Supplement of

Brief communication: Supraglacial debris-cover changes in the Caucasus Mountains

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Table S1. Satellite images used in this study.

Date	UTM zone	Sensor	Region/Section	Resolution	Scene ID
10/08/1985	37N	Landsat 5 TM	Western Greater Caucasus	30 m	LT51720301985222XXX04
06/08/1986	38N	Landsat 5 TM	Central Greater Caucasus	30 m	LT51710301986218XXX02
31/08/1986	38N	Landsat 5 TM	Eastern Greater Caucasus	30 m	LT51700301986243XXX03
12/09/2000	37N	Landsat 7 ETM+	Western Greater Caucasus	15/30 m	LE71720302000256SGS00
05/09/2000	38N	Landsat 7 ETM+	Central Greater Caucasus	15/30 m	LE71710302000249SGS00
28/07/2000	38N	Landsat 7 ETM+	Eastern Greater Caucasus	15/30 m	LE17003020000728SGS00
23/08/2013	37N	Landsat 8 OLI	Western Greater Caucasus	15/30 m	LC81720302013235LGN00
03/08/2014	38N	Landsat 8 OLI	Central Greater Caucasus	15/30 m	LC81710302014215LGN00
28/08/2014	38N	Landsat 8 OLI	Eastern Greater Caucasus	15/30 m	LC81700302014240LGN00
20/08/2016	37N	SPOT-7	Elbrus	1.5 m	DS_SPOT7201608200751063

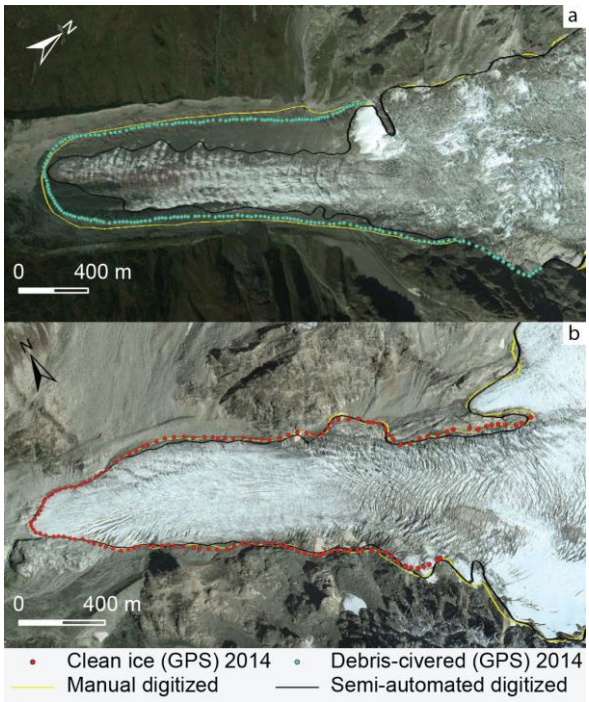

Figure S1. Examples of glacier outline accuracy assessment by GPS measurements: a – Adishi Glacier; b – Kirtisho Glacier. Google Earth imagery 19/09/11.

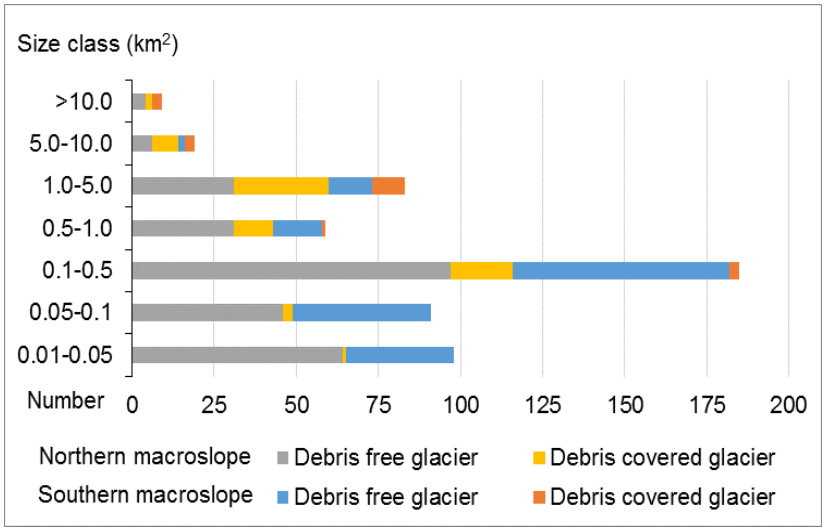

Figure S2. The Greater Caucasus glacier size classes with debris covered and debris free glaciers distributions for northern and southern slopes.

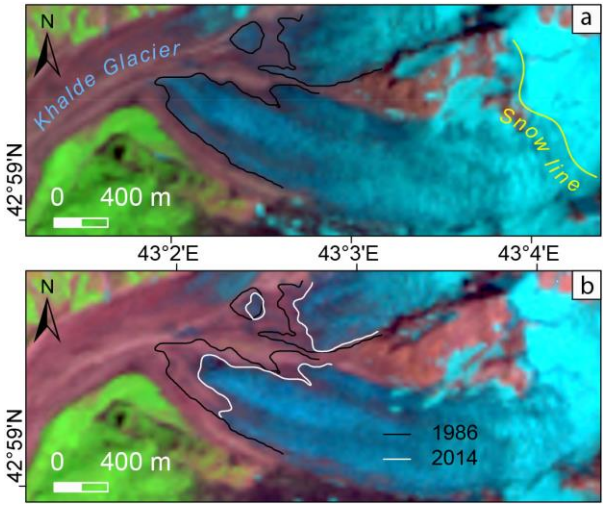

Figure S3. An example of the SDC up-glacier migration onto the Khalde Glacier. a – 1986 (Landsat 5, 06/08/86). b – 2014 (Landsat 8, 03/08/14).

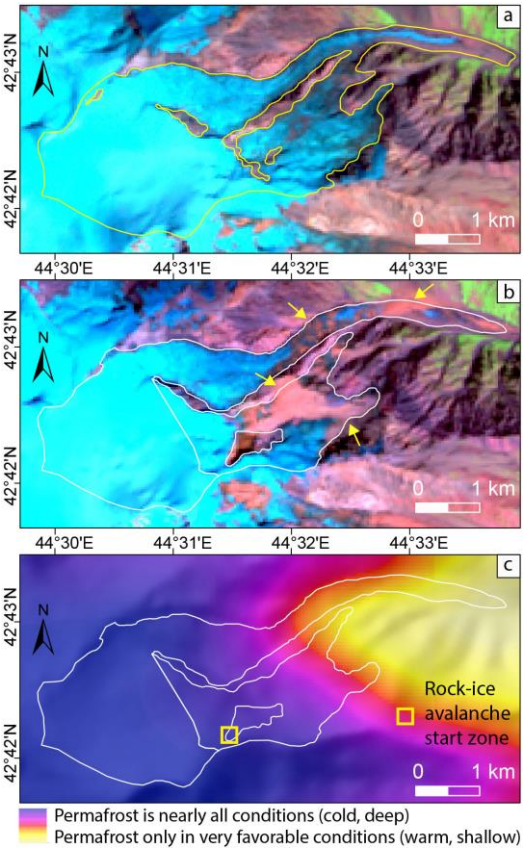

Figure S4. a – Devdoraki Glacier in 2000 (Landsat 7, 30/08/00); b – Devdoraki Glacier after rock-ice avalanche in 2014 (Landsat 8, 28/08/14). Yellow arrow shows increased SDC area. c – Devdoraki Glacier on the permafrost zonation index map (Gruber, 2012).

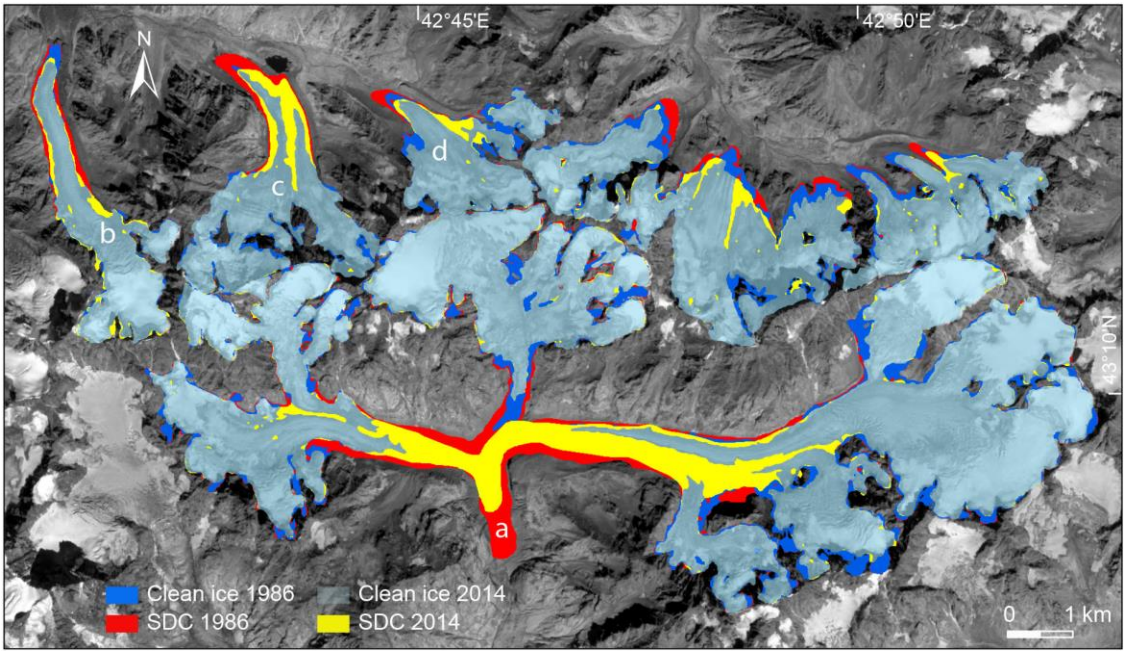

Figure S5. A comparison of SDC and clean-ice area distribution in 1986-2014 for the southern (a – Lekhziri) and northern (b – Kashkatash, c – Bashkara and d – Djankuat) glaciers. Landsat 8 (panchromatic band 8), 03/08/14 was used background.

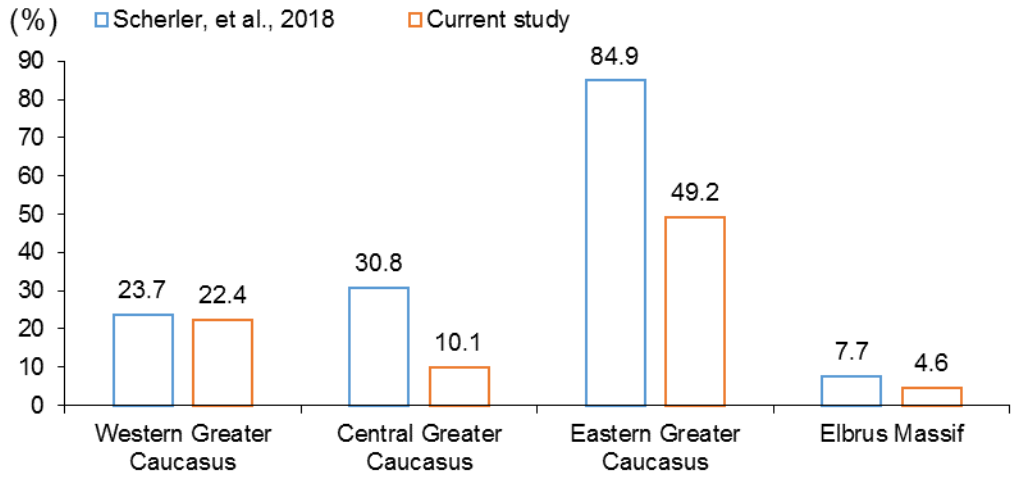

Figure S6. Relative SDC for the Western, Central, and Eastern Greater Caucasus as well as for Elbrus based on the current study (brown) and in comparison with Scherler et al. (2018).

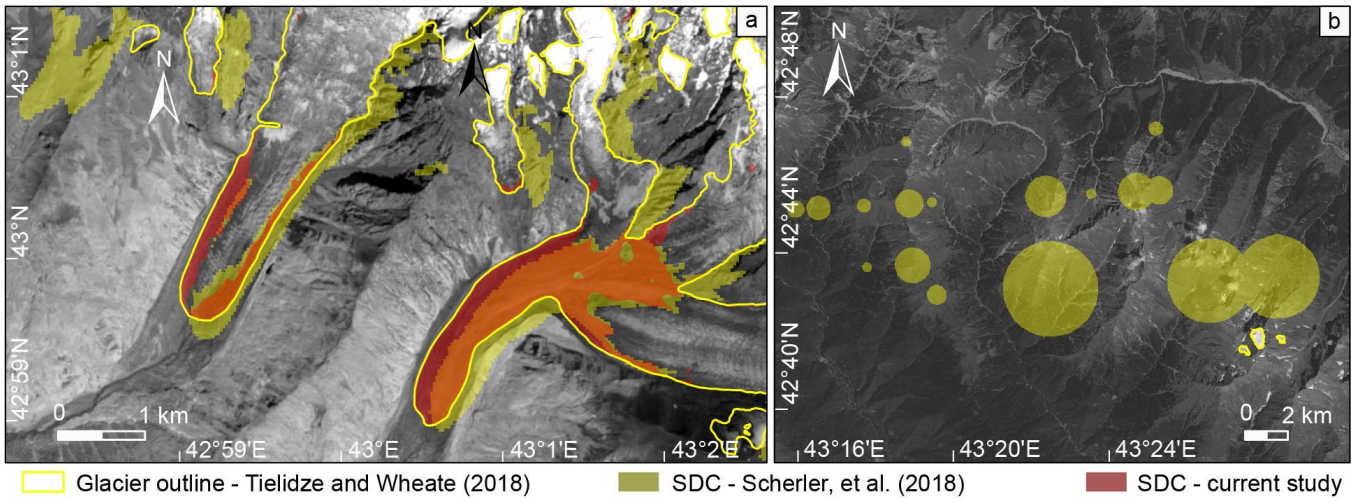

Figure S7. a - Comparison of SDC assessment by Scherler, et al. (2018) (based the RGI v6) and current study. b - An example of the RGI v6 nominal glaciers (circles). According to Scherler, et al. (2018), all nominal glaciers were classified as debris-covered. Landsat 8 (panchromatic band 8), 03/08/14 was used background.