STRESS DROP ON ASPERITIES INFERRED FROM CHARACTERIZED ASPERITY MODELS FOR INLAND EARTHQUAKES

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The stress drop on the asperities was inferred to be 46 bars, 119 bars, and 135 bars for the strike-slip faults with surface ruptures (1992 Landers, 1995 Hyogo-Ken Nambu, 1979 Imperial Valley), the oblique-slip faults without surface ruptures (1989 Loma Prieta, 1986 North Palm Springs), and the reverse faults without surface ruptures (1985 Dec Nahanni, 1994 Northridge, 1985 Oct Nahanni, 1987 Whittier Narrows), respectively, from the empirical relations of the fault area and the seismic moment and the empirical relations of the combined asperity area and the fault area. These values were consistent with the effective stress on the asperities of 49 bars, 88 bars, and 183 bars (normalized at the depth of 10 km) inferred from the peak slip velocity by Dan et al (2003).