

ATL11 release 001 known issues. November 11, 2020

Poorly constrained reference surfaces:

The primary problem observed with ATL11 data is that when the surface topography is complex, and when the number of repeat measurements for an along-track point is small, the reference-surface fitting solution can produce unreliable results, resulting in unrealistic corrected-height values. The */ptx/ref_surf/fit_quality* flag is provided to help users identify points affected by this problem. This variable has one element for each reference point, and nonzero values (1, 2, or 3) indicate a problem. The subset of data with */ptx/ref_surf/fit_quality==0* will contain significantly fewer, and smaller, outlying values.

Inherited problems from lower-level products:

The ATL06 dataset contains a few tracks that have significant errors not accounted for in the standard error model. These include signal-finding blunders, and systematic errors associated with activities that point the spacecraft away from the reference ground tracks. These errors in some cases produce outlying values in ATL11. Signal-finding blunders have the largest effect in the crossing-track data values, and may be eliminated (in part) by filtering based on the */ptx/crossing_track_data/along_track_rss* values (smaller values are better), and on */ptx/crossing_track_data/ATL06_quality_summary* values (zero indicates no problems identified).

Systematic off-pointing relative to the reference track also has its most significant effects on the *crossing_track_data* group, because data from cycles with significant off pointing are usually excluded from the along-track fit. Some of these events are identified in the ICESat-2 Technical Reference Table, which is available on request from the NSIDC.