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INDIA METEOROLOGICAL DEPARTMENT

Monthly Outlook for the Temperature and Rainfall during April 2022

Highlights

a) Temperature - During April, above normal maximum temperatures are likely over most parts of the northwest India and central India and some parts of the northeast India. Normal to below normal maximum temperatures are likely over the south peninsular India, many parts of eastern India and adjoining areas of the northeast India.

During April, normal to above normal minimum temperatures are likely over most parts of northwest, central and northeast India. Normal to below normal minimum temperatures are likely over the south peninsular India, eastern parts of central India and extreme southern part of northeast India.

b) Rainfall - The rainfall in April 2022 averaged over the country is most likely to be normal (89-111% of LPA). Below normal rainfall is most likely over most areas of northwest and central India and some parts of northeast India. Normal to above normal rainfall likely over many parts of south Peninsula, adjoining areas of west central India and some parts of northeast India.

c) SST Conditions - Currently, La Niña conditions are prevailing over the equatorial Pacific region. The latest Monsoon Mission Climate Forecasting System (MMCFS) forecast indicates that La Niña conditions are likely to continue throughout the forecast period. Other climate models are also indicating enhanced probability for La Niña conditions likely during summer season. At present, neutral IOD conditions are present over the Indian Ocean and the latest MMCFS forecast indicates that the neutral Indian Ocean Dipole (IOD) conditions are likely to continue during summer season.

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.

Monthly Outlook for the Temperature and Rainfall during April 2022

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 seasonal temperatures forecast outlook over the country for the hot weather season (March to May 2022) and monthly temperature and rainfall outlook for March 2022 on 1st March 2022.

IMD has now prepared monthly temperatures forecast outlook for April 2022 as presented in section 2 and monthly rainfall outlook for April 2022 as presented in section 3 utilizing the new strategy of the MME based forecasting system as discussed above.

2. Monthly Temperature Forecast for April 2022

Fig.1a and Fig.1b show forecasted probabilities of the maximum and minimum temperatures respectively during April 2022. During April, above normal maximum temperatures are likely over most parts of the northwest India and central India and some parts of the northeast India (Fig.1a). Normal to below normal maximum temperatures are likely over the south peninsular India, many parts of eastern India and adjoining areas of the northeast India.

During April, normal to above normal minimum temperatures are likely over most parts of northwest, central India and northeast India (Fig.1b). Normal to below normal minimum temperatures are likely over the south peninsular India, eastern parts of central India and extreme southern part of northeast India.

3. Monthly Rainfall Forecast for April 2022

The rainfall during April 2022 averaged over the country is most likely to be normal (89-111% of LPA). The LPA of rainfall over the country during April based on data of 1961-2010 is about 39.3 mm.

The probabilistic forecast for the spatial distribution of tercile rainfall categories (above normal, normal and below normal) over the country for the month of April is shown in Fig.2. The rainfall in April 2022 averaged over the country is most likely to be normal (89-111% of LPA). Below normal rainfall is most likely over most areas of northwest and central India and some parts of northeast India. Normal to above normal rainfall likely over many parts of south Peninsula, adjoining areas of west-central India and some parts of northeast India. The dotted areas in the map climatologically receive very less rainfall during April and the white shaded areas within the land areas represent climatological probabilities.

4. SST conditions in the Pacific and the Indian Oceans

Currently, La Niña conditions are prevailing over the equatorial Pacific region. The latest Monsoon Mission Climate Forecasting System (MMCFS) forecast indicates that La Niña conditions are likely to continue throughout the forecast period. Other climate models are also indicating enhanced probability for La Niña conditions likely during summer 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 IOD conditions are present over the Indian Ocean and the latest MMCFS forecast indicates that the neutral Indian Ocean Dipole (IOD) conditions are likely to continue during summer season.

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.

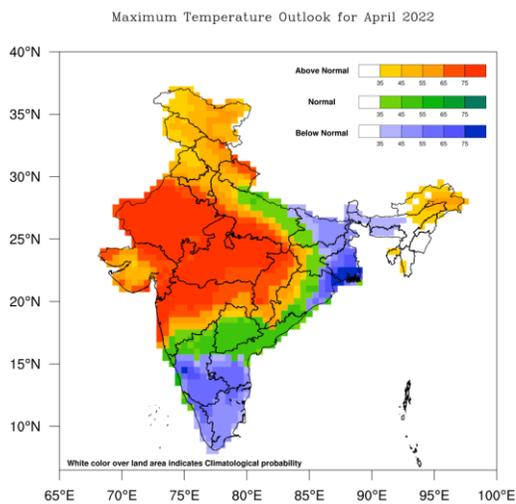


Fig.1a. Probability forecast of Maximum Temperature for April 2022.

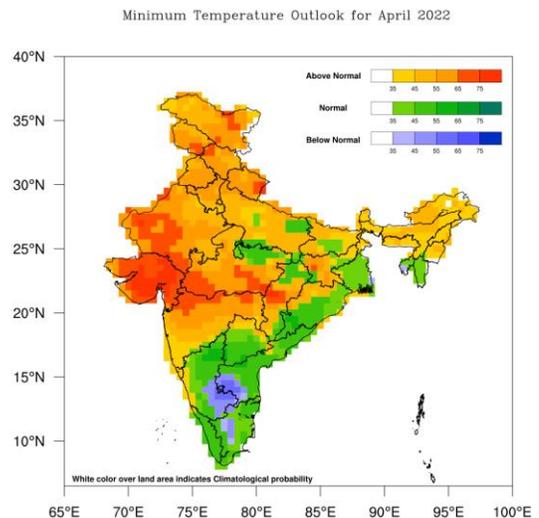


Fig.1b. Probability forecast of Minimum Temperature for April 2022.

probability rainfall forecast for 2022 APR

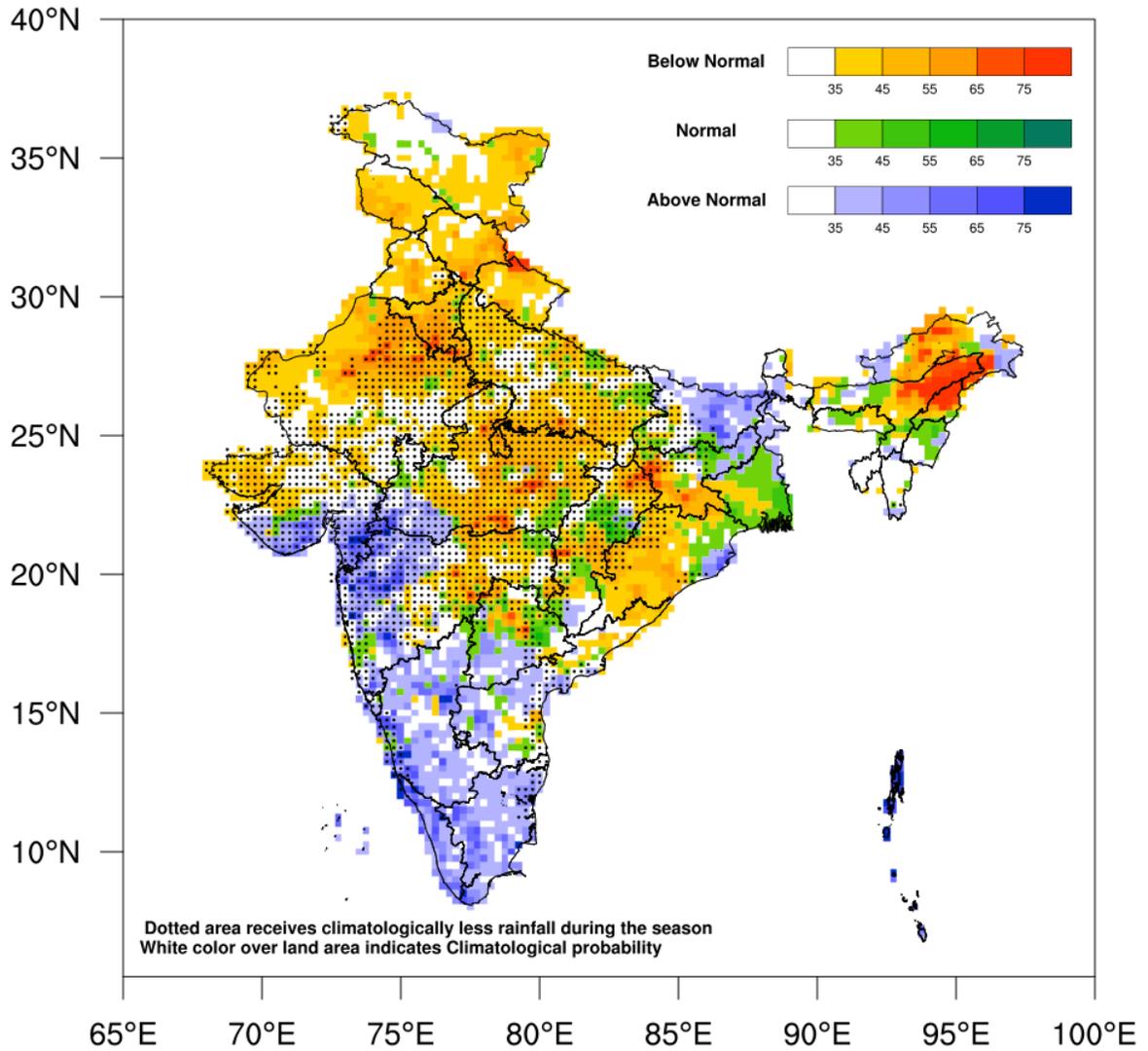


Fig.2. Probability forecast of tercile categories* (below normal, normal and above normal) for the rainfall over India during April 2022. The figure illustrates the most likely categories as well as their probabilities. The dotted area shown in the map climatologically receives very less rainfall and 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).