



India Meteorological Department

FDP STORM Bulletin No. 10 (16-03-2018)

1. CURRENT SYNOPTIC SITUATION:

NWFC INFERENCE (0300UTC of the Day):

- ♦ The low pressure area over Lakshadweep area and adjoining southeast Arabian Sea off Kerala Karnataka coasts today lies over Lakshadweep area and adjoining southeast Arabian Sea with associated upper air cyclonic circulation extending upto 1.5 km above mean sea level.
- ♦ The Western Disturbance as a cyclonic circulation today lies over Jammu & Kashmir and neighbourhood at 3.1 km above mean sea level with a trough aloft in mid tropospheric westerlies with its axis at 5.8 km above mean sea level roughly along Long 72°E to the north of Lat 32°N.
- ♦ A trough runs from West Rajasthan to north Madhya Pradesh and extends upto 0.9 km above mean sea level.
- ♦ A cyclonic circulation lies over south Odisha & neighbourhood and extends upto 0.9 km above mean sea level.

SATELLITE OBSERVATIONS during past 24hrs and current observation:

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

LOW LEVEL CIRCULATION (LLC):

Scattered low/medium clouds with embedded intense to very intense convection seen over Lakshadweep adjoining Southeast Arabian Sea between Lat 9.0N TO 13.0N Long 71.0E TO 75.5E in association with LLC over the area. **(Minimum CTT: Minus 71 Deg C).**

WESTERN DISTURBANCE (WD):

Scattered low/medium clouds observed over Tibet adjoining China and over the area between Lat 37.0N to Lat 48.0N Long 71.0E to 100.0E in association with WD over the area.

Clouds description within India:

Broken low medium clouds with embedded moderate to intense convection seen over Coastal Karnataka, Kerala **(Minimum CTT: Minus 60 Deg C)** and Lakshadweep **(Minimum CTT: Minus 46 Deg C)**. Broken low medium clouds with embedded weak convection seen over Chhattisgarh, Odisha, Jharkhand, Gangetic West Bengal, Northeast states, Northeast Rajasthan, extreme South Madhya Pradesh, Maharashtra and Goa. Scattered low/medium clouds with embedded weak to moderate convection seen over Karnataka, Tamilnadu, Telangana and Andhra Pradesh. Scattered low/medium clouds seen over Jammu & Kashmir, Himachal Pradesh, North Uttarakhand, South Haryana, Delhi, Northwest Uttar Pradesh, rest Rajasthan, rest Madhya Pradesh and Bay Islands.

Arabian Sea:

Scattered low medium clouds with embedded isolated weak to moderate convection seen over Southeast Arabian Sea.

Bay of Bengal & Andaman Sea:

Scattered low/medium clouds with embedded isolated weak convection seen over North Bay.

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

Intense to very Intense convection was observed over Kerala South Karnataka Tamilnadu Lakshadweep south Andhra Pradesh and Moderate to intense convection observed over J&K Himachal Pradesh Uttarakhand Haryana Punjab Delhi Sikkim Arunachal Pradesh and weak to Moderate convection observed over Rajasthan Madhya Pradesh Odisha Chhattisgarh Jharkhand Bihar rest Karnataka Maharashtra Rayalaseema South Andhra Pradesh.

OLR:

Upto 230 Wm^{-2} observed over rest J&K North Himachal Pradesh north Uttarakhand, South Haryana, West Uttar Pradesh, East Rajasthan, South Madhya Pradesh, Maharashtra, North Odisha, North Chhattisgarh, North Andhra Pradesh, Kerala, Coastal Karnataka and South Tamilnadu, South Jharkhand, Manipur, Mizoram, Tripura, Assam, Meghalaya

Synoptic features:

Westerly Trough: Trough in westerlies roughly along Longitude 75°E to the north of Latitude 25°N .

Dynamic Features:

Negative shear tendency is observed over North Rajasthan, Punjab, Haryana, Delhi, Himachal Pradesh, South Uttarakhand, North Uttar Pradesh, Gangetic West Bengal, North-East States and Positive shear tendency over rest parts of India. Medium to high wind shear is observed over South Peninsula region and low wind shear over North & Central India. A positive Vorticity field is observed over Uttarakhand, North Rajasthan, Uttar Pradesh, Bihar, South Andhra Pradesh, Assam, Gangetic West Bengal. Negative Low Level Convergence is observed over East Bihar, Gangetic and Sub Himalayan West Bengal and Positive Low Level Convergence over rest parts of India.

Precipitation:**IMR:**

Rainfall 70-90 mm observed over North Jammu & Kashmir and Karla and

Rainfall 30-50 mm observed over rest north Jammu & Kashmir, Kerala South Karnataka and

Rainfall 10-20 mm observed over rest north Jammu & Kashmir, North Himachal, North Uttarakhand

Rainfall 01-10mm observed over rest Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh, East Assam, Nagaland, Manipur, rest Karnataka and Kerala.

HEM:

Rainfall upto 140 mm observed over South Jammu & Kashmir, South North Kerala, South Karnataka and

Rainfall upto 14 mm observed over North Kerala, North Tamilnadu, Karnataka and North-East States.

RADAR and RAPID RGB Observation:

Moderate isolated convection was seen in domain of DWR Agartala at around 0642IST.

Light convection is seen over extreme Southwest Madhya Pradesh, Maharashtra, Vidarbha, Chhattisgarh, Odisha, Telangana, Rayalaseema, East Arunachal Pradesh, South Assam, Manipur, Tripura, and Central parts of Tamilnadu in RAPID RGB Satellite imagery at 1130IST.

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

Higher Dust concentration was observed over Arab countries and north- western part of India. Dust concentration is expected to decrease 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 to poor category for next 2 days in Delhi.

Delhi – SAFAR analysis & Forecast	16.03.2018	17.03.2018
PM10 (micro-g/m ³)	217	238
PM2.5 (micro-g/m ³)	87	96

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 0-1: CYCIR over Arabian Sea- remnant of depression

12 UTC of Day 0: 850 hPa Trough over Punjab, NCR and adjoining areas moving eastward in Day 1

12 UTC of Day 0-2: Trough at 850 hPa over East and NE India & adjoining Bangladesh

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

Confluence & wind Discontinuity regions:

12 UTC of Day 0-4: NE–SW wind discontinuity over central India extending from Maharashtra-MP-Chhattisgarh-Odisha.

Synoptic Systems:

12 UTC of Day 0-3: Anticyclone at 925 hPa over Bay of Bengal leading to moisture incursion over Indian land

2. Location of jet and jet core (>60kt) at 500hPa: Weaker core winds at 12 UTC on all days.

3. Convergence at 850 hPa:

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

Day0: Arunachal Pradesh, Assam, Meghalaya, NE NMMT, West MP, East MP, Chhattisgarh,

Day1: Arunachal Pradesh, Assam, Meghalaya, Jharkhand, Odisha, Chhattisgarh, Coastal AP,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Jharkhand, Odisha, West MP, East MP, Vidarbha, Coastal AP,

Day3: Jharkhand, Odisha, East MP,

Day4: Jharkhand, East Rajasthan, , Odisha, West MP, East MP, Madhya Maharashtra, Chhattisgarh, Coastal AP, SI Karnataka

4. Spatial distribution of Low level Vorticity:

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

Day0: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Saurashtra, Kutch, Coastal Andhra Pradesh, ,

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

Day2: Arunachal Pradesh, Assam, Meghalaya, Sub Himalayan WB, Uttarakhand,

Day3: Assam Meghalaya, NE NMMT, West UP, Haryana, Chandigarh, Delhi, Himachal Pradesh, Jammu Kashmir,

Day4: Assam Meghalaya, Jharkhand, Uttarakhand, Himachal Pradesh, Odisha, West MP, Coastal Andhra Pradesh,

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

Day/Index: Subdivisions with Showalter Index < -4

Day0: Arunachal Pradesh, NE NMMT, Jammu Kashmir, Madhya Maharashtra, Rayalaseema, Tamilnadu, Puducherry,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Rayalaseema, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Coastal Karnataka, SI Karnataka,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, SI Karnataka, Kerala

6. K-Index $\rightarrow 35$ [Very Unstable thunderstorm likely]:

Day/Index: Subdivisions with K Index > 40

Day0: NE NMMT, Coastal Andhra Pradesh, Telangana, Rayalaseema, Tamilnadu, Puducherry, NI Karnataka, SI Karnataka, Kerala,

Day1: Madhya Maharashtra, Marathwada, Coastal Andhra Pradesh, Telangana, Rayalaseema, Tamilnadu, Puducherry, NI Karnataka, SI Karnataka, Kerala,

Day2: NE NMMT, Madhya Maharashtra, Marathwada, Telangana, NI Karnataka, SI Karnataka,

Day3: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Madhya Maharashtra, Marathwada, Vidarbha, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day4: Arunachal Pradesh, Sub Himalayan WB, East MP, Marathwada, Vidarbha, NI Karnataka, SI Karnataka

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, Sub Himalayan WB, East UP, West UP, Uttarakhand, Haryana, Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan, , East Rajasthan, , West MP,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Telangana,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Uttarakhand, Jammu Kashmir,

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

Day4: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir

8. Rainfall and thunder storm activity:

Day/Index: Subdivisions with Precipitation > 2 cm

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Rayalaseema, Tamilnadu, Puducherry, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Rayalaseema, Tamilnadu, Puducherry, NI Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, Kerala; Day 4-5: Nil

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

1. Synoptic Systems:

The analysis based on 00 UTC shows an induced cyclonic circulation in the lower troposphere over Rajasthan and adjoining areas associated with the trough in upper level westerlies gradually moves eastward in day 1 as a trough over west Uttar Pradesh and adjoining areas. In the forecasts, a north-east to south-west oriented trough extending from East Madhya Pradesh to Madhya Maharashtra is seen on day 1. The trough orients in east-west direction gradually shifting the eastern end from SHWB to GWB in day 2 and over Orissa on day 3. Another north-south oriented trough extending from SHWB and adjoining areas to GWB persists for next 3 days. The cyclonic circulation over Southeast Arabian associated with the low pressure system gradually weakens over the region and dissipates on day 2

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 associated with the cyclonic circulation and along the trough over parts of Punjab, Rajasthan, over Gangetic plain along foothills of Himalayas, parts of central India and north eastern states 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 (> 4): Higher than threshold value 4 over parts of Gujarat, East Madhya Pradesh, Andhra Pradesh, Telangana, Gangetic West Bengal and East coast on day 1. Over Gangetic West Bengal and Orissa, Konkan and Goa, West coast on day 2. Over Gangetic west Bengal and Orissa, coastal Andhra Pradesh and Karnataka and west coast on day 3. The moderate values of the index persist over south peninsular India, central India and coastal areas and north eastern states during next 3 days.

Lifted Index (< -2): It is less than threshold value -2 over Assam and adjoining area the peninsular India and along the east and west coast during next 3 days. Near threshold values are also seen over some parts of Gujarat, North Eastern states, East Uttar Pradesh, GWB, Chhattisgarh, East Madhya Pradesh, Odisha and Peninsular India during next 36 hours. Higher than threshold value -2 all over rest of the country during next 3 days.

Total Total Index (> 50): Above threshold value over Rajasthan, Himachal Pradesh and Uttarakhand on day1. Northwest and most of the central parts of India on day2 and 3 and it is greater than threshold value 60 on day 3 over East Madhya Pradesh, Himachal Pradesh, Uttarakhand and North West Uttar Pradesh.

Sweat Index (> 300): Parts of NE states for next 3 days, along the coastal Andhra Pradesh during next 2 days, Parts of Gujarat, Rajasthan on day 1, over parts of Telangana, Chhattisgarh and adjoining areas on day 1, over GWB on day 2.

CAPE (> 1000): Mostly along southern parts peninsular India and along west coast and east coast during next 3 days.

CIN (50-150): Mostly along east coast over Coastal Andhra Pradesh, Orissa, GWB and over parts of north eastern states during next 3 days, over parts of Konkan & Goa and coastal Karnataka on day 2 and 3, over parts of Gujarat and adjoining Rajasthan and over parts of Madhya Pradesh and adjoining Chhattisgarh on day 1.

5. Rainfall Activity:

40-70 mm rainfall: On day 1 over parts of Arunachal Pradesh and Andhra Pradesh and adjoining coastal areas.

10- 40 mm rainfall: Over Arunachal Pradesh, Assam, Meghalaya, Tripura and adjoining area, Andhra Pradesh, Rayalaseema, Telangana parts of Tamilnadu, Karnataka and Kerala on day 1 and 2, over most of the places of Kerala, Karnataka and Tamil Nadu on day 3.

Up to 10 mm rainfall: Over parts of J&K, Himachal Pradesh, Uttarakhand, East Uttar Pradesh, parts of East India and central India. Over Telangana, Konkan and Goa and southern peninsula on day 1 and 2; Over north eastern states Madhya Maharashtra, Vidarbha, Marathwada, Konkan and Goa, Andhra Pradesh, Tamil Nadu, Karnataka and Kerala on day 3.

3. IOP ADVISORY FOR 24 and 48Hrs:

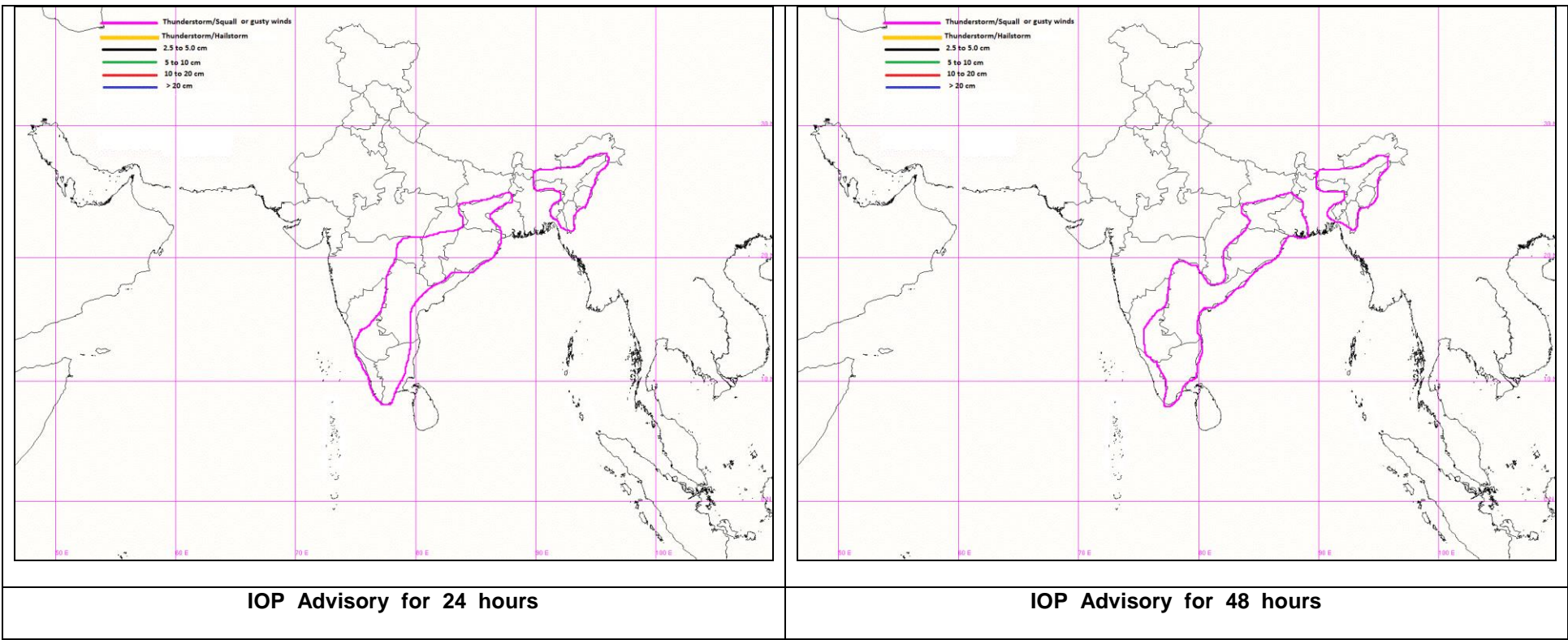
Summary and Conclusions:

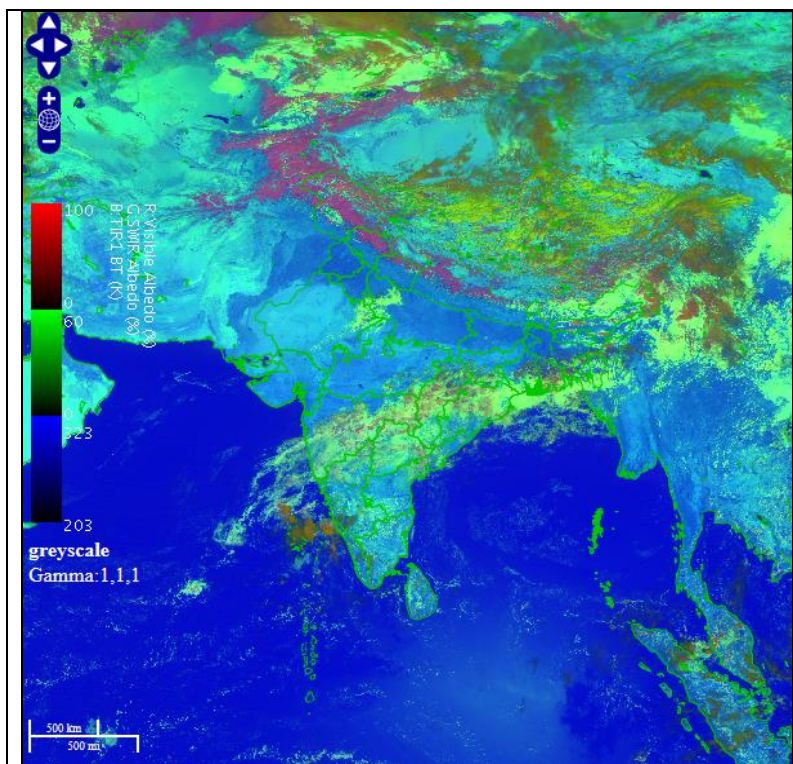
- Present western disturbance lies over Jammu & Kashmir and neighbourhood, easterly winds are prevailing over Punjab, Haryana and Uttar Pradesh in lower levels, high value of CAPE lying over Punjab & neighbourhood and considering model guidance; isolated rain/thundershowers likely at isolated places over western Himalayan Region and Uttar Pradesh during next 24 hours. Punjab, Haryana and north Rajasthan may experience dust raising winds at isolated places during next 24 hours.
- The low pressure area lies over Lakshadweep area and adjoining southeast Arabian Sea with associated upper air cyclonic circulation extending upto 1.5 km above mean sea level. An anti-cyclonic circulation over the southwest Bay of Bengal is giving rise to moisture incursion over peninsular India. CAPE value is more than 1000 Joule/kg over southeast peninsula and adjoining east India. Due to above conditions isolated to scattered thunderstorm with gusty winds very likely over interior Tamilnadu, Interior Karnataka, Telangana, coastal Andhra Pradesh, south Chhattisgarh, east Vidarbha, Jharkhand, west Bengal and Odisha during next 48 hours.
- Strong wind in lower levels over western parts of northeast India and southerly/south-easterly over eastern parts of northeast India, divergence over the region is between 10-15 supported by lower level convergence, upper levels westerly, also prevail over the region. Under the above scenario thunderstorm with squall very likely over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during next 2-3 days and scattered to fairly widespread rainfall activity over Arunachal Pradesh during next 48 hours and decrease thereafter.

Day-1 & Day-2:

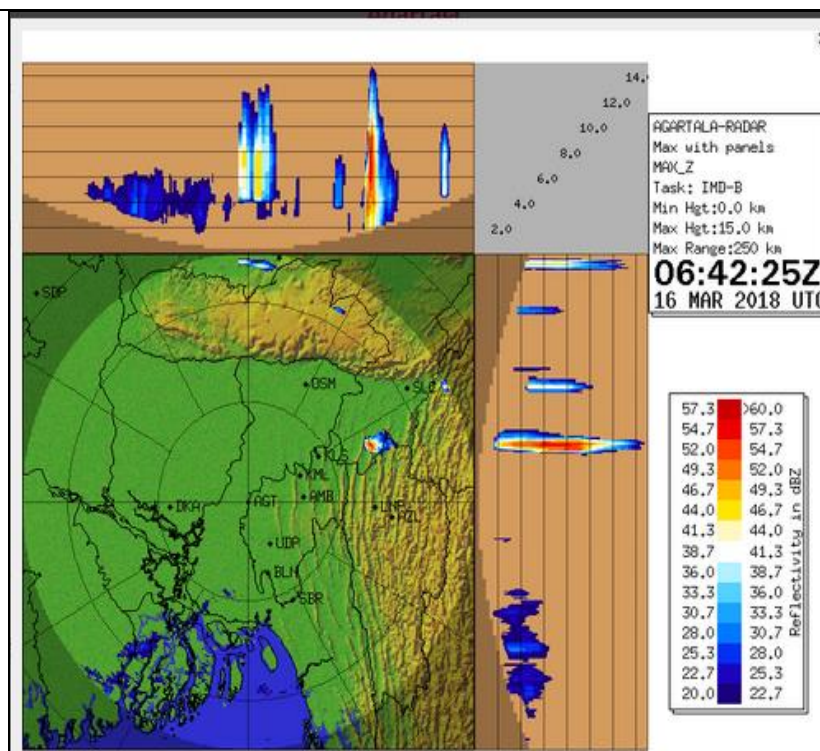
24 hour Advisory for IOP:	48 hour Advisory for IOP:
Rainfall: Nil Thunderstorm with associated phenomenon: Assam, Meghalaya, Nagaland, Manipur, Tripura Jharkhand, Odisha, Vidarbha, Chhattisgarh, Telangana, Rayalaseema South Interior Karnataka, Tamilnadu, Kerala	Rainfall: Nil Thunderstorm with associated phenomenon: Assam, Meghalaya, Nagaland, Manipur, Tripura Jharkhand, Gangetic West Bengal, Odisha, Telangana, Rayalaseema, Coastal Andhra Pradesh South Interior Karnataka, Tamilnadu

Graphical Presentation of Potential Areas for Severe Weather:

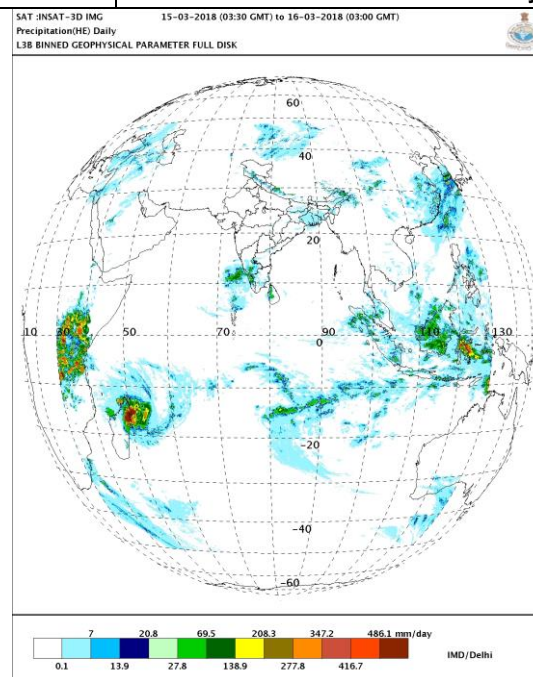
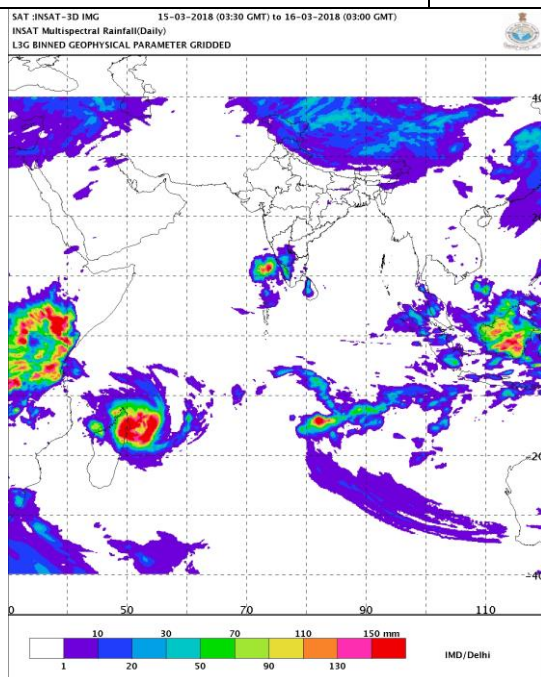
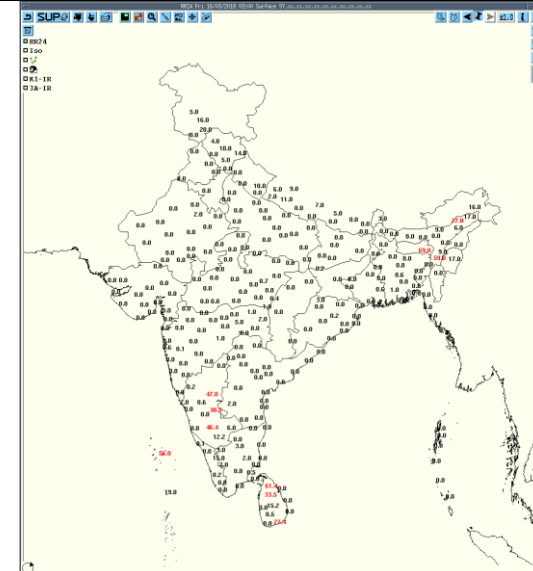
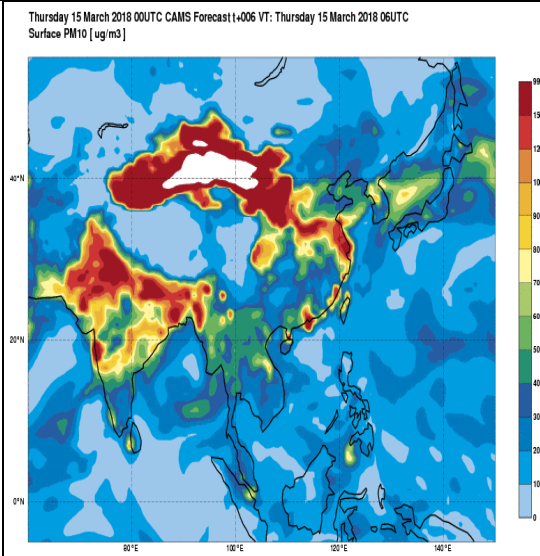
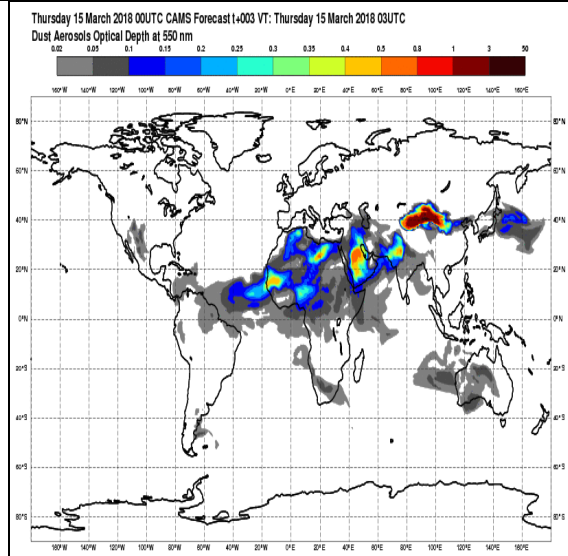


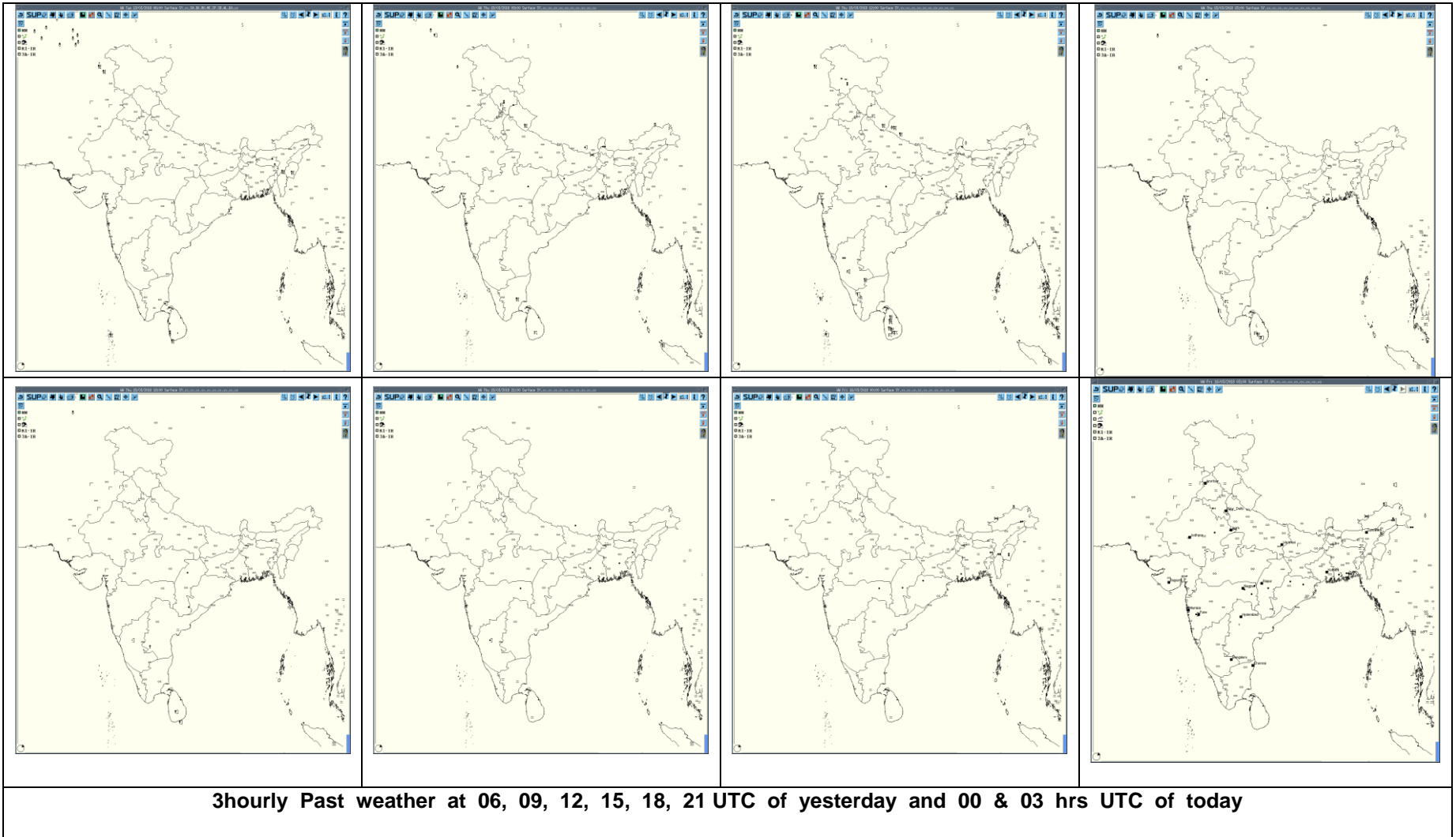


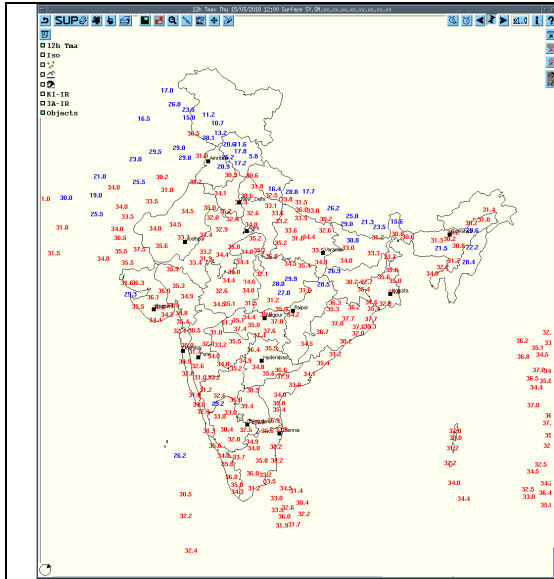
RAPID RGB Imagery at 1130IST of the Day



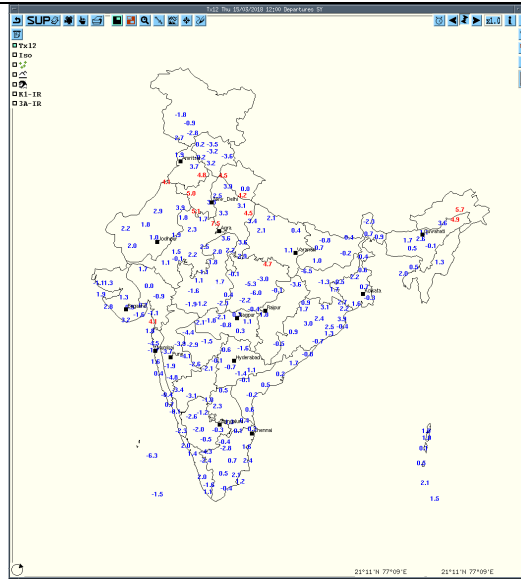
DWR Agartala at 0642 UTC of the Day



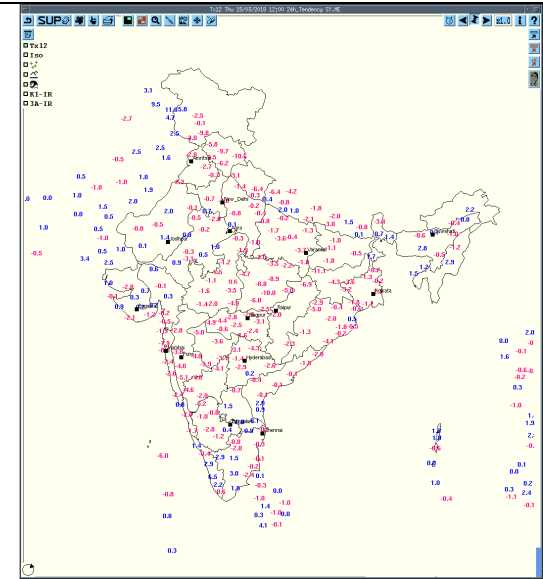




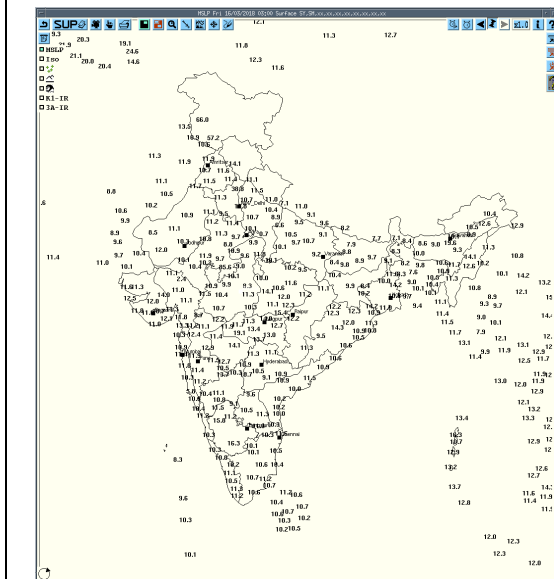
Tmax



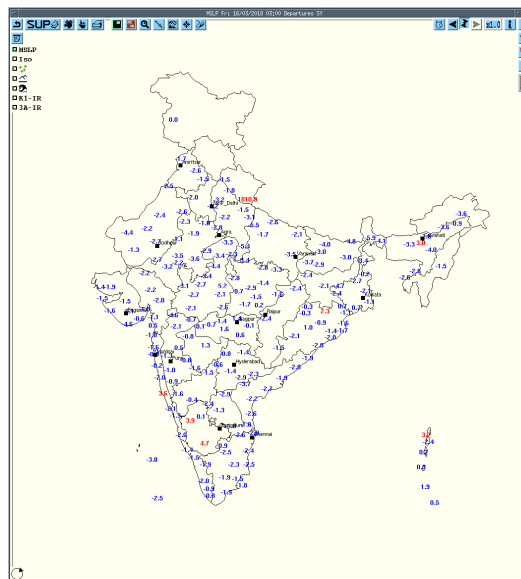
Departure Tmax



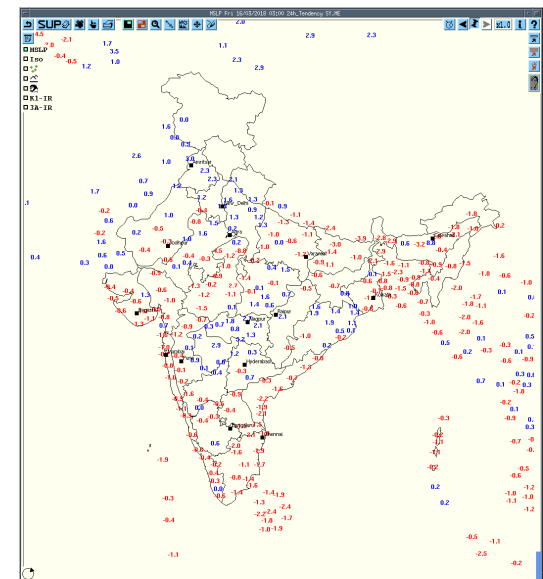
Tendency Tmax



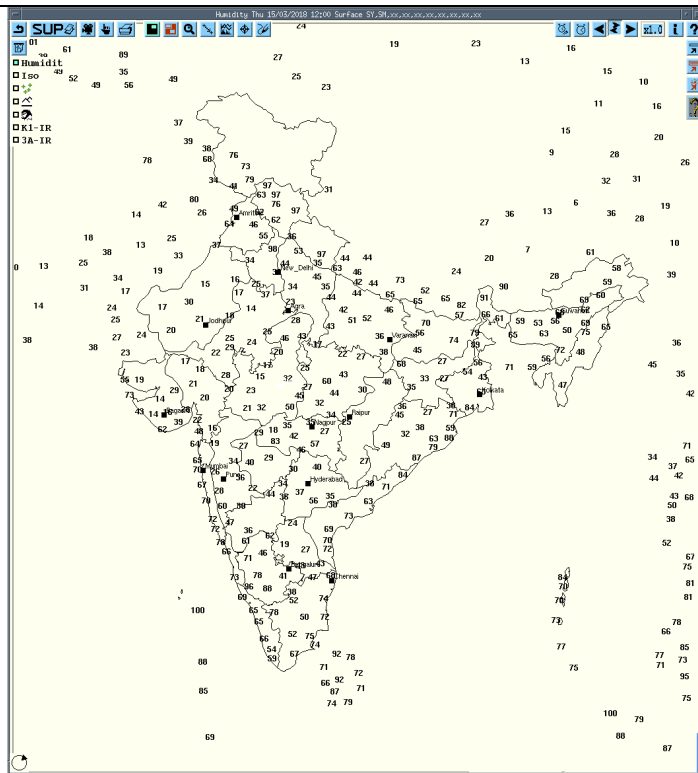
MSLP



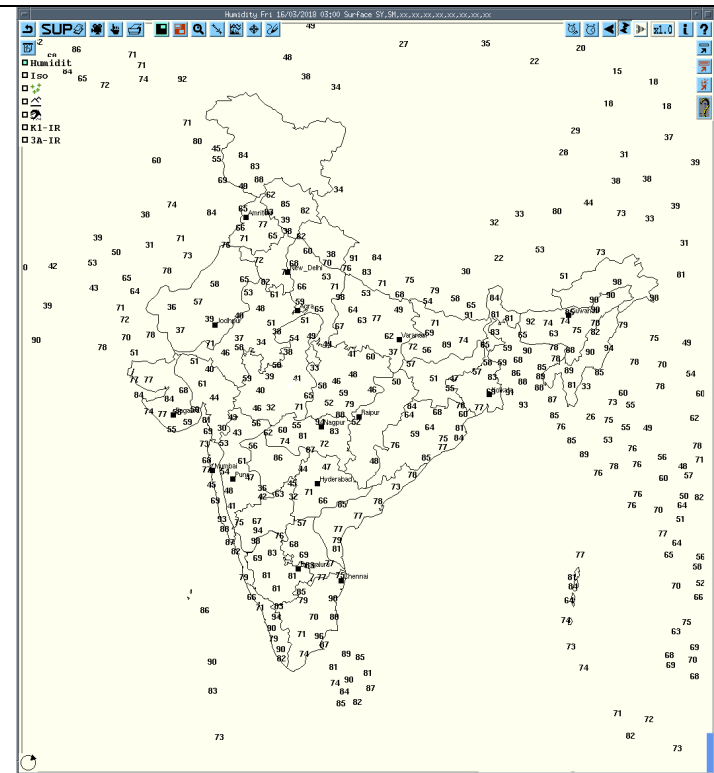
Departure MSLP



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 (DWR operational from 0100UTC to 1400UTC daily)	16-03-18	150300-160300	ISLTD SINGLE, 48 dBZ, Ht 12kms approx.	200Kms to N(Meghalaya)/ movement 35 kmph W to N	Dissipated at 1352 UTC	Not known.	Not Known.
			Multiple Cells, 55 dBZ, 12 kms approx.	150 Kms to NE(Silchar)/ movement 35 kmph W to N	Cells persists	Not known.	Not Known.
Patiala	16-03-18	150300 -150600	Multiple cells 53.0 dBZ ht. 09-11 km	North, NW-sector Movement NE	_____		Dharamshala, Keylog, Bhunter, Jalandhar, Ludhiana, Hoshiarpur, Una
		150600 -150900	Multiple cells 53.5 dBZ ht. 09-11 km	NE sector Movement NE	_____		Unna, Sundernagar, Bilaspur, B.Dam, Mandi
		150900- 151200	Multiple cells 53.5 dBZ ht. 10-11 km	NE sector Movement NE	_____		Shimla, Rohru, Kalsi, Uttarkashi, Agsthumuni
Patna	16-03-18	150300-152003	Nil	Nil	Nil	Nil	Nil
		152003-152125	Multiple cell. Maximum reflectivity : 48.5 dBZ Echo top : 9.0 km	Range : 176.2 km from DWR Patna in north-west movement-stationary	Nil	Thunder-storm with rain	West Champaran
		152003-152125	Multiple cell. Maximum reflectivity : 48.5 dBZ Echo top : 9.0 km	Range : 176.2 km from DWR Patna in north-west movement-stationary	Nil	Thunder-storm with rain	West Champaran
		152125-160300	Nil	Nil	Nil	Nil	Nil
Lucknow	16-03-18	150300-160300	Multiple cell formed with peak height 11 km. (20 dBZ echo top) with max. Reflectivity 51 dBZ. Some cells dissipated during movement	The cells extended from 175 km. To 225 km. In the NNW w.r.t the station and moved with an average velocity 12 m/s along ne.	The cells formed at 0942 UTC started weakening over 190 km. NNE and dissipated at around 1322 UTC over 200 km ne.	TSRA	Lakhimpur Kheeri

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
Visakhapatnam	150300-160300	150300-150600	CB cell of 56dBZ NE ly of height 3kms at a distance of 135 kms		Squally line formed	NIL	NIL
		150600-150900	Convective region of 40dBZ NE ly of height 5 kms	NE(115 KM) in the sea moving Ely	Likely to be dissipated	NIL	NIL
		160000-160300	Convective cell with maximum reflectivity of 49dBZ and height of 8km	NE(248 KM) moving Ely	Likely to be dissipated	NIL	NIL
Kolkata	16-03-18	150301-152011	Nil	Nil	No echo	Nil	Nil
		152011-152241	Multi-celled system with maximum height of 7.5 km at 2032 UTC and maximum reflectivity 46.5 dBZ at 2022 UTC	NW at a distance of 98.5 km and moving e-ly direction at a speed of 18.0 kmph.	Multi-celled system developed in NW at a distance of 98.5 km at 2011 UTC. Not matured dissipated at 2131 UTC in NNE at a distance of 59.4 km from radar	Thunderstorm/rain	Nil
			Multi-celled system with maximum height of 7.8 km and maximum reflectivity 50.5 dBZ at 2212 UTC	In between WNW/18.2 km to NE/78.7 km and moving E-ly direction at a speed of 48.0 kmph.	Multi-celled system in between WNW/18.2 km to NE/78.7 km developed at 2152 UTC. Not matured dissipated at 2241 UTC in E at a distance of 63.7 km from RADAR	Thunderstorm/rain	NIL
		152241-160300	NIL	NIL	NO ECHO	NIL	NIL
Jaipur	16-03-18	150300-160300	Multiple cell with average height 6.0 km and maximum reflectivity 48.0 dBZ	Multiple cell develop from 2232 UTC of 15/03/2018 in W, NW AND SW, Jaipur and moved E, NE wards at speed 20-25 km/hr	Cell starts forming from 15.03.2018 in W, NW AND SW of Jaipur and reaches maximum reflectivity during 2312-0252 UTC of 16/03/2018 (continues.)	Thunderstorm/rain at Isolated places	Alwar, Sikar, Jaipur, Ajmer, Dausa and Nagaur Districts.

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)
Shimla	Northwest India	Himachal Pradesh	Thunderstorm	15-03-18	1140 1355	1200 1520
Sundernagar	Northwest India	Himachal Pradesh	Thunderstorm	15-03-18	1100 1135	1108 1438
Amritsar	Northwest India	Punjab	Thunderstorm	16-03-18	0620	0815
Chandigarh	Northwest India	Haryana, Chandigarh & Delhi	Thunderstorm	15-03-18	1340	1350
Batote	Northwest India	Jammu & Kashmir	Thunderstorm	15-03-18	0830	1040
Bhaderwah	Northwest India	Jammu & Kashmir	Thunderstorm	15-03-18	0830	1030
Tehri	Northwest India	Uttarakhand	Thunderstorm	15-03-18	1420	1840
			Thunderstorm with hail	15-03-18	1750	1800
Mukteshwar	Northwest India	Uttarakhand	Thunderstorm	15-03-18	1320	1820
Passighat	Northeast India	Arunachal Pradesh	Thunderstorm	15-03-18	2200	2400
Jorhat	Northeast India	Assam & Meghalaya	Thunderstorm	15/16-03-18	151930, 16/0400	152200, 160700
Silchar	Northeast India	Assam & Meghalaya	Thunderstorm	15/16-03-18	152200	160500
N/Lakhimpur	Northeast India	Assam & Meghalaya	Thunderstorm	15/16-03-18	151950, 160035	152240, 160145
Tezpur	Northeast India	Assam & Meghalaya	Thunderstorm	15-03-18	1930	2345
Cherrapunjee	Northeast India	Assam & Meghalaya	Thunderstorm	15/16-03-18	152050	160830
Imphal	Northeast India	Manipur(NMMT)	Thunderstorm	16-03-18	160500	160615
Gangtok	East India	Sikkim (SHWB & Sikkim)	Thunderstorm	15-03-18	1435	1445
Chitradurga	South India	Karnataka (SIK)	Thunderstorm	15-03-18	1945	2300
Bengaluru City	South India	Karnataka (SIK)	Thunderstorm	15-03-18	1715	1840
Bengaluru HAL AP	South India	Karnataka (SIK)	Thunderstorm	15-03-18	1800	1930
Bengaluru KIAL AP	South India	Karnataka (SIK)	Thunderstorm	15-03-18	1815	2050
Yelahanka IAF	South India	Karnataka (SIK)	Thunderstorm	15-03-18	1810	1930
Karipur A P	South India	Kerala	Thunderstorm	15-03-18	2026	2230
Agathi	South India	Lakshadweep & Minicoy Islands	Thunderstorm	15-03-18	1300	1900
Minicoy	South India	Lakshadweep & Minicoy Islands	Thunderstorm	15-03-18	0830	0900

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

Past24hourHEMandIMRainfall(upto03UTCof today)

IMR: http://satellite.imd.gov.in/img/3Ddaily_imr.jpg

HEM: http://satellite.imd.gov.in/img/3Ddaily_he.jpg

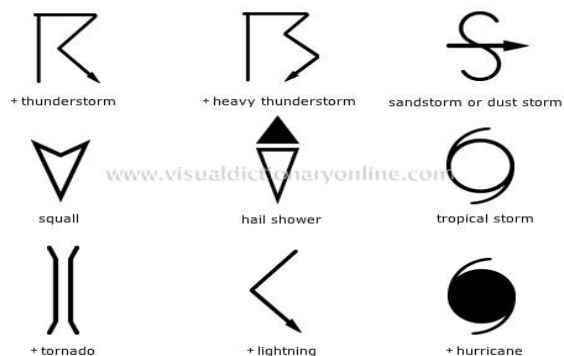
For Radar images of the past 24 hours including mosaic of images:

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	