



# India Meteorological Department

## FDP STORM Bulletin No. 75 (20-05-2018)

### 1. CURRENT SYNOPTIC SITUATION:

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

- ◆ The Western Disturbance as a cyclonic circulation lies over Afghanistan and adjoining Pakistan at 3.1 km above mean sea level with a trough aloft with its axis at 5.8 km above mean sea level roughly along Long. 65°E to the north of lat. 30°N persists.
- ◆ The cyclonic circulation over northwest Madhya Pradesh & neighbourhood now lies over north Madhya Pradesh & neighbourhood and extends upto 0.9 km above mean sea level.
- ◆ The trough runs from southwest Rajasthan to Manipur with embedded cyclonic circulation over south Rajasthan & neighbourhood and another over north Madhya Pradesh & neighbourhood and across south Bihar, northern parts of west Bengal and Meghalaya and extends upto 0.9 km above mean sea level.
- ◆ The cyclonic circulation over west Bihar & neighbourhood now lies over east Bihar and extends upto 1.5 km above mean sea level.
- ◆ The cyclonic circulation over south Assam & neighbourhood now lies over eastern parts of Assam & neighbourhood at 3.1 km above mean sea level.
- ◆ Another cyclonic circulation over south Sri Lanka & neighbourhood between 3.1 & 5.8 km above mean sea level persists.
- ◆ A cyclonic circulation lies over north interior Tamilnadu & neighbourhood at 1.5 km above mean sea level.
- ◆ A low pressure area has formed over southeast Arabian sea with associated an upper air cyclonic circulation extends upto 3.6 km above mean sea level. It is very likely to concentrate into a depression during next 48 hours. It is also very likely to intensify into a cyclonic storm and move west north westwards towards south Oman north Yemen coast during subsequent 72 hours.

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

##### Current Observation (based on 0600UTC imagery of INSAT 3D):

##### Western Disturbance (WD):

Scattered multi-layered clouds with embedded weak to moderate convection were seen over Northeast Afghanistan, extreme North Pakistan, Northwest Jammu & Kashmir and over area between Lat 37.0N To 43.0N Long 63.0E to 83.05E in association with WD over the area.

##### Clouds descriptions within India:

Broken low/medium clouds with embedded weak to moderate convection seen over Northwest Jammu & Kashmir and Isolated low/medium clouds seen over Haryana. Scattered low/medium clouds seen over rest Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Delhi and Northwest &

Southeast Uttar Pradesh, Northwest Rajasthan, Southeast Madhya Pradesh, rest North Interior Karnataka, North Coastal Andhra Pradesh and Tamilnadu. Scattered low/medium clouds with embedded moderate to intense convection seen over Tripura, Mizoram, Coastal Karnataka and Lakshadweep Islands. Scattered low/medium clouds with embedded isolated weak to moderate convection seen over East Bihar, East Jharkhand, North Odisha, Gangetic West Bengal, South Assam, Nagaland, Manipur, South Konkan, South Madhya Maharashtra, West North Interior Karnataka, South Interior Karnataka and Bay Islands. Scattered low/medium clouds with embedded weak to moderate convection seen over Goa,

**Arabian Sea:-**

Scattered low/medium clouds with embedded intense to very intense convection seen over East Central Arabian Sea, off Karnataka coast & rest South Arabian Sea.

**Bay of Bengal & Andaman Sea:**

Scattered low/medium clouds with embedded moderate to intense convective seen over South Bay.

**Past Weather:**

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

Moderate to Intense convection was observed over J & K Bihar Jharkhand Tripura Mizoram South Telangana Andhra Pradesh Goa Karnataka Kerala Tamilnadu Lakshadweep Andaman & Nicobar Islands and weak to moderate convection observed over Himachal Pradesh Uttarakhand North Rajasthan Punjab Haryana Delhi Uttar Pradesh North Madhya Pradesh Chhattisgarh Odisha West Bengal Sikkim & rest North-East States.

**OLR: - .**

Upto 230  $\text{wm}^{-2}$  observed over J & K North Himachal Pradesh North Uttarakhand South Interior Karnataka Rayalaseema Kerala Tamilnadu Andaman & Nicobar islands.

**Westerly Trough & Jet Stream:** Westerly Trough roughly along Longitude  $65^{\circ}\text{E}$  & north of Latitude  $30^{\circ}\text{N}$ .

**Dynamic Features:**

**Wind Shear** 30-60 knots is observed over North India, 10-20 knots over Central India, North-East India and 5-20 knots over south peninsula India.

**Positive shear tendency** 40-70 knots is observed over North-West India

**Positive Vorticity (850 hPa)** more than 50 ( $\times 10^{-5}/\text{s}$ ) is observed over Himachal Pradesh Uttarakhand North-west Uttar Pradesh North Gujarat Rajasthan Madhya Pradesh Telangana Gangetic West Bengal & Tripura.

**Negative Low Level Convergence** is observed over J&K Himachal Pradesh Uttarakhand adjoining West Uttar Pradesh Punjab Haryana adjoining Rajasthan.

**Precipitation:**

**IMR:**

Rainfall up to 90-130 mm was observed over South Interior Karnataka.

Rainfall up to 50-90 mm was observed over North Kerala North-West Tamilnadu.

Rainfall up to 20-50 mm was observed over Goa North Interior Karnataka Rayalseema adjoining South Coastal Karnataka Andaman Islands.

Rainfall up to 01-20 mm was observed over J & K Bihar East Jharkhand Tripura South Telangana South Kerala rest Tamilnadu Lakshadweep & Nicobar Islands.

### DWR and RAPID Observations:

Isolated/multiple moderate echoes (dBZ >50 and height >10km) was observed on DWR Paradeep and Gopalpur and Light to moderate echoes at DWR Agartala, Kolkata, Patna and Thiruvananthapuram at around 1530IST.

RAPID RGB Satellite imagery at 1400 IST indicated significant convection over South Mizoram, Jharkhand, North Chhattisgarh, North Odisha and North Interior Karnataka and Lakshadweep Islands.

### 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 IGP and north India.

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

Delhi – SAFAR analysis & Forecast	20.05.2018	21.05.2018
PM10 (micro-g/m <sup>3</sup> )	212	233
PM2.5 (micro-g/m <sup>3</sup> )	73	80

## 2. NWP MODEL GUIDANCE:

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

#### 1. Weather Systems:

**Low level Cycirs, Troughs: 12UTC of Day 1-4: 00 & 12UTC of Day 2-4:** A weak CYCIR at 850 hpa over BOB off AP coast.  
**12UTC of Day 3-4:** 850 hPa N-S trough over MP Chhattisgarh region.

**Confluence & Wind Discontinuity Regions: 12 UTC of Day 0, 1-3:** 850hPa SW-NE line of discontinuity extending from Maharashtra to WB.

**Synoptic Systems: 00 UTC of Day 1-4:** Trough of Western disturbance NW of J&K

**2. Location of jet and jet core (>60kt) at 500hPa:** Strong westerly over south of Afghanistan in Day 0-3 following the WD.

#### 3. Convergence at 850 hPa:

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

Day0: East Rajasthan, West MP, East MP, Chhattisgarh, Telangana, NI Karnataka,  
Day1: Gangetic WB, Jharkhand, East Rajasthan, East MP, Madhya Maharashtra, Vidarbha,  
Day2: Jharkhand, Odisha, Chhattisgarh, Tamilnadu Puducherry,  
Day3: Jharkhand, Odisha, West MP, Chhattisgarh, Tamilnadu Puducherry,  
Day4: Jharkhand, East MP, Madhya Maharashtra, Vidarbha, Chhattisgarh, Telangana,

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

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

Day0: Uttarakhand, Himachal Pradesh, Tamilnadu Puducherry,  
Day1: Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Chhattisgarh, Tamilnadu Puducherry,  
Day2: Gangetic WB, Jharkhand, East UP, Uttarakhand, Himachal Pradesh, Odisha, Saurashtra Kutch, Tamilnadu Puducherry,  
Day3: Arunachal Pradesh, Assam Meghalaya, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, Saurashtra Kutch, Tamilnadu Puducherry,  
Day4: Arunachal Pradesh, Assam Meghalaya, Jharkhand, Bihar, Jammu Kashmir, Tamilnadu Puducherry,

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

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

Day0: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Uttarakhand, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Uttarakhand, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Tamilnadu Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Sub Himalayan WB, Bihar, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, 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, Jharkhand, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu Puducherry, NI Karnataka, SI Karnataka,

Day1: Arunachal Pradesh, Sub Himalayan WB, Himachal Pradesh, Jammu Kashmir, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu Puducherry, SI Karnataka,

Day2: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Tamilnadu Puducherry, NI Karnataka,

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

Day4: Arunachal Pradesh, Sub Himalayan WB, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu Puducherry, NI Karnataka, SI Karnataka,

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

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

Day0: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, West UP, Uttarakhand, Himachal Pradesh, Odisha, East MP, Madhya Maharashtra, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Uttarakhand, Jammu Kashmir, Odisha, East MP, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu Puducherry, NI Karnataka, SI Karnataka,

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

Day3: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Jammu Kashmir, Odisha, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu Puducherry, NI Karnataka, SI Karnataka,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Jammu Kashmir, Odisha, Madhya Maharashtra, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu Puducherry, NI Karnataka, SI Karnataka,

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

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

Day1: Assam Meghalaya, NE NMMT, Sub Himalayan WB, Rayalseema, SI Karnataka,

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

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Andaman Nicobar, Tamilnadu Puducherry, SI Karnataka, Kerala,

Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Jammu Kashmir, Rayalseema, SI Karnataka, Kerala,

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

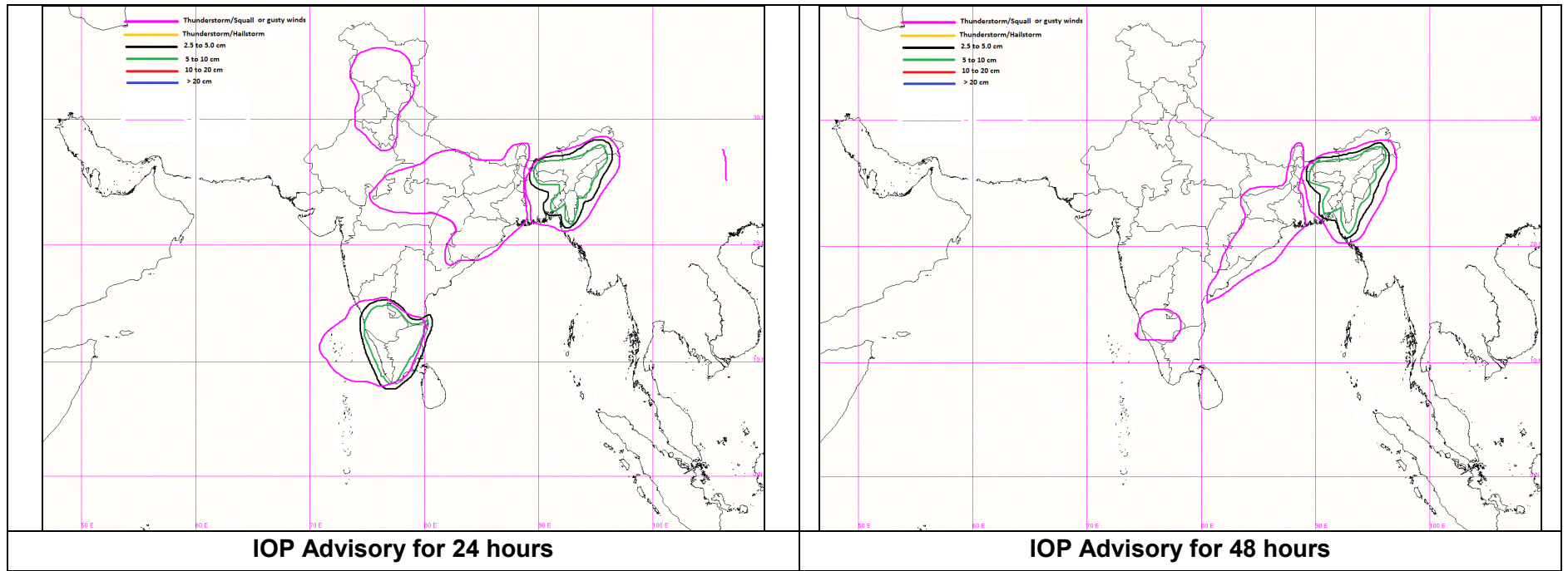
#### **Summary and Conclusions:**

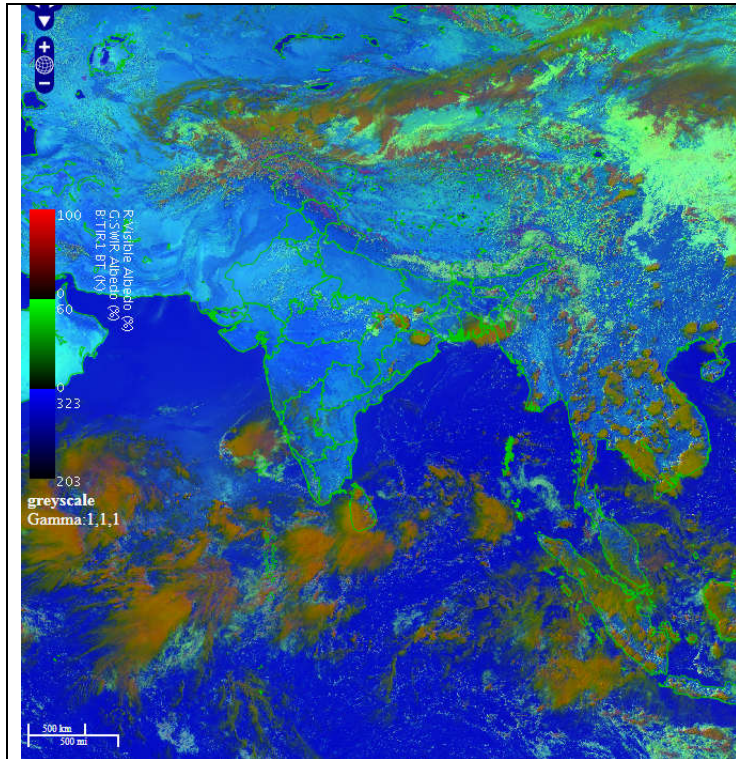
- Synoptic analysis indicates that there is a cyclonic circulation lies over north interior Tamilnadu & neighbourhood. This system may give rise to heavy rainfall activity over Tamilnadu, Kerala and south Interior Karnataka on Day-1. The thunderstorm with gusty winds may also likely over Kerala and Tamilnadu on Day-1.
- The cyclonic circulation over south Assam & neighbourhood now lies over eastern parts of Assam & neighbourhood. This system may give rise to heavy rainfall activity over Assam and Meghalaya and NMMT on Day-1 and Day-2.
- The trough runs from southwest Rajasthan to Manipur with embedded cyclonic circulation over south Rajasthan & neighbourhood and another over north Madhya Pradesh & neighbourhood and across south Bihar, northern parts of west Bengal and Meghalaya. Due to these systems, the Eastern India including North Central parts will experience the thunderstorm with gusty winds on Day-1.

**IOP Area for Day-1 & Day-2:**

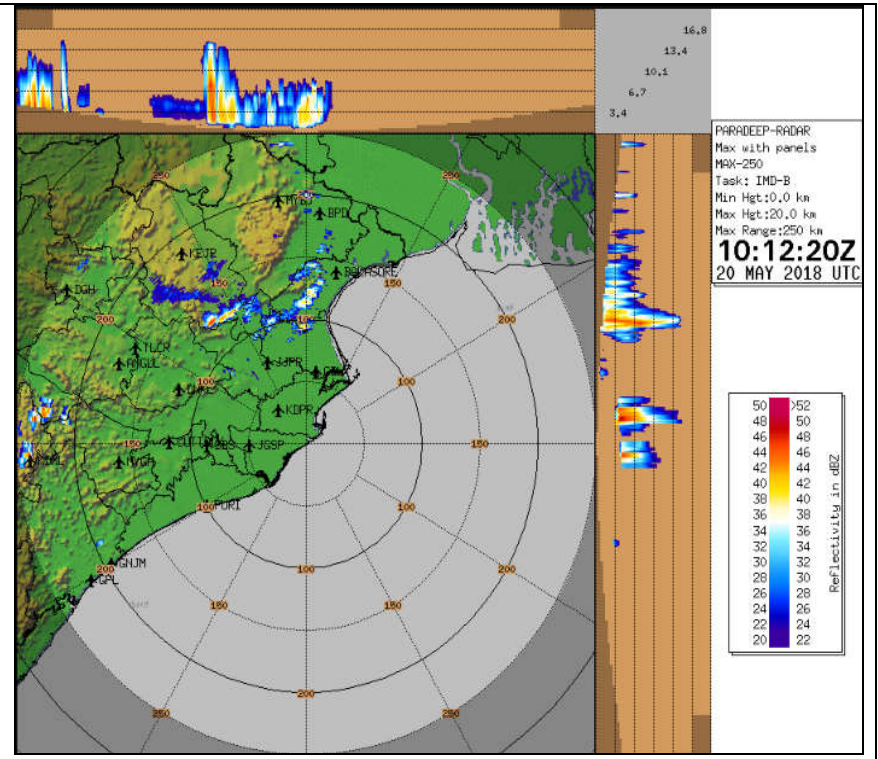
<b>24 hour Advisory for IOP:</b>	<b>48 hour Advisory for IOP:</b>
<p><b>Significant Rainfall:</b> Tamil Nadu, South Interior Karnataka, Kerala Nagaland, Manipur, Mizoram, Tripura, Assam and Meghalaya</p> <p><b>Thunderstorm with squall or gusty winds:</b> Tamil Nadu, Kerala, South Interior Karnataka, Lakshadweep, Madhya Pradesh, North Chhattisgarh Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Chandigarh, Delhi, West Uttar Pradesh, West Bengal and Sikkim, Odisha, Bihar, Jharkhand Manipur, Mizoram, Tripura, Assam and Meghalaya</p> <p><b>Thunderstorm with squall and hail</b> Nil</p> <p><b>Thunderstorm with Duststorm:</b> Rajasthan</p>	<p><b>Significant Rainfall:</b> Nagaland, Manipur, Mizoram, Tripura, Assam and Meghalaya</p> <p><b>Thunderstorm with squall or gusty winds:</b> South Interior Karnataka, West Bengal and Sikkim, Odisha, Jharkhand North Coastal Andhra Pradesh, Manipur, Mizoram, Tripura, Assam and Meghalaya</p> <p><b>Thunderstorm with squall and hail</b> Nil</p> <p><b>Thunderstorm with Duststorm:</b> Rajasthan</p>

## Graphical Presentation of Potential Areas for Severe Weather:



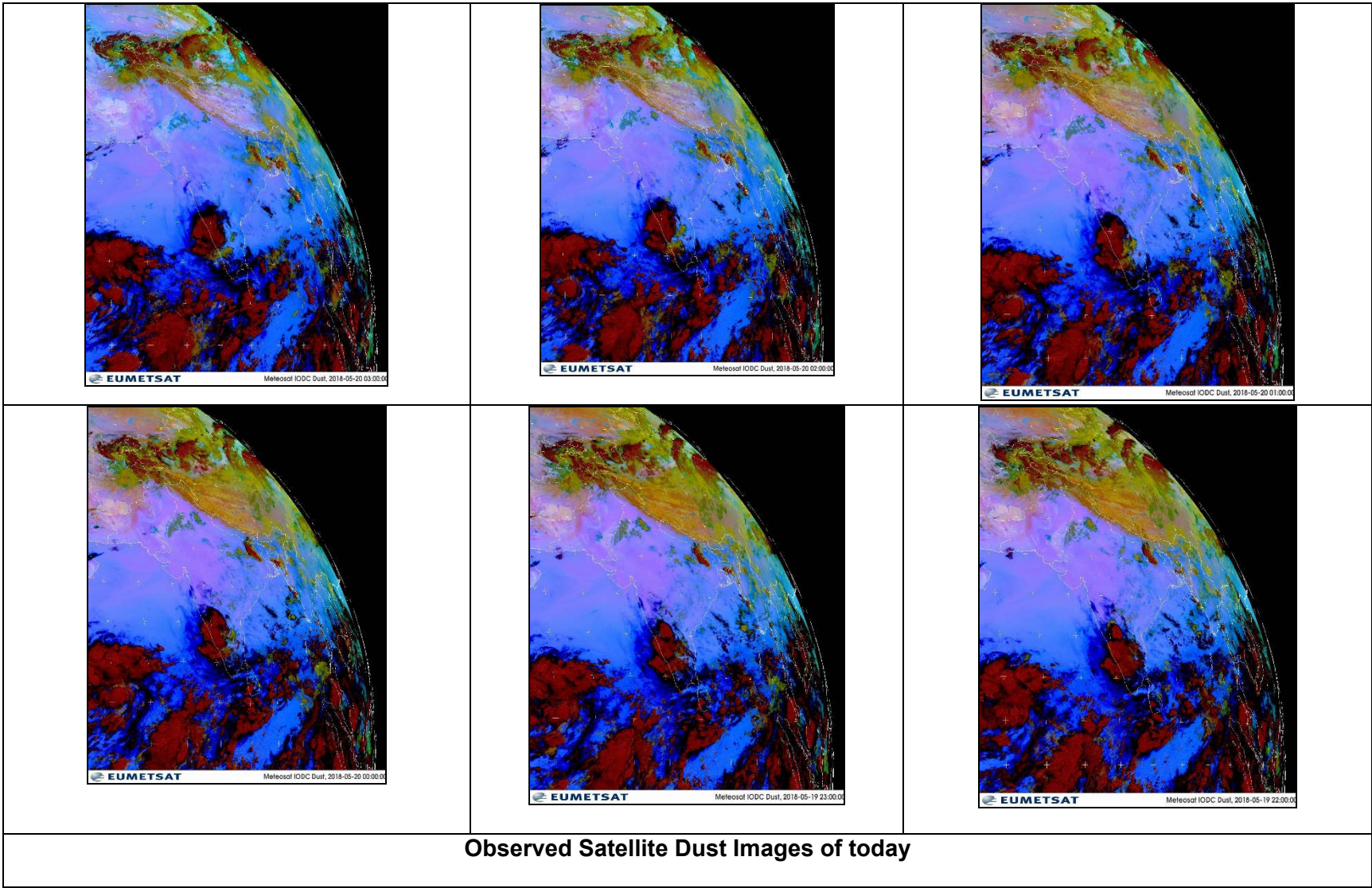


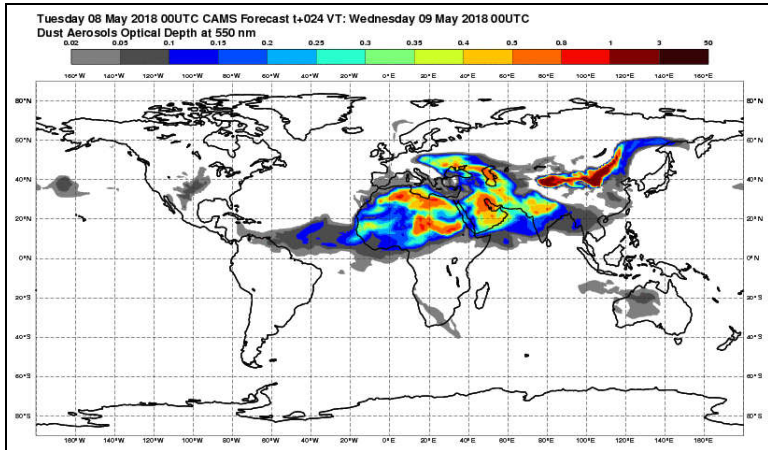
**RAPID RGB Imagery at 1400 IST of the Day**



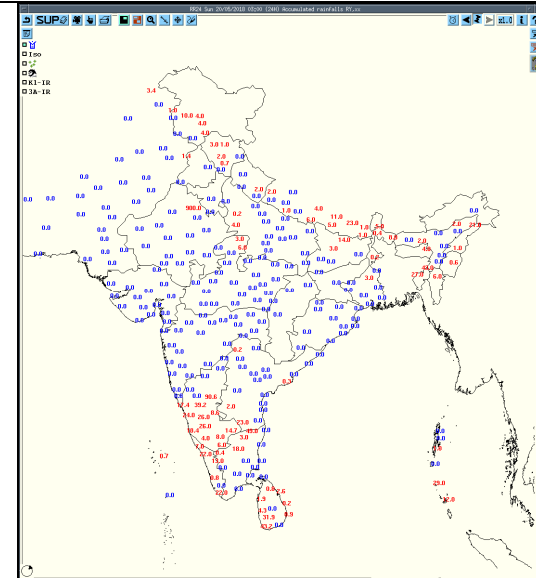
**DWR Paradeep Reflectivity Image at 1542 IST**



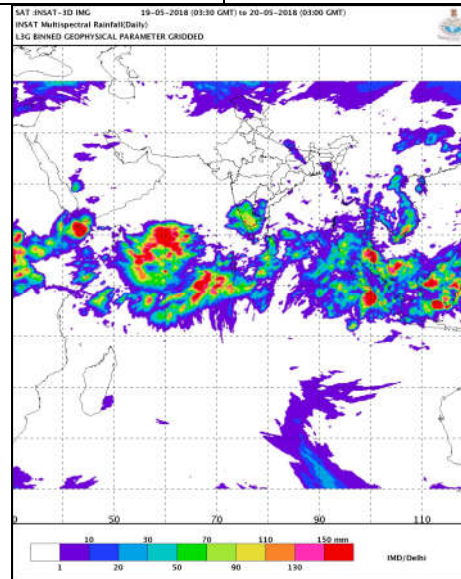




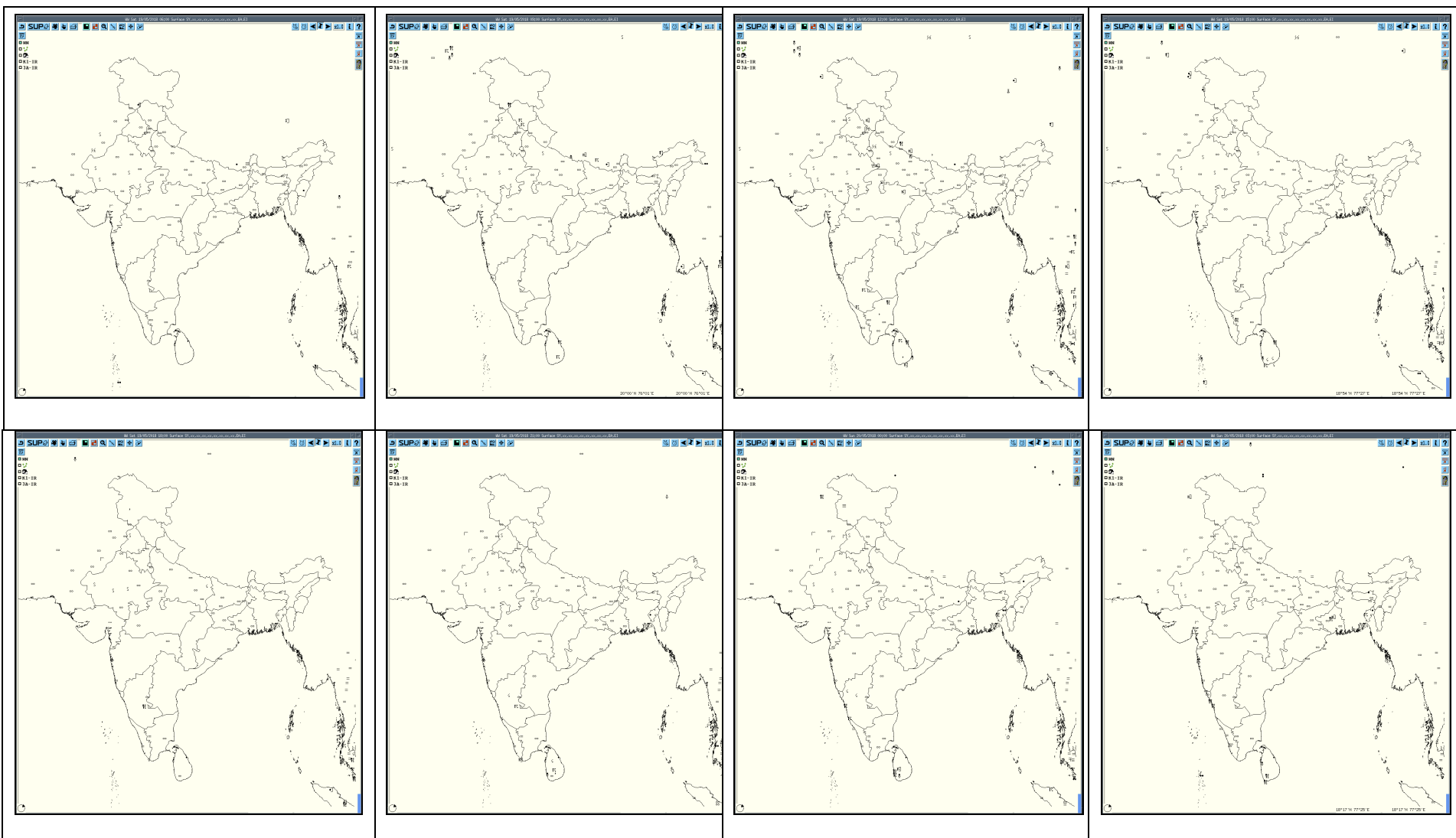
Dust Forecast



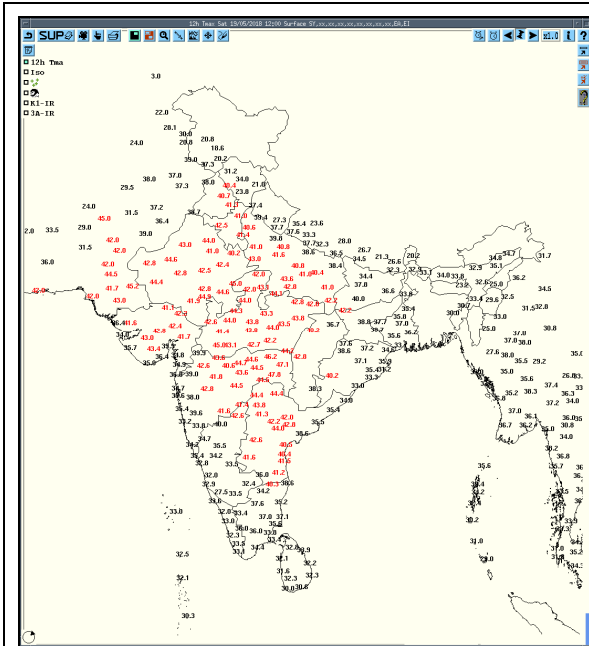
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today



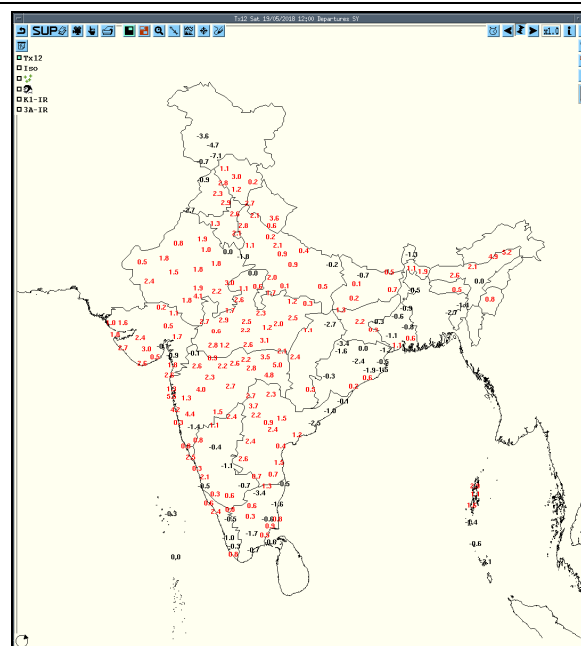
IMR



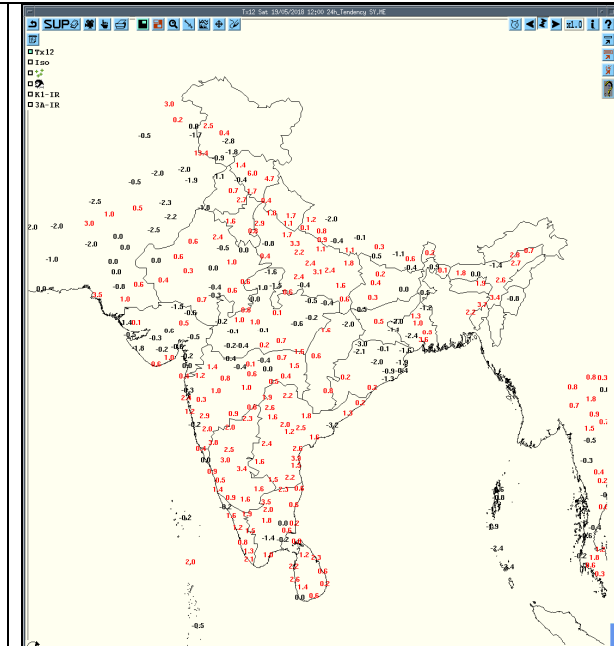
**3hourly Past weather at 06, 09, 12, 15, 18, 21 UTC of yesterday and 00 & 03 hrs UTC of today**



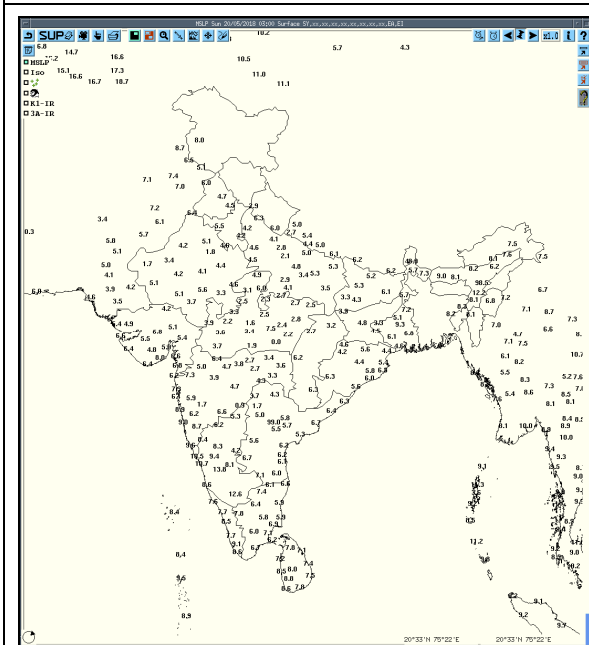
Tmax



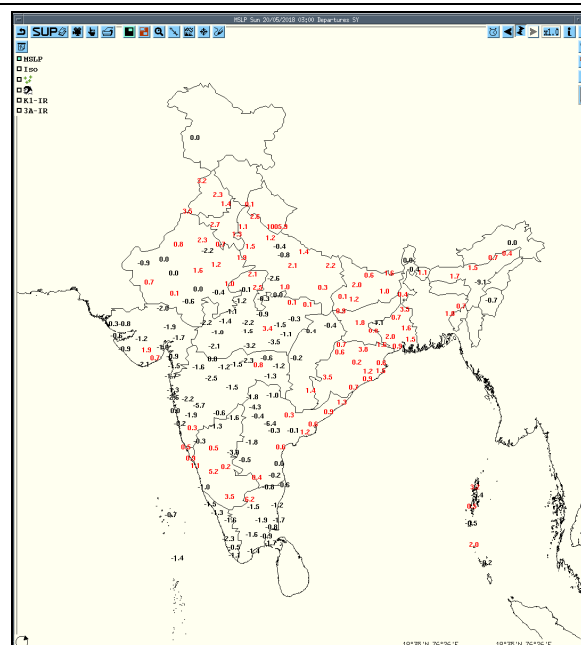
Departure Tmax



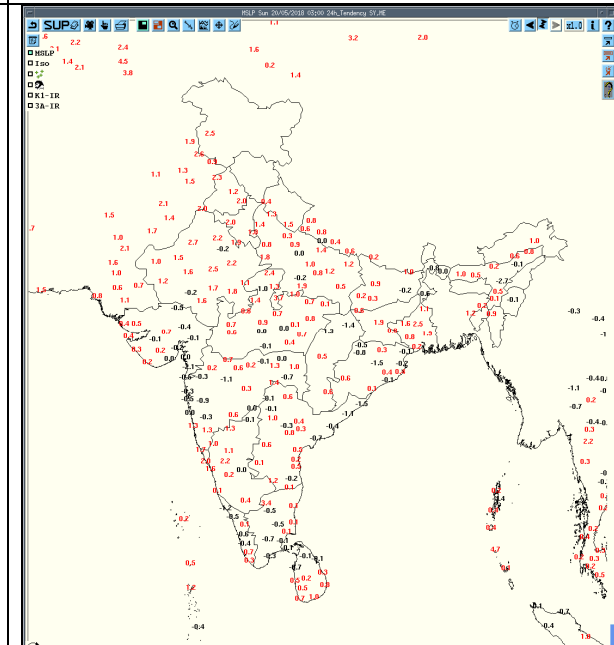
Tendency Tmax



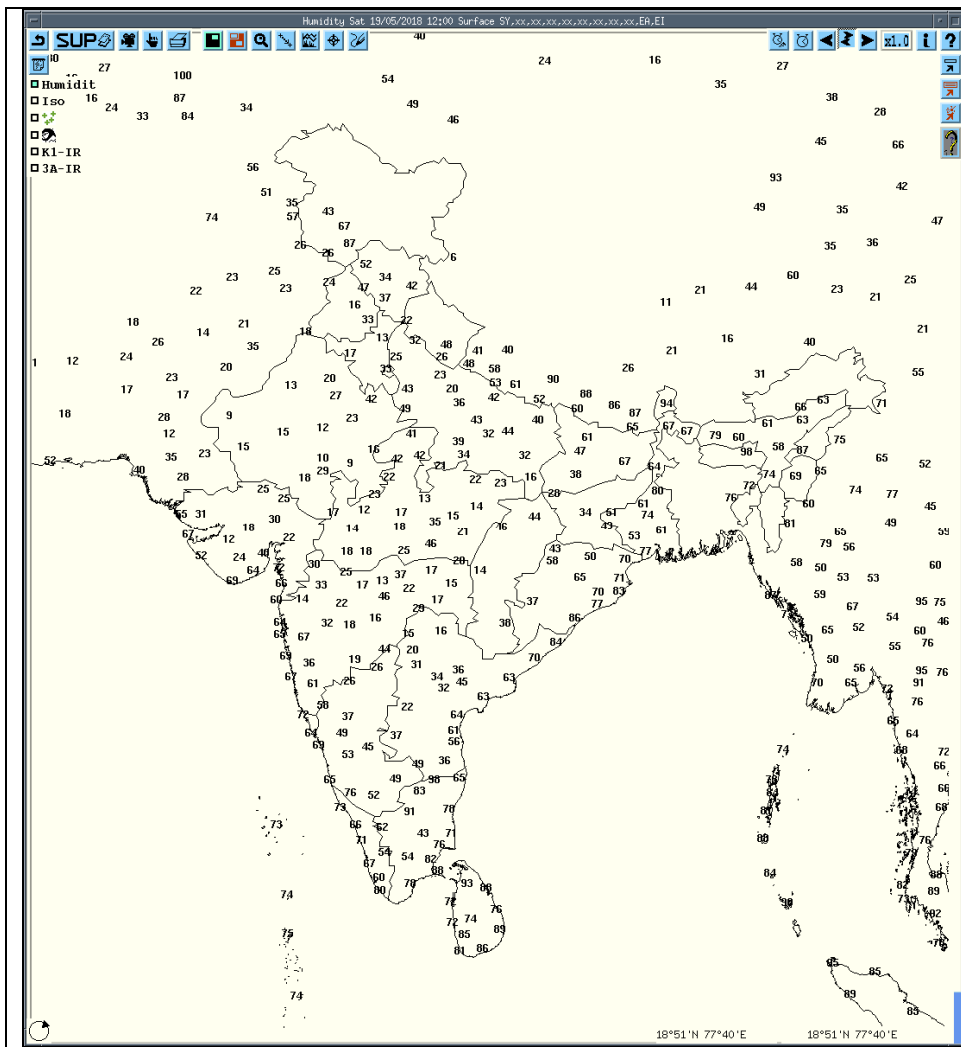
MSLP



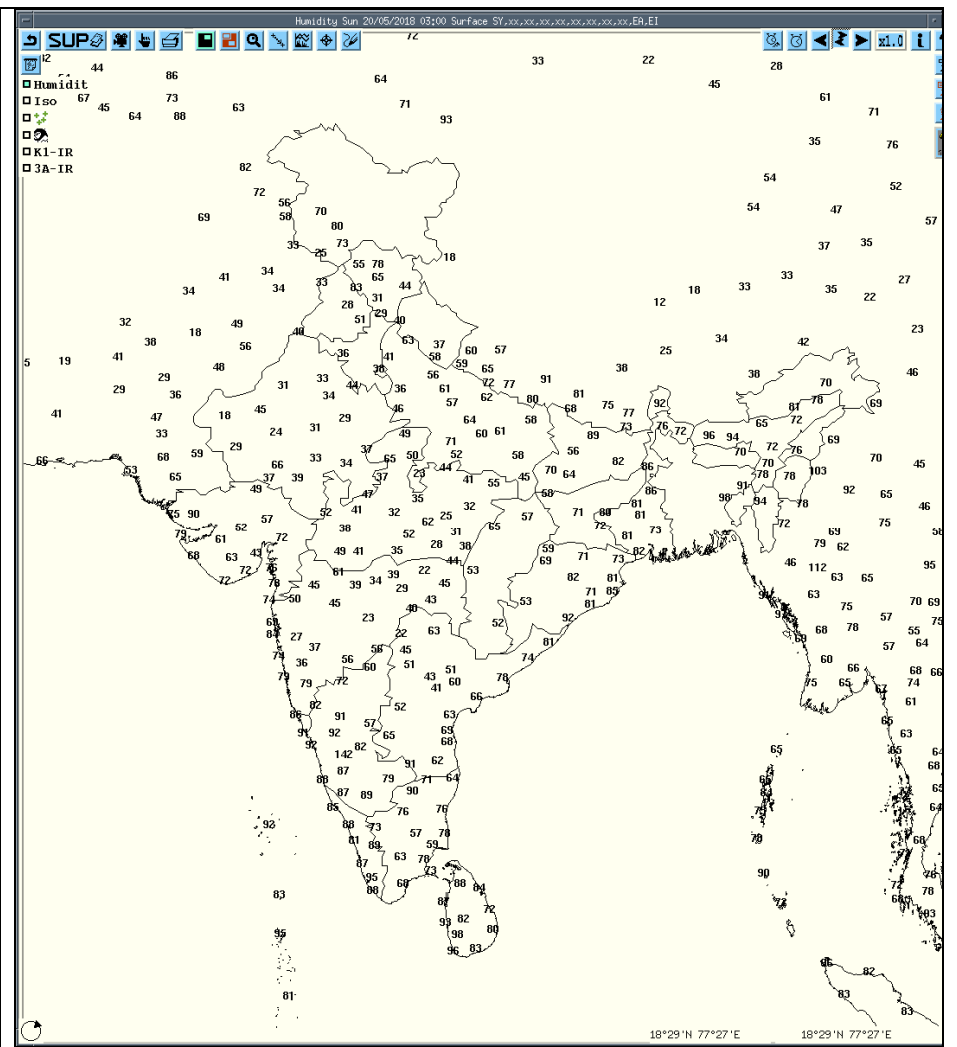
Departure MSLP



Tendency MSLP



RH at 1200UTC yesterday



RH at 0300UTC 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	Associate d severe weather if any	Districts affected
Agartala	20/05/18	190300 - 200300	MLTPL CELLS FORMATION @190134Z OVER ADJ-B'DESH,W-TRP,GOMATI & S-TRP DISTS;14kms;48dBZ	20-70 Kms S;25Kmph;E'ly WITH CURVING TENDENCY	SQUALL LINE PERSISTED OVER S-TRP & ADJ B'DESH TILL 190700Z	+TSRA	All dists of TRP EXCEPT UNOKOTI & N-TRP.
			SQUALL LINE PASSED OVER AGT LYING OVER ALL DISTS OF TRP @200052Z;13KMS;47dBZ	20-30 kms South & EAST around AGT	SYSTEM PERSISTING OVER ALL DISTS OF TRP @200300Z.	+TSRA	All dists of trp.
			BOW ECHO FORMATION NOTICED @200152Z CONSOLIDATING FURTHER;11KMS;45 dBZ	220 KMS WEST	SQUALL LINE APPROACHING	NOT KNOWN	
Kolkata	20/05/18	190301 – 192241	NIL	NIL	NOSIG ECHO	NIL	
		192251 – 200301	Multi cells system developed with maximum reflectivity of 56.0 dBz at 2351 UTC of 19-05-2018 and maximum height more than 10.03 km at 0001 UTC of 20-05-2018	Coming from NW. Moving in ESE-ward direction	Multi Isolated cells coming from NW (241.6 km) at 2251 UTC and later developed into big cell system. Matured and part of it dissipated at 0301 UTC in NW at a distance of 158.5 km and part of it entered into Bangladesh at 0301 UTC NE at a distance 90.2 km.	Thunderstorm /Rain/Hail	
Patna	20/05/18	190300 - 191140	NIL	N/A	N/A	N/A	
		191142 - 191442	<b>Isolated Single Cell</b> Maximum Reflectivity: 50 dBZ Echo Top: 13.6 KM	Range: 180 KM from DWR Patna in NNW direction Movement: towards South-Easterly	Warning issued	N/A	
		191452 - 191702	<b>Isolated Single Cell</b> Maximum Reflectivity: 47.5 dBZ Echo Top: 13.6 KM	Range: 160 KM from DWR Patna in NNW direction Movement: towards South-Easterly	Warning issued	N/A	

**Realised past 24hrs TS/SQ/HS Data:****Realised TS/HS/SQ during past 24hours ending at 0300UTC of today (received from RMCs/MCs)**

<b>Name of Station Reporting</b>	<b>Region</b>	<b>State/Sub Division</b>	<b>Weather Event (TS/Hail/Squall)</b>	<b>Date</b>	<b>Time of Commencement (IST)</b>	<b>Time of end (IST)</b>
Qazigund	Northwest India	Jammu & Kashmir	Thunderstorm	19-05-18	0900 1440	0920 1530
Kukernag	Northwest India	Jammu & Kashmir	Thunderstorm	19-05-18	1445	1600
Batote	Northwest India	Jammu & Kashmir	Thunderstorm	19-05-18	1550	1615
Bhaderwah	Northwest India	Jammu & Kashmir	Thunderstorm	19-05-18	1300	1500
Gulmarg	Northwest India	Jammu & Kashmir	Thunderstorm	19-05-18	2000	2300
Shimla	Northwest India	Himachal Pradesh	Thunderstorm	19-05-18	1315	1440
Sundernagar	Northwest India	Himachal Pradesh	Thunderstorm	19-05-18	1248	1703
Gorakhpur	Northwest India	East Uttar Pradesh	Thunderstorm	19-05-18	2210	2230
Lucknow AP	Northwest India	East Uttar Pradesh	Thunderstorm	19-05-18	2045	2150
Agra IAF	Northwest India	East Uttar Pradesh	Thunderstorm	19-05-18	1600	1800
Agra Taj	Northwest India	East Uttar Pradesh	Thunderstorm	19-05-18	1622	1645
Aligarh	Northwest India	East Uttar Pradesh	Thunderstorm	19-05-18	1900	1910
Alwar	Northwest India	East Rajasthan	Thunderstorm	19-05-18	1430	1500
Pilani	Northwest India	East Rajasthan	Thunderstorm	19-05-18	1500	1545
Gwalior	Central India	Madhya Pradesh	Thunderstorm	19-05-18	1500	1550
Sriniketan	East India	Gangetic west Bengal	Thunderstorm	20-05-18	0728	0740
Patna	East India	Bihar	Thunderstorm	20-05-18	0042	0325
Dibrugarh	Northeast India	Assam	Thunderstorm	19-05-18	19/1800	19/1915
N/Lakhimpur	Northeast India	Assam	Thunderstorm	20-05-18	20/0540	20/0610
Agartala	Northeast India	Tripura	Thunderstorm	20-05-18	20/0240	20/0830
Karipur AP	South India	Kerala	Thunderstorm	19/20-05-18	2154	0100
Kozhikode	South India	Kerala	Thunderstorm	19/20-05-18	2340	0050
Thiruvananthapuram AP	South India	Kerala	Thunderstorm	19/20-05-18	2330	0550
Thiruvananthapuram C	South India	Kerala	Thunderstorm	19/20-05-18	2335	0055
Anantapur	South India	Rayalaseema	Thunderstorm	19-05-18	2010	2205
Mangaluru AP	South India	Coastal Karnataka	Thunderstorm	20-05-18	0257	0540
Panambur	South India	Coastal Karnataka	Thunderstorm	20-05-18	0310	0540
Shirali	South India	Coastal Karnataka	Thunderstorm	20-05-18	0300	0415
Karwar	South India	Coastal Karnataka	Thunderstorm	20-05-18	0430	0825
Gadag	South India	North Interior Karnataka	Thunderstorm	20-05-18	0300	0430
Chitradurga	South India	South Interior Karnataka	Thunderstorm	19/20-05-18	1605 2305 0140	1905 0040 0215
Bangalore CO	South India	South Interior Karnataka	Thunderstorm	19-05-18	2300	0005
Bangalore HAL AP	South India	South Interior Karnataka	Thunderstorm	20-05-18	0000	0100
Yelahanka IAF	South India	South Interior Karnataka	Thunderstorm	19/20-05-18	1730 2015 2330	1830 2100 0200
Bangalore BIAL	South India	South Interior Karnataka	Thunderstorm	19-05-18	2015	2150
Mangaluru AP	South India	Coastal Karnataka	Thunderstorm	20-05-18	0257	0540

## 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)

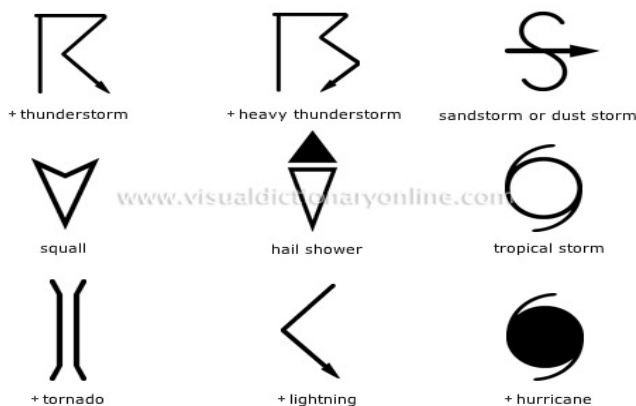
For Radar images of the past 24 hours including mosaic of images:

[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>	