



**India Meteorological Department**  
**FDP STORM Bulletin No.84 (28-05-2017)**

**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 depression over eastcentral Bay of Bengal, which is likely to intensify further into a deep depression during next 12 hours and then into a cyclonic storm during subsequent 24 hours. Conditions are favourable for further advance of southwest monsoon into some parts of southeast Arabian Sea, Maldives area, some more parts of Comorin area, southwest Bay of Bengal and east central Bay of Bengal, remaining parts of southeast Bay of Bengal and some parts of west central and northeast Bay of Bengal during next 24 hours. With the strengthening of westerlies and likely northward shift of the shear zone, conditions are also becoming favourable for further advance of southwest monsoon and its setting in over Kerala and parts of northeastern states around 30th - 31st May 2017.

The depression over central Bay of Bengal moved east-northeastwards with a speed of 40 kmph during past 03 hours and lay centred at 0830 hours IST of today, the 28th May, 2017 over eastcentral Bay of Bengal near Latitude 14.5° N and Longitude 89.5°E, about 900 km nearly south-southeast of Kolkata and 890 km south-southwest of Chittagong. The system is very likely to move northnortheastwards and cross Bangladesh coast between longitude 91.0°E and 92.0°E around 30th May 2017 noon. It is very likely to intensify into a deep depression during next 12 hours and into a cyclonic storm during subsequent 24 hours.

Yesterday's trough at mean sea level from West Rajasthan to the centre of the well marked low pressure area now lies extending from West Rajasthan to centre of depression over eastcentral Bay of Bengal across Madhya Pradesh, Chhattisgarh & Odisha and extends upto 0.9 km above mean sea level.

The upper air cyclonic circulation over Bihar & adjoining Sub-Himalayan West Bengal persists and now seen between 1.5 & 3.1Km above mean sea level.

The trough roughly along Longitude 85.0°E to the north of Latitude 22.0°N persists and now seen at 5.8 km above mean sea level.

The upper air cyclonic circulation over central Pakistan & neighbourhood persists and now extends upto 1.5 km above mean sea level.

The trough from south Madhya Maharashtra to South Interior Karnataka at 0.9 km above mean sea level has become less marked.

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

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

**Convective Activity:**

Cell No	Date/time (UTC)	Location/Area	MIN CTT (- DEG C)	Movement	Remarks
2	28/0900	North Central Bihar	80	-	Developing
3	28/0900	North Central Madhya Pradesh	65		Developing

**Vortex over Bay of Bengal (Bob):**

Vortex seen over EC Bay & neighbourhood has organised now lies centred near 15.2N/90.5E, intensity **T2.0**, associated Broken low/medium clouds with embedded intense to very intense convection were seen over Bay between Lat 10.0N to 20.0N Long 85.0E to 93.0E with minimum CTT minus 93 DEG C.

**Cloud Description:**

Scattered low/medium clouds were seen over rest East Uttar Pradesh and Vidarbha.

Scattered low/medium clouds with embedded moderate to intense convection were seen over East Bihar, Northeast Jharkhand, Central Gangetic West Bengal and North Central Madhya Pradesh.

Broken low/medium clouds with embedded intense to very intense convection were seen over Bay Islands, Central Kerala, Central Coastal Andhra Pradesh and Lakshadweep.

Scattered low/medium clouds with embedded isolated weak to moderate convection were seen over J & K, North Uttarakhand, Central Uttar Pradesh, Northeast Odisha, rest Kerala, Tamilnadu, South Interior Karnataka and Rayalaseema.

**Arabian Sea:**

Scattered low/medium clouds with embedded moderate to intense convection were seen over Southeast Arabian Sea & South of Lat 11.0N.

**Bay of Bengal & Andaman Sea:**

Broken low/medium clouds with embedded intense to very intense convection were seen over Andaman Sea. Scattered low/medium clouds with embedded moderate to intense convection were seen over rest Bay.

**Past Weather:**

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

**OLR:-**

Upto **200**  $\text{wm}^{-2}$  was observed over North Coastal Andhra Pradesh.

Upto **230**  $\text{wm}^{-2}$  was observed over East J&K Himachal Pradesh Uttarakhand Sikkim East Arunachal Pradesh, Nagaland, Manipur, Mizoram Telangana South Interior Karnataka North Kerala North Tamilnadu.

Upto **250**  $\text{wm}^{-2}$  was observed over Vidarbha Chhattisgarh East Bihar Jharkhand Meghalaya Rest Arunachal Pradesh Rest Andhra Pradesh.

**Westerly Trough & Jet-Stream:**

No Trough in Westerlies & Jet Stream observed over India.

**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.

Negative low level convergence is observed over Maharashtra and Positive low level convergence observed over rest parts of India.

**Precipitation:****IMR:**

Rainfall Up to **50** mm was observed over South Mizoram. Rainfall Up to **30** mm was observed over Chhattisgarh Telangana. Rainfall Up to **20** mm was observed over South Interior Karnataka. Rainfall Up to **10** mm was observed over East J&K Uttarakhand North West Uttar Pradesh Vidarbha Odisha Rayalaseema North Coastal Andhra Pradesh Central Tamilnadu Nagaland Manipur Rest Mizoram.

## HEM:

Rainfall Up to **70** mm was observed over South Interior Karnataka South Chhattisgarh South Mizoram Telangana. Rainfall Up to **14** mm was observed over Uttarakhand West Jharkhand North East Chhattisgarh West Arunachal Pradesh. Rainfall Up to **07** mm was observed over Uttar Pradesh Bihar Odisha Assam East Meghalaya Nagaland Manipur Rest Mizoram West Bengal Chhattisgarh South East Madhya Pradesh Vidarbha Andhra Pradesh Tamilnadu Kerala.

## RADAR and RAPID Observation:

DWR Composite at 1640hrs IST indicated strong multiple convection over Uttarakhand, Southeast Bihar adjoining Jharkhand, Odisha scattered convection over Northeast Rajasthan, Tamilnadu and also in RAPID RGB Satellite imagery at 1600hrs IST including East Madhya Pradesh, Sikkim, Manipur, Mizoram, Nagaland, South Interior Karnataka, Central Coastal Kerala, Lakshadweep, Minicoy, Andaman and Nicobar Islands.

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

Not available

## 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-0 to Day-3.

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

**12UTC charts on days from Day1 to Day4:** show a zone of wind discontinuity at 925 hPa; NW-SE extending from Rajasthan to Odisha

**Depression 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/93E.**

### **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 >  $15 \times 10^{-5}$  /s):**

Day0: NE NMMT, Odisha, TN Puducherry,

Day1: NE NMMT, East UP, West UP, Jammu Kashmir, West MP, East MP, Chhattisgarh,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, TN Puducherry,

Day3: NE NMMT, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, West RJ, East RJ, TN Puducherry,

Day4: Assam Meghalaya, Gangetic WB, West UP, Punjab,

### **4. Low level Vorticity:-Positive Vorticity (> $15 \times 10^{-5}$ /s):**

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

Day0: Assam Meghalaya, Jammu Kashmir, TN Puducherry, Kerala,

Day1: Assam Meghalaya, East UP, West UP, Haryana Chandigarh Delhi, East MP, Saurashtra Kutch, TN Puducherry, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, TN Puducherry,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Haryana, Chandigarh, Delhi, Punjab, TN Puducherry,

Day4: Arunachal Pradesh, Assam Meghalaya, Punjab, Saurashtra Kutch, 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, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Gujarat Region, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, SI Karnataka,

Day1: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Gujarat Region, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, TN Puducherry, NI Karnataka, SI Karnataka,

Day2: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Gujarat Region, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, West MP, SI Karnataka,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, Gujarat Region, Coastal AP,

### **6. 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, Bihar, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Gujarat Region, Vidarbha, Chhattisgarh, Coastal AP, Telangana,

Day1: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Gujarat Region, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana,

Day2: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, NI Karnataka, SI Karnataka,

Day3: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP,

Day4: Arunachal Pradesh, Sub Himalayan WB, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, West MP,

## **7. K-Index :-> 35[Very Unstable thunderstorm likely]:**

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

Day0: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Gujarat Region, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, SI Karnataka, Kerala,

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

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

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana Chandigarh 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,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Gujarat Region, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, SI Karnataka,

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

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

Day1: Arunachal Pradesh, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, East RJ, West MP, Andaman Nicobar, Rayalaseema, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day2: Assam Meghalaya, NE NMMT, Bihar, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Andaman Nicobar, TN Puducherry, Coastal Karnataka, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, East UP, Haryana Chandigarh Delhi, Himachal Pradesh, Jammu Kashmir, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, TN Puducherry, Coastal Karnataka, Kerala,

Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, East UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Konkan Goa, Andaman Nicobar, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

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

**1. Weather Systems:** 00 UTC analysis shows the well-marked low pressure over east-central and adjoining west-central BOB concentrated into a depression. The system is likely to intensify further into a deep depression during next 24 hours. It is very likely to move north-northeast wards and reach Bangladesh coast by 48 hours.

**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 3 to 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 to 4 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 Delhi, 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 and AP 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 and over some pocket of Punjab and Delhi during the next 1 day.

**CINE (50-150):** Maximum CIN values are found in areas over some packets over Punjab and Delhi 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, over some pocket of Haryana, Delhi and western UP and is expected to persist for the next 2-3 days.

### 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 and some packet of Haryana and Delhi today and tomorrow.

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

**CAPE (> 1000):** Mostly along Haryana, Delhi, Bihar, Jharkhand, WB, Odisha, AP and TN and along major regions bordering the west coast during next 2 to 3 days.

**CINE (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 and over Delhi and adjoining on day 1.



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

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

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

Presently, the depression over central Bay of Bengal moved eastnortheastwards with a speed of 40 Kmph during past 03 hours and lay centered at 0830 hours IST of today, the 28th May, 2017 over east central Bay of Bengal near Latitude 14.5° N and Longitude 89.5°E, about 900 km nearly south-southeast of Kolkata and 890 km south southwest of Chittagong. The system is very likely to move north northeastwards and cross Bangladesh coast between longitude 91.0°E and 92.0°E around 30th May 2017 noon. It is very likely to intensify into a deep depression during next 12 hours and into a cyclonic storm during subsequent 24 hours. This will give rise to heavy rainfall activity over Andaman Islands on Day-1.

A trough extending from West Rajasthan to centre of depression over east central Bay of Bengal across Madhya Pradesh, Chhattisgarh & Odisha and extends upto 0.9 km above mean sea level. This will give rise to heavy rainfall activity over Coastal Andhra Pradesh on Day-1.

With the strengthening of westerlies and likely northward shift of the shear zone, conditions are also becoming favourable for further advance of southwest monsoon and its setting in over Kerala, the rainfall activity is very likely for Day-1 and Day-2 including South Interior Karnataka.

Due to the upper air cyclonic circulation over central Pakistan & neighborhood, the entire northern parts of country will experience the thunderstorm with hail in Day-1 and Day-2 including Uttar Pradesh and Rajasthan.

##### **24 hour Advisory for IOP:**

Andaman Islands

Kerala, South Interior Karnataka, Telangana, Interior Tamilnadu, Coastal Andhra Pradesh

Himachal Pradesh, Uttarakhand, Punjab, Haryana, West and East Uttar Pradesh, West and East Rajasthan

Orissa, Bihar and Jharkhand, Chhattisgarh

Sub Himalayan West Bengal, Gangetic West Bengal

East Madhya Pradesh

##### **48 hour Advisory for IOP:**

South Assam, Meghalaya, Tripura, Mizoram, Manipur

Kerala, South Interior Karnataka

Himachal Pradesh, Uttarakhand, Punjab, Haryana, West and East Uttar Pradesh, West and East Rajasthan

Orissa, Bihar

Sub Himalayan West Bengal, Gangetic West Bengal

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](http://nwp.imd.gov.in/diagpro_new.php))

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](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](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](http://satellite.imd.gov.in/img/3Ddaily_imr.jpg)

HEM: [http://satellite.imd.gov.in/img/3Ddaily\\_he.jpg](http://satellite.imd.gov.in/img/3Ddaily_he.jpg)

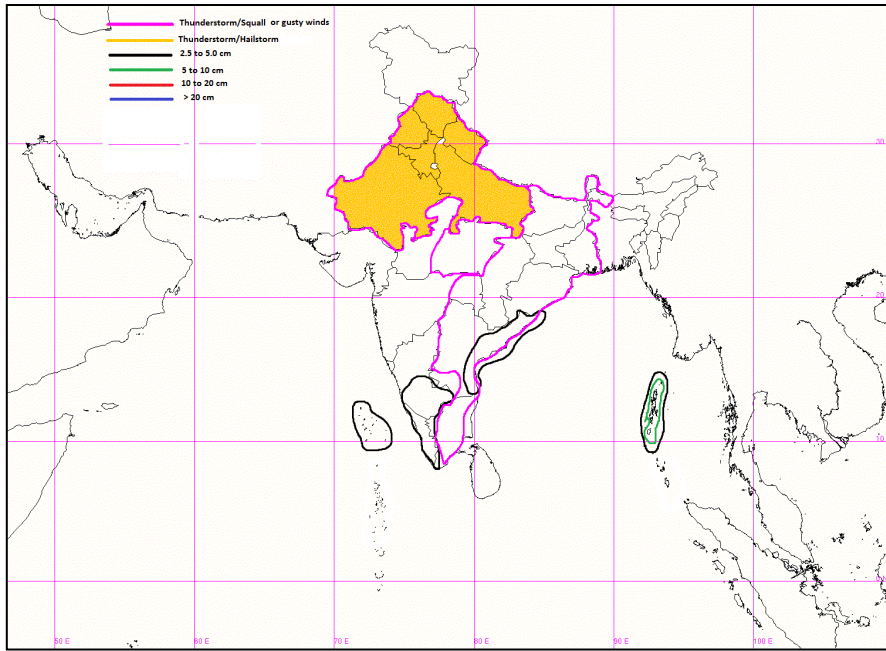
ForRadarimagesofthepast24hoursincludingmosaicofimages:

[http://ddgmui.imd.gov.in/dwr\\_img/](http://ddgmui.imd.gov.in/dwr_img/)

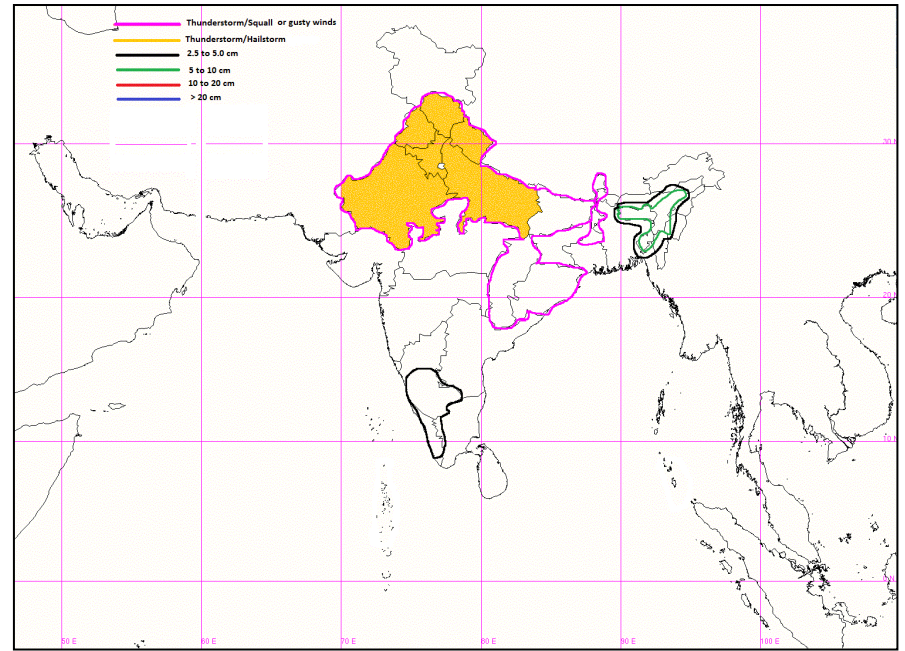
Satellite sounder based T- Phigram

[http://satellite.imd.gov.in/map\\_skm2.html](http://satellite.imd.gov.in/map_skm2.html)

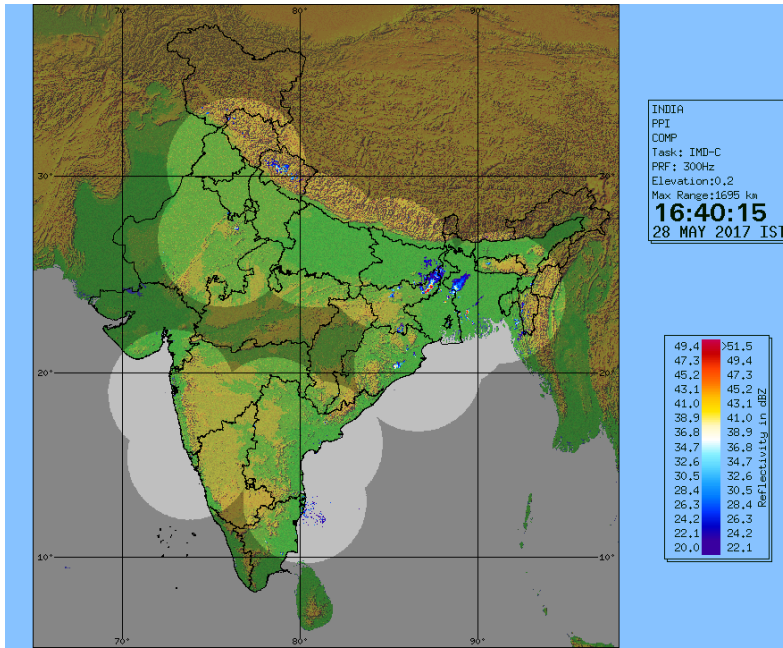




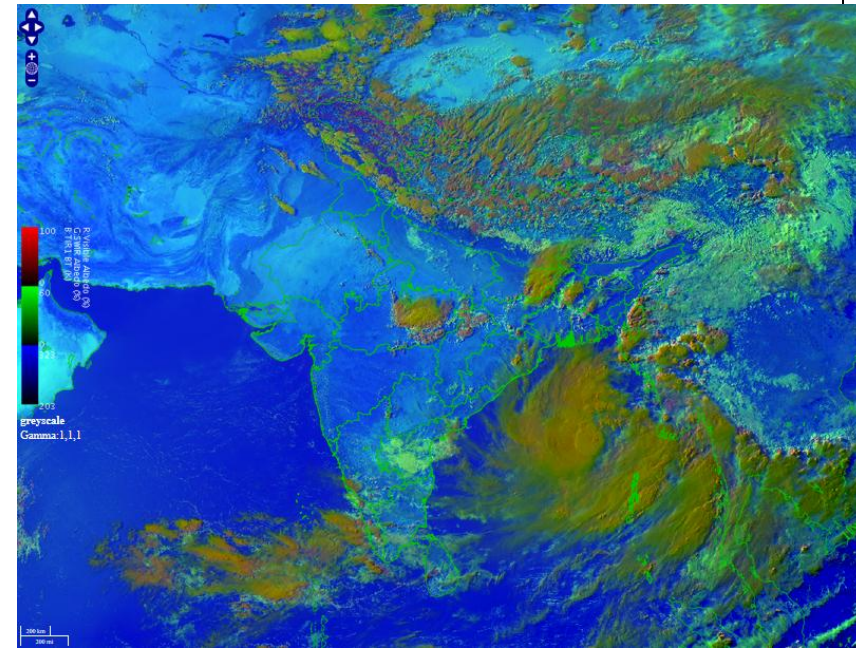
**IOP Advisory for 24 hours**



**IOP Advisory for 48 hours**



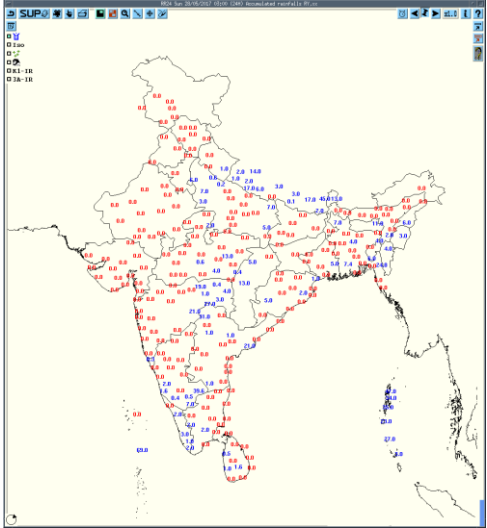
**DWR Composite at 1640 hrs IST of today**



**RAPID RGB Satellite Imagery at 1600 hrs IST of today**

Not Available

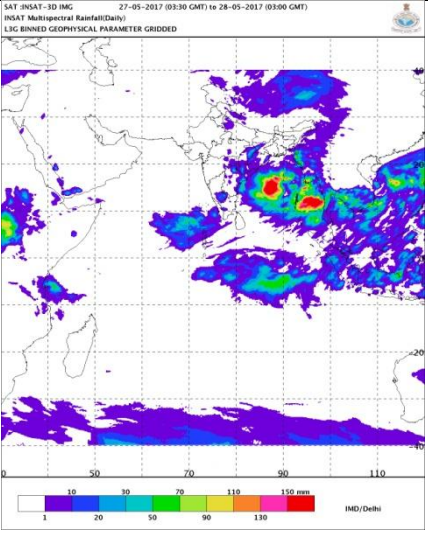
Not Available



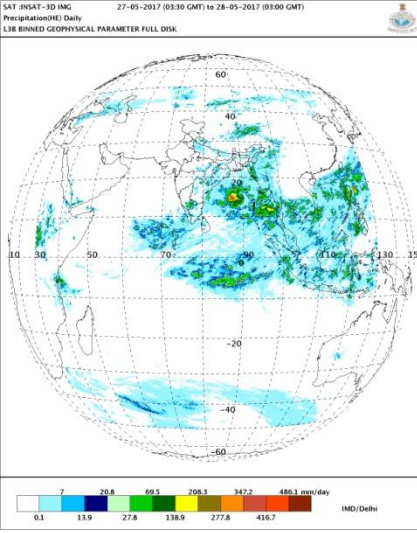
Forecast Dust Concentration for 00UTC of 30<sup>th</sup> May

PM10 Forecast for 00UTC of 30<sup>th</sup> May

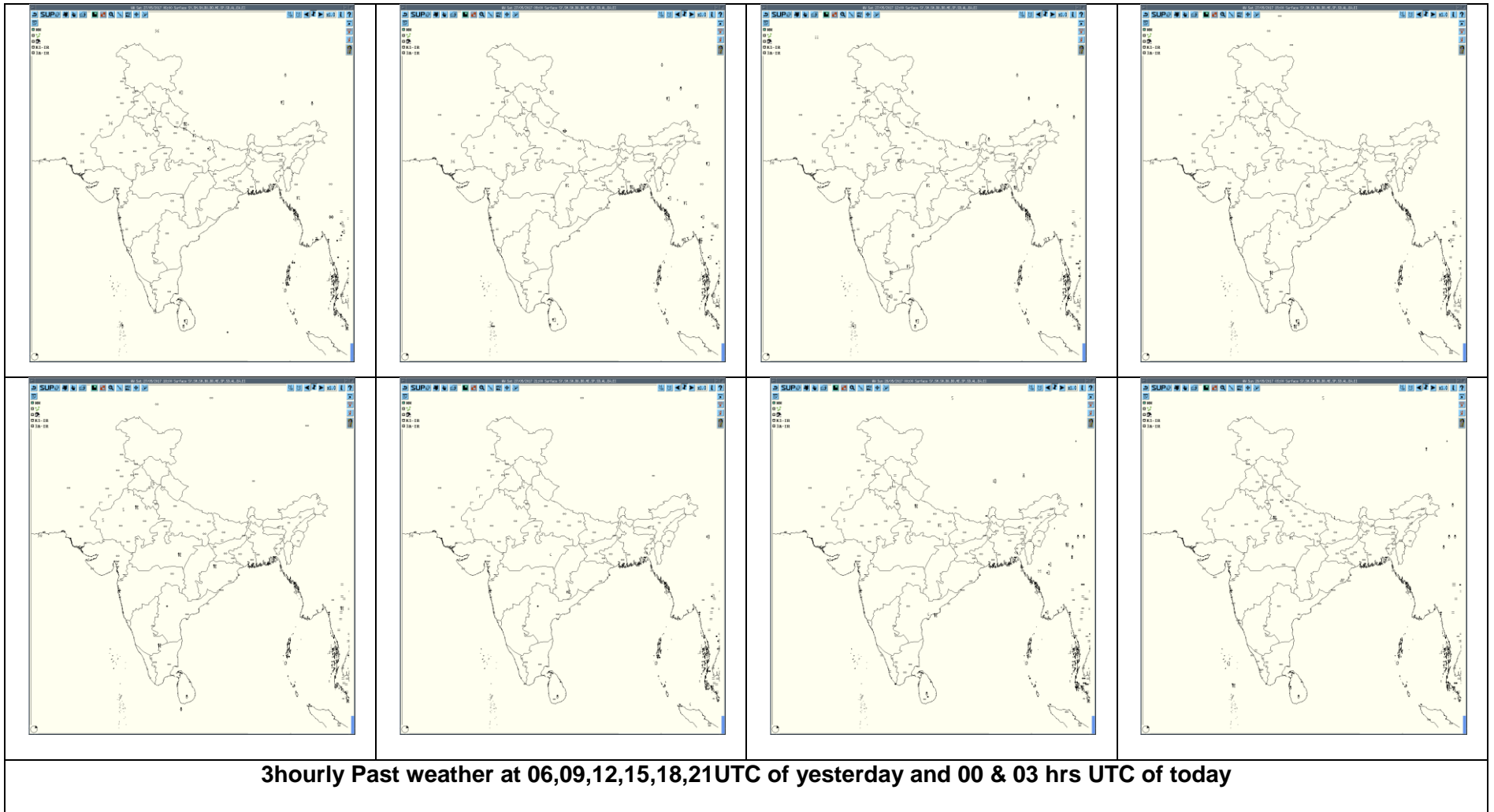
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today



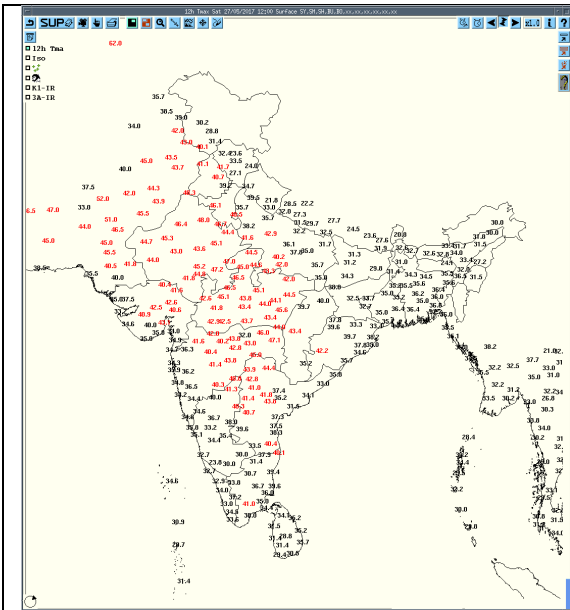
IMR Rainfall



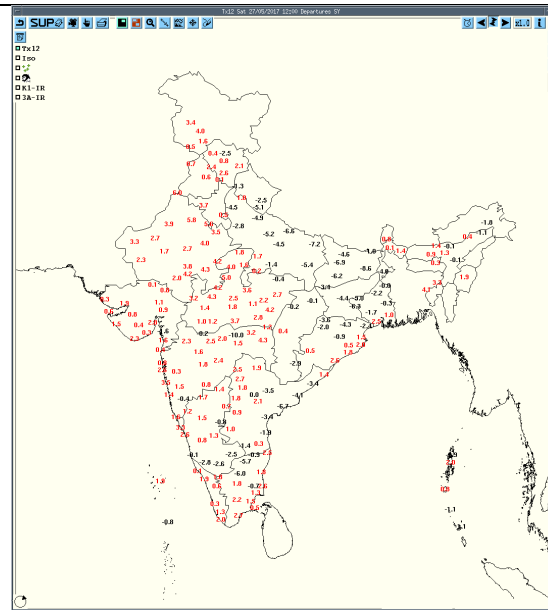
HEM Rainfall



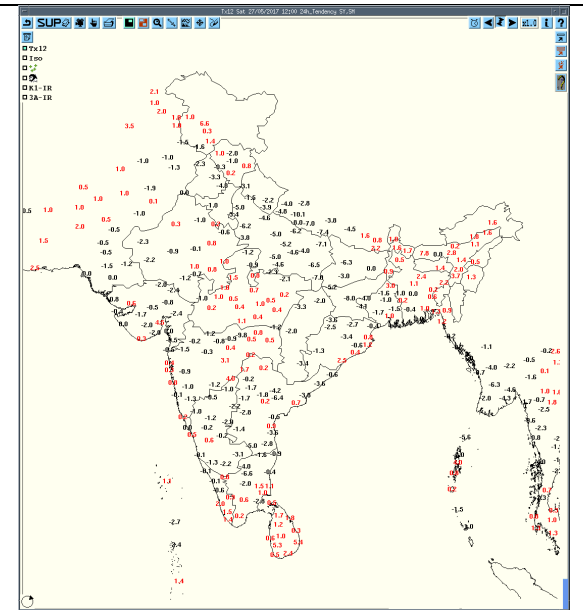
**3hourly Past weather at 06,09,12,15,18,21UTC of yesterday and 00 & 03 hrs UTC of today**



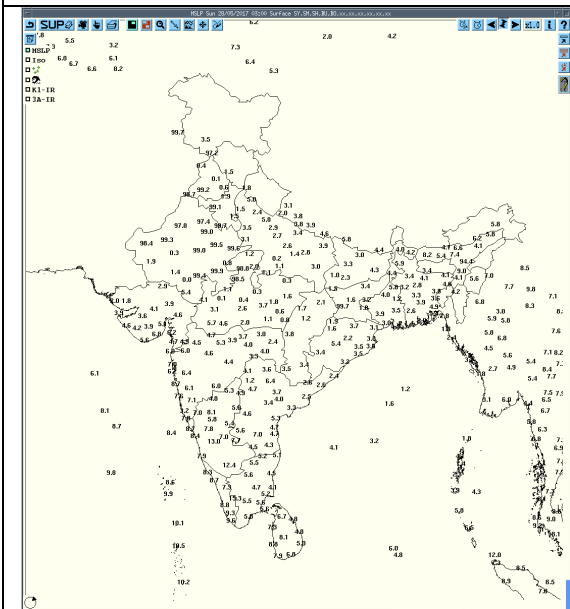
Tmax



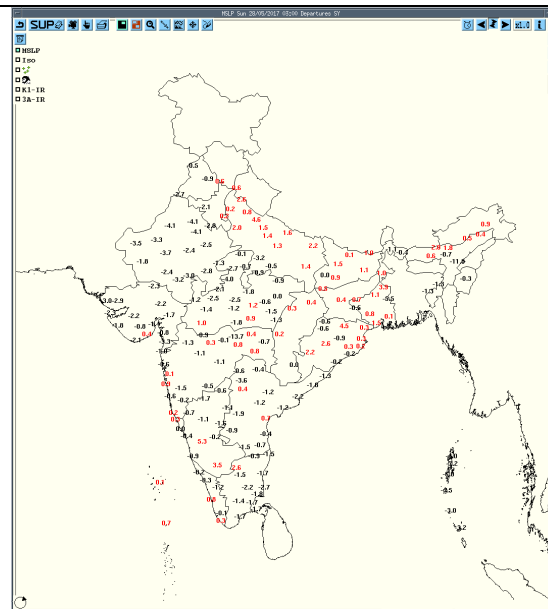
Departure Tmax



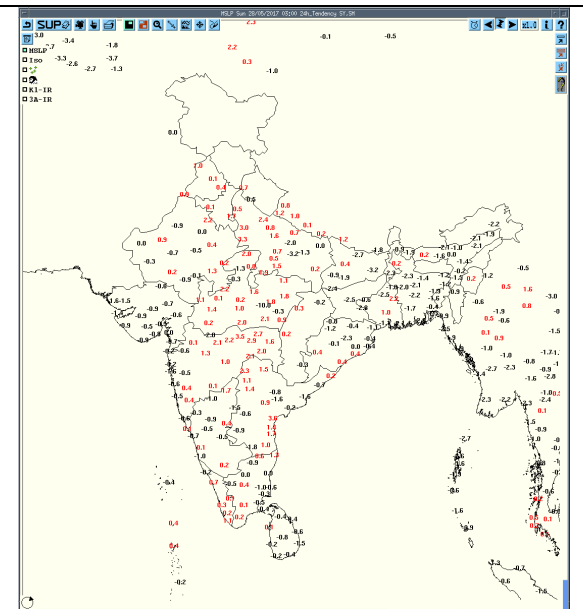
Tendency Tmax



MSLP

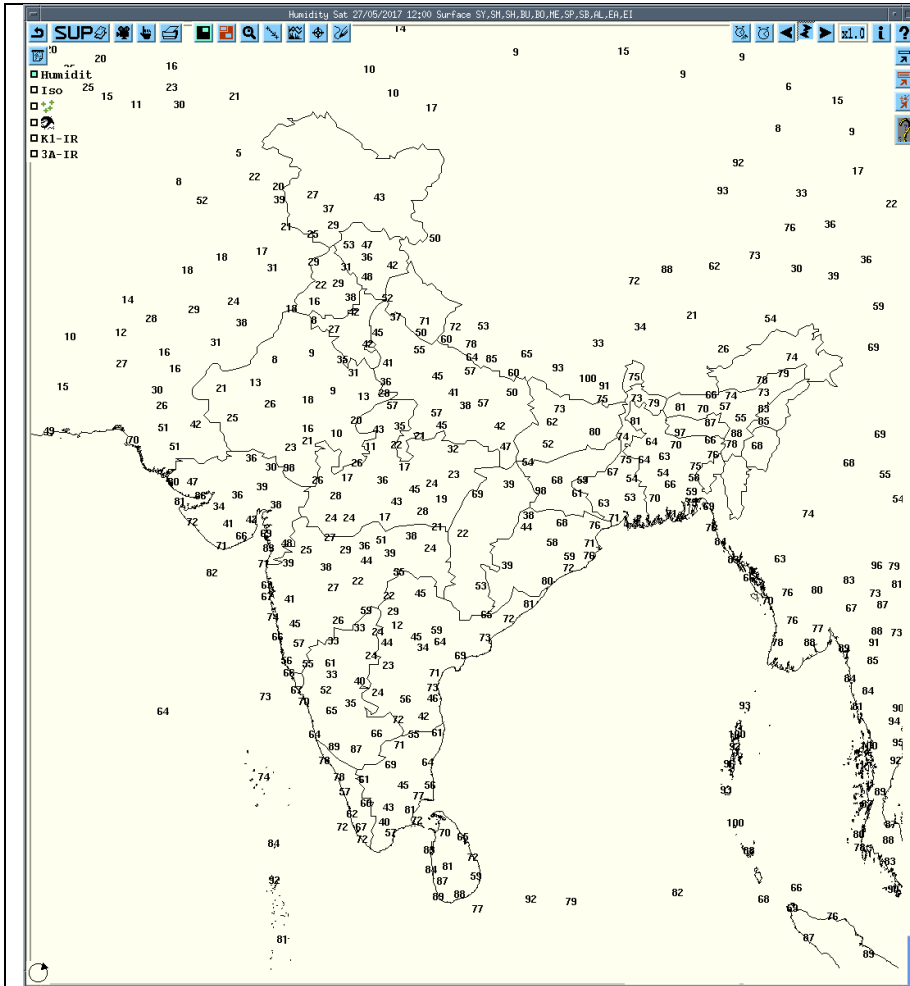


Departure MSLP

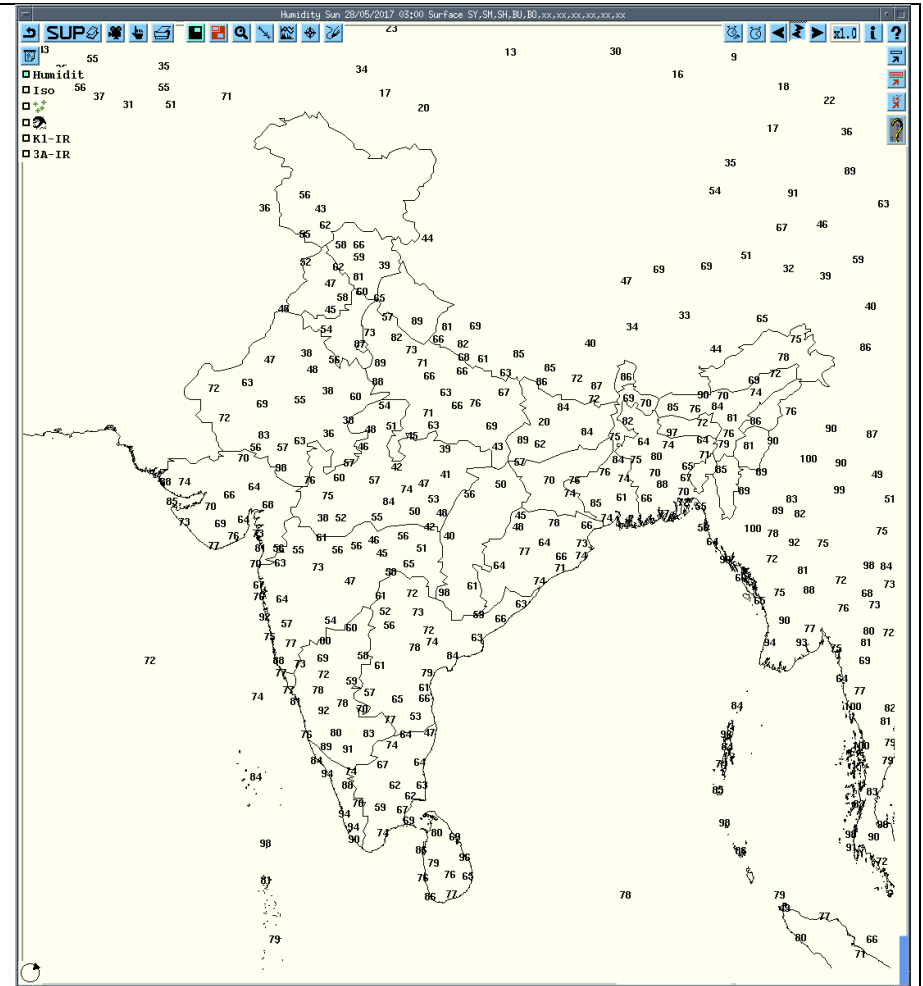


Tendency MSLP





RH at 12UTC yesterday



RH at 03UTC today

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

<b>Realized weather past 24hours (Based on SYNERGIE Products)</b>					
<b>Date</b>	<b>Time of Reporting</b>	<b>Name of Station Reporting</b>	<b>Region</b>	<b>STATE</b>	<b>Weather Event</b>
27-05-17	0600UTC	Nil	Nil	Nil	Nil
27-05-17	0900UTC	Pendra Road	Central India	Chhattisgarh	Thunderstorm
27-05-17	1200UTC	Amritsar	NW India	Punjab	Thunderstorm
		Imphal	NE India	Manipur	Thunderstorm
		Jhansi	NW India	Uttar Pradesh	Thunderstorm
		Pendra Road	Central India	Chhattisgarh	Thunderstorm
		Khammam, Tirupathi	South India	Andhra Pradesh	Thunderstorm
		Bangalore	South India	Karnataka	Thunderstorm
		Kodaikanal	South India	Tamilnadu	Thunderstorm
27-05-17	1500UTC	Pendra Road	Central India	Chhattisgarh	Thunderstorm
27-05-17	1800UTC	Churu	NW India	Rajasthan	Thunderstorm
		Jabalpur	Central India	Madhya Pradesh	Thunderstorm
		Jharsuguda	East India	Odisha	Thunderstorm
		Bangalore	South India	Karnataka	Thunderstorm
27-05-17	2100UTC	Jagdalpur	Central India	Chhattisgarh	Thunderstorm
28-05-17	0000UTC	Sultanpur, Bareilly	NW India	Uttar Pradesh	Thunderstorm
		Narsapur	South India	Andhra Pradesh	Thunderstorm
28-05-17	0300 UTC	Agra	NW India	Uttar Pradesh	Thunderstorm
		Khajuraho	Central India	Madhya Pradesh	Thunderstorm
		Minicoy	South India	Minicoy Islands	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)
Ambala	Northwest India	Haryana	Thunderstorm	27-05-17	2205	2310
Amritsar	Northwest India	Punjab	Thunderstorm	27-05-17	1707	1930
Varanasi(AP)	Northwest India	Uttar Pradesh	Thunderstorm	27-05-17	0835	0950
Varanasi(BHU)	Northwest India	Uttar Pradesh	Thunderstorm	27-05-17	0900	1000
Sultanpur	Northwest India	Uttar Pradesh	Thunderstorm	28-05-17	0500	0530
Kanpur(IAF)	Northwest India	Uttar Pradesh	Thunderstorm	28-05-17	0400	0700
Kanpur(CITY)	Northwest India	Uttar Pradesh	Thunderstorm	28-05-17	0500	0630
Bareilly	Northwest India	Uttarakhand	Thunderstorm	28-05-17	0510	0540
Moradabad	Northwest India	Uttarakhand	Thunderstorm	28-05-17	0245	0430
Najibabad	Northwest India	Uttarakhand	Thunderstorm	28-05-17	0530	0600
Jhansi	Northwest India	Uttar Pradesh	Thunderstorm	27-05-17	1600	1700
Agra(IAF)	Northwest India	Uttar Pradesh	Thunderstorm	28-05-17	0715	0830
Meerut	Northwest India	Uttar Pradesh	Thunderstorm	28-05-17	0230	0300
Muzaffarnagar	Northwest India	Uttar Pradesh	Thunderstorm	28-05-17	0500	0600
Churu	Northwest India	Rajasthan	Thunderstorm	28-05-17	2200	2400
Akola	Central India	Vidarbha	Thunderstorm	27-05-17	1515	1650
Amravati	Central India	Vidarbha	Thunderstorm	27-05-17	1800	2000
Yeotmal	Central India	Vidarbha	Thunderstorm	27-05-17	2000	2200
Gondia	Central India	Vidarbha	Thunderstorm	27-05-17	1915	2030
Jabalpur	Central India	Madhya Pradesh	Thunderstorm	27-05-17	2130	0020
Khajuraho	Central India	Madhya Pradesh	Thunderstorm	28-05-17	0800	0830
Chhindwada	Central India	Madhya Pradesh	Thunderstorm	27-05-17	2200	2345
<b>Raipur</b>	Central India	Chhattisgarh	Thunderstorm	27-05-17	1815	2130
Jagdapur	Central India	Chhattisgarh	Thunderstorm	28-05-17	0140	0440
Pendra Rd	Central India	Chhattisgarh	Thunderstorm	27-05-17	1310	1645
					1715	1945
Bilaspur	Central India	Chhattisgarh	Thunderstorm	27-05-17	1630	2200
DumDum	East India	West Bengal	TS/ Lightning	27-05-17	1740	1830
Jharsuguda	East India	Odisha	Thunderstorm	27-05-17	2045	0015
Port Blair	East India	Odisha	Thunderstorm	27-05-17	1140	1215
					1910	1915
Shillong	Northeast India	Meghalaya	Thunderstorm	27-05-17	1845	1900
Imphal	Northeast India	Manipur	Thunderstorm	27-05-17	1715	1740
Lengpui	Northeast India	Mizoram	Thunderstorm	27-05-17	1820	2050

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)
AMS HAL Bengaluru	South India	Karnataka	Thunderstorm	27-05-17	1730	2320
AMS HAL Bengaluru	South India	Karnataka	<b>Squall( Direction: S, Max. speed 54 Kmph)</b>	27-05-17	1907	1908
AMS HAL Bengaluru	South India	Karnataka	<b>Squall( Direction: S, Max. speed 84Kmph)</b>	27-05-17	1911	1912
Bengaluru city	South India	Karnataka	Thunderstorm	27-05-17	1905	2340
Yelahanka IAF	South India	Karnataka	Thunderstorm	27-05-17	1745	2330
Bengaluru KIAL	South India	Karnataka	Thunderstorm	27-05-17	1900	2230
CIAL Kochi	South India	Kerala	Thunderstorm	27-05-17	2100	2300
Thiruvananthapuram AP	South India	Kerala	Thunderstorm	27-05-17	1135 2109	1310 2235
Minicoy	South India	Minicoy Islands	Thunderstorm	27-05-17	2330	2400
Minicoy	South India	Minicoy Islands	Thunderstorm	28-05-17	0000	0300
Nizamabad	South India	Andhra Pradesh	Thunderstorm	27-05-17	1830	2400
Ramagundam	South India	Andhra Pradesh	Thunderstorm	27-05-17	2100	2200
Hyderabad	South India	Andhra Pradesh	Thunderstorm	27-05-17	2210	2300
Narsapur	South India	Andhra Pradesh	Thunderstorm	28-05-17	0420	0700
Tirupathi AP	South India	Andhra Pradesh	Thunderstorm	27-05-17	1730	1830

**Past 24 hours DWR Report:**

Radars Station Name	Date	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
Patiala	28-05-2017	27 MAY 0300 UTC- TO 0900 UTC	NO ECHO	-----,	-----	-----	-----
		27 MAY 0900 UTC- TO 1200 UTC	Multiple Cells Max. 60.5 dBZ Ht. 12-14 Km	NE SECTOR. MOVEMENT SE WARDS	-----		Uttarkashi, Gangotri, Rampur
		27 MAY 1200 UTC TO 1500 UTC	Multiple Cells Max. 58.5 dBZ Ht. 12-14 Km	NE SECTOR. MOVEMENT SE WARDS	-----	TS/RA	Uttarkashi, Gangotri, Bhunter, Amritsar
		27MAY 1500 UTC- TO 1800 UTC	Multiple Cells Max. 45.5 dBZ Ht. 8-10 Km	NE SECTOR. MOVEMENT SE WARDS			Ambala, Saharanpur
		27 MAY 1800 UTC- TO 2100 UTC	Multiple Cells Max. 43.0 dBZ Ht. 9-10 Km	SE SECTOR. MOVEMENT SE WARDS	-----	-----	Hardwar, Roorkee
		27MAY 2100 UTC- TO 0000 UTC	Multiple Cells Max. 58.5 dBZ Ht. 10-12 Km	SE SECTOR. MOVEMENT SE WARDS	-----	-----	Karnal, Pehowa, Saharanpur, Jind
		28 MAY 0000 UTC- TO 0252 UTC	Multiple Cells Max. 56.5 dBZ Ht. 10-12 Km	SE SECTOR. MOVEMENT SE WARDS	-----	-----	Delhi, Jind, Roorkee, Rohtak
Lucknow	28-05-17	270300UTC to 270530UTC	Multiple cells with height of 8Kms echo top and maximum reflectivity was 32dBz	100 Kms WNW and moving WNWly direction	Cells started forming at 0252UTC	TS/Squall	Hardoi, Sitapur, Barabanki and Faizabad
		272352UTC to 280042UTC	Multiple cells with height of 8Kms echo top and maximum reflectivity was 27dBz	125 Kms WNW from and moving WNWly direction	Cells started forming at 2342 UTC	TS/Squall	Kanpur and Unnao

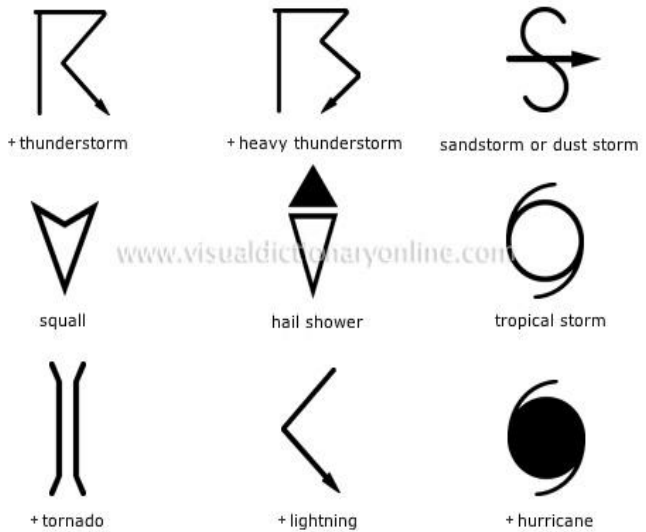
Radar Station name	Date	Time interval of observation (UTC)	Organization of the cells	Formation w.r.t radar station and Direction of movement	Remarks	Associated severe weather if any	Districts affected
Nagpur	27/05/17	0722-2042	Multiple	100 km N, moving S'y & SE'y...dissipates 240 km in SSE	43.50dBZ, cloud ht.=3.5-8.1 km.. At 0822, 48dBZ, cloud ht.=1.5-4.7 km.. At0942, 57dBZ, cloud ht.=5.6-6.5 for rest till 9.3 km... At1122,54.50 dBZ, cloud ht.=3.5-7.5 km	Hail warning at 0942 & 1122  Thunderstorm warning started at 0822 and continuous till 1832	At 0942=55 km NE At 1122=55 km SE  Mostly in region SSW,WSW, sometimes NE & NW
		0752-2052	Multiple	125 km WWS, moving S'y & SE'y, out of radar range in SW	At 0822, 46.50dBZ, cloud ht.=2.5-7 km.. At 1152, 52.50dBZ,cloud ht.=4.5-5.8 km	Rain occurs all around radar range except 150 to 250 km in W & WWN direction	
		0822-1352	Multiple	150 km SSW, moving S'y & SE'y, out of radar range in S	At 0922,41.50dBZ,cloud ht.=2.5-5.8 km At 1032, 54dBZ, cloud ht.=5-6.5 km..		
		0902-2352-0252(28/5/17)	Multiple	Coming from N & NW, moving S'y & SE'y	At1312, 44dBZ, cloud ht.=3.5-5.8 km.. At 1602, 51dBZ, cloud ht.=3-4.7 km..		
	28/05/17	0000-0302	Nil				
Srinagar	28/05/17	27MAY 03Z to 28May 03Z(24hrs)	1. Isolated cells developed at 0940utc in SW direction with max. reflectivity 45-50 dBZ and average height 7Km	Moves SE and dissipated at 1710 UTC	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
Kolkata	27-05-2017	0301-0622	NIL	NIL	NO ECHO	NIL	NIL
		0631-1331 UTC	1.Single cell with maximum reflectivity of 56.0 dBz at 0641 UTC and maximum height 7.8 km at 0641 UTC	1.SE (162.6 km) almost no movement	1. Single cell developed at SE at a distance of 162.6 km from Radar at 0631 UTC. Not matured and Dissipated at 0721 UTC in SE	Thunderstorm / Rain	N/A
			2.Single cell with maximum reflectivity of 59.5 dBz at 0731 UTC and maximum height 11.4 km at 0651 UTC	2.SE (118.4 km) almost no movement	2. Single cell developed at SE at a distance of 118.4 km from Radar at 0641 UTC. Not matured and Dissipated at 0751 UTC in SE	Thunderstorm / Rain	N/A
			3 .Isolated single cells with maximum reflectivity of 57.5 dBz at 0911 UTC and maximum height 11.6 km at 0911 UTC	3.SE (114 km) almost no movement	3. Isolated single cells started developing at E to SE at a distance of 114 km from Radar at 0731 UTC. Not matured and Dissipated at 0951 UTC in ESE	Thunderstorm / Rain	N/A
			4 .Isolated single cells with maximum reflectivity of 58.5 dBz at 1220 UTC and maximum height 8.96 km at 1131 UTC	4.S to NE (Between 10 to 53 km) almost no movement	4. Isolated single cells started developing at S to NE at a distance between 10 km to 53 km, from Radar from 1001 UTC. Not matured and Dissipated at 1331 UTC in ENE	Thunderstorm / Rain	N/A
	27-05-2017	1341-1921 UTC	NIL	NIL	NO ECHO	NIL	NIL
	27-05-2017	1921-2021 UTC	5.Multicelled system with maximum reflectivity of 56.5 dBz at 2001 UTC and maximum height 7.35 km at 1941 UTC	5.NNE (168 km) almost no movement	5. Multi celled system developed at NNE at a distance of 168 km from Radar at 1921 UTC. Not matured and Dissipated at 2021 UTC in NNE	Thunderstorm / Rain	N/A
		2031-2352 UTC	NIL	NIL	NO ECHO	NIL	NIL
	28-05-2017	0001-0301 UTC	NIL	NIL	NO ECHO	NIL	NIL











Radars Station name	Date	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
Agartala	28/05/17	270642 - 270802	cell formed over Agartala with Maximum Height <b>6 km</b> and maximum reflectivity <b>42 dBZ at 0722 UTC</b>	Formed 06 km NE of DWR and moved SE-wards at around 18 Kmph.	Cells dissipated at 0832 UTC over Agartala.	N/A	N/A
		270612 - 271922	Multiple cells formed at 270612 UTC over SE Mizoram and BD with Maximum Height <b>16 km at 271052 UTC</b> and maximum reflectivity <b>50 dBZ at 271102 UTC.</b>	Formed 250 km SSE of DWR and moved NE-wards at around 50 Kmph	Cells dissipated at 271922 UTC over Assam Silchar.	N/A	N/A
		272102 - 280142	Multiple cells with Maximum Height <b>16 km at 272312 UTC</b> and maximum reflectivity <b>50 dBZ at 272312 UTC</b>	Formed 250 km NW of DWR and Movement is Stationary..	Cells dissipated at 280142 UTC over Bangladesh.	N/A	N/A
Patna	28/05/17	270520 - 270820	Multi cell. Maximum Reflectivity : 40.0 dBZ Echo Top : 07 KM	Range: 122.8km North West from DWR Patna Movement- South East	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	Thunderstorm/rain/hail /gusty wind	Buxar,, Bhojpur, Siwan, Vaishali, Gopalganj, Saran, Patna
		280245 - 280545	Multi cell. Maximum Reflectivity : 49.50 dBZ Echo Top : 11.6 KM	Range: 167 km North West from DWR Patna Movement- SE	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	Thunderstorm/rain/gusty wind	West Champaran, East Champaran, Gopalganj, Siwan, Seohar, Sitamarhi, Muzaffarpur,

<b>Radar station name</b>	<b>Date</b>	<b>Time interval of observation (UTC)</b>	<b>Organization of the cells (Isolated single cells/ multiple cells/ convective regions/squall lines) with height of 20 dBZ echo top and maximum reflectivity.</b>	<b>Formation w.r.t. Radar station and Direction of movement</b>	<b>Remarks</b>	<b>Associated severe weather if any</b>	<b>Districts affected</b>
Jaipur	28/05/17	1012-1332 UTC	Multiple cells with average height of 6.0 km maximum reflectivity 50.0 dBZ	Cell develop 1012 to 1332 UTC of 28/05/17 towards E,NE,N of Jaipur and moved to SE WARDS at speed 16-27 km/hr	Cells starts forming from 1012 UTC AT E, NE, W of Jaipur and reaches maximum reflectivity during 1012-1200 UTC. And died down 1132 UTC	Thunderstorm at a isolated places	Alwar, Bharatpur, Karauli Districts
	28/05/17	1332-1512	NO DATA	LIGHT CUT	FROM 1332 TO 1512 UTC		
	28/05/17	1512-2002 UTC	One or two cells with average height of 7.0 km maximum reflectivity 52.0 dBZ	Cell develop 1512 to 1642 UTC of 28/05/17 towards NE of Jaipur and moved to SE at speed 16-24 km/hr	Cells starts forming from 1512 UTC in NE OF JAIPUR of Jaipur and maximum reflectivity during 1512-1612 UTC.& died down 2002 UTC	Thunderstorm at a few places and isolated places	Alwar, Bharatpur
	28-05-17	2022-0022 UTC	One cell with height of 7.0 km maximum reflectivity 48.0 dBZ	Cell develop 2022 UTC of 27/05/17 towards West wards of Jaipur and moved SE at speed 06 TO 24 km/hr	Cell starts forming from 2022 UTC w of Jaipur and maximum reflectivity during 2300-0002 UTC and died down 0022 UTC	Thunderstorm at isolated places	Jhunjhunu, Alwar, Bharatpur District





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