



Supplement of

A high-resolution air temperature data set for the Chinese Tian Shan in 1979–2016

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Supplementary

Table S1. Elevation of averaged 9 DEM grids and the elevation differences with station elevation (m).

ID	averaged 9 DEM grids elevation	elevation Difference
1	1305	50
2	306	14
3	477	2
4	467	-26
5	764	30
6	672	-9
7	1885	-34
8	893	25
9	2004	-251
10	1101	3
11	868	5
12	940	-18
13	2462	-4
14	1057	-2
15	11	24
16	1221	8
17	978	-2
18	1066	33
19	937	-5
20	1635	3
21	433	46
22	1814	-85
23	758	-21
24	1548	20
Average		-8

Table S2. Averaged NSE, RMSE and PDF-based skill scores between the original and corrected ERA-Interim temperature for different elevation groups.

	NSE		RMSE		PDF-based skill score	
	original	correction	original	correction	original	correction
0-500	0.89	0.94	4.69	3.50	0.82	0.92
500-1000	0.93	0.97	3.34	2.29	0.88	0.93
1000-1500	0.94	0.96	3.03	2.39	0.88	0.91
1500-2000	0.85	0.94	3.61	2.55	0.86	0.90
2000-2500	0.78	0.69	6.65	7.80	0.71	0.75

Table S3. Averaged RMSEs of seasonal temperatures between the original ERA-Interim and corrections for different elevation groups.

	Spring	Summer	Autumn	Winter
0-500	1.28	1.14	1.67	4.30
500-1000	0.93	1.37	1.12	2.04
1000-1500	0.91	1.38	1.20	2.30
1500-2000	1.62	1.97	1.62	1.79
2000-2500	3.22	0.42	3.23	12.80

Table S4 Correlation between observed and modeled lapse rates ($^{\circ}\text{C km}^{-1}$) for each month.

Month	Correlation
January	0.30
February	0.30
March	0.38
April	0.74
May	0.73
June	0.49
July	0.40
August	0.41
September	0.60
October	0.25
November	0.38
December	0.36

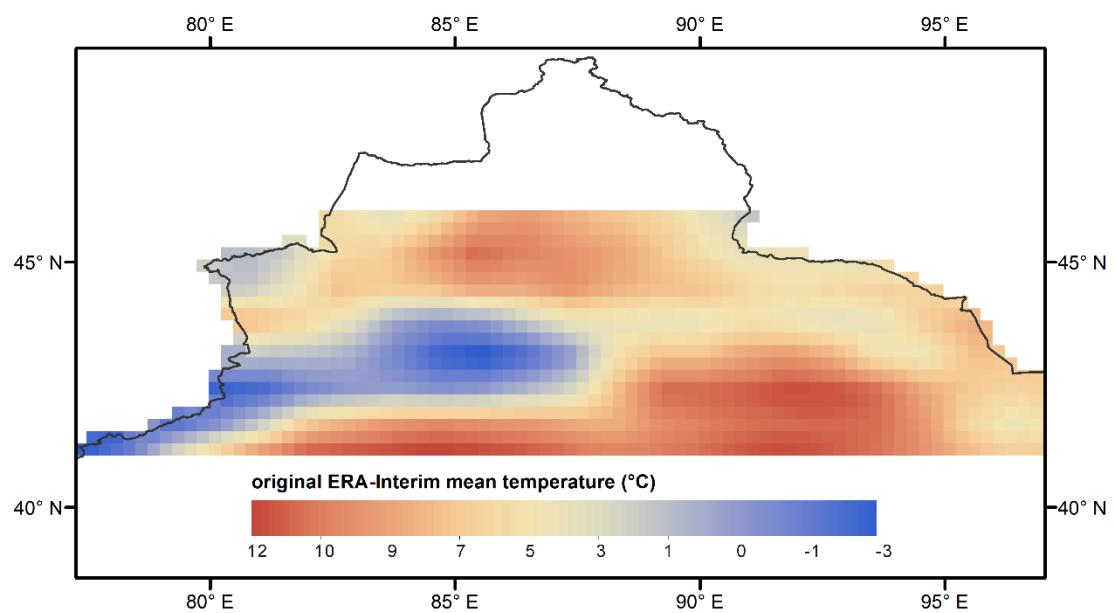


Figure S1: Mean temperature of the entire CTM based on the original ERA-Interim.

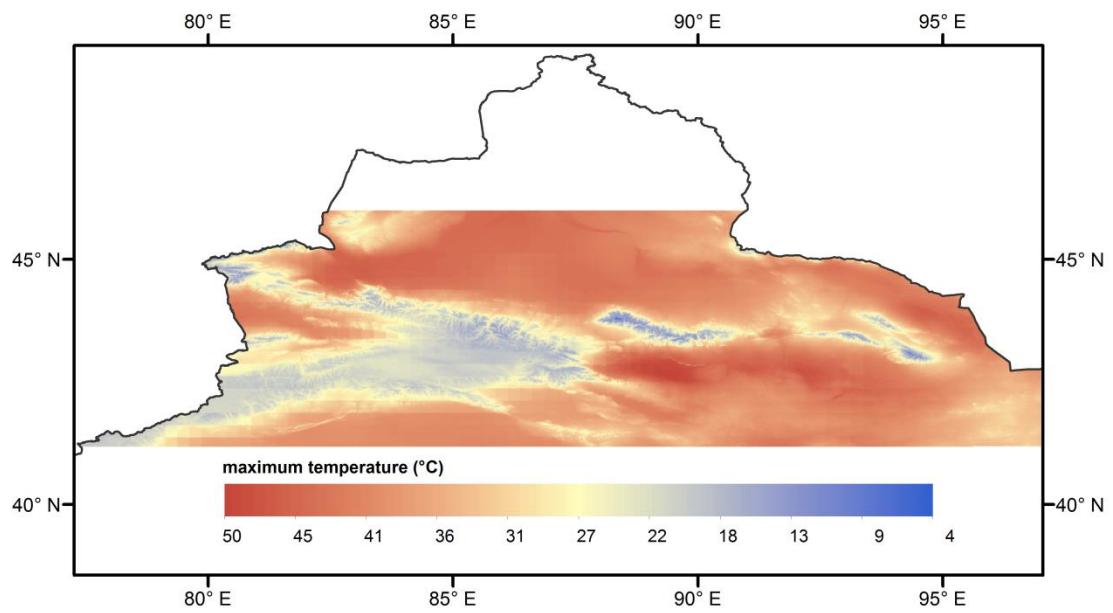


Figure S2: Maximum temperature of the entire CTM based on the high-resolution data set.

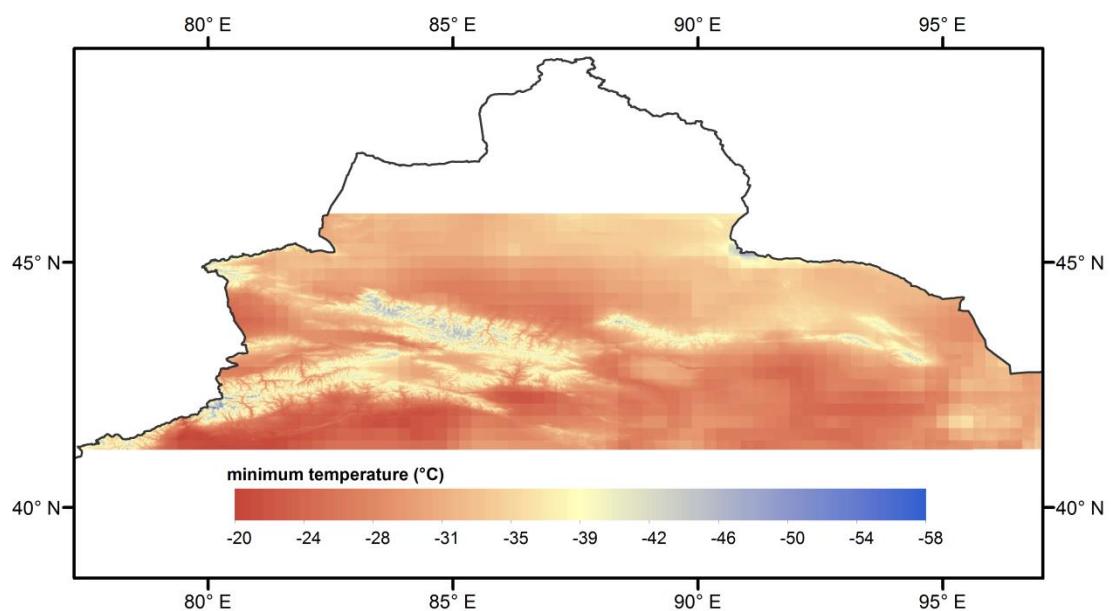


Figure S3: Minimum temperature of the entire CTM based on the high-resolution data set.