



India Meteorological Department
FDP STORM Bulletin No.116 (29-06-2017)

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

The Northern Limit of Monsoon (NLM) continues to pass through Lat. 26.0 °N / Long. 70.0°E, Barmer, Chittorgarh, Guna, Satna, Siddhi, Patna and Lat 27.0°N / Long 85.0°E.

Favourable conditions are developing for the further advance of southwest monsoon into remaining parts of Madhya Pradesh, Bihar, East Uttar Pradesh initially and subsequently towards West Uttar Pradesh, National Capital Region (NCR) and some parts of Uttarakhand and Haryana during 30th June-4th July.

The low pressure area over Saurashtra & Kutch and adjoining northeast Arabian Sea now lies over Saurashtra and neighbourhood with associated upper air cyclonic circulation extending upto 4.5 km above mean sea level.

The upper air cyclonic circulation over north Odisha and adjoining Jharkhand, now lies over Jharkhand & adjoining Bihar and extends upto 3.1 km above mean sea level.

The trough at mean sea level from West Rajasthan to west central Bay of Bengal across north Madhya Pradesh, Chhattisgarh and Jharkhand, now runs from centre of low pressure area over Saurashtra & neighbourhood to west central Bay of Bengal across north Madhya Pradesh, Chhattisgarh and north Odisha and extends upto 1.5 km above mean sea level.

The off-shore trough at mean sea level from south Gujarat coast to Kerala coast persists.

The western disturbance as a trough in mid tropospheric westerlies with its axis at 5.8 km above mean sea level along Long 68.0°E and north of Lat 28.0 °N, now runs roughly along Long 71.0°E and north of Lat 30.0°N.

An upper air cyclonic circulation lies over northwest Bay of Bengal & adjoining coastal areas of West Bengal and extends upto mid tropospheric level and tilt south-westwards with height.

The east west shear zone roughly along Latitude 21.0°N between 3.1 km and 3.6 km above mean sea level has become less marked.

The upper air cyclonic circulation over east Assam & neighbourhood at 1.5 km above mean sea level has become less marked.

SATELLITE OBSERVATIONS during past 24hrs and current observation:

Current Observation (based on 0900UTC imagery of INSAT 3D):

LOW LEVEL CIRCULATION (LLC):

Scattered low/medium clouds with embedded intense to very intense convection were seen over NE Arabian sea adjoining EC Arabian sea in association with Low Level Circulation over the area.

Westerly Trough:

Trough in westerlies runs roughly along long 71.0E north of lat 30.0N

Convective Activity:

Cell No	Date/time (UTC)	Location/Area	MIN CTT (-DEG C)	Movement	Remarks
1	29/0015	E RAJ NW MP W UP UTRKND	77	-	INSAT-3D DATA NOT AVAILABLE
	0300	DO	78		
	0600	DO	-		
	0700	S HARY DLH	71		
	0800	DO	68		
	0900	DO			
2	29/0700	S UTRKND ADJ UP	69	-	
	0800	DO	76		
	0900				

Cloud Description:

Broken low/medium clouds with embedded moderate to intense convection were seen over South Haryana, Delhi, West Uttar Pradesh, Uttarakhand, North Chhattisgarh, Odisha, NE states, Madhya Pradesh, Konkan, Gujarat, Rajasthan, gulf of Kutch, North Coastal Andhra Pradesh and Bay Islands. Scattered low/medium clouds with embedded isolated weak to moderate convection were seen over rest Haryana, rest parts of East & West India. Scattered low/medium clouds were seen over Tamilnadu and rest parts of North India.

Arabian Sea:

Broken low/medium clouds with embedded intense to very intense convection were seen over NE adjoining EC Arabian Sea.

Bay of Bengal & Andaman Sea:

Broken low/medium clouds with embedded intense to very intense convection were seen over WC adjoining EC WC Bay. Scattered low/medium clouds with embedded moderate to intense convection were seen over Andaman Sea.

Past Weather:

Convection:-

Intense to very intense convection: over N MP, DLH, HARY.

Moderate to Intense convection was observed, HP, UTRKND, ORS CHTGH JHRKND NE STATES.

OLR:-

Upto 100 wm^{-2} was observed over HARY, DEL, W UP, E MP, C CHTGH.

Upto 200 wm^{-2} was observed over REST N INDIA ORS REST CHTGH MAHA.

Westerly Trough & Jet-Stream:

Trough in Westerlies runs roughly along Longitude 68.0E North of Latitude 28.0N & no Jet Stream is 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.

Negative shear tendency over NC AP and Positive shear tendency is observed over rest India.

Precipitation:**IMR:**

Rainfall upto 150 mm was observed over HARY W UP N MP DLH (.) Rainfall between **20-50** mm was observed over REST MP N VID UTKND S HP (.) Rainfall up to **20** mm was observed over C KRNTK ORS BHR JHRKND, NE STATES.

HEM:

Rainfall Up to 347 mm was observed over N MP DLH (.)

Rainfall from **208** mm was observed over E RAJ S HARY W UP.

Rainfall from **139** mm was observed over E RAJ N VID C KRNTK ORS N CHTGH MIZO.

Rainfall from **14** mm was observed over REST MAHA GUJ TLNGN GWB REST CHTGH.

RADAR and RAPID Observation:

DWR Composite at 1630hrs IST indicated significant convection over Uttarakhand, Haryana East Rajasthan, West Madhya Pradesh, and Vidarbha.

RAPID RGB Satellite imagery at 1530hrs IST indicated significant convective clouds over Uttarakhand, Central Uttar Pradesh, East Madhya Pradesh, North Chhattisgarh, South Odisha, NMMT and North Coastal Andhra Pradesh.

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

Higher Dust concentration was observed over north Africa and Arabian country . Dust concentration is expected to decrease over north India for next five days. High PM10 concentration was observed over western 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:

00 UTC Charts of Day 0-2 show a low pressure system over Gujarat and off Gujarat coast

00 UTC Charts of Day 1-2 show a trough at mean sea level from North Rajasthan/Punjab to Odisha across Uttar Pradesh, MP, Jharkhand. In Day 3 -5 the trough is seen from Rajasthan to WB across UP, MP, Bihar/Jharkhand. An embedded CYCIR in Day 5 is seen over UP and adjoining Bihar.

Some isolated regions of wind discontinuity can be seen as embedded features in monsoon trough on all days.

00 UTC Charts of Day 1-5 Offshore trough off Gujarat coast.

00 UTC Charts of Day 1 A CYCIR over Bihar/Jharkhand is seen moving westward over UP in day 2.

00 UTC Charts of Day 2-5 Offshore trough off east coast from WB to Tamilnadu

00 and 12 UTC Charts of Day 0-2 Western Disturbance as a trough is seen on Day 0-1 over Pakistan/J&K moving eastward and getting deeper in Day 2.

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 > 15×10^{-5} /s)

Day0: Nil

Day1: Nil

Day2: Nil

Day3: Nil

Day4: Nil

4. Low level Vorticity:-Positive Vorticity (> 15×10^{-5} /s):

(Day/Index: Subdivisions with Lower Level Vortex > 15×10^{-5} /s):

Day0: Assam Meghalaya, West RAJASTHAN, Gujarat region, Saurashtra Kutch, TN Puducherry, Kerala,

Day1: Arunachal Pradesh, TN Puducherry, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, Saurashtra Kutch, TN Puducherry, Kerala,

Day3: Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Himachal Pradesh, TN Puducherry, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, East UP, West UP, TN Puducherry, Kerala

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

Day0: Arunachal Pradesh, Sub Himalayan WB, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN,

Day1: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN,

Day2: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, Saurashtra Kutch, Chhattisgarh,

Day3: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN, Chhattisgarh,

Day4: Arunachal Pradesh, Sub Himalayan WB, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN, East RAJASTHAN, West MP, East MP

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, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN, East RAJASTHAN, Odisha, West MP, East MP, Gujarat region, Saurashtra Kutch, Chhattisgarh, Coastal AP, TN Puducherry,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN, East RAJASTHAN, Odisha, West MP, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN, East RAJASTHAN, Odisha, West MP, East MP, Saurashtra Kutch, 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, Himachal Pradesh, Jammu Kashmir, East RAJASTHAN, Odisha, West MP, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, TN Puducherry,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, East RAJASTHAN, Odisha, West MP, East MP, Vidarbha, Chhattisgarh, TN Puducherry,

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,

Day1: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir,

Day2: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Himachal Pradesh, Jammu Kashmir,

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

Day4: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Punjab, 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, East UP, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN, East RAJASTHAN, Odisha, West MP, East MP, Gujarat region, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Odisha, East MP, Gujarat region, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Gujarat region, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Andaman Nicobar, Coastal AP, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Himachal Pradesh, Odisha, East MP, Gujarat region, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Coastal Karnataka, SI Karnataka, Kerala,

Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Gujarat region, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Coastal AP, Coastal Karnataka, SI Karnataka

***** Rainfall > 16cm/day over South East UP and adjoining MP in Day 5**

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 these features persist till day 5 and an associated a feeble low over Orissa coast persist next two days. A prominent off-shore trough is seen along west coast from Konkan and Goa up to Kerala persists up to day 5.

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 foothills of Himalayas and along west coast from Konkan and Goa up to Kerala and mainly prominent during morning hours for next 5 days.

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.

Lifted Index (< -2): Less than threshold value in different pockets over most parts of the Delhi, UP, Bihar, GWB and adjoin areas for next 3 days, over some parts of Gujarat and south Rajasthan next 2 to 3 days.

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

Sweat Index (> 300): Higher than threshold value over the areas similar to Lifted Index except it covers most parts of the peninsular India.

CAPE (> 1000): Mostly western India over Rajasthan and Gujarat and over SHWB, GWB, Bihar, isolated pockets of coastal Orissa and Andhra Pradesh. It also appears over Northwest India along the monsoon trough over UP, Punjab, Haryana and adjoining areas from day 1 onwards.

CIN (>150): Consistently over Gujarat and adjoining Rajasthan and over some parts of Central India, extreme south parts of peninsular India during morning hours.

5. Rainfall and thunderstorm activity:

40-70 mm rainfall and more: over many parts of west coast and over a few pockets of NE states till day 5, over Punjab, east UP and adjoining Delhi Haryana and Rajasthan on day 3.

20-40 mm rainfall Over parts of Orissa and adjoining GWB, south Jharkhand, Chhattisgarh and MP for next 4 to 5 days, along foothills of Himalayas from day 1 to day 5.

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

1. Model Reflectivity (Max. dBz):

15-40 dBz model reflectivity over West coast of India mainly over northern ends today and next three days, over eastern coast of country along with GWP and adjoin areas for morning hours of today. Over parts of Punjab, Delhi and adjoin areas on today and tomorrow.

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

Total-Total Index (> 50): Above threshold value mainly over parts northwest India and extending south-eastward over UP and over MP in central India during evening hours during next 2 days. Over eastern parts of peninsular India next 2 to 3 days.

CAPE (> 1000): Mostly over eastern parts of India, NE states and over North-west India mainly over western part of Rajasthan and Gujarat during next 2 days. Over eastern cost of country shows very high value on day 1 and day 3.

CIN (50-150): Analysis shows threshold value of CIN over Rajasthan, Haryana, Delhi and adjoining place India during morning hours.

3. Rainfall and thunderstorm activity:

40-70 mm and more: along west coast of India and Gujarat for the next three days and some pocket over Arunachal Pradesh on day 2.

20-40 mm: along foothills of the Himalayas, GWB, Jharkhand and Chhattisgarh for next two days, over most parts of Punjab, Delhi and adjoining areas for next three days.

3. IOP ADVISORY FOR 24 and 48Hrs:

Summary and Conclusions:

Day-1 & Day-2:

Presently, the low pressure area over Saurashtra & Kutch and adjoining northeast Arabian Sea, now lies over Saurashtra and neighbourhood with associated upper air cyclonic circulation extending upto 4.5 km above mean sea level. This will give rise to very heavy rainfall activities over Gujarat region on Day-1 and Day-2.

The trough at mean sea level from West Rajasthan to west central Bay of Bengal across north Madhya Pradesh, Chhattisgarh and Jharkhand, now runs from centre of low pressure area over Saurashtra & neighbourhood to west central Bay of Bengal across north Madhya Pradesh, Chhattisgarh and north Odisha and extends upto 1.5 km above mean sea level. Due to this system, Madhya Pradesh and Chhattisgarh will experience heavy rainfall activities on Day-1.

The offshore trough at mean sea level from south Gujarat coast to Kerala coast persists. This will again give rise to heavy rainfall activities over Konkan and Goa on Day-1 and Day-2.

24 hour Advisory for IOP:	48 hour Advisory for IOP:
<p>Rainfall:</p> <p>Kerala, Coastal Karnataka, South and North Interior Karnataka Konkan and Goa Gujarat, Saurashtra and Kutch Chhattisgarh Madhya Pradesh Odisha, Jharkhand Sub Himalayan West Bengal, GWB West and East Uttar Pradesh, East and West Rajasthan Uttarakhand, Himachal Pradesh, Jammu and Kashmir Punjab Haryana Assam Meghalaya, NMMT, Arunachal Pradesh</p> <p>Thunderstorm with associated phenomena:</p> <p>NIL</p>	<p>Rainfall:</p> <p>South Konkan and Goa Gujarat Sub Himalayan West Bengal, GWB, Orissa, North Coastal Andhra Pradesh Coastal Karnataka Assam Meghalaya, NMMT, Arunachal Pradesh Assam Meghalaya, NMMT, Arunachal Pradesh</p> <p>Thunderstorm with associated phenomena:</p> <p>NIL</p>

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

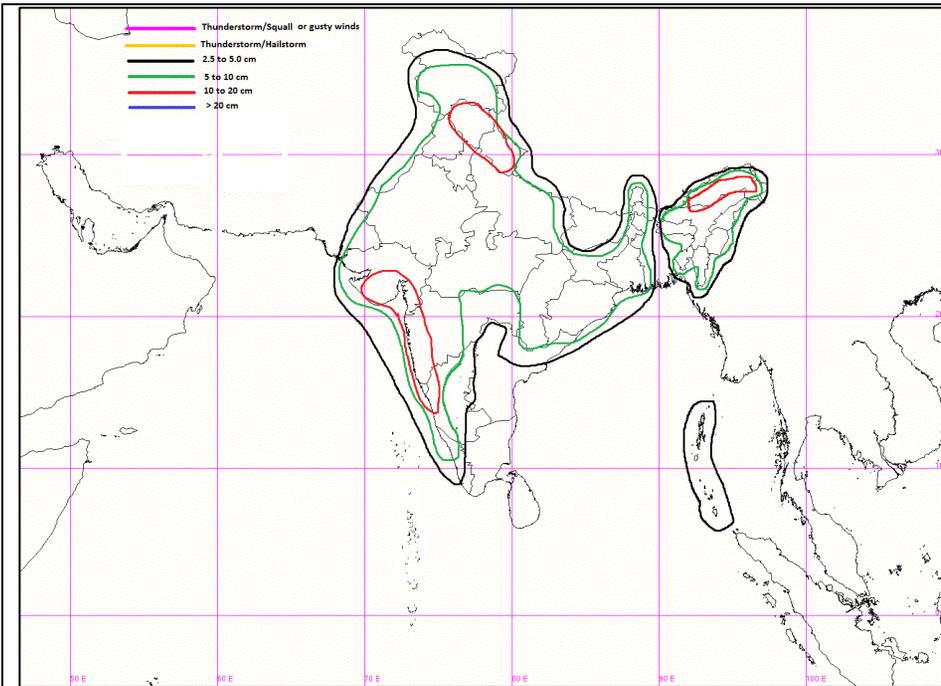
HEM: http://satellite.imd.gov.in/img/3Ddaily_he.jpg

ForRadarimagesofthepast24hoursincludingmosaicofimages:

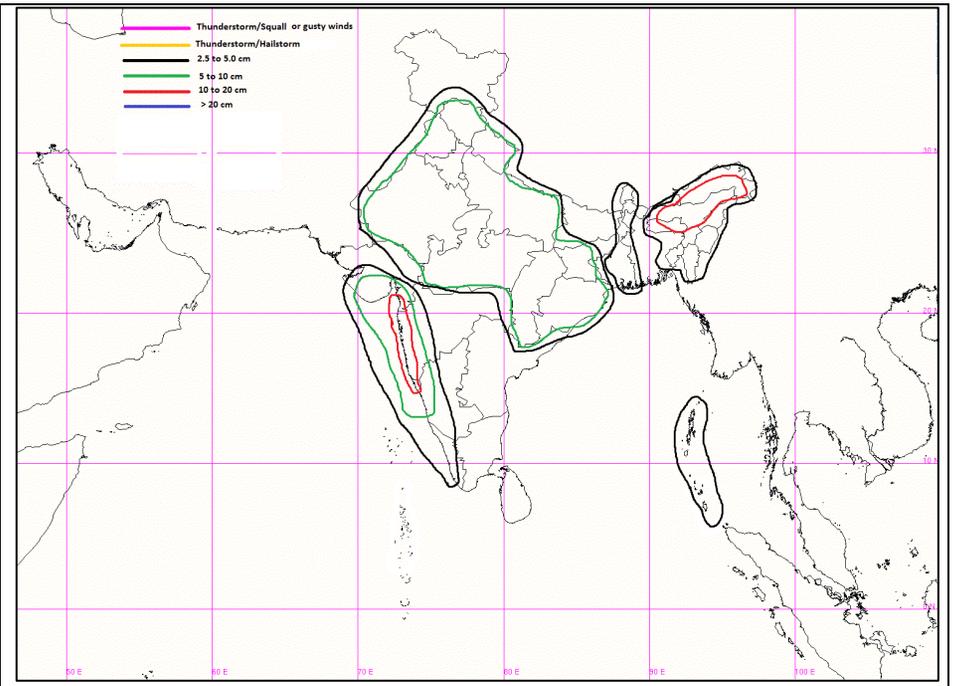
http://ddgmui.imd.gov.in/dwr_img/

Satellite sounder based T- Phigram

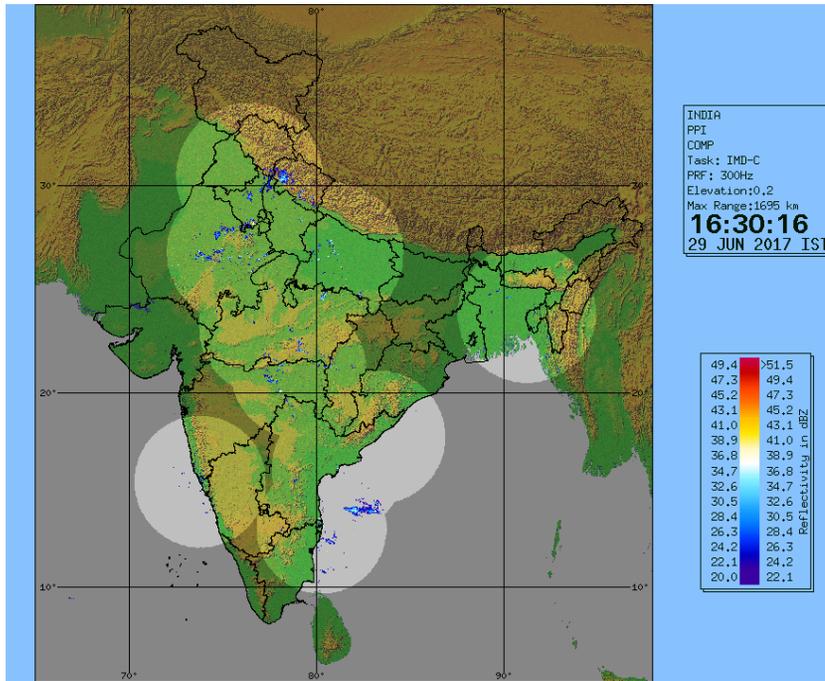
http://satellite.imd.gov.in/map_skm2.html



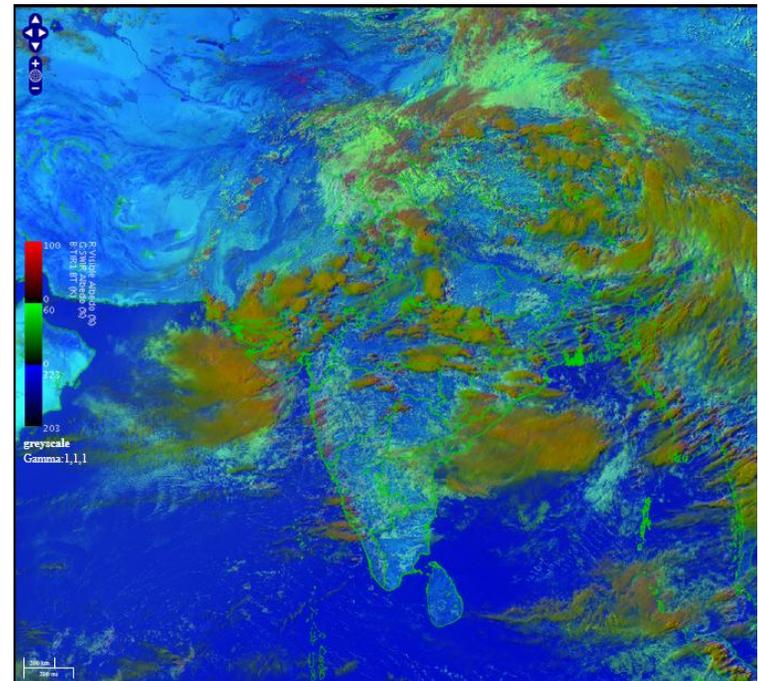
IOP Advisory for 24 hours



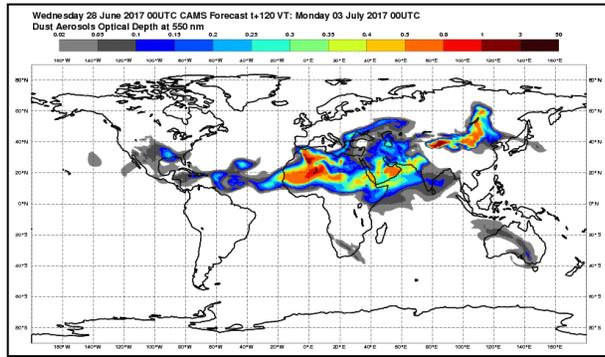
IOP Advisory for 48 hours



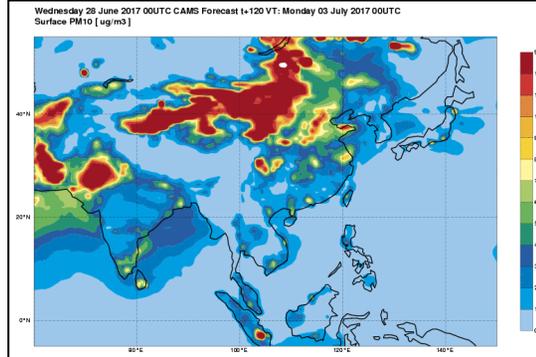
DWR composite at 1630hrs IST



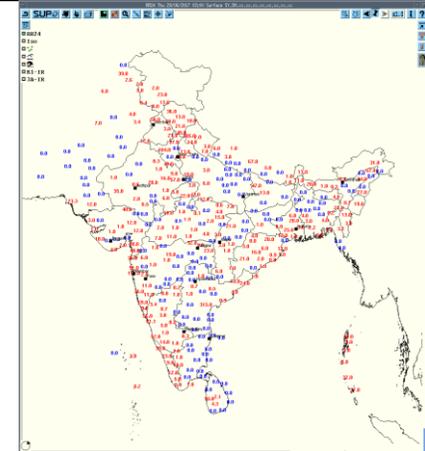
RAPID RGB Satellite Imagery at 1530 hrs IST of today



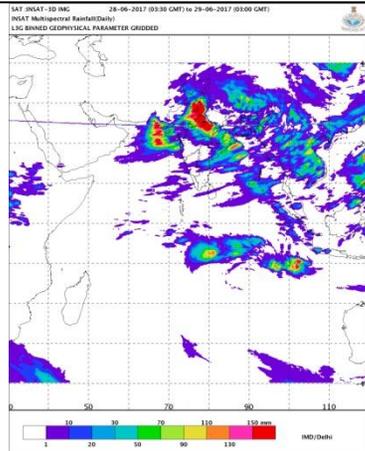
Forecast Dust Concentration for 00UTC of 3rd June



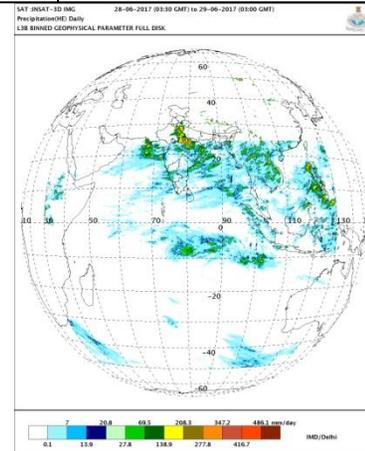
PM10 Forecast for 00UTC of 3rd June



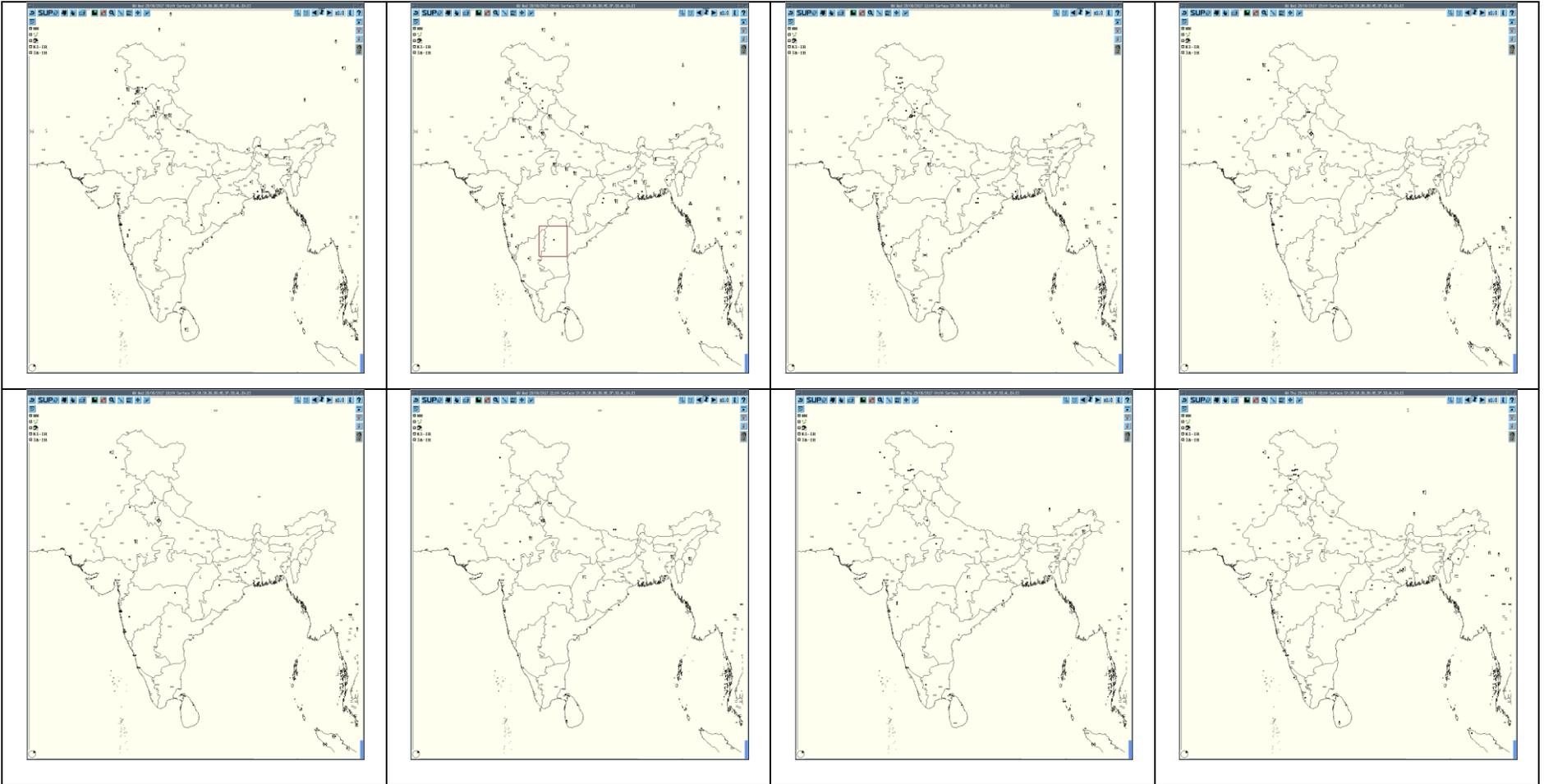
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today



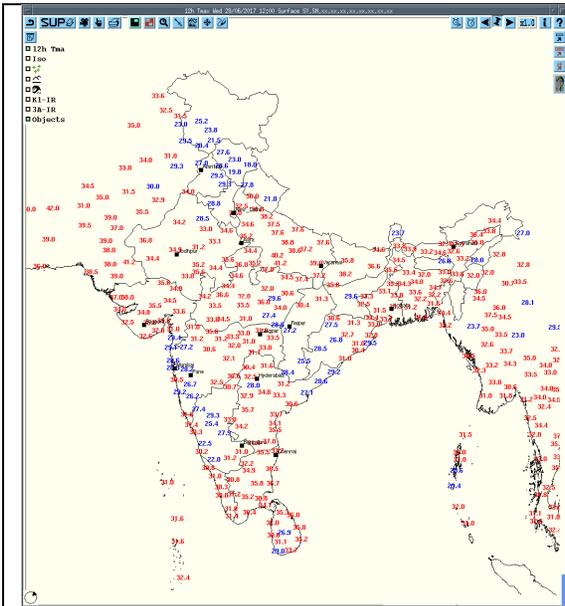
IMR Rainfall



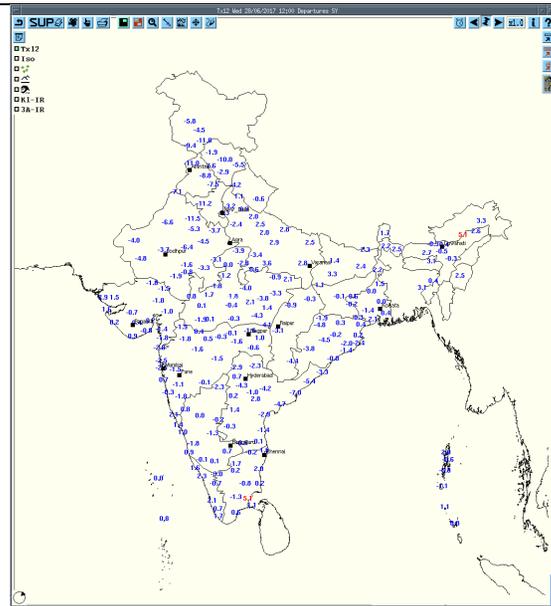
HEM Rainfall



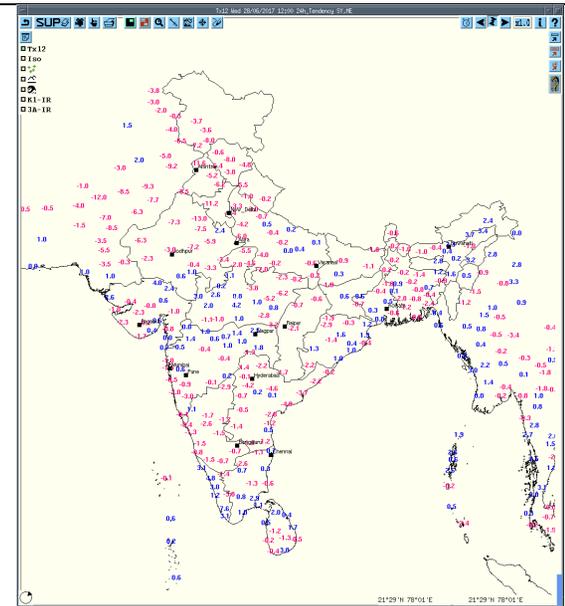
3hourly Past weather at 06, 09, 12, 15, 18, 21UTC of yesterday and 00 & 03 hrs UTC of today



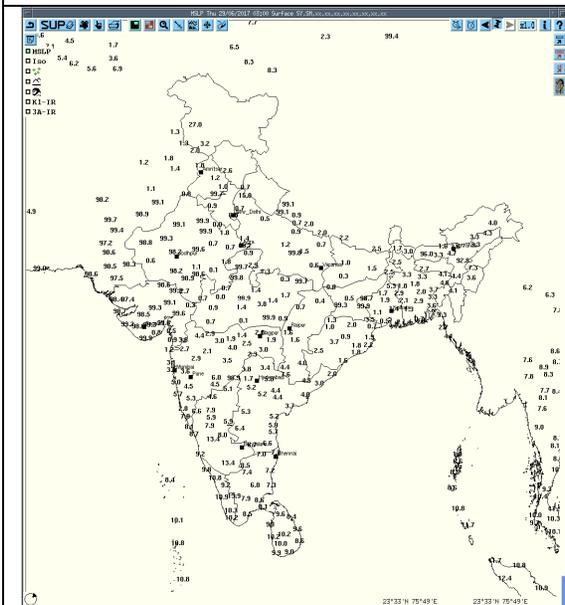
Tmax



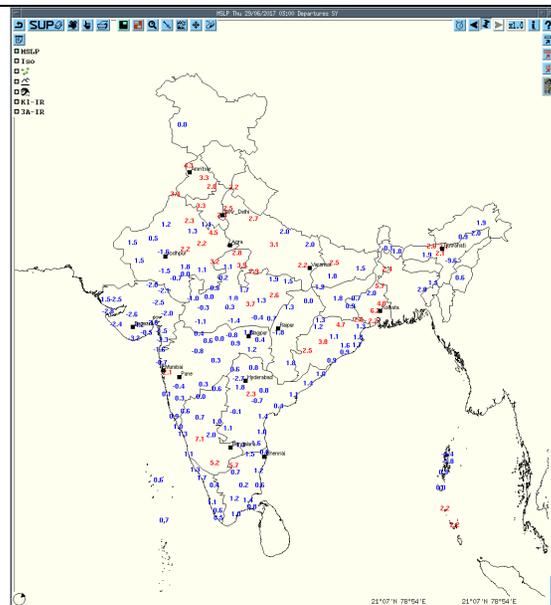
Departure Tmax



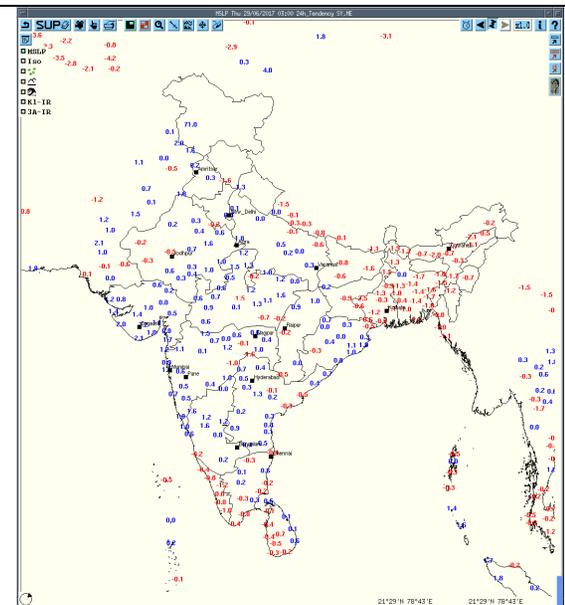
Tendency Tmax



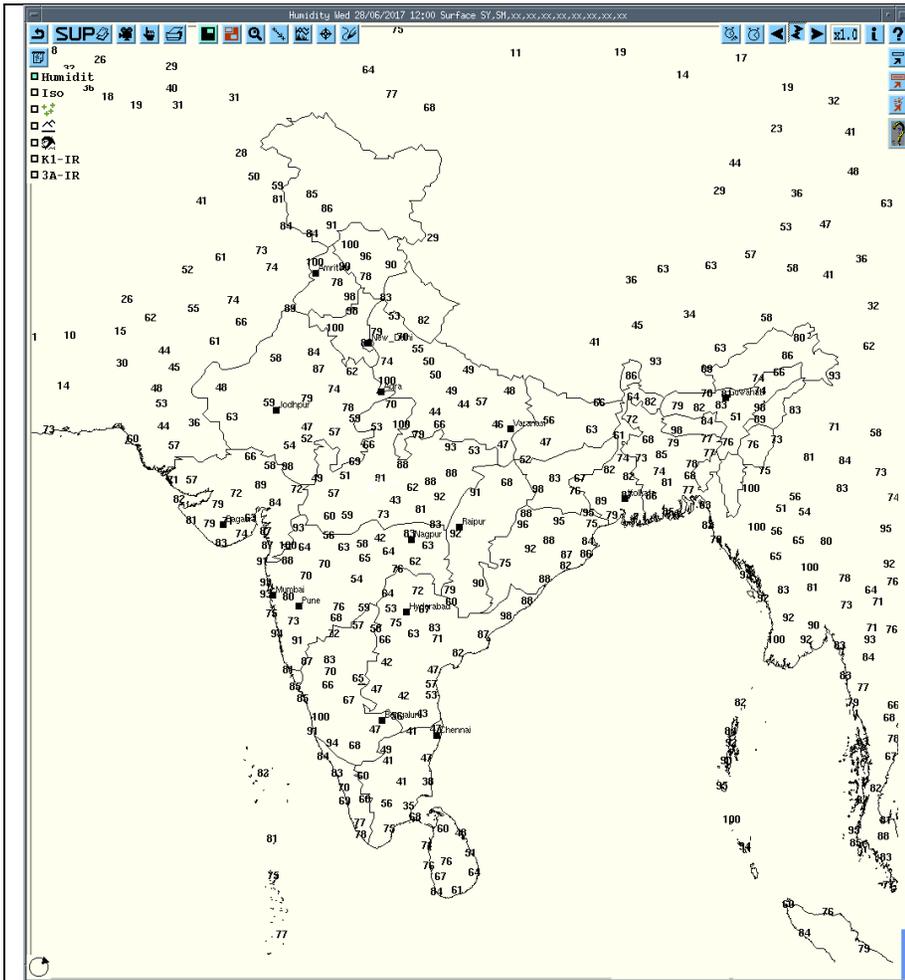
MSLP



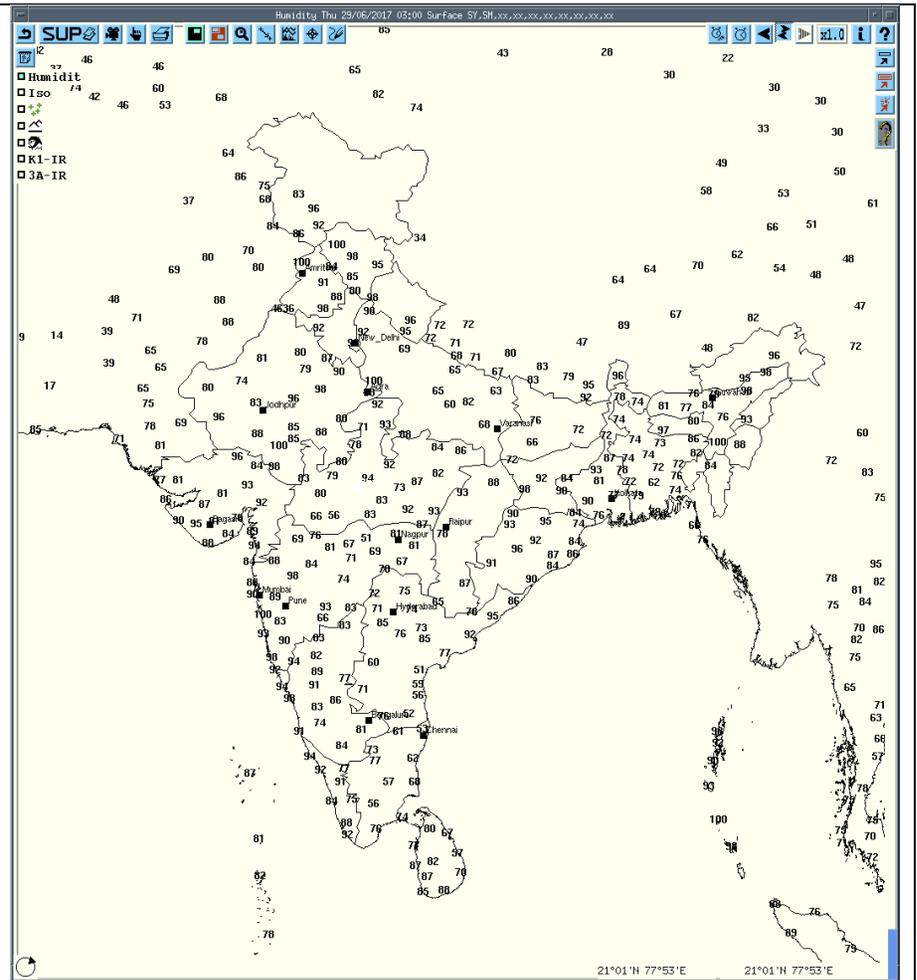
Departure MSLP



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
28-06-17	0600UTC	Katra	NW India	J & K	Thunderstorm
		Shimla	NW India	Himachal Pradesh	Thunderstorm
		Tehri, Dehradun/Amritsar	NW India	Uttarakhand/Punjab	Thunderstorm
		Coochbehar	E India	WB(SHWB)	Thunderstorm
		Guwahati	NE India	Assam	Thunderstorm
28-06-17	0900UTC	Dehradun	NW India	Uttarakhand	Thunderstorm
		Hissar/New Delhi	NW India	Haryana/Delhi	Thunderstorm
		Ganganagar/Jhansi	NW India	Rajasthan/ Uttar Pradesh	Thunderstorm
		Khajuraho, Satna	C India	Madhya Pradesh	Thunderstorm
		Shanti Niketan/Ranchi	E India	WB/Jharkhand	Thunderstorm
		Okha, Porbandar	W India	Gujarat	Thunderstorm
28-06-17	1200UTC	Jaipur	NW India	Rajasthan	Thunderstorm
		Jhansi	NW India	Uttar Pradesh	Thunderstorm
		Pendra Road	C India	Chhattisgarh	Thunderstorm
		Majbat	NE India	Assam	Thunderstorm
28-06-17	1500UTC	Jodhpur, Ajmer, Jaipur	NW India	Rajasthan	Thunderstorm
		Ambikapur	C India	Chhattisgarh	Lightening
		Nagpur	C India	Maharashtra (Vidarbha)	Lightening
		Tezpur	NE India	Assam	Lightening
28-06-17	1800UTC	Ajmer	NW India	Rajasthan	Thunderstorm
		Kota	NW India	Rajasthan	Lightening
		Satna	C India	Madhya Pradesh	Lightening
		Pendra Road	C India	Chhattisgarh	Lightening
		Imphal	NE India	Manipur	Lightening
28-06-17	2100UTC	New Delhi	NW India	Delhi	Thunderstorm
		Jaipur	NW India	Rajasthan	Thunderstorm
		Pendra Road	C India	Chhattisgarh	Thunderstorm
		Imphal	NE India	Manipur	Thunderstorm
29-06-17	0000UTC	Dibrugarh	NE India	Assam	Thunderstorm
		Pendra Road	C India	Chhattisgarh	Thunderstorm
29-06-17	0300UTC	Nil	Nil	Nil	Nil

Realised TS/HS/SQ during past 24 hours ending at 0300UTC of today(received from RMCs/MCs)						
Name of Station Reporting	Region	STATE	Weather Event (TS/Hail/Squall)	Date	Time of Commencement (IST)	Time of end (IST)
Katra	Northwest India	J & K	Thunderstorm	28-06-17	0915	1310
Hissar	Northwest India	Haryana	Thunderstorm	28-06-17	1230	1530
Chandigarh	Northwest India	Haryana	Thunderstorm	28-06-17	0830	0900
Amritsar	Northwest India	Punjab	Thunderstorm	28-06-17	0830	1330
Shimla	Northwest India	Himachal Pradesh	Thunderstorm	28-06-17	0815	1200
Safdarjung	Northwest India	Delhi	Thunderstorm	28-06-17	2040	2400
Safdarjung	Northwest India	Delhi	Thunderstorm	29-06-17	0000	0330
Palam	Northwest India	Delhi	Thunderstorm	28-06-17	1930	2400
Palam	Northwest India	Delhi	Thunderstorm	29-06-17	0000	0101
Kota	Northwest India	East Rajasthan	Thunderstorm	28-06-17	2130	2155
Chittorgarh	Northwest India	East Rajasthan	Thunderstorm	28-06-17	1150	1210
Ajmer	Northwest India	East Rajasthan	Thunderstorm	28-06-17	1800	2335
Sikar	Northwest India	East Rajasthan	Thunderstorm	29-06-17	0400	0500
Jaipur	Northwest India	East Rajasthan	Thunderstorm	28-06-17	1200 1710	1300 2130
Jaipur	Northwest India	East Rajasthan	Thunderstorm	29-06-17	0100	0400
Banda	Northwest India	East Uttar Pradesh	Thunderstorm	29-06-17	0530	0730
Kanpur IAF	Northwest India	East Uttar Pradesh	Thunderstorm	29-06-17	0730	0830
Kanpur City	Northwest India	East Uttar Pradesh	Thunderstorm	29-06-17	0820	0830
Orai	Northwest India	West Uttar Pradesh	Thunderstorm	28-06-17	2100	2400
Orai	Northwest India	West Uttar Pradesh	Thunderstorm	29-06-17	0000	0800
Jhansi	Northwest India	West Uttar Pradesh	Thunderstorm	28-06-17	1400 1700	1500 1900
Aligarh	Northwest India	West Uttar Pradesh	Thunderstorm	28-06-17	2000	2400
Muzaffarpur	Northwest India	West Uttar Pradesh	Thunderstorm	29-06-17	0300	0500
Moradabad	Northwest India	West Uttar Pradesh	Thunderstorm	28-06-17	0830	1000
Dehradun	Northwest India	Uttarakhand	Thunderstorm	28-06-17	0950	1445
Pantnagar	Northwest India	Uttarakhand	Thunderstorm	28-06-17	0500	0600
Mukteshwar	Northwest India	Uttarakhand	Thunderstorm	28-06-17	0850	0925
Tehri	Northwest India	Uttarakhand	Thunderstorm	28-06-17	1100	1400
Tehri	Northwest India	Uttarakhand	Thunderstorm	29-06-17	0035	0200

Realised TS/HS/SQ during past 24 hours ending at 0300UTC of today(received from RMCs/MCs)						
Name of Station Reporting	Region	STATE	Weather Event (TS/Hail/Squall)	Date	Time of Commencement (IST)	Time of end (IST)
Nagpur	Central India	Vidarbha	Thunderstorm	28-06-17	1915	2015
Gondia	Central India	Vidarbha	Thunderstorm	28-06-17	1515 2000	1550 2110
Khajuraho	Central India	Madhya Pradesh	Thunderstorm	28-06-17	1215	1550
Raipur	Central India	Madhya Pradesh	Thunderstorm	28-06-17	1600	1630
Raipur	Central India	Madhya Pradesh	Thunderstorm	29-06-17	0445	0730
Jagdapur	Central India	Madhya Pradesh	Thunderstorm	28-06-17	1130 1500	1200 1700
Pendra Road	Central India	Madhya Pradesh	Thunderstorm	28-06-17	1445	1800
Pendra Road	Central India	Madhya Pradesh	Thunderstorm	29-06-17	0220 0445	0300 0625
Bilaspur	Central India	Chhattisgarh	Thunderstorm	28-06-17	1430 1645	1515 1735
Coochbehar	East India	Sikkim	Thunderstorm	28-06-17	1045	1150
DumDum	East India	Sikkim	Thunderstorm	28-06-17	0830	0835
Asansol	East India	Jharkhand	Thunderstorm	28-06-17	1421	1515
Gaya	East India	Odisha	Thunderstorm	28-06-17	2059	2140
Bhagalpur	East India	Odisha	Thunderstorm	28-06-17	1230	1315
Ranchi	East India	Andaman & Nicobar	Thunderstorm	28-06-17	1410	1650
Daltonganj	South India	Karnataka	Thunderstorm	28-06-17	1830	1940
Port Blair	South India	Lakshadweep Islands	Thunderstorm	28-06-17	0920	0945
Jorhat	Northeast India	Assam	Thunderstorm	28-06-17	0400	0530
Dibrugarh	Northeast India	Assam	Thunderstorm	29-06-17	0515	0715
Dhubri	Northeast India	Assam	Thunderstorm	28-06-17	1410	1420
Guwahati	Northeast India	Assam	Thunderstorm	28-06-17	1115	1210
Barapani	Northeast India	Meghalaya	Thunderstorm	28-06-17	1040	1440
Imphal	Northeast India	Manipur	Thunderstorm	28-06-17	2355	2400
Imphal	Northeast India	Manipur	Thunderstorm	29-06-17	0000	0245
Lengpui	Northeast India	Mizoram	Thunderstorm	28-06-17	1655	2005
Kailasahar	Northeast India	Tripura	Thunderstorm	28-06-17	1755	2100
Agartala	Northeast India	Tripura	Thunderstorm	28-06-17	1500	1620

Past 24 hours DWR Report:

Radar Station name	Date	Time interval of observation (UTC)	Organization of the cells	Formation w.r.t radar station and Direction of movement	Remarks	Associated severe weather if any	Districts affected
Nagpur	28/06/17	0932-1700	Multiple	95 km in NW moving towards E	45.50 dbZ cloud ht= 2-5.8km	NIL	Rainfall occurred in many places in Ramtek, Seoni, Balaghat, Jabalpur, Bhandara, Gadchiroli, Brahmapuri, and Yeotmal, Pusad, Adilabad distt.
		1052-1700	Multiple	70 km in E, moving in E	41.5 dbZ, cloud ht.=1.2 -3.5 km		
		1042-1500	Multiple	50 KM IN S moving towards E	46.5 dbZ, cloud ht= 1-5.8 m		
	29/06/17	0002-0302	NIL				
Jaipur	29/06/17	0302 -0442	Multiple cell with average height of 5.5 km & maximum reflectivity 41.5 dBZ	Multiple cell continuing from previous day from 0302 UTC of 28/06/2017 towards NW of Jaipur and moved to North West Wards at speed 25-30 km/hr	Multiple cell continuing from previous day from 0302 UTC of 28/06/2017 towards NW of Jaipur and reaches maximum reflectivity during 0342-0402 UTC OF 28/06/2017 and remain continue..	Thunderstorm/rain at a isolated places	Churu, Hanumangarh
Srinagar	29/06/2017	28- JUNE 03Z to 29- JUNE03Z (24hrs)	1. Single cells developed in SE & Multiple cells SE direction of DWR at 0540 UTC and grew into multiple cells in SE- direction with max. reflectivity of 50-55 dBZ and average height 6-7km. 2. Single cells developed in NW direction of DWR at 0900UTC and grew into multiple cells in SE direction with max. reflectivity of 40-45 dBZ and average height 7 Km	Dissipated at 1320 UTC with SE direction.	Light to Moderate Heavy rain. in Katra/Kukernag / Bhaderwah/Pahalgam	Thunderstorm reported at Katra & Gulmarg	All districts

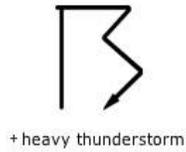
Radar Station name	Date	Time interval of observation (UTC)	Organization of the cells (Isolated single cells/multiple cells/ convective regions/ squall lines) with height of 20 dBZ echo top and maximum reflectivity	Formation w.r.t radar station and Direction of movement	Remarks	Associated severe weather if any	Districts affected
Patiala	28.06.17	28/0300 28/0600	Multiple cells cell Max dBZ=50.5 Ht.= 8-10 KMS	N, NE, & E SECTOR; MOVEMENT-N- WARD	-----	TS/RA	Ajnala, Batala, Jalandhar, Amritsar, Kairthal, Narwana, Yamunagar, Kurukshetra, Saharnpur, Behat adjoining areas.
		28/0600 28/0900	Multiple cells cell Max dBZ=53.5 Ht.= 10-13 KMS	NW, NE, SE & SW SECTOR; MOVEMENT-N- WARD	-----	TS/RA	Amritsar, Kaithal, Narwana, Yamunagar, Kurukshetra, Saharanpur, Behat adjoining areas.
		28/0900 28/1200	Multiple cells cell Max dBZ=49.5 Ht.= 10-12 KMS	NW, NE & SE SECTOR; MOVEMENT-SE- WARDS.	-----	TS/RA	Bhiwani, Narwana, Patiala, Ambala, Jind, Fatehabad, Chandigarh adjoining areas.
		28/1200 28/1500	Multiple cells cell Max dBZ=46.5 Ht.= 12-14 KMS	NW, NE, SW, SE - SECTOR; MOVEMENT-N- WARDS.	-----	TS/RA	Patiala, Ambala, Faridabad adjoining areas.
		28/1500 28/1800	Multiple cells cell Max dBZ=51.0 Ht.= 6-08 KMS	SW SECTOR; MOVEMENT-N- WARDS.	-----	TS/RA	Rohtak, Bhiwani, Sonipat, Panipat, Karnal adjoining areas.
		28/1800 28/2100	Multiple cells cell Max dBZ=50.0 Ht.= 7-9 KMS	NW, NE, SE & SW SECTOR; MOVEMENT-N- WARDS.	-----	TS/RA	Pehowa, Sonapat, Behat, Dehradoon, Ambala, Moga, Zira, Ropar, Nakodar, Faridkot, Kapurthla adjoining areas.
		28/2100 29/0000	Multiple cells cell Max dBZ=52.0 Ht.= 11-12 KMS	SW SECTOR; MOVEMENT-W- WARDS.	-----	TS/RA	Hisar, Hansi, Maham, Siwani, Panipat, Karnal, Bhiwani, Fatehabad, Dalhousie, Palampur, Bhunter, Mandi adjoining areas.
		29.06.17	29/0000 29/0300	Multiple cells cell Max dBZ=45.0 Ht.= 07-10 KMS	W, NW & SE SECTOR; MOVEMENT- E- WARD	-----	RA/DZ

Radars Station name	Date	Time interval of observation (UTC)	Organization of the 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	29/06/17	280300 - 280632	Multiple cells formed DWR Agartala of North at a distance around 100km with Maximum cell Height 10 km at 0342 UTC and maximum reflectivity 38.50 dBZ at 0342 UTC	Formed DWR Agartala of North at a distance around 100km and moves NW-wards direction with around 10 kmph.	Dissipated at 250km in NNW direction 0632 UTC.	N/A	N/A
		280532 - 281142	Multiple cells formed DWR Agartala of South West at a distance around 80km with Maximum cell Height 11 km at 0722 UTC and maximum reflectivity 50 dBZ at 0722 UTC	Formed DWR Agartala of South West at a distance around 80km and moves SE-wards direction with around 20 kmph	Dissipated at 50km in NW direction 1142 UTC.	TS with Light rain	West Khowai , N-Unakoti
		281112 - 290012	Multiple cells formed DWR Agartala of East at a distance around 150km with Maximum cell Height 10.4 km at 1222 UTC and maximum reflectivity 47 dBZ at 1222 UTC	Formed DWR Agartala of East at a distance around 150km and moves N-wards direction with around 10 kmph	Dissipated at 200km in NE direction 0012 UTC.	N/A	N/A
Bhuj	28.06.17	0130 (UTC) TO 1230 (UTC)	Multiple cells at Ht. of 2.0 Km to 18 Km with 53 dBz Max. Z	10 KM to 200 KM in all direction mostly NW to SE & ESE move towards W	Observed during 05:33 UTC to 11:33 UTC	TS or TSRA	Rajkot Surendra Nagar Jamnagar Porbandar Kuchh
Lucknow	28-06-2017	0532 - 0802-	Isolated Cell with average height of 10 km and maximum reflectivity of 45dBZ	WNW (240Km) moving in ESE'ly direction at speed of 40kmph.	-	TS/Rain	BDN
		0912 - 1102	Isolated Cell with average height of 11 km and maximum reflectivity of 46dBZ	ESE(190km) moving in W'ly direction at speed of 40kmph.	.	TS/Rain	MNP, AGR
		0942 - 1312	Multiple Cells with average height of 12km and maximum reflectivity of 46dbZ	SW (160 to 220km) moving in W'ly direction at speed of 40kmph	--	TS/Rain	JHN, Jalaun, HMP
		28/1740 - 29/0300	Multiple Cells with average height of 11km and maximum reflectivity of 46dbZ	SW to W (200Km) moving in S'ly direction at speed of 50kmph	--	TS/Rain	KNP,KNJ, Farrukhabad MNP

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
Kolkata	28.06.17	0111-0931	1. Single isolated cell developed in to multi cell system with maximum reflectivity of 57.5 dBz at 0321 UTC and maximum height of 14.4 km at 0401 UTC.	Formation started at 0111 UTC in NW/21 km from Radar, moving in NW –ly direction with a speed of 31 kmph	Single isolated cell developed at 0111 UTC in NW/21 km from Radar. Converted to multi celled system. Matured. Dissipated at 0551 UTC in NW /129 km from Radar.	Thunderstorm / Rain	N/A
			2. Single isolated cell developed in to multi cell system with maximum reflectivity of 55.5 dBz at 0221 UTC and maximum height of 14.6 km at 0221 UTC.	Formation started at 0131 UTC in SE/93 km from Radar, moving in NNW –ly direction with a speed of 38.9 kmph	Single isolated cell developed at 0131 UTC in NW/21 km from Radar. Converted to multi celled system. Matured. Dissipated at 0621 UTC in NNE /66 km from Radar.	Squall / Thunderstorm / Rain	N/A
			3. Small multi celled system with maximum reflectivity of 57.5 dBz at 0711 UTC and maximum height of 17.6 km at 0801 UTC.	NNE/63 km from Radar, moving in WNW –ly direction with a speed of 52 kmph	Small multi celled system developed at 0601 UTC in NNE/63 km from Radar. Matured. Dissipated at 0931 UTC in NW /193 km from Radar.	Thunderstorm / Rain	N/A
		0941-2359	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL
	29.06.17	0000-0300	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL



+ thunderstorm



+ heavy thunderstorm



sandstorm or dust storm



squall

www.visualdictionaryonline.com



hail shower



tropical storm



+ tornado



+ lightning



+ hurricane

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

Weather Symbols