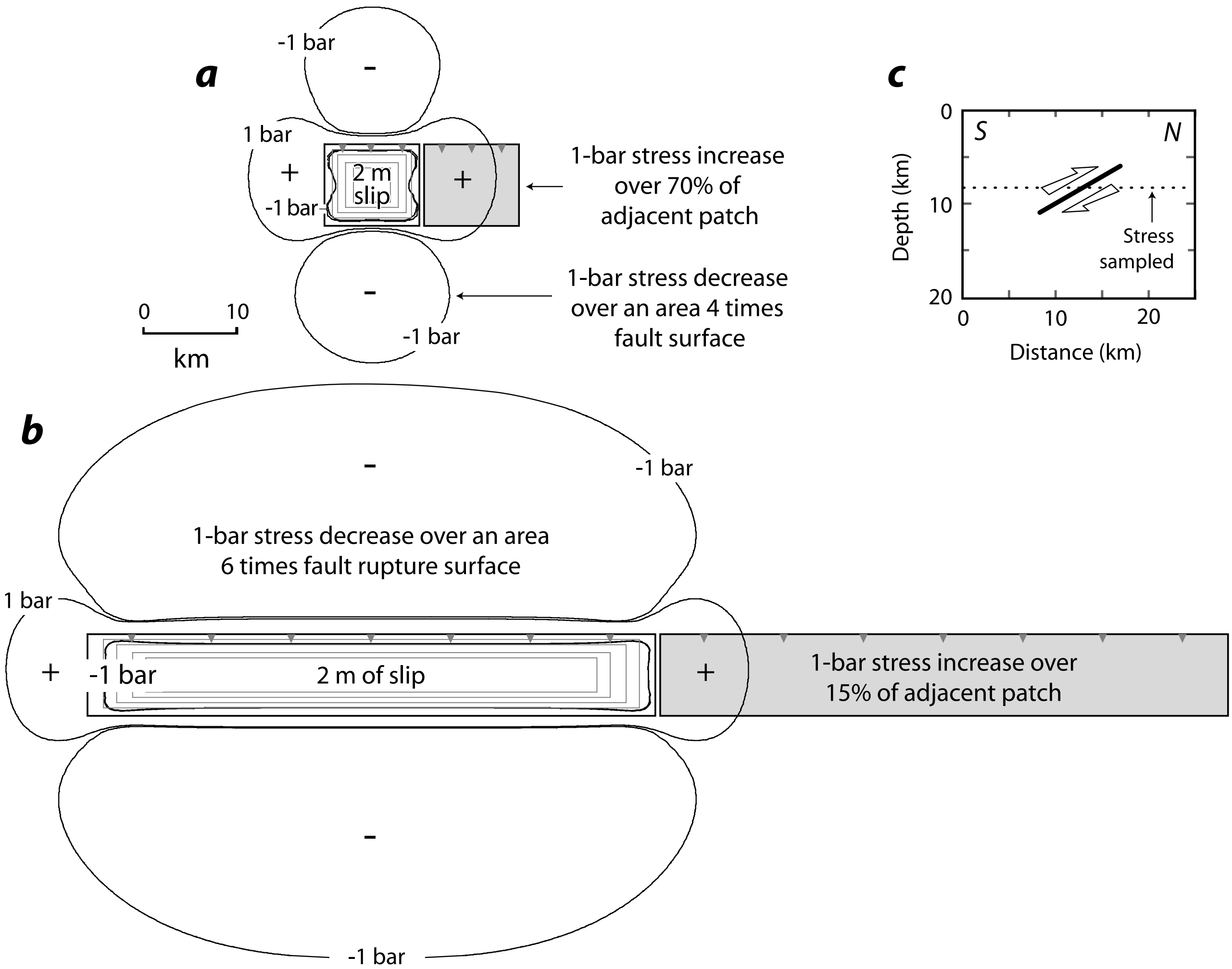

Figure 6. Triggering of a thrust earthquake on an adjacent patch (shaded) of similar size along strike. The source and receiver faults both dip 30°; 2 m of linearly tapered slip, as indicated by the nested rectangles, is imposed on both the short and long source faults. (a) For a square source (L/W = 1), equivalent to M_w = 6.5 with a mean stress drop of 60 bars. A 1-bar stress increase occurs over 70% of the adjacent patch. (b) For a long source (L/W = 6), equivalent to M_w = 7.0 with a mean stress strop of 47 bars. Only 15% of the adjacent patch experiences a 1-bar stress increase. In both Figures 6a and 6b, the downdip width, W, of the source fault controls the along-strike extent of the 1-bar stress increase area in the adjacent fault patch. (c) Cross section showing fault geometry.

Klotz et al. [1999] inverted GPS data for a variable slip model for the 1995 shock, M. Chlieh et al. (Crustal deformation and fault slip during the seismic cycle in the north Chile subduction zone, from GPS and InSAR observations, submitted to *Geophysical Journal International,* 2003, hereinafter referred to as Chlieh et al., submitted manuscript, 2003) inverted GPS and InSAR geodetic data for the first 3 years of postseismic slip, and *Husen et al.* [2000] relocated 1995 aftershocks using local earthquake tomography from a 90-day land and ocean bottom seismometer deployment. We calculate the coseismic Coulomb stress change on the fault surface, and compare this to the principal aftershocks and site of postseismic slip (Figure 12c). Four out of the six largest shocks (red stars), and 82% of the well-relocated aftershocks (circles) lie in areas brought closer to Coulomb failure by the coseismic slip. Aftershocks extend farthest from the north end of the rupture, where the off-fault stress changes are greatest. In addition, the postseismic slip lies on the downward portion of the subduction interface at a locality where the Coulomb stress was most increased by the coseismic slip (Figure 12c). In cross section, some 80% of the aftershocks are located in areas of increased Coulomb stresses, especially downdip of the fault zone (Figure 12d). For neither the 1960 nor the 1995 events is the background seismicity well enough located to permit a comparison of pre-main shock and post-main shock seismicity, as we did for the California thrust faults.

6. Stress Transferred by the San Andreas to Nearby Thrust and Strike-Slip Faults

[19] The stress changes caused by a strike-slip earthquake are most commonly calculated for strike-slip receiver faults