

# How shallow, deep earthquakes differ

August 26 2016, by Alicia Chang

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Military personnel clear debris at a temple that was damaged by a strong earthquake in Bagan, Myanmar, Thursday, Aug. 25, 2016. Using brooms and their hands soldiers and residents of the ancient Myanmar city famous for its historic Buddhist pagodas, began cleaning up the debris from a powerful earthquake that shook the region and damaged nearly 200 temples Wednesday. (AP Photo/Min Kyi Thein)

Italy's earthquake was a lot weaker than the one in Myanmar, but it did far more damage because it happened at a shallower depth. The Associated Press explains the difference between shallow and deep

earthquakes.

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## EARTHQUAKE MAGNITUDE IS MORE THAN JUST A NUMBER

A quake's destructive force depends not only on its strength, but also on location, distance from the epicenter and depth. Quakes can strike near the surface or deep within the Earth. Most quakes occur at shallow depths, according to the U.S. Geological Survey. Italy's quake was very shallow, originating between 2 1/2 miles (4 kilometers) and 6 miles (10 kilometers) underground, according to Italy's geological service and the USGS. The magnitude measurements also varied slightly—between magnitude 6 and 6.2. By contrast, the 6.8 quake in Myanmar was deeper—at 52 miles (84 kilometers), which is considered an intermediate depth.

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## SHALLOW QUAKES ARE LIKE 'A BOMB'

Shallow quakes generally tend to be more damaging than deeper quakes. Seismic waves from deep quakes have to travel farther to the surface, losing energy along the way. Shaking is more intense from quakes that hit close to the surface like setting off "a bomb directly under a city," said Susan Hough, a USGS seismologist. The Italy quake devastated three towns, home to medieval structures built before there were building codes. Many buildings were made of brick or stone, which can fall apart during shaking. "They're very quaint, but they don't withstand earthquakes very well," Hough said.



Rescuers search through debris of collapsed houses in Pescara del Tronto, Italy, Wednesday, Aug. 24, 2016. The magnitude 6 quake struck at 3:36 a.m. (0136 GMT) and was felt across a broad swath of central Italy, including Rome where residents of the capital felt a long swaying followed by aftershocks. (AP Photo/Sandro Peruzzi)

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## DEEP QUAKES STRIKE FAR AND WIDE

While deep quakes may be less damaging, they're usually more widely felt. Most of the destruction in the Myanmar quake was centered in the tourist town of Bagan where nearly 100 brick pagodas dating back centuries were damaged. At least four people were killed in the Myanmar temblor, which also shattered ancient Buddhist pagodas.



This photo provided by Soe Thura Lwin shows a damaged temple in Bagan, Myanmar, on Wednesday, Aug. 24, 2016. A powerful earthquake measuring a magnitude 6.8 shook central Myanmar on Wednesday, damaging scores of ancient Buddhist pagodas in Bagan, a major tourist attraction, officials said. (Soe Thura Lwin via AP)



Military personnel stand as they clear debris at a temple that was damaged by a strong earthquake in Bagan, Myanmar, Thursday, Aug. 25, 2016. Using brooms and their hands soldiers and residents of the ancient Myanmar city famous for its historic Buddhist pagodas, began cleaning up the debris from a powerful earthquake that shook the region and damaged nearly 200 temples Wednesday. (AP Photo/Hkun Lat)

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