# NCMRWF

# Monthly Data Monitoring Report

## September, 2024

**NATIONAL CENTRE FOR MEDIUM RANGE WEATHER FORECASTING**

**(MINISTRY OF EARTH SCIENCES)**

**A–50, Sector–62, NOIDA (U.P.)**

**PIN–201 309, INDIA**

# CONTENTS

# 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 erros. 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:
Director, NCMRWF
Ministry of Earth Sciences,
A-50, Sector-62,
NOIDA (U.P.) - 201 309, INDIA.

# 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<br>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 seperate 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 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.

TABLE 2: TOTAL UPPER AIR REPORTS RECEIVED 1 9 2024 TO 30 9 2024
FOR WMO BLOCK 42 AND 43 STATIONS ONLY

| WMO IDENT | STATION NAME | AT 00Z T | AT 00Z P | AT 06Z T | AT 06Z P | AT 12Z T | AT 12Z P | AT 18Z T | AT 18Z P |
|---|---|---|---|---|---|---|---|---|---|
| 42027 | SRINAGAR | 24 | 29 | 0 | 0 | 0 | 29 | 0 | 0 |
| 42033 | SASOUMA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42056 | JAMMU | 0 | 26 | 0 | 0 | 25 | 27 | 0 | 0 |
| 42057 | PATHANKOT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42065 | MANALI | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42071 | AMRITSAR | 0 | 25 | 0 | 0 | 0 | 26 | 0 | 0 |
| 42073 | ADAMPUR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42098 | HALWARA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42101 | PATIALA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42103 | AMBALA | 0 | 30 | 0 | 30 | 0 | 29 | 0 | 0 |
| 42105 | CHANDIGARH | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42111 | DEHRA DUN | 28 | 29 | 0 | 0 | 0 | 11 | 0 | 0 |
| 42123 | GANGANAGAR | 8 | 7 | 0 | 0 | 0 | 1 | 0 | 0 |
| 42165 | BIKANER | 29 | 29 | 0 | 0 | 8 | 30 | 29 | 29 |
| 42170 | CHURU | 30 | 30 | 0 | 0 | 29 | 29 | 0 | 0 |
| 42182 | NEW DELHI/SAF | 30 | 30 | 0 | 0 | 30 | 30 | 0 | 0 |
| 42189 | BAREILLY | 0 | 26 | 0 | 0 | 0 | 29 | 0 | 0 |
| 42260 | AGRA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42273 | BAHRAICH | 0 | 29 | 0 | 27 | 0 | 26 | 0 | 0 |
| 42299 | GANGTOK | 0 | 29 | 0 | 0 | 0 | 29 | 0 | 0 |
| 42314 | DIBRUGR/MOHAN | 30 | 24 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42328 | JAISALMER | 3 | 19 | 0 | 0 | 0 | 30 | 0 | 0 |
| 42339 | JODHPUR | 30 | 30 | 10 | 11 | 30 | 29 | 30 | 30 |
| 42348 | JAIPUR/SNGNER | 24 | 25 | 0 | 0 | 0 | 2 | 5 | 5 |
| 42361 | GWALIOR | 30 | 29 | 0 | 29 | 7 | 29 | 0 | 27 |
| 42369 | LUCKNOW/AMAUS | 0 | 27 | 0 | 29 | 1 | 29 | 0 | 25 |
| 42379 | GORAKHPUR | 0 | 27 | 0 | 30 | 0 | 29 | 0 | 30 |
| 42399 | JALPAIGURI | 29 | 30 | 0 | 0 | 0 | 30 | 0 | 0 |
| 42079 | SUNDRNAGAR | 19 | 19 | 0 | 0 | 22 | 24 | 0 | 0 |
| 42410 | GAUHATI | 30 | 29 | 0 | 0 | 30 | 30 | 0 | 0 |
| 42416 | TEZPUR/BINDUK | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42423 | JORHAT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42435 | BARMER | 27 | 28 | 0 | 0 | 16 | 30 | 0 | 0 |
| 42452 | KOTA AERODROM | 8 | 25 | 0 | 0 | 8 | 28 | 0 | 0 |
| 42475 | ALLAHABAD/BAM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42492 | PATNA | 30 | 28 | 0 | 0 | 29 | 29 | 0 | 0 |
| 42498 | BHAGALPUR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42539 | DEESA | 0 | 27 | 0 | 0 | 0 | 29 | 0 | 0 |
| 42542 | UDAIPUR DABOK | 12 | 23 | 0 | 0 | 4 | 15 | 27 | 27 |
| 42591 | GAYA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42623 | IMPHAL TULIHL | 29 | 29 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42634 | BHUJ-RUDRAMTA | 30 | 29 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42647 | AHMADABAD | 30 | 25 | 0 | 30 | 24 | 29 | 0 | 29 |
| 42667 | BHOPAL/BAIRGR | 0 | 29 | 0 | 15 | 0 | 12 | 0 | 16 |
| 42675 | JABALPUR | 29 | 29 | 0 | 0 | 0 | 30 | 0 | 30 |
| 42701 | RANCHI | 0 | 30 | 0 | 0 | 0 | 30 | 0 | 0 |
| 42706 | BANKURA | 0 | 30 | 0 | 0 | 0 | 29 | 0 | 0 |
| 42724 | AGARTALA | 30 | 30 | 1 | 1 | 8 | 8 | 0 | 0 |
| 42734 | JAMNAGAR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42798 | JAMSHEDPUR | 0 | 25 | 0 | 0 | 0 | 24 | 0 | 0 |
| 42802 | KALAIKUNDA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 42809 | CALCUTTA/DMDM | 30 | 30 | 0 | 28 | 30 | 30 | 0 | 25 |
| 42867 | NAGPUR SONEGN | 19 | 16 | 0 | 30 | 19 | 19 | 0 | 30 |
| 42874 | RAIPUR | 30 | 28 | 0 | 0 | 29 | 29 | 0 | 0 |
| 42886 | JHARSUGUDA | 0 | 30 | 0 | 0 | 0 | 30 | 0 | 24 |
| 42895 | BALASORE | 0 | 29 | 0 | 0 | 0 | 29 | 0 | 30 |
| 42909 | VERAVAL | 0 | 16 | 0 | 0 | 0 | 29 | 0 | 17 |
| 42971 | BHUBANESWAR | 30 | 29 | 0 | 24 | 30 | 30 | 0 | 30 |
| 43003 | BOMBAY/SANTCR | 29 | 29 | 1 | 30 | 30 | 30 | 0 | 30 |
| 43014 | AURNGABAD/AER | 29 | 29 | 0 | 30 | 0 | 0 | 0 | 30 |
| 43041 | JAGDALPUR | 30 | 30 | 0 | 28 | 0 | 30 | 0 | 22 |
| 43049 | GOPALPUR | 18 | 26 | 0 | 0 | 0 | 30 | 0 | 30 |
| 43063 | POONA | 30 | 30 | 0 | 0 | 0 | 0 | 0 | 0 |
| 43110 | RATNAGIRI | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 43128 | HYDERABAD AER | 25 | 24 | 0 | 0 | 12 | 12 | 0 | 0 |
| 43150 | VISHAKHAPATNM | 30 | 25 | 7 | 23 | 30 | 24 | 10 | 10 |
| 43185 | MACHILIPATNAM | 29 | 29 | 0 | 19 | 0 | 29 | 0 | 22 |
| 43192 | GOA/PANJIM | 0 | 29 | 0 | 0 | 0 | 30 | 0 | 0 |
| 43194 | GOA/DABOLIM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 43201 | GADAG | 23 | 30 | 0 | 0 | 29 | 30 | 17 | 18 |
| 43237 | ANANTAPUR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 43279 | MADRAS/MINAMB | 28 | 26 | 1 | 23 | 25 | 28 | 0 | 22 |
| 43284 | MANG/BAJPE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 43285 | MANG/PANAMBUR | 1 | 25 | 0 | 10 | 0 | 20 | 0 | 16 |
| 43295 | BANGALORE | 23 | 20 | 4 | 4 | 15 | 24 | 4 | 5 |
| 43311 | AMINI DIVI | 27 | 28 | 0 | 0 | 28 | 29 | 0 | 0 |
| 43333 | PORT BLAIR | 0 | 30 | 0 | 28 | 0 | 30 | 0 | 30 |
| 43344 | TIRUCHIRAPLLI | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 43346 | KARAIKAL | 30 | 30 | 0 | 14 | 0 | 28 | 0 | 16 |
| 43353 | COCHIN/WILING | 29 | 28 | 0 | 0 | 22 | 22 | 0 | 0 |
| 43368 | CAR NICOBAR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 43369 | MINICOY | 30 | 30 | 0 | 0 | 30 | 30 | 0 | 0 |
| 43371 | TRIVANDRUM | 29 | 28 | 0 | 0 | 30 | 30 | 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 - 01092024 to 30092024 (00Z )
UNIT IS GEOPOTENTIAL METERS

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42027 | 12 | 16 | 199.6 | 12.8 | 200.0 |
| 42079 | 9 | 11 | 561.6 | -174.2 | 588.0 |
| 42111 | 24 | 0 | 37.2 | 19.1 | 41.8 |
| 42182 | 11 | 0 | 10.2 | 12.0 | 15.8 |
| 42314 | 9 | 11 | 98.0 | 35.4 | 104.2 |
| 42339 | 30 | 0 | 12.5 | 26.9 | 29.6 |
| 42348 | 13 | 0 | 33.5 | 54.6 | 64.1 |
| 42361 | 27 | 0 | 12.8 | 24.3 | 27.5 |
| 42399 | 22 | 18 | 127.4 | 118.7 | 174.1 |
| 42410 | 18 | 11 | 69.7 | 94.1 | 117.1 |
| 42492 | 25 | 0 | 17.5 | 30.4 | 35.1 |
| 42623 | 7 | 28 | 554.0 | 15.3 | 554.2 |
| 42634 | 24 | 4 | 546.1 | 137.7 | 563.2 |
| 42647 | 24 | 0 | 28.2 | 12.3 | 30.8 |
| 42675 | 23 | 8 | 85.4 | 89.2 | 123.5 |
| 42724 | 20 | 5 | 69.1 | 43.7 | 81.8 |
| 42809 | 22 | 0 | 37.2 | 40.3 | 54.8 |
| 42867 | 8 | 0 | 15.4 | 14.6 | 21.2 |
| 42874 | 24 | 16 | 101.4 | 102.3 | 144.1 |
| 42971 | 12 | 0 | 11.2 | 22.2 | 24.9 |
| 43003 | 16 | 0 | 25.8 | 41.4 | 48.8 |
| 43014 | 29 | 0 | 16.0 | 25.4 | 30.0 |
| 43041 | 28 | 3 | 137.4 | 77.2 | 157.6 |
| 43049 | 15 | 0 | 13.2 | 50.3 | 52.0 |
| 43063 | 25 | 0 | 47.5 | 50.9 | 69.6 |
| 43128 | 14 | 0 | 15.8 | 26.8 | 31.1 |
| 43150 | 17 | 0 | 9.2 | 24.8 | 26.5 |
| 43185 | 24 | 0 | 478.6 | -64.0 | 482.9 |
| 43279 | 12 | 0 | 9.5 | 16.8 | 19.2 |
| 43295 | 13 | 0 | 10.7 | 26.5 | 28.6 |
| 43346 | 28 | 0 | 17.9 | 29.2 | 34.3 |
| 43353 | 22 | 0 | 9.7 | 47.9 | 48.9 |
| 43369 | 18 | 5 | 52.2 | 67.7 | 85.5 |
| 43371 | 11 | 0 | 8.9 | 21.1 | 22.9 |

TABLE 3b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa GEOPOTENTIAL HEIGHT INCREMENTS - 01092024 to 30092024 (12Z )
UNIT IS GEOPOTENTIAL METERS

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42056 | 12 | 0 | 12.6 | 48.3 | 49.9 |
| 42079 | 18 | 0 | 46.2 | 56.5 | 73.0 |
| 42182 | 2 | 0 | 0.5 | -1.5 | 1.6 |
| 42339 | 13 | 0 | 17.3 | 41.7 | 45.2 |
| 42410 | 24 | 4 | 36.7 | 26.8 | 45.4 |
| 42647 | 4 | 0 | 21.3 | 30.8 | 37.4 |
| 42724 | 3 | 0 | 4.5 | 19.0 | 19.5 |
| 42809 | 22 | 0 | 20.6 | 16.7 | 26.5 |
| 42867 | 5 | 0 | 12.6 | 6.6 | 14.2 |
| 42971 | 9 | 0 | 10.5 | 2.6 | 10.8 |
| 43003 | 8 | 0 | 27.7 | 33.4 | 43.4 |
| 43150 | 13 | 0 | 21.2 | 11.5 | 24.1 |
| 43279 | 10 | 0 | 16.0 | -5.9 | 17.0 |
| 43353 | 16 | 6 | 70.5 | 90.1 | 114.4 |
| 43369 | 13 | 53 | 90.0 | 176.1 | 197.8 |
| 43371 | 9 | 0 | 8.5 | 7.7 | 11.5 |

TABLE 4a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa GEOPOTENTIAL HEIGHT INCREMENTS - 01092024 to 30092024 (00Z )
UNIT IS GEOPOTENTIAL METERS

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42027 | 21 | 4 | 37.1 | 13.3 | 39.4 |
| 42079 | 15 | 0 | 8.9 | 2.3 | 9.2 |
| 42111 | 27 | 0 | 6.9 | -8.0 | 10.5 |
| 42182 | 11 | 0 | 5.7 | 6.2 | 8.4 |
| 42314 | 27 | 18 | 37.0 | -30.8 | 48.2 |
| 42339 | 30 | 0 | 6.8 | 0.8 | 6.8 |
| 42348 | 13 | 0 | 5.3 | 38.4 | 38.7 |
| 42361 | 28 | 0 | 6.4 | -1.1 | 6.5 |
| 42399 | 29 | 0 | 5.7 | -1.9 | 6.0 |
| 42410 | 21 | 0 | 7.9 | 10.0 | 12.7 |
| 42492 | 30 | 0 | 7.8 | 5.1 | 9.3 |
| 42623 | 29 | 0 | 5.3 | 18.7 | 19.5 |
| 42634 | 27 | 3 | 673.1 | 131.1 | 685.7 |
| 42647 | 27 | 0 | 6.9 | 0.3 | 6.9 |
| 42675 | 27 | 0 | 9.3 | 5.4 | 10.7 |
| 42724 | 27 | 3 | 18.7 | 4.2 | 19.1 |
| 42809 | 28 | 0 | 10.9 | 1.6 | 11.0 |
| 42867 | 15 | 0 | 9.5 | 12.6 | 15.8 |
| 42874 | 29 | 0 | 7.4 | 9.8 | 12.3 |
| 42971 | 17 | 0 | 9.5 | 9.8 | 13.7 |
| 43003 | 20 | 0 | 11.8 | 0.2 | 11.8 |
| 43014 | 29 | 0 | 6.6 | 2.9 | 7.2 |
| 43041 | 30 | 3 | 7.3 | 7.8 | 10.7 |
| 43049 | 17 | 5 | 10.5 | 15.2 | 18.5 |
| 43063 | 30 | 0 | 8.9 | -1.3 | 9.0 |
| 43128 | 23 | 0 | 7.8 | -4.3 | 8.9 |
| 43150 | 23 | 0 | 7.0 | 10.7 | 12.7 |
| 43185 | 27 | 3 | 519.6 | -108.4 | 530.8 |
| 43279 | 20 | 0 | 5.2 | 8.1 | 9.6 |
| 43295 | 14 | 0 | 6.1 | 4.4 | 7.5 |
| 43346 | 29 | 3 | 22.6 | 21.1 | 30.9 |
| 43353 | 28 | 0 | 7.8 | -19.9 | 21.4 |
| 43369 | 29 | 0 | 8.0 | 2.2 | 8.3 |
| 43371 | 13 | 0 | 8.7 | 22.5 | 24.2 |

TABLE 4b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa GEOPOTENTIAL HEIGHT INCREMENTS - 01092024 to 30092024 (12Z )
UNIT IS GEOPOTENTIAL METERS

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42056 | 21 | 4 | 75.3 | 26.9 | 79.9 |
| 42079 | 18 | 0 | 14.8 | 2.8 | 15.1 |
| 42182 | 5 | 0 | 4.6 | 1.8 | 5.0 |
| 42339 | 14 | 0 | 6.2 | 2.4 | 6.6 |
| 42410 | 26 | 0 | 7.8 | 7.4 | 10.8 |
| 42647 | 2 | 0 | 8.5 | 9.5 | 12.7 |
| 42724 | 7 | 0 | 7.9 | 2.3 | 8.2 |
| 42809 | 28 | 0 | 10.0 | -0.0 | 10.0 |
| 42867 | 15 | 0 | 10.0 | 4.6 | 11.0 |
| 42971 | 12 | 0 | 12.4 | 4.7 | 13.3 |
| 43003 | 10 | 0 | 7.6 | 4.2 | 8.6 |
| 43150 | 18 | 0 | 9.5 | 6.4 | 11.4 |
| 43279 | 12 | 0 | 11.8 | -1.2 | 11.9 |
| 43353 | 22 | 4 | 15.8 | -5.4 | 16.7 |
| 43369 | 29 | 0 | 6.7 | 4.1 | 7.9 |
| 43371 | 10 | 0 | 10.8 | 13.4 | 17.2 |

TABLE 5a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa DRY TEMPERATURE INCREMENTS - 01092024 to 30092024 (00Z )
UNIT IS DEGREE KELVIN

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42027 | 12 | 16 | 6.2 | 2.4 | 6.7 |
| 42079 | 9 | 11 | 2.8 | 2.0 | 3.4 |
| 42111 | 24 | 0 | 1.0 | -0.2 | 1.0 |
| 42182 | 30 | 0 | 0.9 | -0.6 | 1.1 |
| 42314 | 9 | 11 | 1.5 | -0.0 | 1.5 |
| 42339 | 30 | 0 | 1.1 | 0.2 | 1.1 |
| 42348 | 13 | 0 | 1.0 | 0.2 | 1.0 |
| 42361 | 27 | 0 | 1.2 | -0.3 | 1.3 |
| 42399 | 22 | 18 | 7.9 | 4.3 | 9.0 |
| 42410 | 28 | 7 | 1.7 | 0.5 | 1.8 |
| 42492 | 25 | 0 | 1.3 | -0.4 | 1.3 |
| 42623 | 7 | 28 | 31.0 | 21.6 | 37.8 |
| 42634 | 23 | 0 | 1.1 | 0.0 | 1.1 |
| 42647 | 26 | 0 | 1.3 | -0.1 | 1.3 |
| 42675 | 24 | 12 | 9.9 | 2.4 | 10.2 |
| 42724 | 24 | 4 | 1.6 | 1.1 | 2.0 |
| 42809 | 26 | 0 | 1.4 | 0.0 | 1.4 |
| 42867 | 11 | 0 | 0.8 | -0.4 | 0.9 |
| 42874 | 24 | 16 | 4.1 | 2.0 | 4.5 |
| 42971 | 25 | 0 | 1.2 | -0.0 | 1.2 |
| 43003 | 19 | 0 | 2.2 | 0.5 | 2.2 |
| 43014 | 29 | 0 | 1.4 | -0.7 | 1.5 |
| 43041 | 28 | 3 | 1.8 | 0.2 | 1.8 |
| 43049 | 15 | 0 | 1.6 | 0.0 | 1.6 |
| 43063 | 25 | 0 | 2.3 | 0.2 | 2.3 |
| 43128 | 14 | 0 | 1.9 | -0.0 | 1.9 |
| 43150 | 19 | 0 | 1.0 | -0.7 | 1.2 |
| 43185 | 24 | 0 | 4.2 | 0.4 | 4.3 |
| 43279 | 20 | 0 | 1.3 | -0.8 | 1.5 |
| 43295 | 13 | 0 | 1.6 | -0.6 | 1.7 |
| 43346 | 28 | 0 | 1.6 | -0.8 | 1.8 |
| 43353 | 22 | 0 | 1.5 | -1.0 | 1.8 |
| 43369 | 18 | 5 | 2.6 | 0.9 | 2.8 |
| 43371 | 24 | 0 | 1.6 | -0.1 | 1.6 |

TABLE 5b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa DRY TEMPERATURE INCREMENTS - 01092024 to 30092024 (12Z )
UNIT IS DEGREE KELVIN

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42056 | 12 | 0 | 1.1 | 1.0 | 1.4 |
| 42079 | 18 | 0 | 1.1 | 1.4 | 1.8 |
| 42182 | 30 | 3 | 2.8 | 0.2 | 2.8 |
| 42339 | 13 | 0 | 1.3 | 0.8 | 1.5 |
| 42410 | 26 | 3 | 2.2 | 0.2 | 2.2 |
| 42647 | 8 | 0 | 0.8 | -0.6 | 1.0 |
| 42724 | 4 | 0 | 1.3 | 0.1 | 1.3 |
| 42809 | 24 | 0 | 1.5 | -0.2 | 1.5 |
| 42867 | 11 | 0 | 1.0 | -0.3 | 1.0 |
| 42971 | 26 | 0 | 1.2 | -1.0 | 1.6 |
| 43003 | 18 | 0 | 1.1 | -0.0 | 1.1 |
| 43150 | 22 | 0 | 1.4 | -0.4 | 1.5 |
| 43279 | 27 | 0 | 1.3 | -0.6 | 1.4 |
| 43353 | 16 | 6 | 2.6 | -0.3 | 2.6 |
| 43369 | 13 | 53 | 2.6 | 3.4 | 4.3 |
| 43371 | 26 | 0 | 1.6 | -0.4 | 1.6 |

TABLE 6a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa DRY TEMPERATURE INCREMENTS - 01092024 to 30092024 (00Z )
UNIT IS DEGREE KELVIN

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42027 | 21 | 4 | 4.8 | -2.4 | 5.4 |
| 42079 | 15 | 0 | 1.0 | -0.4 | 1.1 |
| 42111 | 27 | 0 | 0.7 | -0.5 | 0.9 |
| 42182 | 11 | 0 | 0.9 | -0.2 | 0.9 |
| 42314 | 27 | 18 | 0.8 | -0.6 | 1.0 |
| 42339 | 30 | 0 | 1.0 | -0.2 | 1.1 |
| 42348 | 13 | 0 | 0.9 | -0.7 | 1.1 |
| 42361 | 28 | 0 | 0.9 | -0.5 | 1.1 |
| 42399 | 29 | 0 | 0.7 | -0.2 | 0.7 |
| 42410 | 21 | 0 | 0.7 | -0.6 | 0.9 |
| 42492 | 30 | 0 | 0.6 | -0.6 | 0.9 |
| 42623 | 29 | 0 | 0.7 | -0.6 | 0.9 |
| 42634 | 27 | 3 | 4.4 | -0.8 | 4.5 |
| 42647 | 27 | 0 | 1.0 | -0.8 | 1.2 |
| 42675 | 27 | 0 | 1.1 | -0.4 | 1.2 |
| 42724 | 27 | 3 | 0.9 | -0.7 | 1.1 |
| 42809 | 28 | 0 | 0.6 | -0.6 | 0.9 |
| 42867 | 15 | 0 | 0.8 | -0.5 | 1.0 |
| 42874 | 29 | 0 | 0.8 | -0.2 | 0.8 |
| 42971 | 17 | 0 | 0.8 | -0.5 | 1.0 |
| 43003 | 20 | 0 | 0.8 | -0.4 | 0.9 |
| 43014 | 29 | 0 | 0.8 | -0.4 | 0.9 |
| 43041 | 30 | 3 | 0.9 | -0.3 | 0.9 |
| 43049 | 17 | 5 | 1.1 | -0.1 | 1.1 |
| 43063 | 30 | 0 | 0.9 | -0.8 | 1.2 |
| 43128 | 23 | 0 | 0.7 | -0.1 | 0.7 |
| 43150 | 24 | 0 | 1.1 | -0.6 | 1.3 |
| 43185 | 27 | 3 | 2.7 | 0.3 | 2.7 |
| 43279 | 20 | 0 | 0.9 | -0.1 | 0.9 |
| 43295 | 15 | 0 | 0.7 | -0.2 | 0.7 |
| 43346 | 29 | 0 | 0.9 | -0.5 | 1.0 |
| 43353 | 28 | 0 | 0.8 | -0.1 | 0.8 |
| 43369 | 29 | 0 | 0.6 | 0.0 | 0.6 |
| 43371 | 13 | 0 | 1.0 | -0.2 | 1.1 |

TABLE 6b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa DRY TEMPERATURE INCREMENTS - 01092024 to 30092024 (12Z )
UNIT IS DEGREE KELVIN

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42056 | 21 | 4 | 6.7 | 1.4 | 6.9 |
| 42079 | 18 | 0 | 1.0 | -0.6 | 1.2 |
| 42182 | 5 | 0 | 0.6 | -0.7 | 0.9 |
| 42339 | 14 | 0 | 1.0 | -0.1 | 1.0 |
| 42410 | 26 | 0 | 0.7 | -0.9 | 1.1 |
| 42647 | 2 | 0 | 0.4 | -0.1 | 0.4 |
| 42724 | 7 | 0 | 0.2 | -0.9 | 0.9 |
| 42809 | 28 | 0 | 0.6 | -0.8 | 1.0 |
| 42867 | 15 | 0 | 1.0 | -0.4 | 1.0 |
| 42971 | 12 | 0 | 0.8 | -0.9 | 1.2 |
| 43003 | 10 | 0 | 0.7 | -0.5 | 0.8 |
| 43150 | 18 | 0 | 0.8 | -0.7 | 1.1 |
| 43279 | 12 | 0 | 0.7 | -0.7 | 1.0 |
| 43353 | 22 | 4 | 0.8 | 0.4 | 0.9 |
| 43369 | 29 | 0 | 1.4 | 0.1 | 1.4 |
| 43371 | 10 | 0 | 0.9 | -0.9 | 1.3 |

TABLE 7a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa ZONAL WIND INCREMENTS - 01092024 to 30092024 (00Z )
UNIT IS METER/SEC

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42027 | 12 | 0 | 5.4 | -5.0 | 7.3 |
| 42079 | 9 | 0 | 2.3 | 1.8 | 2.9 |
| 42111 | 24 | 0 | 1.6 | 0.9 | 1.8 |
| 42182 | 28 | 0 | 2.7 | 0.4 | 2.7 |
| 42314 | 9 | 0 | 2.2 | 0.6 | 2.2 |
| 42339 | 30 | 0 | 2.5 | -0.1 | 2.5 |
| 42348 | 13 | 0 | 4.0 | 1.5 | 4.3 |
| 42361 | 27 | 0 | 2.5 | 0.6 | 2.6 |
| 42399 | 22 | 0 | 3.7 | -1.3 | 3.9 |
| 42410 | 28 | 0 | 2.0 | 0.2 | 2.0 |
| 42492 | 25 | 0 | 2.0 | 0.9 | 2.2 |
| 42623 | 7 | 0 | 1.8 | 0.5 | 1.9 |
| 42634 | 24 | 0 | 2.5 | -0.1 | 2.5 |
| 42647 | 26 | 0 | 2.6 | -1.0 | 2.8 |
| 42675 | 24 | 0 | 2.4 | 0.1 | 2.4 |
| 42724 | 24 | 0 | 2.3 | 0.3 | 2.3 |
| 42809 | 26 | 0 | 3.4 | -0.5 | 3.5 |
| 42867 | 11 | 0 | 1.9 | -2.2 | 2.9 |
| 42874 | 24 | 0 | 2.3 | -0.4 | 2.3 |
| 42971 | 25 | 0 | 4.0 | -0.6 | 4.1 |
| 43003 | 17 | 0 | 5.0 | -1.1 | 5.1 |
| 43014 | 29 | 0 | 3.2 | -1.0 | 3.3 |
| 43041 | 28 | 0 | 3.4 | -1.3 | 3.6 |
| 43049 | 15 | 0 | 3.0 | -1.4 | 3.3 |
| 43063 | 25 | 0 | 2.9 | -0.8 | 3.0 |
| 43128 | 14 | 0 | 3.5 | -1.4 | 3.8 |
| 43150 | 19 | 0 | 2.6 | 0.0 | 2.6 |
| 43185 | 24 | 0 | 3.0 | -0.5 | 3.0 |
| 43279 | 19 | 0 | 4.1 | 1.4 | 4.3 |
| 43295 | 14 | 0 | 3.8 | 0.1 | 3.8 |
| 43346 | 28 | 0 | 4.7 | -0.8 | 4.8 |
| 43353 | 22 | 0 | 3.3 | -3.5 | 4.8 |
| 43369 | 18 | 0 | 5.5 | -0.2 | 5.5 |
| 43371 | 12 | 0 | 3.2 | -1.1 | 3.3 |

TABLE 7b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa ZONAL WIND INCREMENTS - 01092024 to 30092024 (12Z )
UNIT IS METER/SEC

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42056 | 12 | 0 | 2.1 | 0.2 | 2.1 |
| 42079 | 18 | 0 | 3.5 | -0.3 | 3.5 |
| 42182 | 30 | 0 | 2.2 | 0.8 | 2.3 |
| 42339 | 13 | 0 | 3.3 | -0.5 | 3.4 |
| 42410 | 26 | 0 | 1.7 | 0.2 | 1.7 |
| 42647 | 8 | 0 | 2.0 | -1.5 | 2.5 |
| 42724 | 4 | 0 | 2.8 | 1.0 | 3.0 |
| 42809 | 24 | 0 | 2.9 | 0.5 | 2.9 |
| 42867 | 10 | 0 | 4.2 | -0.9 | 4.3 |
| 42971 | 26 | 0 | 2.2 | -1.3 | 2.5 |
| 43003 | 14 | 0 | 2.4 | -0.4 | 2.4 |
| 43150 | 22 | 0 | 3.3 | -1.4 | 3.6 |
| 43279 | 25 | 0 | 3.9 | -2.4 | 4.6 |
| 43353 | 16 | 0 | 3.8 | -1.9 | 4.3 |
| 43369 | 13 | 0 | 10.0 | -1.4 | 10.1 |
| 43371 | 12 | 0 | 3.9 | -2.4 | 4.6 |

TABLE 8a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa ZONAL WIND INCREMENTS - 01092024 to 30092024 (00Z )
UNIT IS METER/SEC

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42027 | 21 | 0 | 2.6 | -1.1 | 2.8 |
| 42079 | 15 | 0 | 2.7 | 0.1 | 2.7 |
| 42111 | 27 | 0 | 2.4 | -0.7 | 2.5 |
| 42182 | 16 | 0 | 2.3 | -0.2 | 2.3 |
| 42314 | 27 | 0 | 3.1 | -0.5 | 3.1 |
| 42339 | 30 | 0 | 2.1 | -0.6 | 2.2 |
| 42348 | 13 | 0 | 2.1 | -0.7 | 2.2 |
| 42361 | 28 | 0 | 1.8 | -0.4 | 1.9 |
| 42399 | 29 | 0 | 2.2 | -1.5 | 2.6 |
| 42410 | 23 | 0 | 1.7 | -0.5 | 1.8 |
| 42492 | 30 | 0 | 2.2 | -0.4 | 2.2 |
| 42623 | 29 | 0 | 2.2 | -0.9 | 2.4 |
| 42634 | 27 | 0 | 2.0 | 0.1 | 2.0 |
| 42647 | 27 | 0 | 3.4 | -1.2 | 3.6 |
| 42675 | 27 | 0 | 2.6 | -0.6 | 2.7 |
| 42724 | 28 | 0 | 2.2 | 0.2 | 2.2 |
| 42809 | 28 | 0 | 2.6 | 0.4 | 2.7 |
| 42867 | 15 | 0 | 2.7 | -0.1 | 2.7 |
| 42874 | 29 | 0 | 1.6 | -0.3 | 1.7 |
| 42971 | 18 | 0 | 2.7 | 0.5 | 2.8 |
| 43003 | 20 | 0 | 2.1 | 0.4 | 2.1 |
| 43014 | 29 | 0 | 1.8 | 0.5 | 1.8 |
| 43041 | 30 | 0 | 2.3 | 1.1 | 2.6 |
| 43049 | 17 | 0 | 1.7 | 0.3 | 1.7 |
| 43063 | 30 | 0 | 1.8 | 0.6 | 1.9 |
| 43128 | 23 | 0 | 2.1 | 0.0 | 2.1 |
| 43150 | 23 | 0 | 2.4 | 0.8 | 2.5 |
| 43185 | 27 | 0 | 2.0 | -0.3 | 2.0 |
| 43279 | 21 | 0 | 3.4 | 1.0 | 3.5 |
| 43295 | 14 | 0 | 2.3 | 0.3 | 2.3 |
| 43346 | 29 | 0 | 2.1 | 0.1 | 2.1 |
| 43353 | 28 | 0 | 1.6 | 0.8 | 1.8 |
| 43369 | 29 | 0 | 2.2 | -0.1 | 2.2 |
| 43371 | 15 | 0 | 2.0 | 0.5 | 2.0 |

TABLE 8b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa ZONAL WIND INCREMENTS - 01092024 to 30092024 (12Z )
UNIT IS METER/SEC

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42056 | 21 | 0 | 15.1 | 2.7 | 15.3 |
| 42079 | 18 | 0 | 2.0 | 0.7 | 2.1 |
| 42182 | 10 | 0 | 2.4 | 2.0 | 3.1 |
| 42339 | 14 | 0 | 1.9 | 0.5 | 1.9 |
| 42410 | 26 | 0 | 1.9 | -0.8 | 2.1 |
| 42647 | 2 | 0 | 1.3 | 1.3 | 1.8 |
| 42724 | 7 | 0 | 1.3 | -0.3 | 1.3 |
| 42809 | 28 | 0 | 2.1 | -0.6 | 2.2 |
| 42867 | 15 | 0 | 2.5 | 0.5 | 2.6 |
| 42971 | 14 | 0 | 1.9 | 0.4 | 1.9 |
| 43003 | 11 | 0 | 3.0 | 1.6 | 3.4 |
| 43150 | 20 | 0 | 3.6 | 0.8 | 3.7 |
| 43279 | 16 | 0 | 3.4 | 1.3 | 3.6 |
| 43353 | 22 | 0 | 1.5 | 0.7 | 1.7 |
| 43369 | 29 | 0 | 2.0 | 0.7 | 2.1 |
| 43371 | 11 | 0 | 1.7 | 1.4 | 2.2 |

TABLE 9a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa MERIDIONAL WIND INCREMENTS - 01092024 to 30092024 (00Z )
UNIT IS METER/SEC

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42027 | 12 | 0 | 4.1 | 1.0 | 4.2 |
| 42079 | 9 | 0 | 2.9 | -0.6 | 3.0 |
| 42111 | 24 | 0 | 2.4 | -0.2 | 2.4 |
| 42182 | 28 | 0 | 3.2 | 0.5 | 3.3 |
| 42314 | 9 | 0 | 2.7 | 1.4 | 3.0 |
| 42339 | 30 | 0 | 3.6 | 1.3 | 3.8 |
| 42348 | 13 | 0 | 5.4 | 1.2 | 5.5 |
| 42361 | 27 | 0 | 3.0 | 1.9 | 3.5 |
| 42399 | 22 | 0 | 2.0 | 0.1 | 2.0 |
| 42410 | 28 | 0 | 3.8 | -1.1 | 3.9 |
| 42492 | 25 | 0 | 3.1 | 0.5 | 3.1 |
| 42623 | 7 | 0 | 2.2 | 0.5 | 2.2 |
| 42634 | 24 | 0 | 3.2 | 0.3 | 3.2 |
| 42647 | 26 | 0 | 4.1 | 0.9 | 4.2 |
| 42675 | 24 | 0 | 2.9 | 0.7 | 3.0 |
| 42724 | 24 | 0 | 2.6 | 1.2 | 2.9 |
| 42809 | 26 | 0 | 3.3 | 0.4 | 3.3 |
| 42867 | 11 | 0 | 3.1 | 0.5 | 3.1 |
| 42874 | 24 | 0 | 2.4 | -0.4 | 2.4 |
| 42971 | 25 | 0 | 3.5 | 1.1 | 3.6 |
| 43003 | 17 | 0 | 3.2 | -0.2 | 3.2 |
| 43014 | 29 | 0 | 2.8 | 0.2 | 2.9 |
| 43041 | 28 | 0 | 3.5 | 0.9 | 3.6 |
| 43049 | 15 | 0 | 2.6 | 2.7 | 3.8 |
| 43063 | 25 | 0 | 3.2 | -0.8 | 3.3 |
| 43128 | 14 | 0 | 5.0 | 0.3 | 5.0 |
| 43150 | 19 | 0 | 3.5 | 0.6 | 3.6 |
| 43185 | 24 | 0 | 2.7 | -0.1 | 2.7 |
| 43279 | 19 | 0 | 5.0 | -1.2 | 5.1 |
| 43295 | 14 | 0 | 3.5 | -1.8 | 3.9 |
| 43346 | 28 | 0 | 4.9 | -2.5 | 5.5 |
| 43353 | 22 | 0 | 3.3 | -0.9 | 3.4 |
| 43369 | 18 | 0 | 3.5 | 0.8 | 3.6 |
| 43371 | 12 | 0 | 4.6 | -0.5 | 4.7 |

TABLE 9b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
100 hPa MERIDIONAL WIND INCREMENTS - 01092024 to 30092024 (12Z )
UNIT IS METER/SEC

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42056 | 12 | 0 | 1.9 | -0.8 | 2.0 |
| 42079 | 18 | 0 | 2.9 | 0.6 | 3.0 |
| 42182 | 30 | 0 | 3.4 | 0.4 | 3.4 |
| 42339 | 13 | 0 | 1.7 | -0.3 | 1.7 |
| 42410 | 26 | 0 | 2.6 | 0.4 | 2.6 |
| 42647 | 8 | 0 | 4.2 | 2.3 | 4.7 |
| 42724 | 4 | 0 | 3.8 | 1.5 | 4.1 |
| 42809 | 24 | 0 | 3.3 | -0.8 | 3.4 |
| 42867 | 10 | 0 | 3.8 | -0.4 | 3.8 |
| 42971 | 26 | 0 | 3.0 | 0.4 | 3.0 |
| 43003 | 14 | 0 | 3.1 | 0.5 | 3.2 |
| 43150 | 22 | 0 | 3.0 | -0.7 | 3.0 |
| 43279 | 25 | 0 | 4.3 | 1.0 | 4.5 |
| 43353 | 16 | 0 | 4.0 | -0.7 | 4.0 |
| 43369 | 13 | 0 | 2.6 | -1.2 | 2.9 |
| 43371 | 12 | 0 | 4.6 | -0.6 | 4.6 |

TABLE 10a: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa MERIDIONAL WIND INCREMENTS - 01092024 to 30092024 (00Z )
UNIT IS METER/SEC

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42027 | 21 | 0 | 3.3 | 0.7 | 3.4 |
| 42079 | 15 | 0 | 2.7 | 0.4 | 2.7 |
| 42111 | 27 | 0 | 2.5 | 1.2 | 2.7 |
| 42182 | 16 | 0 | 1.9 | 0.6 | 2.0 |
| 42314 | 27 | 0 | 2.2 | -0.5 | 2.2 |
| 42339 | 30 | 0 | 2.0 | -0.5 | 2.1 |
| 42348 | 13 | 0 | 1.4 | -0.6 | 1.5 |
| 42361 | 28 | 0 | 3.3 | 0.0 | 3.3 |
| 42399 | 29 | 0 | 2.3 | -0.4 | 2.3 |
| 42410 | 23 | 0 | 2.3 | 0.1 | 2.3 |
| 42492 | 30 | 0 | 2.4 | -0.5 | 2.5 |
| 42623 | 29 | 0 | 2.0 | -0.4 | 2.1 |
| 42634 | 27 | 0 | 1.8 | -0.6 | 1.9 |
| 42647 | 27 | 0 | 2.7 | -0.3 | 2.7 |
| 42675 | 27 | 0 | 1.5 | 0.6 | 1.6 |
| 42724 | 28 | 0 | 3.0 | -0.3 | 3.0 |
| 42809 | 28 | 0 | 2.5 | 0.3 | 2.5 |
| 42867 | 15 | 0 | 2.3 | 0.9 | 2.5 |
| 42874 | 29 | 0 | 2.4 | -0.3 | 2.4 |
| 42971 | 18 | 0 | 2.3 | 0.4 | 2.3 |
| 43003 | 20 | 0 | 2.4 | -0.2 | 2.4 |
| 43014 | 29 | 0 | 2.1 | 0.2 | 2.1 |
| 43041 | 30 | 0 | 2.2 | -0.6 | 2.3 |
| 43049 | 17 | 0 | 2.2 | -0.0 | 2.2 |
| 43063 | 30 | 0 | 1.5 | -0.4 | 1.6 |
| 43128 | 23 | 0 | 1.9 | 0.3 | 2.0 |
| 43150 | 23 | 0 | 2.6 | -0.5 | 2.7 |
| 43185 | 27 | 0 | 2.3 | 0.6 | 2.4 |
| 43279 | 21 | 0 | 2.5 | -0.5 | 2.5 |
| 43295 | 14 | 0 | 2.1 | 0.6 | 2.2 |
| 43346 | 29 | 0 | 1.8 | 0.4 | 1.9 |
| 43353 | 28 | 0 | 1.9 | -0.4 | 2.0 |
| 43369 | 29 | 0 | 1.6 | 0.2 | 1.6 |
| 43371 | 15 | 0 | 2.8 | 0.1 | 2.8 |

TABLE 10b: NCMRWF RADIOSONDE MONITORING STATISTICS
FOR WMO BLOCK 42 AND 43 STATIONS ONLY
500 hPa MERIDIONAL WIND INCREMENTS - 01092024 to 30092024 (12Z )
UNIT IS METER/SEC

| STNID | COUNT | %REJC | SD | BIAS | RMS |
|---|---|---|---|---|---|
| 42056 | 21 | 0 | 17.8 | 5.0 | 18.5 |
| 42079 | 18 | 0 | 2.5 | -0.9 | 2.7 |
| 42182 | 10 | 0 | 2.5 | 0.1 | 2.5 |
| 42339 | 14 | 0 | 2.5 | 0.2 | 2.5 |
| 42410 | 26 | 0 | 2.2 | -0.2 | 2.2 |
| 42647 | 2 | 0 | 1.3 | -0.2 | 1.3 |
| 42724 | 7 | 0 | 4.7 | -0.6 | 4.8 |
| 42809 | 28 | 0 | 2.7 | 0.2 | 2.7 |
| 42867 | 15 | 0 | 1.9 | 0.2 | 1.9 |
| 42971 | 14 | 0 | 2.2 | 0.3 | 2.2 |
| 43003 | 11 | 0 | 2.1 | -0.9 | 2.3 |
| 43150 | 20 | 0 | 4.3 | 0.1 | 4.3 |
| 43279 | 16 | 0 | 2.0 | -0.5 | 2.1 |
| 43353 | 22 | 0 | 2.0 | -0.7 | 2.1 |
| 43369 | 29 | 0 | 1.9 | -0.1 | 1.9 |
| 43371 | 11 | 0 | 2.2 | -1.0 | 2.4 |

# NCMRWF Monitoring Statistics 01 09 24 TO 30 09 24

**Availability – SYNOP/SHIP PRESSURE**

**Average number of observations in 24 hours – 116125**

**LAND – WMO REGION I: 6708 II:17527 III: 2115 IV: 6154 V:15255 VI:41460 VII: 735**

**OCEAN – N. Atlantic:11644 S. Atlantic: 815 Indian: 2681 Pacific: 9764**

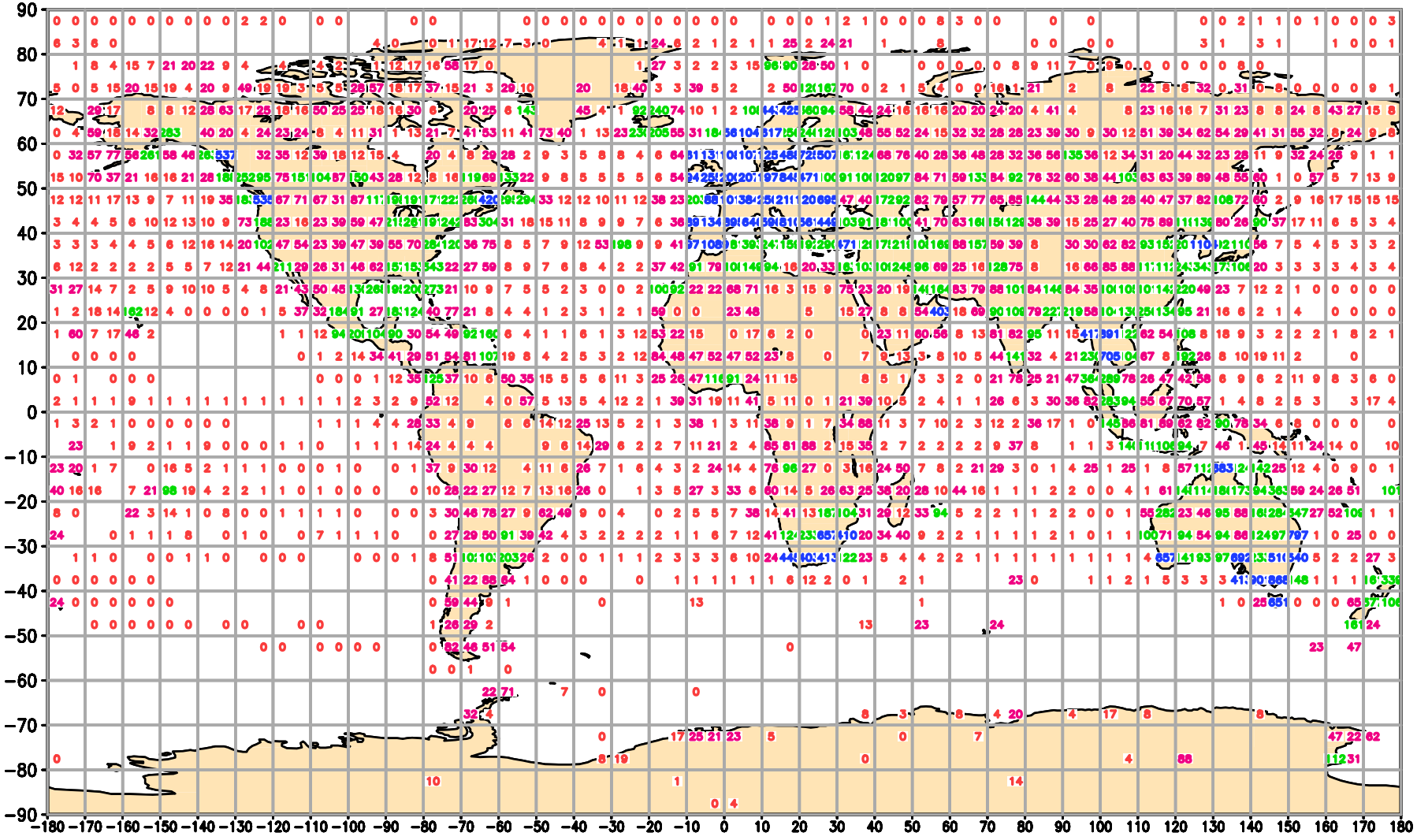



Fig 1.1

NCMRWF Monitoring Statistics 01 09 24 TO 30 09 24

Availability – TEMP 500 hPa geopotential

Average number of observations in 24 hours – 1218

LAND – WMO REGION I: 33 II: 477 III: 69 IV: 264 V: 117 VI: 190 VII: 14

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

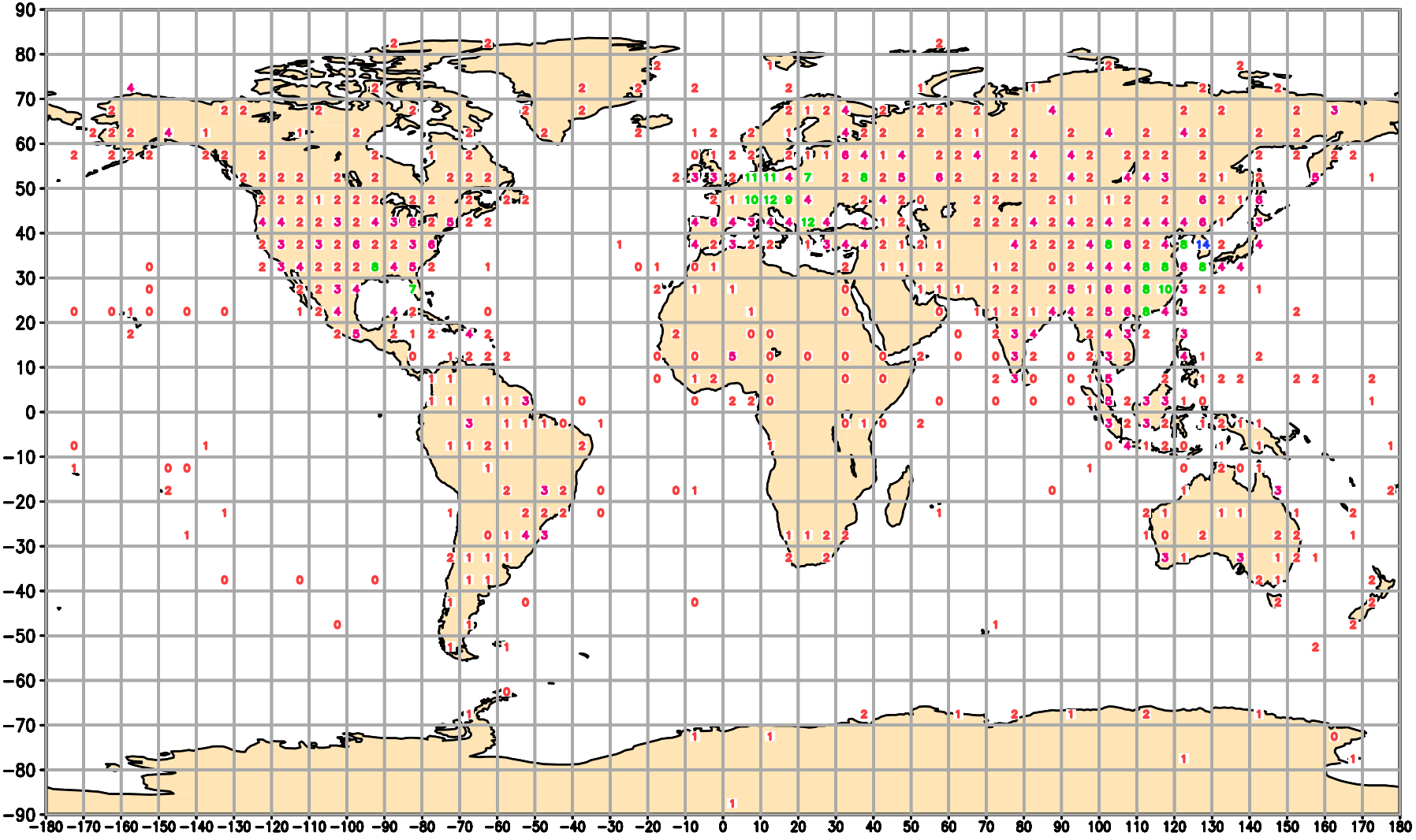



Fig 1.2

NCMRWF Monitoring Statistics 01 09 24 TO 30 09 24

Availability – TEMP/PILOT 300 hPa wind

Average number of observations in 24 hours – 1477

LAND – WMO REGION I: 50 II: 538 III: 90 IV: 353 V: 192 VI: 193 VII: 15

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

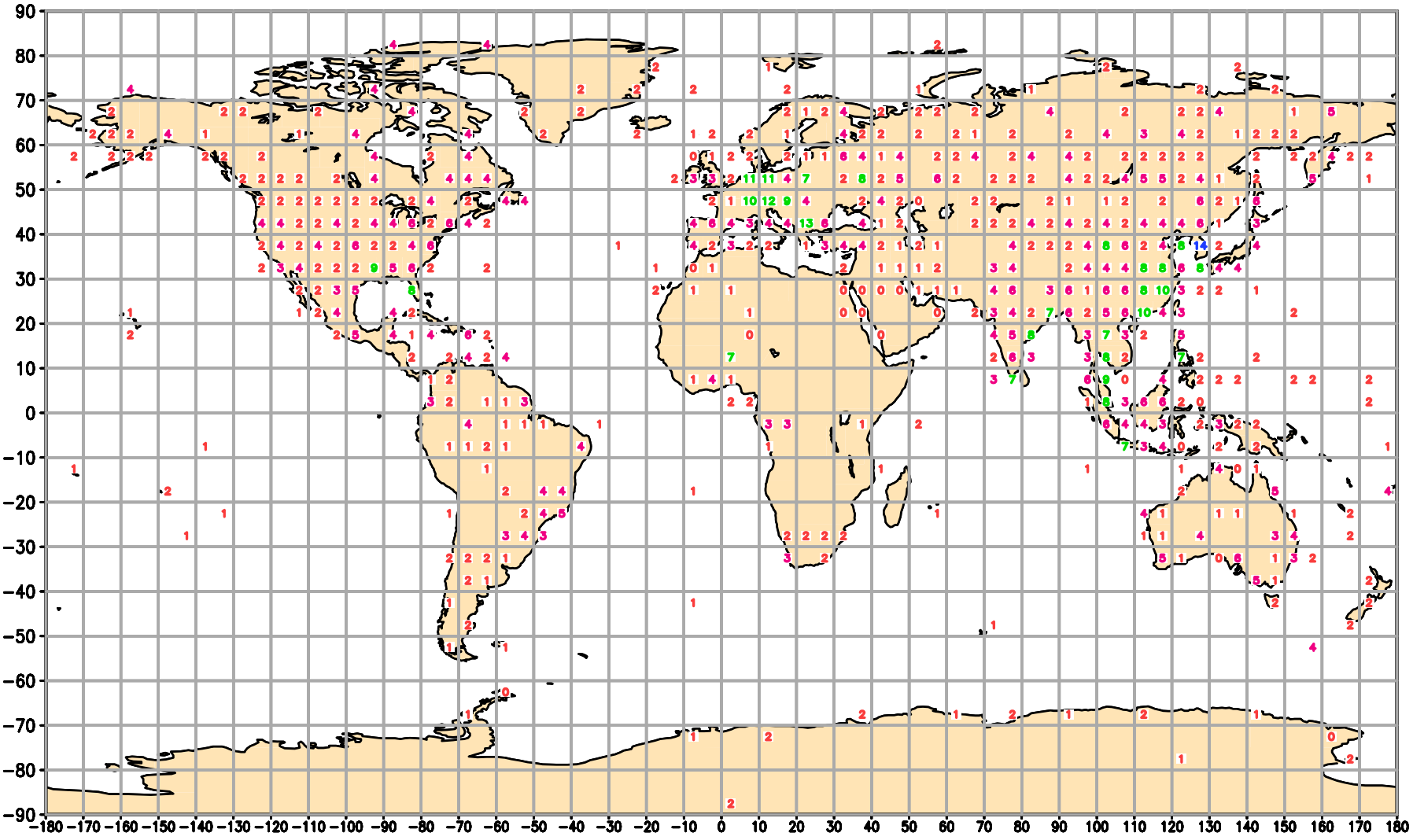



Fig 1.3

NCMRWF Monitoring Statistics 01 09 24 TO 30 09 24

Availability – AIRCRAFT winds 300–150 hPa

Average number of observations in 24 hours – 217218

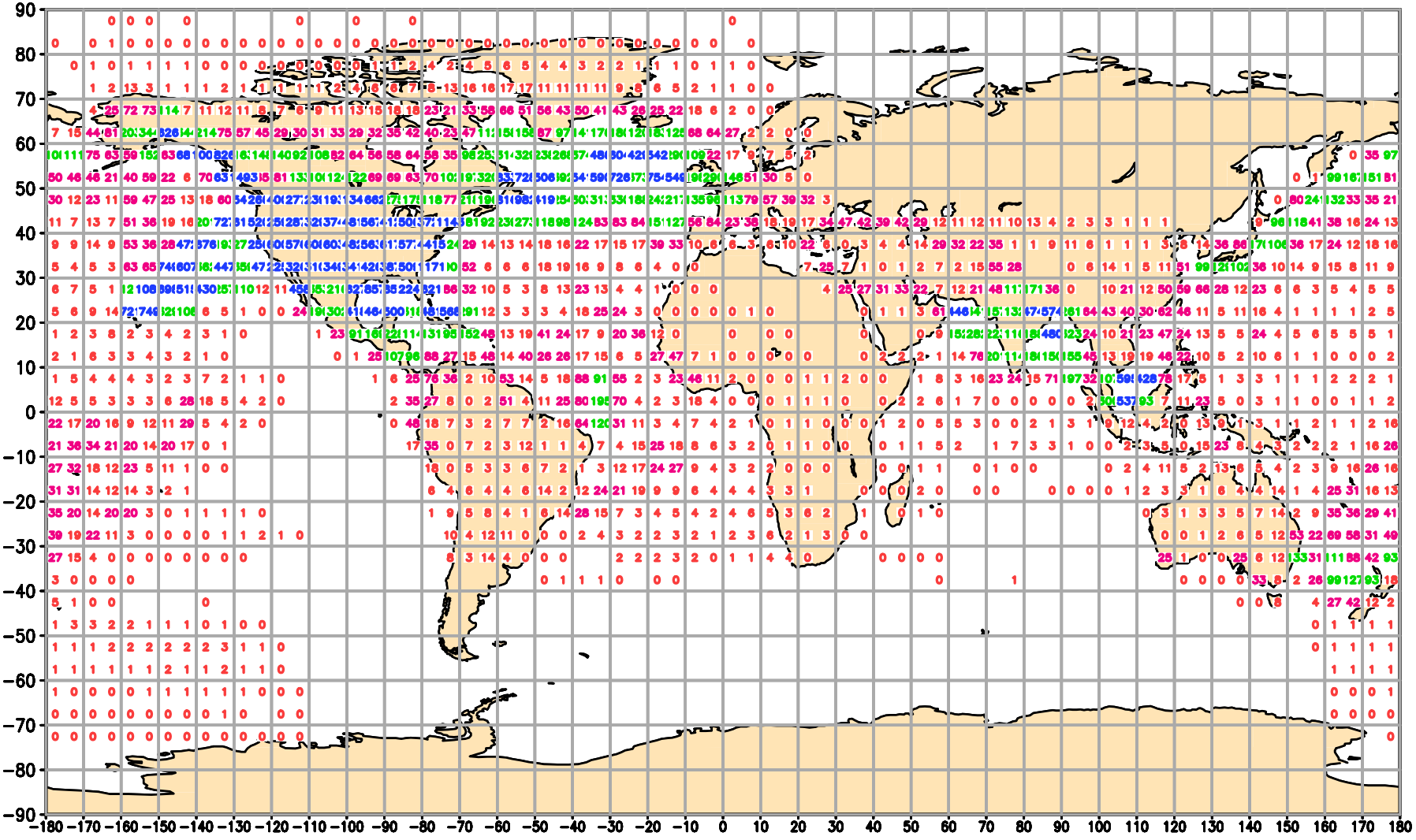



Fig 1.4

NCMRWF Monitoring Statistics 01 09 24 TO 30 09 24

Availability – NOAA 18 ATOVS : AMSU–A

Average number of observations in 24 hours – 237633

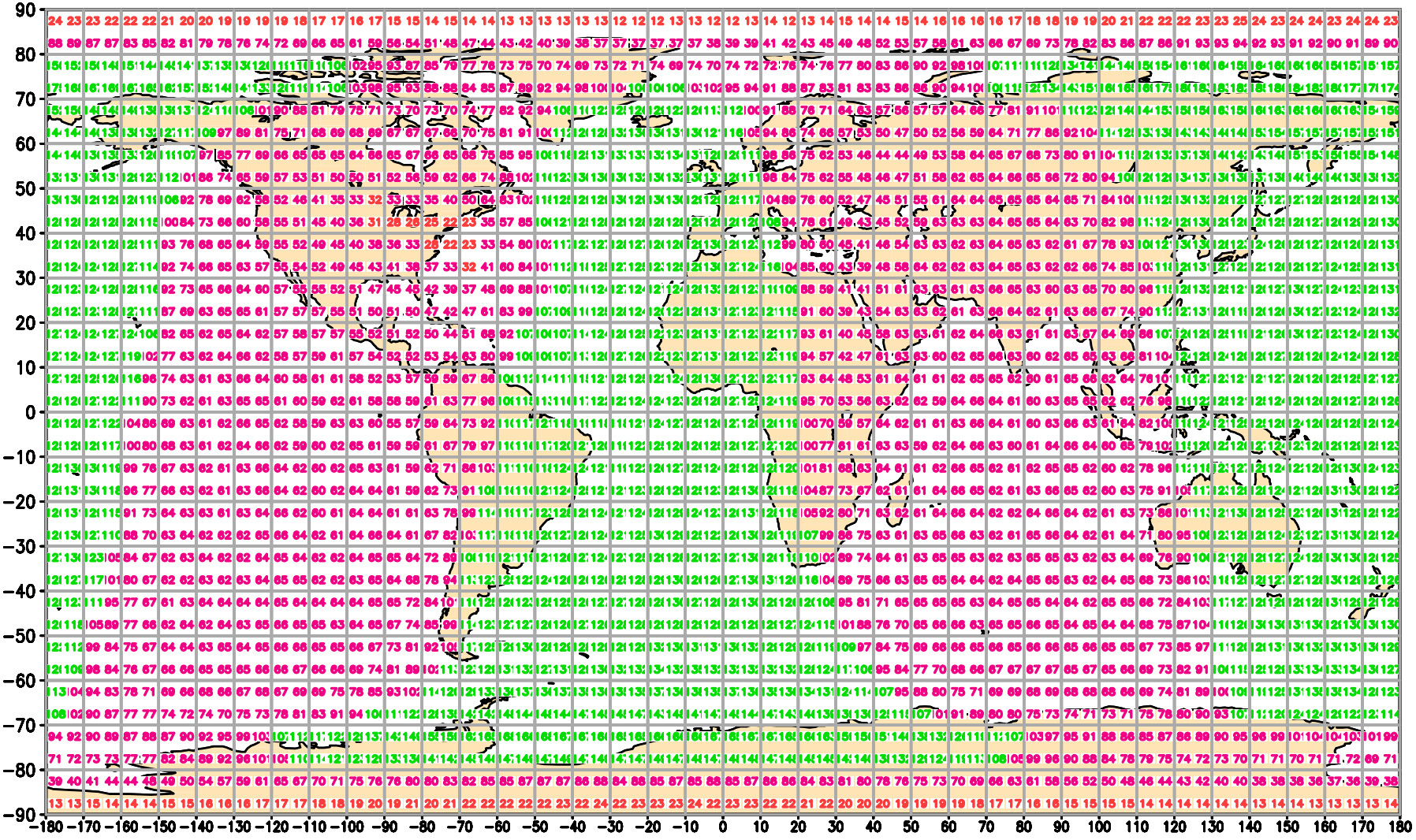


Fig 1.5

NCMRWF Monitoring Statistics 01 09 24 TO 30 09 24

Availability – AMV winds 400–150 hPa

Average number of observations in 24 hours – 440431

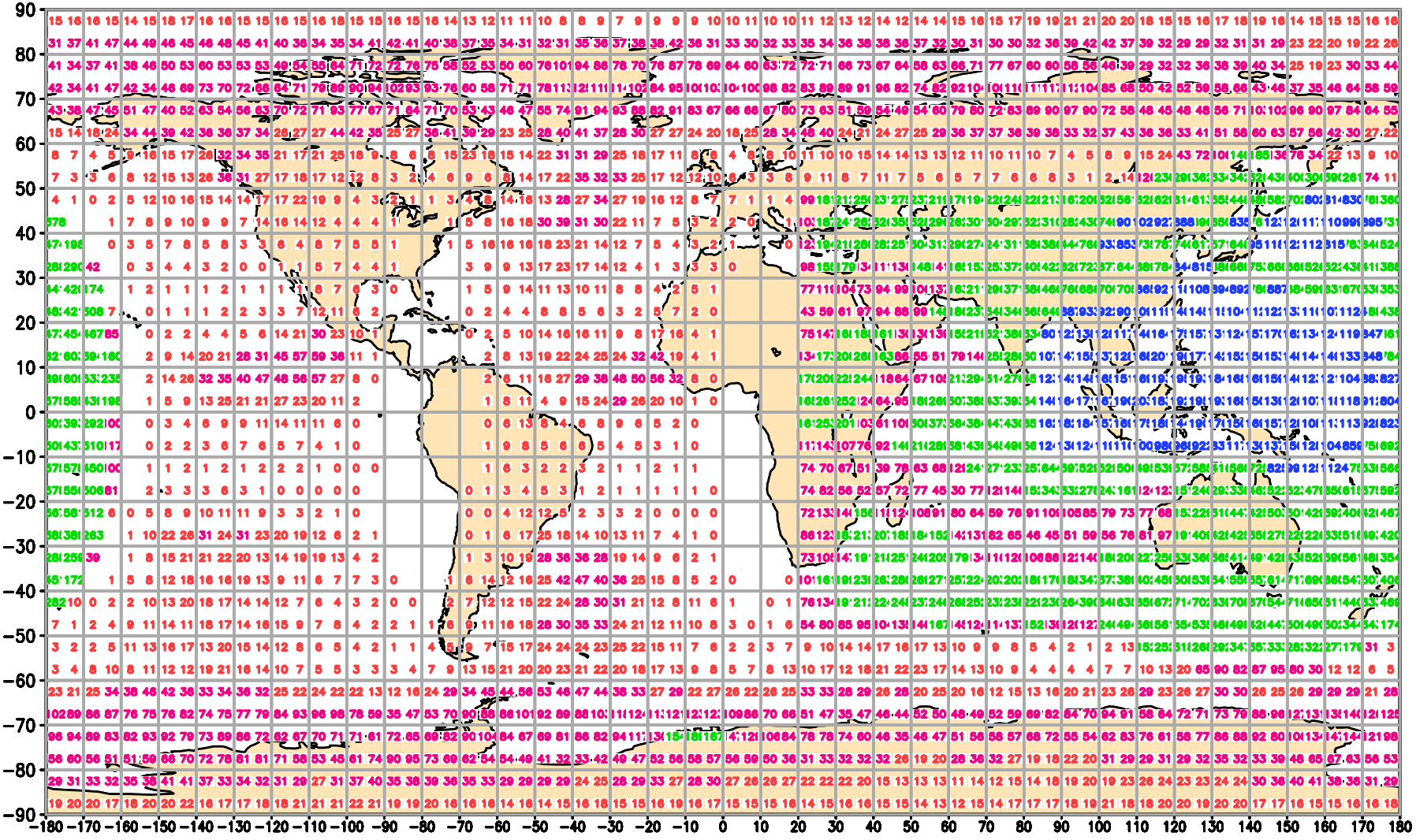


Fig 1.6(a)

NCMRWF Monitoring Statistics 01 09 24 TO 30 09 24

Availability – AMV winds 1000–700 hPa

Average number of observations in 24 hours – 291583

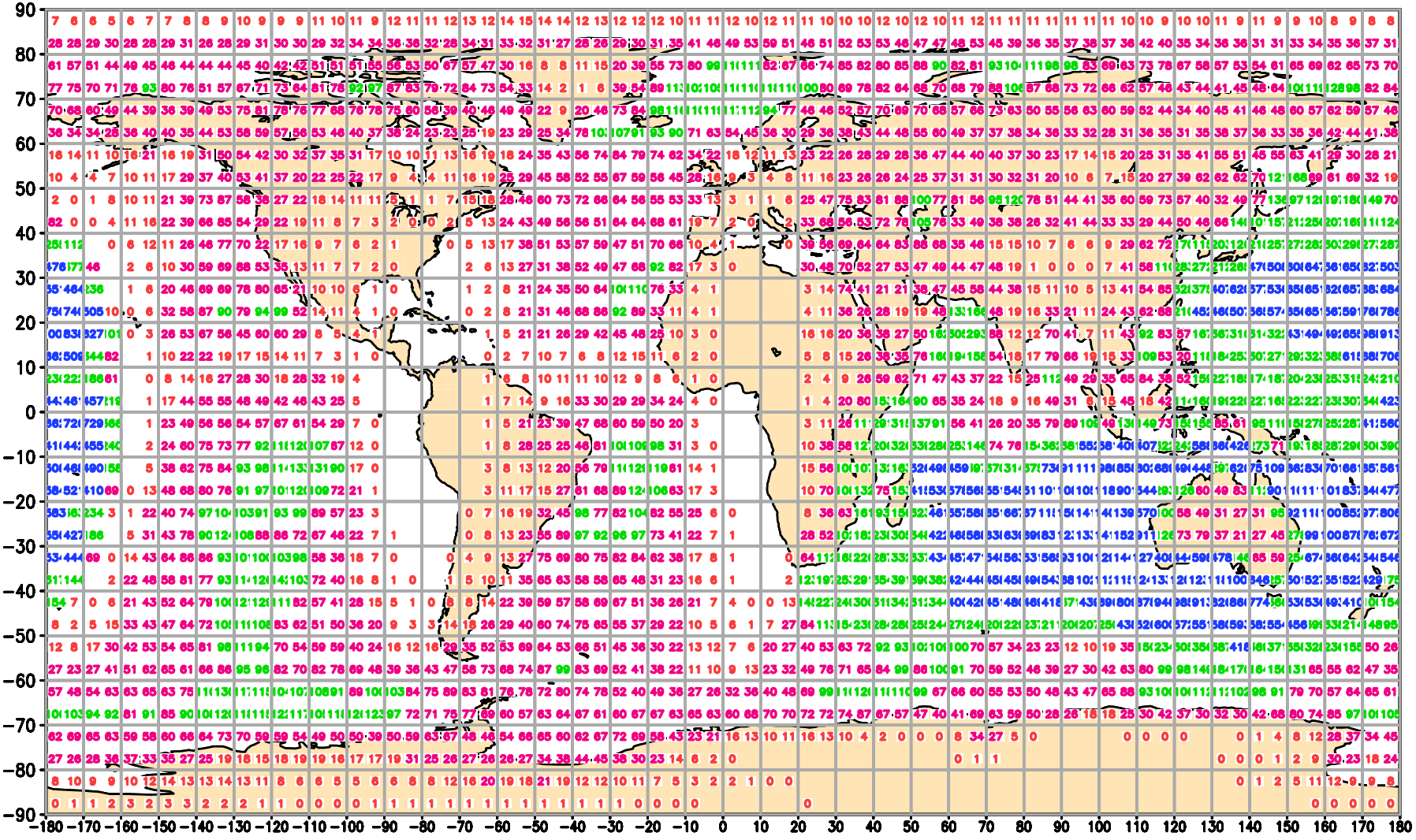


Fig 1.6(b)

NCMRWF Monitoring Statistics 01 09 24 TO 30 09 24

Availability – BUOY PRESSURE

Average number of observations in 24 hours – 43209

OCEAN – N. Atlantic: 8966 S. Atlantic: 2311 Indian: 4350 Pacific:26731

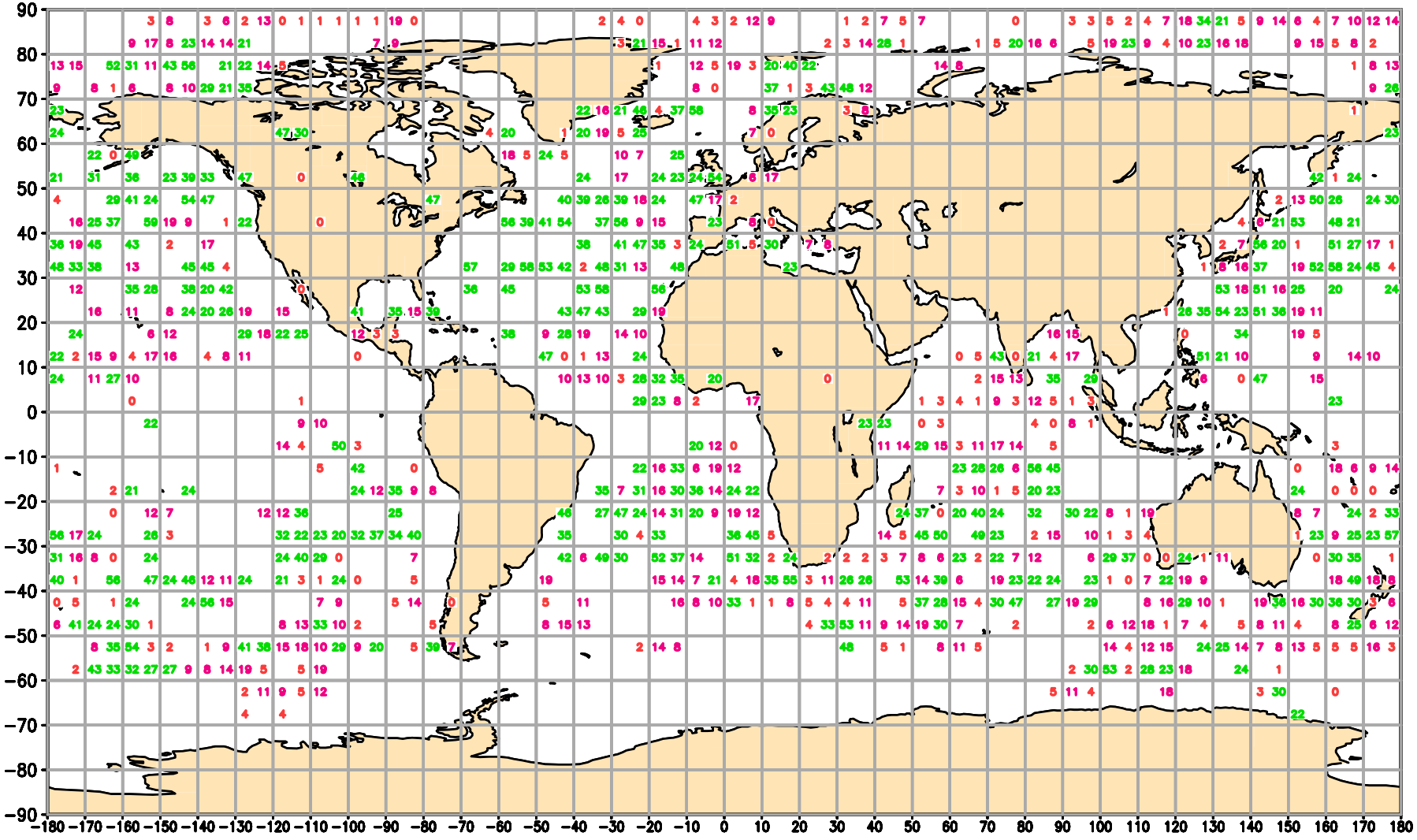



Fig 1.7

# NCMRWF Monitoring Statistics: September 2024

## AMV WINDS: 700 - 1000 hPa

## Mean Observed Wind

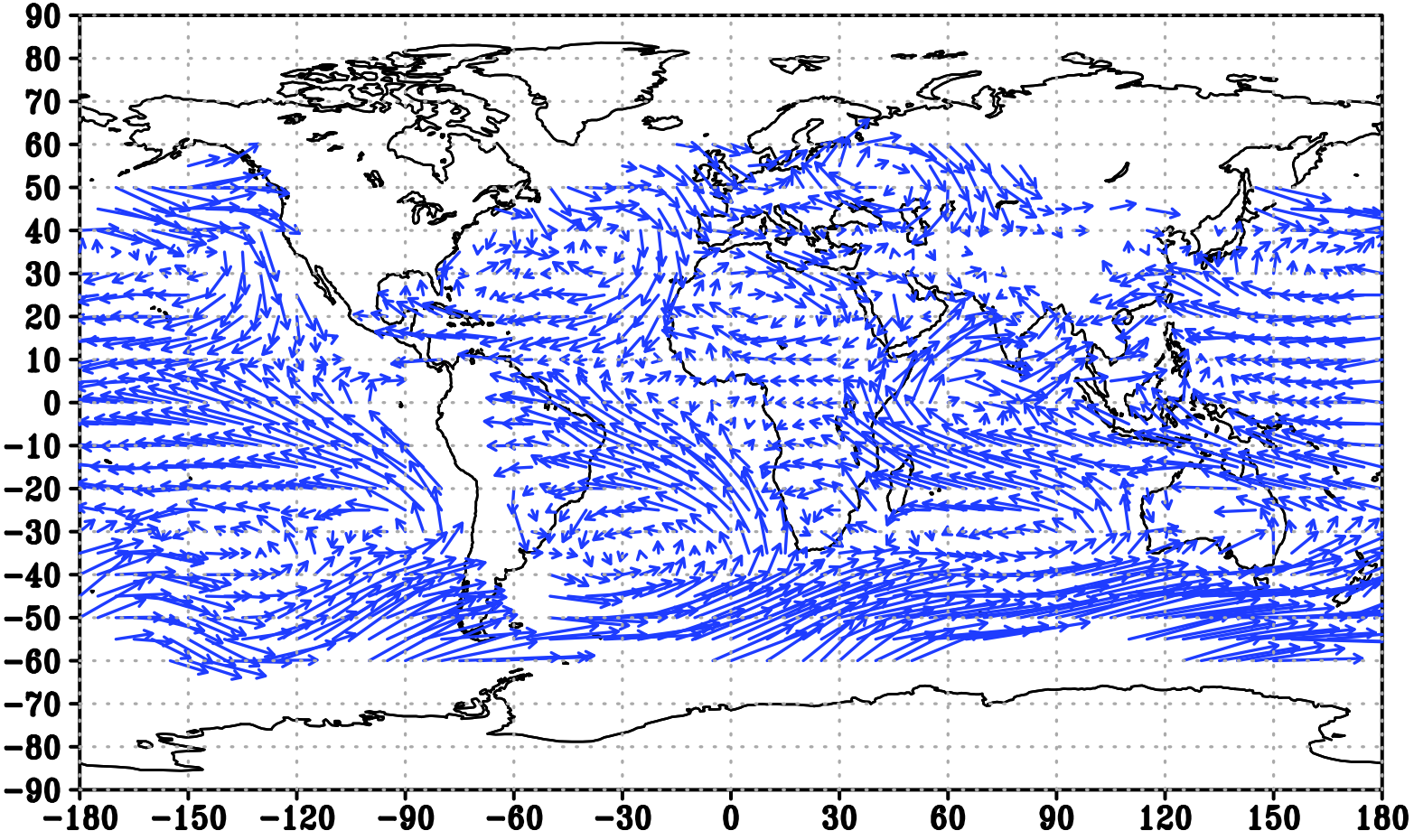



*Fig 2.1*

# NCMRWF Monitoring Statistics: September 2024

## AMV WINDS: 700 - 1000 hPa

## WIND BIAS: Observation - First Guess

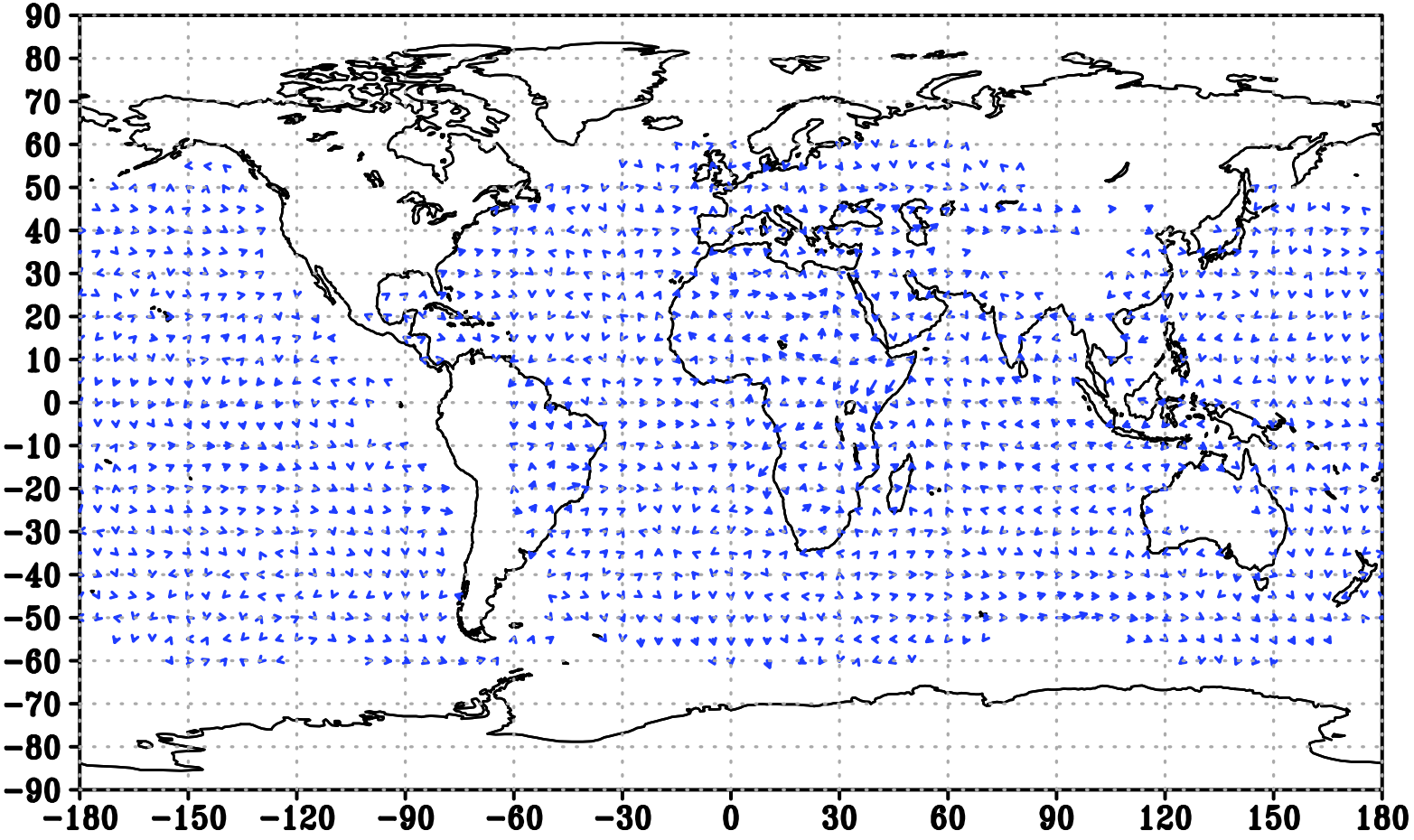



*Fig 2.2*

# NCMRWF Monitoring Statistics: September 2024

## AMV WINDS: 150 - 400 hPa

## Mean Observed Wind

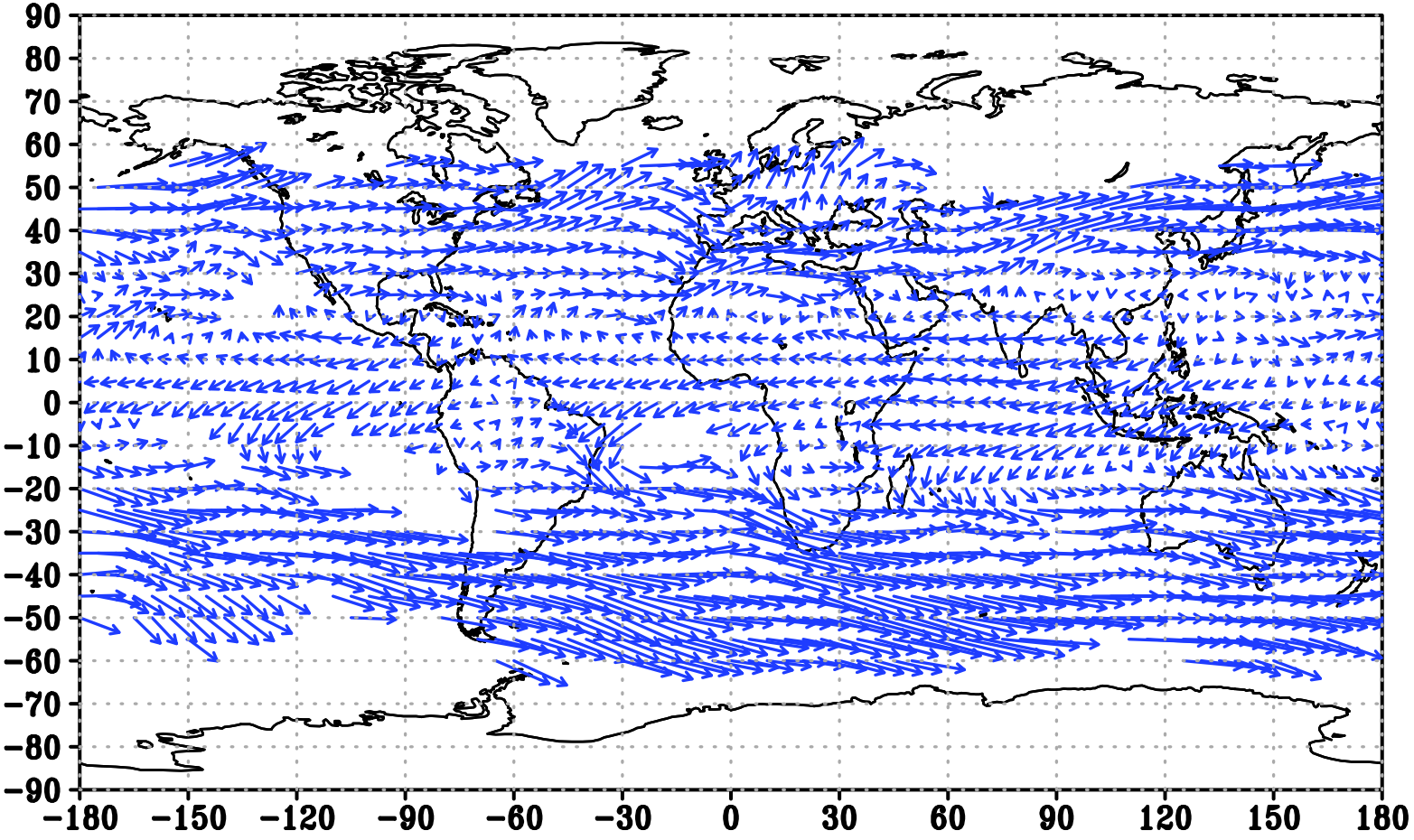



*Fig 2.3*

# NCMRWF Monitoring Statistics: September 2024

## AMV WINDS: 150 - 400 hPa

## WIND BIAS: Observation - First Guess

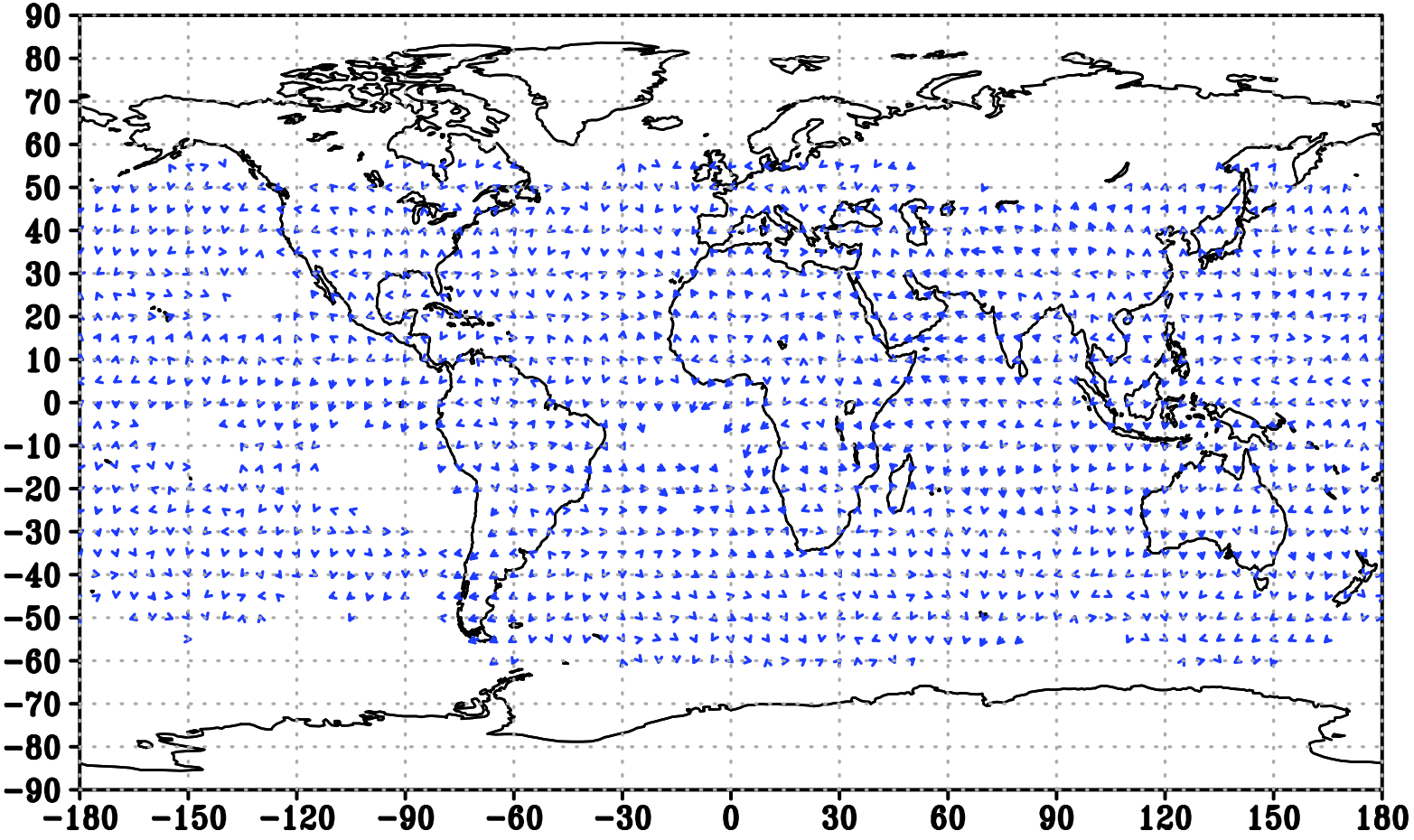
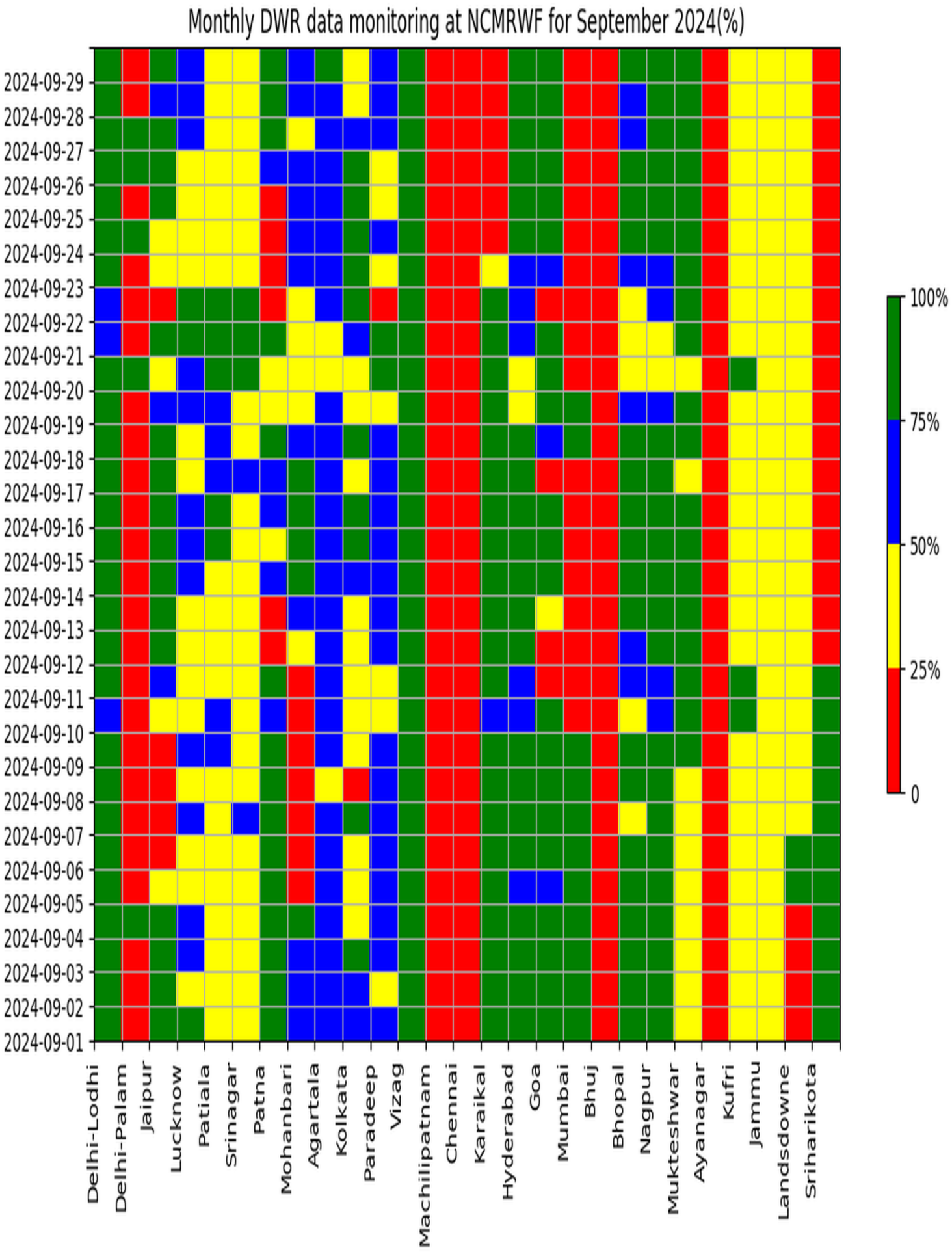



*Fig 2.4*


Monthly DWR data monitoring at NCMRWF for September 2024(%)
2024-09-29
2024-09-28
2024-09-27
2024-09-26
2024-09-25
2024-09-24
2024-09-23
2024-09-22
2024-09-21
2024-09-20
2024-09-19
2024-09-18
2024-09-17
2024-09-16
2024-09-15
2024-09-14
2024-09-13
2024-09-12
2024-09-11
2024-09-10
2024-09-09
2024-09-08
2024-09-07
2024-09-06
2024-09-05
2024-09-04
2024-09-03
2024-09-02
2024-09-01
Delhi-Lodhi
Delhi-Palam
Jaipur
Lucknow
Patiala
Srinagar
Patna
Mohanbari
Agartala
Kolkata
Paradeep
Vizag
Machilipatnam
Chennai
Karaikal
Hyderabad
Goa
Mumbai
Bhuj
Bhopal
Nagpur
Mukteshwar
Ayanagar
Kufri
Jammu
Landsdowne
Sriharikota
100%
75%
50%
25%
0