



India Meteorological Department

FDP STORM Bulletin No. 58 (03-05-2018)

1. CURRENT SYNOPTIC SITUATION:

NWFC INFERENCE (0300UTC of the Day):

- ◆ The Western Disturbance as a trough in mid & upper tropospheric levels now lies as a cyclonic circulation over north Pakistan and adjoining Jammu & Kashmir at 3.1 km above mean sea level with a trough aloft with its axis at 7.6 km above mean sea level roughly along long 70.0° E to the north of Lat 34°N.
- ◆ A fresh Western Disturbance is likely to affect Western Himalayan region from 05th May.
- ◆ The cyclonic circulation over south Haryana and neighbourhood now lies over Haryana & neighbourhood and extends upto 0.9 km above mean sea level.
- ◆ A cyclonic circulation lies over central parts of south Uttar Pradesh and neighbourhood and extends upto 0.9 km above mean sea level.
- ◆ A trough at mean sea level runs from northwest Rajasthan to West Madhya Pradesh across east Rajasthan.
- ◆ The cyclonic circulation over Gangetic West Bengal and neighbourhood now lies over Gangetic West Bengal and adjoining Bangladesh between 1.5 km and 2.1 km above mean level.
- ◆ A cyclonic circulation lies over north Odisha and neighbourhood and extends upto 0.9 km above mean sea level.
- ◆ A cyclonic circulation lies over west Vidarbha & neighbourhood and extends upto 0.9 km above mean sea level. A trough runs from this system to Lakshadweep area across Marathwada, south Madhya Maharashtra and north Interior Karnataka and extends upto 0.9 km above mean sea level.
- ◆ The northsouth trough from north Madhya Maharashtra to south Tamilnadu across interior Karnataka has merged with the above trough.

SATELLITE OBSERVATIONS during past 24 hrs and current observation:

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

Intense Precipitation Advisory for next 3 hrs:

Light to moderate rainfall spell is likely over South Chhattisgarh, adjoining South Odisha, South Kerala, and Lakshadweep and Bay Islands (For details kindly refer to <http://sigma.cptec.inpe.br/scope/>).

Thunderstorm Advisory for Next 3 Hrs:

Thunderstorm/Convective cells are likely over South Chhattisgarh, adjoining Odisha and North Coastal Andhra Pradesh (For details kindly refer to <http://www.rapid.imd.gov.in/>).

Western Disturbance (WD):

Scattered multi-layered clouds seen over North Pakistan, Jammu & Kashmir and over the area between Lat 37.0deg N to 42.0deg N, Long 70.0deg E to 109.0deg E in association with Western Disturbance over the area.

Westerly Trough:-

Trough in westerlies runs roughly along long 66.0deg E & north of lat 32.0deg N.

Clouds descriptions within India:

Broken low/medium clouds with embedded moderate to intense convection seen over South Chhattisgarh, South Odisha, North Coastal Andhra Pradesh and Bay Islands. Broken low/medium clouds with embedded isolated moderate to intense convection seen over Jammu & Kashmir, Himachal Pradesh, Uttarakhand and Uttar Pradesh. Scattered low/medium clouds with embedded isolated weak to moderate convection seen over Southeast Haryana, Northeast Madhya Pradesh, North Rajasthan, Vidarbha, and rest parts of east India except scattered low/medium clouds over South Gangetic west Bengal, Meghalaya, Sub-Himalayan West Bengal, Northwest Chhattisgarh and Tripura. Scattered low/medium clouds with embedded isolated weak convection seen over Kerala, South Interior Karnataka and West Tamilnadu. Scattered low/medium clouds seen over rest parts of South India.

Arabian Sea:-

Broken low/medium clouds with embedded isolated weak to moderate convection seen over Southeast Arabian sea adjoining Lakshadweep.

Bay of Bengal & Andaman Sea:

Scattered low/medium clouds with embedded moderate to intense convective seen over Andaman Sea & Southeast Bay of Bengal.

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

Moderate to Intense convection was observed over J&K Himachal Pradesh Uttarakhand Uttar Pradesh Punjab North-East Rajasthan North-West Madhya Pradesh South Jharkand North Orissa South Gangetic West Bengal South Interior Karnataka Kerala west Tamilnadu Andaman & Nicobar islands Lakshadweep and weak to moderate convection over North-East states East Madhya Pradesh extreme Chhattisgarh (.)

OLR: - .

Up-to 230 wm^{-2} observed over J&K Himachal Pradesh Uttarakhand Sikkim North-East States South Chhattisgarh Odisha Jharkand Coastal Andhra Pradesh South Interior Karnataka Kerala West Tamilnadu Andaman & Nicobar islands Sikkim Sub Himalyan West Bengal

Synoptic Features:**Westerly Trough& jet Stream:**

Westerly Trough roughly along Longitude 66.0E & North Of Latitude 32.0N.

Dynamic Features:

Up to 30- 60 kts **Wind Shear** is observed over North India, Central India & North-East India and 05-20 kts over south peninsula India.

Positive **Low Level Convergence** is observed over Indian region.

Positive **Vorticity (850 hPa)** is observed over Uttar Pradesh East Madhya Pradesh North Gangetic West Bengal North-Estates Himachal Pradesh

Precipitation:**HEM:-**

Rainfall up-to 69.5-138.9 mm observed over West Jammu and Kashmir South Himachal Pradesh Uttrakhand West Arunachal Pradesh East Meghalaya West Tamilnadu Adjoining Kerala South Interior Karnataka(.)

Rainfall up-to 0.1-14 mm observed over Punjab Haryana Uttar Pradesh Jharkhand Bihar North East States Kerala North Chhattisgarh Orissa South Gangetic West Bengal North East Madhya Pradesh North Coastal Andhra Pradesh.

RADAR and RAPID RGB Observation:

Significant multiple convection is seen over Telangana, Rayalaseema and North Coastal Andhra Pradesh in DWR composite at 1500 IST. Strong Multiple echoes with max. dBZ 50-55 and height around 15km are seen on DWR Machilipatnam, Chennai and Hyderabad domains at around 1530 IST.

RAPID RGB Satellite imagery at 1400IST indicates significant convection over Jammu & Kashmir, Himachal Pradesh, North Uttarakhand, South Chhattisgarh, Vidarbha, north Coastal Andhra Pradesh & adjoining Rayalaseema, Meghalaya and Andaman & Nicobar 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 slightly over IGP and north India.

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

Delhi – SAFAR analysis & Forecast	03.05.2018	04.05.2018
PM10 (micro-g/m ³)	218	240
PM2.5 (micro-g/m ³)	84	93

2. NWP MODEL GUIDANCE:

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

1. Weather Systems:

Low level Cycirs, Troughs:

12UTC of Day 1: Weak CYCIR over NW India and over Bihar region

Confluence & Wind Discontinuity Regions:

12 UTC of Day 0-4: 925 hPa N-S discontinuity over Southern Peninsular India

12UTC of Day 0-1: 925 hPa SW-NE discontinuity MP-AP

Synoptic Systems:

00 UTC of Day 1: WD as a weak trough over J &K. Fresh WD approaching J&K on day-3

12 UTC of Day 2-4: Trough at 850 hPa over WB and adjoining Bangladesh

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

3. Convergence at 850 hPa:

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

Day0: Odisha, Madhya_Maharashtra, Chhattisgarh, NI_Karnataka,

Day1: Jammu_Kashmir, West_RJ, West_MP, East_MP, Madhya_Maharashtra, Marathwada, NI_Karnataka, SI_Karnataka,

Day2: NE_NMMT, Punjab, Madhya_Maharashtra, Marathwada, NI_Karnataka,

Day3: Assam_Meghalaya, NE_NMMT, Gangetic_WB, Hry_Chdelhi, Punjab, Madhya_Maharashtra, TN_Puducherry, SI_Karnataka,

Day4: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Jharkhand, East_UP, Himachal_Pradesh, Madhya_Maharashtra, NI_Karnataka, SI_Karnataka

4. Low level Vorticity:-Positive Vorticity:

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

Day0: West_RJ, Guj_Reg,

Day1: East_MP,

Day2: NE_NMMT, Gangetic_WB, Madhya_Maharashtra,

Day3: Assam_Meghalaya, Sub_Himalayan_WB, Bihar, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab, Madhya_Maharashtra,

Day4: Arunachal_Pradesh, Assam_Meghalaya, Sub_Himalayan_WB, Gangetic_WB, Bihar, Uttarakhand, Punjab, Himachal_Pradesh,

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

Day/Index: Subdivisions with Showalter Index < -4

Day0: Arunachal_Pradesh, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, East_UP, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, East_RJ, Odisha, West_MP, East_MP, Vidarbha, Chhattisgarh, Coastal_AP, Telangana, Rayalseema, TN_Puducherry, Coastal_Karnataka, SI_Karnataka, Kerala,

Day1: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, East_UP, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, East_RJ, Odisha, East_MP, Chhattisgarh, Coastal_AP, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka, Kerala,

Day2: Arunachal_Pradesh, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, East_UP, West_UP, Uttarakhand, Hry_Chhd_Delhi, Himachal_Pradesh, Jammu_Kashmir, Odisha, Coastal_AP, TN_Puducherry, Coastal_Karnataka, SI_Karnataka, Kerala,

Day3: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Bihar, East_UP, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir, TN_Puducherry, SI_Karnataka,

Day4: Arunachal_Pradesh, Assam_Meghalaya, Sub_Himalayan_WB, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir, TN_Puducherry, Coastal_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, Bihar, East_UP, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, East_RJ, Odisha, West_MP, East_MP, Vidarbha, Chhattisgarh, Coastal_AP, Telangana,

Day1: Arunachal_Pradesh, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, East_UP, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, East_RJ, Odisha, West_MP, East_MP, Vidarbha, Chhattisgarh,

Day2: Arunachal_Pradesh, Sub_Himalayan_WB, East_UP, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ,

Day3: Arunachal_Pradesh, Sub_Himalayan_WB, East_UP, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir,

Day4: Arunachal_Pradesh, Sub_Himalayan_WB, Uttarakhand, Hry_Chhd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, 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, Bihar, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, East_RJ, Odisha, West_MP, East_MP, Vidarbha, Chhattisgarh, Coastal_AP, Telangana, Rayalseema, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka, Kerala,
- Day1: Arunachal_Pradesh, Assam_Meghalaya, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, East_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, East_RJ, Odisha, East_MP, Vidarbha, Chhattisgarh, Coastal_AP, Telangana, Rayalseema, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka, Kerala,
- Day2: Arunachal_Pradesh, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, Odisha, Madhya_Maharashtra, Marathwada, Chhattisgarh, Coastal_AP, Telangana, Rayalseema, TN_Puducherry, NI_Karnataka, SI_Karnataka, Kerala,
- Day3: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir, Odisha, Coastal_AP, Telangana, Rayalseema, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka, Kerala,
- Day4: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir, Odisha, Telangana, Rayalseema, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka

8. Rainfall and thunder storm activity:

Day/Index: Subdivisions with Precipitation > 2 cm

- Day1: Bihar, West_UP, Hry_Chhd_Delhi, Jammu_Kashmir, Odisha, Andaman_Nicobar, TN_Puducherry, Kerala,
- Day2: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, West_UP, Hry_Chhd_Delhi, Andaman_Nicobar,
- Day3: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Jammu_Kashmir,
- Day4: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Jammu_Kashmir,
- Day5: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Himachal_Pradesh, Jammu_Kashmir

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

1. Synoptic Systems:

The analysis based on 00 UTC indicates a cyclonic circulation over Haryana and adjoining areas in lower troposphere. The forecast shows this circulation will move eastward till day 3 and become less marked thereafter. Another cyclonic circulation is seen in the analysis over South Uttar Pradesh and adjoining Madhya Pradesh region. The forecast show it will become less marked in next 24 hours. The analysis indicates a Trough

from North West Rajasthan to West Madhya Pradesh region in lower troposphere. The forecast shows North - North Eastward movement of the Trough till day3. Another cyclonic circulation is seen in the analysis over North Orissa and adjoining Jharkhand region. The forecast shows it will become less marked in next 24 hours. Another cyclonic circulation is seen over Vidharbha and adjoining east Madhya Pradesh. It will merge with the Trough in next 24 hours. A Trough extends from this cyclonic circulation up to Lakshadweep area across Marathwada, south Madhya Maharashtra and North Interior Karnataka. It will persist for next 48 hour forecast. A cyclonic circulation is seen in the analysis over West Rajasthan and adjoining areas in lower troposphere (925hPa). the forecast shows it will merge with the trough in next 24 hour

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

Although the presence of strong westerlies is found over Eastern and North Eastern parts of India but no jet core over the Indian region for the next 3 days..

3. Low Level Vorticity {850hPa Positive Vorticity (>12 x 10⁻¹/s):

Low level Positive Vorticity is seen mostly along the Trough, along the cyclonic circulations, over parts of Rajasthan, Punjab, Haryana, Madhya Pradesh and adjoining areas during next 3 days; over parts of GWB, Orissa, Bihar, Jharkhand and NE states on day 1 and 2; It is inferred that parts of J&K, Himachal Pradesh, Uttarakhand and Foothills of Himalaya have Positive Vorticity from day 1 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 parts of Gujarat, coastal areas of Gangetic West Bengal and Kolkata, SHWB, parts of Orissa, Bihar, Jharkhand, Uttarakhand, Uttar Pradesh, Rajasthan, Andhra Pradesh, Telangana, Rayalaseema, Kerala, Karnataka Konkan and Goa, Tamil Nadu, coastal Maharashtra including Mumbai, Konkan & Goa, Vidharbha, Madhya Maharashtra, Madhya Pradesh, Chhattisgarh, coastal areas along the east coast and west coast, Sikkim, Assam, Meghalaya, Tripura and adjoining area during next 3 days; over parts of J&K, Punjab, Himachal Pradesh, Uttarakhand, Haryana, Delhi and adjoining areas on day 1 and 2; Maximum value of the index is seen over parts of Orissa, Jharkhand, Uttar Pradesh, Chhattisgarh, Telangana, Gujarat, Rajasthan, East Madhya Pradesh, North Madhya Maharashtra, Vidharbha, Andhra Pradesh, coastal Maharashtra, coastal Tamil Nadu, Karnataka, Konkan and Goa on day 1; over parts Orissa, GWB, Andhra Pradesh, Chhattisgarh, Vidharbha, Telangana, Coastal areas along the west coast, Gujarat, Karnataka, Konkan and Goa on day 2 and 3; over parts of Bihar and East Uttar Pradesh on day 3.

Lifted Index (< -2): The threshold value of the index is below -2 over parts of Gujarat, Rajasthan, Punjab, Haryana, Delhi, Uttar Pradesh, J&K, Himachal Pradesh, Uttarakhand, Madhya Pradesh, Bihar, Jharkhand, Andhra Pradesh, 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, Sikkim and NE states on all 3 days; maximum negative value of the index less than -8 is seen over parts of GWB, Orissa, Jharkhand, Chhattisgarh, Vidharbha, Telangana and Andhra Pradesh on day 1; over parts of GWB and Orissa on day 2; over some parts of GWB on day 3.

Total Total Index (> 50): The threshold value of the index is > 50 is seen over most of the parts of the country except Gujarat, Madhya Maharashtra, north west Marathwada, extreme south peninsular India and coastal areas along the west coast on day 1 and 2; Above Threshold value is seen over parts of Rajasthan, Punjab, Haryana, Delhi, Uttar Pradesh, J&K, Himachal Pradesh, Uttarakhand, East Madhya Pradesh, Bihar, Jharkhand, Andhra Pradesh, Telangana, Chhattisgarh, Vidharbha, Orissa, GWB, SHWB, Sikkim and NE on day 3; the maximum value of the index >55 is seen over

parts of J&K, North west Rajasthan, Punjab, Haryana, Uttar Pradesh, Bihar, Jharkhand, GWB, Andhra Pradesh, Chhattisgarh, Vidharbha, Telangana and East Madhya Pradesh on day 1; over parts of Bihar, Jharkhand and GWB on day 2; over parts of West Uttar Pradesh on day 3.

Sweat Index (> 300): Although the threshold value of the Index >300 is seen in most parts of the country on day 1 and threshold value of the Index >300 is seen in most parts of the country except central parts of Madhya Maharashtra, some parts of Marathwada and west Vidharbha on day 2 and 3; maximum value of the index greater than 700 is seen over parts of J&K, Punjab, Himachal Pradesh, Uttarakhand, East Madhya Pradesh, west Uttar Pradesh and Orissa on day 1; over parts of Uttarakhand, GWB and Orissa on day 2; over parts of J&K, Himachal Pradesh, Uttarakhand, GWB, Orissa, Bihar and Jharkhand on day 3.

CAPE (> 1000): Mostly seen over Uttar Pradesh, southern peninsular India, along west coast and east coast, parts of Madhya Pradesh, Orissa, Andhra Pradesh, Telangana, Rayalaseema, Kerala, Tamil Nadu, Karnataka, coastal Maharashtra including Mumbai, Gujarat, Konkan and Goa, Bihar, Jharkhand, Chhattisgarh, East Vidharbha, GWB, SHWB, Sikkim, Assam, Meghalaya, Tripura and adjoining areas during next 3 days; over parts of Punjab, Himachal Pradesh, Uttarakhand, Haryana, Delhi and adjoining areas, North west and South west Rajasthan on day 1 and 2; Maximum value of the index greater than 2500 is seen mostly over parts of Gujarat, Orissa, Andhra Pradesh, Telangana, Coastal Tamil Nadu, coastal Kerala, Chhattisgarh and East Vidharbha on day 1; over parts of Orissa, Andhra Pradesh, Tamil Nadu, Gujarat, North coastal Maharashtra, Kerala and Telangana on day 2 and 3; over parts of Jharkhand, Karnataka and GWB 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 except central parts of Madhya Pradesh, northern parts of Madhya Maharashtra, Marathwada, and West Vidharbha region on day 2 and 3; threshold value of the Index lies in the range of (50–150) over most part of the country except central part of west Madhya Pradesh, north Madhya Maharashtra and Marathwada on day 1; maximum value of the index greater than 400 is seen over parts of Gujarat, Haryana, South West Rajasthan, west Uttar Pradesh, Chhattisgarh, North Madhya Pradesh, North Karnataka and East Uttar Pradesh on day 1; over parts of Haryana, Uttar Pradesh, GWB, Gujarat and Chhattisgarh on day 2; over parts of South West Rajasthan, Andhra Pradesh, Chhattisgarh and Gujarat on day 3.

5. Rainfall Activity:

70-130 mm Rainfall: over parts of Chhattisgarh and South Orissa on day 1; over parts of GWB and Orissa on day 2.

40-70 mm Rainfall: over parts of Chhattisgarh, Andhra Pradesh and Orissa on day 1; over parts of GWB and Orissa on day 2; over parts of Tripura and adjoining areas on day 3.

10-40 mm Rainfall: over parts of J&K, Himachal Pradesh, Uttarakhand, Sikkim, NE states, Foothills of Himalaya, GWB, Orissa, Bihar, Jharkhand, GWB and SHWB during next 3 days; over parts of Chhattisgarh, Telangana and Andhra Pradesh on day 1; over parts of Kerala, South Interior Karnataka and Tamil Nadu on day 1 and 2; over some parts of Kerala on day 3.

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

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

1. Model Reflectivity (Max. dBZ):

> 25 dBZ Model Reflectivity: Over parts of J&K, Punjab, Haryana, Himachal Pradesh, Uttarakhand, East Uttar Pradesh, Rajasthan, GWB, SHWB, Sikkim, Orissa, Bihar, Jharkhand, Kerala, Tamil Nadu, South Karnataka, Chhattisgarh, Andhra Pradesh, Telangana, Madhya Pradesh and NE states on day 1; over parts of J&K, GWB, Orissa, SHWB, NE states on day 2; over parts of J&K, GWB, Orissa, Jharkhand, NE states, Punjab, Haryana, Himachal Pradesh, Uttarakhand on day 3; maximum value of the Model reflectivity is seen over parts of Orissa, Andhra Pradesh, Telangana, Chhattisgarh, Bihar, East Uttar Pradesh, Northern part of West and East Madhya Pradesh and GWB on day 1.

2. Spatial distribution of Total Total Index, K-Index, CAPE and CIN [High potential for thunderstorm]:

Total Index (> 50): Above threshold value is observed over most parts of the country except extreme south peninsular India, extreme southern parts of west coast and the east coast, southern parts of Karnataka, coastal Maharashtra, Konkan and Goa, Kerala, Andhra Pradesh, Tamil Nadu, Bihar, Jharkhand, Orissa, GWB, SHWB, NE states and East Uttar Pradesh during the next 3 days; below threshold value is seen over parts of West Uttar Pradesh, Chhattisgarh, North Madhya Maharashtra, Gujarat, Telangana, Vidharbha, southern parts of Madhya Pradesh and Uttarakhand on day 1; over parts of Gujarat; Chhattisgarh, Telangana and south Madhya Maharashtra on day 2; over parts of Chhattisgarh, Vidharbha and Telangana on day 3; the maximum value of the index is seen over parts of Haryana, Delhi, Rajasthan, Madhya Pradesh, Uttar Pradesh, Orissa, Madhya Maharashtra, Marathwada, Vidharbha, Telangana, Chhattisgarh and Karnataka on day 1 and 2; over parts of Punjab, Haryana, Delhi, Rajasthan, Uttar Pradesh, Madhya Pradesh, Vidharbha, Madhya Maharashtra, Marathwada, Telangana, Karnataka, Chhattisgarh, Orissa and Jharkhand on day 3.

K-Index (> 35): Less than threshold value is observed over most of the part of the country during the next 3 days.

CAPE (> 1500): Greater than threshold value over parts of Gujarat, coastal areas of west coast, coastal Maharashtra, Konkan & Goa, coastal areas along the east coast, Bihar, Jharkhand, Uttar Pradesh, East and North west Madhya Pradesh, Chhattisgarh, Vidharbha, Orissa, GWB and Kolkata, SHWB, Tamil Nadu, Kerala, Karnataka, Andhra Pradesh, Telangana, Rayalaseema, Extreme south peninsular India, Assam, Meghalaya, Tripura and adjoining areas during next 3 days; over parts of J&K, Punjab, Haryana, Delhi, Uttar Pradesh, Rajasthan, Uttarakhand, Himachal Pradesh on day 1; over parts of Punjab and adjoining Rajasthan on day 2; Maximum value of the index greater than 3500 is seen over the parts of Orissa, Andhra Pradesh, Tamil Nadu, Kerala, Chhattisgarh, Telangana, Vidharbha, Karnataka, Konkan and Goa and Gujarat on day 1; over parts of Gujarat, Kerala, Tamil Nadu, Andhra Pradesh, Karnataka and Orissa on day 2; over parts of Orissa, Kerala, Karnataka, GWB, Konkan and Goa 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 except southern parts of west Vidharbha, Madhya Maharashtra and Marathwada, central parts of west Madhya Pradesh during next 3 days; the maximum value of the index > 400 is seen over parts of Punjab, Haryana, Gujarat, Rajasthan, Bihar, Jharkhand, Orissa, Madhya Pradesh, Uttar Pradesh, Chhattisgarh, Vidharbha, Telangana and Andhra Pradesh during next 3 days; over parts of J&K, Himachal Pradesh and adjoining areas on day 3.

3. Rainfall and Thunderstorm Activity:

70- 130 mm Rainfall: over parts of Orissa and Andhra Pradesh on day 1.

40- 70 mm Rainfall: over parts of GWB, Orissa, SHWB, Bihar, Jharkhand, East Uttar Pradesh, Orissa, Andhra Pradesh, Telangana, Chhattisgarh, Kerala and Tamil Nadu on day 1; over some parts of Kerala, Assam, Meghalaya, Tripura and adjoining areas on day 3.

10- 40 mm Rainfall: over parts of J&K, Sikkim, Foothills of Himalaya, GWB, SHWB, Bihar, Jharkhand, Kerala, Tamil Nadu, Karnataka and NE states during next 3 days; over parts of Himachal Pradesh, Uttarakhand, , Orissa, Andhra Pradesh, Chhattisgarh, Punjab, Haryana, Uttar Pradesh, North west Madhya Pradesh, Telangana, Andhra Pradesh, Orissa and Vidharbha on day 1; over some parts of Punjab and Orissa on day 3.

Up to 10 mm Rainfall: Over parts of J&K, Rajasthan, Punjab, Haryana and adjoining areas, Himachal Pradesh, Uttarakhand, Uttar Pradesh, Kerala, Tamil Nadu, Karnataka, Orissa, Andhra Pradesh, Telangana, Bihar, Jharkhand, Chhattisgarh, Madhya Pradesh, foothills of Himalaya, GWB, SHWB, Sikkim and NE states during next 3 days.

3. IOP ADVISORY FOR 24 and 48Hrs:

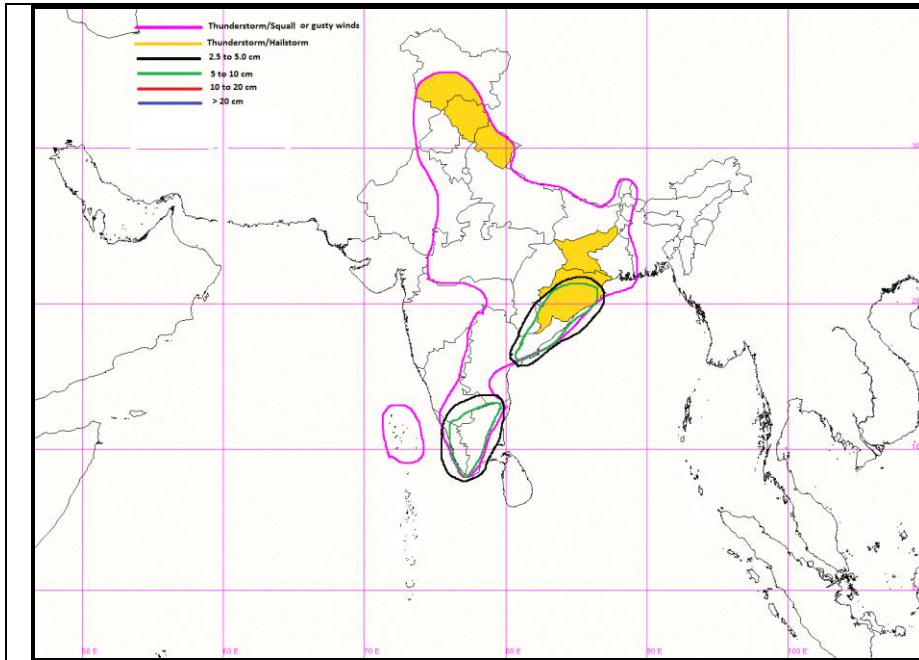
Summary and Conclusions:

- Synoptic analysis indicates the cyclonic circulation over Gangetic West Bengal and adjoining Bangladesh and a cyclonic circulation lies over north Odisha and neighbourhood, resulting heavy rain over Odissa and North coastal Andhra Pradesh on Day1.
- The northsouth trough from north Madhya Maharashtra to south Tamilnadu across interior Karnataka resulting the thunderstorm with gusty winds activity over Interior Tamilnadu, Kerala and Lakshadweep on Day-1.
- The Western Disturbance as a trough in mid & upper tropospheric levels now lies as a cyclonic circulation over north Pakistan and adjoining Jammu & Kashmir. This will give the thunderstorm with hail over J&K, Himachal Pradesh and Uttarakhand on Day-1.
- A fresh Western Disturbance is likely to affect Western Himalayan region from 05th May.

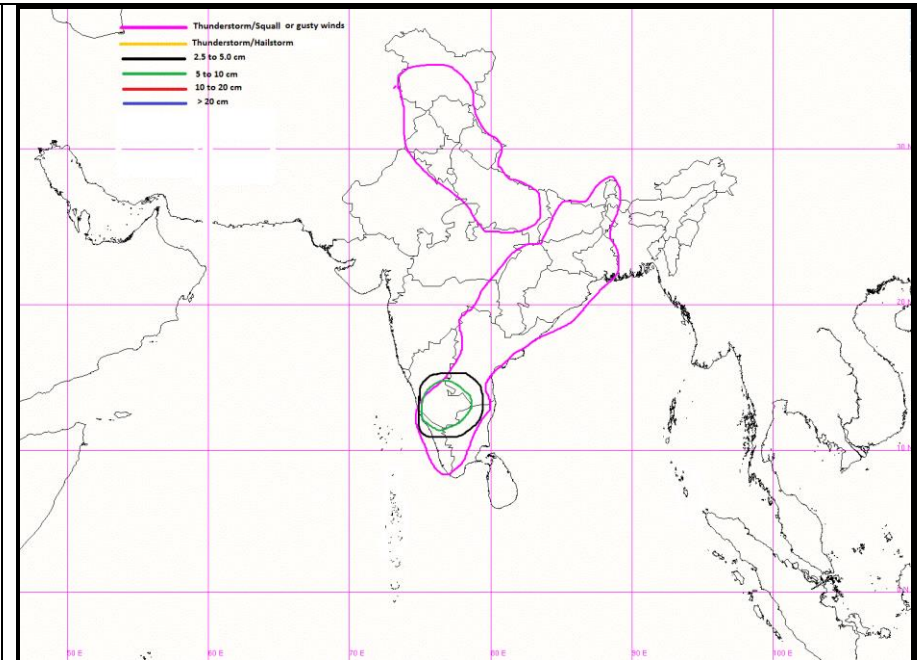
Day-1 & Day-2:

24hour Advisory for IOP:	48hour Advisory for IOP:
<p>Significant Rainfall: North Coastal Andhra Pradesh, Kerala, Interior Tamilnadu Odisha</p> <p>Thunderstorm with squall or gusty winds: North Coastal Andhra Pradesh, Telangana, Rayalaseema, Kerala, Interior Tamilnadu, South Interior Karnataka, Lakshadweep Vidarbha, Madhya Pradesh, Chhattisgarh Bihar, West Bengal , Sikkim Punjab, Haryana, Delhi, Chandigarh, Uttar Pradesh, East Rajasthan</p> <p>Thunderstorm with squall and hail Jammu & Kashmir, Himachal Pradesh, Uttarakhand Jharkhand, Orissa</p> <p>Thunderstorm and/or Duststorm West Rajasthan</p>	<p>Significant Rainfall: South Interior Karnataka</p> <p>Thunderstorm with squall or gusty winds: North Coastal Andhra Pradesh, Kerala, Interior Tamilnadu, South Interior Karnataka, Telangana, Rayalaseema Chhattisgarh, Vidarbha Bihar, Jharkhand, Orissa, West Bengal , Sikkim Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Delhi, Chandigarh, Uttar Pradesh</p> <p>Thunderstorm with squall and hail Nil</p> <p>Thunderstorm and/or Duststorm West Rajasthan</p>

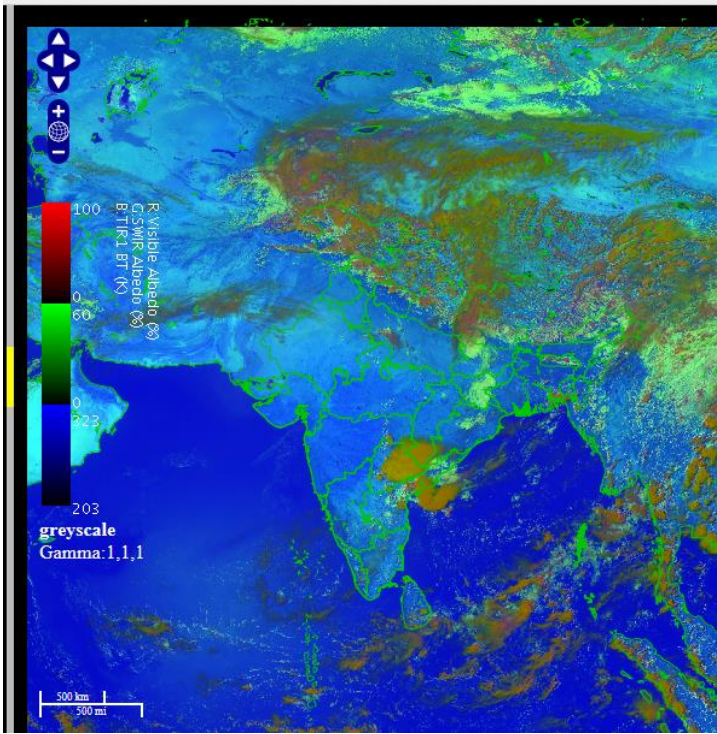
Graphical Presentation of Potential Areas for Severe Weather:



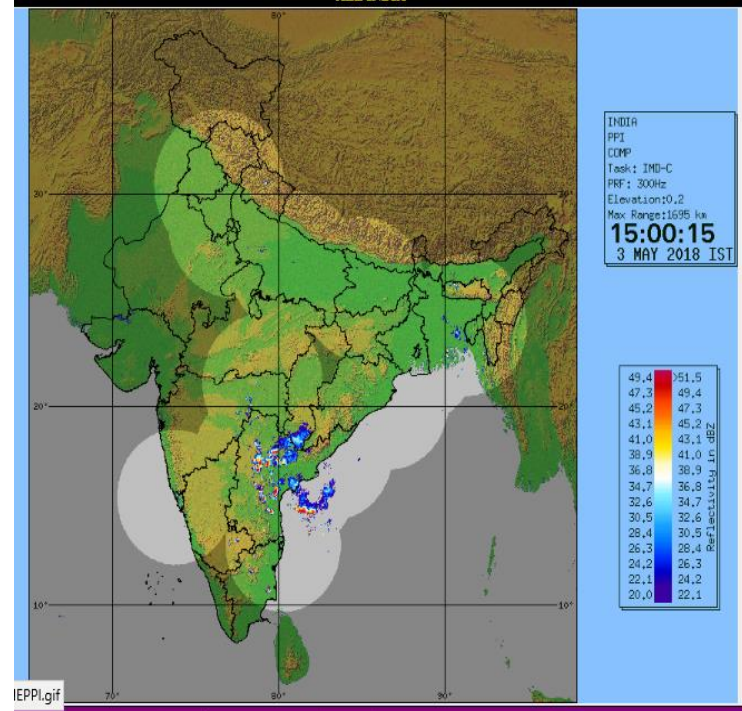
IOP Advisory for 24 hours



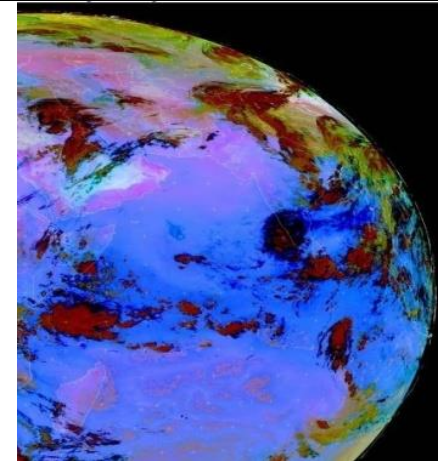
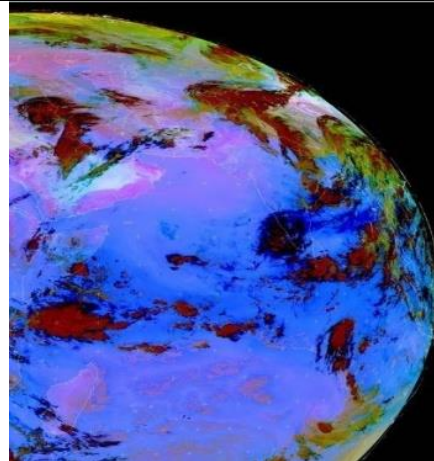
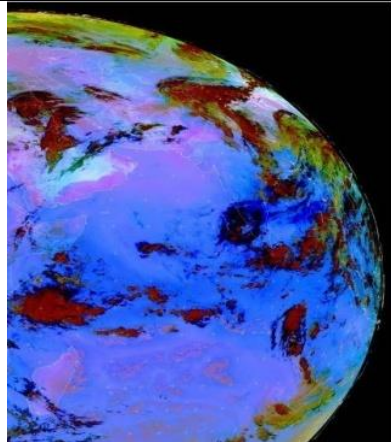
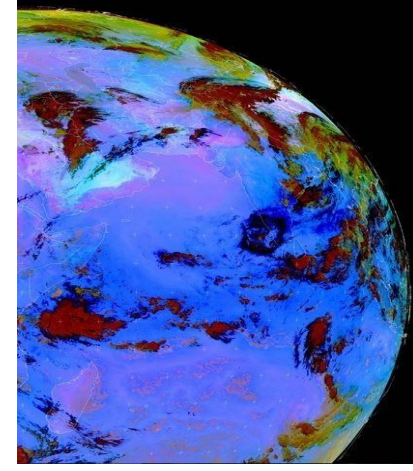
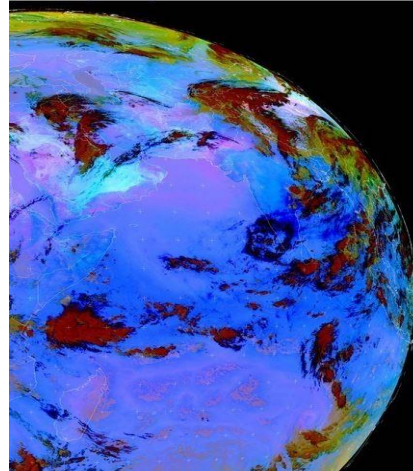
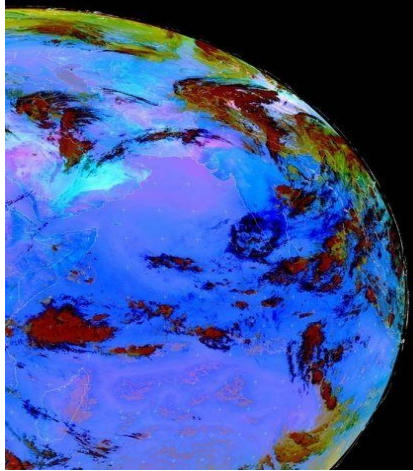
IOP Advisory for 48 hours



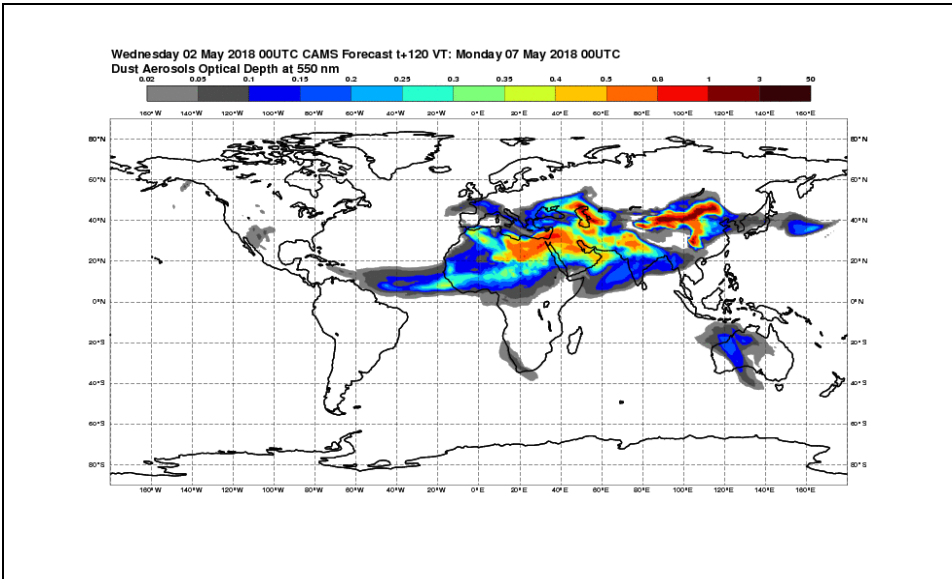
RAPID RGB Imagery at 1400 IST of the Day



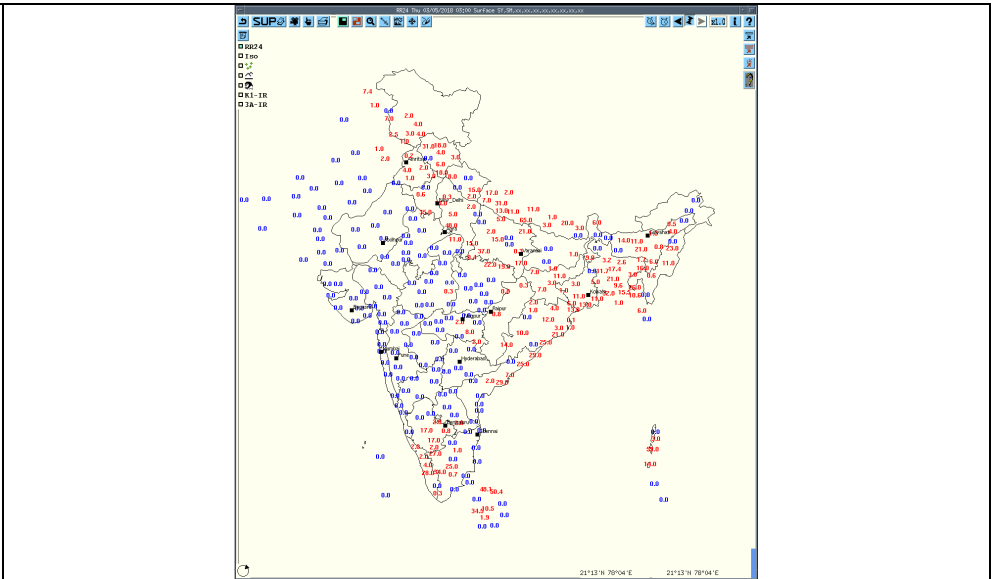
DWR Composite at 1500 IST of the Day



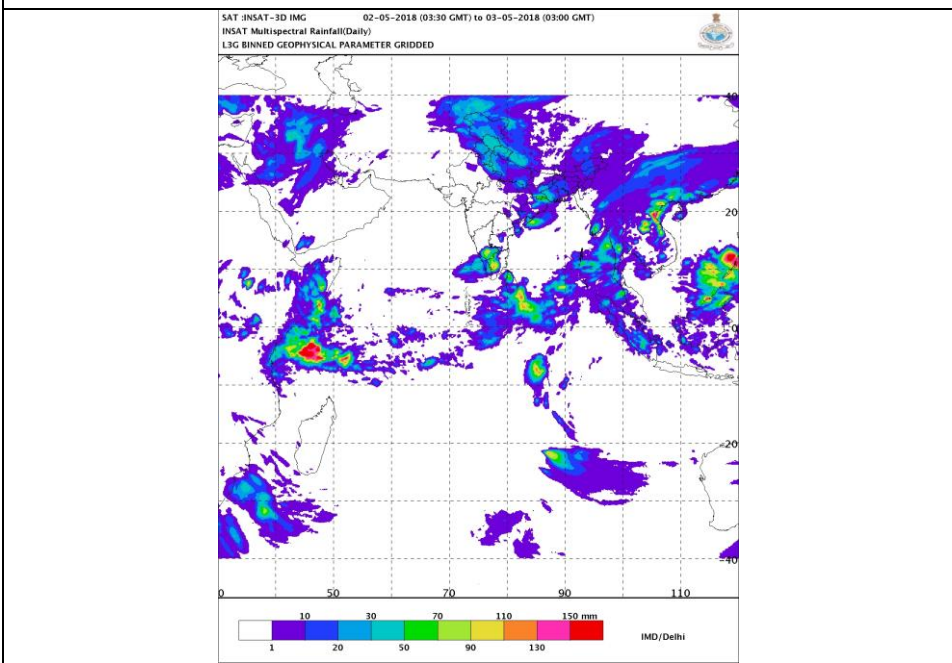
Observed Satellite Dust Images of today



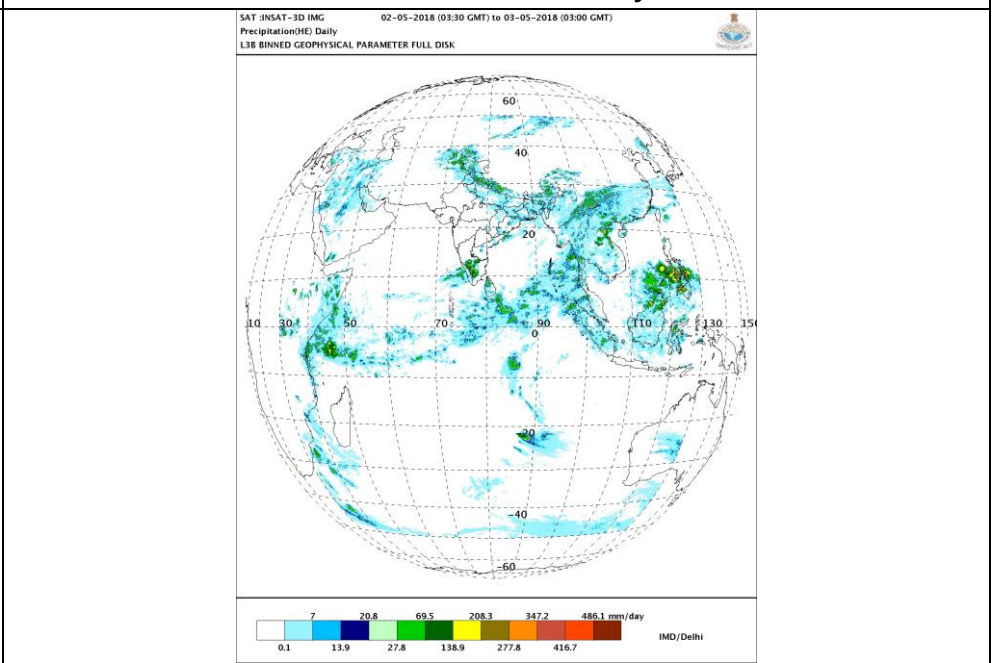
Dust Forecast



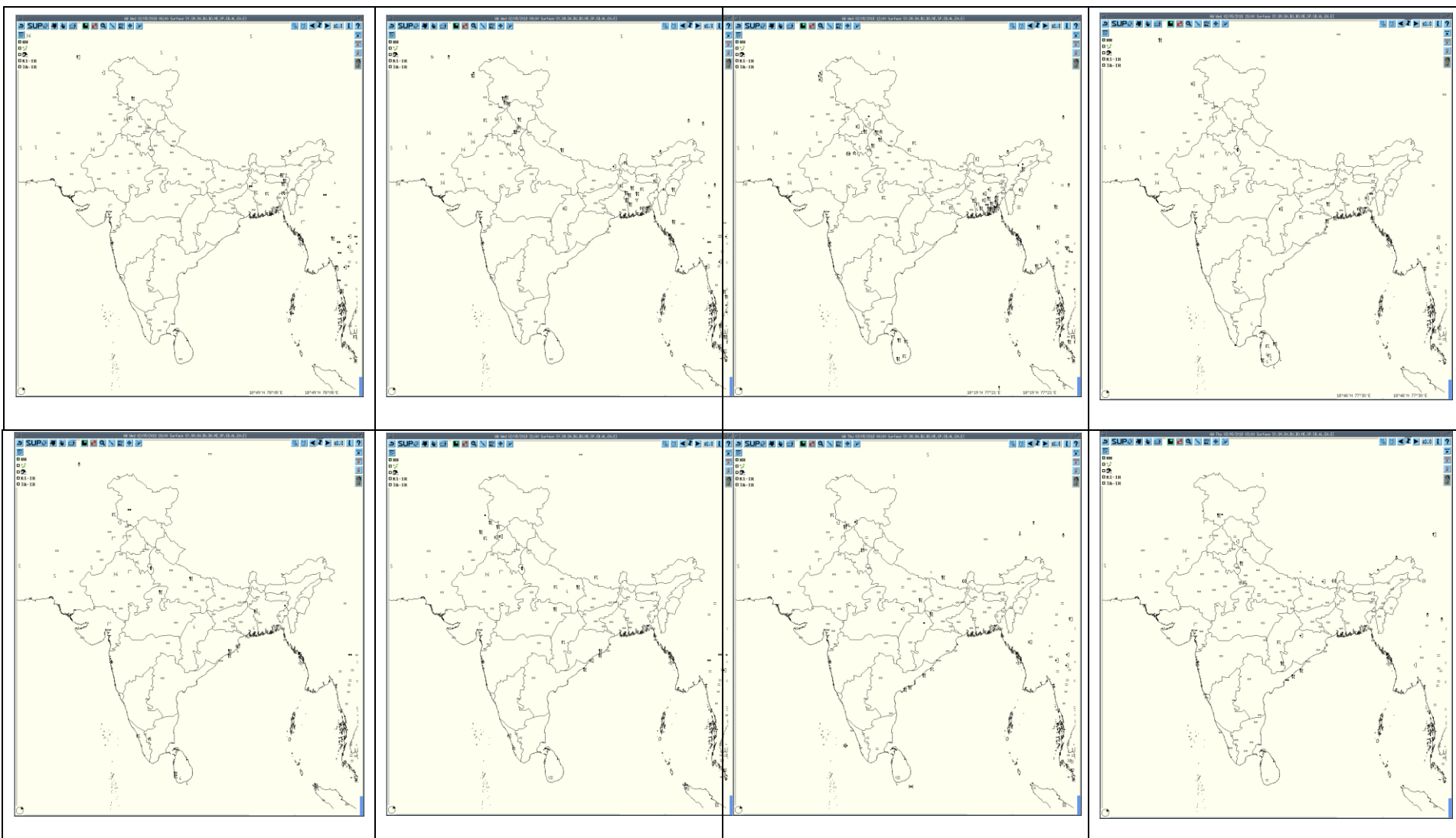
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today



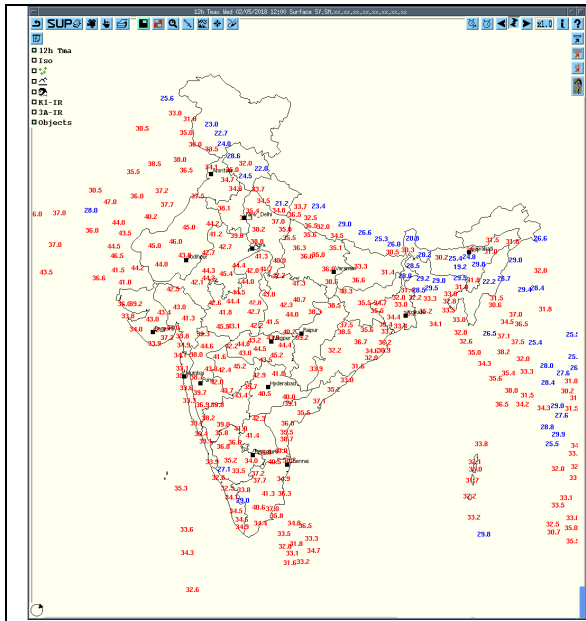
IMR



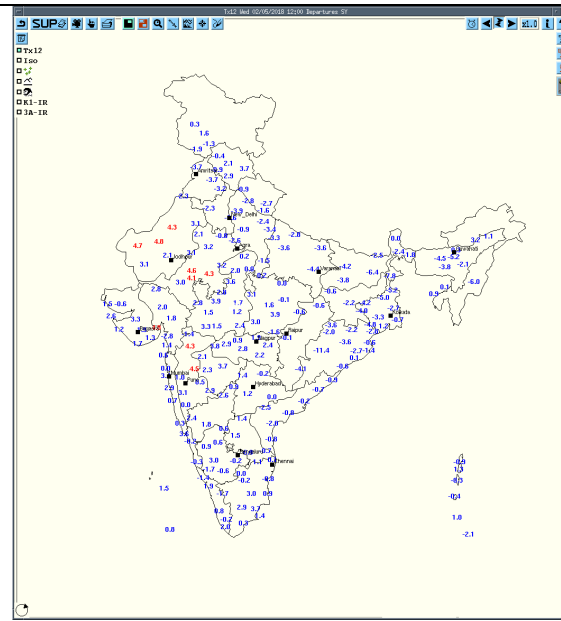
HEM



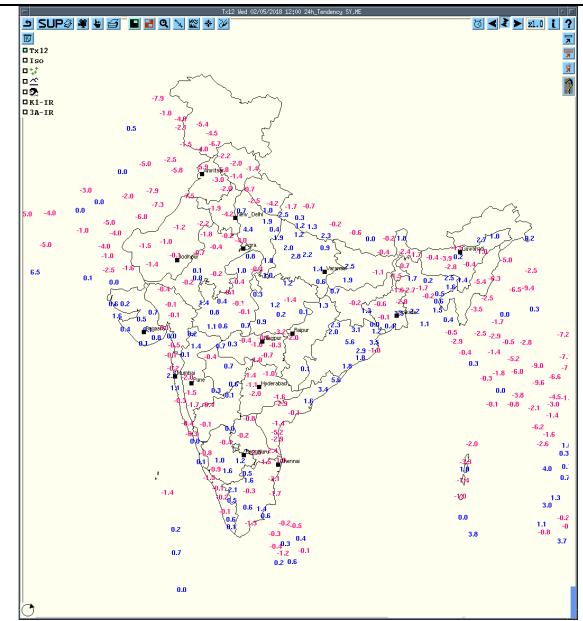
3hourly Past weather at 06, 09, 12, 15, 18, 21 UTC of yesterday and 00 & 03 hrs UTC of today



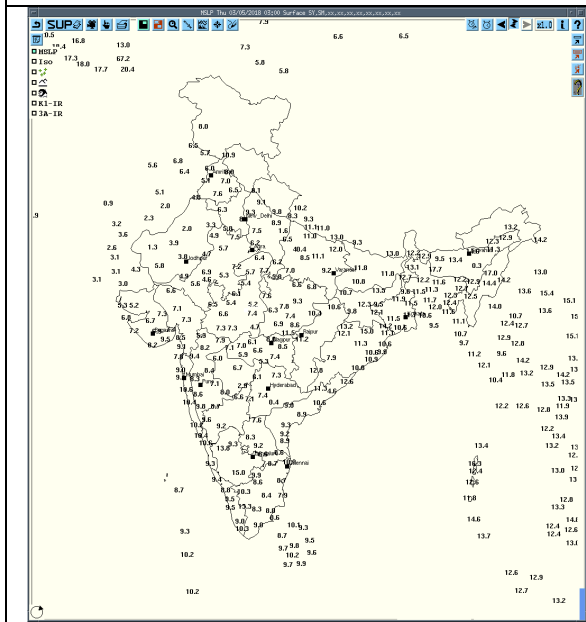
Tmax



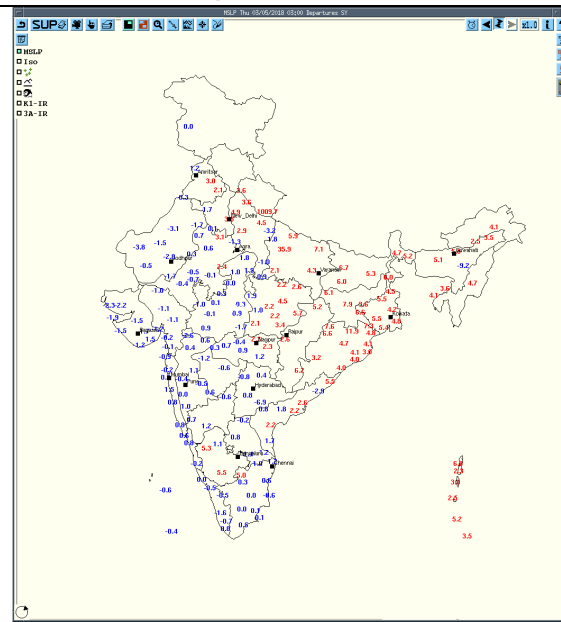
Departure Tmax



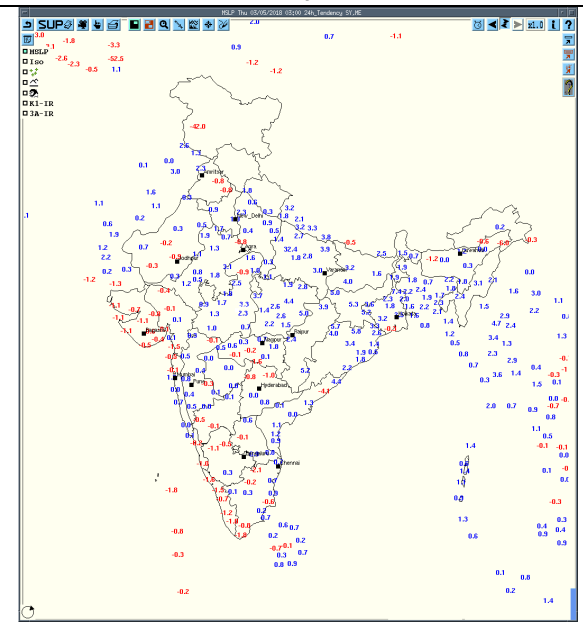
Tendency Tmax



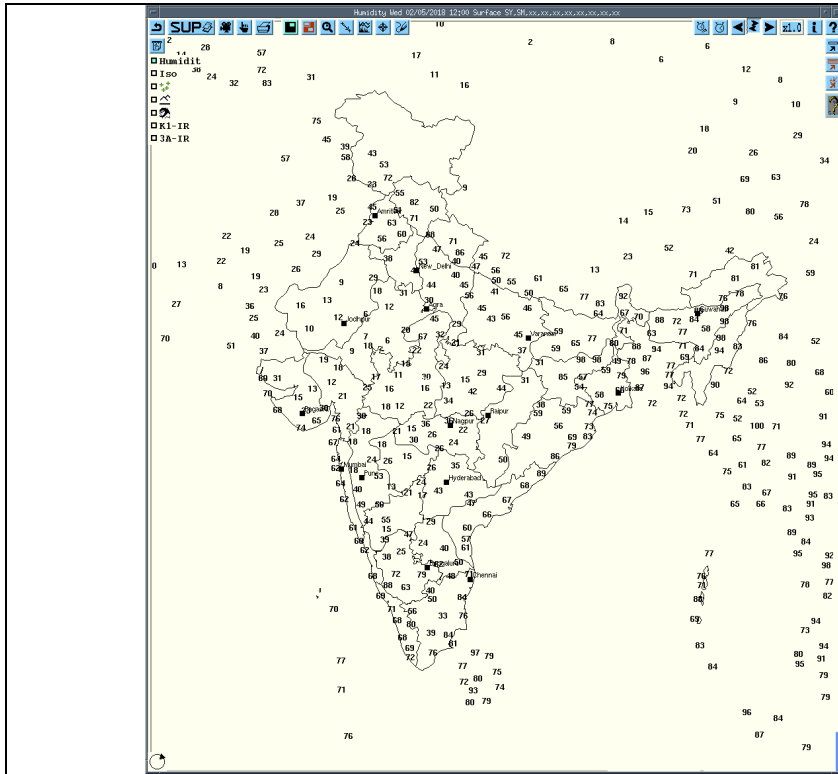
MSLP



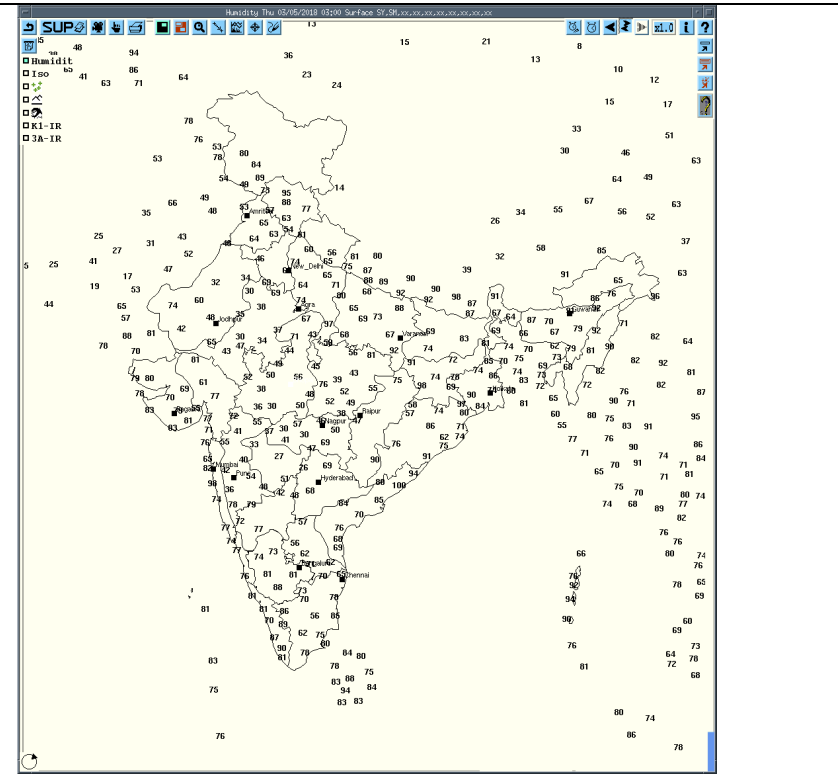
Departure MSLP



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
Patiala	03-05-18	020300 - 020600	MULTIPLE CELLS DBZ 49.5 HT. 11 TO 12 KM	NW SECTOR. MOVMENT E-WARDS.	--	TS/RA/DS	Amritsar, Ferozepur, Muktsar, Faridkot.
		020600 - 020900	MULTIPLE CELLS DBZ 56.5 HT. 12 TO 13 KM	NW,N SECTORS. MOVMENT E-WARDS.	--	TS/RA/DS	Jalandhar, Ludhiana, Phagwada, Nakkodar, Barnala, Una, B-dam.
		020900- 021200	MULTIPLE CELLS DBZ 52.5 HT. 10 TO 13 KM	All SECTORS. MOVMENT E-WARDS.	--	RA/TS/DS	Loharu, Mohindergarh, Behat, Kalsi, Saharanpur, Dehradun, Rishikesh, Mussorie.
		021200 - 021500	MULTIPLE CELLS DBZ 56.5 HT. 12 TO 13 KM	SW,SE SECTORS. MOVMENT SE-WARDS.	--	RA/TS/DS	Bathinda, Mansa, Patran. Rohtak, Jajhar, Bhiwani.
		021500 021800	MULTIPLE CELLS DBZ 46.5 HT. 12 TO 13 KM	SW,SE SECTORS. MOVMENT E-WARDS	--	RA/TS/DS	Tohana, Narnun, Panipat
		021800 - 022100	MULTIPLE CELLS DBZ 48.5 HT. 12 TO 13 KM	SW,SE SECTORS. MOVMENT ESE WARDS.	--	RA/TS/DS	Hissar, Rohtak, Bhiwani, Mohindergarh
		022100- 030000	MULTIPLE CELLS DBZ 56.5 HT. 12 TO 13 KM	NW SECTOR MOV. E WARDS	--	RA/TS/DS	Ferozpur,Patti,Tarantaran,Kapurthala,Jalandhar
		180000 - 030252	MULTIPLE CELLS DBZ 54.5 HT. 12 TO 13 KM	NW,SE SECTORS. MOVMENTE-WARDS	--	RA/TS/DS	Nabha,Patiala,Ludhiana,Khanna, Chandigarh

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
Lucknow	03-05-18	021322 - 022102	Multiple cell system formed at 1322 UTC extending from 250 Km NE to 250Km NNW. The system grew stronger with movement and formed Squall Line at around 1502 UTC ranging from 250Km North to 125 Km NW (curved shape). Squall line became more pronounced with northeast movement. At around 1722 UTC the squall line less Pronounced and transformed into irregular multiple cell system lying in length 75 km to 240 Km NorthEast . The height the system reached 15 Km and maximum reflectivity observed was 58.0 dBZ.	Multiple cell system moved along SE'ly to wards station with average speed 65 Km/h while the squall line moved with average speed 75Km/h also along NorthEast Direction .	Squall line after converging into the multiple cell system, multiple cell system weakened and dissipated at around 2102 UTC over 150 to 240 Km NE	TS/SQ/HS/RA	Bareilly, Pilibhit, Badaun, Shahjahanpur, Lakhimpur Kheeri, Sitapur, Hardoi, Kannauj, Bahraich, Gonda, Shravasti, Balrampur, Basti, Faizabad, Siddharthnagar, Santkabirnagar, Gorakhpur.
		021532 - 022302	Multiple cell system entered in to radar range 250 Km West at 1532. It grew stronger with movement and formed Squall Line at around 1742 UTC ranging from 240 Km SW to 100 Km West. Squall line became more pronounced with ESE'ly movement At around 2032 UTC the squall line converged and transformed to form irregular multiple cell system lying 50Km NE to 220 Km SSE in length The height the system reached 15 Km and maximum reflectivity observed was 58.5 dBZ.	Multiple cell system moved along ESE'ly towards station with average speed 75Km/h while the squall line moved with average speed 86 Km/h also along East w.r.t. the station.	At 2302 UTC SE Direction Multiple cell system persist and dissipated from Lucknow radar range	TS/SQ/HS/RA	Etawah, Auriya, Jalaun, Mainpuri, Firozabad, Agra, Barabanki, Etah, Amethi, Kanpur Nagar, Kanpur Dehat, Kannauj, Unnao, Hamirpur, Lucknow, Banda, Fatehpur, Raebareli

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	03-05-18	020301-021801	i) Multicelled system with maximum reflectivity of 65.5 dBz at 0251 UTC and maximum height of 16.75 Km at 0951 UTC	Coming from NW Moving in ESE –ward then E-ward direction	Multicelled system coming from NW from 0241 UTC matured and crossed Bangladesh border at 1251 in ESE at a distance 101.1 km from radar	Thunderstorm /Rain /Hail	N/A
			ii) Multicelled system with maximum reflectivity of 62.50 dBz at 1241 UTC and maximum height of 17.64 Km at 1231 UTC	Coming from NW Moving in ESE –ward direction	Multicelled system coming from WNW from 1021 UTC matured merged with cell no. iii. At 1251 UTC	Thunderstorm /Rain /Hail	N/A
			iii) Multicelled system with maximum reflectivity of 55.5 dBz at 1231 UTC	Coming from WSW Moving in ESE –ward direction	Multicelled system coming from WSW from 1151 UTC matured merged with cell no. ii. At 1251 UTC	Thunderstorm /Rain /Hail	N/A
			iv) Multicelled system with maximum reflectivity of 61.0 dBz at 1251 UTC and maximum height more than 18 Km at 1421 UTC	Merged in W (197.6) moving in ESE-wards direction	Cell No. ii and iii merged at 1251 UTC in W at a distance of 197.6 Km from radar and dissipated at 1931 UTC in ESE at a distance 195.7 Km from Radar.		
		iv) Multicelled system with maximum reflectivity of 60.0 dBz at 1631 UTC maximum height of 12.54 Km at 1611 UTC	NNW (221.2 km) to Moving in ESE-wards direction	Multicelled formed at 1451 UTC in NNW at a distance of 221.2 Km from Radar and crossed Bangladesh border at 1801 UTC in NNE at a distance 154.0 Km from Radar	Thunderstorm /Rain		
		021811-030301	NIL	NIL	NOSIG 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
Agartala	03/05/18	020300 to 030300 (DWR operation from 0100 to 1400UC)	Multiple cells found over adj Bangladesh & subsequently squall line at 021026Z, 12Kms, 46 dBZ	About 50 to 150 kms west, south west & north west, 30 KMPH , E-LY.	Squall persisted with mod intensity over NE- parts of Tripura at 021340Z, then DWR stopped due to power failure.	Squall/ TSRA occurred over Dholai districts of Tripura.	

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
Visakhapatnam	03-05-18	021800	Multiple cb cells out of which maximum reflectivity of 60 dbz with height of 12 kms	NNW (200 kms) moving S ly	Cb cells started forming from 1631 UTC	NIL	East and west Godavari bay of Bengal
		030000	Multiple cb cells out of which maximum reflectivity of 57 dbz with height of 15 kms	NNW (157 kms) E (51 kms) moving S ly	Since last observation Cb cells are developing and maturing well at 2331 UTC	Gusty winds Thunders torm with rain	Visakhapatnam vizianagarma srikakulam East and west Godavari bay of Bengal rayagada kandhrmal districts of orissa
		030300	Multiple cb cells with maximum reflectivity of 65 dBz and height of 18 kms	CB cells are covered by Radar upto 70 KMS IN N,NE &SW direction, N(90 to 150kms),SW(180 to 250 kms) moving SE ly	Since last observation Cb cells are developing and matured to 65dBz at 0221 UTC and dissipating.	Gusty winds Thunders torm with heavy rain	Visakhapatnam vizianagarma srikakulam East and west Godavari dist. (AP) Rayagada Kalahand, Nabarangapur, koraput dist. (Orissa)

Realised past 24hrs TS/SQ/HS Data:

Realised TS/HS/SQ during past 24hours 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 Comment(I ST)	Time of end (IST)
Dehradun	Northwest India	Uttarakhand	Thunderstorm	02-05-18	1615	1910
Pantnagar	Northwest India	Uttarakhand	Thunderstorm	02-05-18	1805	2015
Tehri	Northwest India	Uttarakhand	Thunderstorm	02-05-18	1610	1950
Sundernagar	Northwest India	Himachal Pradesh	thunderstorm	02-05-18	1357	1540
Gorakhpur	Northwest India	East Uttar Pradesh	Thunderstorm	03-05-18	0110	0315
Varanasi (AP)	Northwest India	East Uttar Pradesh	Thunderstorm	03-05-18	0430	0545
Varanasi (BHU)	Northwest India	East Uttar Pradesh	Thunderstorm	03-05-18	0430	0530
Churk	Northwest India	East Uttar Pradesh	Thunderstorm	03-05-18	0345	0630
Bahraich	Northwest India	East Uttar Pradesh	Thunderstorm	02-05-18	2200	0100
Barabanki	Northwest India	East Uttar Pradesh	Thunderstorm	03-05-18	0200	0215
Allahabad	Northwest India	East Uttar Pradesh	Thunderstorm	03-05-18	0130	0445
Kanpur (IAF)	Northwest India	East Uttar Pradesh	Thunderstorm	02/03-05-18	022340	030300
Kanpur(City)	Northwest India	East Uttar Pradesh	Thunderstorm	02/03-05-18	022330	030100
Banda	Northwest India	East Uttar Pradesh	Thunderstorm	03-05-18	0030	0100
Lucknow(AP)	Northwest India	East Uttar Pradesh	Thunderstorm	03-05-18	0100	0240
Kheri	Northwest India	East Uttar Pradesh	Thunderstorm	02-05-18	2020	2200
Hardoi	Northwest India	East Uttar Pradesh	Thunderstorm	02-05-18	2100	2120
Bareilly	Northwest India	West Uttar Pradesh	Thunderstorm	02-05-18	1830	1945
Najibabad	Northwest India	West Uttar Pradesh	Thunderstorm	02-05-18	1630	1700
Orai	Northwest India	West Uttar Pradesh	Thunderstorm	02-05-18	2230	2300
Agra (IAF)	Northwest India	West Uttar Pradesh	Thunderstorm	02/03-05-18	022120	030200
Agra (TAJ)	Northwest India	West Uttar Pradesh	Thunderstorm	02/03-05-18	022010 030800	022145 030830
Aligarh	Northwest India	West Uttar Pradesh	Thunderstorm	02-05-18	2100	2200
Muzaffarnagar	Northwest India	West Uttar Pradesh	Thunderstorm	02/03-05-18	021645 030800	021745 030830
Meerut	Northwest India	West Uttar Pradesh	Thunderstorm	03-05-18	0745	0830
Pilani	Northwest India	East Rajasthan	Thunderstorm	02-05-18	1700	1830
Bharatpur	Northwest India	East Rajasthan	Thunderstorm	02-05-18	1930	2050
Bikaner	Northwest India	West Rajasthan	Thunderstorm	02-05-18	1850	1855
Churu	Northwest India	West Rajasthan	Thunderstorm	02-05-18	2220	2240

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)

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/

Low Level Winds

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

Past24hourHEMandIMRrainfall(upto03UTCoftoday)

IMR: http://satellite.imd.gov.in/img/3Ddaily_imr.jpg

HEM: http://satellite.imd.gov.in/img/3Ddaily_he.jpg

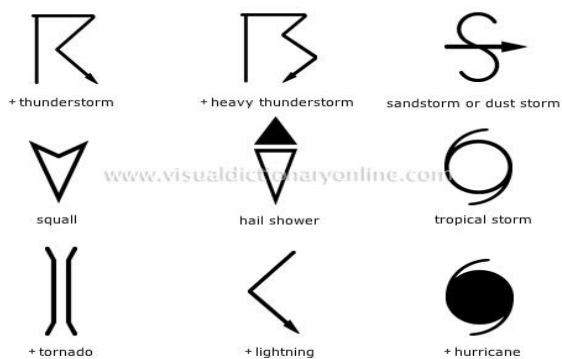
ForRadarimagesofthepast24hoursincludingmosaicofimages:

http://ddgmui.imd.gov.in/dwr_img/

Satellite sounder based T- Phigram

http://satellite.imd.gov.in/mAndhra_Pradesh_skm2.html

WEATHER SYMBOLS:



∞	haze
☼	smoke
☼	dust or sand storm
☼	fog
•	drizzle
•	rain
*	snow
▽	showers
△	hail
☼	thunderstorm
Weather Symbols	