



ECMWF Global Data Monitoring Report

May 2023

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

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Summary of Revisions (in reverse order)

- Revision 29 (Dec 22) - Coverage charts for ATOVS AMSU-A updated:
METOP-C replaces Aqua-ATOVS (Figure 9.2)
METOP-B replaces METOP-ATOVS (Figure 9.3)
SATOBS figures updated with METEOSAT-9, Dual-Metop,
METEOSAT-11, GOES-16, HIMAWARI-9, GOES-17 satellites
- Revision 28 (Jun 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	Apr	May	Ident	Time	Apr	May
04089	(12)	29	13	02591	(00)	3	21
14430	12,00	24	4	02591	(12)	5	21
16144	00,12	29	10	03023	(12)	0	32
21432	(12)	30	18	40706	(12)	6	19
30935	00,12	23	8	40745	(00)	5	26
34009	(12)	29	16	40754	(00)	2	30
42348	(00)	23	4	40754	(12)	7	28
42492	(00)	29	3	40800	(00)	6	27
43333	(00)	30	6	40809	(12)	2	30
48650	(00)	30	5	40811	(12)	1	28
48650	(12)	30	3	40841	(12)	2	31
48657	(00)	30	6	40848	(00)	0	18
48820	(00)	26	13	40856	(00)	3	31
48845	(00)	29	15	42027	(00)	5	30
60191	(00)	14	0	42399	(00)	11	31
61024	(12)	22	6	42516	(00)	5	28
61980	(12)	31	2	42675	(00)	4	28
68538	(12)	18	0	42701	(00)	4	26
72201	(12)	29	11	42867	(00)	14	31
72233	00,12	30	13	42867	(12)	11	28
72235	00,12	29	12	42874	(00)	1	30
72249	00,12	30	12	47945	(00)	19	31
72250	00,12	30	7	65344	(12)	18	29
72274	00,12	29	17	68994	(00)	0	25
72317	00,12	19	3	68994	(12)	1	25
72403	00,12	30	13	74794	(12)	38	62
72451	00,12	30	13	82193	(00)	5	27
76256	(00)	13	1	82244	(00)	19	30
76405	(00)	12	0	82400	(12)	8	19
76644	(00)	13	1	85586	(00)	14	30
76743	(00)	12	0	87623	(12)	6	30
82026	(00)	30	4	91643	(00)	3	21
82532	(00)	30	2	-	-	-	-
82917	(00)	29	11	-	-	-	-
91334	00,12	30	10	-	-	-	-
96011	00,12	29	0	-	-	-	-
96147	00,12	23	0	-	-	-	-
96413	00,12	24	2	-	-	-	-
96481	(00)	30	6	-	-	-	-
96645	00,12	16	0	-	-	-	-
96805	00,12	30	3	-	-	-	-
97502	(00)	23	0	-	-	-	-
98558	12,00	21	8	-	-	-	-

2.2 Drifting Buoys

Surface pressure observations from **1408** 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.

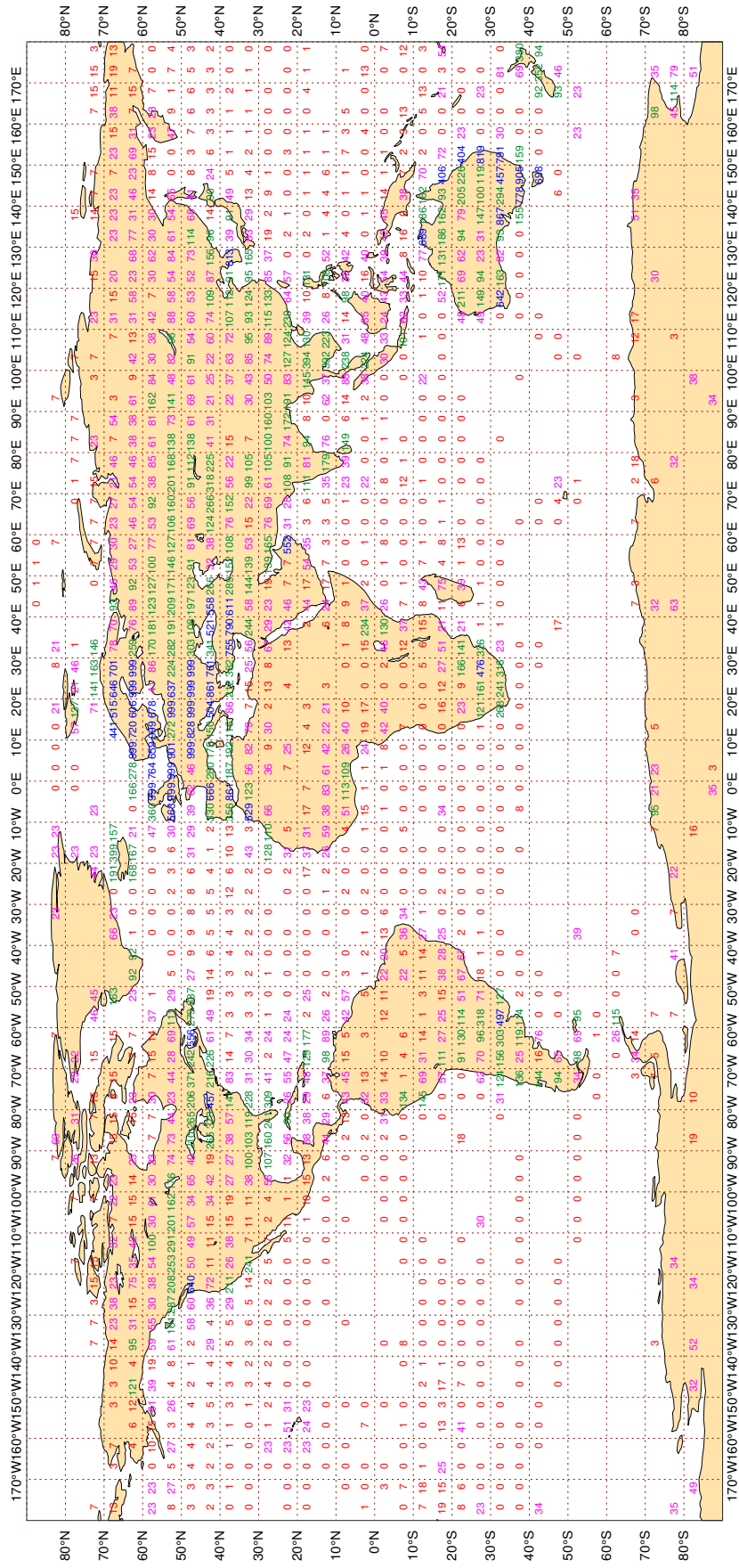
Fig	Parameter	Level/Layer
14	SATOB - Mean observed wind	1000-700 hPa
15	SATOB - Mean observed wind	400-150 hPa
16	SATOB - Mean observed minus first-guess wind	1000-700 hPa
17	SATOB - Mean observed minus first-guess wind	400-150 hPa
18	AIRCRAFT WIND - Mean observed minus first-guess	300-150 hPa

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

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

ECMWF Monitoring Statistics - MAY 2023
 Availability - SYNOP/SHIP (manual, auto) pressure
 Average number of observations in 24 hours - 105470
 LAND - WMO Region I: 6403 II:17886 III: 4940 IV: 7110
 Region V:14795 VI:40774 Antarctic: 1578
 Oceans - N. Atlantic 6251 S. Atlantic 102 Indian 648 Pacific 4981

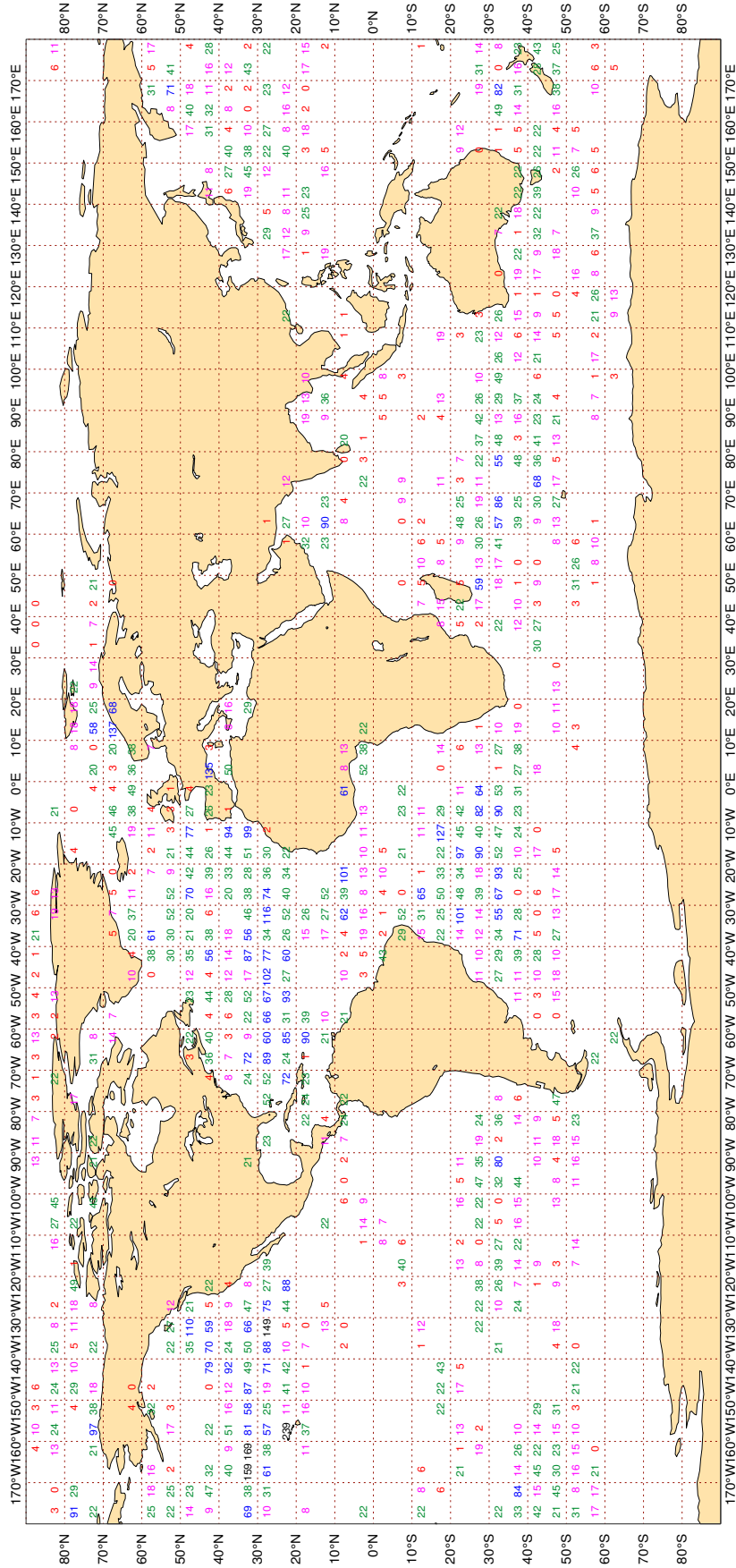
Figure 1



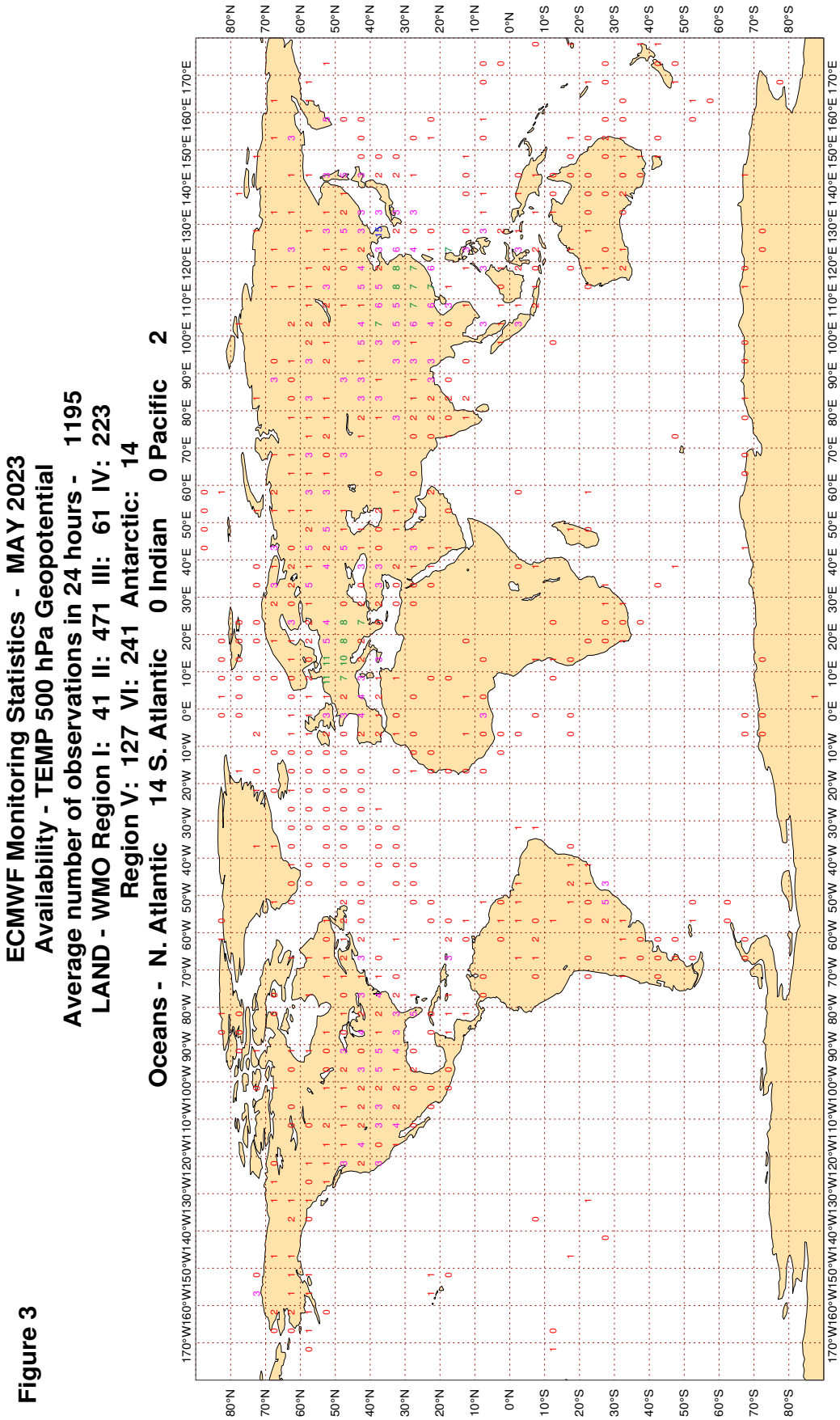
3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2

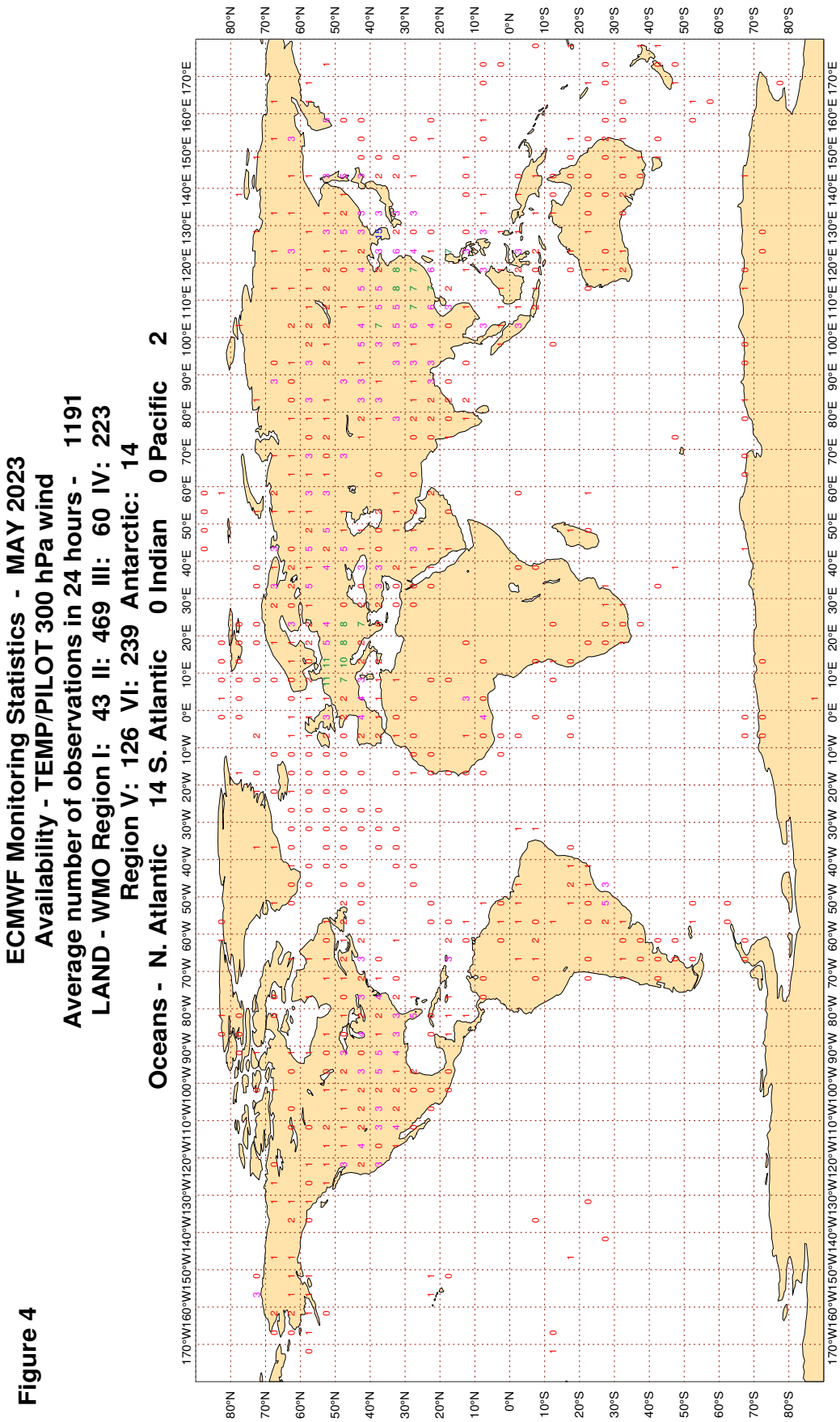
ECMWF Monitoring Statistics - MAY 2023
Availability - DRIFTER PRESSURE
Average number of observations in 24 hours - 19538
Oceans - N. Atlantic 5693 S. Atlantic 2727 Indian 2857 Pacific 8262



3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential



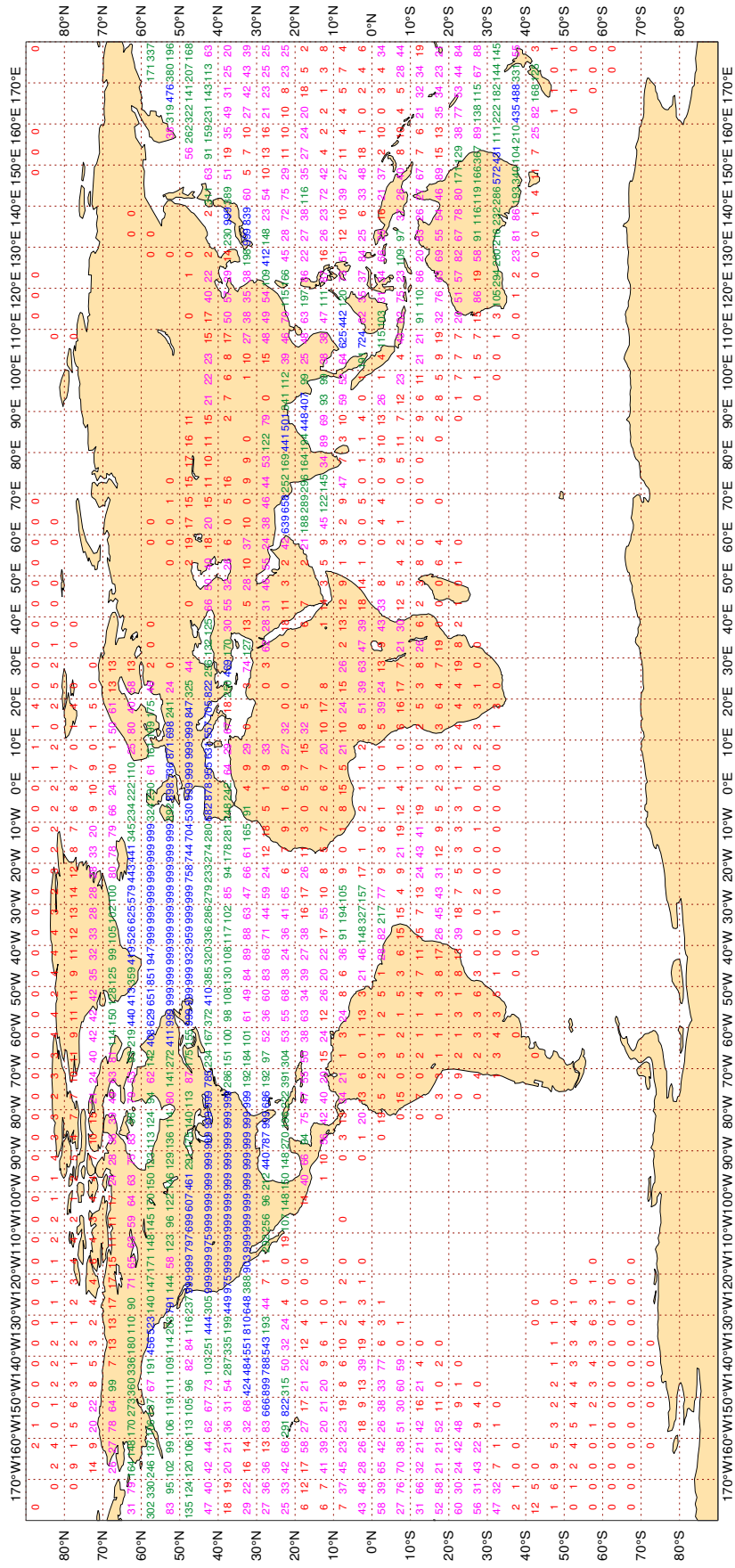
3.2.4 Figure 4 - Availability - TEMP/PILOT 300 hPa wind



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

Figure 5

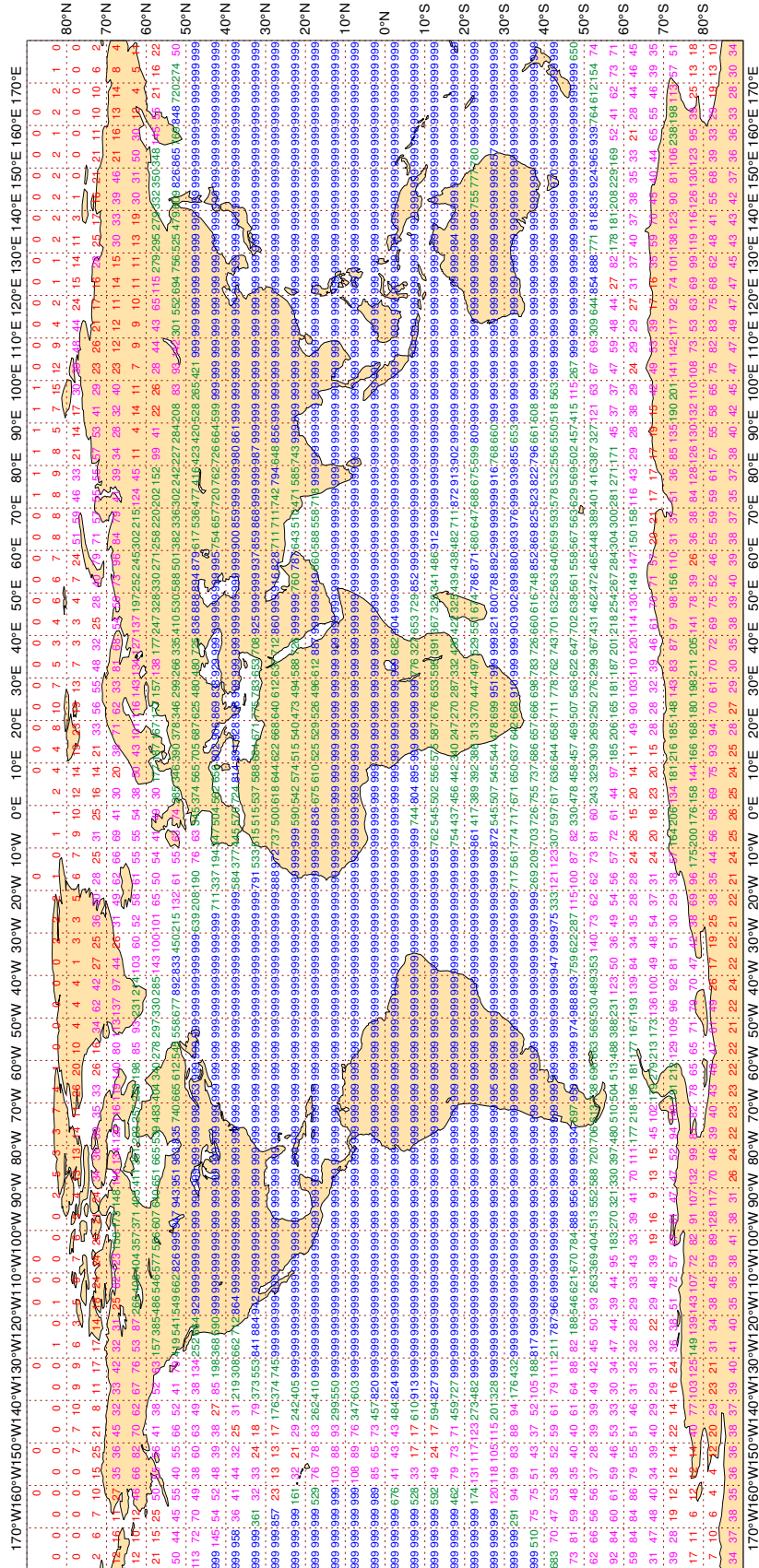
ECMWF Monitoring Statistics - MAY 2023
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 220430



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

Figure 6

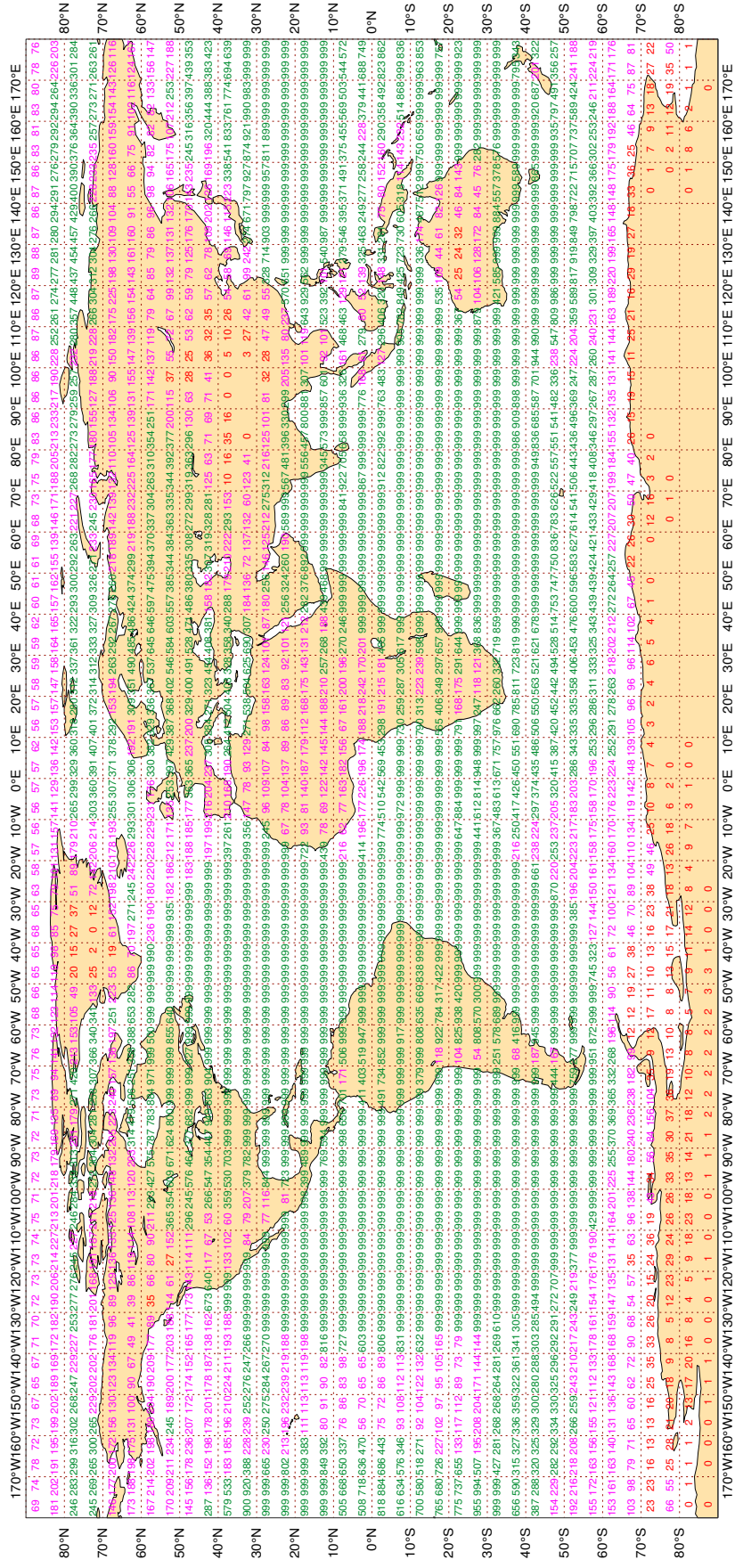
ECMWF Monitoring Statistics - MAY 2023
Availability - AMV winds 400-150 hPa
Average number of observations in 24 hours - 2667989



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

Figure 7

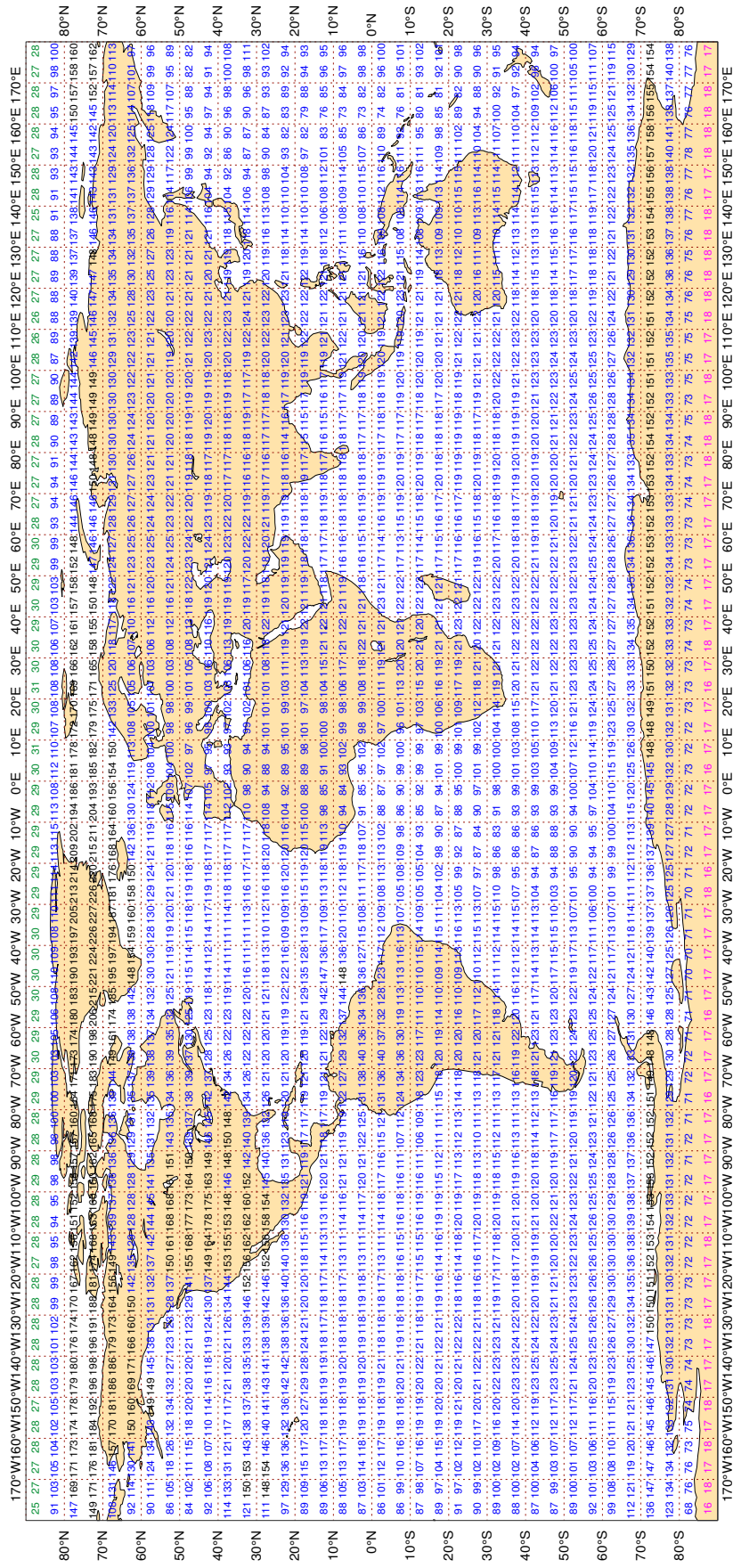
ECMWF Monitoring Statistics - MAY 2023
Availability - AMV winds 1000-700 hPa
Average number of observations in 24 hours - 3293240



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

Figure 8

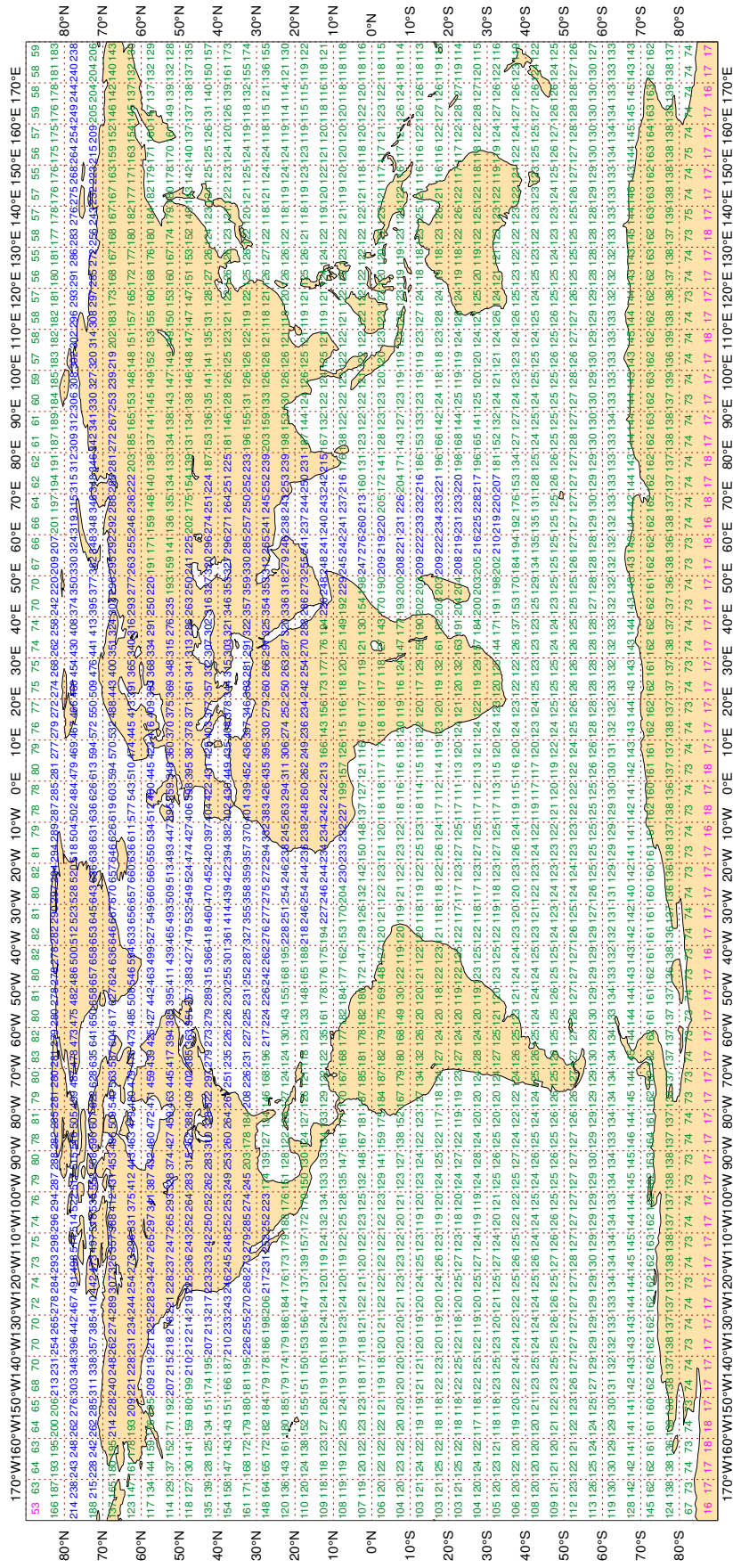
ECMWF Monitoring Statistics - MAY 2023
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 299758



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

Figure 9.1

ECMWF Monitoring Statistics - MAY 2023
Availability - NOAA18 ATOVS : AMSU-A
Average number of observations in 24 hours - 475767



Magics 4.9.4

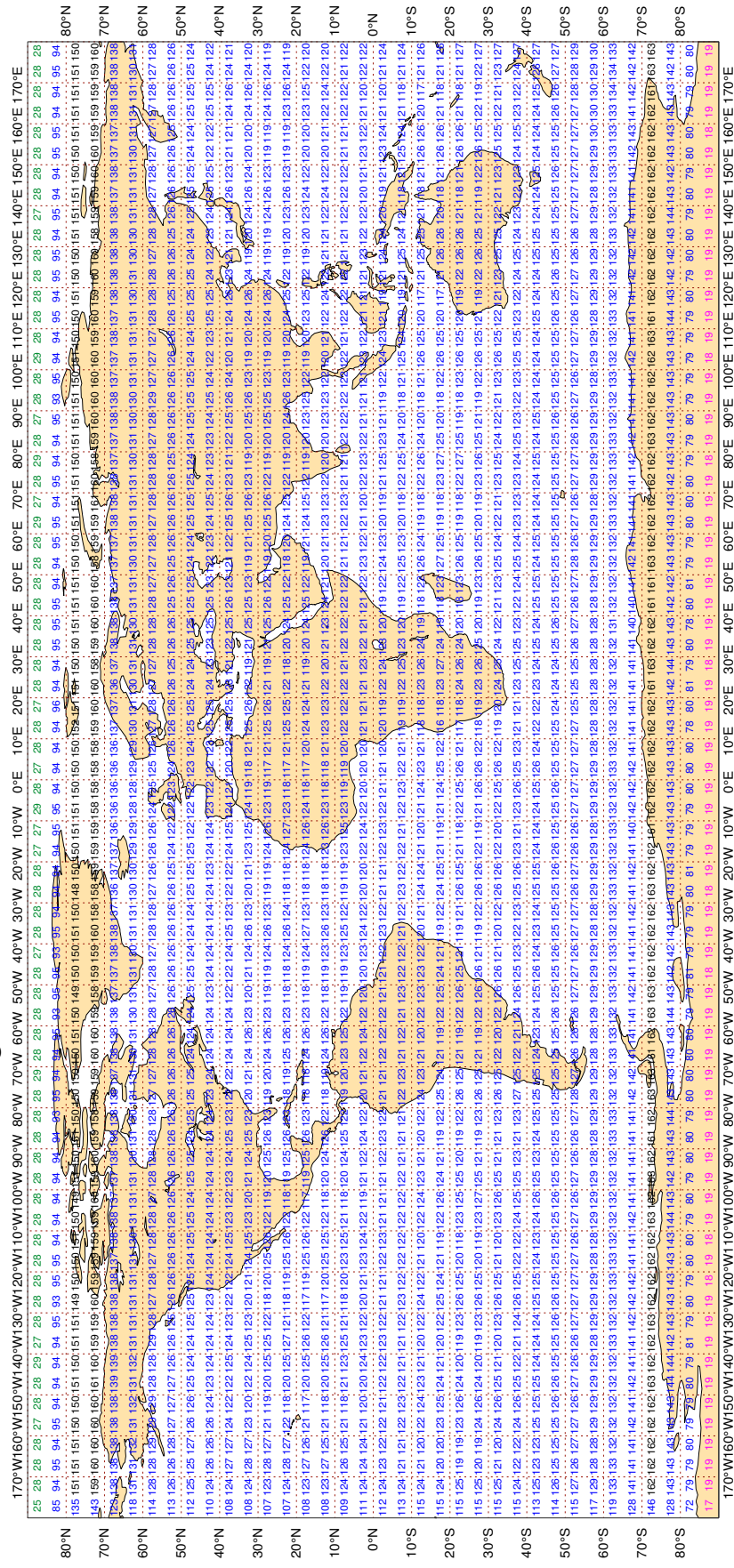


3.2.10 Figure 9.2 - Availability - AQUA ATOVS : AMSU-A

Figure 9.2

ECMWF Monitoring Statistics - MAY 2023
Availability - METOP-C ATOVS : AMSU-A

Average number of observations in 24 hours - 313814

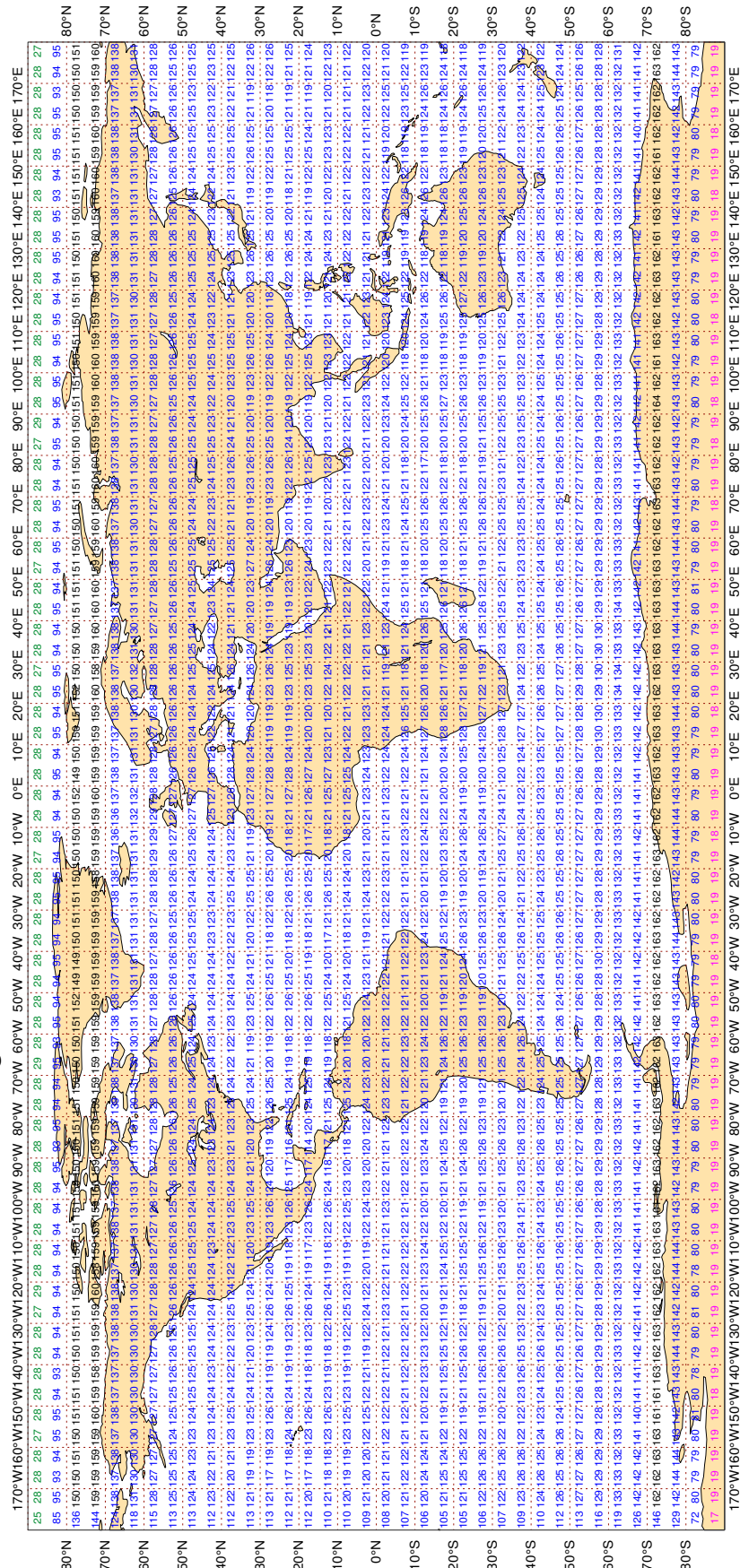


3.2.11 Figure 9.3 - Availability - METOP ATOVS : AMSU-A

Figure 9.3

ECMWF Monitoring Statistics - MAY 2023
Availability - METOP-B ATOVS : AMSU-A

Average number of observations in 24 hours - 313853



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 : MAY 2023
 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
00000	99	P	SUR	118	31	0.5	-13.5	13.5
2CYD8	99	P	SUR	48	0	2.0	-4.4	4.8
2EIF7	99	P	SUR	17	0	0.6	5.0	5.1
2HDG2	99	P	SUR	30	0	1.7	-6.1	6.3
2HFZ7	99	P	SUR	27	0	1.8	3.1	3.5
3E2032	99	P	SUR	58	0	1.2	-3.1	3.3
3E3566	99	P	SUR	27	1	2.5	3.6	4.4
3EBY2	99	P	SUR	16	0	1.2	9.0	9.1
45170	99	P	SUR	50	0	0.4	9.7	9.7
45201	99	P	SUR	24	8	5.1	6.8	8.5
7KKG	99	P	SUR	26	0	0.9	3.7	3.8
9HA4638	99	P	SUR	80	0	2.7	7.1	7.6
9HA4960	99	P	SUR	16	0	1.5	3.3	3.7
9HA4986	99	P	SUR	67	0	0.9	10.5	10.6
9HA5063	99	P	SUR	40	0	1.5	3.0	3.3
9HJB9	99	P	SUR	17	0	0.6	3.9	3.9
9V3286	99	P	SUR	62	0	2.0	6.1	6.4
9V3736	99	P	SUR	16	0	1.9	3.3	3.8
9V5242	99	P	SUR	15	0	1.7	4.9	5.2
9V5246	99	P	SUR	29	0	2.0	5.4	5.8
9V7980	99	P	SUR	30	0	1.1	3.6	3.8
9V9404	99	P	SUR	27	0	2.1	6.7	7.0
9V9917	99	P	SUR	24	0	1.5	3.1	3.5
ALGOM01	99	P	SUR	15	0	0.9	-4.7	4.7
C6BQ8	99	P	SUR	17	0	1.8	6.2	6.5
C6BU3	99	P	SUR	76	0	0.5	5.8	5.8
C6EP5	99	P	SUR	24	0	2.4	3.5	4.2
C6FR3	99	P	SUR	19	0	1.3	3.5	3.7
C6TX6	99	P	SUR	32	0	3.4	4.5	5.7
C6UA2	99	P	SUR	111	0	0.7	-3.9	4.0
CQET6	99	P	SUR	17	0	0.6	4.5	4.6
D5LW3	99	P	SUR	34	0	0.8	4.8	4.8

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
D5ZH9	99	P	SUR	36	0	2.4	4.1	4.7
GCWP	99	P	SUR	123	0	0.5	-3.0	3.0
JMJRCES	99	P	SUR	73	0	0.6	-6.2	6.2
KRAU	99	P	SUR	43	0	3.8	3.1	4.9
KSKM	99	P	SUR	20	0	0.4	3.1	3.2
LAJF7	99	P	SUR	67	0	1.5	3.0	3.4
LAPD7	99	P	SUR	44	0	2.6	5.3	5.9
LAQJ7	99	P	SUR	31	0	0.7	-3.0	3.1
MKKZ7	99	P	SUR	21	0	2.1	3.1	3.8
SHIP	99	P	SUR	286	31	6.2	-5.7	8.4
SJA4RSK	99	P	SUR	107	0	0.5	-5.0	5.0
UBXH3	99	P	SUR	16	4	0.6	-0.8	1.0
UHOW	99	P	SUR	59	0	1.4	4.0	4.2
V7A6081	99	P	SUR	97	0	1.6	3.4	3.7
VRCB4	99	P	SUR	33	0	2.3	-3.9	4.6
VRG03	99	P	SUR	16	0	2.3	8.8	9.1
VRID6	99	P	SUR	48	0	2.0	7.6	7.8
VRJS2	99	P	SUR	19	0	2.7	3.9	4.7
VRLJ4	99	P	SUR	27	0	1.4	7.6	7.7
VRPJ6	99	P	SUR	40	0	2.2	5.2	5.6
VRPY6	99	P	SUR	22	0	1.4	3.6	3.8
VRUO2	99	P	SUR	21	0	0.7	5.1	5.2
WDE3569	99	P	SUR	37	8	5.8	1.7	6.0
WDF2493	99	P	SUR	22	0	0.3	4.0	4.0
WGEB	99	P	SUR	84	0	3.1	5.9	6.7
ZCBD4	99	P	SUR	26	0	1.9	4.6	5.0

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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : GLOBAL
 PERIOD : MAY 2023
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : MAY 2023
 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
45168	99	DIRN	SUR	51	0	0	16.2	32.9	36.7
45176	99	DIRN	SUR	44	0	0	18.4	-85.7	87.7
45197	99	DIRN	SUR	38	0	0	17.6	-38.9	42.7
45203	99	DIRN	SUR	57	0	0	49.2	-38.6	62.5
46131	99	DIRN	SUR	56	0	0	60.0	-34.2	69.1

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 : MAY 2023
 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
00000	99	P	SUR	44	-79	708	189	0.5	-13.5	13.5
1501696	99	P	SUR	-27	-9	661	0	0.5	-5.7	5.7
1501727	99	P	SUR	-16	-39	709	0	0.0	-7.4	7.4
1501729	99	P	SUR	-19	-26	712	0	0.4	-8.6	8.7
1601647	99	P	SUR	-34	59	379	118	6.0	-3.7	7.1
3801550	99	P	SUR	86	-39	743	262	0.5	-0.3	0.6
4401576	99	P	SUR	27	-77	40	0	1.5	4.5	4.7
4500170	99	P	SUR	42	-87	1747	0	0.4	9.7	9.7
4500201	99	P	SUR	42	83	859	293	5.0	6.7	8.4
45170	99	P	SUR	42	-87	298	0	0.6	9.7	9.7
45201	99	P	SUR	42	83	145	50	5.0	6.8	8.4
4602543	99	P	SUR	43	-127	173	4	4.1	6.6	7.8
4602577	99	P	SUR	42	-136	484	0	2.6	-4.2	4.9
4602588	99	P	SUR	40	-122	732	0	0.6	-9.1	9.2
4701738	99	P	SUR	70	-67	725	725	0.0	0.0	0.0
4701744	99	P	SUR	78	-106	742	742	0.0	0.0	0.0
5102809	99	P	SUR	10	-109	716	694	1.9	-13.5	13.6
5501656	99	P	SUR	-44	-177	451	0	0.0	-9.6	9.6

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 : MAY 2023
 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
2300459	99	SPEED	SUR	14	87	28	0	0	1.6	-5.5	5.7
23459	99	SPEED	SUR	14	87	107	0	0	1.8	-5.2	5.4
4400069	99	SPEED	SUR	41	-73	1090	0	0	2.2	5.5	5.9

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : MAY 2023
 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
1300130	99	DIRN	SUR	28	-16	166	0	0	92.5	76.8	120.2
1500008	99	DIRN	SUR	-20	-10	70	0	0	39.4	27.1	47.8
2200101	99	DIRN	SUR	37	126	278	0	0	43.2	93.3	102.8
2200186	99	DIRN	SUR	36	126	353	0	0	88.1	-76.5	116.7
2300092	99	DIRN	SUR	17	89	54	0	0	108.3	-66.1	126.9
2300093	99	DIRN	SUR	16	88	42	1	0	134.8	-18.5	136.1
2300095	99	DIRN	SUR	10	94	69	0	0	16.4	23.8	28.9
2300453	99	DIRN	SUR	8	73	58	0	0	17.0	-35.0	38.9
2300454	99	DIRN	SUR	10	73	59	0	0	74.3	-49.7	89.4
23092	99	DIRN	SUR	17	89	128	1	0	101.4	-67.0	121.6
23093	99	DIRN	SUR	16	88	109	2	0	118.4	-58.3	132.0
23095	99	DIRN	SUR	10	94	158	0	0	16.5	22.3	27.8
23453	99	DIRN	SUR	8	73	96	0	0	17.4	-35.1	39.2
23454	99	DIRN	SUR	10	73	98	0	0	67.5	-55.2	87.2
23491	99	DIRN	SUR	12	93	110	0	0	92.7	-71.6	117.1
23497	99	DIRN	SUR	11	72	88	0	0	62.3	-34.0	71.0
4300301	99	DIRN	SUR	8	-95	34	0	0	32.6	-108.4	113.2
43301	99	DIRN	SUR	8	-95	33	0	0	58.1	-95.2	111.5
4400022	99	DIRN	SUR	41	-74	669	0	0	69.6	-19.6	72.3
4400033	99	DIRN	SUR	44	-69	556	0	0	21.7	20.2	29.6
44022	99	DIRN	SUR	41	-74	207	0	0	68.6	-18.1	70.9
44033	99	DIRN	SUR	44	-69	529	0	0	20.5	20.0	28.7
44069	99	DIRN	SUR	41	-73	410	0	0	16.9	-22.9	28.5
44078	99	DIRN	SUR	60	-40	60	0	0	12.9	-22.0	25.6
4500136	99	DIRN	SUR	49	-87	37	0	0	35.5	36.1	50.6
4500168	99	DIRN	SUR	42	-86	1910	0	0	20.5	33.4	39.2
4500174	99	DIRN	SUR	42	-88	1454	0	0	21.7	21.7	30.7
4500176	99	DIRN	SUR	42	-82	1422	0	0	20.9	-88.3	90.8
4500183	99	DIRN	SUR	45	-86	47	0	0	8.0	25.0	26.3
4500197	99	DIRN	SUR	42	-82	1293	0	0	20.1	-35.0	40.4
4500203	99	DIRN	SUR	41	-83	2062	0	0	46.9	-40.1	61.7

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
4500205	99	DIRN	SUR	42	-82	314	0	0	59.7	-32.4	68.0
45136	99	DIRN	SUR	49	-87	31	0	0	36.0	36.4	51.2
45168	99	DIRN	SUR	42	-86	311	0	0	19.4	34.5	39.6
45174	99	DIRN	SUR	42	-88	224	0	0	19.6	22.0	29.4
45176	99	DIRN	SUR	42	-82	264	0	0	18.1	-84.7	86.6
45183	99	DIRN	SUR	45	-86	23	0	0	7.8	23.9	25.1
45197	99	DIRN	SUR	42	-82	231	0	0	20.8	-35.5	41.1
45198	99	DIRN	SUR	42	-88	274	0	0	21.6	25.2	33.2
45203	99	DIRN	SUR	41	-83	330	0	0	45.9	-41.4	61.8
45205	99	DIRN	SUR	42	-82	48	0	0	57.6	-34.0	66.9
4600120	99	DIRN	SUR	48	-122	400	0	0	24.6	-25.3	35.3
4600145	99	DIRN	SUR	54	-132	43	0	0	12.9	22.1	25.6
4600147	99	DIRN	SUR	52	-131	574	1	0	11.9	20.1	23.4
4600204	99	DIRN	SUR	51	-129	546	0	0	13.9	22.2	26.2
46120	99	DIRN	SUR	48	-122	47	0	0	22.3	-25.4	33.8
46131	99	DIRN	SUR	50	-125	333	0	0	70.4	-21.4	73.6
46204	99	DIRN	SUR	51	-129	529	0	0	13.6	21.6	25.5
5202509	99	DIRN	SUR	13	137	303	5	0	162.0	26.3	164.2
5300056	99	DIRN	SUR	-5	95	375	0	0	163.1	23.4	164.7
6200082	99	DIRN	SUR	44	-8	141	0	0	17.3	64.7	67.0
6200084	99	DIRN	SUR	42	-9	118	0	0	13.7	63.6	65.0
6200086	99	DIRN	SUR	55	6	314	0	0	11.4	24.7	27.2
6301004	99	DIRN	SUR	72	20	60	3	0	32.7	130.7	134.7
6600022	99	DIRN	SUR	54	14	208	0	0	17.2	21.4	27.4
6600024	99	DIRN	SUR	55	13	138	0	0	15.3	25.1	29.4

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 : MAY 2023
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

ONLY THE WORST LEVEL IS SHOWN (WITH UNWEIGHTED RMS)

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
01400	12	Z	1000	57	3	30	0	4.0	78.6	78.7
01400	00	Z	1000	57	3	30	0	10.2	74.1	74.8
36003	12	Z	200	52	77	31	0	42.1	68.6	80.5
38341	12	Z	200	43	71	30	0	43.0	92.5	102.0
40437	12	Z	850	24	44	30	1	8.0	39.5	40.3
42182	12	Z	150	29	77	30	2	100.9	-20.5	103.0
42410	00	Z	850	26	92	31	0	19.4	34.2	39.3
42410	12	Z	850	26	92	29	2	12.5	45.1	46.8
42516	00	Z	30	26	92	18	0	81.6	202.6	218.4
42724	00	Z	925	24	91	30	5	23.9	28.1	36.9
42867	12	Z	50	21	79	30	2	118.6	142.0	185.0
43041	00	Z	850	19	82	31	3	14.2	32.2	35.2
43128	00	Z	50	17	78	16	1	107.3	142.4	178.3
43185	00	Z	700	16	81	16	1	20.4	35.1	40.6
47158	12	Z	925	35	127	29	0	22.8	19.8	30.2
48698	12	Z	30	1	104	10	0	13.2	174.1	174.6
55591	12	Z	50	30	91	28	0	58.4	182.6	191.7
55591	00	Z	50	30	91	28	0	49.4	176.0	182.8
58424	00	Z	50	31	117	25	1	131.5	168.1	213.4
61442	12	Z	925	18	-16	92	58	16.1	-39.1	42.3
61442	00	Z	700	18	-16	92	21	54.6	-55.4	77.8
62378	00	Z	400	30	31	25	0	44.4	51.8	68.2
68842	12	Z	1000	-34	26	31	0	27.3	21.3	34.6
68842	00	Z	1000	-34	26	31	0	26.8	18.9	32.8
91680	00	Z	1000	-18	177	30	0	3.6	32.7	32.9
91680	12	Z	1000	-18	177	25	0	2.6	33.5	33.6
96315	00	Z	1000	5	115	31	0	7.4	55.1	55.6
96315	12	Z	1000	5	115	28	0	7.8	51.0	51.6

LIST OF SUSPECT STATIONS (CONTINUED)

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
97690	00	Z	925	-3	141	30	0	4.2	89.2	89.3
JNKN7J	00	Z	1000	56	-13	13	0	5.0	42.2	42.5
JNKN7J	12	Z	1000	55	-19	16	0	4.1	41.6	41.8
KMPLHP	00	Z	1000	40	-70	12	0	24.8	30.6	39.4
KMPLHP	12	Z	1000	38	-73	14	0	22.9	34.6	41.5

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 : MAY 2023
 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
42101	00	V	150	30	76	11	0	-9.7	15.8	23.4
42667	00	V	200	23	77	16	0	-7.8	12.2	18.0
42701	00	V	200	23	85	26	0	-10.1	9.6	16.4
44373	12	V	250	44	104	31	0	-6.1	-0.3	16.4
61442	12	V	925	18	-16	25	6	-5.6	-1.1	15.7
61442	00	V	925	18	-16	31	0	-4.3	-3.1	19.4
9ZT9MR	00	V	250	62	-7	14	1	-4.1	-4.7	21.5

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 : MAY 2023
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

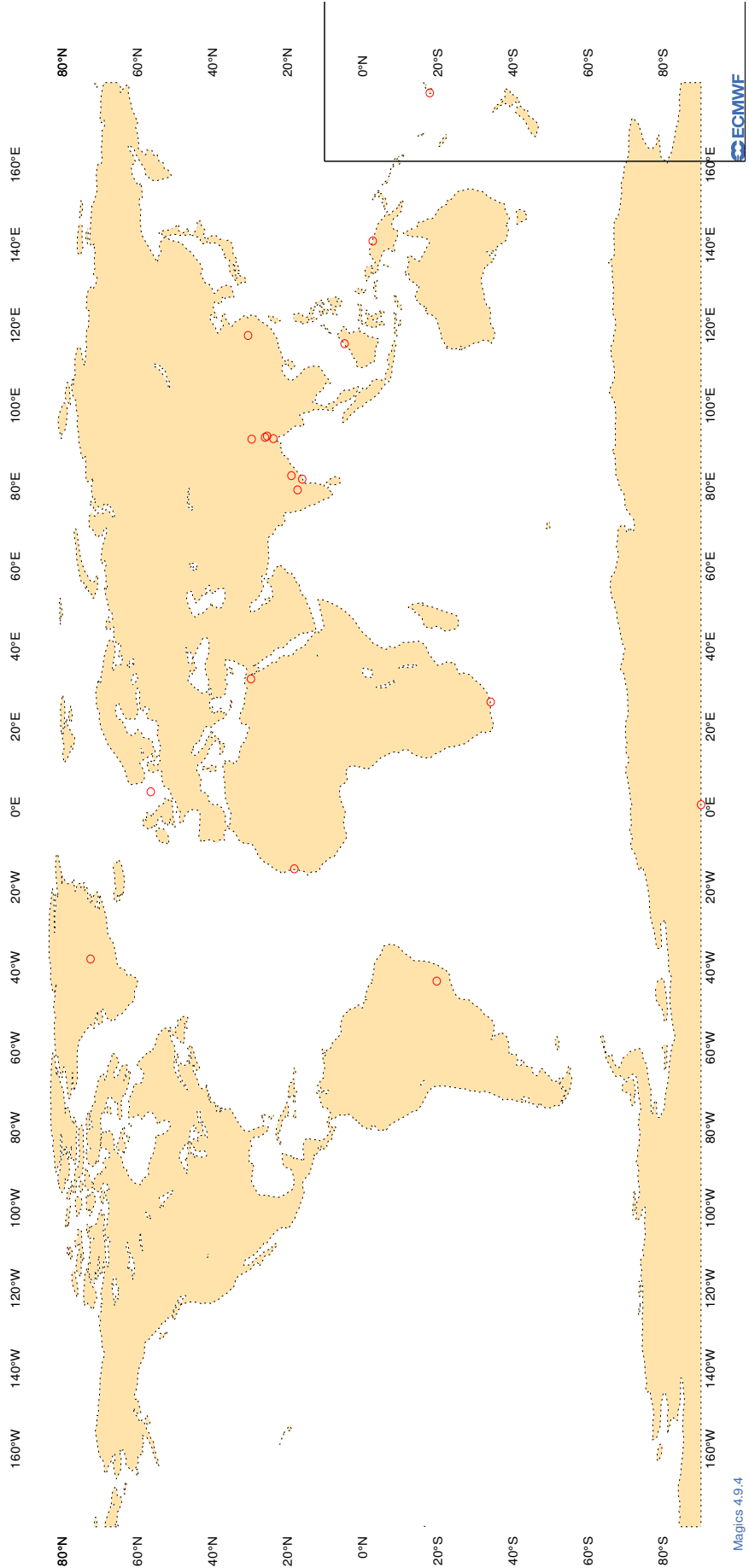
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS \geq 5 M/S
 NO. OF OBSERVATIONS \geq 5, AND,
 ABSOLUTE BIAS \geq 10 DEGREES, WITH
 STANDARD DEVIATION $<$ 30 DEGREES, AND,
 VERTICAL SPREAD $<$ 10 DEGREES
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
42667	00	DD	23	77	17	42.2	7.9	13.6

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

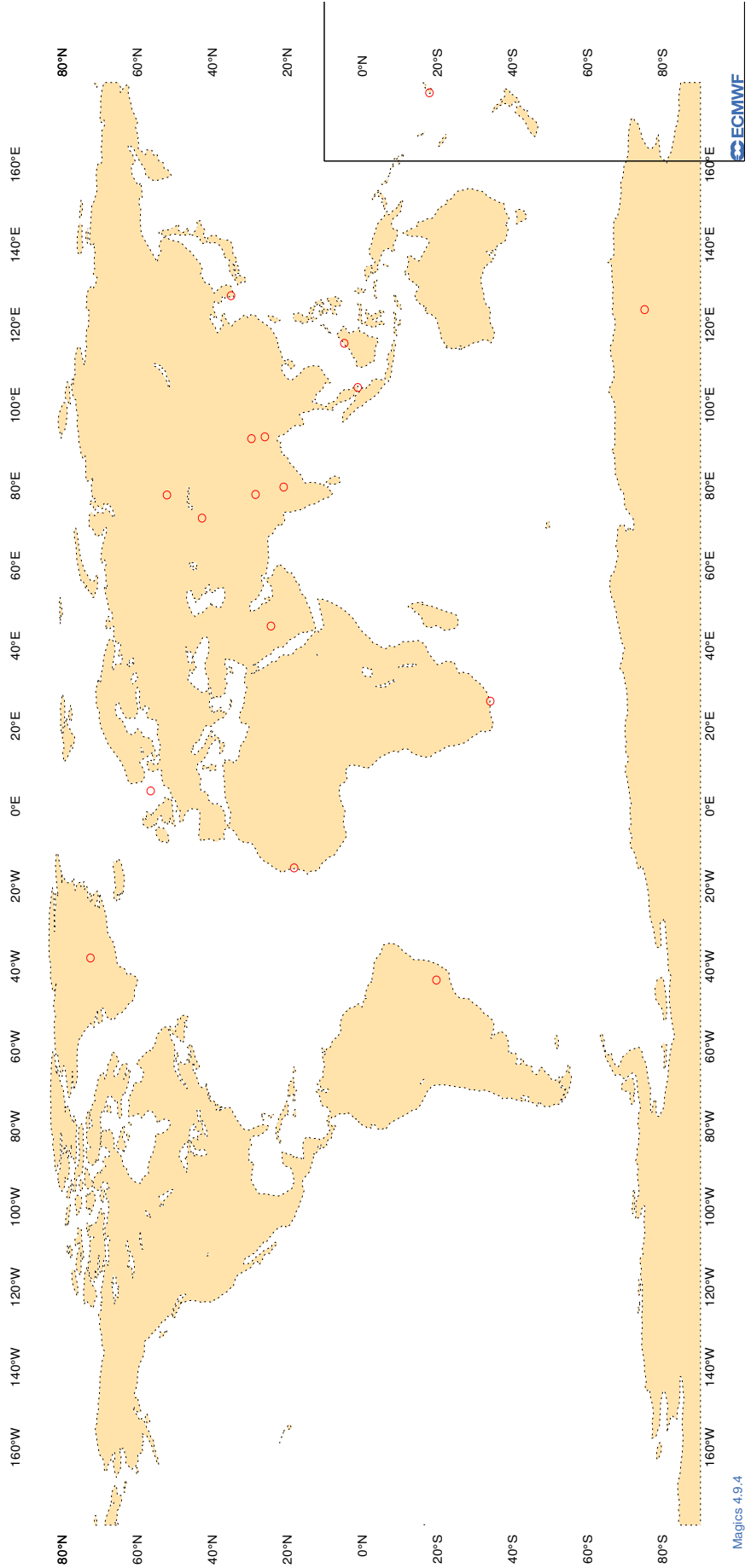
Figure 10

ECMWF Monitoring Statistics - MAY 2023 00 UTC
Suspect TEMP observations - GEOPOTENTIAL



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

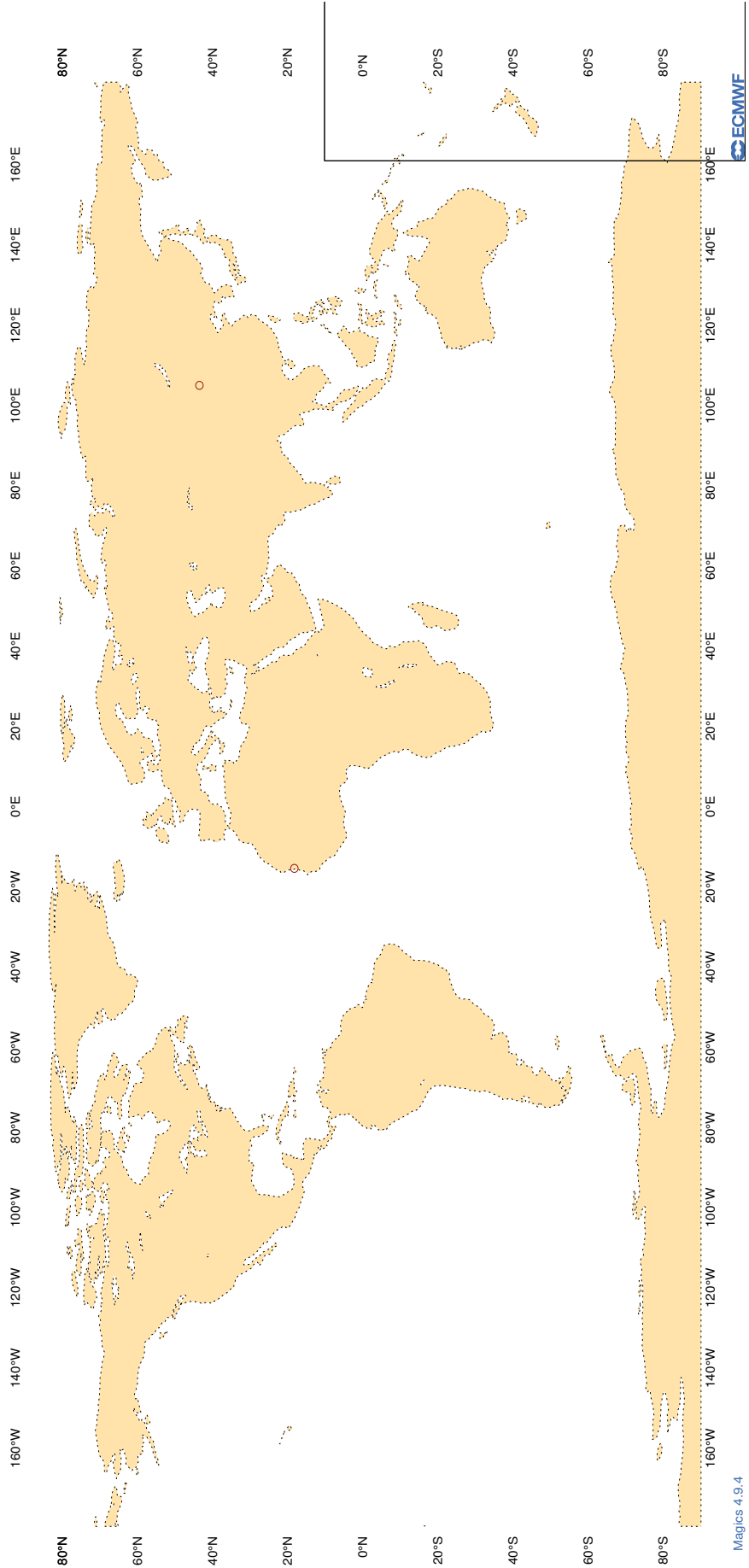
Figure 11
ECMWF Monitoring Statistics - MAY 2023 12 UTC
Suspect TEMP observations - GEOPOTENTIAL



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

Figure 13

ECMWF Monitoring Statistics - MAY 2023 12 UTC
Suspect TEMP/PILOT observations - WIND



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 : MAY 2023
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
2EERVT	00	Z	100	5	7.1	-3.3
2EERVT	12	Z	100	4	6.2	4.8
7JUNA4	00	Z	100	7	12.2	-0.6
7JUNA4	12	Z	100	11	61.1	49.3
9ZT9MR	12	Z	100	12	18.7	-10.3
9ZT9MR	00	Z	100	15	25.8	-22.6
ATGU3F	12	Z	100	7	25.6	-21.4
ATGU3F	00	Z	100	4	30.1	-24.4
BPMWB2	00	Z	100	3	12.6	-12.3
BPMWB2	12	Z	100	3	82.3	38.6
DBLK	12	Z	100	6	12.1	11.0
GQBZLZ	00	Z	100	0	0.0	0.0
GQBZLZ	12	Z	100	7	110.5	-69.4
JGQH	00	Z	100	1	5.6	5.6
JGQH	12	Z	100	3	5.2	2.7
JNKN7J	00	Z	100	13	23.5	22.2
JNKN7J	12	Z	100	14	68.6	46.2
JPBN	00	Z	100	1	1.3	1.3
JPBN	12	Z	100	1	5.1	5.1
KJFF9X	00	Z	100	5	11.1	3.5
KJFF9X	12	Z	100	4	5.7	4.2
KMPLHP	00	Z	100	12	25.3	13.7
KMPLHP	12	Z	100	14	95.3	60.0
LAGY8	12	Z	100	2	119.1	-119.1
LRYQE3	12	Z	100	14	14.1	-9.1
LRYQE3	00	Z	100	13	10.1	-6.6
SMLQ	00	Z	100	22	8.5	-5.7
SMLQ	12	Z	100	23	5.9	-4.0
UBQW2	00	Z	100	31	16.8	11.5
UBQW2	12	Z	100	31	26.7	18.9
UXK5JT	00	Z	100	3	10.5	7.7
UXK5JT	12	Z	100	4	3.4	2.6
WDK38H	12	Z	100	21	9.4	-2.9
XKQLWQ	12	Z	100	6	27.7	26.8
XQFJRG	12	Z	100	5	12.1	-5.0
XQFJRG	00	Z	100	8	11.7	-7.1
YLV96W	00	Z	100	10	11.5	-6.3
YLV96W	12	Z	100	13	35.6	18.4
ZSNO	12	Z	100	1	8.1	8.1

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ZVQEQC	12	Z	100	15	26.5	25.3

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

RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 100 HPA
 AREA : GLOBAL
 PERIOD : MAY 2023
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
2EERVT	00	V	100	5	3.1	-1.7	-0.3
2EERVT	12	V	100	4	3.5	-1.0	1.4
7JUNA4	00	V	100	7	2.4	-0.2	0.6
7JUNA4	12	V	100	11	2.2	0.1	-0.5
9ZT9MR	12	V	100	12	2.2	0.0	0.4
9ZT9MR	00	V	100	14	2.1	0.5	-0.1
ATGU3F	12	V	100	7	4.0	-0.8	-0.6
ATGU3F	00	V	100	4	5.4	1.4	-0.8
BPMWB2	00	V	100	3	2.6	1.0	0.6
BPMWB2	12	V	100	3	4.5	-0.9	2.7
DBLK	12	V	100	6	2.2	0.6	0.9
GQBZLZ	00	V	100	0	0.0	0.0	0.0
GQBZLZ	12	V	100	7	1.8	0.1	-0.1
JGQH	00	V	100	1	1.3	-0.6	1.2
JGQH	12	V	100	3	2.0	-0.8	1.0
JNKN7J	00	V	100	13	3.0	0.4	0.3
JNKN7J	12	V	100	14	2.8	0.2	0.2
JPBN	00	V	100	1	3.9	1.0	-3.8
JPBN	12	V	100	1	1.7	1.6	-0.5
KJF9X	00	V	100	5	3.8	-1.0	-0.6
KJF9X	12	V	100	4	2.5	0.4	-1.0
KMPLHP	00	V	100	12	2.3	-0.1	0.0
KMPLHP	12	V	100	14	3.2	0.3	-0.1
LAGY8	12	V	100	2	2.4	1.2	-0.7
LRYQE3	12	V	100	14	1.9	0.4	-0.2
LRYQE3	00	V	100	13	2.6	0.4	0.4
SMLQ	00	V	100	22	2.4	-0.3	-0.3
SMLQ	12	V	100	22	1.8	-0.2	-0.1
UBQW2	00	V	100	31	2.1	-0.3	-0.1
UBQW2	12	V	100	31	2.5	0.1	-0.1
UXK5JT	00	V	100	3	1.8	-0.8	-0.2
UXK5JT	12	V	100	4	4.3	3.9	-0.5
WDK38H	12	V	100	19	2.9	-0.2	-0.1
XKQLWQ	12	V	100	6	2.6	-0.9	-0.1
XQFJRG	12	V	100	5	2.4	0.0	1.7
XQFJRG	00	V	100	8	2.2	0.2	0.3
YLV96W	00	V	100	10	3.4	1.1	0.0
YLV96W	12	V	100	13	3.1	0.7	-0.4
ZSNO	12	V	100	1	2.9	-2.7	1.0

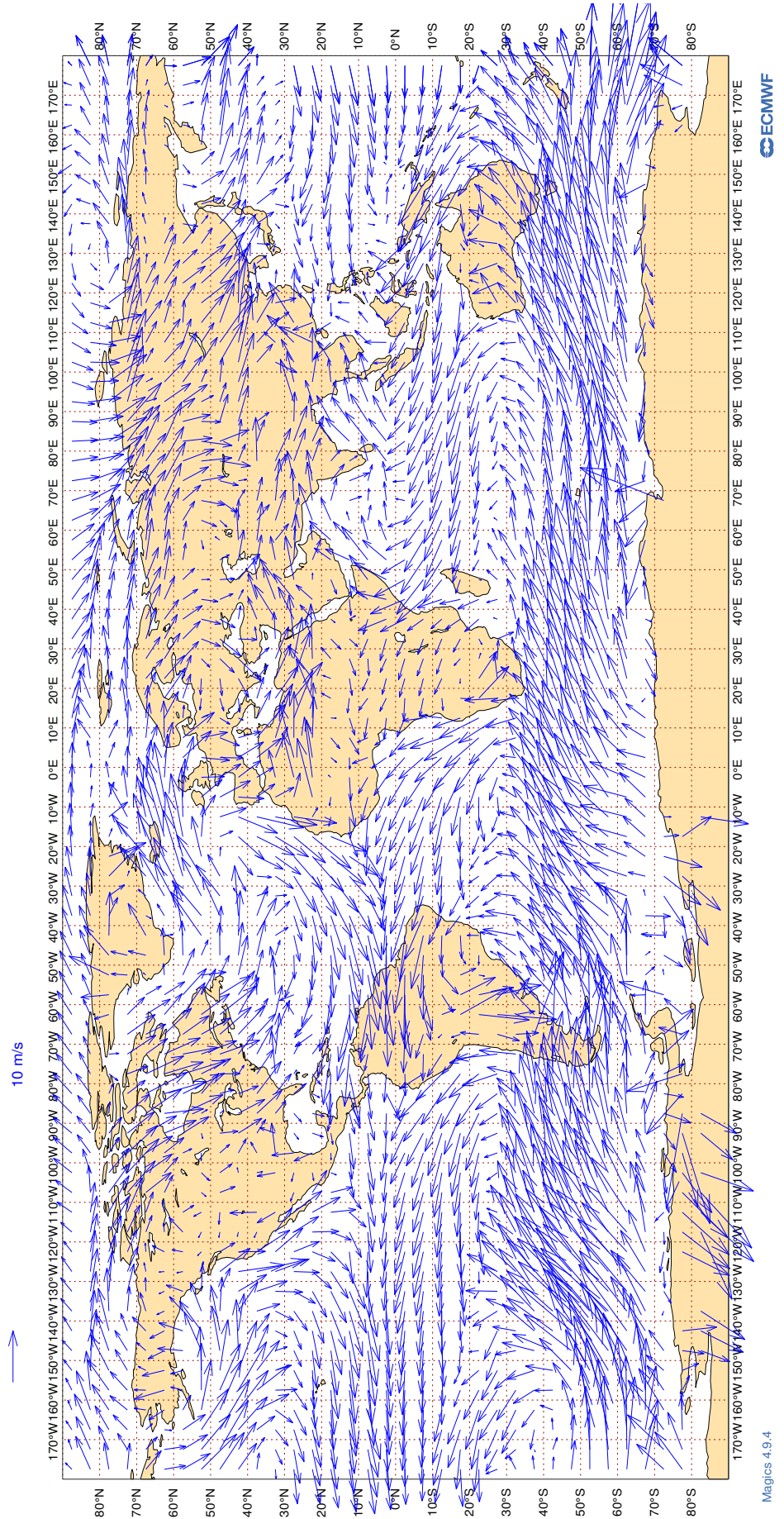
RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ZVQEQC	12	V	100	15	3.8	0.4	0.3

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

Figure 14

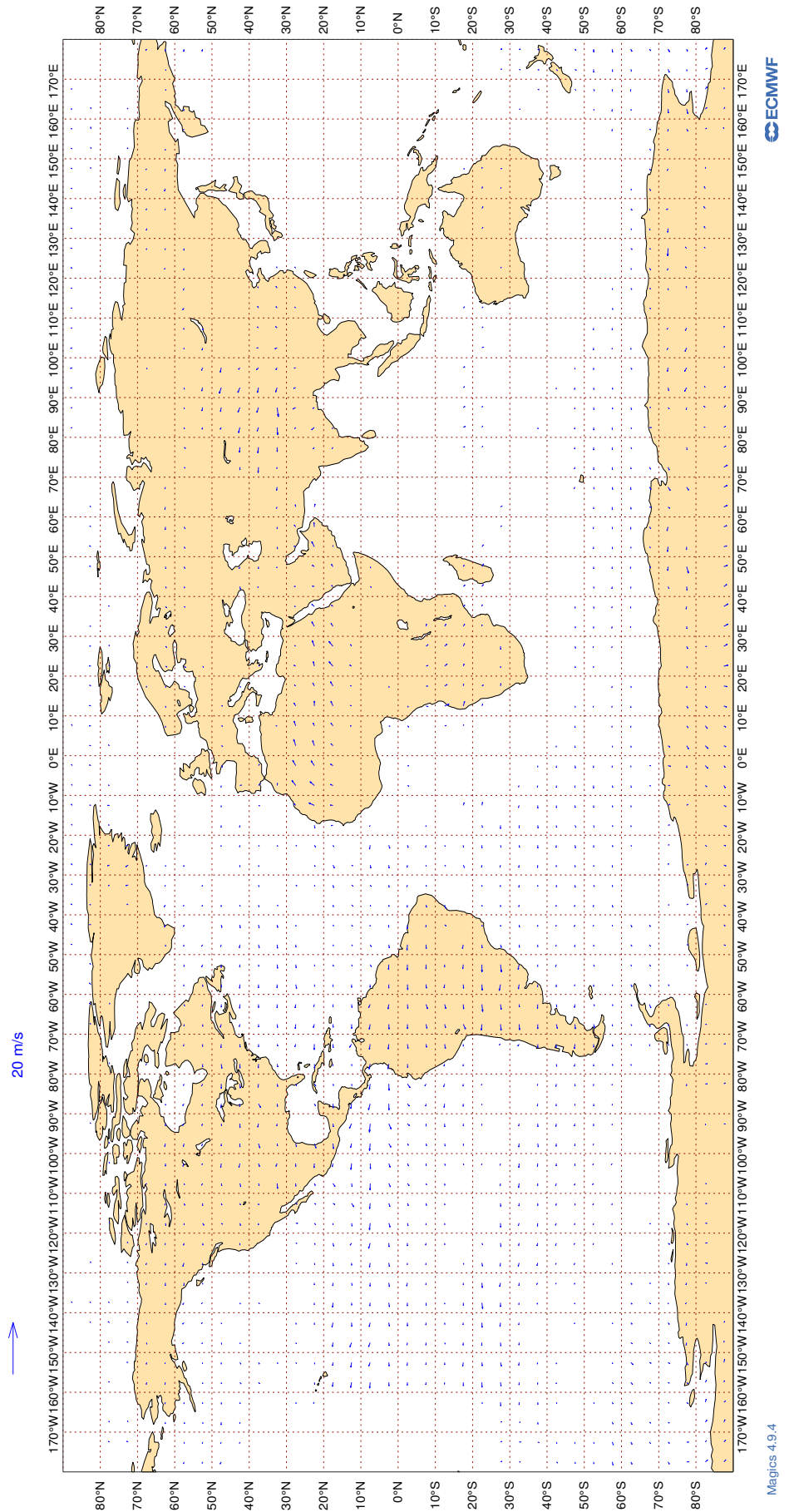
ECMWF Monitoring Statistics: May 2023
AMV Winds: 700-1000hPa
Mean Observed Wind



3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

Figure 15

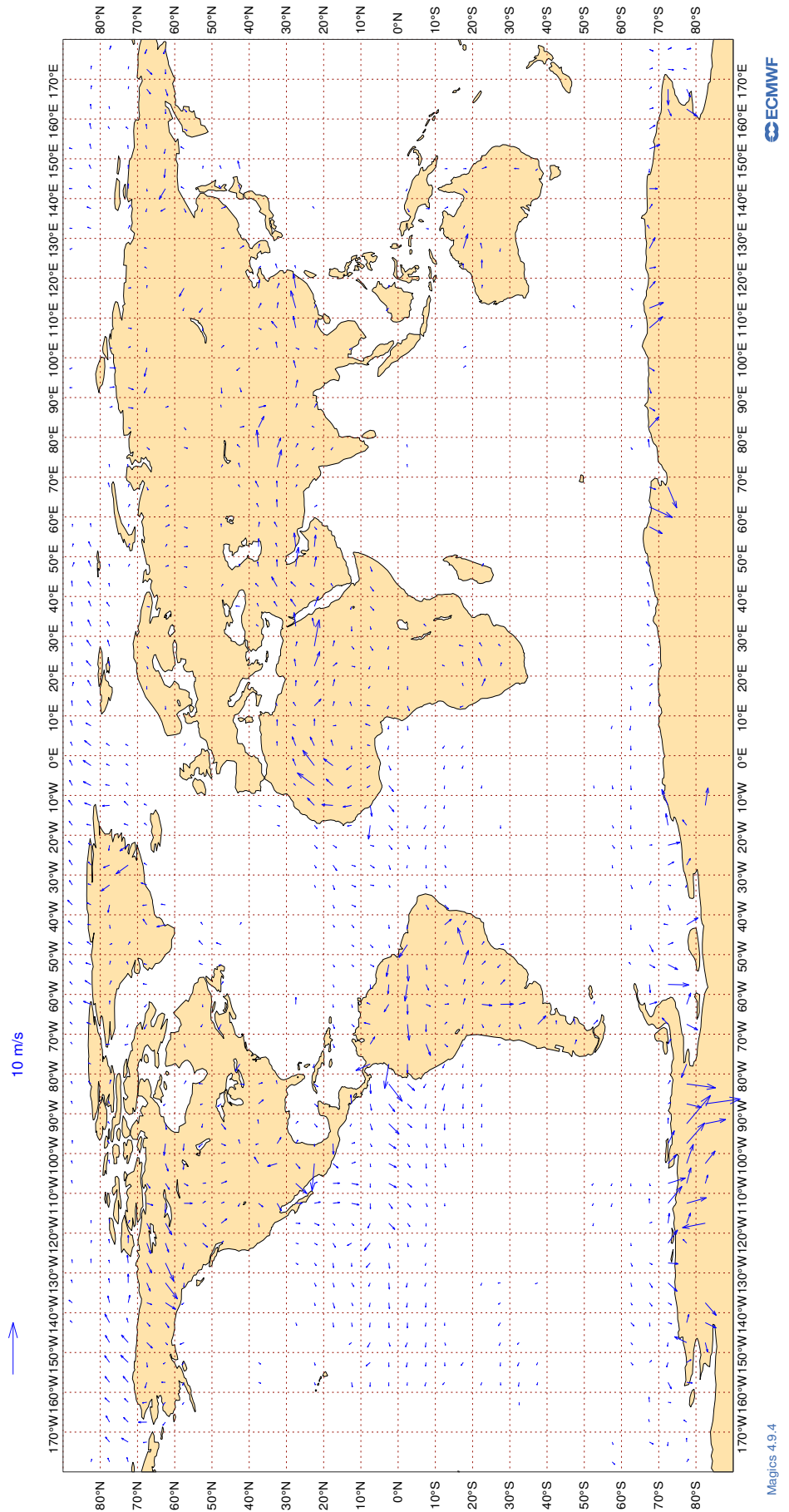
ECMWF Monitoring Statistics: May 2023
AMV Winds: 150- 400hPa
Wind bias: Observation - FG



3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

Figure 16

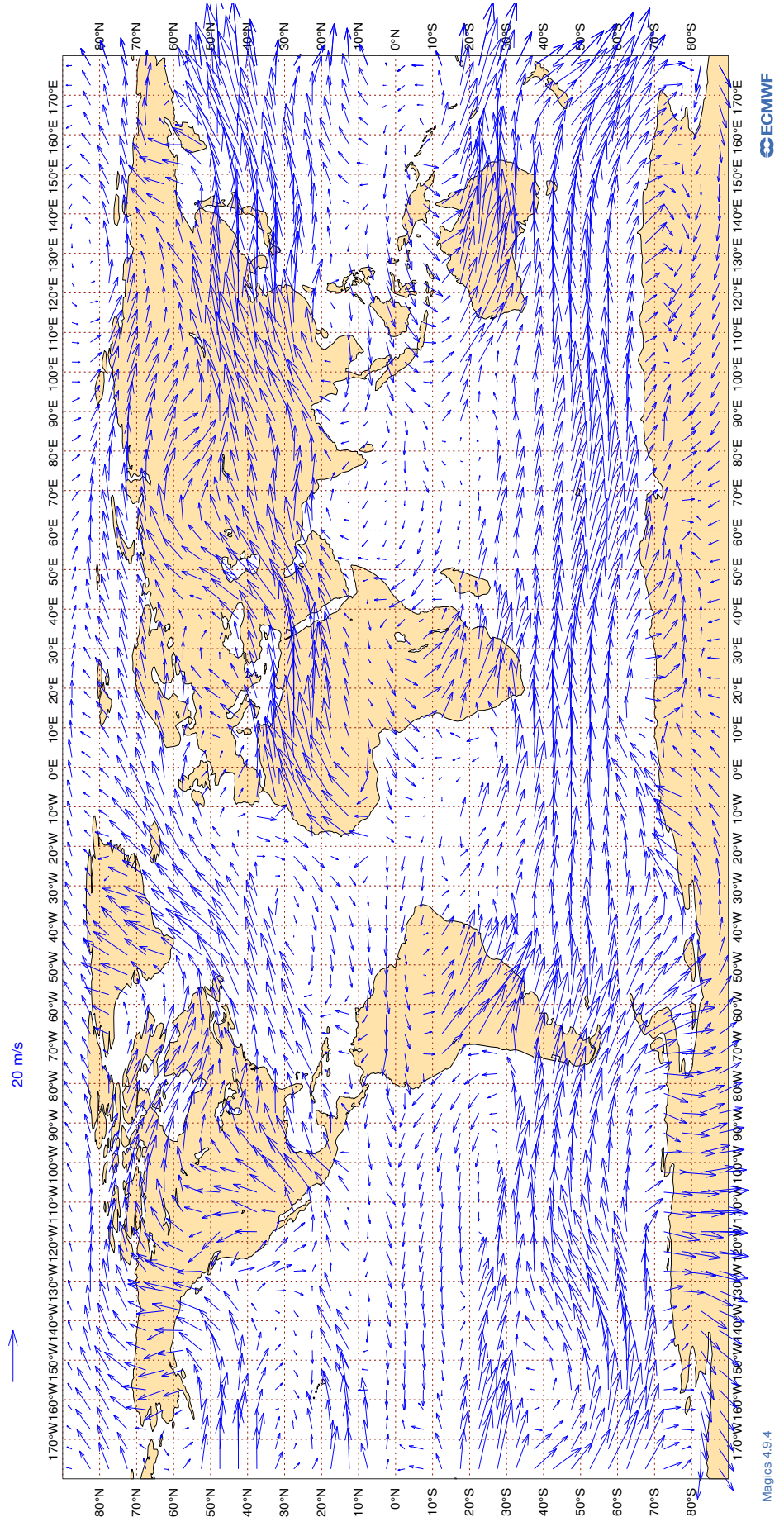
ECMWF Monitoring Statistics: May 2023
AMV Winds: 700-1000hPa
Wind bias: Observation - FG



3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

Figure 17

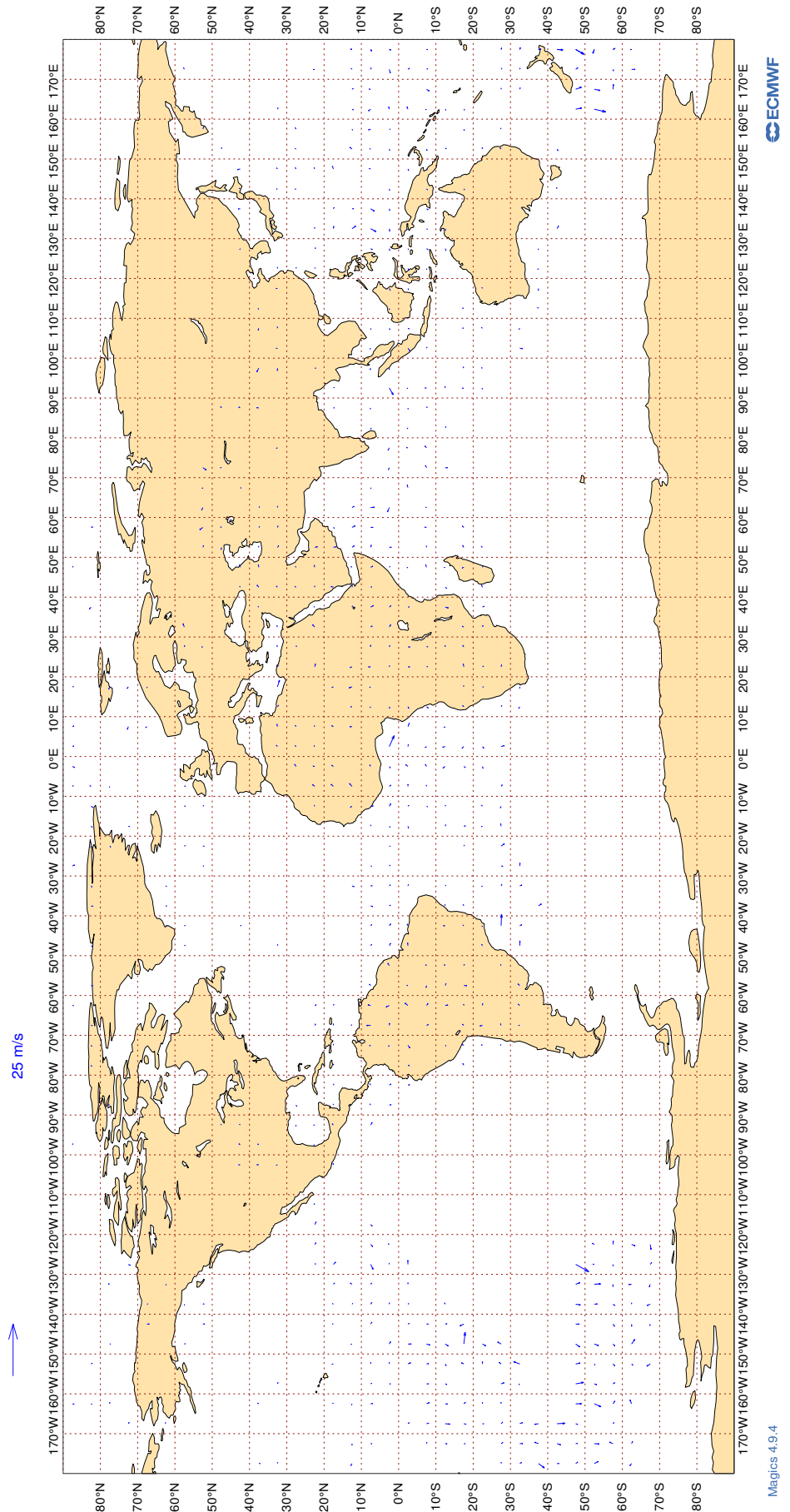
ECMWF Monitoring Statistics: May 2023
AMV Winds: 150- 400hPa
Mean Observed Wind



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

Figure 18

ECMWF Monitoring Statistics: May 2023
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 : MAY 2023
 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	54502	5	0	5.6	0.1
AAR	99	V	300-150	246	0	0	3.5	-0.7
ABD	99	V	300-150	1337	0	0	3.5	-0.5
ABP	99	V	300-150	30	0	0	3.3	-1.2
ABX	99	V	300-150	132	0	0	3.7	-0.1
ABY	99	V	300-150	52	0	0	3.6	0.8
ACA	99	V	300-150	34833	4	0	5.4	0.2
ACI	99	V	300-150	320	0	0	4.0	0.7
ADY	99	V	300-150	37	0	0	2.5	0.8
AEA	99	V	300-150	747	11	1	8.0	0.2
AFR	99	V	300-150	35438	1	0	4.0	0.1
AHO	99	V	300-150	489	3	0	5.9	0.0
AIC	99	V	300-150	4373	1	1	5.9	0.1
AJT	99	V	300-150	233	0	0	3.0	0.3
ALE	99	V	300-150	40	0	0	2.8	-0.1
ALK	99	V	300-150	1415	0	0	2.7	0.6
AME	99	V	300-150	54	0	0	3.1	0.5
AMQ	99	V	300-150	20	85	0	30.9	1.9
AMX	99	V	300-150	4762	12	0	7.8	0.1
ANA	99	V	300-150	269	6	1	6.5	0.4
ANZ	99	V	300-150	21719	1	0	5.2	0.5
AOJ	99	V	300-150	136	0	0	2.8	0.4
AOJ	99	V	300-150	21	0	0	3.2	1.4
ARL	99	V	300-150	36	0	0	3.7	1.5

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
ASJ	99	V	300-150	46	0	0	3.9	0.4
ASL	99	V	300-150	632	0	0	3.0	0.2
ASY	99	V	300-150	68	0	0	4.7	0.0
ATC	99	V	300-150	310	1	0	10.5	0.3
ATG	99	V	300-150	428	0	0	3.9	0.6
ATN	99	V	300-150	173	0	0	3.5	0.1
AUA	99	V	300-150	5246	0	0	3.6	0.0
AUH	99	V	300-150	37	0	0	3.1	0.3
AVA	99	V	300-150	467	5	1	5.6	0.2
AXB	99	V	300-150	28	0	0	2.8	0.6
AXM	99	V	300-150	100	0	0	4.2	0.7
AXY	99	V	300-150	132	0	0	2.8	-0.2
AZG	99	V	300-150	990	0	0	3.4	-0.2
BAF	99	V	300-150	208	0	0	3.5	0.3
BAV	99	V	300-150	178	1	1	5.7	0.8
BAW	99	V	300-150	51218	3	0	4.8	0.1
BBB	99	V	300-150	31	0	0	3.4	1.0
BBC	99	V	300-150	839	5	0	6.4	0.6
BCS	99	V	300-150	1682	0	0	3.1	0.3
BEL	99	V	300-150	1571	0	0	2.9	0.4
BFF	99	V	300-150	33	0	0	3.0	0.1
BIS	99	V	300-150	20	0	0	2.9	0.6
BLU	99	V	300-150	34	0	0	4.7	0.0
BOX	99	V	300-150	4529	0	0	3.3	0.0
BOX	99	V	300-150	108	0	0	2.6	0.1
BQA	99	V	300-150	23	0	0	3.0	0.8
BTX	99	V	300-150	50	0	0	3.2	0.4
BVR	99	V	300-150	88	0	0	3.5	0.2
CAL	99	V	300-150	1622	0	0	4.3	0.8
CAZ	99	V	300-150	68	0	0	3.1	0.2
CBJ	99	V	300-150	179	0	0	3.5	1.0
CCA	99	V	300-150	184	1	0	3.9	0.8
CEB	99	V	300-150	1003	0	0	3.5	0.4
CEF	99	V	300-150	56	0	0	3.0	0.0
CES	99	V	300-150	899	0	0	4.1	0.2
CFC	99	V	300-150	303	0	0	4.0	0.4
CFG	99	V	300-150	5100	0	0	3.2	0.0
CHG	99	V	300-150	683	0	0	3.9	0.0
CJT	99	V	300-150	578	0	0	3.8	0.1
CKS	99	V	300-150	2008	0	0	3.5	0.0
CLX	99	V	300-150	4576	0	0	3.4	-0.2
CMA	99	V	300-150	239	0	0	3.7	0.2
CMB	99	V	300-150	1342	0	0	3.4	-0.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
CNV	99	V	300-150	67	0	0	4.4	0.5
CPA	99	V	300-150	2108	0	0	4.0	0.4
CRL	99	V	300-150	899	0	0	3.2	0.3
CRV	99	V	300-150	58	0	0	2.6	-0.3
CSC	99	V	300-150	583	0	0	3.7	0.6
CSN	99	V	300-150	794	2	0	4.8	0.6
CSS	99	V	300-150	92	0	0	4.0	0.9
CTM	99	V	300-150	153	0	0	3.0	0.2
CWG	99	V	300-150	48	0	0	3.8	0.0
DAH	99	V	300-150	769	0	0	3.0	0.4
DAL	99	V	300-150	74959	0	0	3.1	0.0
DCM	99	V	300-150	88	0	0	6.3	1.2
DCS	99	V	300-150	32	0	0	2.9	0.6
DHK	99	V	300-150	2310	0	0	3.2	0.0
DHX	99	V	300-150	278	0	0	3.7	1.0
DJT	99	V	300-150	2046	0	0	3.1	0.4
DLH	99	V	300-150	29015	1	0	3.8	0.1
DUB	99	V	300-150	53	0	0	3.3	0.8
EAL	99	V	300-150	146	0	0	3.4	0.1
EAU	99	V	300-150	91	0	0	3.8	0.2
EDC	99	V	300-150	92	0	0	3.5	0.2
EDG	99	V	300-150	259	0	0	3.8	0.0
EDW	99	V	300-150	1363	0	0	2.9	0.2
EIN	99	V	300-150	17633	0	0	2.9	0.2
EJM	99	V	300-150	1207	0	0	3.3	0.4
ELY	99	V	300-150	5033	10	0	7.4	0.2
ELZ	99	V	300-150	20	0	0	5.2	-0.6
ETD	99	V	300-150	11984	3	0	5.8	0.2
ETH	99	V	300-150	6595	2	0	5.3	0.2
EUK	99	V	300-150	1963	0	0	2.9	0.3
EVA	99	V	300-150	1482	2	0	6.5	0.4
EVE	99	V	300-150	127	0	0	3.7	0.2
EXS	99	V	300-150	1225	0	0	3.0	0.3
FAD	99	V	300-150	55	0	0	3.5	0.0
FBU	99	V	300-150	2710	0	0	3.8	0.0
FDX	99	V	300-150	7161	0	0	3.1	0.1
FFM	99	V	300-150	48	0	0	5.2	1.5
FIN	99	V	300-150	1658	0	0	3.3	0.3
FJI	99	V	300-150	2502	0	0	4.2	0.8
FJO	99	V	300-150	62	0	0	3.1	0.3
FPY	99	V	300-150	2958	0	0	2.8	0.2
FWI	99	V	300-150	1347	0	0	3.2	0.3
FXT	99	V	300-150	157	0	0	3.0	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	122	0	1	3.3	-0.1
FYL	99	V	300-150	38	0	0	4.8	1.1
GAF	99	V	300-150	152	0	0	3.1	0.8
GCK	99	V	300-150	183	0	0	3.2	-0.2
GEC	99	V	300-150	1492	0	0	3.3	0.1
GES	99	V	300-150	217	0	0	3.3	0.5
GFA	99	V	300-150	1058	0	1	5.6	0.6
GIA	99	V	300-150	1137	0	0	3.1	0.5
GJE	99	V	300-150	42	0	0	3.3	-0.6
GKY	99	V	300-150	46	0	0	2.6	0.7
GNJ	99	V	300-150	89	0	0	3.8	0.8
GRP	99	V	300-150	35	0	0	3.9	1.0
GSM	99	V	300-150	49	0	0	3.6	0.7
GTI	99	V	300-150	1939	0	0	3.2	-0.2
GTR	99	V	300-150	294	0	0	2.9	0.5
HAI	99	V	300-150	25	0	0	3.6	0.6
HAL	99	V	300-150	829	0	1	4.4	0.7
HFM	99	V	300-150	132	0	1	3.3	0.0
HIM	99	V	300-150	146	0	1	3.3	0.2
HKC	99	V	300-150	64	0	0	4.0	0.8
HLF	99	V	300-150	25	0	0	3.0	0.5
HRN	99	V	300-150	20	0	0	4.2	-2.2
HRT	99	V	300-150	134	0	0	3.8	0.2
HUE	99	V	300-150	34	0	0	6.2	-0.2
HVN	99	V	300-150	953	1	0	7.7	0.5
IAM	99	V	300-150	87	0	0	3.9	-0.7
IBE	99	V	300-150	7683	0	0	3.1	0.2
ICE	99	V	300-150	7286	0	0	3.1	0.1
ICL	99	V	300-150	284	0	0	3.8	1.4
ICV	99	V	300-150	434	0	0	3.5	0.4
IFA	99	V	300-150	561	0	0	3.4	0.4
IFC	99	V	300-150	41	0	0	3.4	0.4
IJM	99	V	300-150	98	0	0	3.4	-0.6
IND	99	V	300-150	29	0	0	4.1	-0.4
ITY	99	V	300-150	5166	0	0	3.1	0.2
JAD	99	V	300-150	37	0	0	4.3	0.7
JAF	99	V	300-150	656	7	0	8.4	-0.1
JAL	99	V	300-150	173	3	0	9.2	0.5
JAS	99	V	300-150	83	0	0	3.7	-0.2
JBU	99	V	300-150	5522	0	0	3.0	0.3
JCO	99	V	300-150	110	0	0	2.6	0.1
JCY	99	V	300-150	24	0	0	2.6	-0.4
JJA	99	V	300-150	43	2	0	6.5	0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
JME	99	V	300-150	33	0	0	3.1	0.4
JML	99	V	300-150	20	0	0	3.4	-1.2
JNY	99	V	300-150	74	0	0	3.8	0.4
JST	99	V	300-150	119	3	0	4.5	0.0
KAC	99	V	300-150	2873	0	0	3.3	0.5
KAF	99	V	300-150	87	0	0	3.2	0.5
KAI	99	V	300-150	123	0	0	2.8	0.2
KAL	99	V	300-150	896	0	0	4.4	0.8
KAY	99	V	300-150	140	0	1	3.2	0.6
KCE	99	V	300-150	33	0	0	3.0	0.1
KIW	99	V	300-150	32	0	0	3.8	0.6
KLM	99	V	300-150	19707	5	0	5.7	0.1
KNE	99	V	300-150	68	0	0	3.8	0.2
KQA	99	V	300-150	356	3	0	10.1	0.5
KUG	99	V	300-150	38	0	0	2.0	0.6
LAN	99	V	300-150	1383	12	0	6.3	0.2
LCO	99	V	300-150	747	0	0	3.5	-0.4
LDX	99	V	300-150	189	0	0	3.0	0.4
LEA	99	V	300-150	26	0	0	4.4	-1.4
LNI	99	V	300-150	584	0	1	2.9	0.8
LNK	99	V	300-150	69	0	0	3.0	0.2
LOT	99	V	300-150	3449	9	0	8.3	0.1
LUC	99	V	300-150	73	0	0	2.8	0.1
LXA	99	V	300-150	53	0	0	3.5	-0.5
LXJ	99	V	300-150	522	0	0	3.3	0.5
MAS	99	V	300-150	2691	0	0	3.7	0.5
MAU	99	V	300-150	472	0	0	4.4	0.9
MHV	99	V	300-150	82	0	0	3.1	-0.3
MJF	99	V	300-150	40	0	0	3.0	0.4
MLM	99	V	300-150	175	0	1	3.7	0.0
MLT	99	V	300-150	51	0	0	4.1	0.2
MMD	99	V	300-150	233	0	0	3.3	-0.1
MMF	99	V	300-150	29	0	0	2.7	-0.1
MMZ	99	V	300-150	34	0	0	3.7	0.2
MNB	99	V	300-150	353	0	0	3.3	0.0
MPH	99	V	300-150	774	0	0	3.5	-0.7
MSR	99	V	300-150	2230	3	0	4.4	0.1
MVJ	99	V	300-150	52	0	0	3.8	1.7
MYM	99	V	300-150	36	0	0	3.9	0.5
NBT	99	V	300-150	2105	10	0	8.3	-0.1
NCR	99	V	300-150	315	0	0	3.6	0.1
NGR	99	V	300-150	27	0	0	3.7	0.4
NJE	99	V	300-150	723	0	0	3.1	0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
NOJ	99	V	300-150	103	0	0	3.5	-0.1
NOS	99	V	300-150	1317	9	0	7.2	0.1
NSH	99	V	300-150	38	0	0	2.3	0.0
NSP	99	V	300-150	33	0	0	10.1	-2.3
NUM	99	V	300-150	20	0	0	2.9	0.3
OAE	99	V	300-150	611	0	0	3.7	0.4
OCN	99	V	300-150	3503	0	0	3.0	0.3
OMA	99	V	300-150	2336	0	1	5.7	0.6
PAC	99	V	300-150	239	0	0	3.0	-0.3
PAL	99	V	300-150	1583	0	0	3.3	0.4
PEG	99	V	300-150	62	0	0	3.0	0.2
PEX	99	V	300-150	95	0	0	2.8	-0.1
PIA	99	V	300-150	349	0	1	3.3	0.4
PJV	99	V	300-150	25	0	0	3.4	1.0
PJZ	99	V	300-150	39	0	0	5.9	1.0
PLF	99	V	300-150	73	0	0	2.9	0.2
PVA	99	V	300-150	340	0	0	3.2	0.1
QAF	99	V	300-150	105	0	0	3.0	0.3
QFA	99	V	300-150	6873	4	0	6.3	0.5
QQE	99	V	300-150	233	0	0	3.2	0.4
QTR	99	V	300-150	32872	0	0	4.0	0.3
RAM	99	V	300-150	568	10	0	7.7	0.3
RBA	99	V	300-150	156	1	3	7.2	0.7
RCH	99	V	300-150	3269	0	0	4.4	0.5
RCR	99	V	300-150	78	0	0	4.0	0.3
RDN	99	V	300-150	77	0	0	2.7	0.5
RHH	99	V	300-150	27	0	0	7.0	3.3
RJA	99	V	300-150	2577	10	0	8.7	0.0
ROJ	99	V	300-150	142	0	0	3.3	0.3
RRR	99	V	300-150	437	0	0	4.1	0.9
RSF	99	V	300-150	38	0	0	3.7	1.1
RYR	99	V	300-150	1277	0	0	2.9	0.5
RZO	99	V	300-150	241	0	1	4.0	0.6
SAM	99	V	300-150	237	0	0	3.2	0.2
SAS	99	V	300-150	6320	0	0	2.9	0.0
SAZ	99	V	300-150	92	0	0	2.7	0.0
SCX	99	V	300-150	55	0	2	3.5	0.6
SEY	99	V	300-150	47	0	0	2.8	0.6
SIA	99	V	300-150	8206	0	0	4.0	0.2
SIO	99	V	300-150	76	0	0	2.6	0.5
SIS	99	V	300-150	34	0	0	3.2	1.3
SLM	99	V	300-150	102	0	0	3.2	0.6
SON	99	V	300-150	55	0	0	4.6	1.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
SPA	99	V	300-150	58	0	2	2.7	0.2
STA	99	V	300-150	57	0	0	2.8	0.0
SUI	99	V	300-150	40	0	0	4.8	-2.3
SVA	99	V	300-150	8840	0	0	4.5	0.4
SVW	99	V	300-150	334	0	1	3.2	-0.1
SWR	99	V	300-150	10912	0	1	3.2	0.2
SYB	99	V	300-150	195	0	0	3.2	0.2
TAM	99	V	300-150	91	0	0	3.3	0.2
TAP	99	V	300-150	2789	0	0	3.5	0.2
TAR	99	V	300-150	302	0	0	2.9	0.3
TAY	99	V	300-150	346	0	0	3.8	-0.1
TBJ	99	V	300-150	31	0	0	3.1	1.2
TFF	99	V	300-150	37	0	0	3.2	0.8
TFL	99	V	300-150	1687	7	0	7.6	0.1
TGW	99	V	300-150	511	1	3	8.1	0.4
THA	99	V	300-150	6132	0	1	5.2	0.5
THT	99	V	300-150	3443	4	0	6.5	0.6
THY	99	V	300-150	19282	2	0	4.5	0.2
TMN	99	V	300-150	439	0	0	3.8	0.5
TOM	99	V	300-150	7307	8	0	8.2	0.0
TOW	99	V	300-150	99	0	1	3.3	0.6
TSC	99	V	300-150	12060	0	0	3.2	0.3
TWY	99	V	300-150	1023	0	0	3.2	0.1
UAE	99	V	300-150	30987	0	0	3.3	0.3
UAF	99	V	300-150	65	0	0	3.2	-0.7
UAL	99	V	300-150	88653	3	1	5.2	0.1
UBT	99	V	300-150	1218	10	0	8.8	0.1
ULC	99	V	300-150	97	0	0	2.4	-0.1
UPS	99	V	300-150	6676	0	0	3.2	-0.1
UZB	99	V	300-150	377	5	0	5.3	0.0
VAJ	99	V	300-150	34	0	0	4.2	0.1
VCG	99	V	300-150	72	0	0	3.8	0.8
VIR	99	V	300-150	21689	4	0	5.5	0.1
VJC	99	V	300-150	211	0	1	4.2	0.6
VJT	99	V	300-150	2111	0	0	3.3	0.5
VSV	99	V	300-150	29	0	0	4.2	1.0
VTI	99	V	300-150	2316	0	0	3.4	0.4
VXS	99	V	300-150	31	0	0	3.8	0.3
WFL	99	V	300-150	100	0	0	3.6	0.6
WGN	99	V	300-150	77	0	0	4.4	2.1
WJA	99	V	300-150	1623	5	0	7.7	-0.2
WMN	99	V	300-150	48	0	0	3.5	0.1
WWI	99	V	300-150	36	0	0	3.3	2.1

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
XAX	99	V	300-150	567	0	0	3.4	0.3
XEN	99	V	300-150	32	0	0	3.1	-1.1
XLS	99	V	300-150	77	0	0	2.9	0.2
XRO	99	V	300-150	56	0	0	4.2	-0.9
YDN	99	V	300-150	36	0	0	4.4	-0.3

4 EUCOS Area Monitoring Statistics

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

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

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

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 50 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : MAY 2023
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	50	28	30.6	-26.4
01001	12	Z	50	31	8.5	-1.8
01028	00	Z	50	31	4.1	-1.9
01028	12	Z	50	31	6.2	-2.1
01400	12	Z	50	22	76.0	75.8
01400	00	Z	50	22	73.3	72.1
01415	00	Z	50	30	7.7	-1.1
01415	12	Z	50	29	6.0	0.2
02365	12	Z	50	28	9.4	-5.9
02365	00	Z	50	26	8.4	3.0
02591	00	Z	50	19	10.1	9.5
02591	12	Z	50	20	4.7	1.8
02836	00	Z	50	25	4.9	-0.2
02836	12	Z	50	32	6.8	-0.5
02963	00	Z	50	30	4.2	2.5
02963	12	Z	50	31	14.6	-0.8
03005	12	Z	50	30	10.6	-5.4
03005	00	Z	50	26	6.8	-1.7
03238	12	Z	50	6	5.0	-3.1
03238	00	Z	50	30	4.2	1.1
03808	00	Z	50	26	6.0	4.1
03808	12	Z	50	29	7.1	-1.6
03918	00	Z	50	30	7.9	6.2
03918	12	Z	50	1	6.1	6.1
03953	00	Z	50	25	10.7	-7.9
03953	12	Z	50	25	6.4	-4.4
04018	00	Z	50	28	10.0	-4.7
04018	12	Z	50	25	10.2	-3.5
04220	12	Z	50	31	13.3	-8.6
04220	00	Z	50	29	25.3	-22.7
04270	00	Z	50	30	31.2	-27.9
04270	12	Z	50	31	17.9	-13.6
04320	00	Z	50	31	13.1	-1.0
04320	12	Z	50	31	12.3	8.8
04339	12	Z	50	30	9.4	-1.9
04339	00	Z	50	31	14.3	-11.9
04360	00	Z	50	26	13.7	-10.3
04360	12	Z	50	22	15.3	8.3
06011	00	Z	50	26	8.7	3.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	50	26	12.9	2.9
06260	12	Z	50	4	7.6	-3.1
06260	00	Z	50	31	18.1	4.2
06610	00	Z	50	32	5.7	4.2
06610	12	Z	50	30	6.2	1.5
07110	00	Z	50	29	29.7	-28.9
07110	12	Z	50	27	31.2	-28.3
07510	00	Z	50	26	17.8	11.8
07510	12	Z	50	31	16.9	14.8
07645	00	Z	50	30	22.4	-20.6
07645	12	Z	50	30	25.4	-23.1
07761	12	Z	50	31	17.9	-12.8
07761	00	Z	50	29	16.6	-13.7
08001	00	Z	50	31	8.0	3.7
08001	12	Z	50	31	7.8	-1.8
08221	00	Z	50	31	9.6	8.8
08221	12	Z	50	31	6.2	3.1
08302	12	Z	50	30	10.8	-8.6
08302	00	Z	50	29	6.5	-1.6
08508	12	Z	50	31	8.9	1.1
08522	12	Z	50	31	6.2	-2.3
10035	12	Z	50	31	11.8	10.3
10035	00	Z	50	31	15.3	14.2
10393	00	Z	50	31	4.6	2.1
10393	12	Z	50	31	6.9	-4.6
10410	00	Z	50	31	4.6	1.1
10410	12	Z	50	31	6.3	-3.9
10739	12	Z	50	30	5.0	1.5
10739	00	Z	50	31	8.8	7.5
11035	00	Z	50	29	8.9	8.0
11035	12	Z	50	31	17.0	6.3
12982	00	Z	50	31	7.8	7.1
12982	12	Z	50	31	4.8	0.6
16245	12	Z	50	28	5.9	-2.1
16245	00	Z	50	27	7.4	6.4
16429	00	Z	50	29	9.2	7.6
16429	12	Z	50	31	7.8	2.4
16622	00	Z	50	25	14.5	13.8
16754	00	Z	50	23	14.1	13.0
17607	12	Z	50	19	6.5	3.7
26435	12	Z	50	15	4.1	-0.4
2EERV	00	Z	50	4	11.4	7.4
2EERV	12	Z	50	4	9.1	8.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	00	Z	50	31	10.3	8.0
60018	12	Z	50	30	9.4	-6.0
7JUNA4	00	Z	50	6	16.2	-5.7
7JUNA4	12	Z	50	11	121.6	102.2
9ZT9MR	12	Z	50	12	23.7	-5.1
9ZT9MR	00	Z	50	13	25.3	-19.5
ATGU3F	12	Z	50	7	25.2	-20.8
ATGU3F	00	Z	50	3	17.5	-14.7
BPMWB2	00	Z	50	2	11.7	-11.6
BPMWB2	12	Z	50	3	20.1	0.9
DBLK	12	Z	50	6	13.5	11.8
GQBZLZ	00	Z	50	0	0.0	0.0
GQBZLZ	12	Z	50	5	130.3	-83.2
JNKN7J	00	Z	50	12	24.6	20.7
JNKN7J	12	Z	50	14	106.6	61.4
KJFF9X	00	Z	50	5	11.3	8.1
KJFF9X	12	Z	50	4	8.1	0.8
KMPLHP	00	Z	50	12	27.1	12.1
KMPLHP	12	Z	50	14	166.5	98.5
LAGY8	12	Z	50	2	115.2	-115.2
LRYQE3	12	Z	50	13	15.4	-7.5
LRYQE3	00	Z	50	12	13.9	-7.3
SMLQ	00	Z	50	21	7.0	-2.7
SMLQ	12	Z	50	22	5.4	-2.8
UXK5JT	00	Z	50	2	11.8	10.2
UXK5JT	12	Z	50	4	7.1	-1.9
WDK38H	12	Z	50	19	10.1	0.2
XKQLWQ	12	Z	50	6	33.6	31.4
XQFJRG	12	Z	50	5	11.3	-7.1
XQFJRG	00	Z	50	5	7.3	-1.3
YLV96W	00	Z	50	5	12.5	-1.7
YLV96W	12	Z	50	10	70.8	37.7

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 : MAY 2023
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	50	27	2.6	0.2	-0.3
01001	12	V	50	30	2.3	0.0	-0.6
01028	00	V	50	29	2.3	0.0	0.2
01028	12	V	50	31	2.0	-0.5	-0.1
01400	12	V	50	20	2.3	0.1	-0.3
01400	00	V	50	17	2.2	0.7	-0.3
01415	00	V	50	28	2.6	0.4	-0.3
01415	12	V	50	29	2.9	0.5	0.1
02365	12	V	50	28	2.8	0.4	0.1
02365	00	V	50	22	3.2	-0.1	0.0
02591	00	V	50	17	2.7	-0.4	-0.3
02591	12	V	50	19	2.9	0.3	-0.7
02836	00	V	50	23	2.1	-0.4	0.1
02836	12	V	50	29	2.3	0.0	-0.2
02963	00	V	50	28	2.6	-0.1	0.0
02963	12	V	50	30	2.8	0.1	0.6
03005	12	V	50	30	2.7	-0.3	-0.2
03005	00	V	50	25	2.6	-0.8	-0.3
03238	12	V	50	6	2.2	1.8	0.2
03238	00	V	50	28	3.0	-0.2	0.1
03808	00	V	50	25	2.2	0.5	0.4
03808	12	V	50	29	2.4	0.2	0.1
03918	00	V	50	29	2.4	-0.2	0.4
03918	12	V	50	1	5.2	-3.5	-3.8
03953	00	V	50	24	2.6	-0.6	-0.1
03953	12	V	50	25	2.5	0.1	-0.3
04018	00	V	50	20	3.3	-0.1	-1.0
04018	12	V	50	21	2.1	0.1	0.2
04220	12	V	50	31	2.4	0.1	0.6
04220	00	V	50	26	2.6	0.2	-0.1
04270	00	V	50	29	2.7	0.4	-0.2
04270	12	V	50	31	3.3	0.7	0.1
04320	00	V	50	29	2.4	-0.6	0.0
04320	12	V	50	31	2.1	0.1	0.4
04339	12	V	50	30	2.3	-0.3	0.2
04339	00	V	50	30	2.9	-0.1	0.7
04360	00	V	50	25	2.3	-0.3	0.2
04360	12	V	50	22	2.7	-0.4	-0.3
06011	00	V	50	25	2.9	0.1	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	50	26	2.9	-0.3	0.0
06260	12	V	50	4	1.8	-0.3	0.5
06260	00	V	50	30	2.5	0.4	0.1
06610	00	V	50	30	3.0	0.2	-0.7
06610	12	V	50	30	2.9	0.8	-0.3
07110	00	V	50	26	2.2	0.1	-0.2
07110	12	V	50	27	2.1	0.2	0.0
07510	00	V	50	25	3.0	0.4	0.5
07510	12	V	50	31	2.4	0.7	-0.3
07645	00	V	50	26	2.8	-0.4	-0.6
07645	12	V	50	30	2.7	-0.2	-0.5
07761	12	V	50	31	3.6	0.1	-0.9
07761	00	V	50	28	3.3	0.1	-0.4
08001	00	V	50	30	2.9	0.0	-0.2
08001	12	V	50	31	3.0	0.9	-0.4
08221	00	V	50	29	3.0	0.3	0.0
08221	12	V	50	30	3.7	-0.7	0.4
08302	12	V	50	30	3.9	-0.2	-0.3
08302	00	V	50	26	3.1	0.1	-0.2
08508	12	V	50	31	2.8	0.1	0.4
08522	12	V	50	31	3.5	0.3	-0.2
10035	12	V	50	31	2.4	0.3	-0.6
10035	00	V	50	30	2.2	0.4	-0.1
10393	00	V	50	30	3.2	0.1	0.0
10393	12	V	50	31	3.3	0.4	-0.1
10410	00	V	50	30	2.8	-0.1	-0.3
10410	12	V	50	31	2.4	0.4	0.3
10739	12	V	50	30	3.1	0.3	-0.3
10739	00	V	50	30	2.5	0.3	0.0
11035	00	V	50	28	3.1	-0.2	0.7
11035	12	V	50	31	2.4	-0.3	-0.6
12982	00	V	50	30	3.0	0.0	-0.8
12982	12	V	50	31	2.9	-0.3	-0.6
16245	12	V	50	28	3.1	0.2	0.9
16245	00	V	50	25	3.3	-0.2	-0.6
16429	00	V	50	28	3.9	0.7	-0.3
16429	12	V	50	31	3.7	1.0	-0.1
16622	00	V	50	18	3.3	0.2	-0.8
16754	00	V	50	20	4.3	0.9	0.3
17607	12	V	50	11	4.7	2.5	0.2
26435	12	V	50	15	3.1	-0.6	0.1
2EERV	00	V	50	4	2.4	0.9	-0.3
2EERV	12	V	50	4	2.1	0.7	1.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	00	V	50	30	3.6	-0.3	0.6
60018	12	V	50	30	2.9	-0.3	-0.9
7JUNA4	00	V	50	6	3.1	-0.7	-1.2
7JUNA4	12	V	50	11	2.7	0.2	-0.4
9ZT9MR	12	V	50	12	2.0	-0.1	0.5
9ZT9MR	00	V	50	12	2.3	0.6	0.3
ATGU3F	12	V	50	7	2.5	0.5	-0.8
ATGU3F	00	V	50	3	2.5	1.3	-1.0
BPMWB2	00	V	50	2	2.7	-0.3	2.6
BPMWB2	12	V	50	3	3.1	-2.1	1.2
DBLK	12	V	50	6	2.9	-0.8	-0.9
GQBZLZ	00	V	50	0	0.0	0.0	0.0
GQBZLZ	12	V	50	5	2.8	-0.7	0.6
JNKN7J	00	V	50	12	2.8	0.0	-0.2
JNKN7J	12	V	50	14	2.6	-0.6	0.5
KJJF9X	00	V	50	5	3.0	1.2	-0.6
KJJF9X	12	V	50	4	3.8	0.5	1.0
KMPLHP	00	V	50	12	2.2	0.2	0.6
KMPLHP	12	V	50	14	2.7	0.3	-0.4
LAGY8	12	V	50	2	1.7	-1.4	-0.4
LRYQE3	12	V	50	13	2.6	0.8	-0.6
LRYQE3	00	V	50	12	3.3	-0.1	0.6
SMLQ	00	V	50	21	2.4	0.1	-0.2
SMLQ	12	V	50	22	1.9	0.0	-0.4
UXK5JT	00	V	50	2	3.6	1.0	2.6
UXK5JT	12	V	50	4	2.6	-0.8	1.3
WDK38H	12	V	50	18	3.0	0.3	-0.2
XKQLWQ	12	V	50	6	2.3	0.4	-0.1
XQFJRG	12	V	50	5	2.8	-0.2	0.7
XQFJRG	00	V	50	5	2.2	0.3	0.8
YLV96W	00	V	50	5	1.7	-0.6	0.6
YLV96W	12	V	50	10	2.5	-0.9	-0.7

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 : MAY 2023
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	100	29	26.5	-23.3
01001	12	Z	100	31	9.3	-4.9
01028	00	Z	100	31	5.3	-3.9
01028	12	Z	100	31	6.7	-4.6
01400	12	Z	100	26	75.6	75.5
01400	00	Z	100	28	71.4	70.6
01415	00	Z	100	30	6.8	-2.7
01415	12	Z	100	31	5.8	-1.3
02365	12	Z	100	28	7.4	-4.9
02365	00	Z	100	29	6.5	-0.7
02591	00	Z	100	21	7.2	6.1
02591	12	Z	100	21	3.8	1.0
02836	00	Z	100	29	5.0	-3.1
02836	12	Z	100	32	5.8	-2.8
02963	00	Z	100	30	3.0	-0.6
02963	12	Z	100	31	14.5	-1.4
03005	12	Z	100	31	9.7	-5.7
03005	00	Z	100	26	7.5	-4.8
03238	12	Z	100	6	5.4	-3.5
03238	00	Z	100	30	3.4	-1.0
03808	00	Z	100	27	3.1	0.2
03808	12	Z	100	29	5.2	-1.8
03918	00	Z	100	30	4.2	2.2
03918	12	Z	100	1	1.5	-1.5
03953	00	Z	100	30	10.1	-8.5
03953	12	Z	100	31	8.8	-7.5
04018	00	Z	100	28	10.5	-5.7
04018	12	Z	100	29	9.3	-3.4
04220	12	Z	100	31	12.0	-9.2
04220	00	Z	100	30	21.5	-20.0
04270	00	Z	100	30	25.6	-23.4
04270	12	Z	100	31	17.3	-14.5
04320	00	Z	100	31	13.0	-2.2
04320	12	Z	100	31	8.1	5.4
04339	12	Z	100	31	8.9	-5.2
04339	00	Z	100	31	15.1	-13.5
04360	00	Z	100	27	21.2	-9.0
04360	12	Z	100	24	9.8	1.4
06011	00	Z	100	29	8.8	-3.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	100	28	9.7	0.8
06260	12	Z	100	4	7.0	-3.5
06260	00	Z	100	31	16.5	1.0
06610	00	Z	100	32	3.5	0.4
06610	12	Z	100	31	4.4	-0.9
07110	00	Z	100	30	26.9	-26.3
07110	12	Z	100	29	28.0	-26.0
07510	00	Z	100	28	11.8	7.2
07510	12	Z	100	31	12.2	10.5
07645	00	Z	100	31	22.5	-20.7
07645	12	Z	100	31	23.0	-21.3
07761	12	Z	100	31	15.2	-11.3
07761	00	Z	100	29	16.3	-14.4
08001	00	Z	100	31	6.2	0.9
08001	12	Z	100	31	6.6	-1.4
08221	00	Z	100	31	4.5	3.1
08221	12	Z	100	31	4.5	1.1
08302	12	Z	100	31	12.5	-11.4
08302	00	Z	100	31	8.4	-5.8
08508	12	Z	100	31	6.4	2.8
08522	12	Z	100	31	5.0	-0.1
10035	12	Z	100	31	9.7	8.6
10035	00	Z	100	31	11.7	11.0
10393	00	Z	100	31	3.4	-0.2
10393	12	Z	100	31	6.1	-5.1
10410	00	Z	100	31	4.0	-1.5
10410	12	Z	100	32	6.4	-5.4
10739	12	Z	100	30	3.0	0.0
10739	00	Z	100	31	5.4	4.4
11035	00	Z	100	31	4.9	3.4
11035	12	Z	100	31	10.5	1.8
12982	00	Z	100	31	5.6	4.1
12982	12	Z	100	31	3.7	-0.1
16245	12	Z	100	29	4.7	-2.6
16245	00	Z	100	29	3.8	1.5
16429	00	Z	100	29	5.2	2.3
16429	12	Z	100	31	5.9	-0.2
16622	00	Z	100	31	12.3	11.6
16754	00	Z	100	26	10.0	8.3
17607	12	Z	100	22	7.8	-2.1
26435	12	Z	100	15	4.1	-2.4
2EERV	00	Z	100	5	7.1	-3.3
2EERV	12	Z	100	4	6.2	4.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	00	Z	100	31	8.0	6.1
60018	12	Z	100	31	7.4	-3.0
7JUNA4	00	Z	100	7	12.2	-0.6
7JUNA4	12	Z	100	11	61.1	49.3
9ZT9MR	12	Z	100	12	18.7	-10.3
9ZT9MR	00	Z	100	15	25.8	-22.6
ATGU3F	12	Z	100	7	25.6	-21.4
ATGU3F	00	Z	100	4	30.1	-24.4
BPMWB2	00	Z	100	3	12.6	-12.3
BPMWB2	12	Z	100	3	82.3	38.6
DBLK	12	Z	100	6	12.1	11.0
GQBZLZ	00	Z	100	0	0.0	0.0
GQBZLZ	12	Z	100	7	110.5	-69.4
JNKN7J	00	Z	100	13	23.5	22.2
JNKN7J	12	Z	100	14	68.6	46.2
KJJF9X	00	Z	100	5	11.1	3.5
KJJF9X	12	Z	100	4	5.7	4.2
KMPLHP	00	Z	100	12	25.3	13.7
KMPLHP	12	Z	100	14	95.3	60.0
LAGY8	12	Z	100	2	119.1	-119.1
LRYQE3	12	Z	100	14	14.1	-9.1
LRYQE3	00	Z	100	13	10.1	-6.6
SMLQ	00	Z	100	22	8.5	-5.7
SMLQ	12	Z	100	23	5.9	-4.0
UXK5JT	00	Z	100	3	10.5	7.7
UXK5JT	12	Z	100	4	3.4	2.6
WDK38H	12	Z	100	21	9.4	-2.9
XKQLWQ	12	Z	100	6	27.7	26.8
XQFJRG	12	Z	100	5	12.1	-5.0
XQFJRG	00	Z	100	8	11.7	-7.1
YLV96W	00	Z	100	10	11.5	-6.3
YLV96W	12	Z	100	13	35.6	18.4

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 100 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : MAY 2023
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	100	28	2.3	-0.2	-0.5
01001	12	V	100	31	2.6	-0.3	-0.2
01028	00	V	100	30	2.1	0.2	-0.1
01028	12	V	100	31	2.8	0.5	0.0
01400	12	V	100	26	2.5	-0.5	0.3
01400	00	V	100	23	2.5	0.3	-0.2
01415	00	V	100	28	2.7	-0.1	-0.2
01415	12	V	100	30	2.1	0.0	0.5
02365	12	V	100	28	2.7	-0.4	-0.3
02365	00	V	100	27	3.2	0.2	-0.2
02591	00	V	100	20	2.1	0.3	-0.5
02591	12	V	100	21	2.3	-0.5	0.3
02836	00	V	100	26	2.4	-0.1	0.2
02836	12	V	100	30	2.6	-0.2	-0.2
02963	00	V	100	29	2.5	-0.4	0.1
02963	12	V	100	30	2.2	-0.6	0.2
03005	12	V	100	31	2.6	-0.3	-0.4
03005	00	V	100	25	2.4	0.0	0.2
03238	12	V	100	6	2.3	-0.4	-0.4
03238	00	V	100	28	2.3	-0.2	-0.2
03808	00	V	100	25	2.9	0.8	0.5
03808	12	V	100	29	2.5	0.0	0.0
03918	00	V	100	29	2.8	-0.3	-0.3
03918	12	V	100	1	2.0	-1.8	-0.8
03953	00	V	100	28	2.3	0.0	-0.2
03953	12	V	100	31	2.6	0.2	0.5
04018	00	V	100	27	3.7	-0.3	-0.7
04018	12	V	100	28	2.9	0.2	0.8
04220	12	V	100	31	2.3	0.1	0.6
04220	00	V	100	29	2.2	-0.3	-0.2
04270	00	V	100	29	3.5	-0.3	0.1
04270	12	V	100	31	2.8	0.2	0.7
04320	00	V	100	30	2.3	-0.4	0.2
04320	12	V	100	31	2.2	0.0	0.3
04339	12	V	100	31	2.6	0.3	0.3
04339	00	V	100	30	2.5	0.6	0.5
04360	00	V	100	25	2.4	-0.4	-0.1
04360	12	V	100	24	4.0	0.2	-0.2
06011	00	V	100	28	2.3	0.0	-0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	100	28	2.5	-0.3	-0.2
06260	12	V	100	4	2.1	0.8	-1.3
06260	00	V	100	30	2.1	0.0	-0.4
06610	00	V	100	30	2.4	0.3	0.1
06610	12	V	100	31	2.5	0.5	-0.2
07110	00	V	100	27	2.6	0.4	0.1
07110	12	V	100	29	2.3	0.0	-0.3
07510	00	V	100	27	2.6	0.4	0.8
07510	12	V	100	31	2.2	-0.1	0.1
07645	00	V	100	26	2.6	1.1	0.3
07645	12	V	100	31	3.0	0.3	-0.4
07761	12	V	100	31	3.1	0.5	0.3
07761	00	V	100	28	2.9	0.4	0.0
08001	00	V	100	30	2.5	0.3	0.4
08001	12	V	100	31	2.8	-0.4	0.3
08221	00	V	100	30	3.3	0.4	0.1
08221	12	V	100	31	2.8	0.2	-0.4
08302	12	V	100	31	3.3	0.8	-0.1
08302	00	V	100	29	3.3	0.7	0.0
08508	12	V	100	31	3.2	-0.4	0.1
08522	12	V	100	31	3.6	0.2	0.7
10035	12	V	100	31	2.0	-0.2	0.1
10035	00	V	100	30	2.1	0.5	0.2
10393	00	V	100	30	2.4	0.1	-0.3
10393	12	V	100	31	1.9	0.1	0.0
10410	00	V	100	30	2.2	-0.1	0.2
10410	12	V	100	31	2.1	0.3	-0.2
10739	12	V	100	30	2.3	-0.1	-0.4
10739	00	V	100	30	2.4	-0.1	0.2
11035	00	V	100	29	2.6	0.6	-0.8
11035	12	V	100	31	2.4	0.5	0.1
12982	00	V	100	30	2.8	0.4	0.1
12982	12	V	100	31	2.5	0.2	0.0
16245	12	V	100	29	3.3	0.4	-0.6
16245	00	V	100	25	2.4	0.5	-0.4
16429	00	V	100	28	3.5	1.0	0.3
16429	12	V	100	31	3.4	0.2	0.2
16622	00	V	100	24	3.3	0.1	-0.1
16754	00	V	100	25	3.2	0.7	-0.5
17607	12	V	100	12	3.3	1.4	-0.4
26435	12	V	100	15	2.2	0.9	0.2
2EERV	00	V	100	5	3.1	-1.7	-0.3
2EERV	12	V	100	4	3.5	-1.0	1.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	00	V	100	30	4.0	0.0	-0.3
60018	12	V	100	31	4.0	-0.6	0.8
7JUNA4	00	V	100	7	2.4	-0.2	0.6
7JUNA4	12	V	100	11	2.2	0.1	-0.5
9ZT9MR	12	V	100	12	2.2	0.0	0.4
9ZT9MR	00	V	100	14	2.1	0.5	-0.1
ATGU3F	12	V	100	7	4.0	-0.8	-0.6
ATGU3F	00	V	100	4	5.4	1.4	-0.8
BPMWB2	00	V	100	3	2.6	1.0	0.6
BPMWB2	12	V	100	3	4.5	-0.9	2.7
DBLK	12	V	100	6	2.2	0.6	0.9
GQBZLZ	00	V	100	0	0.0	0.0	0.0
GQBZLZ	12	V	100	7	1.8	0.1	-0.1
JNKN7J	00	V	100	13	3.0	0.4	0.3
JNKN7J	12	V	100	14	2.8	0.2	0.2
KJJF9X	00	V	100	5	3.8	-1.0	-0.6
KJJF9X	12	V	100	4	2.5	0.4	-1.0
KMPLHP	00	V	100	12	2.3	-0.1	0.0
KMPLHP	12	V	100	14	3.2	0.3	-0.1
LAGY8	12	V	100	2	2.4	1.2	-0.7
LRYQE3	12	V	100	14	1.9	0.4	-0.2
LRYQE3	00	V	100	13	2.6	0.4	0.4
SMLQ	00	V	100	22	2.4	-0.3	-0.3
SMLQ	12	V	100	22	1.8	-0.2	-0.1
UXK5JT	00	V	100	3	1.8	-0.8	-0.2
UXK5JT	12	V	100	4	4.3	3.9	-0.5
WDK38H	12	V	100	19	2.9	-0.2	-0.1
XKQLWQ	12	V	100	6	2.6	-0.9	-0.1
XQFJRG	12	V	100	5	2.4	0.0	1.7
XQFJRG	00	V	100	8	2.2	0.2	0.3
YLV96W	00	V	100	10	3.4	1.1	0.0
YLV96W	12	V	100	13	3.1	0.7	-0.4

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 : MAY 2023
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	500	32	10.7	-9.5
01001	12	Z	500	31	6.2	-2.4
01028	00	Z	500	31	3.4	-1.9
01028	12	Z	500	31	3.4	-2.0
01400	12	Z	500	30	79.0	78.9
01400	00	Z	500	30	75.9	75.2
01415	00	Z	500	30	6.6	0.8
01415	12	Z	500	31	3.7	2.7
02365	12	Z	500	29	3.1	0.5
02365	00	Z	500	29	4.2	2.3
02591	00	Z	500	21	8.4	8.2
02591	12	Z	500	21	9.6	9.3
02836	00	Z	500	31	3.4	1.7
02836	12	Z	500	33	3.1	1.9
02963	00	Z	500	30	3.7	2.4
02963	12	Z	500	31	16.7	5.3
03005	12	Z	500	31	4.3	-2.6
03005	00	Z	500	26	3.4	-1.7
03238	12	Z	500	6	2.2	1.2
03238	00	Z	500	30	3.8	2.9
03808	00	Z	500	28	4.2	3.3
03808	12	Z	500	29	4.0	3.1
03918	00	Z	500	30	7.5	7.0
03918	12	Z	500	1	1.7	1.7
03953	00	Z	500	31	4.1	-2.3
03953	12	Z	500	31	3.6	-1.8
04018	00	Z	500	29	3.8	0.2
04018	12	Z	500	29	3.2	0.1
04220	12	Z	500	31	8.2	-6.8
04220	00	Z	500	30	8.6	-7.4
04270	00	Z	500	31	10.5	-8.5
04270	12	Z	500	31	7.5	-6.4
04320	00	Z	500	31	14.0	2.9
04320	12	Z	500	31	6.2	4.7
04339	12	Z	500	31	5.9	-3.6
04339	00	Z	500	31	8.3	-7.6
04360	00	Z	500	30	8.2	-6.6
04360	12	Z	500	27	6.1	-5.0
06011	00	Z	500	29	5.9	-1.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	500	30	7.1	1.8
06260	12	Z	500	4	3.5	2.4
06260	00	Z	500	31	15.2	2.7
06610	00	Z	500	32	2.2	0.6
06610	12	Z	500	31	2.2	0.7
07110	00	Z	500	33	9.9	-9.1
07110	12	Z	500	32	13.3	-9.4
07510	00	Z	500	30	6.8	5.5
07510	12	Z	500	31	7.9	7.2
07645	00	Z	500	31	11.8	-11.2
07645	12	Z	500	32	11.9	-11.2
07761	12	Z	500	31	5.2	-3.5
07761	00	Z	500	29	8.3	-6.3
08001	00	Z	500	31	3.4	2.1
08001	12	Z	500	31	3.3	1.7
08221	00	Z	500	31	3.6	1.6
08221	12	Z	500	31	3.4	2.0
08302	12	Z	500	32	9.7	-9.0
08302	00	Z	500	32	7.7	-7.2
08508	12	Z	500	31	7.0	5.8
08522	12	Z	500	31	5.4	4.3
10035	12	Z	500	31	13.4	13.1
10035	00	Z	500	31	13.5	13.2
10393	00	Z	500	31	2.5	0.8
10393	12	Z	500	31	2.0	-0.1
10410	00	Z	500	31	2.2	0.4
10410	12	Z	500	32	1.9	-0.5
10739	12	Z	500	31	3.6	2.6
10739	00	Z	500	32	4.6	4.3
11035	00	Z	500	31	4.9	3.6
11035	12	Z	500	31	3.6	0.9
12982	00	Z	500	31	5.6	5.0
12982	12	Z	500	31	3.4	2.8
16245	12	Z	500	29	2.2	0.2
16245	00	Z	500	29	2.9	1.8
16429	00	Z	500	29	3.9	2.9
16429	12	Z	500	31	3.7	1.3
16622	00	Z	500	31	11.0	10.6
16754	00	Z	500	29	6.0	3.9
17607	12	Z	500	23	7.1	4.4
26435	12	Z	500	15	3.2	1.6
2EERV	00	Z	500	5	12.2	-10.7
2EERV	12	Z	500	5	4.8	-4.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	00	Z	500	31	4.8	2.2
60018	12	Z	500	32	3.6	1.5
7JUNA4	00	Z	500	8	8.2	6.4
7JUNA4	12	Z	500	12	13.1	11.0
9ZT9MR	12	Z	500	11	11.9	-10.5
9ZT9MR	00	Z	500	15	34.6	-4.4
ATGU3F	12	Z	500	11	26.6	-24.3
ATGU3F	00	Z	500	6	25.1	-20.6
BPMWB2	00	Z	500	7	5.6	-2.7
BPMWB2	12	Z	500	7	7.1	-4.3
DBLK	12	Z	500	6	15.6	15.2
GQBZLZ	00	Z	500	1	27.5	-27.5
GQBZLZ	12	Z	500	10	47.7	-31.8
JNKN7J	00	Z	500	13	36.4	36.1
JNKN7J	12	Z	500	14	39.3	39.1
KJFF9X	00	Z	500	5	8.5	-4.6
KJFF9X	12	Z	500	4	2.8	2.4
KMPLHP	00	Z	500	12	33.1	24.0
KMPLHP	12	Z	500	14	43.7	35.8
LAGY8	12	Z	500	2	131.7	-131.7
LRYQE3	12	Z	500	14	5.6	-2.8
LRYQE3	00	Z	500	13	5.8	-3.0
SMLQ	00	Z	500	22	6.8	-2.7
SMLQ	12	Z	500	23	4.1	-2.3
UXK5JT	00	Z	500	5	2.6	1.0
UXK5JT	12	Z	500	6	3.8	2.8
WDK38H	12	Z	500	22	8.3	-0.1
XKQLWQ	12	Z	500	6	52.9	35.7
XQFJRG	12	Z	500	5	2.1	0.1
XQFJRG	00	Z	500	8	6.8	-4.4
YLV96W	00	Z	500	10	6.4	-3.7
YLV96W	12	Z	500	15	3.5	-2.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 500 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : MAY 2023
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	500	30	3.0	-0.6	0.2
01001	12	V	500	31	2.5	0.0	-0.3
01028	00	V	500	30	2.5	0.2	-0.7
01028	12	V	500	31	2.1	-0.1	-0.1
01400	12	V	500	30	2.2	-0.3	-0.3
01400	00	V	500	27	1.9	-0.4	0.6
01415	00	V	500	28	2.3	0.2	-0.1
01415	12	V	500	31	2.1	0.1	0.1
02365	12	V	500	29	2.3	0.1	-0.3
02365	00	V	500	28	2.2	0.0	0.3
02591	00	V	500	21	2.0	-0.1	-0.1
02591	12	V	500	21	2.2	0.1	0.0
02836	00	V	500	30	2.5	0.2	-0.1
02836	12	V	500	31	2.8	0.0	0.2
02963	00	V	500	29	2.1	-0.1	0.2
02963	12	V	500	30	1.8	0.3	-0.2
03005	12	V	500	31	2.8	0.1	0.1
03005	00	V	500	25	2.1	-0.4	-0.4
03238	12	V	500	6	2.0	0.6	-0.6
03238	00	V	500	29	2.5	0.2	-0.3
03808	00	V	500	26	2.3	-0.3	-0.4
03808	12	V	500	29	2.4	-0.1	-0.7
03918	00	V	500	29	2.3	-0.1	-0.3
03918	12	V	500	1	2.5	-2.5	0.1
03953	00	V	500	30	2.5	0.4	0.0
03953	12	V	500	31	2.6	0.2	0.1
04018	00	V	500	28	2.1	0.1	0.2
04018	12	V	500	29	2.2	0.3	0.1
04220	12	V	500	31	2.3	0.3	-0.7
04220	00	V	500	29	1.9	0.2	-0.1
04270	00	V	500	30	2.5	-0.3	-0.6
04270	12	V	500	31	3.1	0.2	1.1
04320	00	V	500	30	2.3	-0.1	-0.1
04320	12	V	500	31	2.1	-0.2	0.2
04339	12	V	500	31	2.1	0.7	0.2
04339	00	V	500	30	2.3	0.2	0.0
04360	00	V	500	29	2.3	0.4	-0.1
04360	12	V	500	27	2.8	-0.3	0.3
06011	00	V	500	28	2.6	-0.7	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	500	30	2.8	0.3	-0.5
06260	12	V	500	4	1.6	0.4	-0.5
06260	00	V	500	30	2.2	-0.2	0.5
06610	00	V	500	30	2.3	-0.1	0.1
06610	12	V	500	31	2.0	0.1	-0.5
07110	00	V	500	29	2.3	0.4	-0.1
07110	12	V	500	31	2.5	0.6	-0.1
07510	00	V	500	28	2.4	-0.6	0.1
07510	12	V	500	31	2.0	-0.3	-0.1
07645	00	V	500	30	2.4	0.1	-0.1
07645	12	V	500	31	2.3	0.2	-0.1
07761	12	V	500	31	3.2	-0.8	0.1
07761	00	V	500	28	2.8	0.4	0.6
08001	00	V	500	30	2.5	-0.4	-0.7
08001	12	V	500	31	2.3	-0.2	-0.3
08221	00	V	500	30	3.0	0.4	0.2
08221	12	V	500	31	2.5	0.4	-0.1
08302	12	V	500	31	2.7	-0.3	-0.2
08302	00	V	500	30	2.7	0.1	-0.1
08508	12	V	500	31	2.4	0.5	-0.3
08522	12	V	500	31	2.0	0.2	0.1
10035	12	V	500	31	1.8	0.2	-0.6
10035	00	V	500	30	2.4	0.0	-0.1
10393	00	V	500	30	2.2	0.1	0.2
10393	12	V	500	31	1.7	0.2	0.1
10410	00	V	500	30	2.1	-0.2	0.2
10410	12	V	500	31	1.8	0.3	-0.1
10739	12	V	500	31	2.3	0.1	-0.3
10739	00	V	500	30	2.1	0.4	0.3
11035	00	V	500	30	2.5	0.1	0.0
11035	12	V	500	31	2.8	-0.4	0.1
12982	00	V	500	30	2.3	0.2	-0.4
12982	12	V	500	31	2.5	0.2	-0.4
16245	12	V	500	29	4.1	0.2	0.2
16245	00	V	500	27	3.8	0.7	-0.6
16429	00	V	500	28	3.3	-0.1	0.2
16429	12	V	500	31	2.9	0.1	-0.2
16622	00	V	500	29	3.0	-0.4	0.5
16754	00	V	500	28	2.5	0.6	-0.2
17607	12	V	500	21	3.3	0.8	0.1
26435	12	V	500	15	2.4	-0.5	-0.3
2EERV	00	V	500	5	1.6	0.5	0.3
2EERV	12	V	500	5	1.6	-0.3	0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	00	V	500	30	2.1	-0.3	0.0
60018	12	V	500	31	2.1	0.3	0.4
7JUNA4	00	V	500	8	2.6	0.7	-0.3
7JUNA4	12	V	500	12	2.4	0.1	0.9
9ZT9MR	12	V	500	11	8.0	-2.6	0.2
9ZT9MR	00	V	500	13	1.9	0.4	-0.2
ATGU3F	12	V	500	11	2.1	-0.2	0.3
ATGU3F	00	V	500	6	3.0	1.2	0.5
BPMWB2	00	V	500	7	1.0	0.3	0.0
BPMWB2	12	V	500	7	2.2	0.9	0.0
DBLK	12	V	500	6	2.7	0.8	1.0
GQBZLZ	00	V	500	1	1.6	1.3	0.9
GQBZLZ	12	V	500	10	1.9	0.1	-0.1
JNKN7J	00	V	500	13	1.7	0.6	0.2
JNKN7J	12	V	500	14	2.9	0.8	1.2
KJJF9X	00	V	500	5	3.8	1.4	0.5
KJJF9X	12	V	500	4	3.0	0.8	0.4
KMPLHP	00	V	500	12	3.2	-0.9	-0.6
KMPLHP	12	V	500	14	2.3	0.7	0.3
LAGY8	12	V	500	2	1.7	0.6	0.5
LRYQE3	12	V	500	14	3.0	0.6	0.3
LRYQE3	00	V	500	13	3.3	0.7	-1.0
SMLQ	00	V	500	22	1.7	0.3	-0.4
SMLQ	12	V	500	23	1.4	0.1	0.1
UXK5JT	00	V	500	5	1.8	1.0	0.2
UXK5JT	12	V	500	6	1.9	-0.8	0.1
WDK38H	12	V	500	22	1.9	0.1	-0.1
XKQLWQ	12	V	500	6	3.5	1.3	-0.5
XQFJRG	12	V	500	5	2.0	0.2	0.6
XQFJRG	00	V	500	8	1.9	-0.4	-1.1
YLV96W	00	V	500	10	2.0	-0.4	1.0
YLV96W	12	V	500	15	2.3	-0.5	-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 : MAY 2023
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	850	32	10.2	-9.4
01001	12	Z	850	31	5.8	-3.9
01028	00	Z	850	31	2.1	-0.4
01028	12	Z	850	31	4.1	-2.5
01400	12	Z	850	30	79.2	79.1
01400	00	Z	850	30	75.0	74.4
01415	00	Z	850	30	5.0	1.5
01415	12	Z	850	31	3.7	2.9
02365	12	Z	850	29	3.0	2.1
02365	00	Z	850	29	4.1	3.6
02591	00	Z	850	21	6.8	6.7
02591	12	Z	850	21	8.7	8.6
02836	00	Z	850	31	2.9	2.1
02836	12	Z	850	31	3.0	2.4
02963	00	Z	850	30	3.1	2.7
02963	12	Z	850	30	4.6	4.2
03005	12	Z	850	31	2.7	-1.2
03005	00	Z	850	26	3.6	-2.0
03238	12	Z	850	6	4.2	4.1
03238	00	Z	850	30	3.1	2.7
03808	00	Z	850	28	2.3	1.9
03808	12	Z	850	29	2.4	1.6
03918	00	Z	850	30	6.8	6.7
03918	12	Z	850	1	5.9	5.9
03953	00	Z	850	32	2.3	-1.5
03953	12	Z	850	31	3.2	-1.5
04018	00	Z	850	29	2.3	-0.2
04018	12	Z	850	29	2.4	-0.9
04220	12	Z	850	31	5.9	-4.3
04220	00	Z	850	30	5.9	-5.4
04270	00	Z	850	31	8.0	-6.7
04270	12	Z	850	31	6.4	-5.5
04320	00	Z	850	31	13.1	4.2
04320	12	Z	850	31	3.1	1.8
04339	12	Z	850	31	7.6	-6.1
04339	00	Z	850	31	8.9	-8.2
04360	00	Z	850	30	7.0	-6.5
04360	12	Z	850	27	7.8	-7.2
06011	00	Z	850	30	4.3	-2.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	12	Z	850	31	3.6	-1.4
06260	12	Z	850	4	2.2	1.6
06260	00	Z	850	31	14.8	2.3
06610	00	Z	850	32	2.3	1.3
06610	12	Z	850	31	1.5	0.6
07110	00	Z	850	33	6.0	-5.6
07110	12	Z	850	32	4.9	-4.6
07510	00	Z	850	30	4.1	2.8
07510	12	Z	850	31	3.5	2.7
07645	00	Z	850	31	8.0	-7.5
07645	12	Z	850	31	8.8	-8.4
07761	12	Z	850	31	2.3	-0.3
07761	00	Z	850	29	2.6	-1.0
08001	00	Z	850	31	2.7	0.9
08001	12	Z	850	32	2.9	1.8
08221	00	Z	850	31	1.9	0.3
08221	12	Z	850	31	2.0	1.1
08302	12	Z	850	32	9.2	-9.1
08302	00	Z	850	32	8.1	-7.8
08508	12	Z	850	31	5.7	4.8
08522	12	Z	850	31	4.2	3.6
10035	12	Z	850	31	13.2	13.0
10035	00	Z	850	31	13.0	12.8
10393	00	Z	850	31	2.2	-0.1
10393	12	Z	850	31	2.0	1.0
10410	00	Z	850	31	2.0	-0.3
10410	12	Z	850	32	1.2	-0.1
10739	12	Z	850	31	4.4	4.0
10739	00	Z	850	32	4.4	4.1
11035	00	Z	850	31	3.6	3.0
11035	12	Z	850	31	3.2	2.2
12982	00	Z	850	31	4.3	3.8
12982	12	Z	850	31	4.3	3.7
16245	12	Z	850	29	2.9	2.0
16245	00	Z	850	29	3.8	3.3
16429	00	Z	850	29	3.0	2.5
16429	12	Z	850	31	3.5	1.9
16622	00	Z	850	31	11.3	10.9
16754	00	Z	850	29	3.3	2.2
17607	12	Z	850	23	4.1	2.7
26435	12	Z	850	15	2.3	0.4
2EERVT	00	Z	850	5	11.6	-11.1
2EERVT	12	Z	850	5	8.8	-8.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	00	Z	850	31	1.7	-0.6
60018	12	Z	850	32	2.5	-1.1
7JUNA4	00	Z	850	9	9.9	8.9
7JUNA4	12	Z	850	12	8.5	7.2
9ZT9MR	12	Z	850	12	11.2	-10.8
9ZT9MR	00	Z	850	15	12.1	-11.6
ATGU3F	12	Z	850	11	27.6	-26.4
ATGU3F	00	Z	850	7	25.7	-24.1
BPMWB2	00	Z	850	7	4.5	-3.9
BPMWB2	12	Z	850	7	2.7	-1.8
DBLK	12	Z	850	6	12.7	12.3
GQBZLZ	00	Z	850	1	23.4	-23.4
GQBZLZ	12	Z	850	10	23.2	-22.0
JNKN7J	00	Z	850	13	42.1	41.8
JNKN7J	12	Z	850	16	41.1	40.8
KJJF9X	00	Z	850	5	3.9	0.0
KJJF9X	12	Z	850	4	1.9	1.1
KMPLHP	00	Z	850	12	37.8	29.6
KMPLHP	12	Z	850	14	41.3	34.2
LAGY8	12	Z	850	2	0.0	0.0
LRYQE3	12	Z	850	14	4.1	-2.1
LRYQE3	00	Z	850	13	5.6	-2.8
SMLQ	00	Z	850	22	5.9	-1.9
SMLQ	12	Z	850	23	4.1	-2.3
UXK5JT	00	Z	850	5	2.0	0.9
UXK5JT	12	Z	850	6	2.4	1.9
WDK38H	12	Z	850	23	7.5	0.8
XKQLWQ	12	Z	850	6	29.8	20.1
XQFJRG	12	Z	850	5	1.4	0.0
XQFJRG	00	Z	850	8	5.5	-4.3
YLV96W	00	Z	850	10	7.9	-5.1
YLV96W	12	Z	850	15	4.5	-2.1

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 : MAY 2023
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	850	30	3.1	0.3	0.0
01001	12	V	850	31	3.2	0.4	0.1
01028	00	V	850	30	2.4	0.0	-0.3
01028	12	V	850	31	2.9	0.3	0.0
01400	12	V	850	30	2.3	0.4	0.1
01400	00	V	850	27	2.3	0.7	-0.5
01415	00	V	850	28	2.2	-0.1	0.2
01415	12	V	850	31	2.4	0.8	-0.6
02365	12	V	850	29	2.6	-0.4	-0.8
02365	00	V	850	28	2.8	0.0	0.2
02591	00	V	850	21	2.5	0.6	0.5
02591	12	V	850	21	2.4	-0.1	-0.5
02836	00	V	850	30	2.5	-0.3	0.0
02836	12	V	850	31	2.3	-0.3	-0.4
02963	00	V	850	29	2.2	-0.6	-0.2
02963	12	V	850	30	2.4	-0.5	0.6
03005	12	V	850	31	2.9	0.5	-0.5
03005	00	V	850	25	2.5	0.2	0.0
03238	12	V	850	6	1.6	0.2	0.3
03238	00	V	850	29	2.3	0.6	0.1
03808	00	V	850	26	2.1	0.1	-0.3
03808	12	V	850	29	2.6	-0.4	-0.3
03918	00	V	850	29	2.5	0.1	-0.3
03918	12	V	850	1	1.9	1.1	-1.5
03953	00	V	850	30	2.2	0.7	0.3
03953	12	V	850	31	2.1	-0.7	0.0
04018	00	V	850	28	2.4	-0.3	0.3
04018	12	V	850	29	2.7	0.2	0.1
04220	12	V	850	31	2.8	0.2	-0.6
04220	00	V	850	29	2.3	0.4	0.8
04270	00	V	850	30	3.2	-0.1	0.2
04270	12	V	850	31	3.6	0.0	-0.2
04320	00	V	850	30	3.1	0.1	-0.8
04320	12	V	850	31	2.9	-0.5	0.3
04339	12	V	850	31	3.3	1.3	0.4
04339	00	V	850	30	3.0	0.0	-0.2
04360	00	V	850	29	3.7	0.3	0.2
04360	12	V	850	27	4.5	0.4	0.6
06011	00	V	850	29	2.8	-0.1	-0.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	12	V	850	31	3.0	0.0	-0.7
06260	12	V	850	4	2.6	-0.2	-0.7
06260	00	V	850	30	2.1	-0.1	-0.4
06610	00	V	850	30	2.4	0.3	-0.5
06610	12	V	850	31	2.5	0.8	-0.2
07110	00	V	850	29	2.1	-0.3	0.0
07110	12	V	850	31	2.4	-0.1	-0.7
07510	00	V	850	28	2.3	-0.1	0.5
07510	12	V	850	31	2.5	0.5	-0.2
07645	00	V	850	30	3.0	-0.4	0.3
07645	12	V	850	30	2.8	-0.2	-1.0
07761	12	V	850	31	3.1	0.7	0.2
07761	00	V	850	28	2.9	-0.1	1.1
08001	00	V	850	30	2.5	0.0	-0.2
08001	12	V	850	31	3.3	-0.6	0.2
08221	00	V	850	30	3.0	0.4	0.9
08221	12	V	850	31	2.2	-0.1	0.2
08302	12	V	850	31	3.0	0.4	0.0
08302	00	V	850	30	3.1	-0.3	-0.4
08508	12	V	850	31	3.9	0.0	-0.7
08522	12	V	850	31	2.9	-0.7	-0.5
10035	12	V	850	31	2.3	0.0	-0.7
10035	00	V	850	30	2.3	0.0	0.0
10393	00	V	850	30	2.3	0.6	0.1
10393	12	V	850	31	2.3	0.0	0.0
10410	00	V	850	30	2.3	0.5	-0.3
10410	12	V	850	31	2.0	-0.1	-0.2
10739	12	V	850	31	1.9	-0.2	0.0
10739	00	V	850	30	2.6	0.4	-0.6
11035	00	V	850	30	2.3	0.3	0.2
11035	12	V	850	31	2.3	0.3	0.5
12982	00	V	850	30	2.8	0.0	0.3
12982	12	V	850	31	2.8	0.1	-0.2
16245	12	V	850	29	3.2	-1.2	-0.5
16245	00	V	850	27	3.3	-0.3	0.3
16429	00	V	850	28	3.3	0.0	-0.1
16429	12	V	850	31	3.3	0.0	-0.2
16622	00	V	850	29	2.8	0.4	0.3
16754	00	V	850	28	2.8	-0.4	-0.8
17607	12	V	850	22	3.5	0.2	-0.7
26435	12	V	850	15	2.8	-0.1	0.4
2EERV	00	V	850	5	1.7	0.1	-0.6
2EERV	12	V	850	5	1.6	0.7	-0.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	00	V	850	30	3.4	-0.8	-0.3
60018	12	V	850	31	2.8	-0.2	0.1
7JUNA4	00	V	850	9	1.8	0.0	-0.7
7JUNA4	12	V	850	12	2.8	-0.8	-0.8
9ZT9MR	12	V	850	12	8.3	3.2	-0.5
9ZT9MR	00	V	850	14	8.5	1.3	-2.2
ATGU3F	12	V	850	11	2.7	-0.7	1.0
ATGU3F	00	V	850	7	1.3	0.0	0.1
BPMWB2	00	V	850	7	1.0	0.2	0.1
BPMWB2	12	V	850	7	1.7	-0.1	-0.4
DBLK	12	V	850	6	2.9	-0.3	0.0
GQBZLZ	00	V	850	1	2.8	1.6	-2.3
GQBZLZ	12	V	850	10	5.7	1.9	0.1
JNKN7J	00	V	850	13	2.6	-0.4	-0.4
JNKN7J	12	V	850	16	3.2	-0.8	0.2
KJFF9X	00	V	850	5	3.3	0.1	-0.1
KJFF9X	12	V	850	4	3.9	1.3	0.6
KMPLHP	00	V	850	12	2.1	-0.5	0.3
KMPLHP	12	V	850	14	2.7	-0.7	0.4
LAGY8	12	V	850	2	2.8	1.3	-0.4
LRYQE3	12	V	850	14	2.9	-0.1	0.4
LRYQE3	00	V	850	13	2.3	0.2	0.0
SMLQ	00	V	850	22	2.5	-0.3	0.0
SMLQ	12	V	850	23	2.4	0.2	-0.5
UXK5JT	00	V	850	5	1.3	0.6	-0.4
UXK5JT	12	V	850	6	2.3	-0.8	0.4
WDK38H	12	V	850	23	2.4	-0.3	-0.6
XKQLWQ	12	V	850	6	5.8	-1.2	0.1
XQFJRG	12	V	850	5	1.9	0.0	0.1
XQFJRG	00	V	850	8	3.2	-0.2	-1.6
YLV96W	00	V	850	10	1.7	0.0	0.4
YLV96W	12	V	850	15	2.7	0.6	1.0

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 : MAY 2023
 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	1484	0	0.2	-0.2	0.3
1300001	99	P	SUR	11	-23	614	0	0.4	0.3	0.5
1300008	99	P	SUR	15	-38	614	0	0.3	0.2	0.3
1300130	99	P	SUR	28	-16	741	0	0.3	0.2	0.4
1300131	99	P	SUR	28	-17	741	0	0.4	0.1	0.4
1301603	99	P	SUR	32	-43	744	0	1.1	-0.2	1.1
1301608	99	P	SUR	28	-49	744	0	0.3	0.1	0.3
1301619	99	P	SUR	39	-27	744	0	0.3	-0.1	0.3
1301629	99	P	SUR	16	-34	744	0	0.3	0.2	0.3
1301699	99	P	SUR	27	-39	2	0	0.0	-0.5	0.5
1301700	99	P	SUR	24	-61	728	0	0.4	-0.1	0.4
1301706	99	P	SUR	25	-59	731	0	0.4	0.0	0.4
1301712	99	P	SUR	21	-56	716	0	0.3	0.1	0.3
1301713	99	P	SUR	17	-58	711	0	0.3	0.1	0.3
1301714	99	P	SUR	21	-53	708	0	0.3	0.2	0.3
1301718	99	P	SUR	27	-43	723	0	0.2	0.2	0.3
1301719	99	P	SUR	21	-51	722	0	0.2	0.6	0.7
1301720	99	P	SUR	24	-31	664	0	0.3	0.3	0.5
1301723	99	P	SUR	32	-13	723	0	0.3	0.8	0.8
1301725	99	P	SUR	22	-25	714	0	0.3	0.2	0.3
1301726	99	P	SUR	22	-30	719	0	0.2	0.2	0.3
1301728	99	P	SUR	12	-35	711	0	0.3	0.3	0.5
1301731	99	P	SUR	22	-27	659	0	0.3	0.3	0.4
1301735	99	P	SUR	27	-40	723	0	0.2	-0.5	0.6
1301736	99	P	SUR	26	-45	723	0	0.3	0.3	0.4
1301737	99	P	SUR	27	-56	717	0	0.3	0.0	0.3
1301763	99	P	SUR	12	-37	12	6	5.4	5.7	7.8
1301767	99	P	SUR	34	-14	553	0	0.2	-0.3	0.4
1301769	99	P	SUR	35	-12	567	0	0.2	1.2	1.3
1301770	99	P	SUR	35	-12	568	0	0.2	0.2	0.3
1301771	99	P	SUR	35	-12	567	0	0.2	0.1	0.2
1301772	99	P	SUR	34	-14	542	0	0.3	0.0	0.3
1301792	99	P	SUR	17	-31	699	0	0.3	-0.4	0.5
1301793	99	P	SUR	50	-20	681	0	0.3	0.0	0.3
1301794	99	P	SUR	46	-20	702	0	0.3	0.3	0.4
1301796	99	P	SUR	14	-28	705	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
1301797	99	P	SUR	13	-30	691	0	0.3	0.3	0.4
1301798	99	P	SUR	40	-20	705	0	0.3	0.4	0.5
1301799	99	P	SUR	29	-24	711	0	0.3	0.2	0.3
1801735	99	P	SUR	49	-9	523	0	0.2	0.2	0.3
3801550	99	P	SUR	86	-39	743	262	0.5	-0.3	0.6
3801561	99	P	SUR	41	-69	740	0	0.4	0.1	0.4
3801586	99	P	SUR	75	12	712	0	0.4	-0.4	0.6
3801588	99	P	SUR	71	10	739	0	0.3	0.3	0.4
3801596	99	P	SUR	39	-47	686	0	0.4	-0.1	0.4
4100040	99	P	SUR	15	-53	4460	0	0.3	-0.2	0.3
4100043	99	P	SUR	21	-65	4457	0	0.3	-0.3	0.5
4100044	99	P	SUR	22	-59	4459	0	0.3	-0.5	0.6
4100046	99	P	SUR	24	-68	3867	0	0.4	-0.1	0.4
4100048	99	P	SUR	32	-70	4178	0	0.4	0.0	0.4
4100049	99	P	SUR	27	-63	4372	0	0.8	-0.8	1.2
4100052	99	P	SUR	18	-65	4436	0	0.3	-1.0	1.0
4100053	99	P	SUR	18	-66	4432	0	0.4	-0.7	0.8
4100056	99	P	SUR	18	-65	4461	0	0.3	-1.0	1.0
4100139	99	P	SUR	20	-38	738	0	0.2	0.2	0.3
4100300	99	P	SUR	16	-57	700	0	0.3	0.2	0.3
4101613	99	P	SUR	26	-54	652	0	0.3	0.4	0.5
4101616	99	P	SUR	30	-37	707	0	0.2	0.0	0.2
4101618	99	P	SUR	27	-49	609	0	0.3	0.2	0.3
4101663	99	P	SUR	28	-32	672	0	0.2	0.0	0.2
4101665	99	P	SUR	71	4	714	0	0.4	0.0	0.4
4101696	99	P	SUR	29	-34	744	0	0.2	0.0	0.2
4101717	99	P	SUR	16	-62	707	0	0.4	-1.2	1.3
4101719	99	P	SUR	31	-15	743	0	1.4	0.0	1.4
4101723	99	P	SUR	25	-68	743	0	0.4	0.1	0.4
4101724	99	P	SUR	29	-69	743	0	0.4	-0.3	0.5
4101725	99	P	SUR	18	-63	659	0	0.3	-0.1	0.3
4101727	99	P	SUR	30	-22	742	0	0.3	0.1	0.3
4101728	99	P	SUR	32	-43	744	0	0.3	0.3	0.4
4101729	99	P	SUR	30	-47	744	0	0.3	0.0	0.3
4101731	99	P	SUR	14	-60	719	0	0.3	0.2	0.4
4101743	99	P	SUR	42	-24	743	0	0.3	0.0	0.3
4101753	99	P	SUR	36	-45	743	0	0.3	0.5	0.6
4101755	99	P	SUR	31	-55	743	0	0.3	0.2	0.4
4101756	99	P	SUR	12	-62	680	0	0.4	-0.7	0.8
4101842	99	P	SUR	69	16	732	0	0.4	-0.6	0.7
4101843	99	P	SUR	70	10	730	0	0.3	0.0	0.3
4101844	99	P	SUR	18	-69	43	0	3.1	1.6	3.5
4101845	99	P	SUR	70	2	730	0	0.3	0.0	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101848	99	P	SUR	30	-69	729	0	0.4	0.1	0.4
4101851	99	P	SUR	25	-55	718	0	0.3	-0.2	0.4
4102547	99	P	SUR	24	-64	711	0	0.4	0.2	0.4
4102559	99	P	SUR	41	-61	678	0	0.4	-0.2	0.4
4102636	99	P	SUR	28	-64	690	0	0.4	0.2	0.5
41040	99	P	SUR	15	-53	744	0	0.3	-0.1	0.3
41043	99	P	SUR	21	-65	744	0	0.3	-0.3	0.5
41044	99	P	SUR	22	-59	744	0	0.3	-0.5	0.6
41046	99	P	SUR	24	-68	644	0	0.4	0.0	0.4
41048	99	P	SUR	32	-70	713	0	0.4	0.0	0.4
41049	99	P	SUR	28	-63	731	0	0.9	-0.8	1.2
41052	99	P	SUR	18	-65	743	0	0.3	-1.0	1.0
41053	99	P	SUR	19	-66	744	0	0.4	-0.7	0.8
41056	99	P	SUR	18	-66	741	0	0.3	-1.0	1.0
4200059	99	P	SUR	15	-67	4462	0	0.4	-0.3	0.5
4200060	99	P	SUR	16	-63	4459	0	0.3	-0.3	0.5
4200085	99	P	SUR	18	-67	3534	0	0.4	-0.8	0.8
4201703	99	P	SUR	44	-13	1	0	0.0	-0.5	0.5
42059	99	P	SUR	15	-68	744	0	0.4	-0.3	0.5
42060	99	P	SUR	16	-63	743	0	0.3	-0.3	0.5
42085	99	P	SUR	18	-67	717	0	0.3	-0.8	0.8
4400005	99	P	SUR	43	-69	811	0	0.4	-0.3	0.5
4400008	99	P	SUR	40	-69	4382	0	0.5	-1.0	1.1
4400011	99	P	SUR	41	-67	567	0	0.4	-0.5	0.6
4400032	99	P	SUR	44	-69	712	0	0.4	-1.0	1.1
4400033	99	P	SUR	44	-69	718	0	0.4	-1.0	1.1
4400150	99	P	SUR	43	-64	722	0	0.3	-0.2	0.4
4400488	99	P	SUR	45	-61	661	0	0.4	0.0	0.4
4400489	99	P	SUR	45	-61	598	0	0.4	0.0	0.4
44005	99	P	SUR	43	-69	734	0	0.4	-0.4	0.6
4400777	99	P	SUR	33	-36	744	0	0.7	0.1	0.7
44008	99	P	SUR	41	-69	731	0	0.4	-1.0	1.1
44011	99	P	SUR	41	-67	95	0	0.3	-0.5	0.6
4401581	99	P	SUR	31	-68	744	0	0.4	-0.2	0.4
4401582	99	P	SUR	28	-30	744	0	0.3	0.4	0.5
4401584	99	P	SUR	30	-42	744	0	0.3	0.0	0.3
4401585	99	P	SUR	22	-38	744	0	0.2	0.4	0.5
4401587	99	P	SUR	75	7	740	0	0.4	0.3	0.4
4401588	99	P	SUR	63	-12	744	0	0.3	0.0	0.3
4401863	99	P	SUR	17	-62	475	0	0.3	-1.6	1.7
4401864	99	P	SUR	23	-64	728	0	0.3	-0.2	0.4
4401867	99	P	SUR	31	-50	744	0	0.3	0.0	0.3
4401872	99	P	SUR	29	-67	737	0	0.4	-0.1	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4402603	99	P	SUR	67	8	727	0	0.3	0.1	0.3
4402606	99	P	SUR	62	-7	723	0	0.3	0.1	0.3
4402607	99	P	SUR	46	-14	614	0	0.3	0.0	0.3
4402611	99	P	SUR	49	-11	587	0	0.5	0.6	0.8
4402613	99	P	SUR	39	-16	712	0	1.1	1.5	1.8
4402618	99	P	SUR	26	-64	730	0	0.4	0.2	0.4
4402656	99	P	SUR	32	-32	730	0	0.3	0.3	0.5
4402660	99	P	SUR	28	-34	698	0	0.2	0.4	0.5
4402663	99	P	SUR	45	-7	716	0	0.3	0.0	0.3
4402670	99	P	SUR	22	-45	729	0	0.2	-0.1	0.2
4402672	99	P	SUR	21	-52	732	0	0.2	0.0	0.2
4402674	99	P	SUR	17	-64	728	0	0.3	0.2	0.4
4402675	99	P	SUR	24	-35	724	0	0.2	0.0	0.2
4402676	99	P	SUR	31	-36	727	0	0.3	0.2	0.3
4402721	99	P	SUR	47	-12	724	0	0.3	0.2	0.3
4402726	99	P	SUR	54	-35	717	0	0.3	0.0	0.3
4402727	99	P	SUR	62	0	714	0	0.3	-0.2	0.3
4402731	99	P	SUR	48	-53	43	1	0.2	0.0	0.2
4402732	99	P	SUR	45	-35	703	0	0.3	0.0	0.3
4402733	99	P	SUR	46	-51	709	0	0.5	0.2	0.5
4402735	99	P	SUR	43	-43	717	0	0.4	-0.1	0.5
4402736	99	P	SUR	45	-26	738	0	0.3	0.1	0.3
4402737	99	P	SUR	47	-40	707	0	0.5	-0.2	0.5
4402742	99	P	SUR	50	-29	703	0	0.3	-0.1	0.3
4402743	99	P	SUR	41	-53	720	0	0.5	-0.5	0.7
4402744	99	P	SUR	43	-60	684	0	0.3	0.1	0.3
4402746	99	P	SUR	47	-24	736	0	0.5	-0.1	0.5
4402747	99	P	SUR	46	-46	715	0	0.5	0.0	0.5
4402749	99	P	SUR	53	-41	720	0	0.3	-0.2	0.3
4402750	99	P	SUR	55	-41	721	0	0.3	-0.5	0.7
4402879	99	P	SUR	40	-59	680	0	0.5	0.2	0.6
4402880	99	P	SUR	41	-41	647	0	0.5	0.4	0.6
4402881	99	P	SUR	46	-32	530	0	0.3	0.2	0.4
4402882	99	P	SUR	32	-66	711	0	0.4	0.3	0.5
4402883	99	P	SUR	47	-37	392	0	0.5	0.2	0.5
44032	99	P	SUR	44	-69	712	0	0.5	-1.0	1.1
44033	99	P	SUR	44	-69	719	0	0.5	-1.0	1.1
4403557	99	P	SUR	60	2	645	0	0.3	0.7	0.8
4403558	99	P	SUR	48	-16	744	0	0.3	0.0	0.3
4403568	99	P	SUR	41	-55	743	0	0.5	0.2	0.5
4403569	99	P	SUR	43	-31	743	0	0.5	0.2	0.5
44078	99	P	SUR	60	-40	57	0	0.7	-0.8	1.0
44150	99	P	SUR	43	-64	722	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
44258	99	P	SUR	45	-63	741	0	0.4	-0.1	0.4
44488	99	P	SUR	45	-61	714	0	0.4	0.0	0.4
44489	99	P	SUR	46	-61	661	0	0.4	0.0	0.4
4601782	99	P	SUR	38	-20	724	0	0.2	0.4	0.5
4601812	99	P	SUR	82	-10	693	0	0.4	0.3	0.5
4701518	99	P	SUR	75	-19	78	0	0.4	0.1	0.4
4701738	99	P	SUR	70	-67	725	725	0.0	0.0	0.0
4801663	99	P	SUR	84	-61	718	0	0.4	-0.2	0.4
4801723	99	P	SUR	77	22	729	0	0.4	0.1	0.5
4801760	99	P	SUR	84	-51	459	8	0.4	-0.6	0.8
4801761	99	P	SUR	63	-30	744	0	1.1	0.3	1.2
4801763	99	P	SUR	84	-32	733	0	0.5	-0.3	0.6
4801771	99	P	SUR	69	-62	744	0	0.4	0.0	0.4
4802506	99	P	SUR	55	-44	744	0	0.5	-0.1	0.5
4802602	99	P	SUR	67	-31	707	0	0.5	0.2	0.5
4802663	99	P	SUR	72	-68	744	0	0.3	0.1	0.3
4803978	99	P	SUR	85	-36	741	0	0.5	-0.2	0.5
5801965	99	P	SUR	45	-66	743	0	0.4	0.3	0.6
5802034	99	P	SUR	50	-12	488	0	0.2	-0.1	0.2
6100001	99	P	SUR	43	8	744	0	0.4	-0.1	0.4
6100002	99	P	SUR	42	5	744	0	0.4	-0.1	0.4
6100196	99	P	SUR	42	4	741	0	0.4	0.2	0.4
6100197	99	P	SUR	40	4	426	0	0.3	0.2	0.4
6100198	99	P	SUR	37	-2	741	0	0.4	0.4	0.6
6100280	99	P	SUR	41	1	741	0	0.4	0.7	0.8
6100281	99	P	SUR	40	0	741	0	0.4	0.4	0.6
6100417	99	P	SUR	38	0	741	0	0.4	0.5	0.7
6100430	99	P	SUR	40	2	742	0	0.3	0.4	0.5
6101007	99	P	SUR	36	25	82	0	0.6	-0.3	0.6
6101009	99	P	SUR	35	25	118	0	0.6	-0.2	0.6
6102732	99	P	SUR	33	19	698	0	0.5	0.0	0.5
6102809	99	P	SUR	35	14	683	0	0.6	-0.6	0.8
6102810	99	P	SUR	38	2	716	0	0.5	0.1	0.5
6102812	99	P	SUR	40	2	697	0	0.4	-0.1	0.4
6200001	99	P	SUR	45	-5	741	0	0.3	0.4	0.5
6200024	99	P	SUR	44	-3	740	0	0.4	0.4	0.5
6200025	99	P	SUR	44	-6	741	0	0.4	0.5	0.6
6200029	99	P	SUR	49	-12	738	0	0.2	-0.2	0.3
6200081	99	P	SUR	51	-13	740	0	0.3	0.0	0.3
6200082	99	P	SUR	44	-8	741	0	0.3	0.5	0.6
6200083	99	P	SUR	43	-9	739	0	0.5	0.1	0.5
6200084	99	P	SUR	42	-9	741	0	0.3	0.5	0.6
6200085	99	P	SUR	36	-7	741	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
6200086	99	P	SUR	55	6	366	0	0.3	-0.2	0.3
6200087	99	P	SUR	55	7	298	0	0.4	-0.2	0.4
6200091	99	P	SUR	53	-5	743	0	0.3	0.0	0.3
6200092	99	P	SUR	51	-11	744	0	0.2	-0.1	0.3
6200093	99	P	SUR	55	-10	743	0	0.3	-0.1	0.3
6200094	99	P	SUR	52	-7	744	0	0.3	0.0	0.3
6200095	99	P	SUR	53	-16	744	0	0.3	-0.2	0.3
6200103	99	P	SUR	50	-3	739	0	0.3	-0.3	0.4
6200163	99	P	SUR	47	-8	737	0	0.3	-0.1	0.3
6200191	99	P	SUR	41	-10	622	0	0.4	-0.5	0.6
6200192	99	P	SUR	40	-10	464	0	0.6	0.4	0.7
6200199	99	P	SUR	40	-9	579	0	0.4	0.0	0.4
6200200	99	P	SUR	36	-8	96	0	0.3	-0.4	0.4
6200442	99	P	SUR	49	-16	272	0	0.3	-0.3	0.5
6201065	99	P	SUR	54	7	639	0	0.3	1.0	1.1
6201081	99	P	SUR	38	-9	561	0	0.3	-0.3	0.4
6202597	99	P	SUR	43	-42	742	0	0.5	0.0	0.5
6202598	99	P	SUR	43	-46	744	0	0.4	0.1	0.4
6202623	99	P	SUR	73	38	744	0	0.3	-0.2	0.4
6202627	99	P	SUR	67	13	670	0	0.4	-0.3	0.5
6202637	99	P	SUR	66	-11	744	0	0.3	0.2	0.4
6202639	99	P	SUR	30	-37	707	0	0.2	0.0	0.2
6202640	99	P	SUR	35	-27	653	0	0.2	0.0	0.2
6202644	99	P	SUR	41	-37	495	0	0.4	-0.1	0.4
62029	99	P	SUR	49	-12	1488	0	0.2	-0.2	0.3
6203516	99	P	SUR	45	-21	643	0	0.4	0.0	0.4
6203607	99	P	SUR	35	-29	743	0	0.3	0.4	0.5
6203612	99	P	SUR	30	-58	743	0	0.3	0.2	0.4
6203613	99	P	SUR	46	-29	744	0	0.5	0.3	0.6
6203616	99	P	SUR	26	-66	744	0	0.4	0.1	0.4
6203621	99	P	SUR	27	-27	742	0	0.2	0.1	0.3
6203624	99	P	SUR	35	-57	743	0	0.4	-0.2	0.5
6203625	99	P	SUR	31	-30	744	0	0.3	-0.1	0.3
6203632	99	P	SUR	25	-46	744	0	0.2	0.3	0.3
6203633	99	P	SUR	68	15	744	0	0.6	0.1	0.6
6203634	99	P	SUR	29	-34	742	0	0.3	0.4	0.4
6203639	99	P	SUR	34	-27	744	0	0.3	0.1	0.3
6203640	99	P	SUR	22	-61	742	0	0.4	-0.2	0.4
6203651	99	P	SUR	45	-28	743	0	0.3	0.3	0.5
6203737	99	P	SUR	22	-52	730	0	0.3	0.4	0.5
6203741	99	P	SUR	63	-13	717	0	0.3	0.1	0.3
6203744	99	P	SUR	66	8	289	0	0.3	0.2	0.4
6203753	99	P	SUR	61	-40	728	0	0.5	-0.3	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6203755	99	P	SUR	36	-12	706	0	1.2	1.0	1.5
6203765	99	P	SUR	27	-55	649	0	0.3	0.3	0.5
6203768	99	P	SUR	31	-16	731	0	0.3	0.3	0.4
6203771	99	P	SUR	25	-34	725	0	0.2	0.1	0.2
6203772	99	P	SUR	29	-67	726	0	0.4	0.1	0.4
6203773	99	P	SUR	30	-51	729	0	0.3	-0.4	0.5
6203776	99	P	SUR	29	-28	729	0	0.3	0.1	0.3
6203825	99	P	SUR	67	-14	698	4	1.4	0.6	1.6
6203827	99	P	SUR	66	12	725	0	0.3	-0.2	0.3
6203838	99	P	SUR	23	-63	699	0	0.4	0.3	0.5
6203839	99	P	SUR	28	-54	710	0	0.3	-0.1	0.3
6203840	99	P	SUR	22	-42	715	0	0.2	0.2	0.3
6203842	99	P	SUR	36	-24	708	0	0.2	0.1	0.3
6203844	99	P	SUR	44	-16	707	0	0.4	0.4	0.5
6203845	99	P	SUR	54	-12	715	0	0.3	0.0	0.3
6203846	99	P	SUR	31	-25	711	0	0.2	0.0	0.2
6203848	99	P	SUR	49	-28	701	0	0.3	0.0	0.3
6203849	99	P	SUR	26	-23	721	0	0.3	0.2	0.3
6203853	99	P	SUR	65	10	692	0	0.5	0.3	0.6
6203854	99	P	SUR	62	-30	724	0	0.4	0.2	0.4
6203855	99	P	SUR	67	10	690	0	0.4	-0.2	0.5
6203856	99	P	SUR	61	5	716	0	0.3	0.4	0.5
6203857	99	P	SUR	64	8	340	0	0.3	0.0	0.3
6203859	99	P	SUR	20	-18	722	0	0.5	0.6	0.8
6203861	99	P	SUR	23	-24	727	0	0.3	0.3	0.4
6203864	99	P	SUR	64	-9	721	0	0.3	0.1	0.3
6203865	99	P	SUR	60	-40	689	0	0.4	-0.1	0.5
6203866	99	P	SUR	69	15	718	0	0.3	0.0	0.3
6204603	99	P	SUR	38	2	703	0	0.3	0.4	0.5
6204604	99	P	SUR	40	1	703	0	0.4	-0.7	0.8
6204605	99	P	SUR	40	2	709	0	3.1	1.6	3.5
6204606	99	P	SUR	40	2	582	0	0.4	0.3	0.5
6204607	99	P	SUR	40	2	705	0	0.3	0.2	0.4
6204608	99	P	SUR	40	1	700	0	0.3	0.3	0.5
6204609	99	P	SUR	39	1	164	0	0.4	-0.4	0.5
62081	99	P	SUR	51	-13	1488	0	0.3	0.0	0.3
62091	99	P	SUR	53	-5	743	0	0.3	0.0	0.3
62092	99	P	SUR	51	-11	743	0	0.2	-0.1	0.3
62093	99	P	SUR	55	-10	742	0	0.3	-0.1	0.3
62094	99	P	SUR	52	-7	743	0	0.3	0.0	0.3
62095	99	P	SUR	53	-16	743	0	0.3	-0.2	0.3
62102	99	P	SUR	58	2	1484	0	0.5	0.3	0.6
62103	99	P	SUR	50	-3	1479	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
62104	99	P	SUR	57	1	1482	0	0.3	0.1	0.3
62105	99	P	SUR	55	-13	1488	0	0.3	-0.2	0.3
62107	99	P	SUR	50	-6	1428	0	0.3	-0.2	0.4
62112	99	P	SUR	58	0	1481	0	0.3	0.3	0.4
62113	99	P	SUR	58	0	1484	0	0.3	-0.1	0.3
62114	99	P	SUR	58	0	1118	0	0.3	0.2	0.4
62115	99	P	SUR	58	-3	1400	0	0.3	-0.1	0.3
62116	99	P	SUR	58	1	1481	0	0.3	0.1	0.3
62118	99	P	SUR	58	1	1458	0	0.2	0.5	0.5
62119	99	P	SUR	57	2	1479	0	0.2	0.0	0.2
62120	99	P	SUR	56	2	1481	0	0.3	0.0	0.3
62121	99	P	SUR	54	3	1484	0	0.3	0.2	0.3
62122	99	P	SUR	57	2	1421	0	0.3	0.1	0.3
62124	99	P	SUR	54	-4	1474	0	0.2	0.1	0.2
62127	99	P	SUR	54	1	1476	0	0.2	0.7	0.7
62129	99	P	SUR	58	0	644	0	0.3	0.1	0.3
62130	99	P	SUR	59	1	1462	0	0.3	0.0	0.3
62131	99	P	SUR	54	1	924	0	0.3	0.6	0.7
62132	99	P	SUR	56	2	1481	0	0.3	0.5	0.6
62133	99	P	SUR	57	1	1483	0	0.4	0.2	0.5
62134	99	P	SUR	58	1	1422	0	0.2	0.6	0.7
62140	99	P	SUR	57	1	1481	0	0.3	0.2	0.3
62141	99	P	SUR	56	-3	1404	0	0.4	0.2	0.5
62143	99	P	SUR	58	2	1484	0	0.3	0.6	0.7
62144	99	P	SUR	53	2	1483	0	0.2	0.2	0.3
62145	99	P	SUR	53	3	1483	0	0.3	0.5	0.5
62146	99	P	SUR	57	2	1483	0	0.2	-0.1	0.2
62148	99	P	SUR	54	2	1484	0	0.3	0.9	0.9
62149	99	P	SUR	54	1	1484	0	0.2	0.7	0.8
62151	99	P	SUR	57	2	1149	0	0.3	0.3	0.4
62152	99	P	SUR	57	2	1483	0	0.2	0.3	0.4
62153	99	P	SUR	57	2	739	0	1.7	-0.2	1.7
62154	99	P	SUR	56	2	1481	0	0.2	0.0	0.2
62155	99	P	SUR	58	1	1484	0	0.2	0.4	0.5
62157	99	P	SUR	58	0	1424	0	0.3	0.0	0.3
62160	99	P	SUR	57	2	1445	0	0.4	0.3	0.5
62161	99	P	SUR	58	1	1474	0	0.3	-0.1	0.3
62162	99	P	SUR	57	1	1387	0	0.3	0.2	0.3
62163	99	P	SUR	48	-9	1479	0	0.3	-0.1	0.3
62164	99	P	SUR	57	1	1483	0	0.3	0.5	0.6
62165	99	P	SUR	54	1	1474	0	0.3	0.3	0.4
62168	99	P	SUR	58	1	1482	0	0.2	0.1	0.3
62170	99	P	SUR	51	2	1487	0	0.3	0.0	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62296	99	P	SUR	53	2	1453	0	0.2	0.1	0.3
62297	99	P	SUR	59	2	1466	0	0.3	0.1	0.3
62302	99	P	SUR	61	-2	1422	0	0.4	-0.2	0.5
62304	99	P	SUR	51	2	1488	0	0.4	-0.1	0.4
62305	99	P	SUR	50	0	1488	0	0.3	0.0	0.3
62442	99	P	SUR	49	-16	1165	0	0.3	-0.2	0.4
6301001	99	P	SUR	64	5	706	0	0.3	-0.2	0.4
6301004	99	P	SUR	72	20	87	0	1.6	-1.2	2.0
6301572	99	P	SUR	50	-37	744	0	1.0	-0.3	1.0
6301575	99	P	SUR	53	-43	743	0	0.4	-0.1	0.4
6301577	99	P	SUR	67	-9	743	0	0.3	0.0	0.3
63055	99	P	SUR	61	2	1484	0	0.3	-0.1	0.3
63056	99	P	SUR	60	2	1484	0	0.5	0.3	0.5
63057	99	P	SUR	59	2	1484	0	0.3	-0.1	0.3
63058	99	P	SUR	53	2	1626	0	0.4	0.5	0.6
63059	99	P	SUR	58	-1	1470	0	0.3	0.5	0.6
63101	99	P	SUR	61	1	1484	0	0.4	0.0	0.5
63102	99	P	SUR	61	1	1462	0	0.3	0.1	0.3
63103	99	P	SUR	61	1	1484	0	0.6	0.2	0.6
63108	99	P	SUR	61	2	1484	0	0.4	-0.2	0.4
63109	99	P	SUR	60	2	1430	0	0.3	-0.4	0.5
63110	99	P	SUR	60	2	1454	0	0.3	-0.2	0.4
63111	99	P	SUR	61	2	1472	0	0.3	-0.3	0.5
63112	99	P	SUR	61	1	1452	0	0.3	-0.4	0.5
63115	99	P	SUR	62	1	1484	0	0.3	0.0	0.3
63117	99	P	SUR	61	1	1484	0	0.4	0.3	0.6
63118	99	P	SUR	58	1	1484	0	0.4	-0.1	0.4
6400045	99	P	SUR	59	-12	738	0	0.3	-0.3	0.4
6400046	99	P	SUR	61	-4	742	0	0.3	-0.2	0.3
6401583	99	P	SUR	59	-41	744	0	0.5	0.0	0.5
6401584	99	P	SUR	67	-13	744	0	0.4	0.3	0.5
6401587	99	P	SUR	75	-19	740	0	0.4	0.0	0.4
6401590	99	P	SUR	70	14	628	21	3.2	1.2	3.4
6401592	99	P	SUR	74	13	743	0	0.5	0.2	0.5
6401759	99	P	SUR	55	-39	744	0	0.4	0.3	0.5
6401762	99	P	SUR	63	-5	744	0	0.3	0.2	0.4
6401763	99	P	SUR	66	12	744	0	0.3	0.0	0.3
6402539	99	P	SUR	71	19	709	0	0.3	0.1	0.3
6402551	99	P	SUR	51	-30	671	0	0.3	0.3	0.5
6402594	99	P	SUR	53	-33	670	0	0.4	0.1	0.4
6402596	99	P	SUR	60	-39	413	0	0.4	0.0	0.4
6402597	99	P	SUR	54	-26	640	0	0.3	0.0	0.3
6402615	99	P	SUR	18	-59	726	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
6402616	99	P	SUR	28	-46	727	0	0.4	-0.2	0.4
6402617	99	P	SUR	26	-47	728	0	0.2	0.4	0.5
6402618	99	P	SUR	23	-42	726	0	0.2	0.3	0.3
6402619	99	P	SUR	38	-11	707	0	0.3	0.1	0.3
6402620	99	P	SUR	44	-3	615	1	0.4	0.5	0.6
6402621	99	P	SUR	41	-10	727	0	0.3	0.4	0.5
6402622	99	P	SUR	35	-16	723	0	0.3	0.2	0.3
64041	99	P	SUR	61	-3	1420	0	0.3	-0.2	0.4
64045	99	P	SUR	59	-12	1484	0	0.3	-0.3	0.4
64046	99	P	SUR	61	-4	1488	0	0.3	-0.2	0.3
6600021	99	P	SUR	55	14	132	0	0.3	-1.0	1.0
6600022	99	P	SUR	54	14	234	0	0.3	-0.2	0.4
6600024	99	P	SUR	55	13	203	0	0.3	-1.3	1.3
6801791	99	P	SUR	40	-47	737	0	0.5	0.2	0.5
7801552	99	P	SUR	87	-66	743	0	0.3	-0.1	0.3
7801563	99	P	SUR	45	-65	744	0	0.9	0.5	1.0

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : MAY 2023
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300001	99	SPEED	SUR	11	-23	614	0	0	0.8	0.4	0.9
1300002	99	SPEED	SUR	20	-23	613	0	0	0.8	-0.1	0.8
1300008	99	SPEED	SUR	15	-38	614	0	0	0.7	-0.2	0.8
1300130	99	SPEED	SUR	28	-16	180	0	0	0.9	-0.4	1.0
1300131	99	SPEED	SUR	28	-17	724	0	0	2.2	1.4	2.7
4100026	99	SPEED	SUR	12	-38	236	0	0	0.7	-0.4	0.8
4100040	99	SPEED	SUR	15	-53	4460	0	0	0.7	0.0	0.7
4100043	99	SPEED	SUR	21	-65	4454	0	0	1.1	0.2	1.1
4100044	99	SPEED	SUR	22	-59	4457	0	0	0.9	-0.1	0.9
4100046	99	SPEED	SUR	24	-68	3875	0	0	1.3	-0.1	1.3
4100048	99	SPEED	SUR	32	-70	2270	0	0	1.5	0.0	1.5
4100049	99	SPEED	SUR	27	-63	4381	0	0	1.3	-0.2	1.3
4100052	99	SPEED	SUR	18	-65	4444	0	0	0.9	-0.1	0.9
4100053	99	SPEED	SUR	18	-66	4432	0	0	1.5	1.2	1.9
4100056	99	SPEED	SUR	18	-65	4461	0	0	1.1	-0.1	1.1
4100139	99	SPEED	SUR	20	-38	738	0	0	0.8	-0.1	0.8
4100300	99	SPEED	SUR	16	-57	698	0	0	0.8	-0.3	0.9
41040	99	SPEED	SUR	15	-53	744	0	0	0.8	0.0	0.8
41043	99	SPEED	SUR	21	-65	744	0	0	1.1	0.3	1.2
41044	99	SPEED	SUR	22	-59	744	0	0	0.9	-0.1	0.9
41046	99	SPEED	SUR	24	-68	648	0	0	1.4	-0.1	1.4
41048	99	SPEED	SUR	32	-70	379	0	0	1.5	0.1	1.5
41049	99	SPEED	SUR	28	-63	732	0	0	1.3	-0.2	1.3
41052	99	SPEED	SUR	18	-65	744	0	0	1.0	0.1	1.0
41053	99	SPEED	SUR	19	-66	744	0	0	1.5	0.8	1.7
41056	99	SPEED	SUR	18	-66	741	0	0	1.2	0.0	1.2
4200059	99	SPEED	SUR	15	-67	4456	0	0	0.7	0.4	0.8
4200060	99	SPEED	SUR	16	-63	4457	0	0	1.1	0.0	1.1
4200085	99	SPEED	SUR	18	-67	3569	0	0	1.2	-0.1	1.2
42059	99	SPEED	SUR	15	-68	744	0	0	0.8	0.5	0.9
42060	99	SPEED	SUR	16	-63	743	0	0	1.2	0.1	1.2
42085	99	SPEED	SUR	18	-67	721	0	0	1.2	0.1	1.2
4400005	99	SPEED	SUR	43	-69	811	0	0	1.3	-0.3	1.3
4400008	99	SPEED	SUR	40	-69	4405	0	0	1.3	-0.4	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
4400011	99	SPEED	SUR	41	-67	566	0	0	0.9	-0.8	1.2
4400027	99	SPEED	SUR	44	-67	4450	0	0	1.3	-0.5	1.4
4400032	99	SPEED	SUR	44	-69	712	0	0	1.5	-0.4	1.5
4400033	99	SPEED	SUR	44	-69	718	0	0	1.5	0.1	1.5
4400034	99	SPEED	SUR	44	-68	716	0	0	1.5	-0.6	1.6
4400150	99	SPEED	SUR	43	-64	721	0	0	1.2	0.1	1.2
4400488	99	SPEED	SUR	45	-61	539	0	0	1.6	0.3	1.6
4400489	99	SPEED	SUR	45	-61	597	0	0	1.6	1.1	1.9
44005	99	SPEED	SUR	43	-69	734	0	0	1.3	-0.4	1.4
44008	99	SPEED	SUR	41	-69	735	0	0	1.3	-0.4	1.4
44011	99	SPEED	SUR	41	-67	95	0	0	0.8	-0.7	1.1
44027	99	SPEED	SUR	44	-67	744	0	0	1.5	-0.3	1.5
44032	99	SPEED	SUR	44	-69	712	0	0	1.5	-0.3	1.5
44033	99	SPEED	SUR	44	-69	719	0	0	1.6	0.4	1.6
44034	99	SPEED	SUR	44	-68	717	0	0	1.5	-0.6	1.6
44078	99	SPEED	SUR	60	-40	64	0	0	1.8	-1.7	2.5
44150	99	SPEED	SUR	43	-64	721	0	0	1.3	0.2	1.3
44258	99	SPEED	SUR	45	-63	741	0	0	1.8	0.0	1.8
44488	99	SPEED	SUR	45	-61	592	0	0	1.5	0.6	1.7
44489	99	SPEED	SUR	46	-61	660	0	0	1.7	1.3	2.1
6100001	99	SPEED	SUR	43	8	740	0	0	1.8	-0.8	2.0
6100002	99	SPEED	SUR	42	5	738	0	0	1.2	0.1	1.2
6100196	99	SPEED	SUR	42	4	732	0	0	1.7	-0.6	1.8
6100197	99	SPEED	SUR	40	4	415	0	0	1.5	-1.0	1.8
6100198	99	SPEED	SUR	37	-2	718	0	0	1.6	-0.7	1.7
6100280	99	SPEED	SUR	41	1	725	0	0	1.6	-0.5	1.6
6100281	99	SPEED	SUR	40	0	722	0	0	1.8	0.3	1.8
6100417	99	SPEED	SUR	38	0	735	0	0	1.4	-0.3	1.4
6100430	99	SPEED	SUR	40	2	735	0	0	1.6	0.0	1.6
6101007	99	SPEED	SUR	36	25	85	0	0	1.4	0.0	1.4
6101008	99	SPEED	SUR	37	22	123	0	0	2.6	-4.4	5.1
6101009	99	SPEED	SUR	35	25	118	0	0	1.8	0.6	1.9
6200001	99	SPEED	SUR	45	-5	738	0	0	1.0	-0.8	1.3
6200024	99	SPEED	SUR	44	-3	708	0	0	1.4	-0.7	1.5
6200025	99	SPEED	SUR	44	-6	733	0	0	1.4	-0.3	1.5
6200029	99	SPEED	SUR	49	-12	738	0	0	0.9	0.5	1.0
6200081	99	SPEED	SUR	51	-13	740	0	0	0.8	0.0	0.8
6200082	99	SPEED	SUR	44	-8	181	0	0	1.5	-1.2	1.9
6200083	99	SPEED	SUR	43	-9	737	0	0	1.0	-0.5	1.2
6200084	99	SPEED	SUR	42	-9	175	0	0	1.1	-0.9	1.5
6200085	99	SPEED	SUR	36	-7	719	0	0	1.4	-0.6	1.5

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
6200086	99	SPEED	SUR	55	6	363	0	0	1.7	1.3	2.1
6200087	99	SPEED	SUR	55	7	298	0	0	1.3	1.5	2.0
6200091	99	SPEED	SUR	53	-5	743	0	0	1.3	0.4	1.3
6200092	99	SPEED	SUR	51	-11	744	0	0	1.0	-0.1	1.0
6200093	99	SPEED	SUR	55	-10	743	0	0	0.9	0.3	1.0
6200094	99	SPEED	SUR	52	-7	744	0	0	1.0	0.6	1.2
6200095	99	SPEED	SUR	53	-16	744	0	0	2.3	-0.7	2.4
6200103	99	SPEED	SUR	50	-3	472	0	0	1.4	0.1	1.4
6200163	99	SPEED	SUR	47	-8	737	0	0	0.9	0.2	1.0
6200191	99	SPEED	SUR	41	-10	622	0	0	1.0	0.2	1.0
6200200	99	SPEED	SUR	36	-8	101	0	0	1.0	0.7	1.2
6201065	99	SPEED	SUR	54	7	639	0	0	1.7	-1.0	2.0
6201081	99	SPEED	SUR	38	-9	561	0	0	1.3	0.6	1.4
62029	99	SPEED	SUR	49	-12	1486	0	0	0.9	0.6	1.1
62081	99	SPEED	SUR	51	-13	1488	0	0	0.8	0.6	1.0
62091	99	SPEED	SUR	53	-5	743	0	0	1.3	0.5	1.4
62092	99	SPEED	SUR	51	-11	743	0	0	1.1	0.0	1.1
62093	99	SPEED	SUR	55	-10	742	0	0	0.9	0.4	1.0
62094	99	SPEED	SUR	52	-7	743	0	0	1.0	0.7	1.2
62095	99	SPEED	SUR	53	-16	743	0	0	2.3	-0.6	2.4
62102	99	SPEED	SUR	58	2	1484	0	0	1.2	0.4	1.2
62103	99	SPEED	SUR	50	-3	939	0	0	1.4	-0.1	1.4
62104	99	SPEED	SUR	57	1	1482	0	0	1.1	-0.1	1.1
62105	99	SPEED	SUR	55	-13	1488	0	0	0.9	0.6	1.0
62107	99	SPEED	SUR	50	-6	1056	0	0	1.1	0.5	1.2
62112	99	SPEED	SUR	58	0	1481	0	0	1.4	-0.3	1.4
62113	99	SPEED	SUR	58	0	1484	0	0	1.3	0.1	1.3
62114	99	SPEED	SUR	58	0	1118	0	0	1.2	0.5	1.3
62118	99	SPEED	SUR	58	1	1458	0	0	1.2	0.5	1.3
62119	99	SPEED	SUR	57	2	1481	0	0	1.2	-0.4	1.2
62120	99	SPEED	SUR	56	2	1481	0	0	1.2	0.2	1.2
62121	99	SPEED	SUR	54	3	1484	0	0	1.0	-0.2	1.0
62122	99	SPEED	SUR	57	2	1421	0	0	1.2	0.1	1.2
62129	99	SPEED	SUR	58	0	644	0	0	1.2	0.3	1.2
62131	99	SPEED	SUR	54	1	1484	0	0	1.7	-0.4	1.7
62132	99	SPEED	SUR	56	2	1481	0	0	2.6	-1.6	3.1
62133	99	SPEED	SUR	57	1	1475	0	0	1.5	0.3	1.5
62134	99	SPEED	SUR	58	1	1422	0	0	1.2	0.0	1.2
62140	99	SPEED	SUR	57	1	1481	0	0	1.0	0.0	1.0
62143	99	SPEED	SUR	58	2	1484	0	0	1.4	-0.4	1.4
62144	99	SPEED	SUR	53	2	1475	0	0	1.3	-0.7	1.5

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62145	99	SPEED	SUR	53	3	1483	0	0	1.3	0.5	1.3
62146	99	SPEED	SUR	57	2	1483	0	0	1.2	0.2	1.2
62148	99	SPEED	SUR	54	2	1484	0	0	1.1	-0.2	1.1
62149	99	SPEED	SUR	54	1	1484	0	0	1.0	0.2	1.0
62152	99	SPEED	SUR	57	2	1483	0	0	1.1	-0.2	1.2
62153	99	SPEED	SUR	57	2	1421	0	0	1.6	-0.8	1.8
62154	99	SPEED	SUR	56	2	1481	0	0	1.3	0.2	1.3
62155	99	SPEED	SUR	58	1	1326	0	0	1.2	0.2	1.2
62163	99	SPEED	SUR	48	-9	1479	0	0	0.9	0.7	1.2
62164	99	SPEED	SUR	57	1	1483	0	0	1.3	-0.7	1.5
62165	99	SPEED	SUR	54	1	1474	0	0	1.0	-0.1	1.0
62170	99	SPEED	SUR	51	2	1487	0	0	1.4	0.5	1.5
62304	99	SPEED	SUR	51	2	1468	0	0	1.5	0.8	1.7
62442	99	SPEED	SUR	49	-16	615	0	0	0.8	0.5	0.9
6301001	99	SPEED	SUR	64	5	706	0	0	1.1	0.0	1.1
6301004	99	SPEED	SUR	72	20	87	3	0	3.3	-2.3	4.0
63055	99	SPEED	SUR	61	2	1484	0	0	1.1	-0.8	1.3
63056	99	SPEED	SUR	60	2	1484	0	0	1.2	0.6	1.3
63057	99	SPEED	SUR	59	2	1452	0	0	1.9	-0.7	2.0
63058	99	SPEED	SUR	53	2	810	0	0	1.1	0.0	1.1
63101	99	SPEED	SUR	61	1	1484	0	0	1.1	-0.4	1.2
63103	99	SPEED	SUR	61	1	1484	0	0	1.5	-0.3	1.5
63106	99	SPEED	SUR	61	2	1484	0	0	1.6	-0.9	1.9
63108	99	SPEED	SUR	61	2	1484	0	0	1.5	0.1	1.5
63109	99	SPEED	SUR	60	2	1398	0	0	1.2	0.4	1.3
63110	99	SPEED	SUR	60	2	1454	0	0	1.3	0.0	1.3
63112	99	SPEED	SUR	61	1	1452	0	0	1.2	-0.4	1.2
63115	99	SPEED	SUR	62	1	1484	0	0	1.3	-0.5	1.4
63117	99	SPEED	SUR	61	1	1484	0	0	1.3	-0.5	1.3
6400045	99	SPEED	SUR	59	-12	738	0	0	1.0	-0.1	1.0
6400046	99	SPEED	SUR	61	-4	55	0	0	1.1	0.5	1.2
64041	99	SPEED	SUR	61	-3	1420	0	0	1.2	0.1	1.2
64045	99	SPEED	SUR	59	-12	1484	0	0	1.0	0.5	1.1
64046	99	SPEED	SUR	61	-4	108	0	0	1.1	1.0	1.5
6600021	99	SPEED	SUR	55	14	132	0	0	1.3	0.4	1.4
6600022	99	SPEED	SUR	54	14	234	0	0	1.4	-0.2	1.4
6600024	99	SPEED	SUR	55	13	163	0	0	1.3	0.3	1.4

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : MAY 2023
 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
00000	99	DIRN	SUR	44	-79	2	0	0	10.1	-42.4	43.6
1300001	99	DIRN	SUR	11	-23	565	0	0	9.1	0.3	9.1
1300002	99	DIRN	SUR	20	-23	609	0	0	9.0	-2.5	9.3
1300008	99	DIRN	SUR	15	-38	614	0	0	7.8	0.5	7.8
1300130	99	DIRN	SUR	28	-16	166	0	0	92.5	76.8	120.2
1300131	99	DIRN	SUR	28	-17	376	0	0	22.3	-6.8	23.3
4100001	99	DIRN	SUR	35	-72	3762	0	0	14.5	5.4	15.5
4100002	99	DIRN	SUR	32	-75	3547	0	0	21.8	3.1	22.0
4100004	99	DIRN	SUR	33	-79	3658	0	0	16.9	2.2	17.1
4100008	99	DIRN	SUR	31	-81	583	0	0	17.7	-1.9	17.8
4100009	99	DIRN	SUR	29	-80	2832	0	0	18.9	1.6	19.0
4100013	99	DIRN	SUR	33	-78	3819	0	0	14.8	1.4	14.9
4100024	99	DIRN	SUR	34	-78	526	0	0	18.3	2.3	18.4
4100025	99	DIRN	SUR	35	-75	4072	0	0	17.7	1.0	17.7
4100026	99	DIRN	SUR	12	-38	236	0	0	10.4	-4.8	11.4
4100029	99	DIRN	SUR	33	-80	608	0	0	19.2	-7.8	20.7
4100033	99	DIRN	SUR	32	-80	597	0	0	18.9	0.3	18.9
4100037	99	DIRN	SUR	34	-77	638	0	0	15.1	-0.3	15.1
4100038	99	DIRN	SUR	34	-78	604	0	0	22.5	-1.6	22.5
4100040	99	DIRN	SUR	15	-53	4445	0	0	8.4	5.5	10.0
4100043	99	DIRN	SUR	21	-65	3982	0	0	16.8	5.2	17.6
4100044	99	DIRN	SUR	22	-59	4085	0	0	12.8	5.2	13.8
4100046	99	DIRN	SUR	24	-68	3116	0	0	19.0	7.2	20.3
4100047	99	DIRN	SUR	27	-71	3310	0	0	23.5	10.5	25.7
4100048	99	DIRN	SUR	32	-70	1547	0	0	24.1	17.0	29.5
4100049	99	DIRN	SUR	27	-63	3698	0	0	20.1	6.2	21.0
4100052	99	DIRN	SUR	18	-65	4347	0	0	11.8	6.6	13.5
4100053	99	DIRN	SUR	18	-66	2007	0	0	25.1	16.7	30.1
4100056	99	DIRN	SUR	18	-65	4108	0	0	19.1	8.2	20.8
4100064	99	DIRN	SUR	34	-77	642	0	0	17.9	1.4	18.0
4100066	99	DIRN	SUR	33	-80	597	0	0	18.1	0.8	18.1
41001	99	DIRN	SUR	35	-72	616	0	0	14.5	5.2	15.4

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4100139	99	DIRN	SUR	20	-38	708	0	0	10.8	0.2	10.8
41002	99	DIRN	SUR	32	-75	576	0	0	21.4	3.2	21.6
4100300	99	DIRN	SUR	16	-57	694	0	0	10.7	-11.5	15.7
41004	99	DIRN	SUR	33	-79	605	0	0	18.5	2.6	18.7
41008	99	DIRN	SUR	31	-81	566	0	0	18.2	-2.3	18.3
41009	99	DIRN	SUR	29	-80	454	0	0	21.6	2.4	21.8
41013	99	DIRN	SUR	33	-78	629	0	0	14.8	2.0	15.0
41024	99	DIRN	SUR	34	-79	528	0	0	20.5	1.9	20.5
41025	99	DIRN	SUR	35	-76	677	0	0	17.9	0.7	17.9
41029	99	DIRN	SUR	33	-80	220	0	0	19.4	-13.3	23.5
41033	99	DIRN	SUR	32	-80	596	0	0	19.0	0.2	19.0
41037	99	DIRN	SUR	34	-77	632	0	0	16.3	-0.8	16.3
41038	99	DIRN	SUR	34	-78	606	0	0	23.1	-1.3	23.1
41040	99	DIRN	SUR	15	-53	740	0	0	9.2	5.1	10.5
41043	99	DIRN	SUR	21	-65	654	0	0	17.0	5.2	17.8
41044	99	DIRN	SUR	22	-59	671	0	0	12.5	4.8	13.3
41046	99	DIRN	SUR	24	-68	516	0	0	19.2	7.5	20.6
41047	99	DIRN	SUR	28	-72	541	0	0	23.0	10.5	25.2
41048	99	DIRN	SUR	32	-70	242	0	0	24.7	17.5	30.3
41049	99	DIRN	SUR	28	-63	604	0	0	19.6	6.0	20.5
41052	99	DIRN	SUR	18	-65	724	0	0	12.2	6.2	13.7
41053	99	DIRN	SUR	19	-66	387	0	0	23.3	13.0	26.7
41056	99	DIRN	SUR	18	-66	661	0	0	18.5	10.0	21.1
41064	99	DIRN	SUR	34	-77	639	0	0	18.6	1.5	18.7
41066	99	DIRN	SUR	33	-80	578	0	0	17.8	0.1	17.8
4200013	99	DIRN	SUR	27	-83	1076	0	0	18.1	-3.9	18.5
4200022	99	DIRN	SUR	28	-84	916	0	0	16.7	-4.8	17.4
4200023	99	DIRN	SUR	26	-83	772	0	0	19.0	-4.5	19.6
4200026	99	DIRN	SUR	25	-83	813	0	0	16.7	-2.7	16.9
4200036	99	DIRN	SUR	29	-85	2416	0	0	20.5	-2.1	20.7
4200056	99	DIRN	SUR	20	-85	3047	0	0	13.9	5.9	15.2
4200057	99	DIRN	SUR	17	-81	2186	0	0	11.8	3.5	12.3
4200058	99	DIRN	SUR	15	-75	4107	0	0	8.0	7.7	11.1
4200059	99	DIRN	SUR	15	-67	4430	0	0	12.4	8.5	15.0
4200060	99	DIRN	SUR	16	-63	4275	0	0	13.3	8.6	15.9
4200085	99	DIRN	SUR	18	-67	3351	0	0	26.5	19.1	32.6
42013	99	DIRN	SUR	27	-83	516	0	0	19.8	-1.0	19.8
42022	99	DIRN	SUR	28	-84	437	0	0	17.1	-3.2	17.4
42023	99	DIRN	SUR	26	-83	366	0	0	19.4	-3.2	19.6
42026	99	DIRN	SUR	25	-84	390	0	0	20.2	-1.8	20.2
42036	99	DIRN	SUR	29	-85	381	0	0	20.5	-1.2	20.6

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
42056	99	DIRN	SUR	20	-85	478	0	0	15.7	5.4	16.6
42057	99	DIRN	SUR	17	-82	358	0	0	11.0	3.5	11.5
42058	99	DIRN	SUR	15	-75	676	0	0	8.6	7.3	11.3
42059	99	DIRN	SUR	15	-68	737	0	0	11.8	7.4	13.9
42060	99	DIRN	SUR	16	-63	704	0	0	14.3	8.2	16.5
42085	99	DIRN	SUR	18	-67	640	0	0	24.3	15.7	28.9
4400005	99	DIRN	SUR	43	-69	709	0	0	15.5	6.3	16.8
4400007	99	DIRN	SUR	44	-70	3569	0	0	21.3	9.2	23.2
4400008	99	DIRN	SUR	40	-69	3552	0	0	14.3	13.0	19.4
4400009	99	DIRN	SUR	38	-75	3648	0	0	15.0	6.2	16.3
4400011	99	DIRN	SUR	41	-67	472	0	0	11.0	13.6	17.5
4400013	99	DIRN	SUR	42	-71	17	0	0	3.3	9.3	9.9
4400018	99	DIRN	SUR	42	-70	3623	0	0	18.4	12.0	22.0
4400020	99	DIRN	SUR	41	-70	3873	0	0	15.1	5.0	15.9
4400022	99	DIRN	SUR	41	-74	669	0	0	69.6	-19.6	72.3
4400027	99	DIRN	SUR	44	-67	3652	0	0	14.7	11.0	18.3
4400029	99	DIRN	SUR	43	-71	572	0	0	20.8	8.1	22.3
4400030	99	DIRN	SUR	43	-70	548	0	0	22.6	6.6	23.5
4400032	99	DIRN	SUR	44	-69	588	0	0	18.6	1.8	18.7
4400033	99	DIRN	SUR	44	-69	556	0	0	21.7	20.2	29.6
4400034	99	DIRN	SUR	44	-68	575	0	0	17.3	1.2	17.3
4400039	99	DIRN	SUR	41	-73	171	0	0	46.7	3.9	46.9
4400040	99	DIRN	SUR	41	-74	471	0	0	21.8	7.3	23.0
4400041	99	DIRN	SUR	37	-77	1601	0	0	16.6	0.4	16.6
4400042	99	DIRN	SUR	38	-76	5103	0	0	17.5	0.0	17.5
4400058	99	DIRN	SUR	38	-76	5770	0	0	17.2	1.2	17.2
4400062	99	DIRN	SUR	39	-76	3860	0	0	19.9	1.3	19.9
4400063	99	DIRN	SUR	39	-76	4089	0	0	19.4	-0.5	19.4
4400064	99	DIRN	SUR	37	-76	5262	0	0	18.7	6.5	19.8
4400066	99	DIRN	SUR	40	-73	3508	0	0	14.3	9.2	17.0
4400072	99	DIRN	SUR	37	-76	5589	1	0	17.3	1.5	17.4
4400150	99	DIRN	SUR	43	-64	627	0	0	16.1	11.9	20.1
4400488	99	DIRN	SUR	45	-61	461	0	0	19.0	10.0	21.5
4400489	99	DIRN	SUR	45	-61	481	0	0	20.9	0.3	20.9
44005	99	DIRN	SUR	43	-69	620	0	0	16.1	6.4	17.3
44007	99	DIRN	SUR	44	-70	580	0	0	20.9	9.0	22.7
44008	99	DIRN	SUR	41	-69	574	0	0	14.6	12.4	19.2
44009	99	DIRN	SUR	39	-75	596	0	0	15.8	6.2	17.0
44011	99	DIRN	SUR	41	-67	73	0	0	10.1	14.2	17.4
44013	99	DIRN	SUR	42	-71	3	0	0	2.4	1.3	2.7
44018	99	DIRN	SUR	42	-70	586	0	0	19.6	12.3	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
44020	99	DIRN	SUR	42	-70	635	0	0	15.7	5.5	16.6
44022	99	DIRN	SUR	41	-74	207	0	0	68.6	-18.1	70.9
44027	99	DIRN	SUR	44	-67	585	0	0	15.0	10.3	18.2
44029	99	DIRN	SUR	43	-71	548	0	0	20.6	8.6	22.4
44030	99	DIRN	SUR	43	-70	528	0	0	24.1	6.6	24.9
44032	99	DIRN	SUR	44	-69	568	0	0	18.0	1.7	18.1
44033	99	DIRN	SUR	44	-69	529	0	0	20.5	20.0	28.7
44034	99	DIRN	SUR	44	-68	562	0	0	17.4	1.3	17.4
44039	99	DIRN	SUR	41	-73	165	0	0	50.2	0.9	50.2
44040	99	DIRN	SUR	41	-74	201	0	0	22.2	8.8	23.9
44041	99	DIRN	SUR	37	-77	170	0	0	16.2	0.4	16.2
44042	99	DIRN	SUR	38	-76	532	0	0	18.6	0.6	18.6
44058	99	DIRN	SUR	38	-76	569	0	0	17.7	3.4	18.0
44062	99	DIRN	SUR	39	-76	470	0	0	20.2	1.8	20.2
44063	99	DIRN	SUR	39	-76	434	0	0	20.6	-0.2	20.6
44064	99	DIRN	SUR	37	-76	597	0	0	19.0	7.2	20.3
44066	99	DIRN	SUR	40	-73	575	0	0	15.4	8.8	17.7
44069	99	DIRN	SUR	41	-73	410	0	0	16.9	-22.9	28.5
44072	99	DIRN	SUR	37	-76	587	0	0	17.4	2.3	17.6
44078	99	DIRN	SUR	60	-40	60	0	0	12.9	-22.0	25.6
44150	99	DIRN	SUR	43	-64	621	0	0	16.0	11.6	19.8
44258	99	DIRN	SUR	45	-63	579	0	0	18.6	-7.5	20.1
44488	99	DIRN	SUR	45	-61	485	0	0	19.2	11.5	22.3
44489	99	DIRN	SUR	46	-61	512	0	0	20.5	0.3	20.5
4500005	99	DIRN	SUR	42	-82	2769	0	0	17.4	7.8	19.1
4500008	99	DIRN	SUR	44	-82	2252	0	0	17.9	16.4	24.3
4500012	99	DIRN	SUR	44	-77	2146	0	0	20.0	14.2	24.6
4500132	99	DIRN	SUR	42	-81	436	0	0	19.1	3.8	19.5
4500135	99	DIRN	SUR	44	-77	495	0	0	20.1	3.5	20.4
4500137	99	DIRN	SUR	46	-81	402	0	0	18.1	8.3	19.9
4500139	99	DIRN	SUR	43	-80	266	0	0	26.0	3.4	26.3
4500142	99	DIRN	SUR	43	-79	439	0	0	18.2	3.6	18.6
4500143	99	DIRN	SUR	45	-81	443	0	0	24.7	10.9	27.0
4500159	99	DIRN	SUR	44	-79	321	0	0	30.3	1.4	30.4
4500162	99	DIRN	SUR	45	-83	609	0	0	18.2	-4.4	18.7
4500163	99	DIRN	SUR	44	-84	1068	0	0	22.9	6.5	23.8
4500165	99	DIRN	SUR	42	-83	2844	0	0	23.3	-8.6	24.8
4500175	99	DIRN	SUR	46	-85	1898	0	0	35.4	-1.6	35.4
4500176	99	DIRN	SUR	42	-82	1422	0	0	20.9	-88.3	90.8
4500196	99	DIRN	SUR	42	-82	987	0	0	20.7	-9.3	22.7
4500197	99	DIRN	SUR	42	-82	1293	0	0	20.1	-35.0	40.4

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4500203	99	DIRN	SUR	41	-83	2062	0	0	46.9	-40.1	61.7
4500204	99	DIRN	SUR	42	-82	499	0	0	28.9	-15.5	32.8
4500205	99	DIRN	SUR	42	-82	314	0	0	59.7	-32.4	68.0
4500209	99	DIRN	SUR	43	-82	356	0	0	23.8	-1.8	23.8
45005	99	DIRN	SUR	42	-82	430	0	0	17.1	7.7	18.8
45008	99	DIRN	SUR	44	-82	346	0	0	16.9	16.5	23.7
45012	99	DIRN	SUR	44	-77	330	0	0	19.0	12.8	22.9
45132	99	DIRN	SUR	43	-81	404	0	0	19.1	3.2	19.3
45135	99	DIRN	SUR	44	-77	438	0	0	18.7	1.6	18.8
45137	99	DIRN	SUR	46	-81	375	0	0	16.5	6.3	17.7
45139	99	DIRN	SUR	43	-80	280	0	0	25.5	3.1	25.7
45142	99	DIRN	SUR	43	-79	389	0	0	20.5	3.1	20.7
45143	99	DIRN	SUR	45	-81	390	0	0	24.4	8.8	25.9
45147	99	DIRN	SUR	42	-83	205	0	0	17.6	-2.4	17.8
45149	99	DIRN	SUR	44	-82	272	0	0	16.9	-3.9	17.4
45151	99	DIRN	SUR	45	-79	8	0	0	7.4	7.3	10.4
45152	99	DIRN	SUR	46	-80	218	0	0	21.6	-3.1	21.8
45154	99	DIRN	SUR	46	-83	174	1	0	22.0	7.5	23.2
45159	99	DIRN	SUR	44	-79	268	0	0	24.4	-2.7	24.5
45162	99	DIRN	SUR	45	-83	195	0	0	19.1	-3.2	19.4
45163	99	DIRN	SUR	44	-84	334	0	0	22.5	6.8	23.5
45165	99	DIRN	SUR	42	-83	453	0	0	25.7	-7.4	26.8
45175	99	DIRN	SUR	46	-85	135	0	0	32.6	0.2	32.6
45176	99	DIRN	SUR	42	-82	264	0	0	18.1	-84.7	86.6
45196	99	DIRN	SUR	42	-82	204	0	0	15.1	-8.6	17.4
45197	99	DIRN	SUR	42	-82	231	0	0	20.8	-35.5	41.1
45203	99	DIRN	SUR	41	-83	330	0	0	45.9	-41.4	61.8
45204	99	DIRN	SUR	42	-82	78	0	0	26.0	-16.0	30.5
45205	99	DIRN	SUR	42	-82	48	0	0	57.6	-34.0	66.9
45209	99	DIRN	SUR	43	-82	46	0	0	19.0	1.5	19.1
6100198	99	DIRN	SUR	37	-2	375	0	0	16.3	2.8	16.6
6100281	99	DIRN	SUR	40	0	281	0	0	43.1	-5.6	43.5
6100417	99	DIRN	SUR	38	0	416	0	0	22.7	7.8	24.0
6200001	99	DIRN	SUR	45	-5	691	0	0	11.8	-1.7	11.9
6200024	99	DIRN	SUR	44	-3	488	0	0	18.9	8.4	20.7
6200025	99	DIRN	SUR	44	-6	402	0	0	15.8	5.4	16.7
6200029	99	DIRN	SUR	49	-12	690	0	0	11.2	-1.1	11.3
6200081	99	DIRN	SUR	51	-13	689	0	0	9.3	-5.8	10.9
6200082	99	DIRN	SUR	44	-8	141	0	0	17.3	64.7	67.0
6200083	99	DIRN	SUR	43	-9	591	0	0	12.2	3.1	12.6
6200084	99	DIRN	SUR	42	-9	118	0	0	13.7	63.6	65.0

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
6200085	99	DIRN	SUR	36	-7	463	0	0	18.3	15.0	23.6
6200091	99	DIRN	SUR	53	-5	529	0	0	17.9	6.5	19.0
6200092	99	DIRN	SUR	51	-11	635	0	0	14.8	7.7	16.6
6200093	99	DIRN	SUR	55	-10	665	0	0	13.2	5.8	14.4
6200094	99	DIRN	SUR	52	-7	627	0	0	10.6	8.2	13.4
6200095	99	DIRN	SUR	53	-16	597	0	0	9.6	1.1	9.7
6200103	99	DIRN	SUR	50	-3	395	0	0	15.0	3.4	15.4
6200163	99	DIRN	SUR	47	-8	714	0	0	13.6	4.0	14.2
6200191	99	DIRN	SUR	41	-10	524	0	0	12.9	0.7	12.9
6200200	99	DIRN	SUR	36	-8	84	0	0	16.5	0.1	16.5
6201081	99	DIRN	SUR	38	-9	421	0	0	10.6	-1.2	10.7
62029	99	DIRN	SUR	49	-12	1386	0	0	11.5	-1.0	11.6
62081	99	DIRN	SUR	51	-13	1373	0	0	9.7	-5.5	11.2
62091	99	DIRN	SUR	53	-5	519	0	0	20.7	5.0	21.3
62092	99	DIRN	SUR	51	-11	624	0	0	15.1	6.8	16.5
62093	99	DIRN	SUR	55	-10	660	0	0	13.1	5.4	14.2
62094	99	DIRN	SUR	52	-7	625	0	0	11.2	7.8	13.6
62095	99	DIRN	SUR	53	-16	583	0	0	9.6	0.6	9.6
62103	99	DIRN	SUR	50	-3	788	0	0	15.2	3.7	15.6
62105	99	DIRN	SUR	55	-13	1407	0	0	10.8	-4.7	11.8
62107	99	DIRN	SUR	50	-6	929	0	0	13.7	0.2	13.7
62112	99	DIRN	SUR	58	0	1258	0	0	15.1	-2.6	15.3
62114	99	DIRN	SUR	58	0	994	0	0	13.7	0.2	13.7
62163	99	DIRN	SUR	48	-9	1421	0	0	14.1	4.3	14.8
62442	99	DIRN	SUR	49	-16	588	0	0	9.2	1.0	9.3
6400045	99	DIRN	SUR	59	-12	731	0	0	10.0	-11.6	15.3
6400046	99	DIRN	SUR	61	-4	51	0	0	17.7	1.1	17.7
64041	99	DIRN	SUR	61	-3	1289	0	0	8.8	8.2	12.0
64045	99	DIRN	SUR	59	-12	1464	0	0	10.3	-11.5	15.5
64046	99	DIRN	SUR	61	-4	98	0	0	18.3	1.8	18.4

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ATGU3FT	BPMWB2N	DBLK	GQBZLZL	JGQH	JNKN7JF	JPBN	KJJF9XN	KMPLHPW
LAGY8	LRQE3U	SMLQ	USSIO	UXK5JTU	WDK38HS	XKQLWQB	XQFJRGX	YLV96WM
ZVQEQCM	2EERVTP	7JUNA4N	9ZT9MRK	01001	01004	01010	01028	01241
01400	01415	01492	02365	02527	02591	02836	02963	03005
03023	03238	03354	03502	03743	03808	03882	03918	03953
04018	04089	04220	04270	04320	04339	04360	04417	06011
06260	06458	06610	07110	07145	07510	07645	07761	08001
08023	08190	08221	08302	08383	08430	08508	08522	08536
10035	10113	10184	10238	10304	10393	10410	10548	10618
10739	10771	10868	10954	10962	11010	11035	11120	11240
11520	11747	11952	12120	12374	12425	12575	12843	12982
13275	13388	14015	14240	14430	15420	15614	16045	16064
16113	16144	16224	16245	16332	16429	16546	16622	16716
16754	17030	17064	17095	17196	17220	17240	17351	17516
17607	20674	22008	22820	22845	23205	23472	23884	23921
23955	24641	24908	26038	26435	26629	26708	27459	27707
27713	27962	28225	28661	28695	29612	29698	30557	30673
30935	31770	34122	34172	34731	35121	40179	40186	42101
42369	42971	43150	43333	45004	47102	47104	47138	47155
47169	47186	47230	47401	47412	47582	47646	47678	47807
47827	47909	47918	47945	47971	47991	48601	48615	48650
48657	48698	50527	50557	50578	50774	50953	51076	51243
51431	51463	51644	51656	51709	51777	51828	51839	52203
52267	52323	52418	52533	52652	52681	52818	52836	52866
52983	53068	53463	53513	53543	53614	53772	53845	53915
54102	54135	54161	54218	54292	54374	54511	54662	54727
54857	55299	55591	56029	56046	56080	56137	56146	56187
56492	56571	56651	56691	56739	56778	56964	56985	57083
57127	57131	57178	57245	57461	57494	57516	57541	57687
57749	57816	57957	57972	57993	58027	58150	58203	58238
58362	58424	58457	58606	58633	58665	58725	58847	59023
59134	59211	59265	59280	59293	59316	59431	59758	59981
60018	60096	60155	60253	60390	60571	60630	60656	60680
60715	60760	61901	61980	61998	63894	63985	65344	66160
67083	68263	68424	68442	68512	68816	68842	70026	70133
70200	70219	70231	70261	70273	70308	70316	70326	70350
70361	70398	71043	71081	71082	71109	71119	71603	71722
71802	71811	71815	71816	71823	71845	71867	71906	71907
71908	71909	71913	71917	71924	71925	71926	71934	71945
71957	71964	72201	72202	72206	72208	72210	72214	72215
72230	72233	72235	72240	72248	72249	72250	72251	72261
72265	72274	72293	72305	72317	72318	72327	72340	72357
72363	72364	72365	72376	72388	72402	72403	72413	72426
72440	72451	72456	72476	72489	72493	72501	72520	72528
72558	72562	72572	72582	72597	72632	72634	72645	72649
72659	72662	72672	72681	72694	72712	72747	72764	72768
72776	72786	72797	73033	73110	74389	74455	74560	78384
78397	78583	78866	78897	78954	81405	82965	85442	85586
85799	85934	87155	87344	87418	87582	87623	87715	87860
88889	89002	89055	89062	89564	89571	89592	89611	89625
89642	91165	91212	91285	91334	91348	91376	91408	91413
91592	91765	91925	91938	91948	91958	93112	93417	93817
93844	94001	94120	94150	94170	94203	94299	94302	94312
94326	94332	94403	94430	94461	94510	94578	94610	94637
94638	94653	94659	94672	94711	94767	94776	94802	94821
94866	94910	94975	94995	94996	94998	95282	95527	96413
96441	96471	96481	96996					

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

ATGU3FT	BPMWB2N	DBLK	GQBZLZL	JNKN7JF	KJJF9XN	KMPLHPW	LAGY8	LRYQE3U
SMLQ	UXK5JTU	WDK38HS	XKQLWQB	XQFJRGX	YLV96WM	ZVQEQCM	2EERVTP	7JUNA4N
9ZT9MRK	01010	01028	01415	01492	02365	02527	02591	02836
02963	06610	07110	07145	07510	07645	07761	08001	08023
08190	08221	08302	08383	08430	08508	08522	08536	11010
11035	11120	11240	12575	17607	40186	47230	48698	50527
50557	50578	50774	50953	51076	51243	51431	51463	51644
51656	51709	51777	51828	51839	52203	52267	52323	52418
52533	52652	52681	52818	52836	52866	52983	53068	53463
53513	53543	53614	53772	53845	53915	54102	54135	54161
54218	54292	54374	54511	54662	54727	54857	55299	55591
56029	56046	56080	56137	56146	56187	56492	56571	56651
56691	56739	56778	56964	56985	57083	57127	57131	57178
57245	57461	57494	57516	57541	57687	57749	57816	57957
57972	57993	58027	58150	58203	58238	58362	58424	58457
58606	58633	58665	58725	58847	59023	59134	59211	59265
59280	59293	59316	59431	59758	59981	60253	65344	72413
89002	89642	91925	91938	91948	91958	93817	94001	94653
94767								

5 Annex - Explanations of figures and tables

5.1 General

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

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

5.2 Data Availability

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

5.3 Data Quality

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

It should be noted that:

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

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

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

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

The corresponding limits for wind (table 8) are:

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

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

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

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

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

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

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

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

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