



India Meteorological Department
FDP STORM Bulletin No.108 (21-06-2017)

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

The southwest monsoon has further advanced into some more parts of Vidarbha, Chhattisgarh, Jharkhand & Bihar and remaining parts of Odisha. The Northern Limit of Monsoon (NLM) passes through Lat. 20.5°N / Long. 60.0°E, Lat. 20.5°N / Long. 70.0°E, Valsad, Nasik, Buldana, Yeotmal, Raipur, Daltonganj, Supaul and Lat. 27.0°N / Long. 86.0°E.

Favourable conditions are developing for further advance of southwest monsoon into some more parts of Vidarbha; remaining parts of Chhattisgarh, Jharkhand & Bihar and some parts of East Madhya Pradesh & East Uttar Pradesh during next 48 hours.

The trough at mean sea level from northwest Rajasthan to northwest Bay of Bengal persists and now runs across north Madhya Pradesh, Uttar Pradesh, Bihar, Jharkhand & Gangetic West Bengal.

The western disturbance now seen as an upper air cyclonic circulation over northern parts of Punjab & neighbourhood between 2.1 km & 7.6 km above mean sea level with a trough aloft roughly along Longitude 72.0°E and north of Latitude 25.0°N.

An upper air cyclonic circulation lies over north coastal Odisha & neighbourhood between 4.5 & 5.8 km above mean sea level.

The north-south trough from Sub-Himalayan West Bengal to north Bay of Bengal, now runs from eastern parts of Bihar to north coastal Odisha between 2.1 & 3.1 km above mean sea level.

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

The upper air cyclonic circulation over northern parts of Bangladesh & neighbourhood has become less marked.

The upper air cyclonic circulation over northwest Rajasthan & neighbourhood has become less marked.

SATELLITE OBSERVATIONS during past 24hrs and current observation:

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

Western Disturbance:

Scattered multi-layered clouds with embedded weak to moderate convection were seen over J & K (minimum CTT minus 46deg C), Himachal Pradesh, Punjab, Haryana, Delhi, NW Uttar Pradesh, and Uttarakhand in association with WD over the area.

Cloud Description:

Scattered low/medium clouds with embedded intense to very intense convection were seen over NE Uttar Pradesh. Scattered low/medium clouds with embedded moderate to intense convection were seen over NE Assam, SW Meghalaya adjoining Bangladesh, central parts of E Gujarat, coastal Andhra Pradesh and C Tamilnadu. Scattered low/medium clouds with embedded isolated weak to moderate convection over SE Rajasthan and rest parts of East and South India. Scattered low/medium clouds were seen over Delhi, W Uttar Pradesh and rest parts of West India.

Arabian Sea:

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

Bay of Bengal & Andaman Sea:

Scattered low/medium clouds with embedded intense to very intense convection seen over WC Bay. Scattered low/medium clouds with embedded moderate to intense convection were seen over rest Bay. Scattered low/medium clouds with embedded isolated weak to moderate convection were seen over Andaman Sea.

Past Weather:

Convection:-

Moderate to Intense convection was observed over J&K Punjab Himachal Pradesh Uttarakhand Haryana Delhi Uttar Pradesh Vidarbha Chhattisgarh Bihar Jharkhand Odisha West Bengal Karnataka Telangana Andhra Pradesh Kerala Tamilnadu.

OLR:-

Upto 100 wm^{-2} was observed over South Jharkhand Coastal Odisha.

Upto 200 wm^{-2} was observed over North J&K Chhattisgarh Rest Jharkhand Rest Odisha West Bengal South Interior Karnataka Telangana Andhra Pradesh Kerala Tamilnadu

Upto 230 wm^{-2} was observed over Rest J & K Himachal Pradesh Uttarakhand

Punjab Haryana Uttar Pradesh East Madhya Pradesh East Vidarbha Rest Karnataka North East States

Westerly Trough & Jet-Stream:-

Trough in westerly's runs roughly along 71.0E North of Lat 28.0N

No 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 the India.

Positive Vorticity field is observed over South Chhattisgarh.

Negative low level convergence is observed over Maharashtra Coast Goa Coastal Karnataka Kerala and Positive low level convergence observed over rest parts of India

Precipitation:

IMR:

Rainfall Up to **150** mm was observed over Coastal Odisha.

Rainfall Up to **110** mm was observed over South Jharkhand.

Rainfall Up to **90** mm was observed over Rest Odisha

Rainfall Up to **70** mm was observed over East Uttar Pradesh Chhattisgarh Rest Jharkhand North East Andhra Pradesh.

Rainfall Up to **50** mm was observed over Telangana

Rainfall Up to **20** mm was observed over West J&K North Tamilnadu .

Rainfall Up to **10** mm was observed over Rest J&K Himachal Pradesh Uttarakhand Punjab

Haryana Delhi Rest Uttar Pradesh North West Rajasthan North Madhya Pradesh Vidarbha

West Bengal North East States South Interior Karnataka Rest Andhra Pradesh

Rest Tamilnadu Kerala.

HEM:.

Rainfall Up to **208** mm was observed over South Coastal Odisha

Rainfall Up to **70** mm was observed over Extreme South East Uttar Pradesh Rest Odisha West Jharkhand East Chhattisgarh Telangana

Rainfall Up to **14** mm was observed over West J&K Punjab Haryana West Bengal.

Rainfall Up to **07** mm was observed over Himachal Pradesh Uttarakhand Rest Uttar Pradesh Delhi Rajasthan East Madhya Pradesh Vidarbha Rest Chhattisgarh Bihar Rest Jharkhand North East States Karnataka Andhra Pradesh Kerala Tamilnadu

RADAR and RAPID Observation:

DWR composite of DWR Patiala, Delhi, Jaipur, Lucknow and Bhopal at 1302 hrs IST indicated isolated/multiple echoes with dBZ 45-50 with N-S orientation extending from Himachal Pradesh to N Madhya Pradesh across Haryana-Uttar Pradesh and Rajasthan-Uttar Pradesh boarder and also over E Uttar Pradesh.

RAPID RGB Satellite imagery at 12000hrs IST indicated significant convective clouds over J & K, NW Rajasthan, Himachal Pradesh, adjoining Uttarakhand, E Uttar Pradesh, E Assam, C Meghalaya, N Coastal Andhra Pradesh, Kerala, Coastal Karnataka 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 northern part of India. Dust concentration is expected to decrease over north India for next five days. High PM10 concentration was observed over western and northern part of the country and Pakistan, it is expected to decrease over north India and IGP in the 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 over south Pakistan and adjoining Rajasthan with MSLP values lower than 992hPa.

00 UTC Charts of Day 1-3 show a trough at mean sea level from North Rajasthan/Punjab to West Bengal/Bangladesh across Uttar Pradesh, Bihar, Jharkhand

12UTC charts of Day 0-1: show a zone of wind discontinuity at 925 hPa; SW-NE over adjoining areas of Jharkhand, Odisha and Chhattisgarh

12UTC charts of Day 2-4: E-W trough over Madhya Pradesh

00UTC charts of Day 1-2: Western Disturbance as a trough at 500 hPa over J &K, Punjab is moving eastward and gets deeper to reach east Punjab and HP in Day 2. A fresh WD is approaching J & K in Day 5.

00UTC charts of Day 1: A trough at 850 hPa from Bihar to AP coast. Trough is seen in Day 2-5 along the east coast. Associate CYCIR in Day 2-4 over east Bihar.

00UTC charts of Day 1-3: show a trough over south west Rajasthan and associated CYCIR only in Day 1 over adjoining Pakistan. Trough is seen to reach off Gujarat coast in day 4-5.

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 10⁻⁵ /s)

Day0: West RJ,

Day1: Kerala,

Day2: Nill

Day3: Nill

Day4: Nill

4. Low level Vorticity:-Positive Vorticity (>15 x 10⁻⁵/s):

(Day/Index: Subdivisions with Lower Level Vortex > 15 x 10⁻⁵ /s):

Day0: Punjab, TN Puducherry,

Day1: Assam Meghalaya, TN Puducherry, Kerala,

Day2: Assam Meghalaya, Gangetic WB, TN Puducherry, Kerala,

Day3: Assam Meghalaya, Sub Himalayan WB, Jharkhand, Bihar, Saurashtra Kutch, TN Puducherry, Kerala,

Day4: Bihar, Telangana, Rayalseema, TN Puducherry, NI Karnataka, SI Karnataka, Kerala

5. Showalter Index: -3 to -4[Very unstable]: (Day/Index: Subdivisions with Showalter Index < -4):

Day0: Arunachal Pradesh, 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, Marathwada, Vidarbha, Chhattisgarh, Coastal AP,

Day1: Arunachal Pradesh, 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, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, NI Karnataka,

Day2: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Guj Reg, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, NI Karnataka,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, NI Karnataka,

Day4: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, NI Karnataka

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, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Guj Reg, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Rayalseema, 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, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, TN Puducherry,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, NI Karnataka,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, TN Puducherry, NI Karnataka,

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, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, 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, West RJ, East RJ, West MP, Guj Reg, Saurashtra Kutch,

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

Day2: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir, West RJ, Guj Reg, Saurashtra Kutch,

Day3: Arunachal Pradesh, Sub Himalayan WB, Himachal Pradesh, Jammu Kashmir,

Day4: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir

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, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, West MP, Guj Reg, Konkan Goa, Coastal AP, Telangana, Coastal Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Hry Chd Delhi, Jammu Kashmir, West RJ, East RJ, West MP, Guj Reg, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Andaman Nicobar, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Hry Chd Delhi, West RJ, Odisha, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Andaman Nicobar, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, West UP, Uttarakhand, Odisha, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Andaman Nicobar, Coastal AP, Telangana, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Odisha, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Andaman Nicobar, Coastal AP, Telangana, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala

**** Rainfall >16 cm/day over central Bangladesh in Day 3**

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 which persists till day 5. A feeble low develop over Orissa coast on day 3 which persists for next 2 days. An off-shore trough is seen along west coast south of Konkan and Goa. A cyclonic circulation over SHWB and adjoining areas shifts southward over GWB and adjoining areas on day 2 and remains quasi-stationary over the region till day 5. The wind analysis at 500 hPa shows a cyclonic circulation over J&K and adjoining Haryana and Pakistan which moves eastward over Delhi and adjoining areas on day 1 and remain over the region till day 2.

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 10⁻¹/s):

Mostly along the trough parallel to foothills of Himalayas and coastal Gujarat. Prominent vorticity zones are also found over east India associated with cyclonic circulation and trough mainly 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 but prominent values are mostly over western part of Rajasthan and adjoining Gujarat, isolated pockets of Bihar, GWB and Orissa Coast during next 5 days.

Lifted Index (< -2): Less than threshold value in different pockets over most parts of the country except J&K, HP, Uttarakhand, UP, parts of central India, NE states and over major parts of the south peninsula during next 5 days.

Total-Total Index (> 50) : Above threshold value is not found over the country for next 5 days.

Sweat Index (> 300): Higher than threshold value almost all over the country except parts of Uttarakhand and UP, Bihar and GWB and isolated pockets in the South peninsula.

CAPE (> 1000): Mostly western India over Rajasthan and Gujarat. Also over GWB, Bihar, isolated pockets of Orissa and regions along east coast of the country.

CIN (>150): Consistently over Gujarat and adjoining Rajasthan and over isolated pockets over Maharashtra, and Karnataka and coastal region of Bay of Bengal..

5. Rainfall and thunderstorm activity:

40-70 mm rainfall and more over SHWB, NE states, Konkan coast on day 1 and 2. Over coastal Orissa and adjoining Andhra Pradesh on day 4 and 5

20-40 mm rainfall over some parts of east Rajasthan and adjoining areas for next 2 days. Parts of Bihar, Jharkhand, Chhattisgarh, and Telangana during the next 5 days

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

1. Model Reflectivity (Max.dBz):

15-40 dBz model reflectivity over SHWB and regions of NE states and along the foothills of the Himalayas, Konkan and Goa and adjoining areas along west coast for the next 2 days. Over most parts of northwest India over Punjab, Rajasthan, Haryana, Uttarakhand, Delhi and adjoining areas for next 2 days.

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

Total-Total Index (> 50) : Above threshold value over northwest India and extending south-eastward over central India and peninsular India during evening hours during next 2 days.

CAPE (> 1000): Mostly along east coast of India, over eastern parts of India and over North-west India mainly over western part of Rajasthan and Gujarat during next 2 days.

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

3. Rainfall and thunderstorm activity:

70-130 mm and more over SHWB, parts of south GWB and coastal Orissa, NE states and west coast of India for the next 48 hours. South Rajasthan and adjoining areas, parts of Haryana and adjoining areas

20-70 mm along foothills of the Himalayas, Punjab, Haryana, Delhi, UP and north MP for the next 2 days

3. IOP ADVISORY FOR 24 and 48Hrs:

Summary and Conclusions:

Day-1 & Day-2:

Presently, the western disturbance now seen as an upper air cyclonic circulation over northern parts of Punjab & neighbourhood between 2.1 km & 7.6 km above mean sea level with a trough aloft roughly along Longitude 72.0°E and north of Latitude 25.0°N. This will give rise to widespread rainfall activities including hailstorm over Northern parts of the country on Day-1.

Due to the trough at mean sea level from northwest Rajasthan to northwest Bay of Bengal persists and now runs across north Madhya Pradesh, Uttar Pradesh, Bihar, Jharkhand & Gangetic West Bengal. This will give rise to Thunderstorm with Gusty winds and rainfall activities over Bihar, Jharkhand, Uttar Pradesh and Chhattisgarh on Day-1

The north-south trough from Sub-Himalayan West Bengal to north Bay of Bengal, now runs from eastern parts of Bihar to north coastal Odisha between 2.1 & 3.1 km above mean sea level. This will give rise to heavy rainfall activity over Sub Himalayan West Bengal, GWB on Day-1. Associated rainfall is likely to remain heavy in isolated pockets of south Konkan coast and Coastal Karnataka on Day 1

24 hour Advisory for IOP:

Rainfall:

Sub Himalayan West Bengal, Gangetic West Bengal
Bihar, Jharkhand, Odisha
South Konkan and Goa, Coastal Karnataka
Jammu, Himachal Pradesh, Uttarakhand,
Punjab, Haryana, West Uttar Pradesh
Assam, Meghalaya, Arunachal Pradesh
Nagaland, Manipur, Mizoram and Tripura
Telengana, Coastal Andhra Pradesh
Andaman & Nicobar

Thunderstorm with associated phenomena:

Jammu, Himachal Pradesh, Uttarakhand,
Punjab, Haryana, Uttar Pradesh, North Rajasthan
Madhya Pradesh, Chhattisgarh

48 hour Advisory for IOP:

Rainfall:

South Konkan and Goa
Assam, Meghalaya, Arunachal Pradesh
Nagaland, Manipur, Mizoram and Tripura
Sub Himalayan West Bengal, Gangetic West Bengal
Bihar, Jharkhand, Odisha
Himachal Pradesh, Uttarakhand,
Punjab, Haryana, West Uttar Pradesh
Andaman & Nicobar

Thunderstorm with associated phenomena:

Nil

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

Past24hourHEMandIMRrainfall(upto03UTCoftoday)

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

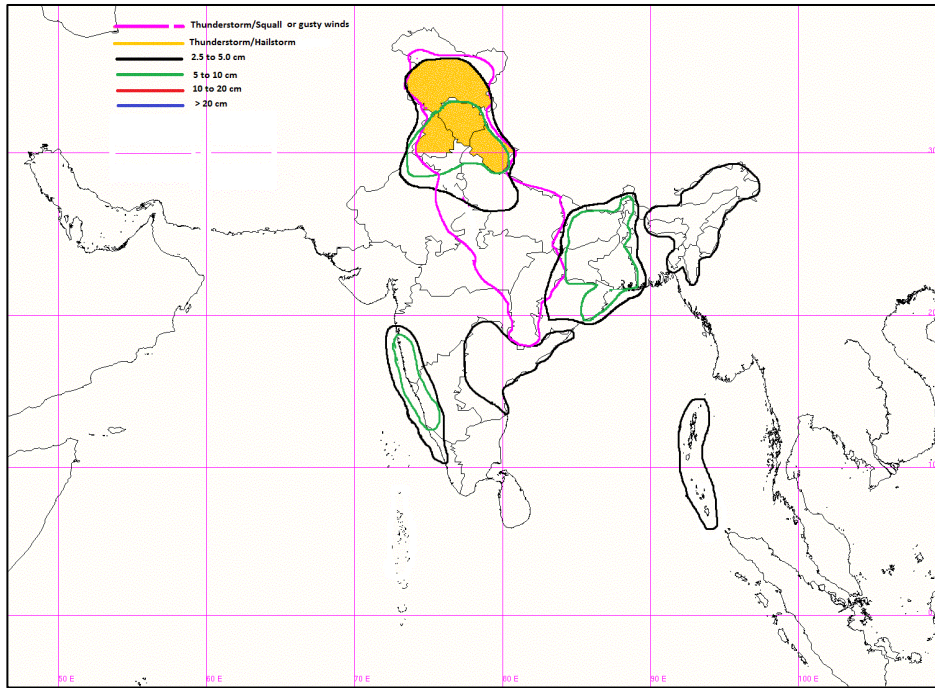
HEM: http://satellite.imd.gov.in/img/3Ddaily_he.jpg

ForRadarimagesofthepast24hoursincludingmosaicofimages:

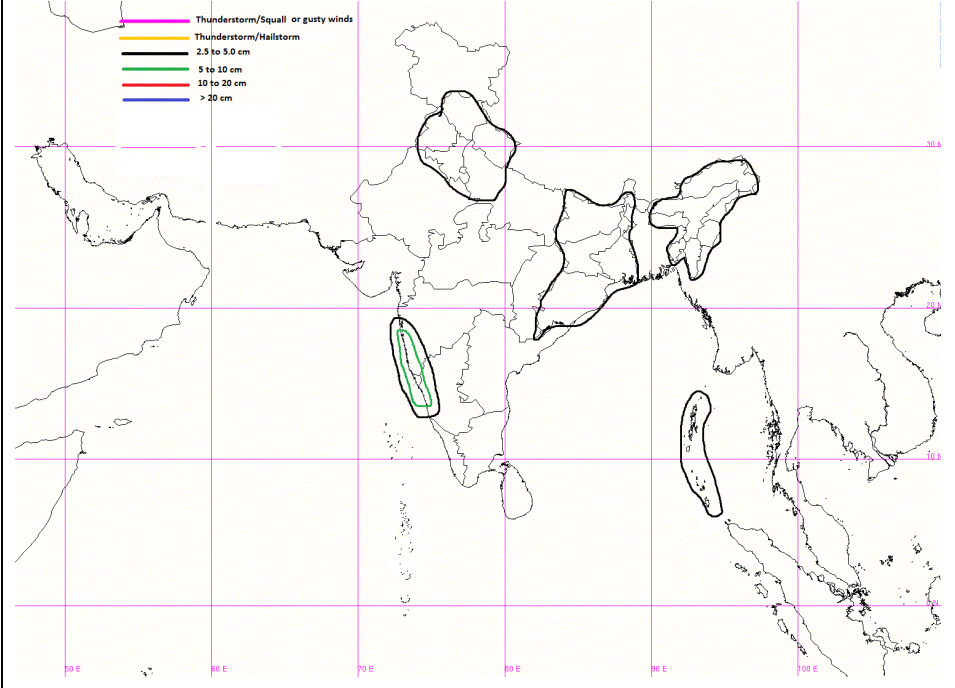
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Satellite sounder based T- Phigram

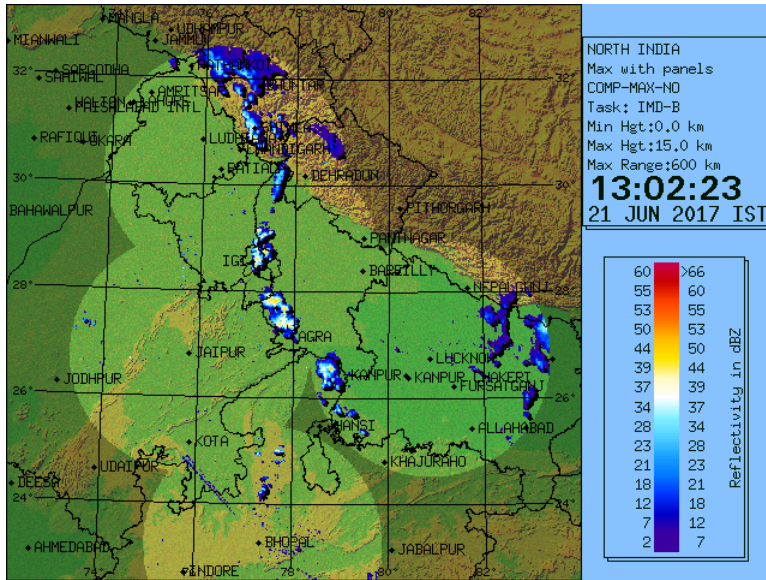
http://satellite.imd.gov.in/map_skm2.html



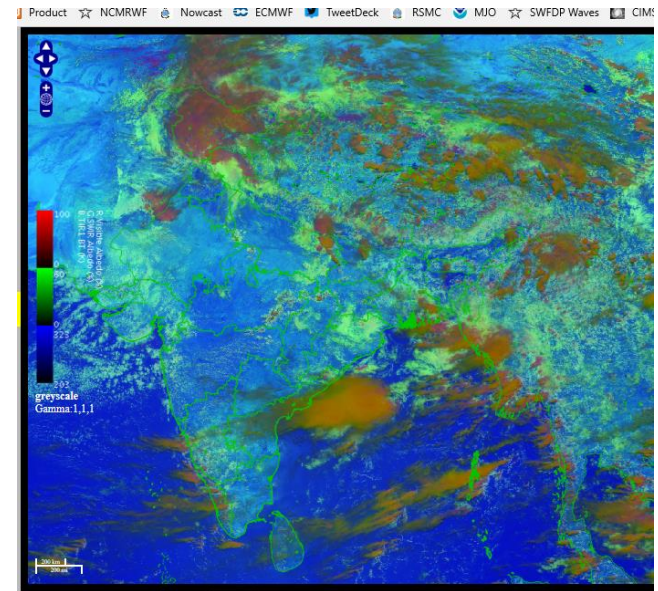
IOP Advisory for 24 hours



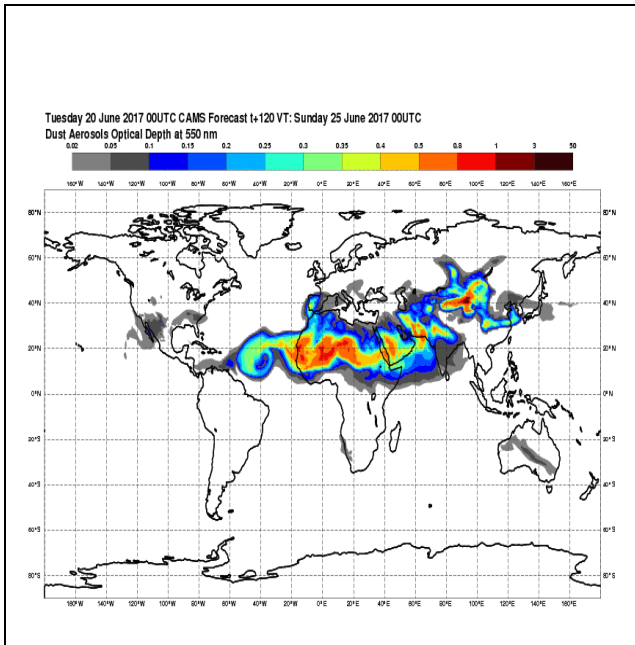
IOP Advisory for 48 hours



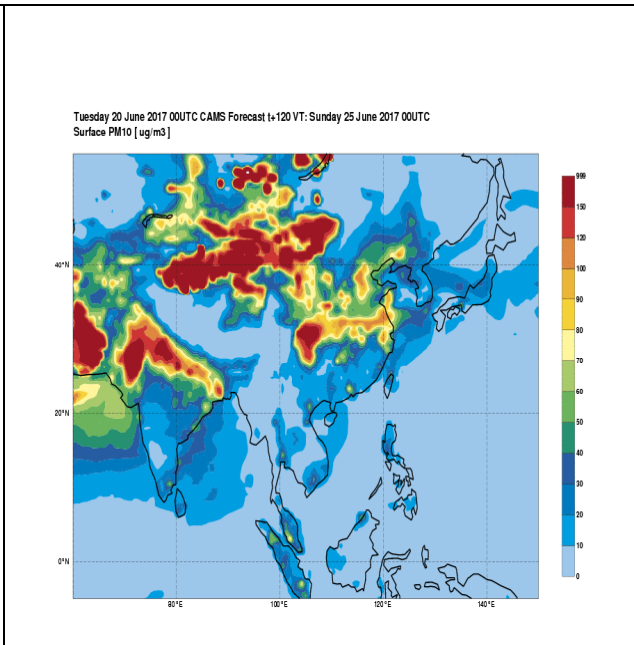
DWR composite of DWR Patiala, Delhi, Jaipur, Lucknow & Bhopal at 1302hrs IST



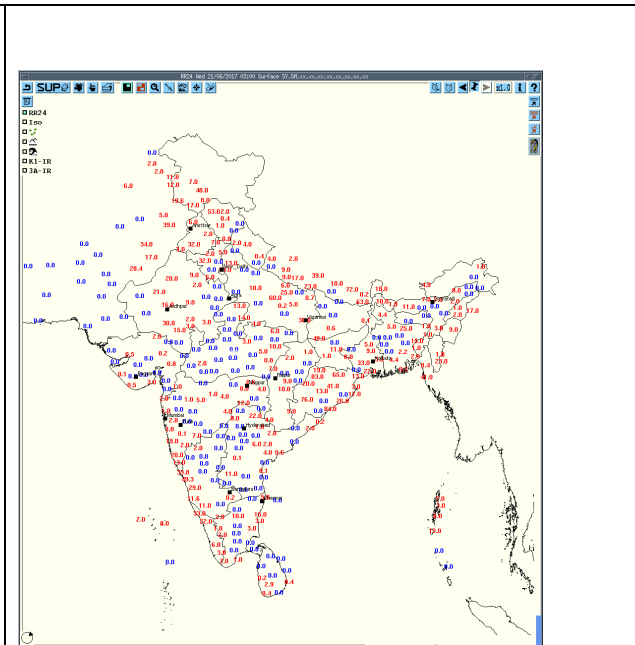
RAPID RGB Satellite Imagery at 1200 hrs IST of today



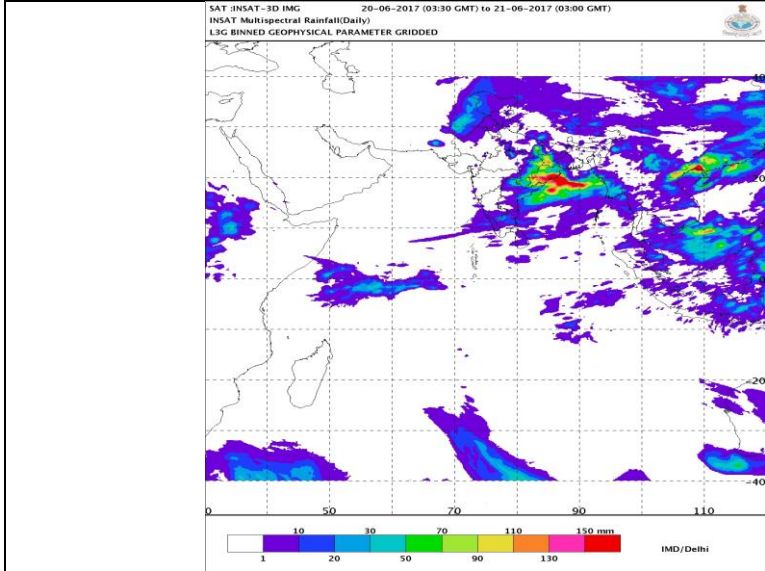
Forecast Dust Concentration for 00UTC of 25th June



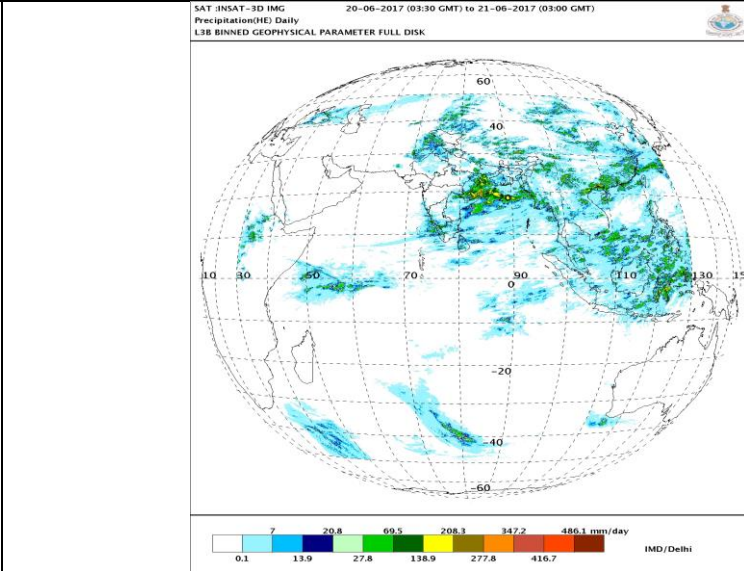
PM10 Forecast for 00UTC of 25th June



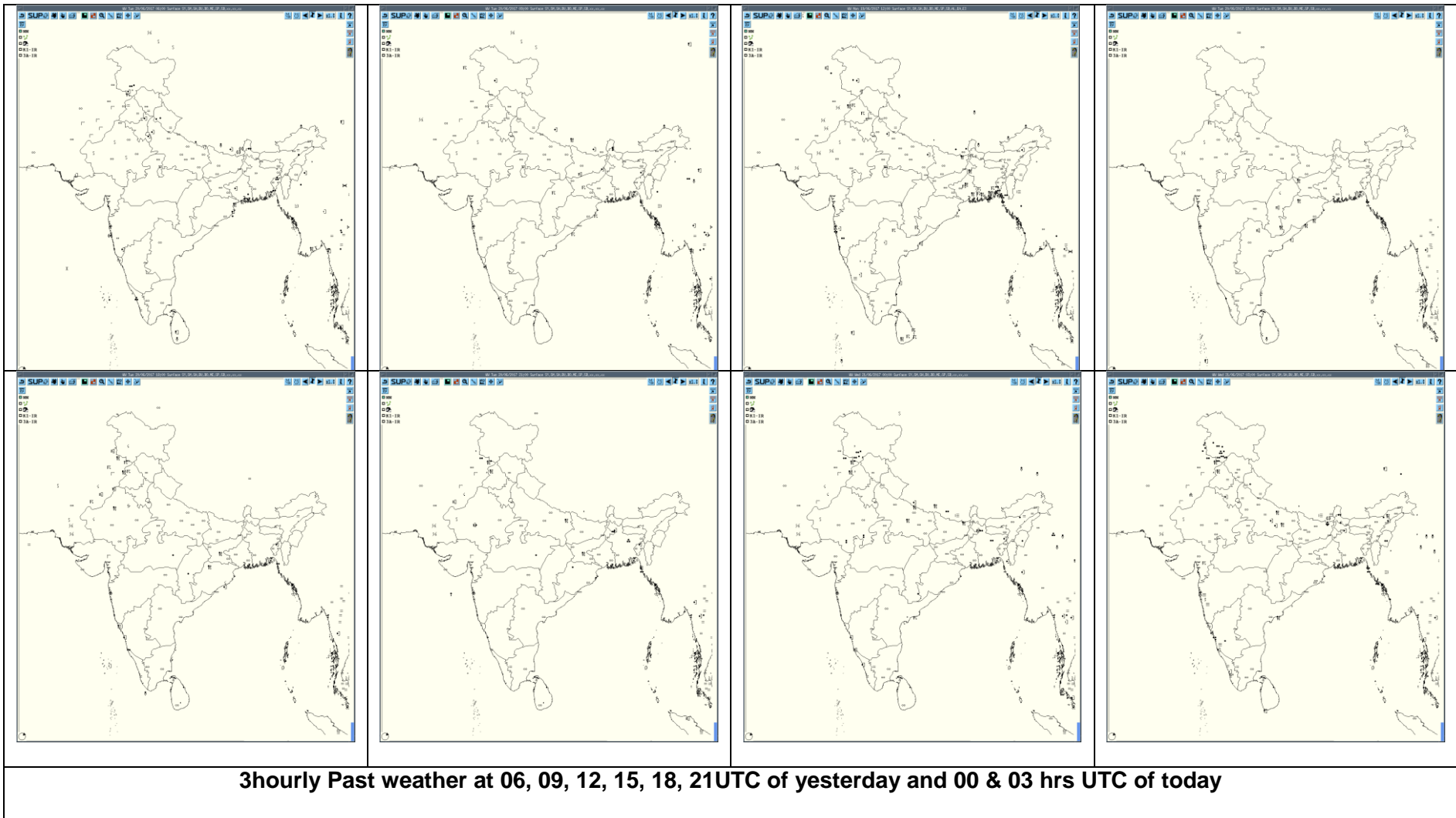
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today

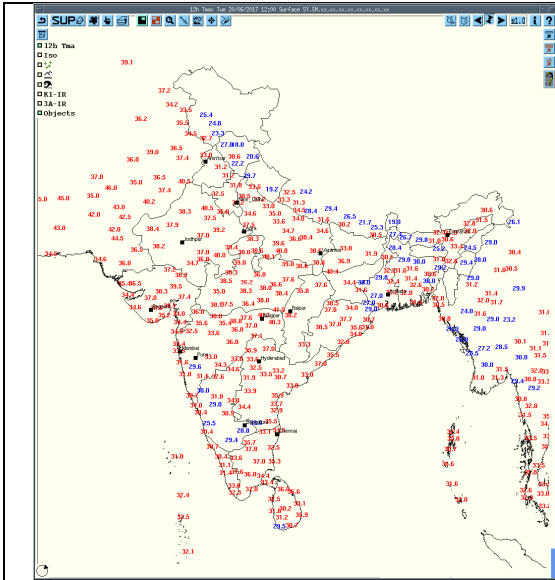


IMR Rainfall

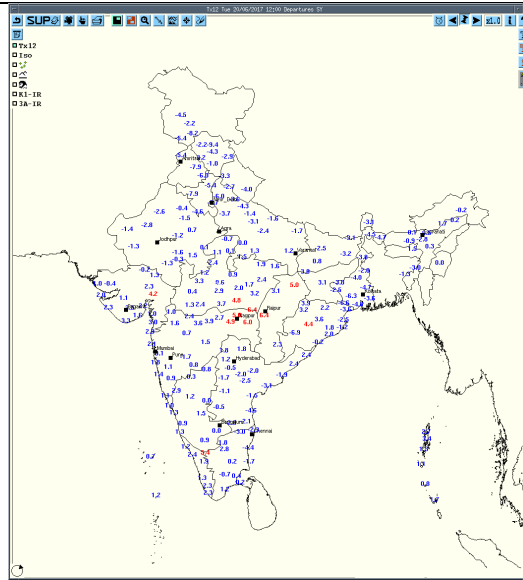


HEM Rainfall

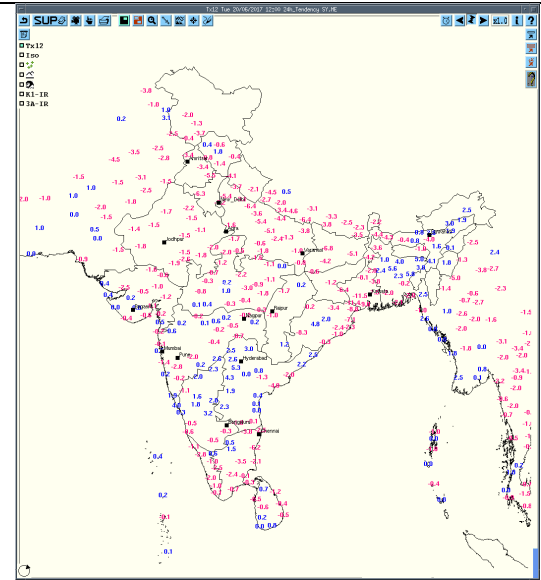




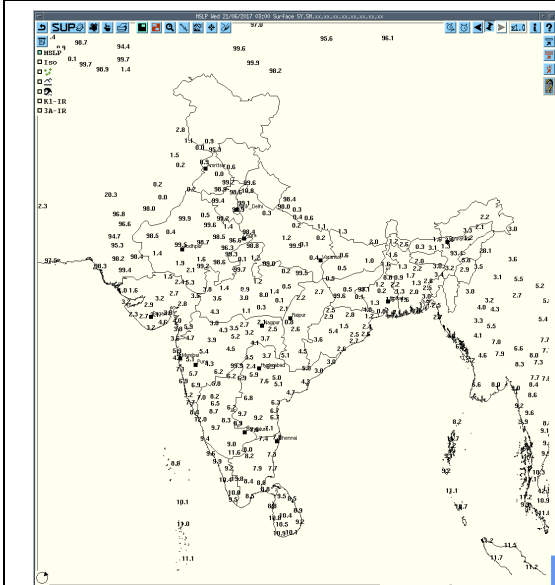
Tmax



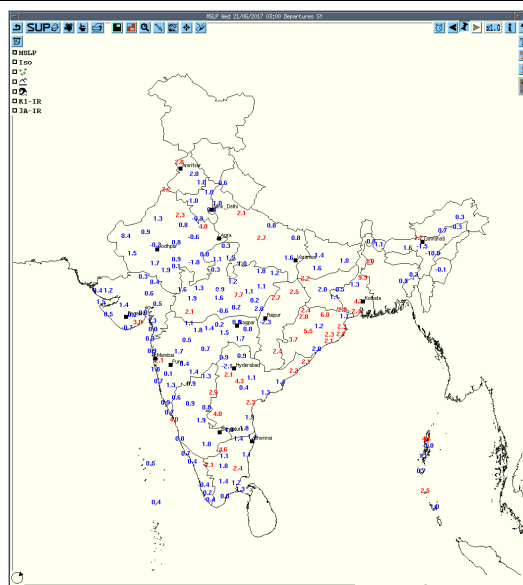
Departure Tmax



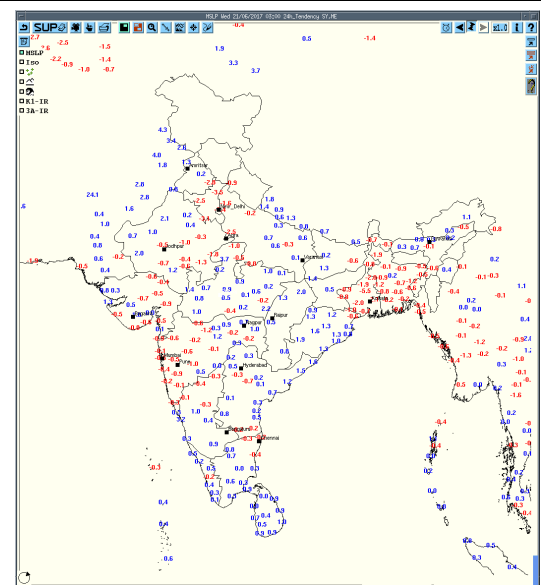
Tendency Tmax



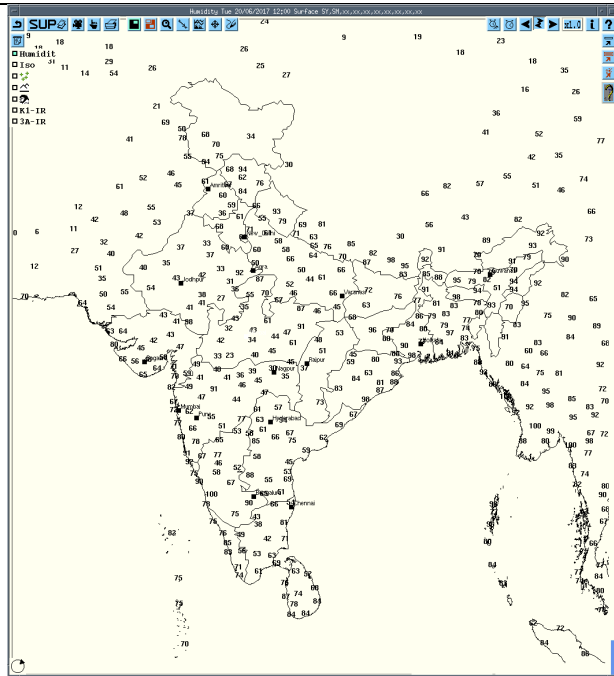
MSLP



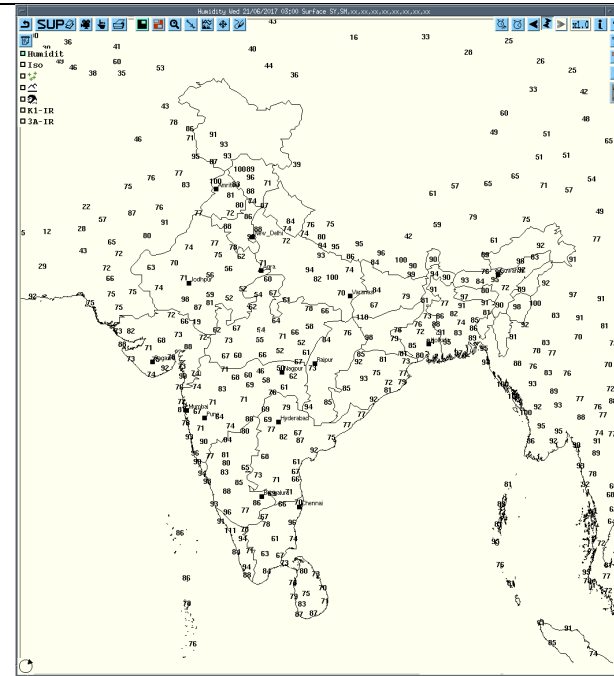
Departure MSLP



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
20-06-17	0600UTC	Jammu	NW India	J & K	Thunderstorm
		Digha	E India	West Bengal	Thunderstorm
		Balasore	E India	Odisha	Thunderstorm
20-06-17	0900UTC	Gaya	E India	Bihar	Thunderstorm
		Pendra Road	C India	Chhattisgarh	Thunderstorm
		Ranchi	E India	Jharkhand	Thunderstorm
		Paradeep	E India	Odisha	Thunderstorm
20-06-17	1200UTC	Kalingapatnam	S India	Andhra Pradesh	Thunderstorm
		Kupwara	NW India	J & K	Thunderstorm
		Gwalior, Khajuraho, Satna, Rewa	C India	Madhya Pradesh	Thunderstorm
		Daltonganj, Jamshedpur, Ranchi	E India	Jharkhand	Thunderstorm
		Jagdalpur	C India	Chhattisgarh	Thunderstorm
20-06-17	1500UTC	Bhubaneshwar, Puri, Gopalpur	E India	Odisha	Thunderstorm
		Ganganagar	NW India	Rajasthan	Thunderstorm
		Daltonganj	E India	Jharkhand	Thunderstorm
		Raipur, Jagdalpur	C India	Chhattisgarh	Thunderstorm
		Pendra Road	C India	Chhattisgarh	Lightening
		Jharsuguda, Puri, Gopalpur	E India	Odisha	Thunderstorm
		Ramagundam	S India	Telangana	Thunderstorm
		Pondicherry	S India	Pondicherry	Lightening
20-06-17	1800UTC	Cuddalore, Nagapattinam	S India	Tamilnadu	Lightening
		Srinagar	NW India	J & K	Lightening
		Amritsar	NW India	Punjab	Thunderstorm
		Bikaner	NW India	Rajasthan	Thunderstorm
		Jaisalmer	NW India	Rajasthan	Lightening
		Churu	NW India	Rajasthan	Dust-storm
		Ranchi	E India	Jharkhand	Thunderstorm
		Jharsuguda	E India	Odisha	Thunderstorm
		Bhubaneshwar	E India	Odisha	Lightening
		Chennai, Nagapattinam	S India	Tamilnadu	Lightening
Pondicherry	S India	Pondicherry	Lightening		

20-06-17	2100UTC	Amritsar	NW India	Punjab	Thunderstorm
		Palam	NW India	Delhi	Thunderstorm
		Jodhpur	NW India	Rajasthan	Thunderstorm
		Gorakhpur	NW India	Lucknow	Thunderstorm
		Ranchi	E India	Jharkhand	Thunderstorm
21-06-17	0000UTC	Lucknow	NW India	Uttar Pradesh	Thunderstorm
		Narsapur	S India	Andhra Pradesh	Thunderstorm
		Bapatla	S India	Andhra Pradesh	Lightening
21-06-17	0300UTC	Amritsar	NW India	Punjab	Thunderstorm
		Bahraich, Sultanpur	NW India	Uttar Pradesh	Thunderstorm
		North Lakhimpur	NE India	Assam	Thunderstorm
		Narsapur	S India	Andhra Pradesh	Thunderstorm
		Baroda	W India	Gujarat	Thunderstorm

Past 24 hours DWR Report:

Radar Station Name	Date	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
Jaipur	21-06-17	200642-200942	Multiple cell with average height of 7.0 km & maximum reflectivity 57.5 dBZ	Multiple cell develop from 0642 UTC of 20/06/2017 towards East North-East of Jaipur and moved to SE Wards at speed 15-20 km/hr	Cell starts forming from from 0642 UTC of 20/06/2017 towards East North-East of Jaipur and reaches maximum refectionivity during 0712 0752-UTC .Died down 0942UTC	Thunderstorm/rain at ISOLATED places	Dausa,Karauli and dholpur districts.
		200952-201442	Multiple cell with height 6.0 km and maximum height 58.0 dbz	Multiple cell develop from 0952 utc of 20/06/2017 towards NE- of jaipur and moved ESE Wards at speed 25.30 km/hr	Cells starts from 0952 utc of at 19/06/2017 at NE Jaipur and reaches maximum reflecity during 1122 to 1252 utc and died 1452 UTC .	Thunderstorm/rain at few place	DAUSA KARALI,J aipur,Sikar and Alwar districts.
		201742-210022	Multiple cell with height 6.0 km and maximum height 57.0 dbz	Multiple cell develop from 1742 utc of 20/06/2017 towards NW,S of jaipur and moved E,SE Wards at speed 40-45 km/hr	Cells starts from 1742 utc of at 20/06/2017 at NW,S Jaipur and reaches maximum reflecity during 1952- 2142UTC and died 0022 of 21/06/2017 UTC .	Thunderstorm/rain at few placeS	Pilani,Churu,Jhunjhunu,Sikar,Nagaur,Jaipur,Ajmer,Bhilwara and Alwar districts.
Agartala	21-06-17	200300 - 201312	Multiple cells formed DWR Agartala of South at a distance around 50km with Maximum cell Height 07 km at 0352 UTC and maximum reflectivity 42 dBZ at 0352 UTC	Formed DWR Agartala of South at a distance around 50km and moves N-wards direction with around 20 kmph.	Dissipated at 200km in NE direction 1312 UTC.	N/A	N/A
		201122 - 210300	Multiple cells formed DWR Agartala of West at a distance around 120km with Maximum cell Height 10 km at 1502 UTC and maximum reflectivity 45 dBZ at 1532 UTC	Formed DWR Agartala of South at a distance around 50km and moves N-wards direction with around 15 kmph	Cell Persists	N/A	N/A
Patiala	21-06-17	20 JUNE 0300	Multiple cells Max dBZ=47.5	N,W; E AND SE SECTORS.		H/RA/TS	FEROZPUR, MOGA,

		UTC-TO 0600 UTC	Ht.= 8-10 KMS	MOVEMENT ESE WARDS			PATTI, TARAN- TARN; HARIDWA R; RISHIKES H AND ITS ADJOININ G AREAS..
		20 JUNE 0600 UTC-TO 0900 UTC	Multiple cells Max dBZ=56.0 Ht.= 10-11 KMS	NW AND SE SECTORS. MOVEMENT ESE WARDS		TS/RA	CHANDIGA RH, SOLAN, ROOPNAG AR, KAITHAL, DEHRADO ON, RISHIKES H, HARIDWA R.
		20 JUNE 0900 UTC-TO 1200 UTC	Multiple cells Max dBZ=46.5 Ht.= 6-08 KMS	N & NE SECTOR MOVEMENT SE WARDS		RA	DHARAMS HALA, SHIMLA, RISHIKES H, .
		20 JUNE 1200 UTC TO 1500 UTC	Multiple cells Max dBZ=44.0 Ht.= 09-110 KMS	NW SECTOR.		RA	DASUYA AND ITS ADJOININ G AREAS.
		20 JUNE 1500 UTC-TO 1800 UTC	Multiple cells Max dBZ= 53.0 Ht.= 10-12 KMS	NW & SW SECTOR. MOVEMENT E WARDS	-----	RA/TS	FAZILKA, FEROZPU R, MUKTSAR, MOGA, AMRITSAR , BATHINDA AND ITS ADJOININ G AREAS..

		20 JUNE 1800 UTC-TO 2100 UTC	Multiple cells Max dBZ= 54.0 Ht.= 10-12 KMS	NW & SW SECTOR. MOVEMENT E WARDS		TS/RA	AMRITSAR , LUDHIANA, JALANDHA R, BHIWANI AND ITS ADJOININ G AREAS.
		20 JUNE 2100 UTC-TO 0000 UTC	Multiple cells Max dBZ=50.0 Ht.= 06-08 KMS	NW, SW & SE SECTOR. MOVEMENT NE WARDS	-----	RA/TS	ABOHAR, FAZILKA, LUDHIANA, PATIALA, KARNAL, AMBALA AND ITS ADJOININ G AREAS.
		21 JUNE 0000 UTC-TO 0252UTC	Multiple cells Max dBZ=45.0 Ht.= 06-08 KMS	NW, N & SE SECTOR. MOVEMENT NE WARDS	-----	RAIN/DRI ZZLE	AMRITSAR , PPATHAN KOT, BATALA,P ALAMPUR, NADAAUN, CHANDIGA RH AMBALA AND ITS ADJOININ G AREAS.
Kolkata	21-06-17	200300 - 201312	Multiple cells formed DWR Agartala of South at a distance around 50km with Maximum cell Height 07 km at 0352 UTC and maximum reflectivity 42 dBZ at 0352 UTC	Formed DWR Agartala of South at a distance around 50km and moves N-wards direction with around 20 kmph.	Dissipated at 200km in NE direction 1312 UTC.	N/A	N/A
		201122 - 210300	Multiple cells formed DWR Agartala of West at a distance around 120km with Maximum cell Height 10 km at 1502 UTC and maximum reflectivity 45 dBZ at 1532 UTC	Formed DWR Agartala of South at a distance around 50km and moves N-wards direction with around 15 kmph	Cell Persists	N/A	N/A

		200300 - 201312	Multiple cells formed DWR Agartala of South at a distance around 50km with Maximum cell Height 07 km at 0352 UTC and maximum reflectivity 42 dBZ at 0352 UTC	Formed DWR Agartala of South at a distance around 50km and moves N-wards direction with around 20 kmph.	Dissipated at 200km in NE direction 1312 UTC.	N/A	N/A
		201122 - 210300	Multiple cells formed DWR Agartala of West at a distance around 120km with Maximum cell Height 10 km at 1502 UTC and maximum reflectivity 45 dBZ at 1532 UTC	Formed DWR Agartala of South at a distance around 50km and moves N-wards direction with around 15 kmph	Cell Persists	N/A	N/A
		0000 - 0300 UTC	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL
Nagpur	21-06-17	0532-1500	Multiple	170 km NW dir. Moving towards E direction.	51 dbz & cloud ht=3. 3-9.0 km	Thunderstorm warning started at 1040 til 1202 in SE direction 184 Km away from Radar. Hailstorm-NIL	Rainfall in many places in Washim, Pusad, Hingoli, Gadchiroli, Brahmapuri, Adilibad, and Chandrapur. Isolated places in Seoni and Balaghat.
		0641-1420	Single	235 km SE dir. Moving towards E direction.	42 dbz & cloud ht= 5.6-9.0 km		
		0712-1032	Single	125 km WNW dir moving towards E-dir.	43 dbZ & cloud ht=2.0-6.0 km		
		0822-1400	Single	126 km SE dir. Moving towards E-direction.	46 dbz & cloud ht= 5.0-7.0 km		
		1012-1500	Single	45.6 km N dir moving E dir	42 dbz & cloud ht=3.6-6.0 km		
		1530-0000	Single	16 km N dir Moving S dir.	42.5 dbz & cloud ht=1.2-5.6km		
		0002-0230	Single	From previous			

Machilipatnam	21-06-17	0541 to 0821UTC	Isolated Multiple cells average height of 5.2km with maximum reflectivity of 47.0dBZ.	NNE (200Km) and moving SE ly direction with average speed of 20.0 kmph.	Cell started forming at 0541 UTC, at NNE(200 km) from Radar the maximum reflectivity during 0601 UTC to 0811 UTC and died down at 0821 UTC	Possibility of Thunder storm with rain and winds.	Malkangir,D antewara, Bhadradri-kothagudem , East Godavari districts
		0841to 1011UTC	Isolated Multiple cells average height of 9.0 km with maximum reflectivity of 47.0dBZ.	NE (250Km) and moving SE ly direction with average speed of 35.0 kmph	Cell started forming at 0841UTC, at NE (250 km) from Radar the maximum reflectivity during 0851UTC to 1001 UTC and died down at 1011.	Possibility of Thunder storm with rain and winds.	Malkangir,D antewara, Districts.
		0811 to 1031UTC	Isolated Multiple cells average height of 8.5 km with maximum reflectivity of 56.0dBZ.	NW (235KM) and it is moving NE ly direction with average speed of 35.0 kmph	Cell started forming at 0811UTC, at NW (235km) from Radar the maximum reflectivity during 0811UTC to 1021 UTC and died down at 1031 UTC	Possibility of Thunder storm with rain and winds.	Warangal rural, Mahabubabad, Jayasankar -bhupalpalli Districts .
		1501 to 1711UTC	Isolated Multiple cells average height of 5.8 km with maximum reflectivity of 51.0dBZ.	NW and moving NE ly direction with average speed of 40.0kmph	Cell started forming at 1501UTC, at NW (250Km) from Radar the maximum reflectivity during 1511UTC to 1701 UTC and died down at 1711 UTC .	Possibility of Thunder storm with rain and winds.	Warangal rural, Mahabubabad , Bhadradri-kothagudem Districts
		1921 to 0031UTC	Isolated Multiple cells average height of 5.6 km with maximum reflectivity of 51.0BZ.	WNW(125KM) and moving SE ly direction with average speed of 20.0kmph	Cell started forming at 1921UTC, at WNW (125km) from Radar the maximum reflectivity during 2121 UTC to 0021 UTC and died down at 0031 UTC	Possibility of Thunder storm with rain and winds.	Prakasam, Guntur, Krishna Districts
Bhuj	21-06-17	200426-201140	NIL	NIL	NIL	NIL	NIL
Lucknow	21-06-17	0300 UTC TO 0542 UTC	Multiple cell system formed previous day persisted at 100 Km ENE after movement. With further movement it receded to 200 NW where it became stronger. Maximum reflectivity was observed 54 dBZ & height reached 15 Km (20 dBZ echo top).	The system moved away NE ly w.r.t. the station with avg. velocity 40 Km/h. Part of the system over ENE weakened & dissipated at 0342 UTC while that at NE moved beyond 250 Km entering Nepal at around 0542		TS	Gorakhpur Bahraich

				UTC.			
		1632 UTC To 2110 UTC	Multiple cell system formed at 200 Km. ENE growing larger & larger with movement. Maximum reflectivity was 54 dBZ & height reached more than 15 Km (20 dBZ echo top).	The system moved with average velocity 55 Km/h SEly, weakened & dissipated at around 2110 UTC over 280 Km East.		TS	Gorakhpur
		20/1820 UTC To 21/0300 UTC.	Multiple cell system formed at around 1820 UTC over 120-150 Km WNW which later became more widespread extending from the station to 150 Km W, matured at around 2232 UTC. At around 0012 UTC systems center was Lucknow with southern sector stronger. Further around 0132 UTC the system developed as slash (\) passing through the station & much stronger over ends (50-100 Km NW & 50-150 Km. along S, SE). Max reflectivity was observed to be 60 dBZ & height was 15 Km.	System moved with avg. speed 40 Km/h Easterly passing over the station. At 200300 UTC system was still persisting but weakened a little.		TS	Varanasi Ghazipur Lucknow Sultanpur
		20/1832 UTC To 21/0300 UTC	A multiple cell system formed at around 1832 UTC over 170 Km N. At 2022 UTC northern part of the system moved NNEly to Nepal while southern part developed as another multiple cell system becoming more widespread at 0003 UTC, from 100-150 Km NNE, formed a single large system at around 21/0242 UTC located over 100 Km NE. Max. Reflectivity was 62 dBZ & height reached beyond 16 Km on 20 dBZ echo top scale.	The system moved with an average speed 60 Km/h NEly w.r.t. the station & was persisting till 0300 UTC over 150 Km NE.		TS	Bahraich Gorakhpur Gonda
Patna	21-06-17	2014100 - 201710	MULTIPLE CELL. Maximum Reflectivity : 41.5 dBZ Echo Top : 14.0 KM	Range: 114 KM from DWR Patna in S.S.E. direction. Movement- S.S.E.	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	N/A	GAYA,NAW ADA,JAMUI

		201130 - 201430	MULTIPLE CELL. Maximum Reflectivity : 47 dBZ Echo Top : 15 KM	Range: 164 KM from DWR Patna in WEST direction. Movement- EAST	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	N/A	BHABBHU A,ROHTAS BUXAR,BH OJPUR,SA RAN,CHAP [RA,PATNA ,JEHANAB AD
		210020- 210220	MULTIPLE CELL. Maximum Reflectivity : 39.0 dBZ Echo Top : 6.8 KM	Range: 85 KM from DWR Patna in NORTH EAST direction. Movement- NORTH-EASTERLY	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	N/A	DARBHAN GA, MUZAFFA RPUR,SAM ASTIPUR, NALANDA PATNA,
		210145- 210345	MULTIPLE CELL. Maximum Reflectivity : 38.5 dBZ Echo Top : 07 KM	Range: 74 KM from DWR Patna in N.W. direction. Movement- S.E.	Warning E-mail and Fax sent to State Disaster management Authority and Concern DMs	N/A	WEST CHAMPAR AN,EAST CHAMPAR AN, GOPALGA NJ, SHEOHAR
Karaikal	21-06-17	200300- 210300	--	--	DWR U/S	--	--



+ thunderstorm



+ heavy thunderstorm



sandstorm or dust storm



squall



hail shower



tropical storm

www.visualdictionaryonline.com



+ tornado



+ lightning



+ hurricane



haze



smoke



dust or sand storm



fog



drizzle



rain



snow



showers



hail



thunderstorm

Weather Symbols