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'Near Normal' Monsoon in 2019: IMD

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The **India Meteorological Department (IMD)** has announced that India is likely to have '**near normal**' monsoon this year with a well-distributed rainfall which could be beneficial for the agriculture sector.

- However, it has also suggested that there is a significant probability for rains falling in the 'below normal' category.
- Monsoon rainfall forecast is 96% of the Long Period Average (or 89 cm, which is a 50 year average of India's monsoon rains).

This forecast is **"near normal." While (90%-96% of LPA) rain is 'below normal'.**

- This is a more optimistic assessment from earlier forecast done by the a private agency, Skymet which had projected a below average monsoon in 2019 on the back of a prospective El Nino.

It can be noted that recently **US weather agencies have also forecasted** that there is a 60% chance of El Nino this summer season.

- The IMD's has based its finding on various other global climate models projecting a '**weakening El Nino.**'
 - A temperature rise greater than 1 degree C for three months continuously, is considered a 'strong' El Nino (and threatening to the monsoon).
 - A 0.5C -1C rise is called 'weak El Nino conditions.' Currently the El Nino is 0.9 C.
- **Other factors** which may have influence on **Monsoon are:**
 - The **location of the warming** in the Pacific.
 - **Progressive heating** of the land during April-May-June.
 - The **extent of the Himalayan/Eurasian snow cover** is another. Less snow cover means a warmer subcontinent, which can help to intensify the monsoon circulation and bring more rain.
 - However, this year north India has had an extended winter earlier this year resulting in more snow cover.
 - Another factor, called a positive **Indian Ocean Dipole (IOD)** could further neutralise the potential negative impact from the El Nino.

Indian Ocean Dipole

IOD refers to a **warming in the western Arabian ocean phenomenon**. A positive Indian Ocean Dipole — where the western portions of the Indian Ocean are warmer than the east and thereby push rain-bearing clouds over India.

El Nino

- Under **'normal' conditions**, the west tropical Pacific is warmer than its eastern basin. The warmer area of the ocean is also a source for convection and is associated with cloudiness and rainfall.
- During El Nino years, the warmth shifts to Central and East Tropical Pacific and along with it, cloudiness and rainfall.
- El Nino has been found to impact almost half the world triggering droughts in Australia, India, southern Africa and floods in Peru, Ecuador, the United States, the Gulf of Mexico, and the Colorado River basin.
- However, there is no direct correlation between the ENSO events and the monsoon has been established yet.
 - From 1950 to 2012, there were 16 La Nina years, with the monsoon rains above or around average nearly every time.
 - The 1997-98 El Nino, among the century's strongest, generated above-average rain. Likewise, 2002 proved to be one of the driest monsoons despite it being a weak to moderate El Nino year.
- Other acronyms related to El Nino:
 - **Southern Oscillation Index (SOI)** that gives an indication of the development and intensity of El Nino or La Nina.
 - The SOI is calculated on the basis of the atmospheric pressure differences between South Pacific Ocean and Australia.
 - Sustained positive SOI values are indicative of La Nina conditions while negative values suggest El Nino conditions.
 - **ENSO (El Nino Southern Oscillation) refers to the oscillation between the El Nino and the La Nina.**
 - ENSO shifts irregularly back and forth between El Nino and La Niña every two to seven years.
 - Each phase triggers predictable disruptions of temperature, precipitation, and winds disrupting large-scale air movements in the tropics, triggering a cascade of global side effects.