Overview of the Science Results from ICESat

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Abstract

ICESat (ICE, Cloud and Land Elevation Satellite) was launched in January 2003 into a 94, 600 km altitude orbit and laser altimeter operations began one month after launch. Although laser life issues were identified after one month of operation, the adopted operation scenario has supported the creation of a time series of elevation from which elevation change has been measured. A variety of calibration/validation experiments have been executed which show that the elevation products, when fully calibrated, have an accuracy that meets the science requirements (e.g., radial orbit accuracy < 5 cm, laser spot geolocation accuracy < 5 meters). The elevation products from ICESat use GPS-derived orbits, but the SLR measurements collected through the ILRS are critical to verify the radial orbit accuracy. Results obtained from ICESat for elevation change correlate well with mass change results obtained from GRACE over the same time interval. This presentation will summarize the science results obtained from ICESat.