



India Meteorological Department

FDP STORM Bulletin No. 60 (05-05-2018)

1. CURRENT SYNOPTIC SITUATION:

NWFC INFERENCE (0300UTC of the Day):

- ◆ The Western Disturbance as a cyclonic circulation over Jammu & Kashmir and adjoining Himachal Pradesh persists and now seen 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 80° E to the north of Lat 34°N.
- ◆ Another Western Disturbance as an upper air cyclonic circulation between 3.1 km & 5.8 km above mean sea level over Iran & neighbourhood persists.
- ◆ The trough at mean sea level from West Rajasthan to northeast Madhya Pradesh now runs from West Rajasthan to Jharkhand across East Rajasthan and Madhya Pradesh and extends upto 0.9 km above mean sea level with an embedded cyclonic circulation over East Rajasthan and adjoining West Madhya Pradesh at 0.9 km above mean sea level.
- ◆ The cyclonic circulation over Sub-Himalayan West Bengal & Sikkim and neighbourhood persists and now seen upto 1.5 km above mean sea level.
- ◆ A north-south trough runs roughly along Long. 92° E to the north of Lat. 22°E at 3.1 km above mean sea level.
- ◆ Another north-south trough runs from Marathawada to south Interior Karnataka and extends upto 1.5 Km above mean sea level.
- ◆ The cyclonic circulation extending upto 1.5 km above mean sea level over Comorin area & neighbourhood now lies over south Tamilnadu & neighbourhood.

SATELLITE OBSERVATIONS during past 24 hrs and current observation:

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

Western Disturbance (WD):

Scattered multi-layered clouds seen over North Iran, adjoining Afghanistan and neighbourhood in association with Western Disturbance over the area.

Clouds descriptions within India:

Scattered low/medium clouds with embedded moderate to intense convection seen over South Tamilnadu (minimum CTT minus 80deg C), South Manipur and Mizoram. Scattered low/medium clouds with embedded isolated weak to moderate convection seen over Kerala, Lakshadweep, Bay Islands and rest Northeastern States. Scattered low/medium clouds seen over Jammu & Kashmir, Himachal Pradesh, Uttarakhand, North Punjab, extreme southwest Uttar Pradesh, Chhattisgarh, South Odisha, East Bihar, Northeast Jharkhand, Gangetic West Bengal, Sub-Himalayan West Bengal, Sikkim, North Madhya Pradesh, Marathawada, South Konkan & Goa, North Telengana, North coastal Andhra Pradesh, Karnataka and North Tamilnadu.

Arabian Sea:-

Broken low/medium clouds with embedded moderate to intense convection seen over Southeast Arabian Sea off Lat 10.0N, east of long 70.0E, Comorin and Gulf of Mannar.

Bay of Bengal & Andaman Sea:

Scattered low/medium clouds with embedded moderate to intense convective seen over Southeast Bay adjoining East-Central Bay. Weak to moderate convection seen over Andaman Sea.

Past Weather:

Convection (during last 24 hrs):

Moderate to Intense convection was observed over J&K Himachal Pradesh Uttarakhand Punjab South Rajasthan South Gujarat North Madhya Pradesh North Chhattisgarh Jharkhand North Odisha Gangetic West Bengal Sikkim North-East States Goa adjoining Konkan North Interior Karnataka Kerala Tamilnadu Lakshadweep Andaman & Nicobar islands

OLR: - .

Up-to 230 wm^{-2} observed over J&K Himachal Pradesh North Uttarakhand north parts of Sub Himalyan West Bengal Sikkim North-East States Goa adjoining Konkan West parts of North Interior Karnataka Kerala Tamilnadu Andaman & Nicobar islands

Synoptic Features:

Westerly Trough & Jet Stream:

Trough in Westerlies & Jet Stream are not observed over Indian Region.

Dynamic Features:

Up to 30- 80 kts **Wind Shear** is observed over North India, Central India & North-East India and 10-20 kts over south peninsula India.

Negative shear tendency up to -40 kts observed over J&K Himachal Pradesh Punjab and **Positive shear tendency** Up to 40 kts observed over East Uttar Pradesh Bihar adjoining Jharkhand Sikkim West Bengal North-East States.

Positive Vorticity (850 hPa) is observed over North Rajasthan South Uttar Pradesh adjoining North Madhya Pradesh Jharkhand Gangetic West Bengal & Meghalaya.

Negative low level convergence observed over J&K Himachal Pradesh Uttarakhand East Uttar Pradesh south Gujarat and **Positive Low Level Convergence** is observed over rest Indian.

Precipitation:

IMR:-

Rainfall up to 20-30 mm observed over Goa adjoining Maharashtra West parts of North Interior Karnataka South Kerala South Tamilnadu and

Rainfall up to 01-10 mm observed over J&K North Himachal Pradesh North Uttarakhand South-West Gujarat North-East Chhattisgarh South-East Jharkhand North-East Odisha West Bengal North-East States Andaman & Nicobar islands.

HEM:-

Rainfall up to 27.8 -69.5 mm observed over Andhra Pradesh Goa adjoining North Interior Karnataka South Kerala adjoining South Tamilnadu

Rainfall up-to 07-20.8 mm observed over North Himachal Pradesh Meghalaya Manipur Mizoram Andaman & Nicobar islands.

Rainfall up-to 0.1-14 mm observed over South-West Jammu and Kashmir North Uttarakhand North-East Chhattisgarh South-East Jharkhand North-East Odisha Gangetic West Bengal Rest North-East States North Tamilnadu.

RADAR and RAPID RGB Observation:

Strong convection (max. dBZ >55 and height >15) is seen on DWR Kolkata domain at around 1545 IST. DWR Agartala and Patiala domains at around 1545 also indicate multiple echoes with max dBZ around 50 and height 13-14km.

RAPID RGB Satellite imagery at 1430IST indicates convective clouds over Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Arunachal Pradesh, South Assam, Nagaland, Manipur, Mizoram, Tripura, North Chhattisgarh, East Rajasthan, North Madhya Pradesh, extreme west Gangetic West Bengal adjoining East Jharkhand, Lakshadweep and 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 increase 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	05.05.2018	06.05.2018
PM10 (micro-g/m ³)	155	171
PM2.5 (micro-g/m ³)	71	78

2. NWP MODEL GUIDANCE:

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

1. Weather Systems:

Low level Cycirs, Troughs:

12UTC of Day 1-4: CYCIR over Lakshadweep and Maldeevs and moving westward in Day-4

00UTC of Day 1-3: 850 hPa weak CYCIR over NW India.

00UTC of Day 1-4: 925 hPa Trough over Madhya Pradesh and moving to Peninsular India in Day-4.

12 UTC of Day 0-4: Trough in MSLP from Rajasthan to Odisha and Chhattisgarh

Confluence & Wind Discontinuity Regions:

12 UTC of Day 0-2: 925 hPa N-S discontinuity over Southern Peninsular India and SW-NE discontinuity over Maharashtra-Chhattisgarh region

Synoptic Systems:

00 UTC of Day 1: WD as a weak trough over J &K. Fresh WD approaching J&K on Day-2 and become strong on Day-3-Day-4.

2. Location of jet and jet core (>60kt) at 500hPa: Nil. Strong westerly along the foothills of Himalayas in Day 0-1 following the WD.

3. Convergence at 850 hPa:

Day/Index: Subdivisions with Lower Level Convergence > 15 x 10⁻⁵ /s

Day0: West_UP, Jammu_Kashmir, Odisha, West_MP, Madhya_Maharashtra, Coastal_AP, NI_Karnataka, SI_Karnataka,

Day1: NE_NMMT, West_UP, Hry_Chnd_Delhi, Madhya_Maharashtra, SI_Karnataka,

Day2: Assam_Meghalaya, NE_NMMT, West_UP, Uttarakhand, Hry_Chnd_Delhi, Jammu_Kashmir, Madhya_Maharashtra, TN_Puducherry, SI_Karnataka,

Day3: Assam_Meghalaya, Gangetic_WB, Jharkhand, East_UP, West_UP, Hry_Chnd_Delhi, Punjab, Odisha, Madhya_Maharashtra,

Day4: Arunachal_Pradesh, Assam_Meghalaya, Gangetic_WB, Jharkhand, Bihar, East_RJ, Odisha, Madhya_Maharashtra, NI_Karnataka

4. Low level Vorticity:-Positive Vorticity:

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

Day0: Assam_Meghalaya, NE_NMMT, Gangetic_WB, Jharkhand, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir, Odisha, Saurashtra_Kutch,

Day1: Assam_Meghalaya, Gangetic_WB, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab, Himachal_Pradesh,

Day2: Assam_Meghalaya, NE_NMMT, Gangetic_WB, Bihar, Uttarakhand, Punjab, Jammu_Kashmir, TN_Puducherry,

Day3: Arunachal_Pradesh, Assam_Meghalaya, Jharkhand, East_UP, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab, West_RJ, Odisha, TN_Puducherry,

Day4: Arunachal_Pradesh, Assam_Meghalaya, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, East_UP, West_UP, Uttarakhand, TN_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, Bihar, East_UP, West_UP, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir, Odisha, Konkan_Goa, Madhya_Maharashtra, Chhattisgarh, Coastal_AP, Telangana, TN_Puducherry, Coastal_Karnataka, SI_Karnataka, Kerala,

Day1: Arunachal_Pradesh, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir, Odisha, Konkan_Goa, Madhya_Maharashtra, Coastal_AP, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka,

Day2: Arunachal_Pradesh, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, East_UP, Uttarakhand, Punjab, Himachal_Pradesh, Jammu_Kashmir, Odisha, Konkan_Goa, Madhya_Maharashtra, 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, West_UP, Uttarakhand, Punjab, Himachal_Pradesh, Jammu_Kashmir, Odisha, Saurashtra_Kutch, Coastal_AP, TN_Puducherry, NI_Karnataka, SI_Karnataka, Kerala,

Day4: 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

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, East_UP, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, East_RJ, West_MP,

Day1: Arunachal_Pradesh, Sub_Himalayan_WB, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, Odisha,
Day2: Arunachal_Pradesh, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, East_UP, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab,
Himachal_Pradesh, Jammu_Kashmir, West_RJ, Odisha,
Day3: 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, Coastal_AP,
Day4: Arunachal_Pradesh, Assam_Meghalaya, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, East_UP, West_UP, Uttarakhand,
Hry_Chhd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, Odisha, Coastal_AP, TN_Puducherry,

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

Day/Index: Subdivisions with K Index > 40

Day0: Arunachal_Pradesh, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, East_UP, West_UP, Uttarakhand, Hry_Chhd_Delhi, Punjab,
Jammu_Kashmir, East_RJ, Odisha, West_MP, Guj_Reg, Saurashtra_Kutch, Madhya_Maharashtra, Marathwada, Vidarbha, Coastal_AP,
Telangana, TN_Puducherry, NI_Karnataka, SI_Karnataka, Kerala,
Day1: Arunachal_Pradesh, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir, Odisha,
Madhya_Maharashtra, Marathwada, Chhattisgarh, Coastal_AP, Telangana, NI_Karnataka, SI_Karnataka,
Day2: Arunachal_Pradesh, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir, West_RJ, Odisha,
Chhattisgarh, Coastal_AP, Telangana, Rayalseema, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka,
Day3: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, East_UP, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir,
Odisha, Chhattisgarh, Coastal_AP, Telangana, Rayalseema, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka,
Day4: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Jharkhand, Bihar, Odisha, Coastal_AP, Telangana, Rayalseema,
TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka, Kerala

8. Rainfall and thunder storm activity:

Day/Index: Subdivisions with Precipitation > 2 cm

Day1: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Kerala,
Day2: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Himachal_Pradesh, Jammu_Kashmir,
Day3: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir,
Day4: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir, Andaman_Nicobar,
Day5: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, Jammu_Kashmir,
Andaman_Nicobar,

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

1. Synoptic Systems:

The analysis based on 00 UTC indicates a cyclonic circulation over Delhi, Haryana and adjoining areas in lower troposphere at 925 hPa level. The forecast shows this circulation will move eastward across west and east Uttar Pradesh up to Bihar in day 1, day 2 and day 3 respectively. An east-west trough in the same level is seen from this cyclonic circulation up to Gangetic West Bengal and Adjoining areas across northern parts of Madhya Pradesh and southern parts of Uttar Pradesh which moves northward along foothills in next 2 days. At 850 hPa level, a cyclonic circulation is seen in the analysis over Bihar and adjoining areas. The forecasts show that the cyclonic circulation will persist till day 3 with slight eastward movement. The analysis also indicates another cyclonic circulation over northwest Rajasthan and adjoining areas in lower troposphere up to 850 hPa and in the forecasts the circulation feature persists till day 3. The north-south wind discontinuity from north Madhya Maharashtra to south Konkan is seen at 850 hPa which persists for next 2 days. Another cyclonic circulation is seen in the analysis over Comorin area in lower troposphere (925 hPa). The analysis indicates a Trough extends from this cyclonic circulation to South Interior Karnataka across Interior Tamil Nadu. The forecast shows it will become less marked in 24 hours.

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, around the cyclonic circulations, along the Foothills of Himalaya and NE states during next 3 days; Low level Positive Vorticity is also seen over parts of Punjab, adjoining North West Rajasthan, Haryana and adjoining northern parts of Madhya Pradesh on day 1 and 2; over parts of Vidarbha, Himachal Pradesh, Uttarakhand, northern parts of Uttar Pradesh and Haryana and adjoining areas up to north Bihar have Positive Vorticity during all 3 days.

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): In day 1, is seen over Gangetic Plains covering the areas from Rajasthan, Punjab, Haryana, Uttarakhand, Uttar Pradesh, extending up to Bihar, Gangetic West Bengal, SHWB, Orissa, Jharkhand; coastal areas of Gujarat, Maharashtra, Konkan & Goa, coastal and Interior Karnataka, Telangana and coastal Andhra Pradesh. In day 2, confines over areas along east and west coast of India over coastal Maharashtra, Konkan & Goa, coastal Maharashtra, coastal and interior Karnataka, Andhra Pradesh, Orissa, GWB extends over Bihar and adjoining Jharkhand. In day 3, It remains over the same region along east and west coast but disappears over northern part of west coast. It again appears over Punjab and west Rajasthan and adjoining areas. During all three days, significant zone lies over north-eastern states.

Lifted Index (< -2): Similar to T-storm Index in day 1 it lies over northwest India and Gangetic plains and along east and west coast of India with an extension over Interior Karnataka and Telangana but in day 2 it disappears over northwest India and coverage over coastal belts also decreases. Significant zone with maximum negative value is found over GWB, Bihar, SHWB and North-eastern states.

Total Total Index (> 50): is seen over parts of J&K, Himachal Pradesh, Uttarakhand, Rajasthan, Punjab, Haryana, Delhi, Uttar Pradesh and Bihar along foothills. It is also seen over some parts of Jharkhand, Orissa, Chhattisgarh and adjoining Telangana in day 2 which moves over coastal Andhra Pradesh, Rayalaseema, and adjoining interior Karnataka in day 3. All three days over GWB, SHWB and NE states.

Sweat Index (> 300): is seen over the sub-divisions along east and west coast and some areas along foothills of Himalayas and NE states. The maximum value of the index is seen over parts of SHWB, GWB, Jharkhand and adjoining Bihar.

CAPE (> 1000): Mostly seen over southern peninsular India, along west coast and east coast, GWB, Orissa, Andhra Pradesh, Rayalaseema, Tamil Nadu, Kerala, Karnataka, Konkan and Goa, coastal Maharashtra and Gujarat; NE states over Sikkim, Assam, Meghalaya, Tripura and adjoining areas during next 3 days; over some parts of Punjab and adjoining Rajasthan in day 1.

CIN (50-150): Over sub-divisions along east and west coast of India except extreme south over Kerala and south Tamilnadu. The zone of significance extends over Bihar and Jharkhand along foothills of Himalayas in the north. The two zones along both the coastal belts merges over interior Karnataka and adjoining Rayalaseema.

5. Rainfall Activity:

40-70 mm Rainfall: In day 1, over parts of Tripura and south Assam. In day 2, over south Assam, Mizoram and adjoining areas; over parts of Himachal Pradesh. In day 3, over parts of south Assam.

10-40 mm Rainfall: In day 1, over parts of J&K, Himachal Pradesh, Uttarakhand, Sikkim, NE states and Kerala. In day 2, over parts of J&K, Himachal Pradesh, Uttarakhand, SHWB and Sikkim, NE states, South Interior Tamil Nadu and Kerala. In day 3, over parts of J&K, Himachal Pradesh, Uttarakhand, NE states and south Interior Karnataka and South Tamil Nadu and Kerala.

Up to 10 mm rainfall: Over rest parts of J&K, Himachal Pradesh, Uttarakhand, Punjab, north Haryana, SHWB & Sikkim and NE states, parts of Kerala, Interior Karnataka, south Tamil Nadu, Telangana, Rayalaseema, and coastal Andhra Pradesh during next 3 days.

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

1. Model Reflectivity (Max. dBZ):

> 25 dBZ Model Reflectivity: On day 1, over parts of J&K, Himachal Pradesh and adjoining Punjab; over parts of south Assam, Meghalaya, Tripura, Mizoram and adjoining areas; over parts of Interior and coastal Karnataka; parts of coastal Andhra Pradesh and adjoining Orissa. On day 2, over parts of J&K, Punjab, Himachal Pradesh, Uttarakhand, Haryana and adjoining areas, NE states over parts of south Assam. Tripura. Mizoram and adjoining areas; over parts of Kerala; parts of South-East Madhya Pradesh and adjoining areas. On day 3, over parts of J&K, Himachal Pradesh, Uttarakhand and Haryana; over NE states south Assam and adjoining areas; parts of coastal Andhra Pradesh.

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, Madhya Maharashtra, Marathawada, Konkan and Goa, Kerala, Andhra Pradesh, Tamil Nadu, Bihar, Jharkhand, Orissa, GWB, SHWB, NE states, parts of East Uttar Pradesh and Gujarat during next 3 days;

K-Index (> 35): Less than threshold value is observed over most of the part of the country during the next 3 days. Prominent values are found over parts of NE states and Interior Karnataka and adjoining Rayalaseema, Telangana and Kerala.

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, SHWB, GWB, Orissa, Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Konkan & Goa, coastal Maharashtra extending over Bihar, Jharkhand, Telangana, Rayalaseema and Interior Karnataka during next 3 days; Some parts of Punjab and adjoining areas on day 1. Maximum value of the index is seen over the parts of Orissa, of GWB adjoining Jharkhand, Orissa and Bihar.

CIN (50-150): It covers nearly areas over the sub-divisions along east and west coasts similar to CAPE. Inland extension is also nearly similar to CAPE. Only, it has significant larger values over parts of Northwest India including west Rajasthan, Punjab and adjoining areas, Gujarat; some parts along foothills of Himalayas over Uttarakhand, Haryana and Uttar Pradesh.

3. Rainfall and Thunderstorm Activity:

Above 70-130 mm Rainfall: On day 1 and 2, over parts of Tripura and adjoining areas; some pockets of J &K and Himachal Pradesh.

40- 70 mm Rainfall: over parts of south Assam, Meghalaya, Tripura, Mizoram and adjoining areas during next 3 days. On day 2 and 3, over parts of J & K, Himachal Pradesh and on day 3 over Uttarakhand.

10- 40 mm Rainfall: over parts of J&K, Himachal Pradesh, Sikkim, SHWB, Kerala, Tamil Nadu, Interior Karnataka and NE states during next 3 days; over parts of Uttarakhand on day 3; over parts of Kerala on day 1 and 2. Over parts of costal Orissa, Andhra Pradesh and GWB on day 1.

Up to 10 mm Rainfall: Over parts of J&K, Himachal Pradesh, Uttarakhand, Kerala, over parts of Punjab and North Haryana and NE states during next 3 days; over parts of Tamil Nadu, Karnataka, Orissa, Andhra Pradesh, GWB, SHWB, Sikkim, Telangana and Rayalaseema on day 1.

3. IOP ADVISORY FOR 24 and 48Hrs:

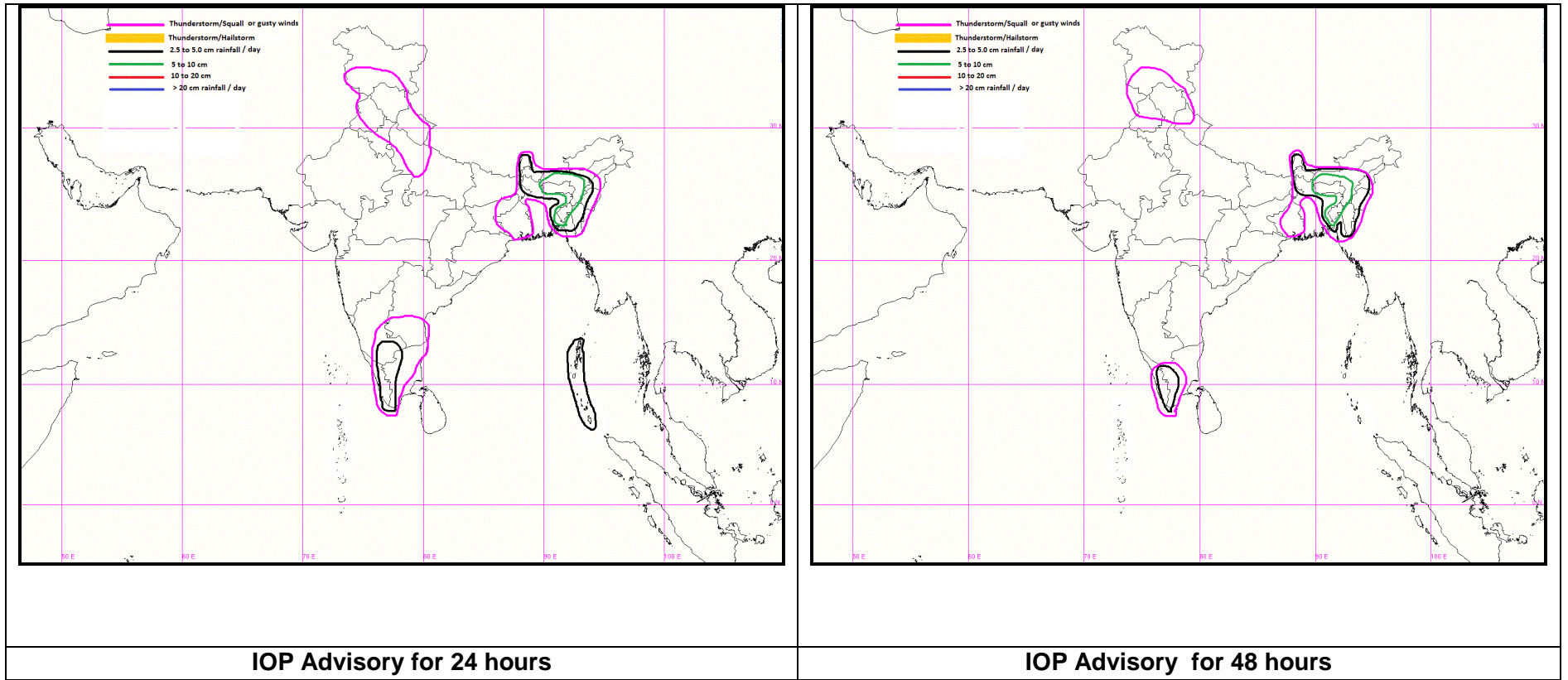
Summary and Conclusions:

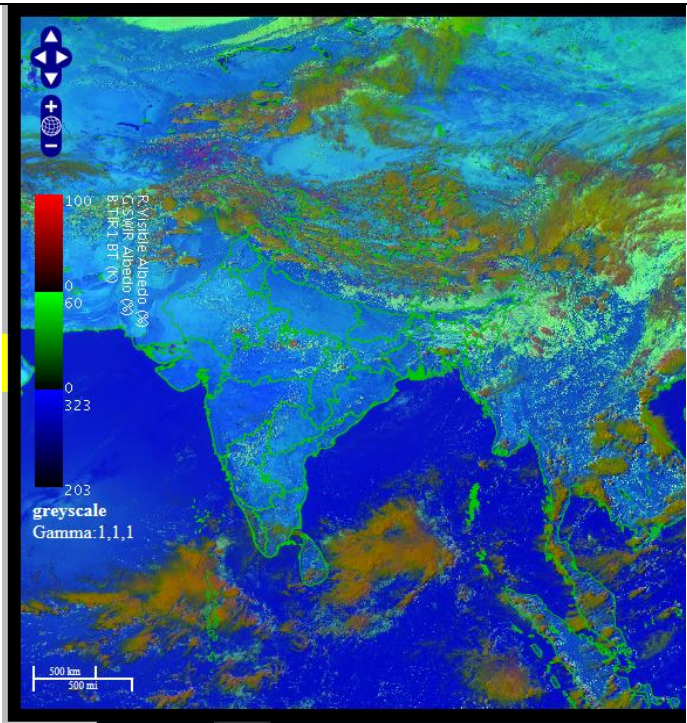
- o Most thermodynamic indices (T-STORM Initiation Index, K-Index, Lifted Index, CAPE, CINE) from IMD GFS deterministic model indicate high probability of thunderstorm occurrence over the entire Indian region excluding Rajasthan, Madhya Pradesh and Maharashtra on day 1, with the probability decreasing over North and West India but increasing over East India on day 2. SWEAT index, which also accounts for the wind shear between 850 and 500 hPa levels, also indicates a similar pattern. The 850-200 hPa wind shear is uniformly high over North India, north of 25 deg. N and does not change much on day 2, which may account for SWEAT index showing similar pattern to thermodynamic based indices.
- o Synoptic analysis indicates that an eastwest trough extending upto 0.9 km above mean sea level, runs from West Rajasthan to Jharkhand with an embedded cyclonic circulation over East Rajasthan and adjoining West Madhya Pradesh. The cyclonic circulation over SubHimalayan West Bengal & Sikkim and neighbourhood in the lower levels also persists. IMD GFS deterministic model additionally indicates that the Bay anticyclone is to the south and is over the Andaman Sea. As a result of these features, isolated thunderstorms accompanied by light rainfall, is expected over the Northwest Indian plains, and dust storms are expected over Rajasthan on day 1 and 2. On the other hand, in association with the cyclonic circulation over SubHimalayan West Bengal & Sikkim, maximum weather is expected over East and Northeast India on day 1. On day 2, this cyclonic circulation is likely to persist and weather will continue over the same region.
- o There is also a north-south trough over the Indian mainland, from Marathawada to south Interior Karnataka in the lower levels, as well as a cyclonic circulation over south Tamilnadu & neighbourhood. Hence south interior peninsula is likely to get a lot of convective weather on day 1 as well as day 2.

Day-1 & Day-2:

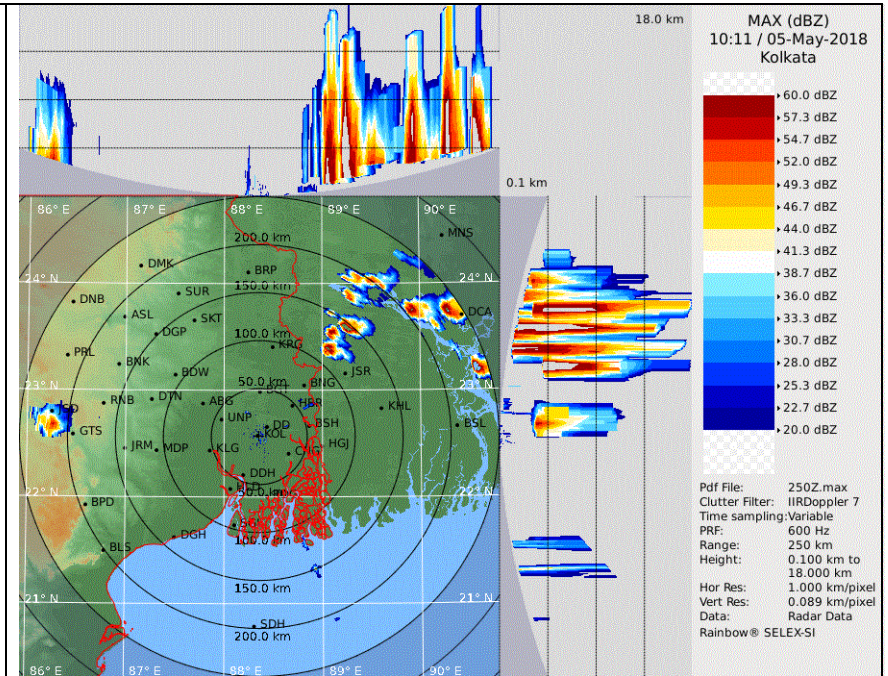
24hour Advisory for IOP:	48hour Advisory for IOP:
<p>Significant Rainfall: Assam and Meghalaya, Nagaland, Manipur, Mizoram, Tripura, Sub Himalayan West Bengal and Sikkim, Andaman and Nicobar Islands, Interior Tamil Nadu, South Interior Karnataka, Kerala</p> <p>Thunderstorm with squall or gusty winds: Interior Tamil Nadu, Kerala, South Interior Karnataka, Rayalaseema, Jammu and Kashmir, Himachal Pradesh, Uttarakhand Punjab, Haryana, West Uttar Pradesh West Bengal & Sikkim, Jharkhand, Nagaland, Manipur, Mizoram, Tripura, Assam and Meghalaya</p> <p>Thunderstorm with squall and hail Nil</p> <p>Duststorm: Rajasthan</p>	<p>Significant Rainfall: Assam and Meghalaya, Nagaland, Manipur, Mizoram, Tripura, Interior Tamil Nadu, Kerala</p> <p>Thunderstorm with squall or gusty winds: Interior Tamil Nadu, Kerala, Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Punjab, West Bengal & Sikkim, Nagaland, Manipur, Mizoram, Tripura, Assam and Meghalaya</p> <p>Thunderstorm with squall and hail Nil</p> <p>Thunderstorm and/or Duststorm: Nil</p>

Graphical Presentation of Potential Areas for Severe Weather:

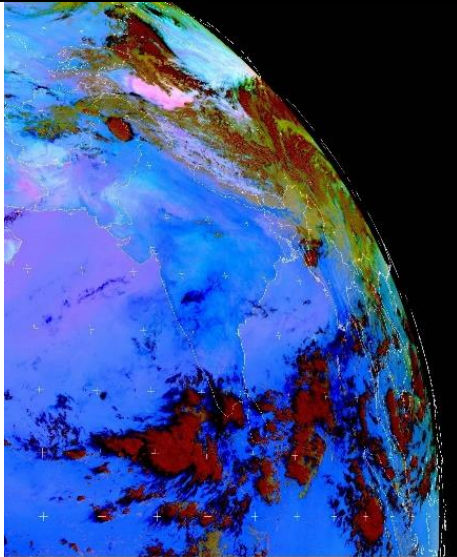




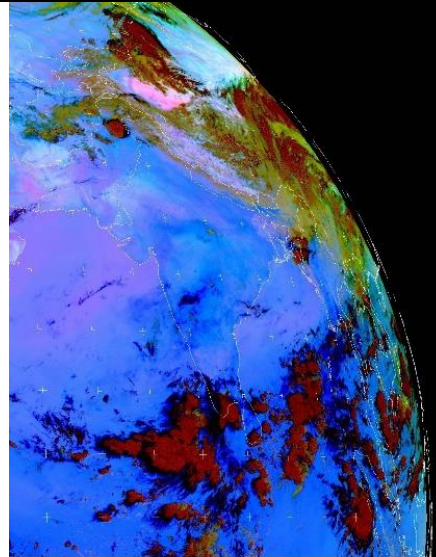
RAPID RGB Imagery at 1430 IST of the Day



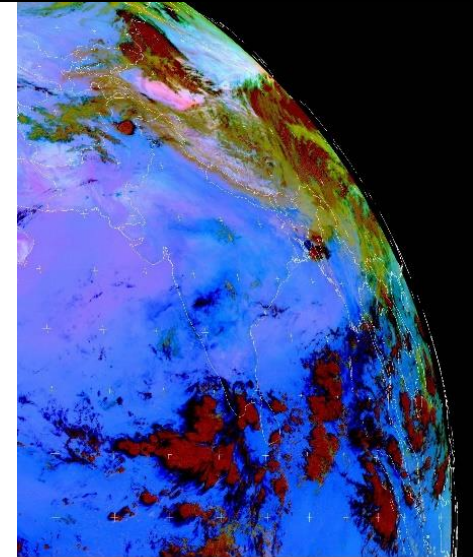
DWR Kolkata at 1541 IST of the Day



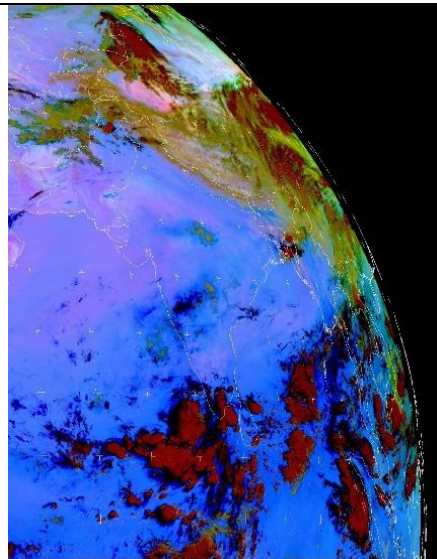
Meteosat IODC Dust, 2018-05-05 05:00:00



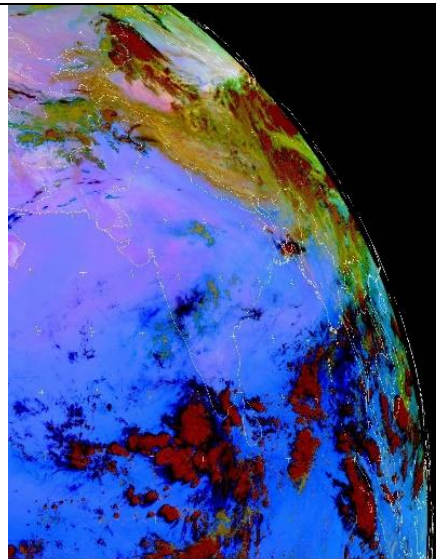
Meteosat IODC Dust, 2018-05-05 04:00:00



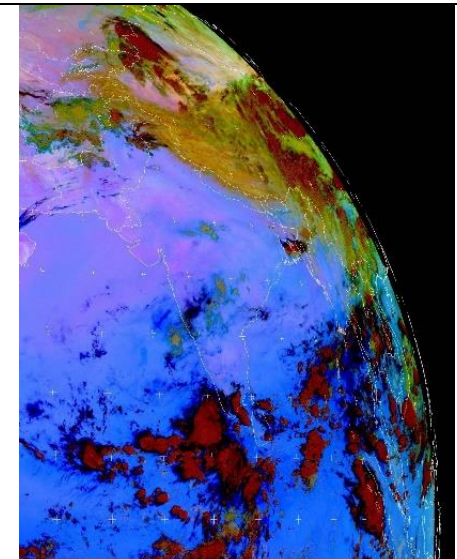
Meteosat IODC Dust, 2018-05-05 03:00:00



Meteosat IODC Dust, 2018-05-05 02:00:00



Meteosat IODC Dust, 2018-05-05 01:00:00

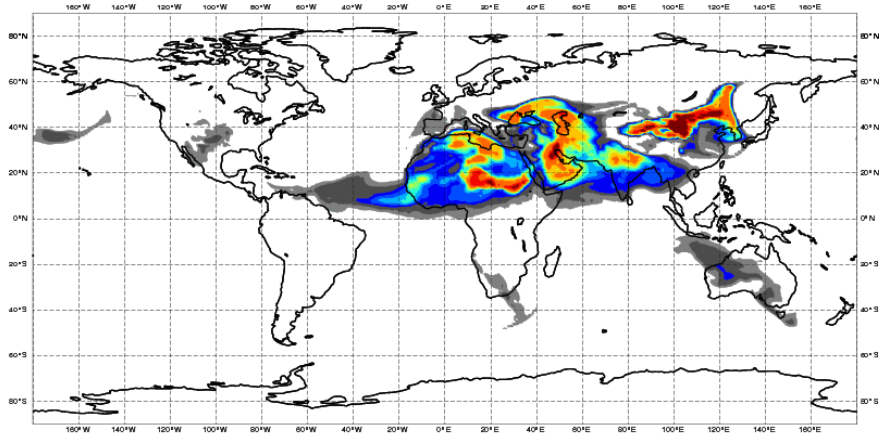


Meteosat IODC Dust, 2018-05-05 00:00:00

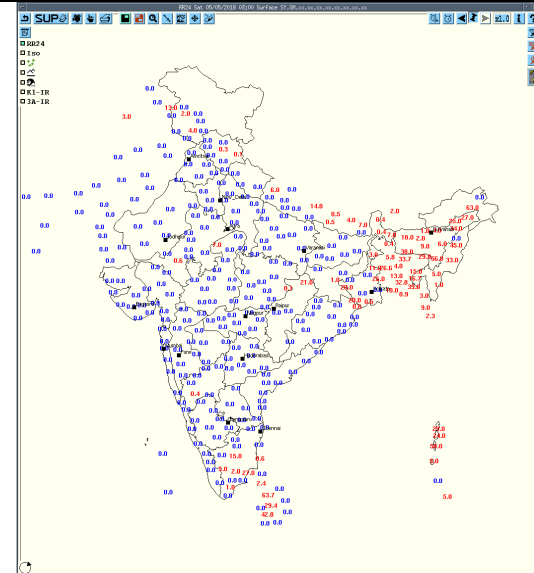
Observed Satellite Dust Images of today

Friday 04 May 2018 00UTC CAMS Forecast t+120 VT: Wednesday 09 May 2018 00UTC

Dust Aerosols Optical Depth at 550 nm

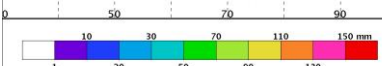
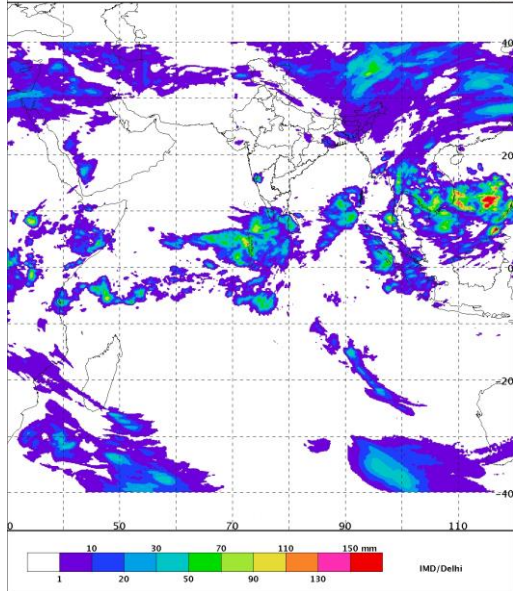


Dust Forecast



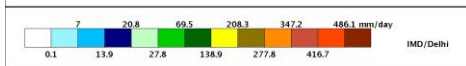
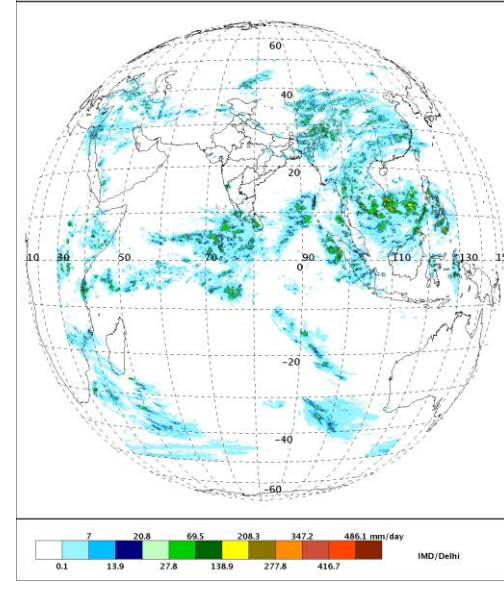
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today

SAT INSAT-3D IMG 04-05-2018 (03:30 GMT) to 05-05-2018 (03:00 GMT)
INSAT Multispectral Rainfall(Daily)
L3G BINNED GEOPHYSICAL PARAMETER GRIDDED

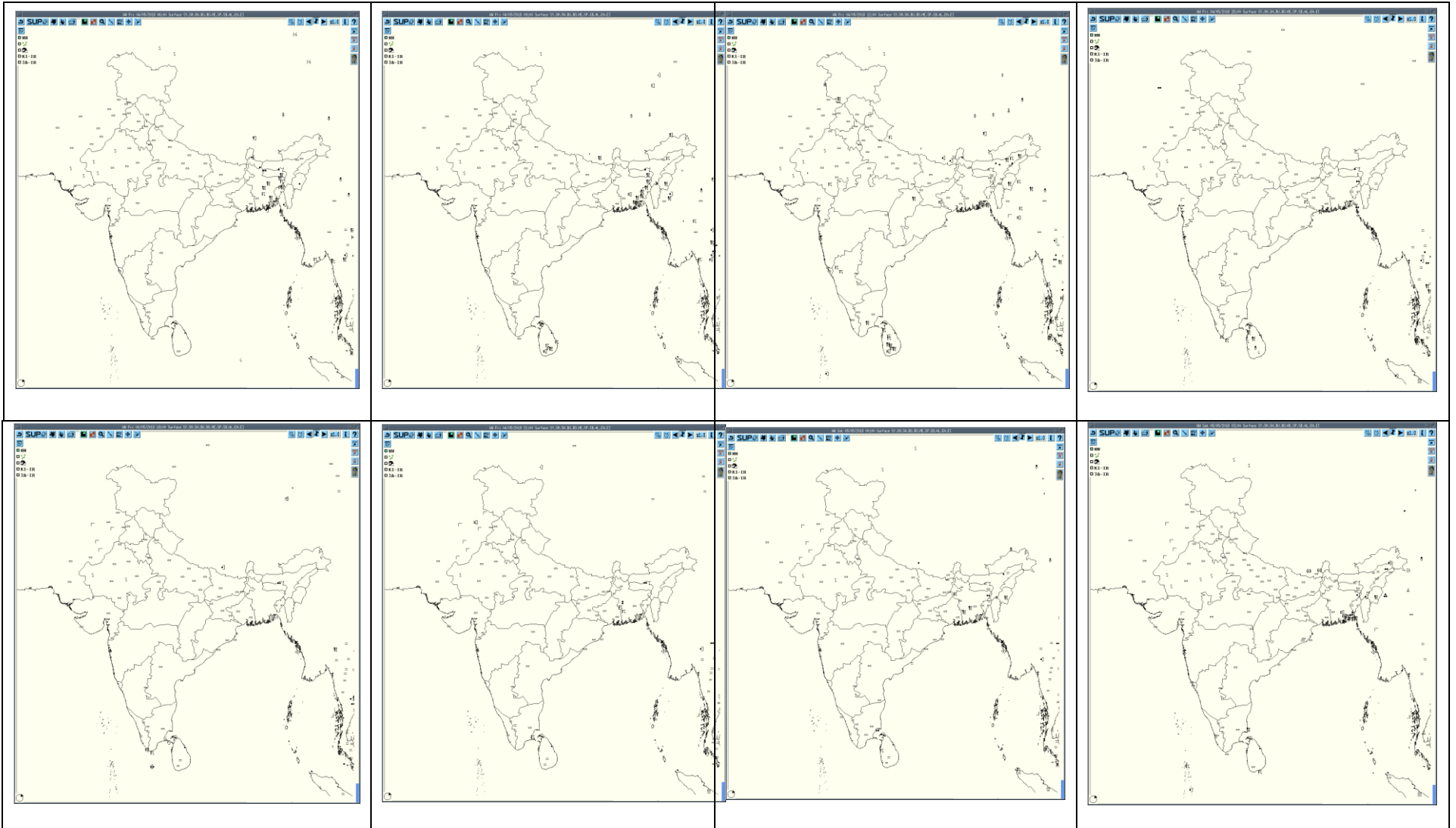


IMR

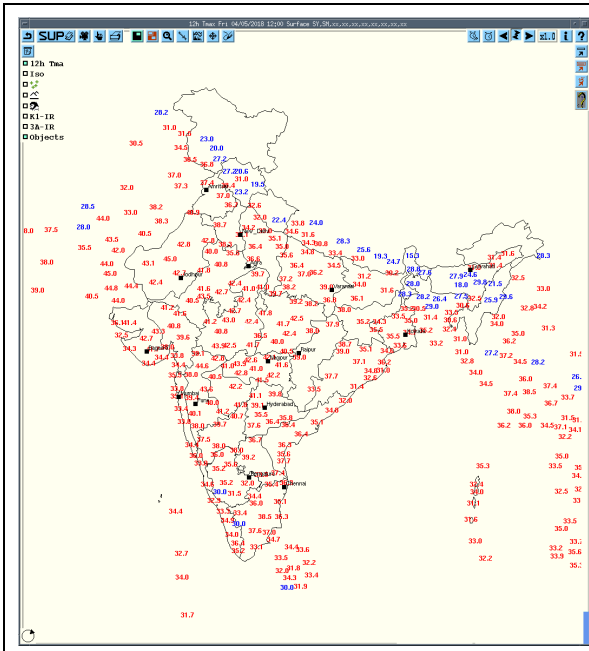
SAT INSAT-3D IMG 04-05-2018 (03:30 GMT) to 05-05-2018 (03:00 GMT)
Precipitation(HE) Daily
L3B BINNED GEOPHYSICAL PARAMETER FULL DISK



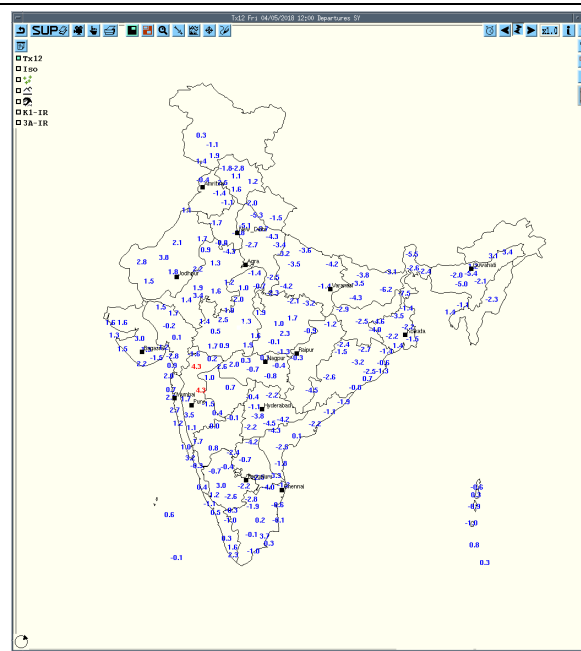
HEM



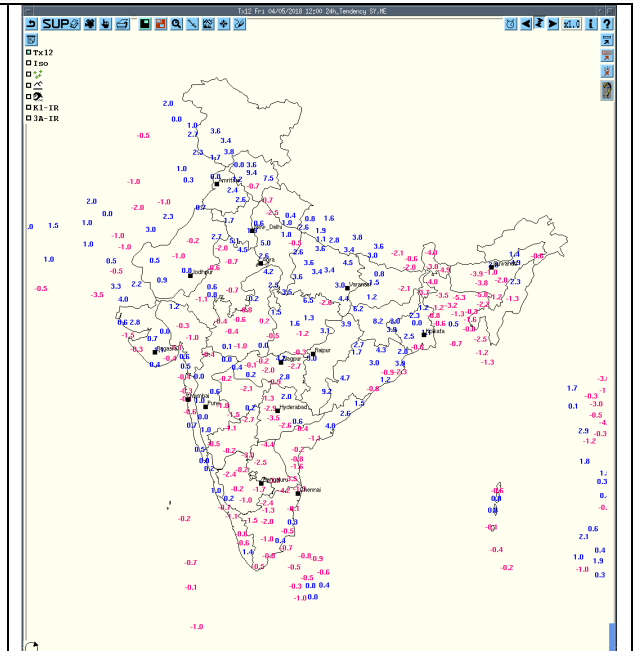
3hourly Past weather at 06, 09, 12, 15, 18, 21 UTC of yesterday and 00 & 03 hrs UTC of today



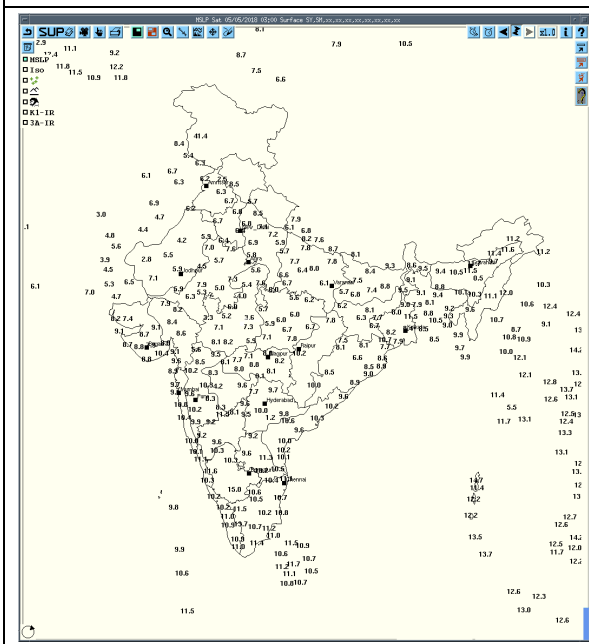
Tmax



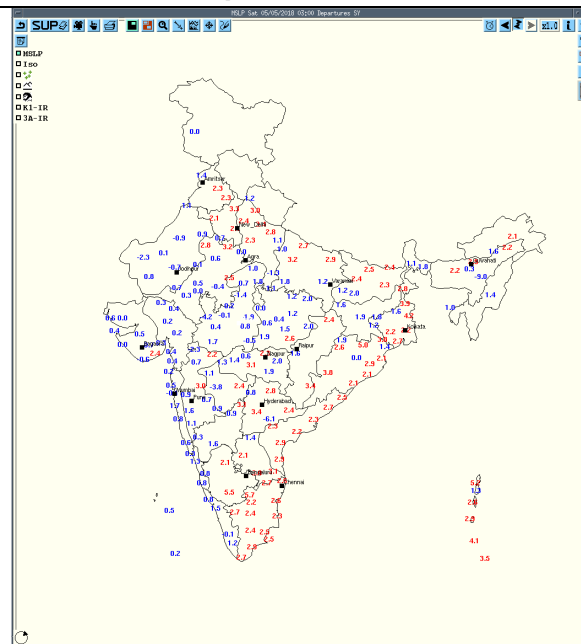
Departure Tmax



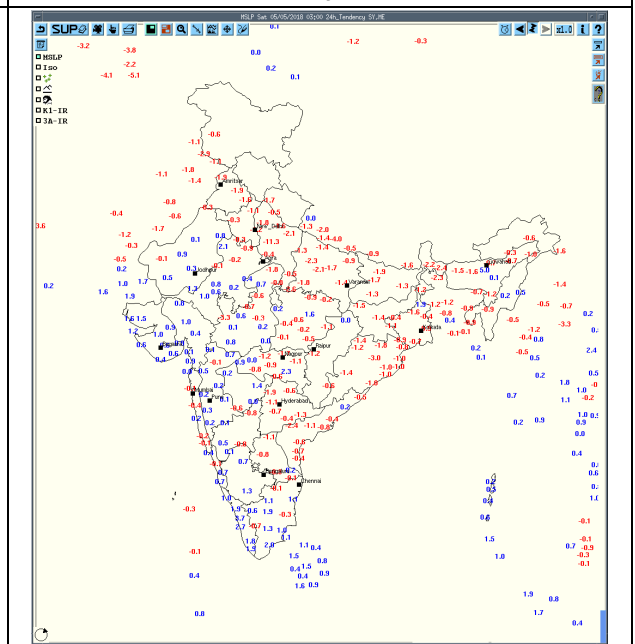
Tendency Tmax



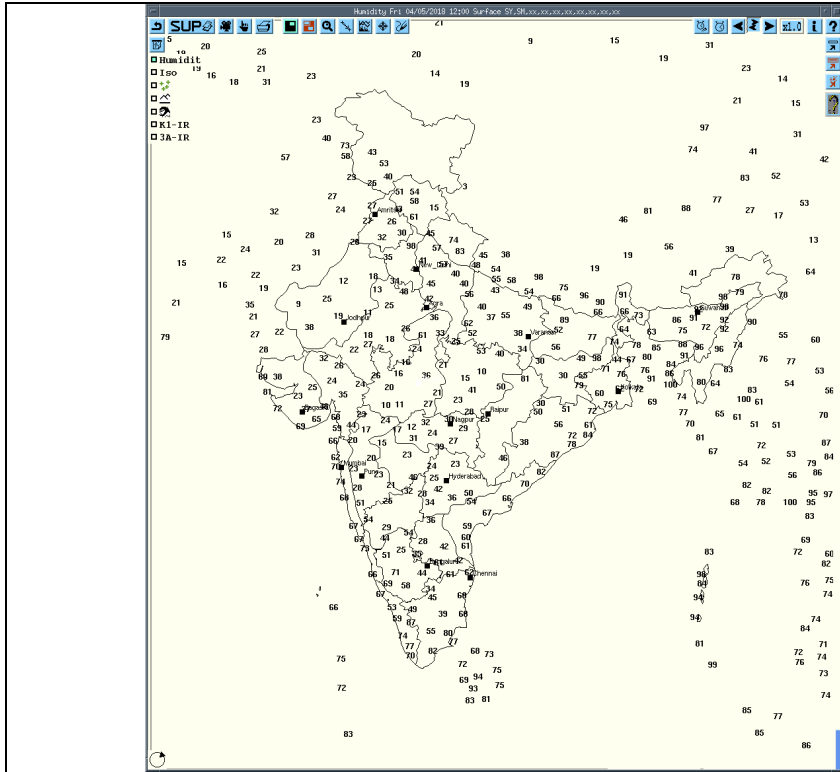
MSLP



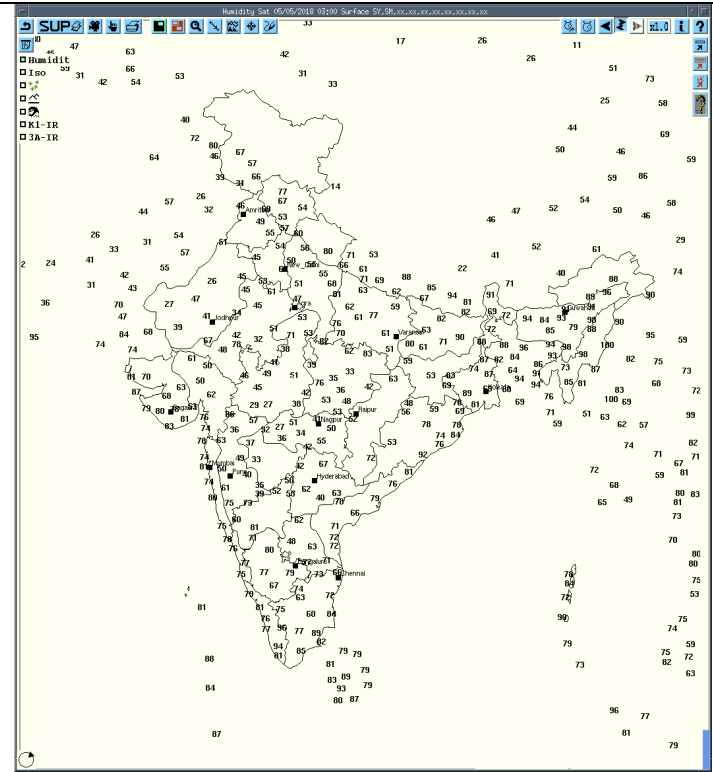
Departure MSLP



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	05-05-18	040300 - 040600	NO ECHO	-----			-----
		040600 - 040900	MULTIPLE CELLS DBZ 41.0 HT. 07-08 KM	NE SECTORS. .MOVMENT TOWARDS SE- WARDS.		RA/TS	PALAMPUR, CHAMBA AND ADJ. AREAS.
		040900- 041200	MULTIPLE CELLS DBZ 50.5 HT. 9 TO 11 KM	NE SECTORS. .MOVMENT TOWARDS SE- WARDS.		RA/TS	NADAUN, UNA, HOISHPUR, NANITAL. MUSSORIE AND ADJ. AREAS.
		041200 - 041500	MULTIPLE CELLS DBZ 45.0 HT. 09-10 KM	N SECTORS. .MOVMENT TOWARDS SE- WARDS.		RA/TS	RS DAM, DALHOUSIE, CHAMBA AND ADJ. AREAS.
		041500 - 041800	NO ECHO	-----			-----
		041800 - 042100	NO ECHO	-----			-----
		042100- 050000	NO ECHO	-----			-----
		050000 - 050252	NO ECHO	-----			-----

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	05-05-18	040301-040541	Isolated small multi cell with maximum reflectivity of 53.0 dBz at 0451 UTC and maximum height of 6.99 Km at 0451 UTC	Coming from NNW (245.4 km) Moving in ESE-ward direction	Isolated small multicells coming from NNW from 0221 UTC, not matured, moving into Bangladesh completely at 0541 UTC, in NNE at a distance of 155.2 km from radar.	Thunderstorm /Rain	N/A
		040941 – 041751	i) Isolated small multi cell with maximum reflectivity of 60.50 dBz at 1011 UTC and maximum height of 10.30 Km at 1011 UTC ii)) Isolated small multi cell with maximum reflectivity of 63.50 dBz at 1041 UTC and maximum height of 13.35 Km at 1041 UTC iii) Isolated multi cell with maximum reflectivity of 57.0 dBz at 17.01 UTC and maximum height of 9.86 Km at 17.01 UTC	NNW (89.1km) to Moving in ESE-wards Direction Coming from NNW (249.2 Km) Moving in SE –ward direction Coming from SSW (245.5 km) Moving in SE-ward direction	Small Multicelled formed at 0941 UTC in NNW at a distance of 89.1 Km from Radar, not matured, moving into Bangladesh Border completely at 1211 UTC, in NEE at a distance of 67.0 km from radar. Isolated small multicells coming from WNW from 0951 UTC, matured, and dissipated at 1601 UTC in South at a distance 126.0 Km from Rader Isolated small multicells coming from WNW from 1451 UTC, Not matured, and dissipated at 1751 UTC in SW at a distance 163.8 Km from Rader	Thunderstorm /Rain /Hail	
		041811 – 042351	iv) Isolated multi cell with maximum reflectivity of 64.0 dBz at 1951 UTC and maximum height of 14.78 Km at 1951 UTC	NNW (200.6 km to 242.0Km) to Moving in ESE-wards Direction	Multicelled formed at 1811 UTC in NNW at a distance of 200.6 to 242.0 Km from Radar, matured, moving into Bangladesh Border completely at 2351 UTC, in NE at a distance of 90.3 km from radar.	Thunderstorm /Rain /Hail	
		050001 – 050301	NIL	NIL	NOSIG ECHO	NIL	NIL

Radar Station Name	Date	Time Interval Of Observation (UTC)	Organisation 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
Patna	05-05-18	040300 - 041250	NIL.	N/A	NIL.	NIL.	N/A
		041252 - 041322	Single Cell Maximum Reflectivity: 53 dBZ Echo Top: 12.1 KM	Range: 211 KM from DWR Patna in NNW direction Movement: towards South-East	Warning issued	N/A	WEST CHAMPARAN, EAST CHAMPARAN
		041322 - 050300	NIL.	N/A	NIL.	NIL.	N/A
Jaipur	05-05-18	040300-050300	* Radar Shutdown due to Radar Antenna & Radar Computer Technical Problem. (Hang Problem)				

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 (IST)	Time of end (IST)
Katra	Northwest India	Jammu & Kashmir	Thunderstorm	04-05-18	1620	1735
Jammu	Northwest India	Jammu & Kashmir	Thunderstorm	04-05-18	1700	1830
Kota	Northwest India	East Rajasthan	Thunderstorm	04-05-18	2050	2100
Sawaimadhopur	Northwest India	East Rajasthan	Thunderstorm	04-05-18	1630	1730
Bundi	Northwest India	East Rajasthan	Thunderstorm	04-05-18	1515	1530
Chittorgarh	Northwest India	East Rajasthan	Thunderstorm	04-05-18	1930	2015
Dabok	Northwest India	East Rajasthan	Thunderstorm	04-05-18	1702	2015
Barmer	Northwest India	West Rajasthan	Thunderstorm	04-05-18	1447	1805
Ambikapur	Central India	Chhattisgarh	Thunderstorm	04-05-18	1450	1810
			Hailstorm (Hail diameter: na)	04-05-18	1540	1542
			Squall from NW, max speed: na	04-05-18	1525	1540
Agartala	Northeast India	Tripura	Thunderstorm	04-05-18	1220	1440
			Squall from South (190°), max speed: 45Kt	04-05-18	1218	1218
Kailasahar	Northeast India	Tripura	Thunderstorm	04/05-05-18	041000 050630	041440 050730
Tirupati		Rayalaseema	Thunderstorm	05-05-18	0000	0015
Passighat	Northeast India	Arunachal Pradesh	Thunderstorm	04-05-18	2130	2300
Itanagar	Northeast India	Arunachal Pradesh	Thunderstorm	04-05-18	1635	1810
Jorhat	Northeast India	Assam	Thunderstorm	04-05-18	1435 1830	1625, 1200
Silchar	Northeast India	Assam	Thunderstorm	04-05-18	1200	1620
Dibrugarh	Northeast India	Assam	Thunderstorm	04/05-05-18	041620, 050500	041820 050630
N/Lakhimpur	Northeast India	Assam	Thunderstorm	04-05-18	1340, 1430 1730	1430, 1610 1930
Dhubri	Northeast India	Assam	Thunderstorm	04-05-18	0832	0900
Cherrapunjee	Northeast India	Meghalaya	Thunderstorm	04/05-05-18	041020, 050650	41240, 050805
Shillong	Northeast India	Meghalaya	Thunderstorm	04-05-18	1030	1515
Imphal	Northeast India	Manipur	Thunderstorm	04/05-05-18	041310, 050440	041700 050830

Lengpui	Northeast India	Mizoram	Thunderstorm	04-05-18	041337, 041800, 050030, 050250	041455, 041900, 050100, 050830
Belagavi AP	South India	Karnataka (NIK)	Thunderstorm	04-05-18	1700	1840
Dharwad	South India	Karnataka (NIK)	Thunderstorm	04-05-18	1645	1800

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

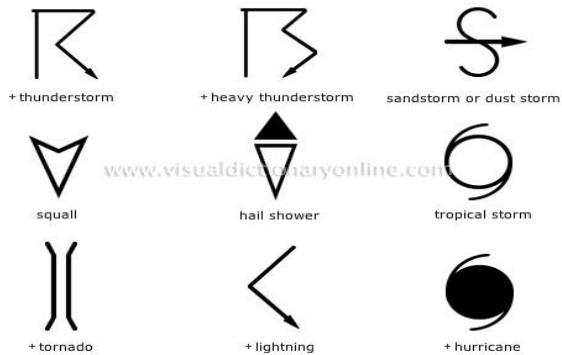
ForRadarimagesofthepast24hoursincludingmosaicofimages:

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	