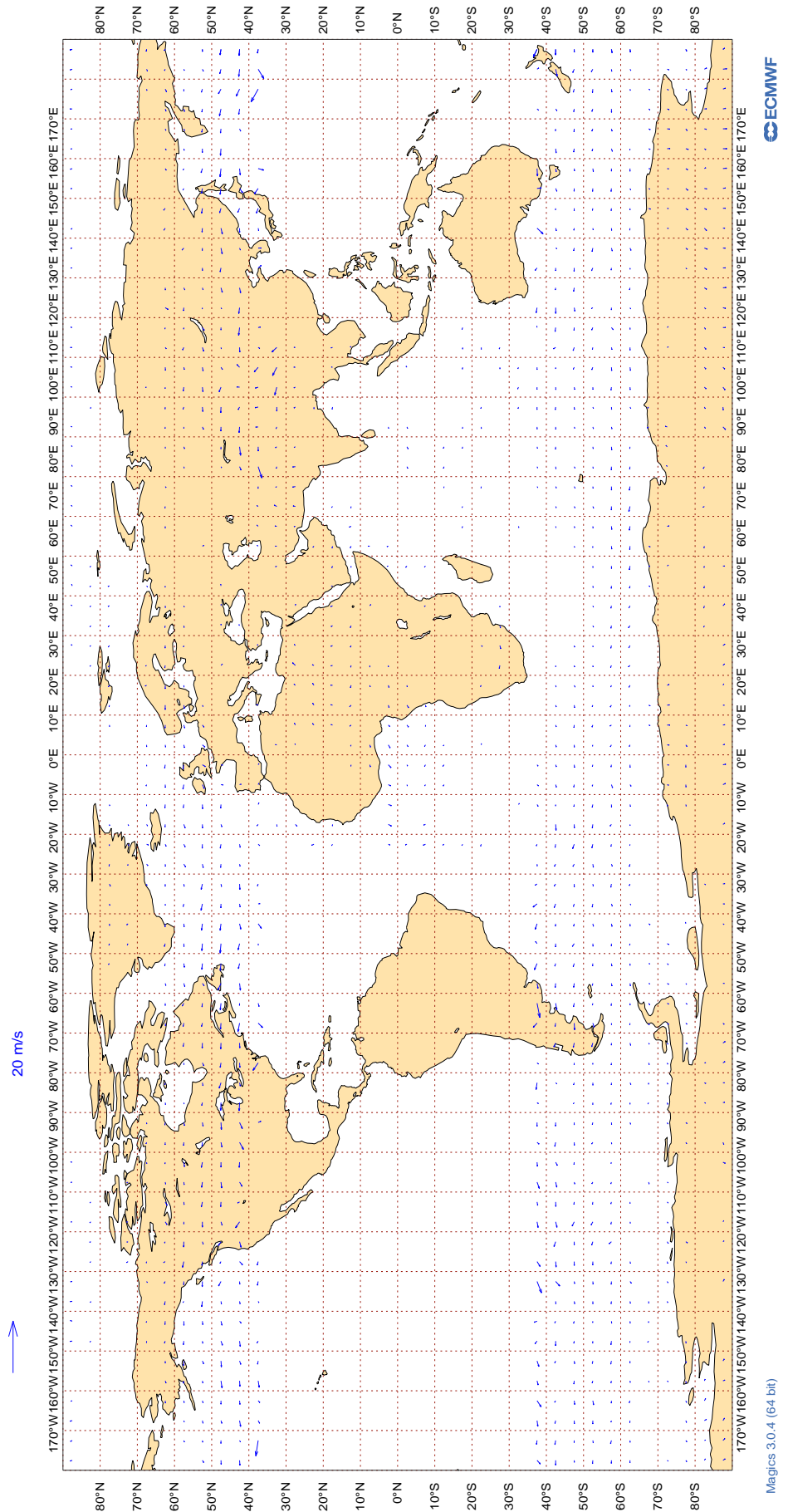
3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

Figure 14
ECMWF Monitoring Statistics: Sep 2020
AMV Winds: 700-1000hPa
Mean Observed Wind



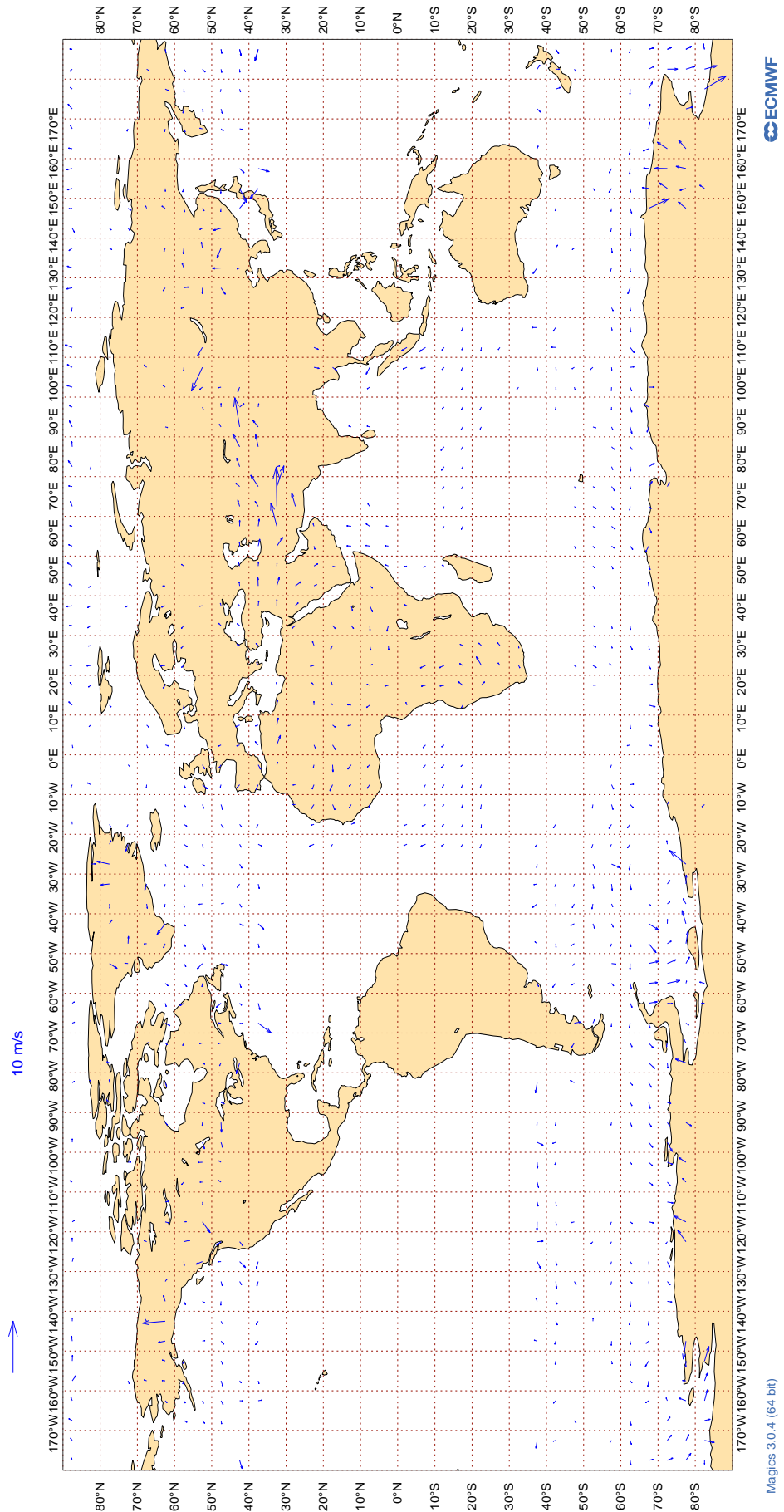
3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

Figure 15
ECMWF Monitoring Statistics: Sep 2020
AMV Winds: 150- 400hPa
Wind bias: Observation - FG



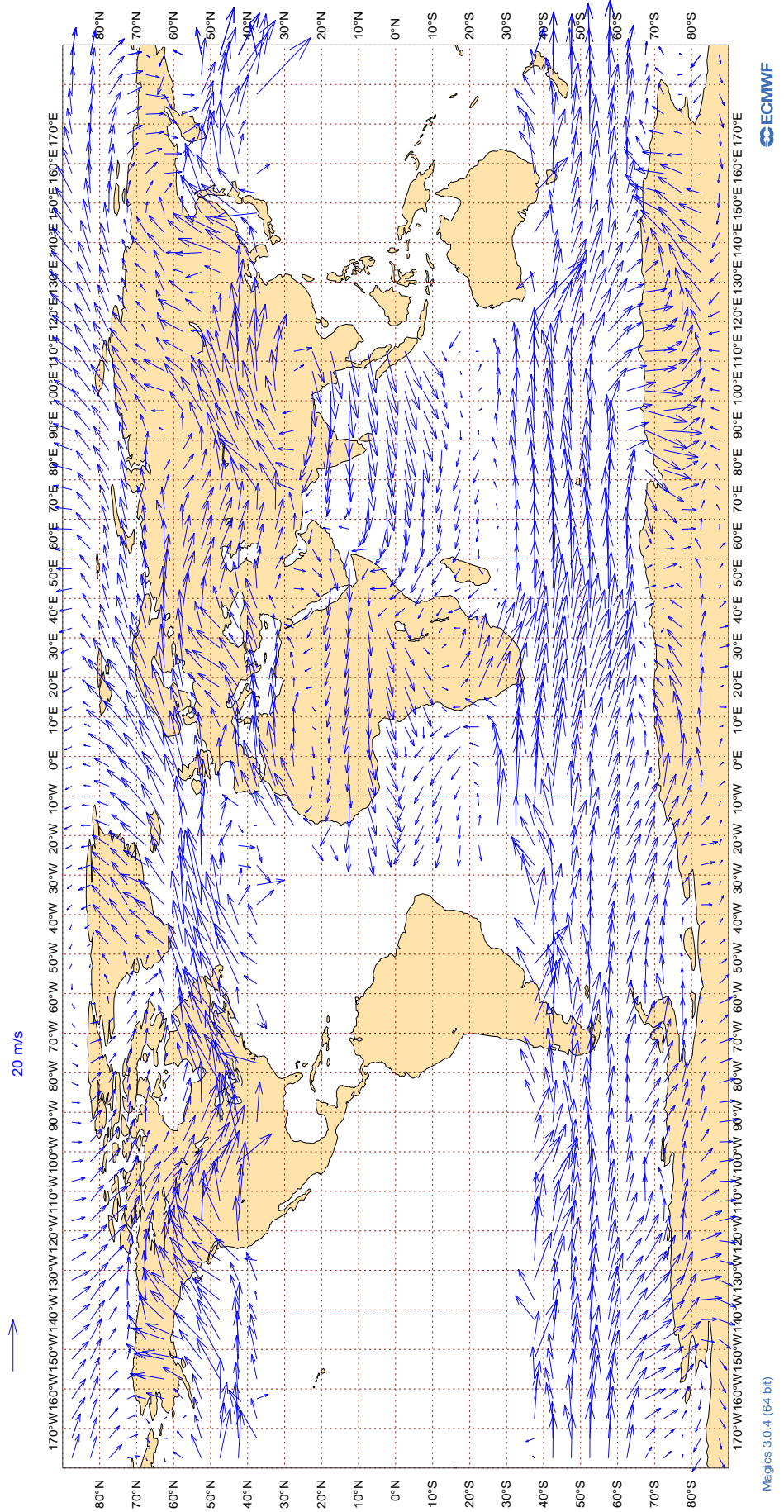
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

Figure 16
ECMWF Monitoring Statistics: Sep 2020
AMV Winds: 700-1000hPa
Wind bias: Observation - FG



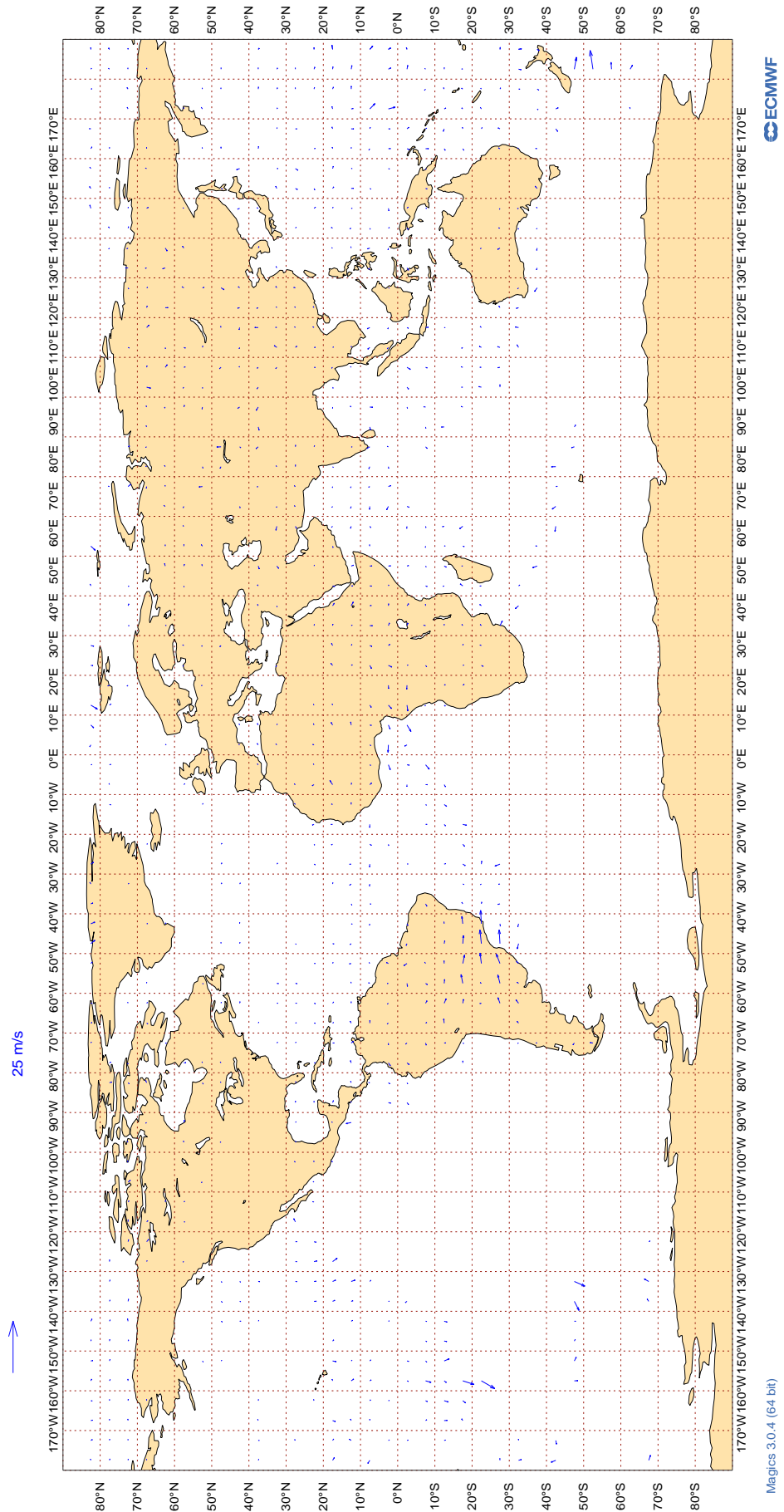
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

Figure 17
ECMWF Monitoring Statistics: Sep 2020
AMV Winds: 150- 400hPa
Mean Observed Wind



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

Figure 18
ECMWF Monitoring Statistics: Sep 2020
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 : SEP 2020
 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	14992	5	0	4.4	0.1
AAR	99	V	300-150	167	0	0	3.8	-1.0
ABD	99	V	300-150	841	0	0	4.2	-0.2
ABP	99	V	300-150	62	0	0	3.9	-0.6
ABW	99	V	300-150	555	0	0	3.8	-0.4
ABX	99	V	300-150	164	0	1	4.9	0.2
ACA	99	V	300-150	10460	6	0	4.4	0.2
AEA	99	V	300-150	77	8	0	3.6	-0.1
AFL	99	V	300-150	226	0	0	3.4	0.4
AFR	99	V	300-150	13744	1	0	3.8	0.2
AHO	99	V	300-150	77	0	0	4.4	0.5
AIC	99	V	300-150	986	3	0	5.0	-0.1
AJT	99	V	300-150	793	0	0	4.4	0.2
ALK	99	V	300-150	377	0	0	4.7	1.2
AMX	99	V	300-150	924	10	0	5.5	-0.0
ANZ	99	V	300-150	4927	2	0	7.0	0.2
AOJ	99	V	300-150	51	0	0	3.2	-0.5
ASL	99	V	300-150	419	0	0	3.4	0.2
ATC	99	V	300-150	37	0	0	5.8	1.8
ATN	99	V	300-150	137	0	0	4.7	0.7
AUA	99	V	300-150	1471	0	0	4.0	-0.4
AVL	99	V	300-150	36	0	0	3.9	0.0
AWC	99	V	300-150	63	0	0	4.1	-0.4
AWK	99	V	300-150	35	0	6	4.5	-0.1
AXM	99	V	300-150	133	1	1	5.7	0.9
AZA	99	V	300-150	1026	0	0	3.4	0.6
AZG	99	V	300-150	427	0	0	3.7	-0.2
BAF	99	V	300-150	27	0	0	3.0	-0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
BAH	99	V	300-150	33	0	0	5.2	0.8
BAW	99	V	300-150	13942	5	0	4.7	0.1
BBC	99	V	300-150	137	1	0	10.1	0.8
BCS	99	V	300-150	611	0	0	3.7	0.2
BOX	99	V	300-150	2139	0	0	3.7	-0.1
BOX	99	V	300-150	36	0	0	3.2	-0.5
BTX	99	V	300-150	44	0	0	4.7	-1.8
CAL	99	V	300-150	256	0	0	3.4	0.1
CCA	99	V	300-150	34	0	0	4.5	1.3
CEB	99	V	300-150	40	0	0	3.7	1.0
CES	99	V	300-150	96	9	0	5.0	0.2
CFC	99	V	300-150	359	0	0	4.1	0.3
CHH	99	V	300-150	24	0	0	14.5	1.3
CJT	99	V	300-150	1529	0	0	3.9	0.1
CKS	99	V	300-150	2494	0	0	3.8	-0.0
CLU	99	V	300-150	363	0	0	4.3	-0.2
CLX	99	V	300-150	3376	0	0	4.1	-0.4
CMB	99	V	300-150	1562	0	0	4.0	0.2
CNV	99	V	300-150	119	0	0	3.5	-0.0
CPA	99	V	300-150	196	0	0	3.5	0.2
CRL	99	V	300-150	464	0	0	3.0	0.5
CSN	99	V	300-150	258	4	0	6.3	-0.1
CWG	99	V	300-150	51	0	0	5.3	-0.5
DAL	99	V	300-150	12963	0	0	3.5	0.2
DCM	99	V	300-150	83	0	0	4.6	0.2
DGX	99	V	300-150	21	0	0	3.7	-1.2
DHK	99	V	300-150	376	0	0	3.9	-0.2
DLH	99	V	300-150	8064	0	0	3.5	0.1
EAU	99	V	300-150	44	0	0	3.8	0.5
EDG	99	V	300-150	99	0	0	4.0	1.3
EDW	99	V	300-150	92	0	0	3.4	0.5
EIN	99	V	300-150	2949	0	0	3.3	0.3
EJM	99	V	300-150	345	0	0	3.7	-0.2
ELY	99	V	300-150	165	0	0	4.4	0.2
ETD	99	V	300-150	4055	5	0	6.2	0.3
ETH	99	V	300-150	3643	6	0	5.1	0.4
EZY	99	V	300-150	22	0	0	2.5	0.4
FBU	99	V	300-150	191	0	0	3.4	-0.2
FDX	99	V	300-150	6833	0	0	3.6	0.2
FIN	99	V	300-150	301	0	0	3.5	-0.2
FJI	99	V	300-150	320	0	2	3.8	0.8
FRH	99	V	300-150	827	0	0	4.4	-0.2
FWI	99	V	300-150	747	0	0	3.2	0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
FYG	99	V	300-150	30	0	0	4.2	0.8
GAF	99	V	300-150	115	0	0	2.9	0.3
GEC	99	V	300-150	2219	0	0	3.6	0.2
GFA	99	V	300-150	42	0	0	4.9	0.3
GIA	99	V	300-150	44	0	0	4.7	0.8
GOL	99	V	300-150	32	0	0	2.7	0.5
GTI	99	V	300-150	1930	0	0	3.9	-0.1
HFM	99	V	300-150	20	0	0	3.5	0.5
HFY	99	V	300-150	198	0	0	3.2	0.4
HRT	99	V	300-150	77	0	0	3.8	0.8
HUA	99	V	300-150	35	0	0	4.1	-0.3
IAM	99	V	300-150	53	0	0	4.0	0.3
IBE	99	V	300-150	810	0	0	3.7	0.3
ICE	99	V	300-150	138	0	0	5.5	2.0
ICV	99	V	300-150	267	0	0	4.5	-0.3
IFA	99	V	300-150	77	0	0	4.4	0.1
IJM	99	V	300-150	67	0	0	5.0	0.3
JAF	99	V	300-150	23	0	0	4.5	-0.1
JCO	99	V	300-150	22	0	0	3.8	-0.2
KAC	99	V	300-150	194	0	0	4.8	1.2
KAF	99	V	300-150	76	0	0	3.9	1.1
KAI	99	V	300-150	39	0	0	2.8	0.4
KAL	99	V	300-150	32	0	0	5.3	0.9
KAY	99	V	300-150	103	0	0	3.7	0.5
KLM	99	V	300-150	11320	6	0	4.9	0.1
KQA	99	V	300-150	106	0	0	4.7	0.8
LAN	99	V	300-150	170	1	0	4.4	-0.1
LCO	99	V	300-150	282	0	0	4.2	-1.9
LOT	99	V	300-150	1284	9	0	6.2	-0.0
LXJ	99	V	300-150	277	0	0	4.1	0.5
MAL	99	V	300-150	41	0	0	5.9	1.3
MAS	99	V	300-150	75	0	0	4.0	1.1
MAU	99	V	300-150	101	0	0	5.6	0.3
MED	99	V	300-150	70	0	0	3.3	0.3
MHV	99	V	300-150	69	0	0	4.1	0.9
MMD	99	V	300-150	58	0	2	3.9	0.3
MMZ	99	V	300-150	35	0	0	5.3	-0.2
MPH	99	V	300-150	632	0	0	4.1	-1.0
MSR	99	V	300-150	1000	2	0	4.3	0.1
NCR	99	V	300-150	67	0	0	5.4	-0.4
NJE	99	V	300-150	203	0	0	3.8	0.2
OAE	99	V	300-150	798	0	0	4.3	0.5
OLI	99	V	300-150	54	0	0	3.3	-0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
OMA	99	V	300-150	62	0	0	3.6	0.2
PAC	99	V	300-150	81	0	0	4.2	-0.7
PAL	99	V	300-150	348	0	0	4.0	0.8
PIA	99	V	300-150	70	0	0	3.5	0.2
PLF	99	V	300-150	58	0	0	2.7	0.5
PLM	99	V	300-150	110	0	0	4.1	0.6
QAF	99	V	300-150	64	0	0	3.7	0.7
QFA	99	V	300-150	263	0	0	3.9	0.2
QQE	99	V	300-150	76	0	0	3.4	-0.1
QTR	99	V	300-150	12197	0	0	4.1	0.3
RAM	99	V	300-150	141	10	0	4.2	0.1
RCH	99	V	300-150	3995	0	0	4.8	0.5
RJA	99	V	300-150	212	16	0	7.1	0.2
RRR	99	V	300-150	376	0	0	4.4	0.3
RWD	99	V	300-150	31	0	0	4.0	0.6
RYR	99	V	300-150	23	0	4	2.0	-0.2
RZO	99	V	300-150	84	0	1	3.9	0.9
SAM	99	V	300-150	152	0	0	4.0	-0.2
SAS	99	V	300-150	1214	0	0	3.3	0.4
SAZ	99	V	300-150	72	0	0	3.9	0.8
SCO	99	V	300-150	69	0	0	3.7	-0.2
SEY	99	V	300-150	54	0	0	4.5	1.4
SHE	99	V	300-150	45	0	0	3.5	0.6
SIA	99	V	300-150	876	0	0	4.0	-0.1
SLM	99	V	300-150	94	0	0	3.1	0.3
SOO	99	V	300-150	663	0	0	3.8	0.1
SPA	99	V	300-150	72	0	1	4.2	0.7
SPU	99	V	300-150	66	0	0	4.0	0.6
SVA	99	V	300-150	1108	0	0	3.8	-0.0
SVW	99	V	300-150	24	0	0	3.0	0.2
SWR	99	V	300-150	2942	0	0	3.7	0.4
SYB	99	V	300-150	34	0	0	3.2	0.5
TAP	99	V	300-150	891	0	1	3.8	0.6
TAR	99	V	300-150	179	0	0	3.5	0.9
TAY	99	V	300-150	409	0	0	4.7	-0.2
TEU	99	V	300-150	48	0	0	4.1	-0.5
TFF	99	V	300-150	87	0	0	4.2	-0.8
TFL	99	V	300-150	569	12	0	5.8	0.0
THO	99	V	300-150	27	0	0	3.8	1.2
THT	99	V	300-150	1509	1	0	5.0	0.2
THY	99	V	300-150	5763	4	0	4.8	0.2
TMN	99	V	300-150	231	0	0	4.0	0.8
TOM	99	V	300-150	20	0	0	4.7	2.6

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
TOW	99	V	300-150	82	0	0	3.2	0.0
TPA	99	V	300-150	352	0	0	3.8	0.8
TSC	99	V	300-150	2482	0	0	3.7	0.4
TWY	99	V	300-150	175	0	0	4.3	-0.2
UAE	99	V	300-150	9443	0	0	3.8	0.3
UAL	99	V	300-150	21752	8	2	5.2	0.2
ULC	99	V	300-150	68	0	0	3.7	0.4
UPS	99	V	300-150	4554	0	0	3.8	0.1
VIR	99	V	300-150	4319	6	0	5.0	0.2
VJT	99	V	300-150	615	0	0	4.0	-0.1
VTI	99	V	300-150	80	0	0	3.2	1.1
VXS	99	V	300-150	22	0	0	5.2	-0.4
WGN	99	V	300-150	761	0	0	3.5	0.1
WJA	99	V	300-150	214	10	0	4.5	-0.2
WWI	99	V	300-150	42	0	0	4.1	1.0
XFL	99	V	300-150	37	0	0	6.1	1.6
XOJ	99	V	300-150	40	0	0	3.3	0.8

4 EUCOS Area Monitoring Statistics

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

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

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

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 50 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : SEP 2020
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	31	17.3	0.9
01001	00	Z	50	29	21.4	-11.2
01028	12	Z	50	30	7.2	-4.1
01028	00	Z	50	30	39.7	-6.6
01400	00	Z	50	18	80.9	76.8
01400	12	Z	50	22	77.5	77.2
01415	12	Z	50	30	8.8	0.4
01415	00	Z	50	28	11.5	3.5
02365	12	Z	50	30	10.9	-6.3
02365	00	Z	50	26	8.6	4.5
02836	12	Z	50	32	9.0	-3.5
02836	00	Z	50	30	7.2	3.2
02963	00	Z	50	30	9.5	6.5
02963	12	Z	50	29	7.8	-3.7
03005	12	Z	50	30	8.2	-3.0
03005	00	Z	50	29	8.6	0.3
03238	12	Z	50	4	8.7	-7.2
03238	00	Z	50	27	7.1	4.4
03808	00	Z	50	28	8.6	7.5
03808	12	Z	50	30	7.5	0.8
03918	12	Z	50	3	5.2	0.6
03918	00	Z	50	30	12.0	8.8
03953	12	Z	50	30	10.9	-5.9
03953	00	Z	50	30	7.1	-3.4
04018	00	Z	50	25	10.3	-0.5
04018	12	Z	50	26	11.0	-5.7
04220	12	Z	50	30	6.3	-2.9
04220	00	Z	50	30	5.2	-1.1
04270	00	Z	50	26	11.4	0.4
04270	12	Z	50	28	12.3	-6.0
04320	12	Z	50	30	10.4	-7.0
04320	00	Z	50	29	11.9	-3.8
04339	12	Z	50	30	15.1	-5.4
04339	00	Z	50	30	11.3	-3.1
04360	12	Z	50	31	13.0	-5.9
04360	00	Z	50	27	21.3	-17.6
06011	12	Z	50	28	21.2	17.9
06011	00	Z	50	28	12.4	-1.3
06260	12	Z	50	6	2.4	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	50	29	8.2	6.0
06610	00	Z	50	28	10.0	8.8
06610	12	Z	50	27	5.4	1.5
07110	12	Z	50	27	7.9	2.7
07110	00	Z	50	27	10.0	4.5
07510	12	Z	50	29	24.1	20.6
07510	00	Z	50	28	24.1	23.3
07645	00	Z	50	27	21.8	17.2
07645	12	Z	50	28	20.3	17.4
07761	00	Z	50	28	29.2	23.6
07761	12	Z	50	29	21.2	19.1
08001	00	Z	50	24	11.0	8.6
08001	12	Z	50	28	6.2	3.0
08221	12	Z	50	30	8.5	5.2
08221	00	Z	50	27	13.8	11.8
08302	00	Z	50	27	9.5	3.2
08302	12	Z	50	29	12.2	-9.7
08508	00	Z	50	28	13.3	11.8
08508	12	Z	50	30	8.6	6.7
08522	12	Z	50	30	5.2	1.5
10035	00	Z	50	30	19.2	17.4
10035	12	Z	50	30	11.4	8.5
10393	12	Z	50	29	7.6	1.4
10393	00	Z	50	30	26.6	13.8
10410	00	Z	50	30	8.4	6.2
10410	12	Z	50	30	5.7	-1.0
10739	00	Z	50	30	13.2	12.5
10739	12	Z	50	30	7.3	3.5
11035	00	Z	50	30	18.0	16.8
11035	12	Z	50	30	38.7	31.8
12982	00	Z	50	29	11.3	9.3
12982	12	Z	50	30	5.5	0.9
16080	00	Z	50	30	8.5	6.7
16080	12	Z	50	30	8.7	-2.7
16245	12	Z	50	29	6.9	-3.7
16245	00	Z	50	29	9.1	6.4
16320	12	Z	50	28	6.3	2.6
16320	00	Z	50	27	14.8	13.1
16429	00	Z	50	27	13.6	12.3
16429	12	Z	50	28	6.8	3.4
16622	00	Z	50	22	71.5	35.8
16754	00	Z	50	25	19.9	18.8
17607	12	Z	50	20	9.3	8.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
26435	12	Z	50	15	6.5	-4.5
60018	12	Z	50	30	5.2	0.5
60018	00	Z	50	29	10.7	8.8
7JUNA4	12	Z	50	4	37.0	23.7
7JUNA4	00	Z	50	2	4.6	3.9
ASDE09	12	Z	50	4	13.5	10.2
BPMWB2	12	Z	50	1	19.4	19.4
BPMWB2	00	Z	50	0	0.0	0.0
FPUW5G	12	Z	50	6	7.3	2.1
HTXUH4	12	Z	50	2	9.7	-1.3
HTXUH4	00	Z	50	1	0.8	-0.8
JNKN7J	12	Z	50	10	134.6	104.1
JNKN7J	00	Z	50	7	42.2	33.5
KJJF9X	12	Z	50	5	35.8	35.6
KJJF9X	00	Z	50	4	25.0	24.8
KMPLHP	00	Z	50	4	16.0	-4.2
KMPLHP	12	Z	50	4	134.4	128.0
LRYQE3	12	Z	50	11	101.4	69.4
LRYQE3	00	Z	50	8	19.6	10.2
UXK5JT	00	Z	50	2	18.5	16.3
UXK5JT	12	Z	50	3	25.4	18.1
VKB4L5	12	Z	50	9	38.0	36.8
VKB4L5	00	Z	50	9	41.3	40.6
WDK38H	00	Z	50	11	9.9	-9.1
WDK38H	12	Z	50	16	8.2	-4.2
XKQLWQ	12	Z	50	10	37.6	35.3
XQFJRG	12	Z	50	5	14.1	-10.9
XQFJRG	00	Z	50	5	24.1	-20.7
YLV96W	12	Z	50	3	78.2	77.8
YLV96W	00	Z	50	4	36.7	34.7
ZVQEQC	12	Z	50	10	92.9	-31.7

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 : SEP 2020
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	30	3.5	0.4	-0.3
01001	00	V	50	21	3.6	0.0	0.1
01028	12	V	50	30	3.3	-0.6	0.0
01028	00	V	50	25	3.3	0.1	-0.5
01400	00	V	50	16	2.6	-0.3	0.4
01400	12	V	50	18	2.7	-0.3	-0.1
01415	12	V	50	30	3.2	-0.3	-0.4
01415	00	V	50	22	3.8	0.3	-0.1
02365	12	V	50	30	3.7	-0.1	-0.7
02365	00	V	50	18	3.6	1.2	-0.5
02836	12	V	50	30	3.6	-0.3	0.4
02836	00	V	50	23	4.0	-0.9	0.1
02963	00	V	50	25	3.3	-0.6	-0.4
02963	12	V	50	29	3.4	-0.1	-1.0
03005	12	V	50	30	2.9	-0.2	-0.1
03005	00	V	50	24	3.6	-0.4	-0.5
03238	12	V	50	4	4.8	0.6	-1.9
03238	00	V	50	21	3.4	-0.6	0.9
03808	00	V	50	24	2.4	-1.0	0.2
03808	12	V	50	30	2.9	0.0	-0.2
03918	12	V	50	3	2.3	0.0	1.0
03918	00	V	50	27	3.7	-0.3	-0.3
03953	12	V	50	30	3.7	0.1	0.1
03953	00	V	50	26	3.0	0.1	-0.1
04018	00	V	50	18	4.0	0.3	-1.1
04018	12	V	50	26	3.7	1.7	0.5
04220	12	V	50	30	2.5	-0.3	-0.7
04220	00	V	50	24	3.2	0.8	0.1
04270	00	V	50	21	5.5	0.6	0.1
04270	12	V	50	28	5.4	0.7	-0.2
04320	12	V	50	30	2.5	-0.3	-0.1
04320	00	V	50	25	2.8	-0.3	0.5
04339	12	V	50	30	3.1	0.4	0.4
04339	00	V	50	23	3.5	0.1	0.1
04360	12	V	50	30	4.0	0.1	-0.2
04360	00	V	50	23	3.3	0.3	-0.1
06011	12	V	50	28	3.9	0.2	0.0
06011	00	V	50	21	4.1	0.5	-0.9
06260	12	V	50	6	1.8	0.4	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	50	22	2.6	0.0	-0.6
06610	00	V	50	22	3.0	0.8	-0.4
06610	12	V	50	27	3.3	0.0	0.1
07110	12	V	50	27	3.0	0.3	0.4
07110	00	V	50	22	3.1	0.6	-0.1
07510	12	V	50	29	3.3	0.4	0.0
07510	00	V	50	24	3.1	0.0	-0.8
07645	00	V	50	21	2.7	0.5	-0.3
07645	12	V	50	28	3.0	0.6	-0.1
07761	00	V	50	23	3.9	0.4	1.2
07761	12	V	50	29	3.5	-0.3	-0.6
08001	00	V	50	16	2.8	-0.6	0.5
08001	12	V	50	26	3.2	-0.1	-0.4
08221	12	V	50	30	2.9	0.6	-0.2
08221	00	V	50	23	3.8	0.8	0.7
08302	00	V	50	20	3.9	0.1	0.1
08302	12	V	50	29	3.7	0.4	0.2
08508	00	V	50	22	2.9	0.2	-0.4
08508	12	V	50	30	3.1	0.9	0.0
08522	12	V	50	30	3.8	-0.3	-0.1
10035	00	V	50	23	2.9	1.0	0.1
10035	12	V	50	30	2.5	0.3	-0.6
10393	12	V	50	29	2.9	0.0	0.0
10393	00	V	50	22	3.1	0.2	0.0
10410	00	V	50	30	3.0	0.9	0.1
10410	12	V	50	30	2.6	0.2	-0.6
10739	00	V	50	30	3.0	0.4	0.0
10739	12	V	50	30	3.0	0.3	-0.3
11035	00	V	50	25	2.9	0.2	-0.9
11035	12	V	50	30	3.1	0.4	-0.4
12982	00	V	50	21	3.6	-0.1	-0.5
12982	12	V	50	30	3.0	0.1	0.0
16080	00	V	50	22	3.4	-0.1	0.5
16080	12	V	50	30	2.9	0.7	-0.2
16245	12	V	50	29	3.7	-0.5	-0.5
16245	00	V	50	21	3.9	-0.6	0.8
16320	12	V	50	27	3.6	0.3	-0.3
16320	00	V	50	23	3.4	0.6	-0.4
16429	00	V	50	23	4.0	-1.2	0.1
16429	12	V	50	28	3.8	0.3	-0.7
16622	00	V	50	16	3.6	0.8	-0.4
16754	00	V	50	18	2.6	0.7	0.2
17607	12	V	50	9	3.0	-0.6	-0.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
26435	12	V	50	14	3.2	-0.1	-0.6
60018	12	V	50	30	3.3	-0.4	-0.5
60018	00	V	50	23	3.4	0.6	-0.6
7JUNA4	12	V	50	4	3.1	-0.1	-0.4
7JUNA4	00	V	50	2	5.5	1.7	0.5
ASDE09	12	V	50	4	3.3	0.0	0.5
BPMWB2	12	V	50	1	4.3	4.2	0.8
BPMWB2	00	V	50	0	0.0	0.0	0.0
FPUW5G	12	V	50	6	1.9	0.0	0.5
HTXUH4	12	V	50	2	3.2	3.1	0.4
HTXUH4	00	V	50	1	2.3	-1.6	-1.6
JNKN7J	12	V	50	10	3.8	0.2	-0.9
JNKN7J	00	V	50	7	2.8	-0.1	0.0
KJJF9X	12	V	50	5	3.1	1.5	-0.9
KJJF9X	00	V	50	4	3.6	-0.4	0.8
KMPLHP	00	V	50	4	3.3	-1.6	-1.7
KMPLHP	12	V	50	4	3.8	-1.3	1.3
LRYQE3	12	V	50	11	4.5	2.3	-1.1
LRYQE3	00	V	50	8	3.9	-1.1	0.1
UXK5JT	00	V	50	2	5.1	2.2	-2.5
UXK5JT	12	V	50	3	2.2	-0.9	0.0
VKB4L5	12	V	50	9	3.1	1.1	-0.7
VKB4L5	00	V	50	9	3.2	-0.9	-0.6
WDK38H	00	V	50	11	1.6	0.1	0.2
WDK38H	12	V	50	11	3.9	-1.6	0.9
XKQLWQ	12	V	50	10	3.5	-1.0	0.1
XQFJRG	12	V	50	4	3.0	-0.2	1.9
XQFJRG	00	V	50	5	2.5	-1.3	-0.2
YLV96W	12	V	50	3	3.2	1.5	0.9
YLV96W	00	V	50	4	1.3	0.4	-0.4
ZVQEQC	12	V	50	10	4.4	1.2	-0.9

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 : SEP 2020
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	31	21.3	-7.9
01001	00	Z	100	30	19.1	-14.4
01028	12	Z	100	30	7.8	-6.0
01028	00	Z	100	30	40.6	-10.9
01400	00	Z	100	24	77.0	73.7
01400	12	Z	100	24	77.6	77.4
01415	12	Z	100	30	7.1	0.2
01415	00	Z	100	29	10.1	0.2
02365	12	Z	100	30	9.6	-6.5
02365	00	Z	100	29	4.7	-1.0
02836	12	Z	100	32	9.1	-5.0
02836	00	Z	100	30	5.1	-0.9
02963	00	Z	100	30	5.8	2.0
02963	12	Z	100	30	7.2	-4.3
03005	12	Z	100	30	7.9	-4.5
03005	00	Z	100	30	7.7	-2.6
03238	12	Z	100	4	5.8	-4.1
03238	00	Z	100	27	5.8	1.2
03808	00	Z	100	29	6.1	4.3
03808	12	Z	100	30	5.9	-0.5
03918	12	Z	100	3	2.8	-2.2
03918	00	Z	100	30	8.0	5.7
03953	12	Z	100	30	9.7	-7.5
03953	00	Z	100	30	8.5	-6.3
04018	00	Z	100	25	9.9	-6.6
04018	12	Z	100	26	8.5	-5.9
04220	12	Z	100	30	6.7	-3.8
04220	00	Z	100	30	5.5	-3.6
04270	00	Z	100	27	9.2	-4.1
04270	12	Z	100	28	10.1	-5.9
04320	12	Z	100	30	7.4	-6.2
04320	00	Z	100	29	8.5	-4.7
04339	12	Z	100	30	11.4	-6.1
04339	00	Z	100	30	11.5	-6.2
04360	12	Z	100	30	13.0	-10.8
04360	00	Z	100	28	20.6	-18.8
06011	12	Z	100	29	13.9	11.4
06011	00	Z	100	29	10.4	-1.9
06260	12	Z	100	7	2.3	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	100	30	5.1	3.0
06610	00	Z	100	31	4.9	3.2
06610	12	Z	100	30	4.2	-0.2
07110	12	Z	100	27	5.9	-1.3
07110	00	Z	100	29	6.4	-2.2
07510	12	Z	100	30	14.9	12.0
07510	00	Z	100	29	13.1	11.7
07645	00	Z	100	27	13.6	6.8
07645	12	Z	100	28	12.3	9.0
07761	00	Z	100	28	17.4	12.3
07761	12	Z	100	29	12.3	9.3
08001	00	Z	100	28	6.4	4.6
08001	12	Z	100	29	5.6	0.6
08221	12	Z	100	30	6.9	3.8
08221	00	Z	100	29	9.3	7.8
08302	00	Z	100	27	7.4	-2.5
08302	12	Z	100	29	11.8	-10.1
08508	00	Z	100	28	11.1	9.5
08508	12	Z	100	30	7.9	6.1
08522	12	Z	100	30	5.5	3.2
10035	00	Z	100	30	13.2	12.1
10035	12	Z	100	30	9.8	7.8
10393	12	Z	100	29	6.0	-1.2
10393	00	Z	100	30	24.6	9.0
10410	00	Z	100	30	4.1	2.1
10410	12	Z	100	30	6.0	-3.6
10739	00	Z	100	30	10.8	10.0
10739	12	Z	100	30	5.8	3.1
11035	00	Z	100	30	11.7	10.7
11035	12	Z	100	31	28.1	22.2
12982	00	Z	100	30	6.1	3.6
12982	12	Z	100	30	3.5	-1.7
16080	00	Z	100	30	4.1	1.9
16080	12	Z	100	31	7.4	-4.0
16245	12	Z	100	29	6.6	-5.0
16245	00	Z	100	29	5.4	2.3
16320	12	Z	100	28	5.9	1.5
16320	00	Z	100	30	9.4	7.9
16429	00	Z	100	28	10.2	7.5
16429	12	Z	100	29	4.8	-0.5
16622	00	Z	100	30	18.1	17.4
16754	00	Z	100	30	14.5	13.7
17607	12	Z	100	22	6.1	4.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
26435	12	Z	100	15	4.9	-3.8
60018	12	Z	100	30	5.7	2.7
60018	00	Z	100	29	9.2	8.0
7JUNA4	12	Z	100	4	20.2	12.0
7JUNA4	00	Z	100	2	1.8	-1.4
ASDE09	12	Z	100	4	11.0	3.4
BPMWB2	12	Z	100	1	4.9	4.9
BPMWB2	00	Z	100	0	0.0	0.0
FPUW5G	12	Z	100	8	6.8	1.7
HTXUH4	12	Z	100	2	2.8	1.0
HTXUH4	00	Z	100	1	5.8	-5.8
JNKN7J	12	Z	100	10	58.2	55.9
JNKN7J	00	Z	100	9	34.1	32.1
KJJF9X	12	Z	100	8	27.9	27.0
KJJF9X	00	Z	100	7	10.5	10.3
KMPLHP	00	Z	100	5	10.5	-2.6
KMPLHP	12	Z	100	4	72.4	72.0
LRYQE3	12	Z	100	12	44.3	35.7
LRYQE3	00	Z	100	9	14.9	4.6
UXK5JT	00	Z	100	3	9.8	8.3
UXK5JT	12	Z	100	4	18.8	12.5
VKB4L5	12	Z	100	10	36.8	35.9
VKB4L5	00	Z	100	9	39.9	39.2
WDK38H	00	Z	100	12	10.1	-9.7
WDK38H	12	Z	100	17	10.4	-9.5
XKQLWQ	12	Z	100	12	26.2	23.6
XQFJRG	12	Z	100	5	11.0	-10.0
XQFJRG	00	Z	100	6	17.4	-16.2
YLV96W	12	Z	100	3	52.0	51.6
YLV96W	00	Z	100	4	36.6	35.2
ZVQEQC	12	Z	100	10	94.9	-33.0

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 : SEP 2020
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	30	3.3	0.3	-0.1
01001	00	V	100	21	2.9	0.0	0.1
01028	12	V	100	30	2.8	0.5	0.0
01028	00	V	100	25	3.3	0.1	-0.4
01400	00	V	100	21	3.0	0.0	-0.6
01400	12	V	100	18	3.4	0.0	-0.4
01415	12	V	100	30	3.6	-0.2	0.3
01415	00	V	100	23	4.3	0.1	0.7
02365	12	V	100	30	3.7	0.4	0.0
02365	00	V	100	22	3.3	-0.1	-0.8
02836	12	V	100	30	3.6	0.9	-0.1
02836	00	V	100	23	3.4	0.9	-0.1
02963	00	V	100	25	4.4	-0.7	0.0
02963	12	V	100	30	3.8	0.0	0.3
03005	12	V	100	30	3.3	0.5	-0.3
03005	00	V	100	24	3.2	-0.4	-0.5
03238	12	V	100	4	4.1	-2.0	0.7
03238	00	V	100	21	3.2	-0.2	-0.1
03808	00	V	100	25	3.1	0.0	0.9
03808	12	V	100	30	3.2	0.1	0.0
03918	12	V	100	3	5.0	-1.6	0.4
03918	00	V	100	26	3.4	-0.9	0.4
03953	12	V	100	30	3.5	0.0	-0.2
03953	00	V	100	25	3.0	0.3	0.2
04018	00	V	100	25	3.6	0.8	0.1
04018	12	V	100	26	3.3	-0.2	-0.2
04220	12	V	100	30	2.2	0.3	0.1
04220	00	V	100	30	2.4	0.1	0.1
04270	00	V	100	26	5.6	-1.3	-0.3
04270	12	V	100	28	4.0	0.1	-0.3
04320	12	V	100	30	2.8	0.6	0.0
04320	00	V	100	28	2.4	0.0	0.4
04339	12	V	100	30	3.2	0.0	0.2
04339	00	V	100	29	2.9	0.3	0.7
04360	12	V	100	30	2.9	-0.3	0.1
04360	00	V	100	21	2.6	0.0	-0.2
06011	12	V	100	29	3.1	0.4	-0.2
06011	00	V	100	25	3.4	0.5	0.0
06260	12	V	100	6	1.3	-0.3	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	100	23	2.8	0.6	0.1
06610	00	V	100	29	2.6	0.4	0.2
06610	12	V	100	30	2.5	0.5	0.1
07110	12	V	100	27	2.7	0.0	-0.4
07110	00	V	100	23	3.1	0.8	0.1
07510	12	V	100	30	3.2	-0.2	-0.3
07510	00	V	100	24	3.3	0.5	1.0
07645	00	V	100	21	3.9	0.0	0.7
07645	12	V	100	28	4.5	0.1	-0.4
07761	00	V	100	23	3.5	0.3	-0.5
07761	12	V	100	29	3.5	1.0	-0.1
08001	00	V	100	23	3.5	-0.2	-0.4
08001	12	V	100	29	3.1	0.3	0.2
08221	12	V	100	30	3.4	0.1	-0.3
08221	00	V	100	25	3.6	0.4	0.5
08302	00	V	100	20	4.5	0.7	0.5
08302	12	V	100	29	3.5	0.0	0.2
08508	00	V	100	22	3.6	-0.1	0.9
08508	12	V	100	30	3.4	1.0	0.8
08522	12	V	100	30	3.8	-0.1	-0.4
10035	00	V	100	30	3.3	0.7	-0.4
10035	12	V	100	30	2.9	0.1	-0.2
10393	12	V	100	29	2.8	0.1	-0.4
10393	00	V	100	29	3.0	0.9	0.2
10410	00	V	100	30	2.7	0.7	-0.1
10410	12	V	100	30	2.4	-0.3	0.5
10739	00	V	100	30	3.0	-0.2	-0.2
10739	12	V	100	30	2.3	-0.2	0.3
11035	00	V	100	25	3.5	0.8	-0.3
11035	12	V	100	30	2.4	-0.3	-0.5
12982	00	V	100	19	3.5	0.5	-0.5
12982	12	V	100	30	2.3	0.1	-0.1
16080	00	V	100	29	2.5	0.2	0.5
16080	12	V	100	30	4.2	0.3	0.2
16245	12	V	100	29	3.6	-0.1	0.1
16245	00	V	100	21	4.4	-0.5	-0.4
16320	12	V	100	27	3.7	0.0	0.2
16320	00	V	100	25	4.1	0.5	0.7
16429	00	V	100	26	4.5	0.0	0.0
16429	12	V	100	28	4.3	1.4	0.1
16622	00	V	100	21	4.3	-0.9	-0.1
16754	00	V	100	23	3.9	0.2	0.2
17607	12	V	100	12	3.9	-0.2	-0.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
26435	12	V	100	15	2.8	-0.7	-0.3
60018	12	V	100	30	4.2	0.0	0.1
60018	00	V	100	23	4.1	0.0	0.0
7JUNA4	12	V	100	4	2.8	-1.1	0.0
7JUNA4	00	V	100	2	1.5	0.2	-0.4
ASDE09	12	V	100	4	1.5	-0.5	0.1
BPMWB2	12	V	100	1	5.5	-4.7	-2.9
BPMWB2	00	V	100	0	0.0	0.0	0.0
FPUW5G	12	V	100	8	3.4	2.3	0.1
HTXUH4	12	V	100	2	1.4	-0.1	0.7
HTXUH4	00	V	100	1	2.0	0.5	1.9
JNKN7J	12	V	100	10	3.2	-1.3	-0.9
JNKN7J	00	V	100	9	4.8	-1.4	0.6
KJJF9X	12	V	100	8	3.2	-0.1	0.5
KJJF9X	00	V	100	7	2.9	-0.7	1.0
KMPLHP	00	V	100	5	3.5	0.2	1.1
KMPLHP	12	V	100	3	3.2	-1.3	-1.5
LRYQE3	12	V	100	12	3.5	0.6	1.1
LRYQE3	00	V	100	9	4.6	1.9	-0.6
UXK5JT	00	V	100	3	4.5	-2.3	3.1
UXK5JT	12	V	100	4	3.6	1.4	-0.9
VKB4L5	12	V	100	9	3.0	0.0	-1.2
VKB4L5	00	V	100	9	3.2	0.2	0.2
WDK38H	00	V	100	11	2.2	-0.6	0.3
WDK38H	12	V	100	17	2.3	0.0	-0.4
XKQLWQ	12	V	100	12	2.4	0.0	0.4
XQFJRG	12	V	100	5	3.2	1.0	-0.1
XQFJRG	00	V	100	6	4.2	2.3	-1.4
YLV96W	12	V	100	3	4.2	0.2	-2.7
YLV96W	00	V	100	4	4.7	0.9	-3.9
ZVQEQC	12	V	100	10	3.8	1.5	-0.3

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 : SEP 2020
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	31	26.0	-13.5
01001	00	Z	500	31	11.8	-9.5
01028	12	Z	500	30	3.0	-0.2
01028	00	Z	500	31	3.1	0.4
01400	00	Z	500	27	76.8	73.5
01400	12	Z	500	25	79.9	79.8
01415	12	Z	500	30	4.6	3.5
01415	00	Z	500	29	4.0	2.8
02365	12	Z	500	30	5.0	0.8
02365	00	Z	500	30	3.7	1.4
02836	12	Z	500	32	4.7	-0.3
02836	00	Z	500	30	4.1	0.6
02963	00	Z	500	30	4.5	3.7
02963	12	Z	500	30	4.4	3.1
03005	12	Z	500	30	5.2	-3.1
03005	00	Z	500	30	4.6	-2.7
03238	12	Z	500	3	3.0	0.5
03238	00	Z	500	27	4.0	2.0
03808	00	Z	500	29	4.7	3.6
03808	12	Z	500	30	3.5	2.4
03918	12	Z	500	3	6.0	5.7
03918	00	Z	500	30	7.2	6.8
03953	12	Z	500	31	4.7	-2.0
03953	00	Z	500	30	2.5	-1.5
04018	00	Z	500	25	4.0	-1.4
04018	12	Z	500	26	4.9	-1.9
04220	12	Z	500	30	4.8	-1.3
04220	00	Z	500	30	3.1	0.9
04270	00	Z	500	30	5.8	-3.1
04270	12	Z	500	30	5.1	-3.0
04320	12	Z	500	30	3.6	-0.3
04320	00	Z	500	30	3.6	0.1
04339	12	Z	500	30	6.7	-2.2
04339	00	Z	500	30	11.4	0.3
04360	12	Z	500	30	11.5	-10.9
04360	00	Z	500	30	12.6	-11.9
06011	12	Z	500	30	6.9	2.5
06011	00	Z	500	30	5.4	2.1
06260	12	Z	500	8	2.6	2.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	500	30	3.3	1.6
06610	00	Z	500	31	3.1	2.5
06610	12	Z	500	30	2.3	0.6
07110	12	Z	500	27	4.3	-1.7
07110	00	Z	500	30	8.0	-4.2
07510	12	Z	500	31	8.3	7.6
07510	00	Z	500	30	6.4	5.8
07645	00	Z	500	28	4.7	1.4
07645	12	Z	500	28	4.0	1.5
07761	00	Z	500	29	5.1	1.4
07761	12	Z	500	29	4.8	1.5
08001	00	Z	500	29	4.3	3.3
08001	12	Z	500	29	3.8	2.9
08221	12	Z	500	30	5.8	4.9
08221	00	Z	500	29	6.7	6.0
08302	00	Z	500	27	5.4	-4.0
08302	12	Z	500	29	8.3	-7.5
08508	00	Z	500	28	7.7	6.9
08508	12	Z	500	30	7.5	7.1
08522	12	Z	500	30	6.5	5.6
10035	00	Z	500	30	12.9	12.8
10035	12	Z	500	30	11.5	11.3
10393	12	Z	500	29	3.2	1.6
10393	00	Z	500	30	22.8	8.7
10410	00	Z	500	30	2.5	1.2
10410	12	Z	500	30	2.3	-0.5
10739	00	Z	500	30	6.8	6.5
10739	12	Z	500	30	4.8	4.3
11035	00	Z	500	30	9.8	9.1
11035	12	Z	500	32	20.4	17.5
12982	00	Z	500	30	4.4	3.7
12982	12	Z	500	30	3.3	2.5
16080	00	Z	500	30	3.2	-1.3
16080	12	Z	500	30	4.4	-3.4
16245	12	Z	500	29	4.7	-4.0
16245	00	Z	500	29	3.9	-2.4
16320	12	Z	500	30	4.4	2.6
16320	00	Z	500	31	5.8	4.7
16429	00	Z	500	29	4.4	2.8
16429	12	Z	500	30	3.2	1.1
16622	00	Z	500	30	12.1	11.7
16754	00	Z	500	30	6.7	5.6
17607	12	Z	500	28	7.0	6.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
26435	12	Z	500	15	3.3	1.6
60018	12	Z	500	31	5.5	4.4
60018	00	Z	500	29	4.7	3.6
7JUNA4	12	Z	500	4	6.9	5.5
7JUNA4	00	Z	500	2	8.4	7.6
ASDE09	12	Z	500	4	3.8	2.4
BPMWB2	12	Z	500	6	12.1	8.8
BPMWB2	00	Z	500	4	11.3	9.6
FPUW5G	12	Z	500	8	7.8	5.9
HTXUH4	12	Z	500	2	5.0	1.4
HTXUH4	00	Z	500	2	2.4	0.8
JNKN7J	12	Z	500	11	43.1	42.8
JNKN7J	00	Z	500	10	39.4	39.2
KJJF9X	12	Z	500	8	16.1	15.9
KJJF9X	00	Z	500	7	6.8	6.5
KMPLHP	00	Z	500	5	8.6	-2.1
KMPLHP	12	Z	500	5	8.3	7.4
LRYQE3	12	Z	500	12	21.1	15.4
LRYQE3	00	Z	500	11	20.1	10.8
UXK5JT	00	Z	500	3	10.3	4.9
UXK5JT	12	Z	500	5	14.6	10.0
VKB4L5	12	Z	500	10	35.0	34.6
VKB4L5	00	Z	500	9	33.0	32.4
WDK38H	00	Z	500	12	6.7	-6.1
WDK38H	12	Z	500	17	8.4	-7.2
XKQLWQ	12	Z	500	12	15.9	13.9
XQFJRG	12	Z	500	5	10.1	-9.9
XQFJRG	00	Z	500	6	12.7	-11.7
YLV96W	12	Z	500	11	43.6	42.9
YLV96W	00	Z	500	10	37.7	35.4
ZVQEQC	12	Z	500	11	4.2	3.1

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 : SEP 2020
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	30	2.7	0.2	0.0
01001	00	V	500	30	2.4	0.3	0.0
01028	12	V	500	30	2.5	-0.5	0.0
01028	00	V	500	30	2.5	0.3	-0.5
01400	00	V	500	25	2.3	0.4	0.0
01400	12	V	500	25	2.1	-0.1	0.1
01415	12	V	500	30	2.9	0.4	0.8
01415	00	V	500	29	2.6	0.0	0.5
02365	12	V	500	30	3.3	0.5	0.0
02365	00	V	500	30	3.3	0.2	-0.3
02836	12	V	500	30	3.2	0.7	-0.4
02836	00	V	500	30	2.6	-0.1	0.5
02963	00	V	500	30	2.7	0.6	-0.1
02963	12	V	500	30	2.6	0.1	0.2
03005	12	V	500	30	3.2	0.3	-0.1
03005	00	V	500	30	3.2	-0.3	0.5
03238	12	V	500	3	2.3	-0.2	1.0
03238	00	V	500	26	2.4	0.3	0.2
03808	00	V	500	29	2.2	-0.2	0.1
03808	12	V	500	30	2.4	-0.2	-0.3
03918	12	V	500	3	2.8	-0.2	1.7
03918	00	V	500	30	2.6	0.3	-0.1
03953	12	V	500	30	2.2	0.2	0.8
03953	00	V	500	28	2.7	0.0	-0.1
04018	00	V	500	25	2.1	0.4	0.6
04018	12	V	500	26	2.8	0.3	0.8
04220	12	V	500	30	2.5	-0.5	-0.7
04220	00	V	500	30	2.2	0.5	-0.1
04270	00	V	500	30	2.8	-0.1	0.1
04270	12	V	500	30	4.0	-0.1	-1.2
04320	12	V	500	30	2.7	0.4	0.5
04320	00	V	500	30	2.4	0.3	-0.2
04339	12	V	500	30	2.8	-0.1	0.1
04339	00	V	500	30	2.8	-1.0	0.7
04360	12	V	500	30	2.3	0.3	-0.1
04360	00	V	500	30	3.1	-0.8	0.3
06011	12	V	500	30	3.9	0.9	0.6
06011	00	V	500	30	2.9	0.4	0.8
06260	12	V	500	6	1.6	-0.5	0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	500	29	1.6	0.1	0.1
06610	00	V	500	30	2.3	0.2	0.5
06610	12	V	500	30	2.1	0.4	-0.6
07110	12	V	500	27	2.4	0.2	0.0
07110	00	V	500	30	2.6	0.0	-0.5
07510	12	V	500	30	2.3	0.2	0.2
07510	00	V	500	30	2.6	0.1	0.1
07645	00	V	500	28	2.6	-0.3	-0.3
07645	12	V	500	28	2.7	-0.2	-0.4
07761	00	V	500	29	2.9	-0.5	0.1
07761	12	V	500	29	2.5	-0.1	-0.4
08001	00	V	500	29	2.0	-0.2	-0.2
08001	12	V	500	29	2.2	0.4	-0.1
08221	12	V	500	30	2.7	0.7	0.0
08221	00	V	500	29	2.4	0.2	0.2
08302	00	V	500	27	2.6	0.6	0.5
08302	12	V	500	29	2.1	0.0	0.4
08508	00	V	500	28	2.7	0.0	0.0
08508	12	V	500	30	2.2	0.5	-0.4
08522	12	V	500	30	2.6	0.4	0.3
10035	00	V	500	30	1.9	0.0	0.2
10035	12	V	500	30	2.6	-0.3	0.2
10393	12	V	500	29	2.7	-0.4	0.2
10393	00	V	500	29	2.3	-0.1	-0.3
10410	00	V	500	30	2.3	0.0	0.2
10410	12	V	500	30	2.0	0.2	-0.1
10739	00	V	500	30	1.7	-0.1	-0.1
10739	12	V	500	30	2.7	-0.3	0.3
11035	00	V	500	30	2.9	0.2	0.0
11035	12	V	500	30	2.0	0.0	0.3
12982	00	V	500	30	2.4	0.1	0.2
12982	12	V	500	30	2.9	0.3	-0.2
16080	00	V	500	30	2.5	0.3	-0.2
16080	12	V	500	29	2.5	0.0	-0.6
16245	12	V	500	29	2.9	0.3	0.1
16245	00	V	500	29	2.9	0.1	-0.2
16320	12	V	500	29	3.9	-0.4	0.5
16320	00	V	500	30	3.0	0.2	0.3
16429	00	V	500	29	3.3	0.3	-0.1
16429	12	V	500	30	3.0	0.7	-0.4
16622	00	V	500	30	2.7	0.3	0.0
16754	00	V	500	28	2.3	0.0	-0.3
17607	12	V	500	26	2.8	0.6	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
26435	12	V	500	15	2.5	-0.1	0.9
60018	12	V	500	30	2.9	0.5	0.6
60018	00	V	500	29	2.3	0.6	0.1
7JUNA4	12	V	500	4	2.0	0.7	1.0
7JUNA4	00	V	500	2	3.4	-1.6	2.1
ASDE09	12	V	500	4	1.8	-0.1	-0.4
BPMWB2	12	V	500	6	2.0	-0.2	0.5
BPMWB2	00	V	500	4	1.1	-0.3	0.6
FPUW5G	12	V	500	8	2.3	1.5	-0.3
HTXUH4	12	V	500	2	1.0	0.2	0.0
HTXUH4	00	V	500	2	1.2	-1.1	-0.5
JNKN7J	12	V	500	11	3.8	0.6	-0.5
JNKN7J	00	V	500	10	4.0	-0.4	1.7
KJJF9X	12	V	500	8	1.6	-0.5	0.4
KJJF9X	00	V	500	7	2.3	-0.6	-0.3
KMPLHP	00	V	500	5	3.1	-0.2	0.6
KMPLHP	12	V	500	5	2.0	-0.1	0.2
LRYQE3	12	V	500	12	2.9	0.6	-0.5
LRYQE3	00	V	500	11	2.3	-0.2	0.6
UXK5JT	00	V	500	3	1.3	-0.2	0.0
UXK5JT	12	V	500	5	1.9	0.2	0.1
VKB4L5	12	V	500	10	1.7	0.5	-0.2
VKB4L5	00	V	500	9	2.1	0.0	0.1
WDK38H	00	V	500	12	2.9	0.2	0.1
WDK38H	12	V	500	17	2.1	0.2	-0.5
XKQLWQ	12	V	500	12	2.7	0.2	-0.5
XQFJRG	12	V	500	5	3.2	0.6	1.9
XQFJRG	00	V	500	6	3.4	0.2	-0.2
YLV96W	12	V	500	11	2.1	-0.6	0.1
YLV96W	00	V	500	10	2.3	-0.7	0.6
ZVQEQC	12	V	500	11	2.4	-0.1	-0.3

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 : SEP 2020
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	31	11.5	-8.1
01001	00	Z	850	31	8.5	-7.0
01028	12	Z	850	30	2.4	0.6
01028	00	Z	850	31	2.6	1.5
01400	00	Z	850	27	76.4	73.4
01400	12	Z	850	25	79.4	79.2
01415	12	Z	850	30	4.8	3.9
01415	00	Z	850	29	3.6	2.6
02365	12	Z	850	30	3.1	1.8
02365	00	Z	850	30	2.7	1.3
02836	12	Z	850	31	3.2	1.8
02836	00	Z	850	30	3.1	1.5
02963	00	Z	850	30	3.7	3.3
02963	12	Z	850	30	3.4	2.9
03005	12	Z	850	30	4.1	-2.8
03005	00	Z	850	30	3.9	-2.6
03238	12	Z	850	3	2.3	1.6
03238	00	Z	850	27	2.9	2.1
03808	00	Z	850	29	3.3	2.5
03808	12	Z	850	30	2.8	0.8
03918	12	Z	850	3	5.5	5.2
03918	00	Z	850	30	5.8	5.3
03953	12	Z	850	31	3.6	-1.2
03953	00	Z	850	30	2.7	-1.7
04018	00	Z	850	25	15.7	2.7
04018	12	Z	850	26	3.9	-1.3
04220	12	Z	850	30	5.4	0.3
04220	00	Z	850	30	3.2	1.8
04270	00	Z	850	30	2.7	-0.9
04270	12	Z	850	30	4.0	-1.9
04320	12	Z	850	30	2.8	1.6
04320	00	Z	850	30	4.6	1.8
04339	12	Z	850	30	5.3	-1.0
04339	00	Z	850	30	12.1	1.1
04360	12	Z	850	30	10.5	-10.0
04360	00	Z	850	30	10.4	-9.9
06011	12	Z	850	30	4.7	2.8
06011	00	Z	850	30	4.3	3.5
06260	12	Z	850	8	2.5	-0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	00	Z	850	30	2.7	0.7
06610	00	Z	850	31	3.2	2.5
06610	12	Z	850	30	1.8	0.7
07110	12	Z	850	27	3.2	-2.3
07110	00	Z	850	30	6.5	-1.2
07510	12	Z	850	31	4.6	3.9
07510	00	Z	850	30	4.7	4.0
07645	00	Z	850	28	2.0	-0.6
07645	12	Z	850	28	2.6	-1.2
07761	00	Z	850	29	3.1	-1.1
07761	12	Z	850	30	2.9	-1.3
08001	00	Z	850	29	2.4	0.7
08001	12	Z	850	29	1.9	0.6
08221	12	Z	850	30	3.6	3.2
08221	00	Z	850	29	3.7	3.0
08302	00	Z	850	27	7.9	-7.7
08302	12	Z	850	29	9.6	-9.3
08508	00	Z	850	28	4.6	3.7
08508	12	Z	850	30	4.1	3.7
08522	12	Z	850	30	3.8	3.0
10035	00	Z	850	30	11.3	11.1
10035	12	Z	850	30	11.9	11.8
10393	12	Z	850	30	2.0	0.6
10393	00	Z	850	30	21.9	6.3
10410	00	Z	850	30	1.7	-0.4
10410	12	Z	850	30	1.6	-0.7
10739	00	Z	850	30	4.6	4.1
10739	12	Z	850	30	3.9	3.6
11035	00	Z	850	30	9.1	8.6
11035	12	Z	850	32	20.1	18.2
12982	00	Z	850	30	4.2	3.4
12982	12	Z	850	30	3.4	2.5
16080	00	Z	850	30	3.0	-1.9
16080	12	Z	850	31	4.4	-3.2
16245	12	Z	850	30	4.4	-3.9
16245	00	Z	850	29	3.5	-2.8
16320	12	Z	850	31	6.1	3.0
16320	00	Z	850	31	5.2	1.7
16429	00	Z	850	30	2.7	1.5
16429	12	Z	850	30	3.0	0.6
16622	00	Z	850	30	11.4	11.2
16754	00	Z	850	30	3.8	2.3
17607	12	Z	850	29	3.1	2.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
26435	12	Z	850	15	2.6	1.0
60018	12	Z	850	31	3.0	0.7
60018	00	Z	850	29	3.1	0.2
7JUNA4	12	Z	850	4	7.7	6.8
7JUNA4	00	Z	850	2	9.4	8.5
ASDE09	12	Z	850	4	1.7	0.1
BPMWB2	12	Z	850	6	4.9	3.3
BPMWB2	00	Z	850	5	3.5	1.2
FPUW5G	12	Z	850	8	6.0	5.1
HTXUH4	12	Z	850	2	4.6	4.3
HTXUH4	00	Z	850	2	2.1	1.9
JNKN7J	12	Z	850	13	44.1	43.9
JNKN7J	00	Z	850	10	39.6	39.2
KJJF9X	12	Z	850	8	6.1	5.7
KJJF9X	00	Z	850	7	4.4	4.0
KMPLHP	00	Z	850	5	6.2	-0.6
KMPLHP	12	Z	850	5	8.1	7.1
LRYQE3	12	Z	850	12	23.2	14.5
LRYQE3	00	Z	850	11	20.7	10.2
UXK5JT	00	Z	850	3	14.1	11.3
UXK5JT	12	Z	850	6	8.1	3.7
VKB4L5	12	Z	850	10	32.8	32.7
VKB4L5	00	Z	850	9	32.6	32.3
WDK38H	00	Z	850	12	6.1	-5.6
WDK38H	12	Z	850	17	8.1	-7.4
XKQLWQ	12	Z	850	12	9.4	6.8
XQFJRG	12	Z	850	5	12.9	-12.6
XQFJRG	00	Z	850	5	13.7	-13.5
YLV96W	12	Z	850	11	44.0	43.6
YLV96W	00	Z	850	10	42.1	39.7
ZVQEQC	12	Z	850	11	2.9	1.3

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 : SEP 2020
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	30	3.2	0.5	-0.2
01001	00	V	850	30	3.3	-0.4	0.0
01028	12	V	850	30	2.3	-0.3	0.0
01028	00	V	850	30	2.5	0.3	-0.3
01400	00	V	850	27	2.7	0.5	-0.5
01400	12	V	850	25	2.5	0.5	0.4
01415	12	V	850	30	3.1	0.0	0.4
01415	00	V	850	29	2.8	0.2	1.0
02365	12	V	850	30	3.0	-0.1	-0.1
02365	00	V	850	30	3.5	0.5	0.4
02836	12	V	850	30	2.6	-0.2	-0.1
02836	00	V	850	30	2.4	0.2	0.2
02963	00	V	850	30	2.8	0.3	0.7
02963	12	V	850	30	3.1	-0.3	0.3
03005	12	V	850	30	2.9	-0.3	0.4
03005	00	V	850	30	3.0	-0.1	0.5
03238	12	V	850	3	1.9	0.1	-0.6
03238	00	V	850	26	2.1	0.0	0.1
03808	00	V	850	29	2.8	0.6	0.1
03808	12	V	850	30	2.9	-0.1	-0.1
03918	12	V	850	3	2.6	0.0	-1.0
03918	00	V	850	30	2.3	0.0	0.1
03953	12	V	850	30	2.6	-0.3	0.4
03953	00	V	850	29	3.2	0.4	0.4
04018	00	V	850	25	2.8	-0.7	0.1
04018	12	V	850	26	3.4	-0.3	0.1
04220	12	V	850	30	2.8	0.2	-0.8
04220	00	V	850	30	2.3	0.2	0.0
04270	00	V	850	30	3.8	0.8	-0.7
04270	12	V	850	30	3.4	0.4	0.0
04320	12	V	850	30	3.1	-0.4	0.2
04320	00	V	850	30	2.8	0.2	0.2
04339	12	V	850	30	4.9	0.6	1.3
04339	00	V	850	30	4.8	1.3	1.9
04360	12	V	850	30	3.9	1.0	-0.2
04360	00	V	850	30	4.1	0.2	-0.1
06011	12	V	850	30	2.4	0.4	-0.2
06011	00	V	850	30	3.1	-0.1	-0.3
06260	12	V	850	6	1.8	0.4	0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	00	V	850	30	1.8	0.0	-0.2
06610	00	V	850	30	2.7	0.7	0.0
06610	12	V	850	30	2.3	-0.2	-0.2
07110	12	V	850	27	2.4	-0.3	-0.3
07110	00	V	850	30	3.1	0.3	-0.7
07510	12	V	850	30	3.5	1.0	1.0
07510	00	V	850	30	2.6	-0.3	0.1
07645	00	V	850	28	2.4	-0.1	-0.3
07645	12	V	850	28	2.8	0.0	1.0
07761	00	V	850	29	3.3	0.1	0.6
07761	12	V	850	30	3.0	-0.7	-0.1
08001	00	V	850	29	2.2	0.5	0.3
08001	12	V	850	29	2.3	0.8	0.0
08221	12	V	850	30	2.4	0.5	0.2
08221	00	V	850	29	3.3	-0.6	0.4
08302	00	V	850	27	2.7	-0.8	0.0
08302	12	V	850	29	2.9	0.3	-0.6
08508	00	V	850	28	2.1	-0.6	0.2
08508	12	V	850	30	2.5	0.1	0.2
08522	12	V	850	30	3.1	0.4	0.2
10035	00	V	850	30	2.0	0.1	0.0
10035	12	V	850	30	2.1	-0.7	-0.2
10393	12	V	850	29	2.3	0.3	-0.5
10393	00	V	850	29	2.3	-0.1	-0.4
10410	00	V	850	30	2.3	0.3	0.5
10410	12	V	850	30	2.0	0.7	-0.3
10739	00	V	850	30	2.2	0.5	-0.2
10739	12	V	850	30	2.0	0.1	0.0
11035	00	V	850	30	3.0	0.2	0.7
11035	12	V	850	30	2.2	0.4	0.1
12982	00	V	850	30	2.5	0.5	-0.1
12982	12	V	850	30	2.9	1.0	0.3
16080	00	V	850	30	3.4	0.4	-0.7
16080	12	V	850	30	3.9	0.9	-0.3
16245	12	V	850	30	2.7	-0.4	-0.6
16245	00	V	850	29	2.9	-0.5	0.6
16320	12	V	850	29	3.7	0.0	-1.0
16320	00	V	850	30	3.1	0.3	-0.7
16429	00	V	850	30	2.6	0.2	0.2
16429	12	V	850	30	3.3	0.2	-0.2
16622	00	V	850	30	3.3	0.9	0.0
16754	00	V	850	29	2.1	0.0	-0.1
17607	12	V	850	29	2.8	1.0	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
26435	12	V	850	15	2.9	0.6	0.4
60018	12	V	850	30	4.5	0.8	0.8
60018	00	V	850	29	3.6	1.0	1.1
7JUNA4	12	V	850	4	3.0	-1.0	-0.7
7JUNA4	00	V	850	2	1.5	1.4	0.3
ASDE09	12	V	850	4	1.9	-0.3	-0.8
BPMWB2	12	V	850	6	1.7	-0.1	-1.1
BPMWB2	00	V	850	5	1.9	0.0	-0.7
FPUW5G	12	V	850	8	3.8	1.6	0.3
HTXUH4	12	V	850	2	4.1	-3.3	-1.4
HTXUH4	00	V	850	2	2.3	-2.1	-0.7
JNKN7J	12	V	850	12	2.6	0.7	-0.1
JNKN7J	00	V	850	10	3.2	-1.0	-0.7
KJJF9X	12	V	850	8	1.9	0.3	0.1
KJJF9X	00	V	850	7	1.6	0.0	0.8
KMPLHP	00	V	850	5	2.2	-0.8	0.3
KMPLHP	12	V	850	5	1.2	0.1	-0.2
LRYQE3	12	V	850	12	2.9	0.1	-0.2
LRYQE3	00	V	850	11	2.7	1.0	0.2
UXK5JT	00	V	850	3	2.7	-1.1	0.8
UXK5JT	12	V	850	6	3.9	0.3	-1.0
VKB4L5	12	V	850	10	2.6	1.2	0.2
VKB4L5	00	V	850	9	2.3	0.7	-0.7
WDK38H	00	V	850	12	3.1	-0.4	0.1
WDK38H	12	V	850	17	2.6	-0.1	0.7
XKQLWQ	12	V	850	12	2.4	0.7	0.1
XQFJRG	12	V	850	5	2.1	0.6	0.7
XQFJRG	00	V	850	5	1.7	0.7	0.2
YLV96W	12	V	850	11	2.2	0.2	-0.2
YLV96W	00	V	850	10	2.8	0.4	0.9
ZVQEQC	12	V	850	11	2.6	-0.2	-0.4

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 : SEP 2020
 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	1994	0	0.3	-0.2	0.4
0640046	99	P	SUR	60	-4	706	0	0.4	-0.2	0.5
1300001	99	P	SUR	11	-23	600	0	0.5	-0.1	0.5
1300008	99	P	SUR	15	-38	372	0	0.4	-0.2	0.4
1300130	99	P	SUR	28	-16	720	0	0.4	0.3	0.5
1300131	99	P	SUR	28	-17	720	0	0.4	0.2	0.5
1301547	99	P	SUR	31	-45	4	4	0.0	0.0	0.0
1301548	99	P	SUR	29	-68	4	4	0.0	0.0	0.0
1301549	99	P	SUR	29	-46	4	4	0.0	0.0	0.0
1301569	99	P	SUR	23	-46	719	0	0.4	-0.4	0.6
1301570	99	P	SUR	26	-51	4	4	0.0	0.0	0.0
1301571	99	P	SUR	27	-38	4	4	0.0	0.0	0.0
1301573	99	P	SUR	19	-51	4	4	0.0	0.0	0.0
1301574	99	P	SUR	21	-54	4	4	0.0	0.0	0.0
1301575	99	P	SUR	19	-62	4	4	0.0	0.0	0.0
1301576	99	P	SUR	31	-44	4	4	0.0	0.0	0.0
1301577	99	P	SUR	25	-59	4	4	0.0	0.0	0.0
1301578	99	P	SUR	21	-60	4	4	0.0	0.0	0.0
1301579	99	P	SUR	28	-58	4	4	0.0	0.0	0.0
1301590	99	P	SUR	20	-39	4	4	0.0	0.0	0.0
1301592	99	P	SUR	29	-22	4	4	0.0	0.0	0.0
1301603	99	P	SUR	31	-56	720	0	0.4	-0.1	0.4
1301608	99	P	SUR	27	-49	717	0	0.4	-1.0	1.1
1301610	99	P	SUR	36	-66	720	0	0.6	0.1	0.6
1301612	99	P	SUR	31	-42	717	0	0.2	-0.2	0.3
1301619	99	P	SUR	27	-36	720	0	0.3	0.3	0.4
1301620	99	P	SUR	19	-62	718	0	0.3	0.2	0.3
1301688	99	P	SUR	16	-21	4	4	0.0	0.0	0.0
1301697	99	P	SUR	10	-18	4	4	0.0	0.0	0.0
1501531	99	P	SUR	31	-48	436	0	0.8	-0.3	0.8
1501654	99	P	SUR	15	-34	4	4	0.0	0.0	0.0
1501656	99	P	SUR	15	-55	4	4	0.0	0.0	0.0
1501672	99	P	SUR	26	-54	4	4	0.0	0.0	0.0
1501673	99	P	SUR	25	-65	4	4	0.0	0.0	0.0
1501684	99	P	SUR	16	-52	4	4	0.0	0.0	0.0
1501685	99	P	SUR	12	-51	4	4	0.0	0.0	0.0

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
1501686	99	P	SUR	16	-54	4	4	0.0	0.0	0.0
1501687	99	P	SUR	15	-54	4	4	0.0	0.0	0.0
1501688	99	P	SUR	17	-53	4	4	0.0	0.0	0.0
1501692	99	P	SUR	16	-55	4	4	0.0	0.0	0.0
1701631	99	P	SUR	17	-53	720	0	0.4	0.3	0.5
1701632	99	P	SUR	17	-55	720	0	0.4	0.1	0.4
1701633	99	P	SUR	21	-55	720	0	0.6	0.5	0.7
1701634	99	P	SUR	16	-54	720	0	0.3	-0.2	0.4
1701635	99	P	SUR	16	-54	614	0	0.5	0.0	0.5
2501538	99	P	SUR	86	-47	690	0	0.9	0.0	0.9
2501543	99	P	SUR	83	10	574	0	0.4	-0.4	0.5
2501544	99	P	SUR	82	3	575	1	0.5	-0.1	0.5
3101515	99	P	SUR	29	-69	4	4	0.0	0.0	0.0
3101518	99	P	SUR	27	-66	4	4	0.0	0.0	0.0
3101553	99	P	SUR	44	-3	3	3	0.0	0.0	0.0
3101554	99	P	SUR	36	21	4	4	0.0	0.0	0.0
3101558	99	P	SUR	20	-39	4	4	0.0	0.0	0.0
3101559	99	P	SUR	11	-40	4	4	0.0	0.0	0.0
3101560	99	P	SUR	22	-39	4	4	0.0	0.0	0.0
3101561	99	P	SUR	11	-35	4	4	0.0	0.0	0.0
3201769	99	P	SUR	15	-43	4	4	0.0	0.0	0.0
4100040	99	P	SUR	15	-53	4317	0	0.3	-0.3	0.5
4100043	99	P	SUR	21	-65	4319	0	0.3	0.2	0.4
4100044	99	P	SUR	22	-59	4313	0	0.3	-0.0	0.3
4100046	99	P	SUR	24	-68	4315	0	0.3	0.1	0.3
4100048	99	P	SUR	32	-70	4314	0	0.4	-0.1	0.4
4100049	99	P	SUR	27	-63	4315	0	0.7	-0.8	1.1
4100052	99	P	SUR	18	-65	3867	0	0.6	-1.0	1.1
4100053	99	P	SUR	18	-66	4283	0	0.4	-0.9	1.0
4100056	99	P	SUR	18	-65	4298	0	0.3	-0.9	1.0
4100139	99	P	SUR	20	-38	600	0	0.4	-0.1	0.4
4100300	99	P	SUR	16	-57	720	0	0.3	0.0	0.3
4100729	99	P	SUR	29	-39	399	132	0.7	13.2	13.2
4101523	99	P	SUR	29	-40	4	4	0.0	0.0	0.0
4101531	99	P	SUR	28	-28	719	0	0.3	0.5	0.5
4101537	99	P	SUR	29	-25	681	0	1.6	-2.8	3.3
4101541	99	P	SUR	43	-31	4	4	0.0	0.0	0.0
4101542	99	P	SUR	31	-52	4	4	0.0	0.0	0.0
4101544	99	P	SUR	30	-24	4	4	0.0	0.0	0.0
4101546	99	P	SUR	41	-25	4	4	0.0	0.0	0.0
4101548	99	P	SUR	30	-46	4	4	0.0	0.0	0.0
4101557	99	P	SUR	27	-56	716	0	0.8	0.4	0.9
4101559	99	P	SUR	32	-39	1	1	0.0	0.0	0.0

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101560	99	P	SUR	21	-27	717	0	0.4	0.5	0.6
4101564	99	P	SUR	27	-44	718	0	0.3	-0.0	0.3
4101565	99	P	SUR	27	-52	718	0	0.4	0.3	0.5
4101567	99	P	SUR	32	-36	720	0	0.3	0.5	0.5
4101570	99	P	SUR	31	-69	719	0	0.4	0.1	0.4
4101573	99	P	SUR	30	-44	719	0	0.3	0.1	0.3
4101574	99	P	SUR	33	-36	720	0	0.2	0.4	0.5
4101598	99	P	SUR	18	-65	672	10	0.5	-0.1	0.5
4101609	99	P	SUR	34	-19	720	0	0.7	0.2	0.7
4101610	99	P	SUR	68	3	2	0	0.5	0.4	0.6
4101613	99	P	SUR	29	-25	720	0	0.3	0.4	0.5
4101614	99	P	SUR	29	-20	720	0	0.3	-0.0	0.3
4101616	99	P	SUR	38	-20	720	0	0.3	0.0	0.3
4101617	99	P	SUR	26	-27	720	0	0.3	0.4	0.5
4101618	99	P	SUR	34	-33	720	0	0.4	0.1	0.4
4101621	99	P	SUR	35	-33	720	0	0.2	0.3	0.4
4101622	99	P	SUR	63	-3	708	0	0.3	0.1	0.3
4101627	99	P	SUR	57	-56	720	0	0.5	-0.1	0.5
4101638	99	P	SUR	17	-39	4	4	0.0	0.0	0.0
4101641	99	P	SUR	24	-69	4	4	0.0	0.0	0.0
4101642	99	P	SUR	29	-68	4	4	0.0	0.0	0.0
4101644	99	P	SUR	34	-45	4	4	0.0	0.0	0.0
4101647	99	P	SUR	31	-28	4	4	0.0	0.0	0.0
4101650	99	P	SUR	32	-34	4	4	0.0	0.0	0.0
4101653	99	P	SUR	63	-5	720	0	0.4	-0.4	0.5
4101655	99	P	SUR	60	-10	720	0	0.4	-0.1	0.4
4101656	99	P	SUR	62	-20	720	0	0.4	-0.1	0.4
4101657	99	P	SUR	64	-11	720	0	0.4	-0.2	0.4
4101658	99	P	SUR	58	-28	720	0	0.4	-0.2	0.4
4101659	99	P	SUR	69	13	720	0	0.4	0.0	0.4
4101662	99	P	SUR	71	26	720	0	0.4	0.0	0.4
4101663	99	P	SUR	43	-49	715	2	0.9	0.1	0.9
4101664	99	P	SUR	64	-30	720	0	0.5	0.0	0.5
4101669	99	P	SUR	23	-55	720	2	1.2	0.2	1.2
4101690	99	P	SUR	46	-13	663	0	0.3	0.2	0.4
4101696	99	P	SUR	24	-54	720	0	0.4	0.1	0.4
4101698	99	P	SUR	13	-60	720	0	0.4	-0.7	0.8
4101699	99	P	SUR	13	-61	717	0	0.4	-1.1	1.1
4101702	99	P	SUR	35	-66	720	0	0.6	-0.1	0.6
4101707	99	P	SUR	30	-27	719	0	0.3	-0.3	0.4
4101708	99	P	SUR	31	-46	720	0	0.9	-0.5	1.0
4101714	99	P	SUR	31	-33	720	0	0.3	-0.2	0.3
4101715	99	P	SUR	40	-36	720	0	0.3	-0.5	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101717	99	P	SUR	37	-59	718	0	0.9	-0.5	1.0
4101718	99	P	SUR	26	-40	720	0	0.3	-0.1	0.3
4101719	99	P	SUR	33	-44	720	0	0.3	-0.1	0.3
4101720	99	P	SUR	34	-34	718	0	0.2	0.4	0.5
4101721	99	P	SUR	30	-47	720	0	1.0	1.3	1.6
4101742	99	P	SUR	31	-45	720	0	0.2	0.1	0.3
4101752	99	P	SUR	42	-49	720	0	0.4	0.0	0.4
4101753	99	P	SUR	26	-38	720	0	0.3	0.2	0.3
4101755	99	P	SUR	24	-42	720	0	0.3	0.1	0.4
4101757	99	P	SUR	16	-66	1093	0	0.3	0.1	0.4
4101781	99	P	SUR	40	-56	1439	0	0.5	0.1	0.5
4101782	99	P	SUR	28	-64	526	0	0.5	0.1	0.5
4101783	99	P	SUR	28	-63	509	0	0.6	0.3	0.6
4101784	99	P	SUR	29	-62	527	0	1.6	0.7	1.8
4101785	99	P	SUR	30	-62	507	0	0.6	0.6	0.9
4101807	99	P	SUR	30	-61	530	0	0.5	0.5	0.7
4101808	99	P	SUR	28	-64	457	0	0.5	0.3	0.6
4101809	99	P	SUR	29	-63	526	0	0.8	0.7	1.0
4101810	99	P	SUR	29	-62	533	0	0.8	0.4	0.9
4101813	99	P	SUR	35	-68	4	4	0.0	0.0	0.0
41040	99	P	SUR	15	-53	1187	0	0.4	-0.3	0.5
41043	99	P	SUR	21	-65	1196	0	0.4	0.2	0.4
41044	99	P	SUR	22	-59	1179	0	0.4	-0.0	0.4
41046	99	P	SUR	24	-68	2997	0	0.4	0.1	0.4
41048	99	P	SUR	32	-70	2993	0	0.4	-0.0	0.4
41049	99	P	SUR	28	-63	3007	0	0.7	-0.8	1.1
41052	99	P	SUR	18	-65	1309	0	0.5	-0.9	1.1
41053	99	P	SUR	19	-66	1551	0	0.4	-0.9	1.0
41056	99	P	SUR	18	-66	1504	0	0.4	-1.0	1.0
4200059	99	P	SUR	15	-67	4311	0	0.4	-0.1	0.4
4200060	99	P	SUR	16	-63	4315	0	0.3	-0.2	0.4
4200085	99	P	SUR	18	-67	4250	0	0.4	-0.8	0.9
4201523	99	P	SUR	30	-65	4	4	0.0	0.0	0.0
4201528	99	P	SUR	39	-65	1415	0	0.5	0.2	0.5
4201530	99	P	SUR	42	-59	1421	0	0.9	1.8	2.0
4201545	99	P	SUR	26	-46	4	4	0.0	0.0	0.0
4201554	99	P	SUR	39	-11	4	4	0.0	0.0	0.0
42059	99	P	SUR	15	-68	1206	0	0.4	-0.2	0.5
42060	99	P	SUR	16	-63	1167	0	0.4	-0.2	0.5
42085	99	P	SUR	18	-67	1515	0	0.4	-0.8	0.9
4400008	99	P	SUR	41	-69	4314	0	0.4	0.4	0.6
4400027	99	P	SUR	44	-67	605	6	0.5	-0.4	0.6
4400032	99	P	SUR	44	-69	690	0	0.9	-0.5	1.1

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4400033	99	P	SUR	44	-69	708	0	0.5	-1.6	1.7
4400034	99	P	SUR	44	-68	710	0	0.5	0.6	0.8
4400037	99	P	SUR	43	-68	710	0	0.4	-0.3	0.5
4400777	99	P	SUR	36	-59	720	0	0.8	0.2	0.8
44008	99	P	SUR	41	-69	2990	0	0.4	0.4	0.6
4400857	99	P	SUR	27	-37	719	0	0.3	0.2	0.3
4401531	99	P	SUR	21	-34	716	0	0.3	0.2	0.4
4401539	99	P	SUR	27	-49	716	0	0.7	0.1	0.7
4401540	99	P	SUR	36	-34	716	0	0.3	0.2	0.3
4401541	99	P	SUR	34	-35	716	0	0.2	-0.4	0.5
4401542	99	P	SUR	29	-66	716	0	0.4	0.3	0.5
4401551	99	P	SUR	24	-35	671	0	0.9	0.1	0.9
4401557	99	P	SUR	29	-43	720	0	0.3	0.2	0.4
4401558	99	P	SUR	66	12	224	0	0.3	-1.0	1.1
4401562	99	P	SUR	27	-53	720	0	0.7	-0.5	0.9
4401563	99	P	SUR	36	-32	720	0	0.3	-0.4	0.5
4401565	99	P	SUR	61	-20	718	0	0.4	-0.1	0.4
4401569	99	P	SUR	56	-25	720	59	0.8	0.6	1.0
4401572	99	P	SUR	35	-23	704	0	0.3	0.3	0.4
4401574	99	P	SUR	60	-51	719	0	0.5	-0.1	0.5
4401576	99	P	SUR	36	-18	720	0	0.4	0.3	0.5
4401577	99	P	SUR	39	-26	720	0	0.3	0.2	0.4
4401578	99	P	SUR	24	-29	719	0	0.3	-0.1	0.3
4401580	99	P	SUR	42	-15	719	0	0.4	0.3	0.5
4401581	99	P	SUR	36	-41	720	0	0.3	0.3	0.5
4401582	99	P	SUR	42	-22	711	0	0.7	0.4	0.8
4401750	99	P	SUR	66	-7	559	0	0.4	-1.4	1.5
4401751	99	P	SUR	71	23	701	0	0.4	-0.3	0.5
4401813	99	P	SUR	34	-35	4	4	0.0	0.0	0.0
4401826	99	P	SUR	40	-55	417	0	0.8	-1.6	1.8
4401827	99	P	SUR	44	-64	310	0	0.3	0.2	0.4
4401828	99	P	SUR	51	-38	680	0	0.5	0.4	0.7
4401829	99	P	SUR	46	-29	718	0	0.4	0.4	0.5
4401831	99	P	SUR	42	-36	699	0	0.6	1.1	1.3
4401837	99	P	SUR	43	-31	720	0	0.3	0.2	0.4
4401838	99	P	SUR	47	-19	689	0	1.3	-0.5	1.4
4401840	99	P	SUR	51	-36	691	0	0.5	0.8	0.9
4401845	99	P	SUR	38	-33	4	4	0.0	0.0	0.0
4401848	99	P	SUR	44	-57	716	0	0.5	-0.0	0.5
4401850	99	P	SUR	45	-58	713	0	0.4	0.0	0.4
4401851	99	P	SUR	42	-62	714	0	0.5	0.1	0.5
4401854	99	P	SUR	26	-59	717	0	0.6	-0.3	0.7
4401870	99	P	SUR	26	-36	720	0	0.4	0.2	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401872	99	P	SUR	24	-39	720	0	0.3	0.0	0.3
4401873	99	P	SUR	20	-37	720	0	0.4	-0.2	0.4
4401874	99	P	SUR	23	-28	720	0	0.3	0.2	0.4
4401894	99	P	SUR	53	-27	703	0	0.5	0.1	0.5
4402603	99	P	SUR	59	-60	636	0	0.4	0.1	0.4
4402604	99	P	SUR	58	-60	636	0	0.4	-0.1	0.4
4402605	99	P	SUR	58	-59	636	0	0.4	0.1	0.4
4402606	99	P	SUR	57	-58	636	0	0.4	0.2	0.4
4402607	99	P	SUR	56	-57	636	0	0.4	0.0	0.4
4402608	99	P	SUR	55	-55	636	0	0.4	0.0	0.4
4402609	99	P	SUR	57	-57	636	0	0.4	0.0	0.4
4402610	99	P	SUR	55	-55	636	0	0.4	0.1	0.4
4402657	99	P	SUR	45	-63	720	0	0.7	0.1	0.7
4402658	99	P	SUR	47	-54	545	0	0.4	0.1	0.4
4402659	99	P	SUR	45	-58	719	0	0.4	0.4	0.6
4402660	99	P	SUR	46	-50	720	0	0.4	0.3	0.5
4402661	99	P	SUR	72	-61	718	0	0.3	0.5	0.6
4402662	99	P	SUR	45	-61	720	0	0.4	0.4	0.6
4402663	99	P	SUR	44	-58	720	0	0.5	-0.0	0.5
4402664	99	P	SUR	46	-51	720	1	0.4	0.4	0.6
4402665	99	P	SUR	46	-56	720	0	0.4	0.3	0.5
4402687	99	P	SUR	39	-38	701	0	0.3	0.2	0.3
44027	99	P	SUR	44	-67	1118	11	0.5	-0.4	0.6
44032	99	P	SUR	44	-69	1266	0	0.9	-0.5	1.0
44033	99	P	SUR	44	-69	1299	0	0.6	-1.5	1.7
44034	99	P	SUR	44	-68	1301	0	0.5	0.6	0.8
44037	99	P	SUR	44	-68	1302	0	0.4	-0.3	0.5
44078	99	P	SUR	60	-40	2071	0	0.5	-1.0	1.1
44137	99	P	SUR	42	-62	1279	0	0.6	-0.0	0.6
44139	99	P	SUR	44	-57	1303	0	0.5	-0.2	0.6
44150	99	P	SUR	43	-64	1273	0	0.8	-0.2	0.8
4700546	99	P	SUR	34	-51	666	0	0.4	0.0	0.4
5102617	99	P	SUR	29	-54	4	4	0.0	0.0	0.0
5401557	99	P	SUR	22	-62	4	4	0.0	0.0	0.0
5501572	99	P	SUR	29	-54	4	4	0.0	0.0	0.0
5501573	99	P	SUR	35	-19	4	4	0.0	0.0	0.0
5601623	99	P	SUR	24	-12	131	71	0.3	0.1	0.3
6100001	99	P	SUR	43	8	715	0	0.4	0.2	0.4
6100002	99	P	SUR	42	5	710	0	0.3	-0.0	0.3
6100196	99	P	SUR	42	4	590	0	0.4	0.4	0.6
6100197	99	P	SUR	40	4	720	0	1.6	0.8	1.8
6100198	99	P	SUR	37	-2	709	0	0.4	0.4	0.6
6100280	99	P	SUR	41	1	717	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
6100281	99	P	SUR	40	0	713	0	0.4	0.3	0.5
6100417	99	P	SUR	38	0	716	0	0.4	0.6	0.7
6100430	99	P	SUR	40	2	720	0	0.4	0.2	0.5
6101003	99	P	SUR	40	25	233	0	0.4	0.7	0.8
6101007	99	P	SUR	36	25	210	0	0.4	-0.2	0.5
6101008	99	P	SUR	37	22	160	0	0.5	-0.2	0.5
6101009	99	P	SUR	35	25	202	0	0.5	-0.8	0.9
6102507	99	P	SUR	31	30	616	0	0.2	-0.3	0.4
6200024	99	P	SUR	44	-3	720	0	0.4	0.4	0.5
6200025	99	P	SUR	44	-6	720	0	0.4	0.7	0.8
6200082	99	P	SUR	44	-8	720	0	0.4	0.2	0.4
6200083	99	P	SUR	43	-9	720	0	0.4	0.3	0.5
6200084	99	P	SUR	42	-9	567	0	0.4	0.4	0.5
6200085	99	P	SUR	36	-7	719	0	0.3	0.5	0.6
6200091	99	P	SUR	53	-5	716	0	0.4	-0.2	0.5
6200093	99	P	SUR	55	-10	716	0	0.4	-0.3	0.5
6200094	99	P	SUR	52	-7	716	0	0.3	0.0	0.3
6200095	99	P	SUR	53	-16	716	0	0.4	-0.1	0.4
62001	99	P	SUR	45	-5	2022	0	0.3	0.0	0.3
6200199	99	P	SUR	40	-9	706	0	0.4	-0.6	0.8
6200200	99	P	SUR	36	-8	711	0	0.4	-1.3	1.4
6201030	99	P	SUR	44	-4	679	0	0.4	0.3	0.5
6201065	99	P	SUR	54	7	143	0	0.3	1.1	1.2
6201066	99	P	SUR	55	7	716	0	0.2	0.2	0.3
62023	99	P	SUR	51	-8	2146	0	0.3	-0.1	0.3
6202613	99	P	SUR	23	-38	720	0	0.3	0.0	0.3
6202614	99	P	SUR	23	-41	720	0	1.0	0.7	1.2
6202623	99	P	SUR	63	0	720	0	0.3	-0.1	0.3
6202624	99	P	SUR	60	-25	720	0	0.4	-0.2	0.4
6202625	99	P	SUR	50	-8	720	0	0.3	0.2	0.4
6202626	99	P	SUR	50	-12	720	0	0.3	0.1	0.3
6202627	99	P	SUR	56	-29	204	0	0.3	-0.2	0.4
6202628	99	P	SUR	60	-35	720	0	0.4	-0.2	0.5
6202629	99	P	SUR	44	-40	918	0	0.5	-1.3	1.4
6202630	99	P	SUR	50	-17	720	0	0.3	0.1	0.3
6202631	99	P	SUR	54	-24	720	0	0.5	-0.2	0.5
6202632	99	P	SUR	54	-16	720	0	0.4	-0.0	0.4
6202633	99	P	SUR	57	-29	720	0	0.4	-0.3	0.5
6202634	99	P	SUR	63	-5	720	0	0.3	-0.0	0.3
6202635	99	P	SUR	68	-10	918	0	0.4	0.2	0.4
6202636	99	P	SUR	68	-11	918	0	0.3	0.3	0.5
6202637	99	P	SUR	64	-13	720	0	0.4	-0.0	0.4
6202638	99	P	SUR	19	-61	720	0	0.3	-0.3	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6202639	99	P	SUR	31	-40	720	0	0.3	-0.1	0.3
6202640	99	P	SUR	28	-66	720	0	0.4	-0.2	0.4
6202642	99	P	SUR	28	-65	634	0	0.4	-0.2	0.5
6202644	99	P	SUR	30	-46	720	0	0.3	-1.4	1.5
6202645	99	P	SUR	26	-60	720	0	0.4	0.1	0.5
6202646	99	P	SUR	26	-58	720	0	0.6	0.1	0.7
6202648	99	P	SUR	39	-26	4	4	0.0	0.0	0.0
6202656	99	P	SUR	30	-17	4	4	0.0	0.0	0.0
6202657	99	P	SUR	11	-38	4	4	0.0	0.0	0.0
6202675	99	P	SUR	58	-2	259	0	0.4	-0.0	0.4
6202677	99	P	SUR	66	6	644	0	0.4	0.2	0.5
6202678	99	P	SUR	62	-58	644	0	0.6	0.4	0.7
6202680	99	P	SUR	64	10	612	0	0.4	-0.2	0.5
6202681	99	P	SUR	67	8	605	0	0.3	0.3	0.4
6202683	99	P	SUR	67	12	663	0	0.4	0.4	0.6
6202684	99	P	SUR	66	-8	671	0	0.4	0.5	0.6
6202685	99	P	SUR	39	12	720	0	0.3	0.3	0.5
6202686	99	P	SUR	37	1	718	47	2.8	-0.3	2.8
6202687	99	P	SUR	38	15	258	0	0.3	-2.6	2.6
6202688	99	P	SUR	37	8	431	0	1.0	-0.3	1.0
6202690	99	P	SUR	42	11	720	0	0.4	-0.2	0.4
6202691	99	P	SUR	40	7	720	0	0.4	0.2	0.5
6202692	99	P	SUR	40	1	720	0	0.3	0.0	0.3
6202693	99	P	SUR	41	2	720	0	0.4	-0.3	0.5
6203523	99	P	SUR	79	5	238	0	0.4	-1.4	1.5
6203529	99	P	SUR	35	-45	719	0	0.3	-0.8	0.8
6203574	99	P	SUR	52	-43	716	0	0.5	0.4	0.6
6203580	99	P	SUR	64	-6	614	0	0.3	0.4	0.5
6203581	99	P	SUR	77	-2	633	1	1.6	0.2	1.6
6203582	99	P	SUR	62	-57	709	0	0.6	0.5	0.8
6203583	99	P	SUR	59	-10	597	0	0.4	0.1	0.4
6203585	99	P	SUR	70	14	714	0	0.5	0.4	0.6
6203587	99	P	SUR	67	3	586	0	0.4	-0.1	0.4
6203588	99	P	SUR	58	-42	666	0	0.4	0.5	0.6
6203601	99	P	SUR	31	-49	719	0	0.3	0.5	0.6
6203607	99	P	SUR	23	-38	718	0	0.3	0.2	0.4
6203609	99	P	SUR	35	-18	720	0	0.3	-0.2	0.4
6203612	99	P	SUR	32	-38	720	0	0.2	-0.0	0.2
6203613	99	P	SUR	34	-25	720	0	0.5	0.1	0.5
6203626	99	P	SUR	59	-12	720	0	0.4	0.2	0.4
6203631	99	P	SUR	23	-53	720	0	0.6	-0.0	0.6
6203633	99	P	SUR	58	-33	720	0	0.4	-0.1	0.4
6203634	99	P	SUR	44	-17	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
6203637	99	P	SUR	55	-22	716	0	0.4	0.0	0.4
6203639	99	P	SUR	48	-40	533	0	0.6	0.2	0.7
6203640	99	P	SUR	49	-33	516	0	0.6	0.2	0.6
6203641	99	P	SUR	46	-3	720	0	0.4	0.2	0.4
6203646	99	P	SUR	72	-58	718	0	0.3	0.3	0.5
6203730	99	P	SUR	21	-22	198	0	0.3	0.4	0.5
6203732	99	P	SUR	15	-21	198	0	0.4	0.3	0.5
6203733	99	P	SUR	12	-21	198	0	0.4	0.2	0.4
6203754	99	P	SUR	50	-10	720	0	0.3	0.0	0.3
6203755	99	P	SUR	49	-12	720	0	0.3	0.1	0.3
6203756	99	P	SUR	51	-12	720	0	0.3	-0.5	0.6
6203757	99	P	SUR	48	-9	720	0	0.3	-0.3	0.5
6203758	99	P	SUR	56	-10	719	0	0.3	-0.0	0.3
6203760	99	P	SUR	55	-15	720	0	0.5	-0.2	0.5
6203761	99	P	SUR	51	-11	720	0	0.3	-0.0	0.3
62091	99	P	SUR	53	-5	716	0	0.4	-0.2	0.5
62093	99	P	SUR	55	-10	715	0	0.4	-0.3	0.5
62094	99	P	SUR	52	-7	715	0	0.3	0.0	0.3
62095	99	P	SUR	53	-16	715	0	0.4	-0.1	0.4
62102	99	P	SUR	58	2	2047	0	0.3	0.1	0.3
62103	99	P	SUR	50	-3	1824	6	0.3	0.5	0.7
62104	99	P	SUR	57	1	2033	0	0.3	-0.1	0.3
62107	99	P	SUR	50	-6	2695	0	0.3	0.3	0.4
62112	99	P	SUR	58	0	2047	0	0.3	0.2	0.4
62113	99	P	SUR	58	0	2047	0	0.4	0.3	0.5
62114	99	P	SUR	58	0	2738	0	0.5	0.2	0.5
62115	99	P	SUR	58	-3	2012	0	0.4	-0.1	0.4
62116	99	P	SUR	58	1	2002	0	0.4	-0.0	0.4
62118	99	P	SUR	58	1	2047	0	0.3	0.4	0.5
62119	99	P	SUR	57	2	1909	0	0.4	0.4	0.5
62120	99	P	SUR	56	2	2041	0	0.7	0.1	0.7
62121	99	P	SUR	54	3	1873	0	0.5	0.3	0.6
62122	99	P	SUR	57	2	2738	0	0.4	0.2	0.4
62124	99	P	SUR	54	-4	2047	0	0.3	0.0	0.3
62127	99	P	SUR	54	1	2036	0	0.3	0.7	0.8
62129	99	P	SUR	58	0	2047	0	0.4	0.2	0.5
62130	99	P	SUR	59	1	2047	0	0.3	-0.0	0.3
62131	99	P	SUR	54	1	2047	0	0.3	0.5	0.6
62132	99	P	SUR	56	2	2032	0	0.4	0.4	0.6
62133	99	P	SUR	57	1	2002	0	0.4	0.0	0.4
62134	99	P	SUR	58	1	2047	0	0.3	0.6	0.7
62135	99	P	SUR	54	2	2047	0	0.6	0.6	0.9
62138	99	P	SUR	54	0	2735	0	0.4	0.6	0.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62140	99	P	SUR	57	1	2731	0	0.3	0.1	0.3
62141	99	P	SUR	58	-4	1702	0	0.4	-2.5	2.5
62143	99	P	SUR	58	2	2037	0	0.4	0.6	0.7
62144	99	P	SUR	53	2	2002	0	0.5	0.3	0.6
62145	99	P	SUR	53	3	2645	0	0.4	0.5	0.7
62146	99	P	SUR	57	2	2047	0	0.4	0.1	0.4
62149	99	P	SUR	54	1	2038	0	0.3	0.8	0.9
62150	99	P	SUR	54	1	2047	0	0.4	1.5	1.5
62151	99	P	SUR	57	2	2437	0	0.3	0.2	0.4
62152	99	P	SUR	57	2	2047	0	0.4	0.5	0.6
62153	99	P	SUR	57	2	2599	0	0.5	0.4	0.6
62154	99	P	SUR	56	2	2047	0	0.3	0.1	0.3
62155	99	P	SUR	58	1	2047	0	0.3	0.4	0.5
62157	99	P	SUR	58	0	2044	0	0.3	0.0	0.3
62160	99	P	SUR	57	2	2730	0	0.3	0.3	0.5
62161	99	P	SUR	58	1	2047	0	0.5	0.1	0.5
62162	99	P	SUR	57	1	1956	0	0.3	0.0	0.3
62163	99	P	SUR	48	-8	2032	0	0.3	0.3	0.5
62164	99	P	SUR	57	1	1970	0	0.3	0.5	0.5
62165	99	P	SUR	54	1	1955	0	0.6	0.8	1.0
62168	99	P	SUR	58	1	1999	0	0.3	0.1	0.3
62296	99	P	SUR	53	2	2047	0	0.4	0.2	0.5
62297	99	P	SUR	59	2	2734	0	0.3	0.2	0.3
62302	99	P	SUR	61	-2	2046	0	0.5	0.1	0.5
62304	99	P	SUR	51	2	2022	0	0.4	0.1	0.4
62305	99	P	SUR	50	0	38	0	0.2	0.3	0.4
6301004	99	P	SUR	72	20	718	0	0.4	0.1	0.5
6301005	99	P	SUR	73	35	717	0	0.3	-0.0	0.3
6301006	99	P	SUR	63	6	714	0	0.5	-0.8	1.0
6301510	99	P	SUR	85	15	688	0	0.5	-0.3	0.6
6301511	99	P	SUR	85	15	688	0	0.4	-0.2	0.5
6301564	99	P	SUR	60	-37	719	0	0.4	0.4	0.6
6301566	99	P	SUR	84	-1	718	0	0.4	0.0	0.4
6301567	99	P	SUR	77	-7	719	0	0.7	-0.1	0.7
6301569	99	P	SUR	75	-10	715	0	1.0	0.5	1.1
6301570	99	P	SUR	77	-15	719	0	0.7	0.2	0.8
6301571	99	P	SUR	77	-14	719	0	2.8	-0.0	2.8
63055	99	P	SUR	61	2	2047	0	0.5	0.1	0.5
63056	99	P	SUR	60	2	2047	0	0.4	0.3	0.5
63057	99	P	SUR	59	2	2039	0	0.3	-0.1	0.3
63058	99	P	SUR	53	2	1969	0	0.4	0.3	0.5
63059	99	P	SUR	58	-1	2047	0	0.3	0.4	0.5
63101	99	P	SUR	61	1	2047	0	0.5	0.2	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
63102	99	P	SUR	61	1	1707	0	0.5	0.1	0.5
63103	99	P	SUR	61	1	2040	0	0.4	0.3	0.5
63104	99	P	SUR	61	2	2047	0	0.4	0.0	0.4
63108	99	P	SUR	61	2	2047	0	0.6	0.1	0.6
63109	99	P	SUR	60	2	2047	0	0.4	-0.2	0.4
63110	99	P	SUR	60	2	2047	0	0.4	-0.2	0.5
63112	99	P	SUR	61	1	2047	0	0.3	-0.3	0.4
63115	99	P	SUR	62	1	2047	0	0.4	0.1	0.4
63117	99	P	SUR	61	1	2732	0	0.5	0.6	0.8
63118	99	P	SUR	58	-4	1979	0	0.8	1.3	1.6
6401531	99	P	SUR	65	-55	720	0	0.4	0.4	0.6
6401539	99	P	SUR	49	-8	719	0	0.3	0.6	0.7
6401569	99	P	SUR	66	-22	720	0	0.6	-0.1	0.7
6401573	99	P	SUR	86	-29	714	0	0.5	0.3	0.5
6401574	99	P	SUR	87	-50	717	0	0.5	-0.2	0.6
6401575	99	P	SUR	89	-60	711	0	0.6	0.1	0.7
6401784	99	P	SUR	81	10	2862	0	0.5	0.2	0.5
6401795	99	P	SUR	73	-9	707	0	0.4	0.4	0.5
6402539	99	P	SUR	61	-53	718	0	0.6	0.1	0.6
6402540	99	P	SUR	58	-46	600	0	0.4	0.0	0.4
6402541	99	P	SUR	65	-2	590	0	0.4	0.2	0.4
6402542	99	P	SUR	63	-19	796	0	0.7	-0.2	0.7
6402543	99	P	SUR	61	-41	694	0	0.4	-0.0	0.4
6402544	99	P	SUR	64	-11	643	0	0.4	0.3	0.5
6402545	99	P	SUR	65	-9	706	0	0.4	0.1	0.4
6402546	99	P	SUR	64	-14	678	0	0.4	0.1	0.4
6402547	99	P	SUR	65	-29	686	0	0.5	0.2	0.6
6402548	99	P	SUR	69	-17	692	0	0.4	0.1	0.5
6402549	99	P	SUR	65	-9	701	0	0.4	0.0	0.4
6402550	99	P	SUR	64	-13	711	0	0.4	0.2	0.4
64041	99	P	SUR	61	-3	2047	0	0.4	-0.0	0.4
64045	99	P	SUR	59	-12	2042	0	0.4	-0.4	0.5
64046	99	P	SUR	61	-4	2024	0	0.4	-0.1	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 : SEP 2020
 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	706	0	0	1.3	-0.6	1.4
1300001	99	SPEED	SUR	11	-23	600	0	0	1.6	0.3	1.6
1300002	99	SPEED	SUR	20	-23	600	0	0	0.9	0.4	1.0
1300008	99	SPEED	SUR	15	-38	372	0	0	1.3	0.4	1.3
1300130	99	SPEED	SUR	28	-16	720	0	0	0.8	0.6	1.0
1300131	99	SPEED	SUR	28	-17	711	0	0	2.2	2.0	3.0
4100026	99	SPEED	SUR	12	-38	191	0	0	1.8	0.3	1.8
4100040	99	SPEED	SUR	15	-53	4315	0	0	1.2	0.2	1.2
4100043	99	SPEED	SUR	21	-65	4318	0	0	1.0	0.2	1.0
4100044	99	SPEED	SUR	22	-59	4314	0	0	1.0	0.4	1.1
4100046	99	SPEED	SUR	24	-68	4314	0	0	1.1	0.1	1.1
4100048	99	SPEED	SUR	32	-70	4313	0	0	1.1	0.2	1.1
4100049	99	SPEED	SUR	27	-63	4312	0	0	1.3	0.2	1.3
4100052	99	SPEED	SUR	18	-65	4298	0	0	1.1	-0.2	1.1
4100053	99	SPEED	SUR	18	-66	4283	0	0	1.4	0.9	1.7
4100056	99	SPEED	SUR	18	-65	4298	0	0	1.3	-0.4	1.3
4100139	99	SPEED	SUR	20	-38	600	0	0	1.0	0.0	1.0
4100300	99	SPEED	SUR	16	-57	720	0	0	1.0	-0.1	1.0
4101781	99	SPEED	SUR	40	-56	1439	6	0	1.5	2.3	2.8
4101782	99	SPEED	SUR	28	-64	526	0	0	1.2	3.1	3.3
4101783	99	SPEED	SUR	28	-63	509	0	0	1.1	2.7	2.9
4101784	99	SPEED	SUR	29	-62	527	0	0	1.2	2.0	2.3
4101785	99	SPEED	SUR	30	-62	507	0	0	1.4	2.3	2.7
4101807	99	SPEED	SUR	30	-61	530	0	0	1.6	3.0	3.4
4101808	99	SPEED	SUR	28	-64	457	0	0	4.4	-5.4	7.0
4101809	99	SPEED	SUR	29	-63	526	0	0	1.6	2.3	2.8
4101810	99	SPEED	SUR	29	-62	533	0	0	4.7	-6.0	7.6
41040	99	SPEED	SUR	15	-53	1187	0	0	1.2	-0.1	1.2
41043	99	SPEED	SUR	21	-65	1196	0	0	1.1	0.0	1.1
41044	99	SPEED	SUR	22	-59	1179	0	0	1.1	0.1	1.1
41046	99	SPEED	SUR	24	-68	2996	0	0	1.1	-0.2	1.2
41048	99	SPEED	SUR	32	-70	2992	0	0	1.2	-0.1	1.2
41049	99	SPEED	SUR	28	-63	3005	0	0	1.3	-0.2	1.4
41052	99	SPEED	SUR	18	-65	1454	0	0	1.1	-0.0	1.1

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
41053	99	SPEED	SUR	19	-66	1551	0	0	1.4	0.4	1.5
41056	99	SPEED	SUR	18	-66	1504	0	0	1.3	-0.2	1.3
4200059	99	SPEED	SUR	15	-67	4311	0	0	0.9	0.4	1.0
4200060	99	SPEED	SUR	16	-63	4315	0	0	1.1	0.1	1.2
4200085	99	SPEED	SUR	18	-67	4256	0	0	1.4	-0.1	1.4
42059	99	SPEED	SUR	15	-68	1205	0	0	0.9	0.2	0.9
42060	99	SPEED	SUR	16	-63	1167	0	0	1.2	-0.1	1.2
42085	99	SPEED	SUR	18	-67	1517	0	0	1.4	0.2	1.4
4400008	99	SPEED	SUR	41	-69	4317	0	0	1.3	-0.0	1.3
4400027	99	SPEED	SUR	44	-67	719	0	0	1.4	-0.5	1.5
4400032	99	SPEED	SUR	44	-69	689	0	0	1.3	-0.7	1.5
4400033	99	SPEED	SUR	44	-69	708	0	0	1.5	-0.5	1.5
4400034	99	SPEED	SUR	44	-68	710	0	0	1.5	-1.0	1.8
4400037	99	SPEED	SUR	43	-68	710	0	0	1.0	-0.3	1.1
44008	99	SPEED	SUR	41	-69	2994	0	0	1.3	-0.1	1.3
44027	99	SPEED	SUR	44	-67	1328	0	0	1.5	-0.4	1.5
44032	99	SPEED	SUR	44	-69	1264	0	0	1.3	-0.7	1.5
44033	99	SPEED	SUR	44	-69	1299	0	0	1.4	-0.2	1.5
44034	99	SPEED	SUR	44	-68	1301	0	0	1.5	-0.9	1.8
44037	99	SPEED	SUR	44	-68	1302	0	0	1.1	-0.3	1.1
44078	99	SPEED	SUR	60	-40	1710	0	0	1.9	-2.0	2.8
44137	99	SPEED	SUR	42	-62	1285	0	0	1.3	-0.4	1.4
44139	99	SPEED	SUR	44	-57	1302	2	0	1.2	-0.5	1.2
44150	99	SPEED	SUR	43	-64	1276	0	0	1.2	-0.0	1.2
6100001	99	SPEED	SUR	43	8	715	0	0	1.9	-0.4	1.9
6100002	99	SPEED	SUR	42	5	710	0	0	1.2	0.2	1.2
6100196	99	SPEED	SUR	42	4	525	0	0	1.6	-1.1	1.9
6100197	99	SPEED	SUR	40	4	693	0	0	1.2	-0.3	1.3
6100198	99	SPEED	SUR	37	-2	690	0	0	1.4	-0.8	1.7
6100280	99	SPEED	SUR	41	1	288	0	0	1.8	-0.7	2.0
6100281	99	SPEED	SUR	40	0	699	0	0	2.1	0.5	2.1
6100417	99	SPEED	SUR	38	0	707	0	0	1.2	-0.2	1.2
6100430	99	SPEED	SUR	40	2	706	0	0	1.5	-0.2	1.5
6101003	99	SPEED	SUR	40	25	233	0	0	1.6	-1.3	2.1
6101007	99	SPEED	SUR	36	25	211	0	0	1.6	-0.3	1.6
6101008	99	SPEED	SUR	37	22	160	0	0	1.8	-0.1	1.8
6101009	99	SPEED	SUR	35	25	204	0	0	1.4	1.2	1.9
6200024	99	SPEED	SUR	44	-3	710	0	0	1.3	-0.3	1.3
6200025	99	SPEED	SUR	44	-6	713	0	0	1.4	-1.1	1.8
6200082	99	SPEED	SUR	44	-8	713	0	0	1.2	-0.4	1.2
6200083	99	SPEED	SUR	43	-9	713	0	0	1.2	-0.5	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
6200084	99	SPEED	SUR	42	-9	565	0	0	1.3	-0.6	1.4
6200085	99	SPEED	SUR	36	-7	717	0	0	1.6	-0.4	1.6
6200091	99	SPEED	SUR	53	-5	716	0	0	1.1	0.2	1.2
6200093	99	SPEED	SUR	55	-10	716	0	0	1.2	0.8	1.4
6200094	99	SPEED	SUR	52	-7	716	0	0	0.9	0.1	0.9
6200095	99	SPEED	SUR	53	-16	716	0	0	1.2	-0.6	1.3
62001	99	SPEED	SUR	45	-5	2029	0	0	1.2	0.6	1.3
6200199	99	SPEED	SUR	40	-9	706	0	0	1.6	-0.5	1.7
6200200	99	SPEED	SUR	36	-8	710	0	0	1.2	0.1	1.2
6201030	99	SPEED	SUR	44	-4	676	0	0	1.2	-0.3	1.3
6201066	99	SPEED	SUR	55	7	681	0	0	1.4	0.3	1.4
62023	99	SPEED	SUR	51	-8	2146	0	0	1.3	0.8	1.5
62091	99	SPEED	SUR	53	-5	716	0	0	1.2	0.2	1.2
62093	99	SPEED	SUR	55	-10	715	0	0	1.2	0.8	1.5
62094	99	SPEED	SUR	52	-7	714	0	0	0.9	0.2	0.9
62095	99	SPEED	SUR	53	-16	715	0	0	1.3	-0.7	1.5
62102	99	SPEED	SUR	58	2	2047	0	0	1.2	-0.3	1.2
62103	99	SPEED	SUR	50	-3	1800	0	0	1.5	1.4	2.1
62104	99	SPEED	SUR	57	1	2033	0	0	1.1	-0.4	1.2
62107	99	SPEED	SUR	50	-6	2692	0	0	1.4	1.0	1.8
62112	99	SPEED	SUR	58	0	2047	0	0	1.2	0.1	1.2
62113	99	SPEED	SUR	58	0	2047	0	0	1.5	0.5	1.5
62114	99	SPEED	SUR	58	0	2738	0	0	1.3	0.9	1.6
62118	99	SPEED	SUR	58	1	2047	0	0	1.3	0.9	1.5
62119	99	SPEED	SUR	57	2	1912	0	0	2.3	-0.8	2.5
62120	99	SPEED	SUR	56	2	2041	0	0	1.3	-0.1	1.3
62121	99	SPEED	SUR	54	3	1873	0	0	1.4	-0.3	1.4
62122	99	SPEED	SUR	57	2	2738	0	0	1.1	-0.2	1.1
62129	99	SPEED	SUR	58	0	2047	0	0	1.4	0.0	1.4
62131	99	SPEED	SUR	54	1	2047	0	0	2.3	-0.6	2.3
62132	99	SPEED	SUR	56	2	2015	0	0	2.4	-2.6	3.5
62133	99	SPEED	SUR	57	1	2002	0	0	1.2	0.0	1.2
62134	99	SPEED	SUR	58	1	2047	0	0	1.2	0.2	1.2
62140	99	SPEED	SUR	57	1	2727	0	0	1.1	0.2	1.1
62143	99	SPEED	SUR	58	2	2037	0	0	2.0	-0.6	2.1
62144	99	SPEED	SUR	53	2	2002	0	0	1.6	-0.6	1.8
62145	99	SPEED	SUR	53	3	2696	0	0	1.9	0.2	1.9
62146	99	SPEED	SUR	57	2	2006	0	0	1.2	-0.0	1.2
62149	99	SPEED	SUR	54	1	2038	0	0	1.2	0.1	1.2
62150	99	SPEED	SUR	54	1	2047	0	0	2.7	-1.2	3.0
62152	99	SPEED	SUR	57	2	2047	0	0	1.4	-1.0	1.7

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	2599	0	0	2.6	-1.7	3.1
62154	99	SPEED	SUR	56	2	2047	0	0	1.1	-0.0	1.1
62155	99	SPEED	SUR	58	1	2027	0	0	1.4	-0.5	1.5
62163	99	SPEED	SUR	48	-8	2029	0	0	1.0	0.1	1.0
62164	99	SPEED	SUR	57	1	1970	0	0	1.4	-1.0	1.7
62165	99	SPEED	SUR	54	1	1955	0	0	1.6	-0.3	1.6
62304	99	SPEED	SUR	51	2	2022	0	0	1.6	1.5	2.2
62305	99	SPEED	SUR	50	0	23	0	0	0.7	1.2	1.4
6301001	99	SPEED	SUR	64	5	650	0	0	3.0	-1.3	3.2
6301004	99	SPEED	SUR	72	20	718	0	0	1.3	-0.6	1.4
6301006	99	SPEED	SUR	63	6	714	0	0	1.7	0.6	1.8
63055	99	SPEED	SUR	61	2	2047	0	0	1.2	-0.9	1.5
63056	99	SPEED	SUR	60	2	2047	0	0	1.2	0.3	1.3
63057	99	SPEED	SUR	59	2	2039	0	0	1.6	0.3	1.6
63058	99	SPEED	SUR	53	2	1969	0	0	1.6	0.0	1.6
63101	99	SPEED	SUR	61	1	2047	0	0	1.3	-0.6	1.4
63103	99	SPEED	SUR	61	1	2040	0	0	1.5	-0.1	1.5
63104	99	SPEED	SUR	61	2	2047	0	0	1.2	-0.3	1.2
63106	99	SPEED	SUR	61	2	1248	0	0	1.6	-0.7	1.8
63108	99	SPEED	SUR	61	2	2047	0	0	1.7	-0.1	1.7
63109	99	SPEED	SUR	60	2	1972	0	0	1.2	0.2	1.2
63110	99	SPEED	SUR	60	2	2047	0	0	1.3	-0.5	1.3
63112	99	SPEED	SUR	61	1	2047	0	0	1.1	-0.6	1.3
63115	99	SPEED	SUR	62	1	2047	0	0	1.1	-0.5	1.2
63117	99	SPEED	SUR	61	1	2732	0	0	1.2	-0.5	1.2
64041	99	SPEED	SUR	61	-3	2047	0	0	1.5	-0.0	1.5
64045	99	SPEED	SUR	59	-12	2042	0	0	1.2	0.2	1.2
64046	99	SPEED	SUR	61	-4	2024	0	0	1.1	0.7	1.3
66021	99	SPEED	SUR	55	14	1288	0	0	1.2	0.3	1.3
66024	99	SPEED	SUR	55	13	962	0	0	1.4	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 : SEP 2020
 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	648	0	0	10.5	1.2	10.6
1300001	99	DIRN	SUR	11	-23	415	0	2	21.1	1.3	21.1
1300002	99	DIRN	SUR	20	-23	571	0	0	10.9	2.2	11.1
1300008	99	DIRN	SUR	15	-38	311	0	0	14.2	4.6	14.9
1300130	99	DIRN	SUR	28	-16	666	0	0	10.1	-4.5	11.1
1300131	99	DIRN	SUR	28	-17	359	0	1	14.7	3.2	15.1
13134	99	DIRN	SUR	25	-80	1	1	100	0.0	0.0	0.0
13224	99	DIRN	SUR	27	-80	1	1	100	0.0	0.0	0.0
14233	99	DIRN	SUR	33	-77	1	1	0	0.0	10.5	10.5
4100001	99	DIRN	SUR	35	-72	3905	0	0	14.4	7.1	16.0
4100002	99	DIRN	SUR	32	-75	3432	0	0	17.0	6.5	18.2
4100004	99	DIRN	SUR	33	-79	3477	0	0	18.2	9.2	20.3
4100008	99	DIRN	SUR	31	-81	597	0	0	17.5	2.4	17.7
4100009	99	DIRN	SUR	29	-80	3029	0	1	19.5	4.9	20.1
4100010	99	DIRN	SUR	29	-78	2971	0	1	18.8	7.1	20.1
4100013	99	DIRN	SUR	33	-78	3446	0	1	20.3	9.3	22.3
4100024	99	DIRN	SUR	34	-78	521	0	1	19.7	-10.8	22.5
4100025	99	DIRN	SUR	35	-75	2644	0	1	20.2	7.4	21.6
4100026	99	DIRN	SUR	12	-38	122	0	2	23.0	12.4	26.1
4100029	99	DIRN	SUR	33	-80	563	0	0	20.6	-10.7	23.2
4100033	99	DIRN	SUR	32	-80	601	0	1	21.2	-8.9	23.0
4100037	99	DIRN	SUR	34	-77	553	0	1	21.7	-7.7	23.0
4100038	99	DIRN	SUR	34	-78	537	0	0	20.5	-1.2	20.5
4100040	99	DIRN	SUR	15	-53	3424	0	0	14.1	4.5	14.8
4100043	99	DIRN	SUR	21	-65	3532	0	0	13.8	5.9	15.0
4100044	99	DIRN	SUR	22	-59	3954	0	0	11.1	6.2	12.7
4100046	99	DIRN	SUR	24	-68	3415	0	0	14.6	1.8	14.8
4100048	99	DIRN	SUR	32	-70	3599	0	0	12.8	1.2	12.9
4100049	99	DIRN	SUR	27	-63	3507	0	0	14.1	5.2	15.0
4100052	99	DIRN	SUR	18	-65	3460	0	1	15.1	6.0	16.2
4100053	99	DIRN	SUR	18	-66	1911	0	1	18.2	1.5	18.2
4100056	99	DIRN	SUR	18	-65	3376	0	0	18.2	3.1	18.5

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
410064	99	DIRN	SUR	34	-77	566	0	2	18.7	-14.0	23.4
41001	99	DIRN	SUR	35	-72	2622	0	0	14.8	-0.9	14.8
4100139	99	DIRN	SUR	20	-38	582	0	0	11.1	6.2	12.7
41002	99	DIRN	SUR	32	-75	2313	0	0	16.5	5.4	17.3
4100300	99	DIRN	SUR	16	-57	581	0	1	14.7	6.8	16.2
41004	99	DIRN	SUR	33	-79	2172	0	0	18.3	3.2	18.5
41008	99	DIRN	SUR	31	-81	1095	0	0	17.8	1.4	17.9
41009	99	DIRN	SUR	29	-80	1891	0	2	18.8	3.3	19.1
41010	99	DIRN	SUR	29	-79	1958	0	1	17.8	2.6	18.0
41013	99	DIRN	SUR	33	-78	2107	0	1	20.1	5.4	20.8
4101781	99	DIRN	SUR	40	-56	1112	6	2	26.0	-10.2	27.9
4101782	99	DIRN	SUR	28	-64	493	0	0	10.2	-15.2	18.3
4101783	99	DIRN	SUR	28	-63	476	0	0	15.0	-18.0	23.4
4101784	99	DIRN	SUR	29	-62	429	0	0	14.5	-15.7	21.3
4101785	99	DIRN	SUR	30	-62	364	0	0	14.2	-15.7	21.2
4101807	99	DIRN	SUR	30	-61	379	0	0	12.5	-14.0	18.8
4101808	99	DIRN	SUR	28	-64	64	0	33	34.4	-11.4	36.2
4101809	99	DIRN	SUR	29	-63	496	0	1	14.3	-15.5	21.0
41024	99	DIRN	SUR	34	-79	957	0	1	20.4	-10.6	23.0
41025	99	DIRN	SUR	35	-75	1617	0	1	20.0	6.8	21.1
41029	99	DIRN	SUR	33	-80	1234	0	0	21.4	-10.3	23.8
41033	99	DIRN	SUR	32	-80	1082	0	1	21.7	-9.9	23.8
41037	99	DIRN	SUR	34	-77	1012	0	1	21.3	-7.9	22.7
41038	99	DIRN	SUR	34	-78	973	0	0	19.8	0.1	19.8
41040	99	DIRN	SUR	15	-53	911	0	0	14.0	6.7	15.5
41043	99	DIRN	SUR	21	-65	982	0	0	13.6	6.1	14.9
41044	99	DIRN	SUR	22	-59	1075	0	0	11.5	3.6	12.0
41046	99	DIRN	SUR	24	-68	2315	0	0	15.0	0.7	15.0
41048	99	DIRN	SUR	32	-70	2419	0	0	12.9	1.9	13.0
41049	99	DIRN	SUR	28	-63	2377	0	1	13.2	4.2	13.8
41052	99	DIRN	SUR	18	-65	1150	0	1	15.4	5.6	16.4
41053	99	DIRN	SUR	19	-66	796	0	1	18.9	0.9	19.0
41056	99	DIRN	SUR	18	-66	1137	0	0	18.3	3.1	18.5
41064	99	DIRN	SUR	34	-77	1024	0	3	17.5	-14.0	22.4
4200013	99	DIRN	SUR	27	-83	920	0	4	28.5	11.9	30.9
4200022	99	DIRN	SUR	28	-84	750	0	0	20.2	-4.9	20.8
4200023	99	DIRN	SUR	26	-83	911	0	0	20.0	-6.2	20.9
4200026	99	DIRN	SUR	25	-83	861	0	0	17.5	-4.5	18.1
4200036	99	DIRN	SUR	29	-85	2991	0	0	15.2	12.7	19.8
4200056	99	DIRN	SUR	20	-85	2939	0	0	15.1	3.8	15.5
4200057	99	DIRN	SUR	17	-81	3205	0	0	16.8	3.6	17.2

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4200059	99	DIRN	SUR	15	-67	4053	0	0	12.5	6.4	14.1
4200060	99	DIRN	SUR	16	-63	3457	0	0	15.9	11.5	19.6
4200085	99	DIRN	SUR	18	-67	2947	0	1	22.6	18.8	29.4
42013	99	DIRN	SUR	27	-83	1265	0	4	27.4	10.9	29.5
42022	99	DIRN	SUR	28	-84	1000	0	0	20.1	-5.0	20.7
42023	99	DIRN	SUR	26	-83	1159	0	0	20.4	-6.3	21.3
42026	99	DIRN	SUR	25	-84	1167	0	0	17.8	-5.4	18.6
42036	99	DIRN	SUR	29	-85	1995	0	0	15.0	11.8	19.1
42056	99	DIRN	SUR	20	-85	773	0	0	15.4	1.9	15.5
42057	99	DIRN	SUR	17	-81	800	0	0	16.1	4.6	16.7
42059	99	DIRN	SUR	15	-68	1123	0	0	12.7	2.4	12.9
42060	99	DIRN	SUR	16	-63	895	0	0	16.3	10.8	19.5
42085	99	DIRN	SUR	18	-67	966	0	1	20.9	16.5	26.6
4400007	99	DIRN	SUR	44	-70	546	0	0	14.6	0.7	14.6
4400008	99	DIRN	SUR	41	-69	3182	0	0	15.4	10.6	18.7
4400013	99	DIRN	SUR	42	-71	570	0	0	18.3	14.4	23.3
4400014	99	DIRN	SUR	37	-75	3453	0	1	18.0	10.7	21.0
4400017	99	DIRN	SUR	41	-72	3422	0	0	14.0	8.7	16.4
4400018	99	DIRN	SUR	42	-70	597	0	0	13.0	11.5	17.4
4400020	99	DIRN	SUR	41	-70	3694	0	0	12.3	6.5	13.8
4400022	99	DIRN	SUR	41	-74	747	0	0	12.5	2.9	12.8
4400025	99	DIRN	SUR	40	-73	3517	0	0	14.8	4.8	15.5
4400027	99	DIRN	SUR	44	-67	538	0	0	11.8	6.2	13.3
4400029	99	DIRN	SUR	43	-71	590	0	0	13.3	-20.9	24.8
4400030	99	DIRN	SUR	43	-70	537	0	0	15.7	3.1	16.0
4400032	99	DIRN	SUR	44	-69	518	0	0	14.2	10.5	17.6
4400033	99	DIRN	SUR	44	-69	467	0	0	16.4	7.2	17.9
4400034	99	DIRN	SUR	44	-68	466	0	0	13.6	9.1	16.3
4400037	99	DIRN	SUR	43	-68	602	0	0	11.6	5.5	12.9
4400040	99	DIRN	SUR	41	-74	351	0	0	17.0	0.0	17.0
4400058	99	DIRN	SUR	38	-76	3058	0	0	21.3	-7.8	22.7
4400062	99	DIRN	SUR	39	-76	1307	0	2	21.6	-9.1	23.5
4400065	99	DIRN	SUR	40	-74	3393	0	1	14.6	5.2	15.5
4400072	99	DIRN	SUR	37	-76	3388	0	3	16.2	-64.2	66.2
4400073	99	DIRN	SUR	43	-71	525	0	0	16.5	6.9	17.9
4400075	99	DIRN	SUR	40	-71	3136	0	0	14.7	-11.0	18.3
4400076	99	DIRN	SUR	40	-71	3291	0	0	15.9	-12.0	19.9
4400077	99	DIRN	SUR	40	-71	2760	0	0	14.5	-10.4	17.8
44007	99	DIRN	SUR	44	-70	1024	0	0	15.5	-0.0	15.5
44008	99	DIRN	SUR	41	-69	2146	0	0	15.8	9.0	18.2
44013	99	DIRN	SUR	42	-71	1015	0	0	18.3	14.1	23.1

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44014	99	DIRN	SUR	37	-75	2387	0	1	17.2	7.4	18.7
44017	99	DIRN	SUR	41	-72	2070	0	0	13.6	4.6	14.3
44018	99	DIRN	SUR	42	-70	1078	0	0	13.2	10.7	17.0
44020	99	DIRN	SUR	42	-70	2282	0	0	11.8	5.6	13.1
44022	99	DIRN	SUR	41	-74	608	0	0	12.9	2.4	13.1
44025	99	DIRN	SUR	40	-73	2241	0	0	15.2	4.3	15.8
44027	99	DIRN	SUR	44	-67	952	0	0	11.6	5.0	12.6
44029	99	DIRN	SUR	43	-71	1143	0	0	13.9	-20.8	25.0
44030	99	DIRN	SUR	43	-70	952	0	0	15.7	3.3	16.1
44032	99	DIRN	SUR	44	-69	912	0	0	14.3	10.3	17.6
44033	99	DIRN	SUR	44	-69	819	0	0	16.4	6.5	17.7
44034	99	DIRN	SUR	44	-68	815	0	0	13.6	8.5	16.1
44037	99	DIRN	SUR	44	-68	1094	0	0	11.8	5.6	13.1
44040	99	DIRN	SUR	41	-74	399	0	0	17.4	-1.0	17.4
44058	99	DIRN	SUR	38	-76	1472	0	1	22.1	-8.6	23.7
44062	99	DIRN	SUR	39	-76	711	0	2	21.5	-9.8	23.7
44065	99	DIRN	SUR	40	-74	2130	0	1	14.7	4.3	15.3
44069	99	DIRN	SUR	41	-73	902	0	0	16.8	3.2	17.2
44072	99	DIRN	SUR	37	-76	2147	0	4	16.3	-64.3	66.3
44073	99	DIRN	SUR	43	-71	972	0	0	17.9	7.0	19.2
44075	99	DIRN	SUR	40	-71	2643	0	0	14.9	-11.2	18.6
44076	99	DIRN	SUR	40	-71	2539	0	0	16.4	-12.3	20.5
44077	99	DIRN	SUR	40	-71	2123	0	0	14.9	-10.9	18.5
44078	99	DIRN	SUR	60	-40	1513	0	0	12.4	-22.3	25.5
44137	99	DIRN	SUR	42	-62	995	0	0	12.5	-25.8	28.7
44139	99	DIRN	SUR	44	-57	1055	2	1	11.8	-29.3	31.6
44150	99	DIRN	SUR	43	-64	1049	0	0	13.2	-34.4	36.9
4500003	99	DIRN	SUR	45	-83	3562	0	0	16.1	4.6	16.7
4500005	99	DIRN	SUR	42	-82	3536	0	0	17.4	6.0	18.4
4500008	99	DIRN	SUR	44	-82	3564	0	0	17.3	3.4	17.7
4500012	99	DIRN	SUR	44	-77	3258	0	0	17.7	4.5	18.3
4500162	99	DIRN	SUR	45	-83	1712	0	0	17.3	6.3	18.4
4500163	99	DIRN	SUR	44	-84	1798	0	1	15.7	2.9	16.0
4500165	99	DIRN	SUR	42	-83	3234	0	0	34.4	-3.2	34.6
4500167	99	DIRN	SUR	42	-80	1177	0	2	28.0	-16.2	32.3
4500169	99	DIRN	SUR	42	-82	1300	0	3	28.3	-28.4	40.1
4500175	99	DIRN	SUR	46	-85	2690	0	46	58.4	-1.7	58.4
4500176	99	DIRN	SUR	42	-82	1579	0	1	27.4	-0.6	27.4
4500178	99	DIRN	SUR	45	-73	1713	0	1	20.6	-9.6	22.7
4500188	99	DIRN	SUR	44	-73	290	0	100	0.0	0.0	0.0
45003	99	DIRN	SUR	45	-83	2262	0	0	15.9	5.3	16.8

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
45005	99	DIRN	SUR	42	-82	2272	0	0	18.9	5.4	19.7
45008	99	DIRN	SUR	44	-82	2296	0	0	16.9	7.8	18.7
45012	99	DIRN	SUR	44	-77	2101	0	0	16.7	4.1	17.2
45132	99	DIRN	SUR	43	-81	1037	0	0	16.8	-0.0	16.8
45135	99	DIRN	SUR	44	-77	947	0	1	15.8	2.9	16.0
45137	99	DIRN	SUR	46	-81	824	0	1	16.5	-3.2	16.8
45139	99	DIRN	SUR	43	-80	814	0	1	18.5	4.2	19.0
45142	99	DIRN	SUR	43	-79	1020	0	0	16.7	-5.1	17.4
45143	99	DIRN	SUR	45	-81	556	0	0	18.9	-2.2	19.0
45147	99	DIRN	SUR	42	-83	887	0	1	17.6	7.0	18.9
45149	99	DIRN	SUR	44	-82	941	0	0	18.5	5.1	19.2
45152	99	DIRN	SUR	46	-80	435	0	0	17.9	7.4	19.4
45154	99	DIRN	SUR	46	-83	1006	0	0	16.3	-4.0	16.8
45159	99	DIRN	SUR	44	-79	838	0	0	22.3	4.8	22.8
45162	99	DIRN	SUR	45	-83	1097	0	0	17.8	5.5	18.7
45163	99	DIRN	SUR	44	-84	1180	0	1	16.4	2.9	16.6
45165	99	DIRN	SUR	42	-83	2013	0	1	34.3	-3.9	34.6
45167	99	DIRN	SUR	42	-80	956	0	2	28.4	-17.3	33.2
45169	99	DIRN	SUR	42	-82	1007	0	3	27.6	-29.5	40.4
45175	99	DIRN	SUR	46	-85	1314	0	45	58.1	-3.4	58.2
45176	99	DIRN	SUR	42	-82	957	0	2	27.4	0.5	27.4
45178	99	DIRN	SUR	45	-73	1679	0	1	23.3	-8.2	24.7
45188	99	DIRN	SUR	44	-73	643	0	100	0.0	0.0	0.0
6100198	99	DIRN	SUR	37	-2	464	0	0	13.2	1.2	13.2
6100281	99	DIRN	SUR	40	0	311	0	3	28.7	-3.2	28.9
6100417	99	DIRN	SUR	38	0	486	0	1	16.8	4.0	17.3
6200024	99	DIRN	SUR	44	-3	466	0	0	17.6	3.7	18.0
6200025	99	DIRN	SUR	44	-6	414	0	0	13.7	1.7	13.8
6200082	99	DIRN	SUR	44	-8	546	0	0	13.1	0.5	13.1
6200083	99	DIRN	SUR	43	-9	519	0	0	14.2	-0.4	14.2
6200084	99	DIRN	SUR	42	-9	345	0	0	19.7	1.3	19.7
6200085	99	DIRN	SUR	36	-7	465	0	0	14.1	5.4	15.1
6200091	99	DIRN	SUR	53	-5	601	0	0	13.3	3.1	13.7
6200093	99	DIRN	SUR	55	-10	645	0	0	11.1	1.6	11.2
6200094	99	DIRN	SUR	52	-7	628	0	0	11.1	0.4	11.1
6200095	99	DIRN	SUR	53	-16	677	0	0	11.3	2.2	11.5
62001	99	DIRN	SUR	45	-5	1748	0	1	16.7	5.4	17.5
6200199	99	DIRN	SUR	40	-9	357	0	99	63.5	15.8	65.4
6200200	99	DIRN	SUR	36	-8	527	0	0	12.4	3.9	13.0
6201030	99	DIRN	SUR	44	-4	465	0	1	17.7	2.7	17.9
62023	99	DIRN	SUR	51	-8	1994	0	0	11.6	3.2	12.0

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62091	99	DIRN	SUR	53	-5	598	0	0	13.8	2.7	14.0
62093	99	DIRN	SUR	55	-10	644	0	0	11.5	1.0	11.6
62094	99	DIRN	SUR	52	-7	613	0	0	11.1	-0.2	11.1
62095	99	DIRN	SUR	53	-16	674	0	0	12.4	1.8	12.5
62103	99	DIRN	SUR	50	-3	1693	0	0	15.4	5.8	16.5
62107	99	DIRN	SUR	50	-6	2418	0	0	17.2	3.9	17.6
62112	99	DIRN	SUR	58	0	1815	0	0	12.6	-1.1	12.7
62114	99	DIRN	SUR	58	0	2452	0	0	11.7	0.0	11.7
62163	99	DIRN	SUR	48	-8	1531	0	0	15.0	0.6	15.0
62305	99	DIRN	SUR	50	0	23	0	0	12.8	-3.8	13.3
64041	99	DIRN	SUR	61	-3	1788	0	0	10.9	9.1	14.2
64045	99	DIRN	SUR	59	-12	1792	0	0	11.6	4.3	12.4
64046	99	DIRN	SUR	61	-4	1852	0	0	10.8	-1.9	11.0

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE09	BPMWB2N	DBLK	FPUW5GN	HTXUH4H	JNKN7JF	KJJF9XN	KMPLHPW	LRYQE3U
UXK5JTU	VKB4L5Q	WDK38HS	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	7JUNA4N	01001
01004	01010	01028	01241	01400	01415	01492	02527	02836
02963	03005	03238	03354	03502	03743	03808	03882	03918
03953	04018	04220	04270	04320	04339	04360	04417	06011
06060	06086	06260	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	11120	11240
11520	11747	11952	12120	12374	12425	12843	12982	13275
13388	14015	14240	14430	15420	15614	16045	16080	16113
16144	16245	16320	16429	16546	16622	16716	16754	17030
17064	17095	17130	17196	17220	17281	17516	17607	22008
23205	23472	23884	26038	26435	26850	27459	27707	27713
28225	29612	29698	33008	33041	37789	40179	40186	45004
47102	47104	47138	47155	47169	47186	47401	47412	47418
47582	47600	47646	47678	47741	47778	47807	47827	47909
47918	47945	47971	47991	48698	50527	50557	50774	50953
51076	51243	51431	51463	51644	51656	51709	51777	51828
51839	52203	52267	52323	52418	52533	52652	52681	52818
52836	52866	52983	53068	53463	53513	53543	53614	53772
53845	53915	54102	54135	54161	54218	54292	54374	54511
54662	54727	54857	55299	55591	56029	56046	56080	56137
56187	56492	56651	56691	56739	56778	56964	56985	57083
57127	57131	57178	57245	57447	57494	57687	57816	57957
57993	58027	58203	58238	58362	58424	58606	58633	58665
58725	59023	59134	59211	59265	59280	59293	59431	59758
60018	60096	60390	60571	60630	60656	60680	61901	61980
61998	63612	63741	68263	68424	68442	68512	68538	68816
68842	70026	70133	70200	70219	70231	70261	70308	70316
70326	70350	70361	70398	71043	71081	71082	71109	71119
71603	71722	71802	71811	71815	71816	71823	71836	71845
71867	71906	71907	71908	71909	71917	71924	71925	71926
71934	71945	71957	71964	72206	72208	72210	72214	72215
72230	72233	72235	72240	72248	72249	72250	72251	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
72747	72764	72768	72776	72786	72797	73033	73110	74389
74494	74560	76225	76256	76394	76405	76458	76526	76595
76612	76644	76654	76679	76692	76743	76805	76903	78897
78954	81405	82983	83525	83649	83768	84384	85442	85586
85799	85934	87155	87344	87576	87623	87715	87860	88889
89002	89062	89564	89571	89611	89625	89642	89859	91212
91285	91592	91765	91925	91938	91948	91958	93112	93417
93817	93844	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	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	7JUNA4N
01004	01010	01028	01241	01400	01415	01492	02365	02527
02836	02963	06086	06610	07110	07145	07510	07645	07761
08536	11010	11035	11120	11240	17607	40186	47155	51243
51656	52652	53543	56046	56492	56651	57245	59023	59293
61980	61998	72413	76743	76903	78897	81405	84384	89002
89642	89859	91592	91938	93817	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.