

# Seismologists at JPL and Wisconsin update 20-year-old model that shows where the next 'Big One' could hit

Emma Gallegos, Los Angeles Newspaper Group, 3-25-10

Seismologists have updated the 20-year-old model that shows where the next "Big One" could hit.

Still, earth scientists don't have any way of knowing when an earthquake will strike, but they can tell you which faults are due.

There isn't any good news for residents living near the San Andreas Fault - they're not off the hook for the "Big One." The updated model shows that the fault that caused this year's quake in Haiti is twice as active as they thought it was 20 years ago.

Residents who live near the Himalayas along a fault between India and Eurasia can rest a little easier, because the new model shows that fault is 20 percent less active than the old model showed.

The same researchers who teamed up to create a model of the Earth's 25 major tectonic plates in 1990 teamed up again to create this new model: Donald Argus at the Jet Propulsion Laboratory and Chuck DeMets at the University of Wisconsin-Madison.

Seismologists like knowing how fast each of these plates are moving. They take the long view, looking at how much a plate moves over millions of years. The plates move from a half-inch to a 7 inches every year, and the way one plate moves will affect another like a Rubik's cube.

If a plate is behind schedule, that's where it's more likely that an earthquake will strike, DeMets said.

These models "give you a good idea of how much strength is going to be released in these earthquakes," Argus said.

Technology has made big strides in the last 20 years that has allowed seismologist to study faults from the air, on the ground and underwater. All the quakes that have hit in the past 20 years are helpful for scientists, too.

Since the 7.0-magnitude quake struck Haiti in January, a fleet of seismologists from around the world have flocked to the fault that goes through Haiti and Jamaica - including DeMets.

That fault line seems to have been in a "quiet phase" over the last few hundred years - Jamaica hasn't had an earthquake in 150 years, DeMets said.

Seismologists get some of their best information from under the sea - boats mapping the underwater faults in the Caribbean are sending back some of the best data.

"It's easier to understand faults underwater, even though it's hard to get to," DeMets said. "It's not getting eroded - it's pretty well preserved, even though access is more difficult."

Global Positioning System (GPS) technology has also revolutionized the field - that's how JPL got involved in this project.