



# Observation Monitoring

based on data  
received/decoded at NCMRWF  
(within operational data cut-off)  
and NGFS GDAS

for 14102024 (1200 UTC)



# Indian Observation Coverage

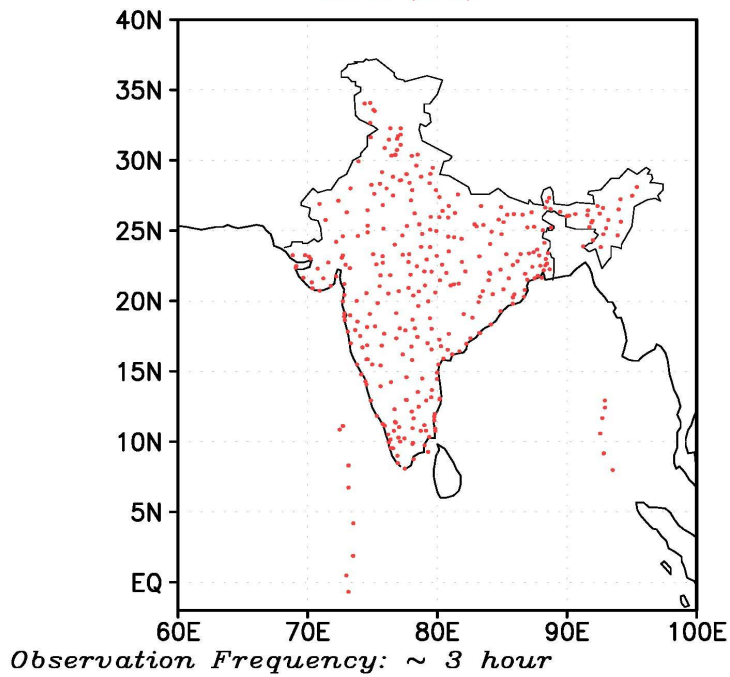


# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: Surface (14102024 1200UTC +/- 03Hrs)  
Total Number of Observations Received at NCMRWF: 522  
(42 & 43 Block)

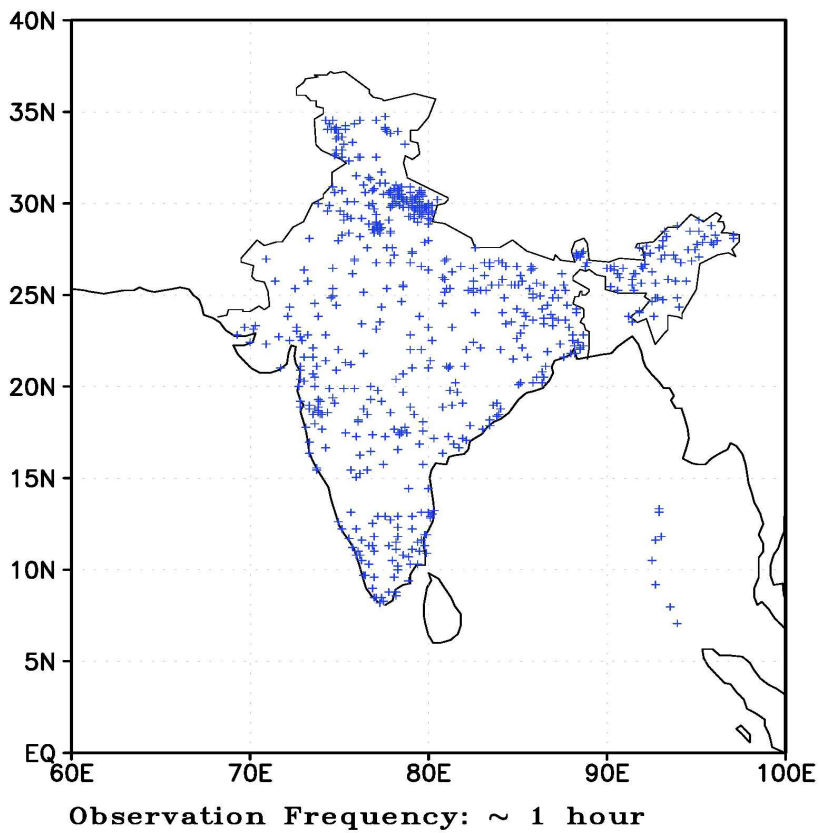
SYNOP(522)





# NCMRWF OBSERVATIONS MONITORING

Data Coverage: Indian AWS (14102024 1200UTC +/- 3 Hrs) E\_CYC  
Total Number of Observations Received at NCMRWF: 3394

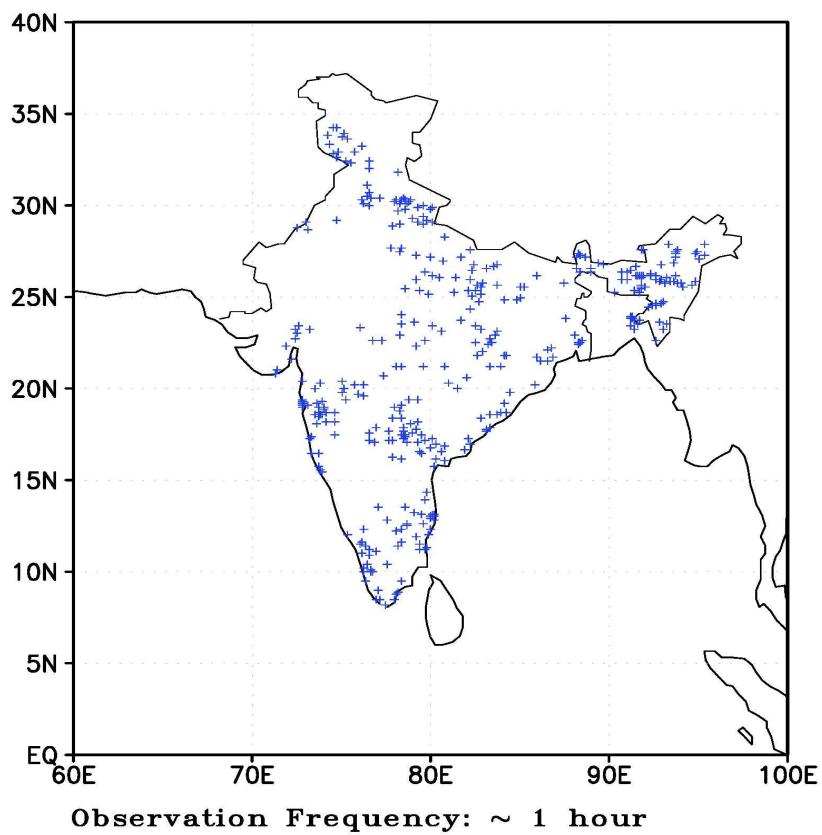






# NCMRWF OBSERVATIONS MONITORING

Data Coverage: Indian ARG (14102024 1200UTC +/- 3 Hrs) E\_CYC  
Total Number of Observations Received at NCMRWF: 2248





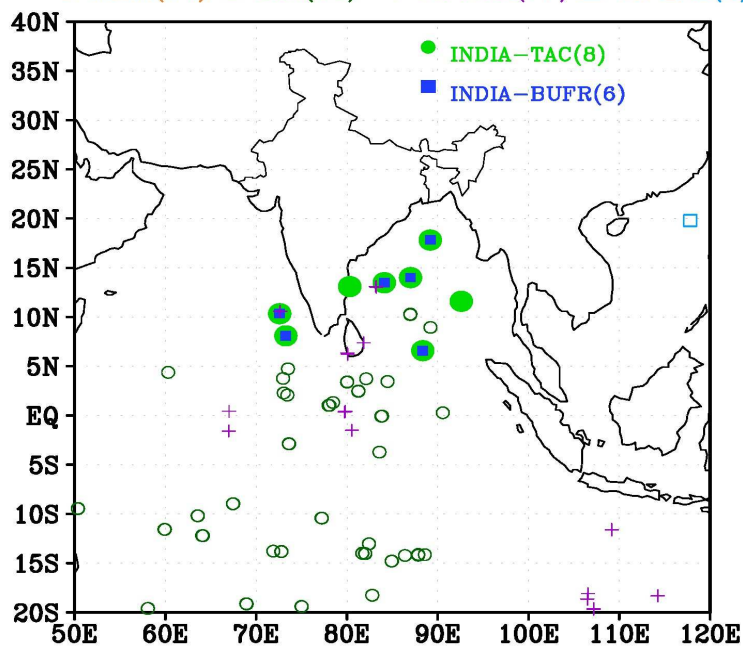
# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: BUOY (14102024 1200UTC +/- 3 Hrs)

Total Number of Observations Received at NCMRWF: 180

country code in GTS as ● INDIA(14) ○ USA(86) + FRANCE(77) □ OTHERS(3)



Observation Frequency: ~ 1 hour & ~ 3 hour (India)

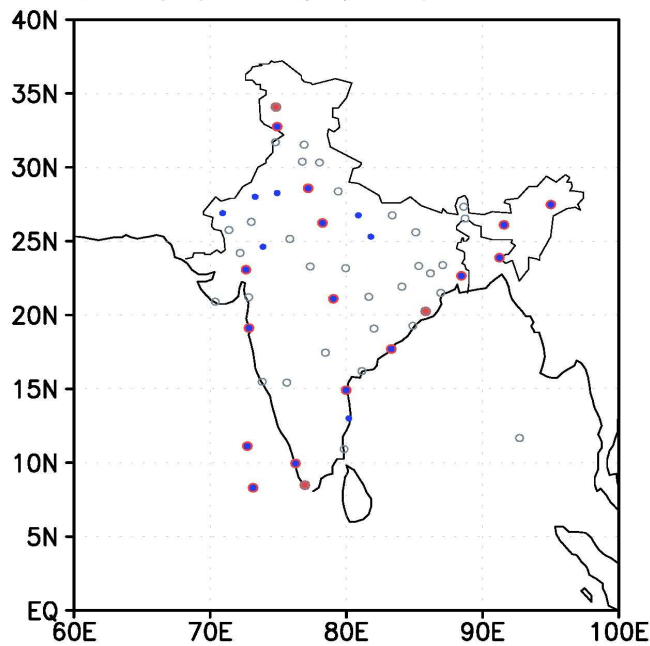


# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: Sonde (14102024 1200UTC +/- 03Hrs)  
Total Number of Observations Received at NCMRWF: 40  
(42 & 43 Block)

TMPLND(18) PILOT(22) Reported, no ascent



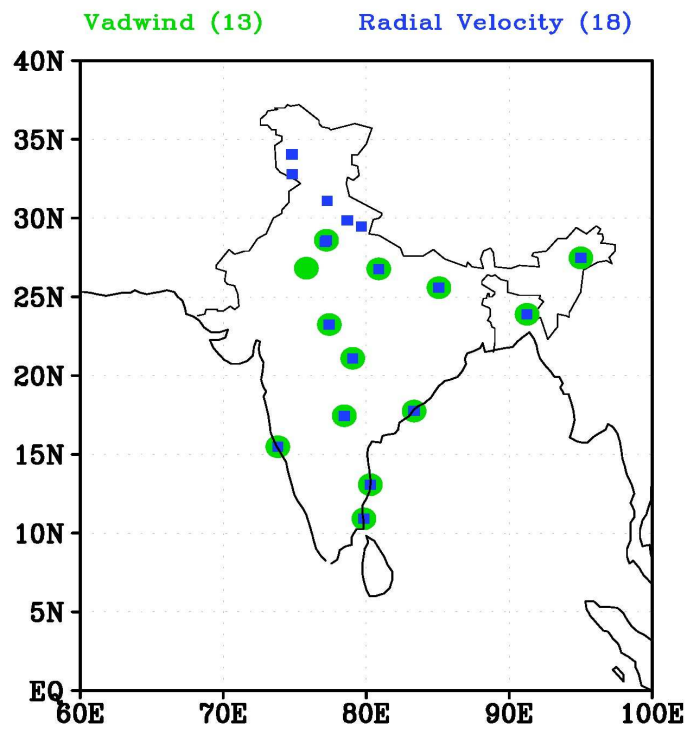
Observation frequency: ~ 6 hour



# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: Indian DWR Stations (14102024 1200UTC +/- 03Hrs)



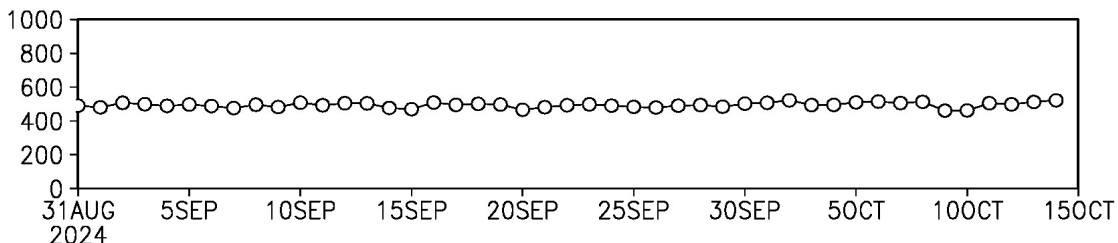


# NCMRWF OBSERVATIONS MONITORING

Count for different types of observation (Over Indian Region)  
for the last 45 days (valid for 12 UTC) E\_CYC

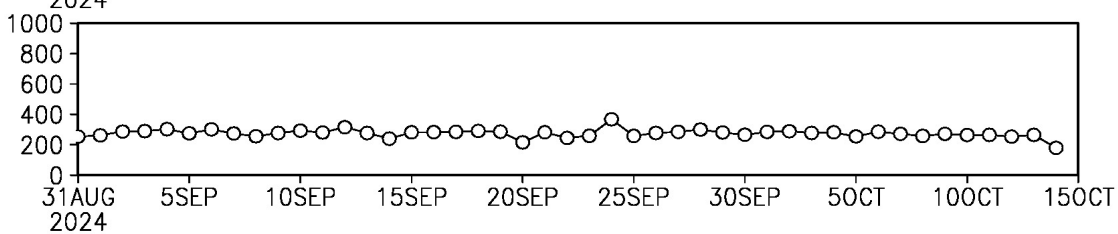
### SYNOP

Avg=502  
Today\_Cnt=522  
Dep=4. %



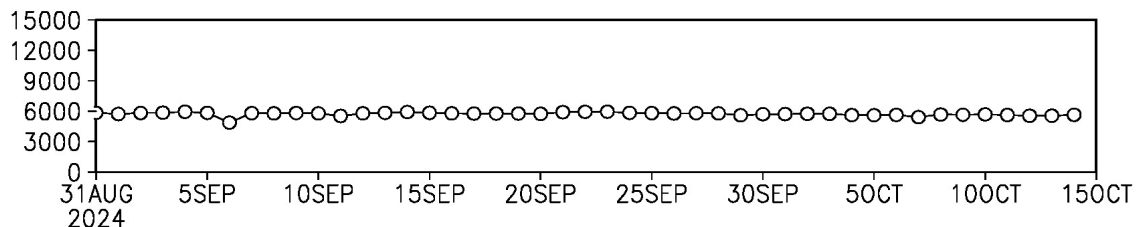
### BUOY

Avg=290  
Today\_Cnt=180  
Dep=-38. %



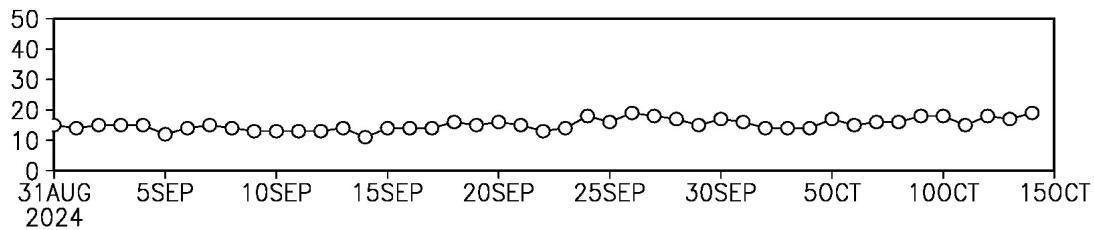
### AWS+ARG

Avg=5822  
Today\_Cnt=5642  
Dep=-3. %



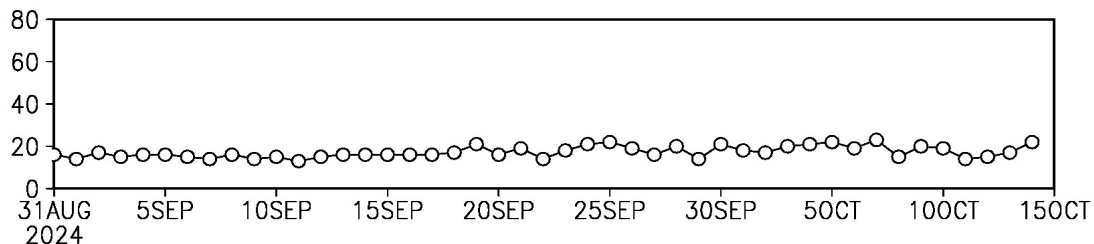
### RS/RW

Avg=16  
Today\_Cnt=19  
Dep=19. %



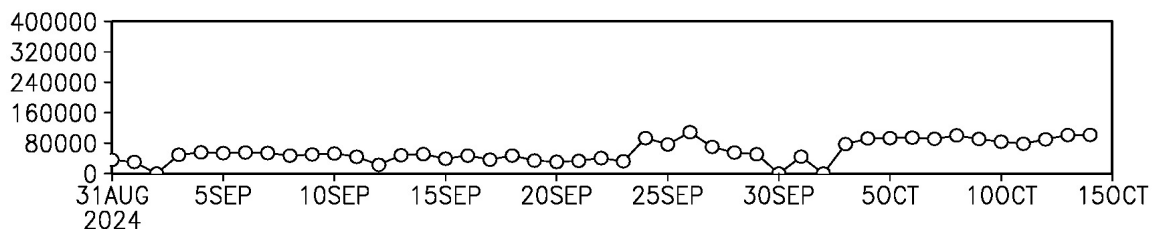
### PILOT

Avg=19  
Today\_Cnt=22  
Dep=16. %



### INSAT-3DR AMV

Avg=71482  
Today\_Cnt=81249  
Dep=14. %





# Global Observation Coverage



# NCMRWF OBSERVATIONS MONITORING

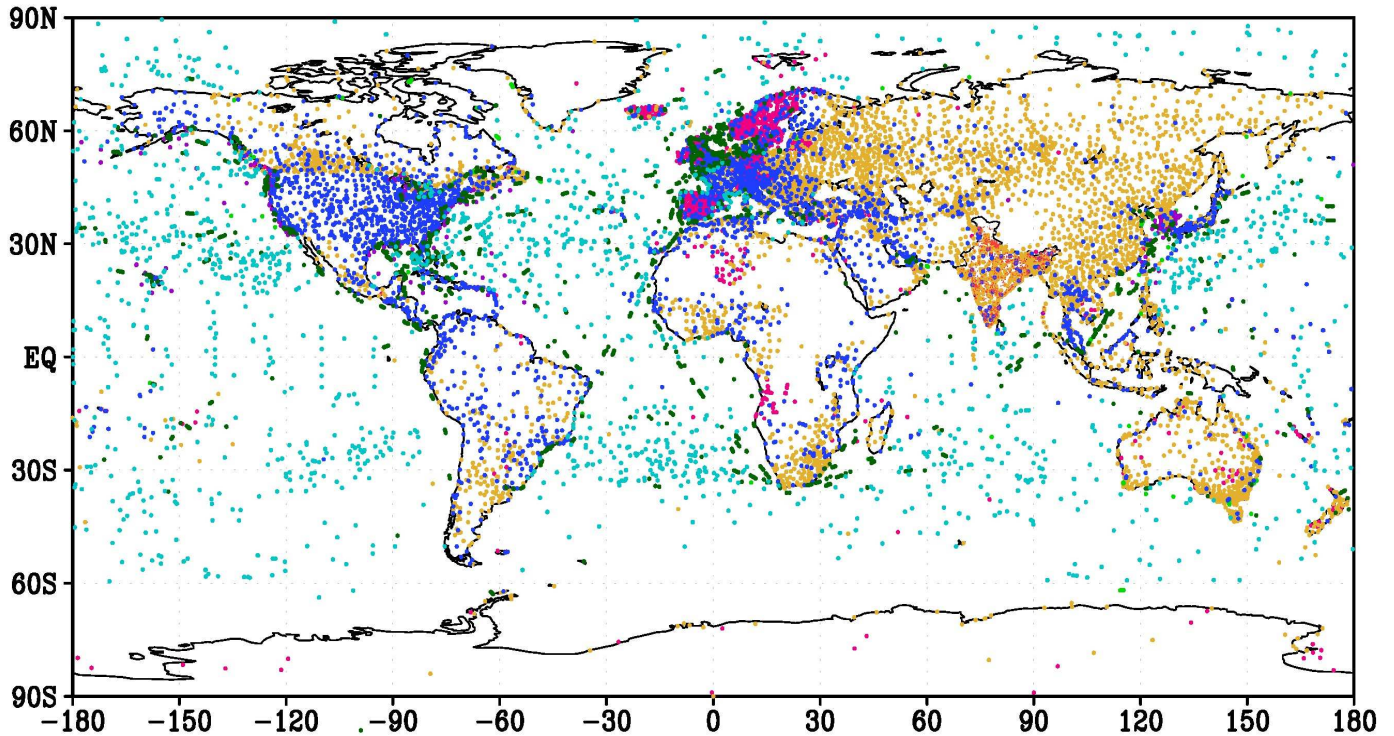
E\_CYC

Data Coverage: Surface (14102024 1200UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 55954

LNDSYN(15550) SHIP(2488) BUOY(4934) METAR(14427) MOBILE/AWS(5642)

LNDSYN\_BUFR(4690) SHIP\_BUFR(2853) BUOY\_BUFR(5370)







# NCMRWF OBSERVATIONS MONITORING

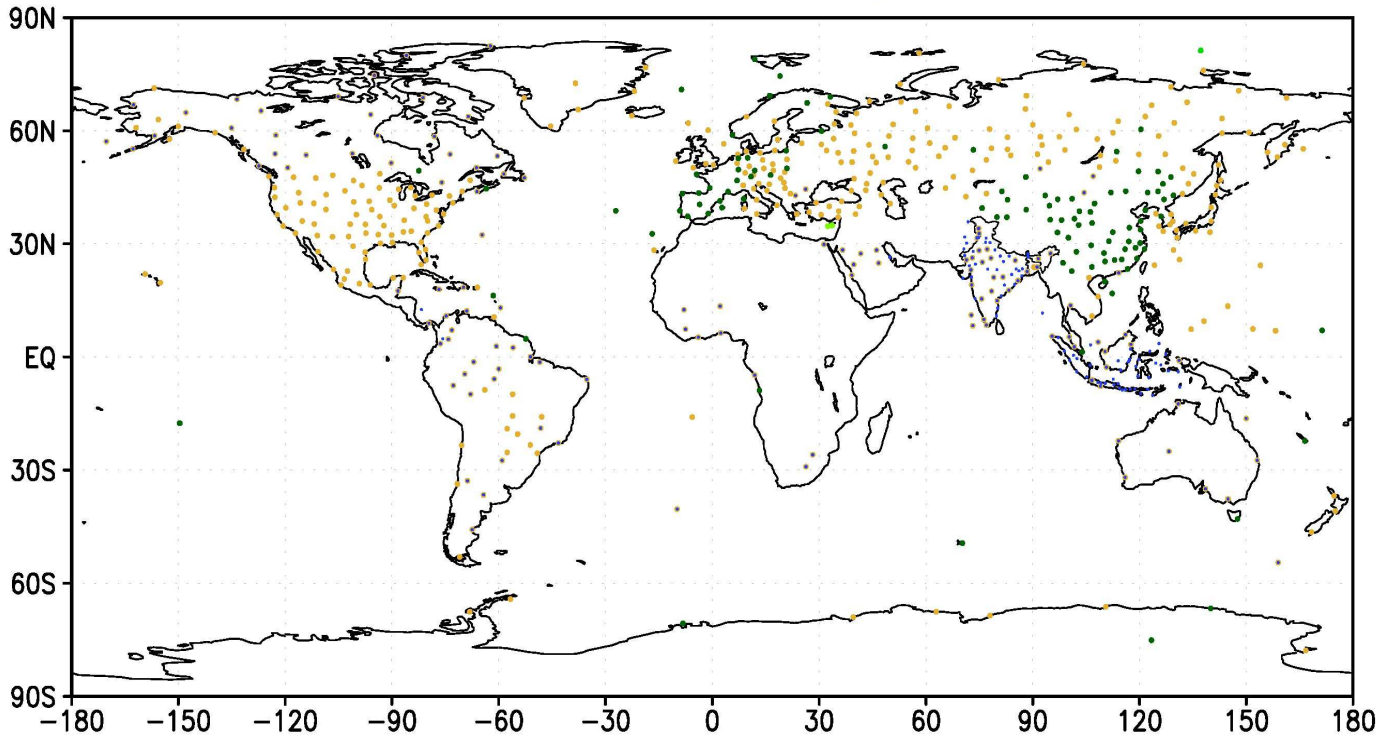
## E\_CYC

Data Coverage: Sonde (14102024 1200UTC +/- 03Hrs)  
Total Number of Observations Received at NCMRWF: 628

TMPLND(420)    TMPSHP(1)    TMPDRP(0)    TMPMOB(0)    PILOT(207)    PROFILER(0)

TMPLND\_BUF(108)

PILOT\_BUF(2)







# NCMRWF OBSERVATIONS MONITORING

E\_CYC

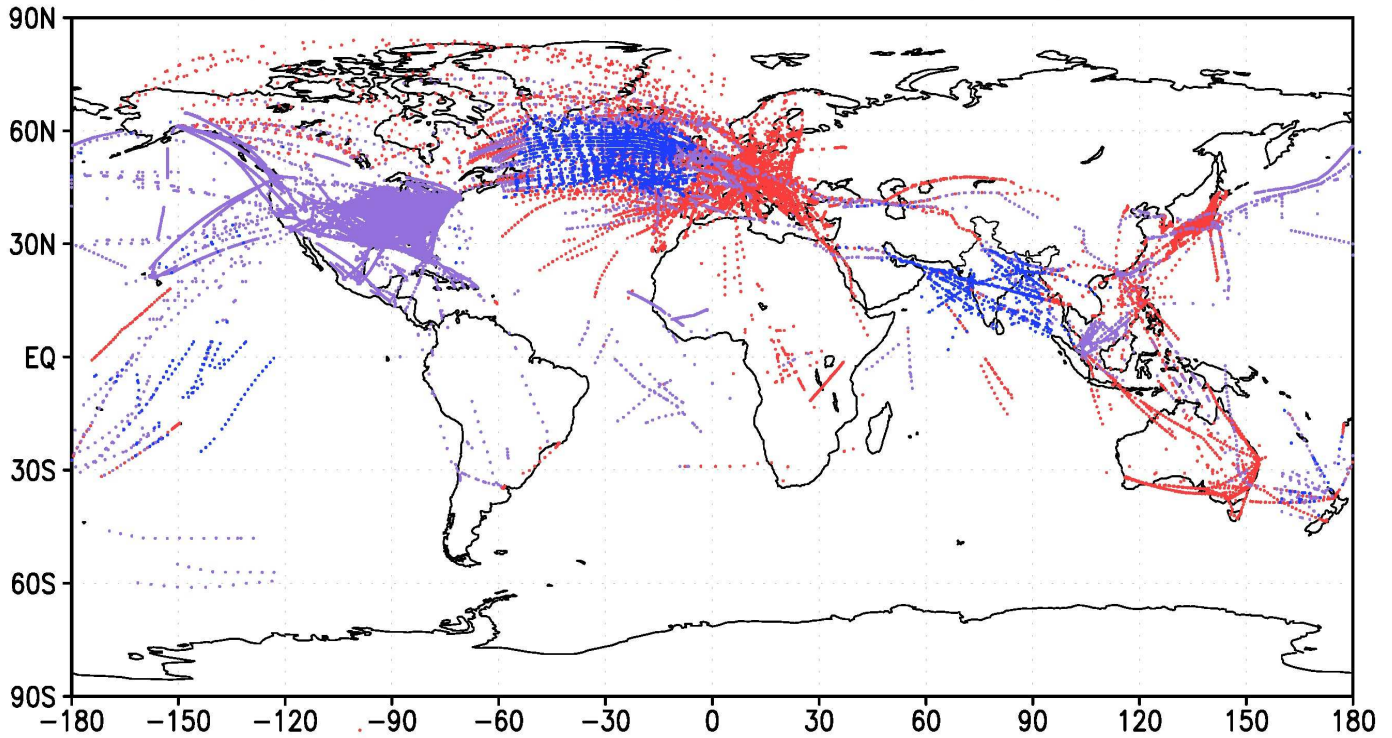
Data Coverage: AIRCFT (14102024 1200UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 80007

AIREP(4513)

AMDAR(23324)

WIGOS-AMDAR(52170)



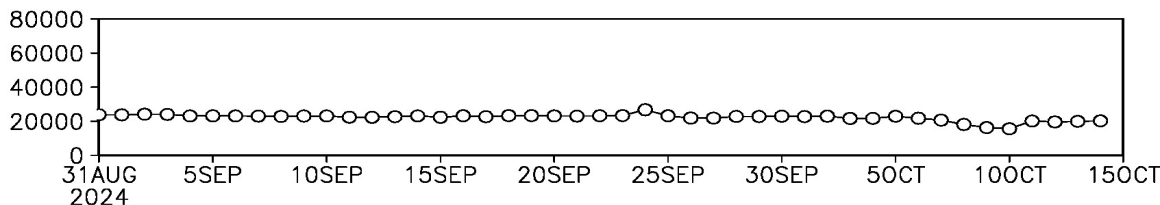


# NCMRWF OBSERVATIONS MONITORING

Count for different types of observation (Global)  
for the last 45 Days (valid for 12 UTC) E\_CYC

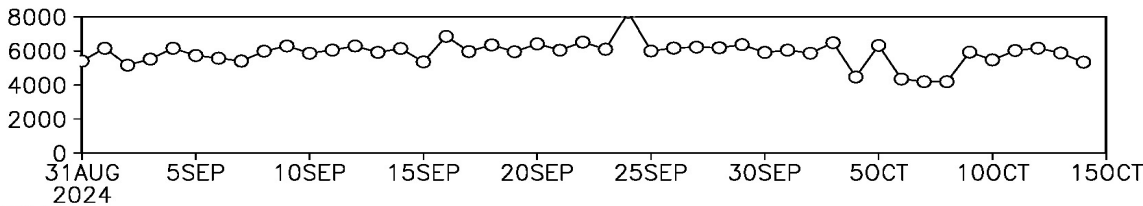
### SYNOP

Avg=23248  
Today\_Cnt=20240  
Dep=-13. %



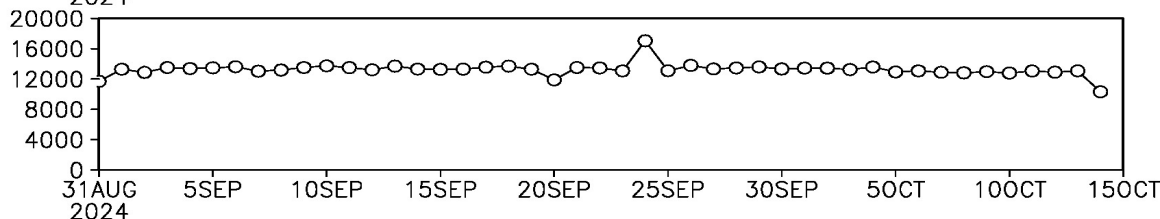
### SHIP

Avg=6239  
Today\_Cnt=5341  
Dep=-14. %



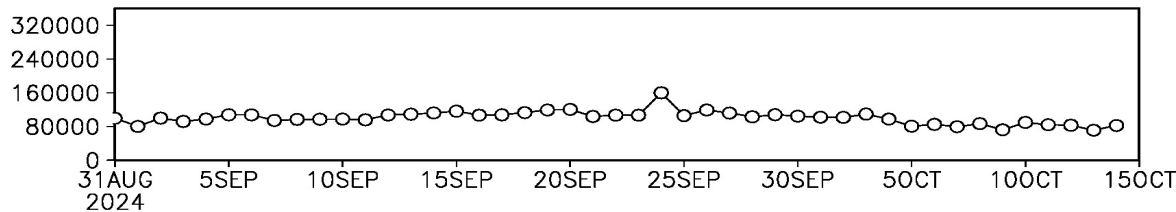
### BUOY

Avg=13658  
Today\_Cnt=10304  
Dep=-25. %



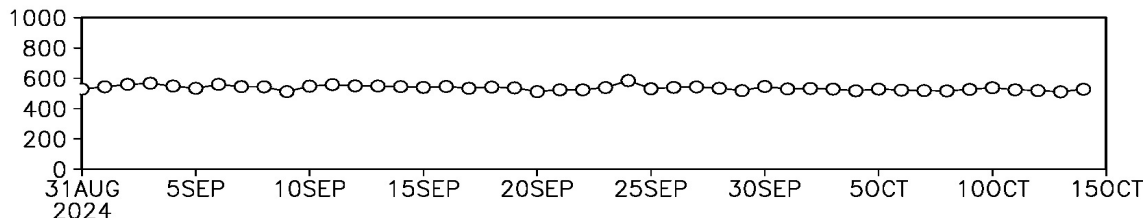
### AIRCRAFT

Avg=108485  
Today\_Cnt=80007  
Dep=-26. %



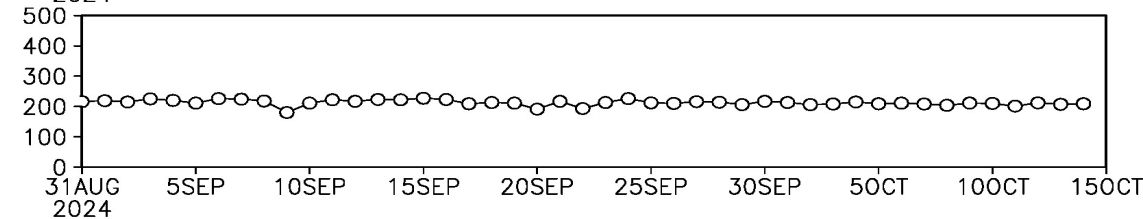
### RS/RW

Avg=548  
Today\_Cnt=528  
Dep=-4. %



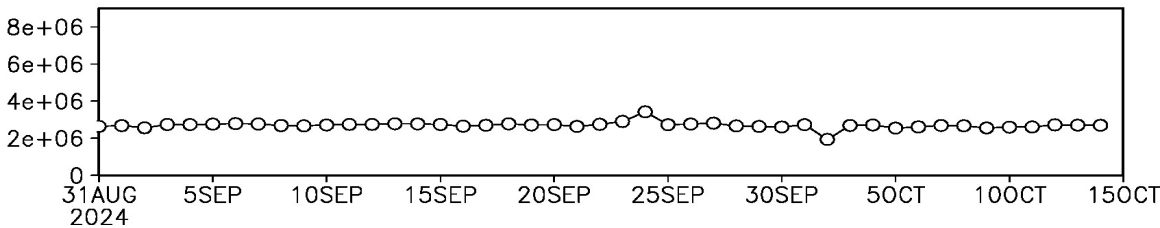
### PILOT

Avg=218  
Today\_Cnt=209  
Dep=-4. %



### AMV

Avg=2778978  
Today\_Cnt=2690125  
Dep=-3. %





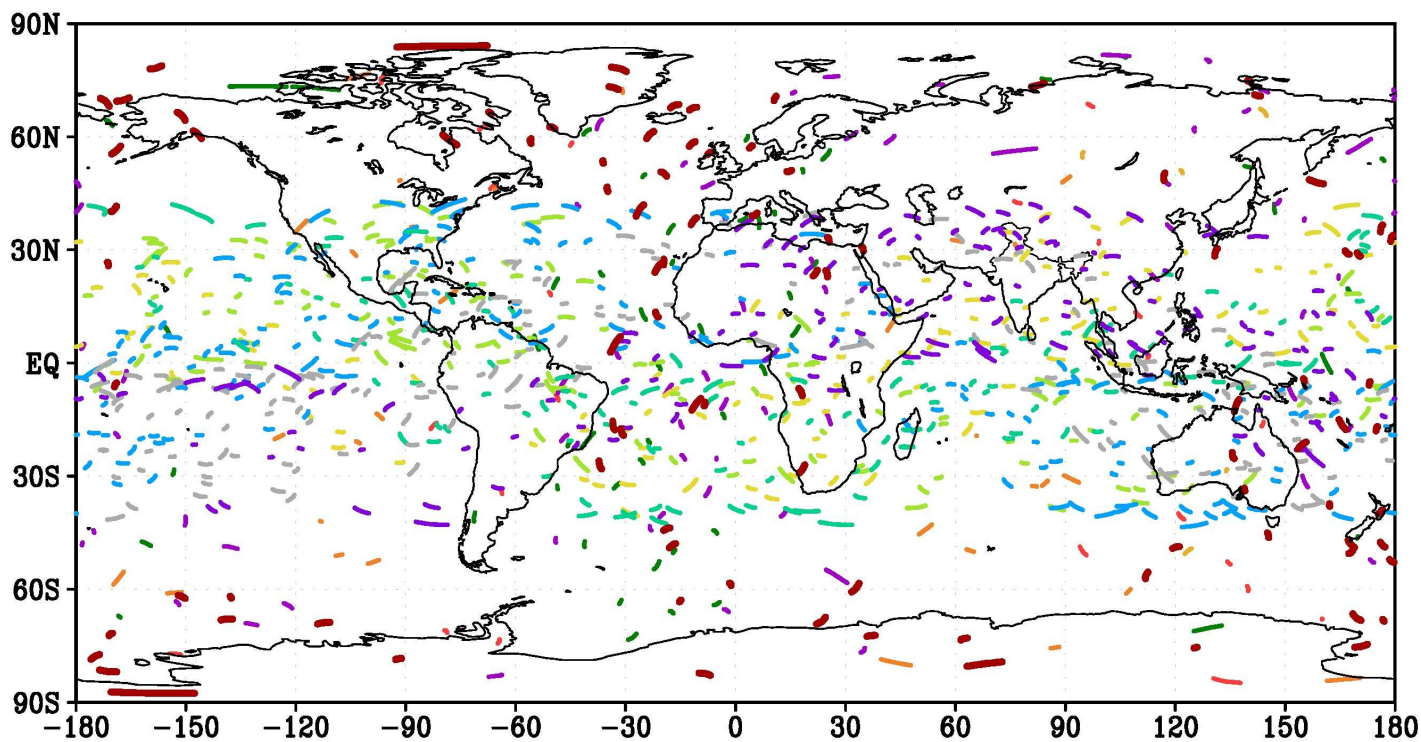
# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage:GNSSR0 (14102024 1200UTC +/-03Hrs)

Total Number of Observations Received at NCMRWF: 283751

- |                   |                   |                   |                   |                   |
|-------------------|-------------------|-------------------|-------------------|-------------------|
| TerraSAR-X(5347)  | TenDEM-X(1116)    | FY-3D(7082)       | SPIRE(23540)      | COSMIC-2E1(29135) |
| COSMIC-2E2(34294) | COSMIC-2E3(44327) | COSMIC-2E4(33147) | COSMIC-2E5(42800) | COSMIC-2E6(35053) |
| METOP-B(15541)    | METOP-C(12369)    | PAZ(0)            | KOMPSAT-5(0)      | GeoOptics(0)      |





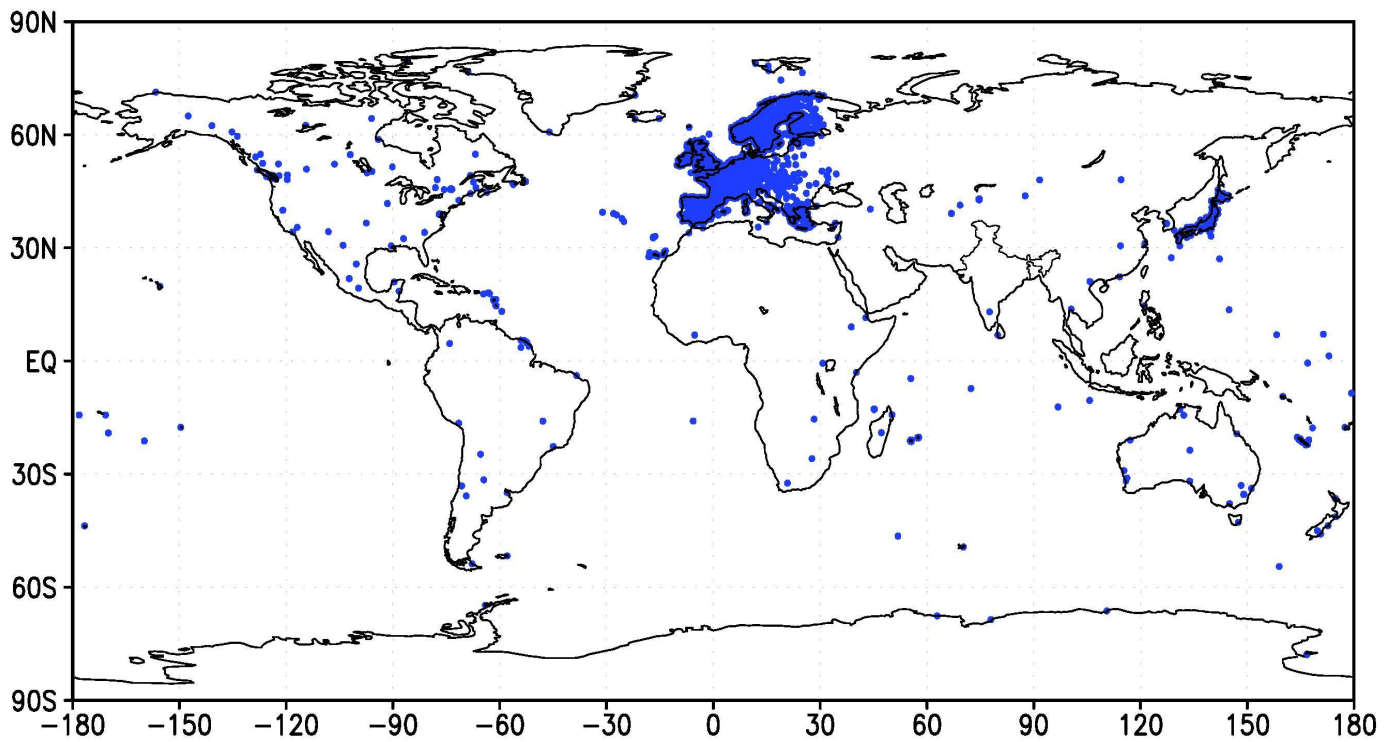
# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: GNSS-IPW (14102024 1200UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 22371

GPSIPW(22371)





# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: OZONE (14102024 1200UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 0

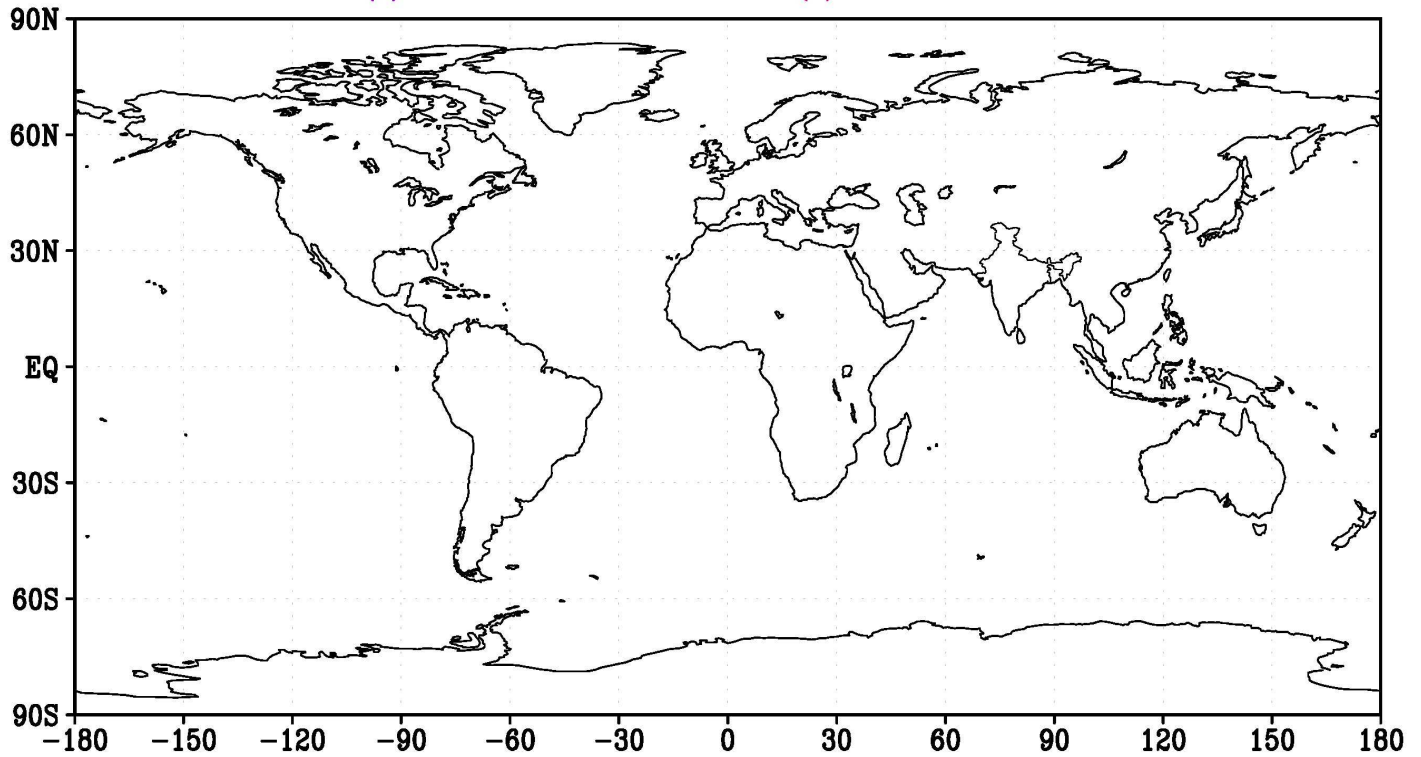
GOME-METOP-B(0)

OMPS-Nadir-NPP(0)

OMPS-Nadir-NOAA20(0)

OMPS-TotCol-NPP(0)

OMPS-TotCol-NOAA20(0)







# NCMRWF OBSERVATIONS MONITORING

E\_CYC

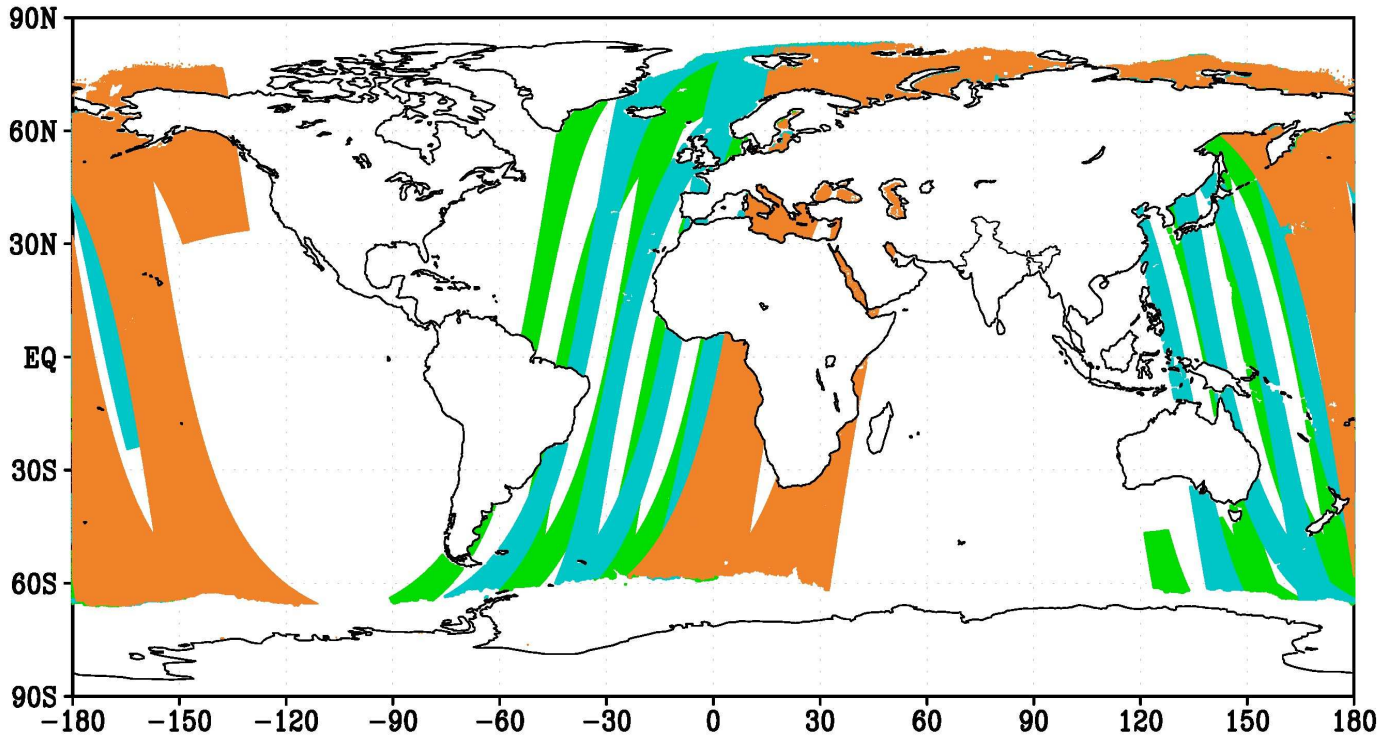
Data Coverage: Scatterometer winds (14102024 12UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 1231285

ASCAT (METOP-B) (367412)

ASCAT (METOP-C) (347983)

SCATSAT (OCEANSAT-3) (515890)





# Atmospheric Motion Wind Vectors



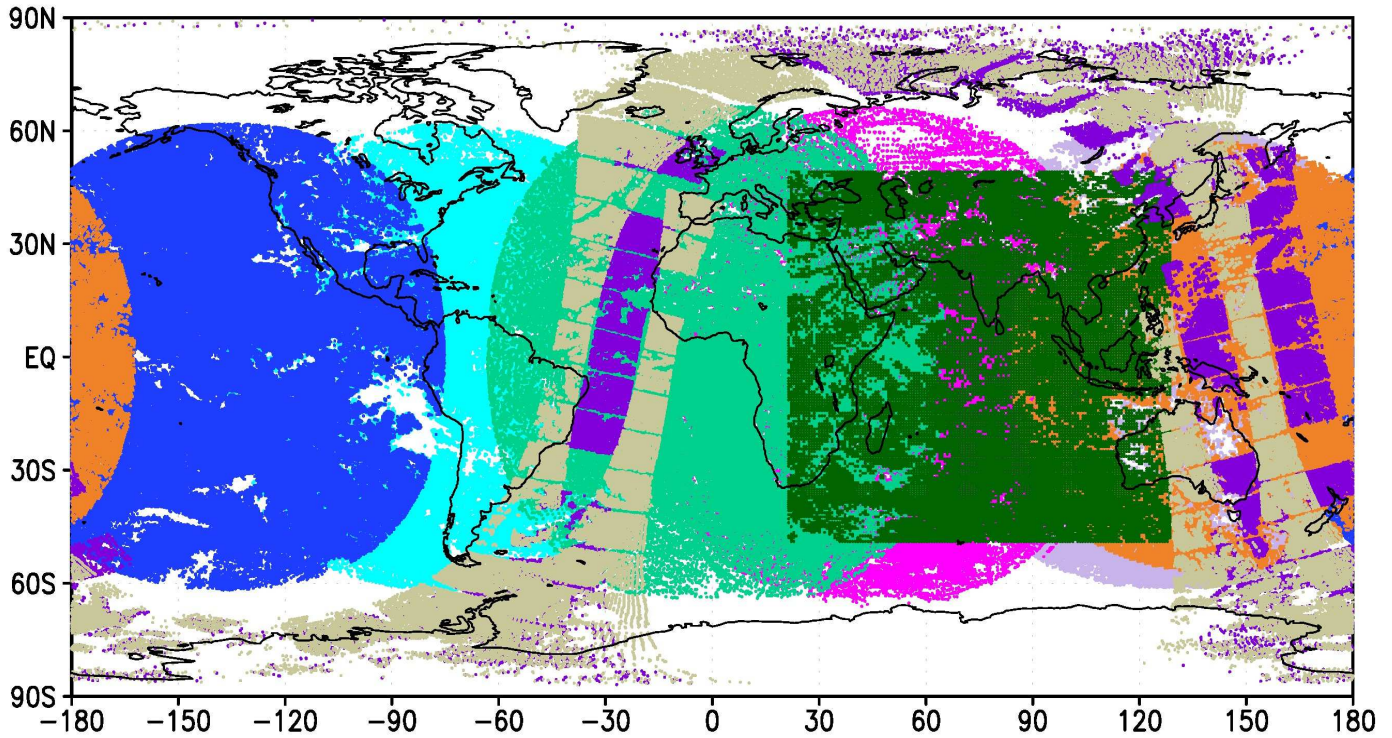
# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Total Number of Observations Received at NCMRWF: 2690124

Data Coverage: AMV\_ALL (14102024 1200UTC +/- 03Hrs)

GOES-16(544407)	GOES-18(825654)	NOAA-18(0)	NOAA-19(0)	METEOSAT-9(161902)
METEOSAT-11(0)	NPP(0)	NOAA-20(0)	MODIS/Terra(0)	MODIS/Aqua(0)
METOP-B(43585)	METOP-C(51937)	INSAT-3D(0)	INSAT-3DR(81248)	HIMAWARI-9(123962)
NOAA-15(0)	COMS-2(697215)	METEOSAT-10(160214)		





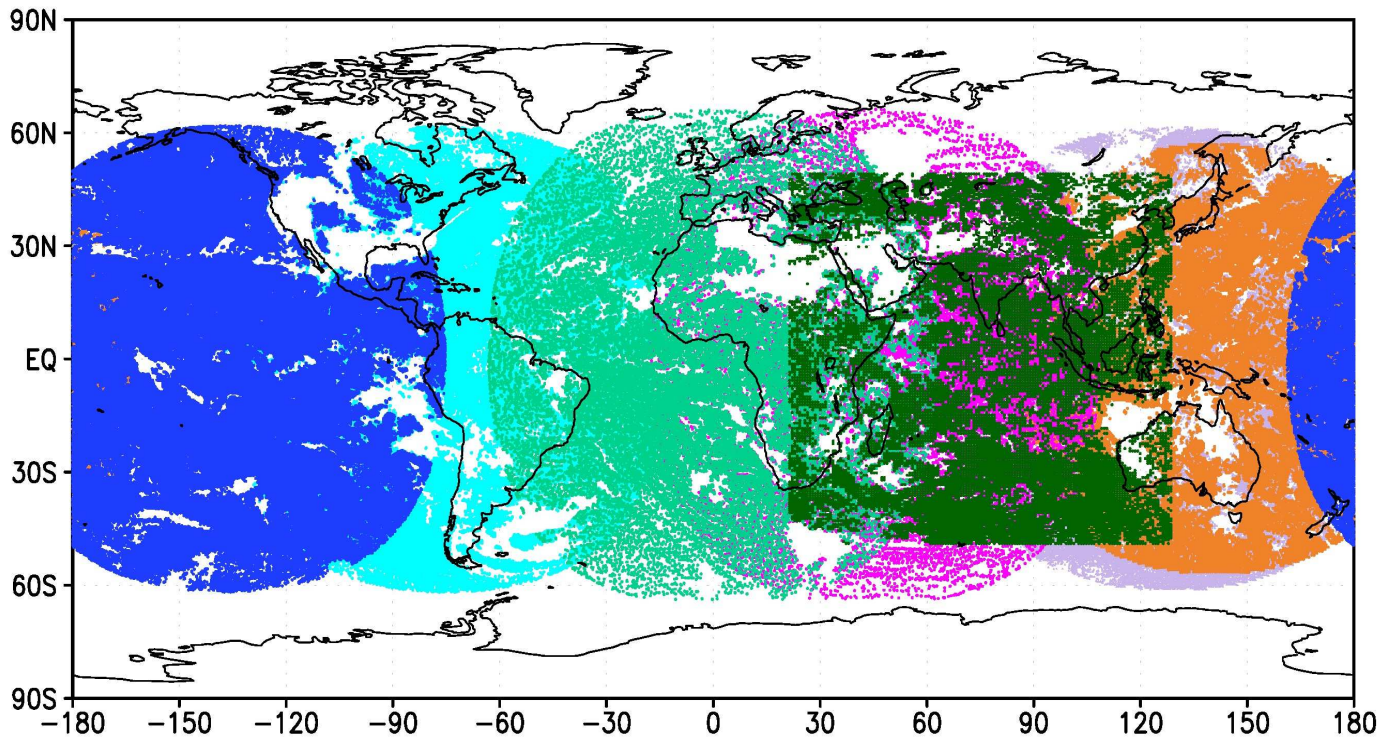


# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: AMV IR (14102024 1200UTC +/- 03Hrs)  
Total Number of Observations Received at NCMRWF: 1523341

GOES-16(344454)    GOES-18(640503)    INSAT-3DR(39762)    INSAT-3D(0)    COMS-2(364612)  
METEOSAT-9(33996)    METEOSAT-10(34290)    METEOSAT-11(0)    HIMAWARI-9(65724)



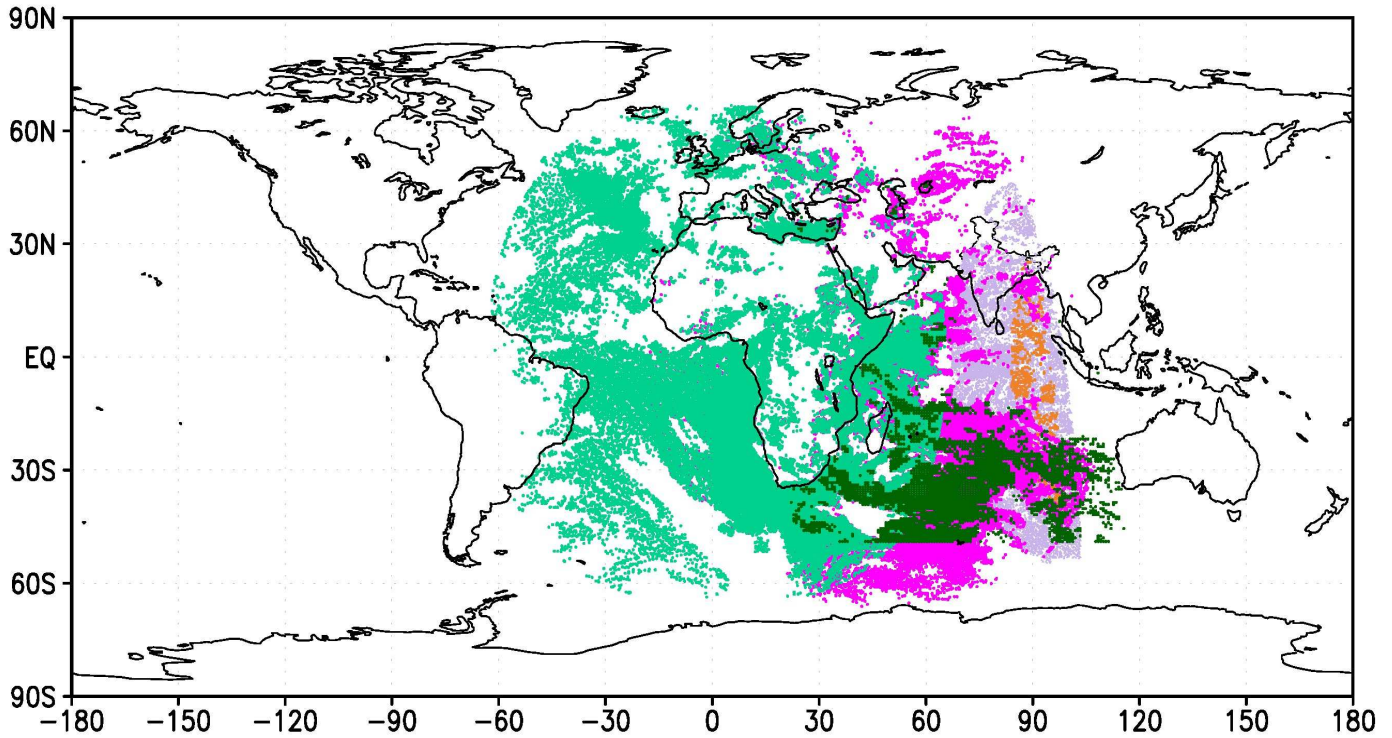


# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: AMV VIS (14102024 1200UTC +/- 03Hrs)  
Total Number of Observations Received at NCMRWF: 160820

- GOES-16(0)
- GOES-18(0)
- INSAT-3DR(8214)
- INSAT-3D(0)
- COMS-2(23063)
- METEOSAT-9(64119)
- METEOSAT-10(64748)
- METEOSAT-11(0)
- HIMAWARI-9(676)





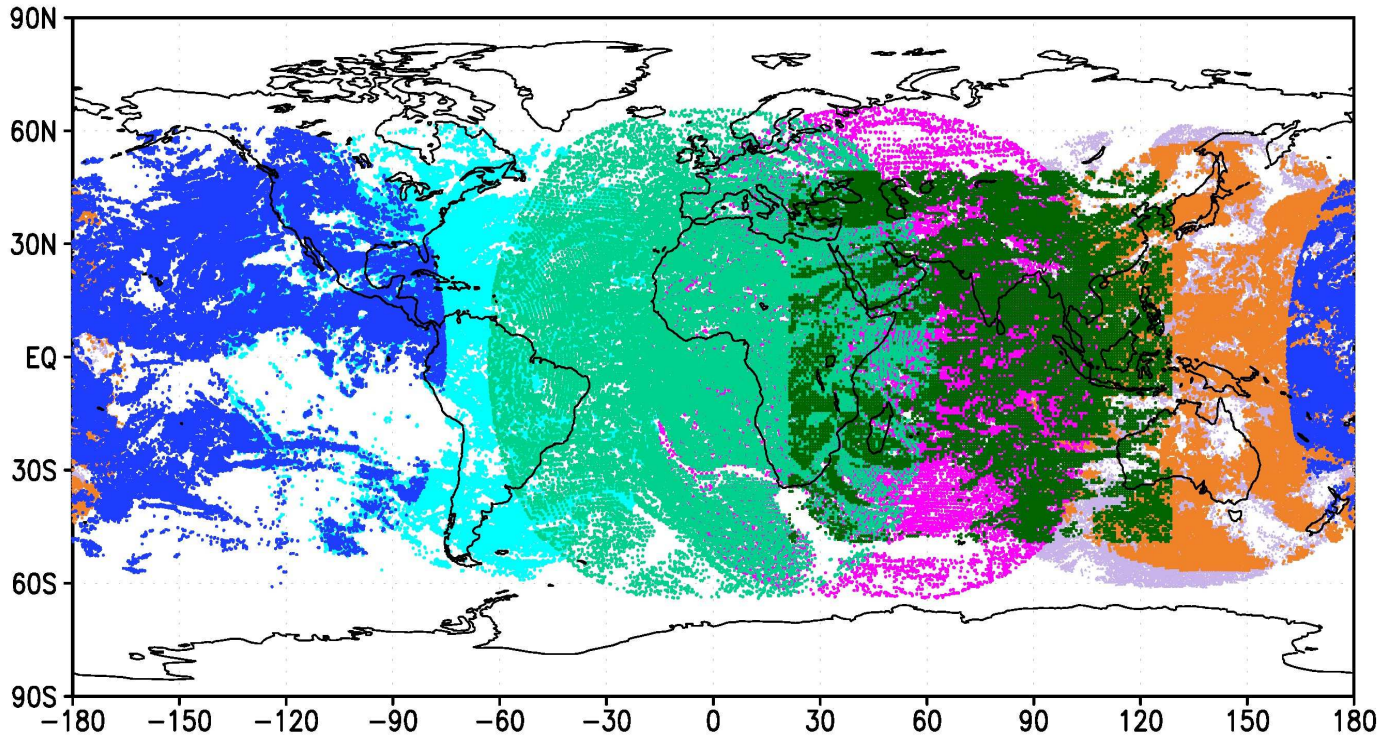


# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: AMV WV (14102024 1200UTC +/- 03Hrs)  
Total Number of Observations Received at NCMRWF: 910438

- GOES-16(199953)
- GOES-18(185151)
- INSAT-3DR(33269)
- INSAT-3D(0)
- COMS-2(309540)
- METEOSAT-9(63787)
- METEOSAT-10(61176)
- METEOSAT-11(0)
- HIMAWARI-9(57562)



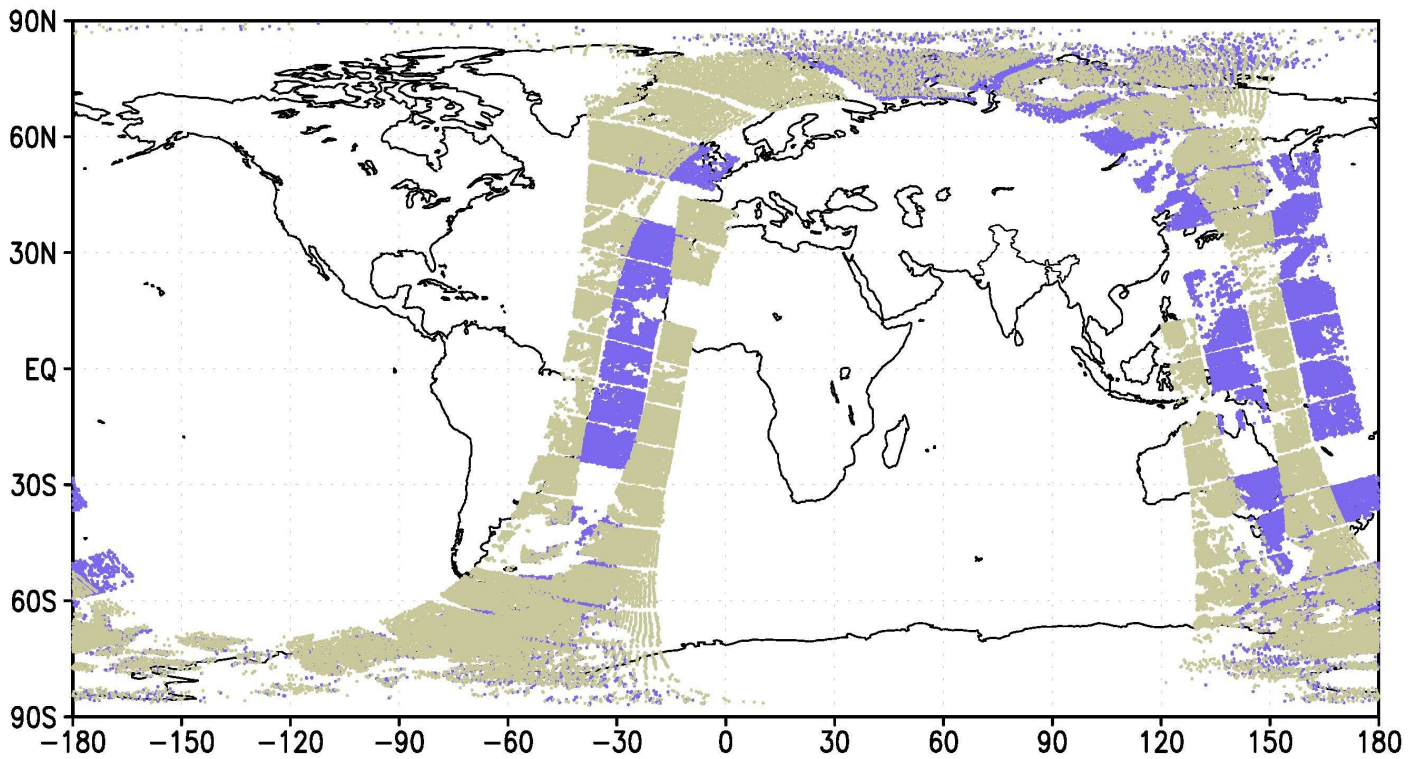


# NCMRWF OBSERVATIONS MONITORING

AMV POLAR (14102024 1200UTC +/- 03Hrs) E\_CYC

Total Number of Observations Received at NCMRWF: 95522

NOAA-15(0)      NOAA-18(0)      NOAA-19(0)      MODIS/Aqua(0)      MODIS/Terra(0)  
METOP-B(0)      DUAL-MetOp-B(43585)      DUAL-MetOp-C(51937)



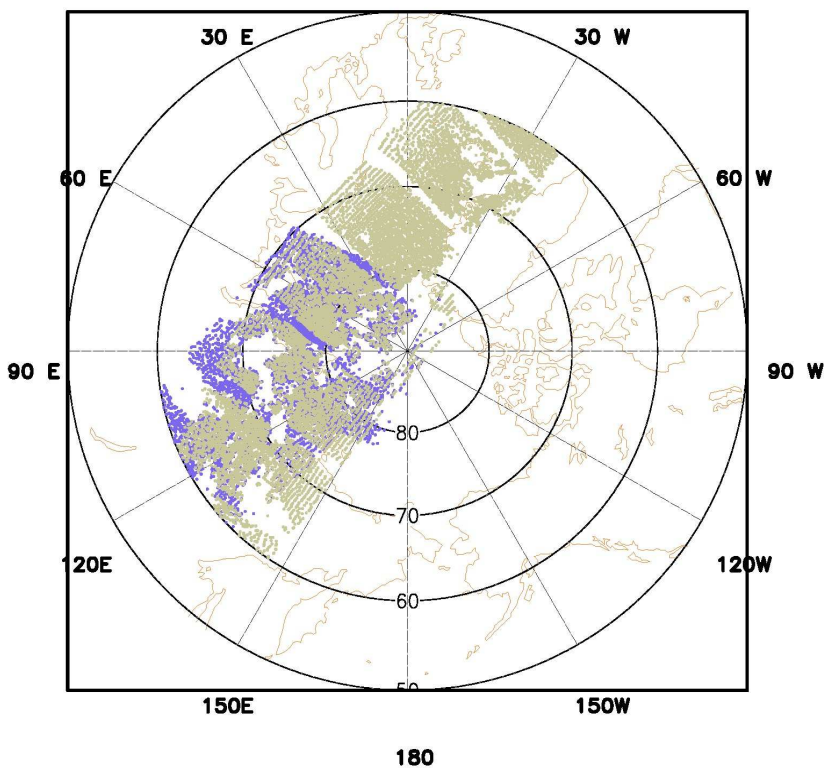


# NCMRWF OBSERVATIONS MONITORING

AMV IR POLAR NH (14102024 1200UTC +/- 03Hrs) E\_CYC

Total Number of Observations Received at NCMRWF: 14692

NOAA-15(0)	NOAA-18(0)	NOAA-19(0)	NOAA-20(0)
NPP(0)	MODIS/Aqua(0)	MODIS/Terra(0)	
METOP-B(0)	METOP-C(8038)	DUAL-METOP(6654)	



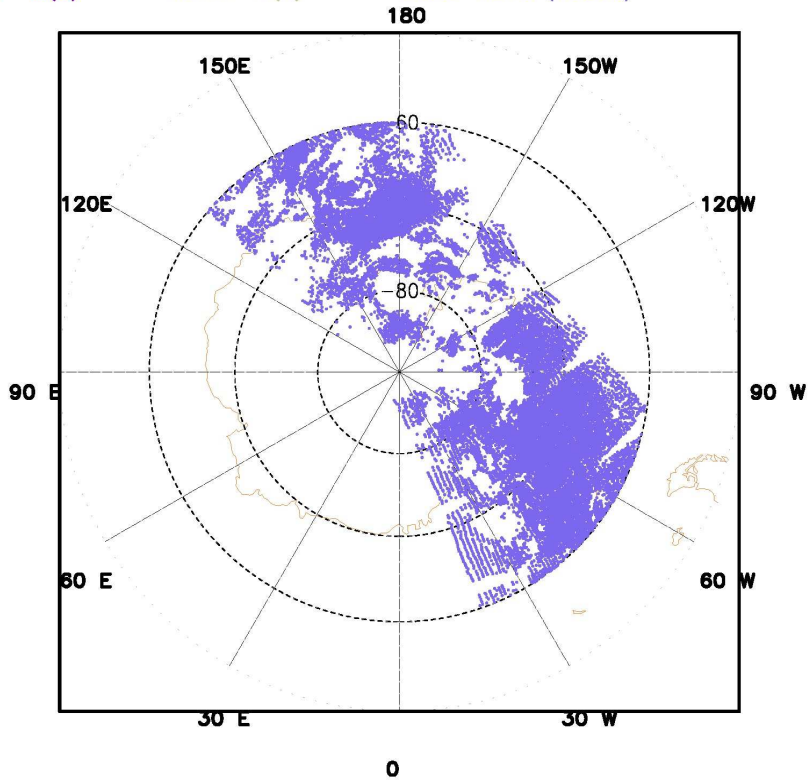


# NCMRWF OBSERVATIONS MONITORING

AMV IR POLAR SH (14102024 1200UTC +/- 03Hrs) E\_CYC

Total Number of Observations Received at NCMRWF: 18269

NOAA-15(0)	NOAA-18(0)	NOAA-19(0)	NOAA-20(0)
NPP(0)	MODIS/Aqua(0)	MODIS/Terra(0)	
METOP-B(0)	METOP-C(0)	DUAL-METOP(18269)	







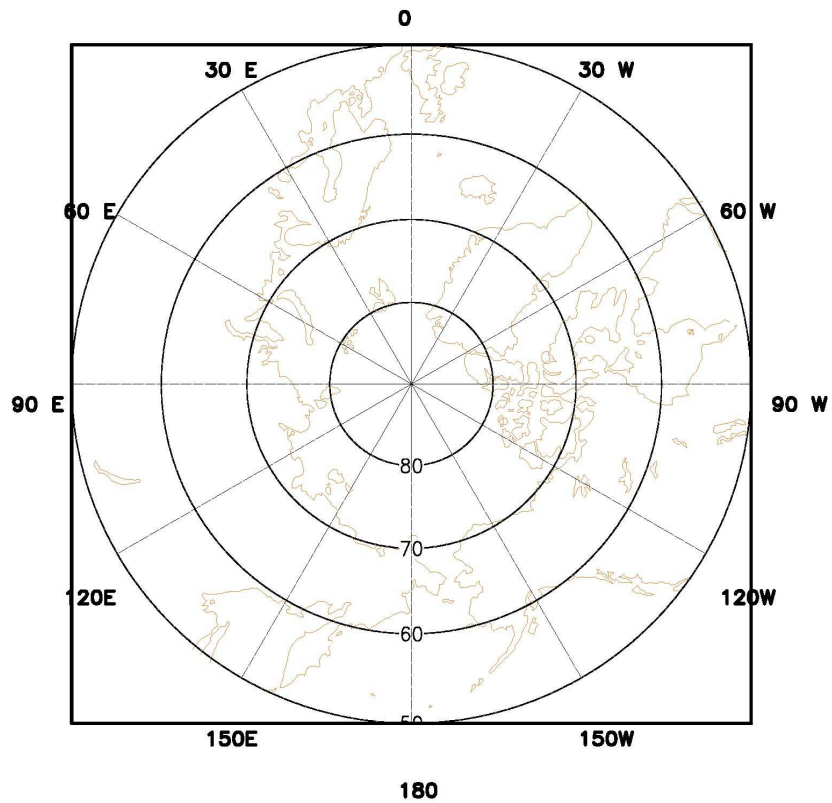
# NCMRWF OBSERVATIONS MONITORING

AMV WV POLAR NH (14102024 1200UTC +/- 03Hrs) E\_CYC

Total Number of Observations Received at NCMRWF: 0

MODIS/Aqua(0)

MODIS/Terra(0)





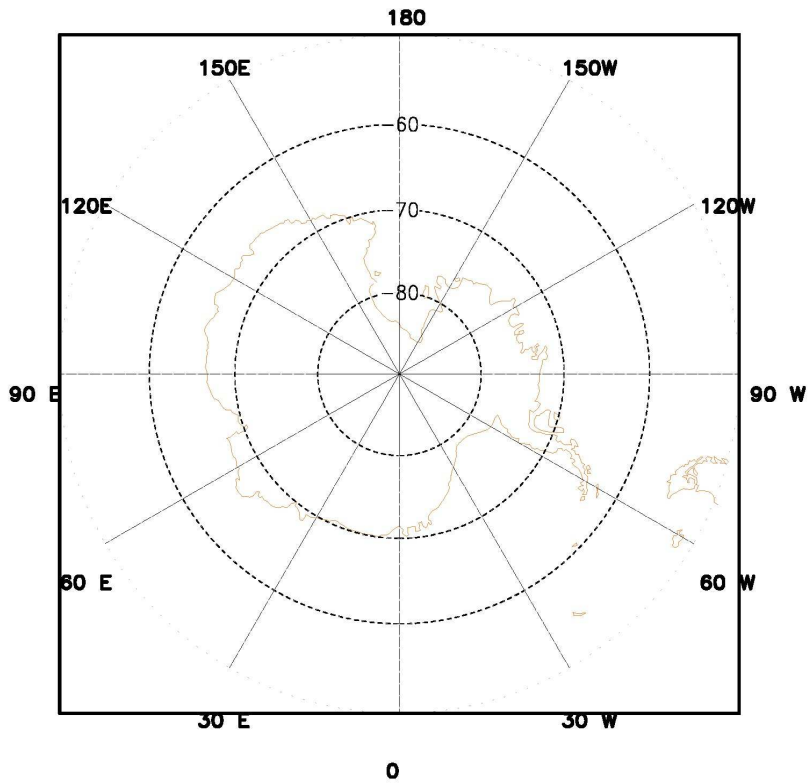
# NCMRWF OBSERVATIONS MONITORING

AMV WV POLAR SH (14102024 1200UTC +/- 03Hrs) E\_CYC

Total Number of Observations Received at NCMRWF: 0

MODIS/Aqua(0)

MODIS/Terra(0)







# Radiance Observations



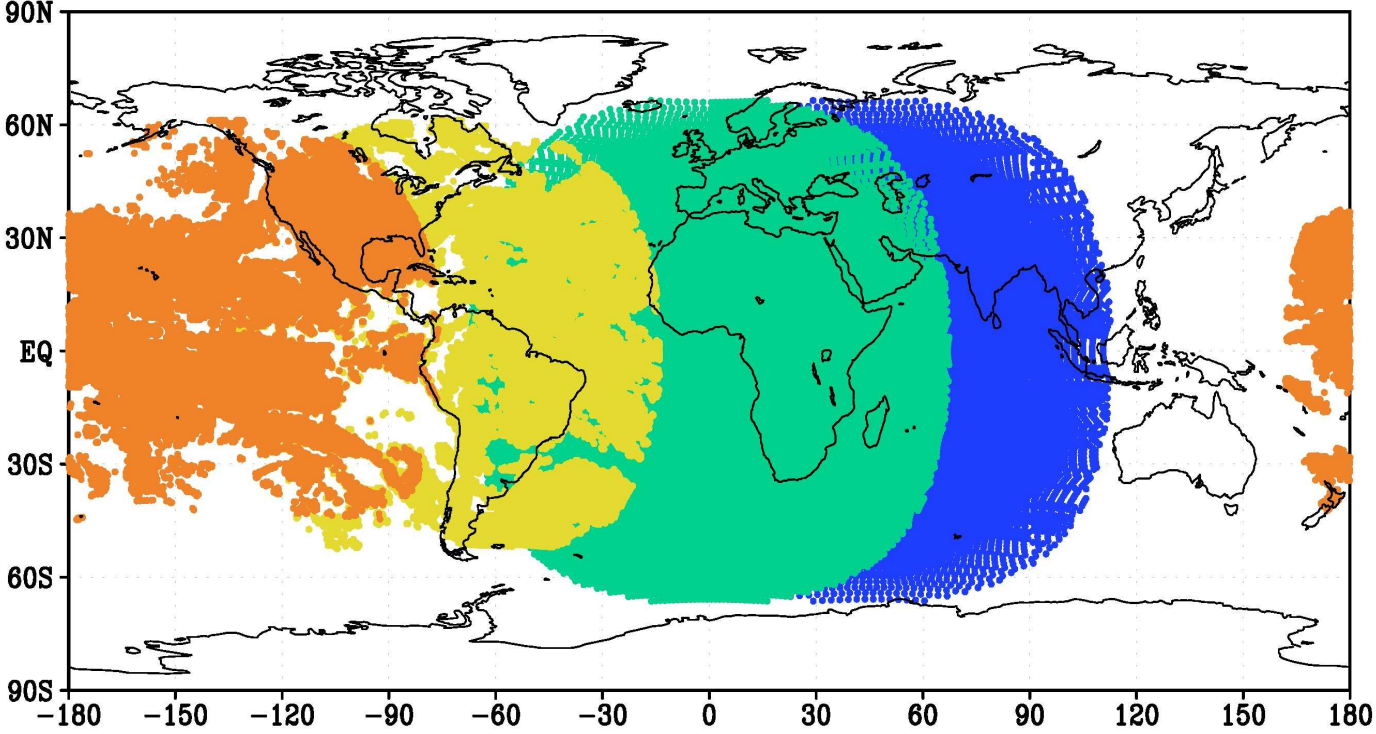
# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Geostationary Radiance (14102024 1200UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 969137

- METEOSAT-9(226536)
- METEOSAT-10(226097)
- METEOSAT-11(0)
- HIMAWARI-9(0)
- GOES-16(268978)
- GOES-18(247526)





# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: SAT RADIANCE (EARS+IMD RARS) (14102024 1200UTC +/- 03Hrs)

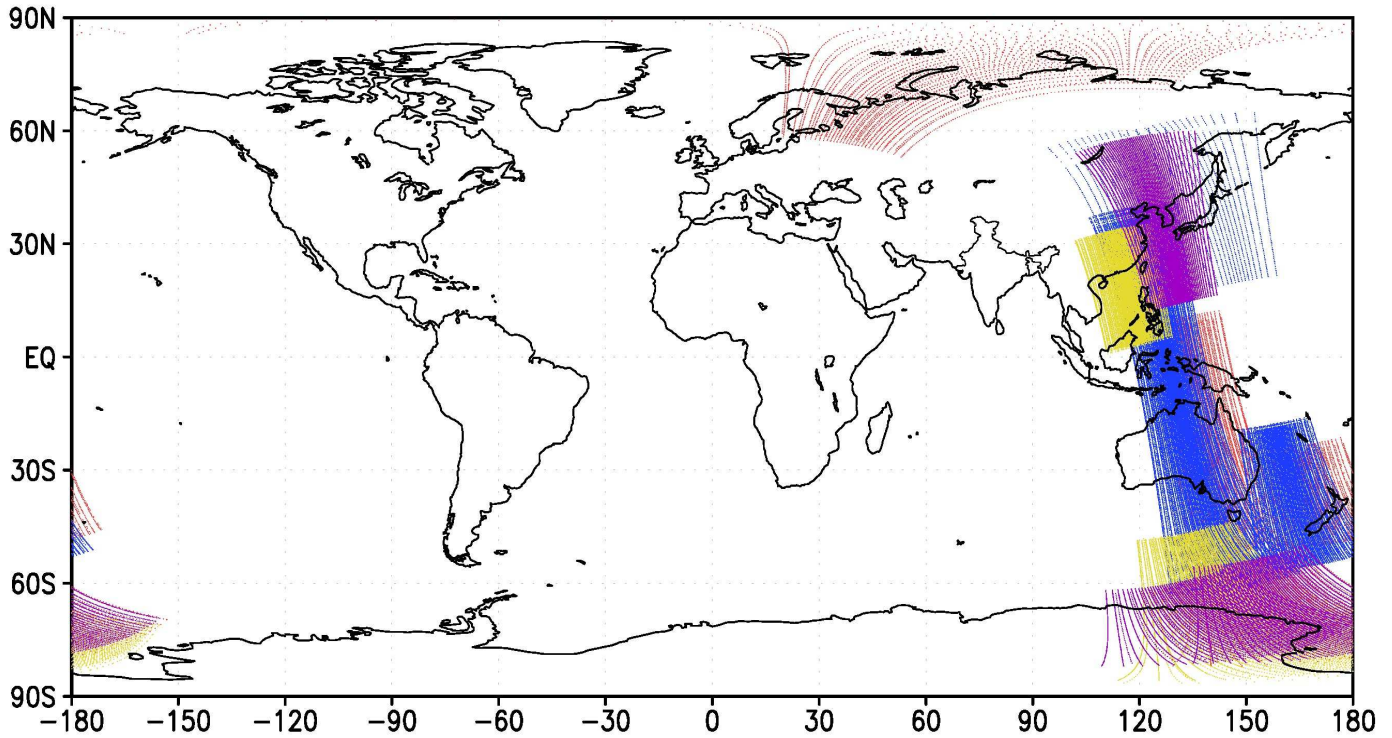
Total Number of Observations Received at NCMRWF: 276115

NOAA18(37797)

NOAA19(130642)

METOP-B(54066)

METOP-C(53610)





# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: Humidity Sounders (14102024 1200UTC +/- 03Hrs)

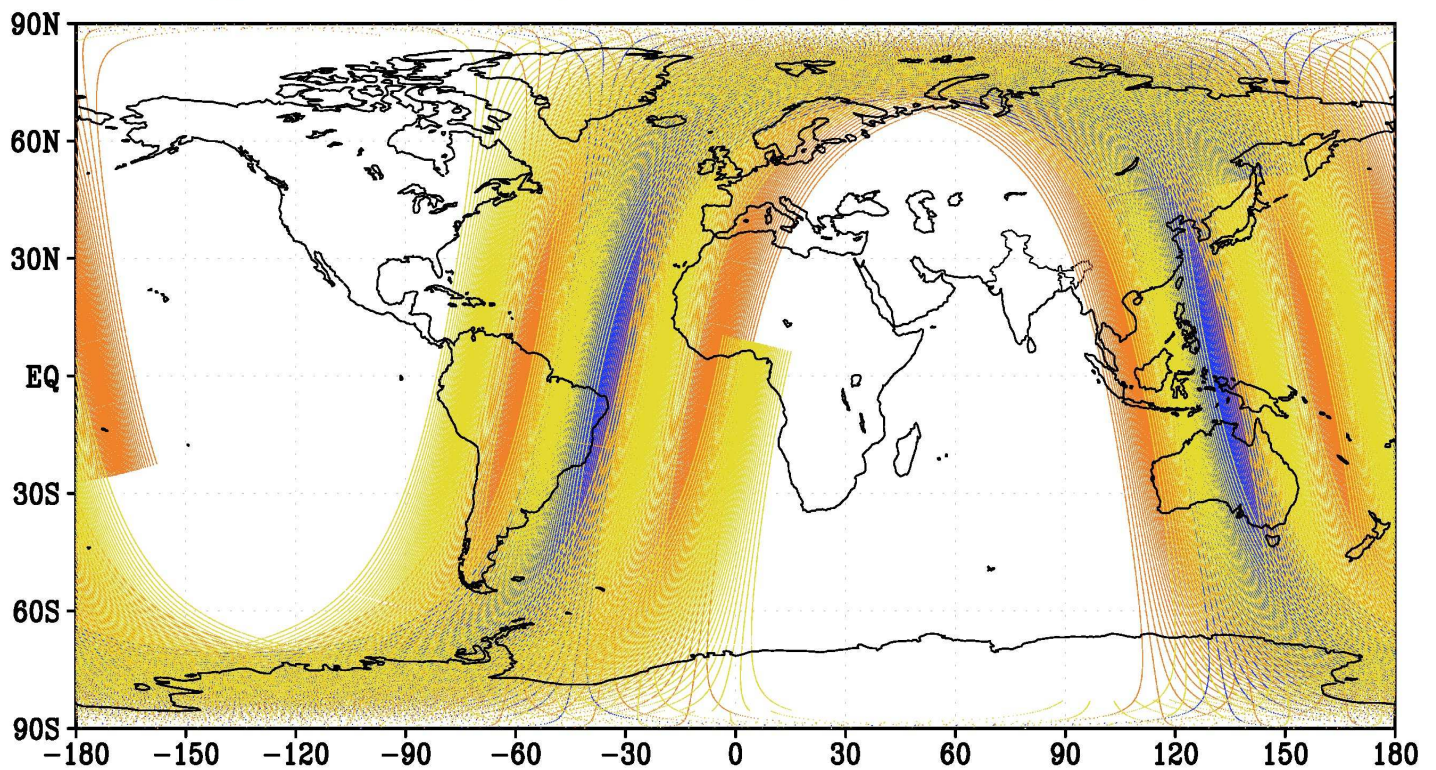
Total Number of Observations Received at NCMRWF: 898987

SAPHIR(0)

NOAA19(222372)

METOP-B(676615)

METOP-C(670402)







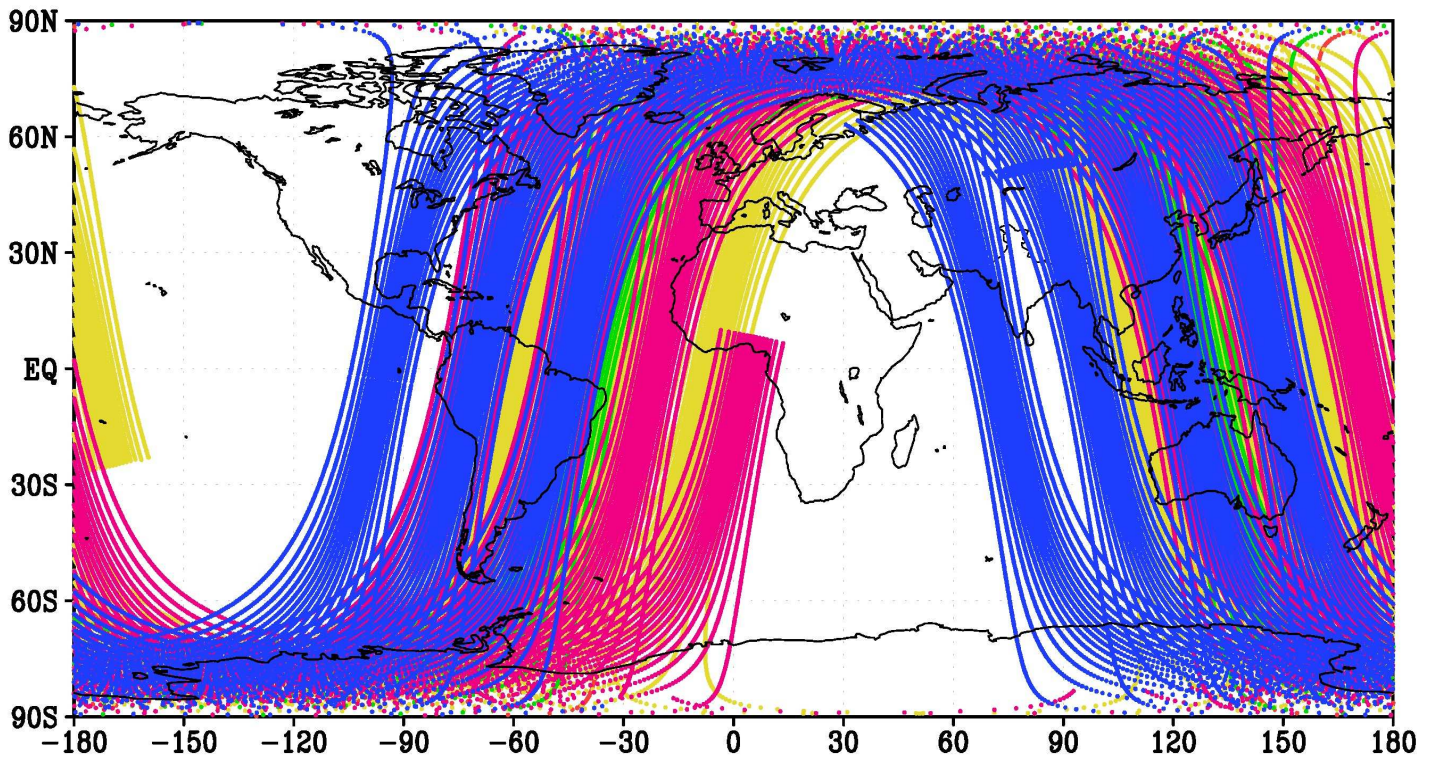
# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: AMSUA (14102024 1200UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 281272

NOAA15(80324)    NOAA18(24780)    NOAA19(24810)    METOP-B(75287)    METOP-C(76071)





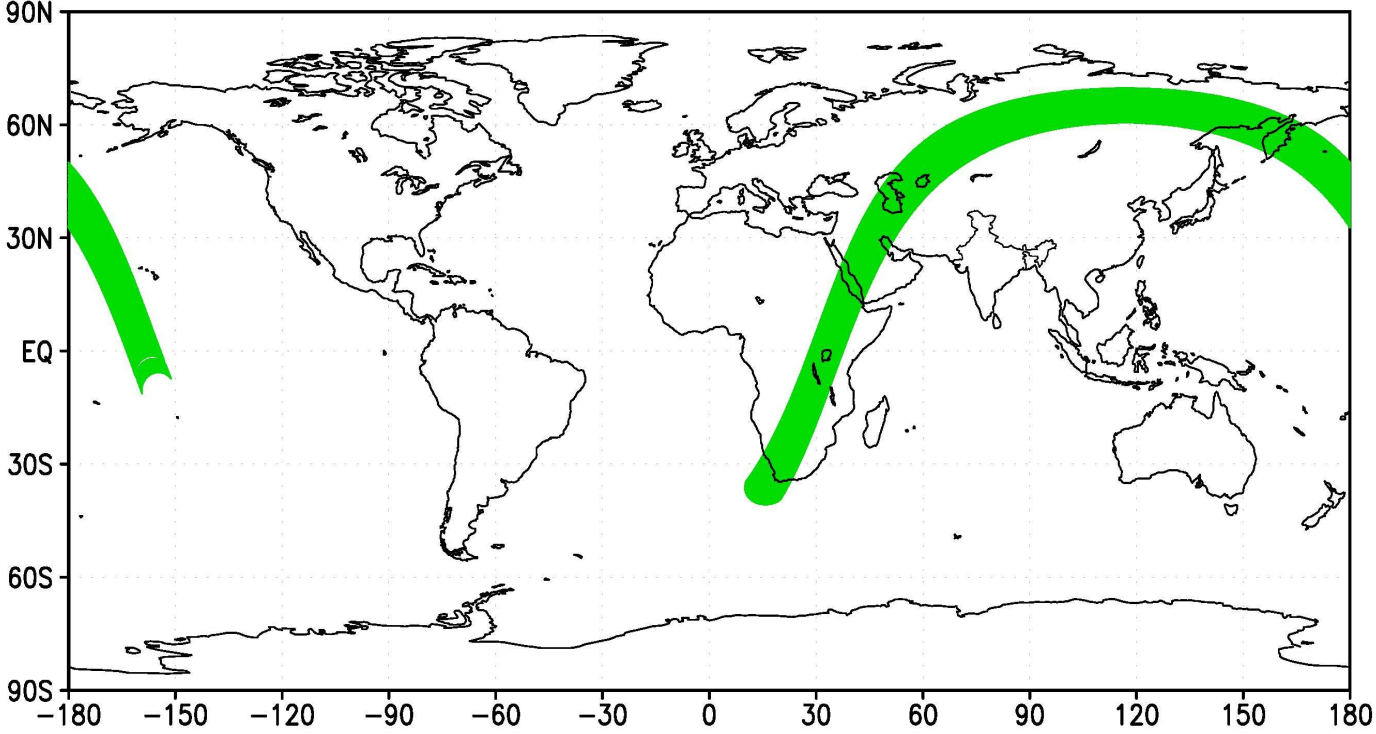
# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: GPM-GMI (14102024 1200UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 424320

GPM(424320)





# NCMRWF OBSERVATIONS MONITORING

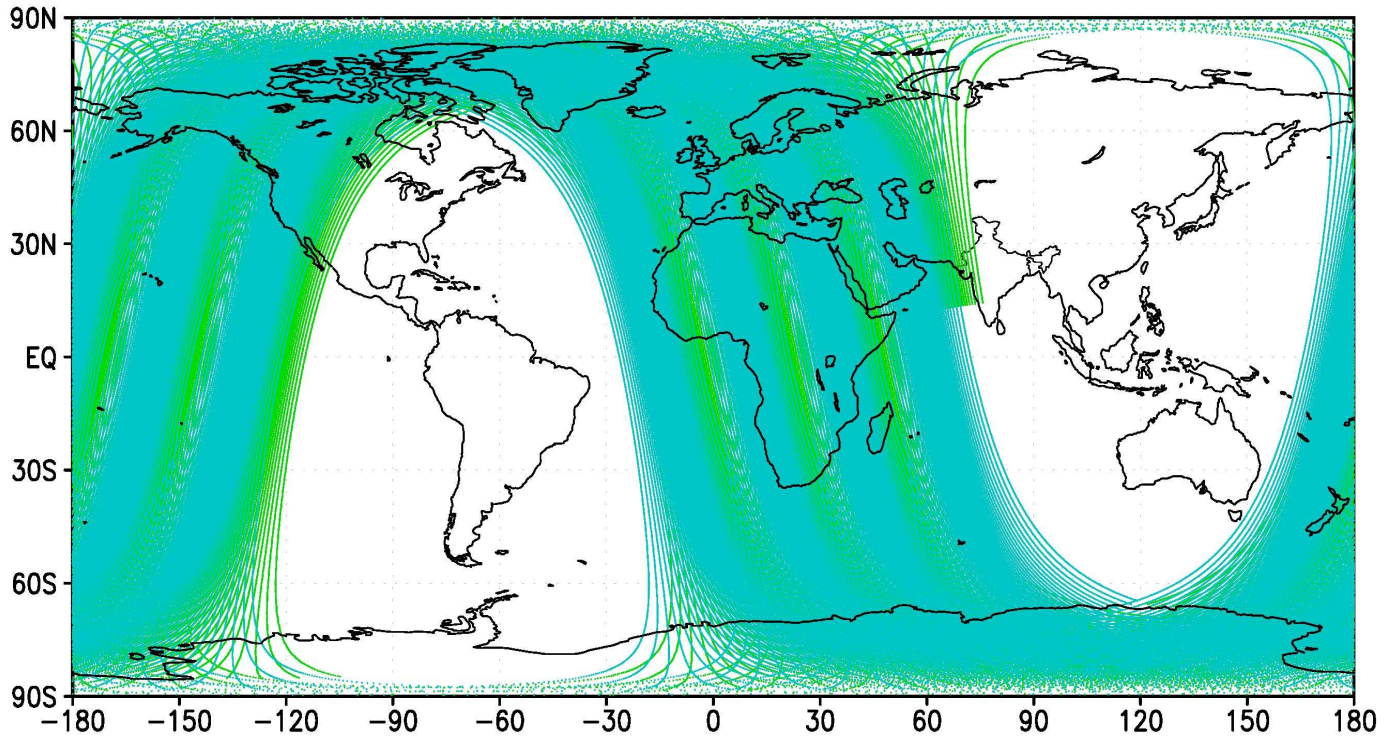
E\_CYC

Data Coverage: ATMS (14102024 1200UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 1444098

NOAA-20(759552)

NPP(684546)







# NCMRWF OBSERVATIONS MONITORING

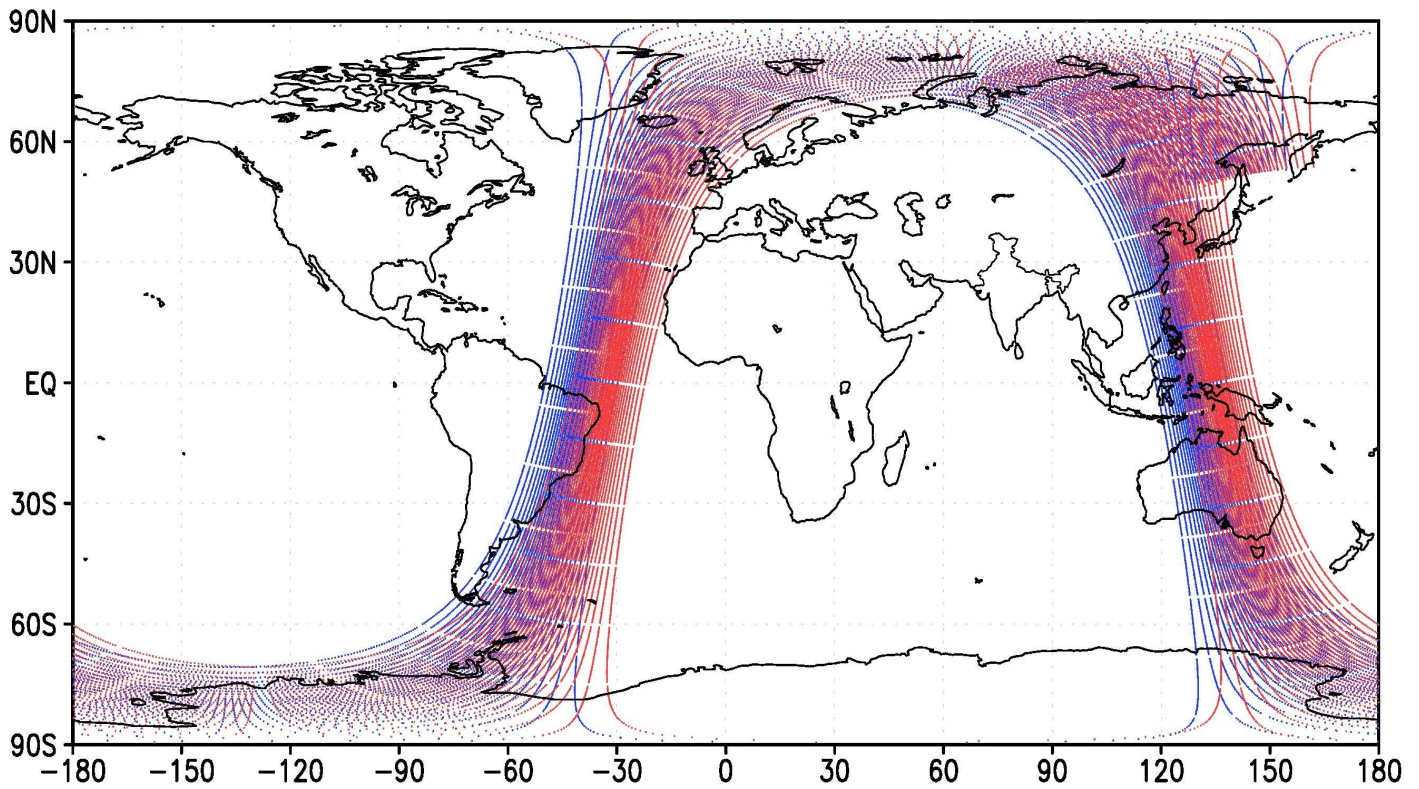
E\_CYC

Data Coverage: HIRS (14102024 1200UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 109984

NOAA18(54880)

NOAA19(55104)







# NCMRWF OBSERVATIONS MONITORING

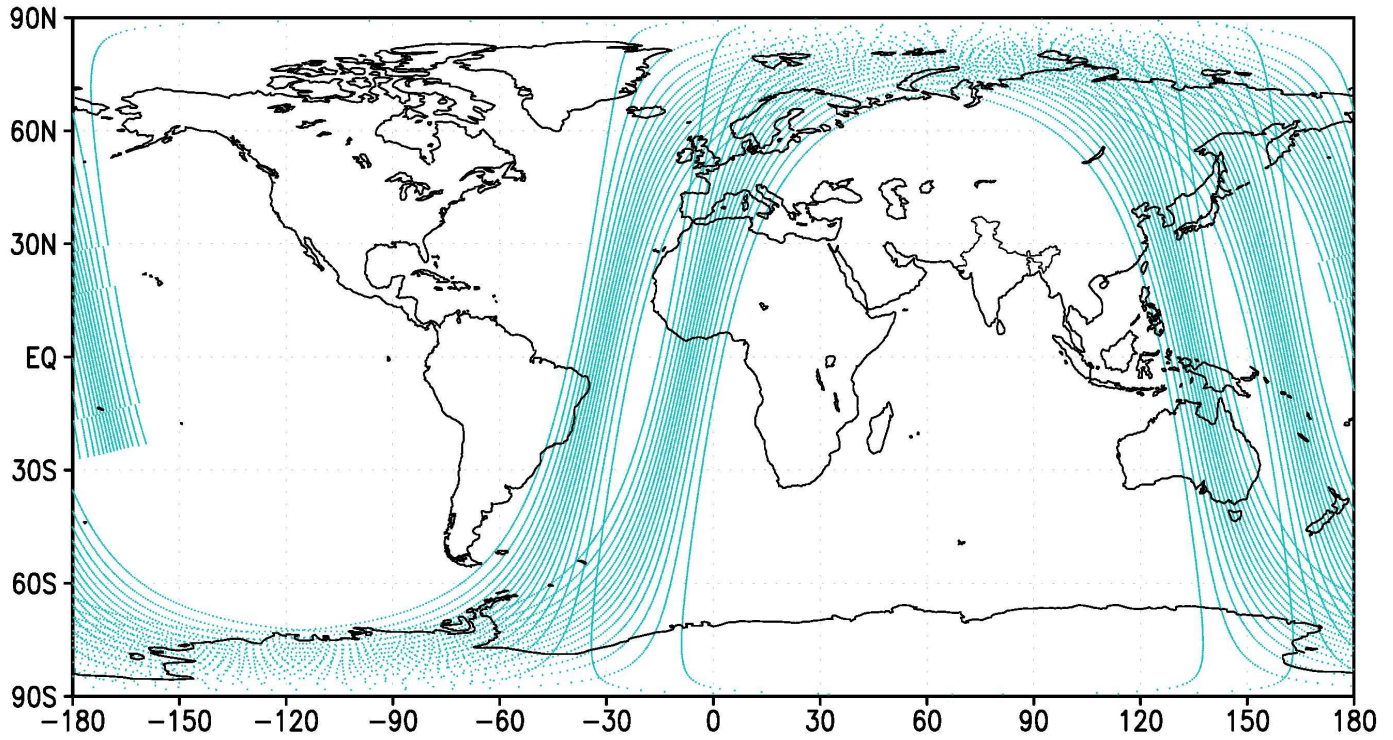
E\_CYC

Data Coverage: IASI (14102024 1200UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 52625

METOP-C(52625)

METOP-B(0)





# NCMRWF OBSERVATIONS MONITORING

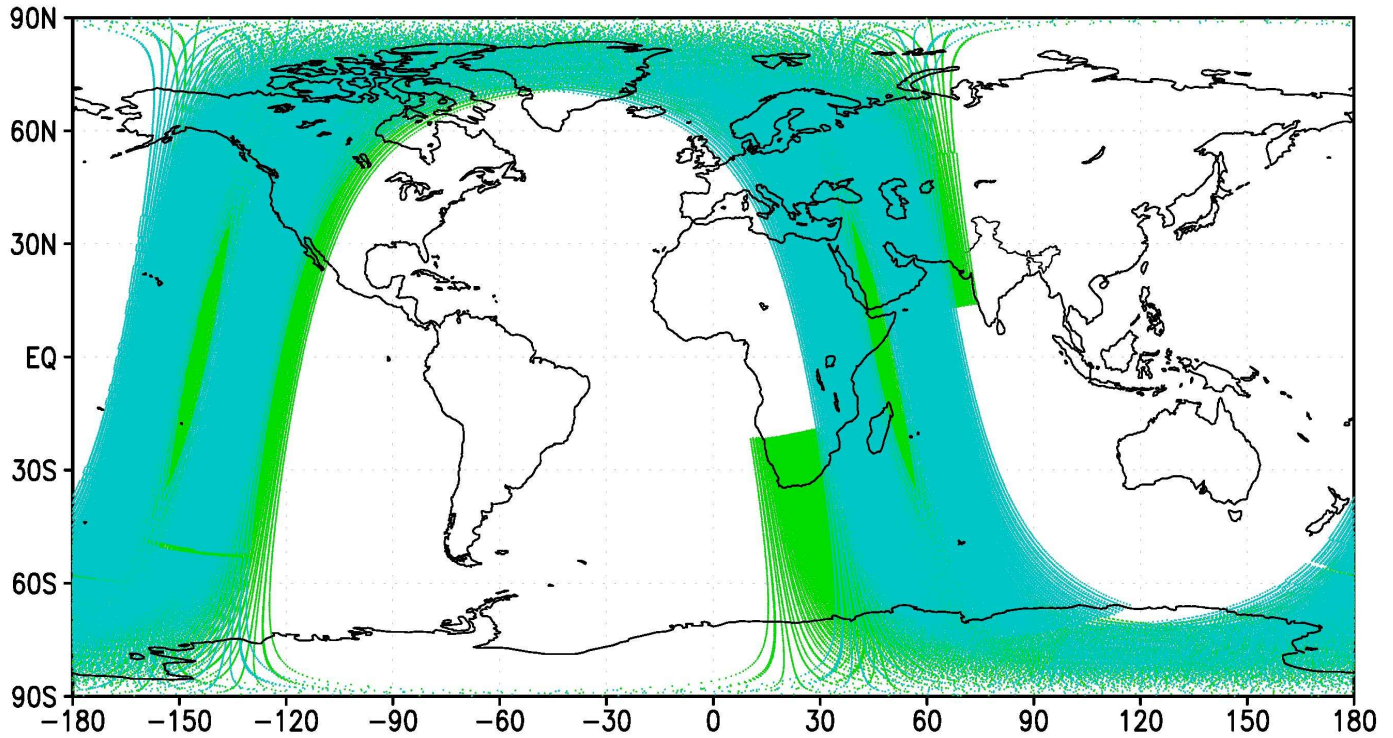
E\_CYC

Data Coverage: CrIS (14102024 1200UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 794395

NOAA-20(402434)

NPP(391961)





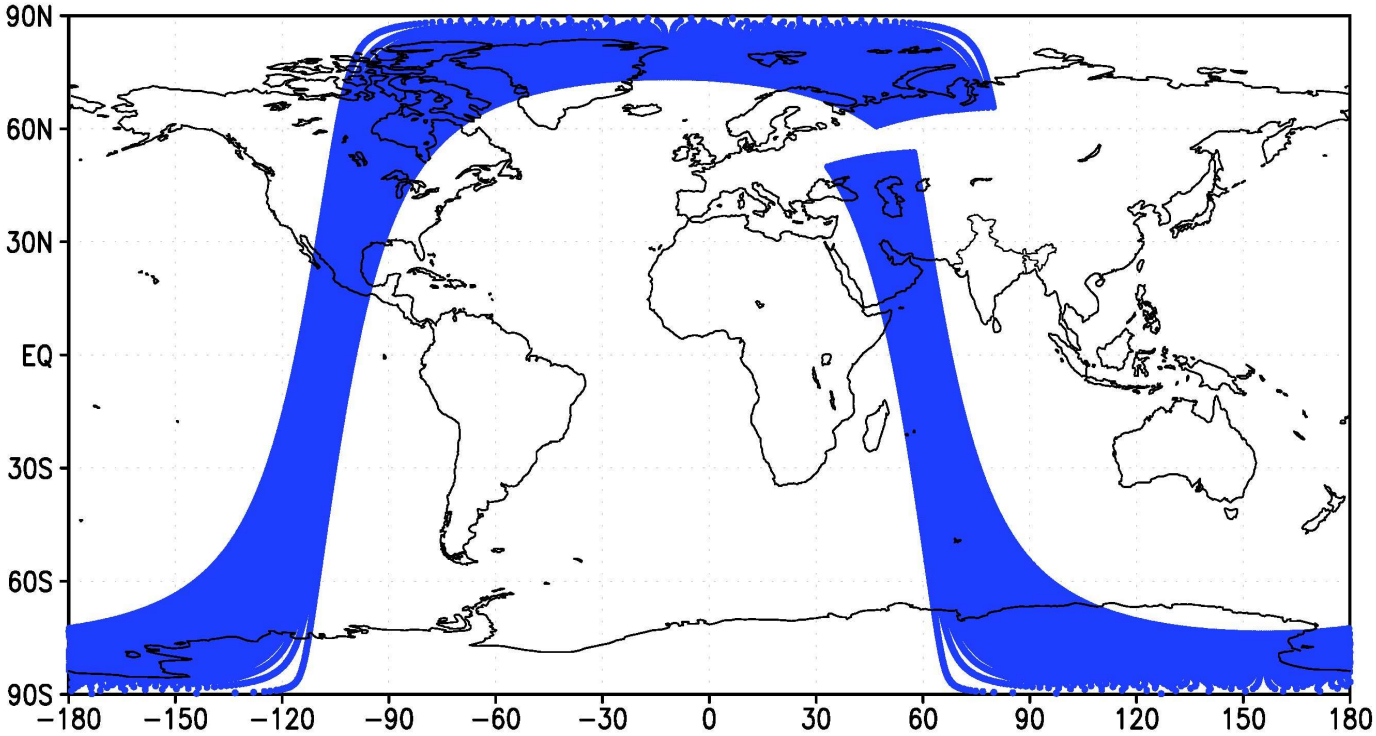
# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: AIRS (14102024 1200UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 193079

AQUA(193079)





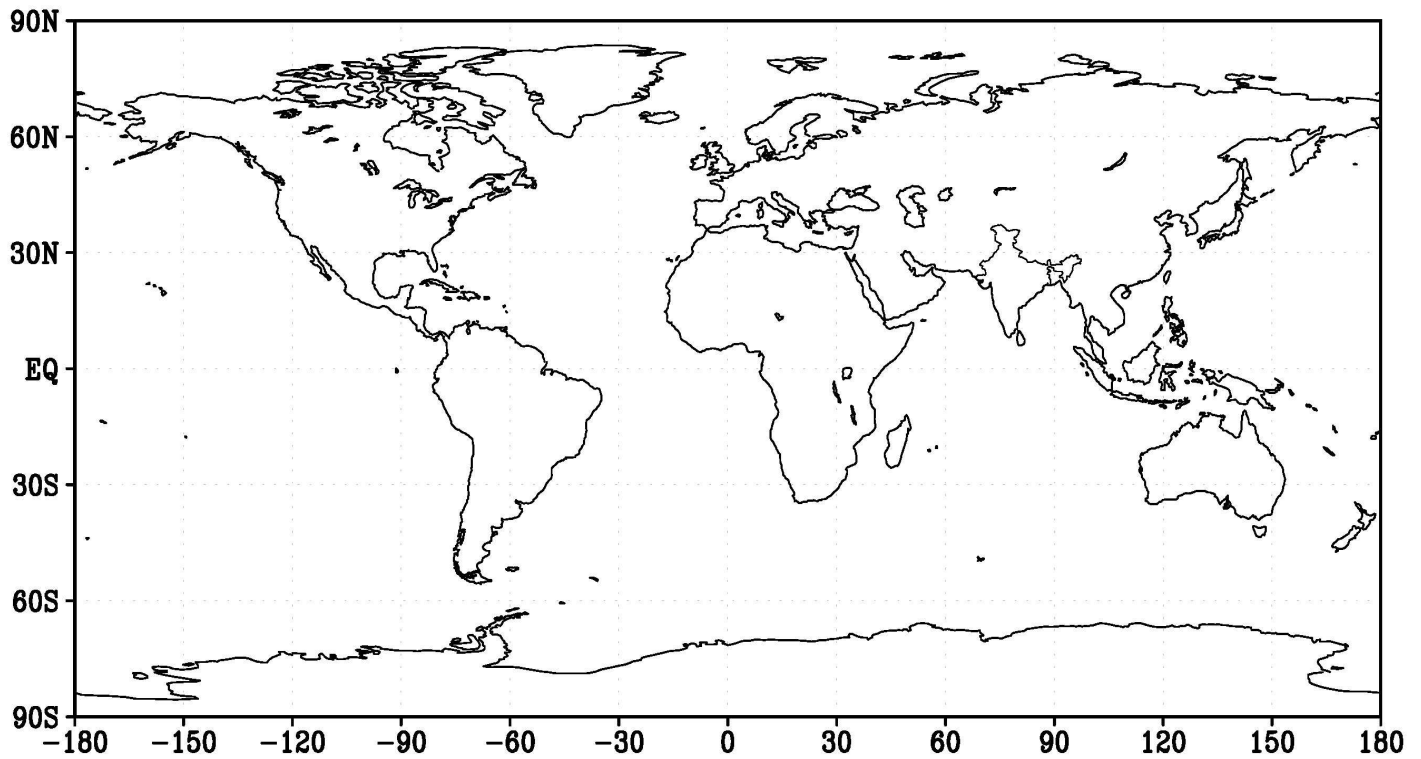
# NCMRWF OBSERVATIONS MONITORING

E\_CYC

Data Coverage: UV radiances (14102024 1200UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 0

SBUV-NOAA19(0)







# NCMRWF OBSERVATIONS MONITORING

E\_CYC

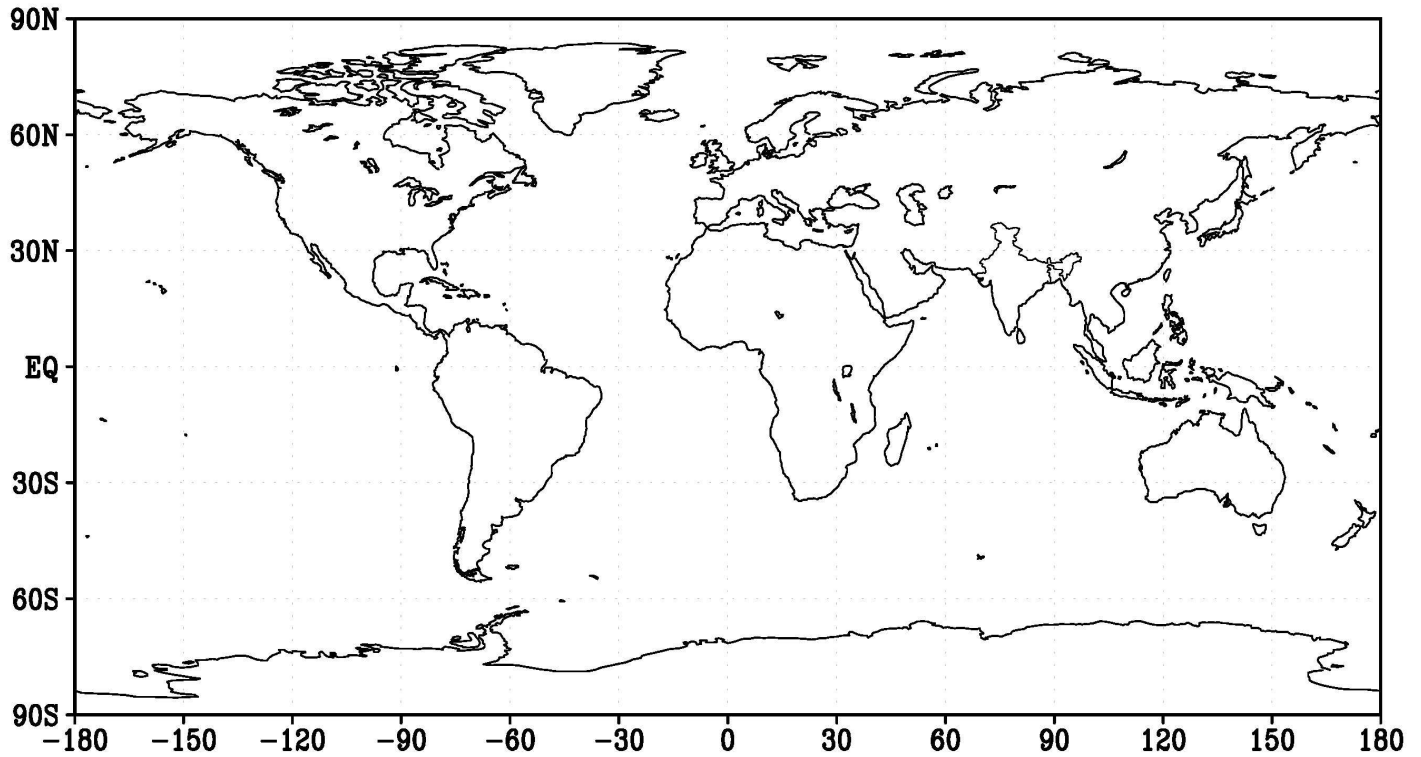
Data Coverage: AVHRR NCEP-BT (14102024 1200UTC +/- 03Hrs)

Total Number of Observations Received at NCMRWF: 0

NOAA18(0)

METOP-B(0)

METOP-C(0)







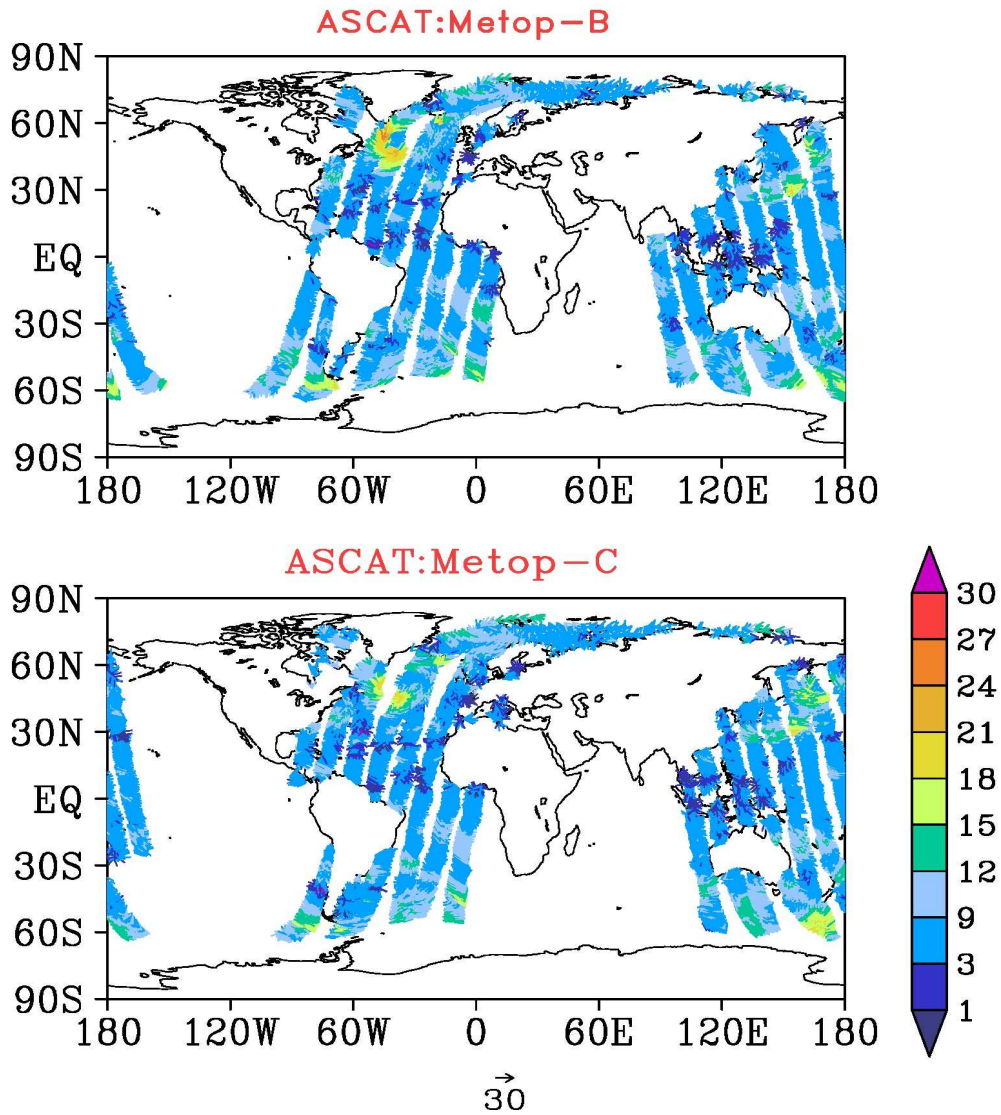
**SCATTEROMETER WIND VECTORS**

**RECEIVED AT NCMRWF (20241014 12Z)**



# NCMRWF OBSERVATIONS MONITORING

SCATTEROMETER SURFACE WINDS (14102024 1200UTC +/- 03Hrs)

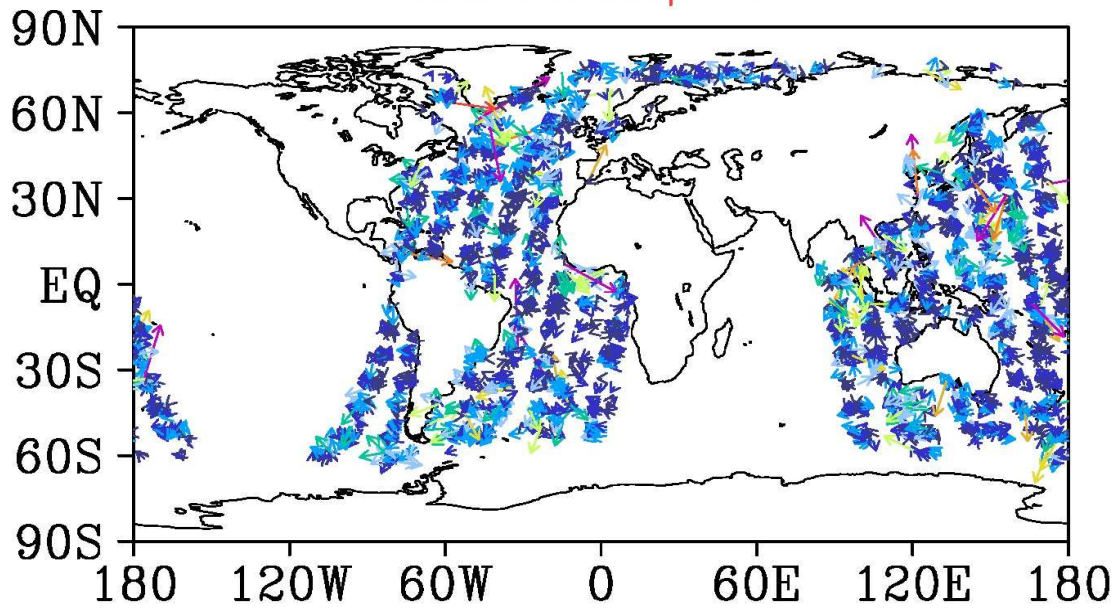




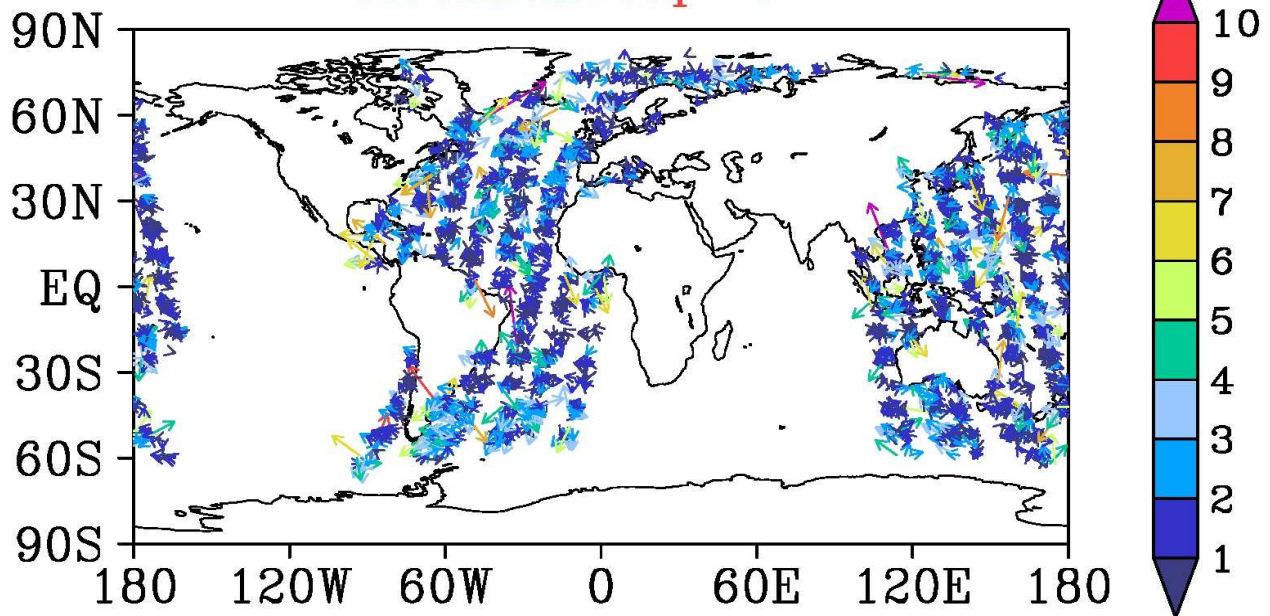
# NCMRWF OBSERVATIONS MONITORING

OBSERVATION—FIRST GUESS (14102024 12 UTC):NCMRWF

ASCAT:Metop-B



ASCAT:Metop-C





# ATMOSPHERIC MOTION VECTORS (AMVs)

INFRARED (IR) WINDS

WATER VAPOUR (WV) WINDS

VISIBLE (VIS) WINDS

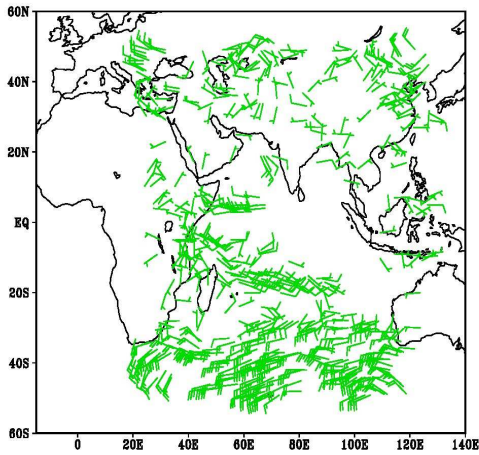
AMV DEVIATION  
(OBSERVATION – FIRST GUESS)



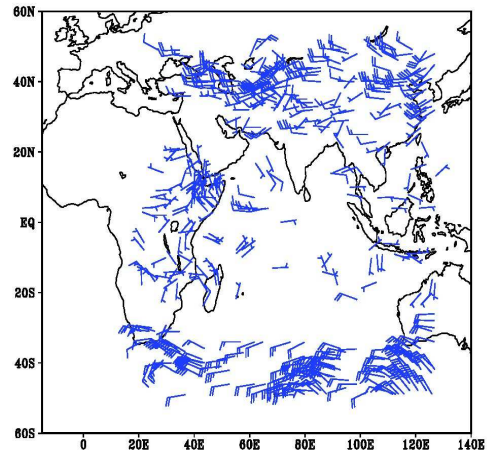
# NCMRWF OBSERVATIONS MONITORING

INSAT-3DR ATMOSPHERIC MOTION VECTORS (IR,10.8) (14102024 1200UTC)

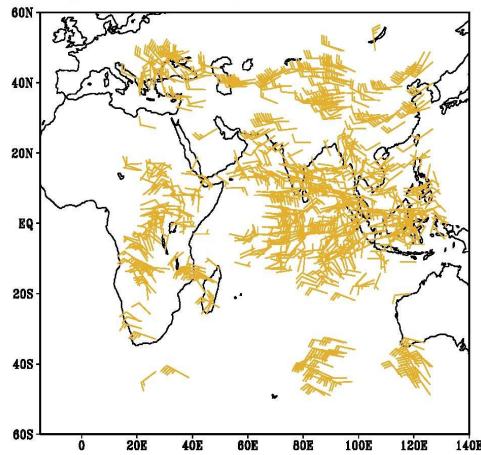
Low Level (Below 700 hPa)



Mid Level (700 - 401 hPa)



High Level (Above 400 hPa)



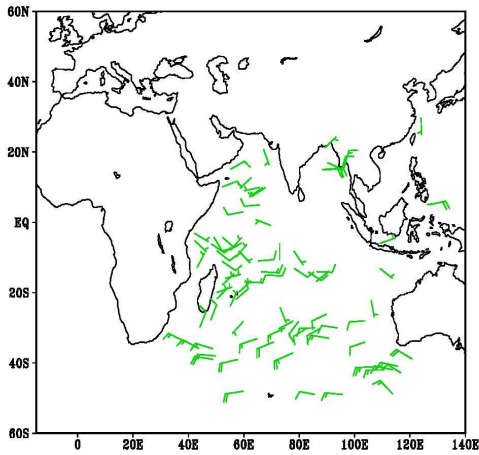




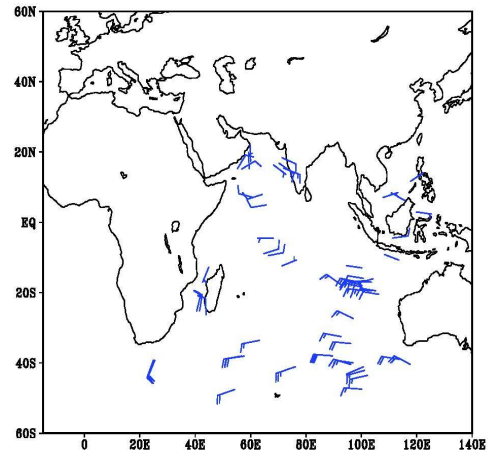
# NCMRWF OBSERVATIONS MONITORING

## INSAT-3DR ATMOSPHERIC MOTION VECTORS (IR,3.8) (14102024 1200UTC)

### Low Level (Below 700 hPa)



### Mid Level (700 - 401 hPa)

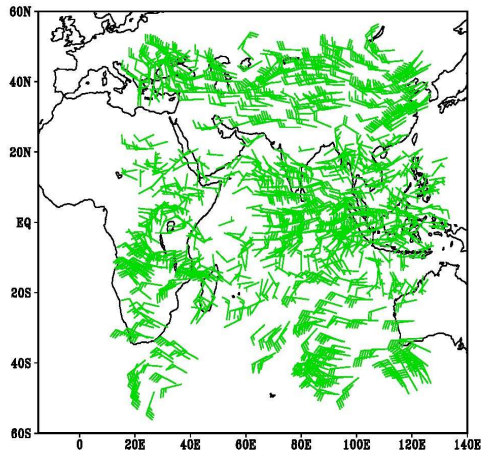




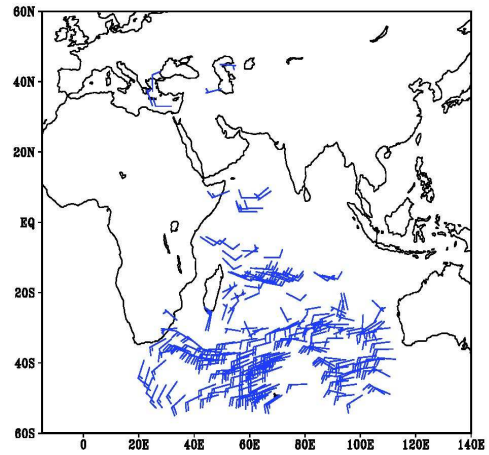
# NCMRWF OBSERVATIONS MONITORING

## INSAT-3DR ATMOSPHERIC MOTION VECTORS (WV & VIS) (14102024 1200UTC)

WV, High Level (Above 400 hPa)



VIS, Low Level (Below 700 hPa)

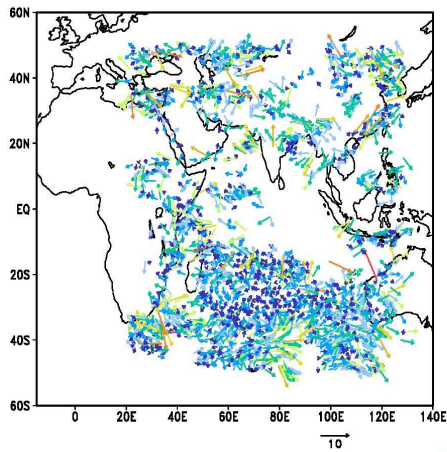




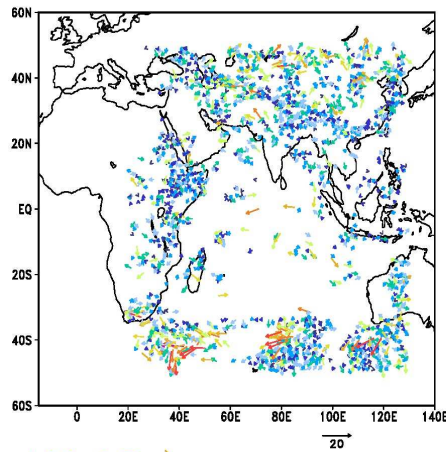
# NCMRWF OBSERVATIONS MONITORING

INSAT-3DR ATMOSPHERIC MOTION VECTORS (IR,10.8) DEVIATION (14102024 1200UTC)

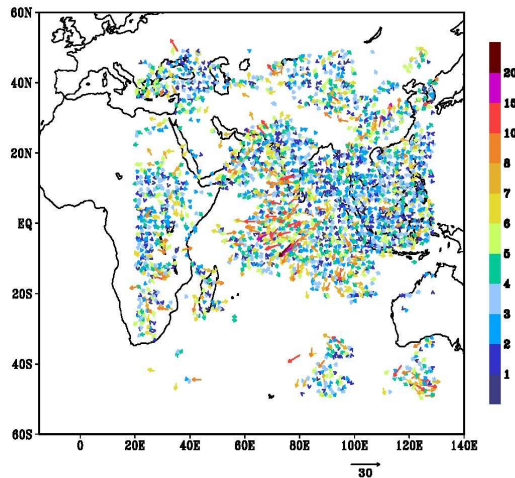
Low Level (Below 700 hPa)



Mid Level (700 - 401 hPa)



High Level (Above 400 hPa)

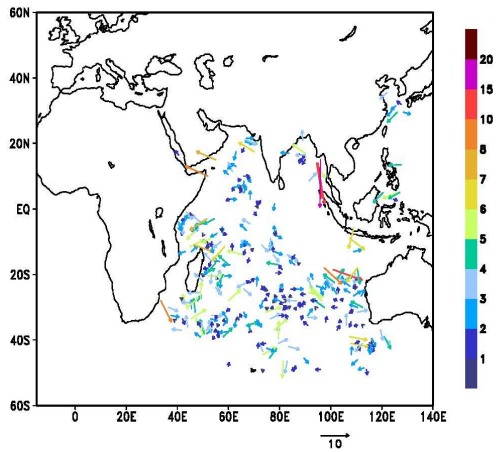




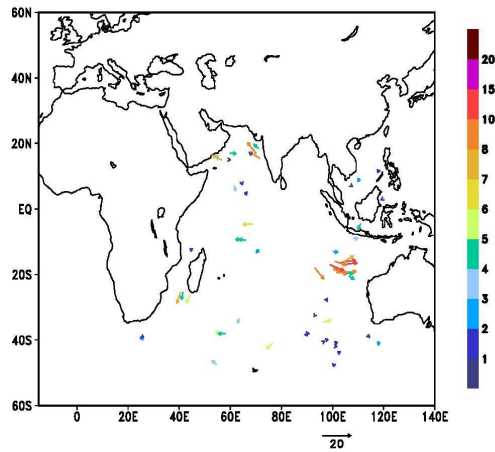
# NCMRWF OBSERVATIONS MONITORING

INSAT-3DR ATMOSPHERIC MOTION VECTORS (IR,3.8) DEVIATION (14102024 1200UTC)

Low Level (Below 700 hPa)



Mid Level (700 - 401 hPa)

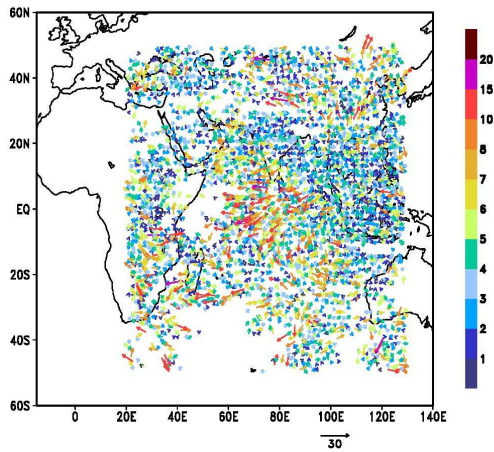




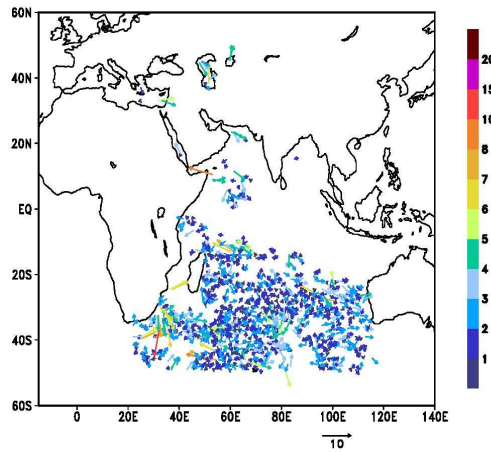
# NCMRWF OBSERVATIONS MONITORING

## INSAT-3DR ATMOSPHERIC MOTION VECTORS (WV & VIS) DEVIATION (14102024 1200UTC)

WV, High Level (Above 400 hPa)



VIS, Low level (Below 700 hPa)



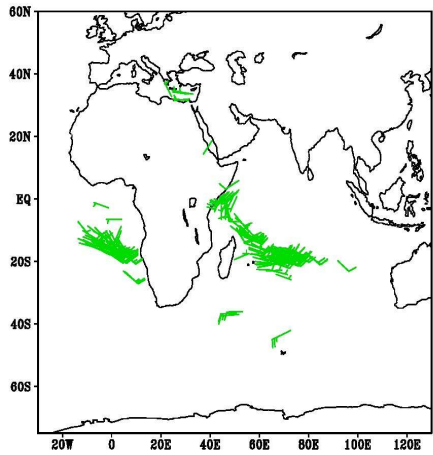




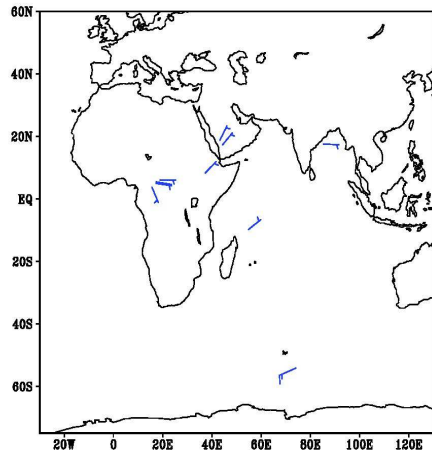
# NCMRWF OBSERVATIONS MONITORING

METEOSAT-9 ATMOSPHERIC MOTION VECTORS (IR)(14102024 1200UTC)

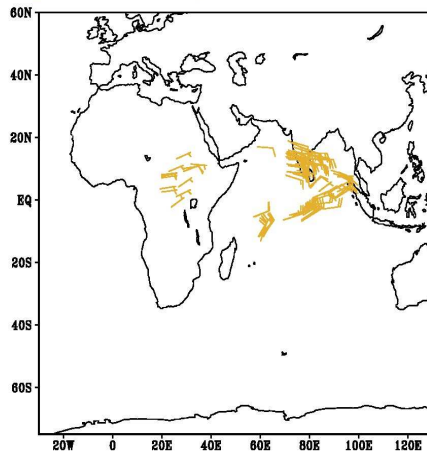
Low level (Below 700 hPa)



Mid Level (700 - 401 hPa)



High Level (Above 400 hPa)

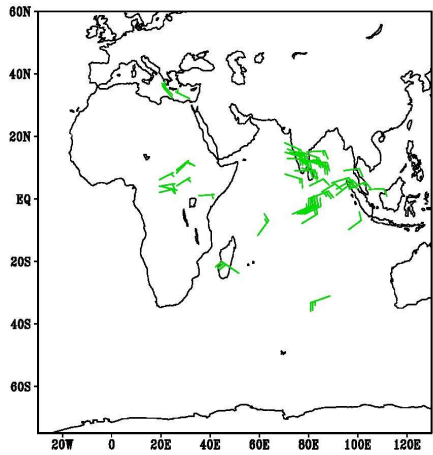




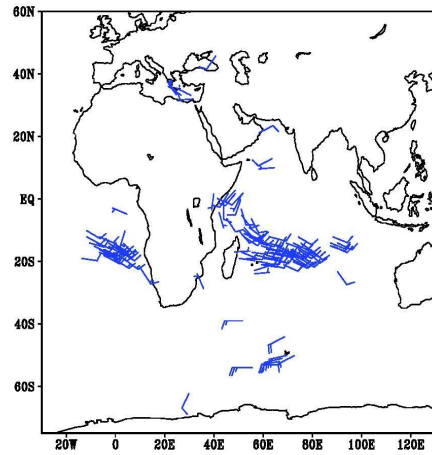
# NCMRWF OBSERVATIONS MONITORING

METEOSAT-9 ATMOSPHERIC MOTION VECTORS (WV & VIS)(14102024 1200UTC)

WV, High Level (Above 400 hPa)



VIS, Low Level (Below 700 hPa)

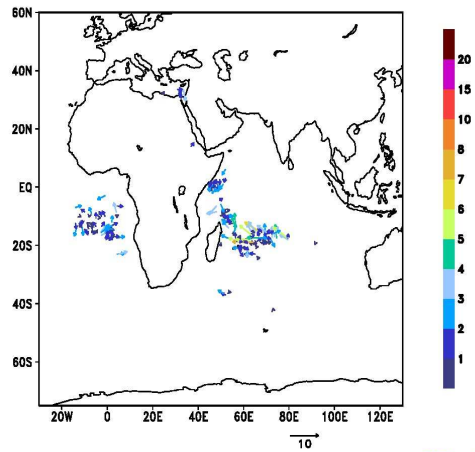




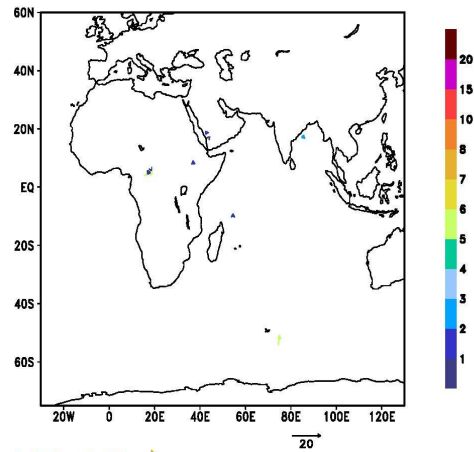
# NCMRWF OBSERVATIONS MONITORING

METEOSAT-9 ATMOSPHERIC MOTION VECTORS (IR) DEVIATION (14102024 1200UTC)

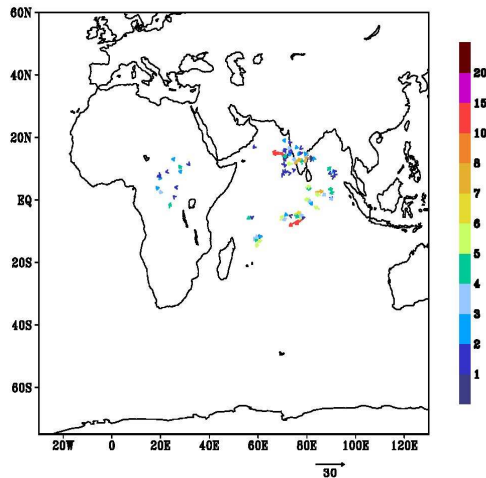
Low Level (Below 700 hPa)



Mid Level (700 – 401 hPa)



High Level (Above 400 hPa)

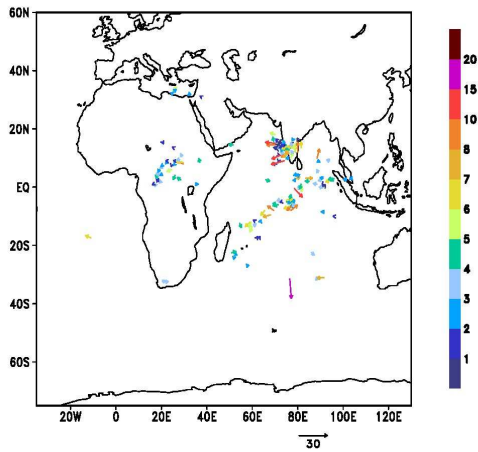




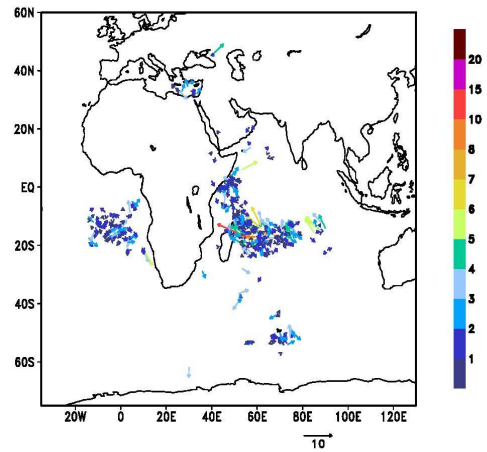
# NCMRWF OBSERVATIONS MONITORING

## METEOSAT-9 ATMOSPHERIC MOTION VECTORS(WV & VIS) DEVIATION (14102024 1200UTC)

WV, High Level (Above 400 hPa)



VIS, Low level (Below 700 hPa)





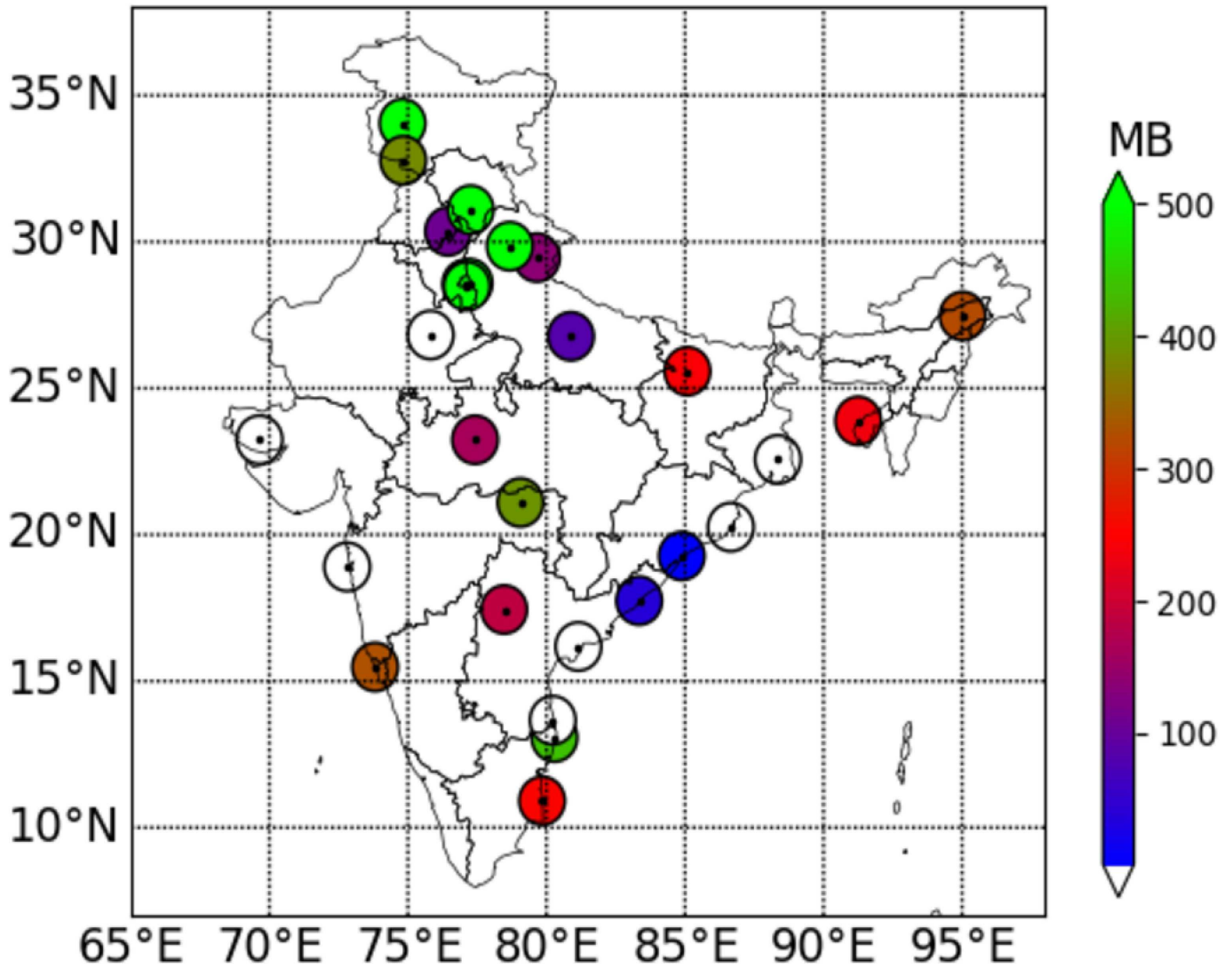
# Indian Doppler Weather Radar Data Monitoring





# NCMRWF OBSERVATIONS MONITORING

Volume of DWR observations received at NCMRWF  
Date: 20241014 at : 12 UTC





# Quality of Indian RS/RW Observations

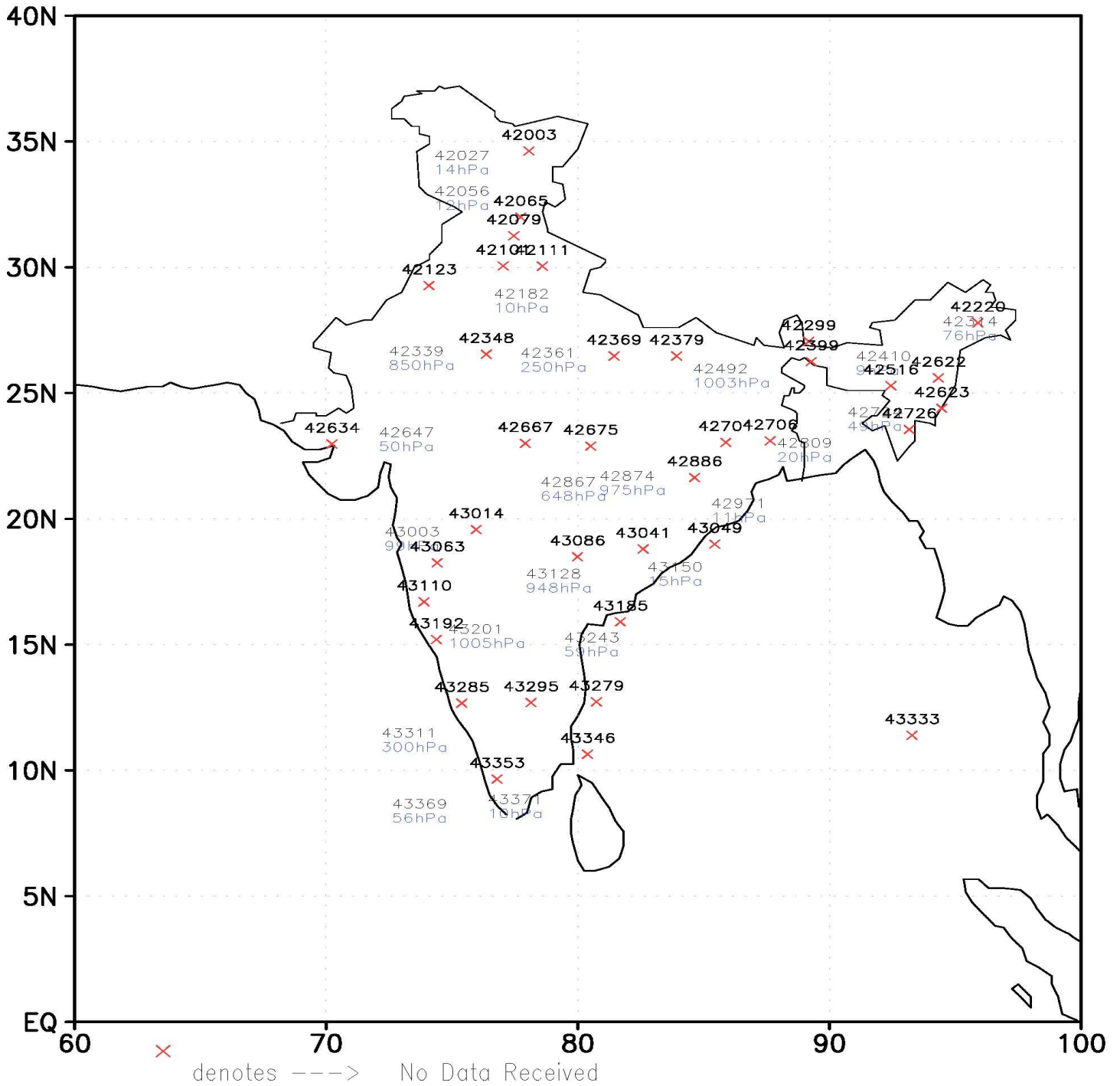
Maximum height reported  
by RS/RW ascents

Temperature and Zonal Wind  
Rejections by NGFS GDAS



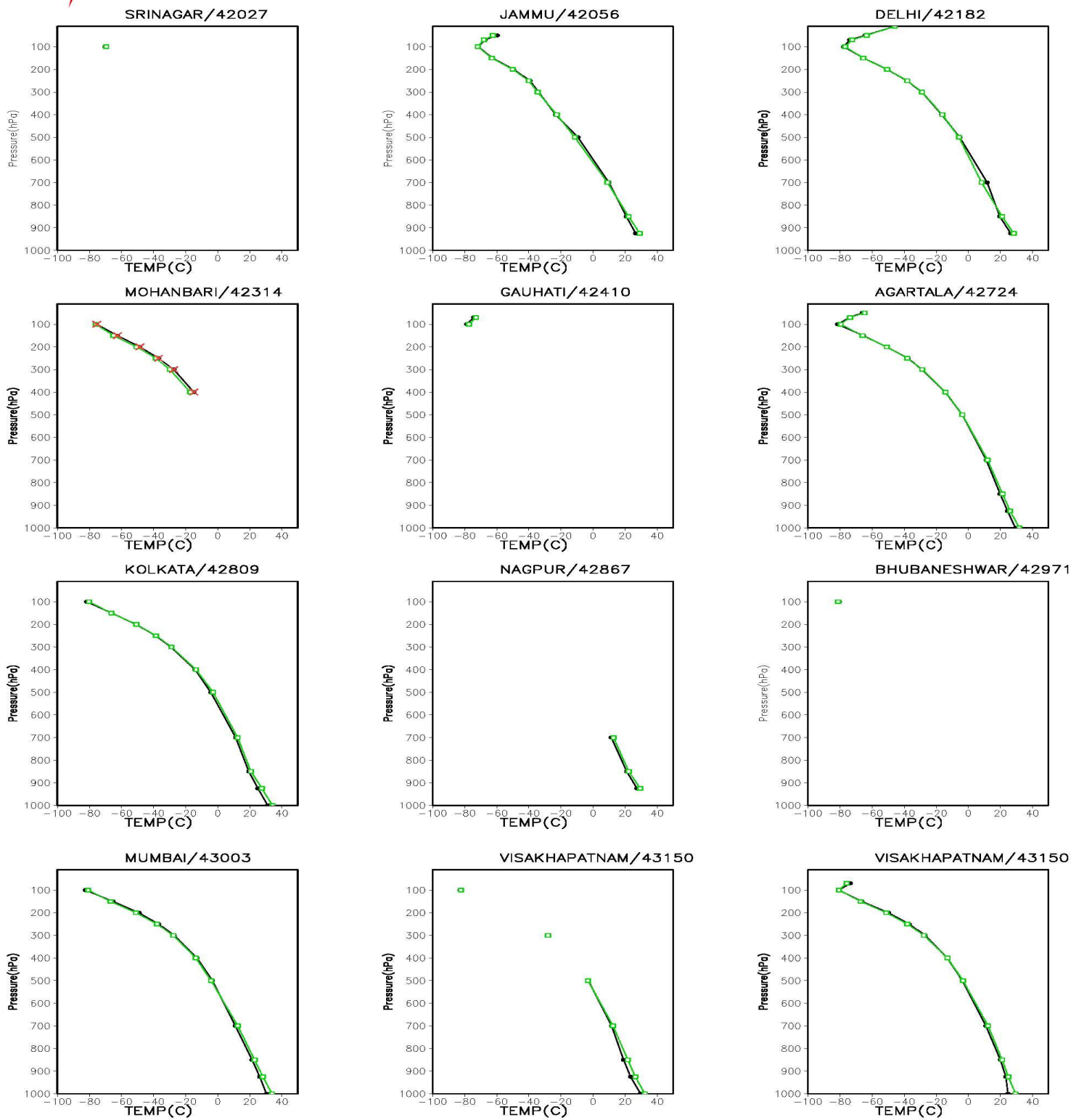
# NCMRWF OBSERVATIONS MONITORING

Highest Level Reported by RS/RW (14102024 1200UTC +/- 03Hrs E\_CYC)





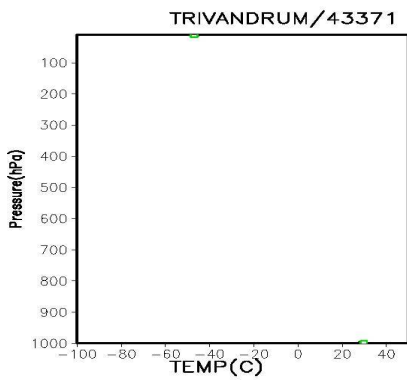
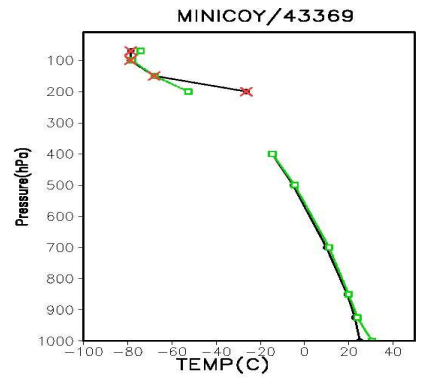
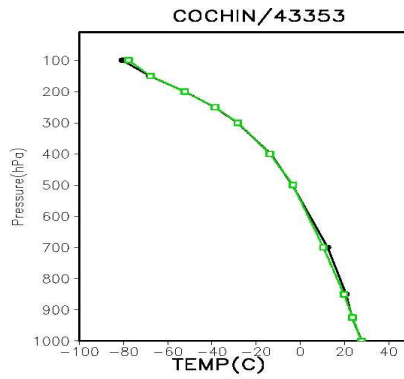
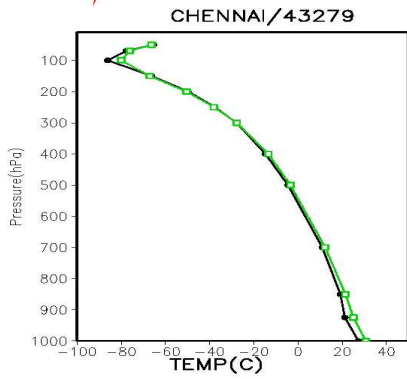
# NCMRWF OBSERVATIONS MONITORING



Observed ( — ) and 1st-guess ( — ) Temperature (Deg C) for 12UTC 14102024  
 × -- denotes the rejection of observation by NGFS GDAS  
 ( plotted for standard pressure levels only)



# NCMRWF OBSERVATIONS MONITORING

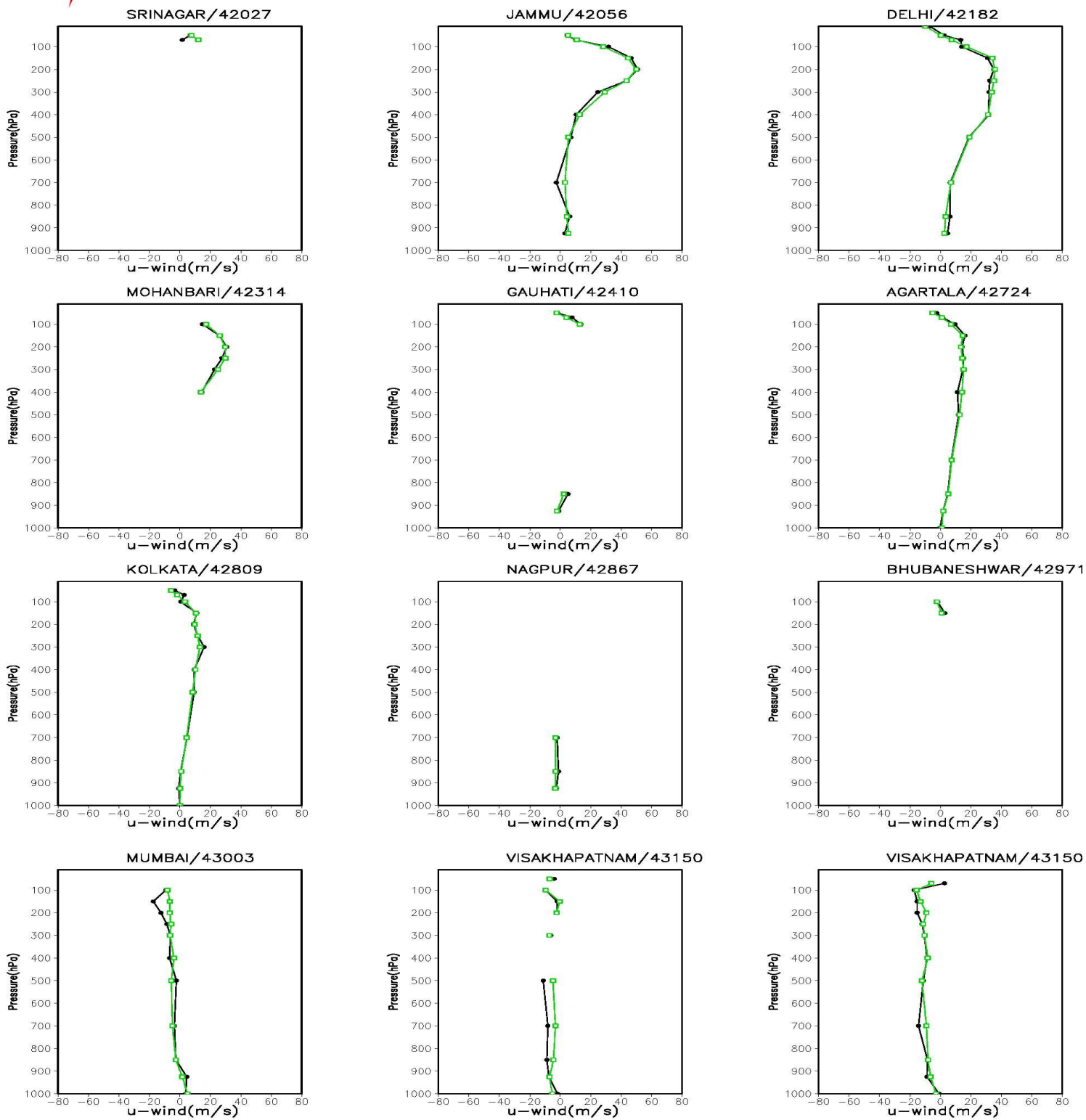


Observed ( — ) and 1st-guess ( — ) Temperature (Deg C) for 12UTC 14102024  
 × — denotes the rejection of observation by NGFS GDAS  
 ( plotted for standard pressure levels only)





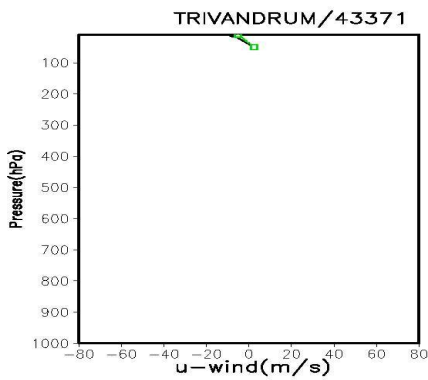
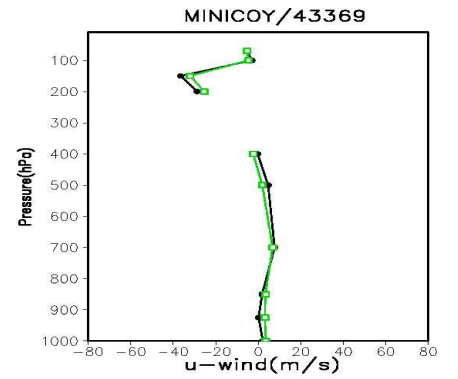
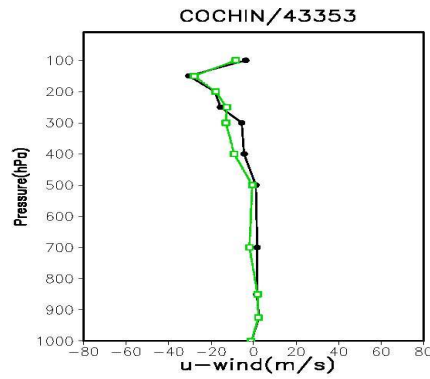
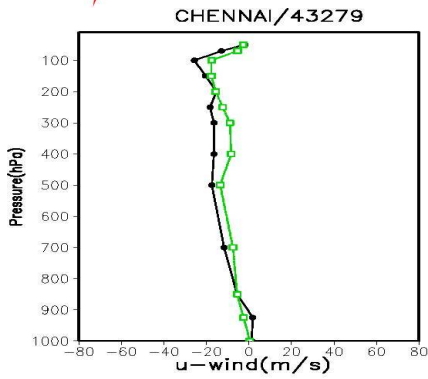
# NCMRWF OBSERVATIONS MONITORING



Observed ( — ) and 1st-guess ( — ) Zonal wind (m/s) for 12UTC 14102024  
 X -- denotes the rejection of observation by NGFS GDAS  
 ( plotted for standard pressure levels only )



# NCMRWF OBSERVATIONS MONITORING



Observed ( — ) and 1st-guess ( — ) Zonal wind (m/s) for 12UTC 14102024  
 × -- denotes the rejection of observation by NGFS GDAS  
 ( plotted for standard pressure levels only )