

Study Details Quake at San Andreas Fault

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LOS ANGELES - A powerful earthquake on the southern San Andreas fault, which hasn't ruptured in over three centuries, is capable of producing prolonged periods of strong shaking in the greater Los Angeles region, a new study finds. The study offers one of the most detailed analyses yet of what would happen if a magnitude-7.7 temblor strikes along a 125-mile stretch of the fault between San Bernardino and Imperial counties. The southern San Andreas last snapped in 1690, unleashing a strong quake that caused relatively little damage because few people lived in the area. But as Los Angeles and neighboring cities have become populated and built up over the decades, scientists now say a Big One could be devastating.

Computer simulations show the Los Angeles basin will experience some of the strongest ground shaking if the fault unzips from south to north. That's because seismic waves fanning from the epicenter will have to travel through a chain of sedimentary basins between San Bernardino and downtown Los Angeles, trapping energy and channeling it toward the Los Angeles basin. The result will be strong and localized vibration. The basin could potentially experience several minutes of "roller coaster motion," said lead researcher Kim Olsen of San Diego State University. "A large part of the Los Angeles area would definitely get a good shake," he said. But Olsen said the shaking in the region likely won't produce as much damage as areas near the epicenter because the traveling seismic waves will have weakened by the time they reach the greater Los Angeles region.

If the San Andreas ruptures from north to south, the areas most at risk of violent shaking include the Imperial Valley and northern Mexico, the study found. The study was published in the journal *Geophysical Research Letters* this month. Earlier this year, the U.S. Geological Survey received a \$2 million federal grant to monitor the southern San Andreas fault, which has been building up stress that could lead to a big shaker. Scientists have said the southern segment, which is overdue, has a high chance of rupturing in the next few decades, producing a quake of magnitude-7.5 or greater.

On anniversary of San Francisco quake, seismologists look at Nevada's risk

KRNV-TV—Reno, NV

100 years ago at 5:12AM on April 18, 1906, an earthquake rocked San Francisco, killing thousands of people and leaving others homeless. Here in Northern Nevada, experts say we could face a quake of similar magnitude in the next fifty years. Northern Nevada is criss-crossed with fault lines where thousands of quakes have occurred in the past. Some have been serious, leaving people dead and causing millions of dollars in damage. Others we never even feel. But the fact remains; Nevada is earthquake prone, and experts say we should all be prepared.

Earthquakes can be terrifying. From those long ago -- like the devastating San Francisco earthquake of April, 1906 -- to the more recent Northridge, California quake in January, 1994, the uncontrollable shaking of the earth is hard to forget. Dr. Ken Smith, Nevada Seismology Laboratory, UNR, "There's a series of faults along the Sierra fronts, Genoa Valley, up on Mount Rose fan there's a series of faults and some of those extend actually into the city." Smith says that even though the past few years have been relatively quiet, that's not always been the case in Nevada. Powerful quakes have rocked Fallon, back in 1954, and Verdi a few decades earlier. He says Nevadans can probably expect a major quake here in the next few decades. "About a 50-percent chance-- these are all probabilities-- of having a magnitude 6.5 earthquake within 50 kilometers of Reno in the next 50 years."

So he has some advice for people who want to prepare: look around your house for items that could fall on you in an earthquake. "Make sure you don't have things on top of cabinets, TV sets aren't above the kids' bed, some bookcases and things like that, even in a small earthquake which is not gonna hurt anybody could give you a little problem." To date, the earthquake experts at UNR say, they can only forecast the probability of earthquakes, they still cannot predict them.

Questions:

1. What does a new study find?
2. When did the southern San Andreas last snap? Was there much damage? Why?
3. Why would some of the strongest ground shaking if the fault unzips from south to north?
4. What would happen for several minutes?
5. What areas are affected in the fault ruptures from north to south?
6. What could happen in Northern Nevada in the next 50 years?
7. Into what city does a series of faults extend?
8. What are the chances of having a 6.5 earthquake within 50 km of Reno in the next 50 years?
9. What is Dr. Smith's advice?
10. Can earthquakes be predicted?