

Earthquakes

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Earthquakes Latest News

A 7.7-magnitude earthquake struck central Myanmar on March 29, 2025, causing significant destruction in Mandalay and claiming at least 144 lives.

About Earthquakes

- **Earthquake:** Sudden **shaking or trembling** of the Earth's surface due to the **release of stored energy** in the Earth's crust or upper mantle.
- **Focus (Hypocentre):** The **point within the Earth** where the earthquake originates.
- **Epicentre:** The **point on the surface** directly above the focus.
- **Seismograph:** An **instrument** used to **detect and measure** earthquakes.
- **Isoseismic line:** A line connecting points on the surface **experiencing the same intensity**.

Types of Seismic Waves

Type	Description	Speed
Primary (P) Waves	Fastest , travel through solids, liquids, and gases	Fastest
Secondary (S) Waves	Travel through solids only , cause more damage	Slower than P-waves
Surface Waves	Slowest , cause maximum destruction	Slowest

Causes of Earthquakes

- **Fault zones:** Most earthquakes occur along **fault lines**, where **stress builds up** due to **tectonic movements**.
- **Major faults:**
 - **Thrust faults** (Convergent boundary) → **Most powerful quakes** (Magnitude **8+**).
 - **Strike-slip faults** (Transform boundary) → **Horizontal movement** (e.g., **Sagaing Fault, San Andreas Fault**).
 - **Normal faults** (Divergent boundary) → **Less intense quakes** (Magnitude **<7**).
- **Plate Tectonics:** **Tectonic movement at plate boundaries** can trigger earthquakes:
 - **Convergent Boundaries** → **Subduction zones**, causing **megathrust earthquakes** (e.g., **2004 Indian Ocean earthquake**).
 - **Divergent Boundaries** → **Spreading ridges** generate **mild earthquakes**.
 - **Transform Boundaries** → **Horizontal movement** of plates leads to **strike-slip earthquakes** (e.g., **Sagaing Fault, San Andreas Fault**).
- **Volcanic activity:** **Magma movement** inside volcanoes can cause **volcanic earthquakes**.
 - **Myanmar** has **active volcanoes**, contributing to **seismic activity**.
- **Human-induced earthquakes:** **Mining, dam construction, and deep drilling** can trigger **artificial seismic activity**.

Why Does Myanmar Experience Frequent Earthquakes?

- **Tectonic Setting:** Myanmar lies at the **junction of three major tectonic plates**:
 - **Indian Plate** (moving northward)
 - **Eurasian Plate** (moving southward)
 - **Burma Microplate** (moving eastward)
- The **Sagaing Fault**, a **strike-slip fault**, runs **north-south** through **central Myanmar**, making it **highly prone to seismic activity**.

Earthquakes FAQs

Q1. What causes earthquakes?

Ans. Earthquakes are caused by the sudden release of energy due to the movement of tectonic plates along faults.

Q2. What is the difference between the Richter scale and the Mercalli scale?

Ans. The Richter scale measures earthquake magnitude (energy released), while the Mercalli scale measures the intensity and impact on people and structures.

Q3. What are the major earthquake-prone zones in India?

Ans. India has four seismic zones. Zone V (most active) includes regions like the Himalayas and the Northeast, while Zone II (least active) includes central and southern India.

Q4. What is the significance of the Ring of Fire in earthquakes?

Ans. The Ring of Fire is a highly seismically active zone in the Pacific Ocean where most of the world's earthquakes and volcanic eruptions occur due to subduction zones.

Q5. What are the mitigation strategies for earthquakes?

Ans. Earthquake mitigation includes retrofitting buildings, enforcing seismic-resistant construction codes, early warning systems, and public awareness programs.

Source: IE

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