



**India Meteorological Department**  
**FDP STORM Bulletin No.87 (31-05-2017)**

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

The Northern Limit of Monsoon (NLM) continue to pass through 10.0°N/60.0°E, 10.0°N/70.0°E, Kochi, Tondi, 14.0°N/ 87.0°E, 17°N/ 90.0°E, 20.0°N/ 91.0°E, Aijwal, Kohima & Deomali.

The well-marked low pressure area over Nagaland & neighbourhood now seen as a low pressure area over Nagaland & neighbourhood.

The trough at mean sea level from West Rajasthan to centre of low pressure area over Nagaland & neighbourhood now runs from West Rajasthan to west central Bay of Bengal off coastal Andhra Pradesh.

A trough now runs roughly along Long. 82.0°E to the north of Lat. 22.0°N between 3.1 km and 5.8 km above mean sea level.

The off-shore trough at mean sea level from north Maharashtra coast to north Kerala coast now runs from south Maharashtra coast to Kerala coast.

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

An upper air cyclonic circulation lies over south Madhya Maharashtra & neighbourhood and extends between 2.1 km & 4.5 km above mean sea level.

A trough runs from West Rajasthan to Nagaland across north Madhya Pradesh, south Bihar, Jharkhand & Gangetic West Bengal and extends upto 1.5 km above mean sea level.

The trough roughly along Long. 87.0°E to the north of Lat. 25.0°N at 5.8 km above mean sea level has become less marked.

The upper air cyclonic circulation over East Uttar Pradesh & neighbourhood 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
1	31/0200	N Rajasthan	73	E-wards	Developing
	0300	do	73		
	0400	NE Rajasthan adjoining S Haryana	60		
	0500	S Haryana adjoining Rajasthan, Delhi	51		
	0600	do	69		
	0700		71		
	0900		73		
2	0900	NE Odisha adjoining S Gangetic West	89		

		Bengal			
3	0900	N Madhya Maharashtra	62		

**Western Disturbance (WD):**

Scattered multi-layered clouds seen over J & K, Himachal Pradesh, E Punjab, Haryana, adjoining Rajasthan, adjoining NW Uttar Pradesh, Delhi and Uttarakhand and association with WD over the region.

**Cloud Description:**

Scattered low/medium clouds with embedded moderate to intense convection were seen over NE Odisha adjoining S Gangetic West Bengal, NE Rajasthan, S Konkan & Goa, N Vidarbha, N Madhya Maharashtra, Lakshadweep and Bay Islands. Scattered low/medium clouds with embedded weak to moderate convection were seen over NC Andhra Pradesh, Karnataka and Kerala. Scattered low/medium clouds with embedded isolated weak to moderate convection were seen over rest parts of East India except N Bihar and S Sub Himalayan West Bengal. Scattered low/medium clouds were seen over rest Uttar Pradesh and rest parts of East & South India.

**Arabian Sea:**

Scattered low/medium clouds with embedded intense to very intense to very intense convection were seen over Southeast Arabian Sea.

**Bay of Bengal & Andaman Sea:**

Broken low/medium clouds with embedded intense convection were seen over Andaman Sea and S Arakan Coast. Scattered low/medium clouds with embedded moderate to intense convection were seen over SE Bay of Bengal.

**Past Weather:**

**Convection:-**

Moderate to Intense convection was observed over J&K Himachal Pradesh Punjab Uttarakhand Rajasthan Madhya Pradesh Konkan Goa Jharkhand Odisha West Bengal Meghalaya North East States.

**OLR:-**

Upto **200**  $\text{wm}^{-2}$  was observed over South East West Bengal North East States.

Upto **230**  $\text{wm}^{-2}$  was observed over J&K Himachal Pradesh Uttarakhand South Konkan Sikkim Rest West Bengal Kerala South Tamilnadu.

Upto **250**  $\text{wm}^{-2}$  was observed over South Chhattisgarh Coastal Odisha East Bihar East Jharkhand

**Westerly Trough & Jet-Stream:**

Trough in westerlies runs roughly along 80.0E North of Lat 22.0N.

& No Jet Stream Observed Over India.

**Dynamic Features:**

Low to Medium wind shear is observed over India.

Negative shear tendency observed over Maharashtra Odisha Bihar Telangana North Interior Karnataka North East States Positive shear tendency is observed over rest parts of India.

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

Negative low level convergence is observed over Uttar Pradesh Bihar Madhya Maharashtra Kerala and Positive low level convergence observed over rest parts of India

**Precipitation:**

**IMR:**

Rainfall Up to **70** mm was observed over Tripura Mizoram. Rainfall Up to **50** mm was observed over South Konkan South West Bengal Manipur. Rainfall Up to **30** mm was observed over East Assam Extreme East Arunachal Pradesh Nagaland . Rainfall Up to **20** mm was observed over Meghalaya Rest Assam Rest Arunachal Pradesh. Rainfall Up to **10** mm was observed over J&K Himachal Pradesh North Rajasthan Madhya Pradesh North East Odisha East Bihar East Jharkhand Sikkim Kerala Tamilnadu.

## HEM:

Rainfall Up to **70** mm was observed over South Konkan Meghalaya Arunachal Pradesh Nagaland Manipur Mizoram. Rainfall Up to **14** mm was observed over South West J&K West Himachal Pradesh North West Madhya Pradesh Central Assam .

Rainfall Up to **07** mm was observed over North Punjab East Uttar Pradesh North Rajasthan South Chhattisgarh North East Odisha Bihar Jharkhand Kerala Tamilnadu.

## RADAR and RAPID Observation:

DWR Composite at 1610hrs IST indicated significant convection over Gangetic West Bengal, North Coastal Odisha, East Rajasthan adjoining N Madhya Pradesh & West Uttar Pradesh. It also indicated isolated convection over Andhra Pradesh, North Tamilnadu and North Jharkhand. Multiple echoes was seen in DWR Kolkata (with dBZ 50-55 and height > 15km) at 1631hrs IST and DWR Jaipur (with dBZ 45-50 and height 9-15km) at 1622hrs IST.

RAPID RGB Satellite imagery of 1530hrs IST indicated significant convective clouds over East Rajasthan, Madhya Pradesh, West Uttar Pradesh adjoining Haryana, J & K, Himachal Pradesh, Uttarakhand, Maharashtra, Chhattisgarh, Odisha, West Bengal, Sikkim, Jharkhand, Karnataka, Tripura, adjoining S Assam, Manipur, Mizoram, Lakshadweep & Minicoy Islands and Andaman & Nicobar Islands.

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

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

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

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

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

**12UTC Charts of Day 0-4** except Day 1, show evolution of heat low over NW India and adjoining Pakistan with MSLP values lower than 990hPa on Day-2 to Day-4.

**12UTC charts on days from Day 0 to Day 3:** show a zone of wind discontinuity at 925 hPa; E-W extending from Rajasthan-MP to Jharkhand

CYCIR over Arabian Sea near 20N/65E in Day1 to Day4

#### **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: Assam Meghalaya, East RJ, West MP, East MP,

Day0: Jharkhand, Hry Chd Delhi, West RJ, Madhya Maharashtra,

Day1: Assam Meghalaya, Chhattisgarh,

Day2: Arunachal Pradesh, Assam Meghalaya, Madhya Maharashtra,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Gangetic WB, Madhya Maharashtra, Marathawada,

Day4: Assam Meghalaya, NE NMMT, Odisha

#### **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, Jharkhand, West RJ, TN Puducherry,

Day1: Arunachal Pradesh, Assam Meghalaya, Himachal Pradesh, West RJ, TN Puducherry,

Day2: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Madhya Maharashtra, TN Puducherry,

Day3: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, West UP, Uttarakhand, Himachal Pradesh, TN Puducherry,

Day4: Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, TN Puducherry

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

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

Day0: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, Guj Reg, Saurashtra Kutch,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Guj Reg, Saurashtra Kutch, Madhya Maharashtra,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, Guj Reg, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, East RJ, Odisha, West MP, Guj Reg, Saurashtra Kutch, Madhya Maharashtra, Vidarbha, Coastal AP, TN Puducherry,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Vidarbha, Chhattisgarh, Coastal AP, TN Puducherry.

### **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, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, West MP,

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,

Day2: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ,

Day3: Arunachal Pradesh, Gangetic WB, Jammu Kashmir,

Day4: Arunachal Pradesh, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Vidarbha, Chhattisgarh, Coastal AP

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

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

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

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Guj Reg,

Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Marathawada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, SI Karnataka, Kerala,

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

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, East RJ, Odisha, West MP, East MP, Guj Reg, Saurashtra Kutch, Madhya Maharashtra, Marathawada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka.

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

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

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Konkan Goa, Coastal Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jammu Kashmir, West RJ, Guj Reg, Saurashtra Kutch, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Konkan Goa, Madhya Maharashtra, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Konkan Goa, Madhya Maharashtra, Andaman Nicobar, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Konkan Goa, Madhya Maharashtra, Andaman Nicobar, Coastal Karnataka, SI Karnataka, Kerala.

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

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

00 UTC analysis shows the trough from Rajasthan to north-east region across Madhya Pradesh, Odisha and Chhattisgarh, WB and the forecasting shows this trough will have moved northward and persist day 4 to day 5 over said region.

#### **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 J & K

#### **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, Haryana, some pocket over central part of country and west coastal region and over the north eastern region. The high vorticity belts are mainly confined over regions of UP, Haryana, Delhi, 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 Gujarat and Rajasthan in the analysis. Forecast shows high threshold values over Gujarat, Rajasthan for Day 1, along with few pockets in Odisha, WB and Bihar for the next 3 to 5 days.

**Lifted Index (< -2):** The areas with index less than -2 lies along Bihar, Chhattisgarh, GWB and major regions of AP along with Gujarat Rajasthan for the next 2 to 3 days.

**Sweat Index (> 400):** 00UTC shows significant values over major parts over 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, Maharashtra and along with major regions bordering the west coast during the next 3 to 4 days.

**CIN (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:**

00 analysis shows 40-70 mm rain fall over northeast region and 10-40 mm rainfall along west coast of country.

40-70 mm is forecasted over major pockets over west coast and NE region is expected to persist for the next 4-5 days. 10-40 mm over some pockets of Maharashtra on day 2 to day 4

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

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

15-40 dBZ over regions of the North-East region of country and isolated pockets of the southern coast region during next 3 days on day 1 and day 2 over some isolated place of Punjab, HP, J & K and Delhi.

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

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

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

**3. Rainfall and thunderstorm activity:**

40-70 mm over North-east region, WB and adjoining areas and west coast of country based on 00 analyses it will persist for next 3 days.

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

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

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

Presently, the offshore trough at mean sea level from north Maharashtra coast to north Kerala coast now runs from south Maharashtra coast to Kerala coast, this will give rise to extreme rainfall over Kerala and Coastal Karnataka on Day-1 and Day-2.

The well-marked low pressure area over Nagaland & neighbourhood now seen as a low pressure area over Nagaland & neighbourhood. Due to this system, the Assam, Meghalaya, Manipur, Tripura, Nagaland will experience heavy rainfall for Day-1 and Day-2.

The upper air cyclonic circulation over central Pakistan & neighbourhood persists and now extends upto 1.5 km above mean sea level, this will give rise to thunderstorm with hail over South J&K, Punjab, Haryana, Himachal Pradesh and Uttarakhand on Day-1.

Due to an upper air cyclonic circulation lies over south Madhya Maharashtra & neighbourhood, the entire central and eastern parts of the country will experience the thunder storm with gusty wind on Day-1.

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

Coastal Karnataka, South Interior Karnataka, Kerala, Lakshadweep  
Arunachal Pradesh Assam Meghalaya Tripura, Nagaland, Manipur, Mizoram  
Sub Himalayan West Bengal, Gangetic West Bengal, Sikkim  
Orissa, Bihar and Jharkhand, Chhattisgarh, West and East MP, Vidarbha  
Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, West and East UP, East Rajasthan  
Andaman and Nicobar Islands

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

Coastal Karnataka, Kerala, Lakshadweep  
Sub Himalayan West Bengal, Gangetic West Bengal, Sikkim  
Assam Meghalaya  
Tripura, Nagaland, Manipur, Mizoram, Arunachal Pradesh  
Orissa, Bihar and Jharkhand,  
West UP

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)

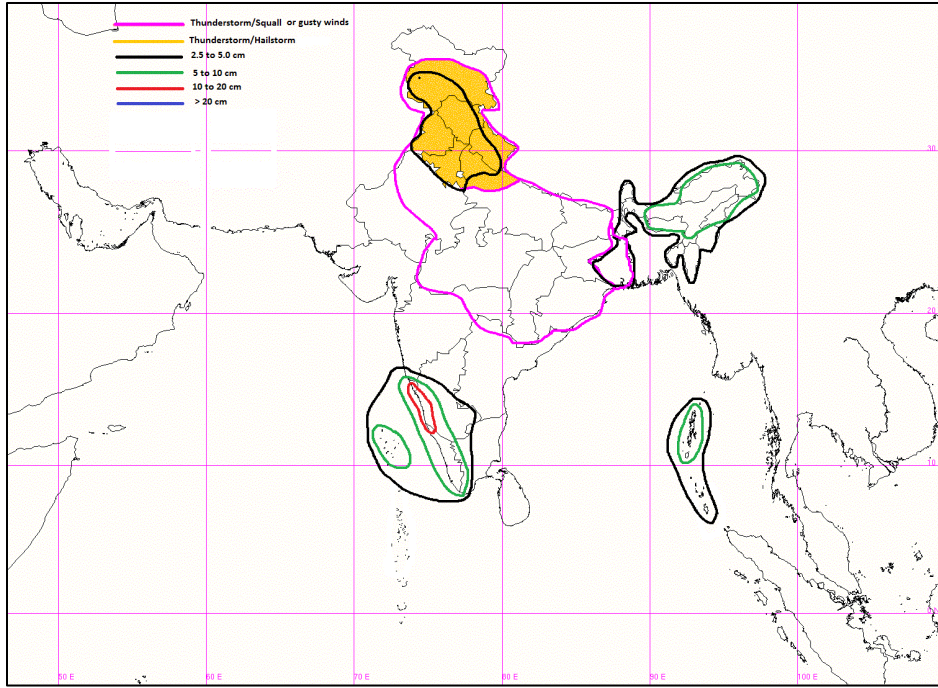
ForRadarimagesofthepast24hoursincludingmosaicofimages:

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

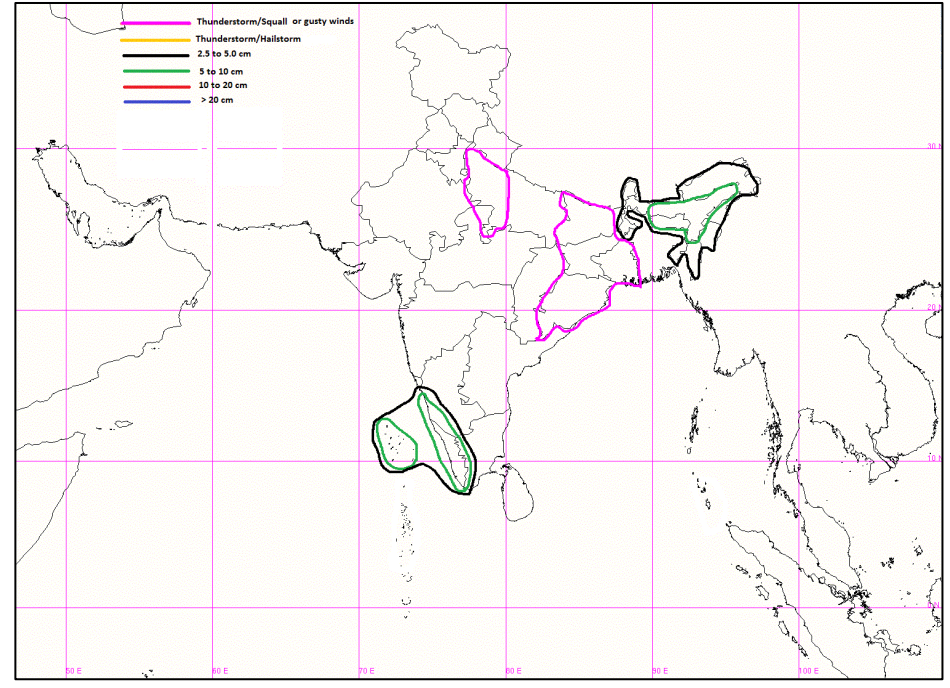
Satellite sounder based T- Phigram

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

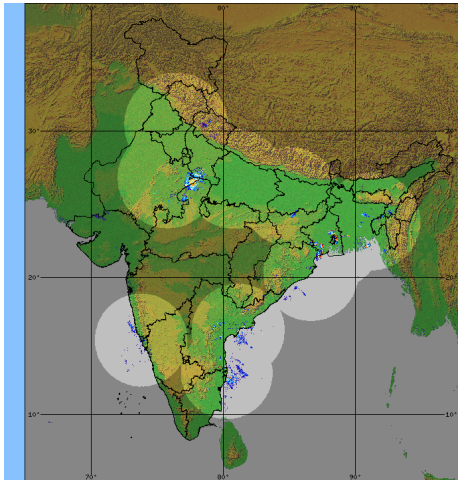




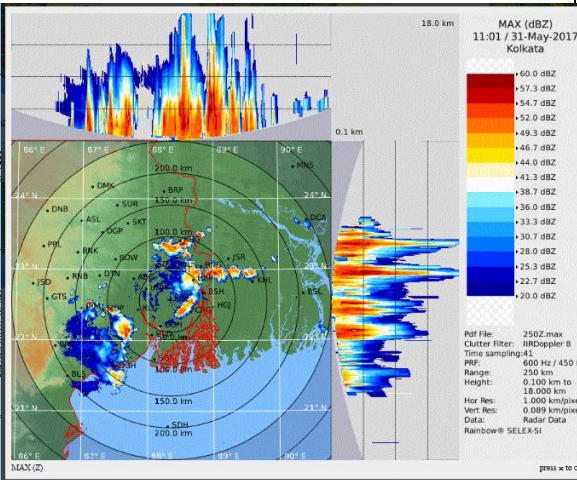
**IOP Advisory for 24 hours**



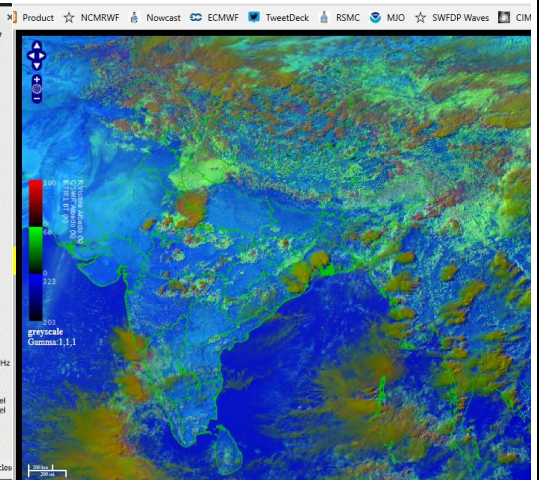
**IOP Advisory for 48 hours**



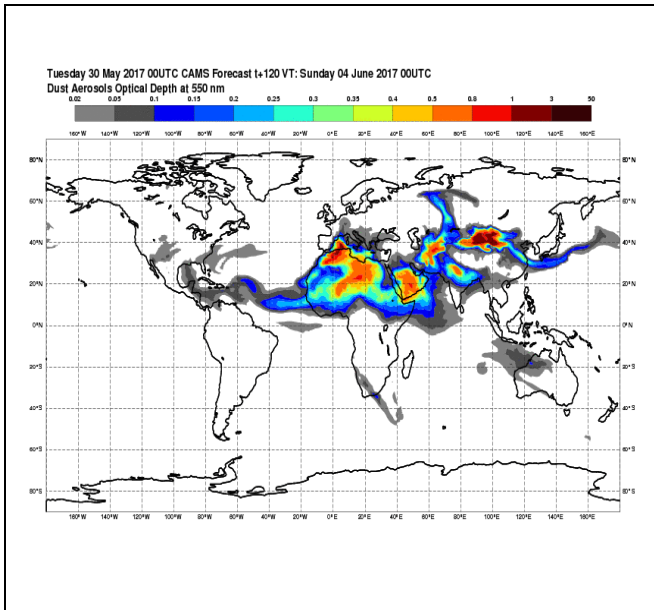
DWR composite at 1610hrs IST



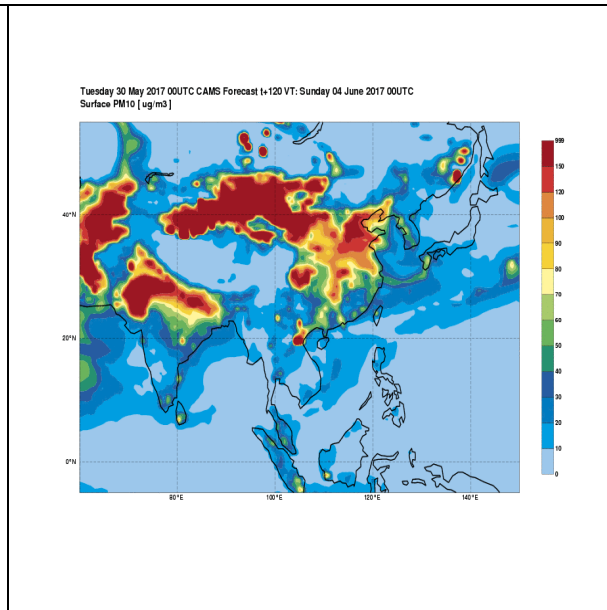
DWR Delhi at 1631 hrs IST of today



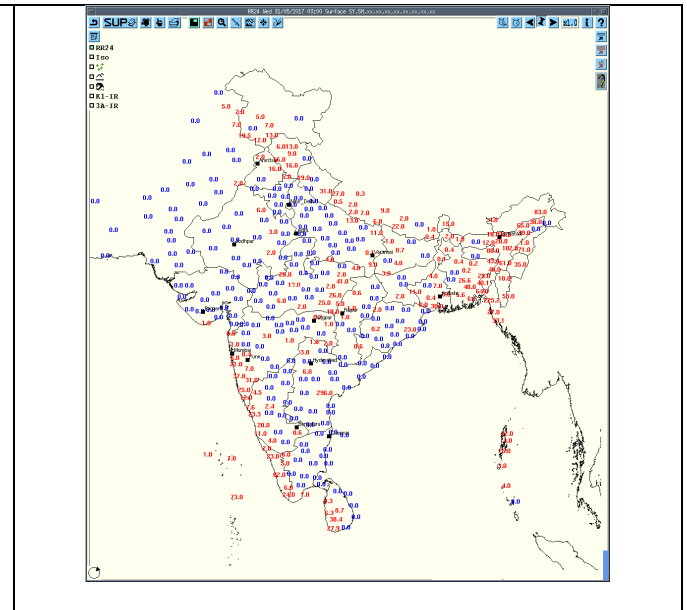
RAPID RGB Satellite Imagery at 1530 hrs IST of today



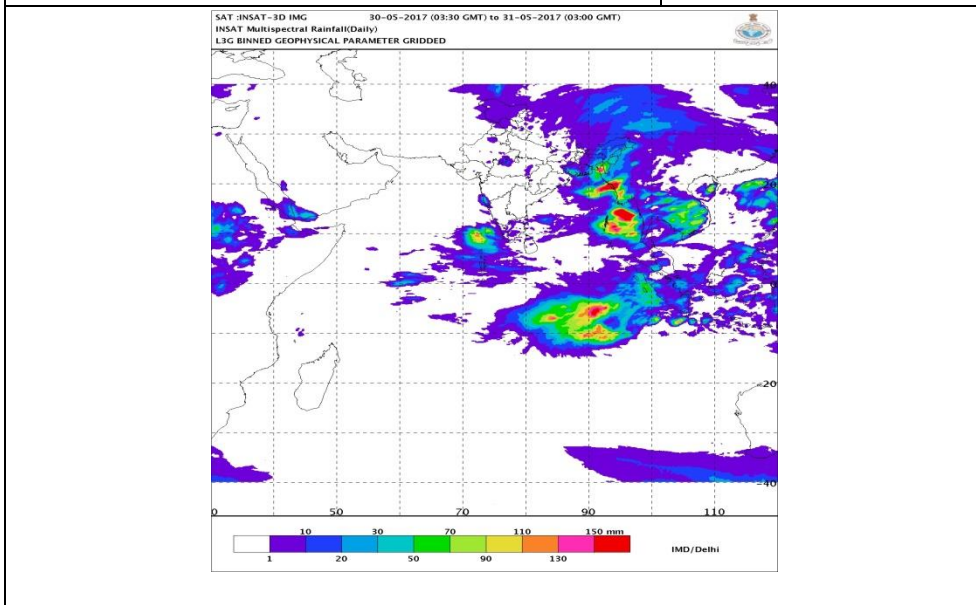
**Forecast Dust Concentration for 00UTC of 4<sup>th</sup> June**



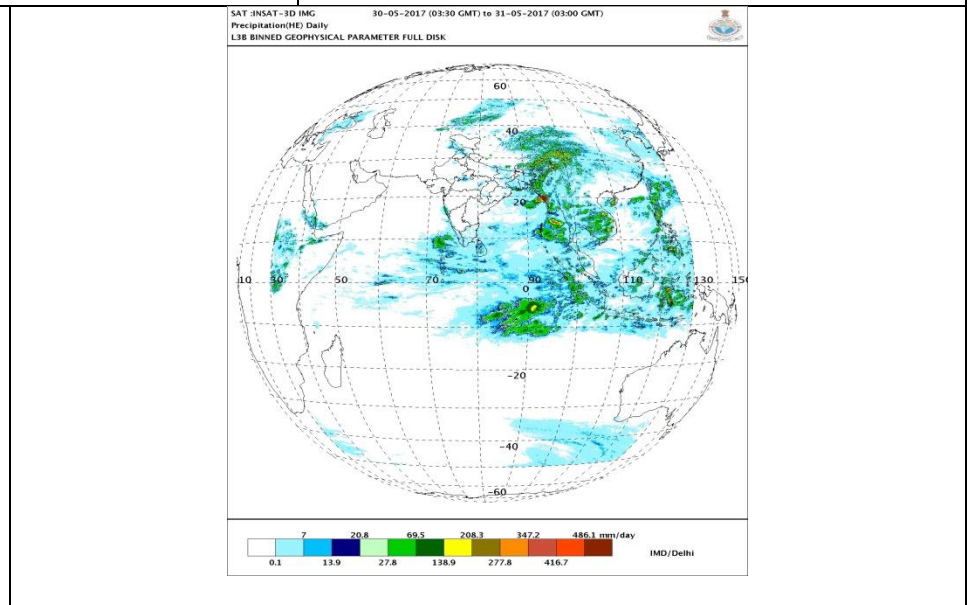
**PM10 Forecast for 00UTC of 4<sup>th</sup> June**



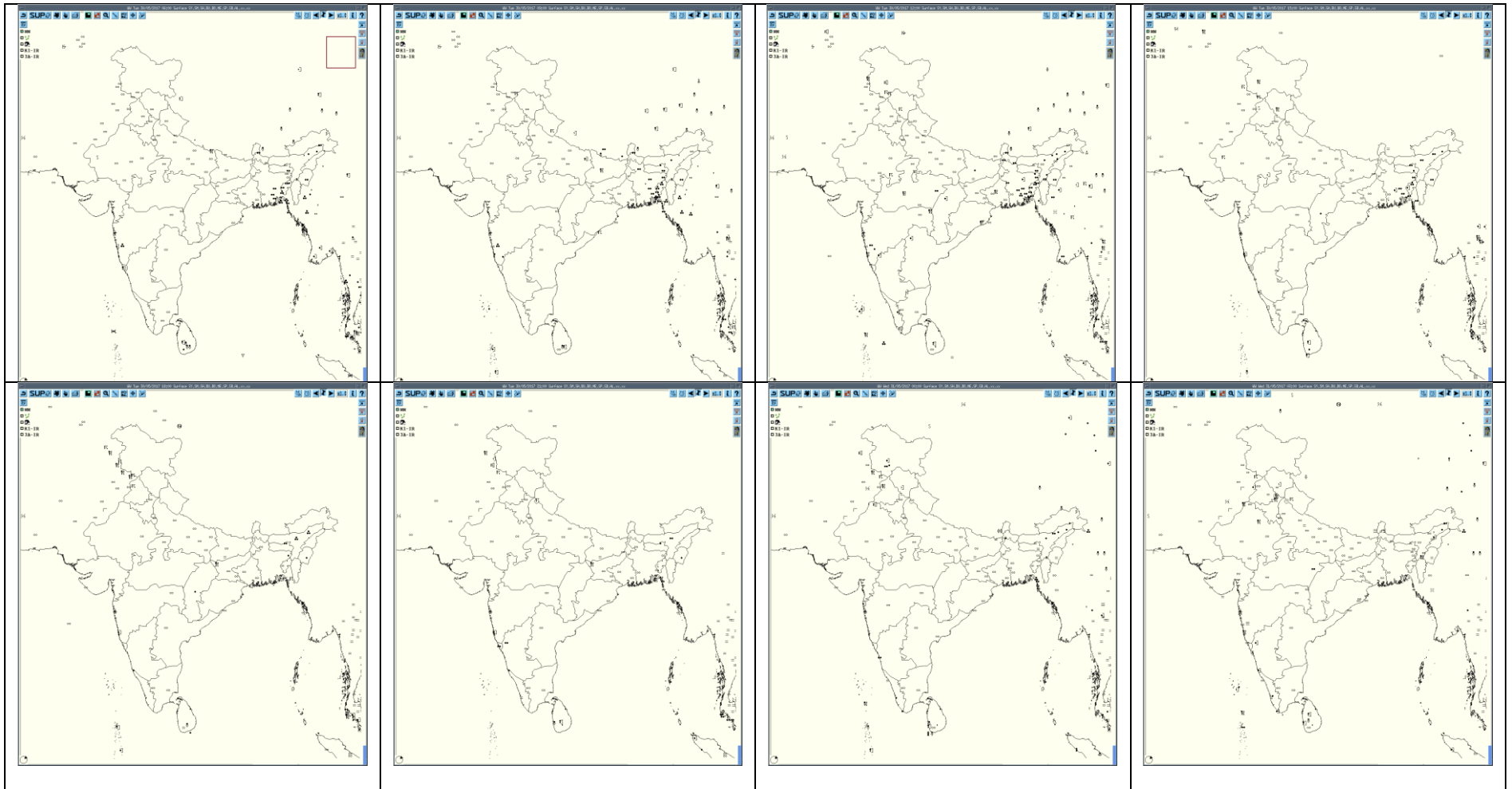
**Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today**



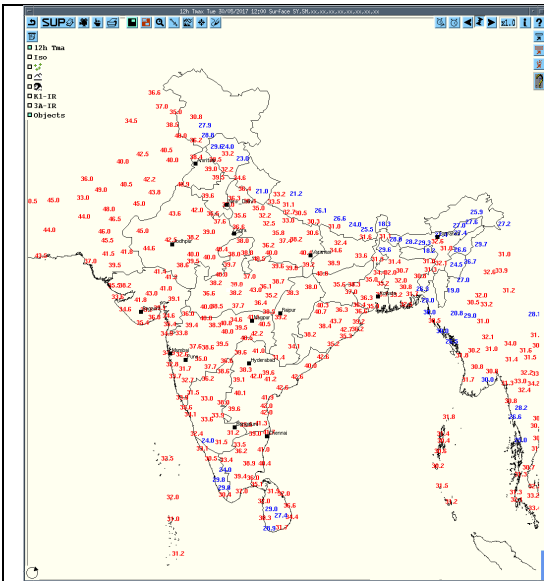
**IMR Rainfall**



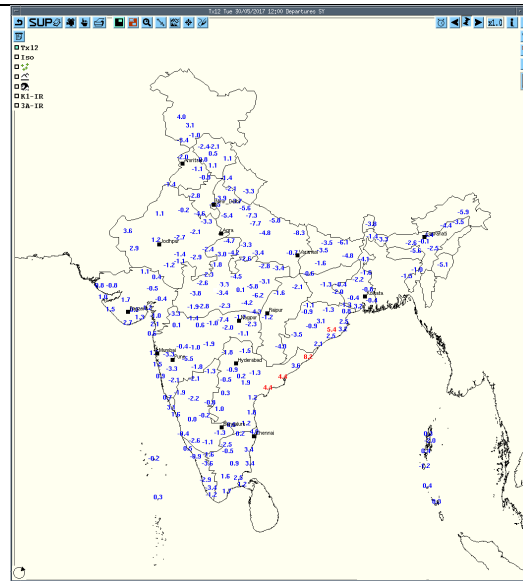
**HEM Rainfall**



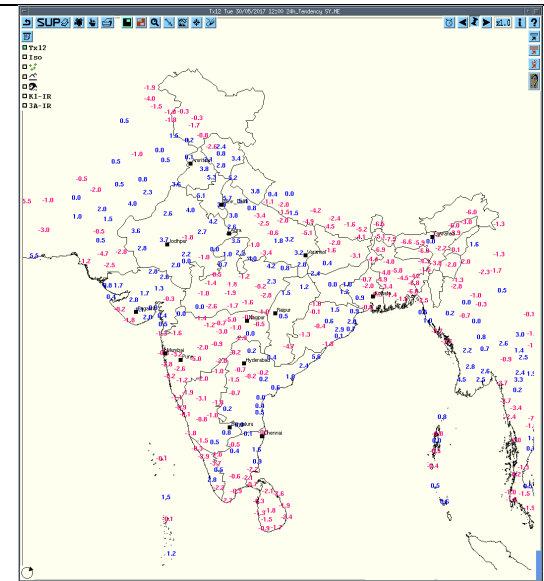
3hourly Past weather at 06,09,12,15,18,21UTC of yesterday and 00 & 03 hrs UTC of today



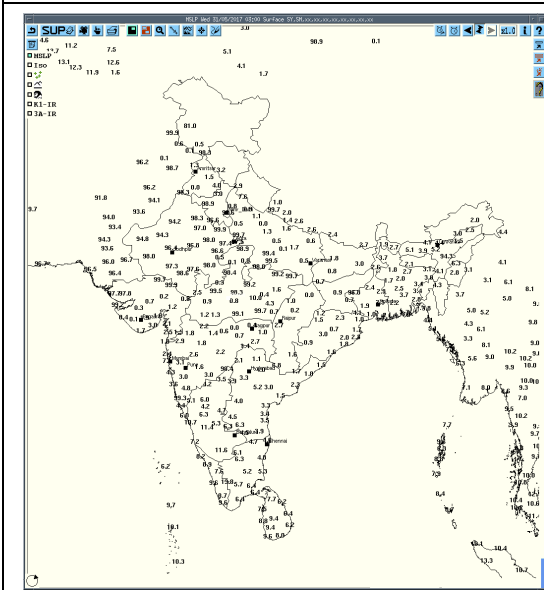
Tmax



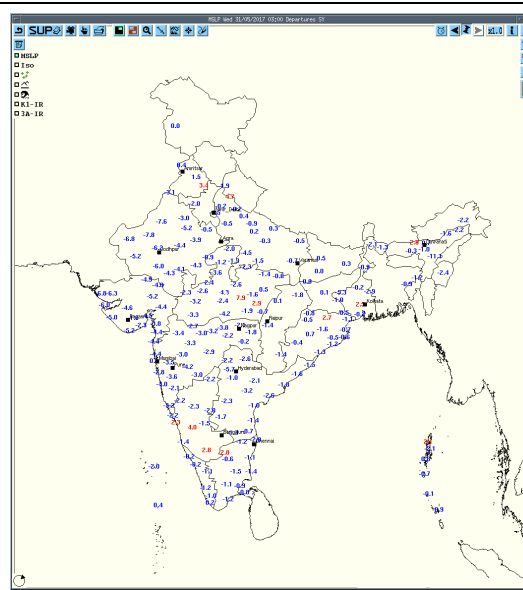
Departure Tmax



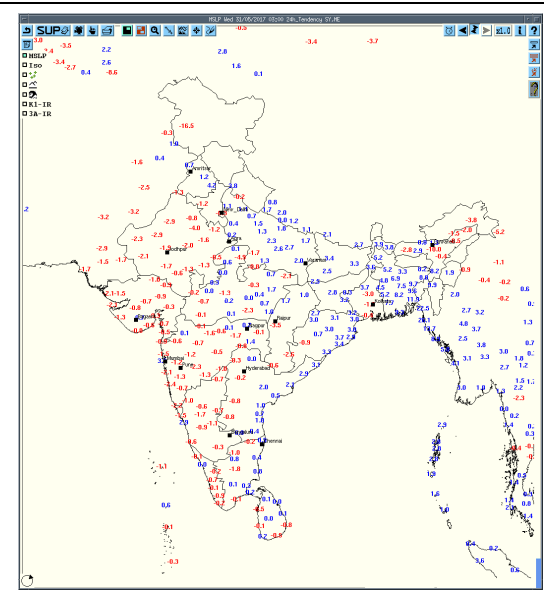
Tendency Tmax



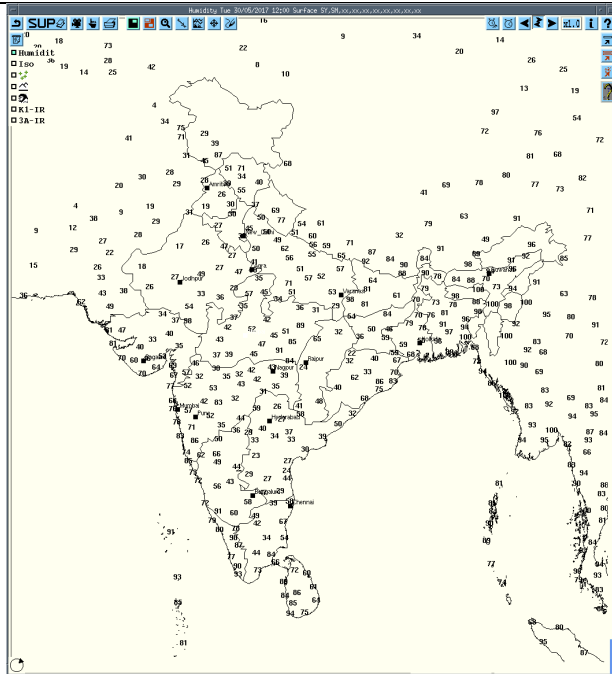
MSLP



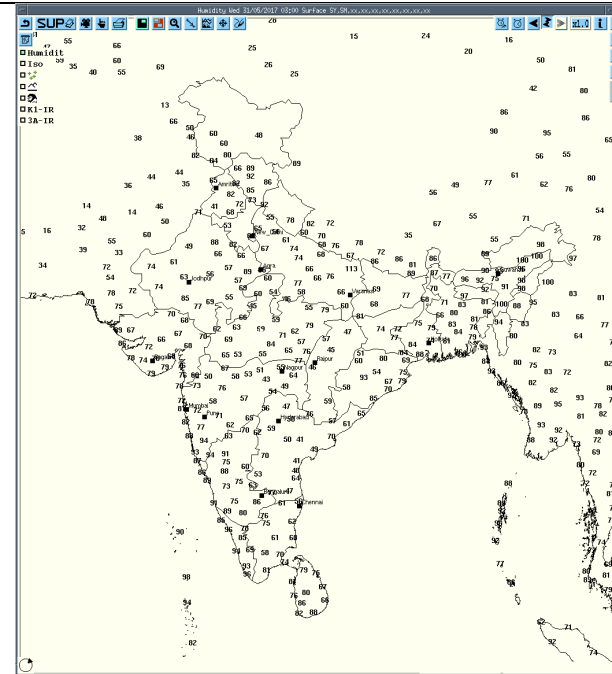
Departure MSLP



Tendency MSLP



RH at 12UTC yesterday



RH at 03UTC today

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

<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>
30-05-17	0600UTC	Nil	--	--	--
30-05-17	0900UTC	Mukteshwar	NW India	Uttarakhand	Thunderstorm
		Gorakhpur	NW India	Uttar Pradesh	Thunderstorm
		Patna	E India	Bihar	Thunderstorm
30-05-17	1200UTC	Pahalgam, Bhaderwah, Batote	NW India	J & K	Thunderstorm
		Kota	NW India	Rajasthan	Thunderstorm
		Bhopal	C India	Madhya Pradesh	Thunderstorm
		Panagarh	E India	West Bengal	Thunderstorm
		Puri	E India	Odisha	Thunderstorm
		Gondia	C India	Maharashtra (Vidarbha)	Thunderstorm
		Thiruvananthapuram	S India	Kerala	Thunderstorm
30-05-17	1500UTC	Srinagar, Jammu	NW India	J & K	Thunderstorm
		Sundernagar	NW India	Himachal Pradesh	Thunderstorm
		Jaisalmer	NW India	Rajasthan	Thunderstorm
30-05--17	1800UTC	Jammu	NW India	J & K	Thunderstorm
		Amritsar	NW India	Punjab	Thunderstorm
		Daltonganj	E India	Bihar	Thunderstorm
30-05-17	2100UTC	Dehradun	NW India	Uttarakhand	Thunderstorm
31-05-17	0000UTC	Amritsar	NW India	Punjab	Thunderstorm
		Ganganagar	NW India	Rajasthan	Thunderstorm
31-05-17	0300UTC	Chandigarh	NW India	Chandigarh	Thunderstorm
		Ambala	NW India	Haryana	Thunderstorm
		Tehri	NW India	Uttarakhand	Thunderstorm
		Churu	NW India	Rajasthan	Thunderstorm
		Silchar		Assam	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)
Bramhapuri	Central India	Vidarbha	Thunderstorm	30-05-17	2300	2310
Gondia	Central India	Vidarbha	Thunderstorm	30-05-17	1509	1830
Khajuraho	Central India	Madhya Pradesh	Thunderstorm	31-05-17	0600	0615
Alipore	East India	West Bengal	Thunderstorm	30-05-17	1855	2005
DumDum	East India	West Bengal	Thunderstorm	30-05-17	1750	2030
DumDum	East India	West Bengal	Lightening	30-05-17	1805	2040
Diamond Harbour	East India	West Bengal	Thunderstorm	30-05-17	1845	2045,
Diamond Harbour	East India	West Bengal	Lightening		1915	2045
Haldia	East India	West Bengal	Thunderstorm	30/31-05-17	301840	310110
Haldia	East India	West Bengal	Lightening	30/31-05-17	301815	310130
Digha	East India	West Bengal	Thunderstorm	30-05-17	2130	2240
Digha	East India	West Bengal	Lightening	30-05-17	1940	2250
Asansol	East India	West Bengal	Thunderstorm	30-05-17	1425	1635
Patna	East India	Bihar	Thunderstorm	30-05-17	1130	1435
Gaya	East India	Bihar	Thunderstorm	30-05-17	1600	1710
Jamshedpur	East India	Jharkhand	Thunderstorm	30-05-17	1800	2000
Bhubaneswar	East India	Odisha	Thunderstorm	30-05-17	1630	1730
Bhubaneswar	East India	Odisha	Squall (Dir-E, Max. speed 74kmph)	30-05-17	1723	1726
Bhubaneswar	East India	Odisha	Hail (Diameter 0.4 cm)	30-05-17	1723	1728
Balasure	East India	Odisha	Thunderstorm	30-05-17	2035	2200
Port Blair	East India	Odisha	Thunderstorm	31-05-17	0635	0805
Silchar	Northeast India	Assam	Thunderstorm	31-05-17	0650	0830
Lengpui	Northeast India	Mizoram	Thunderstorm	31-05-17	0500	0650
Amritsar	Northwest India	Punjab	Thunderstorm	30/31-05-17	302320	310600
Chandigarh	Northwest India	Haryana	Thunderstorm	31-05-17	0555	0830
Shimla	Northwest India	Himachal Pradesh	Thunderstorm	31-05-17	0300	0530
Sunder Nagar	Northwest India	Himachal Pradesh	Thunderstorm	31-05-17	0150	0425
Kota	Northwest India	Rajasthan	Thunderstorm	30-05-17	1705	1740
Jaipur	Northwest India	Rajasthan	Thunderstorm	31-05-17	0620	0650
Rawatbhata	Northwest India	Rajasthan	Thunderstorm	31-05-17	0210	0240
Pilani	Northwest India	Rajasthan	Thunderstorm	31-05-17	0715	0830
Bundi	Northwest India	Rajasthan	Thunderstorm	31-05-17	0000	0100
Churu	Northwest India	Rajasthan	Thunderstorm	31-05-17	0640	0830
Ganganagar	Northwest India	Rajasthan	Thunderstorm	31-05-17	0400	0445
Jaisalmer	Northwest India	Rajasthan	Thunderstorm	30-05-17	1950	2040
Phalodi	Northwest India	Rajasthan	Thunderstorm	30-05-17	2100	2200
Ballia	Northwest India	Uttar Pradesh	Thunderstorm	30-05-17	1300	1330
Churk	Northwest India	Uttar Pradesh	Thunderstorm	30-05-17	1815	1835



Gorakhpur	Northwest India	Uttar Pradesh	Thunderstorm	30-05-17	0945 1245	1025 1350
Ghazipur	Northwest India	Uttar Pradesh	Thunderstorm	30-05-17	1350	1400
Dehradun	Northwest India	Uttar Pradesh	Thunderstorm	30-05-17	0830 1435	0920 1440

### Past 24 hours DWR Report:

Radar 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
Karaikal	31-05-17	1) 300900 -301402 UTC  2) 301030- 301400 UTC	1) Cluster of individual cells at SW direction at 200 km range with max reflectivity of 60 dBz and average height of 11kms  2) Cluster of individual cells at NE direction at 225 km range with max reflectivity of 33 dBz and average height of 7.5 kms	1) SW(200 km) moving in SE ly direction with speed of 24 kmph  2) NE (225 km) from radar moving in NEly direction with speed of 200kmph	1)Cells started forming at 0900 UTC and max reflectivity during 1000-1202 and dissipated at 1402UTC  2) Cells started forming at1030 UTC and max reflectivity during1130 to 1300 UTC and dissipated at 1400 UTC	N/A	N/A
Patna	31-05-17	300300 - 300342	NIL	NIL	N/A	N/A	N/A
		300342 - 300532	Multi Cell. Maximum Reflectivity : 45 dBZ Echo Top : 13 KM	Range : 105 KM from DWR Patna in SE direction. Movement- SE	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	THUNDER-STORM WITH RAIN,GUSTY WIND, HAIL.	BHAGALPUR, BANKA, KATIHAR, JAMUI, MUNGER, KHAGARIA, BEGUSARA I, LAKHISAR AI, NAWADA,

							NALANDA, SITAMARHI  SEOHAR
		300342 - 300642	Multi Cell. Maximum Reflectivity : 46 dBZ Echo Top : 08 KM	Range : 105 KM from DWR Patna in WNW direction. Movement- Sly	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	THUNDER- STORM WITH RAIN,GUSTY WIND, HAIL.	EAST CHAMPAR N, WEST CHAMPAR AN, MUZAFFAR PUR
		300642 - 301110	Multi Cell. Maximum Reflectivity : 51 dBZ Echo Top : 13 KM	Range: 123 KM from DWR Patna in NW direction. Movement- SE	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	THUNDER- STORM , DUST- STORM, LIGHTININGWIT H RAIN	JEHANABA D, PATNA, SARAN, VAISHALI, SAMASTIP UR, MUZAFFAR PUR, DARBHAN GA, SAHARSA, SUPAUL, MADHEPU RA, MADHUBA NI, PURNIYA, KISHANGA NJ, SITAMARHI  SEOHAR, WEST CHAMPAR AN, EAST CHAMPAR AN, SIWAN, GOPALGA NJ, BUXAR, BHOJPUR,

							NAWADA, LAKHISAR AI.
		301110 - 302246	NIL	NIL	N/A	N/A	N/A
		302246 - 302346	Multi Cell. Maximum Reflectivity : 35 dBZ Echo Top : 06 KM	Range : 22 KM from DWR Patna in SSW direction. Movement- NE	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	THUNDER- STORM ,DUST STORM, LIGHTNING, WITH RAIN,GUSTY WIND, .	PATNA, JEHANABA D, BHOJPUR
		302346 - 310024	NIL	NIL	N/A	N/A	N/A
		310024 - 310242	Multi Cell. Maximum Reflectivity : 41 dBZ Echo Top : 06 KM	Range : 139 KM from DWR Patna in WNW direction. Movement- NE	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	THUNDER- STORM ,DUST- STORM, LIGHTNING, WITH RAIN,GUSTY WIND, .	SIWAN, SARAN
		310242 - 310300	NIL	NIL	N/A	N/A	N/A
Patiala	31-05-17	300300- 300600	NO SIGNIFICANT ECHO	-----	-----	-----	-----
		300600- 300900	NO SIGNIFICANT ECHO	-----	-----	-----	-----
		300900- 301200	NO SIGNIFICANT ECHO	-----		-----	-----
		301200- 301500	MULTIPLEcells max. 57.0 dbz Ht. 8-9 km	NE SECTOR. MOVEMENT SE WARDS	-----		HAMIRPUR ,NADAUN, SUNDERN AGAR, BILASPUR
		301500- 301800	NO SIGNIFICANT ECHO	-----	-----	-----	-----
		301800 - 302100	multiple cells max. 58.0 dbz Ht. 10-11 km	NW SECTOR MOVEMENT SE WARDS	-----	-----	AMRITSAR, KAPURTHA

							LA, JALANDHAR, NAKODAR, HOSHIARPUR, PHAGWARA
		302100-310000	multiple cells max. 58.0 dbz Ht. 10-11 km	NW SECTOR MOVEMENT SE WARDS	-----	-----	PHILLAUR, LUDHIANA, SAMRALA, NALAGARH, SIRHIND, PTL, AMLOH, ROOPNAGAR, MORINDA
		310000-310300	multiple cells max. 53.0 dbz Ht. 6-8 km	NW SECTOR MOVEMENT EASTWARDS	-----	-----	PHAGWARA, PHILLAUR, LDH, SAMRALA, KHANNA, SIRHIND, PTL, MUSSORIE, KALDI, DDN
JAIPUR	31/05/17	300732-300822	Two cells with average height of 3 km & maximum reflectivity 45 dBZ	Cell develop 0732 to 0822 UTC of 30/05/17 towards West of jaipur and moved to SE Wards at speed 20-25 km/hr	Cells starts forming from 0732 UTC of 30/05/2017 AT West of Jaipur and reaches maximum refectionity during 0732-0812 UTC died down 0822 UTC.	Thunderstorm/rain at isolated	Jaipur
		300822-301432	Multiple cells with average height of 5.5km & maximum reflectivity 56.5 dBZ	Cell develop 0822 to 1432 UTC of 30/05/17 towards SW & NE of jaipur and moved to SE at speed 20-25 km/hr	Cells starts forming from 0822 UTC of 30/05/2017 in SW & NE of Jaipur and maximum refectionity during 0822-1402 UTC died down 1402 UTC.	Thunderstorm/rain at isolated places	Tonk, Nagaur, Bhilwara, Ajmer, Baran
		301432-301502	Multiple cells with height of 4.5 km & maximum reflectivity 51 dbz	Cell developed 1432 to 1502 UTC of 30/05/17 towards N &	Cell starts forming from 1432 UTC of 30/05/2017 N & S of jaipur and	Thunderstorm /rain at isolated places	Nagaur, Bundi, Ajmer,

				S of jaipur and moved SE at speed 20-25 km/hr	maximum reflectivity during 1432-1502 UTC and continuous		Tonk
		301502-300000	Multiple cells with height of 4.8 km & maximum reflectivity 55 dbz	Cell developed 1502 to 0000 UTC of 30/05/17 towards SW & S and near around of Jaipur and moved SE at speed 25-27 km/hr	Cell starts forming from 1502 UTC of 30/05/2017 SW & S and near around of Jaipur and maximum reflectivity during 1502-2012 UTC and continuous	Thunderstorm /rain at isolated places	Nagaur, Ajmer, Tonk, Kota, Rajsamand, Jaipur, Baran, Bhilwara
Lucknow	31-05-17	300300-300652	Multiple cells with average height of 7.0 KM. with Maximum reflectivity of 52 dBZ	NNE(80KM) From LKN Radar and moving in SE'ly direction at speed of 22 km/hr	cells started forming at NNE(80KM) from LKN Radar at 0222 UTC matured in size but did not organized in to MCS and dissipated at 0652 UTC at ENE(120KM) from LKN Radar.	TS,rain	Sitapur,Bara banki, Gond a
		300512-300842	Multiple cells with average height of 7.0 KM. with Maximum reflectivity of 49 dBZ	N(40KM) From LKN Radar and moving in SE'ly direction at speed of 43 km/hr	Cells started forming at 0502 UTC at N(40 km) and another cell developed at 0622 UTC at WNW(75km) but could not intensified from DWR LKN cells dissipated at E to ESE(40km) at 0842 UTC from Radar	TS,RAIN	Lucknow,Ba rabanki, Raebareilly, Hardoi,Unn ao
		300722-300952	Single isolated cell with average height of 6KM with Maximum Reflectivity of 50dBZ	SW(120KM) From LKN Radar and moving in ESE'ly direction at speed of 43 km/hr	Cell started forming at 0712 UTC at SW(120 km) from DWR LKN matured in size and dissipated at 0952 UTC at S(100km) from Radar	TS,RAIN	Fatehpur,ka npur
		301922-302342	Multiple cells with average height of 5.8 KM. with Maximum reflectivity of 45 dBZ	N(40KM) did not moved	Cells starte forming at 1912 UTC ranging from NNE(40KM) to NNE(70KM) from radar matured in size but did not organized in to MCS and cells dissipated at 2342 UTC at N(45KM) from radar	TS,Rain	Lucknow,Ba rabanki
Machilipatnam	31-05-17	301341-301441	Isolated single cell average height of 5.5Km	NNW (217km) and moving E ly direction	Cell started forming at0901UTC, at NNW	Possibility of Thunder storm	Bhadradri Kothagude

			with maximum reflectivity of 54.5 dBZ	with average speed of 35 kmph	(201km) from Radar the maximum reflectivity during 1011 to 1111 UTC and died down at 1311 UTC	with rain and winds	m and Dantewara Districts
Kolkata	31-05-17	300311-300651	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL
		300701 – 302151	1. Large number of small single cells merged to form an extended multi celled system with maximum reflectivity of 55.5 dBz at 0841 UTC and maximum height 11.5 km at 0851 UTC.	1. NNW ( 205 km) to NNW (151 km) moving in SE-ly direction with a speed of 22.0 kmph.	1. Cells formed in between 0701 and 0721 UTC in NNW from 151 to 205 km from Radar which merged to form an extended multi celled system at 0831 UTC. Did not mature and dissipated at 1012 UTC in NNW at a distance of 131 km from Radar.	Thunderstorm / Rain	N/A
		302201-302351	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL
		310011 – 310301	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL
Agartala	31-05-17	300302 - 300702	Multiple cells continued over South Tripura with Maximum Height 9.3 km at 0312 UTC and maximum reflectivity 28-30.7 dBZ at 0302 UTC	Formed 80 km SW to SE of DWR and moves NWly direction	Cell persist.	N/A	N/A
		300702 - 301202	Multiple Cells continued at 0700 UTC over Tripura with Maximum Height 8.2 km at 0702 UTC and maximum reflectivity 40 dBZ at 0702 UTC.	Persist around Tripura and moves towards NE wards at 0850 UTC	Cell persists	N/A	N/A
		301202 - 301902	Multiple cells with Maximum Height 9.3 km at 1202 UTC and maximum reflectivity 39 dBZ at 1202 UTC	Seen 170 km from DWR stn and moving east ward	Cells dissipated at 1902 UTC over Bangladesh.	N/A	N/A
Paradeep	31-05-17	300300-310300	--	--	--	DWR Switched off	--



+ thunderstorm



+ heavy thunderstorm



sandstorm or dust storm



.squall



hail shower



tropical storm



+ tornado



+ lightning



+ hurricane

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∞	haze
⌋	smoke
⊙	dust or sand storm
≡	fog
☉	drizzle
•	rain
✱	snow
▽	showers
△	hail
⌋	thunderstorm
<b>Weather Symbols</b>	