

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 0900UTC imagery of INSAT 3D):

Low Level Circulation (LLC):

Scattered low/medium clouds with embedded moderate to intense convection seen over Lakshadweep adjoining Southeast Arabian Sea between lat 9.0N, long 71.1E in association with LLC over the area (minimum CTT -65°C).

Western Disturbance (WD):

Scattered multi/layered clouds seen over Tibet, West & Central China and over the area between Lat 37.0°N to 46.0°N and Long 71.0°E to 100.0°E in association with WD over the area.

Clouds description within India:

Scattered low/medium clouds with embedded moderate to intense convection seen over Coastal Karnataka, North Kerala, and Lakshadweep. Scattered low/medium clouds with embedded isolated weak to moderate convection seen over rest Karnataka, Tamilnadu, Telangana, Rayalaseema, Andhra Pradesh. Broken low/medium clouds with embedded weak convection seen over Chhattisgarh, Odisha, Jharkhand, Gangetic west Bengal, Sikkim, North-eastern states, Northeast Rajasthan, Southeast Madhya Pradesh, Maharashtra, and Goa. Scattered low/medium clouds seen overt Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Northwest Uttar Pradesh and rest parts of East India. Isolated low/medium clouds seen over East Rajasthan, rest Madhya Pradesh, and Nicobar 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 of Bengal.

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 Uttrakhand, 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 Uttrakhand, 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 Uttrakhand, 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 Uttrakhand Rainfall 01-10mm observed over rest Jammu & Kashmir, Himachal Pradesh, Uttrakhand, 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 to Strong isolated/multiple echoes (Max. dBZ>50, Height>10Km) were seen in domain of DWR Chennai at around 1610 IST. Light to Moderate convection was seen over North Himachal Pradesh, North Uttarakhand, Central Uttar Pradesh, extreme East Arunachal Pradesh, & Assam, Nagaland, Manipur, Tripura, Gangetic West Bengal, Jharkhand, Odisha, extreme Southwest Madhya Pradesh, Chhattisgarh, Vidarbha, Central & Southern parts of Coastal Andhra Pradesh, South Interior Karnataka, Northern parts of Tamilnadu and Lakshadweep Islands in RAPID RGB Satellite imagery at 1530IST.

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 x 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 x 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 :> 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, 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 East 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 to10 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.

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

1. Model Reflectivity (Max. dBz): > 25 dBZ Model Reflectivity: On day 1, over parts of Vidarbha, East Madhya Pradesh, Chhattisgarh, Orissa GWB, Arunachal Pradesh, Assam and adjoining area; During day 2, over parts of Arunachal Pradesh, Assam, Meghalaya, Tripura and adjoining area.

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 eastern states during all three days.

K-Index (> 35): Less than threshold value is observed over the country during the next 3 days except over parts of NE states, Karnataka and adjoin Tamilnadu, Rayalaseema and Telangana, from day 2 onwards over some areas over Orissa, Chhattisgarh and coastal Andhra Pradesh.

CAPE (> 1000): Greater than threshold value over the southern part of west coast, east coast, and parts of Kerala, Tamil Nadu, Konkan and Goa during the next 3 days. Over Tripura on day 1 and parts of NE states on day 2.

CIN (50-150): Mostly in East India over GWB, Jharkhand and adjoining Bihar, Chhattisgarh during next 3 days, over parts of Punjab, Haryana and Uttar Pradesh on day 1, over Telangana, Konkan & Goa, coastal Maharashtra and Karnataka on day 2 and 3.

3. Rainfall and thunderstorm activity:

Rainfall 70 -130 mm: over parts of Arunachal Pradesh, south Assam and adjoining area on day 1.

Rainfall 40-70 mm: over parts of Arunachal Pradesh, Tamil Nadu and Andhra Pradesh Rayalaseema and Kerala during all three days. Rainfall 10-40 mm: Over North Eastern States, Andhra Pradesh, Telangana Chhattisgarh, and Southern peninsular India on all three days. Rainfall up to 10 mm: over north eastern states, east Uttar Pradesh, Bihar, Jharkhand, Orissa, Chhattisgarh, South Eastern Madhya Pradesh, GWB, Vidarbha, Madhya Maharashtra, southern part of east and west coast and peninsular India on all three days.

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.
- O 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 scatted 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:
Painfall	Painfall
NI	NII
Thunderstorm with associated phenomenon:	Thunderstorm with associated phenomenon:
Assam, Meghalaya, Nagaland, Manipur, Tripura	Assam, Meghalaya, Nagaland, Manipur, Tripura
Jharkhand, Odisha, Vidarbha, Chhattisgarh,	Jharkhand, Gangetic West Bengal, Odisha,
Telangana, Rayalaseema	Telangana, Rayalaseema, Coastal Andhra Pradesh
South Interior Karnataka, Tamilnadu, Kerala	South Interior Karnataka, Tamilnadu

Graphical Presentation of Potential Areas for Severe Weather:













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, Hoshiarpr, 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, Agsthmuni
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/r ain	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/r ain	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/r ain 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 Commencem ent (IST)	Time of end (IST)	
Shimla	Northwest India	Himachal Pradesh	Thunderstorm	15-03-18	1140	1200	
Quadanaaaar	Northursof India	Llimeshel Dredech	Thursdaystay	45.00.40	1355	1520	
Sundernagar	Northwest India	Himachai Pradesh	Inunderstorm	15-03-18	1100	1108	
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	15/1930, 16/0400	15/2200, 16/0700	
Silchar	Northeast India	Assam & Meghalaya	Thunderstorm	15/16-03-18	15/2200	16/0500	
N/Lakhimpur	Northeast India	Assam & Meghalaya	Thunderstorm	15/16-03-18	15/1950, 16/0035	15/2240, 16/0145	
Tezpur	Northeast India	Assam & Meghalaya	Thunderstorm	15-03-18	1930	2345	
Cherrapunjee	Northeast India	Assam & Meghalaya	Thunderstorm	15/16-03-18	15/2050	16/0830	
Imphal	Northeast India	Manipur(NMMT)	Thunderstorm	16-03-18	16/0500	16/0615	
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	
Coimbatore A.P	South India	Tamilnadu	Thunderstorm	15-03-18	1635	1830	
Coonoor	South India	Tamilnadu	Thunderstorm	15-03-18	1700	1720	
					2030	2040	

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:



