

Earthquakes



TWENTY

Earthquakes

History

Earthquakes have been around since the formation of the Earth. Some of the most notable and deadly earthquakes in history include the following:

Date	Location	Deaths	Magnitude
January 23, 1556	China, Shansi	830,000	8
July 27, 1976	China, Tangshan	655,000	7.5
Dec. 26, 2004	Sumatra, Indonesia	227,898	9.1
Jan. 12, 2010	Haiti	222,570	7.0
September 1, 1923	Japan, Kanto	143,000	7.9
October 5, 1948	USSR	110,000	7.3
Oct. 8, 2005	Pakistan	85,000	7.6

How They Work

Earthquakes occur when two pieces of the Earth's crust move or slip past one another along a fault line or plane. The location at which this occurs is known as the hypocenter, which is below the surface of the earth, and the epicenter, which is above the surface.

A foreshock, which is a series of smaller earthquakes, usually precedes the main shock, which is the primary earthquake event. Aftershocks occur after the main shock and can continue for weeks, months, and possibly years.

So what actually causes earthquakes? The Earth originally formed as a series of tectonic plates that fit together like a puzzle. The edge of each plate is made up of many rough faults, and because the plates are constantly moving, the edges get caught up in the faults. When the plate has moved a significant amount, the edges eventually get unstuck from the faults and this leads to an earthquake.

The constant movement results in a significant amount of energy being stored up in the rock and as the plates become unstuck, this energy gets released through seismic waves that travel to the Earth's surface. If this occurs on or very near land, you feel the Earth shake. If it happens out to sea, the disturbance can cause a massive tidal wave known as a tsunami.



Current Applicability

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The intensity of an earthquake is usually dependent on the actual visible effects of the earthquake i.e. people awakening, movement of furniture, building collapse, and total destruction. Although many scales have been developed, the one currently used in the U.S. is the Modified Mercalli Intensity (MMI) Scale, which is comprised of 12 levels, with 1 not felt by very many to 12, which is catastrophic.

Human Impact

The effects earthquakes have on people are dependent on certain variables. The shear power of the quake will mainly determine its effects but so will its location, time of year, etc. A high magnitude earthquake can knock over buildings, which obviously can be very harmful to your health if you are in



the vicinity. Following a devastating earthquake, people are without shelter, food, water, proper sanitation, and other medical supplies. Depending on the location of the earthquake, it can take time for aid to arrive leaving people in desolation for extended periods of time.

In order to prepare yourself and your family, precautionary steps should be taken. Canned food and bottled water, medical supplies, extra medication, batteries and a radio should be easily accessible at all times. Furthermore, all household members should be aware of the families evacuation plan and know where to meet should they become separated. Practice runs of this emergency plan are recommended.

Environmental Impact

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Future

Scientists are currently monitoring and measuring data from the earth in order to determine when and where the next big earthquakes will occur. The following three places are likely to experience an earthquake in the future: Tehran, Iran; Istanbul, Turkey; and Los Angeles, California. For example, there is more than a 66% chance that the Los Angeles area will be hit by a magnitude 6.7 or larger earthquake by 2038 (source: U.S. Geological Society Report).

Many earthquake prone areas attempt to mitigate the potential destruction by building “earthquake proof” buildings that are meant to absorb and dissipate the massive amount of energy without collapsing. However, no matter how much money these countries allocate to prepare and plan for a major earthquake, there is only really so much that can be done to protect the population against a devastating earthquake.

Reading Comprehension Questions:

1. What causes an earthquake?
2. What is
3. What’s the difference between the magnitude and intensity of an earthquake?
4. Earthquakes
5. Describe how an earthquake can negatively affect the environment.
6. Why
7. Someone wants to know about earthquakes. Summarize what you know about them in 100 words or less.

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TWF READING

References

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