

Times Standard

Not My Fault: Good reasons to participate in ShakeOut 2023

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The most important thing to do when the ground starts shaking is to stay put. If you are in a tsunami zone, shaking is your warning and head to higher ground as soon as you can safely move.

It's fall and that means ShakeOut is just around the corner. Every third Thursday in October, we put aside a few minutes to practice what to do when the ground starts shaking. There is a good why everyone on California's North Coast should pay close attention. We have more large earthquakes than any other part of the lower 48 states.

The number one reason why people are injured in California earthquakes is because of moving while the ground is shaking. The further and faster you move, the more likely you are to be struck by something falling or trip over debris. I'm not making this up. A long-time colleague and friend Jim Goltz tackled the question of what injures people in California quakes for his PhD dissertation.

Jim studied talked to people injured in the 1989 Loma Prieta and 1994 Northridge earthquakes and interviewed hundreds of people who survived unharmed. He found that it didn't matter what sort of building people were in or if they had experienced earthquakes in the past. There was only one factor that stood out – the further people moved during the shaking, the more likely they were to be hurt.

ShakeOut was built both upon the research results of people like Jim and a very real desire to connect seismology and earthquake engineering with the general public. In the 2000s, the USGS led an effort to quantify the likely ground motions and resulting ground motions caused by a magnitude 7.8 earthquake on the southern segment of the San Andreas fault.

The San Andreas fault begins near Bombay Beach on the SE shore of the Salton Sea and ends in the vicinity of Cape Mendocino. It is the largest fault in the San Andreas transform plate boundary, accommodating much the relative movement between the North American and Pacific plates.

The ShakeOut Scenario hypothesized a magnitude 7.8 earthquake that began at the Salton Sea and ruptured to the north and west for over 200 miles to the Antelope Valley north of Los Angeles. Based on the predicted ground motions and the known building stock, over 1,800 deaths, 50,000 injuries and at least \$200 billion in damages would result. The scenario also included aftershocks and emphasized how long it would take before basic services such as water, power, and highway access would be restored.

The purpose of the ShakeOut Scenario was to illustrate in graphic detail the vulnerability of the region and to prod decision makers and the public to make preparedness a priority. The study might have sat on a shelf gathering dust if not for the brilliant idea of Lucy Jones, lead USGS scientist on the project at the time to partner the Scenario release with a region-wide earthquake drill.

Many of us thought Lucy was crazy to take on such a project – how to get millions of Southern Californians to pretend a major earthquake had occurred and DROP, COVER, HOLD ON - dropping down to the ground, getting under a desk or table, and riding out the fake shaking by holding on to a table or desk leg. But if anyone likes a seemingly unsurmountable challenge, it's Lucy.

With the support of local and State government and the endorsement of most regional school districts, more than 5 million Southern Californians participated in the Great Southern California ShakeOut in fall of 2008. Photos of school children under desks ran on newspaper front pages and it made even the most reluctant think a little bit about earthquake impacts.

I became involved in ShakeOut in 2009 when it went Statewide. Each year since then it has grown, with over 18 million registered participants in 2022. This year participants have already signed up from every US state and territory and 57 other countries. You can see who is on board in our area at <https://www.shakeout.org/california/northcoast/>.

The main focus of the ShakeOut Drill in the first years was the Drop, Cover, Hold On drill. Drop, Cover, and Hold On is still the best thing to do for able-bodied people who are awake and indoors. I prefer to frame the message a little more broadly. DON'T MOVE WHILE THE GROUND IS SHAKING. I had two knee replacement surgeries in the last year and dropping to the ground is no longer an option for me. But I can still freeze where I am, sit on a nearby chair and bend over, covering the back of my neck and head with my arm.

Last December 20th, most of you did not Drop, Cover, and Hold On when the magnitude 6.4 earthquake ripped across the Ferndale – Rio Del – Fortuna area. You were likely asleep and the ground shook so strongly, you couldn't get out of bed even if you wanted to. You did the right thing even if unintended. There were very few injuries in that earthquake, far fewer than in other recent quakes even though the ground motion was as strong or stronger. Staying in bed is an excellent thing to do in an earthquake; covering your head with the pillow and making sure there is nothing near your bed to fall makes it even safer.

We've enlarged the ShakeOut focus in recent years to emphasize other aspects of earthquake preparedness. On the North Coast, our biggest earthquake hazard could be a tsunami coming soon after the shaking stops. I encourage everyone to find out if you live, work, or play in a

tsunami hazard zone (<https://rctwg.humboldt.edu/tsunami-hazard-maps>) and if you do, consider adding an evacuation drill into your ShakeOut plans.

Next Saturday, King Salmon is holding a community-wide tsunami evacuation drill. At 9:30 AM on September 30th, residents will be notified that the drill is beginning by a message on the Humboldt Alert notification system and announcements from emergency personnel walking through neighborhoods. County and Redwood Coast Tsunami Work Group volunteers will be on hand to guide people to high ground.

The evacuation drill is not the only event associated with the North Coast ShakeOut. Last week, dozens of Humboldt County emergency professionals participated in the second annual TsunamiCon hosted by the Blue Lake Rancheria. TsunamiCon offers updates in tsunami hazard assessments and refreshers on coordinating response. Humboldt County will also hold a Ham Radio exercise during ShakeOut, testing what could be the backbone of communications after a severe earthquake.

How to know when the ShakeOut Drill is starting? I doubt if Mother Nature is dialed in to provide any real shaking but there are several ways you might be alerted. Some local radio stations will be providing a short break in regular programming at 10:19 AM on October 19th. MyShake earthquake early warning App users will get a drill message on your phone.

If you are signed up to receive Humboldt Alerts, you should get a text, phone call, or computer message close to 10:19. If you aren't signed up, you should be. It's the best way to find out if a wildfire, tsunami, flood, chemical spill, or other threat is headed your way. Sign up online (<https://humboldt.gov/2014/Emergency-Notifications>) or call the Office of Emergency Services.

Lori Dengler is an emeritus professor of geology at Humboldt State University, 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. Downloadable copies of the North Coast preparedness magazine "Living on Shaky Ground" are posted at <https://rctwg.humboldt.edu/prepare/shaky-ground>.