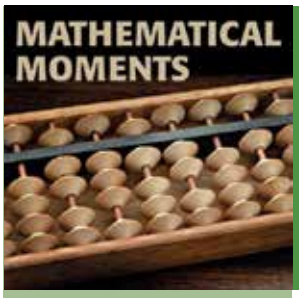

Passing Plates

We know more about stars light years away than we do about the mantle that begins just tens of miles beneath our feet. Although friction between tectonic plates is the ultimate factor in determining earthquakes, the driving force for earthquakes and volcanoes is convection in the mantle. The application of these forces to the tectonic plates is governed by continuum mechanics, but the uncertainties in modeling seismic events—which emerge from the variability within the Earth, the complex geometries that are present, and highly complicated material properties—are profound. Nevertheless, despite these unknowns, we now have significant insight into the composition and history of the mantle, and into some aspects of earthquake mechanism.

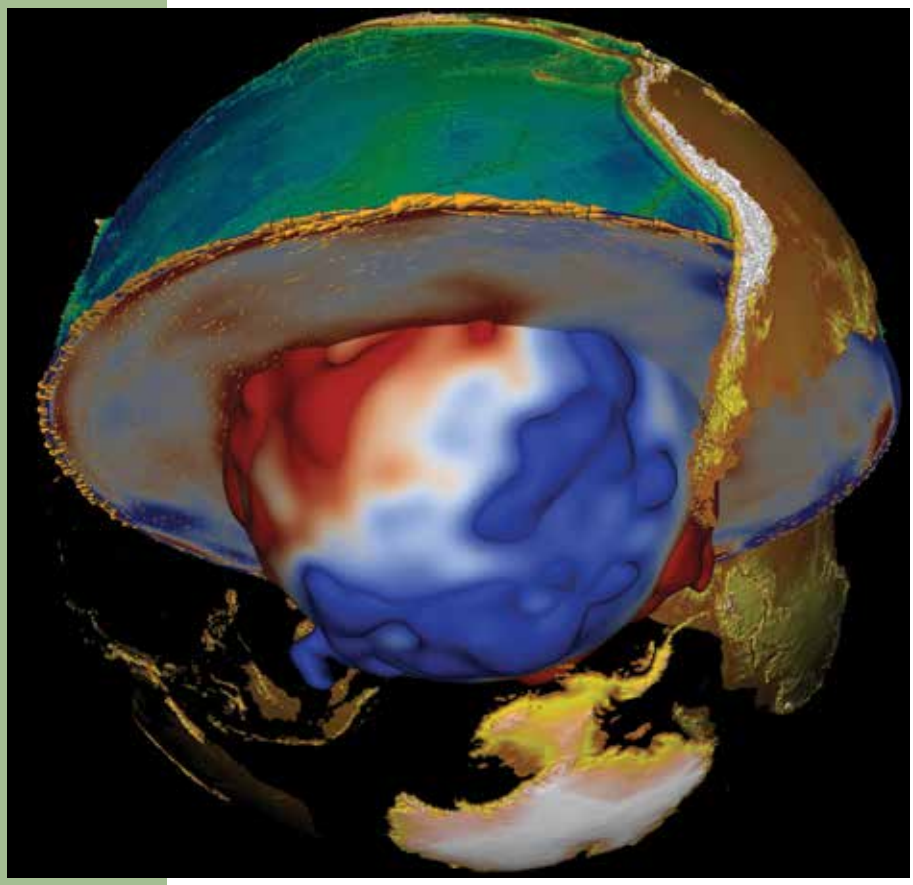

Image: Inferred mantle temperature and convective flow, courtesy of Thorsten W. Becker, University of Southern California.

Listen Up!

MM/119.s

AMS
American Mathematical Society

*The **Mathematical Moments** program promotes appreciation and understanding of the role mathematics plays in science, nature, technology, and human culture.*

www.ams.org/mathmoments