



**India Meteorological Department**  
**FDP STORM Bulletin No.09 (14-03-2017)**

**1. CURRENT SYNOPTIC SITUATION at 0300 UTC of 14-03-2017:**

**Synoptic Features:**

The Western Disturbance as an upper air cyclonic circulation over Jammu & Kashmir and neighbourhood at 3.1 Km above mean sea level moving away east-northeastwards.

Another fresh Western Disturbance as a trough in mid-tropospheric westerlies with its axis at 3.1Km above mean sea level runs roughly along longitude 52.0°E and north of latitude 30.0°N.

The upper air cyclonic circulation over south Telangana & neighbourhood now lies over North Interior Karnataka & neighbourhood and extends upto 0.9 Km above mean sea level. A wind discontinuity runs from above cyclonic circulation to south Tamilnadu and extends upto 0.9 Km above mean sea level.

The trough from north Coastal Andhra Pradesh to interior Tamilnadu with embedded upper air cyclonic circulation over south Telangana & neighbourhood extending upto 0.9 Km above mean sea level has become less marked.

**SATELLITE OBSERVATIONS during past 24hrs and current observation (Based on 0300 UTC Imagery of INSAT-3D):**

**Clouds (based on 0300UTC imagery):** Scattered multi/layered clouds over J & K in association western disturbance over the area. Scattered low/medium clouds with embedded weak to moderate convection over north Tamilnadu. Scattered low/medium clouds with embedded isolated weak to moderate convection seen over north Rajasthan. Scattered low/medium clouds over south Punjab, Himachal Pradesh, north Uttarakhand, Sikkim, Arunachal Pradesh, south Andhra Pradesh, south of south Interior Karnataka and rest Tamilnadu.

**Arabian Sea:-**

Scattered low/medium clouds with embedded isolated weak to moderate convection over south Comorian & neighbourhood.

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

Scattered low/medium clouds with embedded isolated weak to moderate convection seen over southwest Bay of Bengal.

**Status of Convection:**

Weak to moderate convection (CTT reaching up to 240° K in some places) was observed over the J & K Himachal, Uttarakhand .

Weak convection was observed over all Rajasthan, states with CTT > 250° K.

Strong convection with CTT reaching less than 220° K was observed over coastal Tamil Nadu .

**Synoptic features based on Satellite winds:**

No Jet stream and trough is observed

**Dynamic features based on satellite derived wind products:**

A positive vorticity field is seen over north UP & Bihar and south interior Karnataka. A weak to medium wind shear is present over north-eastern part of country (North of 25 N). Positive shear tendency is observed over Konkan & coastal Karnataka and negative shear tendency is observed over most parts of the central India. Higher water vapour content is seen over isolated places in coastal Tamilnadu.

### **Precipitation based on HEM and IMR rainfall products:**

**IMR:** Rainfall upto 20 mm was observed over extreme NE parts of J&K & extreme south A P. Upto 10 mm of rainfall was observed over rest north J&K NE H P extreme NE Uttarakhand, central & north parts of T N .

**HEM :** Rainfall upto 70 mm was observed over extreme SW & north parts of TN adjoining AP adjoining Karnataka .Upto 14mm of rainfall was observed over rest south TN .

### **RADAR observation during past 24 hrs and current observation based on 0900UTC:**

Convection appears to be in progress with isolated cells having reflectivity more than 30dBz over coastal Andhra Pradesh and Telangana.

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

No significant dust concentration observed over Arabian Peninsula and west Rajasthan. No significant change in dust concentration expected northern India for next three days.

Particulate matter concentration expected to remain in Satisfactory category next 2 days.

## **2. NWP MODEL GUIDANCE**

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

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

Feeble trough in forecasts Day-0 to Day-4 at MSLP over J & K.

Wind discontinuity only in Day-0-4: at 925 extends WE & NS from parts of AP, Maharashtra, Odisha, Chhattisgarh and parts of Bihar.

Anticyclonic flow over Odisha in Day-0-2 moves to Bay of Bengal in Day-3 and Gujarat at 850 hPa Day-1 to Day3 also moves to Arabian Sea.

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

500hPa Jet core (>60kt) Day-0 parts of SH Gangetic plains. Weaker magnitude during Day-1 to Day-4.

#### **3.Convergence at 850 hPa:**

Weak noisy low level convergence at several places over India.

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

Positive Vorticity (>15 x 10<sup>-5</sup>/s) Weak noisy scattered in 12UTC on all days. Day-2 to Day-4 NS orientation over peninsula near 77E along the NS trough at 850 hPa

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

Day-0-2: Parts of TN extending to AP and Karnataka .NS orientation, covering Maharashtra and MP.

Day-2-4: NS orientation, Central peninsula covering parts of Telangana, Karnataka, Maharashtra, MP, Chhattisgarh and Odisha (on day4)

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

Day-0-2: Parts of TN extending to AP and Karnataka .NS orientation, covering Maharashtra and MP.

Day-2-4: NS orientation, Central peninsula covering parts of Telangana, Karnataka, Maharashtra, MP, Chhattisgarh and Odisha (on day4)

#### **7. Spatial distribution of TTI: TTI >44 [Scattered Numerous Thunderstorms]:**

Day-2-4: NS orientation, Central peninsula covering parts of Telangana, Karnataka, Maharashtra, MP, Chhattisgarh and Odisha (on day4)

Day2-Day-4 high values of TTI over NW India moving SE wards after Day-2.

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

Day-0 -2: (>2cm/day) parts of TN Kerala region and extending northwards to over Telangana and adjoining AP, Maharashtra and Odisha. Moving eastwards in Day-3 and 4 to over Odisha and WB. Parts of Arunachal too show rainfall > 4cm/day on day-5.

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

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

Synopsis based on synoptic conditions, NWP models and satellite imageries is as follows:

Presently, the Western Disturbance as an upper air cyclonic circulation over Jammu & Kashmir and neighbourhood at 3.1 Km above mean sea level moving away east-northeastwards. The upper air cyclonic circulation over south Telangana & neighbourhood now lies over North Interior Karnataka & neighbourhood and extends upto 0.9 Km above mean sea level. A wind discontinuity runs from above cyclonic circulation to south Tamilnadu and extends upto 0.9 Km above mean sea level. This will give thunderstorm accompanied with rainfall activity over Kerala and Interior Tamilnadu for next 24 hours.

On Day 2, due to above wind discontinuity over south Tamilnadu, the thunderstorm accompanied with rainfall activity over Kerala and Interior Tamilnadu for next 48 hours.

**24 hour Advisory for IOP:**

- Kerala and Interior Tamilnadu

**48 hour Advisory for IOP: (Thunderstorm associated with rain)**

- Kerala and Interior Tamilnadu

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)

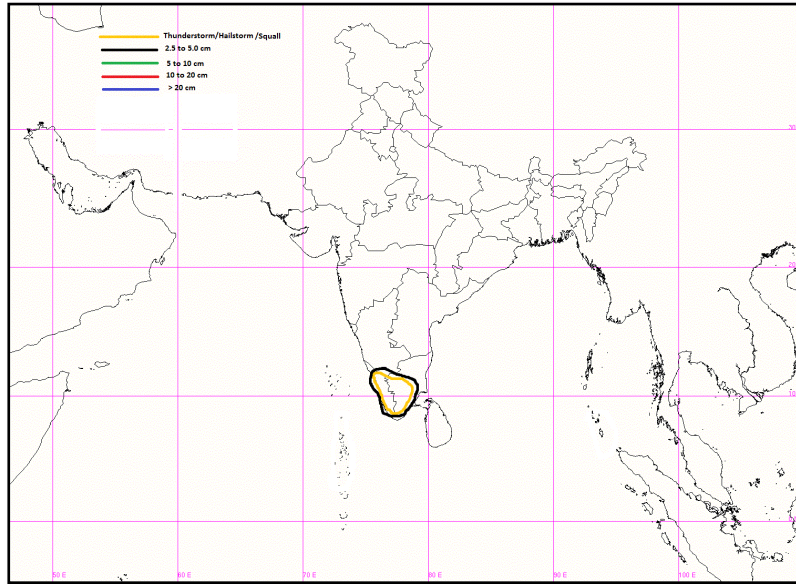
Past 24 hour HEM and IMR rainfall (upto03UTCof today)

IMR: [http://satellite.imd.gov.in/img/3Ddaily\\_imr.jpg](http://satellite.imd.gov.in/img/3Ddaily_imr.jpg)

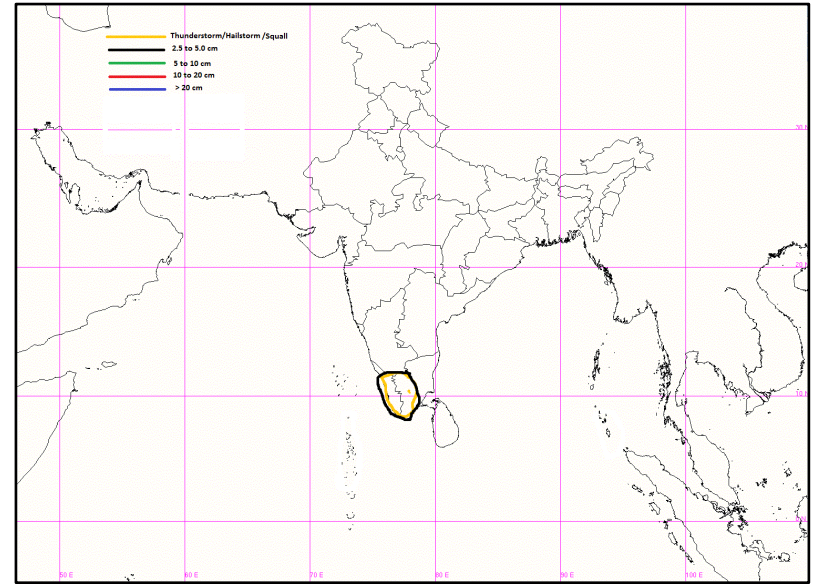
HEM: [http://satellite.imd.gov.in/img/3Ddaily\\_he.jpg](http://satellite.imd.gov.in/img/3Ddaily_he.jpg)

For Radar images of the past 24 hours including mosaic of images:

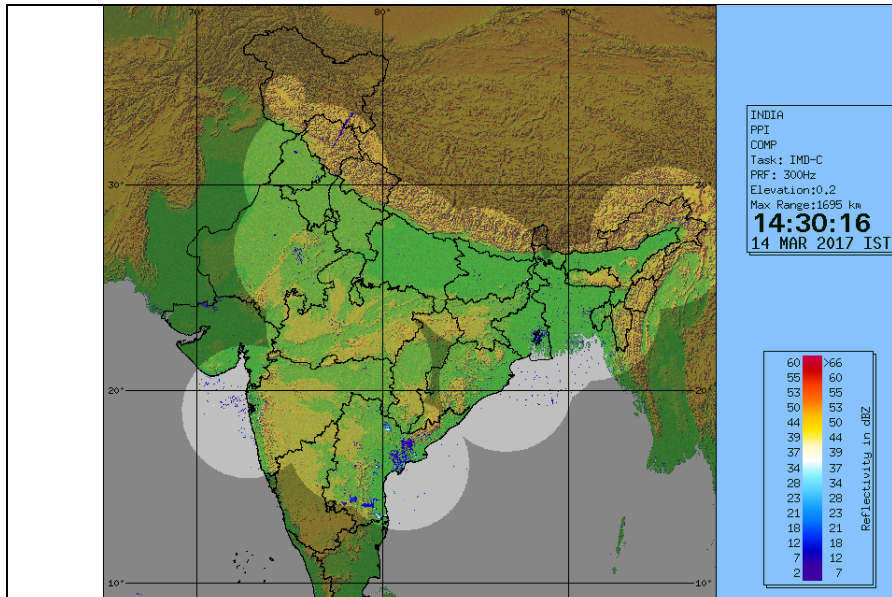
[http://ddgmui.imd.gov.in/dwr\\_img/](http://ddgmui.imd.gov.in/dwr_img/)



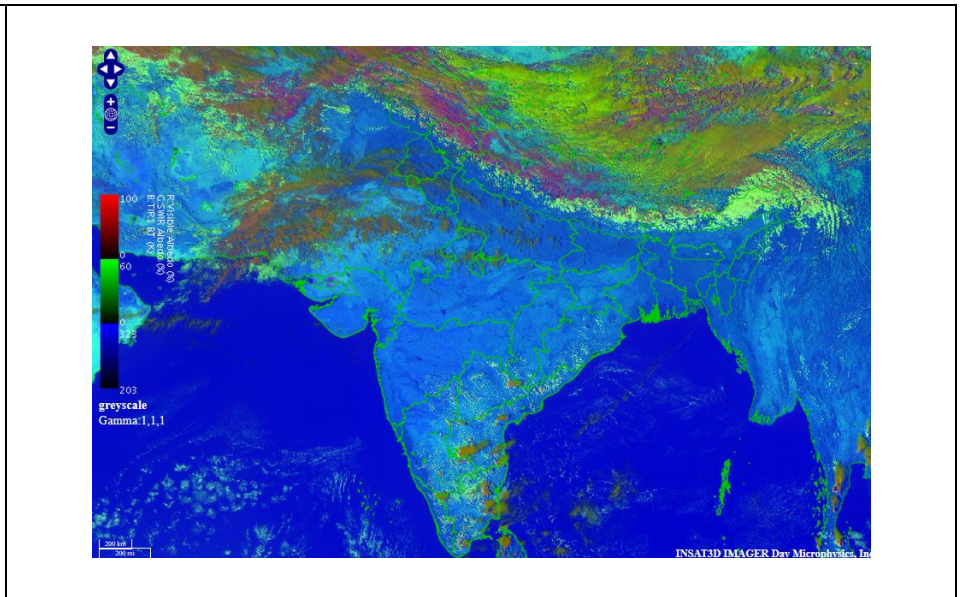
**IOP Advisory for 24 hours**



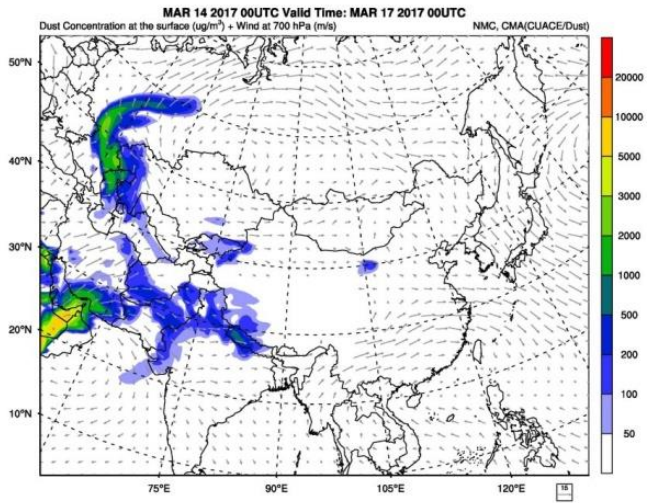
**IOP Advisory for 48 hours**



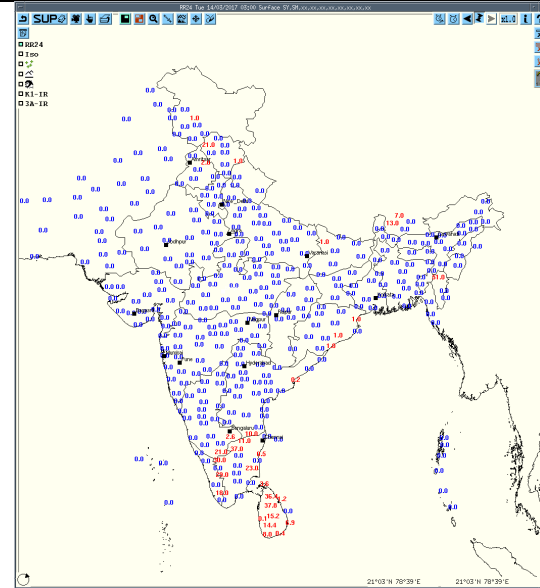
**DWR Composite at 0900 UTC of today**



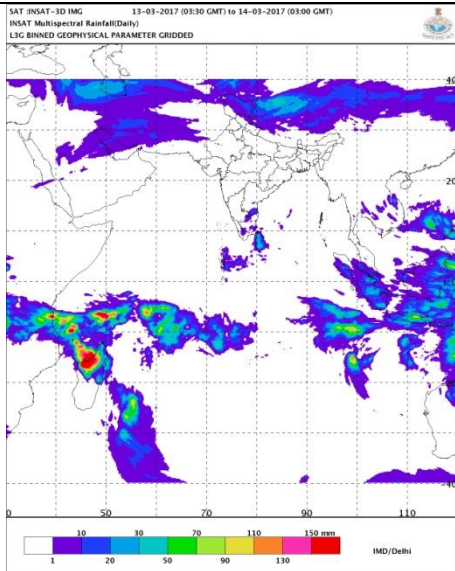
**RGB Image of INSAT3D at 1500 IST**



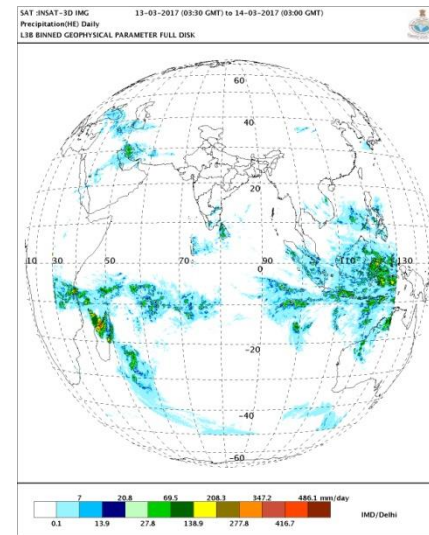
Forecast Dust Concentration at 00UTC of 17<sup>th</sup> March



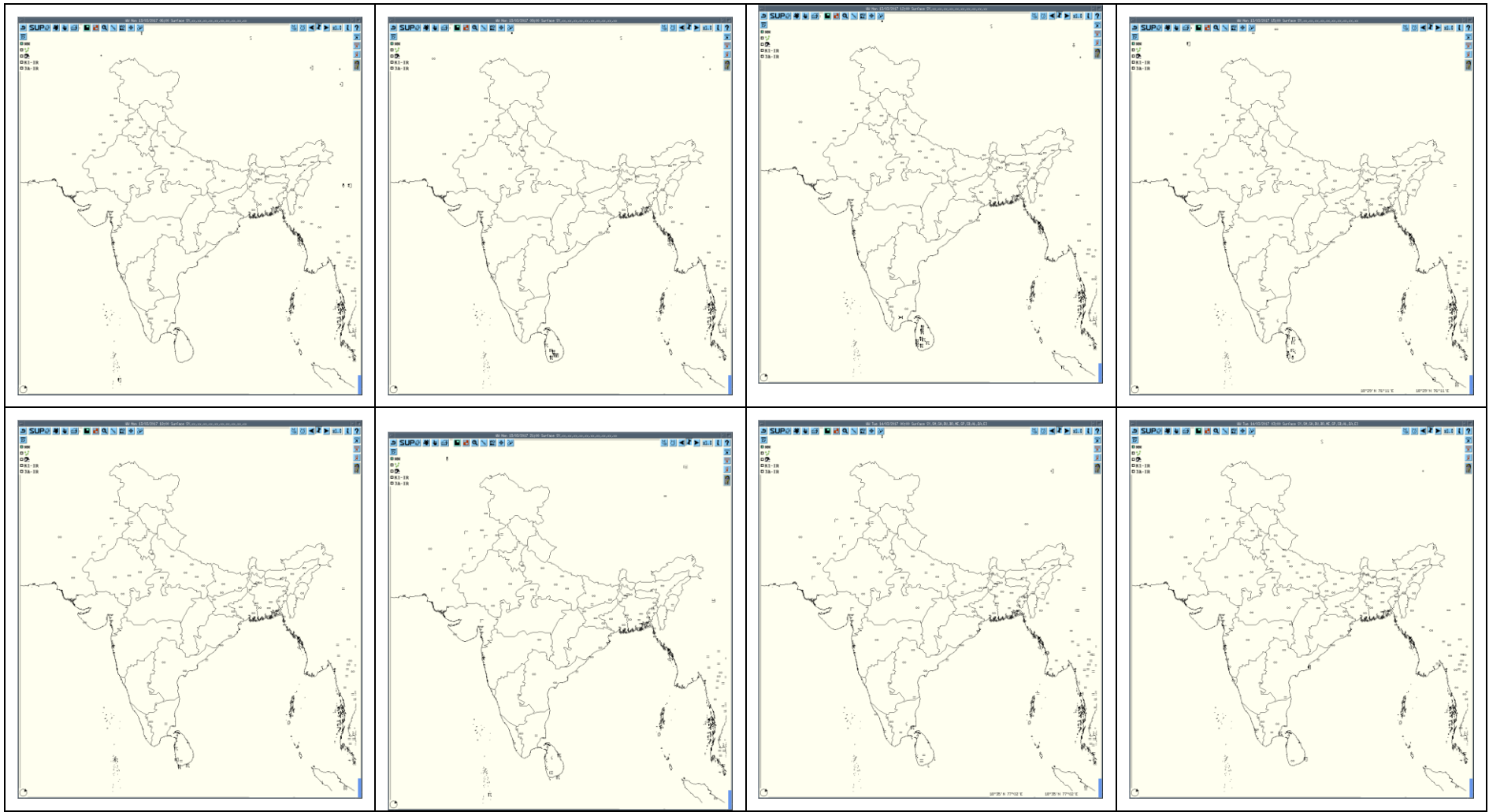
Accumulated 24Hour rainfall(in red) recorded at 0300UTC of today



IMR Rainfall

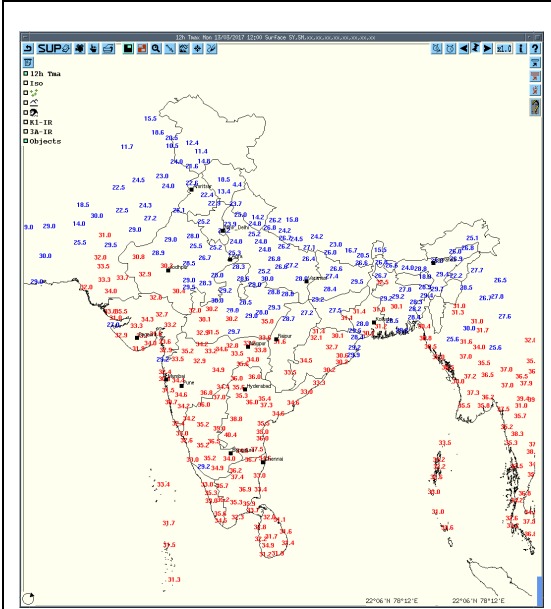


HEM Rainfall

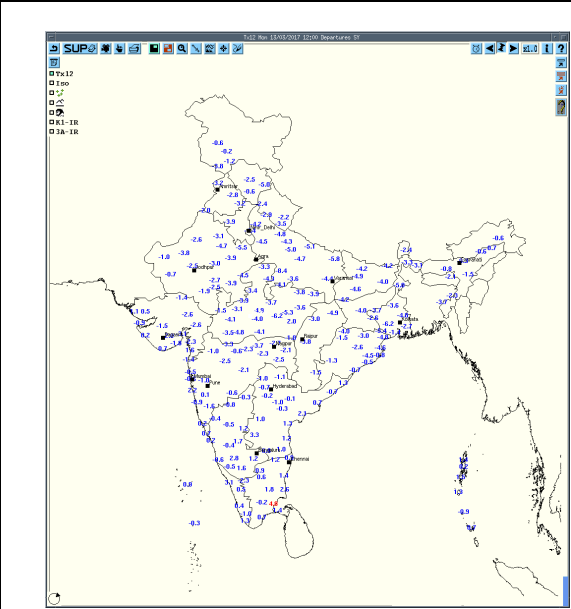


3hourly Past weather at 06,09,12,15,18, 21 UTC of yesterday and 00 & 03 hrs UTC of today

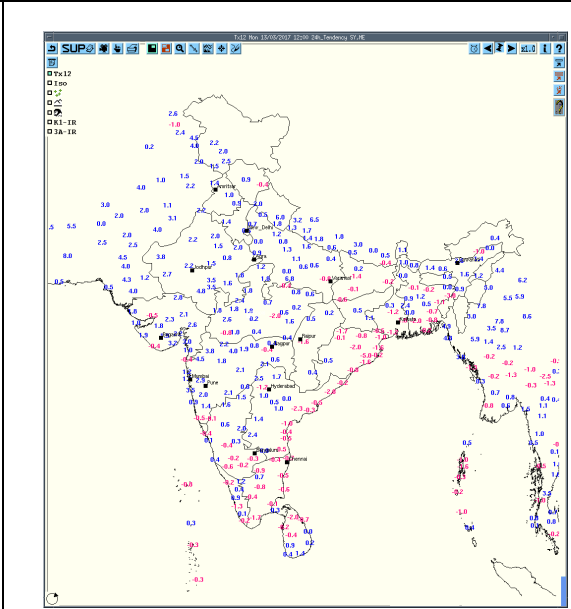




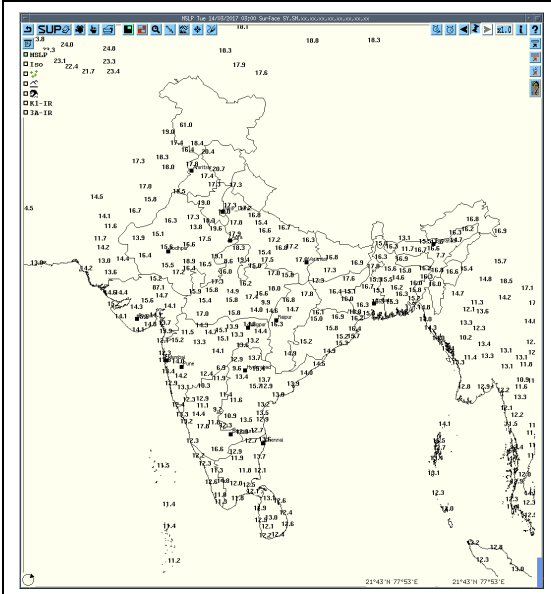
Tmax



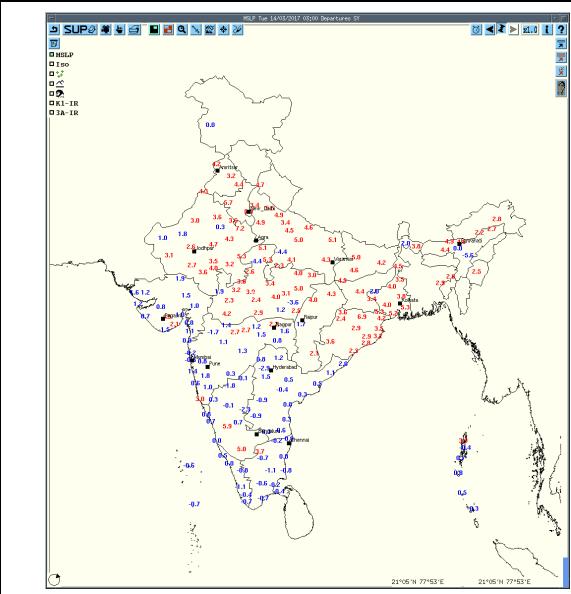
Departure Tmax



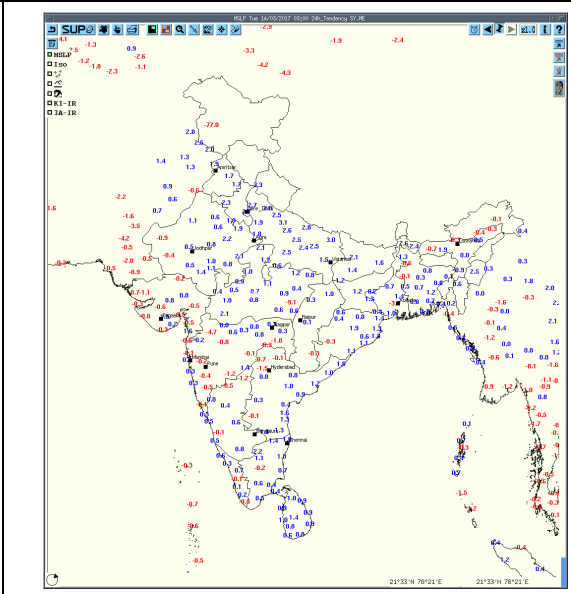
Tendency Tmax



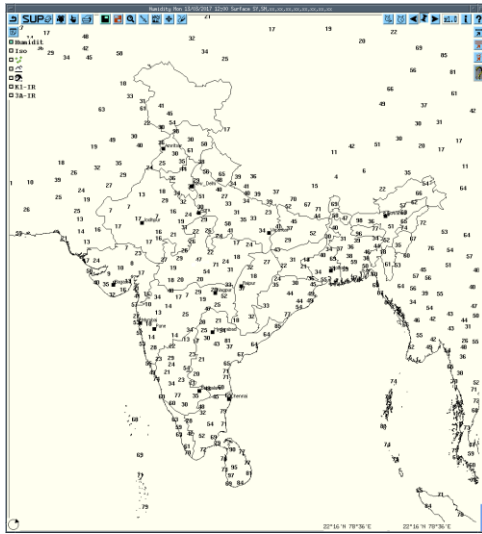
MSLP



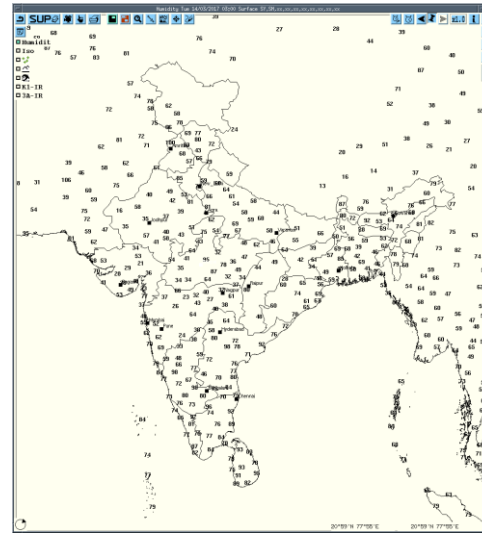
Departure MSLP



Tendency MSLP



**RH 12UTC yesterday**



**RH 03UTC today**

**Realized weather past 24hours**

Date	Time of Reporting	Name of Station Reporting	Region	STATE	Weather Event
13-03-2017	0600UTC	Nil	Nil	Nil	Nil
13-03-2017	0900UTC	Nil	Nil	Nil	Nil
13-03-2017	1200UTC	Tirupathi	South India	Andhra Pradesh	Thunderstorm
13-03-2017	1500UTC	Nil	Nil	Nil	Nil
13-03-2017	1800UTC	Nil	Nil	Nil	Nil
13-03-2017	2100UTC	Nil	Nil	Nil	Nil
14-03-2017	0000UTC	Nil	Nil	Nil	Nil
14-03-2017	0300UTC	Nil	Nil	Nil	Nil

Name of Station Reporting	Region	STATE	Weather Event	Date	Time of Commencement (IST)	Time of end (IST)
Bengaluru HAL	South India	Karnataka	TSRA	13-03-17	2115	2245
MO Kodaikanal	South India	Tamilnadu	TSRA	13-03-17	1920	2130
Tondi	South India	Tamilnadu	TSRA	13-03-17	0610	0820

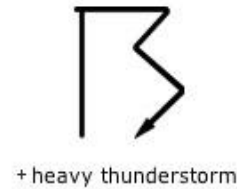
TS Thunderstorm,  
TSRA Thunderstorm with Rain

**Severe Weather warning based on DWR observation**

<b>Name of issuing Radar station</b>	<b>DWR Kolkata</b>
Geo-coordinates of issuing Station (Lat,Long,Alt)	22.5705°N/88.353°E,7m
Date and time of issue in UTC(yyyyMMddhhmm)	201703140611 UTC
Nature of severe weather expected	Nil
<b>Name of issuing Radar station</b>	<b>DWR PATNA</b>
Geo-coordinates of issuing Station (Lat,Long,Alt)	--
Date and time of issue in UTC(yyyyMMddhhmm)	201703140600 UTC
Nature of severe weather expected	Nil
<b>Name of issuing Radar station</b>	<b>DWR KARAİKAL</b>
Geo-coordinates of issuing Station (Lat,Long,Alt)	Lat:10.91381N,Long:79.84141E/Alt: 25m asl
Date and time of issue in UTC(yyyyMMddhhmm)	DWR U/S
Nature of severe weather expected	--
<b>Name of issuing radar station</b>	<b>DWR LUCKNOW</b>
Geo-coordinates of issuing Station (Lat,Long,Alt)	26 <sup>0</sup> 46'07" N / 80 <sup>0</sup> 53'07" E/ 127.71 M
Date and time of issue in UTC(yyyyMMddhhmm)	201703140650
Nature of severe weather expected	Nil
<b>Name of issuing Radar station</b>	<b>DWR NAGPUR</b>
Geo-coordinates of issuing Station (Lat,Long,Alt)	Lat: 21.1458° N, Long: 79.0882° E
Date and time of issue in UTC(yyyyMMddhhmm)	201703140600 UTC
Nature of severe weather expected	Nil
<b>Name of issuing Radar station</b>	<b>DWR MUMBAI</b>
Geo-coordinates of issuing Station (Lat,Long,Alt)	Lat-18 ° 54' 04", Long-72 ° 48' 32"/Height AMSL – 3.22 meters.
Date and time of issue in UTC(yyyyMMddhhmm)	201703140700 UTC
Nature of severe weather expected	Nil
<b>Name of issuing Radar station</b>	<b>DWR HYDERABAD</b>
Geo-coordinates of issuing Station (Lat,Long,Alt)	Lat-17.2562 ° N Long-78.7656 ° E
Date and time of issue in UTC(yyyyMMddhhmm)	201703140640 UTC
Nature of severe weather expected	Nil

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

**Weather Symbols**



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