Table S1: Existing literature for the low-angle glacier detachment events and summary remarks where and how the present study extends existing knowledge.

Name of event	Literature	Contribution from the present work	Section
Devdorak	Reineggs, 1796; Viskovatov, 1864; Statkowski, 1877, 1879; Stebnitsky, 1877; Khatisyan, 1889; Zaporozhchenko, Chernomorets, 2004; Petrakov et al., 2008; Chernomorets, 2014; Tavasiev, Galushkin, 2014; Dokukin et al., 2015; Asoyan, Rototaeva, 2016; Chernomorets et al., 2016; Tielidze et al., 2019	Compilation of referenced work and interpretation with respect to glacier detachments in general. Existing work supplemented by own satellite observations, development after 2014, slopes and permafrost conditions.	3.1.1
Kolka	Haeberli et al., 2004; Kotlyakov et al., 2004; Huggel et al., 2005; Drobyshev, 2006; Evans et al., 2009b	Compilation and interpretation of existing work; glacier slope and permafrost information added; interpretation modified	3.1.2
Rasht	Dokukin et al. 2019	Many new observations added to the short descriptions available in literature, and discussion with respect to glacier detachments in general	3.2
Aru	Tian et al., 2017; Kääb et al., 2018; Gilbert et al., 2018	Summary of existing work and discussion with respect to glacier detachments in general	3.3
Tsambagarav	Avdeev et al., 1989	Summary of existing work, some own analyses, and discussion with respect to glacier detachments	3.4
Amney Machen	Paul, 2019	Most information based on literature, but the 2019 event was added, some date estimates improved, permafrost information added, and interpretations modified.	3.5
Sedongpu	Tong et al., 2018; Liu et al., 2019; Chen et al., 2020	Mainly own observations and conclusions, compared to list of events available in literature (focus in literature is on river damming), and discussion with respect to glacier detachments in general	3.6.1-2
Zelunglung	Zhang, 1992	Summary of existing work, some own analyses, and discussion with respect to glacier detachments	3.6.3
Flat Creek	Jacquemart et al., 2020; Jacquemart and Loso, 2019	Volume estimation and elevation differences for the 2016 event are new, otherwise mainly summary of existing work and discussion with respect to glacier detachments in general.	3.7
Aparejo	Ugalde et al., 2015; Ugalde, 2016; Ugalde et al., 2017; Marangunic, 1980	Mainly summary of existing work	3.8
Leñas	Falaschi et al., 2019	Mainly summary of existing work and discussion with respect to glacier detachments in general	3.9
Tinguiririca	Iribarren Anacona et al., 2015	Many new observations and interpretations added to existing short description in literature, and discussion with respect to glacier detachments in general	3.10.1

Supplementary Figures

Fig. S1: Location of low-angle glacier detachments discussed in this contribution. See also separate Google Earth kmz-file in the Supplement.

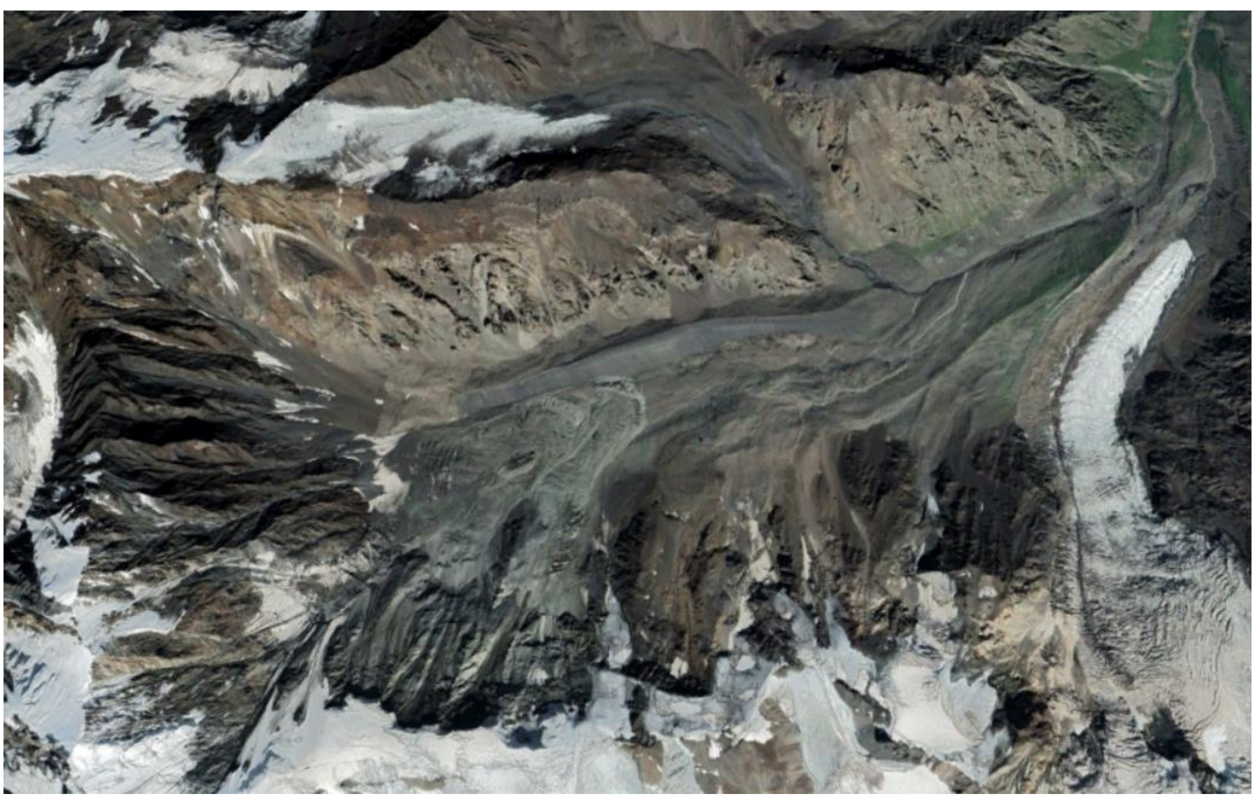

Fig. S2: Situation of Kolka Glacier, 19 Aug 2019 (© GoogleEarth, CNES/Airbus). Width of section: 6 km. North to the top.

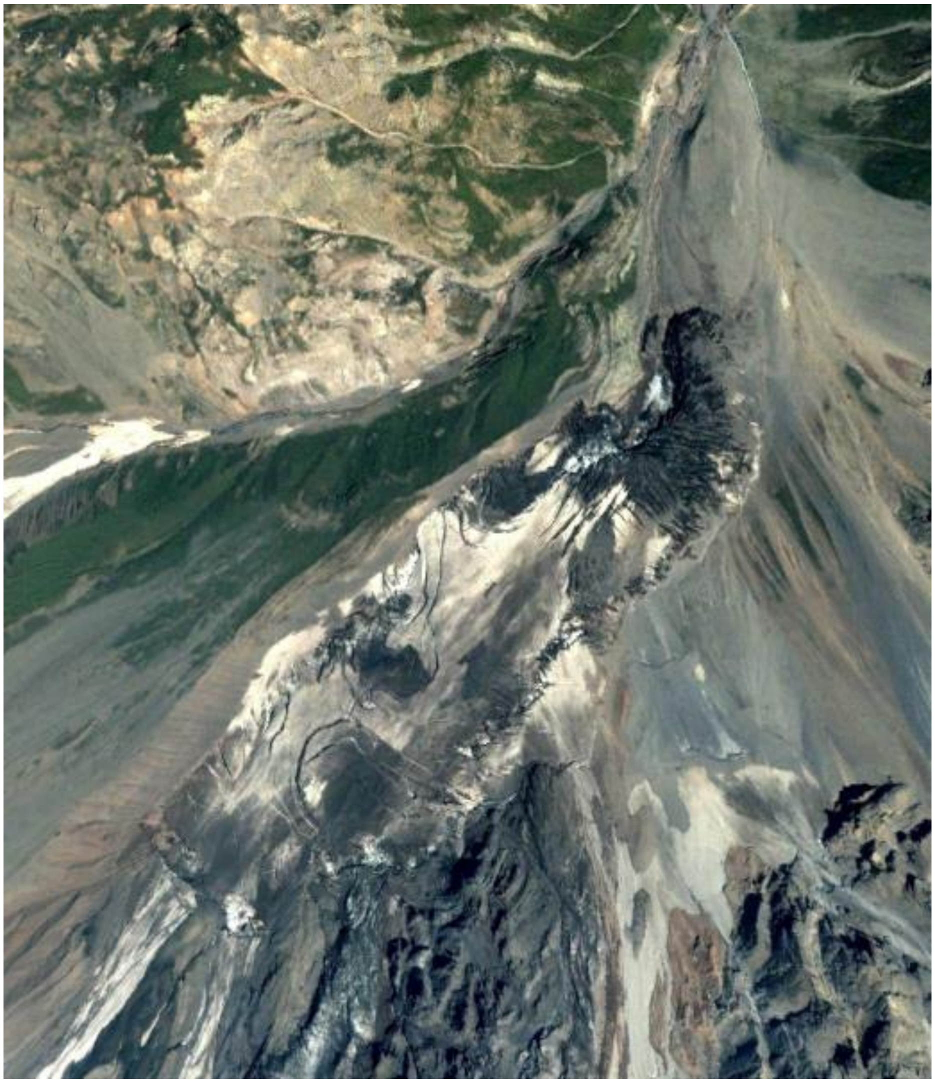

Fig. S3: Rasht valley glacier that detached in 2019 on 30 Jul 2007 (© GoogleEarth, Maxar). The heavy crevassing did not lead to a detachment. Width of section: 1.3 km. North to the top.

Fig. S4: Later deposit area of the Rasht 2019 detachment showing features of a potential earlier ice-rock avalanche (streamlined features to the middle and lower part; rough chaotic microtopography to the upper right). (© GoogleEarth, Maxar). Width of section: 0.7 km. North to the top. Position of image section indicated as white rectangle in the upper left inset.

Fig. S5: Situation of the two Aru glaciers in July 2020 (© Planet). North to the top. White rectangle indicates position of Fig. S6.

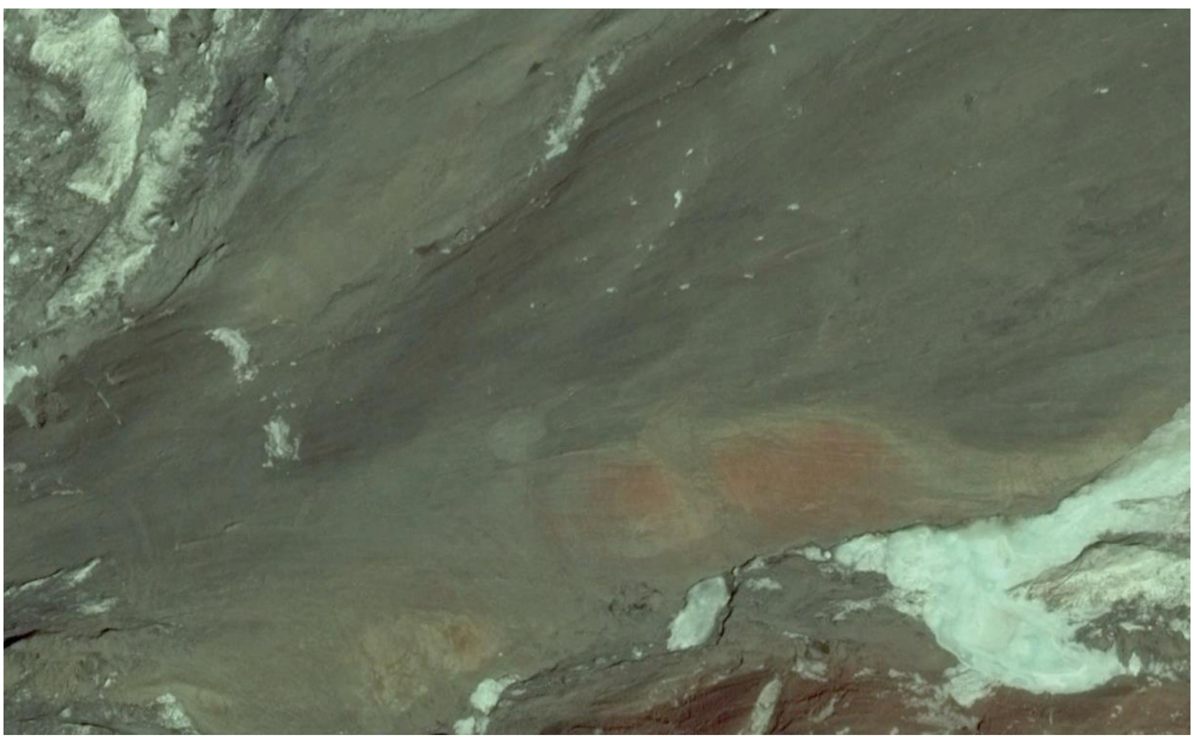

Fig. S6: Debris stripes in the path of the Aru-1 avalanche. 27 Feb 2017 (© GoogleEarth, Maxar). Avalanche path was from left to right. Width of section: 0.46 km. North to the top. For position of figure see Fig. S5.

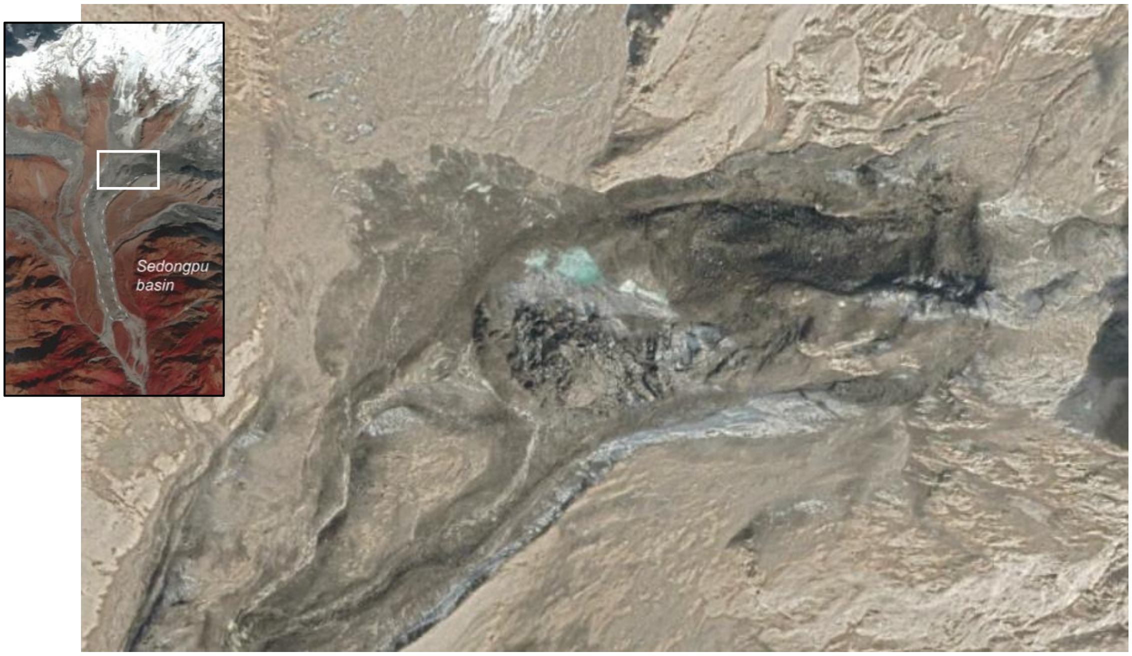

Fig. S7: Detail of Sedonpgu Glacier at the foot of the Gyalha Peri rock wall with heavy crevassing, bulging, and lake formation; 4 Dec 2017 (© GoogleEarth, Maxar). Width of section: 1.8 km. North to the top. White rectangle in upper left inset indicates position of the figure.

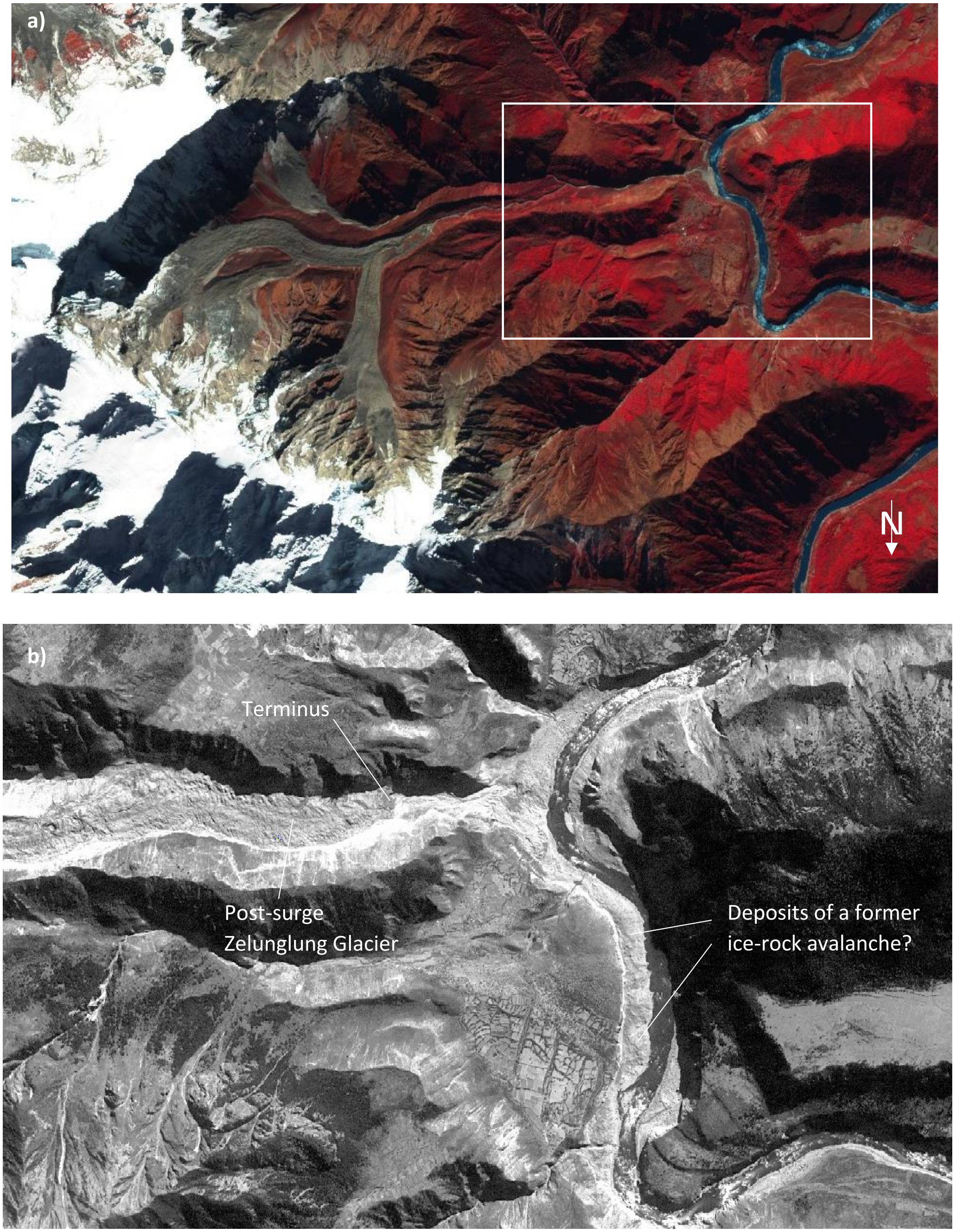

Fig. S8: Zelunglung Glacier, south-eastern Tibet. (a) Sentinel-2 image (2021, Copernicus) with position of panel b). (b) Corona image of 1969 over Zelunglung Glacier (credit: USGS). South to the top. Width of section b): 5.5 km.

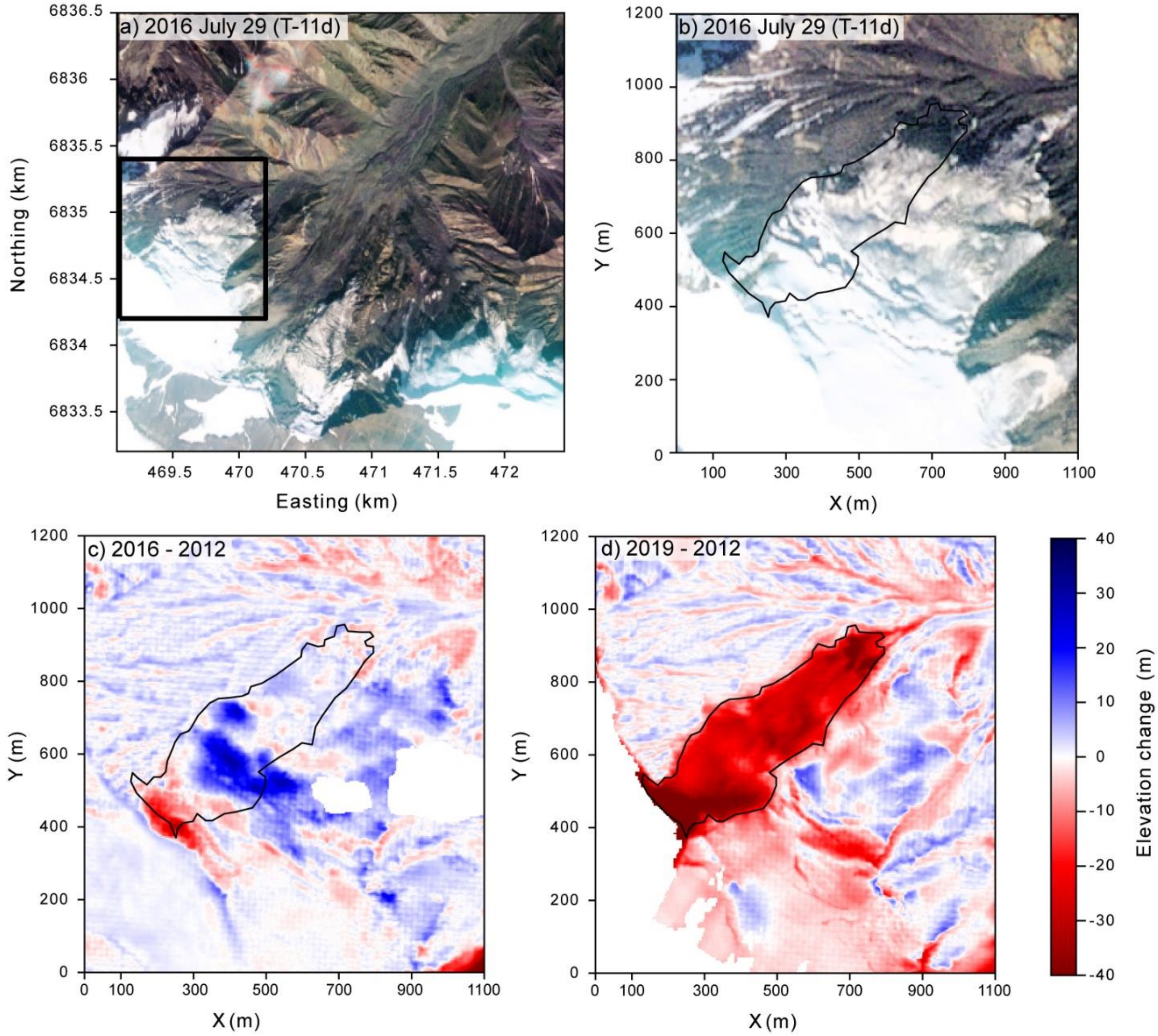

Fig. S9: a & b) Flat Creek cirque a few days before the 2016 detachment, image from Planet Labs. The black box indicates the area shown in panels b-d). c) DEM difference between 2016-03-13 (Arctic DEM) and summer 2012 (Alaska IfSAR). d) DEM difference between 2019-08-30 (structure-from-motion aerial DEM) and 2016-03-13 (Arctic DEM). Panel a) is in UTM Zone 7 N, panels b-d) are plotted in meters from the bottom left corner of the zoomed in area.

Supplementary References

(in addition to those already contained in the reference list of the main article)

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