

# **Analysis of ice plains on Ross and Filchner/Ronne ice shelves using ICESat data**

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We use laser altimeter data from the Ice, Cloud, and land Elevation Satellite (ICESat) to map the grounding zones of ice shelves in Antarctica. Ice flexure in the grounding zone occurs as the ice shelf responds to ocean height changes due primarily to tides. The landward and seaward limits of this flexure region, which define the grounding zone, can be detected through ICESat repeat-track analysis since each satellite pass is acquired at a different tidal phase. Using this method, we have currently mapped the major Antarctic ice shelves (Amery, Filchner/Ronne, and Ross) and the Antarctic Peninsula (the Larsen ice shelves and the Wilkins Ice Shelf). Through the course of this endeavor, we have identified and mapped a number of ice plains, or regions of lightly grounded ice, on the Ross and Filchner/Ronne ice shelves. This was accomplished through analysis of altimetry profiles and comparison of ICESat grounding line estimates with others based on either digital elevation models or satellite imagery. We present some of the unique signatures of these features in ICESat data.