ENSO

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El Nino Southern Oscillation (ENSO)

Describes the fluctuations in temperature between the ocean and atmosphere **in the east-central Equatorial Pacific**

Significance:

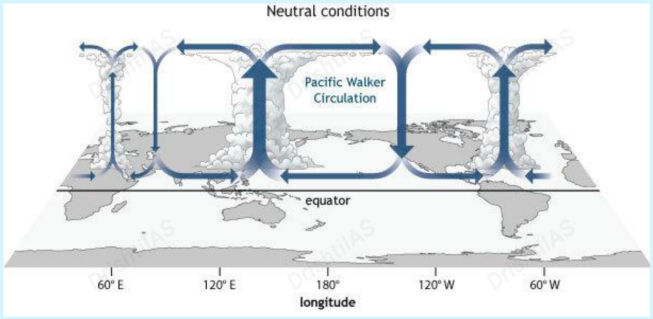
- **Ability to change the global atmospheric circulation, influencing temperature and precipitation** worldwide

States of ENSO:

- The two opposite phases - **El Niño** and **La Niña**
- The middle of the continuum - **Neutral**

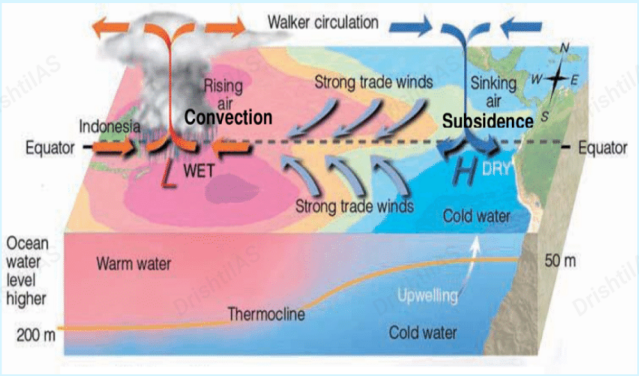
Walker Circulation (WC)

- An **atmospheric system of air flow** in the equatorial Pacific Ocean
  - The trade winds across the tropical Pacific flow from east to west: air rises above the warm waters of the western Pacific, flows eastward at high altitudes, and descends over the eastern Pacific
- WC and ENSO:
  - **A weak/reverse WC produces El Niño**
  - **Stronger WC results in La Niña**



Normal (non ENSO) Conditions in the Pacific Ocean

NEUTRAL ENSO



- **Trade winds (easterlies) blow west** along the equator, taking warm water from S. America towards Asia
- To replace that warm water, **cold water rises from the depths** — a process called **upwelling**
  - **El Niño and La Niña** are two climate patterns that **break these normal conditions**
- During an El Niño, sea level pressure tends to be lower in the eastern Pacific and higher in the western Pacific while the opposite tends to occur during a La Niña
  - This see-saw in atmospheric pressure between the eastern and western tropical Pacific is called the **Southern Oscillation (SO)**

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Infographics: El Nino and La Nina