



India Meteorological Department
FDP STORM Bulletin No.106 (19-06-2017)

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

The Northern Limit of Monsoon (NLM) continues to pass through Lat. 20.5°N / Long. 60.0°E, Lat. 20.5°N / Long. 70.0°E, Valsad, Nasik, Buldana, Yeotmal, Kanker, Jharsuguda, Jamshedpur, Bhagalpur and Lat. 27.0°N / Long. 86.0°E.

Favourable conditions are developing for further advance of southwest monsoon into some more parts of Chhattisgarh, Vidarbha, remaining parts of Odisha, Jharkhand, Bihar, some parts of East Madhya Pradesh and East Uttar Pradesh during next 2-3 days.

The trough at mean sea level from Punjab to Manipur now runs from northwest Rajasthan to northeast Bay of Bengal across Haryana, Uttar Pradesh, Bihar, Jharkhand and Gangetic West Bengal.

The upper air cyclonic circulation over southwest Rajasthan & neighbourhood persists and now seen between 1.5 & 3.1 km above mean sea level.

The western disturbance as an upper air cyclonic circulation over north Pakistan & neighbourhood between 3.1 & 3.6 km above mean sea level persists.

An upper air cyclonic circulation lies over Sub-Himalayan West Bengal & Sikkim and neighbourhood and extends upto 0.9 km above mean sea level.

A north-south trough runs from eastern Bihar to north Bay of Bengal between 1.5 & 3.1 km above mean sea level.

The upper air cyclonic circulation over eastern parts of Assam & neighbourhood extending upto 0.9 km above mean sea level has become less marked.

The east-west shear zone roughly along latitude 17.0°N at 3.1 km above mean sea level has become less marked.

The feeble off shore trough from south Maharashtra coast to north Kerala coast has become less marked.

The upper air cyclonic circulation over Haryana & neighbourhood extending upto 1.5 km above mean sea level has become less marked.

The upper air cyclonic circulation over south Konkan & adjoining Madhya Maharashtra between 3.6 & 4.5 km above mean sea level has become less marked.

SATELLITE OBSERVATIONS during past 24hrs and current observation:

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

Convective Activity:

Cell No	Date/time (UTC)	Location/Area	MIN CTT (-DEG C)	Movement	Remarks
1	19/0000	S Haryana, Delhi	78	---	Developing
	0100	S Haryana, Delhi adjoining NW Uttar Pradesh	76		
	0200	do	58		
	0300	Haryana, Delhi, NW Uttar Pradesh	60		

Cloud Description:

Scattered low/medium clouds with embedded moderate to intense convection were seen over SW J & K, NW Himachal Pradesh, adjoining N Punjab, Haryana, Delhi, NW Uttar Pradesh, Odisha, N Gangetic West Bengal, NE states, Bangladesh, S Marathwada, North Interior Karnataka, Telangana, Rayalaseema, S Coastal Andhra Pradesh and adjoining N Tamilnadu. Scattered low/medium clouds with embedded isolated weak to moderate convection were seen over rest Punjab, rest Himachal Pradesh, S Uttar Pradesh, Vidarbha, Goa, South Interior Karnataka, N Kerala, Bay Islands and rest parts of East India. Scattered low/medium clouds were seen over rest J & K, Uttarakhand, rest Uttar Pradesh, Rajasthan, Madhya Pradesh, Gujarat, and rest parts South India.

Arabian Sea:

Scattered low/medium clouds with embedded moderate to intense convection were seen over EC Arabian Sea off S Maharashtra coast.

Bay of Bengal & Andaman Sea:

Scattered low/medium clouds with embedded moderate to intense convection seen over NE adjoining EC Bay, Arakan coast and WC 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 South West J&K Punjab Himachal Pradesh Haryana Delhi West Uttar Pradesh Marathwara Karnataka Telangana Andhra Pradesh Odisha Chhattisgarh Bihar Jharkhand West Bengal North East States.

OLR:-

Upto **100** wm^{-2} was observed over South Assam.

Upto **200** wm^{-2} was observed over South Marathwara North Interior Karnataka South Chhattisgarh Telangana Odisha Andhra Pradesh West Bengal West Assam Meghalaya Manipur Mizoram Tripura.

Upto **230** wm^{-2} was observed over East J&K Himachal Pradesh Uttarakhand Konkan & Goa North Chhattisgarh East Bihar Jharkhand Sikkim rest NE States.

Westerly Trough & Jet-Stream:

No Westerly trough and 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 East Uttarakhand South Chattisgarh West Odisha .

Negative low level convergence is observed over East Gujarat West Madhya Pradesh and Positive low level convergence observed over rest parts of India

Precipitation:**IMR:**

Rainfall Up to **110** mm was observed over Odisha

Rainfall Up to **90** mm was observed over Telangana

Rainfall Up to **70** mm was observed over Tripura Meghalaya Sub Himalayan West Bengal West Assam.

Rainfall Up to **50** mm was observed over East Bihar South Jharkhand Gangetic West Bengal North Interior Karnataka.

Rainfall Up to **30** mm was observed over Marathwara Andhra Pradesh.

Rainfall Up to **20** mm was observed over Delhi North-East Chhattisgarh South Vidarbha.

Rainfall Up to **10** mm was observed over South-West J&K Himachal Pradesh Haryana West Uttar Pradesh Sikkim Rest North-East States Konkan & Goa South Interior Karnataka North Tamilnadu.

HEM:.

Rainfall Up to **70** mm was observed over Odisha Telangana North Interior Karnataka Meghalaya South Marathwara.

Rainfall Up to **14** mm was observed over Delhi West Bengal Rest North-East States South Chhattisgarh Andhra Pradesh.

Rainfall Up to **07** mm was observed over South-West J&K Himachal Pradesh Haryana West Uttar Pradesh Bihar Jharkhand Vidarbha Konkan & Goa South Interior Karnataka Kerala North Tamilnadu.

RADAR and RAPID Observation:

DWR composite at 1240hrs IST indicated isolated convection over Haryana, Uttarakhand, East Rajasthan adjoining N Madhya Pradesh, N coastal Andhra Pradesh, Telangana, Bihar and E Chhattisgarh.

RAPID RGB Satellite imagery at 1230hrs IST indicated significant convective clouds SW J & K, N Haryana adjoining Punjab, adjoining Himachal Pradesh, adjoining Uttarakhand, adjoining NW Uttar Pradesh, N Bihar, W & S Assam, Meghalaya, Tripura, Nagaland, Mizoram, Telangana, Konkan & Goa and Coastal Karnataka.

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

Higher Dust concentration was observed over north Africa. 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 1-5 show a trough at mean sea level from North Rajasthan/Punjab to West Bengal/Bangladesh across Uttar Pradesh, Bihar, Jharkhand

12UTC charts of Day 0-4: show a zone of wind discontinuity at 925 hPa; SW-NE over Jharkhand and Bihar

00UTC charts of Day 1-3: Western Disturbance as a trough over J &K, Punjab and HP.

00UTC charts of Day 1: N-S trough at 850 hPa is seen from Bihar to AP coast across Odisha coast. Trough is seen in Day 2-4 from Bihar to off Odisha coast.

00UTC charts of Day 1: A trough from South Pakistan to Oman coast is seen to move eastward in day 3-4

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: Assam Meghalaya,

Day1: Assam Meghalaya,

Day2: Assam Meghalaya,

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: Jharkhand, TN Puducherry,

Day1: TN Puducherry,

Day2: Assam Meghalaya, Sub Himalayan WB, Bihar, Uttarakhand, TN Puducherry,

Day3: Assam Meghalaya, Bihar, Uttarakhand, TN Puducherry, Kerala,

Day4: Assam Meghalaya, Sub Himalayan WB, Jharkhand, Bihar, Uttarakhand, 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, Bihar, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, Guj Reg, Saurashtra Kutch, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, TN Puducherry, NI Karnataka,

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, 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,

Day3: 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, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana,

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, Guj Reg, Saurashtra Kutch, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana

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, 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, Telangana, 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, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, TN Puducherry,

Day2: 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, NI Karnataka,

Day3: 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, 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, Guj Reg, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana

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, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Guj Reg, Saurashtra Kutch,

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

Day2: Arunachal Pradesh, Sub Himalayan WB, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, West MP, East MP, Guj Reg, Saurashtra Kutch,

Day3: Arunachal Pradesh, Sub Himalayan WB, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, Guj Reg, Saurashtra Kutch, Madhya Maharashtra, Chhattisgarh,

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

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, Bihar, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Rayalseema, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Bihar, East UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, Odisha, Konkan Goa, Madhya Maharashtra, Coastal Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Konkan Goa, Madhya Maharashtra, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Hry Chd Delhi, Punjab, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Andaman Nicobar, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Uttarakhand, Odisha, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Andaman Nicobar, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala

****Rainfall >16 cm/day over Bangladesh adjoined to Meghalaya in day 3-5**

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

Not Received

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

Not Received

3. IOP ADVISORY FOR 24 and 48Hrs:

Summary and Conclusions:

Day-1 & Day-2:

In association with the upper air cyclonic circulation over Sub-Himalayan West Bengal & Sikkim upto 0.9 km above mean sea level and the north-south trough, which runs from eastern Bihar to north Bay of Bengal between 1.5 & 3.1 km above mean sea level, rainfall is likely to occur over Northeast India on day 1 and 2. In association with the above systems as well as the east-west oriented surface trough from northwest Rajasthan to northeast Bay of Bengal, thunderstorms are likely over North, Central and East India on day 1 and 2. On day 2, rainfall is likely to increase over Northwest India, as the western disturbance moves eastwards and interacts with the easterly flow from the Bay of Bengal. Although the supporting features for heavy rainfall along the west peninsular coast of India, i.e. the off shore trough from south Maharashtra coast to north Kerala coast and the upper air cyclonic circulation over south Konkan & adjoining Madhya Maharashtra have become less marked, strong westerly winds persist, and associated rainfall is likely to remain heavy in isolated pockets of south Konkan coast on day 1 and day 2.

24 hour Advisory for IOP:

Rainfall:

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

Thunderstorm with associated phenomena:

Jammu, Himachal Pradesh, Uttarakhand,
Punjab, Haryana, Uttar Pradesh, East Rajasthan
Bihar, Jharkhand, Odisha, Gangetic West Bengal
Madhya Pradesh, Vidarbha, Chhattisgarh

48 hour Advisory for IOP:

Rainfall:

Assam, Meghalaya, Arunachal Pradesh
Nagaland, Manipur, Mizoram and Tripura
Sub Himalayan West Bengal & Sikkim
South Konkan and Goa
Jammu, Himachal Pradesh, Uttarakhand,
Punjab, North Haryana, West Uttar Pradesh

Thunderstorm with associated phenomena:

Jammu, Himachal Pradesh, Uttarakhand,
Punjab, Haryana, Uttar Pradesh, East Rajasthan, Northwest Rajasthan
Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh

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

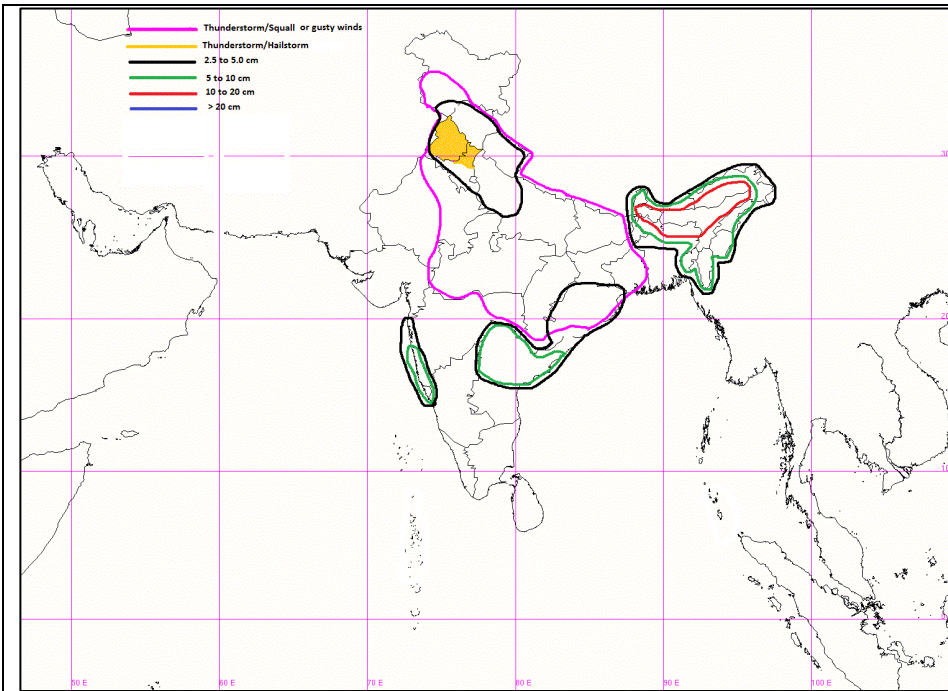
HEM: http://satellite.imd.gov.in/img/3Ddaily_he.jpg

ForRadarimagesofthepast24hoursincludingmosaicofimages:

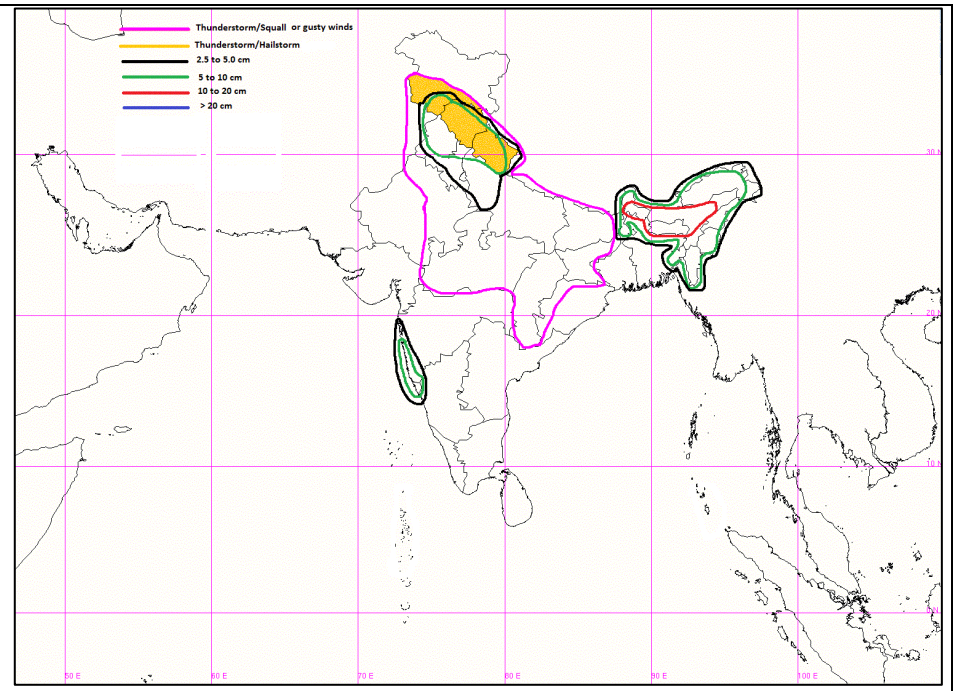
http://ddgmui.imd.gov.in/dwr_img/

Satellite sounder based T- Phigram

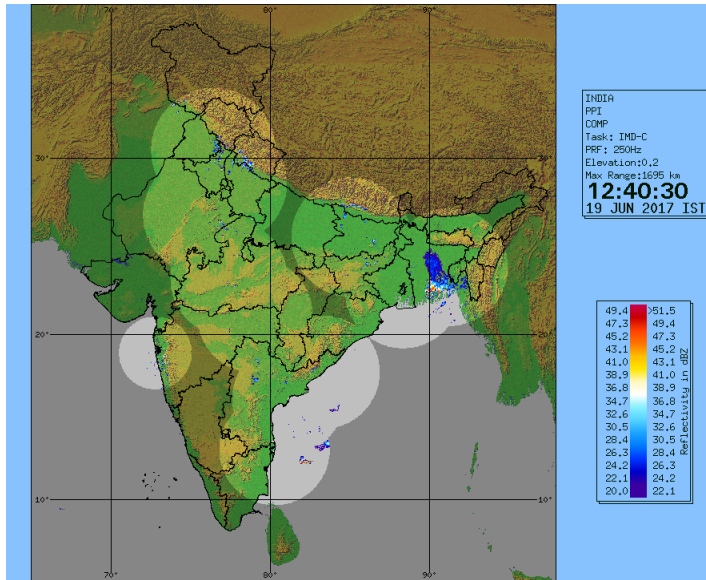
http://satellite.imd.gov.in/map_skm2.html



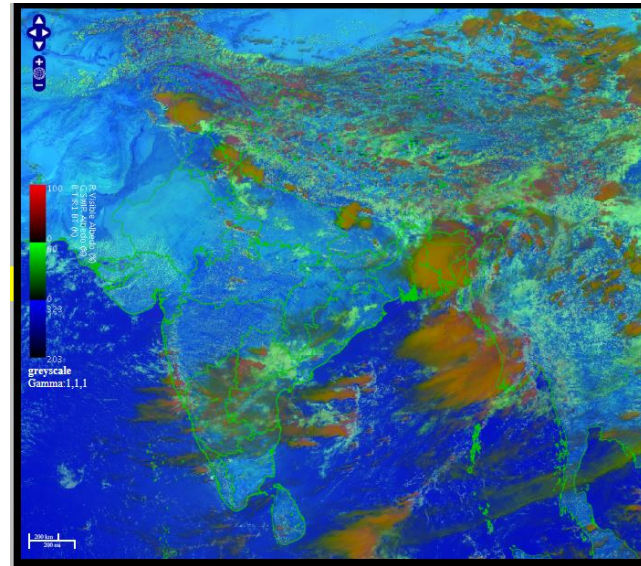
IOP Advisory for 24 hours



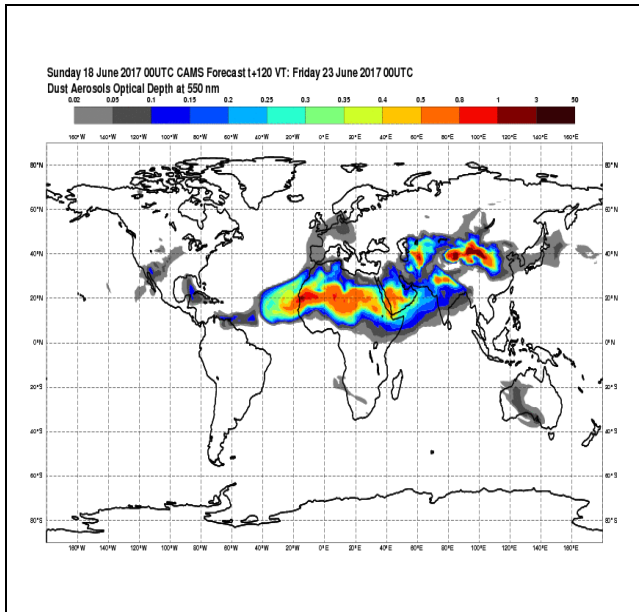
IOP Advisory for 48 hours



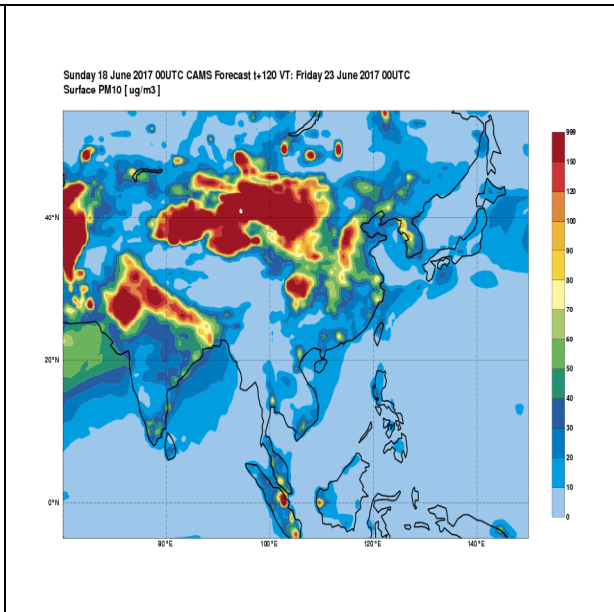
DWR Composite at 1240 hrs IST



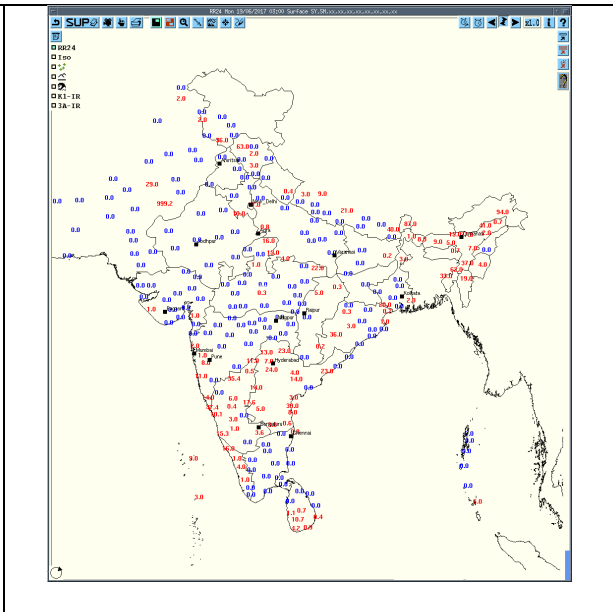
RAPID RGB Satellite Imagery at 1230 hrs IST of today



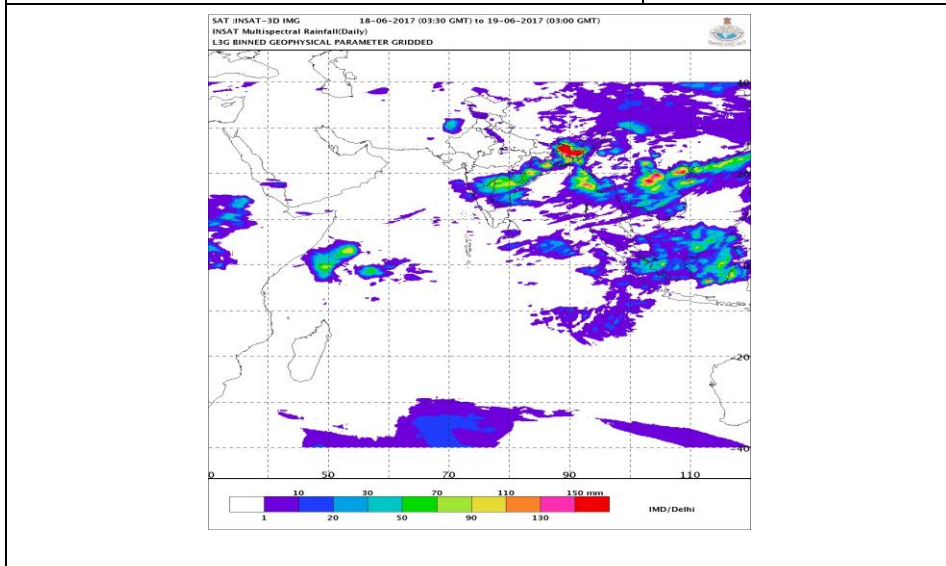
Forecast Dust Concentration for 00UTC of 23rd June



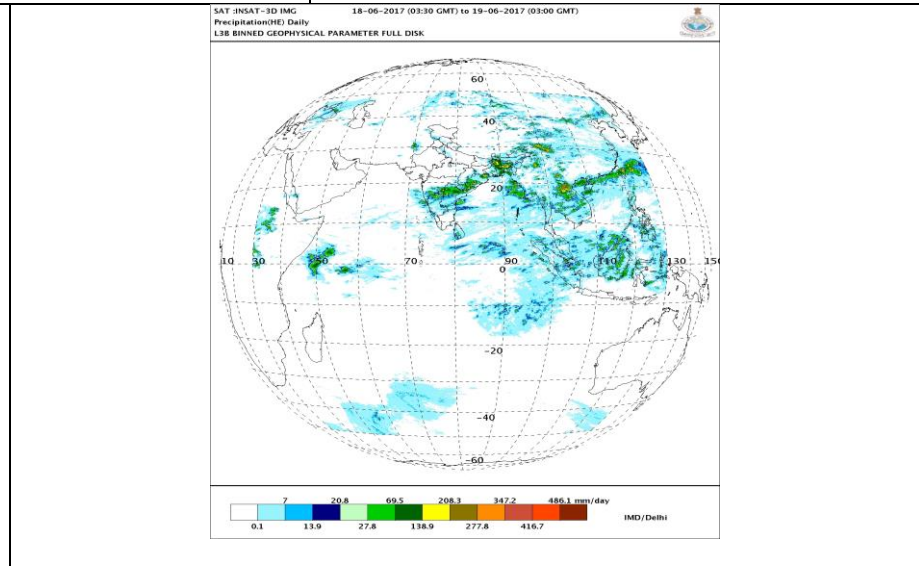
PM10 Forecast for 00UTC of 23rd June



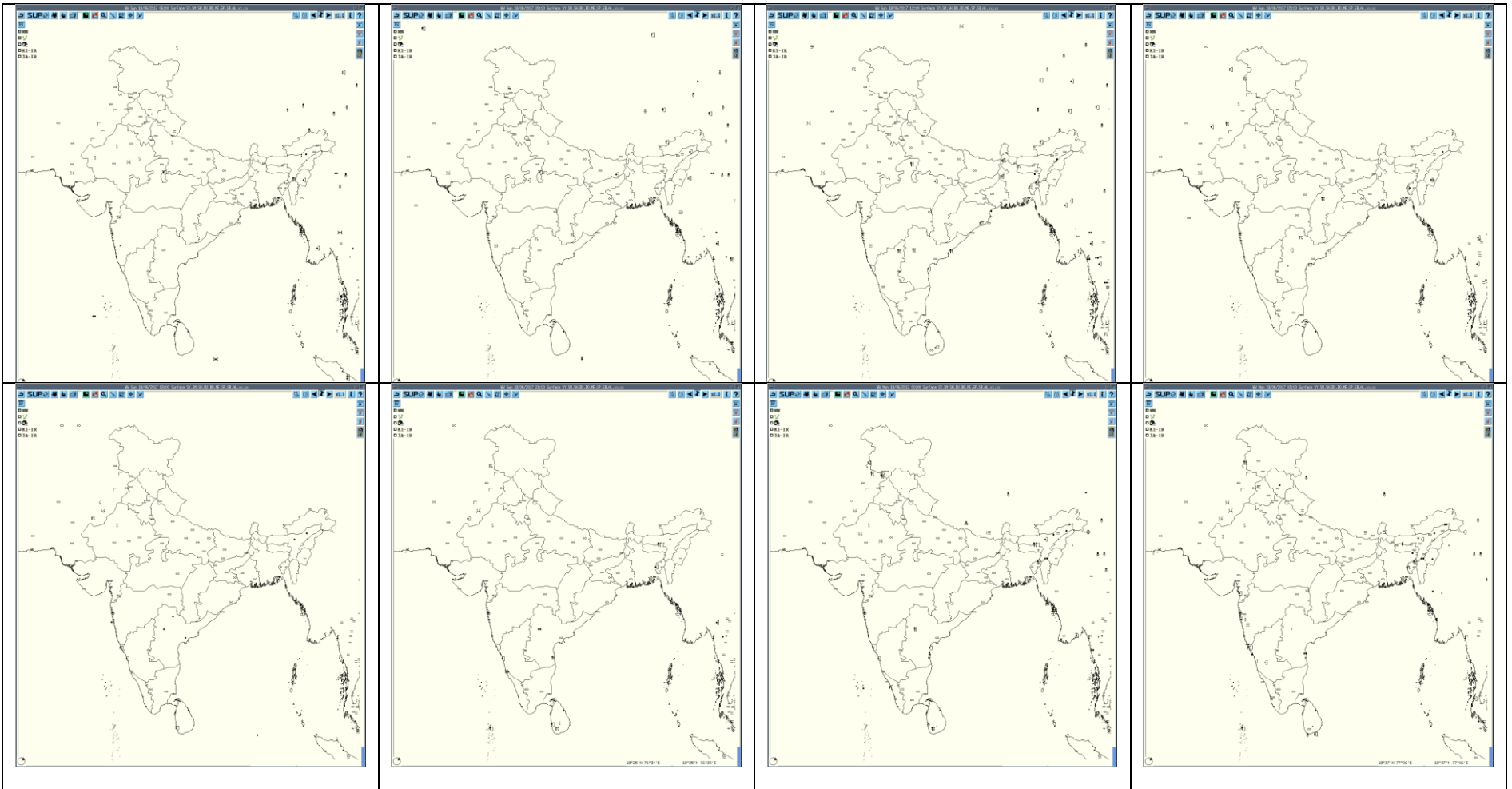
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today



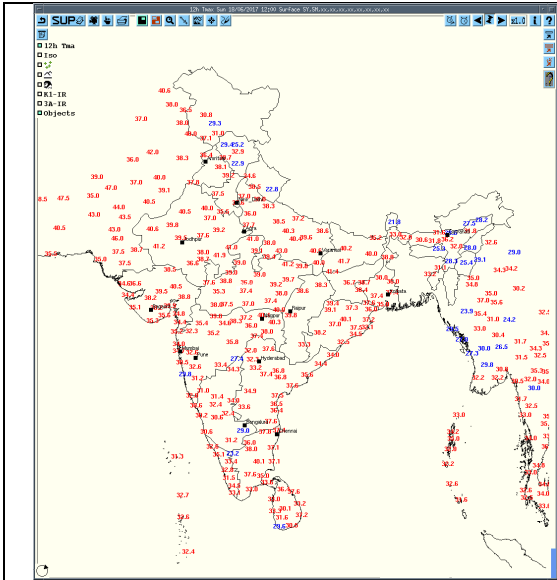
IMR Rainfall



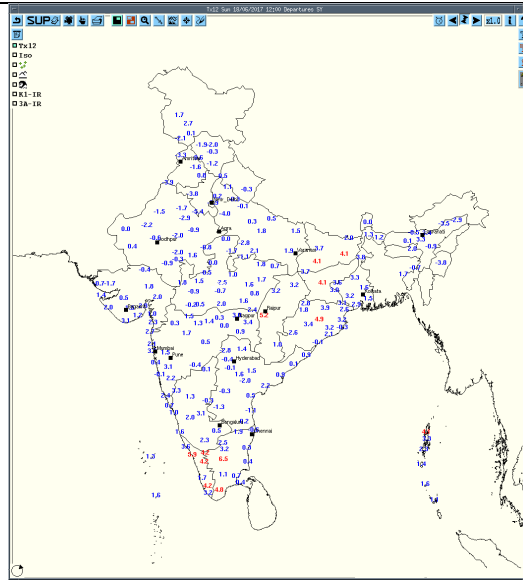
HEM Rainfall



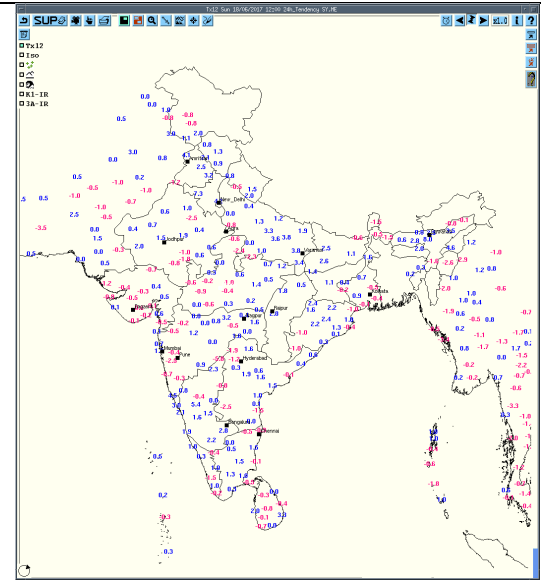
3hourly Past weather at 06, 09, 12, 15, 18, 21UTC of yesterday and 00 & 03 hrs UTC of today



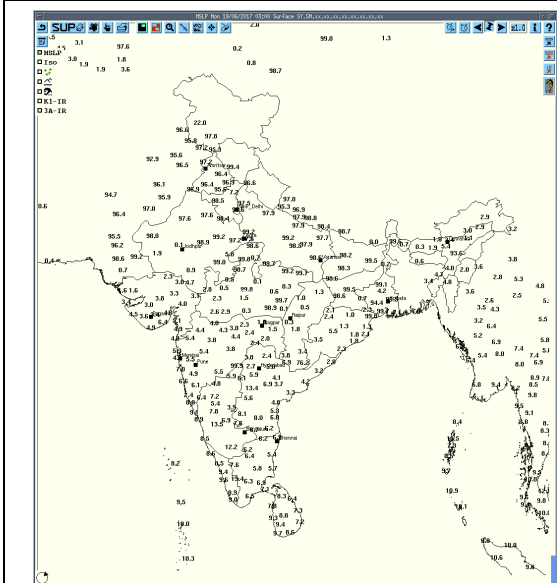
Tmax



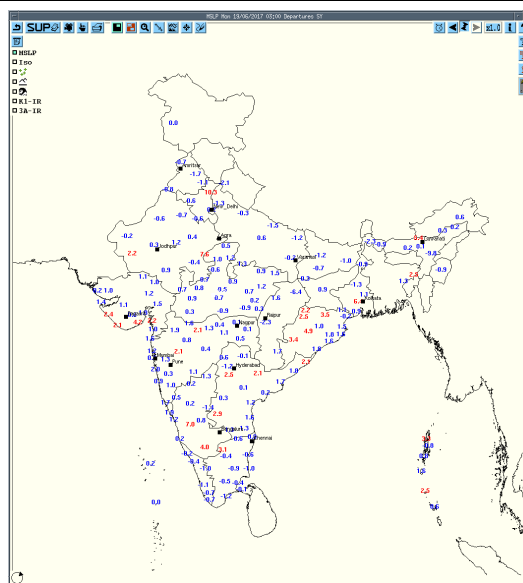
Departure Tmax



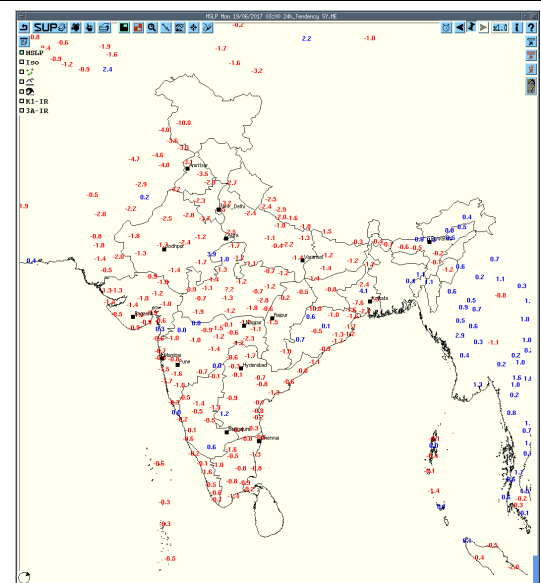
Tendency Tmax



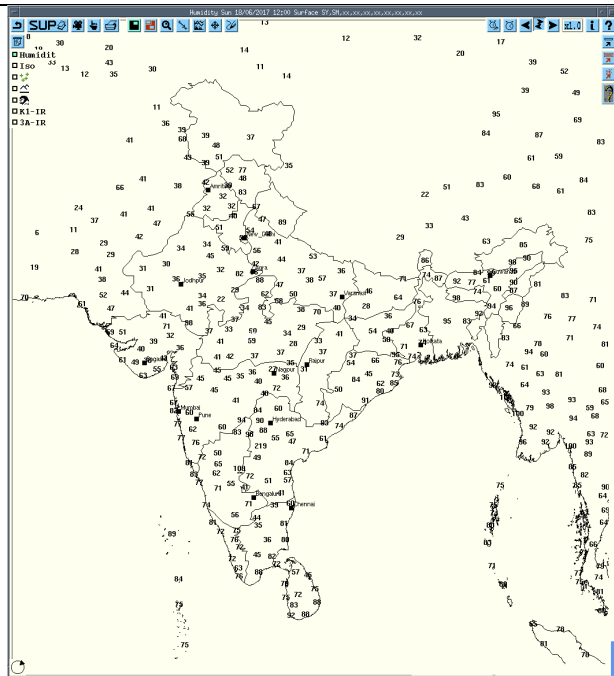
MSLP



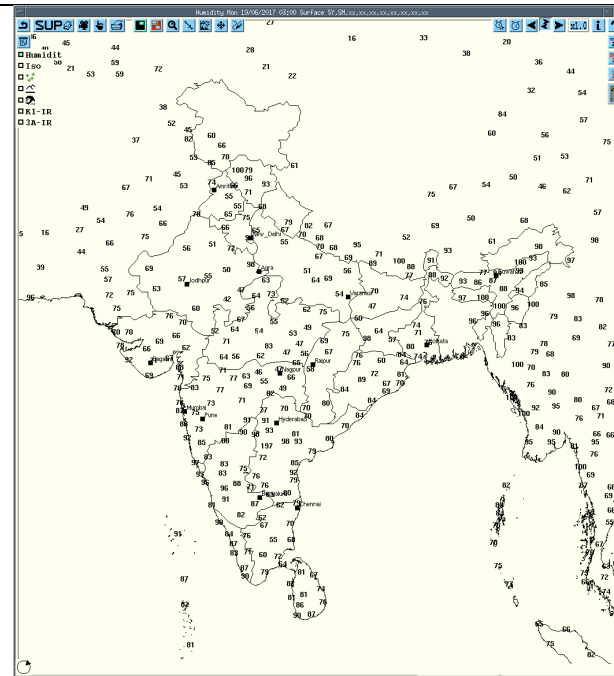
Departure MSLP



Tendency MSLP



RH at 12UTC yesterday



RH at 03UTC today

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

Realized weather past 24hours (Based on SYNERGIE Products)					
Date	Time of Reporting	Name of Station Reporting	Region	STATE	Weather Event
18-06-17	0600UTC	Jhansi	NW India	Uttar Pradesh	Thunderstorm
		Silchar	NE India	Assam	Thunderstorm
18-06-17	0900UTC	Banihal	NW India	J & K	Duststorm
		Jhansi	NW India	Uttar Pradesh	Thunderstorm
		Jagdapur	C India	Chhattisgarh	Thunderstorm
		Nizamabad	S India	Telangana	Thunderstorm
18-06-17	1200UTC	Gwalior	C India	Madhya Pradesh	Thunderstorm
		Bagdogra, Malda	E India	West Bengal	Thunderstorm
		Dhubri	NE India	Assam	Thunderstorm
		Agartala, Kailasahar	NE India	Tripura	Thunderstorm
		Bhubaneshwar	E India	Odisha	Thunderstorm
		Tuni	S India	Andhra Pradesh	Thunderstorm
		Hyderabad	S India	Telangana	Thunderstorm
		Gulbarga	S India	Karnataka	Thunderstorm
18-06-17	1500UTC	Pendra Road	C India	Chhattisgarh	Thunderstorm
		Jharsuguda	E India	Odisha	Thunderstorm
		Imphal	NE India	Manipur	Thunderstorm
		Agartala	NE India	Tripura	Thunderstorm
		Ramagundam	S India	Telangana	Thunderstorm
		Bapatla	S India	Andhra Pradesh	Thunderstorm
18-06-17	1800UTC	Panjim	W India	Goa	Thunderstorm
		Guwahati	NE India	Assam	Lightening
18-06-17	2100UTC	Guwahati	NE India	Assam	Thunderstorm
		Bajpe	S India	Karnataka	Thunderstorm
		Nellore	S India	Andhra Pradesh	Thunderstorm
		Machilipatnam	S India	Andhra Pradesh	Lightening
19-06-17	0000UTC	Katra, Jammu	NW India	J & K	Thunderstorm
		Guwahati	NE India	Assam	Thunderstorm
		Kailasahar	NE India	Tripura	Thunderstorm
		Hyderabad	S India	Telangana	Thunderstorm
		Kozhikode	S India	Kerala	Thunderstorm
19-06-17	0300UTC	Amritsar	NW India	Punjab	Thunderstorm
		Agartala	NE India	Tripura	Thunderstorm with Hail

	Kailasahar	NE India	Tripura	Thunderstorm
	Aizawl	NE India	Mizoram	Thunderstorm
	Panjim	W India	Goa	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
Lucknow	19-06-17	180926-181652	Isolated Cells with average height of 11 km and maximum reflectivity of 52.5dbZ	SW(170km) moving in SE'ly direction at speed of 43.2kmph.	-	TS/SQUALL	-
		181932-180222	Isolated Cells with average height of 11.5 km and maximum reflectivity of 52.0dbZ	WNW(180km) moving in SE'ly direction at speed of 43.2kmph.	Cells started forming at 1902UTC at WNW(180km) from Radar. Subsequently matured in size and multiple cells formed and died down at 0222UTC.	TS/SQUALL	
		182102-190102	Isolated Cells with average height of 11.5 km and maximum reflectivity of 50.5dbZ	WNW(240km) moving in SE'ly direction at speed of 21.6kmph	Cells started forming at 2102UTC at WNW(240km) from Radar. Subsequently matured in size and multiple cells formed and died down at 0102UTC.	TS/SQUALL	
Paradeep	19-06-17	180300-190300	---	---	DWR U/S		
Agartala	19-06-17	180600 - 181402	Multiple cells formed NW/SW OF DWR Agartala with Maximum Height 18 km at 1002UTC and maximum reflectivity 50 dBZ at 1002 UTC.	Formed about 90 km NW and about 50 km SW of DWR Agartala and moves East wards with around 51 kmph.Squall line formed at about 0932 UTC.	Cells dissipated at 1402 UTC over Assam and North Tripura..	N/A	N/A

		180920 - 190250	Multiple Cells NW of DWR Agartala with Maximum Height 18 km at 1430 UTC and maximum reflectivity 51 dBZ at 1432 UTC.	Formed 350 km NW of DWR and moved East wards at around 60 kmph and squall line formed at about 1252 UTC.	Cells dissipated at 190252 UTC over Assam and Mizzoram.	N/A	N/A
		181840 - 190300	Multiple cell formed with Maximum Height 18 km at 0152 UTC and maximum reflectivity 43 dBZ at 0152 UTC	Formed 350 km NW of DWR Agartala. And moves East Wards at about 56 Kmph.	Persist.	N/A	N/A
Jaipur	19-06-17	180812- 181332	Multiple cell with average height of 5.0 km & maximum reflectivity 48.0 dBZ	Multiple cell develop from 0812 UTC of 18/06/2017 towards South East North-East of Jaipur and moved to SE Wards at speed 30-35 km/hr	Cell starts forming from 0812 UTC of 17/06/2017 at NE, SE of Jaipur and reaches maximum reflectivity during 0932 1002-UTC .Died down 1332 UTC	Thunderstorm/rain at few places	ALWAR, DAUSA, KARALI districts.
		180832- 182202	Multiple cell with height 6.0 km and maximum height 53.0 dbz	Multiple cell develop from 1832 utc of 18/06/2017 towards North ,North-east of jaipur and moved SE Wards	Cells starts from 1832 utc of 18/06/2017 at N, NE OF Jaipur and reaches maximum reflectivity during 1952 to 2202 utc and died remain continue beyond 0300 UTC of 19/06/17	Thunderstorm/rain at few place	ALWAR DAUSA BHARATPUR AND KARALI districts.
Patiala	19-06-17	180300- 180600	NO SIGNIFICANT CELLS	-----.		----- -	----- .
		180600- 180900	NO SIGNIFICANT CELLS	-----.		----- -	----- .
		180900- 181200	Multiple cells Max dBZ=48.0 Ht.= 07-08 KMS	NE SECTOR MOVEMENT EAST WARDS		TS/RA	SUNDAR NGAR, MUSSOR IE, SHIMLA
		181200- 181500	Multiple cells Max dBZ=46.0 Ht.= 09-10 KMS	NE SECTOR MOVEMENT SE WARDS		TS/RA	KALSI, DEHRADU N, MUSSOR IE

		181500-181800	Multiple cells Max dBZ= 45.5 Ht.= 11-13 KMS	NE SECTOR MOVEMENT SE WARDS	-----	RA/TS	DEHRADUN, MUSSOORIE
		181800-182100	Multiple cells Max dBZ= 52.5 Ht.= 12-13 KMS	NORTH AND SOUTH SECTOR MOVEMENT SE WARDS		TS/RA	BILASPUR, SIMLA,MANDI, BHIWANI,ROHTAK,
		182100-190000	Multiple cells Max dBZ=52.0 Ht.= 13-14 KMS	NW,NE,SE & SW SECTOR MOVEMENT SE WARDS	-----	RA/TS	PATHANKOT,DALHO SI, BHIWANI, ROHTAK, JIND, NARWANA , HISSAR, FATEHABAD.
		190000-190300	Multiple cells Max dBZ=56.5 Ht.= 09-10 KMS	NW,WEST & SOUTH SECTOR MOVEMENT SE WARDS	-----	RA/TS	BHIWANI, JIND, HANSI, KATHAL, MOGA,SA NGRUR
Vishakhapatnam	19-06-17	180300-180600	Isolated CB cells formed towards S with max reflectivity 49 dbz and max height 10kms.	151 KM from the radar and moving NE ly.	Gradually CB cells dissipating	-	-
		180600-180900	Isolated CB cells formed with Max. reflectivity of 53dBz and Max. height of 13 kms.	100to 170 KMS in NW & NE direction from the radar and moving SE ly.	Reflectivity and Height of CB cells are gradually increasing.	-	-
		180900-181200	Multiple cells formed with Max. reflectivity of 58 dBz and Average height of 15kms.	CB cells are formed around 50kms from the radar in land side and moving SE ly.	CB cells are well developed and after heavy downpour there are dissipating.	-	-
Nagpur	19-06-17	180722-180800	Single	248 km E direction.	38.05 dbZ & clod ht.= 5.6-7.0 km	<u>Thunderstorm warning</u> started at 0912 til	Rainfall in many places in Washim , Pusad,

		180842-180900	Multiple	249 km SSE, moving E'ly	48.5 dbZ & cloud ht.=3.5-8.0 km	1242 in S-SE direction 248 Km away from Radar. 0912-0922 N-NW direction 200 Km. away from Radar.	Hingoli, Adilabad, and Chandrapur . Rainfall Isolated places in Seoni Chindwara and Balaghat.
		180912-181212	Multiple	126 km N direction	41 dbZ & cloud ht.=4.7-7.0 km	<u>Hailstorm-NIL</u>	
		190002-190252	Nil	NIL			
Kolkata	19-06-17	180301-180811	1. Isolated single cell with maximum reflectivity of 59.0 dBz at 0401 UTC and maximum height of 17.6 km at 0412 UTC.	Cells developed in S/45 km from Radar and moving ESE-ly with a speed of 25 kmph.	Isolated single cell developed at 0301 UTC in at S/ 45 km from Radar. Matured, moving into Bay of Bengal at 0632 UTC, Dissipated at 0811 UTC in SSE at a distance of 107.7 km from Radar.	Thunderstorm / Rain	N/A
		180711-181031	2. Isolated single cell with maximum reflectivity of 63.0 dBz at 0801 UTC and maximum height of 17.37 km at 0801 UTC.	Cells developed in W/129.4 km from Radar and moving SE-ly.	Isolated single cell developed at 0711 UTC in at W/129.4 km from Radar. Matured merged with cell no. 4 at 0901 UTC and Dissipated at 1031 UTC in SW at a distance of 94.3 km from Radar.	Thunderstorm Hail/ Rain	N/A
		180711-180801	3. Isolated single cell with maximum reflectivity of 56.0 dBz at 0721 UTC and maximum height of 13.17 km at 0742 UTC.	Cells developed in NNW/239.1 km from Radar and moving ESE-ly with a speed of 20 kmph.	Isolated single cell developed at 0711 UTC in at NNW/239.1 km from Radar. Matured. Dissipated at 0801 UTC in NNW at a distance of 231.8 km from	Thunderstorm / Rain	N/A

					Radar.		
180721-180951	4. Isolated single cell merged to form a multi cell system with maximum reflectivity of 64.5 dBz at 0811 UTC and maximum height of 18.0 km at 0801 UTC	Cells developed in WSW/169.6 km from Radar and moving SSE-ly	Isolated single cell developed at 0721 UTC in at WSW/169.6 km from Radar. Matured, merged to form a multi cell system at 0821 UTC, Dissipated at 0951 UTC in SW at a distance of 158.5 km from Radar.	Thunderstorm Hail/Rain	N/A		
180301-180811	1. Isolated single cell with maximum reflectivity of 59.0 dBz at 0401 UTC and maximum height of 17.6 km at 0412 UTC.	Cells developed in S/45 km from Radar and moving ESE-ly with a speed of 25 kmph.	Isolated single cell developed at 0301 UTC in at S/ 45 km from Radar. Matured, moving into Bay of Bengal at 0632 UTC, Dissipated at 0811 UTC in SSE at a distance of 107.7 km from Radar.	Thunderstorm / Rain	N/A		
181012-181301	5. Isolated single cell with maximum reflectivity of 65.0 dBz at 1051 UTC and maximum height of 18.0 km at 1142 UTC.	Cells developed in NW/54.9 km from Radar	Isolated single cell developed at 1012 UTC in at NW/54.9 km from Radar. Matured. Dissipated at 1301 UTC in NW at a distance of 49.0 km from Radar.	Thunderstorm Hail/Rain	N/A		
181051-181211	6. Isolated single cell with maximum reflectivity of 61.5 dBz at 1121 UTC and maximum height of 18.0 km at 1131 UTC.	Cells developed in NNE/61.4 km from Radar and moving ESE-ly	Isolated single cell developed at 1051 UTC in at NNE/61.4 km from Radar. Matured. Dissipated at 1211 UTC in NNE at a distance of 63.9 km from Radar.	Thunderstorm Hail/Rain	N/A		
181151-181451	7. Isolated single cell with maximum reflectivity of 59.5 dBz at 1301 UTC and maximum height of 16.30 km at 1241 UTC.	Cells developed in at NW/221.7 km from Radar and moving ESE-ly with a speed of 36 kmph.	Isolated single cell developed at 1151 UTC in at NW/221.7 km from Radar. Matured. Dissipated at 1451 UTC in NNW at a distance of 158.2 km from Radar.	Thunderstorm / Rain	N/A		

		181221-181701	8. Isolated single cell with maximum reflectivity of 62.5 dBz at 1451 UTC and maximum height of 17.55 km at 1501 UTC.	Cells developed in at NNW/220.3 km from Radar and moving ENE-ly	Isolated single cell developed at 1221 UTC in at NNW/220.3 km from Radar. Matured. Dissipated at 1701 UTC in NNE at a distance of 226.1 km from Radar.	Thunderstorm Hail/Rain	N/A
		181221-182041	9. Isolated single cell with maximum reflectivity of 62.5 dBz at 1241 UTC and maximum height of 18.0 km at 1241 UTC.	Cells developed in at N/247.9 km from Radar and moving ESE-ly	Isolated single cell developed at 1221 UTC in at N/247.9 km from Radar. Matured, later transformed into a multi cell system, Dissipated at 2041 UTC in NE at a distance of 211.4 km from Radar.	Thunderstorm Hail/Rain	N/A
		182051-182351	NIL	NIL	NO ECHO	NIL	NIL
		190001-190301	10. Isolated single cell with maximum reflectivity of 59.5 dBz at 0051 UTC and maximum height of 13.80 km at 0201 UTC.	Cells developed in at N/178.6 km from Radar and moving ESE-ly	Isolated single cell developed at 0001 UTC in at N/178.6 km from Radar. Matured, later transformed into a multi cell system and moving into Bangladesh	Thunderstorm Hail/Rain	N/A
Machilipatnam	19-06-17	180701-181001	Isolated Multiple cells average height of 8.5km with maximum reflectivity of 53.5dBZ.	NE(130Km) and it is stationary.	Cell started forming at 0701 UTC, at NE(130 km) from Radar the maximum reflectivity during 0701 UTC to 0951 UTC and died down at 1001 UTC	Possibility of Thunderstorm with rain and winds.	East and west Godavari districts
		180751-181141	Isolated Multiple cells average height of 10.5 km with maximum reflectivity of 57.0dBZ.	NE(250Km) and moving SE ly direction with average speed of 35.0kmph	Cell started forming at 0751UTC, at NE (250 km) from Radar the maximum reflectivity during 0751UTC to 1141 UTC and died down at 1151.	Possibility of Thunderstorm with rain and winds.	Visakhapatnam and East Godavari districts.
		181251-181631	Isolated Multiple cells average height of 9.0 km with maximum reflectivity of 54.0dBZ.	N (218KM) and moving SEly direction with average speed of 30.0kmph	Cell started forming at 1251UTC, at N (218km) from Radar the maximum reflectivity during 1251UTC to 1621 UTC and died down at 1631 UTC	Possibility of Thunderstorm with rain and winds.	Dantewara, Malkangiri, Bhadrachalam Districts.

		181121-182151	Convective region(max =57.0dBZ) Avg Ht=8.0Km	W and NW- and moving NE ly direction with average speed of 30.0kmph	Cell started forming at 112UTC, at Wand NW from Radar the maximum reflectivity during1121UTC to 2151 UTC and died down at2201 UTC .	Possibility of Thunder storm with rain and winds.	Kurnool,Prakasam,Guntur,Krishna,Nalgonda,Suryapet,Mahabubabad,Jangaon,Warangal-rura&urban,Jaya sankar-Bhupalapalli,Dantewara ,Malkangiri, Bhadradi-Kothagudem Districts Guntur Districts .
		182011-182231	Isolated Multiple cells average height of7.5 km with maximum reflectivity of 47.0BZ.	SW (245KM) and moving NE ly direction with average speed of 25.0kmph	Cell started forming at 2001UTC, at SW (245km) from Radar the maximum reflectivity during2011UTC to 2231 UTC and died down at2241 UTC .	Possibility of Thunder storm with rain and winds.	Prakasam, Nellore Districts .
		181531-181711.	Isolated Multiple cells average height of6.5 km with maximum reflectivity of 47.0BZ.	SW (202KM) and moving E ly direction with average speed of 25.0kmph	Cell started forming at 1531UTC, at SW (202km) from Radar the maximum reflectivity during1531UTC to 1711 UTC and died down at1741 UTC .	Possibility of Thunder storm with rain and winds.	Prakasam, Nellore Districts .
Karaikal	19-06-17	180300-190300	---	---	DWR U/S	--	--



+ 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

Weather Symbols