



ECMWF Global Data Monitoring Report

September 2016

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

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Summary of Revisions (in reverse order)

- Revision 28 (June 18) - 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 (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 26 (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 25 (Dec 14) - Coverage chart for ATOVS AMSU-A for Noaa_16 removed
- Revision 24 (Aug 06) - North Atlantic Monitoring statistics replaced by EUCOS Area Monitoring Statistics (tables 13 to 23). Airep tables removed from this section.
- Revision 23 (Dec 00) - Coverage charts for Noaa_14 MSU replaced by ATOVS AMSU-A for Noaa_16.
- Revision 22 (Aug 99) - Coverage charts for TOVS thickness 300-100 hPa replaced by (A) TOVS AMSU-A and MSU (Noaa_15 and Noaa_14).
- Revision 21 (May 99) - Monitoring statistics ceased for Noaa_11 as satellite is no more available.
- Revision 20 (Sep 98) - Changes to tables and annex to remove all mention about data usage. Two more levels (50 and 850 hPa) added to the COSNA statistics for Sondes.
- Revision 19 (Jul 98) - From June 29th, 1998 ECMWF model assimilates temperature data instead of geopotential from radiosondes. As a consequence the number of used geopotential data drops to zero in tables 7, 10, 13 and 15.
- Revision 18 (Apr 98) - Changes to tables and annex to introduce the usage of accepted numbers and observations instead of percentage of rejection.

1 Introduction

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

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

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

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

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

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

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

2 Data summary - History of events

2.1 Radiosondes

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

Ident	Time	Aug	Sep	Ident	Time	Aug	Sep
60390	(12)	31	0	16113	(12)	15	26
60571	(12)	31	0	17516	(00)	13	30
60680	(12)	31	0	17607	(12)	61	49
64400	(00)	12	0	43192	(00)	13	31
64400	(12)	11	0	47155	(00)	17	29
65125	(12)	15	0	47155	(12)	18	32
76743	(00)	19	0	47186	(00)	15	30
78486	(00)	27	0	47186	(12)	16	30
78486	(12)	30	4	60155	(00)	15	26
82397	(12)	12	0	60715	(00)	0	21
83928	(00)	23	0	62306	(00)	0	12
83928	(12)	22	0	62414	(00)	6	19
-	-	-	-	65202	(12)	2	14
-	-	-	-	65344	(12)	12	26
-	-	-	-	67083	(12)	0	16
-	-	-	-	68424	(00)	7	28
-	-	-	-	70165	(00)	14	28
-	-	-	-	76394	(12)	13	30
-	-	-	-	76458	(00)	0	11
-	-	-	-	76679	(00)	0	18
-	-	-	-	78988	(00)	4	29
-	-	-	-	78988	(12)	3	29
-	-	-	-	80222	(00)	0	29
-	-	-	-	82022	(00)	18	30
-	-	-	-	82022	(12)	19	30
-	-	-	-	82107	(00)	10	30
-	-	-	-	82107	(12)	11	30
-	-	-	-	82532	(00)	9	30
-	-	-	-	82532	(12)	8	30
-	-	-	-	83971	(12)	11	24

2.2 Drifting Buoys

Surface pressure observations from **1965** drifting buoys were received during the month.

3 Global monitoring statistics

The following figures and tables provide information on both the availability and quality of various data types as received at ECMWF during the month. A brief description of each figure/table is given below. For a full explanation please refer to the Annex.

3.1 Data Availability

Figures 1-9 are global charts for each data type showing the average number of observations received in 24 hours in 5 degree boxes. The average daily number of observations (global) is also displayed with a breakdown, where appropriate, for each WMO region (figures 1, 3 and 4) and Ocean (figures 1-4).

Fig	Observation Type	Parameter	Level/Layer
1	SYNOP/SHIP	MSL Pressure	Surface
2	DRIFTER	MSL Pressure	Surface
3	TEMP	Geopotential	500 hPa
4	TEMP/PILOT	Wind	300 hPa
5	AIRCRAFT (AIREP/AMDAR etc.)	Wind	300-150 hPa
6	SATOB	Wind	400-150 hPa
7	SATOB	Wind	1000-700 hPa
9	TOVS (120 km) - NOAA14	Thickness	300-100 hPa

(Figure 1 includes data from fixed marine platforms e.g. moored buoys.)

3.2 Data Quality

Tables 1-8 contain lists of suspect stations in the format according to Recommendation 3 CBS-Ext(85).

Tab	Observation Type	Parameter	Level/Layer
1	SHIP	MSL Pressure	Surface
2	SHIP	Wind Speed	Surface
3	SHIP	Wind Direction	Surface
4	DRIFTER	MSL Pressure	Surface
5	DRIFTER	Wind Speed	Surface
6	DRIFTER	Wind Direction	Surface
7	TEMP	Geopotential	1000- 30 hPa
8	TEMP/PILOT	Wind	1000-100 hPa
9	TEMP/PILOT	Wind Direction	500-150 hPa

(SHIP tables include data from fixed marine platforms e.g. moored buoys.)

Figures 10-13 show the locations of suspect stations given in tables 7 and 8.

Fig	Observation Type	Parameter	Observation Time
10	TEMP	Geopotential	00 UTC
11	TEMP	Geopotential	12 UTC
12	TEMP/PILOT	Wind	00 UTC
13	TEMP/PILOT	Wind	12 UTC

Tables 10 and 11 provide quality statistics for all TEMPSHIPS and PILOTSHIPS received during the month.

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

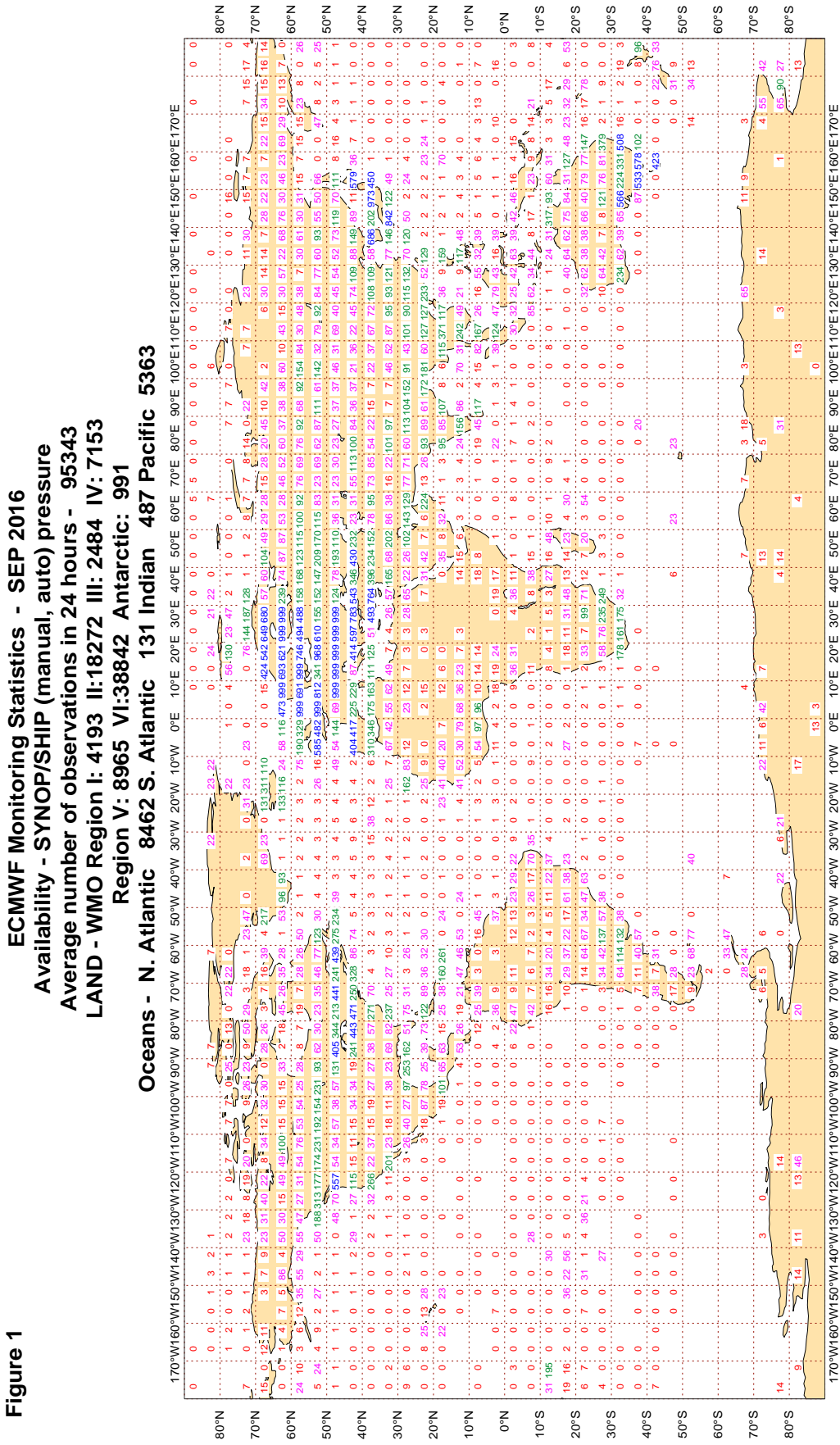
Figures 14-18 show global charts of SATOB and aircraft wind statistics in the form of wind vectors averaged over 5 degree boxes.

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

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

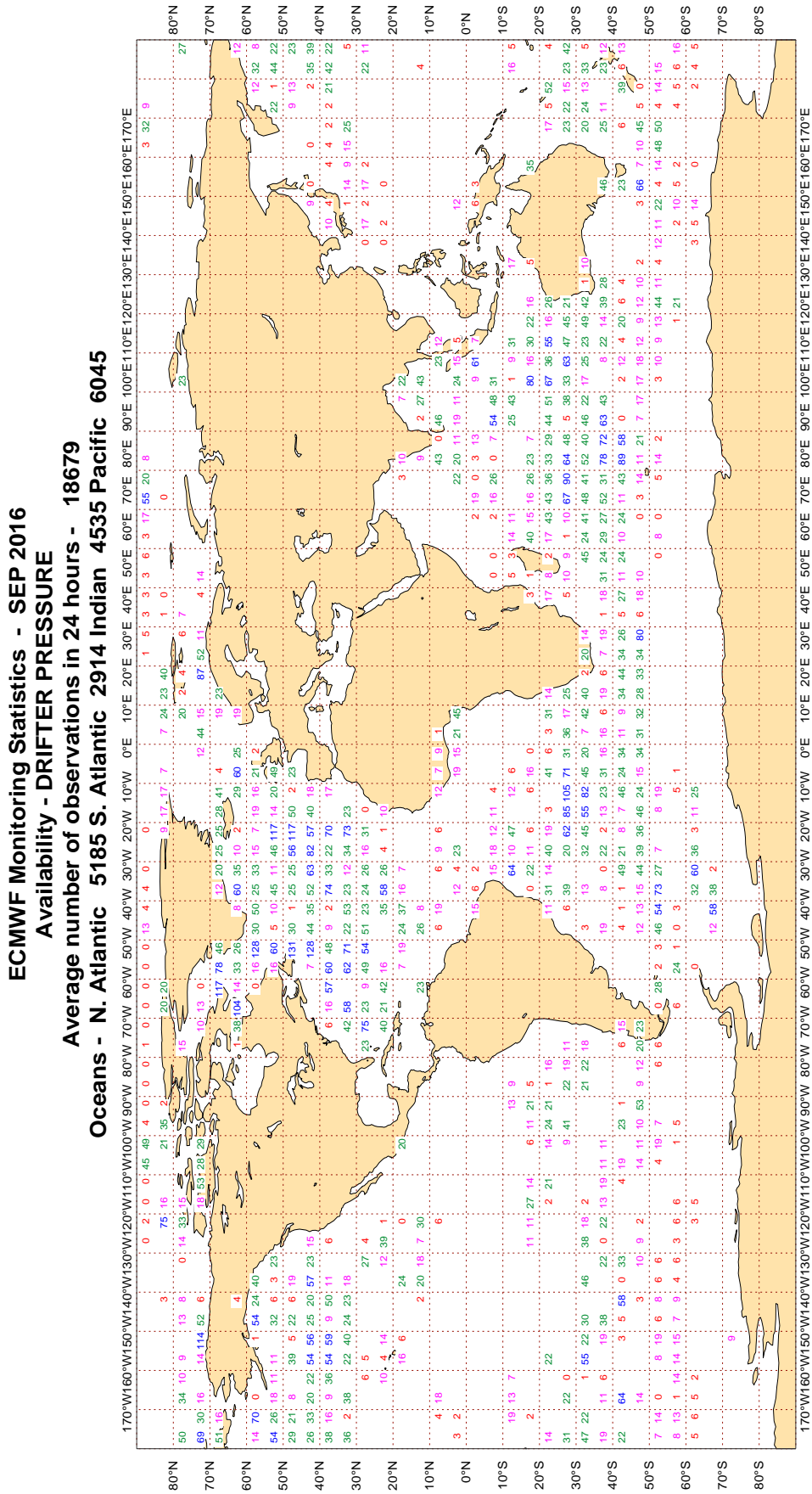
3.2.1 Figure 1 - Availability - SYNOP PRESSURE

Figure 1



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2



3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

Figure 3

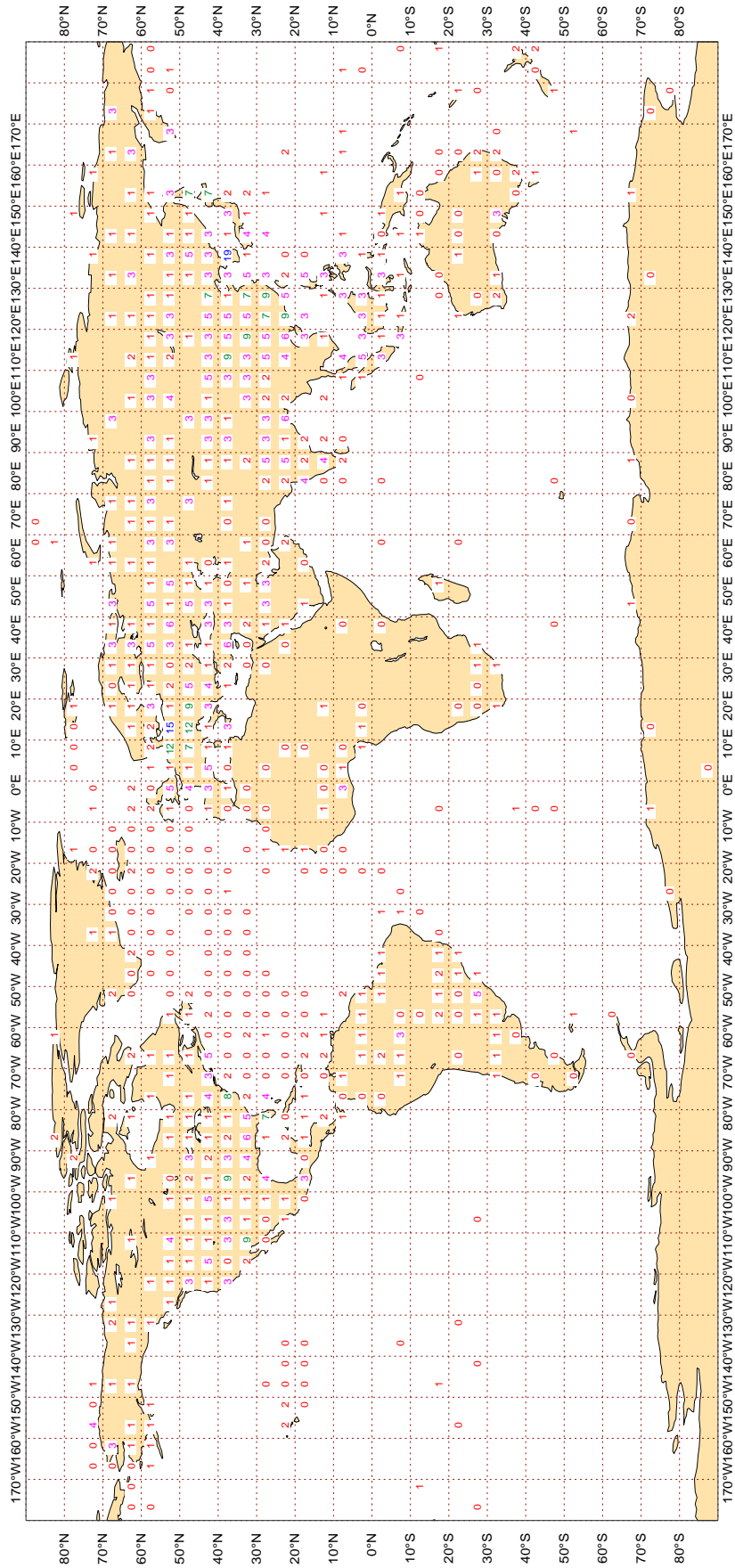
ECMWF Monitoring Statistics - SEP 2016
 Availability - TEMP 500 hPa Geopotential

Average number of observations in 24 hours - 1372

LAND - WMO Region I: 43 II: 540 III: 72 IV: 280

Region V: 142 VI: 261 Antarctic: 15

Oceans - N. Atlantic 15 S. Atlantic 0 Indian 0 Pacific 5

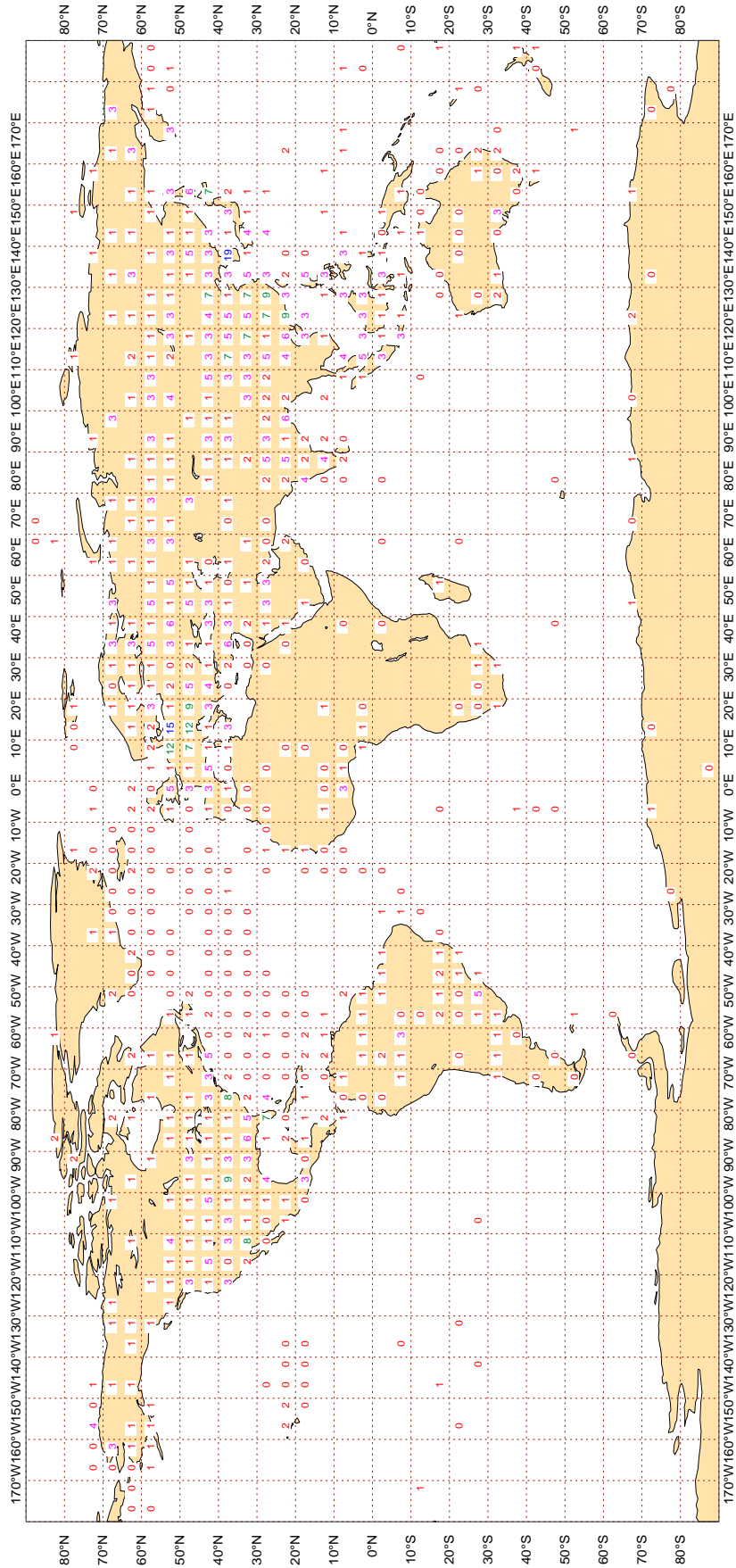


Magics 2.24.2 (64 bit)



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

Figure 4 ECMWF Monitoring Statistics - SEP 2016
 Availability - TEMP/PILOT 300 hPa wind
 Average number of observations in 24 hours - 1336
 LAND - WMO Region I: 42 II: 517 III: 72 IV: 276
 Region V: 136 VI: 259 Antarctic: 15
 Oceans - N. Atlantic 14 S. Atlantic 0 Indian 0 Pacific 5



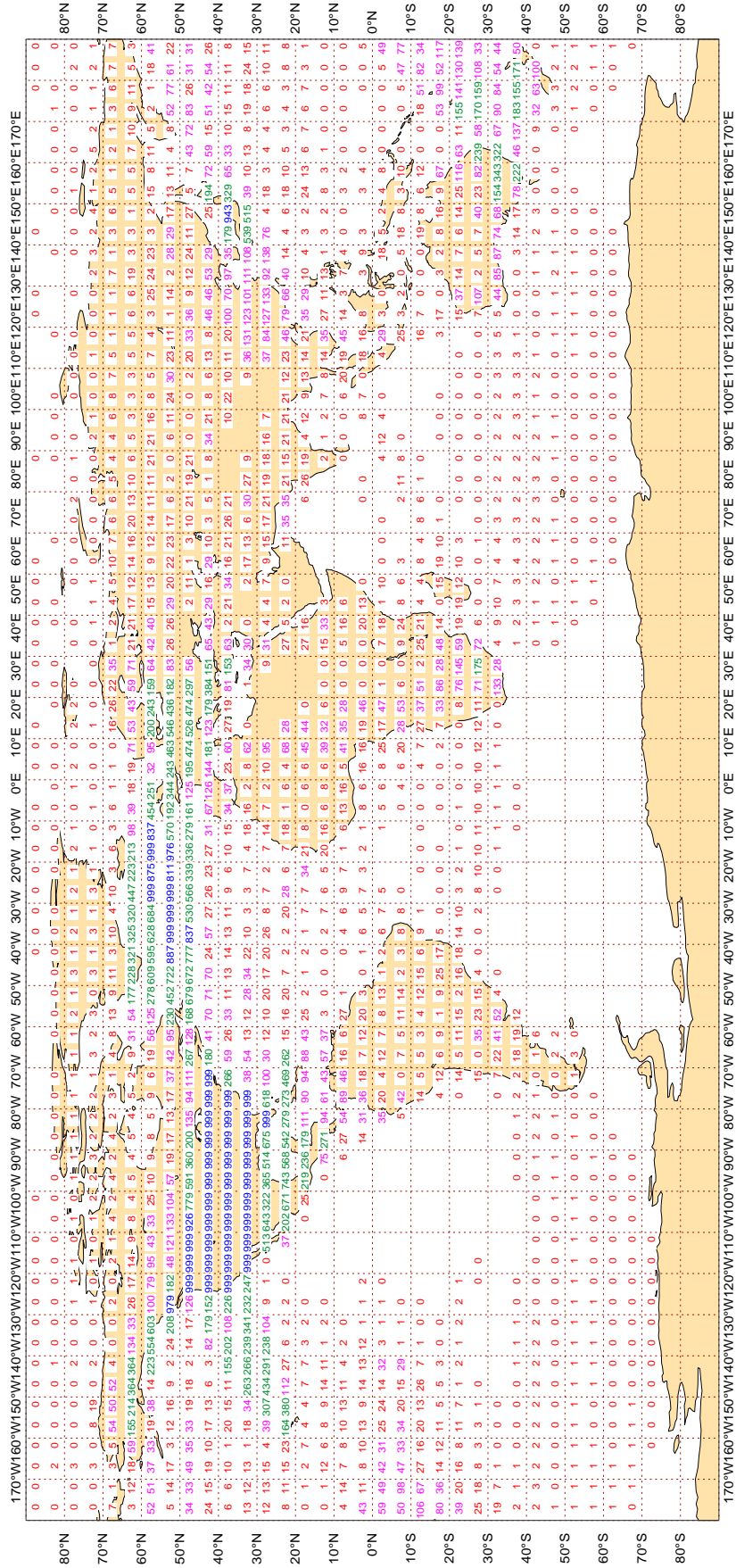
Magics 2.24.2 (64 bit)



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

Figure 5

ECMWF Monitoring Statistics - SEP 2016
Availability - Aircraft winds 300-150 hPa
Average number of observations in 24 hours - 185115



Magicis 2.24.2 (64 bit)



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

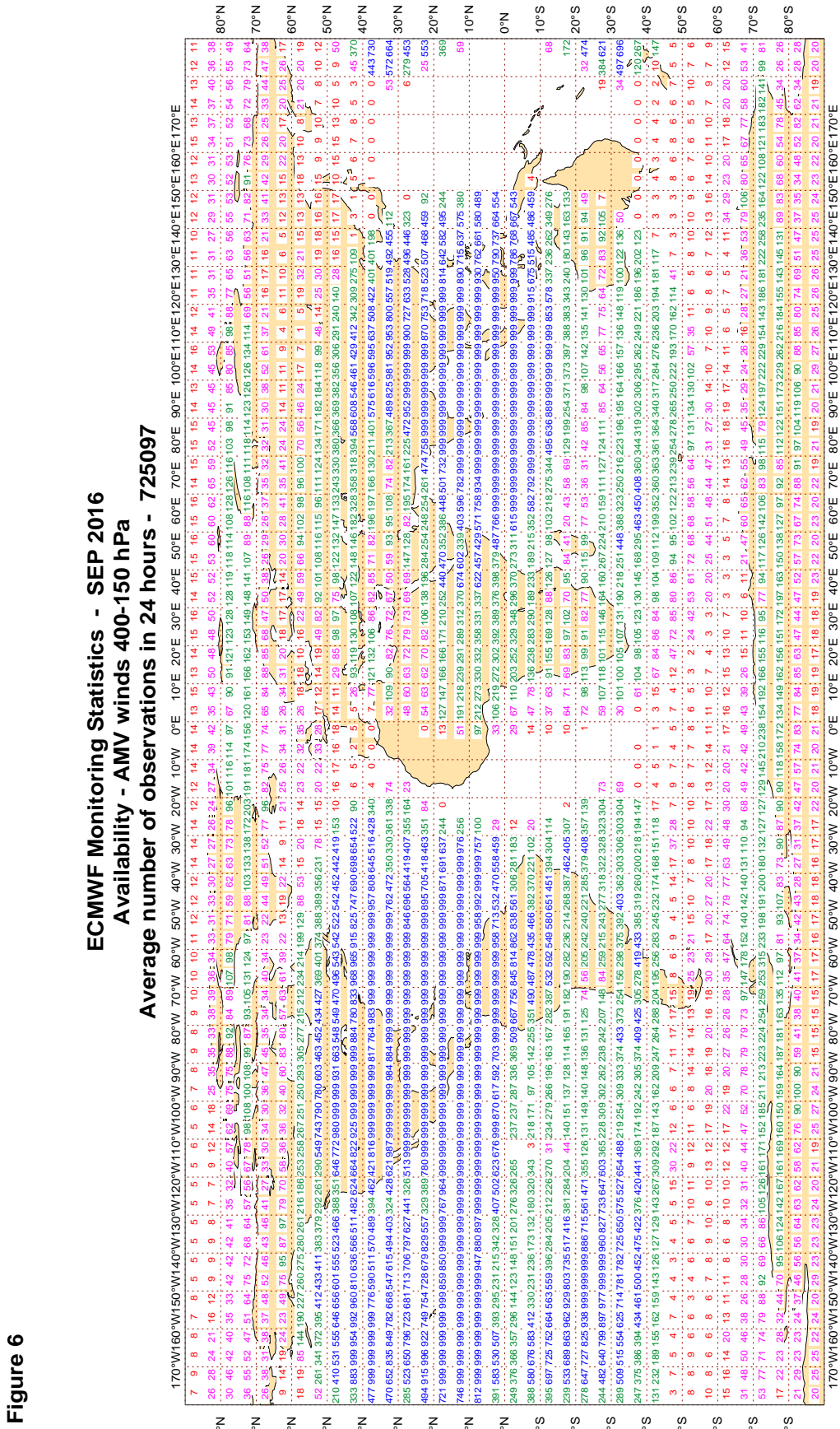


Figure 6

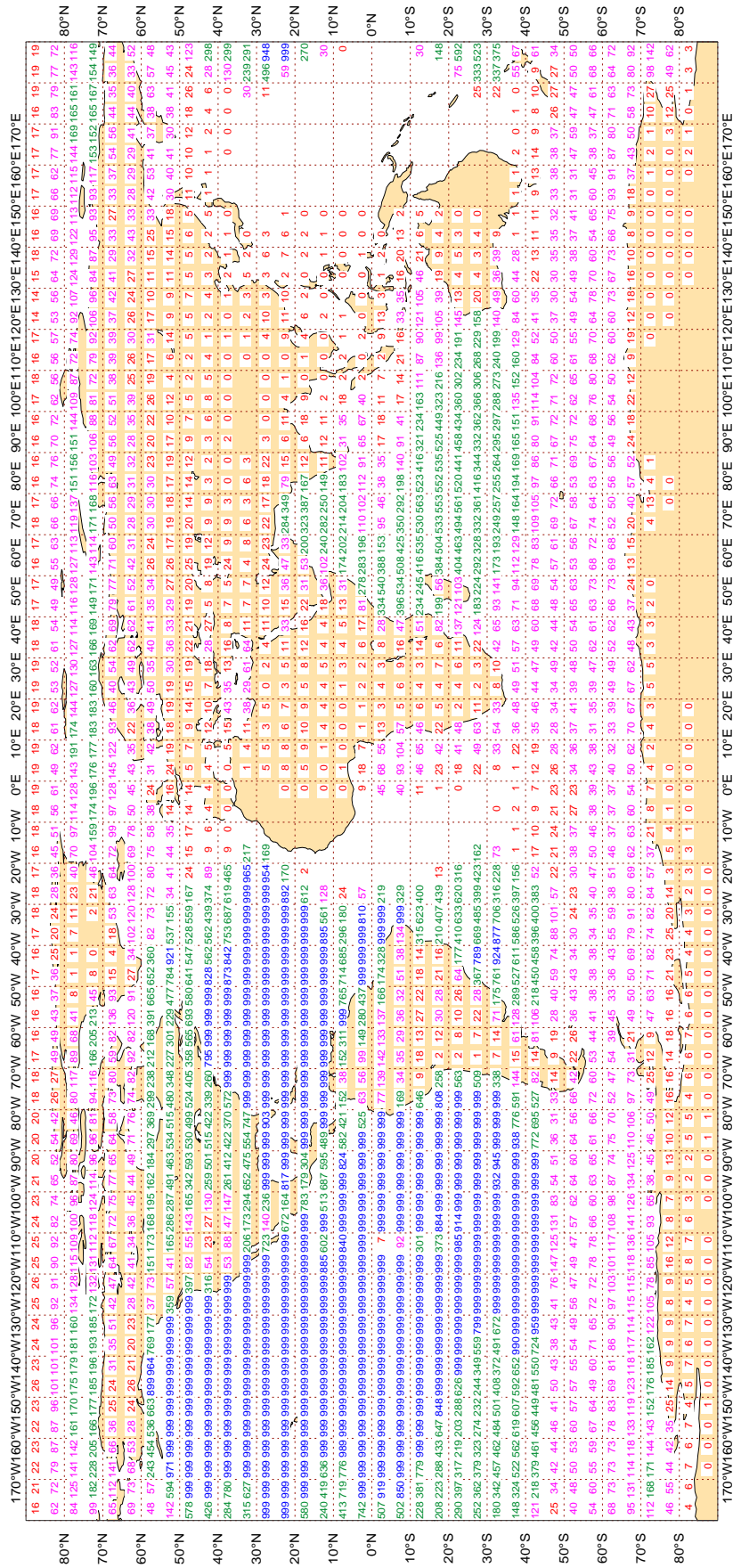


Majics 2.24.2 (64 bit)

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

Figure 7

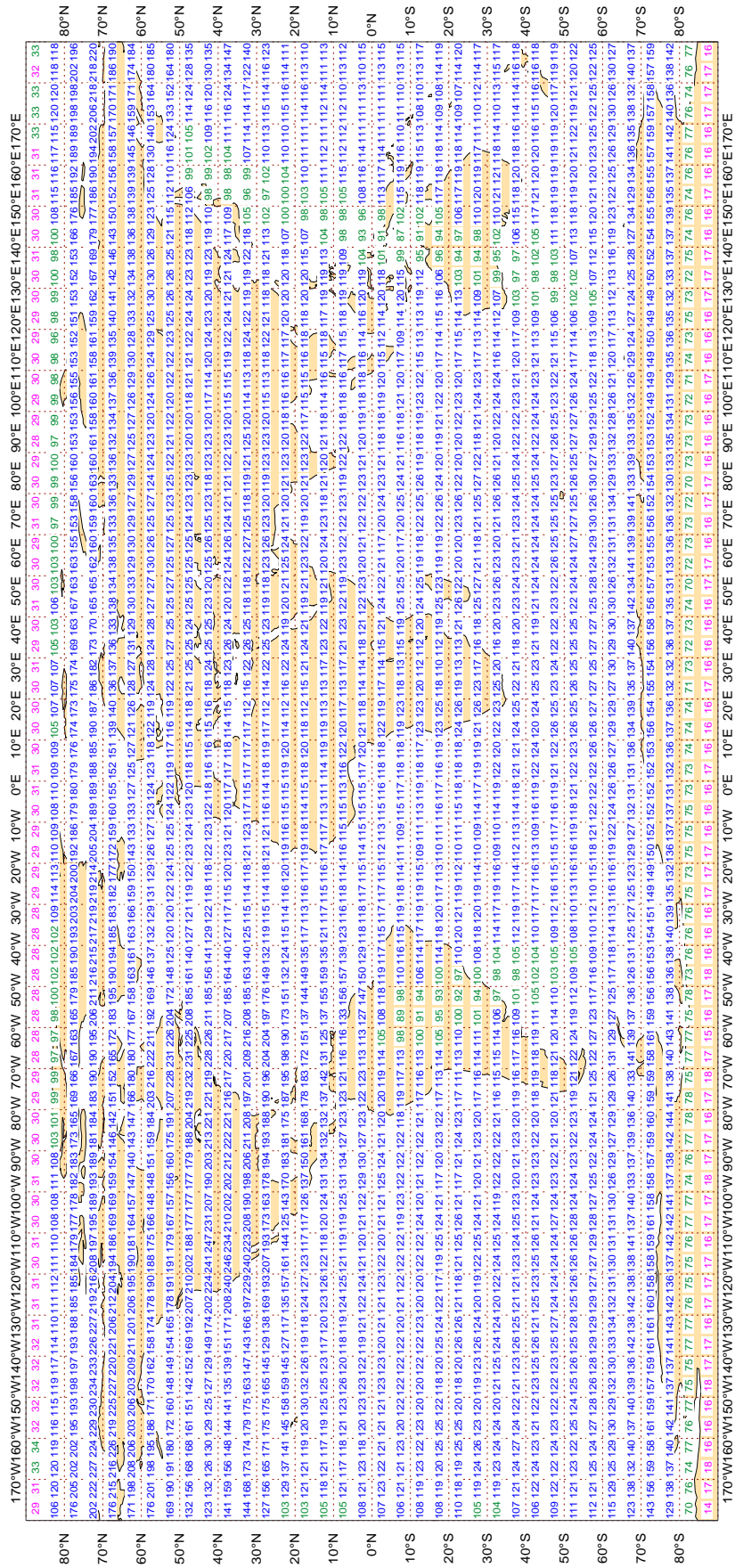
ECMWF Monitoring Statistics - SEP 2016
Availability - AMV winds 1000-700 hPa
Average number of observations in 24 hours - 1052800



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

Figure 8

ECMWF Monitoring Statistics - SEP 2016
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 326393

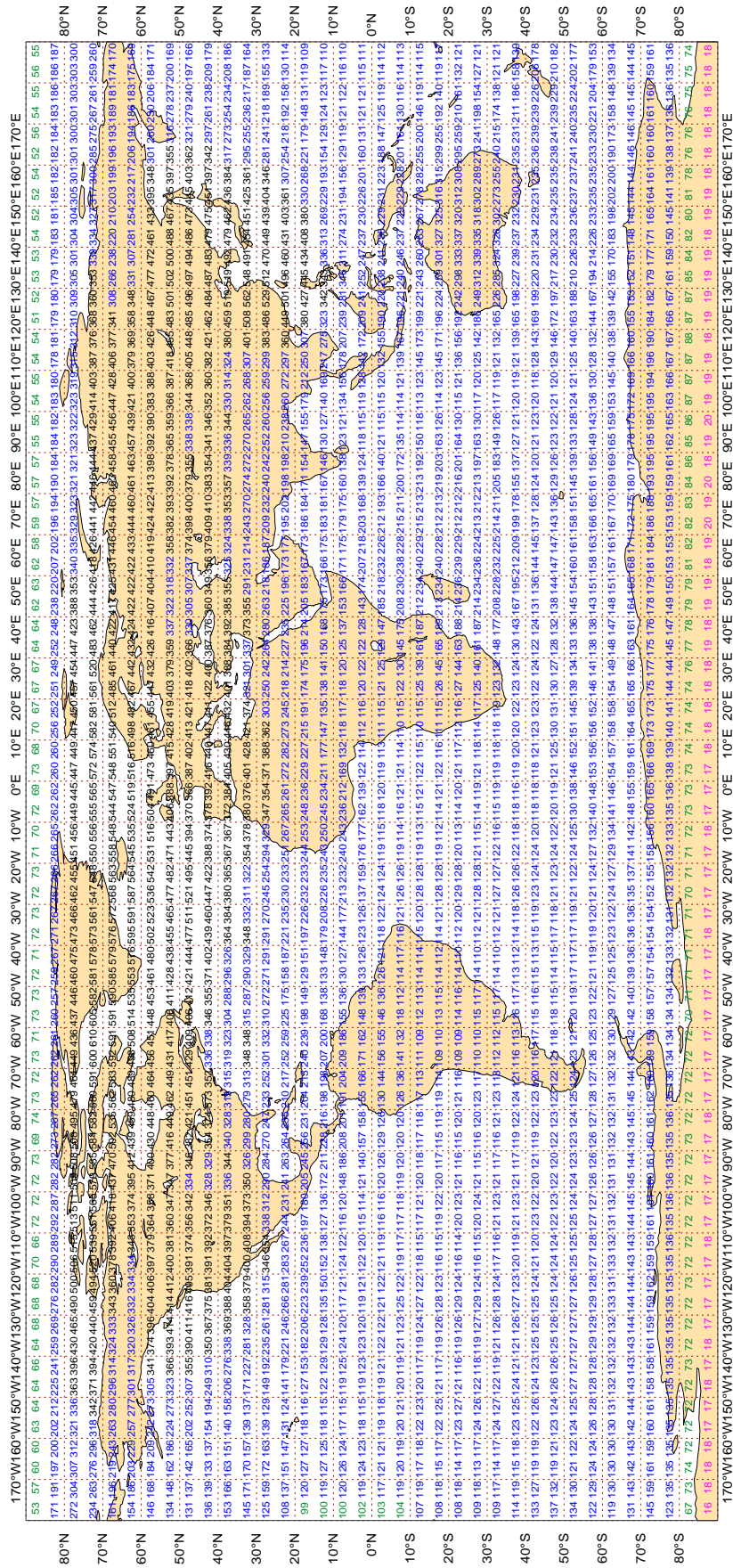


Majics 2.24.2 (64 bit)

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

Figure 9.1

ECMWF Monitoring Statistics - SEP 2016
Availability - NOAA18 ATOVS : AMSU-A
Average number of observations in 24 hours - 564583



Magics 2.24.2 (64 bit)



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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : GLOBAL
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
2HDG2	99	P	SUR	16	0	1.8	6.2	6.4
3FRY7	99	P	SUR	83	0	1.5	5.0	5.2
9V2732	99	P	SUR	22	0	1.3	4.1	4.3
9V8208	99	P	SUR	28	0	2.3	4.2	4.8
9V9288	99	P	SUR	38	3	2.7	-4.1	4.9
9V9574	99	P	SUR	26	0	1.3	4.5	4.6
AGRF	99	P	SUR	84	0	2.2	4.3	4.9
AUXE	99	P	SUR	112	23	5.6	-2.4	6.1
C6AV5	99	P	SUR	15	0	1.5	4.2	4.4
C6BQ4	99	P	SUR	52	0	2.6	7.2	7.7
C6BR3	99	P	SUR	62	0	2.7	6.2	6.8
C6FV4	99	P	SUR	22	0	1.0	7.8	7.8
C6JT	99	P	SUR	18	0	1.4	-4.4	4.6
C6LU4	99	P	SUR	30	0	4.5	7.2	8.5
C6SE8	99	P	SUR	16	0	0.7	6.5	6.5
C6YM7	99	P	SUR	42	0	1.6	7.5	7.6
C6ZJ8	99	P	SUR	37	0	4.8	8.8	10.0
CTEC	99	P	SUR	32	0	1.1	-5.6	5.7
ELPP9	99	P	SUR	41	0	0.8	3.9	4.0
KRAU	99	P	SUR	49	1	1.2	6.2	6.3
LAPE7	99	P	SUR	30	0	1.4	5.6	5.8
LF8G	99	P	SUR	95	9	6.0	0.5	6.0
MYRF	99	P	SUR	58	1	2.0	6.8	7.1
ONFI	99	P	SUR	26	0	1.7	4.1	4.5
ONIK	99	P	SUR	26	0	0.9	10.6	10.7
OZ2049	99	P	SUR	15	0	1.2	-5.1	5.2
PBAD	99	P	SUR	16	0	2.1	-3.7	4.2
PCHM	99	P	SUR	46	1	5.5	-3.7	6.6
UASX	99	P	SUR	20	0	1.7	6.6	6.8
UBMI9	99	P	SUR	28	0	0.6	3.7	3.7
UBMO9	99	P	SUR	28	0	0.6	3.7	3.7
UBRW	99	P	SUR	32	14	7.6	-3.7	8.5

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

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
UBXS	99	P	SUR	35	4	1.4	-12.5	12.5
UCSJ	99	P	SUR	45	0	0.6	4.2	4.2
UCUD	99	P	SUR	27	4	0.7	-9.1	9.1
UDYG	99	P	SUR	38	38	0.0	0.0	0.0
UFMK	99	P	SUR	41	0	1.8	3.5	4.0
UGZM	99	P	SUR	46	0	1.9	-4.3	4.7
UHOW	99	P	SUR	48	16	7.9	-2.6	8.3
VRCY7	99	P	SUR	29	0	2.9	5.0	5.8
VRFI7	99	P	SUR	76	0	0.9	4.7	4.7
VRFU8	99	P	SUR	59	0	1.7	-8.6	8.8
VRFU9	99	P	SUR	68	12	3.0	10.8	11.2
VRFX5	99	P	SUR	16	0	0.9	3.1	3.2
VRGH3	99	P	SUR	50	1	3.2	3.7	4.9
VRGV9	99	P	SUR	21	0	2.8	5.4	6.1
VRHE3	99	P	SUR	21	0	1.0	-3.6	3.8
VRID5	99	P	SUR	18	0	1.2	8.3	8.4
VRJT8	99	P	SUR	58	0	2.4	5.4	6.0
VRPY7	99	P	SUR	15	0	1.7	4.0	4.3
WACW	99	P	SUR	24	0	0.7	3.5	3.5
WAIU	99	P	SUR	46	0	2.3	-3.2	3.9
WAZV	99	P	SUR	21	0	0.6	-3.9	4.0
WCZ5535	99	P	SUR	32	0	1.3	-3.3	3.6
WDC6923	99	P	SUR	15	0	0.7	5.4	5.5
WKPM	99	P	SUR	22	0	0.9	4.2	4.3
WPGK	99	P	SUR	54	0	0.7	-3.4	3.5
WRJP	99	P	SUR	28	0	0.7	-3.2	3.2

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

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : GLOBAL
 PERIOD : SEP 2016
 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 : SEP 2016
 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
42039	99	DIRN	SUR	38	0	0	88.9	1.2	88.9
42369	99	DIRN	SUR	26	0	0	72.3	19.7	75.0
44008	99	DIRN	SUR	38	2	0	60.3	82.2	102.0
44058	99	DIRN	SUR	118	0	0	19.9	55.5	58.9
45165	99	DIRN	SUR	128	0	0	23.6	-34.1	41.4
45168	99	DIRN	SUR	121	0	0	19.3	-33.7	38.8
46118	99	DIRN	SUR	49	0	0	43.0	31.9	53.6

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : GLOBAL
 PERIOD : SEP 2016
 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
2300592	99	P	SUR	6	83	1539	593	0.4	0.4	0.6
23592	99	P	SUR	6	83	1421	548	0.4	0.4	0.6
2600545	99	P	SUR	67	-11	669	96	7.9	-0.6	8.0
2600568	99	P	SUR	83	32	440	384	3.9	-9.0	9.8
26545	99	P	SUR	67	-11	718	103	7.9	-0.9	8.0
26568	99	P	SUR	83	32	442	385	4.0	-9.1	10.0
3300516	99	P	SUR	-54	49	297	79	0.6	-0.9	1.0
33516	99	P	SUR	-54	49	258	72	0.6	-0.8	1.0
4401619	99	P	SUR	62	-70	670	38	4.1	6.8	7.9
4700509	99	P	SUR	68	-28	666	107	6.5	-1.9	6.8
4700551	99	P	SUR	52	-55	684	94	6.9	1.4	7.0
4700567	99	P	SUR	50	-40	681	524	3.3	5.6	6.5
4700584	99	P	SUR	47	-37	669	215	4.8	-1.9	5.2
47509	99	P	SUR	68	-28	718	105	6.3	-2.0	6.6
47551	99	P	SUR	52	-55	715	92	7.1	1.0	7.1
47567	99	P	SUR	50	-40	719	540	3.2	5.3	6.2
47584	99	P	SUR	47	-36	716	247	4.9	-1.8	5.2
4800507	99	P	SUR	75	-124	2249	523	7.1	5.5	9.0
4800513	99	P	SUR	75	178	699	246	8.2	0.4	8.2
4800634	99	P	SUR	70	-147	566	412	5.4	-1.8	5.7
48507	99	P	SUR	75	-124	2145	498	7.2	5.5	9.0
48513	99	P	SUR	75	178	667	236	8.2	0.3	8.2
48634	99	P	SUR	70	-147	717	547	5.3	-1.8	5.6
5301601	99	P	SUR	-9	93	2233	1241	0.4	0.5	0.6
5500573	99	P	SUR	-41	174	385	112	0.9	-0.2	0.9
55573	99	P	SUR	-41	175	448	134	0.9	-0.2	0.9
5600506	99	P	SUR	-18	95	40	0	0.0	-8.3	8.3
5600936	99	P	SUR	-56	133	87	4	6.1	-0.1	6.1
56506	99	P	SUR	-18	95	40	0	0.0	-8.4	8.4
7200801	99	P	SUR	-75	-153	304	222	8.1	2.4	8.4
72801	99	P	SUR	-75	-153	269	200	8.1	2.1	8.4

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : GLOBAL
 PERIOD : SEP 2016
 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
1400041	99	SPEED	SUR	-8	55	305	0	0	1.3	-5.3	5.5
14041	99	SPEED	SUR	-8	55	184	0	0	1.3	-5.2	5.4
6100002	99	SPEED	SUR	42	5	713	0	0	3.8	5.7	6.8

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

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 PERIOD : SEP 2016
 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
1400041	99	DIRN	SUR	-8	55	140	0	0	24.1	-22.0	32.6
14041	99	DIRN	SUR	-8	55	84	0	0	23.4	-26.0	35.0
2300008	99	DIRN	SUR	12	89	235	0	0	13.0	-20.9	24.6
23008	99	DIRN	SUR	12	89	167	0	0	13.5	-20.2	24.3
23091	99	DIRN	SUR	18	90	137	0	0	23.6	24.5	34.0
23092	99	DIRN	SUR	18	90	136	0	0	46.3	-45.7	65.0
23451	99	DIRN	SUR	15	69	237	0	0	9.4	22.3	24.2
23454	99	DIRN	SUR	10	73	180	0	0	162.8	-51.8	170.8
23460	99	DIRN	SUR	7	88	198	0	0	11.5	20.2	23.2
23497	99	DIRN	SUR	11	72	202	0	0	24.9	-24.5	34.9
3100051	99	DIRN	SUR	-23	-43	35	0	0	27.7	-100.4	104.2
3100053	99	DIRN	SUR	-32	-50	563	1	0	16.0	-20.1	25.7
3100231	99	DIRN	SUR	-29	-47	28	1	0	87.3	-11.0	88.0
3100260	99	DIRN	SUR	-16	-38	129	0	0	125.2	110.7	167.1
3100262	99	DIRN	SUR	-23	-43	238	0	0	28.5	-27.0	39.3
3100374	99	DIRN	SUR	-25	-45	477	1	0	13.2	-28.8	31.7
3100380	99	DIRN	SUR	-20	-40	622	0	0	23.0	-27.1	35.5
3101000	99	DIRN	SUR	-24	-42	552	0	0	14.3	-23.8	27.8
31053	99	DIRN	SUR	-32	-50	252	0	0	16.4	-20.2	26.0
31260	99	DIRN	SUR	-16	-38	64	0	0	113.0	123.1	167.0
31374	99	DIRN	SUR	-25	-45	35	0	0	12.2	-25.8	28.5
31380	99	DIRN	SUR	-20	-40	321	0	0	20.4	-28.5	35.0
41057	99	DIRN	SUR	20	-71	1291	0	0	15.6	-24.3	28.8
42039	99	DIRN	SUR	29	-86	220	0	0	84.7	-5.0	84.9
42090	99	DIRN	SUR	18	-70	36	0	0	22.4	-31.9	39.0
42361	99	DIRN	SUR	28	-93	547	0	0	21.6	29.4	36.5
42362	99	DIRN	SUR	28	-91	236	0	0	25.1	20.1	32.2
42365	99	DIRN	SUR	28	-89	409	0	0	19.2	-26.0	32.3
42369	99	DIRN	SUR	27	-90	127	0	0	60.2	27.8	66.3
44008	99	DIRN	SUR	41	-69	224	10	0	61.4	82.7	103.0
44058	99	DIRN	SUR	38	-76	782	0	0	27.7	55.1	61.7

LIST OF SUSPECT STATIONS : DRIFTER
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 (CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44062	99	DIRN	SUR	39	-76	694	0	0	22.6	-21.5	31.2
45020	99	DIRN	SUR	45	-86	560	0	0	22.0	-29.8	37.1
45135	99	DIRN	SUR	44	-77	629	0	0	18.8	-20.4	27.8
45139	99	DIRN	SUR	43	-80	397	0	0	19.7	-24.8	31.7
45142	99	DIRN	SUR	43	-79	559	0	0	18.1	-24.6	30.6
45152	99	DIRN	SUR	46	-80	245	0	0	17.1	-26.6	31.6
45165	99	DIRN	SUR	42	-83	724	0	0	22.1	-33.9	40.4
45167	99	DIRN	SUR	42	-80	857	0	0	28.2	-24.5	37.3
45168	99	DIRN	SUR	42	-86	723	0	0	22.8	-33.6	40.6
46060	99	DIRN	SUR	61	-147	404	0	0	24.7	20.7	32.2
46118	99	DIRN	SUR	49	-123	327	0	0	38.3	35.6	52.3
5200522	99	DIRN	SUR	6	145	34	0	0	98.3	58.6	114.4
52522	99	DIRN	SUR	6	145	30	0	0	105.7	60.6	121.8
53005	99	DIRN	SUR	-8	80	66	0	0	30.4	20.7	36.8
62133	99	DIRN	SUR	57	1	651	0	0	15.4	-22.0	26.8

3.2.18 Table 7 - Suspect radiosondes: Geopotential height (metres)

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 AREA : GLOBAL
 PERIOD : SEP 2016
 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
04360	00	Z	925	66	-38	30	0	4.1	41.9	42.1
04360	12	Z	925	66	-38	28	0	2.9	42.0	42.1
04417	00	Z	1000	73	-38	29	28	0.0	-84.9	84.9
31510	00	Z	50	50	127	26	0	33.4	-158.0	161.5
31510	12	Z	50	50	127	25	0	48.6	-170.5	177.3
40437	00	Z	925	25	47	19	0	2.6	34.9	35.0
40437	12	Z	925	25	47	18	0	2.6	34.1	34.2
42361	12	Z	30	26	78	23	0	53.1	236.1	242.0
42886	00	Z	30	22	84	17	0	45.7	198.5	203.7
43014	00	Z	30	20	75	20	0	21.4	190.7	191.9
43041	00	Z	500	19	82	11	0	23.9	41.3	47.7
43063	00	Z	1000	19	74	18	11	33.9	-19.1	38.9
43110	00	Z	30	17	73	21	0	12.2	185.0	185.4
43128	12	Z	50	17	78	20	0	55.0	187.3	195.2
43192	00	Z	50	15	74	19	0	30.7	136.6	140.0
43295	12	Z	30	13	78	17	0	21.7	235.2	236.2
43311	00	Z	30	11	73	19	0	10.7	189.5	189.8
43371	12	Z	70	8	77	16	0	38.3	150.5	155.3
47155	12	Z	1000	35	129	32	4	29.2	-50.0	57.9
65202	12	Z	100	7	3	13	12	0.0	298.3	298.3
76405	12	Z	400	24	-110	14	0	69.6	41.2	80.9
80222	00	Z	925	5	-74	25	0	5.5	-76.4	76.6
80222	12	Z	1000	5	-74	27	1	8.6	-74.1	74.6
89009	00	Z	1000	-90	0	29	21	7.4	-91.0	91.3
96147	12	Z	925	4	108	24	3	13.6	45.3	47.3
96147	00	Z	850	4	108	28	2	10.8	48.0	49.2

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

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 AREA : GLOBAL
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

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

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

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	UBIAS	VBIAS	RMS
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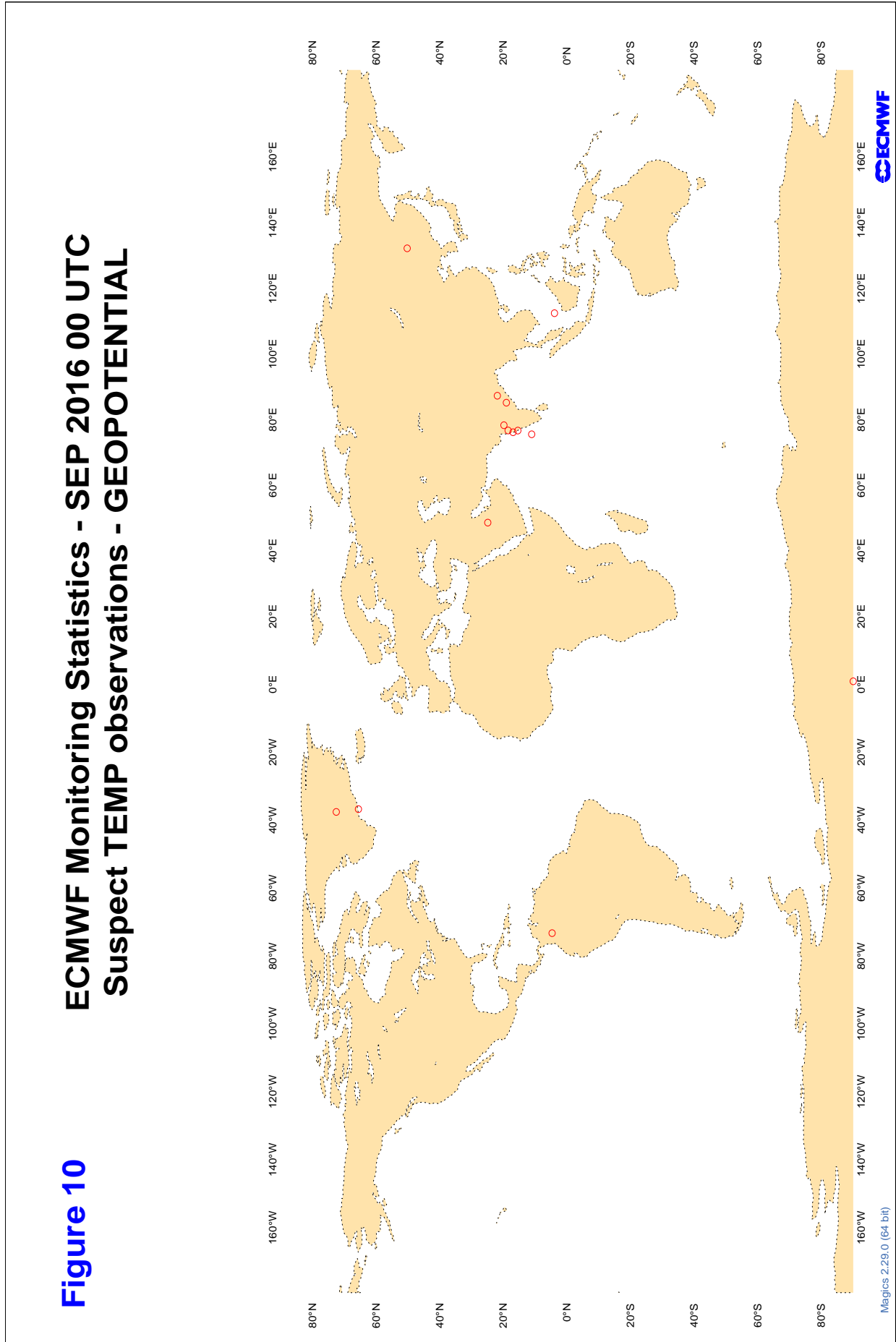
3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

LIST OF SUSPECT STATIONS : RADIOSONDES
 MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : GLOBAL
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

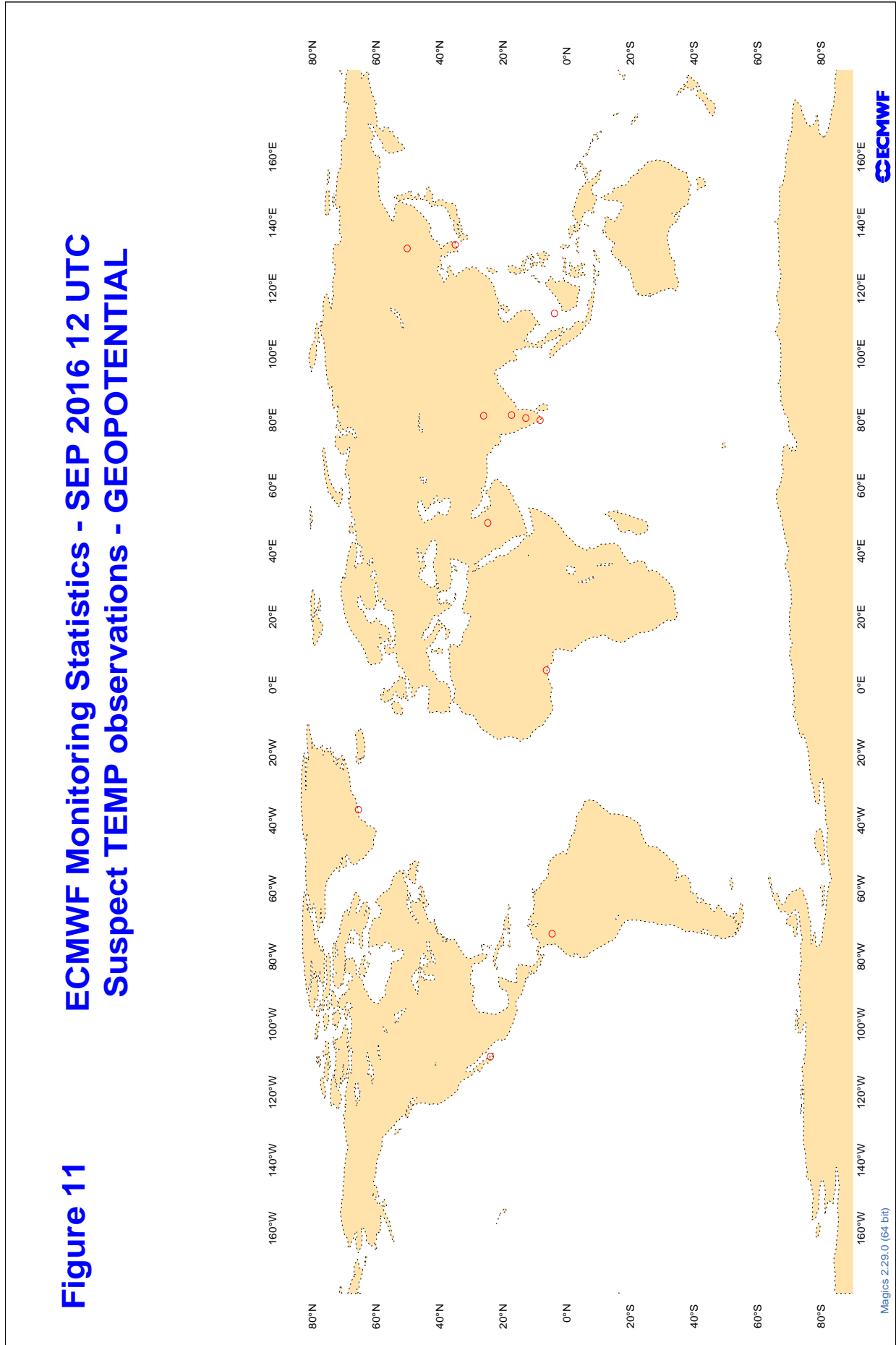
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS \geq 5 M/S
 NO. OF OBSERVATIONS \geq 5, AND,
 ABSOLUTE BIAS \geq 10 DEGREES, WITH
 STANDARD DEVIATION $<$ 30 DEGREES, AND,
 VERTICAL SPREAD $<$ 10 DEGREES
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
57972	00	DD	26	113	23	10.2	2.1	13.7

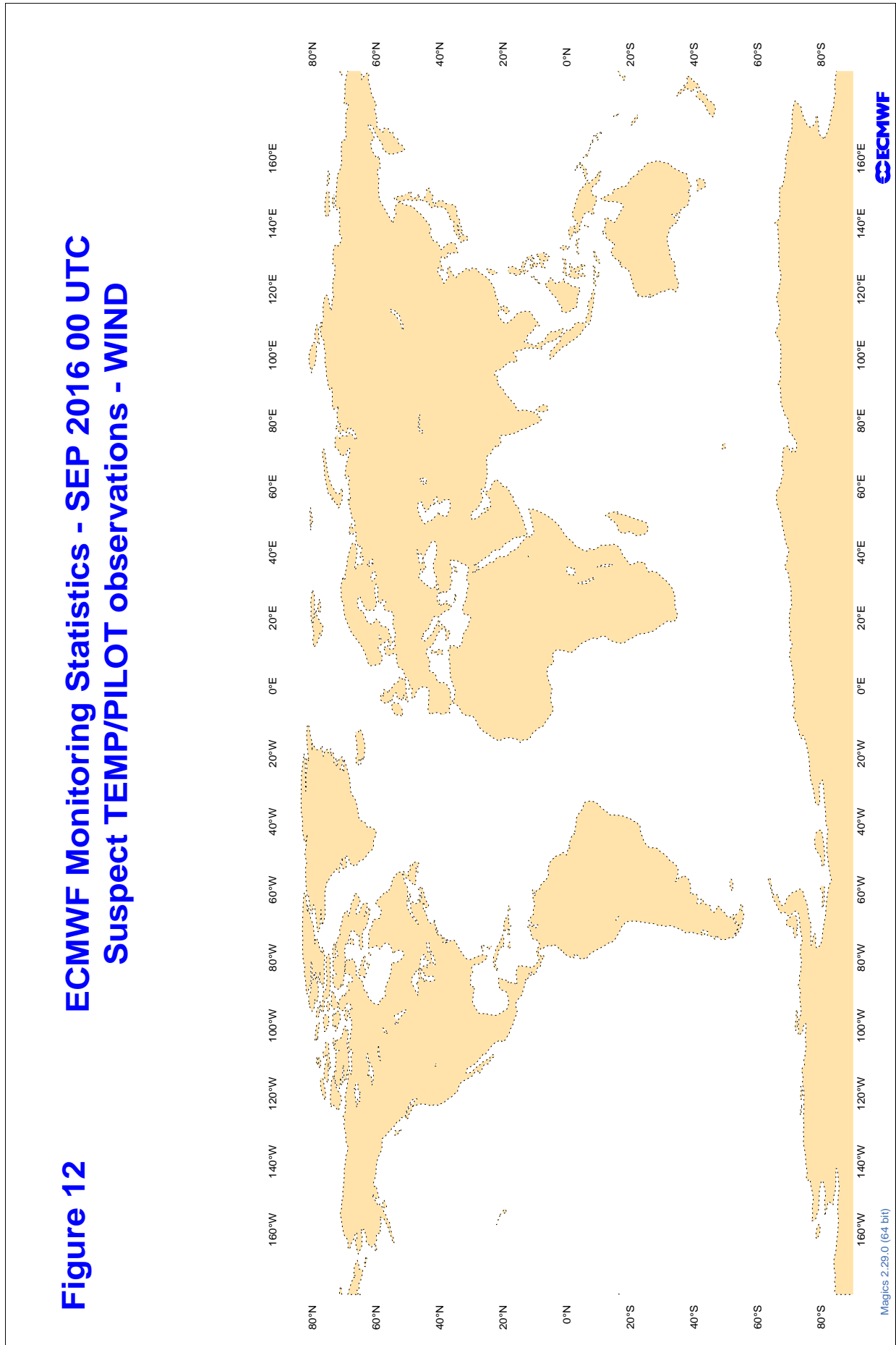
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



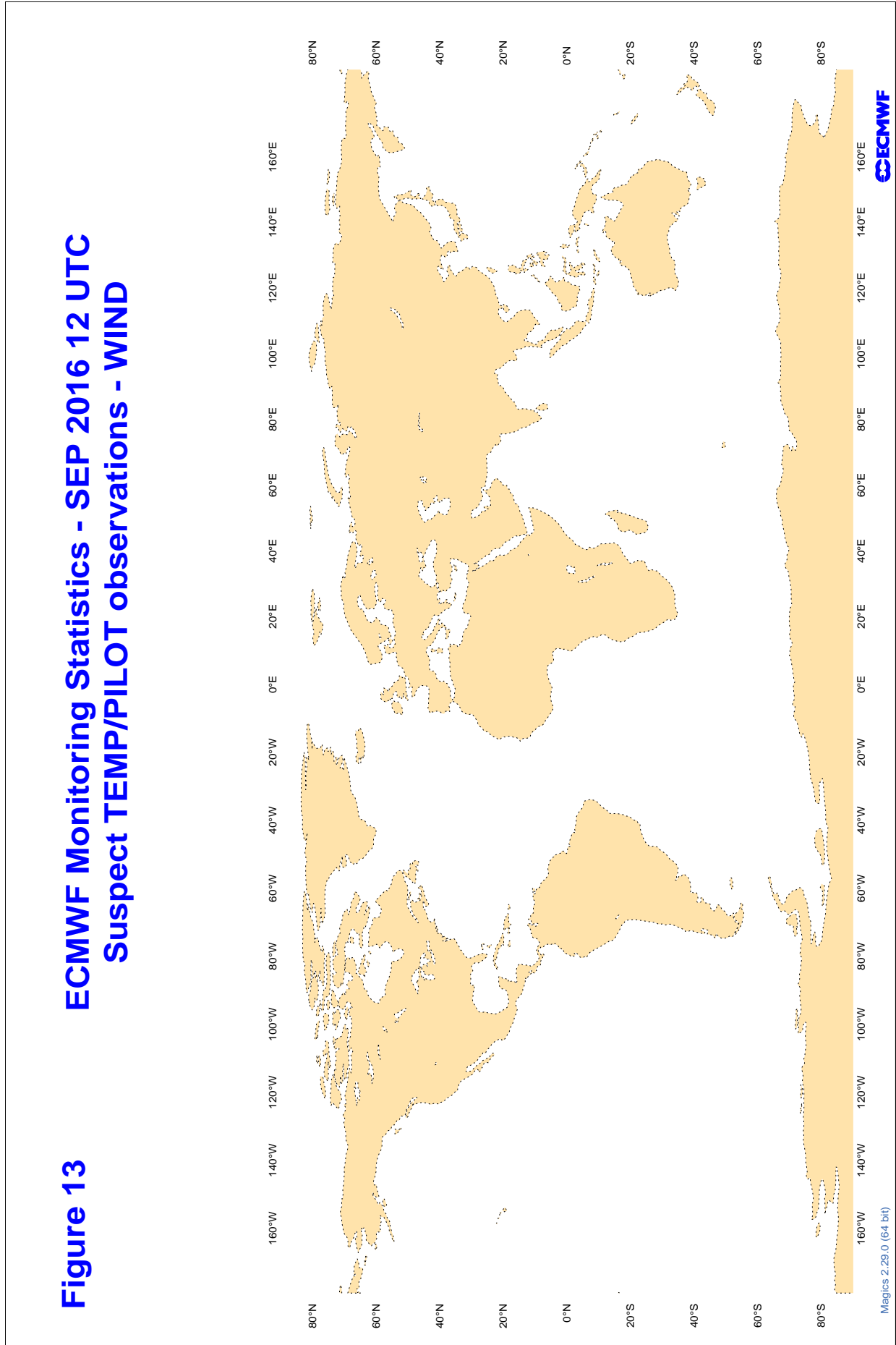
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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



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



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

RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 100 HPA
 AREA : GLOBAL
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASDE01	12	Z	100	5	40.0	17.4
ASDE01	00	Z	100	3	48.1	-40.4
ASDE02	00	Z	100	5	20.3	19.4
ASDE02	12	Z	100	16	22.1	19.2
ASDE03	12	Z	100	4	33.1	32.6
ASDE03	00	Z	100	1	9.0	9.0
ASDE04	12	Z	100	14	46.1	42.7
ASDE04	00	Z	100	12	33.7	32.7
ASDE09	12	Z	100	2	50.3	49.4
ASDK01	12	Z	100	16	22.1	11.6
ASDK01	00	Z	100	11	12.7	1.7
ASDK02	12	Z	100	10	7.2	3.3
ASDK02	00	Z	100	7	6.9	0.4
ASDK03	12	Z	100	4	25.5	25.1
ASDK03	00	Z	100	6	17.4	17.0
ASDK1	12	Z	100	15	19.8	3.5
ASDK1	00	Z	100	10	11.7	-1.8
ASDK2	00	Z	100	7	9.3	-5.0
ASDK2	12	Z	100	9	8.2	-6.6
ASDK3	12	Z	100	4	18.9	17.3
ASDK3	00	Z	100	5	16.3	14.7
ASES01	12	Z	100	19	20.2	16.1
ASEU01	12	Z	100	22	11.6	8.6
ASEU02	12	Z	100	6	40.2	38.7
ASEU02	00	Z	100	9	34.6	33.9
ASEU03	12	Z	100	7	11.6	9.1
ASEU03	00	Z	100	6	20.6	-14.5
ASEU04	12	Z	100	8	12.3	2.1
ASEU04	00	Z	100	3	4.0	0.9
ASEU06	12	Z	100	12	22.2	18.7
ASEU06	00	Z	100	12	23.5	15.1
ASFR1	12	Z	100	10	17.2	14.8
ASFR1	00	Z	100	10	15.5	13.9
ASFR2	00	Z	100	15	13.6	8.2
ASFR2	12	Z	100	15	15.4	12.7
ASFR3	12	Z	100	6	13.1	10.5
ASFR3	00	Z	100	10	13.2	11.3
ASFR4	12	Z	100	6	28.1	26.5
ASFR4	00	Z	100	8	15.1	12.1

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASUK2	12	Z	100	9	9.0	0.7
ASUK3	12	Z	100	4	11.5	6.2
DBLK	12	Z	100	14	4.4	2.5
DBLK	00	Z	100	16	5.7	2.3
DSQL7	00	Z	100	0	0.0	0.0
JNSR	12	Z	100	30	6.5	-3.2
JNSR	00	Z	100	28	6.2	-2.6
ZSNO	00	Z	100	1	12.0	12.0

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

RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 100 HPA
 AREA : GLOBAL
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

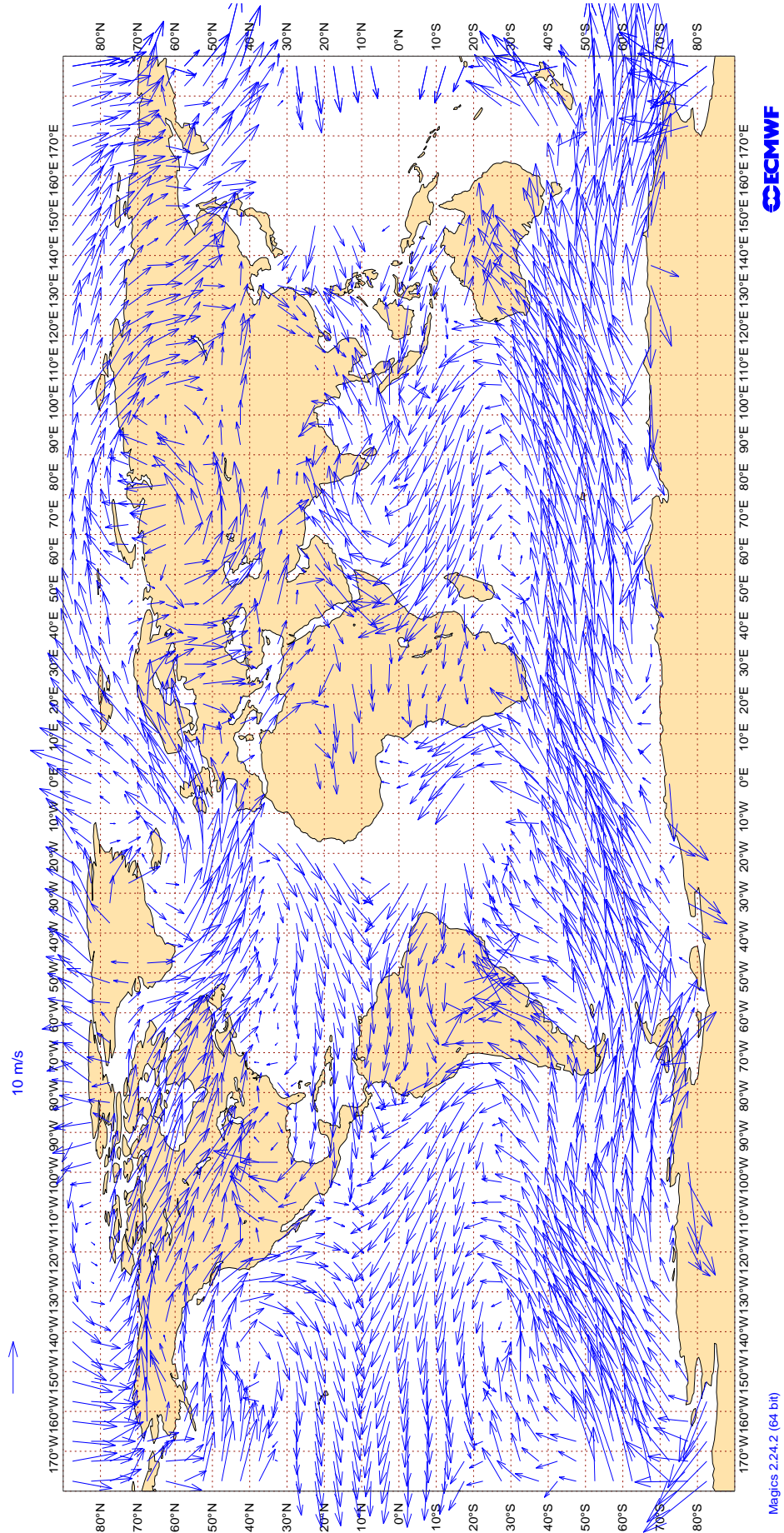
WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASDE01	12	V	100	5	2.2	0.0	-0.4
ASDE01	00	V	100	2	3.1	1.4	-2.4
ASDE02	00	V	100	4	6.2	-2.8	-1.8
ASDE02	12	V	100	13	6.2	0.4	0.7
ASDE03	12	V	100	0	0.0	0.0	0.0
ASDE03	00	V	100	1	0.7	-0.4	0.6
ASDE04	12	V	100	13	4.8	-1.0	0.9
ASDE04	00	V	100	10	4.6	-0.6	0.6
ASDE09	12	V	100	2	3.3	-0.1	-1.5
ASDK01	12	V	100	15	3.8	-0.7	-1.7
ASDK01	00	V	100	10	2.8	-0.7	0.1
ASDK02	12	V	100	9	3.7	-0.4	1.7
ASDK02	00	V	100	7	2.7	-0.9	-0.2
ASDK03	12	V	100	4	3.6	0.7	1.4
ASDK03	00	V	100	5	3.0	-0.7	2.0
ASDK1	12	V	100	15	3.6	-1.2	-1.5
ASDK1	00	V	100	10	3.0	-0.9	0.1
ASDK2	00	V	100	7	2.3	-1.5	-0.6
ASDK2	12	V	100	9	3.5	-0.4	1.7
ASDK3	12	V	100	4	2.5	0.1	0.3
ASDK3	00	V	100	5	2.8	-0.6	1.3
ASES01	12	V	100	19	4.4	0.2	-2.1
ASEU01	12	V	100	14	4.2	-0.1	-0.5
ASEU02	12	V	100	6	2.3	-0.2	-0.2
ASEU02	00	V	100	7	5.2	-0.7	-0.2
ASEU03	12	V	100	5	4.3	-0.2	-0.8
ASEU03	00	V	100	6	2.8	-0.8	-1.0
ASEU04	12	V	100	5	4.1	2.2	-0.5
ASEU04	00	V	100	3	3.8	2.8	0.6
ASEU06	12	V	100	12	4.4	1.0	-0.6
ASEU06	00	V	100	7	5.2	-1.9	0.3
ASFR1	12	V	100	9	3.7	0.2	0.7
ASFR1	00	V	100	9	5.2	-1.0	-1.8
ASFR2	00	V	100	11	4.0	0.2	1.0
ASFR2	12	V	100	13	4.5	-0.1	0.2
ASFR3	12	V	100	6	4.6	1.0	2.2
ASFR3	00	V	100	8	4.8	0.9	0.6
ASFR4	12	V	100	5	2.6	0.4	1.3
ASFR4	00	V	100	8	3.8	-1.0	0.4

RADIOSONDE MONITORING STATISTICS (SHIPS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASUK2	12	V	100	4	2.7	1.1	0.5
ASUK3	12	V	100	4	4.9	1.0	0.7
DBLK	12	V	100	10	2.7	0.1	-1.2
DBLK	00	V	100	11	2.6	0.0	-0.9
DSQL7	00	V	100	0	0.0	0.0	0.0
JNSR	12	V	100	28	2.5	-0.1	0.9
JNSR	00	V	100	27	2.5	0.2	-0.3
ZSNO	00	V	100	1	3.2	3.2	-0.1

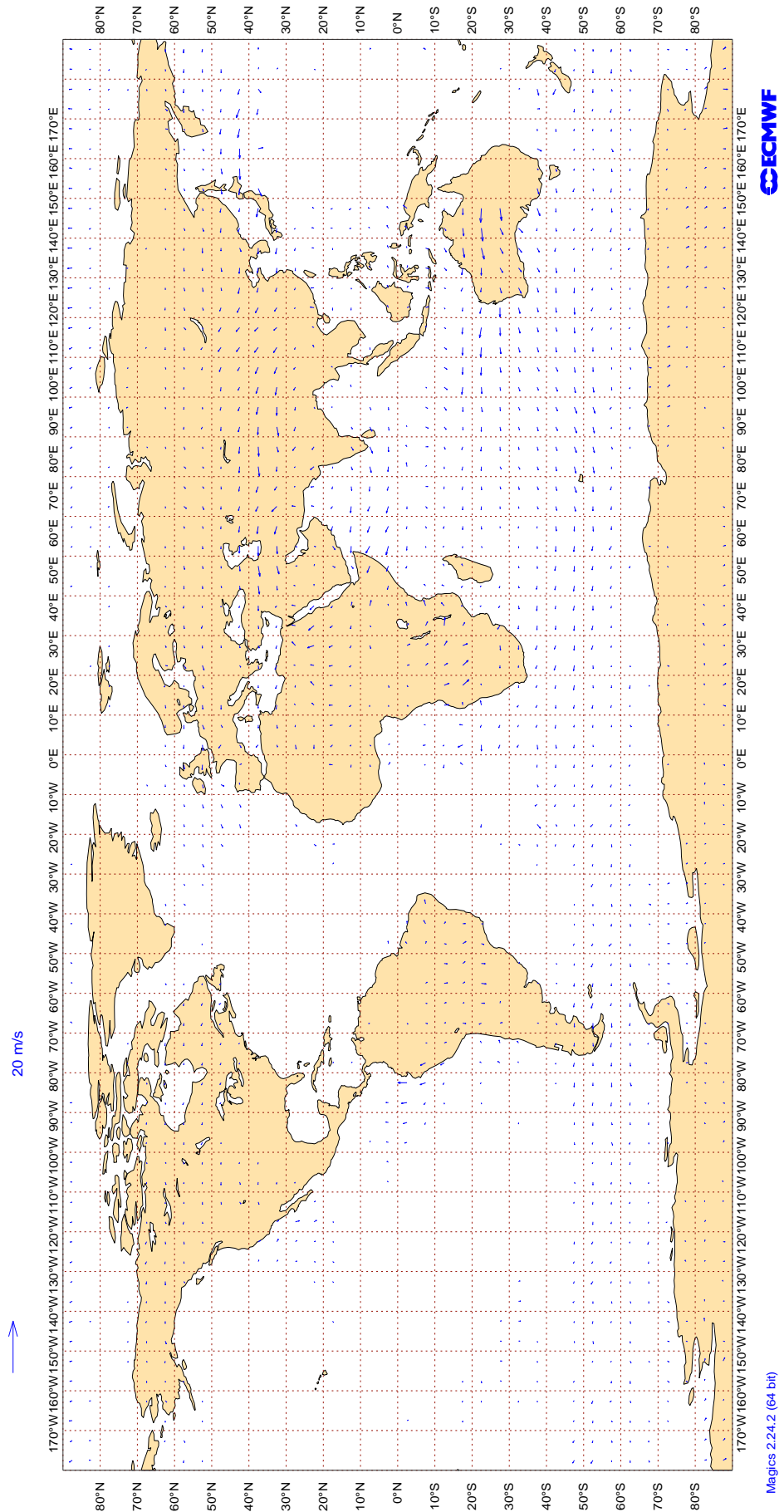
3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

Figure 14
ECMWF Monitoring Statistics: Sep 2016
AMV Winds: 700-1000hPa
Mean Observed Wind



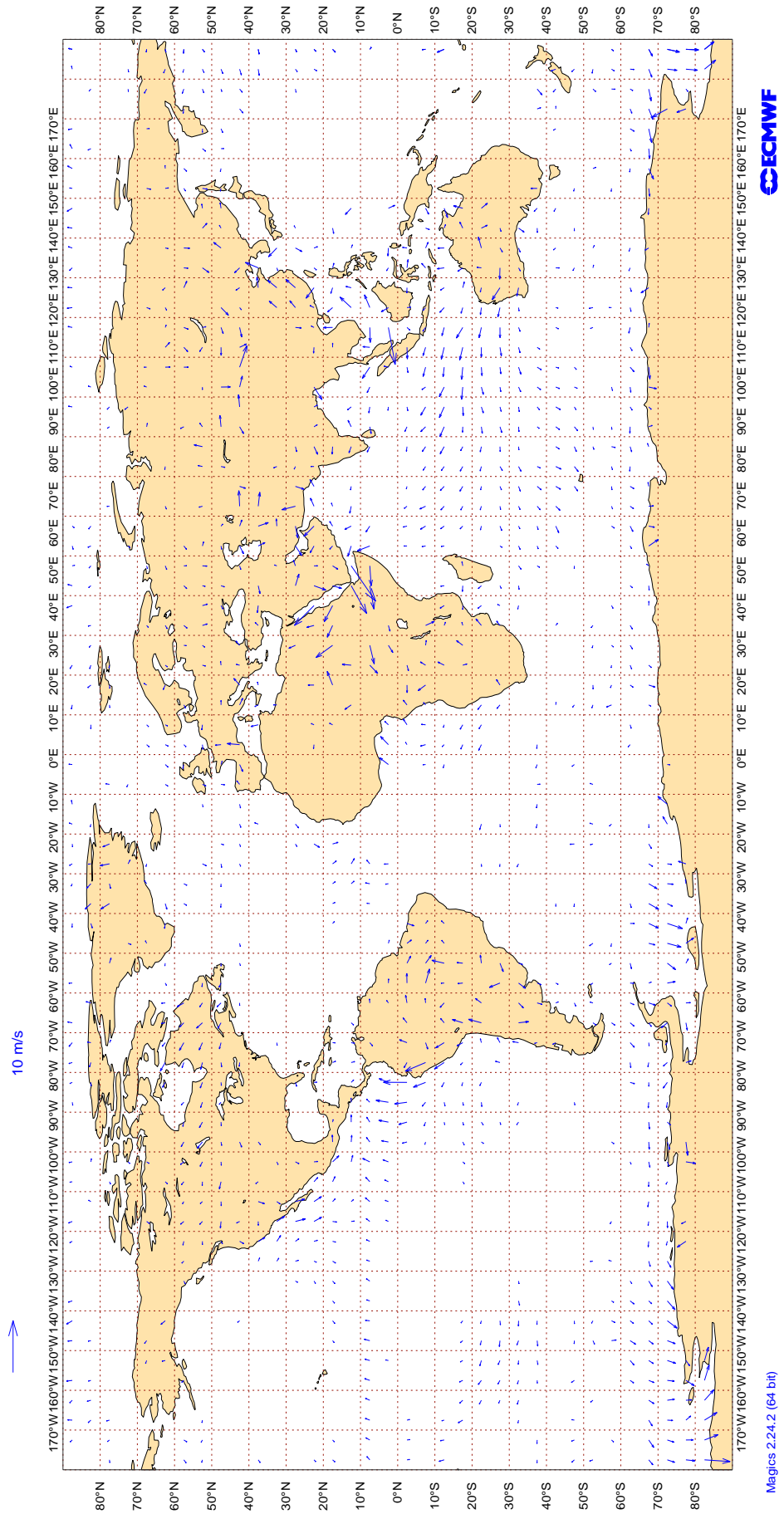
3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

Figure 15
ECMWF Monitoring Statistics: Sep 2016
AMV Winds: 150- 400hPa
Wind bias: Observation - FG



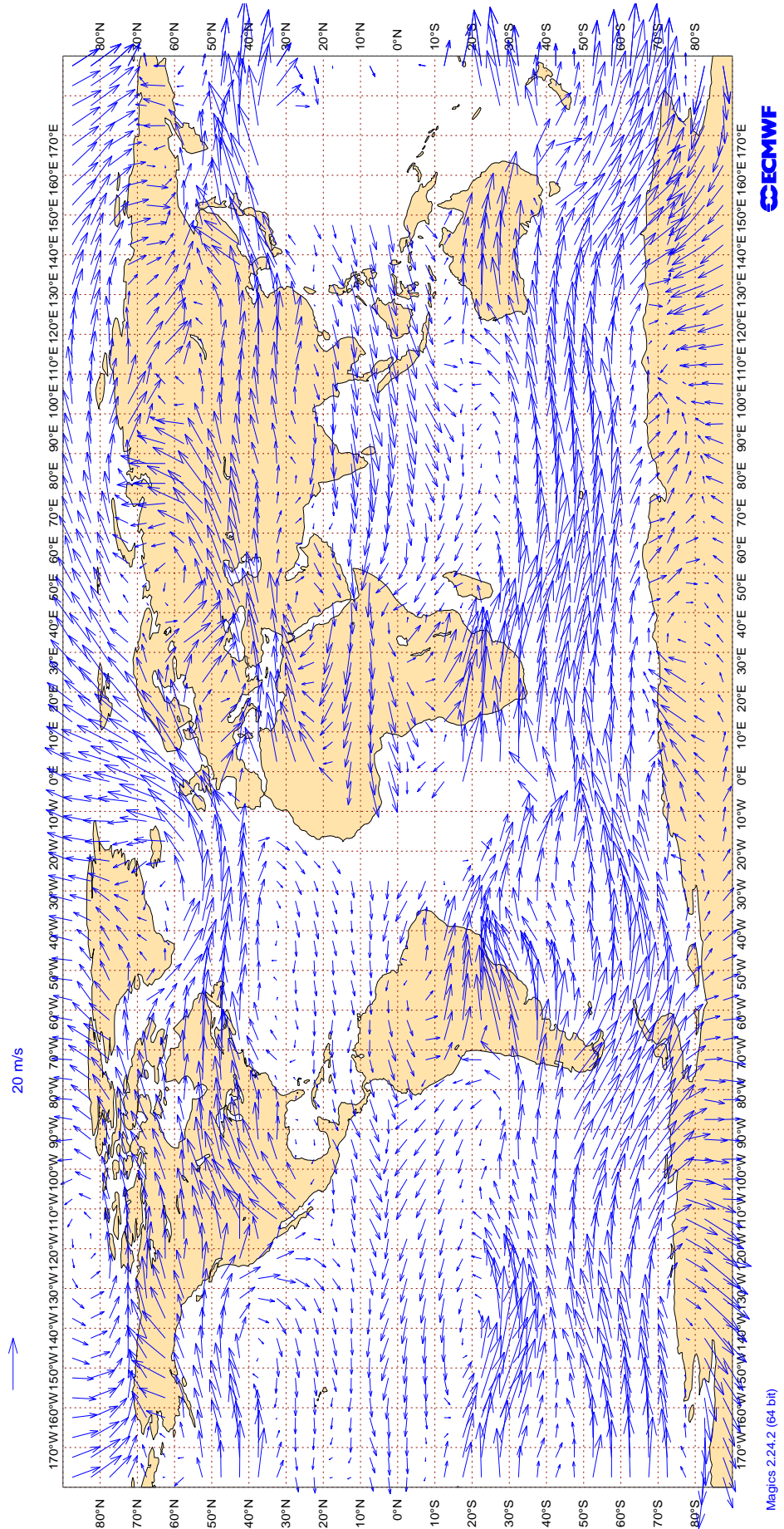
3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

Figure 16
ECMWF Monitoring Statistics: Sep 2016
AMV Winds: 700-1000hPa
Wind bias: Observation - FG



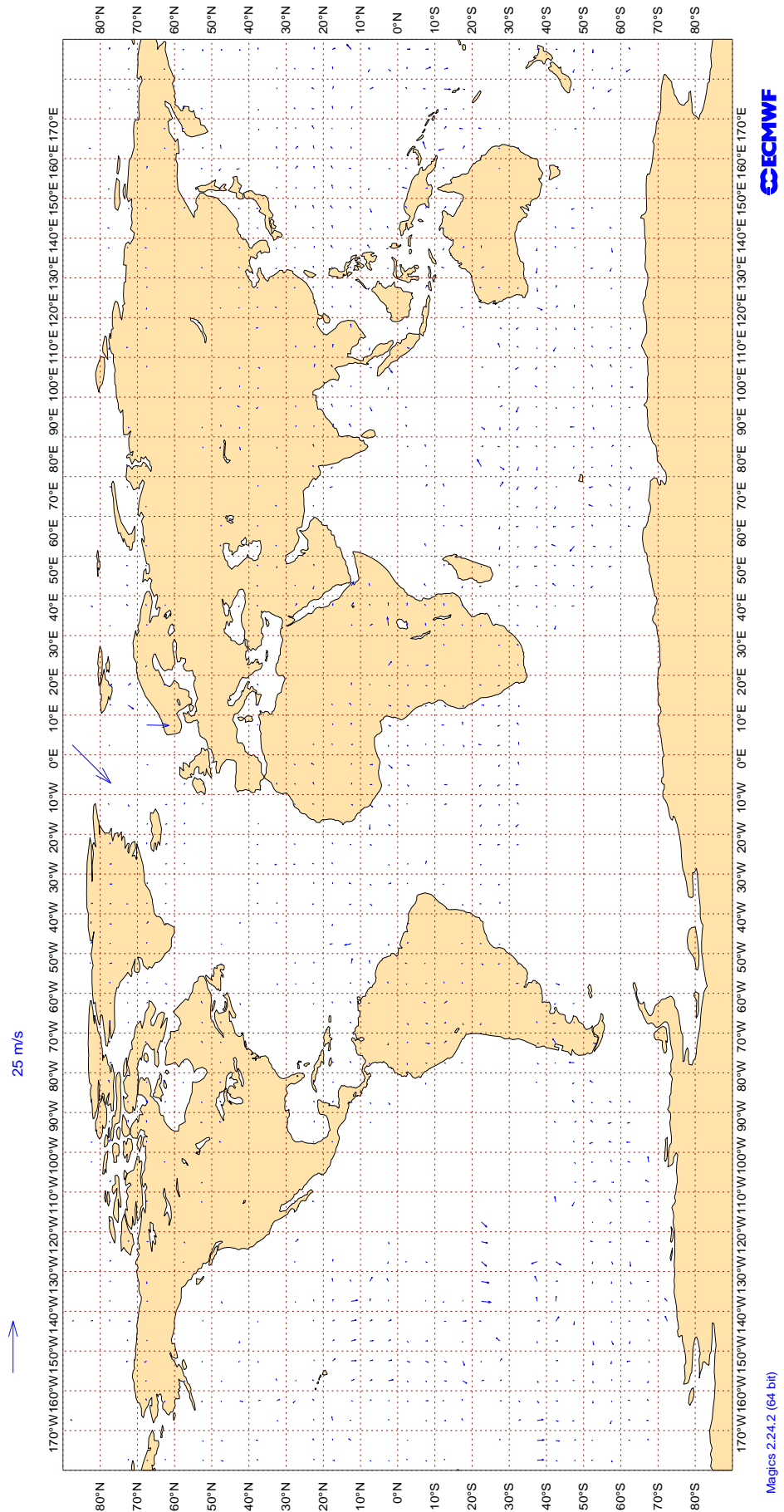
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

Figure 17
ECMWF Monitoring Statistics: Sep 2016
AMV Winds: 150- 400hPa
Mean Observed Wind



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

Figure 18
ECMWF Monitoring Statistics: Sep 2016
Aircraft Winds: 150- 300hPa
Wind bias: Observation - FG



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

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : VECTOR WIND (M/S)
 AREA : GLOBAL
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. >= 20

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

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AAB	99	V	300-150	72	0	0	4.3	-1.0
AAL	99	V	300-150	65302	0	0	4.1	0.2
AAR	99	V	300-150	329	0	0	4.3	-1.3
AAY	99	V	300-150	80	0	0	3.8	0.6
ABW	99	V	300-150	983	0	0	4.2	-0.8
ABX	99	V	300-150	152	1	1	5.1	-0.2
ACA	99	V	300-150	33717	3	0	6.3	0.2
ACI	99	V	300-150	2488	0	0	3.8	0.6
AEA	99	V	300-150	1007	0	0	4.4	0.3
AFL	99	V	300-150	1837	0	0	3.5	0.4
AFR	99	V	300-150	31393	0	0	3.9	0.3
AHY	99	V	300-150	339	11	0	8.0	0.2
AIC	99	V	300-150	1744	4	0	5.4	-0.1
AMX	99	V	300-150	2347	16	0	9.0	0.0
ANZ	99	V	300-150	18732	3	0	5.0	0.5
AOJ	99	V	300-150	65	37	0	17.2	0.9
ASA	99	V	300-150	4263	0	0	4.3	0.2
ASL	99	V	300-150	705	0	0	4.7	-0.3
ASY	99	V	300-150	208	0	0	3.6	0.2
AUA	99	V	300-150	5424	0	0	4.5	-0.3
AUH	99	V	300-150	34	0	0	4.4	1.3
AVA	99	V	300-150	378	5	0	4.5	0.5
AVL	99	V	300-150	43	0	0	4.0	0.7
AVN	99	V	300-150	189	3	1	5.7	-0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AXM	99	V	300-150	222	0	0	6.1	-0.3
AZA	99	V	300-150	9763	0	0	4.0	0.4
AZG	99	V	300-150	128	0	0	5.3	-0.4
BAH	99	V	300-150	21	0	0	3.0	1.1
BAW	99	V	300-150	54743	2	0	4.8	0.2
BBA	99	V	300-150	38	0	0	3.2	-0.4
BBR	99	V	300-150	112	0	0	9.8	0.4
BEL	99	V	300-150	3021	0	0	3.5	0.2
BER	99	V	300-150	8632	0	0	3.6	0.5
BLU	99	V	300-150	58	0	0	4.3	1.7
BOX	99	V	300-150	653	0	0	3.7	0.0
CAL	99	V	300-150	314	0	0	4.5	0.6
CAO	99	V	300-150	150	0	0	4.2	0.3
CAZ	99	V	300-150	107	0	0	4.3	-0.3
CCA	99	V	300-150	696	0	0	3.5	0.5
CEF	99	V	300-150	51	0	0	3.9	0.5
CES	99	V	300-150	1056	0	0	3.5	0.5
CFC	99	V	300-150	280	0	0	4.2	0.7
CFG	99	V	300-150	3628	0	0	4.4	-0.2
CJT	99	V	300-150	143	0	0	4.5	0.0
CKS	99	V	300-150	1672	0	0	4.4	-0.4
CLE	99	V	300-150	66	0	0	3.5	-0.6
CLX	99	V	300-150	3507	0	0	4.2	-0.3
CMB	99	V	300-150	581	0	0	4.1	-0.1
CMR	99	V	300-150	20	0	0	3.7	0.8
CNV	99	V	300-150	187	0	0	4.4	0.5
COB	99	V	300-150	20	0	0	8.2	0.1
CPA	99	V	300-150	155	0	0	3.2	0.4
CPI	99	V	300-150	43	0	0	5.2	-0.0
CRL	99	V	300-150	904	0	0	3.8	0.5
CRV	99	V	300-150	52	0	0	3.7	0.1
CSN	99	V	300-150	860	3	0	5.3	0.5
DAH	99	V	300-150	1147	0	0	3.8	0.3
DAL	99	V	300-150	78645	0	0	4.0	0.1
DHK	99	V	300-150	1754	0	0	4.3	-0.5
DJT	99	V	300-150	1420	0	0	4.8	0.4
DLH	99	V	300-150	36838	0	0	3.7	0.2
DSO	99	V	300-150	34	0	0	3.5	0.6
DUB	99	V	300-150	47	0	0	4.3	0.2
EAV	99	V	300-150	22	68	0	28.1	-0.4
EDC	99	V	300-150	22	0	0	2.4	0.1
EDG	99	V	300-150	60	33	5	4.5	-0.5
EDW	99	V	300-150	1413	0	0	3.8	0.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
EIN	99	V	300-150	14314	0	0	3.7	0.3
EJM	99	V	300-150	819	9	0	9.7	0.2
ELY	99	V	300-150	2684	0	0	4.2	-0.3
ETD	99	V	300-150	3605	3	0	5.2	0.1
ETH	99	V	300-150	2057	8	0	8.3	0.3
EVE	99	V	300-150	22	0	0	4.2	-0.7
EWG	99	V	300-150	1442	0	0	4.0	0.2
FAB	99	V	300-150	20	0	0	10.6	-0.4
FDX	99	V	300-150	5549	0	0	3.9	0.2
FIN	99	V	300-150	1228	0	0	3.2	0.3
FJI	99	V	300-150	4965	0	0	4.1	0.4
FPG	99	V	300-150	70	1	0	9.3	0.1
FWI	99	V	300-150	727	0	0	3.7	0.2
FYG	99	V	300-150	41	0	0	3.1	0.3
GAF	99	V	300-150	102	26	0	16.5	-0.3
GEC	99	V	300-150	2849	0	0	3.9	0.1
GES	99	V	300-150	45	0	0	3.5	0.3
GLO	99	V	300-150	64	0	2	8.3	0.5
GMA	99	V	300-150	41	0	0	3.2	-0.3
GTH	99	V	300-150	48	0	0	3.7	0.6
GTI	99	V	300-150	2303	0	0	4.8	-0.5
HAL	99	V	300-150	3506	0	0	3.8	0.6
HZS	99	V	300-150	86	0	0	4.6	-0.2
HZS	99	V	300-150	66	0	0	3.0	-0.1
IAM	99	V	300-150	169	0	0	4.3	0.1
IAW	99	V	300-150	22	0	0	3.6	1.8
IBE	99	V	300-150	3262	0	0	4.3	0.3
ICL	99	V	300-150	423	0	0	4.9	0.0
ICV	99	V	300-150	312	0	0	4.0	-0.2
IFA	99	V	300-150	21	86	0	28.5	-1.7
ISS	99	V	300-150	329	0	0	6.1	-1.1
JAF	99	V	300-150	921	11	0	6.6	-0.1
JAI	99	V	300-150	1054	0	0	3.5	0.3
JAS	99	V	300-150	93	27	0	14.9	0.0
JJA	99	V	300-150	44	0	2	6.8	1.0
JME	99	V	300-150	36	75	0	19.9	1.2
JMK	99	V	300-150	28	89	0	31.8	1.7
JST	99	V	300-150	3239	7	0	9.6	0.2
JUV	99	V	300-150	59	0	0	3.1	1.4
KAC	99	V	300-150	509	0	0	3.9	0.4
KAI	99	V	300-150	59	0	0	6.6	0.4
KAL	99	V	300-150	1220	0	0	3.6	0.8
KAY	99	V	300-150	77	0	0	4.3	0.6

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
KCE	99	V	300-150	171	0	0	3.0	0.2
KIW	99	V	300-150	58	0	0	4.8	0.9
KLM	99	V	300-150	18287	1	0	4.2	0.0
KRF	99	V	300-150	36	0	0	3.3	0.7
KUG	99	V	300-150	27	0	0	3.8	-1.3
LAN	99	V	300-150	1771	3	0	7.7	0.3
LCO	99	V	300-150	155	0	0	4.0	0.6
LDM	99	V	300-150	51	90	0	25.5	1.0
LEA	99	V	300-150	102	0	0	4.4	0.8
LGT	99	V	300-150	31	0	0	3.2	-0.0
LOT	99	V	300-150	2533	6	0	11.2	-0.1
LUC	99	V	300-150	36	78	0	25.4	0.1
LXJ	99	V	300-150	106	50	0	15.3	-0.5
MAS	99	V	300-150	362	0	0	3.6	0.5
MDT	99	V	300-150	27	0	0	2.2	-0.1
MLM	99	V	300-150	96	26	0	16.5	-0.0
MMD	99	V	300-150	128	0	0	3.6	1.1
MPH	99	V	300-150	660	0	0	4.8	-1.0
MSR	99	V	300-150	1432	0	0	4.1	0.3
NAX	99	V	300-150	6796	12	0	9.4	-0.2
NCA	99	V	300-150	271	0	0	4.0	-0.2
NJE	99	V	300-150	492	18	0	12.2	0.0
NOS	99	V	300-150	128	0	0	4.8	-1.7
NWS	99	V	300-150	25	0	0	4.5	-1.2
OAE	99	V	300-150	193	0	1	4.6	0.5
OSD	99	V	300-150	28	4	0	3.4	0.2
OSY	99	V	300-150	38	0	0	6.3	-2.1
PAC	99	V	300-150	210	0	0	3.3	0.4
PAL	99	V	300-150	43	7	2	11.1	-1.2
PAT	99	V	300-150	29	0	0	3.0	0.9
PFF	99	V	300-150	29	0	0	3.0	-0.6
PIA	99	V	300-150	488	0	0	3.4	0.1
PJZ	99	V	300-150	29	0	0	3.6	-0.6
PNC	99	V	300-150	41	0	0	3.5	-0.1
QAF	99	V	300-150	62	0	0	2.8	0.5
QFA	99	V	300-150	16520	0	0	3.9	0.3
QID	99	V	300-150	25	0	0	6.4	2.2
QQE	99	V	300-150	77	23	0	8.4	-1.3
QTR	99	V	300-150	8944	0	0	4.1	0.1
RAM	99	V	300-150	470	13	0	5.8	0.2
RAU	99	V	300-150	41	0	0	3.3	0.8
RCH	99	V	300-150	6310	0	0	5.2	0.3
RJA	99	V	300-150	1098	13	0	9.8	0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
ROJ	99	V	300-150	143	0	0	3.9	0.2
ROM	99	V	300-150	75	0	0	6.5	-0.9
ROU	99	V	300-150	11616	0	0	4.2	-0.2
RRR	99	V	300-150	129	0	0	4.3	0.3
RZO	99	V	300-150	52	0	17	5.1	0.1
SAM	99	V	300-150	186	0	0	3.7	-0.3
SAS	99	V	300-150	4513	0	0	3.4	0.2
SDM	99	V	300-150	25	0	0	3.3	1.7
SEN	99	V	300-150	21	0	0	10.2	3.7
SHE	99	V	300-150	43	0	0	3.3	0.1
SIA	99	V	300-150	2052	0	0	3.8	0.1
SJM	99	V	300-150	21	0	0	6.0	-2.8
SLM	99	V	300-150	154	0	0	4.0	0.3
SOO	99	V	300-150	469	0	0	4.5	0.2
SPA	99	V	300-150	52	0	0	3.5	0.6
SPU	99	V	300-150	29	0	0	8.6	-3.0
SQC	99	V	300-150	520	0	0	4.6	-0.9
SSG	99	V	300-150	27	0	0	4.5	1.2
SUI	99	V	300-150	42	0	0	4.0	0.2
SVA	99	V	300-150	3655	0	0	3.8	0.3
SVF	99	V	300-150	57	0	0	3.2	0.4
SVW	99	V	300-150	177	17	0	8.7	-0.1
SWR	99	V	300-150	13008	0	0	3.8	0.4
SXN	99	V	300-150	26	0	0	3.3	0.2
TAM	99	V	300-150	337	0	0	4.2	0.3
TAP	99	V	300-150	801	0	0	4.8	1.0
TAR	99	V	300-150	341	0	0	3.8	0.2
TAY	99	V	300-150	670	0	0	4.8	-0.5
TCV	99	V	300-150	73	0	0	6.8	0.6
TCX	99	V	300-150	7172	0	0	3.7	0.4
TER	99	V	300-150	21	0	0	3.2	0.8
TFF	99	V	300-150	61	0	2	3.6	0.0
TFL	99	V	300-150	1674	15	0	7.2	0.1
TGM	99	V	300-150	39	13	0	21.4	0.7
THA	99	V	300-150	169	0	0	3.7	0.4
THT	99	V	300-150	3614	0	0	4.2	0.3
THY	99	V	300-150	8938	0	0	4.2	0.3
TMN	99	V	300-150	97	0	0	3.8	0.7
TOM	99	V	300-150	6388	14	0	8.2	0.2
TOW	99	V	300-150	50	0	0	4.2	0.9
TRK	99	V	300-150	101	0	0	3.3	0.0
TSC	99	V	300-150	17718	0	0	3.9	0.2
TWB	99	V	300-150	58	0	2	5.8	1.5

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	194	17	1	9.6	-1.2
UAE	99	V	300-150	10663	0	0	4.1	0.1
UAL	99	V	300-150	89337	1	2	4.7	0.2
ULC	99	V	300-150	134	74	0	29.7	-0.7
UPS	99	V	300-150	5307	0	0	4.5	-0.1
VAL	99	V	300-150	24	0	0	4.8	-0.4
VCN	99	V	300-150	21	0	0	2.1	0.2
VIR	99	V	300-150	25249	4	0	5.4	0.1
VJT	99	V	300-150	1168	68	0	26.7	-0.2
VKG	99	V	300-150	22	0	0	4.8	0.3
VMP	99	V	300-150	144	42	0	7.6	1.2
VOZ	99	V	300-150	4961	0	0	3.6	0.3
WGT	99	V	300-150	111	0	0	4.1	1.6
WIL	99	V	300-150	43	0	0	4.9	0.7
WJA	99	V	300-150	5626	0	0	4.0	0.1
WOW	99	V	300-150	547	0	0	3.1	0.1
XAX	99	V	300-150	313	0	0	3.8	0.4
XLF	99	V	300-150	1177	0	0	3.7	0.3
YZR	99	V	300-150	32	0	0	5.2	-1.0

4 EUCOS Area Monitoring Statistics

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

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

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

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 50 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	28	19.9	15.5
01001	00	Z	50	27	13.7	3.6
01028	00	Z	50	30	8.6	3.3
01028	12	Z	50	28	15.4	13.6
01400	12	Z	50	20	25.3	23.2
01400	00	Z	50	22	25.8	10.9
01415	12	Z	50	30	13.4	10.1
01415	00	Z	50	29	13.1	10.6
02365	12	Z	50	21	8.6	4.1
02365	00	Z	50	18	6.4	4.4
02591	00	Z	50	26	19.5	19.0
02591	12	Z	50	26	19.8	18.9
02836	00	Z	50	29	13.0	6.6
02836	12	Z	50	30	18.3	13.4
02963	12	Z	50	30	9.8	6.8
02963	00	Z	50	30	10.3	8.9
03005	00	Z	50	31	24.9	-2.1
03005	12	Z	50	31	13.5	8.7
03238	12	Z	50	3	17.0	13.3
03238	00	Z	50	14	16.7	15.3
03808	12	Z	50	30	12.0	8.0
03808	00	Z	50	28	9.8	7.0
03918	00	Z	50	31	15.8	10.9
03918	12	Z	50	15	16.0	12.9
03953	00	Z	50	15	17.1	14.9
03953	12	Z	50	15	32.6	28.5
04018	00	Z	50	31	13.3	9.0
04018	12	Z	50	30	16.0	13.0
04220	12	Z	50	28	12.3	10.7
04220	00	Z	50	28	11.0	10.1
04270	00	Z	50	30	10.2	5.8
04270	12	Z	50	29	10.0	8.1
04320	12	Z	50	30	11.8	7.3
04320	00	Z	50	30	9.1	7.6
04339	12	Z	50	31	20.4	9.6
04339	00	Z	50	31	14.3	2.7
043391	00	Z	50	0	0.0	0.0
04360	00	Z	50	14	50.6	49.0
04360	12	Z	50	20	56.8	56.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	50	29	19.6	6.6
06011	12	Z	50	29	23.2	14.4
06260	12	Z	50	7	21.9	21.3
06260	00	Z	50	28	18.3	16.0
06610	00	Z	50	17	9.1	-1.7
06610	12	Z	50	12	9.4	7.2
07110	00	Z	50	29	33.0	30.5
07110	12	Z	50	30	41.7	38.6
07510	12	Z	50	27	55.8	51.3
07510	00	Z	50	25	40.1	39.2
07645	12	Z	50	30	39.3	36.5
07645	00	Z	50	30	37.8	31.2
07761	12	Z	50	29	33.9	29.1
07761	00	Z	50	27	26.2	22.5
08001	00	Z	50	29	18.9	17.6
08001	12	Z	50	29	22.0	18.5
08221	00	Z	50	29	18.0	15.7
08221	12	Z	50	29	14.4	13.0
08302	12	Z	50	29	9.7	3.9
08302	00	Z	50	28	10.2	7.6
08508	12	Z	50	30	28.5	26.1
08508	00	Z	50	2	49.6	49.5
08522	12	Z	50	29	17.3	15.8
08579	12	Z	50	30	32.4	23.7
10035	00	Z	50	29	9.4	6.4
10035	12	Z	50	30	12.5	7.7
10393	12	Z	50	29	9.0	3.9
10393	00	Z	50	30	10.3	9.1
10410	12	Z	50	30	13.2	10.1
10410	00	Z	50	30	14.3	7.9
10739	00	Z	50	30	16.6	13.6
10739	12	Z	50	30	16.4	14.4
11035	12	Z	50	30	14.4	10.9
11035	00	Z	50	30	20.6	19.1
12982	00	Z	50	30	21.9	17.6
12982	12	Z	50	27	44.8	43.5
16080	12	Z	50	27	12.1	7.4
16080	00	Z	50	20	17.4	14.7
16245	00	Z	50	29	15.7	13.1
16245	12	Z	50	29	9.2	2.2
16320	12	Z	50	29	21.0	14.1
16320	00	Z	50	22	22.1	20.6
16429	12	Z	50	35	8.3	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	00	Z	50	36	11.0	8.2
16622	00	Z	50	29	44.6	43.3
16754	00	Z	50	28	39.2	35.8
17607	12	Z	50	42	23.9	-21.5
26435	00	Z	50	15	11.1	4.6
60018	00	Z	50	30	18.3	2.7
60018	12	Z	50	29	8.1	1.5
ASDE01	12	Z	50	5	48.7	34.8
ASDE01	00	Z	50	1	18.6	-18.6
ASDE02	12	Z	50	14	27.9	23.5
ASDE03	12	Z	50	2	48.2	48.0
ASDE03	00	Z	50	0	0.0	0.0
ASDE04	12	Z	50	11	58.0	53.1
ASDE04	00	Z	50	10	43.8	43.0
ASDE09	12	Z	50	2	67.1	65.0
ASDK01	12	Z	50	15	26.2	17.5
ASDK01	00	Z	50	10	16.4	10.9
ASDK02	12	Z	50	9	10.3	7.8
ASDK02	00	Z	50	7	9.0	8.1
ASDK03	12	Z	50	4	27.5	27.1
ASDK03	00	Z	50	5	25.6	25.0
ASDK1	12	Z	50	15	23.2	11.7
ASDK1	00	Z	50	10	14.4	7.0
ASDK2	00	Z	50	7	7.5	5.2
ASDK2	12	Z	50	9	9.9	2.9
ASDK3	12	Z	50	4	24.6	22.3
ASDK3	00	Z	50	5	24.9	23.4
ASES01	12	Z	50	19	88.2	3.6
ASEU01	12	Z	50	18	25.2	23.1
ASEU02	12	Z	50	6	48.0	47.4
ASEU02	00	Z	50	7	41.9	40.3
ASEU03	12	Z	50	5	35.1	31.4
ASEU03	00	Z	50	6	19.6	-10.3
ASEU04	12	Z	50	7	20.9	16.5
ASEU04	00	Z	50	3	8.8	8.5
ASEU06	12	Z	50	11	44.2	40.8
ASEU06	00	Z	50	7	23.4	17.7
ASFR1	12	Z	50	9	31.0	28.3
ASFR1	00	Z	50	8	27.5	26.2
ASFR2	00	Z	50	12	24.3	18.5
ASFR2	12	Z	50	13	27.0	24.0
ASFR3	12	Z	50	6	22.1	18.3
ASFR3	00	Z	50	8	22.8	22.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR4	12	Z	50	5	46.9	45.1
ASFR4	00	Z	50	8	29.9	28.2
ASUK2	12	Z	50	8	16.8	13.9
ASUK3	12	Z	50	4	19.8	16.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 50 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	28	3.4	0.9	0.6
01001	00	V	50	26	3.2	-0.9	-0.6
01028	00	V	50	30	3.0	0.2	-0.4
01028	12	V	50	28	3.1	1.0	-0.4
01400	12	V	50	19	3.9	0.8	-1.3
01400	00	V	50	19	3.2	0.5	-1.0
01415	12	V	50	29	2.8	-0.1	0.0
01415	00	V	50	28	3.3	-0.4	-0.7
02365	12	V	50	21	3.3	0.0	-1.1
02365	00	V	50	17	3.3	0.1	-0.3
02591	00	V	50	26	3.3	-0.4	0.3
02591	12	V	50	25	2.9	0.8	-0.4
02836	00	V	50	27	2.8	-0.6	-0.5
02836	12	V	50	29	2.9	-0.2	-0.2
02963	12	V	50	30	3.2	-0.5	-0.2
02963	00	V	50	30	2.4	-0.5	-0.6
03005	00	V	50	26	3.3	-0.4	0.1
03005	12	V	50	29	3.7	1.0	-1.0
03238	12	V	50	3	4.1	0.9	0.1
03238	00	V	50	14	4.7	1.0	-0.1
03808	12	V	50	30	3.5	-0.2	0.7
03808	00	V	50	28	3.5	0.4	-0.9
03918	00	V	50	28	3.8	0.7	-0.1
03918	12	V	50	12	4.0	-0.1	-1.7
03953	00	V	50	15	4.2	1.8	-0.1
03953	12	V	50	15	4.1	-0.4	0.4
04018	00	V	50	30	3.5	0.7	0.4
04018	12	V	50	30	3.1	0.2	0.6
04220	12	V	50	28	3.7	-0.2	0.6
04220	00	V	50	28	3.3	-0.5	0.7
04270	00	V	50	30	3.6	0.2	-0.3
04270	12	V	50	29	3.4	0.0	-0.8
04320	12	V	50	30	2.9	0.3	0.3
04320	00	V	50	30	2.9	0.3	0.1
04339	12	V	50	30	3.3	-0.2	0.2
04339	00	V	50	29	3.4	0.7	-0.4
043391	00	V	50	0	0.0	0.0	0.0
04360	00	V	50	14	4.3	0.6	-0.9
04360	12	V	50	20	4.1	0.1	-0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	50	26	3.2	0.1	0.0
06011	12	V	50	27	3.3	0.2	0.5
06260	12	V	50	7	2.5	0.3	-1.3
06260	00	V	50	27	3.5	0.2	0.1
06610	00	V	50	17	3.3	0.5	-0.4
06610	12	V	50	12	2.9	0.6	0.6
07110	00	V	50	29	4.2	0.3	-0.5
07110	12	V	50	30	3.9	0.3	0.0
07510	12	V	50	27	3.2	0.1	0.2
07510	00	V	50	24	3.5	0.5	0.4
07645	12	V	50	30	3.8	0.3	0.7
07645	00	V	50	29	4.0	0.4	0.3
07761	12	V	50	29	4.0	0.6	0.4
07761	00	V	50	26	4.0	0.5	0.3
08001	00	V	50	27	3.4	-0.3	0.7
08001	12	V	50	29	3.2	1.0	0.4
08221	00	V	50	27	3.5	0.8	0.2
08221	12	V	50	29	4.1	0.7	0.8
08302	12	V	50	29	4.2	0.6	1.3
08302	00	V	50	28	3.4	-0.2	0.6
08508	12	V	50	30	2.7	0.3	0.2
08508	00	V	50	0	0.0	0.0	0.0
08522	12	V	50	28	3.7	0.6	0.0
08579	12	V	50	30	3.6	1.3	0.2
10035	00	V	50	29	2.8	0.3	-0.4
10035	12	V	50	30	2.8	0.2	-0.3
10393	12	V	50	29	3.6	0.1	-0.7
10393	00	V	50	29	2.6	0.1	0.0
10410	12	V	50	30	3.0	0.2	0.5
10410	00	V	50	30	2.6	0.6	-0.2
10739	00	V	50	30	2.9	0.1	-0.1
10739	12	V	50	30	3.5	0.5	0.5
11035	12	V	50	30	3.2	-0.1	0.1
11035	00	V	50	30	3.0	-0.1	0.4
12982	00	V	50	30	2.9	0.4	0.6
12982	12	V	50	25	2.9	0.0	-0.5
16080	12	V	50	27	3.3	0.5	0.3
16080	00	V	50	20	3.2	-0.2	-0.1
16245	00	V	50	28	3.5	0.4	0.2
16245	12	V	50	29	3.9	0.9	-0.1
16320	12	V	50	29	3.8	1.1	1.0
16320	00	V	50	22	4.0	1.2	0.1
16429	12	V	50	30	4.3	0.9	0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	00	V	50	29	4.0	1.2	0.7
16622	00	V	50	20	3.4	-0.1	0.0
16754	00	V	50	28	3.0	0.6	0.7
17607	12	V	50	24	2.3	0.0	-0.2
26435	00	V	50	13	2.6	0.0	0.4
60018	00	V	50	30	3.5	0.0	0.1
60018	12	V	50	29	4.3	0.2	2.0
ASDE01	12	V	50	5	5.0	-1.6	-2.4
ASDE01	00	V	50	1	1.8	1.8	-0.3
ASDE02	12	V	50	12	7.5	0.2	-1.4
ASDE03	12	V	50	1	2.4	-2.3	0.8
ASDE03	00	V	50	0	0.0	0.0	0.0
ASDE04	12	V	50	11	4.7	-1.0	1.2
ASDE04	00	V	50	10	4.5	-1.4	0.2
ASDE09	12	V	50	2	3.8	-0.6	-0.4
ASDK01	12	V	50	15	4.4	1.3	0.5
ASDK01	00	V	50	9	3.6	-0.2	-0.6
ASDK02	12	V	50	9	2.7	-0.3	-0.3
ASDK02	00	V	50	7	3.4	-0.3	0.9
ASDK03	12	V	50	4	2.5	-0.6	1.4
ASDK03	00	V	50	4	4.6	1.8	-1.1
ASDK1	12	V	50	15	4.2	1.3	-0.6
ASDK1	00	V	50	9	2.9	-0.4	-0.3
ASDK2	00	V	50	7	3.4	0.0	0.5
ASDK2	12	V	50	9	2.8	-0.3	-0.5
ASDK3	12	V	50	4	1.8	-0.8	0.2
ASDK3	00	V	50	4	4.7	1.5	-1.6
ASES01	12	V	50	19	4.1	-1.2	-0.2
ASEU01	12	V	50	14	4.0	0.2	1.2
ASEU02	12	V	50	6	3.1	0.9	-0.1
ASEU02	00	V	50	6	3.5	-1.3	-1.5
ASEU03	12	V	50	4	4.5	2.1	2.3
ASEU03	00	V	50	5	2.9	0.9	0.2
ASEU04	12	V	50	4	4.4	-0.2	1.8
ASEU04	00	V	50	3	3.9	0.2	-2.1
ASEU06	12	V	50	9	3.6	0.7	1.5
ASEU06	00	V	50	6	2.4	-1.5	0.5
ASFR1	12	V	50	9	3.6	-0.5	-0.1
ASFR1	00	V	50	8	3.6	-0.5	0.9
ASFR2	00	V	50	11	3.5	0.2	-0.5
ASFR2	12	V	50	13	3.1	-0.7	0.3
ASFR3	12	V	50	6	3.1	-0.8	0.8
ASFR3	00	V	50	8	2.5	0.8	-0.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR4	12	V	50	5	3.4	1.3	-0.1
ASFR4	00	V	50	8	3.5	0.3	1.3
ASUK2	12	V	50	4	3.4	-0.3	1.4
ASUK3	12	V	50	4	4.7	1.1	0.5

4.3 Table 15 - Radiosonde Monitoring Statistics (EUCOS): 100 hPa Geopotential height (metres)

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 100 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	28	10.2	2.8
01001	00	Z	100	29	11.7	-5.3
01028	00	Z	100	30	8.3	-5.6
01028	12	Z	100	29	6.0	2.1
01400	12	Z	100	21	15.2	10.8
01400	00	Z	100	22	20.3	1.0
01415	12	Z	100	30	12.4	0.2
01415	00	Z	100	30	6.9	0.9
02365	12	Z	100	21	7.2	-3.4
02365	00	Z	100	19	4.8	-2.6
02591	00	Z	100	27	10.7	10.1
02591	12	Z	100	26	10.7	9.3
02836	00	Z	100	29	8.4	-2.5
02836	12	Z	100	30	8.7	1.8
02963	12	Z	100	30	5.5	-0.1
02963	00	Z	100	30	4.3	0.8
03005	00	Z	100	34	25.6	-10.2
03005	12	Z	100	34	8.6	0.0
03238	12	Z	100	3	9.0	2.6
03238	00	Z	100	15	5.7	3.1
03808	12	Z	100	30	5.7	0.9
03808	00	Z	100	29	3.9	-1.2
03918	00	Z	100	32	9.4	3.4
03918	12	Z	100	15	9.8	5.1
03953	00	Z	100	30	8.2	5.0
03953	12	Z	100	29	18.4	14.1
04018	00	Z	100	31	9.8	2.2
04018	12	Z	100	30	8.2	3.0
04220	12	Z	100	29	4.6	1.3
04220	00	Z	100	28	4.7	1.9
04270	00	Z	100	30	9.3	-1.0
04270	12	Z	100	29	5.5	2.0
04320	12	Z	100	30	8.6	0.4
04320	00	Z	100	30	5.0	-1.0
04339	12	Z	100	31	13.2	-0.9
04339	00	Z	100	31	10.9	-4.9
043391	00	Z	100	1	32.5	32.5
04360	00	Z	100	22	46.5	45.4
04360	12	Z	100	21	51.3	51.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	100	30	13.4	-2.2
06011	12	Z	100	31	15.0	2.5
06260	12	Z	100	7	10.6	7.0
06260	00	Z	100	28	10.8	5.7
06610	00	Z	100	30	7.1	-0.4
06610	12	Z	100	30	8.3	-0.2
07110	00	Z	100	30	18.5	17.2
07110	12	Z	100	30	25.9	23.9
07510	12	Z	100	30	34.2	31.6
07510	00	Z	100	28	25.6	24.9
07645	12	Z	100	30	22.6	20.8
07645	00	Z	100	30	18.6	14.2
07761	12	Z	100	29	20.7	15.4
07761	00	Z	100	27	13.9	10.7
08001	00	Z	100	30	10.6	8.9
08001	12	Z	100	30	12.5	9.1
08221	00	Z	100	29	9.7	6.7
08221	12	Z	100	29	5.8	4.5
08302	12	Z	100	29	9.6	-6.7
08302	00	Z	100	28	5.1	-0.6
08508	12	Z	100	30	16.5	12.9
08508	00	Z	100	2	34.6	34.2
08522	12	Z	100	29	10.8	9.3
08579	12	Z	100	30	22.5	10.3
10035	00	Z	100	30	6.6	-1.5
10035	12	Z	100	30	6.7	0.5
10393	12	Z	100	30	7.3	-3.7
10393	00	Z	100	31	4.2	0.3
10410	12	Z	100	30	6.8	0.3
10410	00	Z	100	30	9.7	-0.2
10739	00	Z	100	30	11.4	7.9
10739	12	Z	100	30	8.1	6.2
11035	12	Z	100	30	8.6	1.0
11035	00	Z	100	30	9.6	7.1
12982	00	Z	100	30	11.9	5.7
12982	12	Z	100	27	24.1	22.9
16080	12	Z	100	30	7.6	-3.3
16080	00	Z	100	30	8.8	4.7
16245	00	Z	100	29	7.6	3.4
16245	12	Z	100	29	11.1	-8.8
16320	12	Z	100	30	14.0	3.8
16320	00	Z	100	30	12.2	10.5
16429	12	Z	100	35	10.4	-7.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	00	Z	100	36	6.8	1.8
16622	00	Z	100	29	30.6	28.5
16754	00	Z	100	29	27.4	22.2
17607	12	Z	100	48	21.7	-19.5
26435	00	Z	100	15	8.2	-3.5
60018	00	Z	100	30	16.5	-1.8
60018	12	Z	100	30	9.2	-2.6
ASDE01	12	Z	100	5	40.0	17.4
ASDE01	00	Z	100	3	48.1	-40.4
ASDE02	12	Z	100	16	22.1	19.2
ASDE03	12	Z	100	4	33.1	32.6
ASDE03	00	Z	100	1	9.0	9.0
ASDE04	12	Z	100	14	46.1	42.7
ASDE04	00	Z	100	12	33.7	32.7
ASDE09	12	Z	100	2	50.3	49.4
ASDK01	12	Z	100	16	22.1	11.6
ASDK01	00	Z	100	11	12.7	1.7
ASDK02	12	Z	100	10	7.2	3.3
ASDK02	00	Z	100	7	6.9	0.4
ASDK03	12	Z	100	4	25.5	25.1
ASDK03	00	Z	100	6	17.4	17.0
ASDK1	12	Z	100	15	19.8	3.5
ASDK1	00	Z	100	10	11.7	-1.8
ASDK2	00	Z	100	7	9.3	-5.0
ASDK2	12	Z	100	9	8.2	-6.6
ASDK3	12	Z	100	4	18.9	17.3
ASDK3	00	Z	100	5	16.3	14.7
ASEU01	12	Z	100	19	20.2	16.1
ASEU01	12	Z	100	22	11.6	8.6
ASEU02	12	Z	100	6	40.2	38.7
ASEU02	00	Z	100	9	34.6	33.9
ASEU03	12	Z	100	7	11.6	9.1
ASEU03	00	Z	100	6	20.6	-14.5
ASEU04	12	Z	100	8	12.3	2.1
ASEU04	00	Z	100	3	4.0	0.9
ASEU06	12	Z	100	12	22.2	18.7
ASEU06	00	Z	100	12	23.5	15.1
ASFR1	12	Z	100	10	17.2	14.8
ASFR1	00	Z	100	10	15.5	13.9
ASFR2	00	Z	100	15	13.6	8.2
ASFR2	12	Z	100	15	15.4	12.7
ASFR3	12	Z	100	6	13.1	10.5
ASFR3	00	Z	100	10	13.2	11.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR4	12	Z	100	6	28.1	26.5
ASFR4	00	Z	100	8	15.1	12.1
ASUK2	12	Z	100	9	9.0	0.7
ASUK3	12	Z	100	4	11.5	6.2

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 100 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	28	3.1	0.2	0.1
01001	00	V	100	27	3.5	-0.4	-0.1
01028	00	V	100	30	2.9	0.2	-0.1
01028	12	V	100	29	2.6	0.7	-0.3
01400	12	V	100	18	2.8	0.2	0.6
01400	00	V	100	21	3.2	-0.1	0.3
01415	12	V	100	29	4.6	0.4	-0.6
01415	00	V	100	29	5.0	1.0	0.3
02365	12	V	100	21	3.3	0.3	-0.4
02365	00	V	100	19	4.2	-0.8	-0.4
02591	00	V	100	27	3.2	0.2	-0.2
02591	12	V	100	26	3.4	0.2	-0.9
02836	00	V	100	27	3.0	-0.3	-0.1
02836	12	V	100	29	3.2	0.5	-1.0
02963	12	V	100	30	3.2	0.0	-0.3
02963	00	V	100	30	3.4	-1.1	-0.7
03005	00	V	100	28	3.5	0.4	-0.2
03005	12	V	100	30	4.0	-0.6	-0.8
03238	12	V	100	3	4.9	-2.6	-3.4
03238	00	V	100	15	4.8	-0.9	-0.7
03808	12	V	100	30	3.7	-0.2	0.7
03808	00	V	100	28	3.1	-0.4	-0.1
03918	00	V	100	30	4.5	-0.2	-0.3
03918	12	V	100	12	3.3	0.7	-1.1
03953	00	V	100	30	4.7	-0.9	-1.1
03953	12	V	100	29	4.4	-0.7	0.0
04018	00	V	100	30	3.6	-0.1	0.7
04018	12	V	100	30	3.0	-0.4	0.4
04220	12	V	100	28	2.7	0.2	0.2
04220	00	V	100	28	2.5	-0.5	0.4
04270	00	V	100	30	3.6	-0.3	1.0
04270	12	V	100	29	4.0	1.2	-0.3
04320	12	V	100	30	3.0	0.1	0.8
04320	00	V	100	30	2.8	0.6	-0.3
04339	12	V	100	30	3.2	0.7	0.5
04339	00	V	100	30	3.6	-0.7	-0.1
043391	00	V	100	1	34.2	3.2	-34.0
04360	00	V	100	22	2.8	0.0	0.1
04360	12	V	100	21	2.8	0.5	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	100	27	2.9	0.3	-0.8
06011	12	V	100	28	3.3	0.5	-0.5
06260	12	V	100	7	2.7	-0.1	-0.8
06260	00	V	100	27	3.0	-0.4	-0.1
06610	00	V	100	30	3.5	0.0	-0.1
06610	12	V	100	30	3.3	0.6	0.2
07110	00	V	100	29	3.8	0.1	-1.1
07110	12	V	100	30	3.6	0.0	0.6
07510	12	V	100	30	3.2	0.0	0.1
07510	00	V	100	27	2.9	-0.1	-0.1
07645	12	V	100	29	3.4	0.3	0.3
07645	00	V	100	29	3.0	0.4	-0.8
07761	12	V	100	27	5.3	0.0	-1.0
07761	00	V	100	25	3.7	0.5	-0.8
08001	00	V	100	30	4.0	-0.9	-0.1
08001	12	V	100	30	3.6	-0.1	0.2
08221	00	V	100	27	3.5	-0.5	-0.1
08221	12	V	100	29	4.3	0.1	-0.9
08302	12	V	100	29	3.3	0.4	-0.1
08302	00	V	100	28	3.3	-0.4	0.0
08508	12	V	100	30	3.8	-0.2	1.2
08508	00	V	100	0	0.0	0.0	0.0
08522	12	V	100	29	4.5	0.5	0.2
08579	12	V	100	29	3.4	-0.5	0.1
10035	00	V	100	30	4.5	-0.4	-0.3
10035	12	V	100	30	3.6	-0.9	-0.2
10393	12	V	100	30	3.4	0.6	-0.1
10393	00	V	100	29	3.0	0.2	-0.4
10410	12	V	100	30	3.0	-0.1	-0.5
10410	00	V	100	30	3.6	0.3	-0.1
10739	00	V	100	30	3.2	0.7	0.2
10739	12	V	100	30	3.8	0.6	-0.2
11035	12	V	100	30	3.1	0.4	-0.2
11035	00	V	100	30	3.1	0.0	0.3
12982	00	V	100	30	2.9	0.7	0.4
12982	12	V	100	26	2.9	0.7	-0.2
16080	12	V	100	30	4.5	0.0	0.6
16080	00	V	100	30	4.9	0.6	0.8
16245	00	V	100	28	3.4	0.7	0.6
16245	12	V	100	29	3.4	0.7	0.1
16320	12	V	100	30	3.9	0.2	0.3
16320	00	V	100	30	3.9	1.1	0.3
16429	12	V	100	30	3.9	0.2	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	00	V	100	29	4.0	0.6	0.9
16622	00	V	100	21	3.2	1.0	0.5
16754	00	V	100	29	4.5	0.5	1.4
17607	12	V	100	27	3.8	0.6	-0.2
26435	00	V	100	15	3.0	-0.3	-0.2
60018	00	V	100	30	5.4	0.2	0.6
60018	12	V	100	30	4.3	1.3	0.9
ASDE01	12	V	100	5	2.2	0.0	-0.4
ASDE01	00	V	100	2	3.1	1.4	-2.4
ASDE02	12	V	100	13	6.2	0.4	0.7
ASDE03	12	V	100	0	0.0	0.0	0.0
ASDE03	00	V	100	1	0.7	-0.4	0.6
ASDE04	12	V	100	13	4.8	-1.0	0.9
ASDE04	00	V	100	10	4.6	-0.6	0.6
ASDE09	12	V	100	2	3.3	-0.1	-1.5
ASDK01	12	V	100	15	3.8	-0.7	-1.7
ASDK01	00	V	100	10	2.8	-0.7	0.1
ASDK02	12	V	100	9	3.7	-0.4	1.7
ASDK02	00	V	100	7	2.7	-0.9	-0.2
ASDK03	12	V	100	4	3.6	0.7	1.4
ASDK03	00	V	100	5	3.0	-0.7	2.0
ASDK1	12	V	100	15	3.6	-1.2	-1.5
ASDK1	00	V	100	10	3.0	-0.9	0.1
ASDK2	00	V	100	7	2.3	-1.5	-0.6
ASDK2	12	V	100	9	3.5	-0.4	1.7
ASDK3	12	V	100	4	2.5	0.1	0.3
ASDK3	00	V	100	5	2.8	-0.6	1.3
ASES01	12	V	100	19	4.4	0.2	-2.1
ASEU01	12	V	100	14	4.2	-0.1	-0.5
ASEU02	12	V	100	6	2.3	-0.2	-0.2
ASEU02	00	V	100	7	5.2	-0.7	-0.2
ASEU03	12	V	100	5	4.3	-0.2	-0.8
ASEU03	00	V	100	6	2.8	-0.8	-1.0
ASEU04	12	V	100	5	4.1	2.2	-0.5
ASEU04	00	V	100	3	3.8	2.8	0.6
ASEU06	12	V	100	12	4.4	1.0	-0.6
ASEU06	00	V	100	7	5.2	-1.9	0.3
ASFR1	12	V	100	9	3.7	0.2	0.7
ASFR1	00	V	100	9	5.2	-1.0	-1.8
ASFR2	00	V	100	11	4.0	0.2	1.0
ASFR2	12	V	100	13	4.5	-0.1	0.2
ASFR3	12	V	100	6	4.6	1.0	2.2
ASFR3	00	V	100	8	4.8	0.9	0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR4	12	V	100	5	2.6	0.4	1.3
ASFR4	00	V	100	8	3.8	-1.0	0.4
ASUK2	12	V	100	4	2.7	1.1	0.5
ASUK3	12	V	100	4	4.9	1.0	0.7

4.5 Table 17 - Radiosonde Monitoring Statistics (EUCOS): 500 hPa Geopotential height (metres)

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 500 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	30	7.0	-0.3
01001	00	Z	500	29	6.5	-1.4
01028	00	Z	500	30	2.4	0.2
01028	12	Z	500	29	3.6	1.6
01400	12	Z	500	22	12.6	8.7
01400	00	Z	500	25	11.8	3.7
01415	12	Z	500	30	6.8	2.9
01415	00	Z	500	30	6.5	5.2
02365	12	Z	500	21	4.4	1.3
02365	00	Z	500	19	2.9	1.4
02591	00	Z	500	27	11.9	11.6
02591	12	Z	500	26	11.7	9.0
02836	00	Z	500	29	4.7	0.9
02836	12	Z	500	30	5.5	1.6
02963	12	Z	500	30	4.9	4.1
02963	00	Z	500	30	5.6	5.2
03005	00	Z	500	35	26.8	-7.6
03005	12	Z	500	35	9.0	-0.4
03238	12	Z	500	3	10.0	9.4
03238	00	Z	500	15	9.0	7.7
03808	12	Z	500	30	3.2	1.0
03808	00	Z	500	29	3.1	1.3
03918	00	Z	500	32	6.9	5.0
03918	12	Z	500	15	8.1	6.8
03953	00	Z	500	30	6.1	1.2
03953	12	Z	500	30	9.8	-0.6
04018	00	Z	500	31	5.0	3.5
04018	12	Z	500	30	5.0	0.7
04220	12	Z	500	29	4.9	2.6
04220	00	Z	500	29	4.9	2.3
04270	00	Z	500	30	6.0	-0.8
04270	12	Z	500	30	4.2	-1.5
04320	12	Z	500	30	5.5	2.9
04320	00	Z	500	30	5.2	1.6
04339	12	Z	500	31	9.1	-0.6
04339	00	Z	500	31	4.3	2.4
043391	00	Z	500	1	9.1	9.1
04360	00	Z	500	29	44.9	44.7
04360	12	Z	500	25	44.4	44.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	500	31	8.2	-0.7
06011	12	Z	500	31	9.9	-3.0
06260	12	Z	500	7	7.9	1.8
06260	00	Z	500	28	8.3	4.3
06610	00	Z	500	30	6.9	6.2
06610	12	Z	500	30	4.4	2.7
07110	00	Z	500	30	8.8	4.9
07110	12	Z	500	30	12.6	9.2
07510	12	Z	500	30	14.8	14.0
07510	00	Z	500	30	11.1	10.2
07645	12	Z	500	30	9.2	8.1
07645	00	Z	500	30	6.3	3.4
07761	12	Z	500	29	5.9	0.8
07761	00	Z	500	27	4.9	-0.3
08001	00	Z	500	30	9.0	8.3
08001	12	Z	500	30	7.8	6.8
08221	00	Z	500	29	6.5	5.8
08221	12	Z	500	29	5.8	5.1
08302	12	Z	500	29	4.6	-3.3
08302	00	Z	500	28	2.7	-0.1
08508	12	Z	500	30	14.5	11.4
08508	00	Z	500	2	31.8	31.7
08522	12	Z	500	29	8.8	7.7
08579	12	Z	500	30	20.5	9.9
10035	00	Z	500	31	4.1	2.6
10035	12	Z	500	30	3.8	1.4
10393	12	Z	500	31	2.7	0.1
10393	00	Z	500	31	3.2	2.5
10410	12	Z	500	30	3.2	0.4
10410	00	Z	500	30	4.8	1.3
10739	00	Z	500	30	10.1	9.6
10739	12	Z	500	30	8.7	8.4
11035	12	Z	500	30	6.8	0.6
11035	00	Z	500	30	6.1	4.8
12982	00	Z	500	30	7.4	3.7
12982	12	Z	500	28	9.2	6.8
16080	12	Z	500	30	7.8	-6.0
16080	00	Z	500	30	3.0	-1.0
16245	00	Z	500	30	6.1	-4.6
16245	12	Z	500	29	11.4	-10.3
16320	12	Z	500	30	9.2	-1.3
16320	00	Z	500	30	7.5	4.5
16429	12	Z	500	35	10.3	-8.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	00	Z	500	36	5.9	-4.1
16622	00	Z	500	30	19.7	17.6
16754	00	Z	500	29	18.1	13.2
17607	12	Z	500	49	4.7	-0.1
26435	00	Z	500	15	5.7	3.3
60018	00	Z	500	30	14.4	-2.7
60018	12	Z	500	30	2.9	0.1
ASDE01	12	Z	500	5	26.5	-25.3
ASDE01	00	Z	500	3	33.1	-33.1
ASDE02	12	Z	500	18	8.7	7.1
ASDE03	12	Z	500	6	8.2	1.8
ASDE03	00	Z	500	1	0.2	0.2
ASDE04	12	Z	500	14	32.1	30.8
ASDE04	00	Z	500	12	30.1	29.8
ASDE09	12	Z	500	4	36.9	36.8
ASDK01	12	Z	500	16	23.3	10.6
ASDK01	00	Z	500	11	8.4	7.6
ASDK02	12	Z	500	11	8.9	3.4
ASDK02	00	Z	500	7	5.5	3.1
ASDK03	12	Z	500	4	27.4	27.4
ASDK03	00	Z	500	8	24.3	23.7
ASDK1	12	Z	500	15	24.4	2.6
ASDK1	00	Z	500	10	7.1	0.7
ASDK2	00	Z	500	7	6.7	-2.8
ASDK2	12	Z	500	9	9.9	-5.3
ASDK3	12	Z	500	4	16.2	14.8
ASDK3	00	Z	500	7	19.3	18.3
ASEU01	12	Z	500	19	10.2	8.5
ASEU01	12	Z	500	22	4.7	3.2
ASEU02	12	Z	500	7	31.9	30.5
ASEU02	00	Z	500	9	30.2	29.5
ASEU03	12	Z	500	7	16.5	-9.1
ASEU03	00	Z	500	6	18.3	-12.3
ASEU04	12	Z	500	9	14.0	-7.2
ASEU04	00	Z	500	7	5.7	-3.8
ASEU06	12	Z	500	12	7.6	-0.2
ASEU06	00	Z	500	14	21.3	3.3
ASFR1	12	Z	500	10	4.6	1.5
ASFR1	00	Z	500	10	9.3	-4.6
ASFR2	00	Z	500	16	10.0	7.4
ASFR2	12	Z	500	16	10.1	8.3
ASFR3	12	Z	500	7	5.0	-0.7
ASFR3	00	Z	500	10	5.5	-1.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR4	12	Z	500	6	5.4	4.2
ASFR4	00	Z	500	9	7.0	-1.9
ASUK2	12	Z	500	9	8.7	0.8
ASUK3	12	Z	500	4	6.7	4.7

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 500 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	30	2.9	0.0	-0.2
01001	00	V	500	29	2.9	0.4	-0.1
01028	00	V	500	30	2.5	0.4	0.0
01028	12	V	500	29	3.1	0.1	-0.2
01400	12	V	500	22	2.1	0.1	-0.8
01400	00	V	500	25	2.6	0.4	-0.1
01415	12	V	500	29	2.3	0.4	0.4
01415	00	V	500	29	3.1	0.5	0.7
02365	12	V	500	21	2.5	0.1	0.2
02365	00	V	500	19	1.9	0.4	-0.4
02591	00	V	500	27	2.4	0.5	-0.2
02591	12	V	500	26	2.7	0.2	0.1
02836	00	V	500	27	3.8	-0.7	-0.1
02836	12	V	500	29	2.4	0.4	-0.1
02963	12	V	500	30	2.3	0.0	0.1
02963	00	V	500	30	2.0	0.4	-0.5
03005	00	V	500	30	3.0	-0.3	-0.7
03005	12	V	500	30	3.8	0.0	-0.4
03238	12	V	500	3	3.4	1.9	0.7
03238	00	V	500	15	2.9	0.6	0.8
03808	12	V	500	30	3.1	0.3	0.3
03808	00	V	500	28	3.5	0.7	1.5
03918	00	V	500	30	3.0	0.1	0.3
03918	12	V	500	12	3.0	-0.5	0.9
03953	00	V	500	30	3.2	-0.2	0.4
03953	12	V	500	30	3.8	0.3	1.4
04018	00	V	500	30	2.1	-0.2	0.9
04018	12	V	500	30	2.8	-0.1	0.0
04220	12	V	500	29	2.7	-0.2	-0.4
04220	00	V	500	29	2.1	0.1	0.3
04270	00	V	500	30	3.2	-0.1	0.2
04270	12	V	500	30	3.3	0.2	-0.5
04320	12	V	500	30	2.8	0.4	-0.1
04320	00	V	500	30	2.8	0.2	-0.5
04339	12	V	500	30	3.3	0.7	-0.5
04339	00	V	500	30	4.0	0.6	-0.2
043391	00	V	500	1	2.6	-2.6	0.4
04360	00	V	500	29	3.2	-0.4	0.6
04360	12	V	500	25	3.3	-0.7	0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	500	28	4.5	1.5	0.8
06011	12	V	500	28	3.4	-0.9	-0.3
06260	12	V	500	7	2.2	-0.6	-1.1
06260	00	V	500	27	2.6	0.2	-0.1
06610	00	V	500	30	2.4	-0.1	0.0
06610	12	V	500	30	2.8	0.6	0.1
07110	00	V	500	30	3.4	0.0	0.2
07110	12	V	500	30	2.9	-0.3	0.4
07510	12	V	500	30	3.3	0.2	-0.2
07510	00	V	500	29	2.8	-0.2	0.0
07645	12	V	500	30	2.5	0.0	-0.4
07645	00	V	500	29	3.1	0.2	0.6
07761	12	V	500	29	3.2	-0.2	-0.1
07761	00	V	500	26	3.5	-0.1	0.8
08001	00	V	500	30	2.6	0.2	-0.5
08001	12	V	500	30	2.7	0.4	0.0
08221	00	V	500	29	3.1	-0.8	0.1
08221	12	V	500	28	2.5	0.3	-0.3
08302	12	V	500	29	2.6	0.3	-0.2
08302	00	V	500	28	3.4	0.1	0.2
08508	12	V	500	30	2.4	0.6	0.1
08508	00	V	500	2	2.4	-1.8	0.0
08522	12	V	500	29	2.3	0.6	-0.6
08579	12	V	500	30	2.4	0.3	-0.1
10035	00	V	500	30	2.6	0.1	-0.2
10035	12	V	500	30	2.4	-0.3	0.2
10393	12	V	500	30	1.7	-0.3	-0.3
10393	00	V	500	30	2.1	0.2	0.1
10410	12	V	500	30	2.1	0.3	-0.1
10410	00	V	500	30	2.2	0.2	0.0
10739	00	V	500	30	2.6	-0.2	-0.3
10739	12	V	500	30	1.9	0.1	0.4
11035	12	V	500	30	2.5	0.1	0.3
11035	00	V	500	30	2.4	-0.1	-0.1
12982	00	V	500	29	2.6	-0.2	0.0
12982	12	V	500	28	3.3	0.7	-0.5
16080	12	V	500	30	2.4	0.8	0.1
16080	00	V	500	30	2.3	0.4	-0.1
16245	00	V	500	28	3.0	0.7	0.6
16245	12	V	500	29	2.8	0.4	0.4
16320	12	V	500	30	3.1	0.0	0.3
16320	00	V	500	30	2.3	0.3	-0.2
16429	12	V	500	30	2.5	0.2	0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	00	V	500	29	2.9	0.6	0.1
16622	00	V	500	25	3.7	-0.4	0.1
16754	00	V	500	29	2.8	0.5	0.9
17607	12	V	500	28	2.6	0.2	0.5
26435	00	V	500	15	2.2	-0.2	0.3
60018	00	V	500	30	2.1	0.0	0.0
60018	12	V	500	30	2.5	0.2	-0.4
ASDE01	12	V	500	5	2.1	-1.4	0.0
ASDE01	00	V	500	3	2.4	-0.4	-0.4
ASDE02	12	V	500	15	4.0	-0.8	1.5
ASDE03	12	V	500	4	1.7	1.1	0.8
ASDE03	00	V	500	1	1.9	-1.1	1.6
ASDE04	12	V	500	13	2.6	-0.2	-0.2
ASDE04	00	V	500	10	3.2	1.3	-0.5
ASDE09	12	V	500	4	1.5	-0.5	0.7
ASDK01	12	V	500	15	3.9	-0.2	0.8
ASDK01	00	V	500	10	3.0	0.7	0.2
ASDK02	12	V	500	10	3.4	0.1	0.4
ASDK02	00	V	500	7	2.1	0.9	-0.7
ASDK03	12	V	500	4	3.0	-2.0	0.5
ASDK03	00	V	500	6	2.1	-0.4	0.1
ASDK1	12	V	500	15	4.7	-1.0	0.6
ASDK1	00	V	500	10	3.2	0.2	0.8
ASDK2	00	V	500	7	5.0	0.4	-1.7
ASDK2	12	V	500	9	3.3	-0.2	-0.9
ASDK3	12	V	500	4	2.8	0.1	-0.8
ASDK3	00	V	500	6	3.9	-0.4	0.0
ASES01	12	V	500	19	4.0	1.4	-1.3
ASEU01	12	V	500	17	2.3	0.3	0.1
ASEU02	12	V	500	7	3.3	1.3	0.1
ASEU02	00	V	500	7	3.5	0.0	-0.2
ASEU03	12	V	500	7	2.5	0.1	0.3
ASEU03	00	V	500	6	4.5	1.0	-1.1
ASEU04	12	V	500	5	4.1	-0.9	1.5
ASEU04	00	V	500	6	2.7	-0.1	0.0
ASEU06	12	V	500	12	2.3	0.8	-0.1
ASEU06	00	V	500	12	4.3	-0.6	0.1
ASFR1	12	V	500	9	2.6	0.0	0.0
ASFR1	00	V	500	9	2.3	-0.3	1.3
ASFR2	00	V	500	12	2.4	0.6	-0.6
ASFR2	12	V	500	13	3.5	-1.0	1.3
ASFR3	12	V	500	7	3.8	-0.9	0.2
ASFR3	00	V	500	8	2.2	-0.4	-0.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR4	12	V	500	5	1.7	-0.1	0.6
ASFR4	00	V	500	9	3.1	1.1	0.8
ASUK2	12	V	500	4	3.0	-0.8	-0.4
ASUK3	12	V	500	4	1.7	0.2	0.0

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)
 LEVEL : 850 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	30	7.1	-1.3
01001	00	Z	850	30	7.1	-1.2
01028	00	Z	850	30	2.0	0.5
01028	12	Z	850	29	2.7	1.3
01400	12	Z	850	23	11.4	5.2
01400	00	Z	850	26	7.6	3.0
01415	12	Z	850	30	5.6	2.6
01415	00	Z	850	30	4.9	4.5
02365	12	Z	850	21	3.0	0.4
02365	00	Z	850	19	2.2	0.9
02591	00	Z	850	27	9.9	9.7
02591	12	Z	850	26	8.3	7.8
02836	00	Z	850	31	3.2	2.4
02836	12	Z	850	30	3.0	2.3
02963	12	Z	850	30	4.6	4.2
02963	00	Z	850	30	4.8	4.4
03005	00	Z	850	35	15.8	-4.5
03005	12	Z	850	35	10.0	-1.2
03238	12	Z	850	3	4.0	3.9
03238	00	Z	850	15	6.2	5.5
03808	12	Z	850	30	1.9	-0.5
03808	00	Z	850	29	2.3	1.6
03918	00	Z	850	32	5.1	4.6
03918	12	Z	850	15	5.7	4.7
03953	00	Z	850	30	3.0	1.1
03953	12	Z	850	30	2.7	0.8
04018	00	Z	850	31	4.1	2.2
04018	12	Z	850	30	2.8	0.4
04220	12	Z	850	30	3.3	2.9
04220	00	Z	850	30	3.7	2.7
04270	00	Z	850	30	3.0	0.1
04270	12	Z	850	30	2.6	0.7
04320	12	Z	850	30	3.9	2.8
04320	00	Z	850	30	4.7	3.3
04339	12	Z	850	31	6.7	2.0
04339	00	Z	850	31	4.5	3.3
043391	00	Z	850	1	0.5	-0.5
04360	00	Z	850	30	43.0	42.8
04360	12	Z	850	28	43.0	42.8

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	850	31	3.5	1.9
06011	12	Z	850	31	3.1	2.2
06260	12	Z	850	7	3.1	0.1
06260	00	Z	850	28	4.5	2.1
06610	00	Z	850	30	6.0	5.7
06610	12	Z	850	30	2.4	1.8
07110	00	Z	850	30	3.6	1.2
07110	12	Z	850	30	2.7	1.4
07510	12	Z	850	30	5.8	5.4
07510	00	Z	850	30	4.9	4.5
07645	12	Z	850	30	3.6	2.2
07645	00	Z	850	30	3.0	1.8
07761	12	Z	850	29	3.9	-2.5
07761	00	Z	850	29	3.7	-2.5
08001	00	Z	850	30	7.1	6.6
08001	12	Z	850	30	5.5	4.4
08221	00	Z	850	29	4.3	3.7
08221	12	Z	850	29	2.8	2.2
08302	12	Z	850	29	3.8	-3.4
08302	00	Z	850	28	2.0	-0.9
08508	12	Z	850	30	8.9	5.7
08508	00	Z	850	2	25.6	25.5
08522	12	Z	850	29	4.0	3.5
08579	12	Z	850	30	3.2	2.3
10035	00	Z	850	31	4.1	2.5
10035	12	Z	850	30	3.1	0.0
10393	12	Z	850	32	1.7	-0.4
10393	00	Z	850	31	2.1	0.9
10410	12	Z	850	30	2.8	-1.9
10410	00	Z	850	30	2.4	-0.7
10739	00	Z	850	30	8.3	8.1
10739	12	Z	850	30	6.9	6.7
11035	12	Z	850	30	3.8	0.9
11035	00	Z	850	30	3.6	1.9
12982	00	Z	850	30	4.1	2.7
12982	12	Z	850	28	5.8	4.2
16080	12	Z	850	31	8.3	-6.8
16080	00	Z	850	30	5.1	-3.0
16245	00	Z	850	31	7.1	-5.4
16245	12	Z	850	29	11.5	-10.2
16320	12	Z	850	30	6.2	-0.9
16320	00	Z	850	30	6.4	2.5
16429	12	Z	850	35	9.4	-8.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	00	Z	850	36	6.4	-5.0
16622	00	Z	850	30	13.8	12.6
16754	00	Z	850	29	15.0	9.6
17607	12	Z	850	49	3.3	0.3
26435	00	Z	850	15	3.1	2.7
60018	00	Z	850	30	11.0	-6.2
60018	12	Z	850	30	4.4	-3.8
ASDE01	12	Z	850	5	39.0	-38.9
ASDE01	00	Z	850	3	37.7	-37.7
ASDE02	12	Z	850	18	3.4	0.8
ASDE03	12	Z	850	6	3.4	-1.3
ASDE03	00	Z	850	2	4.6	-4.5
ASDE04	12	Z	850	14	28.5	27.1
ASDE04	00	Z	850	12	25.9	25.4
ASDE09	12	Z	850	4	34.7	34.7
ASDK01	12	Z	850	16	28.8	12.7
ASDK01	00	Z	850	11	8.9	8.2
ASDK02	12	Z	850	11	8.6	2.3
ASDK02	00	Z	850	7	4.4	2.9
ASDK03	12	Z	850	8	27.6	27.5
ASDK03	00	Z	850	9	27.0	26.9
ASDK1	12	Z	850	15	30.0	11.4
ASDK1	00	Z	850	10	7.6	6.4
ASDK2	00	Z	850	7	4.4	0.3
ASDK2	12	Z	850	9	9.0	-1.7
ASDK3	12	Z	850	4	24.5	24.4
ASDK3	00	Z	850	8	28.7	28.6
ASES01	12	Z	850	19	11.5	-2.0
ASEU01	12	Z	850	22	3.8	-1.1
ASEU02	12	Z	850	7	25.3	24.2
ASEU02	00	Z	850	10	25.5	24.7
ASEU03	12	Z	850	7	15.7	-11.7
ASEU03	00	Z	850	6	9.6	-8.9
ASEU04	12	Z	850	11	14.3	-7.0
ASEU04	00	Z	850	8	11.2	-0.4
ASEU06	12	Z	850	12	6.6	-2.4
ASEU06	00	Z	850	14	20.0	-0.5
ASFR1	12	Z	850	10	6.6	-3.6
ASFR1	00	Z	850	10	5.8	-4.8
ASFR2	00	Z	850	16	10.4	9.1
ASFR2	12	Z	850	16	9.4	7.4
ASFR3	12	Z	850	7	3.7	-1.7
ASFR3	00	Z	850	10	3.9	-3.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASFR4	12	Z	850	7	2.9	-1.6
ASFR4	00	Z	850	9	7.0	-5.5
ASUK2	12	Z	850	9	2.8	2.1
ASUK3	12	Z	850	4	2.0	0.7

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND (M/S)
 LEVEL : 850 HPA
 AREA : 0 - 90N, 100W - 40E
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	30	3.4	0.3	-0.3
01001	00	V	850	29	3.3	-0.7	0.1
01028	00	V	850	30	3.0	0.1	-0.2
01028	12	V	850	29	2.3	-0.1	-0.3
01400	12	V	850	23	2.6	1.0	-0.3
01400	00	V	850	26	2.3	-0.1	-0.2
01415	12	V	850	29	2.7	0.6	-0.1
01415	00	V	850	29	2.2	0.1	0.1
02365	12	V	850	21	2.4	0.2	0.1
02365	00	V	850	19	3.1	-0.2	0.0
02591	00	V	850	27	2.7	-0.1	-0.1
02591	12	V	850	26	2.1	0.1	-0.1
02836	00	V	850	29	2.8	0.9	0.7
02836	12	V	850	29	2.8	-0.8	-0.5
02963	12	V	850	30	2.2	-0.3	-0.2
02963	00	V	850	30	2.2	0.2	-0.6
03005	00	V	850	30	2.7	0.1	0.2
03005	12	V	850	30	3.3	0.4	-0.2
03238	12	V	850	3	1.6	0.4	-0.1
03238	00	V	850	15	3.2	0.3	0.1
03808	12	V	850	30	2.5	-0.4	0.2
03808	00	V	850	28	2.8	0.2	-0.3
03918	00	V	850	30	2.8	0.3	-0.2
03918	12	V	850	12	2.5	-0.4	0.5
03953	00	V	850	30	2.7	0.3	0.1
03953	12	V	850	30	3.2	0.1	0.7
04018	00	V	850	30	2.9	0.5	0.2
04018	12	V	850	30	3.3	-0.5	0.2
04220	12	V	850	30	2.4	0.1	0.0
04220	00	V	850	30	2.2	0.2	-0.1
04270	00	V	850	30	2.9	-0.2	-0.1
04270	12	V	850	30	3.7	-1.3	-0.6
04320	12	V	850	30	3.3	-0.3	0.5
04320	00	V	850	30	2.6	0.2	-0.6
04339	12	V	850	30	5.5	1.3	0.8
04339	00	V	850	30	5.0	1.1	0.0
043391	00	V	850	1	2.8	2.8	0.3
04360	00	V	850	30	4.0	0.8	0.6
04360	12	V	850	28	4.5	0.9	-0.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	850	28	2.3	-0.6	-0.5
06011	12	V	850	28	2.9	-0.3	-0.4
06260	12	V	850	7	2.9	-0.2	0.0
06260	00	V	850	27	2.4	0.5	-0.6
06610	00	V	850	30	2.6	0.9	0.2
06610	12	V	850	30	2.1	0.4	-0.2
07110	00	V	850	30	3.3	0.7	-0.3
07110	12	V	850	30	2.8	0.7	0.3
07510	12	V	850	30	3.2	0.0	0.4
07510	00	V	850	29	3.1	0.1	0.1
07645	12	V	850	30	3.0	0.3	-0.4
07645	00	V	850	29	3.5	-0.1	0.2
07761	12	V	850	29	3.8	0.7	1.5
07761	00	V	850	28	3.1	0.0	-1.0
08001	00	V	850	30	3.6	0.9	0.2
08001	12	V	850	30	3.0	-0.1	-0.1
08221	00	V	850	29	3.0	0.4	0.8
08221	12	V	850	29	2.4	0.4	0.2
08302	12	V	850	29	2.6	0.3	0.5
08302	00	V	850	28	2.9	-0.3	0.3
08508	12	V	850	30	2.8	0.0	-0.5
08508	00	V	850	2	3.1	2.8	0.7
08522	12	V	850	29	2.7	-0.2	0.0
08579	12	V	850	30	2.8	0.2	0.3
10035	00	V	850	30	2.3	0.0	0.4
10035	12	V	850	30	2.4	0.3	-0.2
10393	12	V	850	30	3.1	0.0	-0.4
10393	00	V	850	30	2.6	-0.3	-0.3
10410	12	V	850	30	2.0	0.3	-0.3
10410	00	V	850	30	2.7	0.4	-0.7
10739	00	V	850	30	2.6	-0.2	0.3
10739	12	V	850	30	2.2	-0.2	0.4
11035	12	V	850	30	2.5	0.5	0.4
11035	00	V	850	30	3.0	-0.6	-0.1
12982	00	V	850	30	2.8	0.3	0.1
12982	12	V	850	28	2.6	-0.3	0.3
16080	12	V	850	30	3.1	0.4	-0.8
16080	00	V	850	30	2.9	0.5	-0.3
16245	00	V	850	29	2.5	0.5	-0.1
16245	12	V	850	29	3.0	-0.2	-0.1
16320	12	V	850	30	3.0	0.5	-0.5
16320	00	V	850	30	2.9	0.2	-0.9
16429	12	V	850	30	2.4	-0.6	0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	00	V	850	29	2.7	-0.2	-0.1
16622	00	V	850	29	4.0	0.5	-0.9
16754	00	V	850	29	2.7	0.1	0.1
17607	12	V	850	29	2.5	1.2	-0.3
26435	00	V	850	15	2.6	-0.9	0.6
60018	00	V	850	30	3.4	0.1	0.2
60018	12	V	850	30	3.5	-0.2	1.0
ASDE01	12	V	850	5	3.4	-0.6	0.8
ASDE01	00	V	850	3	2.2	0.7	-0.1
ASDE02	12	V	850	17	3.9	-0.4	-0.4
ASDE03	12	V	850	4	2.2	-0.7	0.8
ASDE03	00	V	850	2	2.0	0.0	1.4
ASDE04	12	V	850	13	2.2	0.7	0.2
ASDE04	00	V	850	10	2.8	0.0	-0.5
ASDE09	12	V	850	4	1.5	0.8	-0.7
ASDK01	12	V	850	15	2.9	-0.1	0.1
ASDK01	00	V	850	10	4.1	-1.3	-1.1
ASDK02	12	V	850	10	3.7	0.2	1.2
ASDK02	00	V	850	7	3.2	-0.5	-0.9
ASDK03	12	V	850	8	3.9	0.5	0.5
ASDK03	00	V	850	8	2.6	0.3	-0.2
ASDK1	12	V	850	15	3.6	0.0	0.2
ASDK1	00	V	850	10	4.7	-1.7	-1.8
ASDK2	00	V	850	7	3.3	-0.3	-0.4
ASDK2	12	V	850	9	3.2	0.6	1.0
ASDK3	12	V	850	4	2.6	0.2	-1.3
ASDK3	00	V	850	8	2.7	0.9	-0.2
ASES01	12	V	850	19	2.8	0.0	-0.5
ASEU01	12	V	850	18	2.1	-0.2	-0.1
ASEU02	12	V	850	7	1.2	-0.3	0.1
ASEU02	00	V	850	8	2.0	0.0	0.1
ASEU03	12	V	850	7	3.2	0.9	0.0
ASEU03	00	V	850	6	3.8	-0.1	-0.8
ASEU04	12	V	850	8	2.6	0.2	0.1
ASEU04	00	V	850	8	1.8	0.2	0.2
ASEU06	12	V	850	12	2.5	0.1	-0.1
ASEU06	00	V	850	10	4.5	-1.1	0.1
ASFR1	12	V	850	9	3.0	1.0	0.6
ASFR1	00	V	850	9	1.7	0.6	-0.1
ASFR2	00	V	850	12	3.0	0.1	-1.5
ASFR2	12	V	850	14	3.4	0.6	-0.4
ASFR3	12	V	850	7	2.4	0.1	0.0
ASFR3	00	V	850	8	2.2	-0.3	0.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASFR4	12	V	850	6	2.9	1.0	0.1
ASFR4	00	V	850	9	3.1	0.4	-1.1
ASUK2	12	V	850	4	2.8	0.5	1.3
ASUK3	12	V	850	4	3.4	-2.4	0.9

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : SURFACE PRESSURE (HPA)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

TIME = 99 => AVERAGE OF ALL OBSERVATIONS
 GROSS ERROR LIMIT = 15 HPA

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
03380	99	P	SUR	54	0	719	0	0.3	0.0	0.3
1300001	99	P	SUR	11	-23	699	0	0.5	-0.3	0.5
1300515	99	P	SUR	29	-55	696	0	0.4	0.1	0.4
1300572	99	P	SUR	23	-34	731	0	0.5	0.2	0.5
1300633	99	P	SUR	26	-52	710	0	0.5	-0.7	0.8
1300665	99	P	SUR	18	-38	719	0	0.7	0.1	0.7
1300868	99	P	SUR	25	-19	718	0	0.3	0.6	0.7
1300869	99	P	SUR	21	-43	718	0	0.3	0.1	0.4
1300871	99	P	SUR	25	-43	575	0	0.3	0.5	0.6
1300872	99	P	SUR	25	-47	710	0	0.4	0.4	0.6
1301500	99	P	SUR	18	-42	712	0	0.4	-0.2	0.5
1301501	99	P	SUR	19	-34	708	0	0.7	0.5	0.8
1301502	99	P	SUR	22	-38	712	0	0.4	0.7	0.8
13515	99	P	SUR	29	-55	571	0	0.4	0.1	0.4
13572	99	P	SUR	23	-34	388	0	0.4	0.2	0.4
13633	99	P	SUR	26	-52	502	0	0.5	-0.7	0.8
13665	99	P	SUR	18	-38	721	0	0.7	0.1	0.7
13868	99	P	SUR	25	-19	720	0	0.3	0.6	0.7
13869	99	P	SUR	21	-43	720	0	0.3	0.1	0.4
13871	99	P	SUR	25	-43	578	0	0.3	0.5	0.6
13872	99	P	SUR	25	-47	713	0	0.3	0.4	0.6
2100942	99	P	SUR	27	-46	719	0	0.3	0.4	0.5
21942	99	P	SUR	27	-46	654	0	0.2	0.4	0.5
2500575	99	P	SUR	62	-58	720	0	0.4	0.1	0.4
2500617	99	P	SUR	57	-49	717	0	0.5	0.1	0.5
2500622	99	P	SUR	87	26	718	0	0.4	-0.5	0.7
2500623	99	P	SUR	90	-55	717	0	0.5	-0.3	0.6
25575	99	P	SUR	62	-58	647	0	0.4	0.1	0.4
25617	99	P	SUR	57	-49	720	0	0.5	0.1	0.5
25622	99	P	SUR	87	26	720	0	0.4	-0.5	0.7
25623	99	P	SUR	90	-56	720	0	0.5	-0.3	0.6
2600537	99	P	SUR	70	16	674	0	0.3	-0.0	0.3
2600545	99	P	SUR	67	-11	669	96	7.9	-0.6	8.0
2600568	99	P	SUR	83	32	440	384	3.9	-9.0	9.8
26537	99	P	SUR	70	16	717	0	0.3	-0.0	0.3
26545	99	P	SUR	67	-11	718	103	7.9	-0.9	8.0

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
26568	99	P	SUR	83	32	442	385	4.0	-9.1	10.0
3100863	99	P	SUR	28	-64	717	0	0.3	0.6	0.7
31863	99	P	SUR	28	-64	719	0	0.3	0.6	0.7
4100139	99	P	SUR	20	-38	346	0	0.4	-0.1	0.4
4100300	99	P	SUR	16	-57	719	0	0.4	0.3	0.5
4100506	99	P	SUR	33	-54	705	0	0.5	-0.1	0.5
4100590	99	P	SUR	40	-41	719	0	0.3	-0.5	0.6
4100594	99	P	SUR	43	-34	728	0	0.3	-0.1	0.4
4100597	99	P	SUR	32	-55	716	0	0.4	0.1	0.5
4100635	99	P	SUR	22	-60	716	0	0.3	0.5	0.6
4100706	99	P	SUR	32	-36	717	0	0.3	0.1	0.3
4100707	99	P	SUR	14	-61	718	0	0.4	-0.9	1.0
4100708	99	P	SUR	25	-63	717	0	0.3	0.1	0.3
4100729	99	P	SUR	42	-48	717	0	0.6	-0.2	0.6
4100731	99	P	SUR	31	-56	717	0	0.4	0.1	0.4
4100936	99	P	SUR	41	-46	653	0	0.4	-1.3	1.4
4100970	99	P	SUR	33	-67	718	0	0.4	-0.0	0.4
4100972	99	P	SUR	41	-36	717	0	0.3	-0.2	0.4
4100975	99	P	SUR	26	-41	723	0	0.3	0.0	0.3
4101700	99	P	SUR	33	-49	716	0	0.4	0.1	0.4
4101701	99	P	SUR	32	-68	716	0	0.4	0.5	0.6
4101702	99	P	SUR	18	-37	274	0	0.3	0.4	0.5
4101703	99	P	SUR	14	-42	275	0	0.5	0.4	0.6
4101704	99	P	SUR	11	-46	251	0	0.4	0.1	0.4
4101741	99	P	SUR	21	-40	81	0	0.3	0.6	0.7
41040	99	P	SUR	15	-53	714	0	0.4	-0.7	0.8
41041	99	P	SUR	14	-46	708	0	0.4	-0.6	0.7
41043	99	P	SUR	21	-65	879	0	0.4	0.6	0.7
41044	99	P	SUR	22	-59	889	0	0.4	-0.1	0.4
41046	99	P	SUR	24	-69	895	0	0.4	-0.2	0.4
41048	99	P	SUR	32	-70	781	0	0.4	-0.6	0.7
41049	99	P	SUR	28	-63	718	0	0.5	0.1	0.5
41052	99	P	SUR	18	-65	1796	0	0.3	-1.1	1.2
41053	99	P	SUR	19	-66	1104	0	0.4	-0.3	0.5
41056	99	P	SUR	18	-66	1645	0	0.4	-0.7	0.8
41139	99	P	SUR	20	-38	235	0	0.4	-0.1	0.4
41506	99	P	SUR	33	-54	593	0	0.5	-0.1	0.5
41590	99	P	SUR	40	-41	679	0	0.4	-0.5	0.6
41594	99	P	SUR	43	-34	566	0	0.3	-0.1	0.4
41597	99	P	SUR	32	-55	720	0	0.4	0.1	0.5
41635	99	P	SUR	22	-60	718	0	0.3	0.5	0.6
41706	99	P	SUR	32	-36	720	0	0.3	0.1	0.3
41707	99	P	SUR	14	-61	720	0	0.4	-0.9	1.0

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
41708	99	P	SUR	25	-63	720	0	0.3	0.1	0.3
41729	99	P	SUR	42	-48	720	0	0.6	-0.2	0.6
41731	99	P	SUR	31	-56	720	0	0.4	0.1	0.4
41936	99	P	SUR	41	-46	515	0	0.4	-1.3	1.4
41970	99	P	SUR	33	-67	720	0	0.4	-0.0	0.4
41972	99	P	SUR	41	-36	720	0	0.3	-0.2	0.4
41975	99	P	SUR	26	-41	615	0	0.3	0.1	0.3
42059	99	P	SUR	15	-68	889	0	0.5	0.5	0.7
42085	99	P	SUR	18	-67	1652	0	0.4	-0.7	0.8
42088	99	P	SUR	11	-61	1597	0	0.6	0.0	0.6
42090	99	P	SUR	18	-70	70	0	0.5	0.3	0.6
44005	99	P	SUR	43	-69	757	0	0.4	0.0	0.4
4400510	99	P	SUR	46	-51	1513	0	0.4	0.6	0.8
4400513	99	P	SUR	54	-10	716	0	0.5	0.2	0.5
4400515	99	P	SUR	55	-14	715	0	0.4	-0.0	0.5
4400516	99	P	SUR	43	-16	605	0	0.3	0.3	0.5
4400517	99	P	SUR	33	-18	717	0	0.2	0.4	0.5
4400521	99	P	SUR	42	-32	727	0	0.3	-0.5	0.6
4400546	99	P	SUR	29	-52	684	0	2.9	-0.9	3.0
4400551	99	P	SUR	70	18	717	0	0.5	0.3	0.5
4400557	99	P	SUR	46	-30	181	0	0.4	0.2	0.4
4400558	99	P	SUR	35	-50	731	0	0.3	0.4	0.5
4400614	99	P	SUR	50	-8	655	0	0.4	-0.2	0.5
4400624	99	P	SUR	25	-57	700	0	0.4	-0.2	0.4
4400670	99	P	SUR	44	-51	667	0	0.4	-0.1	0.4
4400744	99	P	SUR	51	-10	168	0	0.4	-0.1	0.4
4400746	99	P	SUR	39	-24	717	0	0.3	0.3	0.4
4400761	99	P	SUR	57	-9	716	0	0.5	-0.6	0.7
4400765	99	P	SUR	50	-28	715	0	0.6	-0.1	0.6
4400766	99	P	SUR	41	-25	716	0	0.4	0.1	0.4
4400768	99	P	SUR	35	-22	718	0	0.3	0.8	0.8
4400772	99	P	SUR	49	-26	715	0	0.4	-0.3	0.5
4400773	99	P	SUR	46	-8	717	0	0.5	0.7	0.8
4400775	99	P	SUR	38	-62	716	0	0.5	0.0	0.5
4400776	99	P	SUR	33	-28	716	0	0.3	0.7	0.8
4400777	99	P	SUR	44	-52	716	0	0.4	0.0	0.4
4400778	99	P	SUR	40	-26	714	0	0.3	0.5	0.6
4400779	99	P	SUR	44	-45	716	0	0.5	-0.0	0.5
44008	99	P	SUR	41	-69	717	0	0.6	-0.5	0.7
4400835	99	P	SUR	28	-37	717	0	0.3	-0.3	0.4
4400837	99	P	SUR	24	-63	717	0	0.3	-0.1	0.3
4400839	99	P	SUR	26	-29	717	0	0.3	0.0	0.3
4400846	99	P	SUR	32	-24	715	0	0.3	0.5	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4400848	99	P	SUR	30	-24	718	0	0.3	0.4	0.4
4400856	99	P	SUR	42	-38	716	0	0.4	0.4	0.6
4400857	99	P	SUR	44	-30	716	0	0.4	0.3	0.5
4400863	99	P	SUR	29	-60	718	0	0.4	-0.6	0.8
4400866	99	P	SUR	70	19	718	0	0.4	-0.2	0.4
4400873	99	P	SUR	33	-45	682	35	1.9	0.7	2.0
4400874	99	P	SUR	37	-33	716	0	0.3	0.4	0.5
4400875	99	P	SUR	36	-36	716	0	0.4	0.2	0.4
4400885	99	P	SUR	16	-44	717	0	0.5	-0.3	0.5
4400887	99	P	SUR	31	-45	716	0	0.3	-0.0	0.3
4400889	99	P	SUR	35	-48	716	0	0.3	-0.2	0.4
4400891	99	P	SUR	31	-60	716	0	0.4	-0.5	0.7
4400896	99	P	SUR	33	-34	725	0	0.3	-0.5	0.5
4400901	99	P	SUR	50	-41	717	0	0.5	-0.2	0.5
4400902	99	P	SUR	45	-25	716	0	0.3	0.3	0.4
4400904	99	P	SUR	44	-27	717	0	0.4	-0.3	0.5
44011	99	P	SUR	41	-67	718	0	0.4	-1.0	1.1
4401500	99	P	SUR	36	-61	716	0	0.3	0.3	0.5
4401501	99	P	SUR	37	-60	716	0	0.5	-0.1	0.5
4401503	99	P	SUR	33	-53	717	0	0.4	0.3	0.5
4401526	99	P	SUR	37	-13	555	0	0.3	0.5	0.6
4401528	99	P	SUR	39	-55	610	0	0.4	0.2	0.4
4401529	99	P	SUR	21	-59	606	0	0.3	0.2	0.4
4401530	99	P	SUR	36	-63	698	0	0.4	-0.6	0.7
4401531	99	P	SUR	18	-54	606	0	0.5	0.5	0.7
4401533	99	P	SUR	12	-47	576	0	0.4	0.4	0.5
4401534	99	P	SUR	37	-60	613	0	0.4	-0.2	0.4
4401550	99	P	SUR	42	-40	716	0	0.5	-0.2	0.5
4401551	99	P	SUR	36	-39	695	0	0.3	0.4	0.5
4401552	99	P	SUR	36	-51	635	0	0.5	-0.0	0.5
4401553	99	P	SUR	56	-45	716	0	0.3	-0.0	0.3
4401554	99	P	SUR	57	-42	716	0	0.3	0.3	0.4
4401555	99	P	SUR	50	-49	716	0	0.4	-0.2	0.5
44016	99	P	SUR	62	-69	1316	57	3.2	1.8	3.7
4401601	99	P	SUR	59	-53	671	0	0.3	-0.0	0.3
4401602	99	P	SUR	62	-62	675	0	0.4	0.1	0.4
4401603	99	P	SUR	59	-48	668	0	0.3	0.2	0.4
4401604	99	P	SUR	60	-52	668	0	0.3	-0.3	0.4
4401605	99	P	SUR	58	-50	670	0	0.3	-0.2	0.4
4401608	99	P	SUR	68	-58	671	0	0.3	0.3	0.4
4401610	99	P	SUR	62	-68	672	0	2.2	0.4	2.2
4401612	99	P	SUR	49	-52	667	0	0.4	0.3	0.5
4401614	99	P	SUR	63	-70	672	0	0.5	0.4	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401618	99	P	SUR	70	-63	671	0	0.3	0.6	0.7
4401619	99	P	SUR	62	-70	670	38	4.1	6.8	7.9
4401620	99	P	SUR	69	-60	672	0	0.3	-0.1	0.3
4401625	99	P	SUR	50	-55	669	0	0.4	0.2	0.5
4401629	99	P	SUR	67	-60	670	0	0.3	0.0	0.3
4401632	99	P	SUR	51	-56	607	0	0.4	0.1	0.4
4401634	99	P	SUR	50	-55	671	0	0.5	-0.1	0.5
4401635	99	P	SUR	62	-69	673	0	0.5	0.0	0.5
44018	99	P	SUR	42	-70	831	0	1.0	-0.0	1.0
44024	99	P	SUR	42	-66	786	0	0.3	-1.4	1.4
44027	99	P	SUR	44	-67	814	0	0.4	-0.0	0.4
44032	99	P	SUR	44	-69	719	0	0.4	-0.1	0.4
44034	99	P	SUR	44	-68	718	0	0.4	0.2	0.4
44037	99	P	SUR	44	-68	539	0	0.3	0.1	0.3
44137	99	P	SUR	42	-62	724	0	0.3	-0.1	0.3
44139	99	P	SUR	44	-57	707	0	0.4	0.1	0.4
44141	99	P	SUR	43	-58	601	0	0.5	0.0	0.5
44251	99	P	SUR	46	-53	715	0	0.4	-0.1	0.5
44255	99	P	SUR	47	-57	1104	0	0.4	0.2	0.5
44258	99	P	SUR	45	-63	715	0	0.3	0.0	0.3
44510	99	P	SUR	46	-50	1278	0	0.4	0.6	0.8
44513	99	P	SUR	54	-10	719	0	0.5	0.2	0.5
44515	99	P	SUR	55	-14	717	0	0.4	-0.0	0.5
44516	99	P	SUR	43	-16	486	0	0.3	0.4	0.5
44517	99	P	SUR	33	-18	719	0	0.2	0.4	0.5
44521	99	P	SUR	42	-32	548	0	0.3	-0.5	0.6
44546	99	P	SUR	29	-52	687	0	2.9	-0.9	3.0
44551	99	P	SUR	70	18	720	0	0.5	0.3	0.5
44557	99	P	SUR	46	-30	182	0	0.4	0.2	0.4
44558	99	P	SUR	35	-50	555	0	0.3	0.4	0.5
44614	99	P	SUR	50	-8	658	0	0.4	-0.2	0.5
44624	99	P	SUR	25	-57	702	0	0.4	-0.2	0.4
44670	99	P	SUR	44	-51	718	0	0.4	-0.1	0.4
44744	99	P	SUR	51	-10	169	0	0.4	-0.1	0.4
44746	99	P	SUR	39	-24	720	0	0.3	0.3	0.4
44761	99	P	SUR	57	-9	720	0	0.5	-0.6	0.7
44765	99	P	SUR	50	-28	719	0	0.6	-0.1	0.6
44766	99	P	SUR	41	-25	720	0	0.4	0.1	0.4
44768	99	P	SUR	35	-22	720	0	0.3	0.8	0.8
44772	99	P	SUR	49	-26	718	0	0.4	-0.3	0.5
44773	99	P	SUR	46	-8	720	0	0.5	0.7	0.8
44775	99	P	SUR	38	-62	719	0	0.5	0.0	0.5
44776	99	P	SUR	33	-28	718	0	0.2	0.7	0.8

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44777	99	P	SUR	44	-52	720	0	0.4	0.0	0.4
44778	99	P	SUR	40	-26	716	0	0.3	0.5	0.6
44779	99	P	SUR	44	-45	720	0	0.5	-0.0	0.5
44835	99	P	SUR	28	-37	720	0	0.3	-0.3	0.4
44837	99	P	SUR	24	-63	719	0	0.3	-0.1	0.3
44839	99	P	SUR	26	-29	720	0	0.3	0.0	0.3
44846	99	P	SUR	32	-24	717	0	0.3	0.5	0.6
44848	99	P	SUR	30	-24	719	0	0.3	0.4	0.4
44856	99	P	SUR	42	-38	720	0	0.4	0.4	0.6
44857	99	P	SUR	44	-30	720	0	0.4	0.3	0.5
44863	99	P	SUR	29	-60	720	0	0.4	-0.6	0.8
44866	99	P	SUR	70	19	720	0	0.4	-0.2	0.4
44873	99	P	SUR	33	-45	687	36	1.9	0.7	2.1
44874	99	P	SUR	37	-33	720	0	0.3	0.4	0.5
44875	99	P	SUR	36	-36	720	0	0.4	0.2	0.4
44885	99	P	SUR	16	-44	720	0	0.5	-0.3	0.5
44887	99	P	SUR	31	-45	720	0	0.3	-0.0	0.3
44889	99	P	SUR	35	-48	720	0	0.3	-0.2	0.4
44891	99	P	SUR	31	-60	720	0	0.4	-0.5	0.7
44896	99	P	SUR	33	-34	645	0	0.3	-0.5	0.5
44901	99	P	SUR	50	-41	718	0	0.5	-0.2	0.5
44902	99	P	SUR	45	-25	718	0	0.3	0.3	0.4
44904	99	P	SUR	44	-27	719	0	0.4	-0.3	0.5
45138	99	P	SUR	50	-66	653	0	0.5	-0.2	0.5
4700509	99	P	SUR	68	-28	666	107	6.5	-1.9	6.8
4700539	99	P	SUR	44	-25	670	0	0.4	0.1	0.4
4700540	99	P	SUR	53	-24	680	0	0.5	0.5	0.7
4700546	99	P	SUR	43	-51	647	0	0.5	0.3	0.5
4700549	99	P	SUR	56	-23	670	0	0.5	-0.2	0.5
4700551	99	P	SUR	52	-55	684	94	6.9	1.4	7.0
4700552	99	P	SUR	67	-63	680	0	0.4	-1.7	1.8
4700555	99	P	SUR	46	-51	666	0	0.4	0.2	0.4
4700557	99	P	SUR	48	-27	668	0	0.4	-0.0	0.4
4700560	99	P	SUR	51	-21	678	0	0.4	0.3	0.5
4700562	99	P	SUR	51	-23	675	0	0.5	0.1	0.5
4700567	99	P	SUR	50	-40	681	524	3.3	5.6	6.5
4700568	99	P	SUR	49	-22	674	0	0.4	0.4	0.5
4700569	99	P	SUR	48	-23	676	0	0.4	-0.6	0.7
4700574	99	P	SUR	42	-49	659	0	0.5	0.1	0.5
4700584	99	P	SUR	47	-37	669	215	4.8	-1.9	5.2
4700589	99	P	SUR	67	-63	682	0	0.5	-2.0	2.1
4701656	99	P	SUR	80	-67	647	0	0.4	-2.0	2.0
4701657	99	P	SUR	80	-65	646	0	0.5	-1.6	1.7

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
47509	99	P	SUR	68	-28	718	105	6.3	-2.0	6.6
47539	99	P	SUR	44	-25	714	0	0.4	0.1	0.4
47540	99	P	SUR	53	-24	719	0	0.5	0.5	0.7
47546	99	P	SUR	43	-51	694	0	0.5	0.3	0.5
47549	99	P	SUR	56	-23	716	0	0.5	-0.1	0.6
47551	99	P	SUR	52	-55	715	92	7.1	1.0	7.1
47552	99	P	SUR	67	-63	717	0	0.4	-1.7	1.8
47555	99	P	SUR	46	-51	714	0	0.4	0.2	0.4
47557	99	P	SUR	48	-27	718	0	0.4	-0.1	0.4
47560	99	P	SUR	51	-20	719	0	0.5	0.3	0.5
47562	99	P	SUR	51	-23	718	0	0.5	0.1	0.5
47567	99	P	SUR	50	-40	719	540	3.2	5.3	6.2
47568	99	P	SUR	49	-23	716	0	0.4	0.3	0.5
47569	99	P	SUR	48	-23	716	0	0.4	-0.6	0.7
47574	99	P	SUR	42	-49	717	0	0.5	0.1	0.5
47584	99	P	SUR	47	-36	716	247	4.9	-1.8	5.2
47589	99	P	SUR	67	-63	719	0	0.5	-2.1	2.1
4800520	99	P	SUR	81	-8	243	0	0.4	0.0	0.4
4800568	99	P	SUR	60	-1	15	0	0.3	-0.2	0.4
4800600	99	P	SUR	85	-51	722	0	0.4	-0.1	0.5
4800664	99	P	SUR	72	-69	716	0	0.4	0.3	0.5
48520	99	P	SUR	81	-8	230	0	0.4	0.0	0.4
48568	99	P	SUR	60	-2	14	0	0.3	-0.1	0.3
48600	99	P	SUR	85	-51	690	0	0.4	-0.1	0.5
6100001	99	P	SUR	43	8	704	0	0.4	0.0	0.4
6100002	99	P	SUR	42	5	718	0	0.3	0.2	0.4
6200091	99	P	SUR	53	-5	718	0	0.5	-0.1	0.5
6200092	99	P	SUR	51	-11	718	0	0.5	-0.4	0.6
6200093	99	P	SUR	55	-10	718	0	0.5	-0.5	0.7
6200094	99	P	SUR	52	-7	718	0	0.4	-0.2	0.5
62001	99	P	SUR	45	-5	719	0	0.6	0.0	0.6
6200513	99	P	SUR	63	-32	716	0	0.4	-0.3	0.5
6200553	99	P	SUR	59	-31	717	0	0.4	-0.2	0.4
6200554	99	P	SUR	44	-17	707	0	0.4	0.1	0.4
6200556	99	P	SUR	35	-22	713	0	0.3	-0.1	0.3
6200557	99	P	SUR	55	-12	40	0	0.3	-0.1	0.3
6200558	99	P	SUR	50	-14	717	0	0.4	0.0	0.5
6200559	99	P	SUR	46	-30	717	0	0.4	0.5	0.7
6200560	99	P	SUR	21	-32	717	0	0.4	0.5	0.7
6200713	99	P	SUR	37	-60	703	0	0.8	-0.6	1.0
6200714	99	P	SUR	43	-36	709	0	0.3	-0.5	0.7
6200940	99	P	SUR	41	-18	716	0	0.3	0.0	0.3
6200941	99	P	SUR	24	-29	716	0	0.3	-0.0	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62029	99	P	SUR	49	-12	1252	0	0.6	-0.2	0.6
62030	99	P	SUR	50	-4	1040	0	0.4	0.1	0.4
6203501	99	P	SUR	38	-28	714	0	0.3	0.7	0.7
6203503	99	P	SUR	36	-21	713	0	0.3	0.0	0.3
6203504	99	P	SUR	35	-23	713	0	0.3	0.4	0.5
62050	99	P	SUR	50	-4	723	0	0.4	0.3	0.5
62081	99	P	SUR	51	-13	287	0	0.5	-0.3	0.6
62082	99	P	SUR	55	6	3	0	0.2	-0.0	0.2
62086	99	P	SUR	55	6	713	0	0.3	0.0	0.3
62095	99	P	SUR	53	-16	692	2	0.6	-0.5	0.8
62102	99	P	SUR	58	2	721	0	0.4	0.4	0.5
62103	99	P	SUR	50	-3	722	0	0.4	0.6	0.7
62104	99	P	SUR	57	1	721	0	0.3	0.4	0.5
62105	99	P	SUR	55	-13	636	1	0.5	-0.3	0.6
62107	99	P	SUR	50	-6	1423	6	0.9	0.3	0.9
62111	99	P	SUR	58	0	719	0	0.4	1.5	1.6
62112	99	P	SUR	58	0	719	0	0.4	0.4	0.5
62113	99	P	SUR	58	0	721	0	0.5	0.6	0.8
62114	99	P	SUR	58	0	1436	0	0.4	0.4	0.5
62115	99	P	SUR	58	-3	687	0	0.5	0.4	0.6
62116	99	P	SUR	58	1	709	0	0.5	0.4	0.6
62117	99	P	SUR	58	0	721	0	0.3	0.4	0.5
62118	99	P	SUR	58	1	721	0	0.4	0.7	0.8
62119	99	P	SUR	57	2	719	0	0.4	0.3	0.5
62120	99	P	SUR	56	2	721	0	0.4	0.0	0.4
62121	99	P	SUR	54	3	719	0	0.4	0.8	0.9
62122	99	P	SUR	57	2	1433	0	0.4	0.4	0.6
62123	99	P	SUR	56	2	840	0	1.1	0.6	1.3
62124	99	P	SUR	54	-4	711	0	0.3	0.1	0.4
62127	99	P	SUR	54	1	720	0	0.3	0.8	0.8
62128	99	P	SUR	59	1	721	0	0.4	0.3	0.5
62129	99	P	SUR	58	0	721	0	0.4	0.5	0.7
62130	99	P	SUR	59	1	721	0	0.4	0.2	0.4
62131	99	P	SUR	54	1	702	0	0.3	0.7	0.8
62132	99	P	SUR	56	2	721	0	0.4	0.6	0.7
62133	99	P	SUR	57	1	410	0	0.5	0.3	0.6
62134	99	P	SUR	58	1	713	0	0.4	0.5	0.6
62135	99	P	SUR	54	2	645	0	0.4	0.5	0.7
62136	99	P	SUR	54	3	699	0	0.4	0.8	0.9
62137	99	P	SUR	57	2	718	0	0.3	0.2	0.4
62138	99	P	SUR	54	0	1436	0	0.4	1.0	1.1
62139	99	P	SUR	53	2	1410	0	0.3	0.6	0.7
62140	99	P	SUR	57	1	1436	0	0.3	0.4	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62141	99	P	SUR	61	1	718	0	0.5	0.2	0.5
62143	99	P	SUR	58	2	720	0	0.4	0.6	0.7
62144	99	P	SUR	53	2	719	0	0.3	0.5	0.6
62145	99	P	SUR	53	3	1435	0	0.3	0.6	0.7
62146	99	P	SUR	57	2	707	0	0.5	0.5	0.7
62148	99	P	SUR	54	2	719	0	0.4	1.3	1.3
62149	99	P	SUR	54	1	717	0	0.3	0.9	0.9
62150	99	P	SUR	54	1	721	0	0.4	1.5	1.5
62151	99	P	SUR	57	2	1436	0	0.3	0.5	0.5
62152	99	P	SUR	57	2	721	0	0.4	0.7	0.8
62153	99	P	SUR	57	2	1436	0	0.3	0.4	0.5
62154	99	P	SUR	56	2	721	0	0.3	0.4	0.5
62155	99	P	SUR	58	1	712	0	0.3	0.6	0.7
62157	99	P	SUR	58	0	721	0	0.4	0.4	0.5
62160	99	P	SUR	57	2	1436	0	0.4	0.4	0.5
62161	99	P	SUR	58	1	492	0	0.4	0.2	0.5
62162	99	P	SUR	57	1	713	0	0.4	0.3	0.5
62163	99	P	SUR	48	-8	718	0	0.5	0.2	0.5
62164	99	P	SUR	57	1	721	0	0.4	0.6	0.7
62165	99	P	SUR	54	1	707	0	0.4	0.7	0.8
62167	99	P	SUR	53	2	1424	0	0.3	0.5	0.5
62168	99	P	SUR	58	1	721	0	0.3	0.4	0.5
62170	99	P	SUR	51	2	723	0	0.7	-0.1	0.7
62296	99	P	SUR	53	2	721	0	0.3	0.3	0.5
62297	99	P	SUR	59	2	1436	0	0.4	0.4	0.5
62302	99	P	SUR	61	-2	721	0	0.5	0.3	0.6
62304	99	P	SUR	51	2	730	5	0.4	0.3	0.5
62513	99	P	SUR	63	-32	720	0	0.4	-0.3	0.5
62553	99	P	SUR	59	-31	720	0	0.4	-0.2	0.4
62554	99	P	SUR	44	-17	711	0	0.4	0.1	0.4
62556	99	P	SUR	35	-22	716	0	0.3	-0.1	0.3
62557	99	P	SUR	55	-12	40	0	0.3	-0.0	0.3
62558	99	P	SUR	50	-14	720	0	0.4	0.0	0.5
62559	99	P	SUR	46	-30	720	0	0.4	0.5	0.7
62560	99	P	SUR	21	-32	718	0	0.4	0.5	0.7
62713	99	P	SUR	37	-60	706	0	0.8	-0.6	1.0
62714	99	P	SUR	43	-36	712	0	0.3	-0.5	0.7
62940	99	P	SUR	41	-18	720	0	0.3	0.0	0.3
62941	99	P	SUR	24	-29	719	0	0.3	-0.0	0.3
6300561	99	P	SUR	75	8	719	0	0.3	0.1	0.3
6300646	99	P	SUR	67	6	718	0	0.4	0.5	0.6
6301550	99	P	SUR	73	24	441	0	0.3	0.4	0.5
6301551	99	P	SUR	76	27	441	0	0.3	0.3	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
63055	99	P	SUR	61	2	719	0	0.5	0.2	0.5
63056	99	P	SUR	60	2	721	0	0.5	0.7	0.8
63057	99	P	SUR	59	2	721	0	0.4	0.1	0.4
63058	99	P	SUR	53	2	2149	0	0.3	0.5	0.6
63059	99	P	SUR	58	-1	712	0	0.4	0.6	0.7
63101	99	P	SUR	61	1	721	0	0.5	0.5	0.7
63102	99	P	SUR	61	1	721	0	0.5	0.3	0.5
63103	99	P	SUR	61	1	721	0	0.4	0.4	0.6
63104	99	P	SUR	61	2	721	0	0.4	0.3	0.5
63105	99	P	SUR	61	2	718	0	0.4	0.2	0.4
63108	99	P	SUR	61	2	716	0	0.5	0.2	0.6
63109	99	P	SUR	60	2	721	0	0.4	0.1	0.4
63110	99	P	SUR	60	2	720	0	0.4	0.0	0.4
63111	99	P	SUR	61	2	1351	0	0.4	-0.1	0.5
63112	99	P	SUR	61	1	721	0	0.4	-0.0	0.4
63115	99	P	SUR	62	1	721	0	0.4	0.1	0.4
63117	99	P	SUR	61	1	1433	0	0.5	0.8	1.0
63118	99	P	SUR	57	2	1012	0	0.6	-0.2	0.7
63119	99	P	SUR	56	2	40	0	0.5	1.6	1.7
63120	99	P	SUR	54	2	686	0	0.4	0.7	0.8
63561	99	P	SUR	75	8	669	0	0.3	0.1	0.3
63646	99	P	SUR	67	6	720	0	0.4	0.5	0.6
6400476	99	P	SUR	84	2	673	0	0.4	-0.4	0.6
6400519	99	P	SUR	72	1	715	0	0.4	0.0	0.4
6400523	99	P	SUR	73	19	717	0	0.4	0.2	0.5
6400524	99	P	SUR	67	13	715	0	0.5	0.7	0.8
6400526	99	P	SUR	65	-56	606	0	0.4	0.1	0.4
6400528	99	P	SUR	72	24	718	0	0.3	0.3	0.5
6400530	99	P	SUR	79	15	718	0	0.5	0.0	0.5
6400547	99	P	SUR	71	1	718	0	0.4	0.1	0.4
6400549	99	P	SUR	65	-21	449	0	1.2	-0.8	1.4
6400551	99	P	SUR	64	-35	716	0	0.4	-0.1	0.4
6400553	99	P	SUR	72	0	716	0	0.4	-0.2	0.5
6400554	99	P	SUR	66	-17	290	0	0.4	0.1	0.4
6400555	99	P	SUR	62	6	603	12	1.7	-0.2	1.7
6400560	99	P	SUR	66	-22	380	0	2.1	0.4	2.1
6400562	99	P	SUR	65	-32	716	0	0.4	-0.0	0.4
6400666	99	P	SUR	69	-16	717	0	0.5	0.6	0.8
6400694	99	P	SUR	58	-40	717	0	0.7	-0.5	0.9
6400757	99	P	SUR	85	-24	676	0	0.4	-0.6	0.7
6400758	99	P	SUR	81	4	235	0	0.4	-0.3	0.5
6400760	99	P	SUR	84	2	227	0	0.5	-0.5	0.7
6400973	99	P	SUR	82	12	675	0	0.4	-0.0	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6401500	99	P	SUR	64	-26	715	0	0.4	0.4	0.6
6401550	99	P	SUR	61	-9	717	0	0.5	0.4	0.6
6401551	99	P	SUR	62	-23	716	0	0.5	0.0	0.5
6401552	99	P	SUR	63	-33	718	0	0.4	0.7	0.8
6401553	99	P	SUR	62	-17	442	0	0.4	-0.2	0.5
6401554	99	P	SUR	61	-12	442	0	0.5	-0.1	0.5
64041	99	P	SUR	61	-3	721	0	0.4	0.3	0.5
64045	99	P	SUR	59	-12	1440	0	0.6	-0.2	0.6
64046	99	P	SUR	61	-4	723	0	0.5	0.1	0.5
64476	99	P	SUR	84	2	718	0	0.4	-0.4	0.6
64519	99	P	SUR	72	1	718	0	0.4	0.0	0.4
64523	99	P	SUR	73	19	720	0	0.4	0.2	0.5
64524	99	P	SUR	67	13	718	0	0.5	0.7	0.8
64526	99	P	SUR	65	-56	610	0	0.4	0.1	0.4
64528	99	P	SUR	72	23	720	0	0.3	0.3	0.5
64530	99	P	SUR	79	15	720	0	0.5	0.0	0.5
64547	99	P	SUR	71	1	719	0	0.4	0.1	0.4
64549	99	P	SUR	65	-21	467	0	1.4	-0.9	1.7
64551	99	P	SUR	64	-35	719	0	0.4	-0.1	0.4
64553	99	P	SUR	73	-1	720	0	0.4	-0.2	0.5
64554	99	P	SUR	66	-17	289	0	0.4	0.1	0.4
64555	99	P	SUR	62	6	605	12	1.7	-0.2	1.7
64560	99	P	SUR	66	-22	360	0	2.2	0.5	2.2
64562	99	P	SUR	65	-32	720	0	0.4	-0.0	0.4
64666	99	P	SUR	69	-16	720	0	0.5	0.6	0.8
64694	99	P	SUR	58	-40	720	0	0.7	-0.5	0.9
64757	99	P	SUR	85	-24	719	0	0.4	-0.7	0.8
64758	99	P	SUR	81	4	271	0	0.4	-0.3	0.5
64760	99	P	SUR	84	2	240	0	0.5	-0.6	0.8
64973	99	P	SUR	82	12	719	0	0.4	-0.0	0.4
6500514	99	P	SUR	53	-29	717	0	0.5	-0.1	0.5
6500515	99	P	SUR	62	-38	716	0	0.4	-0.1	0.4
6500519	99	P	SUR	60	-8	717	0	0.5	0.4	0.6
6500596	99	P	SUR	61	-14	716	0	0.6	0.1	0.6
6500599	99	P	SUR	62	-8	716	0	0.5	0.0	0.5
6500602	99	P	SUR	53	-35	716	0	0.9	-0.3	0.9
6500603	99	P	SUR	68	-54	716	0	0.3	0.1	0.3
6501551	99	P	SUR	59	-52	716	0	0.4	-0.1	0.4
6501552	99	P	SUR	59	-52	717	0	0.4	0.3	0.5
6501553	99	P	SUR	59	-53	716	0	0.4	0.2	0.4
6501555	99	P	SUR	65	-52	716	0	0.4	-0.2	0.5
6501556	99	P	SUR	61	-53	716	0	0.4	0.2	0.4
6501557	99	P	SUR	59	-36	717	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
6501558	99	P	SUR	61	-56	625	0	0.5	0.2	0.5
65514	99	P	SUR	53	-29	720	0	0.5	-0.1	0.5
65515	99	P	SUR	62	-38	720	0	0.4	-0.1	0.4
65519	99	P	SUR	60	-8	720	0	0.5	0.4	0.6
65596	99	P	SUR	61	-14	720	0	0.6	0.1	0.6
65599	99	P	SUR	62	-8	720	0	0.5	0.0	0.5
65602	99	P	SUR	53	-35	720	0	0.8	-0.4	0.9
65603	99	P	SUR	68	-54	720	0	0.3	0.1	0.3
71245	99	P	SUR	62	-69	1119	50	3.2	1.8	3.6

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND SPEED (M/S)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : SEP 2016
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

TIME = 99 => AVERAGE OF ALL OBSERVATIONS

GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300001	99	SPEED	SUR	11	-23	699	0	0	1.8	0.2	1.8
1300002	99	SPEED	SUR	20	-23	361	0	0	0.9	0.1	0.9
13002	99	SPEED	SUR	20	-23	259	0	0	0.9	0.2	0.9
4100026	99	SPEED	SUR	11	-38	324	0	0	1.5	0.6	1.6
4100139	99	SPEED	SUR	20	-38	346	0	0	1.0	-0.2	1.0
4100300	99	SPEED	SUR	16	-57	717	0	0	1.1	-0.4	1.2
41026	99	SPEED	SUR	11	-38	106	0	0	1.5	0.8	1.7
41040	99	SPEED	SUR	15	-53	714	0	0	1.3	-0.0	1.3
41041	99	SPEED	SUR	14	-46	708	0	0	1.4	0.2	1.4
41043	99	SPEED	SUR	21	-65	885	0	0	1.0	-0.4	1.1
41044	99	SPEED	SUR	22	-59	888	0	0	1.0	-0.2	1.0
41046	99	SPEED	SUR	24	-69	894	0	0	1.1	-0.5	1.2
41048	99	SPEED	SUR	32	-70	781	0	0	1.3	-0.1	1.3
41049	99	SPEED	SUR	28	-63	718	0	0	1.3	0.0	1.3
41052	99	SPEED	SUR	18	-65	1796	0	0	1.1	-0.5	1.2
41053	99	SPEED	SUR	19	-66	1085	0	0	1.5	0.1	1.5
41056	99	SPEED	SUR	18	-66	1645	0	0	1.2	-0.7	1.4
41139	99	SPEED	SUR	20	-38	235	0	0	1.0	-0.1	1.0
42059	99	SPEED	SUR	15	-68	893	0	0	1.0	0.0	1.0
42085	99	SPEED	SUR	18	-67	1656	0	0	1.3	0.1	1.3
42088	99	SPEED	SUR	11	-61	1597	0	0	1.4	-1.6	2.1
42090	99	SPEED	SUR	18	-70	70	0	0	1.1	-0.7	1.3
44005	99	SPEED	SUR	43	-69	757	0	0	1.3	-0.1	1.3
44008	99	SPEED	SUR	41	-69	256	10	0	1.4	-0.2	1.4
44018	99	SPEED	SUR	42	-70	831	0	0	1.8	-0.3	1.8
44024	99	SPEED	SUR	42	-66	786	0	0	1.2	0.0	1.2
44027	99	SPEED	SUR	44	-67	814	0	0	1.3	-1.1	1.7
44032	99	SPEED	SUR	44	-69	719	0	0	1.4	-0.4	1.5
44033	99	SPEED	SUR	44	-69	712	0	0	1.5	-0.2	1.5
44034	99	SPEED	SUR	44	-68	718	0	0	1.5	-0.8	1.8
44037	99	SPEED	SUR	44	-68	539	0	0	1.2	-0.2	1.2
44137	99	SPEED	SUR	42	-62	726	0	0	1.3	-0.3	1.3
44139	99	SPEED	SUR	44	-57	710	0	0	1.3	-0.5	1.4
44141	99	SPEED	SUR	43	-58	601	0	0	1.5	-0.2	1.5

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND SPEED (M/S)

(CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44251	99	SPEED	SUR	46	-53	716	0	0	1.5	-0.3	1.5
44255	99	SPEED	SUR	47	-57	1110	0	0	1.6	-0.2	1.6
44258	99	SPEED	SUR	45	-63	717	0	0	1.4	-0.1	1.4
45138	99	SPEED	SUR	50	-66	653	0	0	1.5	0.3	1.6
6100001	99	SPEED	SUR	43	8	702	0	0	1.7	-0.1	1.7
6100002	99	SPEED	SUR	42	5	713	0	0	3.8	5.7	6.8
6200091	99	SPEED	SUR	53	-5	718	0	0	1.3	0.0	1.3
6200092	99	SPEED	SUR	51	-11	718	0	0	1.2	-0.6	1.3
6200093	99	SPEED	SUR	55	-10	718	0	0	1.1	-0.5	1.2
6200094	99	SPEED	SUR	52	-7	718	0	0	1.1	-0.1	1.1
62001	99	SPEED	SUR	45	-5	719	0	0	1.6	0.6	1.7
62029	99	SPEED	SUR	49	-12	1252	0	0	1.0	0.2	1.1
62050	99	SPEED	SUR	50	-4	261	0	0	1.0	0.5	1.1
62081	99	SPEED	SUR	51	-13	287	0	0	1.5	-0.0	1.5
62082	99	SPEED	SUR	55	6	3	0	0	0.8	1.5	1.7
62086	99	SPEED	SUR	55	6	716	0	0	1.2	0.1	1.2
62095	99	SPEED	SUR	53	-16	690	0	0	1.2	0.2	1.2
62102	99	SPEED	SUR	58	2	721	0	0	1.3	0.0	1.3
62103	99	SPEED	SUR	50	-3	722	0	0	1.5	0.8	1.7
62104	99	SPEED	SUR	57	1	721	0	0	1.2	-0.0	1.2
62105	99	SPEED	SUR	55	-13	522	0	0	1.2	0.2	1.2
62107	99	SPEED	SUR	50	-6	1423	0	0	1.5	0.6	1.6
62111	99	SPEED	SUR	58	0	719	0	0	1.2	0.0	1.2
62112	99	SPEED	SUR	58	0	719	0	0	1.9	-0.5	2.0
62113	99	SPEED	SUR	58	0	721	0	0	1.8	0.9	2.0
62114	99	SPEED	SUR	58	0	1436	0	0	1.6	1.0	1.9
62117	99	SPEED	SUR	58	0	721	0	0	1.2	0.3	1.3
62118	99	SPEED	SUR	58	1	721	0	0	1.4	1.1	1.8
62119	99	SPEED	SUR	57	2	719	0	0	1.4	-0.1	1.4
62120	99	SPEED	SUR	56	2	721	0	0	1.4	0.1	1.5
62121	99	SPEED	SUR	54	3	719	0	0	1.3	-0.4	1.4
62122	99	SPEED	SUR	57	2	1433	0	0	1.2	-0.1	1.2
62123	99	SPEED	SUR	56	2	840	0	0	2.5	-0.8	2.7
62128	99	SPEED	SUR	59	1	721	0	0	1.7	1.0	2.0
62129	99	SPEED	SUR	58	0	695	0	0	1.3	0.2	1.3
62131	99	SPEED	SUR	54	1	702	0	0	1.7	-0.7	1.8
62132	99	SPEED	SUR	56	2	721	0	0	1.7	-0.9	1.9
62133	99	SPEED	SUR	57	1	719	0	0	1.5	0.4	1.6
62134	99	SPEED	SUR	58	1	349	0	0	1.3	0.5	1.4
62140	99	SPEED	SUR	57	1	1262	0	0	1.1	0.2	1.1
62143	99	SPEED	SUR	58	2	720	0	0	1.9	-0.3	1.9

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
62144	99	SPEED	SUR	53	2	719	0	0	2.0	-0.6	2.1
62145	99	SPEED	SUR	53	3	1435	0	0	1.6	0.3	1.6
62146	99	SPEED	SUR	57	2	702	0	0	1.3	-0.2	1.3
62148	99	SPEED	SUR	54	2	719	0	0	1.6	-0.1	1.6
62149	99	SPEED	SUR	54	1	717	0	0	1.4	0.2	1.4
62150	99	SPEED	SUR	54	1	721	0	0	2.1	-0.8	2.3
62152	99	SPEED	SUR	57	2	721	0	0	1.5	-0.7	1.7
62153	99	SPEED	SUR	57	2	1436	0	0	2.3	-1.8	2.9
62154	99	SPEED	SUR	56	2	721	0	0	1.5	-0.0	1.5
62155	99	SPEED	SUR	58	1	556	0	0	1.4	0.2	1.4
62163	99	SPEED	SUR	48	-8	718	0	0	1.2	-0.0	1.2
62164	99	SPEED	SUR	57	1	721	0	0	1.6	-1.0	1.9
62165	99	SPEED	SUR	54	1	707	0	0	2.1	-1.2	2.4
62170	99	SPEED	SUR	51	2	723	0	0	1.6	1.4	2.2
62304	99	SPEED	SUR	51	2	726	0	0	1.5	1.0	1.8
62305	99	SPEED	SUR	50	0	749	0	0	1.5	0.9	1.8
63055	99	SPEED	SUR	61	2	719	0	0	1.1	-0.8	1.3
63056	99	SPEED	SUR	60	2	721	0	0	1.3	0.2	1.3
63057	99	SPEED	SUR	59	2	721	0	0	1.8	0.5	1.9
63058	99	SPEED	SUR	53	2	1428	0	0	1.4	-0.0	1.4
63101	99	SPEED	SUR	61	1	714	0	0	1.9	-0.8	2.1
63103	99	SPEED	SUR	61	1	721	0	0	1.7	0.7	1.8
63104	99	SPEED	SUR	61	2	721	0	0	1.3	0.2	1.4
63105	99	SPEED	SUR	61	2	718	0	0	1.4	0.4	1.5
63106	99	SPEED	SUR	61	2	634	0	0	1.4	0.2	1.4
63108	99	SPEED	SUR	61	2	719	0	0	1.4	0.6	1.6
63109	99	SPEED	SUR	60	2	717	0	0	1.4	0.6	1.5
63110	99	SPEED	SUR	60	2	720	0	0	1.5	-0.1	1.5
63112	99	SPEED	SUR	61	1	721	0	0	1.3	-0.2	1.3
63113	99	SPEED	SUR	61	2	719	0	0	1.2	0.0	1.2
63115	99	SPEED	SUR	62	1	721	0	0	1.3	0.0	1.3
63117	99	SPEED	SUR	61	1	1433	0	0	1.5	0.3	1.5
63119	99	SPEED	SUR	56	2	40	0	0	2.5	-1.8	3.1
64041	99	SPEED	SUR	61	-3	721	0	0	1.3	0.2	1.4
64045	99	SPEED	SUR	59	-12	1440	0	0	1.1	0.3	1.2
64046	99	SPEED	SUR	61	-4	723	0	0	1.3	0.2	1.3
66021	99	SPEED	SUR	55	14	708	0	0	1.2	0.3	1.2
66024	99	SPEED	SUR	55	13	719	0	0	1.3	0.1	1.3

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

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)
 AREA : 10N - 90N, 70W - 40E
 PERIOD : SEP 2016
 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	436	0	0	33.2	5.5	33.6
1300002	99	DIRN	SUR	20	-23	360	0	0	10.8	8.8	14.0
13002	99	DIRN	SUR	20	-23	258	0	0	10.8	8.4	13.7
4100026	99	DIRN	SUR	11	-38	191	0	0	25.3	-1.5	25.4
4100139	99	DIRN	SUR	20	-38	324	0	0	13.4	-2.1	13.6
41002	99	DIRN	SUR	32	-75	491	0	0	26.4	15.4	30.5
4100300	99	DIRN	SUR	16	-57	654	0	0	12.9	5.0	13.8
41004	99	DIRN	SUR	33	-79	635	0	0	24.6	13.5	28.1
41008	99	DIRN	SUR	31	-81	594	0	0	21.5	7.8	22.8
41009	99	DIRN	SUR	29	-80	399	0	0	25.1	6.7	25.9
41013	99	DIRN	SUR	33	-78	768	0	0	22.0	13.0	25.6
41024	99	DIRN	SUR	34	-79	594	0	0	24.5	-1.3	24.5
41025	99	DIRN	SUR	35	-75	539	0	0	23.4	-0.4	23.4
41026	99	DIRN	SUR	11	-38	62	0	0	20.1	-2.6	20.3
41029	99	DIRN	SUR	33	-80	632	0	0	28.5	2.2	28.6
41033	99	DIRN	SUR	32	-80	563	0	0	26.1	-3.7	26.3
41037	99	DIRN	SUR	34	-77	567	0	0	21.1	6.4	22.1
41038	99	DIRN	SUR	34	-78	563	0	0	28.4	-0.1	28.4
41040	99	DIRN	SUR	15	-53	623	0	0	13.1	3.7	13.6
41041	99	DIRN	SUR	14	-46	643	0	0	18.4	8.2	20.2
41043	99	DIRN	SUR	21	-65	728	0	0	12.5	7.2	14.4
41044	99	DIRN	SUR	22	-59	823	0	0	11.3	2.3	11.5
41046	99	DIRN	SUR	24	-69	638	0	0	15.9	2.4	16.1
41047	99	DIRN	SUR	28	-72	519	0	0	26.8	7.5	27.9
41048	99	DIRN	SUR	32	-70	451	0	0	17.8	12.2	21.5
41049	99	DIRN	SUR	28	-63	504	0	0	16.5	5.6	17.5
41052	99	DIRN	SUR	18	-65	1643	0	0	14.8	4.4	15.4
41053	99	DIRN	SUR	19	-66	765	0	0	16.6	-0.5	16.6
41056	99	DIRN	SUR	18	-66	1432	0	0	16.3	3.6	16.7
41057	99	DIRN	SUR	20	-71	1291	0	0	15.6	-24.3	28.8
41064	99	DIRN	SUR	34	-77	572	0	0	22.1	0.7	22.1
41139	99	DIRN	SUR	20	-38	219	0	0	13.4	-1.5	13.5

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

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
42013	99	DIRN	SUR	27	-83	398	0	0	22.8	-3.8	23.1
42022	99	DIRN	SUR	28	-84	577	0	0	23.6	3.4	23.8
42023	99	DIRN	SUR	26	-83	454	0	0	30.4	0.4	30.4
42036	99	DIRN	SUR	29	-85	338	0	0	21.9	-0.4	21.9
42056	99	DIRN	SUR	20	-85	706	0	0	16.6	1.9	16.8
42058	99	DIRN	SUR	15	-75	714	0	0	8.9	0.3	8.9
42059	99	DIRN	SUR	15	-68	889	0	0	10.1	3.6	10.8
42085	99	DIRN	SUR	18	-67	1345	0	0	18.1	8.5	20.0
42088	99	DIRN	SUR	11	-61	569	0	0	32.7	-16.7	36.7
42089	99	DIRN	SUR	20	-80	1378	0	0	18.1	-2.1	18.2
42090	99	DIRN	SUR	18	-70	36	0	0	22.4	-31.9	39.0
44005	99	DIRN	SUR	43	-69	591	0	0	14.4	14.1	20.1
44007	99	DIRN	SUR	44	-70	551	0	0	19.9	6.2	20.8
44008	99	DIRN	SUR	41	-69	224	10	0	61.4	82.7	103.0
44013	99	DIRN	SUR	42	-71	549	0	0	18.5	12.7	22.5
44014	99	DIRN	SUR	37	-75	559	0	0	22.8	10.7	25.2
44017	99	DIRN	SUR	41	-72	543	0	0	15.6	5.3	16.5
44018	99	DIRN	SUR	42	-70	600	0	0	20.9	10.7	23.5
44020	99	DIRN	SUR	41	-70	562	0	0	17.4	4.8	18.1
44022	99	DIRN	SUR	41	-74	294	0	0	10.9	5.6	12.2
44024	99	DIRN	SUR	42	-66	639	0	0	12.7	6.0	14.0
44025	99	DIRN	SUR	40	-73	629	0	0	18.5	2.5	18.7
44027	99	DIRN	SUR	44	-67	510	0	0	14.9	11.5	18.8
44029	99	DIRN	SUR	43	-71	767	0	0	18.0	4.4	18.5
44030	99	DIRN	SUR	43	-70	508	0	0	19.5	3.6	19.9
44032	99	DIRN	SUR	44	-69	463	0	0	15.1	3.9	15.6
44033	99	DIRN	SUR	44	-69	407	0	0	17.5	6.2	18.6
44034	99	DIRN	SUR	44	-68	417	0	0	14.4	6.0	15.6
44037	99	DIRN	SUR	44	-68	401	0	0	16.4	6.5	17.7
44039	99	DIRN	SUR	41	-73	417	0	0	24.4	-3.8	24.7
44041	99	DIRN	SUR	37	-77	99	0	0	20.0	9.2	22.0
44042	99	DIRN	SUR	38	-76	728	0	0	26.1	-10.9	28.3
44043	99	DIRN	SUR	39	-76	655	0	0	20.8	-12.5	24.2
44057	99	DIRN	SUR	40	-76	371	0	0	18.3	-8.3	20.1
44058	99	DIRN	SUR	38	-76	782	0	0	27.7	55.1	61.7
44060	99	DIRN	SUR	41	-72	17	0	0	9.7	-4.9	10.8
44061	99	DIRN	SUR	39	-77	180	0	0	16.1	-8.4	18.2
44062	99	DIRN	SUR	39	-76	694	0	0	22.6	-21.5	31.2
44063	99	DIRN	SUR	39	-76	604	0	0	18.7	-11.2	21.8
44064	99	DIRN	SUR	37	-76	794	0	0	25.8	-14.5	29.6
44065	99	DIRN	SUR	40	-74	531	0	0	21.3	5.4	22.0

DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF

ELEMENT MONITORED : WIND DIRECTION (DEGREES)

(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44069	99	DIRN	SUR	41	-73	558	0	0	17.5	0.7	17.5
44072	99	DIRN	SUR	37	-76	805	0	0	24.8	-8.7	26.3
44137	99	DIRN	SUR	42	-62	578	0	0	16.3	3.8	16.8
44139	99	DIRN	SUR	44	-57	595	0	0	14.5	8.4	16.8
44141	99	DIRN	SUR	43	-58	497	0	0	15.8	10.0	18.6
44251	99	DIRN	SUR	46	-53	623	0	0	19.1	12.0	22.6
44255	99	DIRN	SUR	47	-57	931	0	0	13.5	7.5	15.4
44258	99	DIRN	SUR	45	-63	568	0	0	16.1	4.0	16.6
45003	99	DIRN	SUR	45	-83	521	0	0	19.7	-1.4	19.8
45005	99	DIRN	SUR	42	-82	785	0	0	22.4	-0.7	22.4
45008	99	DIRN	SUR	44	-82	961	0	0	19.0	2.0	19.1
45012	99	DIRN	SUR	44	-77	456	0	0	19.8	7.2	21.0
45132	99	DIRN	SUR	43	-81	537	0	0	18.2	-14.8	23.4
45135	99	DIRN	SUR	44	-77	629	0	0	18.8	-20.4	27.8
45137	99	DIRN	SUR	46	-81	530	0	0	20.6	-13.7	24.8
45138	99	DIRN	SUR	50	-66	552	0	0	14.6	0.9	14.6
45139	99	DIRN	SUR	43	-80	397	0	0	19.7	-24.8	31.7
45142	99	DIRN	SUR	43	-79	559	0	0	18.1	-24.6	30.6
45143	99	DIRN	SUR	45	-81	890	0	0	17.7	-19.5	26.3
45147	99	DIRN	SUR	42	-83	473	0	0	20.0	-0.6	20.1
45149	99	DIRN	SUR	44	-82	538	0	0	18.4	-10.8	21.3
45151	99	DIRN	SUR	45	-79	452	0	0	16.8	4.3	17.3
45152	99	DIRN	SUR	46	-80	245	0	0	17.1	-26.6	31.6
45154	99	DIRN	SUR	46	-83	707	0	0	18.3	-15.6	24.1
45159	99	DIRN	SUR	44	-79	437	0	0	23.4	-12.7	26.6
45162	99	DIRN	SUR	45	-83	482	0	0	20.7	0.2	20.7
45163	99	DIRN	SUR	44	-84	582	0	0	19.6	-1.4	19.7
45164	99	DIRN	SUR	42	-82	432	0	0	26.2	-18.0	31.8
45165	99	DIRN	SUR	42	-83	724	0	0	22.1	-33.9	40.4
45167	99	DIRN	SUR	42	-80	857	0	0	28.2	-24.5	37.3
45169	99	DIRN	SUR	42	-82	778	0	0	20.6	-0.2	20.6
45175	99	DIRN	SUR	46	-85	920	0	0	32.6	-16.8	36.7
45176	99	DIRN	SUR	42	-82	755	0	0	26.6	-17.3	31.7
6200091	99	DIRN	SUR	53	-5	643	0	0	13.1	6.9	14.8
6200092	99	DIRN	SUR	51	-11	672	0	0	13.2	7.7	15.2
6200093	99	DIRN	SUR	55	-10	663	0	0	11.0	0.8	11.0
6200094	99	DIRN	SUR	52	-7	646	0	0	12.9	5.9	14.2
62001	99	DIRN	SUR	45	-5	438	0	0	22.4	4.4	22.8
62029	99	DIRN	SUR	49	-12	1212	0	0	11.8	5.8	13.2
62050	99	DIRN	SUR	50	-4	242	0	0	13.2	-0.9	13.3
62081	99	DIRN	SUR	51	-13	267	0	0	13.0	12.8	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
62095	99	DIRN	SUR	53	-16	656	0	0	12.9	6.7	14.5
62103	99	DIRN	SUR	50	-3	633	0	0	30.8	4.3	31.1
62105	99	DIRN	SUR	55	-13	478	0	0	13.5	8.0	15.7
62107	99	DIRN	SUR	50	-6	1355	0	0	16.8	2.8	17.0
62111	99	DIRN	SUR	58	0	661	0	0	11.8	4.1	12.5
62112	99	DIRN	SUR	58	0	635	0	0	11.6	3.7	12.2
62114	99	DIRN	SUR	58	0	1322	0	0	10.9	-1.3	11.0
62117	99	DIRN	SUR	58	0	664	0	0	10.8	4.4	11.6
62163	99	DIRN	SUR	48	-8	594	0	0	15.8	2.5	16.0
62305	99	DIRN	SUR	50	0	645	0	0	28.4	5.2	28.9
64041	99	DIRN	SUR	61	-3	660	0	0	10.8	6.2	12.5
64045	99	DIRN	SUR	59	-12	1356	0	0	13.4	7.1	15.1
64046	99	DIRN	SUR	61	-4	678	0	0	13.0	-2.4	13.2

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE01	ASDE02	ASDE03	ASDE04	ASDE09	ASDK01	ASDK02	ASDK03	ASES01
ASEU01	ASEU02	ASEU03	ASEU04	ASEU06	ASFR1	ASFR2	ASFR3	ASFR4
DBLK	01001	01004	01010	01028	01241	01400	01415	02185
02365	02527	02591	02836	02935	02963	03005	03354	03808
03882	03918	03953	06260	06610	08001	08023	08190	08221
08302	08430	10035	10113	10141	10184	10238	10304	10393
10410	10618	10739	10868	10954	10962	16080	16245	16320
16429	16546	43599	47155	60018	89002	89564	89571	89611
93112	93417	93817	94120	94150	94170	94203	94294	94299
94302	94312	94326	94332	94374	94403	94430	94461	94510
94578	94610	94637	94638	94653	94659	94672	94711	94767
94776	94802	94821	94866	94910	94975	94995	94996	94998
95527								

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

ASDE01	ASDE02	ASDE03	ASDE04	ASDE09	ASDK01	ASDK02	ASDK03	ASES01
ASEU01	ASEU02	ASEU03	ASEU04	ASEU06	DBLK	DSQL7	10141	33008
47155	76903	93817	94767					

5 Annex - Explanations of figures and tables

5.1 General

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

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

5.2 Data Availability

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

5.3 Data Quality

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

It should be noted that:

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

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

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

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

The corresponding limits for wind (table 8) are:

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

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

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

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

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

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

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

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

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