Earthquakes

12.001 – 22 October 2012

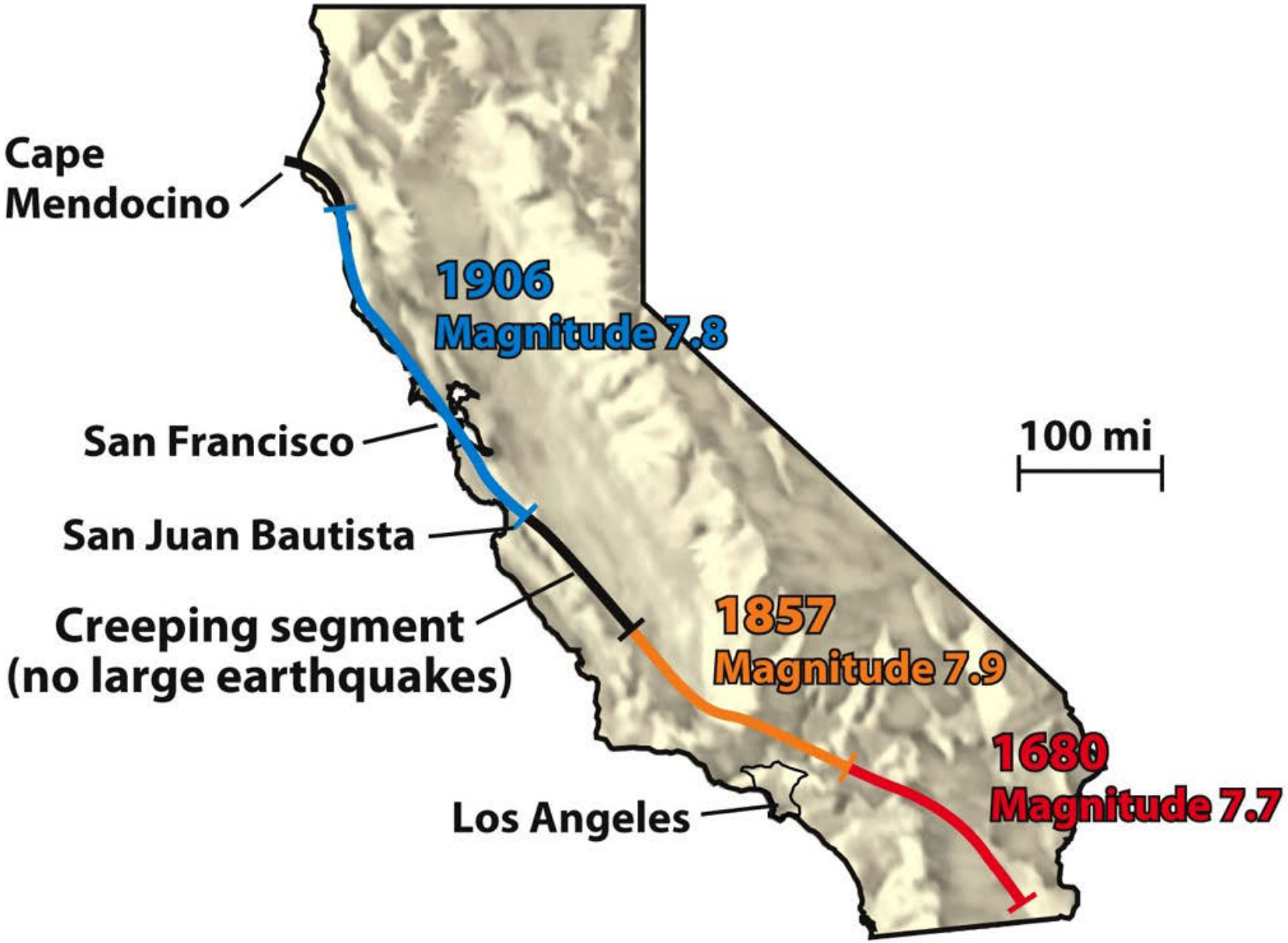
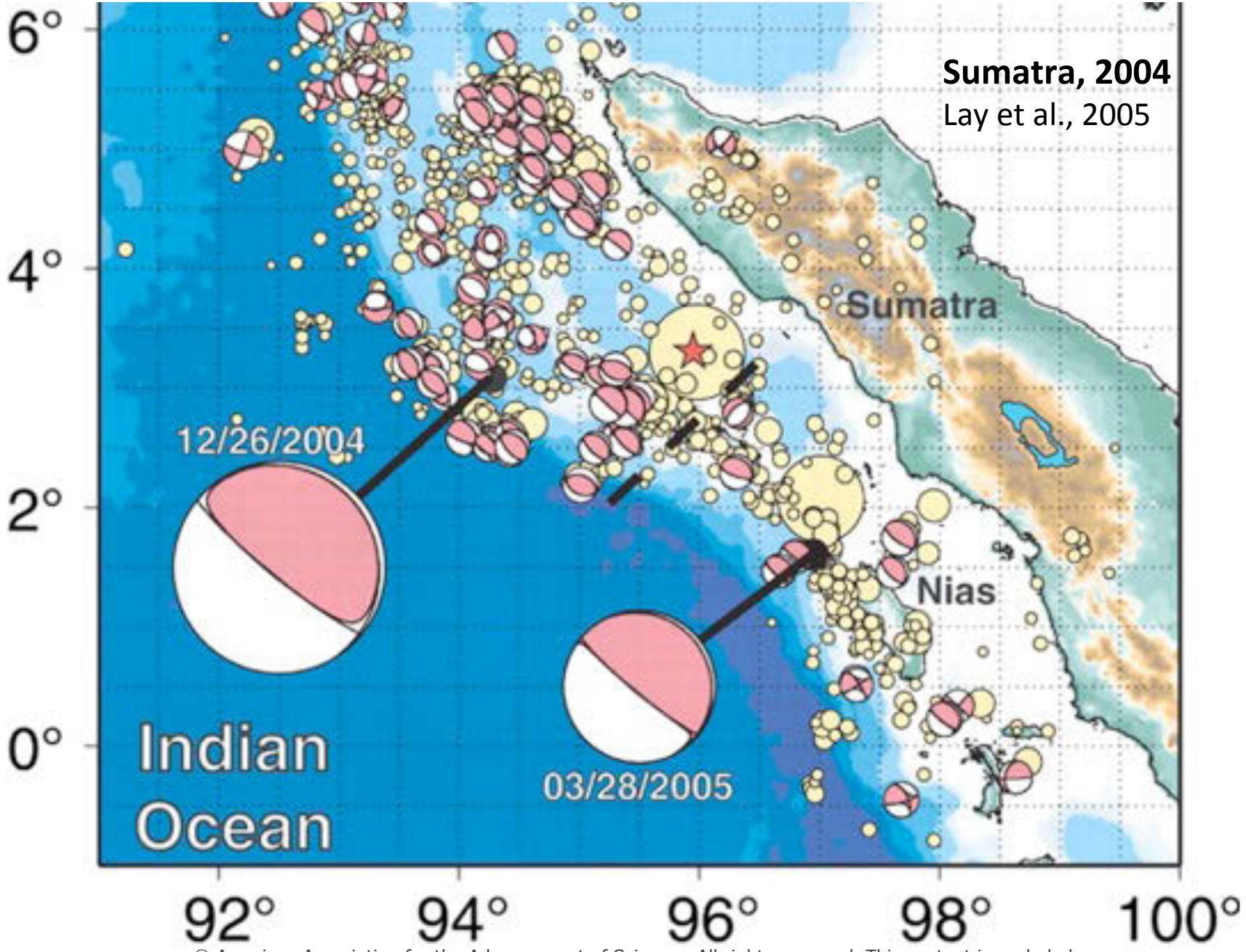


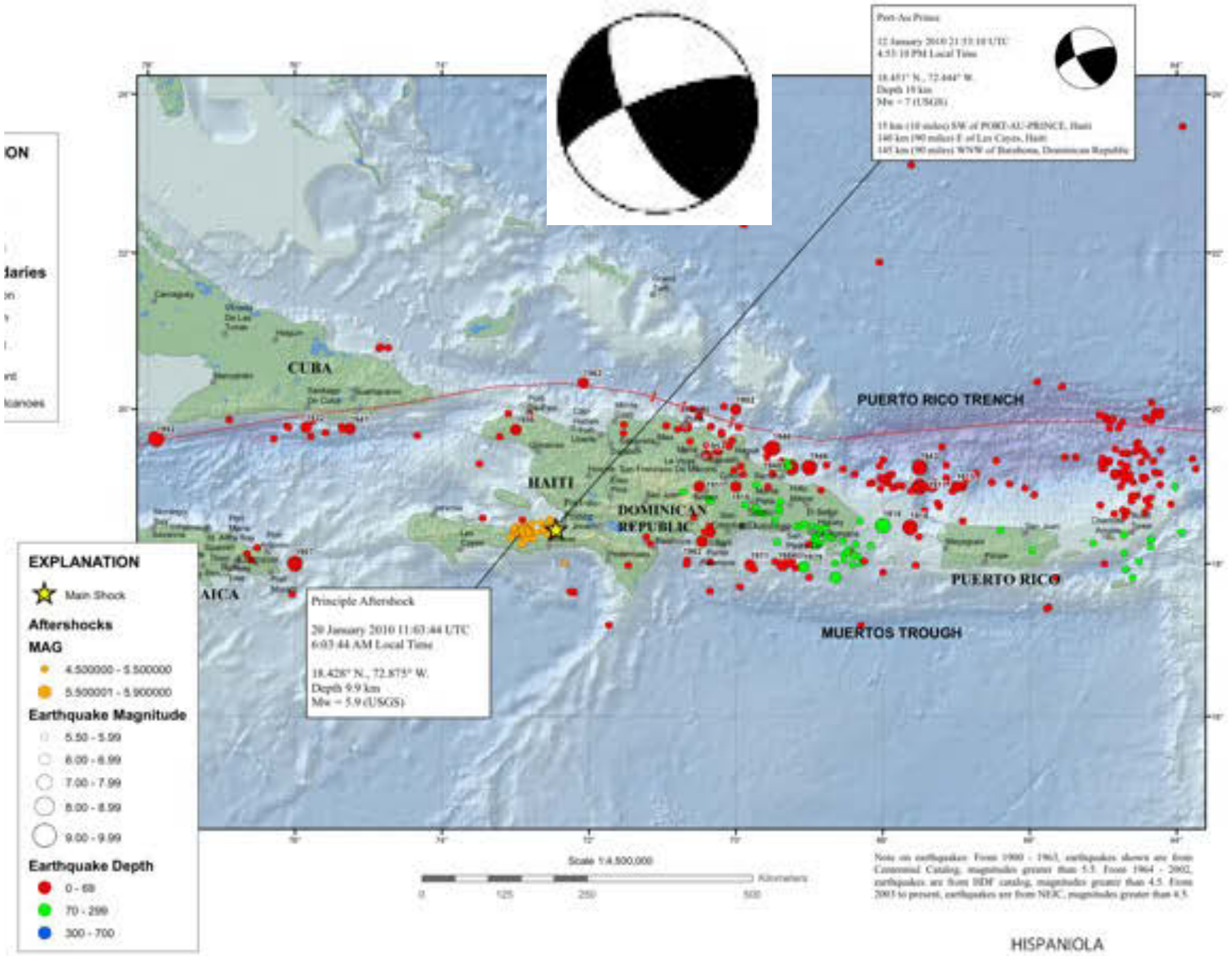
Figure 13.2
***Understanding Earth*, Sixth Edition**

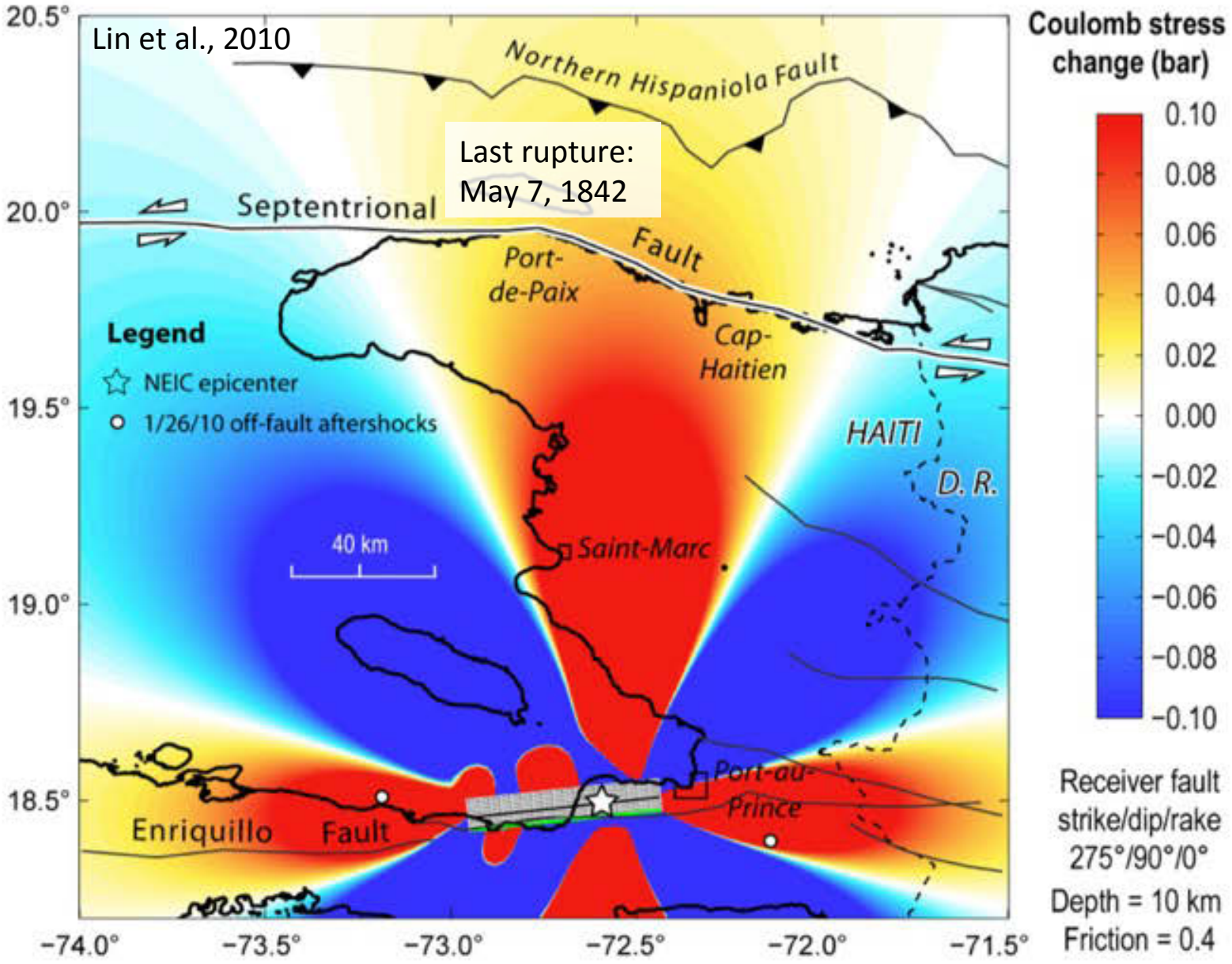
US Geological Survey

Courtesy of the U. S. Geological Survey. Image in the public domain.



Source: Lay, Thorne, Hiroo Kanamori, et al. "The Great Sumatra-Andaman Earthquake of 26 December 2004." *Science* 308, no. 5725 (2005): 1127-33.

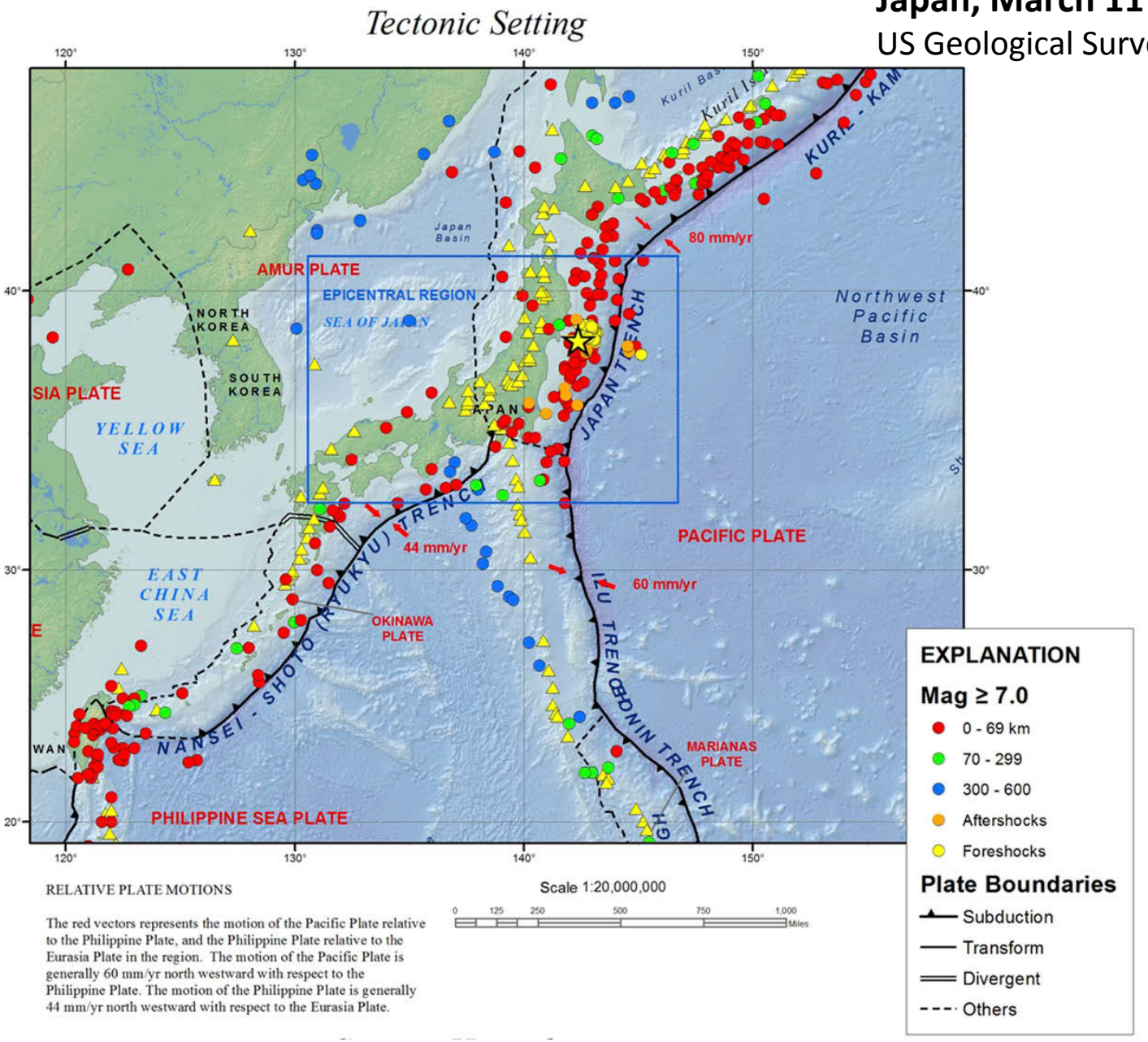


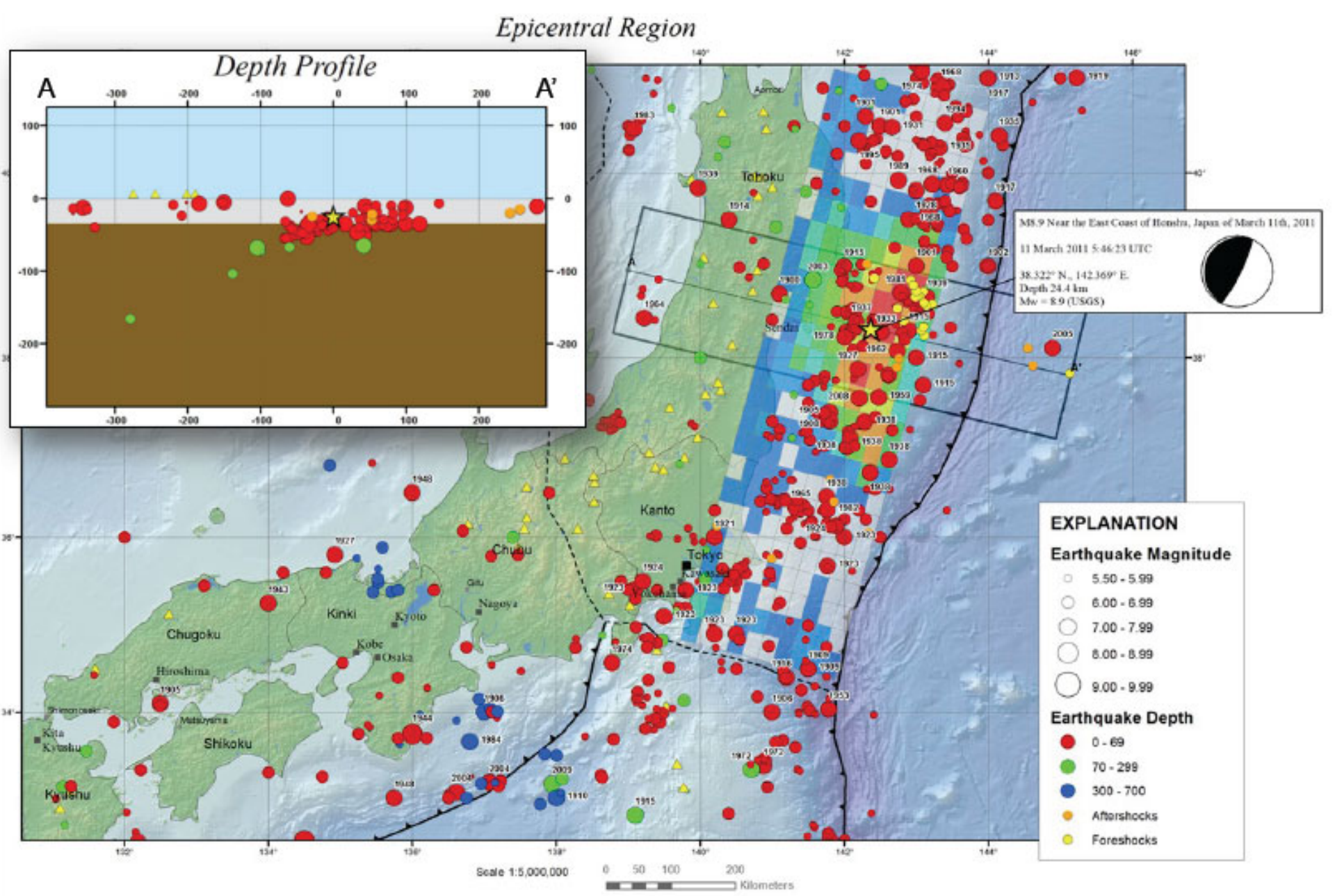


Courtesy of the U.S. Geological Survey. Figure in the public domain.
Source: Lin, Jian, Ross S. Stein, et al. "USGS-WHOI-DPRI Coulomb Stress-transfer Model for the January 12, 2010, Mw= 7.0 Haiti earthquake." *US Geological Survey Open-File Rep* 1019 (2010).

Japan, March 11 2011

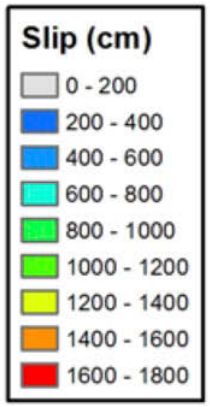
US Geological Survey

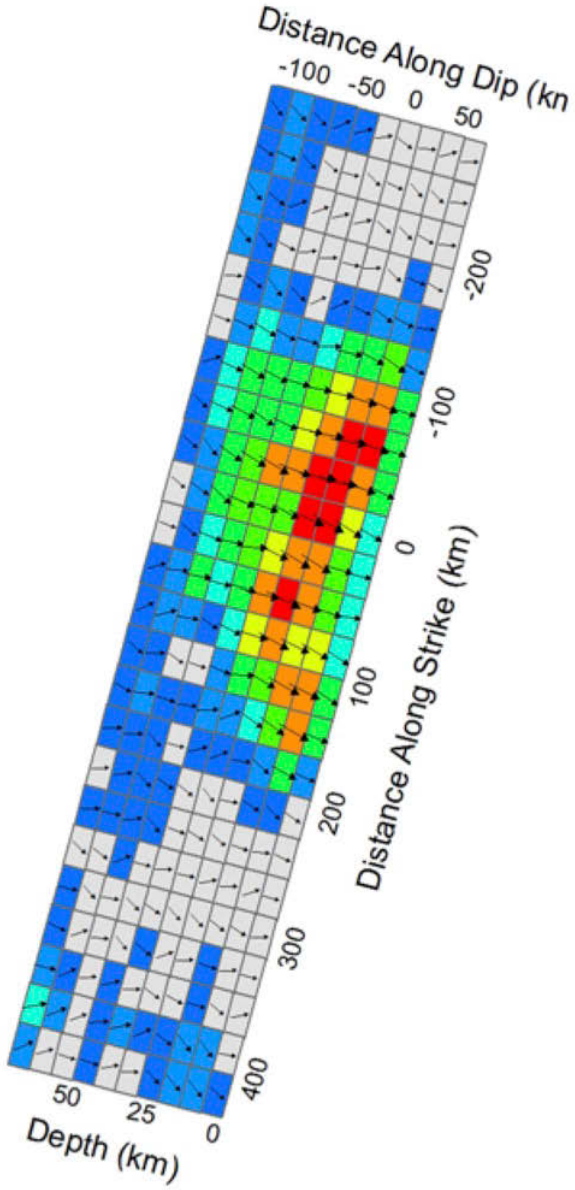


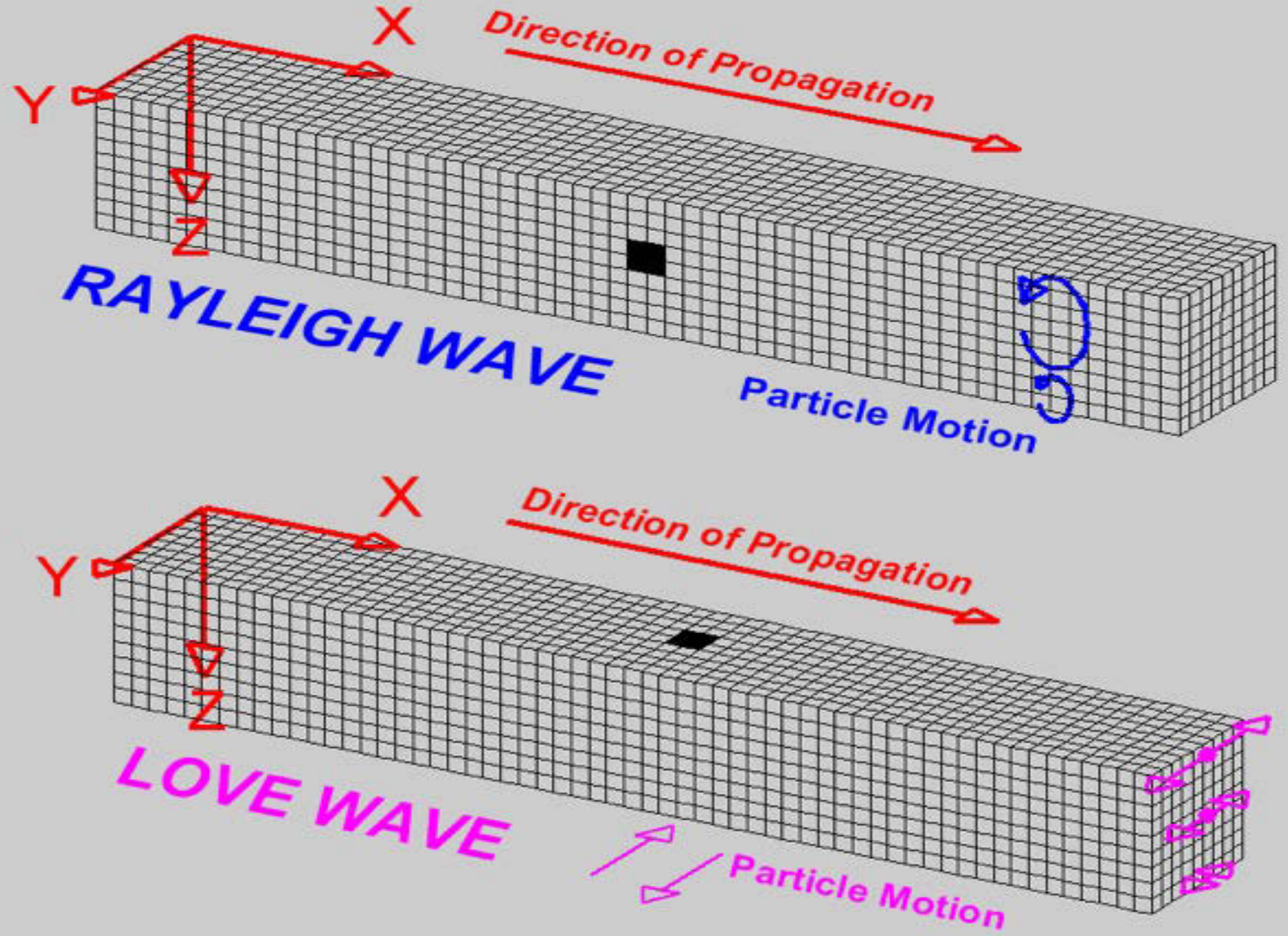


Finite Fault Model

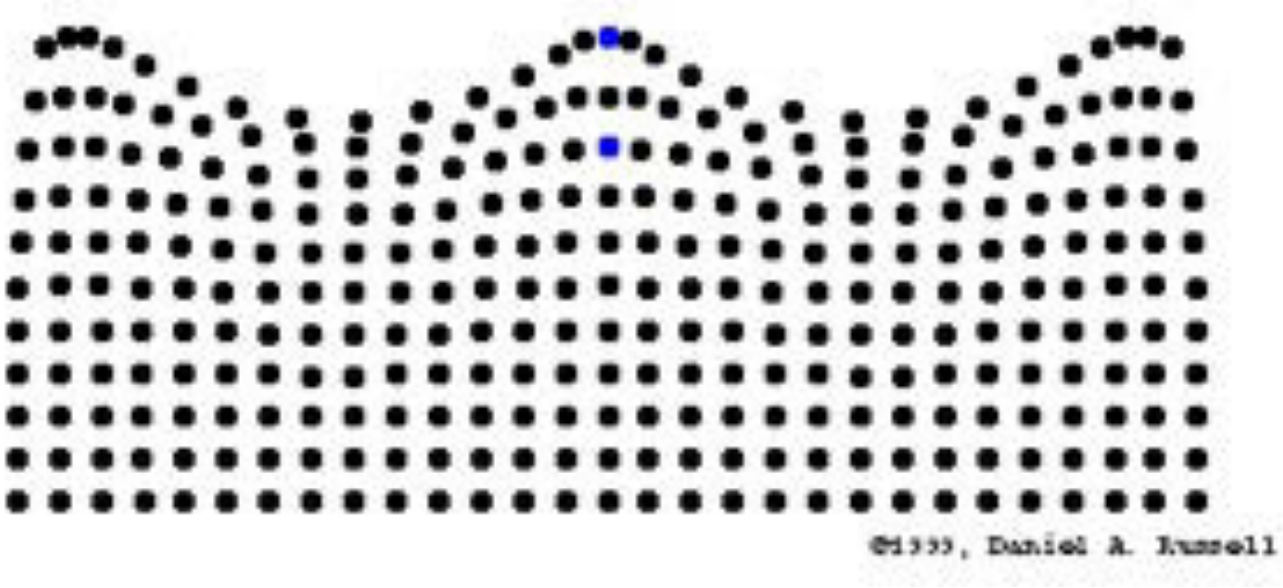
Distribution of the amplitude and direction of slip for subfault elements of the fault rupture model are determined from the inversion of teleseismic body waveforms and long period surface waves. Arrows indicate the amplitude and direction of slip (of the hanging wall with respect to the foot wall); the slip is also colored by magnitude. The view of the rupture plane is from above. The strike of the fault rupture plane is S19E and the dip is 14 WNW. The dimensions of the subfault elements are 30 km in the strike direction and 20 km in the dip direction. The rupture surface is 400 km along strike and 150 km downdip. The seismic moment release based upon this plane is 4.04e+29 dyne.cm.



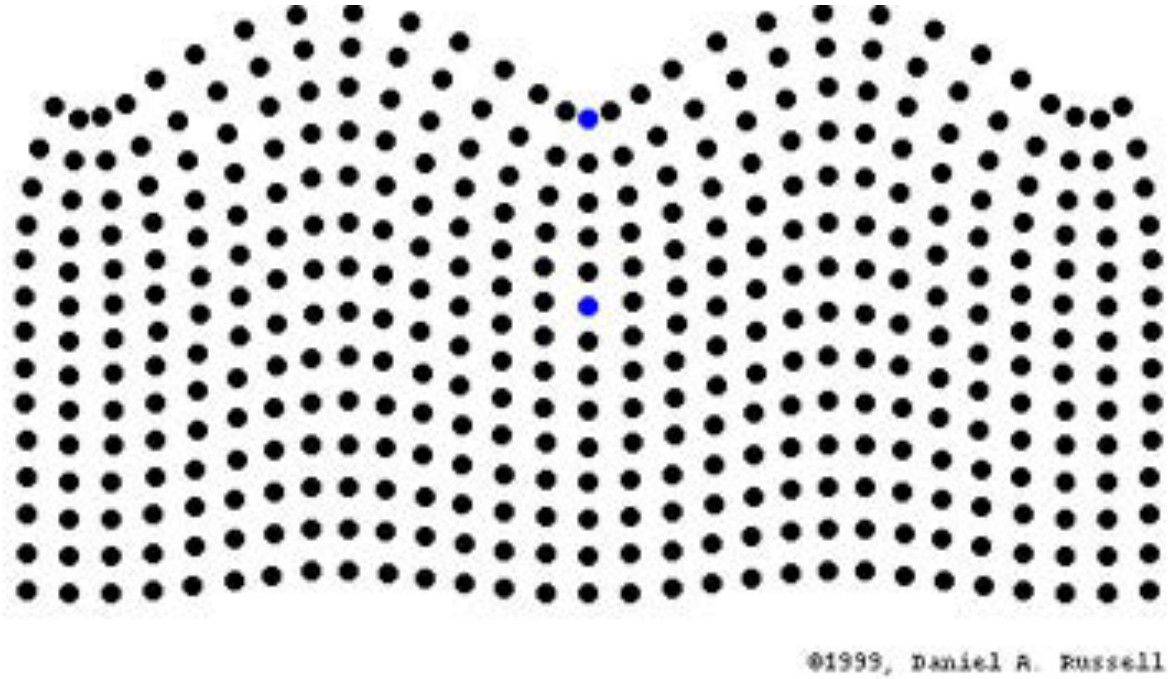




Water wave
Clockwise particle paths



Rayleigh wave
Counterclockwise particle paths at surface, clockwise at depth



See the animation on his website: http://www.acs.psu.edu/drussell/Demos/waves/wavemotion.html.

Kobe EQ ground motion 1

Kobe EQ ground motion 2

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