India Meteorological Department

FDP STORM Bulletin No. 30 (04-04-2017)

1. CURRENT SYNOPTIC SITUATION at 0300 UTC of the Day:

SYNOPTIC FEATURES:

The Western Disturbance as a trough in mid upper tropospheric westerlies with its axis at 3.1 Km above mean sea level roughly along Longitude 85.0°E and north of Latitude 32.0°N has moved away east-northeastwards.
Another Western Disturbance as a trough in mid tropospheric westerlies with its axis at 3.1 Km above mean sea level roughly along Longitude 65.0°E and north of Latitude 32.0°N now runs roughly along Longitude 68.0°E and north of Latitude 32.0°N.
A fresh Western Disturbance as an upper air cyclonic circulation lies over northern parts of Iran and neighbourhood and extends upto mid - tropospheric level.
The east-west trough at mean sea level from East Uttar Pradesh to Manipur across Bihar, northern parts of West Bengal and Bangladesh now runs from southeast Uttar Pradesh to Manipur across Jharkhand and Gangetic West Bengal.
A north-south trough runs from Interior Karnataka to south Tamilnadu across Interior Karnataka
and extends upto 0.9 km above mean sea level. An upper air cyclonic circulation over east Bihar and adjoining West Bengal and extends upto 1.5 km above mean sea level.

SATELLITE OBSERVATIONS during past 24hrs and current observation:

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

Broken multi-layered clouds were seen over J & K, Himachal Pradesh, Punjab, Haryana adjoining northwest Rajasthan, Delhi, exterior northwest Uttar Pradesh, Uttarakhand and area between LAT 37.0N to 42.0N LONG 70.0E to 100.0E in association with western disturbance over the area.
Scattered low/medium clouds with embedded moderate to intense convection over northeast states.
Scattered low/medium clouds over Jharkhand, Chhattisgarh, Odisha, Gangetic West Bengal and Andhra Pradesh.
Arabian Sea: No Significant Clouds seen over the Region**.**
Bay of Bengal & Andaman Sea: No Significant Clouds seen over the Region**.**
Convection: Light to moderate convection was observed over J&K, North East parts of India and South Interior Karnataka adjoing Andhra Pradesh.
OLR:-
Up to 200 wm^{-2} was over North J&K and North East states. Up to 230 wm^{-2} was over Rest J&K, Himachal Pradesh, North Uttarakhand, Sikkim extreme South Interior Karnataka. Up to 250 wm^{-2} was over North Punjab.
Jet Stream: No Jet stream and no trough observed over India.
Dynamic Features: A positive Vorticity field is seen over Uttarakhand, Uttar Pradesh, Bihar, West Bengal, and Saurashtra south central India.
Low wind shear observed over south and moderate wind shear observed over North West India and weak to moderate wind shear observed over central India .
Positive shear tendency observed over the India except Negative shear tendency observed over North East India.
Positive Low Level Convergence observed over Haryana Odisha Central India and North East India.

Precipitation:

IMR: Rainfall upto **50**mm was observed over North West J&K East Meghalaya South & West Assam. Rainfall upto 2**0**mm was observed over rest North & West J&K East Nepal, West Arunachal Pradesh, Nagaland, Manipur North Mizoram North Tripura . Rainfall upto **10**mm was observed over rest J&K, Himachal Pradesh, Punjab, Haryana North Uttarakhand, East Arunachal Pradesh Extreme East Assam West Meghalaya..

HEM: Rainfall upto 70mm was observed over West J&K, East Meghalaya, West and Extreme East Arunachal Pradesh Nagaland Manipur North Mizoram. Rainfall upto 14mm was observed over South Interior Karnataka adjoining Andhra Pradesh, West Assam South Mizoram Tripura and rest Arunachal Pradesh.

Rainfall Upto 7mm was observed over Punjab Haryana Extreme North Rajasthan and West Himachal Pradesh.

Convective Activity:

Cell No.	Date/Time (UTC)	Location & Area	CTBT (minus Deg. C)	Movement
1	03/0800	W Assam Meghalaya N Tripura N Mizoram Manipur	60	Developing
	0900	do	55	
	1000	E Assam Meghalaya N Tripura N Mizoram Manipur	54	
	1100	do	55	
	1200	Assam E Meghalaya N Tripura N Mizoram Manipur Nagaland	50	
	1500	do	60	
	1700	do	56	
	2130	do	46	Weakening
	04/0000	do	46	
	0300	Assam E Meghalaya Nagaland Manipur	54	Eastward
	0400	do	45	
	0500	E Assam Nagaland Manipur adjoing Mizoram	45	
	0600	do	44	dissipating
	0700	do	64	
	0800	do	63	
	0900	do	74	
2	0900	South Interior Karnataka	55	

RADAR and RAPID observation:

Convective cloud cells were seen near extreme north Uttar Pradesh adjoining areas of Himachal Pradesh, Punjab and Uttrakhand and isolated convective cells over Andhra Pradesh in DWR Composite at 1630hrs IST.

RAPID RGB Imagery of 1600hrs IST also indicates convective clouds over Jammu & Kashmir, Punjab, Haryana, Delhi, Uttrakhand adjoining Uttar Pradesh and northeastern states, isolated convective cloud cells over Andhra Pradesh and extreme south Karnataka adjoining Kerala.

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

Not Received

2. NWP MODEL GUIDANCE:

1. Weather Systems:

12UTC Charts on all days from Day0-4 show trough in MSLP over J & K extending NW-SE.

00 and 12UTC show evolving heat low over NW of India and adjoining Pakistan extending over IG plains. Heat low is deepest at 00UTC of Day-2 with 992hPa over Pakistan.

12UTC charts on all days from Day0-4 show Wind discontinuity at 925 hPa :SW-NE extending from northern Karnataka-Telangana region to Maharashtra-Chhattisgarh region. This is also reflected at 850 hPa. 00UTC charts show feeble toughing along the line of discontinuity up to Day-2, Additionally, Weak CYCIR over Bihar-WB at 00UTC from Day-2 to Day-4. Similarly another CYCIR is seen over Punjab and adjoining Pakistan at 00UTC on Day-1 to Day-3.Weak anticyclonic circulation over Arabian Sea. WD over Pakistan region from Day-1 to Day-3

500hPa anticyclone prominent over west coast in Day-2 moves eastwards in Day-3 and Day-4.

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

Weak in magnitude were seen over India upto Day-1, Over Iran and Afghanistan in Day-0 and over Iran and Pakistan in Day-1. In Day-2: at all times over Rajasthan and adjoining Pakistan region due to WD. At 12UTC on Day-4: over Meghalaya and Assam region.

3. Convergence at 850 hPa:

At 12UTC on all: Day-0 mostly along the Western Ghats over peninsula and over NE near Meghalaya and Tripura. At 12UTC on Day-1 and Day 2: high values over Bihar-WB region, western Ghats and over Himachal and Punjab.

4. Low level Vorticity:-Positive Vorticity (>15 x 10^{-5}/s):

Generally low scattered isolated values were seen all over India except for high values over NW India due to WD on Day1 and Day-2. At 00UTC, strong low level convergence in land along regions of low level confluence.

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

Day-0 at 12UTC: Strong along coast of Karnataka and Kerala, all along the east coast from Chennai to WB, Over NE mainly over Bangladesh and adjoining Tripura and Mizoram in Day-1, Prominent over NW India due to WD, In the west only along the coastal Kerala and Karnataka and in east mainly over Odisha to WB coast. Over Bangladesh and adjoining states in the east.Day-1 to Day-4 reduced values over NW India and reduced spatial coverage over NE India

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

Day-0 at 12UTC: Strong along coast of Karnataka and Kerala, all along the east coast from Chennai to WB. Over NE mainly over Bangladesh and adjoining Tripura and Mizoram in Day-1 Prominent over NW India due to WD, In the west only along the coastal Kerala and Karnataka and in east mainly over Odisha to WB coast. Over Bangladesh and adjoining states in the east.Day-1 to Day-4 reduced values over NW India and reduced spatial coverage over NE India.

7. Spatial distribution of TTI: TTI >50 [Scattered Thunderstorms few severe] :

Over peninsula along the east and west coasts, relatively lower values and seen only in Day 0 to Day-1, Prominent over NW India and Pakistan region in Day-0 and Day-1. Extending to foothills were seen over Himachal and Uttrakhand in Day-1-Day-3. In Day-4: prominent over WB and Bangladesh.

8. Rainfall and thunder storm activity:

Day-0-4: (>4cm/day) Over Most part of NE India and J&K region extending along the foothills in Himachal and Uttarakhand. Over peninsula and coast the rainfall amounts are low.

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

1. Weather Systems: 00 UTC analysis shows CYCIR over UP, Bihar, GWB and adjoining areas. It also shows a trough along Maharashtra extending up to interior parts of Karnataka. The forecast shows extension of east west trough up to Odisha and is persistent till the 2nd day. Incursion of WD into the country is observed from 24 hours.

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

The Jet at 500 hPa does not exist over India during next 5 days except day 2 over western Rajasthan.

3. Low level Vorticity:-Positive Vorticity 850hPa (>12 x 10^{-1}/s): Analysis shows the low level positive vorticity mainly along foothill of Himalayas, over east UP, GWB along with few pockets in Maharashtra, Karnataka and NE states. Forecast shows vorticity zones mainly along UP, Bihar and adjoining areas along with few pockets in Karnataka for the next 5 days.

4. Spatial distribution of T-Storm Initiation Index, Lifted Index, Total Total Index, CAPE, CINE and Sweat Index (High potential for thunderstorm):

T-Storm Initiation Index (> 4): Significant zones are noticed over GWB, Odisha, Jharkhand, Bihar, and eastern coast adjoining Bangladesh during next 4/5 days and coastal region of Gujarat and adjoining areas also shows significant value during day 1.

Lifted Index (< -2): The areas with index less than -2 lies along east coast regions, GWB, Odisha, coastal AP, Bihar and adjoining areas with gradually the LI areas with less than -2 mainly extended towards south-eastern coastal regions and west costal region of India.

Sweat Index (> 400): The significant zones are confined along east coast of India over Andhra coast, GWB, Odisha, Bangladesh and adjoining regions and high value of SI observed over WB, Bihar, and east UP, Bangladesh and NE region for day 1 to day 5. Some parts of western Gujarat states and Karnataka coast along with few pockets in J & K also indicated the value > 400 K for next 2 to 3 days.

Total Total Index (> 50): Above threshold value in most parts of central India and adjoining northern parts of India along with areas bordering north west India from day 1 to day 4 particularly at 12 UTC of each day.

CAPE (> 1000): Mostly along east coast of India over Gangetic West Bengal, Odisha, Bihar, Jharkhand and adjoining regions and Kerala and parts of coastal Karnataka during next 5 days. The CAPE values above threshold values are also observed over Coastal Gujarat region for day 1.

CINE (50-150): Maximum CIN values are found in some areas along east coast over GWB, Odisha, coastal AP and Tamil Nadu and also over Bihar, Jharkhand and Goa & Konkan from Day-1 to Day-5 and Maximum CIN value over Gujarat region during next 2 days.

5. Rainfall and thunderstorm activity: 10-40 mm rainfall shows over isolated place of NE States, the rainfall over NE states likely to continue for the next 2 days and rainfall shows over J & K, Punjab and H.P for next 3 days.

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

1. **Model reflectivity (Max. dBz)**: **(>25 dBZ)** Model reflectivity exceeding the threshold value, is seen over major regions in the north eastern states and is seen persisting over few pockets till day 1 and day 2. Higher threshold values are seen over J & K region in evening hours at day1 to day3.

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

Total Total Index (> 50): Above threshold values is observed over most parts of India during next 3 days except parts of extreme south peninsular region, north-eastern states and J & K.

K-Index (> 35): Less than threshold value over most parts of India during next 3 days.

CAPE (> 1000): Mostly along east coast of India over Andhra Pradesh, Odisha, and GWB, Bihar and eastern UP during next 3 days, another zone along west coast over Kerala, coastal Karnataka and Konkan & Goa during next 3 days.

CINE (50-150): CIN values are mostly small all over India during all three days of forecasts except some areas along coastal areas of India over Odisha, GWB, Eastern UP, Bihar, Jharkhand, coastal AP, coastal Karnataka and Konkan-Goa during next 3 days.

3. Rainfall activity: Rainfall activity (~ 10-40 mm) over NE states is expected to persist till next 2 days and rainfall is predicted over J & K, HP, Punjab and some region of western UP from day 1 to day 3.

3. IOP ADVISORY FOR 24 and 48Hrs:

Summary and Conclusions:

Day 1 & Day 2:

Presently, a fresh Western Disturbance as an upper air cyclonic circulation lies over northern parts of Iran and neighbourhood and extends upto mid- tropospheric level. Another Western Disturbance as a trough in mid tropospheric westerlies with its axis at 3.1 Km above mean sea level now runs roughly along Longitude 68.0°E and north of Latitude 32.0°N, which will give rainfall activities over Jammu and Kashmir, Himachal Pradesh and adjoining Uttrakhand areas on Day-1. Due to this system, the heavy rainfall activities with thunder squall possibility over the same area on Day-2. The thundersquall activities may also possible over Punjab Haryana and West Utter Pradesh on Day-2.

An upper air cyclonic circulation over east Bihar and adjoining West Bengal and extends up to 1.5 km above mean sea level. The east west trough at mean sea level from East Uttar Pradesh to Manipur across Bihar, northern parts of West Bengal and Bangladesh now runs from southeast Uttar Pradesh to Manipur across Jharkhand and Gangetic West Bengal, which may result rainfall activities including thundersqaull with hail over the North Eastern states on Day-1 and Day-2. North Coastal Andhra Pradesh may experience thundersquall on Day-2.

The guidance from the NWP model output from ECMWF, IMD1534 and NCEP, IITM GFS, NCUM, NEPS and Satellite imageries are also suggesting the similar area of rainfall activities on Day1 and Day2.

24 hour Advisory for IOP:
Assam, Meghalaya, Nagaland, Manipur, Mizoram and Tripura and Arunachal Pradesh
Sub Himalayan west Bengal and Sikkim
Jammu and Kashmir, Himachal Pradesh, Uttrakhand, Punjab and Haryana
Coastal Gangetic West Bengal

48 hour Advisory for IOP:

Jammu and Kashmir, Himachal Pradesh, Uttrakhand, Punjab and Haryana
Assam, Meghalaya, Nagaland, Manipur, Mizoram and Tripura,
North Coastal Andhra Pradesh

ForNCMRWFNWPproducts:(http://www.ncmrwf.gov.in/HomePage/NEPS-prod-1.php)
ForIMDNWPproducts:(http://nwp.imd.gov.in/diagpro_new.php)
ForSynopticplotteddataandcharts
http://amssdelhi.gov.in/
http://www.amsskolkata.gov.in/
ForRAPIDtool:
http://rapid.imd.gov.in/
LowLevelWinds
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Upperlevelwinds
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Past24hourHEMandIMRrainfall(upto03UTCoftoday)
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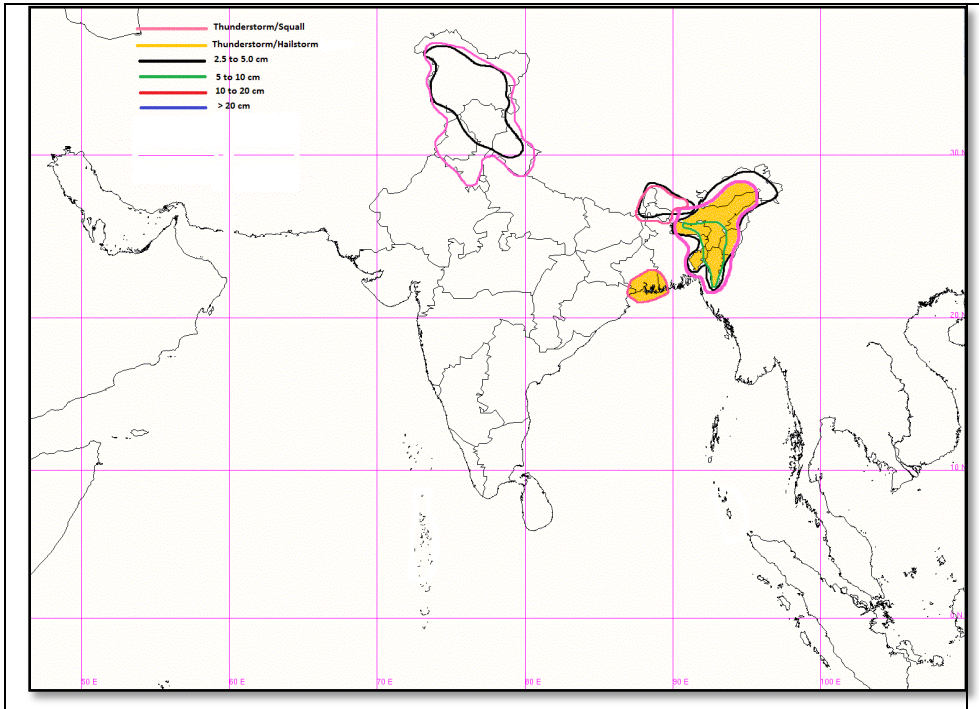
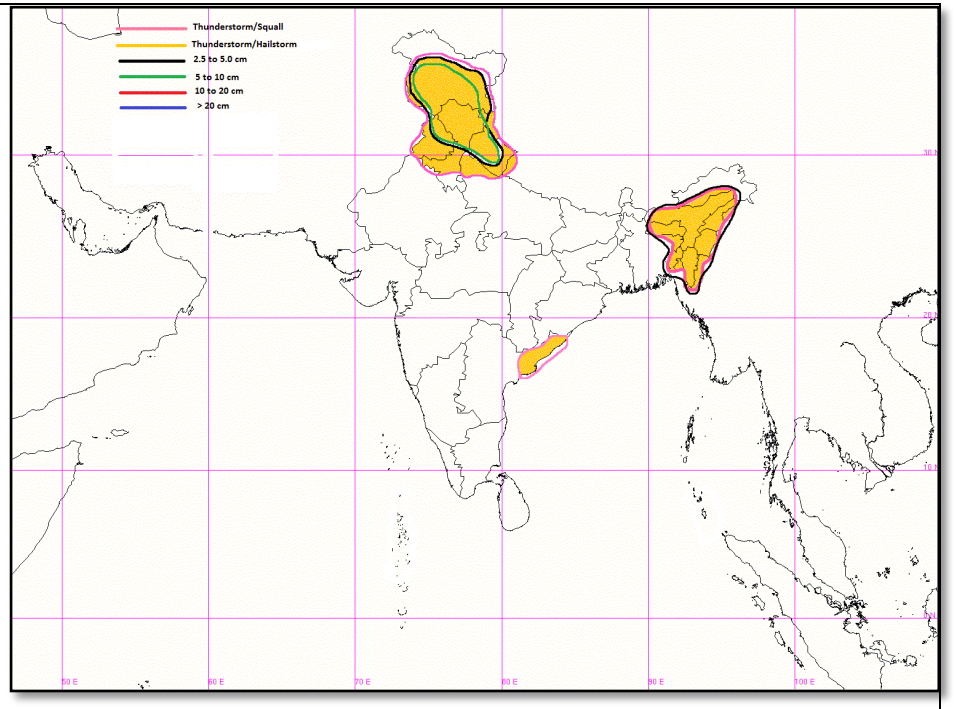
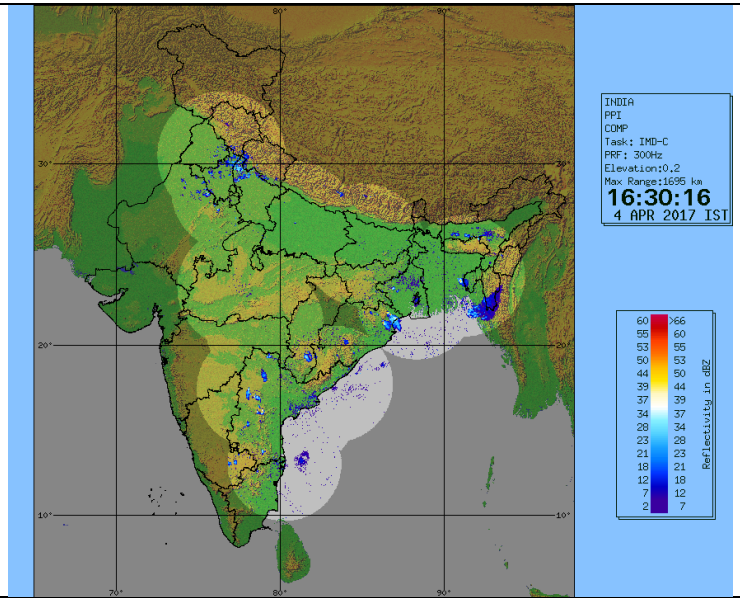


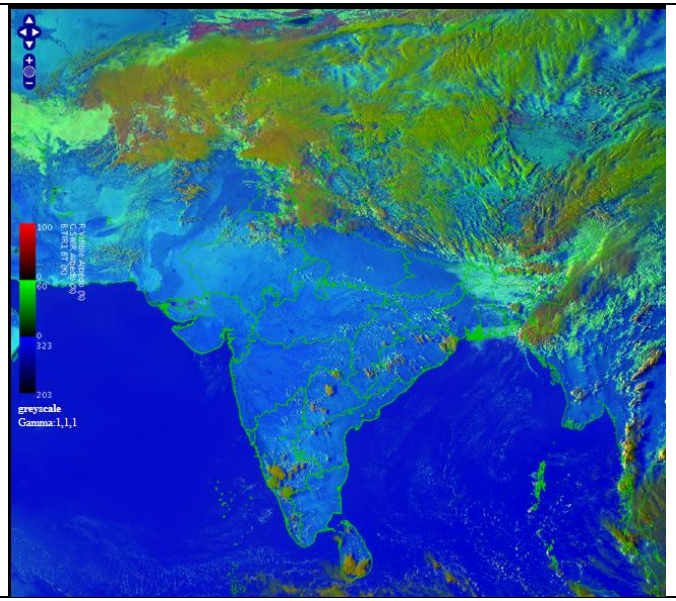
IOP Advisory for 24 hours



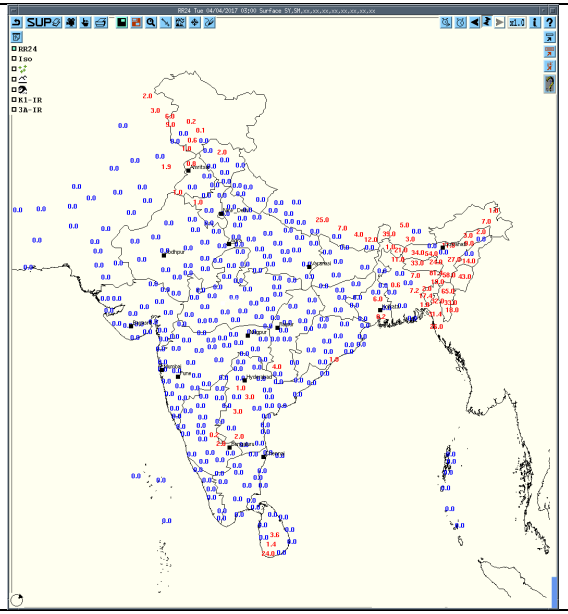
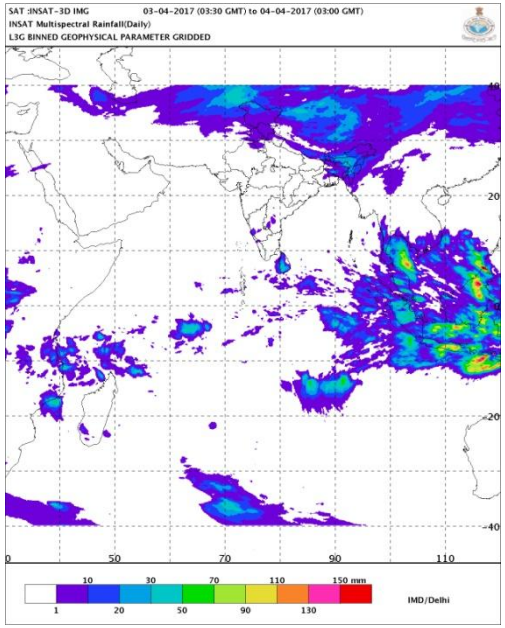
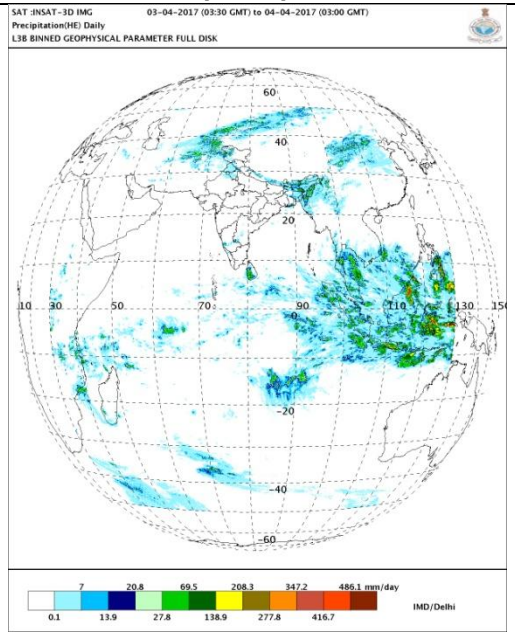
IOP Advisory for 48 hours

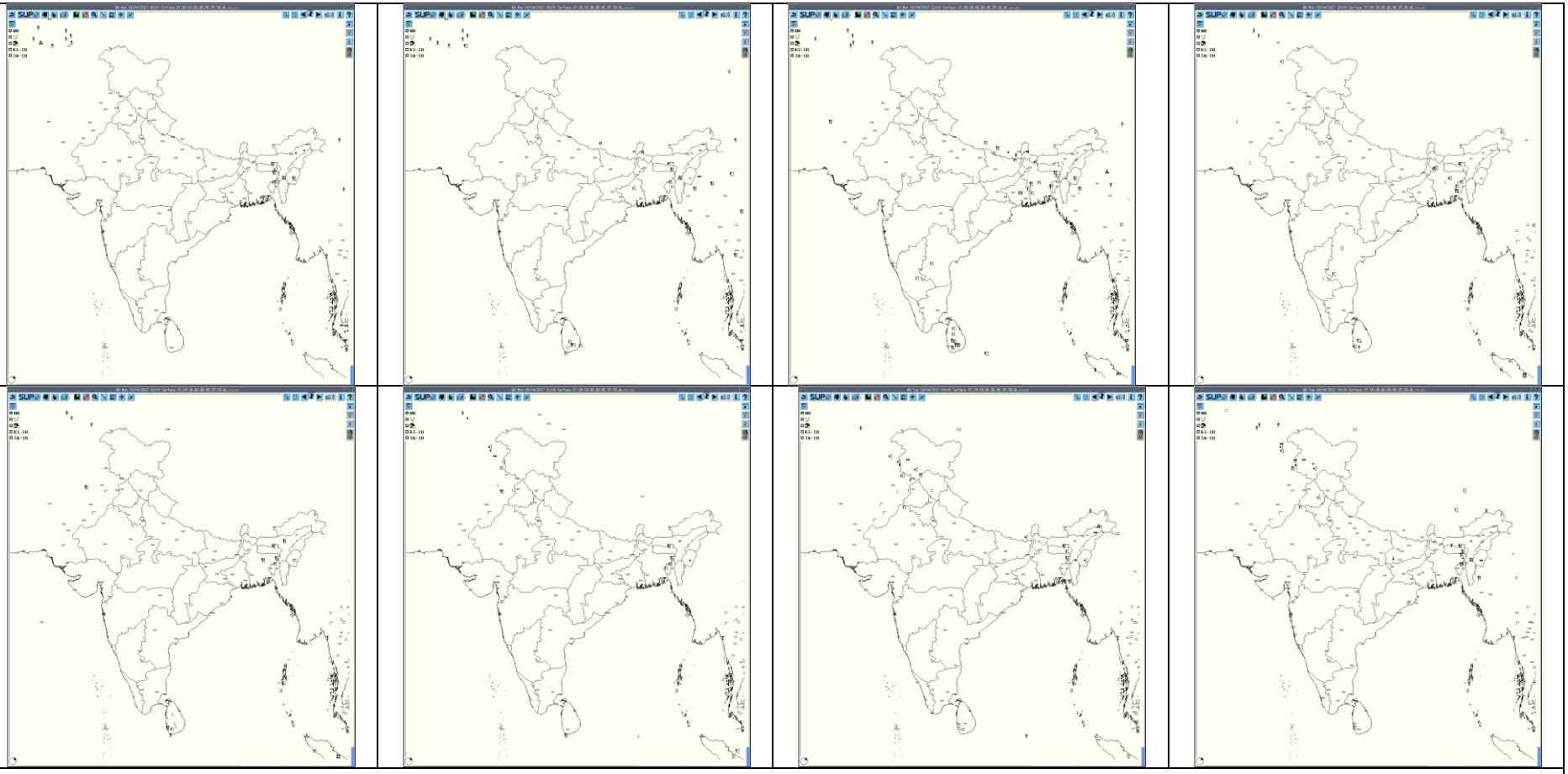


DWR Composite at 1630 hrs IST

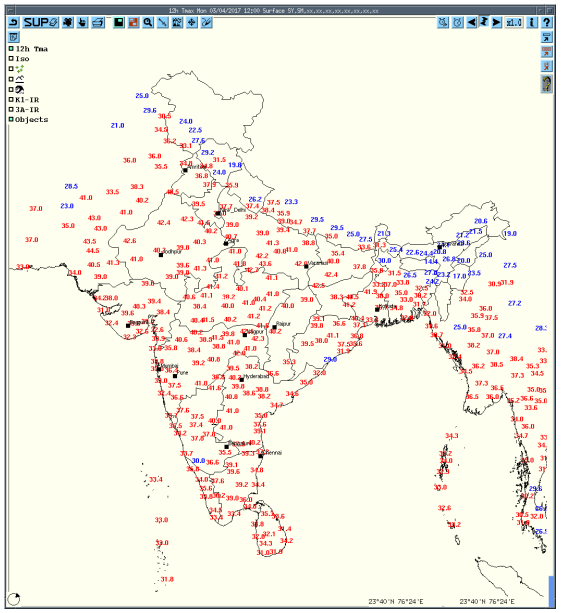
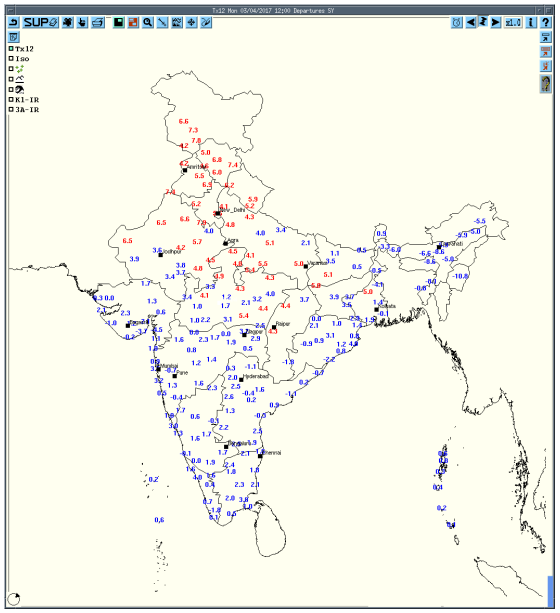
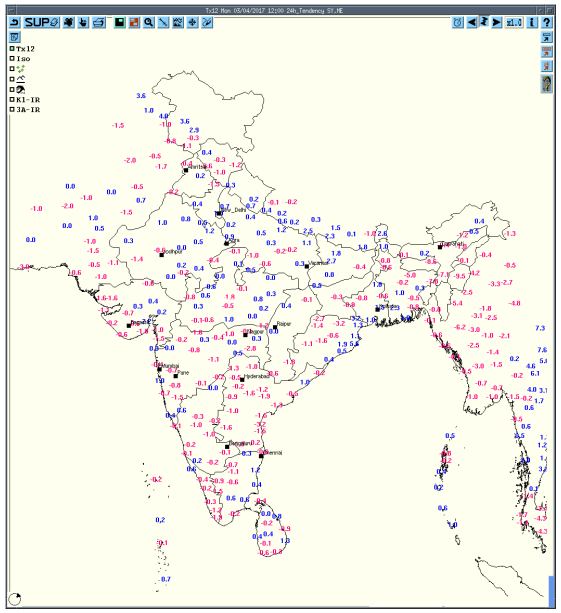
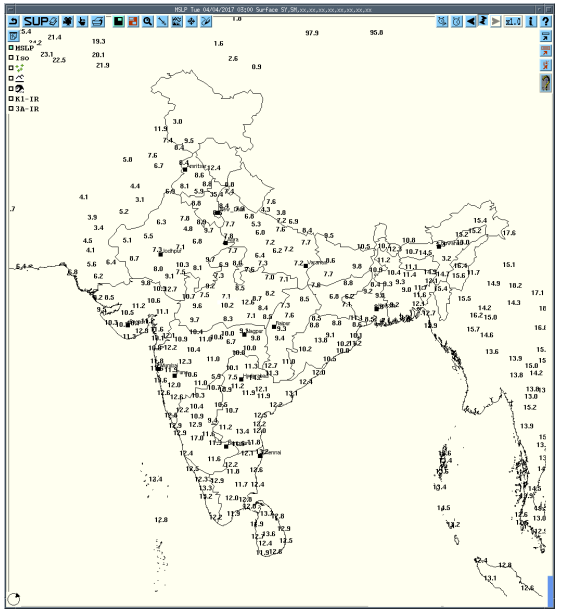
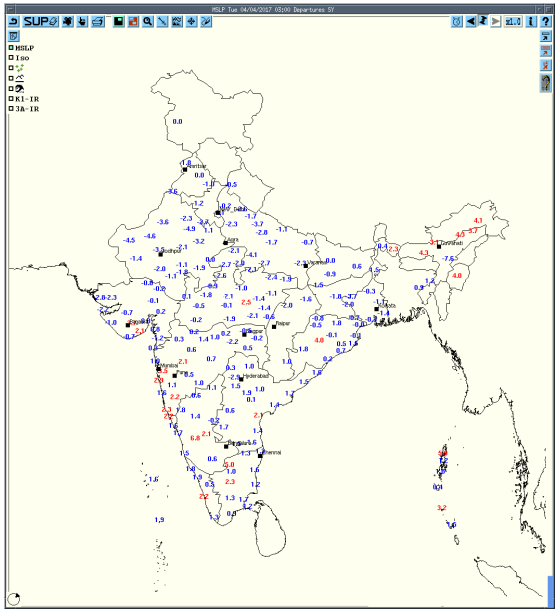
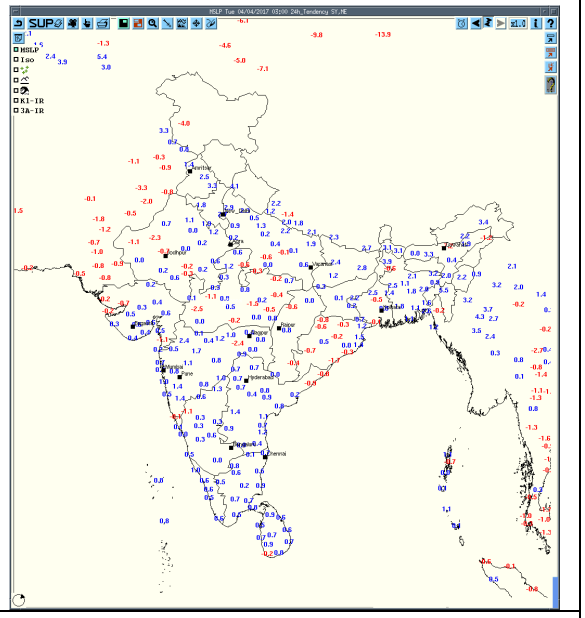


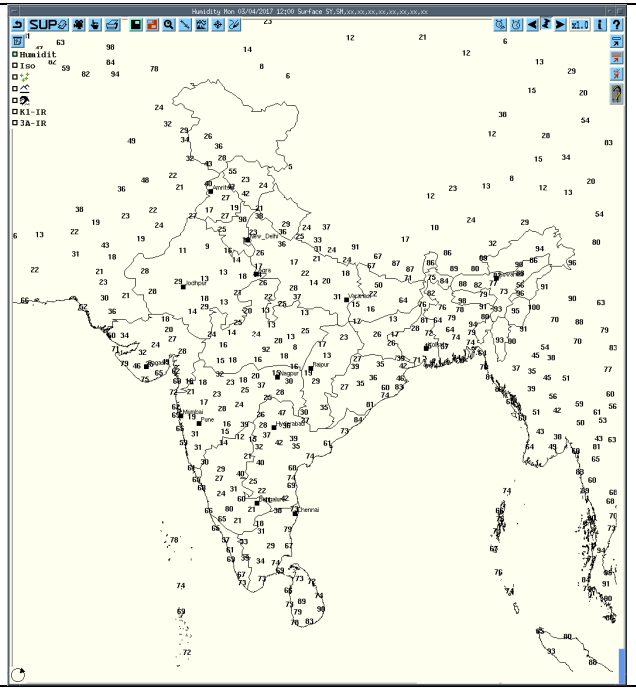
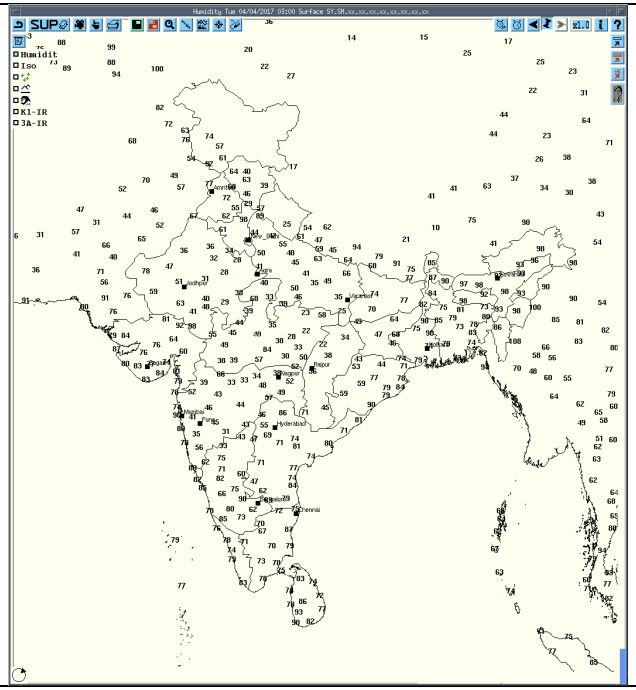
RAPID RGB Image of INSAT 3D at 1600 hrs IST

Not Received	
Forecast Dust Concentration for 00 UTC of 05 April	**Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today**
	
IMR Rainfall	**HEM Rainfall**



3hourly Past weather at 06, 09, 12, 15, 18, 21UTC 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**

Realized weather past 24 hours (based on SYNERGIE data)					
Date	**Time of Reporting**	**Name of Station Reporting**	**Region**	**STATE**	**Weather Event**
03-04-2017	0600UTC	Guwahati	Northeast India	Assam	Thunderstorm
		Silchar	Northeast India	Assam	Thunderstorm
		Shillong	Northeast India	Meghalaya	Thunderstorm
		Imphal	Northeast India	Manipur	Thunderstorm
03-04-2017	0900UTC	Guwahati	Northeast India	Assam	Thunderstorm
		Silchar	Northeast India	Assam	Thunderstorm
		Shanti Niketan	East India	West Bengal	Thunderstorm
03-04-2017	1200UTC	Imphal	Northeast India	Manipur	Thunderstorm
		Agartala	Northeast India	Tripura	Thunderstorm
		Kailashahar	Northeast India	Tripura	Thunderstorm
		Kurnoor	South India	Andhra Pradesh	Thunderstorm
		Chitradurga	South India	Karnataka	Thunderstorm
03-04-2017	1500UTC	Guwahati	Northeast India	Assam	Thunderstorm
		Agartala	Northeast India	Tripura	Thunderstorm
		Anantapur	South India	Andhra Pradesh	Thunderstorm
03-04-2017	1800UTC	Tezpur	Northeast India	Assam	Thunderstorm
		Guwahati	Northeast India	Assam	Thunderstorm
		Imphal	Northeast India	Manipur	Thunderstorm
03-04-2017	2100UTC	Guwahati	Northeast India	Assam	Thunderstorm
		Agartala	Northeast India	Tripura	Thunderstorm
04-04-2017	0000UTC	Guwahati	Northeast India	Assam	Thunderstorm
		Shillong	Northeast India	Meghalaya	Thunderstorm
		Ganganagar	Northwest India	Rajasthan	Thunderstorm
		Bhaderwah	Northwest India	Jammu & Kashmir	Thunderstorm
04-04-2017	0300UTC	Guwahati	Northeast India	Assam	Thunderstorm
		Silchar	Northeast India	Assam	Thunderstorm
		Cherrapunji	Northeast India	Meghalaya	Thunderstorm

Realised TS/HS/SQ during past 24 hours ending at 0300UTC of today(received from RMCs/MCs)						
Name of Station Reporting	**Region**	**STATE**	**Weather Event (TS/Hail/Squall)**	**Date**	**Time of Commencement (IST)**	**Time of end (IST)**
Jorhat	Northeast India	Assam	Thunderstorm	03-04-17	03/2150	03/2400
Jorhat	Northeast India	Assam	Thunderstorm	04-04-17	04/0000	04/0340
Silchar	Northeast India	Assam	Thunderstorm	03-04-17	03/0830 03/2050	03/1620 032350
Silchar	Northeast India	Assam	Thunderstorm	04-04-17	04/0550	04/0830
Tezpur	Northeast India	Assam	Thunderstorm	03-04-17	03/2045	03/2340
Guwahati	Northeast India	Assam	Thunderstorm	03-04-17	03/0830 03/1415 03/1745	03/1120 03/1545 03/2400
Guwahati	Northeast India	Assam	Thunderstorm	04-04-17	04/0000	04/0830
Dhubri	Northeast India	Assam	Thunderstorm	03-04-17	03/2030	03/2400
Dhubri	Northeast India	Assam	Thunderstorm	04-04-17	04/0000	04/0510
Barapani	Northeast India	Meghalaya	Thunderstorm	03-04-17	03/0830	03/1700
Cherrapunjee	Northeast India	Meghalaya	Thunderstorm	03-04-17	03/1130	03/2400
Cherrapunjee	Northeast India	Meghalaya	Thunderstorm		04/0000	04/0830
Shillong	Northeast India	Meghalaya	Thunderstorm	03-04-17	03/0830 03/1135 03/1247 03/2100	03/1025 03/1155 03/1745 03/2200
Shillong	Northeast India	Meghalaya	Thunderstorm	04-04-17	04/0522	04/0830
Shillong	Northeast India	Meghalaya	**Hailstorm (Diameter-0.2 cm)**	**03-04-17**	**03/0835**	**03/0836**
Shillong	Northeast India	Meghalaya	**Thunder with Squall Max speed: 37 Kmph Direction: W**	**03-04-17**	**03/1957**	**03/1958**
Imphal	Northeast India	Manipur	Thunderstorm	03-04-17	03/0830 03/1555 03/2250	03/1350 03/1755 03/2400
Imphal	Northeast India	Manipur	Thunderstorm	04-04-17	04/0000	04/0120
Lengpui	Northeast India	Mizoram	Thunderstorm	03-04-17	03/1145	03/1845
Lengpui	Northeast India	Mizoram	Thunderstorm	04-04-17	04/0500	04/0830
Kailasahar	Northeast India	Tripura	Thunderstorm	03-04-17	03/0900	03/1620
Kailasahar	Northeast India	Tripura	Thunderstorm	04-04-17	04/0550	04/0830
Agartala	Northeast India	Tripura	Thunderstorm	03-04-17	03/1620 03/1925 03/2350	03/1750 03/2205 03/2400
Agartala	Northeast India	Tripura	Thunderstorm	04-04-17	04/0000	04/0310
Agartala	Northeast India	Tripura	**Thunder with Squall Max speed: 37 Kmph Direction: W**	**03-04-17**	**03/2055**	**03/2058**

Realised TS/HS/SQ during past 24 hours ending at 0300UTC of today(received from RMCs/MCs)						
Name of Station Reporting	**Region**	**STATE**	**Weather Event (TS/Hail/Squall)**	**Date**	**Time of Commencement (IST)**	**Time of end (IST)**
Gangtok	East India	Sikkim	Thunderstorm	03-04-17	1320	1530
Gangtok	East India	Sikkim	**Hailstorm (Diameter-0.4-1.0 cm)**	03-04-17	**1425**	**1440**
Tadong	East India	Sikkim	Thunderstorm	03-04-17	1330	1845
Tadong	East India	Sikkim	**Hailstorm (Diameter-0.5-1.0 cm)**	**03-04-17**	**1438**	**1450**
Coochbehar	East India	WB(SHWB)	Thunderstorm	03-04-17	1840	1900
Coochbehar	East India	WB(SHWB)	**Hailstorm (Diameter-2.0 cm)**	03-04-17	1840	1845
Coochbehar	East India	WB(SHWB)	**Thunder with Squall Max speed: 30 Kmph Direction: NE**	03-04-17	**1930**	**1932**
Asansol	East India	West Bengal	Thunderstorm	03-04-17	1422	1435
Bhaderwah	Northwest India	Jammu* Kashmir	Thunderstorm	04-04-17	0500	0600

Past 24 hours DWR Report:

Radar Station Name	Date	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
Nagpur	03/04/17	0302-0912	Nil	Nil	No Echoes	Nil	Nil
		0922-1332	Single	Approx 200 km south	Approx 31 dBZ (fixed at position)	-----	--------
		1332-1602	Nil	Nil	--------	--------	---------
		1612-2012	Group of clouds (small patches)	30 km east	Less than 10dBZ and moving towards Nagpur radar and last upto approx 2002UTC after that few small patches	-------	----------
		2012-2352	Nil	Nil	------	-------	--------
	04/04/17	0002-0102	Nil	Nil	No Echoes	Nil	Nil
Mohanbari	03/04/17	0302-0542 UTC	Cell type- Isolated Avg. ht.- 6.0 Km MAX_Z:- 30.0 dbZ	Distance- 200 Km Direction- SW Movement- ENEly	Weak cells and moved slowly towards ENEly and dissipated.	N/A	N/A
	03/04/17	1632-1732 UTC	Cell type- Isolated Avg. ht.- 7.0 Km MAX_Z:- 30.0 dbZ	Distance- 200 Km Direction- WSW Movement- NEly	Dissipated	N/A	N/A
	03/04/17	1732-2142	Cell type- Multiple Avg. ht.- 7.5 Km MAX_Z:- 33.0 dbZ	Distance- 190 Km Direction-SW Movement- NEly	Moved slowly towards NEly found Max_Z 36.5 at 1902UTC at a distance 60 Km and later dissipated.	Thunder storm with Rain	Jorhat, Sibsagarh Dibrugarh & Tinsukia
Lucknow	04/04/17	030300 - 040300	Nil	Nil	Nil	Nil	Nil
Jaipur	04/04/17	030300 - 040300	Nil	Nil	Nil	Nil	Nil
Patiala	04/04/17	030300 - 040300	Nil	Nil	Nil	Nil	Nil

Radar Station Name	Date	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
Patna	04/04/17	030300-040300	45.5dBZ bearing height of 14 km position at NW direction from DWR Patna	Formed at the distance of 217 km NW from DWR Patna MOVEMENT-NE	NIL	Hail/Rain	east & west Champaran
Srinagar	04/04/17	1230-1330 (UTC) of 3rd April	Single cell with average height of 7km with maximum reflectivity of 40 DBZ	Developed at W of Srinagar around 1240Z and moved towards NE of Srinagar and cloud dissipated at 1330Z	No Thunderstorm observed/reported.	Nil	Light Rain At Gulmarg 4.8mm
Agartala	04/04/17	030300 UTC - 040240 UTC	Multiple Cells with Maximum Height **15 km** and maximum reflectivity **52 dBZ** (at 1610 UTC over Meghalaya and Southern parts of Assam)	NW (300 KM) from DWR Agartala moving ESE-wards at around 40 kmph	Cells continuously developed one after another since 0310 UTC of 02.04.17 over North Bangladesh and moved ESE wards through Meghalaya and South Assam, average height maintained >14 km and average intensity maintained >42dBZ	Hail storm and heavy rain at Cherrapunjee, TS with rain at Kailashahar	East Khasi Hills of Meghalaya, Cachar District of Assam, North, Dhalai, Unakoti District of Tripura
		030730 UTC – 031820 UTC	Multiple Cells with Maximum Height of **16 km** and maximum reflectivity **46 dBZ** (at 1320-1330 UTC over Bangladesh)	WNW (350 KM) from DWR Agartala moving ESE-wards at around 40 kmph	Cell dissipated at 1820 UTC of 03.04.17 over Southern parts of Mizoram	TS with light rain at Agartala, Heavy rain at Bishalgarh	West, Sipahijala, South and Gomati Districts of Tripura

Radar Station Name	Date	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	04/04/17	0300-1030 UTC	Convective regions with average height of 7 km having maximum reflectivity of 25 dBZ with small areas showing reflectivity values in the range of 30- 40 dBZ .	Convective regions mainly concentrated in the sea areas to the south of the RADAR (150-240 degrees) at a distance of 80- 250kms and beyond from the RADAR. Movement is NWly.	NIL	NIL	NIL
		1030- 0300 U	Isolated cells height of 11 km having maximum reflectivity of 30 dBZ observed started developing around 1600 IST. Convective regions with average height of 7 km having maximum reflectivity of 25 dBZ with small areas showing reflectivity values in the range of 30- 40 dBZ seen at 1900 IST after the dissipation of the cells formed above. These systems seen to dissipate by late night hours.	Position & movement of cells: Lat. -20.31 Long.- 84.85 Range:187 km Movement: NWly	NIL	TS with rain	Nayagarh and Ganjam

Radar Station Name	Date	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	03-04-17	0301-0551	Multi cell system with maximum height of 9.6 Km at 0321 UTC and maximum reflectivity of 59.0 dBz at 0331 UTC	SSE (108 km) moving in E-ly direction at a speed of 37.0 kmph	Cell started forming at 022122 UTC at WSW (139 Km) from radar. Matured. Multi cell system. Dissipated at 0551 UTC in SE (108 km) from Radar.	Thunderstorm	N/A
	03-04-17	0301-0551	Isolated single cell with maximum height of 8.2 Km at 0412 UTC and maximum reflectivity of 52.5 dBz at 0412 UTC	E (112 km) moving in E-ly direction at a speed of 37.0 kmph	Cell started forming at 0151 UTC at E (63 Km) from radar. Matured. Dissipated at 0451 UTC in ESE (173 km) from Radar.	Thunderstorm	N/A
	03-04-17	0601-0721	NIL	NIL	NO ECHO	NIL	NIL
	03-04-17	0731-1412	Isolated single cell with maximum height of 16.13 Km at 0921 UTC and maximum reflectivity of 63.0 dBz at 0842 UTC	N (233 km) moving in ESEly direction at a speed of 60.0 kmph	Cell started forming at 0801 UTC at N (233 Km) from radar. Matured. Merged at 1201 UTC and formed into muli cell system in NE (173 km) from Radar.	Thunderstorm/ Hailstorm	N/A
	03-04-17	0951-1412	Isolated single cell with maximum height of 16 km at 1131 UTC and maximum reflectivity of 63.5 dBz at 1131 UTC	N(216 km) moving in ESEly direction at a speed of 65.0 kmph	Cell started forming at 0951 UTC at N (216 Km) from radar. Matured.Merged and formed into a Multi cell system at 1201 UTC, Dissipated at 1412 UTC in ENEly (246.8 km) from Radar.	Thunderstorm/ Hailstorm	N/A
	03-04-17	0831-1221	Isolated single cell with maximum height of 14.51 Km at 1021 UTC and maximum reflectivity of 62.5 dBz at 1031 UTC	NW (193 km) moving In E-ly direction at a speed of 50.0 kmph	Cell started forming at 030831 UTC at NW (193 Km) from radar. Matured, Dissipated at 1221 UTC in NE (89 km) from Radar.	Thunderstorm/ Hailstorm	N/A
	03-04-17	0821-1211	Isolated single cell system with maximum height of12.67 Km at 1011 UTC and maximum reflectivity of 60.0 dBz at 1041 UTC	NW (178 km) moving in E-ly direction at a speed of 42.0 kmph	Cell started forming at 0821 UTC at NW (178 Km) from radar. Matured. Multi cell system. Dissipated at 1211 UTC in NNE (136.8 km) from Radar.	Thunderstorm	N/A
	03-04-17	0942-1241	Isolated single cell with maximum height of 13.35 Km at 1121 UTC and maximum reflectivity of 64.5 dBz at 1141 UTC	NW (163 km) moving in E-ly direction at a speed of 37.0 kmph	Cell started forming at 0942 UTC at NW (163 Km) from radar. Matured. Dissipated at 1241 UTC in NNE (32 km) from Radar.	Thunderstorm/Hailstorm	N/A
	03-04-17	0951-1321	Isolated single cell with maximum height of 11.94 Km at 1201 UTC and maximum reflectivity of 63.5 dBz at 1221 UTC	NW (189 km) moving in E-ly direction at a speed of 57.0 kmph	Cell started forming at 0951 UTC at E (189 Km) from radar. Matured. Dissipated at 1321 UTC in NW (21.0 km) from Radar.	Thunderstorm/Hailstorm	N/A
	03-04-17	1421-2351	NIL	NIL	NO ECHO	NIL	NIL
	04-04-17	0001-0301	NIL	NIL	NO ECHO	NIL	NIL