

# India Meteorological Department FDP STORM Bulletin No. 82 (27-05-2018)

## 1. CURRENT SYNOPTIC SITUATION:

### **NWFC INFERENCE (0300UTC of the Day):**

Southwest Monsoon further advanced into some parts of South Arabian Sea and Maldives Comorin area; some more parts of south Bay of Bengal, Andaman & Nicobar Islands and Andaman Sea. The Northern Limit of Monsoon (NLM) passes through Lat. 5°N/ Long 70°E, Lat. 5°N/ Long 75°E, Lat 6°N/ Long 80°E, Lat 8°N/ Long. 85°E, Lat. 11°N/ Long 90°E, Mayabandar, Lat.15°N/ Long 95°E and Lat.17°N/ Long 98°E. Conditions are favourable for further advance of Southwest Monsoon into some parts of South Arabian Sea, entire Comorin Maldives areas; some more parts of South Bay of Bengal, Andaman Sea and Andaman & Nicobar Islands during next 24 hours. Conditions are very likely to become favourable for further advance of Southwest Monsoon into some more parts of South Arabian Sea, Comorin area; some parts of Lakshadweep, south Kerala & south Tamilnadu; some more parts of south Bay of Bengal; remaining parts of Andaman Sea and some parts of East central Bay of Bengal during subsequent 48 hours.

• The low pressure area over southeast Arabian sea off Kerala Karnataka coasts with associated cyclonic circulation extending upto 7.6 km above mean sea level persists. It is very likely to become a well marked low pressure area during next 48 hours.

• The Depression over Oman moved north north-westwards and further weakened into a well marked low pressure area at 0830 hours IST of 27th May, 2018 over Saudi Arabia and adjoining area of Oman & Yemen.

- ♦ A low pressure area is likely to develop over east central Bay of Bengal around 28th May.
- The north south trough at 1.5 Km above mean sea level from East Madhya Pradesh to south Madhya Maharashtra across west Vidarbha persists.

• The feeble Western Disturbance as an upper air cyclonic circulation over eastern parts of Afghanistan & neighbourhood now lies over north Pakistan & neighbourhood between 3.1 and 5.8 km above mean sea level.

- ♦ A cyclonic circulation lies over Punjab & neighbourhood and extends upto 1.5 km above mean sea level.
- A cyclonic circulation lies over West Madhya Pradesh & adjoining east Rajasthan and extends upto 0.9 km above mean sea level.
- A cyclonic circulation lies over northern parts of West Bengal & neighbourhood and extends upto 0.9 km above mean sea level.

### SATELLITE OBSERVATIONS during past 24 hrs and current observation:

### Current Observation (based on 0600UTC imagery of INSAT 3D):

### Vortex over Southeast Arabian Sea:

Low Level Circulation over Southeast Arabian Sea adjoining Lakshadweep has further intensified and now lay centered within half degree of Lat 10.8N/72.8N. Intensity T1.0 repeat T1.0. Associated broken low/med clouds with embedded moderate to intense convection seen over Southeast Arabian Sea adjoining Lakshadweep area Between Lat 5.5N to 16.5N Long 66.0E To 75.0E in association with low level circulation over the area.

#### **Clouds Descriptions within India:**

### NORTH:-

Isolated low/medium clouds over Jammu & Kashmir, Himachal Pradesh and Uttarakhand

### EAST:-

Scattered low/medium clouds with embedded moderate to intense convection seen over West Assam adjoining Arunachal Pradesh. Scattered low/medium clouds with embedded isolated weak to moderate convection seen over rest Assam, Nagaland, Manipur, Mizoram and Sikkim. Scattered low/medium clouds over seen over Chhattisgarh, Odisha, Jharkhand and Meghalaya.

### WEST:-

Scattered low/medium clouds with embedded isolated weak to moderate convection seen over South Konkan and Goa. Scattered low/medium clouds over seen over Southeast Madhya Pradesh, Vidarbha, Marathwada and extreme South Madhya Maharashtra.

### SOUTH:-

Broken low/medium clouds with embedded moderate to intense convection seen over extreme North Kerala, extreme West Coastal Karnataka, Lakshadweep, Andaman & Nicobar Islands. Scattered low/medium clouds with embedded weak to moderate convection seen over rest Karnataka and rest Kerala. Scattered low/medium clouds over seen over Telangana.

### Arabian Sea:

Broken low/medium clouds with embedded moderate to intense convection over rest Southeast Arabian Sea.

### Bay Of Bengal & Andaman Sea:

Broken low/medium clouds with embedded intense to very intense convection seen over South Bay Central Bay, East Central Bay & Andaman Sea Gulf of Mannar Tenasserim Coast.

### Past Weather:

#### Convection (during last 24 hrs):

Moderate to Intense convection was observed over Vidarbha Marathwada North-East Madhya Pradesh South Konkan and GOA Coastal Karnataka North Interior Karnataka North Kerala North-East Bihar Sub-Himalayan West Bengal Assam Meghalaya Chhattisgarh Nagaland Manipur Telangana Lakshadweep islands Andaman & Nicobar Islands.

### OLR:

Upto **280** wm<sup>-2</sup> was observed over North J&K Himachal Pradesh Karnataka Tamilnadu Kerala North East States South Chhattisgarh (.)

Synoptic features: Jet-Stream: No Jet Stream is observed over India.

### **Dynamic Features:**

# Wind Shear, Vorticity & Convergence:

Wind shear up to 30- 40 Knots is observed over Northern India Wind shear upto 5-15 knots is observed over rest parts of India Positive low level convergence observed over the country except South East Tamilnadu

## Precipitation:

## IMR:

Rainfall Up to 150 mm was observed over South Konkan and Goa Coastal Karnataka Coastal Kerala Bay islands Lakshadweep (.)

Rainfall Up to 90 mm was observed over South Interior Karnataka North NIK South Madhya Pradesh Marathwada Vidarbha South Chhattisgarh South Orissa Meghalaya Sikkim North Telangana.

Rainfall Up to 50 mm was observed over Rest North-East states Tamilnadu

### DWR and RAPID Observations:

Isolated/multiple light to moderate echoes were also seen on DWR Chennai, Goa, Gopalpur, Hyderabad, Patiala, Patna and Thiruvananthapuram DWR domains at around 1530 IST.

RAPID RGB Satellite imagery at 1430 IST indicated significant convection over Central Assam, North Tripura, South Bihar, Jharkhand, extreme North Chhattisgarh, Kerala, Tamilnadu, Lakshadweep and Andaman & Nicobar Islands.

### Environmental Condition (dust etc) and its Forecast based on 00UTC of date:

Higher Dust concentration was observed over northern Africa, Arab countries and western part of India. Dust concentration is expected to increase over IGP and north India.

Particulate matter concentration is expected to remain in moderate category for next 2 days in Delhi.

Delhi – SAFAR analysis & Forecast	27.05.2018	28.05.2018
PM10 (micro-g/m <sup>3</sup> )	220	198
PM2.5 (micro-g/m <sup>3</sup> )	78	70

# 2. NWP MODEL GUIDANCE:

## NCMRWF (NCUM forecast based on 00UTC the day):

## 1. Weather Systems:

Low level Cycirs, Troughs: 12UTC of Day 0-3: A CYCIR at 850 hPa over coastal Kerala-Karnataka is tracking northwards to over coastal Karnataka and Goa in Dy-2 and 3.

Confluence & Wind Discontinuity Regions: 00 & 12UTC on Day1-3 at 850 hPa: Weak CYCIR over head Bay of Bengal.

Synoptic systems: 00 &12UTC of Day-2-4: Feeble trough west of J & K region moving eastwards

# 2. Location of jet and jet core (>60kt) at 500hPa: NIL. Strong westerly: over Pakistan.

### 3. Convergence at 850 hPa:

### Day/Index: Subdivisions with Lower Level Convergence > 15 x 10^-5 /s

Day0: Jammu Kashmir, West MP, East MP, Saurashtra Kutch, Madhya Maharashtra,

Day1: Jharkhand, Himachal Pradesh, Odisha, West MP, East MP, Saurashtra Kutch, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, NI Karnataka,

Day2: Jharkhand, East UP, West UP, Jammu Kashmir, East Rajasthan, West MP, East MP, Madhya Maharashtra, Chhattisgarh,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Jharkhand, Punjab, East Rajasthan, West MP, East MP, Konkan Goa, Chhattisgarh, Day4: East Rajasthan, Odisha, West MP, East MP, Madhya Maharashtra,

### 4. Low level Vorticity:-Positive Vorticity:

### Day/Index: Subdivisions with Lower Level Vortex > 15 x 10^-5 /s

Day0: Arunachal Pradesh, Assam Meghalaya, Jammu Kashmir, Saurashtra Kutch, Madhya Maharashtra, Tamilnadu, Puducherry, Kerala, Day1: Arunachal Pradesh, Assam Meghalaya, Jharkhand, Bihar, East UP, East MP, Madhya Maharashtra, Tamilnadu, Puducherry, Coastal Karnataka, Kerala,

Day2: NE NMMT, Jharkhand, Bihar, Konkan Goa, Tamilnadu, Puducherry, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Jharkhand, Odisha, East MP, Konkan Goa, Tamilnadu, Puducherry, Kerala, Day4: Assam Meghalaya, NE NMMT, Gujarat Region, Tamilnadu, Puducherry,

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

### Day/Index: Subdivisions with Showalter Index < -4

Day0: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Coastal AP, Rayalseema, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra,

Day3: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Himachal Pradesh, Jammu Kashmir, Odisha,

Day4: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Gujarat Region, Konkan Goa,

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

### Day/Index: Subdivision with Total Totals Index > 52

Day0: Arunachal Pradesh, Sub Himalayan WB, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Konkan Goa, Madhya Maharashtra, Day1: Arunachal Pradesh, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Chhattisgarh,

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

Day3: Arunachal Pradesh, 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, Chhattisgarh,

Day4: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Chhattisgarh,

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

### Day/Index: Subdivisions with K Index > 40

Day0: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Telangana, Rayalseema, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day1: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu, Puducherry, NI Karnataka,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Gujarat Region, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalseema, NI Karnataka,

Day4: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Gujarat Region, Konkan Goa, Madhya Maharashtra, Marathwada, Chhattisgarh, Coastal AP, Telangana, Rayalseema, Tamilnadu, Puducherry, NI Karnataka,

### 8. Rainfall and thunder storm activity:

### Day/Index: Subdivisions with Precipitation > 2 cm

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Jammu Kashmir, Andaman Nicobar, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Jammu Kashmir, Konkan Goa, Andaman Nicobar, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, Jammu Kashmir, Konkan Goa, Madhya Maharashtra, Andaman Nicobar, Tamilnadu, Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Konkan Goa, Madhya Maharashtra, Andaman Nicobar, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day5: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Odisha, Konkan Goa, Madhya Maharashtra, Andaman Nicobar, Tamilnadu, Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

### 3. IOP ADVISORY FOR 24 and 48Hrs:

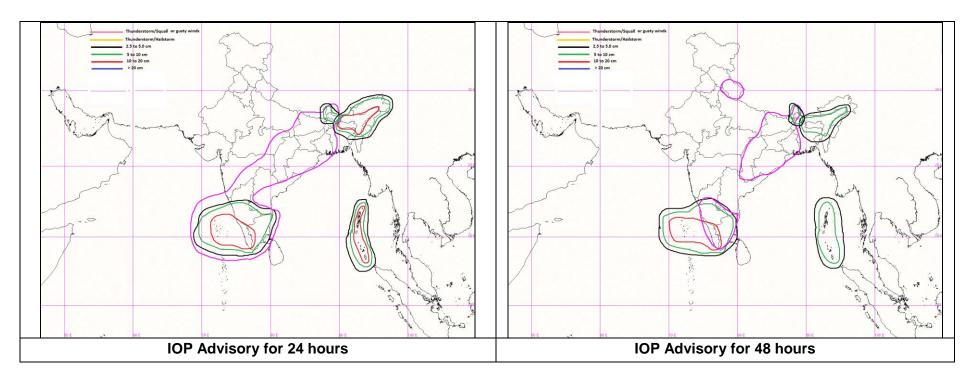
#### **Summary and Conclusions:**

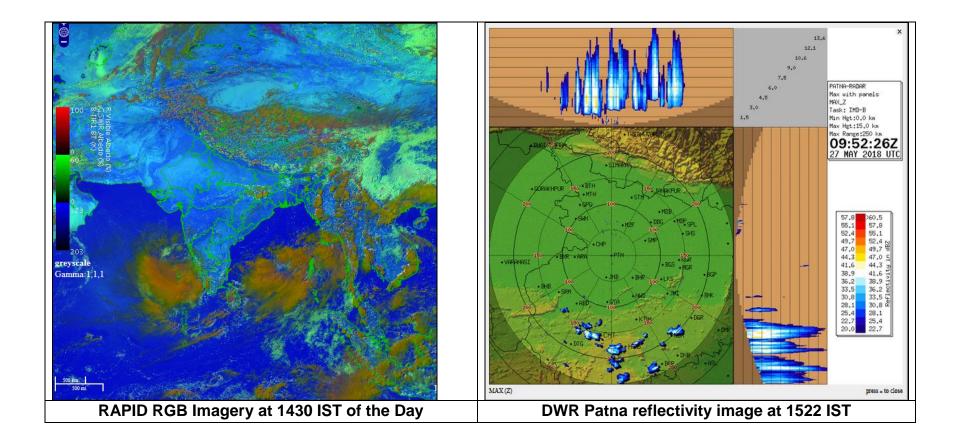
- Synoptic analysis indicates that there is a low pressure area over southeast Arabian Sea off Kerala Karnataka coasts with associated cyclonic circulation. It is very likely to become a well marked low pressure area during next 48 hours. Due to these systems, the Kerala, Lakshadweep and South Interior Karnataka may get heavy to very heavy rainfall on Day-1. The heavy rainfall activity may continue to the same area for Day-2. The thunderstorm with gusty winds may also likely over Telangana, North Interior Karnataka, South Interior Karnataka and Tamilnadu on Day-1.
- A low pressure area is likely to develop over east central Bay of Bengal. This system will give the heavy to very heavy rainfall over Andaman and Nicobar Islands on Day-1.
- Due to the northsouth trough from East Madhya Pradesh to south Madhya Maharashtra across west Vidarbha, this area may get thunderstorm with gusty winds activities on Day-1.
- Most thermodynamic indices (K-Index, Lifted Index) from IMD GFS deterministic model indicate high probability of thunderstorm occurrence over Eastern India on Day 1.

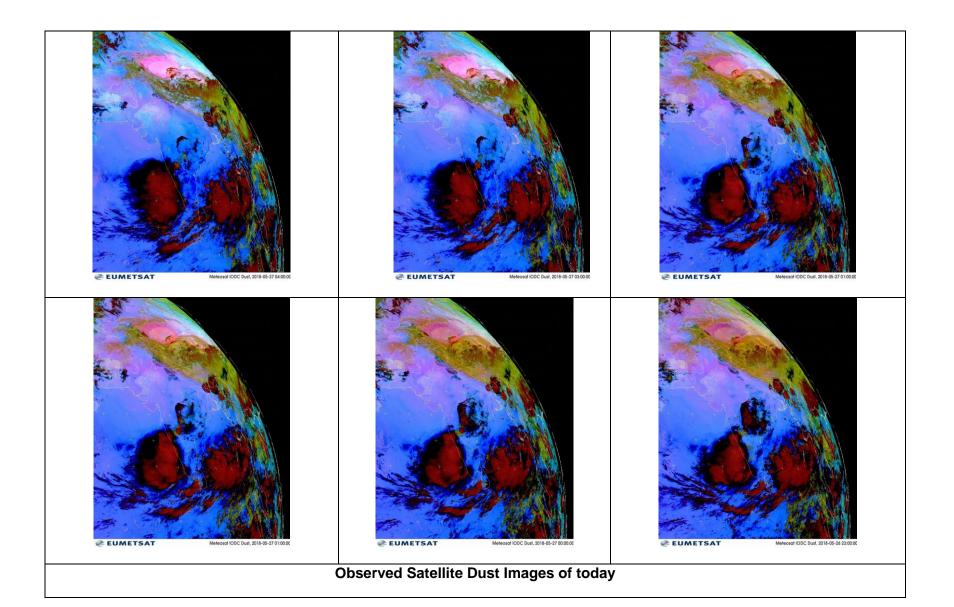
### IOP Area for Day-1 & Day-2:

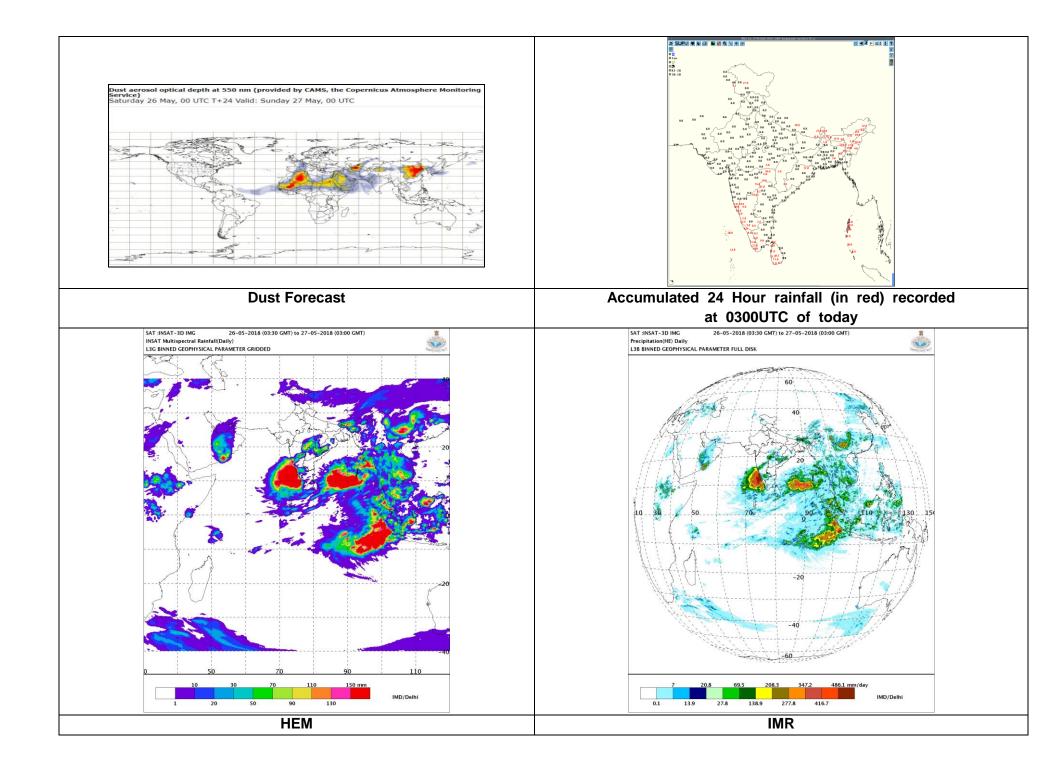
24 hour Advisory for IOP:	48 hour Advisory for IOP:		
Significant Rainfall:	Significant Rainfall:		
Assam and Meghalaya, Arunachal Pradesh,	Assam and Meghalaya,		
Sub Himalayan West Bengal and Sikkim	Sub Himalayan West Bengal and Sikkim		
Tamil Nadu, South Interior Karnataka, Coastal Karnataka, Kerala,	Tamil Nadu, South Interior Karnataka, Coastal Karnataka, Kerala,		
Lakshadweep, Andaman and Nicobar Islands	Lakshadweep, Andaman and Nicobar Islands		
<b>Thunderstorm with squall or gusty winds:</b>	Thunderstorm with squall or gusty winds:		
Sub Himalayan West Bengal and Sikkim, Gangetic West Bengal,	Uttarakhand		
Jharkhand, Bihar, Odisha,	Sub Himalayan West Bengal and Sikkim, Gangetic West Bengal		
Chhattisgarh, East Madhya Pradesh, Vidarbha	Jharkhand, Bihar, Odisha, Chhattisgarh		
South Madhya Maharashtra, Telangana	South Madhya Maharashtra, Telangana		
Tamil Nadu, Kerala, Karnataka, Telangana, Lakshadweep,	Tamil Nadu, Kerala, South Interior Karnataka		
Thunderstorm with squall and hail	Thunderstorm with squall and hail		
Nil	Nil		
<b>Thunderstorm/Duststorm:</b>	<b>Duststorm:</b>		
Punjab, Haryana, Chandigarh, Delhi,	Punjab, Haryana, Chandigarh, Delhi,		
Uttar Pradesh, Rajasthan	Uttar Pradesh, Rajasthan		

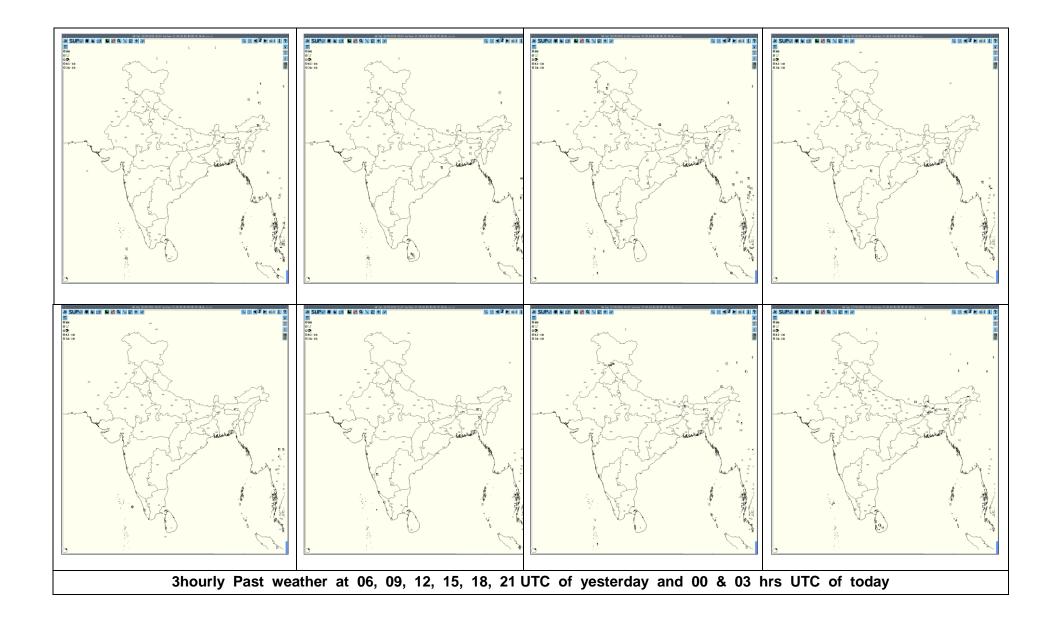
# **Graphical Presentation of Potential Areas for Severe Weather:**

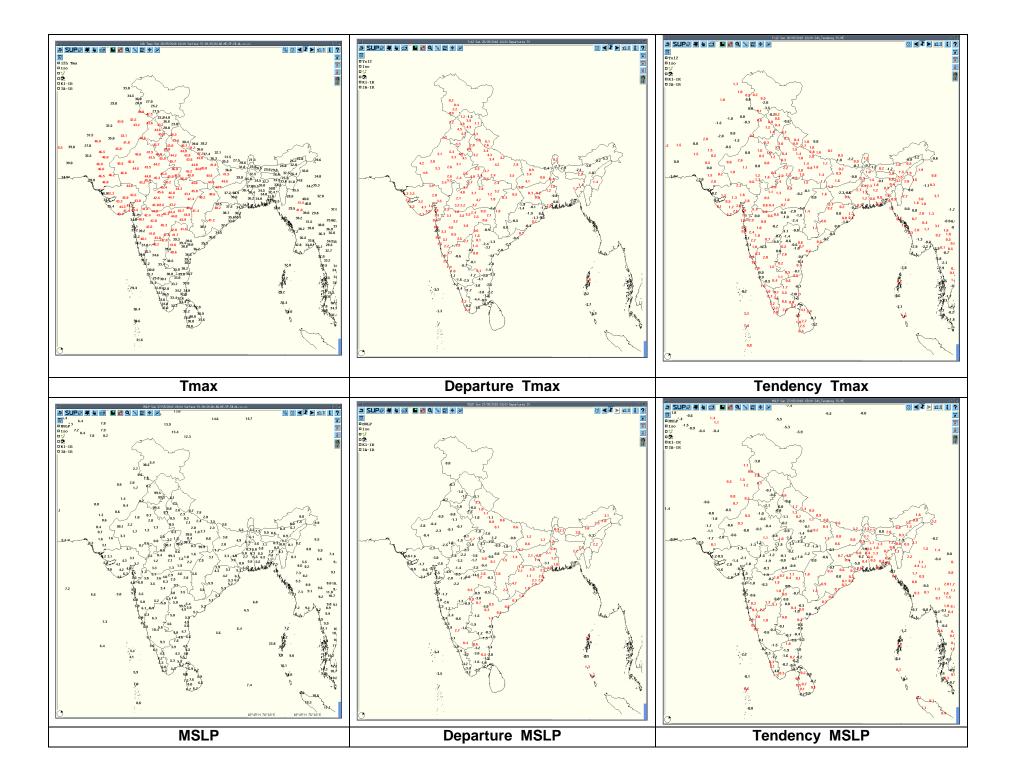


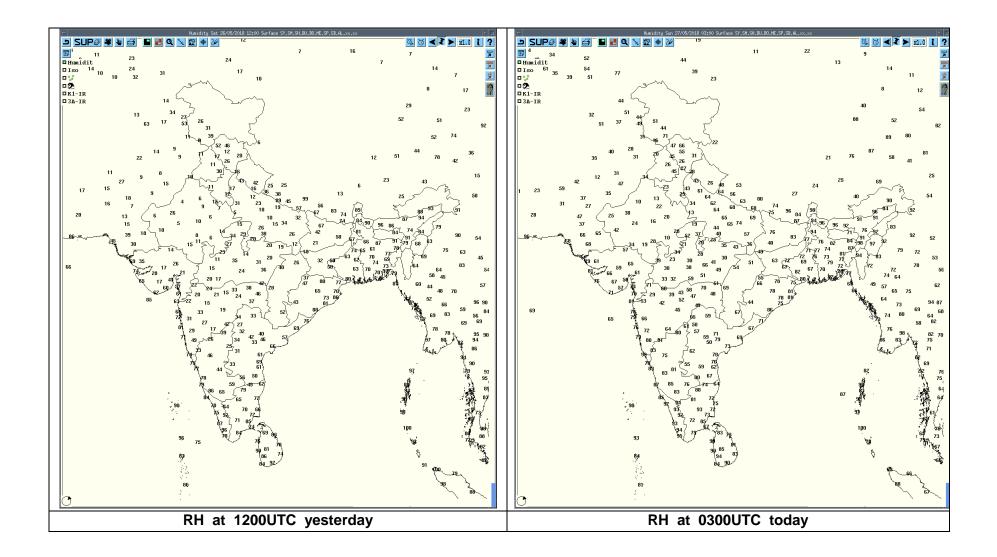












# Past 24 hours DWR Report:

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
Visakhapatnam	27/05/18	26/0900UTC	Multiple Cb cells out of which maximum reflectivity of 61 dBZ with maximum height of 13 kms	NW (123 kms ) & NNE (168 kms) moving W ly	Cb cells started forming at 0621 UTC matured at 0801 UTC with max. reflectivity of 61 dbz	Thunderstorm	Gajapati ganjam kalahandi districts of orissa
		26/1200UTC	Multiple Cb cells out of which maximum reflectivity of 62 dBZ with maximum height of 13 kms	NNE(195 kms ) moving SW ly	Since last observation cb cells are developing matured at 1021 UTC with max. reflectivity of 62 dbz	Thunderstorm	Gajapati ganjam dantewada districts of orissa
		26/1500UTC	Multiple cb cells out of which maximum reflectivity of 64 dBZ with maximum height of 12 kms	NW(152 kms ) moving SW ly	Since last observation cb cells are developing matured at 1311 UTC with max. reflectivity of 64 dbz and dissipated at 1441 UTC	Thunderstorm	West Godavari district balangir naupada districts of Orissa
Lucknow	27/05/18	Nil	Nil	Nil	Nil	Nil	Nil
Jaipur	27/05/18	Nil	Nil	Nil	Nil	Nil	Nil
Patiala	27/05/18	Nil	Nil	Nil	Nil	Nil	Nil
Patna	27/05/18	Nil	Nil	Nil	Nil	Nil	Nil

# Realised past 24hrs TS/SQ/HS Data:

Name of Station Reporting	Region	State/Sub Division	Weather Event (TS/Hail/Squall)	Date	Time of Commencem ent (IST)	Time of end (IST)
Pahalgam	Northwest India	Jammu & Kashmir	Thunderstorm	26-05-18	1705	1810
Banihal	Northwest India	Jammu & Kashmir	Thunderstorm	26-05-18	1410 1700	1530 1750
Nagpur	Central India	Vidarbha	Thunderstorm	26-05-18	1755	2305
Bramhapuri	Central India	East Madhya Pradesh	Thunderstorm	26-05-18	2210	2245
Chandrapur	Central India	Chhattisgarh	Thunderstorm	26-05-18	2330	xxxx
Yeotmal	Central India	Chhattisgarh	Thunderstorm	26-05-18	1400	1800
Passighat	Northeast India	Arunachal Pradesh	Thunderstorm	26-05-18	26/1400	26/1600
Jorhat	Northeast India	Assam	Thunderstorm	26-05-18	26/1450	26/1620
Silchar	Northeast India	Assam	Thunderstorm	26/27-05-18	26/1610 27/0500	26/1820 27/0700
Tezpur	Northeast India	Assam	Thunderstorm	27-05-18	27/0540	27/0630
Dhubri	Northeast India	Assam	Thunderstorm	27-05-18	27/0100	27/0510
Guwahati	Northeast India	Assam	Thunderstorm	26/27-05-18	26/2255	27/0830
Cherrapunjee	Northeast India	Meghalaya	Thunderstorm	26/27-05-18	26/2030	27/0830
Kailasahar	Northeast India	Tripura	Thunderstorm	26-05-18	26/1400	26/1450
Mangalore AP	South India	Coastal Karnataka	Thunderstorm	26-05-18	1725	1820
					0020 0225	0115 0340
Panambur	South India	Coastal Karnataka	Thunderstorm	26-05-18	0020 0210	0110 0320
Kalaburgi	South India	North Interior Karnataka	Thunderstorm	26-05-18	1700 1820	1730 2330
Belgravia AP	South India	North Interior Karnataka	Thunderstorm	26-05-18	0005	0325
Bengaluru City	South India	South Interior Karnataka	Thunderstorm	26-05-18	1715	1740
AMS HAL Bengaluru	South India	South Interior Karnataka	Thunderstorm	26-05-18	1705	1800
Bengaluru KIAL AP	South India	South Interior Karnataka	Thunderstorm	26-05-18	1623	2030
Yelahanka IAF	South India	South Interior Karnataka	Thunderstorm	26-05-18	1610	1800
Nizamabad	South India	Telangana	Thunderstorm	27-05-18	0030	0205
Karipur A P	South India	Kerala	Thunderstorm	26-05-18	1500	0005
Kozhikode	South India	Kerala	Thunderstorm	26-05-18	1800 2000	1815 2040
Thiruvananthapuram AP	South India	Kerala	Thunderstorm	26-05-18	1730	1950
Amini	South India	Lakshadweep	Thunderstorm	27-05-18	0235 0430	0355 0500

# **IMPORTANT LINKS:**

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 RANDHRA PRADESHID tool: http://rAndhra Pradeshid.imd.gov.in/ Low Level Winds http://satellite.imd.gov.in/archive/INSAT-3D-IMAGER/3D-PRODUCTS/AMV/LLW/MAR 2017/?C=M;O=D Upper level winds http://satellite.imd.gov.in/archive/INSAT-3D-IMAGER/3D-PRODUCTS/AMV/HLW/MAR 2017/?C=M;O=D Past24hourHEMandIMRrainfall(upto03UTCoftoday) IMR: http://satellite.imd.gov.in/img/3Ddaily\_imr.jpg HEM: http://satellite.imd.gov.in/img/3Ddaily he.jpg ForRadarimagesofthepast24hoursincludingmosaicofimages: http://ddgmui.imd.gov.in/dwr img/ Satellite sounder based T- Phigram http://satellite.imd.gov.in/mAndhra Pradesh skm2.html

# WEATHER SYMBOLS:

