



India Meteorological Department
FDP STORM Bulletin No.115 (28-06-2017)

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, entire West Uttar Pradesh, Haryana, Chandigarh & Delhi, Punjab, Uttarakhand, Himachal Pradesh, Jammu & Kashmir and most parts of Rajasthan during next 48 hours.

The upper air cyclonic circulation over north Odisha and adjoining Jharkhand persists and now extends upto 4.5 km above mean sea level.

The trough at mean sea level from West Rajasthan to east central Bay of Bengal now lies over West Rajasthan to west central Bay across north Madhya Pradesh, Chhattisgarh and Jharkhand and extends upto 1.5 km above mean sea level.

The east west shear zone now runs roughly along 21.0°N between 3.1 km and 3.6 km above mean sea level.

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

Under the influence of the upper air cyclonic circulation over coastal areas of Saurashtra & Neighbourhood, a low pressure area has formed over Saurashtra & Kutch and adjoining northeast Arabian Sea. Associated upper air cyclonic circulation extends upto 4.5 km above mean sea level.

The upper air cyclonic circulation over south Gujarat region & neighbourhood between 1.5 and 3.1 km above mean sea level has merged with above system.

The upper air cyclonic circulation over east Assam & neighbourhood persists and now seen at 1.5 km above mean sea level.

The western disturbance as a trough in mid tropospheric westerlies with its axis at 5.8 km above mean sea level roughly along Long 66.0°E and north of Lat. 28.0 °N persists.

SATELLITE OBSERVATIONS during past 24hrs and current observation:

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

Westerly Trough:

Trough in westerlies runs roughly along long 66.0E north of lat 28.0N

Convective Activity:

Cell No	Date/time (UTC)	Location/Area	MIN CTT (-DEG C)	Movement	Remarks
2	28/0000	N RAJ	51	-	-
3	28/0000 0100 0200 0300	HARY DLH HARY DEL ADJ W UP E PJB S HP W UTRKND DO DO	91 93 86 93	-	SEPARATE FROM CELL NO. 2

Cloud Description:

Scattered low/medium clouds with embedded intense to very intense convection were seen over Haryana, Delhi, Southwest Uttar Pradesh, North Chhattisgarh, North Odisha, Jharkhand, Gangetic West Bengal and NE states.

Scattered low/medium clouds with embedded moderate to intense convection were seen over rest East India.

Broken low/medium clouds with embedded moderate to intense convection were seen over J & K, Punjab, Uttarakhand, Northwest Uttar Pradesh, Konkan, Coastal Andhra Pradesh, Lakshadweep and Bay Islands.

Broken low/medium clouds with embedded intense to very intense convection were seen over East Madhya Pradesh and Exterior North Madhya Pradesh adjoining Rajasthan.

Scattered low/medium clouds were seen over rest Uttar Pradesh, Gujarat and rest Rajasthan.

Scattered low/medium clouds with embedded isolated weak to moderate convection were seen over rest West India.

Broken low/medium clouds with embedded isolated weak to moderate convection were seen over rest South India.

Arabian Sea:

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

Bay of Bengal & Andaman Sea:

Broken low/medium clouds with embedded intense were seen over EC WC & NW Bay.

Scattered low/medium clouds with embedded moderate to intense convection were seen over rest Bay and Andaman Sea.

Past Weather:**Convection:-**

Moderate to Intense convection was observed HARY,HP,UTRKND,SW J&K, PJB, W UP,RAJ, MP.CHTGH, N BHR, N COTL AP COTL ORS SHWB BAY IDS LKSDWP.

OLR:-

Upto **200** wm^{-2} was observed over J&K, HP, PJB, HARY, DEL, UTRKND, E MP, N COTL, COTL ORS SHWB ASSAM.

Upto **280** wm^{-2} was observed over RAJ,GUJ,REST MP, MAHA, KRNTK, KER, TN, REST AP, UP, BHR,JHRKND, NAGA,MANI,MIZO.

Westerly Trough & Jet-Stream:-

Trough in Westerlies runs roughly along Longitude 66.0E North of Latitude 30.0N & 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.

Positive shear tendency is observed over India.

Precipitation:

IMR:

Rainfall between **90-130** mm was observed over C ADJ SE RAJ, NORTH CHTGH and NORTH HARY.

Rainfall between **50-90** mm was observed over SW J&K W UP REST RAJ, REST HARY, S HP. E PJB, EAST MP NC AP COTL ORS TLNGN N VID(.) Rainfall up to **50** mm was observed over rest J&K, REST PJB, REST MAHA, REST AP, KER, NE STATES.

HEM:

Rainfall from **27.8-138.9** mm was observed over C ADJ S RAJ, MP, N CHTGH, KER COTL KRNTK, HARY ADJ PJB, S HARY ADJ W UP, NAGA E MANI E MEGHA WEST AUSTRALIA ASSAM. S SKM, SHWB.

Rainfall from **0.1 -14** mm was observed over REST HP,UTRKND,TN REST KRNTK, GUJ ,AP MAHA REST NE STATES.

RADAR and RAPID Observation:

DWR Composite at 1300hrs IST indicated significant convection over West Uttarakhand, West Haryana adjoining Punjab & Rajasthan, West Uttar Pradesh, Gangetic West Bengal, South Odisha and North Coastal Andhra Pradesh.

RAPID RGB Satellite imagery at 1230hrs IST indicated significant convective clouds over J & K, Himachal Pradesh, West Haryana adjoining Punjab & Rajasthan, West Uttar Pradesh, East Madhya Pradesh, Nagaland, Gangetic West Bengal, South Odisha 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:

12UTC Charts of Day 3-4 show heat low confined to south Pakistan with MSLP values lower than 992hPa.

00 UTC Charts of Day 0-3 show a trough at mean sea level from North Rajasthan/Punjab to Odisha across Uttar Pradesh, MP, Jharkhand. In Day 4 -5 the trough is seen from Rajasthan to WB across UP, Punjab, Bihar/Jharkhand. Some isolated regions of wind discontinuity can be seen as embedded features in monsoon trough on all days.

00 UTC Charts of Day 0-5 Offshore trough off Gujarat coast embedded with a CYCIR over south Pakistan in Day 4-5.

00 UTC Charts of Day 3-5 A CYCIR over Bihar/Jharkhand is seen moving westward over UP in day 5

00 UTC Charts of Day 0-5 Western Disturbance as a trough is seen on Day 1 over J&K getting deeper in Day 2-3 (29th & 30th Jun) and interacting with the Monsoon trough.

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: Nil

Day1: Nil

Day2: Nil

Day3: Nil

Day4: Nil

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

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

Day0: Gujarat region, Saurashtra Kutch, TN Puducherry, Kerala,

Day1: Arunachal Pradesh, Assam Meghalaya, East MP, TN Puducherry, Kerala,

Day2: Arunachal Pradesh, TN Puducherry, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, TN Puducherry, Kerala,

Day4: Bihar, East UP, TN Puducherry, Kerala

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

Day0: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan, East Rajasthan, West MP, East MP,

Day1: Arunachal Pradesh, Sub Himalayan WB, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, West RAJASTHAN,

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

Day3: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan, East Rajasthan, Odisha, Chhattisgarh, Coastal AP,

Day4: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, 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, Punjab, Himachal Pradesh, Jammu Kashmir, West Rajasthan, East RAJASTHAN, West MP, East MP, Saurashtra Kutch, Madhya Maharashtra, Vidarbha, Chhattisgarh,

Day1: 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, West RAJASTHAN, East RAJASTHAN, Odisha, West MP, East MP, Saurashtra Kutch, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, TN Puducherry,

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

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, East Rajasthan, Odisha, West MP, East MP, 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, Haryana, Chandigarh, Delhi, Himachal Pradesh, Jammu Kashmir, East Rajasthan, Odisha, West MP, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, TN Puducherry, 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,

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

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, 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, Chhattisgarh, Andaman Nicobar, 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, Punjab, Himachal Pradesh, East Rajasthan, Odisha, East MP, Gujarat region, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Andaman Nicobar, 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, East Rajasthan, Odisha, West MP, East MP, Gujarat region, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Coastal AP, Coastal Karnataka, NI 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, East Rajasthan, Odisha, West MP, East MP, Gujarat region, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Coastal Karnataka, SI Karnataka, Kerala

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 to 4 days. Over some parts of Gujarat and south Rajasthan next 3 to 4 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 4.

20-40 mm rainfall Over parts of Orissa and adjoining GWB, south Jharkhand, Chhattisgarh and MP on day 1 to day 5. Over rest of Chhattisgarh and adjoining Telangana, Vidarbha and Andhra Pradesh from day 2 to day 5. Along foothills of Himalayas from day 2 to day 5.

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

1. Model Reflectivity (Max.dBz):

15-40 dBz model reflectivities 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 today . Over parts of Punjab and adjoin areas on day 1.

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.

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 2 and day 3.

CIN (50-150): Analysis shows threshold value of CIN over western India including Rajasthan and Gujarat and some pockets of central 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 on day 1 and day 2.

3. IOP ADVISORY FOR 24 and 48Hrs:

Summary and Conclusions:

Yesterday's upper air cyclonic circulation has decreased in intensity and persists in the same location over north Odisha and adjoining Jharkhand. The western disturbance as a trough in mid tropospheric westerlies also persists almost in the same location since yesterday. However, with the formation of the low pressure area over northeast Arabian Sea, moisture flow inland from the Arabian Sea branch has increased today with respect to yesterday. This is also likely to increase the rainfall over west, central and northwest India on day 1 and 2. This will be aided by the northward shift of the east west shear zone in the middle troposphere since yesterday, which now runs roughly along 21.0°N. Although the upper air cyclonic circulation over east Assam & neighbourhood persists, in view of the above two systems, rainfall is likely to decrease over Northeast India.

The offshore trough continues to be active and will bring heavy rainfall all along the North West peninsular coast of India on day 1 and 2.

24 hour Advisory for IOP:	48 hour Advisory for IOP:
<p>Rainfall:</p> <p>Kerala, Coastal Karnataka, South and North Interior Karnataka, Telangana, Konkan and Goa Gujarat, Saurashtra and Kutch Vidarbha Chhattisgarh Madhya Pradesh Odisha, Jharkhand, Bihar Sub Himalayan West Bengal, GWB West and East Uttar Pradesh, East and West Rajasthan Uttarakhand, Himachal Pradesh, Jammu and Kashmir Punjab Haryana</p> <p>Thunderstorm with associated phenomena: Himachal Pradesh, Uttrakhand, J&K</p>	<p>Rainfall:</p> <p>Coastal Karnataka Konkan and Goa, Gujarat Region, Saurashtra and Kutch Uttarakhand, Himachal Pradesh East and West Uttar Pradesh, East and West Rajasthan Punjab, Haryana Madhya Pradesh, Chhattisgarh Vidarbha, Odisha, North Coastal Andhra Pradesh</p> <p>Thunderstorm with associated phenomena: 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

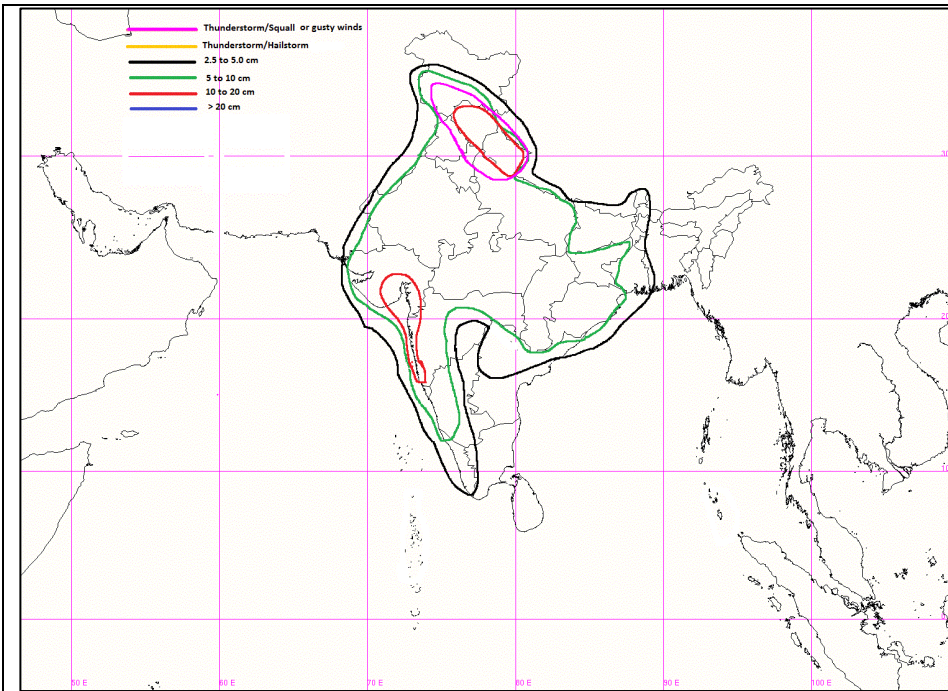
HEM: http://satellite.imd.gov.in/img/3Ddaily_he.jpg

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

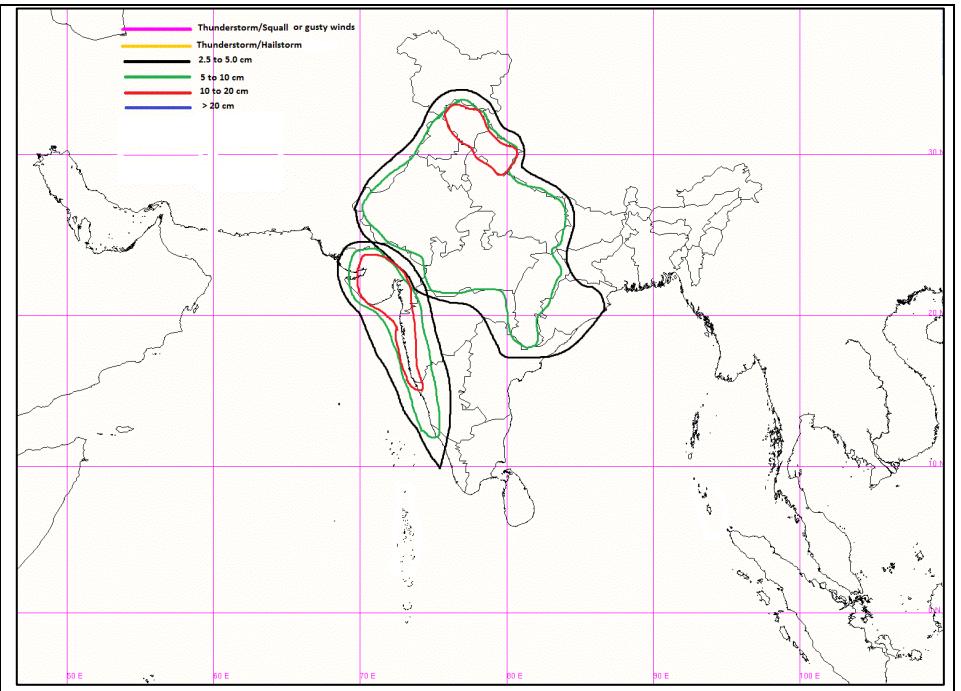
http://ddgmui.imd.gov.in/dwr_img/

Satellite sounder based T- Phigram

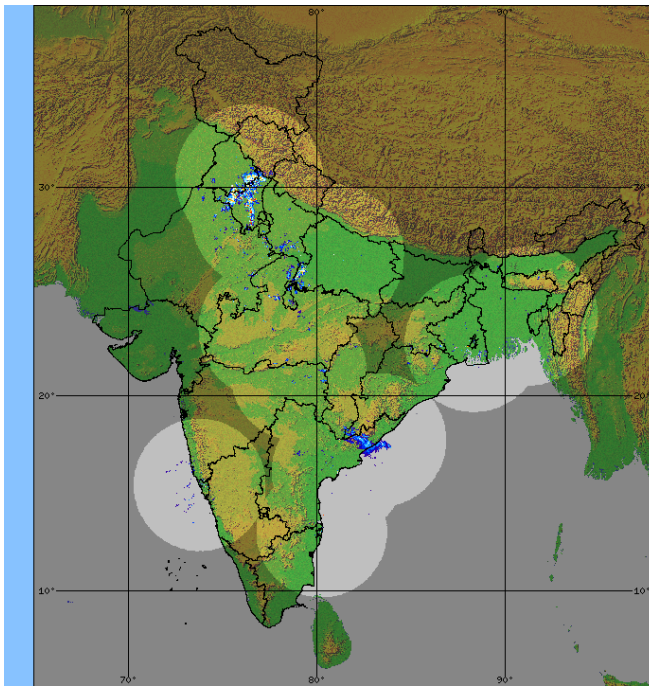
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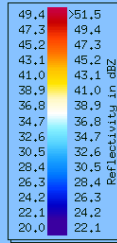
IOP Advisory for 24 hours



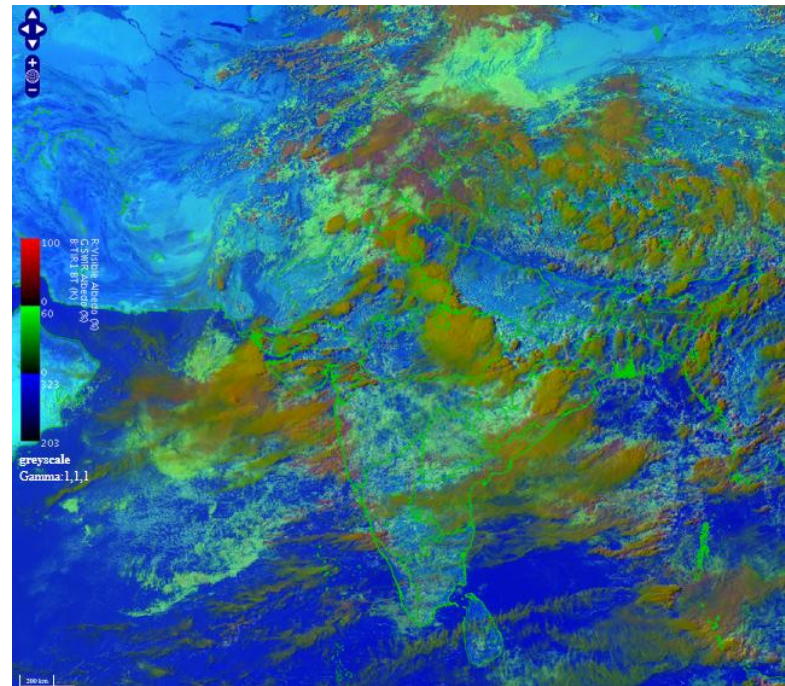
IOP Advisory for 48 hours



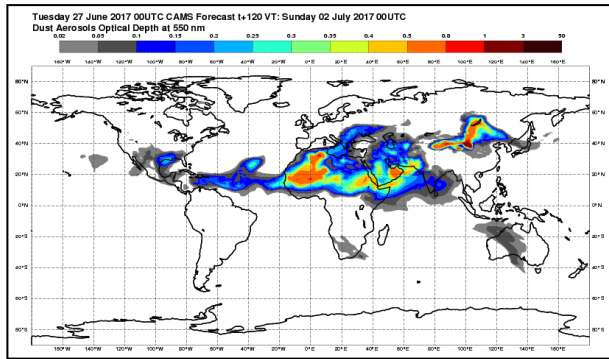
INDIA
 PPI
 COMP
 Task: IMD-C
 PRF: 300Hz
 Elevation:0.2
 Max Range:1695 km
16:20:15
28 JUN 2017 IST



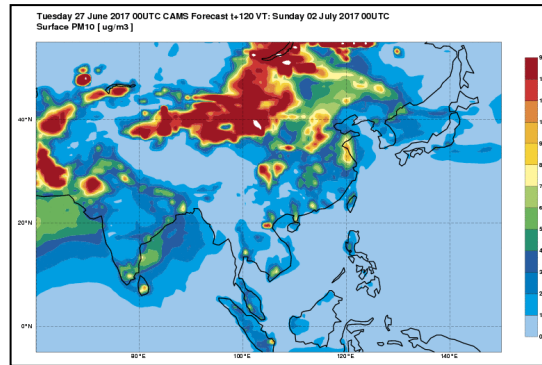
DWR composite at 1620hrs IST



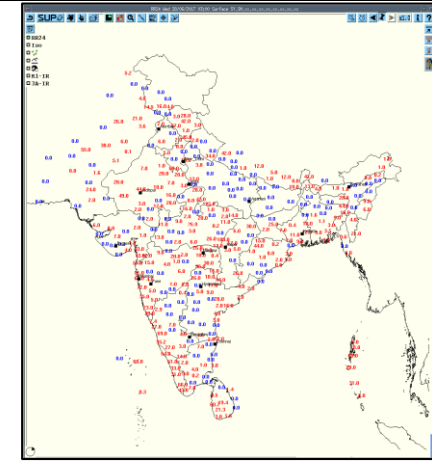
RAPID RGB Satellite Imagery at 1530 hrs IST of today



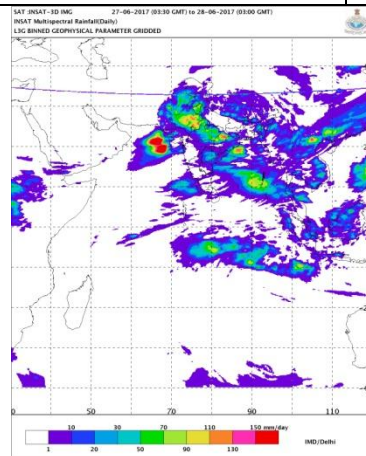
Forecast Dust Concentration for 2nd July



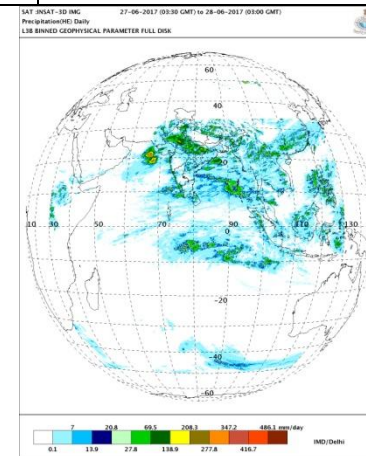
PM10 Forecast for 2nd July



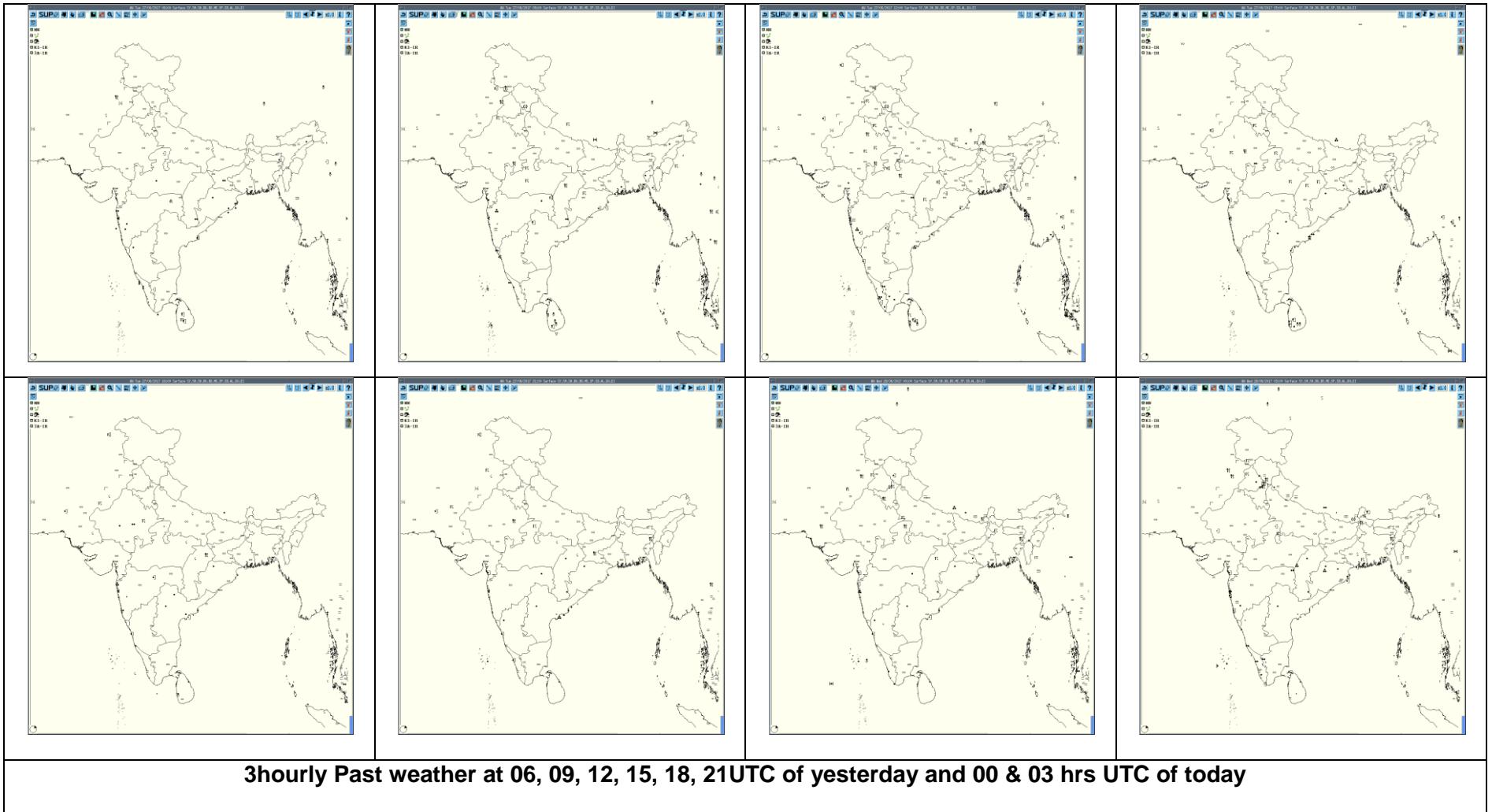
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today

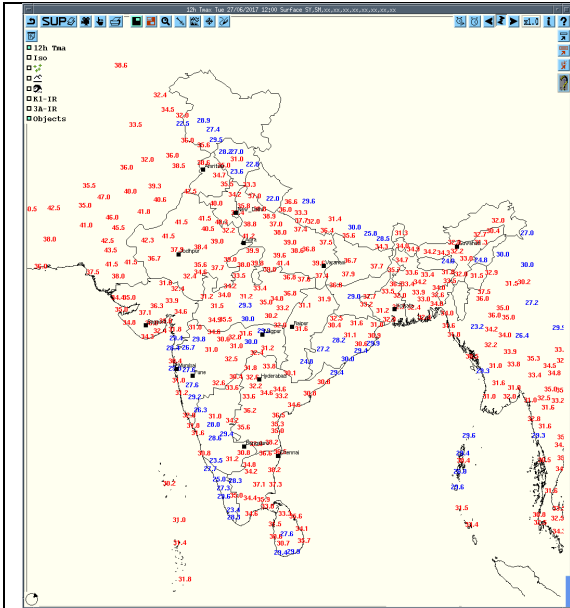


IMR Rainfall

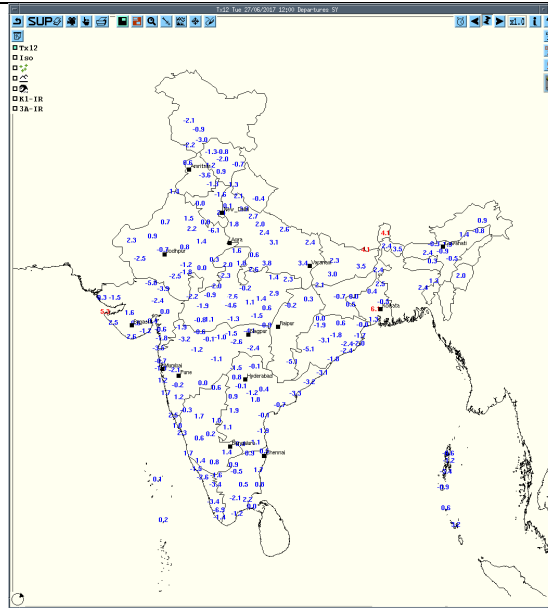


HEM Rainfall

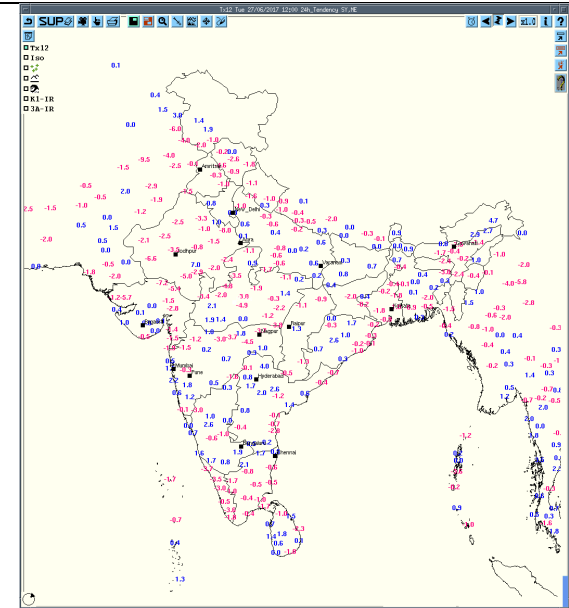




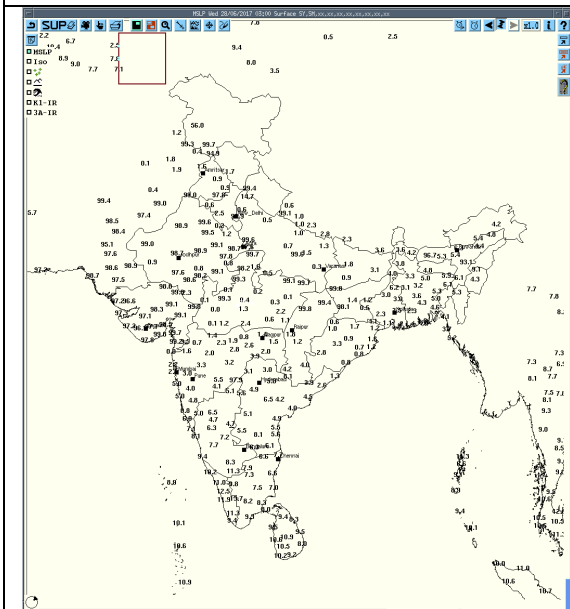
Tmax



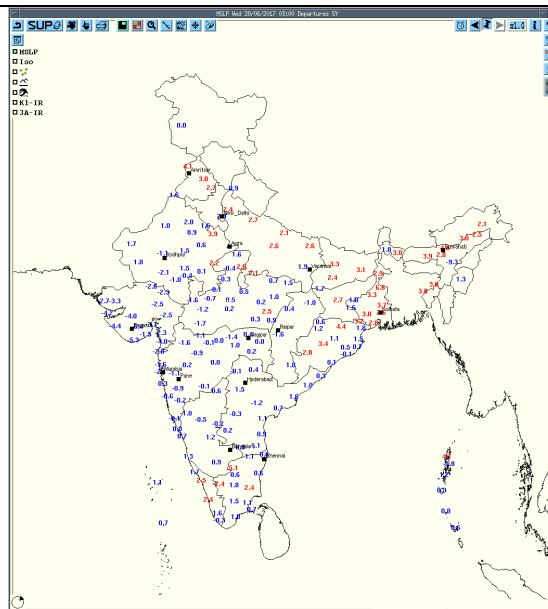
Departure Tmax



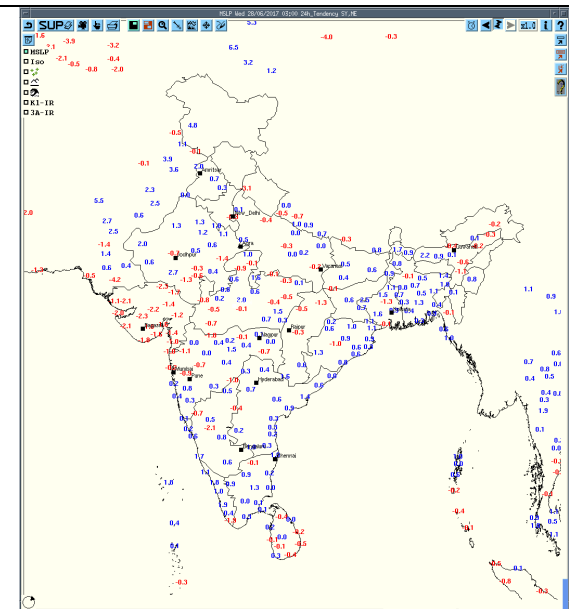
Tendency Tmax



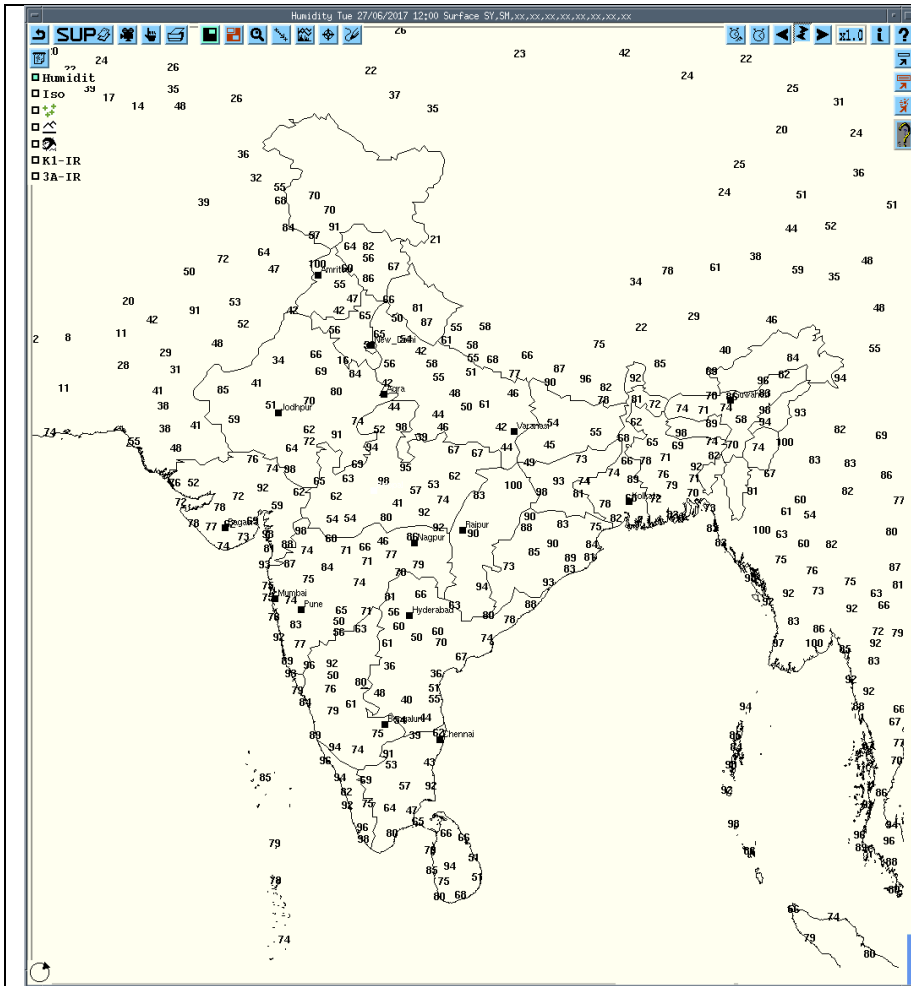
MSLP



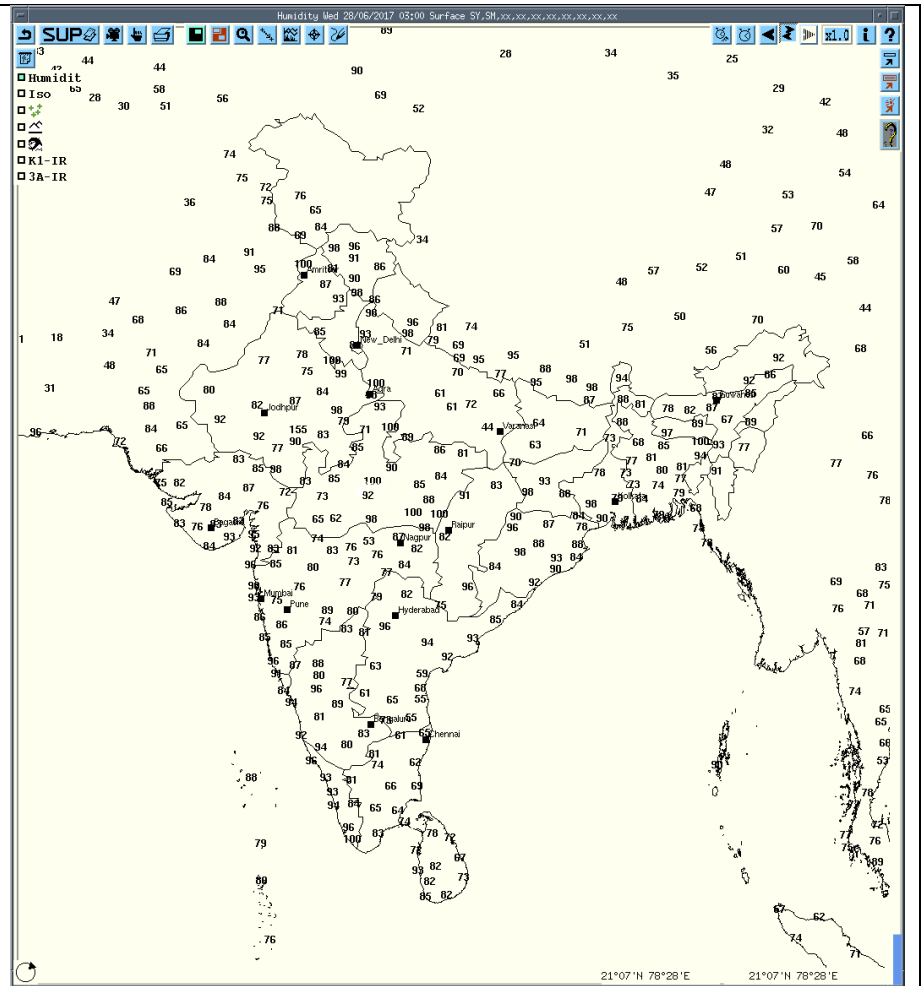
Departure MSLP



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
27-06-17	0600UTC	Nagpur	C India	Maharashtra (Vidarbha)	Thunderstorm
27-06-17	0900UTC	Katra	NW India	J & K	Thunderstorm
		Kota	NW India	Rajasthan	Thunderstorm
		Guna, Bhopal	C India	Madhya Pradesh	Thunderstorm
		Pendra Road	C India	Chhattisgarh	Thunderstorm
		Gondia	C India	Maharashtra (Vidarbha)	Thunderstorm
		Jharsuguda	E India	Odisha	Thunderstorm
27-06-17	1200UTC	Bhaderwah	NW India	J & K	Thunderstorm
		Jaipur, Kota, Churu, Ajmer	NW India	Rajasthan	Thunderstorm
		Amritsar	NW India	Punjab	Thunderstorm
		Hissar	NW India	Haryana	Thunderstorm
		Jhansi	NW India	Uttar Pradesh	Thunderstorm
		Guna, Sagar	C India	Madhya Pradesh	Thunderstorm
		Ambikapur, Raipur	C India	Chhattisgarh	Thunderstorm
27-06-17	1500UTC	Hissar	NW India	Haryana	Thunderstorm
		Jodhpur, Ajmer	NW India	Rajasthan	Thunderstorm
		Gwalior, Jabalpur	C India	Madhya Pradesh	Thunderstorm
		Ambikapur, Pendra Road	C India	Chhattisgarh	Thunderstorm
27-06-17	1800UTC	Jaipur	NW India	Rajasthan	Thunderstorm
		Ambikapur	C India	Chhattisgarh	Thunderstorm
27-06-17	2100UTC	Jaipur	NW India	Rajasthan	Thunderstorm
		Gwalior	C India	Madhya Pradesh	Thunderstorm
		Ranchi	E India	Jharkhand	Thunderstorm
28-06-17	0000UTC	Patiala/Ambala, Hissar	NW India	Punjab/Haryana	Thunderstorm
		Agra	NW India	Uttar Pradesh	Thunderstorm
		Gwalior	C India	Madhya Pradesh	Thunderstorm
		Pendra Road	C India	Chhattisgarh	Thunderstorm
28-06-17	0300UTC	Katra	NW India	J & K	Thunderstorm
		Amritsar	NW India	Punjab	Thunderstorm
		Shimla	NW India	Himachal Pradesh	Thunderstorm
		Ambala, Chandigarh	NW India	Haryana	Thunderstorm
		Bagdogra, Kolkata	E India	West Bengal	Thunderstorm

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	27/06/17	0300-0700	Multiple	27 km in S moving towards N	42.5 dbZ cloud ht.= 1-5km	<u>Thunderstorm warning</u> started at 0822 to 1142 continues mostly in NE & SW region,	Rainfall occurred in many places in the region.
		0800-1100	Multiple	45 km in N, moving in S	42.5 dbZ, cloud ht.=1.5 - 5.8 km		
		0822-1100	Multiple	60 KM IN NW moving towards S	44.5 dbZ, cloud ht= 1.1- 4.5 km		
		1842-2352	Multiple	35 km N moving N	44 dbZ, cloud ht.=1 -6 km		
	28/06/17	0002-0302	NIL				
Jaipur	28/06/17	0542- TO 0000 UTC (continue)	Multiple cell with height 12.0 km and maximum reflectivity 58.0 dBZ	Multiple cell develop from 0542 UTC of 27/06/2017 towards all the direction of Jaipur and moved W & NW Wards at speed 20-25 km/hr	Cells starts from 0542 UTC of at 27/06/2017 at all the direction of Jaipur and reaches maximum reflectivity during 0542-0000 UTC and continue	Thunderstorm/ra in at Isolated places	Rajsamand, Pali, Bhilwara, Ajmer, Tonk, Chittorgarh, Bundi, Nagaur, Churu, Sikar, Jhunjhunu, Jaipur, Dausa, Alwar, Bharatpur, Karauli, Dholpur, Sawaimadhopur, Kota, Baran
Srinagar	28/06/2017	27/ 0300 - 28/0300	1. Single cells developed in SW & Multiple cells SE direction of DWR at 0730 UTC and grew into multiple cells in SE- direction with max. Reflectivity of 50-55 dBZ and average height 6-7km. 2. Isolated cells developed in SE direction of DWR at 0950UTC and grew into multiple cells with max. reflectivity of 40-45 dBZ and average height 8 Km	Dissipated at 1110 UTC with SE direction.	Light to Moderate rain. in Katra& light Rain in Bhaderwah	Thunderstorm reported at Batote/Katra/Bhaderwah	Jammu

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
Patiala	27.06.17	27/0300 27/0600	Multiple cells cell Max dBZ=50.5 Ht.= 08-11 KMS	EAST SECTOR; MOVENENT-SW-WARD	-	TS/RA	Yamunagar, Kurukshetra, Saharanpur, Behat adjoining areas.
		27//0600 27/0900	Multiple cells cell Max dBZ=49.0 Ht.= 08-11 KMS	SW AND N SECTOR; MOVENENT-NE- WARDS.	-	TS/RA	Hoshiarpr, Elena bad adjoining areas.
		27/0900 27/1200	Multiple cells cell Max dBZ=50.5 Ht.= 08-11 KMS	NW & SW SECTOR; MOVENENT-NE- WARDS.	-	TS/RA	Tarn-Tarn, Ajnala, Amritsar, Muktsar, Talwani Sabo adjoining areas.
		27/1200 27/1500	Multiple cells cell Max dBZ=53.0 Ht.= 09-13 KMS	W - SECTOR; MOVENENT-NE- WARDS.	-	TS/RA	Malout, Muktsar, adjoining areas.
		27/1500 27/1800	Multiple cells cell Max dBZ=49.0 Ht.= 11-12 KMS	SW SECTOR; MOVENENT-NE- WARDS.	-	TS/RA	Hissar, Hansi, Maham, Siwani adjoining areas.
		27/1800 27/2100	No significant echoes	-	-	-	-
		27/2100 28/0000	Multiple cells cell Max dBZ=52.0 Ht.= 11-12 KMS	SW SECTOR; MOVENENT-W- WARDS.	-	TS/RA	Hisar, Hansi, Maham, Siwani, Panipat, Karnal, Bhiwani, Fatehabad, Dalhousie, Palampur, Bhunter, adjoining areas.
28.06.17	28/0000 28/0252	Multiple cells cell Max dBZ=52.0 Ht.= 09-12 KMS	N; & EAST SECTOR; MOVENENT- E- WARD	-	TS/RA	Panipat, Karnal, Ambala, Chandigarh, Ropart, Ludhiana, Barnala, Sangrur, Moga, Faridkot, Jalandhar, Nawanshar, Patiala adjoining areas. .	

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
Agartala	28.06.17	270722 - 271220	Multiple cells formed SW OF DWR Agartala with Maximum Height 10 km at 1050UTC and maximum reflectivity 46 dBZ at 1102 UTC .	Formed about 40 km SE of DWR Agartala and moves WWN wards with around 25 kmph	Cells dissipated at 1220 UTC 100 of WWNLY over Bangladesh.	Thunder/Rain	Agartala, West Tripura
		271012 - 271452	Multiple cells E of DWR Agartala with Maximum Height 12 km at 1112 UTC and maximum reflectivity 45 dBZ at 1232 UTC .	Formed about 75 km E of DWR Agartala at Dhalai District and moves North wards with around 40 kmph	Cells dissipated at 1442 100 km NNE at Bangladesh	Thunder/Rain	North & Dhalai District of Tripura
		271752 - 280302	Multiple cell formed with Maximum Height 13 km at 2122 UTC and maximum reflectivity 44 dBZ at 2052 UTC	Formed 100 km E of DWR Agartala. And moves North-West Wards at about 23Kmph.	Persist.	Thunder/Rain	North Tripura, Assam Mizoram & Meghalaya
Bhuj	28.06.17	270130 - 271230	Multiple cells at Ht. of 2.0 Km to 18 Km with 53 dBz Max. Z	100 KM to 200 KM E to SSW move towards NW	Observed during 09:33 UTC to 12:17 UTC	TS or TSRA	Rajkot Surendra Nagar Jamnagar Ahmedabad

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	27.06.17	0341 - 0831	1. Small isolated cells developed and merged to form multi cell system with maximum reflectivity of 56.5 dBz at 0411 UTC and maximum height of 9.59 km at 0431 UTC.	Formation started at 0341 UTC in between NNW/17.8 km and ESE /11.8 km from Radar, moving in NW-ly direction.	Small isolated cells developed at 0341 UTC in between NNW/17.8 km and ESE /11.8 km from Radar, Matured. Dissipated at 0601 UTC in NW at a distance of 82.6 km from Radar.	Thunderstorm/ Rain	N/A
			2. Small isolated cells developed and merged to form multi cell system with maximum reflectivity of 56.5 dBz at 0351 UTC and maximum height of 8.78 km at 0421 UTC.	Formation started at 0341 UTC in between SE/31 km and ESE /41.1 km from Radar, moving in NW -ly direction.	Small isolated cells developed at 0341 UTC in between SE/31 km and ESE /41.1 km from Radar, Matured. Dissipated at 0531 UTC in N at a distance of 25 km from Radar.	Thunderstorm/ Rain	N/A
			3. Small isolated cells developed and merged to form multi cell system with maximum reflectivity of 58.0 dBz at 0651 UTC and maximum height of 17.7 km at 0651 UTC.	Formation started in between SSW/62 km and SSW /43 km from Radar, moving in WNW -ly direction with a speed of 39 kmph	Small isolated cells developed between 0401 UTC to 0451 UTC in between SSW/62 km and SSW /43 km from Radar, Converted to multi celled system. Not matured. Dissipated at 0831 UTC in W at a distance of 172 km from Radar.	Thunderstorm/ Rain	N/A
		0831 - 2351	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL
	28.06.17	0001 - 0101	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL
		0111- 0301	1. Single isolated cell developed in to multi cell system with maximum reflectivity of 56.5 dBz at 0231 UTC and maximum height of 11.0 km at 0211 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. Active at 0301 UTC.	Thunderstorm / Rain	N/A
		2. Single isolated cell developed in to multi cell system with maximum reflectivity of 55.5 dBz C and maximum height of 14.6 km at 0221 UTC.	Formation started at 0111 UTC in SE/93 km from Radar, moving in NNW -ly direction with a speed of 38.9 kmph	Single isolated cell developed at 0111 UTC in NW/21 km from Radar. Converted to multi celled system. Matured. Active at 0301 UTC.	Squall / Thunderstorm / Rain	N/A	



+ thunderstorm



+ heavy thunderstorm



sandstorm or dust storm



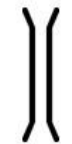
squall



hail shower



tropical storm



+ tornado



+ lightning

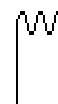


+ hurricane

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haze



smoke



dust or sand storm



fog



drizzle



rain



snow



showers



hail



thunderstorm

Weather Symbols