

New York seen as overdue for significant earthquake



It's seen as something of a New York City bragging right: We don't have to worry about earthquakes.

While we shouldn't be shaking in our boots, we also must avoid sticking our heads in the sand when it comes to seismic risks, experts advise. In the aftermath of the Japan earthquake, scientists caution that New York has the potential for significant temblors. And we are overdue for one of at least 5.0 in strength, which could cause structural damage and even deaths.

"This idea that New York is impervious to large magnitude earthquakes is just totally wrong," said Charles Merguerian, chairman and professor of Geology at Hofstra University and principal of [Duke Geological Laboratory in Westbury](#).

More of a long shot would be a 7 Richter scale temblor, like the one in 1886 that walloped Charleston, S.C., which is geologically similar to Gotham. Another concern is a fault line with a billion-year history of activity -- the Ramapo -- that lies within striking range of Indian Point Nuclear Power Plant, 35 miles north of the city.

"It's important to say that we're in more danger of a hurricane than a damaging earthquake," said Merguerian, while stressing the danger of blowing off the risk. "We don't want to be fear-mongers, but people should at least be aware of this potential and what to do in the event of an earthquake — public education is lacking in this area."

Consider these numbers from a landmark 2008 study by Lamont-Doherty scientists: While that nightmare 7-plus quake happens on average every 3,400 years, a 5.0 event shakes Gotham roughly every 100 years.

Just such a quake last jolted Gotham on Aug. 10, 1884 off the Rockaways, an estimated 5.2 temblor that toppled chimneys, opened a 12-foot-long gash of earth in Brooklyn and was felt as far away as Philadelphia and Hartford.

Such a quake could do more damage today in a considerably more populous and developed New York. Damage ultimately “depends of the frailty of the infrastructure,” Merguerian said.

It’s important to recall that while bedrock underlies much of the New York region, in many places just beneath the surface lies unconsolidated sediment that would not respond well to a major temblor, Merguerian said.

What’s more, fault lines can be found in several locations in Manhattan. For instance, the 125th Street fault nips Central Park at the northeast and continues through the Upper East Side into the East River. (The most recent activity has been on faults like that one, which trend from northwest to southeast. Two small 2001 city quakes were along such faults.)

East Coast quakes, too, happen closer to the surface, on stiffer, cooler rock, magnifying their potential effects when compared to a similar California quake, experts have said.

Now, consider, that more than half of New York City’s housing stock is made of unreinforced masonry. Unlike California, the city had long not taken earthquakes seriously, experts say, and while the city has adopted stiffer “international” building codes for new buildings, retrofitting, which would be incalculably expensive, has not been mandated.

Infrastructure from bridges and approaches to train tunnel are areas that would warrant additional stiffing, and projects are reportedly under way to do just that.

Officials from the Department of Transportation, and Department of Buildings did not return requests for comment.

An MTA spokesman said seismic retrofitting is "not an issue" because New York is not prone to major earthquakes.

Still, Merguerian said, if you examine the pattern, we’re due for another major event. Before the 1884 quake, the previous big events had been in 1783 and 1737. But to do a better analysis, you’d need “1,500 years of data,” which we simply don’t have.

“It’s a huge guess - the question is do we feel lucky today? How about tomorrow?”

Some New Yorkers aren’t quite sure. “What concerns me is that we have many big buildings. The impact could be huge,” said Dolores Myers, 50, of Bedford-Stuyvesant.

(With Dina Davis)

One way to measure the force unleashed by an earthquake is to compare it to the energy released by an atomic blast. Here are four scenarios as measured on the Richter scale.

5.0: The equivalent of the 1946 Bikini Atoll atomic blast.

6.0: 27 nuclear weapons

7.0: 729 nuclear weapons

8.0: 19,683 nuclear weapons

9.0: 531,441 nuclear weapons