

“Clearing Up” ICESat Data over West Antarctica

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Since it began operations in early 2003, NASA's Ice, Cloud, and land Elevation Satellite (ICESat) has provided valuable data for glaciological research using its Geoscience Laser Altimeter System (GLAS) sensor. Despite excellent precision under optimum circumstances, several issues have made utilization of the available altimetry data a challenge. First, planned laser lifetime has not been realized leading to discrete data acquisition intervals rather than continuous operation as well as reduced coverage density. Second, data has been acquired using two different lasers and consequently variations in the GLAS optical pathway that must be compensated by iterative post-processing. Third, declining laser energy in both the 1064 nm and especially the 532 nm channel has impacted the precision of the data through the available operational periods. And fourth, clouds have a variable impact on retrieved elevation precision that has been difficult to define on a shot-by-shot basis. This presentation will focus on these issues and will illustrate and quantify their effects using data from West Antarctica.