



**India Meteorological Department
(Ministry of Earth Sciences)**

NATIONALBULLETIN NO.: 15 (BOB/05/2024)

TIME OF ISSUE: 1430 HOURS IST

DATED: 16.09.2024

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Sub: Deep Depression over Gangetic West Bengal and adjoining Jharkhand

The deep depression over **Gangetic West Bengal and adjoining Jharkhand** moved west-northwestwards with a speed of 12 kmph during past 6 hours and lay centered at 1130 hours IST of today, the 16th September 2024, over the same region near latitude 23.2° N and longitude 86.4° E, about 10 km south of Purulia (West Bengal), 70 km west-southwest of Bankura (West Bengal), 50 km north-northeast of Jamshedpur (Jharkhand) and 110 km east of Ranchi (Jharkhand).

It is likely to continue to move west-northwestwards across Gangetic West Bengal & Jharkhand and weaken into a depression during next 12 hours. Thereafter, it will continue to move west-northwestwards across Jharkhand and North Chhattisgarh during subsequent 24 hours.

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

Forecast track and intensity are given in the following table:

Date/Time (IST)	Position (Lat. °N/ Long. °E)	Maximum Sustained Surface Wind Speed (kmph)	Category Of Cyclonic Disturbance
16.09.24/1130	23.2/86.4	50-60 gusting to 70	Deep Depression
16.09.24/2330	23.5/85.1	45-55 gusting to 65	Depression
17.09.24/1130	24.0/83.5	40-50 gusting to 60	Depression
17.09.24/2330	24.5/81.9	25-35 gusting to 45	Well Marked Low Pressure Area

Warnings:

(i) Rainfall warning

Jharkhand: Light to moderate rainfall at most places with **heavy to very heavy rainfall** at a few places & **isolated extremely heavy rainfall** over south Jharkhand & **isolated heavy to very heavy rainfall** over North Jharkhand on 16th September. Light to moderate rainfall at most places with **heavy to very heavy rainfall** at isolated places over Jharkhand on 17th September.

Gangetic West Bengal: Light to moderate rainfall at most places is very likely with **heavy rainfall** at isolated places over Gangetic West Bengal on 16th September.

Odisha: Light to moderate rainfall at most places is very likely with **heavy to very heavy rainfall** at isolated places over North Odisha on 16th September and **heavy rainfall** at isolated places over Northwest Odisha on 17th September.

Bihar: Light to moderate rainfall at most places with **heavy rainfall** at isolated places is very likely over South Bihar on 16th and 17th September.

Chhattisgarh: Light to moderate rainfall at most places with **heavy to very heavy rainfall** at isolated places over North Chhattisgarh during 16th to 17th September.

Madhya Pradesh: Light to moderate rainfall at most places with **heavy to very heavy rainfall** at isolated places is likely over Northeast Madhya Pradesh on 16th & 17th September and **heavy rainfall** at isolated places on 18th September. Light to moderate rainfall at most places with **heavy rainfall** at isolated places over Northwest Madhya Pradesh during 17th to 18th September.

Uttar Pradesh: Light to moderate rainfall at many places with **heavy to very rainfall** at isolated places over Southeast Uttar Pradesh during 16th and 17th September. Light to moderate rainfall at many places with **heavy to very rainfall** at isolated places over West Uttar Pradesh on 17th and **heavy rainfall** at isolated places on 18th September.

(ii) Flash Flood Guidance: (Graphics Attached)

24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 17-09-2024:

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of following Met Sub-divisions during next 24 hours.

Odisha - Keonjhar, Mayurbhanj, Deogarh, Baragarh, Jharsuguda, Subarnpur, Sambalpur and Sundargarh districts.

Chhattisgarh - Balarampur, Jashpur, Korea, Surajpur and Surguja districts.

Jharkhand - Bokaro, Chatra, Deoghar, Dhanbad, Dumka, East & West Singhbhum, Garhwa, Giridih, Godda, Gumla, Hazaribagh, Jamtara, Khunti, Koderma, Latehar, Lohardaga, Pakur, Palamu, Ramgarh, Ranchi, Sahebganj, and Saraikela districts.

Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over Area of Concern due to expected rainfall occurrence in next 24 hours.

(iii) Wind warning:

Squally wind speed reaching 50-60 kmph gusting to 70 kmph is likely to prevail along & off West Bengal & north Odisha coasts and adjoining north Bay of Bengal till evening of 16th September. Thereafter, it is likely to gradually decrease becoming 40-50 kmph gusting to 60 kmph till evening of 16th September and decrease further.

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

Squally wind speed reaching 50-60 kmph gusting to 70 kmph is likely to prevail over Gangetic West Bengal and adjoining Jharkhand & north Odisha till evening of 16th September. Thereafter, it is likely to decrease gradually becoming 40-50 kmph gusting to 60 kmph over Jharkhand and adjoining Southeast Uttar Pradesh & North Chhattisgarh till 17th September evening and decrease thereafter.

(iv) Sea Condition:

Rough to very rough sea condition is very likely to prevail over north Bay of Bengal and along & off West Bengal-Odisha coasts during next 6 hours.

Subsequently, Rough Sea condition is likely to prevail over north Bay of Bengal and along & off West Bengal-Odisha coasts from afternoon of 16th September and improve thereafter.

(iv) Fishermen Warning:

Fishermen are advised not to venture into north Bay of Bengal and along & off Bangladesh, West Bengal, and Odisha coasts till 16th September.

Impact Expected (Jharkhand, North Chhattisgarh, North Odisha, Gangetic West Bengal, South Bihar and Northeast Madhya Pradesh due to heavy rainfall and strong winds)

- ✓ Localized Flooding of roads, water logging in low lying areas and closure of underpasses mainly in urban areas of the above region.
- ✓ Occasional reduction in visibility due to heavy rainfall.
- ✓ Disruption of traffic in major cities and roadways due to water logging in roads and poor visibility due to heavy rain leading to increased travel time and incidents
- ✓ Likely disruption of inland water transportation like small boats and trawlers.
- ✓ Minor damage to kutch roads.
- ✓ Possibilities of damage to vulnerable structure.
- ✓ Localized Landslides/Mudslides/landslips/mud slips/land sinks/mud sinks.
- ✓ Damage to horticulture and standing crops in some areas due to inundation and wind.
- ✓ It may lead to riverine flooding in some river catchments (for riverine flooding please visit Web page of CWC)

Action Suggested (Jharkhand, North Chhattisgarh, North Odisha, Gangetic West Bengal, South Bihar and Northeast Madhya Pradesh due to heavy rainfall and strong winds)

- ✓ Fishermen are advised not to venture into north Bay of Bengal till 16th September.
- ✓ Judicious regulation of surface transports including railways.
- ✓ Check for traffic congestion on your route before leaving for your destination.
- ✓ Follow any traffic advisories that are issued in this regard.
- ✓ Avoid going to areas that face the water logging problems often.
- ✓ Avoid staying in vulnerable structure.

Agromet advisories for Heavy Rainfall likely over various parts of the country

- ✓ Provide mechanical support to horticultural crops & staking to vegetables.
- ✓ Keep the harvested produce at safer places.

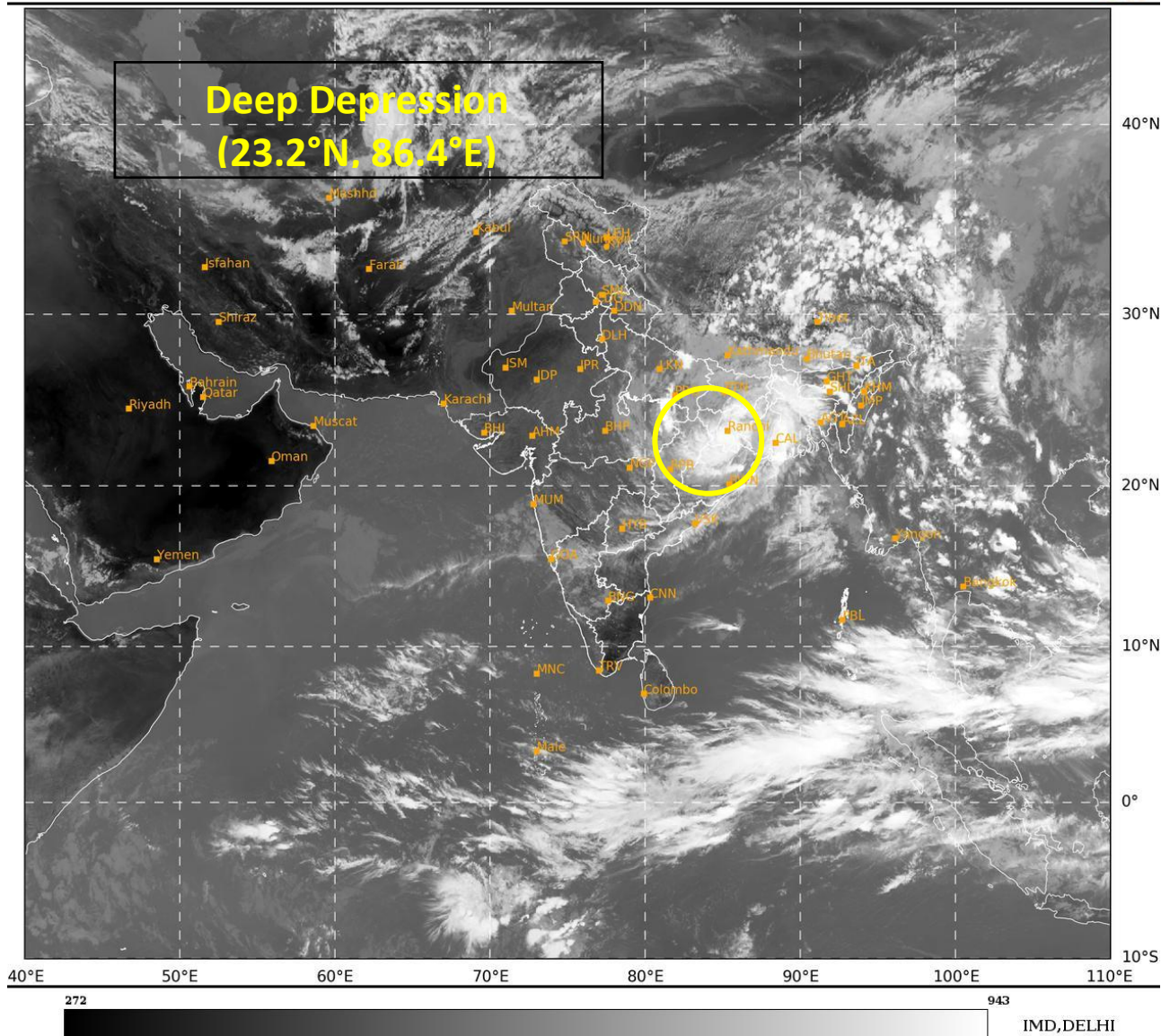
24 hours accumulated realised heavy rainfall (≥ 7 cm) during 0830 hours IST OF 15TH September to 0830 hours IST of 16th September is placed at Annexure-1.

The next bulletin will be issued at 2030 hrs IST of today, the 16th September, 2024.

(Monica Sharma)
Scientist-D, RSMC, New Delhi

Copy to: CRS, Pune/RMC Chennai /RMC Kolkata/RMC Guwahati/MC Bhubaneswar/MC Ranchi/MC Patna/MC Raipur/ MC Agartala/ MC Shillong/MC Aizawl/Mc, Bhopal/MC Lucknow

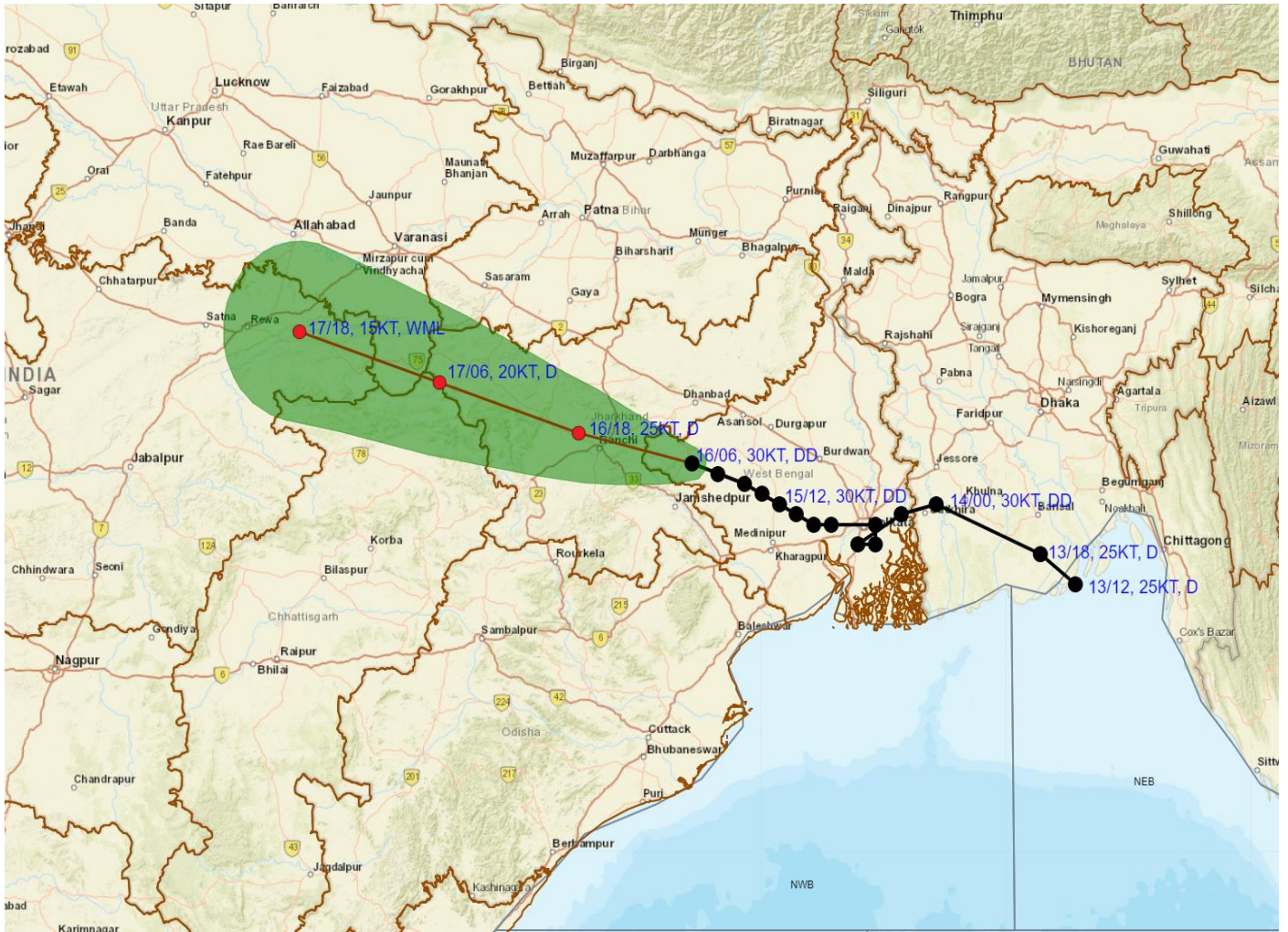
Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



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Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



OBSERVED AND FORECAST TRACK OF DEEP DEPRESSION OVER GANGETIC WEST BENGAL AND ADJOINING JHARKHAND BASED ON 0600 UTC (1130 IST) OF 16TH SEPTEMBER, 2024.



DATE/TIME IN UTC
 IST=UTC + 0530
 L: LOW PRESSURE AREA
 WML: WELL MARKED LOW PRESSURE AREA
 D: DEPRESSION (17-27 KT)
 DD: DEEP DEPRESSION (28-33 KT)
 CS: CYCLONIC STORM (34-47 KT)
 SCS: SEVERE CYCLONIC STORM (48-63KT)
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
 ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
 SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



OBSERVED AND FORECAST TRACK ALONG WITH QUADRANT WIND DISTRIBUTION OF DEEP DEPRESSION OVER GANGETIC WEST BENGAL AND ADJOINING JHARKHAND BASED ON 0600 UTC (1130 IST) OF 16TH SEPTEMBER,



DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
D: DEPRESSION (17-27 KT)
DD: DEEP DEPRESSION (28-33 KT)
CS: CYCLONIC STORM (34.47 KT)
SCS: SEVERE CYCLONIC STORM (48-63KT)
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
SuCS: SUPER CYCLONIC STORM (\geq 120 KT)

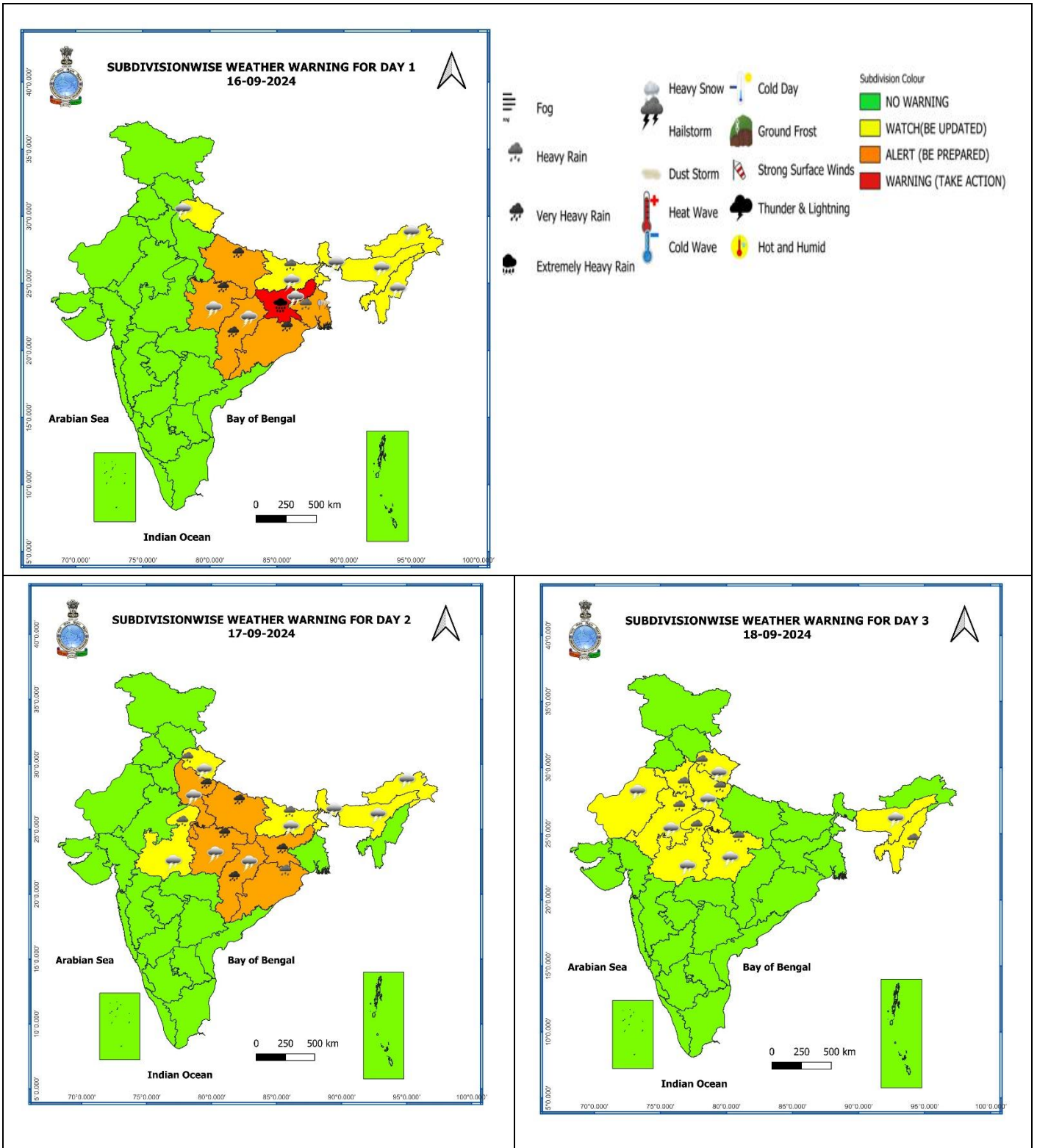
● LESS THAN 34 KT
 ○ 34.47 KT
 ○ \geq 48 KT
 — OBSERVED TRACK
 — FORECAST TRACK
 — CONE OF UNCERTAINTY
AREA OF MAXIMUM SUSTAINED WIND SPEED:
 ■ 28-33 KT (52-61 KMPH)
 ■ 34.49 KT (62-91 KMPH)
 ■ 50-63 KT (92-117 KMPH)
 ■ \geq 64 KT (\geq 118 KMPH)

IMPACT OVER THE SEA

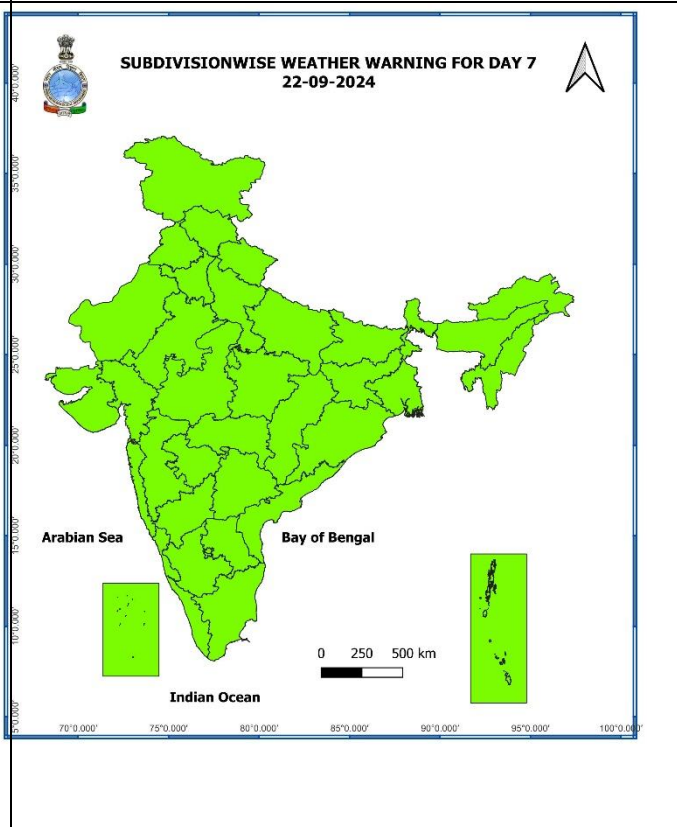
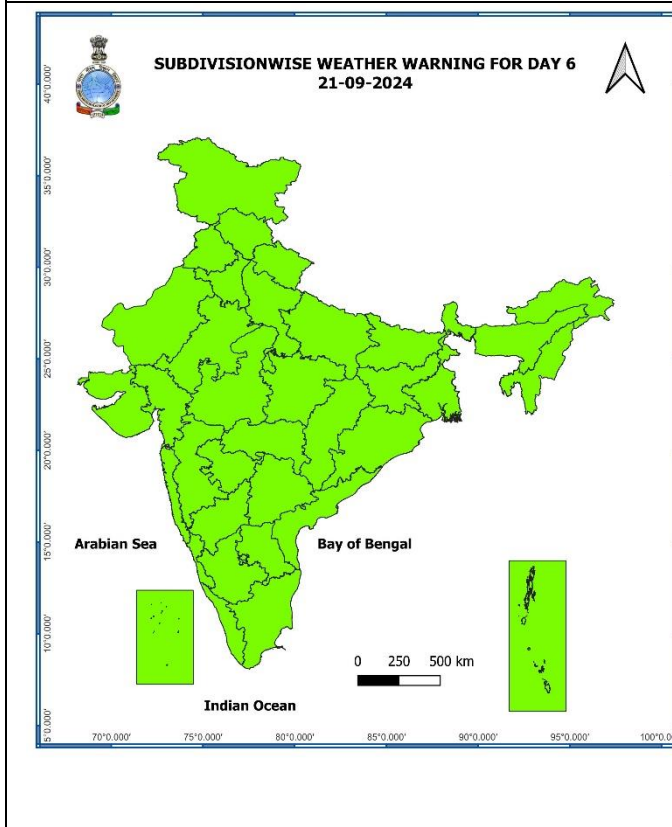
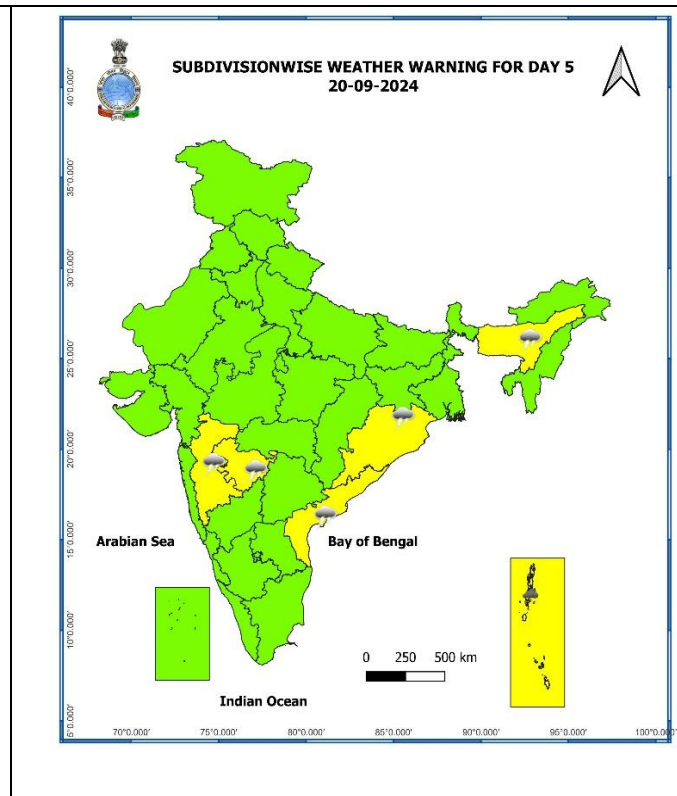
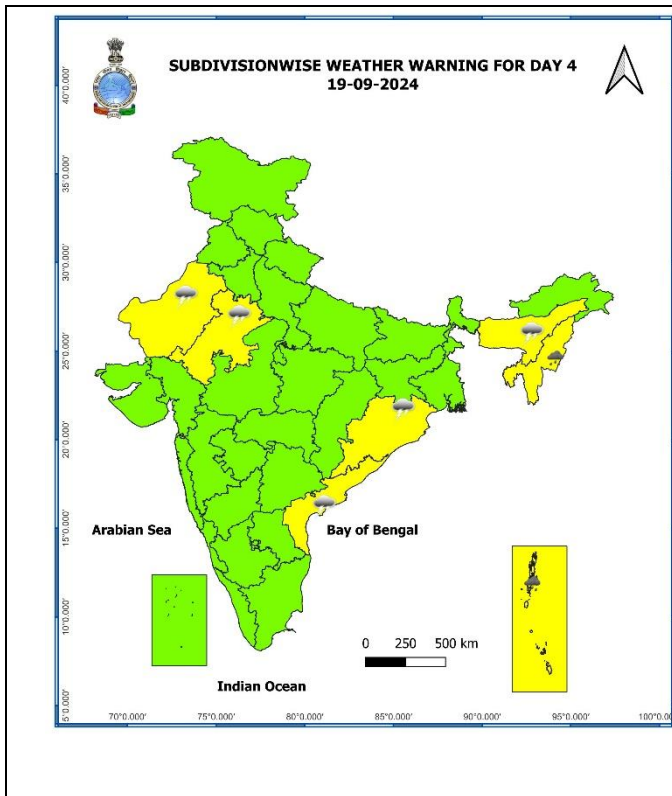
MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
\geq 64 (\geq 118)	Phenomenal	Total suspension of fishing operations

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

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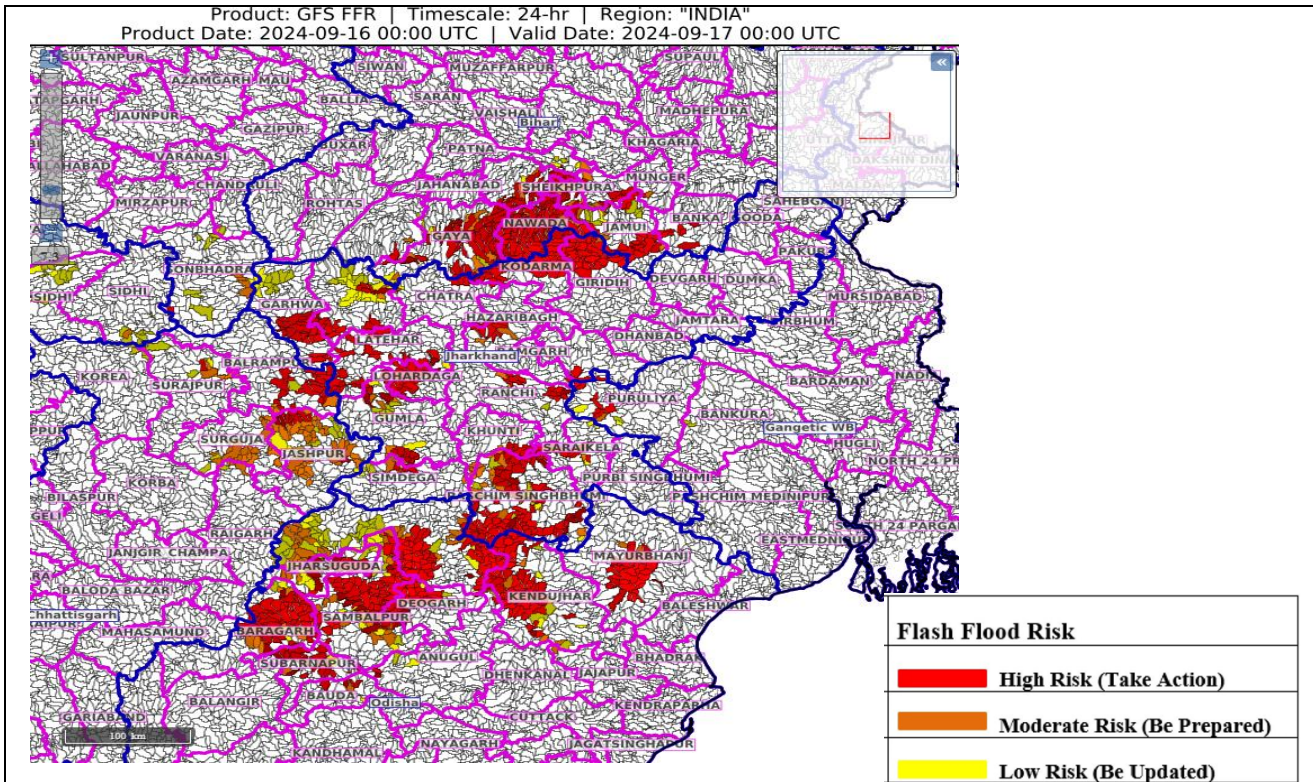
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Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



- Action may be taken based on **ORANGE AND RED COLOUR** warnings.
- Vulnerable regions likely urban and hilly areas action may be initiated for heavy rainfall warning.
- As the lead period increases forecast accuracy decreases.

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

Flash Flood Guidance



24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 17-09-2024 :

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of following Met Sub-divisions during next 24 hours.

Odisha - Keonjhar, Mayurbhanj, Deogarh, Baragarh, Jharsuguda, Subarnpur, Sambalpur and Sundargarh districts.

Chhattisgarh - Balarampur, Jashpur, Korea, Surajpur and Surguja districts.

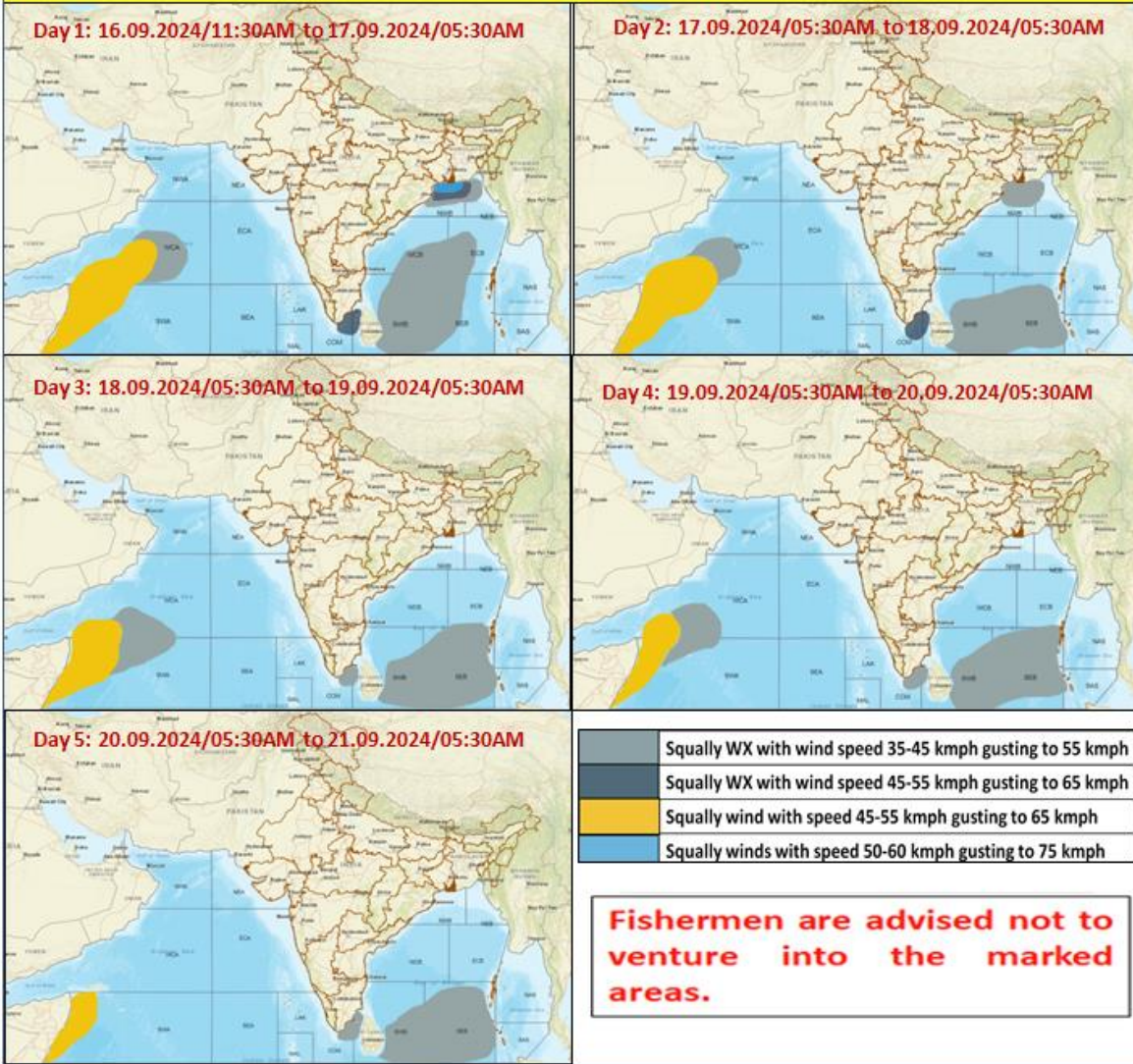
Jharkhand - Bokaro, Chatra, Deoghar, Dhanbad, Dumka, East & West Singhbhum, Garhwa, Giridih, Godda, Gumla, Hazaribagh, Jamtara, Khunti, Koderma, Latehar, Lohardaga, Pakur, Palamu, Ramgarh, Ranchi, Sahebganj, and Saraikela districts.

Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over AoC as shown in map due to expected rainfall occurrence in next 24 hours.

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

Fishermen Warning Graphics



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Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

Jharkhand: Tandwa(dist Chatra) 16, Lawalong(dist Chatra) 15, Simaria(dist Chatra) 14, Maithon DVC (dist Dhanbad) 14, Maithon (dist Dhanbad) 13, Gurabandha (dist East Singbhum) 12, Gobindpur (dist Dhanbad) 12, Sindri (dist Dhanbad) 11, Putki (dist Dhanbad) 11, Chandrapura (dist Bokaro) 11, Chandankiary (dist Bokaro) 11, Panchet (dist Dhanbad) 11, Panchet (dist Dhanbad) 11, Ghatsila (dist East Singbhum) 11, Latehar Balumat (dist Latehar) 11, Musabani (dist East Singbhum) 11, Potka (dist East Singbhum) 10, Chakulia (dist East Singbhum) 10, Karmatand (dist Jamtara) 10, Jamshedpur (dist East Singbhum) 10, Dhalbhumgarh (dist East Singbhum) 10, Parsabad (dist Koderma) 10, Jamtara (dist Jamtara) 9, Putki DVC (dist Dhanbad) 9, Bariyatu (dist Latehar) 9, Jamshedpur (dist East Singbhum) 9, Koderma DVC (dist Koderma) 9, Bau Kanke (dist Ranchi) 9, Hazaribagh (dist Hazaribag) 8, Majhgaon (dist West Singbhum) 8, Shilaichak (dist Chatra) 8, Dumri (dist Giridih) 8, Rajdhanwar (dist Giridih) 7, Chandil (dist Seraikela-kharsawan) 7, Chandwa (dist Latehar) 7, Maheshpur (dist Pakur) 7, Messenjar (dist Dumka) 7, Jamtara Fmo (dist Jamtara) 7, Tonto (dist West Singbhum) 7, Nimdih (dist Seraikela-kharsawan) 7, Nawadih (dist Bokaro) 7, Dhurki (dist Garhwa) 7, Bagodari (dist Giridih) 7, Phusro (dist Bokaro) 7, Balumath (dist Latehar) 7, Chaibasa (dist West Singbhum) 7, Garhwa (dist Garhwa) 7, Kharsema (dist Seraikela-kharsawan) 7, Tenughat (dist Bokaro) 7,

Gangetic West Bengal: Asansol (dist Paschim Bardhaman) 15, Asansol (dist Paschim Bardhaman) 15, Suri (pto) (dist Birbhum) 15, Suri (dist Birbhum) 13, Kharidwar (dist Purulia) 13, Burnpur (dist Paschim Bardhaman) 12, Purihansa (dist Purulia) 11, Luchipur (dist Paschim Bardhaman) 11, Bankura(CWC) (dist Bankura) 10, Harinkhola (dist Hooghly) 10, Gheropara (dist Birbhum) 10, Sri Niketan (dist Birbhum) 9, Tusuma (dist Purulia) 9, Rajnagar (dist Birbhum) 9, Phulberia (dist Purulia) 9, Purulia (dist Purulia) 8, Bankura (dist Bankura) 8, Mankar (dist Purba Bardhaman) 8, Simula (dist Purulia) 8, Tantloi (dist Birbhum) 8, Amtala (dist Murshidabad) 8, Lalgargh (dist Jhargram) 8, Rampurhat (dist Birbhum) 8, Panagarh (dist Paschim Bardhaman) 8, Narayanpur (dist Birbhum) 7, Labpur (dist Birbhum) 7, Nalhati (dist Birbhum) 7, Durgapur (dist Paschim Bardhaman) 7, Tilpara Barrage (dist Birbhum) 7, Hetampur (dist Birbhum) 7, Amfu Kharagpur (dist West Midnapore) 7, Kalaikunda (IAF) (dist West Midnapore) 7,

Chhattisgarh: Ramchandrapur (dist Balrampur) 15, Kusmi (dist Balrampur) 13, Samari (dist Balrampur) 12, Wandrafanagar (dist Balrampur) 11, Ramanujganj (dist Balrampur) 8, Rajpur (dist Balrampur) 8, Raghunath Nagar (dist Balrampur) 8, Chando (dist Balrampur) 8, Pratappur (dist Surajpur) 7,

Odisha: Udala (Mayurbhanj) 14, G B Nagar (Mayurbhanj) 12, Nawana (Mayurbhanj) 12, Balimundali (Mayurbhanj) 12, Raruana (Mayurbhanj) 11, Betanati (Mayurbhanj) 11, Karanjia (Mayurbhanj) 11, Bahalda (Mayurbhanj) 11, Kaptipada (Mayurbhanj) 10, Balasore (Balasore) 10, Joshipur (Mayurbhanj) 10, Jaipur (Balasore) 10, Sarasakana (Mayurbhanj) 9, Tiring (Mayurbhanj) 9, Nh5 Gobindpur (Balasore) 9, Kusumi (Mayurbhanj) 9, Bijatala (Mayurbhanj) 9, Nilgiri (Balasore) 8, Joda (Keonjhar) 8, Jaleswar (Balasore) 8, Remuna (Balasore) 8, Jamsolaghat (Mayurbhanj) 8, Rasagovindapur (Mayurbhanj) 8, Baripada (Mayurbhanj) 8, Rajghat (Balasore) 8, Bhogra (Balasore) 8, Rairangpur (Mayurbhanj) 8, Muruda (Mayurbhanj) 8, Bangiriposi (Mayurbhanj) 7, Suliapada (Mayurbhanj) 7, Samakhunta (Mayurbhanj) 7, Chandua Kuliana (Mayurbhanj) 7, Sukruli (Mayurbhanj) 7,

East Madhya Pradesh: Chitrangi (dist Singrauli) 11, Mauganj (dist Rewa) 8,

East Uttar Pradesh: Churk (dist Sonbhadra) 10, Chopan Fmo (dist Sonbhadra) 8, Robertsganj (dist Sonbhadra) 7, Dudhi (dist Sonbhadra) 7,

Bihar: Sanjhauli (dist Rohtas) 8, Chakai (dist Jamui) 8, Rajauli (dist Nawada) 7,

Sub-Himalayan West Bengal: Rongo (dist Kalimpong) 8, Lava (dist Kalimpong) 8, Jhallong (dist Kalimpong) 7

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

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