Regional ice mass balance for Greenland from GRACE and ICESat modelled by radial basis functions

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This contribution presents a tailored regional mass balance for the Greenland ice sheet from GRACE and ICESat observations. A regional gravity field trend model is calculated directly from the GRACE level 1B observations using the short arc method. The gravity field model is parameterized by harmonic space localizing radial basis functions that can be tailored to the specific signal characteristics in Greenland. The ICESat along-track ice elevation changes are co-estimated together with the local topography in order to be independent from external elevation models. The along-track observations are then evaluated without any necessary gridding consistently with the GRACE processing in the same basis of radial basis functions. This allows further joint analysis of the two data sets in this same basis.