



**India Meteorological Department**  
**FDP STORM Bulletin No.98 (11-06-2017)**

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

Southwest monsoon has further advanced into some more parts of central Arabian Sea, Konkan, Madhya Maharashtra, north interior Karnataka and coastal Andhra Pradesh and most parts of Rayalaseema, entire south Interior Karnataka and some more parts of central & North Bay of Bengal. The Northern Limit of Monsoon (NLM) passes through Lat. 18°N / Long. 60°E, Lat 18°N/Long 65°E, Lat 18°N/Long 70°E, Srivardhan, Mahabaleshwar, Bijapur, Kurnool, Ongole, Lat 16°N/Long 85°E, Lat. 21°N/ Long 90°E, Agartala, William Nagar, Kokrajhar and Lat. 27°N/Long 90°E.

Favorable conditions are developing for further advance of southwest monsoon into some more parts of central Arabian Sea, Konkan, Madhya Maharashtra, north interior Karnataka, some parts of Marathwada, Telangana and some more parts of coastal Andhra Pradesh, central & north Bay of Bengal, remaining parts of Tripura and Assam & Meghalaya and some parts of West Bengal & Sikkim and Odisha during next 2-3 days.

The low pressure area over northern parts of central Bay of Bengal and adjoining North Bay of Bengal now lies as a well marked low pressure area over northwest Bay of Bengal & neighbourhood. Associated upper air cyclonic circulation extending upto mid tropospheric levels tilting south-westwards with height persists. It is likely to concentrate into a depression during next 48 hours.

The trough at mean sea level from north Rajasthan to north Andaman Sea now runs from north Rajasthan to east central Bay of Bengal across south Uttar Pradesh, Chhattisgarh, Jharkhand, Gangetic West Bengal and centre of the well marked low pressure area and extends upto 0.9 Km above mean sea level.

The shear zone now runs roughly along Lat.18.0°N between 3.1 & 5.8 Km above mean sea level.

The upper air cyclonic circulation over central Pakistan & adjoining West Rajasthan extending upto 2.1 Km above mean sea level persists.

The western disturbance as an upper air cyclonic circulation over north Pakistan and adjoining Jammu & Kashmir, now lies over Jammu & Kashmir and neighbourhood at 3.1 km above mean sea level with a trough aloft, now runs roughly along longitude 78.0°E and north of latitude 30.0°N.

An upper air cyclonic circulation lies over Haryana & neighbourhood at 1.5 Km above mean sea level.

The off shore trough from south Maharashtra coast to north Kerala coast, now runs from Maharashtra coast to Kerala coast.

The upper air cyclonic circulation over southeast Bihar & neighbourhood extending upto 1.5 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):**

#### **VORTEX:**

Vortex seen over NE Bay of Bengal centred within half a degree of Lat 20.0/90.7E, intensity T1.0, associated broken low/medium clouds with embedded intense to very intense convection were seen over Central adjoining North Bay with minimum CTT minus 93 DEG C.

#### **WESTERN DISTURBANCE (WD):**

Scattered multi-layered clouds were seen over East J & K, Himachal Pradesh and Uttarakhand in association with WD over the area.

Scattered multi-layered clouds were seen over N Caspian Sea and neighbourhood in association with another WD over the area.

#### **Cloud Description:**

Scattered low/medium clouds were seen over rest J & K, Haryana and Uttar Pradesh. Broken low/medium clouds with embedded moderate to intense convection were seen over Bihar, Odisha, East Sub Himalayan West Bengal, Assam, Nagaland, Manipur, Mizoram, North Vidarbha, Marathwada, Konkan & Goa, South Gujarat, exterior Southeast Madhya Pradesh, North Coastal Andhra Pradesh, Telangana, Coastal Karnataka and Lakshadweep Islands. Scattered low/medium clouds with embedded isolated weak to moderate convection were seen over Jharkhand, West Sub Himalayan West Bengal, Gangetic west Bengal, Tripura, Chhattisgarh, Broken low/medium clouds with embedded weak to moderate convection were seen over Interior Karnataka, Rayalaseema and Kerala.

**Arabian Sea:** Broken low/medium clouds with embedded intense to very intense convection were seen over EC & SE Arabian Sea.

#### **Bay of Bengal & Andaman Sea:**

Broken low/medium clouds with embedded weak to moderate convection were seen over rest Bay and North Andaman Sea.

#### **Past Weather:**

**Convection:-** Intense convection was observed over coastal Odisha N coastal Andhra Pradesh Tripura & Mizoram.

Moderate to Intense convection was observed over Gujarat Madhya Pradesh Maharashtra Punjab Himachal Pradesh J&K.

Light to Moderate convection was observed over rest parts of the country.

#### **OLR:-**

Upto **100 to 150**  $\text{wm}^{-2}$  was observed over N coastal Andhra Pradesh S coastal Odisha. Upto **200**  $\text{wm}^{-2}$  was observed over Maharashtra S Chhattisgarh Odisha Telangana coastal Andhra Pradesh Meghalaya S Assam Tripura Mizoram.

Upto **230**  $\text{wm}^{-2}$  was observed over rest south central & east parts of India.

**Westerly Trough & Jet-Stream:** Westerly trough runs roughly along longitude 74.0°E and north of latitude 32°N.

No Jet Stream observed over India.

#### **Dynamic Features:**

Medium to High wind shear is observed over N & S India while low. Wind shear is observed over central India.

Positive shear tendency is observed over the India.

A positive Vorticity field is observed over S Gangetic West Bengal S coastal Karnataka Madhya Maharashtra.

Negative low level convergence is observed over coastal Andhra Pradesh Uttarakhand Uttar Pradesh Bihar SHWB Sikkim Assam Arunachal Pradesh and positive low level convergence observed over rest parts of India,

#### **Precipitation:**

##### **IMR:**

Rainfall Up to **150** mm was observed over S coastal Odisha.

Rainfall Up to **130** mm was observed over NE Tripura and Mizoram.

Rainfall from 70 mm to 110 mm was observed over Vidarbha Marathwada S Madhya Pradesh S Chhattisgarh rest Odisha E Bangladesh Meghalaya S Assam W Nagaland W Manipur.

Rainfall Up to **10** mm was observed over J & K Punjab W Himachal Pradesh rest Madhya Pradesh W Gujarat rest Maharashtra Telangana rest NE States and most parts of Karnataka Tamilnadu.

## HEM:

Rainfall Up to **347** mm was observed over S coastal Odisha and N Mizoram. Rainfall Up to **139** mm was observed over Maharashtra NW Telangana S coastal Karnataka S Chhattisgarh rest Odisha Meghalaya Tripura S Assam.

Rainfall Up to **14** mm was observed over Punjab SW J & K W Gujarat Madhya Pradesh Telangana Andhra Pradesh Kerala Tamilnadu rest Chhattisgarh and rest NE States except Arunachal Pradesh.

## RADAR and RAPID Observation:

DWR Composite at 1700hrs IST indicated strong convection over West Maharashtra, North Telangana, North Coastal Andhra Pradesh and significant isolated convection over Jharkhand, North Coastal Odisha.

RAPID RGB Satellite imagery at 1630hrs IST indicated significant convective clouds over West Bihar adjoining Jharkhand, Chhattisgarh, Odisha, Assam, East Meghalaya, NMMT, Saurashtra, Telangana, North coastal Andhra Pradesh, East Maharashtra and Lakshadweep.

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

Higher Dust concentration was observed over North Africa and IGP region of India. Dust concentration is expected to remain high over north India for next five days. High PM10 concentration was observed over Northern and eastern part of the country, it is expected to decrease in the eastern part but remain high over northern part for next five days.

## **2. NWP MODEL GUIDANCE:**

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

#### **1. Weather Systems:**

**12UTC Charts of Day 1-4** show evolution of heat low over NW India and adjoining Pakistan with MSLP values lower than 992hPa on Day-1 to Day-4.

**12UTC charts on days from Day 0-2:** show a zone of wind discontinuity at 925 hPa; W-E extending from MP to Jharkhand CYCIR over Head Bay of Bengal in Day0 is less marked. It is seen to persist, moving northwards over Bangladesh with slight intensification till Day-1.

Feeble Western Disturbance is seen over northern parts of J&K in Day 0-4

**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:**

Day0: Arunachal Pradesh,

Day1: Arunachal Pradesh,

Day2: Jharkhand, West MP, Chhattisgarh,

Day3: Haryana Chandigarh Delhi, Punjab,

Day4: Assam Meghalaya, Bihar, West MP, Vidarbha

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

**(Day/Index: Subdivisions with Lower Level Vortex > 15 x 10<sup>-5</sup> /s):**

Day0: Assam Meghalaya, NE NMMT, West MP, TN Puducherry, Kerala,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Himachal Pradesh, TN Puducherry, Kerala,

Day2: Assam Meghalaya, Uttarakhand, Himachal Pradesh, West MP, TN Puducherry, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Uttarakhand, Himachal Pradesh, TN Puducherry,

Day4: Assam Meghalaya, Uttarakhand, Himachal Pradesh, TN Puducherry, Kerala

**5. Showalter Index: -3 to -4[Very unstable]: (Day/Index: Subdivisions with Showalter Index < -4):**

Day0: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Jharkhand, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN, East RAJASTHAN, Odisha, West MP, East MP, Gujarat region, Saurashtra Kutch, Madhya Maharashtra, Vidarbha, Chhattisgarh,

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

Day2: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Gujarat region, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana,

Day3: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Gujarat region, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Telangana,

Day4: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, West Rajasthan, East RAJASTHAN, Odisha, West MP, East MP, Gujarat region, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, NI Karnataka,

**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, Haryana Chandigarh Delhi, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN, East RAJASTHAN, Odisha, West MP, East MP, Gujarat region, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, NI Karnataka,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jharkhand, Bihar, East UP, Uttarakhand, Haryana Chandigarh Delhi, Himachal Pradesh, Jammu Kashmir, West Rajasthan, East Rajasthan, Odisha, West MP, East MP, Gujarat region, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Telangana, NI Karnataka,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan, East Rajasthan, Odisha, West MP, East MP, Gujarat region, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Rayalaseema, TN Puducherry,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, West Rajasthan, East Rajasthan, Odisha, West MP, East MP, Gujarat region, Saurashtra Kutch, 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, Himachal Pradesh, Jammu Kashmir, West Rajasthan, East Rajasthan, Odisha, West MP, East MP, Saurashtra Kutch, 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, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN, East RAJASTHAN,

Day1: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN, East RAJASTHAN, Saurashtra Kutch,

Day2: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN, East RAJASTHAN, West MP, East MP, Gujarat region, Chhattisgarh,

Day3: Arunachal Pradesh, Sub Himalayan WB, Bihar, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West MP, East MP, Gujarat region, Vidarbha, Chhattisgarh,

Day4: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana Chandigarh Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan, East RAJASTHAN, Odisha, West MP, East MP, Gujarat region, Vidarbha, Chhattisgarh

**8. Rainfall and thunder storm activity: (Day/Index: Subdivisions with Precipitation > 2 cm):**

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Gangetic WB, Odisha, Gujarat region, Konkan Goa, Madhya Maharashtra, Marathwada, Telangana, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jammu Kashmir, Gujarat region, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jammu Kashmir, Gujarat region, Konkan Goa, Madhya Maharashtra, Marathwada, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Jammu Kashmir, Gujarat region, Konkan Goa, Madhya Maharashtra, Marathwada, Coastal AP, Telangana, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Jammu Kashmir, Odisha, West MP, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala

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

**1. Weather Systems:**

The analysis based on 00 UTC show a low level CYCIR over north Bay of Bengal and a trough extends from east UP to the CYCIR. Forecasts show that the CYCIR over north Bay of Bengal moves northward and lies over Bangladesh on day2 and the trough extends from west UP to the centre of CYCIR. The CYCIR becomes less marked on day3.

**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.

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

The high vorticity belts are mainly over the Gangetic plains, foot hills of Himalaya, south peninsula and parts of the north eastern states.

**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):** Over most parts of the country except J&K, Gangetic West Bengal and south peninsula during next 5 days.

**Lifted Index (< -2):** Less than threshold value over most parts of the country except J&K, HP, Uttarakhand, parts of central India and south peninsula during next 5 days.

**Total Total Index (> 50) :** Greater than threshold value over northwest India and parts of Gangetic plain and central India during next 5 days.

**Sweat Index (> 300):** Higher than threshold value almost all over the country except parts of NW India and Gangetic plain.

**CAPE (> 1000):** Mostly over parts of Rajasthan, Gujarat, central parts of India, West Bengal, Bihar and parts of Odisha.

**CIN (50-150):** Mostly all over the country except parts of south peninsula, J&K and western parts of Gangetic plain during next 48 hours.

### **5. Rainfall and thunderstorm activity:**

20-70 mm rainfall: over Sub- Himalayan West Bengal and parts of NE states during next five days with very heavy rainfall (70-130 mm) over: Sub- Himalayan West Bengal and adjoining areas on day2.

20-70 mm rainfall: over parts of Maharashtra during next 4 days and coastal Andhra Pradesh during next 3 days.

40-70 mm rainfall over: west coast, coastal Maharashtra and Karnataka during next 5 days with very heavy rainfall (70-130 mm) over coastal Karnataka and adjoining Kerala during next 24 hours.

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

##### **1. Model Reflectivity (Max. dBz):**

15-35 dBZ Model reflectivity over south peninsula, AP and Odisha during next 24 hours, over NE states on day2 and day3.

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

**Total Total Index (> 50):** Above threshold value over northwest and central parts of India and Gangetic plain during next 72 hours.

**K-Index (> 35):** Less than threshold value over the country during the next 72 hour.

**CAPE (> 1000):** Mostly over Gujarat, parts of AP, Telangana, central India, east UP, Bihar and NE states during next 3 days.

**CIN (50-150):** Over north west parts of India east UP, Bihar, Parts of central India, Telangana and AP during next three days.

##### **Rainfall and thunderstorm activity:**

40-70 mm: along west coast with very heavy rainfall (70-130) mm over Maharashtra and Karnataka coast during next 24 hours.

20-70 mm: over parts of Gangetic West Bengal and NE states with very heavy rainfall (70-130) mm over NE states during day2 to day3.

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

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

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

In association with the intensification of the low pressure system and its north-eastward movement, the associated rainfall during the next 48 hours is likely to be over the north-eastern states.

Associated with the off shore trough from along the west coast of India, heavy rainfall is also likely during the next 48 hours along the west coast of India. The presence of the shear zone along Lat.18.0°N in mid tropospheric levels is likely to result in thunderstorm activity over central India on day 1 and day 2.

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

Arunachal Pradesh, Assam, Meghalaya, NMMT  
Bihar, Jharkhand, West Bengal, Odisha,  
Madhya Pradesh, Vidarbha, Chhattisgarh  
Maharashtra, Karnataka, Kerala,

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

Arunachal Pradesh, Assam, Meghalaya, NMMT  
Maharashtra,  
Telangana, North Andhra Pradesh, Karnataka, Kerala,

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)

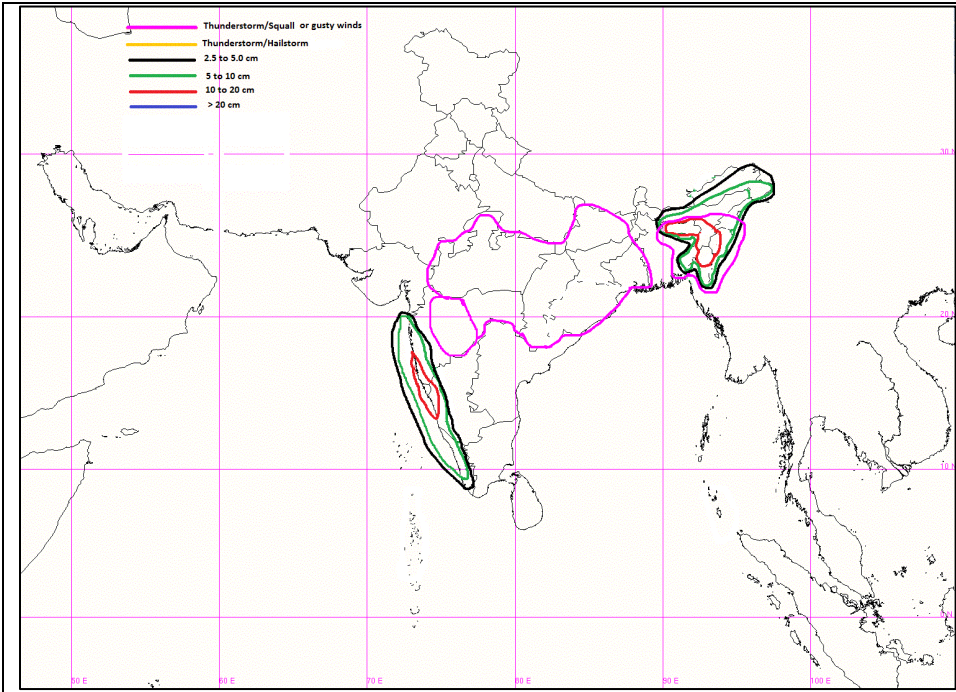
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ForRadarimagesofthepast24hoursincludingmosaicofimages:

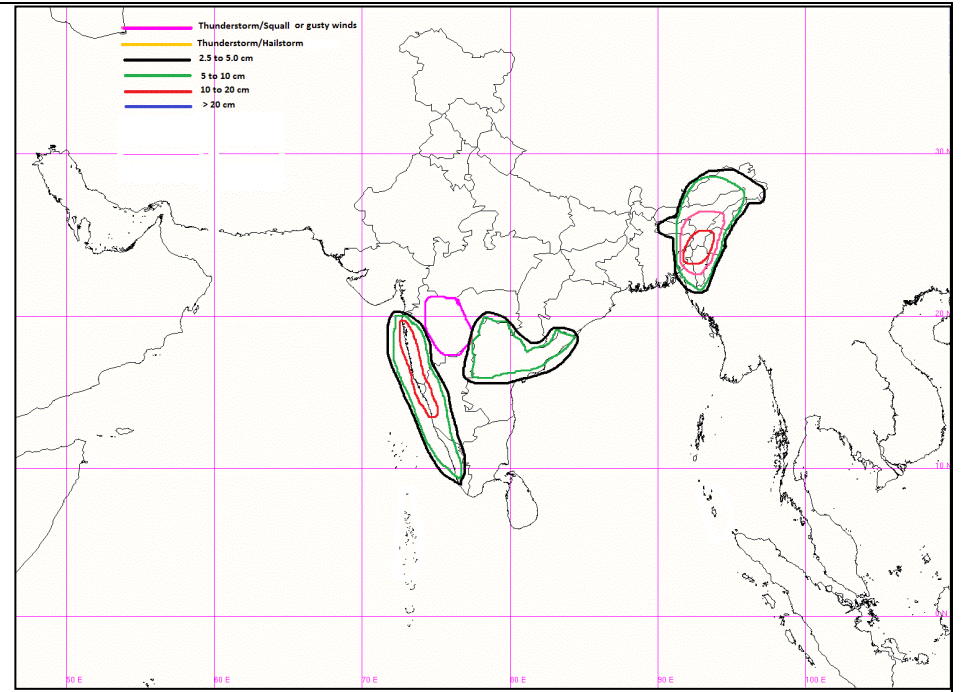
[http://ddgmui.imd.gov.in/dwr\\_img/](http://ddgmui.imd.gov.in/dwr_img/)

Satellite sounder based T- Phigram

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

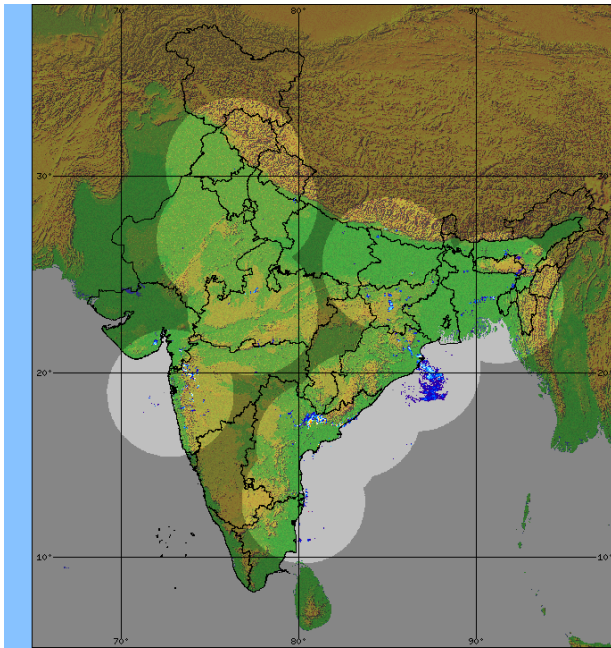


**IOP Advisory for 24 hours**

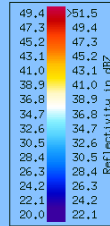


**IOP Advisory for 48 hours**

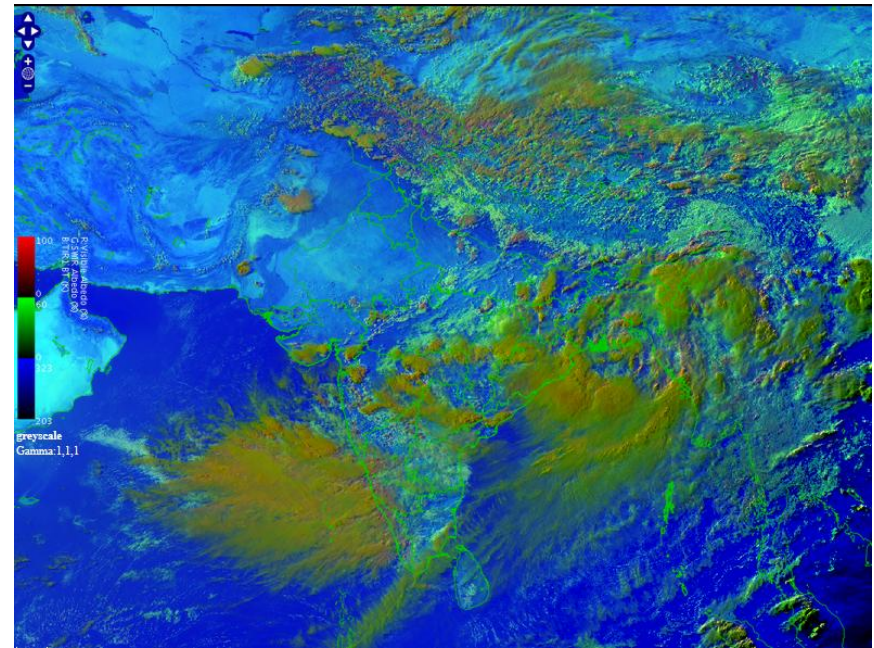




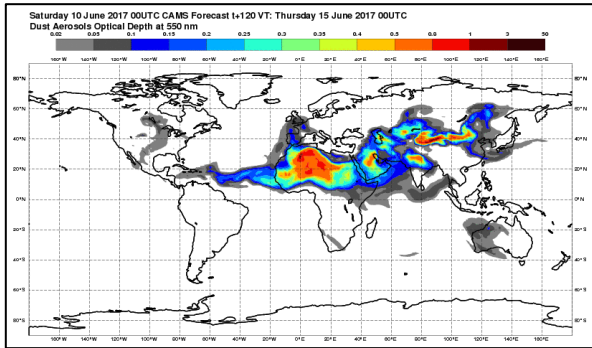
INDIA  
 PPI  
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 Task: IMD-C  
 PRF: 250Hz  
 Elevation: 0.2  
 Max. Range: 1695 km  
**17:00:31**  
**11 JUN 2017 IST**



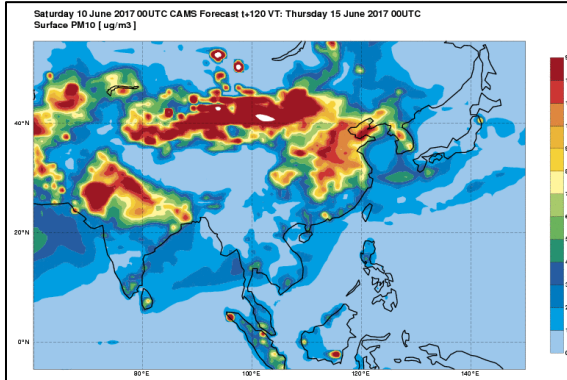
**DWR composite at 1700 hrs IST**



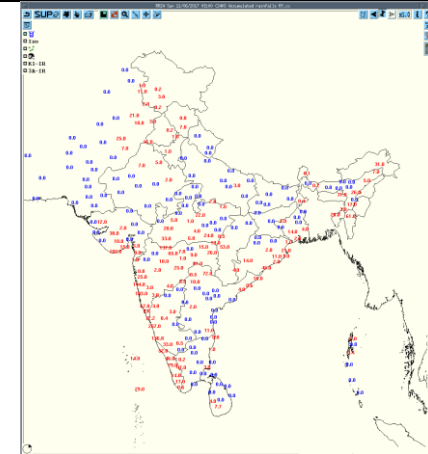
**RAPID RGB Satellite Imagery at 1630 hrs IST of today**



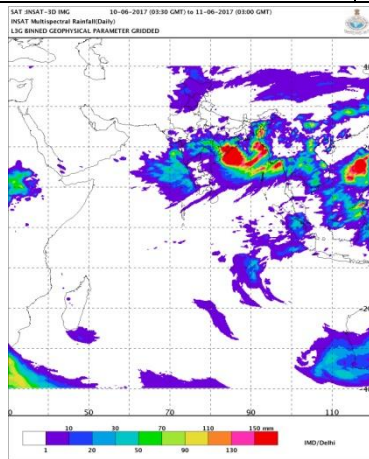
**Forecast Dust Concentration for 00UTC of 15<sup>th</sup> June**



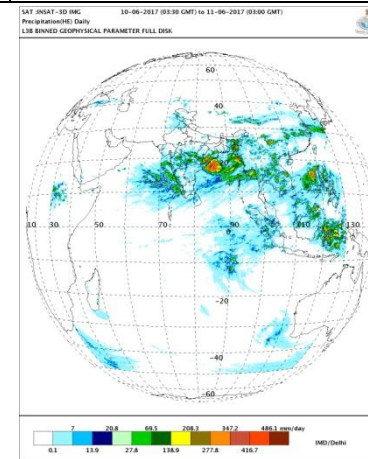
**PM10 Forecast for 00UTC of 15<sup>th</sup> June**



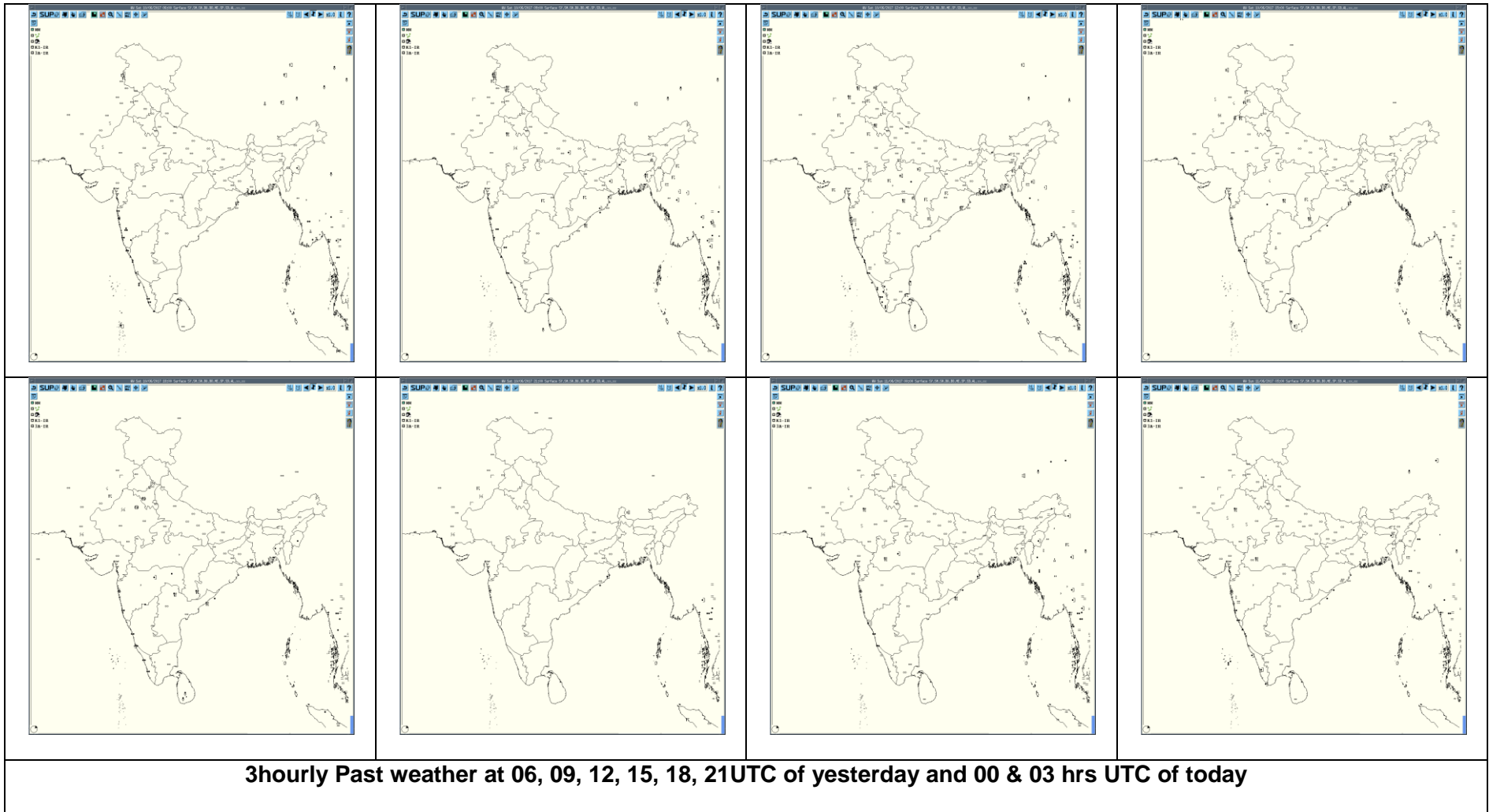
**Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today**

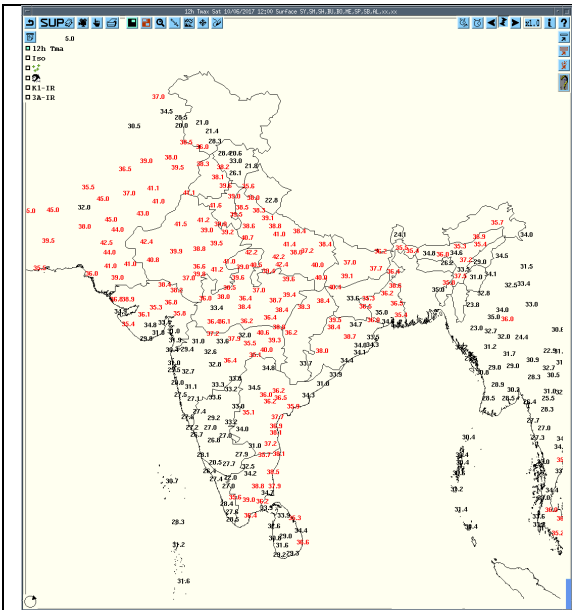


**IMR Rainfall**

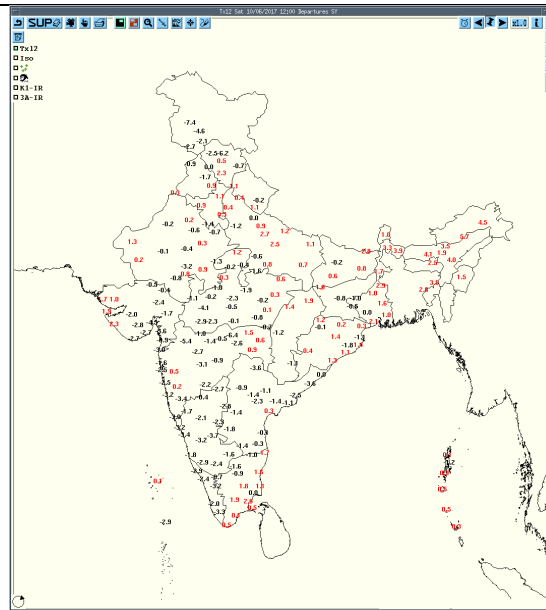


**HEM Rainfall**

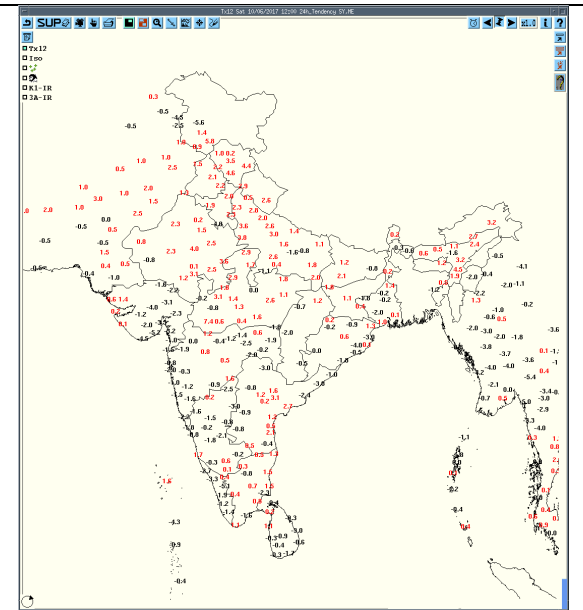




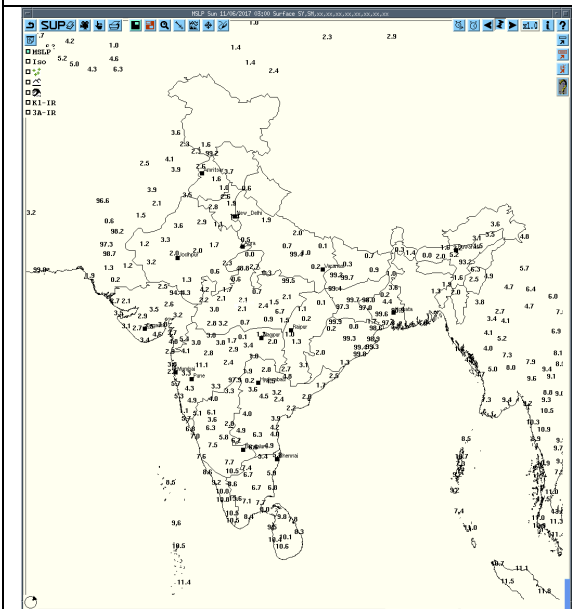
Tmax



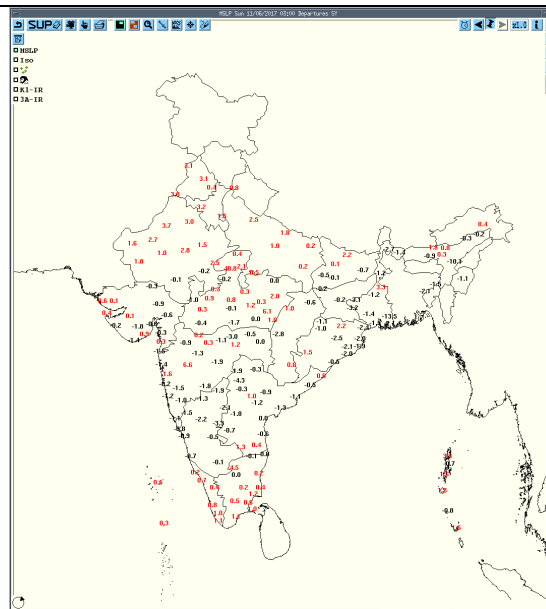
Departure Tmax



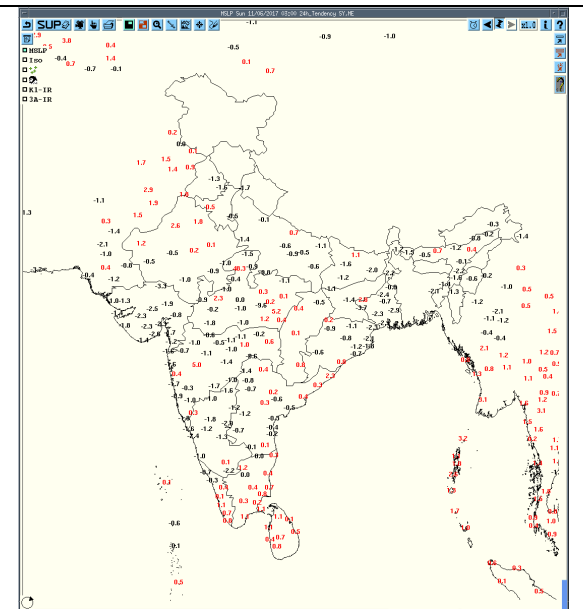
Tendency Tmax



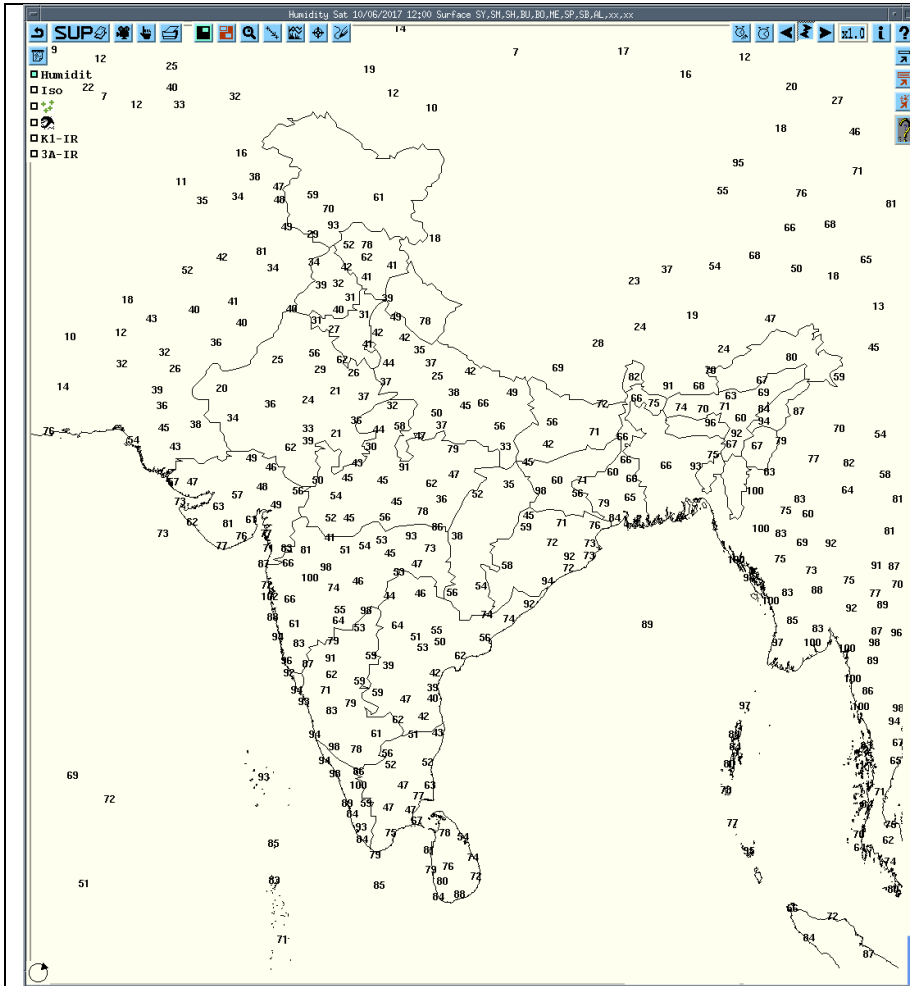
MSLP



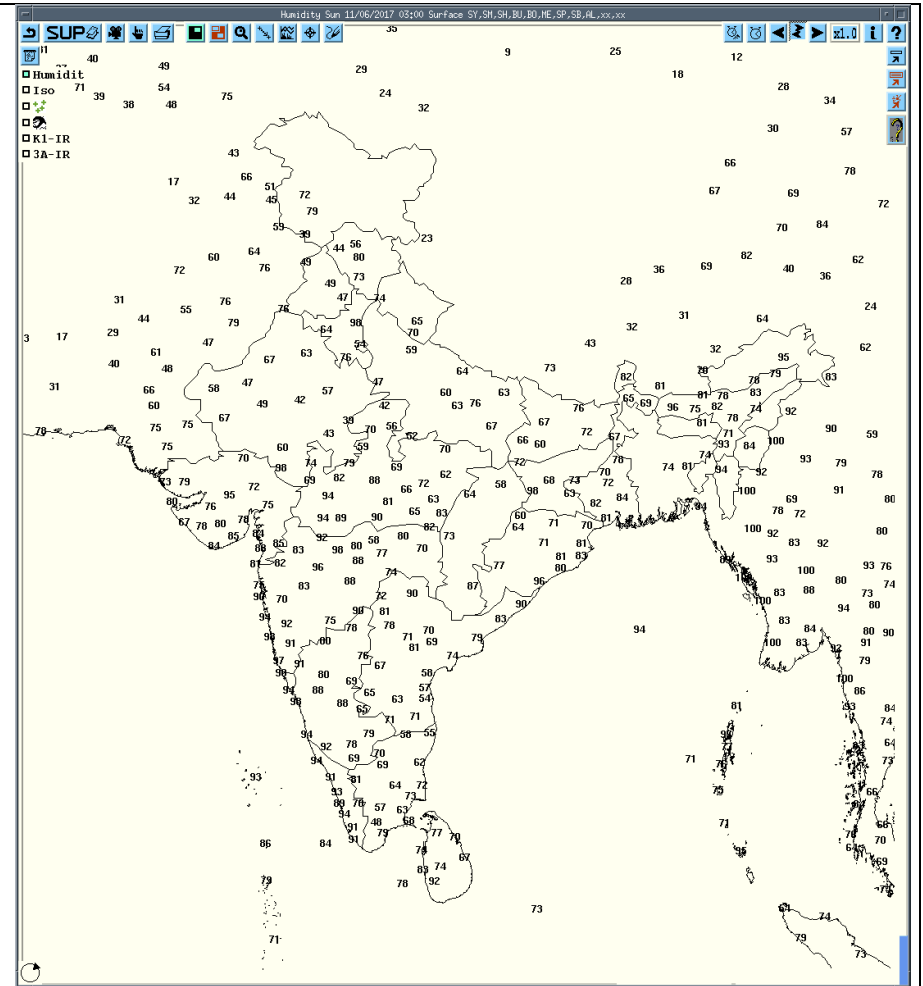
Departure MSLP



Tendency MSLP



RH at 12UTC yesterday



RH at 03UTC today

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

Realized weather past 24hours (Based on SYNERGIE Products)					
Date	Time of Reporting	Name of Station Reporting	Region	STATE	Weather Event
10-06-17	0600UTC	Chandbali	East India	Odisha	Thunderstorm
10-06-17	0900UTC	Katra, Jammu/ Churu	Northwest India	J & K/ Rajasthan	Thunderstorm
		Agartala/ Shillong	Northeast India	Assam/ Meghalaya/ Manipur	Thunderstorm
		Sambalpur	East India	Odisha	Thunderstorm
		Nagpur	Central India	Vidarbha	Thunderstorm
		Calingapatnam	South India	Andhra Pradesh	Thunderstorm
10-06-17	1200UTC	Bhaderwah/ Amritsar/Hissar	Northwest India	J & K/ Punjab/Haryana	Thunderstorm
		Churu	Northwest India	Rajasthan	Thunderstorm
		Bhagalpur	East India	Bihar	Thunderstorm
		Silchar	Northeast India	Assam	Thunderstorm
		Satna, Sagar, Bhopal, Ratlam	Central India	Madhya Pradesh	Thunderstorm
		Raipur(Mana), Jagdalpur	Central India	Chhattisgarh	Thunderstorm
		Nagpur, Gondia	Central India	Vidarbha	Thunderstorm
		Jharsuguda, Puri	East India	Odisha	Thunderstorm
10-06-17	1500UTC	Amritsar/Ganganagar	Northwest India	Punjab/ Rajasthan	Thunderstorm
		Bhopal	Central India	Madhya Pradesh	Lightening
		Raipur, Jagdalpur	Central India	Chhattisgarh	Thunderstorm
		Nagpur	Central India	Vidarbha	Thunderstorm
		Chandbali	East India	Odisha	Thunderstorm
10-06-17	1800UTC	Jagdalpur	Central India	Chhattisgarh	Thunderstorm
		Ramagundam, Vishakhapatnam	South India	Andhra Pradesh	Thunderstorm
10-06-17	2100UTC	Nil	Nil	Nil	Nil
11-06-17	0000UTC	Bikaner	Northwest India	Rajasthan	Thunderstorm
		Indore	Central India	Madhya Pradesh	Thunderstorm
		Calingapatnam	South India	Andhra Pradesh	Thunderstorm
11-06-17	0300UTC	Bikaner	Northwest India	Rajasthan	Thunderstorm
		Indore	Central India	Madhya Pradesh	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)
Srinagar	Northwest India	J & K	Thunderstorm	10-06-17	1225	1350
Qazigund	Northwest India	J & K	Thunderstorm	10-06-17	1230	1500
Pahalgam	Northwest India	J & K	Thunderstorm	10-06-17	1325	1420
Kukernag	Northwest India	J & K	Thunderstorm	10-06-17	1305	1500
Jammu	Northwest India	J & K	Thunderstorm	10-06-17	1410	1440
Banihal	Northwest India	J & K	Thunderstorm	10-06-17	1330	1550
Batote	Northwest India	J & K	Thunderstorm	10-06-17	1400	1540
Katra	Northwest India	J & K	Thunderstorm	10-06-17	1405	1450
Bhaderwah	Northwest India	J & K	Thunderstorm	10-06-17	1400	1635
Patiala	Northwest India	Punjab	Thunderstorm	11-06-17	0025	0050
Amritsar	Northwest India	Punjab	Thunderstorm	10-06-17	1730 1930	1830 2230
Hissar	Northwest India	Haryana	Thunderstorm	10-06-17	1630	1800
Shimla	Northwest India	Himachal Pradesh	Thunderstorm	11-06-17	0445	0515
Sundernagar	Northwest India	Himachal Pradesh	Thunderstorm	11-06-17	0625	0730
Palam	Northwest India	Delhi	Thunderstorm	11-06-17	0230	0430
Jaipur	Northwest India	Rajasthan	Thunderstorm	10-06-17	2110	2310
Pilani	Northwest India	Rajasthan	Thunderstorm	10-06-17	1045	1145
Ganganagar	Northwest India	Rajasthan	Thunderstorm	10-06-17	1245 1855	1305 2225
Churk	Northwest India	Rajasthan	Thunderstorm	11-06-17	0525	0550
Gorakhpur	Northwest India	Uttar Pradesh	Thunderstorm	10-06-17	1500	1700
Sultanpur	Northwest India	Uttar Pradesh	Thunderstorm	10-06-17	1250	1310
Allahabad	Northwest India	Uttar Pradesh	Thunderstorm	10-06-17	1400	1520
Nagpur	Central India	Vidarbha	Thunderstorm	10-06-17	1415	2150
Akola	Central India	Vidarbha	Thunderstorm	10-06-17	1700	2050
Bramhapuri	Central India	Vidarbha	Thunderstorm	10-06-17	1415	1500
Buldana	Central India	Vidarbha	Thunderstorm	10-06-17	1430	1920
Yeotmal	Central India	Vidarbha	Thunderstorm	10-06-17	1730	1900
Gondia	Central India	Vidarbha	Thunderstorm	10-06-17	1031	1940
Bhopal	Central India	Madhya Pradesh	Thunderstorm	10-06-17	2350	0440
Indore	Central India	Madhya Pradesh	Thunderstorm	11-06-17	0440	0830
Sagar	Central India	Madhya Pradesh	Thunderstorm	10-06-17	1500	1635
Chhindwada	Central India	Madhya Pradesh	Thunderstorm	10-06-17	1430	1500
Raipur	Central India	Chhattisgarh	Thunderstorm	10-06-17	1515	2240
Jagdalpur	Central India	Chhattisgarh	Thunderstorm	10-06-17	1615	2400
Mana	Central India	Chhattisgarh	Thunderstorm	10-06-17	1420	1745

**Realised TS/HS/SQ during past 24 hours ending at 0300UTC of today(received from RMCs/MCs)**

<b>Name of Station Reporting</b>	<b>Region</b>	<b>STATE</b>	<b>Weather Event (TS/Hail/Squall)</b>	<b>Date</b>	<b>Time of Commencement (IST)</b>	<b>Time of end (IST)</b>
Passighat	Northeast India	Arunachal Pradesh	Thunderstorm	11-06-2017	0420	0510
Silchar	Northeast India	Assam	Thunderstorm	10-06-2017	1700	2130
Barapani	Northeast India	Meghalaya	Thunderstorm	10-06-2017	1315	1540
Cherrapunjee	Northeast India	Meghalaya	Thunderstorm	10-06-2017	2040	2400
Cherrapunjee	Northeast India	Meghalaya	Thunderstorm	11-06-2017	0000	0830
Shillong	Northeast India	Meghalaya	Thunderstorm	10-06-2017	1331	1530
Lengpui	Northeast India	Mizoram	Thunderstorm	10-06-2017	1615	2200
Kailasahar	Northeast India	Tripura	Thunderstorm	10-06-2017	1620	1800
Agartala	Northeast India	Tripura	Thunderstorm	10-06-2017	1330 1815	1650 2005
DumDum	East India	West Bengal	Thunderstorm	10-06-17	1135	1220
Digha	East India	West Bengal	Thunderstorm	10-06-17	1050 1545	1100 1930
Bhagalpur	East India	Bihar	Thunderstorm	10-06-17	1705	1728
Bhubaneswar	East India	Odisha	Thunderstorm	10-06-17	1215 1650	1325 1850
Balasore	East India	Odisha	Thunderstorm	10-06-17	1245	1400
Jharsuguda	East India	Odisha	Thunderstorm	10-06-17	1645	1800
Chandbali	East India	Odisha	Thunderstorm	10-06-17	1930	2020
Paradeep	East India	Odisha	Thunderstorm	10-06-17	2145	2305
Puri	East India	Odisha	Thunderstorm	10-06-17	1240	1350
Gopalpur	East India	Odisha	Thunderstorm	10-06-17	1445	1640
Gopalpur	East India	Odisha	Thunderstorm	11-06-17	0610	0715
Ramagundam	South India	Andhra Pradesh	Thunderstorm	10-06-17	2345	2400
Ramagundam	South India	Andhra Pradesh	Thunderstorm	11-06-17	0000	0330
Calingapatnam	South India	Andhra Pradesh	Thunderstorm	10-06-17	1345	1600
Calingapatnam	South India	Andhra Pradesh	Thunderstorm	11-06-17	0445	0600
Tuni	South India	Tamilnadu	Thunderstorm	11-06-17	0215	0300
Tirupathi AP	South India	Karnataka	Thunderstorm	10-06-17	2000	2100



## Past 24 hours DWR Report:

	Date	Time interval of observation (UTC)	Organization of the cells (Isolated single cells/multiple cells/ convective regions/ squall lines) with height of 20dBZ echo top and maximum reflectivity	Formation w.r.t radar station and Direction of movement	Remarks	Associated severe weather if any	Districts affected
Radar Station name DWR Machilipatnam	03Z of 10.06.20 17 to 03Z of 11.06.20 17	0931 to 1121 UTC	Isolated Multiple cells average height of 7.5 km with maximum reflectivity of 58.5dBZ.	NW (221KM) and moving E ly direction with average speed of 4.0kmph	Cell started forming at 0931 UTC, at NW(221 km) from Radar the maximum reflectivity during 0931 UTC to 1111 UTC and died down at 1121 UTC	Possibility of Thunder storm with rain and winds.	Warangal rural, Mahabubabad Districts.
	03Z of 10.06.20 17 to 03Z of 11.06.20 17	1731 to 1841 UTC	Isolated Multiple cells average height of 4.5 km with maximum reflectivity of 47.5dBZ.	WSW (116KM) and moving E ly direction with average speed of 18.0kmph	Cell started forming at 1731UTC, at WSW( 116km) from Radar the maximum reflectivity during 1811UTCto1821 UTC and died down at 1841UTC	Possibility of Thunder storm with rain and winds.	Prakasam District.
	03Z of 10.06.20 17 to 03Z of 11.06.20 17	1911to 2101 UTC	Isolated Multiple cells average height of 5 km with maximum reflectivity of 49dBZ.	N (90KM) and moving E ly direction with average speed of 4.0kmph	Cell started forming at 1911UTC, at N(90km) from Radar the maximum reflectivity during 1911UTCto 2041 UTC and died down at 2101UTC	Possibility of Thunder storm with rain and winds.	Krishna, West Godavari Districts.
	03Z of 10.06.20 17 to 03Z of 11.06.20 17	1931to 2131 UTC	Isolated Multiple cells average height of 5.5 km with maximum reflectivity of 50.5dBZ.	NWN (219KM) and moving E ly direction with average speed of 5.0kmph	Cell started forming at 1931UTC, at NWN(219km) from Radar the maximum reflectivity during 1941UTCto 2111 UTC and died down at 2131UTC	Possibility of Thunder storm with rain and winds.	Warangal rural, Mahabubabad, Bhadri-Kothagudem Districts.
	03Z of 10.06.20 17 to 03Z of 11.06.20 17	1931to 2211 UTC	Isolated Multiple cells average height of 7.5 km with maximum reflectivity of 55.0dBZ.	NE (190KM) and moving E ly direction with average speed of 10.0kmph	Cell started forming at 1931UTC, at NE (190km) from Radar the maximum reflectivity during 1931UTC to 2201 UTC and died down at 2211UTC	Possibility of Thunder storm with rain and winds.	East Godavari, Visakhapatnam Districts.
	03Z of 10.06.20 17 to 03Z of 11.06.20 17	1931to 2141 UTC	Isolated Multiple cells average height of 5.5 km with maximum reflectivity of 53.0dBZ.	NEN (212KM) and moving E ly direction with average speed of 15.0kmph	Cell started forming at 1931UTC, at NEN (221km) from Radar the maximum reflectivity during 1931UTC to 2131 UTC and died down at 2141UTC	Possibility of Thunder storm with rain and winds.	Malkangir, Visakhapatnam Districts.

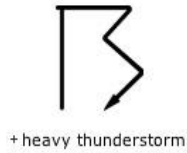
Radar Station Name	Date	Time Interval of Observation (UTC)	Organisation of cells (Isolated single cells /multiple cells/ convective regions /squall lines) with height of 20 dBZ echo top and maximum reflectivity	Formation w.r.t. radar station and Direction of movement	Remarks	Associated Severe Weather if any	Districts affected
Kolkata	10-06-2017	0301-0342 UTC	NIL	NIL	NO ECHO	NIL	NIL
		0342-0512 UTC	Small Isolated multiple cells developed with maximum reflectivity of 53.0 dBz at 0412 UTC and maximum height more than 8.07 km at 0402 UTC NIL	S to E (30 km) moving W-ly	Isolated single/multi celled system stated forming from S to E (30 km) from radar from 0342 UTC. Matured and dissipated at 0512 UTC in at a distance of 53.6 km from Radar.	NIL	NIL
		0612-1102 UTC	Isolated multiple cells developed with maximum reflectivity of 53.0 dBz at 0712 UTC and maximum height more than 9.23 km at 0712 UTC	SW(98km) moving towards west	Isolated multiple cells developed at SW at a distance of 98 km from Radar at 0612 UTC. Matured and dissipated at 1102 UTC in WEST at a distance of 243 km from Radar.	Thunderstorm / Hailstorm / Squall /Rain	N/A
		1112-2351 UTC	NIL	NIL	NO ECHO	NIL	NIL
	11-06-2017	0001-0301 UTC	NIL	NIL	NO ECHO	NIL	NIL
Srinagar	11/06/2017	10- JUNE 03Z to 11- JUNE03Z(24hrs)	1. multiple cells persisted in the ENE direction of DWR moved se wards with max reflectivity of 50-55 dBZ and height 8 kms and 0400 UTC 2. multiple cells developed in W and SW direction of DWR at 0410 UTC with max reflectivity of 50-55 dBZ and height 9 KMS and moved e and SE direction of DWR and dissipated at 0900 UTC	dissipated around 0900 UTC	Thunder with light rain observe at many places	Light rain at many places	All districts accept Kupwara

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
Karaikal	10.06.17	1.0930Z -1502Z	1 )Cluster of cells in SW direction within 100-250 km range moving in easterly direction with max reflectivity of 90dBz and Average height of 08km.		1.Cells started forming at 1502IST and dissipated at 2112IST	nil	
		2.1230Z-1602Z	2) cluster of cells at 150km in NW direction moving northeastwards max reflectivity Of 60 dBz and average height of 8 km		2.cells started forming at 1732ISTand dissipated at 2232 IST.		
	11.06.17			Nil			
Agartala	11/06/17	101120 - 102300	Multiple scattered cells formed all around DWR Agartala and a prominent squall line formed E OF DWR Agartala at a distance of 110km with Maximum cell Height 15 km and maximum reflectivity 51 dBZ at 2300UTC	Formed E at 110 km of DWR and moves West wards with speed 45 kmph.	Cells dissipated at 2300 UTC over W part of BD.	TSRA	Mizoram and all districts. of Tripura

Radars Station Name	Date	Time Interval Of Observati on (UTC)	Organisation 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
Patna	11/06/2017	100300 - 100800	NIL	NIL	N/A	N/A	N/A
		100800 - 100900	Single Cell. Maximum Reflectivity : 46dBZ Echo Top : 09.5 KM	Range: 105 KM from DWR Patna in WSW direction. Movement-Easterly	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	N/A	Buxar, Bhojpur, Rohtas
		100900 - 110050	NIL	NIL	N/A	N/A	N/A
		110050 - 110210	Single Cell. Maximum Reflectivity : 35.5 dBZ Echo Top : 12.8 KM	Range: 128.4 KM from DWR Patna in W direction. Movement-Easterly	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	N/A	Buxar, Bhojpur
		110210 - 110300	NIL	NIL	N/A	N/A	N/A



+ thunderstorm



+ heavy thunderstorm



sandstorm or dust storm



squall

www.visualdictionaryonline.com



hail shower



tropical storm



+ tornado



+ lightning



+ hurricane

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

**Weather Symbols**