



# ECMWF Global Data Monitoring Report

**February 2015**

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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 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 co-ordinate all the results, inform the WMO Secretariat immediately of obvious problems, and produce every six months a consolidated list of observations of that particular type believed to be of low quality. The presently nominated centres are: RSMC Exeter for marine surface observations; RSMC ECMWF for radiosonde and pilot observations; WMC Washington for aircraft and satellite observations.

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

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

ECMWF  
Attn. Head of Evaluation Section  
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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	Jan	Feb	Ident	Time	Jan	Feb
23078	(12)	13	0	17516	(00)	0	24
23330	(12)	19	0	17607	(12)	10	34
23472	(12)	14	0	24726	(12)	9	20
23884	(12)	14	0	31300	(12)	0	24
23921	(12)	14	0	32477	(12)	8	27
23933	(12)	18	0	40373	(12)	4	23
24507	(12)	13	0	40375	(00)	13	24
24908	(12)	14	0	40437	(00)	1	25
28225	(12)	14	0	40437	(12)	4	22
28275	(12)	19	0	40650	(12)	11	23
28445	(12)	14	0	42397	(00)	2	15
28661	(12)	13	0	43185	(00)	0	14
28698	(12)	19	0	63985	(12)	0	17
29263	(12)	14	0	64500	(12)	11	27
29282	(12)	13	0	76225	(12)	8	27
29572	(12)	13	0	76692	(00)	9	28
29862	(12)	14	0	78583	(12)	15	26
31168	(00)	20	0	78762	(12)	5	20
31369	(00)	20	0	78866	(12)	0	13
31510	(00)	20	0	89512	(12)	0	14
31538	(00)	20	0	89592	(12)	0	14
31736	(00)	20	0	96011	(00)	1	19
31770	(00)	20	0	96011	(12)	1	15
31873	(00)	18	0	96805	(00)	0	12
31977	(00)	17	0	98618	(12)	5	28
32098	(00)	20	0	-	-	-	-
32150	(00)	12	0	-	-	-	-
32215	(00)	11	0	-	-	-	-
33345	(12)	15	0	-	-	-	-
36096	(12)	14	0	-	-	-	-
40706	(00)	23	0	-	-	-	-
44292	(12)	13	0	-	-	-	-
48327	(00)	12	0	-	-	-	-
70414	(00)	27	1	-	-	-	-
70414	(12)	19	0	-	-	-	-
76405	(00)	23	0	-	-	-	-
76458	(00)	18	1	-	-	-	-
76595	(12)	27	3	-	-	-	-
76654	(00)	29	2	-	-	-	-
82678	(12)	28	0	-	-	-	-
83498	(12)	16	0	-	-	-	-
89002	(12)	23	0	-	-	-	-
89571	(12)	30	2	-	-	-	-
89662	(00)	16	0	-	-	-	-

## 2.2 Drifting Buoys

Surface pressure observations from 1422 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

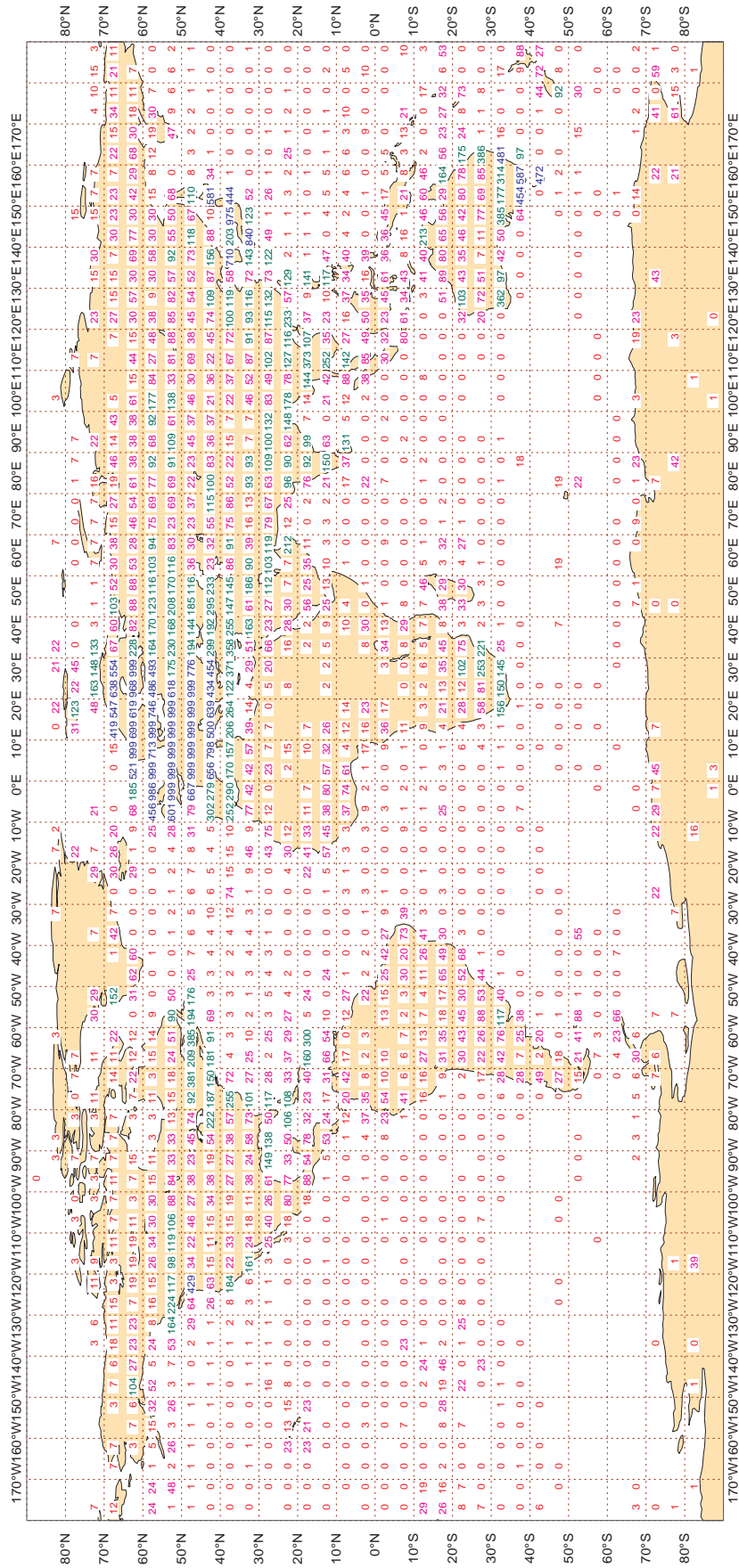
Table 12 provides quality statistics of aircraft wind observations stratified by airline carrier.



3.2.1 Figure 1 - Availability - SYNOP PRESSURE

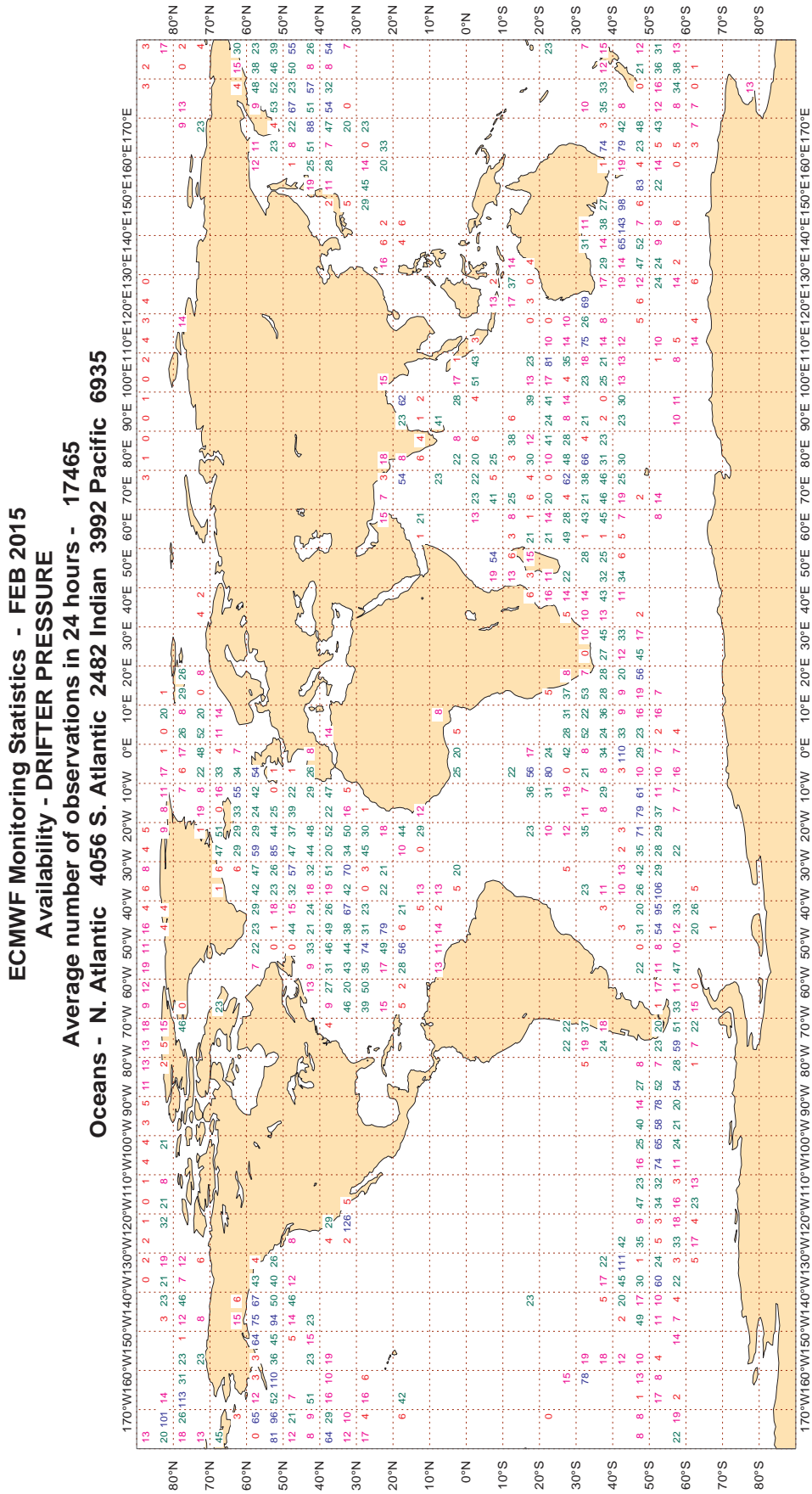
Figure 1

ECMWF Monitoring Statistics - FEB 2015  
 Availability - SYNOP/SHIP (manual, auto) pressure  
 Average number of observations in 24 hours - 96834  
 LAND - WMO Region I: 3743 II:18360 III: 2338 IV: 4851  
 Region V: 8438 VI:46949 Antarctic: 768  
 Oceans - N. Atlantic 7576 S. Atlantic 254 Indian 356 Pacific 3201



3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

Figure 2

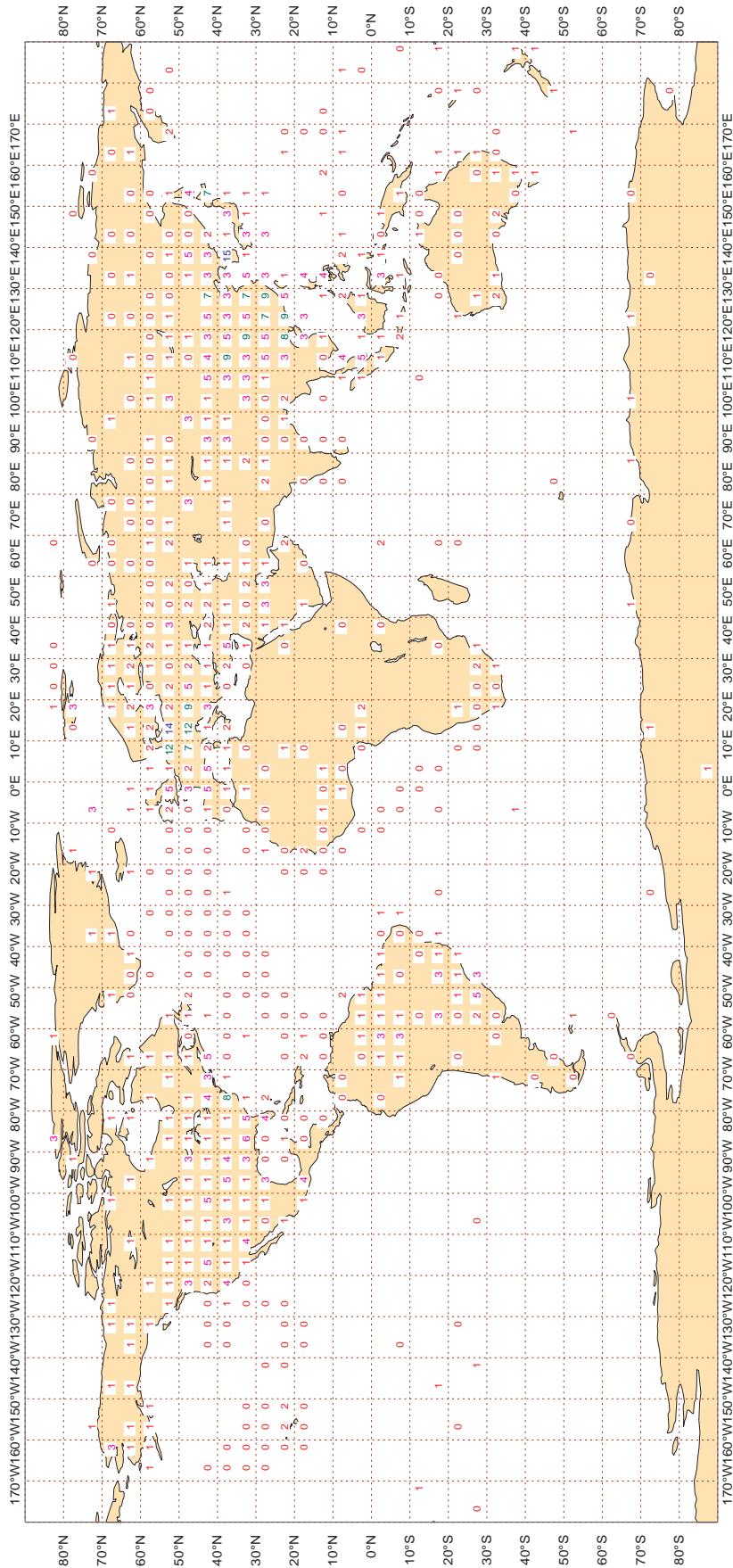


Magicis 2.22.7 (64 bit)

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

Figure 3

ECMWF Monitoring Statistics - FEB 2015  
 Availability - TEMP 500 hPa Geopotential  
 Average number of observations in 24 hours - 1165  
 LAND - WMO Region I: 50 II: 413 III: 75 IV: 244  
 Region V: 126 VI: 229 Antarctic: 14  
 Oceans - N. Atlantic 9 S. Atlantic 1 Indian 0 Pacific 3



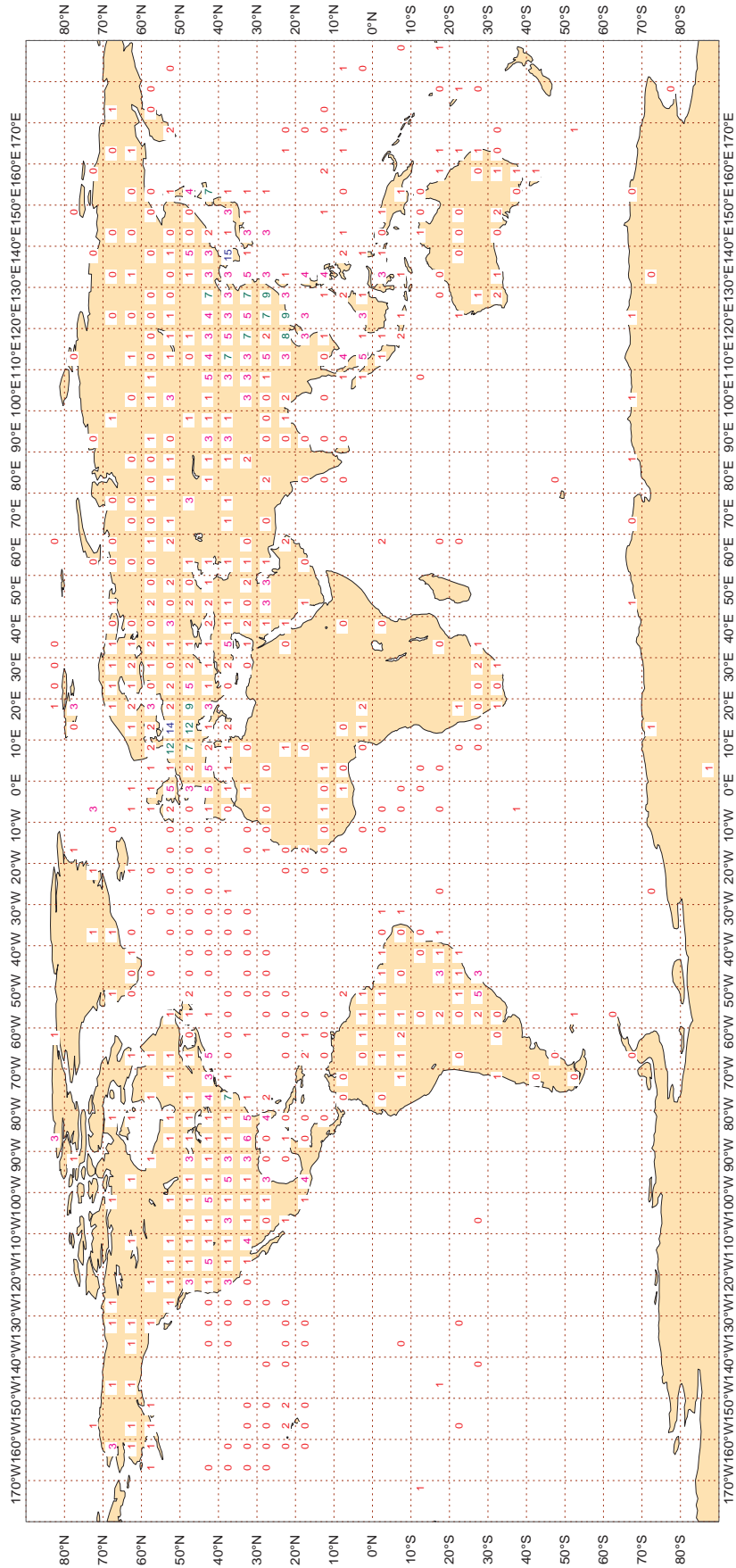
Magics 2.22.7 (64 bit)



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

Figure 4

ECMWF Monitoring Statistics - FEB 2015  
 Availability - TEMP/PILOT 300 hPa wind  
 Average number of observations in 24 hours - 1123  
 LAND - WMO Region I: 49 II: 391 III: 71 IV: 242  
 Region V: 118 VI: 225 Antarctic: 14  
 Oceans - N. Atlantic 9 S. Atlantic 1 Indian 0 Pacific 3



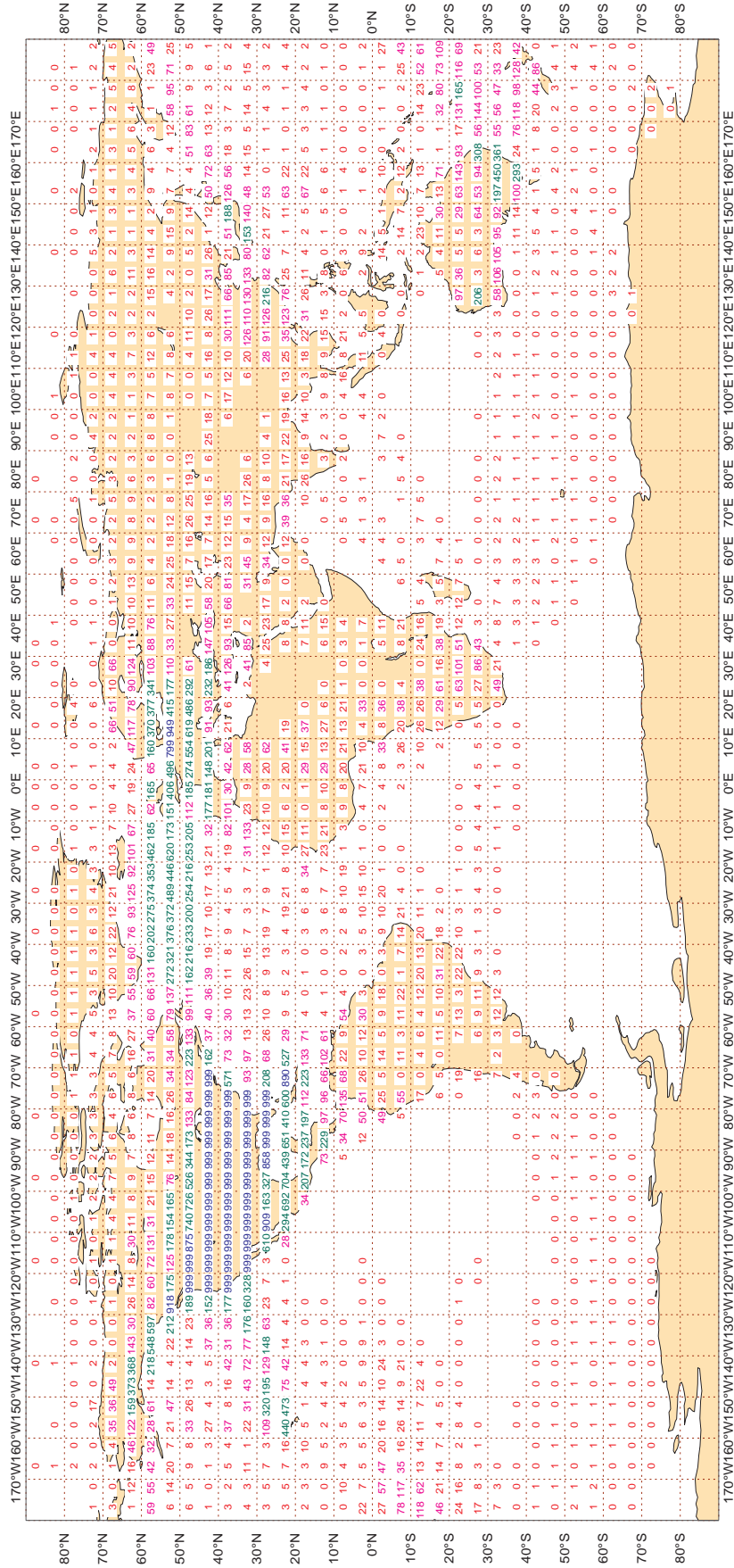
Magics 2.22.7 (64 bit)



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

Figure 5

ECMWF Monitoring Statistics - FEB 2015  
Availability - Aircraft winds 300-150 hPa  
Average number of observations in 24 hours - 212824



Magicis 2.22.7 (64 bit)





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

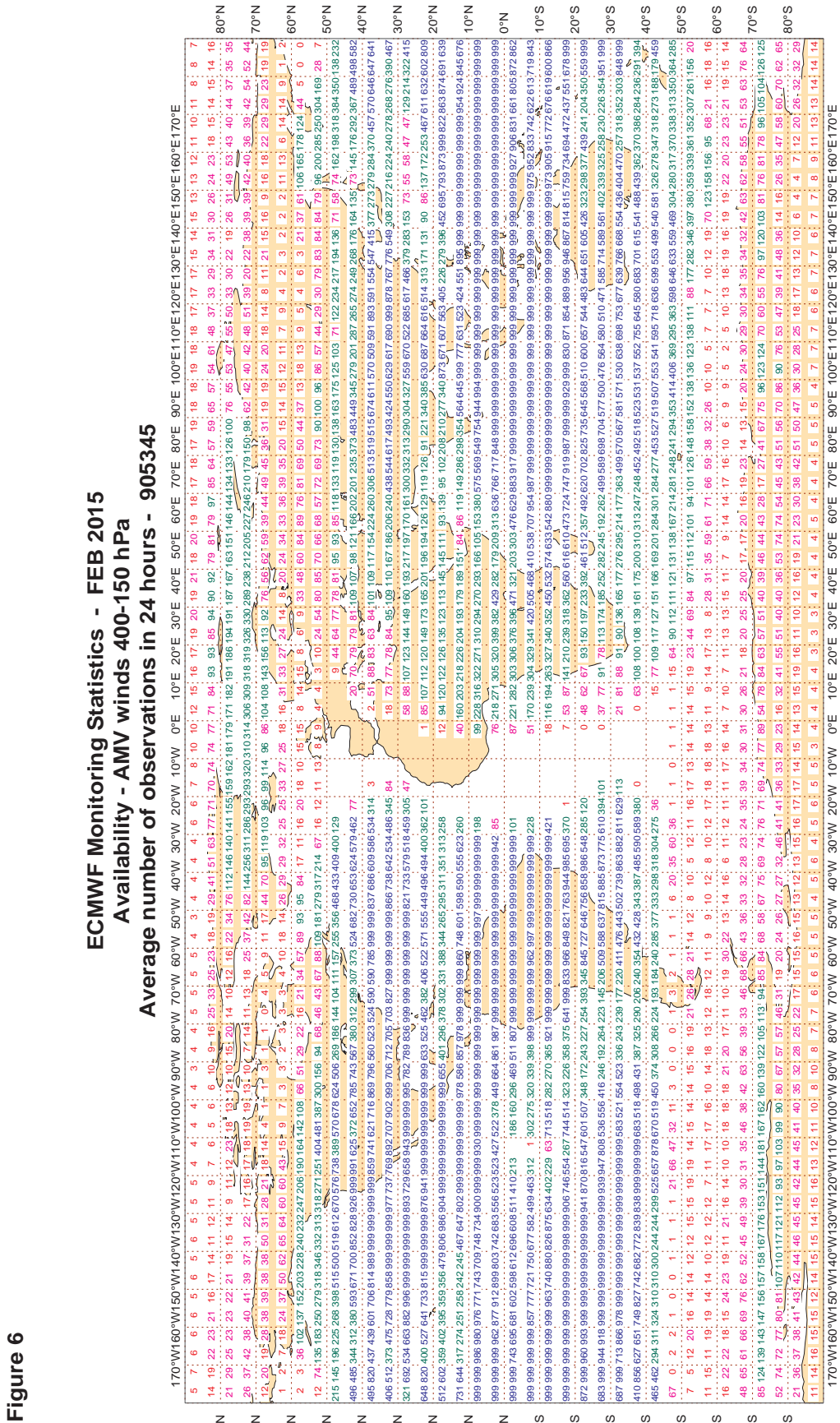


Figure 6

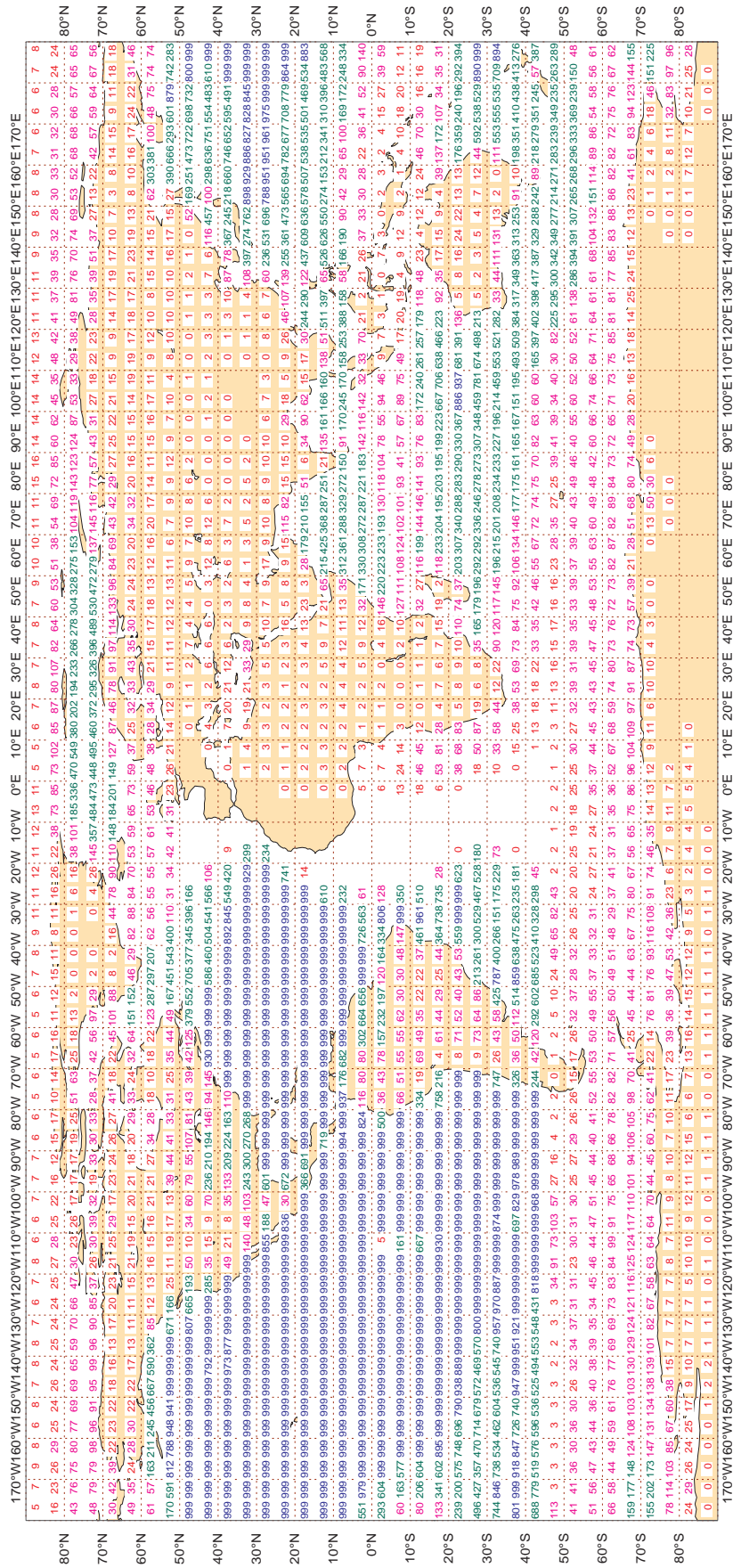
Magics 2.22.7 (64 bit)



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

Figure 7

ECMWF Monitoring Statistics - FEB 2015  
Availability - AMV winds 1000-700 hPa  
Average number of observations in 24 hours - 1224478



Magicis 2.22.7 (64 bit)



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

Figure 8

ECMWF Monitoring Statistics - FEB 2015
Availability - NOAA15 ATOVS : AMSU-A
Average number of observations in 24 hours - 328736

Table with 180 columns representing longitude (170°W to 170°E) and 18 rows representing latitude (80°N to 80°S). The table contains numerical data representing the average number of observations in 24 hours for NOAA15 ATOVS AMSU-A in February 2015.

Magicis 2.22.7 (64 bit)





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

Figure 9.1

ECMWF Monitoring Statistics - FEB 2015  
 Availability - NOAA18 ATOVS : AMSU-A  
 Average number of observations in 24 hours - 539338

Latitude	170°W	160°W	150°W	140°W	130°W	120°W	110°W	100°W	90°W	80°W	70°W	60°W	50°W	40°W	30°W	20°W	10°W	0°E	10°E	20°E	30°E	40°E	50°E	60°E	70°E	80°E	90°E	100°E	110°E	120°E	130°E	140°E	150°E	160°E	170°E																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
80°N	132	152	159	167	175	185	210	226	245	262	285	318	364	424	500	594	708	845	1000	1175	1365	1575	1810	2070	2355	2665	3000	3360	3735	4125	4530	4950	5385	5835	6300	6780	7275	7785	8310	8850	9405	9975	10560	11160	11775	12405	13050	13710	14385	15075	15780	16500	17235	17985	18750	19525	20310	21105	21915	22740	23580	24435	25305	26190	27090	28005	28935	29880	30840	31815	32805	33810	34830	35865	36915	37980	39060	40155	41265	42390	43530	44685	45855	47040	48240	49450	50670	51900	53145	54405	55680	56970	58275	59595	60930	62280	63645	65025	66420	67830	69255	70695	72150	73620	75105	76605	78120	79650	81195	82755	84330	85915	87510	89115	90735	92365	94005	95655	97315	98985	100665	102360	104065	105780	107505	109245	111000	112765	114540	116325	118120	119925	121740	123565	125400	127245	129100	130965	132840	134725	136620	138525	140440	142365	144300	146245	148200	150165	152140	154125	156120	158125	160140	162165	164200	166245	168300	170365	172440	174525	176615	178710	180810	182915	185025	187140	189260	191385	193515	195650	197790	199935	202085	204240	206400	208565	210735	212910	215090	217275	219465	221660	223860	226065	228275	230490	232710	234935	237165	239400	241640	243885	246135	248390	250645	252905	255170	257440	259715	261995	264280	266570	268865	271165	273470	275780	278095	280415	282740	285070	287405	289745	292090	294440	296795	299155	301520	303890	306265	308645	311030	313420	315815	318215	320620	323030	325445	327865	330290	332720	335155	337595	340040	342490	344945	347405	349870	352340	354815	357295	359780	362270	364765	367265	369770	372280	374790	377305	379825	382350	384875	387405	389940	392480	395025	397575	400130	402690	405255	407825	410400	412980	415565	418155	420750	423350	425955	428565	431180	433795	436415	439040	441665	444295	446930	449570	452215	454865	457520	460180	462845	465515	468190	470870	473555	476245	478940	481640	484345	487055	489770	492490	495215	497945	500680	503420	506165	508915	511670	514430	517195	520965	524740	528520	532305	536095	539890	543690	547495	551305	555120	558940	562765	566595	570430	574270	578115	581965	585820	589680	593545	597415	601290	605170	609055	612945	616840	620740	624645	628555	632470	636390	640315	644245	648180	652120	656065	660015	663970	667930	671895	675865	679840	683820	687805	691795	695790	699790	703795	707805	711820	715840	719865	723895	727930	731970	736015	740065	744120	748180	752245	756315	760390	764470	768555	772645	776740	780840	784945	789055	793170	797290	801415	805545	809680	813820	817965	822115	826270	830430	834595	838765	842940	847120	851305	855495	859690	863890	868095	872305	876520	880740	884965	889195	893430	897670	901915	906165	910420	914680	918945	923215	927490	931770	936055	940345	944640	948940	953245	957555	961870	966190	970515	974845	979180	983520	987865	992215	996570	1000920	1005185	1009455	1013730	1018010	1022295	1026585	1030880	1035180	1039485	1043795	1048110	1052430	1056755	1061085	1065420	1069760	1074105	1078455	1082810	1087170	1091535	1095905	1100280	1104660	1109045	1113435	1117830	1122230	1126635	1131045	1135460	1139880	1144305	1148735	1153170	1157610	1162055	1166505	1170960	1175420	1179885	1184355	1188830	1193310	1197795	1202285	1206780	1211280	1215785	1220295	1224810	1229330	1233855	1238385	1242920	1247460	1252005	1256555	1261110	1265670	1270235	1274805	1279380	1283955	1288535	1293120	1297710	1302305	1306905	1311510	1316120	1320735	1325355	1330980	1335610	1341245	1346885	1352530	1358180	1363835	1369495	1375160	1380830	1386505	1392185	1397870	1403560	1409255	1414955	1420660	1426370	1432085	1437805	1443530	1449260	1454995	1460735	1466480	1472230	1477980	1483735	1493495	1503260	1513035	1522815	1532600	1542390	1552185	1561985	1571790	1581600	1591415	1601235	1611060	1620890	1630725	1640565	1650410	1660260	1670115	1680975	1690840	1700710	1710585	1720465	1730350	1740240	1750135	1760035	1770940	1780850	1790765	1800685	1810610	1820540	1830475	1840415	1850360	1860310	1870265	1880225	1890190	1900160	1910135	1920115	1930100	1940090	1950085	1960085	1970090	1980095	1990105	2000115	2010130	2020145	2030165	2040185	2050205	2060225	2070245	2080265	2090285	2100305	2110325	2120345	2130365	2140385	2150405	2160425	2170445	2180465	2190485	2200505	2210525	2220545	2230565	2240585	2250605	2260625	2270645	2280665	2290685	2300705	2310725	2320745	2330765	2340785	2350805	2360825	2370845	2380865	2390885	2400905	2410925	2420945	2430965	2440985	2451005	2461025	2471045	2481065	2491085	2501105	2511125	2521145	2531165	2541185	2551205	2561225	2571245	2581265	2591285	2601305	2611325	2621345	2631365	2641385	2651405	2661425	2671445	2681465	2691485	2701505	2711525	2721545	2731565	2741585	2751605	2761625	2771645	2781665	2791685	2801705	2811725	2821745	2831765	2841785	2851805	2861825	2871845	2881865	2891885	2901905	2911925	2921945	2931965	2941985	2952005	2962025	2972045	2982065	2992085	3002105	3012125	3022145	3032165	3042185	3052205	3062225	3072245	3082265	3092285	3102305	3112325	3122345	3132365	3142385	3152405	3162425	3172445	3182465	3192485	3202505	3212525	3222545	3232565	3242585	3252605	3262625	3272645	3282665	3292685	3302705	3312725	3322745	3332765	3342785	3352805	3362825	3372845	3382865	3392885	3402905	3412925	3422945	3432965	3442985	3453005	3463025	3473045	3483065	3493085	3503105	3513125	3523145	3533165	3543185	3553205	3563225	3573245	3583265	3593285	3603305	3613325	3623345	3633365	3643385	3653405	3663425	3673445	3683465	3693485	3703505	3713525	3723545	3733565	3743585	3753605	3763625	3773645	3783665	3793685	3803705	3813725	3823745	3833765	3843785	3853805	3863825	3873845	3883865	3893885	3903905	3913925	3923945	3933965	3943985	3954005	3964025	3974045	3984065	3994085	4004105	4014125	4024145	4034165	4044185	4054205	4064225	4074245	4084265	4094285	4104305	4114325	4124345	4134365	4144385	4154405	4164425	4174445	4184465	4194485	4204505	4214525	4224545	4234565	4244585	4254605	4264625	4274645	4284665	4294685	4304705	4314725	4324745	4334765	4344785	4354805	4364825	4374845	4384865	4394885	4404905	4414925	4424945	4434965	4444985	4455005	4465025	4475045	4485065	4495085	4505105	4515125	4525145	4535165	4545185	4555205	4565225	4575245	4585265	4595285	4605305	4615325	4625345	4635365	4645385	4655405	4665425	4675445	4685465	4695485	4705505	4715525	4725545	4735565	4745585	4755605	4765625	4775645	4785665	4795685	4805705	4815725	4825745	4835765	4845785	4855805	4865825	4875845	4885865	4895885	4905905	4915925	4925945	4935965	4945985	4956005	4966025	4976045	4986065	4996085	5006105	5016125	5026145	5036165	5046185	5056205	5066225	5076245	5086265	5096285	5106305	5116325	5126345	5136365	5146385	5156405	5166425	5176445	5186465	5196485	5206505	5216525	5226545	5236565	5246585	5256605	5266625	5276645	5286665	5296685	5306705	5316725	5326745	5336765	5346785	5356805	5366825	5376845	5386865	5396885	5406905	5416925	5426945	5436965	5446985	5457005	5467025	5477045	5487065	5497085	5507105	5517125	5527145	5537165	5547185	5557205	5567225	5577245	5587265	5597285	5607305	5617325	5627345	5637365	5647385	5657405	5667425	5677445	5687465	5697485	5707505	5717525	5727545	5737565	5747585	5757605	5767625	5777645	5787665	5797685	5807705	5817725	5827745	5837765	5847785	5857805	5867825	5877845	5887865	5897885	5907905	5917925	5927945	5937965	5947985	5958005	5968025	5978045	5988065	5998085	6008105	6018125	6028145	6038165	6048185	6058205	6068225	6078245	6088265	6098285	6108305	6118325	6128345	6138365	6148385	6158405	6168425	6178445	6188465	6198485	6208505	6218525	6228545	6238565	6248585	6258605	6268625	6278645	6288665	6298685	6308705	6318725	6328745	6338765	6348785	6358805	6368825	6378845	6388865	6398885	6408905	6418925	6428945	6438965	6448985	6459005	6469025	6479045	6489065	6499085	6509105	6519125	6529145	6539165



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

Figure 9.3

ECMWF Monitoring Statistics - FEB 2015  
Availability - METOP ATOVS : AMSU-A  
Average number of observations in 24 hours - 447428

Table with 180 columns representing longitude (170°W to 170°E) and 18 rows representing latitude (80°N to 80°S). The table contains numerical data representing the average number of observations in 24 hours for each geographic grid cell.

Magics 2.22.7 (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 : FEB 2015  
 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
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**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 : FEB 2015  
 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 : FEB 2015  
 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
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**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 : FEB 2015  
 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
21626	99	P	SUR	59	151	196	196	0.0	0.0	0.0
21890	99	P	SUR	39	0	125	59	8.2	-3.8	9.0
23960	99	P	SUR	-5	97	85	46	0.5	0.3	0.6
25524	99	P	SUR	79	105	125	125	0.0	0.0	0.0
25602	99	P	SUR	74	-17	42	33	6.9	-7.0	9.9
46585	99	P	SUR	60	-173	37	13	0.3	0.4	0.5
64520	99	P	SUR	69	-13	20	0	4.0	-6.9	7.9
71248	99	P	SUR	-70	-9	168	64	0.4	0.5	0.6

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

LIST OF SUSPECT STATIONS : DRIFTER  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND SPEED (M/S)  
 AREA : GLOBAL  
 PERIOD : FEB 2015  
 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
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**3.2.17 Table 6 - Suspect drifters: Wind direction (degrees)**

LIST OF SUSPECT STATIONS : DRIFTER  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)  
 PERIOD : FEB 2015  
 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
23451	99	DIRN	SUR	15	69	44	0	0	26.1	30.7	40.3
31053	99	DIRN	SUR	-32	-50	149	0	19	27.5	49.0	56.2
31260	99	DIRN	SUR	-16	-38	140	0	91	16.6	85.5	87.2
31374	99	DIRN	SUR	-25	-45	121	0	10	46.0	-25.2	52.4
32303	99	DIRN	SUR	5	-95	108	0	0	18.9	40.5	44.7

**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 : FEB 2015  
 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
33393	00	Z	200	50	24	13	0	39.3	86.6	95.1
40800	00	Z	500	33	52	24	5	54.6	27.7	61.2
42182	00	Z	200	29	77	10	1	129.3	48.7	138.2
42361	00	Z	500	26	78	10	2	26.3	-86.6	90.5
42410	00	Z	250	26	92	12	3	99.9	-82.2	129.4
43003	00	Z	500	19	73	23	0	42.4	-56.6	70.7
43185	00	Z	500	16	81	14	2	37.1	-71.1	80.2
43369	00	Z	50	8	73	17	0	20.2	135.2	136.7
89009	12	Z	925	-90	0	28	19	44.5	-63.8	77.8
91680	00	Z	1000	-18	177	28	0	3.4	29.4	29.6
91680	12	Z	1000	-18	177	28	0	4.2	28.6	28.9
96481	00	Z	30	4	118	23	0	99.2	154.5	183.6
96481	12	Z	1000	4	118	24	3	12.9	31.9	34.4
ASEU03	00	Z	1000	46	-45	12	0	5.9	34.0	34.5
ASEU03	12	Z	1000	45	-50	10	0	6.8	32.3	33.0
ASEU06	12	Z	1000	48	-47	11	0	11.9	28.5	30.9

**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 : FEB 2015  
 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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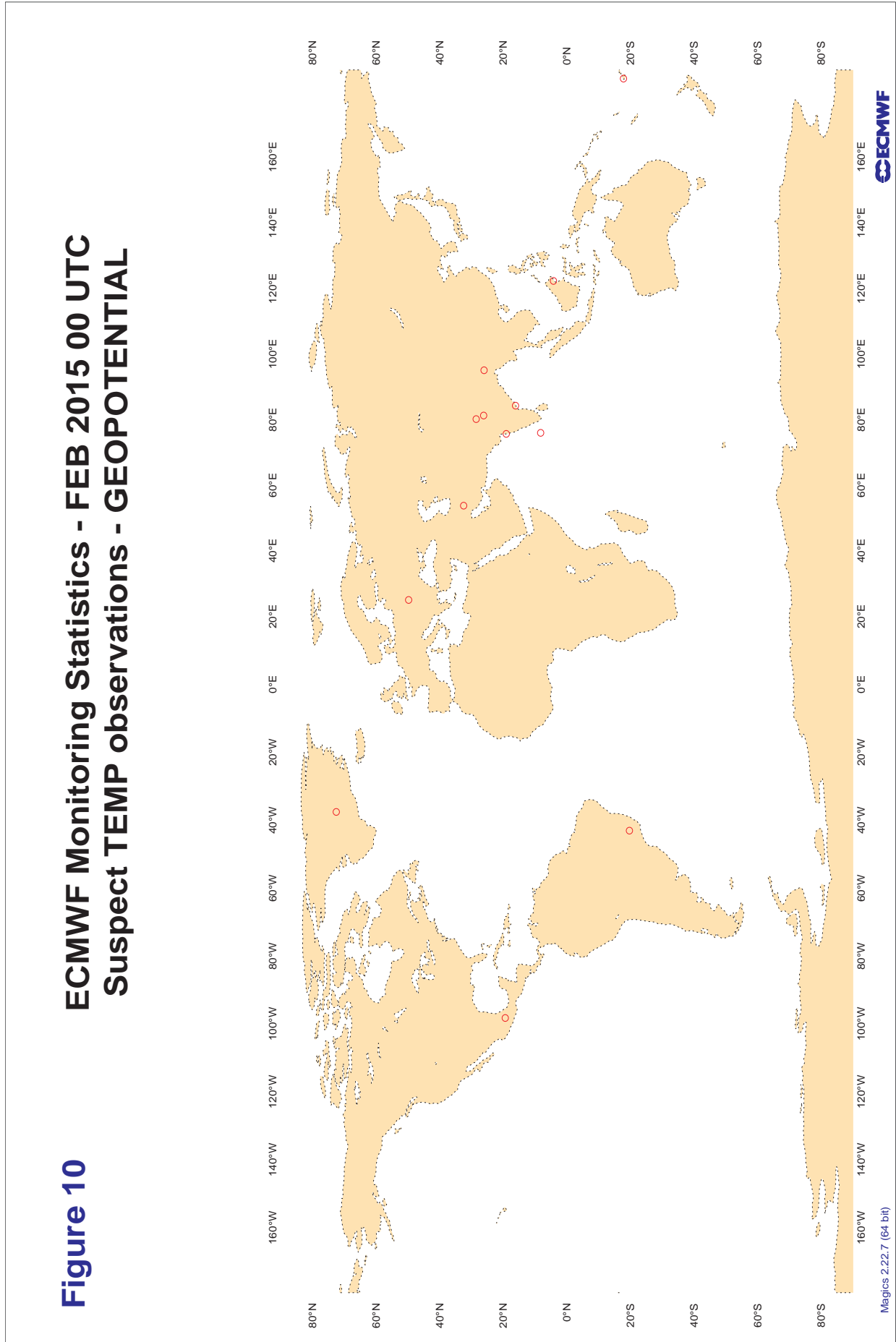
**3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)**

LIST OF SUSPECT STATIONS : RADIOSONDES  
 MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND DIRECTION (DEGREES)  
 AREA : GLOBAL  
 PERIOD : FEB 2015  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

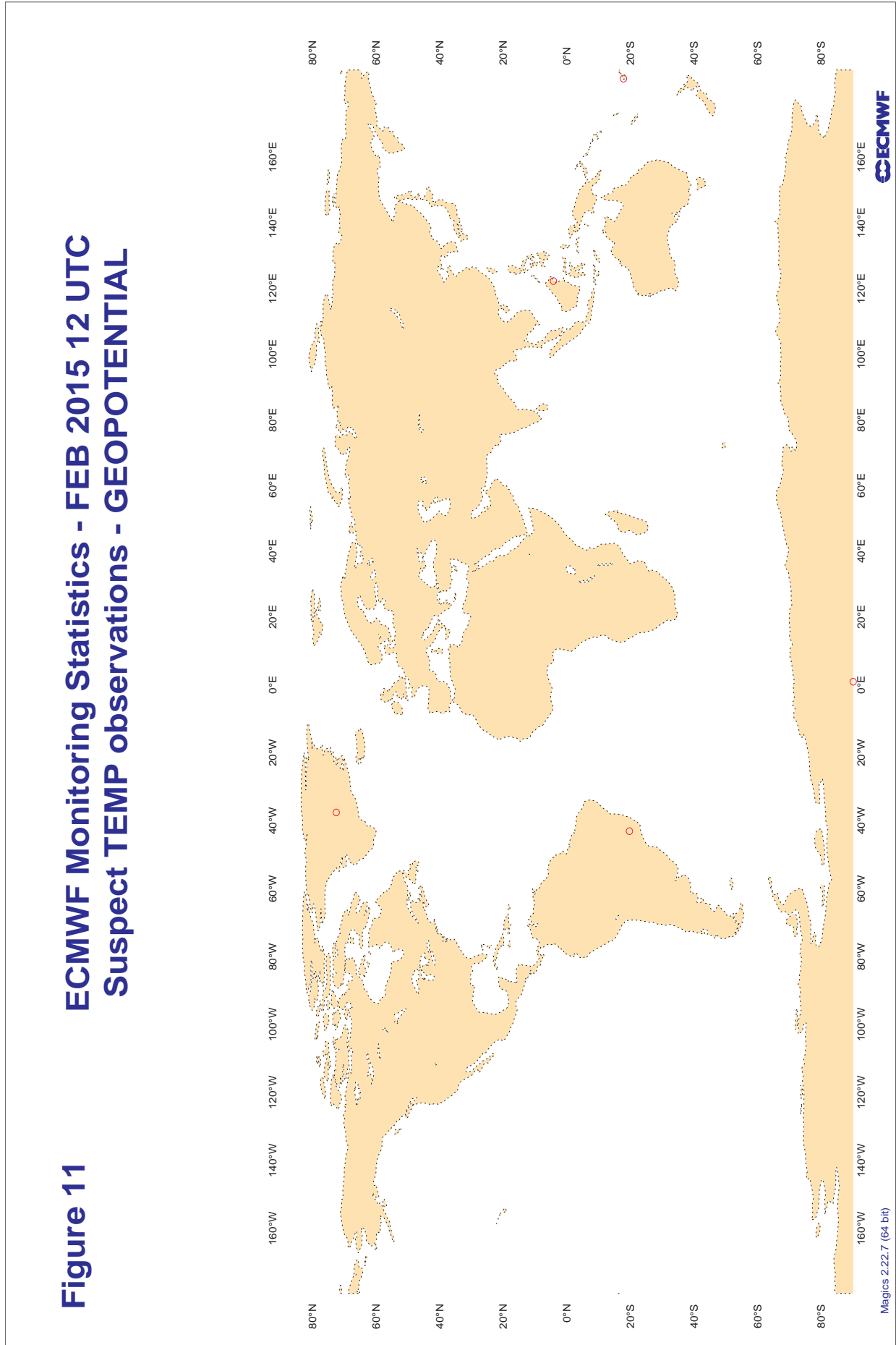
SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS  $\geq$  5 M/S  
 NO. OF OBSERVATIONS  $\geq$  5, AND,  
 ABSOLUTE BIAS  $\geq$  10 DEGREES, WITH  
 STANDARD DEVIATION  $<$  30 DEGREES, AND,  
 VERTICAL SPREAD  $<$  10 DEGREES  
 (AVERAGE BETWEEN 500 AND 150 HPA)

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
48453	00	DD	14	101	23	10.6	2.7	14.2

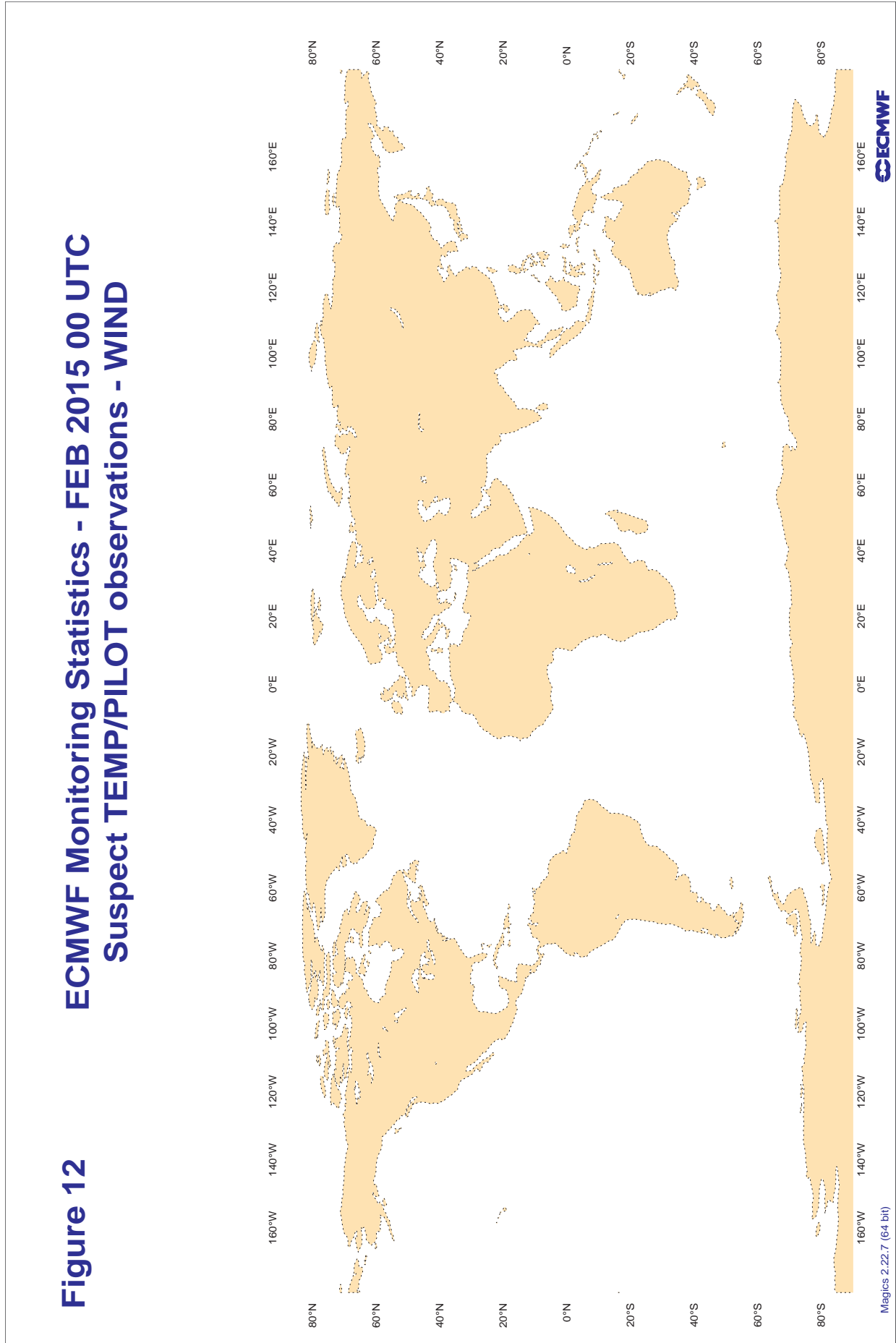
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



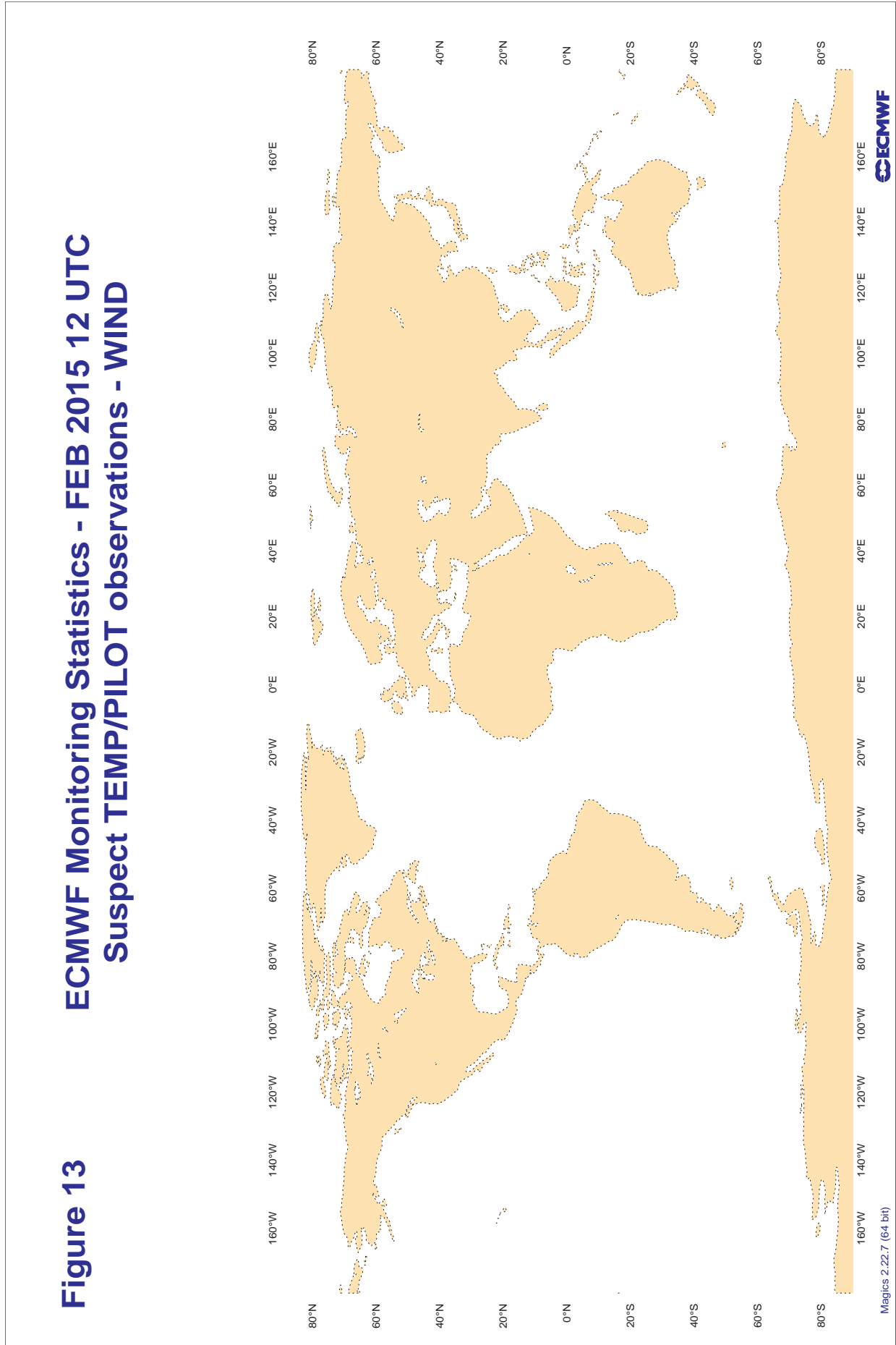
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



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 : FEB 2015  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
ASDE01	00	Z	100	4	4.9	4.1
ASDE01	12	Z	100	6	19.0	14.5
ASDE02	00	Z	100	18	21.4	19.4
ASDE03	12	Z	100	0	0.0	0.0
ASDE03	00	Z	100	0	0.0	0.0
ASDE04	12	Z	100	8	11.0	8.6
ASDE04	00	Z	100	9	13.6	1.8
ASDE09	12	Z	100	6	30.6	27.8
ASDE09	00	Z	100	4	8.4	-4.8
ASDK01	12	Z	100	0	0.0	0.0
ASDK1	12	Z	100	0	0.0	0.0
ASDK3	12	Z	100	0	0.0	0.0
ASDK3	00	Z	100	8	66.9	51.9
ASES01	12	Z	100	21	31.0	27.2
ASEU02	00	Z	100	5	42.7	42.4
ASEU02	12	Z	100	5	41.3	41.2
ASEU03	12	Z	100	6	39.9	38.8
ASEU03	00	Z	100	7	46.5	45.1
ASEU04	12	Z	100	3	13.8	9.3
ASEU04	00	Z	100	3	10.8	5.0
ASEU05	12	Z	100	12	29.6	21.5
ASEU05	00	Z	100	11	32.3	20.2
ASEU06	12	Z	100	9	42.4	40.3
ASEU06	00	Z	100	6	37.7	37.4
ASFR1	12	Z	100	5	15.6	7.9
ASFR1	00	Z	100	9	8.7	-3.0
ASFR2	12	Z	100	4	159.2	159.1
ASFR2	00	Z	100	4	151.4	151.3
ASFR3	12	Z	100	9	16.5	14.8
ASFR3	00	Z	100	8	15.7	15.0
ASFR4	12	Z	100	7	13.7	12.7
ASFR4	00	Z	100	7	23.7	20.4
DBLK	12	Z	100	32	6.2	4.1
JGQH	12	Z	100	8	20.8	19.8
JGQH	00	Z	100	8	25.4	23.2
LGKI	12	Z	100	24	12.8	-4.6
LGKI	00	Z	100	21	12.7	-3.8

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

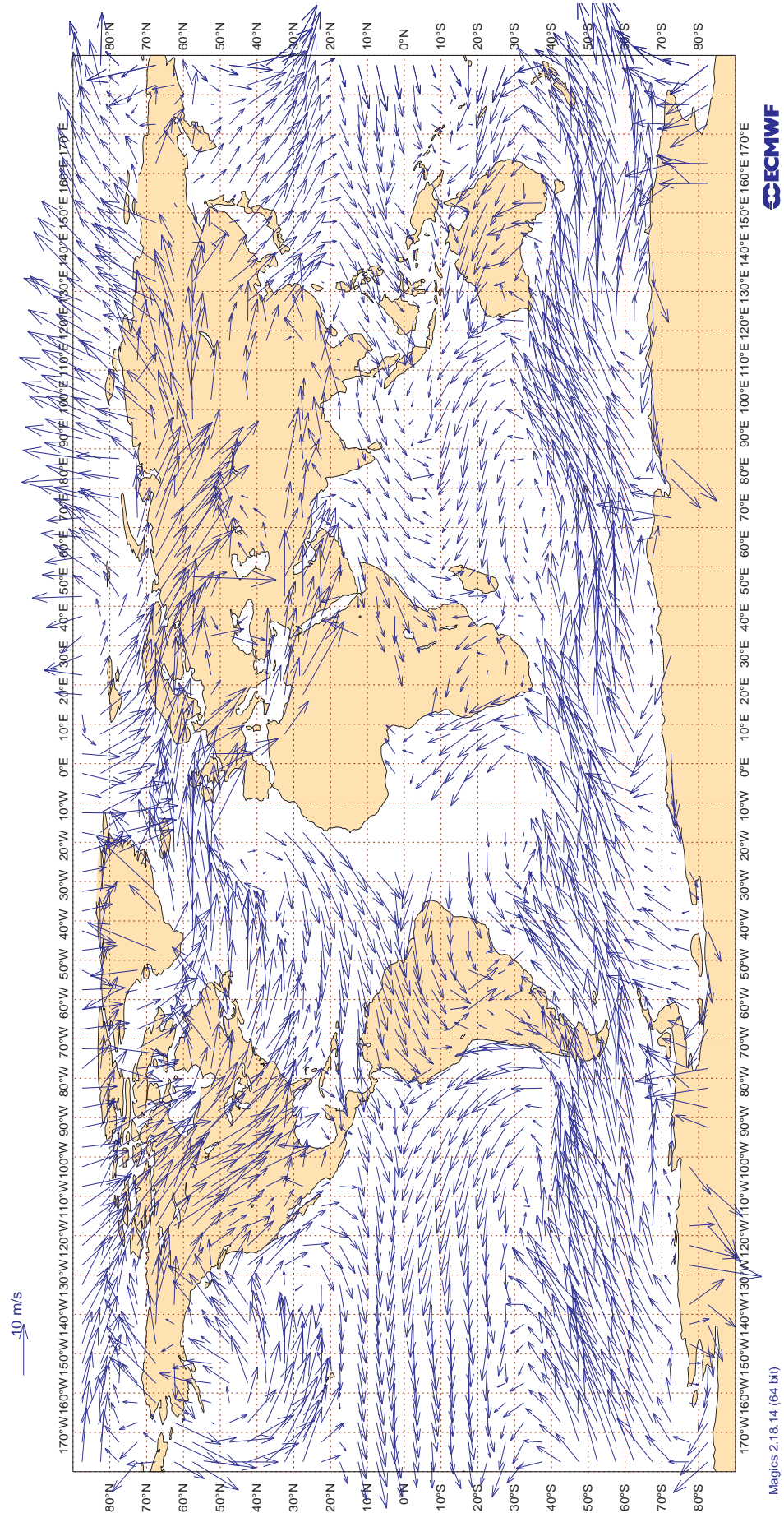
## RADIOSONDE MONITORING STATISTICS (SHIPS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 LEVEL : 100 HPA  
 AREA : GLOBAL  
 PERIOD : FEB 2015  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
ASDE01	00	V	100	4	3.6	-3.2	-0.5
ASDE01	12	V	100	6	3.9	-0.5	-1.2
ASDE02	00	V	100	17	4.5	-0.8	-0.1
ASDE03	12	V	100	0	0.0	0.0	0.0
ASDE03	00	V	100	0	0.0	0.0	0.0
ASDE04	12	V	100	6	3.7	0.9	-0.7
ASDE04	00	V	100	7	3.0	-0.6	-0.7
ASDE09	12	V	100	5	3.1	-0.2	1.4
ASDE09	00	V	100	4	3.4	0.0	0.8
ASDK01	12	V	100	0	0.0	0.0	0.0
ASDK1	12	V	100	0	0.0	0.0	0.0
ASDK3	12	V	100	0	0.0	0.0	0.0
ASDK3	00	V	100	8	4.6	0.2	-2.8
ASES01	12	V	100	20	7.1	-0.3	2.1
ASEU02	00	V	100	5	6.7	-1.3	2.7
ASEU02	12	V	100	5	3.9	-1.5	-1.1
ASEU03	12	V	100	4	5.1	2.6	-0.5
ASEU03	00	V	100	6	3.5	0.1	-1.1
ASEU04	12	V	100	3	2.7	-0.9	0.8
ASEU04	00	V	100	2	5.7	-4.7	0.4
ASEU05	12	V	100	11	3.8	-1.0	-1.6
ASEU05	00	V	100	8	2.9	0.4	0.3
ASEU06	12	V	100	7	3.5	-1.5	-0.4
ASEU06	00	V	100	5	5.1	-0.1	0.9
ASFR1	12	V	100	3	2.0	0.4	-0.4
ASFR1	00	V	100	8	3.7	0.3	0.3
ASFR2	12	V	100	3	2.8	-1.1	-1.9
ASFR2	00	V	100	3	3.1	-0.9	-0.7
ASFR3	12	V	100	9	3.5	-0.4	-0.7
ASFR3	00	V	100	7	4.3	1.0	-1.4
ASFR4	12	V	100	7	4.8	-0.3	-3.2
ASFR4	00	V	100	7	4.7	-0.6	-0.7
DBLK	12	V	100	25	6.5	-1.5	0.6
JGQH	12	V	100	8	6.4	-0.2	-0.3
JGQH	00	V	100	8	7.6	3.9	-0.9
LGKI	12	V	100	23	3.6	-0.5	0.2
LGKI	00	V	100	20	4.0	0.7	-0.7

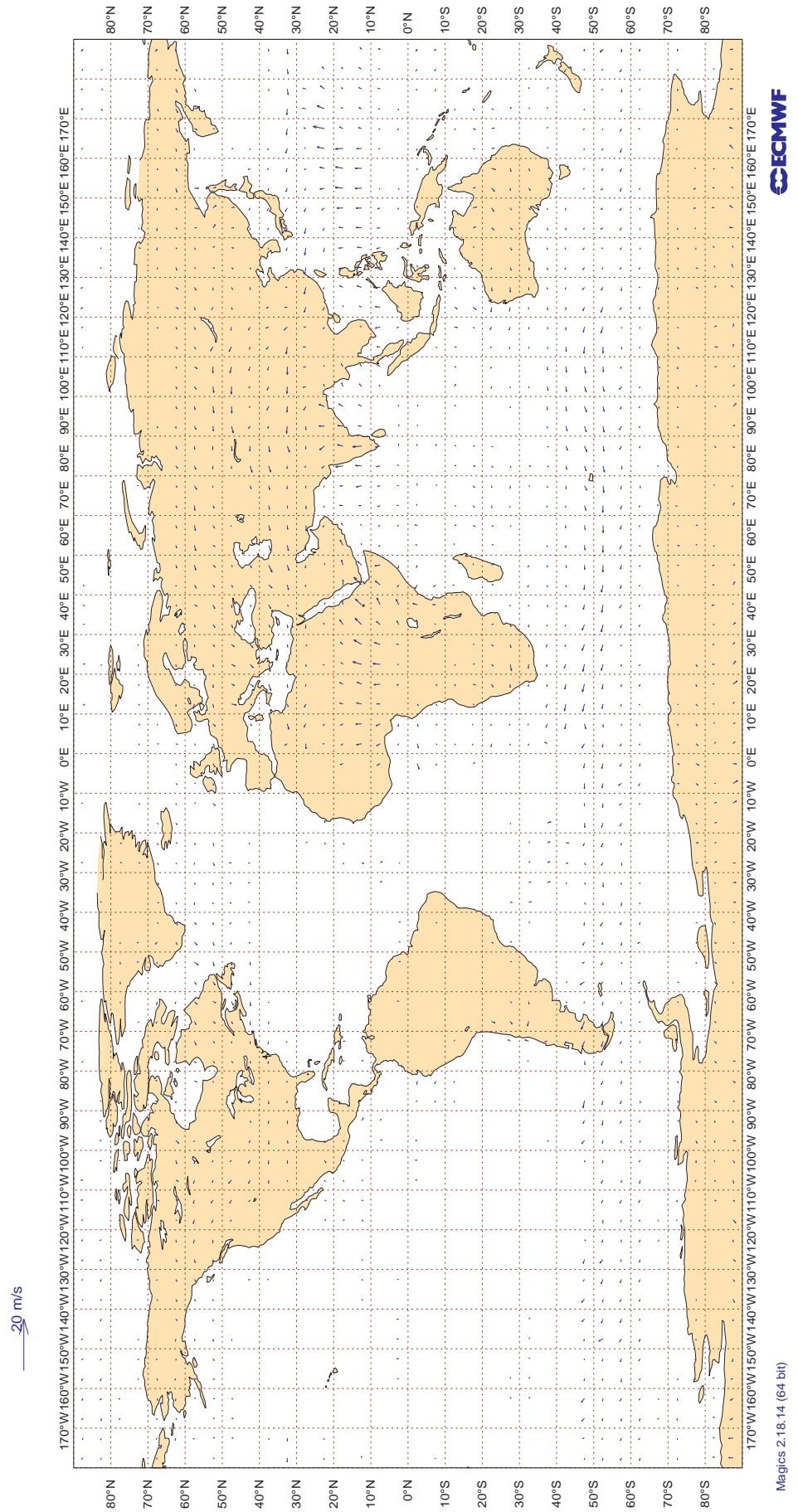
3.2.27 Figure 14 - SATOB Winds: 700-1000hPa

**Figure 14**  
**ECMWF Monitoring Statistics: Feb 2015**  
**AMV Winds: 700-1000hPa**  
**Mean Observed Wind**



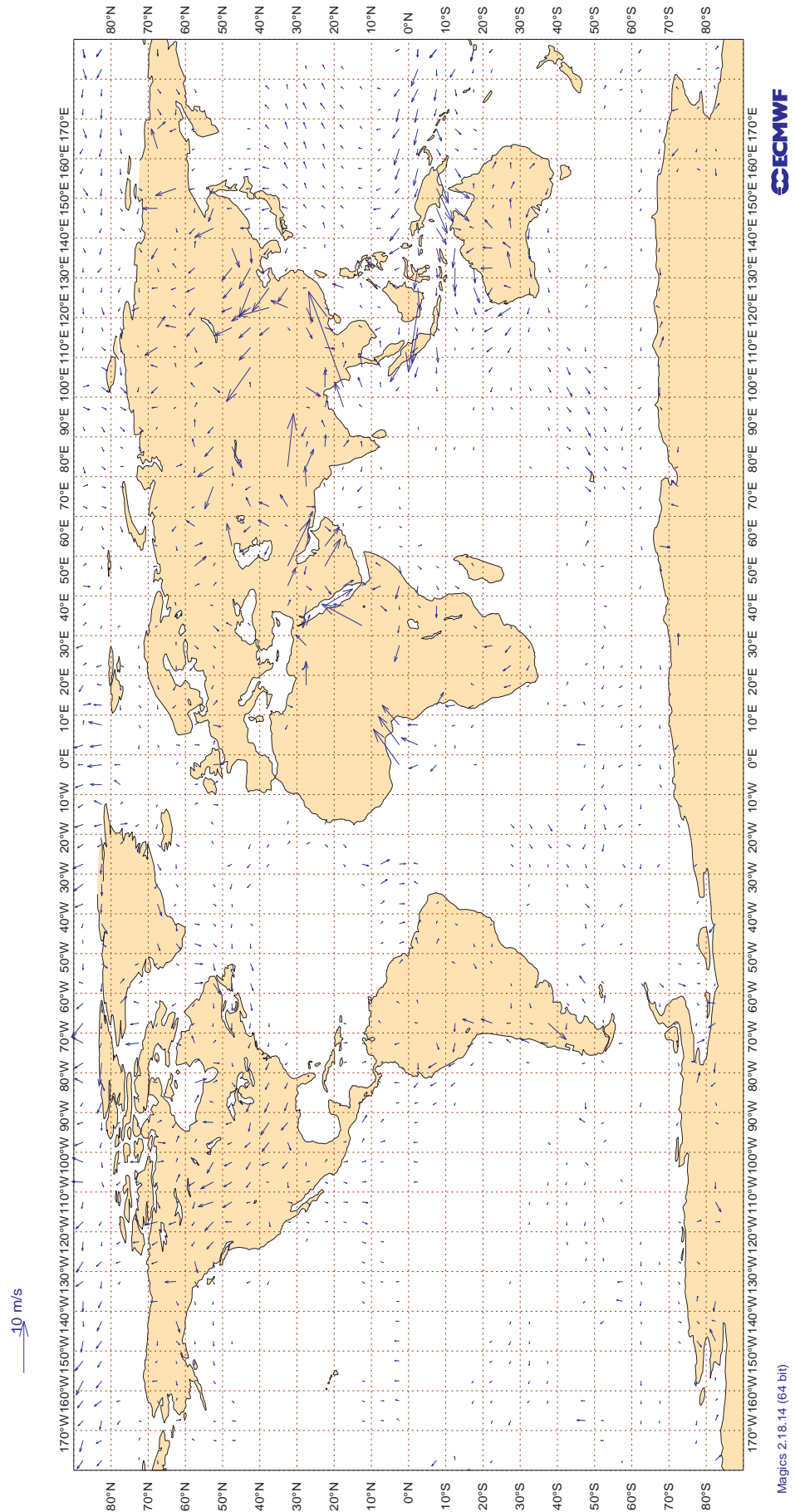
3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

**Figure 15**  
**ECMWF Monitoring Statistics: Feb 2015**  
**AMV Winds: 150- 400hPa**  
**Wind bias: Observation - FG**



3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

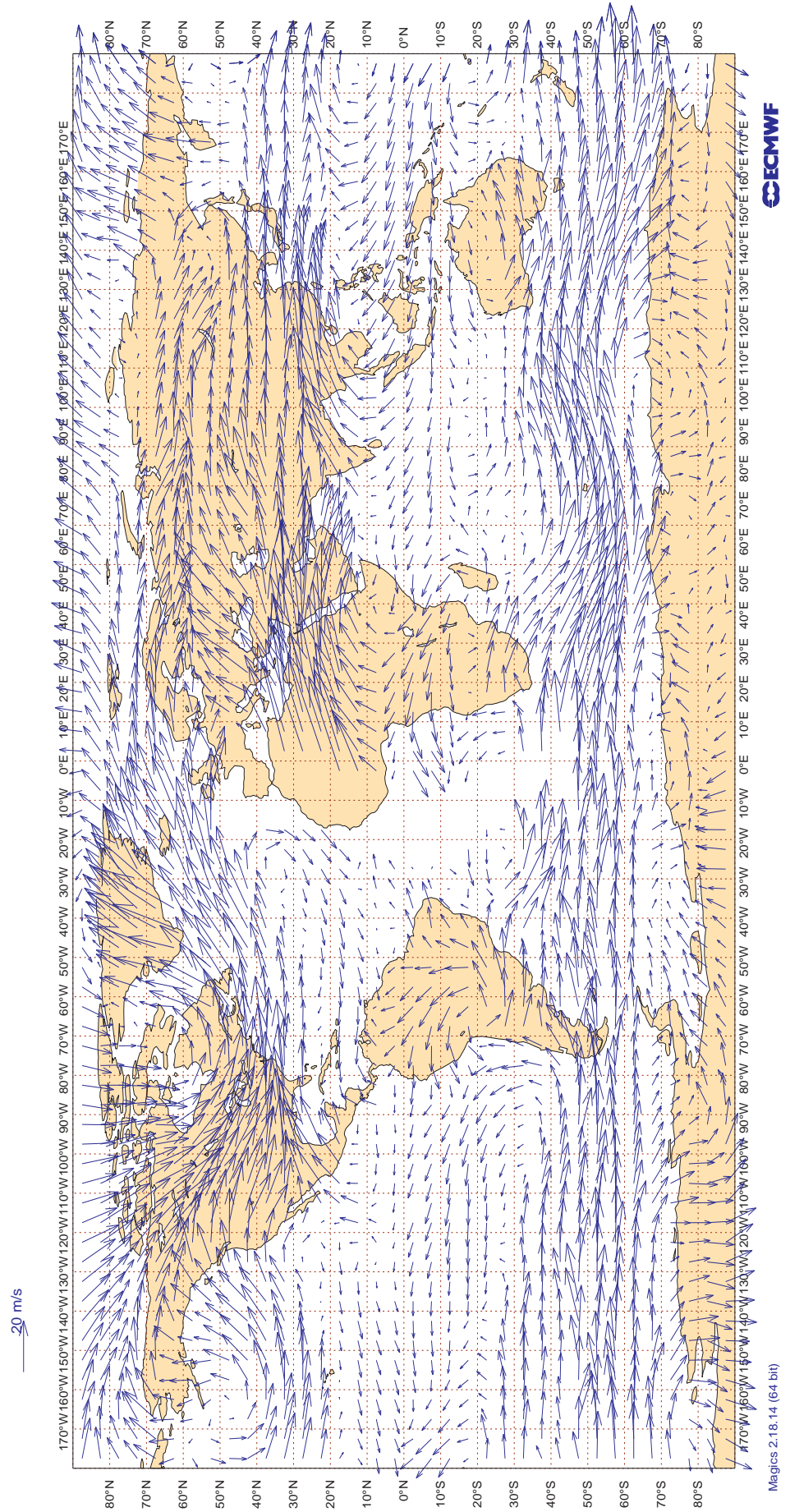
**Figure 16**  
**ECMWF Monitoring Statistics: Feb 2015**  
**AMV Winds: 700-1000hPa**  
**Wind bias: Observation - FG**





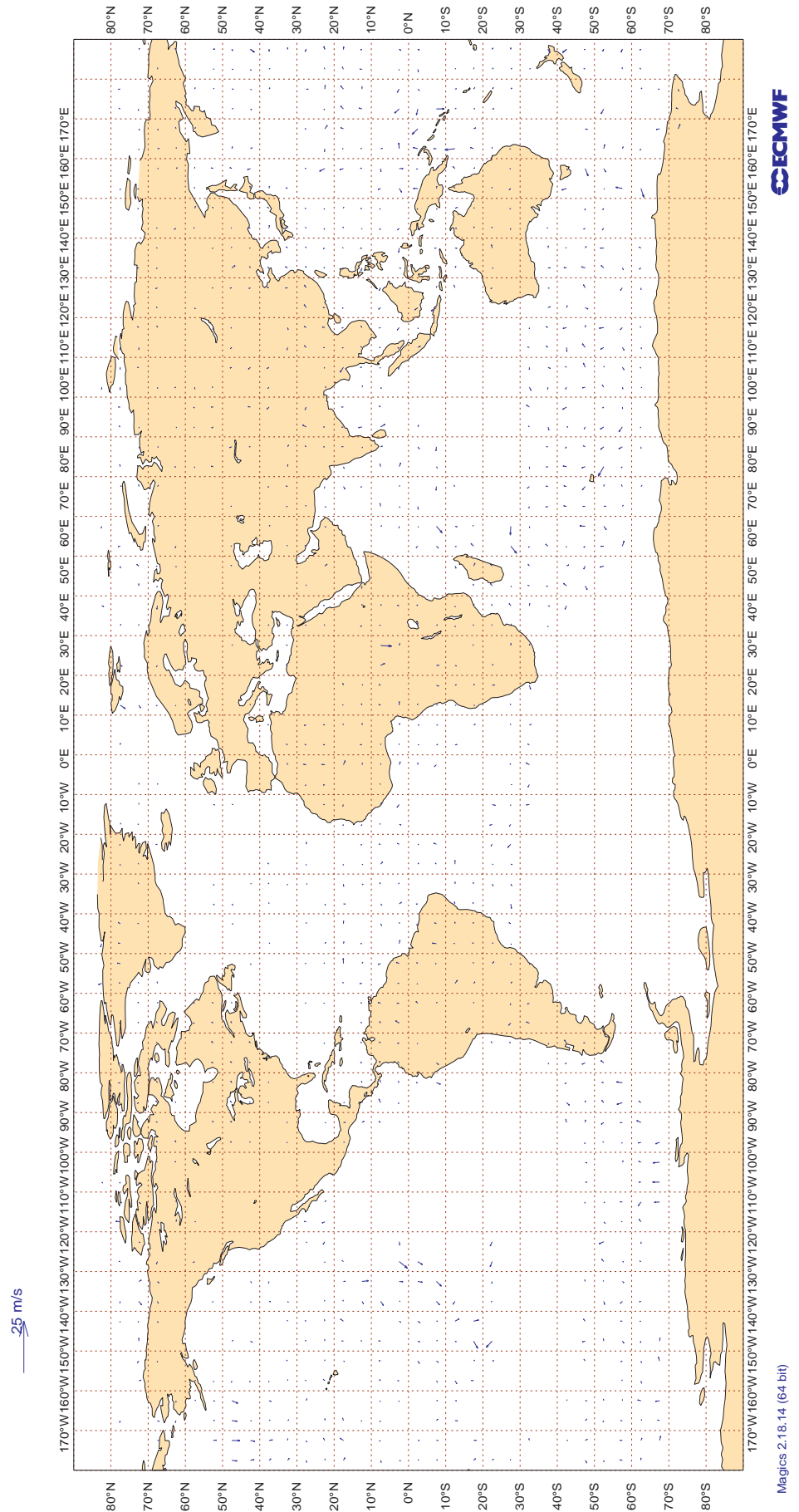
3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

**Figure 17**  
**ECMWF Monitoring Statistics: Feb 2015**  
**AMV Winds: 150- 400hPa**  
**Mean Observed Wind**



3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

**Figure 18**  
**ECMWF Monitoring Statistics: Feb 2015**  
**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 : FEB 2015  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: NO. OF OBS. &gt;= 20

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

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AAL	99	V	300-150	1462	0	0	5.1	-0.7
AAY	99	V	300-150	162	1	0	5.8	-0.1
ABW	99	V	300-150	106	0	0	4.2	-0.4
ACA	99	V	300-150	1450	1	0	4.8	0.0
ACI	99	V	300-150	696	0	0	4.2	0.8
AFL	99	V	300-150	264	0	0	3.5	0.4
AFR	99	V	300-150	1859	0	0	4.7	0.3
AHY	99	V	300-150	22	0	0	3.8	1.2
AIC	99	V	300-150	529	0	0	3.6	-0.2
AMX	99	V	300-150	309	25	0	9.2	0.5
ANZ	99	V	300-150	2609	1	0	5.3	0.6
ASA	99	V	300-150	2633	1	0	5.9	0.2
ASY	99	V	300-150	136	0	0	4.5	1.1
AUA	99	V	300-150	545	0	0	5.3	-1.7
AVN	99	V	300-150	59	0	0	8.3	3.1
AWE	99	V	300-150	1147	0	0	5.1	1.0
AXM	99	V	300-150	39	0	0	5.2	1.4
AZA	99	V	300-150	280	0	0	4.4	0.8
BAW	99	V	300-150	2731	1	0	4.9	-0.2
BEL	99	V	300-150	202	0	0	4.3	-0.4
BER	99	V	300-150	1079	0	0	4.9	0.7
BLX	99	V	300-150	26	0	0	5.8	-2.7
BOX	99	V	300-150	58	0	0	2.9	0.8
CAL	99	V	300-150	75	0	0	6.5	-0.6
CES	99	V	300-150	328	0	0	4.3	1.3
CFG	99	V	300-150	372	0	0	4.9	-1.1
CKS	99	V	300-150	345	0	0	4.9	0.3
CLX	99	V	300-150	375	0	0	4.0	0.0
CMB	99	V	300-150	30	0	0	5.2	0.4
CPA	99	V	300-150	50	0	0	3.0	-0.5
CSN	99	V	300-150	214	1	0	7.1	0.0
DAH	99	V	300-150	73	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
DAL	99	V	300-150	5320	0	0	4.8	-0.5
DHK	99	V	300-150	202	0	0	4.1	0.4
DLH	99	V	300-150	2759	0	0	4.7	-0.4
EIN	99	V	300-150	518	0	0	4.5	-0.3
ELY	99	V	300-150	265	0	0	4.6	0.4
ETD	99	V	300-150	98	0	0	3.7	0.6
ETH	99	V	300-150	68	1	0	7.5	-0.6
FDX	99	V	300-150	1002	0	0	3.8	0.4
FIN	99	V	300-150	208	0	0	3.8	0.3
FJI	99	V	300-150	1258	0	0	4.4	0.6
FWI	99	V	300-150	84	0	0	4.3	0.3
GEC	99	V	300-150	295	0	0	3.8	-0.1
GTI	99	V	300-150	303	0	0	4.2	-0.4
HAL	99	V	300-150	631	0	0	5.3	1.1
IAF	99	V	300-150	30	0	0	4.1	0.9
IBE	99	V	300-150	150	0	0	4.6	0.7
JAF	99	V	300-150	49	6	0	8.4	0.6
JAI	99	V	300-150	355	0	0	4.8	0.4
JST	99	V	300-150	1044	0	0	5.9	0.9
KAI	99	V	300-150	32	0	0	6.0	1.8
KAL	99	V	300-150	195	2	0	6.9	-0.2
KLM	99	V	300-150	1426	0	0	4.5	-0.5
LAN	99	V	300-150	85	0	0	3.6	0.1
LOT	99	V	300-150	102	21	0	10.3	0.1
LXG	99	V	300-150	36	0	0	22.2	0.2
MAR	99	V	300-150	27	96	0	28.1	-8.2
MAS	99	V	300-150	82	0	0	4.0	0.5
MMN	99	V	300-150	27	0	0	5.6	-0.2
MON	99	V	300-150	30	0	0	4.6	0.0
MSR	99	V	300-150	224	0	0	4.8	1.0
NAX	99	V	300-150	172	35	0	7.5	0.9
NCA	99	V	300-150	36	0	0	4.1	-0.4
NOS	99	V	300-150	22	0	0	4.0	-0.3
OAE	99	V	300-150	90	1	0	5.8	0.6
PIA	99	V	300-150	23	0	0	3.0	0.0
QFA	99	V	300-150	1726	0	0	4.3	0.5
QTR	99	V	300-150	180	0	0	3.6	0.2
RCH	99	V	300-150	658	0	0	5.0	-0.1
REP	99	V	300-150	46	0	0	5.8	-0.1
RJA	99	V	300-150	59	25	0	9.4	0.1
RRR	99	V	300-150	31	0	0	3.0	-0.1
SAM	99	V	300-150	28	0	0	3.7	0.3
SAS	99	V	300-150	508	0	0	3.6	-0.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS  
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
SIA	99	V	300-150	271	0	0	3.4	0.1
SPA	99	V	300-150	35	0	0	7.0	1.3
SQC	99	V	300-150	55	0	0	4.1	-1.5
SVA	99	V	300-150	365	0	0	4.8	-0.2
SWR	99	V	300-150	711	0	0	4.5	0.5
TAM	99	V	300-150	98	1	0	4.0	0.0
TAP	99	V	300-150	53	0	0	4.5	0.4
TAY	99	V	300-150	33	0	0	3.2	0.7
TCX	99	V	300-150	123	0	0	5.0	1.3
TFL	99	V	300-150	84	10	0	8.2	-0.6
THA	99	V	300-150	91	0	0	4.4	0.8
THT	99	V	300-150	194	0	0	4.5	0.5
THY	99	V	300-150	306	0	0	4.1	0.1
TOM	99	V	300-150	423	10	0	8.3	-0.3
TSC	99	V	300-150	35	0	0	4.3	0.5
TSO	99	V	300-150	143	0	0	3.6	-0.3
UAE	99	V	300-150	713	0	0	3.9	-0.4
UAL	99	V	300-150	7529	0	0	5.6	-0.4
UPS	99	V	300-150	804	0	0	4.6	0.6
VHL	99	V	300-150	35	0	0	20.9	3.5
VIR	99	V	300-150	1106	3	0	4.5	-0.2
VJT	99	V	300-150	21	76	0	2.2	-0.4
VKG	99	V	300-150	30	0	0	3.9	0.9
VOZ	99	V	300-150	617	0	0	3.4	0.1
VQB	99	V	300-150	30	0	0	4.1	0.1
WJA	99	V	300-150	484	1	0	6.4	0.2
XLF	99	V	300-150	23	0	0	6.0	1.7

## 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 : FEB 2015  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	23	19.1	3.1
01001	00	Z	50	24	16.2	0.2
01028	00	Z	50	23	14.0	-1.6
01028	12	Z	50	25	17.3	6.9
01400	00	Z	50	18	38.9	37.2
01400	12	Z	50	15	51.5	50.1
01415	12	Z	50	28	19.6	11.4
01415	00	Z	50	25	19.8	4.6
02365	00	Z	50	33	20.2	0.1
02365	12	Z	50	31	15.7	9.3
02591	00	Z	50	20	17.7	14.0
02591	12	Z	50	22	22.8	20.0
02836	00	Z	50	27	15.7	-1.7
02836	12	Z	50	28	24.3	2.6
02963	12	Z	50	27	16.1	6.4
02963	00	Z	50	23	12.5	5.5
03005	12	Z	50	28	16.4	11.2
03005	00	Z	50	27	16.8	2.2
03238	00	Z	50	24	22.6	18.8
03238	12	Z	50	7	24.8	24.3
03808	00	Z	50	28	14.0	9.0
03808	12	Z	50	27	19.1	17.4
03918	12	Z	50	14	20.8	18.3
03918	00	Z	50	28	18.5	13.1
03953	12	Z	50	28	26.7	24.5
03953	00	Z	50	28	15.6	12.7
04018	00	Z	50	24	26.1	-8.2
04018	12	Z	50	24	31.4	-4.0
04220	12	Z	50	28	36.2	-1.3
04220	00	Z	50	24	24.6	-5.8
04270	12	Z	50	26	34.1	-6.2
04270	00	Z	50	25	29.9	-2.7
04320	12	Z	50	28	24.2	-0.8
04320	00	Z	50	25	26.9	-1.7
04339	00	Z	50	22	26.8	21.7
04339	12	Z	50	25	34.8	21.6
04360	12	Z	50	7	16.4	-6.1
04360	00	Z	50	11	17.8	-9.0
06011	12	Z	50	25	22.1	-1.1

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	50	23	29.6	-7.1
06260	00	Z	50	28	19.3	13.8
06260	12	Z	50	5	28.2	27.9
06610	00	Z	50	28	16.2	7.3
06610	12	Z	50	28	39.0	10.6
07110	00	Z	50	25	18.5	15.7
07110	12	Z	50	26	26.4	22.0
07510	00	Z	50	20	10.5	-0.2
07510	12	Z	50	19	16.6	9.9
07645	12	Z	50	20	64.0	62.6
07645	00	Z	50	18	57.4	55.4
07761	12	Z	50	14	16.9	13.2
07761	00	Z	50	12	16.5	10.5
08001	12	Z	50	24	28.1	24.8
08001	00	Z	50	23	18.7	15.1
08221	00	Z	50	24	19.5	16.0
08221	12	Z	50	27	24.8	20.7
08302	00	Z	50	28	11.5	5.6
08302	12	Z	50	26	11.8	5.2
08508	12	Z	50	26	38.4	37.2
08522	12	Z	50	27	19.6	17.5
08579	12	Z	50	26	20.0	16.0
10035	00	Z	50	28	20.5	7.0
10035	12	Z	50	28	15.6	13.6
10393	12	Z	50	28	10.7	8.7
10393	00	Z	50	28	8.0	2.1
10410	00	Z	50	28	14.9	7.1
10410	12	Z	50	28	13.0	10.5
10739	00	Z	50	27	12.1	11.1
10739	12	Z	50	27	18.6	17.2
11035	12	Z	50	28	8.3	5.3
11035	00	Z	50	28	35.8	-1.6
12982	00	Z	50	27	9.3	3.1
12982	12	Z	50	25	42.4	41.5
16044	00	Z	50	28	10.6	7.4
16044	12	Z	50	28	13.1	6.3
16080	00	Z	50	27	13.6	4.8
16080	12	Z	50	28	12.8	4.9
16245	12	Z	50	28	13.9	3.8
16245	00	Z	50	27	11.4	5.7
16320	12	Z	50	26	11.7	4.7
16320	00	Z	50	22	11.4	3.3
16429	00	Z	50	20	11.9	7.8

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	50	27	18.7	9.2
16622	00	Z	50	18	23.9	19.5
16754	00	Z	50	23	18.7	14.1
17607	12	Z	50	15	22.7	-16.4
26435	00	Z	50	13	12.1	5.8
60018	12	Z	50	25	16.6	13.6
60018	00	Z	50	28	16.2	13.9
ASDE01	00	Z	50	2	10.9	10.6
ASDE01	12	Z	50	3	35.9	28.4
ASDE02	00	Z	50	17	30.9	28.1
ASDE03	12	Z	50	0	0.0	0.0
ASDE03	00	Z	50	0	0.0	0.0
ASDE04	12	Z	50	7	20.3	19.2
ASDE04	00	Z	50	6	21.1	12.7
ASDE09	12	Z	50	5	46.2	44.0
ASDE09	00	Z	50	2	3.4	-3.4
ASDK01	12	Z	50	0	0.0	0.0
ASDK1	12	Z	50	0	0.0	0.0
ASDK3	12	Z	50	5	60.8	47.9
ASDK3	00	Z	50	7	68.7	50.6
ASES01	12	Z	50	21	40.7	36.9
ASEU02	00	Z	50	5	47.1	46.8
ASEU02	12	Z	50	4	47.1	47.0
ASEU03	12	Z	50	4	42.2	41.4
ASEU03	00	Z	50	5	53.2	52.7
ASEU04	12	Z	50	2	29.8	29.8
ASEU04	00	Z	50	2	18.2	-6.3
ASEU05	12	Z	50	11	38.4	35.5
ASEU05	00	Z	50	9	42.7	31.3
ASEU06	12	Z	50	7	48.3	45.7
ASEU06	00	Z	50	5	43.0	42.6
ASFR1	12	Z	50	5	27.4	16.0
ASFR1	00	Z	50	9	8.8	0.1
ASFR2	12	Z	50	4	168.6	167.9
ASFR2	00	Z	50	3	161.0	160.9
ASFR3	12	Z	50	8	21.5	18.9
ASFR3	00	Z	50	8	19.9	18.9
ASFR4	12	Z	50	6	19.3	17.8
ASFR4	00	Z	50	6	33.2	28.9
LGKI	12	Z	50	22	13.4	-4.6
LGKI	00	Z	50	18	12.9	-4.3

**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 : FEB 2015  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	22	5.3	0.2	-0.9
01001	00	V	50	24	4.5	0.1	-1.8
01028	00	V	50	23	5.0	-0.9	-1.4
01028	12	V	50	25	4.0	1.0	-0.8
01400	00	V	50	12	4.0	-0.4	-0.7
01400	12	V	50	6	5.2	1.2	1.3
01415	12	V	50	28	5.6	0.4	0.3
01415	00	V	50	25	6.3	1.7	-0.6
02365	00	V	50	26	6.8	-0.1	-1.2
02365	12	V	50	23	5.4	0.2	0.2
02591	00	V	50	14	5.5	0.5	0.4
02591	12	V	50	15	4.7	0.0	0.2
02836	00	V	50	26	6.1	1.2	-0.3
02836	12	V	50	28	7.4	1.3	-0.7
02963	12	V	50	27	5.2	1.3	-0.2
02963	00	V	50	23	6.0	0.2	0.6
03005	12	V	50	28	5.4	0.7	-1.2
03005	00	V	50	24	5.8	0.5	-0.9
03238	00	V	50	23	5.4	-0.5	0.0
03238	12	V	50	7	7.9	-0.1	3.2
03808	00	V	50	27	4.2	0.3	0.3
03808	12	V	50	27	4.7	0.0	2.0
03918	12	V	50	14	5.8	-1.4	-0.4
03918	00	V	50	28	4.8	0.0	-1.2
03953	12	V	50	28	4.0	0.4	-0.9
03953	00	V	50	27	5.2	-0.1	-0.7
04018	00	V	50	22	4.8	0.4	-2.1
04018	12	V	50	24	6.5	1.3	0.7
04220	12	V	50	28	4.1	0.9	0.8
04220	00	V	50	24	3.5	0.6	0.2
04270	12	V	50	26	9.1	1.0	0.3
04270	00	V	50	25	8.4	0.4	0.1
04320	12	V	50	28	4.6	0.5	-0.9
04320	00	V	50	25	3.9	0.6	-1.4
04339	00	V	50	20	4.7	-0.2	-1.0
04339	12	V	50	24	4.7	0.4	-0.3
04360	12	V	50	7	4.6	-2.1	0.9
04360	00	V	50	11	5.2	1.8	-0.9
06011	12	V	50	25	6.8	1.8	1.1

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	50	23	5.9	-0.2	-0.9
06260	00	V	50	24	4.2	1.5	0.8
06260	12	V	50	5	3.7	2.4	-0.4
06610	00	V	50	28	4.3	-0.1	-0.2
06610	12	V	50	28	4.8	0.3	1.0
07110	00	V	50	24	4.3	-0.3	1.2
07110	12	V	50	26	4.5	-0.4	0.4
07510	00	V	50	19	4.8	0.9	0.4
07510	12	V	50	19	4.0	1.3	0.8
07645	12	V	50	19	4.0	1.2	-0.9
07645	00	V	50	16	5.0	1.5	0.7
07761	12	V	50	13	3.1	-0.2	0.1
07761	00	V	50	12	5.0	3.0	0.5
08001	12	V	50	21	5.1	-0.7	0.2
08001	00	V	50	18	4.3	-0.3	1.4
08221	00	V	50	24	4.9	-0.2	1.3
08221	12	V	50	27	5.3	0.5	-0.8
08302	00	V	50	28	4.1	0.0	0.7
08302	12	V	50	26	4.2	0.5	0.6
08508	12	V	50	26	3.7	-1.1	0.6
08522	12	V	50	27	4.0	-0.1	0.6
08579	12	V	50	26	4.2	0.2	-0.6
10035	00	V	50	28	3.6	0.1	1.0
10035	12	V	50	28	4.3	0.4	0.3
10393	12	V	50	28	4.1	0.1	-0.7
10393	00	V	50	28	4.0	0.5	0.4
10410	00	V	50	28	4.0	1.9	1.3
10410	12	V	50	28	4.1	0.2	0.7
10739	00	V	50	27	3.8	0.2	0.1
10739	12	V	50	27	3.9	0.7	0.9
11035	12	V	50	28	3.5	0.3	-0.4
11035	00	V	50	28	3.9	-0.5	-0.6
12982	00	V	50	27	3.3	0.2	0.0
12982	12	V	50	25	3.4	-0.1	-0.6
16044	00	V	50	28	4.0	0.0	-0.4
16044	12	V	50	28	3.4	0.9	0.1
16080	00	V	50	27	4.0	0.5	0.7
16080	12	V	50	28	3.9	1.0	0.3
16245	12	V	50	28	3.4	0.5	0.5
16245	00	V	50	27	4.0	1.5	0.2
16320	12	V	50	26	4.5	0.6	0.8
16320	00	V	50	22	5.1	1.9	-0.3
16429	00	V	50	18	3.9	1.1	0.0



RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	50	27	5.0	1.8	0.0
16622	00	V	50	6	4.0	0.7	-2.0
16754	00	V	50	22	5.1	1.1	-0.7
17607	12	V	50	11	3.5	0.9	0.0
26435	00	V	50	13	3.4	0.0	-1.7
60018	12	V	50	25	3.7	0.8	0.9
60018	00	V	50	26	3.9	1.2	0.1
ASDE01	00	V	50	2	2.0	-1.9	0.3
ASDE01	12	V	50	3	3.5	-2.5	-1.4
ASDE02	00	V	50	17	3.5	-0.1	0.4
ASDE03	12	V	50	0	0.0	0.0	0.0
ASDE03	00	V	50	0	0.0	0.0	0.0
ASDE04	12	V	50	6	5.2	-3.9	0.6
ASDE04	00	V	50	6	4.2	0.0	-0.7
ASDE09	12	V	50	4	5.1	0.9	0.3
ASDE09	00	V	50	2	1.9	-1.5	-0.5
ASDK01	12	V	50	0	0.0	0.0	0.0
ASDK1	12	V	50	0	0.0	0.0	0.0
ASDK3	12	V	50	5	7.0	1.9	0.2
ASDK3	00	V	50	7	5.0	2.1	0.4
ASES01	12	V	50	21	3.3	-0.2	0.1
ASEU02	00	V	50	5	2.7	0.0	0.3
ASEU02	12	V	50	4	2.9	0.7	-0.6
ASEU03	12	V	50	3	5.3	2.7	0.5
ASEU03	00	V	50	5	4.8	3.2	-2.0
ASEU04	12	V	50	2	3.5	-1.5	-2.4
ASEU04	00	V	50	2	2.6	1.0	-1.2
ASEU05	12	V	50	8	3.5	0.0	0.6
ASEU05	00	V	50	6	3.0	-1.3	1.4
ASEU06	12	V	50	6	5.1	1.4	-2.4
ASEU06	00	V	50	5	3.9	-0.4	-0.2
ASFR1	12	V	50	5	3.9	0.2	-2.3
ASFR1	00	V	50	9	3.9	0.2	-2.4
ASFR2	12	V	50	4	5.2	1.4	-2.4
ASFR2	00	V	50	3	3.0	-1.9	-1.5
ASFR3	12	V	50	8	3.2	0.8	0.8
ASFR3	00	V	50	8	3.6	0.6	-0.4
ASFR4	12	V	50	6	4.9	-2.6	-0.4
ASFR4	00	V	50	6	5.8	1.8	-1.2
LGKI	12	V	50	22	3.9	0.6	-1.2
LGKI	00	V	50	14	4.2	-0.1	-1.1

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

RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : GEOPOTENTIAL HEIGHT (METRES)  
 LEVEL : 100 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : FEB 2015  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	25	14.1	5.4
01001	00	Z	100	25	11.0	1.0
01028	00	Z	100	25	11.1	-4.1
01028	12	Z	100	25	8.6	2.1
01400	00	Z	100	20	31.0	30.2
01400	12	Z	100	16	38.2	36.2
01415	12	Z	100	28	22.2	7.0
01415	00	Z	100	27	13.5	3.0
02365	00	Z	100	35	9.8	-0.8
02365	12	Z	100	38	11.9	3.5
02591	00	Z	100	23	10.8	8.9
02591	12	Z	100	26	15.9	13.7
02836	00	Z	100	28	11.0	1.1
02836	12	Z	100	28	19.5	2.8
02963	12	Z	100	28	27.0	9.0
02963	00	Z	100	25	22.9	11.7
03005	12	Z	100	28	11.1	3.7
03005	00	Z	100	29	11.4	-0.8
03238	00	Z	100	28	18.7	14.1
03238	12	Z	100	8	15.1	13.7
03808	00	Z	100	28	8.3	3.3
03808	12	Z	100	27	13.4	10.3
03918	12	Z	100	16	16.1	10.8
03918	00	Z	100	28	15.8	12.8
03953	12	Z	100	28	16.6	13.5
03953	00	Z	100	28	10.2	6.8
04018	00	Z	100	24	16.7	-2.5
04018	12	Z	100	25	17.4	1.5
04220	12	Z	100	28	22.3	-2.7
04220	00	Z	100	23	18.1	-4.3
04270	12	Z	100	26	26.6	-6.7
04270	00	Z	100	26	20.0	-0.4
04320	12	Z	100	28	17.9	0.9
04320	00	Z	100	28	20.8	3.3
04339	00	Z	100	27	20.5	18.0
04339	12	Z	100	25	23.2	16.3
04360	12	Z	100	10	16.5	5.9
04360	00	Z	100	19	12.9	3.6
06011	12	Z	100	27	19.2	-2.0

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	100	24	21.1	-5.6
06260	00	Z	100	28	13.0	9.5
06260	12	Z	100	5	20.7	20.0
06610	00	Z	100	28	12.3	5.4
06610	12	Z	100	28	27.6	5.7
07110	00	Z	100	27	12.6	9.0
07110	12	Z	100	27	17.5	15.0
07510	00	Z	100	27	11.6	-6.0
07510	12	Z	100	23	8.6	1.7
07645	12	Z	100	25	48.3	47.3
07645	00	Z	100	27	41.8	40.2
07761	12	Z	100	24	8.1	5.3
07761	00	Z	100	21	10.0	1.7
08001	12	Z	100	28	19.4	14.9
08001	00	Z	100	24	15.2	11.9
08221	00	Z	100	25	16.6	9.6
08221	12	Z	100	27	19.3	15.9
08302	00	Z	100	28	10.5	0.1
08302	12	Z	100	26	9.0	-1.7
08508	12	Z	100	27	27.6	25.8
08522	12	Z	100	27	12.1	10.3
08579	12	Z	100	27	16.9	10.5
10035	00	Z	100	28	17.2	3.9
10035	12	Z	100	28	9.2	7.0
10393	12	Z	100	28	5.6	2.8
10393	00	Z	100	28	6.7	-1.8
10410	00	Z	100	28	9.9	3.0
10410	12	Z	100	28	5.8	2.3
10739	00	Z	100	27	8.8	7.4
10739	12	Z	100	27	10.0	8.6
11035	12	Z	100	28	6.1	-0.1
11035	00	Z	100	27	28.4	-4.6
12982	00	Z	100	27	8.1	-1.1
12982	12	Z	100	22	27.9	26.9
16044	00	Z	100	28	7.8	3.3
16044	12	Z	100	28	7.8	0.8
16080	00	Z	100	28	10.1	-1.0
16080	12	Z	100	28	10.8	0.5
16245	12	Z	100	28	12.1	-5.6
16245	00	Z	100	27	8.2	-2.4
16320	12	Z	100	28	8.4	0.5
16320	00	Z	100	27	11.6	1.4
16429	00	Z	100	24	10.8	1.0

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	100	26	13.6	0.4
16622	00	Z	100	24	21.2	16.8
16754	00	Z	100	26	13.8	8.5
17607	12	Z	100	34	15.5	-12.0
26435	00	Z	100	13	7.1	3.2
60018	12	Z	100	25	11.5	8.5
60018	00	Z	100	28	11.6	9.2
ASDE01	00	Z	100	4	4.9	4.1
ASDE01	12	Z	100	6	19.0	14.5
ASDE02	00	Z	100	18	21.4	19.4
ASDE03	12	Z	100	0	0.0	0.0
ASDE03	00	Z	100	0	0.0	0.0
ASDE04	12	Z	100	8	11.0	8.6
ASDE04	00	Z	100	9	13.6	1.8
ASDE09	12	Z	100	6	30.6	27.8
ASDE09	00	Z	100	4	8.4	-4.8
ASDK01	12	Z	100	0	0.0	0.0
ASDK1	12	Z	100	0	0.0	0.0
ASDK3	12	Z	100	0	0.0	0.0
ASDK3	00	Z	100	8	66.9	51.9
ASES01	12	Z	100	21	31.0	27.2
ASEU02	00	Z	100	5	42.7	42.4
ASEU02	12	Z	100	5	41.3	41.2
ASEU03	12	Z	100	6	39.9	38.8
ASEU03	00	Z	100	7	46.5	45.1
ASEU04	12	Z	100	3	13.8	9.3
ASEU04	00	Z	100	3	10.8	5.0
ASEU05	12	Z	100	12	29.6	21.5
ASEU05	00	Z	100	11	32.3	20.2
ASEU06	12	Z	100	9	42.4	40.3
ASEU06	00	Z	100	6	37.7	37.4
ASFR1	12	Z	100	5	15.6	7.9
ASFR1	00	Z	100	9	8.7	-3.0
ASFR2	12	Z	100	4	159.2	159.1
ASFR2	00	Z	100	4	151.4	151.3
ASFR3	12	Z	100	9	16.5	14.8
ASFR3	00	Z	100	8	15.7	15.0
ASFR4	12	Z	100	7	13.7	12.7
ASFR4	00	Z	100	7	23.7	20.4
LGKI	12	Z	100	24	12.8	-4.6
LGKI	00	Z	100	21	12.7	-3.8

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

## RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 LEVEL : 100 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : FEB 2015  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	25	4.5	0.7	-1.3
01001	00	V	100	25	4.9	0.1	-1.8
01028	00	V	100	25	3.0	-0.3	-0.9
01028	12	V	100	25	3.3	0.2	-0.3
01400	00	V	100	15	4.1	0.8	-0.6
01400	12	V	100	13	4.3	0.4	1.0
01415	12	V	100	28	4.7	-0.3	0.4
01415	00	V	100	27	6.3	-0.5	-0.1
02365	00	V	100	28	4.7	-0.7	-0.3
02365	12	V	100	28	5.5	0.8	-0.3
02591	00	V	100	18	4.0	-0.1	-0.7
02591	12	V	100	18	4.6	1.5	-0.3
02836	00	V	100	28	5.2	-1.0	-0.3
02836	12	V	100	28	5.7	-0.7	-0.7
02963	12	V	100	28	5.4	0.2	0.0
02963	00	V	100	24	4.6	-2.0	-0.1
03005	12	V	100	28	3.7	-0.4	0.6
03005	00	V	100	25	4.5	-1.0	0.7
03238	00	V	100	27	5.0	-0.1	-0.3
03238	12	V	100	8	5.0	-0.8	2.0
03808	00	V	100	27	4.1	-0.3	0.1
03808	12	V	100	27	4.3	-0.2	0.9
03918	12	V	100	16	4.4	0.6	0.9
03918	00	V	100	28	5.2	-1.3	0.7
03953	12	V	100	28	4.5	0.0	0.2
03953	00	V	100	27	4.4	-1.7	0.2
04018	00	V	100	23	4.3	0.2	0.1
04018	12	V	100	25	4.3	-0.1	-0.2
04220	12	V	100	28	3.7	0.4	0.5
04220	00	V	100	23	2.8	-0.3	0.1
04270	12	V	100	26	6.4	1.4	0.4
04270	00	V	100	26	4.5	-0.5	-0.5
04320	12	V	100	28	3.5	-0.1	0.1
04320	00	V	100	28	3.6	-0.3	-1.1
04339	00	V	100	26	3.2	-0.6	-0.5
04339	12	V	100	24	3.5	0.6	-1.1
04360	12	V	100	10	4.8	-1.0	0.0
04360	00	V	100	19	4.6	-0.3	-1.4
06011	12	V	100	27	3.8	1.3	0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	100	24	3.2	-0.4	0.0
06260	00	V	100	28	3.5	-0.5	-0.6
06260	12	V	100	5	1.8	0.7	-0.3
06610	00	V	100	28	4.5	0.4	-0.1
06610	12	V	100	28	3.6	0.3	0.3
07110	00	V	100	26	3.3	-0.2	0.1
07110	12	V	100	27	4.5	-0.2	0.3
07510	00	V	100	23	3.5	1.1	-0.6
07510	12	V	100	22	4.1	0.6	-0.1
07645	12	V	100	21	4.6	0.9	0.2
07645	00	V	100	24	4.4	-0.7	1.2
07761	12	V	100	23	3.7	0.3	0.6
07761	00	V	100	18	3.2	0.2	-1.0
08001	12	V	100	27	5.1	-0.2	1.3
08001	00	V	100	23	4.3	-0.6	-0.2
08221	00	V	100	24	5.7	1.4	-0.3
08221	12	V	100	27	5.2	-0.1	-1.2
08302	00	V	100	28	4.0	0.0	0.4
08302	12	V	100	26	6.0	1.2	1.0
08508	12	V	100	26	4.4	-0.5	0.0
08522	12	V	100	27	3.3	0.5	0.8
08579	12	V	100	27	3.8	0.6	0.2
10035	00	V	100	28	4.1	0.6	0.2
10035	12	V	100	28	4.3	0.4	1.0
10393	12	V	100	28	3.8	0.7	0.0
10393	00	V	100	28	3.7	-0.6	0.5
10410	00	V	100	28	4.2	-1.1	0.3
10410	12	V	100	28	4.0	0.1	1.1
10739	00	V	100	27	4.1	0.8	0.3
10739	12	V	100	27	3.7	-0.5	0.1
11035	12	V	100	28	3.3	-0.2	0.1
11035	00	V	100	27	3.3	0.4	0.0
12982	00	V	100	27	3.6	0.6	0.0
12982	12	V	100	22	3.6	-0.2	-0.7
16044	00	V	100	28	3.9	-0.1	0.2
16044	12	V	100	28	3.1	-0.2	0.5
16080	00	V	100	28	3.1	0.5	-0.3
16080	12	V	100	28	3.9	1.0	-0.2
16245	12	V	100	28	4.4	0.6	-0.7
16245	00	V	100	27	5.0	0.4	0.7
16320	12	V	100	27	4.5	0.3	-0.7
16320	00	V	100	24	4.2	0.2	-0.1
16429	00	V	100	23	4.8	1.7	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	100	26	4.8	1.7	-0.8
16622	00	V	100	10	6.8	1.0	-0.2
16754	00	V	100	26	5.7	1.3	-0.6
17607	12	V	100	18	5.7	-0.5	-0.4
26435	00	V	100	13	3.3	-0.8	1.3
60018	12	V	100	25	4.2	0.1	-0.3
60018	00	V	100	27	3.8	0.7	0.0
ASDE01	00	V	100	4	3.6	-3.2	-0.5
ASDE01	12	V	100	6	3.9	-0.5	-1.2
ASDE02	00	V	100	17	4.5	-0.8	-0.1
ASDE03	12	V	100	0	0.0	0.0	0.0
ASDE03	00	V	100	0	0.0	0.0	0.0
ASDE04	12	V	100	6	3.7	0.9	-0.7
ASDE04	00	V	100	7	3.0	-0.6	-0.7
ASDE09	12	V	100	5	3.1	-0.2	1.4
ASDE09	00	V	100	4	3.4	0.0	0.8
ASDK01	12	V	100	0	0.0	0.0	0.0
ASDK1	12	V	100	0	0.0	0.0	0.0
ASDK3	12	V	100	0	0.0	0.0	0.0
ASDK3	00	V	100	8	4.6	0.2	-2.8
ASES01	12	V	100	20	7.1	-0.3	2.1
ASEU02	00	V	100	5	6.7	-1.3	2.7
ASEU02	12	V	100	5	3.9	-1.5	-1.1
ASEU03	12	V	100	4	5.1	2.6	-0.5
ASEU03	00	V	100	6	3.5	0.1	-1.1
ASEU04	12	V	100	3	2.7	-0.9	0.8
ASEU04	00	V	100	2	5.7	-4.7	0.4
ASEU05	12	V	100	11	3.8	-1.0	-1.6
ASEU05	00	V	100	8	2.9	0.4	0.3
ASEU06	12	V	100	7	3.5	-1.5	-0.4
ASEU06	00	V	100	5	5.1	-0.1	0.9
ASFR1	12	V	100	3	2.0	0.4	-0.4
ASFR1	00	V	100	8	3.7	0.3	0.3
ASFR2	12	V	100	3	2.8	-1.1	-1.9
ASFR2	00	V	100	3	3.1	-0.9	-0.7
ASFR3	12	V	100	9	3.5	-0.4	-0.7
ASFR3	00	V	100	7	4.3	1.0	-1.4
ASFR4	12	V	100	7	4.8	-0.3	-3.2
ASFR4	00	V	100	7	4.7	-0.6	-0.7
LGKI	12	V	100	23	3.6	-0.5	0.2
LGKI	00	V	100	20	4.0	0.7	-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 : FEB 2015  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	25	8.4	2.1
01001	00	Z	500	25	6.4	2.9
01028	00	Z	500	25	6.6	1.8
01028	12	Z	500	26	5.7	3.3
01400	00	Z	500	22	28.5	28.1
01400	12	Z	500	18	29.4	28.1
01415	12	Z	500	28	8.9	5.6
01415	00	Z	500	28	12.0	7.7
02365	00	Z	500	35	5.1	3.1
02365	12	Z	500	38	5.8	4.2
02591	00	Z	500	23	8.6	8.3
02591	12	Z	500	26	10.4	9.9
02836	00	Z	500	28	5.4	2.0
02836	12	Z	500	28	7.0	4.0
02963	12	Z	500	28	4.9	3.1
02963	00	Z	500	28	21.1	10.2
03005	12	Z	500	28	7.0	0.7
03005	00	Z	500	29	6.0	1.1
03238	00	Z	500	28	10.7	9.4
03238	12	Z	500	8	11.1	10.7
03808	00	Z	500	30	6.8	4.3
03808	12	Z	500	29	6.7	3.3
03918	12	Z	500	16	10.2	8.9
03918	00	Z	500	28	11.5	10.5
03953	12	Z	500	28	7.9	6.5
03953	00	Z	500	28	7.4	6.3
04018	00	Z	500	25	7.0	2.1
04018	12	Z	500	25	7.0	2.1
04220	12	Z	500	28	6.3	0.6
04220	00	Z	500	27	7.4	0.4
04270	12	Z	500	28	11.0	-3.2
04270	00	Z	500	27	6.0	-0.2
04320	12	Z	500	28	10.1	6.4
04320	00	Z	500	28	12.0	8.2
04339	00	Z	500	27	8.2	4.7
04339	12	Z	500	26	8.5	3.8
04360	12	Z	500	18	7.6	2.7
04360	00	Z	500	20	8.0	3.3
06011	12	Z	500	28	43.3	18.9



RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	500	26	14.6	2.3
06260	00	Z	500	28	6.3	4.3
06260	12	Z	500	5	8.5	8.0
06610	00	Z	500	28	7.3	5.6
06610	12	Z	500	28	7.6	5.5
07110	00	Z	500	28	6.8	4.2
07110	12	Z	500	28	5.7	2.9
07510	00	Z	500	29	6.6	-4.4
07510	12	Z	500	28	4.8	1.7
07645	12	Z	500	29	19.0	17.8
07645	00	Z	500	29	12.7	11.8
07761	12	Z	500	30	5.3	3.7
07761	00	Z	500	29	4.3	0.6
08001	12	Z	500	28	9.5	6.3
08001	00	Z	500	27	10.0	3.3
08221	00	Z	500	25	8.6	6.6
08221	12	Z	500	27	12.0	10.3
08302	00	Z	500	28	6.5	1.8
08302	12	Z	500	26	6.6	2.4
08508	12	Z	500	27	19.3	17.3
08522	12	Z	500	27	8.8	8.0
08579	12	Z	500	27	7.0	4.8
10035	00	Z	500	28	16.0	3.5
10035	12	Z	500	28	3.9	1.9
10393	12	Z	500	29	3.3	0.6
10393	00	Z	500	28	4.5	-2.5
10410	00	Z	500	28	3.8	-0.7
10410	12	Z	500	28	3.1	-1.0
10739	00	Z	500	27	7.4	6.8
10739	12	Z	500	27	7.9	7.3
11035	12	Z	500	28	4.3	0.3
11035	00	Z	500	27	9.1	-1.4
12982	00	Z	500	27	6.1	1.5
12982	12	Z	500	24	11.8	10.9
16044	00	Z	500	28	5.7	2.6
16044	12	Z	500	28	5.9	1.4
16080	00	Z	500	28	5.0	0.7
16080	12	Z	500	28	4.6	0.4
16245	12	Z	500	28	9.6	-6.8
16245	00	Z	500	28	9.0	-6.0
16320	12	Z	500	28	6.7	-0.2
16320	00	Z	500	28	7.0	1.3
16429	00	Z	500	28	7.4	-0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	500	27	7.1	-0.7
16622	00	Z	500	27	16.9	14.7
16754	00	Z	500	26	11.8	6.5
17607	12	Z	500	34	5.7	2.2
26435	00	Z	500	14	7.3	6.1
60018	12	Z	500	25	5.6	4.5
60018	00	Z	500	28	7.5	5.8
ASDE01	00	Z	500	4	10.3	-7.4
ASDE01	12	Z	500	6	14.4	-9.7
ASDE02	00	Z	500	19	13.6	12.8
ASDE03	12	Z	500	2	23.8	22.3
ASDE03	00	Z	500	1	45.4	45.4
ASDE04	12	Z	500	9	6.5	-3.2
ASDE04	00	Z	500	9	9.6	-6.1
ASDE09	12	Z	500	6	11.2	1.5
ASDE09	00	Z	500	5	9.1	-4.3
ASDK01	12	Z	500	0	0.0	0.0
ASDK1	12	Z	500	0	0.0	0.0
ASDK3	12	Z	500	0	0.0	0.0
ASDK3	00	Z	500	8	51.4	32.8
ASES01	12	Z	500	22	10.0	8.8
ASEU02	00	Z	500	5	37.6	37.2
ASEU02	12	Z	500	5	32.6	32.5
ASEU03	12	Z	500	10	35.4	34.6
ASEU03	00	Z	500	12	37.2	36.5
ASEU04	12	Z	500	7	6.9	-1.7
ASEU04	00	Z	500	5	5.5	-0.7
ASEU05	12	Z	500	14	16.8	12.6
ASEU05	00	Z	500	12	15.8	9.8
ASEU06	12	Z	500	10	33.9	31.1
ASEU06	00	Z	500	9	35.4	34.9
ASFR1	12	Z	500	8	8.2	-5.7
ASFR1	00	Z	500	9	8.9	-7.2
ASFR2	12	Z	500	4	139.6	139.5
ASFR2	00	Z	500	4	143.4	143.3
ASFR3	12	Z	500	10	6.6	3.8
ASFR3	00	Z	500	10	5.7	3.0
ASFR4	12	Z	500	7	5.2	-0.6
ASFR4	00	Z	500	8	13.5	5.4
LGKI	12	Z	500	24	8.3	-3.5
LGKI	00	Z	500	21	6.3	-2.4

**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 : FEB 2015  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	25	3.7	-0.2	0.5
01001	00	V	500	25	4.2	-0.6	0.4
01028	00	V	500	25	3.6	0.2	0.9
01028	12	V	500	26	3.9	-0.3	-0.2
01400	00	V	500	21	2.6	0.1	0.5
01400	12	V	500	18	4.8	-1.1	1.1
01415	12	V	500	28	3.2	-0.2	0.0
01415	00	V	500	27	4.3	-0.7	1.6
02365	00	V	500	28	3.4	0.3	-0.2
02365	12	V	500	28	3.1	0.0	-0.1
02591	00	V	500	18	3.2	-0.4	-0.3
02591	12	V	500	19	2.5	-0.7	0.1
02836	00	V	500	28	3.8	0.2	-1.1
02836	12	V	500	28	3.5	1.0	-0.7
02963	12	V	500	28	2.8	-0.2	0.7
02963	00	V	500	28	3.3	-0.1	0.5
03005	12	V	500	28	4.4	0.2	-0.8
03005	00	V	500	26	4.2	1.0	0.2
03238	00	V	500	27	3.3	0.1	0.3
03238	12	V	500	8	3.2	0.3	-2.0
03808	00	V	500	29	3.2	-0.1	-0.3
03808	12	V	500	28	3.5	1.0	-0.6
03918	12	V	500	16	4.0	1.7	-0.6
03918	00	V	500	28	3.4	0.5	-0.3
03953	12	V	500	28	4.1	-0.4	-1.6
03953	00	V	500	27	4.0	-0.5	0.1
04018	00	V	500	24	3.3	-0.6	0.1
04018	12	V	500	25	4.2	0.0	0.2
04220	12	V	500	28	2.8	-0.1	0.0
04220	00	V	500	27	3.6	-0.2	0.6
04270	12	V	500	28	3.9	0.2	1.0
04270	00	V	500	27	3.4	0.1	0.3
04320	12	V	500	28	3.2	0.1	0.2
04320	00	V	500	28	2.9	-0.2	0.2
04339	00	V	500	27	3.6	0.5	0.3
04339	12	V	500	26	3.5	-0.1	-0.8
04360	12	V	500	18	4.3	1.2	0.4
04360	00	V	500	20	3.7	0.9	1.0
06011	12	V	500	28	2.9	0.5	-0.8

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	500	26	4.0	-1.2	0.7
06260	00	V	500	28	2.5	0.3	0.8
06260	12	V	500	5	1.9	1.5	-0.1
06610	00	V	500	28	3.1	-0.5	0.0
06610	12	V	500	28	3.2	-0.2	-0.1
07110	00	V	500	27	5.1	0.4	0.3
07110	12	V	500	28	3.4	-0.2	0.7
07510	00	V	500	26	3.4	0.3	-0.1
07510	12	V	500	28	4.2	0.5	0.6
07645	12	V	500	26	3.3	0.0	0.4
07645	00	V	500	27	3.8	0.3	0.0
07761	12	V	500	28	3.1	0.7	0.6
07761	00	V	500	26	3.4	-0.2	0.5
08001	12	V	500	28	3.6	0.1	0.1
08001	00	V	500	27	3.3	0.4	-0.1
08221	00	V	500	25	3.7	1.0	-0.3
08221	12	V	500	27	3.8	0.0	0.1
08302	00	V	500	28	3.5	0.2	-0.3
08302	12	V	500	26	4.5	-0.4	0.3
08508	12	V	500	27	2.5	0.3	-0.4
08522	12	V	500	27	2.6	0.6	0.0
08579	12	V	500	27	3.3	-0.1	0.5
10035	00	V	500	28	2.8	-0.3	-0.2
10035	12	V	500	28	2.5	0.0	0.4
10393	12	V	500	28	2.6	-0.6	0.8
10393	00	V	500	28	3.1	-0.5	-0.1
10410	00	V	500	28	3.2	-0.2	0.6
10410	12	V	500	28	2.2	0.4	0.4
10739	00	V	500	27	3.3	0.5	0.3
10739	12	V	500	27	2.2	0.7	-0.3
11035	12	V	500	28	3.0	0.3	0.1
11035	00	V	500	27	2.1	0.3	0.1
12982	00	V	500	27	2.6	-0.5	-0.4
12982	12	V	500	24	2.8	0.6	0.3
16044	00	V	500	28	3.3	0.1	0.3
16044	12	V	500	28	2.5	0.1	0.2
16080	00	V	500	28	3.4	-0.3	-0.2
16080	12	V	500	28	2.9	-0.1	-0.1
16245	12	V	500	28	3.5	-0.1	0.1
16245	00	V	500	28	2.8	0.5	0.4
16320	12	V	500	28	4.4	0.8	0.3
16320	00	V	500	27	3.5	0.0	-0.6
16429	00	V	500	27	4.0	0.5	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	500	27	3.7	-0.5	0.2
16622	00	V	500	11	6.4	2.4	-0.3
16754	00	V	500	26	4.9	0.0	0.8
17607	12	V	500	19	3.7	1.0	0.2
26435	00	V	500	14	2.0	0.1	0.6
60018	12	V	500	25	2.9	0.6	-0.1
60018	00	V	500	27	2.7	0.0	0.0
ASDE01	00	V	500	3	3.1	0.2	1.7
ASDE01	12	V	500	6	3.5	1.4	0.1
ASDE02	00	V	500	18	3.0	0.3	-0.5
ASDE03	12	V	500	1	4.2	-3.7	2.0
ASDE03	00	V	500	0	0.0	0.0	0.0
ASDE04	12	V	500	8	2.6	-0.5	0.1
ASDE04	00	V	500	8	2.5	0.0	0.6
ASDE09	12	V	500	6	2.7	-0.7	0.2
ASDE09	00	V	500	5	1.9	-0.2	-0.4
ASDK01	12	V	500	0	0.0	0.0	0.0
ASDK1	12	V	500	0	0.0	0.0	0.0
ASDK3	12	V	500	0	0.0	0.0	0.0
ASDK3	00	V	500	8	4.7	1.7	-1.6
ASES01	12	V	500	22	3.6	0.6	0.6
ASEU02	00	V	500	5	3.2	0.2	-1.6
ASEU02	12	V	500	5	2.3	-0.9	0.6
ASEU03	12	V	500	10	4.2	-0.1	-0.1
ASEU03	00	V	500	12	3.4	0.1	-0.2
ASEU04	12	V	500	7	2.3	-0.1	-0.9
ASEU04	00	V	500	5	5.0	-0.1	-2.5
ASEU05	12	V	500	14	2.6	-0.2	-0.4
ASEU05	00	V	500	12	3.8	-0.2	0.4
ASEU06	12	V	500	9	3.7	0.0	1.0
ASEU06	00	V	500	8	3.3	0.0	1.4
ASFR1	12	V	500	8	3.3	0.4	0.1
ASFR1	00	V	500	9	3.1	1.2	0.8
ASFR2	12	V	500	4	3.2	0.0	-0.1
ASFR2	00	V	500	4	3.3	0.2	0.3
ASFR3	12	V	500	10	3.3	-0.4	-1.7
ASFR3	00	V	500	10	3.3	0.5	-1.2
ASFR4	12	V	500	7	2.8	-0.5	-0.1
ASFR4	00	V	500	8	2.9	1.1	-0.3
LGKI	12	V	500	24	3.5	1.0	1.2
LGKI	00	V	500	20	3.8	0.8	-1.2

#### 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 : FEB 2015  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	26	6.3	-2.5
01001	00	Z	850	25	5.5	-0.5
01028	00	Z	850	25	5.6	-0.8
01028	12	Z	850	26	4.4	-1.3
01400	00	Z	850	22	25.5	24.7
01400	12	Z	850	18	25.2	24.3
01415	12	Z	850	28	4.1	1.8
01415	00	Z	850	28	3.7	2.0
02365	00	Z	850	35	4.4	3.0
02365	12	Z	850	38	4.2	2.8
02591	00	Z	850	23	7.6	7.3
02591	12	Z	850	26	8.0	7.5
02836	00	Z	850	28	3.7	1.7
02836	12	Z	850	28	2.9	1.3
02963	12	Z	850	28	4.2	3.0
02963	00	Z	850	28	5.5	4.3
03005	12	Z	850	28	5.0	-0.9
03005	00	Z	850	29	3.5	-0.9
03238	00	Z	850	28	7.0	6.6
03238	12	Z	850	8	6.9	5.7
03808	00	Z	850	30	3.0	0.9
03808	12	Z	850	29	3.8	1.7
03918	12	Z	850	16	8.4	7.4
03918	00	Z	850	28	8.8	8.3
03953	12	Z	850	28	6.3	5.4
03953	00	Z	850	28	6.0	5.1
04018	00	Z	850	25	4.4	0.0
04018	12	Z	850	26	3.8	0.6
04220	12	Z	850	28	3.9	-1.4
04220	00	Z	850	28	6.1	-0.3
04270	12	Z	850	28	4.3	-2.5
04270	00	Z	850	28	4.3	-2.9
04320	12	Z	850	28	9.5	5.7
04320	00	Z	850	28	10.3	7.4
04339	00	Z	850	27	3.9	-1.6
04339	12	Z	850	26	4.9	-1.9
04360	12	Z	850	20	5.3	-2.5
04360	00	Z	850	23	6.8	-2.4
06011	12	Z	850	28	12.1	6.0

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06011	00	Z	850	26	15.4	5.4
06260	00	Z	850	28	4.2	2.6
06260	12	Z	850	5	4.1	2.7
06610	00	Z	850	28	2.6	1.1
06610	12	Z	850	28	3.2	0.8
07110	00	Z	850	28	4.4	0.4
07110	12	Z	850	28	3.5	-0.7
07510	00	Z	850	29	4.9	-3.9
07510	12	Z	850	28	3.3	-2.3
07645	12	Z	850	30	5.2	2.7
07645	00	Z	850	29	3.8	0.5
07761	12	Z	850	30	3.4	1.5
07761	00	Z	850	29	3.3	-0.9
08001	12	Z	850	28	6.1	1.7
08001	00	Z	850	27	5.4	-1.1
08221	00	Z	850	25	5.3	4.3
08221	12	Z	850	27	6.8	5.8
08302	00	Z	850	28	3.9	-1.8
08302	12	Z	850	27	4.0	-0.5
08508	12	Z	850	27	13.9	10.7
08522	12	Z	850	27	4.9	4.3
08579	12	Z	850	27	4.4	2.3
10035	00	Z	850	28	15.8	3.0
10035	12	Z	850	28	3.1	0.6
10393	12	Z	850	29	2.7	-1.5
10393	00	Z	850	28	3.5	-2.8
10410	00	Z	850	28	3.5	-1.9
10410	12	Z	850	28	3.5	-2.5
10739	00	Z	850	27	7.0	6.6
10739	12	Z	850	27	7.2	6.9
11035	12	Z	850	28	3.7	-2.7
11035	00	Z	850	27	5.2	-4.2
12982	00	Z	850	27	3.3	-1.0
12982	12	Z	850	24	4.3	3.5
16044	00	Z	850	28	3.6	-1.4
16044	12	Z	850	28	5.2	-2.6
16080	00	Z	850	28	5.6	-2.7
16080	12	Z	850	28	4.2	-2.0
16245	12	Z	850	28	11.4	-9.7
16245	00	Z	850	28	10.2	-7.5
16320	12	Z	850	28	6.4	-1.8
16320	00	Z	850	28	5.9	0.5
16429	00	Z	850	28	5.5	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
16429	12	Z	850	28	4.7	-2.2
16622	00	Z	850	27	10.9	9.3
16754	00	Z	850	26	8.0	3.7
17607	12	Z	850	34	3.7	2.2
26435	00	Z	850	14	4.0	1.7
60018	12	Z	850	26	3.4	-2.4
60018	00	Z	850	28	2.8	-1.2
ASDE01	00	Z	850	4	12.1	-10.8
ASDE01	12	Z	850	6	15.3	-14.0
ASDE02	00	Z	850	19	9.6	8.8
ASDE03	12	Z	850	4	32.9	30.4
ASDE03	00	Z	850	2	40.2	40.1
ASDE04	12	Z	850	9	8.5	-6.7
ASDE04	00	Z	850	9	11.7	-10.2
ASDE09	12	Z	850	6	7.5	-2.1
ASDE09	00	Z	850	5	13.7	-10.5
ASDK01	12	Z	850	0	0.0	0.0
ASDK1	12	Z	850	0	0.0	0.0
ASDK3	12	Z	850	0	0.0	0.0
ASDK3	00	Z	850	8	25.4	15.4
ASES01	12	Z	850	22	5.1	3.8
ASEU02	00	Z	850	5	32.6	32.2
ASEU02	12	Z	850	5	30.4	30.2
ASEU03	12	Z	850	10	33.7	33.0
ASEU03	00	Z	850	12	35.2	34.7
ASEU04	12	Z	850	7	8.0	-4.3
ASEU04	00	Z	850	5	5.7	-3.1
ASEU05	12	Z	850	14	14.1	10.8
ASEU05	00	Z	850	12	12.8	6.3
ASEU06	12	Z	850	11	32.2	29.9
ASEU06	00	Z	850	9	32.7	31.9
ASFR1	12	Z	850	8	7.5	-6.7
ASFR1	00	Z	850	10	7.2	-6.2
ASFR2	12	Z	850	2	0.0	0.0
ASFR2	00	Z	850	2	0.0	0.0
ASFR3	12	Z	850	10	2.2	-1.2
ASFR3	00	Z	850	10	4.1	0.5
ASFR4	12	Z	850	7	7.7	-7.4
ASFR4	00	Z	850	8	11.0	-1.6
LGKI	12	Z	850	24	8.8	-7.3
LGKI	00	Z	850	21	9.3	-7.3



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

## RADIOSONDE MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND (M/S)  
 LEVEL : 850 HPA  
 AREA : 0 - 90N, 100W - 40E  
 PERIOD : FEB 2015  
 STANDARD OF COMPARISON: FIRST-GUESS FIELD

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	26	4.3	0.3	0.4
01001	00	V	850	25	4.1	0.0	-0.1
01028	00	V	850	25	6.6	0.6	-0.2
01028	12	V	850	26	5.7	1.7	-0.7
01400	00	V	850	21	1.8	-0.5	-0.4
01400	12	V	850	18	2.8	-0.1	0.3
01415	12	V	850	28	3.6	0.7	0.0
01415	00	V	850	27	2.8	0.2	-0.4
02365	00	V	850	28	3.0	0.5	-0.9
02365	12	V	850	28	3.8	-0.2	-0.2
02591	00	V	850	18	2.5	0.1	0.0
02591	12	V	850	19	3.4	-0.1	-0.5
02836	00	V	850	28	3.3	-0.2	-0.5
02836	12	V	850	28	3.4	-1.8	-0.6
02963	12	V	850	28	2.8	0.4	0.0
02963	00	V	850	28	2.6	-0.3	-0.2
03005	12	V	850	28	3.0	0.7	-0.7
03005	00	V	850	26	3.5	-0.2	-0.8
03238	00	V	850	27	3.0	-0.1	-0.1
03238	12	V	850	8	2.5	-0.8	1.2
03808	00	V	850	29	2.3	-0.1	-0.4
03808	12	V	850	28	2.4	0.4	-0.2
03918	12	V	850	16	2.8	0.2	-0.5
03918	00	V	850	28	2.2	0.0	0.1
03953	12	V	850	27	2.1	-0.6	-0.2
03953	00	V	850	27	3.2	-0.5	0.8
04018	00	V	850	23	3.0	1.0	0.0
04018	12	V	850	26	3.8	0.1	0.1
04220	12	V	850	28	3.2	0.2	0.1
04220	00	V	850	28	3.6	0.1	-0.1
04270	12	V	850	28	3.7	0.7	-0.1
04270	00	V	850	28	3.5	0.7	-0.1
04320	12	V	850	28	3.5	0.3	0.6
04320	00	V	850	28	4.2	0.7	0.4
04339	00	V	850	27	6.2	1.3	2.7
04339	12	V	850	26	6.4	2.6	2.0
04360	12	V	850	20	5.7	2.2	2.2
04360	00	V	850	23	6.1	2.7	0.8
06011	12	V	850	28	3.7	-0.6	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06011	00	V	850	26	3.3	0.3	-1.1
06260	00	V	850	28	2.6	0.4	0.1
06260	12	V	850	5	1.5	-0.3	0.6
06610	00	V	850	28	2.4	1.1	0.0
06610	12	V	850	28	3.1	0.1	0.2
07110	00	V	850	27	3.4	0.5	0.3
07110	12	V	850	28	3.0	0.0	-0.3
07510	00	V	850	27	3.7	-0.2	-0.6
07510	12	V	850	28	3.0	-0.1	0.0
07645	12	V	850	27	4.9	1.2	1.3
07645	00	V	850	27	5.1	0.0	-0.1
07761	12	V	850	28	4.5	0.9	0.8
07761	00	V	850	26	4.4	1.0	1.1
08001	12	V	850	28	2.3	-0.1	-0.4
08001	00	V	850	27	2.6	-0.7	0.6
08221	00	V	850	25	4.4	0.1	1.7
08221	12	V	850	27	3.7	-0.4	0.2
08302	00	V	850	28	3.6	1.2	-0.8
08302	12	V	850	27	4.0	-0.4	0.5
08508	12	V	850	27	3.7	0.1	1.0
08522	12	V	850	27	4.8	0.6	0.5
08579	12	V	850	27	3.1	-1.2	-0.3
10035	00	V	850	28	2.5	0.2	-0.3
10035	12	V	850	28	2.4	0.0	0.2
10393	12	V	850	28	2.4	-0.1	0.3
10393	00	V	850	28	2.5	-1.0	0.7
10410	00	V	850	28	2.8	0.2	-0.4
10410	12	V	850	28	2.3	-0.1	0.4
10739	00	V	850	27	2.7	-0.1	-0.4
10739	12	V	850	27	2.1	-0.5	-0.1
11035	12	V	850	28	3.2	-0.2	0.3
11035	00	V	850	26	2.9	0.4	-0.8
12982	00	V	850	27	3.0	0.6	-0.6
12982	12	V	850	24	2.3	-0.3	-0.6
16044	00	V	850	28	3.3	1.4	0.1
16044	12	V	850	28	4.5	1.1	-0.4
16080	00	V	850	28	4.1	1.0	-0.4
16080	12	V	850	28	3.7	0.5	-0.2
16245	12	V	850	28	3.9	0.1	-0.6
16245	00	V	850	28	4.0	0.8	0.1
16320	12	V	850	28	3.6	-0.3	-0.8
16320	00	V	850	27	3.8	-0.3	-0.4
16429	00	V	850	27	3.6	-0.1	0.0

RADIOSONDE MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
16429	12	V	850	27	3.5	-0.7	-0.2
16622	00	V	850	11	4.3	-0.5	-1.3
16754	00	V	850	26	3.2	-0.6	0.2
17607	12	V	850	19	4.2	-0.1	-0.3
26435	00	V	850	14	2.1	-0.9	0.2
60018	12	V	850	26	3.8	-0.9	-1.3
60018	00	V	850	27	3.4	-0.9	-1.2
ASDE01	00	V	850	4	3.4	1.4	-0.7
ASDE01	12	V	850	6	3.9	0.6	-0.1
ASDE02	00	V	850	18	2.8	0.0	0.6
ASDE03	12	V	850	3	2.4	1.0	0.2
ASDE03	00	V	850	2	2.4	1.3	-0.6
ASDE04	12	V	850	9	2.7	1.1	0.7
ASDE04	00	V	850	8	2.9	0.0	0.2
ASDE09	12	V	850	6	2.9	1.7	-0.4
ASDE09	00	V	850	5	4.2	0.6	0.3
ASDK01	12	V	850	0	0.0	0.0	0.0
ASDK1	12	V	850	0	0.0	0.0	0.0
ASDK3	12	V	850	0	0.0	0.0	0.0
ASDK3	00	V	850	8	3.2	0.1	0.6
ASES01	12	V	850	22	2.6	0.5	0.1
ASEU02	00	V	850	5	1.9	0.0	0.5
ASEU02	12	V	850	5	3.4	1.1	1.6
ASEU03	12	V	850	10	3.5	-0.1	-0.3
ASEU03	00	V	850	12	3.8	0.0	1.0
ASEU04	12	V	850	7	4.0	0.6	-1.4
ASEU04	00	V	850	5	3.4	-2.4	0.2
ASEU05	12	V	850	14	2.5	0.9	0.1
ASEU05	00	V	850	12	2.8	1.4	1.1
ASEU06	12	V	850	9	3.2	0.3	-0.1
ASEU06	00	V	850	8	3.6	-0.7	-0.2
ASFR1	12	V	850	8	3.5	0.9	-0.9
ASFR1	00	V	850	10	3.0	-1.2	0.1
ASFR2	12	V	850	2	1.6	0.1	0.3
ASFR2	00	V	850	2	1.1	0.7	-0.7
ASFR3	12	V	850	10	3.0	0.2	0.6
ASFR3	00	V	850	10	2.9	-0.3	0.4
ASFR4	12	V	850	7	2.9	-0.3	1.5
ASFR4	00	V	850	8	2.9	-0.4	0.2
LGKI	12	V	850	24	2.8	0.1	-0.2
LGKI	00	V	850	20	3.1	0.5	-0.2

**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 : FEB 2015  
 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
13001	99	P	SUR	12	-23	122	0	0.3	0.1	0.3
13008	99	P	SUR	15	-38	82	0	0.3	0.1	0.3
13515	99	P	SUR	21	-33	156	0	0.3	0.3	0.4
13517	99	P	SUR	13	-23	155	0	0.3	0.4	0.5
13519	99	P	SUR	13	-23	180	0	0.3	0.3	0.4
13529	99	P	SUR	17	-23	186	0	0.4	0.3	0.5
13530	99	P	SUR	17	-24	147	0	0.4	0.2	0.4
13531	99	P	SUR	10	-36	146	0	0.3	-0.1	0.3
13569	99	P	SUR	32	-29	177	0	0.3	0.0	0.3
13570	99	P	SUR	35	-28	192	0	0.4	0.5	0.6
13572	99	P	SUR	35	-31	192	0	0.4	0.2	0.4
13590	99	P	SUR	33	-28	59	0	0.3	0.6	0.6
13633	99	P	SUR	36	-31	194	0	0.3	-0.3	0.5
13659	99	P	SUR	25	-51	196	0	0.3	-0.1	0.3
13660	99	P	SUR	31	-53	196	0	3.1	-1.5	3.4
13661	99	P	SUR	13	-19	106	0	0.3	-0.2	0.4
13662	99	P	SUR	27	-41	195	0	0.3	0.0	0.3
13664	99	P	SUR	23	-48	196	0	0.3	0.4	0.5
13868	99	P	SUR	36	-13	196	0	0.3	0.2	0.4
13869	99	P	SUR	24	-22	196	0	0.3	0.2	0.4
21890	99	P	SUR	39	0	125	59	8.2	-3.8	9.0
21942	99	P	SUR	31	-24	184	0	0.4	0.3	0.5
25540	99	P	SUR	88	-67	196	0	1.2	0.1	1.2
25602	99	P	SUR	74	-17	42	33	6.9	-7.0	9.9
25648	99	P	SUR	80	-2	27	0	0.4	-0.7	0.8
26538	99	P	SUR	82	9	195	0	0.6	0.0	0.6
31717	99	P	SUR	17	-54	196	0	0.2	0.1	0.3
31863	99	P	SUR	20	-49	193	0	0.4	0.8	0.8
41139	99	P	SUR	20	-38	133	0	0.3	-0.1	0.3
41560	99	P	SUR	34	-21	192	0	0.4	0.5	0.6
41564	99	P	SUR	32	-42	182	0	0.3	0.5	0.6
41580	99	P	SUR	17	-43	167	0	0.3	0.2	0.3
41590	99	P	SUR	18	-51	154	0	0.2	0.1	0.3
41591	99	P	SUR	16	-51	146	0	0.2	0.2	0.3
41594	99	P	SUR	21	-37	170	0	0.2	0.4	0.5
41596	99	P	SUR	20	-59	194	0	0.3	0.1	0.3

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
41597	99	P	SUR	21	-52	196	0	0.3	0.4	0.5
41598	99	P	SUR	24	-49	196	0	0.3	0.1	0.3
41599	99	P	SUR	19	-65	196	0	0.3	0.4	0.5
41600	99	P	SUR	16	-58	196	0	0.2	0.8	0.8
41632	99	P	SUR	27	-63	196	0	0.3	-0.1	0.4
41705	99	P	SUR	34	-53	195	0	0.4	-0.2	0.4
41706	99	P	SUR	26	-67	195	0	0.3	-0.3	0.4
41709	99	P	SUR	26	-68	196	0	0.3	0.1	0.3
41711	99	P	SUR	34	-49	191	0	0.4	0.0	0.4
41737	99	P	SUR	25	-56	196	0	0.6	0.5	0.8
41933	99	P	SUR	35	-60	193	0	0.9	-0.4	1.0
41936	99	P	SUR	35	-64	150	0	0.7	-0.1	0.7
41970	99	P	SUR	30	-60	184	0	0.4	-0.1	0.4
41971	99	P	SUR	33	-40	196	0	0.4	0.1	0.4
41972	99	P	SUR	26	-46	192	0	0.3	0.1	0.3
41975	99	P	SUR	36	-51	177	0	0.5	-0.3	0.6
44505	99	P	SUR	47	-18	368	28	0.6	0.8	1.0
44516	99	P	SUR	26	-66	180	0	0.4	0.1	0.4
44546	99	P	SUR	28	-26	196	0	0.3	-0.1	0.3
44547	99	P	SUR	54	-34	196	0	0.6	0.1	0.6
44548	99	P	SUR	54	-43	196	0	0.8	0.4	0.9
44549	99	P	SUR	49	-29	196	0	0.4	0.1	0.4
44550	99	P	SUR	53	-27	196	0	0.7	-0.1	0.7
44551	99	P	SUR	53	-29	196	0	0.7	0.2	0.7
44554	99	P	SUR	31	-41	180	0	0.4	-0.1	0.4
44558	99	P	SUR	34	-61	196	0	0.6	0.1	0.6
44560	99	P	SUR	48	-39	183	0	0.7	0.0	0.7
44601	99	P	SUR	48	-33	196	0	0.5	-0.2	0.5
44602	99	P	SUR	54	-22	196	0	0.5	-0.2	0.6
44603	99	P	SUR	41	-62	196	9	1.8	-0.2	1.8
44605	99	P	SUR	44	-5	196	0	0.4	-0.4	0.5
44606	99	P	SUR	47	-34	196	0	0.5	-0.1	0.5
44608	99	P	SUR	43	-25	196	3	2.0	0.6	2.0
44609	99	P	SUR	45	-48	133	0	0.7	0.1	0.7
44612	99	P	SUR	53	-26	193	0	0.6	-0.3	0.7
44613	99	P	SUR	36	-17	195	0	0.4	-0.2	0.4
44614	99	P	SUR	49	-22	196	0	0.5	0.0	0.5
44615	99	P	SUR	64	-21	13	0	0.4	-0.6	0.7
44620	99	P	SUR	54	-31	196	0	0.7	0.2	0.7
44621	99	P	SUR	55	-23	186	0	0.5	0.2	0.6
44622	99	P	SUR	56	-7	196	0	0.6	0.4	0.7
44623	99	P	SUR	55	-41	134	0	0.7	-0.3	0.8
44624	99	P	SUR	25	-20	190	0	0.3	-0.1	0.3

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
44625	99	P	SUR	55	-26	172	0	0.5	0.0	0.5
44725	99	P	SUR	30	-63	118	8	3.3	-0.6	3.4
44739	99	P	SUR	43	-53	196	0	0.7	0.2	0.7
44740	99	P	SUR	28	-50	172	0	0.3	-0.3	0.4
44747	99	P	SUR	63	-32	189	0	1.0	-0.2	1.0
44760	99	P	SUR	56	-40	134	0	0.7	-0.5	0.8
44761	99	P	SUR	52	-46	134	0	0.7	-0.3	0.7
44762	99	P	SUR	49	-49	134	0	0.7	0.2	0.7
44765	99	P	SUR	38	-14	196	0	1.2	0.2	1.3
44773	99	P	SUR	21	-48	188	0	0.3	0.1	0.3
44775	99	P	SUR	30	-67	196	0	0.5	-0.2	0.5
44776	99	P	SUR	41	-53	196	0	0.7	0.3	0.8
44777	99	P	SUR	37	-42	182	0	0.5	0.1	0.5
44778	99	P	SUR	36	-46	196	0	0.4	0.3	0.5
44779	99	P	SUR	41	-43	196	0	0.4	0.2	0.4
44835	99	P	SUR	40	-31	196	0	0.4	-0.1	0.4
44836	99	P	SUR	52	-31	196	0	0.6	-0.3	0.7
44837	99	P	SUR	45	-12	196	0	0.4	-0.2	0.4
44839	99	P	SUR	40	-25	196	0	0.4	0.1	0.4
44846	99	P	SUR	31	-34	196	0	0.4	0.5	0.7
44847	99	P	SUR	42	-32	196	0	0.4	0.2	0.4
44848	99	P	SUR	43	-41	196	0	0.5	0.1	0.5
44863	99	P	SUR	31	-33	188	0	0.3	0.0	0.3
44866	99	P	SUR	54	-39	196	0	0.6	-0.3	0.7
44867	99	P	SUR	51	-41	196	0	0.7	-0.3	0.8
44868	99	P	SUR	28	-54	196	0	2.2	-0.3	2.2
44871	99	P	SUR	47	-29	192	0	0.4	0.0	0.4
44872	99	P	SUR	42	-51	196	0	0.7	-0.4	0.8
44876	99	P	SUR	34	-51	196	0	0.5	0.4	0.6
44877	99	P	SUR	39	-22	196	0	0.4	0.1	0.4
44878	99	P	SUR	41	-28	196	0	0.3	0.1	0.4
44880	99	P	SUR	45	-50	196	0	0.7	-0.4	0.8
44885	99	P	SUR	43	-23	196	0	0.3	-0.1	0.3
44887	99	P	SUR	37	-52	196	0	0.4	-0.3	0.5
44888	99	P	SUR	40	-29	196	0	0.3	0.0	0.3
44889	99	P	SUR	34	-45	196	0	0.5	-0.1	0.5
44890	99	P	SUR	32	-59	190	0	0.5	-0.5	0.7
44891	99	P	SUR	31	-32	196	0	0.3	0.1	0.4
44892	99	P	SUR	46	-36	196	0	0.6	-0.4	0.7
44896	99	P	SUR	34	-35	180	0	0.3	-0.1	0.3
47503	99	P	SUR	85	-39	196	0	0.8	0.5	0.9
47585	99	P	SUR	68	-67	196	0	0.5	0.2	0.6
47586	99	P	SUR	58	-55	196	0	2.0	-0.6	2.1

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
48568	99	P	SUR	67	-27	196	0	0.9	-0.3	0.9
48597	99	P	SUR	85	-62	196	0	0.7	0.0	0.7
48778	99	P	SUR	86	-47	196	0	0.5	-0.3	0.6
48779	99	P	SUR	84	-23	196	0	0.6	-0.3	0.7
62091	99	P	SUR	53	-5	191	0	0.4	-0.1	0.4
62092	99	P	SUR	51	-11	196	0	0.7	0.0	0.7
62093	99	P	SUR	55	-10	196	0	1.0	-0.4	1.1
62094	99	P	SUR	52	-7	71	0	0.5	-0.4	0.6
62500	99	P	SUR	58	-38	7	0	0.6	3.8	3.8
62501	99	P	SUR	58	-35	35	0	0.4	0.2	0.4
62513	99	P	SUR	58	-33	127	0	0.6	-0.2	0.7
62514	99	P	SUR	66	-9	196	0	0.7	0.0	0.7
62516	99	P	SUR	35	-15	188	0	0.4	0.2	0.4
62536	99	P	SUR	57	-11	154	0	3.6	-1.6	3.9
62537	99	P	SUR	54	-16	196	0	0.5	-0.4	0.6
62539	99	P	SUR	54	-29	196	0	0.7	0.1	0.7
62551	99	P	SUR	57	-16	196	0	0.6	-0.2	0.6
62552	99	P	SUR	50	-21	195	0	0.4	0.1	0.4
62553	99	P	SUR	72	3	196	0	2.4	-0.2	2.4
62681	99	P	SUR	45	-9	196	0	0.7	-0.2	0.7
62687	99	P	SUR	76	1	196	0	2.5	0.2	2.5
62695	99	P	SUR	26	-30	195	0	0.4	0.3	0.5
62713	99	P	SUR	27	-54	191	0	0.3	-0.3	0.4
62714	99	P	SUR	22	-54	188	0	0.3	-0.3	0.4
62940	99	P	SUR	34	-26	186	0	0.3	0.2	0.4
62941	99	P	SUR	36	-34	196	0	0.4	0.0	0.4
63546	99	P	SUR	70	-16	196	4	4.8	-3.5	5.9
63640	99	P	SUR	73	34	56	0	2.6	-1.4	2.9
63644	99	P	SUR	74	19	28	0	4.0	-3.7	5.4
64471	99	P	SUR	83	17	14	0	0.2	-0.7	0.7
64517	99	P	SUR	59	-10	187	0	0.6	0.3	0.7
64518	99	P	SUR	60	-15	189	0	0.6	-0.1	0.6
64519	99	P	SUR	61	-11	196	0	0.5	0.2	0.6
64520	99	P	SUR	69	-13	20	0	4.0	-6.9	7.9
64521	99	P	SUR	73	-7	195	0	1.8	-0.7	2.0
64522	99	P	SUR	66	2	196	0	0.6	-0.2	0.6
64523	99	P	SUR	63	-17	196	0	0.6	0.1	0.6
64524	99	P	SUR	62	-7	196	0	0.5	-0.1	0.5
64525	99	P	SUR	69	-12	196	1	3.7	-0.8	3.8
64526	99	P	SUR	59	-28	173	0	0.8	-0.2	0.8
64527	99	P	SUR	61	-24	170	0	0.7	0.5	0.9
64532	99	P	SUR	66	-28	196	0	2.1	-0.2	2.1
64533	99	P	SUR	73	-18	196	0	0.9	0.1	0.9

DRIFTER MONITORING STATISTICS (EUCOS)  
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
64534	99	P	SUR	68	-26	194	6	3.2	-0.3	3.2
64535	99	P	SUR	81	-9	196	0	1.4	0.7	1.6
64606	99	P	SUR	63	-15	161	0	0.8	0.4	1.0
64607	99	P	SUR	76	1	152	0	2.6	-0.2	2.6
64613	99	P	SUR	75	9	196	0	2.1	0.3	2.1
64614	99	P	SUR	58	-31	196	0	0.6	-0.3	0.7
64615	99	P	SUR	75	14	196	0	2.0	-0.1	2.0
64622	99	P	SUR	70	-5	196	7	2.3	-0.2	2.3
64623	99	P	SUR	75	14	196	0	2.5	0.0	2.5
64665	99	P	SUR	73	3	196	0	1.6	-0.1	1.6
64666	99	P	SUR	71	-5	196	0	2.8	-0.2	2.8
64667	99	P	SUR	62	-22	157	8	3.0	0.3	3.0
64668	99	P	SUR	77	4	14	0	2.7	2.6	3.7
64669	99	P	SUR	65	-23	196	0	0.7	-0.3	0.8
64691	99	P	SUR	54	-52	14	9	1.5	9.8	9.9
64692	99	P	SUR	70	-3	196	0	1.2	0.2	1.3
65595	99	P	SUR	57	-57	41	0	2.8	1.2	3.0
65596	99	P	SUR	55	-46	196	0	0.9	0.1	0.9
65597	99	P	SUR	61	-30	196	0	0.9	-0.6	1.0
65598	99	P	SUR	48	-23	196	0	0.4	-0.2	0.5



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

## DRIFTER MONITORING STATISTICS (EUCOS)

MONITORING CENTRE : ECMWF  
 ELEMENT MONITORED : WIND SPEED (M/S)  
 AREA : 10N - 90N, 70W - 40E  
 PERIOD : FEB 2015  
 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
13001	99	SPEED	SUR	12	-23	122	0	0	0.9	0.4	0.9
13002	99	SPEED	SUR	20	-23	107	0	0	0.9	0.1	0.9
13008	99	SPEED	SUR	15	-38	82	0	0	0.9	0.0	0.9
41026	99	SPEED	SUR	12	-38	69	0	0	0.7	0.0	0.7
41139	99	SPEED	SUR	20	-38	133	0	0	1.0	-0.3	1.1
62091	99	SPEED	SUR	53	-5	191	0	0	1.1	-0.1	1.1
62092	99	SPEED	SUR	51	-11	196	0	0	1.6	-0.5	1.6
62093	99	SPEED	SUR	55	-10	196	0	0	1.4	-0.2	1.4
62094	99	SPEED	SUR	52	-7	71	0	0	1.2	-0.1	1.2

**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 : FEB 2015  
 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
13001	99	DIRN	SUR	12	-23	122	0	0	9.7	2.4	10.0
13002	99	DIRN	SUR	20	-23	102	0	0	16.8	2.3	16.9
13008	99	DIRN	SUR	15	-38	82	0	0	10.3	-1.5	10.4
41026	99	DIRN	SUR	12	-38	69	0	0	7.4	0.8	7.4
41139	99	DIRN	SUR	20	-38	105	0	0	9.9	13.3	16.6
62091	99	DIRN	SUR	53	-5	180	0	0	10.9	1.4	11.0
62092	99	DIRN	SUR	51	-11	187	0	1	12.3	-3.4	12.7
62093	99	DIRN	SUR	55	-10	181	0	0	14.7	-4.4	15.3
62094	99	DIRN	SUR	52	-7	71	0	0	9.6	5.1	10.8

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

ASDE02	ASDE03	ASDE04	ASDK01	ASES01	ASEU02	ASEU03	ASEU04	ASEU05
ASEU06	DBLK	02185	02365	02527	02591	03953	06260	10035
10113	10184	10238	10304	10393	10410	10548	10618	10739
10771	10868	10954	10962					

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

ASDE01	ASDE02	ASDE03	ASDE04	ASDE09	ASDK01	ASES01	ASEU02	ASEU03
ASEU04	ASEU05	ASEU06	Baguio	DBLK	Dalanzad		DavaoAi	Laoag
Legaspi	LumbiaA	Mactan	Muren	PuertoP	Tanay	Ulaan-Ba		Ulaan-Go
02185	02527	11683	17516	48811				

## 5 Annex - Explanations of figures and tables

### 5.1 General

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

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

### 5.2 Data Availability

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

### 5.3 Data Quality

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

It should be noted that:

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

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

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

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

The corresponding limits for wind (table 8) are:

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

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

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

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

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

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

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

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

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