Aseismic creep measured along the San Andreas 1 'ault at Parkfield, CA by I'RS-1 Radar Interferometry

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The Parkfield, CA area has been the subject of considerable scrutiny in seismology in anticipation of a substantial (M > 6) seismic event. Such an event is expected because the section of the San Andreas 1 'ault northwest of the town of Park field has been measured by conventional geodetic methods to bc creeping aseismically at a rate consistent with the right lateral secular motion of the plates, whereas the fault segment southeast of Parkfield is locked, accumulating strain. In this talk, analysis of I'RS-1 images by the technique of differential radar interferometry shows the. wi(ic-area distribution of creep along the fault segment northwest of Parkfield. Two I'RS-1 images acquired 15 months apart were combined to form an interferogram of t hc region. In this case, the phase of the interferogram is insensitive to topography because the orbital separation at the two acquisition times (interferometric baseline) is nearly zero. 1 lence, the observed phase is directly proportional to the displacement of the surface over the 15 month interval, in the direction **of'** the I'RS-1 lin of sight. A sharp discontinuity in the phase of roughly 2 cm equivalent line of sight displacement extends over 100 km in the interferogram, coincident with the San Andreas fault, and consistent with t hc expected and measured fault **motion. Some** heterogeneity in the phase signature exists, as well as possible. organized displacement signatures away from the San Andreas fault near Park field. However, interferometric decorrelation and artifacts probably associated with atmospheric propagation anomalies limits detailed interpretation of these signatures.