



Supplement of

Thermokarst lakes disturb the permafrost structure and stimulate through-talik formation in the Qinghai–Tibet Plateau, China: a hydrogeophysical investigation

Xianmin Ke et al.

Correspondence to: Xianmin Ke (kexianmin@lut.edu.cn) and Wei Wang (wangweichd@chd.edu.cn)

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Table S1. Measurement parameters of the ERT method, where all measurements were carried out in August 2022

Methods	Transects	Number of electrodes	Electrode spacing (m)	Transect line length (m)	Actual measured length (m)	Measurement time (m/d)
ERT	ER1	80	10	790	760	08/01
	ER2	80	10	790	760	08/02
	ER3	80	10	790	760	08/03
	ER4	40	5	195	180	08/01
	ER5	60	2	118	112	08/01

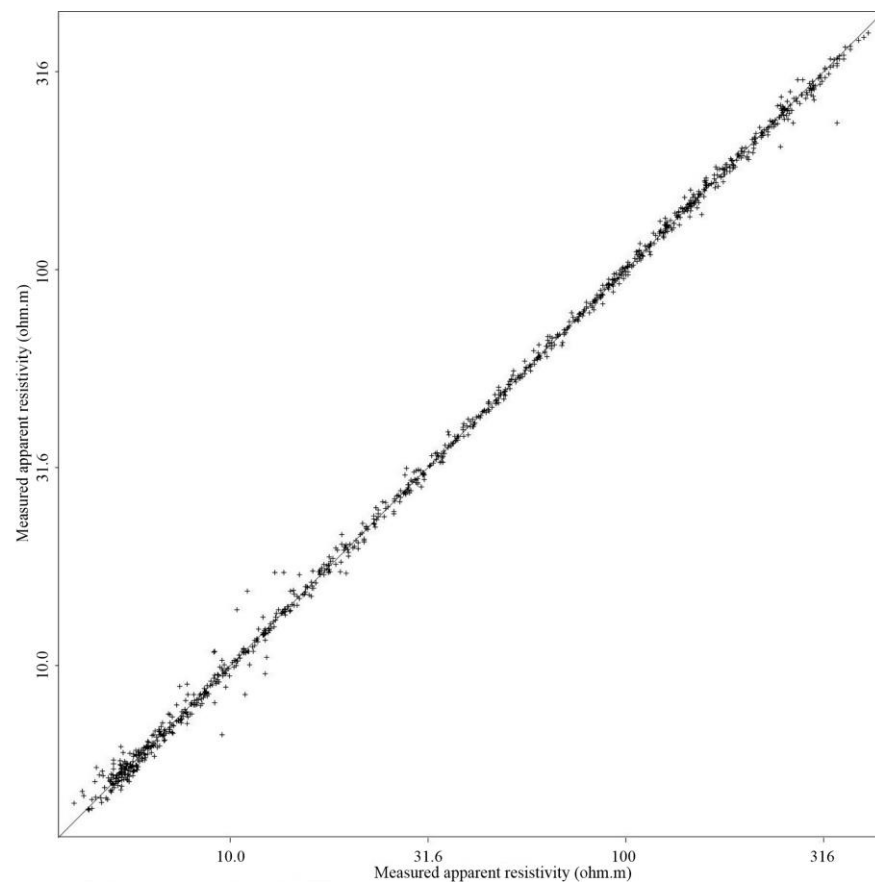
Note: The actual measured length is less than the transect line length, and both ends of the transect are shortened by 1.5 times the electrode spacing because the ERT method measures the midpoint of the electrodes.

Table S2. Information on ground temperature monitoring sites

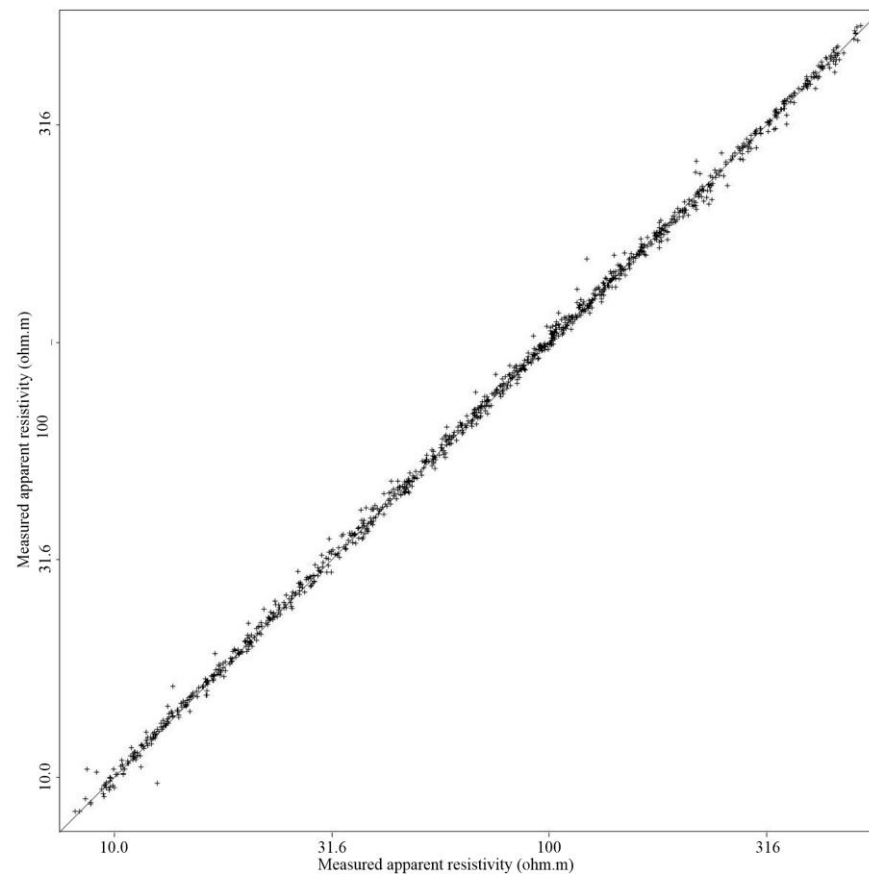
Lake	Sites	Distance from lake (m)	Maximum borehole depth (m)	Monitoring spacing in depth	Temporal series (y/m/d)
BLH-A	L _A	Lake center	60	0–10 m: 0.5 m; 10–24 m: 1 m; 24–58 m: 2 m	2006/01/09– 2016/05/05
	E ₁	3.9	15	0–7 m: 0.5 m; 7–15 m: 1 m	
	E ₂	63.5	15	0–15 m: 0.5 m	
BLH-B	L _B	Lake center	50	0–10 m: 0.5 m; 10–20 m: 1 m; 20–50 m: 2.5 m	2018/09/02– 2019/10/26
	S ₁	5	5	0–0.5 m: 0.05 m; 0.5–1.5 m: 0.1 m; 1.5–3 m: 0.25 m; 3–5 m: 0.5 m	
	S ₂	30	5	0–5 m: 0.25 m	

Table S3. Estimation depth of the permafrost lower boundary below BLH-A

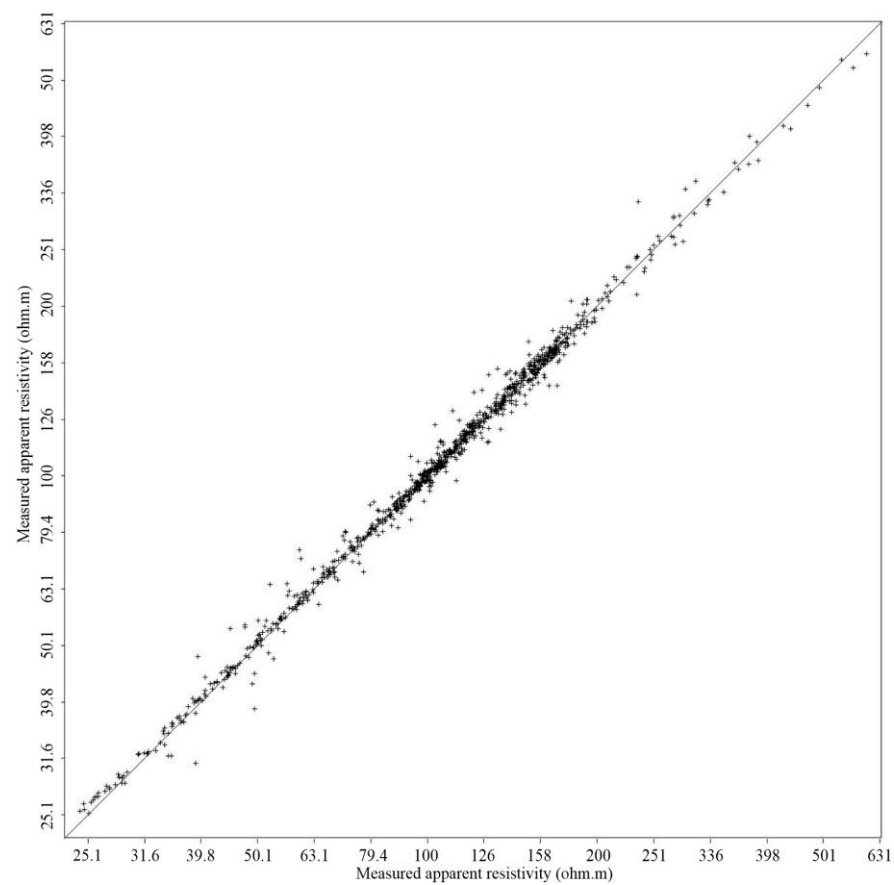
Selected depth (m)	Temperature at the selected depth (°C)	Ground temperature gradient (°C m ⁻¹)	Permafrost lower boundary depth (m)
31.4	4.16	-0.095	73.38
41.4	3.05	-0.084	77.67
51.4	2.05	-0.057	87.21



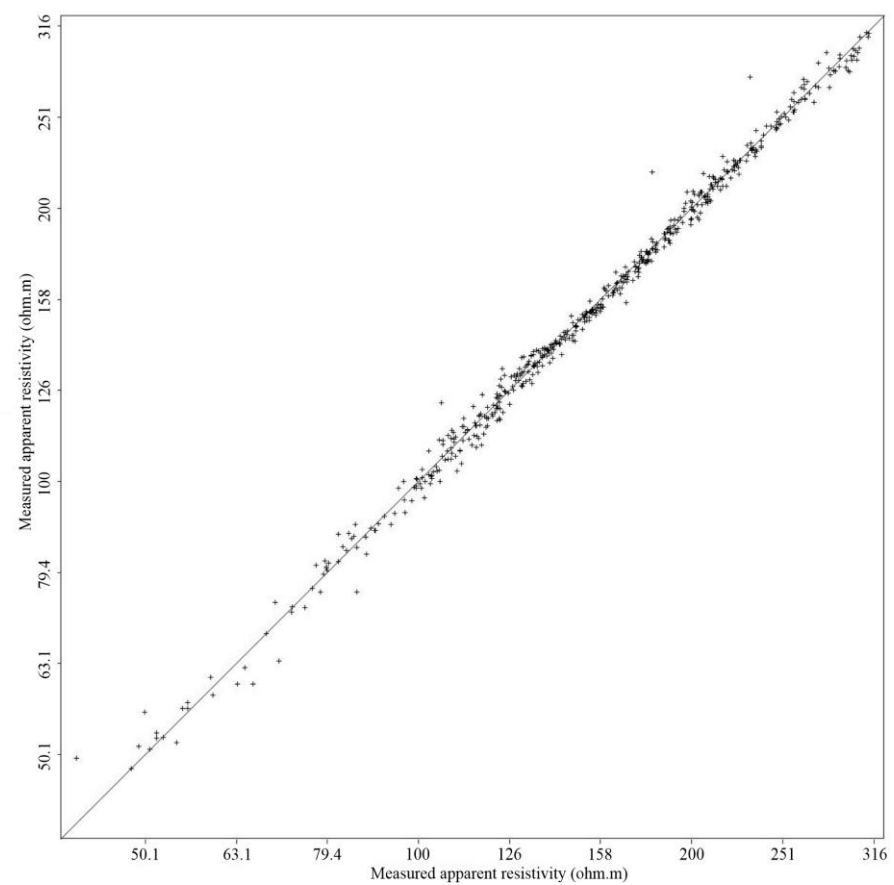
ER1



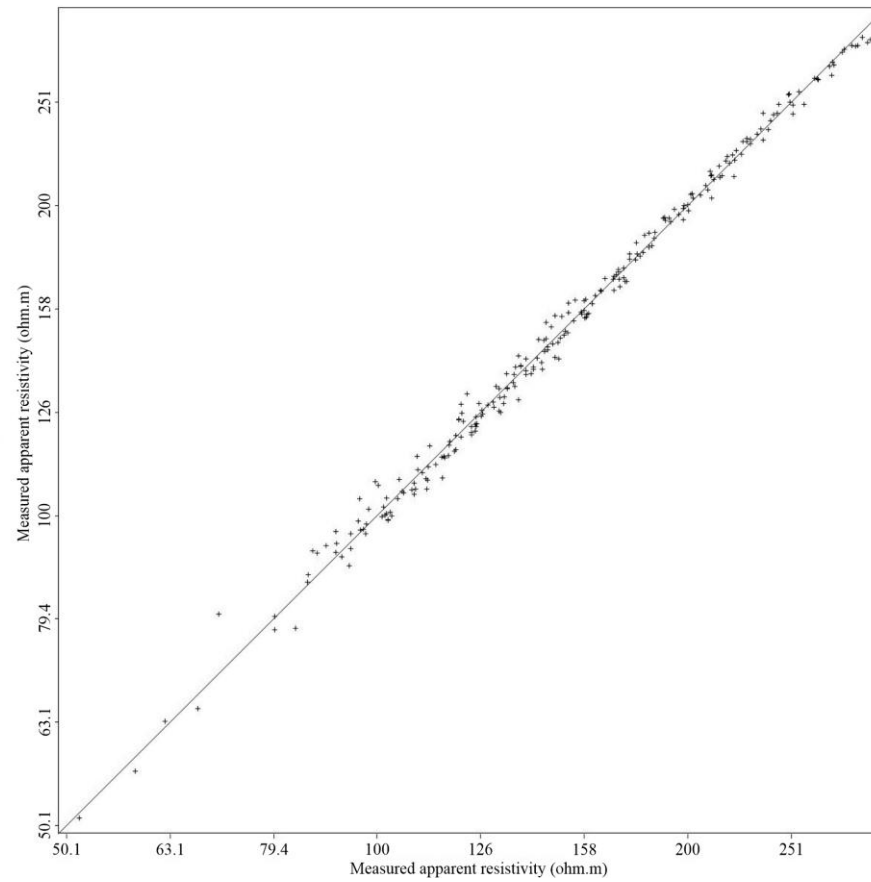
ER2



ER3



ER4



ER5

Figure S1: Comparison between calculated and measured apparent resistivities for ER1 to ER5.