

Earthquakes: Tremors from Below – How Do Scientists Study Earthquakes?

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How Do Scientists Study Earthquakes?

Around five million people are affected by earthquakes every year — so it's not surprising that people want to know when the next big one will hit. But earthquakes are unpredictable. That's because there's no way to tell exactly when the rocks will snap from stress that builds up as the plates move. So what can scientists do? They calculate the probability that an earthquake will occur at a particular location.

Explore Some of the Tools that Scientists Use to Measure, Record, and Study Earth's Movements



Scientists use the Global Positioning System (GPS) to monitor day-to-day plate movements. GPS satellites orbiting Earth send radar signals to receivers on the ground.
Image courtesy of U.S. Government



With GPS receivers like this one, scientists can use GPS data to measure tiny plate movements along fault lines. GPS also helps them measure plate movement after an earthquake.
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Seismometers measure the seismic activity, or shaking, in Earth's crust. Today, networks of hundreds of seismometers are at work around the world. They measure more than 100,000 earthquakes every year!
Photo by Karl Hagel/USGS



A seismogram is a recording of an earthquake's intensity. The greater the peaks on the graph, the greater the shaking — and the greater the shaking, the greater the earthquake's magnitude.
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When an undersea earthquake occurs, scientists use computer models to predict whether a tsunami will occur. The model can forecast the wave's speed, direction, and height as it approaches land. Local authorities can then warn communities that might be in danger.