PRESS RELEASE
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Ministry of Earth Sciences (MoES)

भारत मौसम विज्ञानविभाग
INDIA METEOROLOGICAL DEPARTMENT

Long Range Forecast
For the Southwest Monsoon Seasonal Rainfall during 2025

Highlights

a) The southwest monsoon seasonal (June to September) rainfall over the country as a whole during 2025 is most likely to be above normal(>104% of **the Long Period Average (LPA)).** Quantitatively, the seasonal rainfall over the country as a whole is likely to be **105% of LPA with a model error of ± 5%.** The LPA of the season rainfall over the country as a whole for the period **1971-2020 is 87 cm**.

b) Currently, Neutral El Nino-Southern Oscillation (ENSO) conditions are prevailing over the equatorial Pacific region. However the atmospheric Circulation features are similar to La Nina conditions. The latest Monsoon Mission Climate Forecast System (MMCFS) as well as other climate model forecasts indicate that the Neutral ENSO condition are likely to continue during the monsoon season.

c) At present, neutral Indian Ocean Dipole (IOD) conditions are present over the Indian Ocean and the latest Climate models forecast indicates that the Neutral IOD conditions are likely to continue during the southwest monsoon season.

d) The snow cover areas of northern hemisphere and Eurasia during the last three months (January to March, 2025) were below normal. The winter and spring snow cover extent over Northern Hemisphere as well as Eurasia has in general an inverse relationship with the subsequent Indian summer monsoon rainfall.

IMD will issue the **updated forecasts for monsoon season rainfall in the last week of May 2025.**

1. Background

Since 2003, India Meteorological Department (IMD) has been issuing the operational long-range forecast (LRF) for the southwest monsoon seasonal (June-September) rainfall averaged over the country as a whole in two stages. The first stage forecast is issued in April and the second stage or updated forecast is issued by the end of May. In 2021, IMD has implemented a new strategy for issuing monthly and seasonal operational forecasts for the southwest monsoon rainfall over the country by modifying the existing two stage forecasting strategy. The new strategy uses both dynamical and statistical forecasting system. Multi-Model Ensemble (MME) forecasting system based on coupled global climate models (CGCMs) from different global climate prediction centres, including IMD's Monsoon Mission Climate Forecast System (MMCFS) are used.

As per the new LRF strategy, the first stage forecast issued in middle of April consists of the quantitative and probabilistic forecasts for the country as a whole, and the spatial distribution of probabilistic forecasts for the tercile categories (above normal, normal, and below normal) of the seasonal (June-September) rainfall over the country.

The second stage forecast issued around end of May consist of update for the seasonal rainfall forecast issued in April along with the probabilistic forecasts for the seasonal rainfall over the four homogenous regions of India (northwest India, central India, south Peninsula and northeast India) and monsoon core zone (MCZ). In addition, quantitative and probabilistic forecasts for the country as a whole, and the spatial distribution of probabilistic forecasts for the tercile categories (above normal, normal, and below normal) of the June rainfall over the country are also issued during the second state forecast.

In continuation to the above forecasts, monthly rainfall forecast is issued around end of June, July and August respectively for the subsequent one month. In addition, quantitative and probabilistic forecasts for the country as a whole, and the spatial distribution of probabilistic forecasts for the tercile categories for the second half of the season rainfall is issued around end of July along with the forecast for August.

2. Forecast for the 2025 Southwest Monsoon Season (June–September) rainfall over the country as a whole during 2025.

The forecast based on both dynamical and statistical models suggests that quantitatively, the monsoon seasonal rainfall is likely to be **105% of the Long Period**

Average (LPA) with a model error of ± 5%. The LPA of the season rainfall over the country as a whole for the period **1971-2020 is 87 cm**.

The five category probability forecasts for the Seasonal (June to September) rainfall over the country as a whole are given below, which suggests that there is strong probability (59%) of southwest monsoon seasonal rainfall likely to be in the above normal category or higher (>104% of LPA).

Category	Rainfall Range (% of LPA)	Forecast Probability (%)	Climatological Probability (%)
Deficient	< 90	2	16
Below Normal	90 - 95	9	17
Normal	96 -104	30	33
Above Normal	105-110	33	16
Excess	> 110	26	17

The MME forecast for the southwest monsoon season rainfall during 2025 was prepared based on the April initial conditions of a group of coupled climate models which have higher prediction skill over the Indian monsoon region.

The spatial distribution of probabilistic forecasts for tercile categories (above normal, normal and below normal) for the seasonal (June to September) rainfall during 2025 is shown in Fig.1. The spatial distribution suggests above-normal seasonal rainfall is very likely over most parts of the country except some areas over Northwest India, Northeast India and South Peninsular India, where below-normal rainfall is likely. The white-shaded areas within the land area represent no signal from the model with equal probabilities for all the tercile categories of rainfall.

3. Sea Surface Temperature (SST) Conditions in the equatorial Pacific & Indian Oceans

Currently, neutral ENSO conditions are prevailing over the equatorial Pacific region.However, the atmospheric Circulation features are similar to La Nina conditions. The latest MMCFS as well as other climate models forecast indicates that neutral ENSO conditions are likely to continue during the monsoon season.

At present, neutral IOD conditions are present over the Indian Ocean and the

latest climate model forecast indicates that the neutral IOD conditions are likely to continue during the southwest monsoon season.

As sea surface temperature (SST) conditions over the Pacific and the Indian Oceans are known to have a strong influence on the Indian monsoon, IMD is carefully monitoring the evolution of sea surface conditions over these Ocean basins.

4. Snow Cover over the Northern Hemisphere

The winter and spring snow cover extent over Northern Hemisphere as well as Eurasia has in general an inverse relationship with the subsequent Indian summer monsoon rainfall. The areas of northern hemisphere snow cover and Eurasian snow cover during January to March, 2025 were observed to be below normal.

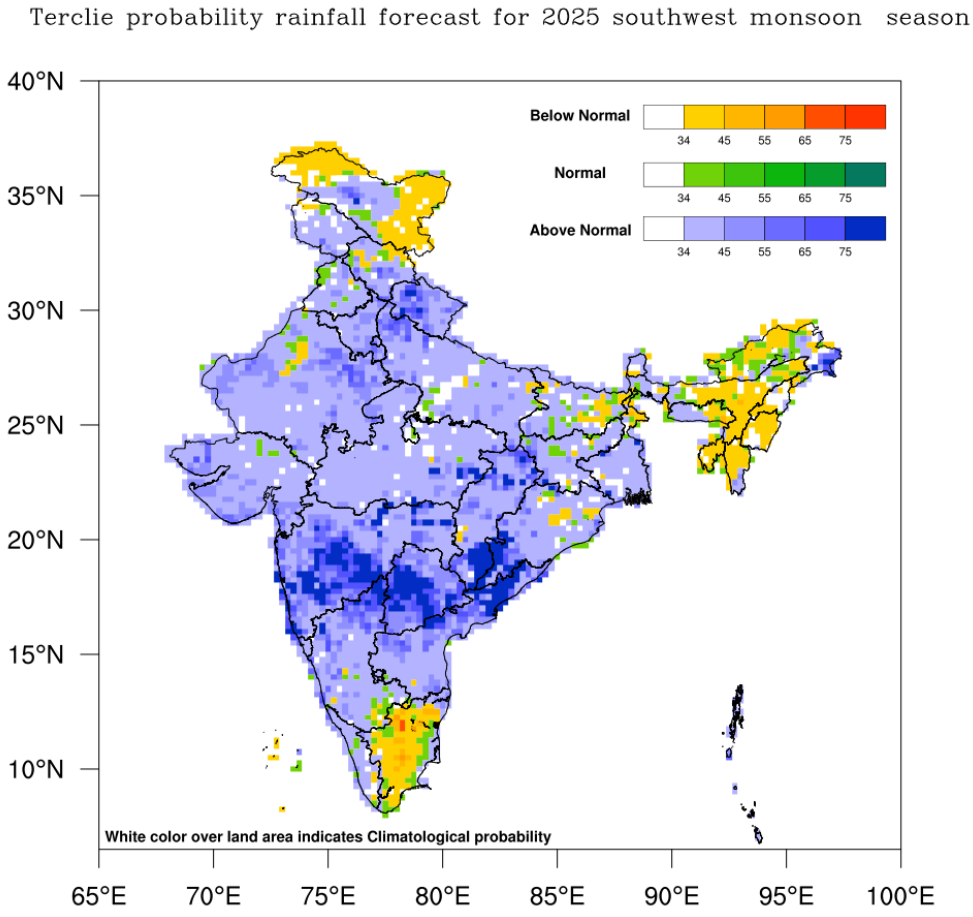

Fig.1. Probability forecast of tercile categories* (below normal, normal, and above normal) for the seasonal rainfall over India during southwest monsoon season (June -September), 2025. The figure illustrates the most likely categories as well as their probabilities. The white shaded areas represent no signal from the model with equal probabilities for all the tercile categories.
(*Tercile categories have equal climatological probabilities, of 33.33% each).