



India Meteorological Department

FDP STORM Bulletin No. 4 (10-03-2018)

1. CURRENT SYNOPTIC SITUATION:

NWFC INFERENCE (Mid- Day):

- ♦ The trough of low at mean sea level over Equatorial Indian Ocean and adjoining central parts of south Bay of Bengal now lies as a low pressure area over southwest Bay of Bengal off Sri Lanka - South Tamilnadu coasts. Associated Cyclonic Circulation extends upto mid-Tropospheric levels. It is likely to become more marked and move westwards during next 48 hrs.
- ♦ The other trough of low at mean sea level from Lakshadweep area to Konkan along the west coast persists.
- ♦ The cyclonic circulation over Maldives - Comorin area extending upto 0.9 km above mean sea level has become less marked.
- ♦ The Western Disturbance as an upper air cyclonic circulation at 3.1 km above mean sea level over north Pakistan & neighbourhood and the trough aloft in mid & upper tropospheric westerlies with its axis at 5.8 Km above mean sea level roughly along Long. 72°E to the north of Lat. 30°N has moved away northeast wards.
- ♦ A fresh western Disturbance as an upper air cyclonic circulation at 3.1 km above mean sea level lies over eastern parts of Afghanistan and neighbourhood.
- ♦ The cyclonic circulation over south Pakistan & adjoining west Rajasthan persists and now extends upto 1.5 km above mean sea level.
- ♦ The cyclonic circulation over eastern parts of Bangladesh and neighbourhood between 1.5 km & 2.1km above mean sea level has become less marked.
- ♦ A north-south trough in the westerlies runs roughly along Long. 88°E to the north of Lat. 25°N between 2.1 and 3.1 km above mean sea level.
- ♦ The cyclonic circulation over south Konkan & adjoining Madhya Maharashtra persists at 0.9 km above mean sea level.

SATELLITE OBSERVATIONS during past 24hrs and current observation:

Current Observation (based on 0300UTC imagery of INSAT 3D):

Western Disturbance (WD):

Scattered multi-layered clouds seen over North Pakistan, Afghanistan, Caspian Sea & Neighbourhood and East Iran in association with WD over the area.

Clouds descriptions within India:

Scattered low/medium clouds with embedded isolated weak convection seen over Arunachal Pradesh. Scattered low/medium clouds seen over Jammu & Kashmir, Punjab, Himachal Pradesh, extreme North Uttarakhand, Haryana, North Uttar Pradesh, Sikkim, South Chhattisgarh, South Odisha, Maharashtra, Madhya Pradesh, Tamilnadu and Kerala. Isolated low/medium clouds over North Rajasthan and Southeast Gujarat.

Arabian Sea:

No significant clouds seen over the region.

Bay of Bengal & Andaman Sea:

Scattered low/medium clouds with embedded isolated moderate to intense convection seen over Southwest & Southeast Bay, south of lat 11.5°N and Andaman & Nicobar Islands.

Past Weather:

Convection (during last 24 hrs): Weak to Moderate convection was observed over J&K Punjab Himachal Pradesh Uttarakhand Kerala and Tamilnadu.

OLR: Upto 230 Wm^{-2} was observed over J&K North Himachal Pradesh North Uttarakhand South north Sikkim Arunachal Pradesh Kerala Tamilnadu

Westerly Trough & Jet-Stream: Trough in westerlies roughly along longitude 72.0°E & north of latitude 30.0°N .

Dynamic Features: Negative shear tendency is observed over J&K Himachal Pradesh Uttarakhand & Punjab and Positive shear tendency over rest parts of India.

Medium to high wind shear is observed over North & Central India

Precipitation:

HEM:

Rainfall upto 1-7 mm was observed over SW J & K & S Tamilnadu.

RADAR and RAPID Observation:

No convection is seen in DWR Composite at 1150 IST.

Light convection is seen over Sikkim and Arunachal Pradesh in RAPID RGB Satellite imagery at 1100 IST.

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

Not Received

2. NWP MODEL GUIDANCE:

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

1. Synoptic Systems: The analysis and forecasts based on 00 UTC shows a north-south oriented trough over north Madhya Maharashtra persists up to day4. Another quasi-stationary cyclonic circulation over south Pakistan and adjoining west Gujarat persists up to day2. Forecasts also show the feeble cyclonic circulation over NMMT becomes less marked on day3 and a north-west to south-east trough from Bihar to Bangladesh persists during next 5 days. Contour at 500 hPa shows a feeble Western Disturbance would affect northwest parts of India during day4 to day5.

2. Location of Jet and Jet Core ($>60\text{kt}$) at 500hPa: Presence of no jet core over the Indian region for the next 3 days..

3. Low Level Vorticity {850hPa Positive Vorticity ($>12 \times 10^{-1}/\text{s}$)}: Mostly along the west coast, along the foot hill of Himalaya and parts of west Gujarat, Rajasthan and central India during next 3 days.

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

T-Storm Initiation Index (> 4): Higher than threshold value 4 over the Gangetic West Bengal on day3. Less than threshold value 4 all over the country but it is 3-3.5 along west coast and east coast during next 3 days.

Lifted Index (< -2): Higher than threshold value -2 all over the country but it is less than threshold value -2 along west coast and east coast during day2 to day3.

Total Total Index (> 50) : Above threshold value over the central parts of India during next 3 days.

Sweat Index (> 300): Mostly along east coast, west coast and over parts of Gujarat during next 72 hours and very high value of greater than 700 over the Gangetic West Bengal on day3.

CAPE (> 1000): Mostly along southern parts of west coast and east coast and Gangetic West Bengal on day3.

CIN (50-150): Mostly along east coast, west coast and over parts of Gujarat during next 72 hours.

5. Rainfall Activity:

Up to 10 mm rainfall over parts of north eastern states during next 5 days.

Up to 10 mm rainfall over parts of Tamilnadu and Kerala during day2 to day3.

Up to 10-40 mm rainfall over parts of Tamilnadu and Kerala during day4 to day5.

Up to 10 mm rainfall over J&K during day1 to day2 and 10-40 mm during day3 to day5.

Up to 10 mm rainfall over Himachal Pradesh, Uttarakhand during next 4 days and 10-40 mm over Himachal Pradesh on day5.

IMD WRF (9km based on 00UTC of the day):

1. Model Reflectivity (Max.dBz): 5-20 dBZ Model reflectivity over parts of J & K and over parts of Arunachal Pradesh on day2 and day3.

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

Total Total Index (> 50) : Above threshold value is observed over most parts of the country except south peninsula, J&K and Arunachal Pradesh during next 72 hour.

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

CAPE (> 1000): Less than threshold value is observed over the country during the next 72 hour.

CIN (50-150): Mostly over Panjab, Delhi & Haryana and Uttar Pradesh during next 3 days.

3. Rainfall and thunderstorm activity:

Rainfall up to 10 mm over parts of J&K on day2 and 10-20 mm on day3.

Rainfall activity (10-20 mm) over Arunachal Pradesh during next 72 hours.

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

Not Received

3. IOP ADVISORY FOR 24 and 48Hrs:

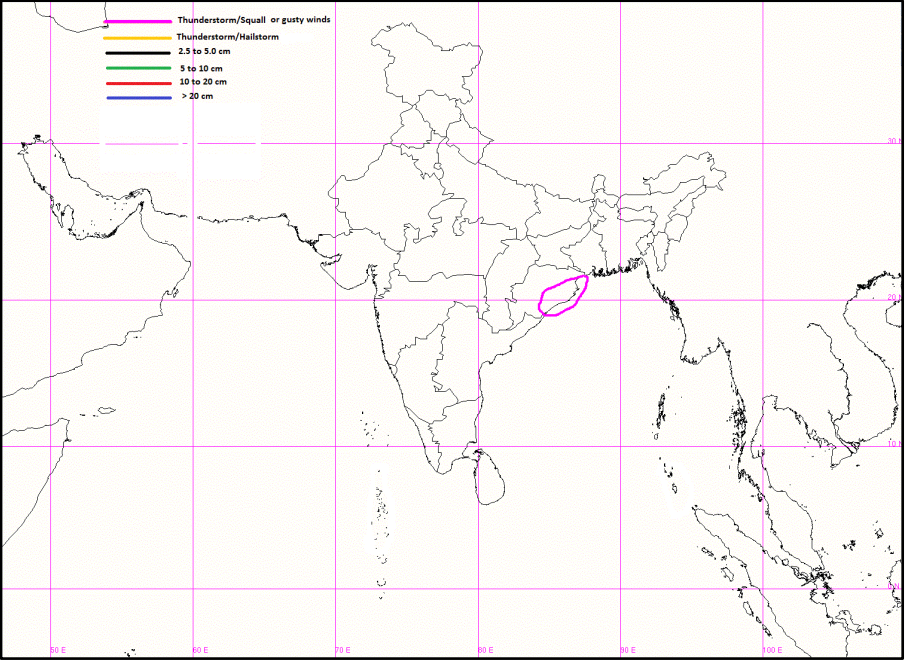
Summary and Conclusions:

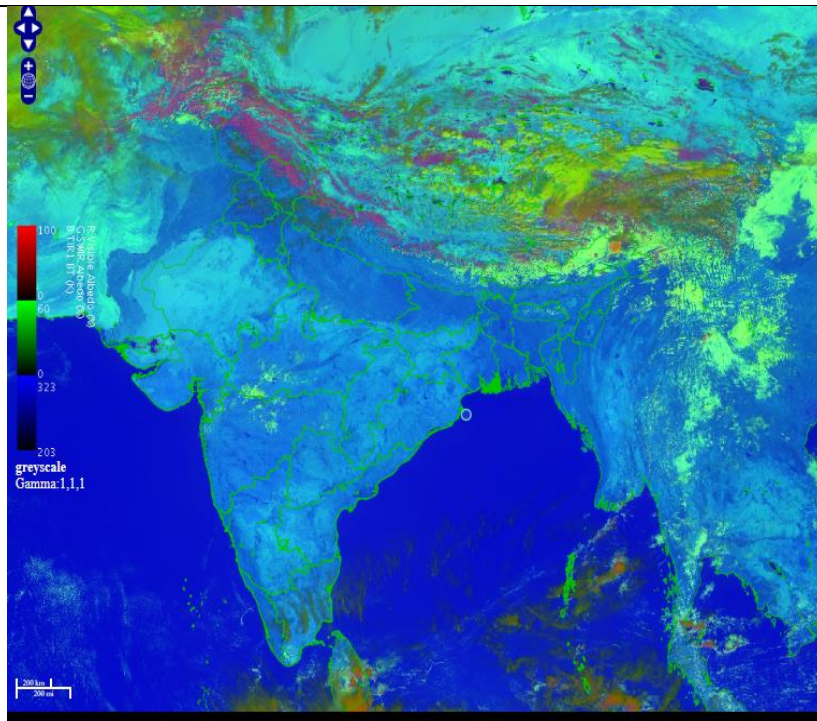
Day-1 & Day-2:

In association with the movement of the anticyclone over the Bay of Bengal, moisture feeding is likely into coastal Odisha on day 2. This will be aided by wind convergence between the moist south-westerlies and the dry westerlies over the same region on day 2. Based on these synoptic situations, thunderstorms with gusty winds are likely over coastal Odisha on day 2, which is likely to extend northwards on day 3.

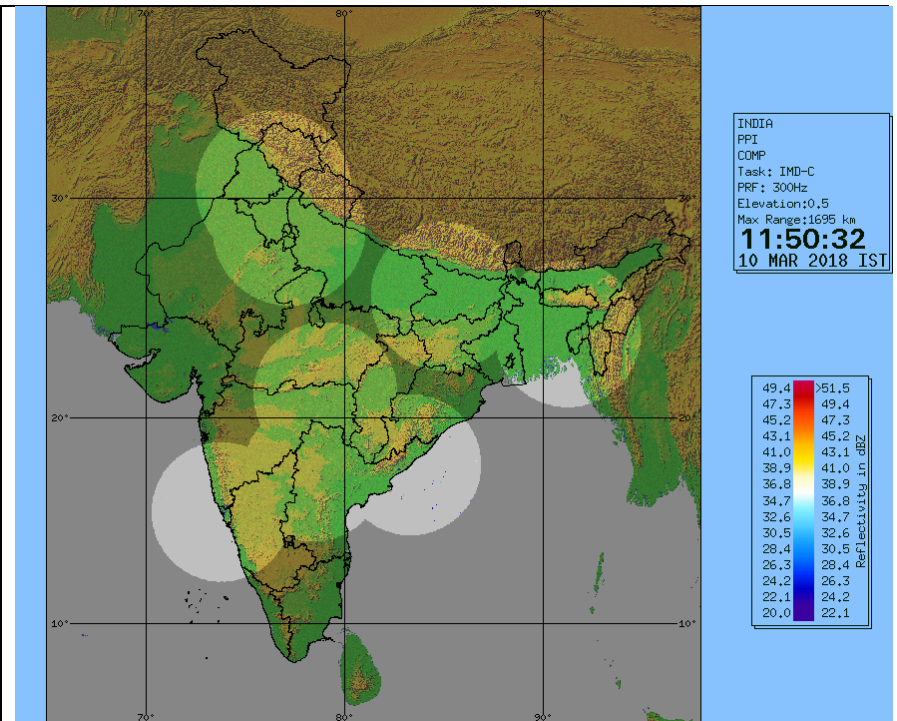
24 hour Advisory for IOP: Rainfall: Nil Thunderstorm with associated phenomena: Nil	48 hour Advisory for IOP: Rainfall: Nil Thunderstorm with associated phenomena: Coastal Odisha
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Graphical Presentation of Potential Areas for Severe Weather:

<p>No Warning for Severe Weather</p>	
<p>IOP Advisory for 24 hours</p>	<div><div><div><div>Thunderstorm/Squall or gusty winds</div><div>Thunderstorm/Hailstorm</div><div>2.5 to 5.0 cm</div><div>5 to 10 cm</div><div>10 to 20 cm</div><div>> 20 cm</div></div><p>IOP Advisory for 48 hours</p></div></div>



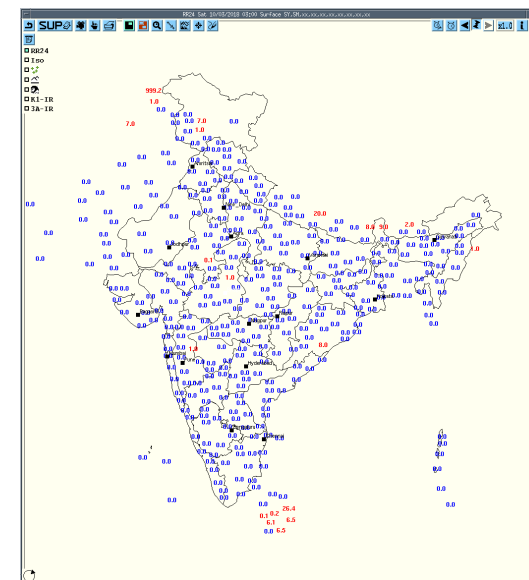
RAPID RGB Imagery at 1100IST of the Day



DWR Composite at 1150 IST of the Day

Not Received

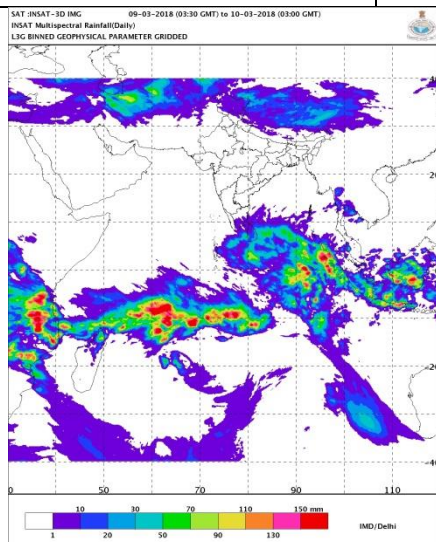
Not Received



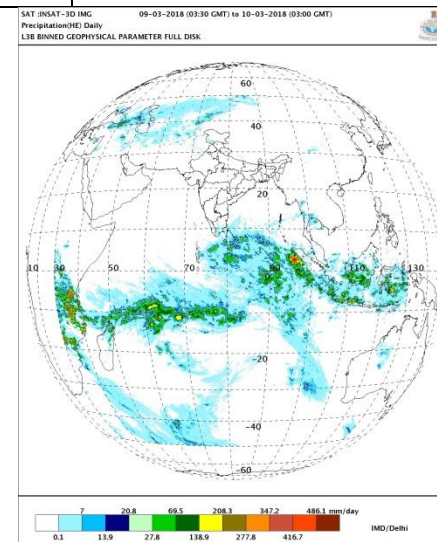
Forecast Dust Concentration

PM10 Forecast

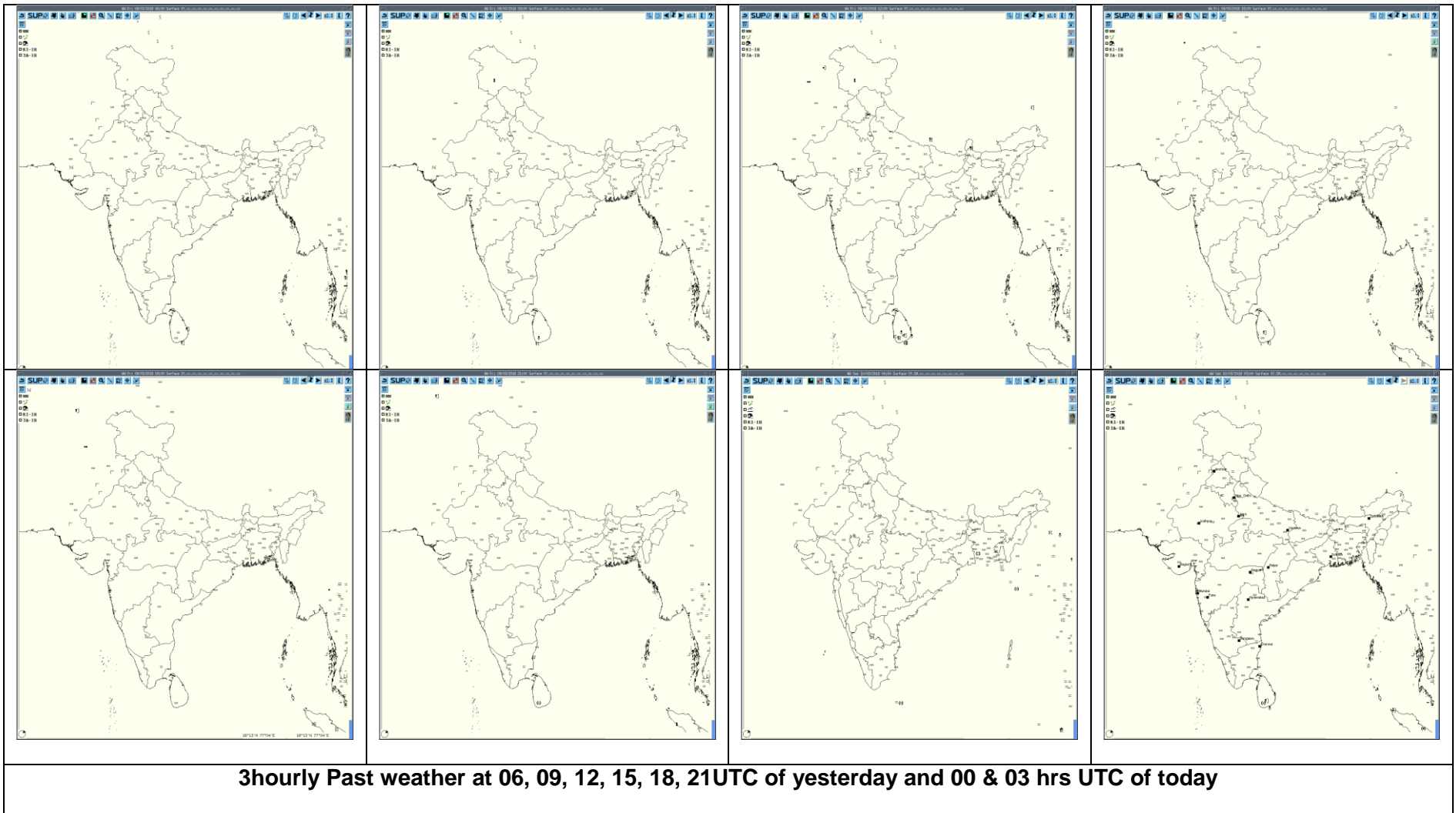
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today

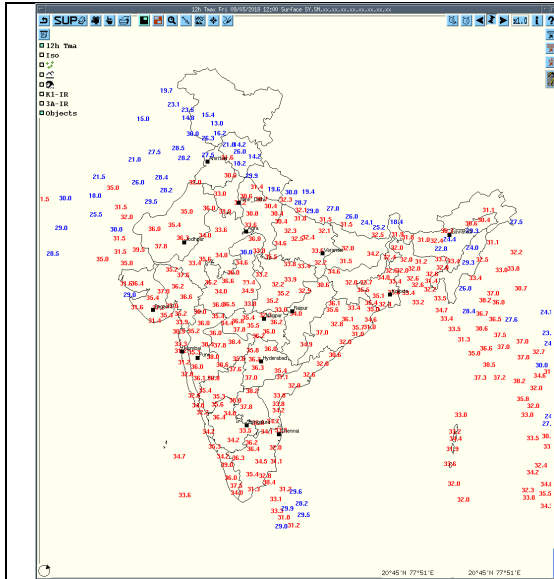


IMR

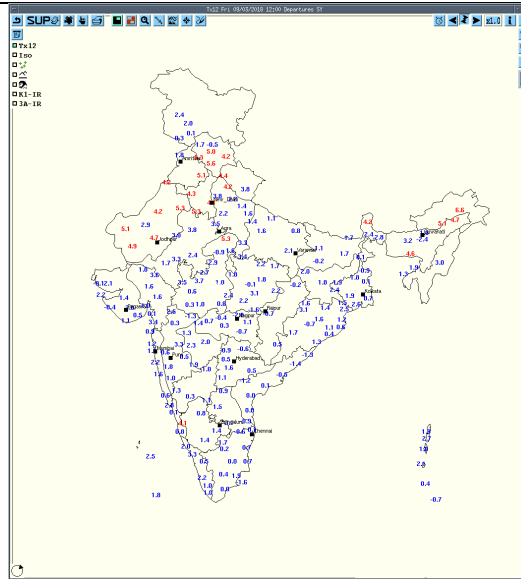


HEM

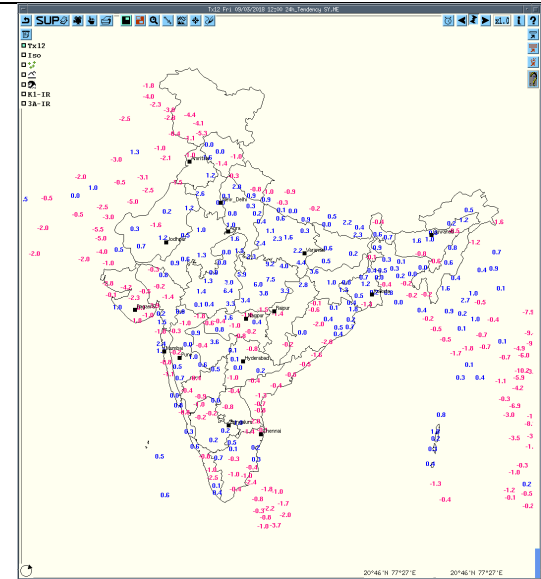




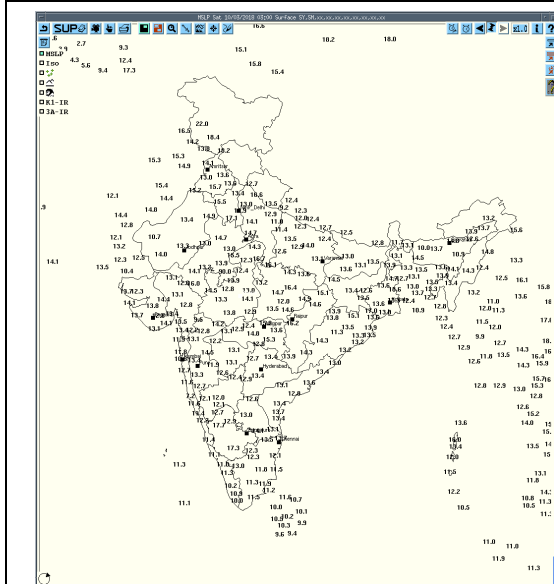
Tmax



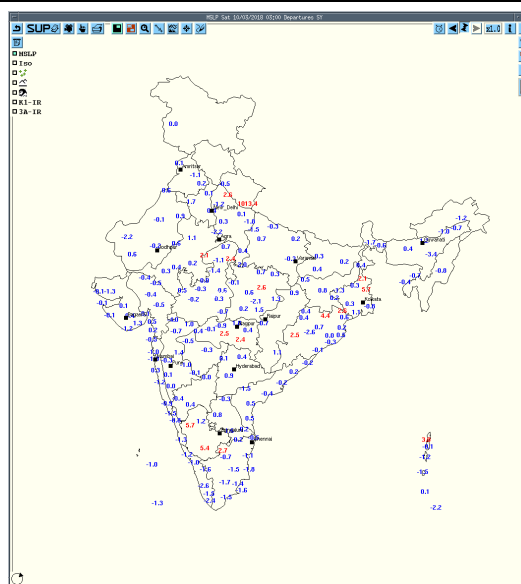
Departure Tmax



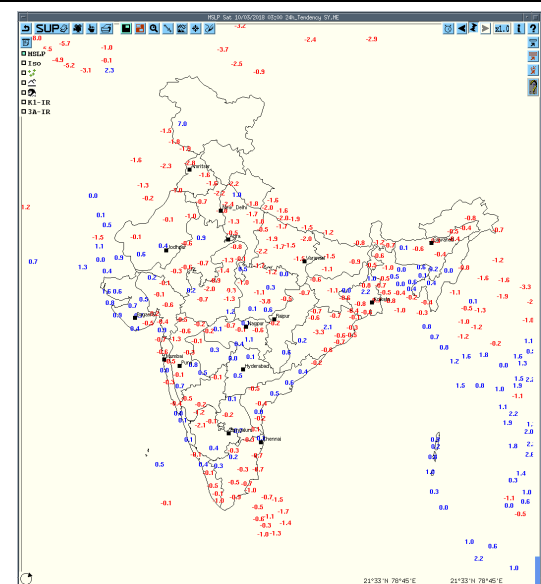
Tendency Tmax



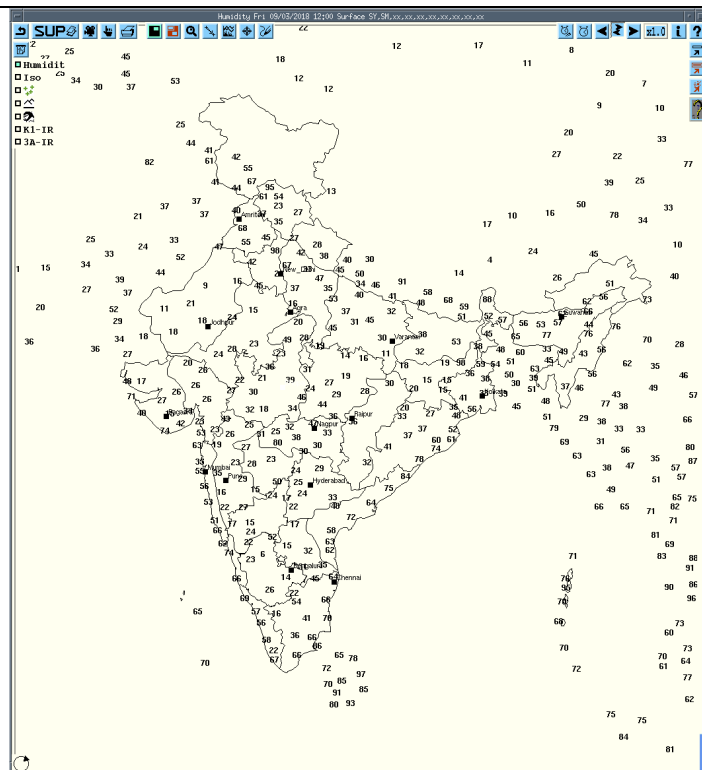
MSLP



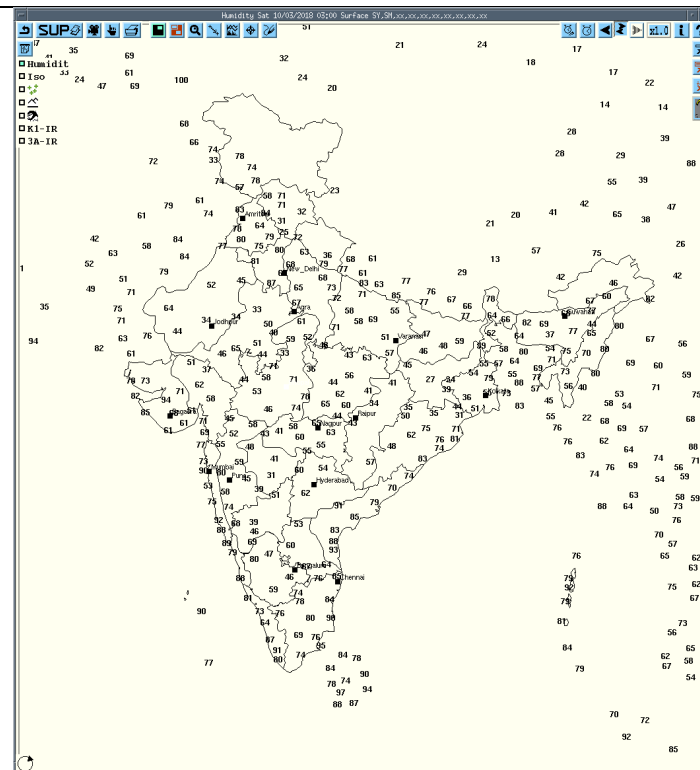
Departure MSLP



Tendency MSLP



RH at 12UTC yesterday



RH at 03UTC today

Realised past 24hrs TS/SQ/HS Data:

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

Name of Station Reporting	Region	State/Sub Division	Weather Event (TS/Hail/Squall)	Date	Time of Commence ment (IST)	Time of end (IST)
Kota	Northwest India	East Rajasthan	Thunderstorm	09-03-18	1715	1800
Jaipur	Northwest India	East Rajasthan	Thunderstorm	09-03-18	2010	2100
Gangtok	East India	Sikkim	Thunderstorm	09-03-18	1530	2050
Tadong	East India	Sikkim	Thunderstorm	09-03-08	1557	1820

Past 24 hours DWR Report:

DWR 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
Agartala	10-03-18	090300-100300	Nil	Nil	Nil	Nil	Nil
Jaipur	10-03-18	1118-1512	Multiple cell with average height of 4.5 km & maximum reflectivity 56.0 dBZ	Multiple cell continue from previous day 1118 UTC of 09/03/2018 towards SW of Jaipur and moved to NE Wards at speed 10-12 km/hr	Multiple cell develop from 1118 UTC 09/03/2018 towards ,SW of Jaipur and reaches maximum reflectivity during 1332 UTC and died down at 1512 UTC of 09/03/2018	Thunder storm with light rain at few places	AJMER,BHILWAR A,JAIPUR,KOTA,J HALAWAR DISTRICTS.
Patiala	10-03-18	090300-100252	No Echo	--	--	--	--
Visakhapatnam	10-03-18	0900 UTC-1200 UTC	Convective cell is organized with height 8Km and max reflectivity 54 dbz towards NE at a distance of 210 Km.	Moving towards SE	Likely to be dissipated	-	-
		1200 UTC-1500 UTC	Isolated single Convective cell is formed in NW with height of 10Km and max reflectivity of 58 dBz.	NW(78 KM) and NE(194 KM)Moving towards SE	Likely to be dissipated	-	-

			Another isolated cell is formed IN NE with height of 10 km and max reflectivity of 54dBz.				
		1500 UTC-1800 UTC	Isolated single Convective cell is formed in SW with height of 6 Km and max reflectivity of 56 dBz.	SW(56 KM)Moving towards SE	Likely to be dissipated	-	-
Patna	10-03-18	090300-100300	Nil	Nil	Nil	Nil	Nil
Kolkata	10-03-18	090301-100300	Nil	Nil	No Echo	Nil	Nil

IMPORTANT LINKS:

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

Past24hourHEMandIMRainfall(upto03UTCof today)

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

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

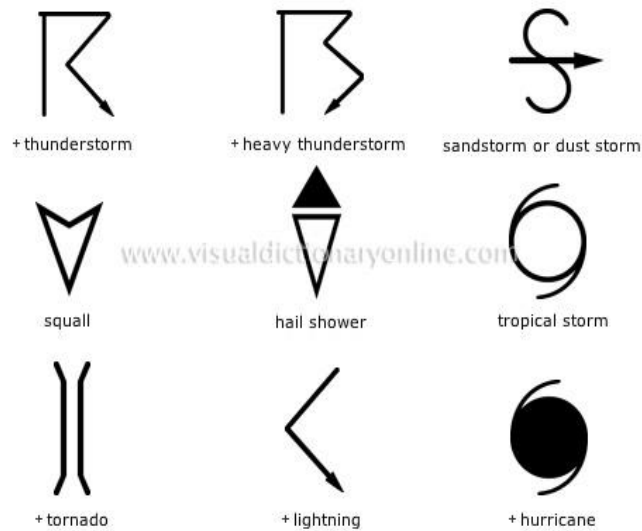
For Radar images of the past 24 hours including mosaic of images:

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

Satellite sounder based T- Phigram

http://satellite.imd.gov.in/map_skm2.html

WEATHER SYMBOLS:



∞	haze
~	smoke
⊙	dust or sand storm
≡	fog
⌂	drizzle
•	rain
*	snow
▽	showers
△	hail
⌂	thunderstorm
Weather Symbols	