

India Meteorological Department

FDP STORM Bulletin No. 98 (12-06-2018)

1. CURRENT SYNOPTIC SITUATION:

NWFC Inference (0300UTC of the day):

♦ The southwest monsoon has further advanced into some more parts of Odisha and Gangetic West Bengal, remaining parts of northwest Bay of Bengal, entire Arunachal Pradesh and most parts of Assam & Meghalaya and of Sikkim. The Northern Limit of Monsoon (NLM) passes through Lat 19°N/ Long 60°E, Lat 19°N/ Long 70°E, Thane (including Mumbai), Ahmednagar, Buldhana, Amraoti, Gondia, Titlagarh, Cuttack, Midnapore, Lat. 24°N/ Long 89°E, Goalpara, Bagdogra and Lat 27°N/ Long 87°E. No further advance likely during the next one week due to weakening of monsoon flow.

• The low pressure area over Tripura & neighbourhood has become less marked. However the associated cyclonic circulation extending upto 7.6 km above mean sea level now lies over south Assam & Meghalaya & neighbourhood.

♦ A trough at 7.6 km above mean sea level runs from the above cyclonic circulation to north Coastal Andhra Pradesh across Bangladesh, Gangetic West Bengal and Odisha.

• The cyclonic circulation over Bihar & neighbourhood between 1.5 and 3.1 km above mean sea level has become less marked.

• The off shore trough at mean sea level from Goa coast to Kerala coast now lies off Coastal Karnataka - Kerala coasts.

• The Western disturbance as an upper air cyclonic circulation over north Pakistan and adjoining Jammu & Kashmir now lies over Jammu & Kashmir & neighbourhood between 5.8 km & 7.6 km above mean sea level.

♦ A cyclonic circulation at 1.5 km above mean sea level lies over north Haryana & neighbourhood.

Satellite Observations during past 24 hrs and current observation: Current Observation (based on 0600UTC imagery of INSAT 3D):

Vortex over Tripura adjoining NE Bangladesh & N/Hood:

A Vortex lies over Nagaland, Mizoram, Manipur and neighbourhood (over land). Associated broken low/medium clouds with embedded moderate to intense convection observed over northeastern states adjoining Myanmar & adjoining Bangladesh.

Clouds descriptions within India:

NORTH: No significant clouds over the region.

EAST: Broken low/medium clouds with embedded moderate to intense convection seen over East Bihar, Nagaland, Manipur, Mizoram 7 tripura, east Assam, and Sikkim. Broken low/medium clouds with embedded weak to moderate convection seen over rest parts of the region except West Bihar.

WEST: Broken low/medium clouds with embedded isolated weak convection seen over South Madhya Pradesh, Vidarbha, Madhya Maharashtra, Goa and Marathwada.

SOUTH: Broken low/medium clouds with embedded moderate to intense convection seen Coastal Odisha and weak to moderate convection over rest parts of the region except scattered low/medium clouds over North Interior Karnataka.

Arabian Sea:

Scattered low/medium clouds with embedded moderate convection seen over Arabian Sea off Karnataka-Kerala Coast and isolated weak to moderate convection seen over Southeast Arabian Sea.

Bay of Bengal & Andaman Sea:

Broken low/medium clouds with embedded moderate to intense convection seen over Bay North of lat 10.0N, Arakan Coast, Southeast Bay, Andaman Sea and Gulf of Martaban.

Past Weather:

Convection (during last 24 hrs):

Moderate to Intense convection was observed over North-East States Telangana Andhra Pradesh Karnataka Vidarbha Madhya Maharashtra Marathwada South-East Madhya Pradesh Jharkhand Orissa South GWB Bihar Kerala North Tamilnadu Bay islands.

OLR:-

Up to **150** wm⁻² was observed over South-East Bihar North-East Jharkhand North Tamilnadu Coastal Orissa Manipuri Mizoram Tripura. Up to **230** wm⁻² was observed over Madhya Pradesh Konkan & GOA Vidarbha North Interior Karnataka, Rayalaseema, and Telangana North Coastal Andhra Pradesh Rest NE States.

Upto 340 w/m²: over Rajasthan Haryana Uttar Pradesh North Madhya Pradesh, Andaman and Nicobar Islands.

Dynamic Features:

Wind Shear, Vorticity & Convergence-

Wind shear up to 05-15 Knots is observed over North and NE India Arunachal Pradesh, Assam, 40-60 Knots observed over Central & Peninsula India. Positive Shear tendency is observed over South and Central India.

Precipitation:

IMR:

Rainfall >150 mm was observed over South Gangetic West Bengal North-East Orissa

Rainfall up-to 50-90 observed over mm South-East Madhya Pradesh Rest North Orissa Nagaland (.) Rainfall up-to 20-50 mm observed over Telangana Coastal Andhra Pradesh Orissa Chhattisgarh Bihar East Assam Manipur (.) Rainfall up-to 10-20 mm observed over Tamilnadu South Kerala South Interior Karnataka Rayalaseema Meghalaya (.)

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 decrease over IGP and north India.

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

Delhi – SAFAR analysis & Forecast	12.06.2018	13.06.2018
PM10 (micro-g/m ³)	238	214
PM2.5 (micro-g/m ³)	78	70

DWR and RAPID Observations:

Light to moderate echoes observer over DWR Agartala, Bhopal, Hyderabad, Kochi, Machilipatnam, Nagpur, Patna, Vishakhapatnam and Light echoes over Gopalpur, Mohanbari, Srinagar and Thiruvananthapuram at around 1630 IST.

RAPID RGB Satellite imagery at 1530 IST indicates significant convection over South Assam, East Meghalaya, Nagaland, Manipur, Mizoram, Tripura, Central Bihar, Jharkhand, Gangetic West Bengal, Coastal Odisha, North Chhattisgarh, Coastal Andhra Pradesh adjoining Chhattisgarh, East Telangana and North Kerala.

2. NWP MODEL GUIDANCE:

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

1. Weather Systems:

Low level Cycirs, Troughs: 00&12UTC of Day 1-4: CYCIR over Bangladesh day 0-1. A trough over Bangladesh and NE states in Day 2-4

Confluence & wind Discontinuity regions: 00 & 12 UTC of Day1-3: Gangetic plains of UP and Bihar

Synoptic systems: 00 & 12 UTC of Day0-2: Lower level trough extending from head Bay of Bengal to east coast of India

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

3. Convergence at 850 hPa:

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

Day0: Assam Meghalaya, Day1: NE NMMT, TN Puducherry, Day2: Assam Meghalaya, Uttarakhand, Day3: Arunachal Pradesh, Assam Meghalaya, Uttarakhand, Jammu Kashmir, TN Puducherry, Day4: Assam Meghalaya, NE NMMT, TN Puducherry,

4. Low level Vorticity:-Positive Vorticity:

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

Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Bihar, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, TN Puducherry, Kerala, Day2: Arunachal Pradesh, Assam Meghalaya, Bihar, East UP, Uttarakhand, Himachal Pradesh, TN Puducherry, Kerala, Day3: Arunachal Pradesh, Assam Meghalaya, Bihar, East UP, Uttarakhand, TN Puducherry, Kerala, Day4: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Bihar, East UP, TN Puducherry, Kerala,

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, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Gujarat Region, Saurashtra Kutch, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, SI Karnataka, Day1: Arunachal Pradesh, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Gujarat Region, Konkan Goa, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, NI Karnataka, SI Karnataka, Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Gujarat Region, Madhya Maharashtra, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, NI Karnataka, SI Karnataka,

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, Odisha, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, SI Karnataka,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, East MP, Gujarat Region, Saurashtra Kutch, Chhattisgarh, Coastal AP,

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, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, West MP, East MP, Gujarat Region, Saurashtra Kutch,

Day1: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Gujarat Region, Madhya Maharashtra,

Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, NI Karnataka,

Day2: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana,

Day3: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, Vidarbha, Chhattisgarh, Coastal AP, Telangana,

Day4: Arunachal Pradesh, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Gujarat Region, Saurashtra Kutch, Chhattisgarh, Coastal AP,

7. Spatial distribution of K Index :> 35[Very Unstable thunderstorm likely]:

Day/Index: Subdivisions with K Index > 40

Day0: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, West RJ, East RJ, Odisha, West MP, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN Puducherry, NI Karnataka, Day1: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, Odisha, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, TN Puducherry, NI Karnataka, Day1: Arunachal Pradesh, Jammu Kashmir, Odisha, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, TN Puducherry, NI Karnataka,

Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, Uttarakhand, Himachal Pradesh, Jammu Kashmir, East RJ, Odisha, West MP, Gujarat Region, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Rayalaseema, TN Puducherry, NI Karnataka,

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

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, East UP, West UP, Uttarakhand, Haryana, Chandigarh, Delhi, Punjab, Himachal Pradesh, Jammu Kashmir, Odisha, West MP, East MP, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal AP, Telangana, Rayalaseema, TN 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, Gangetic WB, Bihar, Odisha, Konkan Goa, Madhya Maharashtra, Chhattisgarh, Coastal AP, Rayalaseema, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala, Day2: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Gangetic WB, Jharkhand, Bihar, Uttarakhand, Konkan Goa, Madhya Maharashtra, TN Puducherry, Coastal Karnataka, NI Karnataka, Kerala, Madhya Maharashtra, TN Puducherry, Coastal Karnataka, NI Karnataka, Kerala, Bihar, Uttarakhand, Konkan Goa, Madhya Maharashtra, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala, Madhya Maharashtra, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala, Kerala, Kerala, Kerala, Kerala, Kerala, Kerala, Kerala, TN Puducherry, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala, K

Day3: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Konkan Goa, Madhya Maharashtra, Andaman Nicobar, TN Puducherry, Coastal Karnataka, SI Karnataka, Kerala,

Day4: Arunachal Pradesh, Assam Meghalaya, NE NMMT, Sub Himalayan WB, Uttarakhand, Jammu Kashmir, Konkan Goa, Madhya Maharashtra, Andaman Nicobar, Rayalaseema, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

Day5: Arunachal Pradesh, Assam Meghalaya, Sub Himalayan WB, Uttarakhand, Konkan Goa, Madhya Maharashtra, Andaman Nicobar, Coastal Karnataka, NI Karnataka, SI Karnataka, Kerala,

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

1. Synoptic Systems: The analysis based on 00 UTC indicates a cyclonic circulation over Punjab and adjoining Haryana in lower troposphere (850hPa). The forecast shows it will persist till day1. The analysis shows an off shore Trough extends off coastal Karnataka- Kerala coast. The forecast shows it will persist till day2. The analysis shows a cyclonic circulation over South Assam, Meghalaya and adjoining areas. The forecast show it will persist till day3.

2. Location of Jet and Jet Core (>60kt) at 500hPa: Although the presence of strong westerlies is found over South Peninsular and Northwest India but no jet core over the Indian region for the next 3 days.

3. Low Level Vorticity {850hPa Positive Vorticity (>12 x 10⁻¹/s)}: Low level Positive Vorticity is seen mostly around the cyclonic circulations, Northwest Rajasthan, Punjab, J&K, Foothills of Himalaya to Bihar, Jharkhand, GWB, over South Peninsular India including Kerala, Tamil Nadu and Andhra Pradesh and NE states adjoining areas during next 3 days.

4. Spatial distribution of T-storm Initiation Index, Lifted Index, Total Index, CAPE, CIN and Sweat Index [High potential for thunderstorm]:

T-Storm Initiation Index (> 3): Over parts of Haryana, Delhi, Gujarat, Rajasthan, Uttar Pradesh, Bihar, Jharkhand, Gangetic West Bengal, SHWB, Orissa, coastal Maharashtra, North Interior Karnataka, Telangana, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, East

and west Madhya Pradesh, along Northern parts of east and west coast of India, coastal Andhra Pradesh, coastal Tamil Nadu, Sikkim, Assam, Tripura, Mizoram and adjoining areas during next 3 days; over parts of Punjab and Uttarakhand on day 3.

Lifted Index (< -2): Similar to T-storm Index lies over parts of Himachal Pradesh, Punjab, Haryana, Delhi, Gujarat, Rajasthan, Uttar Pradesh, Bihar, Jharkhand, Gangetic West Bengal, SHWB, Orissa, coastal Maharashtra, Konkan & Goa, coastal and North Interior Karnataka, coastal Tamil Nadu, Telangana, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, East and west Madhya Pradesh, coastal Andhra Pradesh, along east and west coast of India, Sikkim, NE states and extreme south coastal parts of the country during next 3 days; significant zone with highest value of the index lies over parts of Gujarat, coastal Maharashtra, central parts of Madhya Pradesh, SHWB, Bihar adjoining East Uttar Pradesh, GWB, coastal Orissa and coastal Andhra Pradesh.

Total Total Index (> 50): Higher than Threshold value of the Index is seen over parts of J&K, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Delhi, Rajasthan, Gujarat, Foothills of Himalaya, Madhya Pradesh, Vidarbha, Chhattisgarh, Jharkhand, Bihar, Uttar Pradesh, Telangana, Chhattisgarh, Orissa, Sikkim and Arunachal Pradesh on day 1; it remains over same region on day 2 and 3 but also appears over parts of Madhya Maharashtra, Marathwada, Andhra Pradesh, coastal Maharashtra, GWB and NE states on day 2 and 3; significant zone with highest value of the index lies over parts of Haryana, Rajasthan, Uttar Pradesh, Madhya Pradesh, Vidarbha, Marathwada, Bihar, Orissa, Jharkhand, GWB and Chhattisgarh.

Sweat Index (> 300): Is seen over the sub-divisions along east and west coast, areas along foothills of Himalayas, Central India, South Peninsular India, NE states and most parts of the country during next 3 days; significant zone lies over parts of Himachal Pradesh, Uttarakhand, Foothills of Himalaya, Sikkim, Arunachal Pradesh, Assam, Tripura, Gujarat, Rajasthan, south Haryana, East Uttar Pradesh, Bihar, Jharkhand, GWB, SHWB, coastal Orissa, Madhya Pradesh and Chhattisgarh.

CAPE (> 1000): Mostly seen over parts of Gujarat, Rajasthan, along west coast and east coast, GWB, SHWB, Orissa, Bihar, Jharkhand, coastal Andhra Pradesh, North coastal Maharashtra including Mumbai, North Madhya Maharashtra, Vidarbha, Chhattisgarh, Telangana, coastal Karnataka, Konkan and Goa, East and West Madhya Pradesh and Sikkim on day 1; it remain over same region on day 2 and 3 but appear over parts of East Uttar Pradesh, along the west coast and NE states; significant zone with highest value of the index lies over parts of GWB, SHWB, Bihar, coastal Orissa and coastal Andhra Pradesh.

CIN (50-150): Over sub-divisions along east and west coast of India, extreme south over Kerala, Tamil Nadu and south Peninsular India, central, North and Northwest India mainly the value of index lies in above range over most of the parts of the country except J&K and North parts of Himachal Pradesh and Uttarakhand during next 3 days; significant zone with highest value of the index lies over parts of Gujarat, Rajasthan and Northwest Madhya Pradesh.

5. Rainfall Activity:

Above 130 mm Rainfall: over parts of Assam, Meghalaya, Arunachal Pradesh and Nagaland on day 1.

70-130 mm Rainfall: over parts of coastal Karnataka, coastal Kerala, Nagaland and Arunachal Pradesh on day 1 and 2; over parts of South Chhattisgarh adjoining Orissa and Andhra Pradesh, Sikkim, Assam, Meghalaya, Arunachal Pradesh, Tripura, Mizoram and Manipur on day 1. 40-70 mm Rainfall: over coastal areas along the west coast including south coastal Maharashtra, coastal Karnataka, Kerala, Konkan and Goa on day 1 and 2; over parts of Sikkim and NE states during next 3 days; over parts South Chhattisgarh, Orissa and Andhra Pradesh on day 1. 10-40 mm Rainfall: over Foothills of Himalaya, parts of North Bihar, Sikkim, NE, coastal Karnataka, coastal Kerala, coastal Tamil Nadu, coastal Maharashtra including Mumbai, Konkan and Goa during next 3 days; over parts of Chhattisgarh, Orissa, GWB, SHWB on day 1 and 2; over parts of Andhra Pradesh, Telangana, Rayalaseema, Vidarbha and Jharkhand on day 1.

Up to 10 mm rainfall: Over parts of J&K, Himachal Pradesh, Uttarakhand, East Uttar Pradesh, Foothills of Himalaya, GWB, SHWB, Sikkim, NE states, Bihar, Jharkhand, Orissa, Chhattisgarh, Kerala, Interior Karnataka, Konkan & Goa, coastal Maharashtra including Mumbai, Madhya Maharashtra, Vidarbha, Gujarat, Tamil Nadu, Telangana, Rayalaseema and Andhra Pradesh during next 3 days; over parts of East Madhya Pradesh and Marathwada on day 1 and 2.

IMD WRF (9km based on 00UTC of the day):

1. Model Reflectivity (Max. dBz): >25 dBZ Model Reflectivity: On day 1, over parts of J&K, Kerala, Tamil Nadu, Karnataka, NE states, Orissa, North Bihar, Jharkhand, GWB, SHWB, Sikkim, Telangana, Rayalaseema, Andhra Pradesh, Madhya Maharashtra, Marathwada, Vidarbha, coastal Maharashtra, Konkan and Goa, Chhattisgarh and Gujarat; On day 2 over parts of Kerala, Tamil Nadu, Karnataka, Orissa, Andhra Pradesh, Telangana, NE states, Rayalaseema, Konkan and Goa, GWB, Bihar, Jharkhand and NE states; On day 3 over parts of Kerala, coastal Karnataka, Konkan and Goa, Sikkim, East Bihar and NE states.

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

Total Index (> 50): Below threshold value is observed over parts of Gujarat, Rajasthan, East and West Uttar Pradesh, Uttarakhand, coastal areas of west coast, coastal Maharashtra, Konkan & Goa, coastal areas along the east coast, SHWB, GWB, Orissa, Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Bihar, Jharkhand, Telangana, Rayalaseema, Madhya Maharashtra, Marathwada, Chhattisgarh, Telangana, Madhya Pradesh, Vidarbha and NE states during next 3 days; below threshold value is also seen over parts of Haryana and adjoining area on day 3.

K-Index (> 35): Less than threshold value is observed over most of the part of the country during the next 3 days. Prominent values are found over parts of East Madhya Pradesh, Vidarbha, Telangana, Chhattisgarh, Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Orissa, Bihar, Jharkhand, East Uttar Pradesh, GWB, SHWB, Foothills of Himalaya, Sikkim and NE states.

CAPE (> 1500): Greater than threshold value over parts of Rajasthan, Gujarat, Uttar Pradesh, coastal areas of west coast, coastal Maharashtra, including Mumbai, Konkan & Goa, coastal areas along the east coast, SHWB, GWB, Orissa, Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Bihar, Jharkhand, Telangana, Rayalaseema, Madhya Maharashtra, Marathwada, East and West Madhya Pradesh, Chhattisgarh, Vidarbha and NE states during next 1 and 2; on day 3 it remain over same region but disappear over Central parts of India; Maximum value of the index is seen over the parts of Bihar, Jharkhand, GWB, SHWB, Orissa, coastal Andhra Pradesh, Assam, Tripura and adjoining area.

CIN (50-150): The value of the index lies in above range over most of the parts of the country except J&K, Himachal Pradesh and Uttarakhand on day 1 and 2; over most of the parts of the country except South Peninsular India and NE states on day 3; Maximum value of the index is seen over the parts of J&K, Punjab, Haryana, Delhi, Gujarat, Rajasthan, Madhya Pradesh, Uttar Pradesh and adjoining areas, Bihar, Jharkhand, GWB, Orissa, North Chhattisgarh, Vidarbha, Madhya Maharashtra and Marathwada.

3. Rainfall and thunderstorm activity:

Above 200 mm Rainfall: over parts of Assam and Meghalaya on day 1 and 3.

130- 200 mm Rainfall: over parts of Assam, Meghalaya, Manipur, Arunachal Pradesh, Nagaland and adjoining areas on day 1 and 3; over parts of North Kerala, Mizoram and Arunachal Pradesh on day 2.

70-130 mm Rainfall: over parts of coastal Karnataka, Kerala, Coastal Maharashtra, Konkan and Goa, NE states during next 3 days; over parts of Sikkim on day 2 and 3.

40- 70 mm Rainfall: over parts of Kerala adjoining Tamil Nadu, coastal and Interior Karnataka, coastal Maharashtra, Konkan & Goa and NE states during next 3 days; over parts of Telangana, Andhra Pradesh and Orissa on day 1; over parts of Sikkim, SHWB and East Bihar on day 2 and 3.

10- 40 mm Rainfall: Over parts of J&K, Kerala, Tamil Nadu, coastal and Interior Karnataka, Konkan and Goa, coastal Maharashtra including Mumbai, South Madhya Maharashtra, Andhra Pradesh, Tamil Nadu, East Bihar and NE states during next 3 days; over parts of Sikkim, GWB, SHWB, Foothills of Himalaya, Bihar, Orissa, Madhya Maharashtra, Madhya Maharashtra, Telangana, Chhattisgarh and Orissa on day 1 and 2. Up to 10 mm Rainfall: Over parts of J&K, Himachal Pradesh, Uttarakhand, Foothills of Himalaya, Kerala, Tamil Nadu, Karnataka, Konkan and Goa, Sikkim, GWB, SHWB, East Uttar Pradesh, Bihar, Jharkhand, Telangana, Madhya Maharashtra, coastal Maharashtra, Andhra Pradesh, Gujarat and NE states during next 3 days; over parts of Madhya Pradesh, Chhattisgarh, Vidarbha, Orissa and Marathwada on day 1 and 2; over parts of West Uttar Pradesh and South Rajasthan on day 1.

3. IOP ADVISORY FOR 24 and 48Hrs:

Summary and Conclusions:

O Going by the synoptic scale features on today's weather maps sequentially,

(i) the cyclonic circulation extending upto 7.6 km. a.s.l over south Assam & Meghalaya and neighbourhood is likely to cause scattered heavy to very heavy rainfall with isolated extremely heavy falls over Nagaland- Manipur-Mizoram& Tripura and isolated heavy, very heavy and extremely heavy rainfall over Assam & Meghalaya and isolated heavy to very heavy rainfall over sub-Himalayan west Bengal & Sikkim, today. (ii) An upper level trough from the above cyclonic circulation is causing divergence ahead in the upper levels and thus isolated heavy rainfall is also likely over Gangetic west Bengal, Odisha, Arunachal Pradesh and north coastal Andhra Pradesh today. With the likely weakening of this system as well as further eastward shifting of the trough, the intensity distribution of rainfall over these regions is likely to reduce, tomorrow. Isolated heavy to very heavy rainfall likely over Assam & Meghalaya and Nagaland- Manipur-Mizoram& Tripura and isolated heavy rainfall over Arunachal Pradesh and west Bengal & Sikkim tomorrow. (iii) An off-shore trough and downstream convergence of monsoon westerlies likely to cause scattered heavy to very heavy rains over Kerala today and isolated heavy to very heavy rains tomorrow, isolated heavy to very heavy rains over coastal and south interior Karnataka today & tomorrow and isolated heavy rains along the Ghats section of Tamil Nadu, today.

O Most thermodynamic indices (T-STORM Initiation Index, K-Index, Lifted Index, CAPE) from IMD GFS deterministic model indicate high probability of thunderstorm occurrence over Bihar, Jharkhand, north coastal Andhra Pradesh, south Chhattisgarh and Odisha on day 1. On day 2, the probability of convection decreases over central India but increases over eastern India on Day-2.

24 hour Advisory for IOP:	48 hour Advisory for IOP:
Significant Rainfall: Assam & Meghalaya, Nagaland, Manipur, Mizoram, Tripura, Arunachal Pradesh Sub-Himalayan West Bengal & Sikkim, Gangetic West Bengal, Odisha Coastal & South Interior Karnataka, Kerala, North Coastal Andhra Pradesh, Tamilnadu South Konkan & Goa Chhattisgarh	Significant Rainfall: Assam & Meghalaya, Nagaland, Manipur, Mizoram, Tripura, Arunachal Pradesh Sub-Himalayan West Bengal & Sikkim, Gangetic West Bengal, Odisha Coastal & South Interior Karnataka, Kerala South Konkan & Goa
Thunderstorm with squall or gusty winds: North Coastal Andhra Pradesh, Telangana Chhattisgarh, Vidarbha Bihar, Jharkhand, Odisha	Thunderstorm with squall or gusty winds: Bihar, Jharkhand, Odisha
Thunderstorm with squall and hail Nil	Thunderstorm with squall and hail Nil
Duststorm: Nil	Duststorm: Nil

IOP Area for Day-1 & Day-2:



Graphical Presentation of Potential Areas for Severe Weather:













Past 24 hours DWR Report:

Radar Station Name	Date	Time Interval Of Observation (UTC)	Organisation 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
Patna	12-06-18	110300- 110430	NIL	NIL	NIL	NIL	Nil
		110430- 110700	Multiple Cell Maximum Reflectivity: 35.5 dBZ Echo Top: 10 KM	Range: KM from DWR Patna in SOUTH WEST direction Movement: NORTH EAST	Warning issued	THUNDERSTORM, RAIN	Buxar, Rohtas, Bhojpur, Saran, Patna
		110700- 111000	Isolated Multiple Cells Maximum Reflectivity: 44 dBZ Echo Top: 14 KM	Range: 125.8 KM from DWR Patna in NORTH direction Movement: EAST	Warning issued	Thunderstorm, Rain	Gopalganj, Siwan East Champaran, Khagaria, Munger, Jamui
		111000- 111200	Isolated Multiple Cells Maximum Reflectivity: 42 dBZ Echo Top: 09 KM	Range: 97.8 KM from DWR Patna in SSW direction Movement: SOUTH	Warning issued	Thunderstorm, Rain	Nawada
		111200- 111600	NIL	NIL	NIL	Nil	Nil
		111600- 111930	Isolated Multiple Cells Maximum Reflectivity: 39.5 dBZ Echo Top: 08 KM	Range: 109 KM from DWR Patna in NE direction Movement: STATIONARY	Warning issued	Thunderstorm, Rain	East Champaran, West Champaran, Sheohar
		111930- 112120	NIL	NIL	NIL	Nil	Nil
		112120- 120100	Isolated Multiple Cells Maximum Reflectivity: 40.0 dBZ Echo Top: 09 KM	Range: 124 KM from DWR Patna in N.E. direction Movement: STATIONARY	Warning issued	Thunderstorm, Rain	Patna, Muzaffarpur, Bhabhua, Sasaram Aurangabad, Bhojpur, Buxar
		120100- 120300	Isolated Multiple Cells Maximum Reflectivity: 39.0 dBZ Echo Top: 10 KM	Range: 169.7 KM from DWR Patna in SE direction Movement: STATIONARY	Warning issued	Thunderstorm, Rain	Begusarai, Lakhisarai Khagaria, Munger, Madhepura, Purnia, Katihar, Jamui, Banka, Bhagalpur

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	Associa ted severe weather if any	Districts affected
Visakhapatnam	12-06-18	0600UTC	Isolated single cells with max. reflectivity of 34 dBz and height of 8 kms	N(200 kms) moving Ely	Cb cells are forming at 0431 UTC and not developing well and dissipating.	NIL	Raipur Dist. (Orissa)
		0900UTC	Isolated single cells with max. reflectivity of 40 dBz and height of 8 kms	N(140 kms) moving Ely	Since last observation	NIL	NIL
		1200UTC	Isolated single CB cell with max. reflectivity of 50 dBz and height of 10 kms	WSW(246 kms) moving Ely	CB cell formed close to Eluru(WG)AT 1041 UTC with max. reflectivity of 50dbz	NIL	Eluru of West Godavari district
		1500UTC	Multiple cells with max. reflectivity of 54 dBz and height of 8 kms	SW(100 kms) moving Ely	Since last observation CB cells are forming and not developing with max. reflectivity of 54 dBZ at 1311UTC	NIL	East & West Godavari districts
		1800UTC	Multiple cells in W and sea region with max. reflectivity of 54 dBz and height of 8 kms	SE(234 kms) moving Ely	Since last observation convective region over sea with max. reflectivity of 54 dBZ at 1701UTC	NIL	Bay of Bengal
		0000UTC	Convective region in SW and multiple cells in sea with max. reflectivity of 58 dBz and height of 8 kms	SW(205 kms) & S (182 kms) moving Ely	Since last observation cb cells are developing over sea with max. reflectivity of 58 dBZ at 2151UTC	NIL	Bay of Bengal
		0300UTC	Isolated cells in region in WSW and multiple cells in sea with max. reflectivity of 56 dBz and height of 8 kms	WSW(147 kms) & SSE (157 kms) moving Ely	Since last observation cb cells are developing over sea with max. reflectivity of 56 dBZ at 0011UTC	NIL	Bay of Bengal

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
Jaipur	12/06/18	0732 UTC of 11/06/18 to 1032 UTC of 11/06/18	Single cell with average height of 4.5km&maximum reflectivity57.0 dBZ	Single cell develop from 0732 UTC of 11/06/2018 towards SW of Jaipur and moved to SE,S Wards at speed15-18 km/hr	Single cell develop from 0732 UTC of 11/06/2018 towards SW of Jaipur and reaches maximum reflectivity from 0802 UTC to 0912 UTC of 11/06/2018 and Died at 1032 UTC.	Dust storm/Thunderstor m/ Light rain at Isolated places	Bhilwara, Bundi, Kota, Jhalawar Districts.
		1042 UTC of 11/06/18 to 2232 UTC of 11/06/18	Multiple cell with average height of 6.0km&maximum reflectivity61.5 dBZ	Multiple cell develop from 1042 UTC of 11/06/18 towards NW,SW,W,S of Jaipur and moved to E,SE,S Wards at speed10-15 km/hr	Multiple cell develop from 1042 UTC of 11/06/18 towards NW,SW,W,S of Jaipur and reaches maximum reflectivity from 1112 UTC to 1412 UTC of 11/06/2018 and Died at 2232 UTC.	Dust storm/Thunderstor m/ Light rain at Isolated places	Bhilwara, Sikar, Ajmer, Jhunjhunu, Kota, Nagaur, Jhalawar, Jaipur, Sawai madhopur, Baran Districts.
Agartala	12/06/18	110300-120300	At 111012z Mltpl Cells Are Found Over South Tripura, Adjoining B/Desh And Hills Of Mizoram Forming From Bay Of Bengal. About 12 To 14 Kms, 40 dBZ.	100 To 150 Kms Stretching From South West To Nearly East. Sw-Ly Then Se-Ly, 30 Kmph	At 111502 Z Persisted Over Udp, Amb, Sbr, Kml, Kls And Adj. Hills Of Mizoram With Intensity 45 dBZ.	Lightening Accompanied With Dz.	Not Known
Lucknow	12/06/18	110652 - 110752	Multiple cell formed 240Km ESE direction at 0652 UTC Max. reflectivity observed was 44.5dBZ & height reached 09.6 Km of 20 dBZ echo top.	Cells was almost stationary, with respect to the station	Dissipated at around 0752 UTC over 240Km ESE direction w.r.t. the station.	NIL	NIL
		111902- 112322	Multiple cell formed 90 TO 110 Km ESE direction at 1902UTC Later Stronger in multiple cells Max. reflectivity 48.5 DBZ & height reached 09.7 Km. on 20 dBZ of echo top.	Multiple cell system moved with avg. velocity 46.0 Km/h in SE direction w.r.t. the station	Dissipated at around 2322 UTC over 250ESE direction.	NIL	NIL

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
Patiala	12-06-2018	11/06/2018 0300 - 0600	NO ECHO		-		
		11/06/2018 0600 -0900	MULTIPLE CELLS DBZ 47.5 HT. 9-10 KM	N,NE Sectors, Movement SE Wards			Palampur, Bilaspur, Nalagrah, Bhunther ,Mandi Dalhousie and Adj Area.
		11/06/2018 0900- 1200	MULTIPLE CELLS DBZ 55.5 HT. 10 KM	N, Sectors, Movement Towards NE Direction			Una. Bhakra Dam ,Bilaspur. Nalagarh Its Adjoining Areas.
		11/06/2018 1200 - 1500	MULTIPLE CELLS DBZ 50.5 HT. 8 KM	NE Sectors, Movement Towards NE Direction			Utterkashi, Gangotri and Its Adjoining Areas.
		11/06/2018 1500 -2400	NO SIGNIFICANT ECHO=				
		12/06/2018 0000-0252	NO SIGNIFICANT ECHO=				
Mohanbari	11/06/18	0812- 1042 UTC	Cell type- Isolated Avg. ht 9.0 Km MAX_Z:- 42.5 dBZ	Distance- 140 Km Direction- SW Movement- WSWly	Cell gradually dissipated	-	-

Realised past 24hrs TS/SQ/HS Data:

Realised TS/HS/SQ during past 24hours ending at 0300UTC of today (received from RMCs/MCs)								
Station	Region	State/Sub Division	Weather Event (TS/Hail/Squall)	Date	Time of Commencement (IST)	Time of end (IST)		
Srinagar	Northwest India	Jammu & Kashmir	Thunderstorm	11-06-18	2040	2045		
Pahalgam	Northwest India	Jammu & Kashmir	Thunderstorm	11-06-18	1230 1425	1345 1510		
Banihal	Northwest India	Jammu & Kashmir	Thunderstorm	11-06-18	1135	1216		
Batote	Northwest India	Jammu & Kashmir	Thunderstorm	11-06-18	1505	1525		
Bhaderwah	Northwest India	Jammu & Kashmir	Thunderstorm	11-06-18	1345	1535		
Shimla	Northwest India	Himachal Pradesh	Thunderstorm	11-06-18	1617	1655		
Shimla	Northwest India	Himachal Pradesh	Hail-storm (Diameter 0.5 cm)	11-06-18	1629	1635		
Sundernagar	Northwest India	Himachal Pradesh	Thunderstorm	11-06-18	1448	1515		
Sikar	Northwest India	East Rajasthan	Thunderstorm	11-06-18	1830	1845		
Nagpur	Central India	Vidarbha	Thunderstorm	11-06-18	1710	1820		
Gadchiroli	Central India	Vidarbha	Thunderstorm	11-06-18	1900	2330		
Bhopal	Central India	Madhya Pradesh	Thunderstorm	11-06-18	1730	1800		
Sagar	Central India	Madhya Pradesh	Thunderstorm	11-06-18	1410	1520		
Chhindwada	Central India	Madhya Pradesh	Thunderstorm	11-06-18	1510	1630		
Raipur	Central India	Chhattisgarh	Thunderstorm	11-06-18	1415	2400		
Ambikapur	Central India	Chhattisgarh	Thunderstorm	11-06-18	1230	1430		
Pendra Road	Central India	Chhattisgarh	Thunderstorm	11-06-18	2130	2225		
Mana	Central India	Chhattisgarh	Thunderstorm	11-06-18	1458 1805 1945	1546 1850 2140		
Jorhat	Northeast India	Assam	Thunderstorm	11-06-18	11/1540	11/1620		
Ramagundam	South India	Telangana	Thunderstorm	11-06-18	1655 2100	1730 0045		
Mahabubnagar	South India	Telangana	Thunderstorm	11-06-18	1945	2030		
Masulipatnam	South India	Coastal Andhra Pradesh	Thunderstorm	11-06-18	2040	2150		
Narsapur	South India	Coastal Andhra Pradesh	Thunderstorm	11-06-18	1750	1855		
Kakinada	South India	Coastal Andhra Pradesh	Thunderstorm	11-06-18	1805	1830		
Bapatla	South India	Coastal Andhra Pradesh	Thunderstorm	12-06-18	0100	0320		

Realised TS/HS/SQ during past 24hours ending at 0300UTC of today (received from RMCs/MCs)									
Station	Region	State/Sub Division	Weather Event (TS/Hail/Squall)	Date	Time of	Time of end			
					Commencement (IST)	(IST)			
Gangtok	East India	Sikkim	Thunderstorm	11-06-18	1600	1700			
					1930	2030			
Tadong	East India	Sikkim	Thunderstorm	11-06-18	1820	2000			
Alipore	East India	GWB	Thunderstorm	11-06-18	1433	1440			
					1515	1920			
DumDum	East India	GWB	Thunderstorm	11-06-18	1510	1732			
Haldia	East India	GWB	Thunderstorm	11-06-18	1355	1455			
					1740	2205			
Digha	East India	GWB	Thunderstorm	11-06-18	2130	2340			
Assessed	East India	GWB	Thunderstorm	11-06-18	1440	1530			
Asansu					1630	1830			
Bankura	East India	GWB	Thunderstorm	11-06-18	1505	1915			
Sriniketan	East India	GWB	Thunderstorm	11-06-18	1238	1345			
Bhagalpur	East India	Bihar	Thunderstorm	12-06-18	0730	0830			
Daltonganj	East India	Jharkhand	Thunderstorm	11-06-18	1545	1630			
Jharsuguda	East India	Odisha	Thunderstorm	11-06-18	1515	1745			
					2100	2345			
Puri	East India	Odisha	Thunderstorm	11-06-18	1330	1500			
Hirakund	East India	Odisha	Thunderstorm	11-06-18	1635	1825			
Keonjhargarh	East India	Odisha	Thunderstorm	11-06-18	1545	1620			

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:



