

## **WAIS Elevation changes estimated by the ICESat mission so far**

*Benjamin E. Smith (ben@ess.washington.edu)  
University of Washington Dept. of Earth and Space Sciences  
Box 351310  
Seattle, WA 98195*

*Charles F. Raymond, University of Washington, Dept. of Earth and Space Sciences*

*Charles R. Bentley, University of Wisconsin, Dept. of Geology and Geophysics*

We analyze differences in ICESat crossovers within the Ross Embayment of the West Antarctic Ice sheet to estimate the short-term mean in elevation change rates. A linear regression of crossover elevation difference against time difference gives an estimate of the mean elevation-change rate during the first 24 months of the ICESat mission . We observe prevalent elevation change in the south, with uplift in the upstream end of Kamb Ice Stream at 0.25-0.28 m/a, and thinning in the parts of Whillans Ice Stream, Mercer Ice Stream, and the adjacent Conway and Engelhardt ice ridges at 0.06-0.18 m/a. We consider possible causes for these apparent changes apart from true elevation change: These rates are too large to be explained by the 0.02 -0.03 m/a formal regression error, by seasonal height variations, by time-varying biases in ICESat measurements or by accumulation- or densification-rate variability, suggesting that they reflect real variations stemming from the ice dynamics of the region.