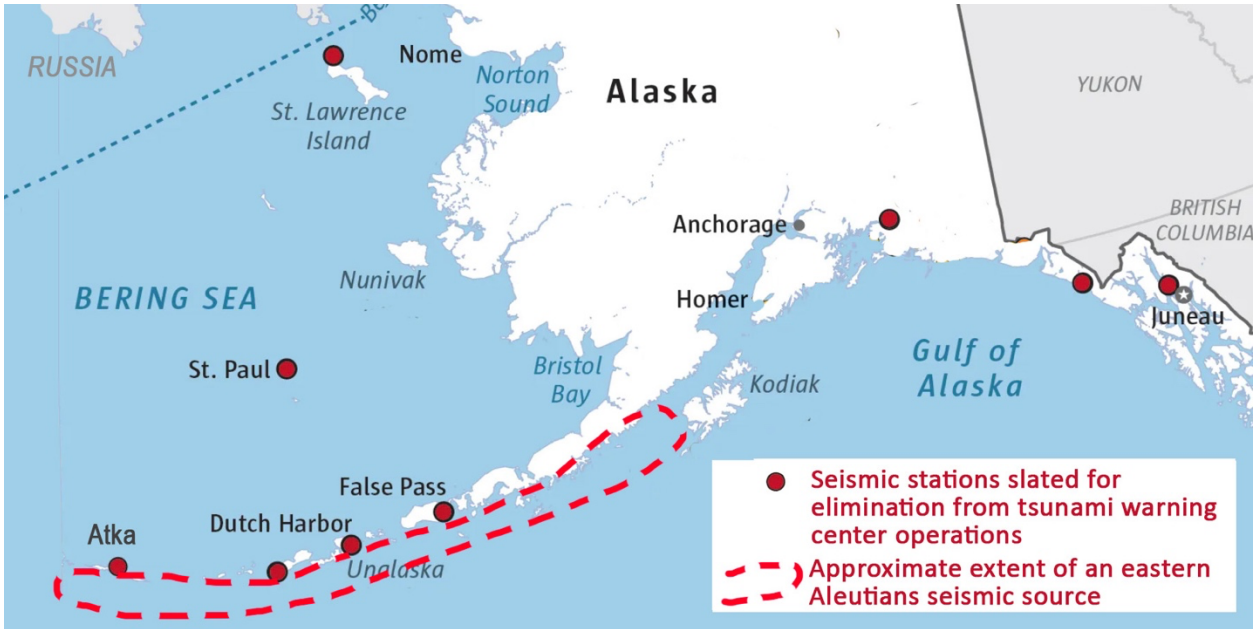
Times Standard

Not My Fault: Shutdown and budget cut impact earthquake and tsunami preparedness

Lori Dengler for the Times-Standard
Posted November 15, 2025
https://www.times-standard.com/2025/11/15/lori-dengler-shutdown-and-budget-cuts-impact-earthquake-tsunami-preparedness/



Location of nine seismic stations currently operated under contract with NOAA for tsunami warning center operations slated for elimination. Dashed red line shows a hypothetical eastern Aleutians M9.5 seismic source, a worst-case tsunami event for Hawaii and much of California (after Butler, Walsh, Richards 2017 Natural Hazards).

After 43 days, the longest government shutdown in U.S. history is finally over. The impacts have been far reaching, especially on government employees, businesses with government contracts, and the many people and organizations that rely on government programs. I'll focus on the areas I am most familiar with, the earthquake and tsunami program.

The proper name for a shutdown is 'lapse in appropriations." It means a cessation of non-essential services; employees deemed not directly related to the protection of human life and property are furloughed. During the 2025 shutdown, 670,000 workers were furloughed and 730,000 continued to work. Regardless of which classification, no federal employees get paid during a lapse.

We've been fortunate that the past 45 days have been relatively seismically quiet. There were no damaging U.S. earthquakes and none large enough to trigger elevated tsunami alerts. The stream of information on the USGS Latest Earthquakes web page appeared unchanged and duty personnel reviewed earthquake locations and magnitudes of events likely to be felt. There was a

glitch in the “Did You Feel It?” maps during the first week of the shutdown where reports weren’t being displayed, but it was quickly remedied.

The U.S. tsunami warning centers continued to operate as usual. Both are short staffed due to loss of probationary personnel earlier this year and hiring freezes. That meant long hours and people usually involved with other aspects of the program having to take duty shifts. Kudos to everyone at the centers for smooth operations that never compromised the ability to issue alerts in a timely manner. Ironically, approval for new hires at both centers was made about two weeks into the shutdown.

The impacts were mostly hidden from general public awareness. During the shutdown, no one could install or repair equipment, no data could be analyzed other than quick reviews of earthquake size/location, no one could attend meetings or discuss their work with other scientists, no one could work with state and local partners on response planning or hazard reduction, and no one could participate in outreach activities including media or public discussions. A consequence for me was a call from KPFA radio in the SF Bay Area to talk about the San Ramon earthquake sequence because all of the USGS experts were muffled.

One of the projects put on standby was expansion of the ShakeAlert early warning notification into Nevada. ShakeAlert is the system that automates the seismic network to give us Wireless Emergency Alert (WEA) notification on cell phones and allows critical facilities like power plants, rapid transit systems, fire stations, and hospitals a few seconds to prepare for strong shaking.

It's not an easy ‘flick the switch’ process to add the University of Nevada seismic network into the ShakeAlert system. All of the seismic stations need to be configured to provide a data stream that ShakeAlert can analyze within seconds. The system must be dense enough to accurately pinpoint location and forecast magnitude. More stations need to be added. It’s not just Nevada that will benefit. Some of the strongest California earthquakes of the past decade have been in eastern California near the Nevada border. ShakeAlert didn’t function well for the Ridgecrest earthquakes in 2019 because of the absence of Nevada stations to the east to constrain location.

Perhaps the biggest hit of shutdowns is intangible – morale. The essential/non-essential classification system doesn’t make anyone feel good. The USGS opted for different names this time around – excepted and non-excepted. Excepted employees showed up for work every day and non-excepted stayed home. But some non-excepted employees could switch their status if they deemed it essential for public safety. For example, if there had been a major earthquake during the shutdown, a number of people could decide on their own to be part of the response.

Research scientists live for their science. We do it for many reasons but most of all, to better understand how the earth works, and in hazards-related fields, how to make more resilient communities. Progress is made by experimentation, analysis, and lots of discussions with colleagues in the field. Suddenly stopping not only affects the work plan, but disrupts connections, thought processes, and can derail an entire investigation.

It is bizarre that outreach and public communication is deemed “non-essential.” When it comes to tsunamis, all of us living on the coast are part of the tsunami warning system. If we don’t understand tsunami hazard zones or how to respond to natural or official warnings, we might as

well have no tsunami warning system at all. We've had two tsunami warnings in the past year. In both the December 5th North Coast quake and the July 29th earthquake in Kamchatka, the technical parts of the system that detected and analyzed the earthquakes worked fine. The failures were in communication, depiction of threat, and human response, areas that can only be improved through outreach.

The shutdown is over and gradually systems, and most programs will return to where they were before it began. But perhaps not all. A few weeks ago, NOAA announced cancellation of a contract with the Alaska Earthquake Center to operate nine seismic stations that feed data directly to the two U.S. tsunami warning centers. These are the stations configured to detect large earthquakes and provide the data necessary for rapid determination of magnitude and faulting characteristics.

The decision was made at NOAA headquarters in Silver Springs Maryland in response to cuts in NOAA's overall budget. The $300,000 a year to the University of Alaska, Fairbanks is a mere pittance in savings, but this is an example of penny-wise pound-foolish in the bigger picture of tsunami safety, not just to Alaska, but the West Coast and Hawaii as well. The four stations in the Aleutians are arguably the busiest in the seismic side of tsunami alerting and the source region for some of the largest tsunamigenic earthquakes.

Ten earthquakes of magnitude 7 or larger have occurred in this area in the past 25 years and nine have produced tsunamis. The tsunamis were modest, the largest only about two-feet high, but the first waves arrived in Alaska towns and villages in less than an hour, and we are only four to five hours away. Much larger earthquakes have occurred in the more distant geologic past. The one that gives many California tsunami experts pause would be centered in the eastern Aleutians, extending from Kodiak to the Andreanof Islands. If this entire section ruptured, it might produce a M9.5, rivaling the 1960 Chilean earthquake as the largest on the planet. But even a 9.0 or 9.2 in this area could be more devastating to California than the 1964 M9.2 because of sea level rise and its orientation relative to our coast.

Great Alaska earthquakes are short-fuse events for Alaska, but also from a Hawaiian or West Coast perspective. It takes three hours minimum to coordinate official evacuations. The tsunami centers need accurate information very quickly to determine what size of a tsunami may be coming our way. Issuing an alert for an insignificant tsunami leads to over-evacuation, potential injuries, economic costs, and loss of tsunami warning credibility. Missing a deadly event is worse.

My first question when I learned about the cancellation was aren't there other seismic stations that can cover the area where the University of Alaska stations are? Search for USGS stations in the Aleutians and hundreds of dots will pop up. Why couldn't these be used to provide the same data feeds? These stations are for volcano monitoring and are highly sensitive to the small signals that indicate the re-awakening of a volcanic center. They are not designed to record great earthquakes and give accurate magnitudes in the magnitude 7 and greater range.

Seismology is expensive in Alaska. Ideal station locations are remote, access is limited, weather is extreme, and grizzly bears have been known to toy with instruments that aren't adequately protected. At present, seismic instrumentation is still our first line of defense in the tsunami warning system. There has been a loud outcry from Pacific states and territories as a result of

the cancellation, and I am crossing my fingers that NOAA headquarters changes their mind that this $300,000 is really worth keeping in the budget.

Lori Dengler is an emeritus professor of geology at Cal Poly Humboldt, and an expert in tsunami and earthquake hazards. The opinions expressed are hers and not the Times--Standard's. All Not My Fault columns are archived online at https://kamome.humboldt.edu/taxonomy/term/5 and may be reused for educational purposes. Leave a message at (707) 826-6019 or email Kamome@humboldt.edu for questions and comments about this column or to request copies of the preparedness magazine "Living on Shaky Ground."