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1 Tsunami (Source: The Indian Express)

A *Tsunami* (a Japanese word meaning "harbour wave") is a series of giant ocean waves caused by a large-scale, sudden displacement of water, usually in an ocean.

Causes of Tsunami

- **Undersea Earthquakes (Most Common):** Occur primarily at convergent plate boundaries (subduction zones) where one tectonic plate slides under another. The sudden vertical displacement of the seabed displaces the water column above.
- **Underwater Landslides:** Massive slumping of marine sediments or volcanic flanks displaces water rapidly.
- **Volcanic Eruptions:** Submarine eruptions or violent coastal eruptions (e.g., the Hunga Tonga-Hunga Ha'apai eruption in 2022) can trigger tsunamis through explosive displacements or caldera collapses.
- **Meteorite Impacts:** Rare, but highly catastrophic potential causes.

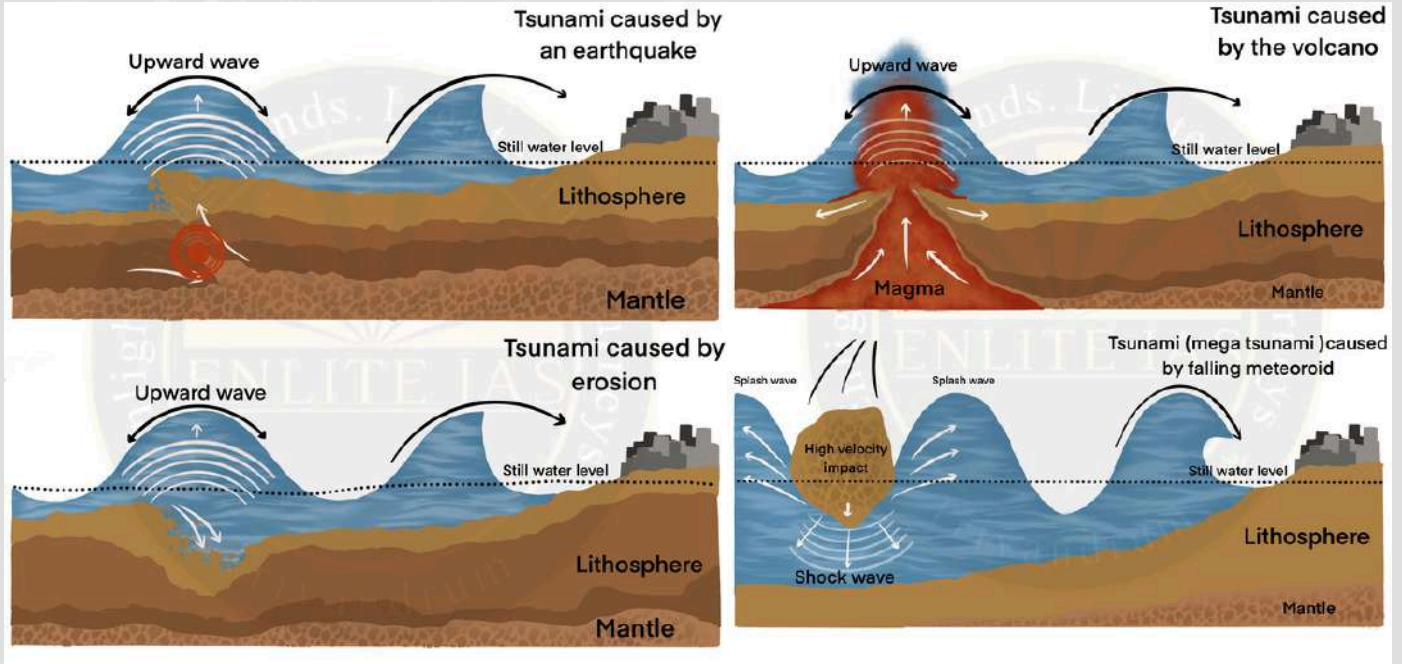
Vulnerable Regions

- **Global**
 - **The Pacific "Ring of Fire":** Around 80% of the world's tsunamis occur here due to intense tectonic activity and subduction zones (e.g., the 2011 Tohoku Tsunami in Japan).
- **India**
 - **Andaman-Sumatra Subduction Zone:** Triggered the catastrophic December 26, 2004, Indian Ocean Tsunami.
 - **Makran Subduction Zone:** Located in the Arabian Sea (off the coast of Pakistan/Iran).

Management and Mitigation

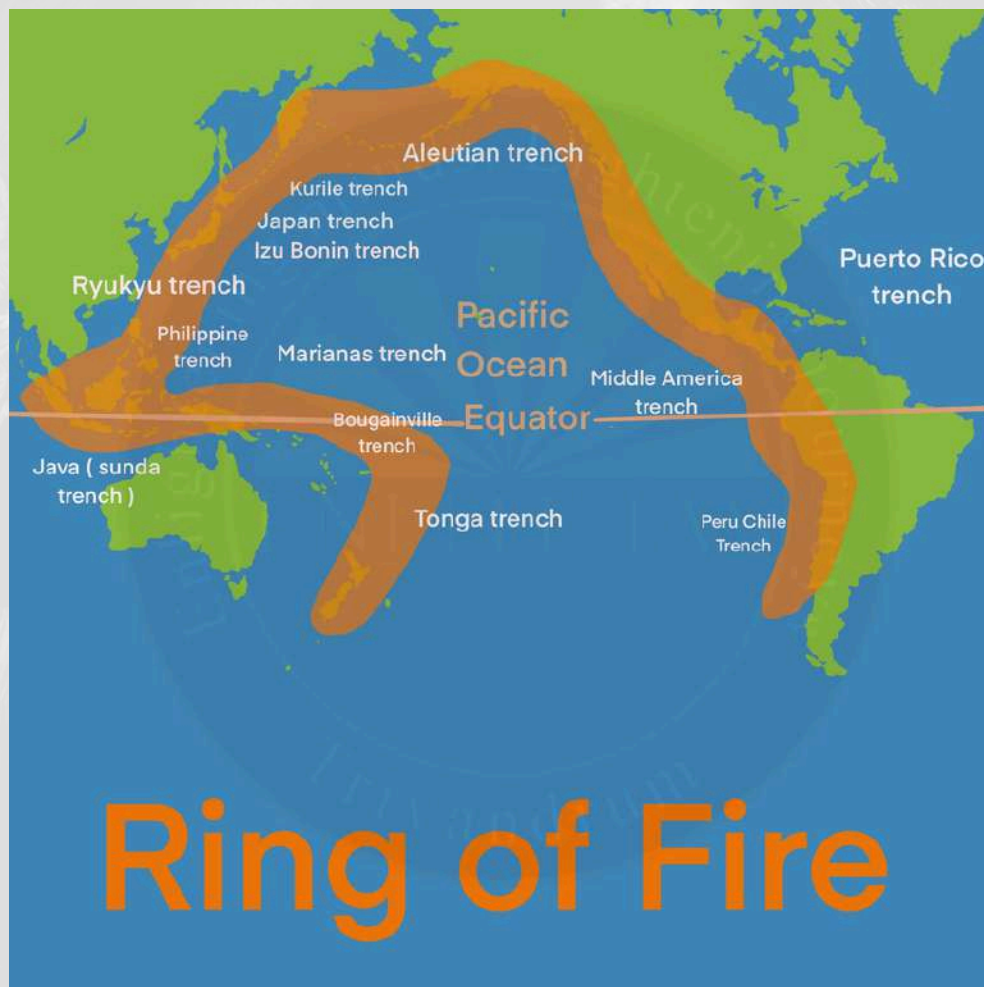
- **India**
 - **ITEWS (Indian Tsunami Early Warning System):** Established in 2007, it is operated by the Indian National Centre for Ocean Information Services (INCOIS) in Hyderabad.
- **Global**
 - **Sendai Framework for Disaster Risk Reduction (2015-2030):** Emphasizes "Building Back Better" and reducing global disaster mortality.
 - **UNESCO's "Tsunami Ready" Program:** A community performance-based program

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2 Reasons Why Earthquakes Are Common in the Philippines (Source: The Indian Express)

- **Pacific Ring of Fire:** The Philippines is located on this horseshoe-shaped zone surrounding the Pacific Ocean, which accounts for ~90% of global earthquakes and ~75% of active volcanoes
- **Multiple Plate Boundaries:** Movement of multiple tectonic plates in the region, such as the Philippine Sea Plate, Eurasian Plate, and Sunda Plate.
- **Subduction Zones:** The country has several major trenches where one plate sinks beneath another, such as the Cotabato, Manila, Negros, and Sulu Trenches.
- **Philippine Mobile Belt:** The entire archipelago lies within this seismically active zone, where plates constantly collide, slide, and crash, building enormous stress that releases as earthquakes



Ring of Fire



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3 United Nations Framework Convention on Climate Change (UNFCCC) (Source: Down To Earth)

It is an international treaty formed in the Rio Earth Summit (1992) to coordinate the global response to climate change.

- **Headquarters:** Bonn, Germany
- **Objectives**
 - The primary role of UNFCCC is to provide a framework for negotiating specific international treaties, known as “protocols.”
 - UNFCCC itself sets no binding limits but aims to stabilize greenhouse gas (GHG) concentrations in the atmosphere at a level preventing dangerous consequences.
- **Funding:** Under the Green Environment Fund (GEF)
- **Major COPs and Outcomes**
 - **COP 3 (1997):** Kyoto Protocol (First treaty with binding emission reduction targets for developed countries)
 - **COP 7 (2007): Marrakech Accords** (Detailed rules for Kyoto Protocol; established **Adaptation Fund** for developing countries)
 - **COP 11 (2005):** Montreal Action Plan (Extended Kyoto Protocol beyond 2012; negotiated deeper emission cuts)
 - **COP 13 (2007):** Bali Action Plan
 - **COP 16 (2010):** Established the Green Climate Fund (GCF).
 - **COP 21 (2015):** Paris Agreement and Nationally Determined Contributions (NDCs).
 - **COP 26 (2021):** Glasgow Climate Pact (First explicit mention of "phasing down coal")
 - **COP 27 (2022):** Loss and Damage Fund established for vulnerable nations; Sharm el-Sheikh Implementation Plan; kept 1.5°C alive
 - **COP 28 (2023):** Dubai Agreement (First Global Stocktake; signaled "beginning of the end of fossil fuel era"; tripling of climate finance)
 - **COP 29 (2024):** \$300 billion/year climate finance target by 2035 for developing countries; operationalized Paris Agreement Articles 6.2 & 6.4.
 - **COP 30 (2025):** Belém Package (Tripled adaptation funding by 2035; launched Just Transition Mechanism; strengthened tropical forest protection)