



Heartland Science



Ohio's Legacy of Discovery & Innovation



Medicine, Health & Science

From the Heimlich Maneuver
to the Speed of Light

Ohio Name on the Scale

Charles F. Richter (1900–1985) was born in Ohio where he lived until age 16. He developed the scale to measure earthquake intensity that bears his name. The Richter scale, invented by Richter in 1934, is used around the world. The Richter magnitude is calculated from the amplitude of the largest seismic wave recorded for the earthquake.



Richter magnitudes are based on a logarithmic scale. This means that for each single number of increase on the scale the amplitude of motion of the ground increases tenfold. Numbers for the Richter scale range from 0 to 9, but no real upper limit exists. The 1906 San Francisco earthquake was measured as 7.8 on the Richter scale. More recently, the Alaskan earthquake of 1964 was 9.2; the 1995 earthquake in Kobe, Japan, reached 6.9; and the 1999 earthquake in Izmit, Turkey, measured 7.6, and the 2004 earthquake in the Indian Ocean measured 9.0.



Originally, the Richter Scale could be applied to records from instruments that were manufactured identically. Over time, instruments were calibrated with respect to each other so magnitude could be determined from any calibrated seismograph machine.



The Richter Scale

- Magnitude 2.5 or less is usually not felt. 900,000 are recorded annually by seismograph.
- Magnitude 2.5 to 5.4 is frequently felt, but usually results in only minor damage. 30,000 are estimated each year.
- Magnitude 5.5 to 6.0 can cause slight damage to buildings and other structures. There are an average of 500 of these per year.
- Magnitude 6.1 to 6.9 may cause heavy damage, especially in highly populated areas. There are about 100 at this level per year.
- Magnitude 7.0 to 7.9 is considered a major earthquake that can result in serious damage. 20 are usually reported a year.
- Magnitude 8.0 or greater is a formidable earthquake. One will take place every five to ten years, and its power can wipe out whatever is near the epicenter.

Find out more...

- [An Interview with Charles F. Richter](http://gldss7.cr.usgs.gov/neis/seismology/people/int_richter.html)
(http://gldss7.cr.usgs.gov/neis/seismology/people/int_richter.html)
- [Recent Earthquake Activity in the USA](http://earthquake.usgs.gov/recenteqs/)
(<http://earthquake.usgs.gov/recenteqs/>)
- [Recent Earthquake Activity in the World](http://earthquake.usgs.gov/recenteqsww/)
(<http://earthquake.usgs.gov/recenteqsww/>)
- [U.S. Geological Survey Information About Past and Historical Earthquakes](http://earthquake.usgs.gov/activity/past.html)
(<http://earthquake.usgs.gov/activity/past.html>)