



Surface Elevation Changes in West Antarctica from Satellite Altimetry: Mass Balance Implications

By H. Jay Zwally

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 32 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. Time-series of surface elevation change, which are constructed from 7-years (1992-1999) of ERS-1 and 2 satellite radar altimeter data of Antarctica, show significant seasonal, inter-annual, and long-term changes. Elevation time-series are created from altimeter crossovers among 90-day data periods on a 50 km grid to 81.5 degrees S and fit with a multivariate linear sinusoidal function to give the average rate of elevation change (dHdt) and account for seasonal changes. On the major Ronne, Filchner, and Ronne ice shelves, the dHdt are small or near zero. In contrast, the ice shelves of the Antarctic Peninsula and along the West Antarctic coast appear to be thinning significantly, with a 23 - 3 cm a(exp -1) surface elevation decrease on the Larsen ice shelf and a 65 - 4 cm a(exp -1) decrease on the Dotson ice shelf. Significant elevation decreases are obtained over most of the drainage basins of the Pine Island and Thwaites glaciers. Significant increases are obtained over most of the other grounded ice in Marie Byrd Land, the Antarctic Peninsula, and Coates Land. Over the sector from 85 degrees...



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