



India Meteorological Department

FDP STORM Bulletin No.2 (08-03-2018)

1. CURRENT SYNOPTIC SITUATION:

NWFC INFERENCE (0300UTC of the Day):

- ◆ The Western Disturbance as a trough in mid tropospheric westerlies with its axis at 5.8 Km above mean sea level roughly along Long. 65°E to the north of Lat. 25°N now seen as an upper air cyclonic circulation at 3.1 km above mean sea level over eastern parts of Afghanistan and adjoining Pakistan.
- ◆ A fresh Western Disturbance as a trough in mid tropospheric westerlies with its axis at 5.8 Km above mean sea level runs roughly along Long 58°E to the north of Lat 28°N.
- ◆ The cyclonic circulation over west Assam and neighbourhood now lies over eastern parts of Bangladesh and neighbourhood at 1.5 km above mean sea level.
- ◆ A cyclonic circulation at 1.5 km above mean sea level lies over north Madhya Maharashtra and neighbourhood.
- ◆ A trough of low at mean sea level runs from Lakshadweep area to Konkan along the west coast and extends upto 0.9 km above mean sea level.
- ◆ The trough of low at mean sea level over Equatorial Indian Ocean and adjoining southeast Bay of Bengal and Nicobar Islands now lies over Equatorial Indian Ocean and adjoining southeast Bay of Bengal.
- ◆ The cyclonic circulation over Lakshadweep area & neighbourhood now lies over Maldives-Comorin area extending upto 0.9 km above mean sea level.

SATELLITE OBSERVATIONS during past 24hrs and current observation:

Current Observation (based on 0300UTC imagery of INSAT 3D):

Western Disturbance (WD):

Scattered multi-layered clouds seen over North Caspian Sea, North Iran, Afghanistan, North Pakistan & Neighbourhood in association with WD over the Area.

Westerly Trough:

Trough in westerlies runs roughly along long 65.0°E & north of lat 25.0°N.

Clouds descriptions within India:

Scattered low medium clouds with embedded isolated weak convection seen over North Uttarakhand, Southeast Uttar Pradesh, North Chhattisgarh, Northwest Jharkhand, West Arunachal Pradesh, East Madhya Pradesh adjoining Vidarbha. Scattered low/medium clouds seen over Jammu & Kashmir, North Himachal Pradesh, West Bihar, South Odisha, Sikkim, rest Arunachal Pradesh and West Madhya Pradesh. Isolated low/medium clouds seen over North Kerala, South Tamilnadu and Bay Islands.

Arabian Sea:

Scattered low/medium clouds with embedded isolated weak to moderate convection over South Comorin and neighbourhood.

Bay of Bengal & Andaman Sea:

Scattered low/medium clouds with embedded isolated moderate to intense convection seen over Southeast Bay south of Lat 8.0 N and South Andaman Sea.

Past Weather:

Convection (during last 24 hrs): Weak to Moderate convection was observed over East J&K Madhya Pradesh adjoining South Uttar Pradesh North Madhya Maharashtra & Vidarbha.

OLR : Upto 230 w m^{-2} was observed over J&K North Himachal Pradesh North Uttarakhand West Madhya Pradesh Sikkim Arunachal Pradesh.

Westerly Trough & Jet-Stream: Trough in westerlies roughly along longitude 65.0°E & north of latitude 25.0°N

Dynamic Features: Negative shear tendency is observed over West Vidarbha North-East States and Positive shear tendency over rest parts of India.

Medium to high wind shear is observed over North & Central India.

A positive Vorticity field is observed over North-West Rajasthan North-West Uttar Pradesh Uttarakhand Madhya Maharashtra.

Negative low level convergence is observed over Uttarakhand Bihar coastal Andhra Pradesh and Positive Low Level Convergence over rest parts of India.

Precipitation:

IMR:

Rainfall upto 10 mm was observed over J&K North Himachal Pradesh.

HEM:.

Nil rainfall is observed.

RADAR and RAPID Observation:

Very light convection is seen on DWR Agartala and Nagpur domains at around 1230 IST.

Light convection is seen over East Madhya Pradesh and adjoining Northwest Chhattisgarh in and RAPID RGB Satellite imagery at 1130IST.

Environmental Condition (Particulate Matter) and its forecast:

	Observed 08.03.2018	Forecast 09.03.2018	Forecast 10.03.2018
PM10 ($\mu\text{gm-3}$)	168	160	173
PM2.5 ($\mu\text{gm-3}$)	86	82	89

2. NWP MODEL GUIDANCE:

NCMRWF (NCUM Forecasts based on 00 UTC of the day):-

1. Weather Systems:

Low level Cycirs, Troughs: 12 UTC of Day 0-4: NIL

Confluence & Wind Discontinuity Regions: North - south wind discontinuity over Maharashtra and MP in Day 0-2 moving north eastwards in Day 3-4 and lies over central India

Synoptic Systems: 12 UTC Charts of Day 0-4: shows anticyclonic circulation over central India & NW Bay of Bengal. Moisture incursion due to this anticyclone and its interaction with dry north westerly winds over central India. Feeble Western disturbance in Day 0-2 over J & K

2. Location of jet and jet core ($>60\text{kt}$) at 500hPa: Weaker core winds at 12 UTC on all days over India.

3. Convergence at 850 hPa:

Day/Index: Subdivisions with Lower Level Convergence > 15×10^{-5} /s

Day0: Jharkhand, Bihar, East Rajasthan, Odisha, West MP, Madhya Maharashtra, Coastal AP, Telangana, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day1: NE NMMT, West Rajasthan, East Rajasthan, Odisha, West MP, East MP, Madhya Maharashtra, Coastal AP, NI Karnataka, SI Karnataka, Kerala,

Day2: Jharkhand, Odisha, West MP, East MP, Vidarbha, Chhattisgarh, Coastal AP, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day3: Jharkhand, Jammu Kashmir, West MP, East MP, Madhya Maharashtra, Marathwada, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day4: Assam Meghalaya, NE NMMT, Gangetic WB, Jharkhand, Odisha, Madhya Maharashtra, Chhattisgarh, NI Karnataka, SI Karnataka, Kerala.

4. Low level Vorticity:-Positive Vorticity:

Day/Index: Subdivisions with Lower Level Vortex > 15×10^{-5} /s

Day0: Assam Meghalaya,

Day1: Gangetic WB, Uttarakhand, Kerala,

Day2: Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Uttarakhand, Kerala,

Day3: Assam Meghalaya, Bihar, Himachal Pradesh, Kerala,

Day4: Assam Meghalaya, Gangetic WB, Jharkhand, West UP, Uttarakhand, Himachal Pradesh, TN Puducherry.

5. Showalter Index: -3 to -4[Very unstable]:

Day/Index: Subdivisions with Showalter Index < -4

Day0: Arunachal Pradesh, Jammu Kashmir,

Day1: Arunachal Pradesh, Sub Himalayan WB,

Day2: Arunachal Pradesh,

Day3: Assam Meghalaya, NE NMMT,

Day4: Assam Meghalaya, NE NMMT, Sub Himalayan WB.

6. K-Index :> 35[Very Unstable thunderstorm likely]:

Day/Index: Subdivisions with K Index > 40

Day0: Telangana,

Day1: Assam Meghalaya, Kerala,

Day2: --, Day3:--, Day4:--

7. Spatial distribution of TTI: TTI >50 [Scattered Thunderstorms few severe]:

Day/Index: Subdivision with Total Totals Index > 52

Day0: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN, East RAJASTHAN, West MP, East MP, Gujarat region, Madhya Maharashtra, Vidarbha,

Day1: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan, East RAJASTHAN, West MP, East MP, Vidarbha,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, West UP, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan, Odisha, West MP, East MP, Vidarbha, Chhattisgarh, Telangana,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN, Odisha, East MP, Vidarbha, Chhattisgarh, Telangana,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, Chhattisgarh,

8. Rainfall and thunder storm activity:

Day/Index: Subdivisions with Precipitation > 2 cm

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Jammu Kashmir,

Day3:-- , Day4: --, Day5: --

IMD GFS (T1534) based on 00UTC the day:-

1. Synoptic Systems:

The analysis based on 00 UTC shows a low level cyclonic circulation over north Madhya Maharashtra and adjoining areas and persists as a trough from day1 to day3. Another cyclonic circulation over Gujarat and adjoining Pakistan persists up to day3. Forecasts also show a feeble cyclonic circulation over north eastern parts of India and persist for the next 3 days. Contour at 500 hPa shows a feeble Western Disturbance would affect the northern parts of the India during next two days.

2. Location of Jet and Jet Core (>60kt) at 500hPa: Presence of no jet core over the Indian region for the next 3 days.

3. Low Level Vorticity {850hPa Positive Vorticity ($>12 \times 10^{-1}/s$)}: Mostly along the trough at 850 hPa over Madhya Maharashtra and adjoining areas, parts of central India and along the foot hill of Himalaya during next 3 days.

4. Spatial distribution of T-storm Initiation Index, Lifted Index, Total Total Index, CAPE, CIN and Sweat Index [High potential for thunderstorm]:

T-Storm Initiation Index (> 4): Less than threshold value 4 all over the country during next 3 days.

Lifted Index (< -2): Higher than threshold value -2 all over the country during next 3 days.

Total Total Index (> 50): Above threshold value over the most parts of south peninsula during next 24 hours, some parts of Rajasthan, Gujarat and Gangetic West Bengal on day2 and day3.

Sweat Index (> 300): Mostly along east coast, along west coast, Gujarat and adjoining areas of Rajasthan, eastern part of India and north eastern states during next 5 days.

CAPE (> 1000): Mostly along southern parts of west coast during next 48 hours.

CIN (50-150): Mostly along east coast, west coast, and over parts of central India during next 48 hours and along east coast and west coast of India on day3.

5. Rainfall Activity:

Up to 10 mm rainfall over J&K, Himachal Pradesh, Uttarakhand, parts of Madhya Pradesh, Chhattisgarh, Maharashtra and Arunachal Pradesh during next 3 days.

Up to 10 mm rainfall over Panjab during next 24 hours and over Kerala during next 48 hours.

IMD WRF (9km based on 00UTC of the day):

1. Model Reflectivity (Max.dBz): 5-15 dBZ Model reflectivity over parts of central India during next 24 hours and over some parts of J & K and north-west India during subsequent 24 hours and parts of Arunachal Pradesh and J & K on day3.

2. Spatial distribution of Total Total Index, K-Index, CAPE and CIN [High potential for thunderstorm]:

Total Total Index (> 50) : Above threshold value is observed over most parts of the country except extreme south peninsula, J&K and NE states during next 72 hour.

K-Index (> 35): Less than threshold value is observed over the country during the next 72 hour.

CAPE (> 1000): Mostly over Punjab during next 48 hours and along Kerala coast and Andhra Pradesh coast during next 3 days.

CIN (50-150): Mostly over Punjab, parts of Rajasthan and along west coast and east coast during next 3 days.

3. Rainfall and thunderstorm activity:

Rainfall activity (up to 10 mm): over parts of J&K, Himachal Pradesh, central India and Arunachal Pradesh during next 72 hours.

3. IOP ADVISORY FOR 24 and 48Hrs:

Summary and Conclusions:

Day-1 & Day-2:

The western Disturbance, seen yesterday as a trough in mid tropospheric westerlies has moved eastwards and is now seen as an upper air cyclonic circulation at 3.1 km above mean sea level over eastern parts of Afghanistan and adjoining Pakistan. In association with this system, there is moisture flow at 700 hPa and above into central India. The wind discontinuity in the lower levels noted yesterday, has also shifted eastwards. However, in the absence of strong dynamic forcing as well as low surface temperatures over central India, as well as absence of strong low level moisture flow inland, there is no mechanism for increasing the severity of the thunderstorms. Hence on Day 1, light rain/thundershowers are expected over Madhya Pradesh and adjoining parts of Chhattisgarh and Jharkhand. On day 2, the rainfall is expected to decrease further and be confined to isolated spells over north Chhattisgarh and adjoining Jharkhand.

24 hour Advisory for IOP:

Rainfall:

Nil

Thunderstorm with associated phenomena:

East Madhya Pradesh, North Chhattisgarh, West Jharkhand,
Southeast Uttar Pradesh

48 hour Advisory for IOP:

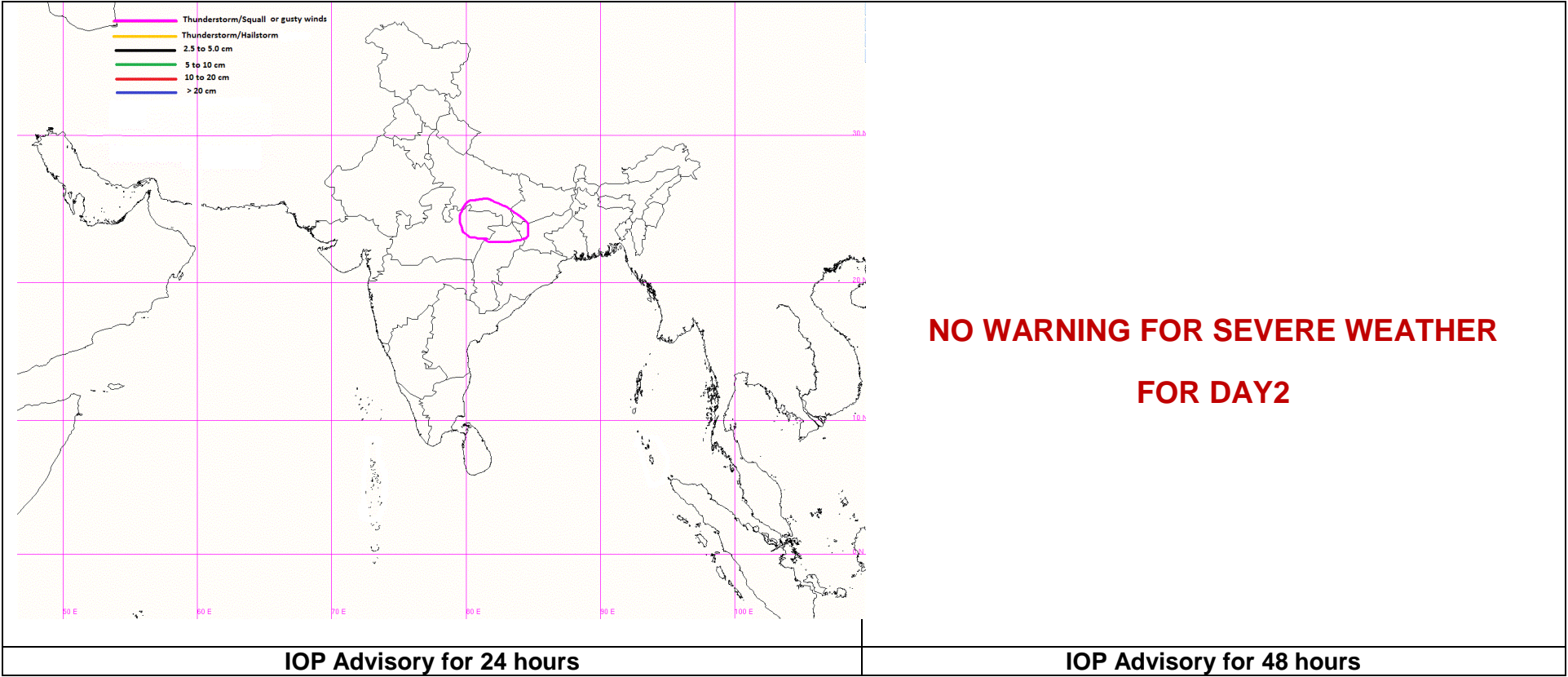
Rainfall:

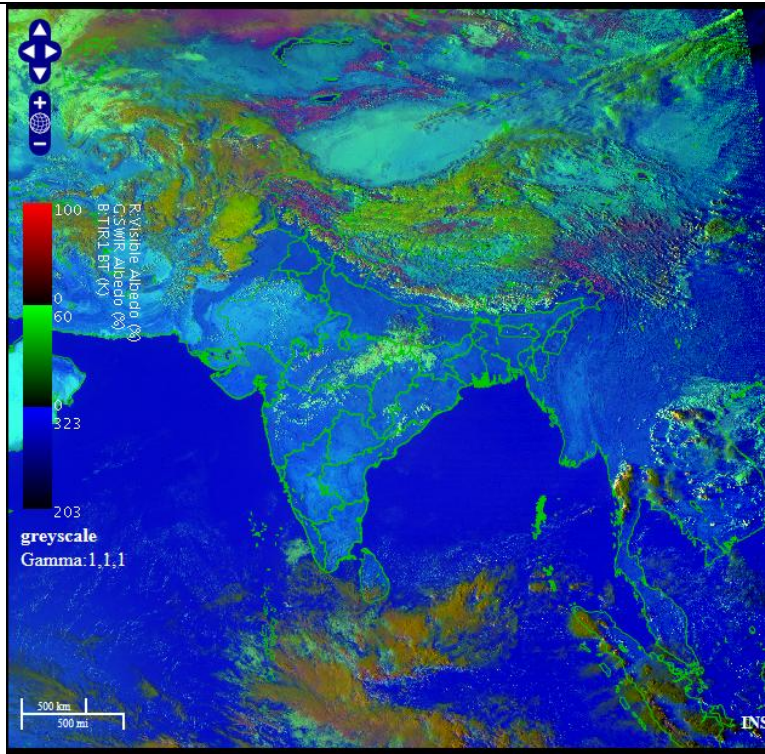
Nil

Thunderstorm with associated phenomena:

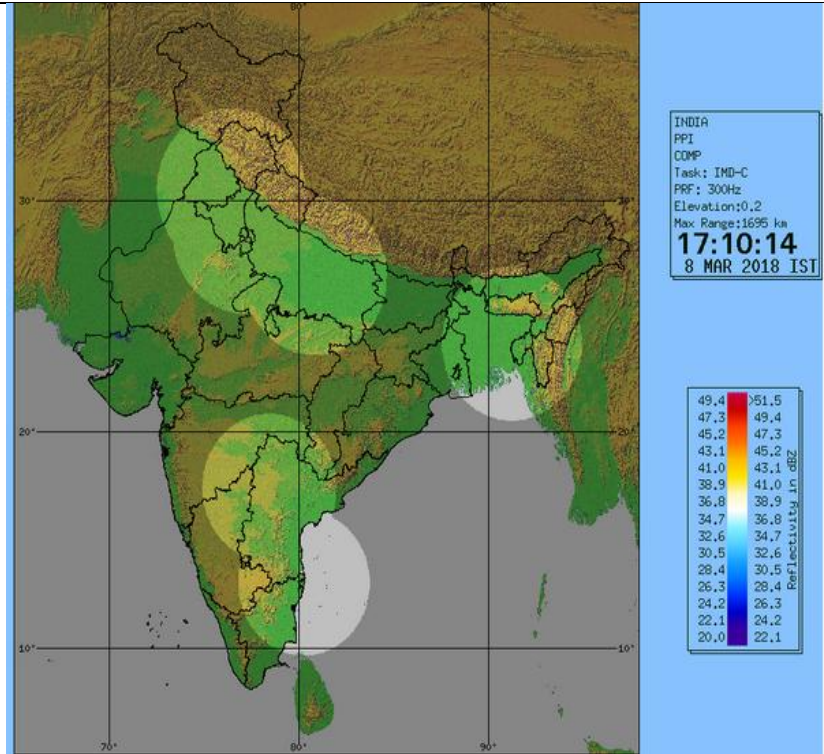
Nil

Graphical Presentation of Potential Areas for Severe Weather:

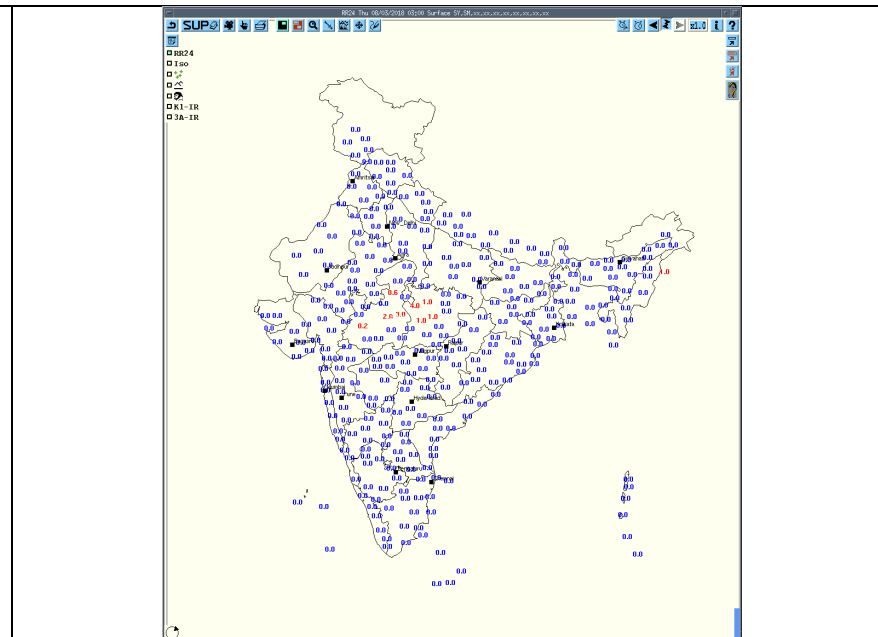
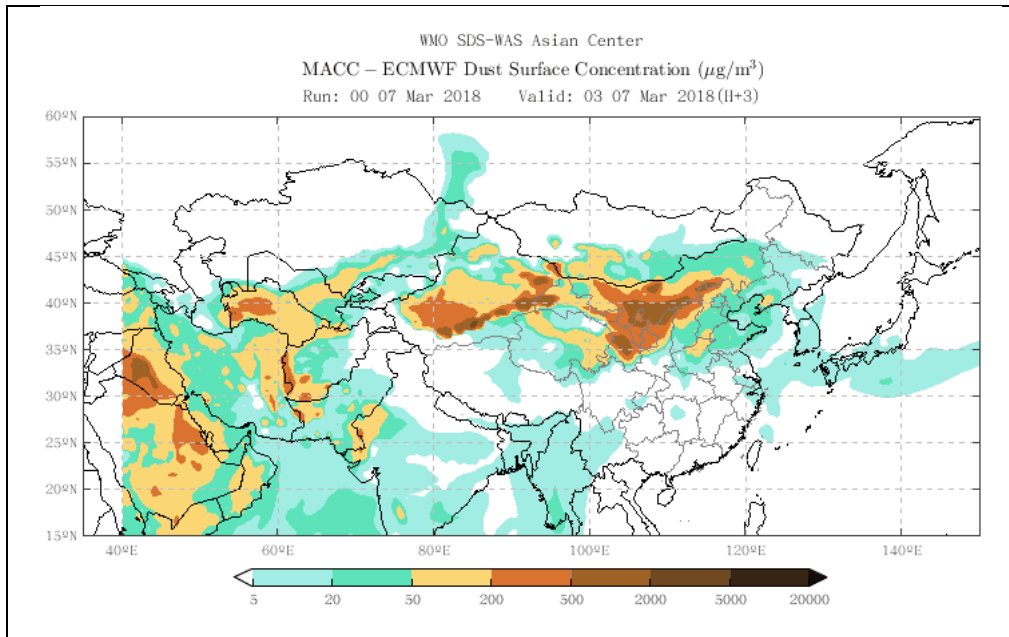




RAPID RGB Imagery at 1600IST of the Day

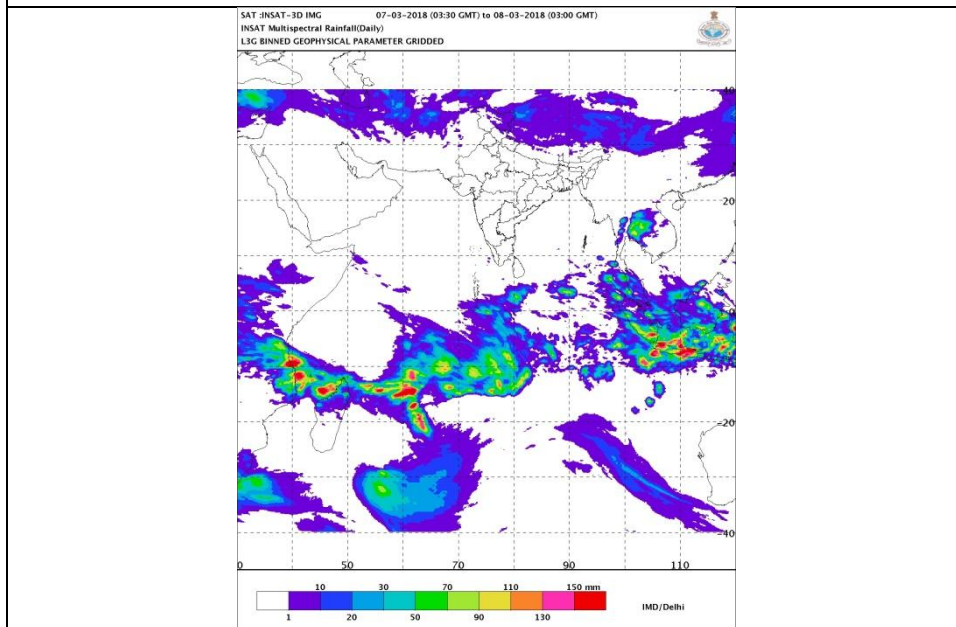


DWR Composite at 1710 IST of the Day

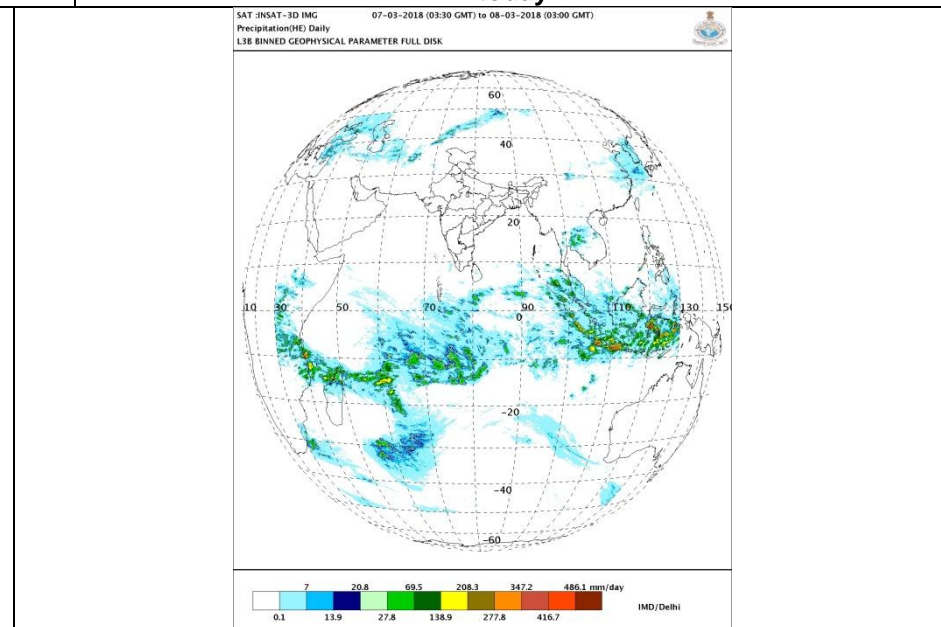


Dust Forecast

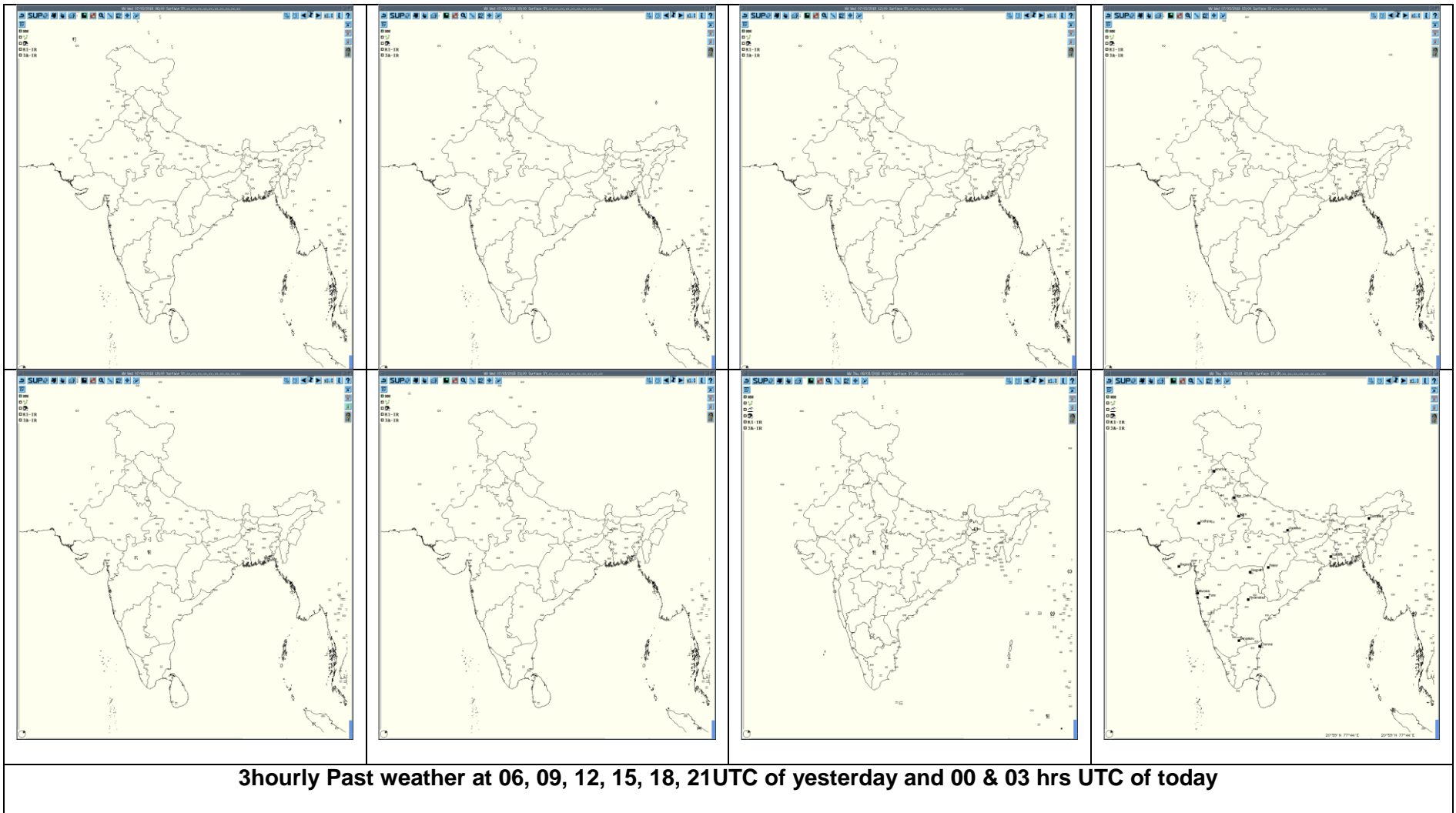
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today

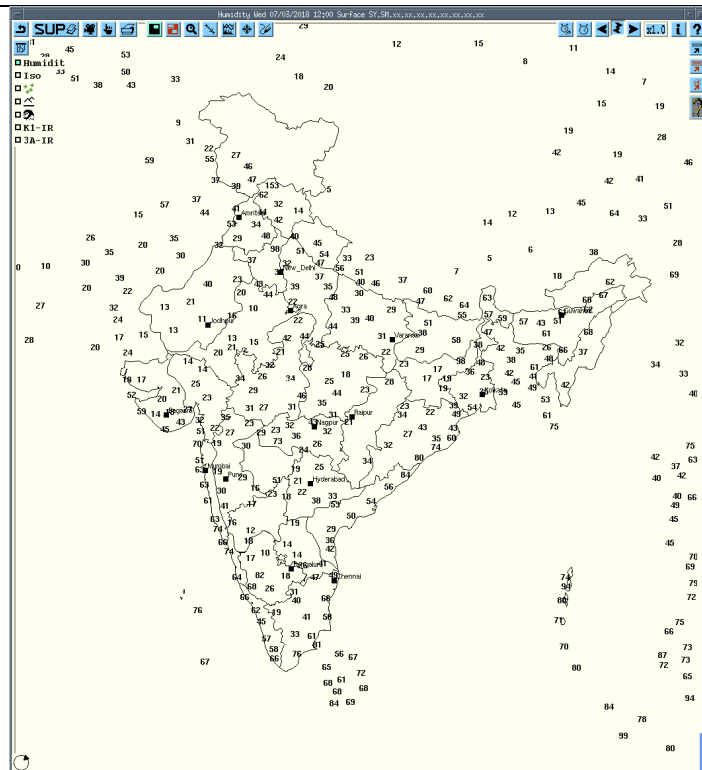


IMR Rainfall

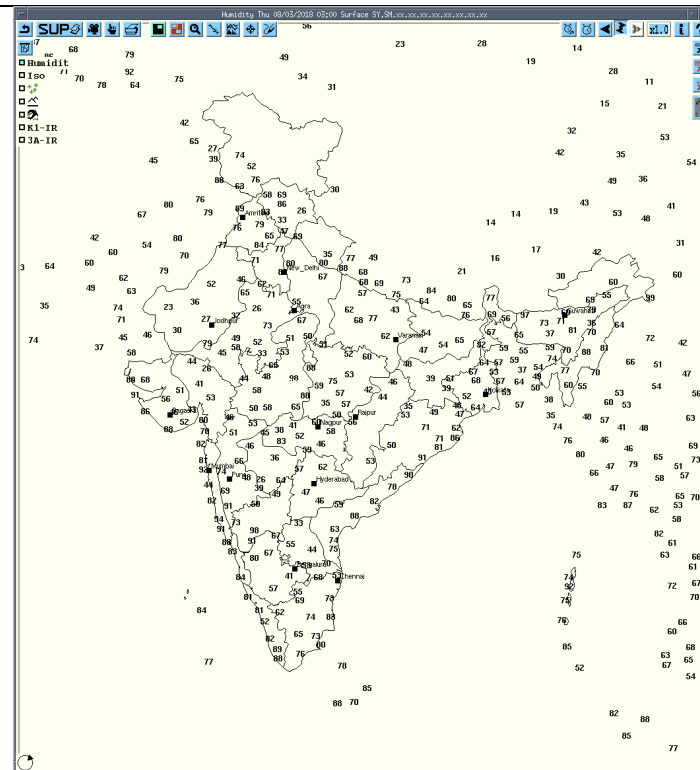


HEM Rainfall





RH at 12UTC yesterday



RH at 03UTC today

Past 24 hours DWR Report:

DWR Station Name	Date of Report	Time Interval of Observation (UTC)	Organisation of cells (Isolated single cells/multiple cells/convective regions/squall lines) with height of 20 dBZ echo top and maximum reflectivity	Formation w.r.t. radar station and Direction of movement	Remarks	Associated Severe Weather if any	Districts affected
Agartala	08-03-2018	070300-080300	Nil	Nil	Nil	Nil	Nil
Jaipur	08-03-2018	070300-080300	Nil	Nil	Nil	Nil	Nil
Patiala	08-03-018	070300-080252	Nil	Nil	Nil	Nil	Nil
Lucknow	08-03-2018	070300-080300	Nil	Nil	Nil	Nil	Nil

Realised past 24hrs TS/SQ/HS Data:

Realised TS/HS/SQ during past 24 hours ending at 0300UTC of today(received from RMCs/MCs)						
Name of Station Reporting	Region	STATE	Weather Event (TS/Hail/Squall)	Date	Time of Commence ment (IST)	Time of end (IST)
Bhopal	Central India	Madhya Pradesh	Thunderstorm	08-03-18	0240	0245
Jabalpur	Central India	Madhya Pradesh	Thunderstorm	08-03-18	0720	0750
Sagar	Central India	Madhya Pradesh	Thunderstorm	08-03-18	0500	0600

IMPORTANT LINKS:

For NCMRWF NWP products:(<http://www.ncmrwf.gov.in/HomePage/NEPS-prod-1.php>)

For IMD NWP products:(http://nwp.imd.gov.in/diagpro_new.php)

For Synoptic plotted data and charts

<http://amssdelhi.gov.in/>

<http://www.amsskolkata.gov.in/>

For RAPID tool:

<http://rapid.imd.gov.in/>

Low Level Winds

<http://satellite.imd.gov.in/archive/INSAT-3D-IMAGER/3D-PRODUCTS/AMV/LLW/MAR 2017/?C=M;O=D>

Upper level winds

<http://satellite.imd.gov.in/archive/INSAT-3D-IMAGER/3D-PRODUCTS/AMV/HLW/MAR 2017/?C=M;O=D>

Past24hourHEMandIMRainfall(upto03UTCof today)

IMR: http://satellite.imd.gov.in/img/3Ddaily_imr.jpg

HEM: http://satellite.imd.gov.in/img/3Ddaily_he.jpg

For Radar images of the past 24 hours including mosaic of images:

http://ddgmui.imd.gov.in/dwr_img/

Satellite sounder based T- Phigram

http://satellite.imd.gov.in/map_skm2.html

WEATHER SYMBOLS:



+ thunderstorm



+ heavy thunderstorm



sandstorm or dust storm



squall



hail shower



tropical storm



+ tornado



+ lightning



+ hurricane



haze



smoke



dust or sand storm



fog



drizzle



rain



snow



showers



hail



thunderstorm

Weather Symbols