भारत सरकार
Government of India
पृथ्वी विज्ञान मंत्रालय (एम. ओ. ई. एस.)
Ministry of Earth Sciences (MoES)
भारत मौसम विज्ञान विभाग
INDIA METEOROLOGICAL DEPARTMENT

Southwest monsoon rainfall Forecast for the second half of the season and for the month of August 2022

Highlights

a) Rainfall over the country as a whole during the second half (August to September period) of the southwest monsoon season, 2022 is most likely to be **normal (94 to 106% of Long Period Average (LPA)).** The normal to above normal rainfall is very likely to over most parts of south India except west coast, westcentral India and northwest India. The below normal rainfall is likely over many parts of the west coast and some parts of eastcentral, east and northeast India

b) Monthly rainfall over the country as a whole for the August 2022 is most likely to be **normal (94 to 106 % of Long Period Average (LPA)).** The normal to above normal rainfall is very likely over most parts of southeast India, northwest India and adjoining westcentral India. The below normal is likely over west coast and many parts of eastcentral, east and northeast India.

c) During August, 2022, the above normal maximum temperatures are likely over many parts of the eastcentral, east and northeast India and some parts of northwest and south interior peninsular India. The normal to below normal maximum temperatures are likely over remaining parts of the country. The above normal minimum temperatures are likely over some parts of east central, east, northeast and hilly areas of northwest India. The normal to below normal minimum temperatures are very likely over over many parts of northwest, westcentral and south India

d) 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 upto end of the year. Other climate models are also indicating enhanced probability for La Niña conditions during the upcoming season. At present neutral IOD conditions with negative Dipole Mode Index are present over the Indian Ocean and the latest MMCFS forecast indicates that the negative IOD conditions are likely to develop during the upcoming season.

IMD will issue the forecast for rainfall during September by 31st August or 1st September 2022.

1.   Background

Since 2021, IMD has adopted a new strategy for issuing monthly and seasonal operational forecasts for the southwest monsoon rainfall over the country. The new strategy is based on the 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's Monsoon Mission Climate Forecasting System (MMCFS) model.

Accordingly, IMD issued the first stage forecast for the 2022 southwest monsoon seasonal (June to September) rainfall over the country on 14th April and the first update for the forecast on 31st May 2022 alongwith the monthly outlook for rainfall during June, 2022. Subsequently, IMD has issued the monthly outlook for July 2022.

IMD has prepared an outlook for rainfall during the second half (August+September) of the Southwest monsoon season, 2022 and the rainfall during August, 2022

2.   Probabilistic Forecast of Rainfall over the Country during August to September (Aug+Sep), 2022

The rainfall averaged over the country as a whole during August to September **is most likely to be normal (94-106% of LPA).** The LPA of the rainfall over the country as a whole during August to September period based on the data of 1971-2020 is 422.8 mm.

The spatial distribution of probabilistic forecasts for the tercile categories (above normal, normal, and below normal) of rainfall during August to September, 2022 rainfall is shown in **Fig.1**. It suggests that normal to above normal rainfall is very likely to over most parts of south India except west coast, westcentral India and northwest India. The below normal rainfall is likely over many parts of the west coast and some parts of eastcentral, east and northeast India. The white shaded areas within the land region represent climatological probabilities.

3.   Probabilistic Forecast for the Rainfall over the Country during August 2022

The rainfall averaged over the country as a whole during August, 2022 **is most likely to be normal (94 to 106 % of LPA).** The LPA of the rainfall over the country as a whole during August based on data of 1971-2020 is 254.9 mm.

The spatial distribution of probabilistic forecasts for tercile categories (above normal, normal, and below normal) of rainfall during August, 2022 is shown in **Fig.2**. It suggests that Normal to above normal rainfall is very likely over most parts of southeast India, northwest India and adjoining westcentral India. The below normal is likely over west coast and many areas of eastcentral, east and northeast India. The white shaded areas within the land region represent climatological probabilities.

4.   Probabilistic Forecast of Temperatures over the Country during August 2022

Fig.3a and Fig.3b show forecast probabilities of the maximum and minimum temperatures respectively during August 2022.

During August, above normal maximum temperatures are likely over many parts of the eastcentral, east and northeast India and some parts of northwest and south interior

peninsular India. The normal to below normal maximum temperatures are likely over remaining parts of the country(**Fig.3a**).

The above normal minimum temperatures are likely over some parts of east central, east, northeast and hilly areas of northwest India. The normal to below normal minimum temperatures are very likely over over many parts of northwest, westcentral and south India (**Fig. 3b**).
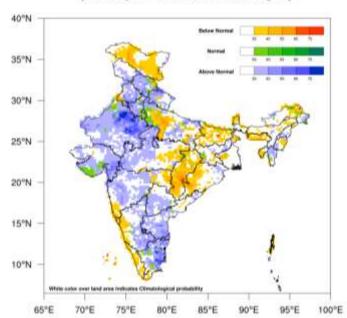
5.   SST conditions in the Pacific and the Indian Oceans

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 upto the end of the year. Other climate models are also indicating enhanced probability for La Niña conditions during the upcoming season.

In addition to ENSO conditions over the Pacific, other factors such as the Indian Ocean Sea Surface Temperatures (SSTs) also influence on Indian monsoon. At present neutral IOD conditions with a negative Dipole Mode Index(DMI) are present over the Indian Ocean and the latest MMCFS forecast indicates that the negative IOD conditions are likely to develop during the upcoming season.

6.   Extended Range Forecast and Short to Medium range forecast 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.1. Probability forecast of tercile categories[*] (below normal, normal, and above normal) of rainfall over India during the second half (August to September) of southwest monsoon season, 2022. The figure illustrates the most likely categories as well as their

probabilities. The white shaded areas within the land area represent climatological probabilities. ([*]Tercile categories have equal climatological probabilities, of 33.33% each).
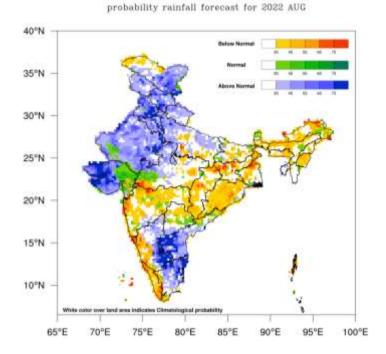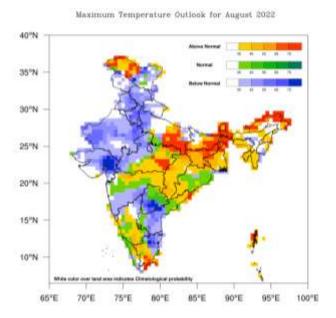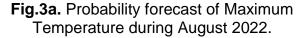

Fig.2. Probability forecast of tercile categories[*] (below normal, normal, and above normal) of rainfall over India during August, 2022. The figure illustrates the most likely categories as well as their probabilities. The white shaded areas within the land area represent climatological probabilities.([*]Tercile categories have equal climatological probabilities, of 33.33% each).
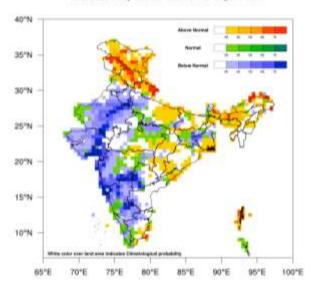

Fig.3a. Probability forecast of Maximum Temperature during August 2022.

Fig.3b. Probability forecast of Minimum Temperature during August 2022.

4