



**India Meteorological Department**

**(Ministry of Earth Sciences)**

**NATIONAL BULLETIN NO.: 24(BOB/04/2024)**

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**Sub: (a) Depression over northwest Uttar Pradesh & neighborhood**

**(b) Low Pressure Area over southeast Bangladesh and neighborhood**

**(a) Depression over northwest Uttar Pradesh & neighborhood**

The depression over central Uttar Pradesh moved north-northwestwards with a speed of 10 kmph during past 6 hours and lay centred at 0530 hours IST of 13<sup>th</sup> September over northwest Uttar Pradesh & neighbourhood, near latitude 28.2°N and longitude 79.3°E, about 20 km south-southwest of Bareilly (Uttar Pradesh), 70 km west-northwest of Shahjahanpur (Uttar Pradesh), 120

**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.**

km northwest of Hardoi (Uttar Pradesh), 130 km east-northeast of Aligarh (Uttar Pradesh) and 170 km northeast of Agra (Uttar Pradesh).

It is likely to continue to move nearly north-northwestwards and weaken gradually into a well-marked low pressure area during next 12 hours.

The system is under continuous surveillance of Doppler Weather Radars at Delhi and Lucknow.

### **Warnings:**

#### **(i) Rainfall warning**

**Uttarakhand:** Light to moderate rainfall at most places is very likely with **heavy to very heavy rainfall** at a few places and **extremely heavy rainfall** at isolated places on 13<sup>th</sup>; **heavy rainfall** at isolated places on 14<sup>th</sup> September.

**West Uttar Pradesh:** Light to moderate rainfall at most places is very likely with **heavy to very heavy rainfall** at isolated places on 13<sup>th</sup> and **heavy rainfall** at a few places on 14<sup>th</sup> & 15<sup>th</sup> September.

**East Uttar Pradesh:** Light to moderate rainfall at many places is very likely with **heavy rainfall** at isolated places during 13<sup>th</sup> to 15<sup>th</sup> September.

**West Madhya Pradesh:** Light to moderate rainfall at many places is very likely with **heavy rainfall** at isolated places on 13<sup>th</sup> & 14<sup>th</sup> September.

**East Madhya Pradesh:** Light to moderate rainfall at most places is very likely with **heavy rainfall** at isolated places during 13<sup>th</sup> to 15<sup>th</sup> September.

**East Rajasthan:** Light to moderate rainfall at many places is very likely with **heavy rainfall** at isolated places on 13<sup>th</sup> September.

**Haryana:** Light to moderate rainfall at most places is very likely with **heavy rainfall** at isolated places on 13<sup>th</sup> & 14<sup>th</sup> September.

#### **(ii) Flash Flood Guidance: (Graphics Attached)**

##### **24 hours Outlook for the Flash Flood Risk (FFR) till 1730 IST of 13-09-2024:**

Moderate to High flash flood risk likely over few watersheds & neighbourhoods of

**East Uttar Pradesh** - Bahraich, Hardoi, Kheri, Shrawasti, Siddharthnagar and Sitapur districts.

**Uttarakhand** - Almora, Bageshwar, Chamoli, Champawat, Dehradun, Nanital, Pauri Garhwal, Pithoragarh, Rudrapur, Tehri Garhwal, Udham Singh Nagar and Uttarkashi districts.

**West Uttar Pradesh** - Aligarh, Badaun, Baghpat, Bareilly, Bijnor, Bulandshahr, Gautambudhnagar, Ghaziabad, Hapur, Jyotibaphule Nagar, Kanshiramnagar, Mahamayanagar, Meerut, Moradabad, Pilibhit, Rampur and Sambhal 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.

#### **(iii) Wind warning:**

Strong wind speed reaching 30-40kmph gusting to 50kmph is likely to prevail over northwest Uttar Pradesh and neighbourhood during next 12 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.**

## **(b) Low Pressure Area over southeast Bangladesh and neighborhood**

Under the influence of a cyclonic circulation over southeast Bangladesh and neighbourhood, a low pressure area formed over southeast Bangladesh and neighbourhood in the night of 12<sup>th</sup> September and lay over the same region at 0530 hours IST of today, the 13<sup>th</sup> September, 2024.

It is likely to move slowly west-northwestwards and intensify into a depression over coastal West Bengal and adjoining northwest Bay of Bengal during next 48 hours.

### **Warnings:**

#### **(i) Rainfall warning**

**Gangetic West Bengal:** Light to moderate rainfall at most places is very likely with **heavy to very heavy rainfall** at isolated places on 13<sup>th</sup>& 14<sup>th</sup> and heavy rainfall at isolated places on 15<sup>th</sup> September.

**Odisha:** Light to moderate rainfall at most places is very likely with **heavy to very heavy rainfall** at isolated places on 13<sup>th</sup>& 14<sup>th</sup> and heavy rainfall at isolated places on 15<sup>th</sup> September.

**Jharkhand:** Light to moderate rainfall at most places with isolated **heavy rainfall** very likely during 13<sup>th</sup>-16<sup>th</sup> September and **heavy to very heavy rainfall** at isolated places on 14<sup>th</sup>&15<sup>th</sup> September.

**Bihar:** Light to moderate rainfall at most places with **heavy rainfall** at isolated places very likely during 13<sup>th</sup>-16<sup>th</sup> September.

**Chhattisgarh:** Light to moderate rainfall at most places with isolated **heavy rainfall** during 15<sup>th</sup>-16<sup>th</sup> September.

**Mizoram & Tripura:** Light to moderate rainfall at most places is very likely with **heavy to very heavy rainfall** at isolated places on 13<sup>th</sup> and isolated heavy rainfall during 14<sup>th</sup> to 15<sup>th</sup> September.

**Assam & Meghalaya:** Light to moderate rainfall at many places is very likely with isolated **heavy rainfall** is likely on 13<sup>th</sup> September and **heavy to very heavy rainfall** at isolated places during 14<sup>th</sup> to 15<sup>th</sup>September.

#### **(ii) Wind warning:**

Squally weather with strong wind speed reaching 30-40 kmph gusting to 50 kmph is likely to prevail over coastal areas of Bangladesh, West Bengal and adjoining north Bay of Bengal on 13<sup>th</sup> September. It is likely to increase gradually becoming squally wind speed reaching 40-50 kmph gusting to 60 kmph from 14<sup>th</sup> evening till 15<sup>th</sup> September.

Squally wind speed reaching 40-50 kmph gusting to 60 kmph over northwest Bay of Bengal and along & off West Bengal and Odisha coasts from 14<sup>th</sup> evening till 16<sup>th</sup> morning.

#### **(iii) Sea Condition:**

The Rough sea condition is very likely to prevail over north Bay of Bengal from 13<sup>th</sup> to 15<sup>th</sup> September.

#### **(iv) Fishermen Warning:**

Fiishermen are advised not to venture into north Bay of Bengal from 13<sup>th</sup> to 15<sup>th</sup> September.

**Impact Expected (Uttarakhand, Uttar Pradesh, North Madhya Pradesh, Haryana, Northeast Rajasthan, Gangetic West Bengal, Odisha, Jharkhand, Bihar, and**

**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.**

### **Chhattisgarh due to heavy rainfall)**

- ✓ 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 leading to increased travel time.
- ✓ Minor damage to kutchra 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 (Uttarakhand, Uttar Pradesh, North Madhya Pradesh, Haryana, Northeast Rajasthan, Gangetic West Bengal, Odisha, Jharkhand, Bihar, and Chhattisgarh)**

- ✓ Judicious regulation of surface transports including railways and roadways.
- ✓ 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**

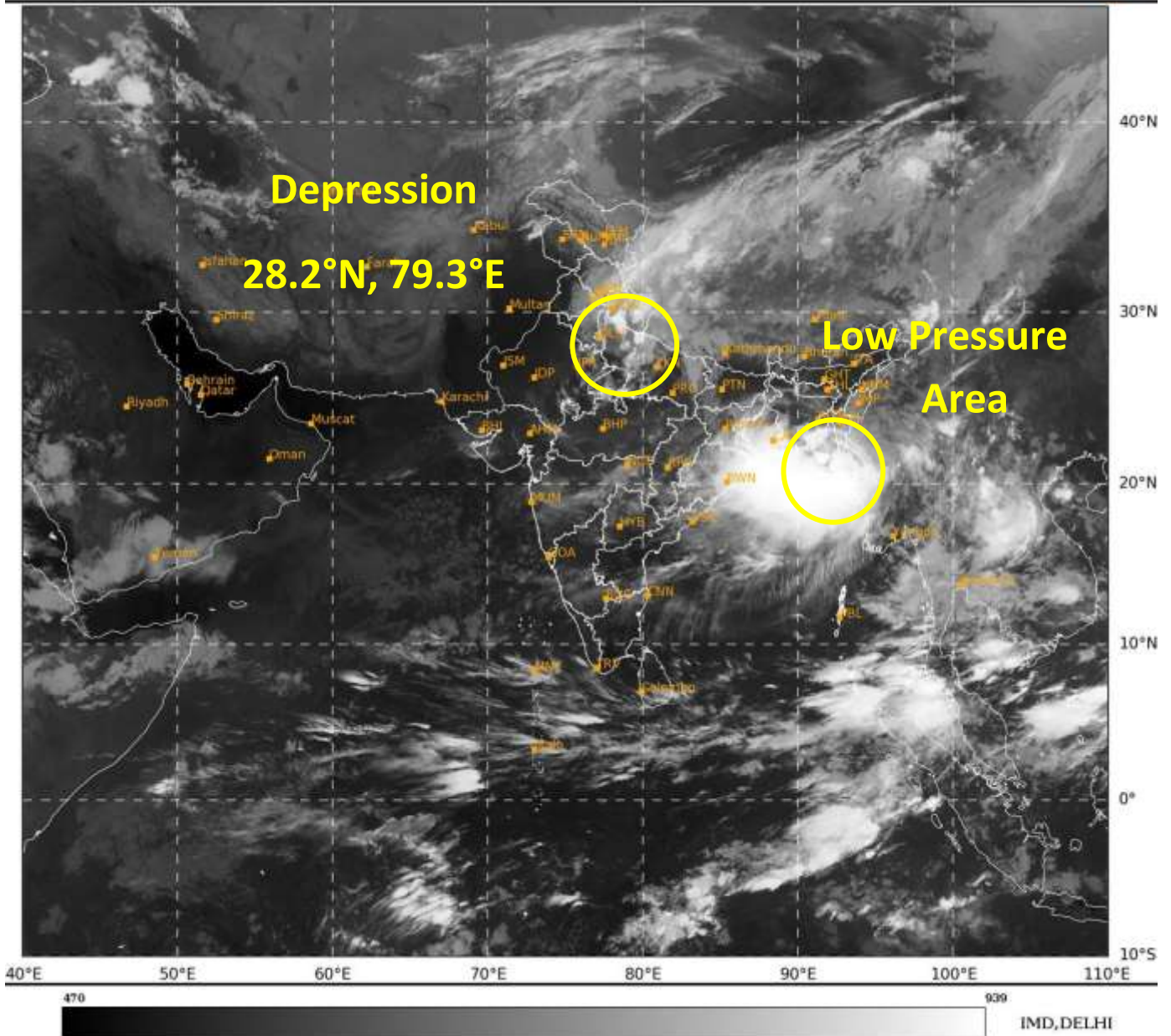
- ✓ Provide mechanical support to horticultural crops & staking to vegetables.
- ✓ Keep the harvested produce at safer place.

***Significant amount of rainfall (in cm) recorded from 830 hrs IST of yesterday, the 12th to 0530 hrs IST of today, the 13<sup>th</sup> September (is given in Annexure –I).***

***The next bulletin will be issued at 1130 hrs IST of 13<sup>th</sup> September, 2024.***

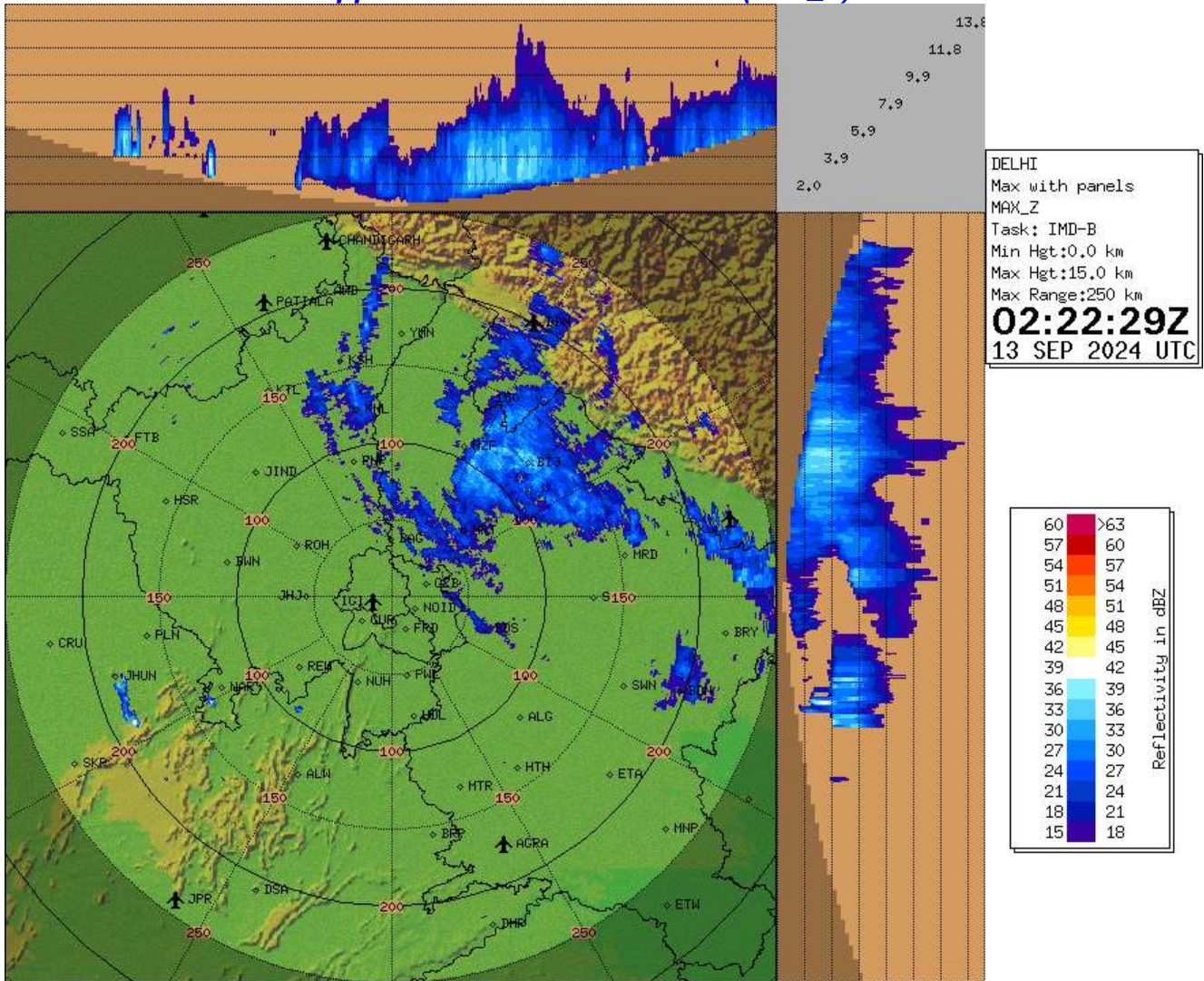
**(Akhil Srivastava)**  
**Scientist-D, CWD, New Delhi**

*Copy to: CRS, Pune/RMC Delhi /RMC Nagpur/MC Lucknow/MC Bhopal/MC Chandigarh/MC Dehradun/ MC Jaipur/MC Shimla*



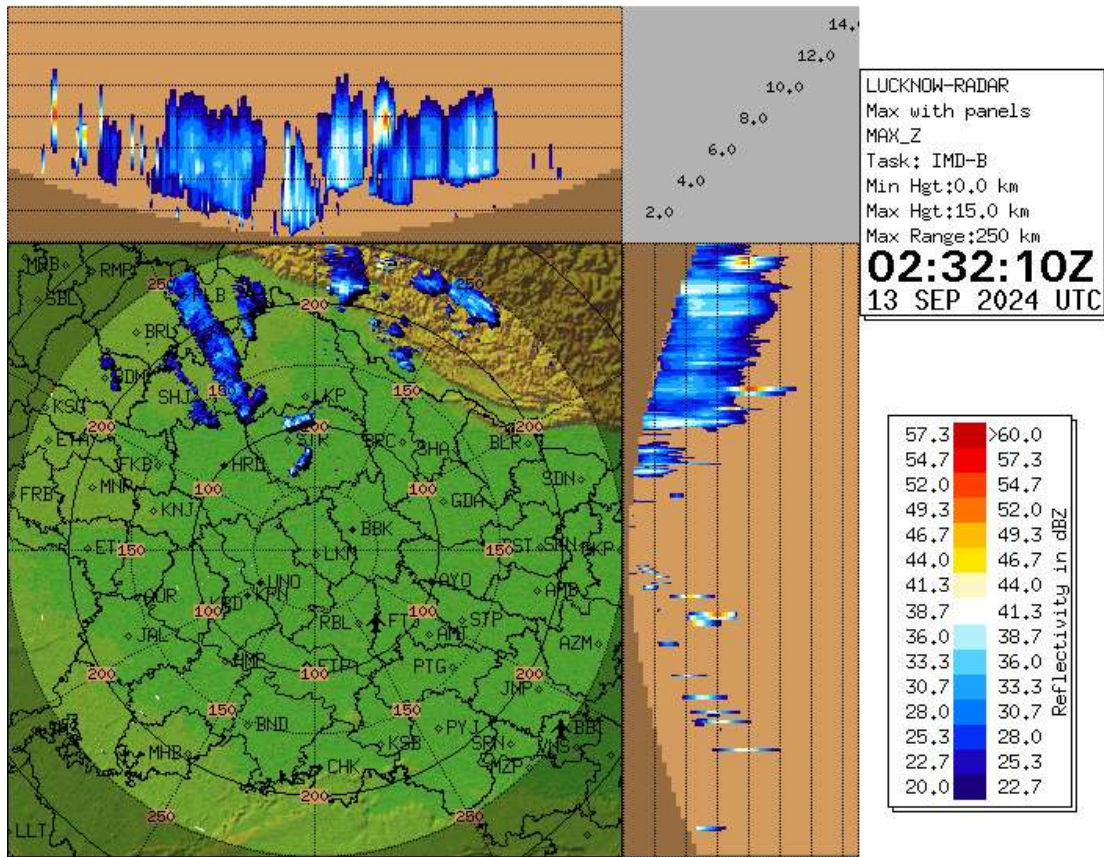
Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
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### Doppler Weather Radar at Delhi (Max\_Z)



**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.**

## Doppler Weather Radar at Lucknow (Max\_Z)



**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 DEPRESSION OVER NORTHWEST UTTAR PRADESH AND NEIGHBOURHOOD BASED ON 0000 UTC (0530 IST) OF 13<sup>TH</sup> SEPTEMBER, 2024.**



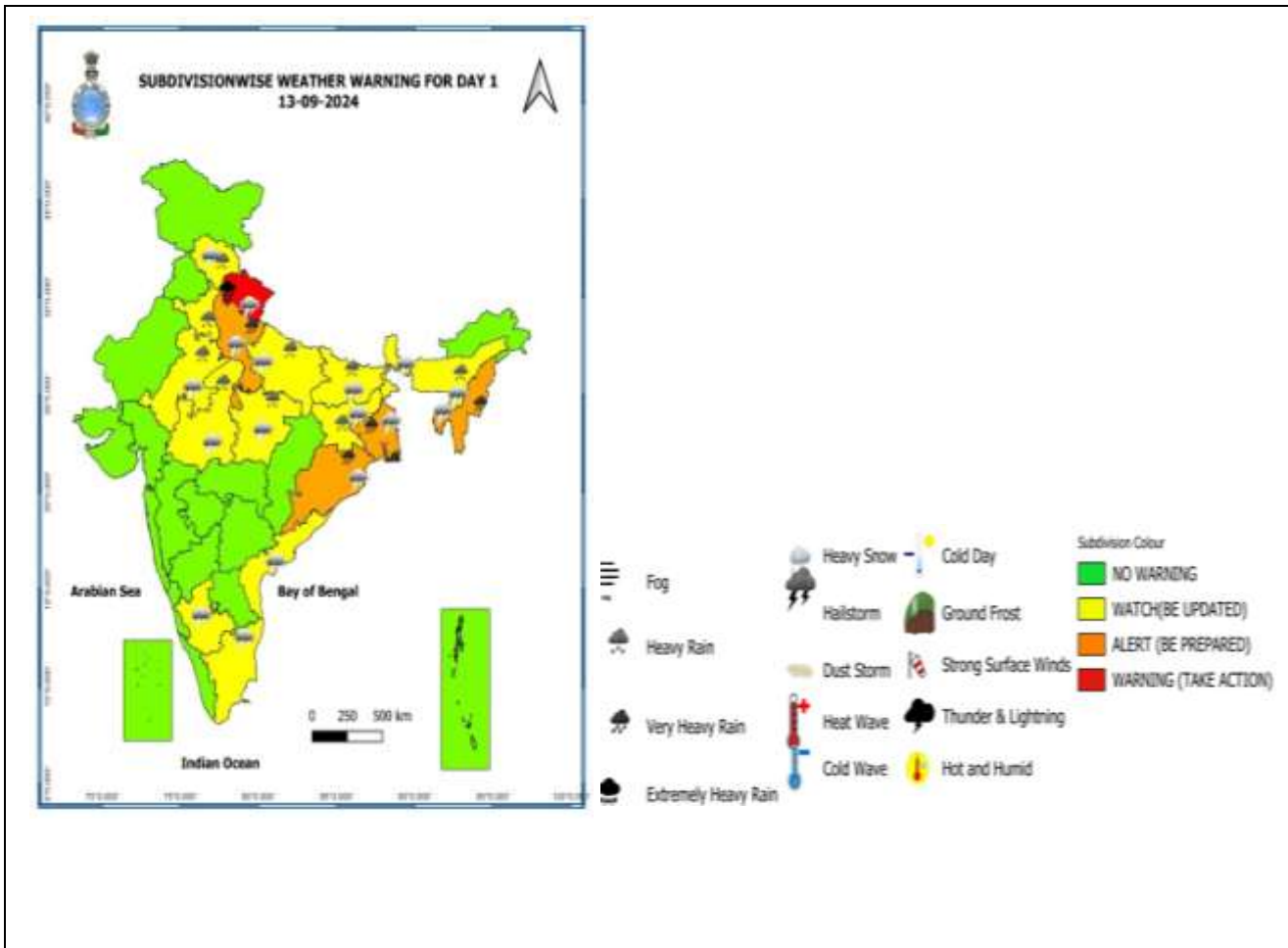
DATE/TIME IN UTC  
 IST=UTC + 0530  
 L: LOW PRESSURE AREA  
 WML: WELL MARKED LOW PRESSURE AREA  
 D: DEPRESSION (17-27 KT)  
 DD: DEEP DEPRESSION (28-33 KT)  
 CS: CYCLONIC STORM (34-47 KT)  
 SCS: SEVERE CYCLONIC STORM (48-63KT)  
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS: EXTREMELY SEVERE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

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

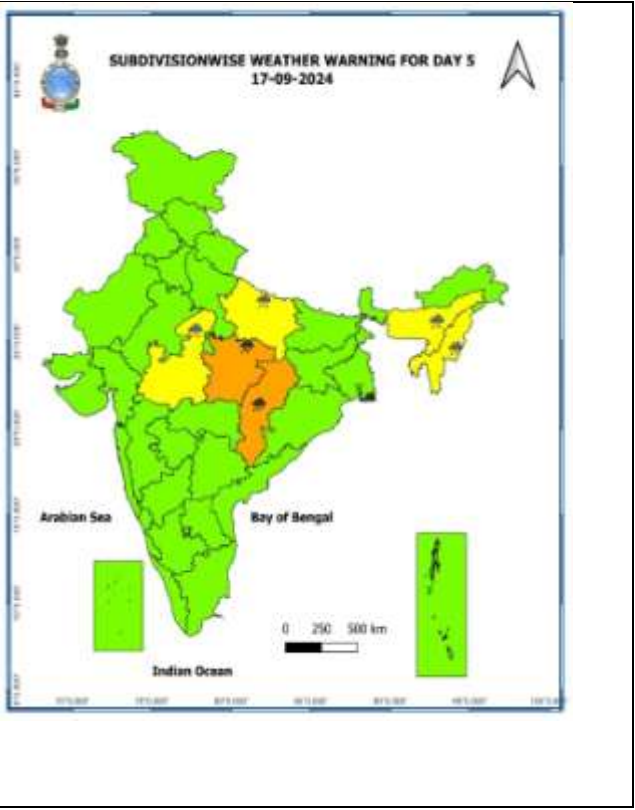
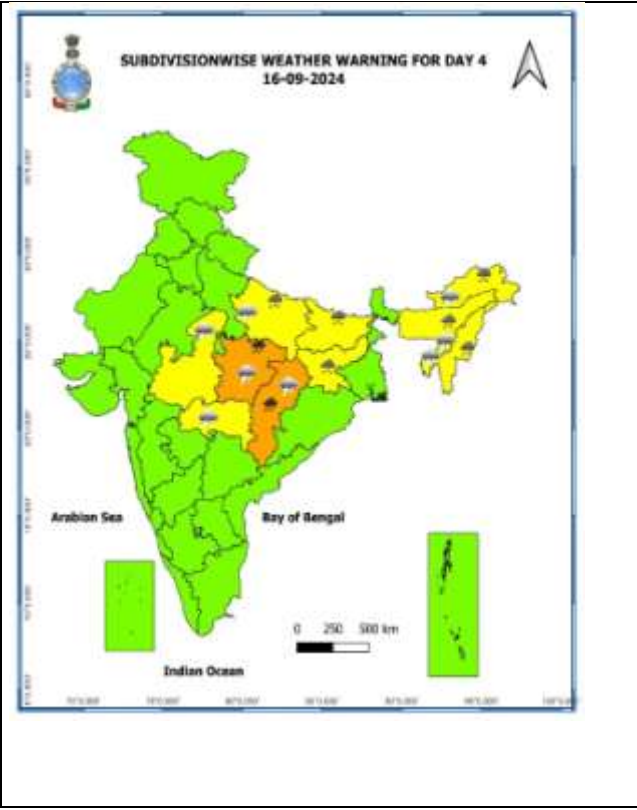
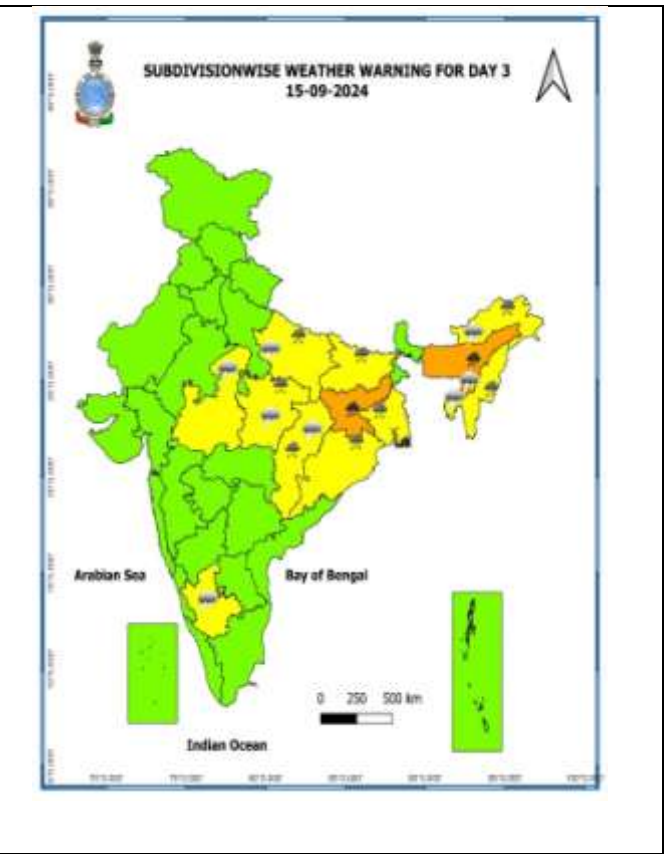
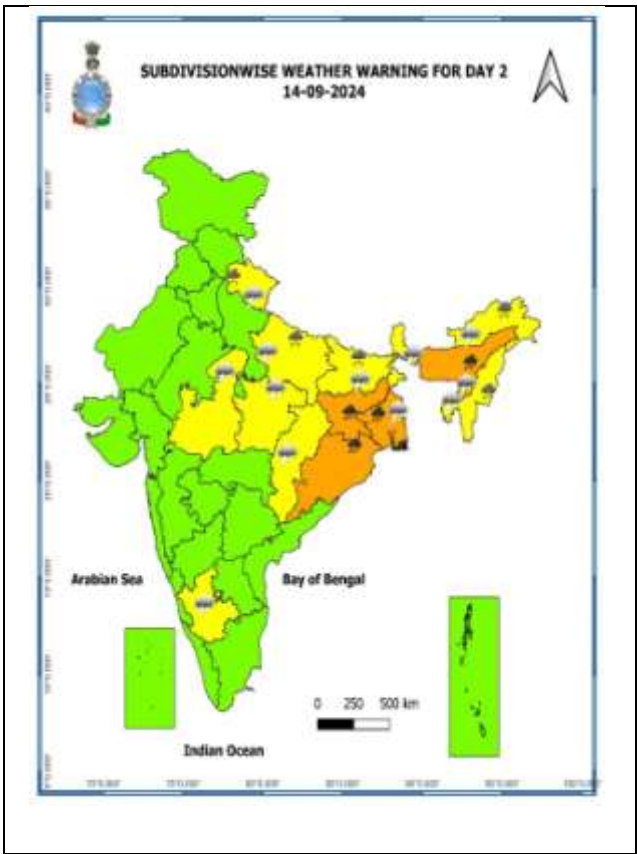
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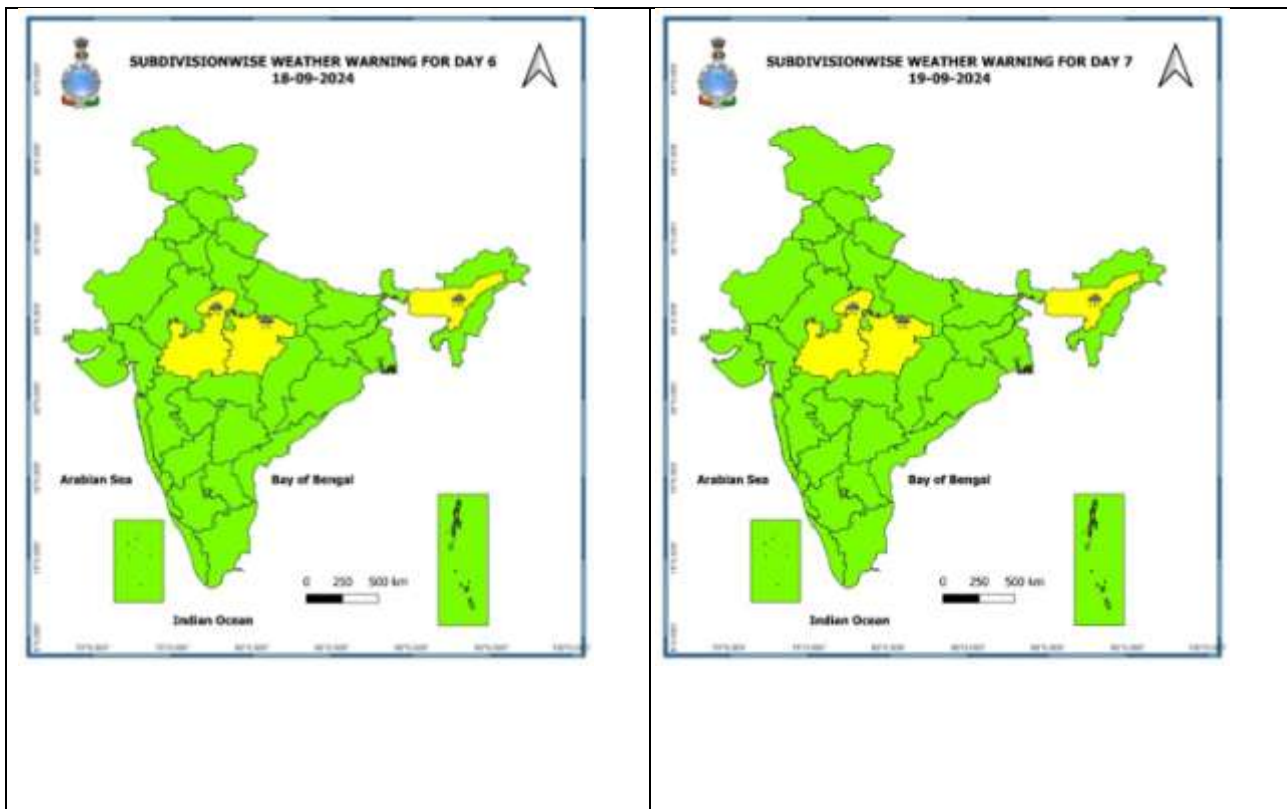
## Warning Graphics



**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
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- 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 1730 IST of 13-09-2024:

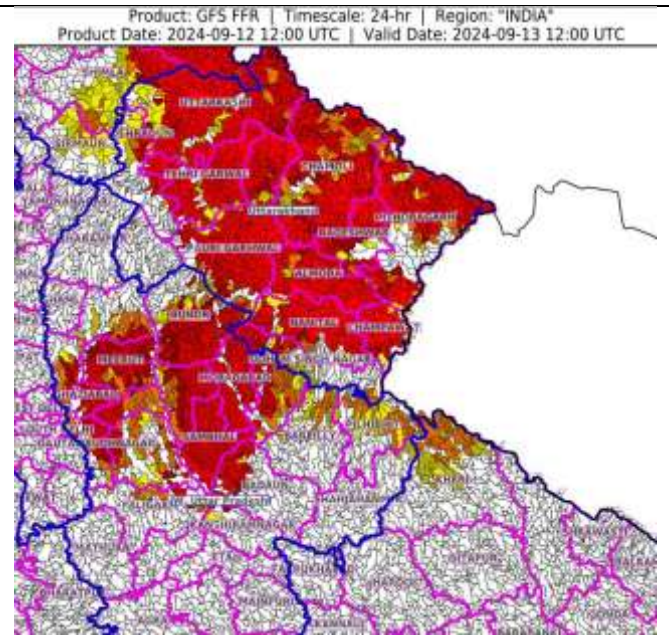
Moderate to High flash flood risk likely over few watersheds & neighbourhoods of

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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.



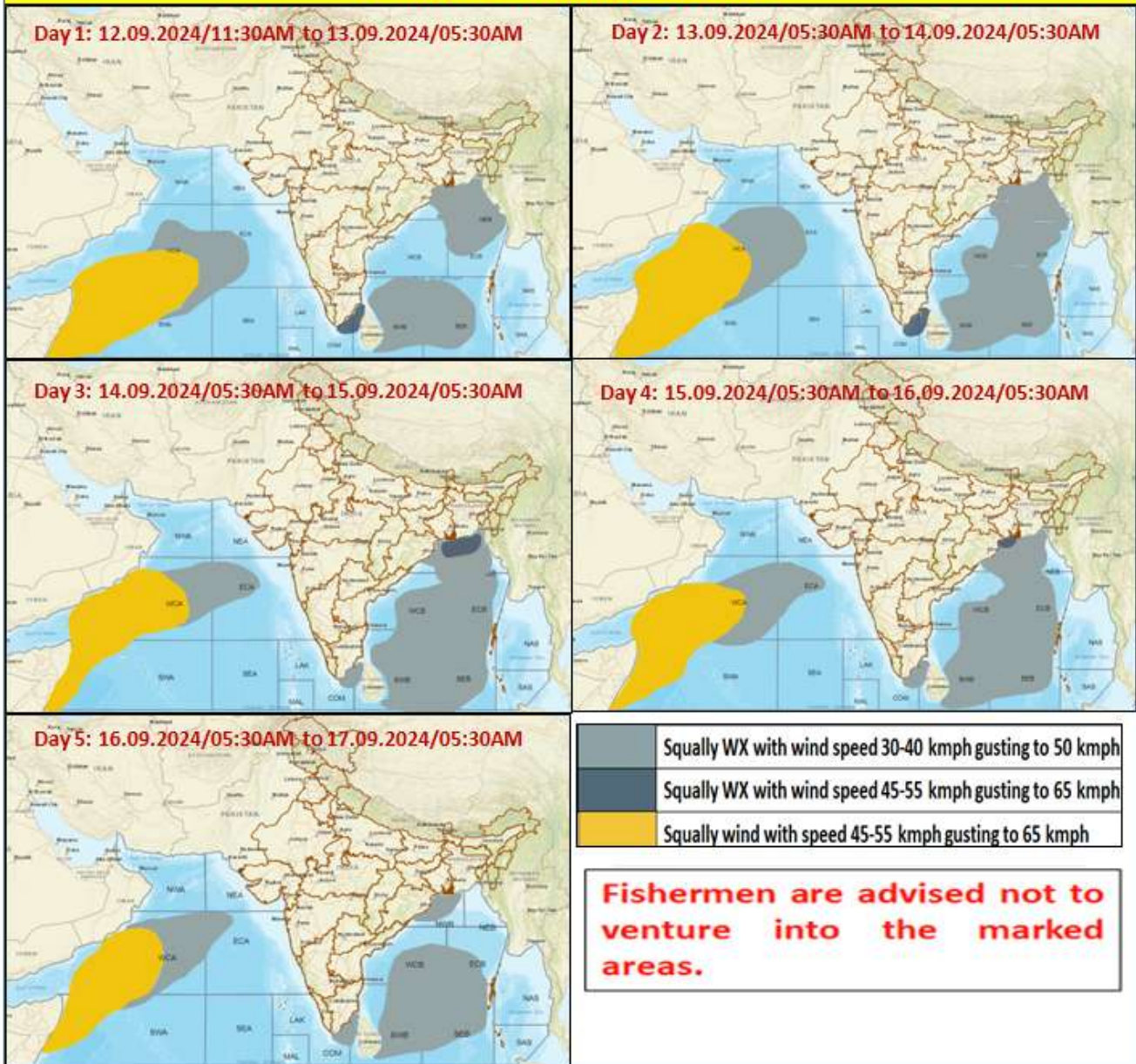
#### Flash Flood Risk

**High Risk (Take Action)**

**Moderate Risk (Be Prepared)**

**Low Risk (Be Updated)**

### Fishermen Warning Graphics



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.

## **ANNEXURE –I**

Significant amount of rainfall recorded from 0830 hours IST of yesterday, the 12<sup>th</sup> to 0530 hours IST of today, the 13<sup>th</sup> September (in cm):

**Uttarakhand:** Champawat 14, Nainital 12, Udham Singh Nagar 10, Pithoragarh 9, Paurigarwal 6, Chamoli 5, Haridwar 4; Dehradun 2;

**West Uttar Pradesh:** Kannauj 12, Hathras 10, Aligarh 9, Bareilly 6, Shahjahanpur 6, Amroha 3, Bijnor 3; Hindon 2,

**East Uttar Pradesh:** Bahraich, Hardoi 7 each, Lucknow 2;

**Delhi:** Delhi university 5, Safdarjung 3, Palam 2;

**Haryana:** Sonipat 5

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

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