



India Meteorological Department

(Ministry of Earth Sciences)

NATIONAL BULLETIN NO.: 19 (BOB/04/2024)

TIME OF ISSUE: 0850 HOURS IST

DATED: 12.09.2024

FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)

CONTROL ROOM NDMA (FAX.NO. 26701729)

CABINET SECRETARIAT (FAX.NO.23012284, 23018638)

PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)

SECRETARY, MOES (FAX NO. 24629777)

H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)

DIRECTOR GENERAL, DOORDARSHAN (23385843)

DIRECTOR GENERAL, AIR (23421105, 23421219)

PIB MOES (FAX NO. 23389042)

UNI (FAX NO. 23355841)

D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)

DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)

CHIEF SECRETARY, HARYANA (FAX NO. 0172-2740317)

CHIEF SECRETARY, UTTARAKHAND (FAX NO. 0135-2712500)

CHIEF SECRETARY, DELHI (FAX NO. 011-23392102)

CHIEF SECRETARY, JHARKHAND (FAX NO. 0651-2400255)

CHIEF SECRETARY, MADHYA PRADESH (FAX NO. 0755-2441076)

CHIEF SECRETARY, MAHARASHTRA (FAX NO. 022-22028594 )

CHIEF SECRETARY, UTTAR PRADESH (FAX NO. 52222-39283)

CHIEF SECRETARY, RAJASTHAN (FAX NO. 0141-2227114)

**Sub: Depression over Northwest Madhya Pradesh and neighbourhood**

The depression over Northwest Madhya Pradesh and adjoining southwest Uttar Pradesh moved slowly nearly northwards with a speed of 8 kmph during past 6 hours and lay centred at 0530 hours IST of today, the 12<sup>th</sup> September over Northwest Madhya Pradesh and neighbourhood near latitude 26.7°N and longitude 78.3°E, about 50 km north of Gwalior (Madhya Pradesh), about 60 km south-southeast of Agra (Uttar Pradesh), 130 km south of Aligarh (Uttar Pradesh) and 140 km north-northwest of Jhansi (Uttar Pradesh).

It is likely to move slowly north-northeastwards during next 24 hrs. 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 during 12th-14th 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.

**Haryana:** Light to moderate rainfall at most places is very likely with **heavy to very heavy rainfall** at a few places over south Haryana on 12<sup>th</sup> & 13<sup>th</sup> and **heavy rainfall** at isolated places on 14<sup>th</sup> & 15<sup>th</sup> September.

**West Uttar Pradesh:** Light to moderate rainfall at many places is very likely with **heavy to very heavy rainfall** at a few places and **extremely heavy rainfall** at isolated places on 12<sup>th</sup> and 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 to very heavy rainfall** at a few places on 12<sup>th</sup> and **heavy rainfall** at a few places on 13<sup>th</sup>, 14<sup>th</sup> & 15<sup>th</sup> September.

**East Madhya Pradesh:** Light to moderate rainfall at most places is very likely with **heavy to very heavy rainfall** at few places over northeast Madhya Pradesh on 12<sup>th</sup> and **heavy rainfall** at isolated places on 13<sup>th</sup> and 14<sup>th</sup> September.

**West Madhya Pradesh:** Light to moderate rainfall at many places is very likely with **heavy to very heavy rainfall** at a few places and **extremely heavy rainfall** at isolated places over northwest Madhya Pradesh on 12<sup>th</sup>; **heavy to very heavy rainfall** at a few places on 13<sup>th</sup> & 14<sup>th</sup> September and **heavy rainfall** at a few places on 15<sup>th</sup> September.

**East Rajasthan:** Light to moderate rainfall at many places is very likely with **heavy to very heavy rainfall** at a isolated places over northeast Rajasthan on 12<sup>th</sup> & 13<sup>th</sup> and **heavy rainfall** at isolated places on 14<sup>th</sup> & 15<sup>th</sup> September.

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

**24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 13-09-2024 :**

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

**Uttarakhand** – PauriGarwal, TehriGarwal, Dehradun, Uttarkashi, Rudraprayag, Bageshwar, Almora, Nainital, Champawat, Chamoli and Pithoragarh districts.

**Uttar Pradesh**–Moradabad, Rampur, Bareilly, Philiphit, Jyotibaphule Nagar, Sambhal, Badaun, Bulandsahar, Aligarh, Kanshiram Nagar, Mahamayanagar, Etah, Auraiya, Etah, Shahjahanpur, Firozabad, Mainpuri, Etawah, Auraiya, Hamirpur, Jalaun, Jhansi, Kannauj, Kanpur Dehat, Hardoi, Keeri, Sitapur, Lucknow, Unnao, Raibareli and Barabanki districts.

**East Madhya Pradesh** - Chhatarpur, Damohand Sagar districts.

**West Madhya Pradesh**– Agarmalwa, Ashoknagar, Bhind, Bhopal, Datia, Guna, Morena, Rajgarh, Sheopur, Shivpuri, Raisen and Videsha districts.

**East Rajasthan** – Kota, Baraj, Jhalawar, Pratapgarh, Alwar, Dausa, Bundi, Karauli and Bharatpur 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 35-45 kmph gusting to 55 kmph is likely to prevail over Northwest Madhya Pradesh adjoining areas of west Uttar Pradesh, northeast Rajasthan and south Haryana during next 24 hours.

**(iv) Impact Expected (Haryana, Uttarakhand, North Madhya Pradesh, Uttar Pradesh and Northeast Rajasthan due to heavy rainfall)**

✓ Localized Flooding of roads, water logging in low lying areas and closure of underpasses

**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.**

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 kutcha 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)

**(v) Action Suggested (Haryana, Uttarakhand, North Madhya Pradesh, Uttar Pradesh and Northeast Rajasthan)**

- ✓ 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.

**(vi) 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 observed from 0830 hrs IST of 11.09.2024 to 0530 hrs IST of 12.09.2024 (cm):**

**West Madhya Pradesh:** Gwalior-15, Bhopal-6, Guna-5

**West Uttar Pradesh:** Jhansi-14, Agra-13, Bareilly-8

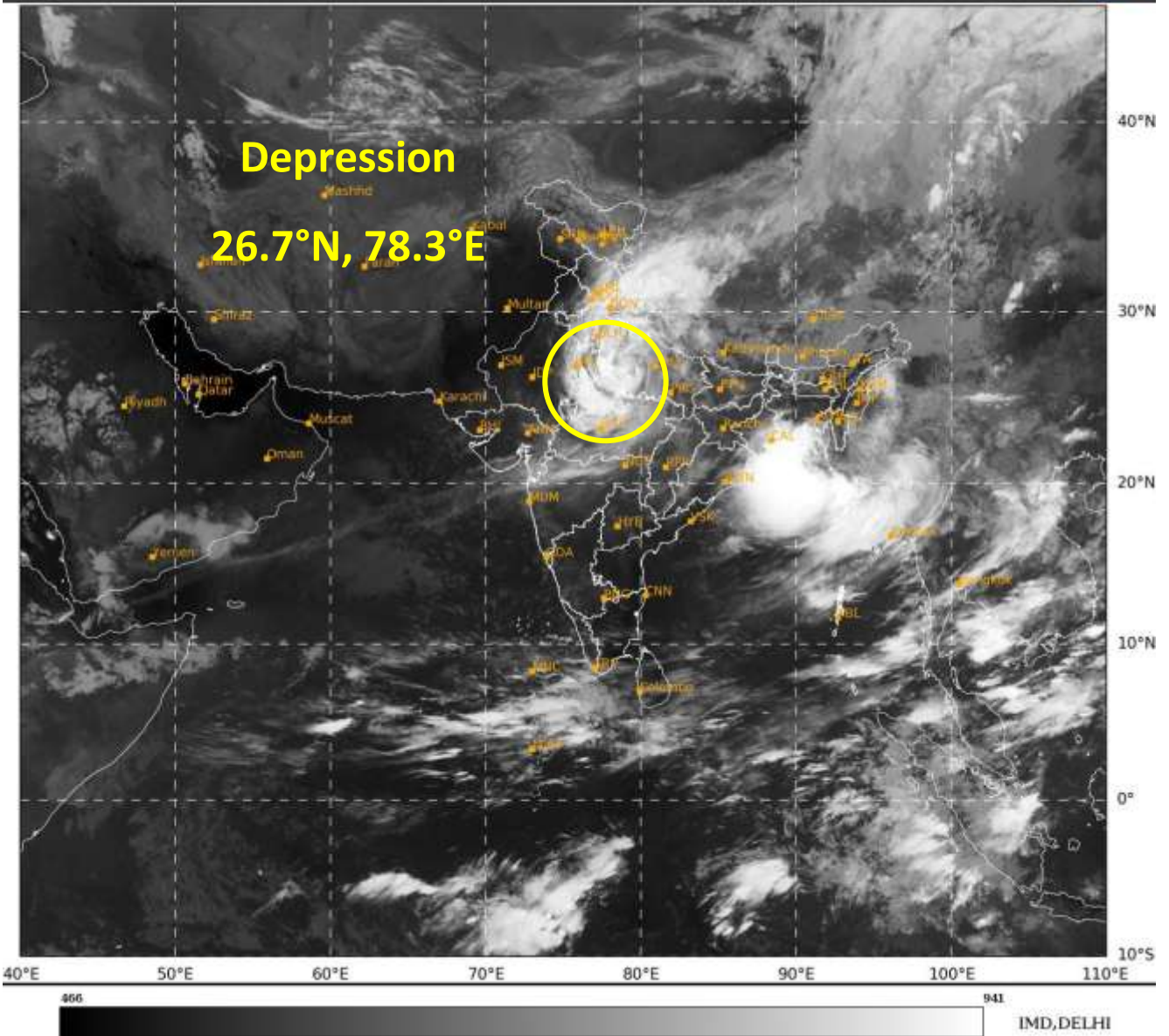
**East Uttar Pradesh:** Bahraich-4, Lucknow, Sultanpur, Gorakhpur & Kanpur-3 each

**East Madhya Pradesh:** Sagar-2.

**The next bulletin will be issued at 1200 hrs IST of today, the 12<sup>th</sup> September, 2024.**

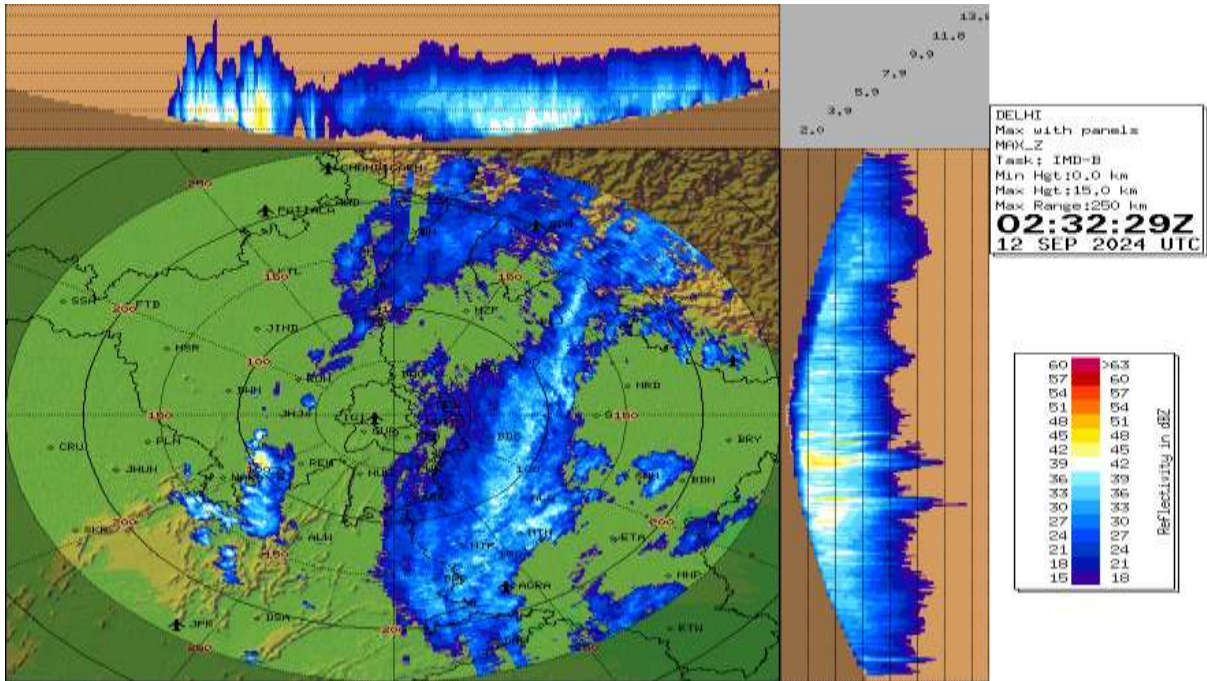
**(Dr Shashi Kant)**  
**Scientist- D, RSMC, New Delhi**

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

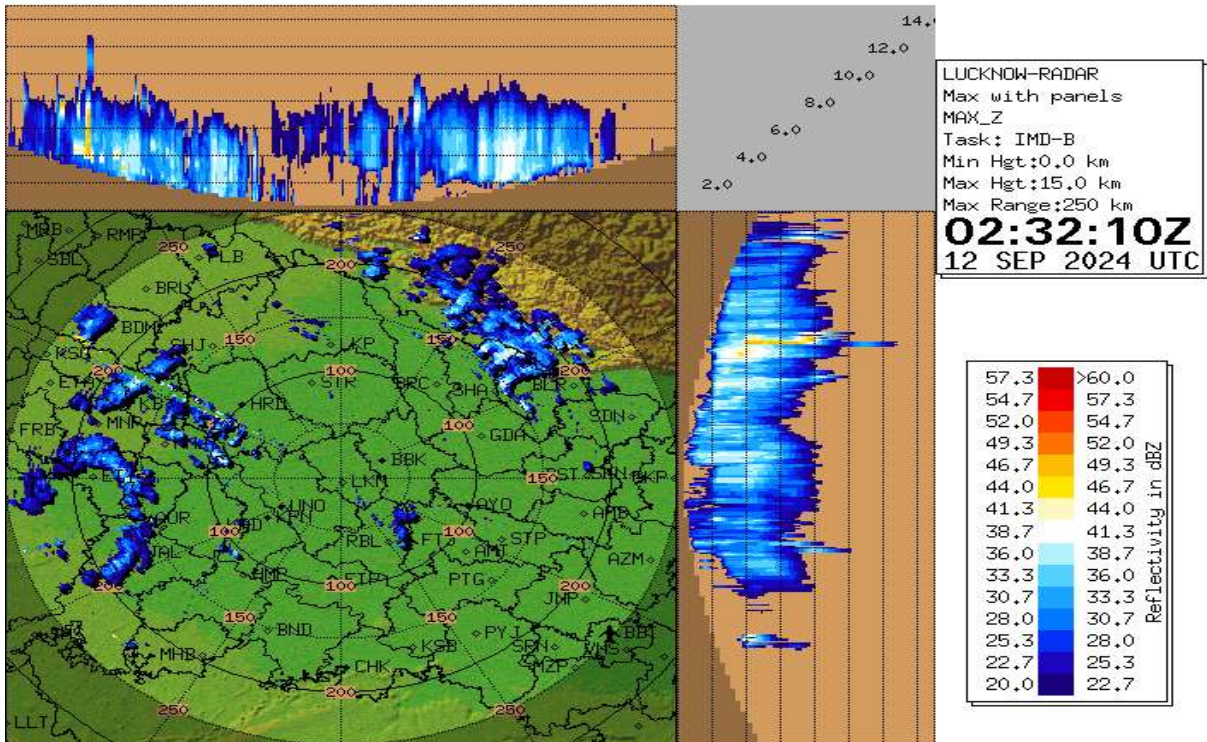


**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

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



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

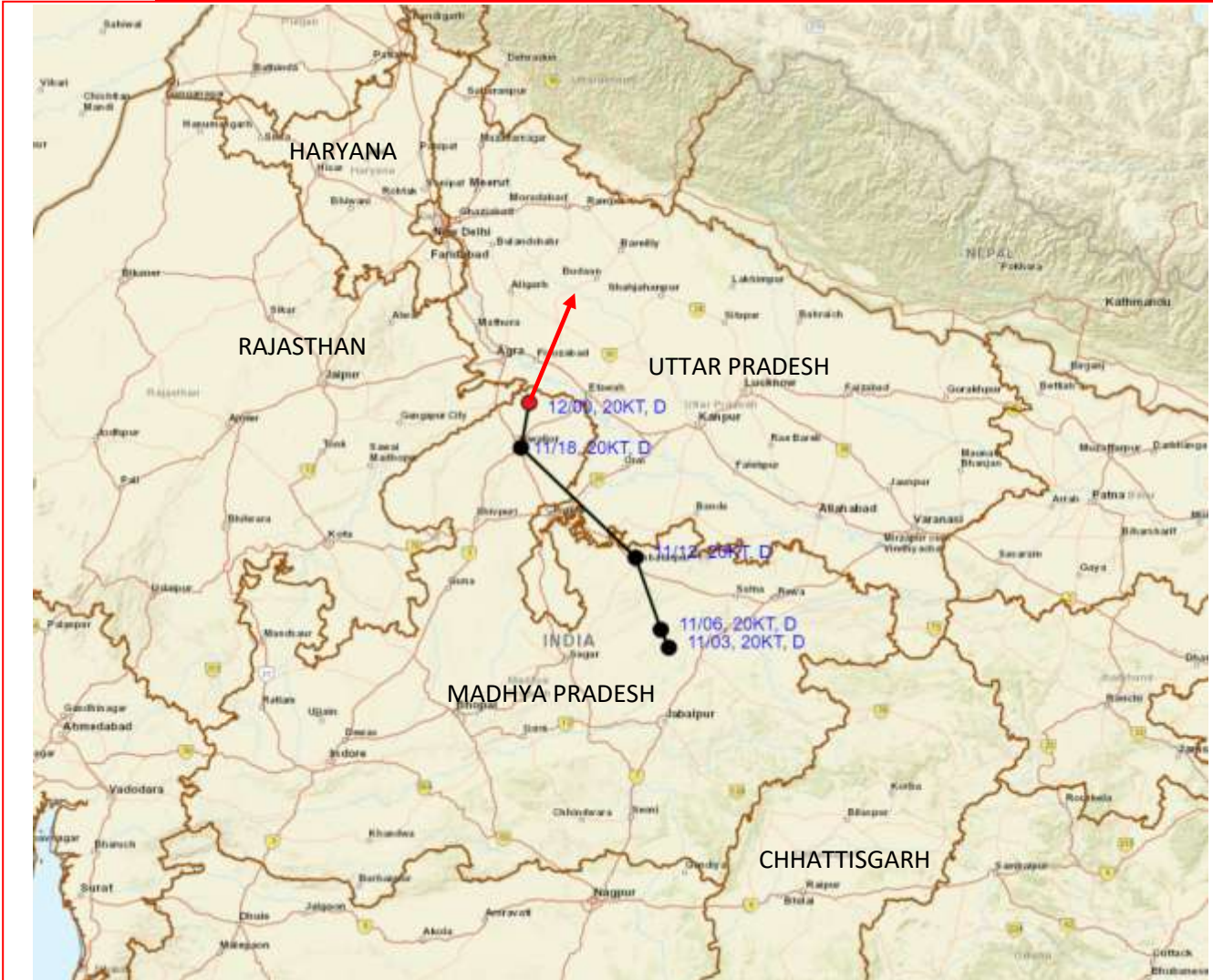


Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

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 MADHYA PRADESH AND NEIGHBOURHOOD BASED ON 0000 UTC (0530 IST) OF 12<sup>TH</sup> SEPTEMBER, 2024.**

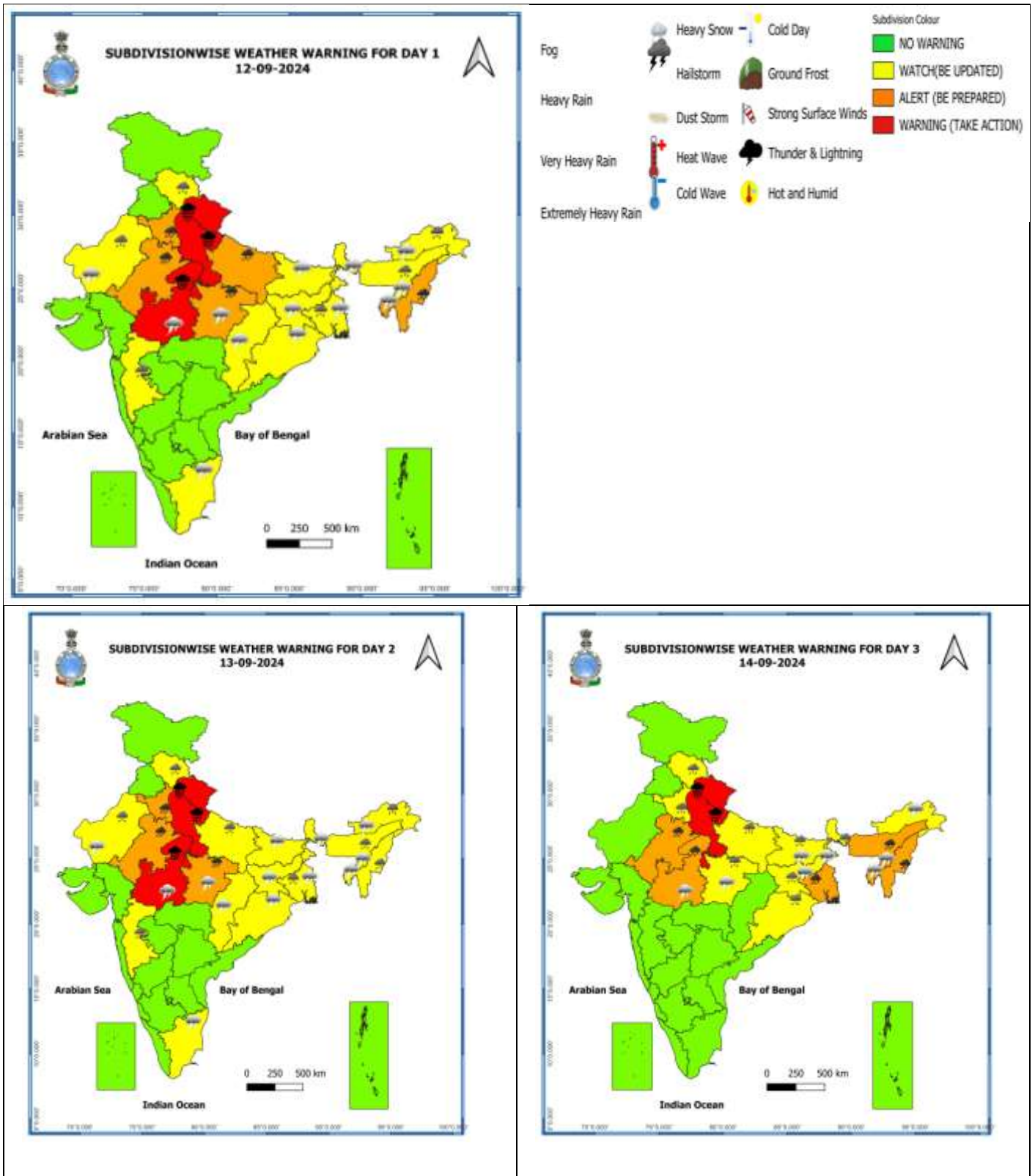


DATE/TIME IN UTC  
 IST=UTC + 0530  
 L: LOW PRESSURE AREA  
 WML: WELL MARKED LOW PRESSURE AREA  
 D: DEPRESSION (17-27 KT)  
 DD: DEEP DEPRESSION (28-33 KT)  
 CS: CYCLONIC STORM (34-47 KT)  
 SCS: SEVERE CYCLONIC STORM (48-63KT)  
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS: EXTREMELY SEVERE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

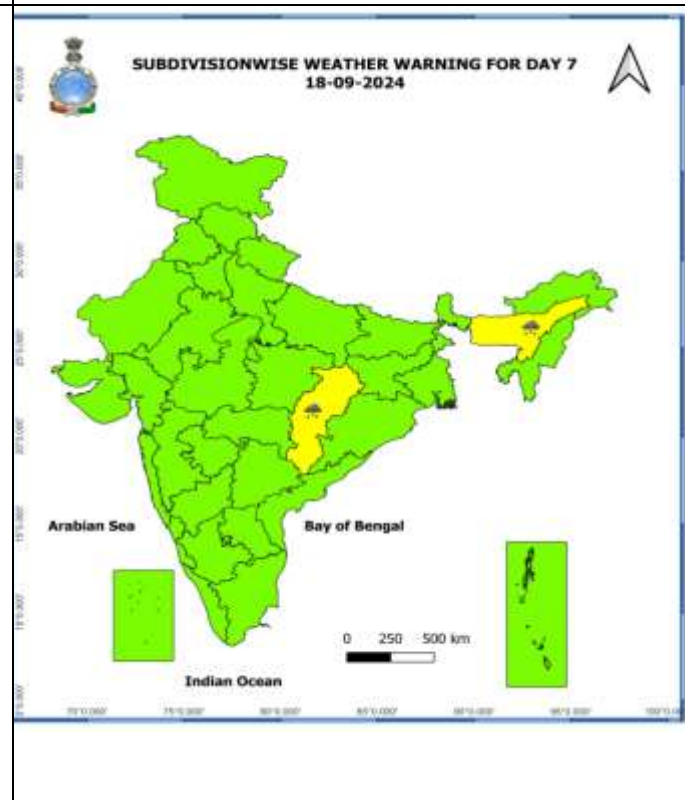
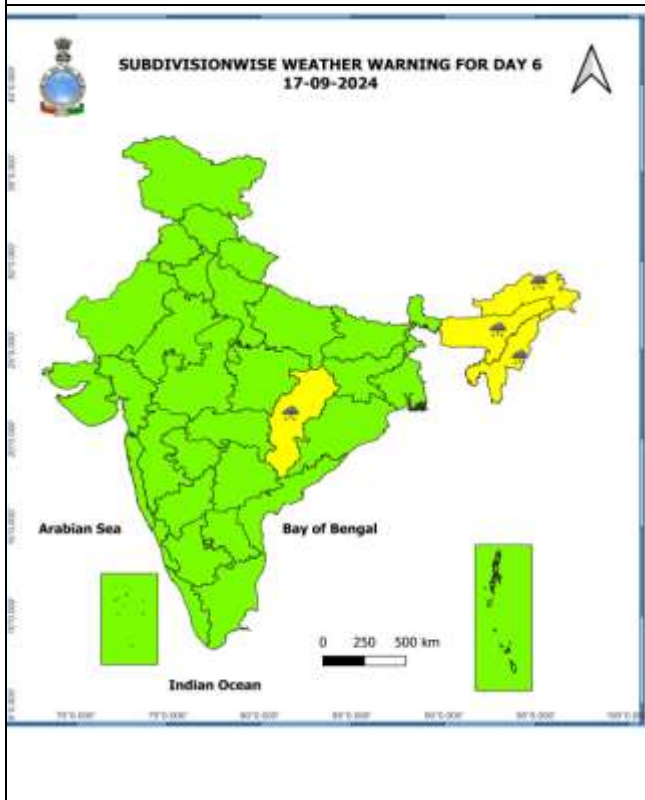
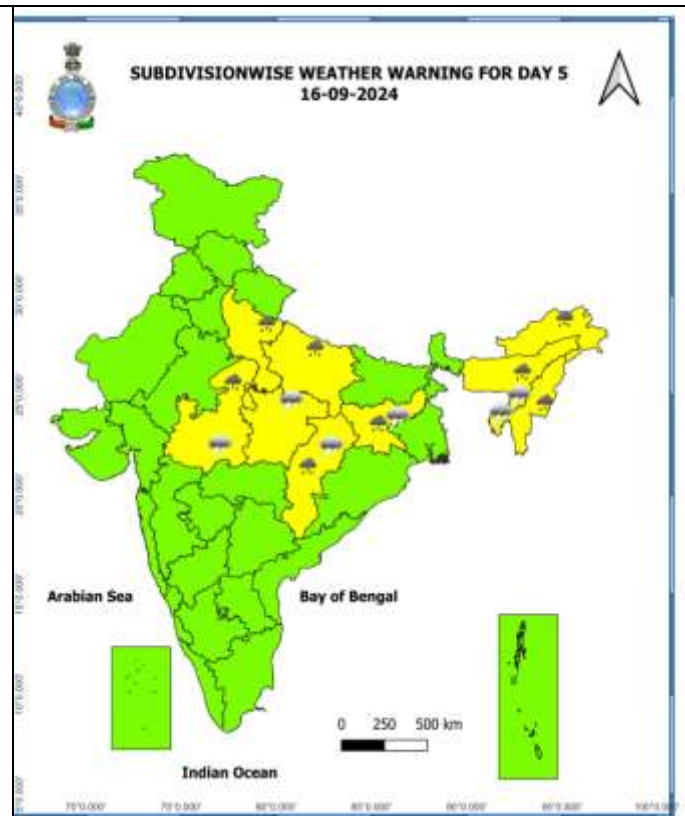
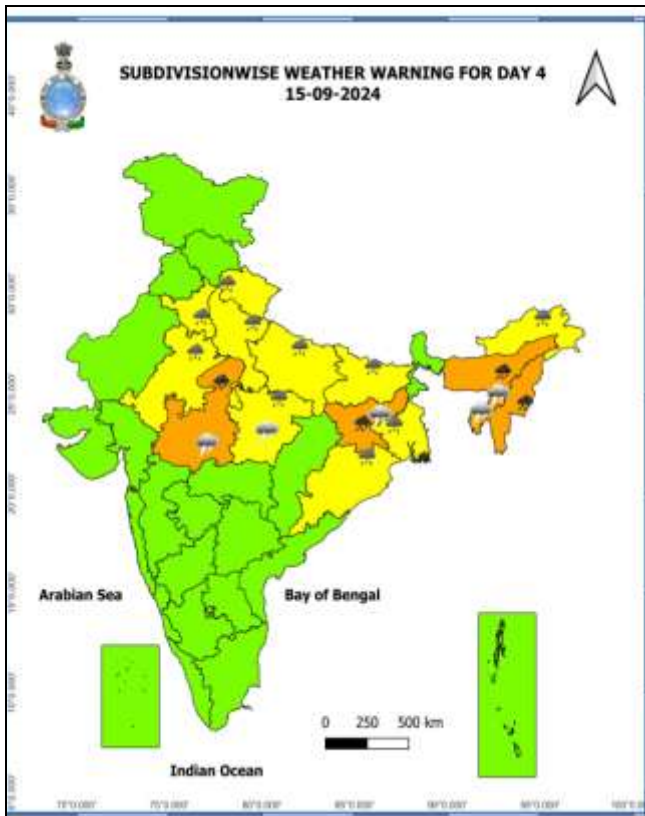
- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

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.

## 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.**



- 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 13-09-2024 :

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

**Uttarakhand** – Pauri Garwal, Tehri Garwal, Dehradun, Uttarkashi, Rudraprayag, Bageshwar, Almora, Nainital, Champawat, Chamoli and Pithoragarh districts.

**Himachal Pradesh** – Simla, Sirmour, Kullu and Kinnaur districts.

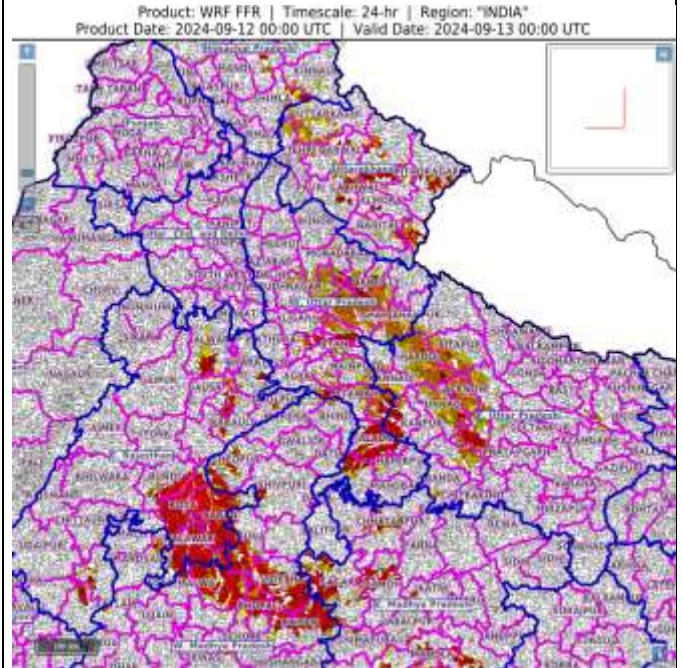
**Uttar Pradesh**—Moradabad, Rampur, Bareilly, Philiphit, Jyotibaphule Nagar, Sambhal, Badaun, Bulandsahar, Aligarh, Kanshiram Nagar, Mahamayanagar, Etah, Auraiya, Etah, Shahjahanpur, Firozabad, Mainpuri, Etawah, Auraiya, Hamirpur, Jalaun, Jhansi, Kannauj, Kanpur Dehat, Hardoi, Keeri, Sitapur, Lacknow, Unnao, Raibareli and Barabanki districts.

**East Madhya Pradesh** - Chhatarpur, Damohand Sagar districts.

**West Madhya Pradesh**— Agarmalwa, Ashoknagar, Bhind, Bhopal, Datia, Guna, Morena, Rajgarh, Sheopur, Shivpuri, Raisen and Videsha districts.

**East Rajasthan** – Kota, Baraj, Jhalawar, Pratapgarh, Alwar, Dausa, Bundi, Karauli and Bharatpur districts.

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



#### Flash Flood Risk

**High Risk (Take Action)**

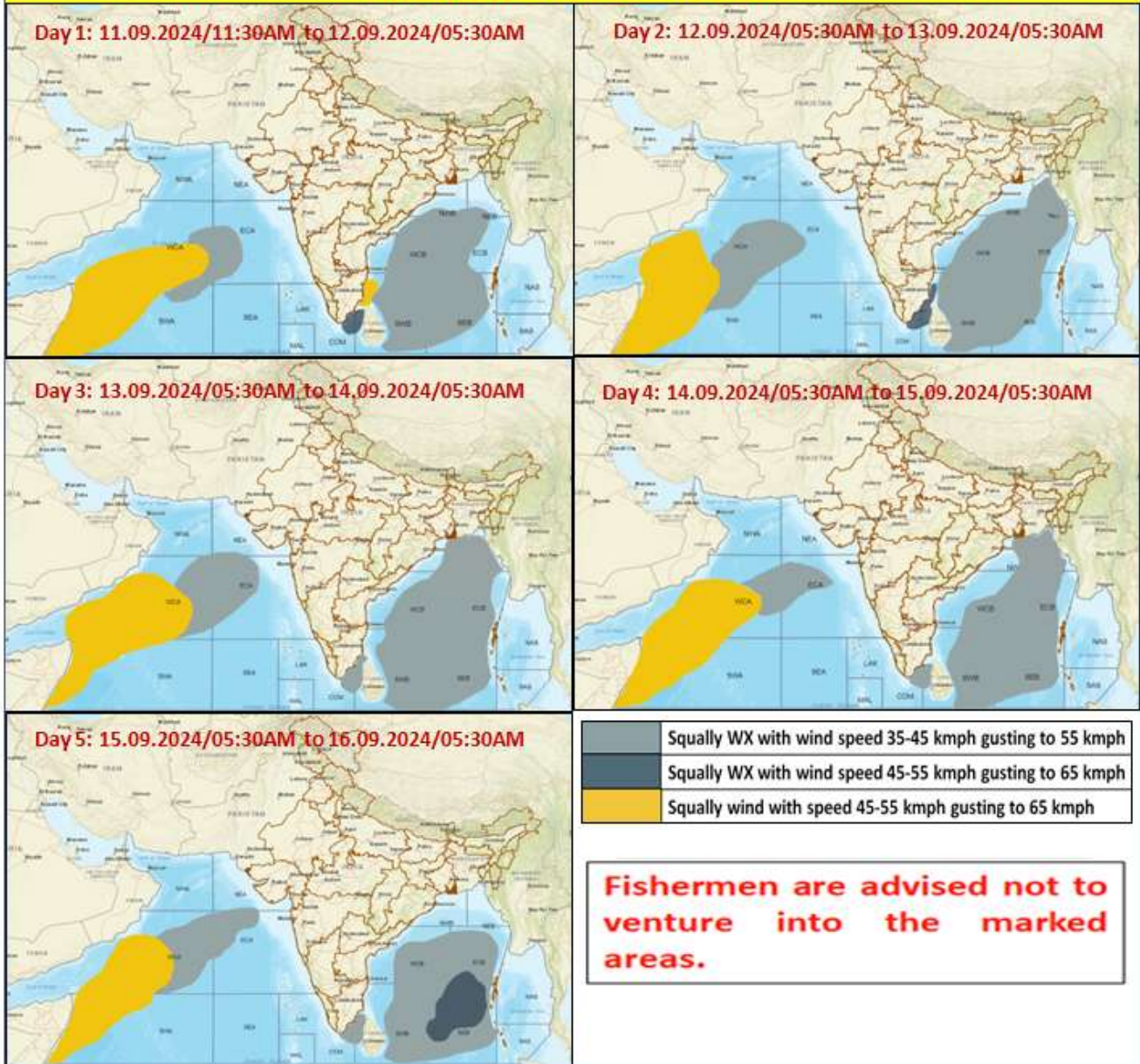
**Moderate Risk (Be Prepared)**

**Low Risk (Be Updated)**

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



**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.**