



# India Meteorological Department

## FDP STORM Bulletin No. 44 (19-04-2018)

### 1. CURRENT SYNOPTIC SITUATION:

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

- ♦ The Western Disturbance as an upper air cyclonic circulation extending upto 3.1 Km above mean sea level over Western parts of Afghanistan & neighbourhood persists. The trough aloft in mid and upper tropospheric levels with its axis at 5.8 Km above mean sea level now runs roughly along longitude 62°E to the north of latitude 30°N.
- ♦ The other Western Disturbance as a feeble cyclonic circulation at 3.1 km above mean sea level over Jammu & Kashmir & neighbourhood has moved away east-north-eastwards.
- ♦ The cyclonic circulation over Sub Himalayan West Bengal & neighbourhood extending upto 0.9 km above mean sea level has become less marked.
- ♦ An east west trough runs from east Bihar to south Assam across Sub Himalayan West Bengal at 0.9 km above mean sea level.
- ♦ A cyclonic circulation lies at 0.9 km above mean sea level over Chhattisgarh and adjoining Odisha.
- ♦ The north south trough from north Uttar Pradesh to north Telangana at 0.9 km above mean sea level now runs from east Bihar to the above cyclonic circulation, across Gangetic West Bengal.
- ♦ The trough in mid tropospheric westerlies with its axis at 5.8 km above mean sea level roughly along longitude 93°E to the north of latitude 22°N has moved away eastwards.
- ♦ The north south wind discontinuity from Rayalaseema to south Tamilnadu at 0.9 km above mean sea level now runs from North Interior Karnataka to south Tamilnadu across South Interior Karnataka.

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

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

#### Western disturbance (WD):

Scattered multi-layered clouds seen over Jammu & Kashmir, Central China and over the area between lat 37.0°N to 50.0°N, long 75.0°E to 110.0°E in association with WD over the area. Broken low/medium clouds with embedded isolated intense to very intense convection seen over Caspian Sea & neighbourhood in association with another WD over the area.

**Convective Activity:**

Developed convective cells are developing over extreme Central Tamilnadu (**Minimum CTT Minus 56 Deg C**), South Interior Karnataka (**Minimum CTT Minus 60 Deg C**) and South Rayalaseema (**Minimum CTT Minus 51 Deg C**)

**Precipitation Nowcast Based on WMO Scope Product:**

Based on 0300 UTC satellite data indicate that precipitation is likely to take place during next three (03 hrs) over Rayalaseema, South Interior Karnataka, Tamilnadu, North Kerala and Lakshadweep.

**Clouds descriptions within India:**

Scattered low/medium clouds with embedded isolated moderate to intense convection seen over North central Jammu & Kashmir, Kerala, Tamilnadu, South Interior Karnataka and South Rayalaseema. Scattered low/medium clouds with embedded isolated weak to moderate convection seen over rest Jammu & Kashmir, Mizoram, extreme south Andhra Pradesh and Lakshadweep. Scattered low/medium clouds seen over North Himachal Pradesh, Sub Himalayan West Bengal, Sikkim, Arunachal Pradesh, Nagaland and isolated over Northwest Rajasthan,

**Arabian Sea:-**

Scattered low/medium clouds with embedded moderate to intense convection seen over South Arabian Sea and Lakshadweep.

**Bay of Bengal & Andaman Sea:**

Isolated low/medium clouds with embedded weak to moderate convection seen over Southwest Bay and off Central Tamilnadu.

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

Moderate to Intense convection was observed over Gangetic West Bengal SHWB Odisha south Chhattisgarh north Andhra Pradesh Rayalaseema Maharashtra Konkan & Goa Karnataka Kerala Tamilnadu and Weak to Moderate convection observed over north-east states.

**OLR:**

Up-to  $230\text{wm}^{-2}$  observed over Jammu & Kashmir North Himachal Pradesh North Uttarakhand Sub-Himalayan West Bengal Sikkim Arunachal Pradesh Assam Meghalaya Nagaland Manipur Mizoram Odisha Rayalaseema south Maharashtra Karnataka Kerala

**Dynamic Features:**

Up to 30- 60 knots **wind shear** is observed over North & Central India and 5-15 knots over south peninsula India.

A **positive Vorticity** field at 850 hPa is observed over J&K Himachal Pradesh Uttarakhand Uttar Pradesh Bihar south Gangetic West Bengal south Chhattisgarh west Gujarat Telangana and north Interior Karnataka.

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

Rainfall upto 70-110 mm observed over some parts of south Odisha and north Andhra Pradesh.

Rainfall upto 10-50 mm observed over some parts of north Jammu & Kashmir north Gangetic West Bengal north Odisha north Andhra Pradesh Goa coastal Karnataka central Kerala and south Tamilnadu.

Rainfall upto 01-10 mm observed over rest Jammu & Kashmir north Himachal Pradesh

Arunachal Pradesh east Assam south Manipur north Mizoram south Gangetic West Bengal south Odisha south Karnataka rest Kerala and rest Tamilnadu

### **RADAR and RAPID RGB Observation:**

Isolated/multiple moderate echoes were seen in domain of DWR Gopalpur, Mohanbari, Paradeep and Patiala at around 1410IST.

RAPID RGB Satellite imagery at 1330IST indicates significant convection over Jammu & Kashmir, Himachal Pradesh, South Punjab and adjoining Rajasthan.

### **Environmental Condition (dust etc) and its Forecast based on 00UTC of date:**

Higher Dust concentration was observed over northern Africa, Arab countries and western part of India. Dust concentration is expected to decrease over north-western part of India for next few days.

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

<b>Delhi – SAFAR analysis &amp; Forecast</b>	<b>19.04.2018</b>	<b>20.04.2018</b>
PM10 (micro-g/m <sup>3</sup> )	210	231
PM2.5 (micro-g/m <sup>3</sup> )	78	86

## **2. NWP MODEL GUIDANCE:**

### **NCMRWF (NCUM forecast based on 00UTC the day):**

#### **1. Weather Systems:**

**Low level CYCIRS, Troughs: 00 UTC of Day 2-5: 00UTC of Day 1-2:** 850 hPa trough from U.P to S. Peninsular India across MP and Maharashtra

**Confluence & wind Discontinuity regions: 12 UTC of Day 0-2:** 925hPa N-S discontinuity over Southern Peninsular India and in Day 0-4 SW-NE discontinuity over MP Chhattisgarh & Odisha

**Synoptic Systems: 12 UTC of Day 0-1:** WD as a trough over north Pakistan and adjoining J &K.

**12 UTC of Day 2-3:** A fresh WD as a deep trough and associated CYCIR at 500 hPa over Pakistan and adjoining J &K.

**2. Location of jet and jet core (>60kt) at 500hPa): 12UTC of Day 2** Over Gujarat & Rajasthan associated with approaching WD

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

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

Day0: Odisha, West MP, Tamilnadu, Puducherry, NI Karnataka, SI Karnataka,

Day1: Arunachal Pradesh, Assam Meghalaya, Jharkhand, West UP, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, Chhattisgarh, SI Karnataka,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Jharkhand, Madhya Maharashtra, Chhattisgarh, Telangana, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day3: Assam Meghalaya, Jharkhand, Odisha, Madhya Maharashtra, Chhattisgarh, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, NE NMMT, Jharkhand, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Tamilnadu, Puducherry, NI Karnataka, SI Karnataka,

#### 4. Low level Vorticity:-Positive Vorticity:

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

Day0: Assam Meghalaya, Gangetic WB, Bihar, East UP, Uttarakhand, Himachal Pradesh, Tamilnadu, Puducherry,

Day1: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Bihar, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, Telangana,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jammu Kashmir,

Day3: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Bihar, Uttarakhand, Himachal Pradesh, Madhya Maharashtra,

Day4: Arunachal Pradesh, Assam Meghalaya, Himachal Pradesh,

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

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

Day0: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Uttarakhand, Himachal Pradesh, Odisha, Madhya Maharashtra, Coastal AP, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

#### 6. Spatial distribution of TTI: TTI $>50$ [Scattered Thunderstorms few severe]:

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

Day0: Arunachal Pradesh, Sub Himalayan WB, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day1: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West MP, Chhattisgarh, Coastal AP, Telangana,

Day2: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Vidarbha, Chhattisgarh, Coastal AP, Telangana,

Day3: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Vidarbha, Chhattisgarh, Coastal AP, Telangana,

Day4: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Chhattisgarh,

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

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

Day0: Arunachal Pradesh, Sub Himalayan WB, Odisha, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Bihar, Himachal Pradesh, Odisha, Saurashtra Kutch, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Odisha, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Sub Himalayan WB, Odisha, East MP, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Sub Himalayan WB, Odisha, Chhattisgarh, Coastal AP, Telangana, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

## **8. Rainfall and thunder storm activity:**

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

Day1: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Himachal Pradesh, Jammu Kashmir, Coastal Karnataka, SI Karnataka, Kerala,

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

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT,

Day5: Arunachal Pradesh, Assam Meghalaya,

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

### **1. Synoptic Systems:**

The analysis based on 00 UTC indicates a cyclonic circulation in lower troposphere (925 hPa) over Chhattisgarh and adjoining Orissa. The forecast shows it will move eastward and lies over north Orissa and adjoining Jharkhand region on day 3. The analysis shows a North-South Trough extending from East Bihar to Chhattisgarh and adjoining Orissa across Gangetic West Bengal. The forecast shows it will persist for next 48 hours. The analysis shows an East-West trough from east Bihar to southern parts of Assam across GWB. It will persist for next 24 hour forecast. A North-South Trough is seen in the analysis over North Interior Karnataka up to south Tamil Nadu across South Interior Karnataka. The analysis also shows a feeble cyclonic circulation over north west Rajasthan and adjoining areas. The forecast shows a cyclonic circulation in lower troposphere (925 hPa) over East Uttar Pradesh adjoining Bihar and Jharkhand on day 2. The forecast shows it will move eastwards and lies over East Bihar, Jharkhand and GWB on day 4.

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

Although the presence of strong westerlies is found over northern parts of India, east and northeast India but no jet core over the Indian region for the next 3 days.

### 3. Low Level Vorticity {850hPa Positive Vorticity ( $>12 \times 10^{-1}/s$ ):

Low level Positive Vorticity is seen mostly along the foothills of Himalaya, J&K, Himachal Pradesh and Uttarakhand; along the north-south trough for next 3 days. Low level Positive Vorticity is also seen over J&K, adjoining Punjab, Himachal Pradesh, Uttarakhand, west Uttar Pradesh, Haryana and adjoining areas from day 1 onwards. It is inferred that East and North east India has Positive Vorticity from day 2 onwards.

### 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 ( $> 3$ ):** The threshold value of the index  $> 3$  is seen over coastal areas of Gangetic West Bengal and Kolkata, parts of Orissa, Bihar, Jharkhand, Andhra Pradesh, Telangana, Rayalaseema, Kerala, Karnataka, Tamil Nadu, parts of Gujarat, coastal Maharashtra including Mumbai, Konkan & Goa, Madhya Maharashtra, Marathwada, Vidarbha adjoining Chhattisgarh, coastal areas along the east coast and west coast, Assam, Meghalaya, Tripura and adjoining area, SHWB on all 3 days; over parts of Rajasthan on day 2; over parts of East Uttar Pradesh Sikkim and adjoining areas on day 2 and 3; Maximum value of the index is seen over parts of GWB, Orissa, Andhra Pradesh, coastal Maharashtra, Karnataka, Konkan and Goa, Chhattisgarh, coastal Tamil Nadu, Telangana during next 3 days; over parts of Bihar and Jharkhand on day 2 and 3; over some parts of Gujarat on day 2; over some parts of East Uttar Pradesh, Assam and adjoining areas on day 3.

**Lifted Index ( $< -2$ ):** The threshold value of the index is below  $-2$  over parts of Gujarat, coastal Andhra Pradesh, Karnataka, Telangana, Rayalaseema, Konkan and Goa, Kerala, Tamil Nadu, Karnataka, southern part of west coast, coastal areas along the east coast, Chhattisgarh, Bihar, Jharkhand, Vidarbha, southern parts of Madhya Maharashtra, Orissa, GWB, SHWB, Sikkim Tripura and adjoining areas on all 3 days; over parts of south west Rajasthan on day 1; over parts of East Rajasthan, Punjab, Haryana, J&K, Himachal Pradesh, East Uttar Pradesh, north Madhya Maharashtra, Assam, Meghalaya and adjoining areas on day 2; over parts of East Uttar Pradesh and most of the NE states on day 3; maximum negative value of the index less than  $-10$  is seen over parts of East Uttar Pradesh, SHWB, GWB, Bihar and Jharkhand on day 2 and 3; over parts of Orissa on day 3.

**Total Total Index ( $> 50$ ):** The threshold value of the index is  $> 50$  is seen over most of the parts of country except J&K, Extreme south peninsular India and NE states during next 3 days; maximum value of the index  $>60$  is seen over parts of east Rajasthan, Madhya Pradesh, Chhattisgarh, Vidarbha, Jharkhand, Orissa, southern parts of East and West Uttar Pradesh, Telangana, GWB, Karnataka, Madhya Maharashtra and Marathwada during next 3 days; over parts of Bihar, SHWB, west Rajasthan and Andhra Pradesh on day 2; over parts of Punjab, Haryana, Delhi, Rajasthan, Gujarat, Uttar Pradesh and south interior Karnataka on day 3.

**Sweat Index ( $> 300$ ):** Although the threshold value of the Index  $>300$  is seen in most parts of the country except central parts of Madhya Pradesh and northern parts of Chhattisgarh and adjoining areas during next 3 days, the maximum value of the index greater than 800 is seen over parts of GWB, Orissa, Bihar, Jharkhand, SHWB, Assam and adjoining areas on day 2 and 3.

**CAPE ( $> 1000$ ):** Mostly in areas of southern peninsular India, along west coast and east coast, parts of Orissa, Andhra Pradesh, Telangana, Rayalaseema, Kerala, Tamil Nadu, Karnataka, coastal Maharashtra including Mumbai, Konkan and Goa, Gujarat, Bihar, Jharkhand, GWB, SHWB, Assam, Tripura and adjoining areas during next 3 days; over parts of Chhattisgarh, East Uttar Pradesh and East Vidarbha on day 2 and 3; Maximum value of the index greater than 2500 is seen mostly over parts of GWB, coastal Orissa, Coastal Andhra Pradesh, Coastal Tamil Nadu, coastal Maharashtra, Karnataka, Konkan & Goa, coastal Kerala and Telangana during next 3 days; over parts of Bihar, Jharkhand, SHWB and adjoining areas on day 2 and 3; over parts of Assam and adjoining areas on day 3; over parts of Tripura and adjoining areas on day 2.

**CIN (50-150):** Although the threshold value of the Index lies in the range of (50–150) over most part of the country except J&K, Himachal Pradesh, Uttarakhand, Haryana, Delhi, west Uttar Pradesh, south east Rajasthan, Madhya Pradesh, west Vidarbha, Madhya Maharashtra, Marathwada and northern parts of Chhattisgarh on day 1 and 3; over most parts of the country except west Rajasthan, south west Uttar Pradesh, Madhya Pradesh,

northern parts of Chhattisgarh. Madhya Maharashtra and Marathwada on day 2, the maximum value of the index > 400 is seen over parts of Bihar on day 1; over parts of Gujarat on day 3.

### **5. Rainfall Activity:**

70- 130 mm Rainfall: over parts of J&K on day 2.

40-70 mm Rainfall: over parts of J&K and adjoining Himachal Pradesh on day 2.

10- 40 mm Rainfall: over parts Karnataka, Kerala, Tamil Nadu, Sikkim and NE states during next 3 days; over parts of Jammu and Kashmir and Himachal Pradesh on day 1 and 2; over parts of Uttarakhand on day 2.

Up to 10 mm rainfall: Over parts of J&K, Foothills of Himalaya, Himachal Pradesh, Uttarakhand, Sikkim, NE states, Orissa, Bihar, Jharkhand, GWB, SHWB, Chhattisgarh, Andhra Pradesh, Kerala, Karnataka, Tamil Nadu, Telangana, Rayalaseema, Konkan and Goa on all 3 days; over parts of Punjab, Haryana, Delhi, Rajasthan, Uttar Pradesh, northern parts of Madhya Pradesh on day 1 and 2; over southern parts of Madhya Maharashtra and coastal Maharashtra on day 1; over parts of Gujarat on day 2.

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

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

- Synoptic analysis indicates that an east west trough runs from east Bihar to south Assam across Sub Himalayan West Bengal and the cyclonic circulation over Jharkhand & adjoining Bihar, will give rise to a thunderstorm with gusty winds over Sub-Himalayan West Bengal & Sikkim on Day-1. With these systems, Assam, Meghalaya, Nagaland, Manipur, Mizoram & Tripura may get some thunderstorm with gusty winds activity on Day-1.
- The Western Disturbance as a feeble cyclonic circulation over Jammu & Kashmir & neighbourhood has moved away east north-eastwards. This will give rise to the thunderstorm with gusty winds activity mainly J&K and Himachal Pradesh on Day-1. This activity may continue to Day-2 over the same region.
- Due to the north south wind discontinuity from North Interior Karnataka to south Tamilnadu across South Interior Karnataka will be triggering the thunderstorm with gusty winds activity over Kerala, Interior Karnataka and Rayalaseema on Day-1.



## Day-1 & Day-2:

### 24hour Advisory for IOP:

#### Significant Rainfall:

Nil

#### Thunderstorm with Squall/Gusty winds:

Jammu & Kashmir, Himachal Pradesh, Punjab  
Assam, Meghalaya, Nagaland, Manipur, Mizoram & Tripura  
Sub Himalayan West Bengal & Sikkim  
North Coastal Andhra Pradesh, Rayalaseema, Coastal Karnataka, South  
Interior Karnataka, Kerala,

#### Dust Storm

East Uttar Pradesh

### 48hour Advisory for IOP:

#### Significant Rainfall:

Nil

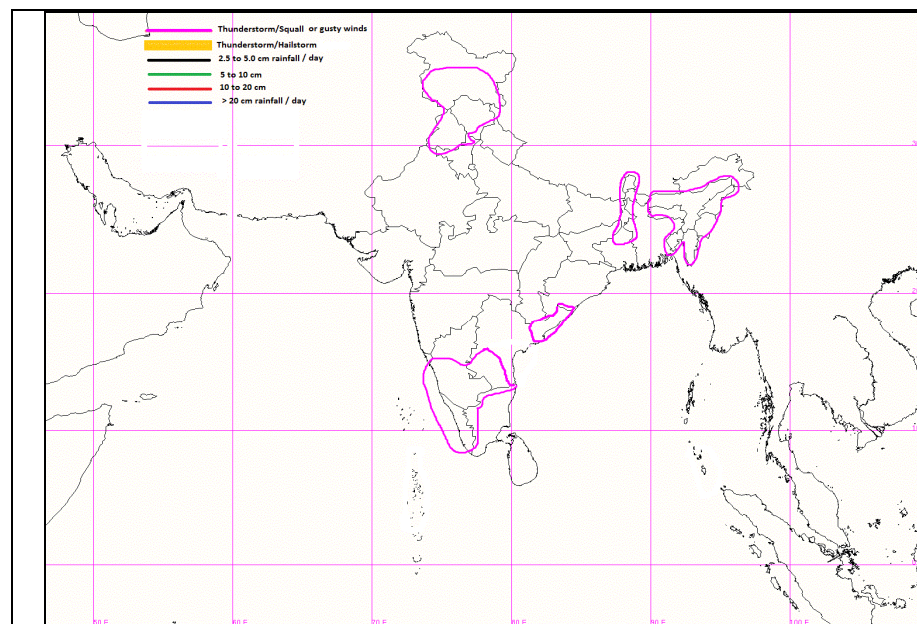
#### Thunderstorm with Squall & Hailstorm:

Jammu & Kashmir, Himachal Pradesh, Uttarakhand

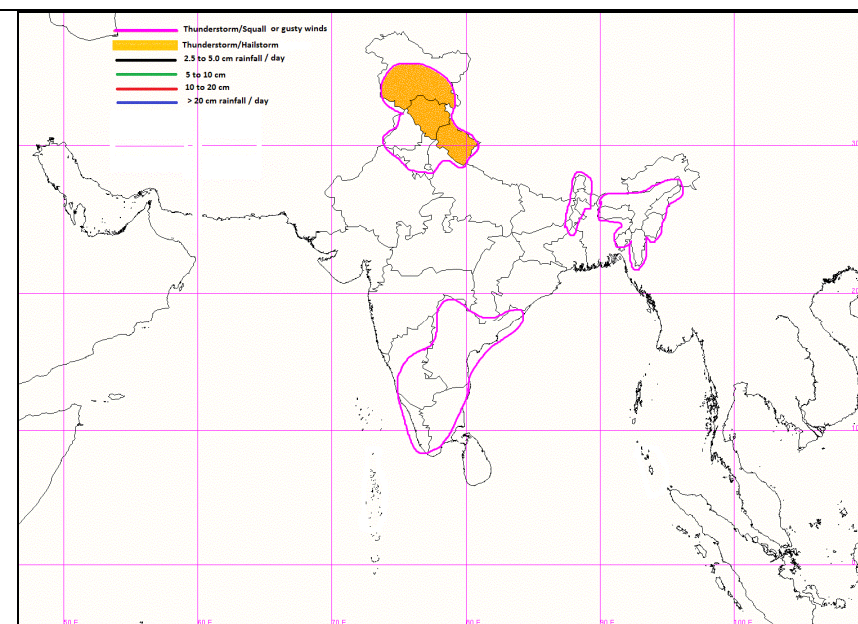
#### Thunderstorm with Squall/Gusty winds:

Punjab, Haryana, Chandigarh, Delhi  
Sub-Himalayan West Bengal & Sikkim  
Assam, Meghalaya, Nagaland, Manipur, Mizoram & Tripura  
North Coastal Andhra Pradesh, Telangana,  
South Interior Karnataka, Tamilnadu

## Graphical Presentation of Potential Areas for Severe Weather:

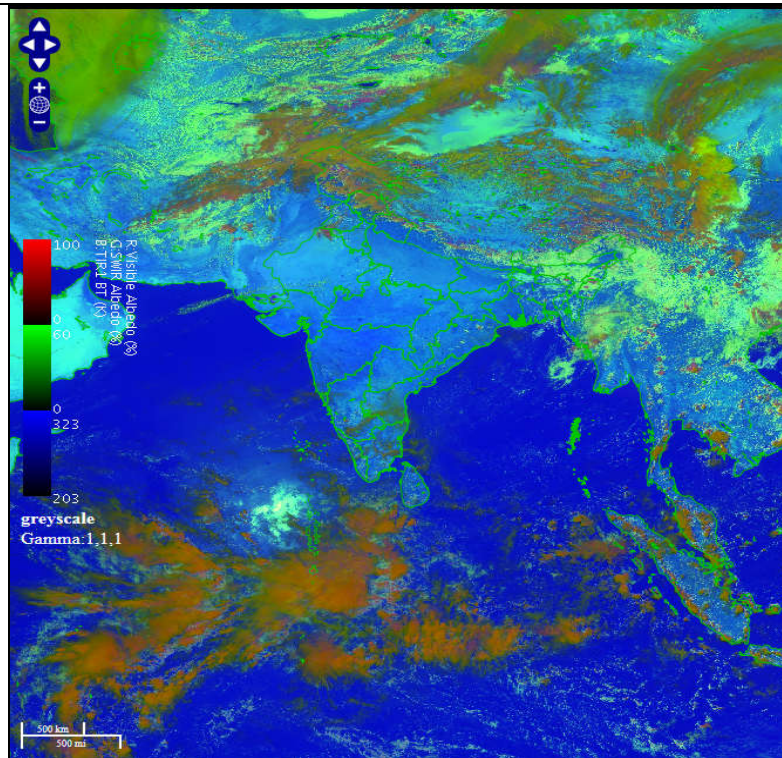


IOP Advisory for 24 hours

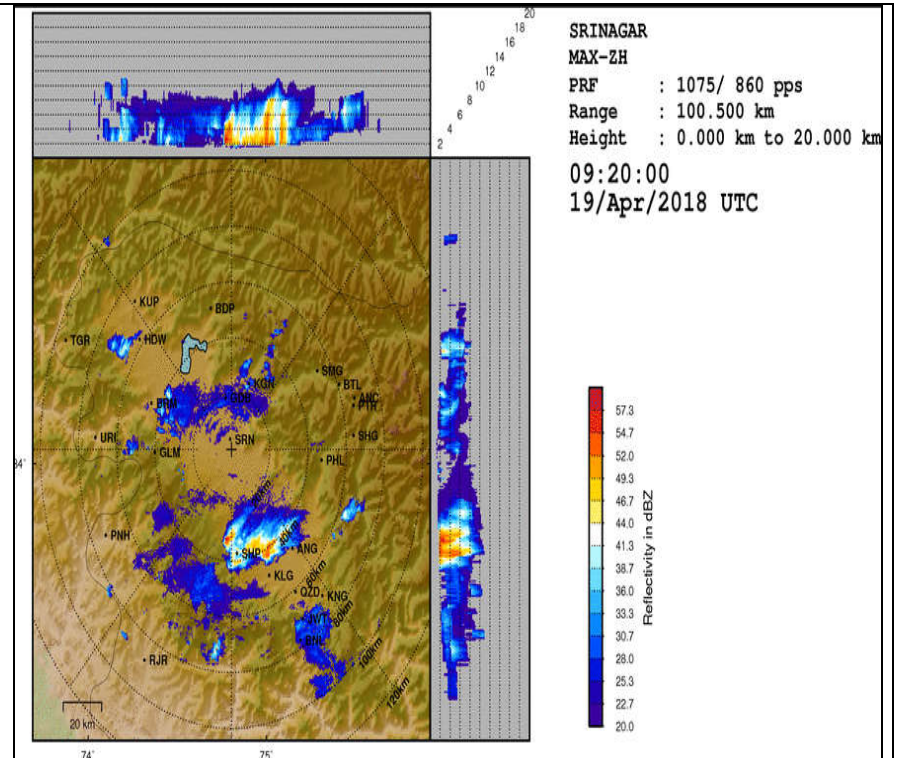


IOP Advisory for 48 hours

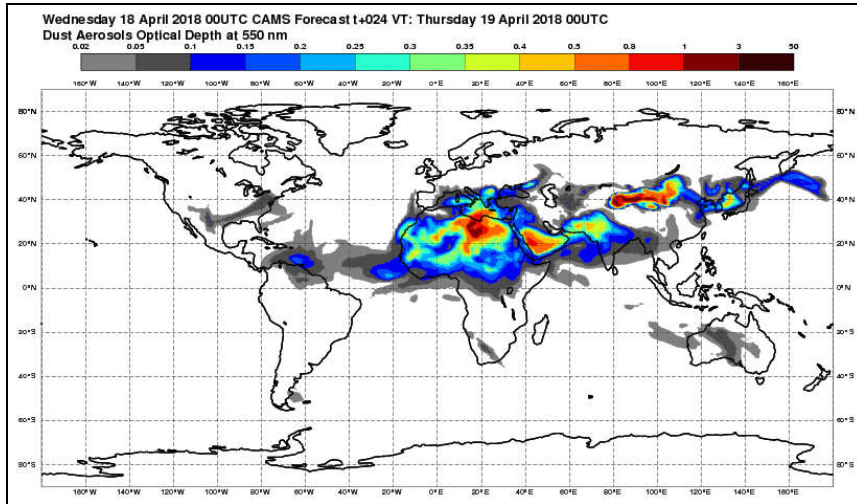




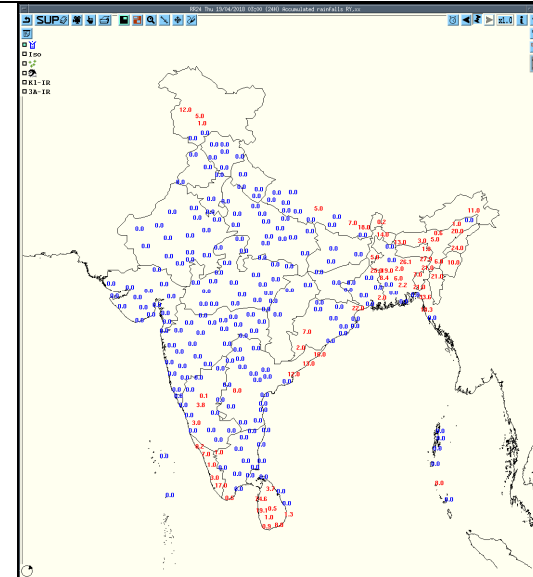
**RAPID RGB Imagery at 1330 IST of the Day**



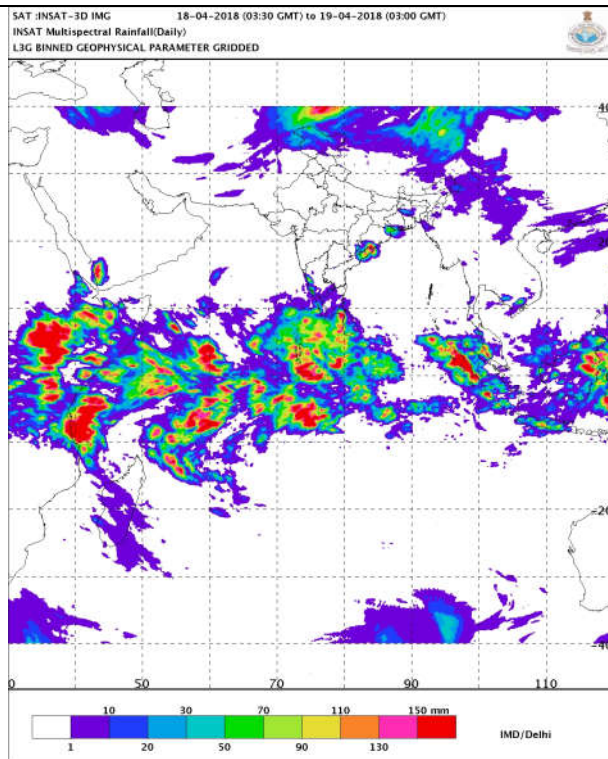
**DWR Srinagar at 1450 IST of the Day**



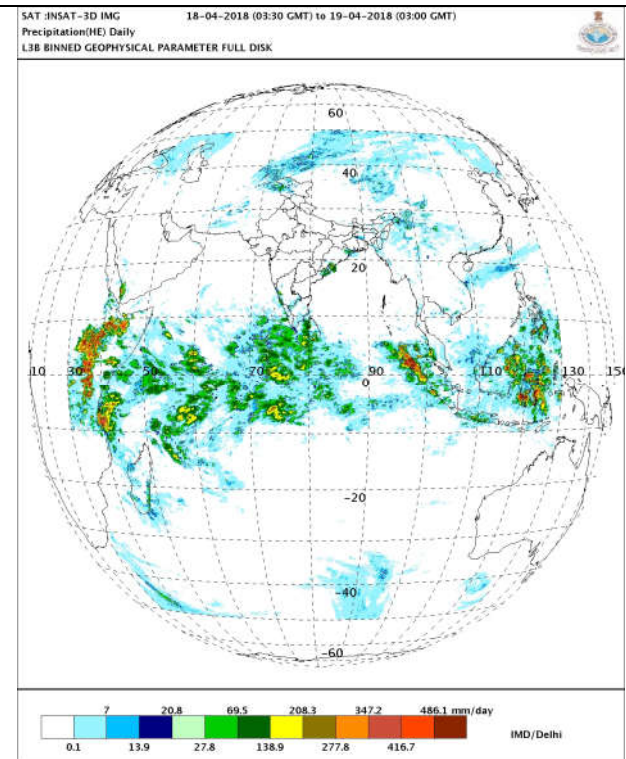
**Dust Forecast**



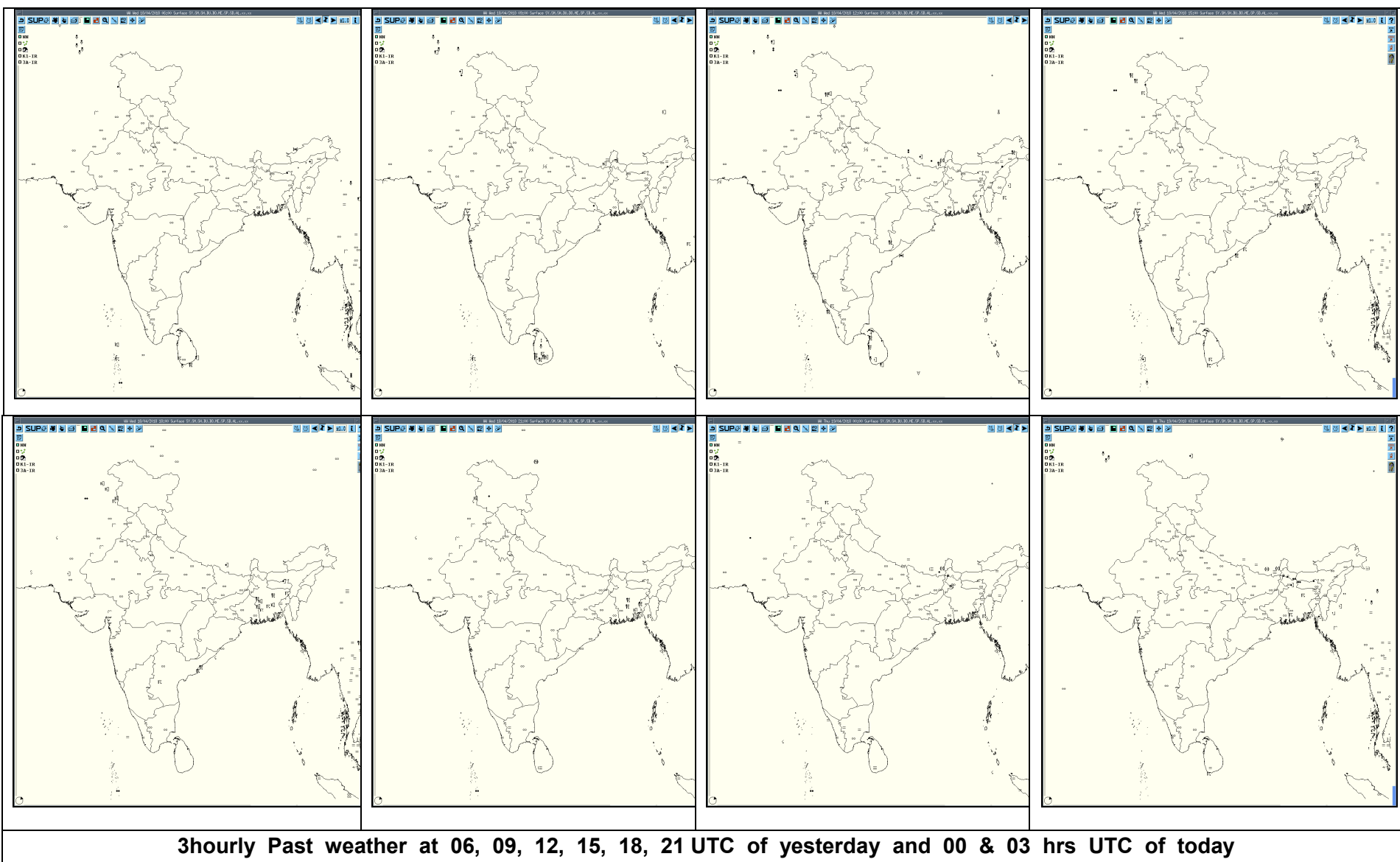
**Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today**



**IMR**

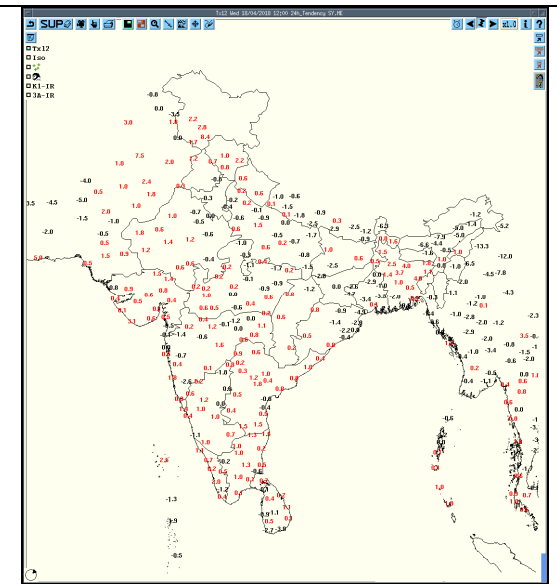
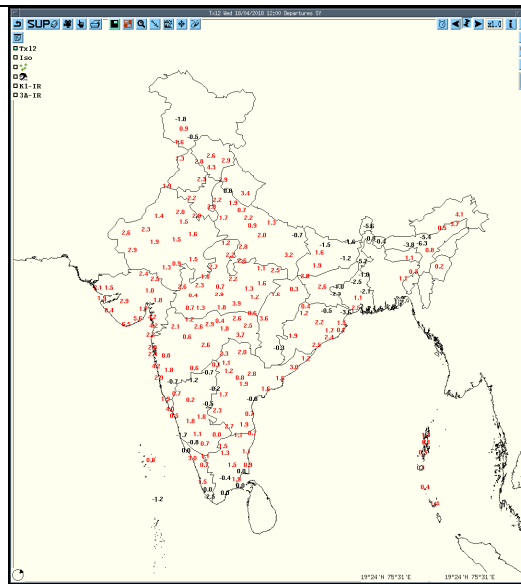
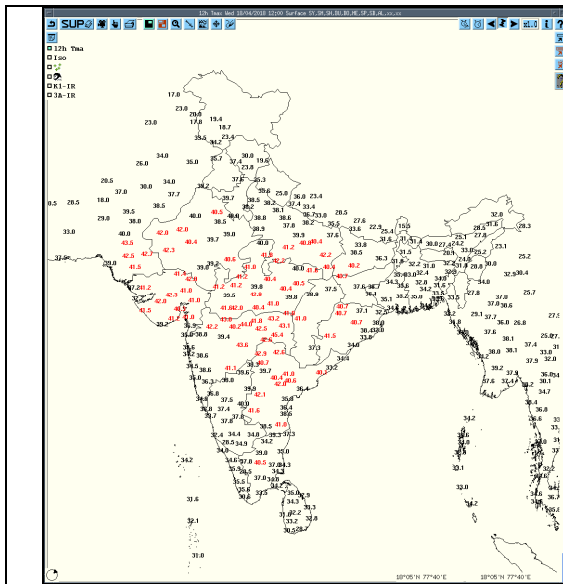


**HEM**



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

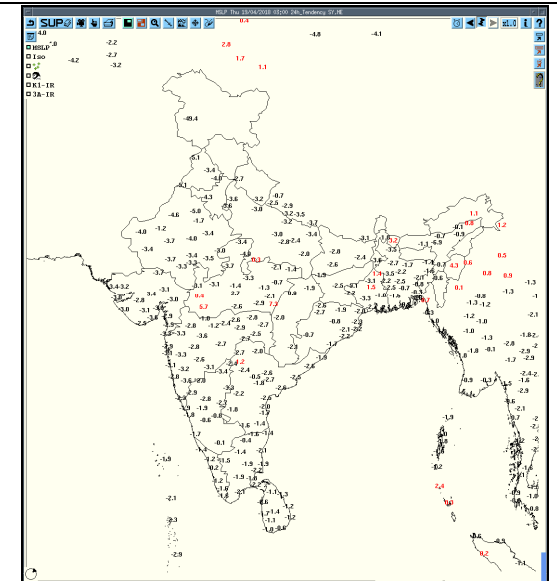
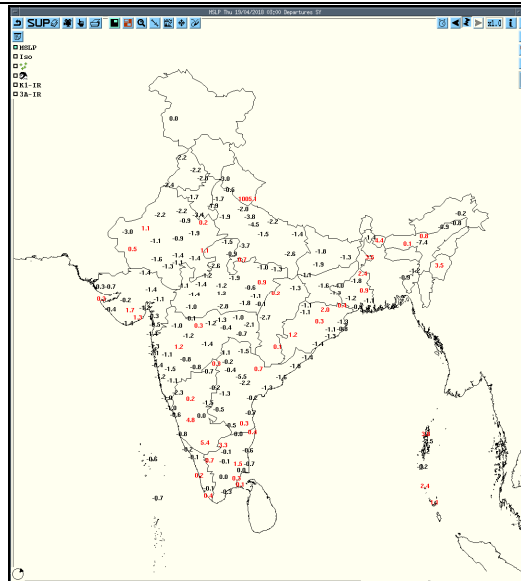
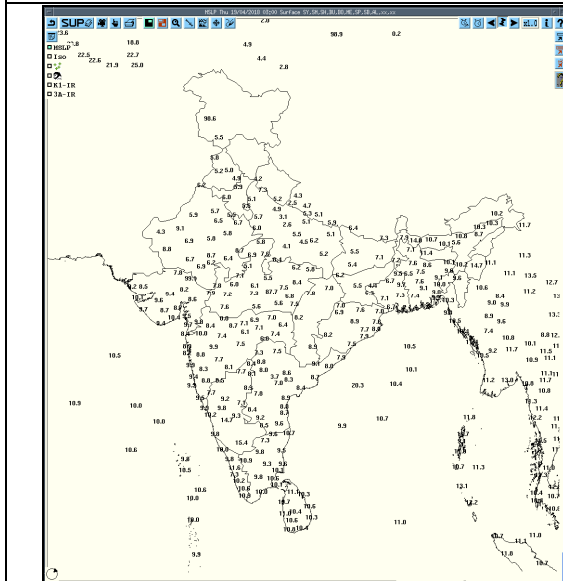




**Tmax**

**Departure Tmax**

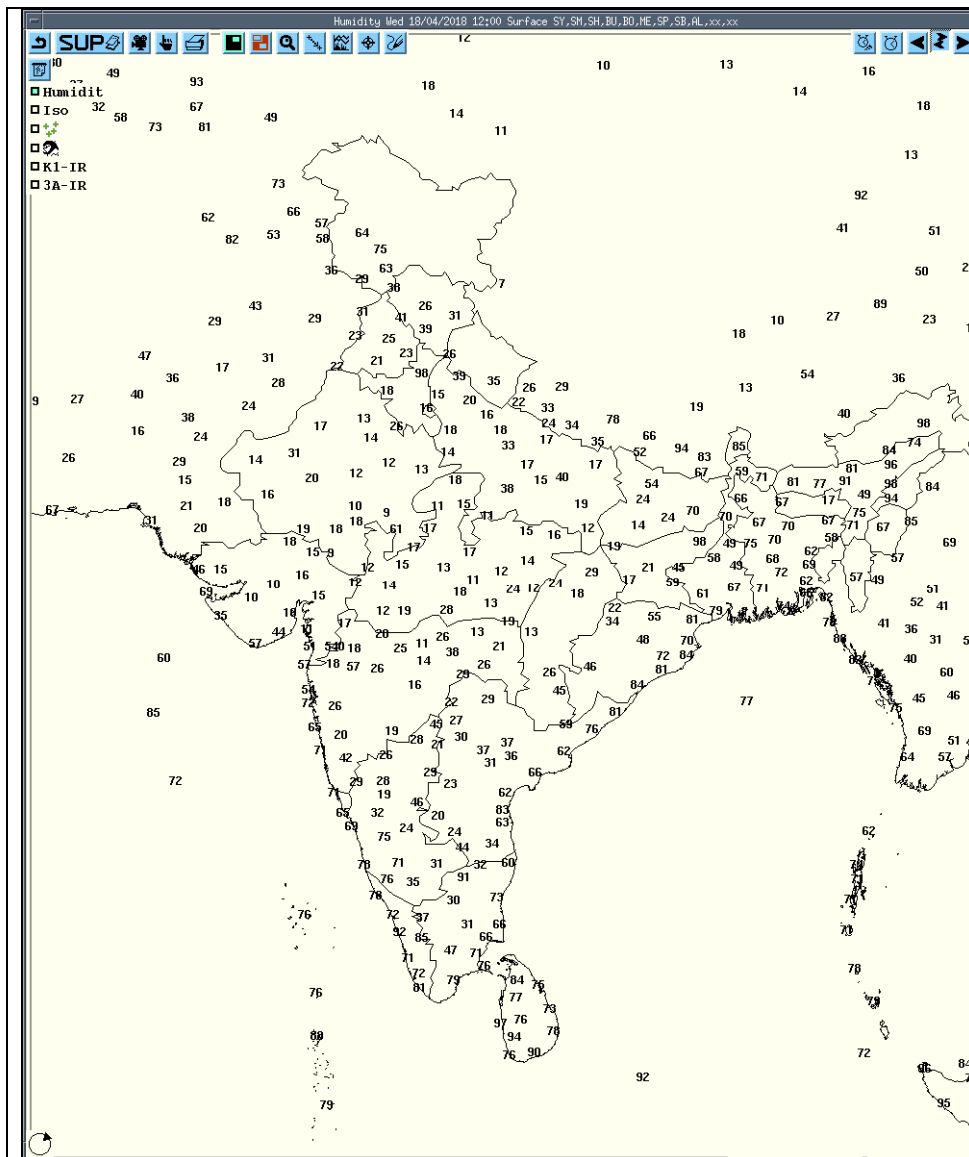
**Tendency Tmax**



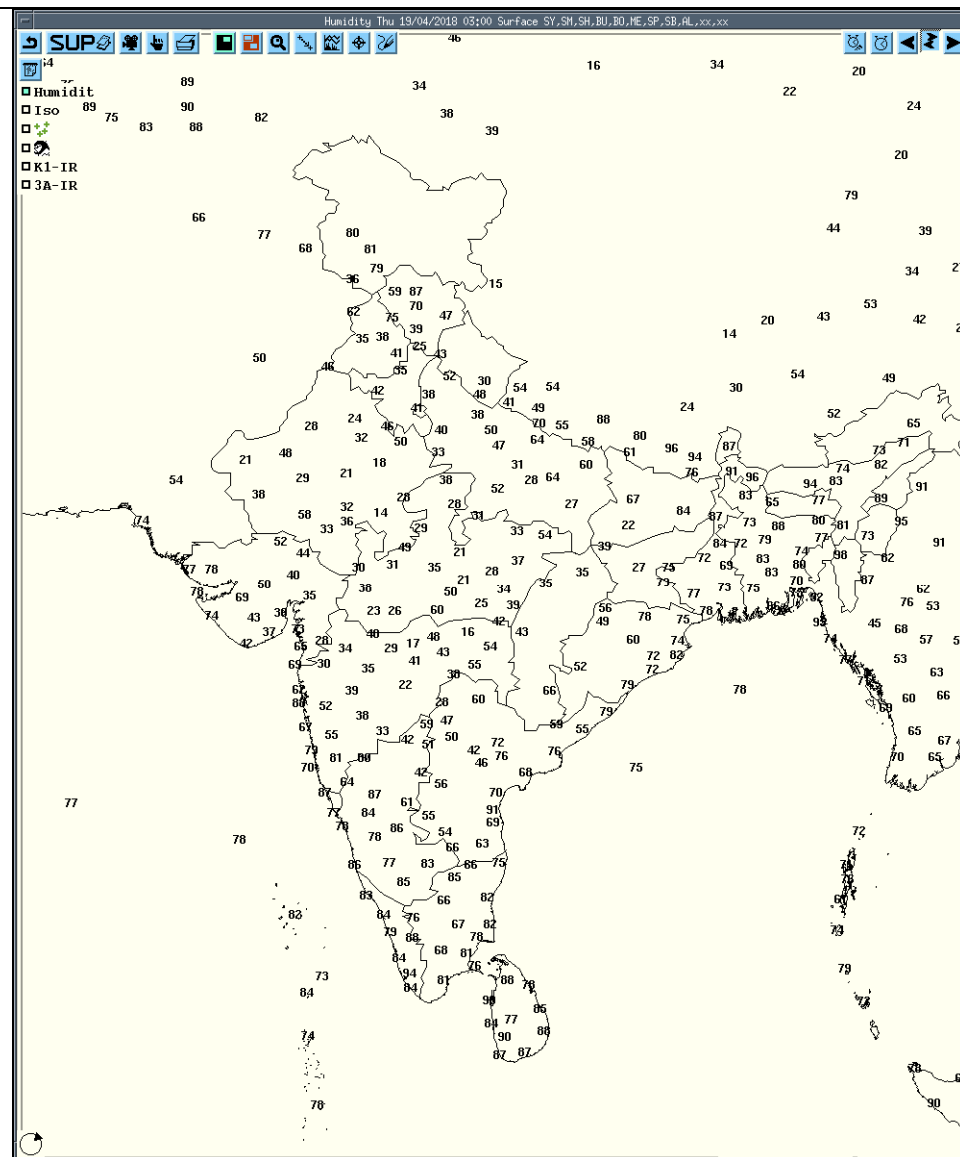
**MSLP**

**Departure MSLP**

**Tendency MSLP**



RH at 12UTC yesterday



RH at 03UTC today



## Past 24 hours DWR Report:

Radar Station Name	Date	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
Kolkata	18-04-18	0302 – 0931	NIL	NIL	NOSIG ECHO	NIL	NIL
		0941 – 1302	Isolated cell developed at a position 22.337 N/ 86.302 E/ 263.5 Degree/ 212.3 km away from radar transformed into big cell with maximum reflectivity of 58.0 dBz at 1121 UTC and maximum height of 7.12 Km at 1121 UTC	WSW (263.5 km) Moving in SE-ward direction.	Cell started forming at 0941 UTC at WSW (263.5 Km) from radar. Matured and moving into Bay of Bengal completely at 1302 UTC in SW at a distance of 146.3 Km from Radar.	Thunderstorm /Rain	N/A
		1241-1621	Single cell with maximum reflectivity of 66.0 dBz at 1341 UTC and maximum height 15.07 km at 1341 UTC	NNW (233.7km) Moving in SE-ward direction at a speed of 30 kmph.	Isolated Single Cell coming from NNW at 1241 UTC at a distance of 233.7 km from Radar, Matured and splitted into two parts at 1341 UTC in NNW at a distance 205.3 km from Radar and moving into Bangladesh in NNE at 1621 UTC at a distance of 134.8 km from Radar.	Thunderstorm/ Rain	N/A
		1602-1901	Single cell with maximum reflectivity of 58.5 dBz at 1621 UTC and maximum height 11.11 km at 1621 UTC	NNW (231.9km) Moving in SE-ward direction at a speed of 58 kmph.	Isolated Single Cell developed in NNW at 1602 UTC at a distance of 231.9 km from Radar, Matured and transformed into multi-celled system at 1631 UTC in NNW at a distance 218.1 km from Radar and moving completely into Bangladesh in NNE at 1901 UTC at a distance 180.0 km from Radar.	Thunderstorm/ Rain	N/A
		1911 –2400	NIL	NIL	NOSIG ECHO	NIL	NIL
	19-04-18	0001 – 0301	NIL	NIL	NOSIG ECHO	NIL	NIL
Jaipur	19/04/18	0300 UTC	NIL	NIL	NIL	NIL	NIL
Patiala	19/04/18	0300 UTC	NIL	NIL	NIL	NIL	NIL
Patna	19/04/18	0300 UTC	NIL	NIL	NIL	NIL	NIL

<b>Radar Station name</b>	<b>Date</b>	<b>Time interval of observation (UTC)</b>	<b>Organization of the cells (Isolated single cells/multiple cells/ convective regions/ squall lines) with height of 20 dBZ echo top and maximum reflectivity</b>	<b>Formation w.r.t radar station and Direction of movement</b>	<b>Remarks</b>	<b>Associate d severe weather if any</b>	<b>Districts affected</b>
Visakhapatnam	18/04/18	0900	Isolated Cb cells with maximum reflectivity of 63 dBZ height of 10 kms	W (118 kms) moving S ly	Cb cells formed at 0811UTC matured at 0841 UTC	NIL	East Godavari dist.
		1200	Multiple Cb cells with maximum reflectivity of 66 dBZ with height of 13 kms	WSW ( 160 kms) N (37 KMS) moving S ly	Since last observation Cb cells developing matured at 1041 UTC and started dissipating from 1151 UTC	Thunderstorm lightening possibility of rain	Visakhapatnam srikakulam gajapati ganjam rayagada districts of orissa
		1500	Multiple Cb cells with maximum reflectivity of 64 dBZ with height of 18 kms	W ( 10 kms)NW(125 KMS) N (85 KMS) and NE(135 KMS) moving SE ly	Since last observation Cb cells developing, matured to Max. reflectivity of 64dBz at 1211 UTC and dissipating .	Thunderstorm, Lightning and Rain	Visakhapatnam Vizianagaram, srikakulam Dist. (AP) Gajapati, Ganjam, Koraput districts (Orissa) Bastar (Chatisgarh)
		1800	Multiple Cb cells with maximum reflectivity of 56 dBZ with height of 18 kms	CB cells are close to the SW of Radar, W ( 38kms) and NE(90 KMS) moving SE ly	Since last observation Cb cells are developing and dissipating. Convective region formed in Bay of Bengal region at 1731UTC.	-	Visakhapatnam, East Godavari Dist. (AP)
	19/04/18	0000	Convective region with maximum reflectivity of 50 dBZ with height of 9 kms	S& SW(50 kms) moving SEly	Since last observation Convective region formed in Bay of Bengal region and dissipating from 1811UTC.	-	Visakhapatnam, Dist. (AP)
	19/04/18	0300UTC	Convective region with maximum reflectivity of 43 dBZ with height of 4 kms	S& SW(188 kms) moving SEly	Convective region formed in Bay of Bengal region and dissipating from 0251UTC.	-	-

DWR Station	Date	Time interval of observation	Organization of the cells(isolated single cell/multiple cellsconvective regions/squall lines) with height of 20 dBZ echo top and maximum reflectivity	Formation w.r.t. radar station & direction of movement	Remarks	Associated severe weather, if any	Districts affected
Lucknow	19/04/18	180300-182332 -	NIL	NIL	NIL	NIL	NIL
		182332-190252	Multiple cell system formed at around 2332 UTC over 150 Km NW. Max. reflectivity observed was 42.5 dBZ and height reached 7 Km on ( 20 dBZ echo top).	System moved SEly approaching the station with avg. velocity 60 Km/hr.	Weakened after passing the station and dissipated at around 0252 UTC over 50 Km E to the station.	TS	Unnao Hardoi

### 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)
Srinagar	Northwest India	Jammu & Kashmir	Thunderstorm	18-04-18	0100	0140
Qazigund	Northwest India	Jammu & Kashmir	Thunderstorm	18-04-18	1650	1715
Pahalgam	Northwest India	Jammu & Kashmir	Thunderstorm	18-04-18	1900	1915
Kukernag	Northwest India	Jammu & Kashmir	Thunderstorm	18-04-18	1705	1720
Banihal	Northwest India	Jammu & Kashmir	Thunderstorm	18/19-04-18	1635 0520	1725 0525
Kailasahar	Northeast India	Tripura	Thunderstorm	18-04-18	2040	2300
Agartala	Northeast India	Tripura	Thunderstorm	19-04-18	0100	0320
Kalingapatnam	South India	Coastal Andhra Pradesh	Thunderstorm	18-04-18	1840 2200	1840 2200
Tuni	South India	Coastal Andhra Pradesh	Thunderstorm	18-04-18	2045 2310	2120 2400
Visakhapatnam	South India	Coastal Andhra Pradesh	Thunderstorm	18-04-18	1705	2200
Kakinada	South India	Coastal Andhra Pradesh	Thunderstorm	18-04-18	2200	2305
Kurnool	South India	Rayalaseema	Thunderstorm	18-04-18	2200	2350

## 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)

Past24hourHEMandIMRainfall(upto03UTCof today)

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)

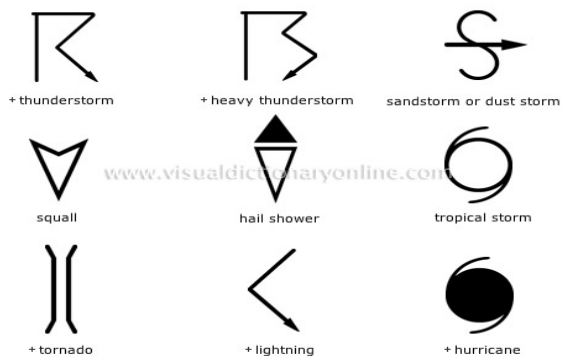
For Radar images of the past 24 hours including mosaic of images:

[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>	