Supplement of Geosci. Model Dev., 19, 8939–8957, 2026
https://doi.org/10.5194/gmd-19-8939-2026-supplement

Geoscientific Model Development
Open Access
EGU

Supplement of

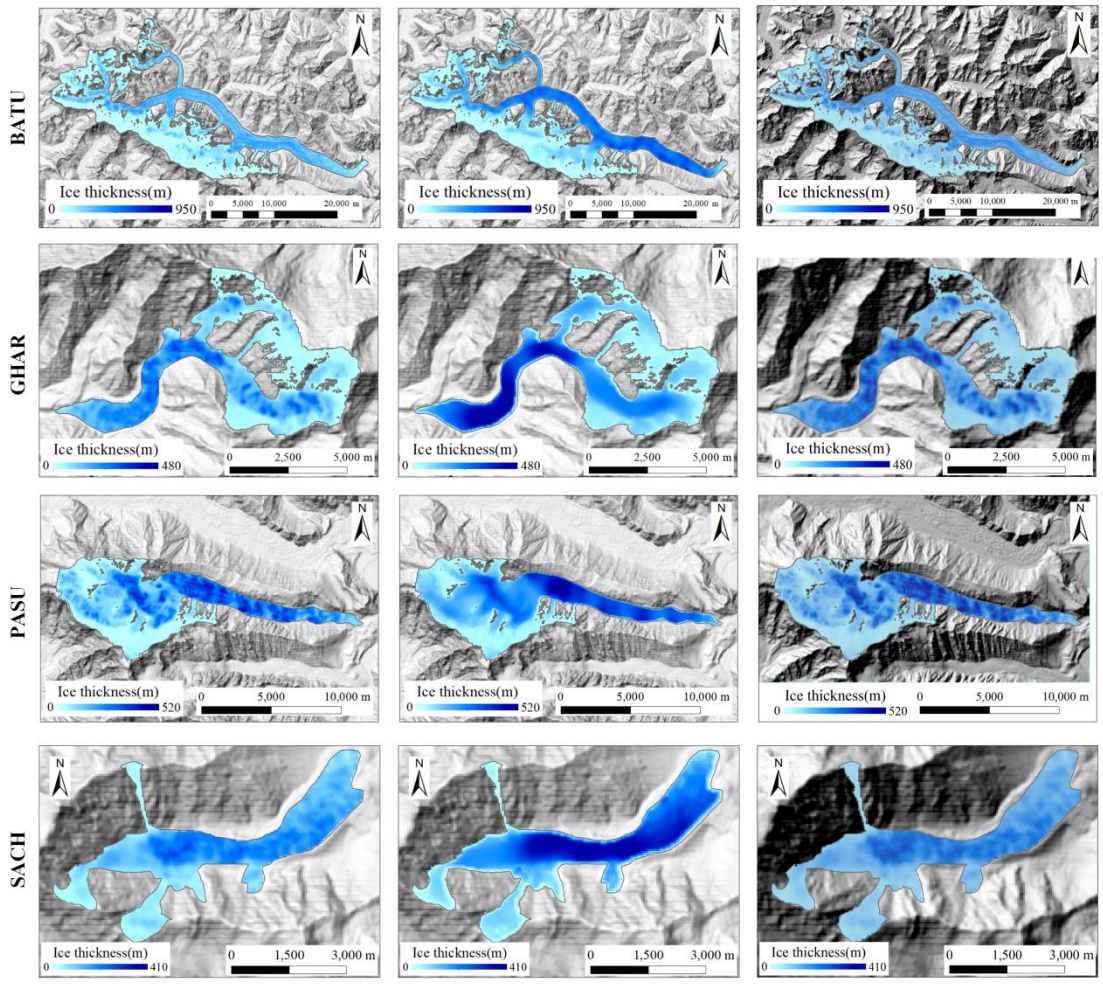
ITMSL: an improved ice thickness inversion model integrating basal sliding dynamics for High Mountain Asia (v1.0.0)

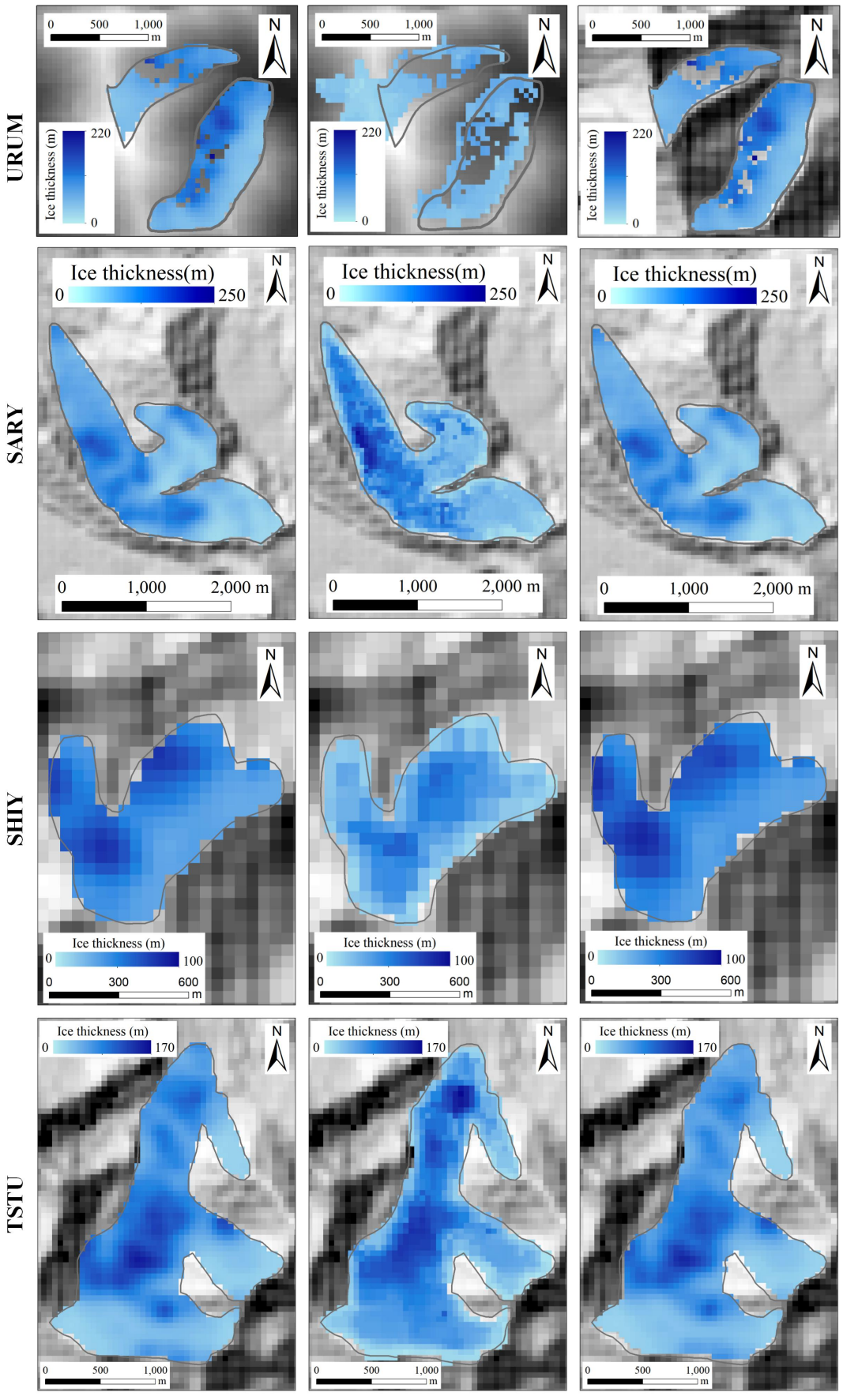
Xiaoguang Pang et al.

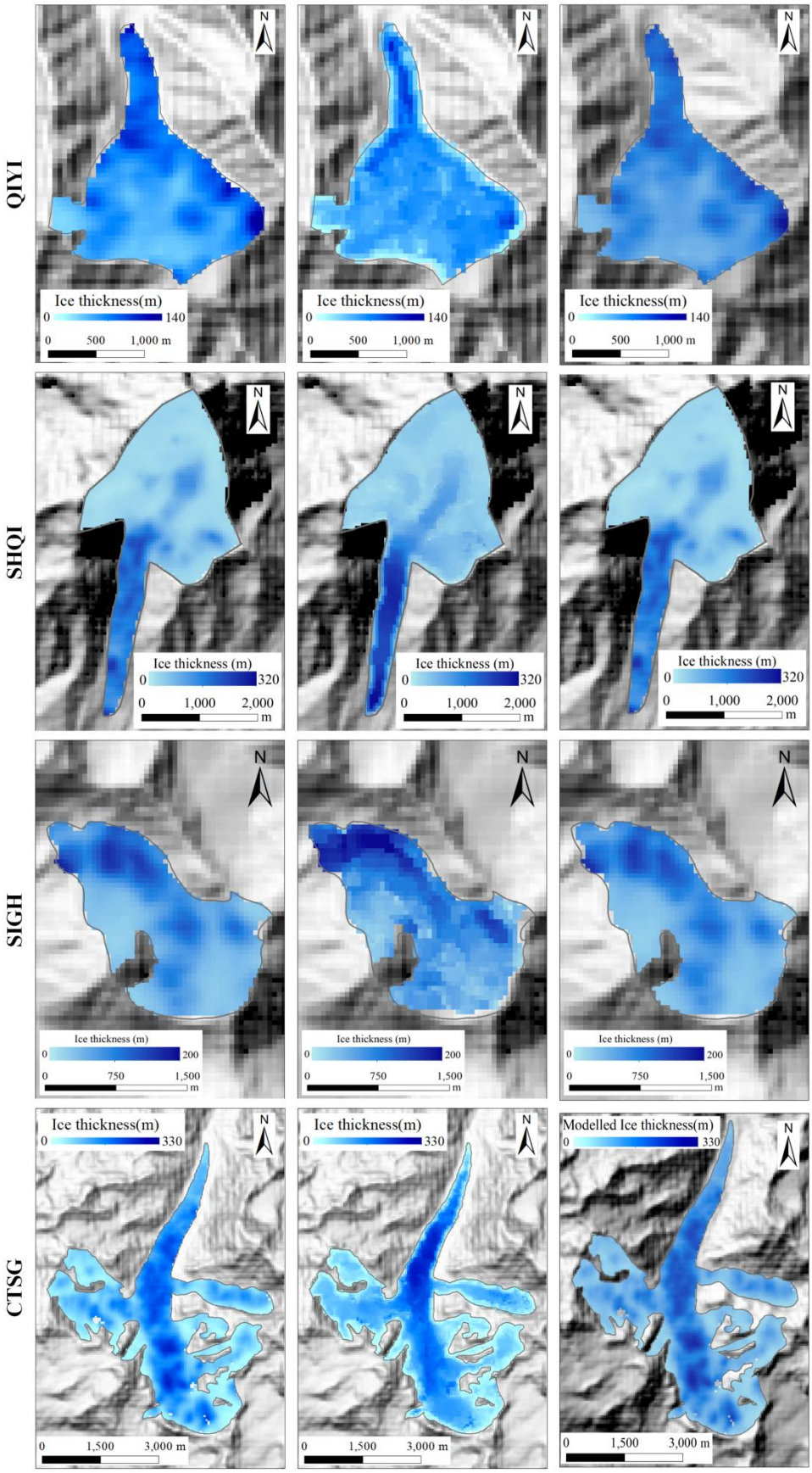
Correspondence to: Liming Jiang (jlm@whigg.ac.cn)

Supplementary Materials

S1 Ice thickness results derived from model inversion




URUM
SARY
SHIY
TSTU
Ice thickness (m)
Ice thickness(m)
N
0 500 1,000 m
0 1,000 2,000 m
0 300 600 m
Gantayat et al., 2014
Millan et al., 2022
This study



Gantayat et al., 2014 Millan et al., 2022 This study

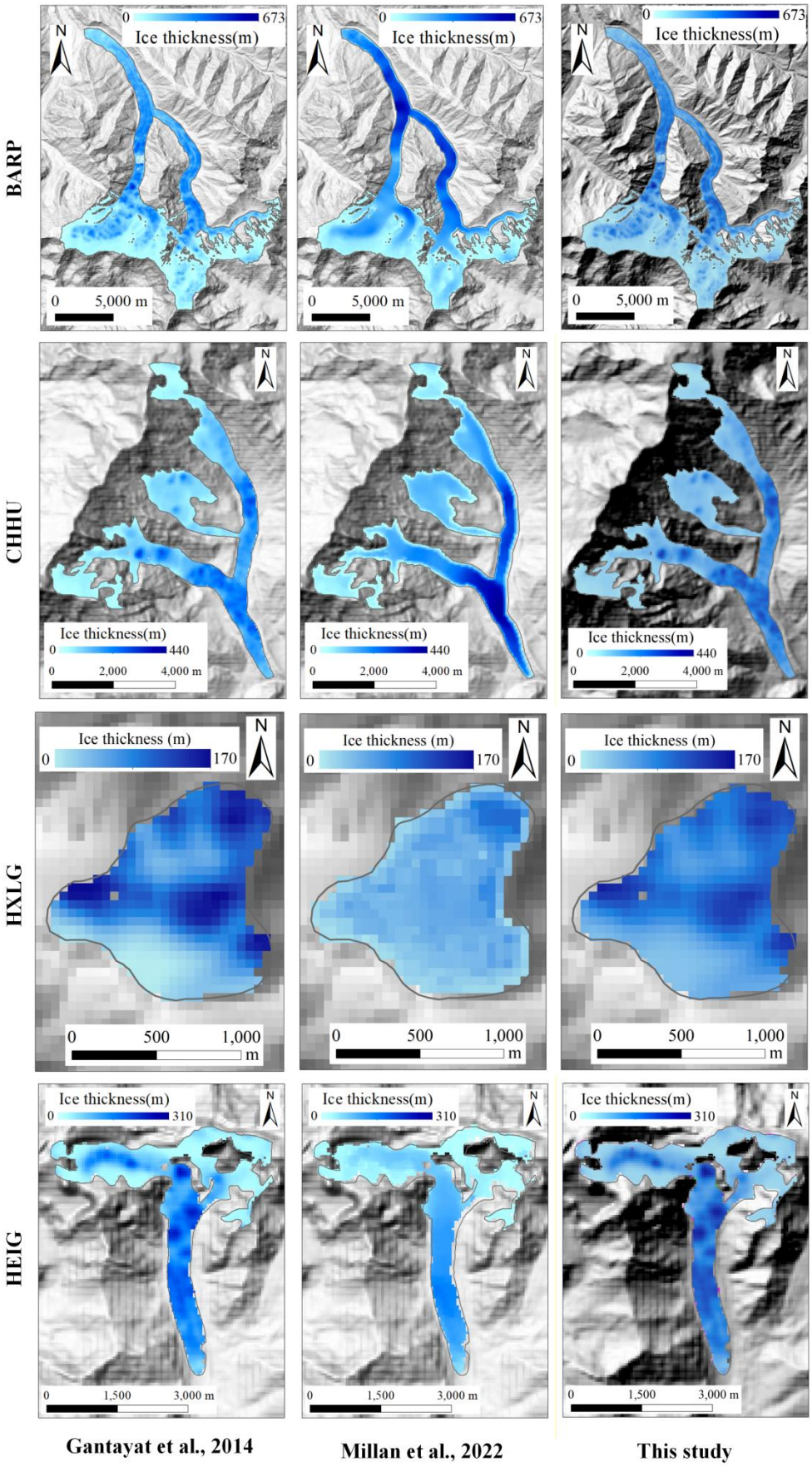


Figure S1: Glacier thickness inverted by the Gantayat, Millan, and ITMSL models.

S2 Difference between simulated ice thickness and GPR measurements

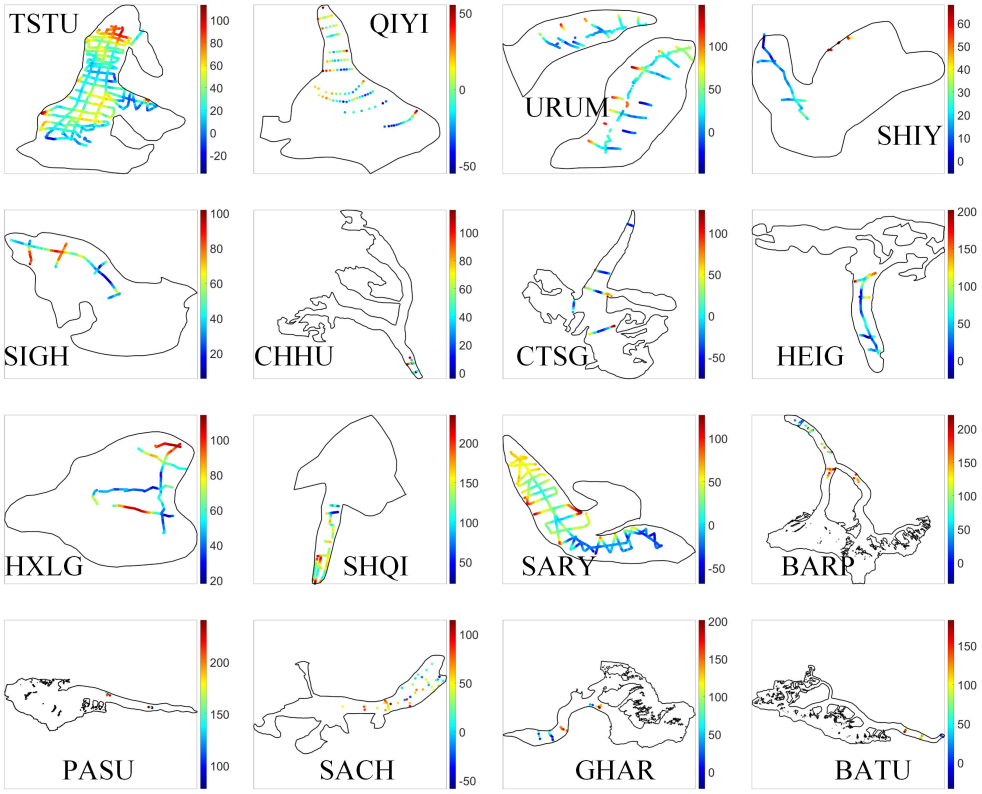


Figure S2: Glacier thickness inverted by Gantayat (unit: m).

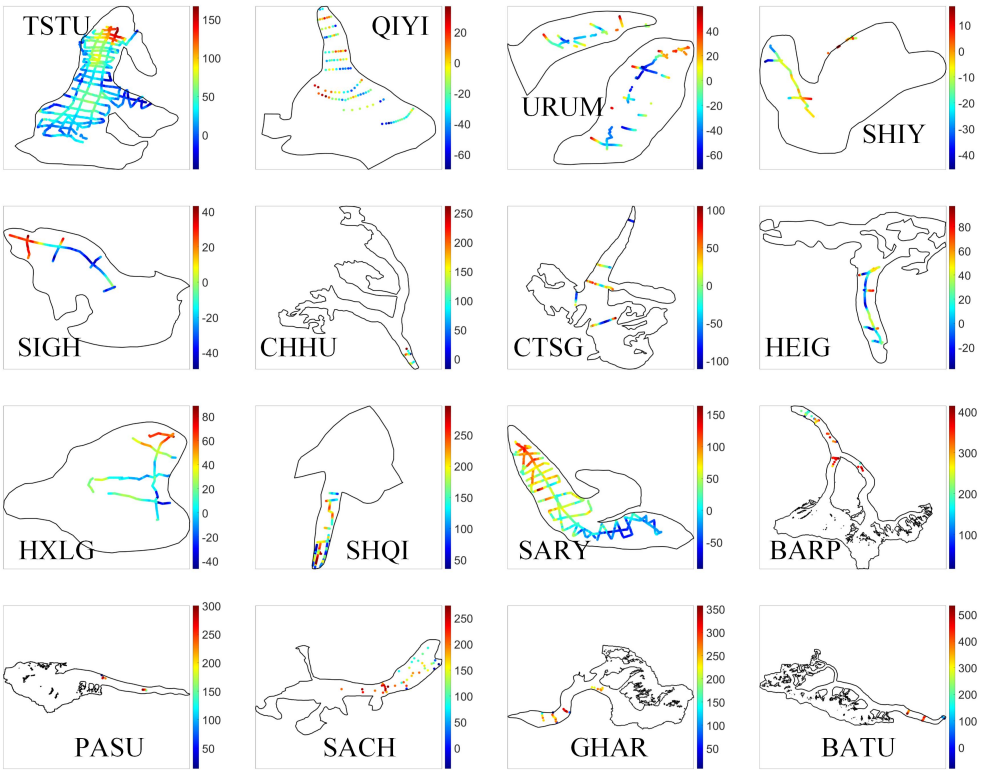


Figure S3: Glacier thickness inverted by Millan (unit: m).

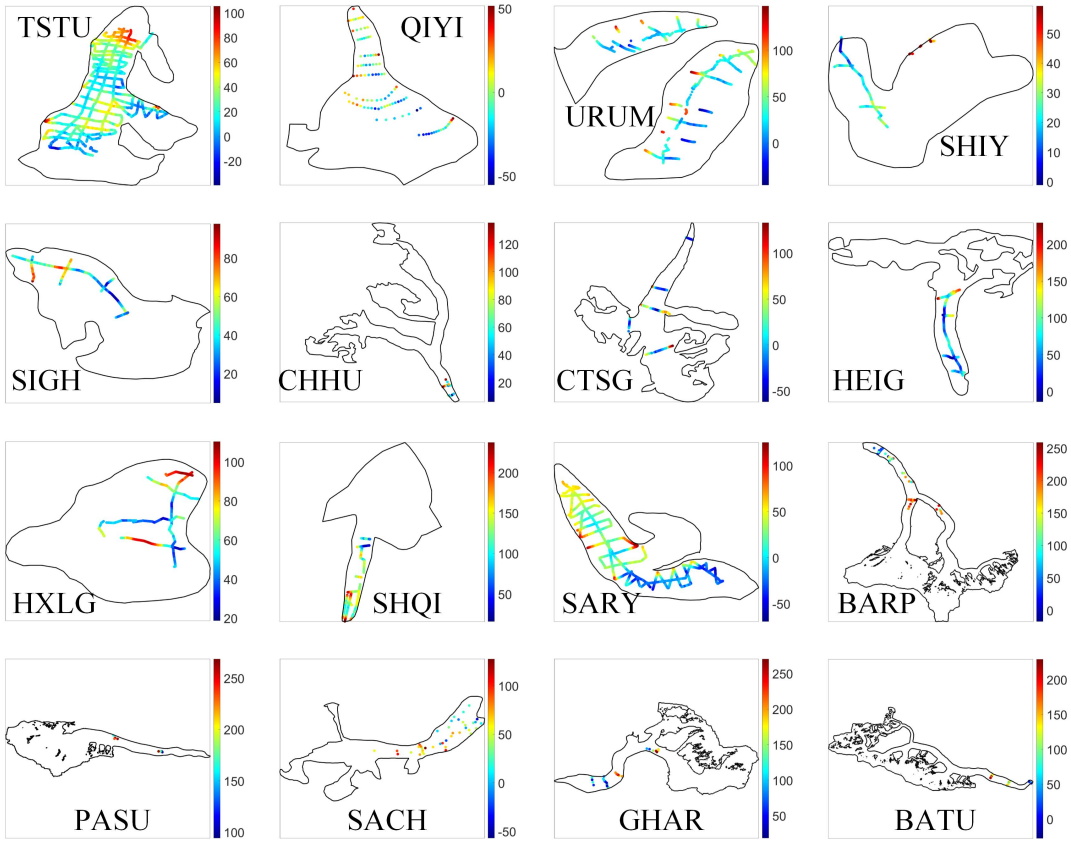


Figure S4: Glacier thickness inverted by ITMSL (unit: m).

S3: Bed topography

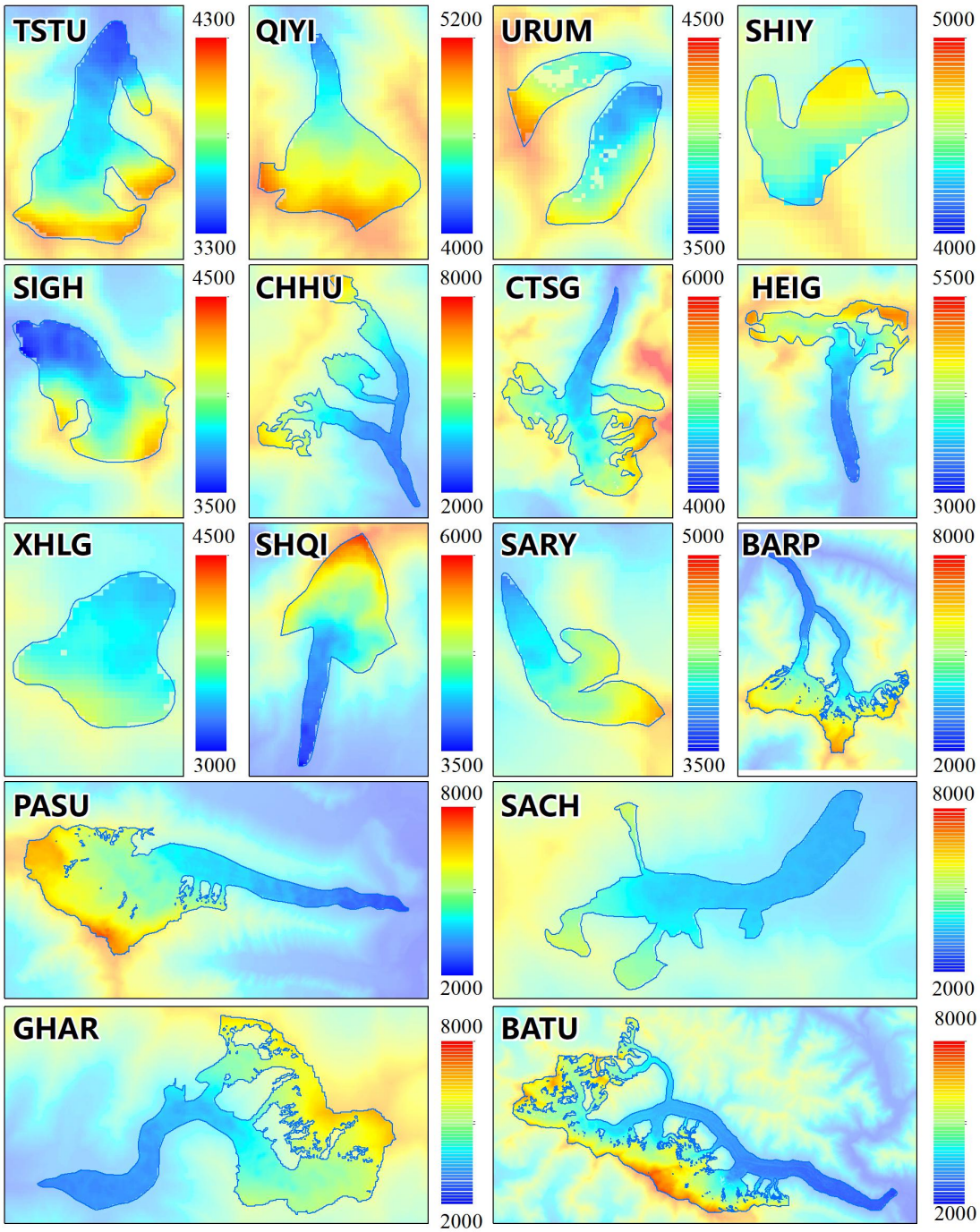


Figure S5: Subglacial topography simulated by the ITMSL model (unit: m).

S4: Basal sliding

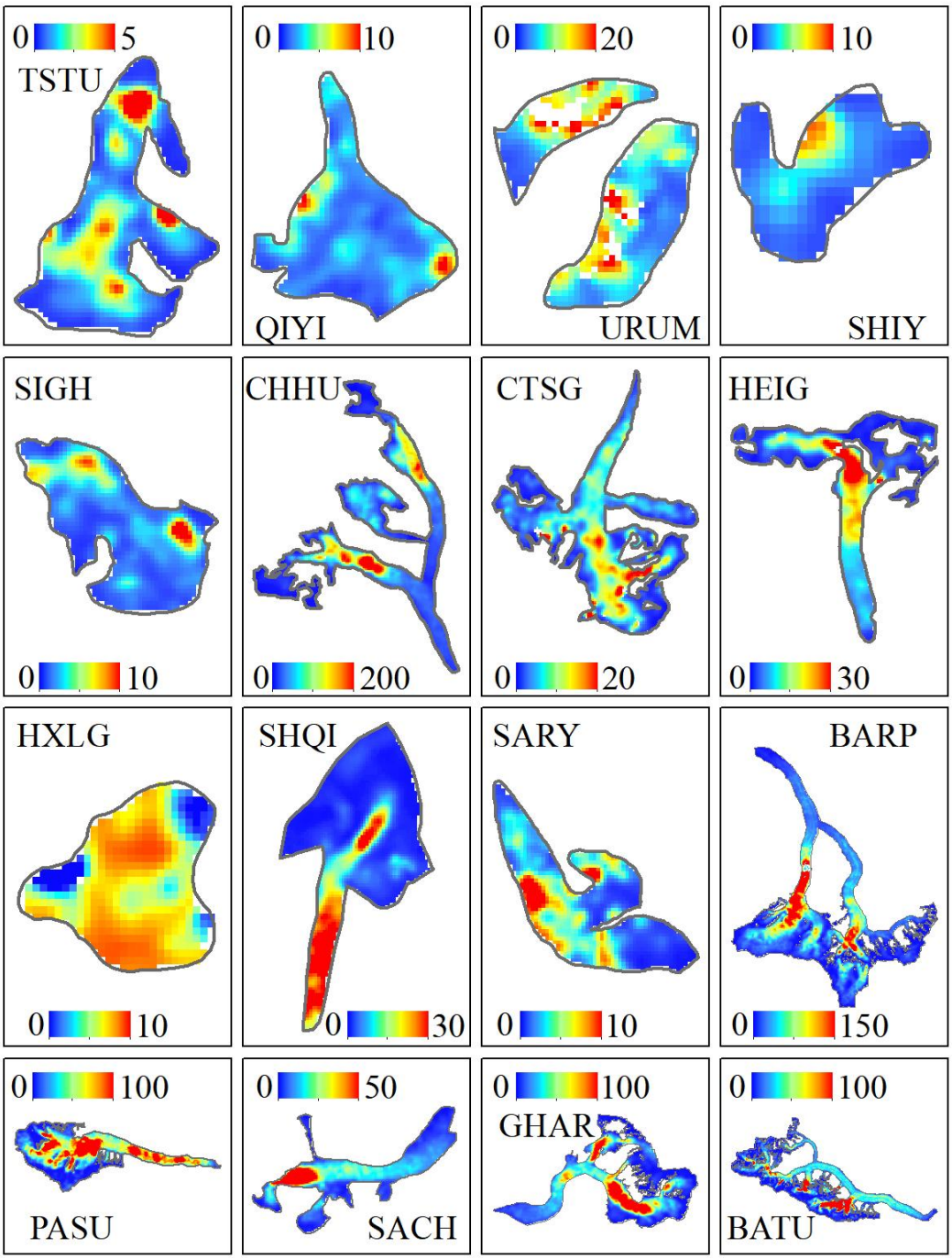


Figure S6: Basal sliding simulated by the ITMSL model (unit: m yr^{-1}).

S5: Ratio of basal sliding to surface velocity

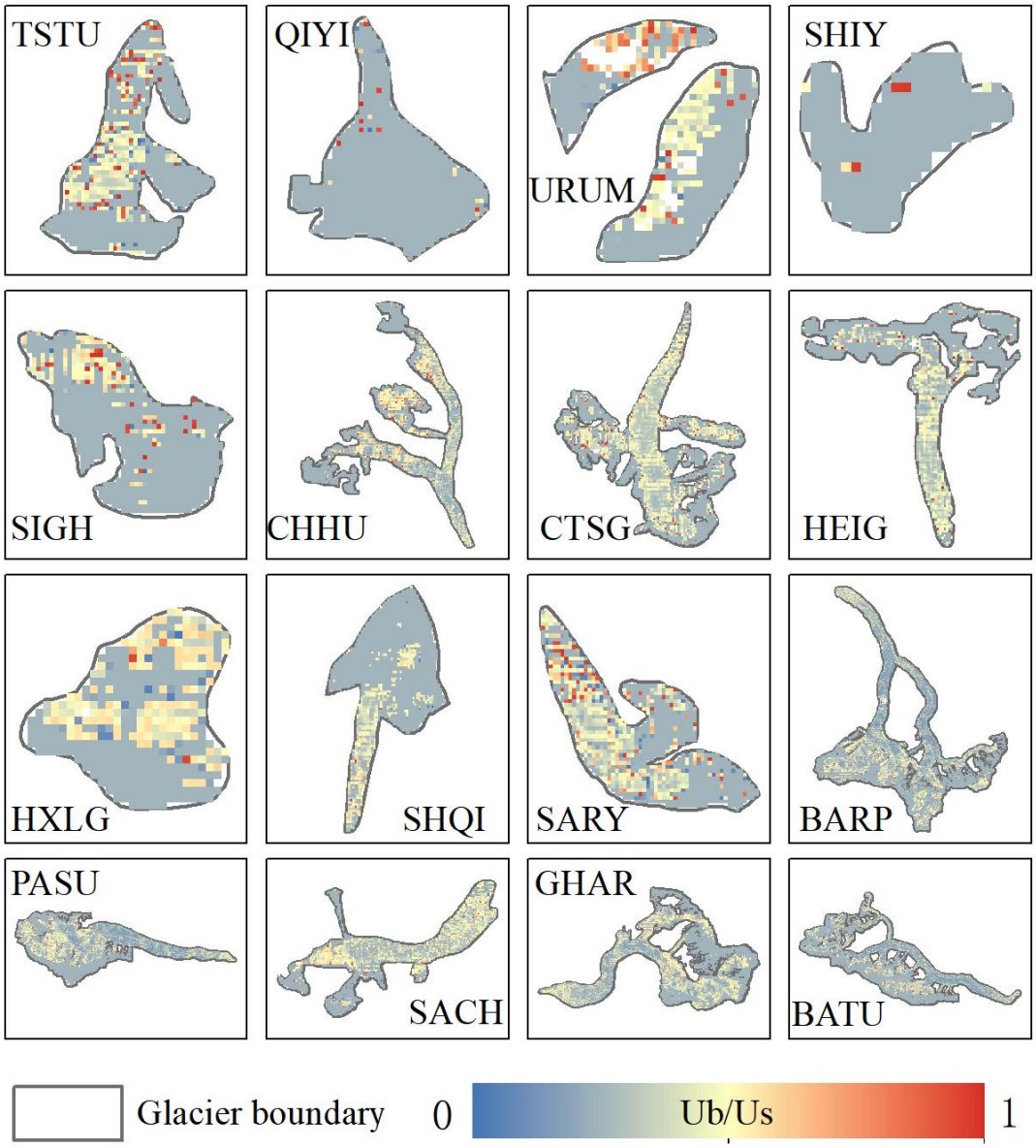


Figure S7: Ratio of basal sliding to surface velocity simulated by the ITMSL model.

S6: Ratio of basal sliding to surface velocity

Table S1: RMSE of ice thickness estimates for five cross-sections of the CTSG glacier.

	Root Mean Square Error		
	ITMSL	Gantayat et al., 2014	Millan et al., 2022
CS1	36.63	40.50	98.20
CS2	42.54	51.69	29.35

CS3	53.86	70.45	42.14
CS4	46.46	65.56	69.92
CS5	26.34	33.60	64.81
Total	45.25	58.06	57.77