



# ECMWF Global Data Monitoring Report

**July 2024**

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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 30 (Nov 23) - Coverage charts for AIREP/AMDARs updated:  
Added MODE-S and ADS-C to Figure 5 and Figure 18
- 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 co-ordinate all the results, inform the WMO Secretariat immediately of obvious problems, and produce every six months a consolidated list of observations of that particular type believed to be of low quality. The presently nominated centres are: RSMC Exeter for marine surface observations; RSMC ECMWF for radiosonde and pilot observations; WMC Washington for aircraft and satellite observations.

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

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

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

## 2 Data summary - History of events

### 2.1 Radiosondes

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

Ident	Time	Jun	Jul	Ident	Time	Jun	Jul
16113	(12)	23	2	03882	(00)	5	27
16332	(00)	30	19	14240	(00)	0	13
17030	(00)	26	9	28722	(00)	0	26
17030	(12)	28	9	28722	(12)	0	27
17240	(00)	30	15	43279	(00)	9	29
21946	(00)	28	6	43279	(12)	0	29
21946	(12)	29	8	48480	(12)	11	24
24641	(12)	29	10	61024	(12)	10	31
40766	(00)	21	7	63985	(00)	10	31
40809	(12)	30	15	65548	(12)	15	26
42701	(00)	29	2	68263	(00)	1	30
42874	(00)	24	1	68263	(12)	2	27
42874	(12)	21	0	68842	(00)	1	17
43150	(00)	11	0	68842	(12)	1	23
43185	(12)	13	2	70414	(12)	17	29
60096	(12)	26	0	74626	(12)	15	31
64500	(12)	0	11	76805	(00)	1	26
72214	(00)	21	0	78866	(00)	11	24
72214	(12)	21	0	82532	(00)	19	30
78384	(00)	14	0	89009	(12)	0	28
82599	(00)	26	9	-	-	-	-
82599	(12)	28	10	-	-	-	-
82824	(00)	28	15	-	-	-	-
82917	(12)	22	8	-	-	-	-
89009	(00)	25	2	-	-	-	-
98646	(00)	28	16	-	-	-	-
98646	(12)	29	15	-	-	-	-

## 2.2 Drifting Buoys

Surface pressure observations from **1330** 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.

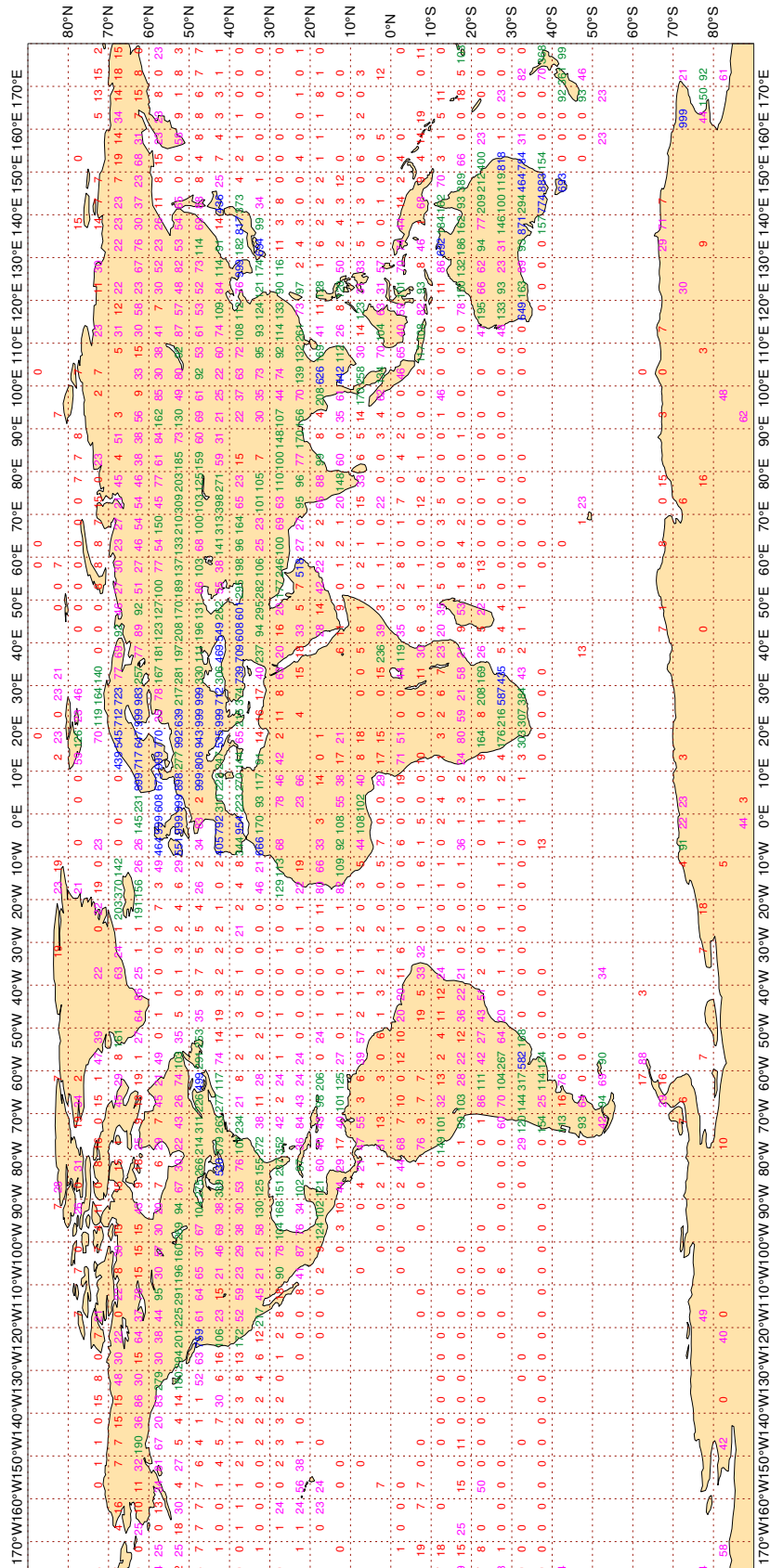
Fig	Parameter	Level/Layer
14	SATOB - Mean observed wind	1000-700 hPa
15	SATOB - Mean observed wind	400-150 hPa
16	SATOB - Mean observed minus first-guess wind	1000-700 hPa
17	SATOB - Mean observed minus first-guess wind	400-150 hPa
18	AIRCRAFT WIND - Mean observed minus first-guess	300-150 hPa

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

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

ECMWF Monitoring Statistics - JUL 2024  
 Availability - SYNOP/SHIP (manual, auto) pressure  
 Average number of observations in 24 hours - 115404  
 LAND - WMO Region I: 8049 II:22482 III: 4804 IV: 8283  
 Region V:15322 VI:40503 Antarctic: 2780  
 Oceans - N. Atlantic 6281 S. Atlantic 164 Indian 508 Pacific 6228

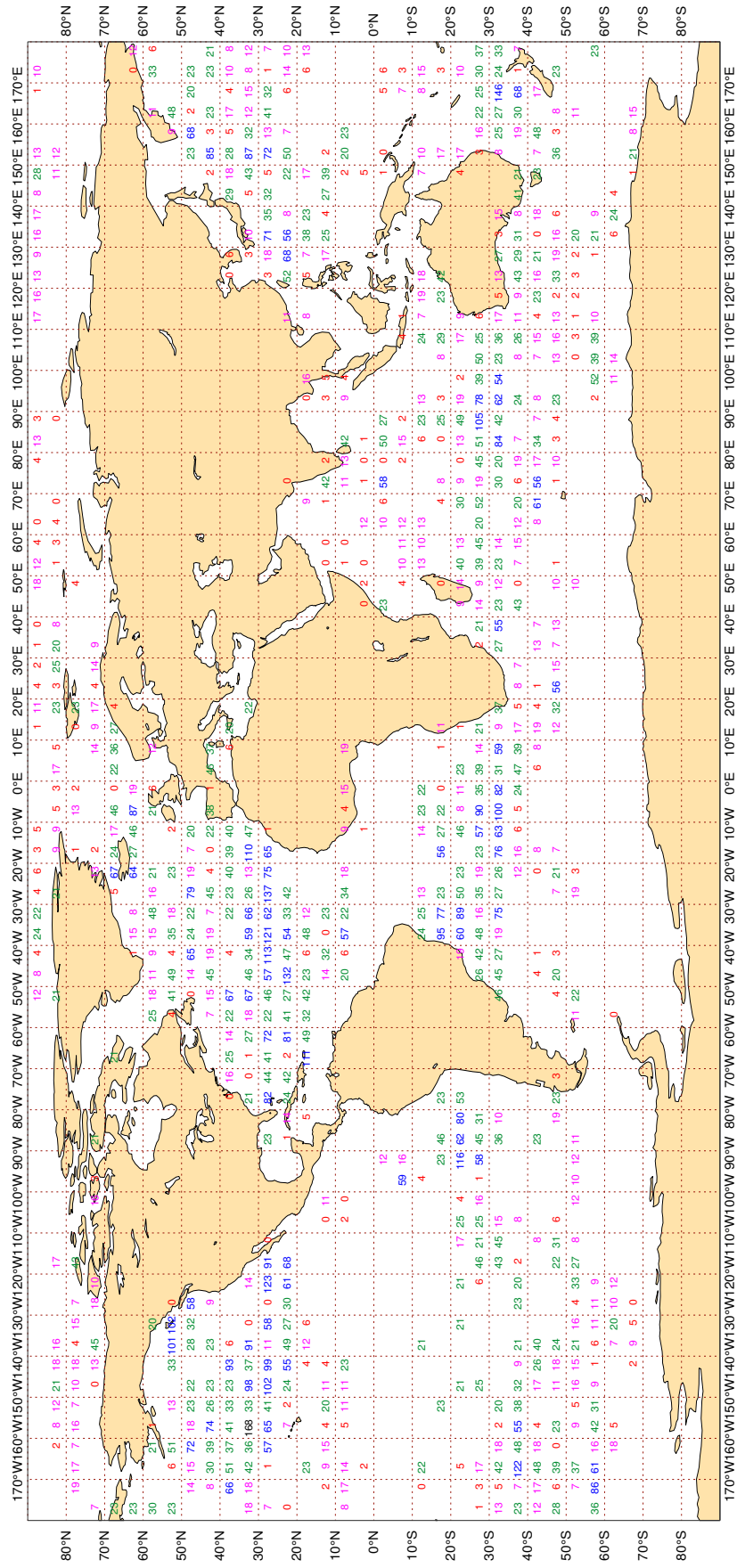
Figure 1



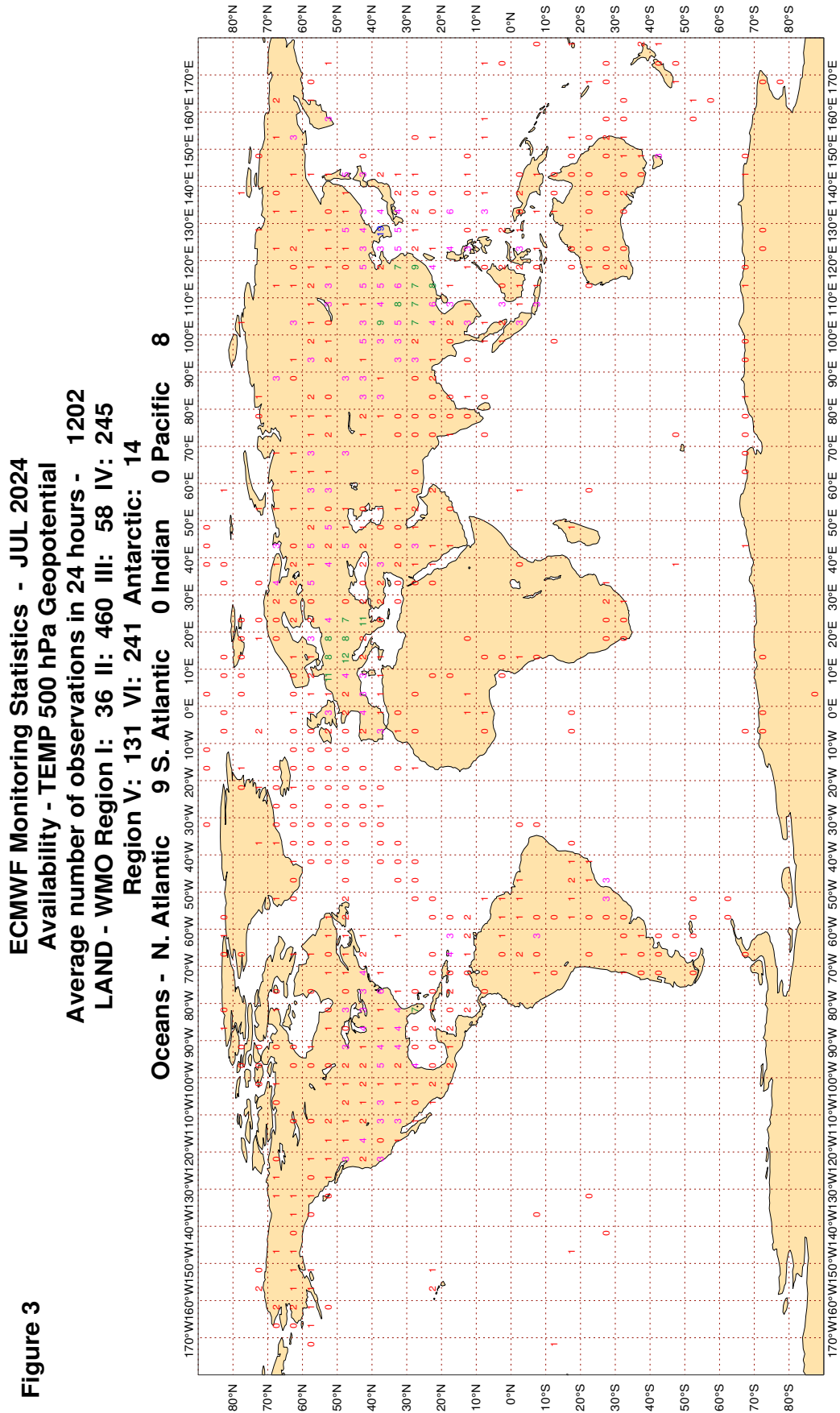
3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2

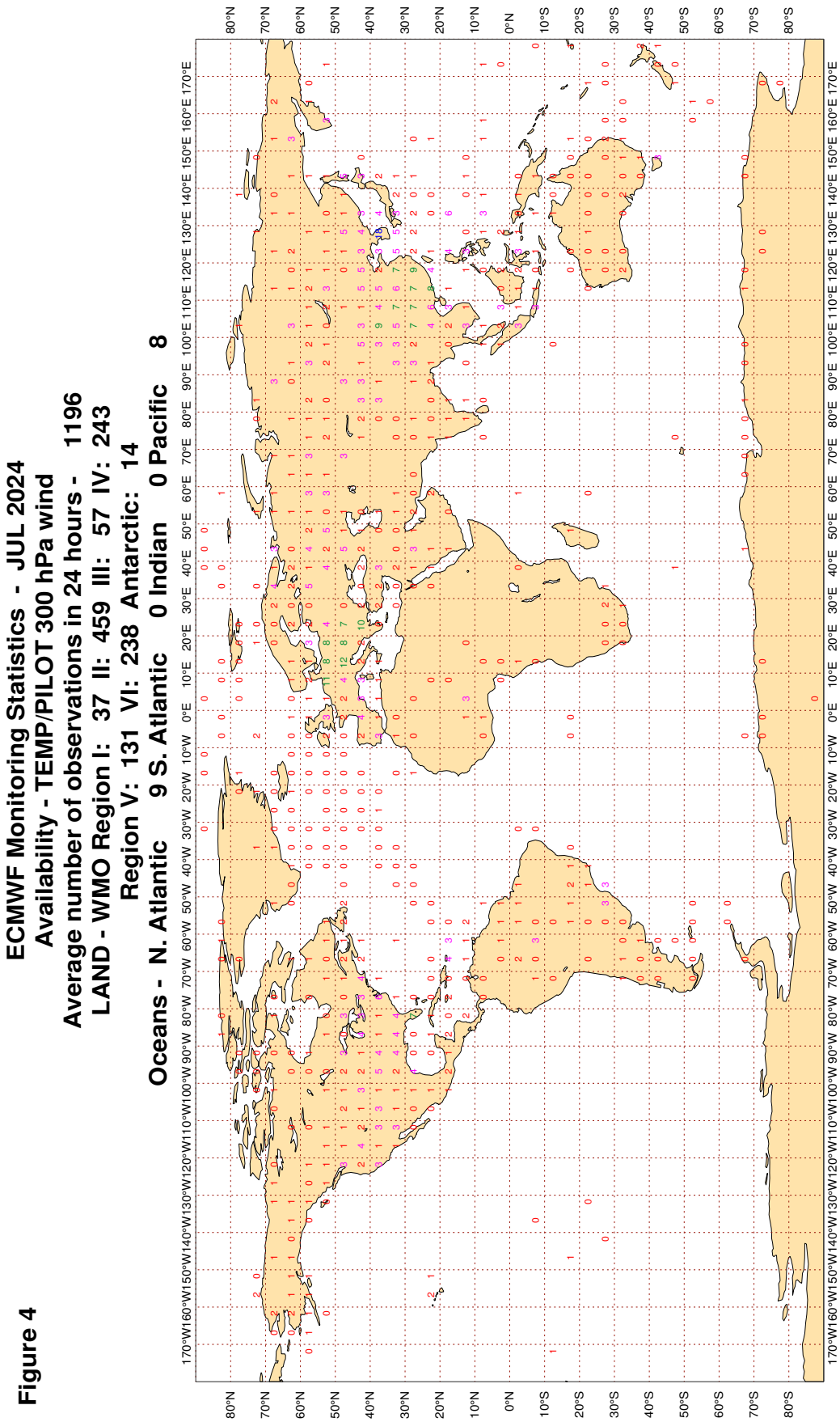
**ECMWF Monitoring Statistics - JUL 2024**  
**Availability - DRIFTER PRESSURE**  
**Average number of observations in 24 hours - 19984**  
**Oceans - N. Atlantic 4904 S. Atlantic 2376 Indian 3439 Pacific 9265**



3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential



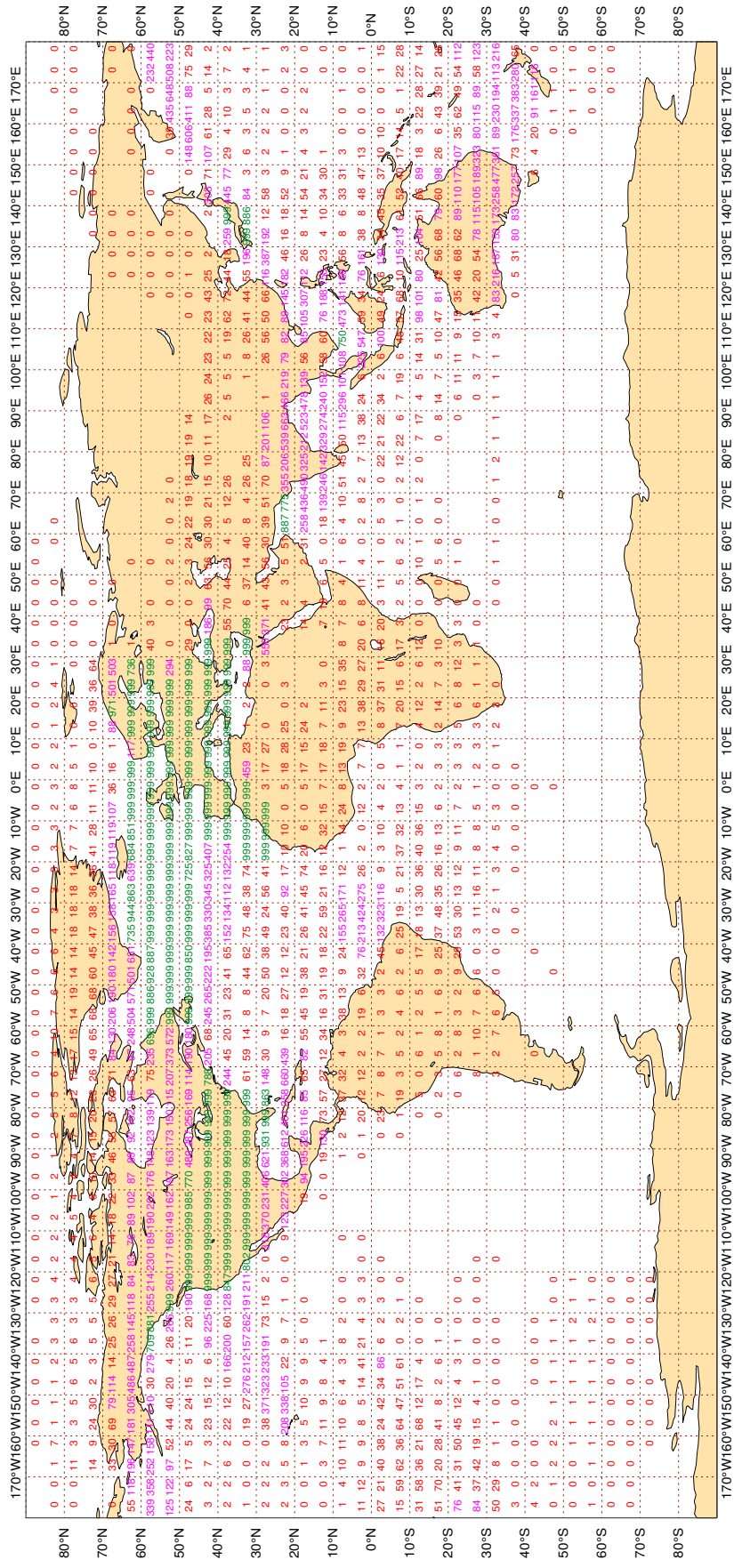
3.2.4 Figure 4 - Availability - TEMP/PILOT 300 hPa wind



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

Figure 5

ECMWF Monitoring Statistics - JUL 2024  
Availability - Aircraft winds 300-150 hPa  
Average number of observations in 24 hours - 3173690



Magics 4.9.4

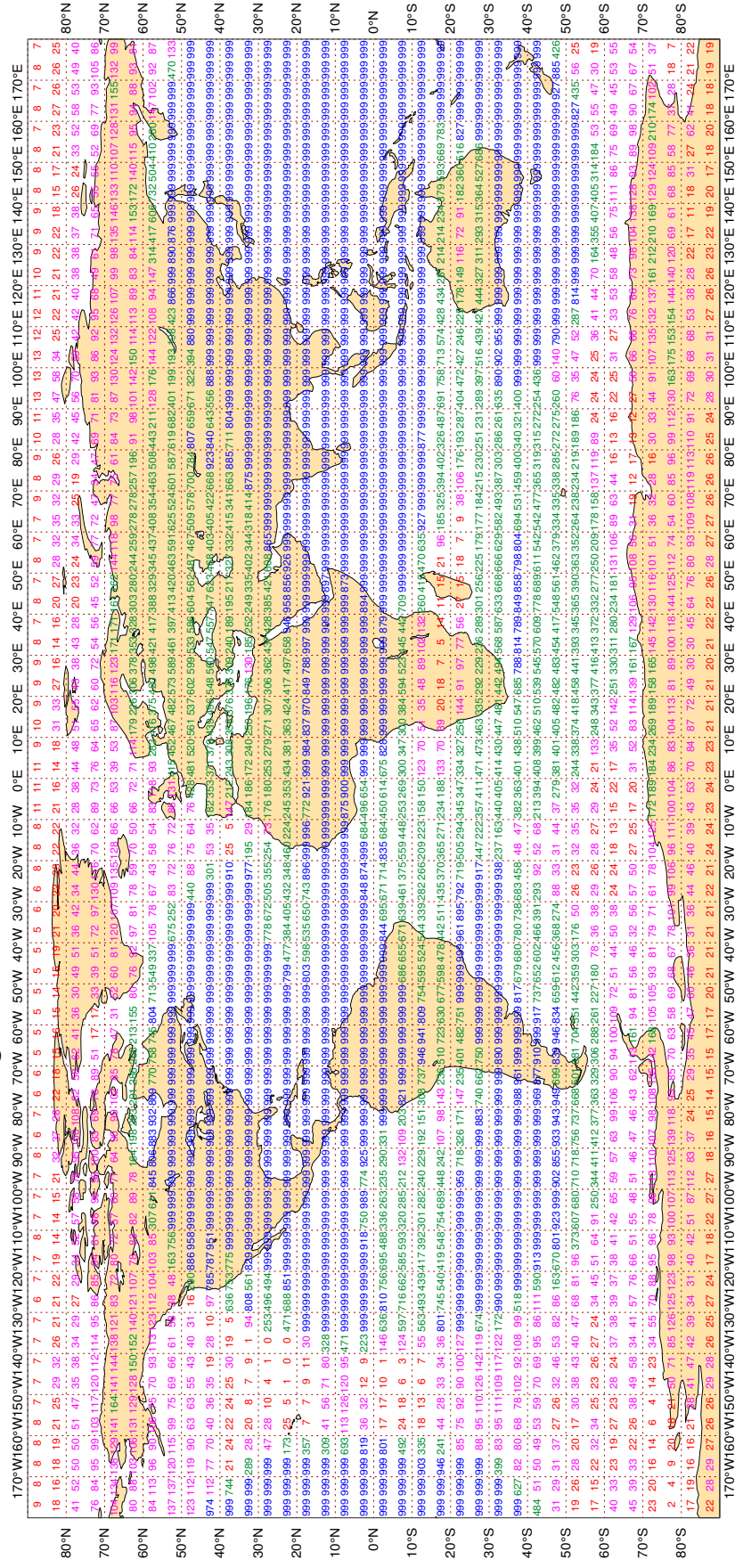


3.2.6 Figure 6 - Availability - SATOB winds 400-150 hPa

Figure 6

ECMWF Monitoring Statistics - JUL 2024  
Availability - AMV winds 400-150 hPa

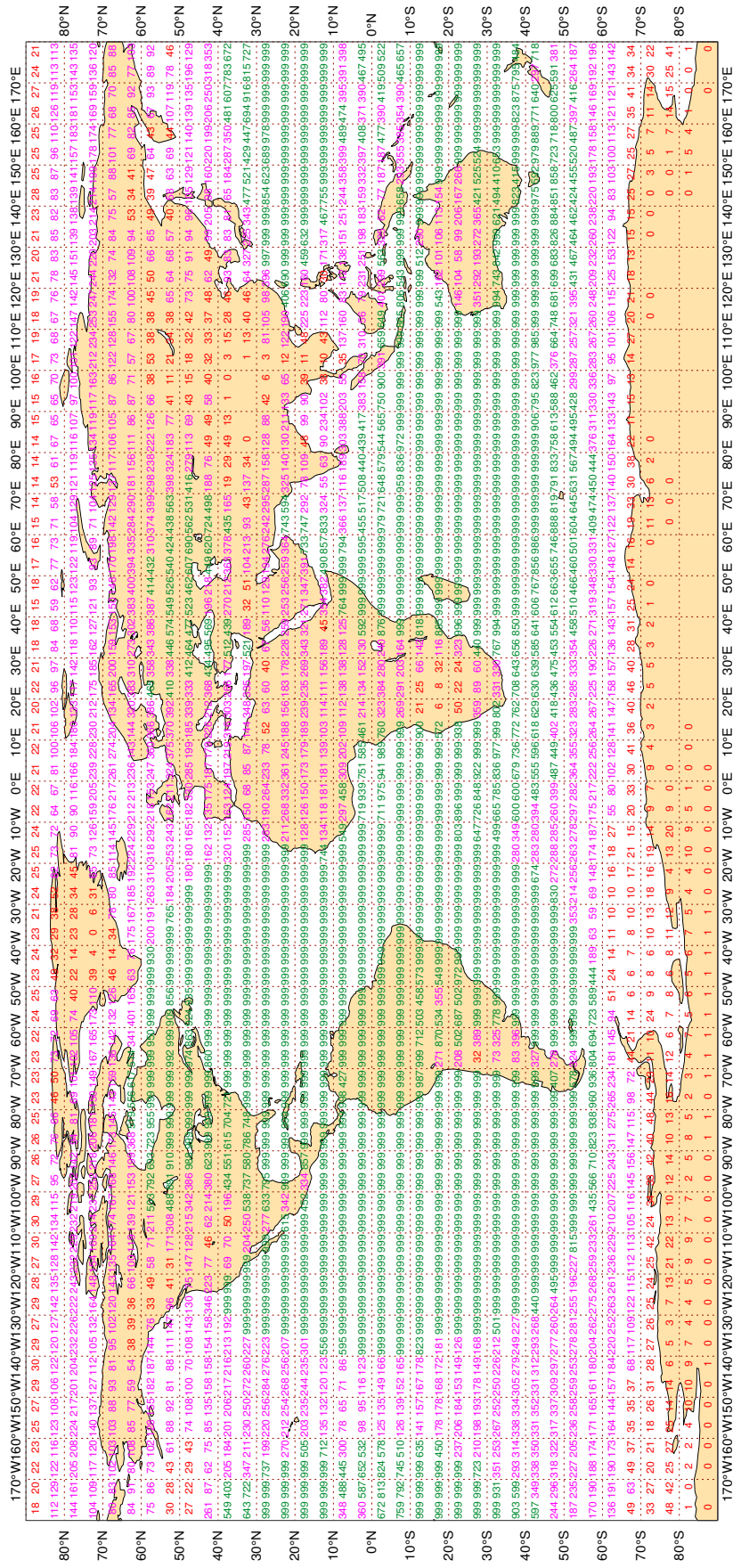
Average number of observations in 24 hours - 2234944



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

Figure 7

ECMWF Monitoring Statistics - JUL 2024  
Availability - AMV winds 1000-700 hPa  
Average number of observations in 24 hours - 4326548



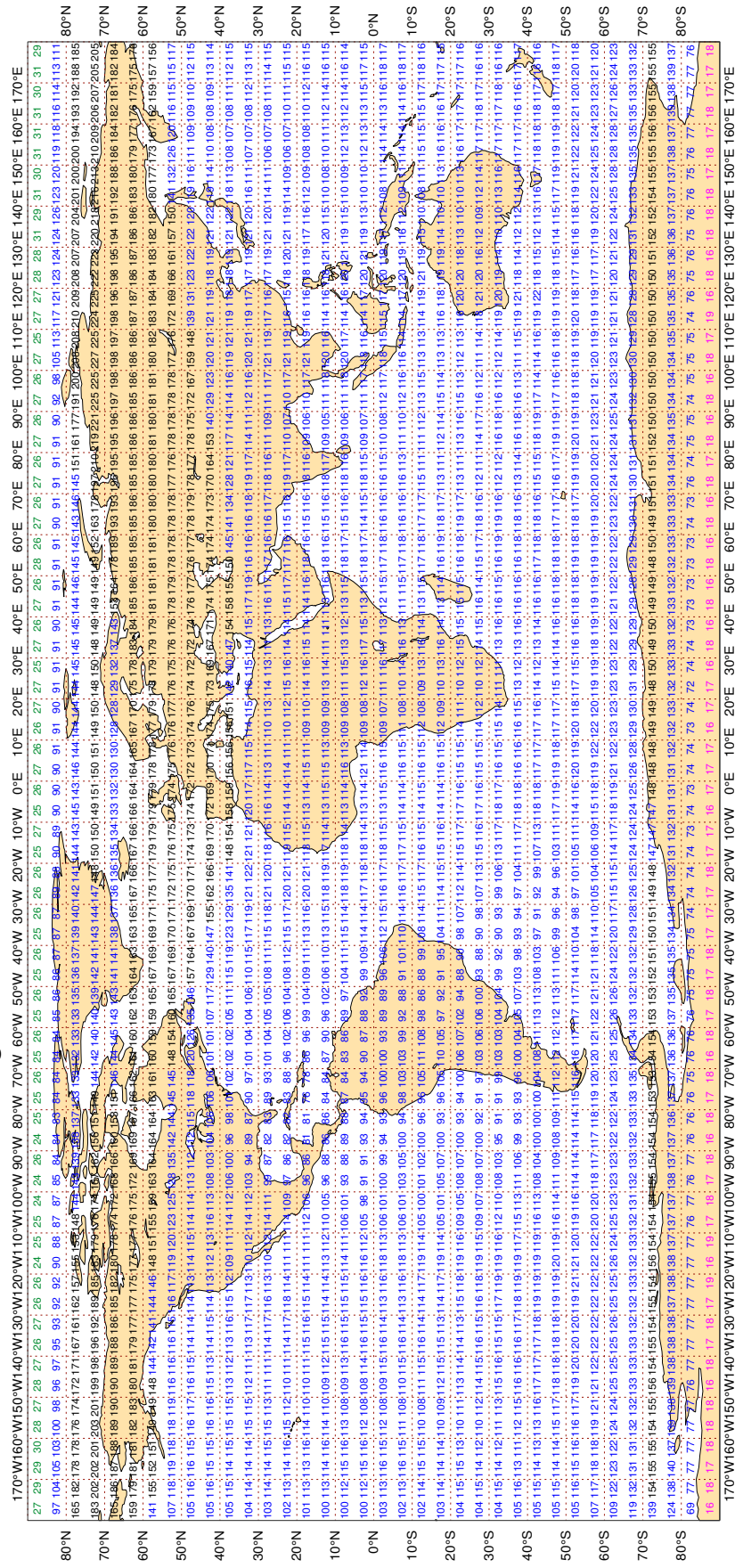


3.2.8 Figure 8 - Availability - NOAA15 ATOVS : AMSU-A

Figure 8

ECMWF Monitoring Statistics - JUL 2024  
Availability - NOAA15 ATOVS : AMSU-A

Average number of observations in 24 hours - 310514

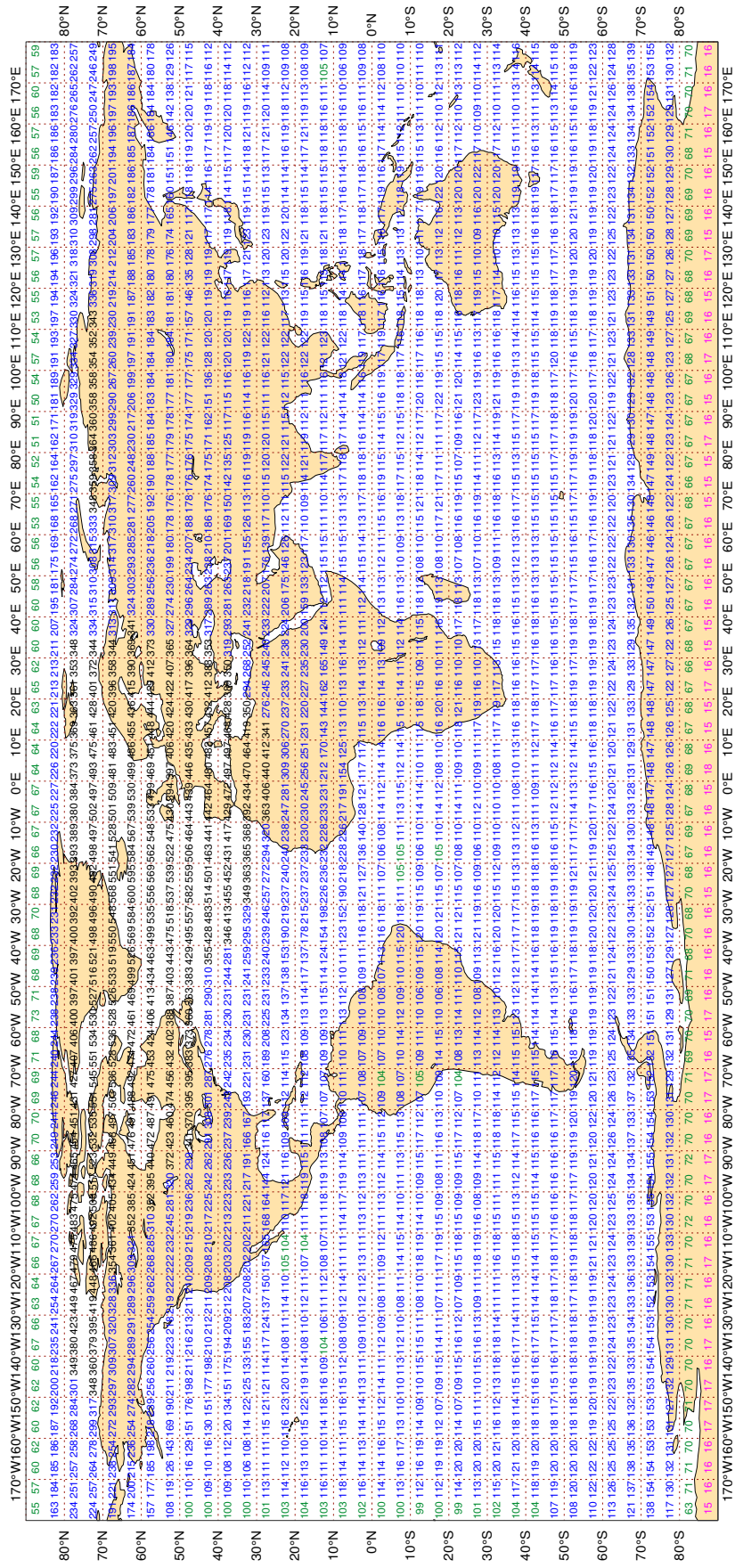


3.2.9 Figure 9.1 - Availability - NOAA18 ATOVS : AMSU-A

Figure 9.1

ECMWF Monitoring Statistics - JUL 2024  
Availability - NOAA18 ATOVS : AMSU-A

Average number of observations in 24 hours - 437339

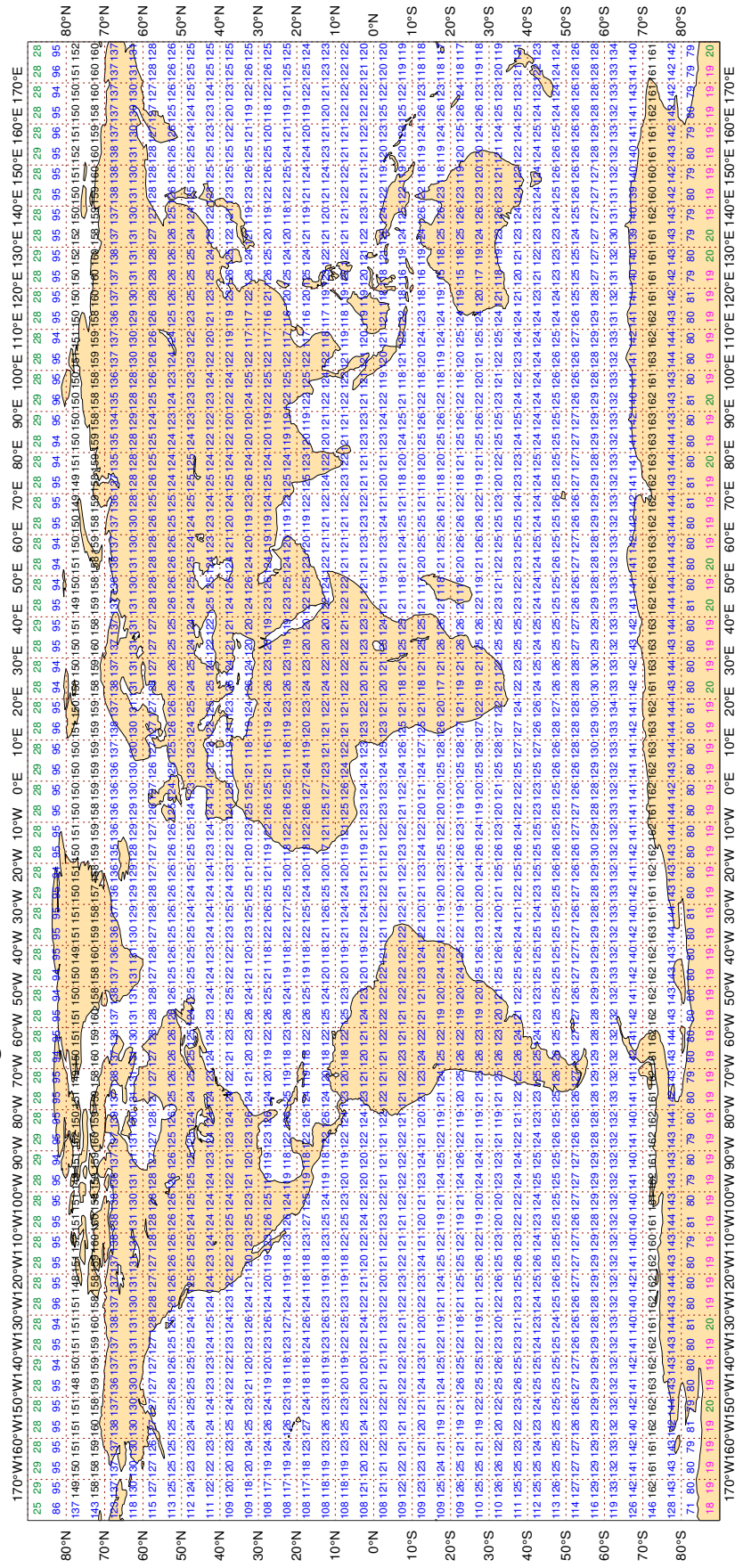


3.2.10 Figure 9.2 - Availability - AQUA ATOVS : AMSU-A

Figure 9.2

ECMWF Monitoring Statistics - JUL 2024  
Availability - METOP-C ATOVS : AMSU-A

Average number of observations in 24 hours - 313375

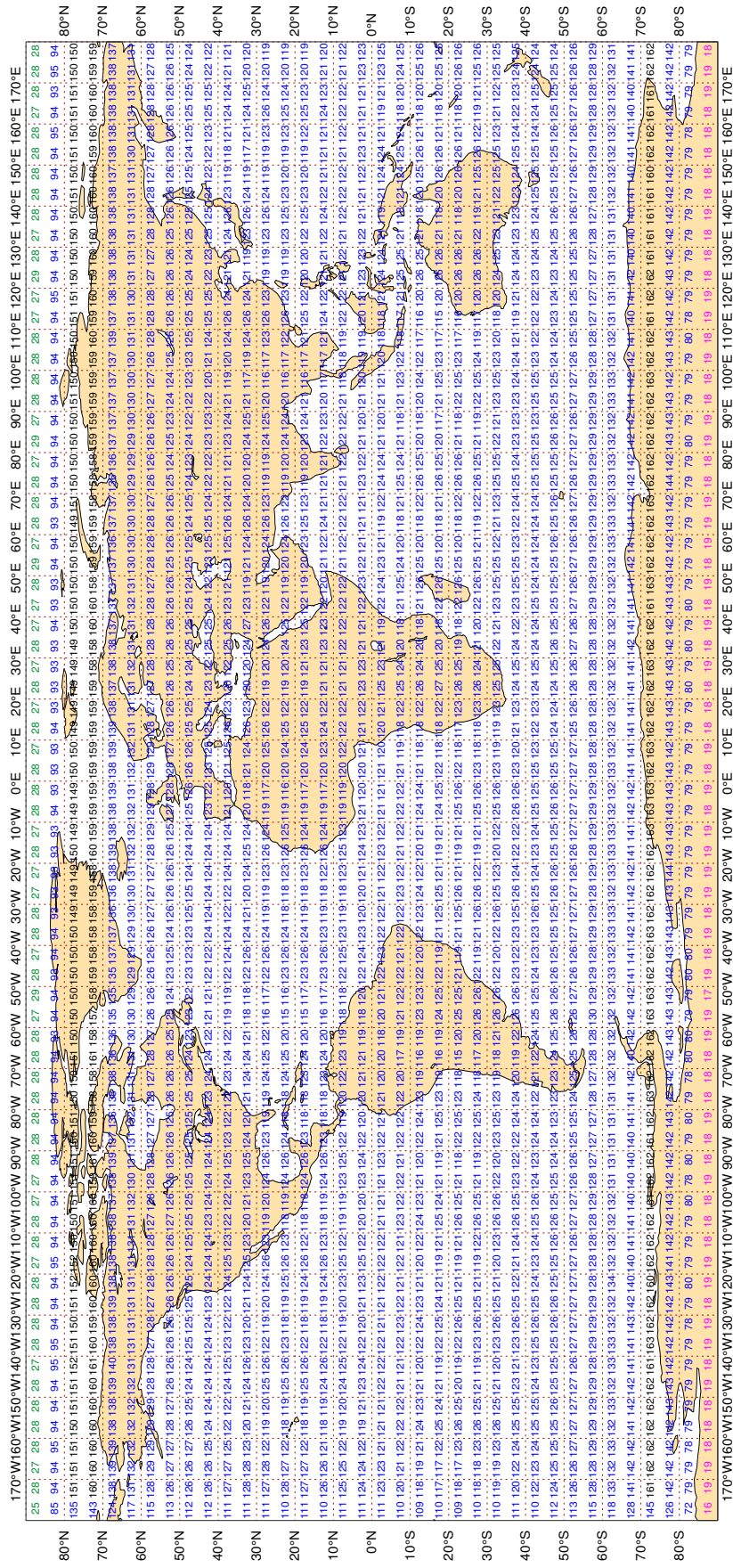


3.2.11 Figure 9.3 - Availability - METOP ATOVS : AMSU-A

Figure 9.3

ECMWF Monitoring Statistics - JUL 2024  
Availability - METOP-B ATOVS : AMSU-A

Average number of observations in 24 hours - 313086



Magics 4.9.4



### 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 : JUL 2024  
 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
32ST0	99	P	SUR	111	0	2.4	5.2	5.8
3EBY2	99	P	SUR	27	19	2.7	12.5	12.8
3FEN2	99	P	SUR	75	0	0.8	3.1	3.2
3FFG7	99	P	SUR	50	0	1.1	3.3	3.5
3FLT5	99	P	SUR	29	0	2.6	5.2	5.8
3FYP8	99	P	SUR	16	0	0.5	3.3	3.3
45201	99	P	SUR	124	75	3.1	11.4	11.8
5LBV3	99	P	SUR	17	0	1.7	5.0	5.3
5LCS5	99	P	SUR	26	0	0.8	-5.9	5.9
5LGV4	99	P	SUR	16	0	0.4	9.2	9.2
7JQV	99	P	SUR	47	0	1.0	4.4	4.5
7JSY	99	P	SUR	15	0	1.4	3.7	4.0
7KKG	99	P	SUR	38	0	1.0	3.9	4.0
9HA3062	99	P	SUR	15	0	0.4	-4.8	4.8
9HA3858	99	P	SUR	16	0	0.8	-5.1	5.2
9HA4777	99	P	SUR	84	1	2.2	6.7	7.1
9HA4974	99	P	SUR	24	0	1.0	7.8	7.8
9HA5209	99	P	SUR	49	3	2.8	11.4	11.8
9HA5677	99	P	SUR	97	43	2.1	8.9	9.2
9HA5823	99	P	SUR	17	2	1.6	11.9	12.0
9HJD9	99	P	SUR	26	0	1.6	5.0	5.3
9HSJ7	99	P	SUR	15	0	1.0	7.3	7.4
9V3913	99	P	SUR	95	2	2.3	7.1	7.5
9V5076	99	P	SUR	16	0	2.3	3.1	3.9
9V7305	99	P	SUR	56	0	2.4	4.1	4.8
9V8839	99	P	SUR	37	0	0.6	3.4	3.5
9V9375	99	P	SUR	28	0	1.6	6.1	6.3
9V9402	99	P	SUR	47	28	1.3	13.1	13.2
9V9404	99	P	SUR	21	0	2.5	10.1	10.4
9V9450	99	P	SUR	117	0	1.7	5.3	5.6
AUYN	99	P	SUR	33	1	2.6	3.2	4.2
AVBD	99	P	SUR	28	4	1.4	4.1	4.3

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
AWWB	99	P	SUR	87	27	1.6	-1.1	2.0
BHJG	99	P	SUR	43	0	1.3	7.2	7.3
C6DT6	99	P	SUR	57	1	3.6	-7.2	8.1
C6TX6	99	P	SUR	38	2	2.2	8.5	8.8
C6VV8	99	P	SUR	16	0	0.7	-3.0	3.1
D5HF2	99	P	SUR	17	0	1.0	-4.1	4.2
D5ZH9	99	P	SUR	27	0	3.4	3.6	5.0
GXDFFHB	99	P	SUR	18	0	2.2	-3.1	3.8
H3BV	99	P	SUR	80	0	1.6	-4.5	4.8
LAHR7	99	P	SUR	44	0	0.5	5.8	5.8
LAQL7	99	P	SUR	35	0	1.6	4.5	4.8
NEPP	99	P	SUR	57	0	1.1	-3.1	3.3
OXBB2	99	P	SUR	18	1	0.4	3.8	3.9
OYOS2	99	P	SUR	21	0	1.2	3.6	3.8
TNVXRHV	99	P	SUR	20	0	0.5	-5.8	5.8
UBBO5	99	P	SUR	28	19	3.3	-11.5	12.0
UBOV4	99	P	SUR	22	0	5.2	2.1	5.6
UCSJ	99	P	SUR	44	4	6.8	-7.5	10.1
V7A2005	99	P	SUR	120	0	1.7	3.2	3.7
V7A4787	99	P	SUR	58	0	1.2	3.5	3.7
V7A4788	99	P	SUR	25	0	2.3	9.5	9.7
V7A5139	99	P	SUR	27	0	0.7	4.2	4.3
V7A6070	99	P	SUR	112	0	1.7	4.5	4.8
V7A6073	99	P	SUR	22	0	1.9	3.0	3.5
V7A6081	99	P	SUR	72	0	2.1	3.0	3.7
V7DJ7	99	P	SUR	22	1	0.8	8.2	8.2
V7QK9	99	P	SUR	49	0	0.8	4.5	4.5
VR007	99	P	SUR	16	0	0.5	3.1	3.1
VRCI9	99	P	SUR	16	0	1.6	5.7	5.9
VRDJ3	99	P	SUR	91	0	0.7	-3.0	3.1
VRDW2	99	P	SUR	88	0	1.3	-4.8	5.0
VREX4	99	P	SUR	16	0	1.1	9.2	9.3
VRFI7	99	P	SUR	84	0	0.7	-4.2	4.3
VRFS2	99	P	SUR	24	0	2.7	4.2	5.0
VRFX8	99	P	SUR	25	0	1.2	3.4	3.6
VRGO2	99	P	SUR	15	0	2.8	4.2	5.0
VRGO3	99	P	SUR	16	0	1.0	7.6	7.7
VRGO6	99	P	SUR	17	0	0.9	-6.1	6.1
VRGO8	99	P	SUR	21	0	2.1	4.0	4.5
VRJL6	99	P	SUR	64	41	5.0	-1.2	5.2
VRJS2	99	P	SUR	58	0	0.9	-3.7	3.8

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
VRLJ4	99	P	SUR	23	1	4.0	8.5	9.4
VRME7	99	P	SUR	32	0	1.9	9.5	9.7
VRNL9	99	P	SUR	39	0	1.8	4.8	5.1
VRRH6	99	P	SUR	22	0	0.4	4.9	4.9
VRRQ4	99	P	SUR	36	0	0.9	6.7	6.8
VRTF2	99	P	SUR	50	0	1.8	4.0	4.4
VRTU5	99	P	SUR	20	0	0.9	-5.8	5.8
VRVC2	99	P	SUR	17	0	1.1	3.2	3.4
VRVG5	99	P	SUR	24	0	1.3	5.2	5.4
VRVO3	99	P	SUR	16	0	1.5	9.0	9.1
VRVR2	99	P	SUR	26	0	0.6	-7.0	7.0
VRWN4	99	P	SUR	30	1	0.7	-5.3	5.3
VRZK8	99	P	SUR	77	0	1.7	4.2	4.5
WCQ6174	99	P	SUR	15	0	2.3	-3.8	4.5
WCY2920	99	P	SUR	105	0	0.9	-4.1	4.2
WDK5676	99	P	SUR	124	0	0.7	-3.4	3.5
WGEB	99	P	SUR	111	0	0.3	5.7	5.7
WSFABLK	99	P	SUR	37	0	1.3	4.8	5.0
YUTPB4M	99	P	SUR	32	2	2.8	5.2	5.9

**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 : JUL 2024  
 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 : JUL 2024  
 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
45165	99	DIRN	SUR	52	0	0	83.7	32.7	89.9
45174	99	DIRN	SUR	46	0	0	22.1	47.3	52.2
45186	99	DIRN	SUR	31	0	0	53.9	94.5	108.8
45199	99	DIRN	SUR	75	0	0	23.6	59.1	63.7
45207	99	DIRN	SUR	43	0	0	35.2	-34.6	49.4
45209	99	DIRN	SUR	28	0	0	30.0	-32.9	44.5
45219	99	DIRN	SUR	25	0	0	101.3	-14.4	102.3
46081	99	DIRN	SUR	34	0	0	33.6	45.6	56.7
46131	99	DIRN	SUR	64	0	0	37.9	51.4	63.9
46145	99	DIRN	SUR	77	0	0	15.5	-43.3	46.0
46185	99	DIRN	SUR	88	0	0	35.9	-84.0	91.4

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

LIST OF SUSPECT STATIONS : DRIFTER  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)  
 AREA : GLOBAL  
 PERIOD : JUL 2024  
 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
1501718	99	P	SUR	-34	-42	741	29	7.4	-1.4	7.5
1701718	99	P	SUR	20	-60	734	732	0.0	14.5	14.5
2302627	99	P	SUR	11	73	400	400	0.0	0.0	0.0
3201836	99	P	SUR	8	-145	744	75	5.6	-7.3	9.2
3301523	99	P	SUR	-15	-39	740	0	0.4	-4.2	4.2
3301702	99	P	SUR	-41	3	741	398	4.3	-7.7	8.8
3401636	99	P	SUR	-31	-117	744	0	0.5	-5.2	5.2
3801723	99	P	SUR	53	-133	743	707	2.1	13.4	13.6
4101882	99	P	SUR	2	146	245	115	2.0	5.8	6.2
4402735	99	P	SUR	44	-7	540	0	2.5	-4.6	5.2
4500201	99	P	SUR	42	83	4351	2572	3.2	11.4	11.8
45201	99	P	SUR	42	83	744	443	3.2	11.4	11.8
4601753	99	P	SUR	27	-148	711	4	5.4	-5.2	7.5
4601763	99	P	SUR	26	-155	352	340	0.0	14.6	14.6
4602563	99	P	SUR	31	-168	742	494	7.4	1.2	7.5
4701543	99	P	SUR	74	-144	349	54	3.7	6.0	7.0
4701545	99	P	SUR	85	167	403	403	0.0	0.0	0.0
4701558	99	P	SUR	79	-18	62	0	0.4	-4.6	4.6
4801771	99	P	SUR	53	-49	692	692	0.0	0.0	0.0
4802506	99	P	SUR	58	-8	685	209	7.3	0.8	7.3
4802600	99	P	SUR	62	-41	48	48	0.0	0.0	0.0
4802662	99	P	SUR	70	-125	329	297	3.7	9.2	9.9
5103563	99	P	SUR	34	-149	466	260	9.2	-0.4	9.2
5501735	99	P	SUR	-47	-139	690	690	0.0	0.0	0.0
5601754	99	P	SUR	-12	118	690	359	2.9	1.6	3.3
9303522	99	P	SUR	28	-14	72	0	1.4	-4.3	4.5

**3.2.16 Table 5 - Suspect drifters: Wind speed (m/s)**

LIST OF SUSPECT STATIONS : DRIFTER  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND SPEED (M/S)  
 AREA : GLOBAL  
 PERIOD : JUL 2024  
 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
2300095	99	SPEED	SUR	10	94	225	0	0	1.7	-5.7	5.9
23095	99	SPEED	SUR	10	94	55	0	0	1.7	-5.2	5.5
3100002	99	SPEED	SUR	4	-38	115	0	0	1.5	-5.2	5.4

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

LIST OF SUSPECT STATIONS : DRIFTER  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)  
 PERIOD : JUL 2024  
 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
2200106	99	DIRN	SUR	36	130	436	0	0	34.0	25.2	42.3
2200183	99	DIRN	SUR	35	126	474	0	0	30.4	25.3	39.6
2300095	99	DIRN	SUR	10	94	26	0	0	13.2	23.1	26.6
4400008	99	DIRN	SUR	40	-69	3099	0	0	16.5	25.8	30.7
4400488	99	DIRN	SUR	45	-61	488	0	0	19.3	-26.1	32.4
4400489	99	DIRN	SUR	45	-61	380	0	0	24.6	-25.9	35.7
44008	99	DIRN	SUR	41	-69	497	0	0	17.4	25.5	30.8
44488	99	DIRN	SUR	45	-61	465	0	0	19.6	-26.2	32.8
44489	99	DIRN	SUR	46	-61	360	0	0	23.7	-27.2	36.1
4500164	99	DIRN	SUR	42	-82	354	0	0	28.2	-22.9	36.3
4500165	99	DIRN	SUR	45	-83	1770	0	0	71.4	37.6	80.7
4500174	99	DIRN	SUR	42	-88	1729	0	0	29.8	43.4	52.7
4500186	99	DIRN	SUR	42	-88	1079	0	0	74.5	71.9	103.6
4500199	99	DIRN	SUR	43	-88	795	0	0	29.9	57.1	64.4
4500200	99	DIRN	SUR	42	-83	542	0	0	20.0	20.4	28.6
4500206	99	DIRN	SUR	42	-82	1592	0	0	26.8	-20.1	33.5
4500207	99	DIRN	SUR	42	-81	1369	0	0	31.6	-32.7	45.5
4500209	99	DIRN	SUR	43	-82	1049	0	0	31.5	-37.3	48.8
4500219	99	DIRN	SUR	47	-92	517	0	0	92.1	-31.7	97.4
45164	99	DIRN	SUR	42	-82	336	0	0	27.3	-24.1	36.4
45165	99	DIRN	SUR	45	-83	296	0	0	73.4	37.9	82.6
45174	99	DIRN	SUR	42	-88	269	0	0	30.4	45.9	55.1
45186	99	DIRN	SUR	42	-88	179	0	0	69.6	78.2	104.7
45198	99	DIRN	SUR	42	-88	311	0	0	47.7	-22.6	52.8
45199	99	DIRN	SUR	43	-88	422	0	0	27.5	57.7	63.9
45200	99	DIRN	SUR	42	-83	100	0	0	17.2	23.8	29.3
45207	99	DIRN	SUR	42	-81	247	0	0	31.1	-33.7	45.9
45208	99	DIRN	SUR	42	-81	224	0	0	21.1	-21.3	30.0
45209	99	DIRN	SUR	43	-82	181	0	0	31.5	-33.9	46.2
45219	99	DIRN	SUR	47	-92	143	0	0	100.7	-20.2	102.7
4600081	99	DIRN	SUR	61	-148	222	0	0	43.4	40.5	59.4

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
4600087	99	DIRN	SUR	48	-125	1470	0	0	26.1	22.3	34.4
4600092	99	DIRN	SUR	37	-122	380	0	0	14.6	26.7	30.4
4600121	99	DIRN	SUR	47	-123	46	0	0	42.4	-38.1	57.0
4600145	99	DIRN	SUR	54	-132	485	0	0	23.3	-42.6	48.5
4600185	99	DIRN	SUR	53	-130	547	0	0	44.5	-79.2	90.9
46081	99	DIRN	SUR	61	-148	217	0	0	40.2	42.5	58.5
46092	99	DIRN	SUR	37	-122	306	0	0	15.1	24.8	29.0
46121	99	DIRN	SUR	47	-123	31	0	0	56.4	-30.8	64.3
46131	99	DIRN	SUR	50	-125	385	0	0	40.8	48.4	63.3
46145	99	DIRN	SUR	54	-132	470	0	0	19.7	-42.9	47.2
46185	99	DIRN	SUR	53	-130	531	0	0	43.1	-80.0	90.9
6301004	99	DIRN	SUR	72	20	212	0	0	12.9	-37.7	39.9
6600022	99	DIRN	SUR	54	14	138	0	0	55.9	48.7	74.2

**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 : JUL 2024  
 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	31	0	4.0	79.8	79.9
01400	00	Z	1000	57	3	31	0	14.2	76.6	77.9
17351	12	Z	500	37	35	23	0	8.8	48.4	49.2
17516	00	Z	400	35	33	24	0	24.0	52.9	58.1
36003	00	Z	150	52	77	26	1	86.7	32.6	92.6
38341	00	Z	250	43	71	26	7	128.7	-60.2	142.1
38341	12	Z	250	43	71	14	5	116.2	-49.4	126.3
41923	12	Z	400	24	90	21	1	61.0	46.2	76.5
42516	00	Z	50	26	92	11	2	32.7	155.9	159.3
43243	12	Z	100	15	80	16	0	32.0	108.9	113.5
48698	00	Z	50	1	104	10	0	7.3	132.0	132.2
62403	12	Z	1000	26	33	14	13	0.0	98.9	98.9
68994	00	Z	1000	-47	38	15	0	11.1	29.9	31.9
78988	00	Z	1000	12	-69	20	0	33.0	19.1	38.1
91680	12	Z	1000	-18	177	31	0	2.5	31.2	31.3
91680	00	Z	1000	-18	177	31	0	0.0	31.8	31.8
JNKN7J	12	Z	1000	52	-18	10	0	5.8	41.5	41.9
JNKN7J	00	Z	1000	52	-13	11	0	4.3	45.7	45.9
KMPLHP	12	Z	1000	45	-58	11	0	10.6	69.2	70.0

**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 : JUL 2024  
 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
17607	12	V	100	35	33	11	0	-8.5	-10.7	15.5
38341	00	V	100	43	71	24	0	-9.6	-2.6	20.5
38341	12	V	100	43	71	13	0	3.2	3.9	21.3
40179	12	V	100	32	35	26	0	-6.7	-10.7	15.6
40179	00	V	100	32	35	25	0	-7.3	-9.6	15.9

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

LIST OF SUSPECT STATIONS : RADIOSONDES  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)  
 AREA : GLOBAL  
 PERIOD : JUL 2024  
 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)

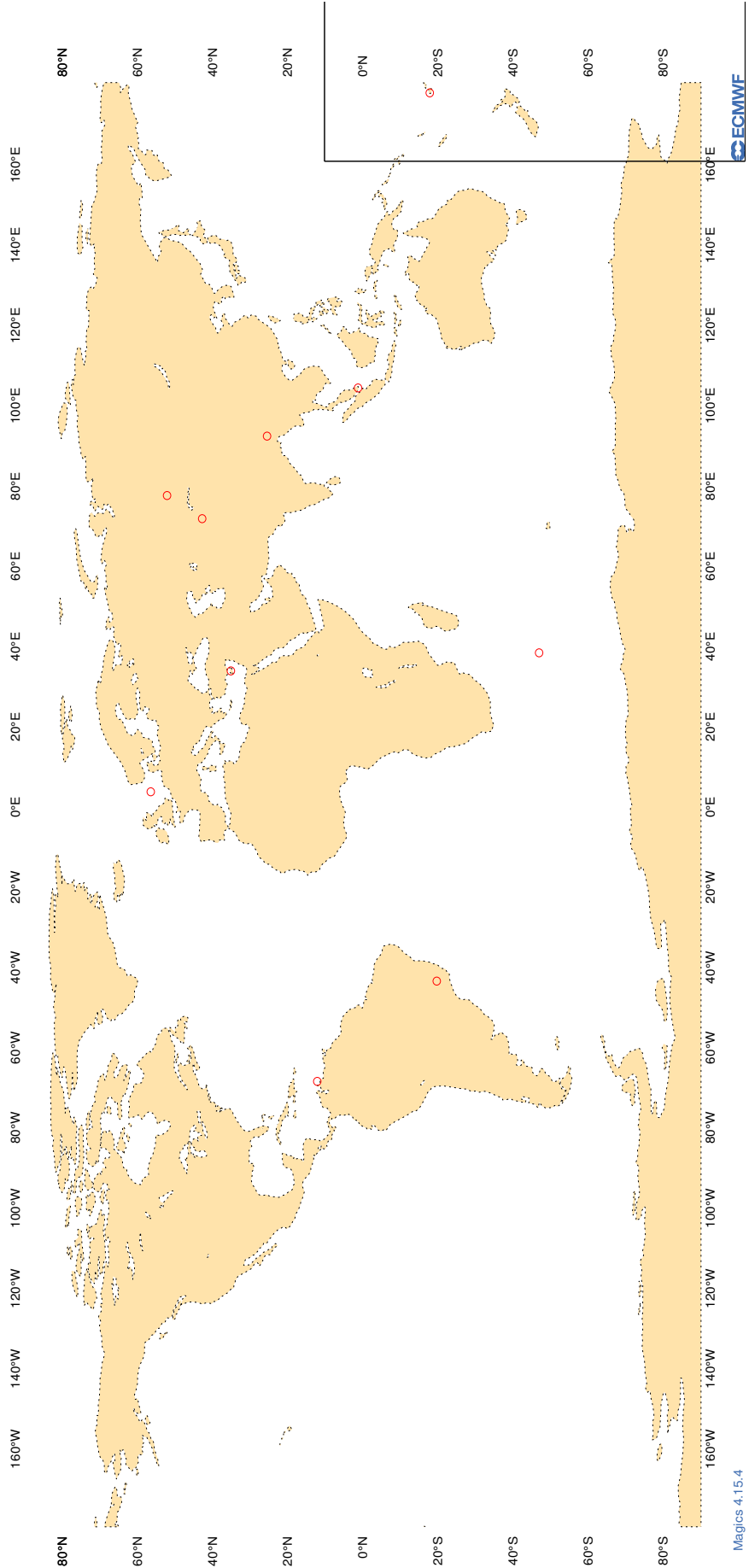
WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
54340	12	DD	42	124	29	-11.1	1.9	10.1
54340	00	DD	42	124	27	-10.5	5.3	19.3



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

Figure 10

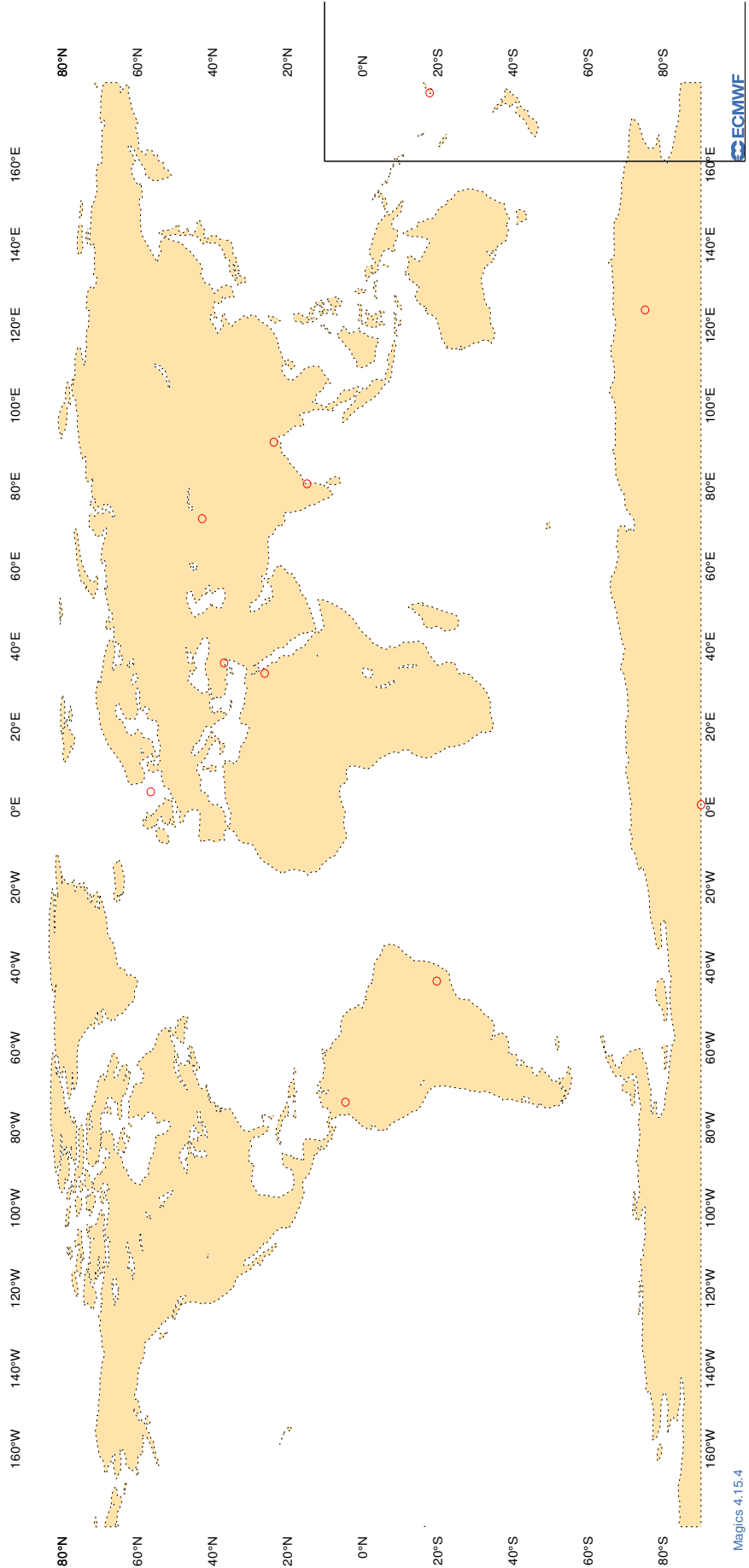
ECMWF Monitoring Statistics - JUL 2024 00 UTC  
Suspect TEMP observations - GEOPOTENTIAL



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

Figure 11

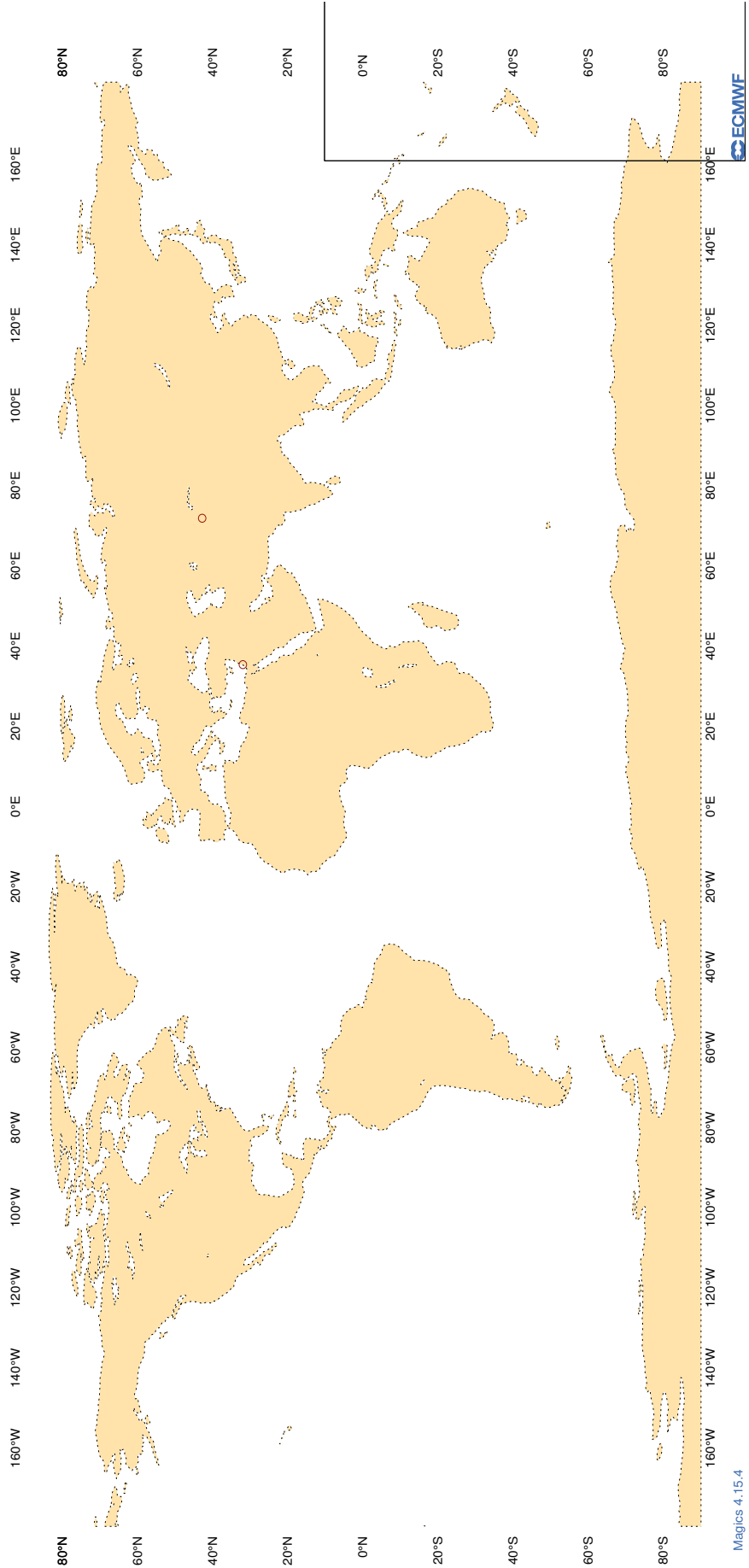
ECMWF Monitoring Statistics - JUL 2024 12 UTC  
Suspect TEMP observations - GEOPOTENTIAL



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

Figure 12

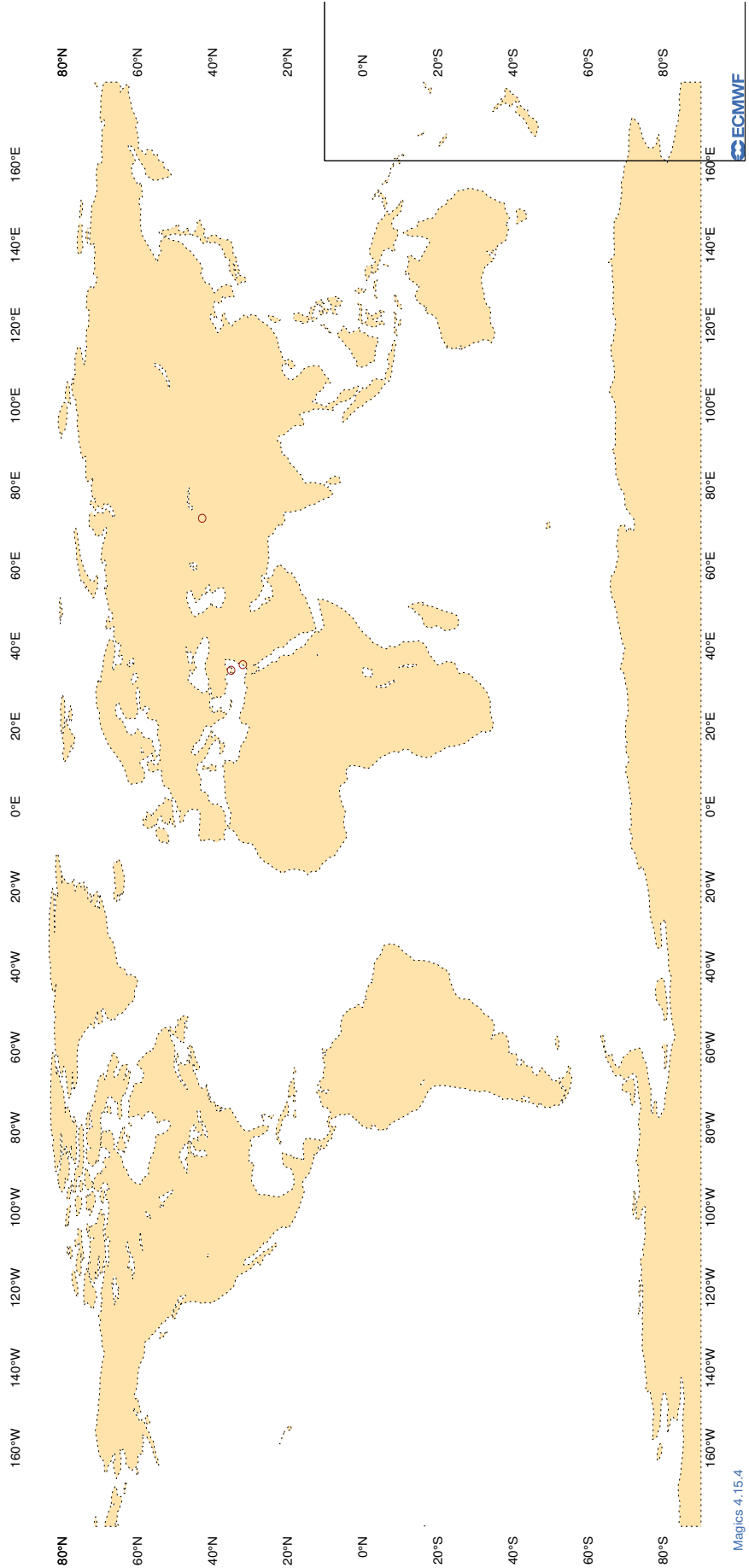
ECMWF Monitoring Statistics - JUL 2024 00 UTC  
Suspect TEMP/PILOT observations - WIND



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

Figure 13

ECMWF Monitoring Statistics - JUL 2024 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 : JUL 2024  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
2EERV	12	Z	100	3	34.4	-29.7
2EERV	00	Z	100	4	119.3	-67.1
7JUNA4	00	Z	100	7	42.9	38.9
7JUNA4	12	Z	100	4	50.1	36.7
7KPB	12	Z	100	8	4.4	0.4
7KPB	00	Z	100	4	5.3	-0.3
ASDE09	12	Z	100	4	26.2	4.2
ATGU3F	00	Z	100	14	48.6	-25.8
ATGU3F	12	Z	100	10	30.9	-29.6
DBLK	12	Z	100	13	9.2	8.3
FPUW5G	12	Z	100	6	8.1	-2.4
JNKN7J	12	Z	100	10	33.4	27.8
JNKN7J	00	Z	100	10	29.7	28.9
JNSR	12	Z	100	44	10.9	5.5
JNSR	00	Z	100	57	10.4	6.6
JPBN	00	Z	100	3	3.8	3.7
JPBN	12	Z	100	10	3.6	0.8
KJJF9X	12	Z	100	5	23.5	-20.1
KJJF9X	00	Z	100	2	20.7	-20.7
KMPLHP	00	Z	100	8	52.7	49.5
KMPLHP	12	Z	100	11	43.8	42.4
LAGY8	00	Z	100	4	132.2	-131.7
LAGZ8	00	Z	100	3	38.7	37.3
LRQE3	12	Z	100	6	80.9	49.8
LRQE3	00	Z	100	9	14.4	-11.3
USSIO	00	Z	100	1	11.1	-11.1
UXK5JT	12	Z	100	10	12.1	-1.7
UXK5JT	00	Z	100	10	34.7	-20.1
WDK38H	12	Z	100	11	13.2	-12.5
XKQLWQ	12	Z	100	25	26.0	24.5
YLV96W	00	Z	100	8	8.4	-7.1
YLV96W	12	Z	100	9	18.7	-15.2
ZVQEQC	12	Z	100	10	5.7	-3.8

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

## RADIOSONDE MONITORING STATISTICS (SHIPS)

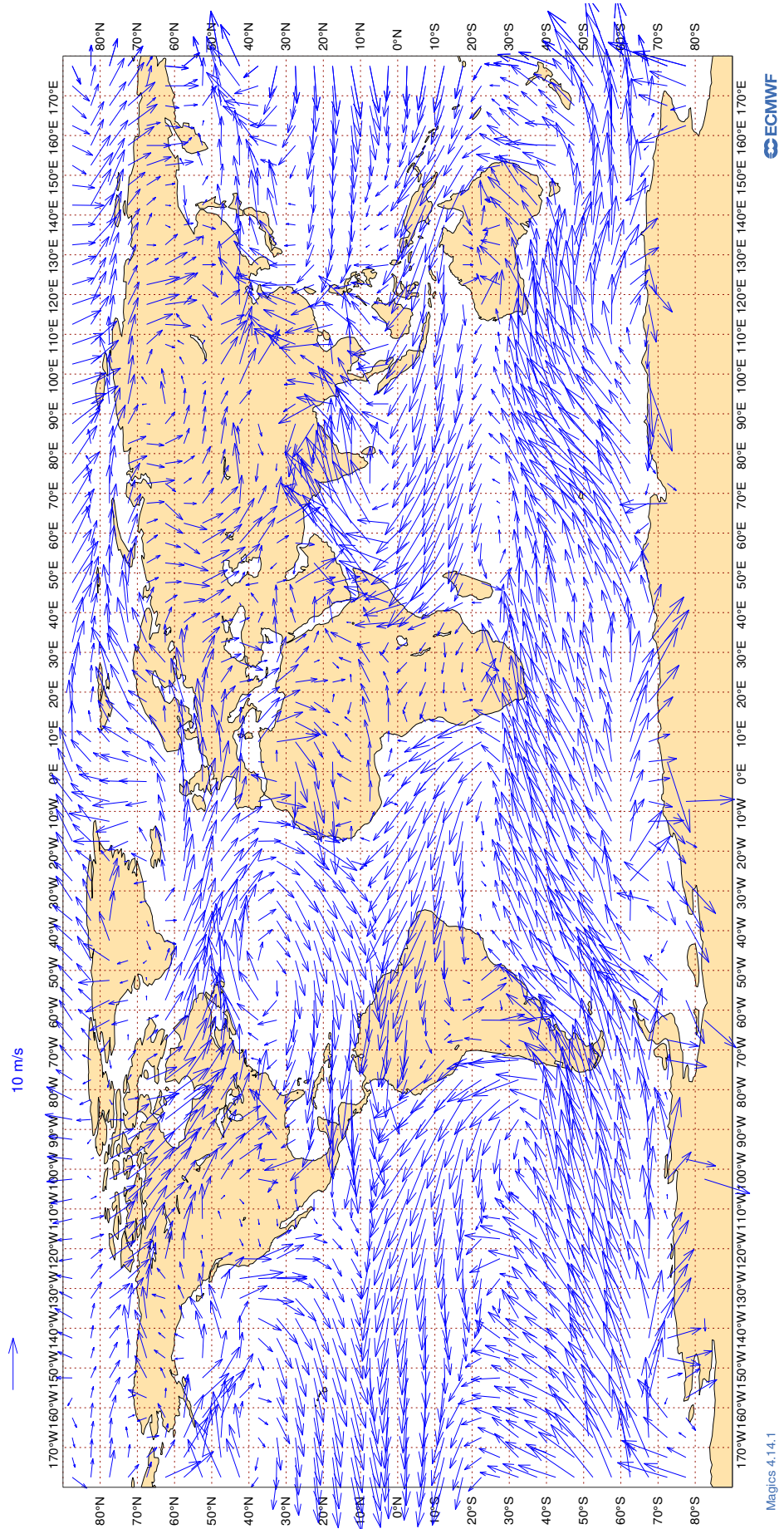
MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 LEVEL : 100 HPA  
 AREA : GLOBAL  
 PERIOD : JUL 2024  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OB TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
2EERTV	12	V	100	3	3.6	0.9	-0.9
2EERTV	00	V	100	4	4.8	-1.1	1.6
7JUNA4	00	V	100	6	2.2	-0.2	0.3
7JUNA4	12	V	100	4	2.0	-1.3	-0.9
7KPB	12	V	100	8	2.8	-0.7	0.9
7KPB	00	V	100	4	4.1	-0.4	-2.5
ASDE09	12	V	100	3	2.5	1.2	0.0
ATGU3F	00	V	100	14	2.6	0.0	0.2
ATGU3F	12	V	100	10	2.8	-1.2	-0.4
DBLK	12	V	100	13	2.3	-0.2	-0.8
FPUW5G	12	V	100	6	3.4	1.0	1.1
JNKN7J	12	V	100	10	3.7	-0.7	0.3
JNKN7J	00	V	100	10	1.9	0.0	-0.1
JNSR	12	V	100	27	5.2	0.1	-0.1
JNSR	00	V	100	27	5.5	0.3	-0.3
JPBN	00	V	100	3	4.7	-0.5	-3.3
JPBN	12	V	100	10	4.2	-0.8	0.1
KJJF9X	12	V	100	5	3.6	-1.7	0.4
KJJF9X	00	V	100	2	2.5	2.3	0.0
KMPLHP	00	V	100	8	2.5	-0.2	0.6
KMPLHP	12	V	100	11	3.3	-0.4	0.5
LAGY8	00	V	100	4	5.1	0.3	3.7
LAGZ8	00	V	100	3	3.0	-0.8	1.6
LRYQE3	12	V	100	6	2.8	0.6	0.7
LRYQE3	00	V	100	8	2.8	0.6	-0.2
USSIO	00	V	100	1	5.2	5.1	0.9
UXK5JT	12	V	100	10	3.5	-0.6	0.3
UXK5JT	00	V	100	10	3.5	-0.7	0.2
WDK38H	12	V	100	11	1.9	-0.3	-0.9
XKQLWQ	12	V	100	24	2.5	0.0	0.8
YLV96W	00	V	100	8	4.2	1.6	0.5
YLV96W	12	V	100	9	3.0	0.4	1.2
ZVQEQC	12	V	100	10	2.6	0.2	-0.2

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

Figure 14

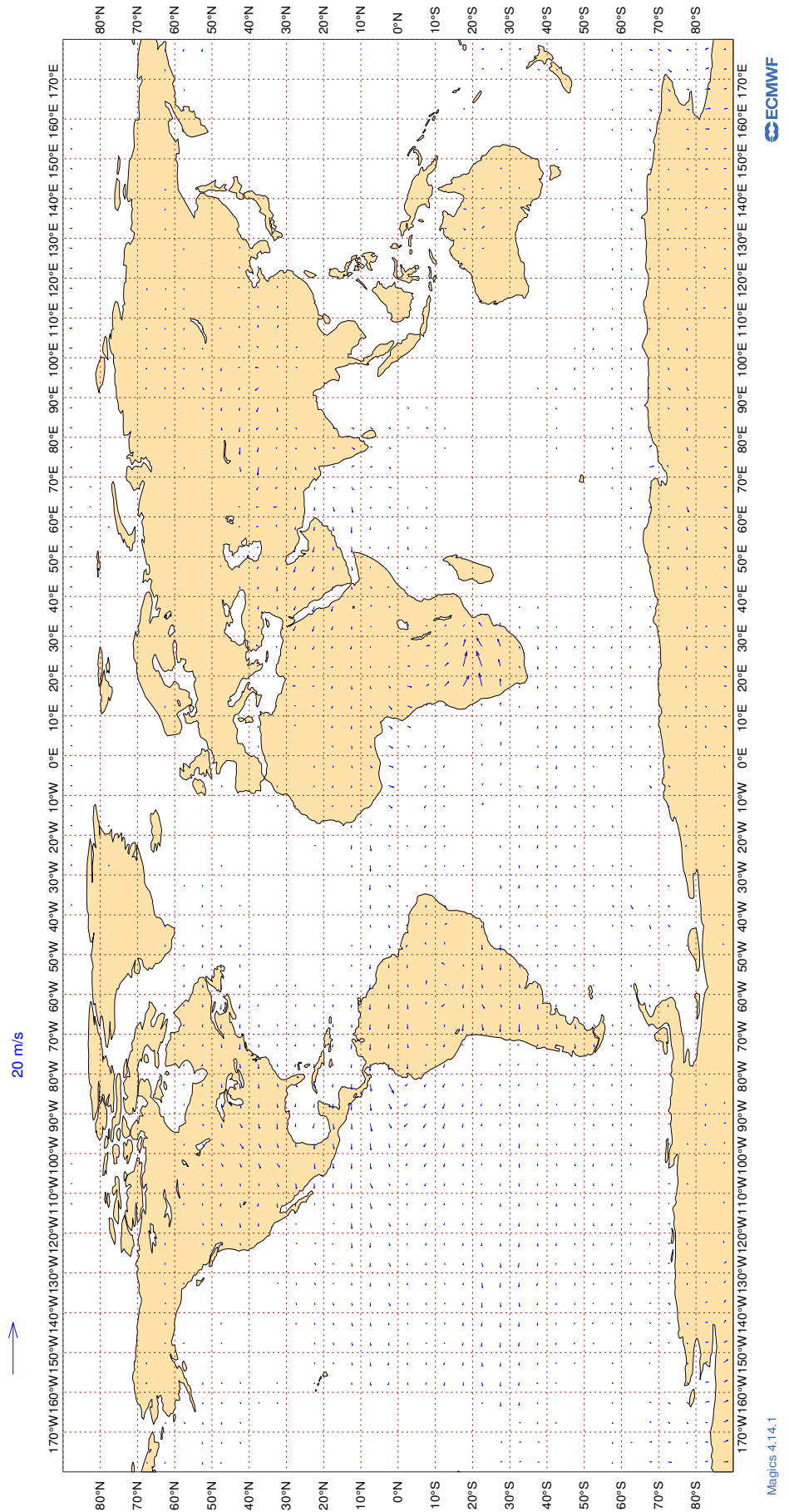
ECMWF Monitoring Statistics: Jul 2024  
AMV Winds: 700-1000hPa  
Mean Observed Wind



3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

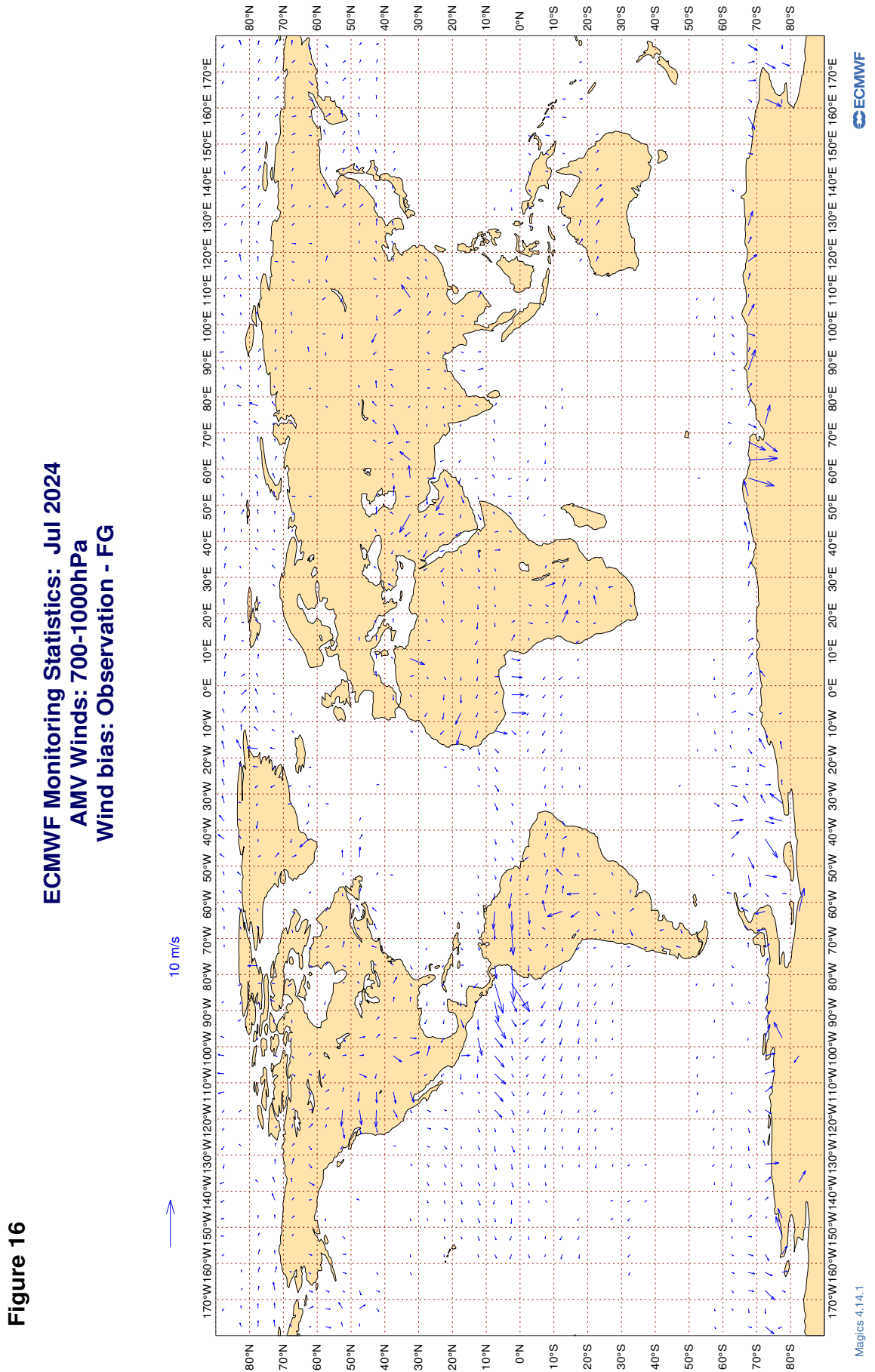
Figure 15

ECMWF Monitoring Statistics: Jul 2024  
AMV Winds: 150- 400hPa  
Wind bias: Observation - FG





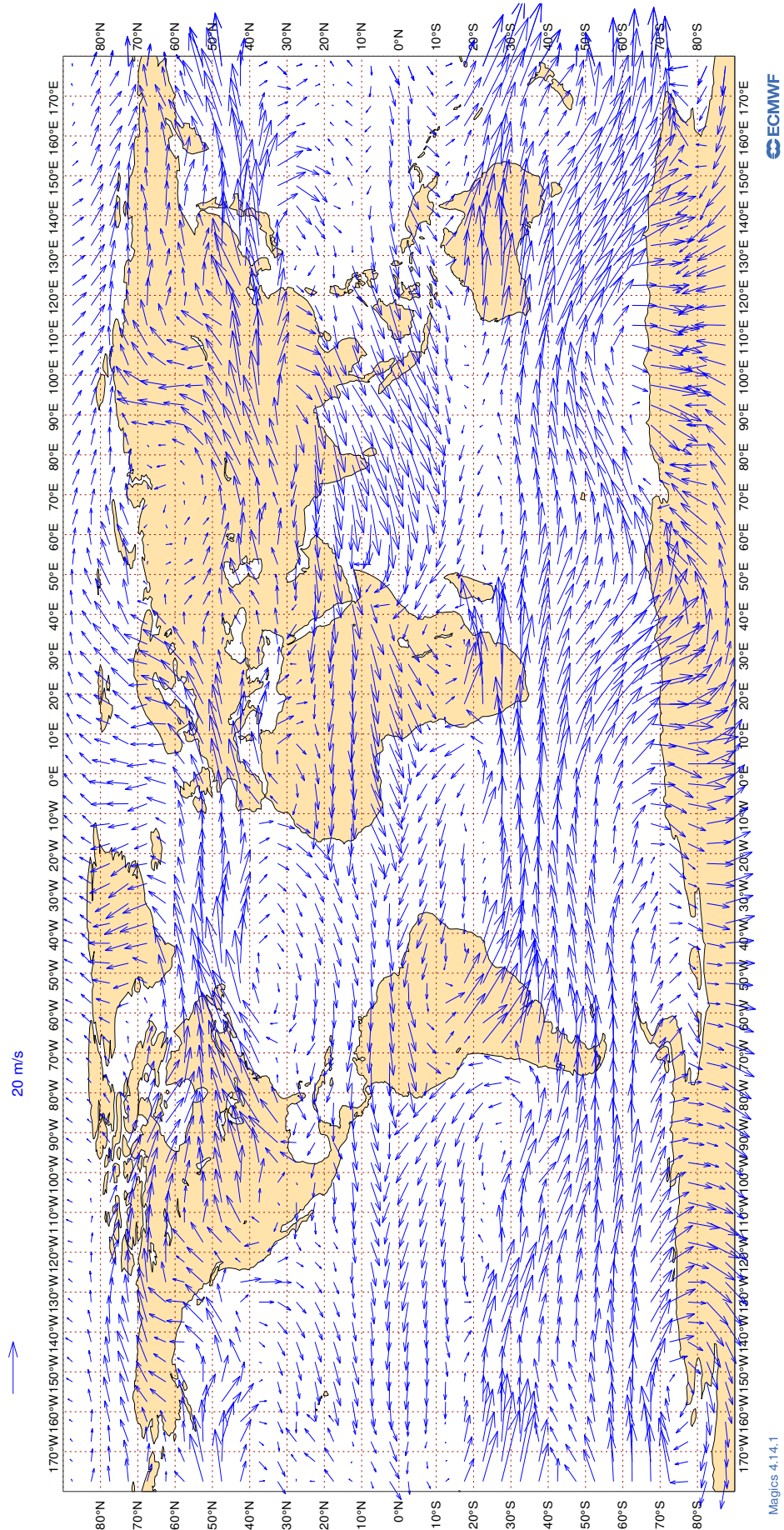
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa



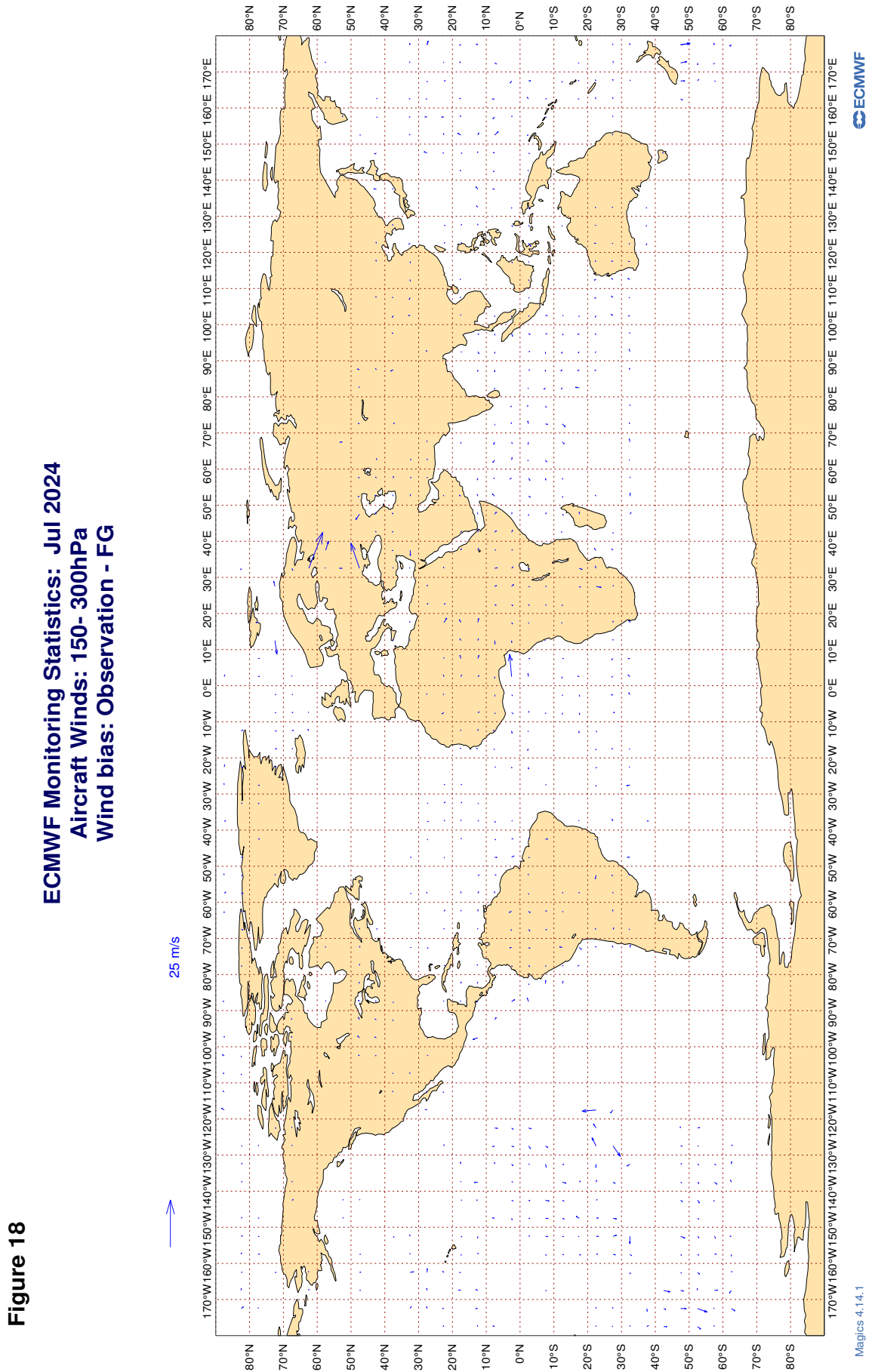
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

Figure 17

ECMWF Monitoring Statistics: Jul 2024  
AMV Winds: 150- 400hPa  
Mean Observed Wind



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa



**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 : JUL 2024  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. &gt;= 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	59267	1	0	4.2	0.2
AAR	99	V	300-150	201	0	0	3.5	-0.7
ABB	99	V	300-150	694	0	0	2.8	0.1
ABD	99	V	300-150	1205	0	0	4.3	-0.2
ACA	99	V	300-150	41664	1	0	4.3	0.1
ACI	99	V	300-150	244	0	0	3.1	0.2
ADS	99	V	300-150	59	0	0	3.3	-0.4
ADY	99	V	300-150	129	0	0	5.2	0.0
ADZ	99	V	300-150	181	0	0	3.7	-0.2
AEA	99	V	300-150	466	0	0	4.5	0.0
AFR	99	V	300-150	44082	0	0	3.5	0.2
AIC	99	V	300-150	5168	0	0	4.9	0.3
AJT	99	V	300-150	131	0	0	3.5	1.2
ALK	99	V	300-150	2218	0	0	4.7	0.6
AME	99	V	300-150	112	0	0	4.2	0.1
AMX	99	V	300-150	5390	2	0	5.2	-0.2
ANA	99	V	300-150	188	0	3	5.3	-0.4
ANZ	99	V	300-150	16570	1	0	3.8	0.4
AOJ	99	V	300-150	372	0	0	3.2	0.2
ARL	99	V	300-150	22	0	0	5.0	3.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
ASA	99	V	300-150	27	0	15	3.8	-0.8
ASL	99	V	300-150	1407	0	0	3.2	0.2
ASP	99	V	300-150	34	0	0	3.3	-0.3
ASY	99	V	300-150	96	0	0	3.9	0.8
ATC	99	V	300-150	292	0	0	5.4	0.8
ATN	99	V	300-150	64	0	2	2.8	-0.2
AUA	99	V	300-150	5936	1	0	4.3	0.2
AVA	99	V	300-150	678	3	0	6.1	-0.1
AXB	99	V	300-150	24	0	0	4.8	1.1
AXM	99	V	300-150	43	0	9	4.1	0.1
AXY	99	V	300-150	66	0	0	3.8	1.0
AYJ	99	V	300-150	24	0	0	3.6	1.8
AZG	99	V	300-150	1000	0	0	4.2	0.1
BAF	99	V	300-150	123	0	0	3.1	-0.3
BAH	99	V	300-150	53	0	0	5.4	-0.1
BAW	99	V	300-150	50521	0	0	3.9	0.2
BBC	99	V	300-150	931	0	0	4.5	0.3
BCS	99	V	300-150	1197	0	0	3.4	0.4
BEL	99	V	300-150	1730	0	0	3.1	0.4
BFY	99	V	300-150	65	0	2	3.2	0.8
BLU	99	V	300-150	87	0	0	4.7	2.2
BOX	99	V	300-150	4438	0	0	3.9	0.2
BOX	99	V	300-150	35	0	0	5.0	0.3
BRJ	99	V	300-150	21	0	0	2.8	1.0
BSF	99	V	300-150	25	0	0	5.8	1.2
BTX	99	V	300-150	127	0	0	3.2	0.2
CAL	99	V	300-150	1495	0	0	4.1	0.1
CAZ	99	V	300-150	79	0	0	3.4	-0.2
CCA	99	V	300-150	222	0	0	4.2	0.8
CEB	99	V	300-150	720	0	1	5.5	0.5
CEF	99	V	300-150	30	0	0	2.6	-0.3
CES	99	V	300-150	1506	0	0	4.7	0.7
CFC	99	V	300-150	220	0	0	3.2	0.3
CFG	99	V	300-150	8806	0	0	3.0	0.4
CHG	99	V	300-150	260	0	0	3.2	0.1
CHH	99	V	300-150	407	0	0	4.9	0.6
CJT	99	V	300-150	45	0	2	4.3	0.7
CKS	99	V	300-150	761	0	0	3.6	0.2
CLF	99	V	300-150	69	0	0	3.4	0.3
CLX	99	V	300-150	4889	0	0	4.0	-0.2
CLY	99	V	300-150	35	0	0	2.7	0.2
CMB	99	V	300-150	1150	0	0	3.5	-0.2
CND	99	V	300-150	373	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	164	0	0	3.1	0.4
COL	99	V	300-150	30	0	0	3.9	-0.3
COO	99	V	300-150	31	0	0	3.1	0.0
CPA	99	V	300-150	2510	0	1	4.7	0.4
CRL	99	V	300-150	2015	0	0	3.1	0.3
CRV	99	V	300-150	68	0	0	3.3	0.5
CSC	99	V	300-150	1118	0	0	4.9	0.7
CSG	99	V	300-150	35	0	0	2.7	-0.3
CSN	99	V	300-150	816	0	2	4.5	0.3
CSS	99	V	300-150	260	0	0	5.0	0.3
CTM	99	V	300-150	236	0	0	3.3	0.3
CTV	99	V	300-150	34	0	0	3.3	-0.4
CWG	99	V	300-150	95	0	0	3.0	0.0
CXA	99	V	300-150	80	0	0	5.5	0.5
DAH	99	V	300-150	1240	0	0	3.3	0.1
DAL	99	V	300-150	80140	0	0	3.3	0.2
DHK	99	V	300-150	3633	0	0	3.6	0.1
DHX	99	V	300-150	684	0	0	5.5	0.5
DJT	99	V	300-150	1987	0	0	3.4	0.2
DLH	99	V	300-150	30879	0	0	3.6	0.0
DUB	99	V	300-150	88	0	0	3.3	0.0
EAU	99	V	300-150	122	0	0	5.4	-0.7
EDG	99	V	300-150	183	0	0	3.3	0.5
EDW	99	V	300-150	2106	0	0	3.2	0.4
EIN	99	V	300-150	17333	0	0	3.1	0.3
EJM	99	V	300-150	1277	1	0	3.0	0.0
ELY	99	V	300-150	6336	1	0	5.4	0.0
ETD	99	V	300-150	19588	0	0	4.9	0.4
ETH	99	V	300-150	8472	0	0	4.7	0.3
EUK	99	V	300-150	1862	0	0	3.1	0.4
EVA	99	V	300-150	1082	0	0	4.9	0.3
EVE	99	V	300-150	188	0	0	3.4	0.0
EXS	99	V	300-150	4047	0	0	3.1	0.1
EXV	99	V	300-150	91	0	0	4.5	0.1
EZY	99	V	300-150	70	0	0	2.9	0.2
FAD	99	V	300-150	91	0	0	4.8	0.2
FBU	99	V	300-150	3270	0	0	3.3	-0.1
FDX	99	V	300-150	7579	0	0	3.3	0.2
FFM	99	V	300-150	27	0	0	5.4	-1.7
FGO	99	V	300-150	22	0	0	6.7	-0.4
FIN	99	V	300-150	2132	0	0	4.8	0.6
FJI	99	V	300-150	3130	0	0	3.6	0.5
FJO	99	V	300-150	217	0	0	2.7	0.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
FPY	99	V	300-150	5068	0	0	3.0	0.2
FRX	99	V	300-150	26	0	0	3.7	-0.2
FSY	99	V	300-150	32	0	0	4.2	1.1
FWI	99	V	300-150	1996	0	0	3.1	0.2
FYG	99	V	300-150	28	0	0	2.7	-1.0
GAF	99	V	300-150	192	0	0	3.4	0.3
GCK	99	V	300-150	149	0	0	3.3	0.3
GEC	99	V	300-150	1102	0	0	3.8	0.0
GES	99	V	300-150	120	0	0	4.3	1.0
GFA	99	V	300-150	1958	0	0	5.0	0.3
GIA	99	V	300-150	4218	0	0	5.2	0.6
GJE	99	V	300-150	175	0	0	3.1	0.0
GNJ	99	V	300-150	22	0	0	3.0	0.4
GSM	99	V	300-150	51	0	0	3.8	-0.6
GTG	99	V	300-150	30	0	0	3.6	-0.1
GTI	99	V	300-150	2164	0	0	3.7	0.0
GTR	99	V	300-150	122	0	0	3.4	0.5
HAF	99	V	300-150	35	0	0	3.1	0.2
HAL	99	V	300-150	587	0	1	4.1	0.4
HGO	99	V	300-150	33	0	0	6.4	-3.4
HKC	99	V	300-150	89	0	0	4.0	-0.1
HLF	99	V	300-150	53	0	0	4.9	1.8
HRC	99	V	300-150	33	0	0	2.0	-0.2
HRN	99	V	300-150	47	0	0	2.9	0.7
HRT	99	V	300-150	103	0	0	3.9	0.3
HUA	99	V	300-150	38	0	0	3.2	-0.1
HUE	99	V	300-150	85	0	0	5.8	1.5
HVN	99	V	300-150	1515	0	1	4.8	0.4
HYS	99	V	300-150	629	0	0	3.0	0.2
HZS	99	V	300-150	42	0	0	2.5	0.6
IAM	99	V	300-150	143	0	0	3.4	0.3
IBE	99	V	300-150	6379	0	0	3.3	0.2
ICE	99	V	300-150	12004	0	0	3.2	0.2
ICL	99	V	300-150	114	0	0	3.5	-0.2
ICV	99	V	300-150	408	0	0	4.0	-0.4
IDA	99	V	300-150	20	0	0	4.7	-0.1
IFA	99	V	300-150	319	0	0	3.8	0.0
IFC	99	V	300-150	49	0	0	5.8	0.5
IGA	99	V	300-150	35	0	0	5.1	0.4
IGO	99	V	300-150	149	0	0	4.5	0.4
IJM	99	V	300-150	77	0	0	3.0	0.7
IRM	99	V	300-150	29	0	0	3.6	-0.3
ITY	99	V	300-150	7615	0	0	3.2	0.3

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
IYE	99	V	300-150	24	0	0	4.1	-0.7
JAF	99	V	300-150	625	2	0	4.6	0.0
JAL	99	V	300-150	668	1	1	4.8	-0.3
JAS	99	V	300-150	307	0	0	3.7	0.5
JBU	99	V	300-150	13578	0	0	3.2	0.3
JCO	99	V	300-150	78	0	0	3.3	-0.3
JET	99	V	300-150	29	0	0	4.2	-0.9
JME	99	V	300-150	57	0	0	3.3	0.9
JML	99	V	300-150	31	0	0	2.9	0.6
JNY	99	V	300-150	61	0	0	4.2	1.2
JST	99	V	300-150	972	0	0	3.7	0.6
KAC	99	V	300-150	2194	0	0	4.2	0.3
KAF	99	V	300-150	34	0	0	5.5	1.5
KAI	99	V	300-150	146	0	0	3.9	0.5
KAL	99	V	300-150	374	0	1	4.3	0.0
KAY	99	V	300-150	262	0	0	3.6	0.3
KCE	99	V	300-150	33	0	0	2.7	0.8
KCN	99	V	300-150	29	0	0	5.8	0.2
KFB	99	V	300-150	31	0	0	3.0	0.3
KFE	99	V	300-150	113	0	0	3.0	0.3
KIW	99	V	300-150	21	0	0	3.8	-1.5
KLM	99	V	300-150	19008	1	0	4.5	0.1
KNE	99	V	300-150	98	0	0	5.1	0.8
KPO	99	V	300-150	107	0	0	3.2	0.2
KQA	99	V	300-150	907	0	0	5.2	0.6
KRF	99	V	300-150	37	0	0	4.1	0.2
KRH	99	V	300-150	36	0	0	3.2	-0.2
KUG	99	V	300-150	21	0	0	2.3	0.5
LCO	99	V	300-150	577	0	0	3.5	-0.7
LDX	99	V	300-150	70	0	0	3.3	0.1
LEA	99	V	300-150	46	0	0	2.8	-0.3
LEX	99	V	300-150	35	0	0	3.2	1.2
LHA	99	V	300-150	51	0	2	6.3	0.6
LNI	99	V	300-150	67	0	0	4.8	1.0
LNK	99	V	300-150	65	0	0	2.8	0.7
LOT	99	V	300-150	4624	1	0	5.4	0.0
LRQ	99	V	300-150	29	0	0	2.9	0.0
LWG	99	V	300-150	33	0	0	2.7	-0.5
LXA	99	V	300-150	38	0	0	3.5	-0.7
LXJ	99	V	300-150	816	0	0	3.3	0.3
MAS	99	V	300-150	7990	0	0	5.7	0.6
MAU	99	V	300-150	426	0	0	5.8	1.1
MED	99	V	300-150	56	0	0	5.2	0.3



AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
MLM	99	V	300-150	138	0	0	3.8	0.5
MMD	99	V	300-150	318	0	0	3.1	0.3
MMZ	99	V	300-150	76	0	0	4.6	-0.5
MNB	99	V	300-150	308	0	0	3.3	0.3
MPH	99	V	300-150	498	0	0	3.5	-0.5
MSR	99	V	300-150	2851	0	0	4.0	0.1
MVJ	99	V	300-150	47	0	0	2.7	0.0
MXD	99	V	300-150	214	0	1	5.0	0.4
NBT	99	V	300-150	4767	2	0	5.0	0.0
NCR	99	V	300-150	334	0	0	4.0	-0.6
NEW	99	V	300-150	53	0	0	3.5	0.0
NJE	99	V	300-150	476	0	0	3.3	0.4
NOJ	99	V	300-150	54	0	0	4.1	-0.7
NOS	99	V	300-150	1596	2	0	5.2	0.0
NPH	99	V	300-150	24	0	0	3.1	0.4
NUM	99	V	300-150	101	0	0	4.1	0.8
OAE	99	V	300-150	493	0	0	3.8	0.1
OCN	99	V	300-150	5111	0	0	3.2	0.3
OLI	99	V	300-150	23	0	0	3.2	0.9
OMA	99	V	300-150	2715	0	0	5.9	0.6
PAC	99	V	300-150	78	0	0	3.2	-0.8
PAL	99	V	300-150	1827	0	0	5.3	0.4
PIA	99	V	300-150	380	0	0	5.0	0.1
PJZ	99	V	300-150	22	0	0	3.2	0.2
PLF	99	V	300-150	66	0	2	3.6	0.9
PRD	99	V	300-150	34	0	0	2.8	0.0
PVA	99	V	300-150	285	0	0	3.5	0.3
QAF	99	V	300-150	64	0	0	3.0	0.6
QFA	99	V	300-150	7025	2	0	5.0	0.2
QFX	99	V	300-150	33	0	0	2.5	-0.2
QID	99	V	300-150	52	0	0	3.4	0.7
QQE	99	V	300-150	506	0	0	3.9	0.5
QTR	99	V	300-150	43561	0	0	4.7	0.3
RAM	99	V	300-150	775	1	0	4.6	-0.1
RBA	99	V	300-150	293	0	0	6.2	0.7
RCH	99	V	300-150	3005	0	0	4.8	0.4
RDN	99	V	300-150	110	0	0	3.1	0.6
RHH	99	V	300-150	24	0	0	8.7	0.2
RJA	99	V	300-150	2766	2	0	5.2	0.1
ROJ	99	V	300-150	52	0	0	3.8	-0.7
ROM	99	V	300-150	65	0	0	3.2	0.2
RRR	99	V	300-150	367	0	0	3.5	0.3
RYR	99	V	300-150	1189	0	0	3.0	0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
RZO	99	V	300-150	728	0	0	3.7	0.3
SAM	99	V	300-150	293	0	0	3.1	0.3
SAS	99	V	300-150	6817	0	0	3.0	0.3
SAZ	99	V	300-150	64	0	0	3.5	-0.1
SCX	99	V	300-150	47	0	0	2.9	0.5
SEJ	99	V	300-150	105	0	0	4.9	0.3
SEY	99	V	300-150	106	0	0	5.8	0.2
SIA	99	V	300-150	17289	0	0	5.6	0.5
SIO	99	V	300-150	31	0	0	2.9	0.7
SIS	99	V	300-150	56	0	0	2.6	-0.2
SKV	99	V	300-150	35	0	0	2.9	0.5
SLM	99	V	300-150	189	0	0	3.2	-0.2
SMF	99	V	300-150	39	0	0	3.6	0.1
SON	99	V	300-150	85	0	0	3.1	-0.5
SPA	99	V	300-150	150	0	0	3.1	-0.2
SPM	99	V	300-150	209	0	0	3.3	0.5
SSG	99	V	300-150	36	0	0	3.0	0.1
SVA	99	V	300-150	14161	0	0	5.0	0.5
SVF	99	V	300-150	34	0	0	2.5	0.1
SVW	99	V	300-150	164	0	0	2.6	0.3
SWR	99	V	300-150	13524	0	0	3.4	0.3
SXY	99	V	300-150	39	0	0	6.2	3.8
SYB	99	V	300-150	203	0	0	3.1	-0.3
TAI	99	V	300-150	37	0	0	3.1	0.9
TAM	99	V	300-150	115	4	0	5.8	-0.1
TAP	99	V	300-150	3101	0	0	3.4	0.7
TAR	99	V	300-150	514	0	0	3.0	0.3
TAY	99	V	300-150	50	0	0	3.5	0.6
TBJ	99	V	300-150	46	0	0	5.8	0.8
TCJ	99	V	300-150	22	0	0	4.7	0.7
TFF	99	V	300-150	141	0	0	3.7	0.5
TFL	99	V	300-150	1489	2	0	4.8	0.0
TGW	99	V	300-150	1160	0	1	5.7	0.5
THA	99	V	300-150	7172	0	0	5.0	0.4
THT	99	V	300-150	3268	2	0	5.9	0.1
THY	99	V	300-150	24597	1	0	4.5	0.2
TMN	99	V	300-150	426	0	0	3.8	0.4
TOM	99	V	300-150	5799	2	0	4.9	-0.1
TRK	99	V	300-150	123	0	0	4.0	0.3
TSC	99	V	300-150	24977	0	0	3.3	0.3
TUA	99	V	300-150	41	0	2	5.0	-0.2
TVR	99	V	300-150	205	0	1	5.8	0.5
TVS	99	V	300-150	62	0	0	2.8	0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
TWY	99	V	300-150	936	0	0	3.1	0.2
UAE	99	V	300-150	38999	0	0	4.6	0.2
UAF	99	V	300-150	209	0	0	5.4	0.6
UAL	99	V	300-150	88765	1	1	4.4	0.1
UBT	99	V	300-150	4226	2	0	5.2	0.0
UGD	99	V	300-150	59	0	0	5.1	0.8
UKN	99	V	300-150	68	0	0	2.8	0.1
ULC	99	V	300-150	69	0	0	3.0	-0.6
UPS	99	V	300-150	5714	0	0	3.8	0.0
URO	99	V	300-150	84	0	0	3.3	-0.3
USY	99	V	300-150	27	0	0	4.8	0.9
UZB	99	V	300-150	611	0	0	4.5	0.4
UZS	99	V	300-150	48	0	0	5.2	-0.6
VAJ	99	V	300-150	84	0	0	3.2	0.2
VCG	99	V	300-150	28	0	0	4.1	0.9
VCJ	99	V	300-150	24	0	0	3.5	0.7
VIR	99	V	300-150	24772	1	0	3.8	0.1
VJA	99	V	300-150	53	0	0	2.9	1.2
VJC	99	V	300-150	348	0	0	5.4	-0.1
VJH	99	V	300-150	156	0	0	3.3	0.2
VJT	99	V	300-150	2259	0	0	3.4	0.3
VKG	99	V	300-150	34	0	0	2.6	-0.5
VLZ	99	V	300-150	46	0	0	4.8	-1.1
VOZ	99	V	300-150	153	0	0	3.6	0.1
VTI	99	V	300-150	3993	0	0	5.6	0.5
VXS	99	V	300-150	59	0	0	2.8	0.8
WDY	99	V	300-150	31	0	0	3.5	0.0
WFL	99	V	300-150	134	0	0	3.3	-0.6
WGN	99	V	300-150	82	0	0	4.2	0.8
WJA	99	V	300-150	6807	1	0	4.3	0.2
WWI	99	V	300-150	102	0	0	3.6	0.7
XAX	99	V	300-150	1103	0	0	5.8	0.4
XFL	99	V	300-150	106	0	0	5.5	-0.1

## 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 : JUL 2024  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	50	30	22.9	-16.4
01001	12	Z	50	31	12.7	-4.8
01028	00	Z	50	32	9.9	-7.3
01028	12	Z	50	31	8.9	-7.1
01400	12	Z	50	29	74.1	73.8
01400	00	Z	50	30	77.4	75.9
01415	12	Z	50	31	11.0	-2.6
01415	00	Z	50	30	6.2	1.2
02591	00	Z	50	28	7.8	5.9
02591	12	Z	50	28	7.2	-2.6
02836	12	Z	50	33	8.4	-7.1
02836	00	Z	50	31	6.0	-3.9
02963	12	Z	50	31	10.6	-7.8
02963	00	Z	50	30	5.6	-0.4
03005	00	Z	50	28	5.1	-1.3
03005	12	Z	50	31	10.7	-7.5
03238	00	Z	50	31	5.5	1.2
03238	12	Z	50	7	7.4	-5.4
03808	00	Z	50	27	5.8	1.9
03808	12	Z	50	30	6.7	-2.1
03918	00	Z	50	30	8.1	4.5
03918	12	Z	50	2	3.6	-1.3
03953	00	Z	50	31	10.5	-8.9
03953	12	Z	50	29	11.2	-8.8
04018	00	Z	50	31	12.2	-9.7
04018	12	Z	50	31	10.7	-9.3
04220	12	Z	50	31	27.7	-19.6
04220	00	Z	50	31	28.6	-25.2
04270	12	Z	50	31	21.4	-14.5
04270	00	Z	50	29	32.0	-29.7
04320	00	Z	50	31	16.9	-13.1
04320	12	Z	50	31	27.5	-4.1
04339	00	Z	50	30	39.8	-35.5
04339	12	Z	50	31	26.1	-22.4
04360	00	Z	50	31	36.2	-29.4
04360	12	Z	50	30	19.6	-7.3
06011	12	Z	50	29	22.8	-19.8
06260	00	Z	50	28	8.3	1.7
06260	12	Z	50	6	8.0	-5.4

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06610	12	Z	50	32	7.2	-3.3
06610	00	Z	50	32	6.0	3.6
07110	12	Z	50	31	21.3	-12.7
07110	00	Z	50	30	20.8	-17.8
07510	12	Z	50	27	30.8	-18.7
07510	00	Z	50	25	27.1	-16.2
075109	12	Z	50	0	0.0	0.0
07645	12	Z	50	25	38.7	-29.1
07645	00	Z	50	26	38.8	-23.7
07761	12	Z	50	24	11.1	-2.6
07761	00	Z	50	22	17.3	-4.3
08001	12	Z	50	30	6.3	-4.4
08001	00	Z	50	31	5.0	2.8
08221	12	Z	50	31	7.3	-5.5
08221	00	Z	50	31	9.0	5.8
082219	00	Z	50	0	0.0	0.0
08302	00	Z	50	31	5.7	-3.5
08302	12	Z	50	31	14.3	-12.8
08508	12	Z	50	31	6.8	-4.3
08522	12	Z	50	31	4.3	-1.8
10035	00	Z	50	31	14.0	13.3
10035	12	Z	50	31	8.6	6.6
10393	00	Z	50	31	5.4	0.4
10393	12	Z	50	31	10.0	-6.8
10410	00	Z	50	31	9.8	0.3
10410	12	Z	50	31	8.9	-3.4
10739	12	Z	50	31	5.9	-1.3
10739	00	Z	50	30	7.8	5.3
11035	00	Z	50	29	11.8	3.8
11035	12	Z	50	29	23.8	17.7
12982	12	Z	50	31	7.2	-4.5
12982	00	Z	50	29	6.3	2.6
16245	00	Z	50	31	9.2	8.0
16245	12	Z	50	30	5.8	-3.8
16429	00	Z	50	30	12.1	10.9
16429	12	Z	50	31	5.1	0.1
16622	00	Z	50	28	18.4	17.1
16754	00	Z	50	27	15.8	14.5
17607	12	Z	50	21	24.3	-11.9
26435	12	Z	50	6	8.9	-5.7
2EERV	12	Z	50	3	40.6	-37.0
2EERV	00	Z	50	4	124.1	-70.0
60018	00	Z	50	31	8.7	7.0

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	12	Z	50	31	5.7	-3.9
7JUNA4	00	Z	50	6	48.2	43.2
7JUNA4	12	Z	50	3	52.5	33.0
ASDE09	12	Z	50	4	29.5	4.3
ATGU3F	00	Z	50	14	51.6	-28.1
ATGU3F	12	Z	50	10	33.5	-30.9
DBLK	12	Z	50	13	7.9	6.5
FPUW5G	12	Z	50	6	8.7	0.2
JNKN7J	12	Z	50	9	33.4	23.8
JNKN7J	00	Z	50	10	33.8	31.0
KJJF9X	12	Z	50	4	35.8	-33.8
KJJF9X	00	Z	50	2	26.4	-26.4
KMPLHP	00	Z	50	8	53.7	50.0
KMPLHP	12	Z	50	10	42.7	40.4
LAGY8	00	Z	50	2	140.4	-138.9
LAGZ8	00	Z	50	2	31.0	29.9
LRVQE3	12	Z	50	4	160.2	94.2
LRVQE3	00	Z	50	8	18.0	-12.7
UXK5JT	12	Z	50	9	16.1	-1.8
UXK5JT	00	Z	50	10	39.7	-24.3
WDK38H	12	Z	50	11	14.3	-13.4
XKQLWQ	12	Z	50	25	32.0	29.8
YLV96W	00	Z	50	8	8.2	-7.0
YLV96W	12	Z	50	7	22.2	-21.4
ZVQEQC	12	Z	50	9	7.1	-5.1

**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 : JUL 2024  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	50	29	2.6	0.0	-0.4
01001	12	V	50	30	2.9	-0.4	-0.1
01028	00	V	50	27	2.4	0.1	0.4
01028	12	V	50	31	2.4	-0.3	0.1
01400	12	V	50	29	2.6	0.2	-0.2
01400	00	V	50	26	2.7	-0.1	0.7
01415	12	V	50	31	3.3	0.6	0.3
01415	00	V	50	29	2.9	0.6	0.4
02591	00	V	50	27	3.2	0.8	-0.1
02591	12	V	50	28	2.4	0.4	-0.2
02836	12	V	50	31	2.7	-0.1	0.3
02836	00	V	50	30	2.7	0.1	0.0
02963	12	V	50	30	2.8	0.9	-0.3
02963	00	V	50	28	2.8	0.7	-0.4
03005	00	V	50	27	2.9	0.1	0.2
03005	12	V	50	31	2.3	0.2	0.3
03238	00	V	50	27	3.3	0.1	-0.3
03238	12	V	50	7	2.6	0.5	-1.5
03808	00	V	50	27	2.7	-0.2	0.2
03808	12	V	50	30	3.3	-0.3	-0.1
03918	00	V	50	29	2.5	0.2	0.0
03918	12	V	50	2	2.0	0.4	-1.1
03953	00	V	50	28	2.5	0.0	0.2
03953	12	V	50	29	3.0	0.1	-0.1
04018	00	V	50	24	2.5	0.5	0.5
04018	12	V	50	31	2.8	0.7	0.3
04220	12	V	50	31	2.3	0.4	0.4
04220	00	V	50	28	2.4	0.2	0.2
04270	12	V	50	31	2.4	0.0	0.5
04270	00	V	50	29	2.1	0.0	0.5
04320	00	V	50	30	2.1	-0.4	0.1
04320	12	V	50	31	2.2	-0.1	-0.2
04339	00	V	50	29	2.2	-0.1	-0.1
04339	12	V	50	31	2.6	0.3	0.3
04360	00	V	50	28	2.1	0.1	-0.3
04360	12	V	50	30	2.8	0.2	-0.2
06011	12	V	50	29	2.3	-0.3	0.0
06260	00	V	50	27	3.3	-0.2	-0.5
06260	12	V	50	6	2.1	-0.2	0.5



RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06610	12	V	50	31	3.2	0.0	-0.5
06610	00	V	50	30	3.3	-0.3	-0.1
07110	12	V	50	31	3.0	-0.7	0.0
07110	00	V	50	29	2.8	0.2	-0.5
07510	12	V	50	27	2.7	0.0	-0.3
07510	00	V	50	24	3.2	-0.3	-0.6
075109	12	V	50	0	0.0	0.0	0.0
07645	12	V	50	25	3.3	-0.3	0.2
07645	00	V	50	25	3.3	-0.5	-0.2
07761	12	V	50	24	3.8	0.8	-0.5
07761	00	V	50	22	2.4	0.3	-0.5
08001	12	V	50	30	3.0	0.2	0.1
08001	00	V	50	28	2.8	0.2	0.0
08221	12	V	50	31	3.2	-0.3	0.2
08221	00	V	50	30	3.1	0.2	0.0
082219	00	V	50	0	0.0	0.0	0.0
08302	00	V	50	30	3.2	0.9	-0.3
08302	12	V	50	31	3.1	-0.1	-0.5
08508	12	V	50	31	2.3	0.0	0.1
08522	12	V	50	31	3.6	-0.4	0.5
10035	00	V	50	29	2.7	0.7	-0.1
10035	12	V	50	31	2.5	0.2	-0.5
10393	00	V	50	30	2.8	0.4	-0.3
10393	12	V	50	31	2.6	0.4	-0.1
10410	00	V	50	26	3.7	-0.3	0.6
10410	12	V	50	30	3.3	-0.5	0.3
10739	12	V	50	31	3.0	0.3	0.9
10739	00	V	50	29	2.6	-0.1	-0.1
11035	00	V	50	27	2.8	0.2	0.2
11035	12	V	50	29	2.8	0.6	-1.0
12982	12	V	50	31	2.9	0.0	-0.4
12982	00	V	50	27	3.1	-0.2	0.0
16245	00	V	50	27	3.4	0.2	0.0
16245	12	V	50	30	3.1	0.1	-0.5
16429	00	V	50	29	3.1	0.7	0.7
16429	12	V	50	31	3.3	0.6	-0.2
16622	00	V	50	20	4.3	1.1	1.1
16754	00	V	50	20	3.4	0.0	0.9
17607	12	V	50	8	13.6	13.2	-2.6
26435	12	V	50	5	2.8	0.0	-1.9
2EERV	12	V	50	3	2.9	-0.1	-0.2
2EERV	00	V	50	4	2.5	-0.2	0.2
60018	00	V	50	29	3.4	-1.0	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	12	V	50	31	3.8	-1.1	0.0
7JUNA4	00	V	50	6	2.4	-0.6	0.4
7JUNA4	12	V	50	3	3.6	2.0	-1.7
ASDE09	12	V	50	3	2.7	-0.5	-2.2
ATGU3F	00	V	50	14	2.5	0.6	0.0
ATGU3F	12	V	50	10	2.1	0.5	0.2
DBLK	12	V	50	13	2.3	-0.3	0.9
FPUW5G	12	V	50	5	2.1	0.1	-1.0
JNKN7J	12	V	50	9	3.3	-1.2	0.2
JNKN7J	00	V	50	10	3.1	-0.6	0.6
KJJF9X	12	V	50	4	3.0	1.6	0.6
KJJF9X	00	V	50	2	2.8	-0.8	-2.2
KMPLHP	00	V	50	8	2.2	-0.5	0.7
KMPLHP	12	V	50	10	2.6	-0.2	-0.7
LAGY8	00	V	50	2	3.7	3.5	-0.3
LAGZ8	00	V	50	2	3.5	-1.7	0.4
LRYQE3	12	V	50	4	2.4	1.7	0.2
LRYQE3	00	V	50	7	2.7	0.9	-0.4
UXK5JT	12	V	50	9	2.5	-0.1	-0.1
UXK5JT	00	V	50	10	3.7	-0.3	0.9
WDK38H	12	V	50	11	1.9	-0.2	0.6
XKQLWQ	12	V	50	24	3.0	0.0	0.0
YLV96W	00	V	50	8	1.9	0.2	-0.2
YLV96W	12	V	50	7	4.1	-0.6	-0.6
ZVQEQC	12	V	50	9	2.9	0.8	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 : JUL 2024  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	100	30	19.2	-14.2
01001	12	Z	100	32	10.4	-3.9
01028	00	Z	100	32	9.5	-7.2
01028	12	Z	100	31	8.3	-7.0
01400	12	Z	100	31	73.9	73.7
01400	00	Z	100	31	75.5	73.9
01415	12	Z	100	31	7.8	-3.6
01415	00	Z	100	30	4.0	0.3
02591	00	Z	100	28	6.4	5.1
02591	12	Z	100	28	5.1	-0.4
02836	12	Z	100	33	7.8	-7.2
02836	00	Z	100	31	7.1	-6.4
02963	12	Z	100	31	8.9	-6.8
02963	00	Z	100	31	5.3	-0.2
03005	00	Z	100	28	5.2	-3.9
03005	12	Z	100	33	9.2	-7.2
03238	00	Z	100	31	3.5	-0.4
03238	12	Z	100	7	8.0	-6.1
03808	00	Z	100	27	5.1	-0.4
03808	12	Z	100	30	4.8	-2.6
03918	00	Z	100	30	5.5	0.8
03918	12	Z	100	2	0.3	0.2
03953	00	Z	100	31	10.4	-9.6
03953	12	Z	100	29	11.8	-10.0
04018	00	Z	100	31	12.0	-9.6
04018	12	Z	100	31	9.5	-8.3
04220	12	Z	100	31	37.3	-9.9
04220	00	Z	100	31	22.2	-19.8
04270	12	Z	100	31	18.9	-15.2
04270	00	Z	100	29	27.1	-25.6
04320	00	Z	100	31	14.5	-11.7
04320	12	Z	100	31	23.6	-4.7
04339	00	Z	100	31	31.4	-29.5
04339	12	Z	100	31	21.2	-18.9
04360	00	Z	100	31	27.4	-24.2
04360	12	Z	100	30	14.6	-8.7
06011	12	Z	100	30	18.5	-16.6
06260	00	Z	100	29	5.3	-0.4
06260	12	Z	100	6	9.8	-6.2

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06610	12	Z	100	33	5.9	-4.2
06610	00	Z	100	32	5.3	-0.1
07110	12	Z	100	30	18.1	-12.9
07110	00	Z	100	31	17.0	-15.3
07510	12	Z	100	28	22.6	-15.1
07510	00	Z	100	26	23.5	-14.8
075109	12	Z	100	0	0.0	0.0
07645	12	Z	100	30	28.8	-20.5
07645	00	Z	100	27	29.0	-20.3
07761	12	Z	100	25	10.3	-3.7
07761	00	Z	100	21	13.1	-4.8
08001	12	Z	100	31	5.1	-3.4
08001	00	Z	100	31	4.1	2.7
08221	12	Z	100	31	5.9	-3.3
08221	00	Z	100	31	6.3	2.0
082219	00	Z	100	0	0.0	0.0
08302	00	Z	100	31	6.6	-5.2
08302	12	Z	100	31	12.5	-11.9
08508	12	Z	100	31	5.8	1.5
08522	12	Z	100	31	4.4	3.2
10035	00	Z	100	31	12.2	11.6
10035	12	Z	100	31	8.3	6.1
10393	00	Z	100	31	5.7	-1.7
10393	12	Z	100	31	9.4	-6.6
10410	00	Z	100	31	7.6	-2.2
10410	12	Z	100	32	8.5	-5.7
10739	12	Z	100	31	5.7	-2.1
10739	00	Z	100	31	7.5	3.7
11035	00	Z	100	31	10.2	-1.1
11035	12	Z	100	31	12.0	7.3
12982	12	Z	100	31	7.3	-5.7
12982	00	Z	100	30	5.7	-0.3
16245	00	Z	100	31	5.1	3.1
16245	12	Z	100	31	4.8	-3.9
16429	00	Z	100	30	7.1	5.8
16429	12	Z	100	31	3.7	0.3
16622	00	Z	100	30	15.0	13.9
16754	00	Z	100	30	15.6	14.6
17607	12	Z	100	26	36.4	-23.7
26435	12	Z	100	8	5.2	-4.2
2EERVT	12	Z	100	3	34.4	-29.7
2EERVT	00	Z	100	4	119.3	-67.1
60018	00	Z	100	31	7.9	7.1

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	12	Z	100	31	4.1	2.2
7JUNA4	00	Z	100	7	42.9	38.9
7JUNA4	12	Z	100	4	50.1	36.7
ASDE09	12	Z	100	4	26.2	4.2
ATGU3F	00	Z	100	14	48.6	-25.8
ATGU3F	12	Z	100	10	30.9	-29.6
DBLK	12	Z	100	13	9.2	8.3
FPUW5G	12	Z	100	6	8.1	-2.4
JNKN7J	12	Z	100	10	33.4	27.8
JNKN7J	00	Z	100	10	29.7	28.9
KJJF9X	12	Z	100	5	23.5	-20.1
KJJF9X	00	Z	100	2	20.7	-20.7
KMPLHP	00	Z	100	8	52.7	49.5
KMPLHP	12	Z	100	11	43.8	42.4
LAGY8	00	Z	100	4	132.2	-131.7
LAGZ8	00	Z	100	3	38.7	37.3
LRVQE3	12	Z	100	6	80.9	49.8
LRVQE3	00	Z	100	9	14.4	-11.3
UXK5JT	12	Z	100	10	12.1	-1.7
UXK5JT	00	Z	100	10	34.7	-20.1
WDK38H	12	Z	100	11	13.2	-12.5
XKQLWQ	12	Z	100	25	26.0	24.5
YLV96W	00	Z	100	8	8.4	-7.1
YLV96W	12	Z	100	9	18.7	-15.2
ZVQEQC	12	Z	100	10	5.7	-3.8

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

## RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 LEVEL : 100 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : JUL 2024  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	100	29	2.5	-0.1	-0.4
01001	12	V	100	30	2.7	-0.6	-0.5
01028	00	V	100	27	2.6	-0.1	-0.1
01028	12	V	100	31	2.7	0.2	0.3
01400	12	V	100	31	3.7	0.4	-0.4
01400	00	V	100	26	2.7	1.0	-0.5
01415	12	V	100	31	3.0	0.6	-0.5
01415	00	V	100	29	2.5	-0.2	-0.2
02591	00	V	100	27	3.1	0.1	0.6
02591	12	V	100	28	2.7	-0.3	-0.6
02836	12	V	100	31	3.3	0.1	-0.1
02836	00	V	100	30	3.3	0.4	0.2
02963	12	V	100	31	3.0	0.2	0.2
02963	00	V	100	29	3.6	-0.9	-0.2
03005	00	V	100	27	2.5	0.3	0.2
03005	12	V	100	31	2.5	0.3	0.0
03238	00	V	100	27	3.0	0.5	0.1
03238	12	V	100	7	3.1	-1.2	-0.7
03808	00	V	100	27	2.8	0.0	0.6
03808	12	V	100	30	2.6	-0.2	0.2
03918	00	V	100	29	2.6	0.2	0.1
03918	12	V	100	2	2.4	2.1	0.3
03953	00	V	100	28	2.8	0.4	0.3
03953	12	V	100	29	2.4	0.4	-0.2
04018	00	V	100	30	2.5	-0.4	-0.4
04018	12	V	100	31	2.8	0.2	-0.2
04220	12	V	100	31	2.1	-0.4	-0.3
04220	00	V	100	30	2.1	0.1	-0.2
04270	12	V	100	31	2.8	-0.1	0.5
04270	00	V	100	29	3.2	0.1	0.2
04320	00	V	100	30	2.1	-0.3	0.4
04320	12	V	100	31	2.5	0.3	-0.7
04339	00	V	100	29	2.1	0.1	-0.4
04339	12	V	100	31	2.3	0.0	-0.3
04360	00	V	100	29	2.7	0.6	0.5
04360	12	V	100	30	2.5	-0.4	-0.1
06011	12	V	100	30	2.6	0.7	-0.5
06260	00	V	100	27	2.9	0.6	0.3
06260	12	V	100	6	2.3	0.3	0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06610	12	V	100	31	3.0	0.2	0.0
06610	00	V	100	30	3.1	-0.4	-0.8
07110	12	V	100	30	3.3	0.6	0.3
07110	00	V	100	30	2.5	0.3	0.2
07510	12	V	100	28	2.6	-0.4	-0.2
07510	00	V	100	24	3.3	0.1	-0.2
075109	12	V	100	0	0.0	0.0	0.0
07645	12	V	100	30	3.3	-0.7	-0.1
07645	00	V	100	26	7.4	-1.0	-0.9
07761	12	V	100	25	3.2	0.4	0.0
07761	00	V	100	21	3.3	1.0	0.0
08001	12	V	100	31	3.3	0.0	0.2
08001	00	V	100	28	3.3	0.1	-0.8
08221	12	V	100	31	3.5	-0.2	0.6
08221	00	V	100	30	3.3	0.7	-0.2
082219	00	V	100	0	0.0	0.0	0.0
08302	00	V	100	30	3.7	0.0	0.8
08302	12	V	100	31	3.2	0.3	-0.1
08508	12	V	100	31	3.8	0.5	0.8
08522	12	V	100	31	2.9	-0.3	-0.6
10035	00	V	100	30	2.9	0.2	-0.2
10035	12	V	100	31	3.0	-0.4	-0.2
10393	00	V	100	30	3.4	0.3	-0.5
10393	12	V	100	31	3.2	0.2	0.6
10410	00	V	100	30	2.9	0.7	-0.1
10410	12	V	100	31	3.0	0.2	0.4
10739	12	V	100	31	2.9	0.1	0.0
10739	00	V	100	30	3.2	-0.3	-0.2
11035	00	V	100	29	4.0	0.1	0.3
11035	12	V	100	31	3.7	0.4	-0.5
12982	12	V	100	31	3.3	-0.6	-0.4
12982	00	V	100	29	3.5	0.2	0.5
16245	00	V	100	29	3.8	0.3	-0.1
16245	12	V	100	30	3.6	-0.3	0.6
16429	00	V	100	29	3.9	0.3	0.7
16429	12	V	100	31	3.6	-0.3	0.0
16622	00	V	100	25	3.1	0.4	0.5
16754	00	V	100	27	3.7	0.5	0.6
17607	12	V	100	11	15.5	-8.5	-10.7
26435	12	V	100	8	2.9	-1.2	-0.7
2EERVT	12	V	100	3	3.6	0.9	-0.9
2EERVT	00	V	100	4	4.8	-1.1	1.6
60018	00	V	100	29	3.5	-0.3	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	12	V	100	31	3.2	0.2	0.1
7JUNA4	00	V	100	6	2.2	-0.2	0.3
7JUNA4	12	V	100	4	2.0	-1.3	-0.9
ASDE09	12	V	100	3	2.5	1.2	0.0
ATGU3F	00	V	100	14	2.6	0.0	0.2
ATGU3F	12	V	100	10	2.8	-1.2	-0.4
DBLK	12	V	100	13	2.3	-0.2	-0.8
FPUW5G	12	V	100	6	3.4	1.0	1.1
JNKN7J	12	V	100	10	3.7	-0.7	0.3
JNKN7J	00	V	100	10	1.9	0.0	-0.1
KJJF9X	12	V	100	5	3.6	-1.7	0.4
KJJF9X	00	V	100	2	2.5	2.3	0.0
KMPLHP	00	V	100	8	2.5	-0.2	0.6
KMPLHP	12	V	100	11	3.3	-0.4	0.5
LAGY8	00	V	100	4	5.1	0.3	3.7
LAGZ8	00	V	100	3	3.0	-0.8	1.6
LRYQE3	12	V	100	6	2.8	0.6	0.7
LRYQE3	00	V	100	8	2.8	0.6	-0.2
UXK5JT	12	V	100	10	3.5	-0.6	0.3
UXK5JT	00	V	100	10	3.5	-0.7	0.2
WDK38H	12	V	100	11	1.9	-0.3	-0.9
XKQLWQ	12	V	100	24	2.5	0.0	0.8
YLV96W	00	V	100	8	4.2	1.6	0.5
YLV96W	12	V	100	9	3.0	0.4	1.2
ZVQEQC	12	V	100	10	2.6	0.2	-0.2



#### 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 : JUL 2024  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	500	30	9.2	-3.3
01001	12	Z	500	33	6.5	1.4
01028	00	Z	500	32	3.2	-0.5
01028	12	Z	500	31	2.3	-0.2
01400	12	Z	500	31	80.9	80.7
01400	00	Z	500	31	78.9	77.6
01415	12	Z	500	31	5.5	4.1
01415	00	Z	500	30	4.6	3.6
02591	00	Z	500	28	7.2	6.8
02591	12	Z	500	28	8.2	7.8
02836	12	Z	500	32	2.9	1.0
02836	00	Z	500	31	3.1	1.1
02963	12	Z	500	31	2.9	1.4
02963	00	Z	500	31	2.9	2.3
03005	00	Z	500	28	2.7	-1.3
03005	12	Z	500	33	4.5	-2.3
03238	00	Z	500	31	4.1	3.6
03238	12	Z	500	7	4.0	1.8
03808	00	Z	500	27	4.6	3.6
03808	12	Z	500	30	3.1	2.3
03918	00	Z	500	30	7.4	7.0
03918	12	Z	500	2	6.1	5.9
03953	00	Z	500	33	2.7	-1.3
03953	12	Z	500	32	3.9	-1.3
04018	00	Z	500	31	2.9	0.4
04018	12	Z	500	31	3.8	-1.1
04220	12	Z	500	31	12.5	-1.9
04220	00	Z	500	31	8.1	-6.0
04270	12	Z	500	31	11.0	-9.1
04270	00	Z	500	32	15.1	-13.1
04320	00	Z	500	31	5.4	0.5
04320	12	Z	500	31	13.7	3.3
04339	00	Z	500	31	11.8	-10.6
04339	12	Z	500	31	10.9	-9.5
04360	00	Z	500	31	9.1	-7.9
04360	12	Z	500	31	7.3	-5.3
06011	12	Z	500	30	6.6	-4.0
06260	00	Z	500	30	3.6	1.2
06260	12	Z	500	6	3.7	-0.9

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06610	12	Z	500	33	2.2	1.3
06610	00	Z	500	31	3.0	2.0
07110	12	Z	500	31	8.3	-2.2
07110	00	Z	500	30	6.9	-3.2
07510	12	Z	500	29	6.6	1.3
07510	00	Z	500	27	7.3	0.5
075109	12	Z	500	0	0.0	0.0
07645	12	Z	500	32	10.1	-5.8
07645	00	Z	500	31	13.4	-9.8
07761	12	Z	500	27	5.8	3.3
07761	00	Z	500	24	5.8	-0.5
08001	12	Z	500	31	3.4	2.6
08001	00	Z	500	32	4.7	4.3
08221	12	Z	500	31	3.9	3.3
08221	00	Z	500	31	4.9	4.2
082219	00	Z	500	0	0.0	0.0
08302	00	Z	500	31	4.9	-4.6
08302	12	Z	500	31	6.5	-6.0
08508	12	Z	500	31	6.9	6.5
08522	12	Z	500	31	6.5	6.2
10035	00	Z	500	31	13.6	13.5
10035	12	Z	500	31	12.3	12.0
10393	00	Z	500	31	3.2	0.6
10393	12	Z	500	31	2.1	-0.3
10410	00	Z	500	31	2.4	1.0
10410	12	Z	500	34	2.5	-1.0
10739	12	Z	500	31	3.7	3.0
10739	00	Z	500	31	5.5	5.1
11035	00	Z	500	31	8.8	-4.1
11035	12	Z	500	32	7.2	5.5
12982	12	Z	500	32	3.3	1.9
12982	00	Z	500	30	3.0	1.9
16245	00	Z	500	31	3.4	3.0
16245	12	Z	500	31	2.8	2.3
16429	00	Z	500	30	4.5	4.1
16429	12	Z	500	31	3.2	2.7
16622	00	Z	500	30	10.3	9.7
16754	00	Z	500	30	5.4	4.5
17607	12	Z	500	29	7.0	-1.2
26435	12	Z	500	15	3.1	0.2
2EERVT	12	Z	500	6	32.7	-30.6
2EERVT	00	Z	500	7	11.2	-10.4
60018	00	Z	500	32	5.5	5.0

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	12	Z	500	31	5.2	4.4
7JUNA4	00	Z	500	7	58.7	51.3
7JUNA4	12	Z	500	5	57.8	50.6
ASDE09	12	Z	500	4	30.0	15.1
ATGU3F	00	Z	500	14	30.5	-30.1
ATGU3F	12	Z	500	12	28.6	-28.0
DBLK	12	Z	500	13	16.1	15.7
FPUW5G	12	Z	500	6	6.0	3.4
JNKN7J	12	Z	500	10	40.1	38.9
JNKN7J	00	Z	500	11	41.7	41.5
KJJF9X	12	Z	500	6	11.8	-8.6
KJJF9X	00	Z	500	6	12.4	-10.8
KMPLHP	00	Z	500	8	68.6	67.3
KMPLHP	12	Z	500	11	61.0	60.2
LAGY8	00	Z	500	4	140.8	-140.8
LAGZ8	00	Z	500	3	72.0	72.0
LRVQE3	12	Z	500	6	17.4	10.0
LRVQE3	00	Z	500	11	4.7	-3.0
UXK5JT	12	Z	500	10	6.2	-2.3
UXK5JT	00	Z	500	11	36.7	-18.2
WDK38H	12	Z	500	12	13.6	-12.7
XKQLWQ	12	Z	500	25	17.6	16.6
YLV96W	00	Z	500	8	4.3	-2.9
YLV96W	12	Z	500	10	8.8	-6.6
ZVQEQC	12	Z	500	10	2.8	-1.1

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

## RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 LEVEL : 500 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : JUL 2024  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	500	29	1.7	0.1	0.1
01001	12	V	500	31	2.5	0.0	0.1
01028	00	V	500	30	2.2	0.4	0.1
01028	12	V	500	31	1.7	0.3	-0.2
01400	12	V	500	31	2.2	0.2	0.0
01400	00	V	500	29	2.4	0.5	0.4
01415	12	V	500	31	2.8	-0.1	0.3
01415	00	V	500	29	3.0	-0.2	0.2
02591	00	V	500	28	2.9	-0.2	-0.4
02591	12	V	500	28	2.5	0.0	0.4
02836	12	V	500	31	2.3	0.3	0.6
02836	00	V	500	30	2.4	0.2	0.2
02963	12	V	500	31	2.5	0.0	0.2
02963	00	V	500	30	2.7	-0.3	-0.2
03005	00	V	500	27	3.2	-0.4	0.3
03005	12	V	500	31	2.8	0.7	0.0
03238	00	V	500	30	2.2	-0.1	0.1
03238	12	V	500	7	1.9	0.3	1.1
03808	00	V	500	27	2.5	0.2	-0.4
03808	12	V	500	30	3.0	0.5	0.0
03918	00	V	500	29	2.9	0.9	0.2
03918	12	V	500	2	1.8	-0.7	0.8
03953	00	V	500	30	2.2	0.3	0.0
03953	12	V	500	31	2.5	0.4	0.6
04018	00	V	500	30	2.1	-0.4	0.2
04018	12	V	500	31	2.4	-0.4	-0.5
04220	12	V	500	31	2.2	0.5	-0.2
04220	00	V	500	30	2.8	-0.1	-0.4
04270	12	V	500	31	3.0	-0.1	0.4
04270	00	V	500	30	2.3	0.3	0.3
04320	00	V	500	30	1.9	0.3	0.2
04320	12	V	500	31	1.7	0.2	-0.1
04339	00	V	500	30	2.8	-0.5	0.1
04339	12	V	500	31	2.2	-0.2	-0.5
04360	00	V	500	30	3.0	0.5	0.2
04360	12	V	500	30	2.4	-0.2	0.1
06011	12	V	500	30	2.2	-0.2	0.0
06260	00	V	500	29	2.6	0.5	-0.1
06260	12	V	500	6	2.5	-0.3	-1.1

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06610	12	V	500	31	2.3	0.5	-0.4
06610	00	V	500	30	2.6	0.4	0.0
07110	12	V	500	30	2.4	0.6	0.4
07110	00	V	500	29	2.8	-0.1	0.9
07510	12	V	500	27	1.6	0.0	0.0
07510	00	V	500	25	2.6	-0.3	-0.2
075109	12	V	500	0	0.0	0.0	0.0
07645	12	V	500	31	2.3	0.0	0.0
07645	00	V	500	29	2.2	0.3	-0.1
07761	12	V	500	27	1.8	-0.1	0.3
07761	00	V	500	22	2.1	0.7	0.3
08001	12	V	500	31	2.6	-0.3	-0.1
08001	00	V	500	30	2.5	0.1	-0.1
08221	12	V	500	31	1.6	0.2	0.0
08221	00	V	500	30	2.2	0.5	0.2
082219	00	V	500	0	0.0	0.0	0.0
08302	00	V	500	30	1.8	0.1	0.1
08302	12	V	500	31	2.1	0.0	0.1
08508	12	V	500	31	1.8	-0.1	0.2
08522	12	V	500	31	2.2	0.1	-0.3
10035	00	V	500	30	2.3	0.2	0.0
10035	12	V	500	31	2.3	0.0	0.1
10393	00	V	500	30	2.4	0.3	-0.1
10393	12	V	500	31	2.1	0.1	-0.2
10410	00	V	500	30	2.3	0.3	-0.1
10410	12	V	500	31	2.1	0.1	0.3
10739	12	V	500	31	2.1	0.2	-0.5
10739	00	V	500	30	2.6	-0.3	0.0
11035	00	V	500	30	2.8	-0.5	-0.1
11035	12	V	500	31	2.3	-0.2	0.1
12982	12	V	500	31	2.7	0.2	-0.3
12982	00	V	500	29	2.3	-0.3	-0.3
16245	00	V	500	29	2.6	0.3	0.3
16245	12	V	500	31	2.1	0.4	0.0
16429	00	V	500	29	2.3	0.5	-0.6
16429	12	V	500	31	2.0	0.3	-0.7
16622	00	V	500	29	3.0	1.0	-0.3
16754	00	V	500	28	2.8	1.1	-0.5
17607	12	V	500	27	6.0	-3.0	0.6
26435	12	V	500	15	2.0	0.4	0.1
2EERV	12	V	500	6	2.3	0.2	0.1
2EERV	00	V	500	7	2.7	-0.6	-0.1
60018	00	V	500	30	2.1	0.3	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	12	V	500	31	2.4	0.1	-0.4
7JUNA4	00	V	500	6	2.8	0.2	1.2
7JUNA4	12	V	500	5	3.5	0.2	-0.1
ASDE09	12	V	500	4	2.1	-0.8	-0.3
ATGU3F	00	V	500	14	3.5	0.9	0.0
ATGU3F	12	V	500	12	3.1	0.1	0.6
DBLK	12	V	500	13	2.5	-1.0	0.1
FPUW5G	12	V	500	6	2.6	0.5	0.4
JNKN7J	12	V	500	10	2.4	0.8	0.6
JNKN7J	00	V	500	11	2.8	1.3	0.5
KJJF9X	12	V	500	6	2.6	1.1	0.5
KJJF9X	00	V	500	6	1.5	0.2	-0.5
KMPLHP	00	V	500	8	2.3	-0.1	0.6
KMPLHP	12	V	500	11	2.9	1.6	-0.1
LAGY8	00	V	500	4	2.5	0.0	-0.2
LAGZ8	00	V	500	3	2.6	-0.1	0.0
LRYQE3	12	V	500	6	2.4	0.1	1.4
LRYQE3	00	V	500	10	3.1	0.5	0.9
UXK5JT	12	V	500	10	1.6	-0.5	-0.2
UXK5JT	00	V	500	11	2.1	0.6	0.0
WDK38H	12	V	500	12	2.6	-1.0	0.8
XKQLWQ	12	V	500	25	2.3	-0.2	-0.2
YLV96W	00	V	500	8	2.0	-0.6	0.2
YLV96W	12	V	500	10	2.6	0.5	0.1
ZVQEQC	12	V	500	10	2.5	-0.3	0.6

#### 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 : JUL 2024  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	00	Z	850	34	7.1	-2.4
01001	12	Z	850	33	6.3	2.2
01028	00	Z	850	32	2.9	1.2
01028	12	Z	850	31	2.7	0.4
01400	12	Z	850	31	80.7	80.6
01400	00	Z	850	31	78.9	77.5
01415	12	Z	850	31	4.9	4.2
01415	00	Z	850	30	5.1	4.7
02591	00	Z	850	28	9.2	8.9
02591	12	Z	850	28	8.8	8.5
02836	12	Z	850	32	3.0	2.0
02836	00	Z	850	31	3.9	2.7
02963	12	Z	850	31	4.0	3.7
02963	00	Z	850	31	5.0	4.5
03005	00	Z	850	28	2.6	-1.0
03005	12	Z	850	33	2.9	-1.9
03238	00	Z	850	31	3.4	2.9
03238	12	Z	850	7	3.2	2.6
03808	00	Z	850	27	3.2	2.5
03808	12	Z	850	30	2.5	1.7
03918	00	Z	850	30	7.2	7.0
03918	12	Z	850	2	7.7	7.7
03953	00	Z	850	33	1.7	-0.3
03953	12	Z	850	32	3.4	-1.5
04018	00	Z	850	31	2.6	1.1
04018	12	Z	850	31	1.9	-0.9
04220	12	Z	850	31	5.2	-4.1
04220	00	Z	850	31	4.2	-3.1
04270	12	Z	850	31	8.5	-8.0
04270	00	Z	850	32	8.7	-8.4
04320	00	Z	850	31	5.2	3.2
04320	12	Z	850	31	9.7	1.7
04339	00	Z	850	31	9.1	-8.4
04339	12	Z	850	31	10.1	-8.1
04360	00	Z	850	31	5.9	-4.7
04360	12	Z	850	31	5.9	-4.7
06011	12	Z	850	30	4.6	-3.0
06260	00	Z	850	30	2.4	1.6
06260	12	Z	850	6	3.7	-1.5

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06610	12	Z	850	33	2.7	2.1
06610	00	Z	850	31	3.1	2.4
07110	12	Z	850	31	2.6	0.3
07110	00	Z	850	30	1.8	-0.4
07510	12	Z	850	30	5.5	4.2
07510	00	Z	850	28	4.6	2.6
075109	12	Z	850	1	42.2	-42.2
07645	12	Z	850	32	6.7	-5.5
07645	00	Z	850	33	8.5	-6.9
07761	12	Z	850	27	2.2	1.2
07761	00	Z	850	25	1.5	0.2
08001	12	Z	850	31	3.0	1.9
08001	00	Z	850	32	2.8	1.1
08221	12	Z	850	31	1.8	1.4
08221	00	Z	850	31	2.3	1.2
082219	00	Z	850	1	10.1	-10.1
08302	00	Z	850	31	8.3	-8.1
08302	12	Z	850	31	7.8	-7.6
08508	12	Z	850	31	4.2	3.5
08522	12	Z	850	31	3.6	3.0
10035	00	Z	850	31	13.8	13.7
10035	12	Z	850	31	13.8	13.7
10393	00	Z	850	31	2.1	0.3
10393	12	Z	850	31	1.7	0.6
10410	00	Z	850	31	1.7	0.5
10410	12	Z	850	34	1.8	0.0
10739	12	Z	850	31	5.1	4.9
10739	00	Z	850	31	5.1	4.6
11035	00	Z	850	31	6.8	-2.2
11035	12	Z	850	31	4.4	3.6
12982	12	Z	850	32	3.9	3.6
12982	00	Z	850	30	3.1	2.6
16245	00	Z	850	31	3.5	3.0
16245	12	Z	850	31	2.6	2.3
16429	00	Z	850	30	4.0	3.2
16429	12	Z	850	31	2.5	1.8
16622	00	Z	850	30	9.6	9.2
16754	00	Z	850	31	3.8	2.8
17607	12	Z	850	29	2.0	1.2
26435	12	Z	850	15	2.8	1.8
2EERVT	12	Z	850	7	28.8	-2.5
2EERVT	00	Z	850	7	8.2	-7.6
60018	00	Z	850	32	1.8	-0.5



RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	12	Z	850	31	1.9	0.6
7JUNA4	00	Z	850	7	66.0	58.4
7JUNA4	12	Z	850	5	64.0	57.5
ASDE09	12	Z	850	4	32.1	17.9
ATGU3F	00	Z	850	15	30.4	-30.1
ATGU3F	12	Z	850	12	27.8	-27.7
DBLK	12	Z	850	13	16.7	16.4
FPUW5G	12	Z	850	6	6.5	4.3
JNKN7J	12	Z	850	10	42.7	42.5
JNKN7J	00	Z	850	11	45.9	45.4
KJJF9X	12	Z	850	6	9.8	-7.2
KJJF9X	00	Z	850	6	7.6	-5.4
KMPLHP	00	Z	850	9	71.5	71.2
KMPLHP	12	Z	850	11	68.1	67.2
LAGY8	00	Z	850	4	0.0	0.0
LAGZ8	00	Z	850	3	80.3	80.2
LRVQE3	12	Z	850	6	16.4	6.6
LRVQE3	00	Z	850	11	3.9	0.0
UXK5JT	12	Z	850	10	5.3	-0.8
UXK5JT	00	Z	850	11	8.9	-5.2
WDK38H	12	Z	850	12	11.5	-11.0
XKQLWQ	12	Z	850	25	10.7	9.2
YLV96W	00	Z	850	7	2.8	-1.6
YLV96W	12	Z	850	10	5.8	-3.3
ZVQEQC	12	Z	850	10	3.5	-0.2

**4.8 Table 20 - Radiosonde Monitoring Statistics (EUCOS): 850 hPa Wind (m/s)**

## RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 LEVEL : 850 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : JUL 2024  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	00	V	850	30	2.8	0.2	0.2
01001	12	V	850	31	3.3	-0.5	0.4
01028	00	V	850	30	2.5	-0.2	-0.4
01028	12	V	850	31	2.3	-0.4	-0.5
01400	12	V	850	31	2.3	0.4	0.1
01400	00	V	850	29	2.6	0.8	0.2
01415	12	V	850	31	3.3	0.2	0.0
01415	00	V	850	29	2.5	0.0	0.1
02591	00	V	850	28	3.0	-0.4	-0.1
02591	12	V	850	28	2.9	-0.6	-0.3
02836	12	V	850	31	2.1	0.7	0.1
02836	00	V	850	30	2.5	-0.1	0.1
02963	12	V	850	31	2.2	0.2	-0.1
02963	00	V	850	30	2.9	-0.3	0.8
03005	00	V	850	27	2.7	0.1	-0.6
03005	12	V	850	31	2.6	0.1	0.0
03238	00	V	850	30	2.3	-0.5	0.4
03238	12	V	850	7	2.7	0.0	0.2
03808	00	V	850	27	2.1	0.4	0.2
03808	12	V	850	30	2.6	-0.1	0.2
03918	00	V	850	29	2.4	0.4	0.0
03918	12	V	850	2	1.5	-0.4	0.6
03953	00	V	850	30	1.9	0.2	0.5
03953	12	V	850	31	2.3	0.3	0.3
04018	00	V	850	30	3.3	-0.5	0.2
04018	12	V	850	31	2.5	0.4	0.6
04220	12	V	850	31	2.3	0.0	0.1
04220	00	V	850	30	3.0	0.3	0.5
04270	12	V	850	31	2.4	0.2	0.3
04270	00	V	850	30	2.6	0.0	0.0
04320	00	V	850	30	3.0	-0.3	-0.9
04320	12	V	850	31	2.7	0.0	-0.1
04339	00	V	850	30	3.0	-0.1	-0.7
04339	12	V	850	31	2.9	-0.1	0.3
04360	00	V	850	30	3.7	1.1	0.6
04360	12	V	850	31	4.1	-0.3	0.2
06011	12	V	850	30	2.0	0.2	-0.2
06260	00	V	850	29	2.1	-0.1	0.0
06260	12	V	850	6	1.5	-0.5	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06610	12	V	850	31	2.5	-0.2	0.0
06610	00	V	850	30	2.7	0.9	0.3
07110	12	V	850	30	2.5	0.0	-0.4
07110	00	V	850	29	2.4	-0.1	0.5
07510	12	V	850	28	2.9	-0.4	0.2
07510	00	V	850	25	2.9	-0.6	0.3
075109	12	V	850	1	10.7	-10.7	0.2
07645	12	V	850	31	3.0	-0.1	0.6
07645	00	V	850	30	3.0	-0.5	0.4
07761	12	V	850	27	2.1	-0.7	0.2
07761	00	V	850	23	1.8	0.0	-0.2
08001	12	V	850	31	2.3	0.4	-0.1
08001	00	V	850	30	2.6	0.2	-0.6
08221	12	V	850	31	2.2	0.4	-0.1
08221	00	V	850	30	3.5	0.0	0.2
082219	00	V	850	0	0.0	0.0	0.0
08302	00	V	850	30	2.0	-0.2	0.2
08302	12	V	850	31	2.3	0.5	-0.1
08508	12	V	850	31	2.3	-0.2	-0.5
08522	12	V	850	31	2.8	-0.6	0.3
10035	00	V	850	30	2.3	-0.4	-0.2
10035	12	V	850	31	2.1	0.0	-0.7
10393	00	V	850	30	2.7	0.1	0.3
10393	12	V	850	31	2.2	0.5	-0.2
10410	00	V	850	30	2.3	0.5	-0.3
10410	12	V	850	31	2.6	-0.1	-0.1
10739	12	V	850	31	2.4	0.4	0.1
10739	00	V	850	30	3.0	0.8	-0.1
11035	00	V	850	30	2.9	0.1	-0.5
11035	12	V	850	30	3.0	0.3	1.0
12982	12	V	850	31	2.3	0.5	0.2
12982	00	V	850	29	2.5	-0.1	-0.5
16245	00	V	850	30	2.6	0.1	0.1
16245	12	V	850	31	2.3	-0.5	-0.2
16429	00	V	850	29	2.3	0.2	0.3
16429	12	V	850	31	2.1	-0.4	-0.1
16622	00	V	850	29	2.5	0.9	-0.1
16754	00	V	850	30	1.9	-0.2	-0.2
17607	12	V	850	28	2.6	0.2	0.2
26435	12	V	850	15	2.7	-0.6	-0.2
2EERV	12	V	850	7	5.1	3.4	-0.8
2EERV	00	V	850	7	2.8	1.7	0.7
60018	00	V	850	30	3.4	1.7	1.2

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	12	V	850	31	3.2	0.5	0.3
7JUNA4	00	V	850	6	2.5	0.7	-0.3
7JUNA4	12	V	850	5	2.4	0.5	1.6
ASDE09	12	V	850	4	1.9	0.0	-0.3
ATGU3F	00	V	850	15	2.0	0.1	0.0
ATGU3F	12	V	850	12	2.6	1.4	0.6
DBLK	12	V	850	13	2.1	-0.3	-0.4
FPUW5G	12	V	850	6	1.9	0.9	0.1
JNKN7J	12	V	850	10	2.2	-0.4	-1.0
JNKN7J	00	V	850	11	1.6	-0.4	0.5
KJJF9X	12	V	850	6	2.2	0.3	-0.5
KJJF9X	00	V	850	6	1.5	-0.2	0.5
KMPLHP	00	V	850	9	2.9	-0.4	-1.2
KMPLHP	12	V	850	11	2.7	-0.7	1.2
LAGY8	00	V	850	4	2.8	0.0	0.5
LAGZ8	00	V	850	3	2.3	0.7	-0.3
LRYQE3	12	V	850	6	2.1	1.2	-0.1
LRYQE3	00	V	850	10	2.4	-1.1	0.8
UXK5JT	12	V	850	10	1.4	0.2	0.0
UXK5JT	00	V	850	11	1.4	-0.5	-0.1
WDK38H	12	V	850	12	2.8	-0.3	-0.4
XKQLWQ	12	V	850	25	2.3	0.4	-0.6
YLV96W	00	V	850	7	1.4	0.2	-0.1
YLV96W	12	V	850	10	5.1	0.6	0.7
ZVQEQC	12	V	850	10	2.2	0.4	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 : JUL 2024  
 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
1000044	99	P	SUR	55	10	137	0	0.3	-3.1	3.1
1300001	99	P	SUR	11	-23	744	0	0.4	0.2	0.4
1300008	99	P	SUR	15	-38	610	0	0.2	0.1	0.2
1300130	99	P	SUR	28	-16	734	0	0.3	0.2	0.3
1300131	99	P	SUR	28	-17	731	0	0.4	0.0	0.4
1301629	99	P	SUR	20	-55	743	0	0.3	0.1	0.3
1301712	99	P	SUR	20	-64	744	0	0.4	0.0	0.4
1301714	99	P	SUR	30	-63	744	0	0.4	0.3	0.5
1301718	99	P	SUR	28	-43	744	0	0.2	0.2	0.3
1301725	99	P	SUR	27	-46	744	0	0.2	0.1	0.2
1301726	99	P	SUR	24	-44	744	0	0.2	0.1	0.2
1301731	99	P	SUR	22	-46	743	0	0.2	0.3	0.4
1301735	99	P	SUR	26	-41	744	0	0.2	-1.0	1.0
1301736	99	P	SUR	31	-43	744	0	0.2	0.3	0.3
1301737	99	P	SUR	28	-53	744	0	0.3	0.1	0.3
1301767	99	P	SUR	29	-20	744	0	0.3	-0.6	0.6
1301769	99	P	SUR	29	-26	744	0	0.2	0.7	0.7
1301770	99	P	SUR	27	-40	744	0	0.2	0.2	0.3
1301771	99	P	SUR	29	-20	729	0	0.2	0.2	0.3
1301773	99	P	SUR	33	-11	742	0	0.3	0.1	0.3
1301778	99	P	SUR	28	-24	741	0	0.2	0.0	0.2
1301779	99	P	SUR	19	-54	234	0	0.3	0.3	0.4
1301782	99	P	SUR	58	-49	742	0	0.6	0.0	0.6
1301784	99	P	SUR	40	-21	743	0	0.2	0.0	0.2
1301785	99	P	SUR	38	-15	743	0	0.2	0.1	0.2
1301786	99	P	SUR	38	-28	740	0	0.2	0.2	0.3
1301792	99	P	SUR	22	-50	722	0	0.2	-0.3	0.4
1301793	99	P	SUR	62	-12	719	0	0.3	0.2	0.3
1301794	99	P	SUR	35	-18	734	0	0.2	0.3	0.4
1301795	99	P	SUR	20	-51	742	0	0.3	-0.1	0.3
1301796	99	P	SUR	23	-43	191	0	0.2	0.2	0.3
1301797	99	P	SUR	17	-51	704	0	0.3	0.2	0.3
1301798	99	P	SUR	30	-33	741	0	0.2	0.4	0.5
1301799	99	P	SUR	28	-30	735	0	0.2	0.2	0.3
1301800	99	P	SUR	73	10	114	0	0.2	0.0	0.2
1301801	99	P	SUR	60	-12	743	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
1301802	99	P	SUR	60	-8	742	0	0.3	-0.1	0.3
1301804	99	P	SUR	62	-23	740	0	0.4	0.0	0.4
1301807	99	P	SUR	75	18	743	0	0.3	0.0	0.3
1301810	99	P	SUR	42	-45	744	0	0.3	-0.2	0.3
1301811	99	P	SUR	43	-39	743	0	0.3	0.1	0.3
1301812	99	P	SUR	46	-45	744	0	0.3	0.0	0.3
1301813	99	P	SUR	39	-42	121	0	0.2	0.2	0.3
1301814	99	P	SUR	43	-27	744	0	0.3	0.0	0.3
1301816	99	P	SUR	41	-55	744	0	0.3	0.3	0.5
1301817	99	P	SUR	25	-60	48	0	0.4	0.5	0.6
1301819	99	P	SUR	25	-26	743	0	0.2	-0.1	0.2
1301820	99	P	SUR	27	-26	743	0	0.2	-0.1	0.3
1301822	99	P	SUR	21	-26	743	0	0.3	0.3	0.4
1301823	99	P	SUR	24	-26	743	0	0.2	0.2	0.3
1501638	99	P	SUR	19	-36	742	0	0.2	0.0	0.2
1501770	99	P	SUR	17	-61	744	0	0.3	-0.5	0.6
1701715	99	P	SUR	19	-57	692	0	0.3	-0.1	0.3
1701716	99	P	SUR	15	-35	654	0	0.3	-0.1	0.3
1701718	99	P	SUR	20	-60	734	732	0.0	14.5	14.5
1801561	99	P	SUR	16	-67	3561	0	0.4	0.1	0.4
1801671	99	P	SUR	49	-28	732	0	0.3	0.0	0.3
1801673	99	P	SUR	50	-49	739	0	0.3	-0.2	0.4
1801674	99	P	SUR	44	-28	738	0	0.3	-0.1	0.3
1801676	99	P	SUR	55	-53	643	0	0.3	0.1	0.4
1801678	99	P	SUR	44	-15	739	0	0.3	0.3	0.5
1801777	99	P	SUR	47	-39	744	0	0.3	0.0	0.3
1801778	99	P	SUR	43	-48	744	0	0.3	0.3	0.4
1801803	99	P	SUR	64	-8	743	0	1.0	0.7	1.2
1801853	99	P	SUR	56	-60	401	0	0.4	0.2	0.4
2801966	99	P	SUR	31	17	734	0	0.2	0.0	0.2
2801968	99	P	SUR	55	-52	632	0	0.4	0.0	0.4
2802062	99	P	SUR	85	26	689	0	0.3	0.0	0.3
2802065	99	P	SUR	85	33	687	0	0.3	-0.1	0.3
2802075	99	P	SUR	53	-21	687	0	0.3	0.0	0.3
2802077	99	P	SUR	65	-35	743	0	0.4	0.3	0.5
2802078	99	P	SUR	71	23	744	0	0.3	-0.2	0.3
2802100	99	P	SUR	67	-13	739	0	0.4	0.1	0.4
2802160	99	P	SUR	55	-56	552	0	0.4	0.3	0.5
3801569	99	P	SUR	46	-34	724	0	1.1	-0.9	1.4
3801596	99	P	SUR	31	-36	743	0	0.2	-0.2	0.3
3801676	99	P	SUR	68	-8	742	0	0.3	0.2	0.3
3801758	99	P	SUR	55	-56	552	0	0.4	0.2	0.5
4100040	99	P	SUR	15	-53	4464	0	0.3	-1.0	1.0

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4100043	99	P	SUR	21	-65	4463	0	0.4	0.3	0.5
4100044	99	P	SUR	22	-59	4464	0	0.3	-0.3	0.4
4100046	99	P	SUR	24	-68	4464	0	0.4	0.2	0.4
4100049	99	P	SUR	28	-62	4464	0	0.3	-0.2	0.4
4100052	99	P	SUR	18	-65	1043	0	0.4	-1.0	1.1
4100053	99	P	SUR	18	-66	4443	0	0.4	-0.8	0.9
4100056	99	P	SUR	18	-65	2113	0	0.4	-0.9	1.0
4100139	99	P	SUR	20	-38	614	0	0.2	0.1	0.2
4101665	99	P	SUR	66	-7	744	0	0.3	-0.3	0.5
4101725	99	P	SUR	18	-63	744	0	0.4	-0.1	0.4
4101727	99	P	SUR	26	-63	743	0	0.4	0.4	0.5
4101728	99	P	SUR	29	-45	744	0	0.2	0.5	0.5
4101729	99	P	SUR	30	-49	744	0	0.2	0.2	0.3
4101730	99	P	SUR	11	-43	744	0	0.3	0.1	0.3
4101753	99	P	SUR	31	-34	744	0	0.2	0.3	0.4
4101755	99	P	SUR	33	-52	744	0	0.3	0.3	0.4
4101843	99	P	SUR	72	-18	625	0	0.4	0.0	0.4
4101845	99	P	SUR	69	5	744	0	0.2	0.2	0.3
4101851	99	P	SUR	29	-57	744	0	0.3	-0.7	0.7
4101859	99	P	SUR	15	-47	744	0	0.3	0.0	0.3
4101861	99	P	SUR	24	-38	741	0	0.2	0.4	0.4
4101862	99	P	SUR	16	-35	742	0	0.3	-0.5	0.6
4101863	99	P	SUR	21	-33	742	0	0.2	0.1	0.2
41040	99	P	SUR	15	-53	744	0	0.3	-1.0	1.0
41043	99	P	SUR	21	-65	744	0	0.4	0.3	0.5
41044	99	P	SUR	22	-59	744	0	0.3	-0.3	0.4
41046	99	P	SUR	24	-68	744	0	0.4	0.2	0.5
41049	99	P	SUR	28	-62	744	0	0.4	-0.2	0.4
41052	99	P	SUR	18	-65	198	0	0.4	-0.9	1.0
41053	99	P	SUR	19	-66	744	0	0.4	-0.8	0.9
41056	99	P	SUR	18	-66	354	0	0.4	-1.0	1.0
4200059	99	P	SUR	15	-67	229	0	0.5	-0.9	1.0
4200060	99	P	SUR	16	-63	4464	0	0.4	-0.3	0.5
4200085	99	P	SUR	18	-67	958	0	0.5	-0.7	0.9
42059	99	P	SUR	15	-68	38	0	0.5	-0.7	0.9
42060	99	P	SUR	16	-63	744	0	0.4	-0.3	0.5
42085	99	P	SUR	18	-67	201	0	0.5	-0.8	0.9
4400008	99	P	SUR	40	-69	4464	0	0.4	-0.7	0.8
4400011	99	P	SUR	41	-67	4463	0	0.4	0.3	0.5
4400027	99	P	SUR	44	-67	4463	0	0.4	-0.8	0.8
4400032	99	P	SUR	44	-69	742	0	0.4	0.0	0.4
4400033	99	P	SUR	44	-69	744	0	0.4	-1.1	1.1
4400034	99	P	SUR	44	-68	744	0	0.4	-0.2	0.4

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4400037	99	P	SUR	43	-68	734	0	0.4	0.1	0.4
4400488	99	P	SUR	45	-61	726	0	0.4	0.2	0.4
4400489	99	P	SUR	45	-61	723	0	0.4	0.2	0.5
44008	99	P	SUR	41	-69	744	0	0.4	-0.7	0.8
44011	99	P	SUR	41	-67	744	0	0.4	0.3	0.5
4401582	99	P	SUR	26	-66	738	0	0.4	0.6	0.7
4401584	99	P	SUR	29	-61	743	0	0.3	0.2	0.4
4401587	99	P	SUR	80	26	352	0	2.3	2.3	3.3
4401588	99	P	SUR	69	15	152	0	0.3	0.7	0.8
4402613	99	P	SUR	28	-16	695	0	0.7	-0.9	1.1
4402618	99	P	SUR	34	-53	702	0	0.3	0.3	0.4
4402656	99	P	SUR	30	-24	743	0	0.2	0.2	0.3
4402663	99	P	SUR	22	-35	743	0	0.2	-0.1	0.2
4402674	99	P	SUR	23	-62	744	0	0.4	0.4	0.5
4402675	99	P	SUR	26	-60	744	0	0.4	0.1	0.4
4402676	99	P	SUR	27	-35	744	0	0.2	0.2	0.3
44027	99	P	SUR	44	-67	744	0	0.4	-0.7	0.8
4402721	99	P	SUR	21	-39	744	0	0.2	0.3	0.3
4402729	99	P	SUR	51	-23	743	0	0.3	0.0	0.3
4402730	99	P	SUR	32	-33	682	0	0.3	0.0	0.3
4402731	99	P	SUR	45	-30	712	0	0.3	0.0	0.3
4402733	99	P	SUR	52	-38	743	0	0.3	0.0	0.3
4402735	99	P	SUR	44	-7	540	0	2.5	-4.6	5.2
4402736	99	P	SUR	39	-12	740	0	0.2	0.0	0.2
4402737	99	P	SUR	54	-36	743	0	0.4	-0.1	0.4
4402739	99	P	SUR	47	-30	742	0	0.3	-0.1	0.3
4402743	99	P	SUR	35	-17	743	0	0.2	-0.9	0.9
4402744	99	P	SUR	34	-52	743	0	0.3	0.2	0.3
4402747	99	P	SUR	37	-25	742	0	0.2	0.0	0.2
4402749	99	P	SUR	58	-23	744	0	0.3	0.0	0.3
4402750	99	P	SUR	56	-35	744	0	0.3	-0.3	0.5
4402882	99	P	SUR	39	-52	713	0	0.3	0.5	0.6
4402884	99	P	SUR	28	-69	724	0	0.4	0.5	0.7
4402885	99	P	SUR	30	-42	711	0	0.2	0.5	0.5
44032	99	P	SUR	44	-69	742	0	0.4	0.0	0.4
44033	99	P	SUR	44	-69	744	0	0.4	-1.0	1.1
44034	99	P	SUR	44	-68	744	0	0.4	-0.2	0.4
4403568	99	P	SUR	30	-36	688	0	0.2	0.2	0.3
4403569	99	P	SUR	32	-13	572	0	0.3	0.0	0.3
44037	99	P	SUR	44	-68	734	0	0.4	0.1	0.4
44078	99	P	SUR	60	-40	744	0	0.5	-0.5	0.7
44137	99	P	SUR	42	-62	738	0	0.5	0.0	0.5
44139	99	P	SUR	44	-57	605	0	0.5	0.0	0.5



DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44150	99	P	SUR	43	-64	742	0	0.5	0.1	0.5
44258	99	P	SUR	45	-63	740	0	0.4	0.1	0.4
44488	99	P	SUR	45	-61	726	0	0.4	0.2	0.4
44489	99	P	SUR	46	-61	723	0	0.4	0.2	0.5
4601782	99	P	SUR	26	-38	744	0	0.2	0.5	0.5
4701529	99	P	SUR	89	21	743	0	0.4	-0.1	0.4
4701530	99	P	SUR	88	-33	743	0	0.4	-0.5	0.6
4701555	99	P	SUR	65	-21	743	0	0.3	-0.3	0.4
4701558	99	P	SUR	79	-18	62	0	0.4	-4.6	4.6
4701561	99	P	SUR	66	-21	744	0	0.5	0.1	0.5
4801763	99	P	SUR	83	-27	692	0	0.5	-2.8	2.8
4801771	99	P	SUR	53	-49	692	692	0.0	0.0	0.0
4802506	99	P	SUR	58	-8	685	209	7.3	0.8	7.3
4802582	99	P	SUR	68	-25	744	0	0.4	0.1	0.4
4802594	99	P	SUR	85	-39	743	0	0.4	-0.6	0.7
4802598	99	P	SUR	83	-18	743	0	0.4	-0.2	0.5
4802600	99	P	SUR	62	-41	48	48	0.0	0.0	0.0
4802602	99	P	SUR	64	-21	534	0	0.3	-0.3	0.4
4802606	99	P	SUR	79	-6	622	37	4.6	1.8	4.9
4802608	99	P	SUR	85	-52	744	0	0.4	-0.1	0.4
4802664	99	P	SUR	84	-52	692	0	0.4	-0.3	0.5
4802669	99	P	SUR	87	-39	706	0	0.4	-0.3	0.5
4803997	99	P	SUR	50	-48	738	0	0.3	-0.1	0.3
4804003	99	P	SUR	57	-53	738	0	0.3	0.0	0.3
4804174	99	P	SUR	54	-57	558	0	0.4	0.3	0.5
5801972	99	P	SUR	45	-51	738	0	0.3	-0.1	0.3
5801975	99	P	SUR	39	-32	730	0	0.2	0.1	0.2
5801976	99	P	SUR	47	-29	737	0	0.3	-0.1	0.3
5801977	99	P	SUR	16	-55	730	0	0.3	0.1	0.3
5801978	99	P	SUR	56	-43	84	0	5.4	-2.1	5.8
5801983	99	P	SUR	33	-18	723	0	0.2	0.2	0.3
5802034	99	P	SUR	50	-4	744	0	0.3	0.0	0.3
5802060	99	P	SUR	85	28	689	0	0.3	-0.2	0.4
5802070	99	P	SUR	73	20	740	0	0.3	0.1	0.3
5802072	99	P	SUR	72	20	744	0	0.3	-0.2	0.3
5802094	99	P	SUR	66	-31	753	0	0.6	0.1	0.6
5802096	99	P	SUR	67	-24	739	0	1.9	0.0	1.9
6100001	99	P	SUR	43	8	739	0	0.3	0.2	0.4
6100002	99	P	SUR	42	5	739	0	0.4	0.1	0.4
6100196	99	P	SUR	42	4	734	0	0.5	0.5	0.8
6100197	99	P	SUR	40	4	734	0	0.3	0.3	0.5
6100198	99	P	SUR	37	-2	734	0	0.4	0.5	0.6
6100280	99	P	SUR	41	1	733	0	0.4	0.3	0.5

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6100281	99	P	SUR	40	0	731	0	0.4	0.4	0.5
6100417	99	P	SUR	38	0	717	0	0.3	0.4	0.5
6100430	99	P	SUR	40	2	686	0	0.3	0.4	0.5
6101007	99	P	SUR	36	25	159	0	0.4	-0.5	0.6
6101009	99	P	SUR	35	25	225	0	0.5	-0.4	0.6
6101031	99	P	SUR	42	8	743	0	0.3	0.2	0.3
6101032	99	P	SUR	42	10	738	0	0.3	0.0	0.3
6200001	99	P	SUR	45	-5	742	0	0.3	0.0	0.3
6200024	99	P	SUR	44	-3	734	0	0.4	0.4	0.5
6200025	99	P	SUR	44	-6	734	0	0.4	0.4	0.6
6200050	99	P	SUR	50	-4	744	0	0.3	0.0	0.3
6200081	99	P	SUR	51	-13	735	0	0.3	-0.1	0.3
6200082	99	P	SUR	44	-8	543	0	0.3	0.3	0.5
6200083	99	P	SUR	43	-9	734	0	0.4	0.2	0.4
6200084	99	P	SUR	42	-9	437	0	0.4	0.1	0.4
6200085	99	P	SUR	36	-7	368	0	0.4	0.4	0.5
6200086	99	P	SUR	55	7	4	0	0.3	-0.2	0.3
6200087	99	P	SUR	55	7	160	0	0.4	-0.3	0.5
6200091	99	P	SUR	53	-5	744	0	0.3	0.0	0.3
6200092	99	P	SUR	51	-11	744	0	0.3	-0.2	0.4
6200093	99	P	SUR	55	-10	744	0	0.3	0.0	0.3
6200094	99	P	SUR	52	-7	697	0	0.4	-0.1	0.4
6200095	99	P	SUR	53	-16	744	0	0.3	-0.1	0.4
6200163	99	P	SUR	47	-8	736	0	0.3	-0.2	0.3
6200191	99	P	SUR	41	-10	62	0	0.2	-1.0	1.0
6200192	99	P	SUR	40	-10	60	0	0.3	-0.4	0.5
6200442	99	P	SUR	49	-16	653	0	0.3	-0.2	0.4
6201065	99	P	SUR	54	7	632	0	0.4	1.3	1.3
6201066	99	P	SUR	55	7	718	0	0.3	0.3	0.4
6201081	99	P	SUR	38	-9	62	0	0.2	-0.4	0.5
6202114	99	P	SUR	54	6	141	0	0.3	0.0	0.3
6202597	99	P	SUR	44	-7	517	0	0.8	-0.6	1.0
6202598	99	P	SUR	33	-16	743	0	0.2	0.0	0.2
6202637	99	P	SUR	69	14	704	0	0.3	0.1	0.3
6203607	99	P	SUR	26	-34	744	0	1.0	0.2	1.0
6203612	99	P	SUR	47	-40	744	0	0.3	0.1	0.3
6203615	99	P	SUR	36	-67	743	0	0.4	-0.1	0.4
6203621	99	P	SUR	28	-52	744	0	0.3	0.2	0.4
6203625	99	P	SUR	29	-44	743	0	0.2	0.0	0.2
6203632	99	P	SUR	35	-57	744	0	0.3	0.3	0.5
6203634	99	P	SUR	27	-37	743	0	0.2	0.4	0.4
6203639	99	P	SUR	27	-31	744	0	0.2	-0.1	0.2
6203651	99	P	SUR	34	-17	734	0	0.2	0.2	0.3

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6203656	99	P	SUR	62	-38	744	0	0.4	0.0	0.4
6203661	99	P	SUR	67	-15	592	9	2.8	0.3	2.8
6203663	99	P	SUR	84	34	744	0	0.3	-0.2	0.4
6203664	99	P	SUR	81	7	744	0	0.3	0.1	0.3
6203667	99	P	SUR	68	-18	744	0	0.3	0.1	0.3
6203668	99	P	SUR	83	28	743	0	0.4	-0.4	0.5
6203669	99	P	SUR	80	16	744	0	0.4	-0.3	0.5
6203753	99	P	SUR	54	-38	744	0	0.4	-0.2	0.5
6203768	99	P	SUR	27	-37	744	0	0.2	0.3	0.3
6203771	99	P	SUR	23	-50	744	0	0.2	0.0	0.2
6203773	99	P	SUR	34	-30	744	0	0.2	-0.6	0.6
6203823	99	P	SUR	61	-11	743	0	0.3	0.2	0.4
6203825	99	P	SUR	67	8	743	0	0.2	0.1	0.3
6203826	99	P	SUR	65	2	743	0	1.6	1.4	2.2
6203839	99	P	SUR	33	-49	744	0	0.2	-0.1	0.2
6203840	99	P	SUR	20	-62	744	0	0.4	0.3	0.5
6203842	99	P	SUR	28	-37	744	0	0.2	0.1	0.2
6203844	99	P	SUR	44	-5	612	0	3.3	2.5	4.2
6203846	99	P	SUR	28	-31	744	0	0.2	-0.1	0.2
6203853	99	P	SUR	73	29	744	0	0.3	0.1	0.3
6203854	99	P	SUR	55	-35	741	0	0.4	0.2	0.5
6203865	99	P	SUR	49	-14	743	0	0.3	-0.1	0.3
6203890	99	P	SUR	13	-42	744	0	0.3	-0.3	0.5
6203894	99	P	SUR	22	-28	741	0	0.2	0.2	0.3
6204603	99	P	SUR	42	8	711	0	0.3	0.6	0.7
6204604	99	P	SUR	37	11	660	0	0.3	-2.0	2.0
6204612	99	P	SUR	39	6	738	0	0.3	0.4	0.5
6204613	99	P	SUR	42	3	737	0	0.4	-0.2	0.5
6204614	99	P	SUR	40	1	741	0	0.3	0.1	0.3
62050	99	P	SUR	50	-4	1488	0	0.3	0.0	0.3
62081	99	P	SUR	51	-13	1471	0	0.3	-0.1	0.4
62091	99	P	SUR	53	-5	744	0	0.3	0.0	0.3
62092	99	P	SUR	51	-11	744	0	0.3	-0.2	0.4
62093	99	P	SUR	55	-10	744	0	0.3	0.0	0.3
62094	99	P	SUR	52	-7	697	0	0.4	-0.1	0.4
62095	99	P	SUR	53	-16	744	0	0.3	-0.1	0.4
62102	99	P	SUR	58	2	1167	0	0.2	0.3	0.4
62104	99	P	SUR	57	1	1205	0	0.2	0.1	0.2
62105	99	P	SUR	55	-13	1488	0	0.5	-0.1	0.5
62107	99	P	SUR	50	-6	455	0	0.3	-0.2	0.4
62112	99	P	SUR	58	0	1203	0	0.3	0.4	0.5
62113	99	P	SUR	58	0	1200	0	0.3	0.0	0.3
62114	99	P	SUR	58	0	28	0	0.2	0.6	0.6

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62115	99	P	SUR	58	-3	1205	0	0.2	0.2	0.3
62116	99	P	SUR	58	1	1203	0	0.3	0.2	0.3
62118	99	P	SUR	58	1	1202	0	0.3	0.5	0.5
62119	99	P	SUR	57	2	1201	0	0.3	0.1	0.3
62120	99	P	SUR	56	2	1200	0	0.4	0.1	0.4
62121	99	P	SUR	54	3	1200	0	0.3	0.3	0.5
62122	99	P	SUR	57	2	1202	0	0.3	0.2	0.4
62124	99	P	SUR	54	-4	1199	0	0.2	0.1	0.3
62127	99	P	SUR	54	1	792	0	0.2	0.3	0.4
62129	99	P	SUR	58	0	1201	0	0.3	0.2	0.3
62130	99	P	SUR	59	1	68	0	2.5	-0.5	2.6
62131	99	P	SUR	54	1	1173	0	0.3	0.6	0.7
62132	99	P	SUR	56	2	1200	0	0.3	0.5	0.6
62133	99	P	SUR	57	1	1204	0	0.3	0.2	0.4
62134	99	P	SUR	58	1	656	0	0.3	0.3	0.4
62138	99	P	SUR	54	0	1125	0	0.3	0.5	0.6
62140	99	P	SUR	57	1	1184	0	0.2	0.2	0.3
62141	99	P	SUR	58	0	202	0	0.5	-1.4	1.5
62143	99	P	SUR	58	2	1198	0	0.3	0.6	0.7
62144	99	P	SUR	53	2	1199	0	0.3	0.3	0.4
62145	99	P	SUR	53	3	1197	0	0.3	0.2	0.4
62146	99	P	SUR	57	2	1204	0	0.3	0.3	0.4
62148	99	P	SUR	54	2	1200	0	0.3	0.5	0.6
62149	99	P	SUR	54	1	1201	0	0.3	0.5	0.5
62151	99	P	SUR	57	2	1202	0	0.3	0.3	0.4
62152	99	P	SUR	57	2	1203	0	0.3	0.5	0.5
62153	99	P	SUR	57	2	1203	0	0.2	0.4	0.5
62154	99	P	SUR	56	2	1200	0	0.3	0.2	0.3
62155	99	P	SUR	58	1	1201	0	0.3	0.5	0.6
62157	99	P	SUR	58	0	1100	0	0.3	0.0	0.3
62160	99	P	SUR	57	2	1202	0	0.3	0.3	0.5
62161	99	P	SUR	58	1	1199	0	0.3	-0.3	0.4
62162	99	P	SUR	57	1	1105	0	0.2	0.3	0.4
62163	99	P	SUR	48	-9	1469	0	0.3	-0.2	0.3
62164	99	P	SUR	57	1	1202	0	0.3	0.1	0.3
62165	99	P	SUR	54	1	1201	0	0.3	0.4	0.5
62168	99	P	SUR	58	1	1190	0	0.3	0.2	0.3
62170	99	P	SUR	51	2	1488	0	0.3	0.0	0.3
62297	99	P	SUR	59	2	1200	0	0.3	0.2	0.3
62302	99	P	SUR	61	-2	1204	0	0.3	0.2	0.4
62304	99	P	SUR	51	2	1486	0	0.4	0.0	0.4
62305	99	P	SUR	50	0	1488	0	0.4	-0.2	0.4
62442	99	P	SUR	49	-16	1488	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
6301001	99	P	SUR	64	5	743	0	0.3	0.0	0.3
6301004	99	P	SUR	72	20	327	0	0.3	-0.2	0.4
63055	99	P	SUR	61	2	1062	0	0.3	0.0	0.3
63056	99	P	SUR	60	2	1200	0	0.3	0.5	0.6
63057	99	P	SUR	59	2	1197	0	0.2	0.1	0.3
63058	99	P	SUR	53	2	739	0	0.3	0.1	0.3
63059	99	P	SUR	58	-1	1205	0	0.3	0.7	0.7
63101	99	P	SUR	61	1	1196	0	0.3	0.3	0.5
63102	99	P	SUR	61	1	1200	0	0.3	0.0	0.3
63103	99	P	SUR	61	1	1195	0	0.4	0.4	0.6
63108	99	P	SUR	61	2	1201	0	0.3	0.0	0.3
63109	99	P	SUR	60	2	1202	0	0.3	-0.2	0.3
63110	99	P	SUR	60	2	1201	0	0.3	0.0	0.3
63111	99	P	SUR	61	2	1201	0	0.3	-0.1	0.3
63112	99	P	SUR	61	1	1193	0	0.3	-0.1	0.3
63115	99	P	SUR	62	1	1200	0	0.3	0.2	0.3
63117	99	P	SUR	61	1	1197	0	0.3	0.2	0.4
63118	99	P	SUR	58	1	1192	0	0.3	-0.1	0.3
6400045	99	P	SUR	59	-12	744	0	0.3	-0.3	0.4
6401583	99	P	SUR	61	-21	743	0	0.3	0.2	0.4
6401584	99	P	SUR	57	-32	743	0	0.3	0.3	0.4
6401759	99	P	SUR	60	-20	744	0	0.3	-0.1	0.3
6401763	99	P	SUR	66	12	742	0	0.3	0.0	0.3
6402549	99	P	SUR	75	14	1	1	0.0	0.0	0.0
6402615	99	P	SUR	20	-59	744	0	0.3	0.2	0.4
6402616	99	P	SUR	28	-46	744	0	0.2	0.1	0.2
6402617	99	P	SUR	28	-55	744	0	0.3	0.5	0.6
6402618	99	P	SUR	22	-50	744	0	0.2	0.1	0.3
6402619	99	P	SUR	22	-39	744	0	0.2	0.0	0.2
6402621	99	P	SUR	28	-19	744	0	0.3	0.5	0.6
6402622	99	P	SUR	26	-25	744	0	0.2	0.1	0.3
64041	99	P	SUR	61	-3	1203	0	0.3	0.3	0.4
64045	99	P	SUR	59	-12	1488	0	0.3	-0.3	0.5
6600021	99	P	SUR	55	14	89	0	0.3	-1.0	1.0
6600022	99	P	SUR	54	14	185	0	0.4	-0.1	0.4
6600024	99	P	SUR	55	13	178	0	0.3	-1.2	1.2
6801771	99	P	SUR	47	-45	743	0	0.3	0.0	0.3
6801790	99	P	SUR	37	-18	738	0	0.2	-0.1	0.3
6801791	99	P	SUR	30	-28	741	0	0.2	0.3	0.4
6801879	99	P	SUR	12	-34	744	0	0.3	-0.1	0.3
6801906	99	P	SUR	69	-66	685	0	0.4	-1.4	1.5
6801974	99	P	SUR	56	-60	407	0	0.4	0.3	0.5
7801552	99	P	SUR	60	-8	668	4	0.4	-0.2	0.5

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
7801572	99	P	SUR	21	-49	732	0	0.2	0.0	0.2
7801588	99	P	SUR	30	-16	667	0	0.7	0.0	0.7
7801697	99	P	SUR	44	-42	733	0	0.3	-0.3	0.5
7801698	99	P	SUR	62	-8	744	0	0.3	0.5	0.6
7801699	99	P	SUR	38	-55	743	0	0.3	0.2	0.3
7810292	99	P	SUR	39	-59	743	0	0.3	0.2	0.3
7810294	99	P	SUR	38	-70	741	0	0.3	0.0	0.3
7810296	99	P	SUR	38	-59	741	0	0.3	0.0	0.3
7810297	99	P	SUR	36	-67	743	0	0.3	0.1	0.3
7810298	99	P	SUR	37	-65	739	0	0.4	0.0	0.4
7810299	99	P	SUR	40	-56	743	0	0.3	-0.1	0.3
7810314	99	P	SUR	41	-70	325	0	0.5	0.0	0.5
7810315	99	P	SUR	40	-62	741	0	0.4	0.1	0.4
7810316	99	P	SUR	41	-58	742	0	0.3	0.1	0.3
7810317	99	P	SUR	40	-55	742	0	0.3	-0.1	0.3
7810318	99	P	SUR	41	-61	742	0	0.4	0.3	0.5
7810319	99	P	SUR	39	-69	742	0	0.3	0.3	0.5
7810320	99	P	SUR	39	-69	742	0	0.4	0.2	0.5
7810321	99	P	SUR	40	-63	741	0	0.4	0.4	0.5
7810322	99	P	SUR	26	-65	741	0	0.4	0.5	0.7
7810323	99	P	SUR	28	-64	741	0	0.3	0.4	0.5
7810324	99	P	SUR	29	-65	742	0	0.3	0.3	0.4
7810325	99	P	SUR	26	-65	709	0	0.4	0.3	0.5
7810326	99	P	SUR	30	-65	736	0	0.3	0.0	0.3
7810327	99	P	SUR	27	-65	691	0	0.3	0.6	0.7
7810328	99	P	SUR	29	-65	706	0	0.4	0.5	0.6
7810329	99	P	SUR	28	-65	728	0	0.3	0.5	0.6
7810330	99	P	SUR	25	-66	737	0	0.5	0.1	0.5
7810331	99	P	SUR	27	-65	680	0	0.3	0.3	0.5
7810332	99	P	SUR	29	-64	476	0	0.4	0.4	0.5
7811002	99	P	SUR	56	-60	407	0	0.4	0.4	0.5
9303522	99	P	SUR	28	-14	72	0	1.4	-4.3	4.5

#### 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 : JUL 2024  
 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
1000044	99	SPEED	SUR	55	10	137	0	0	1.6	1.2	2.0
1300001	99	SPEED	SUR	11	-23	744	0	0	1.5	-0.2	1.5
1300008	99	SPEED	SUR	15	-38	610	0	0	0.9	0.0	0.9
1300130	99	SPEED	SUR	28	-16	734	0	0	0.7	0.0	0.7
1300131	99	SPEED	SUR	28	-17	720	0	0	2.5	3.2	4.0
1801561	99	SPEED	SUR	16	-67	3561	0	0	1.1	0.5	1.2
4100040	99	SPEED	SUR	15	-53	4461	0	0	0.9	-0.2	0.9
4100043	99	SPEED	SUR	21	-65	4463	0	0	0.9	-0.2	1.0
4100044	99	SPEED	SUR	22	-59	4464	0	0	0.8	-0.1	0.8
4100046	99	SPEED	SUR	24	-68	4464	0	0	1.1	-0.1	1.1
4100049	99	SPEED	SUR	28	-62	4463	0	0	1.3	0.1	1.3
4100052	99	SPEED	SUR	18	-65	1090	0	0	1.1	-0.3	1.2
4100053	99	SPEED	SUR	18	-66	4437	0	0	1.4	0.0	1.4
4100056	99	SPEED	SUR	18	-65	2113	0	0	1.4	-1.0	1.7
4100139	99	SPEED	SUR	20	-38	555	0	0	0.8	-0.2	0.8
41040	99	SPEED	SUR	15	-53	743	0	0	1.0	-0.2	1.0
41043	99	SPEED	SUR	21	-65	744	0	0	0.9	-0.2	1.0
41044	99	SPEED	SUR	22	-59	744	0	0	0.9	0.0	0.9
41046	99	SPEED	SUR	24	-68	744	0	0	1.2	0.0	1.2
41049	99	SPEED	SUR	28	-62	743	0	0	1.3	0.2	1.3
41052	99	SPEED	SUR	18	-65	208	0	0	1.6	-0.2	1.6
41053	99	SPEED	SUR	19	-66	742	0	0	1.4	-0.7	1.6
41056	99	SPEED	SUR	18	-66	354	0	0	1.5	-0.8	1.7
4200059	99	SPEED	SUR	15	-67	229	0	0	1.0	0.2	1.0
4200060	99	SPEED	SUR	16	-63	4464	0	0	1.2	0.0	1.2
4200085	99	SPEED	SUR	18	-67	1021	0	0	1.6	-0.6	1.7
42059	99	SPEED	SUR	15	-68	38	0	0	1.0	0.1	1.0
42060	99	SPEED	SUR	16	-63	744	0	0	1.3	0.1	1.3
42085	99	SPEED	SUR	18	-67	205	0	0	1.5	-0.1	1.5
4400008	99	SPEED	SUR	40	-69	4460	0	0	1.3	-0.8	1.5
4400011	99	SPEED	SUR	41	-67	4462	0	0	1.3	-1.1	1.7
4400027	99	SPEED	SUR	44	-67	4462	0	0	1.2	-0.9	1.6
4400032	99	SPEED	SUR	44	-69	742	0	0	1.5	-0.8	1.7
4400033	99	SPEED	SUR	44	-69	744	0	0	1.5	-0.8	1.7

## DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4400034	99	SPEED	SUR	44	-68	744	0	0	1.5	-1.3	2.0
4400037	99	SPEED	SUR	43	-68	734	0	0	1.1	-0.8	1.3
4400488	99	SPEED	SUR	45	-61	726	0	0	1.6	-0.2	1.6
4400489	99	SPEED	SUR	45	-61	723	0	0	1.6	0.5	1.6
44008	99	SPEED	SUR	41	-69	743	0	0	1.4	-0.8	1.6
44011	99	SPEED	SUR	41	-67	744	0	0	1.4	-1.0	1.7
44027	99	SPEED	SUR	44	-67	744	0	0	1.3	-0.8	1.5
44032	99	SPEED	SUR	44	-69	742	0	0	1.5	-0.7	1.7
44033	99	SPEED	SUR	44	-69	744	0	0	1.4	-0.6	1.6
44034	99	SPEED	SUR	44	-68	744	0	0	1.5	-1.2	2.0
44037	99	SPEED	SUR	44	-68	734	0	0	1.1	-0.8	1.3
44078	99	SPEED	SUR	60	-40	744	0	0	1.3	-0.7	1.5
44137	99	SPEED	SUR	42	-62	738	0	0	1.4	-0.8	1.6
44139	99	SPEED	SUR	44	-57	605	0	0	1.6	-0.3	1.6
44150	99	SPEED	SUR	43	-64	742	0	0	1.4	-0.6	1.5
44258	99	SPEED	SUR	45	-63	740	0	0	1.6	-0.9	1.8
44488	99	SPEED	SUR	45	-61	726	0	0	1.6	0.2	1.6
44489	99	SPEED	SUR	46	-61	723	0	0	1.6	0.5	1.6
6100001	99	SPEED	SUR	43	8	736	0	0	1.3	-0.2	1.3
6100002	99	SPEED	SUR	42	5	739	0	0	1.1	-0.2	1.1
6100196	99	SPEED	SUR	42	4	287	0	0	1.6	-1.1	1.9
6100197	99	SPEED	SUR	40	4	686	0	0	1.0	-0.5	1.1
6100198	99	SPEED	SUR	37	-2	712	0	0	1.6	-0.9	1.8
6100280	99	SPEED	SUR	41	1	698	0	0	1.4	-0.6	1.6
6100281	99	SPEED	SUR	40	0	711	0	0	1.7	0.1	1.7
6100417	99	SPEED	SUR	38	0	707	0	0	0.9	-0.4	1.0
6100430	99	SPEED	SUR	40	2	667	0	0	1.5	0.0	1.5
6101007	99	SPEED	SUR	36	25	159	0	0	1.4	-0.3	1.5
6101009	99	SPEED	SUR	35	25	226	0	0	1.6	1.4	2.1
6101031	99	SPEED	SUR	42	8	746	0	0	1.0	0.0	1.0
6101032	99	SPEED	SUR	42	10	749	0	0	1.7	0.6	1.8
6200001	99	SPEED	SUR	45	-5	736	0	0	1.0	-0.2	1.1
6200024	99	SPEED	SUR	44	-3	728	0	0	1.2	-0.3	1.2
6200025	99	SPEED	SUR	44	-6	719	0	0	1.1	-0.6	1.3
6200050	99	SPEED	SUR	50	-4	743	0	0	1.1	-0.1	1.1
6200081	99	SPEED	SUR	51	-13	735	0	0	1.0	0.0	1.0
6200082	99	SPEED	SUR	44	-8	533	0	0	1.2	-1.1	1.6
6200083	99	SPEED	SUR	43	-9	707	0	0	1.1	-1.1	1.6
6200084	99	SPEED	SUR	42	-9	430	0	0	1.0	-1.0	1.4
6200085	99	SPEED	SUR	36	-7	352	0	0	1.3	-0.5	1.4
6200086	99	SPEED	SUR	55	7	4	0	0	0.9	-0.2	0.9



## DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
6200087	99	SPEED	SUR	55	7	160	0	0	1.5	1.0	1.8
6200091	99	SPEED	SUR	53	-5	744	0	0	1.2	-0.1	1.2
6200092	99	SPEED	SUR	51	-11	744	0	0	1.0	0.5	1.1
6200093	99	SPEED	SUR	55	-10	744	0	0	1.0	-0.2	1.0
6200094	99	SPEED	SUR	52	-7	697	0	0	1.3	0.3	1.3
6200095	99	SPEED	SUR	53	-16	744	0	0	0.9	0.2	0.9
6200163	99	SPEED	SUR	47	-8	736	0	0	0.9	0.2	0.9
6200442	99	SPEED	SUR	49	-16	653	0	0	1.2	0.3	1.2
6201065	99	SPEED	SUR	54	7	632	0	0	1.6	-0.9	1.8
6201066	99	SPEED	SUR	55	7	718	0	0	1.3	0.2	1.3
6202114	99	SPEED	SUR	54	6	140	0	0	1.2	-0.4	1.3
62050	99	SPEED	SUR	50	-4	1488	0	0	1.1	0.3	1.2
62081	99	SPEED	SUR	51	-13	1471	0	0	1.0	0.6	1.1
62091	99	SPEED	SUR	53	-5	744	0	0	1.2	0.1	1.2
62092	99	SPEED	SUR	51	-11	744	0	0	1.0	0.6	1.2
62093	99	SPEED	SUR	55	-10	744	0	0	1.0	-0.1	1.0
62094	99	SPEED	SUR	52	-7	697	0	0	1.3	0.3	1.3
62095	99	SPEED	SUR	53	-16	744	0	0	0.9	0.3	0.9
62102	99	SPEED	SUR	58	2	1167	0	0	1.1	0.1	1.1
62104	99	SPEED	SUR	57	1	1205	0	0	1.1	-0.1	1.1
62105	99	SPEED	SUR	55	-13	1486	0	0	0.9	0.6	1.1
62107	99	SPEED	SUR	50	-6	335	0	0	1.2	0.3	1.2
62112	99	SPEED	SUR	58	0	1203	0	0	1.1	0.0	1.1
62113	99	SPEED	SUR	58	0	1200	0	0	1.3	0.4	1.3
62114	99	SPEED	SUR	58	0	28	0	0	0.9	0.2	1.0
62118	99	SPEED	SUR	58	1	1202	0	0	1.1	0.5	1.2
62119	99	SPEED	SUR	57	2	1201	0	0	1.8	-1.4	2.3
62120	99	SPEED	SUR	56	2	1198	0	0	1.1	-0.7	1.3
62121	99	SPEED	SUR	54	3	1200	0	0	1.3	-0.5	1.4
62122	99	SPEED	SUR	57	2	1202	0	0	1.1	-0.2	1.2
62129	99	SPEED	SUR	58	0	1201	0	0	1.2	0.4	1.3
62131	99	SPEED	SUR	54	1	1173	0	0	1.7	-0.2	1.7
62133	99	SPEED	SUR	57	1	1202	0	0	1.5	-0.1	1.5
62134	99	SPEED	SUR	58	1	656	0	0	1.3	-1.7	2.1
62140	99	SPEED	SUR	57	1	1184	0	0	0.9	-0.1	0.9
62143	99	SPEED	SUR	58	2	1198	0	0	1.4	-0.2	1.4
62144	99	SPEED	SUR	53	2	377	0	0	1.8	-0.7	1.9
62145	99	SPEED	SUR	53	3	1197	0	0	1.5	0.5	1.6
62146	99	SPEED	SUR	57	2	1204	0	0	1.0	0.0	1.0
62148	99	SPEED	SUR	54	2	1200	0	0	1.5	-0.1	1.5
62149	99	SPEED	SUR	54	1	1201	0	0	1.3	0.3	1.4

## DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62152	99	SPEED	SUR	57	2	1203	0	0	1.4	-0.7	1.6
62154	99	SPEED	SUR	56	2	1200	0	0	1.3	0.1	1.3
62155	99	SPEED	SUR	58	1	1188	1	0	1.3	-0.1	1.3
62163	99	SPEED	SUR	48	-9	1469	0	0	0.9	0.6	1.1
62164	99	SPEED	SUR	57	1	1202	0	0	1.2	-1.0	1.5
62165	99	SPEED	SUR	54	1	1201	0	0	1.3	-0.2	1.3
62170	99	SPEED	SUR	51	2	1486	0	0	1.3	0.5	1.3
62304	99	SPEED	SUR	51	2	1486	0	0	1.4	0.5	1.5
62442	99	SPEED	SUR	49	-16	1488	0	0	1.1	0.8	1.4
6301001	99	SPEED	SUR	64	5	743	0	0	1.1	-0.1	1.1
6301004	99	SPEED	SUR	72	20	331	0	0	0.9	0.0	0.9
63055	99	SPEED	SUR	61	2	1062	0	0	1.4	-1.0	1.7
63056	99	SPEED	SUR	60	2	1200	0	0	1.2	0.2	1.2
63057	99	SPEED	SUR	59	2	1197	0	0	2.1	-0.6	2.2
63058	99	SPEED	SUR	53	2	738	0	0	1.3	0.1	1.3
63101	99	SPEED	SUR	61	1	1194	0	0	1.1	-0.3	1.2
63103	99	SPEED	SUR	61	1	1195	0	0	1.1	-0.3	1.2
63108	99	SPEED	SUR	61	2	1201	0	0	1.6	-0.2	1.6
63109	99	SPEED	SUR	60	2	1202	0	0	1.2	0.1	1.2
63110	99	SPEED	SUR	60	2	1201	0	0	1.3	-0.2	1.3
63112	99	SPEED	SUR	61	1	1193	0	0	1.0	-0.2	1.0
63115	99	SPEED	SUR	62	1	1200	0	0	1.0	-0.4	1.1
63117	99	SPEED	SUR	61	1	1197	0	0	1.0	-0.3	1.0
64041	99	SPEED	SUR	61	-3	1203	0	0	1.1	-0.2	1.1
6600021	99	SPEED	SUR	55	14	89	0	0	1.5	-0.2	1.5
6600022	99	SPEED	SUR	54	14	185	0	0	1.7	0.0	1.7
6600024	99	SPEED	SUR	55	13	178	0	0	1.2	0.5	1.3
9303522	99	SPEED	SUR	28	-14	72	0	0	1.6	0.9	1.8

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)  
 AREA : 10N - 90N, 70W - 40E  
 PERIOD : JUL 2024  
 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
1300001	99	DIRN	SUR	11	-23	445	0	0	27.3	-4.0	27.6
1300008	99	DIRN	SUR	15	-38	566	0	0	10.4	2.7	10.7
1300130	99	DIRN	SUR	28	-16	734	0	0	11.2	-0.5	11.2
1300131	99	DIRN	SUR	28	-17	364	0	0	13.3	4.2	14.0
1801561	99	DIRN	SUR	16	-67	3539	0	0	9.5	2.5	9.8
4100001	99	DIRN	SUR	35	-72	3869	0	0	20.0	3.6	20.3
4100002	99	DIRN	SUR	32	-75	3847	0	0	17.2	4.7	17.8
4100004	99	DIRN	SUR	33	-79	3656	0	0	22.8	6.8	23.8
4100008	99	DIRN	SUR	31	-81	3293	0	0	20.4	2.5	20.5
4100009	99	DIRN	SUR	29	-80	2548	0	0	20.4	0.4	20.4
4100010	99	DIRN	SUR	29	-78	3060	0	0	23.9	3.0	24.1
4100013	99	DIRN	SUR	33	-78	3932	0	0	19.9	6.6	21.0
4100024	99	DIRN	SUR	34	-78	569	0	0	21.7	3.5	22.0
4100025	99	DIRN	SUR	35	-75	3875	0	0	15.9	4.8	16.6
4100029	99	DIRN	SUR	33	-80	561	0	0	22.1	-5.8	22.8
4100033	99	DIRN	SUR	32	-80	556	0	0	18.7	0.9	18.7
4100037	99	DIRN	SUR	34	-77	616	0	0	19.7	9.7	22.0
4100038	99	DIRN	SUR	34	-78	596	0	0	17.6	2.8	17.8
4100040	99	DIRN	SUR	15	-53	4376	0	0	11.8	5.8	13.2
4100043	99	DIRN	SUR	21	-65	4436	0	0	10.6	7.5	13.0
4100044	99	DIRN	SUR	22	-59	4437	0	0	9.9	7.9	12.7
4100046	99	DIRN	SUR	24	-68	4190	0	0	15.3	5.5	16.3
4100047	99	DIRN	SUR	27	-71	3540	0	0	25.9	9.2	27.5
4100049	99	DIRN	SUR	28	-62	4080	0	0	14.6	7.3	16.3
4100052	99	DIRN	SUR	18	-65	1087	0	0	11.2	3.5	11.8
4100053	99	DIRN	SUR	18	-66	4021	0	0	14.7	9.6	17.5
4100056	99	DIRN	SUR	18	-65	2093	0	0	15.7	9.3	18.2
4100064	99	DIRN	SUR	34	-77	641	0	0	16.5	1.8	16.6
4100066	99	DIRN	SUR	33	-80	563	0	0	21.8	-3.8	22.1
4100069	99	DIRN	SUR	29	-81	392	0	0	25.0	0.0	25.0
4100082	99	DIRN	SUR	36	-75	3659	0	0	19.9	-9.1	21.9
4100083	99	DIRN	SUR	36	-75	3673	0	0	17.4	-5.7	18.3

## DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
41001	99	DIRN	SUR	35	-72	634	0	0	19.9	2.7	20.1
4100139	99	DIRN	SUR	20	-38	554	0	0	7.5	0.3	7.5
41002	99	DIRN	SUR	32	-75	632	0	0	17.9	4.6	18.5
41004	99	DIRN	SUR	33	-79	597	0	0	22.1	7.0	23.2
41008	99	DIRN	SUR	31	-81	542	0	0	19.1	3.5	19.4
41009	99	DIRN	SUR	29	-80	403	0	0	21.5	2.2	21.6
41010	99	DIRN	SUR	29	-79	489	0	0	24.4	4.3	24.8
41013	99	DIRN	SUR	33	-78	649	0	0	19.3	6.0	20.2
41024	99	DIRN	SUR	34	-79	582	0	0	22.9	3.8	23.2
41025	99	DIRN	SUR	35	-76	641	0	0	16.1	4.1	16.6
41029	99	DIRN	SUR	33	-80	554	0	0	21.7	-5.4	22.4
41033	99	DIRN	SUR	32	-80	546	0	0	18.6	1.2	18.7
41037	99	DIRN	SUR	34	-77	607	0	0	20.2	9.6	22.4
41038	99	DIRN	SUR	34	-78	592	0	0	19.2	3.2	19.5
41040	99	DIRN	SUR	15	-53	726	0	0	12.1	5.2	13.2
41043	99	DIRN	SUR	21	-65	739	0	0	11.1	7.3	13.3
41044	99	DIRN	SUR	22	-59	739	0	0	10.1	7.5	12.5
41046	99	DIRN	SUR	24	-68	696	0	0	15.6	5.0	16.4
41047	99	DIRN	SUR	28	-72	568	0	0	26.4	9.0	27.9
41049	99	DIRN	SUR	28	-62	672	0	0	14.7	6.9	16.3
41052	99	DIRN	SUR	18	-65	207	0	0	9.7	2.6	10.1
41053	99	DIRN	SUR	19	-66	665	0	0	15.7	8.8	18.0
41056	99	DIRN	SUR	18	-66	347	0	0	15.9	9.8	18.7
41064	99	DIRN	SUR	34	-77	637	0	0	17.2	1.7	17.3
41066	99	DIRN	SUR	33	-80	551	0	0	22.3	-4.9	22.9
41069	99	DIRN	SUR	29	-81	389	0	0	28.3	2.1	28.3
41082	99	DIRN	SUR	36	-75	597	0	0	20.3	-9.5	22.4
41083	99	DIRN	SUR	36	-75	607	0	0	17.5	-6.2	18.6
4200013	99	DIRN	SUR	27	-83	537	0	0	27.5	-4.1	27.8
4200022	99	DIRN	SUR	28	-84	380	0	0	24.4	-4.3	24.8
4200023	99	DIRN	SUR	26	-83	7	0	0	19.5	4.5	20.0
4200026	99	DIRN	SUR	25	-83	937	0	0	18.8	-4.0	19.2
4200036	99	DIRN	SUR	29	-85	1214	0	0	25.4	-1.3	25.4
4200056	99	DIRN	SUR	20	-85	4409	0	0	14.0	6.0	15.2
4200058	99	DIRN	SUR	15	-75	4359	0	0	8.9	7.2	11.5
4200059	99	DIRN	SUR	15	-67	229	0	0	7.8	5.8	9.7
4200060	99	DIRN	SUR	16	-63	4404	0	0	10.6	6.3	12.3
4200085	99	DIRN	SUR	18	-67	1002	0	0	14.1	11.5	18.2
42013	99	DIRN	SUR	27	-83	233	0	0	30.6	-1.6	30.7
42022	99	DIRN	SUR	28	-84	168	0	0	23.9	-4.1	24.2
42023	99	DIRN	SUR	26	-83	3	0	0	17.6	3.5	17.9

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
42026	99	DIRN	SUR	25	-84	420	0	0	19.5	-4.0	20.0
42036	99	DIRN	SUR	29	-85	189	0	0	26.7	0.5	26.7
42056	99	DIRN	SUR	20	-85	730	0	0	14.1	5.9	15.3
42058	99	DIRN	SUR	15	-75	725	0	0	8.8	6.9	11.1
42059	99	DIRN	SUR	15	-68	38	0	0	8.3	5.7	10.0
42060	99	DIRN	SUR	16	-63	733	0	0	11.1	5.8	12.5
42085	99	DIRN	SUR	18	-67	202	0	0	14.2	10.4	17.6
4400007	99	DIRN	SUR	44	-70	2382	0	0	21.0	6.0	21.8
4400008	99	DIRN	SUR	40	-69	3099	0	0	16.5	25.8	30.7
4400009	99	DIRN	SUR	38	-75	2834	0	0	18.0	9.7	20.4
4400011	99	DIRN	SUR	41	-67	3211	0	0	16.1	14.1	21.4
4400013	99	DIRN	SUR	42	-71	2337	0	0	20.8	13.5	24.8
4400014	99	DIRN	SUR	37	-75	3885	0	0	14.8	7.5	16.6
4400020	99	DIRN	SUR	41	-70	3740	0	0	15.4	7.0	16.9
4400025	99	DIRN	SUR	40	-73	3139	0	0	20.7	7.5	22.0
4400027	99	DIRN	SUR	44	-67	3006	0	0	16.6	16.6	23.5
4400029	99	DIRN	SUR	43	-71	456	0	0	18.9	8.1	20.5
4400030	99	DIRN	SUR	43	-70	427	0	0	18.6	8.0	20.3
4400032	99	DIRN	SUR	44	-69	445	0	0	16.1	8.8	18.3
4400033	99	DIRN	SUR	44	-69	364	0	0	27.1	11.4	29.4
4400034	99	DIRN	SUR	44	-68	428	0	0	18.8	14.7	23.9
4400037	99	DIRN	SUR	43	-68	544	0	0	12.1	15.0	19.2
4400041	99	DIRN	SUR	37	-77	790	0	0	19.5	4.9	20.1
4400042	99	DIRN	SUR	38	-76	2737	0	0	22.5	-0.1	22.5
4400043	99	DIRN	SUR	39	-76	4182	0	0	24.5	4.4	24.9
4400058	99	DIRN	SUR	38	-76	2787	0	0	21.4	-3.7	21.8
4400062	99	DIRN	SUR	39	-76	4009	0	0	23.7	4.7	24.2
4400063	99	DIRN	SUR	39	-76	3423	0	0	23.0	5.9	23.8
4400064	99	DIRN	SUR	37	-76	2759	0	0	27.0	10.7	29.1
4400065	99	DIRN	SUR	40	-74	3042	0	0	18.2	5.5	19.0
4400072	99	DIRN	SUR	37	-76	3137	0	0	23.9	2.0	24.0
4400073	99	DIRN	SUR	43	-71	1259	0	0	20.7	7.5	22.0
4400079	99	DIRN	SUR	36	-75	3689	0	0	15.8	-9.0	18.2
4400488	99	DIRN	SUR	45	-61	488	0	0	19.3	-26.1	32.4
4400489	99	DIRN	SUR	45	-61	380	0	0	24.6	-25.9	35.7
44007	99	DIRN	SUR	44	-70	382	0	0	20.0	7.0	21.2
44008	99	DIRN	SUR	41	-69	497	0	0	17.4	25.5	30.8
44009	99	DIRN	SUR	39	-75	463	0	0	18.9	9.3	21.1
44011	99	DIRN	SUR	41	-67	506	0	0	15.2	13.5	20.3
44013	99	DIRN	SUR	42	-71	348	0	0	20.6	14.0	24.9
44014	99	DIRN	SUR	37	-75	645	0	0	15.1	7.6	16.9

## DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44020	99	DIRN	SUR	42	-70	613	0	0	15.8	7.5	17.5
44025	99	DIRN	SUR	40	-73	499	0	0	19.8	8.0	21.3
44027	99	DIRN	SUR	44	-67	469	0	0	16.7	16.3	23.3
44029	99	DIRN	SUR	43	-71	418	0	0	18.4	7.3	19.8
44030	99	DIRN	SUR	43	-70	419	0	0	18.9	7.2	20.2
44032	99	DIRN	SUR	44	-69	421	0	0	17.1	8.2	19.0
44033	99	DIRN	SUR	44	-69	330	0	0	24.5	9.8	26.4
44034	99	DIRN	SUR	44	-68	397	0	0	19.1	14.0	23.7
44037	99	DIRN	SUR	44	-68	515	0	0	11.8	14.7	18.8
44041	99	DIRN	SUR	37	-77	84	0	0	17.4	4.6	18.0
44042	99	DIRN	SUR	38	-76	334	0	0	22.5	1.2	22.6
44043	99	DIRN	SUR	39	-76	404	0	0	25.2	8.3	26.5
44058	99	DIRN	SUR	38	-76	298	0	0	19.3	-1.0	19.3
44062	99	DIRN	SUR	39	-76	461	0	0	24.0	5.6	24.7
44063	99	DIRN	SUR	39	-76	338	0	0	21.6	9.1	23.4
44064	99	DIRN	SUR	37	-76	304	0	0	27.3	10.7	29.3
44065	99	DIRN	SUR	40	-74	481	0	0	18.4	5.8	19.2
44072	99	DIRN	SUR	37	-76	432	0	0	22.2	4.1	22.6
44073	99	DIRN	SUR	43	-71	305	0	0	24.0	7.8	25.3
44078	99	DIRN	SUR	60	-40	636	0	0	18.6	-19.1	26.6
44079	99	DIRN	SUR	36	-75	615	0	0	16.4	-9.1	18.7
44137	99	DIRN	SUR	42	-62	605	0	0	15.2	1.5	15.3
44139	99	DIRN	SUR	44	-57	496	0	0	18.3	-2.5	18.5
44150	99	DIRN	SUR	43	-64	619	0	0	18.4	4.2	18.9
44258	99	DIRN	SUR	45	-63	456	0	0	17.3	2.3	17.5
44488	99	DIRN	SUR	45	-61	465	0	0	19.6	-26.2	32.8
44489	99	DIRN	SUR	46	-61	360	0	0	23.7	-27.2	36.1
4500003	99	DIRN	SUR	45	-83	2598	0	0	22.2	5.9	23.0
4500005	99	DIRN	SUR	42	-82	2398	0	0	25.8	8.5	27.2
4500008	99	DIRN	SUR	44	-82	2404	0	0	21.9	10.4	24.2
4500012	99	DIRN	SUR	44	-77	2112	0	0	25.3	6.3	26.0
4500132	99	DIRN	SUR	42	-81	410	0	0	23.0	0.7	23.0
4500135	99	DIRN	SUR	44	-77	419	0	0	22.7	1.8	22.8
4500137	99	DIRN	SUR	46	-81	484	0	0	25.3	-2.3	25.4
4500139	99	DIRN	SUR	43	-80	235	0	0	27.7	4.4	28.0
4500142	99	DIRN	SUR	43	-79	387	0	0	26.7	3.0	26.9
4500143	99	DIRN	SUR	45	-81	397	0	0	28.2	-2.0	28.2
4500159	99	DIRN	SUR	44	-79	342	0	0	31.5	3.7	31.7
4500162	99	DIRN	SUR	45	-83	1103	0	0	29.4	-2.2	29.5
4500163	99	DIRN	SUR	44	-84	1148	0	0	27.7	3.8	28.0
4500164	99	DIRN	SUR	42	-82	354	0	0	28.2	-22.9	36.3

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4500165	99	DIRN	SUR	45	-83	1770	0	0	71.4	37.6	80.7
4500175	99	DIRN	SUR	46	-85	845	0	0	27.1	0.7	27.2
4500176	99	DIRN	SUR	42	-82	1867	0	0	21.2	-17.0	27.2
4500178	99	DIRN	SUR	45	-73	405	0	0	24.8	1.7	24.8
4500196	99	DIRN	SUR	42	-82	1130	0	0	24.3	-0.2	24.3
4500200	99	DIRN	SUR	42	-83	542	0	0	20.0	20.4	28.6
4500203	99	DIRN	SUR	41	-83	1589	0	0	26.7	-7.8	27.8
4500204	99	DIRN	SUR	42	-82	1870	0	0	22.8	-14.4	27.0
4500206	99	DIRN	SUR	42	-82	1592	0	0	26.8	-20.1	33.5
4500207	99	DIRN	SUR	42	-81	1369	0	0	31.6	-32.7	45.5
4500208	99	DIRN	SUR	42	-81	1370	0	0	23.9	-19.8	31.0
4500209	99	DIRN	SUR	43	-82	1049	0	0	31.5	-37.3	48.8
45003	99	DIRN	SUR	45	-83	413	0	0	22.0	4.4	22.5
45005	99	DIRN	SUR	42	-82	398	0	0	27.1	10.2	29.0
45008	99	DIRN	SUR	44	-82	367	0	0	22.1	10.8	24.6
45012	99	DIRN	SUR	44	-77	332	0	0	26.7	5.6	27.3
45132	99	DIRN	SUR	43	-81	391	0	0	23.2	-0.8	23.2
45135	99	DIRN	SUR	44	-77	397	0	0	23.6	0.7	23.6
45137	99	DIRN	SUR	46	-81	462	0	0	26.9	-2.4	27.0
45139	99	DIRN	SUR	43	-80	252	0	0	29.2	3.1	29.4
45142	99	DIRN	SUR	43	-79	370	0	0	28.9	3.8	29.1
45143	99	DIRN	SUR	45	-81	377	0	0	28.6	-2.9	28.7
45147	99	DIRN	SUR	42	-82	194	0	0	43.7	-6.7	44.3
45149	99	DIRN	SUR	44	-82	312	0	0	33.4	-2.7	33.5
45151	99	DIRN	SUR	45	-79	283	0	0	24.5	-4.8	25.0
45152	99	DIRN	SUR	46	-80	327	0	0	29.2	3.0	29.4
45154	99	DIRN	SUR	46	-83	495	0	0	22.7	4.4	23.1
45159	99	DIRN	SUR	44	-79	282	0	0	30.7	1.2	30.7
45162	99	DIRN	SUR	45	-83	343	0	0	28.8	-2.6	28.9
45163	99	DIRN	SUR	44	-84	339	0	0	27.5	4.2	27.9
45164	99	DIRN	SUR	42	-82	336	0	0	27.3	-24.1	36.4
45165	99	DIRN	SUR	45	-83	296	0	0	73.4	37.9	82.6
45175	99	DIRN	SUR	46	-85	294	0	0	26.5	-0.5	26.5
45176	99	DIRN	SUR	42	-82	381	0	0	23.5	-14.4	27.6
45178	99	DIRN	SUR	45	-73	126	0	0	22.3	1.5	22.4
45196	99	DIRN	SUR	42	-82	217	0	0	24.3	0.7	24.3
45200	99	DIRN	SUR	42	-83	100	0	0	17.2	23.8	29.3
45203	99	DIRN	SUR	41	-83	275	0	0	28.2	-7.2	29.2
45204	99	DIRN	SUR	42	-82	288	0	0	22.4	-13.4	26.1
45206	99	DIRN	SUR	42	-82	273	0	0	27.2	-18.0	32.6
45207	99	DIRN	SUR	42	-81	247	0	0	31.1	-33.7	45.9

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
45208	99	DIRN	SUR	42	-81	224	0	0	21.1	-21.3	30.0
45209	99	DIRN	SUR	43	-82	181	0	0	31.5	-33.9	46.2
6100198	99	DIRN	SUR	37	-2	401	0	0	20.1	1.0	20.2
6100281	99	DIRN	SUR	40	0	313	0	0	37.1	-12.5	39.1
6100417	99	DIRN	SUR	38	0	434	0	0	31.5	17.5	36.0
6200001	99	DIRN	SUR	45	-5	494	0	0	15.0	0.3	15.0
6200024	99	DIRN	SUR	44	-3	397	0	0	24.2	-1.4	24.3
6200025	99	DIRN	SUR	44	-6	394	0	0	16.8	1.5	16.8
6200050	99	DIRN	SUR	50	-4	617	0	0	13.3	0.8	13.3
6200081	99	DIRN	SUR	51	-13	648	0	0	15.5	-5.2	16.3
6200082	99	DIRN	SUR	44	-8	337	0	0	13.0	6.4	14.5
6200083	99	DIRN	SUR	43	-9	554	0	0	11.2	-11.1	15.8
6200084	99	DIRN	SUR	42	-9	273	0	0	8.6	17.8	19.8
6200085	99	DIRN	SUR	36	-7	142	0	0	19.5	8.4	21.2
6200091	99	DIRN	SUR	53	-5	592	0	0	20.5	1.2	20.6
6200092	99	DIRN	SUR	51	-11	644	0	0	13.5	3.1	13.9
6200093	99	DIRN	SUR	55	-10	613	0	0	10.3	5.2	11.6
6200094	99	DIRN	SUR	52	-7	619	0	0	14.8	-0.1	14.8
6200095	99	DIRN	SUR	53	-16	646	0	0	12.2	5.0	13.2
6200163	99	DIRN	SUR	47	-8	652	0	0	11.1	0.3	11.1
6200442	99	DIRN	SUR	49	-16	603	0	0	28.6	-9.0	30.0
62050	99	DIRN	SUR	50	-4	1215	0	0	13.7	0.8	13.7
62081	99	DIRN	SUR	51	-13	1288	0	0	15.6	-5.3	16.5
62091	99	DIRN	SUR	53	-5	574	0	0	19.8	-0.2	19.8
62092	99	DIRN	SUR	51	-11	639	0	0	14.5	2.2	14.7
62093	99	DIRN	SUR	55	-10	609	0	0	10.7	4.7	11.7
62094	99	DIRN	SUR	52	-7	610	0	0	15.0	-0.5	15.0
62095	99	DIRN	SUR	53	-16	638	0	0	12.3	4.3	13.0
62105	99	DIRN	SUR	55	-13	1195	0	0	11.7	-11.9	16.7
62107	99	DIRN	SUR	50	-6	284	0	0	11.6	3.1	12.0
62112	99	DIRN	SUR	58	0	970	0	0	13.3	-3.8	13.9
62114	99	DIRN	SUR	58	0	5	0	0	6.6	30.3	31.0
62163	99	DIRN	SUR	48	-9	1298	0	0	11.6	0.5	11.7
62442	99	DIRN	SUR	49	-16	1344	0	0	27.8	-8.6	29.1
64041	99	DIRN	SUR	61	-3	1057	0	0	11.0	7.0	13.1
9303522	99	DIRN	SUR	28	-14	67	0	0	23.5	-2.5	23.7



**4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations**

ASDE09	ATGU3FT	DBLK	FPUW5GN	JNKN7JF	JNSR	JPBN	KJJF9XN	KMPLHPW
LAGY8	LAGZ8	LRVQE3U	USSIO	UXK5JTU	WDK38HS	XKQLWQB	YLV96WM	ZVQEQCM
2EERVTP	7JUNA4N	7KPB	01001	01004	01010	01028	01241	01400
01415	01492	02185	02591	02836	02963	03005	03238	03354
03502	03743	03808	03882	03918	03953	04018	04220	04270
04320	04339	04360	04417	06011	06260	06458	06610	07110
07145	07510	07645	07761	08001	08023	08190	08221	08302
08383	08430	08508	08522	08536	10035	10113	10184	10238
10304	10393	10410	10548	10618	10739	10771	10868	10954
10962	11010	11035	11120	11240	11520	11747	11952	12120
12374	12425	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	22522
22820	22845	23205	23472	23884	23921	23955	24266	24641
24908	24947	26038	26435	26477	26629	26708	27459	27707
27713	27962	28225	28445	28661	28695	29612	29698	30557
30673	30935	31004	31770	31873	31977	34122	34172	34731
35121	40179	42027	42056	42079	42111	42123	42182	42220
42314	42339	42348	42399	42410	42492	42622	42634	42647
42675	42701	42724	42867	42874	42886	42971	43003	43014
43041	43063	43086	43128	43150	43185	43243	43285	43346
43353	43369	43466	45004	47102	47104	47138	47155	47169
47183	47186	47190	47191	47193	47194	47230	47401	47412
47418	47582	47646	47678	47741	47778	47807	47827	47909
47918	47945	47971	47991	48601	48615	48650	48657	48698
50527	50557	50774	50953	51076	51243	51431	51463	51644
51656	51709	51777	51828	51839	52203	52267	52323	52418
52533	52652	52681	52818	52836	52866	52983	53068	53463
53513	53543	53614	53772	53845	53915	54102	54135	54161
54218	54292	54340	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	60155
60253	61901	61980	61998	66160	67083	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	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	72518	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
73111	74389	74455	74560	76225	76256	76458	76526	76595
76612	76644	76654	76679	76692	76743	76903	78397	78486
78583	78866	78897	78954	78970	80001	81405	82965	85442
85586	85799	85934	87155	87344	87418	87582	87623	87715
87860	88889	89002	89055	89564	89571	89592	89611	89625
89642	89859	91165	91212	91285	91334	91348	91376	91408
91413	91592	91925	91938	91948	91958	93112	93417	93817
93844	94001	94005	94120	94155	94170	94203	94299	94302
94312	94326	94332	94403	94430	94461	94510	94578	94610

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94637	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

ASDE09	ATGU3FT	DBLK	FPUW5GN	JNKN7JF	KJJF9XN	KMPLHPW	LAGY8	LAGZ8
LRYQE3U	USSIO	UXK5JTU	WDK38HS	XKQLWQB	YLV96WM	ZVQEQCM	2EERVTP	7JUNA4N
7KPB	01001	01004	01010	01028	01241	01400	01415	01492
02836	02963	06610	07110	07145	07510	07645	07761	08001
08023	08190	08221	08302	08383	08430	08508	08522	08536
11010	11035	11120	11240	12575	16113	17607	42622	47183
47190	47191	47193	47194	48698	50527	50557	50774	50953
51076	51243	51431	51463	51644	51656	51709	51777	51828
51839	52203	52267	52323	52418	52533	52652	52681	52818
52836	52866	52983	53068	53463	53513	53543	53614	53772
53845	53915	54102	54135	54161	54218	54292	54340	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	67083	72413	76743	76903	84622
89002	89514	89642	89859	91925	91938	91948	91958	94001
94005	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  $\text{ms}^{-1}$  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	$35\text{ms}^{-1}$
925	$35\text{ms}^{-1}$
850	$35\text{ms}^{-1}$
700	$40\text{ms}^{-1}$
500	$45\text{ms}^{-1}$
400	$50\text{ms}^{-1}$
300	$60\text{ms}^{-1}$
250	$60\text{ms}^{-1}$
200	$50\text{ms}^{-1}$
150	$50\text{ms}^{-1}$
100	$45\text{ms}^{-1}$

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.