



# India Meteorological Department

## FDP STORM Bulletin No. 37 (12-04-2018)

### 1. CURRENT SYNOPTIC SITUATION:

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

- ◆ The Western Disturbance as an upper air cyclonic circulation at 3.1 km above mean sea level over north Pakistan & adjoining Jammu & Kashmir has become less marked. However the trough aloft with its axis at 5.8 km above mean sea level roughly along Long. 75° E to the north of Lat. 30°N persists.
- ◆ A fresh Western Disturbance is likely to affect Western Himalayan region from 15th April.
- ◆ The cyclonic circulation extending upto 0.9 km above mean sea level over southwest Uttar Pradesh and neighbourhood persists.
- ◆ The cyclonic circulation at 0.9 km above mean sea level over northern parts of Bangladesh and neighbourhood now lies over eastern parts of Bangladesh and neighbourhood.
- ◆ A trough runs from east Bihar to Gangetic West Bengal and extends upto 1.5 km above mean sea level.
- ◆ The cyclonic circulation over southwest Madhya Pradesh and adjoining Gujarat region & southeast Rajasthan now lies over southeast Rajasthan and adjoining West Madhya Pradesh & Gujarat region. The trough from this cyclonic circulation to coastal Karnataka across Madhya Maharashtra at 0.9 km above mean sea level has become less marked.
- ◆ A trough at 1.5 km above mean sea level runs from northwest Rajasthan to southwest Madhya Pradesh.
- ◆ The trough in easterlies at 0.9 km above mean sea level from Comorin area to South Interior Karnataka now runs from south Tamilnadu to North Interior Karnataka across South Interior Karnataka.
- ◆ The trough of low at mean sea level over Equatorial Indian Ocean and adjoining southwest Bay of Bengal now lies over southwest Bay of Bengal and adjoining Sri Lanka.

#### 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 with embedded weak to moderate convection seen over Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Uttar Pradesh and over area between Lat 37.0°N to 40.0°N Long 75.0°E to 90.0°E in association with Western Disturbance over the area.

Broken multi-layered clouds with embedded moderate to intense convection seen over South Caspian Sea, Iran, Gulf of Persia, East Saudi Arabia in association with another WD over the area.

**Westerly Trough:** Trough in Westerlies roughly along long 72.0E & north of lat 28.0N

**Convective Activity:**

Convective cells that are developed over West Uttar Pradesh, adjoining Southeast Haryana, West Assam, adjoining North Meghalaya, & over Chhattisgarh are moving in east-ward direction.

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

Based on 0400UTC precipitation is likely to take place during next three hours over West Assam adjoining Meghalaya, over East Assam, North Kerala, and Northwest & Central Tamilnadu.

**Clouds descriptions within India:**

Scattered low/medium clouds with embedded moderate to intense convection seen over West Assam, adjoining Meghalaya, North Coastal Kerala and West of Andaman Islands. Broken low/medium clouds with embedded moderate convection seen over Uttarakhand, southeast Haryana, Delhi and Uttar Pradesh. Isolated low/medium clouds with embedded moderate convection seen over East Madhya Pradesh and East Vidarbha. Scattered low/medium clouds with embedded weak to moderate convection seen over Jammu & Kashmir, Himachal Pradesh, rest Madhya Pradesh and Maharashtra. Scattered low/medium clouds with embedded weak convection seen over Northeastern States, Southeast Jharkhand and North Chhattisgarh. Scattered low/medium clouds with embedded isolated weak convection seen over North Interior Karnataka, Telangana, and Tamilnadu. Scattered low/ medium clouds with embedded weak convection seen over Sikkim, rest Chhattisgarh and rest Rajasthan. Scattered low/medium clouds seen over rest parts of East India and Isolated low/medium clouds seen over rest parts of North India.

**Arabian Sea:-**

Scattered low/medium clouds with embedded moderate to intense convection seen over Lakshadweep, Southeast Arabian Sea off Kerala coast south of lat 8.5°N.

**Bay of Bengal & Andaman Sea:**

Scattered low/medium clouds with embedded moderate to intense convection seen over Southeast Bay South of lat 11.5°N.

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

Moderate to Intense convection was observed over Jammu & Kashmir Punjab Himachal Pradesh north Rajasthan Gujarat Haryana Delhi Uttarakhand Uttar Pradesh Bihar Gangetic West Bengal Sub-Himalayan West Bengal east Orissa Sikkim north west Assam North west Arunachal Pradesh Meghalaya Manipur north Madhya Pradesh east Maharashtra north interior Karnataka Kerala Tamilnadu. Weak to Moderate convection was observed over rest Rajasthan Gujrat Madhya Pradesh Karnataka and Jharkhand

**OLR:-**

Up-to 230  $\text{wm}^{-2}$  observed over Jammu & Kashmir Himachal Pradesh Uttarakhand North Uttar Pradesh North West Bihar North Chhattisgarh south Jharkhand North-East States Kerala Tamilnadu and Telangana.

**Synoptic Features (Westerly Trough & Jet Stream):** Trough in westerlies roughly along Long 73.0E & north of Lat 28.0N.

**Dynamic Features:-**

Up to 60 Knots wind shear is observed over North I West Gujarat Rajasthan .Up to 40 knots wind shear is observed over east Andhra Pradesh Orissa Jharkhand Chhattisgarh East Uttar Pradesh North East Uttarakhand North-East states Kerala Tamilnadu South interior Karnataka. .

Negative Shear tendency (-20kts) is observed over Karnataka Kerala Tamilnadu Andhra Pradesh and Telangana Orissa Gangetic West Bengal North East States Except Sikkim and Positive Shear tendency (20kts) over rest India.

**A positive Vorticity** field at 850 hPa is observed over west Gujarat south east Rajasthan adjoining North West Madhya Pradesh (.)

**Negative Low Level Convergence** observed over Jammu & Kashmir North Uttarakhand Himachal Pradesh Bihar South Gujarat north Maharashtra Uttar Pradesh central India Arunachal Pradesh and Positive Low Level Convergence observed over Rajasthan Punjab and Haryana.

**Precipitation:**

**IMR:**

Rainfall upto 50-70mm observed over Kerala and Tamilnadu

Rainfall upto 20-50 mm observed over North and South Jammu and Kashmir Delhi South East Haryana North West Uttar Pradesh Kerala and Tamilnadu

10-20mm observed over central J&K east Himachal Pradesh East Uttarakhand North West Uttar Pradesh Gangetic west Bengal

Rainfall upto 10 mm observed over rest J&K Himachal Pradesh Uttarakhand Uttar Pradesh Punjab Haryana Bihar and north east states North Rajasthan north Madhya Pradesh east Maharashtra central Karnataka and rest Kerala and Tamilnadu

**HEM**

70-140mm observed over Central and south J&K east Himachal Pradesh North West Uttarakhand south Kerala and south Tamilnadu

Upto mm 14mm observed over rest J&K Himachal Pradesh Uttarakhand Punjab Rajasthan Madhya Pradesh Uttar Pradesh Bihar sub Himalayan Gangetic west Bengal north east states and adjoining area east Maharashtra and adjoining area south Kerala and Tamilnadu

**Convective Activity over Indian Region:**

Cell No	Date /Time(UTC)	Location	Minimum CTT -Deg C	Remarks/ Movement
1	12/0300	W UP	40	EASTWARD
2	0300	C CHTGH	46	EASTWARD
3	0300	W ASSAM	51	EASTWARD
4	0300	COT KER	73	EASTWARD

**RADAR and RAPID RGB Observation:**

Isolated/multiple moderate echoes (dBZ 45-50 and height around 10km) were seen on domain of DWR Paradip, Gopalpur and Vishakhapatnam and Isolated/multiple light to moderate echoes were seen on DWR Agartala, Cherrapunjee and Patiala at around 1300 IST.

RAPID RGB Satellite imagery at 1200IST indicates significant convection over Himachal Pradesh, North Uttarakhand, East Assam, Nagaland, isolated places of Odisha and West Jharkhand.

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

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

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

Delhi – SAFAR analysis & Forecast	12.04.2018	13.04.2018
PM10 (micro-g/m <sup>3</sup> )	96	106
PM2.5 (micro-g/m <sup>3</sup> )	54	59

## 2. NWP MODEL GUIDANCE:

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

#### 1. Weather Systems:

##### Low level CYCIRS, Troughs:

00 UTC of Day 1-2: 850 hPa trough over Bangladesh and adjoining NE India

##### Confluence & wind Discontinuity regions:

12 UTC of Day 0-4: 925hPa N-S discontinuity over Southern Peninsular India. SW-NE over MP, Chhattisgarh, Odisha

##### Synoptic Systems:

12 UTC of Day 0: WD as a trough at 500 hPa over J & K. A fresh WD over J & K in 12 UTC of Day 2-4

00UTC of Day 1-5: 925 hPa anticyclone over Bay of Bengal leading to moisture incursion but associated winds are weaker.

**2. Location of jet and jet core (>60kt) at 500hPa): 12UTC - Nil (>50kts) Day 2-3:** Bihar and NE states

**3. Convergence at 850 hPa: Day/Index: Subdivisions with Lower Level Convergence >  $15 \times 10^{-5}$  /s**

Day0: Jammu Kashmir, East Rajasthan, Odisha, Madhya Maharashtra, Coastal AP, NI Karnataka, SI Karnataka,

Day1: Arunachal Pradesh, Assam Meghalaya, SI Karnataka,

Day2: Arunachal Pradesh, Jammu Kashmir, Madhya Maharashtra, Chhattisgarh, Tamilnadu Puducherry, NI Karnataka, SI Karnataka,

Day3: Madhya Maharashtra, Chhattisgarh, SI Karnataka,

Day4: Jharkhand, Odisha, Madhya Maharashtra, NI Karnataka, SI Karnataka, Kerala,

**4. Low level Vorticity:-Positive Vorticity: Day/Index: Subdivisions with Lower Level Vortex >  $15 \times 10^{-5}$  /s**

Day0: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Tamilnadu Puducherry,

Day1: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Uttarakhand, Himachal Pradesh,

Day2: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, West UP, Uttarakhand, Himachal Pradesh,

Day3: Assam Meghalaya, Sub Himalayan WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh,

Day4: Assam Meghalaya, Bihar, Uttarakhand, Himachal Pradesh

**5. Showalter Index: -3 to -4[Very unstable]: Day/Index: Subdivisions with Showalter Index < -4**

Day0: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, East UP, West UP, Uttarakhand, Odisha, Coastal AP, Tamilnadu Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Uttarakhand, Odisha, Coastal AP, Tamilnadu Puducherry, Coastal Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Odisha, Coastal AP, Tamilnadu Puducherry, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Odisha, Coastal AP, Rayalaseema, Tamilnadu Puducherry, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Konkan Goa, Madhya Maharashtra, 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, Gangetic WB, Jharkhand, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, East Rajasthan, Odisha, West MP, East MP, Chhattisgarh, Coastal AP,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Vidarbha, Chhattisgarh,

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

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

Day4: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Uttarakhand, Punjab, Himachal Pradesh,

**7. K-Index :-> 35[Very Unstable thunderstorm likely]: Day/Index: Subdivisions with K Index > 40**

Day0: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Odisha, Vidarbha, Coastal AP, Telangana, Rayalaseema, Tamilnadu Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Odisha, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, Tamilnadu Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Jharkhand, Odisha, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Telangana, Rayalaseema, Tamilnadu Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day3: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Odisha, West MP, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, Tamilnadu Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Bihar, Uttarakhand, Odisha, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, 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, Jammu Kashmir, Odisha, Tamilnadu Puducherry, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, SI Karnataka, Kerala,

Day4: Arunachal Pradesh,

Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT

**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 south west Uttar Pradesh and adjoining areas. It will persist for next 48 hour forecast. The analysis shows a trough in lower troposphere extending from North Madhya Maharashtra up to north Kerala across south interior Karnataka. The forecast shows it will persist till day3. The analysis shows a cyclonic circulation over southeast Rajasthan adjoining west Madhya Pradesh and Gujarat region. It will become less marked in next 48 hour forecast. The analysis also shows a trough in easterlies extending from south Tamil Nadu to north interior Karnataka across south interior Karnataka. The forecast shows it will persist for next 24 hours. The forecast shows a trough runs from east Bihar up to Gangetic West Bengal on day2.

**2. Location of Jet and Jet Core (>60kt) at 500hPa:** Although the presence of strong westerlies is found over 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 x 10<sup>-1</sup>/s):** Low level Positive Vorticity is seen mostly along the foothills of Himalaya from J&K, Himachal Pradesh, Uttarakhand up to NE states, also seen along the cyclonic circulation and along the trough for next 3 days. It is inferred that some parts of West Rajasthan and adjoining areas has Positive Vorticity on day 2 and 3.

**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 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, Rajasthan, coastal Maharashtra including Mumbai, Konkan & Goa, Vidharbha adjoining Chhattisgarh, coastal areas along the east coast and west coast, extreme south peninsular India, Assam, Tripura and adjoining area, SHWB on all 3 days; over parts of Haryana and adjoining south east Rajasthan on day 1; Maximum value of the index is seen over parts of Gujarat, GWB, Orissa and some parts of Jharkhand on day 1; over parts of Gujarat, coastal Maharashtra, Konkan and Goa, GWB, Orissa, coastal Andhra Pradesh, Assam, Tripura and adjoining areas on day 2; over parts of Gujarat, coastal Maharashtra, Konkan and Goa, GWB, SHWB, Orissa, coastal Andhra Pradesh, Telangana, Assam, Tripura and adjoining areas, Bihar and Jharkhand on day 3.

**Lifted Index (< -2):** The threshold value of the index is below -2 over parts of Gujarat, coastal Andhra Pradesh, coastal Karnataka, Telangana, Rayalaseema, Konkan and Goa, Kerala, Tamil Nadu, southern part of west coast, coastal areas along the east coast, Chhattisgarh, Vidharbha, Orissa, GWB, SHWB, Bihar, Jharkhand, Sikkim and NE states on all 3 days; over parts of Punjab, Haryana, Delhi, Uttar Pradesh, southeast Rajasthan on day 1; maximum negative value of the index less than -8 is seen over parts of GWB, coastal Orissa, Tripura and adjoining areas on day 3.

**Total Index (> 50):** The threshold value of the index is > 50 over some parts of Rajasthan, Gujarat and Himachal Pradesh on day 1; over parts of J&K, Himachal Pradesh, Punjab, Haryana, Delhi, Uttarakhand, Uttar Pradesh, Rajasthan, Madhya Pradesh and Gujarat on day 2; over parts of Himachal Pradesh, Uttarakhand, Haryana, Uttar Pradesh, Rajasthan, Madhya Pradesh, foothills of Himalaya, Bihar, Jharkhand, SHWB on day 3; maximum value of the index >60 is seen over parts of Rajasthan, Uttarakhand and West Uttar Pradesh on day 2; over parts of Uttarakhand, east Uttar Pradesh, Rajasthan, Bihar, Jharkhand, East Madhya Pradesh and adjoining areas on day 3.

**Sweat Index (> 300):** Although the threshold value of the Index >300 is seen in most parts of the country but the maximum value of the index greater than 700 is seen over parts of Orissa, Assam, Arunachal Pradesh, Tripura and adjoining areas on day 1; on day 2 mostly over NE states and Foothills of Himalaya; on day 3 over parts of GWB, Orissa, Assam, Arunachal Pradesh, Tripura and adjoining areas, some parts of Andhra Pradesh and south Chhattisgarh.

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

**CIN (50-150):** Although the threshold value of the Index lies in the range of (50–150) over most part of the country during all 3 days except J&K, Punjab, Himachal Pradesh on day1 and J&K, North Rajasthan, Punjab, Haryana, Himachal Pradesh, Delhi, Uttar Pradesh and northern parts of Madhya Pradesh and Chhattisgarh on day 2 and 3; but the maximum value of the index > 400 is seen over parts of Sikkim and adjoining Assam on day 3.

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

70-130 mm Rainfall: over parts of Arunachal and adjoining areas on day 2.

40-70 mm Rainfall: over parts of Arunachal Pradesh and adjoining areas on day 1 and 2.

10-40 mm Rainfall: over parts of Sikkim, NE states, Kerala, Karnataka, Tamil Nadu, on all 3 days; over parts of Orissa and foothills of Himalaya on day 1.

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

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

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

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

- Synoptic analysis indicates that due to the cyclonic circulation over southwest Uttar Pradesh and neighbourhood and another cyclonic circulation over eastern parts of Bangladesh and neighbourhood. The thunderstorm with gusty winds activity mainly over Uttar Pradesh & Bihar, Orissa and Jharkhand may likely to be observed on Day-1. The northwest region will get thunder squall with hail specifically over Assam & Meghalaya on Day-1. This activity may continue to Day-2 over the same region.
- Due to the trough at 1.5 km above mean sea level runs from northwest Rajasthan to southwest Madhya Pradesh, East Rajasthan and North Madhya Pradesh may experience thunderstorm with gusty winds on Day-1.
- The trough from south Tamilnadu to North Interior Karnataka across South Interior Karnataka will trigger the thunderstorm with gusty winds activity over North and South Interior Karnataka, Tamilnadu, Kerala on Day-1.
- A fresh Western Disturbance is likely to affect Western Himalayan region from 15th April.

**24 hour Advisory for IOP:**

**Significant Rainfall:**

Assam, Meghalaya, Arunachal Pradesh

**Thunderstorm with Squall/Gusty winds:**

Kerala, South Tamil Nadu, Coastal & Interior Karnataka  
Sub-Himalayan West Bengal & Sikkim, Gangetic West Bengal, Odisha,  
Jharkhand, Bihar  
Uttar Pradesh, East Rajasthan  
Nagaland, Manipur, Mizoram & Tripura

**Thunderstorm with Squall/Hailstorm:**

Assam & Meghalaya

**Thunderstorm/Duststrom:**

Nil

**48 hour Advisory for IOP:**

**Significant Rainfall:**

Assam, Meghalaya, Arunachal Pradesh

**Thunderstorm with Squall/Gusty winds:**

Kerala, South Tamil Nadu, Coastal & Interior Karnataka  
Sub-Himalayan West Bengal & Sikkim, Gangetic West Bengal,  
Odisha, Jharkhand  
Nagaland, Manipur, Mizoram & Tripura

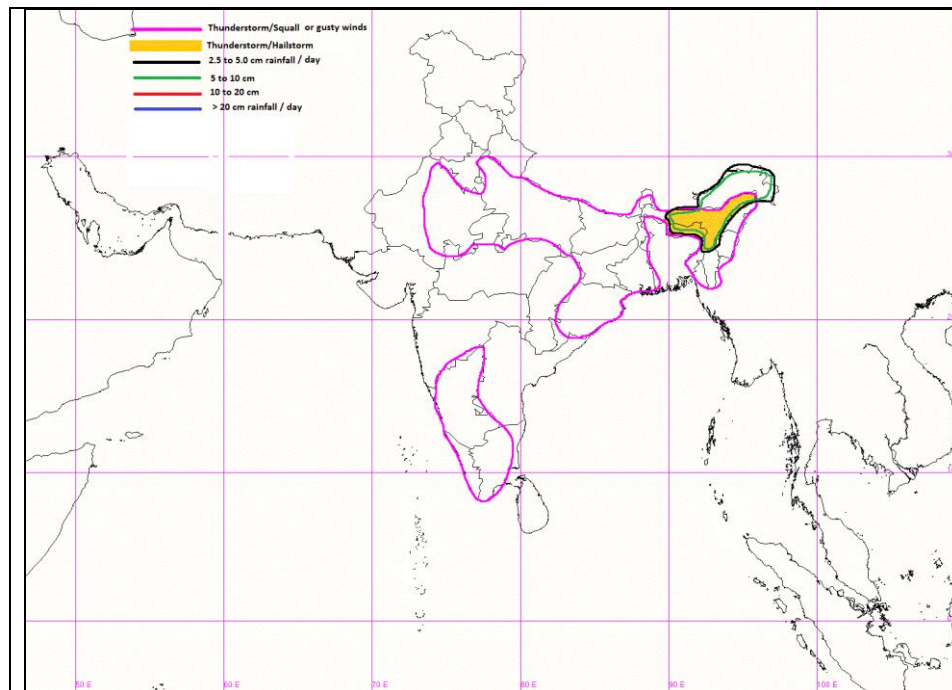
**Thunderstorm with Squall/Hailstorm:**

Assam & Meghalaya

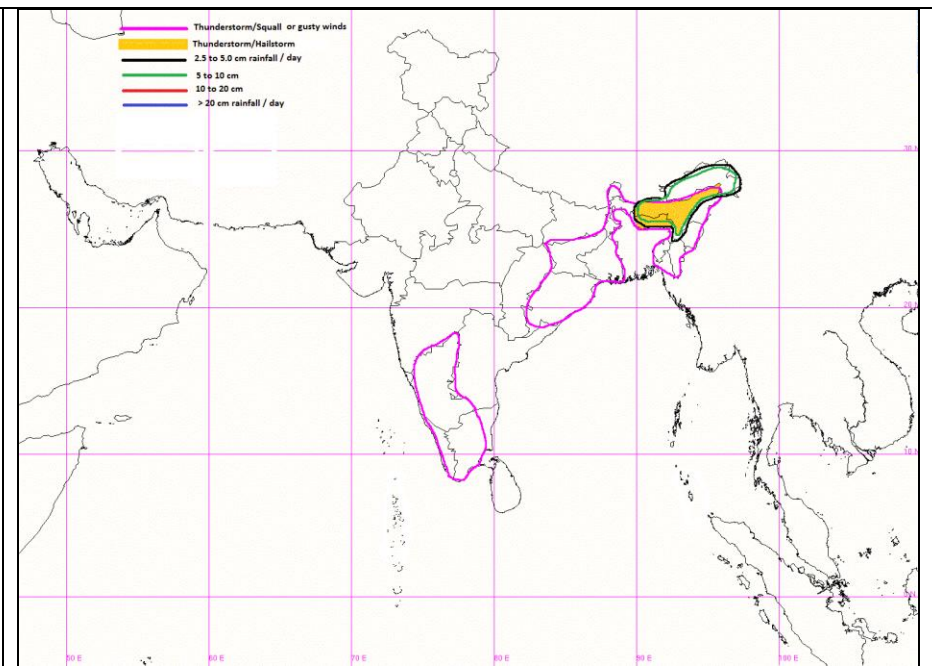
**Thunderstorm/Duststrom:**

Nil

**Graphical Presentation of Potential Areas for Severe Weather:**

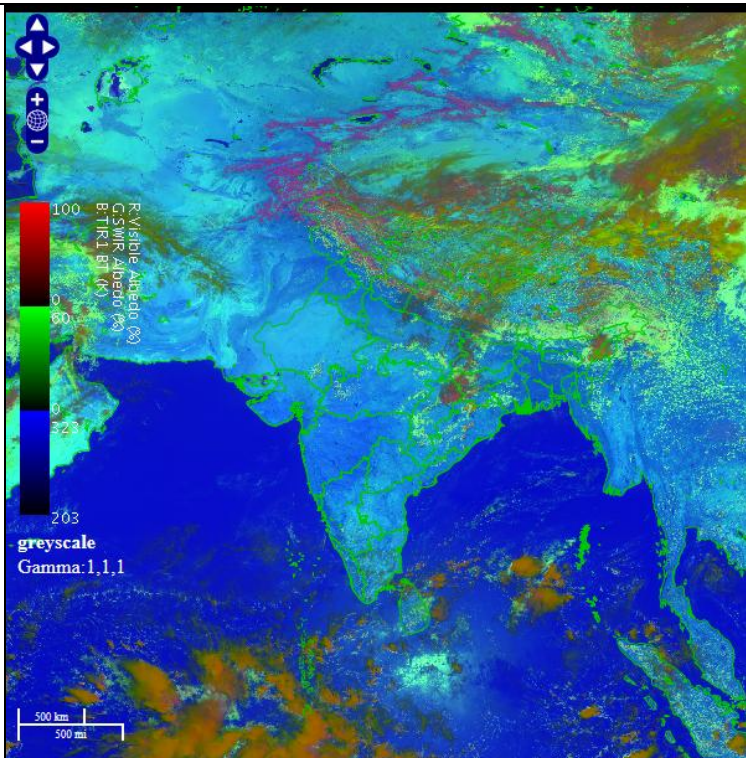


**IOP Advisory for 24 hours**

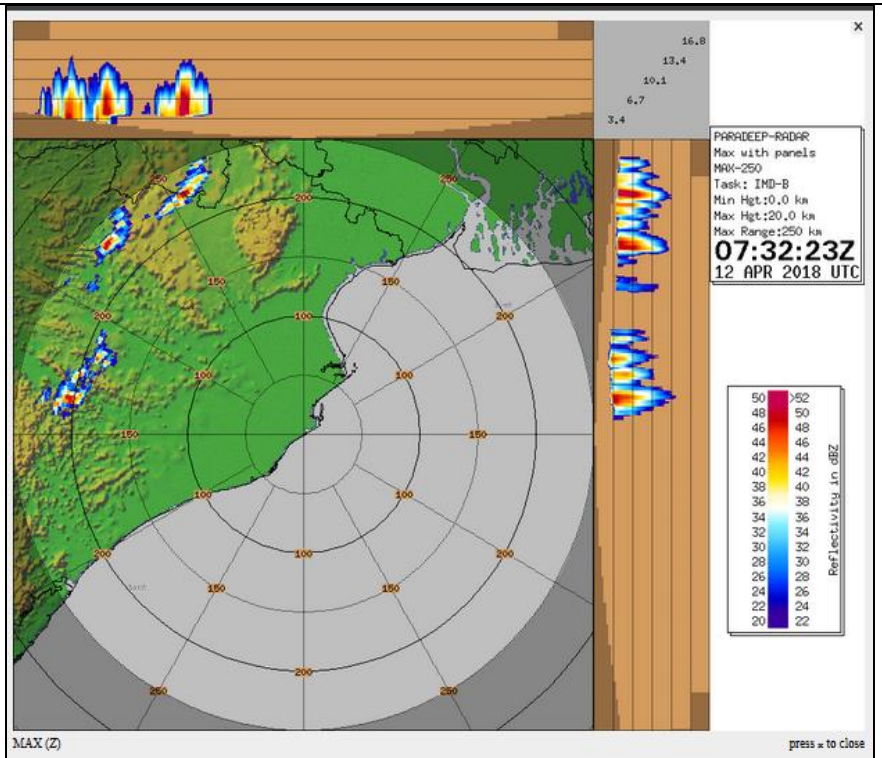


**IOP Advisory for 48 hours**

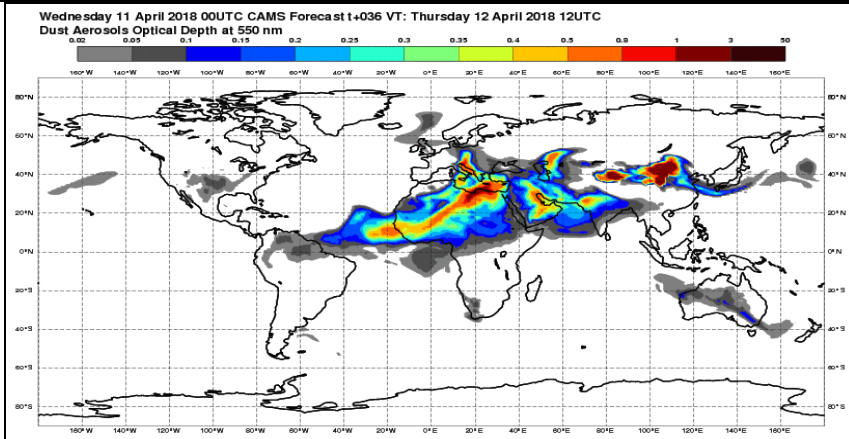




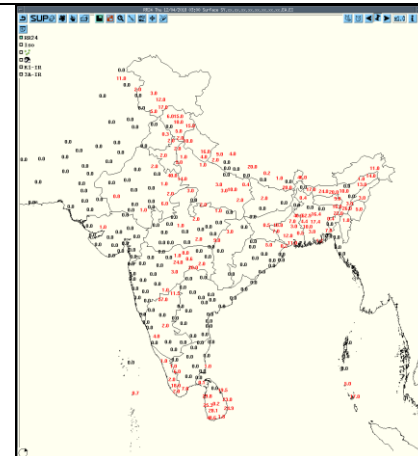
**RAPID RGB Imagery at 1200 IST of the Day**



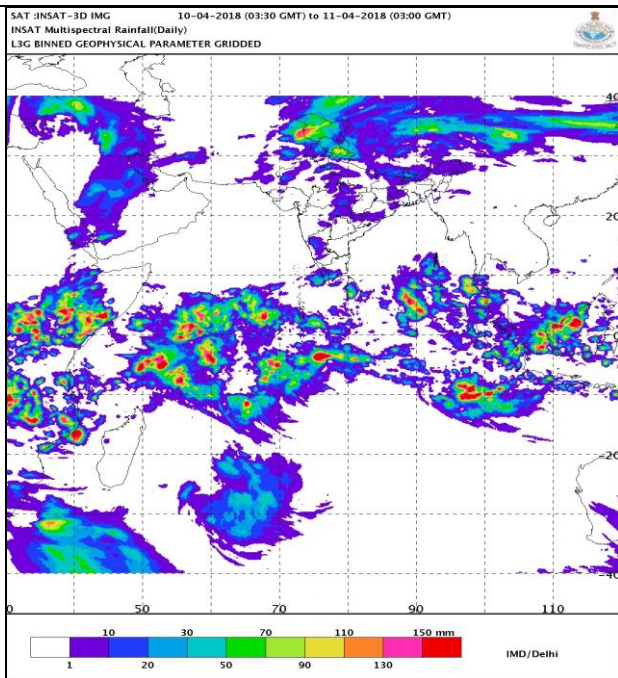
**DWR Paradip at 1302 IST of the Day**



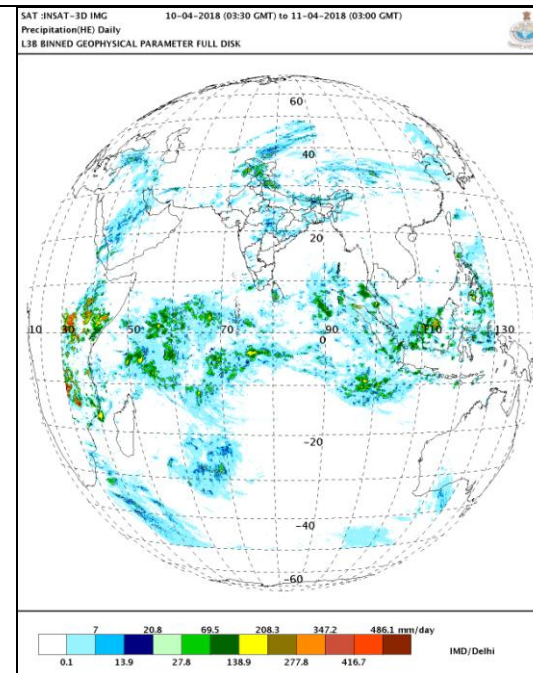
**Dust Forecast**



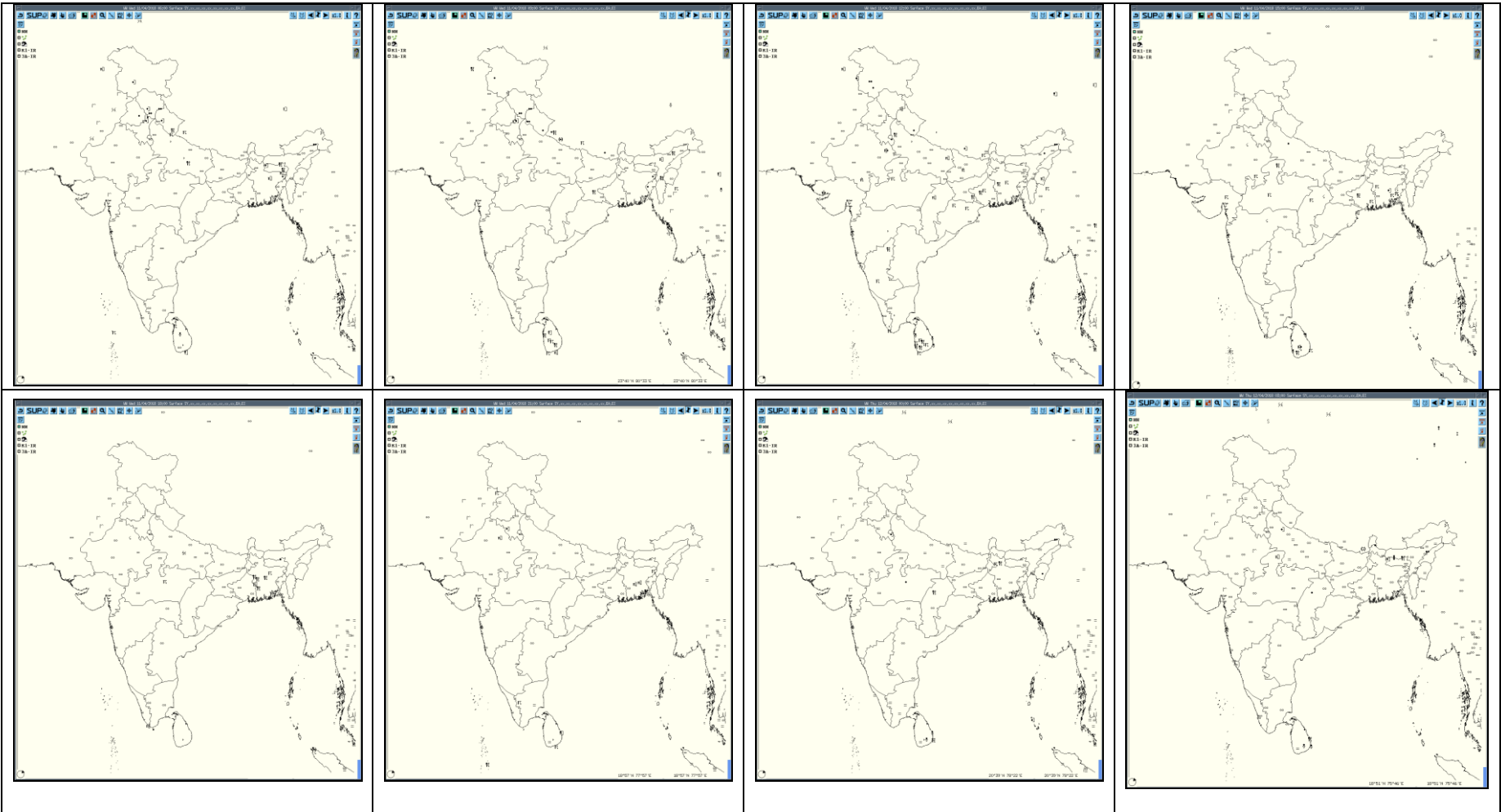
**Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today**



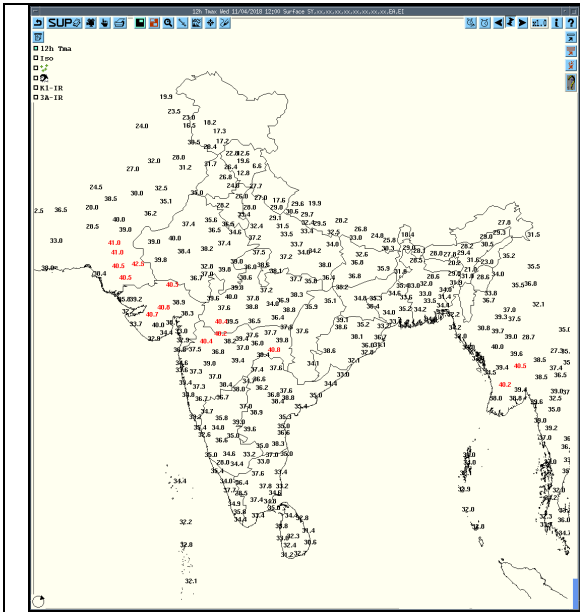
**IMR**



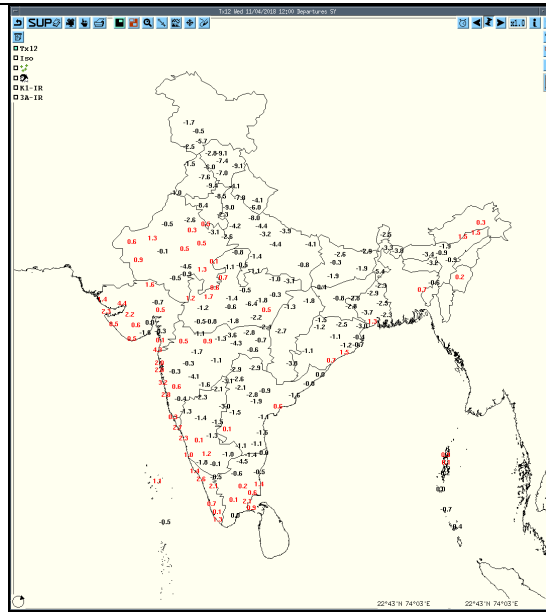
**HEM**



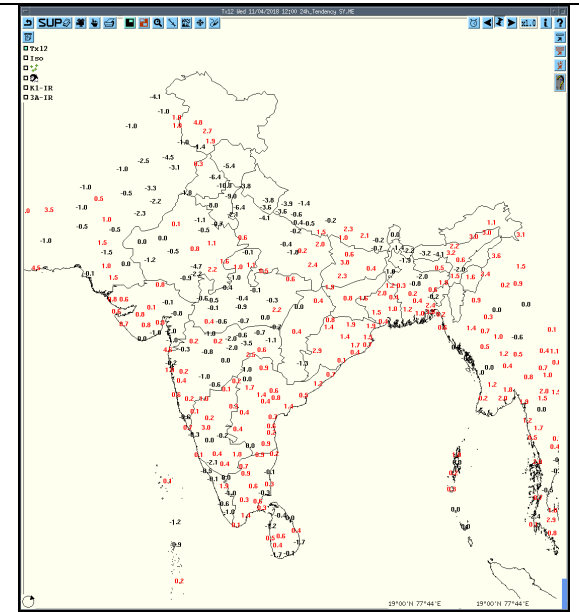
3hourly Past weather at 06, 09, 12, 15, 18, 21 UTC of yesterday and 00 & 03 hrs UTC of today



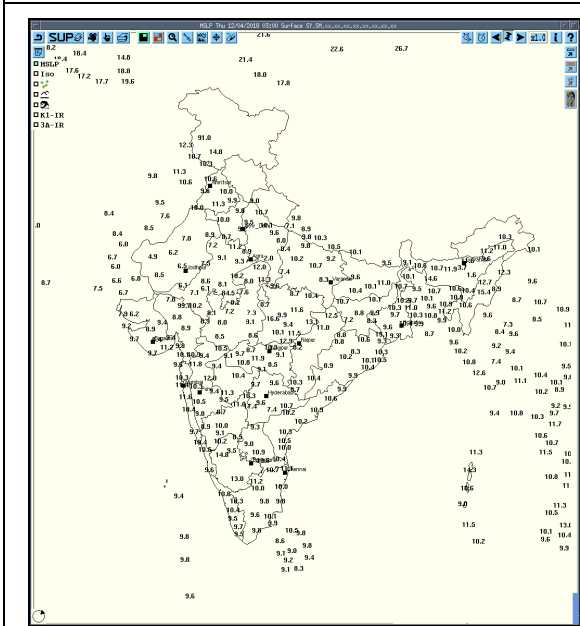
Tmax



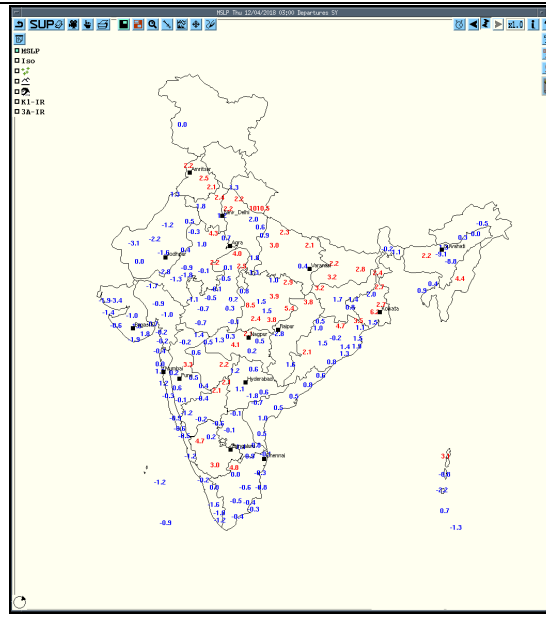
Departure Tmax



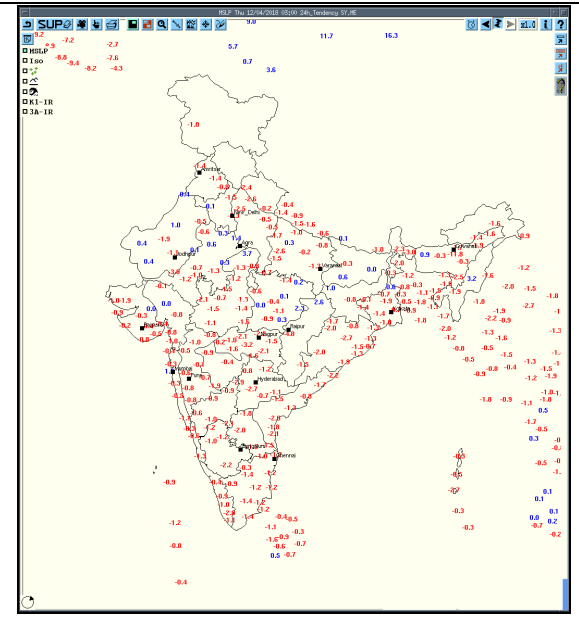
Tendency Tmax



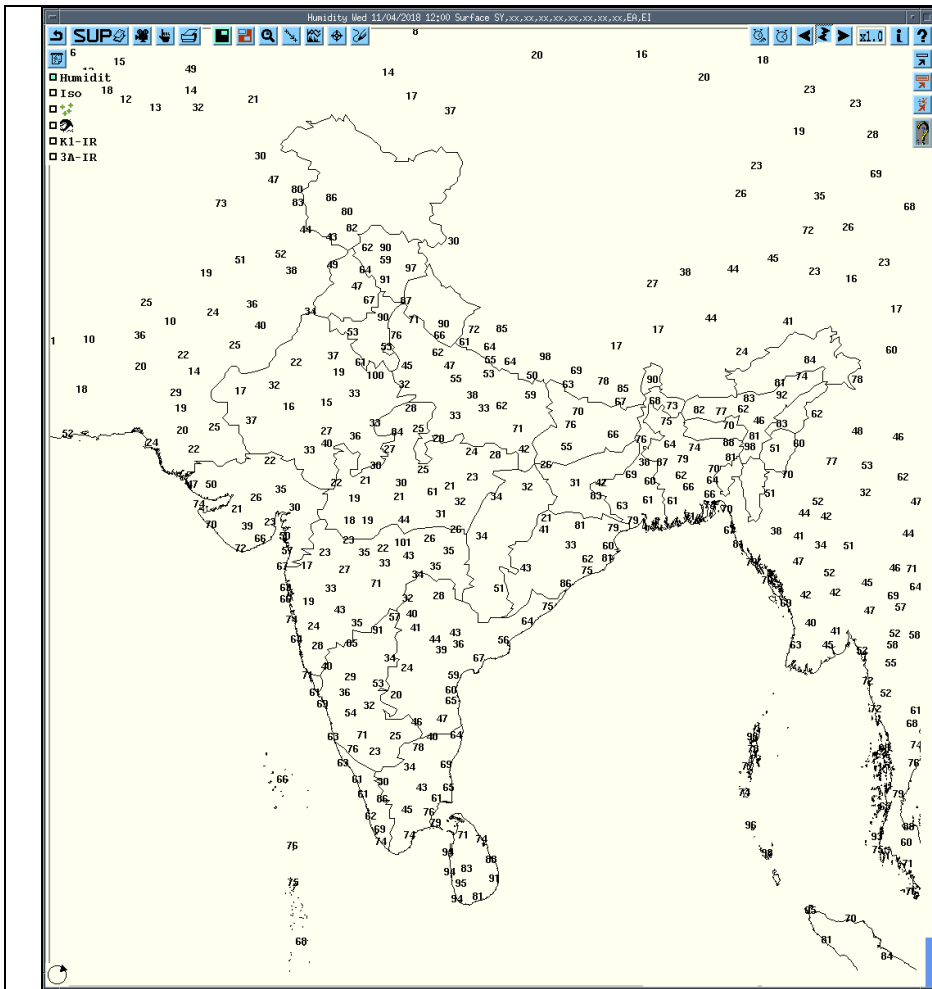
MSLP



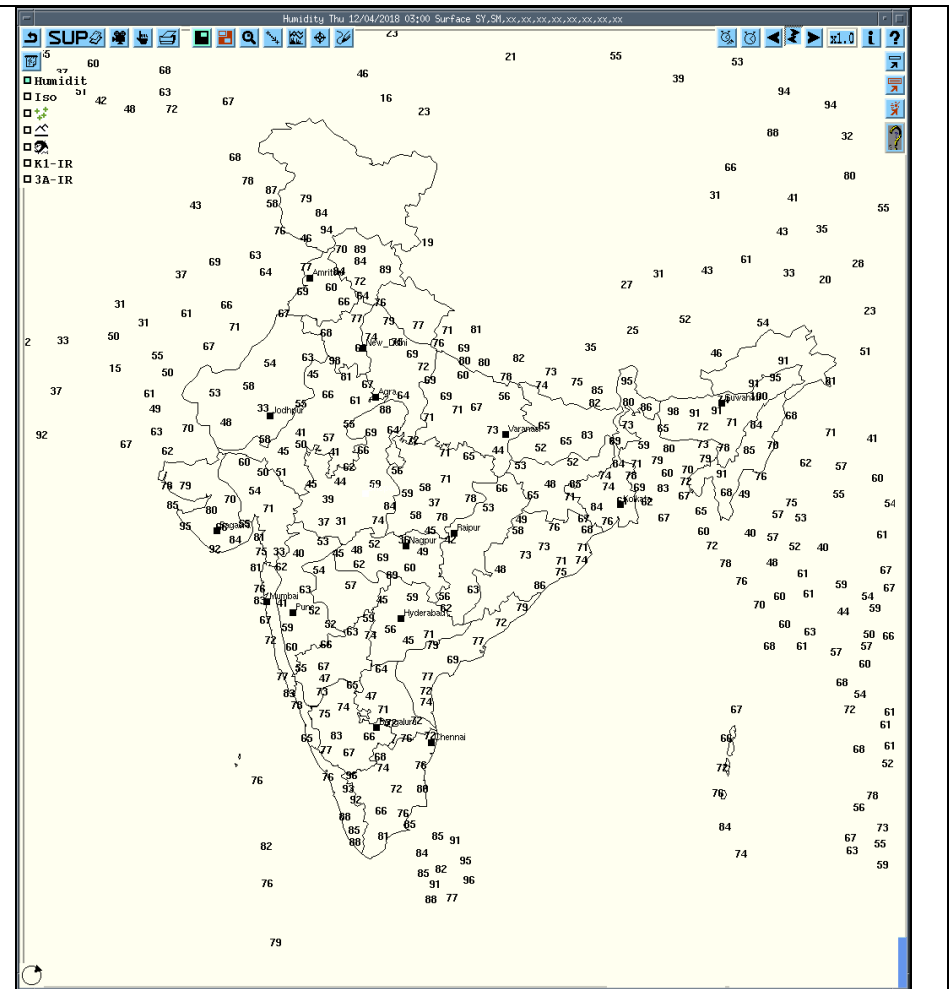
Departure MSLP



Tendency MSLP



RH at 12UTC yesterday



RH at 03UTC today

## Past 24 hours DWR Report:

Radar Station name	Date	Time interval of observation (UTC)	Organization of the 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	12-04-18	110300--110921	NIL	NIL	NO SIG ECHO	NIL	NIL
		110921-111042 1	Cluster of isolated single cells with maximum reflectivity of 63.5 dBz at 1252 UTC and maximum height of 13.44 Km at 1042 UTC.	WNW (236.7 km) To N NW (204.8km). Moving E to ESW-wards direction with a speed of 4.2mps	Formation started at 0921 UTC of in between WNW (236.7 km) To NNW (204.8 km) from Radar. One cell to the North is dissolved at 1151 UTC at a Distance of 140.6 km from Radar. Others are merged and formed a single cell at 11:21 UTC at a distance of 173.7 km from Radar matured.	Thunderstorm /Rain /hail/squall	
		111042-112400 1	Multi Isolated cells with position 23.051 deg N / 86.507 deg E, 286.2 deg / 196.6 km with maximum reflectivity of 61.0 dBz at 1151 UTC and maximum height of 12.12 Km at 1222 UTC	W (196.6 km) Moving in SE-ly direction	A Big cell formed at 1151 UTC in West at a distance of 153.5 km from radar. Matured to Multiple cells and dissipated at 1902 UTC	Thunderstorm Hail/ Rain	NA
		120000--120300	NIL	NIL	NO SIG ECHO	NIL	NIL

DWR Station	Date	Time interval of observation	Organization of the cells ( isolated single cell/multiple cells convective 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
Patna	12-04-18	110300-110922	NIL	N/A	N/A	N/A	N/A
		110922-111452	<b>Multiple Cells</b>  Lat-25.5970N Long-84.7736E Maximum Reflectivity: 54.5 dBZ Echo Top: 12 KM	Range: 117.2 KM from DWR Patna in West direction Movement: towards East	Warning issued	Thunderstorm, Hailstorm, Rain	Buxar, Bhojpur, Siwan, Saran, Patna, Vaishali, Muzaffarpur, Nalanda, Nawada, Shekhpura, Lakhisarai, Jamui, Banka
		<b>Another cell generated at 110932Z</b>  <b>Multiple Cells</b>	Range: 126.1 KM from DWR Patna in SSE direction Movement: towards East	Aurangabad, Gaya, Jehanabad			

## 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)

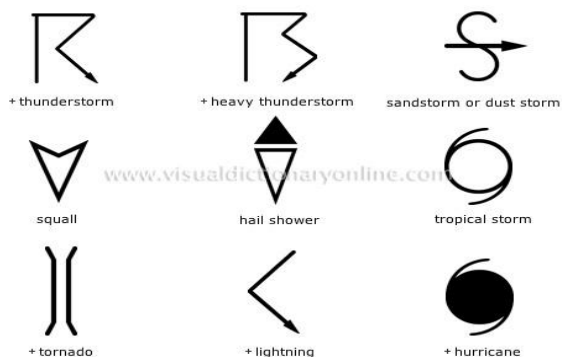
ForRadarimagesofthepast24hoursincludingmosaicofimages:

[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>	