

Italy quake struck notorious seismic hotspot

August 24 2016



Rescuers and firemen search the rubble of buildings in Amatrice, central Italy on August 24, 2016 following the earthquake that struck before dawn

The deadly earthquake that struck central Italy before dawn Wednesday occurred in a notorious seismic hotspot, and dangerous aftershocks are possible, scientists said.

The US Geological Survey (USGS) reported that the quake occurred 10 kilometres (six miles) southeast of Norcia, measuring 6.2 on the moment magnitude scale and striking at a shallow depth of only 10 km (6.2

miles).

"Earthquakes are quite common in this part of central Italy," said Bill McGuire, emeritus professor of geophysical hazards at University College London (UCL), pointing to the complex tectonics of the Apennines—the country's mountainous "spine."

"Although the region is not on a [tectonic plate boundary](#), there are many active faults in the region, accumulating strain and releasing it periodically in moderate earthquakes of around magnitude 6," he told the Science Media Centre (SMC).

But, he said, the record also shows that plus-6 quakes have also occurred in these regions.

They often happen near the surface—something that makes a big difference in their impact.

The moment magnitude scale is logarithmic, which means an increase of one unit (1.0) is equal to around 32 times more energy released in the event.

Italy: the worst quakes in recent years



Rescuers and firemen search the rubble of buildings in Amatrice, central Italy on August 24, 2016 following the earthquake that struck before dawn

And the closer the event is to the surface, the more shaking there is on the ground.

Previous big quakes

Over the last seven centuries, there have been "between 20 and 30"

large, damaging quakes in the central Apennines, said Joanna Faure Walker, a lecturer at UCL's Institute for Risk and Disaster Reduction.

In 1703, three very powerful quakes, all above magnitude six, hit the central Apennine region encompassing Norcia in less than three weeks, killing an estimated 10,000 people.

In January 1915, a 6.7-magnitude quake near Avezzano, around 70 kms to the southwest of Wednesday's event, killed about 32,000 people.



Rescuers carry the body of a victim away from the rubble of buildings in Amatrice, central Italy following the earthquake

In September 1997, a 6.0-magnitude quake 50 kms to the northwest

killed 11 people and destroyed more than 80,000 homes in the Marche and Umbria regions, according to the USGS website.

And in April 2009, a 6.3-magnitude event 45 kms to the southeast, at the historic city of L'Aquila, killed around 300 people.

Italy's National Institute of Geophysics and Vulcanology estimated Wednesday's event at 6.0 [magnitude](#) and placed its epicentre in Riete province, near the towns of Accumoli and Amatrice, at a depth of four kms.

Seismologists pointed to the risk of aftershocks, which posed a threat to survivors and rescue teams because they could bring down damaged structures.

"Aftershocks are likely to continue for several weeks," said Sandy Steacy of the University of Adelaide, Australia.



Firemen and rescuers search destroyed buildings in Amatrice, central Italy following the quake early on August 24, 2016

"These earthquakes cause disproportionate damage for their size because they shake structures weakened in previous events," Steacy said.

Wednesday's quake will be a test of Italy's construction codes, the experts added.

Much of the building stock in the area is old, and retrofitting it to withstand expected earthquakes is expensive.

"I doubt if it has been undertaken to any significant degree. It always comes down to money and a will to get this done, which is not always evident," McGuire told the SMC.

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