Complex Faulting Across the Los Angeles Portion of the Pacific-North American Plate Boundary

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UAVSAR and GPS observations indicate complex faulting across the Los Angeles portion of the Pacific-North American plate boundary. The UAVSAR observations show a series of linear offsets that are sub-parallel to the overall strike of the Pacific-North American plate boundary, but not the Big Bend portion of the San Andreas fault. These lineaments suggest that structures striking subparallel to the Pacific North American plate boundary accommodate some of the deformation in the Big Bend of the San Andreas fault. QuakeSim inversions and models of the data illuminate the underlying tectonic fabric of the region. QuakeSim tools are also being used to analyze aquifer versus tectonic control of motion along these fault structures. Long-term simulations of the southern California region suggest that earthquakes on these long faults often occur following events such as the M 7.2 El-Mayor/Cucapah earthquake that occurred in Mexico on April 4, 2010.