



India Meteorological Department

FDP STORM Bulletin No. 33 (08-04-2018)

1. CURRENT SYNOPTIC SITUATION:

NWFC INFERENCE (0300UTC of the Day):

- ◆ The feeble Western Disturbance as an upper air cyclonic circulation over south-eastern parts of Jammu & Kashmir & neighbourhood persists and now seen at 3.1 km above mean sea level.
- ◆ A trough runs from northwest Rajasthan to west Assam across south Uttar Pradesh, south Bihar & northern West Bengal at 0.9 km above mean sea level.
- ◆ The fresh Western Disturbance as an upper air cyclonic circulation at 3.1 km above mean sea level over Iran & neighbourhood persists.
- ◆ A cyclonic circulation lies over north Madhya Maharashtra and adjoining Vidarbha & southwest Madhya Pradesh and extends upto 1.5 km above mean sea level.
- ◆ A cyclonic circulation lies over south Gujarat region & neighbourhood at 3.1 km above mean sea level.
- ◆ A cyclonic circulation lies over South Interior Karnataka & neighbourhood at 0.9 km above mean sea level.
- ◆ The cyclonic circulation over West Bengal and adjoining Bangladesh persists, now seen between 1.5 & 3.1 km above mean sea level.
- ◆ The trough in easterlies from southeast Arabian sea to south Madhya Maharashtra across Lakshadweep area and Coastal Karnataka at 1.5 km above mean sea level persists.

SATELLITE OBSERVATIONS during past 24 hrs and current observation:

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

Western Disturbance (WD):

Scattered multi-layered clouds seen over Northeast Saudi Arabia, Persian Gulf, East Iran North Afghanistan, North Pakistan Northwest Jammu & Kashmir and in association with Western Disturbance over the area.

Clouds descriptions within India:

Scattered low/medium clouds with embedded moderate to intense convection seen over extreme Northwest Jammu & Kashmir (**Minimum CTT Minus 64 DEG C**), Telangana, and Bay Islands. Broken low/medium clouds with embedded isolated weak to moderate convection seen over North GWB, Bihar, Odisha, Jharkhand, Assam, Meghalaya, Arunachal Pradesh, Manipur, Mizoram and Tripura. Scattered low/medium clouds with embedded isolated weak to moderate convection seen over Himachal Pradesh, Uttarakhand, northern parts of West Uttar Pradesh and East Uttar Pradesh. Scattered low/medium clouds seen over South GWB, West SHWB, Nagaland and North Chhattisgarh. Scattered low/medium clouds with embedded weak to moderate convection seen over Vidarbha, Marathwada and isolated over South East Rajasthan and Madhya Pradesh, Tamilnadu, South Rayalaseema & South Interior Karnataka,

Arabian Sea:-No significant clouds over the area.

Bay of Bengal & Andaman Sea:

Scattered low/medium clouds with embedded moderate to intense convection seen over Southeast Bay Andaman Seas Arakan Coast.

Past Weather:

Convection (during last 24 hrs):

Moderate to Intense convection was observed over J & K, N MP adjoining South UP, Odisha GWB, Bihar, Meghalaya, Vidarbha, Marathwada, Telangana and Assam .

OLR:

Upto 230 wm^{-2} observed over J & K, HP, Uttarakhand, Telangana adjoining Marathwada, Bihar, adjoining UP and NE States.

Dynamic Features:-

Up to 20 knots wind shear is observed over North-West India and Up to 40 knots wind shear observed over rest India.

Negative Shear tendency is observed over North-West Uttar Pradesh & neighbourhoods and Positive Shear tendency over rest India.

A positive Vorticity field (about $100 \times 10^{-5}/s$) at 850 hPa is observed over North west Gujarat Madhya Pradesh North Chhattisgarh adjoining Jharkhand.

Negative Low Level Convergence ($-5 \times 10^{-5}/s$) observed over Himachal Pradesh adjoining area & North Bangladesh adjoining areas and Positive Low Level Convergence observed over rest India.

Precipitation:

HEM:

Rainfall upto 20-70 mm observed over NW J & K and South Odisha.

Rainfall upto 1-20 mm observed over Vidarbha, Telangana Marathwada, Bihar UP Jharkhand, Odisha and NE States.

RADAR and RAPID RGB Observation:

Moderate Isolated/multiple echoes were seen on DWR Agartala (dBZ >50 and height > 10km) at around 1702 IST. Light Moderate Isolated/multiple echoes were seen on DWR Patiala, Bhopal, Nagpur, Cherrapunjee, Hyderabad, Jaipur and Lucknow domain at around 1700 IST.

RAPID RGB Satellite imagery at 1530IST indicates significant convection over Jammu & Kashmir, West Uttar Pradesh, Madhya Pradesh, Vidarbha, North Chhattisgarh, Madhya Maharashtra, Nagaland, Manipur, Mizoram and Tripura.

Environmental Condition (dust etc) and its Forecast based on 00UTC of date:

Higher Dust concentration was observed over Arab countries and western part of India. Dust concentration is expected to decrease over north-western part of India in next few days.

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

Delhi – SAFAR analysis & Forecast	08.04.2018	09.04.2018
PM10 (micro-g/m ³)	130	143
PM2.5 (micro-g/m ³)	62	68

2. NWP MODEL GUIDANCE:

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

1. Weather Systems:

Low level CYCIRS, Troughs: 12 UTC of Day 1: 925 & 850 hPa CYCIR over east-UP and adjoining Bihar

Confluence & Wind Discontinuity regions: 12 UTC of Day 0-3: at 925 & 850 hPa SW-NE discontinuity over MP-Chhattisgarh, Jharkhand

Synoptic Systems: 12 UTC of Day 3-4: Trough at 500 hPa west of J & K

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

3. Convergence at 850 hPa:

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

Day0: West MP, Tamilnadu, Puducherry, Kerala,

Day1: West MP, Madhya Maharashtra, Tamilnadu, Puducherry, SI Karnataka, Kerala,

Day2: Gangetic WB, Jammu Kashmir, West MP, Madhya Maharashtra, Tamilnadu, Puducherry, SI Karnataka, Kerala,

Day3: Assam Meghalaya, Gangetic WB, Jharkhand, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Jammu Kashmir, West Rajasthan, East Rajasthan,, Madhya Maharashtra, Marathwada, Tamilnadu, Puducherry, NI Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, East UP, West UP, Himachal Pradesh, Jammu Kashmir, Vidarbha, Tamilnadu, Puducherry, NI Karnataka, SI Karnataka,

4. Low level Vorticity:-Positive Vorticity:

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

Day0: Telangana,

Day1: Arunachal Pradesh, Assam Meghalaya, Gangetic WB, Uttarakhand, Punjab, Saurashtra Kutch,

Day2: Assam Meghalaya, Bihar, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, East Rajasthan,,

Day3: Arunachal Pradesh, Assam Meghalaya, Bihar, East UP, West UP, Punjab, Jammu Kashmir,

Day4:

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

Day/Index: Subdivisions with Showalter Index < -4

Day0: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Coastal Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day4: 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, Coastal AP, Tamilnadu, Puducherry, 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, Bihar, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, East Rajasthan,, Odisha, West MP, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan,, East Rajasthan,, Odisha, West MP, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Telangana, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan,, Odisha, West MP, East MP, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day3: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan,, East Rajasthan,, Odisha, East MP, Vidarbha, Chhattisgarh, Tamilnadu, Puducherry,

Day4: 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, West Rajasthan,, Odisha, Vidarbha, Chhattisgarh, Telangana,

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

Day/Index: Subdivisions with K Index > 40

Day0: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, Madhya Maharashtra, Chhattisgarh, Coastal AP, Telangana, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, West UP, Uttarakhand, Jammu Kashmir, Odisha, West MP, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

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

Day3: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Punjab, Himachal Pradesh, Odisha, Vidarbha, Chhattisgarh, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka,

Day4: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

8. Rainfall and thunder storm activity:

Day/Index: Subdivisions with Precipitation > 2 cm

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jammu Kashmir, Andaman Nicobar, Tamilnadu, Puducherry, Kerala,

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

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Himachal Pradesh, Jammu Kashmir,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir,

Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Tamilnadu, Puducherry,

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 northern part of West Madhya Pradesh and adjoining area. The forecast shows it will move south eastwards to Marathwada across Vidarbha and adjoining area on day 1. The Analysis also indicates a trough in easterlies from SE Arabian Sea to South Madhya Maharashtra across Lakshadweep, Coastal Karnataka persists. The analysis shows an East-West trough extending from southwest Rajasthan to Jharkhand across Madhya Pradesh and Chhattisgarh. The analysis also shows a cyclonic circulation over west Rajasthan and adjoining area where a trough runs from NW Rajasthan to west Assam across UP, Bihar & Northern West Bengal. The forecast shows a cyclonic circulation over North Pakistan and adjoining area on day 1 and it will move Eastwards to West Uttar Pradesh and adjoining areas on day 4.

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 over the cyclonic circulation and along the trough for next 3 days. It is inferred that some parts of Haryana, Delhi and adjoining areas & Madhya Pradesh has Positive Vorticity on day 1.

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, Uttar Pradesh, Andhra Pradesh, Telangana, Rayalaseema, Kerala, Karnataka, Tamil Nadu, parts of Gujarat, South west Rajasthan, coastal Maharashtra including Mumbai, Konkan & Goa, Vidarbha adjoining Chhattisgarh, coastal areas along the east coast and west coast, extreme south peninsular India, Tripura and adjoining area, SHWB during all 3 days; over parts of Punjab, Haryana, Delhi, Himachal Pradesh and adjoining Uttarakhand on day 2 and 3; Maximum value of the index is seen over parts of Gujarat, northern parts of coastal areas along the west coast, Konkan and Goa, coastal Maharashtra, Orissa, Chhattisgarh, Jharkhand, coastal Andhra Pradesh, GWB, Telangana and adjoining area on all 3 days; over parts of Bihar and East Uttar Pradesh on day 1 and 2; over parts of East Vidarbha and south west Rajasthan from day 2 onwards.

Lifted Index (< -2): The threshold value of the index is below -2 over parts of Haryana, Delhi, Uttarakhand, Gujarat, Saurashtra region, Rajasthan, coastal Andhra Pradesh, coastal Karnataka, Telangana, Rayalaseema, Konkan and Goa, Kerala, Tamil Nadu, southern part of west coast, coastal areas along the east coast, Orissa, East Madhya Pradesh, Chhattisgarh, Vidarbha, GWB, Bihar, Jharkhand, Tripura and adjoining areas on all 3 days; over parts of East Rajasthan and west Madhya Pradesh region on day 1; over parts of Punjab and Himachal Pradesh on day 3; over parts of south west Rajasthan, Madhya Maharashtra and Marathwada region from day 1 onwards; maximum negative value of the index less than -8 is seen over parts of Bihar, Northern parts of coastal Maharashtra and GWB on day 1; over parts of coastal Karnataka, Konkan and Goa and some parts of Chhattisgarh on day 2; over parts of coastal Gujarat on day 3.

Total Index (> 50): The threshold value of the index is > 50 over most of the parts of Madhya Pradesh, adjoining Gujarat, Rajasthan, Vidarbha on all 3 days; over parts of Punjab and adjoining areas on day 2; over parts of Madhya Maharashtra and Marathwada region on day 2 and 3; maximum value of the index >60 is seen over west and east Madhya Pradesh region on all 3 days.

Sweat Index (> 300): Although the threshold value of the Index >300 is seen in most parts of the country but the maximum value of the index greater than 800 is seen over parts of Jharkhand and adjoining areas on day 1 and 2.

CAPE (> 1000): Mostly in areas of southern peninsular India, along west coast and east coast and coastal areas of GWB, Orissa, Andhra Pradesh, Telangana, Rayalaseema, Kerala, Tamilnadu, Karnataka, , Gujarat, South West Rajasthan, coastal Maharashtra, Konkan and Goa, Vidarbha, Bihar, Jharkhand, Uttar Pradesh, Chhattisgarh during all 3 days; over parts of East Madhya Pradesh from day 1 onwards; over Parts of Haryana, Delhi, Assam, Sikkim, SHWB and adjoining areas on day 3; Maximum value of the index greater than 2500 is seen mostly over parts of coastal Orissa, GWB, Bihar, Jharkhand, Coastal Andhra Pradesh and coastal Gujarat on day 1; over parts of Gujarat, coastal Karnataka, Konkan and Goa on day 2 & 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 during all 3 days but the maximum value of the index > 400 is seen over parts of Haryana, Delhi, West Uttar Pradesh and adjoining areas on day 1 and 2.

5. Rainfall Activity:

70- 130 mm Rainfall: over parts of Himachal Pradesh on Day 3 and Arunachal Pradesh on day 5.

40- 70 mm Rainfall: over few parts of GWB on day 3;

10-40 mm Rainfall: over parts of J&K, Himachal Pradesh, Uttarakhand, Sikkim, NE states, Foothills of Himalayas Jharkhand, Orissa, GWB, SHWB, Kerala, Karnataka, Coastal Andhra Pradesh on all 3 days; over some parts of HP, Uttarakhand, Sikkim, Assam, Arunachal Pradesh, Orissa & Kerala on day 4 & day5.

Up to 10 mm rainfall: Over parts of Sikkim, NE states, Foothills of Himalaya, J&K, Uttarakhand, Punjab, Haryana, Delhi, Himachal Pradesh, Gujarat, Rajasthan, Uttar Pradesh, Bihar, Jharkhand, Orissa, Chhattisgarh, Madhya Pradesh, Vidarbha, Marathwada, Madhya Maharashtra, GWB, SHWB, Andhra Pradesh, Kerala, Karnataka, Tamil Nadu, Telangana and Rayalaseema 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 J&K, Himachal Pradesh, Uttarakhand, Uttar Pradesh, Orissa, GWB, SHWB, NE states, Bihar, Jharkhand, Karnataka, Telangana, Chhattisgarh, Madhya Maharashtra, Marathwada, Vidarbha and East Madhya Pradesh on day 1; over parts of J&K, Himachal Pradesh, East Uttar Pradesh, Chhattisgarh adjoining Telangana, Orissa, Assam, Arunachal Pradesh, Meghalaya, Mizoram, Tripura and adjoining areas on day 2; over parts of Kerala, Tamil Nadu, J&K adjoining Himachal Pradesh, GWB, SHWB, NE states, Bihar, Jharkhand and some parts of north Chhattisgarh on day 3; maximum value of the Model reflectivity is seen over parts of Bihar, Jharkhand, GWB, SHWB, Orissa, Chhattisgarh, Assam and adjoining areas on day1; over parts of J&K and East Uttar Pradesh on day 3.

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, southern parts of west coast and the east coast, Telangana, coastal Andhra Pradesh, NE states, Bihar, Jharkhand, Sikkim, GWB and SHWB during all 3 days; below threshold value is seen over parts of Uttar Pradesh, Orissa, Telangana on day 2 and 3; over parts of Uttarakhand from day 2 onwards; maximum value of the index is seen over parts of Punjab, Haryana, Rajasthan, Madhya Pradesh, Vidarbha, Gujarat, Madhya Maharashtra and Marathwada region on all 3 days ; over parts of Uttar Pradesh 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.

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, Bihar, Jharkhand, parts of Tamil Nadu, Kerala, Karnataka, Andhra Pradesh, Chhattisgarh, Vidarbha, East Madhya Pradesh, Telangana, Rayalaseema, Extreme south peninsular India on day 1 and 2; over parts of Haryana, Tripura and adjoining areas on day 2; over parts of J&K, Punjab, Haryana, Delhi, Rajasthan, Himachal Pradesh, Uttarakhand, Assam, Tripura and adjoining areas on day 3; Maximum value of the index is seen over the parts of west Gujarat, coastal Kerala, coastal Karnataka adjoining Konkan and Goa, Jharkhand, Orissa, GWB, coastal Andhra Pradesh on day 1; over parts of coastal Gujarat, coastal Karnataka and Kerala on day 2; over parts of coastal Gujarat and extreme southern part of west coast 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 during all 3 days, the maximum value of the index > 400 is seen over Haryana, Rajasthan, East Madhya Pradesh, Gujarat, coastal Maharashtra including Mumbai, Konkan and Goa, northern part of west coast, Chhattisgarh, Orissa, Jharkhand, Telangana and Andhra Pradesh on day 1; over parts of Punjab, Haryana, Delhi, north west Rajasthan, west Madhya Pradesh, Vidarbha, Telangana, Gujarat, coastal Maharashtra on day 2 and 3; on day 3 over parts of Himachal Pradesh, Uttarakhand and adjoining areas and some parts of west Uttar Pradesh.

3. Rainfall and thunderstorm activity:

Above 130 mm Rainfall: NIL.

70- 130 mm rainfall: over few parts of Coastal Andhra Pradesh.

40-70 mm Rainfall: over parts of GWB, SHWB, Arunachal Pradesh, J&K, Assam, Tripura, Meghalaya and adjoining areas on day 1; over parts of J&K, Meghalaya, Tripura and adjoining areas, on day 2 &3.

10- 40 mm Rainfall: over parts of J&K, Himachal Pradesh, Uttarakhand, East Uttar Pradesh, Foothills of Himalaya, Bihar, Jharkhand, GWB, SHWB, Sikkim, NE states, Orissa, Kerala, Coastal Andhra Pradesh, Telangana, Tamil Nadu and Karnataka on day 1.

Up to 10 mm Rainfall: Over parts of J&K, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Rajasthan, East and West Uttar Pradesh, foothills of Himalaya, Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Telangana, Rayalaseema, Madhya Maharashtra, Marathwada, Vidarbha, Madhya Pradesh, Chhattisgarh, Bihar, Jharkhand, Orissa, GWB, SHWB and NE states on all 3 days.

3. IOP ADVISORY FOR 24 and 48Hrs:

Summary and Conclusions:

Day-1 & Day-2:

- Most thermodynamic indices (SWEAT, T-STORM Initiation Index and Lifted Index) indicate high probability of thunderstorm occurrence along east, northeast and south peninsular coast of India. CAPE values are high all along the coast of peninsular India on day 1.
- Synoptic analysis indicates a cyclonic circulation lies over north Madhya Maharashtra and adjoining Vidharbha & southwest Madhya Pradesh. Another cyclonic circulation lies over South Interior Karnataka & neighborhood.
- This will give the thunderstorm activity with gusty winds over Kerala, Interior Tamil Nadu, South and North Interior Karnataka, East MP and Chhattisgarh on Day-1. This activity may continue to Day-2 over the same region.
- The cyclonic circulation over West Bengal and adjoining Bangladesh will give the thunderstorms with gusty winds over GWB, Jharkhand, Bihar and SHWB on Day-1. East Bihar, East Jharkhand, and SHWB may experience hailstorm on Day-1.
- The feeble Western Disturbance as an upper air cyclonic circulation over southeastern parts of Jammu & Kashmir & neighbourhood observed and this will give some thunderstorm activity with gusty winds over J&K and Himachal Pradesh on Day-1.

24 hour Advisory for IOP:

Significant Rainfall:

Nil

Thunderstorm with squall or gusty winds:

Jammu & Kashmir Himachal Pradesh, West Uttar Pradesh
Odisha, Gangetic West Bengal, Jharkhand
East Madhya Pradesh, Vidarbha, Chhattisgarh,
Madhya Maharashtra, Marathwada,
Telangana, Coastal Andhra Pradesh, Kerala, Tamilnadu, Interior Karnataka
Nagaland, Manipur, Mizoram and Tripura

Thunderstorm with squall and hail

Sub Himalayan West Bengal, East Bihar, East Jharkhand , Assam,
Meghalaya

Thunderstorm/Duststrom:

Rajasthan

48 hour Advisory for IOP:

Significant Rainfall:

Nil

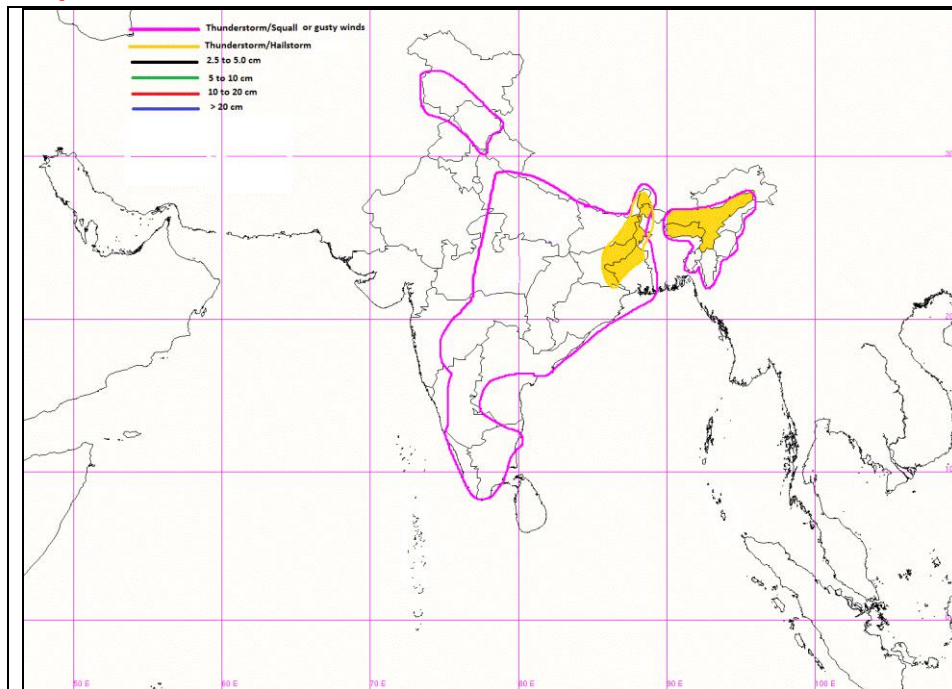
Thunderstorm with squall or gusty winds:

Interior Karnataka, Telangana,
Vidarbha, Chhattisgarh,

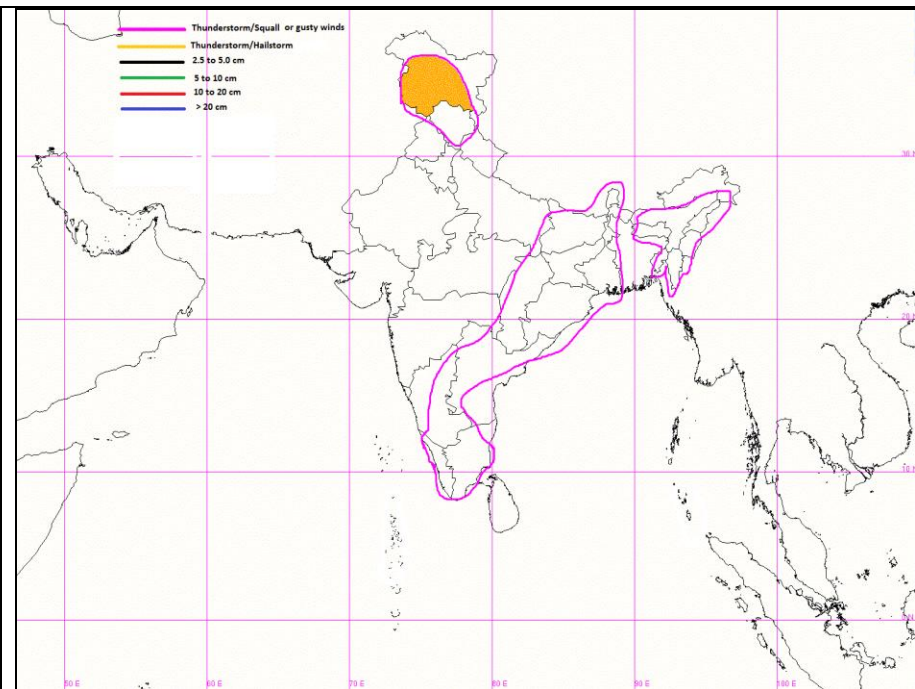
Thunderstorm with squall and hail

Sub Himalayan West Bengal, Assam, Gangetic West Bengal,
Jharkhand

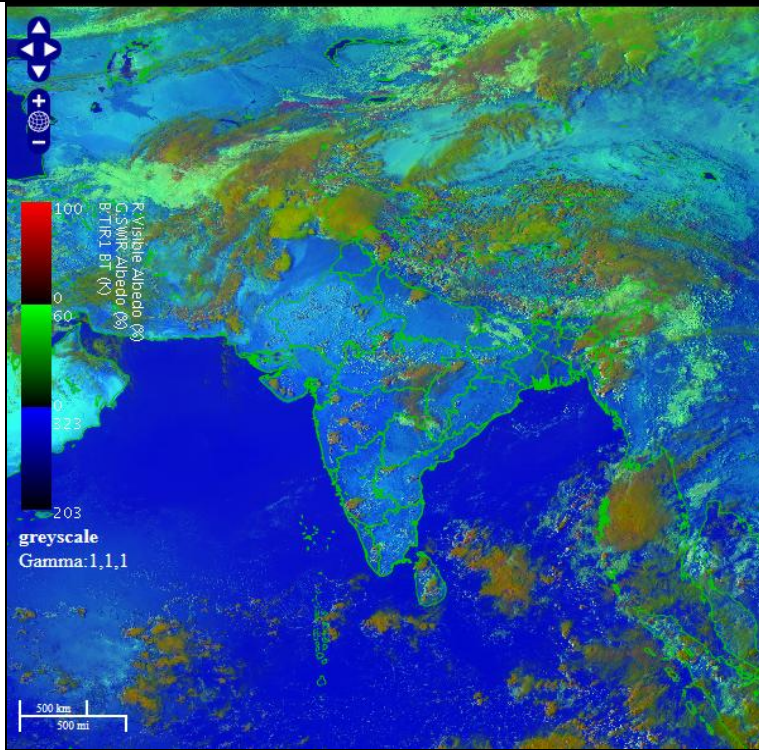
Graphical Presentation of Potential Areas for Severe Weather:



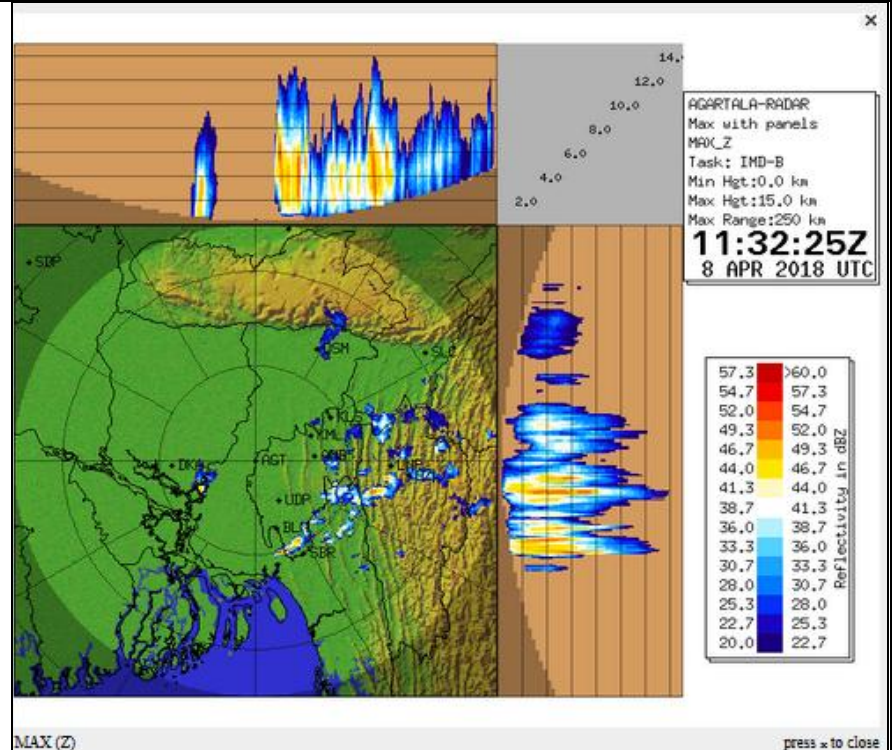
IOP Advisory for 24 hours



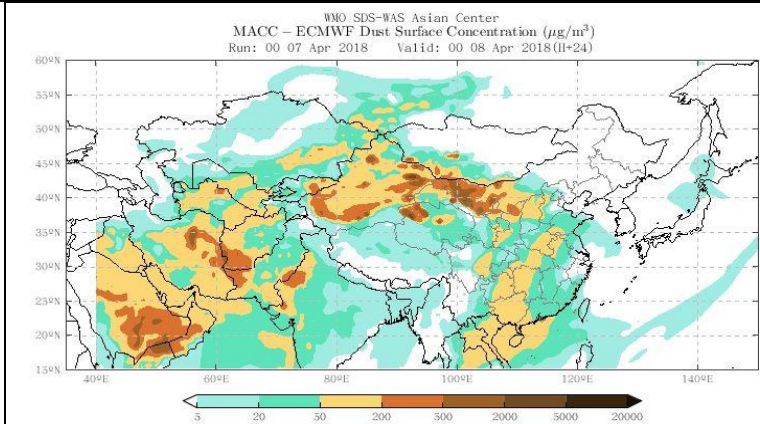
IOP Advisory for 48 hours



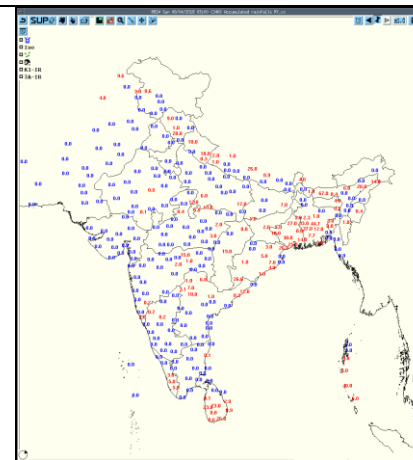
RAPID RGB Imagery at 1530 IST of the Day



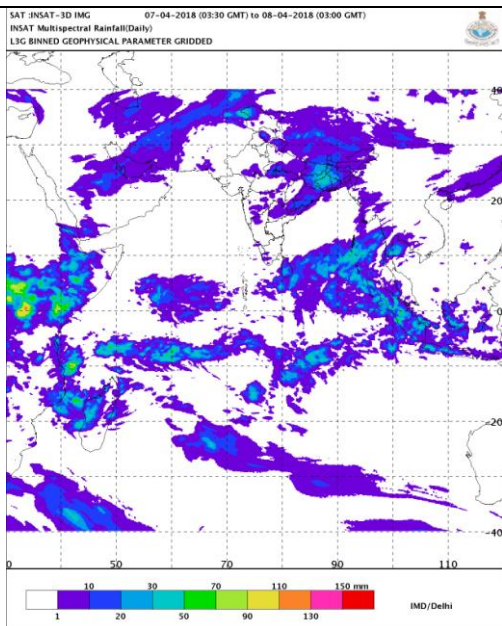
DWR Srinagar at 1702 IST of the Day



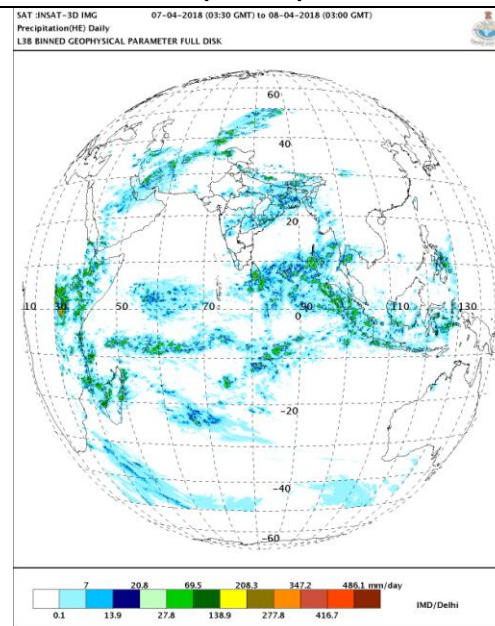
Dust Forecast



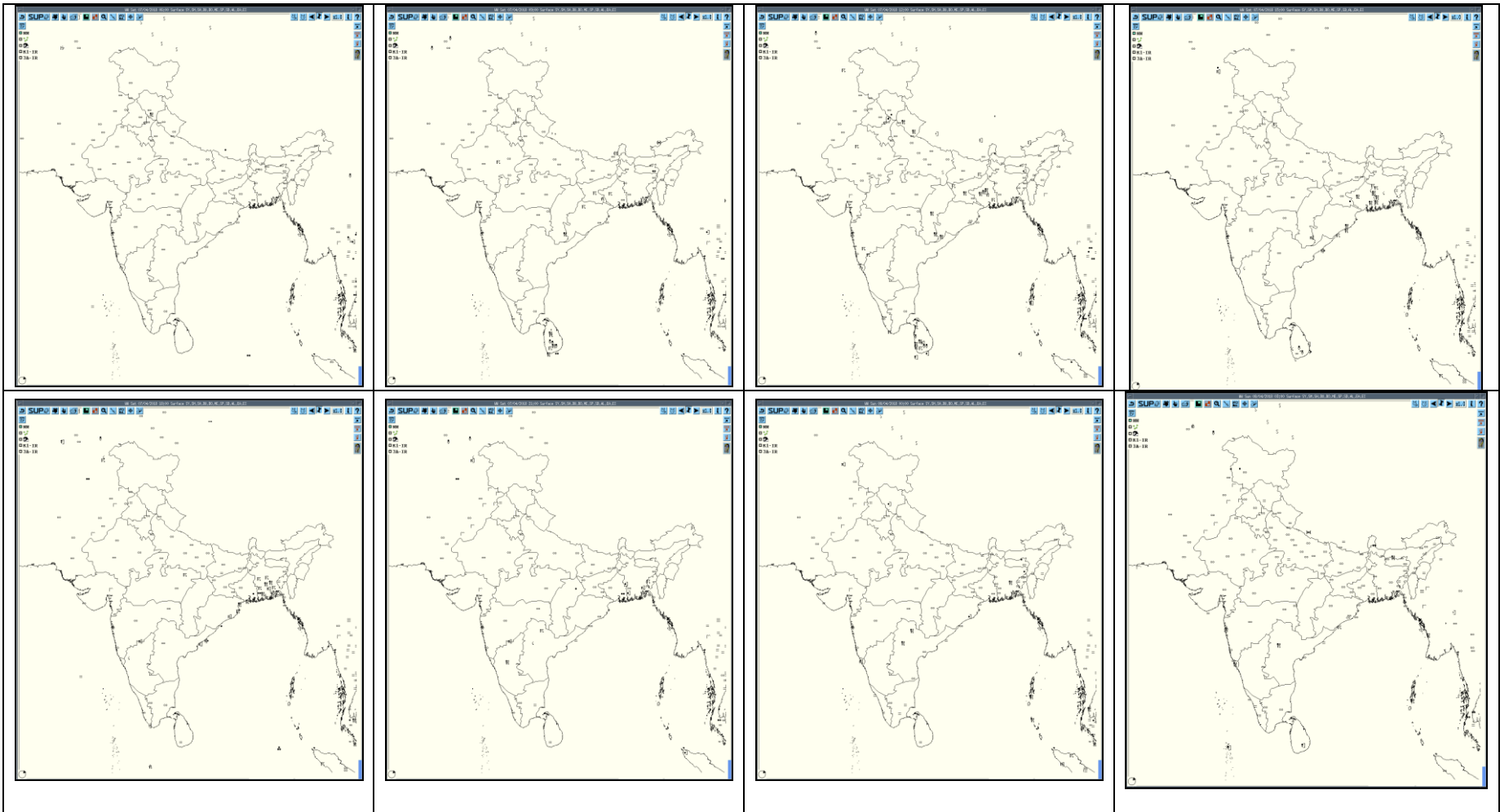
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today



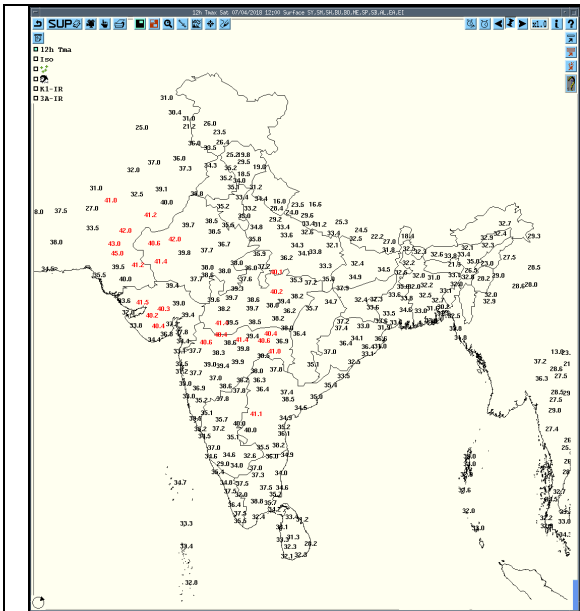
IMR



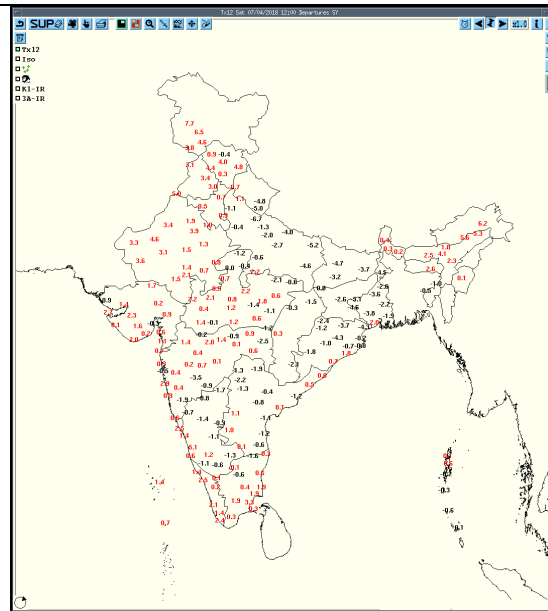
HEM



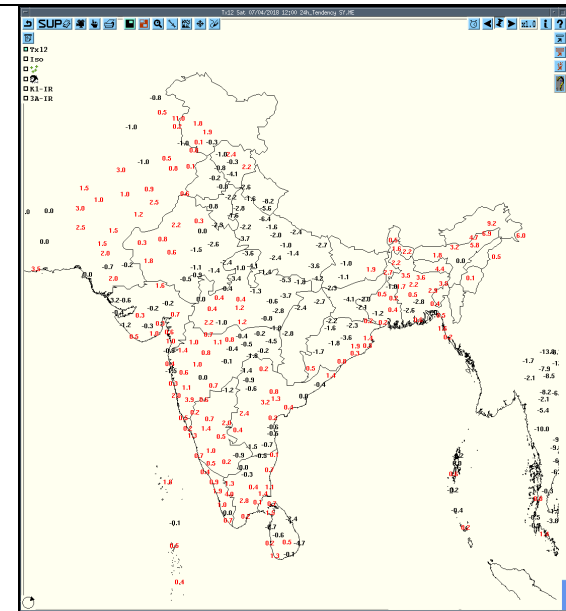
3hourly Past weather at 06, 09, 12, 15, 18, 21 UTC of yesterday and 00 & 03 hrs UTC of today



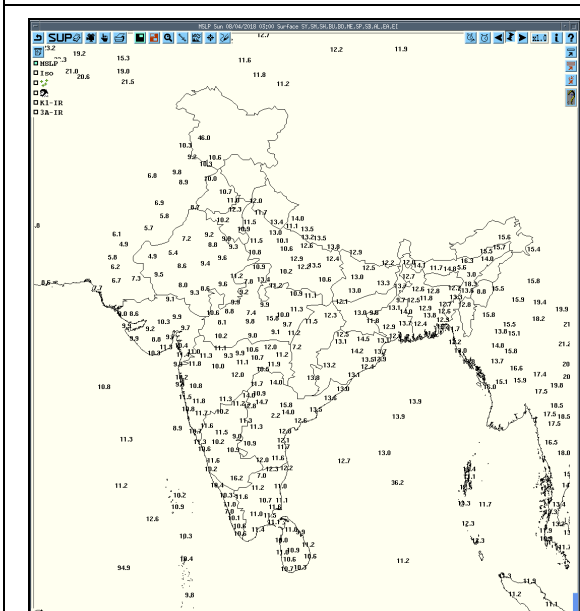
T_{max}



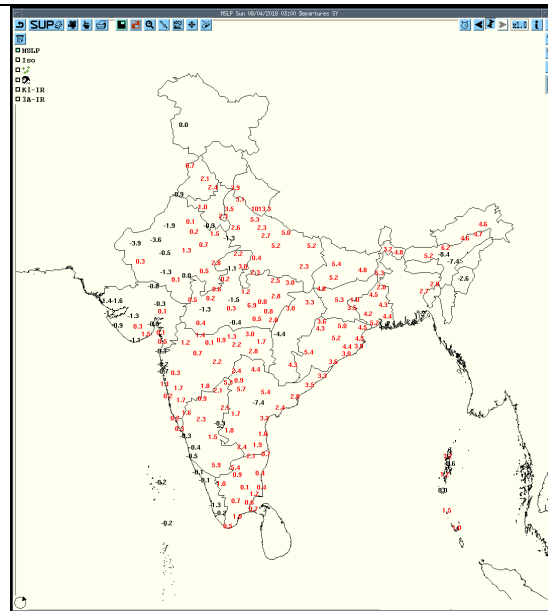
Departure T_{max}



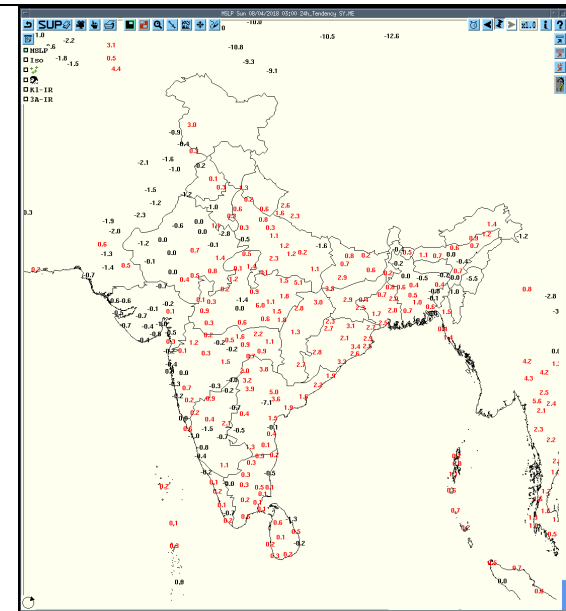
Tendency T_{max}



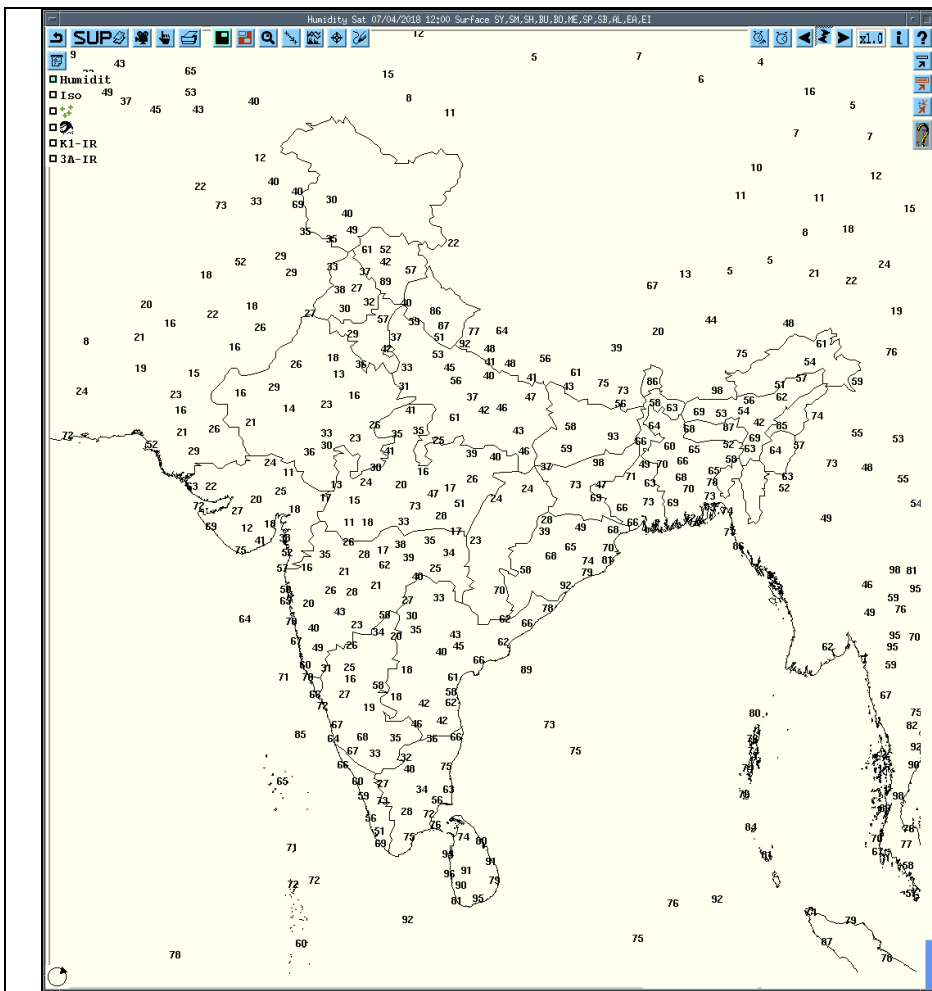
MSLP



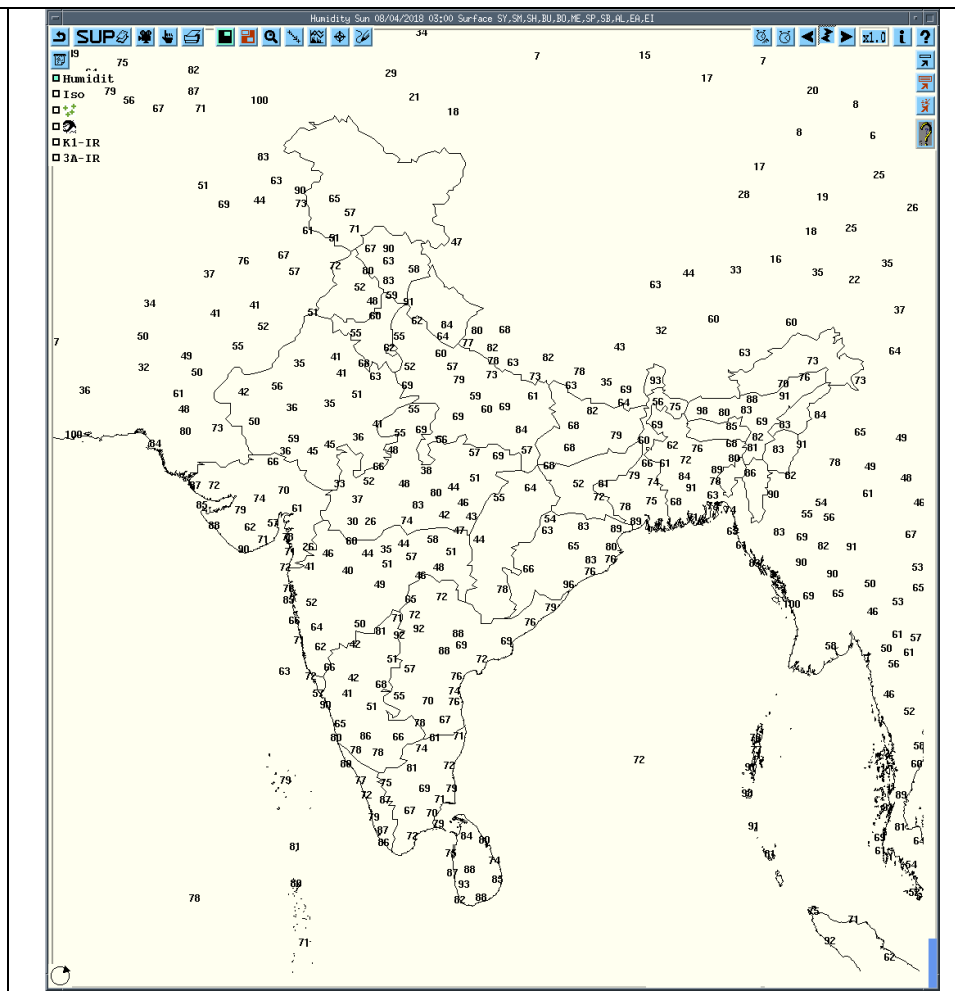
Departure MSLP



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 (Isolated single cells/multiple cells/ convective regions/ squall lines) with height of 20 dBZ echo top and maximum reflectivity	Formation w.r.t radar station and Direction of movement	Remarks	Associated severe weather if any	Districts affected
Visakhapatnam	07/04/18	0900	Multiple cb cells with maximum reflectivity of 60dbz with max. height of 12 kms	NW (215 kms) NNW(85 KMS) moving SE ly	Cb cells started developing from 0651 UTC and maturing at 0851 UTC	NIL	Koraput district of Orissa, Visakhapatnam and vizianagaram districts
Visakhapatnam	07/04/18	1200	Multiple cb cells NW with maximum reflectivity of 68dbz max. height of 13 kms	NNW(121 kms) NE (195 kms) moving SE ly	Since last observation cb cell matured at 1041 UTC	Gusty winds	Koraput district of Orissa vizianagaram
Visakhapatnam	07/04/18	1500	Convective strong region towards W, N and NNE with maximum reflectivity of 62dbz max. height of 13 kms	N and NNE(26 kms) W (195 kms) moving SE ly	Since last observation cb cell matured at 1041 UTC	Gusty winds, lightning and thunderstorm	Visakhapatnam, Vizianagaram, Srikakulam, East godavari(AP) and Koraput (Odisha)
Visakhapatnam	07/04/18	1800UTC	Multiple cb cells towards SSW and S with maximum reflectivity of 51dbz max. height of 11 kms	SSW and S(35 kms) W (155 kms) moving SE ly	cb cell formed at 1731 UTC	-	Visakhapatnam and Bay of Bengal
Visakhapatnam	08/04/18	0000	Isolated single cells at SSW with maximum reflectivity of 45dbz max. height of 8 kms	SSW (147 kms)	cb cell formed since last observation and start dissipating from 1821 UTC	-	Bay of Bengal
Visakhapatnam	08/04/18	0300	Isolated single cells at SW with maximum reflectivity of 47dbz max. height of 8 kms	SW (214 kms)	cb cell formed since last observation and start dissipating from 0201 UTC	-	Ganjam(Odisha)
Jaipur	07-04-18	07/0712 - 07/2032	Multiple cell with average height of 10.0km & maximum reflectivity 53.5dBZ	Multiple cell develop from 0712 UTC of 07/04/2018 towards W, NW,S, SW of Jaipur and moved to SE,NE Wards at speed 10-15 km/hr	Multiple cell develop from 0712 UTC 07/04/2018 towards W, NW,S,WSW of Jaipur and reaches maximum reflectivity during 11:22 to 12:12 UTC of 07/04/2018 and died down at 2032	Light rain at Isolated places	Nagaur Ajmer, Bhilwara, Karauli, Sawaimadhopur Dholpur, Chittorgarh, Rajsamand, kola, Bundi 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
Lucknow	07/04/2018	071212 UTC TO 071312 UTC	Single cell formed at around 1212 UTC over 230 Km SSW. Height reached 13 Km (20 dBZ echo top scale) and Maximum Reflectivity was 53 dBZ.	From 230 Km SSW, the cell moved NNEwards w.r.t. the station approaching it with average velocity 20 Km/h & weakened at 210 Km SSW.	Cell dissipated at around 1312 UTC over 200 Km SSW from the station.	TS	NIL
	07/04/2018	071322 UTC TO 071822 UTC	Multiple cell system formed over 170 Km. WSW and later merged with a larger multiple cell coming from 250 Km SW and extending from 200 Km WSW to 210 Km SSW. At 1612 UTC this multiple cell fragmented in to two separate multiple cells one at 200 Km WSW while other at 170 Km SSW. Maximum reflectivity observed was 58 dBZ and height was 13 Km on 20 dBZ scale.	Multiple cell system at 200 Km WSW matured at around 1622 UTC, moved East wards w.r.t. the station with average speed 42 Km/h . The second cell moved with velocity 60 Km/h Eastwards w.r.t. the station.	First cell dissipated at 1822 UTC over 120 Km WSW. The second cell dissipated at 1752 UTC over 180 Km South of the station.	TS	Jalaun
	07/04/2018	071802 UTC To 072312 UTC	Multiple cell system developed at aroun 1802 UTC over 200 Km South became stronger forming a squall line from 100 Km SSE to 200 Km SSE. Maximum reflectivity observed was 59 dBZ and height reached 14 Km (20 dBZ echo top).	The squall line moved with average speed 65 Km/h NEwards w.r.t. the station.	The squall line dissipated at around 2312 UTC over 200 Km ESE.	TS DS	Allahabad Varanasi Bahraich Ghazipur Mirzapur
Agartala	08/04/18	070300 to 080300	Isolated Single Cell Forming Multiple Cells Over Meghalaya Hills At 070752z, 44 Dbz,12kms	180 Kms North, 30 kmph W-ly	Dissipated over Meghalaya hills @071222Z	Not Known	AGARTALA
			Isolated Single Cell Is Found Over B/Desh At 071102z, 40 dBZ, 11kms	200 Kms SSW, 25 Kmph, SSW-ly.	Dissipated over B/DESH @071142Z	Not Known	
			Isolated Single Cell Is Found Over B/Desh At 080242z, 50 dBZ, 11kms	200 kms, NW, no movement.	Persists over B/Desh at 080312Z	Not Known	

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)
Sundernagar	Northwest India	Himachal Pradesh	Thunderstorm	07-04-18	1340	1620
Shimla	Northwest India	Himachal Pradesh	Thunderstorm	07-04-18	1028 1255	1150 1400
Dehradun	Northwest India	Uttarakhand	Thunderstorm	07-04-18	1730	2005
Dehradun	Northwest India	Uttarakhand	Thunderstorm	08-04-18	0700	0715
Mukteshwar	Northwest India	Uttarakhand	Thunderstorm	07-04-18	1500	1810
Tehri	Northwest India	Uttarakhand	Thunderstorm	07-04-18	1150	2010
Chandigarh	Northwest India	Haryana	Thunderstorm	07-04-18	1755	1805
Varanasi(AP)	Northwest India	East UP	Thunderstorm	08-04-18	0300	0230
Varanasi(BHU)	Northwest India	East UP	Thunderstorm	08-04-18	0300	0230
Ghazipur	Northwest India	East UP	Thunderstorm	08-04-18	0354	0550
Churk	Northwest India	East UP	Thunderstorm	08-04-18	0025	0100
Bahraich	Northwest India	East UP	Thunderstorm	08-04-18	0310	0310-
Allahabad	Northwest India	East UP	Thunderstorm	08-04-18	0030	0240
Orai	Northwest India	West UP	Thunderstorm		1830	1900
Jorhat	Northeast India	Assam	Thunderstorm	07-04-18	07/2145	07/2400
Jorhat	Northeast India	Assam	Thunderstorm	08-04-18	08/0000	08/0300
Tezpur	Northeast India	Assam	Thunderstorm	07-04-18	07/2320	08/2400
Tezpur	Northeast India	Assam	Thunderstorm	08-04-18	08/0000	08/0330
Barapani	Northeast India	Meghalaya	Thunderstorm	07-04-18	07/1610	07/1720
Shillong	Northeast India	Meghalaya	Thunderstorm	07-04-18	07/1510	07/1625
Agartala	Northeast India	Tripura(NMMT)	Thunderstorm	08-04-18	08/0110	08/0250
Nizamabad	South India	Telangana	Thunderstorm	07-04-18	2300	0030
Ramagundam	South India	Telangana	Thunderstorm	08-04-18	0130	0545
Hyderabad	South India	Telangana	Thunderstorm	08-04-18	0240	0830
Tuni	South India	AP	Thunderstorm	07-04-18	2250	2300
Visakhapatnam	South India	AP	Thunderstorm	07-04-18	1925	2350
Belagavi Airport	South India	Karnataka(NIK)	Thunderstorm	07-04-18	2045	2200
Belagavi Airport	South India	Karnataka(NIK)	Thunderstorm	07-04-18	0555	0720
Gadag	South India	Karnataka(NIK)	Thunderstorm	07-04-18	2100	2220
Gadag	South India	Karnataka(NIK)	Thunderstorm	07-04-18	0220	0235

THUNDERSTORM / SQUALL / HAILSTORM REPORT OF RMC KOLKATA REGION

Date: 08.04.2018

(24 hours' weather from 0830 IST of **07.04.2018** to 0830 IST of **08.04.2018**)

Sub-Division	State	Name of Station Reporting		THUNDERSTORM (TS)		THUNDER SQUALL (TSQ)			LIGHTNING (LT)		Three hourly rainfall reported in SYNOP succeeding the event (mm)	Past 24 hours' rainfall ending at 0830 IST (mm)
				Time of Comm. (IST)	Time of End (IST)	Time of Comm. (IST)	Time of End (IST)	Direction	Max wind speed (kmph)	Time of Comm. (IST)		
GWB	West Bengal	ALIPORE	42807	1724-1730	1830-1831	NW	63	NIL		--	2.6	
		DUMDUM	42809	1950-2040	2005-2006	NW	64	NIL		--	20.3	
		HALDIA	42806	2105-0200	NIL	--	--	1820-0210		--	10.3	
		DIGHA	42901	2120-0120	NIL	--	--	2100-0020		18z=20.7, 21z=4.0	24.7	
		ASANSOL	42712	1340-2010	NIL	--	--	1340-2010		--	26.8	
		BANKURA	42706	1415-1740 1900-2150	NIL	--	--	1450-1740 1810-2150		12z=36.3, 15z=5.4, 18z=7.0	38.7	
Bihar	Bihar	PATNA	42492	NIL	NIL	--	--	NIL		--	0.0	
		GAYA	42591	NIL	NIL	--	--	NIL		--	0.0	
		BHAGALPUR	42498	1530-1710	NIL	--	--	NIL		12z=6.9	6.9	
		PURNIA	42500	NIL	NIL	--	--	NIL		--	0.0	
Jharkhand	Jharkhand	RANCHI	42701	NIL	NIL	--	--	NIL		--	1.7	
		DALTONGANJ	42587	NIL	NIL	--	--	NIL		--	1.4	
		JAMSHEDPUR	42798	NIL	NIL	--	--	NIL		--	18.4	
Odisha	Odisha	BHUBANESWAR	42971	1835-2250	NIL	--	--	1835-2250		15z=6.2, 18z=1.0	7.2	
		BALASORE	42895	2100-0030	NIL	--	--	2040-0040		18z=25.6, 21z=0.4	26.0	
		JHARSUGUDA	42886	1335-1440	NIL	--	--	1335-1440		09z=Trace	Trace	
		CHANDBALI	42973	2315-2345	NIL	--	--	2315-2345		--	0.0	
		PARADEEP	42976	0300-0330	NIL	--	--	0045-0130 0300-0330		--	0.0	
		PURI	43053	1900-2100	NIL	--	--	1830-2120		15z=2.6, 18z=1.2	3.8	
		GOPALPUR	43049	1850-2150 0700-0830...	NIL	--	--	1835-2150 0700-0830		15z=0.1, 18z=0.8, 03z=0.1	1.0	
A and N Islands	A and N Islands	PORT BLAIR	43333	1550-1700 0442-0830	NIL	--	--	NIL		00z=8.0, 03z=1.0	9.0	

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)
Nagpur	Central India	Vidarbha	Thunderstorm	07-04-18	1825	1950
Amravati	Central India	Vidarbha	Thunderstorm	08-04-18	1815	2100
Bramhapuri	Central India	Vidarbha	Thunderstorm	07-04-18	1940 0035	2000 0045
Chandrapur	Central India	Vidarbha	Thunderstorm	08-04-18	0000	0130
Washim	Central India	Vidarbha	Thunderstorm	07-04-18	1735	1755
Yeotmal	Central India	Vidarbha	Thunderstorm	08-04-18	1940	2400
Satna	Central India	East Madhya Pradesh	Thunderstorm	07-04-18	1815 2315	1920 2350
Raipur	Central India	Chhattisgarh	Thunderstorm	07-04-18	1525	1750
Ambikapur	Central India	Chhattisgarh	Thunderstorm	08-04-18	0015	0150
Mana	Central India	Chhattisgarh	Thunderstorm	08-04-18	1550	1750

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_Prareshid.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

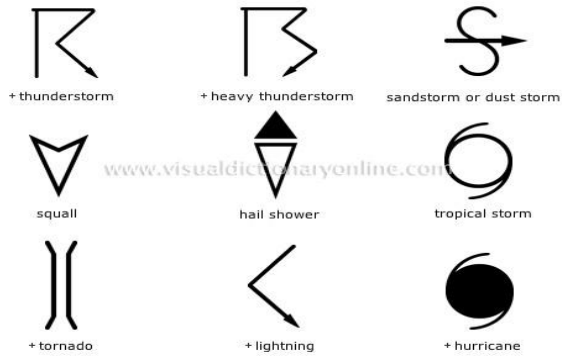
ForRadarimagesofthepast24hoursincludingmosaicofimages:

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

Satellite sounder based T- Phigram

http://satellite.imd.gov.in/mAndhra_Praresh_skm2.html

WEATHER SYMBOLS:



	haze
	smoke
	dust or sand storm
	fog
	drizzle
	rain
	snow
	showers
	hail
	thunderstorm
Weather Symbols	