Earthquake in Uttarkashi

Why in News?

According to the **National Center for Seismology (NCS)**, an **earthquake** **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 **Himalayan seismic belt,** 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 **Indian Plate** and the **Eurasian Plate.**
  - 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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