Terminus thinning drives recent acceleration of a Greenlandic lake-terminating outlet glacier: Supplementary Information

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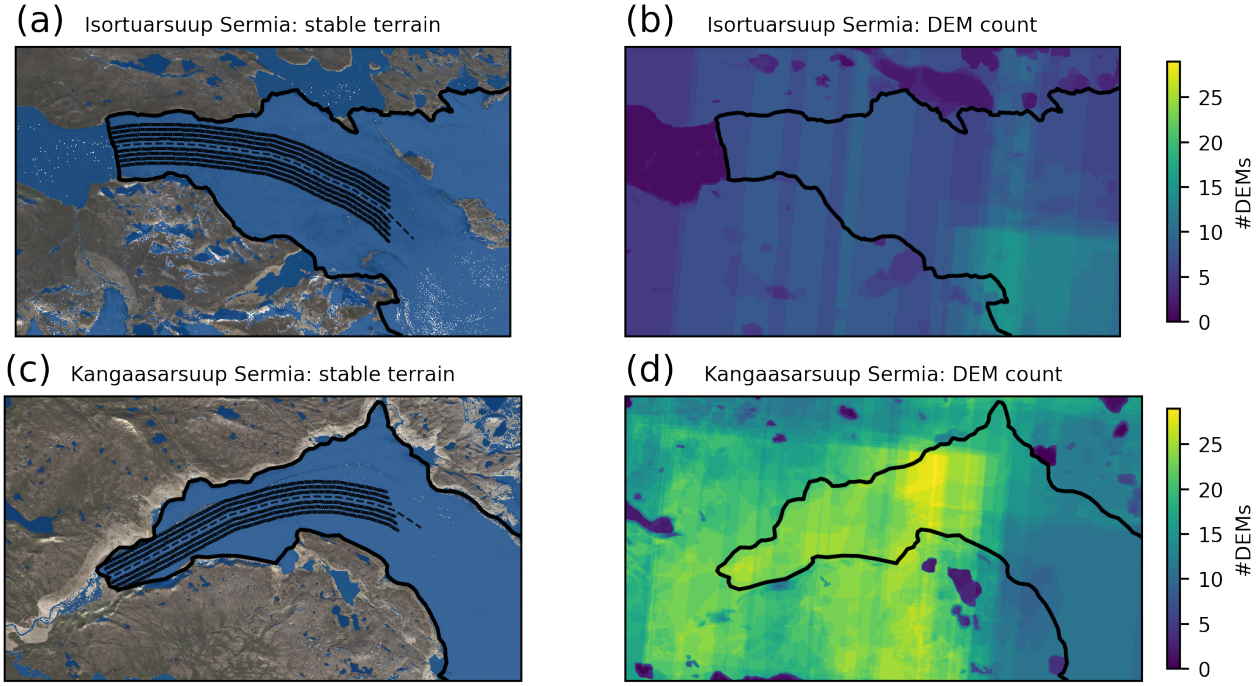
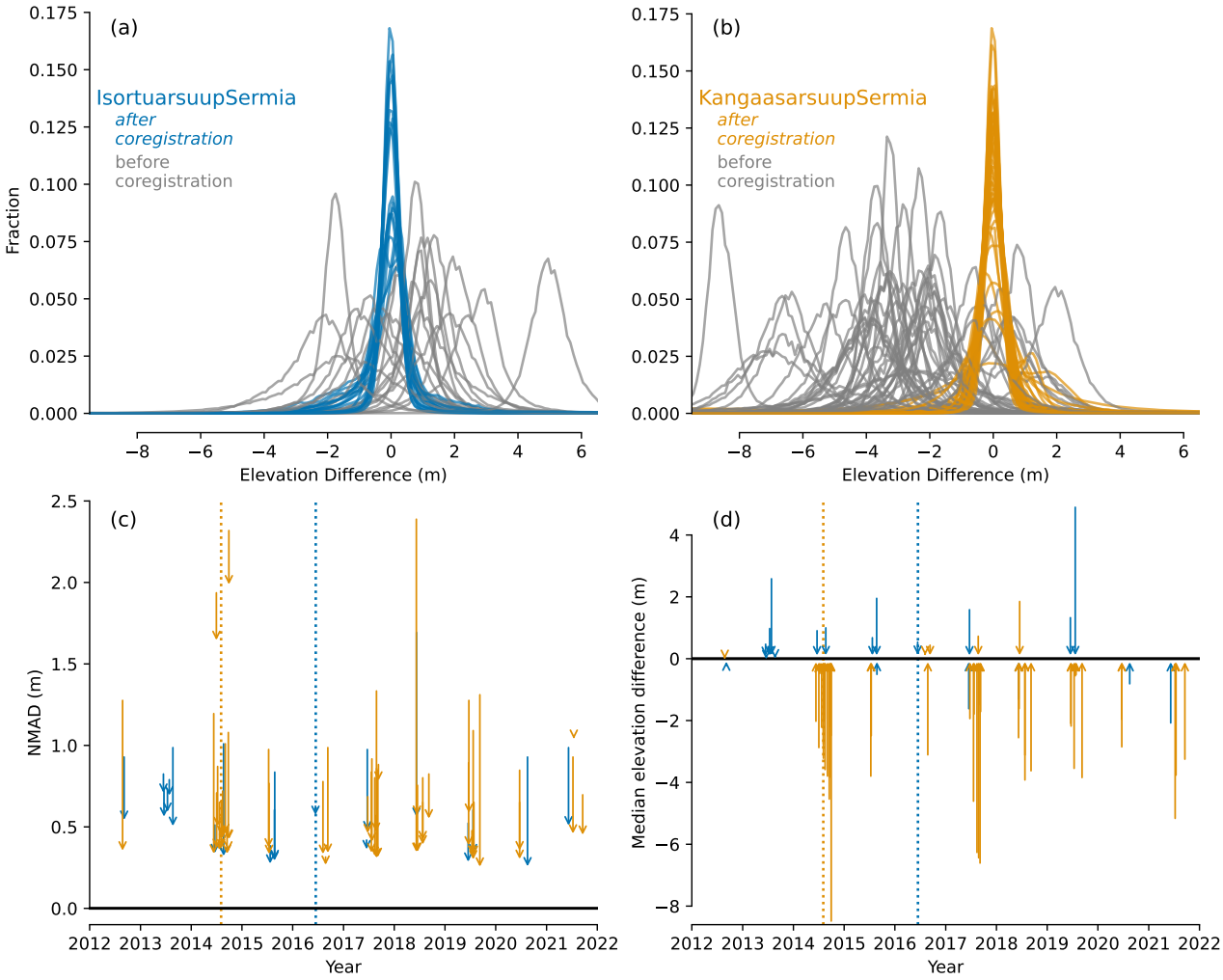
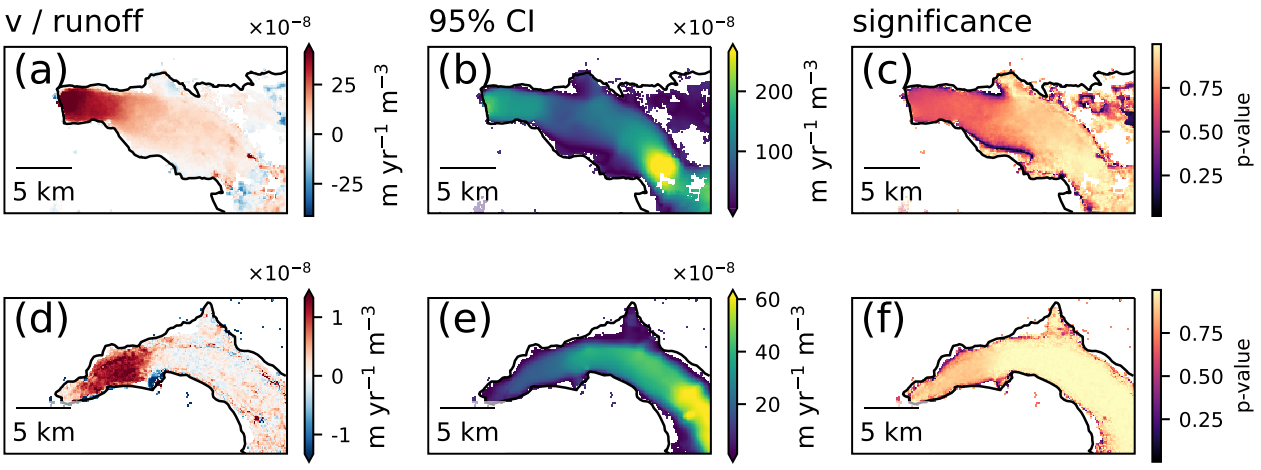


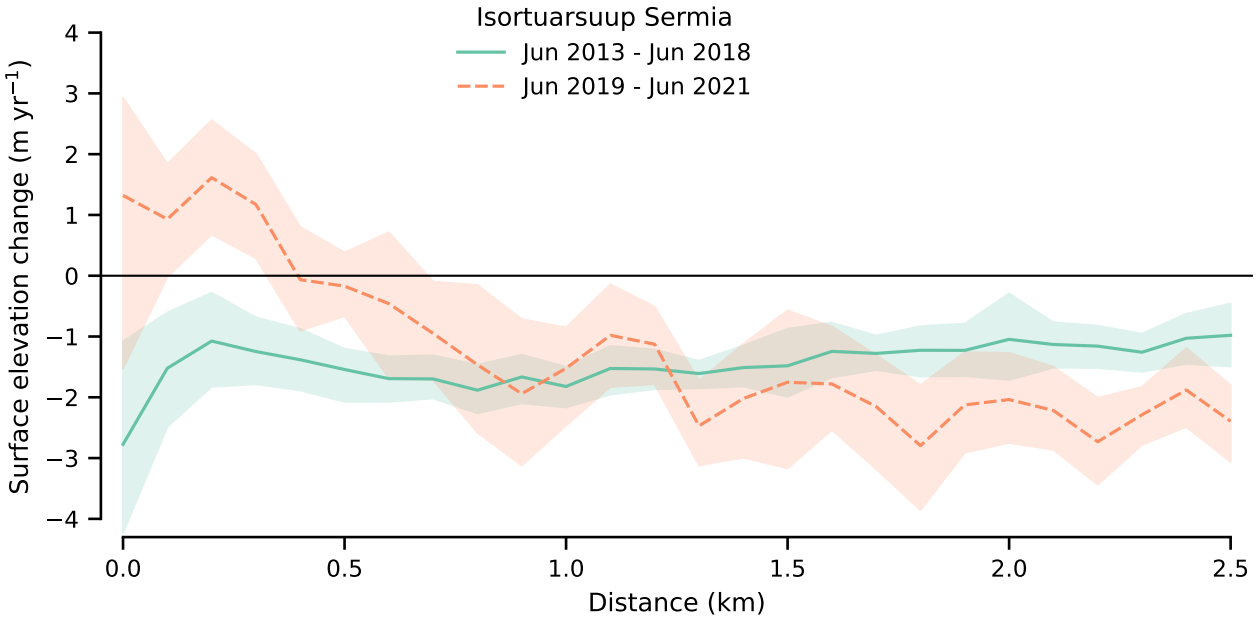
SI. 1: Co-registration masks: stable terrain at Isortuarsuup Sermia (background image Sentinel-2 18/08/2022) (a) and Kangaasarsuup Sermia (background image Sentinel-2 24/07/2022) (c) with glacier centreline (dashed line) and parallel offset lines spaced every 250 m; blue regions show areas masked when co-registering DEMs; count of ArcticDEM measurements at Isortuarsuup Sermia (b) and Kangaasarsuup Sermia (d). Manually digitised black lines denote ice margin.



SI. 2: DEM coregistration: distribution of elevation differences between the original ArcticDEMs and the reference DEM over stable terrain (grey lines), and the distributions after co-registration (coloured lines) at (a) Isortuarsuup Sermia and (b) Kangaasarsuup Sermia. Arrows show the improvement in normalized median absolute deviation (NMAD) (c) and the median difference (d) over stable terrain for each DEM after co-registration, by DEM timestamp (dashed lines denoting time of reference DEM used for IS and KS.



SI. 3: Results of regressing average annual velocity against cumulative annual runoff (2013-2021) at IS (a,b,c), and KS (d,e,f). (a) and (d) show regression coefficients (i.e. the rate of increase in velocity per change in total annual runoff volume. (b) and (e) are the width of 95% confidence interval about the estimates in (a) and (d). (c) and (f) show the p-value for the regression coefficients, where the null hypothesis is that the coefficient is zero.



SI. 4: Width averaged rate of surface elevation change at Isortuarsuup Sermia between September 2012–June 2018 (green, solid) and June 2019–June 2021 (orange, dashed). Shaded region represents standard deviation of rates computed across the parallel lines shown in SI. 1.