

High-resolution reconstructions of Pacific-North America plate motion and implications for the Neogene tectonics of western North America

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This talk will describe new, high-resolution estimates of the movement between the Pacific and North America plates as estimated from global plate circuit reconstructions and GPS. Consisting of 22 distinct rotations that sample the past 19.7 Myr at ~1-Myr intervals, the new plate motion estimates track the movements of the two plates with unprecedented accuracy and temporal resolution during a period that spans the birth of the San Andreas Fault, the opening of the Gulf of California, extension across the U.S. Basin-and-Range, and other important tectonic events in the western U.S. and Canada. Implications of our new rotations for some of these will be explored during the talk, as will the methods that were used to construct the new set of plate rotations.