

## India Meteorological Department FDP STORM Bulletin No.83 (27-05-2017)

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

The northern limit of monsoon (NLM) continues to pass through 5.0°N/ 76.0° E, 8.0°N/83.0°E, 10.0°N/ 86.0°E, 14.0°N/ 92.0°E and 16.0°N/ 95.0°E. Under the influence of the well-marked low pressure area over east central and adjoining west central & southeast Bay of Bengal, which is likely to concentrate into a depression during next 24 hours, conditions are becoming favourable for the further advance of southwest monsoon into some more parts of southwest & east central Bay of Bengal, remaining parts of southeast Bay of Bengal in coming 3-4 days. Conditions are also favourable for the advance of southwest monsoon into northeast segment of India covering Nagaland, Manipur, Mizoram & Tripura during 30-31 May 2017. With the strengthening of westerlies and northward shift of shear zone, conditions are also becoming favourable for the advance of southwest monsoon into some parts of south Arabian Sea, entire Maldives-Comorin area and south Kerala during 30-31 May 2017.

The low pressure area over southeast Bay of Bengal & adjoining Central Bay of Bengal now lies as a well-marked low pressure area over east central and adjoining west central & southeast Bay of Bengal. The associated upper air cyclonic circulation and extends upto 5.8 Km above mean sea level. It is likely to concentrate into a depression during next 24 hours.

A trough at mean sea level runs from West Rajasthan to the centre of the well-marked low pressure area over Bay of Bengal, across north Madhya Pradesh, Chhattisgarh, Odisha and extends upto 0.9 km above mean sea level. The trough from northwest Rajasthan to Vidarbha has merged with the above system.

The upper air cyclonic circulation over Jharkhand and adjoining Bihar now lies over Bihar & adjoining Sub Himalayan West Bengal and extends upto 0.9 Km above mean sea level.

The upper air cyclonic circulation over north interior Karnataka & neighbourhood now seen as a trough from south Madhya Maharashtra to South Interior Karnataka at 0.9 km above mean sea level.

A trough runs roughly along Longitude 85.0°E to the north of Latitude 22.0°N between 3.1km & 5.8 km above mean sea level.

An upper air cyclonic circulation lies over central Pakistan & neighbourhood and extends upto 2.1 km above mean sea level.

The upper air cyclonic circulation over western parts of west central Arabian sea & neighbourhood has moved away westwards.

## SATELLITE OBSERVATIONS during past 24hrs and current observation:

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

#### **Convective Activity: Nil**

#### Vortex over Bay of Bengal:

VORTEX over west central bay of Bengal centred within a half degree of latitude14.0N/longitude 88.4E. Intensity T1.0 repeat 1.0. Associated broken low/med clouds with embedded intense to very intense convection over Bay of Bengal between latitude 10.0N to 18.0N longitude 81.0E to 89.5E

#### **Cloud Description:**

Broken low/medium clouds with embedded moderate to intense convection were seen over NE Odisha. Broken low/medium clouds with embedded intense convection were seen over Bay Islands. Scattered low/medium clouds with embedded weak to moderate convection were seen over Bihar, Sikkim, Arunachal Pradesh, Assam, E Meghalaya, Nagaland, rest Odisha and N Jharkhand. Scattered low/medium clouds with embedded isolated weak to moderate convection were seen over rest parts of South India. Scattered low/medium clouds were

seen over J & K, Himachal Pradesh, Uttarakhand, eastern parts of E Uttar Pradesh, Maharashtra, E Madhya Pradesh and rest parts of East India.

#### Arabian Sea:

Scattered low/medium clouds with embedded isolated moderate to intense convection were seen over South Arabian Sea & Comorin.

#### Bay of Bengal & Andaman Sea:

Broken low/medium clouds with embedded intense to very intense convection were seen over rest Bay of Bengal, Andaman Sea and Tenasserim coast.

#### Past Weather:

#### **Convection:-**

Moderate to Intense convection was observed over J&K Uttarakhand Uttar Pradesh South Chhattisgarh Bihar Jharkhand Odisha West Bengal Meghalaya North East States Karnataka Telangana Andhra Pradesh Kerala Tamilnadu .

#### OLR:-

Upto **230** wm<sup>-2</sup> was observed over South East Jharkhand Coastal Odisha Meghalaya Nagaland Central Assam South Coastal Andhra Pradesh North Kerala North Tamilnadu. Upto **230** wm<sup>-2</sup> was observed over J&K Himachal Pradesh Uttarakhand South Chhattisgarh Rest Odisha Sikkim West Bengal Rest Assam Arunachal Pradesh South Interior Karnataka Telangana Rest Andhra Pradesh.

Upto 250 wm<sup>-2</sup> was observed over South Tamilnadu Manipur North Interior Karnataka

#### Westerly Trough & Jet-Stream:

No Trough in Westerlies & Jet Stream observed over India Dynamic Features:

#### **Dynamic Features:-**

Low to Medium wind shear is observed over India.

Positive shear tendency is observed over India

A positive Vorticity field is observed over Saurashtra East Madhya Pradesh Chhattisgarh Uttar Pradesh.

Positive low level convergence is observed over Vidarbha South Chhattisgarh Uttar Pradesh Bihar Odisha Andhra Pradesh Tamilnadu and Negative low level convergence observed over rest parts of India,

#### Precipitation:

#### IMR:

Rainfall Up to **130** mm was observed over North East Jharkhand Rainfall Up to **90** mm was observed over South Chhattisgarh Coastal Andhra Pradesh. Rainfall Up to **70** mm was observed over Odisha West Bengal South Interior Karnataka adjoining Tamilnadu Telangana Rest Andhra Pradesh North Tamilnadu. Rainfall Up to **20** mm was observed over East Assam. Rainfall Up to **10** mm was observed over J& K Himachal Pradesh Uttarakhand North East Uttar Pradesh Bihar Sikkim Rest Assam Arunachal Pradesh Nagaland Tripura South West Madhya Pradesh South.

#### HEM:

Rainfall Up to **208** mm was observed over Extreme South West South Interior Karnataka. Rainfall Up to **70** mm was observed over South Chhattisgarh Odisha North West Bengal Meghalaya Rest South Interior Karnataka North Tamilnadu Coastal Andhra Pradesh. Rainfall Up to **14** mm was observed over South West J&K Himachal Pradesh Uttarakhand North Kerala. Rainfall Up to **07** mm was observed over North East Uttar Pradesh Bihar Arunachal Pradesh Nagaland Manipur Tripura North Interior Karnataka South Tamilnadu

#### **RADAR and RAPID Observation:**

DWR composite at 1620hrs IST indicated isolated convection over Uttarakhand, E Rajasthan adjoining S Haryana, Madhya Pradesh, Vidarbha, Odisha, Telangana, South Andhra Pradesh and adjoining N Tamilnadu.

RAPID RGB Satellite imagery at 1600hrs IST indicated convective clouds over Andaman & Nicobar Islands, Central parts of Tamilnadu Jharkhand, Sub Himalayan West Bengal, Nagaland, Manipur, Mizoram and over the area mentioned in DWR Composite.

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

Higher Dust concentration was observed over north-west Africa and Arab countries. Dust concentration is expected to increase over north India for next five days. High PM10 concentration was observed over Rajasthan and is expected to increase over north India in next five days.

### 2. NWP MODEL GUIDANCE:

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

#### 1. Weather Systems:

**12UTC Charts of Day 0-4** show evolution of heat low over NW India and adjoining Pakistan with MSLP values lower than 990hPa on Day-1 to Day-4.

12UTC charts on days from Day0-2: show a zone of wind discontinuity at 925 hPa; SW-NE extending from Telangana to Jharkhand.

A CYCIR is seen over Bay of Bengal from Day-0 onwards and is seen to intensify on Day-2, tracking towards Myanmar and is likely to cross the coast at around 00UTC on 30<sup>th</sup> May 2017 near 19N/94E

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

Weaker core winds at 12 UTC on all days over India

#### 3. Convergence at 850 hPa:

#### (Day/Index : Subdivisions with Lower Level Convergence > 15 x 10^-5 /s):

Day0: Jharkhand, Odisha, West MP, Chhattisgarh,

- Day1: Jharkhand, Chhattisgarh,
- Day2: Gangetic WB, Jharkhand, West UP, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, West MP,
- Day3: NE NMMT, TN Puducherry,
- Day4: West UP, Hry Chd Delhi, Punjab, West RJ, East RJ, Chhattisgarh

#### 4. Low level Vorticity:-Positive Vorticity (>15 x 10<sup>-5</sup>/s):

#### (Day/Index : Subdivisions with Lower Level Vortex > 15 x 10^-5 /s):

Day0: Jharkhand, East UP, West UP, West MP, East MP, Saurashtra Kutch,

Day1: Jharkhand, Bihar, East UP, Hry Chd Delhi, TN Puducherry,

- Day2: Assam Meghalaya, Jharkhand, West UP, Punjab, West MP, TN Puducherry, Kerala,
- Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Guj Reg, TN Puducherry,
- Day4: NE NMMT, Uttarakhand, Punjab, Guj Reg, TN Puducherry

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

#### (Day/Index : Subdivisions with Showalter Index < -4):

Day0: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Himachal Pradesh, Jammu Kashmir, Odisha, Saurashtra Kutch, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Guj Reg, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, SI Karnataka,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Guj Reg, Saurashtra Kutch, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, SI Karnataka,

Day3: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day4: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, West MP, Madhya Maharashtra

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

#### (Day/Index : Subdivisions with K Index > 40):

Day0: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, Guj Reg, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Madhya Maharashtra, Marathawada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, SI Karnataka,

Day3: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Guj Reg, Saurashtra Kutch, Madhya Maharashtra, Marathawada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, SI Karnataka,

Day4: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, 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, Sub Himalayan WB, Jharkhand, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Chhattisgarh, Coastal AP, Telangana, Rayalaseema,

Day1: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Guj Reg, Marathawada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, TN Puducherry, SI Karnataka,

Day2: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Guj Reg, Saurashtra Kutch, Madhya Maharashtra, Marathawada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema,

Day3: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Konkan Goa, Madhya Maharashtra, Marathawada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, NI Karnataka,

Day4: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, West MP, Telangana

#### 8. Rainfall and thunder storm activity:

#### (Day/Index : Subdivisions with Precipitation > 2 cm):

Day1: Arunachal Pradesh, NE NMMT, Bihar, East UP, Uttarakhand, Andaman Nicobar,

Day2: NE NMMT, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Chhattisgarh, Andaman Nicobar, Telangana, Coastal Karnataka, Kerala,

Day3: NE NMMT, Jharkhand, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Andaman Nicobar, TN Puducherry, Coastal Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, East UP, West UP, Hry Chd Delhi, Jammu Kashmir, Andaman Nicobar, TN Puducherry, Coastal Karnataka, Kerala,

Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, East RJ, TN Puducherry

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

#### 1. Weather Systems:

00 UTC analysis shows an east west trough over Haryana, UP, Bihar and adjoining areas. The trough also has a N-S component and is seen extending along MP up to Maharashtra region. The trough is now extending up to interior TN in the forecast and the low formed in the southeast BOB and adjoining central BOB region is now shown to move towards Bangladesh Coast and dissipate by day 3

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

No presence of jet core over the Indian region for the next 5 days except on day 4 and day 5 over J & K region

#### 3. Low level Vorticity:-Positive Vorticity 850hPa (>12 x 10<sup>-1</sup>/s):

Analysis shows low level positive vorticity (>12 x 10<sup>-5</sup>/s) mainly over isolated pockets in Punjab, Delhi, MP, AP, and over the north eastern region. The high vorticity belts are mainly confined over regions of UP, Haryana, Bihar, MP, AP and south peninsular region during next 3 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 threshold values are noticed over GWB and also over few regions in Gujarat and Rajasthan in the analysis. Forecast shows high threshold values over Gujarat, Rajasthan along with few pockets in Odisha and coastal AP for the next 3 days.

Lifted Index (< -2): The areas with index less than -2 lies along east UP, Bihar, Chhattisgarh, GWB and major regions of AP and TN along with major regions along the west coast for the next 3 days.

Sweat Index (> 400): 00UTC shows significant values over major parts over UP, Bihar, GWB, Odisha, AP, TN and over major regions bordering the west coast of the country and is expected to persist for the next 3 days.

**CAPE (> 1000):** Mostly over Bihar, GWB, Odisha, and AP and other regions over the east coast, Gujarat, Rajasthan and along with major regions bordering the west coast during the next 3 days.

**CIN (50-150):** Maximum CIN values are found in areas over UP, Bihar, GWB, Odisha, AP and TN and along with major pockets in the Maharashtra, Gujarat and Rajasthan region for the next 2-3 days.

#### 5. Rainfall and thunderstorm activity:

10-40 mm rainfall is forecasted tomorrow over major pockets over Kerala, Odisha, WB, north eastern states and along with the foothills of the Himalayas and is expected to persist for the next 3 days and on day 3 over some pocket of Haryana and western UP

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

1. Model Reflectivity (Max.dBz):

15-40 dBZ over regions of the Himalayan foothills adjoining Bihar and WB and isolated pockets of the south peninsular region today and tomorrow

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

CAPE (> 1000): Mostly along Bihar, Jharkhand, WB, Odisha, AP and TN and along major regions bordering the west coast during next 3 days.

**CIN (50-150):** Higher values over most regions of India except over J & K region and NE states during next three days

#### 3. Rainfall and thunderstorm activity:

10-40 mm over isolated pockets in UP, Bihar and WB region adjoining the Himalayas, along the north east region and over few pockets in the Kerala region and it is expected to persist for the next 3 days.

## 3. IOP ADVISORY FOR 24 and 48Hrs:

#### **Summary and Conclusions:**

#### Day-1 & Day-2:

Under the influence of the well-marked low pressure area over east central and adjoining west central & southeast Bay of Bengal, which is likely to intensify and move north-eastwards during next 24 hours, rainfall is likely to occur over Sub Himalayan West Bengal, Sikkim and adjoining north-eastern states on day 1. This rainfall is likely to intensify on day 2 over the region. Also, the north-easterly flow into east peninsular India from the above system is likely to result in thunderstorm activity over East peninsular India on day 1.

With conditions becoming favourable for monsoon onset over Kerala, widespread rainfall activity is also expected during the next two days over Kerala, Interior Tamilnadu and adjoining South Karnataka.

The trough at mean sea level, which runs from West Rajasthan to the centre of the well-marked low pressure area over Bay of Bengal, is also likely to result in thunderstorm activity over Northern states during day 1 and 2.

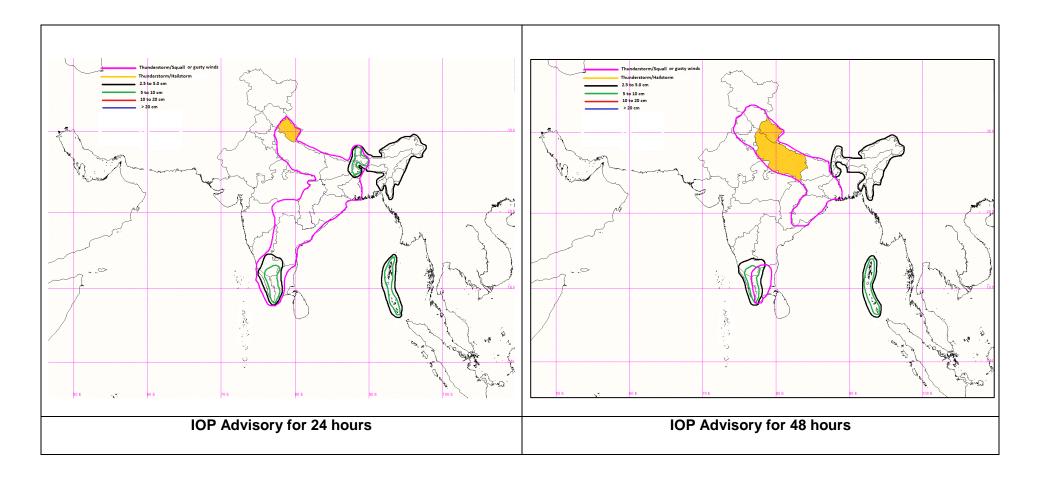
#### 24 hour Advisory for IOP:

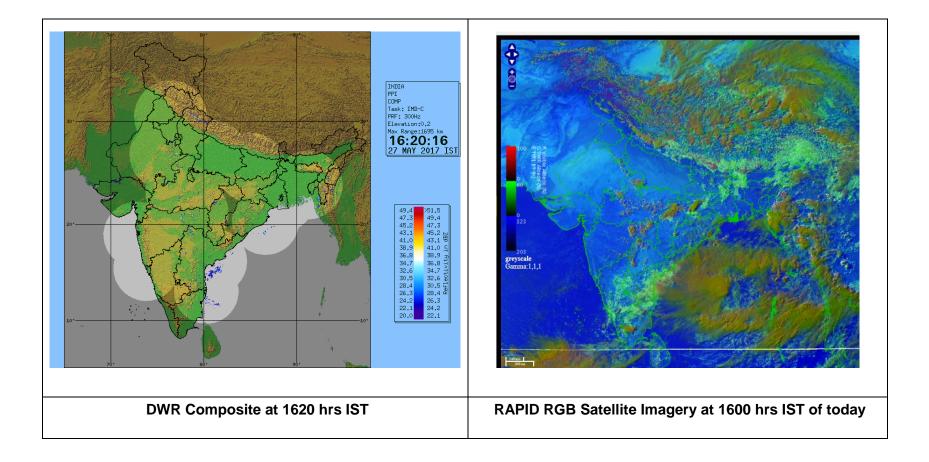
Interior Tamil Nadu, Kerala, South Interior Karnataka, Coastal Andhra Pradesh, Telengana, Rayalaseema Sikkim and Sub Himalayan West Bengal Assam and Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura Orissa, Jharkhand, Bihar, Gangetic West Bengal, Uttarakhand, West Uttar Pradesh and East Uttar Pradesh Andaman and Nicobar Islands Chhattisgarh, Vidarbha

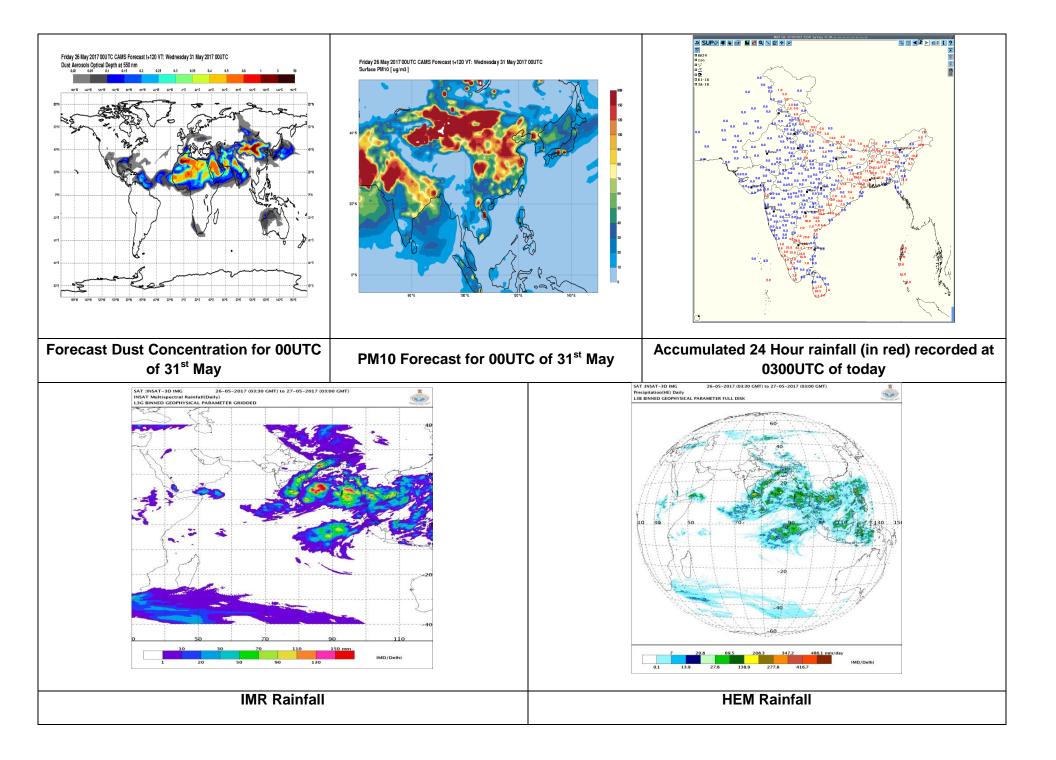
#### 48 hour Advisory for IOP:

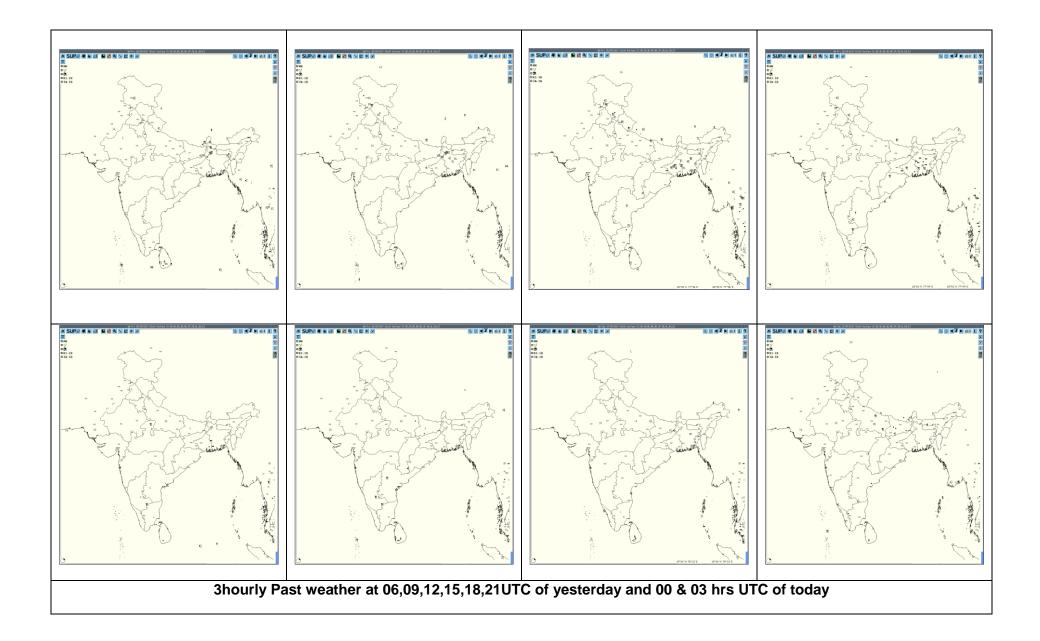
Interior Tamil Nadu, Kerala, South Interior Karnataka, Andaman and Nicobar Islands Sikkim and Sub Himalayan West Bengal Assam and Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura Jharkhand, Bihar, Orissa, Gangetic West Bengal, Uttarakhand, Himachal Pradesh, Punjab, Haryana, West Uttar Pradesh and East Uttar Pradesh

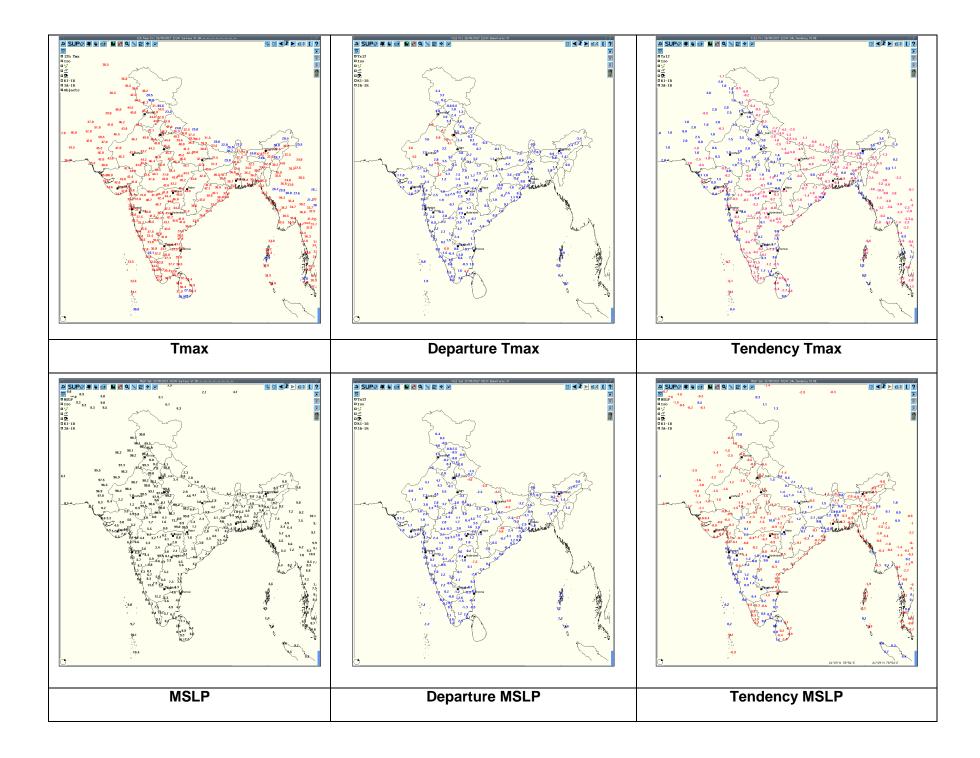
For NCMRWF NWP products:( <u>http://www.ncmrwf.gov.in/HomePage/NEPS-prod-1.php</u> ) For IMD NWP products:( <u>http://nwp.imd.gov.in/diagpro_new.php</u> )
For Synoptic plotted data and charts
http://amssdelhi.gov.in/
http://www.amsskolkata.gov.in/
For RAPID tool:
http://rapid.imd.gov.in/
Low Level Winds
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/map skm2.html

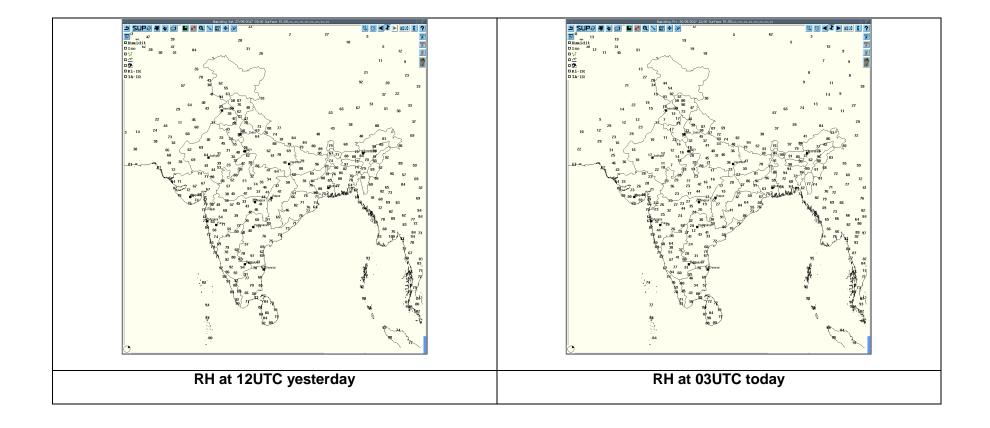












## Realised past 24hrs TS/SQ/HS Data (reported at 0300UTC of the day):

Date	Time of Reporting	Realized weather past 24hours Name of Station Reporting	Region		Weather Event
Duto	This of Reporting	Pahalgam	NW India	J&K	Thunderstorm
		Mukteshwar	NW India	Uttarakhand	Thunderstorm
~~ ~ ~ ~		Purnea	E India	Bihar	Thunderstorm
26-05-17	0600UTC	Gangtok	NE India	Sikkim	Thunderstorm
		Jalpaiguri	NE India	West Bengal	Thunderstorm
		Cherrapunjee	NE India	Meghalaya	Thunderstorm
	0900UTC	Pahalgam, Batote, Bhaderwah	NW India	J&K	Thunderstorm
		Sundernagar	NW India	Himachal Pradesh	Thunderstorm
26-05-17		Purnea	E India	Bihar	Thunderstorm
		Ranchi	E India	Jharkhand	Thunderstorm with Hail
		Malda	E India	West Bengal	Thunderstorm
26-05-17 1200UTC		Kukernag, Batote, Bhaderwah	NW India	J&K	Thunderstorm
	1200UTC	Sundernagar, Shimla	NW India	Himachal Pradesh	Thunderstorm
		Tehri, Mukteshwar	NW India	Uttarakhand	Thunderstorm
		Bankura, Panagarh, Shantiniketan	E India	West Bengal	Thunderstorm
		Burdwan	E India	West Bengal	Thunderstorm with Hai
		Agartala	NE India	Tripura	Thunderstorm
		Jagdalpur	C India	Chhattisgarh	Thunderstorm
		Nalgonda, Tirupati	S India	Andhra Pradesh	Thunderstorm
		Puducherry	S India	Puducherry	Thunderstorm
		Srinagar	NW India	JK	Thunderstorm
		Sundernagar	NW India	Himachal Pradesh	Thunderstorm
		Jharsuguda	E India	Odisha	Thunderstorm
		Bankura	E India	West Bengal	Thunderstorm
26-05-17	1500UTC	Kalingapatnam, Anantapur	S India	Andhra Pradesh	Thunderstorm
		Vishakhapatnam	S India	Andhra Pradesh	Thunderstorm with Hai
		Vijayawada	S India	Andhra Pradesh	Lightening
		Bengaluru	S India	Karnataka	Thunderstorm
		Tiruchirappalli	S India	Tamilnadu	Lightening
		Bahraich	NW India	Uttar Pradesh	Lightening
		Patna	E India	Bihar	Lightening
		Imphal	NE India	Manipur	Lightening
26-05-17	1800UTC	Gwalior	C India	Madhya Pradesh	Thunderstorm
		Jharsuguda	E India	Odisha	Thunderstorm
		Machilipatnam, Bapatla	S India	Andhra Pradesh	Thunderstorm
		Kurnool	S India	Andhra Pradesh	Lightening

		Chitradurga	S India	Karnataka	Lightening
		Bengaluru	S India	Karnataka	Thunderstorm
		Patna	E India	Bihar	Lightening
		Imphal	NE India	Manipur	Thunderstorm
26-05-17		Puri	E India	Odisha	Thunderstorm
		Bapatla, Ongole	S India	Andhra Pradesh	Thunderstorm         Lightening         Thunderstorm         Thunderstorm         Thunderstorm         Thunderstorm         Lightening         Thunderstorm         Lightening         Thunderstorm         Lightening         Lightening         Lightening         Lightening         Thunderstorm         Thunderstorm         Thunderstorm         Thunderstorm         Thunderstorm         Thunderstorm         Thunderstorm
	2100UTC	Hyderabad,	S India	Telangana	Thunderstorm
		Nellore	S India	Andhra Pradesh	Lightening
		Chitradurga, Bengaluru	S India	Karnataka	Thunderstorm
		Coimbatore	S India	Tamilnadu	Lightening
		Thiruvananthapuram	S India	Kerala	Lightening
07 OF 17		Bhagalpur	E India	Bihar	Thunderstorm
27-05-17	0000UTC	Kannur	S India	Kerala	Thunderstorm
07 OF 17		Bahraich, Fursatganj, Varanasi	NW India	Uttar Pradesh	Thunderstorm
27-05-17	0300 UTC	Minicoy	S India	Lakshadweep & Minicoy Islands	Thunderstorm

	Realized 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 Comme ncemen t (IST)	Time of end (IST)				
Dehradun	NW India	Uttarakhand	Thunderstorm	26-05-2017	1740	1950				
Pantnagar	NW India	Uttarakhand	Thunderstorm	26-05-2017	2000	2115				
Mukteshwar	NW India	Uttarakhand	Thunderstorm	26-05-2017	1105 1450	1135 2040				
Tehri	NW India	Uttarakhand	Thunderstorm	26-05-2017	1630	1930				
Sundernagar	NW India	NW India H	/ India Himachal Pradesh	Thunderstorm	26-05-2017	1400 1541	1528 2010			
-			Hailstorm with diameter 0.9cm	26-05-2017	1528	1541				
Machilipatnam	S India	Andhra Pradesh	Thunderstorm	26/27-05-17	262225	270020				
Gwalior	C India	Madhya Pradesh	Thunderstorm	26/27-05-17	262235	270100				
Jagdalpur	C India	Chhattisgarh	Thunderstorm	26-05-17	1545	1900				

Lucknow(AP)	NW India	Uttar Pradesh (East)	Thunderstorm	27-05-17	0520	524
Churk	NW India	Uttar Pradesh (East)	Thunderstorm	26-05-17	1305	1325
Gorakhpur	NW India	Uttar Pradesh (East)	Thunderstorm	27-05-17	0825	830
Varanasi(AP)	NW India	Uttar Pradesh (East)	Thunderstorm	27-05-17	0820	830
Ghazipur	NW India	Uttar Pradesh (East)	Thunderstorm	27-05-17	0330	445
Churk	NW India	Uttar Pradesh (East)	Thunderstorm	26-05-17	1305	1325
Ballia	NW India	Uttar Pradesh (East)	Thunderstorm	26/27-05-17	262315	270445
Bahraich	NW India	Uttar Pradesh (East)	Thunderstorm	26/27-05-17	2340	140
	NW India	Uttar Pradesh (East)	Thunderstorm	27-05-17	0615	830
Sultanpur	NW India	Uttar Pradesh (East)	Thunderstorm	27-05-17	0050	150
Kanpur(City)	NW India	Uttar Pradesh (East)	Thunderstorm	27-05-17	0700	740
Kheri	NW India	Uttar Pradesh (East)	Thunderstorm	27-05-17	0500	630
Hardoi	NW India	Uttar Pradesh (East)	Thunderstorm	27-05-17	0600	615
Sahjahanpur	NW India	Uttar Pradesh (East)	Thunderstorm	27-05-17	0600	730
Nazibabad	NW India	Uttar Pradesh (West)	Thunderstorm	26-05-17	1830	1900
Srinagar	NW India	J&K	Thunderstorm	26-05-17	1515 1940	1530 2000
Qazigund	NW India	J&K	Thunderstorm	26-05-17	1622	1630
Pabalgam	NBA/ In stie	J&K	Thunderstorm	26-05-17	930	1010
Pahalgam	NW India	Jak	Thunderstorm	26-05-17	1140	1630
Kupwara	NW India	J&K	Thunderstorm	26-05-17	1400	1415
Kukernag	NW India	J&K	Thunderstorm	26-05-17	1545	1710
Banihal	NW India	J&K	Thunderstorm	26-05-17	1505	1605
Batote	NW India	J&K	Thunderstorm	26-05-17	1415	1930
Bhaderwah	NW India	J&K	Thunderstorm	26-05-17	1315 1630	1430 1800
Shimla	NW India	Himachal Pradesh	Thunderstorm	26-05-17	1605	1845
Hyderabad	S India	Telangana	Thunderstorm	27-05-17	0155	0315
Visakhapatnam	S India	Andhra Pradesh(CAP)	Thunderstorm	26-05-17	1945 2100	2015 2145
Vijayawada AP	S India	Andhra Pradesh(CAP)	Thunderstorm	26/27-05-17	262245	270045

Machilipatnam	S India	Andhra Pradesh(CAP)	Thunderstorm	26/27-05-17	262250	270020
Bapatla	S India	Andhra Pradesh(CAP)	Thunderstorm	26/27-05-17	262250	270415
Ongole	S India	Andhra Pradesh(CAP)	Thunderstorm	26/27-05-17	262345 270135	270030 270300
Anantapur	S India	Andhra Pradesh(RYLS)	Thunderstorm	26-05-17	1930	2000
Tirupati AP	S India	Andhra Pradesh(RYLS)	Thunderstorm	26-05-17	1630	2100
Dhubri	NE India	Assam	Thunderstorm	26-05-17	1302	1345
Barapani	NE India	Meghalaya	Thunderstorm	26-05-17	1400	1750
Cherrapunjee	NE India	Meghalaya	Thunderstorm	26-05-17	0925	1040
Shillong	NE India	Meghalaya	Thunderstorm	26-05-17	1515	1615
Imphal	NE India	Manipur	Thunderstorm	26-05-17	0845	0910
Gangtok	E India	Sikkim	Thunderstorm	26-05-17	1100	1330
Tadong	E India	Sikkim	Thunderstorm	26-05-17	1040	1310
Coochbehar	E India	West Bengal(SHWB)	Thunderstorm	26-05-17	1150	1350
Jalpaiguri	E India	West Bengal(SHWB)	Thunderstorm	26-05-17	1015	1145
Malda	E India	West Bengal(SHWB)	Thunderstorm	26-05-17	1300	1415
Asansol	E India	West Bengal(GWB)	Thunderstorm	26-05-17	1445	2100
Dopkurg		West Bangel(C)M(B)	Thunderstorm	26-05-17	1535	2030
Bankura	E India	West Bengal(GWB)	Lightening	26-05-17	1705	2035
			Thunderstorm	27-05-17	0355	0525
Patna	E India	Bihar	Thunderstorm	27-05-17	0545	
			Lightening	26/27-05-17	2145	270355
Gaya	E India	Bihar	Thunderstorm & Lightening	27-05-17	0720	0725
Bhagalpur	E India	Bihar	Thunderstorm	27-05-17	0505	0625
Durnio	<b>F</b> lastic	Dihor	Thunderstorm	26-05-17	0846	0922
Purnia	E India	Bihar	Thunderstorm	26-05-17	1100	1240
Jamshedpur	E India	Jharkhand	Thunderstorm	26-05-17	1520	1720
Danahi	<b>F</b> loadia	lborkbond	Thunderstorm	26-05-17	1359	1640
Ranchi	E India Jha	Jharkhand	Thunderstorm	26-05-17	1758	1940

Jharsuguda	E India	Odisha	Thunderstorm	26-05-17	1930	20454
			Lightening	26-05-17	2045	2400
Puri	E India	Odisha	Lightening	27-05-17	0145	0245
Port Blair	E India	Andaman & Nicobar Islands	Thunderstorm	26-05-17	0936	1030
Valparai	S India	Tamilnadu(North)	Thunderstorm	26-05-17	1900	1930
Yercaud	S India	Tamilnadu(North)	Thunderstorm	26-05-17	2000	2200
Salem	S India	Tamilnadu(North)	Thunderstorm	26-05-17	2030	2130

# Past 24 hours DWR Report:

Radar Station name	Date of Reporting	Time interval of observation (UTC)	Organization of the cells (Isolated single cells/multiple cells/ convective regions/ squall lines) with height of 20 dBZ echo top and maximum reflectivity	Formation w.r.t radar station and Direction of movement	Remarks	Associated severe weather if any	Districts affected
		260502- 260542	1.Isolated cell with average height of 6 Km with maximum reflectivity of 50 dBz	1.E (70Km) moving in SW-ly direction at a speed of 5 Km/hr.	1.Cells started forming at 0500 UTC at E (70 km) from radar. Max reflectivity during 0522 to 0542 and died down at 0600	N/A	N/A
Karaikal	27-05-17	260832- 270100	1.Squall line convective system with average height of 11 km with maximum reflectivity of 95 dBZ	1.N (187 KM) moving in SW-ly Direction at speed of 20 kmph	1. Cells started forming at 0830 UTC at N(187 KM) from radar. Organized into squall line MCS during 1000 to 1530 UTC and disorganised at 1830 UTC	N/A	N/A

Jaipur		261030- 261310	One or two cells with average height of 8.5 km maximum reflectivity 53.0 dBZ	Cell develop 1030 to 1310 UTC of 26/05/17 towards N,,NNE,NE of jaipur and moved to S and SE WARDS at speed 30-36 km/hr	Cells starts forming from 1030 UTC AT NE of Jaipur and reaches maximum refelectivity during 1200- 12300 UTC.	Moderate Thunderstorm at a few plces and isolated places	Jaipur			
	27-05-17 -	261510- 261600	One or two cells with average height of 8.5 km maximum reflectivity 54.5 dBZ	Cell develop 1510 to 1600 UTC of 26/05/17 towards E of jaipur and moved to S and SE at speed 24-30 km/hr	Cells starts forming from 1510 UTC in E of Jaipur and maximum refelectivity during 1510-1540 UTC.	Thunderstorm at a few plces and isolated places	Karauli			
	atnam 27-05-17 260 261 261 261 261	260741- 261231	Multiple cells average height of 12.5 km with maximum reflectivity of 62 dBZ	W (181km) and moving SE ly direction with average speed of 8.4 kmph	Cell started forming at 0741UTC, at W (181km) from Radar the maximum reflectivity during 0741 to 1231 UTC and died down at 1241UTC	Possibility of Thunder storm with Hail and rain with moderate winds	Guntur, Prakasam, Nellore,Kurnool Districts			
		n 27-05-17			260921- 261341	Multiple cells average height of 11.0 km with maximum reflectivity of 63.5 dBZ	NE (250km) and moving SW ly direction with average speed of 38 kmph	Cell started forming at 0921UTC, at NE (250km) from Radar the maximum reflectivity during 0921 to 1341 UTC and died down at 1351UTC	Possibility of Thunder storm with Hail and rain with winds	Visakhapatnam, East and West Godavari Districts
Machilipatnam			260901- 261101	Multiple cells average height of 11.5 km with maximum reflectivity of 64.5 dBZ	SW (225km) and moving SE ly direction with average speed of 12.5 kmph	Cell started forming at 0901UTC, at SW (225km) from Radar the maximum reflectivity during 0901 to 1101 UTC and died down at 1111UTC	Possibility of Thunder storm with hail and rain with winds	Prakasam and Nellore Districts		
		261031- 261931	Covective region in NW and N direction with average height of 13 km with maximum reflectivity of 64.0 dBZ	NW (223km)&N(250Km) and moving SE ly direction with average speed of 15.5 kmph	Covective region in NW(223Km)&N(250Km) direction started forming from Radar and the reflectivities during 1031 to 1931 UTC are :62.0dBZ,63.5Dbz, 64.0dBZ ,etc-and slowly dissipated around19.31UTC .	Possibility of Thunder storm with hail and rain moderate winds	Khamma,SUrysrao pet,Janagaom,Hun makonda,Mahabub abad,Warangal,Nal gonda,etc and Krishna,Guntur, West Godavari and Prakasam Districts			

		262251- 270211	Multiple cells average height of 6.5 km with maximum reflectivity of 60.0 dBZ	NNE (195km) and moving SW ly direction with average speed of 46.0 kmph	Cell started forming at 2251UTC, at NNE (195km) from Radar the maximum reflectivity during 22511 to 0211 UTC and died down at 0221UTC	Possibility of Thunder storm with hail and rain with winds	East and West Godavari and Krishna Districts
		260300- 260600	NO SIGNIFICANT ECHO				
		260600- 260900	Multiple cells max. 51.5 dbz Ht. 9-13 km	NORTH AND NE SECTOR. MOVEMENT SE WARDS		TS/RA	DHARAMSHALA, KULLU, MANDI, UTTARKASHI
		260900- 261200	Multiple cells max. 62.0 dbz Ht. 11-12 km	NE SECTOR. MOVEMENT SE WARDS		TS/RA/HAIL	DASUA, BDAM, SHIMLA, SOLAN, NAHAN, BILASPUR, MANDI, HAMIRPUR, UTTARKASI
Patiala	27-05-17	2601200- 261500	Multiple cells max. 58.0 dbz Ht. 12 km	SE WARDS		TS/RA	- MUSSORRIE,DEH RADUN, KALSI, BEHAT, ROORKEE HARDIWAR, BILASPUR, MANDI.
		261500- 261800	NO SIGNIFICANT				
		261800- 262100	NO SIGNIFICANT ECHO				
		262100- 270000	NO SIGNIFICANT ECHO				
		270000 - 27252	NO SIGNIFICANT ECHO				

		260100  260620	Multiple cells formed one after another with Maximum Height 14 km and maximum reflectivity 44.5 dBZ at 0120 UTC over East Meghalaya	Formed 150 km NE of DWR and moved E- wards at around 25 kmph	Cells dissipated at 0620 UTC over South Assam	Squall with heavy rain occurred.	Cachar, Karimganj & Hailakandi dists. of South Assam.
Agartala	27-05-17	260640 - 261500	Multiple cells formed one after another with Maximum Height 15 km and maximum reflectivity 46 dBZ at 1100 UTC over Bangladesh	Formed 200 km NW of DWR and moved SE- wards at around 20 kmph	Cells dissipated at 1500 UTC over South Tripura	Squall with heavy rain occurred.	Udaipur, Bishalgarh & Belonia dists. of South Tripura.
		260300 - 260310	NIL	NIL	NIL	NIL	NIL
		260310 _ 260510	Multi cell. Maximum Reflectivity : 46.5 dBZ Echo Top : 13 KM	Range: 049 km North from DWR Patna Movement- Eastward	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	Thunderstorm with Squall & Rain	Muzaffarpur, Samastipur, Darbhanga, Kishanganj, Katihar, Purnia, Araria
		260510 - 261420	NIL	NIL	NIL	NIL	NIL
Patna	27-05-17	261420 - 261720	Multi cell. Maximum Reflectivity : 42.50 dBZ Echo Top : 13 KM	Range: 181 km North West from DWR Patna Movement- SE	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	Thunderstorm with Squall & Rain	West Champaran, East Champaran, Gopalganj, Siwan, Seohar, Sitamarhi, Muzaffarpur, Madhubani, Darbhanga
		261620 - 261820	Multi cell. Maximum Reflectivity : 43.50 dBZ Echo Top : 12 KM	Range: 49 km North from DWR Patna Movement- SE	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	Thunderstorm with Squall & Rain	Vaishali, Samastipur, Begusarai, Saharsa.
		261820 - 262040	NIL	NIL	NIL	NIL	NIL

		I		1		1	1
		262040 - 262340	Multi cell. Maximum Reflectivity : 51 dBZ Echo Top : 10 KM	Range: 141km North West from DWR Patna Movement- SE	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	Thunderstorm with Squall & Rain	Buxar,, Bhojpur, Siwan Chapra, Patna, Vaishali, Samstipur, Khagaria, Begusarai Munger, Lakhisarai, Saharsa, Madhepura, Purnia, Bhagalpur.
		262340 - 270040	NIL	NIL	NIL	NIL	NIL
Lucknow	27-05-17	260342- 260432	Single cells with average height of 7.0 KM. Echo tops:6.5KM with Maximum Reflectivity of 48 dBZ	NE(140KM) From LKN Radar and moving in SE'ly direction at speed of 48 km/hr	Single cell started forming at NNE(140KM) from LKN Radar at 0332 UTC did not intensified and dissipated at 0432 UTC at NE(150KM) from LKN Radar.	TS	Baharaich
		261532- 262132	Squall line convective system with average height of 9 KM. with Maximum Reflectivity of 50 dBZ	NNW(150KM) From LKN Radar and moving in SE'ly direction at speed of 74 km/hr	Cells started forming at 1522 UTC at NNW(230 km) from DWR LKN organized into MCS during 1642 UTC to 1952 UTC and disorganized at 2002 UTC into a single cell.the single cell dissipated at 2102 UTC at ESE(200km) from Radar	TS,RAIN	Bareily,shahjahanp ur, lakhimpur kheri,sitapur,bahar aich, lucknow,gonda,bar abanki, faizabad,basti
		26231- 270300	Squall line convective system with average height of 7.5 KM. with Maximum	NNW(150KM) From LKN Radar and moving in SE'ly direction at speed of 43	Cells started forming at 2302 UTC at NW(170 km) from DWR LKN organized into MCS	TS,RAIN	Lucknow,sitapur, shahjahanpur,Hard oi, unnao,Kanpur,gon

			Reflectivity of 48 dBZ	km/hr	during 262332 UTC System remained stable upto 270300 UTC		da,basti, baharaich,baraban ki,faizabad, lakhimpur kheri,raibarelly, amethi,pratapgarh, kannauj, fatehpur
Nagpur	27-05-17	260802- 260832 260942- 261342 261352- 262349	Multiple Multiple Nil	245 km SW 74 km E, moving towords South	Max Z=45 ht of cloud=5.8-9.3km Max Z=49 ht of clould=1.2-8.5km	Thunderstorm warning started at 1122 till 1233 in SE direction 216 Km away from Radar	Isolated places in district of Durg, Betul,Hingoli, Pusad, and Yeotmal.
		270000- 270255	Nil				
		260301- 261000	NIL	NIL	RADAR U/S	NIL	NIL
Kolkata	27-05-17		1.Multicelled system converted to squall line with maximum reflectivity of 66.0 dBz at 1221 UTC and maximum height more than 18 km at 1021 UTC	1.W to NW (200 km) moving in E-ly/ SE-ly direction with a speed of 55 kmph.	1. Multicelled system seen at W to NW at a distance of 200 km from Radar at 1001 UTC. Formed squall line at 1101 UTC Cell no 2 merged at 1121 UTC. Matured and Dissipated at 1801 UTC in W	Hailstorm/Thu nderstorm /Squall/ Rain	N/A
		261001- 261801	2. Single cell converted to multicelled system with maximum reflectivity of 66.5 dBz at 1121 UTC and maximum height more than 18 km at 1001 UTC	2. N (154 km) moving in SE-ly direction with a speed of 46 kmph	2. Single cell seen at N at a distance of 154 km from Radar at 1001 UTC. Converted to multicelled system. Cell no 2 merged at 1121 UTC. Matured and Dissipated at 1542 UTC in ENE	Hailstorm/Thu nderstorm /Squall/ Rain	N/A

	3.Multicelled system with maximum reflectivity of 64.5 dBz at 1101 UTC and maximum height more than 18 km at 1021 UTC	3. NNW (160 km) moving in E-ly/ ESE-ly direction with a speed of23 kmph	3. Single cell seen at NNW at a distance of 160 km from Radar at 1001 UTC. Matured. Merged at 1121 UTC with cell no. 1.	Hailstorm/Thu nderstorm /Squall/ Rain	N/A
261001- 261801	4.Multicelled system with maximum reflectivity of 64.0 dBz at 1121 UTC and maximum height of 16 km at 1121 UTC	4 .N to NE (171 km) with almost no movement.	4. Isolated cells seen and formed from N to NE at a distance of 171 km from Radar since 1001 UTC. Matured. Merged at 1121 UTC with cell no.2	Hailstorm/Thu nderstorm /Squall/ Rain	N/A
261801- 262351	NIL	NIL	NO SIG ECHO	NIL	NIL
270011- 270301	NIL	NIL	NO SIG ECHO	NIL	NIL

