



India Meteorological Department
FDP STORM Bulletin No.105 (18-06-2017)

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, remaining parts of Odisha, some more parts of Jharkhand and Bihar during next 2-3 days.

The upper air cyclonic circulation over Bangladesh & neighbourhood now lies over eastern parts of Assam & neighbourhood and extends upto 0.9 km above mean sea level.

The trough at mean sea level from northwest Rajasthan to Manipur, now runs from Punjab to Manipur across Haryana, Uttar Pradesh, Bihar and northern parts of Gangetic West Bengal however the embedded cyclonic circulation over southwest Uttar Pradesh & neighbourhood extending upto 1.5 km above mean sea level has become less marked.

The east-west shear zone roughly along latitude 17.0°N persists and now seen at 3.1 km above mean sea level. The off shore trough from south Maharashtra coast to Kerala coast, now runs as a feeble trough from south Maharashtra coast to north Kerala coast.

The upper air cyclonic circulation over Haryana & neighbourhood persists and now extends upto 1.5 km above mean sea level.

An upper air cyclonic circulation lies over southwest Rajasthan & neighbourhood between 2.1 & 3.1km above mean sea level.

An upper air cyclonic circulation lies over south Konkan & adjoining Madhya Maharashtra between 3.6 & 4.5 km above mean sea level.

A western disturbance as an upper air cyclonic circulation lies over northeast Afghanistan & adjoining north Pakistan between 3.1 & 3.6 km above mean sea level.

The north-south trough from Sub Himalayan West Bengal & Sikkim to north Bay of Bengal between 2.1 & 3.1 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	18/0300	S Haryana, Delhi	49	--	Developing

Cloud Description:

Broken low/medium clouds with embedded moderate to intense convection were seen over Bhutan, W & SE Assam, Meghalaya, Manipur, S Mizoram, S Tripura and Coastal Andhra Pradesh. Scattered low/medium clouds with embedded moderate to intense convection were seen over Haryana & Delhi. Scattered low/medium clouds with embedded weak to moderate convection seen over rest NE states, Chhattisgarh, Jharkhand and S Gangetic West Bengal. Scattered low/medium clouds were seen over West India and rest parts of North India, East India & South India.

Arabian Sea:

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

Bay of Bengal & Andaman Sea:

Scattered low/medium clouds with embedded moderate to intense convection seen over WC & EC Bay and S Arakan coast. Scattered low/medium clouds with embedded weak to moderate convection were seen over Andaman Sea.

Past Weather:**Convection:-**

Intense convection was observed over GWB Bangla Desh Assam Meghalaya N rajasthan adjoining Panjab Haryana coastal Andhra Pradesh.

Light to moderate convection was observed over rest northern parts . east cost and rest NE states of the country .

OLR:-

Upto **100** wm^{-2} was observed over S Assam extreme E adjoining Bangla Desh .

Upto **200** wm^{-2} was observed over C Assam Manipur N Mizoram E Bangla Desh S GWB S Haryana .

Upto **230** wm^{-2} was observed over S J&K Himachal Pradesh N Uttarakhand rest Panjab rest Haryana S Maharashtra Karnataka Andhra Pradesh Kerala S Chhattisgarh Jharkhand rest GWB and 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.

No significant Positive Vorticity field is observed over the country .

Negative low level convergence is observed over Uttar Pradesh Bihar and Positive low level convergence observed over rest parts of India.

Precipitation:**IMR:**

Rainfall from **110 to 150** mm was observed over S Assam adjoining extreme SW Meghalaya and central Bangla Desh.

Rainfall from **30 to 110** mm was observed over central GWB West

Rainfall Up to **30** mm was observed over extreme SW Punjab NW Rajasthan adjoining Haryana and central parts of coastal Andhra Pradesh and E Jharkhand.

Rainfall Up to **10** Maharashtra Karnataka Andhra Pradesh central Kerala rest Jharkhand and NE States .

HEM:.

Rainfall Up to **416** mm was observed over extreme E Meghalaya .

Rainfall Up to **139** mm was observed over central GWB E & S Bangla Desh Konkan & Goa S Marathwada S interior Karnataka .

Rainfall Up to **14 mm** was observed over rest Maharashtra rest Karnataka Andhra Pradesh rest GWB and NE States

RADAR and RAPID Observation:

DWR composite at 1213hrs IST indicated isolated convection over Bihar, N Madhya Pradesh, N Coastal Andhra Pradesh adjoining Odisha, extreme SE Gangetic West Bengal and Bangladesh.

RAPID RGB Satellite imagery at 1200hrs IST indicated convective clouds over S Assam adjoining Manipur, Mizoram, Telangana and over the area indicated in DWR composite.

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

Dust concentration was observed over northern Africa and some parts of eastern Asia. Dust concentration is expected to decrease over western and northern India for next five days.

High PM10 concentration was observed over north-western and northern India. PM10 concentration is expected to increase over northern India for next five days.

Particulate matter concentration expected to remain in moderate category for next 2 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 1-4 show a trough at mean sea level from North Rajasthan to NE States across Uttar Pradesh, Bihar

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: A trough is seen from Bihar to AP coast across Odisha coast. Trough persists in Day 2-4 from Bihar to 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, NE NMMT,

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: Arunachal Pradesh, Assam Meghalaya, TN Puducherry,

Day1: Himachal Pradesh, TN Puducherry,

Day2: Assam Meghalaya, TN Puducherry, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Uttarakhand, TN Puducherry, Kerala,

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

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

Day2: Arunachal Pradesh, Assam Meghalaya, 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, 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,

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,

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, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Guj Reg, Saurashtra Kutch, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, 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, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Rayalseema, TN Puducherry, SI Karnataka,

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, East RJ, Odisha, West MP, East MP, Guj Reg, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Telangana, 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, East RJ, Odisha, West MP, East MP, Guj Reg, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, 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, Madhya Maharashtra, Marathwada, 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, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ,

Day1: Arunachal Pradesh, Sub Himalayan WB, Uttarakhand, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, Guj Reg,

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

Day4: Arunachal Pradesh, Sub Himalayan WB, East UP, West UP, Uttarakhand, Hry Chd Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East 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, Uttarakhand, Konkan Goa, Coastal AP, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

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

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, Odisha, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Coastal Karnataka, SI Karnataka, Kerala,

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

Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Hry Chd Delhi, Punjab, Jammu Kashmir, Guj Reg, Konkan Goa, Madhya Maharashtra, 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:

The presence of the cyclonic circulation over eastern parts of Assam & neighbourhood and extends upto 0.9 km above mean sea level is expected to cause heavy rainfall over northeast region in the coming 48 hours.

The east-west shear zone in the middle troposphere is persisting along latitude 17.0°N, which will cause thunderstorms over central India on day 1 and 2; however the area will be less on day 2 compared to day 1.

An upper air cyclonic circulation lies over south Konkan & adjoining Madhya Maharashtra between 3.6 & 4.5 km above mean sea level. In association with this system heavy rainfall is expected on day 1 and 2 over south Konkan and Goa.

The trough at mean sea level from Punjab to Manipur across Haryana, Uttar Pradesh, Bihar and northern parts of Gangetic West Bengal together with the upper air cyclonic circulation over Haryana & neighbourhood, thunderstorms are expected to form over entire North India on day 1 and 2. The thunderstorms over Haryana, Punjab, Uttarakhand and HP are expected to cause hailstorms on day 2.

24 hour Advisory for IOP:

Rainfall:

Assam, Meghalaya,
Mizoram and Tripura
Sub Himalayan West Bengal & Sikkim
South Konkan and Goa

Thunderstorm with associated phenomena:

Himachal Pradesh, Uttarakhand,
Punjab, Haryana, East Uttar Pradesh, Bihar,
Madhya Maharashtra, Marathawada
Madhya Pradesh, Vidarbha, Chhattisgarh

48 hour Advisory for IOP:

Rainfall:

South Konkan and Goa
Assam & Meghalaya, Nagaland & Tripura
Arunachal Pradesh
South Odisha, Sub Himalayan West Bengal & Sikkim
Uttar Pradesh, Uttarakhand

Thunderstorm with associated phenomena:

Jammu & Kashmir, Himachal Pradesh, Uttarakhand,
Punjab, Haryana, East Rajasthan
Jharkhand, Vidarbha

For NCMRWF NWP products:(<http://www.ncmrwf.gov.in/HomePage/NEPS-prod-1.php>)

For IMD NWP products:(http://nwp.imd.gov.in/diagpro_new.php)

For Synoptic plotted data and charts

<http://amssdelhi.gov.in/>

<http://www.amsskolkata.gov.in/>

For RAPID tool:

<http://rapid.imd.gov.in/>

Low Level Winds

http://satellite.imd.gov.in/archive/INSAT-3D-IMAGER/3D-PRODUCTS/AMV/LLW/MAR_2017/?C=M;O=D

Upper level winds

http://satellite.imd.gov.in/archive/INSAT-3D-IMAGER/3D-PRODUCTS/AMV/HLW/MAR_2017/?C=M;O=D

Past24hourHEMandIMRrainfall(upto03UTCoftoday)

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

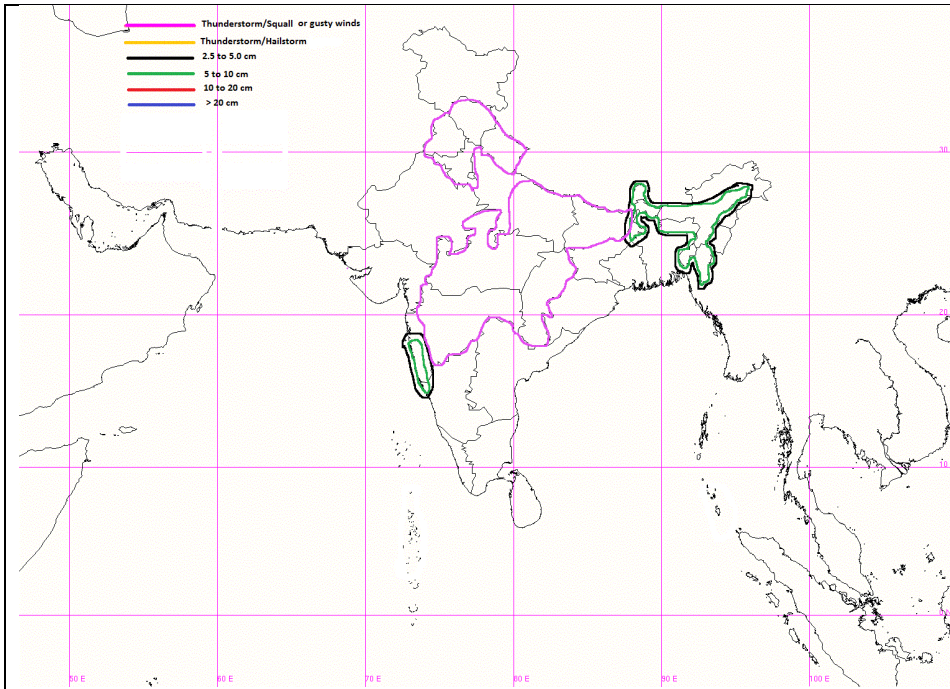
HEM: http://satellite.imd.gov.in/img/3Ddaily_he.jpg

ForRadarimagesofthepast24hoursincludingmosaicofimages:

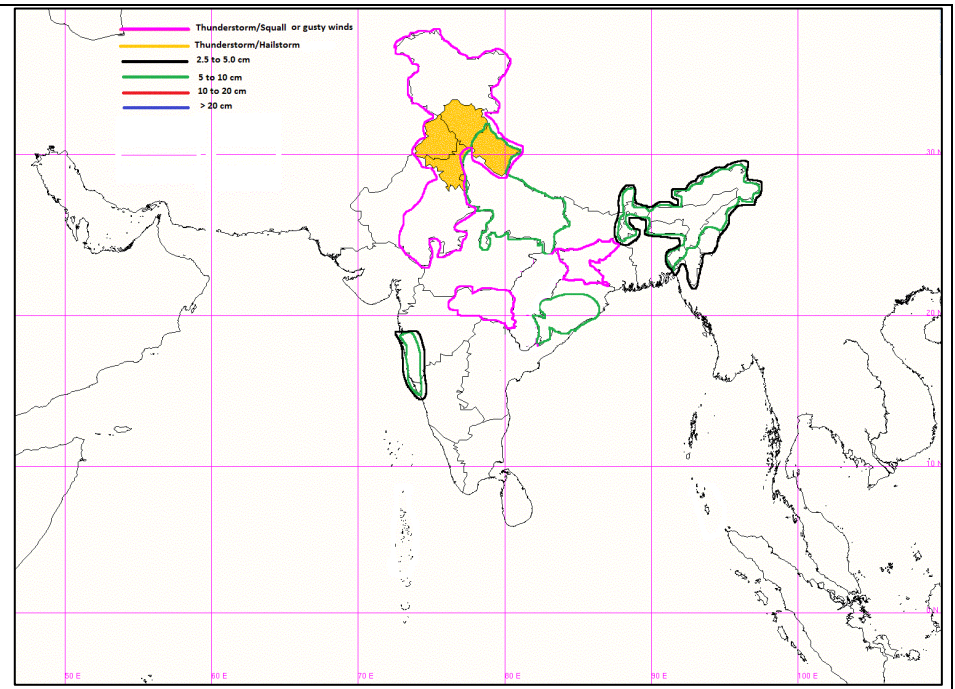
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Satellite sounder based T- Phigram

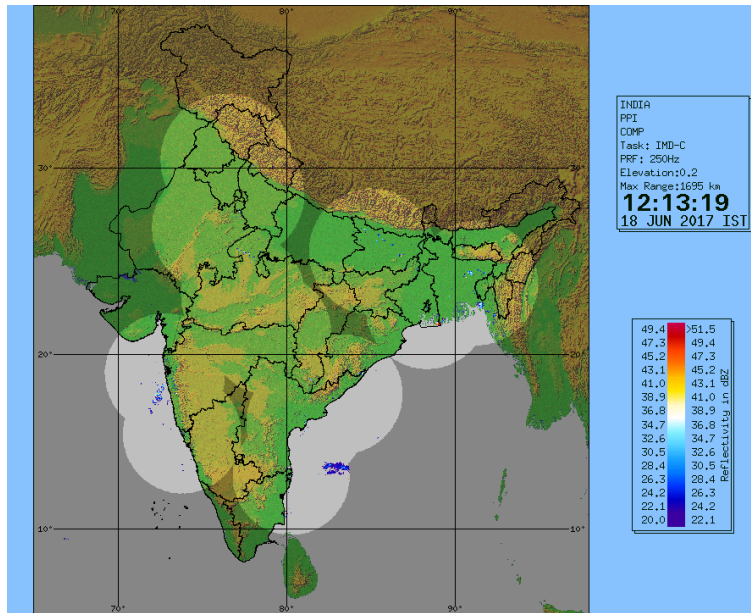
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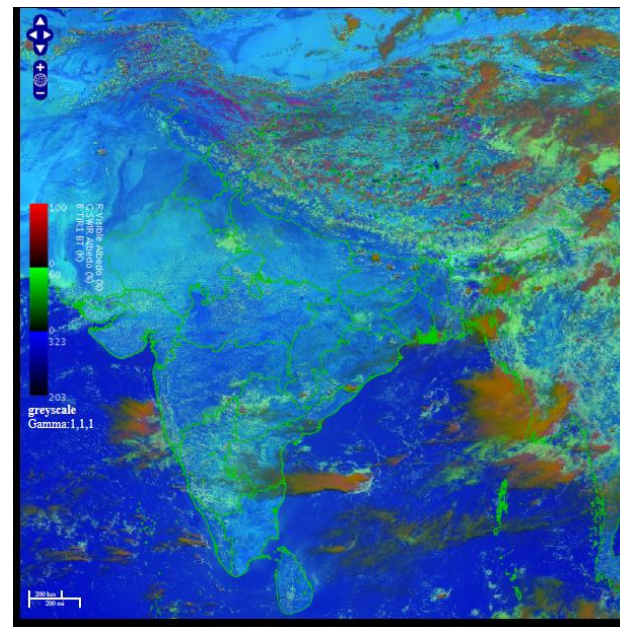
IOP Advisory for 24 hours



IOP Advisory for 48 hours

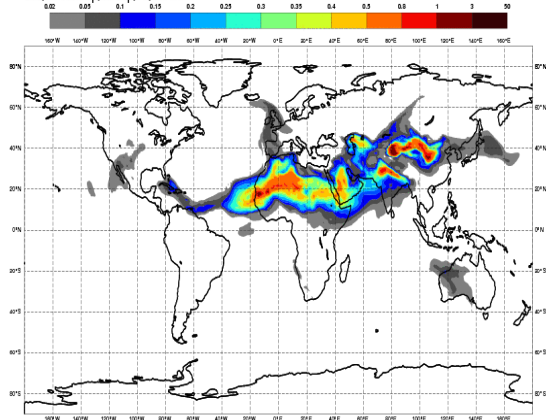


DWR Composite at 1213 hrs IST



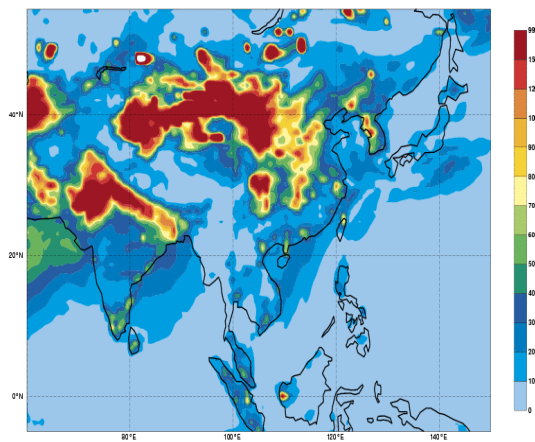
RAPID RGB Satellite Imagery at 1200 hrs IST of today

Saturday 17 June 2017 00UTC CAMS Forecast (+120 VT: Thursday 22 June 2017 00UTC
Dust Aerosols Optical Depth at 550 nm

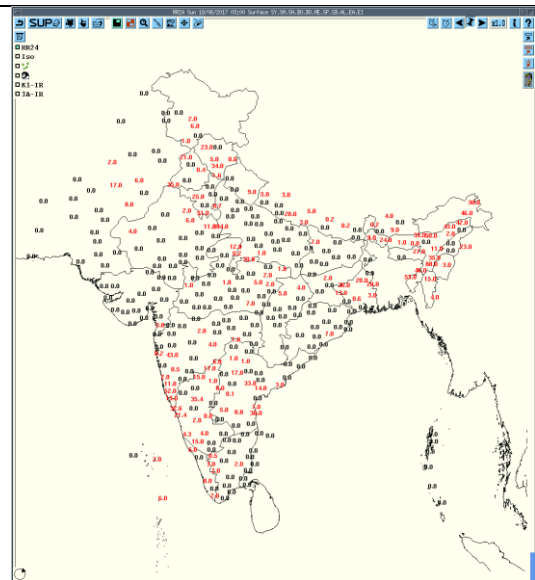


Forecast Dust Concentration for 00UTC of 22nd June

Saturday 17 June 2017 00UTC CAMS Forecast (+120 VT: Thursday 22 June 2017 00UTC
Surface PM10 [$\mu\text{g}/\text{m}^3$]

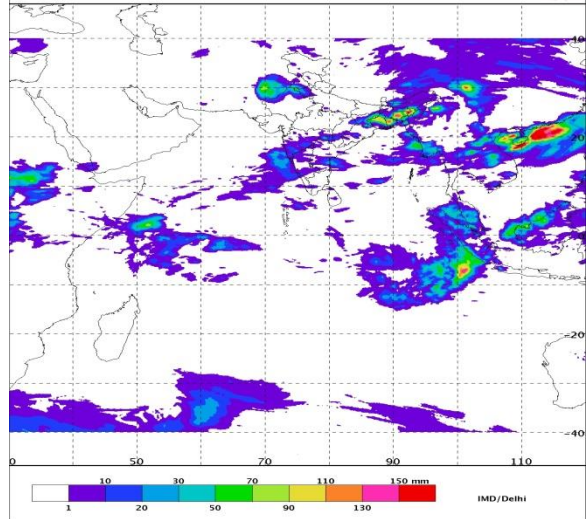


PM10 Forecast for 00UTC of 22nd June



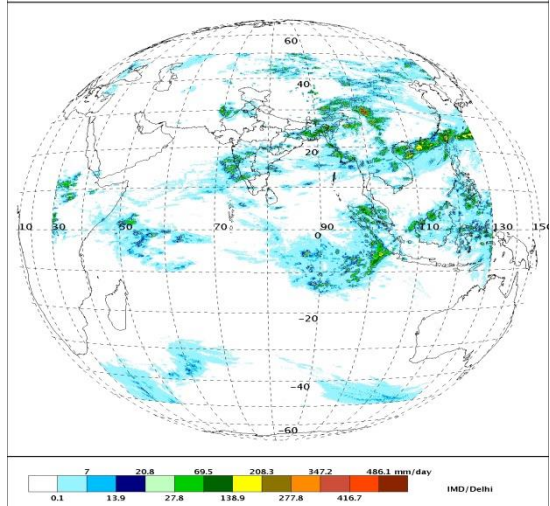
Accumulated 24 Hour rainfall (in red) recorded at 0300UTC of today

SAT:INSAT-3D IMG
INSAT Multispectral Rainfall(Daily)
L3G BINNED GEOPHYSICAL PARAMETER GRIDDED

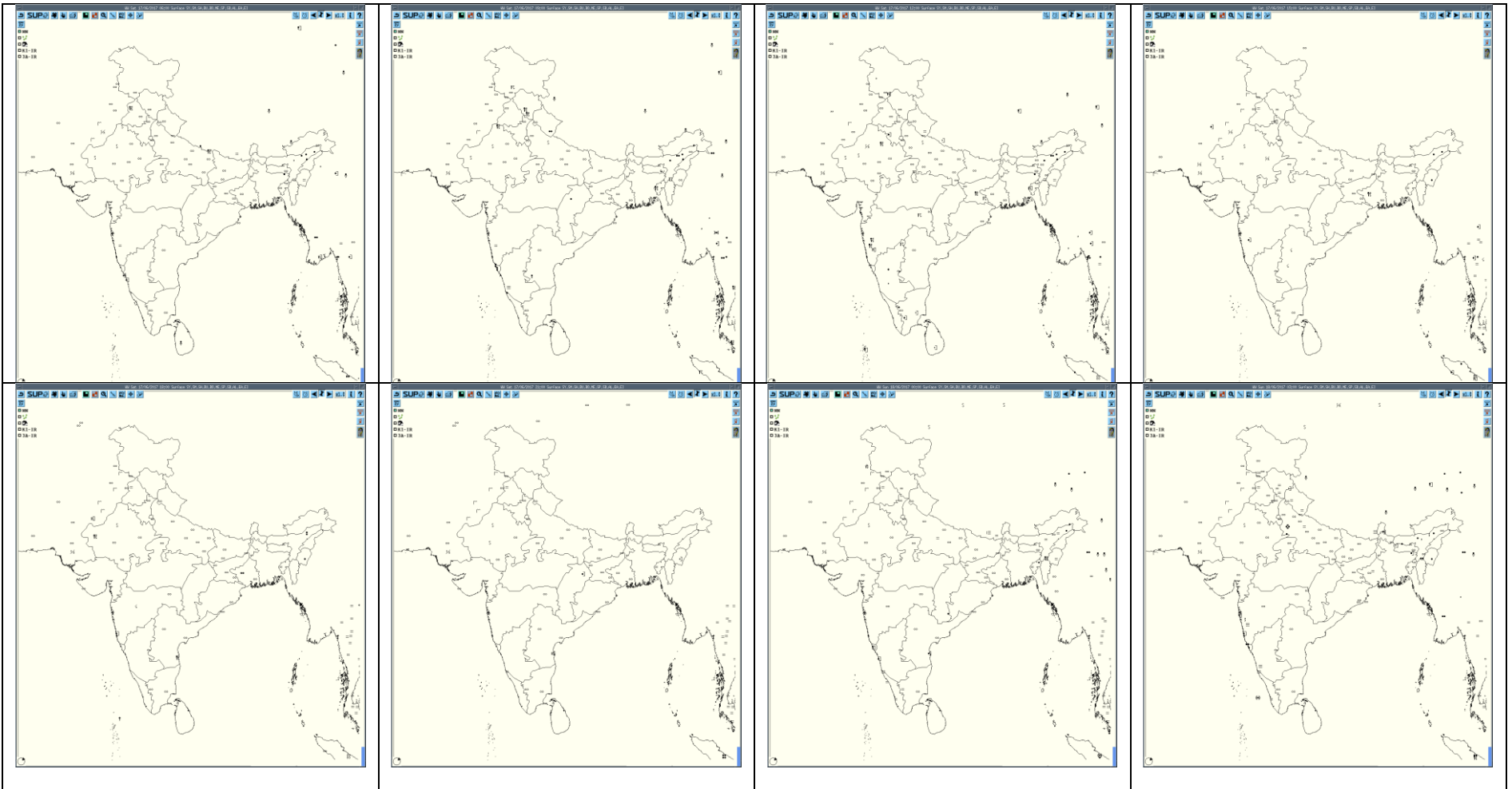


IMR Rainfall

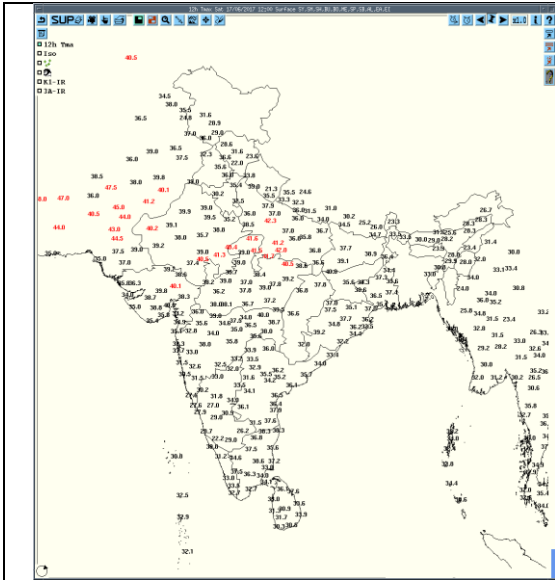
SAT:INSAT-3D IMG
Precipitation(HE) Daily
L3B BINNED GEOPHYSICAL PARAMETER FULL DISK



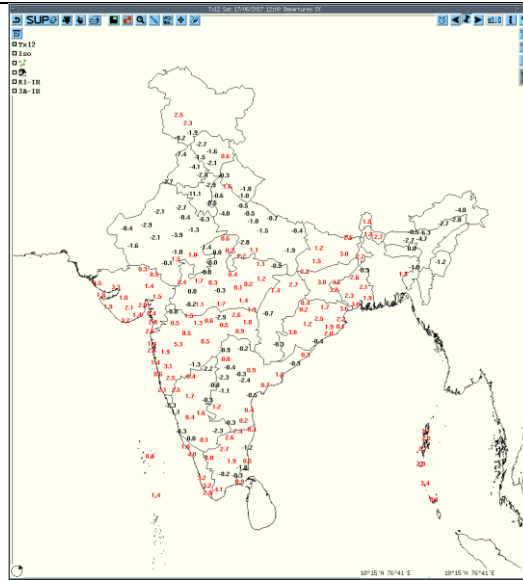
HEM Rainfall



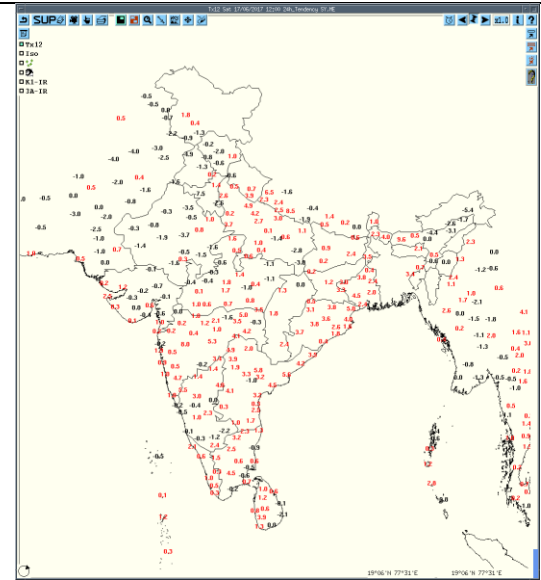
3hourly Past weather at 06, 09, 12, 15, 18, 21UTC of yesterday and 00 & 03 hrs UTC of today



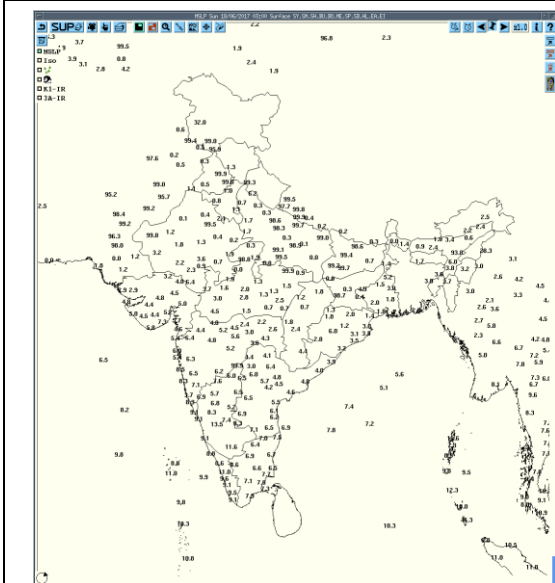
Tmax



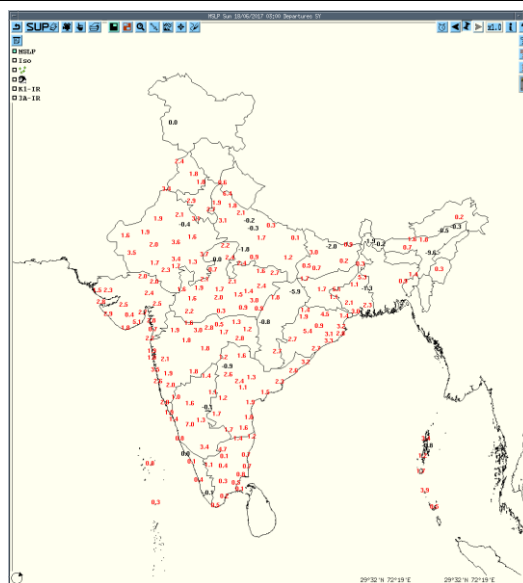
Departure Tmax



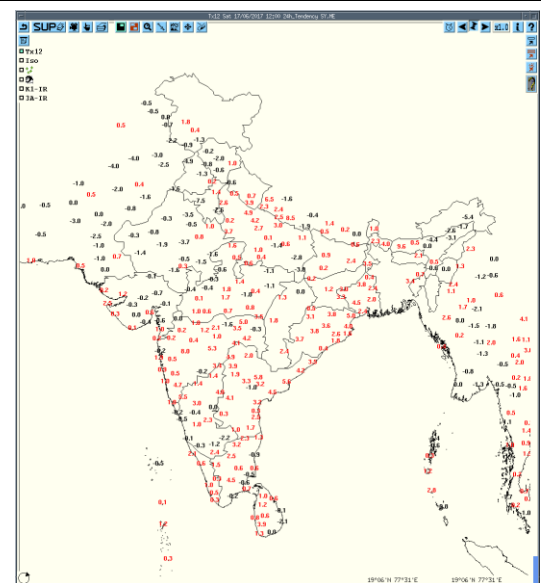
Tendency Tmax



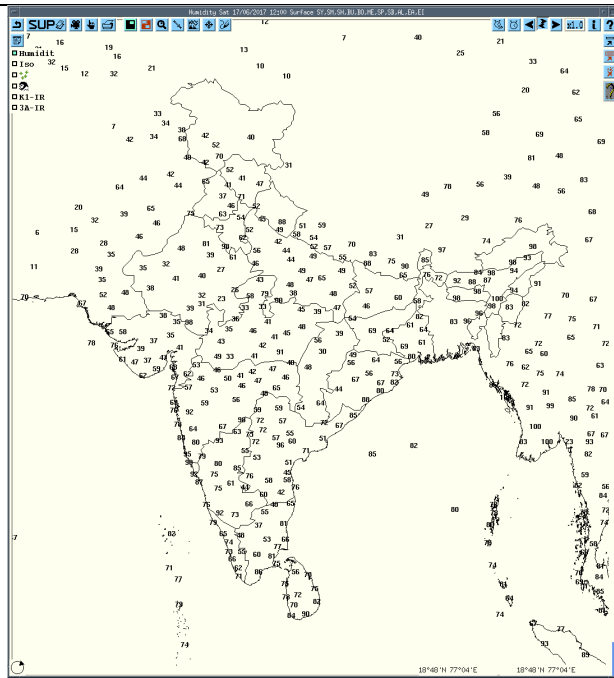
MSLP



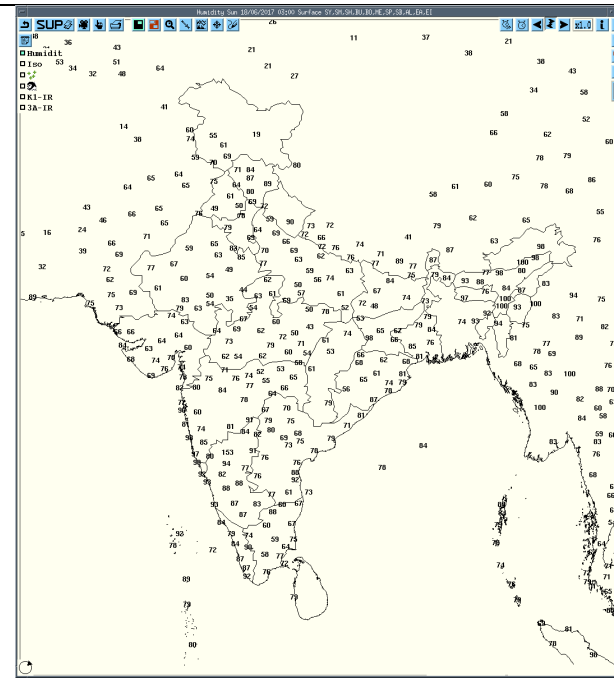
Departure MSLP



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
17-06-17	0600UTC	Amritsar	NW India	Punjab	Thunderstorm
17-06-17	0900UTC	Kukernag	NW India	J & K	Thunderstorm
		Shimla, Sundernagar	NW India	Himachal Pradesh	Thunderstorm
		Ganganagar	NW India	Rajasthan	Thunderstorm
		Agartala	NE India	Tripura	Thunderstorm
		Silchar	NE India	Assam	Thunderstorm
17-06-17	1200UTC	Bhaderwah	NW India	J & K	Thunderstorm
		Churu	NW India	Rajasthan	Thunderstorm
		Ranchi, Jamshedpur	E India	Jharkhand	Thunderstorm
		Agartala	NE India	Tripura	Thunderstorm
		Pune, Mahableshwar, Satara, Nagpur, Udgir	W India	Maharashtra	Thunderstorm
17-06-17	1500UTC	Ambala	NW India	Haryana	Thunderstorm
		Bankura	E India	West Bengal	Thunderstorm
		Hyderabad	S India	Telangana	Lightening
		Kurnool, Bapatla	S India	Andhra Pradesh	Lightening
17-06-17	1800UTC	Jaisalmer	NW India	Rajasthan	Thunderstorm
		Nellore	S India	Andhra Pradesh	Thunderstorm
		Aurangabad	W India	Maharashtra	Thunderstorm
17-06-17	2100UTC	Kavali	S India	Andhra Pradesh	Thunderstorm
18-06-17	0000UTC	Silchar	NE India	Assam	Thunderstorm
18-06-17	0300UTC	Nil	--	--	--

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
Nagpur	18-06-17	170742-171412	Multiple	200 km S, moving SE'ly	41.50 dbZ & clod ht.= 5.5-8 km	.	
		170742-171302	Multiple	80-120 km NE, moving SE'ly	44 dbZ & cloud ht.=2-4.7 km		
		170742-171212	Multiple	220 km SW, moving SE'ly	43 dbZ & cloud ht.=5.5-6.3 km		
		170842-171712	Multiple	70-150 km WWN, moving SE'ly	51 dbZ & cloud ht=1.5-4.5 km		
		171042-171712	Multiple	15 km W, moving SE'ly	48.50 dbZ & cloud ht.=3.5-7 km		
		172222-180142	multiple	100 km S, moving S'ly	40.50 dbZ & cloud ht.=2-5.8 km		
		180002-180302	nil				
Agartala	18-06-17	170302 - 171452	Multiple cells formed all around OF DWR Agartala SW at a distance of 200km with Maximum cell Height 14 km at 0732 and maximum reflectivity 49.50 dBZ at 0732 UTC	Formed all around of DWR Agartala of SW at a distance of 200km and moves SW wards direction with around 40 kmph.	Dissipated in NE direction at 150 km from DWR stn at 1452 UTC	Thunder Storm with Moderate to Heavy Rain	All distt of Tripura,
		171224 - 180302	Multiple cells formed W & NNE direction of DWR Agartala at a distance of 40km with Maximum cell Height 14 km and maximum reflectivity 43 dBZ at 1922 UTC	Formed all around of DWR Agartala at a distance of 40km and moves NE wards direction with around 4 kmph.	Persists over NE direction at 120 km from DWR stn.	NA	NA,

Vishakhapatnam	18-06-17	170600-170900	Few cb cells around the radar out of which a cb cell SE 215 KMS with max reflectivity 54dbz and max height is 10kms.	Moving Easterly.	-	-	-
		170900-171200	Few cb cells around the radar out of which a cb cell at NNW 75 kms from radar with max reflectivity 42 dBz and max height 10kms.	Moving SE ly.	-	-	-
		171200-171500	Isolated CB cells around the radar out of which a cb cell at NNW 80 kms from radar with max reflectivity 48 dbz and max height 12kms.	Moving E ly.	Gradually CB cells dissipated	-	-
		171500-171800	NIL	NIL	NIL	-	-
		171800-180000	Isolated CB cells formed towards SSW with max reflectivity 49 dbz and max height 12kms.	170 KM from the radar and moving E ly.	Gradually CB cells intensifying	-	-
		180000-180300	Isolated CB cells formed towards S with max reflectivity 49 dbz and max height 14kms.	160 KM from the radar and moving E ly.	Gradually CB cells reflectivity decreasing	-	-
		Patna	18-06-17	170300-180300	Nil	--	--
Kolkata	18-06-17	170300-170751	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL
		170802 – 172051	1. Isolated single cells merged to form an extended multi celled system with maximum reflectivity of 60.0 dBz at 1001 UTC and maximum height of 18.2 km at 1111 UTC.	Cells developed in between ENE/ 89 km and NE / 114 km from Radar and moving ENE-ly/ E-ly with a speed of 36.7 kmph.	Isolated single cells developed at 0802 UTC in between ENE/ 89 km and NE / 114 km from Radar which merged to form an extended multi celled system at 0921 UTC. Matured. Dissipated at	Thunderstorm / Hail / Squall/ Rain	N/A

					1321 UTC in E /207 km from Radar.		
			2. Isolated single cell with maximum reflectivity of 60.0 dBz at 0951 UT and maximum height of 15.7 km at 1001 UTC.	Cells developed in W / 193 km from Radar and moving SE-ly/ E-ly with a speed of 27.4 kmph.	Isolated single cell developed at 0931 UTC in W / 193 km from Radar. Matured. Dissipated at 1231 UTC in WSW / 133 km from Radar.	Thunderstorm / Hail / Squall/ Rain	N/A
			3. Isolated single cells merged to form an extended multi celled system with maximum reflectivity of 62.5 dBz at 1211 UT and maximum height more than 18.0 km at 1131 UTC.	Cells developed in between N/ 63 km and NNE / 56 km from Radar and moving E-ly /ESE-ly with a speed of 35.6 kmph.	Isolated single cells developed at 1021 UTC in between N/ 63 km and NNE / 56 km from Radar which merged to form an extended multi celled system at 1111 UTC. Matured. Merged with cell no. 4 at 1341 UTC	Thunderstorm / Hailstorm / Squall/ Rain	N/A
			4. Isolated single cells merged to form an extended multi celled system with maximum reflectivity of 61.5 dBz at 1151 UT and maximum height more than 18.0 km at 1201 UTC.	Cells developed in between NW/ 111 km and NNW / 98 km from Radar and moving E-ly /ESE-ly with a speed of 31.0 kmph.	Isolated single cells developed at 1021 UTC in between NW/ 111 km and NNW / 98 km from Radar which merged to form an extended multi celled system at 1111 UTC. Matured. Merged with cell no. 3 at 1341 UTC	Thunderstorm / Hailstorm / Squall/ Rain	N/A
			5. Multicelled system developed by merging cell no. 3 & 4 with maximum reflectivity of 58.5 dBz at 1352 UTC and maximum height more than 18.0 km at 1341 UTC.	Multicelled system developed by merging cell no. 3 & 4 in NE/52 km from Radar and moving E-ly with a speed of 36.0 kmph.	Multicelled system developed by merging cell no. 3 & 4 at 1341 UTC in NE/52 km from Radar. Matured. Dissipated at 1551 UTC in E / 69 km from Radar.	Thunderstorm / Rain	N/A
			6. Isolated single cells merged to form an extended multi celled system and converted to single cell with maximum reflectivity of 65.0 dBz at 1121 UT and maximum height more than 18.0 km between 1341 to 1532 UTC.	Cells developed in between W/ 236 km and NW /203 km from Radar and moving E-ly/ESE-ly with a speed of 45 kmph.	Isolated single cells developed at 1111 UTC in between W/ 236 km and NW / 203 km from Radar which merged to form an extended multi celled system at 1341 UTC and converted to single cell at 1431 UTC. Matured.	Thunderstorm / Hailstorm / Squall/ Rain	N/A

					Dissipated at 2051 UTC in E/ 118 km from Radar		
			7. Isolated single cells merged to form single cell with maximum reflectivity of 63.0 dBz at 1301 UT and maximum height more than 18.0 km at 1301UTC. .	Isolated single cells developed at in NW/ 223 km from Radar and moving ESE-ly with a speed of 29 kmph	Isolated single cells developed at 1241 UTC in NW/ 223 km from Radar which merged to form single cell at 1522 UTC. Matured. Dissipated at 1631 UTC in NNW / 166 km from Radar	Thunderstorm / Hailstorm / Squall/ Rain	N/A
		172101 – 172351	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL
		180001 – 180301	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL
Patiala	18-06-17	17 JUNE 0300 UTC-TO 0600 UTC	Multiple cells Max dBZ = 55.0 Ht. = 10-11 Kms	SW, WEST and NW SECTOR MOVEMENT SE WARDS		TS/RA	AMRITSAR ,ZIRA,MOGA, JALANDHAR,BARWAL A, TOHANA,NARWANA,BHIWANI, JHAJJAR
		17 JUNE 0600 UTC-TO 0900 UTC	Multiple cells Max dBZ=57.5 Ht.= 10-11 KMS	SSW, WEST, NW and NE SECTOR MOVEMENT SE WARDS		TS/RA	LUDHIANA, NABHA, KHANNA, PATIALA, HISAR, HANSI, SIRSA, SOLAN
		17 JUNE 0900 UTC-TO 1200 UTC	Multiple cells Max dBZ=49.5 Ht.= 10-12 KMS	SW& NW SECTOR MOVEMENT SE WARDS		TS/RA	HSAR, HANSI, MOGA, ZIRA

		17 JUNE 1200 UTC TO 1500 UTC	Multiple cells Max dBZ=54.5 Ht.= 08-09 KMS	NE SECTOR MOVEMENT SE WARDS		TS/RA	AMBALA,M OHALI, CHANDIGA RH, SOLAN
		17 JUNE 1500 UTC-TO 1800 UTC	Multiple cells Max dBZ= 52.5 Ht.= 8-9 KMS	SW SECTOR MOVEMENT SE WARDS	-----	RA/TS	HSAR,HAN SI,JIND,SI WANI, BHIWANI,R OHTAK,JH AJJAR
		17 JUNE 1800 UTC-TO 2100 UTC	Multiple cells Max dBZ= 56.5 Ht.= 08-09 KMS	SW SECTOR MOVEMENT SE WARDS		TS/RA	HSAR,HAN SI,JIND,SI WANI, BHIWANI,R OHTAK,JH AJJAR
		17 JUNE 2100 UTC-TO 0000 UTC	Multiple cells Max dBZ=57.0 Ht.= 11-12 KMS	SW SECTOR MOVEMENT SE WARDS	-----	RA/TS	BHIWANI, ROHTAK, JHAJJAR REWARI, HISSAR, MEHAM, FATEHABA D.
		18 JUNE 0000 UTC-TO 0252UTC	NO SIGNIFICANT CELLS	-----.	-----	-----	----- -----
Srinagar	18-06-17	170300- 180300	A single cell developed in the NW direction of DWR and moved SE wards with max reflectivity of 50-55 DBZ and average height 8kms. Multiple cells developd SE Direction of DWR at 0940 UTC with max reflectivity 55-60 DBZ and height 9 kms .	1. Moved SE direction and dissipated around 0940utc 2. mowed SE direction and dissipated around 1710 utc	Light rain at isolated places	Thunderst orm reported at Qazigund, Kukernag, Banihal	Anantnag,B aramulla and Ramban Doda
Karaikal	18-06-17	170300- 180300	--	--	DWR U/S	--	--
Paradeep	18-06-17	170300- 180300	--	--	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