PRESS RELEASE
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भारत सरकार
Government of India
पृथ्वीविज्ञानमंत्रालय (एम. ओ. ई. एस.)
Ministry of Earth Sciences (MoES)
भारत मौसम विज्ञानविभाग
INDIA METEOROLOGICAL DEPARTMENT

Long Range Forecast
For the 2020Southwest Monsoon Season Rainfall

Summary of the Forecast for the 2020 Southwest Monsoon Rainfall

a) Southwest monsoon seasonal (June to September) rainfall over the country as a whole is likely to be **normal (96-104%).**

b) Quantitatively, the monsoon seasonal (June to September) rainfall is likely to be **100% 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 **1961-2010 is 88 cm**.

c) Neutral El Nino Southern Oscillation (ENSO) conditions are prevailing over the Pacific Ocean and Neutral Indian Ocean Dipole (IOD) conditions are prevailing over the Indian Ocean. Some climate modelforecasts indicatethese conditions are likely to persist during the ensuing monsoon season**. However, a few other global climate models indicate possibility of development of weak La Nina conditions over the Pacific Ocean during thesecond half of the season.**

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

IMD will issue the **updated forecasts in the last week of May/ first week of June2020** as a part of the second stage forecast. Along with the updated forecast, separate forecasts for the monthly (July and August) rainfall over the country as a whole and seasonal (June-September) rainfall over the four broad geographical regions of India willalso be issued.

1. Background

India Meteorological Department (IMD) issues operational forecast for the southwest monsoon season (June to September) rainfall for the country as a whole in two stages. The first stage forecast is issued in April and the second stage forecast is issued in May/June. These forecasts are prepared using the state-of-the-art Statistical Ensemble Forecasting system (SEFS) that iscritically reviewed andimproved regularly through in-house research activities. Since 2012, IMD is also using thedynamical global climate forecasting system (CFS) modeldeveloped under theMonsoon Mission to generate experimental forecasts. For this purpose, the latest version of the Monsoon Mission CFS (MMCFS) model was implemented in January 2017 at the Office of Climate Research and Services, IMD, Pune.

IMD's SEFS model for the April forecast uses the following 5 predictors that require data upto March.

S. No	Predictor	Period
1	The Sea Surface Temperature (SST) Gradient between North Atlantic and North Pacific	December + January
2	Equatorial South Indian Ocean SST	February
3	East Asia Mean Sea Level Pressure	February + March
4	Northwest Europe Land Surface Air Temperature	January
5	Equatorial Pacific Warm Water Volume	February + March

2. Forecast For the 2020 Southwest monsoon Season (June–September) rainfall over the Country as a whole

2a. Forecast based on the Monsoon Mission Coupled Forecasting System (MMCFS)

For generating the forecast for the 2020 southwest Monsoon season rainfallatmospheric and oceanicinitial conditionsduring March2020were used. The forecast was computed as the average of 51 ensemble members.

The forecast based on theMMCFS suggests that there is a high probability (70%) for 2020 monsoon rainfall to be above normal to excess (More than 104% of LPA).

2b. Forecast Based on the Operational Statistical Ensemble Forecasting System

a) Quantitatively, the monsoon seasonal rainfall is likely to be **100% 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 **1961-2010 is 88 cm**.

(b)The 5 category probability forecasts for the Seasonal (June to September) rainfall over the country as a whole is given below:

Category	Rainfall Range (% of LPA)	Forecast Probability (%)	Climatological Probability (%)
Deficient	< 90	**9**	16
Below Normal	90 - 96	**20**	17
Normal	96 -104	**41**	33
Above Normal	104 -110	**21**	16
Excess	> 110	**9**	17

The statistical model suggests high probability (41%) for 2020 monsoon rainfall to be normal (96-104% of LPA).

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

Currently, El Nino Southern Oscillation (ENSO) neutral conditions are prevailing over the Pacific Ocean. The latest forecasts from some global climate models indicate neutral ENSO conditions are likely to persist during the monsoon season. However, few other global climate models including MMCFS indicate possibility of development of weak LaNina conditions over the Pacific Ocean. It may be mentioned that the global climate model predictions prior to and during the spring season generally have noticeable uncertainty due to spring barrier in the seasonal predictability.

At present, neutral Indian Ocean Dipole (IOD) conditions are prevailing over the Indian Ocean. The latest forecast from the MMCFS and global models together indicate neutral IOD conditions are likely to persist during the season.
