India Meteorological Department

FDP STORM Bulletin No.111 (24-06-2017)

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

♦ The southwest monsoon has further advanced into some more parts of north Arabian sea, some parts of Saurashtra, some more parts of Gujarat region, remaining parts of Madhya Maharashtra, Marathawada and Vidarbha, some parts of West Madhya Pradesh and some more parts of East Madhya Pradesh.

♦ The Northern Limit of Monsoon (NLM) passes through Lat. 22.0°N / Long. 60.0°E, Lat. 22.0°N / Long. 65.0°E, Dwarka, Vallabh Vidyanagar, Khandwa, Betul, Mandla, Patna and Lat.27.0°N / Long. 85.0°E.

♦ Favourable conditions are developing for further advance of southwest monsoon into some more parts of north Arabian sea, Gujarat state and Madhya Pradesh during next 24 hours and into remaining parts of Bihar and some parts of East Uttar Pradesh during next 2-3 days.

♦ The trough at mean sea level from northwest Rajasthan to north Bay of Bengal across Haryana, Uttar Pradesh, Jharkhand and Gangetic West Bengal, now runs from West Rajasthan to west-central Bay of Bengal across north Madhya Pradesh, Uttar Pradesh, Jharkhand, Gangetic West Bengal and northwest Bay of Bengal and extends upto 0.9 km above mean sea level.

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

♦ The upper air cyclonic circulation over north Bay of Bengal & neighbourhood persists and now extends upto 7.6 km above mean sea level tilting south-westwards with height. Under the influence of this system, a low pressure area is likely to form over northwest Bay of Bengal & neighbourhood during next 48 hours.

♦ The north-south trough from eastern parts of Bihar to northwest Bay of Bengal extending upto 1.5 km above mean sea level has merged with the above system.

♦ An upper air cyclonic circulation lies over south Pakistan & neighbourhood between 0.9 & 2.1 km above mean sea level.

♦ Another upper air cyclonic circulation lies over southeast Rajasthan & neighbourhood between 5.8 & 7.6 km above mean sea level.

♦ The western disturbance as an upper air cyclonic circulation between 5.8 & 7.6 km above mean sea level over Himachal Pradesh & neighbourhood has moved away east-northeastwards.

SATELLITE OBSERVATIONS during past 24hrs and current observation:

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

Convective Activity: Nil

Cloud Description:

Broken low/medium clouds with embedded intense to very intense convection were seen over N Coastal Andhra Pradesh. Scattered low/medium clouds with embedded moderate to intense convection were seen over Chhattisgarh, Odisha, Jharkhand, Bihar, S Gangetic West Bengal, NE Assam, Arunachal Pradesh, Nagaland, Mizoram, Bhutan, W Rajasthan, N Konkan adjoining Gujarat, Kerala, Lakshadweep and Bay Islands. Scattered low/medium clouds with embedded isolated moderate to intense convection were seen over E Uttar Pradesh. Scattered

low/medium clouds with embedded isolated weak to moderate convection were seen over rest parts of East, West and South India. Scattered low/medium clouds were seen over J & K, Himachal Pradesh and Uttarakhand and isolated low medium clouds were seen over Punjab, Haryana and rest Uttar Pradesh.

Arabian Sea:

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

Bay of Bengal & Andaman Sea:

Scattered low/medium clouds with embedded intense to very intense convection were seen over W & C Bay of Bengal. 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 East Uttar Pradesh Rajasthan East Gujarat Madhya Pradesh Maharashtra Chhattisgarh Bihar Jharkhand Odisha West Bengal North East States Telangana Andhra Pradesh Kerala Tamilnadu.

OLR:-

Upto **200** wm^{-2} was observed over North East Odisha Coastal Andhra Pradesh South Kerala .

Upto **230** wm^{-2} was observed over East Gujarat Marathwara Chhattisgarh Jharkhand Rest Odisha Rest Gantetic West Bengal North East States North Interior Karnataka Telanagana Rest Andhra Pradesh Tamilnadu

Westerly Trough & Jet-Stream:-

No Trough & 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 .

Negative shear tendency is observed over South India and Positive shear tendency is observed over rest parts of India.

Positive Vorticity field is observed over North West Rajasthan..

Negative low level convergence is observed over Rajasthan Gujarat Vidarbha and Positive low level convergence observed over rest parts of India.

Precipitation:

IMR:

Rainfall Up to **70** mm was observed over North Chhattisgarh North East Odisha
Gangetic West Bengal.

Rainfall Up to **50** mm was observed over East Gujarat East Jharkhand East Meghalaya
South Assam adjoining Tripura Extreme North Tamilnadu.

Rainfall Up to 3**0** mm was observed over South Marathawada Vidarbha.

Rainfall Up to **20** mm was observed over South Andhra Pradesh.

Rainfall Up to **10** mm was observed over East Uttar Pradesh South Rajasthan
Extreme South Madhya Pradesh Rest Maharashtra Rest Jharkhand Bihar Rest Odisha
Rest North East States Telangana Rest Andhra Pradesh Karnataka Rest Tamilnadu Kerala.

HEM:.

Rainfall Up to **70** mm was observed over East Gujarat North Chhattisgarh North East Odisha
East Jharkhand South Gangetic West Bengal South Assam Manipur.

Rainfall Up to **14** mm was observed over South Marathawada Kerala.

Rainfall Up to **07** mm was observed over South Rajasthan East Uttar Pradesh Madhya Pradesh Rest Maharashtra Rest Chhattisgarh Bihar Rest Jharkhand Rest Odisha Rest Gangetic West Bengal Rest North East States Karnataka Telangana Andhra Pradesh Rest Kerala Tamilnadu.

RADAR and RAPID Observation:

DWR composite at 1550hrs IST indicated significant echoes over North Coastal Andhra Pradesh adjoining S Odisha, Telangana, Rayalaseema, North Tamilnadu and North Konkan & Goa adjoining S Gujarat,. It also indicated isolated convective cells over E Uttar Pradesh, E Rajasthan adjoining N Madhya Pradesh and S Madhya Pradesh.

RAPID RGB Satellite imagery at 1530hrs IST indicated significant convective clouds over Odisha, Jharkhand, Bihar, Chhattisgarh, Gangetic West Bengal, Telangana, North Coastal Andhra Pradesh, S Rajasthan, S Gujarat, Maharashtra, E Uttar Pradesh, Madhya Pradesh, South Kankan & Goa, E Arunachal Pradesh, Nagaland, Mizoram adjoining Tripura, Coastal Karnataka, Kerala, Tamilnadu, Lakshadweep and Andaman & Nicobar Islands.

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

Not Received

2. NWP MODEL GUIDANCE:

NCMRWF (NCUM Forecasts based on 00 UTC of the day):-

Not Received

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 and an associated a feeble low develop over Orissa coast. These features persist till day 5. A prominent off-shore trough is seen along west coast from Konkan and Goa up to Kerala. In the lower troposphere, a cyclonic circulation near Head Bay and adjoining areas remains quasi-stationary over the region for next 2 days then it moves westward and resides over Jharkhand on day 3, over east MP on day 4 and 5 and a trough from Punjab up to the centre of the cyclonic circulation. Another cyclonic circulation moving from Pakistan emerges over Gujarat coast on day 1 which moves westward thereafter

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 around the cyclonic circulations and mainly prominent during morning hours.

4. Spatial distribution of T-Storm Initiation Index, Lifted Index, Total Total Index, CAPE, CINE and Sweat Index (High potential for thunderstorm):

T-Storm Initiation Index(> 4): Not exceeded threshold over the country but prominent values are mostly most parts of Gangetic plains and central India during morning hours.

Lifted Index (< -2): Less than threshold value in different pockets over most parts of the Gujarat and south Rajasthan and adjoin areas for next 5 days. Over some parts of Andhra Pradesh, Telangana, and adjoining Chhattisgarh, Jharkhand and Orissa and sometimes over parts of GWB and Bihar.

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 3 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. Along foothills of Himalayas from day 3 to day 5. Over parts of Orissa and adjoining GWB and Jharkhand on day 2. Over south Chhattisgarh and MP on day 3 to day 5. Over Punjab, east UP and adjoining Delhi Haryana and Rajasthan on day 4 and 5.

20-40 mm rainfall Over rest of Chhattisgarh and adjoining Telangana, Vidarbha and Andhra Pradesh from day 3 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 and many parts of NE states during next 2 days. Over many parts of GWB, Jharkhand, adjoining Orissa, Bihar and Chhattisgarh during day 1.

15-30 dBz Over parts of Telangana and Andhra Pradesh and adjoining areas on day 1 and 2.

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. It covers many parts of Central India during evening hours.

CIN (50-150): Over parts of NE states and 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. Over Orissa and adjoining GWB, Chhattisgarh on day 1. Over Punjab and Uttarakhand on day 3.

20-40 mm along foothills of the Himalayas, GWB, Jharkhand, Chhattisgarh, MP and adjoining Telangana and AP on day 2 and 3. Over most parts of UP on day 3.

3. IOP ADVISORY FOR 24 and 48Hrs:

Summary and Conclusions:

Day-1 & Day-2:

In association with the deepening of yesterday's upper air cyclonic circulation and the likely formation of a low pressure area over northwest Bay of Bengal & neighbourhood during next 48 hours, heavy rainfall is likely over East and North East India during the next 48 hours. With a likely westward movement of the low pressure area into Odisha, rainfall over the northeast peninsular coast region is likely to increase on day 2.

The presence of an upper air cyclonic circulation over south Pakistan & neighbourhood between 0.9 & 2.1 km above, coupled with moisture feeding into the Gujarat region from the low level westerly jet, indicates heavy rainfall over the Gujarat region on day 1 and 2.

In association with the off-shore trough at mean sea level from south Gujarat coast to Kerala coast, heavy rainfall is likely all along the west coast of India on day 1 and 2.

24 hour Advisory for IOP:	**48 hour Advisory for IOP:**
Rainfall: Coastal Karnataka, Kerala, Lakshadweep Konkan and Goa South Gujarat and Kutch West Madhya Pradesh Assam and Meghalaya Nagaland, Manipur, Mizoram, Tripura Arunachal Pradesh Sub Himalayan West Bengal, Gangetic West Bengal, Coastal Odisha **Thunderstorm with associated phenomena:** Madhya Pradesh, Chhattisgarh, Uttar Pradesh, Bihar, Jharkhand, Gangetic West Bengal Odisha, Coastal Andhra Pradesh Southern parts of East and West Rajasthan	**Rainfall:** Coastal Karnataka, Kerala, Lakshadweep Konkan and Goa South Gujarat and Kutch Chhattisgarh Assam and Meghalaya Nagaland, Manipur, Mizoram, Tripura Arunachal Pradesh Sub Himalayan West Bengal, Gangetic West Bengal, Coastal Odisha, Jharkhand North Coastal Andhra Pradesh **Thunderstorm with associated phenomena:** East Uttar Pradesh, Bihar Uttarakhand Southern parts of East and West Rajasthan

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)
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HEM: http://satellite.imd.gov.in/img/3Ddaily he.jpg
ForRadarimagesofthepast24hoursincludingmosaicofimages:
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Satellite sounder based T- Phigram
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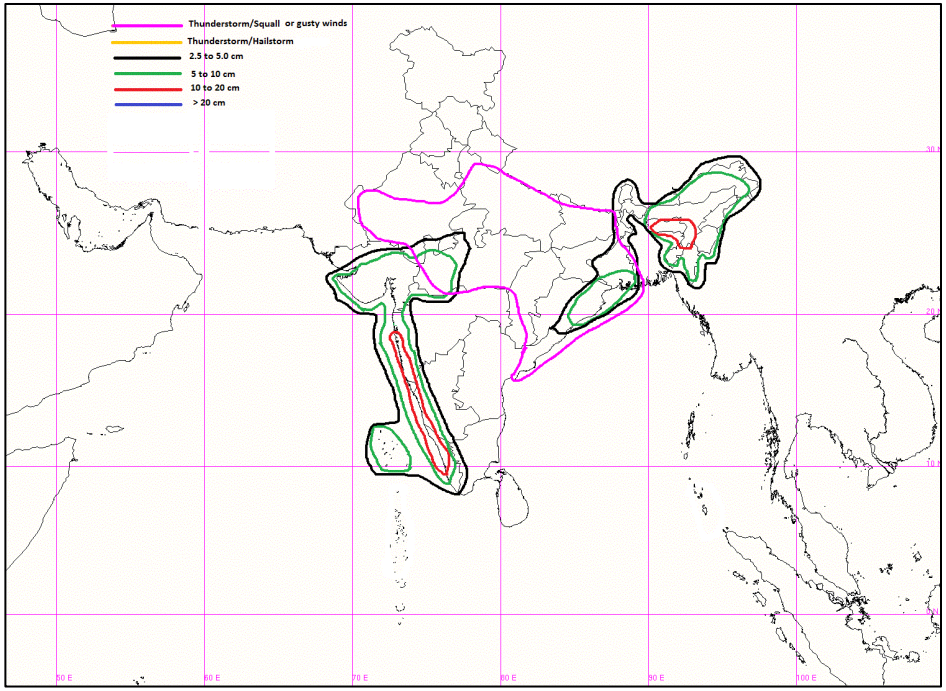
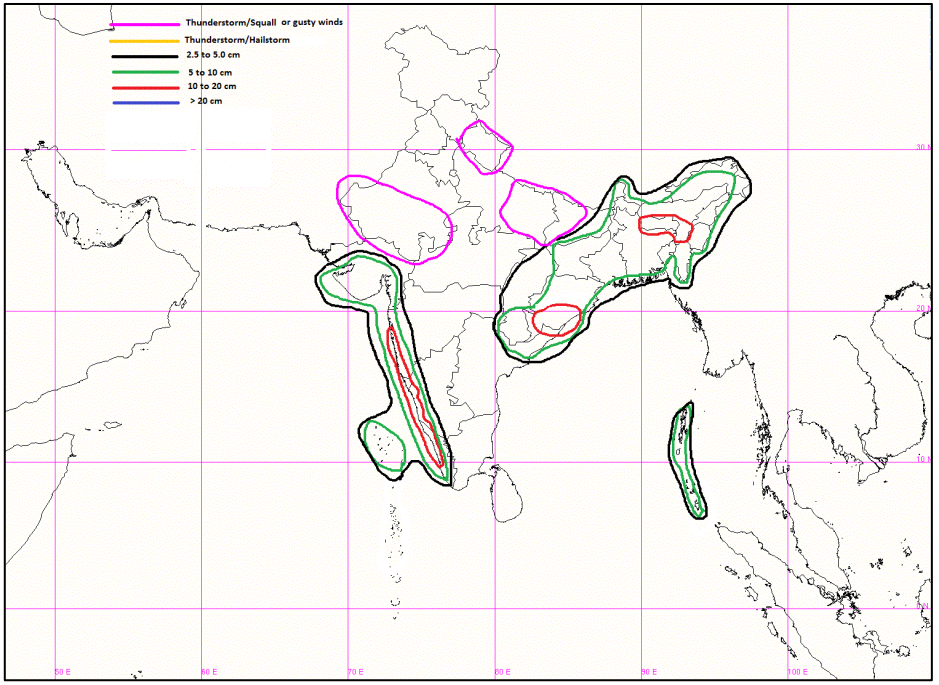
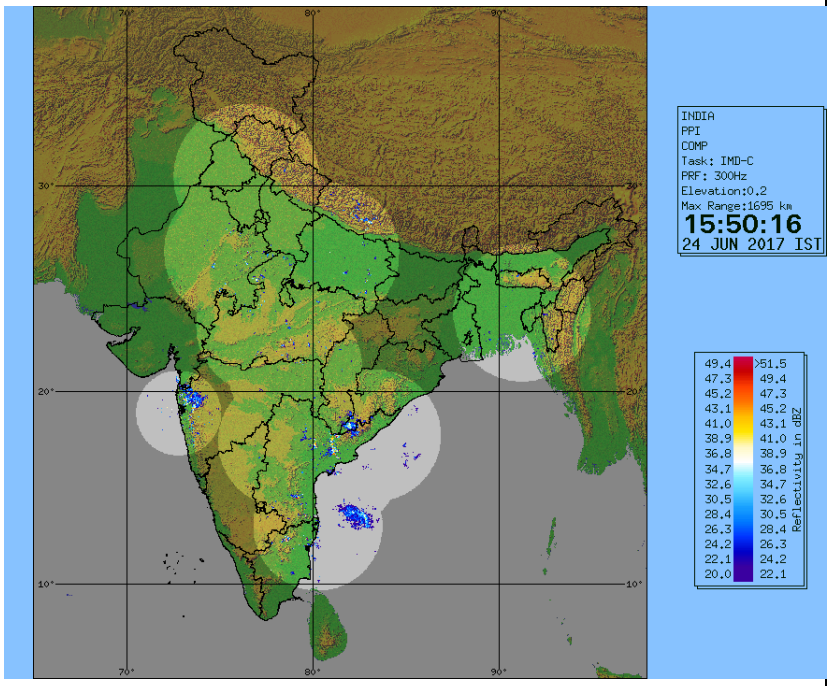
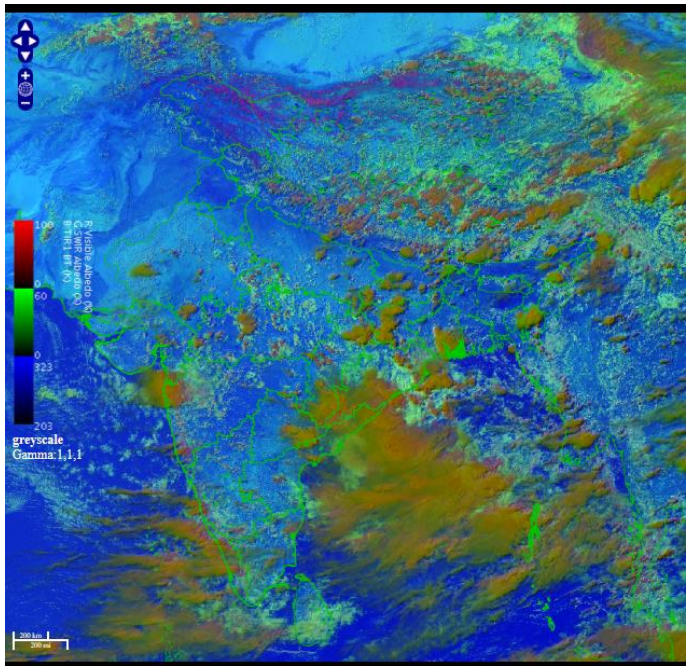
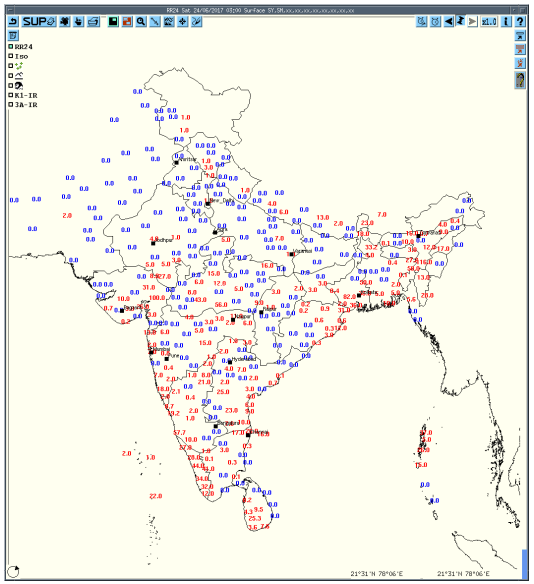
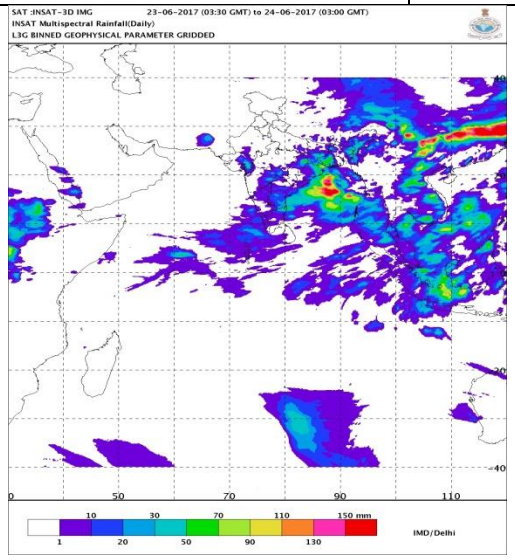
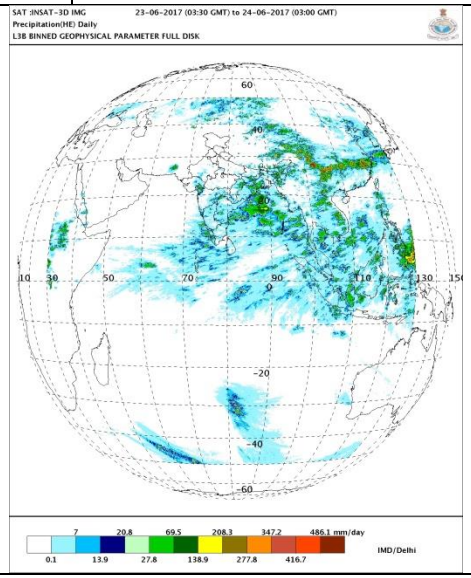


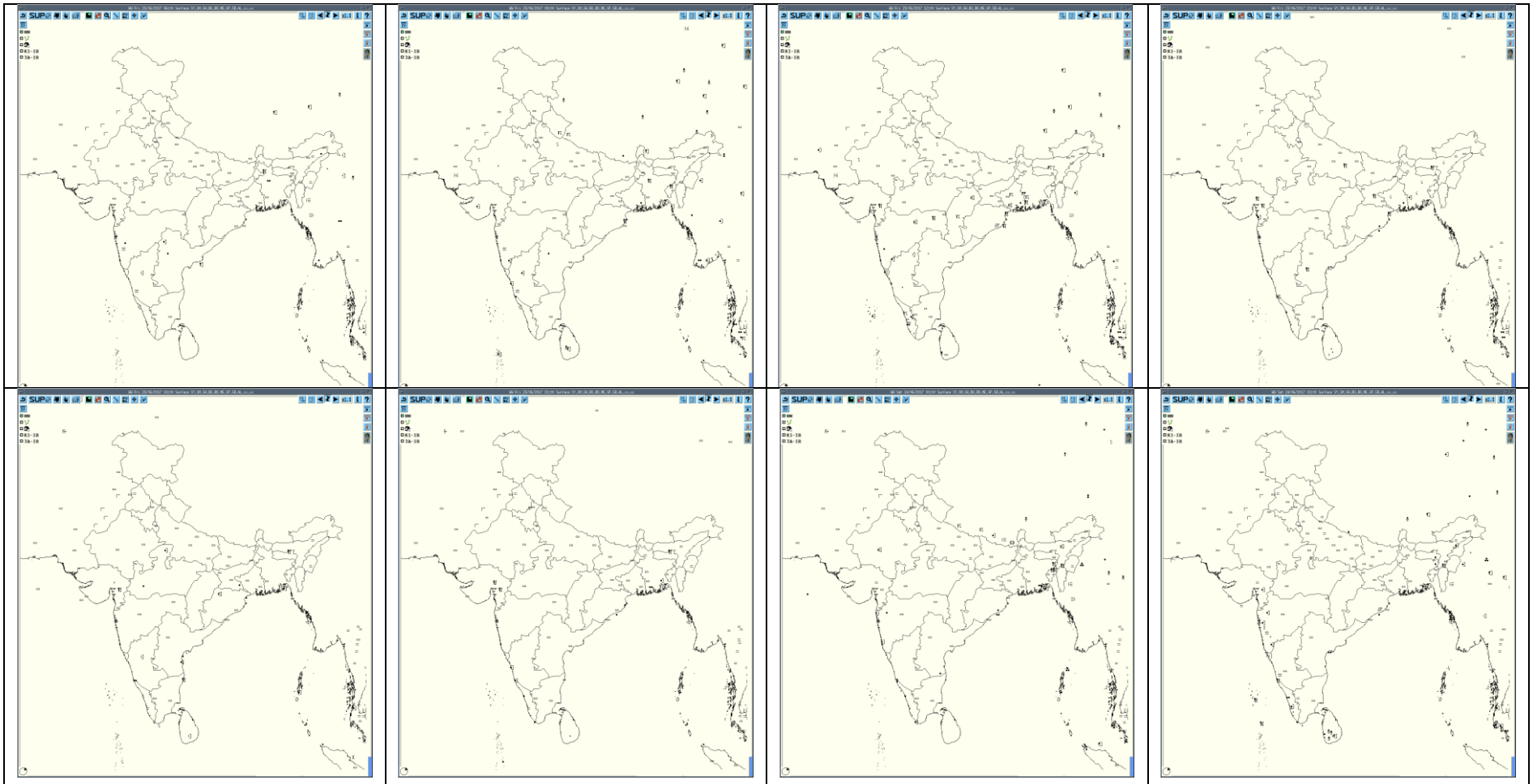
IOP Advisory for 24 hours



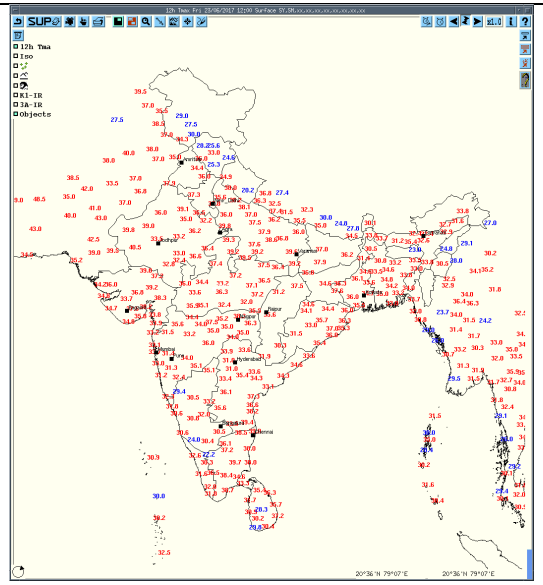
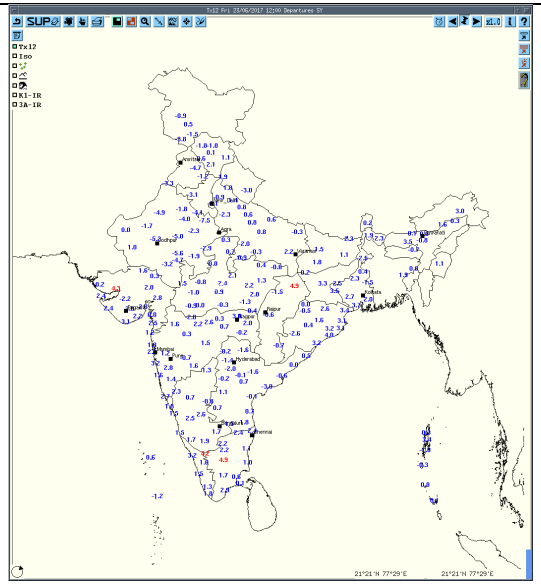
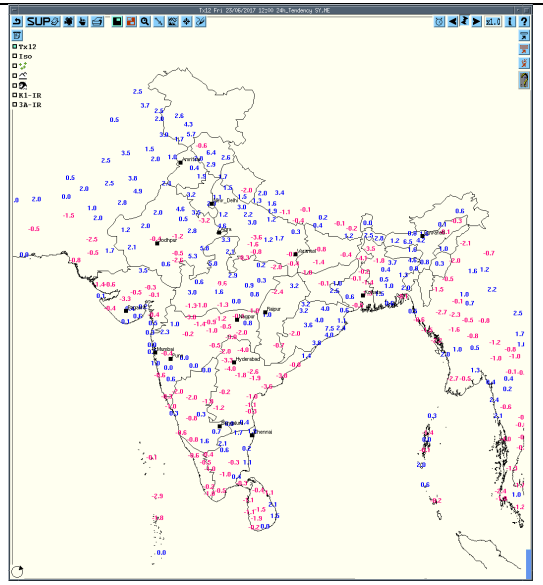
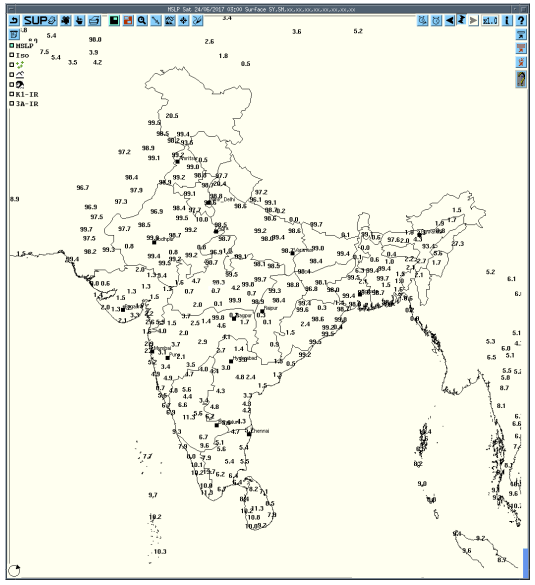
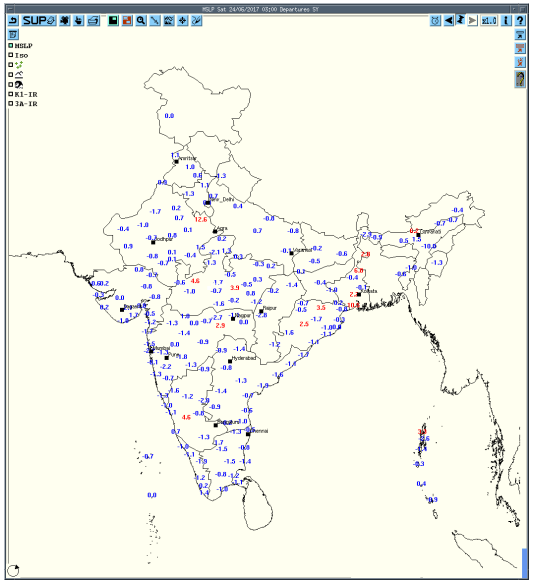
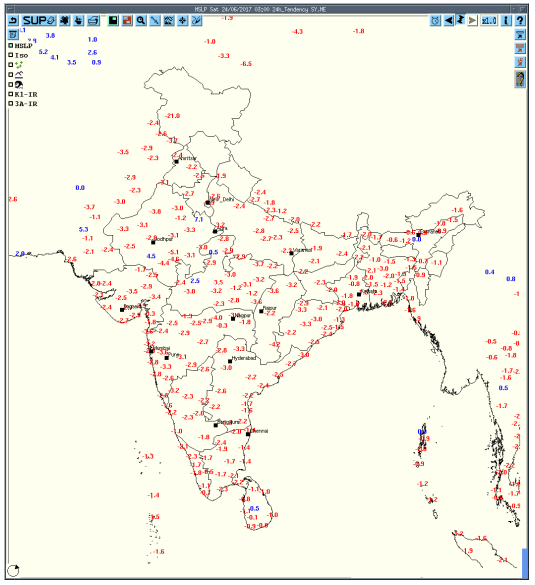
IOP Advisory for 48 hours

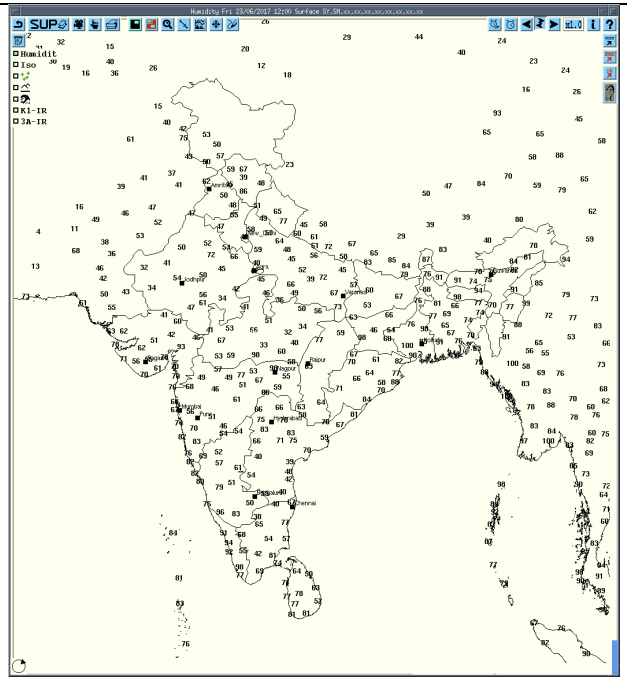
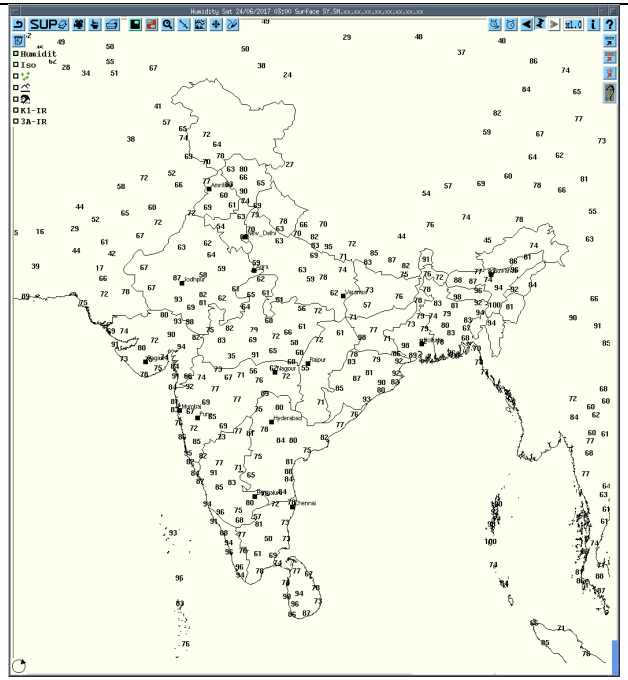
	
DWR composite at 1550hrs IST	**RAPID RGB Satellite Imagery at 1530 hrs IST of today**

Not Received	Not Received	
Forecast Dust Concentration	**PM10 Forecast**	**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**
23-06-17	0600UTC	Diamond Harbour, Haldia	E India	West Bengal(GWB)	Thunderstorm
23-06-17	0900UTC	Mukteshwar	NW India	Uttarakhand	Thunderstorm
		Kolkata, Canning, Diamond Harbour, Digha	E India	West Bengal(GWB)	Thunderstorm
		Chandbali	E India	Odisha	Thunderstorm
23-06-17	1200UTC	Lucknow, Varanasi	NW India	Uttar Pradesh	Thunderstorm
		Panagarh, Midnapore, Digha	E India	West Bengal (GWB)	Thunderstorm
		Balasore, Paradeep	E India	Odisha	Thunderstorm
		Ambikapur, Raipur	C India	Chhattisgarh	Thunderstorm
		Guwahati	NE India	Assam	Thunderstorm
		Baroda	W India	Gujarat (Gujarat Region)	Thunderstorm
		Bhavnagar	W India	Gujarat (Saurashtra & Kutch)	Thunderstorm
		Nagpur, Akola	C India	Maharashtra (Vidarbha)	Thunderstorm
		Karipur AP	S India	Kerala	Thunderstorm
23-06-17	1500UTC	Sultanpur	NW India	Uttar Pradesh	Thunderstorm
		Gaya	E India	Bihar	Lightening
		Ranchi	E India	Jharkhand	Thunderstorm
		Bankura	E India	West Bengal (GWB)	Lightening
		Guwahati	NE India	Assam	Thunderstorm
		Tezpur	NE India	Assam	Lightning
		Shillong	NE India	Meghalaya	Lightening
		Bapatla, Kurnool	S India	Andhra Pradesh	Thunderstorm
		Nagapattinam	S India	Tamilnadu	Lightening
		Bajpe	S India	Karnataka	Thunderstorm
		Ahmedabad, Baroda	W India	Gujarat (Gujarat Region)	Thunderstorm
23-06-17	1800UTC	Baroda	W India	Gujarat (Gujarat Region)	Thunderstorm
		Guwahati	NE India	Assam	Thunderstorm
		Jharsuguda	E India	Odisha	Thunderstorm
		Chennai	S India	Tamilnadu	Thunderstorm
		Bapatla	S India	Andhra Pradesh (CAP)	Lightening
		Thiruvananthapuram	S India	Kerala	Thunderstorm
		Kozhikode	S India	Kerala	Lightening
		Kanyakumari	S India	Tamilnadu	Lightening
23-06-17	2100UTC	Ahmedabad, Baroda	W India	Gujarat (Gujarat Region)	Thunderstorm
		Guwahati	NE India	Assam	Thunderstorm

24-06-17	0000UTC	Tezpur, Silchar	NE India	Assam	Thunderstorm
		Kailasahar	NE India	Tripura	Thunderstorm
		Jodhpur	NW India	Rajasthan	Thunderstorm
24-06-17	0300UTC	Silchar	NE India	Assam	Thunderstorm
		Bajpe	S India	Karnataka	Thunderstorm
		Agathi AP, Minicoy	S India	Lakshadweep Islands	Thunderstorm

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)**
Akola	C India	Vidarbha	Thunderstorm	23-06-17	1610	1647
Mukteshwar	NW India	Uttarakhand	Thunderstorm	23-06-17	1250 1445	1425 1545
VARANASI	NW India	Uttar Pradesh (East)	Thunderstorm	23-06-17	1600	1800
Sultanpur	NW India	Uttar Pradesh (East)	Thunderstorm	23-06-17	1940	2035
Allahabad	NW India	Uttar Pradesh (East)	Thunderstorm	23-06-17	1330	1435
Kanpur IAF	NW India	Uttar Pradesh (East)	Thunderstorm	23-06-17	1280	1530
Nagpur	C India	Vidarbha	Thunderstorm	23-06-17	1425 1645	1445 1745
Akola	C India	Vidarbha	Thunderstorm	23-06-17	1610	1647
Ambikapur	C India	Chhattisgarh	Thunderstorm	23-06-17	1605	1640
Mount Abu	NW India	Rajasthan (East)		24-06-17	0530	0700
Churu	NW India	Rajasthan (West)	Thunderstorm	23-06-17	1530	1535
Ahmedabad	W India	Gujarat	Thunderstorm	23-06-17 24-06-17	1935 0050	2030 0300
Itanagar	NE India	Arunachal Pradesh	Thunderstorm	23-06-17	0837	0915
Jorhat	NE India	Assam	Thunderstorm	24-06-17	0030	0210
Silchar	NE India	Assam	Thunderstorm	24-06-17	0100	0650
N/Lakhimpur	NE India	Assam	Thunderstorm	23-06-17	0830	0910
Tezpur	NE India	Assam	Thunderstorm	24-06-17	0420 0545	0510 0600
Guwahati	NE India	Assam	Thunderstorm	23-06-17	1850	0240
Barapani	NE India	Meghalaya	Thunderstorm	23-06-17	1355	1510
Lengpui	NE India	Mizoram	Thunderstorm	23-06-17	2015	2130
Kailasahar	NE India	Tripura	Thunderstorm	24-06-17	0500	0700
Narsapur	S India	Andhra Pradesh (CAP)	Thunderstorm	23-06-17	1615	1630
Kurnool	S India	Andhra Pradesh (RYSM)	Thunderstorm	23-06-17	1930	2040
Bapatla	S India	Andhra Pradesh (CAP)	Thunderstorm	23-06-17	1945	2100
Ongole	S India	Andhra Pradesh (CAP)	Thunderstorm	23-06-17	2100	2215
Tirupati AP	S India	Andhra Pradesh (RYSM)	Thunderstorm	23-06-17	2030	2055
Malda	E India	West Bengal (SHWB)	Thunderstorm	23-06-17	1200	1300

Alipore	E India	West Bengal (GWB)	Thunderstorm	23-06-17	1030 1200	1105 1700
Dum Dum	E India	West Bengal (GWB)	Thunderstorm & Lightening	23-06-17	1205	1835
Canning	E India	West Bengal (GWB)	Thunderstorm	23-06-17	1420	1500
Diamond Harbour	E India	West Bengal (GWB)	Thunderstorm	23-06-17	1110 1400 1530	1200 1440 1650
Haldia	E India	West Bengal (GWB)	Thunderstorm	23-06-17	1110 1556	1320 1645
Asansol	E India	West Bengal (GWB)	Thunderstorm	23-06-17	1840	2200
Ranchi	E India	Jharkhand	Thunderstorm	23-06-17	1820	2250
Jamshedpur	E India	Jharkhand	Thunderstorm	23-06-17	1450	1640
Balasore	E India	Odisha	Thunderstorm	23-06-17	1635	2100
Jharsuguda	E India	Odisha	Thunderstorm	23-06-17	1840	2200
Chandbali	E India	Odisha	Thunderstorm	23-06-17	1415	1500
Paradeep	E India	Odisha	Thunderstorm	23-06-17	1445	1750
Sambalpur	E India	Odisha	Lightening	23-06-17	2030	2230
Keonjhargarh	E India	Odisha	Thunderstorm	23-06-17	1745	1905
Thiruvananthapuram City	S India	Kerala	Thunderstorm	24-06-17	0430	0455
Chennai Nungambakkam	S India	Tamil Nadu (North)	Thunderstorm	23-06-17	2210 2315	2220 0135
Chennai AP	S India	North Tamil Nadu (North)	Thunderstorm	23-06-17	2115	2355
Tondi	S India	North Tamil Nadu (South)	Thunderstorm	23-06-17	1440 1745	1450 1830
Bajpe	S India	Karnataka (CK)	Thunderstorm	23-06-17 24-06-17	1940 0758	2015 0830
Panambur	S India	Karnataka (CK)	Thunderstorm	24-06-17	0725	0830

Past 24 hours DWR Report:

Radar Station Name	Date of Report	Time Interval of Observation (UTC)	Organisation of cells (Isolated single cells/multiple cells/convective regions /squall lines) with height of 20 dBZ echo top and maximum reflectivity	Formation w.r.t. radar station and Direction of movement	Remarks	Associated Severe Weather if any	Districts affected
Lucknow	24-06-17	230442-230822	Multiple cells with average height of 10KM and maximum Reflectivity of 48 dBZ	E(120-220km) moving inE'ly direction at speed of 21.6 km/hr	…..	TS,RAIN	Gonda,Faizabad,Basti
		230502-230812	Multiple cells with average height of 10KM and maximum Reflectivity of 40 dBZ	W(200km) moving inE'ly direction at speed of 5.6 km/hr	…..	TS,RAIN	Etawah,Mainpuri,Auraiya and adjoining areas.
		230512-230712	Multiple cells with average height of 12KM and maximum Reflectivity of 42 dBZ	NNE(100-150km) moving inE'ly direction at speed of 21 km/hr	…….	…….	…….
		230532-230712	Multiple cells with average height of 10KM and maximum Reflectivity of 40 dBZ	SE(100-150km) moving inSE'ly direction at speed of 21.6 km/hr	…….	……..	…….
		230632-231232	Multiple cells with average height of 13KM and maximum Reflectivity of 60 dBZ	W(95km),SW(55km) ,SSW(145km),SW(150 km) moving in E'ly direction at speed of 23 km/hr	……	HAIL,TS,RAIN	KANPUR,UNNAO, KANNAUJ, LUCKNOW ,HARDOI, HAMIRPUR ,FATEHPUR, RAEBAREILY,BARABANKI

		230712-231222	Multiple cells with average height of 13KM and maximum Reflectivity of 54 dBZ	SSE(70km) moving in E'ly direction at speed of 21km/hr	…..	TS,RAIN	Allahabad,jaunpur,Varanasi, Sant Ravidas nagar,Mirzapur,pratapgarh and adjoining areas
		231212-231332	Single cells with average height of 13KM and maximum Reflectivity of 54 dBZ	E(70km) did not moved but matured in size	…..	TS,RAIN	Faizabad,Amethi,Raebareily
		231302-231452	Multiple cells with average height of 13KM and maximum Reflectivity of 51 dBZ	ESE(100) moving in E'ly direction at speed of 21km/hr	…..	TS,RAIN	Faizabad,Sultanpur,Amethi
Nagpur	24-06-17	230302-230632	Single	72 km South dir.	39 dbz & cloud ht=1.2-4.7 km	Thunderstorm warning started at 0642 till 0652 in NW direction 200 Km away from Radar.	Rainfall in many places in Bhandara, , Brahmapuri , Umred,Amraoti, Nagpur , Akola Yeotmal, Chandrapur Hinganghat , Pusad,Adilibad, Balaghat, Ramtek, Kotal and isolated pleaces Goindia in , Wardha, Washim and
		230452-231002	Multiple	82 km N dir.moving towards SE dir.	51 dbz &cloud ht.1.5-7.5 km.	1042-1232 in SW dir 150 km away from Radar.	
		230612-231822	Multiple	106 km NW dir.	43 dbz & cloud ht= 2.0-7.0 km	1042-1202 in NE dir 200 km away from Radar.	
		230722-231402	Multiple	Moving towards South dir. 147 km W dir	45 dbz & cloud ht. 3.5-8.0 km.	1102-1412 in S dir 220 km. away from Radar.	
		231912-232352	Multiple	Moving towards S dir. 207 km W dir moving towards South dir.	35 dbZ & cloud ht=4.7-7.0 km	1212-1242 in SE dir 200km away from Radar. 1252-1322 in NW dir 175 km away from Radar. Hailstorm- NIL	

							Buldhana etc
		240002-240302	Single	230 km South dir.	27dbz & cloud ht,.5.0-6.0 km.		
Patiala	24-06-17	230300-231200	NO SIGNIFICANT ECHOS.	--	--	--	--
		231200-231500	Single cell Max dBZ=49.0 Ht.= 09-11 KMS	SOUTH SECTOR MOVEMENT EAST WARDS		TS/RA	JHAJJAR AND IT'S ADJOINIG AREAS.
		231500-240252	No Significant Echo	--	--	--	--
Machilipatnam	24-06-17	230731-231051	Isolated Multiple cells average height of 5.5km with maximum reflectivity of 56.5dBZ.	NW (167Km) and moving SE ly direction with average speed of 25.0 kmph.	Cell started forming at 0731 UTC, at NW(167 km) from Radar the maximum reflectivity during 0831 UTC to 1041 UTC and died down at 1051 UTC	Possibility of Thunder storm with rain and winds.	Warangal rural,Warangal urban,Mahabubabad, , Khamma, Krishna Districts
		230651-231111	Isolated Multiple cells average height of 6.5 km with maximum reflectivity of 58.0dBZ.	NW (150Km) and moving SE ly direction with average speed of 25.0 kmph	Cell started forming at 0651UTC, at NW (150 km) from Radar the maximum reflectivity during 0801UTC to 1111 UTC and moved into the sea.	Possibility of Thunder storm with rain and winds.	Khammam, Krishna, West Godavari Districts
		231011-231311	Isolated Multiple cells average height of 5.7 km with maximum reflectivity of 55.5dBZ.	NW (220KM) and it is moving SE ly direction with average speed of 35.0 kmph	Cell started forming at 1011UTC, at NW(220km) from Radar the maximum reflectivity during 1051UTC to 1251 UTC and died down at 1311 UTC	Possibility of Thunderstorm with rain and winds.	Nalgonda, Suryapet, Khamma,Guntur, Krishna Districts
		231101-231351	Isolated Multiple cells average height of 5.8km with maximum reflectivity of 52.0dBZ.	NNW (200KM) and moving SE ly direction with average speed of 30.0kmph	Cell started forming at 1101UTC, at NNW (200Km) from Radar the maximum reflectivity during 1211UTC to 1341 UTC and	Possibility of Thunder storm with rain and winds.	Nalgonda, Guntur Districts

					died down at 1351 UTC		
		231141-231601	Isolated Multiple cells average height of 5.0 km with maximum reflectivity of 50.5dBZ.	WNW (245KM) and moving SE ly direction with average speed of 35.0kmph	Cell started forming at 1141UTC, at WNW (245Km) from Radar the maximum reflectivity during 1151UTC to 1511 UTC and died down at 1601 UTC	Possibility of Thunder storm with rain and winds.	Nalgonda,Kurnool, Guntur,Prakasam Districts
		231711-232021	Isolated Multiple cells average height of 4.0 km with maximum reflectivity of 50.0dBZ.	WNW (202KM) and moving SE ly direction with average speed of 30.0kmph	Cell started forming at 1711UTC, at WNW (202Km) from Radar the maximum reflectivity during 1711UTC to 2021 UTC and Moved into the sea	Possibility of Thunder storm with rain and winds.	Guntur, Prakasam Districts
		231451-232021	Isolated Multiple cells average height of 4.5 km with maximum reflectivity of 53.5dBZ.	WSW (240KM) and moving SE ly direction with average speed of 35.0kmph	Cell started forming at 1451UTC, at WSW (240Km) from Radar the maximum reflectivity during 1551UTC to 2001 UTC and died down at 2021 UTC	Possibility of Thunder storm with rain and winds.	Prakasam, Nellore Districts
Jaipur	24-06-17	230002-240742	Multiple cell with average height of 4.2 km & maximum reflectivity 57.0 dBZ	Multiple cell develop from 0002 UTC of 23/06/2017 towards S, SW, W, NW, & E of Jaipur and moved to South East Wards at speed 25-30 km/hr	Cell starts forming from 0002 UTC of 24/06/2017 towards S, SW, W, NW, & E of Jaipur and reaches maximum refelectivity during 0002-0732 UTC OF 23/06/2017 and died 0742 UTC	Thunderstorm/rain at a few places	CHITTORGARH, BHILWARA, PALI, CHURU, KOTA, RAJSAMAND, AJMER, NAGAUR, JHUNJHUNU, KARAULI
		230742-231432	Multiple cell with height 4.5 km and maximum reflectivity 53.0 dBZ	Multiple cell develop from 0742 UTC of 23/06/2017 towards NE, E, SE & NW of Jaipur and moved ,SE Wards at speed 20-25 km/hr	Cells starts from 0742 UTC of at 23/06/2017 at NE, E, SE & NW of Jaipur and reaches maximum reflecity during 0742-1412 UTC OF 23/06/2017 and died 1432 UTC	Thunderstorm/rain at few placeS	CHURU, SIKAR, JHUNJHUNU, JAIPIUR, DAUSA, SAWAIMADHOPUR, KARAULI,

							ALWAR, BHARATPUR, DHOLPUR
		231502-231822	Multiple cell with height 3.0 km and maximum reflectivity 28.0 dBZ	Multiple cell develop from 1502 UTC of 23/06/2017 towards South of Jaipur and moved E,SE Wards at speed 05-10 km/hr	Cells starts from 1502 UTC on 23/06/2017 at South of Jaipur and reaches maximum reflecity during 1502-1822 UTC OF 23/06/2017 and died 1902	Thunderstorm/rain at few placeS	JAIPUR, TONK
		231932-240300	Multiple cell with height 3.7 km and maximum reflectivity 49.5 dBZ	Multiple cell develop from 1932 UTC of 23/06/2017 towards East of Jaipur and moved South Wards at speed 10-12 km/hr	Cells starts from 1932 UTC on 23/06/2017 at East of Jaipur and reaches maximum reflecity during 1932-0000 UTC OF 23/06/2017 and continue	Thunderstorm/rain at few placeS	PALI, NAGAUR, AJMER, BHILWARA, RAJSAMAND
Agartala	24-06-17	230302 - 230852	Multiple Cells at 250km w,nw from DWR Agartala with Maximum Height 92 km at 0612UTC and maximum reflectivity41.5 dBZ at 0712 UTC	Formed 250 km W,NW of DWR and moves NWrly directiion	Cells dissipated at 0850 UTC at 150 to 200 km from DWR Agartala	N/A	N/A
		230732 - 231012	Multiple Cells continued at 0730 UTC over10km N & 50km NE with Maximum Height 10.0 km at 0912 UTC and maximum reflectivity 46.5 dBZ at0902 UTC.	Persist around Tripura and moves towards NW wards direction	Cells dissipated at 1010 UTC at Bangladesh	Thunder & Rain	
		231212 - 240250	Multiple cells with Maximum Height 14.0 km at2012 UTC and maximum reflectivity45.00 dBZ at 2030 UTC	Persist around 200km from DWR AT Mizoram and moves towards NW wards direction	Cells dissipated at 240250 UTC over Meghalaya &Assam	Thunder & Rain	Dhalai &Notth districts of Tripura
Kolkata	24-06-17	230311-230431	Contd. From 0031 UTC, Isolated small cell developed and merge with another cells to form a multi cell system with maximum reflectivity of 54.5 dBz at 0151 UTC and	Cells formed in between N /157.6 km and N/181.9 km from Radar moving in NNW-ly direction.	Isolated small cells formed at 0031 UTC in between N /157.6 km and N/181.9 km and matured and later merged to form a multicelled system, dissipated at 0431 UTC in NNE/189.9 km from Radar.	Thunderstorm/Rain	N/A

			maximum height of 10.39 km at 0151 UTC.				
		230441-231111	Multi cell merge and developed to form a big cell with maximum reflectivity of 60.0 dBz at 07.01 UTC and maximum height of 14.36 km at 0851 UTC.	Cells formed in NNE /115.3 km from Radar moving in SSW direction.	Isolated small cells formed at 0441 UTC in NNE /115.3 km from Radar and mature and dissipated at 1111 UTC in SSW / 65.2 km from Radar.	Thunderstorm/Rain	N/A
		230501-231011	Isolated small cell developed to form a big cell with maximum reflectivity of 58.5 dBz at 0711 UTC and maximum height of 11.11 km at 0711 UTC.	Cells formed in South /10.6 km from Radar moving in Southerly direction.	Isolated small cells formed at 0501 UTC in south /242 km from Radar and mature and dissipated at 1011 UTC in Southerly/134.0 km from Radar.	Thunderstorm/Rain	N/A
		230741-231301	Isolated small cell developed to a big cell with maximum reflectivity of 63.0 dBz at 1201 UTC and maximum height of 14.20 km at 1201 UTC.	Cells formed in SW/80.5 km from Radar moving in NW direction.	Isolated small cells formed at 0741 UTC in SW /80.5 km from Radar and mature and dissipated at 1301 UTC in NW/137.9 km from Radar.	Thunderstorm/Rain	N/A
		230941-231221	multiple cells developed to a big cell with maximum reflectivity of 56.5 dBz at 1121 UTC and maximum height of 09.15 km at 1031 UTC.	Cells formed in SW/189.5 km from Radar moving in SE direction.	multiple cells formed at 0941 UTC in SW /189.5 km from Radar and mature and dissipated at 1221 UTC in SW/175.5 km from Radar.	Thunderstorm/Rain	N/A
		230951-231441	Isolated small cell developed to a big cell with maximum reflectivity of 63.5 dBz at 1241 UTC and maximum height of 14.91 km at 1231 UTC.	Cells formed in NW/246.6 km from Radar moving in NE direction.	Isolated small cells formed at 0951 UTC in SW /246.6 km from Radar and mature and dissipated at 1441 UTC in WNW/159.3 km from Radar.	Thunderstorm/Rain	N/A
		231001-231131	Isolated small cell developed to a big cell with maximum reflectivity of 58.00 dBz at 1101 UTC and maximum height of 08.73 km at 1051 UTC.	Cells formed in NW/243.6 km from Radar moving in NE direction.	Isolated small cells formed at 1001 UTC in NW /243.6 km from Radar and mature and dissipated at 1131 UTC in West/204.1 km from Radar.	Thunderstorm/Rain	N/A
		231101-231521	Isolated small cell developed to a big cell	Cells formed in NW/242.4 km from	Isolated small cells formed at 1101 UTC in NW/242.4	Thunderstorm/Rain	N/A

			with maximum reflectivity of 53.0 dBz at 1421 UTC and maximum height of 13.68 km at 1421 UTC.	Radar moving in SE direction.	km from Radar and mature and dissipated at 1521 UTC in NW/164.4 km from Radar.		
		231141-231451	Isolated small cell developed to a big cell with maximum reflectivity of 55.0 dBz and maximum height of 06.99 km at 1251 UTC.	Cells formed in NW/147.4 km from Radar moving in NW direction.	Isolated small cell formed at 1141 UTC in NW /147.4 km from Radar and mature and dissipated at 1451 UTC in NW/178.9 km from Radar.	Thunderstorm/Rain	N/A
		231531–240301	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL
		240001–240301	NIL	NIL	NO SIGNIFICANT ECHO	NIL	NIL
Srinagar	24-06-17	230300-240300	Nil	Nil	--	--	--
Karaikal	24-06-17	230300-240300	--	--	DWR U/S	--	--