

Eastern earthquake unusual but not remarkable

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*~ Charles Ammon
Penn State professor
of geoscience*

(PhysOrg.com) -- The earthquake that shook University Park and the entire northeast yesterday afternoon (Aug. 23) was unusual in its strength but not an unusual event, according to a Penn State geophysicists.

"It is unusual to have an earthquake of this size on the east coast, but it is not unusual to have earthquakes in this area," said Kevin P. Furlong, professor of geosciences at Penn State. "This is on the higher end of earthquakes in this area, but not unheard of."

The earthquake, which occurred at 1:51 p.m., was centered on Mineral, Va., about 92 miles southwest of Washington, D.C. and northwest of Richmond, Va. The earthquake epicenter was 270 miles from the University Park campus. It also was felt in Toronto, along the east coast

and at least as far west as Flint, Mich.

"The fact that it was felt 300 miles away shows that it was a strong earthquake," said Furlong. The U.S. Geological Survey now estimates the [magnitude](#) of the earthquake at 5.8 and, according to Furlong, we may not feel any of its aftershocks this far away in Pennsylvania.

"This afternoon, since the original 5.8 earthquake occurred the U.S.G.S. has recorded two earthquake aftershocks, one 2.8 and one 2.2 in magnitude," said Charles Ammon, professor of [geoscience](#) at Penn State.

The aftershocks also were recorded in the Earth and Mineral Sciences museum on their seismographs, but were not felt by anyone in the area.

"The key thing to remember is that this [fault line](#) is probably only two to three miles long and the aftershocks will occur in the same area or nearby, probably within two or three miles of the original earthquake," said Furlong.

Historically there were large earthquakes on the east coast of the United States in the 1700s and 1800s. The Cape Ann earthquake in Massachusetts took place in 1755 and was probably between 6.0 and 6.3. In 1886, an earthquake in Charleston, S.C., was between 6.6 and 7.3. The strengths of these earthquakes are estimates as there were no seismic recording devices at the time and reports relied on eyewitness accounts.

"This region of Virginia is part of the Central Virginia Seismic zone and has experienced a string of earthquakes since the 1700s," said Ammon. "There was a magnitude 4.5 earthquake in the area in 2003."

While earthquakes of this magnitude occur about every five years in California, they probably are 50- or 100-year events in the east. The

Loma Prieta earthquake, which occurred in the San Francisco Bay Area in 1989, was much larger than this event.

The shaking in the University Park area was caused by the long wavelengths produced by the shallow (only about three miles deep) earthquake. Closer to Mineral, Va. and the epicenter, the wavelengths would be shorter and produce a sharper, more pronounced shaking.

"Small earthquakes commonly occur in the front range of the Appalachian Mountains," said Furlong. "We rarely pay attention to the magnitude 1 or 2 earthquakes because we don't feel them."

Although an earthquake also occurred in southern Colorado yesterday morning, Furlong notes that there is no connection between the two events and that earthquakes occur all the time around the world. The U.S.G.S. recorded more than 25 earthquakes yesterday in places as diverse as Japan, Indonesia, Yemen and the Fiji Islands as well as Colorado, Virginia and Baja California, Mexico.

Furlong notes, "Earthquakes of this size can be damaging and are not something to take lightly. Closer to the source, buildings can be badly damaged. This earthquake is approaching the size where earthquakes can cause damage to old buildings."

No damage from the [earthquake](#) was reported on the University Park campus. University Police and structural engineers surveyed the University's key infrastructures, focusing on large glass buildings, light poles, parking decks, silos, exhaust stacks, cell towers and the water tower. They covered the area in 2.5 hours and found no damage to campus structures. Today (Aug. 24), personnel from the University's physical plant will do a walk through of Beaver Stadium and recheck some buildings on foot.

Provided by Pennsylvania State University

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