San Andreas Fault slant may lessen quake shaking, study says

Ian James, Palm Springs Desert Sun, 12-11-14

Scientists say a slant in the segment of the San Andreas Fault that runs through the Coachella Valley may lessen the intensity of shaking for cities on the west side of the fault, such as Palm Springs and Palm Desert.

The research draws on new three-dimensional modeling that shows greater complexity in the fault than had previously been assumed. The scientists say in the study, which was published in the December issue of the journal Geosphere, that while most models have assumed the fault runs straight up and down in the Coachella Valley, it appears to dip 60-70 degrees to the northeast.

The researchers said that would likely lead to more shaking in relatively unpopulated areas to the east of the fault, but less shaking in cities west of the fault.

A slanting fault could produce an increase of up to 10 percent in the magnitude of an earthquake east of the fault, said geoscientist Laura Fattaruso of the University of Massachusetts Amherst, one of the authors of the study. However, she said, having a slanting fault — as opposed to a vertical one — also changes the way the ground shakes during a quake.

"In this case, because the fault dips to the northeast, more of the energy from an earthquake will be transferred to the east, and less will be transferred to the west," where the cities of the Coachella Valley are located, Fattaruso said in an email. "Even though there is potential for a larger earthquake, there would be less ground shaking in the population centers of the Coachella Valley than previously estimated."

Fattaruso carried out the study together with researchers Michele Cooke of the University of Massachusetts Amherst and Rebecca Dorsey of the University of Oregon.