

ENSO: El Niño

Southern Oscillation

1. WHAT IS ENSO?

A climatic phenomenon involving periodic changes in sea surface temperatures and atmospheric pressure in the equatorial Pacific Ocean.

2. TWO PHASES:

a. El Niño:

- Warmer than normal sea surface temperatures in the central & eastern Pacific.
- Weaker trade winds.
- Suppresses Indian monsoon (↓ rainfall).
- Can cause droughts in India, Australia.
- Warmer winters in Northern Hemisphere.

b. La Niña:

- Cooler than normal sea surface temperatures.
- Stronger trade winds.
- Enhances Indian monsoon (↑ rainfall).
- Can cause floods in India, Australia.

3. SOUTHERN OSCILLATION:

Refers to fluctuations in atmospheric pressure between the western and eastern Pacific.

- Measured using SOI (Southern Oscillation Index).
- Negative SOI → El Niño
- Positive SOI → La Niña

4. GLOBAL IMPACTS:

- Affects monsoons, cyclones, agriculture, fisheries, droughts, and forest fires.
- Influences global temperature patterns.

5. ENSO & INDIA:

- **El Niño:** Weak monsoon, crop failures.
- **La Niña:** Strong monsoon, sometimes floods.
- Critical for agriculture planning and disaster preparedness.

