LA NINA : GEOGRAPHY

NEWS: *Above-normal rain in August, La Nina could intensify September precipitation, says IMD*

WHAT'S IN THE NEWS?

La Niña and Its Impact on India's Rainfall: Key Points

Recent Events and Forecasts:

1. **Rain-Triggered Landslides:**
   - **Location:** Wayanad, Kerala.
   - **Casualties:** Over 200 people killed.
2. **Intense Rainfall:**
   - **Locations:** Uttarakhand and Himachal Pradesh experienced intense rainfall spells.

La Niña Influence:

3. **La Niña Conditions:**
   - **Development:** La Niña or La Niña-like conditions are expected to develop towards the end of August, as stated by Mrutyunjay Mohapatra, Director-General of IMD.
4. **Impact on Monsoon:**
   - **Above-Normal Rainfall:** La Niña conditions are likely to contribute to above-normal rainfall in August and September.
   - **August Rainfall:** Expected to receive normal rainfall.
   - **September Rainfall:** Forecast to be above the average of 17 cm, with IMD anticipating an "above-normal second half" of the monsoon due to La Niña.
5. **Overall Rainfall Expectation:**
   - **Above Normal:** Rainfall from August to September is likely to be above 106% of the Long Period Average (LPA) due to La Niña conditions.

Potential Impacts:

6. **Crop Damage:**
   - **Example:** In Madhya Pradesh, heavy rain in September two years ago damaged the soya bean crop.
   - **Current Concern:** Increased September rainfall, influenced by La Niña, could damage standing crops.
7. **Winter Sowing and Air Pollution:**
   - **Unusually Heavy Rain:** September and October rainfall, influenced by La Niña, can alter winter sowing patterns.
   - **Air Pollution:** Increased rainfall during monsoon retreat can spike air pollution in northern India.

July Rainfall Data:

8. **Rainfall in July:**

- **Average Rainfall:** 30.5 cm across the country, nearly 9% more than normal.
- **Forecast Accuracy:** IMD predicted "above normal" rainfall (6% or more than usual) for July.

9. **Regional Rainfall Distribution:**
   - **Surplus Rain:** Most parts of the country, except northeastern, eastern, and northwestern India, received surplus rain (over 30% of what is usual).
10. **Heavy Rainfall Reports:**
    - **Stations Reporting Heavy Rain:** 1,223 stations reported heavy or very heavy rainfall (defined as 11 cm or more).

Alerts and Warnings:

11. **Kerala Heavy Rain Alerts:**
    - **Initial Alert:** Issued beginning July 29.
    - **Orange Alert:** Signaled preparatory action for authorities.
    - **Red Alert:** Issued on early morning of July 30.
12. **Delhi Rainfall Alerts:**
    - **Scattered Intense Rain:** Occurred on Wednesday evening.
    - **Advance Alerts:** Orange alerts issued two days in advance.

El Niño:

1. **Definition:**
   - **Warm Phase:** Characterized by unusual warming of surface waters in the eastern tropical Pacific Ocean.
   - **Part of ENSO:** The "warm phase" of the El Niño-Southern Oscillation (ENSO) cycle.
2. **Frequency and Duration:**
   - **Occurrence:** Every 2 to 7 years.
   - **Duration:** Typically lasts 9 to 12 months.
3. **Global Impacts:**
   - **Increased Rainfall:** Heavy rains and flooding in South America.
   - **Droughts:** Drought conditions in Indonesia and Australia.
   - **Ocean Conditions:** Disrupts upwelling, affecting fisheries.
   - **Positive Effects:** Reduces hurricane activity in the Atlantic.
4. **Monitoring:**

- **Technologies:** Scientific buoys measure ocean and air temperatures, currents, and humidity.
- **Oceanic Niño Index (ONI):** Measures deviations in sea surface temperatures.

5. **Effect on India:**
   - **Weaker Monsoons:** El Niño often weakens the Indian monsoon, leading to reduced rainfall.
   - **Drought Risks:** Can contribute to drought conditions in India, impacting agriculture and water resources.

La Niña:

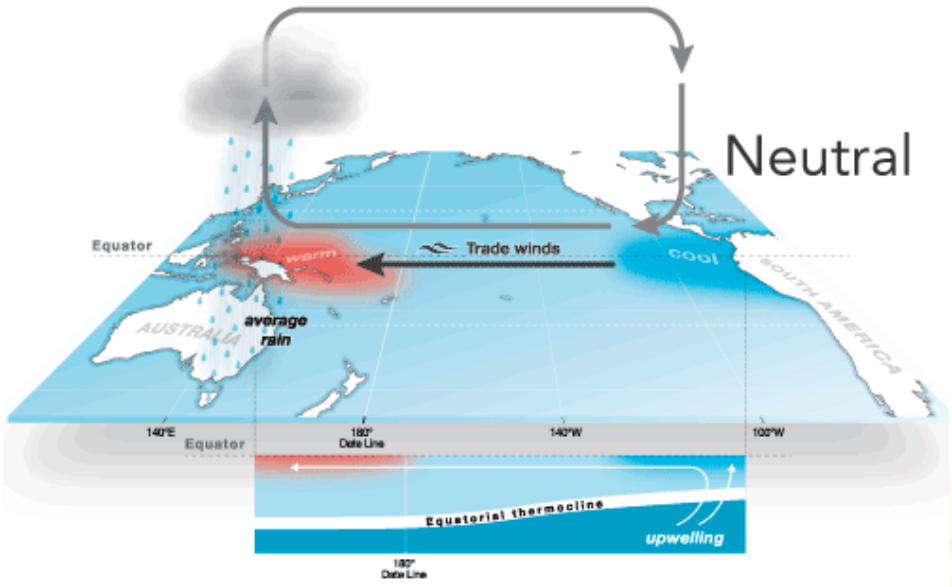
1. **Definition:**
   - **Cool Phase:** Characterized by unusual cooling of sea surface temperatures in the eastern tropical Pacific Ocean.
   - **Part of ENSO:** The "cool phase" of the El Niño-Southern Oscillation (ENSO) cycle.
2. **Frequency and Duration:**
   - **Occurrence:** Every 4 to 5 years.
   - **Duration:** May last from 1 to 3 years.
3. **Global Impacts:**
   - **Increased Rainfall:** Brings enhanced rainfall to southeastern Africa and northern Brazil.
   - **Droughts:** Causes droughts in South America and Australia.
   - **Extreme Weather:** Associated with severe floods in northern Australia.
   - **Fishing Industry:** Beneficial for fisheries in western South America.
4. **Monitoring:**
   - **Conditions:** Measured by a decrease in sea surface temperatures of more than 0.9°F over five consecutive three-month periods.
5. **Effect on India:**
   - **Stronger Monsoons:** La Niña typically leads to more intense monsoon rains in India, benefiting agriculture.
   - **Colder Winters:** Can bring cooler winter temperatures to India.

- **Enhanced Rainfall:** Increased monsoon rains can improve water availability and agricultural productivity.

ENSO Cycle:

1. **Definition:**
   - **El Niño and La Niña:** Opposite phases of the El Niño-Southern Oscillation (ENSO) cycle, describing fluctuations in temperature between the ocean and atmosphere in the equatorial Pacific.

Source : https://epaper.thehindu.com/ccidist-ws/th/th_international/issues/93390/OPS/GSVD4V63J.1+GSED5292T.1.html


Neutral
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Trade winds
warm
cool
average rain
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SOUTH AMERICA
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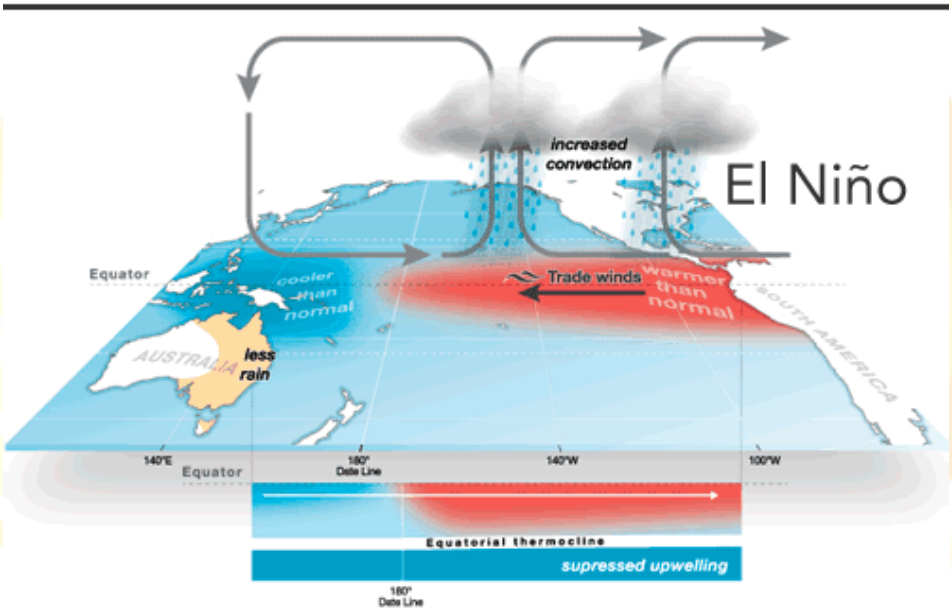
100°W
Equator
Equatorial thermocline
upwelling
180° Date Line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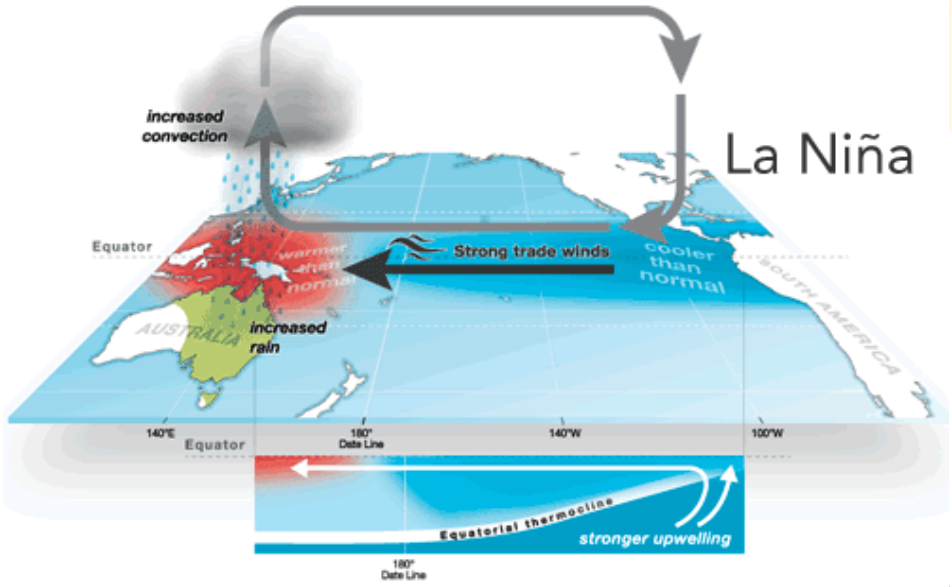
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