

FDP STORM Bulletin No. 73 (13-05-2020)

1. SUMMARY OF THE DAY (for DAY-1 & DAY-2):

o Synoptic analysis at 00 UTC indicates that the cyclonic circulation over West Rajasthan & neighbourhood in the lower levels has become less marked. However, a fresh western disturbance is approaching from the west. Under it influence, moisture incursion from the Arabian Sea is likely in the lower levels over northwest India, giving rise to thunderstorms over the region.

o Synoptic analysis at 00 UTC also indicates that the north-south trough/wind discontinuity today runs southwest Madhya Pradesh to South Interior Karnataka across Madhya Maharashtra and North Interior Karnataka in the lower levels. The cyclonic circulation over Comorin area & neighbourhood persists in the low to mid levels. Model forecasts indicate that the trough is likely to extend in the south and link up to the circulation over Comorin area in the afternoon hours. Convergence is likely to the east of the trough over the eastern peninsula and east central India. This is likely to bring thunderstorm activity over this region on day 1. The thunderstorm activity is likely to be more severe over the southern peninsula, accompanied by isolated heavy rainfall.

o Over east India, there is likely to be wind convergence in the afternoon hours over northeast India. The remnant western disturbance as a trough in the upper levels along longitude 90°E to the north of latitude 26°N is likely to advect cold winds from the north, in the middle levels over this region. The increasing lapse rate accompanied by low level wind convergence is likely to give rise to severe thunderstorms over northeast India accompanied by isolated spells of heavy rainfall on day 1 and day 2.

o A low pressure system has formed over the south Andaman Sea. The system very likely to concentrate into a Depression over central parts of south Bay of Bengal by 15th May. Under its influence, severe weather is likely to start over the Andaman and Nicobar Islands on day 1, decreasing on day 2 as the system moves westwards.

IOP Advisory for 24 hours	IOP Advisory for 48 hours
Significant Rainfall: Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Tamilnadu, Puducherry & Karaikal and Kerala & Mahe, Andaman & Nicobar Islands	Significant Rainfall : Jammu & Kashmir, Ladakh, Gilgit, Baltistan, Muzaffarabad, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, coastal Karnataka, Kerala & Mahe and Tamilnadu, Puducherry & Karaikal.
Thunderstorm with Squally Winds (>60 kmph) and lightning: Nil	Thunderstorm with Squally Winds (>60 kmph) and lightning: Nil
Thunderstorm with Squally Winds (50 -60 kmph) and lightning: Assam & Meghalaya	Thunderstorm with Squally Winds (50 -60 kmph) and lightning: Assam & Meghalaya
Thunderstorm with Gusty Winds (upto 40-50 kmph) and lightning: Nagaland, Manipur, Mizoram & Tripura, Rajasthan and Andaman & Nicobar Islands	Thunderstorm with Gusty Winds (upto 40-50 kmph) and lightning: Punjab, Haryana, Chandigarh & Delhi, Andaman & Nicobar Islands, Rajasthan
Thunderstorm with Gusty Winds (upto 30-40 kmph) and lightning: Jammu & Kashmir, Ladakh, Gilgit-Baltistan, Muzaffarabad, Himachal Pradesh, Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Vidarbha, Jharkhand, West Bengal & Sikkim, Arunachal Pradesh, Madhya Maharashtra, Marathawada, Tamilnadu, Puducherry & Karaikal, Lakshadweep and Kerala & Mahe	Thunderstorm with Gusty Winds (upto 30-40 kmph) and lightning: Jammu & Kashmir, Ladakh, Gilgit Baltistan, Muzaffarabad, Himachal Pradesh, Uttarakhand, West Uttar Pradesh, West Madhya Pradesh, Bihar, West Bengal & Sikkim, Nagaland, Manipur, Mizoram & Tripura, Madhya Maharashtra, Marathawada, Coastal Andhra Pradesh & Yanam, Telangana, Lakshadweep, Kerala & Mahe and Tamilnadu, Puducherry & Karaikal
Thunderstorm with Hail and lightning: Nil.	Thunderstorm with Hail and lightning: Punjab, Haryana, Chandigarh & Delhi, Jammu & Kashmir, Ladakh, Gilgit Baltistan, Muzaffarabad, Himachal Pradesh, Uttarakhand and Madhya Maharashtra
Thunderstorm with Lightning: Odisha, Konkan & Goa, Telangana and Karnataka.	Thunderstorm with Lightning: East Madhya Pradesh, Vidarbha, Konkan & Goa, Chhattisgarh, Jharkhand, Odisha, Arunachal Pradesh and Karnataka
Thunderstorm with Duststorm and lightning: Rajasthan	Thunderstorm with Duststorm and lightning: Rajasthan
Dust raising winds: Nil	Dust raising winds: Nil
Visibility: <50m: Nil, <200m: Nil	Visibility: <50m: Nil, <200m: Nil

Graphical Presentation of Potential Areas for Severe Weather (IOPs) for Day-1 and Day-2:



3. CURRENT SYNOPTIC SITUATION:

NWFC Inference (0300 UTC of the day):

• Under the influence of the cyclonic circulation over south Andaman Sea & neighbourhood a low pressure area has formed over southeast Bay of Bengal and adjoining south Andaman Sea. Associated cyclonic circulation extends upto mid-tropospheric levels. It is very likely to concentrate into a Depression over central parts of south Bay of Bengal on 15th May and further intensify into a Cyclonic Storm over southwest and adjoining westcentral Bay of Bengal by 16th evening. It is very likely to move northwestwards initially till 17th and then re-curve north-northeastwards.

• Conditions are likely to become favourable for advance of Southwest Monsoon into some parts of southeast Bay of Bengal, Andaman Sea and Andaman & Nicobar Islands around 16th May, 2020.

♦ The trough in upper tropospheric westerlies with its axis at 7.6 km above mean sea level now runs roughly along longitude 90°E to the north of latitude 26°N.

♦ The Western Disturbance is now seen as a trough in mid-tropospheric westerlies with its axis at 5.8 km above mean sea level, roughly along Longitude 55°E to the north of latitude 26°N.

• The cyclonic circulation over West Rajasthan & neighbourhood extending upto 1.5 km above mean sea level has become less marked.

• The cyclonic circulation over Comorin area & neighbourhood persists and now seen between 1.5 km & 2.1 km above mean sea level.

• The trough/wind discontinuity from West Madhya Pradesh to interior Karnataka now runs from southwest Madhya Pradesh to South Interior Karnataka across Madhya Maharashtra and North Interior Karnataka and extends upto 0.9 km above mean sea level.

4. CURRENT OBSERVATIONS (SATELLITE):

Moderate to Intense Convection (orange) based on 0500 UTC (METEOSAT-8 RGB): observed over north east Jammu & Kashmir north Himachal Pradesh Uttarakhand south Punjab North Haryana Delhi north east Uttar Pradesh north Rajasthan east Arunachal Pradesh Nagaland Manipur Mizoram Tripura east Assam east Meghalaya Lakshadweep Islands Nicobar Islands.

Dust (Pink/Magenta during Day time) based on 0500 UTC (METEOSAT-8 RGB): Dust not observed over India.

Westerly trough (WD) based on (0500 UTC): Westerly Trough not observed over India.

Vorticity (850hPa) based on (0500 UTC): upto 0 to +50 (x10^-5/s) observed over Uttarakhand north Rajasthan north Uttar Pradesh north Bihar central Madhya Pradesh Vidarbha south Maharashtra coastal Karnataka north Kerala north Tamilnadu south Coastal Orissa south Gangetic West Bengal Assam Arunachal Pradesh Lakshadweep island Andaman & Nicobar Islands. upto +50 to +80 (x10^-5/s) observed over south west Rajasthan north east Madhya Pradesh. Wind shear based on (0500 UTC): upto 20-40 (x10^-5/s) observed over northwest Peninsular India. upto 80(x10^-5/s) observed over east India.

Wind shear tendency based on (0500 UTC): Negative Wind Shear Tendency upto -40 kts is observed over extreme south west Madhya Pradesh Tripura Manipur Mizoram Nagaland. Positive Wind Shear Tendency is not observed over India. Wind Shear Tendency upto 0 kts observed over rest parts of India.

Low level convergence (850-925hPa) based on (0500 UTC): Positive Low Level Convergence upto (+5 x10^-5/s) is observed north Rajasthan north Chhattisgarh Jharkhand north Kerala Andaman & Nicobar Islands.

5. NWP MODEL GUIDANCE:

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

1. Synoptic Systems:

- The trough runs from West Madhya Pradesh to Interior Karnataka across Vidarbha, Marathawada and North Interior Karnataka at 925hPa above mean sea level.
- Wind analysis at 850hPa shows a cyclonic circulation over West Rajasthan & neighbourhood above mean sea level.
- Wind analysis at 850hPa shows a cyclonic circulation over Comorin area & neighbourhood above mean sea level.

2. Location of Jet and Jet Core (>60kt) at 500hPa: No Jet core over Indian region during next 3 days.

3. Spatial distribution of Low Level Vorticity (850hPa Positive Vorticity (>12 x 10⁻¹/s): Over parts of North & South Interior Karnataka, Vidarbha, Marathawada, Madhya Maharashtra, Telangana, Rayalaseema, West & East Madhya Pradesh, Bihar, Jharkhand, Chhattisgarh, Orissa, GWB, North East Region, SHWB & Sikkim, J&K, Uttaranchal, Himachal Pradesh, Punjab, Haryana, Delhi, Chandigarh, East & West Uttar Pradesh, West & East Rajasthan on day1, over parts of J & K, Himachal Pradesh, Uttaranchal, Punjab, Haryana, Delhi, Chandigarh, East & West Uttar Pradesh, North & South Interior Karnataka, Marathawada, Madhya Maharashtra, Vidarbha, Telangana, Rayalaseema, Tamilnadu & Pondicherry, Konkan & Goa, SHWB & Sikkim, North East Region, Orissa, GWB, Bihar, Chhattisgarh, Jharkhand, West & East Madhya Pradesh, West & East Rajasthan on day2, over parts of J&K, Uttaranchal, Himachal Pradesh, Punjab, Haryana, Delhi, Chandigarh, West & East Rajasthan on day2, over parts of J&K, Uttaranchal, Himachal Pradesh, Punjab, Haryana, Delhi, Chandigarh, West & East Rajasthan, West Uttar Pradesh, East & West Madhya Pradesh, Chhattisgarh, Jharkhand, Bihar, North& South Interior Karnataka, Tamilnadu & Pondicherry, Rayalaseema, Telangana, Vidarbha, Marathawada, Madhya Maharashtra, Andaman & Nicobar Islands, Northeast Region, GWB, SHWB & Sikkim and Orissa on day 3.

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 (> 3.5): Below threshold value > 3.5 is found in entire India except Orissa, Bihar, GWB, N.M.M.T., Assam & Meghalaya, SHWB & Sikkim, CAP, Saurashtra & Kutch, Gujarat, Telangana, Rayalaseema, Vidarbha, Chhattisgarh, Jharkhand, East Uttar

Pradesh, West Rajasthan, North Interior Karnataka, Tamilnadu & Pondicherry, Andaman & Nicobar Islands, Konkan & Goa and Coastal Karnataka during next 3 days.

Lifted Index (< -6): Significantly less than threshold value -6 over Kerala, Tamilnadu & Pondicherry, South & North Interior Karnataka, Coastal Karnataka, Konkan & Goa, Rayalaseema, Telangana, Vidarbha, Madhya Maharashtra, Chhattisgarh, Gujarat, Saurashtra & Kutch, West & East Rajasthan, East Uttar Pradesh, Bihar, Jharkhand, Orissa, CAP, GWB, N.M.M.T., Assam & Meghalaya, SHWB & Sikkim, Andaman & Nicobar Islands and Lakshadweep during next 3 day.

Total Total Index (> 64) : Significant threshold value over parts of CAP, Saurashtra & Kutch and West Rajasthan during next three days.

Sweat Index (> 600): Significant above threshold value over some parts of Bihar, Jharkhand, GWB, Arunachal Pradesh, Assam & Meghalaya, N.M.M.T., SHWB & Sikkim, J&K, Uttaranchal, Himachal Pradesh, West Rajasthan, CAP, Orissa, GWB, South Interior Karnataka, Coastal Karnataka, Saurashtra & Kutch and Gujarat during next 3 days.

CAPE (> 1000): Mostly along N.M.M.T., Assam & Meghalaya, Arunachal Pradesh, SHWB & Sikkim, Kerala, Tamilnadu and Pondicherry, CAP, Telangana, Rayalaseema, Coastal Orissa, GWB, Lakshadweep Islands, Andaman & Nicobar Islands, North & South Interior Karnataka, Konkan & Goa, Coastal Karnataka, Saurashtra & Kutch, Gujarat, Vidarbha, Madhya Maharashtra, East Uttar Pradesh, West & East Rajasthan, Bihar, Jharkhand, Chhattisgarh during next 3 days.

CIN (50-200): Mostly seen over North East Region, SHWB & Sikkim, West & East Rajasthan, GWB, Orissa, CAP, Chhattisgarh, Jharkhand, East & West Madhya Pradesh, Vidarbha, Madhya Maharashtra, Marathawada, North & South Interior Karnataka, Rayalaseema, Telangana, Kerala, Tamilnadu & Pondicherry, Konkan & Goa, Saurashtra & Kutch, Gujarat, Coastal Karnataka, Punjab, Haryana, Chandigarh, Delhi, West & East Uttar Pradesh, Bihar, J&K, Himachal Pradesh, Uttaranchal, Lakshadweep and Andaman & Nicobar Islands during next 3 days.

Rainfall Activity (Forecast):

DAY-1:- Forecast of Moderate to Heavy rainfall activity over Assam & Meghalaya, Arunachal Pradesh, N.M.M.T., Kerala, South Interior Karnataka, Andaman & Nicobar Islands; Forecast of Light to Moderate rainfall activity over J&K, Himachal Pradesh, Uttaranchal, East Rajasthan, SHWB & Sikkim, Tamilnadu & Pondicherry, Coastal Karnataka, Lakshadweep; Forecast of Light rainfall activity over Punjab, Haryana, Delhi, Chandigarh, East &West Uttar Pradesh, West Rajasthan, West Madhya Pradesh, Chhattisgarh, Saurashtra & Kutch, Gujarat, Madhya Maharashtra, Marathawada, Vidarbha, Telangana, Rayalaseema, North Interior Karnataka, Orissa, CAP, Konkan & Goa.

DAY-2:- Forecast of Moderate to Heavy rainfall activity over J&K, Assam & Meghalaya, Arunachal Pradesh, N.M.M.T., Kerala, South Interior Karnataka, Andaman & Nicobar Islands; Forecast of Light to Moderate rainfall activity over Himachal Pradesh, Uttaranchal, Punjab, Haryana, Delhi, Chandigarh, SHWB & Sikkim, Madhya Maharashtra, Marathawada, Gujarat, Konkan & Goa, North Interior Karnataka, Coastal Karnataka, Tamilnadu & Pondicherry, Lakshadweep; Forecast of Light rainfall activity over East &West Uttar Pradesh, West & East Rajasthan, Saurashtra & Kutch, East &West Madhya Pradesh, Chhattisgarh, Bihar, CAP, Orissa, Telangana, Rayalaseema, Vidarbha.

DAY-3:- Forecast of Moderate to Heavy rainfall activity over Assam & Meghalaya, Arunachal Pradesh, SHWB & Sikkim, Konkan & Goa, South Interior Karnataka, Kerala, Tamilnadu & Pondicherry, Lakshadweep, Andaman & Nicobar Islands; Forecast of Light to Moderate rainfall activity over J&K, Himachal Pradesh, N.M.M.T., Coastal Karnataka, CAP, North Interior Karnataka, Telangana; Forecast of Light rainfall activity over

Uttaranchal, Punjab, Haryana, Delhi, Chandigarh, East &West Uttar Pradesh, East Rajasthan, East &West Madhya Pradesh, Bihar, Chhattisgarh, Orissa, Gujarat, Madhya Maharashtra, Marathawada, Vidarbha, Rayalaseema.

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

1. Model Reflectivity (Max. dBz):

5-45 dBZ Model reflectivity over parts of J&K, Himachal Pradesh, Uttaranchal, Punjab, Haryana, Delhi, Chandigarh, East &West Rajasthan, East &West Madhya Pradesh, Bihar, Jharkhand, Chhattisgarh, Vidarbha, Marathawada, Madhya Maharashtra, Telangana, Rayalaseema, Kerala, Tamilnadu & Pondicherry, South & North Interior Karnataka, Coastal Karnataka, Konkan & Goa, North East Region, SHWB & Sikkim, Andaman & Nicobar Islands, Orissa, GWB, CAP on day1, over parts of Bihar, Chhattisgarh, Jharkhand, Vidarbha, Madhya Maharashtra, Marathwada, Telangana, East &West Madhya Pradesh, J&K, Himachal Pradesh, Uttaranchal, Punjab, Haryana, Delhi, Chandigarh, East & West Uttar Pradesh, East &West Rajasthan, Orissa, GWB, CAP, Andaman & Nicobar Islands, North & South Interior Karnataka, Konkan & Goa, Coastal Karnataka, Kerala, Tamilnadu & Pondicherry, SHWB & Sikkim, North East Region on day2, over parts of Telangana, Rayalaseema, Vidarbha, Madhya Maharashtra, Marathawada, Gujarat, Chhattisgarh, Bihar, South & North Interior Karnataka, Coastal Karnataka, Konkan & Goa, Kerala, Tamilnadu & Pondicherry, East&West Madhya Pradesh, GWB, Jharkhand, Orissa, CAP, J&K, Uttaranchal, Himachal Pradesh, Punjab, Haryana, Delhi, Chandigarh, East & West Uttar Pradesh, East & West Rajasthan, Lakshadweep, Andaman & Nicobar Islands, North East region and SHWB & Sikkim on day3.

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

Total Total Index (> 50): Above threshold value is seen all over the Country except Andaman & Nicobar Islands during next 3 days.

K-Index (> 35): Below threshold value is seen all over the Country during next 3 days.

CAPE (> 1000): Greater than threshold value over Lakshadweep Islands, Andaman & Nicobar Islands, J&K, Himachal Pradesh, Punjab, Haryana, Delhi, Chandigarh, North & South Interior Karnataka, Kerala, Tamilnadu and Pondicherry, CAP, Coastal Karnataka, GWB, Orissa, Konkan & Goa, Jharkhand, Bihar, West Madhya Pradesh, East & West Uttar Pradesh, West & East Rajasthan, Rayalaseema, Telangana, Chhattisgarh, Vidarbha, Marathawada, Madhya Maharashtra, Gujarat, Saurashtra & Kutch, North East Region, SHWB & Sikkim during next 3 days.

CIN (50-150): The threshold value of the index over parts of J&K, Himachal Pradesh, Uttaranchal, Punjab, Haryana, Delhi, Chandigarh, Orissa, East & West Rajasthan, East & West Madhya Pradesh, East &West Uttar Pradesh, Assam & Meghalaya, N.M.M.T., Arunachal Pradesh, GWB, SHWB & Sikkim, CAP, Kerala, Vidarbha, Madhya Maharashtra, Marathawada, Konkan & Goa, Tamilnadu and Pondicherry, Telangana, Rayalaseema, Chhattisgarh, Jharkhand, Bihar, Gujarat, Saurashtra & Kutch, Coastal Karnataka, North and South Interior Karnataka, Andaman & Nicobar Islands and Lakshadweep during next 3 days.

3. Rainfall Activity (Forecast):

DAY-1:- Forecast of Moderate to Heavy rainfall activity over Assam & Meghalaya, N.M.M.T., South Interior Karnataka, Madhya Maharashtra, Andaman & Nicobar Islands; Forecast of Light to Moderate rainfall activity over J&K, Arunachal Pradesh, SHWB & Sikkim, Chhattisgarh,

Orissa, Coastal Karnataka, North Interior Karnataka, Tamilnadu & Pondicherry, Kerala, Lakshadweep; Forecast of Light rainfall activity over Himachal Pradesh, Uttaranchal, Punjab, Haryana, Delhi, Chandigarh, East & West Rajasthan, West & East Madhya Pradesh, East & West Uttar Pradesh, Bihar, Jharkhand, GWB, CAP, Vidarbha, Marathawada, Telangana, Rayalaseema, Gujarat, Konkan & Goa.

DAY-2:- Forecast of Moderate to Heavy rainfall activity over J&K, Assam & Meghalaya, N.M.M.T., SHWB & Sikkim, Kerala, Coastal Karnataka, North & South Interior Karnataka, Konkan & Goa, Madhya Maharashtra; Forecast of Light to Moderate rainfall activity over Punjab, Bihar, Arunachal Pradesh, Tamilnadu & Pondicherry, Telangana, Rayalaseema, Orissa, GWB, East Madhya Pradesh, Marathawada, Lakshadweep, Andaman & Nicobar Islands; Forecast of Light rainfall activity over Uttaranchal, Himachal Pradesh, Haryana, Delhi, Chandigarh, East & West Rajasthan, West Madhya Pradesh, West Uttar Pradesh, Jharkhand, CAP, Vidarbha, Chhattisgarh.

DAY-3:- Forecast of Moderate to Heavy rainfall activity over Assam & Meghalaya, N.M.M.T., Orissa, Kerala, Lakshadweep Andaman & Nicobar Islands; Forecast of Light to Moderate rainfall activity over J&K, Arunachal Pradesh, SHWB & Sikkim, Bihar, Jharkhand, GWB, South Interior Karnataka, Coastal Karnataka, Tamilnadu & Pondicherry; Forecast of Light rainfall activity over Himachal Pradesh, Uttaranchal, Haryana, Delhi, Chandigarh, West & East Rajasthan, West & East Uttar Pradesh, West & East Madhya Pradesh, Chhattisgarh, CAP, Telangana, Rayalaseema, Vidarbha, Saurashtra & Kutch, Konkan & Goa, North Interior Karnataka.

NCMRWF: NCUM Global (12km) (forecast based on 00 UTC the day):

1. Convergence at 850 hPa:

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

Day0: Odisha, Madhya_Maharashtra, Coastal_Karnataka, NI_Karnataka, SI_Karnataka, Kerala,

Day1: Arunachal_Pradesh, Assam_Meghalaya, Sub_Himalayan_WB, East_RJ, Odisha, East_MP, Madhya_Maharashtra, Marathwada, Chhattisgarh, NI_Karnataka, SI_Karnataka, Kerala,

Day2: Arunachal_Pradesh, NE_NMMT, Odisha, Madhya_Maharashtra, Marathwada, Telangana, NI_Karnataka, SI_Karnataka, Kerala,

Day3: Assam_Meghalaya, NE_NMMT, Jharkhand, East_RJ, West_MP, Madhya_Maharashtra, Marathwada, TN_Puducherry, NI_Karnataka, SI_Karnataka, Kerala,

Day4: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Jharkhand, East_RJ, Odisha, East_MP, Madhya_Maharashtra, Marathwada, Chhattisgarh, NI_Karnataka, SI_Karnataka, Kerala

2. Low level Vorticity:-Positive Vorticity:

Day/Index: Subdivisions with Lower Level Vorticity > 15 x 10⁻⁵ /s

Day0: Assam_Meghalaya, NE_NMMT, Bihar, East_UP, Uttarakhand, Himachal_Pradesh, Coastal_AP, Coastal_Karnataka, SI_Karnataka,

Day1: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir, Madhya_Maharashtra, SI_Karnataka,

Day2: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Himachal_Pradesh, Odisha, SI_Karnataka,

Day3: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Uttarakhand, Himachal_Pradesh, Odisha, Madhya_Maharashtra,

Day4: Assam_Meghalaya, NE_NMMT, West_UP, Uttarakhand, Himachal_Pradesh, Odisha, Madhya_Maharashtra

3. Spatial distribution of Showalter Index:

Day/Index: Subdivisions with Showalter Index < -4

Day0: Arunachal_Pradesh, Sub_Himalayan_WB, Gangetic_WB, West_UP, Hry_Chd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, Odisha, Coastal_AP, Coastal_Karnataka, Kerala,

Day1: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Punjab, Odisha, Coastal_AP, Coastal_Karnataka, SI_Karnataka, Kerala,

Day2: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Odisha, Vidarbha, Kerala,

Day3: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Uttarakhand, Jammu_Kashmir, Odisha, Vidarbha, Chhattisgarh, Telangana, Coastal_Karnataka, SI_Karnataka, Kerala,

Day4: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Uttarakhand, Jammu_Kashmir, Odisha, Vidarbha, Chhattisgarh, SI_Karnataka, Kerala

4. Spatial distribution of TTI:

Day/Index: Subdivision with Total Totals Index > 52

Day0: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, East_UP, West_UP, Uttarakhand, Hry_Chd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, Odisha, East_MP, Chhattisgarh, Coastal_AP,

Day1: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Uttarakhand, Hry_Chd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, Odisha,

Day2: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir, West_RJ, Odisha, Vidarbha,

Day3: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Uttarakhand, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, Odisha, Vidarbha, Chhattisgarh, Telangana,

Day4: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Uttarakhand, Hry_Chd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, East_RJ, Odisha, East_MP, Vidarbha, Chhattisgarh,

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

Day/Index: Subdivisions with K Index > 40

Day0: Arunachal_Pradesh, Assam_Meghalaya, Gangetic_WB, Jharkhand, Odisha, Marathwada, Coastal_AP, Telangana, Kerala,

Day1: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Gangetic_WB, Jharkhand, Odisha, Madhya_Maharashtra, Coastal_AP, Telangana, Coastal_Karnataka, NI_Karnataka, SI_Karnataka,

Day2: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Odisha, Marathwada, Vidarbha, Chhattisgarh, Coastal_AP, Telangana, Coastal_Karnataka, NI_Karnataka, SI_Karnataka,

Day3: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Odisha, Vidarbha, Chhattisgarh, Coastal_AP, Telangana, Coastal_Karnataka, NI_Karnataka, SI_Karnataka,

Day4: Assam_Meghalaya, NE_NMMT, Odisha, Marathwada, Vidarbha, Chhattisgarh, Coastal_AP, Telangana, Coastal_Karnataka, NI_Karnataka, SI_Karnataka

6. Rainfall and thunder storm activity:

Day/Index: Subdivisions with Precipitation > 2 cm

- Day1: Arunachal_Pradesh, Sub_Himalayan_WB, Jammu_Kashmir,
- **Day2:** Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Jammu_Kashmir,
- Day3: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Odisha,
- Day4: Arunachal_Pradesh, Assam_Meghalaya, Odisha,
- Day5: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT,

NCMRWF: NCUM Regional (4km) (forecast based on 00 UTC the day):

1. Convergence at 850 hPa:

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

Day0: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, East_UP, West_UP, Uttarakhand, Hry_Chd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, East_RJ, Odisha, West_MP, East_MP, Guj_Reg, Saurashtra_Kutch, Konkan_Goa, Madhya_Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal_AP, Telangana, Rayalseema, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka, Kerala,

Day1: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, East_UP, Uttarakhand, Hry_Chd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, East_RJ, Odisha, West_MP, East_MP, Guj_Reg, Saurashtra_Kutch, Konkan_Goa, Madhya_Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal_AP, Telangana, Rayalseema, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka, Kerala,

Day2: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, Uttarakhand, Hry_Chd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, East_RJ, Odisha, West_MP, East_MP, Guj_Reg, Saurashtra_Kutch, Konkan_Goa, Madhya_Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Andaman_Nicobar, Coastal_AP, Telangana, Rayalseema, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka, Kerala,

2. Low level Vorticity:-Positive Vorticity:

Day/Index: Subdivisions with Lower Level Vorticity > 15×10^{-5} /s

Day0: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Jharkhand, Bihar, East_UP, West_UP, Uttarakhand, Hry_Chd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, East_RJ, Odisha, West_MP, East_MP, Guj_Reg, Saurashtra_Kutch, Konkan_Goa, Madhya_Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal_AP, Telangana, Rayalseema, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka, Kerala,

Day1: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, East_UP, West_UP, Uttarakhand, Hry_Chd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, East_RJ, Odisha, West_MP, East_MP, Guj_Reg, Saurashtra_Kutch, Konkan_Goa, Madhya_Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal_AP, Telangana, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka, Kerala,

Day2: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, Gangetic_WB, Jharkhand, Bihar, East_UP, West_UP, Uttarakhand, Hry_Chd_Delhi, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ, East_RJ, Odisha, West_MP, East_MP, Guj_Reg, Saurashtra_Kutch, Konkan_Goa, Madhya_Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Coastal_AP, Telangana, TN_Puducherry, Coastal_Karnataka, NI_Karnataka, SI_Karnataka, Kerala,

3. Spatial distribution of Showalter Index:

Day/Index: Subdivisions with Showalter Index < -4

Day0: Arunachal_Pradesh, Uttarakhand, Himachal_Pradesh, Jammu_Kashmir,

Day1: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT,

Day2: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Odisha

4. Spatial distribution of TTI:

Day/Index: Subdivision with Total Totals Index > 52

Day0: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Sub_Himalayan_WB, East_UP, West_UP, Uttarakhand, Punjab, Himachal_Pradesh, Jammu_Kashmir, West_RJ,

Day1: Arunachal_Pradesh, Assam_Meghalaya, Jammu_Kashmir, West_RJ,

Day2: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Jharkhand, Jammu_Kashmir, Odisha, Marathwada, Vidarbha, Chhattisgarh, Telangana

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

Day/Index: Subdivision with K Index > 40

- **Day0:** Arunachal_Pradesh, Sub_Himalayan_WB, Jammu_Kashmir,
- **Day1:** Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Vidarbha, Chhattisgarh,
- Day2: Arunachal_Pradesh, Assam_Meghalaya, Vidarbha,

6. Rainfall and thunder storm activity:

- Day/Index: Subdivisions with Precipitation > 2 cm
- Day0: Arunachal_Pradesh, Sub_Himalayan_WB, Uttarakhand, Jammu_Kashmir, Coastal_AP,
- **Day1:** Arunachal_Pradesh, Andaman_Nicobar,
- Day2: Arunachal_Pradesh, Assam_Meghalaya, NE_NMMT, Gangetic_WB, Odisha,

6. ENVIRONMENTAL CONDITION (DUST ETC) AND ITS FORECAST BASED ON 00 UTC OF DATE:

Dust Forecast: As per AQ-EWS models and NCUM Dust Model, the increase in dust concentration is likely over West Rajasthan and parts of Gujarat on 13.05.2020. The dust transport from west Rajasthan is likely to impact northwest India on 15.2020. As per AQ-EWS models the air quality over Delhi NCR is likely to remain in Moderate to Satisfactory category on 13.05.2020. The air quality is likely to improve but remain in satisfactory category on 14.05.2020. The air quality is likely to remain in satisfactory category on 15.05.2020. The predominant pollutant is PM10 due to higher dust load in atmosphere.

Delhi – analysis & Forecast	Observed 13.05.2020 (9AM)	Forecast 14.05.2020	Forecast 15.05.2020
PM10 (micro-g/m³)	123	96	130
PM2.5 (micro-g/m³)	53	44	56

7. PAST OBSERVATIONS:

Satellite past 24hours observations:

Convective Activity during past 24 hours:

Cell No.	Date & Time (UTC) of Development	Developed over Location/Area	Brief Remarks (Direction of Movement/ Location / Dissipation/ Persists etc.)
1	12/0900	Jharkhand Gangetic West Bengal	With expanding & moving in east direction it dissipated around 1700 UTC over Gangetic West Bengal adjoining Bangladesh.
2	12/1500	Extreme north-west Rajasthan	With expanding & moving in east direction it dissipated around 2200 UTC over north Rajasthan & neighbourhood.
3	12/1500	South Kerala adj south Tamilnadu	With expanding it dissipated around 0000 UTC of today over Kerala.
4	12/2200	East Meghalaya adj south Assam	With expanding & slightly moving in east direction it persists at 0500 UTC of today over central Assam.

Daily observations:

OLR Daily (on convection based) INSAT-3D:

Upto 250-280 wm⁻² is observed over central Uttrar Pradesh north east Rajasthan east Bihar south Jharkhand east Madhya Pradesh Chhattisgarh east Vidarbha north & south Orrisa south Gangetic West Bengal south Himalayan West Bengal west Assam west Meghalaya Manipur Tripura Mizoram south Maharashtra north east Telangana central Karnataka south & north east Andhra Pradesh north Tamilnadu.

Upto 150-250 wm⁻² is observed over Jammu & Kashmir Himachal Pradesh Uttarakhand Punjab Hariyana north west & south east Uttar Pradesh north Jharkhand coastal Karnataka Kerala rest Tamilnadu Sikkim Arunachal Pradesh rest North east states Lakshadweep Islands Andaman & Nicobar Islands.

Precipitation: INSAT-3D IMR:

Rainfall upto 90-110 mm is observed over south Kerala Lakshadweep Islands.

Rainfall upto 50-90 mm is observed over extreme north west Rajasthan extreme south west Punjab north east Jharkhand north Gangetic West Bengal east Assam east Arunachal Pradesh extreme south Maharashtra extreme north west Karnataka central Kerala south west Tamilnadu Andaman & Nicobar Islands.

Rainfall upto 10-20 mm is observed over Punjab south west Hariyana North Rajasthan north Chhattisgarh north west Jharkhand west Gangetic West Bengal central Arunachal Pradesh Nagaland.

Rainfall upto 01-10 mm is observed over Jammu & Kashmir Himachal Pradesh Uttarakhand rest Hariyana north central Rajasthan north east & south west Uttar Pradesh north east Bihar rest Jharkhand rest Gangetic West Bengal south Chhattisgarh north & south Orrisa south central Madhya Pradesh east Vidarbha rest Kerala south Tamilnadu rest North east States.

INSAT-3D HEM:

Rainfall upto 69.5-138.9 mm is observed over east Arunachal Pradesh Goa south Kerala Lakshadweep Islands south Nicobar Islands.

Rainfall upto 0.149-13.9 mm is observed over south west Jammu & Kashmir south Himachal Pradesh south Uttarakhand north Rajasthan Punjab Hariyana north west & south east Uttar Pradesh north Chhattisgarh west Bihar west Jharkhand Gangetic West Bengal east Assam east Meghalaya south Arunachal Pradesh Manipur Mizoram south Orrisa north east Andhra Pradesh north west Karnataka rest Kerala south Tamilnadu.

Past 24hour DWR Reports:

DWR Station Name	Date	Time Interval Of Observa tion (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	Associ ated Severe Weath er If Any	Districts Affected
Patiala	13-05-20	120300 - 120600	Multiple cells dBz=35.5 Ht. 05-06 Km	SW ,SE Sectors. Movement-SE- wards			Hissar, Jind, Rohtak,Jhajjar,Bhiwani,Bijnore,Mujaffer Nagar,Bijnore and their Adjoining Areas=
		120600 - 120900	Multiple cells dBz=50.0 Ht. 08-09 Km	NE Sector. Movement-SE- wards			Chamba , Kalanaur,Bhunther, Shimla, Solan, Bilaspur, Mussorie ,Utterkashi ,Gangotri and their adjoining area .
		120900- 121200	Multiple cells dBz=50.0 Ht. 06-07 Km	N,NW Movement-SE- wards			Mussorie, kalsi, ,Dehradun,Behat,UtterkashiShimla, Solan,Palampur,Bhunther ,sundernagar and their adjoining area
		121200- 122100			No Sig Weather		
		122100- 130000	Multiple cells dBz=41.5 Ht. 05-06 Km	SW Sector. Movement-SE- wards			Rajgarh, Loharu, Bhiwani, Mohindergarh, Narnaul and Their Adjoining Areas= * .
		130000- 130252	Multiple cells dBz=50.5 Ht. 05-07 Km	N,NW -Sector. Movement-SE- wards			Nakodar, phillaur,samrala,Khanna,ludhiana, nabha,dhuri, Patiala,batala,lohrau,mohindergarh, narnual,rewariand their adjoining Areas=

Radar Station name	Date	Time interval of observat ion (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
Mohanbari	13-05-20	0302- 0342	Cell type- ISOLATED CELL Avg. ht 7.0Km MAX_Z:- 52dBZ	Distance- 90-112.0Km Direction- NE Movement- NELY	Gradually Dissipated AT 0342UTC around PASSIGHAT	TSRA	PASSIGHAT
		0302- 0642	Cell type- MULTIPLE CELL Avg. ht 9.5Km MAX_Z:- 63.5dBZ	Distance- 55-125km Direction- SW Movement-NEly	Gradually Dissipated AT 0642 UTC AROUND TEJPUR	TSRA	SIVASAGAR,DI BRUGARH,PAS SIGHAT,TEZPU R,TINSUKIA
		0542- 0712	Cell type- MULTIPLE CELL Avg. ht 10.0Km MAX_Z:- 51.0dBZ	Distance- 150-180km Direction- SW Movement-NELY	Gradually Dissipated AT 0712UTC AROUND GOLAGHAT	TSRA	GOLAGHAT
		1742- 2252	Cell type- MULTIPLE CELL Avg. ht 9.5Km MAX_Z:- 58.5dBZ	Distance- 93-113km Direction-SW Movement-NELY	Gradually Dissipated AT 2252 UTC AROUND TEJPUR	TSRA	PASIGHAT,JOR HAT,KHONSA, DIBRUGARH,SI VASAGAR
		2052- 0042	Cell type- MULTIPLE CELL Avg. ht 7.0Km MAX_Z:- 52.5dBZ	Distance- 68-188km Direction-SW Movement-NELY	Gradually Dissipated AT 0042 UTC AROUND KHONSA	TSRA	DIBRUGARH,, SIVASAGAR,DI MAPUR,MOKOI CHONG,KHON SA

Radar Station name	Date	Time interval of observat ion (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	Associate d severe weather if any	Districts affected
Visakhapatnam	13-05-20	120600- 120900	Multiple CB cells of maximum reflectivity of 65dBz and height of 17 km	N(145 km) and NW(84 km) moving SWly	CB cells are formed and well developed at 0821 UTC	TSRA/ Hail	Visakhapatnam and East Godavari (Dist) AP Koraput and Rayagada (Dist) Odissa
		120900- 121200	Multiple CB cells of maximum reflectivity of 60dBz and height of 16 km	N(167 km) W(100 km) and NW(75 km) moving Wly	CB cells are well developed and most of the cells are start dissipating from 1111 UTC	TSRA	Visakhapatnam East Godavari (AP) Khammam (Telangana) Koraput and Rayagada Nabarangapur (Odissa)
		121200- 121500	Multiple CB cells of maximum reflectivity of 62dBz and height of 16.5 km	NW(175 km) moving SWly	CB cell in the NW was well developed and start dissipating from 1231 UTC	TSRA	Koraput (Odissa) Bastar (Chhatisgar)
		121500- 121800	Isolated CB cell of maximum reflectivity of 38dBz and height of 5.7 km	NW(142 km) moving SEly	CB cell dissipated at 1621UTC	RA	Koraput (Odissa)
Lucknow	13-05-20	120300 - 120552	In Previous day at 0300 UTC A Single Cell formed over 175 Km in South East w.r.t Station with 43.0 dbz refl. and Max. reflectivity 45.5.0 dbz with Avg height of 5.5 Km.	A Single Cell moved towards east direction with avg. velocity 20.0 Km/h w.r.t. the station.	Cells dissipated at 0552 UTC over 250 km in SE w.r.t the station	DS/ TSRA/ Lightning	Prayagraj, Sant Ravidas Nagar,Mirzapur, Varanasi, Sonbhadra
		120552- 130300	NIL	NIL	NIL	NIL	NIL

Radar Statio n name	Date	Time interval of observa- tion (UTC)	Organization of the cells (Isolated single cells/multiple cells/ convective regions/ squall lines) with height of 20dBZ echo top and maximum reflectivity	Formation w.r.t radar station and Direction of movement	Remarks	Associate d severe weather if any	Districts affected
Goa	13-05-20	120600- 120900	Multiple isolated cells with maximum reflectivity 95.0 dBZ and maximum height 7.5 KM	50 to 200 km in N,E, NE sector moving in SW direction	intensifying	Nil.	Kolhapur, Belgaum, North Goa & Sindhudurg
		120900- 121200	Multiple cells with maximum reflectivity 95.0 dBZ and maximum height 12.8 KM	In South NNW, SSW & SW sector 20-200 km away, moving in SW direction	Dissipating	NIL	
		121200- 121500	Multiple cells with maximum reflectivity 63.0 dBZ and maximum height 8 KM & 9.2 KM	In N, NNE & SE sector w.r.t. radar and within a distance 60- 100 KM E,ENE 60-80 KM westward	Dissipating	Nil	North Goa & Sindhudurg South Goa , Uttar Kannada & Belgaum
		121500- 121800	Multiple cell with maximum reflectivity 59.5 dBZ and maximum height 8 Km	In ESE sector, about 160-180 km away from radar. Westward movement.	Dissipating	Nil.	Haveri & Uttar Kannada
		121800- 130300	NIL	NIL	NIL	Nil.	NIL
Patna	13-05-20	120300- 130300			No Sig Echo		

Radar Station name	Date	Time interva I of observ ation (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
Agartala	13-05-20	120302 - 122359	1. Multiple cell formed over Meghalaya at 0522 UTC with height of 12 km at 0602 UTC and maximum reflectivity 55 dBZ at 0602 UTC	Cell found about 200-250 km North of DWR Agartala and moves in NE direction with 40 kmph	Cell dissipated over Meghalaya at 0902 UTC.	Rain/Thunders torm.	Mizoram,Assam
		130000 - 130302	Multiple cell found over Bangladesh and south Assam at 0012 UTC with height of 15 km at 0012 UTC and maximum reflectivity 59 dBZ at 0102 UTC	Cell found about 100-200 km North East of DWR Agartala and moves in SE direction with 40 kmph	Cell still persist over Mizoram, Tripura and south Assam at 0302 UTC.	Rain/Thunders torm.	Mizoram, Tripura, Bangladesh and South Assam
Jaipur	13-05-20	120300 - 130300	Multiple cells with average height of 6.5 kms & maximum reflectivity of 53.5 dBZ at 02:12 UTC of 13/05/2020.	Multiple cells started forming from 18:00 UTC of 12/05/2020 towards NW, W, N of Jaipur and moved towards E, SE wards at an approximate speed of 30-35 km/hr and cells continue devloping and coming from NW direction to SE wards at 03:00 UTC of 13/05/2020.		Thunderstom / Duststorm/ Lightining / gusty wind (speed 40- 45kmph) with light to moderate rai n	Churu, Sikar, Jhunjhunu, Bikaner, Ajmer, Jaipur, Dausa, Nagaur, Karauli, Sawaimadhopur, Bharatpur, Tonk, Dholpur and Alwar Districts.

Realised TS/HS/SQ during past 24hours ending at 0300 UTC of today (Received from RMCs/MCs):

Region	Thunderstorms	Hailstorm	Squall	Duststorm	Remarks
Northwest	IMD Stations: Tehri, Sundernagar, Shimla AMS,	Nil	Nil	Pilani	Nil
India	Sikar, Pilani, Churu, Sriganganagar				
	IAF Stations: Not Available(N/A)				
Northeast	IMD Stations: Itanagar, Jorhat, Silchar, North	Nil	Nil	Nil	Nil
India	Lakhimpur, Tezpur, Barapani, Cherrapunjee, Lengpui,				
	Kailasahar				
	IAF Stations: N/A				
East India	IMD Stations: Gangtok, Tadong, Darjeeling, Dumdum	Nil	Port Blair:	Nil	Nil
	AP, Asansol, Bankura, Sriniketan, Ranchi,		121807-121808		
	Jamshedpur, Daltonganj, Keonjhargarh, Balasore		(from SE with		
	(Lightning), Port Blair		max, speed		
			52kmph)		
	IAF Stations: N/A				
South India	IMD Stations*: Hyderabad, Mahbubnagar, Tirupathi	Nil	Nil	Nil	*TS Report of
	AP, Kochi CIAL, Kannur, Karipur AP,				Karnataka not
	Thiruvananthapuram (AP & City), Agathi				received from MC
					Bengaluru
	IAF Stations: N/A				
Central	IMD Stations: Nagpur, Guna, Ambikapur, Jagdalpur,	Nil	NII	Nil	NI
India	Pendra Road				
		N 111	N 11	N 121	*****
west India	INIU Stations **: Koinapur	NII	NII	NII	Culeret ast
					Gujarat not
	IAF Stations: N/A				received from MC
					Anmedabad

8. CURRENT WEATHER IMAGERIES:











Water Vapour wind at 0500UTC (INSAT-3D)



SEVIRI real time Lightning imagery at 0945 UTC



SEVIRI observed dust at 0500UTC



SEVIRI Convection at 0500UTC

9. FORECAST WEATHER IMAGERIES:







11. IMPORTANT LINKS:

1. For GEFS LAYRH, SCP, Wind Gust Forecast Probabilities:

https://srf.tropmet.res.in/srf/hires_gefs/gfs_based.php

2. For GEFS LAYRH, SCP, Wind Gust Archive Products:

https://srf.tropmet.res.in/srf/hires_gefs/archive_thunderstorm.php

3. For 24hour Lightning forecast (WRF) from IITM:

https://srf.tropmet.res.in/srf/lightening_flash/index.php

4. For Real-time Lightning products from foreignsat:

http://foreignsat.imd.gov.in/

5. For DWR mosaic (overlayed with lightning/clouds/winds etc.):

https://ddgmui.imd.gov.in/radar/leaflet-map-csv-master/mosaic.php

6. Current Nowcast Warnings

https://mausam.imd.gov.in/imd_latest/contents/stationwise-nowcast-warning.php

7. Thunderstorm Observation, Prediction and Monitoring web page:

https://srf.tropmet.res.in/srf/ts_prediction_system/index.php

12. WEATHER SYMBOLS:



∞	haze			
\sim				
	smoke			
÷	dust or sand storm			
\equiv	fog			
,	drizzle			
•	rain			
*	snow			
∇	showers			
Δ	hail			
য	thunderstorm			
Weather Symbols				