

Faults found near sea added to map

Brian Indrelunas, Palm Springs Desert Sun, 4-29-10

A map released this week by the California Geological Survey highlights for the first time faults under and near the Salton Sea, officials and academics said.

The map, last updated in 1994, shows all California faults that have ruptured in the past 2 million years and indicates how recently the faults have been active, said geologist Chris Wills, who oversees the California Geological Survey's geologic mapping program.

Since the earlier edition, geologists have added about 50 new faults, including portions of the fault that caused the 1999 Hector Mine earthquake, a 7.1-magnitude quake that struck about 32 miles north of Joshua Tree.

"Parts of it were known to be an active fault, but not all of it," Wills said.

Also new: "A series of faults across the Salton Sea, a half-dozen parallel strands that connect San Andreas over to the San Jacinto fault system," he said.

Researchers from UC San Diego's Scripps Institution of Oceanography studied the area from 2006 to 2009 and announced last summer they discovered more than a dozen small faults underneath the sea using a sonar system.

Utah State University Professor Susanne Janecke said the new map also includes faults that she and her colleagues and students discovered west of the Salton Sea over the past five to six years.

"It's quite gratifying to have our work shown here, and it highlights one of the very interesting things that we discovered," she said.

As a fault enters a region like the Salton Basin, where there's an abundance of relatively weak rocks known as mudstone, it often becomes dispersed over a wide area as a series of smaller faults, Janecke said.

"You may overlook this area as having a significant seismic hazard because none of these small faults individually look like they could produce a large, destructive earthquake," she said.

But those smaller faults near the surface are sometimes tied to a larger, more dangerous fault deep in the earth, she said.

The onshore work of her group and the undersea work of Scripps researchers has given researchers a better understanding of the faults between the San Andreas and San Jacinto faults, she said.

If the recently discovered faults prove to be tied to either larger system, an earthquake on one of the smaller faults could potentially set off a larger quake on the larger fault, Janecke said.

"We have some important work to do at those branch points," Janecke said. "There's lots of interesting work left to be done."