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To the experts, a very East Coast kind of quake

'Moderate' shake notable for its rarity

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By [David Eldridge](#)

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The Washington Times

Tuesday, August 23, 2011



It is the second-strongest earthquake ever recorded in Virginia, according to the U.S. Geological Survey, but for those who spend a lifetime studying them, Tuesday's regionwide shake ranked only as a "moderate" tremor.

According to the USGS, a 5.0 to 5.9 earthquake can cause major damage to poorly constructed buildings, and, at most, slight damage to well-designed buildings. Worldwide, there are 800 such earthquakes a year.

After Tuesday's 5.8 quake, there were reports of minor damage up and down the East Coast — a collapsed building in Culpeper, Va., falling rowhouse bricks in Baltimore, broken spires at the Washington National Cathedral.

Seismologists say the quake was notable because of its relative rarity in this area, and because the peculiar geology of the East Coast meant a huge number of people over a lot of miles felt the effects.

Quakes on the West Coast, where the ground is made up of far more plates, are 100 times more numerous, but an East Coast tremor can rattle an area up to 10 times larger than a West Coast quake of comparable magnitude. The golden age of East Coast seismic activities dates back a half-billion years, when a collision of tectonic plates helped to create the Appalachian Mountains.

Michael Scott, professor of geography and geoscience at Maryland's Salisbury University, said the quake may be classified as "moderate" in geological terms, but should be considered a significant event nonetheless.

"In its historical context, when you consider how rare earthquakes of this intensity are on the East Coast, in the context of where this happened, just south of the nation's capital, this is a very significant earthquake event," he said.

Mr. Scott said authorities will learn much more in coming days about the quake's impact on underground infrastructure, including water pipes, gas lines and other utilities, as well as the extent of damage, if any, to building foundations.

"There will need to be a lot of inspections to make sure some significant damage didn't happen," he said.

Mr. Scott said the East Coast is not considered seismically "active," but there have been hundreds of minor tremors recorded over the years, topped by the Charleston, S.C., earthquake of 1886, with its estimated magnitude of from 6.6 to 7.3 on the Richter scale. The Richter scale has since been replaced by what are known as the "moment magnitude," or simply "magnitude," scale.

He said Tuesday's quake, like most in the region, likely has its roots in the pressures created on the continental shelf during the Ice Age.

Because the East Coast's tectonic plate is extensive and more intact than that of the West Coast, the vibrations of quakes east of the Rockies travel much farther than their counterparts in the West.

According to the USGS, Virginia's largest quake was a magnitude 5.9 that struck May 31, 1897, in Giles County. As is typical of such events on the East Coast, that tremor was felt from Georgia to Pennsylvania and from the Atlantic Coast west to Indiana, according to historical records, and aftershocks continued for six days.

On Dec. 9, 2003, a magnitude 4.5 quake occurred near Farmville, about 30 miles west of Richmond that was felt in the District, Maryland, eastern West Virginia and southern Pennsylvania.

Aftershocks to Tuesday's quake were not being widely reported, but a city official in Louisa, during a live phone call with CNN, reported that the city, near the epicenter, had experienced multiple aftershocks.

• *This article based in part on wire service reports.*

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