



India Meteorological Department

FDP STORM Bulletin No. 38 (13-04-2018)

1. CURRENT SYNOPTIC SITUATION:

NWFC INFERENCE (0300UTC of the Day):

- ◆ The Western Disturbance as a trough with its axis at 5.8 km above mean sea level roughly along Long 78° E to the north of Lat. 32°N persists.
- ◆ A fresh Western Disturbance is likely to affect Western Himalayan region from 15th April.
- ◆ The cyclonic circulation over southeast Rajasthan and adjoining West Madhya Pradesh & Gujarat region now lies over west Madhya Pradesh and adjoining southeast Rajasthan and Gujarat region and extends upto 0.9 km above mean sea level.
- ◆ A cyclonic circulation at 1.5 km above mean sea level lies over central parts of south Madhya Pradesh and neighbourhood.
- ◆ The trough from east Bihar to Gangetic West Bengal persists and now extends upto 3.1 km above mean sea level.
- ◆ The trough of low at mean sea level over southwest Bay of Bengal and adjoining Sri Lanka now lies over Comorin area and neighbourhood with a cyclonic circulation aloft extending upto 1.5 km above mean sea level.
- ◆ The trough in easterlies from south Tamilnadu to North Interior Karnataka now runs from the above cyclonic circulation to north Interior Karnataka across Interior Tamilnadu, Kerala and south Interior Karnataka and extends upto 1.5 km mean sea level.

SATELLITE OBSERVATIONS during past 24 hrs and current observation:

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

Low Level Circulation:

Broken low/medium clouds with embedded intense to very intense convection over Arabian Sea between latitude 6.0N to 1.0N long 70.0E to 77.0E in association with low level circulation over the area.

Western disturbance (WD):

Broken multi-layered clouds with embedded moderate to intense convection seen over South Caspian Sea, and Iran adjoining Pakistan in association with another WD over the area.

Convective Activity:

No convective clouds

Precipitation Nowcast Based on WMO Scope Product:

Based on 0300 UTC satellite data indicate precipitation is likely to take place during next three (03 hrs) over Kerala, East Arunachal Pradesh adjoining Assam and over Lakshadweep.

Clouds descriptions within India:

Broken low/medium clouds with embedded moderate to intense convection seen over East Arunachal Pradesh. Scattered low/medium clouds with embedded moderate convection seen over rest Arunachal Pradesh, Sikkim, Nagaland, Manipur, Central Chhattisgarh, adjoining Odisha and over Northeast Assam. Scattered low/medium clouds seen over Jammu & Kashmir, North Himachal Pradesh, Sub-Himalayan west Bengal, Mizoram, Tripura, East Madhya Pradesh, Goa, Southern parts of South Interior Karnataka, Northern parts of North Interior Karnataka and rest Tamilnadu. Isolated low/medium clouds over South Gangetic west Bengal, Jharkhand, Meghalaya and rest Assam.

Arabian Sea:-

Scattered low/medium clouds with embedded moderate to intense convection seen over Southeast and Comorin.

Bay of Bengal & Andaman Sea:

Scattered low/medium clouds with embedded moderate to intense convection seen over Bay between lat 9.0N to 12.0N and long 82.0E to 90.0E.

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

Moderate to Intense convection was observed over North East Rajasthan West-Central Gujarat North-East Madhya Pradesh coastal Orissa South Gangetic West Bengal East Jharkhand South Interior Karnataka Adjoining Kerala South Kerala Tamilnadu Sub Himalayan West Bengal Arunachal Pradesh Assam Nagaland & Manipur.

OLR:

Up-to 230 wm^{-2} observed over Jammu & Kashmir Himachal Pradesh North Uttrakhand North-East States south Kerala South Tamilnadu.

Synoptic Features (Westerly Trough & Jet Stream): Trough in westerlies roughly along Long 78.0E & north of Lat 32.0N.

Dynamic Features:-

Up to 40- 60 Knots wind shear is observed over North India 30-40 a wind shear observed over rest India.

A positive Vorticity field at 850 hPa is observed over west-central Gujarat north-east Uttar Pradesh (.)

Negative Low Level Convergence observed over Jammu & Kashmir West Rajasthan Jharkhand & adjoining Bihar

Precipitation:**IMR:**

Rainfall upto 150 mm observed over South Kerala Adjoining Tamilnadu.

Upto 10-50 mm North Kerala adjoining Tamilnadu

Upto 10 observed over Jammu and Kashmir North Himachal Pradesh Uttrakhand North east states South GWB North Madhya Pradesh North Chhattisgarh

Convective Activity over Indian Region:

Cell No	Date /Time(UTC)	Location	Minimum CTT -Deg C	Remarks/ Movement
1	13/0600	South Coastal Tamilnadu	89	-
2	13/0600	South Kerala	87	-

RADAR and RAPID RGB Observation:

Isolated/multiple light convection was seen on DWR Nagpur, Patna and Vishakhapatnam at around 1330 IST.

RAPID RGB Satellite imagery at 1200IST indicates significant convection over Arunachal Pradesh and South Tamilnadu.

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 north-western part of India for next few days.

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

Delhi – SAFAR analysis & Forecast	13.04.2018	14.04.2018
PM10 (micro-g/m ³)	165	181
PM2.5 (micro-g/m ³)	73	80

2. NWP MODEL GUIDANCE:

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

1. Weather Systems:

Low level CYCIRS, Troughs:

00 UTC of Day 1-5: 850 hPa trough over Bangladesh and adjoining NE India. Strong winds in Day 5

00 UTC of Day 1-2: CYCIR over comorin area and off coast Kerala

Confluence & wind Discontinuity regions: 12 UTC of Day 0-4: 925hPa N-S discontinuity over Southern Peninsular India and SW-NE over MP Chhattisgarh Odisha

Synoptic Systems: 12 UTC of Day 1-2: WD as a weak trough at 500 hPa over J & K. A fresh WD over J & K in 00 UTC of Day 5

00UTC of Day 1-3: 925 hPa anticyclone over Bay of Bengal & Arabian Sea. In Day 4-5 associated winds are stronger

2. Location of jet and jet core (>60kt) at 500hPa): 12UTC - Nil (>50kts) Day 0: NE states and >40 knots in Day 1

3. Convergence at 850 hPa: Day/Index: Subdivisions with Lower Level Convergence > 15 x 10⁻⁵ /s

Day0: Arunachal Pradesh, East RJ, West MP, Madhya Maharashtra, Tamilnadu, Puducherry, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Assam Meghalaya, Jammu Kashmir, Madhya Maharashtra, Marathwada, Vidarbha, Tamilnadu, Puducherry, NI Karnataka, SI Karnataka,

Day2: NE NMMT, East MP, Madhya Maharashtra, Tamilnadu, Puducherry, SI Karnataka,

Day3: Jharkhand, East MP, Madhya Maharashtra, Tamilnadu, Puducherry, SI Karnataka, Kerala,

Day4: NE NMMT, East MP, Madhya Maharashtra, Tamilnadu, Puducherry, NI Karnataka, SI Karnataka,

4. Low level Vorticity:-Positive Vorticity: Day/Index: Subdivisions with Lower Level Vortex > 15 x 10⁻⁵ /s

Day0: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Tamilnadu, Puducherry,

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

Day2: Assam Meghalaya, Sub Himalayan WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir,

Day3: Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Bihar, Uttarakhand, Himachal Pradesh,

Day4: Assam Meghalaya, Sub Himalayan WB, Bihar, Uttarakhand, Himachal Pradesh,

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, Uttarakhand, Odisha, Coastal AP, Rayalaseema, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Odisha, Coastal AP, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Vidarbha, Chhattisgarh, Telangana, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Chhattisgarh, Coastal AP, Telangana, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Tamilnadu, 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, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Chhattisgarh,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Jharkhand, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, East RJ, Odisha, West MP, East MP, Vidarbha, Chhattisgarh,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Vidarbha, Chhattisgarh, Telangana,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, Vidarbha, Chhattisgarh,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, Odisha, East MP, Vidarbha, Chhattisgarh

7. K-Index :-> 35[Very Unstable thunderstorm likely]: Day/Index: Subdivisions with K Index > 40

Day0: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Uttarakhand, Odisha, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Uttarakhand, Odisha, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Uttarakhand, Odisha, West MP, East MP, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Bihar, Odisha, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Uttarakhand, Odisha, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, Tamilnadu, 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, Tamilnadu, Puducherry, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Kerala,

Day4: Assam Meghalaya, NE NMMT, Sub Himalayan WB,

Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB

*****>8cm over few parts of eastern Assam and Arunachal Pradesh in 00 UTC of Day 1 and in Day 5 over Meghalaya and adjoining areas of Assam*****

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

1. Synoptic Systems:

The analysis based on 00 UTC indicates a cyclonic circulation in lower troposphere (925 hPa) over west Madhya Pradesh and adjoining south east Rajasthan and Gujarat region. It will persist till day2 and become less marked thereafter. The analysis shows another cyclonic circulation in lower troposphere over south west Madhya Pradesh and adjoining Vidarbha region. The forecast shows it will merge with the trough on day 2. The forecast shows a trough runs from east Bihar up to Gangetic West Bengal on day1. The analysis shows a trough in lower troposphere extending from south Madhya Maharashtra up to north Kerala across south interior Karnataka. The forecast shows it will persist till day3. The analysis also shows a trough in easterlies extends from Comorin area to north interior Karnataka across Interior Tamil Nadu, Kerala and south interior Karnataka the forecast shows it will persist for next 24 hours.

2. Location of Jet and Jet Core (>60kt) at 500hPa: Although the presence of strong westerlies is found over east and northeast 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 foothills of Himalaya from J&K, Himachal Pradesh, Uttarakhand up to NE states also seen along the cyclonic circulation and along the trough for next 3 days. It is inferred that some parts of West Rajasthan and adjoining areas has Positive Vorticity on day 1 and 2.

4. Spatial distribution of T-storm Initiation Index, Lifted Index, Total Total Index, CAPE, CIN and Sweat Index [High potential for thunderstorm]:

T-Storm Initiation Index (> 3): The threshold value of the index > 3 over coastal areas of Gangetic West Bengal and Kolkata, parts of Orissa, Bihar, Jharkhand, Andhra Pradesh, Telangana, Rayalaseema, Kerala, Karnataka, Tamil Nadu, parts of Gujarat, coastal Maharashtra including Mumbai, Konkan & Goa, Madhya Maharashtra, Marathwada, Vidarbha adjoining Chhattisgarh, coastal areas along the east coast and west coast, extreme south peninsular India, Assam, Tripura and adjoining area, SHWB on all 3 days; over parts of west Madhya Pradesh on day2; Maximum value of the index is seen over parts of Gujarat, GWB, Orissa on day 1; over parts of Gujarat, coastal Maharashtra, Konkan and Goa, GWB, Orissa, coastal Andhra Pradesh, Assam, Bihar and Jharkhand on day 2 and 3; over parts of Telangana on day 3.

Lifted Index (< -2): The threshold value of the index is below -2 over parts of Gujarat, coastal Andhra Pradesh, coastal Karnataka, Telangana, Rayalaseema, Konkan and Goa, Kerala, Tamil Nadu, southern part of west coast, coastal areas along the east coast, Chhattisgarh, East Vidarbha, Orissa, GWB, SHWB, Jharkhand, Sikkim and NE states on all 3 days; over parts of East Madhya Pradesh on day2; over parts of East and West Madhya Pradesh on day2; over parts of Bihar on day 2 and 3; maximum negative value of the index less than -8 is seen over parts of GWB and coastal Orissa during all 3 days; over parts of Tripura and adjoining areas on day 3.

Total Index (> 50): The threshold value of the index is > 50 over some parts of Rajasthan, Gujarat and Himachal Pradesh, Himachal Pradesh, Haryana, Delhi, Uttarakhand, Uttar Pradesh, Madhya Pradesh and northern parts of Madhya Maharashtra on day 1; over parts of Gujarat, Uttarakhand, Haryana, Uttar Pradesh, Rajasthan, Madhya Pradesh, Bihar, Jharkhand, Madhya Maharashtra, SHWB and Chhattisgarh on day 2 ; over parts of Gujarat, Uttarakhand, Punjab, Haryana, Delhi, Uttar Pradesh, Rajasthan, Madhya Pradesh, Bihar, Jharkhand, GWB, SHWB and Chhattisgarh on day 3; maximum value of the index >60 is seen over parts of south east Rajasthan, Uttarakhand and West Uttar Pradesh on day 1; over parts of Bihar and adjoining east Uttar Pradesh on day 2; over parts of Rajasthan, Bihar, Jharkhand, northern parts of west Madhya Pradesh, Uttar Pradesh and GWB on day 3.

Sweat Index (> 300): Although the threshold value of the Index >300 is seen in most parts of the country except Northern parts of Rajasthan, Punjab, Haryana Delhi and west Uttar Pradesh during next 3 days but the maximum value of the index greater than 700 is seen over parts of NE states and Foothills of Himalaya on day 1; over parts of Orissa, Assam, Tripura and adjoining areas, Foothills of Himalaya on day 2; on day 3 mostly over NE states and Foothills of Himalaya, GWB, SHWB and Orissa.

CAPE (> 1000): Mostly in areas of southern peninsular India, along west coast and east coast and parts of GWB, Orissa, Andhra Pradesh, Telangana, Rayalaseema, Kerala, Tamilnadu, Karnataka, Gujarat, coastal Maharashtra, Konkan and Goa, Jharkhand, GWB, SHWB, Chhattisgarh, Telangana, Assam, Tripura and adjoining areas during all 3 days; over parts of Bihar and adjoining areas on day 3; Maximum value of the index greater than 2500 is seen mostly over parts of GWB, coastal Karnataka on day1; over parts of GWB, coastal Orissa and coastal Andhra Pradesh on day 2; over parts of coastal Andhra Pradesh, coastal Orissa, GWB, coastal Tamil Nadu, Tripura and adjoining areas on day 3.

CIN (50-150): Although the threshold value of the Index lies in the range of (50–150) over most part of the country on day1 except J&K, Punjab, Himachal Pradesh, Uttarakhand, Haryana, Delhi and Northern parts of Rajasthan; over parts of Madhya Pradesh, Chhattisgarh, GWB, Orissa, Andhra Pradesh, Telangana, Rayalaseema, Kerala, Tamil Nadu, Karnataka, Gujarat, coastal Maharashtra, Madhya Maharashtra, Marathwada, Konkan and Goa, Jharkhand, GWB, SHWB and some parts of south west Rajasthan on day 2 and 3; but the maximum value of the index > 400 is seen over parts of Assam and adjoining areas on day 2; over parts of Bihar, Jharkhand, SHWB, Meghalaya and adjoining areas on day 3.

5. Rainfall Activity:

40-70 mm Rainfall: over parts of Arunachal Pradesh and adjoining areas on day 1.

10-40 mm Rainfall: over parts Kerala, Karnataka, Tamil Nadu and NE states during next 3 days; over parts of Orissa on day 1 and 3.

Up to 10 mm rainfall: Over parts of J&K, Foothills of Himalaya, Himachal Pradesh, Uttarakhand, Sikkim, NE states, Orissa, GWB, SHWB, Chhattisgarh, Madhya Pradesh, Andhra Pradesh, Rajasthan, Vidarbha, Marathwada, Madhya Maharashtra, Kerala, Karnataka, Tamil Nadu, Telangana, Rayalaseema coastal Maharashtra, Konkan and Goa, NE states on all 3 days;

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

1. Model Reflectivity (Max. dBZ):

> 25 dBZ Model Reflectivity: Over parts of NE states, Orissa, Andhra Pradesh, GWB, Kerala, Tamil Nadu, Punjab adjoining Rajasthan, Chhattisgarh on day 1; over parts of J&K, Orissa, GWB, NE states, some parts of Telangana and adjoining Chhattisgarh on day 2; over parts of

J&K, East Madhya Pradesh, East Vidarbha, Arunachal Pradesh, Assam, Mizoram, Nagaland and adjoining areas on day 3; maximum value of the Model reflectivity is seen over parts of GWB and adjoining areas on day 1; over parts of Assam, Arunachal Pradesh, Meghalaya, Tripura and adjoining areas on day 2.

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 south peninsular India, southern parts of west coast and the east coast, coastal Andhra Pradesh, Karnataka, Sikkim, NE states, GWB, SHWB during all 3 days; below threshold value is seen over parts of Orissa, Jharkhand, Chhattisgarh, Vidarbha, south Madhya Maharashtra, Konkan and Goa, Telangana, Rayalaseema, some parts of south east Madhya Pradesh on day 1; over parts of Telangana, Rayalaseema, Konkan and Goa, Orissa, Bihar, Chhattisgarh, south Madhya Maharashtra and Marathwada, some parts of south east Madhya Pradesh on day 2; on day 3 over parts of Telangana, Rayalaseema, Orissa, Chhattisgarh, south Madhya Maharashtra and Marathwada, Konkan and Goa, Bihar, SHWB and Jharkhand ; maximum value of the index is seen over parts of Rajasthan, Gujarat, Madhya Pradesh, Chhattisgarh, Jharkhand, Vidarbha and Marathwada on day 1; over parts of Rajasthan, Gujarat, Madhya Pradesh, Haryana, Punjab, Uttar Pradesh, Jharkhand, Chhattisgarh, Madhya Maharashtra, Marathwada and Vidarbha on day 2; on day 3 over parts of J&K, Punjab, Himachal Pradesh, Uttarakhand, Haryana, Delhi, Uttar Pradesh, Rajasthan, Madhya Pradesh, Chhattisgarh, Orissa, Jharkhand, GWB, Vidarbha, Madhya Maharashtra and Marathwada.

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

CAPE (> 1500): Greater than threshold value over parts of Gujarat, coastal areas of west coast, coastal Maharashtra, Konkan and Goa, coastal areas along the east coast, coastal Orissa, GWB and Kolkata, SHWB, parts of Tamil Nadu, Kerala, Karnataka, Andhra Pradesh, Extreme south peninsular India, Assam, Tripura and adjoining areas on all 3 days; over parts of Telangana, Jharkhand, Vidarbha and Chhattisgarh on day 1 and 2; over parts of Telangana, Chhattisgarh, Vidarbha, Bihar and Jharkhand on day 3; Maximum value of the index greater than 3500 is seen over the parts of coastal Karnataka, coastal Kerala, coastal Orissa, coastal Tamil Nadu and coastal Andhra Pradesh on day 1; over parts of south coastal Maharashtra, GWB, Orissa, Karnataka and Kerala on day 2; over parts of coastal Maharashtra, Konkan & Goa, coastal Kerala and Karnataka, GWB and Orissa on day 3.

CIN (50-150): Although the threshold value of the Index lies in the range of (50–150) over most part of the country except Rajasthan, Haryana, Delhi, Uttarakhand and west Uttar Pradesh during all 3 days the maximum value of the index > 400 is seen over Gujarat, southeast Madhya Pradesh and East Vidarbha on day 1; over parts of Gujarat, Madhya Pradesh, Bihar, Jharkhand and GWB on day 2; over parts of Gujarat, coastal Maharashtra, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Bihar, Jharkhand and GWB on day 3.

3. Rainfall and thunderstorm activity:

70- 130 mm Rainfall: over some parts Assam, Arunachal Pradesh and adjoining areas on day1; over parts of Assam Meghalaya and adjoining areas on day2.

40-70 mm Rainfall: over parts of Assam, Meghalaya, Arunachal Pradesh, Mizoram, Nagaland, Tripura and adjoining areas on day 1 and 2; over some parts of GWB on day 1.

10- 40 mm Rainfall: over parts of Sikkim, NE states, Kerala, Karnataka, Tamil Nadu and adjoining areas during all 3 days, over parts of Orissa on day 1 and 2; over parts of GWB on day1; over parts of Telangana and adjoining Chhattisgarh on day 2; over parts of J&K on day3.

Up to10 mm Rainfall: Over parts of J&K, Himachal Pradesh, foothills of Himalaya, Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Telangana, Rayalaseema, Vidarbha, Madhya Pradesh, Chhattisgarh, Orissa, GWB, Sikkim and NE states during next 3 days; over parts of Jharkhand on day 1 and 2; over some parts of west Madhya Pradesh on day 2; over some parts of Himachal Pradesh and Uttarakhand on day 3; over parts of Madhya Maharashtra and Marathwada on day 2 and 3.

3. IOP ADVISORY FOR 24 and 48Hrs:

Summary and Conclusions:

Day-1 & Day-2:

- Yesterday's cyclonic circulation over southeast Rajasthan and adjoining West Madhya Pradesh & Gujarat region is seen today over west Madhya Pradesh and adjoining southeast Rajasthan and Gujarat region and extends upto 0.9 km above mean sea level. Another cyclonic circulation lies over central parts of south Madhya Pradesh and neighbourhood at 1.5 km above mean sea level. The anti cyclone over Bay of Bengal sits in a position to supply enough moisture to these systems to cause thunderstorms with gusty winds at isolated places over Odisha, Jharkhand, East Madhya Pradesh, Vidarbha, and Chhattisgarh during next 24 hours. With the westward shift of the anticyclone, the activity will reduce and only Odisha is likely to experience thunderstorms with gusty winds at isolated places.
- The trough from east Bihar to Gangetic West Bengal persists today and extends upto 3.1 km above mean sea level. The moisture supply from Bay of Bengal combined with this system will cause the rainfall activity to continue over east and northeast India for two more days, with the second day witnessing decrease in area. Eastern parts of Arunachal Pradesh and Assam& Meghalaya are very likely to get heavy rainfall during next 24 hours.
- The trough of low at mean sea level over southwest Bay of Bengal and adjoining Sri Lanka now lies over Comorin area and neighbourhood with a cyclonic circulation aloft extending upto 1.5 km above mean sea level. A trough in easterlies runs from the above cyclonic circulation to north Interior Karnataka across Interior Tamilnadu, Kerala and south Interior Karnataka and extends upto 1.5 km mean sea level. Together these systems will cause thunderstorm with gusty winds over isolated places in Kerala, Tamil Nadu, coastal and south interior Karnataka, coastal Andhra Pradesh and Rayalaseema. Squall is also likely over Kerala for 48 hours and over Tamil Nadu for 24 hours. Squall is likely over Lakshadweep also on day 2 due to the slight westward shift of the above system. In association with, southern parts of Kerala is likely to get heavy rainfall during next 48 hours and southern parts of Tamil Nadu during 24 hours.

24 hour Advisory for IOP:

Significant Rainfall:

Assam, Meghalaya, Arunachal Pradesh
Kerala, Tamilnadu

Thunderstorm with Squall/Gusty winds:

Assam, Meghalaya, Nagaland, Manipur, Mizoram & Tripura
Sub-Himalayan West Bengal & Sikkim, Gangetic West Bengal, Odisha,
Jharkhand
East Madhya Pradesh, Vidarbha, Chhattisgarh
Kerala, Tamil Nadu, Coastal & South Interior Karnataka, Rayalaseema,
Coastal Andhra Pradesh

Thunderstorm with Hailstorm:

Nil

48 hour Advisory for IOP:

Significant Rainfall:

Kerala

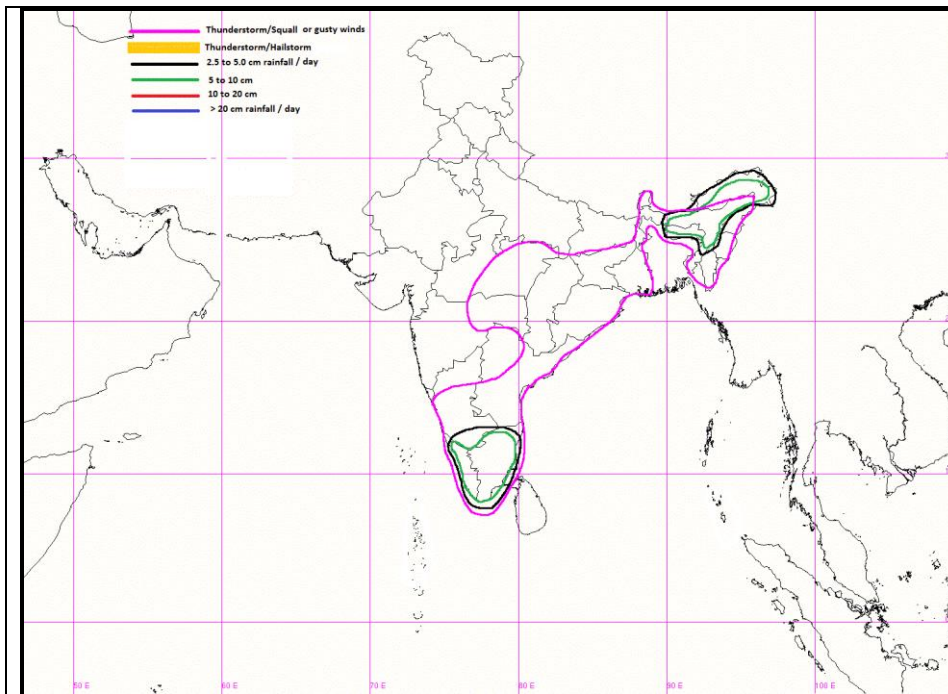
Thunderstorm with Squall/Gusty winds:

Assam, Meghalaya, Nagaland, Manipur, Mizoram & Tripura
Sub-Himalayan West Bengal & Sikkim, Odisha
Kerala, Tamil Nadu, Coastal & South Interior Karnataka,
Rayalaseema, Coastal Andhra Pradesh, Lakshadweep

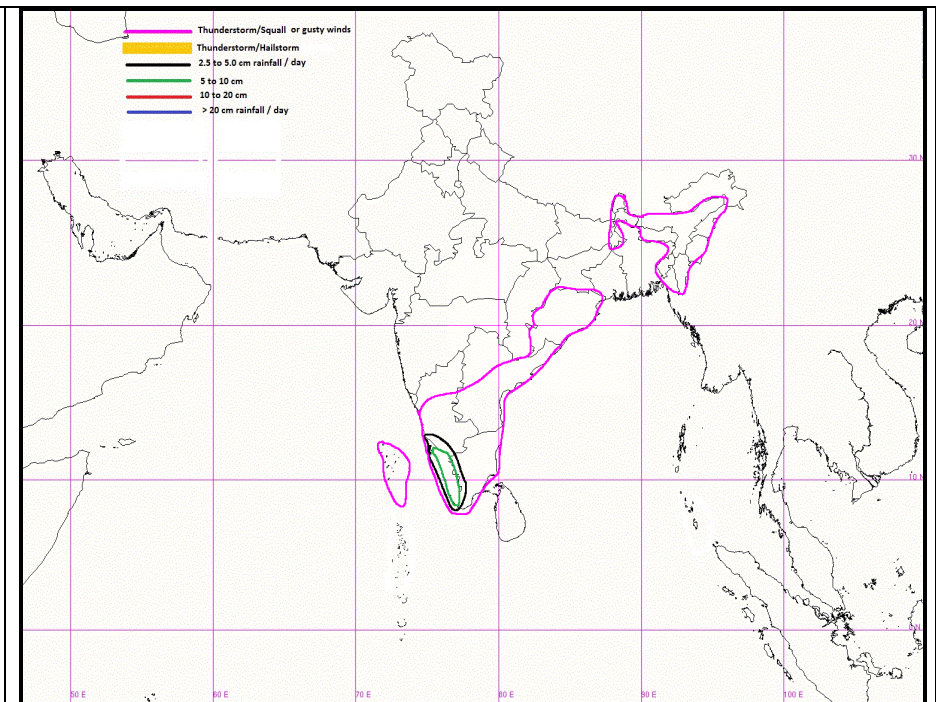
Thunderstorm with Hailstorm:

Nil

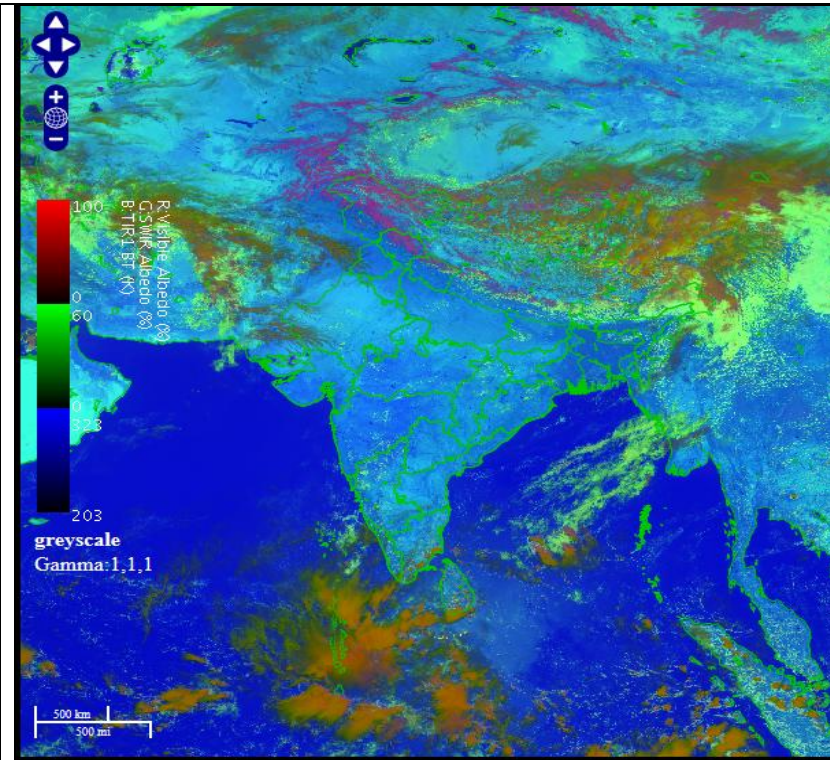
Graphical Presentation of Potential Areas for Severe Weather:



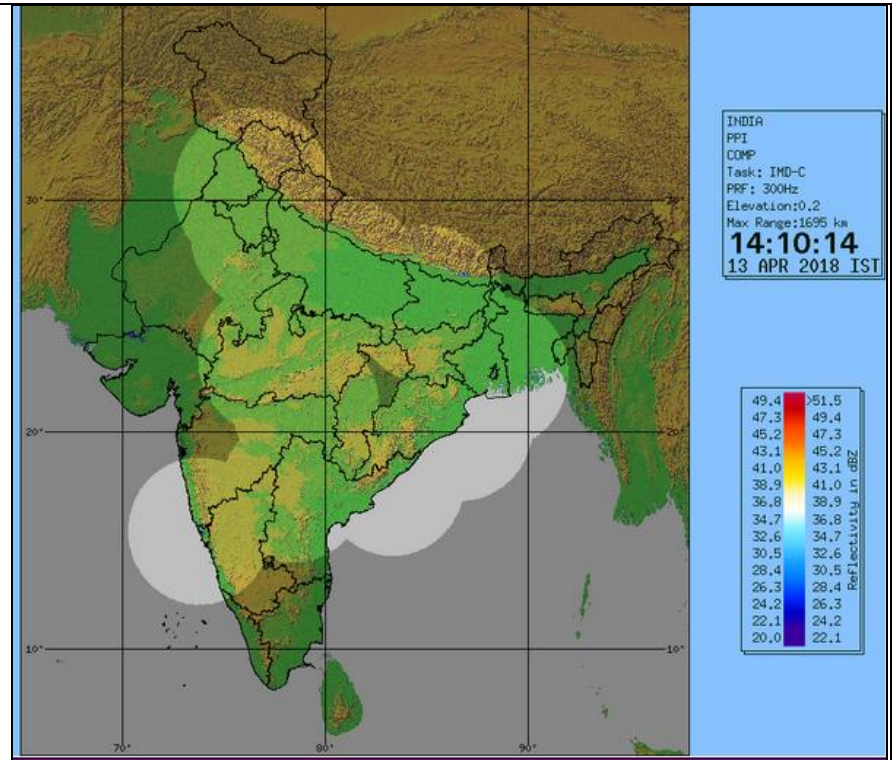
IOP Advisory for 24 hours



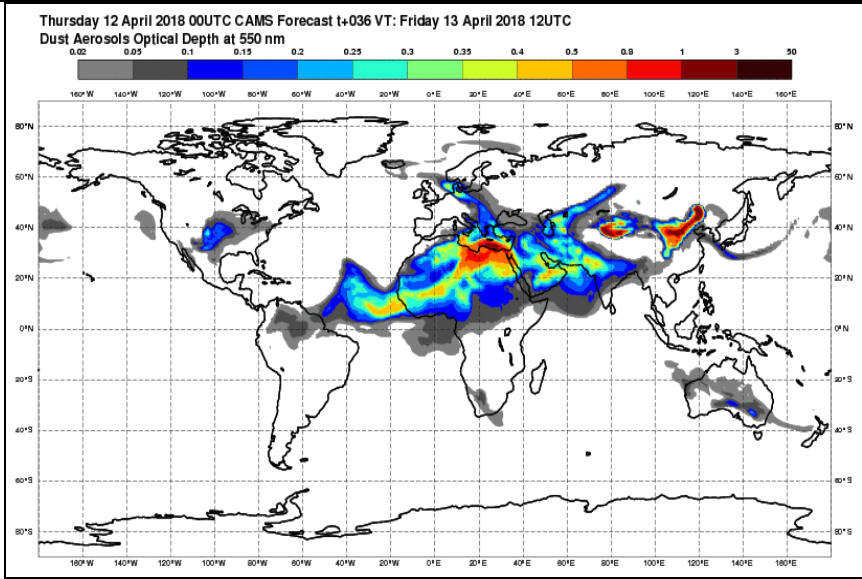
IOP Advisory for 48 hours



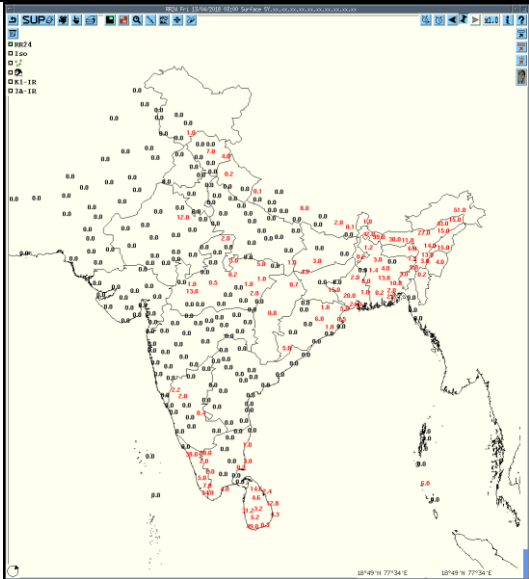
RAPID RGB Imagery at 1200 IST of the Day



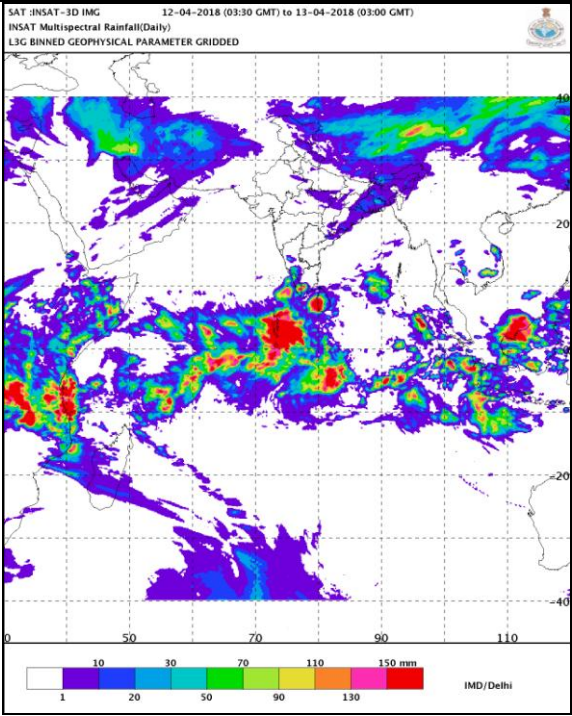
Radar Composite at 1410 IST of the Day



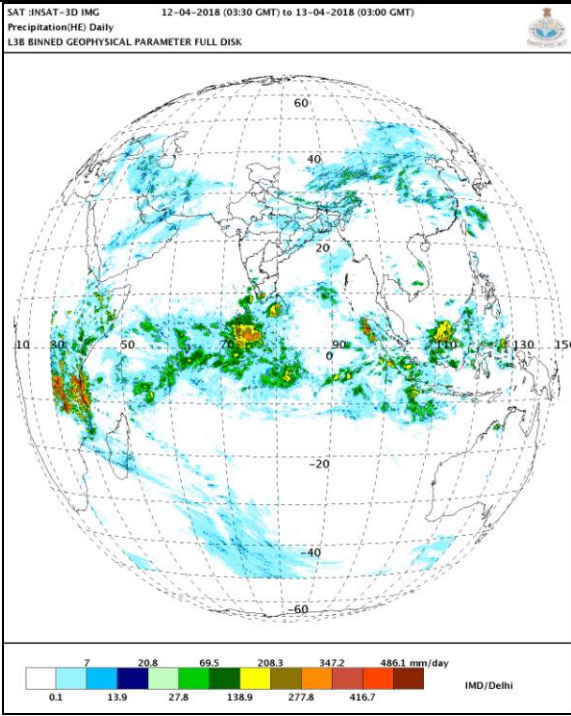
Dust Forecast



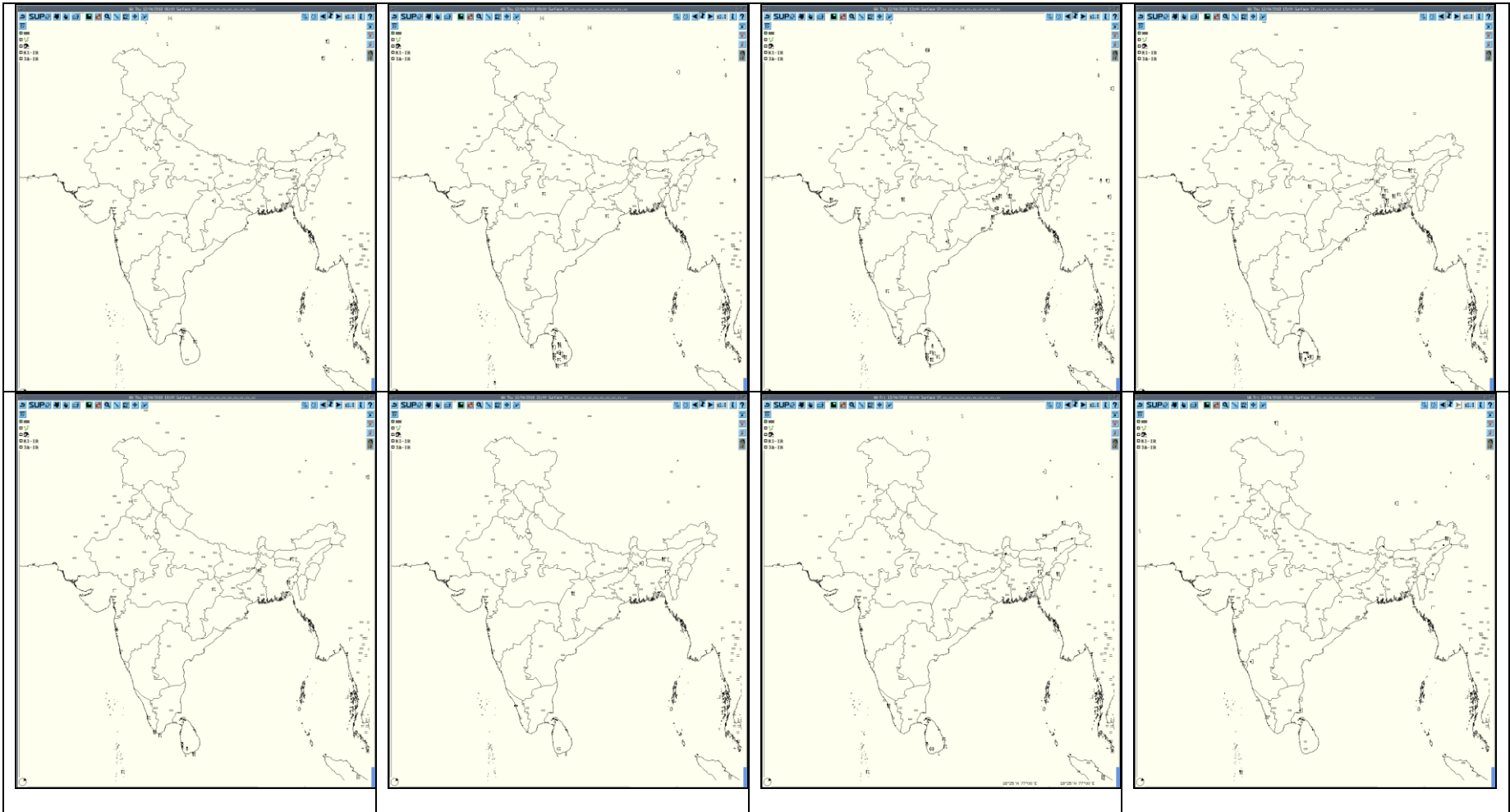
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today



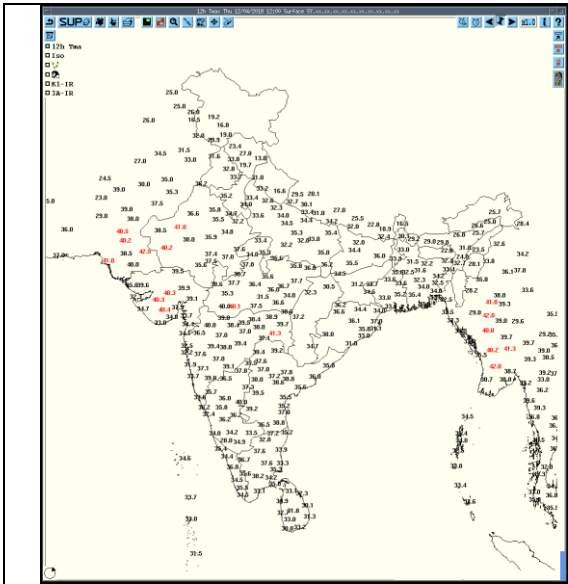
IMR



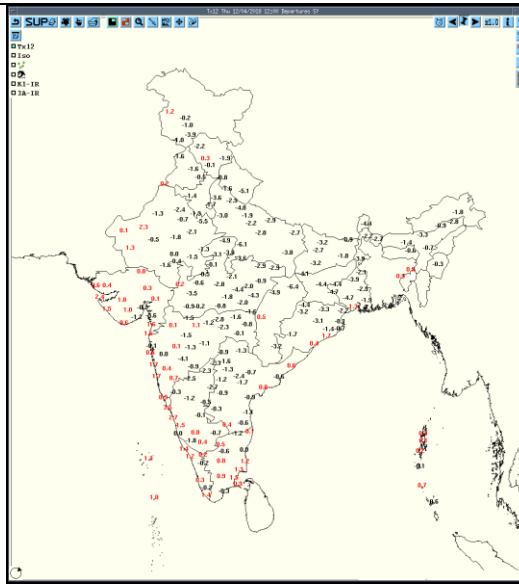
HEM



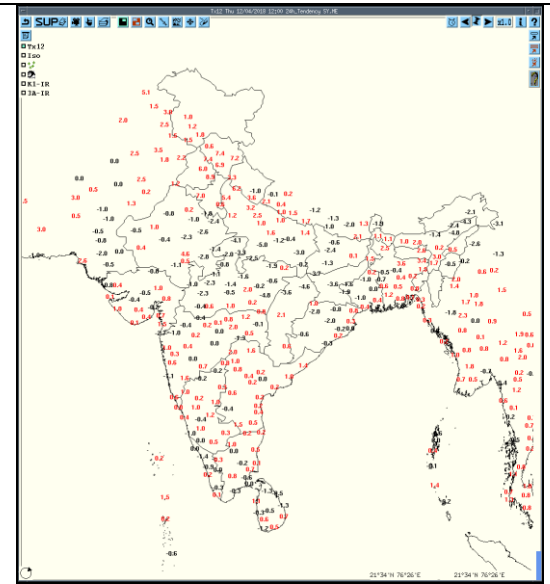
3hourly Past weather at 06, 09, 12, 15, 18, 21 UTC of yesterday and 00 & 03 hrs UTC of today



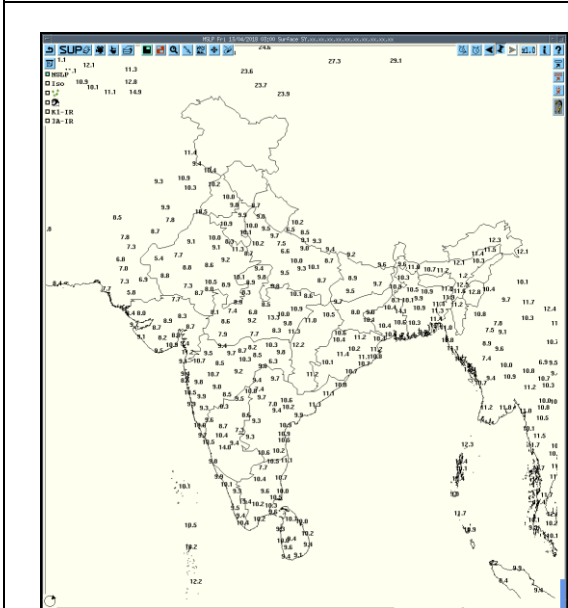
Tmax



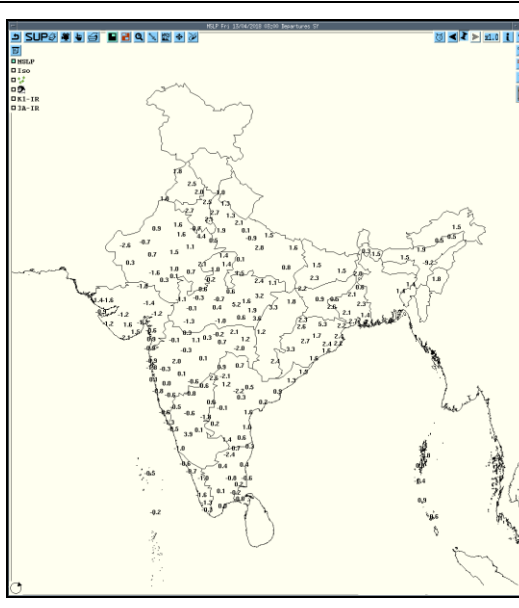
Departure Tmax



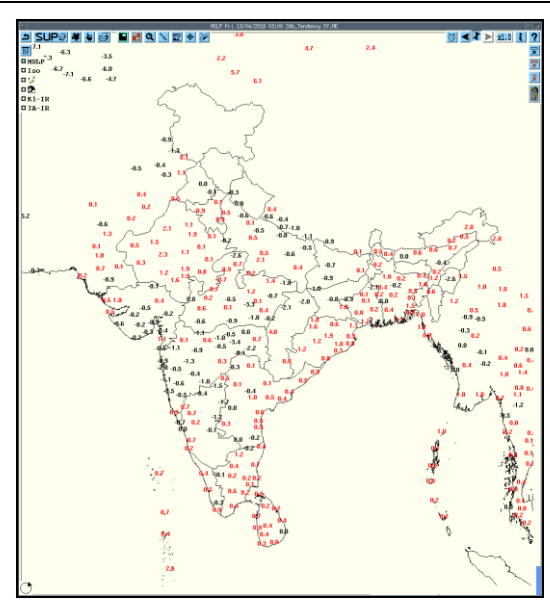
Tendency Tmax



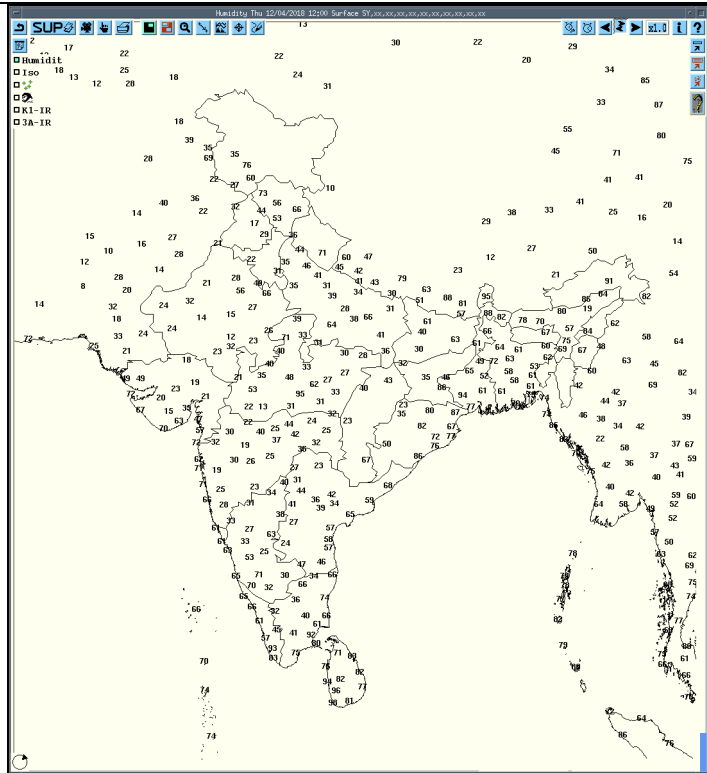
MSLP



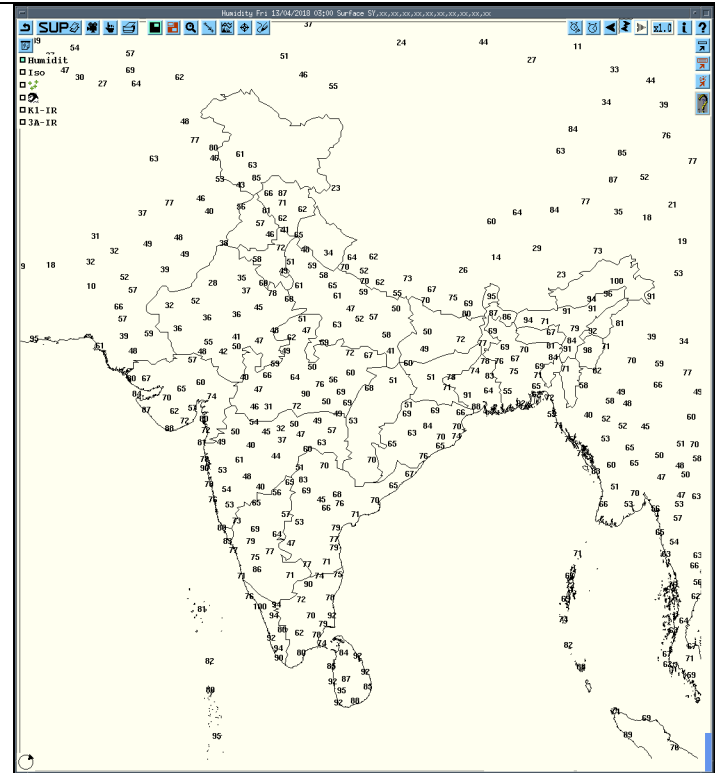
Departure MSLP



Tendency MSLP



RH at 12UTC yesterday



RH at 03UTC today

Past 24 hours DWR Report:

Radar Station name	Date	Time interval of observation (UTC)	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
Kolkata	13-04-18	120911-121501	4.multicelled system with maximum reflectivity of 67.0 dBz at 0922 UTC and maximum height of 14.5 Km at 0922 UTC	WNW(206.8 km) moving NE ward with approx. speed 24 kmph	Multi-celled system developed WNW at 0911 UTC. Merged with cell no.3 at 0931 UTC and later merged with cell no. 6 and cell no. 7 at 1312 UTC and moving into Bangladesh completely at 1501 UTC	Thunderstorm Hail/ Rain	NA
		121022-121151	5.Isolated cells with maximum reflectivity of 61.5 dBz at 1101 UTC and maximum height of 11.9 Km at 1101 UTC	NNW(233.8 km) moving E ward with approx. speed 34 kmph	Single cell developed in NNW at 1022 UTC, splitted at 1101 and dissipated at 1151 UTC in N at a distance 224 km from radar.	Thunderstorm Hail/ Rain	NA
		121051-121501	6.multicelled system with maximum reflectivity of 61.5 dBz at 1142 UTC and maximum height of 17.11 Km at 1201UTC	NNE(88.4 km) moving NE ward with approx. speed 24 kmph	Multi-celled system developed NNE at 1051 UTC. Merged with cell no. 7 at 1201 UTC and moving into Bangladesh and at 1312 UTC merged with cell no. 3 moving into Bangladesh completely at 1501 UTC	Thunderstorm Hail/ Rain	NA
		121101-121501	7.Isolated cells with maximum reflectivity of 64.0 dBz at 1132 UTC and maximum height of 17.11 Km at 1201UTC	NNE(53.3 km) moving NE ward with approx. speed 26 kmph	Single cell developed NNE at 1101 UTC. Merged with cell no. 6 at 1201 UTC and moving into Bangladesh and at 1312 UTC merged with cell no.3 then moving into Bangladesh completely at 1501 UTC	Thunderstorm Hail/ Rain	NA
		121251-121622	8.Isolated cells with maximum reflectivity of 60.5 dBz at 1301 UTC and maximum height of 11.91 Km at 1301 UTC	NNW(231.1 km) moving ESE ward with approx. speed 32 kmph	Single cell developed in NNW at 1251 UTC, transformed into a multi celled system at 1301 and dissipated at 1622 UTC in N at a distance 193.2 km from radar.	Thunderstorm Hail/ Rain	NA
		121622-130300	NIL	NIL	NO SIG ECHO	NIL	NIL
		Lucknow	13-04-18	122100-122250	Isolated single cell with height of 7Km and maximum reflectivity of 46dBz	80 Kms SSW from Radar station and moved NWW direction With speed of 50Kms/Hr	--

DWR Station	Date	Time interval of observation	Organization of the cells (isolated single cell/multiple cells convective regions/squall lines) with height of 20 dBZ echo top and maximum reflectivity	Formation w.r.t. radar station & direction of movement	Remarks	Associated severe weather, if any	Districts affected
Visakhapatnam	13-04-18	120900	Multiple CB cells of Maximum reflectivity of 63dBz with height of 14kms	W(80KM) NW(65 KM) and NE(180-250 KM) moving SEly	CB cells formed at 0641 UTC and developing to Max. reflectivity of 63 dbz(14kms)	--	Srikakulam, Visakhapatnam and East Godavari Dist(AP) Ganjam dist (Orissa)
		121200	Multiple CB cells of Maximum reflectivity of 65dBz with height of 18kms	WSW(182KM) W &NW (70KM) and NE(130-250 KM) moving ENEly	Since last observation CB cells are in well mature stage, causing severe weather by dissipating and again developing	--	Srikakulam, Visakhapatnam and East Godavari Dist(AP) Ganjam, Gajapati Rayaguda and Koraput dist. (Orissa)
		121500	Multiple CB cells of Maximum reflectivity of 63dBz with height of 16kms	WSW(95KM) NNE (165KM) moving ENEly	Since last observation CB cells are in well matured at 1211 UTC dissipated at 1451 UTC	--	Srikakulam, Visakhapatnam and East Godavari Dist(AP) Ganjam, Gajapati Rayaguda and Koraput dist. (Orissa)
		121800	Multiple CB cells of Maximum reflectivity of 57 dBz with height of 10kms	W(185KM) NNE (42 kms) moving Ely	Since last observation cb cells dissipated at 1641 UTC	--	Srikakulam, Visakhapatnam and East Godavari Dist(AP) Ganjam, Gajapati Rayaguda dist. (Orissa)
		130000	Isolated convective cells of Maximum reflectivity of 47dBz with height of 8	W(197KM) moving Ely	CB cells dissipated to convective cells at 1801UTC	NIL	NIL
Jaipur	13-04-18	121002 - 121722	Multiple cell with average height of 7.5 km & maximum reflectivity 64.4 dBZ	Multiple cell develop from 10:02 UTC of 12/04/2018 towards W, NW, SW,SW of Jaipur and moved to E, SE, Wards at speed 10-15 km/hr.	Multiple cell develop from 1002 UTC of 12/04/2018 towards W, NW, SW,SW of Jaipur and reaches maximum reflectivity during 11:12 to 14:22 UTC of 12/04/18 and died down 1722 UTC of 12/04/18.	Thunder storm, Hailstorm, dust storm with Light rain at Isolated places	Jaipur, Dausa, Ajmer, Nagaur, Karauli, Sikar, Alwar, Dausa, Bharatpur, Dholpur, Districts.

DWR Station	Date	Time interval of observation	Organization of the cells (isolated single cell/multiple cells convective regions/squall lines) with height of 20 dBZ echo top and maximum reflectivity	Formation w.r.t. radar station & direction of movement	Remarks	Associated severe weather, if any	Districts affected
Patna	13-04-18	120300-120820	NIL	N/A	N/A	N/A	N/A
		120822-120902	Single Cell Maximum Reflectivity: 40 dBZ Echo Top: 10.6 KM	Range: 140 KM from DWR Patna in ENE direction Movement: Easterly	WARNING ISSUED	N/A	SAHARSA, MADHEPURA, SUPAUL
		120902-121952	NIL	N/A	N/A	N/A	N/A
		121952-122342	Multiple Cells Maximum Reflectivity: 46 dBZ Echo Top: 10.6 KM	Range: 145 KM from DWR Patna in SW direction Movement: Easterly	WARNING ISSUED	RAIN	ROHTAS, AURANGABAD, GAYA, NAWADA
		122342-130300	NIL	N/A	N/A	N/A	N/A
Patiala	13-04-18	120300 - 120600	ISOLATED CELL DBZ 42.0 HT. 09 TO 10 KM	SE SECTORS. .MOVMENT TOWARDS E- WARDS.		RA/TS	PEHOWA, AMBALA AND ADJ. AREAS.
		120600 - 120900	MULTIPLE CELLS DBZ 41.0 HT. 09 TO 10 KM	NE, E SECTORS. .MOVMENT TOWARDS E- WARDS.		RA/TS	BHUNTER, MUSSORIE, KALSII AND ADJ. AREAS.
		120900-121200	MULTIPLE CELLS DBZ 50.0 HT. 9 TO 11 KM	NE, SECTORS. MOVMENT TOWARDS E- WARDS.		RA/TS	PALAMPUR, BHUNTER AND ADJ. AREAS.
		121200-130252	No Echo	--	--	--	--

DWR Station	Date	Time interval of observation	Organization of the cells (isolated single cell/multiple cells convective regions/squall lines) with height of 20 dBZ echo top and maximum reflectivity	Formation w.r.t. radar station & direction of movement	Remarks	Associated severe weather , if any	Districts affected
Agartala	13-04-18	120300-130300	MULTIPLE CELLS ARE FOUND OVER MEGHALAYAN HILLS AT 120302Z, 50DBZ, ABOUT 12 KMS.	ABOUT 200 TO 220 KMS, NORTH, 30 KMPH, W-LY.	DISSIPATED OVER MEGHALAYAN HILLS AT 120822Z	Not Known	MULTIPLE CELLS ARE FOUND OVER MEGHALAYAN HILLS AT 120302Z, 50DBZ, ABOUT 12 KMS.
			ISOLATED SINGLE CELL FORMING MULTIPLE CELLS OVER B/DESH AT 121222Z, 50DBZ, ABOUT 14KMS.	ABOUT 230 KMS WSW, 30 KMPH W-LY.	PERSISTS OVER B/DESH WITH MODERATE INTENSITY AT 121322Z.	Not Known	ISOLATED SINGLE CELL FORMING MULTIPLE CELLS OVER B/DESH AT 121222Z, 50DBZ, ABOUT 14KMS.

Realised past 24hrs TS/SQ/HS Data:

Realised TS/HS/SQ during past 24 hours 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)
Passighat	Northeast India	Arunachal Pradesh	Thunderstorm	13-04-18	0000, 0730	0130, 0830
Itanagar	Northeast India	Arunachal Pradesh	Thunderstorm	13-04-18	0416	0445
Jorhat	Northeast India	Assam	Thunderstorm	12/13-04-18	122230	130610
Silchar	Northeast India	Assam	Thunderstorm	13-04-18	0300	0500
Dibrugarh	Northeast India	Assam	Thunderstorm	13-04-18	0700	0820
N/Lakhimpur	Northeast India	Assam	Thunderstorm	12/13-04-18	122300,	130500
Tezpur	Northeast India	Assam	Thunderstorm	12/13-04-18	120920, 130240	1000, 130500
Dhubri	Northeast India	Assam	Thunderstorm	12/13-04-18	121846, 122200	121915, 130200
Guwahati	Northeast India	Assam	Thunderstorm	12/13-04-18	1945	130440
Barapani	Northeast India	Meghalaya	Thunderstorm	12-04-18	0900	1100
Shillong	Northeast India	Meghalaya	Thunderstorm	12/13-04-18	120930, 130100	121020, 130230
Imphal	Northeast India	Manipur	Thunderstorm	13-04-18	0500	0700
Kailasahar	Northeast India	Tripura	Thunderstorm	13-04-18	0030	0320
Agartala	Northeast India	Tripura	Thunderstorm	12/13-04-18	122315	130020
Kalingapatnam	South India	Andhra Pradesh (CAP)	Thunderstorm	12-04-18	1900	2200
Bhopal	Central India	West Madhya Pradesh	Thunderstorm	12-04-18	1655	1740
Indore	Central India	West Madhya Pradesh	Thunderstorm	12-04-18	1415 1520 1855	1435 1635 1955
Jabalpur	Central India	East Madhya Pradesh	Thunderstorm	12-04-18	1920 2030	1940 2100
Sagar	Central India	East Madhya Pradesh	Thunderstorm	12-04-18	1415	1445
Raipur	Central India	Chhattisgarh	Thunderstorm	13-04-18	0600	0715
Jagdapur	Central India	Chhattisgarh	Thunderstorm	12-04-18	1513	1600
Pendra Road	Central India	Chhattisgarh	Thunderstorm	12/13-4-18	122022 130015 130220	122205 130210 130325
Bilaspur	Central India	Chhattisgarh	Thunderstorm	12/13-4-18	120830 130130	120945 130245

Realised TS/HS/SQ during past 24 hours 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)
Gangtok	East India	Sikkim	Thunderstorm	12-04-18	1715	1720
Coochbehar	East India	West Bengal (SHWB)	Thunderstorm	12-04-18	1550	1740
Jalpaiguri	East India	West Bengal (SHWB)	Thunderstorm	12-04-18	1500	1610
			Hailstorm (hail diameter: 0.6cm)	12-04-18	1535	1542
Malda	East India	West Bengal (SHWB)	Thunderstorm	12-04-18	2200	2350
Alipore	East India	West Bengal (GWB)	Thunderstorm	12-04-18	1755	1820
DumDum	East India	West Bengal (GWB)	Thunderstorm	12-04-18	1815	2015
Diamond Harbour	East India	West Bengal (GWB)	Thunderstorm	12-04-18	1910	1955
Haldia	East India	West Bengal (GWB)	Thunderstorm	12-04-18	1714	2005
Digha	East India	West Bengal (GWB)	Thunderstorm	12-04-18	1740	1940
Asansol	East India	West Bengal (GWB)	Thunderstorm	12-04-18	1500	2030
Bankura	East India	West Bengal (GWB)	Thunderstorm	12-04-18	1600	1825
Sriniketan	East India	West Bengal (GWB)	Thunderstorm	12-04-18	1650	1820
Daltonganj	East India	Bihar	Thunderstorm	13-04-18	0300	0345
Jamshedpur	East India	Jharkhand	Thunderstorm	12-04-18	1440	1610
Bhubaneswar	East India	Odisha	Thunderstorm	12-04-18	1710	2020
Balasore	East India	Odisha	Thunderstorm	12-04-18	1635	1805
Chandbali	East India	Odisha	Thunderstorm	12-04-18	1800	1910
Gopalpur	East India	Odisha	Thunderstorm	12-04-18	1910	1950
Keonjhar	East India	Odisha	Thunderstorm	12-04-18	1355	1610
Churk	Northwest India	East Uttar Pradesh	Thunderstorm	12/13-4-18	2230	2300
Sikar	Northwest India	East Rajasthan	Thunderstorm	12/13-4-18	1500	1600
Mukteshwar	Northwest India	Uttarakhand	Thunderstorm	12-04-18	1350	1418
Tehri	Northwest India	Uttarakhand	Thunderstorm	12-04-18	1250	1450
Sundernagar	Northwest India	Himachal Pradesh	Thunderstorm	12-04-18	1812	1917

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:

