

Figure B3. B3a) Landsat 8 acquisition on the 5th of September 2013 over Hubbard Glacier, in red is the centerline used for the sampling which is plotted in figure B3b&B3c. B3b) velocity estimates using the data of displacements that had consensus during the voting step. B3c) smoothed estimate of velocity evolution over time, using spatial and temporal data and assisted by an off-glacier mask.

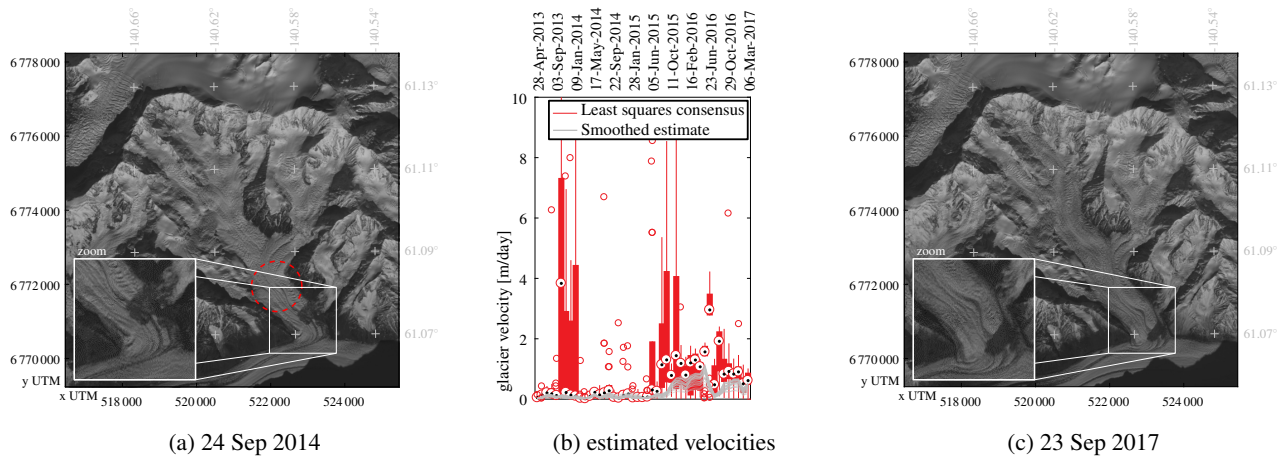


Figure C1. A tributary of Chitina Glacier surged in the period 2015-2016. Images are both acquired by Landsat 8, its location is indicated by a square in figure 13. The location of the time series in figure C1b, is indicated by a red dashed circle in figure C1a.

Author contributions. Bas Altena led the development of this study. All authors discussed the results and commented on the manuscript at all stages.

10 *Competing interests.* All authors declare no competing interests.

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