



India Meteorological Department

FDP STORM Bulletin No. 84 (29-05-2018)

1. CURRENT SYNOPTIC SITUATION:

- ◆ Southwest Monsoon has further advanced remaining parts of Southeast Arabian Sea, Comorin Maldives area, entire Lakshadweep, most parts of Kerala, some parts of Tamilnadu and some more parts of southwest, central & northeast Bay of Bengal. Thus the southwest monsoon has set in over Kerala, today the 29th May, 2018. The Northern Limit of Monsoon (NLM) passes through Lat 12°N/ Long 60°E, Lat 12°N/ Long 65°E, Lat 12°N/ Long 70°E, Kannur, Coimbatore, Kodaikanal, Tuticorin, Lat 09°N/ Long. 80°E, Lat 13°N/ Long 85°E, Lat 18°N/ Long 90°E and Lat.21°N/ Long 93°E. Conditions are favourable for further advance of Southwest Monsoon into some parts of central Arabian Sea, remaining parts of Kerala; some parts of coastal & south interior Karnataka, some more parts of east central & northeast Bay of Bengal and some parts of northeastern states during next 48 hours.
- ◆ The well marked low pressure area over southeast Arabian sea off Kerala Karnataka coasts now lies over southeast Arabian sea and adjoining east central Arabian Sea off north Kerala Karnataka coasts. Associated cyclonic circulation extends upto 7.6 km above mean sea level.
- ◆ The other Well Marked Low Pressure area over east central Bay of Bengal & adjoining Northeast Bay of Bengal persists. The associated cyclonic circulation now extends upto 3.1 km above mean sea level. It is likely to concentrate into a depression during next 12 hours.
- ◆ The east west shear zone persists along Lat. 12 °N and now seen between 3.1 km and 5.8 km above mean sea level over Indian Region.
- ◆ The cyclonic circulation over northwest Madhya Pradesh & neighbourhood now lies over central parts of north Madhya Pradesh and adjoining southeast Uttar Pradesh at 1.5 km above mean sea level.
- ◆ The cyclonic circulation over Punjab & neighbourhood extending upto 0.9 km above mean sea level persists.
- ◆ A cyclonic circulation extending upto 1.5 km above mean sea level lies over central Pakistan & adjoining West Rajasthan.
- ◆ A trough at 0.9 km above mean level runs from above cyclonic circulation to Jharkhand across northern parts of Madhya Pradesh and Chhattisgarh.
- ◆ A trough in westerlies runs roughly along Long. 89°E to the north of Lat. 23°N between 4.5 km and 5.8 km above mean sea level.

SATELLITE OBSERVATIONS during past 24 hrs and current observation:

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

Vortex over Southeast Arabian Sea adjoining Lakshadweep:

Vortex over SE Arabian Sea adjoining Lakshadweep off Karnataka, Kerala centered within half degree of lat 12.0N/71.5. Centre is not well defined. Intensity T 1.0, Associated broken low/medium clouds with embedded intense to very intense convection over Southeast Arabian Sea adjoining Lakshadweep and between lat 9.5N to 15.8N EAST of long 65.0E (Minimum CTT Minus 86 Deg C).

Vortex over East Central Bay and Neighbourhood:-

Vortex over **East Central Bay and Neighbourhood** now lay Centered Within a half degree of lat 18.5N/92.5E. Intensity T1.0 Repeat T1.0. Associated broken low/medium clouds with embedded intense to very intense convection over Bay between lat 10.0N To 20.5N long 83.0E O 96.0E (Minimum CTT Minus 93 Deg C).

CLOUDS DESCRIPTIONS WITHIN INDIA:-

NORTH:-

Broken low/medium clouds with embedded moderate to intense convection seen over Northeast parts of East Uttar Pradesh adjoining Nepal. Scatted low/medium clouds over Jammu & Kashmir, North Himachal Pradesh.

EAST:-

Broken low/medium clouds with embedded isolated weak to moderate convection seen over East Bihar, Gangetic West Bengal, Odisha and Northeast states. Scatted low/medium clouds over rest Bihar, S Chhattisgarh, Jharkhand and Sikkim.

WEST:-

Broken low/medium clouds with embedded moderate to intense convection seen over Goa. Scatted low/medium clouds with embedded isolated weak to moderate convection seen over South Madhya Maharashtra and Konkan. Scatted low/medium clouds over Rest Madhya Maharashtra and Madhya Pradesh.

SOUTH:-

Broken low/medium clouds with embedded moderate to intense convection seen over North Kerala, Coastal Karnataka, Lakshadweep and Andaman & Nicobar Islands. Scatted low/medium clouds over rest parts of the region except isolated low/medium clouds over Telangana, Rayalaseema and South Tamilnadu.

ARABIAN SEA:-

Broken low/medium clouds with embedded moderate to intense convection rest East Central & Southeast Arabian Sea.

BAY OF BENGAL & ANDAMAN SEA:-

Broken low/medium clouds with embedded intense to very intense convection seen over rest Andaman Sea Gulf of Martaban, Arakan Coast and Tenasserim Coast.

Past Weather:

Convection (during last 24 hrs):

Moderate to Intense convection was observed over J&K north Himachal Pradesh north Uttarakhand Sikkim North East States Gangetic West Bengal Sub-Himalayan West Bengal Kerala Costal Karnataka Goa South Konkan Jharkhand NE Andhra Pradesh Orissa Lakshadweep and Andaman & Nicobar Islands

OLR:-

Upto **230** wm^{-2} was observed over J&K north Himachal Pradesh north Uttarakhand Sikkim North East States Gangetic West Bengal Sub-Himalayan West Bengal

Upto **200** wm^{-2} was observed over Kerala Costal Karnataka Goa South Konkan Jharkhand NE Andhra Pradesh Orissa Nicobar Islands (.)

Upto **150** wm^{-2} was observed over Lakshadweep and Andaman Islands

Synoptic features: Jet-Stream - No Jet Stream is observed over India.

Dynamic Features:

Wind Shear, Vorticity & Convergence -

Wind shear up to 30Kts is observed over Northern India and ext south peninsula up to 15 Knots over Central parts of the country.

Positive shear tendency upto 20 knots is observed over N coastal Karnataka Goa Andhra Pradesh. No tendency is observed over rest of the country.

Vorticity up to 250 is observed over N coastal Karnataka Goa Upto 80 is observed over Bihar Jharkhand Kerala ext south Tamilnadu

Positive low level convergence observed over N coastal Karnataka Goa Telangana Andhra Pradesh Madhya Pradesh Chhattisgarh Orissa Jharkhand

Precipitation:

IMR:

Rainfall more than **150** mm was observed over Bihar Jharkhand Andaman Island South Konkan Lakshadweep

Rainfall Up to 70 mm was observed over Coastal Karnataka north Kerala Goa Konkan Madhya Maharashtra Orissa GWB SHWB isolated places over Tamilnadu

Rainfall Up to 10 mm was observed over J & K HP UP and North eastern states Nicobar Island

DWR and RAPID Observations:

Isolated/multiple light to moderate echoes were also seen on DWR Agartala, Bhopal, Hyderabad, Mohanbari, Kolkata, Patiala and Srinagar domains and light echoes Delhi, Jaipur, Kochi, Nagpur and Thiruvananthapuram at around 1530 IST.

RAPID RGB Satellite imagery at 1430 IST indicated significant convection over Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Nagaland, Mizoram, Jharkhand, North Chhattisgarh, South Konkan & Goa, Coastal Karnataka, Lakshadweep 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 increase for next few days over IGP and north India.

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

Delhi – SAFAR analysis & Forecast	29.05.2018	30.05.2018
PM10 (micro-g/m^3)	260	234
PM2.5 (micro-g/m^3)	103	93

2. NWP MODEL GUIDANCE:

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

1. Weather Systems:

Low level Cycirs, Troughs: 12UTC on Day0: At 850 hPa CYCIR near north Myanmar coast

00UTC of Day1: At 850 a weak CYCIR over Punjab

Confluence & wind Discontinuity regions: 00UTC of Day 1-3: At 850hPa a trough from M.P to Maharashtra/Karnataka

Synoptic systems: 00&12UTC of Day-1-3: Feeble trough over J & K and adjoining Pakistan region

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

3. Convergence at 850 hPa:

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

Day0: Jharkhand, Haryana, Chandigarh, Delhi, East RJ, Odisha, Madhya Maharashtra, Chhattisgarh, NI Karnataka,

Day1: Arunachal Pradesh, West UP, East RJ, East MP, Chhattisgarh,

Day2: East RJ, Chhattisgarh,

Day3: East MP, Madhya Maharashtra,

Day4: West MP, East MP, Marathwada, Vidarbha, TN Puducherry,

4. Low level Vorticity:-Positive Vorticity:

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

Day0: NE NMMT, Jharkhand, Haryana, Chandigarh, Delhi, East RJ, TN Puducherry, Kerala,

Day1: Assam Meghalaya, NE NMMT, Jharkhand, TN Puducherry,

Day2: East RJ, TN Puducherry,

Day3: Himachal Pradesh, Jammu Kashmir, TN Puducherry,

Day4: West UP, Haryana, Chandigarh, Delhi, Jammu Kashmir, TN Puducherry

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

Day/Index: Subdivisions with Showalter Index < -4

Day0: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day1: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Coastal AP, Rayalaseema, NI Karnataka, SI Karnataka,

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

Day3: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Himachal Pradesh, Jammu Kashmir, Odisha, Gujarat Region, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, TN Puducherry, NI Karnataka, SI Karnataka,

Day4: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Gujarat Region, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka,

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, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, East RJ, Odisha, Chhattisgarh, Coastal AP, Telangana,

Day1: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, East RJ, West MP, East MP,

Day2: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Madhya Maharashtra, Chhattisgarh,

Day3: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Telangana, NI Karnataka,

Day4: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Gujarat Region, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, NI 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, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, SI Karnataka,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, SI Karnataka,

Day3: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Gujarat Region, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, SI Karnataka,

Day4: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Gujarat Region, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, SI Karnataka,

8. Rainfall and thunder storm activity:

Day/Index: Subdivisions with Precipitation > 2 cm

Day1: NE NMMT, Bihar, Konkan Goa, Andaman Nicobar, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Bihar, Andaman Nicobar, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Andaman Nicobar, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Andaman Nicobar, Kerala,

Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, East UP, West UP, Uttarakhand, Madhya Maharashtra, Andaman Nicobar, Rayalaseema, NI Karnataka, SI Karnataka, Kerala

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

1. Synoptic Systems: The analysis based on 00 UTC indicates a cyclonic circulation over central parts of North Madhya Pradesh and adjoining Southeast Uttar Pradesh in lower Troposphere (850hPa). The forecast shows it will become less marked in next 24 hours. The analysis shows a cyclonic circulation over Punjab and adjoining area. The forecast shows it will become less marked on day1. The analysis shows another cyclonic circulation over central Pakistan and adjoining West Rajasthan in lower Troposphere (850hPa). The forecast shows it will persist till day 3 with North-eastward shift. The analysis shows a East- West Trough extends from this circulation to Jharkhand across Northern parts of Madhya Pradesh and Chhattisgarh. The forecast shows the trough will persist till day 2. Another cyclonic circulation is seen in the analysis over South east Arabian sea off North Kerala coast and adjoining South coastal Karnataka. The forecast shows it will become less marked in next 24 hours.

2. Location of Jet and Jet Core (>60kt) at 500hPa: Although the presence of strong westerlies is found over Eastern parts of the India, North and North western parts and NE states 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 from J&K, along the East-West Trough, around the cyclonic circulations, central parts of India, NE states, extreme south peninsular India and coastal and Interior Kerala and coastal Tamil Nadu during next 2 days; Low level Positive Vorticity is also seen over parts North west Rajasthan and adjoining Punjab, Haryana, Delhi, west Uttar Pradesh, Himachal Pradesh and adjoining Uttarakhand region 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): Over parts of Gujarat, Rajasthan, East Uttar Pradesh, adjoining West Uttar Pradesh, Uttarakhand, Haryana, Delhi, 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, East and west Madhya Pradesh, Andhra Pradesh, along east and west coast of India, Sikkim, Assam, Tripura and adjoining areas on day 1; on day 2 and 3 it remains over same region but appears over Punjab on day 2; Significant zone lies over Gujarat, South Rajasthan, coastal areas along the east coast and west coast, GWB, SHWB, Bihar, Jharkhand, East Uttar Pradesh, parts of West Uttar Pradesh, Orissa, Andhra Pradesh, coastal Tamil Nadu and Kerala, Telangana, coastal Maharashtra, Madhya Maharashtra, Vidarbha, Chhattisgarh, Interior Karnataka and West Madhya Pradesh.

Lifted Index (< -2): Similar to T-storm Index lies over Gujarat, Rajasthan, Haryana, Gangetic plains and along east and west coast of India with an extension over Interior Karnataka and Telangana, East Uttar Pradesh, and West Uttar Pradesh, Uttarakhand, Bihar, Jharkhand, Madhya Pradesh, Orissa, GWB, SHWB, Assam, Arunachal Pradesh, Meghalaya, Mizoram, Tripura and adjoining areas, Telangana, Vidarbha, Chhattisgarh, Andhra Pradesh, coastal Maharashtra, Konkan & Goa, coastal and Interior Karnataka, Kerala, Tamil Nadu, Madhya Maharashtra and Marathwada on day 1;

on day 2 and 3 it remains over the same region but also appears over parts Haryana, Delhi, Punjab and adjoining Himachal Pradesh; Significant zone with maximum negative value is found over East Uttar Pradesh, Bihar, Jharkhand, GWB, Orissa, Andhra Pradesh, South Chhattisgarh and Telangana.

Total Total Index (> 50): Higher than Threshold value of the Index is seen over parts of J&K, Himachal Pradesh, Uttarakhand, North Rajasthan, Punjab, Haryana, Delhi, Uttar Pradesh, Chhattisgarh, Bihar, Jharkhand, GWB, Vidarbha, Telangana, East Madhya Pradesh, Orissa, Sikkim and Arunachal Pradesh on day 1; over most of the parts of the country except extreme South Peninsular India Assam, Tripura, Meghalaya, Mizoram, Nagaland, Manipur and adjoining areas, Kerala, South Interior Karnataka and Tamil Nadu on day 2 and 3; Significant zone with Maximum value of the index lies over Punjab, North Rajasthan, Haryana, Delhi, Uttarakhand, Uttar Pradesh, North west and East Madhya Pradesh, Chhattisgarh, Bihar, Jharkhand, Orissa 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 during next 3 days; significant zone lies over parts of Gujarat, Rajasthan, Uttar Pradesh, Bihar, Jharkhand, Chhattisgarh, East and west Madhya Pradesh, GWB, SHWB, Orissa, Chhattisgarh, Andhra Pradesh and Telangana.

CAPE (> 1000): Mostly seen over parts of Gujarat, Rajasthan, southern peninsular India, along west coast and east coast, GWB, Orissa, Bihar, Jharkhand, East and West Uttar Pradesh, Andhra Pradesh, Rayalaseema, Tamil Nadu, Kerala, Karnataka, Konkan and Goa, Telangana, coastal Maharashtra including Mumbai, south Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, East and West Madhya Pradesh, Sikkim, Assam, Arunachal Pradesh, Meghalaya, Tripura and adjoining areas during next 3 days; over parts of Uttarakhand, North Haryana and adjoining area on day 3; maximum value of the index is seen over parts of GWB, Bihar, Jharkhand, Orissa, coastal and Interior Andhra Pradesh, coastal Tamil Nadu, coastal Maharashtra, South Madhya Maharashtra, coastal and North Interior Karnataka, East Uttar Pradesh, Gujarat and adjoining South Rajasthan.

CIN (50-150): Over sub-divisions along east and west coast of India, extreme south over Kerala and Tamil Nadu and whole south Peninsular India; the value of the index lies in the above range over most of the parts of the country except J&K on day 1 and over most of the parts of the country except J&K and Northern parts of Punjab and Himachal Pradesh; significant zone with highest value of the index lies over parts of Gujarat adjoining South West Rajasthan, West Uttar Pradesh adjoining Uttarakhand, South Chhattisgarh, Telangana, Vidarbha, Orissa and Andhra Pradesh.

5. Rainfall Activity:

Above 130 mm Rainfall: over parts of coastal Karnataka on day 2.

70- 130 mm Rainfall: over parts of Nagaland and adjoining Manipur on day 1; over parts of North coastal and Interior, Karnataka, Konkan and Goa on day 2; over parts of GWB, Jharkhand and Orissa on day 3.

40-70 mm Rainfall: over parts of South coastal Maharashtra, Orissa, Arunachal Pradesh, South Assam, Mizoram and adjoining areas on day 1; over parts of coastal Kerala and coastal Karnataka on day 1 and 2; over parts of Sikkim, Assam, GWB, Jharkhand and Orissa on day 3; over some parts of South Interior Karnataka and Nagaland on day 2.

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

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

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 Gujarat, extreme south peninsular India, southern parts of west coast and the east coast, parts of Kerala, Karnataka, Tamil Nadu, south coastal Maharashtra, Madhya Maharashtra, Marathwada, Konkan and Goa, Andhra Pradesh, Telangana, GWB, SHWB, Bihar, Jharkhand, South Chhattisgarh, Orissa, East Uttar Pradesh, Sikkim and NE states during next 3 days; over some parts of West Madhya Pradesh adjoining south east Rajasthan and North Chhattisgarh on day 1.

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 Interior Karnataka, Telangana, Chhattisgarh, Kerala, Tamil Nadu, Andhra Pradesh, Orissa, Bihar, Jharkhand, East Uttar Pradesh adjoining Uttarakhand, GWB, SHWB, South Madhya Maharashtra, Marathwada, Konkan and Goa, South coastal Maharashtra, Foothills of Himalaya, Sikkim and NE states.

CAPE (> 1500): Greater than threshold value over parts of Gujarat, Southeast and West Rajasthan, East and West Uttar Pradesh, Uttarakhand, 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, Madhya Maharashtra, coastal Maharashtra, Chhattisgarh, West Madhya Pradesh, Vidarbha and NE states during next 3 days; over parts of Punjab, Himachal Pradesh, Uttarakhand, Haryana, Delhi and adjoining areas on day 2 and 3; Maximum value of the index is seen over the parts of Orissa, GWB, coastal and Interior Andhra Pradesh, coastal Karnataka, coastal Tamil Nadu, Jharkhand, coastal Maharashtra including Mumbai, Konkan and Goa, Telangana, Chhattisgarh and Gujarat.

CIN (50-150): It covers most of the parts of the country except central parts of Madhya Pradesh on day 1 and 2; on day 3 it remains over the same region but disappears over NE states; it has significant larger values over North and North-western parts of country including Gujarat, coastal Maharashtra, Madhya Maharashtra, Marathwada, East and West Uttar Pradesh, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Delhi, Vidarbha, Madhya Pradesh, Chhattisgarh during next 3 days.

3. Rainfall and thunderstorm activity:

Above 130 mm Rainfall: over parts of East Bihar and South coastal Karnataka on day 1; over some parts of Arunachal Pradesh on day 3.

70- 130 mm Rainfall: over parts of East Bihar adjoining SHWB, Konkan and Goa, Kerala and coastal Karnataka on day 1; over parts of Kerala and South coastal Karnataka, Arunachal Pradesh, Mizoram, Nagaland, Manipur and adjoining areas on day 2; over parts of Bihar and Arunachal Pradesh on day 2; over parts of GWB, Arunachal Pradesh and Kerala on day 3.

40- 70 mm Rainfall: over parts of Kerala, Karnataka, Tamil Nadu Arunachal Pradesh, Mizoram, Nagaland, Manipur and adjoining areas during next 3 days; over parts of East Bihar adjoining SHWB, Jharkhand, Orissa and South coastal Maharashtra on day 1; over parts of GWB, Assam and Meghalaya on day 2; over parts of GWB, Orissa and East Assam on day 3.

10- 40 mm Rainfall: Over parts of Kerala, Tamil Nadu, Karnataka, Konkan and Goa, Sikkim, GWB, SHWB, Foothills of Himalaya, Bihar, Jharkhand, Orissa and NE states during next 3 days; over parts of J&K and South coastal Maharashtra on day 1; over parts of East Uttar Pradesh and South Madhya Maharashtra on day 3.

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

3. IOP ADVISORY FOR 24 and 48Hrs:

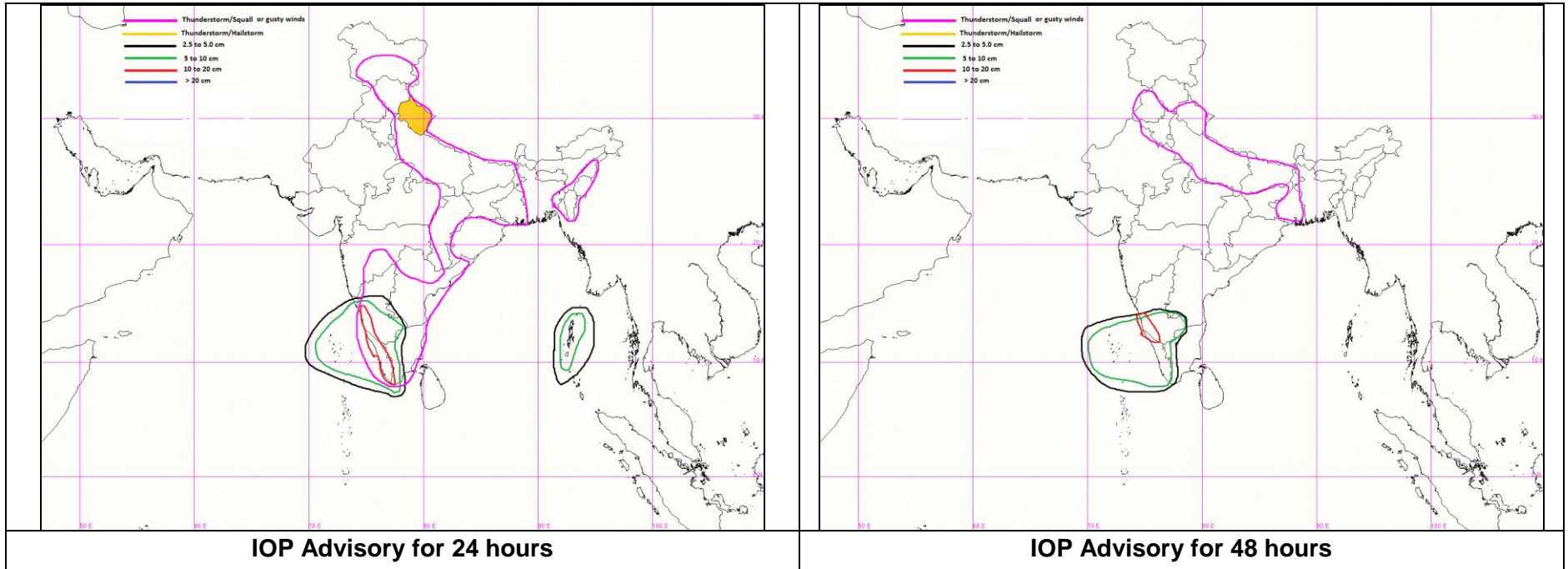
Summary and Conclusions:

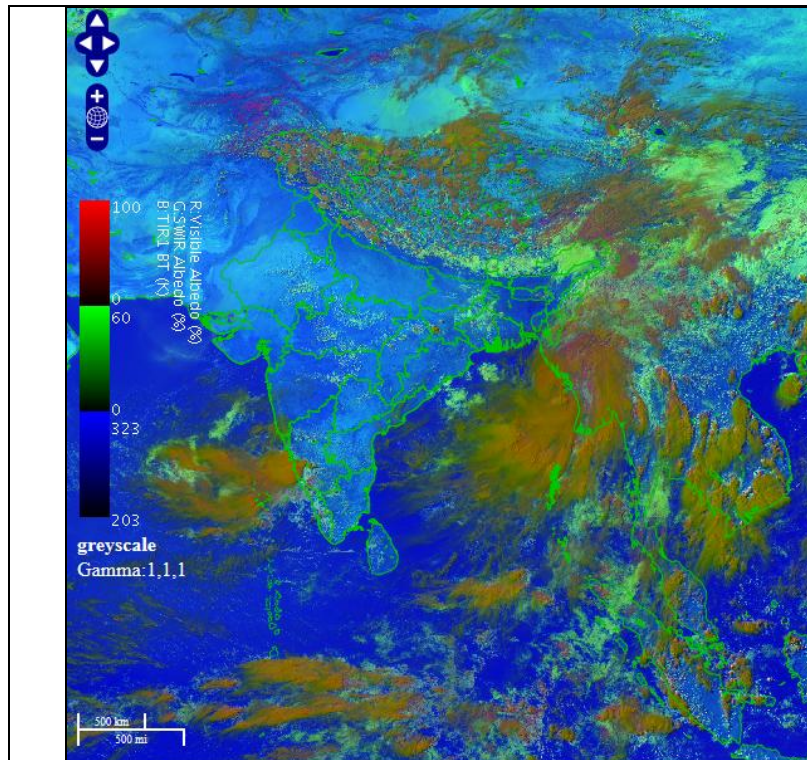
- Synoptic analysis indicates that there is a well marked low pressure area over southeast Arabian sea and adjoining east central Arabian Sea off north Kerala Karnataka coasts. The associated cyclonic circulation is also exist. Due to this systems, the Kerala, Lakshadweep and South Interior Karnataka may get heavy to very heavy rainfall on Day-1. The heavy rainfall activity may continue to the same area for Day-2.
- The other Well Marked Low Pressure area over east central Bay of Bengal & adjoining Northeast Bay of Bengal persists. This will give the heavy rainfall activity over Andaman Sea on Day-1.
- Due to the trough from Jharkhand across northern parts of Madhya Pradesh and Chhattisgarh, the Jharkhand, Bihar and UP may get thunderstorm with gusty winds on Day-1.

IOP Area for Day-1 & Day-2:

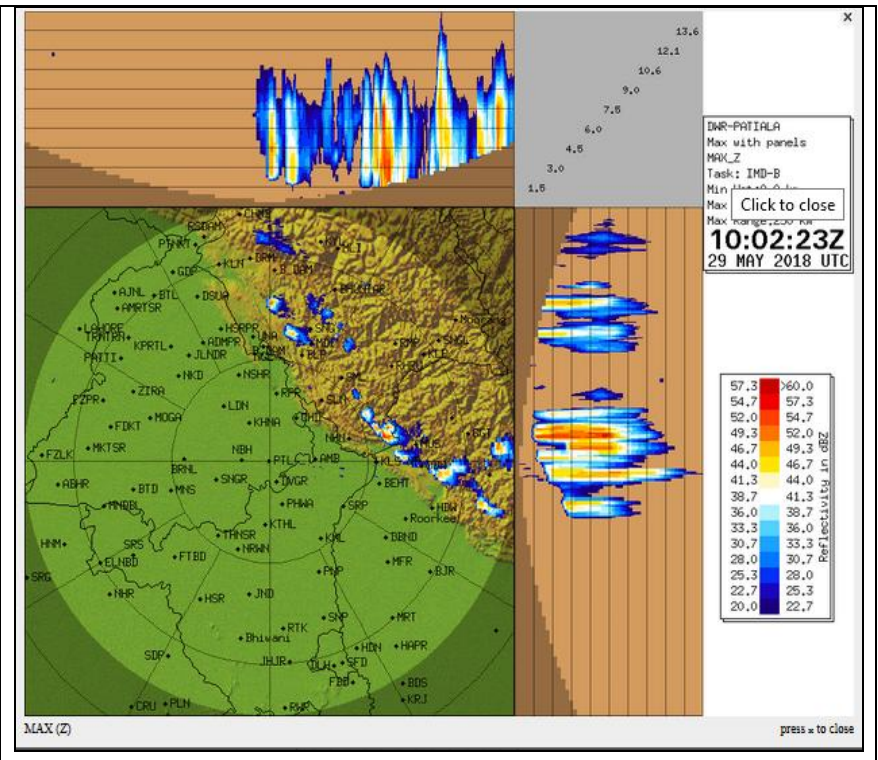
24 hour Advisory for IOP:	48 hour Advisory for IOP:
<p>Significant Rainfall: Coastal Karnataka, South Interior Karnataka, Kerala, Interior Tamil Nadu, Lakshadweep, Andaman and Nicobar Islands</p> <p>Thunderstorm with squall or gusty winds: Karnataka, Kerala, Tamil Nadu, Rayalaseema South Madhya Maharashtra,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

Graphical Presentation of Potential Areas for Severe Weather:

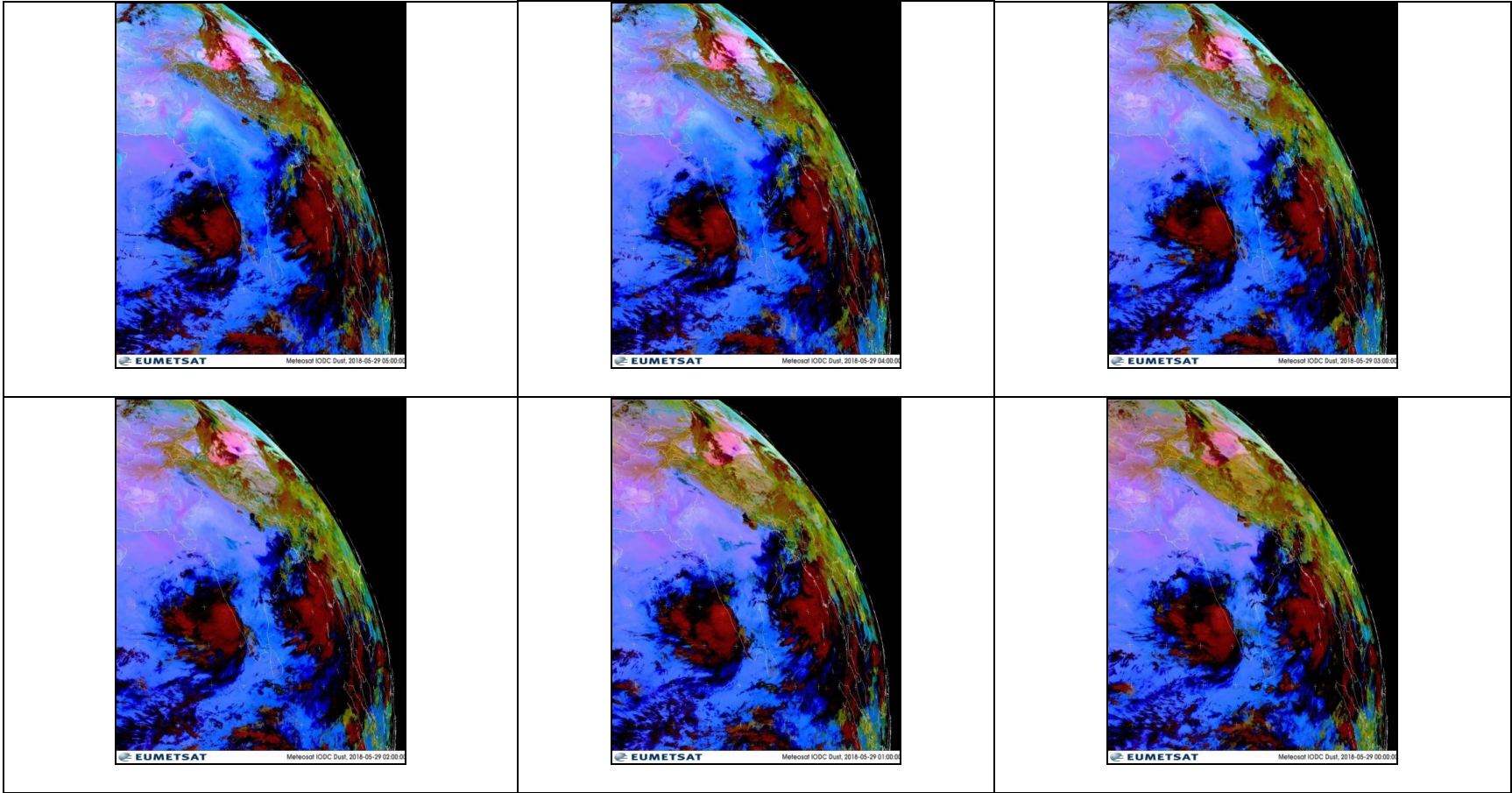




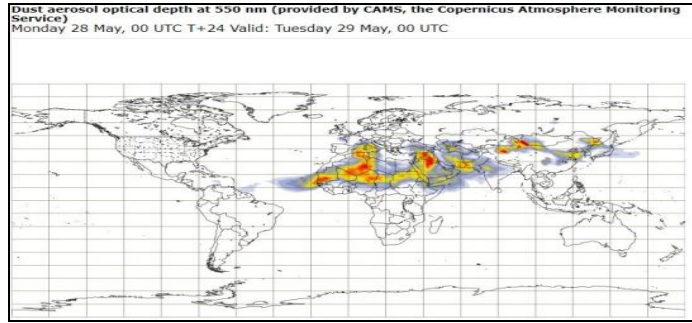
RAPID RGB Imagery at 1430 IST of the Day



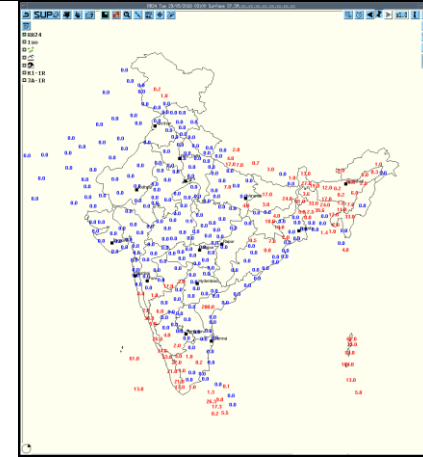
DWR Patiala reflectivity image at 1532 IST



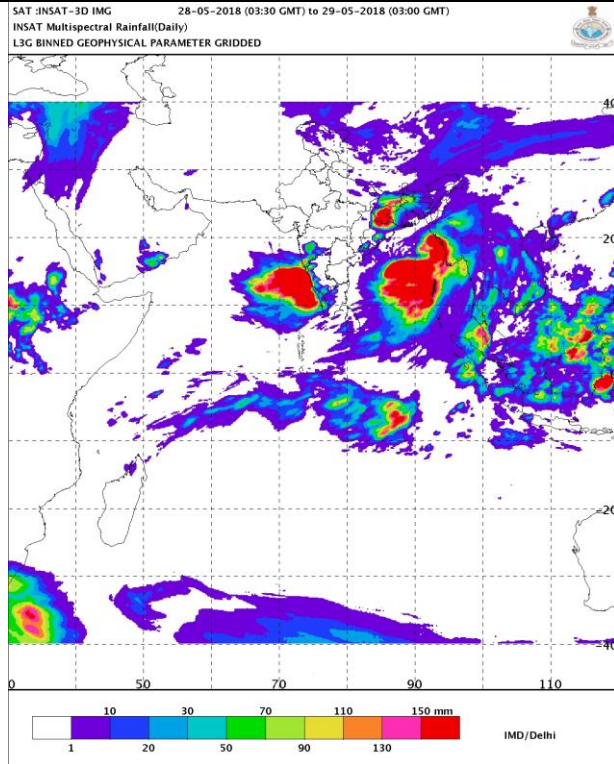
Observed Satellite Dust Images of today



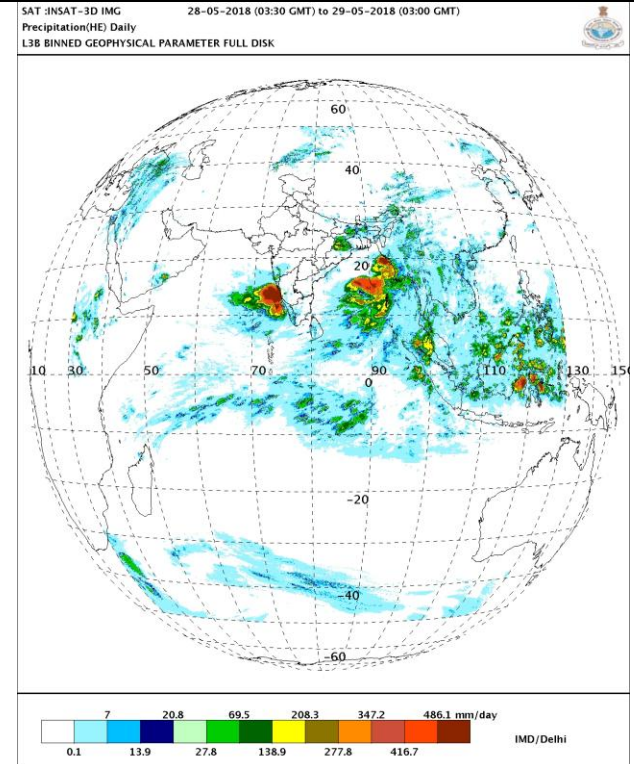
Dust Forecast



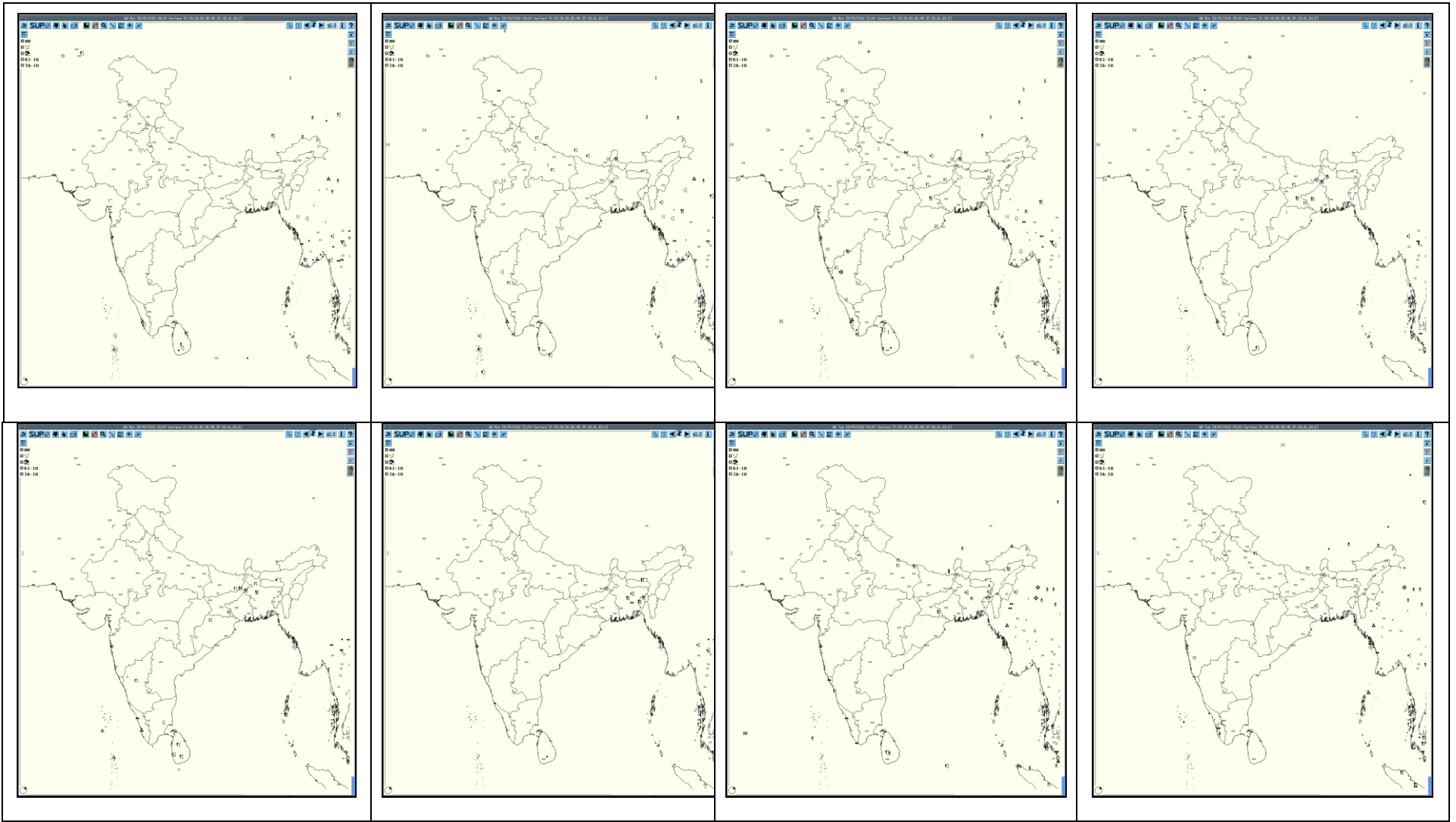
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today



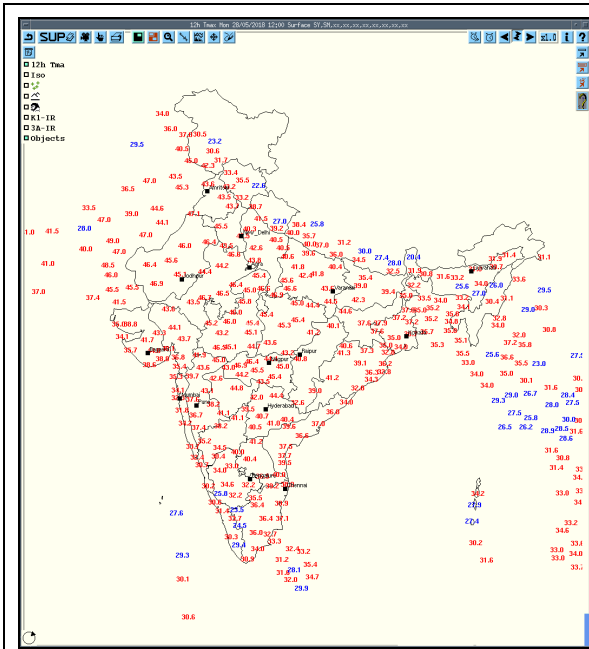
HEM



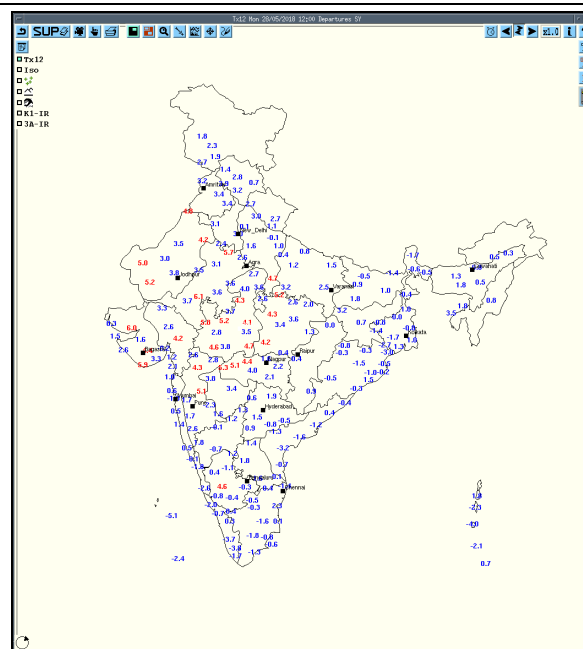
IMR



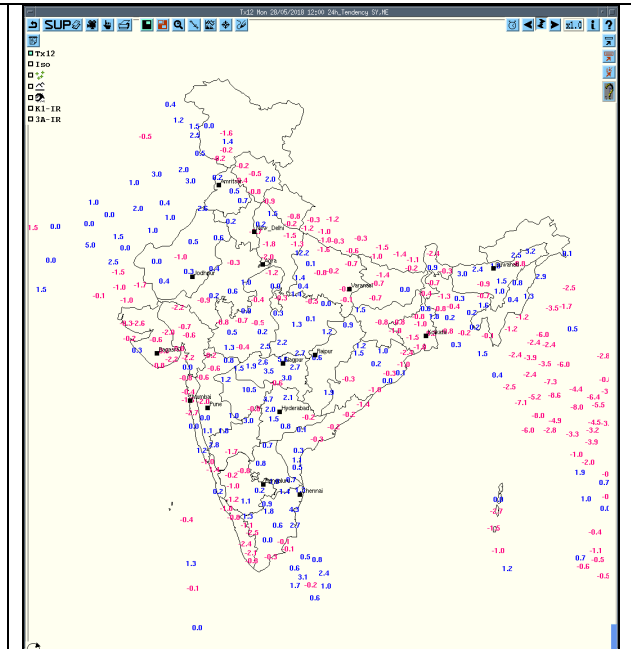
3hourly Past weather at 06, 09, 12, 15, 18, 21 UTC of yesterday and 00 & 03 hrs UTC of today



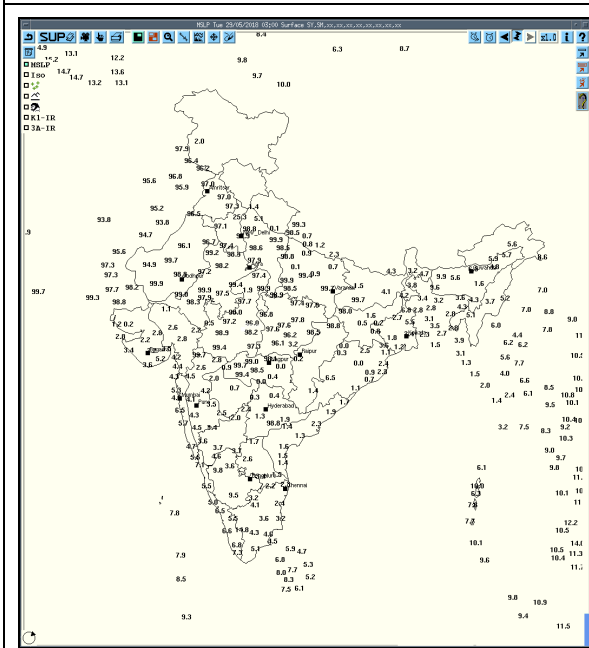
Tmax



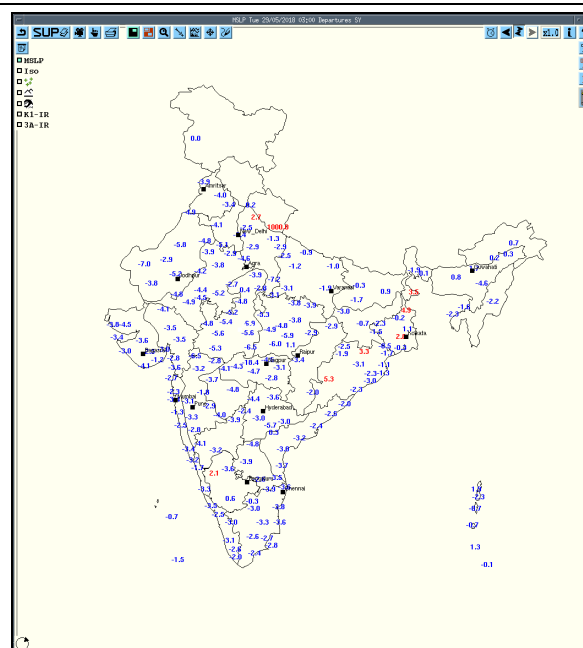
Departure Tmax



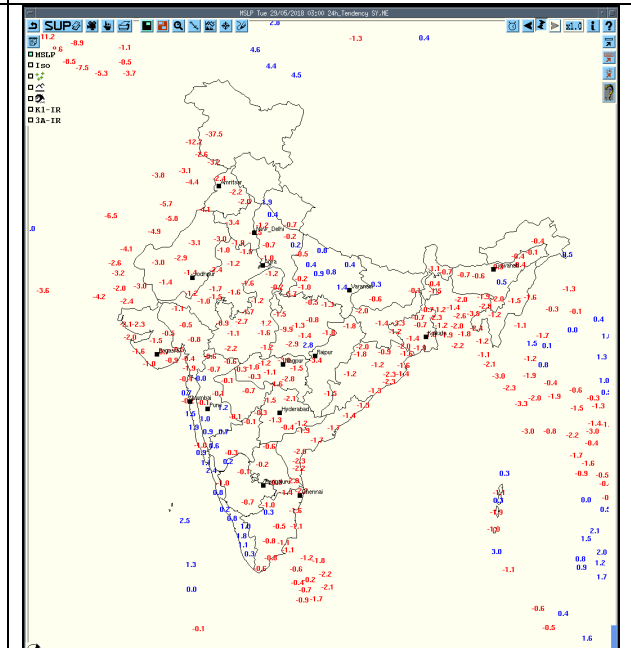
Tendency Tmax



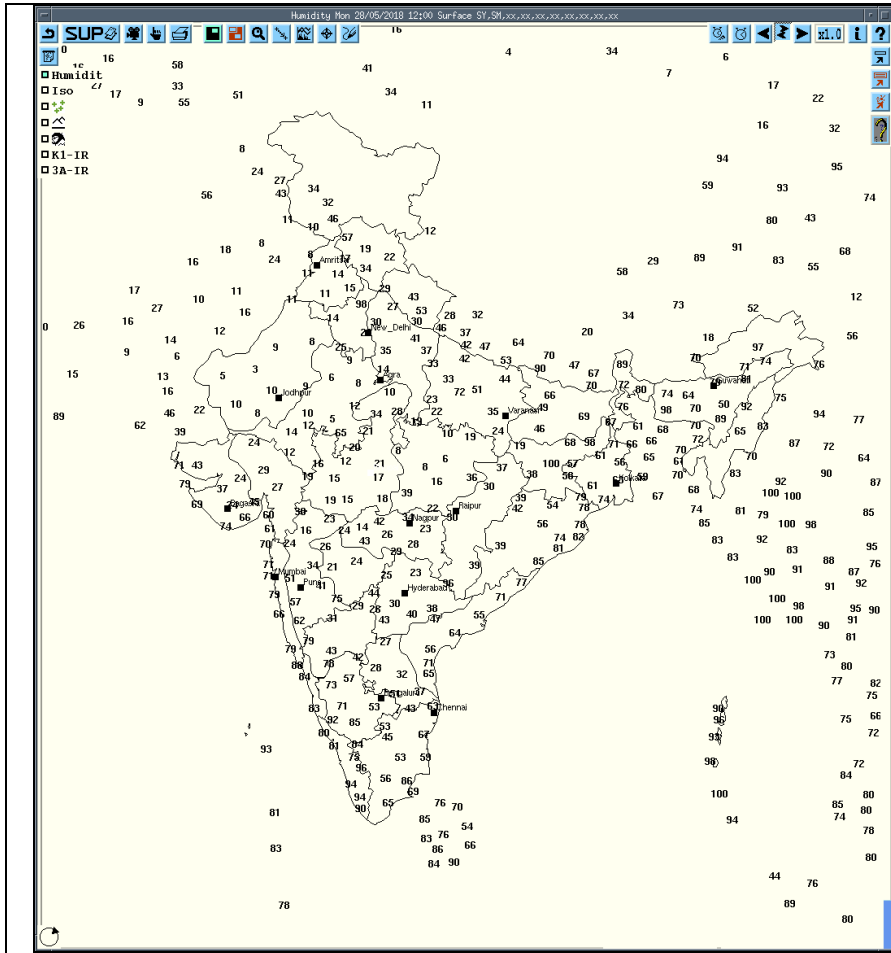
MSLP



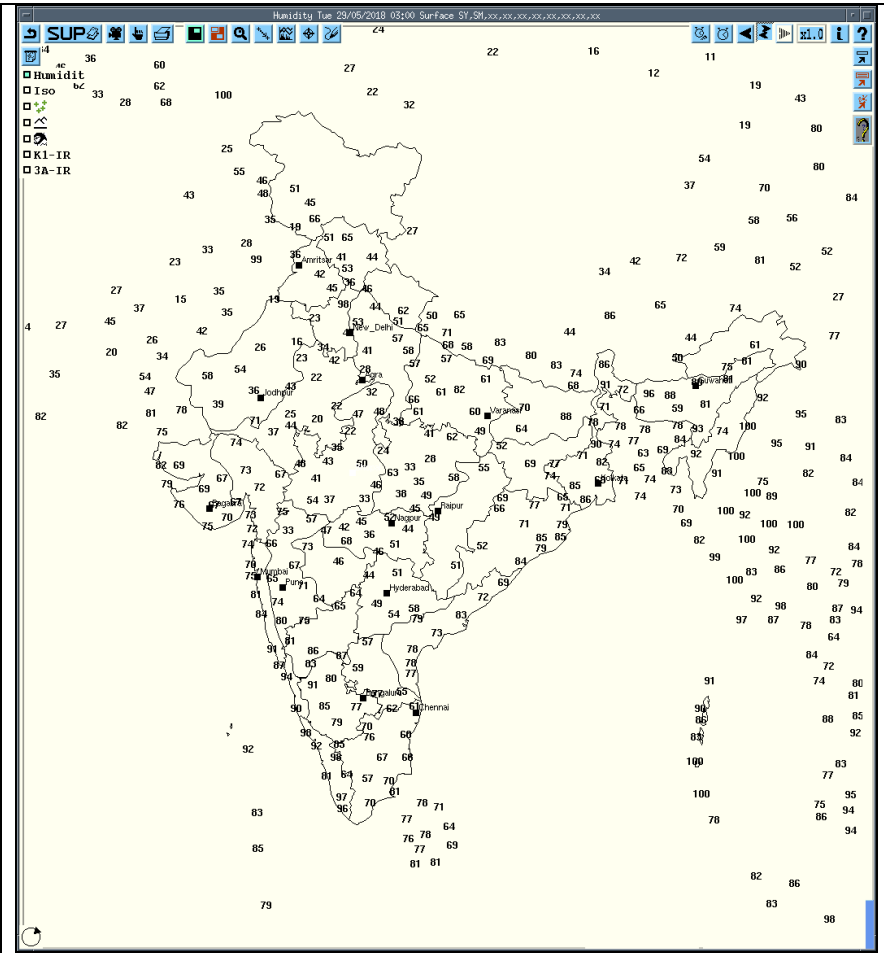
Departure MSLP



Tendency MSLP



RH at 1200UTC yesterday



RH at 0300UTC today

Past 24 hours DWR Report:

Radar Station name	Date	Time interval of observation (UTC)	Organization of the cells (Isolated single cells/multiple cells/ convective regions/ squall lines) with height of 20 dBZ echo top and maximum reflectivity	Formation w.r.t radar station and Direction of movement	Remarks	Associated severe weather if any	Districts affected	
Jaipur	29-05-18	280300-290300	Nil (*DWR Shutdown from 281625-290705 due to power cut)					
Patiala	29-05-18	280300-290252	No Significant Echo	-	--	--	--	
Agartala	29-05-18	280300-290300*	No Significant Echo during the period (*DWR operational from 0600 to 2000IST)					
Visakhapatnam	29-05-18	280900	Isolated single cells of maximum reflectivity of 42dBz with height of 13 kms	W(121 kms) moving SEly	CB cells are forming from 0831UTC	--	--	
		281200	Multiple cells of maximum reflectivity of 62dBz with height of 17 kms	W(117 KMS) NW(104 KMS)& N(132 KMS) moving SEly	CB cells are developing and matured well(62 dBz) at 1141UTC	Thunderstorm with rain	Vizianagaram, Visakhapatnam Dist. (AP) Koraput, Ganjam and Gajapati Dist. (Orissa)	
		281500	Multiple cells of maximum reflectivity of 59dBz with height of 18 kms	NW(60 KMS)& N(199 KMS) moving SEly	Since last observation CB cells are developing and matured well and dissipated at 1441UTC	Thunderstorm with rain	Vizianagaram, Visakhapatnam Dist. (AP) Ganjam and Gajapati 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 Commencement (IST)	Time of end (IST)
Qazigund	Northwest India	Jammu & Kashmir	Thunderstorm	28-05-18	1700	1800
Pahalgam	Northwest India	Jammu & Kashmir	Thunderstorm	28-05-18	1440 1720 1810	1455 1740 1830
Kupwara	Northwest India	Jammu & Kashmir	Thunderstorm	28-05-18	1455	1910
Banihal	Northwest India	Jammu & Kashmir	Thunderstorm	28-05-18	1440 1915	1550 1945
Bhaderwah	Northwest India	Jammu & Kashmir	Thunderstorm	28-05-18	1600	1800
Churk	Northwest India	Uttar Pradesh	Thunderstorm	28-05-18	1520	1540
Gorakhpur	Northwest India	Uttar Pradesh	Thunderstorm	28/29-05-18	1840 0600	1850 0625
Bahraich	Northwest India	Uttar Pradesh	Thunderstorm	29-05-18	0430	0630
Fursatganj	Northwest India	Uttar Pradesh	Thunderstorm	28-05-18	1425 1505	1615 1515
Lucknow	Northwest India	Uttar Pradesh	Thunderstorm	28-05-18	1720	1750
Mukteshwar	Northwest India	Uttarakhand	Thunderstorm	28-05-18	1326	1500
Gangtok	East India	Sikkim	Thunderstorm	28-05-18	1230	1800
Tadong	East India	Sikkim	Thunderstorm	28-05-18	1445	1720
Malda	East India	SHWB	Thunderstorm	28-05-18	1935	2400
Malda	East India	SHWB	Squall (Dir- NW , Max. speed-55kmph)	28-05-18	2014	2015
Asansol	East India	GWB	Thunderstorm	28-05-18	2300	0100
Bankura	East India	GWB	Thunderstorm	28-05-18	1845	2035
Sriniketan	East India	GWB	Thunderstorm	28-05-18	At night	
Patna	East India	Bihar	Thunderstorm	28-05-18	2045	2220
Gaya	East India	Bihar	Thunderstorm	28-05-18	1715	2120
Bhagalpur	East India	Bihar	Thunderstorm	28-05-18	1700	2350
Purnia	East India	Bihar	Thunderstorm	28-05-18	1810 2310	1920 2340
Ranchi	East India	Jharkhand	Thunderstorm	28-05-18	1545	2250
Jamshedpur	East India	Jharkhand	Thunderstorm	28-05-18	1830	2310
Jharsuguda	East India	Odisha	Thunderstorm	28-05-18	2205	2340
Keonjhar	East India	Odisha	Thunderstorm	28-05-18	1455	1600
Port Blair	A and N Islands	A and N Islands	Thunderstorm	28-05-18	2310	2340

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)
Itanagar	Northeast India	Arunachal Pradesh	Thunderstorm	29-05-18	29/0100	29/0435
Dibrugarh	Northeast India	Assam	Thunderstorm	28-05-18	28/2310	28/2330
N/Lakhimpur	Northeast India	Assam	Thunderstorm	29-05-18	29/0440	29/0550
Guwahati	Northeast India	Assam	Thunderstorm	28/29-05-18	28/2255	28/29/0410
Dhubri	Northeast India	Assam	Thunderstorm	28/29-05-18	TS at night	
Lengpui	Northeast India	Mizoram	Thunderstorm	29-05-18	29/0400	29/0500
Kailasahar	Northeast India	Tripura	Thunderstorm	29-05-18	29/0300	29/0400
Agartala	Northeast India	Tripura	Thunderstorm	29-05-18	29/0220	29/0320
Kannur	South India	Kerala	Thunderstorm	28-05-18	1805	1840
Mangaluru AP	South India	Coastal Karnataka	Thunderstorm	28/29-05-18	2105 0200	2228 0420
Panambur	South India	Coastal Karnataka	Thunderstorm	28/29-05-18	1800 2035 0025	1948 2200 0430
Karwar	South India	Coastal Karnataka	Thunderstorm	28-05-18	1615	1700
Honavar	South India	Coastal Karnataka	Thunderstorm	28-05-18	1900 2100	2000 2135
Shirali	South India	Coastal Karnataka	Thunderstorm	28-05-18	2400	0200
Kalaburgi	South India	North Interior Karnataka	Thunderstorm	28-05-18	1900	2030
Belagavi AP	South India	North Interior Karnataka	Thunderstorm	28-05-18	1527	1740
Chitradurga	South India	South Interior Karnataka	Thunderstorm	28-05-18	1420	1510
Chamarajanagar	South India	South Interior Karnataka	Thunderstorm	28-05-18	1450	1700

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

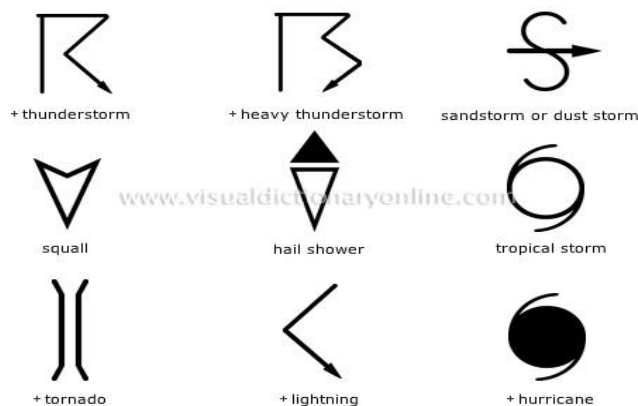
For Radar images of the past 24 hours including mosaic of images:

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	