



Glacier Ice Mass Fluctuations and Fault Instability in Tectonically Active Southern Alaska

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BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 48 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. Across southern Alaska the northwest directed subduction of the Pacific plate is accompanied by accretion of the Yakutat terrane to continental Alaska. This has led to high tectonic strain rates and dramatic topographic relief of more than 5000 meters within 15 km of the Gulf of Alaska coast. The glaciers of this area are extensive and include large glaciers undergoing wastage (glacier retreat and thinning) and surges. The large glacier ice mass changes perturb the tectonic rate of deformation at a variety of temporal and spatial scales. We estimated surface displacements and stresses associated with ice mass fluctuations and tectonic loading by examining GPS geodetic observations and numerical model predictions. Although the glacial fluctuations perturb the tectonic stress field, especially at shallow depths, the largest contribution to ongoing crustal deformation is horizontal tectonic strain due to plate convergence. Tectonic forces are thus the primary force responsible for major earthquakes. However, for geodetic sites located 10-20 km from major ice mass fluctuations, the changes of the solid Earth due to ice loading and unloading are an important aspect of interpreting geodetic results....



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