



India Meteorological Department

FDP STORM Bulletin No. 34 (09-04-2018)

1. CURRENT SYNOPTIC SITUATION:

NWFC INFERENCE (0300UTC of the Day):

- ◆ A fresh Western Disturbance as an upper air cyclonic circulation at 3.1 km above mean sea level lies over north Pakistan and neighbourhood.
- ◆ A cyclonic circulation extending upto 1.5 km above mean sea level lies over north Haryana and adjoining west Uttar Pradesh.
- ◆ The trough from northwest Rajasthan to west Assam now runs from the cyclonic circulation over north Haryana and adjoining west Uttar Pradesh to north Chhattisgarh across north Madhya Pradesh and extends upto 1.5 km above mean sea level.
- ◆ The other Western Disturbance as an upper air cyclonic circulation at 3.1 km above mean sea level over Iran & neighbourhood now lies over Iran and adjoining Afghanistan.
- ◆ A trough in westerlies runs roughly along Long 86° E to the north of Lat 25°N between 3.1 km & 5.8 km above mean sea level.
- ◆ The cyclonic circulation over West Bengal and adjoining Bangladesh now lies over northern parts of Bangladesh and neighbourhood at 1.5 km above mean sea level.
- ◆ The trough in easterlies from southeast Arabian Sea to south Madhya Maharashtra across Lakshadweep area and Coastal Karnataka persists and now extends upto 0.9 km above mean sea level.
- ◆ The cyclonic circulation over South Interior Karnataka & neighbourhood at 0.9 km above mean sea level has merged with the above trough.
- ◆ The cyclonic circulation over south Gujarat region & neighbourhood persists and now extends between at 2.1 km & 3.1 km above mean sea level.
- ◆ The cyclonic circulation over north Madhya Maharashtra and adjoining Vidarbha & southwest Madhya Pradesh now lies over southwest Madhya Pradesh and neighbourhood and extends upto 0.9 km above mean sea level.
- ◆ The feeble Western Disturbance as an upper air cyclonic circulation over south-eastern parts of Jammu & Kashmir & neighbourhood at 3.1 km above mean sea level has moved away northeast-wards.

SATELLITE OBSERVATIONS during past 24 hrs and current observation:

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

Western Disturbance (WD):

Broken multi-layered clouds with embedded moderate to intense convection seen over Northeast Pakistan, Jammu & Kashmir (minimum CTT -46deg C), Himachal Pradesh (minimum CTT -65deg C), Punjab, Haryana Delhi (minimum CTT -55deg C), West Uttar Pradesh, Uttarakhand (minimum CTT -61deg C) and Northeast Rajasthan in association with Western Disturbance over the area.

Clouds descriptions within India:

Broken low/medium clouds with embedded moderate to intense convection seen over northwest India except East Uttar Pradesh and North Kerala adjoining Karnataka. Scattered low/medium clouds with embedded moderate to intense convection seen over Northeast Rajasthan. Scattered low/medium clouds with embedded weak to moderate convection seen over Sikkim, Sub-Himalayan West Bengal, Arunachal Pradesh, Bihar, South Gangetic West Bengal, Jharkhand, Central Chhattisgarh, adjoining Odisha, South Tamilnadu, and Bay Islands. Scattered low/medium clouds with embedded isolated weak to moderate convection seen over Northwest Madhya Pradesh. Scattered low/medium clouds seen over rest parts of East India except East Meghalaya and Tripura.

Arabian Sea:-

Broken low/medium clouds with embedded moderate to intense convection seen over Arabian Sea off North Kerala coast.

Bay of Bengal & Andaman Sea:

Scattered low/medium clouds with embedded moderate to intense convection seen over South Bay, Andaman Nicobar Islands and Southwest Andaman Sea.

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

Moderate to Intense convection was observed over Jammu & Kashmir Punjab Himachal Pradesh Haryana Delhi Uttarakhand north Chhattisgarh North Chhattisgarh north-west Jharkhand Nagaland Manipur Sikkim Sub-Himalayan West Bengal Southwest Tamilnadu adjoining Kerala North Central Rajasthan (.)

OLR:-

Up-to 230 wm^{-2} observed over Jammu & Kashmir Himachal Pradesh Uttarakhand Punjab Haryana Delhi West Uttar Pradesh Sikkim Bihar South Jharkhand Arunachal Pradesh North-East Chhattisgarh South Tamilnadu South Kerala.

Synoptic Features (Westerly Trough & Jet Stream):

Nil

Dynamic Features:-

Up to 15- 20 Knots wind shear is observed over North-West India and Up to 40 Knots wind shear observed over rest India.

Negative Shear tendency (-20kts) is observed over North-India & neighbourhoods and Positive Shear tendency (20kts) over rest India.

A positive Vorticity field at 850 hPa is observed over Gujarat Punjab Himachal Pradesh Uttarakhand Uttar Pradesh Bihar Jharkhand Sikkim Sub-Himalayan west Bengal North-East Rajasthan North-West Madhya Pradesh.

Negative Low Level Convergence observed over West Jammu & Kashmir Himachal Pradesh Uttarakhand South Gangetic west Bengal and Positive Low Level Convergence observed over rest India.

Precipitation:**HEM:**

Rainfall upto 20-50 mm observed over W J&K HP PJB NE PAK.

Rainfall upto 1-10 mm observed over NE STATES.

Convective Activity:

Cell No	Date /Time (UTC)	Location	Minimum CTT -Deg C	Remarks/ Movement
1	08/0600	W J&K ADJ PAK	70	Developing
	0700	DO	70	
	0800	DO	69	Expanding
	0900	DO	69	E-Ward
	1000	DO	67	
	1100	W J&K HP	64	
	1200	W J&K HP ADJ UTRKND	66	SE-Ward
	1500	W J&K	76	
2	08/0600	W ASSAM ADJ MEGHA	55	Developing
	0700	DO	56	
	0800	W ASSAM MEGHA ADJ BD	57	
	0900	E MEGHA ADJ ASSAM NE BD	54	E-Ward
	1000	DO	52	
	1200	----	----	Dissipated
3	08/0900	EXT NE PARTS OF W UP	56	Developing
	1000	DO	53	
	1200	----	----	Dissipated
4	08/1100	NE RAJ	61	Developing
	1200	DO	55	Expanding
	1500	NC RAJ	51	
	1700	DO	54	
5	08/1200	NW GUJ	55	Developing
	1500	NC GUJ	47	
	1700	-	-	Dissipated
6	08/1200	WC TN ADJ S KER	64	Developing
	1500	DO	58	
	1700	-	-	Dissipated
7	1500	S HP	57	
	1700	-	-	Dissipated
8	1500	SKM ADJ NEPAL	52	
	1700	DO	48	
	2130	DO	48	
	0000	-	-	DISSIPATED
9	1500	MRTWD ADJ NIK	40	
10	1500	NW JHRKNDADJ N CHTGH	47	
	1700	DO	52	
	2130	-	-	DISSIPATED
11	0000	N MP ADJ E RAJ	49	
12	0000	N KER ADJ SIK	46	
	0300	DO	-	DISSIPATED

RADAR and RAPID RGB Observation:

Strong to Moderate Isolated/multiple echoes were seen on DWR Kolkata, Gopalpur, Pradip, Nagpur, Hyderabad, Machilipatnam, Bhopal, and Lucknow (dBZ between 50-55 and height > 10km) at around 1715 IST. Light Moderate Isolated/multiple echoes were seen on DWR Jaipur, Cherrapunjee, Nagpur, Patna and Thiruvananthapuram domain at around 1700 IST.

RAPID RGB Satellite imagery at 1530IST indicates significant convection over Central parts of Uttar Pradesh, Central parts of Rajasthan, Madhya Pradesh, South Bihar, Jharkhand, Odisha, Chhattisgarh, North Coastal Andhra Pradesh, North and Coastal Karnataka adjoining Telangana and Andaman Islands.

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 increase over north-western part of India for next few days.

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

Delhi – SAFAR analysis & Forecast	09.04.2018	10.04.2018
PM10 (micro-g/m ³)	129	122
PM2.5 (micro-g/m ³)	57	54

2. NWP MODEL GUIDANCE:

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

1. Weather Systems:

Low level CYCIRS, Troughs: 12 UTC of Day 1:

12 UTC of Day 0-1: 925 & 850 hPa a weak CYCIR over Bihar and adjoining Jharkhand

12 UTC of Day 0-4: 925 & 850 hPa trough over Gujarat region

00 UTC of Day 3-5: 925 hPa trough from Rajasthan to Bangladesh across UP, Bihar and WB

00 UTC of Day 2-5: 850 hPa trough over NE India and Bangladesh region

Confluence & Wind Discontinuity regions: 12 UTC of Day 0-3:

12 UTC of Day 0-1: 925hPa SW-NE discontinuity over MP-Chhattisgarh, Jharkhand.

Synoptic Systems: 12 UTC of Day 3-4:

UTC of Day 1-4: Trough at 500 hPa over western part of J & K and it's nearby areas and adjoining HP in Day 3-4

2. Location of jet and jet core (>60kt) at 500hPa: Weak core in all days.

3. Convergence at 850 hPa: Day/Index: Subdivisions with Lower Level Convergence > 15×10^{-5} /s

Day0: East RJ, Madhya Maharashtra, TN Puducherry, SI Karnataka, Kerala,

Day1: West UP, Punjab, West RJ, East RJ, Chhattisgarh, Kerala,

Day2: Assam Meghalaya, East UP, Haryana, Delhi, Punjab, Jammu Kashmir, East RJ, Madhya Maharashtra, TN Puducherry, SI Karnataka, Kerala,

Day3: Assam Meghalaya, Bihar, West UP, Punjab, East MP, Vidarbha, Chhattisgarh, TN Puducherry, SI Karnataka,

Day4: Arunachal Pradesh, Assam Meghalaya, Odisha, Coastal AP, TN Puducherry, NI Karnataka, SI Karnataka, Kerala

4. Low level Vorticity:-Positive Vorticity: Day/Index: Subdivisions with Lower Level Vortex > 15×10^{-5} /s

Day0: Arunachal Pradesh, Assam Meghalaya, Jharkhand, Haryana, Delhi, Punjab,

Day1: Arunachal Pradesh, Assam Meghalaya, East UP, West UP, Punjab, West RJ, East RJ,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, East UP, East MP, Gujarat Region,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Odisha,

Day4: ----

5. Showalter Index: -3 to -4[Very unstable]: Day/Index: Subdivisions with Showalter Index < -4

Day0: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, West UP, Uttarakhand, Haryana, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, Odisha, Coastal AP, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Bihar, West UP, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

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

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Bihar, Uttarakhand, Odisha, TN 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, Gangetic WB, Jharkhand, East UP, West UP, Uttarakhand, Haryana, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Saurashtra Kutch, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Coastal Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, West UP, Uttarakhand, Haryana, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, Odisha, East MP, Saurashtra Kutch, Marathwada, Vidarbha, Chhattisgarh, Telangana, NI Karnataka,

Day2: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, Chhattisgarh,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, Odisha, East MP, Chhattisgarh,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha.

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

Day0: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Vidarbha, Chhattisgarh, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, West UP, Uttarakhand, Punjab, Jammu Kashmir, Odisha, Vidarbha, Chhattisgarh, Coastal AP, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Bihar, East UP, Haryana, Delhi, Punjab, Himachal Pradesh, West RJ, Odisha, Chhattisgarh, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

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

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Odisha, TN Puducherry, SI Karnataka, Kerala

8. Rainfall and thunder storm activity: Day/Index: Subdivisions with Precipitation > 2 cm

Day1: Arunachal Pradesh, Sub Himalayan WB, West UP, Haryana, Delhi, Jammu Kashmir, TN Puducherry, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, West UP, Haryana, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, West UP, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir,

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

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 north Pakistan and adjoining North West Rajasthan. The forecast shows it will move south-eastward till day2 and become less marked thereafter. The forecast indicates a cyclonic circulation over north Haryana and adjoining west Uttar Pradesh on day2. The Analysis also indicates a trough in easterlies from SE Arabian Sea to South Madhya Maharashtra across Lakshadweep, Coastal Karnataka persists. The analysis shows another cyclonic circulation over North Interior Karnataka and adjoining areas, it will persist till day3. The analysis also indicates an East-West trough extending from north Haryana and adjoining west Uttar Pradesh up to north Chhattisgarh. It will persist till next 48 hour forecast. The analysis also shows a cyclonic circulation over southwest Madhya Pradesh and adjoining area in lower troposphere. It will persist for next 72 hour forecast.

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 North west Rajasthan 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 Punjab, Haryana, Delhi, Uttar Pradesh, coastal areas of Gangetic West Bengal and Kolkata, parts of Orissa, Bihar, Jharkhand, 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 northern parts of west Madhya Pradesh on day 1; over parts of J&K on day 2; 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 and coastal Karnataka on day 1 and 2; over parts of Bihar, Jharkhand, GWB, Orissa, coastal Andhra Pradesh on day 2 and 3; over some parts of Telangana on day 3.

Lifted Index (< -2): The threshold value of the index is below -2 over parts of J&K, Punjab, Haryana, Delhi, Uttar Pradesh, Uttarakhand, Himachal Pradesh, 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, Sikkim, Assam, Tripura and adjoining areas on all 3 days; over parts of East Madhya Pradesh region on day 1; maximum negative value of the index less than -8 is seen over parts of coastal Gujarat on day 2.

Total Index (> 50): The threshold value of the index is > 50 over most of the parts of Madhya Pradesh, adjoining Gujarat, Rajasthan on day 1 and 2; over parts of North of Madhya Maharashtra and Marathwada on day 1; over parts of Vidarbha on day 1 and 2; over parts of Rajasthan and East Vidarbha on day 3; maximum value of the index >60 is seen over parts of Gujarat and adjoining Maharashtra on day 1.

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 700 is seen over parts of J&K on all 3 days; over parts of Gujarat on day 1 and 2; over some parts of Bihar and Jharkhand on day 2; over some parts of GWB, Jharkhand and Orissa and adjoining areas on day 3.

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, coastal Maharashtra, Konkan and Goa, Bihar, Jharkhand, GWB, SHWB during all 3 days; over parts of East Uttar Pradesh on day 1; over Parts of Assam, Tripura and adjoining areas on day 3; over parts of south west Rajasthan on day 2 and 3; Maximum value of the index greater than 2500 is seen mostly over parts of coastal Gujarat on day 1 and 2; over parts of coastal Karnataka on day 1.

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 Punjab, Haryana and adjoining area, north West Rajasthan on day 2; over some parts of West Uttar Pradesh on day 3.

5. Rainfall Activity:

10-40 mm Rainfall: over parts of J&K, Himachal Pradesh, Uttarakhand, Sikkim, NE states, Foothills of Himalayas, Jharkhand, GWB, SHWB, Kerala, Karnataka, Tamil Nadu on all 3 days; over some parts of Bihar and Orissa on day 1; over parts of Punjab and Haryana on day 2 and 3; over some parts of north west Rajasthan on day 3.

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, north west Rajasthan, Punjab, Haryana, Himachal Pradesh, Uttarakhand, west Uttar Pradesh, Orissa, GWB, SHWB, Chhattisgarh, Telangana, Bihar, Jharkhand, Sikkim, NE states on day 1; over parts of J&K, Haryana, Himachal Pradesh, Uttarakhand, Bihar, Jharkhand, Orissa, Assam, Arunachal Pradesh, Meghalaya, Mizoram, Tripura and adjoining areas, some parts of Andhra Pradesh on day 2; over parts of J&K, Punjab, Haryana, Delhi, north west Rajasthan, West Uttar Pradesh, Himachal Pradesh, Uttarakhand, GWB, SHWB, NE states, Bihar, Jharkhand on day 3; maximum value of the Model reflectivity is seen over parts of J&K, Himachal Pradesh, Uttarakhand, GWB adjoining Orissa, SHWB and NE states on all 3 days.

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

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, Telangana, Rayalaseema, Extreme south peninsular India Tripura and adjoining areas on all 3 days; over parts of Punjab, Rajasthan, East Uttar Pradesh, Chhattisgarh on day 2 and 3; over parts of Haryana, Delhi, Himachal Pradesh, Uttarakhand on day 3; Assam and adjoining areas on day 3; Maximum value of the index is seen over the parts of coastal Gujarat, coastal Kerala, coastal Karnataka adjoining Konkan and Goa, coastal Andhra Pradesh on day 1; over parts of coastal Gujarat, coastal Karnataka and Kerala on day 2; over parts of Karnataka 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 except extreme south Peninsular India, J&K, and extreme NE states, the maximum value of the index > 400 is seen over J&K, Punjab, Haryana, Himachal Pradesh, Rajasthan, East Madhya Pradesh, Gujarat, Chhattisgarh, Vidarbha, Orissa on day 1; over parts of Punjab, Haryana, Delhi, Rajasthan, Uttar Pradesh, Madhya Pradesh, Vidarbha, Orissa, Telangana, Gujarat on day 2; on day 3 over parts of Haryana, Rajasthan, Gujarat, Madhya Pradesh, Jharkhand, Chhattisgarh, Orissa and GWB on day 3.

3. Rainfall and thunderstorm activity:

40-70 mm Rainfall: over parts of J&K and GWB on day 1; over parts of GWB, Orissa, Assam, Tripura and adjoining area on day2; over some parts of J&K adjoining Punjab, SHWB, Arunachal Pradesh, Assam, Tripura and adjoining area on day 3.

10- 40 mm Rainfall: over parts of J&K, Foothills of Himalaya, Bihar, Jharkhand, Orissa, GWB, SHWB, Sikkim, NE states, Kerala, Tamil Nadu on all 3 days; over some parts of Andhra Pradesh and adjoining Telangana on day 1 and 2; over parts of Himachal Pradesh, Uttarakhand and Haryana on day 3. Up to 10 mm Rainfall: Over parts of Gujarat, J&K, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Rajasthan, East and West Uttar Pradesh, foothills of Himalaya, Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Telangana, Rayalaseema, Vidarbha, Madhya Pradesh, Chhattisgarh, Bihar, Jharkhand, Orissa, GWB, SHWB and NE states on all 3 days; over parts of Madhya Pradesh, Madhya Maharashtra, Marathwada on day 2 and 3.

3. IOP ADVISORY FOR 24 and 48Hrs:

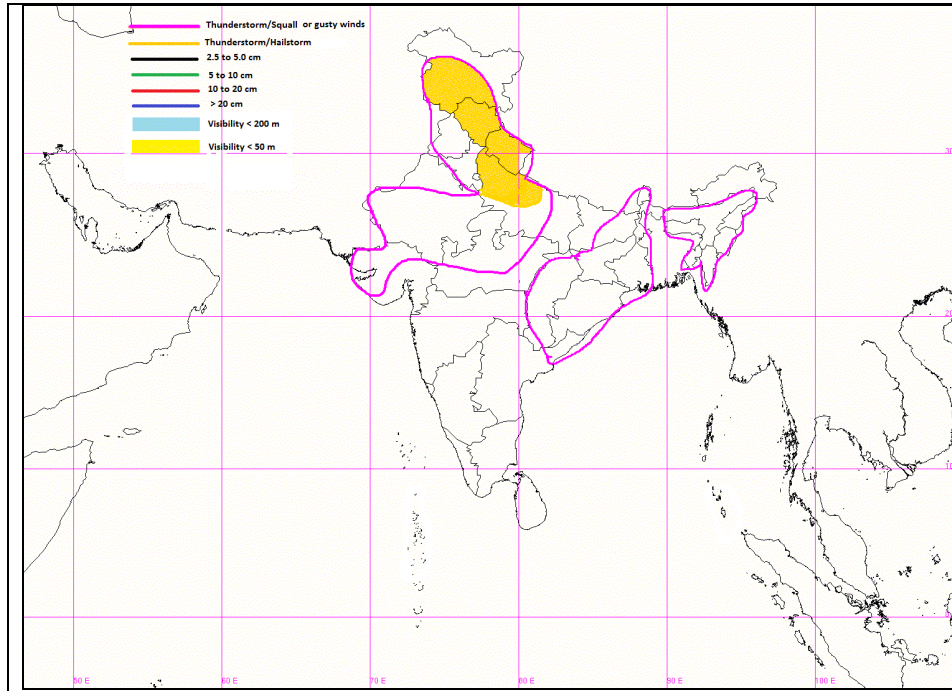
Summary and Conclusions:

Day-1 & Day-2:

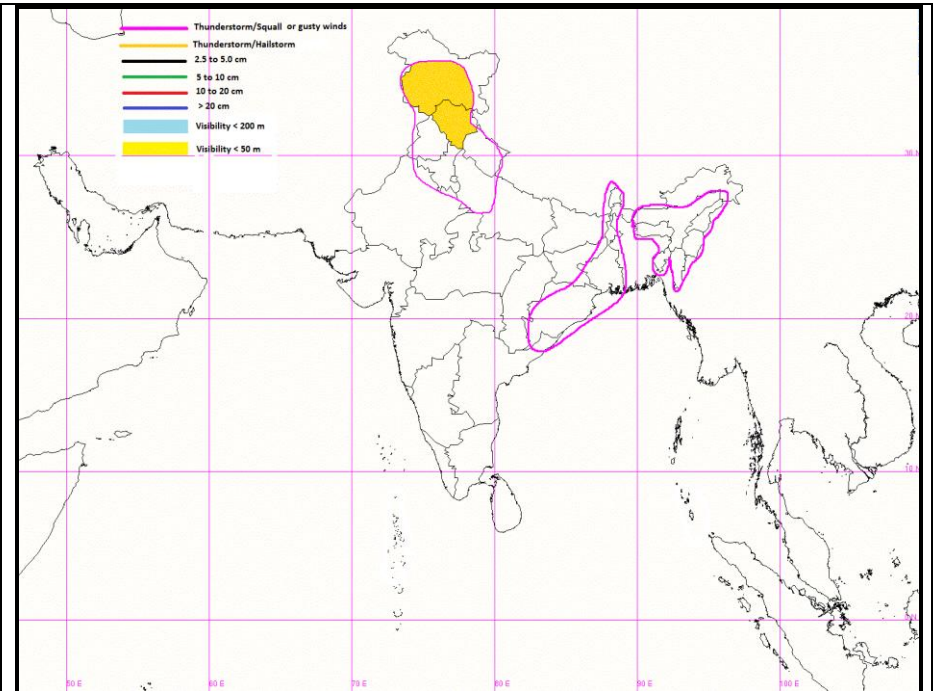
- Synoptic analysis indicates that due to a fresh Western Disturbance as an upper air cyclonic circulation over north Pakistan and neighbourhood and a cyclonic circulation over north Haryana and adjoining west Uttar Pradesh, Thundersquall with hail probability is most likely over Jammu and Kashmir, Himachal Pradesh, West UP on Day-1. The thunderstorm with gusty winds may be experienced over Punjab, Haryana and Uttarakhand on Day-1. This activity may continue to Day-2 over the same region.
- The cyclonic circulation lies over northern parts of Bangladesh and neighbourhood, which will give Thundersquall with hail over Sub Himalayan West Bengal on Day-1. This system may also trigger the thunderstorms with gusty winds over GWB, Jharkhand and Bihar on Day-1.
- Assam and Meghalaya and NMMT may also experience thunderstorms with gusty winds on Day-1. This activity may continue to Day-2 over the same region.
- The other Western Disturbance as an upper air cyclonic circulation lies over Iran and adjoining Afghanistan.

24 hour Advisory for IOP:	48 hour Advisory for IOP:
<p>Significant Rainfall: Nil</p> <p>Thunderstorm with squall or gusty winds: Haryana, Punjab, Rajasthan, North Madhya Pradesh, Saurashtra & Kutch, Sub-Himalayan West Bengal, Sikkim, Gangetic West Bengal, Bihar, Jharkhand, Odisha, Chhattisgarh, North Coastal Andhra Pradesh, Assam, Meghalaya, Nagaland, Manipur, Mizoram & Tripura.</p> <p>Thunderstorm with squall and hail Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Uttar Pradesh</p>	<p>Significant Rainfall: Nil</p> <p>Thunderstorm with squall or gusty winds: Punjab, Haryana, Uttarakhand, West Uttar Pradesh, Sub-Himalayan West Bengal, Sikkim, Gangetic West Bengal, Odisha, North Coastal Andhra Pradesh, Assam, Meghalaya, Nagaland, Manipur, Mizoram & Tripura</p> <p>Thunderstorm with squall and hail Jammu & Kashmir, Himachal Pradesh,</p>

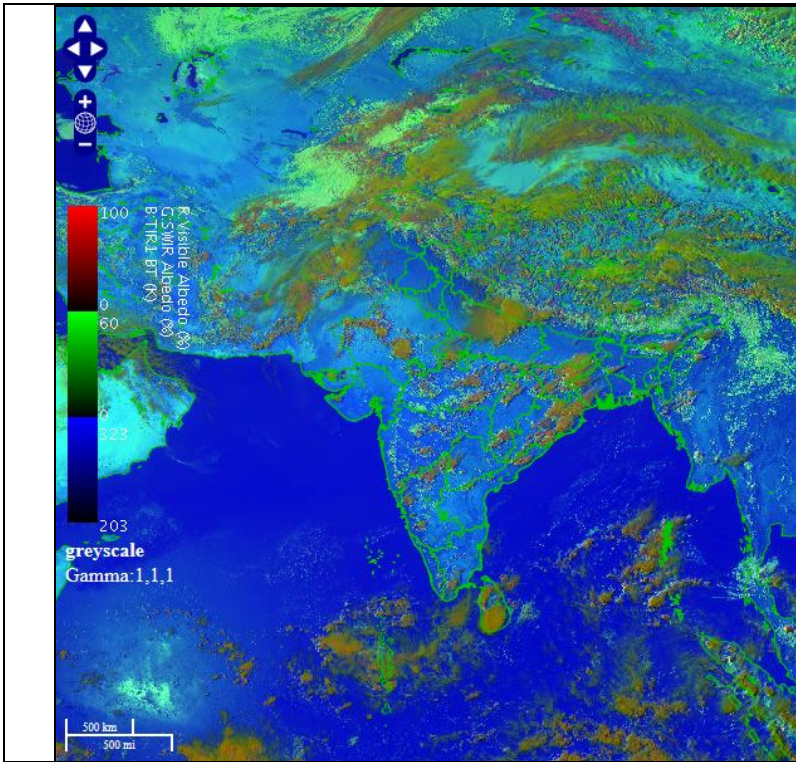
Graphical Presentation of Potential Areas for Severe Weather:



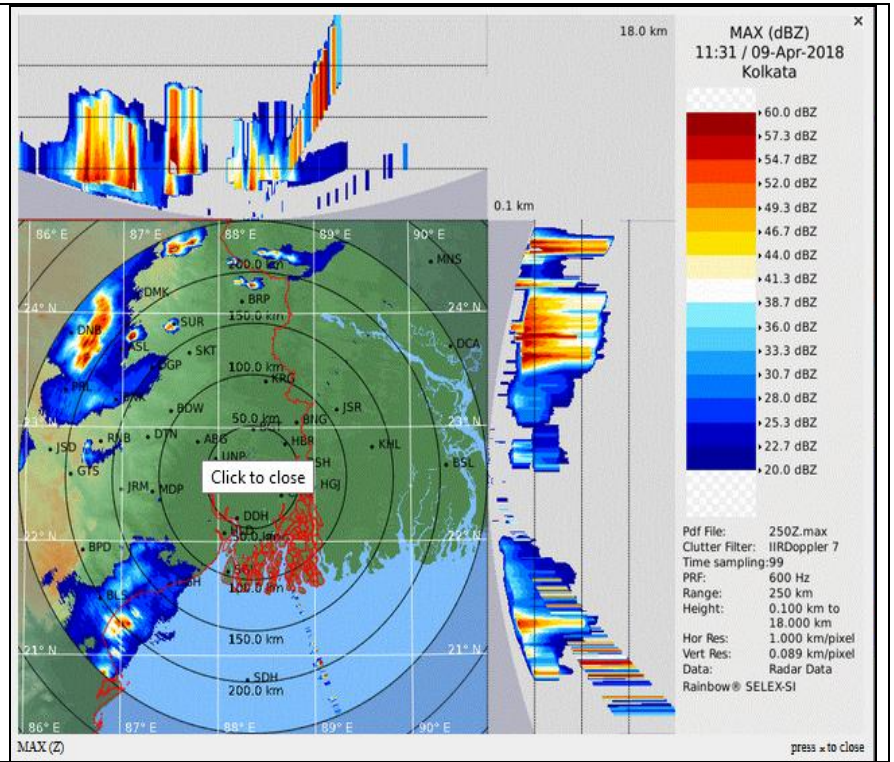
IOP Advisory for 24 hours



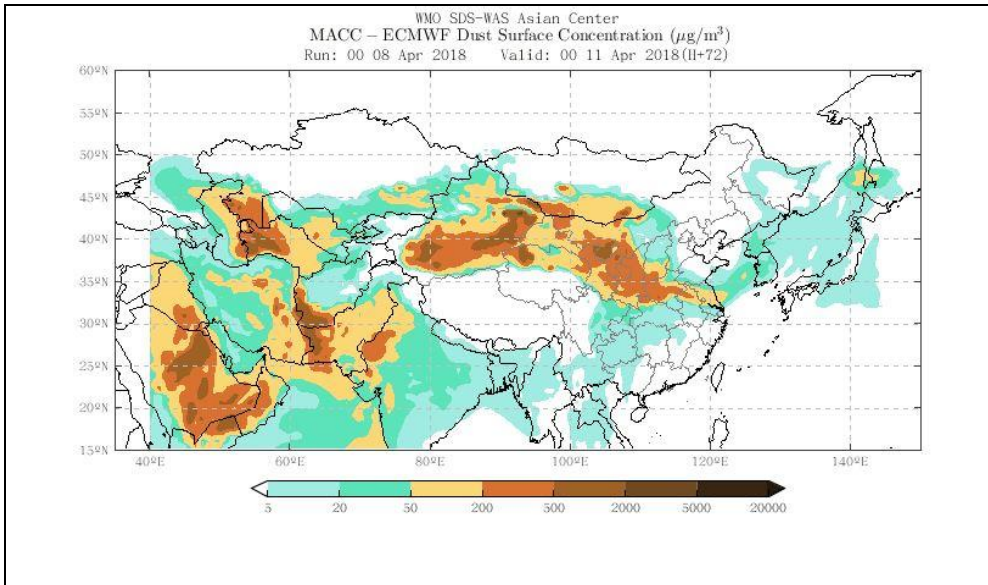
IOP Advisory for 48 hours



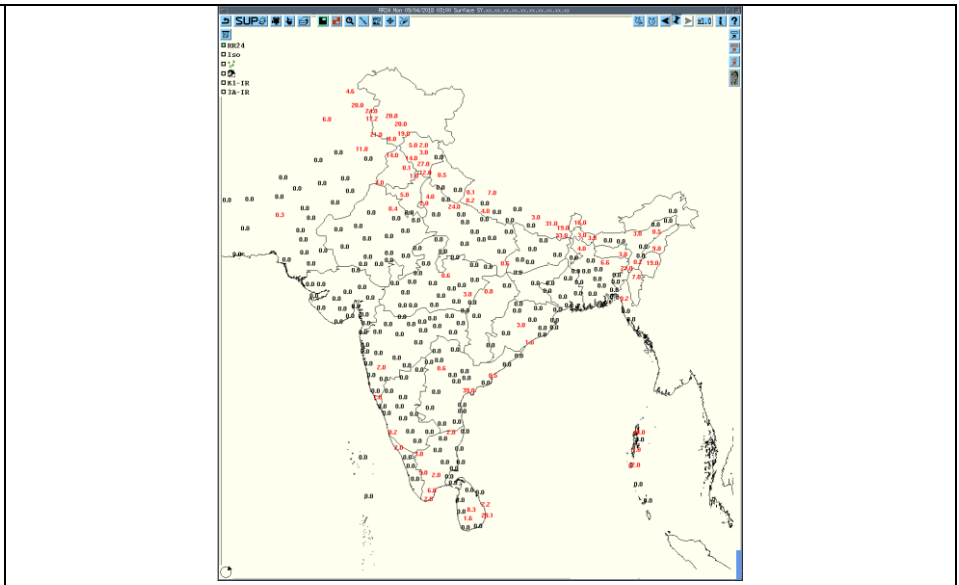
RAPID RGB Imagery at 1530 IST of the Day



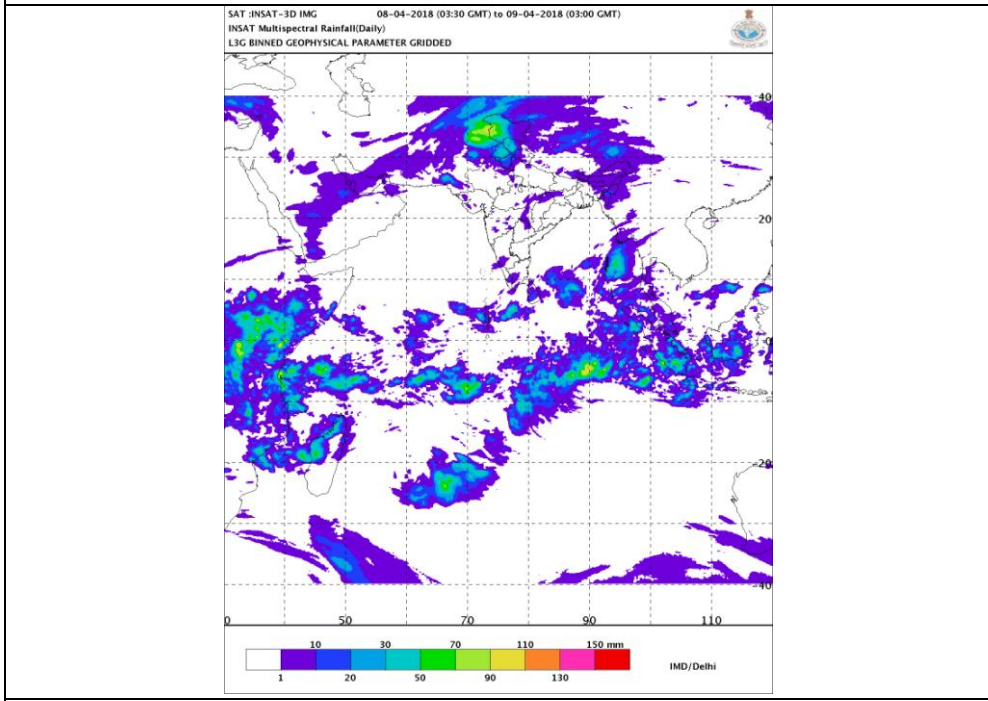
DWR Kolkata at 1701 IST of the Day



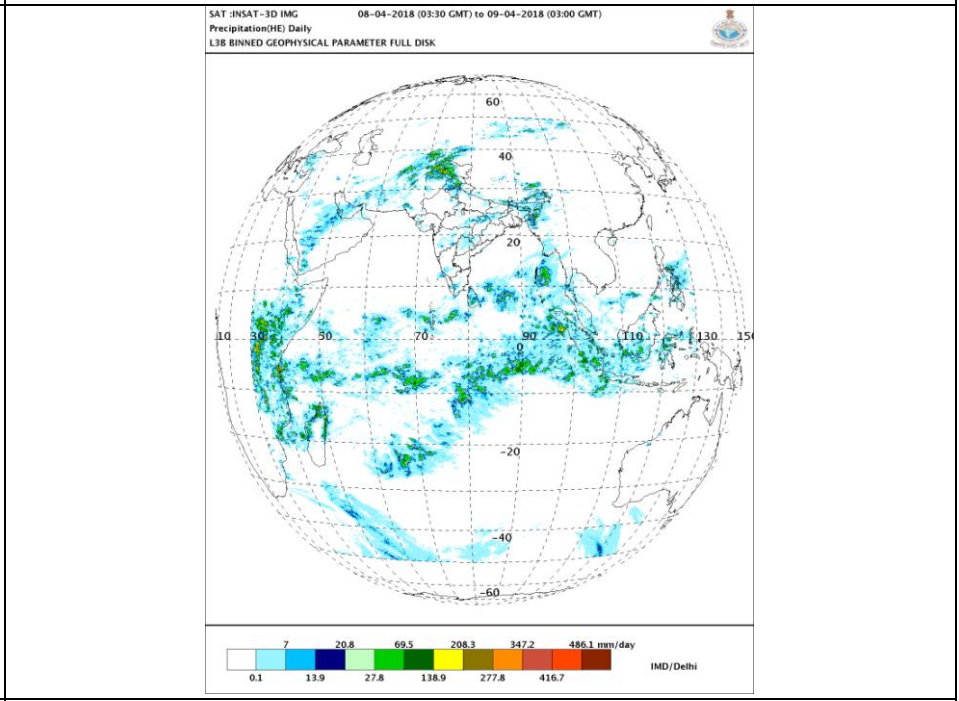
Dust Forecast



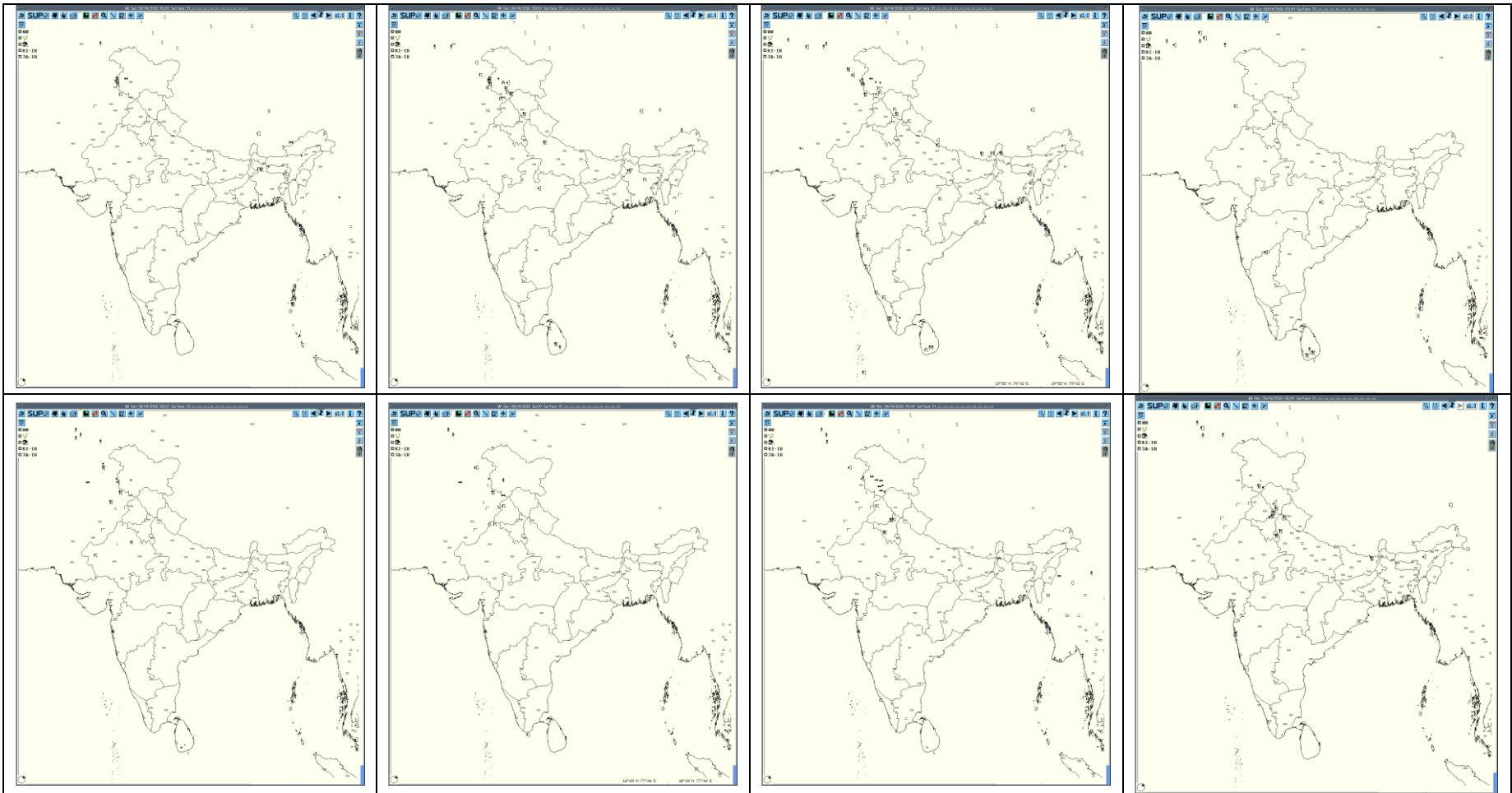
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today



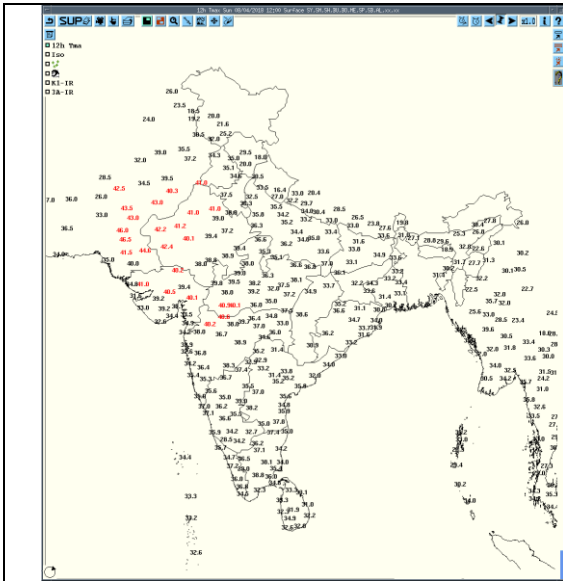
IMR



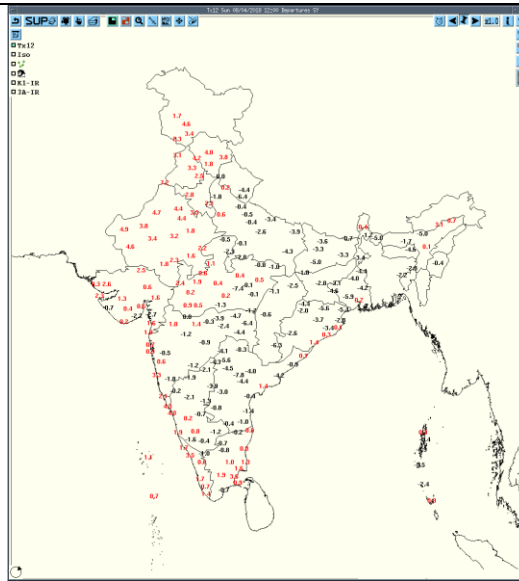
HEM



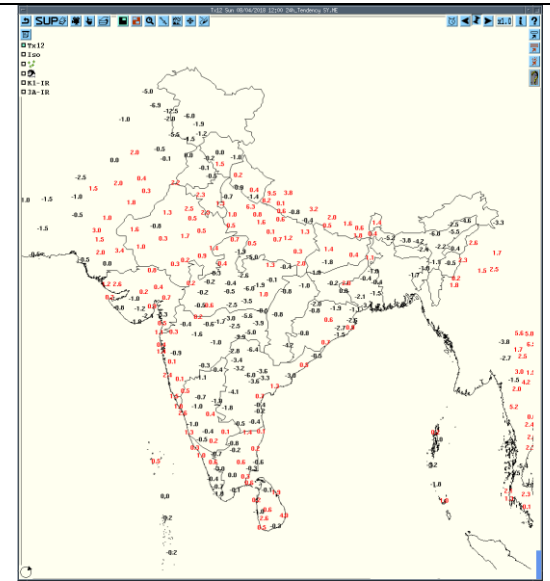
3hourly Past weather at 06, 09, 12, 15, 18, 21 UTC of yesterday and 00 & 03 hrs UTC of today



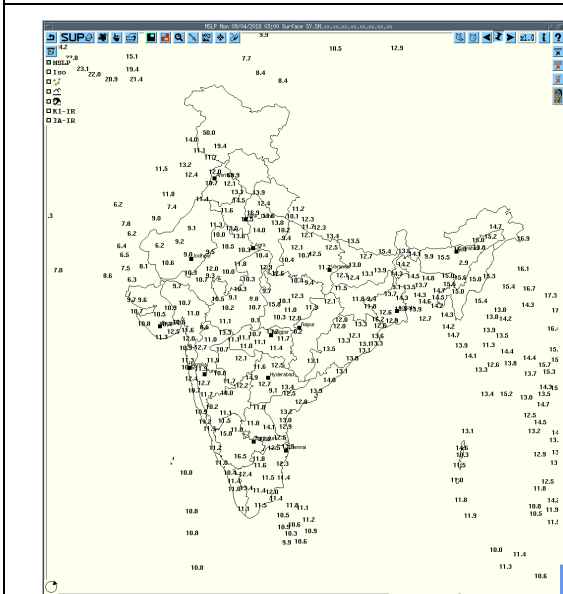
Tmax



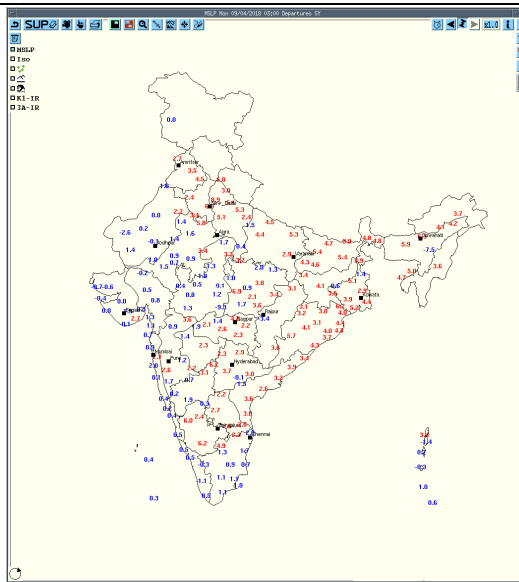
Departure Tmax



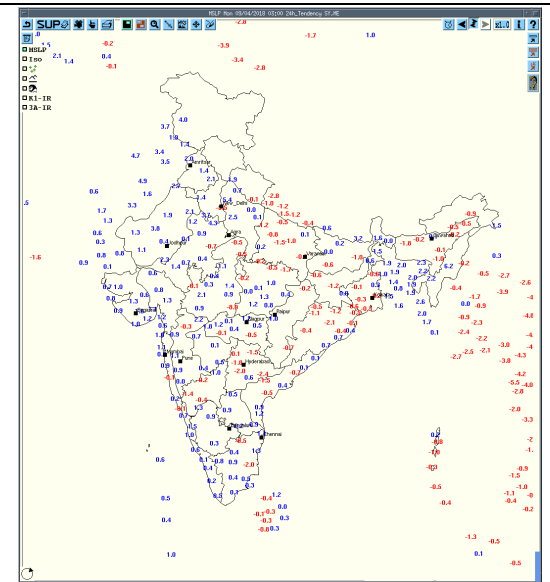
Tendency Tmax



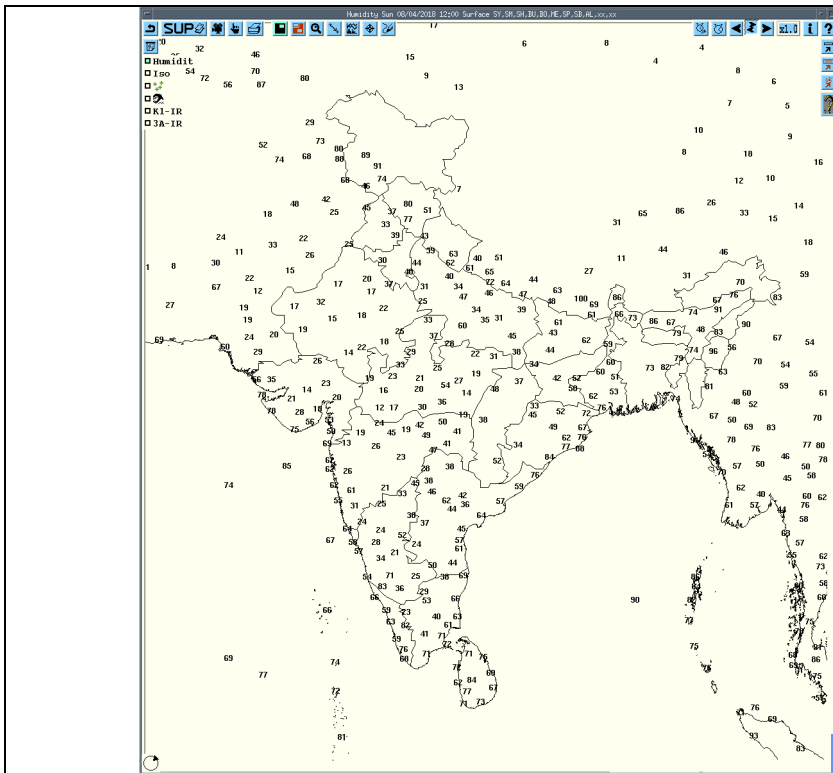
MSLP



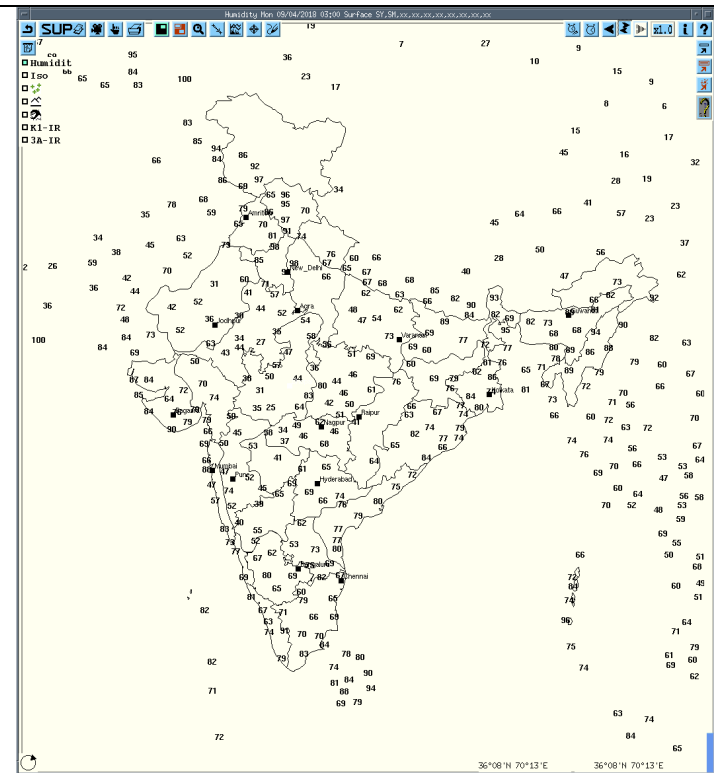
Departure MSLP



Tendency MSLP



RH at 12UTC yesterday



RH at 03UTC today

Past 24 hours DWR Report:

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	09-04-18	080600	Multiple cb cells towards SW and S with maximum reflectivity of 55dbz max. height of 14 kms	SW (192 Km) and S (141 kms) moving E ly	cb cell formed at 0341 UTC	-	East Godavari(AP) and Bay of Bengal
		080900	Multiple cb cells towards S,SW and NE with maximum reflectivity of 53dbz max. height of 14 kms	SW (140 to 222 Km) NE(135 to 190 KM) and S (125 kms) moving NE ly	CB cells in SW matured well(51 dBz,14 km) at 0601UTC and dissipated at 0801UTC. CB cells in NE matured well (53dBz, 13 km at 0811UTC and dissipating.	-	Srikakulam and East Godavari (AP)
		081200	Isolated cb cells towards N, NNE with maximum reflectivity of 50dbz max. height of 12 kms	NNE (155 Km) N(207 KM) moving E ly	CB cell formed NNE at 0901UTC and matured well(50dBz, 12km) and dissipated at 1001UTC.	-	Srikakulam dist (AP) Gajapati, Rayagada dist (Orissa)
		081500	Isolated convective cell with maximum reflectivity of 47dbz maximum height of 8 km	NNE (206 kms) moving E ly	Convective cell cell formed at 1201 UTC dissipated at 1301 UTC	-	-

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
Patiala	09-04-18	080300-080600	MULTIPLE ECHOS DBZ =40.0 HT 08 KM	NE, E ESE Sectors. Movement towards SE Direction.		-----	Mandi, Mussorie, Roorkee, Bijnore
		080600-080900	MULTIPLE ECHOS DBZ =49.5 HT 12-14 KM	NE Sector. Movement towards SE Direction		----	Solan, Shimla, Bilaspur, Chamba, Utterkashi
		080900-081200	MULTIPLE ECHOS DBZ =54.5 HT 12-14 KM	NE, NE Sectors .Movement towards SE Direction.		-----	Bilaspur, Hamirpur, Shimla, Solan, Nalsgarh
		081200-081500	MULTIPLE ECHOS DBZ =56.0 HT 14 KM	NE Sectors. Movement towards SE Direction.		-----	Bilaspur, Shimla, Solan, Nalsgarh
		081800-082100	MULTIPLE ECHOES DBZ 50.5 HT. 6-10KM	NW and W Sectors Dir. of Movement In Direction			Mukatsar, Ferozpur, Ludhiana, Kapurthala
		082100-090000	MULTIPLE ECHOES DBZ 55.5 HT. 8-12 KM	NW And SW Sectors Movement In E Direction			Mukatsar, Bathinda, Ludhiana, Mlerkotla, Sirhind
		090000-090252	MULTIPLE ECHOES DBZ 59.0 HT. 10-14 KM	N , NW Sectors Movement In E Direction			RA/TS

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
Jaipur	09-04-18	080812-081322	Multiple cell with average height of 9.3km & maximum reflectivity 59.5dBZ	Multiple cell develop from 0812 UTC of 08/04/2018 towards N,NW,W &SW of Jaipur and moved to SE,NE Wards at speed 12-15 km/hr	Multiple cell develop from 0812 UTC 08/04/2018 towards N, NW, W & SW of Jaipur and reaches maximum reflectivity during 09:42 to 12:42 UTC of 08/04/2018 and died down at 1322 UTC	Hailstorm/ Thunderstorm with Light rain at Isolated places	Nagaur, Jaipur, Ajmer, Bhilwara, Sikar, Bundi, Tonk, Kota, Churu Districts.
		081352-090252	Multiple cell with average height of 7.5km & maximum reflectivity 54.5dBZ	Multiple cell develop from 1352 UTC of 08/04/2018 towards N, NW, &NE of Jaipur and moved to E, SE,NE Wards at speed 15-18 km/hr	Multiple cell develop from 1352 UTC 08/04/2018 towards N, NW, &NE of Jaipur and reaches maximum reflectivity during 91:42 to 23:52 UTC of 08/04/2018 and continuous at 0300 UTC of 09/04/18.	Hailstorm/ Thunderstorm with Light rain at Isolated places	Churu, Sikar, Nagaur, Alwar, Dausa, Sawaimadhopur, Ajmer, Jhunjhunu and Tonk Districts
Lucknow	09-04-18	080732-040852	Single cell with average height of 11.0KM (20 dbz echo top) with Maximum Reflectivity of 56.5 dBZ.	Single cell NW (225KM) moving in SE'y Direction at speed of 15.0 km/hr.	Single cell converted in to multiple cells at 0932 UTC	TS/RA	Bareilly
		080932-081232	multiple cell system at 0932UTC with average height of 09.5KM (20 dbz echo top) with Maximum Reflectivity of 50.0 dBZ	Multiple cell (generated from previous single cell) NW 200km moving in SE'y Direction at a speed of 25.0 km/h	Cells dissipated at 12:32 UTC (140 km) NW direction from radar station	TS/RA	Bareilly
		081112-081152	Single cell with average height of 6.4KM (20 dbz echo top) with Maximum Reflectivity of 40.0 dBZ	Single cell NNE(140KM) moving in SE'y Direction at speed of 11.0 km/hr	Cells dissipated at 11:52 UTC (140 km) NNE direction from radar station	NIL	NIL

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
Kolkata	09-04-18	080301-082011	NIL	NIL	NOSIG ECHO	NIL	NIL
		082021-082051	Small multi-celled system with maximum height of 11.29 km 2021 UTC and maximum reflectivity of 56.0 dBz at 2021 UTC.	Coming from WNW moving in ESE-ward direction with a speed of 8.0 m/s	Small multi-celled system Coming from WNW from 2021 UTC Not matured, dissipated at 2051 UTC, in WNW at a distance of 219.5 km from Radar.	Thunderstorm/ Rain	N/A
		082101-090301	NIL	NIL	NOSIG ECHO	NIL	NIL
Patna	09-04-18	080300-080410	Multiple Cells Lat-27.17N Long-84.59E Maximum Reflectivity: 49.5 dBZ Echo Top: 9.2 KM	Range: 184.5 KM from DWR Patna in NNW direction Movement: NORTHEASTERLY	Warning issued	Thunderstorm	WEST CHAMPARAN, EAST CHAMPARAN, GOPALGANJ, SIWAN, SITAMADHI, MUZAFFARPUR
		080410-090300	NIL	N/A	N/A	N/A	N/A

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)
Kailasahar	Northeast India	Tripura (NMMT)	Thunderstorm	08-04-18	1420	1800
Lengpui	Northeast India	Mizoram(NMMT)	Thunderstorm	08-04-18	1450	1930
Dehradun	Northwest India	Uttarakhand	Thunderstorm	09-04-18	0810	0830
Tehri	Northwest India	Uttarakhand	Thunderstorm	08-04-18	1645	2015
Sikar	Northwest India	East Rajasthan	Thunderstorm	08-04-18	2000	2100
Pilani	Northwest India	East Rajasthan	Thunderstorm	09-04-18	0430	0530
Churu	Northwest India	West Rajasthan	Thunderstorm	08-04-18	2100	2350
Bikaner	Northwest India	West Rajasthan	Thunderstorm	08-04-18	2120	2225
Ganganagar	Northwest India	West Rajasthan	Thunderstorm	09-04-18	0050	0350
Ambala	Northwest India	Haryana	Thunderstorm	09-04-18	0455 0650	0525 0830
Hisar	Northwest India	Haryana	Thunderstorm	09-04-18	0410	0615
Chandigarh	Northwest India	Chandigarh	Thunderstorm	09-04-18	0620	0830
Patiala	Northwest India	Punjab	Thunderstorm	09-04-18	0330	0700
Srinagar	Northwest India	Jammu & Kashmir	Thunderstorm	08-04-18	1402	1403
Qazigund	Northwest India	Jammu & Kashmir	Thunderstorm	08-04-18	1355	1530
Pahalgam	Northwest India	Jammu & Kashmir	Thunderstorm	08-04-18	1445	1455
Kukernag	Northwest India	Jammu & Kashmir	Thunderstorm	08-04-18	1445	1515
Banihal	Northwest India	Jammu & Kashmir	Thunderstorm	08-04-18	1240 1350	1350 1800
Batote	Northwest India	Jammu & Kashmir	Thunderstorm	08-04-18	1415 1935	0750 0830
Bhaderwah	Northwest India	Jammu & Kashmir	Thunderstorm	08-04-18	1300	1600
Delhi Safdarjung	Northwest India	Delhi	Thunderstorm	09-04-18	0655	0830
Delhi Palam	Northwest India	Delhi	Thunderstorm	09-04-18	0730	0830
Amravati	Central India	Maharashtra (Vidarbha)	Thunderstorm	08-04-18	2100	2330
Pendra Rd	Central India	Chhattisgarh	Thunderstorm	08-04-18	1721	1945
Shimla	Northwest India	Himachal Pradesh	Thunderstorm	08/09-04-18	081425 081655 090700	081435 081915 090830
			Hailstorm(diameter: 1.0cm)	08-04-18	1745	1750
Sundernagar	Northwest India	Himachal Pradesh	Thunderstorm	08-04-18	1540	1728

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)
Churk	Northwest India	East Uttar Pradesh	Thunderstorm	08-04-18	1445	1505
Bareilly	Northwest India	West Uttar Pradesh	Thunderstorm	08-04-18	1300	1630
Meerut	Northwest India	West Uttar Pradesh	Thunderstorm	09-04-18	0800	0830
Hyderabad	South India	Telangana	Thunderstorm	08-04-18	0830	0915
Narsapur	South India	Andhra Pradesh (CAP)	Thunderstorm	08-04-18	1035	1045
Bapatla	South India	Andhra Pradesh (CAP)	Thunderstorm	08-04-18	0900	0955
Gangtok	East India	Sikkim	Thunderstorm	08-04-18	1650	1820
Tadong	East India	Sikkim	Thunderstorm	08-04-18	1615	1950
Bhagalpur	East India	Bihar	Thunderstorm	08-04-18	1530	1710
Gopalpur	East India	Odisha	Thunderstorm	08-04-18	0830	0850
Port Blair	East India	Andaman & Nicobar Islands	Thunderstorm	08-04-18	0830	1300
Vellore	South India	North interior Tamil Nadu	Thunderstorm	08-04-18	1800	1825
Palayamkottai	South India	South Tamil Nadu	Thunderstorm	09-04-18	0700	0800
Hyderabad	South India	Telangana	Thunderstorm	08-04-18	0830	0915
Narsapur	South India	CAP	Thunderstorm	08-04-18	1035	1045
Bapatla	South India	CAP	Thunderstorm	08-04-18	0900	0955

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

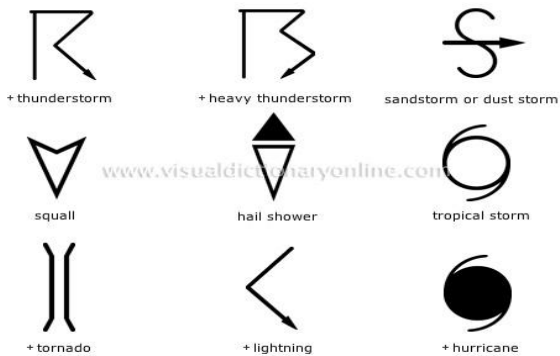
For Radar images of the past 24 hours including mosaic of images:

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