

A California fault capable of producing an 8.0-magnitude earthquake has begun to move, scientists say



LOS ANGELES— A major California fault capable of producing a magnitude 8 earthquake has begun moving for the first time on record, a result of this year’s Ridgecrest earthquake sequence destabilizing nearby faults, Caltech scientists say in a new study released in the journal *Science* on Thursday.

In the modern historical record, the 257-kilometer-long Garlock fault on the northern edge of the Mojave Desert has never been observed to produce either a strong earthquake or even to creep — the slow movement between earthquakes that causes a visible scar on the ground surface. But new satellite radar images now show that the fault has started to move, causing a bulging of land that can be viewed from space.

“This is surprising because we’ve never seen the Garlock fault do anything. Here, all of a sudden, it changed its behavior,” said the lead author of the study, Zachary Ross, assistant professor of geophysics at Caltech. “We don’t know what it means.”

The observations reported are another piece of evidence that illustrates a widely persistent myth that circulates in California and beyond — that quakes like the Ridgecrest temblors are somehow a good thing that makes future quakes less likely. In fact, generally speaking, earthquakes make future earthquakes more likely. Most of the time, the follow-up quakes are smaller. But occasionally, they’re bigger.

The creeping illustrates how the Ridgecrest quakes that began on the Fourth of July have destabilized this remote desert region of California between the state’s greatest mountain range, the Sierra Nevada, and its lowest point, Death Valley. Not only has the Garlock fault begun to creep in one section, but there’s also been

a substantial swarm of small earthquakes in another section of the fault, and two additional clusters of earthquakes elsewhere — one south of Owens Lake and the other in the Panamint Valley just west of Death Valley.

Whether the destabilization will result in a major quake soon cannot be predicted. In September, the U.S. Geological Survey said the most likely scenario is that the Ridgecrest quakes probably won't trigger a larger earthquake. Nevertheless, the USGS said that the July quakes have raised the chances of an earthquake of magnitude 7.5 or more on the nearby Garlock, Owens Valley, Blackwater, and Panamint Valley faults over the next year.

Also, a creeping fault triggered by a nearby quake doesn't necessarily mean a big quake is coming. The southernmost tip of the San Andreas Fault has traditionally crept in response to distant quakes, including the magnitude 8.2 quake off the coast of southern Mexico in 2017, nearly 3,200 kilometers away. "But that doesn't mean the San Andreas went off," said USGS research geologist Kate Scharer, who was not part of the study.

What's unusual now, Ross said, is that the Garlock fault has been seismically quiet in the historical record until now. And while it's unclear what the creeping and aftershocks might mean for the near future, the newly recorded movement highlights how much of a potential risk the Garlock fault is to California, should it rupture in a big way.

Source:

<https://www.thestar.com/news/world/us/2019/10/17/a-california-fault-capable-of-producing-an-80-magnitude-earthquake-has-begun-to-move-scientists-say.html>

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