

Abstracts of Additional Tectonics Session Papers

Model Presentation for Displacements Between Western North America, Eastern Eurasia, and Adjacent Oceanic Plates for the Past 180 Million Years

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A model is presented for the displacements between western North America, eastern Eurasia, and adjacent oceanic plates (Pacific, Farallon, Kula) for the past 180 million years. The model is based on the assumption that the hot spots in the Atlantic region have remained fixed relative to the hot spots in the Pacific basin (although not necessarily relative to the spin

axis) and uses a new determination for relative motion between the Kula, Pacific, and Farallon plates. Reconstructions of the major elements of the Pacific basin are derived.

The results indicate the between 180 and 53 million years ago, the Kula plate moved in a general south to north motion through the Pacific basin, implying rapid subduction beneath Eurasia and right lateral oblique subduction with respect to North America. In contrast, the Farallon plate swept from west to east across the basin and allowed for rapid subduction beneath North America, with a left lateral oblique component and predominantly left lateral strike slip in Eurasia. The motion of the Farallon plate relative to North America after 53 million years ago changed to right lateral oblique subduction. The oceanic-continental linear velocities are given as diagrams showing at selected points around the Pacific margin the azimuth and speed of the relative motion as a function of time.
