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Interseismic strain across strike slip faults, what can we learn from ∼20 years of GPS measurements ?

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Measurements of interseismic strain across active faults are an important key to better assess faults dynamics and seismic hazard. Based on geodetic observations across the San Andreas fault Savage and Burford in 1973 have proposed a dislocation in an elastic half space model to fit the data. Since the advent of the Global Positioning System (GPS) several others faults have been instrumented and one can wonder if this rheologically unrealistic model is still a good one to extrapolate the fault slip rate from the interseimic GPS surveys. We have now enough data to start to look at common features for strike slip faults. I will present new velocity solutions across strike slip faults that I will use with results from other studies to discuss what can we learn from geodetic measurement of interseismic strain across strike slip fault. Data from 10 strike slip faults will be used to estimate locking depth and strike slip rate. When available geologic slip rate will be compared to geodetic slip rate. And finally, implications on crustal rheology and seismic hazard will be discussed.