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Ministry of Earth Sciences (MoES)
भारत मौसम विज्ञान विभाग
INDIA METEOROLOGICAL DEPARTMENT

Monthly Outlook for the Temperature and Rainfall during May 2022

Highlights

a) Temperature - During May, above normal maximum temperatures are likely over most parts of the west central and northwest India, and northern parts of northeast India (Fig.1a). Normal to below normal maximum temperatures are likely over the remaining parts of the country.

During May, above normal minimum temperatures are likely over most parts of northwest, central, east and northeast India (Fig.1b). Normal to below normal minimum temperatures are likely over the south peninsular India and few pockets of extreme northwest India.

b) Rainfall - The rainfall in May 2022 averaged over the country is most likely to be above normal (>109% of LPA). The normal to above normal rainfall is likely over most parts of India except some parts of northwest India and some parts of northeast India as well as extreme southeast Peninsula where it is likely to be below normal.

c) SST Conditions - Currently, La Niña conditions are prevailing over the equatorial Pacific region. The latest MMCFS forecast indicates that the La Niña conditions are likely to continue throughout the forecast period. Other climate models are also indicating enhanced probability for La Niña conditions during the upcoming season. At present neutral IOD conditions are present over the Indian Ocean and the latest MMCFS forecast indicates that the negative IOD conditions are likely to develop towards the beginning of June.

As the changes in the sea surface temperature (SST) conditions over the Pacific and the Indian Oceans are known to influence the Indian climate, IMD is carefully monitoring the evolution of sea surface conditions over these Ocean basins.

1. Background

Since 2016, the India Meteorological Department (IMD), Ministry of Earth Sciences (MoES) has been issuing seasonal forecast outlooks for subdivision scale temperatures over the country for both hot and cold weather seasons. These predictions were based on the Monsoon Mission Climate Forecasting System (MMCFS) Model developed under MoES's monsoon mission project. Since last year, IMD has adopted a new strategy for issuing monthly and seasonal outlooks of rainfall and temperature over the country. The new strategy is based on the newly developed Multi-Model Ensemble (MME) forecasting system. The MME approach uses the coupled global climate models (CGCMs) from different global climate prediction and research centers including IMD/MoES MMCFS model.

IMD has released monthly Outlook for temperature and rainfall for April 2022 on 31st March 2022. IMD has now prepared monthly outlook for temperatures and rainfall for May 2022 as presented in section 2 and 3 respectively.

2. Monthly Temperature Forecast for May 2022

Fig.1a and Fig.1b show forecasted probabilities of the maximum and minimum temperatures respectively during May 2022. During May, above normal maximum temperatures are likely over most parts of the west central and northwest India, and northern parts of northeast India (Fig.1a). Normal to below normal maximum temperatures are likely over the remaining parts of the country.

During May, above normal minimum temperatures are likely over most parts of northwest, central, east and northeast India (Fig.1b). Normal to below normal minimum temperatures are likely over the south peninsular India and few pockets of extreme northwest India.

3. Monthly Rainfall Forecast for May 2022

The rainfall during May, 2022 averaged over the country as a whole is most likely to be above normal (>109% of LPA). The LPA of rainfall over the country during the month of May based on data of 1971-2020 is about 61.4 mm.

The probabilistic forecast for the spatial distribution of tercile categories (above normal, normal and below normal) of rainfall over the country for the month of May is shown in Fig.2. The normal to above normal rainfall is likely over most parts of India except some parts of northwest and northeast India as well as extreme southeast Peninsula where it is likely to be below normal. The dotted areas in the map climatologically receive very less rainfall during May and the white shaded areas within the land regions represent climatological probabilities.

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

Currently, La Niña conditions are prevailing over the equatorial Pacific region. The latest MMCFS forecast indicates that the La Niña conditions are likely to continue in May 2022. Other climate models are also indicating enhanced probability for La Niña conditions during the upcoming season.

In addition to El Niño- Southern Oscillation (ENSO) conditions over the Pacific, other factors such as the Indian Ocean SSTs also influence on Indian climate. At present neutral Indian Ocean Dipole (IOD) conditions are present over the Indian Ocean and the latest MMCFS forecast indicates that the negative IOD conditions are likely to develop towards the beginning of June.

5. 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 & 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 short to medium range forecast issued daily by IMD.

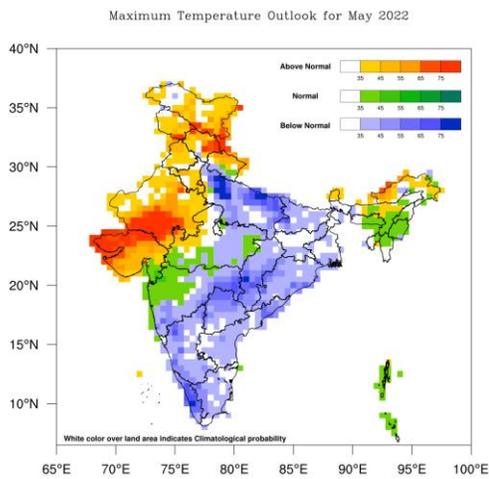


Fig.1a. Probability forecast of Maximum Temperature for May 2022.

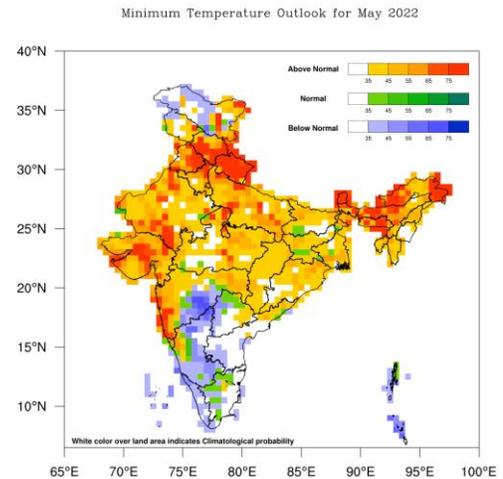


Fig.1b. Probability forecast of Minimum Temperature for May 2022.

probability rainfall forecast for 2022 MAY

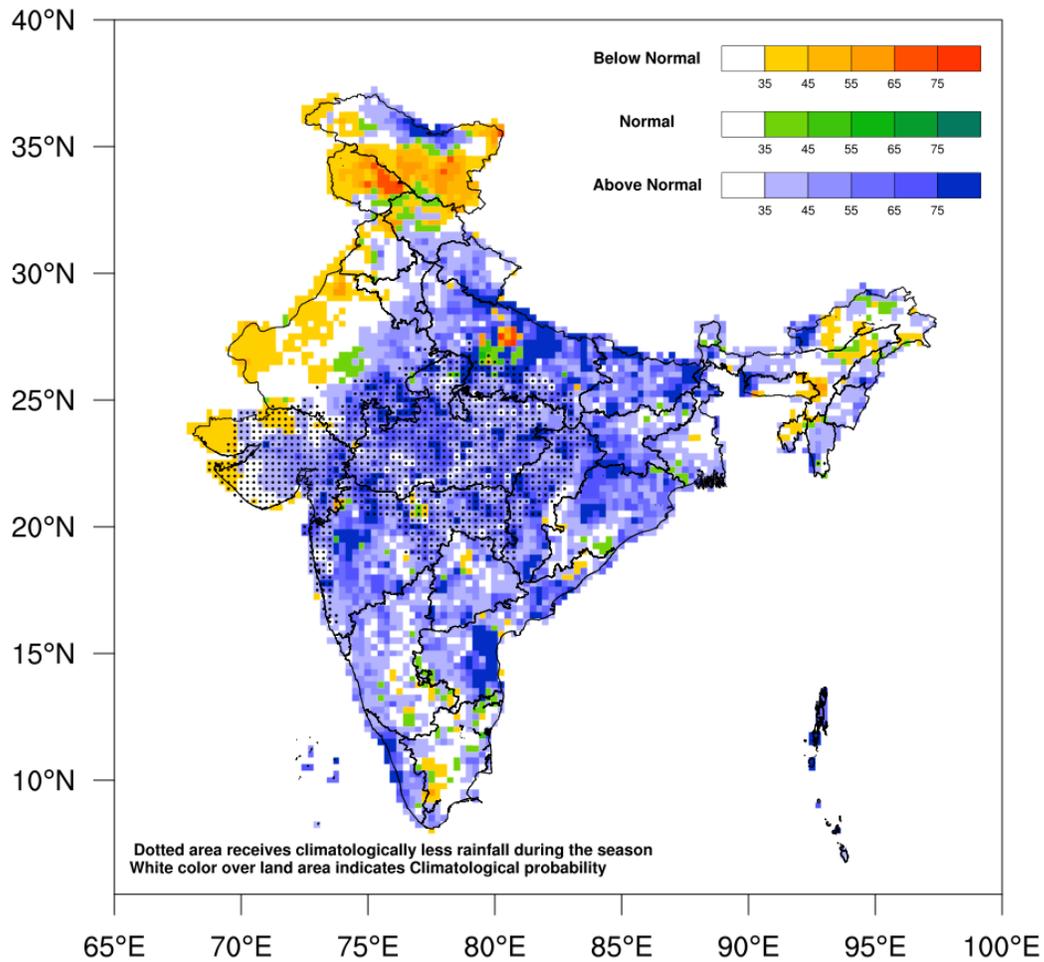


Fig.2. Probability forecast of tercile categories* (below normal, normal and above normal) for the rainfall over India during May 2022. The figure illustrates the most likely categories as well as their probabilities. The dotted area shown in the map climatologically receives very less rainfall and the white shaded areas within the land areas represent climatological probabilities. The probabilities were derived using the MME forecast prepared from a group of coupled climate models. (*Tercile categories have equal climatological probabilities, of 33.33% each).