



India Meteorological Department
FDP STORM Bulletin No.40 (14-04-2017)

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

SYNOPTIC FEATURES:

- ◆ The low pressure area over Southeast Bay of Bengal & neighbourhood has become well marked over the same region and associated upper air cyclonic circulation extends upto mid-tropospheric levels. It is very likely to concentrate into a depression during next 36 hours and intensify further during subsequent 24 hours. The system is very likely to move north-northeastwards during next 72 hours.
- ◆ The trough from Madhya Maharashtra to south Tamilnadu across Interior Karnataka extending upto 0.9 km above mean sea level persists.
- ◆ An upper air cyclonic circulation lies over northwest Rajasthan & neighbourhood and extends upto 1.5 km above mean sea level.
- ◆ A trough runs from the above cyclonic circulation over northwest Rajasthan to Nagaland across Madhya Pradesh, Jharkhand & Gangetic West Bengal and extends upto 0.9 Km above mean sea level with embedded upper air cyclonic circulation over Jharkhand & neighbourhood extending upto 1.5 km above mean sea level.
- ◆ A trough runs in mid-tropospheric westerlies along longitude 88.0 °E and north of latitude 22.0 °N.
- ◆ The feeble Western Disturbance as an upper air cyclonic circulation over north Pakistan & adjoining Jammu & Kashmir extending upto 3.1 Km above mean sea level has moved away eastnortheastwards.
- ◆ The upper air cyclonic circulation over Madhya Maharashtra & neighbourhood extending upto 0.9 km above mean sea level has become less marked.

SATELLITE OBSERVATIONS during past 24hrs and current observation:

Convective Activity & cloud Description (based on 0300UTC imagery of INSAT 3D):

LOW LEVEL CIRCULATION (LLC):-

BKN LOW/MED CLOUDS WITH EMBDD MOD TO INT CONVTN OVER S BAY BET LAT 8.0N TO 13.50N LONG 84.5E TO 93.5E IN ASSW LOW LEVEL CIRCULATION OVER THE AREA (.)

WESTERN DISTURBANCE (WD):-

SCT M/LAYERED CLOUDS OVER N TIBET ADJ CHINA IN ASSW WD OVER THE AREA (.)

SCT M/LAYERED CLOUDS OVER NW SAUDI ARABIA IRAQ CASPIAN SEA & N/HOOD IN ASSW ANOTHER WD OVER THE AREA (.)

Convection

Scattered Low Medium Clouds over J&K, Himachal Pradesh and North Uttarakhand. Scattered Low Medium Clouds over Sikkim and Arunachal Pradesh. Scattered Low Medium Clouds with embedded weak to moderate convection over Kerala, Tamil Nadu, Bay Islands

Arabian Sea:

SCT LOW/MED CLOUDS WITH EMBDD MOD TO INT CONVTN OVER SE ARSEA OFF KER COT & COMORIN.

Bay of Bengal & Andaman Sea:

BKN LOW/MED CLOUDS WITH EMBDD MOD TO INT CONVTN OVER REST S BAY & C BAY ANDAMAN SEA (.)

PAST WEATHER

Convection:

Light to moderate convection was observed over J&K, Kerala and Tamilnadu..

Jet Stream:

No Jet stream and trough observed over India.

Dynamic Features:

Positive shear tendency observed over India.

Low wind shear observed over south and weak to moderate wind shear observed over rest India .

A positive Vorticity field is seen over Karnataka, Vidarbha and Odisha adjoining East Madhya Pradesh.

Positive Low Level Convergence observed over India except Negative low level convergence observed over South Coastal Gujarat.

Precipitation:

IMR: Rainfall upto 30mm was observed over Kerala. Rainfall upto 20mm was observed over Extreme North J&K. Rainfall upto 10mm was observed over rest North J&K, North East Meghalaya, Sikkim, North West Arunachal Pradesh, North east Tamilnadu and Extreme South Tamilnadu.

HEM: Rainfall upto 14mm was observed over South Kerala, North East Meghalaya and West Arunachal Pradesh. Rainfall upto 07mm was observed over North West J&K, North East Tamilnadu

RADAR and RAPID observation:

Isolated cells (with 40 dBZ exceeding 9 km) was observed in DWR Goa and isolated cells (with 40 dBZ exceeding 12 km) was observed in the DWR Patiala at 1600 IST. No other significant convection was seen in DWR Composite of 1600hrs IST.

RAPID RGB Imagery of 1300 hrs IST indicates convective clouds over Karnataka, Uttarakhand and Andaman & Nicobar Islands.

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

NOT RECEIVED

2. NWP MODEL GUIDANCE:**NCMRWF (NCUM Forecasts based on 00 UTC of the day):****1. Weather Systems:**

12UTC Charts on Day0 show trough in MSLP over J & K extending NW-SE. On rest of the days, the development of Heat Low over Rajasthan and adjoining Pakistan and its extension over IG plains is prominent. Over Bay of Bengal the intensification of the low pressure system and its movement towards Myanmar coast from Day0 to 00UTC on Day-3 is evident.

12UTC charts on all days from Day0-4 show wind discontinuity at 925 hPa over two regions:(i) SW-NE extending from northern Karnataka-Telangana region to Odisha-WB region. (ii)S-N extending from southern parts of TN to northern parts of Karnataka-Telangana region.

CYCIR over BoB getting intensified as day progresses moving NE wards towards Myanmar.

2. Location of jet and jet core at 500hPa:-500hPa Jet core (>60kt):

500hPa Jet core (>60kt) Weaker core winds at 12 UTC on all days over India

3.Convergence at 850 hPa:

At 12UTC on Day-0 to Day-2: High values along the western ghats in Karnataka, Maharashtra and Kerala
Day 3-4 Over coast of Maharashtra

Day0-4: Parts of Odisha and WB along with adjoining Jharkhand and Chattisgarh.

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

Positive Vorticity ($>15 \times 10^{-5}/s$)

At 12UTC : Scattered isolated values in Day-1 to Day-2. In Day-3 and 4 enhanced magnitude over some isolated regions of Bihar, Jharkhand, WB, Kerala and TN. High Cyclonic vorticity over BoB due to developing system

At 00UTC on all days: Strong structure over land extending N-S from western part of India

High Cyclonic vorticity over BoB due to developing system

5. Showalter Index: -3 to -4[Very unstable]:

At 12UTC: Day 0-1: Along west coast, some parts of Bihar, WB

Day-3 and Day-4 High magnitude over UP, Bihar, Jharkhand, WB, Odisha, along west & east coast of India and southern parts of NE states.

At 00UTC on Day-3-5: Large belt of high magnitude extending SW to NE from NI Karnataka-Telanagana region to Chattis garhs Odisha region.

Additionally moderate values of index are prominent over large parts of BoB associated with system.

6. K-Index :> 35[Very Unstable thunderstorm likely]:

At 12UTC: Day 0-1: Along west coast, some parts of Bihar, WB

Day-3 and Day-4 High magnitude over UP, Bihar, Jharkhand, WB, Odisha, along west & east coast of India and southern parts of NE states.

Additionally moderate values of index are prominent over large parts of BoB associated with system

7. Spatial distribution of TTI: TTI >50 [Scattered Thunderstorms few severe]:

At 12UTC : Day0: WB and coastal Odisha, AP, Kerala, Karnataka, some parts of J&K

Day1 High values over coast of Karnataka, Kerala and parts of Tamilnadu, coastal AP and Odisha, and some parts of J&K and Uttarakhand and Arunachal

Day-3&4: Increased values over coast of Maharashtra and Karnataka, UP, parts of Bihar, WB and NE states

At 00UTC on Day-2,3 and 4: Large belt of high magnitude extending SW to NE from NI Karnataka-Telanagana region to Chattis garhs Odisha region.

8. Rainfall and thunder storm activity:

Day1:Light rainfall activity over Kerala

Day2: 2 cm/day Over Assam and Meghalaya

Day3 :Rainfall > 2 cm/day Meghalaya, east Arunachal and adjoining Asam

Day-3 over western part of Assam and some parts of adjoining Meghalaya and Arunachal Pradesh.

Rainfall >4cm/day in Day-3 over Assam Meghalaya and Arunachal.

Day 3: >16 cm/day Associated with CYCIR over Andaman.

Day4-5 Heavy rain associated with CYCIR

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

1. Weather Systems:

00 UTC analysis shows a low level CYCIR along with north-south trough over south of Marathwada and adjoining north Karnataka region and this CYCIR will persist for the next 2 days.

Analysis also shows a north-south oriented low level trough of low starting from Jharkhand and adjoining Gangetic West Bengal (GWB) regions to central India and this trough of low will persist for the next 2-3 days.

MSLP analysis shows a low pressure area over SE BoB and will move towards Arakan coast during the next 2-3 days.

2. Location of jet and jet core at 500 hPa:-500 hPa Jet core (>60kt):

(>60kt): No presence of jet core over the Indian region for the next 5 days.

3.Low level Vorticity:-Positive Vorticity 850hPa (>12 x 10⁻¹/s):

Analysis shows low level positive vorticity (>12 x 10⁻⁵/s) mainly over the foothills of Himalaya, along the west coast of India, SHWB, Jharkhand, GWB and isolated pockets of NE states.

Forecast shows vorticity core zones mainly along the foothills of Himalaya, west coast of India, and isolated pockets of GWB and NE states, Marathwada, interior parts of Karnataka and few pockets along the east coast bordering Odisha and SHWB along with few regions of the north eastern states for the next 3 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): Significant threshold values are noticed over Jharkhand, GWB, along the east of India and few pockets in AP and along the west coast of India. Forecast shows significant threshold values over west coast of India, GWB and eastern coast for the next 3 days.

Lifted Index (< -2): The areas with index less than -2 lies along east coast regions, GWB, Odisha, coastal AP, and along the west coast of India and Kerala coast with gradually the LI areas with less than -2 mainly extended towards southern coastal regions.

Sweat Index (> 400): 00UTC shows significant values over major parts along with the east coast extending up to coastal TN and also over west coast of India and few isolated pockets in the NE states. The significant zones are confined along east coast of India over GWB, Odisha, Bangladesh and adjoining regions and high value of SI observed over GWB and NE region for next 5 days and also over few pockets in the south west region.

Total Total Index (> 50): Analysis shows significant values over few pockets in Gujarat, MP and adjoining areas. Above threshold value in most regions of central and western India and adjoining northern parts of India along with areas bordering north west India for the next 2-3 days

CAPE (> 1000): Mostly along east coast of India over GWB, Odisha and adjoining regions along with parts in south peninsular region and coastal Kerala and Karnataka during the next 5 days

CINE (50-150): Maximum CIN values are found in some areas of GWB and along east coast over Odisha, coastal AP and Tamil Nadu and also along the west coast of India for the next 2-3 days.

5. Rainfall and thunderstorm activity:

10-40 mm rainfall is forecasted tomorrow over isolated pockets in the NE states and also some parts of Kerala regions. Isolated light to moderate rainfall activity over pockets of NE states and Kerala will continue for the next 2-3 days.

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

1. Model Reflectivity (Max.dBz): (>25 dBZ))

(>25 dBZ) Model reflectivity exceeding the threshold value, is forecasted over isolated pockets of NE states and some parts of Karnataka and Kerala on day 1. Model reflectivities exceeding the threshold value are also forecasted over many pockets of NE India in the day-3 forecast.

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

Total Total Index (> 50): Above threshold values is observed over most parts of NE India during next 3 days..

K-Index (> 35): Above threshold values is observed over most parts of NE india and over Kerala regions during next 3 days..

CAPE (> 1000): Mostly along east coast of India over Jharkhand, GWB, along the east coast of india during next 3 days. Another zone along west coast of India, particularly over coastal Kerala, coastal Karnataka and Konkan & Goa during next 3 days..

CINE (50-150): CIN values are mostly small all over India during all three days of forecasts except some areas over Odisha, GWB, Eastern UP, Bihar, Jharkhand, coastal AP, coastal Karnataka and Konkan-Goa during next 3 days..

3. Rainfall and thunderstorm activity:

Rainfall activity (~ 10-40 mm) is expected to persist till next 2 days over parts of Karnataka, Kerala and most parts of NE states and this rainfall activity will start increase from day-3 onwards over most parts of NE states.

3.IOPADVISORYFOR24and48Hrs:

SummaryandConclusions:

Day 1 & Day 2:

In association with the well marked low pressure area over Southeast Bay of Bengal & neighbourhood, heavy rainfall is expected over the Andaman Islands on day 1. On account of subsequent intensification of the system in the next 48 hours and movement in a northeasterly direction, the rainfall is likely to increase over this region on day 2.

In association with the trough from Madhya Maharashtra to south Tamilnadu, thunderstorms accompanied by rainfall is likely to persist over Interior TamilNadu, Kerala and Interior Karnataka on day 1. The trough is likely to persist tomorrow and rainfall belt is likely to continue over the same region on day 2 .

In association with the upper air cyclonic circulation lies over northwest Rajasthan & neighbourhood duststorms and dust raising winds are expected over North Rajasthan on day 1 and day 2.

In association with the trough in the mid-tropospheric westerlies along longitude 88.0 °E and north of latitude 22.0 °N, thunderstorms are likely over the region of North East India and parts of East India on day 1. With the likely eastward shifting of the trough, the rainfall as well as region of thunderstorms is likely to expand eastwards.

24 hour Advisory for IOP:

Andaman and Nicobar Islands

Interior Tamilnadu

Kerala, Karnataka,

Assam, Meghalaya

Coastal Orissa, Gangetic West Bengal, Sub Himalayan West Bengal and Sikkim, Bihar

48 hour Advisory for IOP:

Andaman and Nicobar Islands

Interior Tamilnadu, Kerala, South interior Karnataka,

Sub Himalayan West Bengal and Sikkim

Meghalaya, Assam and Arunachal Pradesh

Nagaland, Manipur, Mizoram and Tripura

ForNCMRWFNWPproducts:(<http://www.ncmrwf.gov.in/HomePage/NEPS-prod-1.php>)

ForIMDNWPproducts:(http://nwp.imd.gov.in/diagpro_new.php)

ForSynopticplotteddataandcharts

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

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

ForRAPIDtool:

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

LowLevelWinds

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

Upperlevelwinds

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

Past24hourHEMandIMRrainfall(upto03UTCoftoday)

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

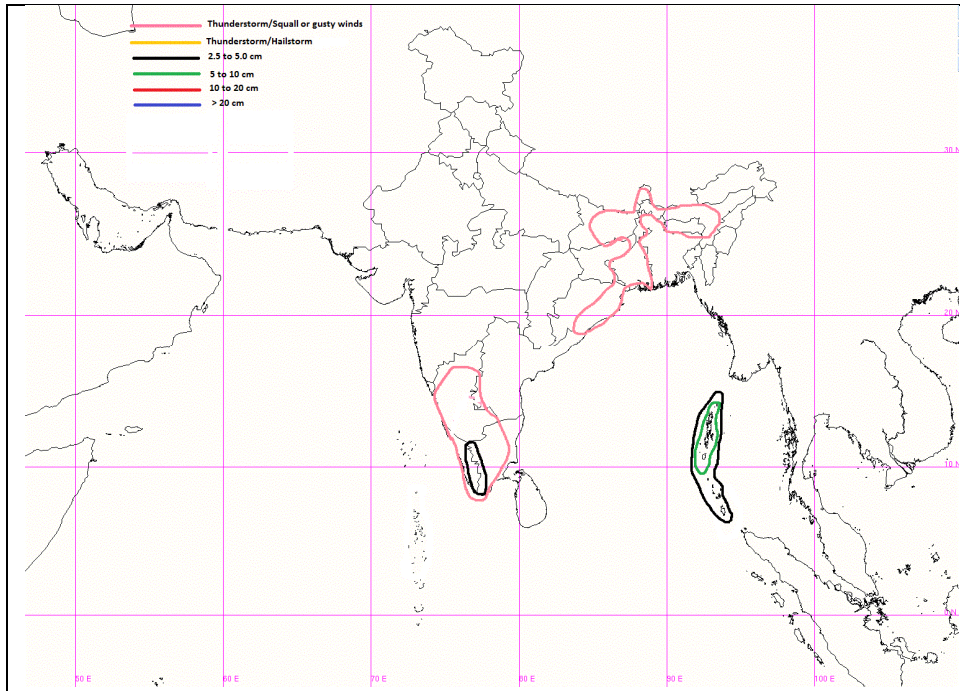
HEM:http://satellite.imd.gov.in/img/3Ddaily_he.jpg

ForRadarimagesofthepast24hoursincludingmosaicofimages:

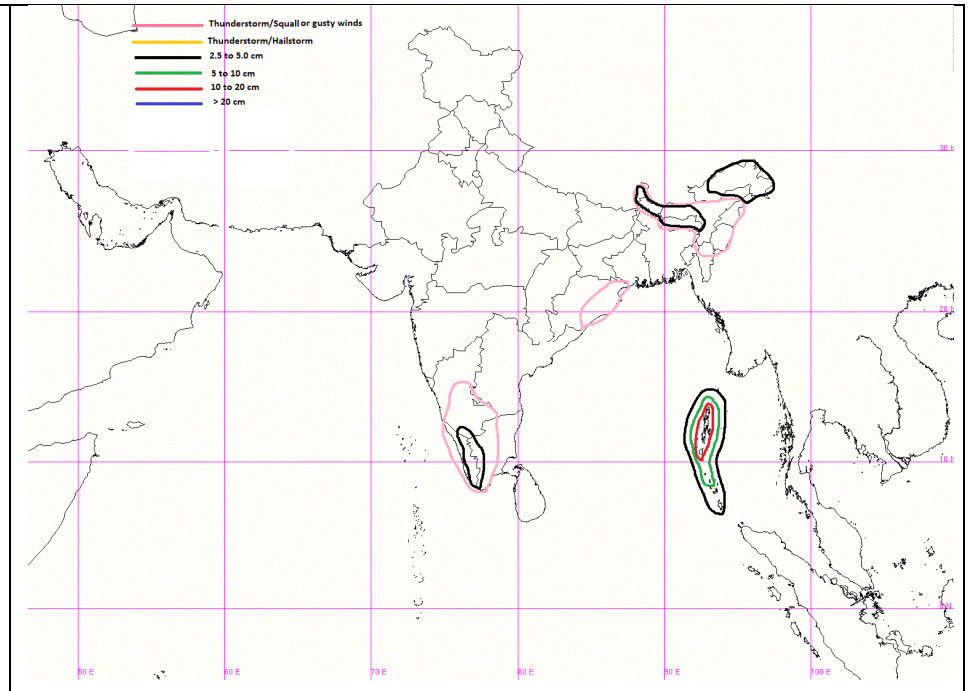
http://ddgmui.imd.gov.in/dwr_img/

SatellitesounderbasedT-Phigram

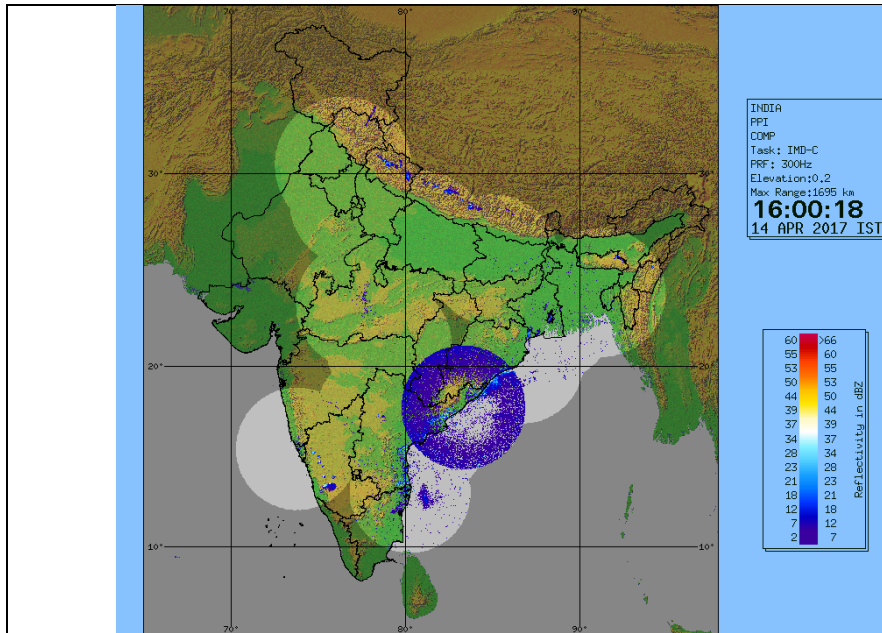
http://satellite.imd.gov.in/map_skm2.html



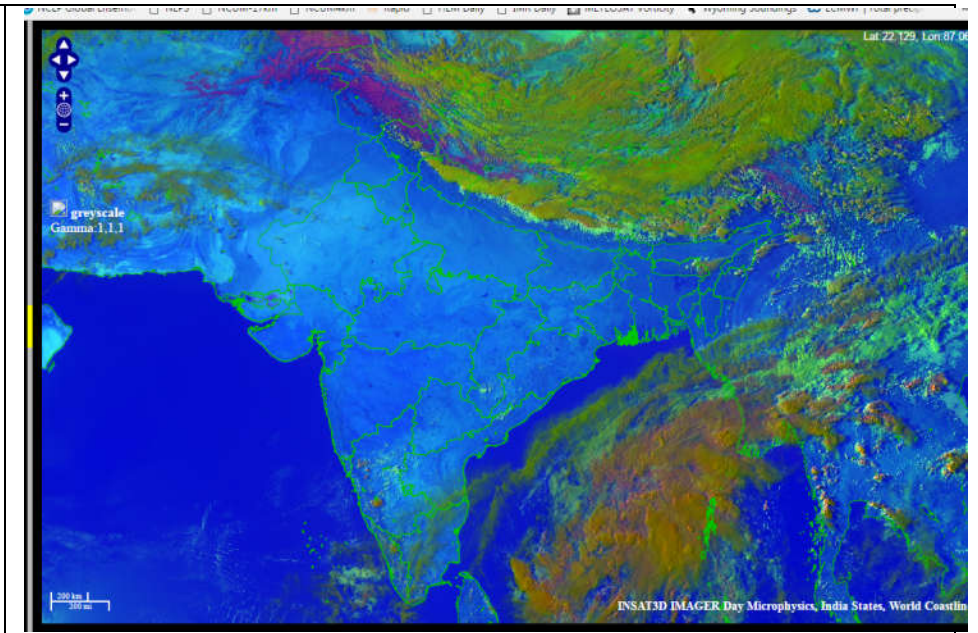
IOP Advisory for 24 hours



IOP Advisory for 48 hours

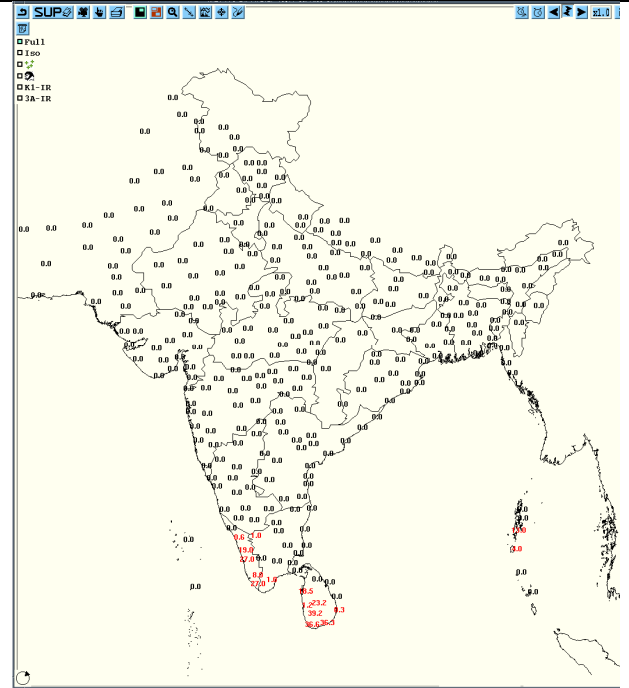


DWR Composite at 1600 hrs IST of today



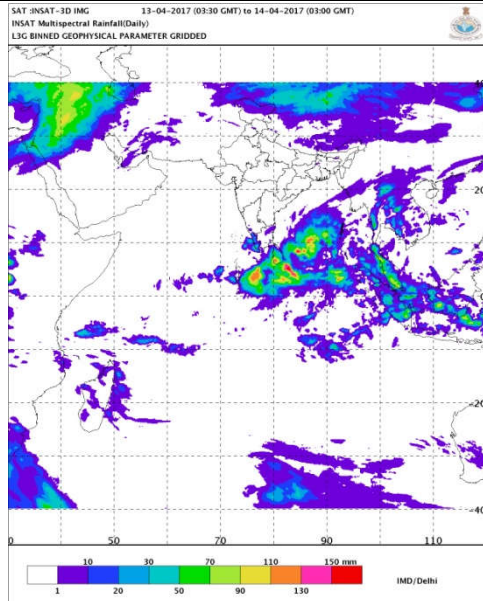
RAPID RGB Image of INSAT 3D at 1530 hrs IST of today

Not Received

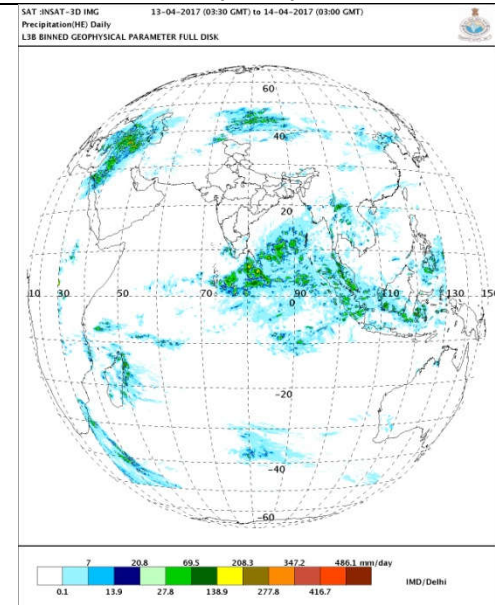


ForecastDustConcentration for 00UTC of 16th April

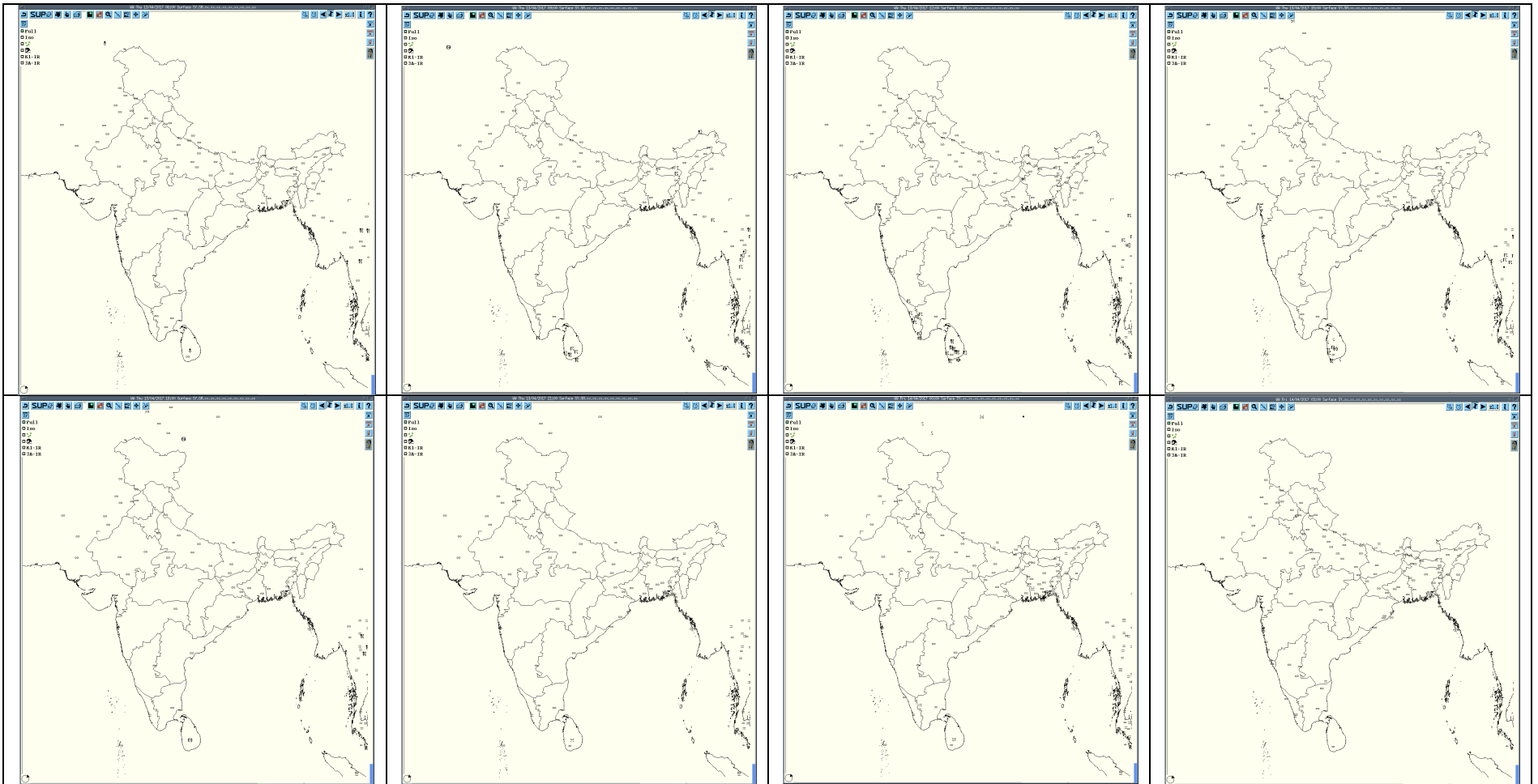
Accumulated24Hourrainfall(inred)recordedat0300UTCof today



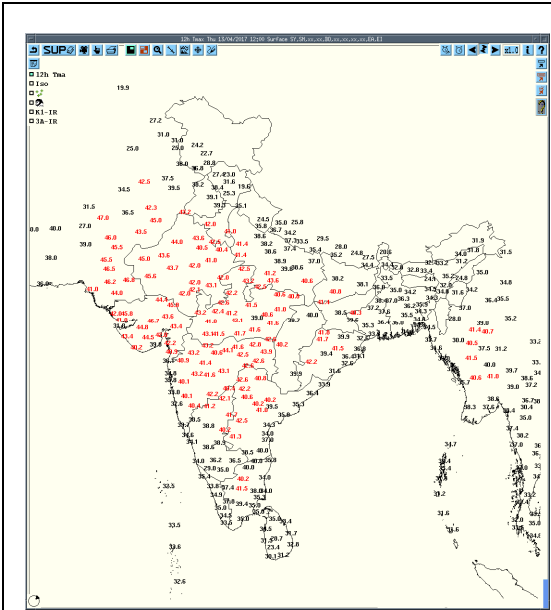
IMRRainfall



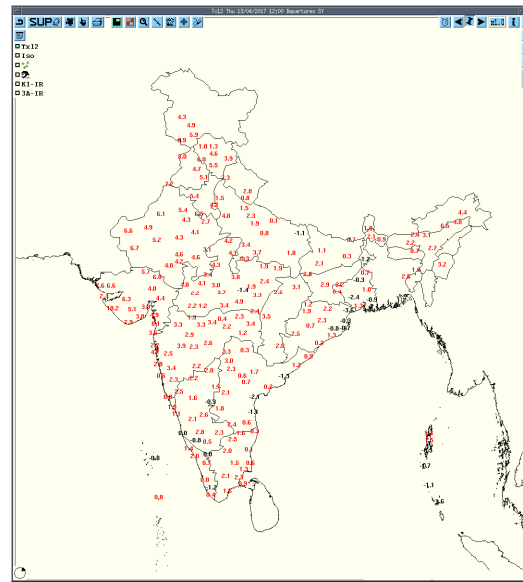
HEMRainfall



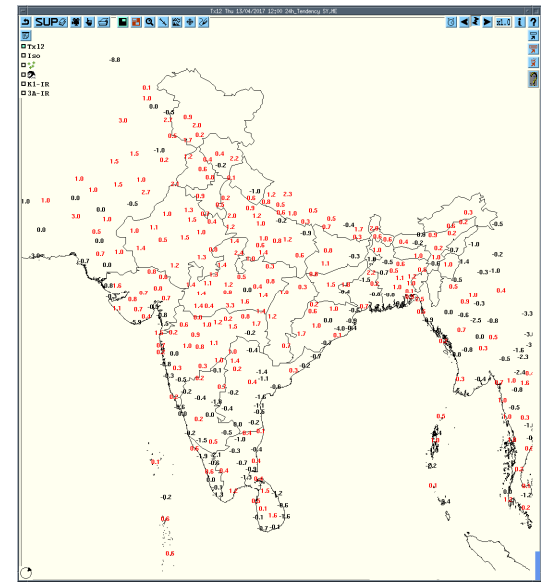
3hourlyPastweatherat06,09,12,15,18,21UTCofyesterdayand00&03hrsUTCoftoday



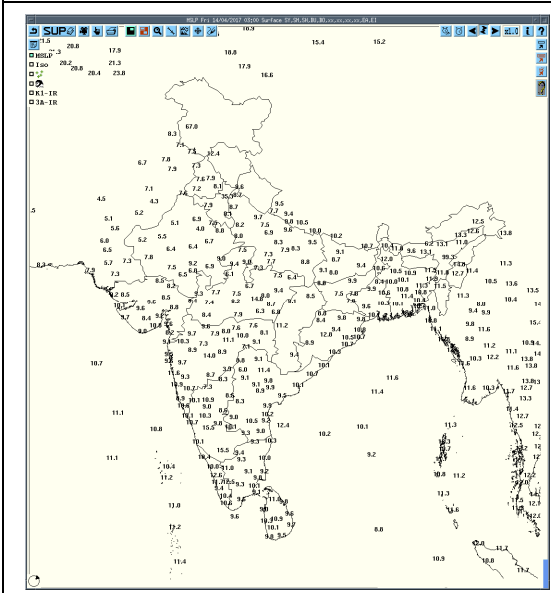
Tmax



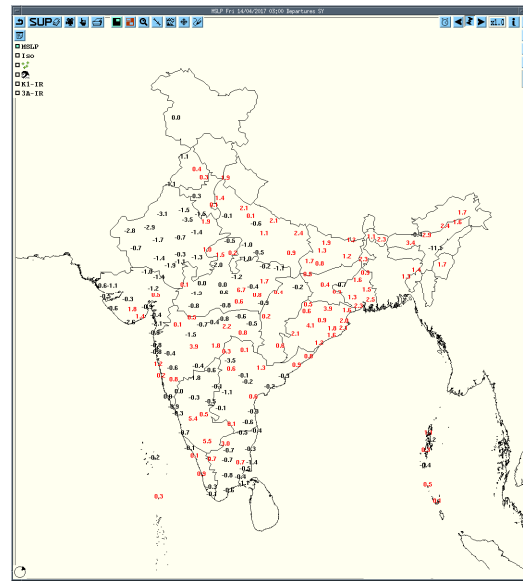
DepartureTmax



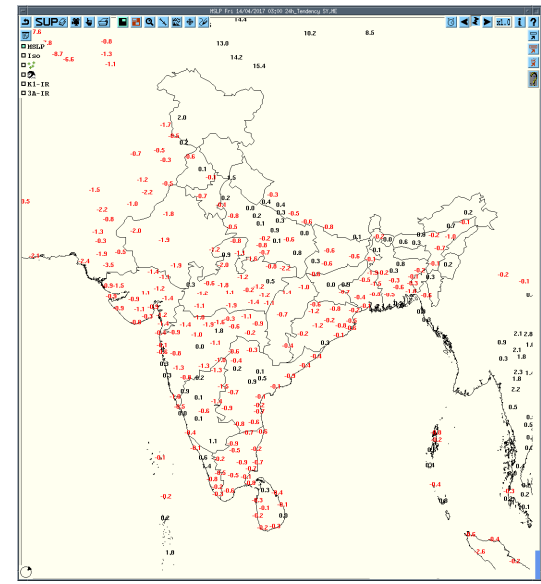
TendencyTmax



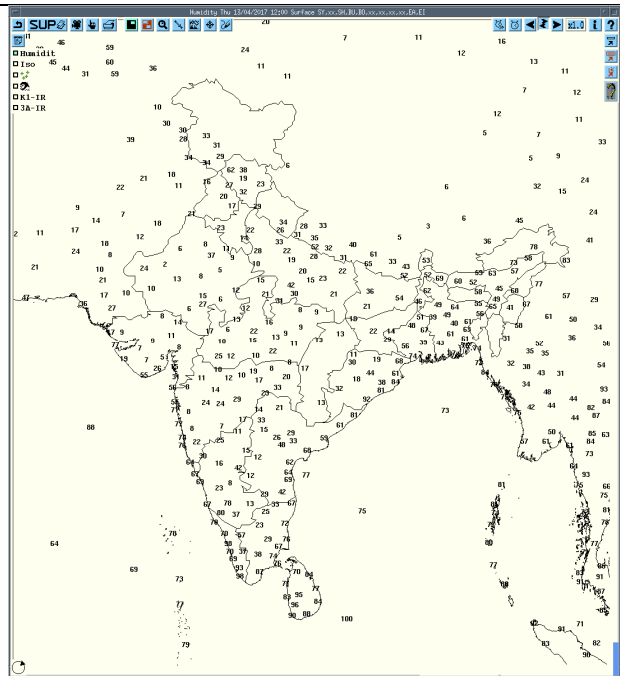
MSLP



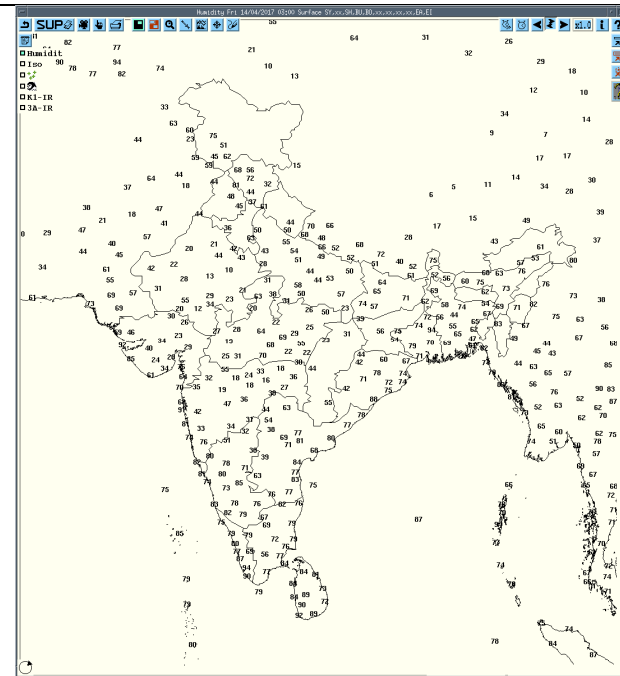
DepartureMSLP



TendencyMSLP



RH at 12UTCyesterday



RH at 03UTCtoday

Realized weather past 24 hours(Based on SYNERGIE Products)

Date	Time of Reporting	Name of Station Reporting	Region	STATE	Weather Event
12-04-17	0600 UTC	Nil	Nil	Nil	Nil
12-04-17	0900 UTC	Thiruvananthapuram	South India	Kerala	Thunderstorm
12-04-17	1200 UTC	Madikeri	South India	Karnataka	Thunderstorm
		Karipur,Palakkad, Punalur, Thiruvananthapuram	South India	Kerala	Thunderstorm
		Coimbatore	South India	Tamilnadu	Thunderstorm
12-04-17	1500 UTC	Nil	Nil	Nil	Nil
12-04-17	1800 UTC	Nil	Nil	Nil	Nil
12-04-17	2100 UTC	Nil	Nil	Nil	Nil
13-04-17	0000 UTC	Nil	Nil	Nil	Nil
13-04-17	0300 UTC	Nil	Nil	Nil	Nil

Past24hoursDWRReport:

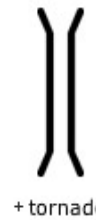
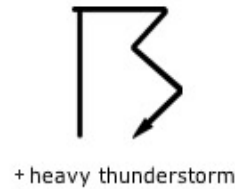
Radar Station name	Date	Time interval of observation (UTC)	Organization of the cells (Isolated single cells/multiple cells/ convective regions/ squall lines) with height of 20 dBZ echo top and maximum reflectivity	Formation w.r.t radar station and Direction of movement	Remarks	Associated severe weather if any	Districts affected
DWR HYDERABAD	13/14.04 .2017.	NIL	NIL	NIL	NIL	NIL	NIL
PATNA	14/04/20 17	130300 - 140300	NIL	NIL	N/A	N/A	N/A
Patiala	14/04/20 17	13 April 0302 to 14 April 0252 UTC	Nil	Nil	No Echoes	Nil	Nil
DWR LUCKNOW	14/04/20 17	130300UTC to 140600UTC	NIL	NIL	NIL	NIL	NIL
DWRVSK	13/04/17	0300 UTC-0600 UTC	Multiple cells with average height of 7km with maximum reflectivity 45dBZ	NE(200KM) moving Sly	Cells start forming and not matured well and start dissipating.	-	-
	13/04/17 13/04/17	0600 UTC-0900 UTC	Multiple cells with average height of 5km with maximum reflectivity 52dBZ	NE(140KM) moving SWly	Cells start forming and not well matured and start dissipating.	-	-

	13/04/17	0900 UTC-1200 UTC	Multiple cells with average height of 5km with maximum reflectivity 65dBZ	SW(2000KM)	Cells start forming and not well matured and start dissipating.	-	-
	13/04/17						
	14/04/17	1200 UTC-1500 UTC	Multiple cells with average height of 6km with maximum reflectivity 55dBZ	SW(150KM) & NE(100KM) moving SWly	Cells start forming and not well organised and start dissipating.	-	-
		1500 UTC-1800 UTC	Multiple cells with average height of 7km with maximum reflectivity 45dBZ	SW(150KM) & NE(100KM) moving SWly	Cells start forming and not well organised and start dissipating.	-	-
		1800 UTC-0000 UTC	Multiple cells with average height of 8km with maximum reflectivity 50dBZ	SW(150KM) moving SWly	Cells start forming and not well matured and start dissipating.	-	-
		130000-130300	Isolated Cells with height 6kms and Max reflectivity 40 dBZ.	NW(190 KM) & NE(200 KM) moving SWly	Cells are forming and not matured well and start dissipating.	-	-
Nagpur	13/04/17	0802-1022	Single	35 km NE, moving S'ly	< 10 dBZ		
		0812-0902	Single	150 km NE, nearly standstill	< 10 dBZ		
		0822-0902	Single	120 km SSE, nearly standstill	< 10 dBZ		
		1322-1602	Single	10 km NE, moving NE'ly	< 10 dBZ		
		1612-2332	Group of very small patches	Distributed from 10 km to 30 km SW, moving NW'ly	< 7 dBZ		
Srinagar	14/04/20 17	13April 03Z to 14April 3Z(24hrs)	NIL	NIL	NIL	NIL	NIL

DWR KOLKATA	13-04-2017	0301-0751 UTC	NIL	NIL	NO ECHO	NIL	NIL
	13-04-2017 13-04-2017	0801-1251 UTC	1. Isolated single cell with maximum height of 12.90 Km at 1012 UTC and maximum reflectivity of 56.0 dBz at 1041 UTC	NNW (236.1 km) and initially almost no movement then moved S-ly at speed of 25.6 kmph. NW (209.2 km) moving in SE-ly direction at a speed of 16.6 kmph.	Cell started forming at 0801 UTC at NNW (236.1 Km) from radar. Matured, dissipated at 1251 UTC in NNW at a distance of 209.2 km from Radar.	Thunderstorm /Rain	N/A
			2. Isolated single cell with maximum height of 11.73 Km at 0941 UTC and maximum reflectivity of 56.0 dBz at 0941 UTC		Cells started forming at 0911 UTC at NW (209.2 Km) from radar. Matured, dissipated at 1121 UTC in NW at a distance of 185.6 km from Radar	Thunderstorm /Rain	N/A
	14-04-2017	1301-2351 UTC	NIL	NIL	NO ECHO	NIL	NIL
		0001-0301 UTC	NIL	NIL	NO ECHO	NIL	NIL
Machilipatnam	03Z of 13/04/17 to 03Z of 14/04/17	NIL	NIL	NIL	NIL	NIL	NIL
AGARTALA	14/04/17	130640 - 131130	Multiple Cells with Maximum Height 15km and maximum reflectivity 47 dBZ (at 0900 UTC over Meghalaya-180 KM North of DWR Agartala)	NNW (210 KM) from DWR Agartala at 0640 UTC of 13.04.17 moving Eastwards at around 40 kmph	Cells dissipated at 1130 UTC of 13.04.17 over Meghalaya and adjoining Assam	TS at Cherrapunjee	East Khasi Hills District of Meghalaya

--	--	--	--	--	--	--	--

∞	haze
☁	smoke
☁	dust or sand storm
☁	fog
☁	drizzle
•	rain
*	snow
▽	showers
△	hail
☁	thunderstorm
Weather Symbols	



www.visualdictionaryonline.com