

What is El Nino and La Nina?

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What's in today's article?

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- **What are the Normal Climatic Conditions?**
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Why in News?

- Meteorologists have forecasted 50% chances of El Nino occurrence later in 2023.

What are the Normal Climatic Conditions?

- **Weather depends a lot on ocean temperatures** and where the ocean is warm, more clouds form and more rain fall in that part of the world.
- **In the Pacific Ocean**, near the equator, the Sun makes the water especially warm on the surface.
- **Normally**, a surface low pressure system forms in northern Australia and Indonesia and a high-pressure system develops off the coast of Peru.
- As a result, the **trade winds blow strongly from east to west** over the Pacific Ocean, transporting warm surface waters westward.
- This leads to convective storms (**thunderstorms**) to Indonesia and coastal Australia.

Image Caption: El Niño Effect

What is El Niño and La Niña?

- **El Niño and La Niña** are two opposing climate trends that deviate from the normal conditions and normally run nine to twelve months, but can often extend.
- These events occur every two to seven years on average (El Niño is more frequent than La Niña), but not on a regular basis and together are referred to as the **El Niño-Southern Oscillation** (ENSO) cycle by scientists.
- El Niño is typically known as the **warm phase** (a band of warmer water spreading from west to east in the equatorial Pacific Ocean) and La Niña is identified as the **cold phase** (a band of cooler water spreads east-west) of ENSO.
- Both El Niño and La Niña can have global effects on **weather, wildfires, ecosystems and economics**.

Image Caption: El Niño and La Niña

Indian Monsoon during the Previous Years and the Recent Trends:

- India has had **four consecutive years of good monsoons** and overall rainfall from 2019 to 2022, receiving an average area-weighted rainfall of 1,268 mm annually.
- **The surplus precipitation** (more than the “normal”) has helped deliver **higher agricultural growth** – an average of 4.3% per year during 2019-20 to 2022-23.
- The bountiful rainfall during 2019-22 has been significantly attributed to **La Niña**.

- The most recent **Oceanic Niño Index** (ONI) value – a three-month running-average sea surface temperature (SST) deviation from the normal in the east-central equatorial Pacific – **was minus 0.4 degrees Celsius for January-March 2023**.
- Since La Niña is characterised by a negative ONI exceeding or equal to minus 0.5 degrees, it means that the so-called ENSO (El Niño-Southern Oscillation) cycle has entered a “**neutral**” phase.

The El Niño Threat:

- According to the US NOAA, **ENSO-neutral conditions are likely to persist through the Northern Hemisphere early summer 2023**.
- However, a transition to **El Niño is favoured by July-September 2023**.
- To sum up, **2023 could well end the run of good rainfall years since 2019**.
- Therefore, **everyone from policymakers** to tractor companies has to brace themselves for a not-too-great monsoon this time.
- In an election year leading up to the National Lok Sabha polls in April-May 2024, the resulting **political challenges** would be equally difficult.

Q1) What is the Oceanic Niño Index (ONI) value?

The ONI is the rolling 3-month average temperature anomaly in the surface waters of the east-central tropical Pacific, near the International Dateline. Index values of +0.5 or higher indicate El Niño. Values of -0.5 or lower indicate La Niña.

Q2) What is ENSO (El Niño-Southern Oscillation)?

It is an irregular periodic variation in winds and sea surface temperatures over the tropical eastern Pacific Ocean, affecting the climate of much of the tropics and subtropics. The warming phase of the sea temperature is known as El Niño and the cooling phase as La Niña.

Source: [Will there be an El Niño in 2023 and what are the implications?](#) | [NOAA](#)

Source: <https://vajiramandravi.com/current-affairs/what-is-el-nino-and-la-nina/>

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