

Supplementary material

Table S1: Months for different mass balance years to calculate snowfall

Region	Months and years for climate analysis		
	2020	2021	2022
Muztag Ata	Sep 2019 – Sep 2020	Oct 2020 – Sep 2021	Oct 2021 – Sep 2022
Western Nyainqêntanglha	Nov 2019 – Sep 2020	Oct 2020 – Sep 2021	Oct 2021 – Oct 2022

Table S2: Firn area- and wet snow area-ratios

	2019			2020			2021			2022		
	FR	WR	GI	FR	WR	GI	FR	WR	GI	FR	WR	GI
Muztag Ata												
Total glacier area	0.55	0.23	0.32	0.56	0.17	0.35	0.58	0.23	0.39	0.60	0.15	0.45
Kekesayi	0.34	0.17	0.17	0.35	0.14	0.21	0.36	0.14	0.22	0.37	0.09	0.28
No. 15	0.84	0.16	0.68	0.85	0.01	0.84	0.86	0.01	0.85	0.90	0.01	0.89
Western Nyainqêntanglha												
Total glacier area	0.28	0.66	-0.38	0.26	0.33	-0.07	0.27	0.57	-0.3	0.25	0.50	-0.25
Xibu	0.25	0.50	-0.25	0.25	0.29	-0.04	0.24	0.46	-0.22	0.23	0.37	-0.14
Zhadang	0.01	0.52	-0.51	0.01	0.06	-0.05	0.01	0.41	-0.40	~0	0.50	-0.50