



**India Meteorological Department**  
**FDP STORM Bulletin No.60(04-05-2017)**

**1. CURRENT SYNOPTIC SITUATION at 0300UTC of the Day:**

**SYNOPTIC FEATURES:**

The upper air cyclonic circulation over Haryana & neighbourhood now lies over Haryana & adjoining West Uttar Pradesh and extends upto 1.5 km above mean sea level.

The trough from this system to Comorin area now runs across East Rajasthan, Madhya Maharashtra, Interior Karnataka and interior Tamilnadu with an embedded upper air cyclonic circulation over south Rajasthan & neighbourhood extending upto 0.9 km above mean sea level.

The feeble Western Disturbance as a trough in mid-tropospheric westerlies now seen as an upper air cyclonic circulation over north Pakistan & neighbourhood at 3.1 km above mean sea level with a trough aloft roughly along longitude 72.0°E and north of latitude 32.0°N.

An upper air cyclonic circulation lies over Bihar & neighbourhood and extends upto 0.9 km above mean sea level.

A trough in mid-tropospheric westerlies runs roughly along longitude 80.0°E and north of latitude 15.0°N.

A feeble Western Disturbance likely to affect Western Himalayan region from 7th onwards.

The trough at mean sea level from northwest Rajasthan to southeast Uttar Pradesh across southwest Uttar Pradesh has become less marked.

The trough in easterlies from Maldives-Lakshadweep area to southwest Madhya Pradesh across north Kerala, Interior Karnataka, Marathwada and Madhya Maharashtra between 1.5 km and 2.1 km above mean sea level has become less marked.

The upper air cyclonic circulation over east Assam & neighbourhood has become less marked.

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

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

**Convective Activity and cloud description:**

Cell No	Date/Time (UTC)	Area/Location	CTBT (-°C)	Movement	Remarks If any
6	04/0000	Assam Meghalaya adjoining West Arunachal Pradesh	57	Eastwards	Developing
	0200	-Do-	57		
	0300	-Do-	53		

Scattered low/medium clouds seen over Chhattisgarh adjoining Odisha, Sub Himalayan West Bengal, Sikkim, North Tripura, South Rajasthan, Maharashtra, North Madhya Pradesh, Northwest Gujarat, Karnataka, Tamilnadu, South Rayalaseema, Nicobar Islands. Scattered low/medium clouds with embedded isolate moderate to intense convection seen over Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur Mizoram.

**Arabian Sea:**

No significant clouds seen over this region.

**Bay of Bengal & Andaman Sea:**

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

**Past Weather:**

**Convection:** Moderate to Intense convection was observed over Madhya Maharashtra Vidarbha Chhattisgarh Odisha West Bengal North East States Karnataka Kerala Tamilnadu. Weak to Moderate convection associated with Western Disturbance was observed over J&K Himachal Pradesh Rajasthan Punjab Haryana Delhi West Uttar Pradesh.

**OLR:** - Upto 200  $\text{wm}^{-2}$  was observed over J&K, Himachal Pradesh, North Uttarakhand

Upto 230  $\text{wm}^{-2}$  was observed over Punjab, Rest Uttarakhand, West Uttar Pradesh, South Interior Karnataka..

Upto 250  $\text{wm}^{-2}$  was observed over Haryana, Delhi, South Chhattisgarh, South Madhya Maharashtra, Sikkim, Meghalaya, Assam, Arunachal Pradesh, Kerala & South Tamilnadu.

**Westerly Trough & Jet-Stream:** Trough in Westerlies runs roughly along Longitude 85.0E North of Latitude 25.0N.

**Dynamic Features:** Positive shear tendency is observed over India.

Low wind shear is observed over South India Low to Medium shear is observed over rest India.

A positive Vorticity field is observed over North India East Madhya Pradesh Vidarbha Coastal Odisha.

Positive Low Level Convergence is observed over West Uttar Pradesh, West Maharashtra, Coastal Odisha, Tamilnadu, North East States and Negative low level convergence observed over rest parts of India.

**Precipitation:**

Rainfall upto 30 mm was observed over Extreme North West J&K, North Himachal Pradesh, South Konkan, North East Odisha.

Rainfall upto 20 mm was observed over Rest North West J&K Central Coastal Tamilnadu.

Rainfall upto 10 mm was observed over Rest J&K, Rest Himachal Pradesh, Uttarakhand, West Uttar Pradesh adjoining North Madhya Pradesh, North Rajasthan, Vidarbha adjoining East Madhya Pradesh, South Chhattisgarh, Coastal Odisha, South Gangetic West Bengal, Karnataka, Kerala.

**HEM:**

Rainfall upto 70 mm was observed over West J&K North Himachal Pradesh, South Konkan, South Interior Karnataka.

Rainfall upto 07 mm was observed over Punjab, Haryana, Delhi, West Uttar Pradesh, Vidarbha, South Chhattisgarh, Odisha, South Gangetic West Bengal, Meghalaya, Assam, Arunachal Pradesh, Kerala, Extreme South Tamilnadu.

**RADAR and RAPID observation:**

No significant convection was observed in Radar Composite of 1240IST and in RAPID RGB Satellite imagery of 1200hrs IST.

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

Not received

## 2. NWP MODEL GUIDANCE:

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

**1. Weather Systems:** 12UTC Charts of Day-0, 3 and 4 feeble trough in MSLP is seen over J & K.

12UTC charts on all days from Day0-4 show two zones of wind discontinuity at 925 hPa due to persistent anticyclonic flow over Arabian Sea :(i) SW-NE extending from northern Karnataka-Telangana region to Odisha region. (ii) S-N extending from southern parts of TN to northern parts of Telangana-AP region.

Trough at 850 hPa: over GWB and SHWB in Day0-3.

At 500 hPa: trough over west of J & K in Day-0. Strong east-west ridge over peninsula is prominent in Day-1 to Day-4

**2. Location of jet and jet core at 500hPa:-500hPa Jet core (>60kt):** Weaker core winds at 12 UTC on all days over India.

**3. Convergence at 850 hPa:** Day0: Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jharkhand, East RJ, Odisha, East MP, Madhya Maharashtra, Marathwada, Chhattisgarh, SI Karnataka,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Gangetic WB, Jharkhand, Odisha, East MP, Madhya Maharashtra, Vidarbha, Chhattisgarh,

Day2: Assam Meghalaya, Sub Himalayan WB, Jharkhand, Jammu Kashmir, Odisha, East MP, Madhya Maharashtra, Vidarbha, Chhattisgarh, SI Karnataka,

Day3: Gangetic WB, Jharkhand, Chhattisgarh,

Day4: Jharkhand, East UP, Odisha, East MP, Madhya Maharashtra,

**4. Low level Vorticity:-Positive Vorticity (>15 x 10<sup>-5</sup>/s):** Day0: Sub Himalayan WB, West UP, Uttarakhand,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, TN Puducherry,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Gangetic WB, Bihar, East UP, Uttarakhand, Himachal Pradesh,

Day3: Assam Meghalaya, NE NMMT, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Himachal Pradesh, Odisha,

Day4: Assam Meghalaya, Bihar, East UP, West UP, Himachal Pradesh, Odisha,

**5. Showalter Index: Day-wise Sub-divisions with Showalter index <-4:** Day0: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Coastal AP, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Rayalaseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

**6. K-Index: Daywise Sub-divisions with K-index >40:** Day0: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Bihar, Uttarakhand, Jammu Kashmir, Odisha, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Uttarakhand, Odisha, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, NE NMMT, Gangetic WB, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

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

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

**7. Spatial distribution of TTI: Daywise Sub-divisions with TTI >52:** Day0: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra,

Day1: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Madhya Maharashtra, Vidarbha, Chhattisgarh,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, East RJ, Odisha, West MP, East MP, Guj Reg, Saurashtra Kutch, Vidarbha, Chhattisgarh, Telangana, Rayalaseema, NI Karnataka, SI Karnataka,

Day3: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Guj Reg, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Telangana, NI Karnataka, SI Karnataka,

Day4: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Telangana, Rayalseema, NI Karnataka, SI Karnataka,

**8. Rainfall: Daywise Sub-divisions with Precipitation>2cm:**

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

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT,

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

Day4: Assam Meghalaya, NE NMMT,

Day5: Assam Meghalaya, Sub Himalayan WB, Uttarakhand,

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

**1. Weather Systems:** The model analysis shows that in the lower tropospheric levels, a north-south oriented trough from Uttarakhand extending up to interior Karnataka. Another north-south trough from SHWB to Jharkhand and adjoining Orissa is seen in the analysis. In the forecasts, a northeast-southwest trough forms extending from SHWB up to Vidarbha and adjoining areas which remains over the region till day 3. The east-west trough over Northern Gangetic plains extending up to NE states is seen on day 3 which persists over the region till day 5. The north-south trough over peninsular India from Vidarbha and adjoining Telangana to interior Karnataka also persists till day 5 with an embedded CYCIR developing over Rayalaseema on day 4. The wind analysis at 500 hPa shows a weak trough in westerlies over HP and adjoining areas moving eastward reaches over northern parts of NE states on day 1.

**2. Location of jet and jet core at 500 hPa:-500 hPa Jet core (>60kt):** No presence of jet core over the Indian region. Strong westerly is seen over foothills of Himalaya during day 1 and 2.

**3. Low level Vorticity:-Positive Vorticity 850hPa (>12 x 10<sup>-1</sup>/s):** Mostly along the foot hill of Himalaya. Prominent vorticity zones are found in the morning hours along troughs over east, central and south peninsular India during next 5 days.

**4. Spatial distribution of T-Storm Initiation Index, Lifted Index, Total Total Index, CAPE, CINE and Sweat Index (High potential for thunderstorm):**

**T-Storm Initiation Index( > 4):** Less than threshold value all over the country. The values between 3-3.5 mostly along east coast, eastern part of the country covering Bihar, SHWB,GWB, parts of Jharkhand and Andhra Pradesh also along west coast and over Gujarat during next 5 days prominently during morning hours.

**Lifted Index (< -2):** Less than threshold value mostly reiterates the coverage like T-storm index during next 5 days.

**Total Total Index ( > 50) :** Above threshold value over the most parts of central India and spreading over NW India and west parts of east India and during afternoon hours.

**Sweat Index ( > 300):** Along east coast, along west coast, GWB, Bihar and adjoining areas in east India and parts of NE states; along west coast and coastal Gujarat prominently during morning hours.

**CAPE (> 1000):** Similar spatial coverage like sweat index during next 5 days.

**CINE (>150):** Along east coast, west coast, Gujarat and adjoining areas, parts of north eastern states, over eastern India during morning hours for next 5 days.

**5. Rainfall and Rainfall activity:**

10-70 mm rainfall along foothills of Himalaya and NE states on day 1 and over NE states during next 3 days with decreasing trend.

10-40 mm rainfall: over parts of costal Andhra Pradesh and adjoining areas during day 3 and 4.

10-20 mm rainfall: over Kerala and adjoining interior Karnataka during next 5 days with increasing trend.

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

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

Presently, the upper air cyclonic circulation over Assam & neighbourhood will give rise to heavy rainfall over Arunachal Pradesh on Day-1. There is also possibility of thunderstorm with gusty wind over Assam, Meghalaya, NMMT on Day-1. On Day-2, the Assam & neighbourhood may have similar activities of thunderstorms and gusty wind.

A trough runs across East Rajasthan, Madhya Maharashtra, Interior Karnataka and interior Tamilnadu with an embedded upper air cyclonic circulation over south Rajasthan & neighbourhood extending upto 0.9 km above mean sea level. This system will give rise to thunder storm with gusty wind over Kerala, interior Karnataka, Marathwada and South Madhya Maharashtra to Kerala.

Due to an upper air cyclonic circulation over Bihar & neighbourhood, the SHWB and Sikkim may experience thunderstorm with hail on Day-1. Bihar and Orissa may experience to thunder storm with gusty wind on Day-1.

#### **24 hour Advisory for IOP:**

Arunachal Pradesh, Assam, Meghalaya, Nagaland, Manipur, Mizoram, Tripura  
Kerala, South and North Interior Karnataka, Interior Tamilnadu, Telangana, Coastal Andhra Pradesh,  
GWB, Orissa, Bihar, Sub Himalayan West Bengal and Sikkim  
South Chhattisgarh and South Madhya Maharashtra, Marathwada

#### **48 hour Advisory for IOP:**

Arunachal Pradesh, Assam, Meghalaya, Nagaland, Manipur, Mizoram, Tripura  
Kerala, Interior Karnataka, Interior Tamilnadu  
GWB  
Sub Himalayan West Bengal and Sikkim  
South Madhya Maharashtra, Marathwada

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 RAPID tool:

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

Low Level Winds

[http://satellite.imd.gov.in/archive/INSAT-3D-IMAGER/3D-PRODUCTS/AMV/LLW/MAR\\_2017/?C=M;O=D](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)

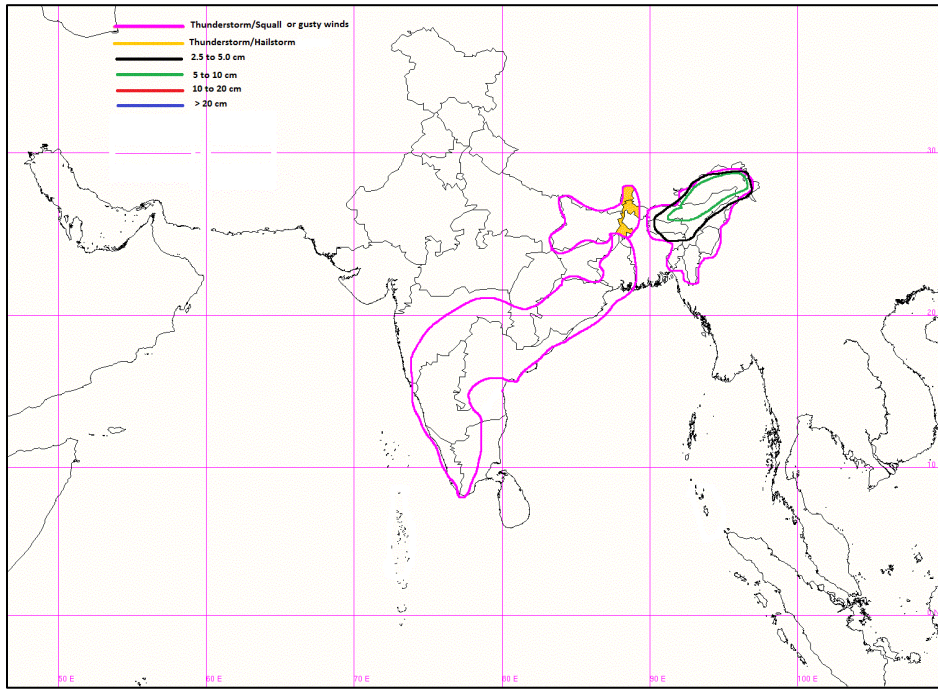
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ForRadarimagesofthepast24hoursincludingmosaicofimages:

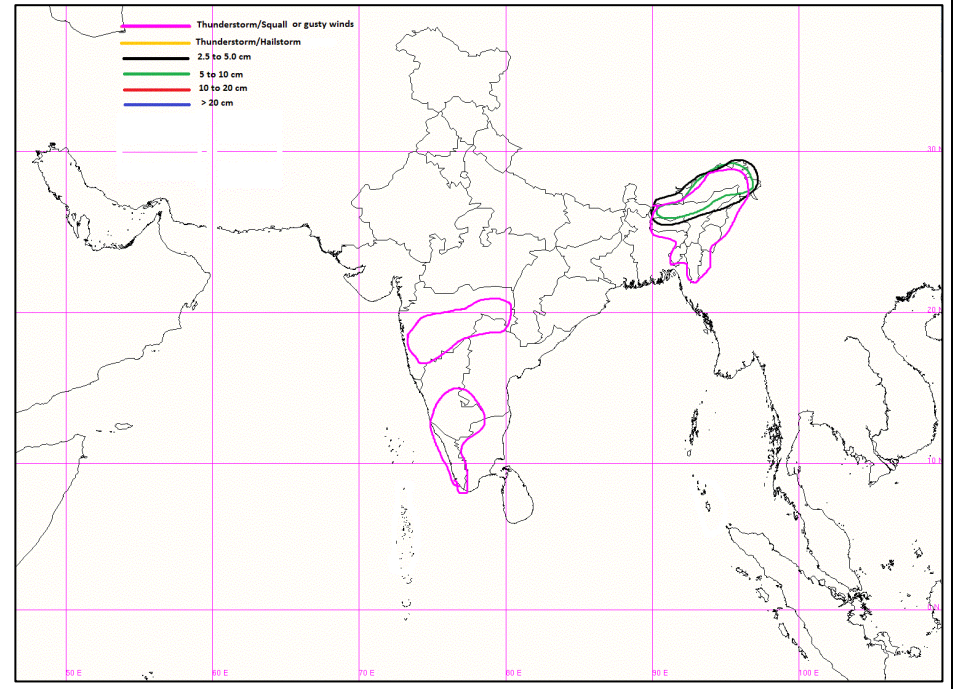
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Satellite sounder based T- Phigram

[http://satellite.imd.gov.in/map\\_skm2.html](http://satellite.imd.gov.in/map_skm2.html)



**IOP Advisory for 24 hours**



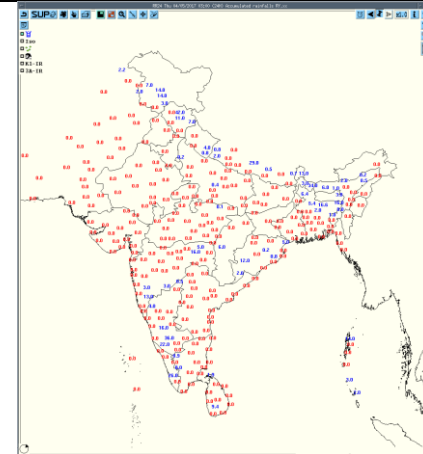
**IOP Advisory for 48 hours**





Not received

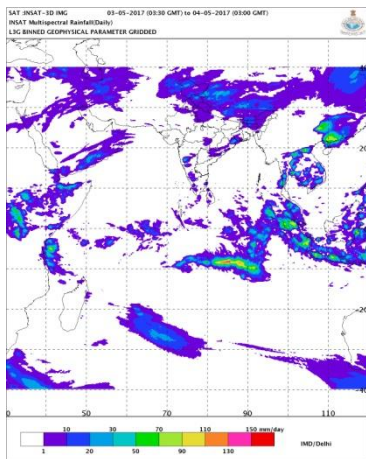
Not received



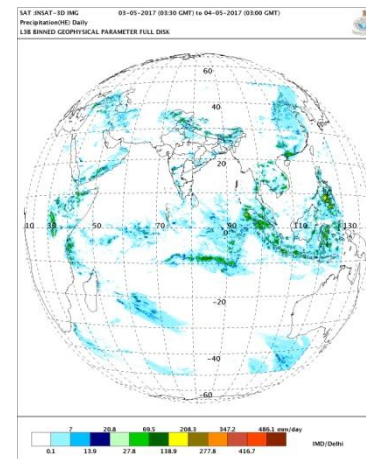
**Forecast Dust Concentration for 00UTC of 7<sup>th</sup> May**

**PM10 Forecast for 00UTC of 7<sup>th</sup> May**

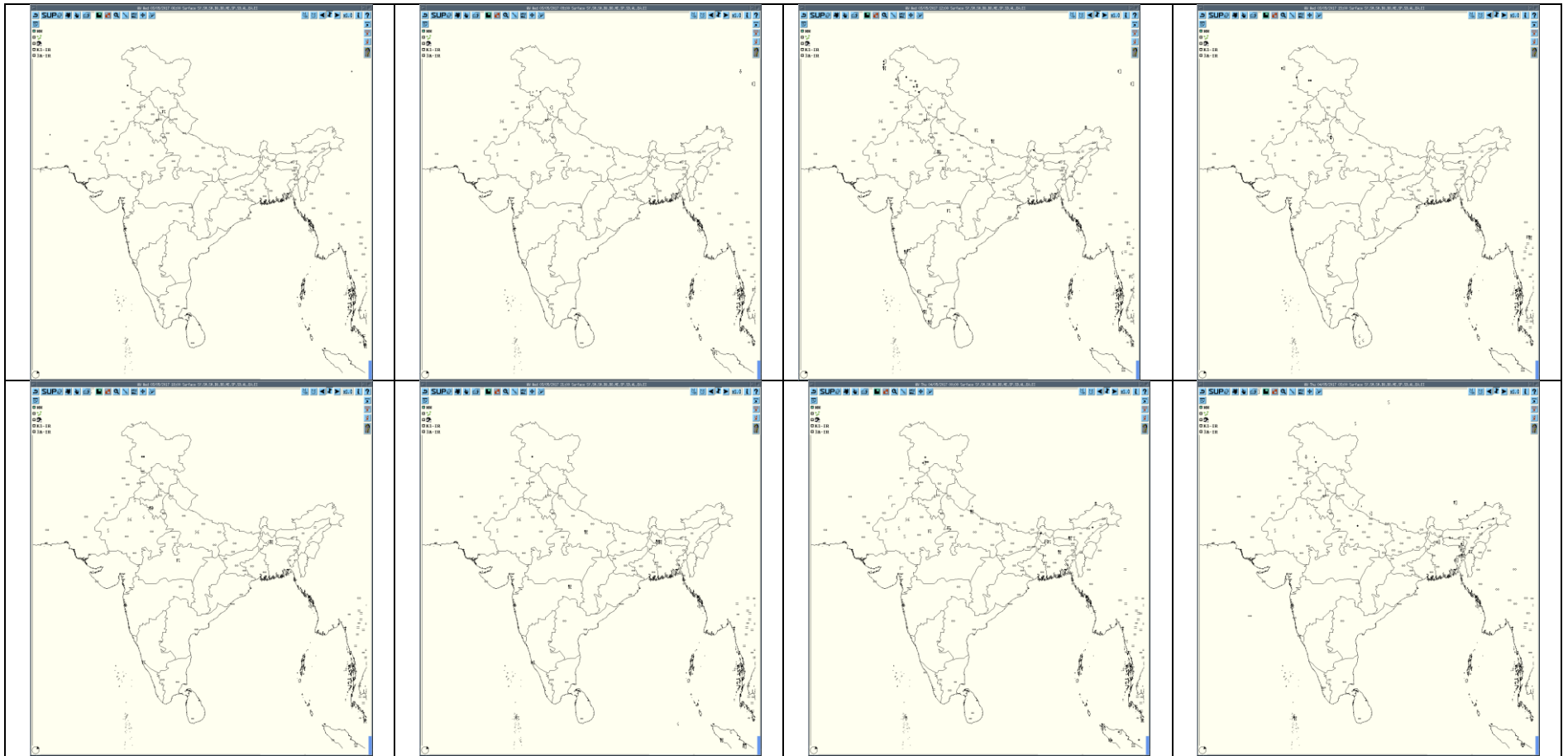
**Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today**



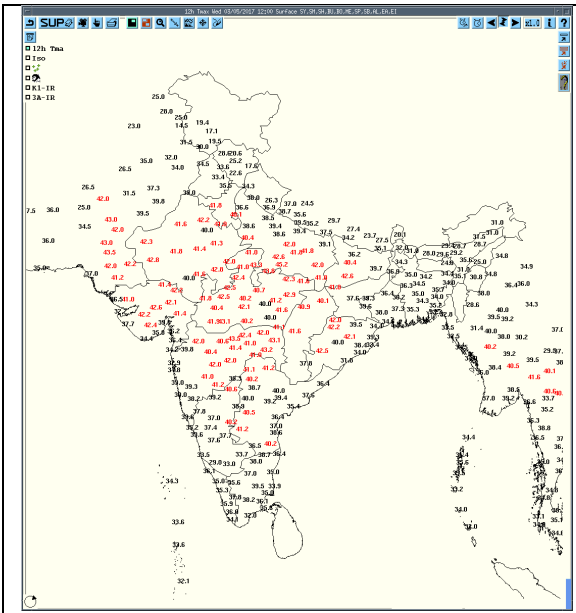
**IMR Rainfall**



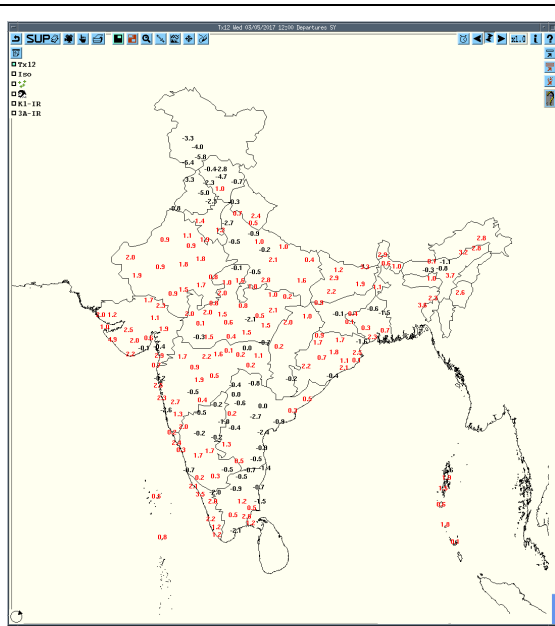
**HEM Rainfall**



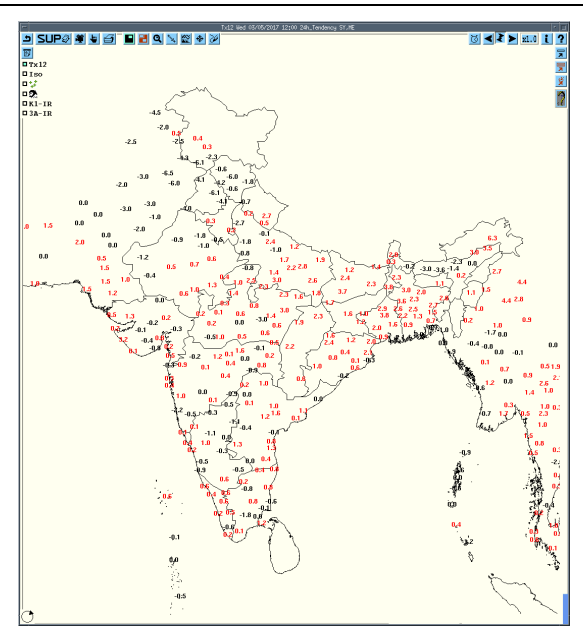
3hourly Past weather at 06, 09,12,15,18, 21UTC of yesterday and 00 & 03hrs UTC of today



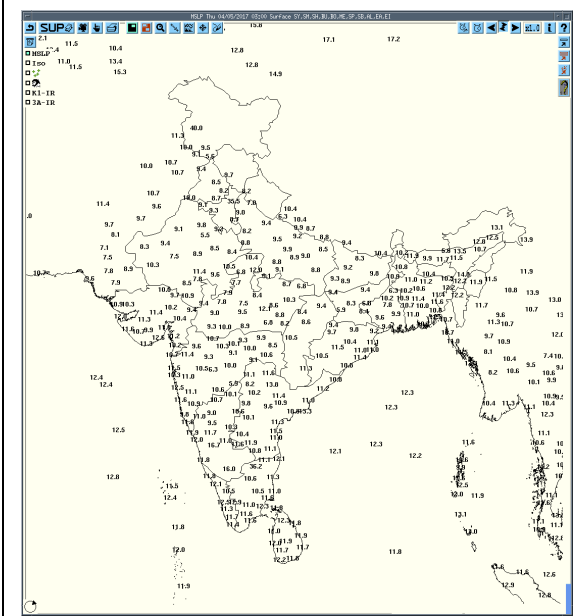
Tmax



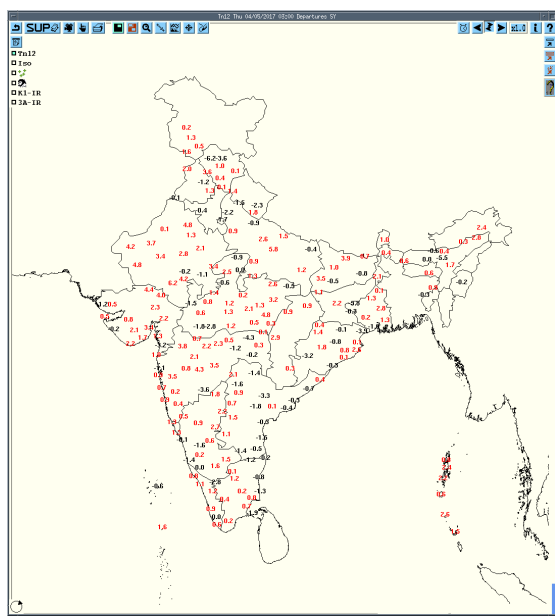
Departure Tmax



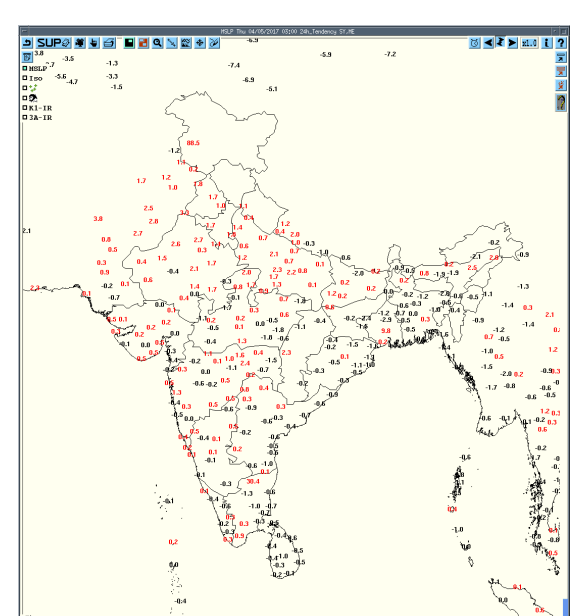
Tendency Tmax



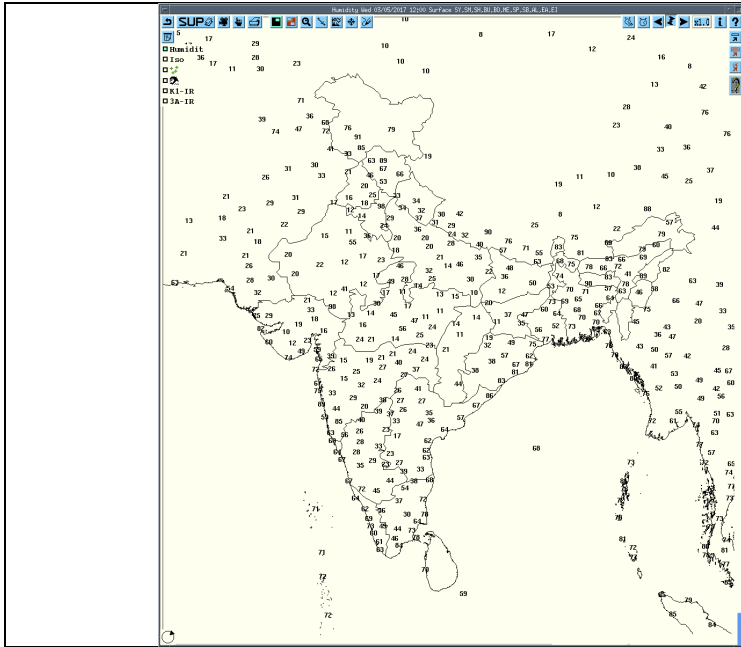
MSLP



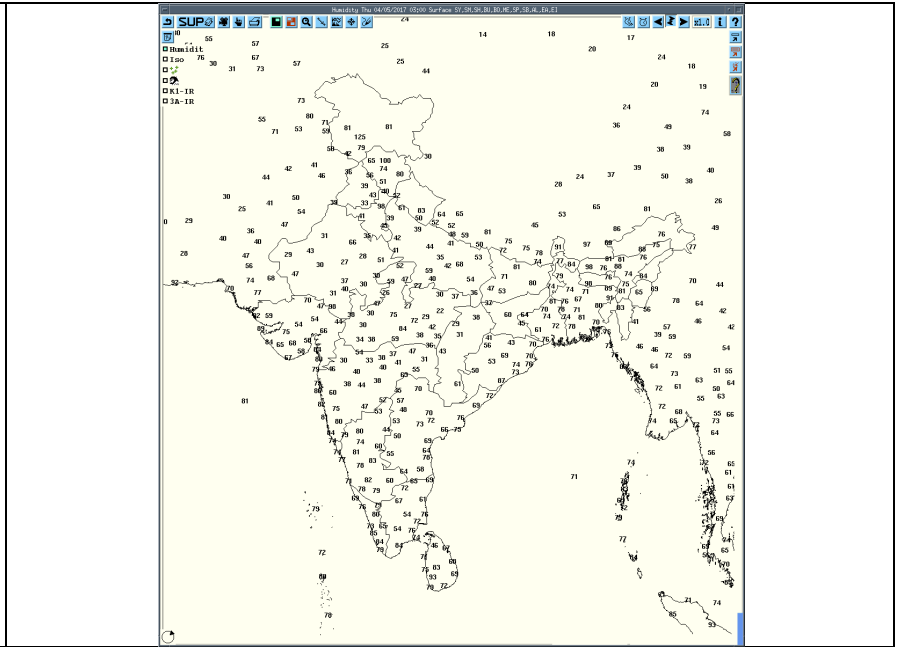
Departure MSLP



Tendency MSLP



**RH at 12UTC yesterday**



**RH at 03UTC today**

<b>Realized weather past 24hours (Based on SYNERGIE Products)</b>					
<b>Date</b>	<b>Time of Reporting</b>	<b>Name of Station Reporting</b>	<b>Region</b>	<b>STATE</b>	<b>Weather Event</b>
03-05-17	0600 UTC	Shimla	Northwest India	Himachal Pradesh	Thunderstorm
03-05-17	0900 UTC	Nil	Nil	Nil	Nil
03-05-17	1200 UTC	Agra	Northwest India	Uttar Pradesh	Thunderstorm
		Kolhapur, Sangali	Central India	Maharashtra	Thunderstorm
		Madikeri, Chamarajanagar	South India	Karnataka	Thunderstorm
		Cochin, Thiruvanthapuram	South India	Kerala	Thunderstorm
03-05-17	1500 UTC	Nil	Nil	Nil	Nil
03-05-17	1800 UTC	Sagar	Central India	Madhya Pradesh	Thunderstorm
03-05-17		Baje	South India	Karnataka	Thunderstorm
03-05-17	2100 UTC	Lucknow	Northwest India	Uttar Pradesh	Thunderstorm
		Nagpur	Central India	Maharashtra	Thunderstorm
		Baje	South India	Karnataka	Thunderstorm
04-05-17	0000 UTC	Agra	Northwest India	Uttar Pradesh	Thunderstorm
		Jaipur	Northwest India	Uttar Pradesh	Thunderstorm
		Guwahati	Northeast India	Manipur	Thunderstorm
04-05-17	0300 UTC				

## 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	03-05-2017	0311- 0741	NIL	NIL	NO ECHO	NIL	NIL
		0751 - 0852	Isolated Single cell with maximum reflectivity of 60.0 dBz and maximum height of 11.65 Km at 0832 UTC	WSW (207.9 km) with no movement (stationery)	Formation started at 0751 UTC in WSW at a distance of 207.9 km from Radar. Matured and dissipated at 0852 UTC in WSW at a distance of 203.4 km from Radar	Thunderstorm / Rain	N/A
		0802 - 1011	Isolated Single cell with maximum reflectivity of 54.0 dBz at 0912 UTC and maximum height of 13.70 Km at 0902 UTC	NW (184.4 km) Moving in S-ly direction with a speed of 10 kmph	Formation started at 0802 UTC in NW at a distance of 184.4 km from Radar. Matured and dissipated at 1011 UTC in NW at a distance of 163.2 km from Radar	Thunderstorm / Rain	N/A
		0852	Isolated Single cell extended into multi cell system with maximum reflectivity of 67.0 dBz at 1051 UTC and maximum height of 17.55 Km at 1011 UTC	WSW (247.2 km) Moving in SE-ly direction with a speed of 34 kmph	Formation started at 0852 UTC in WSW at a distance of 247.2 km from Radar. Matured and dissipated at 1251 UTC in SW at a distance of 116.9 km from Radar	Thunderstorm Hail/ Rain	N/A
		0951 - 1101	Isolated Single cell with maximum reflectivity of 62.5 dBz and maximum height of 13.26 Km at 1011 UTC	NNW (230.1 km) Moving in S-ly direction with a speed of 12 kmph	Formation started at 0951 UTC in NNW at a distance of 230.1 km from Radar. Matured and dissipated at 1101 UTC in NNW at a distance of 217.7 km from Radar	Thunderstorm / Rain	N/A
		DWR KOLKATA	03-05-2017	1111 - 1231 UTC	Isolated Single cell with maximum reflectivity of 64.0 dBz at 1151 UTC and maximum height of 16.05 Km at 1141 UTC	W (215.0 km) Moving in NE-ly direction with a speed of 30 kmph	Formation started at 1111 UTC in W at a distance of 215.0 km from Radar. Matured and dissipated at 1231 UTC in WNW at a distance of 184.4 km from Radar
	04-05-2017	0001- 0301 UTC	NIL	NIL	NO ECHO	NIL	NIL










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
AGAR TALA	04/05/17	030300 - 030910	Multiple Cells with Maximum Height <b>12 km</b> and maximum reflectivity <b>45 dBZ</b> (at 0410 UTC of 03.05.17 over West Meghalaya)	Formed 250 km NNW of DWR AGT at 0300 UTC of 03.05.17 and moved ESE-wards at around 40 kmph	The cells dissipated at 0910 UTC of 03.05.17 over East Meghalaya	N/A	N/A
		030750 - 031220	Multiple Cells with Maximum Height <b>11 km</b> and maximum reflectivity <b>35 dBZ</b> (at 0900 UTC of 03.05.17 over East Meghalaya)	Formed 180 km NNE of DWR AGT at 0750 UTC of 03.05.17 and moved ENE-wards at around 20 kmph	The cells dissipated at 1220 UTC of 03.05.17 over South Assam	N/A	N/A
		030800 - 031320	Multiple Cells with Maximum Height <b>14 km</b> and maximum reflectivity <b>40 dBZ</b> (at 1220 UTC of 03.05.17 over Bangladesh-230 km NW of DWR AGT)	Formed 300 km NW of DWR AGT at 0800 UTC of 03.05.17 and moved ESE-wards at around 25 kmph	The cells dissipated at 1320 UTC of 03.05.17 over Bangladesh-200 km NW of DWR AGT	N/A	N/A
		031400 - 040010	Multiple Cells developed into a squall line with Maximum Height <b>14 km</b> and maximum reflectivity <b>51 dBZ</b> (at 1900 UTC of 03.05.17 over West Meghalaya-220 km NNW of DWR AGT)	Formed 400 km NNW of DWR AGT at 1400 UTC of 03.05.17 and initially moved ESE-wards and later Eastwards at around 45 kmph	The cells dissipated at 0010 UTC of 04.05.17 over East Meghalaya & South Assam	N/A	N/A
		031700 - 040300	Multiple Cells developed into a squall line with Maximum Height <b>14 km</b> and maximum reflectivity <b>45 dBZ</b> (at 0010 UTC of 04.05.17 over Bangladesh-90 km NNW of DWR AGT)	Formed 450 km NW of DWR AGT at 1700 UTC of 03.05.17 and moved ESE-wards at around 60 kmph	At 0300 UTC of 04.05.17, cells still persist over North Tripura, South Assam & adj Mizoram with max intensity 44 dBZ and height 13km	1.TS with light rain and Squall at Agartala Airport 2.TS with light rain at other places	West, Dhalai, North, Unakoti districts of Tripura, East Khasi hills district of Meghalaya
		032250 - 040300	Multiple Cells with Maximum Height <b>12 km</b> and maximum reflectivity <b>48 dBZ</b> (at 0200 UTC of 04.05.17 over north Bangladesh-260 km NW of DWR AGT)	Formed 350 km NW of DWR AGT at 2250 UTC of 03.05.17 and moved SE-wards at around 35 kmph	At 0300 UTC of 04.05.17, cells still persist over east Meghalaya with max intensity 40 dBZ and height 11km	N/A	N/A



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
NAGPUR	03/05/17	0642-2112	<b>Single</b>	160 km NNW, at 0652 becomes multiple, moving SE	max(Z)=27 & ht. of cloud= 3 to 5.5 km, at 1112 Clouds becomes line with maxZ= 37 & ht. of cloud= 1.4 to 9.6 km & width of line is 105 km. at 1152 maxZ= 42, ht. of cloud =1.4 to 4.3 km for maxZ & with maxZ > 30 the ht. of cloud=1 to 10 km. at 1312 for maxZ > 35 the ht. of cloud =1 to 9.6 km at 1732 maxZ > 35 & ht. of cloud 1 to 9.6 km with maxZ=39 The ht. of cloud=1 to 4 km maxZ=32 & ht. of cloud=4.5 to 9.6 km maxZ=34 & ht. of cloud=5.5 to 8.2 km	Thunderstorm warning at 1142 & 1212	80 km away from Radar in NE direction
		0752-1252	<b>Single</b>	245 km SE, becomes dense, moving SW	at 1732 maxZ > 35 & ht. of cloud 1 to 9.6 km with maxZ=39 The ht. of cloud=1 to 4 km maxZ=32 & ht. of cloud=4.5 to 9.6 km maxZ=34 & ht. of cloud=5.5 to 8.2 km	Out of Radar range	
		0842-1402	<b>Single</b>	200 km ESE ,moving S	maxZ=32 & ht. of cloud=4.5 to 9.6 km maxZ=34 & ht. of cloud=5.5 to 8.2 km		
		1632-2352	<b>Multiple</b>	100 km in WNW, moving SE	maxZ=31 & ht. of cloud=1.4 to 8.2 km at 1712 2 <sup>nd</sup> cell developed with maxZ41 & ht. of cloud=1.4 to 9.6 km at 1932 becomes line of width 150 km from N to W direction 20 km away from radarmaxZ=40 & ht. of cloud=1 to 11 km for maxZ> 35 at 2012 line is in "<" this form & width is 167 km, maxZ=45 & ht. of cloud= 1 to 9.6 km for maxZ> 35 at 2352 becomes very thin line of length 260 km in S to E direction,maxZ=36 & ht. of cloud =2 to 6.8 km for maxZ >30	Continuous...	
04/05/17	0002-0332	<b>From previous</b>	Finished at 140 km away in S direction				

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
Paradeep	3/05/17	0300-2300 UTC	Isolated Single cells with av. heights of 11 kms. and maximum heights exceeding 14 kms. and corresponding reflectivity values of 35 and 60 dBZ respectively. Cells merging in later stage to form a squall line.	Position: Scattered in the NW sector of the RADAR. Movement: NWly	Squall line observed at 1712 IST having a length of 125 km and width of 25 km approx.	TS with Rain. Hail also expected.	Khurda, Nayagarh, Cuttack, Mayurbhanj, Baleshwar, Bhadrak, Jajpur, Keonjhar, Dhenkanal and Angul.

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

		
+ thunderstorm	+ heavy thunderstorm	sandstorm or dust storm
		
squall	hail shower	tropical storm
		
+ tornado	+ lightning	+ hurricane

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