



India Meteorological Department
FDP STORM Bulletin No. 03 (08-03-2017)

S. No.	STORM area of interest (All India)	
1.	CURRENT SYNOPTIC SITUATION at 03 UTC of 08-03-2017	<p>Synoptic Features: The Western Disturbance as an upper air cyclonic circulation over north Pakistan & neighbourhood now seen as an upper air cyclonic circulation over north Pakistan & adjoining Jammu & Kashmir and extends upto 3.1 km above mean sea level. The induced upper air cyclonic circulation over central Pakistan and adjoining West Rajasthan now lies over Haryana & adjoining areas of northeast Rajasthan and extends upto 1.5 km above mean sea level. A trough in midtropospheric westerlies runs roughly along Longitude 65.0° E and north of Latitude 32.0° N. Another Western Disturbance as an upper air cyclonic circulation over south Iran & neighbourhood now seen as an upper air cyclonic circulation over western parts of Afghanistan & adjoining Iran and extends upto 3.1 km above mean sea level. An upper air cyclonic circulation lies over Jharkhand and adjoining Odisha & Gangetic West Bengal and extends upto 0.9 km above mean sea level. An upper air cyclonic circulation lies over Bangladesh & neighbourhood and extends upto 2.1 km above mean sea level. The upper air cyclonic circulation over Lakshadweep area & neighbourhood persists and now extends upto 0.9 Km above mean sea level. The upper air cyclonic circulation over North Interior Karnataka & neighbourhood persists and now extends upto 0.9 Km above mean sea level.</p> <p>SATELLITE OBSERVATIONS during past 24 hrs and current observation (Based on 0300 UTC Imagery of INSAT -3D): Clouds (based on 0900 UTC imaginary) : Scattered M/Layered Clouds Over J&K Himachal Pradesh, Punjab, Haryana, Delhi West adjoining central Uttar Pradesh Northeast Rajasthan, and Uttarakhand in association with western disturbance over the area. Isolated Low/Medium Clouds Over Rest Uttar Pradesh.. Broken Low/Medium Clouds with embedded Weak To Moderate Convection over N Odisha Jharkhand Adjoining Bihar, Gangetic west Bengal, Meghalaya, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura. Scattered Low/Medium Clouds over Chhattisgarh, rest Odisha. Scattered Low/Medium Clouds Over Rest Raj Madhya Pradesh and Isolated Over Rest Parts Of The Region. Isolated Low/Medium Clouds with embedded Isolated Moderate to Intense Convection over Central Coastal Andhra Pradesh, NW Tamilnadu adjoining South Interior Karnataka. Scattered Low/Medium Clouds over rest Coastal Andhra Pradesh, rest Tamilnadu and Kerala.</p> <p>Arabian Sea:- Scattered Low/Medium Clouds With embedded Isolated Mod To intense convection over SE Arabian Sea between Lat 07.0N To 09.5N And Long 70.5E To 73.5E.</p>

		<p>Bay Of Bengal & Andaman Sea:- Scattered Low/Medium Clouds With embedded isolated weak To Moderate Convection Over North Bay.</p> <p>RADAR observation during past 24 hrs and current observation based on 0300 UTC Convection appears to be in progress over North Orissa and south west Bengal around 28 dBz</p> <p>Environmental condition (dust etc) and its forecast based on 00 UTC of date No significant dust concentration observed over Arabian Peninsula and west Rajasthan. Dust concentration is likely to increase from March 9, 15UTC onwards over Rajasthan, Gujarat and adjoining areas. (WMO SDS-WAS Asian Centre).</p>
2.	NWP GUIDANCE	<p>MODEL</p> <p>NCMRWF (NCUM Forecasts based on 00 UTC of 8th Mar 2017):</p> <p>1. Weather Systems: Weak CYCIR (850hPa) over NW India moving SE wards in Day-1 to Day-3 forecasts. Another CYCIR is forming over NW India-Pakistan which is moving SE wards in Day-2 to Day-4 (close to foot hills). Feeble trough in forecasts Day-0 to Day-1 and again Day-3 to Day-5 at MSLP over J&K. NS Trough over central India-peninsula in 00UTC Day 0 to Day 2. Wind discontinuity at 925 and 850 hPa extends from parts of AP, Maharashtra, Odisha, Chhattisgarh and parts of Bihar Day-0 to Day-2. WD W of J&K in Day-2 to Day-3; Anti-cyclonic flow (weak, broad and diffused) over Arabian Sea and Bay of Bengal.</p> <p>2. Location of jet and jet core at 500 hPa:- 500hPa Jet core (>60kt) Over WB and Bangladesh in day-1 and over most parts of NE on all Days. Over Rajasthan, Gujarat and MP in Day1 to Day-4, extending to large parts of central India in Day4 and 5.</p> <p>3. Convergence at 850 hPa: Weak noisy low level convergence at several places over India</p> <p>4. Low level Vorticity:- Positive Vorticity (>15 x 10⁻⁵/s) over parts of UP and MP in Day-1 and Day-3, isolated locations over NE on all days. Over different parts along the NS trough in the 00UTC</p> <p>5. Showalter Index: -3 to -4[Very Unstable] Day-1: Tripura, Manipur, Mizoram, Nagaland and adjoining areas. TN, Karnataka adjoining AP region, on all days Day-3-4: Eastern India : Odisha, WB and widespread areas of NE.</p> <p>6. K-Index: >35 [Very Unstable thunderstorm likely] Large parts of TN and Karnataka AP region on all days. Odisha-WB and widespread regions of NE on Day-2and 3.</p> <p>7. TTI:- TTI >50 [Scattered Numerous Thunderstorms] : Large parts of North and NW India in Day-0 to Day-3. Spreading SE wards in day-3 and Day-4. On Day-4 all along Gangetic plains.</p> <p>8. Rainfall and thunderstorm activity:- Day-1: (2-4cm/day)Parts of Odisha, Chhattisgarh and MP. Parts of JK, HP and</p>

Uttarakhand.

Day-2-4: JK, HP Uttarakhand (2-4cm), Arunachal, Tripura-Mizoram (>2cm/day)

Day-4 and 5: Rainfall > **16cm/day Meghalaya-Bangladesh** region.

IMD GFS(T1534) based on 00UTC of 8th March, 2017:

1. **Weather systems:-** The CYCIR at 850 hPa over Punjab and adjoining areas persists and a trough extends from this system to south peninsula through central parts of India. The trough extends from the CYCIR to east UP thereafter to south peninsula through Chhattisgarh during Day-1 to Day-3 forecasts. A feeble trough extends from Gangetic West Bengal to Tamilnadu along east coast on Day-4. The anti-cyclonic flow persists over Bay of Bengal and Arabian Sea at 850 hPa from Day-1 to Day-4. Contour at 500 hPa shows approaching of a WD over the northern parts of the India from Day-1 to Day-4.

2. **Location of jet and jet core at 500 hPa:- 500hPa Jet core (>60kt):** A Jet at 500 hPa would establish over India along around 26 deg. N latitude from Day-2 to Day-5.

3. **Spatial distribution of Low level Vorticity- 850hPa Positive Vorticity (>12 x 10⁻¹/s):** Over NW India and along the trough at 850 hPa from Day-1 to Day-4

4. **Spatial distribution of T-storm Initiation Index, Lifted Index, Total Total Index, CAPE, SIN and Sweat Index(High potential for thunderstorm):- [High potential for thunderstorm]**

T-Storm Initiation Index (> 4): Less than the threshold value all over the country during next 5 days.

Lifted Index (< -2): Less than threshold value along east coast from Gangetic West Bengal to south peninsula during next 3 days.

Total Total Index (> 50) : Above threshold value over Karnataka and adjoining areas at 12 UTC of day-1 and at 12 UTC of 12.03.2017 over Gujarat, Karnataka and adjoining Maharashtra region but less than the threshold value over the India till day-5.

Sweat Index (> 300): Mostly along east coast during next 4 days and along Gangetic plain from Day-3 to day-4.

CAPE (> 1000): Mostly along east coast during next 4 days

CIN (50-150): Over Telangana, Odisha, Gangetic and West Bengal during next 3 days and over Gangetic plain on Day-3.

5. **Rainfall activity:** - 10-40 mm over extreme south peninsula, J&K, HP from Day-1 to Day-4.
20-130 mm over NE states from Day-3 to Day-4.

IMD WRF (based on 00UTC of 8th March):

1. **Weather Systems:** The CYCIR at 850 hPa over Panjab and adjoining areas persists and a trough extends from this system to south peninsula through central parts of India. The trough extends from the CYCIR to east UP during Day-1-Day-2 forecasts. Another trough extends for Telengana to south peninsula during Day-1 to Day-3

forecasts. The anticyclonic flow persists over Bay of Bengal and Arabian Sea at 850 hPa from Day-1 to Day-3. Contour at 500 hPa shows approaching of a WD over the northern parts of the India from Day-1 to Day-3.

2. Location of jet and jet core at 500 hPa:- 500hPa Jet core (>60kt): A Jet at 500 hPa would establish over India along around 25 deg. N latitude from Day-1 to Day-3

3. Spatial distribution of Low level Vorticity- 850hPa Positive Vorticity (>12 x 10⁻¹/s): Over NW India and along the trough regions at 850 hPa from Day-1 to Day-3.

4. Model reflectivity: 5-10 dBz over isolated parts of south peninsula, Gujarat region and eastern parts of India during next 3 days. 20-30 dBz over parts of Uttarakhand and NE states during Day-1 to Day-3

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

Total Total Index (> 50) : Above threshold value mostly over NW India and Gangetic plain during next 3 days.

K-Index (> 35): Less than threshold value over the India during next 3 days.

CAPE (> 1000): Mostly along east coast during next 3 days and over Gangetic plain at 12 UTC of 10.03.2017.

CIN (50-150): More than -200 over most parts of the India during next 3 days.

5. Rainfall activity: -20-70 mm over, J&K, HP and west UP on Day-1 to Day-2, over Gangetic West Bengal and adjoining Odisha on Day-1. 20-40 mm over extreme south peninsula from Day-1 to Day-3 and over Gangetic plain and NE states on Day-3.

ECMWF (based on 0000 UTC of 8th March):

Mean sea level:

A trough of low is seen from Lakshadweep area to Konkan & Goa on 12th February 2017.

Lower Level Winds (925 hpa):

An induced upper air cyclonic circulation is seen over central Pakistan and adjoining Punjab on 9th; seen over Punjab and adjoining northwest Rajasthan on 10th and seen over northeast Rajasthan and adjoining Haryana and northwest Madhya Pradesh on 11th and become less marked thereafter.

Western Disturbance (700 hpa & 500 hpa):

A western disturbance as an upper cyclonic circulation seen over north Pakistan and adjoining Jammu & Kashmir on 9th February and seen over Jammu & Kashmir and adjoining plains of northwest India and persisted over the same area till 12th February and has become less marked thereafter.

3.	IOP ADVISORY FOR 24 Hrs	<p>Summary and Conclusions:</p> <p>Synopsis based on synoptic conditions, NWP models and satellite imageries are as follow:</p> <p>Day 1 and Day 2:</p> <p>Yesterday's Western Disturbance as an upper air cyclonic circulation over north Pakistan & neighbourhood presently seen as an upper air cyclonic circulation over north Pakistan & adjoining Jammu & Kashmir and extends upto 3.1 km above mean sea level. The induced upper air cyclonic circulation over central Pakistan and adjoining West Rajasthan now lies over Haryana & adjoining areas of northeast Rajasthan and extends upto 1.5 km above mean sea level. Another Western Disturbance as an upper air cyclonic circulation over south Iran & neighbourhood now seen as an upper air cyclonic circulation over western parts of Afghanistan & adjoining Iran and extends upto 3.1 km above mean sea level.</p> <p>An upper air cyclonic circulation lies over Jharkhand and adjoining Odisha & Gangetic West Bengal and extends upto 0.9 km above mean sea level. Another upper air cyclonic circulation lies over Bangladesh & neighbourhood and extends upto 2.1 km above mean sea level.</p> <p>Due to the above systems, the thunderstorm activities associated with rain is more likely during next 2 days over the places as mentioned below:</p> <p>Advisory for IOP</p> <p>Possible areas of Rain/Thunderstorm activity (Priority wise) are given below:</p> <p>Day 1: Jammu and Kashmir, Himachal Pradesh, Arunachal Pradesh, Manipur, Mizoram, Tripura, Coastal Orissa, South West Bengal, North Andhra Pradesh, Kerala, Interior Tamilnadu</p> <p>Day 2: Himachal Pradesh , North Andhra Pradesh, Kerala, Interior Tamilnadu, Haryana, Coastal Orissa, Arunachal Pradesh, Manipur, Mizoram, Tripura</p>
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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)

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

Upper level winds

http://satellite.imd.gov.in/archive/INSAT-3D-IMAGER/3D-PRODUCTS/AMV/HLW/MAR_2017/?C=M;O=D

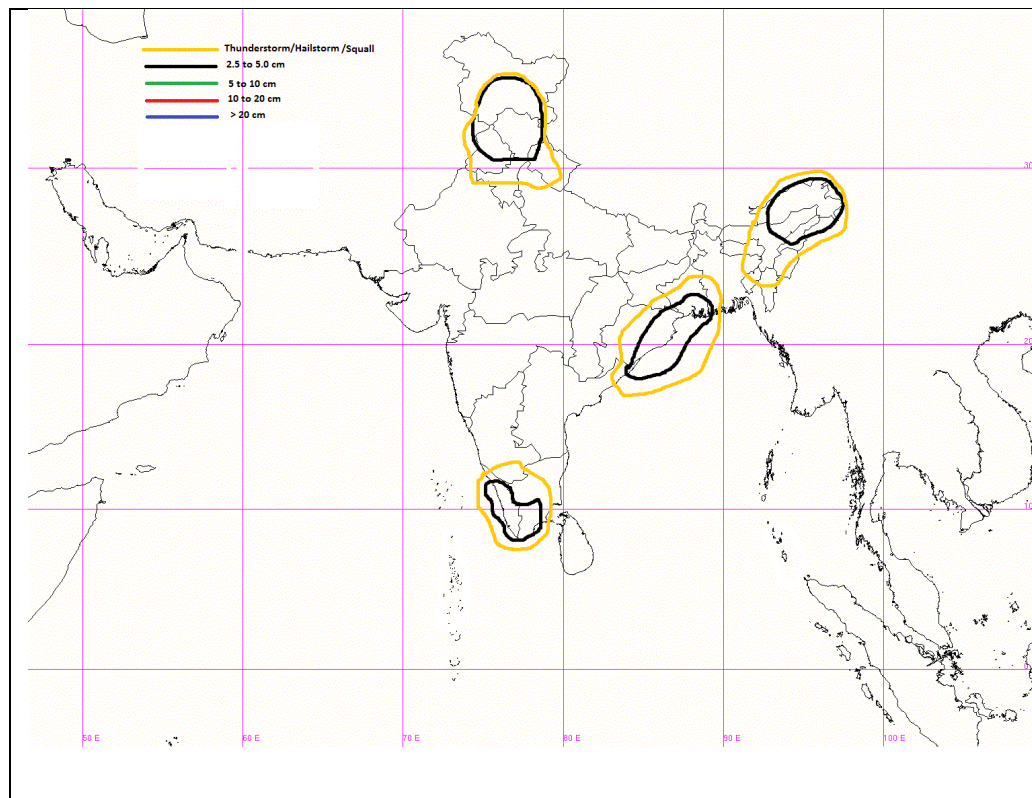
Past 24 hour HEM and IMR rainfall (upto 03 UTC of today)

IMR : http://satellite.imd.gov.in/img/3Ddaily_imr.jpg

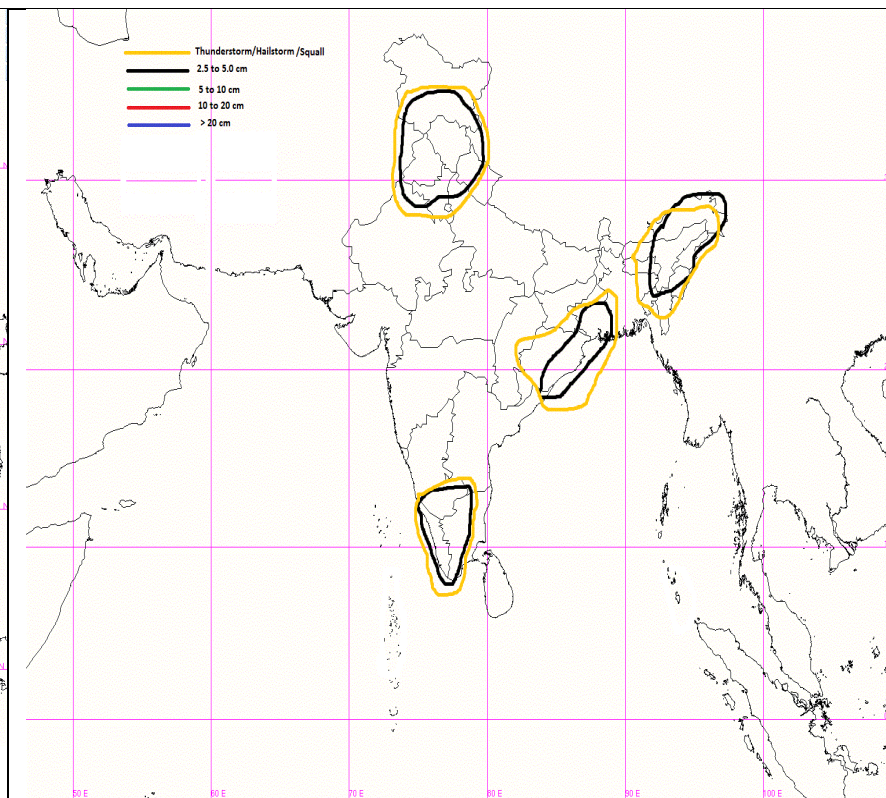
HEM: http://satellite.imd.gov.in/img/3Ddaily_he.jpg

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

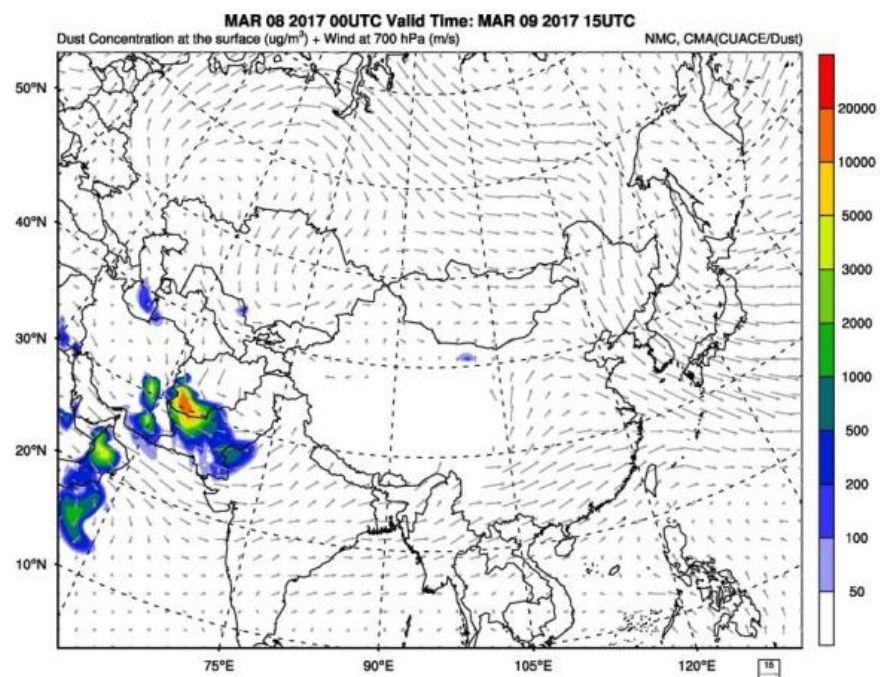
http://ddgmui.imd.gov.in/dwr_img/



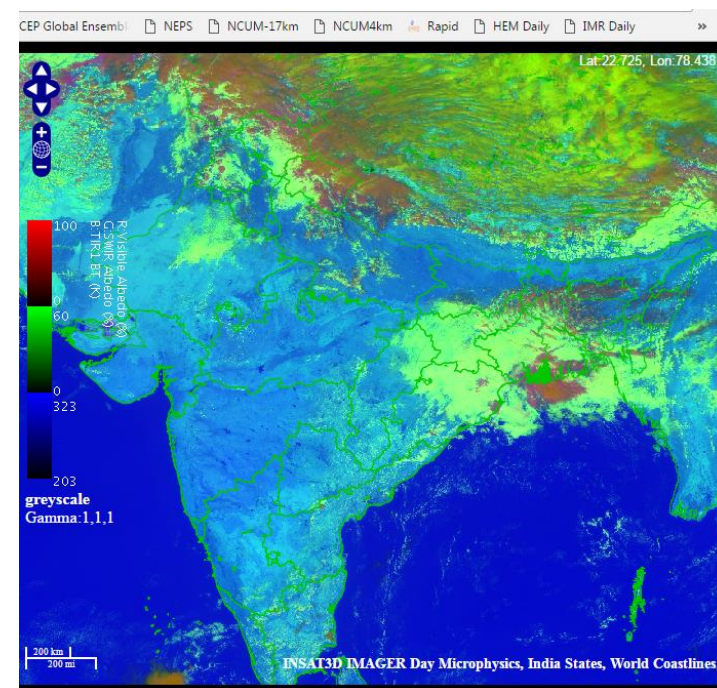
IOP Advisory for 24 hours



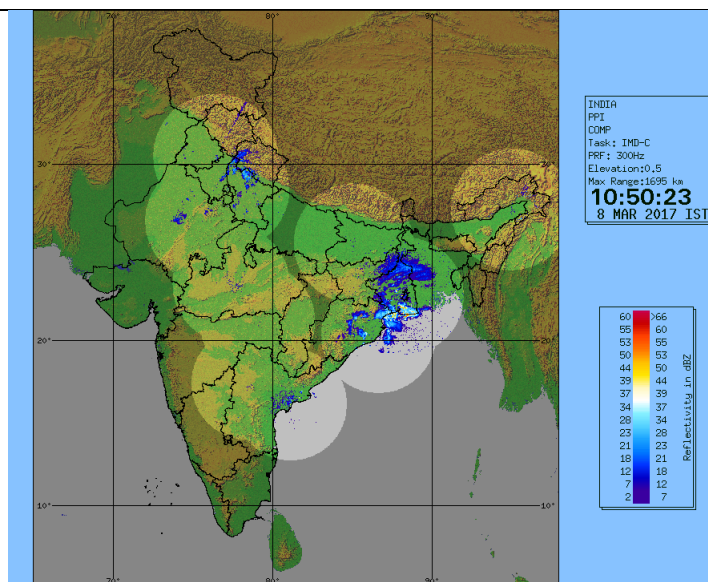
IOP Advisory for 48 hours



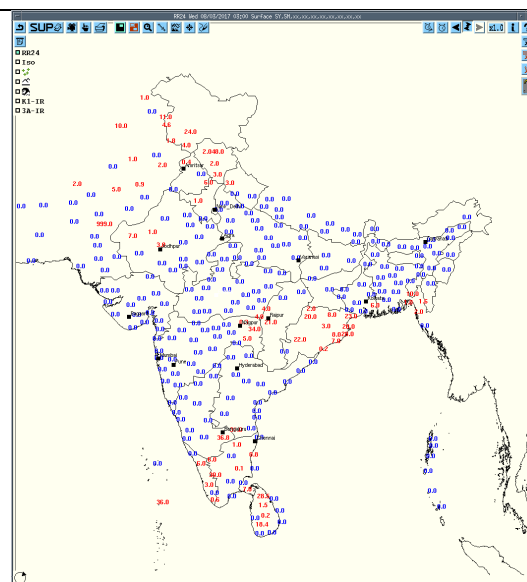
Forecast dust concentration over the Indian region at 15 UTC of 9 March



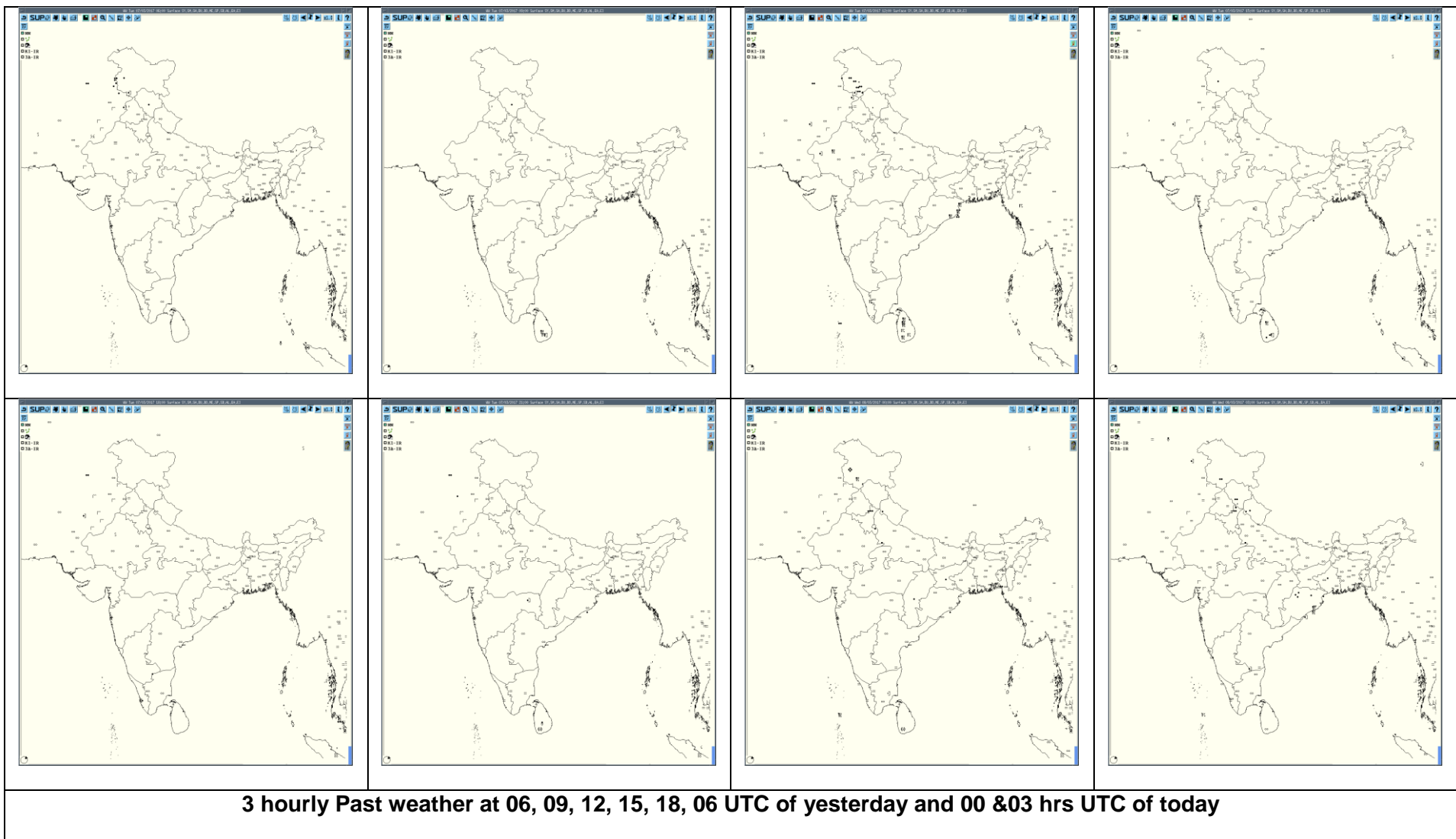
RGB Image of INSAT 3D at 0600UTC

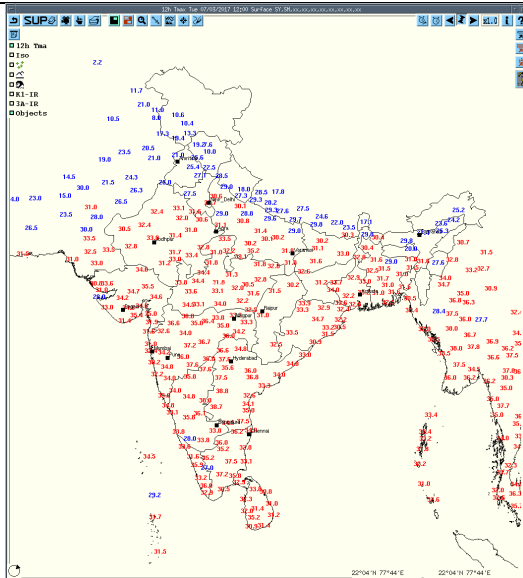


DWR Composite at 1050 IST of today highlighting regions of convection

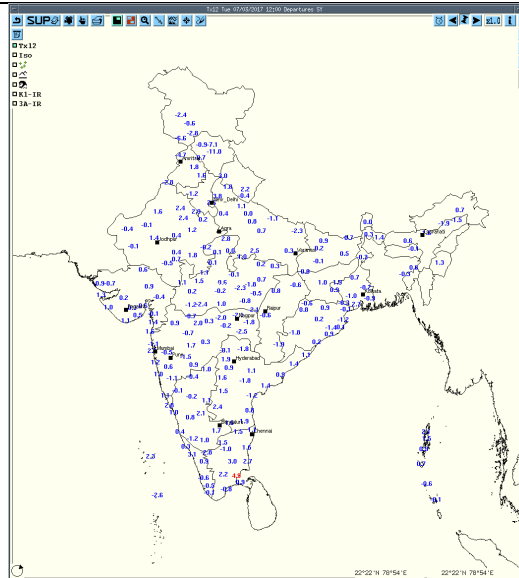


Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today

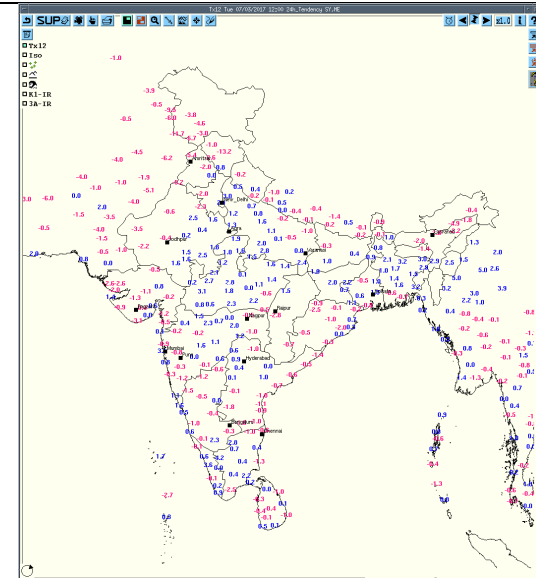




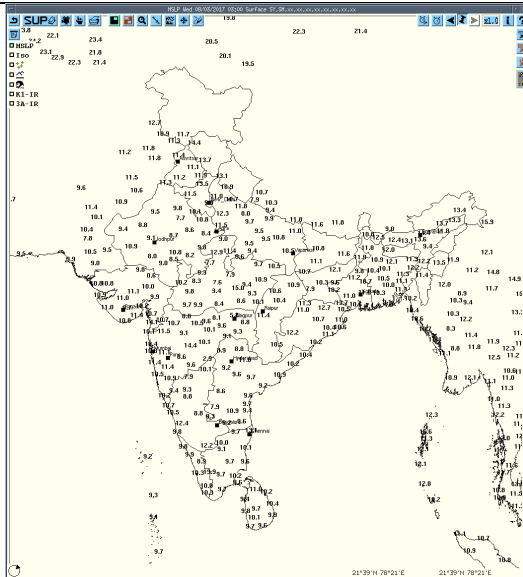
Tmax



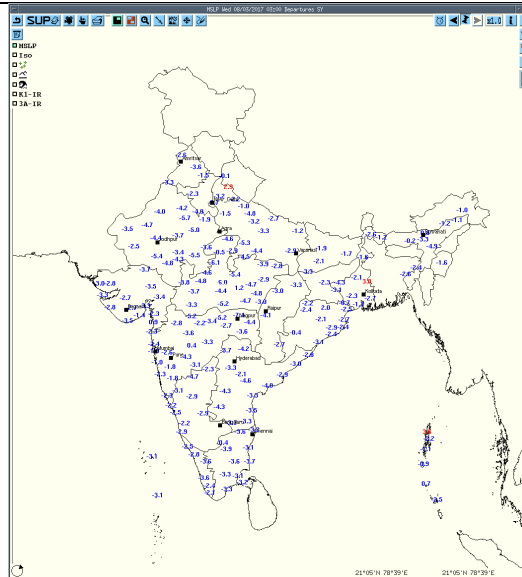
Departure Tmax



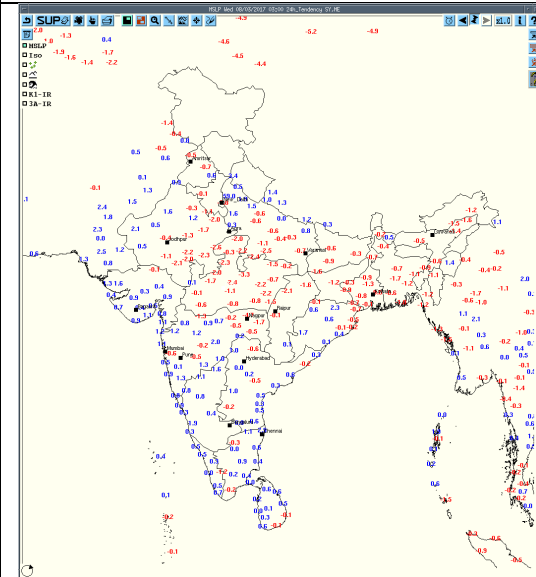
Tendency Tmax



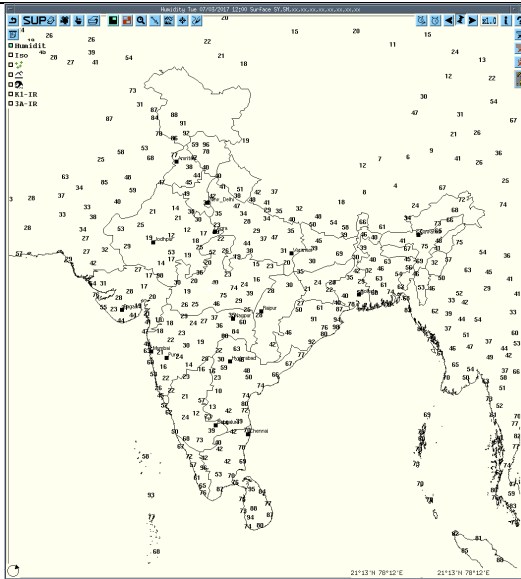
MSLP



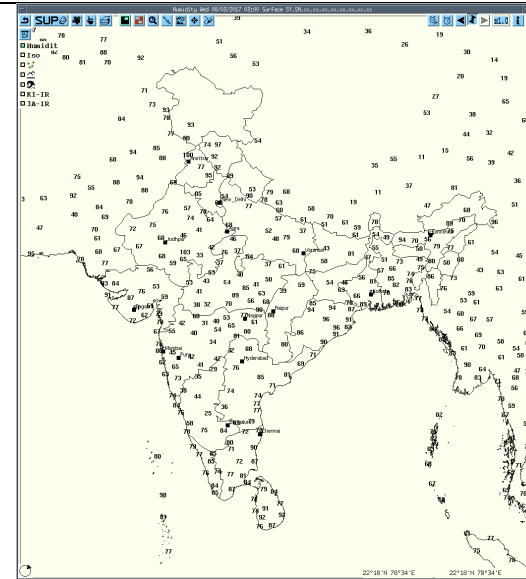
Departure MSLP



Tendency MSLP



RH 12 UTC yesterday



RH 00 UTC today

Realized weather past 24 hours

Date	Time of Reporting	Name of Station Reporting	Region	STATE	Weather Event
07-03-17	0600UTC	Nil			
07-03-17	0900UTC	Bareilly & Gorakhpur	NW India	Uttar Pradesh	Suspended dust
07-03-17	1200UTC	Phalodi	NW India	Rajasthan	Thunderstorm
		Bareilly	NW India	Uttar Pradesh	Suspended dust
		Palakkad	South India	Kerala	Thunderstorm
		Balasore, Chandbali & Bhubaneswar	East India	Odisha	Thunderstorm
		Digha	East India	West Bengal	Thunderstorm
07-03-17	1500UTC	Bikaner	NW India	Rajasthan	Suspended dust
		Jodhpur	NW India	Rajasthan	lightening
		Cochin	South India	Kerala	Thunderstorm with hail
		Nagpur	Central India	Maharashtra (Vidarbha)	Thunderstorm
07-03-17	1800UTC	Cochin	South India	Kerala	Thunderstorm
07-03-17	2100UTC	Nil			
08-03-17	00UTC	Batote	NW India	J & K	Thunderstorm
08-03-17	0300UTC	Bhubaneswar, Puri	East India	Odisha	Thunderstorm

Severe Weather warning based on DWR observation

Name of issuing radar station	DWR HYDERABAD
Geo-coordinates of issuing Station(Lat, Long, Alt)	17.2562o N / 78.7656o E
Date and time of issue in UTC(yyyyMMddhhmm)	0650 UTC of 08/03/2017
Nature of severe weather expected	Nil
Radar Report for past 24 hours	Not Reported
Name of issuing radar station	DWR MACHILIPATNAM
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	Date and time of issue: 08.03.2017-0600UTC
Nature of severe weather expected	Nil
Radar Report for past 24 hours	Not Reported

Name of issuing Radar station	DWR Kolkata
Geo-coordinates of issuing station(Lat, long, Alt)	22.5705° N / 88.353° E, 7m
Date and time of issue in UTC(yyyyMMddhhmm)	201703080442 UTC
Nature of severe weather expected	Thunderstorm with Moderate to Heavy Rain (Midnapore, south 24 parganas)
Radar Report for past 24 hours	Not reported
Name of issuing radar station	DWR KARAIKAL
Geo-coordinates of issuing Station(Lat, Long, Alt)	Lat: 10.91381 N, Long: 79.84141 E/Alt: 25 m amsl
Date and time of issue in UTC(yyyyMMddhhmm)	DWR U/S
Nature of severe weather expected	--

∞	haze
☁	smoke
☼	dust or sand storm
≡	fog
⚡	drizzle
•	rain
✱	snow
▽	showers
△	hail
⚡	thunderstorm

Weather Symbols

