

Figure 1. [AUXILLIARY FIGURE 1] Model parameter tradeoffs for uniform-slip model. Each of the 100 dot in each of the upper plots is the best-fit solution to one a data set, or combination of data sets, to which Monte Carlo, correlated noise has been added. Histograms summarise the results for each parameter. Green dots and histograms are for inversions using descending interferogram ifm3 only; blue dots are for ascending ifm1 only and red dots are for the joint inversion of all 6 interferograms. In these inversions, fault slip is held fixed at 1 m. Value of strike, dip and rake are in degrees; Moments are in 10^{18} Nm, and all other parameters are in kilometres.

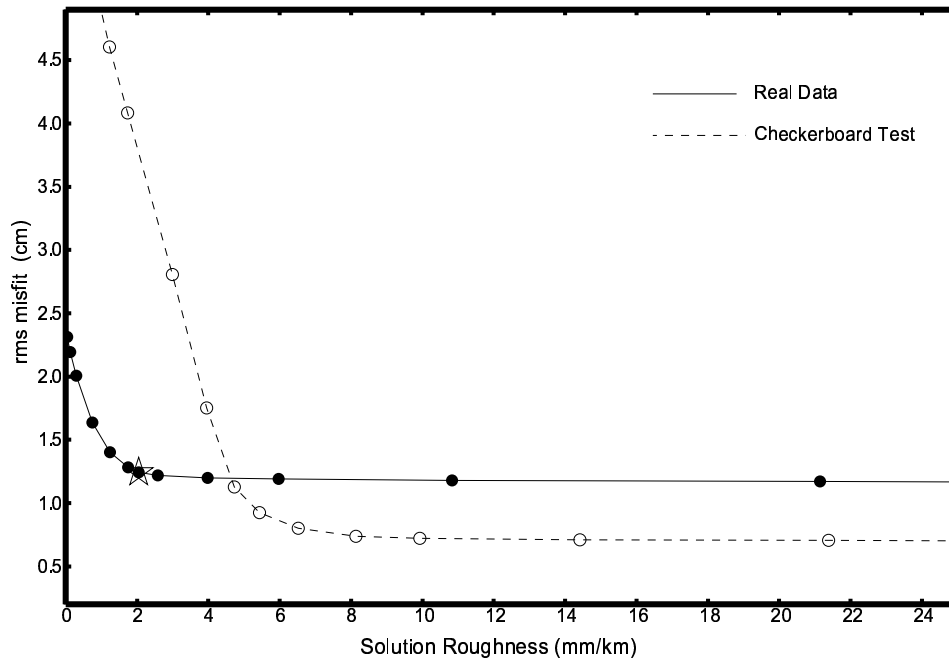


Figure 2. [AUXILLIARY FIGURE 2] Slip roughness vs rms misfit for distributed slip model (solid line). Circles represent the results of individual experiments, and the star is the slip model chosen. The dashed line is the same results for a synthetic checkerboard slip pattern. Low roughness solutions for the checkerboard test have much higher misfits than those for the real data.

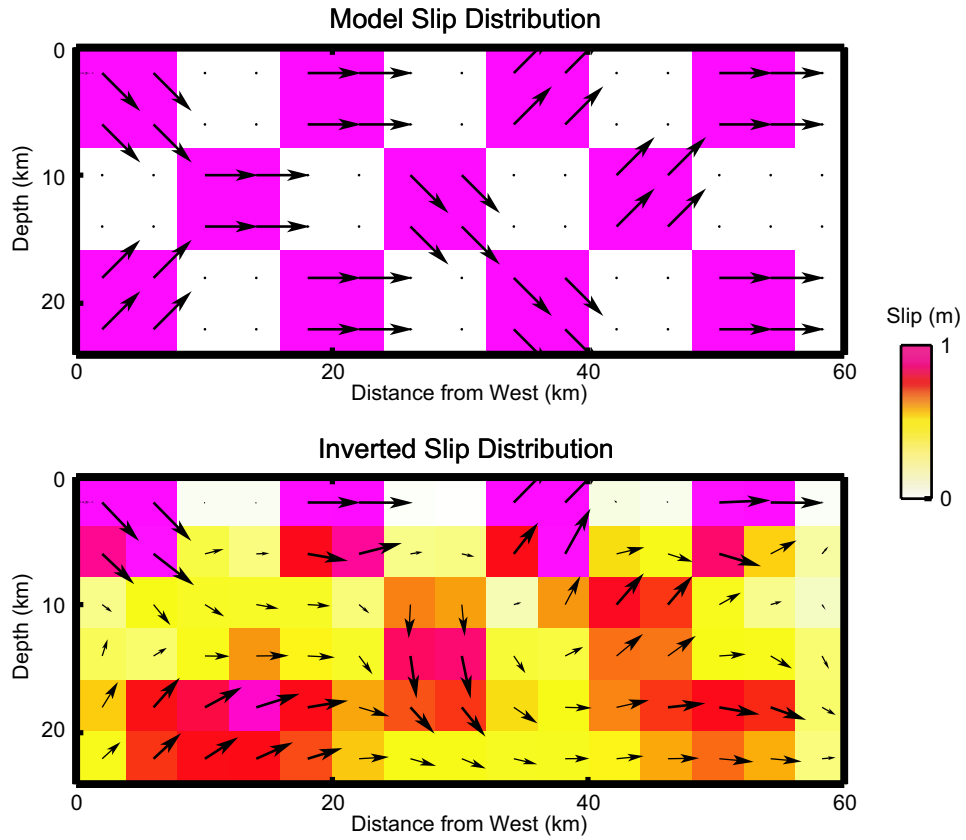


Figure 3. [AUXILLIARY FIGURE 3] Checkerboard resolution test. Phase changes were calculated using the model slip distribution (top), noise was added and an inversion carried out. The smoothing factor was adjusted to find the inverted slip distribution that was closest to the model slip pattern.

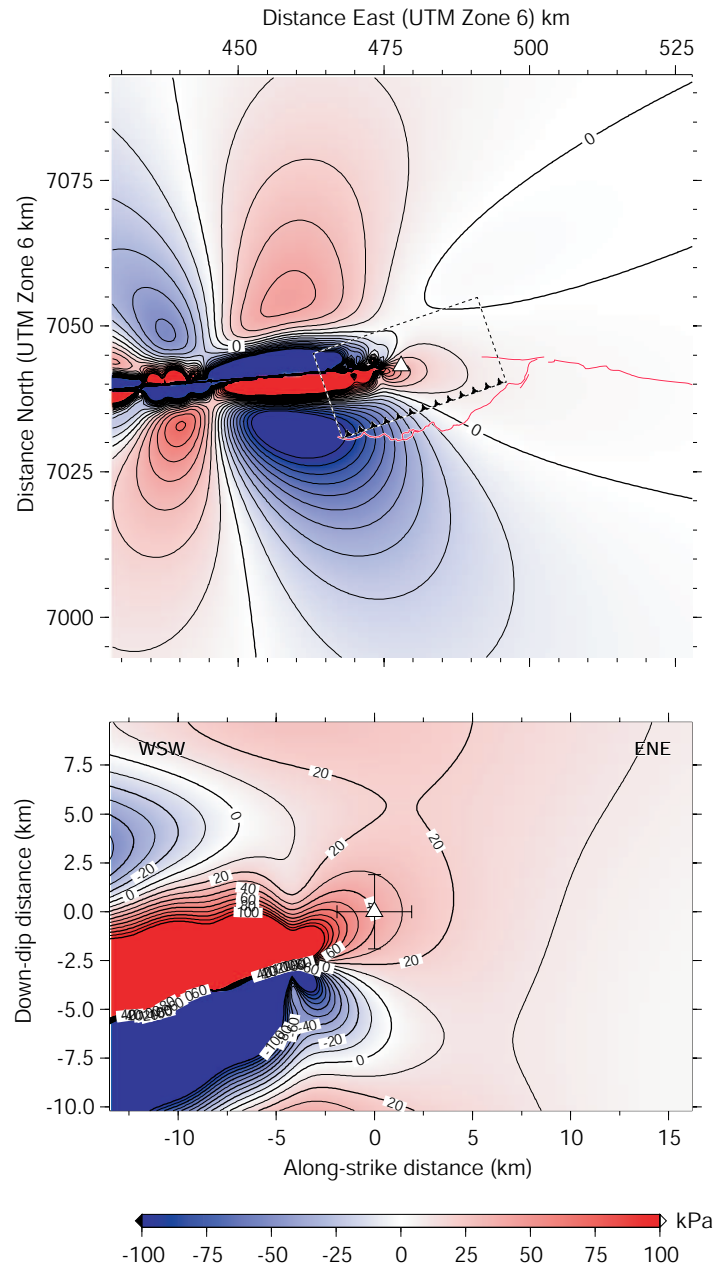


Figure 4. [AUXILLIARY FIGURE 4] Coulomb Failure Stress (CFS) changes induced by our distributed-slip model, on the Susitna Glacier Fault (SGF), which initiated the 3 November 2002, Denali Earthquake (Calculation and Figure courtesy Greg Anderson). CFS was determined for thrust faulting on the SGF, which dips to the north at 40 degrees, using an effective coefficient of friction of 0.4. The top figure is a map view of CFS on faults parallel to the SGF, at a depth of 5 km, with a contour interval of 10 kPa. The bottom figure is a fault-parallel cross-section of stress changes on the SGF. The hypocentral location (from the AEIC) is shown as a white triangle with error bars in the cross section. The geometry we used for the SGF is determined from InSAR and is different from that used by Anderson and Ji [2003]. Calculations using the Anderson and Ji geometry for the SGF, but our model for the Nenana Mountain earthquake, yield stress increases of 60–100 kPa at the hypocenter, larger than the 30–50 kPa determined by Anderson and Ji. The main reason for this difference is that our model contains more slip further to the east than the model they used, resulting in larger coulomb stress changes, further to the east.