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# Impact of accounting for calving on glacier thickness estimations of lake- and marine-terminating glaciers.

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The number of methods used to estimate the ice thickness of glaciers based on surface properties has greatly increased in recent years. Many of these methods use continuity of mass to constrain mass fluxes through given glacier cross-sections. The results are thus sensitive to the spatial distribution of the surface mass budget. For tidewater glaciers, the surface mass budget cannot be considered balanced, even in an assumed equilibrium between glacier and climate. The derived ice thickness estimate for these glaciers hence depends on estimates of frontal ablation.
Using the ice-thickness estimation module of the Open Global Glacier Model (OGGM), we determine the impact of frontal ablation on the estimate of ice mass stored in glaciers. We implement a simple parametrization of calving in OGGM. Based on calibration and cross-validation of the model using glacier thickness data from the GlaThiDa database, we investigate the effect of accounting for calving (i) on ice thickness estimation accuracy of OGGM, and (ii) on the net estimate of ice mass stored in glaciers in Alaska.