



**India Meteorological Department**  
**FDP STORM Bulletin No.113 (26-06-2017)**

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

- ◆ The low pressure area over Jharkhand and adjoining north Odisha has become less marked. However, the upper air cyclonic circulation lies over north Odisha & neighbourhood and extends upto 7.6 km above mean sea level and tilt southwards with height.
- ◆ The trough at mean sea level from West Rajasthan to north Andaman Sea across north Madhya Pradesh, Chhattisgarh, Jharkhand, low pressure area and east-central Bay of Bengal, now runs from West Rajasthan to east-central Bay of Bengal across north Madhya Pradesh, Chhattisgarh and Jharkhand and extends upto 1.5 km above mean sea level.
- ◆ The off-shore trough at mean sea level from south Gujarat coast to Kerala coast persists.
- ◆ The upper air cyclonic circulation over south Pakistan & neighbourhood, now lies over south Pakistan & adjoining Kutch and extends upto 0.9 km above mean sea level.
- ◆ The upper air cyclonic circulation over south Gujarat region & neighbourhood, now seen between upto 1.5 & 4.5 km above mean sea level.
- ◆ An upper air cyclonic circulation lies over east Assam & neighbourhood and extends upto 0.9 km above mean sea level.
- ◆ A western disturbance as a trough in mid-tropospheric westerlies with its axis at 5.8 km above mean sea level runs roughly along Long. 64.0°E and north of Lat. 30.0 °N.

**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
1	26/0300	Extreme NW Uttar Pradesh adjoining Uttarakhand	52		Developing
	0400	Do	50		
	0500	Do	47		
	0600	EXT NW Uttar Pradesh	43		Dissipating
	0700	Do	40		
	0800		--		Dissipated

2	26/0800 0900	NW Madhya Pradesh adjoining SW UP, NE Rajasthan Do	80 93		Developing
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**Cloud Description:**

Scattered low/medium clouds with embedded intense to very intense convection were seen over E Rajasthan, Madhya Pradesh, Vidarbha and SW Gujarat. Scattered low/medium clouds with embedded moderate to intense convection were seen over extreme SW Uttar Pradesh, Chhattisgarh, Odisha, S Gangetic West Bengal, W Arunachal Pradesh, Assam, Meghalaya, Nagaland, Telangana, Coastal Andhra Pradesh and Kerala. Scattered low/medium clouds with embedded isolated weak to moderate convection were seen over J & K, Himachal Pradesh, Punjab, N Haryana, Uttarakhand, NE Bihar, Sub Himalayan west Bengal, Sikkim, rest NE states, Bangladesh and rest Maharashtra. Scattered low/medium clouds with embedded moderate to intense convection were seen over rest parts of South India. Scattered low/medium clouds were seen over S Haryana, Delhi, rest Uttar Pradesh and rest parts of East & West India.

**Arabian Sea:**

Scattered low/medium clouds with embedded moderate to intense convection were seen over EC adjoining NE Arabian Sea and Comorin.

**Bay of Bengal & Andaman Sea:**

Scattered low/medium clouds with embedded intense to very intense convection were seen over C Bay of Bengal. Scattered low/medium clouds with embedded moderate to intense convection were seen over SE Bay of Bengal and Andaman Sea.

**Past Weather:**

**Convection:-**

Moderate to Intense convection was observed J&K Uttarakhand East Uttar Pradesh Rajasthan Gujarat Madhya Pradesh Maharashtra Chhattisgarh Bihar Jharkhand Odisha West Bengal North East States Karnataka Telangana Andhra Pradesh Kerala Tamilnadu.

**OLR:-**

Upto **200**  $\text{wm}^{-2}$  was observed over South East Madhya Pradesh North Konkan Vidarbha Chhattisgarh South Odisha South Interior Karnataka Telangana North East Andhra Pradesh Kerala Tamilnadu.

Upto **230**  $\text{wm}^{-2}$  was observed over North West J&K Uttarakhand South Rajasthan Gujarat Rest Madhya Pradesh Rest Maharashtra Jharkhand Rest Odisha West Bengal Sikkim North East States.

**Westerly Trough & Jet-Stream:-**

No Trough & Jet Stream observed over India

**Dynamic Features:-**

Medium to High wind shear is observed over North & South India and Low wind shear is observed over Central India .

Positive shear tendency is observed over India.

Positive Vorticity field is observed over North Konkan South Chhattisgarh Odisha..

Positive low level convergence is observed over Coastal Andhra Pradesh Tamilnadu and Negative low level convergence observed over rest parts of India.

**Precipitation:**

**IMR:**

Rainfall Up to **110** mm was observed over South East Madhya Pradesh. Rainfall Up to **70** mm was observed over North Chhattisgarh Tripura Mizoram. Rainfall Up to **50** mm was observed over Uttarakhand Gujarat South Rajasthan Rest Madhya Pradesh Central Assam North East Andhra Pradesh. Rainfall Up to **30** mm was observed over Gujarat . Rainfall Up to **20** mm was observed over Telangana . Rainfall Up to **10** mm was observed over South West J&K Himachal Pradesh North Haryana East Uttar Pradesh Maharashtra Rest Chhattisgarh Bihar Jharkhand Odisha West Bengal Rest North East States Karnataka Rest Andhra Pradesh Tamilnadu Kerala

**HEM:.**

Rainfall Up to **208** mm was observed over South East Madhya Pradesh.

Rainfall Up to **70** mm was observed over South West J&K Uttarakhand East Gujarat North Chhattisgarh Rest Madhya Pradesh Central Assam Mizoram Tripura Coastal Karnataka.

Rainfall Up to **14** mm was observed over East Uttar Pradesh Telangana Kerala North East Andhra Pradesh Nagaland.

Rainfall Up to **07** mm was observed over North Haryana South Rajasthan Rest Gujarat Rest Madhya Pradesh Maharashtra Chhattisgarh Bihar Jharkhand West Bengal Rest North East States Rest Karnataka Rest Andhra Pradesh Tamilnadu.

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

DWR composite at 1620hrs IST indicated significant convection over Madhya Pradesh, E Rajasthan, Vidarbha, Coastal Andhra Pradesh, N Tamilnadu, N Konkan & Goa and Gangetic West Bengal.

RAPID RGB Satellite imagery at 1530hrs IST indicated significant convective clouds over Madhya Pradesh, E Rajasthan, Vidarbha adjoining Telangana, S Chhattisgarh, Odisha, N coastal Andhra Pradesh, Konkan & Goa, coastal Karnataka, Kerala, Lakshadweep, Sub Himalayan West Bengal, Sikkim, W Arunachal Pradesh, W & C Assam, Meghalaya, Mizoram, Uttarakhand, Himachal Pradesh and Andaman & Nicobar Islands.

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

Dust concentration was observed over western Africa and some parts of eastern Asia. Dust concentration is expected to decrease over western and northern India for next five days.

High PM10 concentration was observed over north-western India. PM10 concentration is expected to decrease over northern India 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 0-4** show heat low confined to Pakistan and adjoining Rajasthan with MSLP values lower than 992hPa.

**00 UTC Charts of Day 0-3** show a trough at mean sea level from North Rajasthan/Punjab to Odisha across Uttar Pradesh, MP, Jharkhand. In Day-4 and Day-5 the trough is deepening with formation of a CYCIR over coastal Odisha.

Some isolated regions of wind discontinuity can be seen as embedded features in monsoon trough on all days.

At 850 and 500 hPa: Two CYCIR over (1) Bay of Bengal near Odisha and (ii) Arabian Sea west of Gujarat are seen in from Day-0 to Day-2.

The two systems are forming east-west trough at 500 hPa in Day-0 to Day-2.

Both systems show strong southward tilt with height.

The Bay of Bengal CYCIR is tracking in NW direction along the monsoon trough and is located over Delhi-Haryana region in Day-3 forecast valid for 29<sup>th</sup> Jun 2018. This system is supported aloft by a WD located over J & K region in the form of a deep trough from Day-3 (29<sup>th</sup> Jun) to Day-5 (1<sup>st</sup> Jul)

Another CYCIR is seen to form near Odisha coast on Day-3 which persists until Day-5.

#### **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<sup>-5</sup> /s)**

Day0: Jammu Kashmir

Day1: NIL

Day2: NIL

Day3: NIL

Day4: NIL

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

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

Day0: TN Puducherry, Kerala,

Day1: Arunachal Pradesh, TN Puducherry, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, TN Puducherry, Kerala,

Day3: Arunachal Pradesh, TN Puducherry, Kerala,

Day4: NE NMMT, 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, West UP, Uttarakhand, Hry Chd Delhi, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, West MP, East MP, Guj Reg, Saurashtra Kutch, Chhattisgarh,

Day1: Arunachal Pradesh, Sub Himalayan WB, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, West MP, East MP, Guj Reg, Saurashtra Kutch,

Day2: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, East UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Chhattisgarh, TN Puducherry,

Day3: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Jharkhand, Bihar, East UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, Odisha,

Day4: Arunachal Pradesh, Sub Himalayan WB, Bihar, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, West MP, Guj Reg.

**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, West RJ, East RJ, West MP, East MP, Guj Reg, Saurashtra Kutch, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, TN Puducherry, NI Karnataka, SI Karnataka,

Day1: Arunachal Pradesh, NE NMMT, 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, Marathwada, Vidarbha, Chhattisgarh, Telangana,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, 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, Marathwada, Vidarbha, Chhattisgarh,

Day3: 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, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, TN Puducherry,

Day4: 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, Rayalseema, TN Puducherry, NI 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, Uttarakhand, Himachal Pradesh, Jammu Kashmir,  
Day1: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir,  
Day2: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir,  
Day3: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir,  
Day4: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir, West RJ.

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

Day1: 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, West MP, East MP, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,  
Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jharkhand, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, East RJ, Odisha, West MP, East MP, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Andaman Nicobar, Coastal AP, Telangana, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,  
Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, 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, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Andaman Nicobar, Coastal AP, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,  
Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, 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, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Andaman Nicobar, Coastal AP, Telangana, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,  
Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Himachal Pradesh, West RJ, East RJ, Odisha, West MP, East MP, Guj Reg, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala.

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

**1. Weather Systems:**

The model analysis shows a trough from Punjab to GWB running parallel to foothills of Himalayas and an associated a feeble low develop over Orissa coast. These features persist till day 5. A prominent off-shore trough is seen along west coast from Konkan and Goa up to Kerala.

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

No presence of jet core over the Indian region..

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

Mostly along foothills of Himalayas and around the cyclonic circulations and mainly prominent during morning hours.

**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):** Not exceeded threshold over the country.

**Lifted Index (< -2):** Less than threshold value in different pockets over most parts of the Gujarat and south Rajasthan and adjoin areas for next 5 days. Over some parts of Andhra Pradesh, Telangana, and adjoining Chhattisgarh, Jharkhand and Orissa and sometimes over parts of GWB and Bihar.

**Total-Total Index (> 50) :** Above threshold value is not found over the country.

**Sweat Index (> 300):** Higher than threshold value over the areas similar to Lifted Index except it covers most parts of the peninsular India.

**CAPE (> 1000):** Mostly western India over Rajasthan and Gujarat and over SHWB, GWB, Bihar, isolated pockets of coastal Orissa and Andhra Pradesh. It also appears over Northwest India along the monsoon trough over UP, Punjab, Haryana and adjoining areas from day 1 onwards.

**CIN (>150):** Consistently over Gujarat and adjoining Rajasthan and over some parts of Central India, extreme south parts of peninsular India during morning hours..

**5. Rainfall and thunderstorm activity:**

40-70 mm rainfall and more over many parts of west coast and over a few pockets of NE states till day 5. Along foothills of Himalayas from day 2 to day 5. Over Punjab, east UP and adjoining Delhi Haryana and Rajasthan on day 2 and 3.

20-40 mm rainfall Over parts of Orissa and adjoining GWB, south Jharkhand, Chhattisgarh and MP on day 1 to day 5. Over rest of Chhattisgarh and adjoining Telangana, Vidarbha and Andhra Pradesh from day 2 to day 5.

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

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

15-40 dBz model reflectivities over West coast of India mainly over northern ends on today. Over parts of Punjab and adjoining areas on day 3.

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

**Total-Total Index ( > 50) :** Above threshold value mainly over parts northwest India and extending south-eastward over UP and over MP in central India during evening hours during next 2 days. Over eastern parts of peninsular India.

**CAPE (> 1000):** Mostly over eastern parts of India, NE states and over North-west India mainly over western part of Rajasthan and Gujarat during next 2 days. It covers many parts of Central India during evening hours.

**CIN (50-150):** Over parts of NE states and over western India including Rajasthan and Gujarat and some pockets of central India during morning hours.

**3. Rainfall and thunderstorm activity:**

40-70 mm and more along west coast of India and Gujarat for the next three days. Over Punjab and Uttarakhand on day 3

20-40 mm along foothills of the Himalayas, GWB, Jharkhand, Chhattisgarh, MP and adjoining Telangana and AP on day 1 and 2. Over most parts of UP on day 3

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

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

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

Although yesterday's low pressure area over Jharkhand and adjoining north Odisha has become less marked, the upper air cyclonic circulation, which now lies over north Odisha is likely to persist and bring rainfall over the entire Indian region on day 1 and 2. Over North India, the interaction of the easterly flow from the above system is likely to interact with the mid-tropospheric westerly trough and result in widespread thunderstorms over North India and heavy rainfall in isolated regions of North India on day 1 and 2

An upper air cyclonic circulation lies over east Assam & neighbourhood upto 0.9 km above mean sea level is likely to increase the moisture flow into Assam and Meghalaya regions.

The two upper air cyclonic circulations: one over south Pakistan & adjoining Kutch upto 0.9 km above mean sea level and the other over south Gujarat region & neighbourhood, between 1.5 & 4.5 km above mean sea level is likely to bring heavy rainfall over North Konkan, and south Gujarat region on day 1.

The offshore trough at mean sea level from south Gujarat coast to Kerala coast persists and is likely to bring heavy rainfall all along the west coast.

**24 hour Advisory for IOP:****Rainfall:**

Kerala, Lakshadweep  
Coastal Karnataka, South Interior Karnataka  
Telengana, Coastal Andhra Pradesh  
Konkan and Goa  
Gujarat, Saurashtra and Kutch  
Madhya Maharashtra, Marathawada, Vidarbha, Chhattisgarh  
Madhya Pradesh  
Odisha, Jharkhand, Bihar  
Sub Himalayan West Bengal, Gangetic West Bengal  
East Uttar Pradesh, East Rajasthan  
Assam and Meghalaya  
Nagaland, Manipur, Mizoram, Tripura  
Arunachal Pradesh  
Uttarakhand, Himachal Pradesh, Jammu and Kashmir  
Andaman and Nicobar Islands

**Thunderstorm with associated phenomena:**

Madhya Pradesh, Chhattisgarh, Uttar Pradesh, Bihar, Jharkhand,  
Punjab, Haryana, Delhi, Uttarakhand, Himachal Pradesh, Jammu and  
Kashmir  
East and West Rajasthan

**48 hour Advisory for IOP:****Rainfall:**

Kerala, Coastal Karnataka, South Interior Karnataka  
Telengana,  
Konkan and Goa  
Gujarat, Saurashtra and Kutch  
Madhya Maharashtra, Marathawada, Vidarbha, Chhattisgarh  
Madhya Pradesh  
Odisha, Jharkhand, Bihar  
Sub Himalayan West Bengal, Uttar Pradesh, East Rajasthan  
Assam and Meghalaya  
Nagaland, Manipur, Mizoram, Tripura  
Arunachal Pradesh  
Punjab, Haryana, Delhi, Uttarakhand, Himachal Pradesh, Jammu and  
Kashmir  
Andaman and Nicobar Islands

**Thunderstorm with associated phenomena:**

Uttar Pradesh, Bihar  
Punjab, Haryana, Delhi, Uttarakhand, Himachal Pradesh, Jammu and  
Kashmir  
East and West Rajasthan



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)

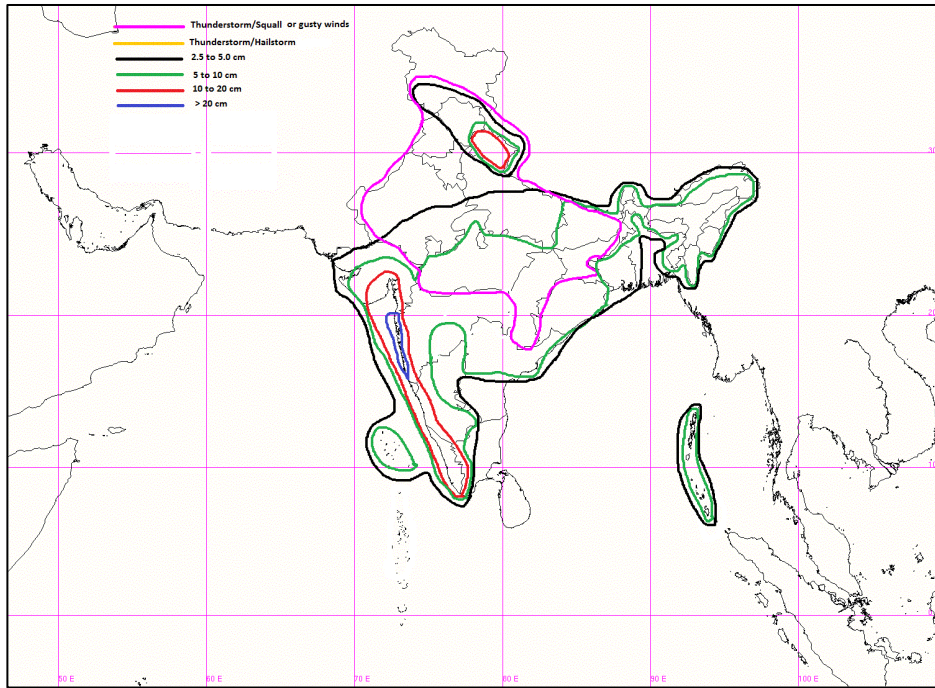
HEM: [http://satellite.imd.gov.in/img/3Ddaily\\_he.jpg](http://satellite.imd.gov.in/img/3Ddaily_he.jpg)

ForRadarimagesofthepast24hoursincludingmosaicofimages:

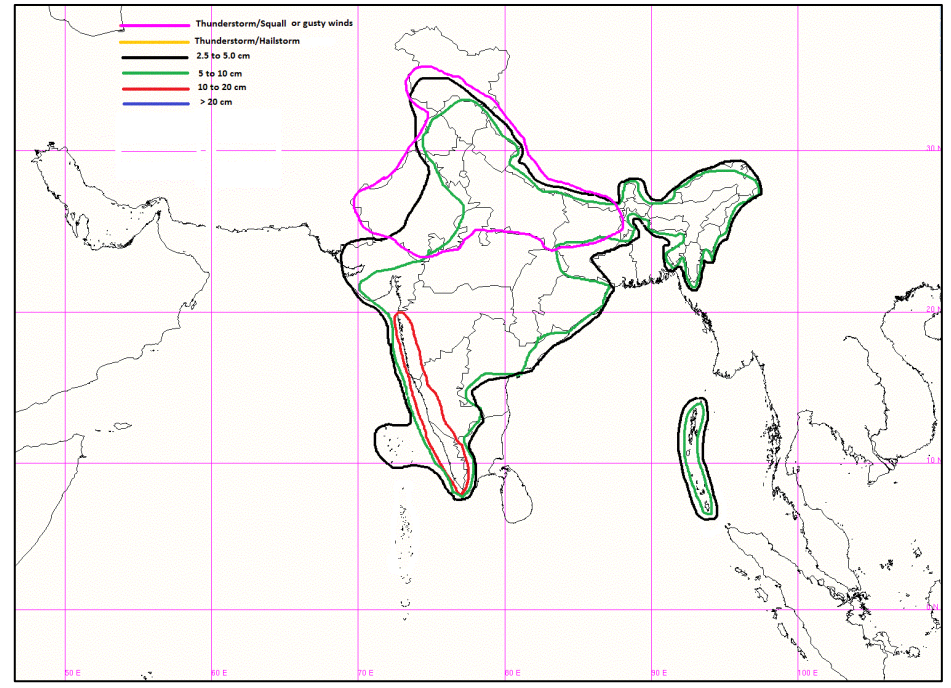
[http://ddgmui.imd.gov.in/dwr\\_img/](http://ddgmui.imd.gov.in/dwr_img/)

Satellite sounder based T- Phigram

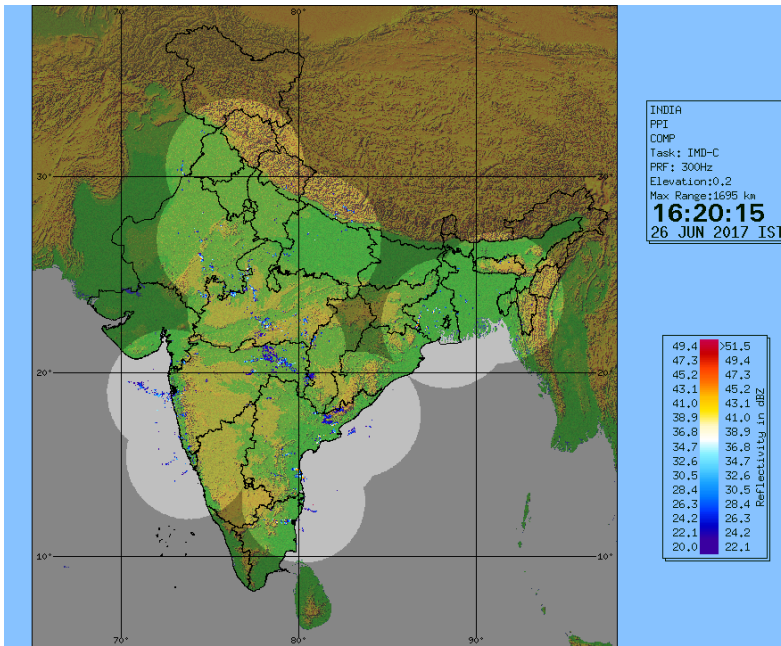
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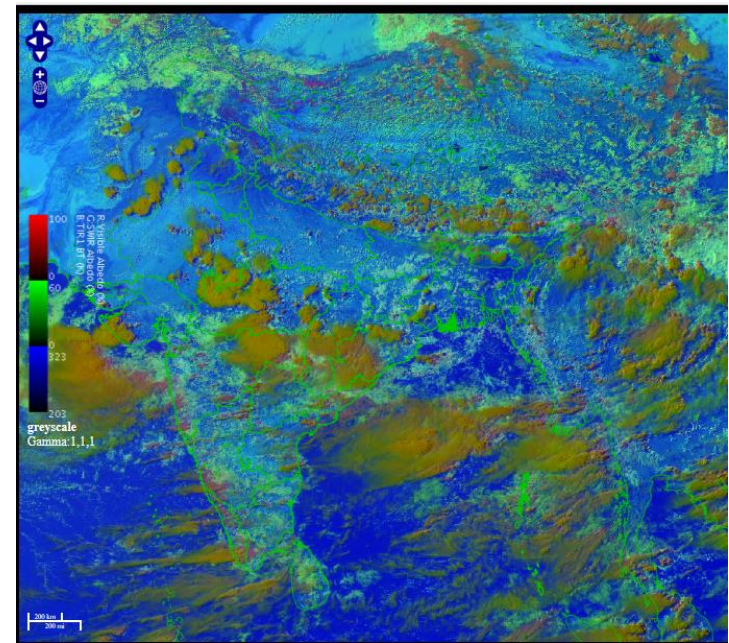
**IOP Advisory for 24 hours**



**IOP Advisory for 48 hours**

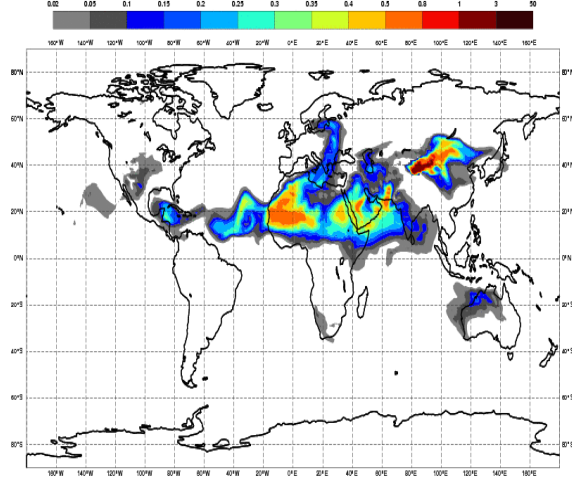


DWR composite at 1620hrs IST



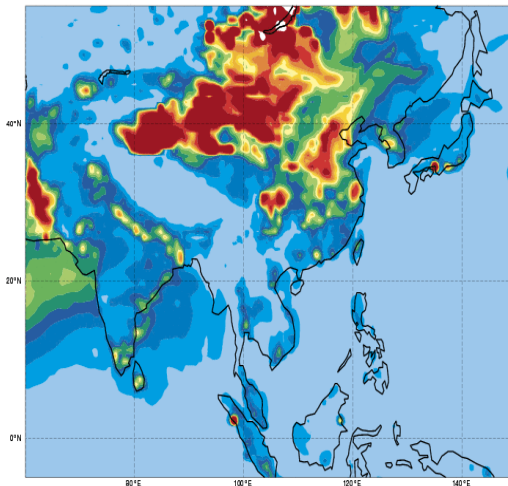
RAPID RGB Satellite Imagery at 1530 hrs IST of today

Sunday 25 June 2017 00UTC CAMS Forecast (+120 VT: Friday 30 June 2017 00UTC  
 Dust Aerosols Optical Depth at 550 nm

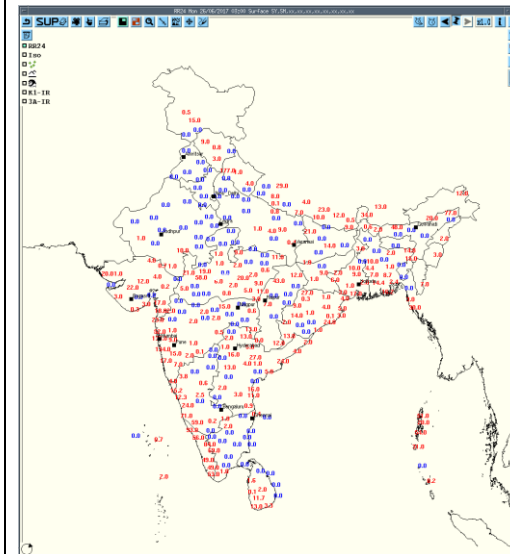


**Forecast Dust Concentration for 30<sup>th</sup> June**

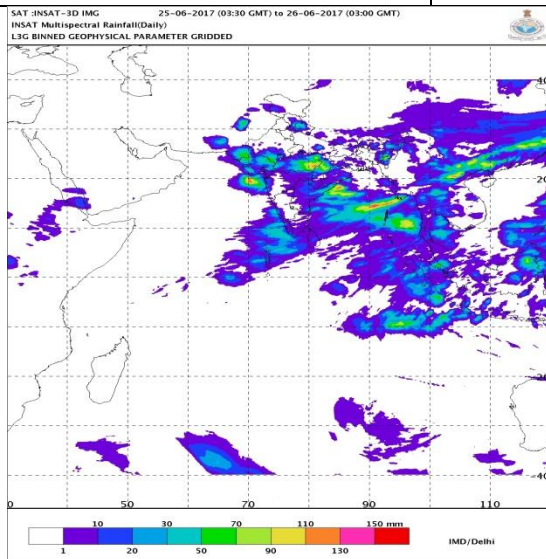
Sunday 25 June 2017 00UTC CAMS Forecast (+120 VT: Friday 30 June 2017 00UTC  
 Surface PM10 [ ug/m3 ]



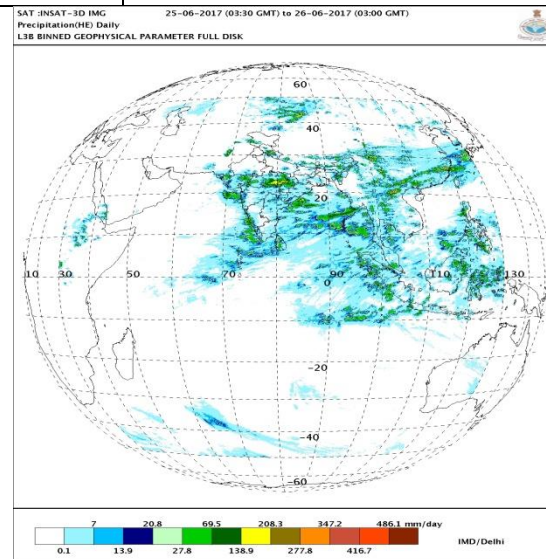
**PM10 Forecast for 30<sup>th</sup> June**



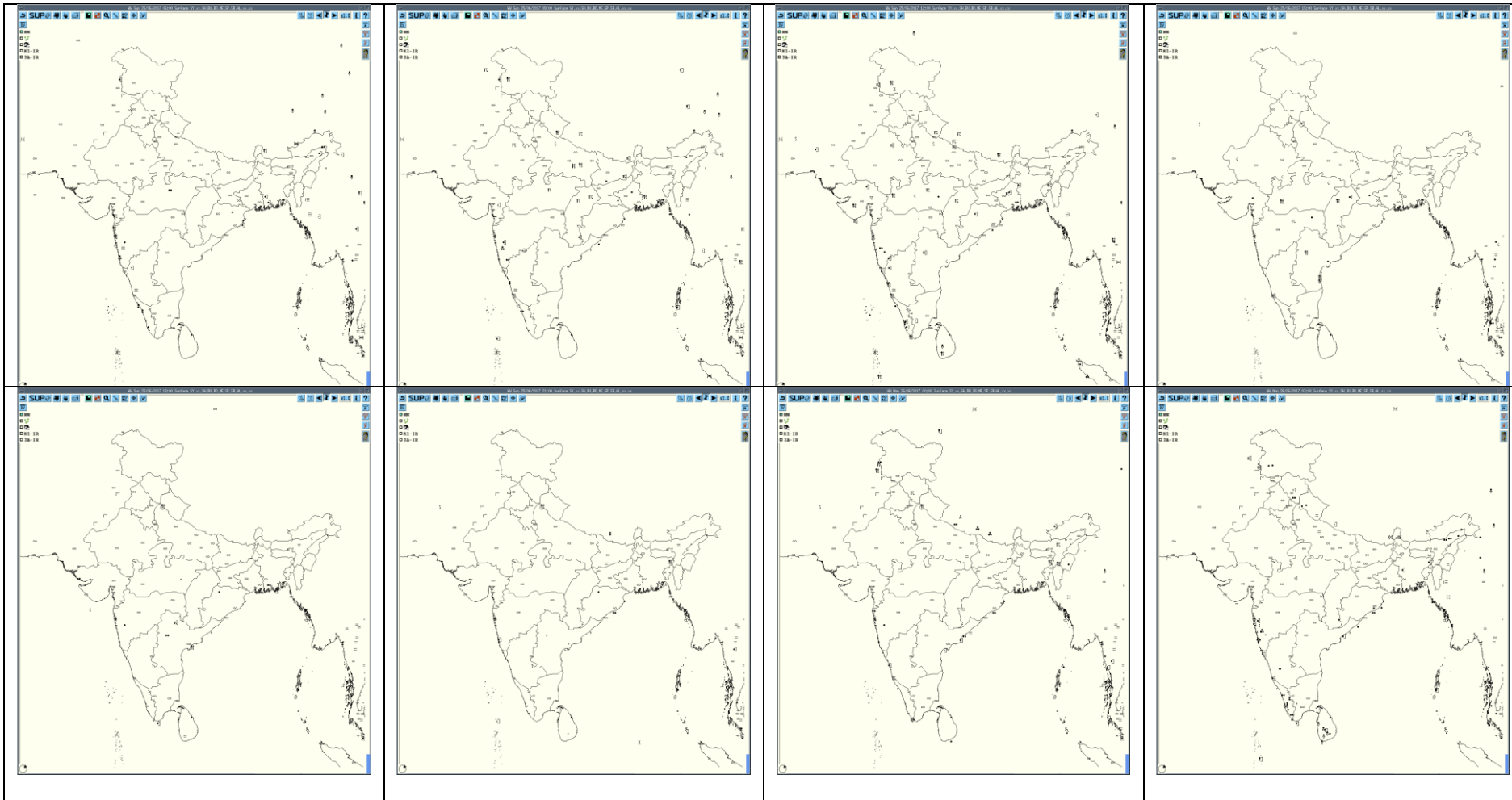
**Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today**



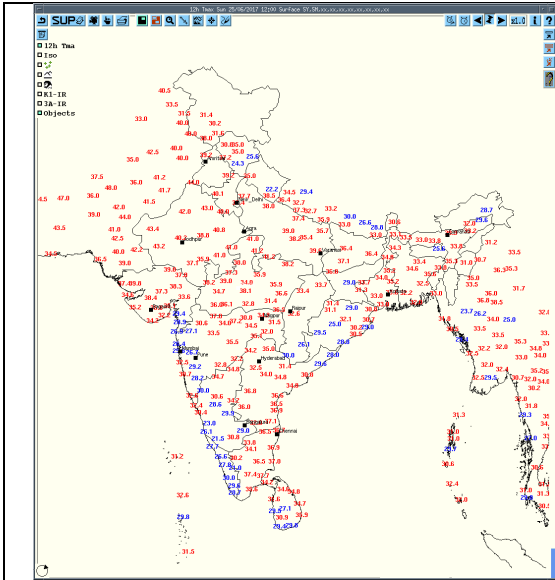
**IMR Rainfall**



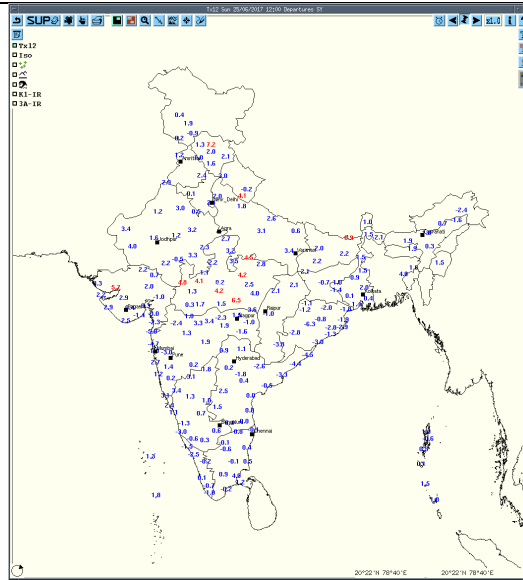
**HEM Rainfall**



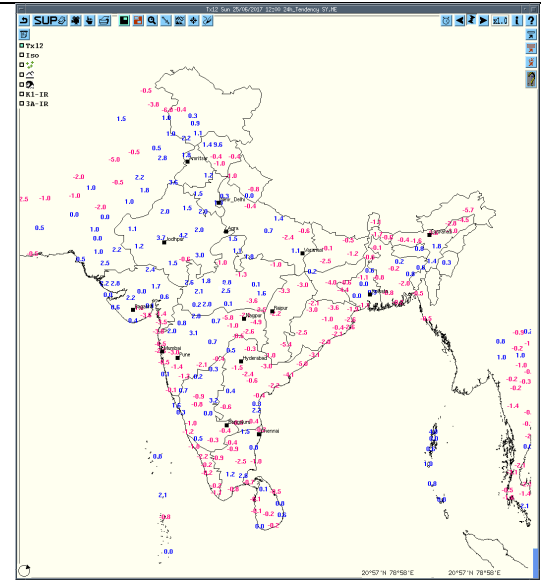
3hourly Past weather at 06, 09, 12, 15, 18, 21UTC of yesterday and 00 & 03 hrs UTC of today



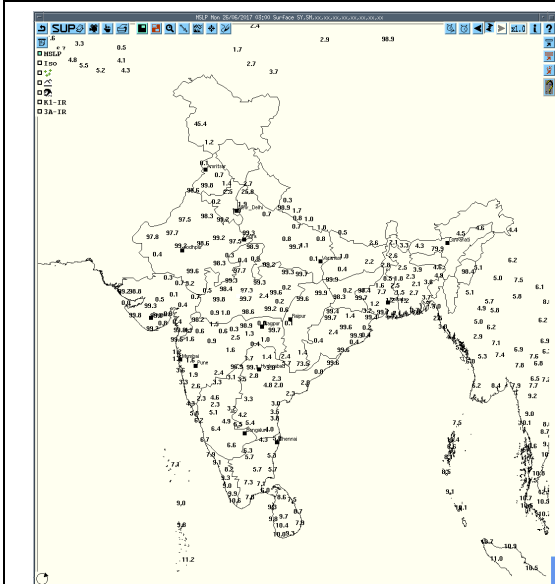
**Tmax**



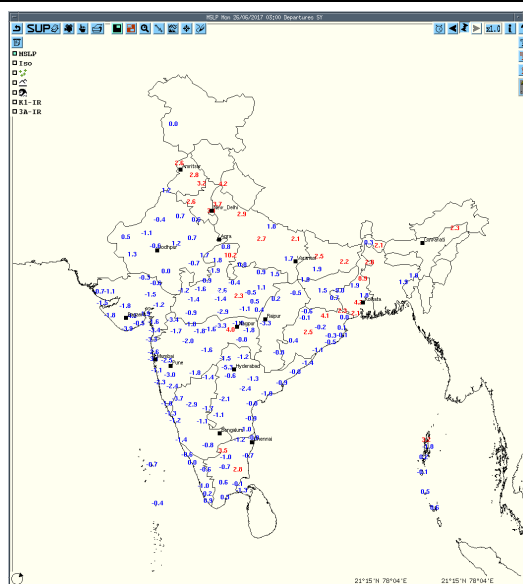
**Departure Tmax**



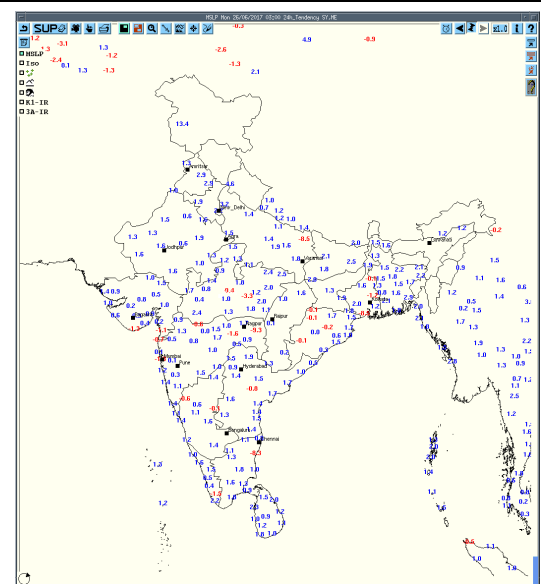
**Tendency Tmax**



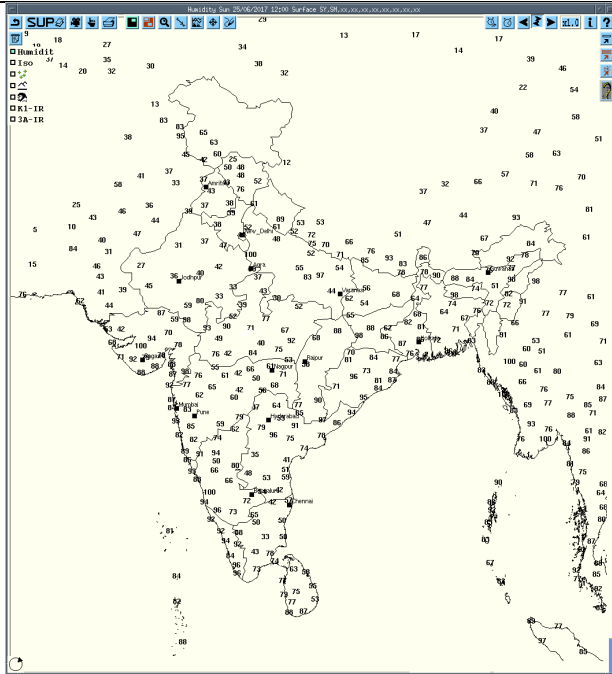
**MSLP**



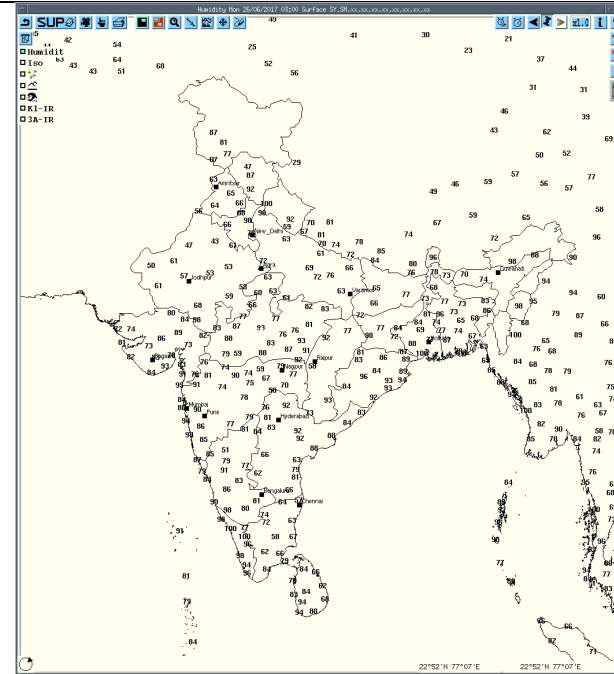
**Departure MSLP**



**Tendency MSLP**



RH at 12UTC yesterday



RH at 03UTC today

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

Realized weather past 24hours (Based on SYNERGIE Products)					
Date	Time of Reporting	Name of Station Reporting	Region	STATE	Weather Event
25-06-17	0600UTC	Nil	--	--	--
25-06-17	0900UTC	Kupwara	NW India	J & K	Thunderstorm
		Mukteshwar	NW India	Uttarakhand	Thunderstorm
		Churu	NW India	Rajasthan	Thunderstorm
		Fursatganj, Sultanpur	NW India	Uttar Pradesh	Thunderstorm
25-06-17	1200UTC	Srinagar	NW India	J & K	Thunderstorm
		Mukteshwar	NW India	Uttarakhand	Thunderstorm
		Churu	NW India	Rajasthan	Thunderstorm
		Ratlam, Sagar	C India	Madhya Pradesh	Thunderstorm
		Bhopal	C India	Madhya Pradesh	Lightening
		Pendra Road	C India	Chhattisgarh	Thunderstorm
		Rajkot, Diu	W India	Gujarat	Thunderstorm
		Ahmedabad	W India	Gujarat	Squall
		Panagarh	E India	West Bengal (GWB)	Thunderstorm
		Kailasahar	NE India	Tripura	Thunderstorm
		Hyderabad	S India	Telangana	Thunderstorm
		Vijayawada	S India	Andhra Pradesh (CAP)	Lightening
		Thiruvananthapuram	S India	Kerala	Thunderstorm
		Bajpe	S India	Karnataka	Thunderstorm
25-06-17	1500UTC	Jaisalmer, Kota	NW India	Rajasthan	Lightening
		Indore	W India	Madhya Pradesh	Thunderstorm
		Satna	W India	Madhya Pradesh	Lightening
		Pendra Road	C India	Chhattisgarh	Thunderstorm
		Akola	C India	Maharashtra (Vidarbha)	Thunderstorm
		Hyderabad	S India	Telangana	Thunderstorm
		Bajpe	S India	Karnataka	Thunderstorm
		Kavali, Nellore	S India	Andhra Pradesh (CAP)	Thunderstorm
		Ongole	S India	Andhra Pradesh (CAP)	Lightening
25-06-17	1800UTC	Dehradun	NW India	Uttarakhand	Thunderstorm
		Machilipatnam	S India	Andhra Pradesh (CAP)	Thunderstorm
		Ramagundam	S India	Telangana	Thunderstorm
		Thiruvananthapuram	S India	Kerala	Lightening
		North Lakhimpur	NE India	Assam	Lightening



25-06-17	2100UTC	Dehradun	NW India	Uttarakhand	Thunderstorm
26-06-17	0000UTC	Sundernagar	NW India	Himachal Pradesh	Thunderstorm
		Dehradun	NW India	Uttarakhand	Thunderstorm
		Tezpur, Silchar	NE India	Assam	Thunderstorm
26-06-17	0300UTC	Nil	--	--	--

**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)
Diu	W India	Gujarat (Gujarat Region)	Thunderstorm	25-06-17	1630	1640
Pendra Road	C India	Chhattisgarh	Thunderstorm	25-06-17	1420	2200
Indore	C India	Madhya Pradesh	Thunderstorm	25-06-17	2007	2220
Srinagar	NW India	J & K	Thunderstorm	25-06-17	1610	1614
Qazigund	NW India	J & K	Thunderstorm	25-06-17	1650	1905
Pahalgam	NW India	J & K	Thunderstorm	25-06-17	1750	1810
Kupwara	NW India	J & K	Thunderstorm	25-06-17	1335	1525
Kukernag	NW India	J & K	Thunderstorm	25-06-17	1740	1815
Banihal	NW India	J & K	Thunderstorm	25-06-17	1705	1840
Kota	NW India	Rajasthan (East)	Thunderstorm	25-06-17	1825	1840
Chittorgarh	NW India	Rajasthan (East)	Thunderstorm	25-06-17	1435	1500
Churu	NW India	Rajasthan (West)	Thunderstorm	25-06-17	1400	1700
Barmer	NW India	Rajasthan (West)	Thunderstorm	25-06-17	1555	1735
Ballia	NW India	Uttar Pradesh (East)	Thunderstorm	25-06-17	1255	1302
Sultanpur	NW India	Uttar Pradesh (East)	Thunderstorm	25-06-17	1250	1435
Shimla	NW India	Himachal Pradesh	Thunderstorm	26-06-17	0530	0600
<b>Ahmedabad</b>	<b>W India</b>	<b>Gujarat (Gujarat Region)</b>	<b>Squall from WSW direction with max. speed 50kmph</b>	<b>1703</b>	<b>1702</b>	<b>1703</b>
			<b>Squall from ESE direction with max. speed 65kmph</b>	<b>1945</b>	<b>1945</b>	<b>1946</b>
Amravati	C India	Maharashtra (Vidarbha)	Thunderstorm	25-06-17	1700	1800
Jabalpur	C India	Madhya Pradesh (East)	Thunderstorm	25-06-17	1440	1500
Sagar	C India	Madhya Pradesh (East)	Thunderstorm	25-06-17	1410	1430
					1615	1900
Chindwada	C India	Madhya Pradesh (East)	Thunderstorm	25-06-17	1130	1330
Ambikapur	C India	Chhattisgarh	Thunderstorm	25-06-17	1330	1445
Bilaspur	C India	Chhattisgarh	Thunderstorm	25-06-17	1905	2000
					2100	2115
Dehradun	NW India	Uttarakhand	Thunderstorm	25/26-06-17	252115	260645
Pantnagar	NW India	Uttarakhand	Thunderstorm	26-06-17	0430	0500

Mukteshwar	NW India	Uttarakhand	Thunderstorm	25-06-17	1330 1635	1450 1730
Tehri	NW India	Uttarakhand	Thunderstorm	26-06-17	0115	0615
Itanagar	NE India	Arunachal Pradesh	Thunderstorm	26-06-17	0800	0805
Jorhat	NE India	Assam	Thunderstorm	26-06-17	0230	0600
Dibrugarh	NE India	Assam	Thunderstorm	25-06-17	0830	1010
Tezpur	NE India	Assam	Thunderstorm	26-06-17	0510	0700
Lengpui	NE India	Mizoram	Thunderstorm	25-06-17	1600	2230
Kailasahar	NE India	Tripura	Thunderstorm	25-06-17	1640	1800
Coochbehar	E India	West Bengal (SHWB)	Thunderstorm	25-06-17	1610	1630
Jalpaiguri	E India	West Bengal (SHWB)	Thunderstorm	25-06-17	1300	1325
Bhagalpur	E India	Bihar	Thunderstorm & Lightening	25-06-17	1400	1405
Port Blair	E India	Andaman & Nicobar Islands	Thunderstorm	25-06-17	2335	2350
Hyderabad	S India	Telangana	Thunderstorm	25-06-17	2000	2130
Machilipatnam	S India	Andhra Pradesh (CAP)	Thunderstorm	25-06-17 25/26-06-17	1540 252310	1620 260030
Narsapur	S India	Andhra Pradesh (CAP)	Thunderstorm	25-06-17	2350	100
Kakinada	S India	Andhra Pradesh (CAP)	Thunderstorm	25-06-17	1805	1850
Bapatla	S India	Andhra Pradesh (CAP)	Thunderstorm	25-06-17	2130	2200
Kavali	S India	Andhra Pradesh (CAP)	Thunderstorm	25-06-17	1930	2040
Nellore	S India	Andhra Pradesh (CAP)	Thunderstorm	25-06-17	2010	2100
Tirupati AP	S India	Andhra Pradesh (RYSM)	Thunderstorm	25-06-17	1745	1900
Panambur	S India	Karnataka (CK)	Thunderstorm	25-06-17	0830 1217	0850 2020
Bajpe	S India	Karnataka (CK)	Thunderstorm	25-06-17	0830 1215 1540 1928	0920 1445 1810 2005
Karipur AP	S India	Kerala	Thunderstorm	26-06-17	0707	0730
Thiruvananthapuram City	S India	Kerala	Thunderstorm	25-06-17	1720 0330	1745 0510

**Past 24 hours DWR Report:**

Radar Station Name	Date of Report	Time Interval of Observation (UTC)	Organisation of cells (Isolated single cells/multiple cells/convective regions /squall lines) with height of 20 dBZ echo top and maximum reflectivity	Formation w.r.t. radar station and Direction of movement	Remarks	Associated Severe Weather if any	Districts affected
Machilipatnam	26-06-17	250731-251001	Isolated Multiple cells average height of 5.0km with maximum reflectivity of 51.5dBZ.	NW (240Km) and moving SE ly direction with average speed of 30.0 kmph.	Cell started forming at 0731 UTC, at NW(240 km) from Radar the maximum reflectivity during 0801 UTC to 0951 UTC and died down at 1001 UTC	Possibility of Thunder storm with rain and winds.	Warangal rural, Mahabubabad, Khamma Districts
		250831-251021	Isolated Multiple cells average height of 4.8 km with maximum reflectivity of 52.5dBZ.	W (73Km) and moving E ly direction with average speed of 15.0 kmph	Cell started forming at 0651UTC, at W (73 km) from Radar the maximum reflectivity during 0831UTC to 1011 UTC and died down at 1021 UTC	Possibility of Thunder storm with rain and winds.	Guntur, Krishna Districts
		250851-251111	Isolated Multiple cells average height of 6 km with maximum reflectivity of 54dBZ.	W (40KM) and it is moving E ly direction with average speed of 20.0 kmph	Cell started forming at 0851UTC, at W(40km) from Radar the maximum reflectivity during 0851UTC to 1041 UTC and died down at 1051 UTC	Possibility of Thunderstorm with rain and winds.	Guntur, Krishna Districts
		250941-251541	Convective region with average height of 6 km with maximum reflectivity of 54.0dBZ.	WNW (179KM) and moving E ly direction with average speed of 40.0kmph	Cell started forming at 0941UTC, at WNW (179Km) from Radar the maximum reflectivity during 1011UTC to 1521 UTC and died down at 1541 UTC	Possibility of Thunder storm with rain and winds.	Nalgonda, Suryapet, Khamma, Guntur, Krihna, West Godavari, East Godavari Districts
		251241-251801	Isolated Multiple cells average height of 5.5 km with maximum reflectivity of 55.0dBZ.	W (228KM) and moving E ly direction with average speed of 30.0kmph	Cell started forming at 1241UTC, at W (228Km) from Radar the maximum reflectivity during 1311UTC to 1751 UTC and died down at 1801 UTC	Possibility of Thunder storm with rain and winds.	Prakasam, Guntur, Krishn a Districts

		251221-251521	Convective region with average height of 5.0 km with maximum reflectivity of 52.5dBZ.	WSW (250KM) and moving E ly direction with average speed of 30.0kmph	Cell started forming at 1221UTC, at WSW (250Km) from Radar the maximum reflectivity during 1251UTC to 1511 UTC and died down at 1521 UTC	Possibility of Thunder storm with rain and winds.	Prakasam,Nellore Districts
		251701-260011	Convective region with average height of 5.5 km with maximum reflectivity of 54.5dBZ.	NW (217KM) and moving E ly direction with average speed of 45.0kmph	Cell started forming at 1701UTC, at NW (217Km) from Radar the maximum reflectivity during 1721UTC to 2251 UTC and died down at 0011 UTC	Possibility of Thunder storm with rain and winds.	Nalgonda, Warangal rural, Mahabubabad Suryapet, Khamma,Bhadrachalam, Kothagudem, Dantewara, Malkangiri, Guntur,Krishna, West Godavari,East Godavari, Visakhapatnam Districts
Nagpur	26-06-17	250532-251522	Multiple	100 km in NW,moving SW	49.50dbZ cloud ht.= 4-5.8km	<u>Thunderstorm warning</u> started at 0802 and continues mostly in NE & NW region,	Rainfall in many places in,Amraoti, Nagpur , Akola Chandrapur Hinganghat, Pusad, Ramtek, Kotal and isolated places in Gondia , Washim and Buldhana ,seoni ,brahmpuri,yetmal,gadchiroli,betul
		250542-251522	Multiple	150 km in N, moving in SW	50.50 dbZ, cloud ht.=5.5 - 6km		
		250832-251632	Multiple	Coming from NE moving in SW	40 dbZ, cloud ht= 3.5-5.8 km		
		252122-252352	multiple	150 km SE, moving S	40 dbZ, cloud ht.= 3.5-5.8 km		
		260002-260302	From previous				
Patiala	26-06-17	250300-251800	No Significant Echo	--	--	--	--

		251800-252100	Multiple cells cell Max dBZ=51.5 Ht.= 11-13 KMS	EAST WARD MOVEMENT-SE SECTOR	-----	TS/RA	MUSSOORIE, DEHERADOO N
		252100-260000	Multiple cells cell Max dBZ=53.0 Ht.= 10-12 KMS	NE – WARD MOVEMENT-SE	-----	TS/RA	NAHAN,MUS SOORIE,DEH ERADOON,B EHAT,B-DAM
		260000-260252	No Significant Echo	--	--	--	--
Jaipur	26-06-17	250612-262322	Multiple cell with average height of 3.0 km & maximum reflectivity 55.5 dBZ	Multiple cell develop from 0612 UTC of 25/06/2017 towards SSE, SSW, of Jaipur and moved to WEST Wards at speed 20-25 km/hr	Cell starts forming from 0612 UTC of 25/06/2017 towards SSE,SSW of Jaipur and reaches maximum refelectivity during 0822-1212 UTC OF 25/06/2017 and died 2322 UTC	Thunderstorm/rain at a few places	SAWAIMADH OPUR,JHUNJ HUNU,AJMER ,NAGPUR,SIK AR,JAIPUR,B HARATPUR,J HALAWAR,AL WAR,TONK,K OTA,BUNDI,B ARAN,BHILW ARA,PALI DISTRICTS.
Agartala	26-06-17	250842 - 250922	Multiple cells formed w.r.t DWR Agartala in the direction of East &NE at a distance around 100km with Maximum cell Height <b>14 km at 0842 UTC</b> and maximum reflectivity <b>34 dBZ</b>	Formed East & NE of DWR Agartala at a distance around 100km and moves NNW-wards direction.	Dissipated at 120km in NE direction 0922 UTC.	N/A	N/A
		251022 - 251342	Multiple cells formed w.r.t DWR Agartala in the direction of East at a distance around 150km with Maximum cell Height <b>13.8 km at 1022 UTC</b> and maximum reflectivity <b>43 dBZ</b>	Formed East of DWR Agartala at a distance around 150km and moves N-wards direction.	Dissipated at 160km in NE direction 1332 UTC.	N/A	N/A
Kolkata	26-06-17	250301-250451	NIL	NIL	NO ECHO	NIL	NIL
			1.Small isolated cells developed and merged to form an extended	Between S/34.7 km and SE/52.0 km moving towards WNW	Small isolated cells developed at 0501 UTC in between S/34.7 km and	Thunderstorm / Rain	N/A

			multi cell system with maximum reflectivity of 56.5 dBz at 0531 UTC and maximum height more than 9.32 km at 0541 UTC.		SE/52.0 from Radar merged to form an extended multi cell. Matured. Dissipated at 0701 in W/20 km from Radar.		
		250501-251731	2. Small isolated cells developed and merged to form an extended multi cell system with maximum reflectivity of 58.5 dBz at 0611 UTC and maximum height more than 14.5 km at 0621 UTC.	Formation started in between 0501 and 0521 UTC in between ESE/122 km and SE/65 km from Radar, moving in WNW –ly direction with a speed of 34.6 kmph.	Small isolated cells developed between 0501 and 0521 UTC in between ESE/122 km and SE/65 km from Radar and merged to form an extended multi cell system at 0601 UTC. Matured. Dissipated at 0701 in SSW /9 km from Radar.	Thunderstorm / Rain	N/A
			3. Small isolated cells developed and merged to form an extended multi cell system with maximum reflectivity of 58.0 dBz at 0831 UTC and maximum height of 16.0 km at 0841 UTC.	Formation started in between 0751 and 0811 UTC in between ENE/95 km and NE/91 km from Radar, moving in WNW –ly direction with a speed of 40.7 kmph.	Small isolated cells developed between 0751 and 0811 UTC in between ENE/95 km and NE/91 km from Radar and merged to form an extended multi cell system at 0831 UTC. Matured. Merged with cell no. 4 at 1221 in NW/163 km from Radar.	Thunderstorm / Rain	N/A
			4. Small isolated cells developed and merged to form multi cell system with maximum reflectivity of 57.0 dBz at 1001 UTC and maximum height of 16.3 km at 1151 UTC.	Formation started in between 0851 and 0901 UTC in between N/58 km and NW /78 km from Radar, moving in NW/WNW – ly direction with a speed of 34.6 kmph.	Small isolated cells developed between 0851 and 0901 UTC in between N/58 km and NW /78 km from Radar, and merged to form multi cell system at 0931 UTC. Matured. Merged with cell no.3 at 1221 in NW/163 km from Radar.	Thunderstorm / Rain	N/A
			5. Multicelled system with maximum reflectivity of 54.5 dBz at 1221 UTC and maximum height of 16.7 km at 1231 UTC.	NW/163 km from Radar , moving in WNW –ly direction with a speed of 29 kmph.	Multicelled system developed at 1221 UTC by merging cell no. 3 & 4 in NW/163 km from Radar. Matured. Dissipated at 1531 in NW/236 km from Radar.	Thunderstorm / Rain	N/A
			6. Small isolated cell with maximum reflectivity of 58.0 dBz	NNW/72 km from Radar. Moving in NW –ly direction with a	Small isolated cell developed at 1151 in NNW/72 km from Radar.	Thunderstorm / Rain	N/A

			at 1251 UTC and maximum height of 15.8 km at 1411 UTC.	speed of 30 kmph.	Matured. Dissipated at 1601 in N/193 km from Radar.		
			7. Small isolated cell with maximum reflectivity of 54.0 dBz at 1331 UTC and maximum height of 13.5 km at 1601 UTC.	ESE/54 km from Radar. Moving in NW -ly direction with a speed of 38 kmph.	Small isolated cell developed at 1231 in ESE/54 km from Radar. Matured. Dissipated at 1731 in NNW/122 km from Radar.	Thunderstorm / Rain	N/A
		251741-252001	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL
		252011-260011	8. Small isolated cell with maximum reflectivity of 51.5 dBz at 2221 UTC and maximum height of 14.1 km at 2251 UTC.	ENE/122 km from Radar , moving in NNW -ly direction with a speed of 25 kmph.	Small isolated cell developed at 2011 in SE/113 km from Radar. Not matured. Dissipated at 260011 UTC in ENE/122 km from Radar.	Thunderstorm / Rain	N/A
		260021-260301	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL
Srinagar	26-06-17	250300-260300	1. Single cells developed in NW & Multiple cells SE direction of DWR at 1330 UTC and grew into multiple cells in all direction with max. reflectivity of 50-55 dbz and average height 6-7km. 2. Isolated cells developed in SE direction of DWR at 1850UTC and grew into multiple cells with max. reflectivity of 40-45 dbz and average height 6 Km	Dissipated at 1840 UTC with SE direction.	Light to Moderate rain Qazigund/Kukernag/Gulmar g .	Thunderstorm reported at Srinagar region & Banihal	Srinagar & Jammu
Karaikal	26-06-17	250300-260300	--	--	DWR U/S	--	--
Paradeep	26-06-17	250300-260300	-	--	DWR Switched Off	--	--



+ thunderstorm



+ heavy thunderstorm



sandstorm or dust storm



squall



hail shower



tropical storm



+ tornado



+ lightning



+ hurricane

www.visualdictionaryonline.com



haze



smoke



dust or sand storm



fog



drizzle



rain



snow



showers



hail



thunderstorm

### Weather Symbols