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Comparison of radar and laser altimetry on inland water

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Radar altimeter sensors have footprints with radius of some kilometers. This leads to problems by using this data close to the coasts and over inland waters. Due to the large radius the influence of land to the radar signal is significant. On the other hand the geoscience laser altimeter GLAS on ICESat has a footprint of only 70m. This allows the usage of ICESat data on rivers and lakes without distortion by land. However the disadvantage of ICESat is that due to system degradation only episodic measurements (about two per year) are performed. In spite of this heterogeneous sampling a comparison is made between heights of ICESat and radar altimeter missions such as Jason-1, Envisat. The objective is to perform calibrations of the radar altimeter data, to access the precision of radar altimeter over inland water and to create by the high repeat cycle a long term series of radar altimeter heights.