

Earthquake in Uttarkashi | Uttarakhand | 24 Jan 2025

Why in News?

According to the <u>National Center for Seismology (NCS)</u>, an <u>earthquake</u> of magnitude 3.5 on the Richter scale hit Uttarkashi in Uttarakhand.

The earthquake, which occurred at a depth of 5 km, is part of a sequence of seismic events, with another earthquake of magnitude 4.8 reported earlier in Myanmar.

Key Points

- Uttarkashi and Seismic Sensitivity:
 - Uttarkashi is located in the <u>Himalayan seismic belt</u>, making it highly prone to earthquakes.
 - The region has previously experienced destructive earthquakes, including the Uttarkashi earthquake (6.8 magnitude) in 1991 and the Chamoli earthquake in 1999.
- Geological Factors and Vulnerability:
 - The region is seismically active due to the collision between the <u>Indian Plate</u> and the <u>Eurasian Plate</u>.
 - Unchecked construction and deforestation have worsened the situation, increasing the risk of destruction in case of major earthquakes.
 - Uttarkashi and surrounding cities like Dehradun, Nainital, and Mussoorie are densely populated, adding to the vulnerability during seismic events.

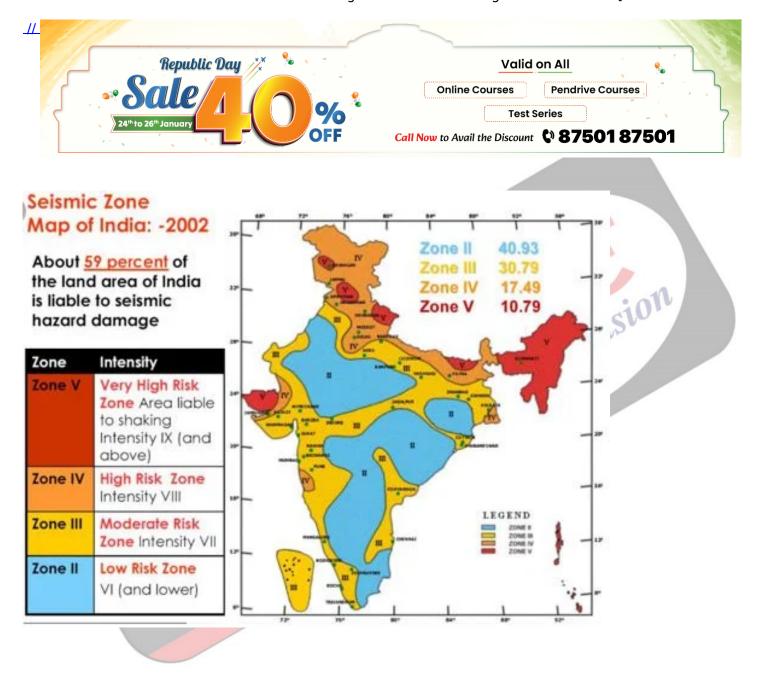
Earthquake

- About:
 - An earthquake is the shaking of the Earth's surface caused by the sudden release of energy beneath the Earth's crust.
 - This natural event generates seismic waves that travel in all directions through the Earth, resulting in ground movement.
- Key Terms Related to Earthquake:
 - Hypocenter: The location beneath the Earth's surface where the earthquake originates.
 - Epicenter: The point on the Earth's surface directly above the hypocenter, where the strongest shaking is felt.
 - Types of Earthquakes:
 - **Fault Zones:** Earthquakes that occur due to the movement along fault lines in the Earth's crust.
 - **Tectonic Earthquakes:** Result from the movement of tectonic plates beneath the Earth's surface.
 - **Volcanic Earthquakes:** Caused by volcanic activity, typically due to the movement of magma beneath the Earth's surface.
 - **Human-Induced Earthquakes:** Earthquakes triggered by human activities, such as mining or the injection of fluids into the ground.
 - Scales of Measuring Earthquakes
 - Magnitude Scale:
 - The magnitude of an earthquake refers to the amount of energy released.

This is **measured using the Richter scale**, which ranges from 0 to 10, with each number representing a tenfold increase in amplitude. It provides a measure of the earthquake's strength.

• Intensity Scale:

• The intensity of an earthquake refers to the level of shaking experienced and the damage caused. The **Mercalli intensity scale**, developed by Italian seismologist Giuseppe Mercalli, ranges from 1 to 12, with higher numbers indicating more severe shaking and destruction.]



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