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Earthquake ages and displacements, Frazier Mountain paleoseismic site

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| Meeting | 2011 Fall Meeting |
| Section | Tectonophysics |
| Session | Fault Slip Rate Variability: New Constraints on Temporal and Spatial Patterns III Posters |
| Identifier | T51B-2324 |
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| Index Terms | Paleoseismology [7221] Continental tectonics: strike-slip and transform [8111] |

Abstract

The Frazier Mountain paleoseismic site is located on a poorly understood section of the southern San Andreas fault, mid-way between the well-known Carrizo Plain and Mojave sites of Bidart Fan and Pallett Creek. Emerging paleoseismic evidence indicates that earthquakes along this stretch repeat at a similar pace, with an average interval of ~122 years between A.D. 1000 and 1857. Individual intervals vary considerably, including an interval of ~325 years between the sixth and fifth earthquakes back, followed by two intervals lasting less than 50 years each. We modeled slip required to gently fold the sediments during three of the earthquakes with a 2D, optimized trishear inverse model that uses a simulated annealing algorithm. Due to the orientation of the trenches and broad shape of the folds, the slip estimate (3 m total in 3 events) is a minimum yet indicates an average magnitude of at least M7 using standard regressions. In combination, paleoseismic evidence appears similar to the historic record: individual events can be separated by less than 50 or greater than 150 years, and slip data suggest that large $\geq M7$ events often bridge the Carrizo and Mojave sections of the San Andreas fault.

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