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INDIA METEOROLOGICAL DEPARTMENT

Monthly Outlook for the Temperature and Rainfall during May 2025

Highlights

- Above normal maximum temperatures are likely over most parts of the country except many parts of southern peninsular India, and some parts of east India where normal to below normal maximum temperatures are likely.
- During May, 2025, above normal minimum temperatures are likely over most parts of the country.
- During May 2025, above normal heatwave days are likely over many parts of the northwest and central India and adjoining east India. The number of heatwave days is likely to be above normal over many parts of Rajasthan, Haryana, Punjab, Madhya Pradesh, Uttar Pradesh, Bihar, Jharkhand, Gangetic West Bengal and some parts of Gujarat, Odisha, Chhattisgarh, Maharashtra and adjoining Telangana and north Karnataka.
- The rainfall during May, 2025 averaged over the country as a whole is most likely to be above normal (> 109% of LPA). The normal to above-normal rainfall is likely over many parts of the country except some parts of northwest central, east and northeast India where below normal rainfall is likely.

Monthly Outlook for the Temperature and Rainfall during May 2025

1. Background

Since 2016, the India Meteorological Department (IMD), Ministry of Earth Sciences (MoES) has been issuing seasonal outlooks for temperatures over the country for both hot and cold weather seasons and monthly outlook for temperatures every month since June, 2021. IMD also continuously works to improve the skill of forecasting models. The current strategy is based on the newly developed Multi-Model Ensemble (MME) based forecasting system. The MME approach uses the coupled global climate models (CGCMs) from different global climate prediction and research centers including IMD/MoES Monsoon Mission Climate Forecast System (MMCFS) model.

IMD has now released the monthly temperature and rainfall outlook for May, 2025. The outlook for the temperature in May 2025 is presented in section 2, while section 3 provides the heatwave outlook for the same month. Additionally, the monthly rainfall outlook for May, 2025 is provided in section 4.

2. Monthly Temperature Forecast for May 2025

Fig. 1a and Fig. 1b present the predicted probabilities for the maximum and minimum temperatures in May 2025, respectively. Above normal maximum temperatures are likely over most parts of the country except many parts of southern peninsular India, and some parts of east India where normal to below normal maximum temperatures are likely (Fig. 1a).

During May 2025, above-normal minimum temperatures are likely over most parts of the country (Fig. 1b).

3. Heatwave outlook for May 2025

Normally the heat wave prevails over northern plains, central India and adjoining areas of peninsular India for about 3 days in the month of May. The anomaly (deviation from normal) forecast for the number of heatwave days in the country for May 2025 is presented in Fig. 2. During May 2025, above normal heatwave days are likely over many parts of the northwest and central India and adjoining east India. It indicates that the number of heatwave days is likely to be above normal over many parts of Rajasthan, Haryana, Punjab, Madhya Pradesh, Uttar Pradesh, Bihar, Jharkhand, Gangetic West Bengal and some parts of Gujarat, Odisha, Chhattisgarh, Maharashtra and adjoining Telangana and north Karnataka.

During heatwaves, elevated temperatures pose significant risks, especially for vulnerable populations like the elderly, children, and those with pre-existing health conditions, who are more susceptible to heat-related illnesses such as heat exhaustion and heatstroke. Additionally, prolonged periods of extreme heat can lead to dehydration, and strain infrastructure such as power grids and transportation systems. To address these challenges, it is imperative for authorities to take proactive measures. This includes providing access to cooling centers, and issuing heat advisories. Such

efforts are essential for safeguarding public health and minimizing the adverse impacts of heatwaves.

4. Monthly Rainfall Forecast for May 2025

The rainfall during May, 2025 averaged over the country as a whole is most likely to be above normal (> 109% of LPA). The LPA of rainfall over the country as a whole during May based on data of 1971-2020 is about 61.4 mm.

The forecast probability of tercile rainfall categories (above normal, normal, and below normal) over India for May, 2025 is shown in Fig. 3. The normal to above-normal rainfall is likely over many parts of the country except some parts of northwest, central, east and northeast India where below normal rainfall is likely. The dotted areas on the map typically receive very little rainfall during May, while the white shaded areas within the land represent no forecast signal from the model.

5. Sea Surface Temperature (SST) in the Pacific and the Indian Oceans

Currently, El Niño-Southern Oscillation (ENSO) neutral conditions are present over the equatorial Pacific region. The latest Monsoon Mission Coupled Forecasting System (MMCFS) forecast suggests that neutral ENSO conditions are likely to continue in the monsoon season, 2025.

In addition to ENSO conditions over the Pacific, other factors such as the Indian Ocean SSTs also influence the climate in India. Neutral Indian Ocean Dipole (IOD) conditions are prevailing over the Indian Ocean. The latest climate models indicate that neutral IOD conditions will continue during the monsoon season.

6. Extended Range Forecast and short to medium range forecasting services

The IMD also provides extended range forecasts (7-day averaged forecasts for the next four weeks) of rainfall and maximum and minimum temperatures across the country. These forecasts are updated every Thursday and are based on the Multi-model ensemble dynamical Extended Range Forecasting System, which is currently operational at IMD. The forecasts are available on the IMD website https://mausam.imd.gov.in/imd_latest/contents/extendedrangeforecast.php.

The extended range forecast is followed by short to medium range forecast issued daily by IMD.

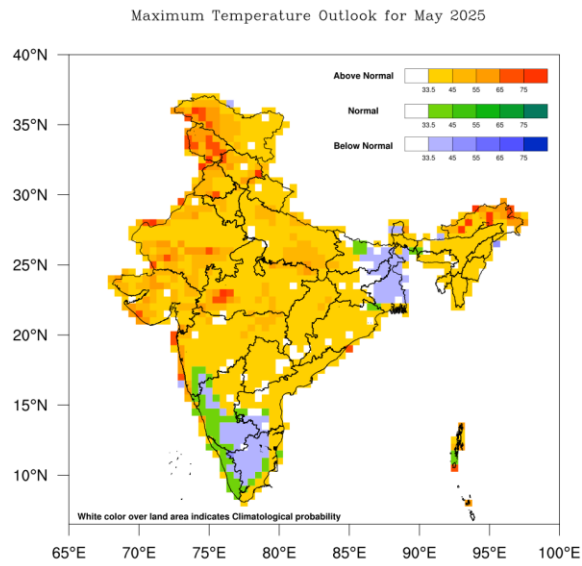


Fig.1a. Probability forecast of Maximum Temperature for May 2025.

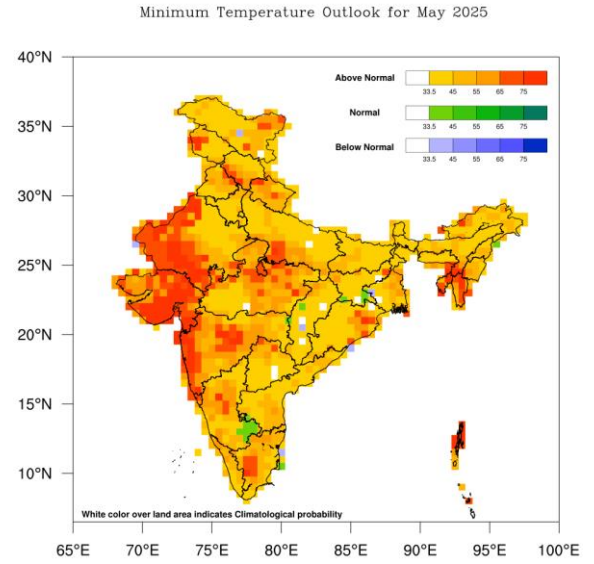


Fig.1b. Probability forecast of Minimum Temperature for May 2025.

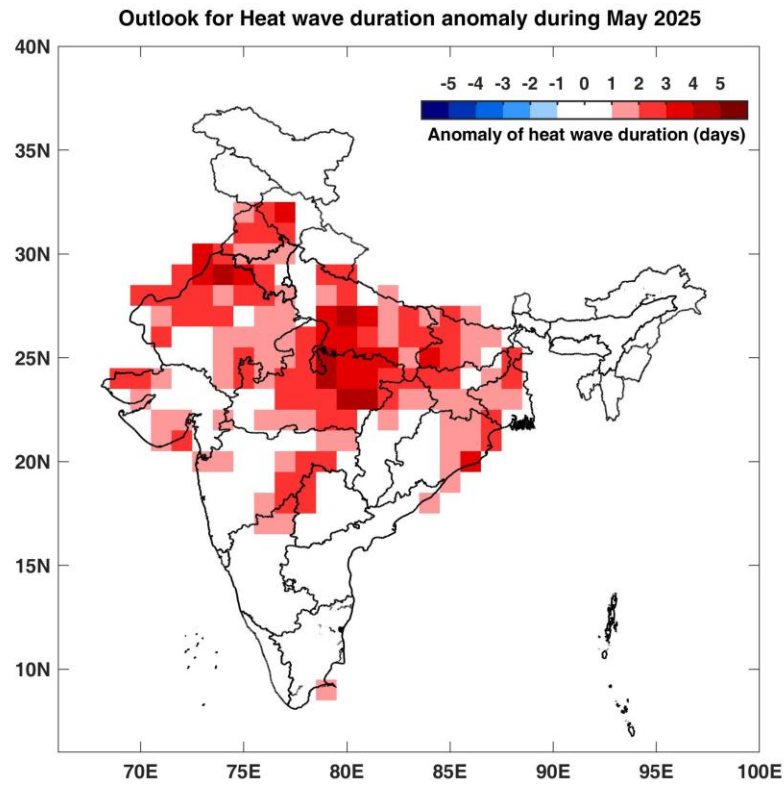


Fig 2. Anomaly (deviation from normal) of Heat Wave Duration (in days) for May 2025.

probability rainfall forecast for 2025 May

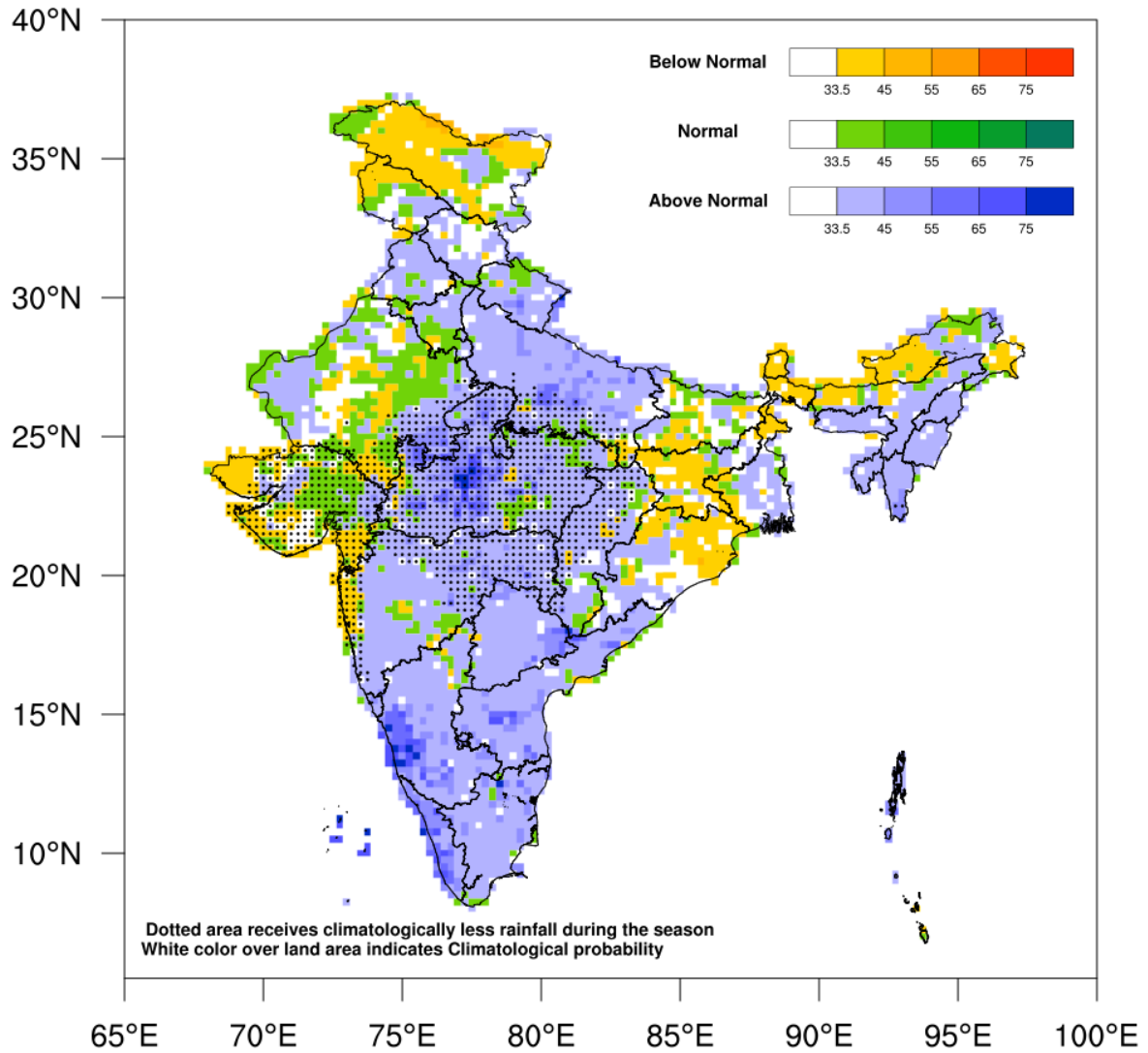


Fig.3. Probability forecast of tercile categories* (below normal, normal and above normal) for the rainfall over India during May 2025. The figure illustrates the most likely categories as well as their probabilities. (*Tercile categories have equal climatological probabilities, of 33.33% each).