

Supplementary Material

The determination of the snow optical grain size diameter and snowmelt area on
the Greenland ice sheet using spaceborne optical observations

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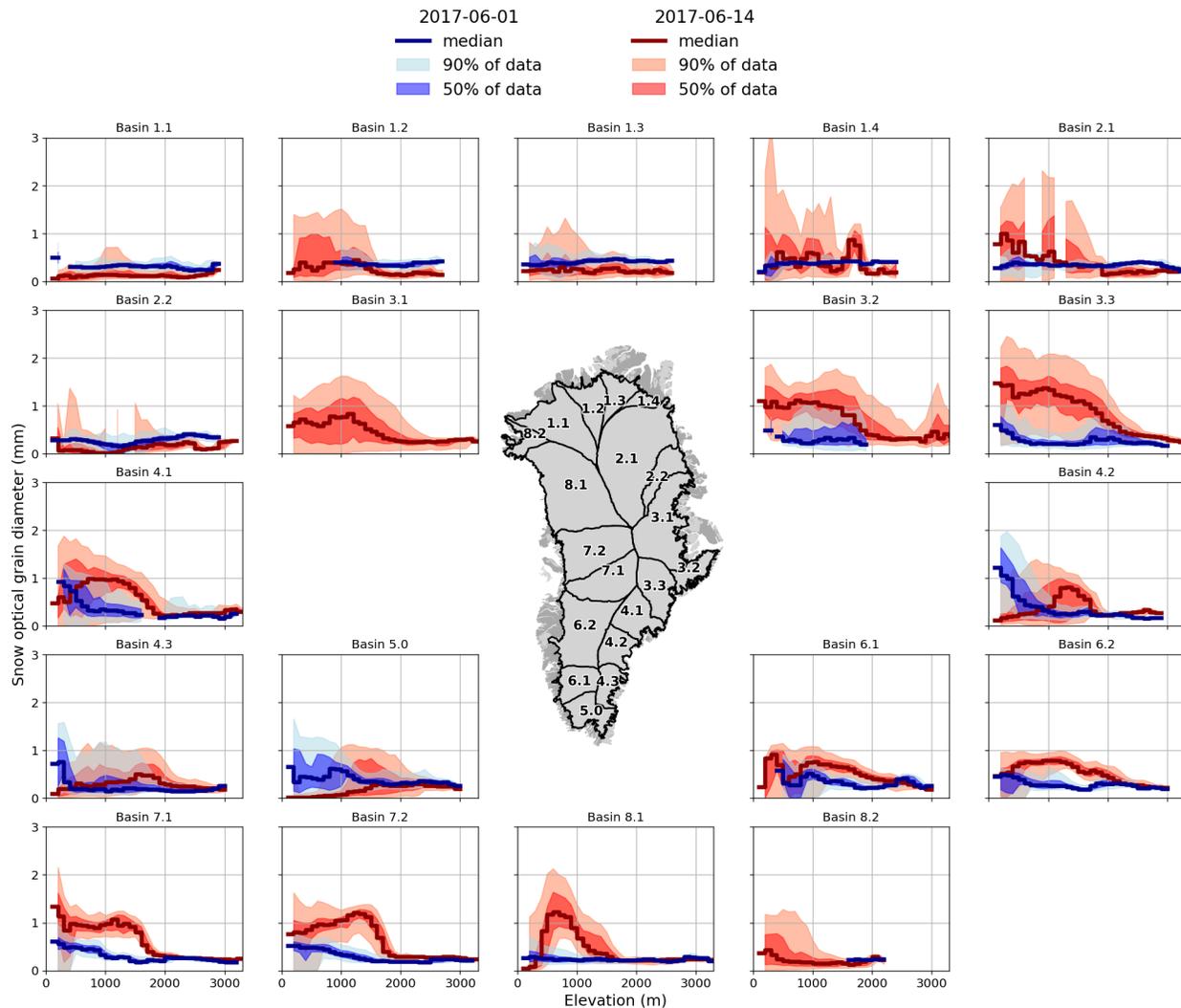
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Supplementary Figure S1: Retrieved optical snow grain diameter distribution on 01 June 2017 and 14 June 2017 with regards to elevation for the different drainage basins of the ice sheet (Zwally et al., 2012). Within each basin, the median, the envelope containing 50% of the data and the envelope containing 90% of the data within 100 m wide elevation bins are calculated and displayed as a solid line, dark and light shading, respectively.

Supplementary Table S1. Result of the sensitivity analysis. For each subset, an analysis of variance is conducted to find the step function, and its associated threshold value of grain diameter, that explains most of the variance in the subset.

Subset	Number of samples in subset	Threshold grain diameter
only KAN_U	195	0.64

only KPC_U	148	0.68
all except CEN	556	0.64
all except EGP	511	0.64
all except KAN_U	529	0.65
all except KPC_U	576	0.64
only 2019	283	0.64
only 2019	225	0.45
only 2019	216	0.65
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	Average	0.63
	Standard deviation	0.07

Reference

Zwally, H. Jay, Mario B. Giovinetto, Matthew A. Beckley, and Jack L. Saba, 2012, Antarctic and Greenland Drainage Systems, GSFC Cryospheric Sciences Laboratory,
http://icesat4.gsfc.nasa.gov/cryo_data/ant_grn_drainage_systems.php