



India Meteorological Department

FDP STORM Bulletin No. 70 (15-05-2018)

1. CURRENT SYNOPTIC SITUATION:

NWFC INFERENCE (0300UTC of the Day):

- ◆ A fresh Western Disturbance as an upper air cyclonic circulation lies over east Iran & neighbourhood between 3.1 km and 5.8 km above mean sea level.
- ◆ The Western Disturbance as a trough in mid tropospheric westerlies with its axis at 5.8 km above mean level now runs roughly along Long 76°E to the north of lat. 34°N and is moving away east north-eastwards.
- ◆ The cyclonic circulation over central Pakistan & adjoining Punjab and northwest Rajasthan extending upto 0.9 km above mean sea level persists.
- ◆ A cyclonic circulation lies over Himachal Pradesh & neighbourhood at 1.5 km above mean sea level.
- ◆ A cyclonic circulation lies over southeast Rajasthan & adjoining West Madhya Pradesh and extends upto 0.9 km above mean sea level.
- ◆ A trough at 1.5 km above mean sea level lies extending from central parts of south Uttar Pradesh to south Madhya Maharashtra across Madhya Pradesh and Vidarbha.
- ◆ A cyclonic circulation lies over east Bihar & neighbourhood and extends upto 1.5 km above mean sea level.
- ◆ The north south trough roughly along Long. 88°E to the north of 24°N, now seen between 5.8 km & 7.6 km above mean sea level.
- ◆ The north south wind discontinuity, now runs from North Interior Karnataka to south Tamilnadu across South Interior Karnataka and extends upto 0.9 km above mean sea level.
- ◆ A cyclonic circulation lies over South Tamilnadu & adjoining Comorin area between 1.5 km and 3.1 km above mean sea level.
- ◆ The low pressure area over southwest Arabian Sea & neighbourhood now lies as a well marked low pressure area over the same area and the associated cyclonic circulation extends upto 5.8 km above mean sea level. It is likely to move west northwest towards Gulf of Adan & adjoining areas and likely to concentrate into a depression during next 48 hours.

SATELLITE OBSERVATIONS during past 24 hrs and current observation:

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

Western Disturbance (WD):

Scattered multi-layered clouds with embedded moderate to intense convection were seen over North Afghanistan, North Pakistan, Southwest Jammu & Kashmir and over area between Lat 37.0N To 42.0N Long 56.0E To 75.0E in association with WD over the area.

Clouds descriptions within India:

Scattered low/medium clouds with embedded moderate to intense convection seen over South Tamilnadu, South Kerala and Nicobar Islands.

Scattered low/medium clouds with embedded weak to moderate convection seen over Jammu & Kashmir, extreme East Bihar, Sub Himalayan West Bengal, Sikkim, Arunachal Pradesh, Central Assam, Nagaland, South Coastal Andhra Pradesh, Rayalaseema, South Interior Karnataka, Lakshadweep and Andaman Islands. Scattered low/medium clouds seen over rest Jammu & Kashmir, Himachal Pradesh, Uttarakhand, northeast Rajasthan, Northwest Madhya Pradesh, South Odisha, Northeast Jharkhand, rest Bihar, North Gangetic West Bengal & rest Northeast states, North Interior Karnataka, South Telangana, and North Coastal Andhra Pradesh..

Arabian Sea:-

Scattered low/medium clouds with embedded moderate to intense convection seen over Southeast Arabian Sea Maldives Comorin & Gulf of Mannar.

Bay of Bengal & Andaman Sea:

Scattered low/medium clouds with embedded moderate to intense convective seen over West Central Bay and Southwest Bay and South Andaman Sea

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

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

OLR: - .

Upto 230 wm^{-2} observed over J & K North Himachal Pradesh North Uttarakhand Sikkim North Odisha Andhra Pradesh Karnataka Kerala Tamilnadu & Lakshadweep.

Westerly Trough & Jet Stream: Westerly Trough & Jet Stream are not observed over Indian Region.

Dynamic Features:

Wind Shear 30-40 knots is observed over North-West India, 15-20 knots over Central India, North-East India and 5-15 knots over south peninsula India.

Negative Positive shear tendency is observed over Rajasthan West Madhya Pradesh North-East States Telangana North Coastal Andhra Pradesh North-East Tamilnadu.

Positive Vorticity (850 hPa) more than 50 ($\times 10^{-5}/s$) is observed over North Rajasthan Haryana Uttar Pradesh Bihar East Madhya Pradesh Vidarbha.

Positive Low Level Convergence is observed over Bihar Jharkhand West Bengal Sikkim North-East States.

Precipitation:

Rainfall up to 20-50 mm was observed over Goa South Interior Karnataka South Kerala Central Tamilnadu

Rainfall up to 10-30 mm was observed over West J&K South-East Telangana

Rainfall up to 01-20 mm was observed over East J&K North Himachal Pradesh North Uttarakhand Chhattisgarh Odisha Sikkim Sub Himalayan West Bengal Tripura rest Telangana Andhra Pradesh North Interior Karnataka North Kerala rest Tamilnadu Lakshadweep Andaman & Nicobar Islands .

DWR and RAPID Observations:

Isolated/multiple moderate echoes on Agartala, Chennai, Machilipatnam, Delhi and Jaipur (dBZ > 50 and height >10km), and Light to moderate over Kochi, Nagpur and Thiruvananthapuram at around 1510IST.

RAPID RGB Satellite imagery at 1530 IST indicated significant convection over Jammu & Kashmir, West Assam adjoining sub Himalayan West Bengal, West Meghalaya, East Rajasthan and Southwest Madhya Pradesh.

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 for next few days 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	15.05.2018	16.05.2018
PM10 (micro-g/m ³)	156	187
PM2.5 (micro-g/m ³)	67	80

2. NWP MODEL GUIDANCE:

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

1. Weather Systems:

Low level Cycirs, Troughs: 00 UTC of Day 1-4: 850/925 hPa weak CYCIR southwest Arabian Sea tracking west-northwest towards gulf of Aden likely to intensify subsequently.

00UTC of Day 2-5: A CYCIR at 925/850hPa off coast Kerala over southeast AS moving westwards with intensification of the system

00UTC of Day 1-5: 850 hPa NE-SW trough from U.P. to N Karnataka across M.P., Maharashtra.

00UTC of Day 1-3: 850 hPa trough over WB-Bangladesh region.

Confluence & Wind Discontinuity Regions: 12 UTC of Day 0, 2-4: 925 hPa N-S discontinuity over Southern Peninsular India

Synoptic Systems: 12 UTC of Day 3-4:

00 UTC of Day 1-4: Western disturbance as a trough over J&K

12 UTC of Day 1-4: An Anticyclone off Gujarat coast at 500 hPa

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

3. Convergence at 850 hPa:

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

Day0: East Rajasthan, Saurashtra Kutch, Madhya Maharashtra,

Day1: Saurashtra Kutch,

Day2: Assam Meghalaya, Haryana, Delhi, Punjab, West Rajasthan, East Rajasthan, Saurashtra Kutch, SI Karnataka,

Day3: Gangetic WB, Jharkhand, Punjab, Odisha, Saurashtra Kutch, Madhya Maharashtra, Vidarbha, Chhattisgarh, Telangana, SI Karnataka,

Day4: Assam Meghalaya, NE NMMT, Gangetic WB, Jharkhand, West UP, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, Madhya Maharashtra, Telangana,

4. Low level Vorticity:-Positive Vorticity:

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

Day0: Himachal Pradesh, East Rajasthan, Coastal AP,

Day1: Gangetic WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, Saurashtra Kutch,

Day2: Assam Meghalaya, Sub Himalayan WB, Jharkhand, Bihar, Uttarakhand, Punjab, Himachal Pradesh, West Rajasthan,

Day3: Assam Meghalaya, Bihar, Uttarakhand, Jammu Kashmir, Chhattisgarh,

Day4: Arunachal Pradesh, Assam Meghalaya, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Punjab, Himachal Pradesh, Konkan Goa, 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, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Coastal AP, Rayalseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Delhi, Delhi, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Coastal AP, Telangana, Rayalseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

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

Day3: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, 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, Coastal AP, Telangana, Rayalseema, 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, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Delhi, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan, East Rajasthan, Odisha, East MP, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Telangana, NI Karnataka,

Day1: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Delhi, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan, Odisha, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP,

Day2: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Delhi, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Chhattisgarh, Coastal AP, NI Karnataka,

Day3: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Coastal Karnataka, NI Karnataka, SI Karnataka,
Day4: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, TN Puducherry, NI Karnataka, SI Karnataka,

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

Day/Index: Subdivisions with K Index > 40

Day0: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Gujarat Region, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,
Day1: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Haryana, Delhi, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka,
Day2: Arunachal Pradesh, Assam Meghalaya, 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, Rayalseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,
Day3: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Coastal AP, Telangana, Rayalseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,
Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Madhya Maharashtra, Chhattisgarh, Coastal AP, Telangana, Rayalseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka,

8. Rainfall and thunder storm activity:

Day1: Assam Meghalaya, Sub Himalayan WB, Bihar, TN Puducherry, Kerala,
Day2: Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, TN Puducherry,
Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Jammu Kashmir, Kerala,
Day4: Assam Meghalaya, NE NMMT, Jammu Kashmir,
Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Himachal Pradesh, Jammu Kashmir, SI Karnataka,

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

1. Synoptic Systems: The analysis based on 00 UTC indicates a cyclonic circulation over North Pakistan adjoining Punjab and North West Rajasthan in lower Troposphere (925hPa). The forecast shows the circulation will persist till day 2 with North Eastward movement. The analysis also shows a cyclonic circulation over Himachal Pradesh in lower Troposphere (850hPa). The forecast shows it will persist for next 24 hours. Analysis shows another cyclonic circulation over South East Rajasthan and adjoining West Madhya Pradesh at (925hPa). The forecast shows North Eastward movement of the circulation till day 2. A North- South Trough extends from South Uttar Pradesh to South Madhya Maharashtra across Madhya Pradesh and Vidarbha. The Trough persists in forecast till day3 with slight eastward shift. A cyclonic circulation is seen over East Bihar and adjoining areas in lower Troposphere. The forecast shows it will persist till day3. A North South Oriented Trough is seen in the analysis extending from North Interior Karnataka to south Tamil Nadu across South Interior Karnataka. The forecast shows it will persist till day2.

2. Location of Jet and Jet Core (>60kt) at 500hPa: Although the presence of strong westerlies is found over Eastern parts of the India on all 3 days and over north western parts of India on day 1 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 Foothills of Himalaya, North-South Trough, around the cyclonic circulations, eastern parts of India, NE states during next 3 days; Low level Positive Vorticity is also seen over parts of Punjab, North West Rajasthan, Haryana, west Uttar Pradesh, Northern parts of Madhya Pradesh from day 2; parts of Bihar, GWB, Jharkhand, SHWB, Sikkim and NE states have Positive Vorticity on 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): over parts of Gujarat, East and West Uttar Pradesh, Gangetic Plains covering the areas from South west Rajasthan, Uttarakhand, Bihar, Jharkhand, Gangetic West Bengal, SHWB, Orissa, coastal Maharashtra, Konkan & Goa, coastal and Interior Karnataka, Kerala, Tamil Nadu, Telangana, Rayalaseema, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Madhya Pradesh, Andhra Pradesh, along east and west coast of India, Sikkim, Assam, Tripura and adjoining areas during next 3 days; on day 1 over parts of North West Rajasthan, Punjab, Haryana, Delhi and Himachal Pradesh; Significant zone lies over south west Rajasthan, Gujarat, adjoining west Madhya Pradesh, coastal areas along the east coast and west coast, GWB, Bihar, Jharkhand, Orissa, coastal Andhra Pradesh, Telangana, East Uttar Pradesh, coastal Maharashtra, South Madhya Maharashtra Vidarbha and adjoining North Interior Karnataka.

Lifted Index (< -2): Similar to T-storm Index in day 1 it lies over Gujarat, Rajasthan, Gangetic plains and along east and west coast of India with an extension over Interior Karnataka and Telangana, Bihar, Jharkhand, Uttar Pradesh, Orissa, GWB, NE states, Telangana, Vidarbha, Chhattisgarh, Andhra Pradesh, coastal Maharashtra, Konkan & Goa, coastal and Interior Karnataka, Kerala, Tamil Nadu, Madhya Maharashtra and Marathwada, Punjab, Haryana, Delhi, Himachal Pradesh and Uttarakhand. In day 2 and 3 it remains on the same region but disappears over Northwest India including Punjab, Delhi, Himachal Pradesh and Uttarakhand except over North Haryana on day 3; Significant zone with maximum negative value is found over coastal Orissa and GWB.

Total Total Index (> 50): Higher than Threshold value of the Index is seen over most of the parts of the country except Extreme south Peninsular India and Gujarat region during next 2 days; on day 3 it is seen over most of the parts of the country except south west Rajasthan, Gujarat, Kerala and NE states; Significant zone with Maximum value of the index lies over J&K, Himachal Pradesh, Punjab, North West Haryana East Madhya Pradesh, Chhattisgarh, Bihar, Jharkhand, Orissa, Vidarbha, GWB, Andhra Pradesh and Telangana.

Sweat Index (> 300): Is seen over the sub-divisions along east and west coast, areas along foothills of Himalayas, NE states, and most parts of the country except central parts of Madhya Pradesh during next 3 days; The significant zone lies over parts of GWB, Jharkhand, Bihar, Coastal Orissa and East Uttar Pradesh..

CAPE (> 1000): Mostly seen over southern peninsular India, along west coast and east coast, GWB, Orissa, Bihar, Jharkhand, East Uttar Pradesh, south west Rajasthan, Andhra Pradesh, Rayalaseema, Tamil Nadu, Kerala, Karnataka, Konkan and Goa, Vidarbha, Telangana, coastal Maharashtra, south Madhya Maharashtra, Marathwada, Gujarat, NE states, Sikkim, Assam, Meghalaya, Tripura and adjoining areas during next 3 days; over parts of West Madhya Pradesh, Himachal Pradesh, Punjab, Haryana, Delhi and North West Rajasthan on day 1; over parts of West Uttar Pradesh on day 3; maximum value of the index is seen over parts of GWB, Orissa, coastal Andhra Pradesh, coastal Tamil Nadu, coastal areas along East and West Coast, coastal Gujarat, coastal Maharashtra, coastal Karnataka, coastal Kerala, Bihar, Jharkhand and SHWB

CIN (50-150): Over sub-divisions along east and west coast of India, extreme south over Kerala and south Tamil Nadu and the value of the index lies in the above range over most of the parts of the country except parts of J&K on day 1; on day 2 and 3 it is seen over most of the parts of the country except Central Parts of Madhya Pradesh, J&K, Punjab, Haryana, Himachal Pradesh, and North West Rajasthan; the maximum value of the index is seen over parts of Gujarat, south west Rajasthan, Chhattisgarh and Orissa.

5. Rainfall Activity:

70- 130 mm Rainfall: over some parts of SHWB and adjoining areas on day 1.

40-70 mm Rainfall: over parts of Assam, SHWB, South Tamil Nadu and adjoining areas on day 1; over parts of GWB and coastal Orissa on day 2; over some parts of Andhra Pradesh and adjoining south Orissa on day 3.

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

Up to 10 mm rainfall: Over parts of J&K, Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Uttarakhand, Foothills of Himalaya, SHWB & Sikkim and NE states, Bihar, Jharkhand, GWB, Orissa, southern parts of East and West Madhya Pradesh, Chhattisgarh, Kerala, Interior Karnataka, Konkan & Goa, coastal Maharashtra, Tamil Nadu, Telangana, Rayalaseema, Madhya Maharashtra, Marathwada, Vidarbha and Andhra Pradesh during next 3 days; on day 1 over parts of Rajasthan and Gujarat; over most of the parts of Madhya Pradesh on day 2 and 3.

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, Kerala, Karnataka, Tamil Nadu, Andhra Pradesh, Sikkim, GWB, Bihar, Jharkhand, SHWB, Orissa, South Madhya Maharashtra, NE states, Telangana, coastal Maharashtra, some parts of Punjab. On day 2 over parts of J&K, Himachal Pradesh, Bihar adjoining Jharkhand, Chhattisgarh, GWB, SHWB, Orissa, Assam, Meghalaya, Arunachal Pradesh, Tripura and adjoining areas; On day 3 mostly over parts of J&K, Himachal Pradesh, adjoining Punjab, GWB, Orissa, Tamil Nadu, some parts of south Chhattisgarh, Assam, Meghalaya, Tripura and adjoining areas.

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, GWB, SHWB, East Uttar Pradesh, Bihar, Jharkhand, Orissa, Sikkim and NE states during next 3 days; below threshold value of the index is also seen over parts of South Madhya Maharashtra, Marathwada, Uttarakhand and Chhattisgarh on day 1; over parts of Orissa and adjoining areas on day 2 and 3.

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, Interior Karnataka, Telangana, Chhattisgarh, Kerala, Tamil Nadu, Andhra Pradesh, Orissa, Bihar, Jharkhand, GWB and adjoining areas and Foothills of Himalayas.

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, Bihar, Jharkhand, Telangana, Rayalaseema during next 3 days; Some parts of South East Rajasthan, Punjab, Madhya Pradesh and Vidarbha on day 1; over some parts East Vidarbha and Chhattisgarh on day 2; over parts of Uttar Pradesh and Chhattisgarh on day 3; Maximum value of the index is seen over the parts of Orissa, GWB, coastal Andhra Pradesh, coastal Tamil Nadu, Kerala, Karnataka, Telangana, coastal Maharashtra, coastal Gujarat, Konkan and Goa, Jharkhand and South Madhya Maharashtra.

CIN (50-150): It covers most of the parts of the country except central parts of the Madhya Pradesh and J&K on day 1; over most of the parts of country except J&K, central parts of the Madhya Pradesh, extreme south peninsular India, Northwest India on day 2 and 3; Inland extension is also nearly similar to CAPE. Only, it has significant larger values over parts of west India including west Rajasthan, Gujarat, Punjab, Haryana and

adjoining areas, parts of Vidarbha and Madhya Pradesh, eastern parts of the country, Bihar, Jharkhand, Chhattisgarh, Orissa, GWB, Andhra Pradesh and adjoining areas, Telangana, South Madhya Maharashtra, Marathwada, Vidarbha and adjoining areas.

3. Rainfall and thunderstorm activity:

130- 200 mm Rainfall: over some parts of Tripura and adjoining areas.

70-130 mm Rainfall: over parts of Andhra Pradesh and South Interior Karnataka on day 1; over parts of South Kerala, Orissa, Tripura and adjoining areas on day 2; over parts of Meghalaya, Tripura, Mizoram and adjoining areas on day 3.

40- 70 mm Rainfall: over parts of Assam, Meghalaya, Arunachal Pradesh and adjoining areas, Kerala, South Interior Karnataka, Andhra Pradesh, Tamil Nadu and Telangana on day 1; over parts of J&K, Kerala, Tamil Nadu, Orissa, Assam, Meghalaya, Tripura, Mizoram and adjoining areas on day 2; on day 3 over parts of South Kerala, Tamil Nadu, Assam, Meghalaya, Tripura, Mizoram and adjoining areas..

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

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

3. IOP ADVISORY FOR 24 and 48Hrs:

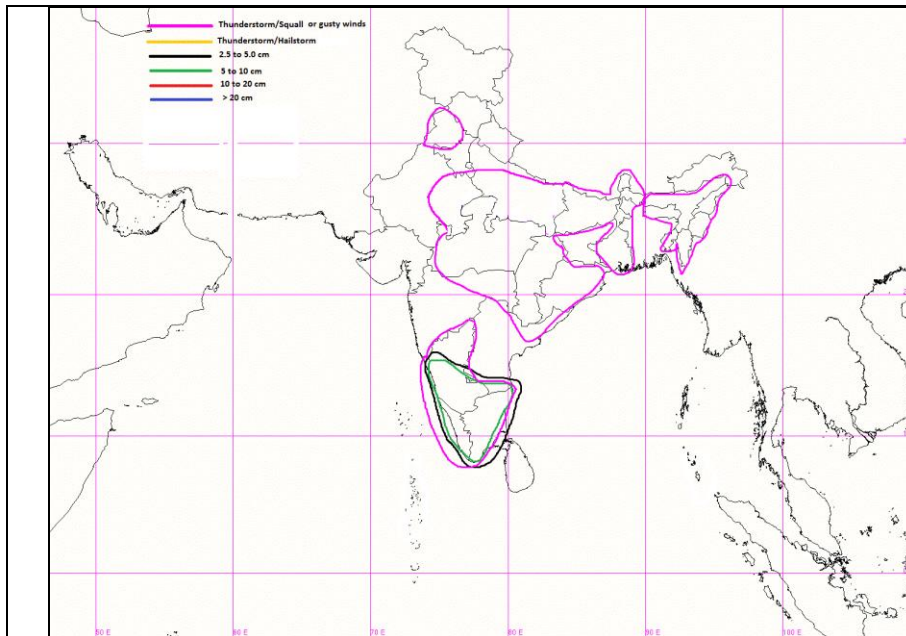
Summary and Conclusions:

- Synoptic analysis indicates that the north south wind discontinuity, now runs from North Interior Karnataka to south Tamilnadu across South Interior Karnataka and a cyclonic circulation lies over South Tamilnadu & adjoining Comorin area. These systems may give rise to heavy rainfall activity over Kerala coastal Karnataka and Tamilnadu on Day-1. This may continue to Day-2 over Kerala and Tamilnadu.
- A cyclonic circulation lies over east Bihar & neighbourhood and another cyclonic circulation lies over southeast Rajasthan & adjoining West Madhya Pradesh. This will bring the thunderstorm with gusty winds over GWB, SHWB and Bihar and MP and Chhattisgarh on Day-1.
- A fresh Western Disturbance as an upper air cyclonic circulation lies over east Iran & neighbourhood.
- Most thermodynamic indices (K-Index, Lifted Index) from IMD GFS deterministic model indicate high probability of thunderstorm occurrence over Northeast, peninsular India and Kerala on Day 1.

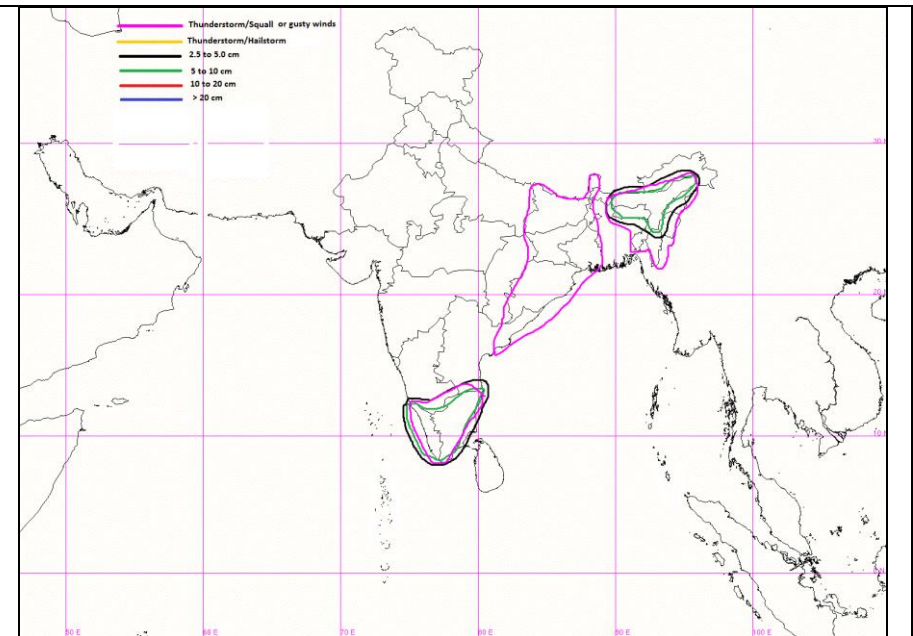
IOP Area for Day-1 & Day-2:

24 hour Advisory for IOP:	48 hour Advisory for IOP:
<p>Significant Rainfall: Tamil Nadu, Coastal Karnataka, South Interior Karnataka, Kerala</p> <p>Thunderstorm with squall or gusty winds: Tamil Nadu, Kerala, Karnataka, North Coastal Andhra Pradesh, Madhya Pradesh, South Konkan and Goa, Marathwada East Rajasthan, Uttar Pradesh Vidarbha, Chhattisgarh Sikkim, West Bengal, Odisha, Bihar, Punjab, Nagaland, Manipur, Mizoram, Tripura, Assam and Meghalaya</p> <p>Thunderstorm with squall and hail Nil</p> <p>Duststorm: Rajasthan</p>	<p>Significant Rainfall: Tamil Nadu, Kerala Assam and Meghalaya</p> <p>Thunderstorm with squall or gusty winds: Tamil Nadu, Kerala, North Coastal Andhra Pradesh Sikkim, West Bengal, Odisha, Bihar, Jharkhand, Nagaland, Manipur, Mizoram, Tripura, Assam and Meghalaya</p> <p>Thunderstorm with squall and hail Nil</p> <p>Duststorm: Nil</p>

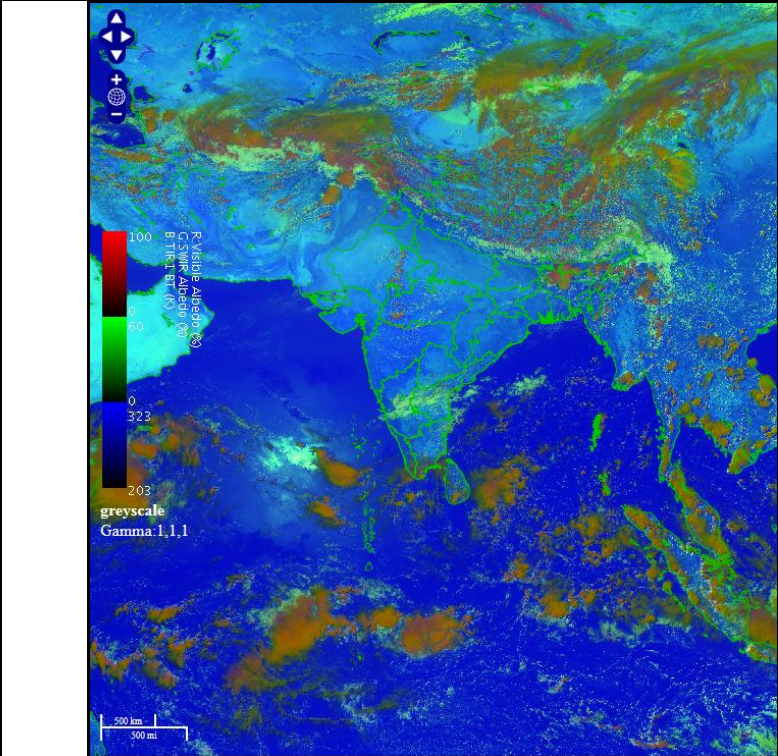
Graphical Presentation of Potential Areas for Severe Weather:



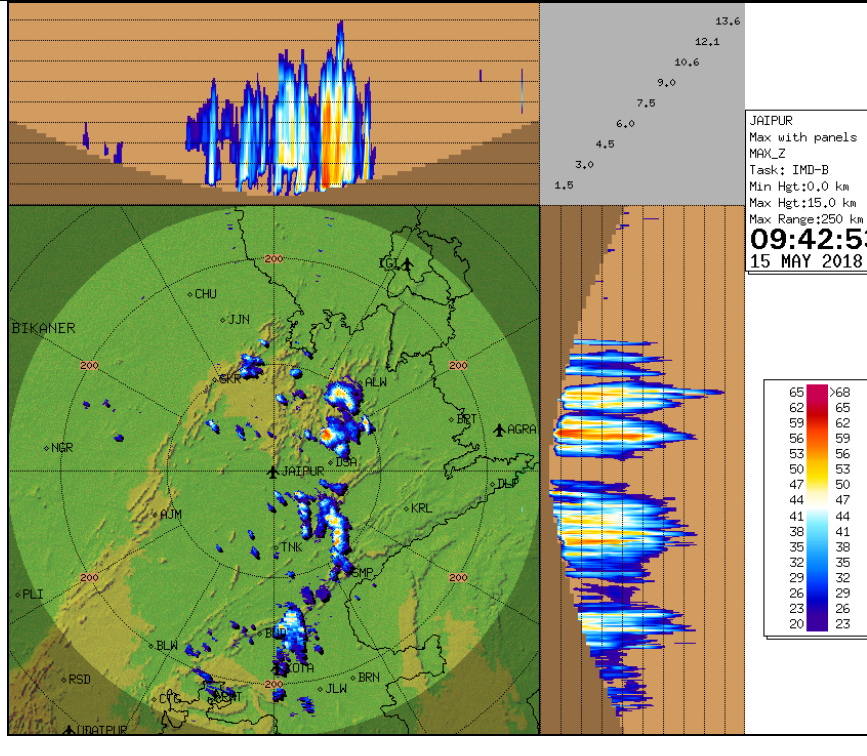
IOP Advisory for 24 hours



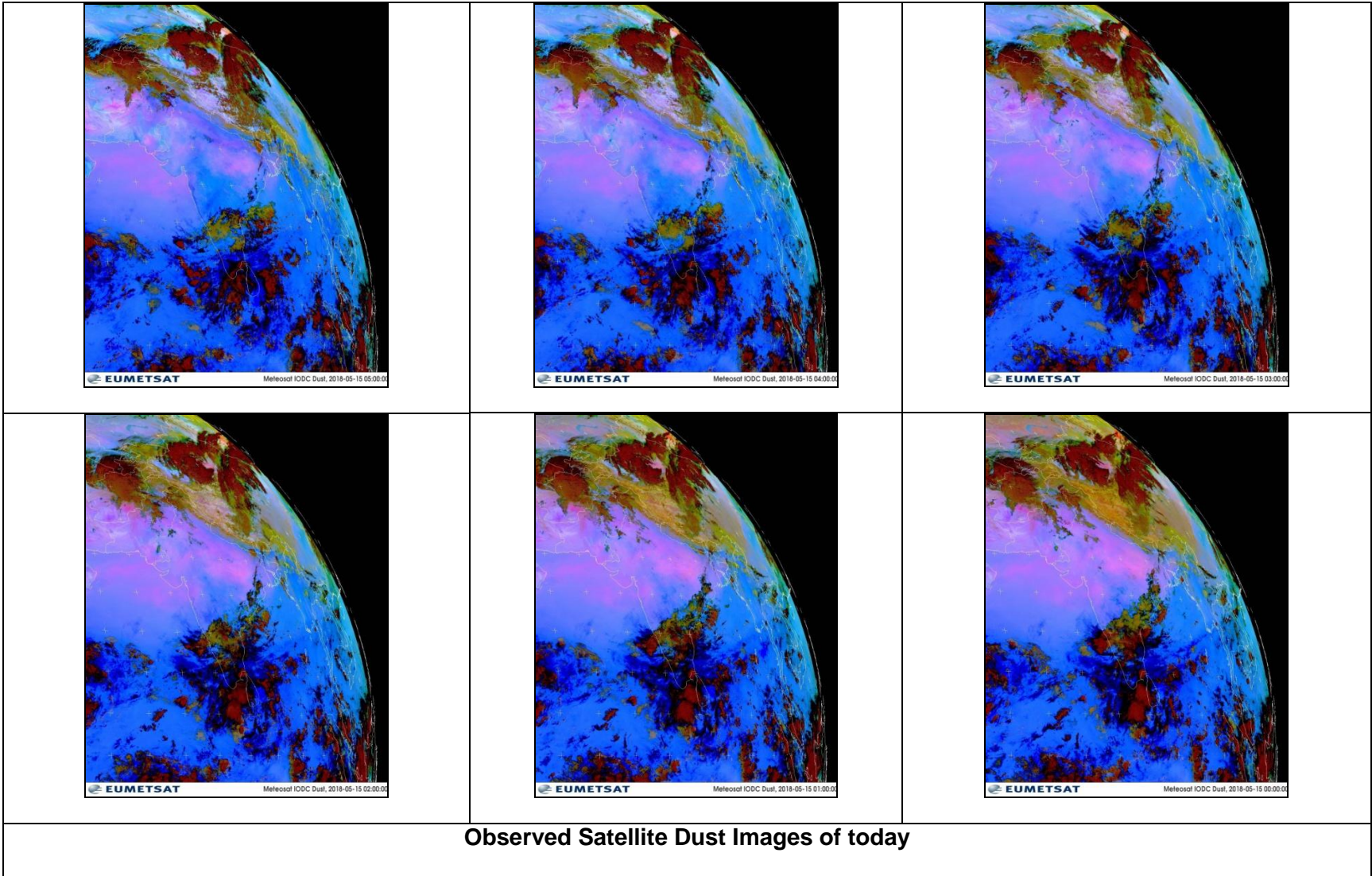
IOP Advisory for 48 hours

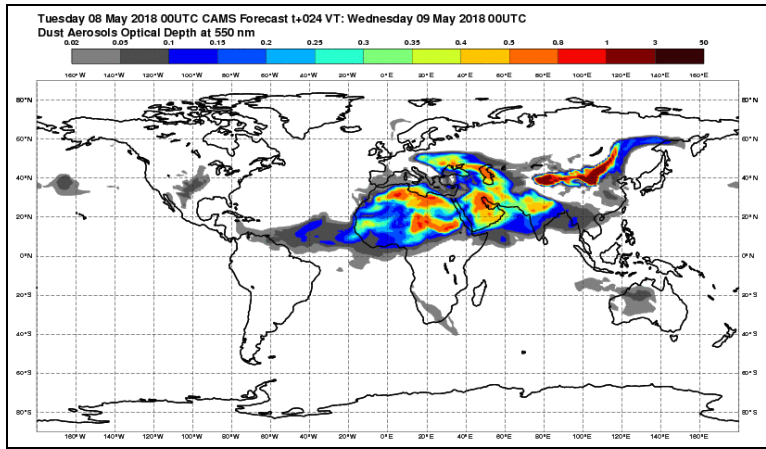


RAPID RGB Imagery at 1400 IST of the Day

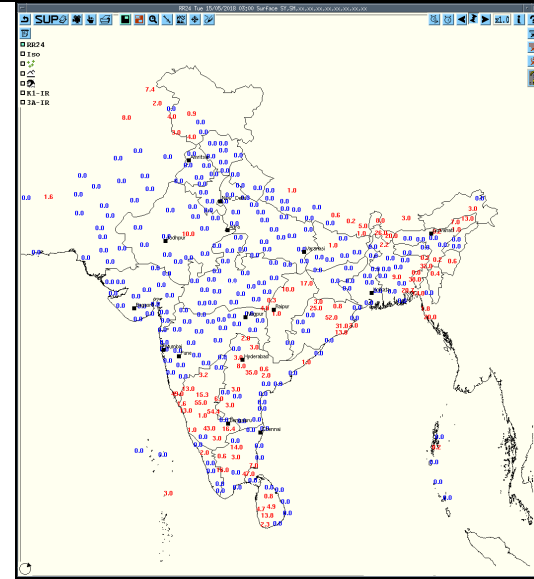


DWR Jaipur Reflectivity Image at 1512 IST

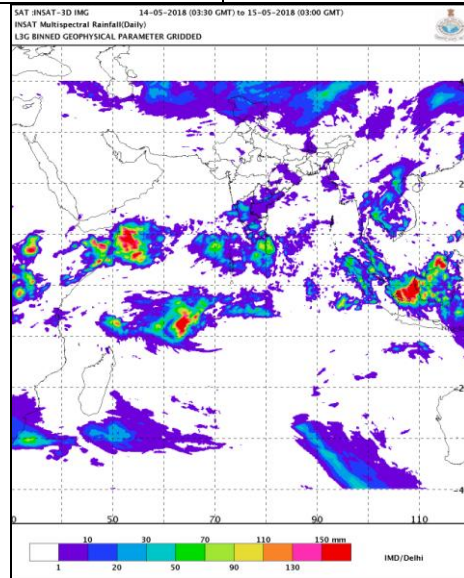




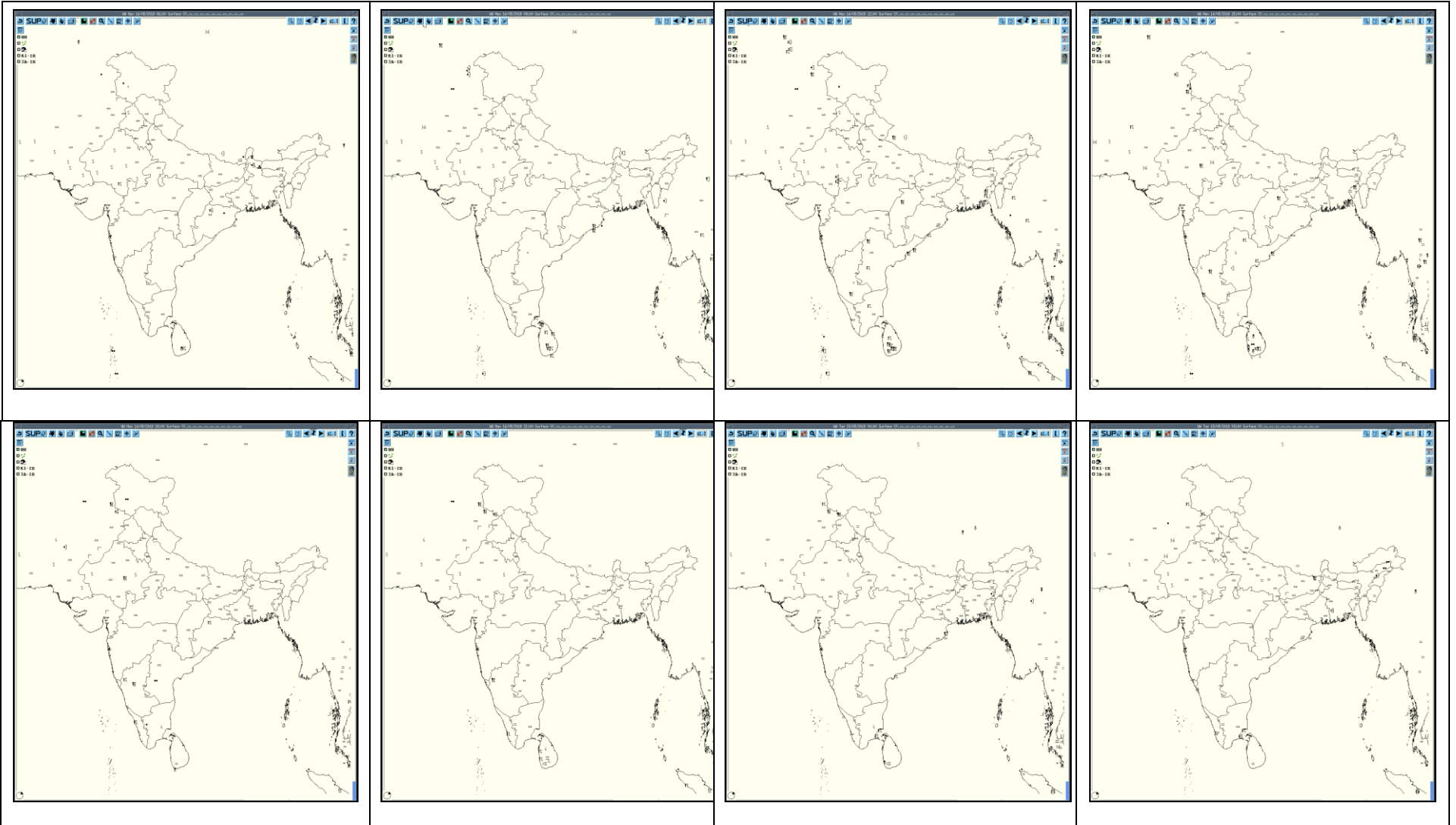
Dust Forecast



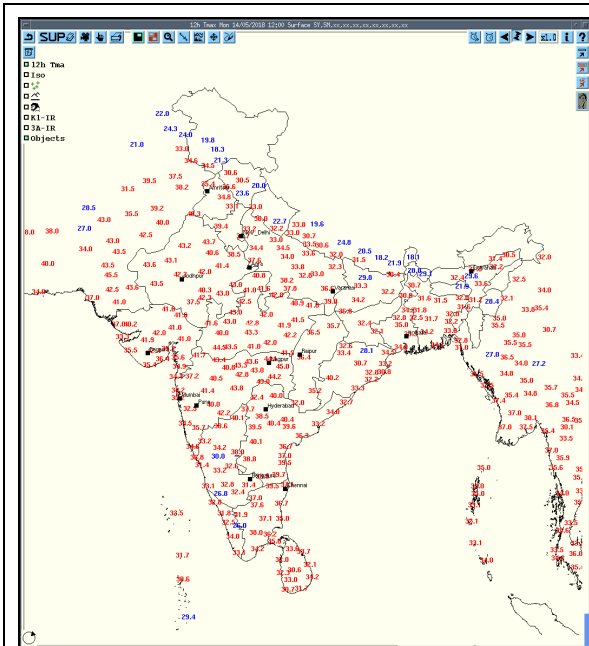
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today



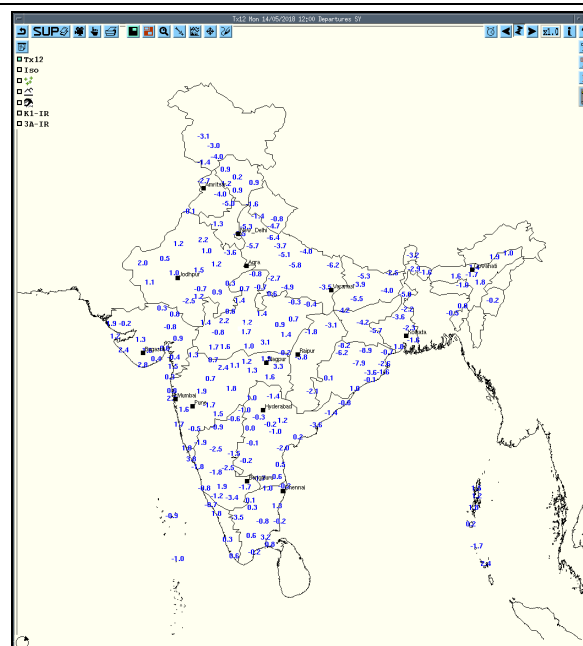
IMR



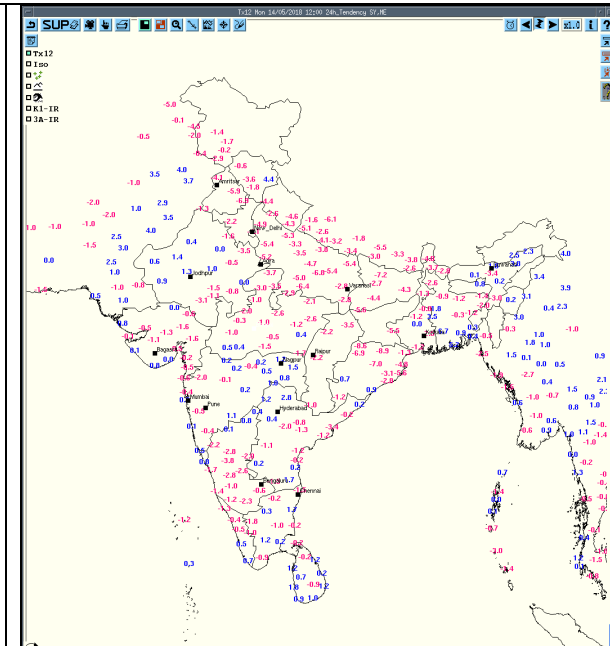
3hourly Past weather at 06, 09, 12, 15, 18, 21 UTC of yesterday and 00 & 03 hrs UTC of today



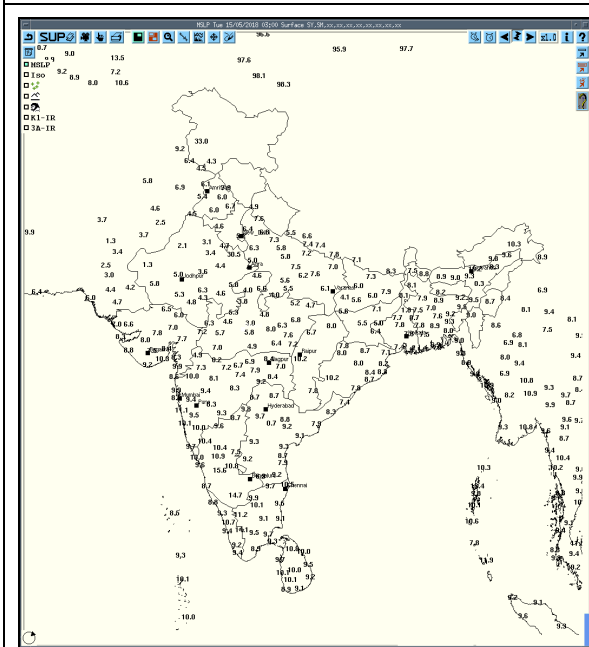
Tmax



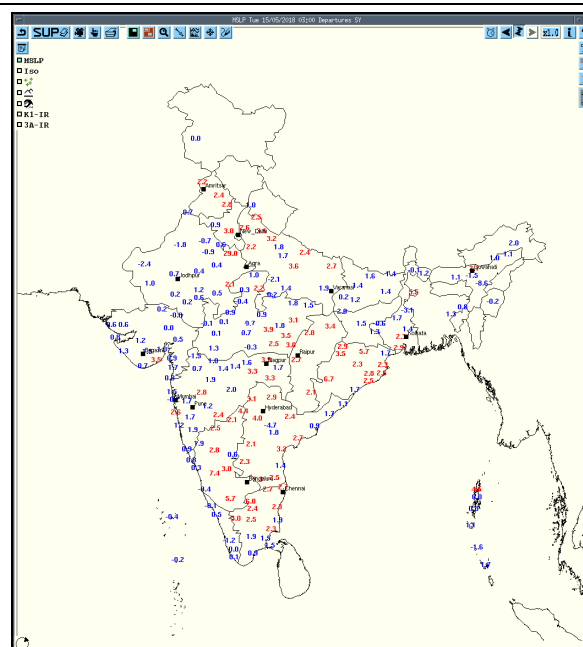
Departure Tmax



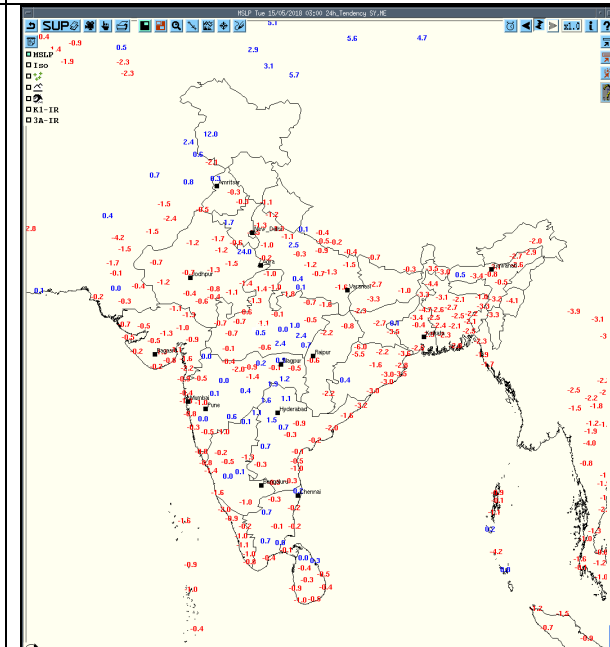
Tendency Tmax



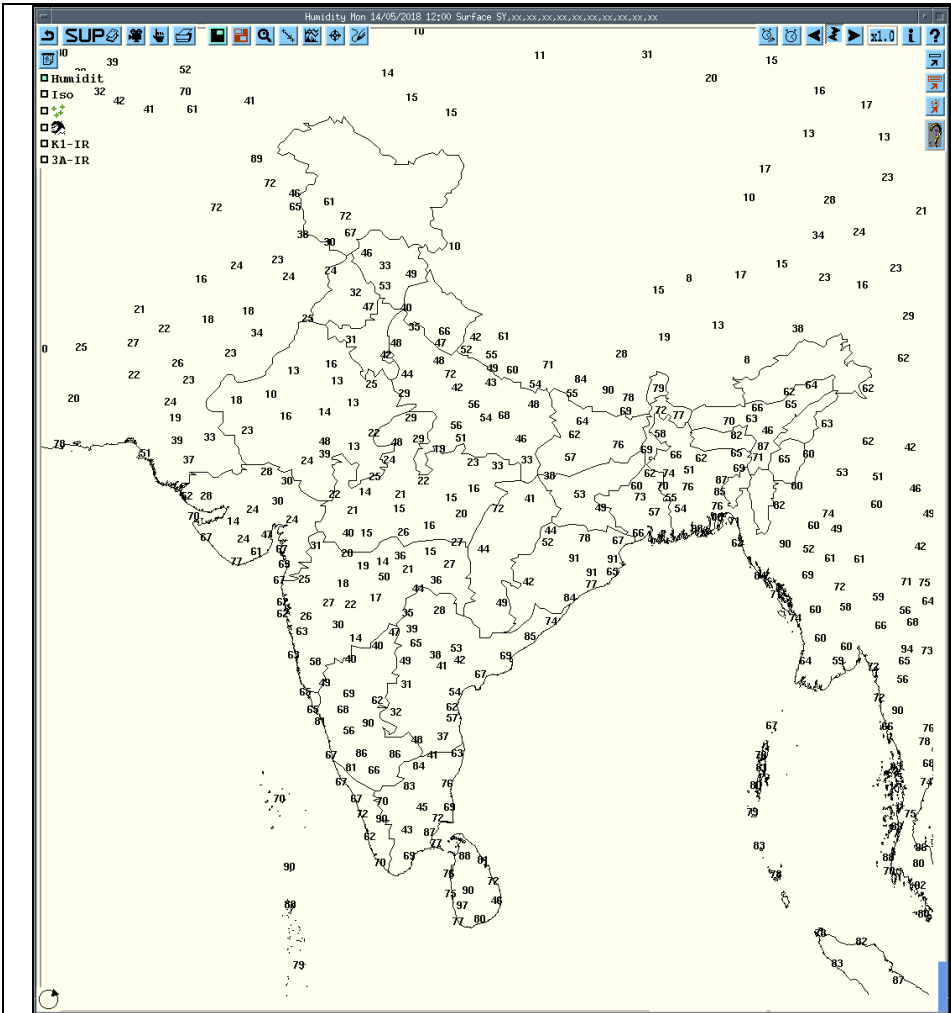
MSLP



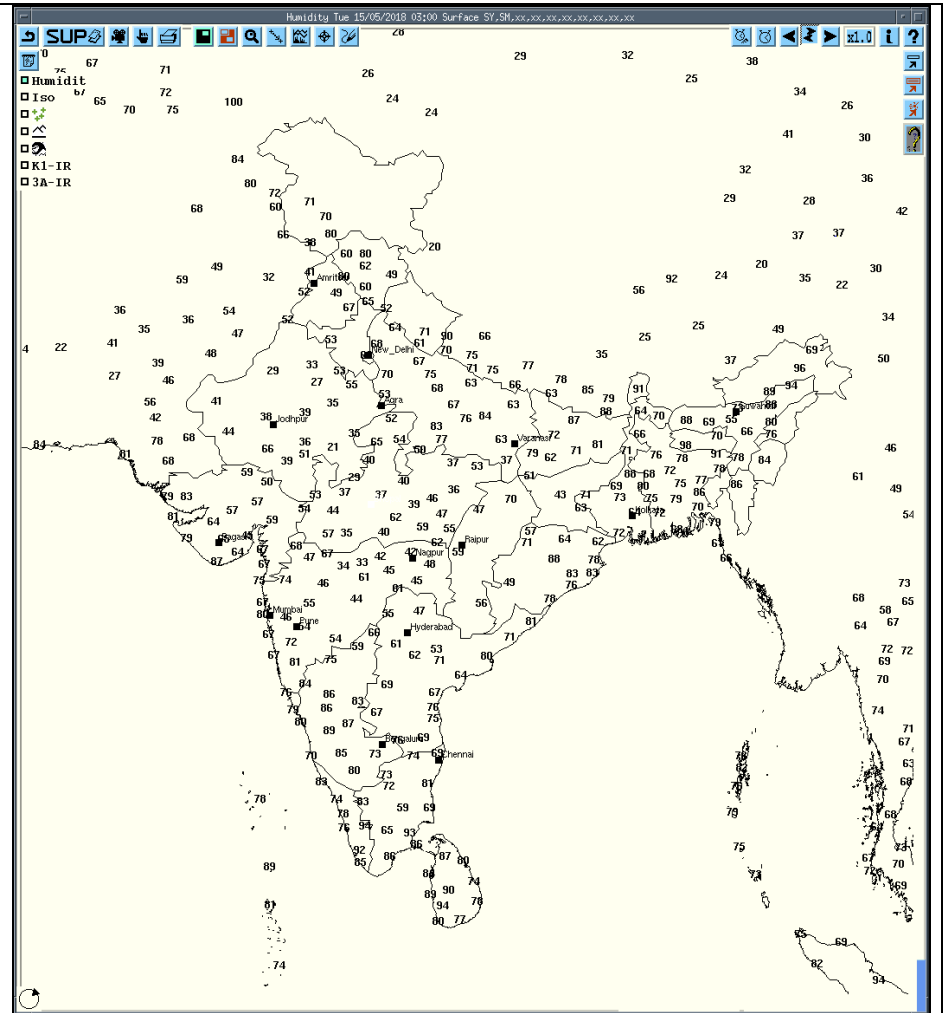
Departure MSLP



Tendency MSLP



RH at 12UTC yesterday



RH at 03UTC today

Past 24 hours DWR Report:

Radars station name	Date	Time interval of observation (UTC)	Organization of the cells(Isolatedsinglecells/multiplecells/convective regions/squallines) 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
Jaipur	15/05/18	07:42 UTC TO 19:22 UTC 14/05/18	Multiple cell with average height of 7.5 km & maximum reflectivity61.0 dBZ	Multiple cell develop from 07:42 UTC of 14/05/2018 towards W,SW,NW of Jaipur and moved to SE,S Wards at speed20-25 km/hr	Multiple cell develop from 0742 UTC on 14/05/2018 towards W,SW,NW, of Jaipur and reaches maximum reflectivity during 10:02 to 12:42 UTC of 14/05/2018 and died 19:12 UTC.	Dust storm/ Thunderstorm with Light rain at Isolated places	Nagaur, Bhilwara, Ajmer, Tonk, Bundi, Kota, Sikar, Chittorgarh
		22:22 UTC TO 02:12 UTC 15/05/18	Multiple cell with average height of 4.5 km & maximum reflectivity48.0 dBZ	Multiple cell develop from 22:12 UTC of 14/05/2018 towards NW,N of Jaipur and moved to S,SE Wards at speed12-15 km/hr	Multiple cell develop from 2212 UTC on 14/05/2018 towards NW,N of Jaipur and reaches maximum reflectivity during23:02 to 00:42 UTC of 15/05/2018 and died 02:12 UTC.	Dust storm/Thunderstorm with Light rain at Isolated places	Dausa, Sikar, Jhunjhunu, Alwar
Patna	15/05/18	140300-150600	NIL	N/A	N/A	N/A	N/A
		150600-150300	Multiple Cells Lat-26.189N Long-86.899E Maximum Reflectivity: 48.5 dBZ Echo Top: 11.5 KM	Range: 193 KM from DWR Patna in NE direction Movement: towards ESE	Warning issued	Thunder Storm, Rain	Supaul, Darbhanga, Madhepura, Saharsa, Araria, Kishanganj, Purnia
Lucknow	15/05/18	140300-150300	Nil	Nil	Nil	Nil	Nil
Patiala	15/05/18	140300-150300	Nil	Nil	Nil	Nil	Nil
Kolkata	15/05/18	140300-150300	Nil	Nil	Nil	Nil	Nil

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 Commencement (IST)	Time of end (IST)
Srinagar	Northwest India	Jammu & Kashmir	Thunderstorm	14-05-18	2335	2350
Jammu	Northwest India	Jammu & Kashmir	Thunderstorm	15-05-18	0230 0700	0600 0830
Gulmarg	Northwest India	Jammu & Kashmir	Thunderstorm	14-05-18	2300	2330
Ludhiana	Northwest India	Punjab	Thunderstorm	15-05-18	0705	0720
Ajmer	Northwest India	East Rajasthan	Thunderstorm	14-05-18	1430 1800	1700 2330
Ajmer	Northwest India	East Rajasthan	Duststorm(Dir-WNW, Max. Speed-52kmph)	14-05-18	1750	1810
Chittorgarh	Northwest India	East Rajasthan	Thunderstorm	14-05-18	1610	1650
Dabok A.P.	Northwest India	East Rajasthan	Thunderstorm	14-05-18	1115	1405
Jalpaiguri	East India	SHWB	Thunderstorm	14-05-18	0838	0925
Bhubaneswar	East India	Odisha	Thunderstorm	14-05-18	1215	1545
Jharsuguda	East India	Odisha	Thunderstorm	14-05-18	...0830 2200	1115 2345
Puri	East India	Odisha	Thunderstorm	14-05-18	1340	1525
Gopalpur	East India	Odisha	Thunderstorm	14-05-18	1015	1800
Hirakud	East India	Odisha	Thunderstorm	14-05-18	...0830	0915
Keonjhar	East India	Odisha	Thunderstorm	14-05-18	0945 1240	1010 1300
Port Blair	A and N Islands	A and N Islands	Thunderstorm	14-05-18	1350	1455
Barapani	Northeast India	Meghalaya	Thunderstorm	14-05-18	14/1215	14/1240
Lengpui	Northeast India	Mizoram	Thunderstorm	14-05-18	14/1116	14/1220
Kailasahar	Northeast India	Tripura	Thunderstorm	14-05-18	14/1905	14/2120
Agartala	Northeast India	Tripura	Thunderstorm	14-05-18	14/1660	14/1820
Gondia	Central India	Vidarbha	Thunderstorm	14-05-18	1810	2100
Ambikapur	Central India	Chhattisgarh	Thunderstorm	14-05-18	1830	2130
Jagdapur	Central India	Chhattisgarh	Thunderstorm	14-05-18	1910	1925
Pendra Road	Central India	Chhattisgarh	Thunderstorm	14-05-18	1630	2215
Bilaspur	Central India	Chhattisgarh	Thunderstorm	14-05-18	1830	1900
Mana	Central India	Chhattisgarh	Thunderstorm	14-05-18	1852	2240
Panaji	West India	Goa	Thunderstorm	15-05-18	0045	0200
Kolhapur	West India	Madhya Maharashtra	Thunderstorm	14-05-18	1710	1715

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 Commencement (IST)	Time of end (IST)
Nizamabad	South India	Telangana	Thunderstorm	14-05-18	1700	1830
Ramgundam	South India	Telangana	Thunderstorm	14-05-18	1900	2100
Hyderabad	South India	Telangana	Thunderstorm	14-05-18	1440	1700
Tuni	South India	Coastal Andhra Pradesh	Thunderstorm	14-05-18	1600	2040
Visakhapatnam	South India	Coastal Andhra Pradesh	Thunderstorm	14-05-18	1545	1735
Vijayawada AP	South India	Coastal Andhra Pradesh	Thunderstorm	14-05-18	2015	2030
Masulipatnam	South India	Coastal Andhra Pradesh	Thunderstorm	15-05-18	0440	0540
Kurnool	South India	Rayalaseema	Thunderstorm	14-05-18	1530	1730
Kodaikanal	South India	South Interior Tamil Nadu	Thunderstorm	14-05-18	2140	2400
Adiramapatnam	South India	North Coastal Tamil Nadu	Thunderstorm	15-05-18	0250 0600	0555 0828
Karaikal	South India	Coastal Tamil Nadu	Thunderstorm	14-05-18	1215	1245
Salem	South India	North Interior Tamil Nadu	Thunderstorm	14-05-18	1600	1740
Kozhikode	South India	Kerala	Thunderstorm	14-05-18	2310	0020

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:



+ thunderstorm



+ heavy thunderstorm



sandstorm or dust storm



· squall

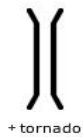
www.visualdictionaryonline.com



hail shower



tropical storm



+ tornado



+ lightning



+ hurricane

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