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OBSERVATION REPORT

**NCMRWF
MONTHLY DATA
MONITORING REPORT**

August 2024

* Permission to quote from this report should be obtained from Head, NCMRWF.

**National Centre for Medium Range Weather Forecasting
Ministry of Earth Sciences, Government of India
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1. INTRODUCTION

As a monthly publication, the NCMRWF Data Monitoring Report presents a general view of the data availability for the whole month. Data produced by the Global Observation System, transmitted through the Global Telecommunication System (GTS) are received by the India Meteorological Department (IMD) at New Delhi is relayed to the NCMRWF data processing system. This report consists of the results of monitoring of all the data received at NCMRWF within the global data assimilation cycle cut-off period (~4 hours). Besides quantity monitoring, the report also presents results of quality monitoring for the Indian sub-continent (blocks 42 and 43) RSRW Data.

Objective monitoring of the quality of the data (for blocks 42 and 43 only) is undertaken by NCMRWF as a monthly activity. Tables are prepared following the Commission for Basic System (CBS) recommended format so that the monitoring results can be readily compared with those from other meteorological centers. This is an important task, because frequent comparisons of this kind are absolutely necessary for the improvement of the quality of the Tropical data.

Following the established procedure at other major weather forecasting centers, the first guesses produced by the Global Data Assimilation System (GDAS) (NGFS) have been used in determining data quality. This approach assumes a very accurate first guess, which is not necessarily valid in data sparse regions like the tropics and also due to the model systematic errors. As a result the quality monitoring of tropical data is a difficult task and any judgement has to be arrived carefully.

Comments and Suggestions are welcome and should be send to:
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2. NCMRWF MONITORING STATISTICS

Availability (global) and data quality (for WMO blocks 42 and 43 only) are presented in figures and tables, of which only a brief descriptions are given below.

Data Availability (Monthly average of Global Observations)

Figures 1.1 - 1.7 are global charts for all seven types of observations, received at NCMRWF. Each number is the average for 24 hours, over all observations of the particular type received in a 5-degree box.

Figure	Observation Type	Parameter	Level/Layer
1.1	SYNOP/SHIP	MSL Pressure	Surface
1.2	TEMP	Geo-potential	500 hPa
1.3	TEMP/PILOT	Wind	300 hPa
1.4	AIRCRAFT	Wind	300 to 150 hPa
1.5	Satellite Sounding	Radiance	All
1.6	Atmospheric Motion Vector Wind		400-150 hPa 1000-700 hPa
1.7	BUOY	MSL Pressure	Surface

The monthly mean observed satellite wind (low (700 - 1000 hPa) and (high (150 - 400)) and the wind bias (observation - first guess) are shown in figures 2.1, 2.2, 2.3 and 2.4.

Data Availability (Number of Daily Reports)

Figures 3.1 - 3.7 are bar diagrams for all seven types of observations received at NCMRWF. Each figure represents number of observations of the particular type for each of the month.

Figure	Observation Type
3.1	SYNOP
3.2	TEMP
3.3	PILOT
3.4	AIRCRAFT
3.5	Satellite Radiance
3.6	AMV Wind
3.7	BUOY

3. EXPLANATORY NOTE ON TABLES AND FIGURES

General

The material presented in this report is based on the data received by the IMD and relayed to NCMRWF. Analysis is performed for all the four synoptic hours (0000, 0006, 0012 and 0018 z) and, therefore the assimilation cycle of NGFS is run four times to produce the first-guess (six hour forecast) for the analysis step.

Data Availability

The average number of reports of each type received per day in a 5-degree square box and rounded off to the nearest integer is indicated for the whole globe (Figures 1.1 - 1.7). Four such numbers are actually displayed inside a 10-degree box for convenience. The integer 0 means that the average number of observations in the smaller box was less than 0.5. If no observations was received at all in the smaller box, then no number is printed for that smaller box.

Bar diagrams for the number of daily reports of a particular type received at NCMRWF are shown in Figures 3.1 to 3.7. This is important in monitoring the steadiness of the reception rate. It can be seen that on some days the number of reports received fall off drastically. In most of the cases they are traced to computer problems at the data reception centre.

Monitoring of Global Radiosonde Reports (Land) is based on the results of quality control steps within NGFS data assimilation cycle.

Table 1 presents the total number of land radiosonde reports received for the month (0000 and 0012 z) (WMO blocks 42 and 43), the number of hydrostatic errors detected in these reports by the CQC and the percent of corrections performed that are confident corrections.

Indian Data Frequency

Table 2 shows the number of times an upper air station within WMO blocks 42 or 43 reported in this month. The lists of stations are in accordance with the latest WMO directory. The numbers for 0000, 0006, 0012, and 0018 z are listed in separate columns. All stations that are expected to report are listed including those stations, which never report even once during the whole month. It is seen that there are variations in reporting frequencies.

Indian Data Quality

Tables 3-10 represent the results of quality monitoring statistics carried out at NCMRWF for the upper air stations under the WMO blocks 42 and 43 only. The conventional procedure is followed, which is that of first computing the normalized magnitude of the observation minus first guess interpolated to the observation point (the residual) and then comparing this value against a preset limit as well as checking the consistency of this value against similar values in the neighbourhood. The rationale of this approach is based on the work of A. Hollingsworth et al., Monthly Weather Review, Vol.114, No.5, May 1986, where the authors demonstrated the ability of modern data assimilation system to monitor the quality of an observational network. However, in the tropics these results have to be accepted with caution for two reasons:

- (1) As mentioned before, the above procedure assumed high quality first guess which is not guaranteed in data sparse area like the tropics.
- (2) Since small scale features like convection play a dominant role in the tropical atmosphere, sometimes there might be mismatch between this scale and that of the first guess which is determined by the forecast model.

Tables 3a and 3b present the number of observations received (count), rejection by the analysis (in percentage), standard deviation, total bias and root mean square error for the 100 hPa geopotential heights for 0000 and 0012 z respectively in units of meter. Tables 4a and 4b are the similar tables for 500 hPa geopotential heights. Tables 5a and 5b present similar results for 100 hPa dry temperatures and tables 6a and 6b present similar results for 500 hPa dry temperatures in units of kelvin. Tables 7a and 7b show similar results for 100 hPa zonal winds, and tables 8a and 8b similar results for 500 hPa zonal winds in units of m/s. Tables 9a and 9b show similar results for 100 hPa meridional winds and tables 10a 10b present similar results for 500 hPa meridional winds in units of m/s.

42809	CALCUTTA/DMDM	30 30	0 23	31 31	0 20
42867	NAGPUR SONEGN	0 0	0 31	0 0	0 30
42874	RAIPUR	30 29	0 0	31 28	0 0
42886	JHARSUGUDA	27 30	0 0	25 31	0 22
42895	BALASORE	0 29	0 0	0 29	0 28
42909	VERAVAL	0 28	0 0	0 31	0 27
42971	BHUBANESWAR	1 27	0 21	1 29	0 28
43003	BOMBAY/SANTCR	30 28	0 30	31 31	0 30
43014	AURNGABAD/AER	31 30	0 30	0 2	0 30
43041	JAGDALPUR	16 16	0 31	0 12	0 23
43049	GOPALPUR	9 28	0 0	0 31	0 28
43063	POONA	31 31	0 0	14 14	0 0
43110	RATNAGIRI	0 0	0 0	0 0	0 1
43128	HYDERABAD AER	31 28	0 0	23 24	1 1
43150	VISHAKHAPATNM	4 14	12 25	5 6	22 22
43185	MACHILIPATNAM	22 30	0 25	6 28	0 27
43192	GOA/PANJIM	0 28	0 0	0 29	0 0
43194	GOA/DABOLIM	0 0	0 0	0 0	0 0
43201	GADAG	26 30	0 0	29 30	26 27
43237	ANANTAPUR	0 0	0 0	0 0	0 0
43279	MADRAS/MINAMB	3 3	0 26	4 4	0 24
43284	MANG/BAJPE	0 0	0 0	0 0	0 0
43285	MANG/PANAMBUR	13 31	0 9	0 20	0 19
43295	BANGALORE	28 24	3 3	27 26	5 5
43311	AMINI DIVI	29 30	0 0	27 30	0 0
43333	PORT BLAIR	17 31	0 29	17 30	0 29
43344	TIRUCHIRAPLLI	0 0	0 0	0 0	0 0
43346	KARAIKAL	12 13	0 24	0 8	0 19
43353	COCHIN/WILING	31 28	0 0	24 23	0 0
43368	CAR NICOBAR	0 0	0 0	0 0	0 0
43369	MINICOY	28 28	0 0	30 30	0 0
43371	TRIVANDRUM	4 31	1 1	5 28	0 0
43373	TRIVANDRUM/TH	0 0	0 0	0 0	0 0

TABLE 3a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa GEOPOTENTIAL HEIGHT INCREMENTS - 01082024 to 31082024 (00Z)
UNIT IS GEOPOTENTIAL METERS

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	24	12	375.3	-72.3	382.2
42079	11	18	422.3	-137.5	444.2
42111	24	0	17.7	21.1	27.6
42182	22	0	9.5	11.0	14.6
42314	23	4	49.3	84.7	98.0
42339	17	0	10.2	31.1	32.7
42348	25	0	21.3	42.4	47.5
42361	3	0	14.4	37.3	40.0
42399	24	12	598.1	219.2	637.0
42410	29	17	212.6	150.4	260.4
42492	29	0	17.6	37.7	41.6
42623	16	18	126.6	41.2	133.1
42634	24	0	20.4	27.3	34.1
42647	22	0	34.1	29.1	44.8
42675	23	30	288.3	116.0	310.8
42724	26	0	26.8	74.1	78.8
42809	29	0	21.3	31.7	38.1
42874	15	13	1526.6	-304.4	1556.6
42886	25	4	40.1	63.2	74.9
43003	22	4	83.6	43.7	94.3
43014	29	0	15.1	23.2	27.7
43041	16	0	22.1	62.2	66.1
43049	9	0	14.2	68.9	70.3
43063	27	7	42.0	52.7	67.4
43128	13	7	82.9	58.5	101.5
43150	4	0	5.1	24.8	25.3
43185	22	0	13.7	37.5	39.9
43279	2	0	0.5	54.5	54.5
43285	14	0	13.5	7.2	15.3
43295	26	3	39.9	39.3	56.0
43346	12	0	10.2	33.8	35.3
43353	15	0	12.5	50.4	51.9
43369	1	0	0.0	77.0	77.0
43371	1	0	0.0	40.0	40.0

TABLE 3b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa GEOPOTENTIAL HEIGHT INCREMENTS - 01082024 to 31082024 (12Z)
UNIT IS GEOPOTENTIAL METERS

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	12	0	24.6	74.6	78.5
42056	21	14	655.9	117.5	666.3
42079	21	0	30.8	62.5	69.7
42182	9	0	16.0	27.1	31.5
42314	13	0	8.0	38.5	39.4
42339	4	0	11.6	55.2	56.5
42348	9	0	21.9	89.3	92.0
42361	1	0	0.0	65.0	65.0
42410	26	3	86.5	76.7	115.6
42647	6	0	13.3	43.3	45.3
42724	10	0	28.8	74.6	80.0
42809	28	0	16.3	37.2	40.6
42886	24	0	25.0	62.4	67.2
42971	1	0	0.0	11.0	11.0
43003	20	0	23.6	80.4	83.8
43063	13	15	35.1	84.1	91.1
43128	6	16	30.2	58.8	66.1
43150	2	0	7.0	3.0	7.6
43185	6	16	28.8	84.2	89.0
43279	3	0	15.5	53.3	55.5
43295	18	5	108.2	89.6	140.5
43353	12	0	10.7	61.1	62.0

TABLE 4a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa GEOPOTENTIAL HEIGHT INCREMENTS - 01082024 to 31082024 (00Z)
UNIT IS GEOPOTENTIAL METERS

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	29	6	110.7	-0.9	110.7
42079	16	12	151.7	-58.6	162.6
42111	26	0	9.2	-4.4	10.2
42182	23	0	6.0	-3.3	6.8
42314	24	0	33.9	3.9	34.1
42339	17	0	5.7	2.8	6.4
42348	29	0	58.6	55.6	80.8
42361	3	0	5.1	8.0	9.5
42399	28	0	9.5	-2.0	9.8
42410	29	0	7.9	8.5	11.6
42492	30	0	15.0	8.8	17.4
42623	30	0	6.8	18.2	19.4
42634	26	0	11.2	-1.5	11.3
42647	23	0	7.2	1.8	7.4
42675	26	7	170.1	-24.4	171.9
42724	29	0	7.9	4.9	9.3
42809	29	0	9.6	-0.6	9.6
42874	29	3	426.3	-68.8	431.8
42886	25	0	7.8	8.8	11.8
42971	1	0	0.0	22.0	22.0
43003	24	8	159.4	-33.8	162.9
43014	29	0	6.8	1.9	7.1
43041	16	0	7.9	8.8	11.9
43049	9	0	7.5	18.1	19.6
43063	29	3	12.2	-2.6	12.5
43128	27	0	5.8	-5.6	8.0
43150	4	0	7.7	7.5	10.7
43185	22	0	7.2	-1.0	7.2
43279	3	0	5.1	12.0	13.0
43285	18	0	7.0	2.8	7.6
43295	29	3	33.5	13.0	35.9
43346	12	0	11.0	21.6	24.2
43353	31	0	15.4	-17.8	23.6
43369	23	4	83.6	22.7	86.6
43371	1	0	0.0	28.0	28.0

TABLE 4b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa GEOPOTENTIAL HEIGHT INCREMENTS - 01082024 to 31082024 (12Z)
UNIT IS GEOPOTENTIAL METERS

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	14	7	23.3	28.6	36.9
42056	25	8	66.2	-2.4	66.3
42079	23	0	10.5	8.2	13.4
42182	9	0	6.8	-0.6	6.8
42314	24	0	8.1	-26.7	27.9
42339	4	0	3.5	4.0	5.3
42348	10	10	25.6	59.5	64.8
42361	1	0	0.0	-3.0	3.0
42410	28	7	78.8	-10.2	79.5
42647	6	0	9.5	1.8	9.7
42724	10	0	8.6	10.6	13.7
42809	30	0	8.4	-0.2	8.4
42886	25	0	7.8	7.6	10.9
42971	1	0	0.0	21.0	21.0
43003	22	0	7.7	8.1	11.2
43063	14	0	9.2	1.0	9.2
43128	11	0	6.9	-2.5	7.3
43150	4	0	8.4	0.8	8.4
43185	5	0	4.0	3.4	5.3
43279	4	0	10.6	8.2	13.4
43295	18	5	99.6	-16.4	101.0
43353	24	4	13.2	-18.2	22.5
43369	25	4	8.8	9.0	12.6

TABLE 5a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa DRY TEMPERATURE INCREMENTS - 01082024 to 31082024 (00Z)
UNIT IS DEGREE KELVIN

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	24	12	3.4	1.2	3.6
42079	11	18	2.7	1.8	3.2
42111	24	0	1.2	0.1	1.2
42182	29	0	0.9	-0.1	0.9
42314	23	4	1.5	1.1	1.9
42339	17	0	0.7	-0.8	1.1
42348	25	0	1.2	-0.5	1.3
42361	3	0	1.2	-1.5	1.9
42399	24	12	20.9	5.7	21.7
42410	29	17	3.9	2.3	4.5
42492	29	0	1.5	0.8	1.7
42623	16	18	28.6	11.9	31.0
42634	24	0	1.7	-0.9	2.0
42647	22	0	1.3	0.2	1.3
42675	23	30	8.0	3.8	8.9
42724	26	0	1.1	1.6	2.0
42809	29	0	1.5	0.3	1.6
42874	15	13	22.5	8.6	24.0
42886	25	4	13.0	3.4	13.5
43003	22	4	2.2	0.8	2.3
43014	29	0	1.2	-0.2	1.3
43041	16	0	1.0	-0.3	1.1
43049	9	0	2.0	0.4	2.0
43063	27	7	4.8	2.0	5.2
43128	13	7	6.3	3.3	7.1
43150	4	0	5.1	-1.3	5.3
43185	22	0	1.8	-0.8	2.0
43279	2	0	0.5	0.6	0.8
43285	14	0	1.0	-0.7	1.2
43295	26	3	2.0	-0.6	2.1
43346	12	0	1.4	-0.1	1.4
43353	15	0	1.2	-1.4	1.9
43369	1	0	0.0	7.4	7.4
43371	3	0	1.2	-1.9	2.3

TABLE 5b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa DRY TEMPERATURE INCREMENTS - 01082024 to 31082024 (12Z)
UNIT IS DEGREE KELVIN

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	12	0	1.3	1.0	1.7
42056	21	14	18.8	6.5	19.9
42079	21	0	1.2	1.2	1.7
42182	23	0	1.5	0.2	1.5
42314	13	0	0.7	-0.5	0.8
42339	4	0	1.1	1.3	1.7
42348	9	0	0.8	1.1	1.4
42361	1	0	0.0	1.7	1.7
42410	26	3	7.3	2.4	7.7
42647	6	0	1.4	1.3	1.9
42724	10	0	0.8	1.4	1.6
42809	28	0	1.5	0.3	1.5
42886	24	0	1.8	0.4	1.9
42971	1	0	0.0	0.2	0.2
43003	20	0	1.7	1.4	2.2
43063	13	15	40.7	14.4	43.1
43128	6	16	1.1	1.3	1.7
43150	3	0	1.8	-3.0	3.5
43185	6	16	0.4	0.7	0.8
43279	3	0	0.8	0.8	1.2
43295	18	5	13.2	4.8	14.0
43353	12	0	2.3	-0.2	2.3
43371	5	0	0.6	-1.1	1.3

TABLE 6a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa DRY TEMPERATURE INCREMENTS - 01082024 to 31082024 (00Z)
UNIT IS DEGREE KELVIN

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	29	10	7.2	-2.8	7.8
42079	16	12	8.4	-4.5	9.6
42111	26	0	0.9	-1.2	1.5
42182	23	0	0.7	-0.7	1.0
42314	24	0	0.9	-0.7	1.1
42339	17	0	0.7	-0.7	1.0
42348	29	0	0.9	-1.1	1.4
42361	3	0	0.4	-0.2	0.4
42399	28	0	0.6	-0.7	0.9
42410	29	0	1.0	-1.0	1.4
42492	30	0	0.4	-0.9	1.0
42623	30	0	0.8	-0.7	1.1
42634	26	0	0.9	-0.7	1.1
42647	23	0	1.0	-0.8	1.3
42675	26	7	7.4	-2.0	7.6
42724	29	0	0.6	-0.8	1.0
42809	29	0	0.7	-0.8	1.1
42874	28	0	2.6	-0.4	2.6
42886	25	0	0.5	-0.7	0.9
42971	1	0	0.0	0.4	0.4
43003	24	8	8.1	-2.1	8.3
43014	29	0	0.7	-0.4	0.8
43041	16	0	0.9	-0.5	1.0
43049	9	0	0.7	-0.4	0.8
43063	29	3	1.2	-0.9	1.5
43128	27	0	0.6	-0.8	1.0
43150	4	0	0.8	-1.1	1.4
43185	22	0	0.6	-0.3	0.7
43279	3	0	0.3	-0.5	0.6
43285	18	0	0.6	-0.6	0.8
43295	29	3	0.9	-0.6	1.1
43346	12	0	0.9	-0.5	1.0
43353	31	0	0.9	0.1	0.9
43369	22	0	0.8	-0.1	0.8
43371	1	0	0.0	-0.1	0.1

TABLE 6b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa DRY TEMPERATURE INCREMENTS - 01082024 to 31082024 (12Z)
UNIT IS DEGREE KELVIN

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	14	7	1.0	-0.7	1.3
42056	25	8	2.9	-0.9	3.1
42079	23	0	0.9	-0.6	1.0
42182	10	0	0.5	-0.5	0.7
42314	24	0	0.5	-0.7	0.9
42339	4	0	0.8	0.1	0.8
42348	10	10	0.9	-0.9	1.3
42361	1	0	0.0	-0.2	0.2
42410	28	7	7.2	-2.6	7.7
42647	6	0	0.9	-1.3	1.6
42724	10	0	0.8	-0.6	1.0
42809	30	0	0.7	-0.6	1.0
42886	25	0	0.6	-0.5	0.8
42971	1	0	0.0	-0.1	0.1
43003	22	0	0.8	-0.1	0.8
43063	14	0	0.7	-0.6	1.0
43128	11	0	0.8	-0.4	0.9
43150	4	0	0.4	-1.6	1.7
43185	5	0	0.2	0.1	0.3
43279	4	0	0.6	-0.7	0.9
43295	18	5	5.0	-1.0	5.1
43353	24	4	0.7	-0.0	0.7
43369	25	4	1.0	0.2	1.0
43371	1	0	0.0	-0.6	0.6

TABLE 7a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa ZONAL WIND INCREMENTS - 01082024 to 31082024 (00Z)
UNIT IS METER/SEC

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	24	0	4.0	-1.4	4.2
42079	11	0	2.0	-0.8	2.1
42111	24	0	6.6	-1.0	6.7
42182	28	0	3.2	0.8	3.3
42314	23	0	2.6	-0.4	2.7
42339	17	0	2.4	-0.9	2.5
42348	25	0	2.9	0.7	3.0
42361	3	0	4.4	1.4	4.6
42399	24	0	2.6	-0.7	2.7
42410	29	0	2.4	-0.7	2.5
42492	29	0	2.8	0.3	2.8
42623	16	0	3.3	-0.5	3.3
42634	24	0	2.9	-1.1	3.1
42647	22	0	2.8	0.9	2.9
42675	23	0	2.6	0.4	2.6
42724	26	0	2.0	-0.7	2.1
42809	29	0	2.0	0.0	2.0
42874	15	0	5.7	2.1	6.1
42886	25	0	2.5	-1.7	3.0
43003	22	0	3.4	0.7	3.5
43014	29	0	2.6	-1.2	2.9
43041	16	0	2.1	-1.2	2.5
43049	9	0	2.7	-0.9	2.9
43063	27	0	2.6	0.3	2.6
43128	13	0	3.5	-0.1	3.5
43150	4	0	5.3	-1.4	5.5
43185	22	0	2.7	-1.1	2.9
43279	2	0	0.4	0.1	0.4
43285	14	0	2.9	-3.6	4.6
43295	26	0	3.9	0.5	3.9
43346	12	0	4.5	2.0	4.9
43353	15	0	3.3	-3.3	4.6
43369	1	0	0.0	-5.4	5.4
43371	1	0	0.0	0.5	0.5

TABLE 7b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa ZONAL WIND INCREMENTS - 01082024 to 31082024 (12Z)
UNIT IS METER/SEC

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	12	0	1.6	0.9	1.8
42056	21	0	18.9	4.0	19.3
42079	21	0	2.4	0.5	2.4
42182	21	0	2.8	-0.1	2.8
42314	13	0	1.6	0.3	1.6
42339	4	0	1.4	2.2	2.6
42348	9	0	3.7	-0.4	3.7
42361	1	0	0.0	-0.6	0.6
42410	26	0	2.3	-1.8	2.9
42647	6	0	2.0	-0.9	2.2
42724	10	0	2.5	-0.2	2.5
42809	28	0	2.6	-0.1	2.6
42886	24	0	2.2	-0.2	2.2
42971	1	0	0.0	-4.2	4.2
43003	20	0	2.3	-0.5	2.3
43063	13	0	2.1	-1.4	2.6
43128	6	0	1.6	-1.0	1.9
43150	3	0	3.9	-4.1	5.6
43185	6	0	1.9	-3.0	3.5
43279	3	0	2.6	-3.3	4.2
43295	18	0	3.9	-2.9	4.9
43353	12	0	3.7	-1.7	4.0
43371	1	0	0.0	-4.5	4.5

TABLE 8a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa ZONAL WIND INCREMENTS - 01082024 to 31082024 (00Z)
UNIT IS METER/SEC

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	29	0	3.4	-1.2	3.6
42079	16	0	4.2	-0.6	4.3
42111	26	0	2.1	-1.1	2.3
42182	24	0	2.3	-0.2	2.3
42314	24	0	3.7	-0.2	3.7
42339	17	0	1.7	-0.5	1.8
42348	29	0	2.1	0.3	2.2
42361	3	0	1.9	-0.1	1.9
42399	28	0	2.4	-1.5	2.8
42410	29	0	2.6	-1.1	2.8
42492	30	0	3.6	-1.4	3.9
42623	30	0	2.1	-0.5	2.2
42634	26	0	2.8	-0.4	2.8
42647	24	0	1.9	0.3	1.9
42675	26	0	2.6	0.6	2.7
42724	29	0	2.7	-0.1	2.7
42809	29	0	3.0	0.7	3.0
42874	29	0	2.9	1.9	3.4
42886	25	0	2.5	1.1	2.8
42971	1	0	0.0	1.5	1.5
43003	24	0	4.3	-1.3	4.5
43014	29	0	1.6	0.8	1.7
43041	16	0	2.6	0.5	2.6
43049	9	0	1.2	0.0	1.2
43063	29	0	2.0	-0.3	2.1
43128	27	0	2.2	0.2	2.2
43150	4	0	2.8	-2.1	3.5
43185	22	0	2.2	-0.2	2.2
43279	3	0	1.8	2.1	2.8
43285	18	0	3.2	0.7	3.3
43295	29	0	2.1	0.1	2.1
43346	12	0	2.9	-0.2	2.9
43353	31	0	3.0	0.9	3.1
43369	23	0	2.7	-0.0	2.7
43371	1	0	0.0	0.4	0.4

TABLE 8b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa ZONAL WIND INCREMENTS - 01082024 to 31082024 (12Z)
UNIT IS METER/SEC

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	14	0	3.0	-2.0	3.6
42056	25	0	4.8	-0.9	4.9
42079	23	0	2.2	-0.1	2.2
42182	11	0	2.1	0.4	2.1
42314	24	0	2.5	-1.1	2.7
42339	4	0	0.8	0.8	1.1
42348	10	0	3.1	-0.3	3.1
42361	1	0	0.0	2.0	2.0
42410	28	0	3.0	-1.5	3.3
42647	6	0	1.6	-0.1	1.6
42724	10	0	2.4	0.2	2.4
42809	30	0	2.3	-0.7	2.4
42886	25	0	2.3	0.2	2.3
42971	1	0	0.0	0.6	0.6
43003	22	0	2.4	-0.7	2.5
43063	14	0	1.8	0.5	1.9
43128	11	0	1.3	0.7	1.5
43150	4	0	4.8	-5.6	7.3
43185	5	0	1.0	-0.9	1.4
43279	4	0	1.4	0.3	1.5
43295	18	0	2.6	0.2	2.6
43353	24	0	2.7	0.5	2.7
43369	25	0	2.2	1.1	2.5

TABLE 9a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa MERIDIONAL WIND INCREMENTS - 01082024 to 31082024 (00Z)
UNIT IS METER/SEC

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	24	0	4.2	-0.1	4.2
42079	11	0	2.6	1.2	2.9
42111	24	0	5.2	-0.9	5.2
42182	28	0	2.5	0.6	2.6
42314	23	0	2.8	0.6	2.9
42339	17	0	2.2	0.2	2.2
42348	25	0	3.7	-2.4	4.4
42361	3	0	0.9	0.5	1.0
42399	24	0	2.1	0.4	2.2
42410	29	0	2.2	0.2	2.2
42492	29	0	2.9	0.5	2.9
42623	16	0	3.2	-0.4	3.2
42634	24	0	2.8	1.2	3.1
42647	22	0	3.0	-0.9	3.1
42675	23	0	3.3	-0.1	3.3
42724	26	0	3.0	1.3	3.3
42809	29	0	2.7	0.7	2.8
42874	15	0	2.4	1.9	3.0
42886	25	0	2.7	1.1	2.9
43003	22	0	3.3	2.0	3.9
43014	29	0	2.6	1.3	2.9
43041	16	0	1.8	1.7	2.5
43049	9	0	4.0	2.6	4.8
43063	27	0	3.0	1.5	3.3
43128	13	0	4.4	1.5	4.7
43150	4	0	2.8	1.5	3.2
43185	22	0	3.0	0.4	3.0
43279	2	0	0.3	0.9	0.9
43285	14	0	3.6	-0.5	3.6
43295	26	0	3.2	-0.2	3.2
43346	12	0	6.3	-2.1	6.6
43353	15	0	4.0	-2.7	4.8
43369	1	0	0.0	5.2	5.2
43371	1	0	0.0	-5.3	5.3

TABLE 9b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa MERIDIONAL WIND INCREMENTS - 01082024 to 31082024 (12Z)
UNIT IS METER/SEC

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	12	0	3.1	0.6	3.2
42056	21	0	18.8	4.1	19.2
42079	21	0	2.6	0.4	2.6
42182	21	0	1.7	0.6	1.9
42314	13	0	3.0	-1.0	3.2
42339	4	0	4.0	4.3	5.9
42348	9	0	2.1	1.0	2.3
42361	1	0	0.0	-1.2	1.2
42410	26	0	2.5	1.0	2.7
42647	6	0	2.8	0.7	2.8
42724	10	0	2.8	-0.3	2.8
42809	28	0	2.0	-0.2	2.0
42886	24	0	2.6	0.4	2.7
42971	1	0	0.0	0.5	0.5
43003	20	0	2.6	-0.2	2.6
43063	13	0	2.5	0.2	2.5
43128	6	0	1.8	-0.0	1.8
43150	3	0	7.5	-0.7	7.5
43185	6	0	1.4	1.8	2.2
43279	3	0	3.0	3.9	4.9
43295	18	0	4.7	0.5	4.7
43353	12	0	4.0	0.9	4.1
43371	1	0	0.0	-8.1	8.1

TABLE 10a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa MERIDIONAL WIND INCREMENTS - 01082024 to 31082024 (00Z)
UNIT IS METER/SEC

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	29	0	3.8	0.5	3.8
42079	16	0	3.0	1.9	3.6
42111	26	0	2.4	0.7	2.5
42182	24	0	2.3	-0.1	2.3
42314	24	0	2.7	0.4	2.8
42339	17	0	2.3	0.3	2.3
42348	29	0	2.3	0.0	2.3
42361	3	0	0.6	0.3	0.6
42399	28	0	3.4	-0.7	3.5
42410	29	0	2.5	-0.9	2.7
42492	30	0	2.5	-0.3	2.5
42623	30	0	2.0	-0.1	2.1
42634	26	0	3.0	-1.0	3.2
42647	24	0	2.6	-0.3	2.6
42675	26	0	1.8	-0.1	1.8
42724	29	0	2.3	0.3	2.3
42809	29	0	2.7	0.5	2.7
42874	29	0	2.5	-0.1	2.5
42886	25	0	2.0	0.4	2.0
42971	1	0	0.0	-4.2	4.2
43003	24	0	1.9	0.0	1.9
43014	29	0	1.7	-0.6	1.8
43041	16	0	2.3	-1.3	2.7
43049	9	0	1.3	0.8	1.5
43063	29	0	2.4	-0.5	2.4
43128	27	0	2.1	0.6	2.2
43150	4	0	2.1	-2.5	3.2
43185	22	0	1.9	0.2	1.9
43279	3	0	1.4	0.4	1.5
43285	18	0	2.9	0.3	2.9
43295	29	0	3.0	-0.2	3.0
43346	12	0	2.4	1.0	2.6
43353	31	0	2.3	0.1	2.3
43369	23	0	3.4	-0.6	3.4
43371	1	0	0.0	0.2	0.2

TABLE 10b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa MERIDIONAL WIND INCREMENTS - 01082024 to 31082024 (12Z)
UNIT IS METER/SEC

STNID	COUNT	%REJC	SD	BIAS	RMS
42027	14	0	2.8	1.6	3.2
42056	25	0	3.6	0.9	3.7
42079	23	0	2.5	0.6	2.6
42182	11	0	1.7	-0.5	1.8
42314	24	0	2.9	-0.2	3.0
42339	4	0	0.7	-0.1	0.7
42348	10	0	2.7	-0.2	2.7
42361	1	0	0.0	-0.7	0.7
42410	28	0	2.7	0.1	2.7
42647	6	0	2.3	-1.4	2.7
42724	10	0	1.9	0.5	2.0
42809	30	0	3.0	-0.9	3.1
42886	25	0	2.2	0.6	2.3
42971	1	0	0.0	-0.5	0.5
43003	22	0	1.9	0.7	2.0
43063	14	0	1.6	-0.1	1.6
43128	11	0	1.6	0.5	1.7
43150	4	0	3.5	-3.2	4.8
43185	5	0	0.5	0.8	0.9
43279	4	0	1.1	-0.6	1.2
43295	18	0	2.0	1.2	2.3
43353	24	0	2.1	-0.0	2.1
43369	25	0	2.9	0.4	2.9

NCMRWF Monitoring Statistics 01 08 24 TO 31 08 24

Availability - SYNOP/SHIP PRESSURE

Average number of observations in 24 hours - 105133

LAND - WMO REGION I: 6156 II:16820 III: 1970 IV: 5947 V:14421 VI:33782 VII: 621

OCEAN - N. Atlantic:11264 S. Atlantic: 734 Indian: 2720 Pacific: 9593

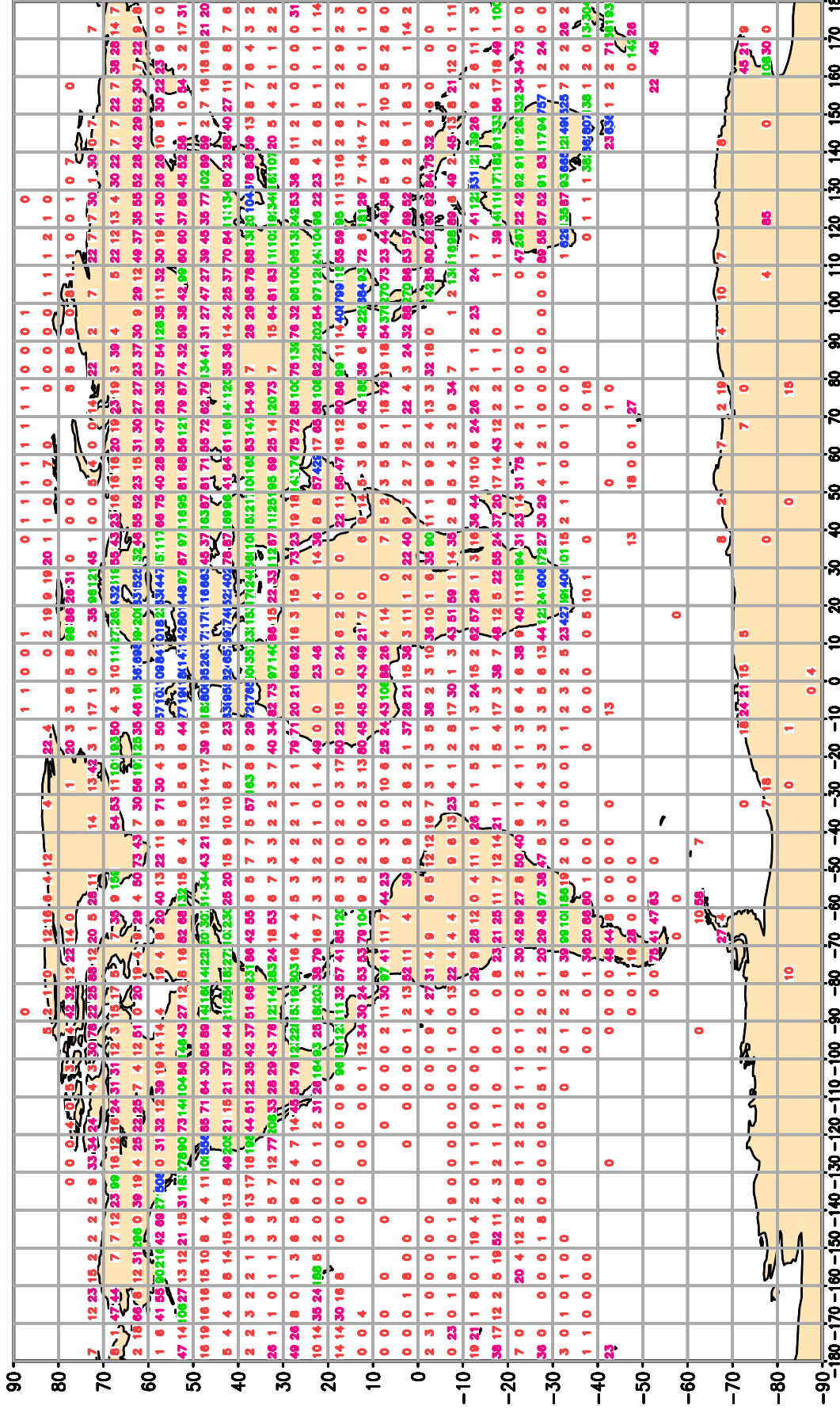


Fig 1.1

NCMRWF Monitoring Statistics 01 08 24 TO 31 08 24

Availability - TEMP 500 hPa geopotential

Average number of observations in 24 hours - 1196

LAND - WMO REGION I: 35 II: 467 III: 67 IV: 244 V: 133 VI: 187 VII: 14

OCEAN - N. Atlantic: 0 S. Atlantic: 0 Indian: 0 Pacific: 0

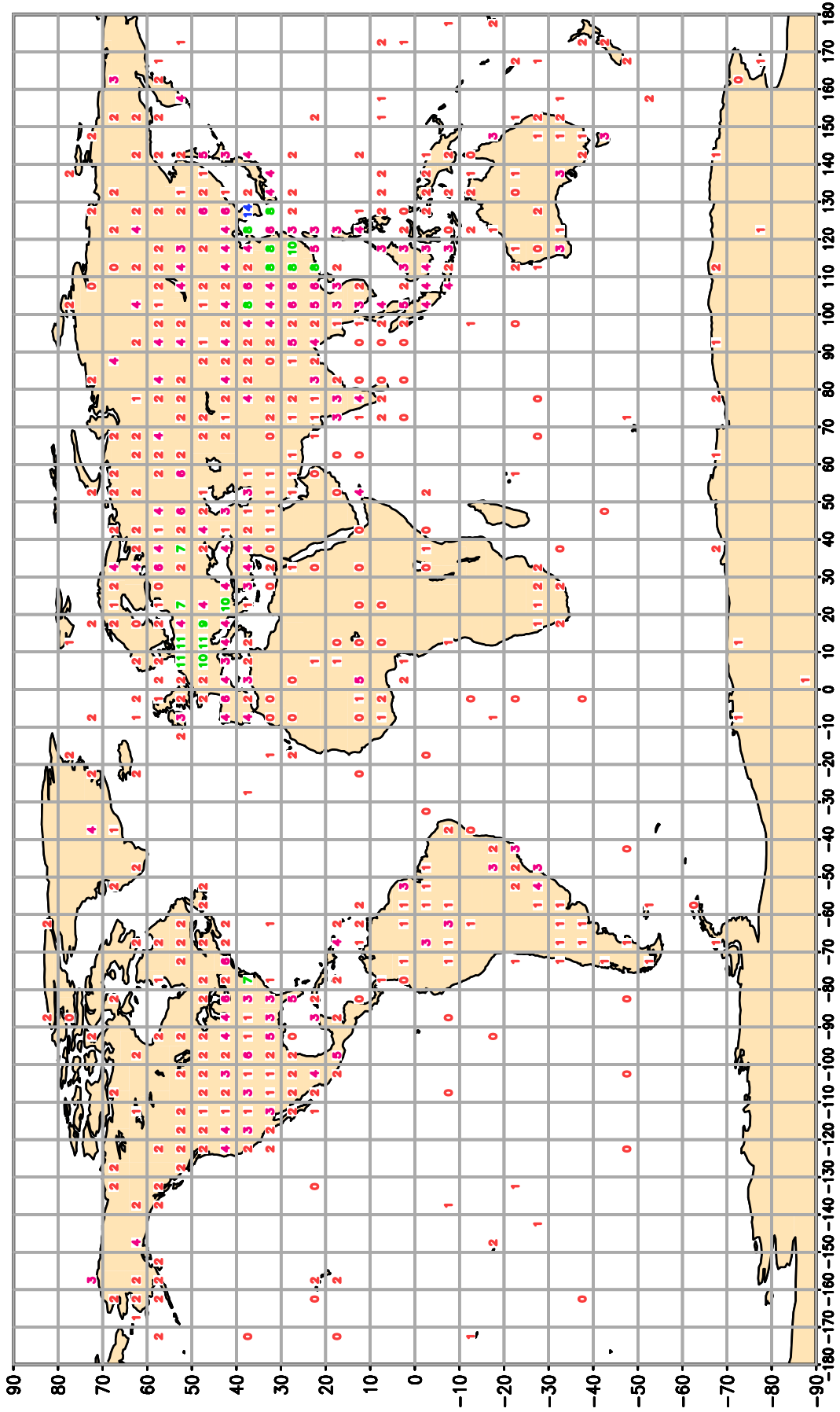


Fig 1.2

NCMRWF Monitoring Statistics 01 08 24 TO 31 08 24

Availability – TEMP/PILOT 300 hPa wind

Average number of observations in 24 hours – 1459

LAND – WMO REGION I: 49 II: 521 III: 84 IV: 346 V: 225 VI: 187 VII: 15

OCEAN – N. Atlantic: 0 S. Atlantic: 0 Indian: 0 Pacific: 0

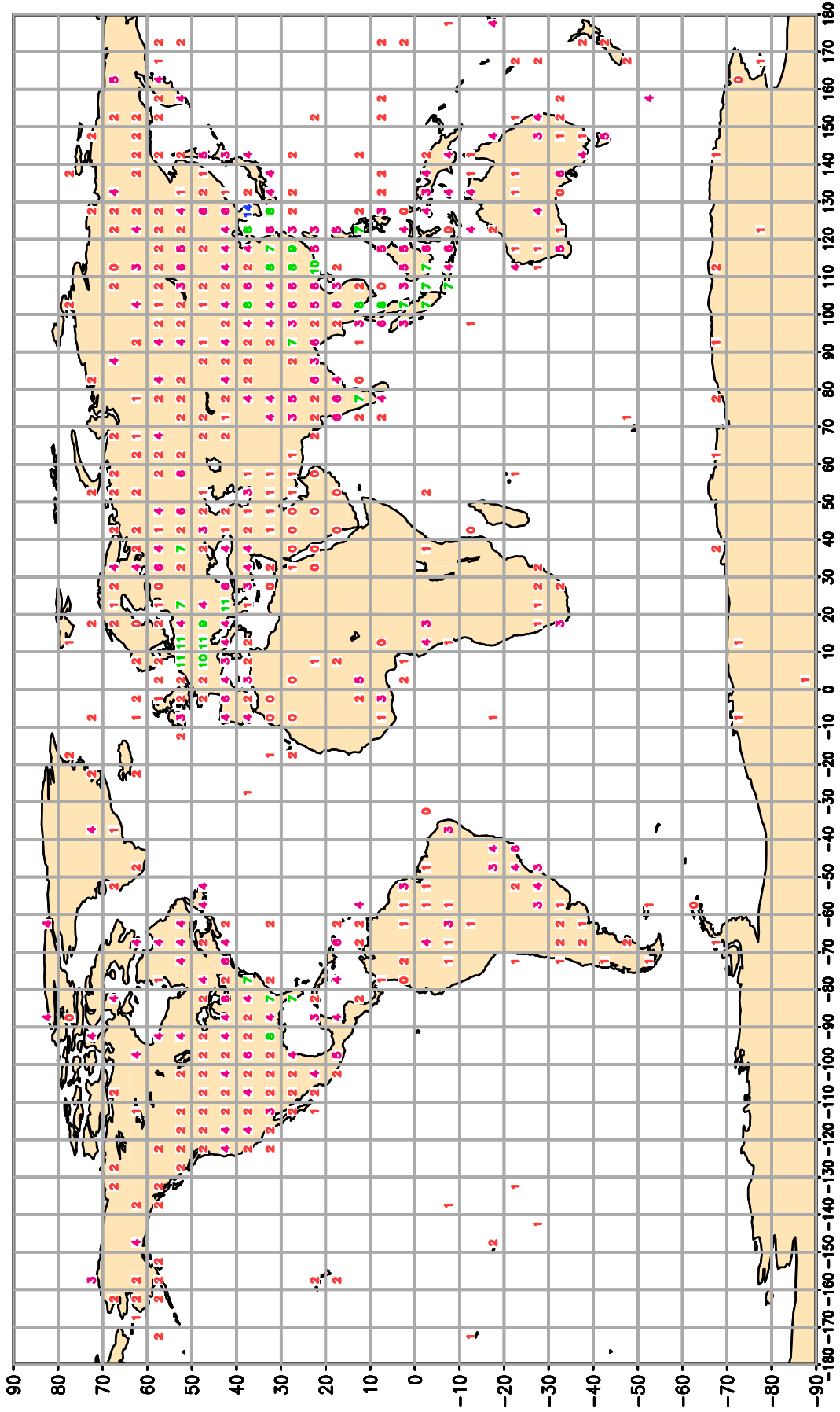


Fig 1.3

NCMRWF Monitoring Statistics 01 08 24 TO 08 24
 Availability - NOAA 18 ATOVS : AMSU-A
 Average number of observations in 24 hours - 236610

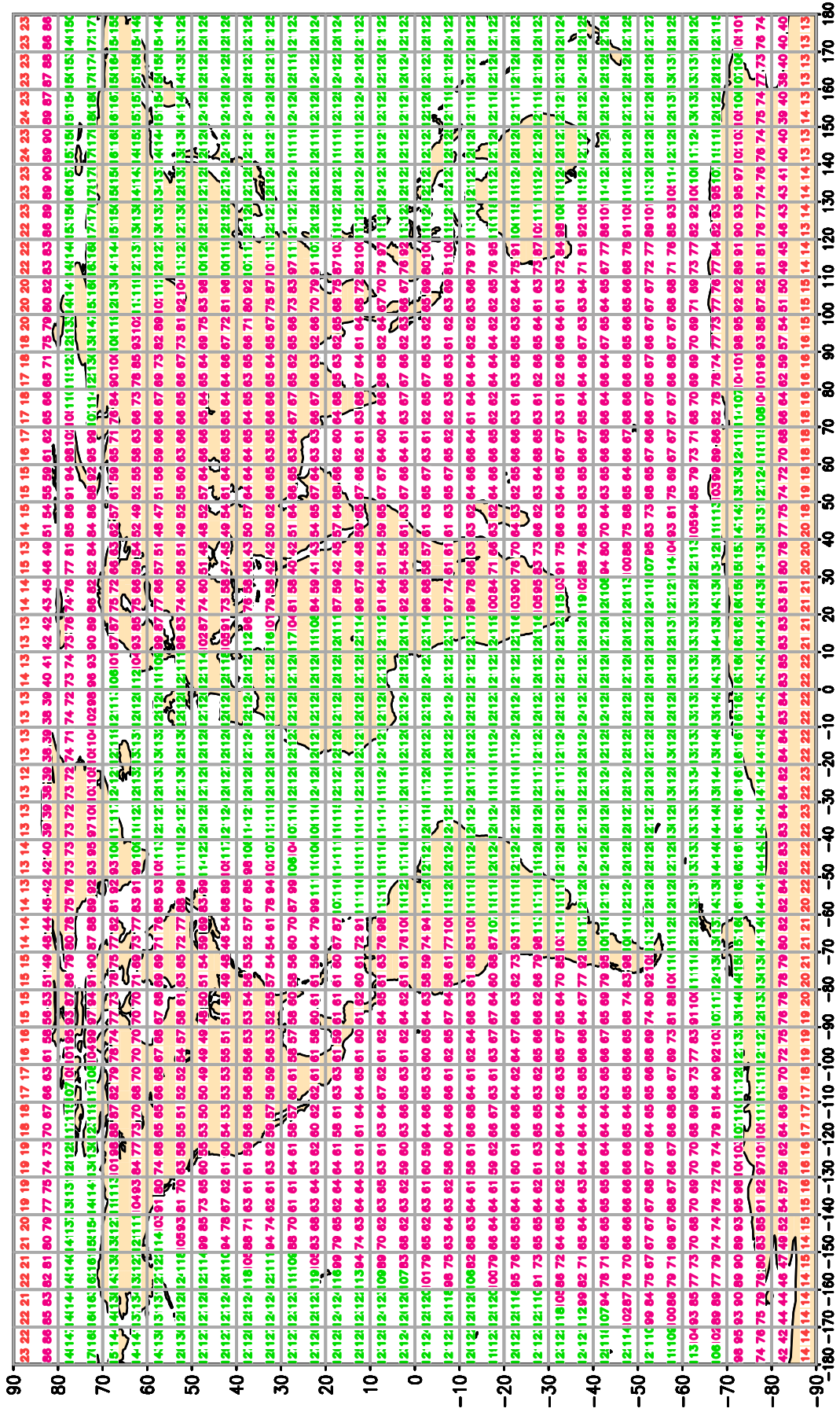


Fig 1.5

NCMRWF Monitoring Statistics 01 08 24 TO 31 08 24
 Availability - AMV winds 400-150 hPa
 Average number of observations in 24 hours - 450342

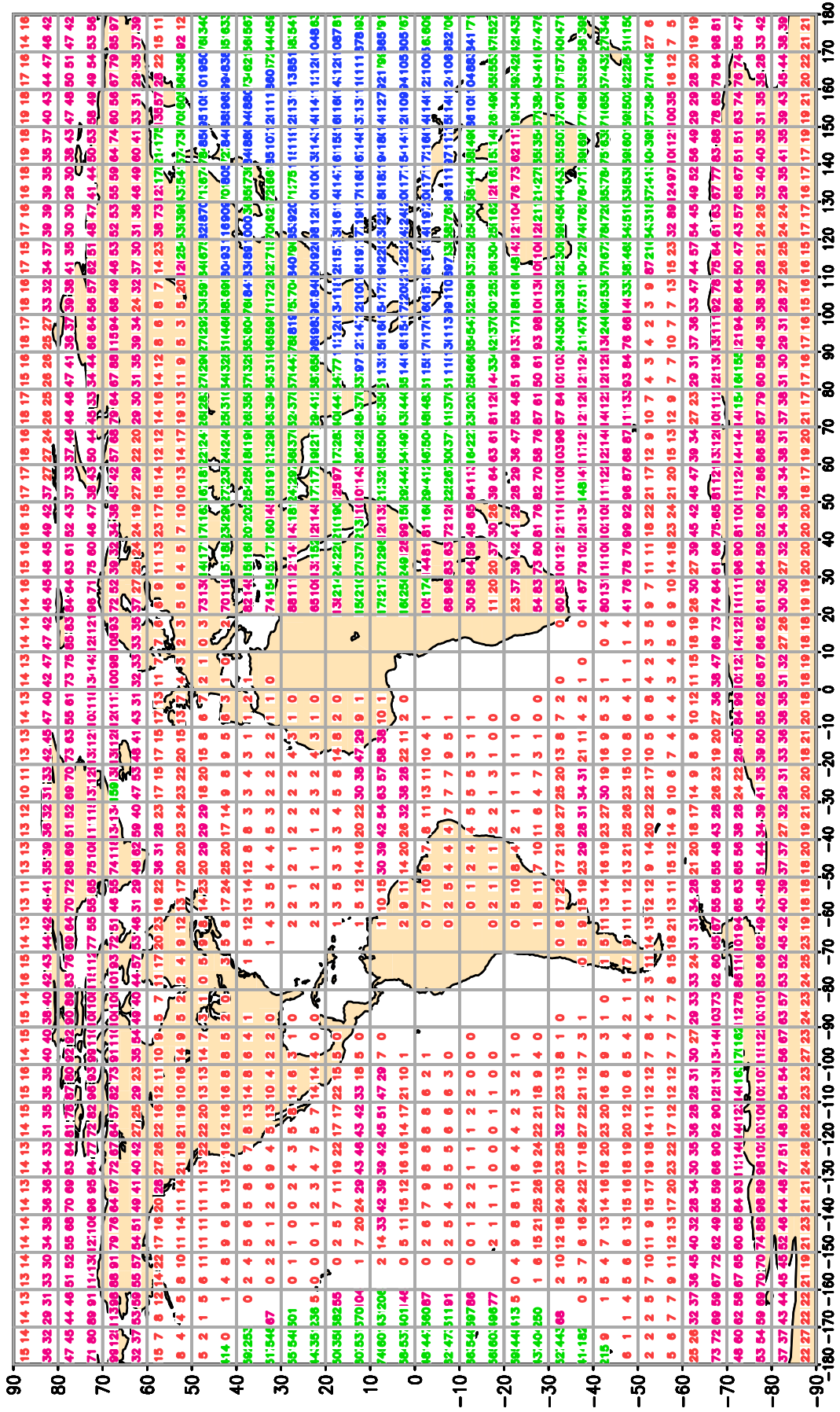


Fig 1.6(a)

NCMRWF Monitoring Statistics 01 08 24 TO 31 08 24

Availability – AMV winds 1000–700 hPa

Average number of observations in 24 hours – 263248

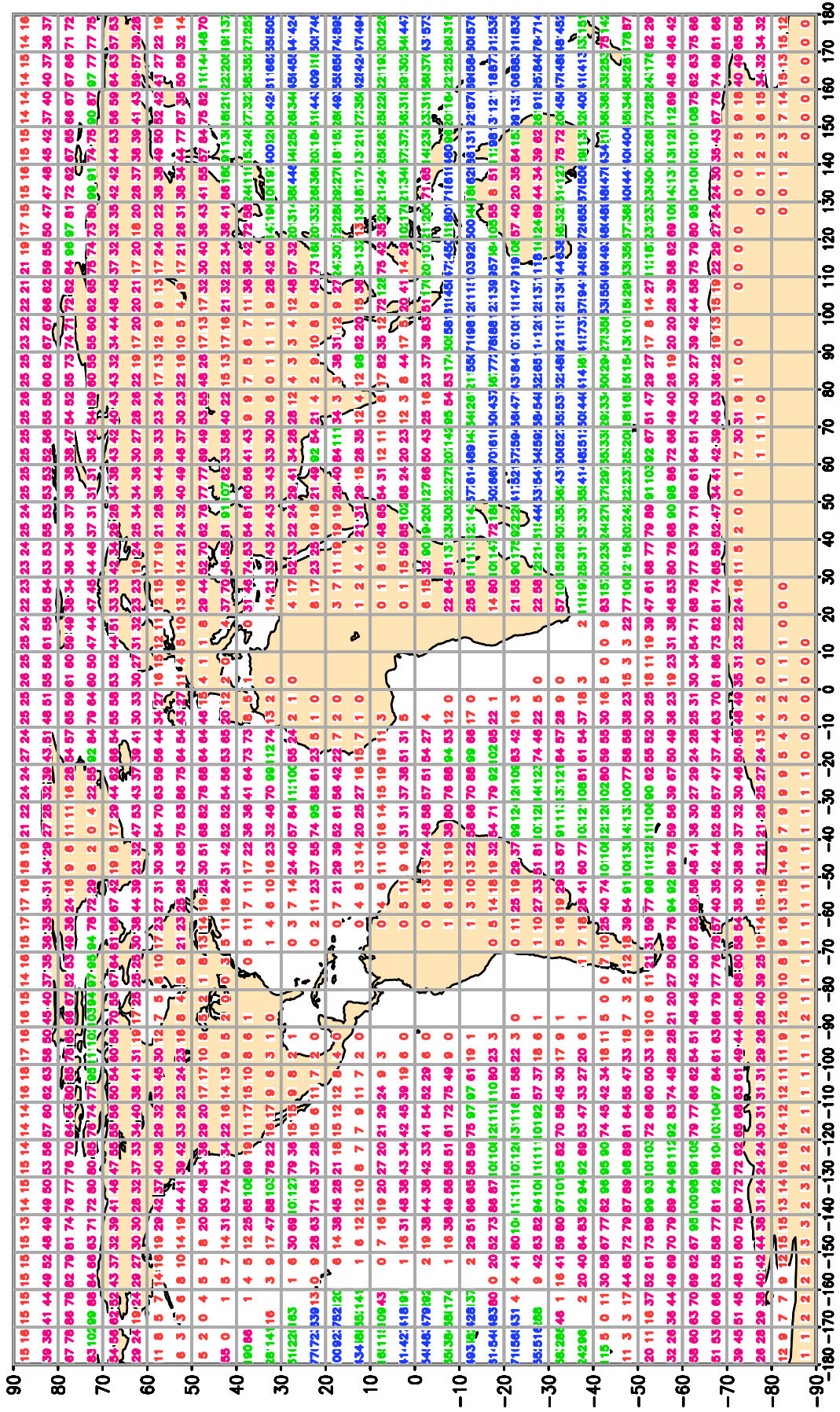


Fig 1.6(b)

NCMRWF Monitoring Statistics 01 08 24 TO 31 08 24

Availability - BUOY PRESSURE

Average number of observations in 24 hours - 40546

OCEAN - N. Atlantic: 8461 S. Atlantic: 2191 Indian: 3977 Pacific:25229

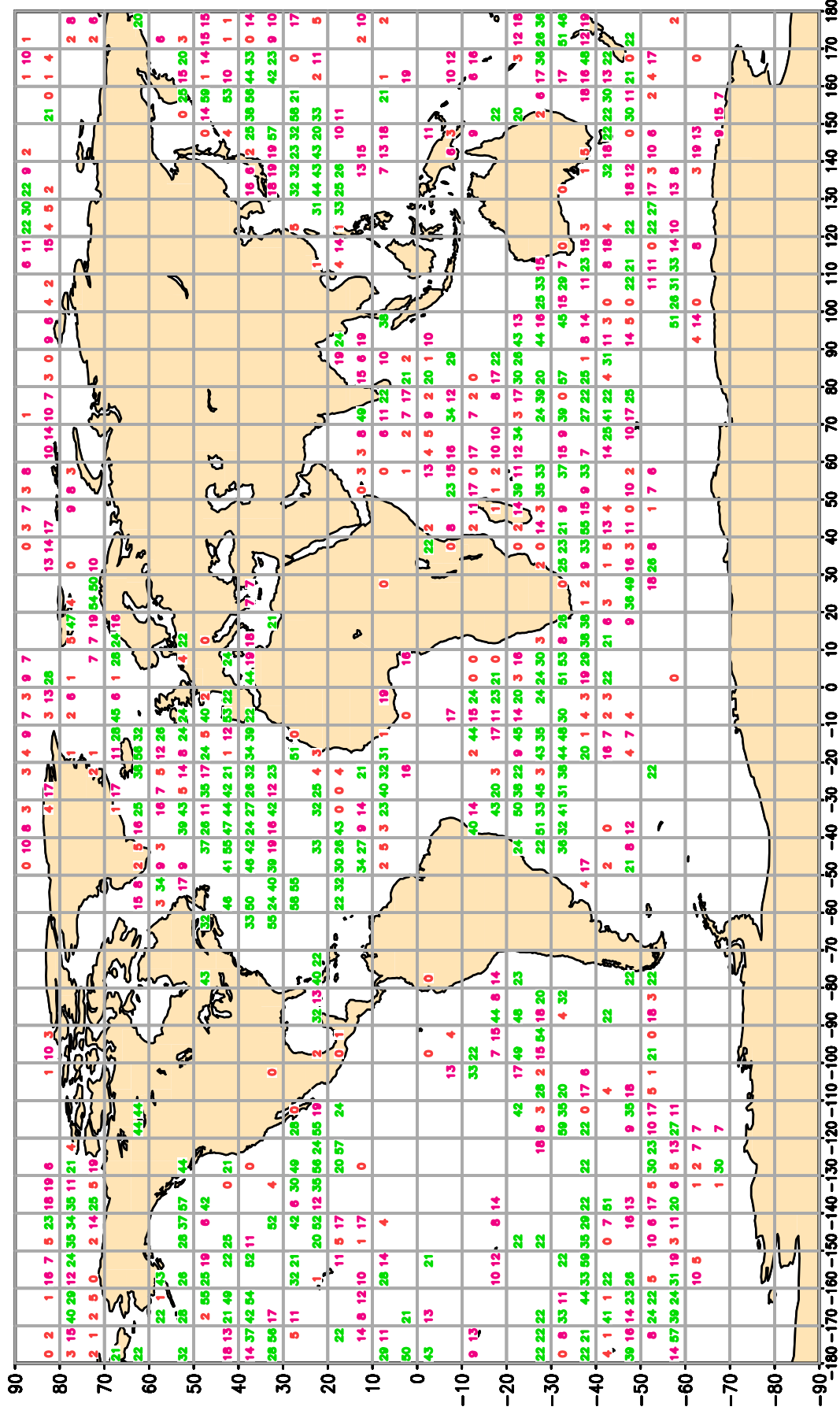


Fig 1.7

NCMRWF Monitoring Statistics: August 2024

AMV WINDS: 700 - 1000 hPa

Mean Observed Wind

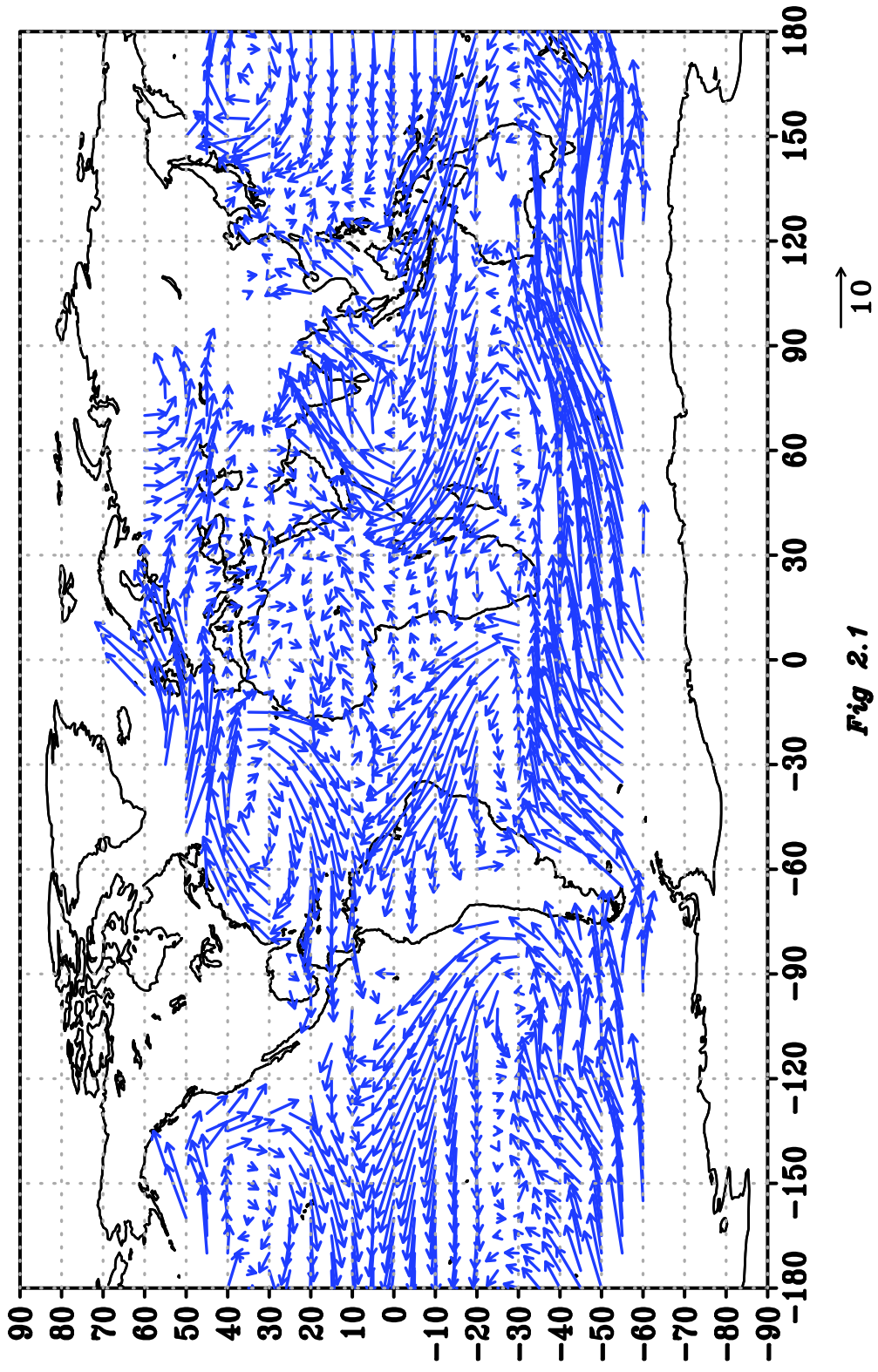


Fig 2.1

NCMRWF Monitoring Statistics: August 2024

AMV WINDS: 700 - 1000 hPa

WIND BIAS: Observation - First Guess

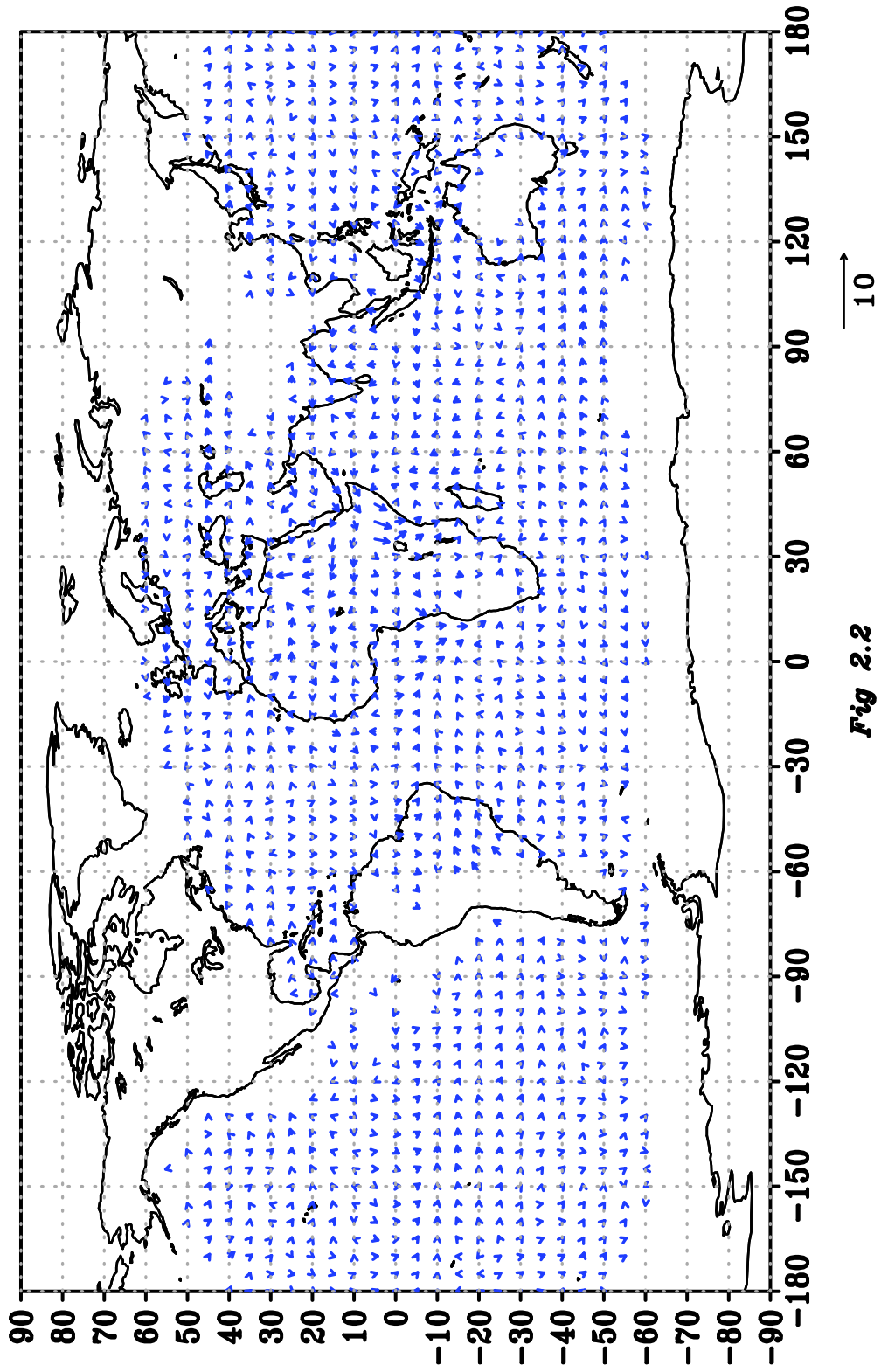


Fig 2.2

NCMRWF Monitoring Statistics: August 2024

AMV WINDS: 150 - 400 hPa

Mean Observed Wind

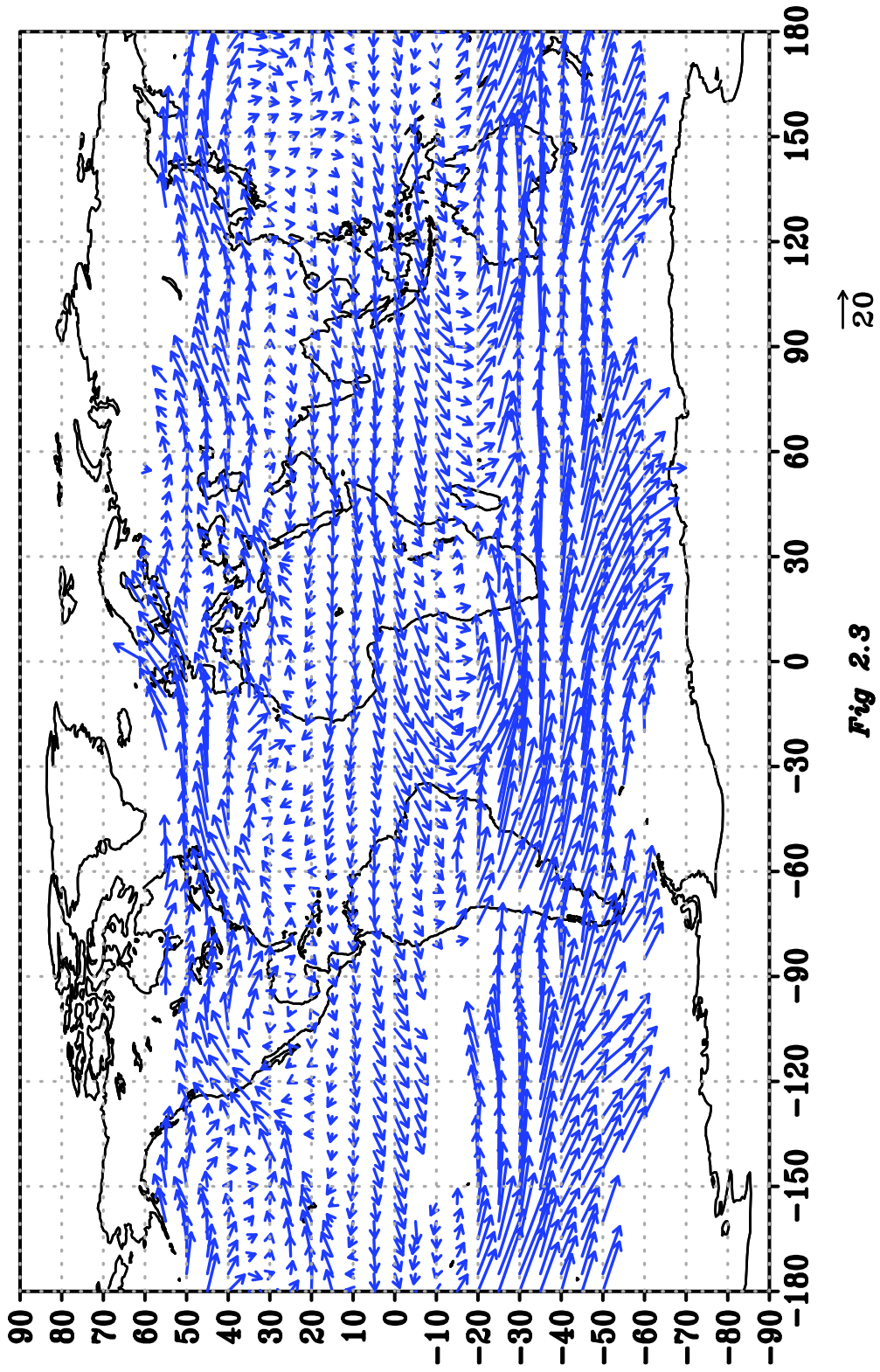


Fig 2.3

NCMRWF Monitoring Statistics: August 2024

AMV WINDS: 150 - 400 hPa

WIND BIAS: Observation - First Guess

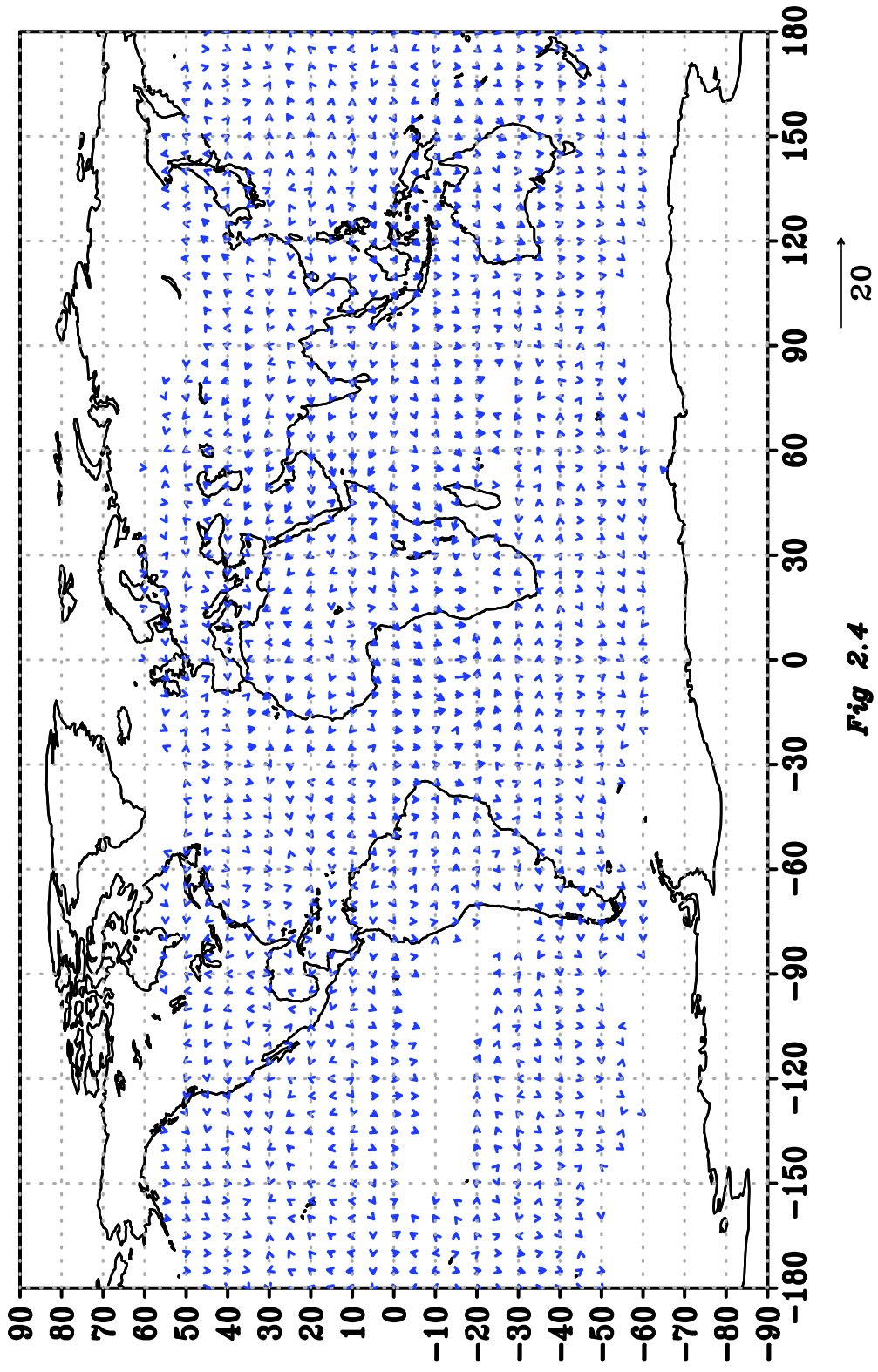


Fig 2.4

