



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

**NATIONALBULLETIN NO.: 16 (BOB/05/2024)**

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**Sub: Deep Depression over Jharkhand**

The deep depression over Gangetic West Bengal and adjoining Jharkhand moved westwards with a speed of 20 kmph during past 6 hours and lay centered at 1730 hours IST of today, the 16<sup>th</sup> September 2024, over Jharkhand near latitude 23.3° N and longitude 85.2° E, close to west of Ranchi (Jharkhand), around 140 km southeast of Daltonganj (Jharkhand), 200 km east of Ambikapur (Chhattisgarh) and 260 km southeast of Churk (Uttar Pradesh).

It is likely to continue to move west-northwestwards across Jharkhand and weaken into a depression during next 12 hours. Thereafter, it will continue to move west-northwestwards across North Chhattisgarh and East Madhya Pradesh 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
16.09.24/1730	23.3/85.2	50-60 gusting to 70	Deep Depression
17.09.24/0530	23.5/83.3	45-55 gusting to 65	Depression
17.09.24/1730	24.0/81.6	40-50 gusting to 60	Depression
18.09.24/0530	24.7/80.2	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 16<sup>th</sup> September. Light to moderate rainfall at most places with **heavy to very heavy rainfall** at isolated places over Jharkhand on 17<sup>th</sup> 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 16<sup>th</sup> 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 16<sup>th</sup> September and **heavy rainfall** at isolated places over Northwest Odisha on 17<sup>th</sup> September.

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

**Chhattisgarh:** Light to moderate rainfall at most places with **heavy to very heavy rainfall** at isolated places over North Chhattisgarh during 16<sup>th</sup> to 17<sup>th</sup> 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 16<sup>th</sup> & 17<sup>th</sup> September and **heavy rainfall** at isolated places on 18<sup>th</sup> September. Light to moderate rainfall at most places with **heavy rainfall** at isolated places over Northwest Madhya Pradesh during 17<sup>th</sup> to 18<sup>th</sup> September.

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

#### (ii) Wind warning:

Squally weather with wind speed reaching 40-50 kmph gusting to 60 kmph is likely to prevail over northwest Bay of Bengal and along & off West Bengal & north Odisha coasts till midnight of today, the 16<sup>th</sup> September and decrease thereafter.

Squally wind speed reaching 50-60 kmph gusting to 70 kmph is likely to prevail over Jharkhand and adjoining Gangetic West Bengal and adjoining, South Bihar, North Chhattisgarh & north Odisha till midnight of 16<sup>th</sup> 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 17<sup>th</sup> September evening and decrease thereafter.

#### (iii) Sea Condition:

Rough Sea condition is likely to prevail over northwest Bay of Bengal and along & off West Bengal & north Odisha coasts till midnight of today, the 16<sup>th</sup> September and decrease thereafter.

#### (iv) Fishermen Warning:

Fishermen are advised not to venture into northwest Bay of Bengal and along & off West Bengal, and Odisha coasts till 16<sup>th</sup> September.

**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.**

**Impact Expected (Jharkhand, North Chhattisgarh, North Odisha, South Bihar, Gangetic West Bengal 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, South Bihar Gangetic West Bengal 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**

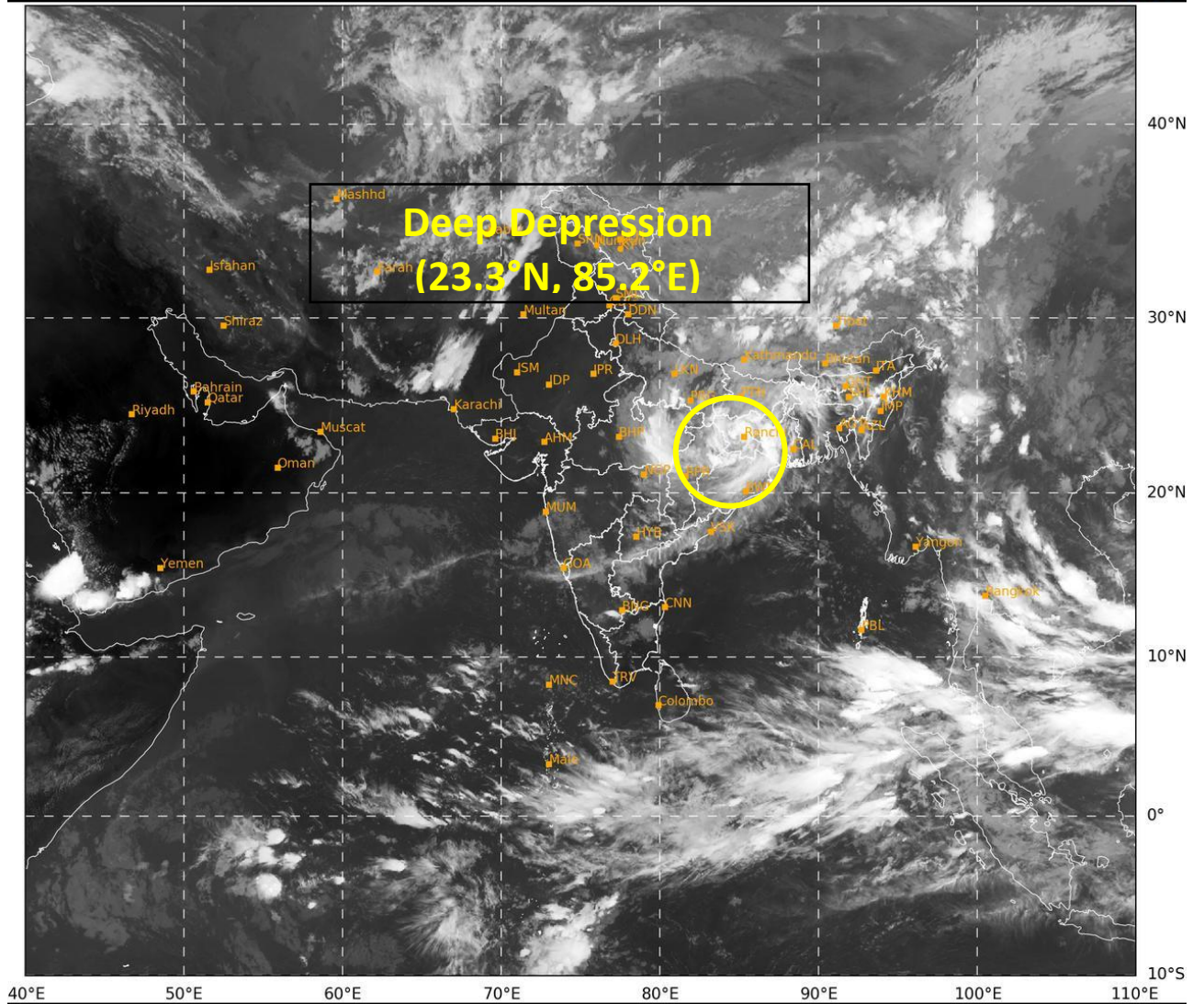
- ✓ Provide mechanical support to horticultural crops & staking to vegetables.
- ✓ Keep the harvested produce at safer places.

24 hours accumulated realised heavy rainfall ( $\geq 7$  cm) during 0830 hours IST OF 16<sup>TH</sup> September to 1730 hours IST of 16<sup>th</sup> September is placed at Annexure-1.

*The next bulletin will be issued at 0230 hrs IST of tomorrow, the 17<sup>th</sup> 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*



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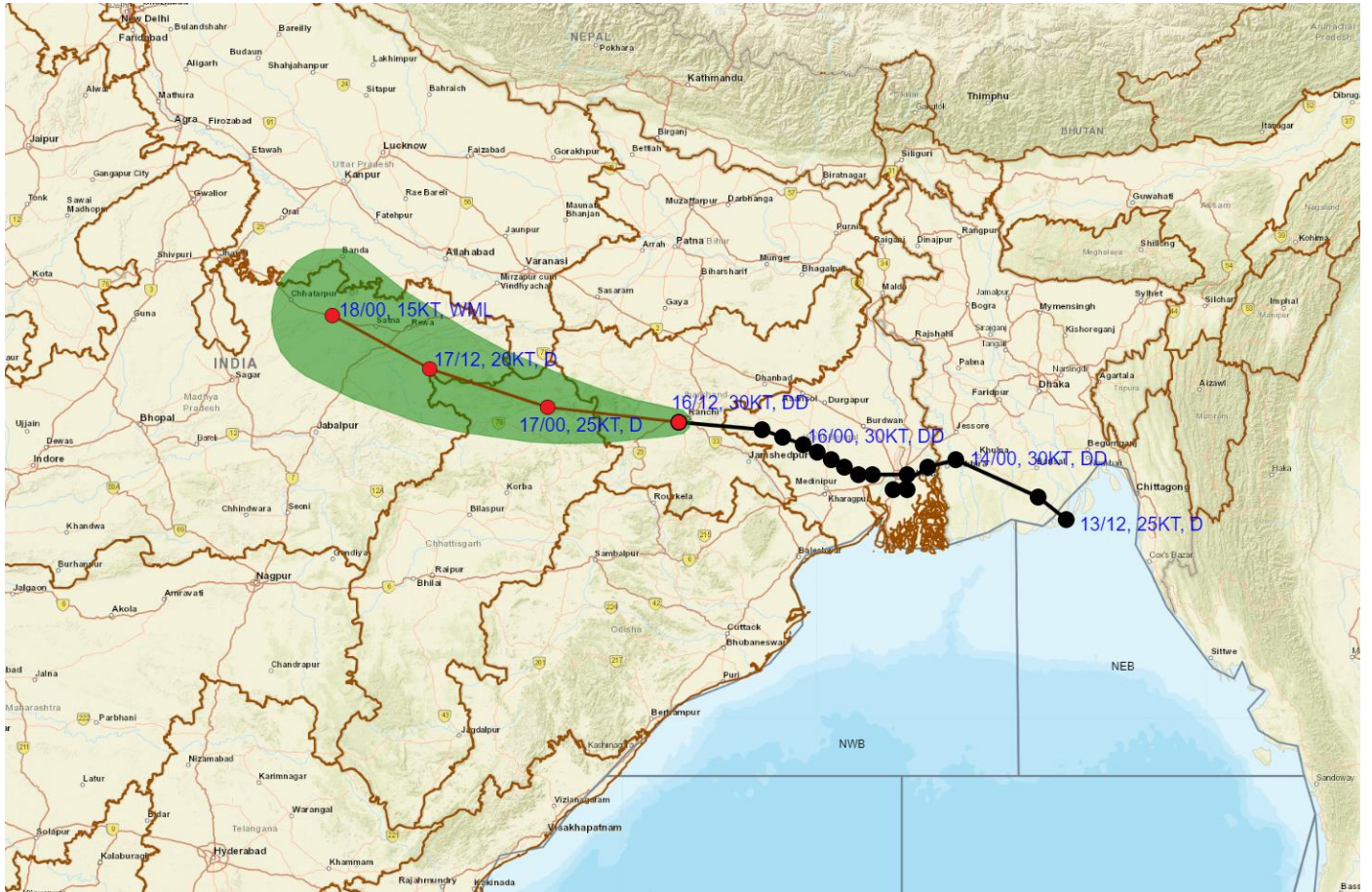
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IMD, DELHI

**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 OF DEEP DEPRESSION OVER JHARKHAND BASED ON 1200 UTC (1730 IST) OF 16<sup>TH</sup> 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 (≥20 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 JHARKHAND BASED ON 1200 UTC (1730 IST) OF 16<sup>TH</sup> 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 ( $\geq$  120 KT)**

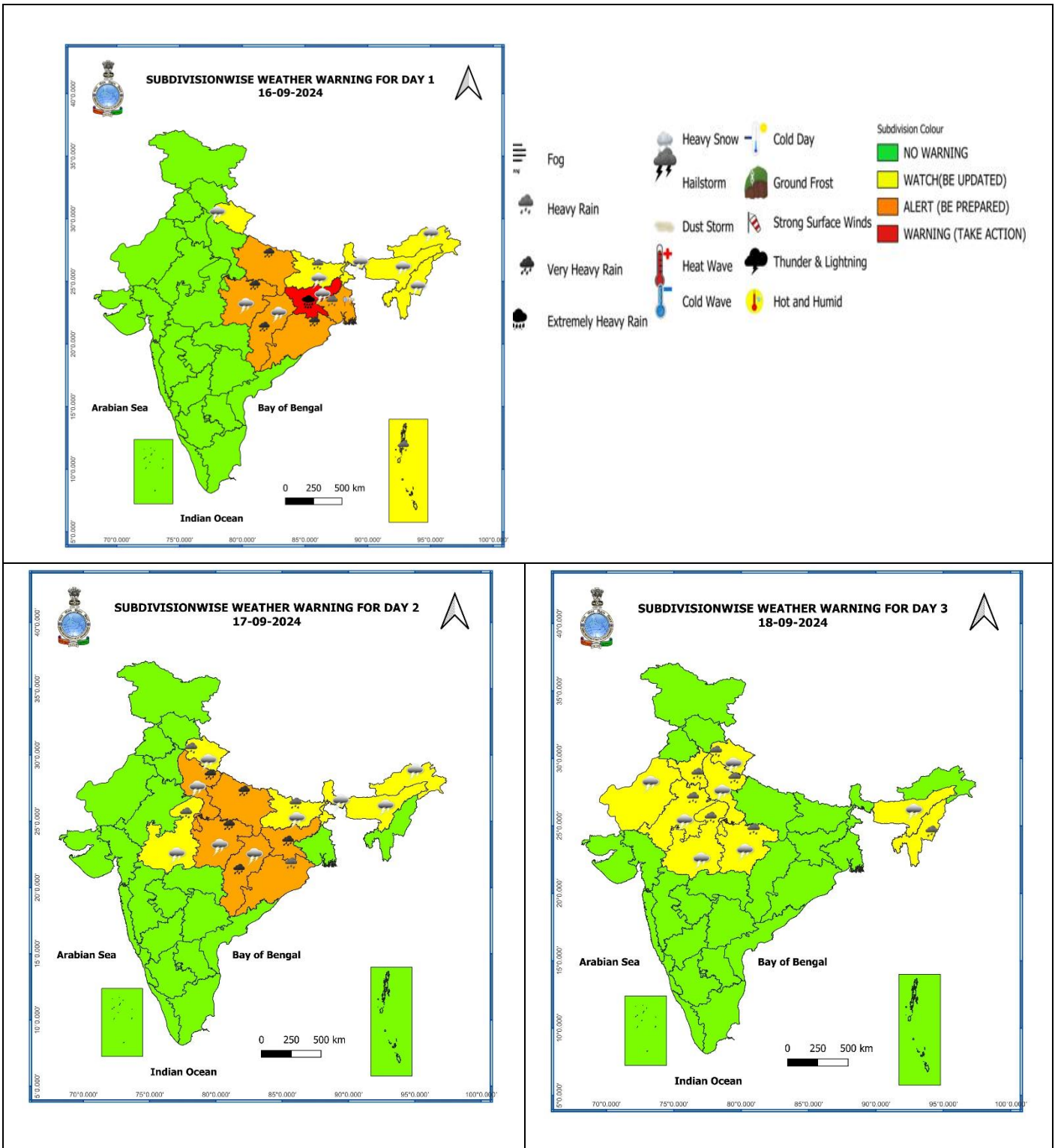
● LESS THAN 34 KT  
 ○ 34-47 KT  
 ⊙  $\geq$  48 KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 ■ CONE OF UNCERTAINTY  
**AREA OF MAXIMUM SUSTAINED WIND SPEED:**  
 ■ 28-33 KT (52-61 KMPH)  
 ■ 34-49 KT (62-91 KMPH)  
 ■ 50-63 KT (92-117 KMPH)  
 ■  $\geq$  64 KT ( $\geq$ 118 KMPH)

### IMPACT OVER THE SEA

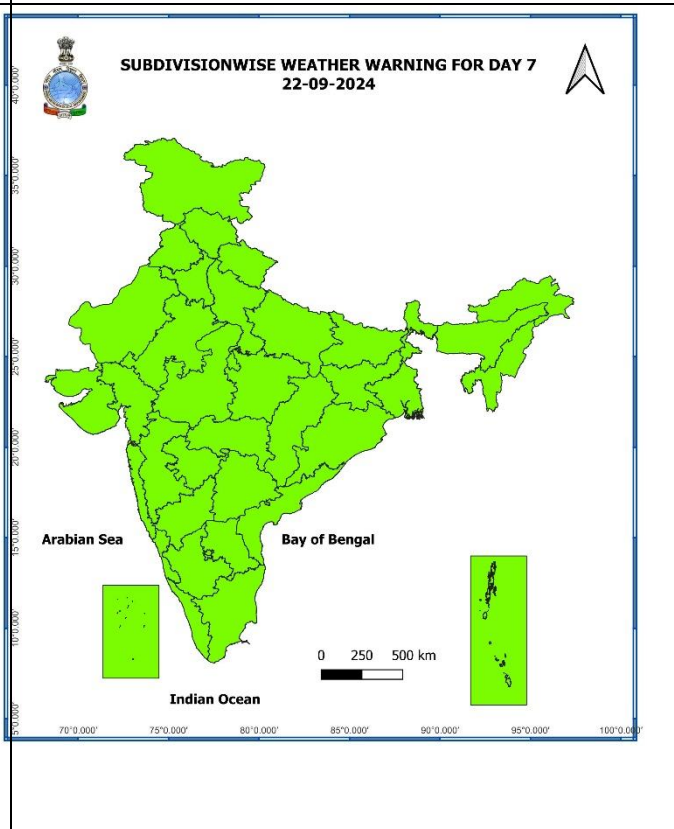
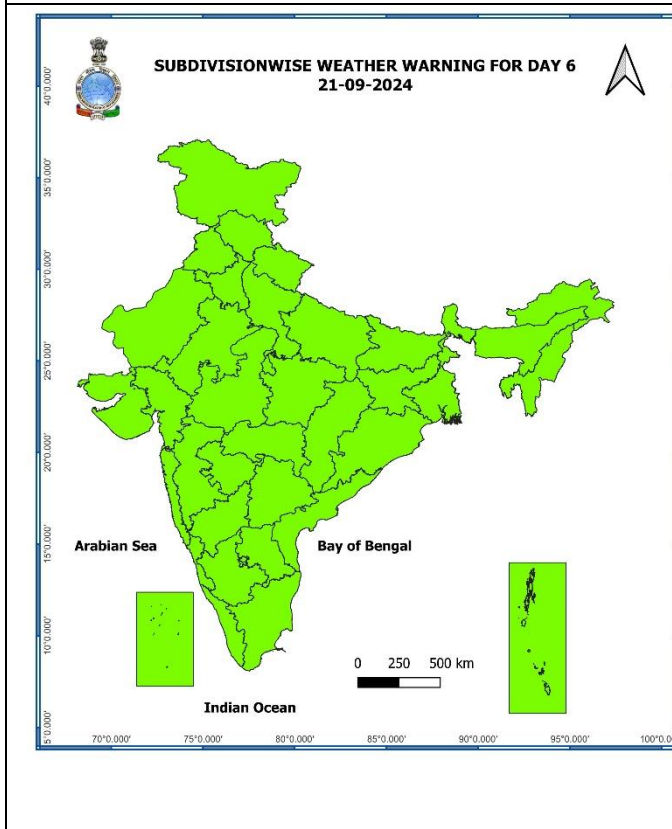
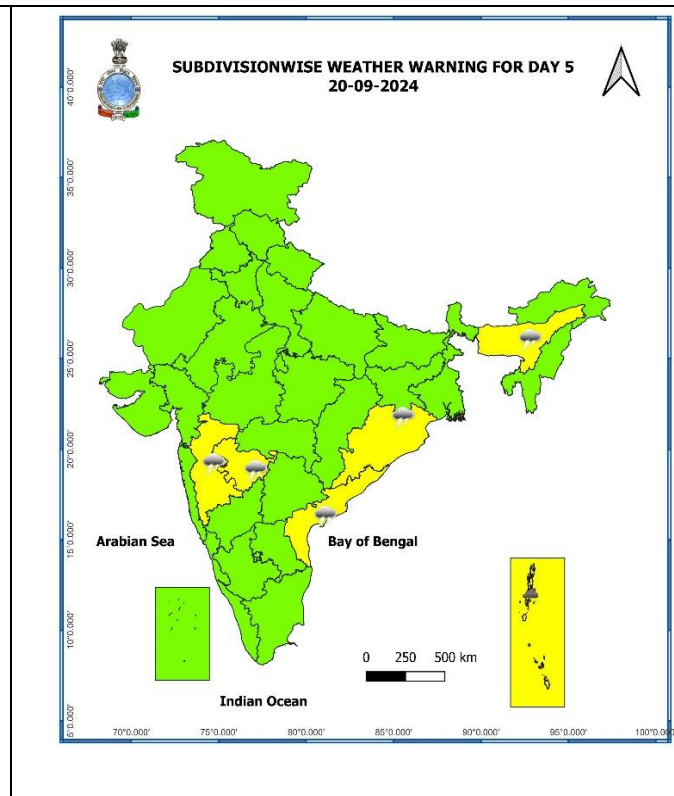
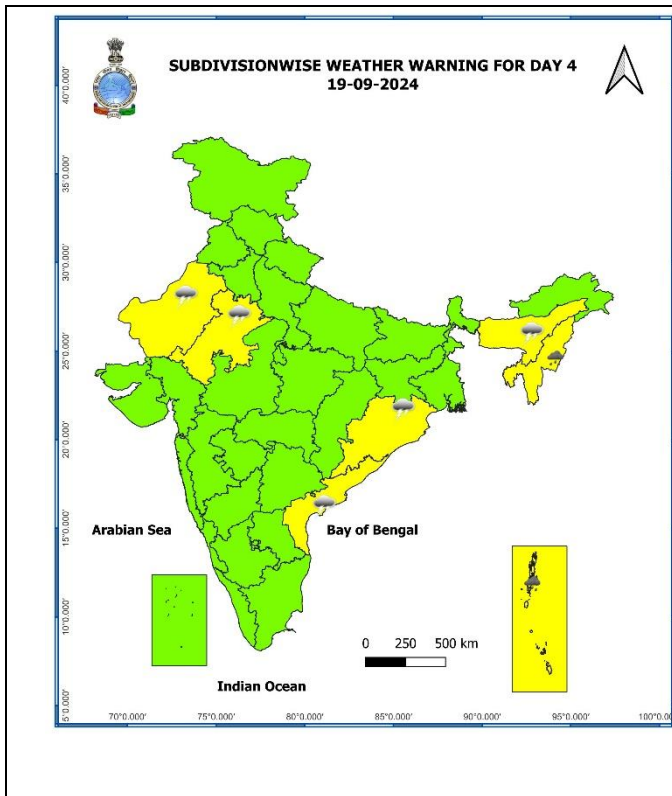
MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
$\geq$ 64 ( $\geq$ 118)	Phenomenal	Total suspension of fishing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

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

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**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.

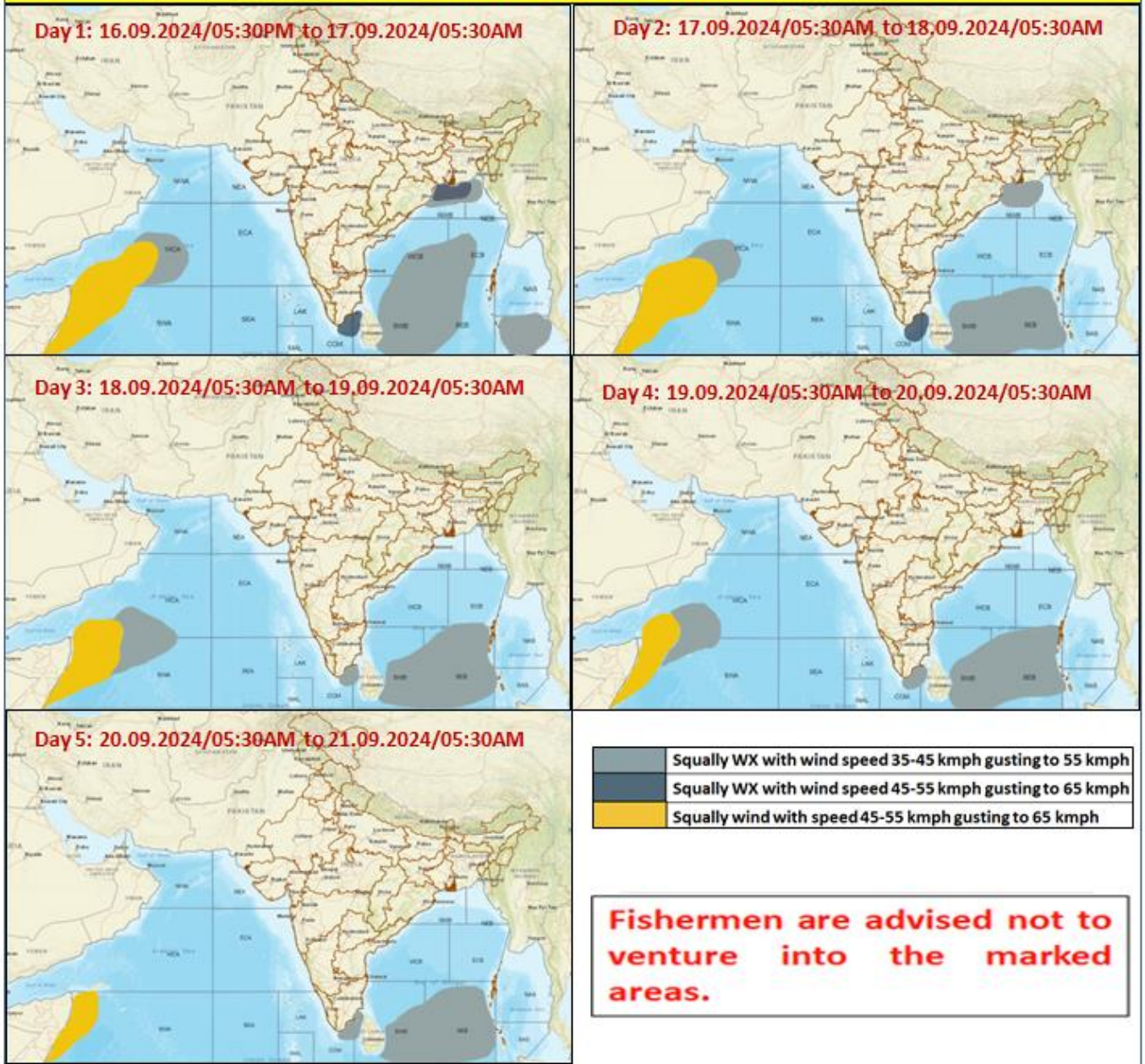
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# Flash Flood Guidance



## Fishermen Warning Graphics



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**Realised rainfall ( $\geq 7$  cm) during 0830 to 1730 hours IST of 16<sup>th</sup> September**

**Odisha:** Bhadrak 5, Jajpur 3;

**East Madhya Pradesh:** Satna & Rewa 4 each, Umaria & Rewa 2 each;

**Gangetic West Bengal:** Basirhat 5, Purulia 4, Panagarh & Canning 3 each, Asansol 2;

**East Uttar Pradesh:** Bahraich 3;

**Jharkhand:** Jamshedpur, Chaibasa & Ranchi 3 each;