



India Meteorological Department

FDP STORM Bulletin No. 12 (18-03-2018)

1. CURRENT SYNOPTIC SITUATION:

NWFC INFERENCE (0300UTC of the Day):

- ◆ The Western Disturbance as a trough in mid & upper tropospheric westerlies with its axis at 5.8 km above mean sea level roughly along Long 50°E to the north of Lat 25°N now runs roughly along Long 54°E to the north of Lat 25°N.
- ◆ An induced cyclonic circulation lies over south Pakistan and adjoining southwest Rajasthan and extends upto 1.5 km above mean sea level.
- ◆ The cyclonic circulation over eastcentral Arabian Sea & adjoining south Konkan at 1.5 km above mean sea level has become less marked. However, a trough in low level easterlies runs from Comorin area to south Madhya Maharashtra across Interior Tamilnadu and Interior Karnataka and extends upto 0.9 km above mean sea level.
- ◆ The trough of low at mean sea level over Equatorial India Ocean and adjoining southeast Bay of Bengal persists.

SATELLITE OBSERVATIONS during past 24hrs and current observation:

Current Observation (based on 0900UTC imagery of INSAT 3D):

WESTERN DISTURBANCE (WD):

Scattered to broken multi-layered clouds observed over East Iran, Afghanistan, North Pakistan, West Jammu & Kashmir, Himachal Pradesh, West Punjab and over the area between lat 37.0°N to 47.0°N ad long 60.0°E to 80.0°E in association with WD over the area.

Westerly Trough:

A Trough in westerlies runs roughly along long 54.0°E & North of lat 25.0°N.

Clouds description within India:

Scattered low/medium clouds with embedded moderate to intense convection seen over South Interior Karnataka and Kerala. Scattered low/medium clouds with embedded isolated weak convection seen over Arunachal Pradesh, Nagaland, North Mizoram, Telangana, North Interior Karnataka and Tamilnadu. Scattered low/medium clouds were seen over rest Jammu & Kashmir, West-central Haryana, North Uttarakhand, South

Chhattisgarh, Odisha, Sikkim, North-eastern states, South Rajasthan, Gujarat, South Madhya Pradesh, Maharashtra, Goa, Rayalaseema, North coastal Andhra Pradesh, and Nicobar Islands.

Arabian Sea:

Scattered low/medium clouds with embedded isolated weak to moderate convection seen over Southeast Arabian Sea off Kerala coast & West Comorin.

Bay of Bengal & Andaman Sea:

No significant clouds over the region.

Past Weather:

Convection (during last 24 hrs):

Moderate to intense convection was observed over East J&K Karnataka Rayalaseema Kerala Tamilnadu and weak to moderate convection over North Chhattisgarh Bihar Jharkhand Gangetic West Bengal Sikkim North-East States South Odisha Telangana North Coastal Andhra Pradesh.

OLR :-

Upto 230 w m^{-2} was observed over J&K North Himachal Pradesh North Uttarakhand Sikkim Arunachal Pradesh Nagaland Manipur Mizoram Kerala Tamilnadu and

Upto 250 w m^{-2} observed over South Interior Karnataka Coastal Andhra Pradesh.

Synoptic Features:

Westerly Trough: Trough in westerly roughly along Longitude 54°E & north of Latitude 25°N

Dynamic Features:

Negative shear tendency is observed over north Coastal Andhra Pradesh and Positive shear tendency over rest parts of India.

Medium to high wind shear is observed over North & Central India and low wind shear over South Peninsula region.

A positive Vorticity field is observed over Himachal Pradesh Uttarakhand Uttar Pradesh Bihar Arunachal Pradesh.

Negative Low Level Convergence is observed over J&K Uttar Pradesh East Madhya Pradesh Vidarbha and Positive Low Level Convergence over rest parts of India.

Precipitation:

IMR:

Rainfall upto 30-50 mm observed over South Kerala adjoining Tamilnadu South-East parts of South Interior Karnataka.

Rainfall upto 01-10 mm observed over J&K North-East Himachal Pradesh Arunachal Pradesh East Assam Nagaland Manipur Mizoram Rayalaseema rest East parts of South Interior Karnataka north Kerala rest Tamilnadu.

HEM:

Rainfall upto 70 mm observed over East Arunachal Pradesh South-East parts of South Interior Karnataka South Kerala Central Tamilnadu and

Rainfall upto 14 mm observed over Manipur North-East parts of South Interior Karnataka and

Rainfall upto 7 mm observed over rest North-East States Gangetic West Bengal Couth Coastal Andhra Pradesh North Kerala rest Tamilnadu.

RADAR and RAPID RGB Observation:

Isolated/multiple moderate echoes are seen on DWR Agartala (dBZ around 45-50 and height 9-10km) and Cherrapunjee (dBZ around 45 and height 8-9km) domains at around 1600 IST.

RAPID RGB Satellite imagery at 1530IST indicates significant convection over Kerala, South Interior Karnataka adjoining Tamilnadu, Arunachal Pradesh, East Assam, Nagaland, Manipur, Mizoram and Tripura.

Environmental condition (dust etc) and its forecast based on 00UTC of date:

Higher Dust concentration was observed over North Africa and Arab countries. Dust concentration is expected to increase over north-western part of India for next five days. PM10 concentration is expected to increase over IGP in next five days.

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

Delhi – SAFAR analysis & Forecast	18.03.2018	19.03.2018
PM10 (micro-g/m3)	153	138
PM2.5 (micro-g/m3)	87	78

2. NWP MODEL GUIDANCE:

NCMRWF (NCUM Forecasts based on 00 UTC of the day):-

1. Weather Systems:

Low level CYCIRS, Troughs:

12 UTC of Day 2-4: 850 hPa Trough over Bangladesh and adjoining parts of NE India

00 UTC of Day 0-1: Trough at 850 hPa over Central India

Confluence & Wind Discontinuity regions:

UTC of Day 2-3: W-E wind discontinuity over peninsula from Maharashtra-MP-Chhattisgarh-Odisha

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

Over SW Pakistan (Day-1) S Pakistan (Day-2) associated with WD

3. Convergence at 850 hPa:

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

Day0: Assam_Meghalaya, West_RJ, East_RJ, Odisha, West_MP, Madhya_Maharashtra, Marathwada, Coastal_AP,

Day1: Jharkhand, Odisha, East_MP, Vidarbha, Chhattisgarh, Coastal_AP,

Day2: NE_NMMT, Hry_ChD_Delhi, West_RJ, Odisha, West_MP, East_MP, Chhattisgarh, Coastal_AP,

Day3: Assam_Meghalaya, NE_NMMT, East_UP, West_UP, Odisha, Coastal_AP, Kerala,

Day4: East_UP, Odisha, East_MP, Vidarbha, Chhattisgarh, TN_Puducherry, SI_Karnataka, Kerala,

4. Spatial distribution of Low level Vorticity:

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

Day0: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Uttarakhand, Himachal_Pradesh, West_RJ,

Day1: Assam_Meghalaya, NE_NMMT, West_UP, Uttarakhand, Himachal_Pradesh, East_RJ, Coastal_AP,

Day2: Assam_Meghalaya, Bihar, Uttarakhand, Hry_ChD_Delhi, Punjab, Himachal_Pradesh, West_RJ, Odisha, Coastal_AP,

Day3: Gangetic_WB, Jharkhand, East_UP, West_UP, Punjab, Odisha, Coastal_AP,

Day4: NE_NMMT, Punjab,

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

Day/Index: Subdivisions with Showalter Index < -4

Day0: NE_NMMT, Coastal_Karnataka, SI_Karnataka, Kerala,

Day1: Arunachal_Pradesh, Sub_Himalayan_WB, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka,

Day2: Arunachal_Pradesh, Sub_Himalayan_WB, Uttarakhand, Jammu_Kashmir, Coastal_Karnataka, SI_Karnataka, Kerala,

Day3: Arunachal_Pradesh, Sub_Himalayan_WB, Uttarakhand, Jammu_Kashmir, Coastal_Karnataka, SI_Karnataka, Kerala,

Day4: Arunachal_Pradesh, Assam_Meghalaya, Sub_Himalayan_WB, Jharkhand, SI_Karnataka, Kerala,

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

Day/Index: Subdivisions with K Index > 40

Day0: Madhya_Maharashtra, TN_Puducherry, SI_Karnataka,

Day1: Arunachal_Pradesh, Sub_Himalayan_WB, Madhya_Maharashtra, Marathwada, Rayalseema, NI_Karnataka, SI_Karnataka,

Day2: Arunachal_Pradesh, Sub_Himalayan_WB, Madhya_Maharashtra, Marathwada, Vidarbha, Coastal_Karnataka, NI_Karnataka, SI_Karnataka,

Day3: Arunachal_Pradesh, Sub_Himalayan_WB, East_MP, Madhya_Maharashtra, Vidarbha, Chhattisgarh, Coastal_AP, Telangana, Rayalseema, TN_Puducherry, NI_Karnataka, SI_Karnataka, Kerala,

Day4: Arunachal_Pradesh, Sub_Himalayan_WB, Gangetic_WB, Odisha, Coastal_AP, Telangana, Rayalseema, TN_Puducherry, NI_Karnataka, SI_Karnataka, Kerala,

7. 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, Himachal_Pradesh, Jammu_Kashmir,

Day1: Arunachal_Pradesh, NE_NMMT, Sub_Himalayan_WB, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir,

Day2: Arunachal_Pradesh, Sub_Himalayan_WB, Uttarakhand, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ,

Day3: Arunachal_Pradesh, Sub_Himalayan_WB, Uttarakhand, Hry_Chhd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, East_MP, Vidarbha, Chhattisgarh,

Day4: Arunachal_Pradesh, Assam_Meghalaya, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, East_UP, West_UP, Uttarakhand, Punjab, Himachal_Pradesh, Jammu_Kashmir, Odisha, Chhattisgarh,

8. Rainfall and thunder storm activity:

Day/Index: Subdivisions with Precipitation > 2 cm

Day1: Arunachal_Pradesh, Assam_Meghalaya, TN_Puducherry, SI_Karnataka, Kerala,

Day2: Uttarakhand, Himachal_Pradesh, Jammu_Kashmir,

Day3: Jammu_Kashmir,

Day4:

Day5:

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

1. Synoptic Systems:

The analysis based on 00 UTC shows a cyclonic circulation over Madhya Maharashtra and adjoining areas in the lower troposphere. However, a trough in lower level easterlies runs from the cyclonic circulation over Madhya Maharashtra up to coastal Kerala across coastal and Interior Karnataka. This trough persists in day 1 and 2 as the cyclonic circulation moved northward over south Madhya Pradesh. In day 3, the trough changes its orientation as the cyclonic circulation moved eastward over northeast Madhya Pradesh. An induced cyclonic circulation is seen over south Pakistan and adjoining southwest Rajasthan. This cyclonic circulation moves north-eastward direction over west Rajasthan during next 2 days as the western disturbance also moves north-eastward direction. In the lower troposphere, a north-south oriented trough running from Assam and adjoining areas to GWB persists for next 2 days moving a little eastward in day 2. In day 3, a feeble cyclonic circulation is seen over GWB and adjoining Jharkhand region.

2. Location of Jet and Jet Core (>60kt) at 500hPa:

Although the presence of strong westerlies is found, 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)}:

Mostly along foothills of Himalayas and associated with the cyclonic circulations and along the trough situating over central and eastern India during next 3 days.

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

T-Storm Initiation Index (> 3): Higher than a value 3 over parts of coastal areas of Gangetic West Bengal, Orissa, Andhra Pradesh, Kerala, Karnataka and Konkan & Goa during all 3 days.

Lifted Index (< -2): The spatial coverage of the index exceeding threshold value is nearly similar to T-storm Initiation index.

Total Total Index (> 50) : Above threshold value over NW and East India during next 3 days. The maximum values are found along the foothills of Himalayas over northwest India and over GWB region.

Sweat Index (> 300): Parts of NE states. Coastal areas of GWB, Kerala, Karnataka and Konkan & Goa for next 3 days. Parts of Saurashtra and Kutch on day 1 and 2. Over southern parts of peninsular India and over Marathawada, Madhya Maharashtra and adjoining Vidarbha and Madhya Pradesh on day 1 and 2. Seen over Jammu & Kashmir on day 3.

CAPE (> 1000): Mostly along southern parts peninsular India along west coast and over east coastal areas of GWB and Orissa during all 3 days.

CIN (50-150): Mostly over parts of north eastern states and along east coast; along west coast from Saurashtra & Kutch to coastal Karnataka during next 3 days.

5. Rainfall Activity:

10- 40 mm rainfall: On day 1, Kerala and adjoining Interior Tamilnadu and Karnataka on day 1. The rainfall activity reduces over the region on day 2 and further on day to confine over Kerala only.

Up to 10 mm rainfall: On day 1, over Arunachal Pradesh and NNMT region and over rest of the Karnataka, Konkan & Goa, Marathawada and adjoining Madhya Maharashtra. The rainfall activity over the region in peninsular India continues in day 2 with a considerable reduction in spatial coverage. On day 3, over J & K, Himachal Pradesh, Uttarakhand, Punjab, Haryana, west Uttar Pradesh and adjoining north Rajasthan.

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

1. Model Reflectivity (Max.dBz):

> 25 dBZ Model Reflectivity: On day 1, over parts of interior Tamilnadu and Interior Karnataka and adjoining Marathawada and Kerala; Over parts of Arunachal Pradesh. On day 2, over some parts of west Madhya Pradesh and adjoining Rajasthan. On day 3, over parts of J & K and adjoining Punjab and Himachal Pradesh.

2. Spatial distribution of Total Total Index, K-Index, CAPE and CIN [High potential for thunderstorm]:

Total Total Index (> 50) : Above threshold value is observed over most parts of the country except south peninsula, along east and west coast and north-eastern states during all three days. The maximum values are found over northwest India.

K-Index (> 35): Less than threshold value is observed over the country during the next 3 days except over parts Karnataka, Marathawada, Madhya Maharashtra, adjoining Tamilnadu, Rayalaseema, Telangana and Vidharbha. From day 2 onwards it remains over northern parts of above mentioned region.

CAPE (> 1000): Greater than threshold value over the southern part of west coast, east coast, and parts of Kerala and coastal Karnataka and adjoining interior Karnataka during the next 3 days. Over Tripura on day 1.

CIN (50-150): Mostly over a few pockets along coastal areas of India during next 3 days. Day 2 onwards, some places over Punjab, Rajasthan, Madhya Pradesh and adjoining Maharashtra region.

3. Rainfall and thunderstorm activity:

10- 40 mm rainfall: On day 1, Kerala and adjoining Interior Tamilnadu and Karnataka on day 1. The rainfall activity reduces over the region on day 2 and further on day to confine over Kerala only. On day 3, over parts of Jammu and Kashmir.

Up to 10 mm rainfall: On day 1, over Arunachal Pradesh and NNMT region and over rest of the Karnataka, Konkan & Goa, Marathawada and adjoining Madhya Maharashtra. The rainfall activity over the region in peninsular India continues in day 2 with a considerable reduction in spatial coverage. On day 3, over J & K, Himachal Pradesh, Uttarakhand, Punjab, Haryana, west Uttar Pradesh and adjoining north Rajasthan.

3. IOP ADVISORY FOR 24 and 48Hrs:

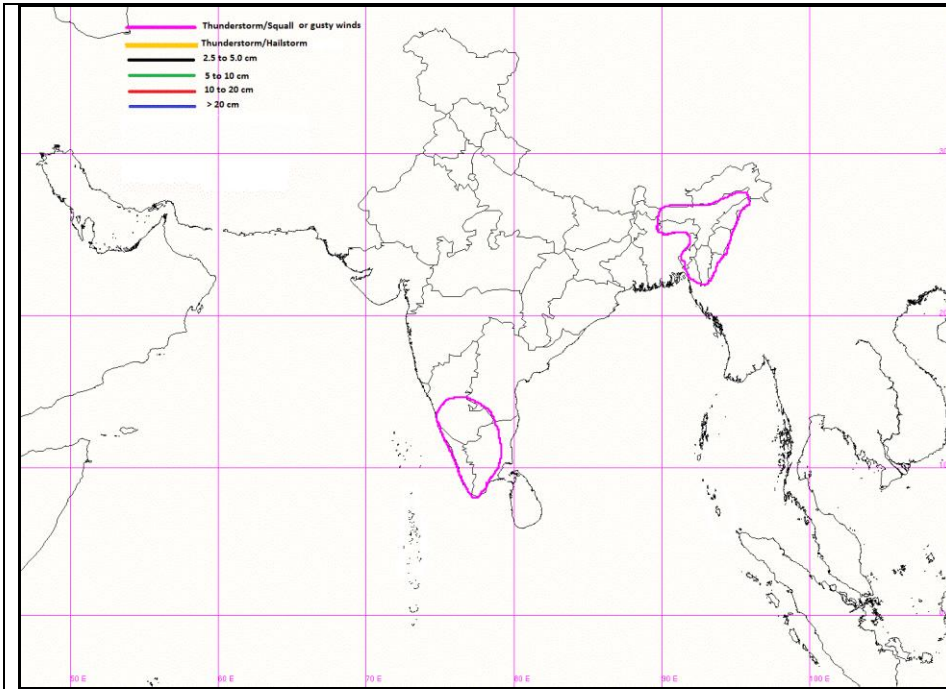
Summary and Conclusions:

Day-1 & Day-2:

A trough in low level easterlies runs from Comorin area to south Madhya Maharashtra across Interior Tamilnadu and Interior Karnataka and extends upto 0.9 km above mean sea level. From the satellite observation, scattered low/medium clouds with embedded moderate to intense convection were seen over Southeast Arabian Sea off Kerala coast & Comorin. Scattered low/medium clouds with embedded isolated weak convection were also seen over Assam, Meghalaya, Mizoram and Nagaland. From the NWP models inference, a trough in lower level and the cyclonic circulation are seen over Madhya Maharashtra up to costal Kerala across costal and Interior Karnataka. This trough persists in day 1 and 2 as the cyclonic circulation moved northward over south Madhya Pradesh. Positive vorticity seen mostly along foothills of Himalayas and associated with the cyclonic circulations and along the trough situating over central and eastern India during next 3 days. Therefore, the parts of central and adjoining peninsular India is likely to experience isolated thunderstorms with gusty winds on Day-1. Similarly, Assam, Meghalaya, Mizoram and Nagaland may also experience thunderstorms with gusty winds on Day-1. The probability of thunder activity due to the present synoptic conditions is unlikely on Day-2.

24 hour Advisory for IOP:	48 hour Advisory for IOP:
Rainfall:	Rainfall:
Nil	Nil
Thunderstorm with associated phenomenon:	Thunderstorm with associated phenomenon:
Kerala, Interior Tamilnadu, South Interior Karnataka, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura.	Nil

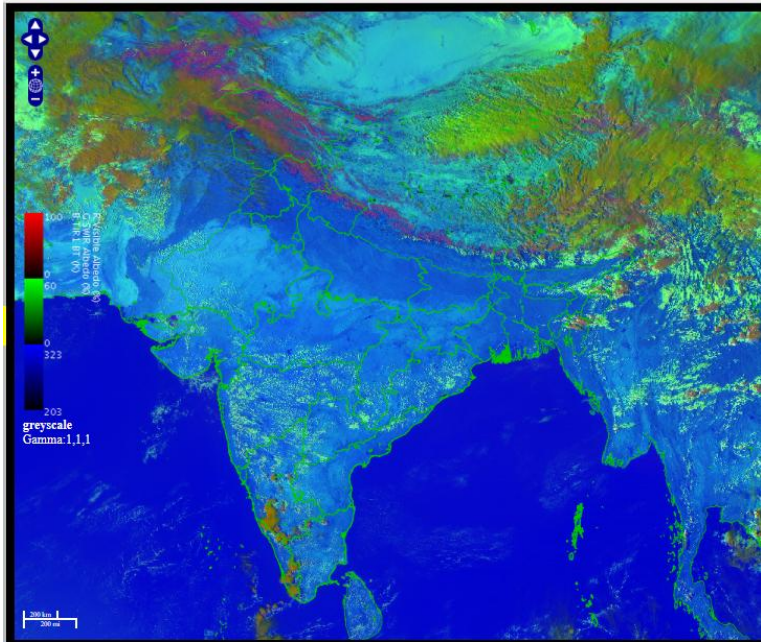
Graphical Presentation of Potential Areas for Severe Weather:



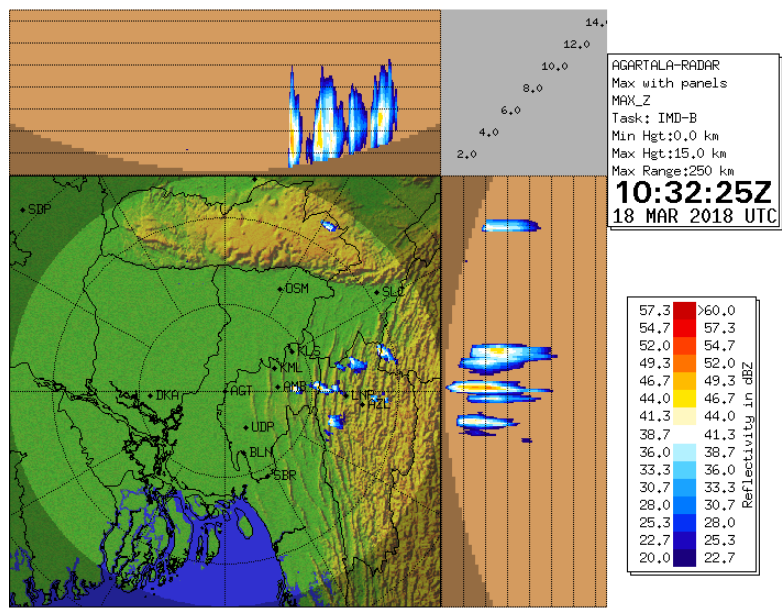
IOP Advisory for 24 hours

NO WARNING FOR SEVERE WEATHER

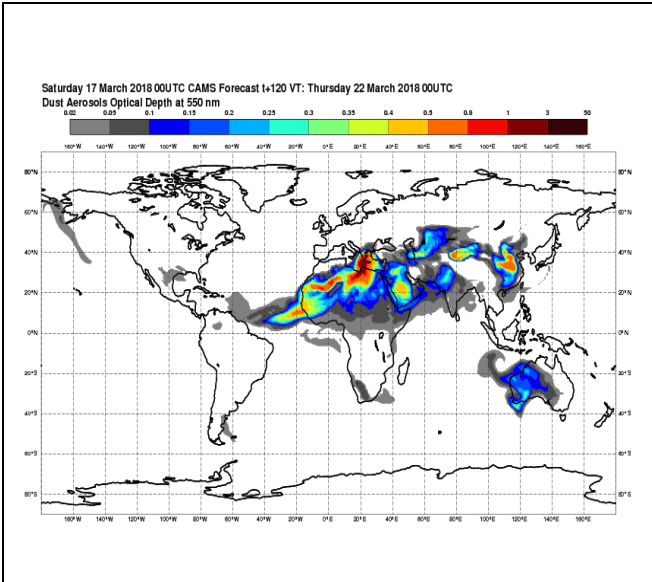
IOP Advisory for 48 hours



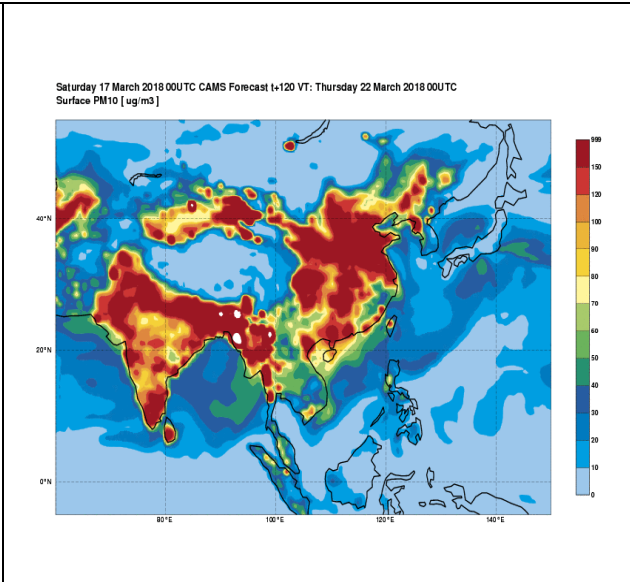
RAPID RGB Imagery at 1530 IST of the Day



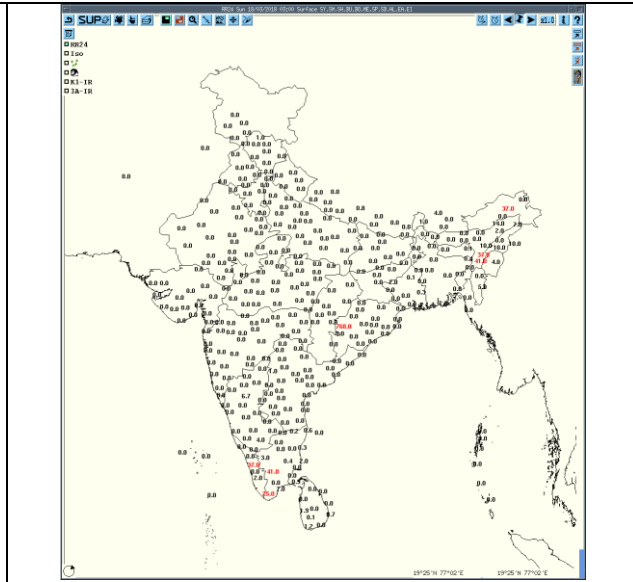
DWR Agartala at 1602 IST of the Day



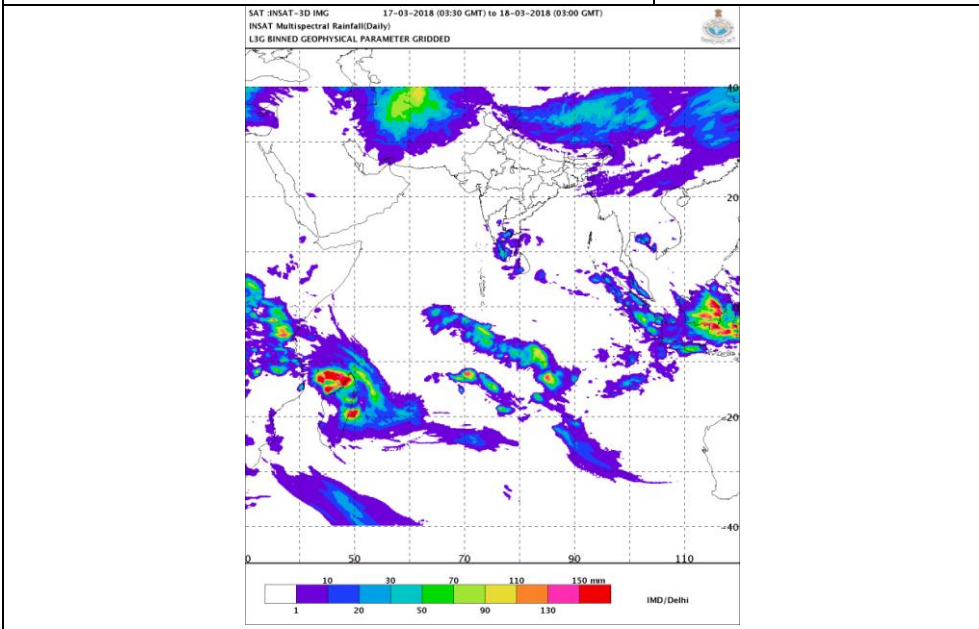
Forecast Dust Concentration



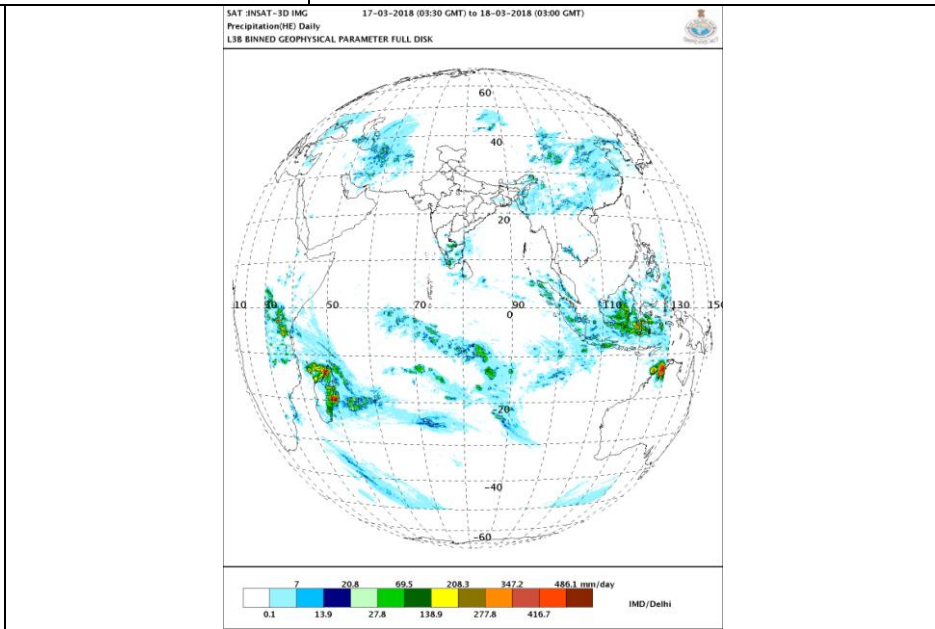
PM10 Forecast



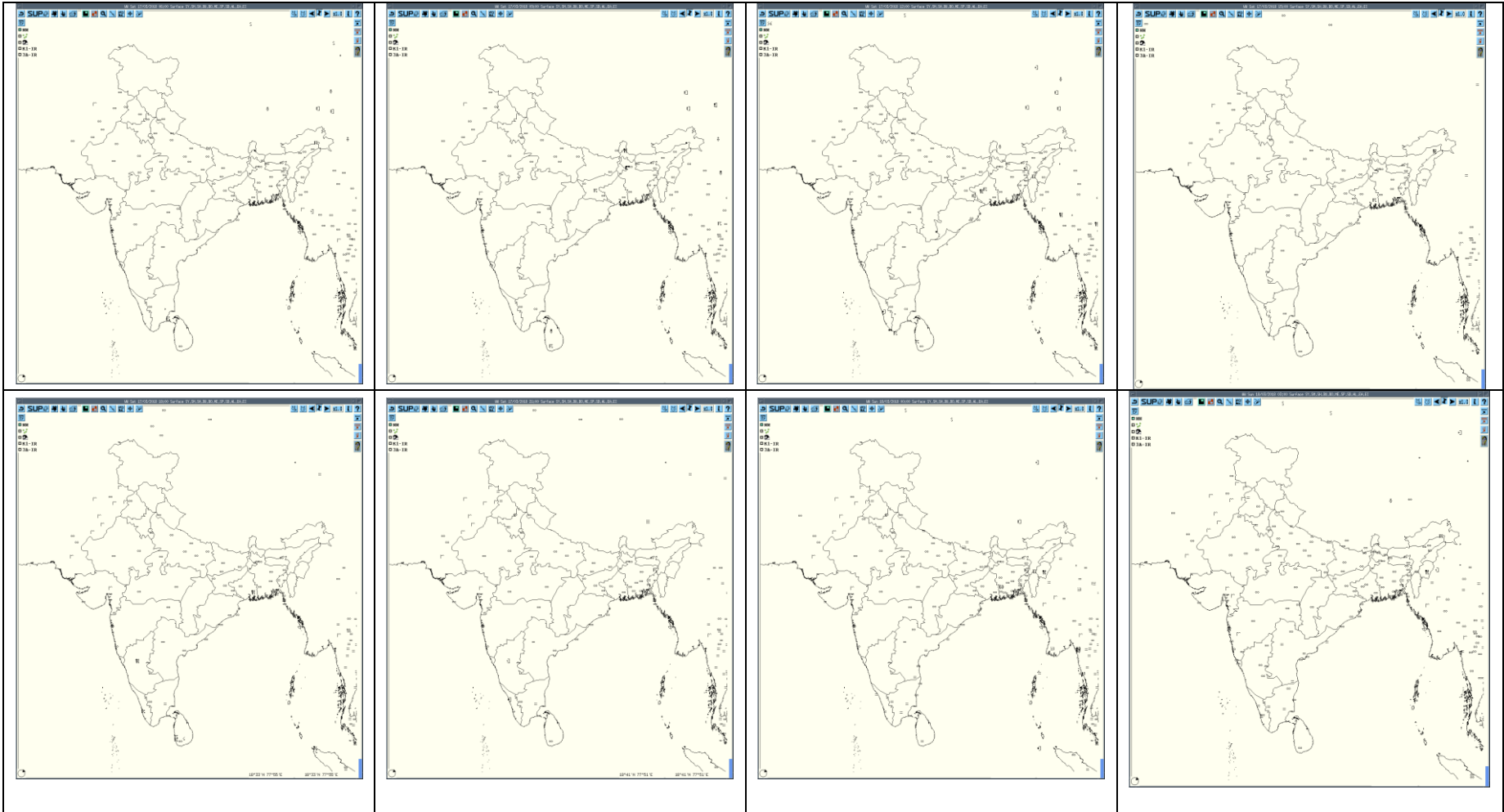
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today



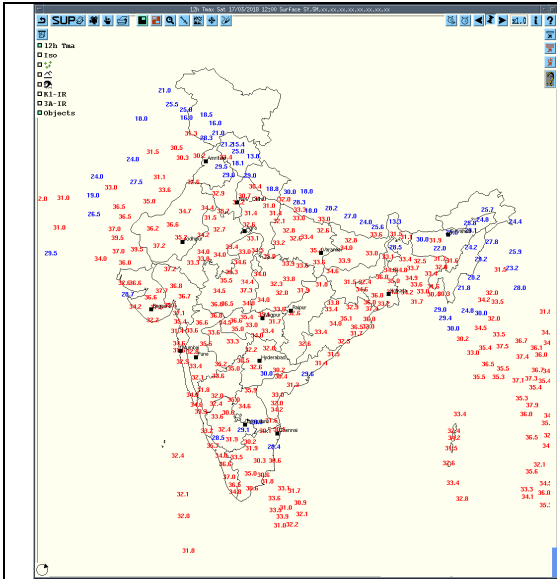
IMR



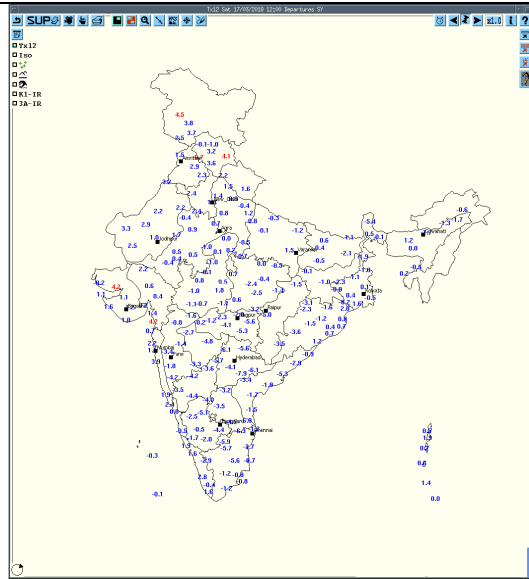
HEM



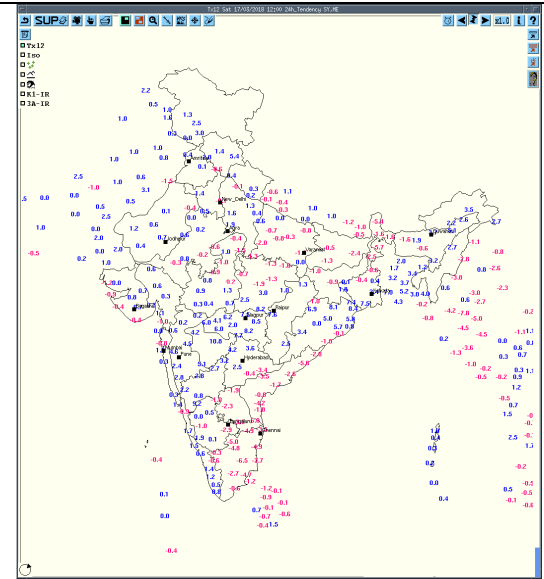
3hourly Past weather at 06, 09, 12, 15, 18, 21 UTC of yesterday and 00 & 03 hrs UTC of today



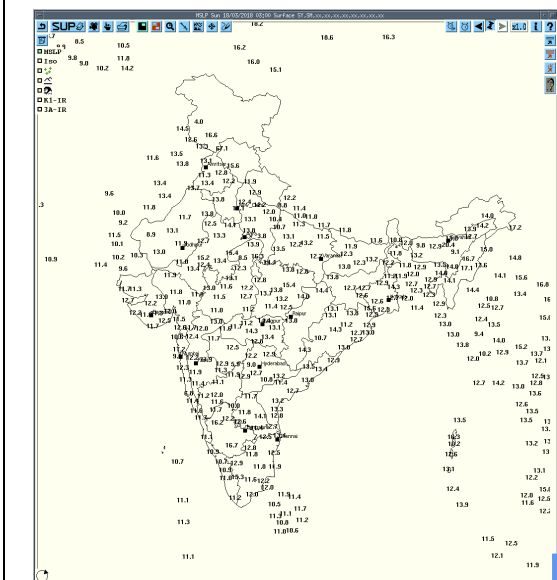
Tmax



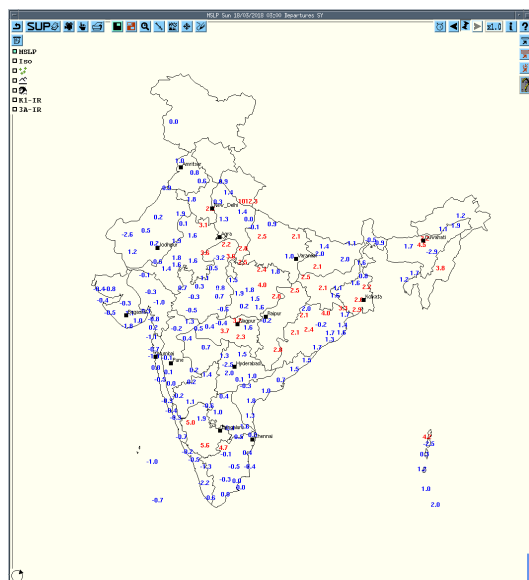
Departure Tmax



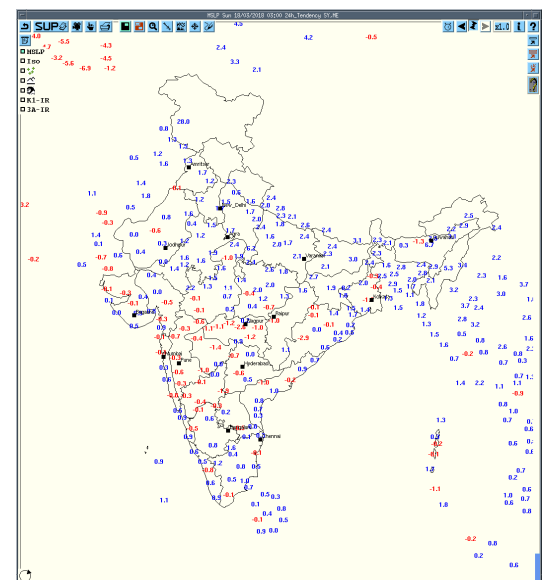
Tendency Tmax



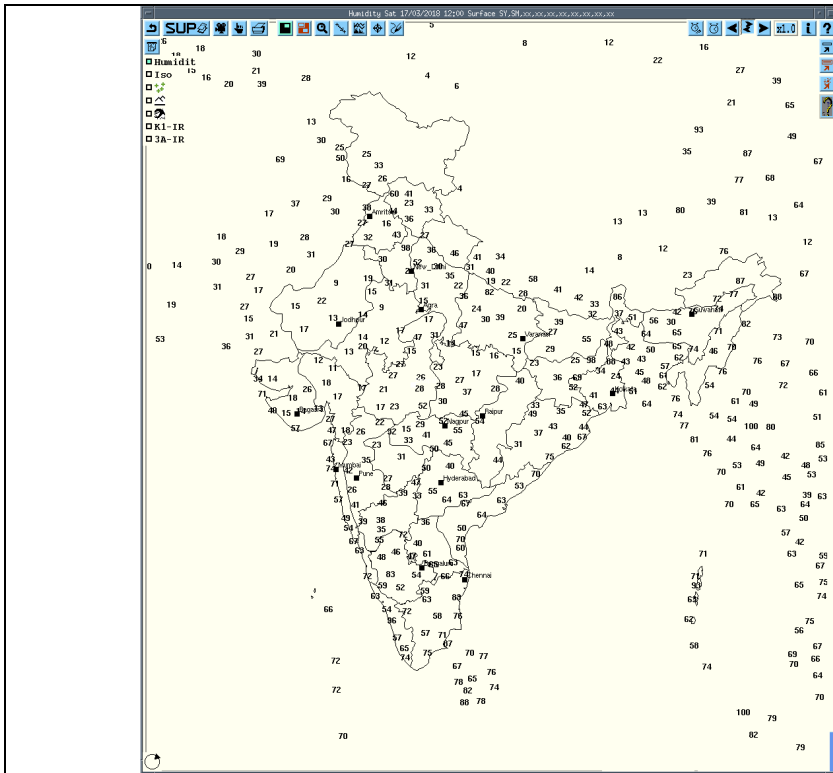
MSLP



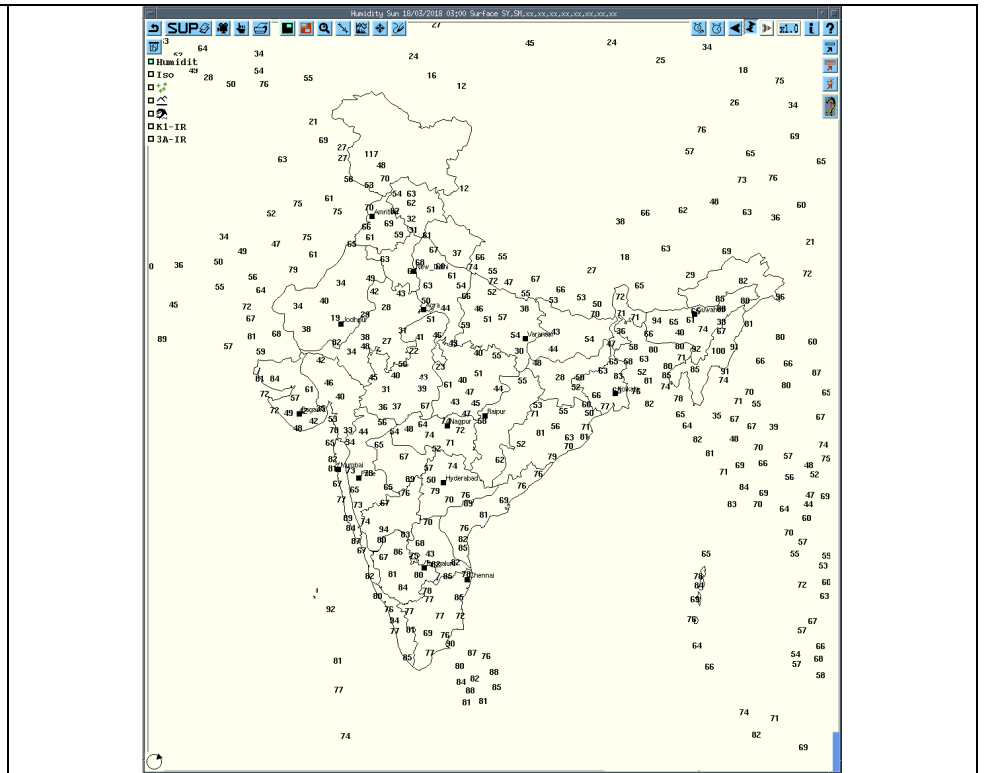
Departure MSLP



Tendency MSLP



RH at 12UTC yesterday



RH at 03UTC today

Past 24 hours DWR Report:

DWR Station Name	Date of Report	Time Interval of Observation (UTC)	Organisation of 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
Agartala	18-03-18	170300-180300	ISLTD SINGLE, 53 dBz, 10 kms	220 Kms S near BLN at 0622 UTC /30 Kmph E'ly	Dissipated at 171202 UTC over SE at 200kms	Not known.	Not Known.
			Multiple Cell ,58 dBZ,14 Kms	160 Kms NE /35 Kmph,E'ly	Cell persists at 171432 UTC	Not known.	Not Known.
			Multiple Cell ,55 dBZ,11 Kms	150 Kms NE /40 Kmph, E'ly	Dissipated at 180252 UTC over E at 250kms	Not known.	Not Known.
Patna	18-03-18	170300 - 170450	Multiple Cells Maximum Reflectivity : 35.0 dBZ Echo Top : 5.0 KM	Range : 15 KM from DWR Patna in North-East Movement WEST TO EAST	N/A	N/A	PATNA,NALANDA, SHEIKHPURA, BEGUSARAI
		170450-170550	NIL	N/A	N/A	N/A	N/A
		170550-170620	Single Cell. Maximum Reflectivity : 28.0 dBZ Echo Top : 5.5 KM	Range : 165 KM from DWR Patna in North-East Movement WEST TO EAST	N/A	THUNDERSTORM WITH RAIN	JAMUI, LAKHISARAI, BANKA & BHAGALPUR
		170620-180300	NIL	N/A	N/A	N/A	N/A

DWR Station Name	Date of Report	Time Interval of Observation (UTC)	Organisation of 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	18-03-18	170301–171001	NIL	NIL	NOSIG ECHO	NIL	NIL
		171001-171652	Isolated single cells, transformed into big cell system with maximum reflectivity of 65.5 dBz at 1401 UTC and maximum height of 11.38 km at 1301 UTC	WEST (233.2 km) moving in East-ly direction.	Isolated single cells formed in WEST at a distance of 233.2 km from Radar at 1001 UTC, Matured and dissipated at 1622 UTC in NE at a distance 121.9 km from radar.	Thunderstorm /Squall/ Rain / Hail	N/A
			Isolated single cells, merged to form single cell with maximum reflectivity of 66.0 dBz at 1341 UTC and maximum height of 10.75 km at 1422 UTC	W (117.9 km) to WSW (131.3 km) moving in East-ly direction.	Isolated single cells formed from W /117.9 km to WSW / 131.3 km Radar at 1252 UTC, Merged matured and dissipated at 1652 UTC in ENE at a distance 049.2 km from radar.	Thunderstorm /Squall/ Rain / Hail	N/A
		171702–172352	NIL	NIL	NOSIG ECHO	NIL	NIL
		180001–180301	NIL	NIL	NOSIG ECHO	NIL	NIL
Visakhapatnam	18-03-18	170600-180900	Conviction region with max reflectivity 40dbz and average height 5 kms at a distance of 30kms.	Moving ENE ly	dissipating	NIL	NIL
		170900-181200	Conviction region with max reflectivity 43dbz and height 9 kms at a distance of 238kms.	Moving E ly	dissipating	NIL	NIL
Jaipur	18-03-18	170300 - 180300	Nil	Nil	Nil	Nil	Nil
Lucknow	18-03-18	170300 - 180300	Nil	Nil	Nil	Nil	Nil
Patiala	18-03-18	170300 - 180252	No Echo	--	--	--	--

Realised past 24 hrs TS/HS/SQ 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)
Bilaspur	Central India	Chhattisgarh	Thunderstorm	17-03-18	2100	2140
Gangtok	East India	Sikkim	Thunderstorm	17-03-18	1315 1410	1345 1500
			Hailstorm (diameter 0.4cm)	17-03-18	1335	1340
Tadong	East India	Sikkim	Thunderstorm	17-03-18	1330	1445
Alipore	East India	West Bengal(GWB)	Thunderstorm	17-03-18	2100	2125
Dum Dum	East India	West Bengal(GWB)	Thunderstorm	17-03-18	1938	2329
Bankura	East India	West Bengal(GWB)	Thunderstorm	17-03-18	1655	1740
Bhagalpur	East India	Bihar	Thunderstorm	17-03-18	1140	1155
Ranchi	East India	Jharkhand	Thunderstorm	17-03-18	1410	1550
Jamshedpur	East India	Jharkhand	Thunderstorm	17-03-18	1620	1700
Itanagar	Northeast India	Arunachal Pradesh	Thunderstorm	17-03-18	1330 1950	1340 2020
Passighat	Northeast India	Arunachal Pradesh	Thunderstorm	17-03-18	1040 1800	1300 1900
Jorhat	Northeast India	Assam & Meghalaya	Thunderstorm	17-03-18	1930	2130
Silchar	Northeast India	Assam & Meghalaya	Thunderstorm	17-03-18	1500	1750
Dibrugarh	Northeast India	Assam & Meghalaya	Thunderstorm	17-03-18	1810	2030
N/Lakhimpur	Northeast India	Assam & Meghalaya	Thunderstorm	17-03-18	1925	2155
			Hailstorm(diameter 0.7cm)	17-03-18	2140	2143
Imphal	Northeast India	Manipur (NMMT)	Thunderstorm	18-03-18	0500	0830
Lengpui	Northeast India	Mizoram (NMMT)	Thunderstorm	17-03-18	1645	1750
Kailasahar	Northeast India	Tripura (NMMT)	Thunderstorm	17-03-18	1900	2100
Karipur AP	South India	Kerala	Thunderstorm	18-03-18	0335	0425
Kanyakumari	South India	Tamilnadu	Thunderstorm	17-03-18	1720	1730
Vellore	South India	Tamilnadu	Thunderstorm	17-03-18	2110	2115

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

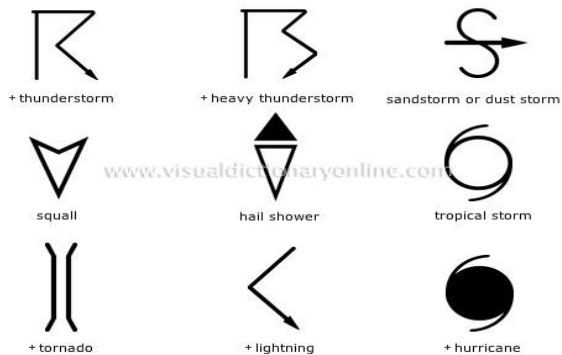
ForRadarimagesofthepast24hoursincludingmosaicofimages:











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

Satellite sounder based T- Phigram

http://satellite.imd.gov.in/mAndhra_Pradesh_skm2.html

WEATHER SYMBOLS:



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