



# India Meteorological Department

## FDP STORM Bulletin No. 13 (19-03-2018)

### 1. CURRENT SYNOPTIC SITUATION:

#### NWFC INFERENCE (0300UTC of the Day):

- ◆ The Western Disturbance as an upper air cyclonic circulation over Iran & adjoining Afghanistan with a trough aloft now lies as a low pressure area over Iran & adjoining Afghanistan. Associated cyclonic circulation extends upto 9.5 km above mean sea level.
- ◆ The induced cyclonic circulation over south Pakistan and adjoining southwest Rajasthan extending upto 1.5 km above mean sea level now lies over south Pakistan & neighbourhood.
- ◆ A trough in the westerlies extending upto 0.9 km above mean sea level runs from East Bangladesh to interior Odisha with an embedded cyclonic circulation over north Odisha & neighbourhood.
- ◆ A cyclonic circulation extending upto 1.5 km above mean sea level lies over north Madhya Maharashtra & neighbourhood.
- ◆ A trough extending upto 0.9 km above mean sea level runs from the above cyclonic circulation to central parts of Rajasthan.
- ◆ A cyclonic circulation extending upto 0.9 km above mean sea level lies over southeast Arabian Sea off Kerala Coast.
- ◆ The trough in low level easterlies extending upto 0.9 km above mean sea level from Comorin area to Interior Karnataka now runs from the above cyclonic circulation to north Interior Karnataka across Kerala & south Interior Karnataka.
- ◆ The trough of low at mean sea level over Equatorial Indian Ocean and adjoining southeast Bay of Bengal persists and is feeble.

#### SATELLITE OBSERVATIONS during past 24hrs and current observation:

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

#### WESTERN DISTURBANCE (WD):

Scattered multi-layered clouds observed over East Iran, Afghanistan, North Pakistan in association with WD over the area.

#### Clouds description within India:

Scattered low/medium clouds with embedded isolated weak convection seen over Rajasthan, East Gujarat, South Interior Karnataka, Scattered low/medium clouds were seen over Jammu & Kashmir, North Himachal Pradesh, Southwest Punjab, Haryana adjoining Northwest Uttar Pradesh, Uttarakhand, South Odisha, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, West Madhya Pradesh, Maharashtra, Telangana, Andhra Pradesh, North Interior Karnataka, Kerala, Tamilnadu, and Nicobar Islands.

**Arabian Sea:**

Scattered low/medium clouds with embedded moderate to intense convection seen over Southeast Arabian Sea off Kerala coast & Comorin.

**Bay of Bengal & Andaman Sea:**

Scattered low/medium clouds with embedded moderate to intense convection seen over extreme South Bay adjoining Indian Ocean between Lat 3.5N to 6.5N Long 80.0E to 90.0E.

**Past Weather:****Convection (during last 24 hrs):**

Intense to very Intense convection was observed over Karnataka Kerala and Moderate to intense convection observed over J&K and weak to moderate convection observed over Himachal Pradesh Uttarakhand Haryana Rajasthan Gujarat Maharashtra South-West Madhya Pradesh Telangana Rayalaseema Sikkim North-East States.

**OLR:**

Upto 230  $\text{wm}^{-2}$  was observed over J & K, North Himachal Pradesh, North Uttarakhand, Sikkim, Arunachal Pradesh, South Interior Karnataka, Kerala and West Tamilnadu.

**Synoptic Features:**

**Westerly Trough:** Trough in westerlies previously along Longitude 58°E & north of Latitude 25°N now lies as a low pressure area over East Iran & adjoining Afghanistan.

**Dynamic Features:** Negative shear tendency is observed over north Odisha and Positive shear tendency over rest parts of India.

Medium to high wind shear is observed over North & Central India and low wind shear over South Peninsula region.

A positive Vorticity field is observed over Himachal Pradesh Uttarakhand Uttar Pradesh Gangetic West Bengal North Konkan North Madhya Maharashtra.

Negative Low Level Convergence is observed over Madhya Pradesh and Positive Low Level Convergence over rest parts of India.

**Precipitation:****IMR:**

Rainfall upto 50-70 mm observed over South Kerala and

Rainfall upto 30-50 mm observed over South-West parts of South Interior Karnataka adjoining North-West Tamilnadu and

Rainfall upto 01-10 mm observed over J&K North-East Himachal Pradesh rest Karnataka rest Kerala rest West Tamilnadu North Arunachal Pradesh.

**HEM:**

Rainfall upto 70 mm observed over South Kerala South-West parts of South Interior Karnataka adjoining North-West Tamilnadu and

Rainfall upto 14 mm observed over rest Karnataka rest Kerala.

Rainfall upto 7 mm observed over North Arunachal Pradesh

### RADAR and RAPID RGB Observation:

No convection was seen in Radar Composite at 1130IST.

RAPID RGB Satellite imagery at 1100IST indicates light to moderate convection over Haryana, Northeast Rajasthan, Lakshadweep and Minicoy Islands.

### Environmental condition (dust etc) and its forecast based on 00UTC of date:

Higher Dust concentration was observed over Arab countries and northern part of Africa. Dust concentration is expected to increase over north-western part of India for next five days. PM10 concentration is expected to increase over IGP in next five days.

Particulate matter concentration is expected to remain in moderate category for next 2 days in Delhi.

<b>Delhi – SAFAR analysis &amp; Forecast</b>	19.03.2018	20.03.2018
PM10 (micro-g/m <sup>3</sup> )	142	128
PM2.5 (micro-g/m <sup>3</sup> )	80	72

## **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 3-4:** 850 hPa Trough over Bangladesh and adjoining parts of East & NE India

**12 UTC of Day 2-4:** Trough in lower levels over Rajasthan & adjoining Pakistan, Induced CYCIR in Day 2.

**00 UTC of Day 3:** N-S Trough at 850 hPa from west U.P. to peninsular India through Central India moving eastward in Day 4

**Confluence & Wind Discontinuity regions: UTC of Day 2-3:** W-E wind discontinuity over peninsular & in Day 2-4 over Maharashtra-MP-Chhattisgarh-Odisha

**Synoptic systems:** At 500 hPa WD and associated cyclonic circulation over Pakistan, J & K and adjoining areas

#### **2. Location of jet and jet core (>60kt) at 500hPa:**

Over SW Pakistan (Day-1) S Pakistan (Day-2) associated with WD

#### **3. Convergence at 850 hPa:**

**Day/Index: Subdivisions with Lower Level Convergence > 15 x 10<sup>-5</sup> /s**

Day0: Odisha, Coastal Andhra Pradesh, ,

Day1: Assam Meghalaya, NE NMMT, Jharkhand, West Rajasthan, Odisha, East MP, Chhattisgarh, Coastal Andhra Pradesh, SI Karnataka, Kerala,

Day2: NE NMMT, East UP, Himachal Pradesh, Odisha, West MP, Chhattisgarh, Coastal Andhra Pradesh, Tamilnadu, Puducherry, Kerala,

Day3: Jharkhand, West UP, Haryana, Chandigarh, Delhi, Chhattisgarh, Tamilnadu, Puducherry,

Day4: Assam Meghalaya, Jharkhand, Odisha, Coastal Andhra Pradesh, Tamilnadu, Puducherry, SI Karnataka

#### **4. Spatial distribution of Low level Vorticity:**

**Day/Index: Subdivisions with Lower Level Vorticity >  $15 \times 10^{-5}$  /s**

Day0: Assam Meghalaya, NE NMMT, Uttarakhand, Himachal Pradesh, East Rajasthan,

Day1: Arunachal Pradesh, Assam Meghalaya, Bihar, Uttarakhand, Punjab, Odisha, Gujarat region,, Coastal Andhra Pradesh, ,

Day2: Assam Meghalaya, Bihar, East UP, Punjab, Odisha,

Day3: Haryana, Chandigarh, Delhi, Punjab, Odisha,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jammu Kashmir

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

**Day/Index: Subdivisions with Showalter Index < -4**

Day0: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Coastal Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Coastal Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Sub Himalayan WB, Punjab, Himachal Pradesh, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Tamilnadu, Puducherry, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Kerala

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

**Day/Index: Subdivisions with K Index > 40**

Day0: Arunachal Pradesh, Sub Himalayan WB, Madhya Maharashtra, Marathwada, Vidarbha, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Sub Himalayan WB, Rayalaseema, Tamilnadu, Puducherry, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Sub Himalayan WB, Coastal Andhra Pradesh, , Tamilnadu, Puducherry, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Odisha, Coastal Andhra Pradesh, , Tamilnadu, Puducherry, SI Karnataka, Kerala,

Day4: Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Tamilnadu, Puducherry, SI Karnataka, Kerala

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

**Day/Index: Subdivision with Total Totals Index > 52**

Day0: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir,

Day1: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan,

Day2: Arunachal Pradesh, Sub Himalayan WB, East UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan,

Day3: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, Chhattisgarh,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha

**Day/Index: Subdivisions with Precipitation > 2 cm**

Day1: Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir,

Day2: Arunachal Pradesh, NE NMMT, Himachal Pradesh, Jammu Kashmir,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT,

Day4: Nil, Day5: Nil

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

**1. Synoptic Systems:** The analysis based on 00 UTC shows an induced cyclonic circulation in lower troposphere is seen over west Pakistan and adjoining southwest Rajasthan which persists for next 3 days with a slow north-eastward movement over the Punjab and adjoining north Rajasthan region. Another cyclonic circulation over west Madhya Pradesh and adjoining east Rajasthan, south Gujarat and Madhya Maharashtra is seen in the analysis which moves eastward direction for next 2 days to reach over west Uttar Pradesh on day 3. A north-south trough runs from this cyclonic circulation up to Comorin area extending over central and peninsular India. In the analysis another trough is running from east Bangladesh to Orissa. In the forecast, north south trough is seen from North Bihar to Orissa. A cyclonic circulation is found to be embedded within this trough over Northern Orissa and adjoining Jharkhand region on day 2 and over Bihar on day 3.

**2. Location of Jet and Jet Core (>60kt) at 500hPa:** Although the presence of strong westerlies is found but no jet core over the Indian region for the next 3 days.

**3. Low Level Vorticity {850hPa Positive Vorticity (>12 x 10<sup>-1</sup>/s)}:** Mostly along foothills of Himalayas and associated with the cyclonic circulations and along the trough situating over central and eastern India 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 (> 3):** Higher than a value 3 over parts of Gujarat coastal areas of Gangetic West Bengal, Orissa, Andhra Pradesh, Kerala, Karnataka, Tamil Nadu, coastal Maharashtra, Konkan & Goa, east coast and southern part of west coast on day 1 and 2. Over parts of Punjab, Haryana, western Uttar Pradesh, Gujarat, east coast and west coast, Andhra Pradesh, Tamil Nadu, Kerala, coastal Orissa and GWB, Orissa, Tamil Nadu and Andhra Pradesh on day 3.

**Lifted Index (< -2):** The threshold value of the index is higher on day 1 and 2 except coastal Gujarat, GWB, Andhra Pradesh and Kerala. Less than threshold value over parts of Gujarat, GWB, Punjab, Haryana, parts of Uttar Pradesh, Madhya Pradesh, Orissa, coastal Andhra, southern Part of west coast, Karnataka and Tamil Nadu and Kerala on day 3.

**Total Total Index (> 50)** : Above threshold value over J&K, Uttarakhand, Punjab, Haryana, Himachal Pradesh, Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, GWB, Orissa Tamil Nadu and Andhra Pradesh on day 1 and 2. On day 3: over foothills of Himalaya, Uttarakhand, Bihar Jharkhand Orissa and GWB.

**Sweat Index (> 300)**: Parts of NE states, Coastal areas of GWB, Peninsular India, Konkan & Goa, Madhya Pradesh, Rajasthan, Madhya Maharashtra, Marathwada, some parts of Orissa NE states for next 2 days. Whole central India and J&K, Punjab, Haryana, Delhi, south and east coast, GWB, Chhattisgarh, Bihar and Jharkhand and Peninsular India and south west Rajasthan on day 3.

**CAPE (> 1000)**: Mostly along southern parts peninsular India along west coast and over east coastal areas of GWB and Orissa during all 3 days.

**CIN (50-150)**: Mostly over parts of Gujarat, along east coast along west coast from Saurashtra & Kutch to coastal Karnataka Konkan and Goa, coastal Orissa, Andhra Pradesh and GWB during next 3 days.. over parts of Madhya Pradesh, Punjab, Haryana, Delhi, Uttar Pradesh, Chhattisgarh on day 3.

## **5. Rainfall Activity:**

10- 40 mm rainfall: On day 3 over J&K Himachal Pradesh and Uttarakhand; Kerala and adjoining Interior Karnataka during all 3 days.

Up to 10 mm rainfall: on day 1 over parts of J&K, Uttarakhand, Rajasthan, Madhya Pradesh on day 1. Over J&K, Himachal Pradesh, Uttarakhand and northern plains on day 2 and 3; over Uttar Pradesh, Bihar, Jharkhand and Chhattisgarh and Andhra Pradesh on day 3. Over peninsular India during all three days

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

### **1. Model Reflectivity (Max.dBz):**

#### **> 25 dBZ Model Reflectivity:**

On day 1: over parts of South Gujarat, West Rajasthan, and adjoining west Madhya Pradesh. On day 2: over some parts of Punjab and Haryana. On day 3, parts of J & K, Himachal Pradesh, Uttarakhand, Punjab, Haryana, west and east Uttar Pradesh near the foothills of Himalayas.

### **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 south peninsula, along east and west coast and north-eastern states during all three days. The maximum values are found over northwest India and central India.

**K-Index (> 35)**: Less than threshold value is observed over the country during the next 3 days except over parts Karnataka, Kerala, Marathwada, Madhya Maharashtra, Marathwada and Vidarbha.

**CAPE (> 1000)**: Greater than threshold value over the southern part of west coast, east coast, coastal Orissa, GWB and parts of Tamil Nadu, Kerala and coastal Karnataka and adjoining interior Karnataka during the next 3 days. Some parts of Madhya Maharashtra and adjoining area on day 1, over Punjab, adjoining southwest Rajasthan, Haryana and Delhi on day 3. Maximum value greater than 3000 is seen over coastal Karnataka on day 2.

**CIN (50-150):** some places over Punjab and adjoining Rajasthan, Madhya Pradesh and adjoining Maharashtra region, Vidarbha, and Marathwada, coastal areas along east coast and west coast Konkan and Goa, southern parts of peninsular India, parts of Arunachal Pradesh and GWB on day 1 and 2; on day 3 over parts of J & K, Himachal Pradesh, Uttarakhand, Punjab, north west Rajasthan, Haryana, Delhi, East and west Uttar Pradesh, east Madhya Pradesh, Vidarbha, Chhattisgarh, Gujarat, Saurashtra region and southern part of east and west coast, Orissa, southern part of peninsular India and GWB.

### **3. Rainfall and thunderstorm activity:**

40- 70 mm rainfall: Over parts of Himachal Pradesh and Uttarakhand on day 3

10- 40 mm rainfall: Over Kerala and adjoining Interior Tamilnadu and Karnataka on day 1 and day3, on day 3 over parts of Punjab, J&K, Himachal Pradesh and Uttarakhand.

Up to10 mm rainfall: On day 1, over parts of Gujarat, west Madhya Pradesh, Madhya Maharashtra, Marathwada, Vidarbha, Karnataka, Kerala and Tamil Nadu; on day 2 over parts of J&K, Punjab, Haryana, Delhi, south west Rajasthan, parts of west Madhya Pradesh, Vidarbha, Konkan and Goa, Karnataka, Kerala and some parts of Arunachal Pradesh; on day 3 over parts of J & K, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Delhi, south west Rajasthan, East and West Uttar Pradesh, East Madhya Pradesh and Chhattisgarh, Karnataka and adjoining Kerala.

### **3. IOP ADVISORY FOR 24 and 48Hrs:**

#### **Summary and Conclusions:**

##### **Day-1 & Day-2:**

o There is an anticyclone over north-central India in the lower levels. There is also an induced cyclonic circulation over south Pakistan and neighbourhood in the lower levels. The convergence of the dry winds on the periphery of the anticyclone with the moist south-westerly winds from the Arabian Sea over Rajasthan is likely to result in dust raising winds with isolated thunderstorms over Rajasthan and west Uttar Pradesh on day 1. On day 2, the induced cyclonic circulation is likely to move eastwards, and the region of dust raising winds is likely to extend eastwards to over Rajasthan, Haryana and West Uttar Pradesh.

o The main weather is expected today over the south Indian peninsula, associated with the cyclonic circulation in the lower levels over southeast Arabian Sea off Kerala Coast and the trough in low level easterlies in the lower levels, extending from this cyclonic circulation to north Interior Karnataka across Kerala & south Interior Karnataka. The associated moisture flow inland, is likely to result in heavy rainfall over Kerala and Minicoy Island. Less intense rainfall is expected over Interior Karnataka on day 1. On day 2, the trough is likely to de-intensify and weather due to the western disturbance is likely to dominate over the Indian region.

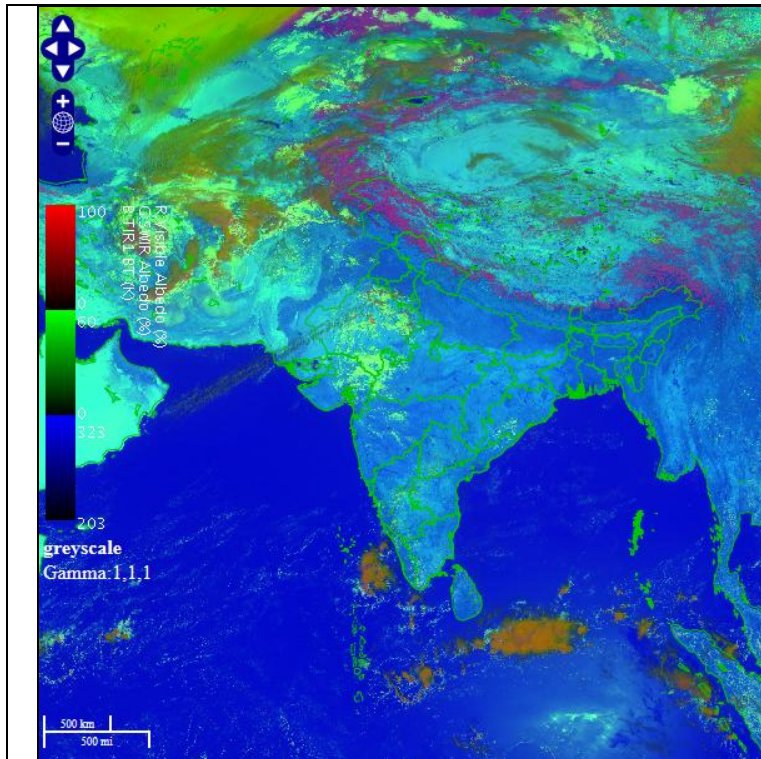


<p><b>24 hour Advisory for IOP:</b>  <b>Rainfall:</b>  South Interior Karnataka, Kerala, Minicoy Island  <b>Thunderstorm with associated phenomenon:</b>  Kerala, Interior Karnataka,  Rajasthan, Western Haryana</p>	<p><b>48 hour Advisory for IOP:</b>  <b>Rainfall:</b>  Nil  <b>Thunderstorm with associated phenomenon:</b>  Nil</p>
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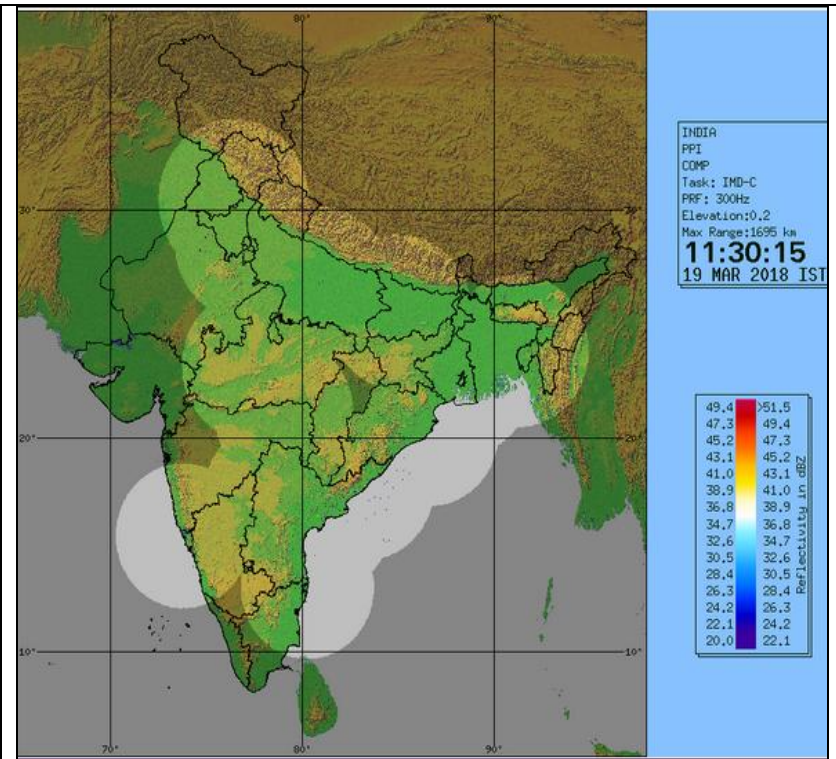
**Graphical Presentation of Potential Areas for Severe Weather:**

	<p><b>NO WARNING FOR SEVERE WEATHER</b></p>
<p><b>IOP Advisory for 24 hours</b></p>	<p><b>IOP Advisory for 48 hours</b></p>

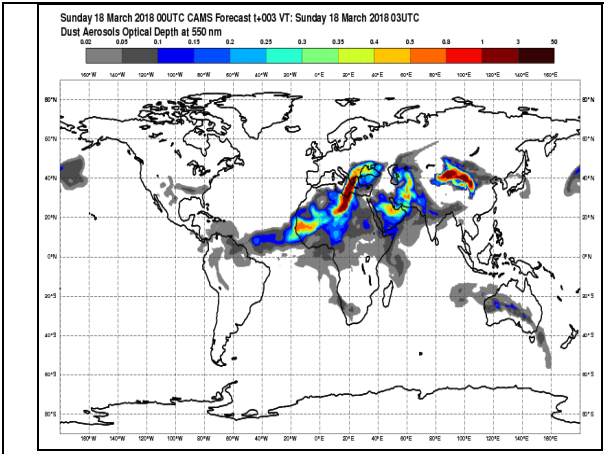




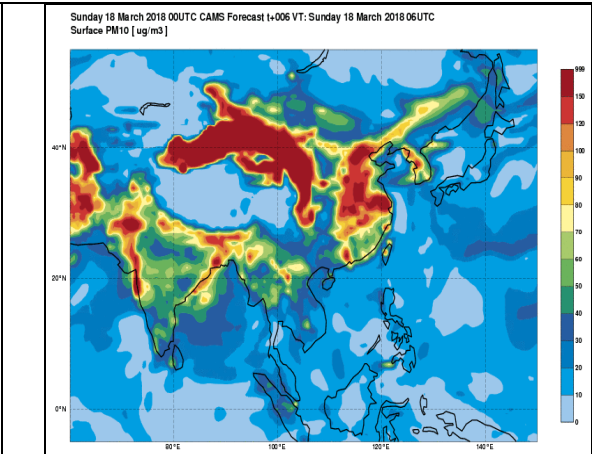
**RAPID RGB Imagery at 1100 IST of the Day**



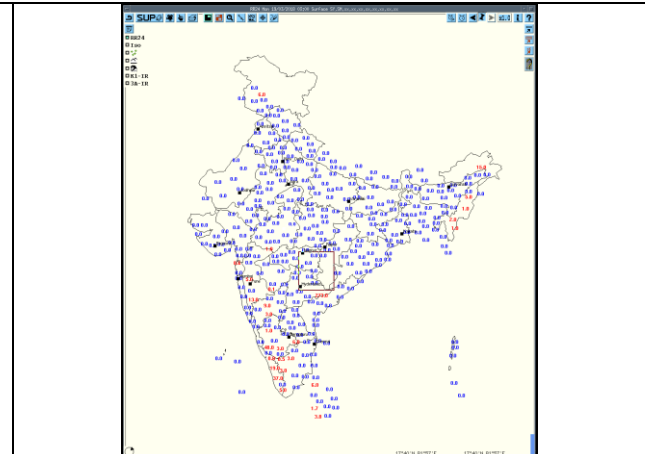
**DWR Composite at 1130 IST of the Day**



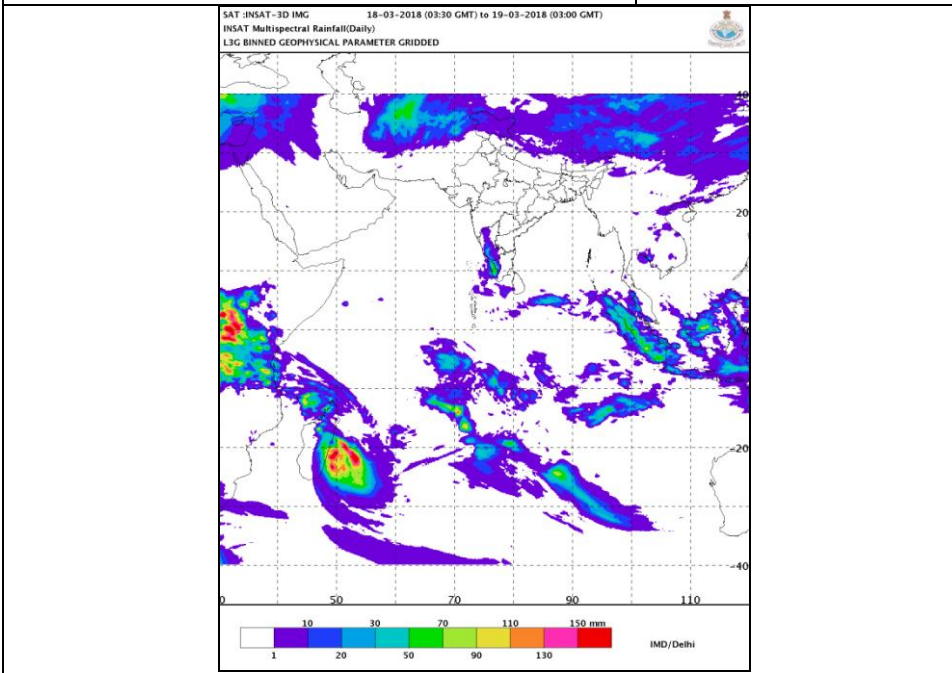
**Forecast Dust Concentration**



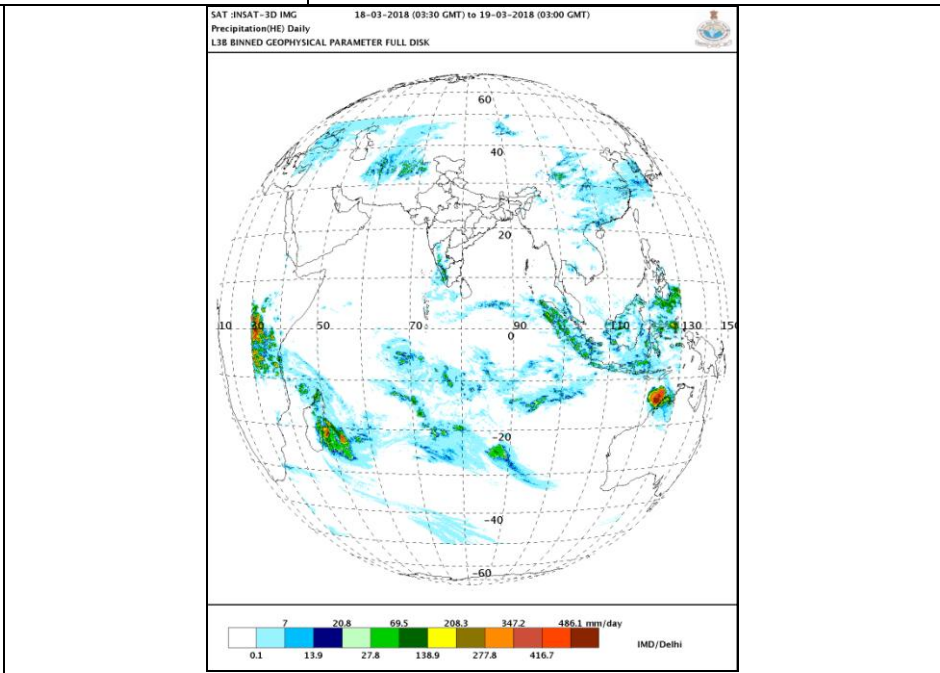
**PM10 Forecast**



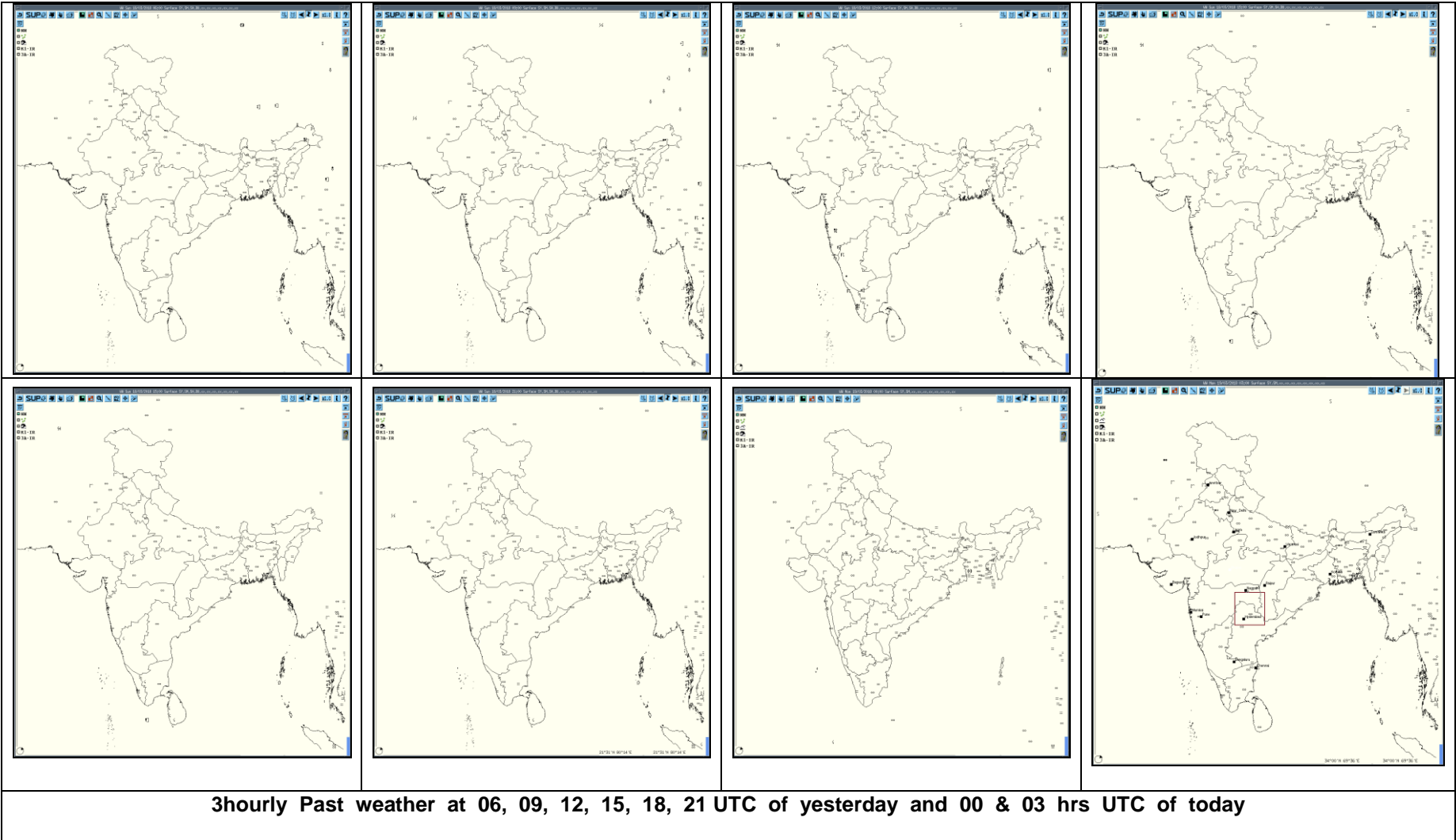
**Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today**



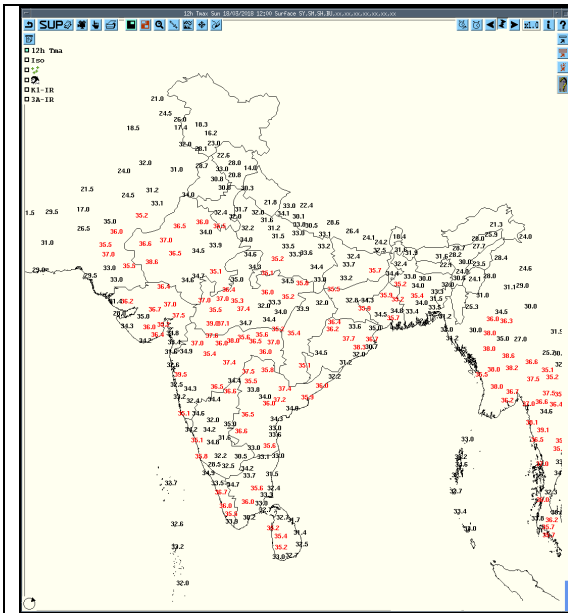
**IMR**



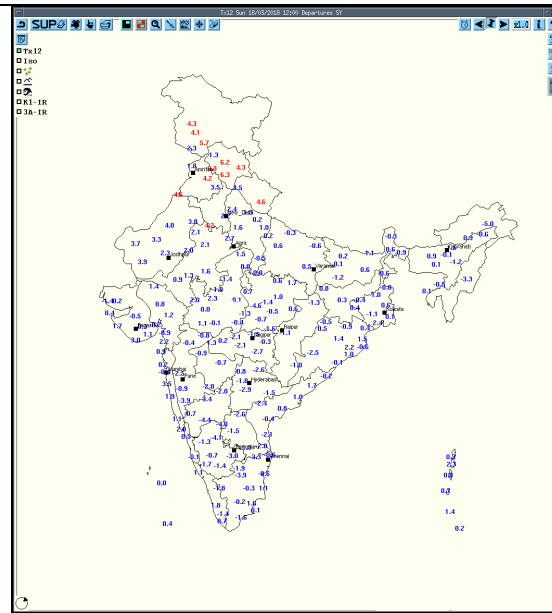
**HEM**



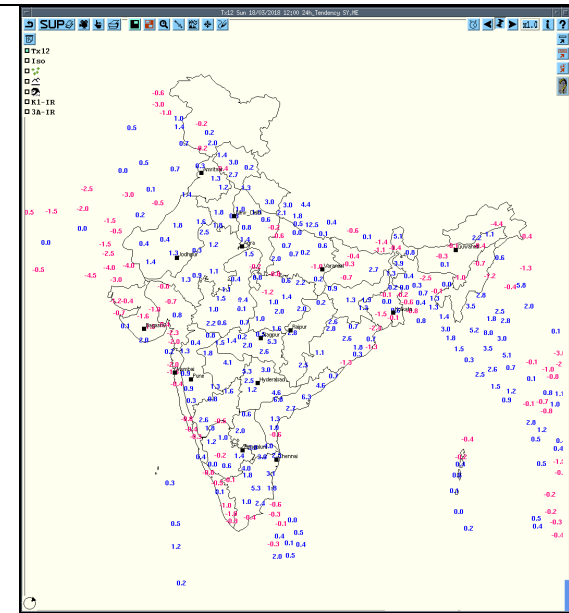
**3hourly Past weather at 06, 09, 12, 15, 18, 21 UTC of yesterday and 00 & 03 hrs UTC of today**



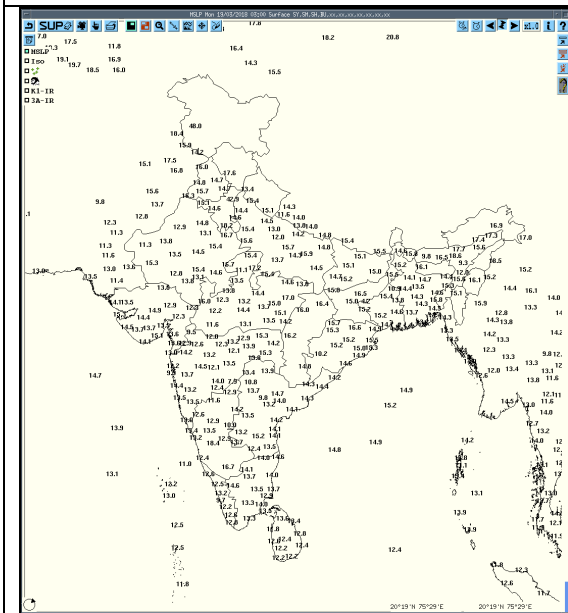
Tmax



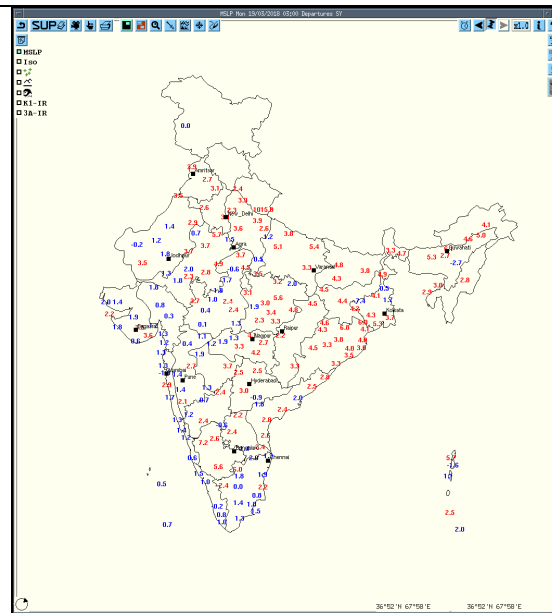
Departure Tmax



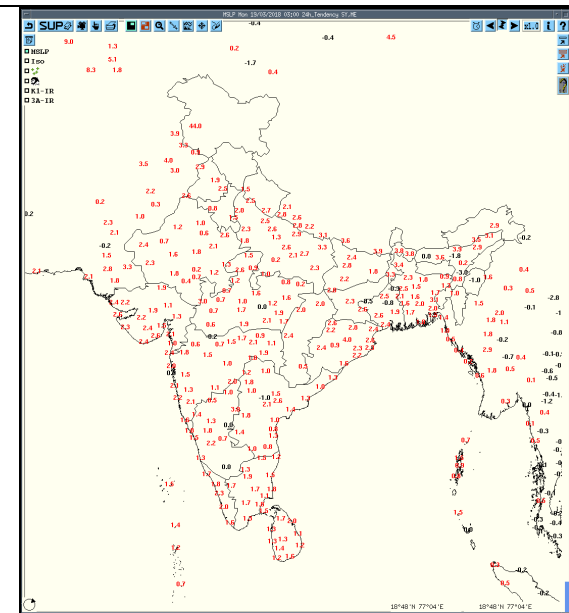
Tendency Tmax



MSLP

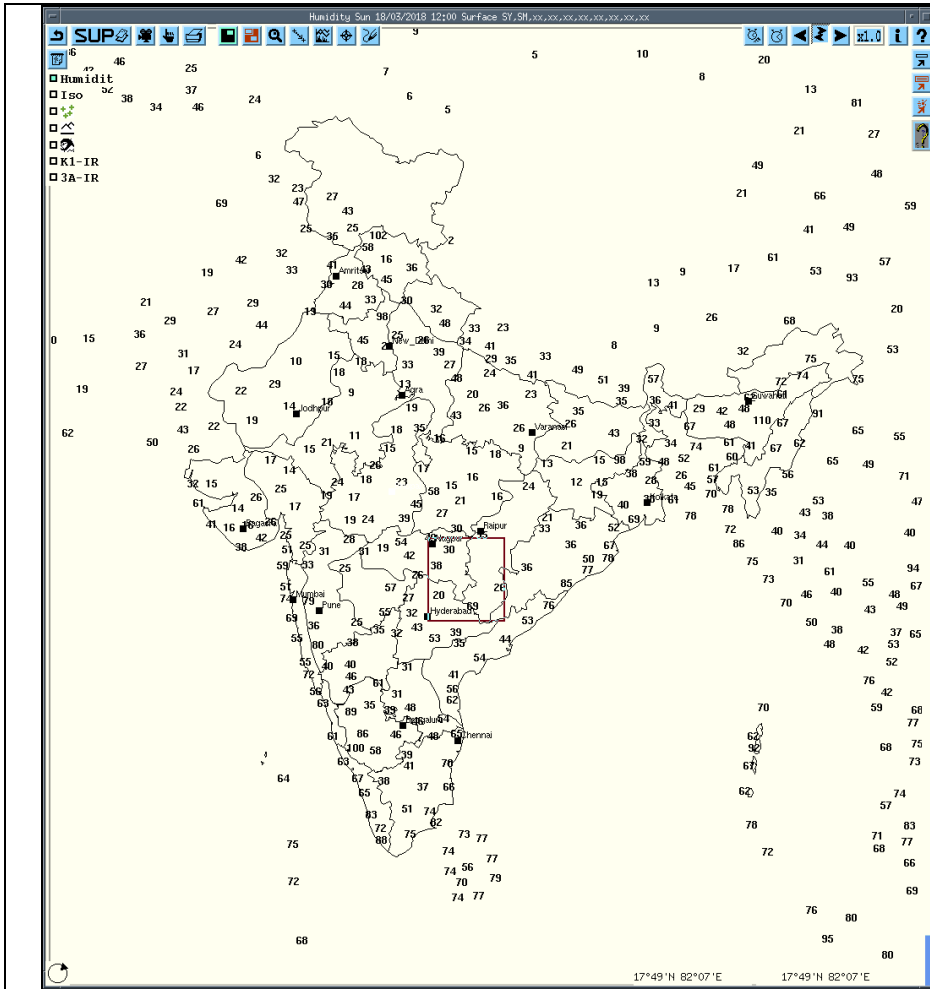


Departure MSLP

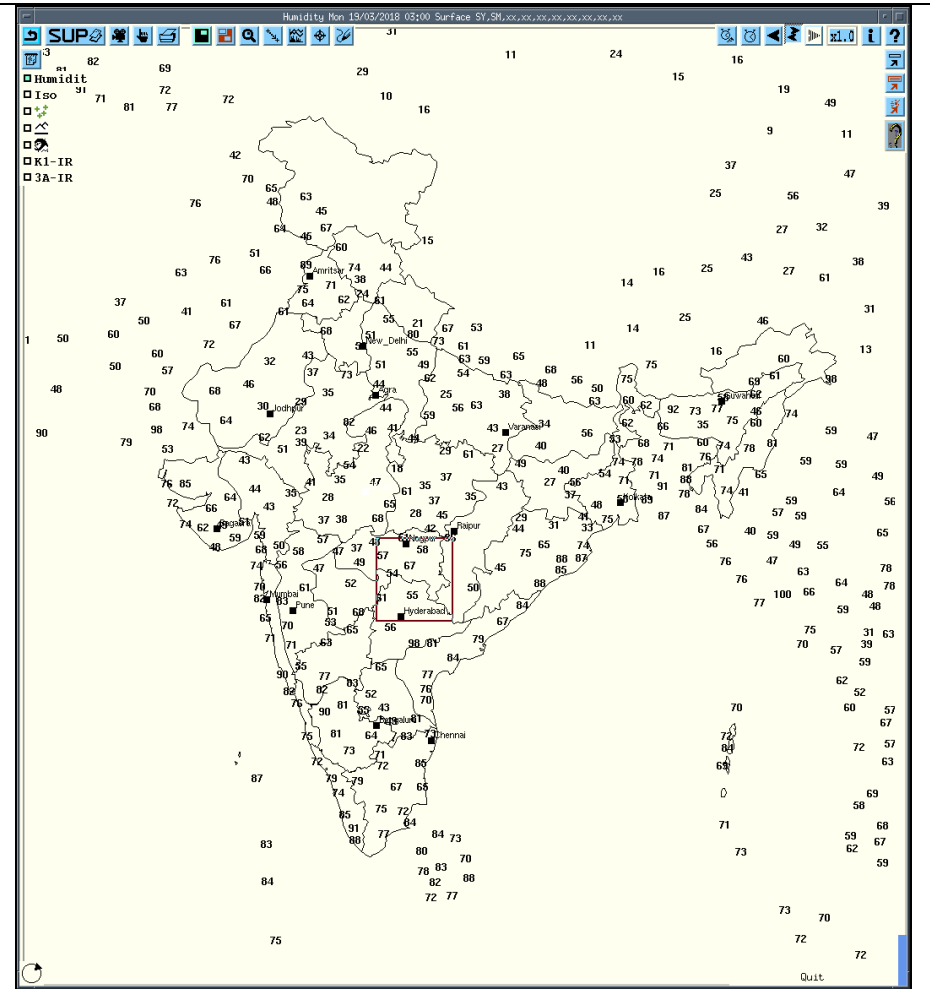


Tendency MSLP





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	19-03-18	180300-190300	ISLTD SINGLE, 44 dBz, 10 kms intensified to MLTPL cells and SQL LINE,60 dBZ,14 kms@ 180900z	60 Kms EAST(near AMBASSA)/E'ly,30 Kmph	Dissipated at 181030z/180 Kms SE near AZL	TSRA	NORTH TRIPURA DIST & LENGPUI(MIZORAM)
			Multiple Cell over North TRIPURA Dist ,47 dBZ,9 Kms intensified to SQL LINE 60 dBZ/10 Kms	40 Kms East(near AMBASSA)/E'ly,35 Kmph	Dissipated at 181402z,200 Kms ESE(near AZL)	Not known.	
Jaipur	19-03-18	180300-190300	Nil	Nil	Nil	Nil	Nil
Lucknow	19-03-18	180300-190300	Nil	Nil	Nil	Nil	Nil
Patiala	19-03-18	180300-190252	No Echo	--	--	--	--
Kolkata	19-03-18	180301-190300	Nil	Nil	Nil	Nil	Nil
Visakhapatnam	19-03-18	180300-190300	Nil	Nil	Nil	Nil	Nil
Patna	19-03-18	180300-190300	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/Sub Division	Weather Event (TS/Hail/Squall)	Date	Time of Commencement (IST)	Time of end (IST)
Passighat	Northeast India	Arunachal Pradesh	Thunderstorm	18-03-18	0815	1240
Passighat	Northeast India	Arunachal Pradesh	Thunderstorm	18-03-18	1440	1620
Imphal	Northeast India	Manipur (NMMT)	Thunderstorm	18-03-18	0830	900
Imphal	Northeast India	Manipur (NMMT)	Thunderstorm	18-03-18	1250	1345
Lengpui	Northeast India	Mizoram (NMMT)	Thunderstorm	18-03-18	1421	1830

## 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](http://nwp.imd.gov.in/diagpro_new.php))

For Synoptic plotted data and charts

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

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

For RANDHRA PRADESHID tool:

[http://rAndhra\\_Pradeshid.imd.gov.in/](http://rAndhra_Pradeshid.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](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](http://satellite.imd.gov.in/archive/INSAT-3D-IMAGER/3D-PRODUCTS/AMV/HLW/MAR_2017/?C=M;O=D)

Past24hourHEMandIMRrainfall(upto03UTCoftoday)

IMR: [http://satellite.imd.gov.in/img/3Ddaily\\_imr.jpg](http://satellite.imd.gov.in/img/3Ddaily_imr.jpg)

HEM: [http://satellite.imd.gov.in/img/3Ddaily\\_he.jpg](http://satellite.imd.gov.in/img/3Ddaily_he.jpg)

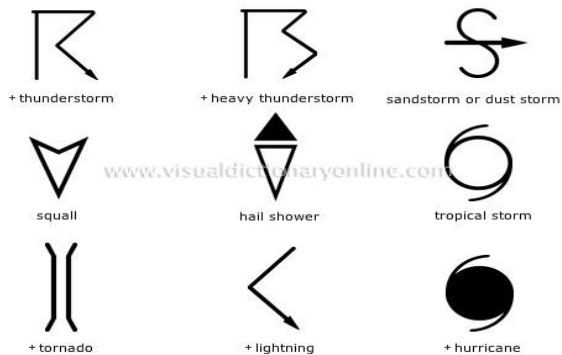
ForRadarimagesofthepast24hoursincludingmosaicofimages:

[http://ddgmui.imd.gov.in/dwr\\_img/](http://ddgmui.imd.gov.in/dwr_img/)

Satellite sounder based T- Phigram

[http://satellite.imd.gov.in/mAndhra\\_Pradesh\\_skm2.html](http://satellite.imd.gov.in/mAndhra_Pradesh_skm2.html)

## WEATHER SYMBOLS:



	haze
	smoke
	dust or sand storm
	fog
	drizzle
	rain
	snow
	showers
	hail
	thunderstorm
<b>Weather Symbols</b>	