



Rockin' and rollin'



Kathleen Springer, senior curator in geological sciences at the San Bernardino County Museum, gave a primer in plate tectonics, discussed how volcanism contributes to earthquakes and debunked several misconceptions surrounding seismic activity during a lecture at the Hi-Desert Nature Museum.

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Plates under pressure mean Big One could happen any time

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YUCCA VALLEY — What causes earthquakes?

People at this month's brown-bag lunch lecture at the Hi-Desert Nature Museum learned earthquakes occur when really stressed-out rocks finally go, "I can't take this anymore!"

Kathleen Springer, senior curator in geological sciences at the San Bernardino County Museum, gave the high-energy presentation so attendees could, "Be aware of the ground

you're standing on."

During her lecture, Springer gave a primer in plate tectonics, which gives us, "the rockin' and rollin'." The geologist used a cracked egg shell as an analogy to give the audience a macro idea of the earth's crust. "Use a hard-boiled egg," Springer warned.

The plates are constantly moving, Springer explained, compressing, stretching and diving underneath or above another plate, "Moving about as fast as your fingernails grow."

In addition to moving crust, there is volcanic activity. "That stuff's got to squirt up somewhere," Springer said with a little hop to emphasize her point.

Displaying a satellite image of Southern California, Springer asked the audience rhetorically if they knew how this region got all of its beautiful mountains and valleys. Nodding her head knowingly, Springer replied, "That's right. Earthquakes."

Earthquake myths debunked

Looking at a slide depicting the major known faults in Southern California, Springer opined, "It's a pretty amazing thing," as though pondering the immensity of her field of expertise from a fresh perspective.

After a pause to examine the various colored squiggles across the desert and coastal region, Springer asked, "Isn't that the coolest thing ever? And they're all in cahoots with one another to rip California to shreds."

Springer debunked several misconceptions surrounding seismic activity, including "earthquake weather." Because the events occur underground, meteorological activity does not play a factor, Springer explained with a proper degree of incredulity.

Springer attempted to dispel other myths, including the legendary claim that scientists can predict 'quakes but don't want to cause a public panic. The seismic expert attempted to put this concept to rest with an exaggerated palm to her forehead.

Scientists do want to be able to predict earthquakes someday in the future, and Springer explained how paleo-seismologists dig trenches perpendicular to faults so they can study what happens when the earth goes "owwuunga" as she puts it.

The geologist explained the difference between how a shock wave travels through hard rock and sediment, which Springer described as "bowl full of jelly" motion.

That jelly-shaking rock underground can erupt into big problems for people on the earth's surface. In construction terminology, the abbreviation URM stands for unreinforced masonry — buildings that have not been retrofitted to withstand a large shake. For such structures, Springer prefers the abbreviation FPR, which she said stands for future piles of rubble.

Ready for the Big One?

“A major earthquake is likely in our lifetimes,” Springer stated with uncharacteristic deadpan delivery. “It will be a regional disaster.”

For the statistically-minded lecture attendee, Springer stated there is a 99.7 percent chance of a 6.7 magnitude earthquake within the next 30 years. The earthquake expert explained scientists use the 30-year time frame was because it is the standard length of a home mortgage, “So people can wrap their minds around it.”

Transitioning to her main message, participation in The Great California ShakeOut Oct. 20, Springer described how organizers are planning how disaster response officials and the general population will respond to a hypothetical 7.8 magnitude earthquake.

In the scenario, the Morongo Basin will be cut off from communication and ground transportation. Telephone systems will be either demolished or overloaded and highways will be impassable.

Because bridges in the state highway system have been retrofitted, Springer said they should withstand the earthquake. In urban areas, there will be wholesale conflagrations of neighborhoods, not even accounting for Santa Ana wind conditions.

On the bright side, the scenario does not call for any dam failures and no significant damage to air or water ports.

A major component of the ShakeOut is the annual statewide “Drop, Cover and Hold On” drill that will occur at 10:20 a.m. Oct. 20 (that’s 10:20 on 10/20.) Not surprisingly, ShakeOut is the largest earthquake drill in the United States.