

Earthquake simulation shows shaking of seismic proportions

Scientists, researchers gather at conference to discuss temblors

Brian Indrelunas, Palm Springs Desert Sun, 9-15-10

A new magnitude-8.0 earthquake simulation featuring the southern San Andreas fault was a highlight for 500 scientists gathered in Palm Springs for a seismic conference.

“It's one of the largest calculations that's ever been done on a computer,” said Tom Jordan, director of the Southern California Earthquake Center. The group's 20th annual meeting runs through today at the Hilton Palm Springs.

The new simulation, presented to the media on Tuesday, shows intense shaking that would result from an 8.0 quake centered north of San Luis Obispo, said Mark Benthien, the earthquake center's outreach director.

“People have seen a (simulation) where the earthquake starts at the Salton Sea,” he said. “We also need to be concerned about an earthquake that starts hundreds of miles away on the San Andreas and makes its way down here.”

The research shows that even after the rupture itself passes, valleys and basins — including the Coachella Valley and the Oxnard, Ventura and Los Angeles areas — continue shaking.

“That shaking kind of lags behind even though the rupture is technically over,” he said.

Even with an epicenter hundreds of miles from the Coachella Valley, an 8.0 quake would bring strong shaking to the valley because it sits on relatively soft sediment, Benthien said.

“The sediments will amplify the shaking even more,” he said. “The shaking will be like a bowl of Jell-O instead of ringing a bell.”

Exactly how the Coachella and Imperial valleys will shake during future quakes is on the mind of a set of conference attendees — those involved in the upcoming Salton Seismic Imaging Project.

The plan is to paint a more accurate picture of the valleys, and exactly how they'll shake in an earthquake by setting off underground detonations.

The detonations would be so small that they likely won't be felt above ground, and they won't be deep enough to trigger any activity on the underlying fault lines, said Joann Stock, Caltech's principal investigator for the project.

“We're going to have all these seismometers out recording it, which we never have for an earthquake,” she said. “We'd rather know that this way to plan better than to wait for the Big One to come and shake everything.”

Stock and her colleagues also hope to get a clearer picture of an underground gap that's opening up between the two plates on either side of the San Andreas Fault south of the Salton Sea, in Imperial County and northern Mexico.

The Salton Sea project is still in the permitting process but is on track to begin in February.

Social Science

Stock, who also presented information about the Easter Sunday quake in Baja California, said the annual meeting offers many opportunities for collaboration.

“It's a way to find out what everyone else is doing,” she said.

For example, she and her colleagues are using the conference to collaborate with researchers at the University of California, San Diego and the University of Nevada, Reno who have underwater seismometers in the Salton Sea.

Tuesday, scientists gathered in ballrooms for formal presentations and discussions and huddled around lobby and lunch tables for more informal discussions. Some also showed off posters summing up their research.

Among those presenting their findings were University of Texas at El Paso students Teira Solis, 32, and Cecilia Del Pardo, 29.

Del Pardo, who is working on a Ph.D. in geology, presented her research on the stress field of the Death Valley Fault Zone.

“I'm nervous but excited at the same time,” she said before her presentation Tuesday. “One of the things I got from last year's SCEC meeting is really good input. That made my research much better.”

Solis, who is finishing an undergraduate degree in geology, had already presented her data on prehistoric earthquakes.

The faults surrounding the Coachella Valley are on that list, Del Pardo said.

“We're between the San Andreas and the San Jacinto, and both are really red,” she said. “(I thought,) ‘Do we really have to go there?’”

But Solis and Del Pardo said the Southern California Earthquake Center conference offers more opportunities to meet people than other conferences.

“What's really cool about this is I got to meet the people that published the information and the people who go out in the field,” Solis said.

“(It's) like you're meeting a movie star,” Del Pardo said.