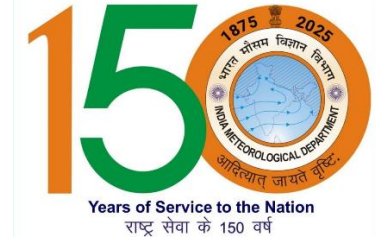




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Government of India
पृथ्वी विज्ञान मंत्रालय
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Ministry of Earth Sciences
(MoES)



भारत मौसम विज्ञान विभाग
INDIA METEOROLOGICAL DEPARTMENT

Seasonal outlook for hot weather season (April to June) 2025 and Monthly Outlook for April 2025 for the Rainfall and Temperature

Highlights

- During the 2025 hot weather season (April to June (AMJ)), above-normal maximum temperatures are most likely over most parts of the country, except some parts of west peninsular India and isolated regions of east-central and east India where normal maximum temperatures are most likely.
- During the season (AMJ), above-normal minimum temperatures are likely over most parts of the country except some isolated regions of extreme northwest India where normal minimum temperatures are likely.
- For the month of April 2025, above-normal maximum temperatures are likely over most parts of the country except some parts of extreme south peninsular India and northwest India, where normal maximum temperatures are most likely.
- Above-normal minimum temperatures are most likely over most parts of India, except some isolated pockets over northwest and northeast India where normal to below-normal minimum temperatures are likely during April 2025.
- During April to June (AMJ) hot weather season, above-normal number of heatwave days are likely to occur over most parts of the north & east peninsula, central India, east India, and plains of northwest India.
- During April 2025, above-normal number of heatwave days are likely over most parts of east and central India adjoining peninsular India.
- The rainfall during April 2025, averaged over the country as a whole, is most likely to be normal (88-112% of LPA). Normal to above-normal rainfall is likely over many parts of northwest India, peninsular India, northeast India, and some parts of west-central India. Below normal rainfall is likely over remaining parts of the country.

Updated Seasonal outlook for hot weather season (April to June) 2025 and Monthly Outlook for April 2025 for the Rainfall and Temperature

1. Background

The India Meteorological Department (IMD), Ministry of Earth Sciences (MoES) has been issuing seasonal outlooks for hot and cold weather seasons since 2016, providing temperature forecasts for the country. IMD is continuously working to improve its forecasting models and currently uses the Multi-Model Ensemble (MME) approach, which utilizes coupled global climate models (CGCMs) from various global climate prediction and research centers, including the IMD/MoES Monsoon Mission Climate Forecast System (MMCFS) model.

IMD has prepared updated seasonal and monthly temperature forecasts for the 2025 hot weather season (April to June) and April 2025, respectively. These forecasts are presented in sections 2(a) and 2(b).

Section 3 presents the heatwave outlook for the hot weather season (April to June 2025) and for the month of April 2025. A heatwave is a period of abnormally high temperatures exceeding the normal maximum temperature for the hot weather season.

In Section 4, IMD has provided the monthly rainfall outlook for April 2025.

2. (a) Seasonal Temperature outlook for April to June (AMJ) 2025

Probability forecasts for the maximum and minimum temperatures during the April to June (AMJ) 2025 hot weather season are shown in Fig.1a and Fig.1b, respectively. The probability forecast for maximum temperatures (Fig.1a) indicates that above-normal maximum temperatures are most likely over most parts of the country, except some parts of west peninsular India and isolated regions of east-central India and East India where normal maximum temperatures are most likely. The white-shaded area within the land shows no signal from the model.

The probability forecast for the minimum temperatures (Fig.1b) indicates that during the hot weather season (AMJ), above-normal minimum temperatures are likely over most parts of the country except some isolated regions of extreme northwest India where normal minimum temperatures are likely

2. (b) Monthly Temperature Forecast for April 2025

Probability forecasts for the maximum and minimum temperatures during April 2025 are shown in Fig.2a and Fig.2b, respectively. During April 2025, above-normal maximum temperatures are likely over most parts of the country except some parts of extreme South Peninsular India and Northwest India, where normal maximum temperatures are most likely (Fig.2a).

Above-normal minimum temperatures are most likely over most parts of India, except some isolated pockets over northwest and northeast India where normal to below-normal minimum temperatures are likely (Fig.2b).

3. Heatwave outlook for the Season April to June (AMJ) and for April 2025

The anomaly (deviation from normal) forecast for the number of heatwave days over the country for the season April to June (AMJ) 2025 is shown in Fig 3a. During AMJ hot weather season, above normal number of heatwave days are likely to occur over most parts of north and east peninsula, central India, east India and plains of northwest India.

The anomaly forecast for the number of heatwave days over the country for April 2025 is shown in Fig 3b. During April 2025, above-normal number of heatwave days are likely over most parts of east and central India and adjoining peninsular India.

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, anticipatory actions as per guidelines of National and State Disaster Management Authorities and heat action plans may be taken. This includes providing access to cooling centres, issuing heat advisories, and implementing strategies to alleviate urban heat island effects in affected areas etc. among others.

4. Monthly Rainfall Outlook for April 2025

The rainfall during April 2025 averaged over the country as a whole is most likely to be normal (88-112% of Long Period Average {LPA}). The LPA of rainfall over the country during April based on data from 1971 to 2020 is about 39.2 mm.

The probabilistic forecast for the spatial distribution of tercile rainfall categories (above normal, normal and below normal) over the country for April 2025 is shown in Fig.4. The normal to above-normal rainfall is likely over many parts of northwest India, peninsular India, northeast India, and some parts of west-central India. Below-normal rainfall is likely over remaining parts of the country. The dotted area shown in the map climatologically receives very less rainfall during April, and the white-shaded areas within the land represent no signal from the model.

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

Currently, the El Niño-Southern Oscillation (ENSO) condition is transitioning from weak La Niña condition to an ENSO-neutral state with above-average SSTs in the eastern and far western Pacific Ocean and below-average SSTs in the central Pacific Ocean. The latest MMCFS forecast indicates that neutral ENSO conditions are likely to continue in the upcoming season.

Currently, neutral Indian Ocean Dipole (IOD) conditions persist over the Indian Ocean. The latest MMCFS forecast indicates that the neutral IOD conditions are likely to continue during the upcoming season.

2. Extended Range Forecast and short to medium-range forecasting services

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

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

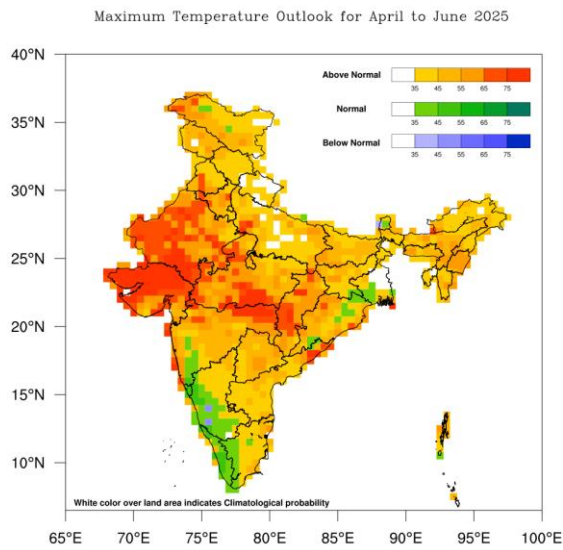


Fig.1a. Probability forecast of Maximum Temperature for April to June 2025.

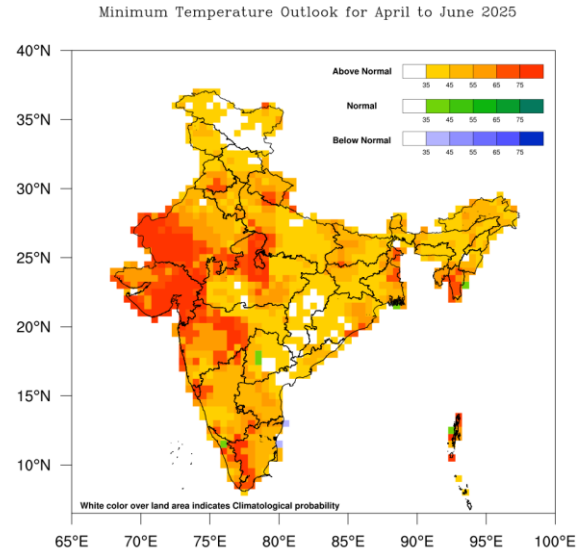


Fig.1b. Probability forecast of Minimum Temperature for April to June 2025.

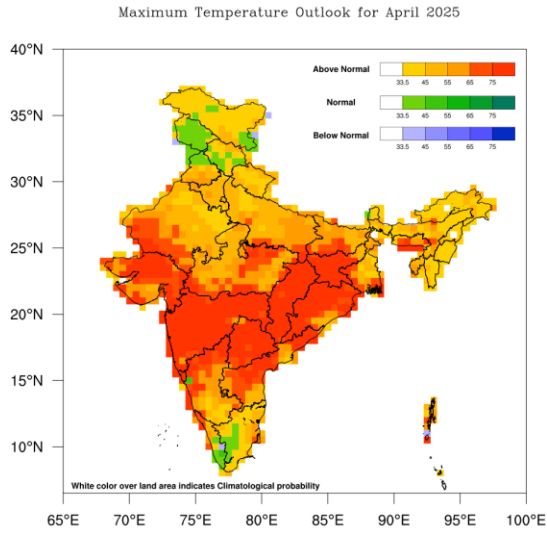


Fig.2a. Probability forecast of Maximum Temperature for April 2025.

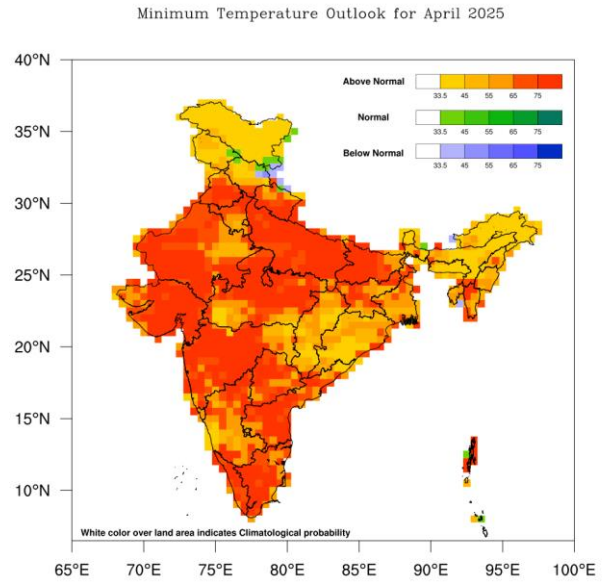


Fig.2b. Probability forecast of Minimum Temperature April 2025.

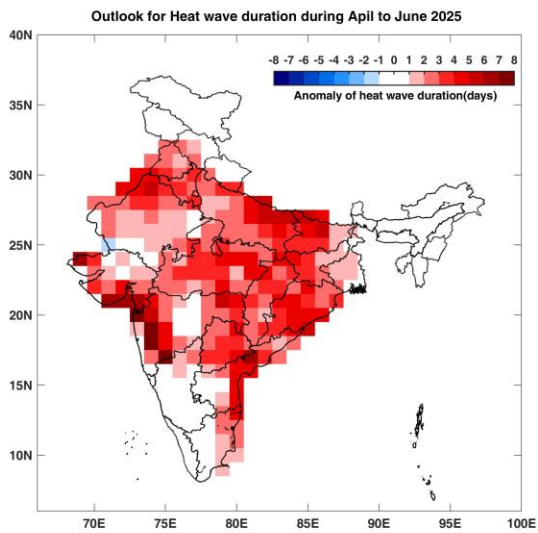


Fig3a. Anomlay of Heat Wave Duration (in days) for the season April to June (AMJ) 2025.

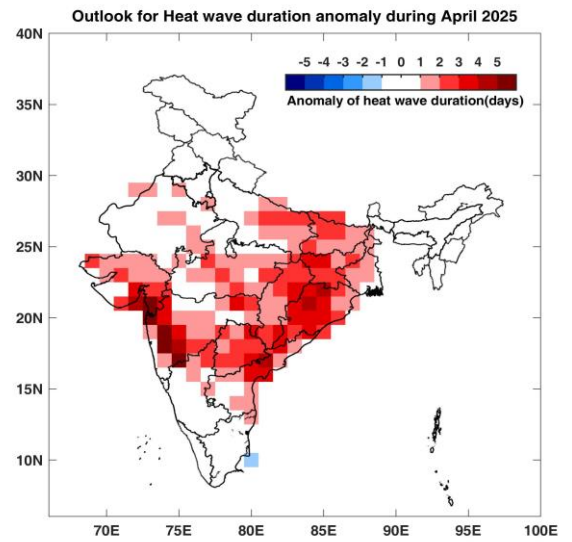


Fig3b. Anomaly of Heat Wave Duration (in days) for April 2025.

probability rainfall forecast for 2025 April

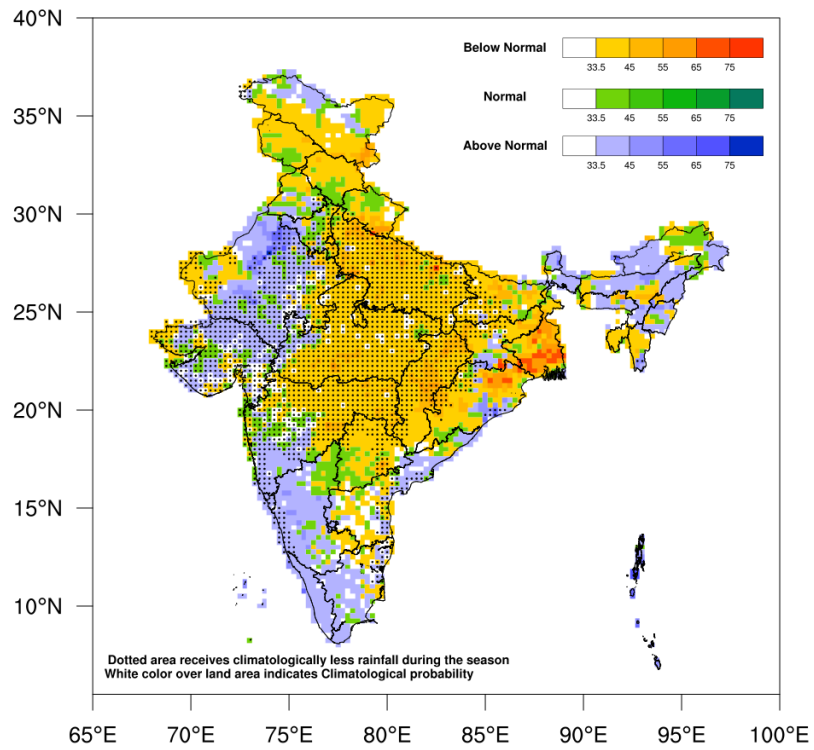


Fig.4. Probability forecast of tercile categories* (below normal, normal, and above normal) for the rainfall over India during April 2025. The figure illustrates the most likely categories as well as their probabilities. The dotted area shown in the map climatologically receives very less rainfall and the white-shaded areas within the land represent no signal from the model. (*Tercile categories have equal climatological probabilities, of 33.33% each).