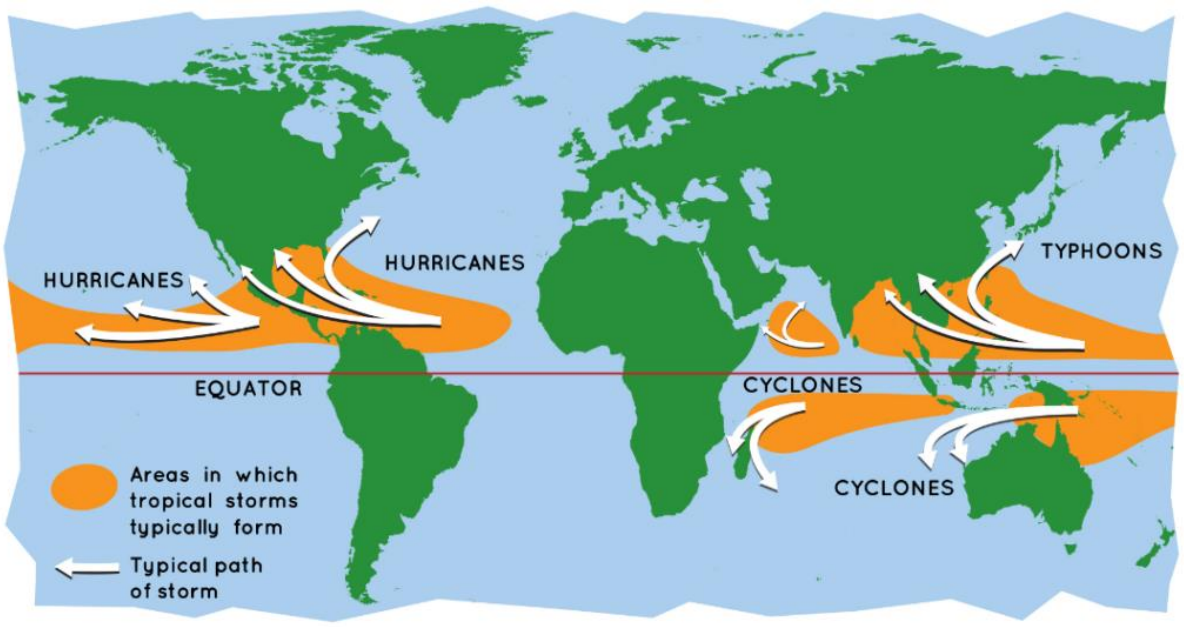
ATLANTIC OCEAN HURRICANE FORECAST : GEOGRAPHY

NEWS : What do the Atlantic Ocean hurricane forecasts foretell for India?

WHAT'S IN THE NEWS ?

The article discusses the challenges and unpredictability in forecasting hurricanes and cyclones, particularly in the context of changing climate patterns.It highlights India's progress in disaster management while emphasising the vulnerabilities posed by chronic and acute climate stressors.



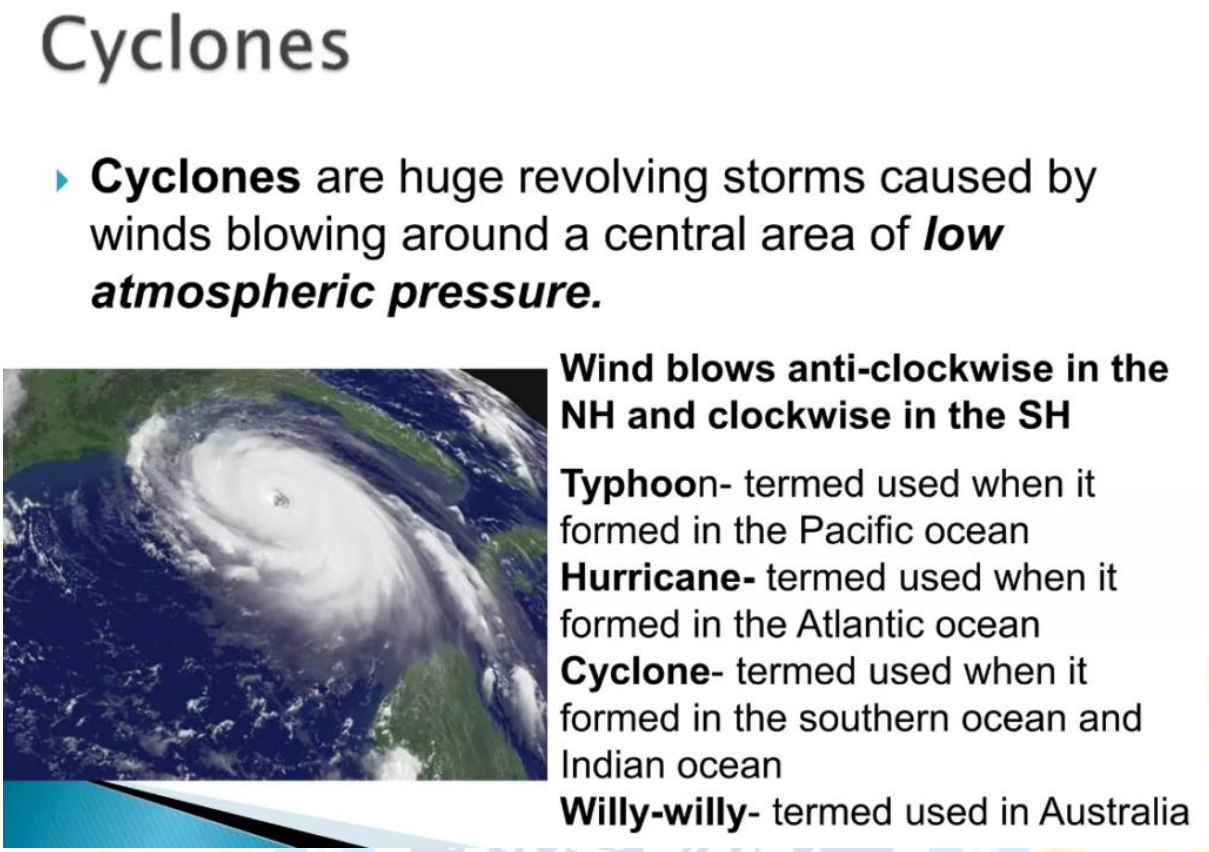
Global Climate Stressors Impacting the Indian Ocean Region

- **Chronic Stressors**: These are long-term, consistent issues such as rising sea levels, warming oceans, and increased extreme rainfall events. These stressors gradually affect the ecosystem, making the region more prone to acute events like cyclones.
- **Acute Stressors**: These are sudden, intense events like cyclones, heavy rainfall, and flash droughts that cause immediate and severe damage. They often worsen the impact of chronic stressors.

Hurricane and Cyclone Forecasts

- **2024 Forecast**: Meteorologists predicted a historic hurricane season due to expected La Niña conditions. Early hurricanes (Helene, Milton) occurred, but the strong La Niña didn't fully materialize.
- **El Niño and La Niña Effects**: Traditionally, **El Niño** suppresses cyclone activity, while **La Niña** intensifies it. However, global warming has disrupted this predictable relationship.

Tropical Cyclones



- **Definition**: A tropical cyclone is a powerful storm that forms over warm oceans, characterized by low atmospheric pressure, strong winds, and heavy rainfall. They are known by different names depending on the region: hurricanes (Atlantic), typhoons (Pacific), and cyclones (Indian Ocean).
- **Rapid Intensification**: Cyclones can intensify rapidly, with wind speeds increasing by more than 55 km/h in less than 24 hours, especially as ocean waters warm.

El Niño

- **Definition**: El Niño is a periodic warming of the sea surface in the central and eastern Pacific Ocean. This disrupts global weather patterns and tends to reduce rainfall in India.
- **Impact on India**: El Niño results in reduced monsoon rains, which negatively affects Indian agriculture, as the country relies heavily on monsoon rains for crop production.

La Niña

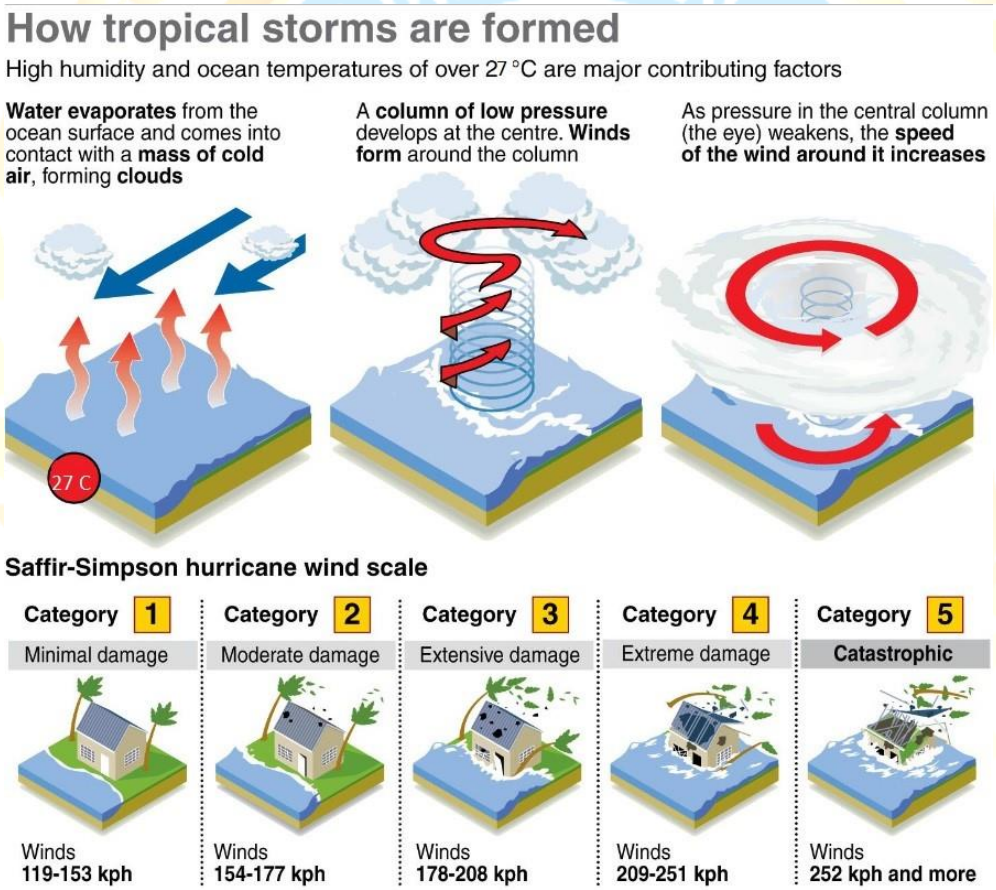
- **Definition**: La Niña is the opposite of El Niño, involving a cooling of ocean surface temperatures. It typically brings more rainfall to India, which can increase the risk of floods.
- **Global Impacts**: La Niña leads to drier-than-usual conditions in East Africa and central Asia, while causing increased rainfall in Southeast Asia and the northern region of South America.

Cyclone Activity in the North Indian Ocean

- **Trends**: The Arabian Sea and Bay of Bengal have seen an increasing number of cyclones. While the region has been quieter recently, predicting cyclone patterns remains difficult.

India's Progress in Cyclone Forecasting and Disaster Management

- **Improved Forecasting**: India has made significant advancements in cyclone forecasting through early warning systems, greatly reducing the loss of lives during such events.
- **Geographical Advantage**: Cyclones in the Arabian Sea and Bay of Bengal tend to be limited in size and often avoid the Indian mainland, reducing potential damage.



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