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How well does GRACE capture small-scale glacier mass variations?

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The gravity observations from the GRACE satellites have been shown to be a powerful tool to monitor the state of the large ice sheets. Over the years, the focus has been expanded to the smaller glaciers and ice caps, ranging from the Patagonian Ice Fields to the ice caps of the Canadian and Russian Arctic and recently, a global estimate covering the majority of the Earth's glaciers was published. In many areas, the GRACE data agrees well with estimates based on in-situ data, yet, at other locations, significant differences were found.
Here, we use simulated data based on ICESat and climate model data to investigate how well GRACE is able to capture small-scale changes in glacier mass balance and how these estimates are affected by the approach used to recover the mass balances from the GRACE data, noise in the data, the unknown degree 1 coefficients, the atmospheric correction applied by the GRACE science teams, GIA uncertainty, etc. Because many of the world's glaciers are located in landlocked areas, the GRACE glacier mass balances are sensitive to (non-glacial) hydrological signals. Using a suite of hydrological models, we examine to which extend the GRACE data may be corrected for this, with a particular focus on the glaciers in High Mountain Asia.