Supplement materials of

A data-driven topsoil δ13C dataset and the drivers of spatial variability across the Tibetan Plateau

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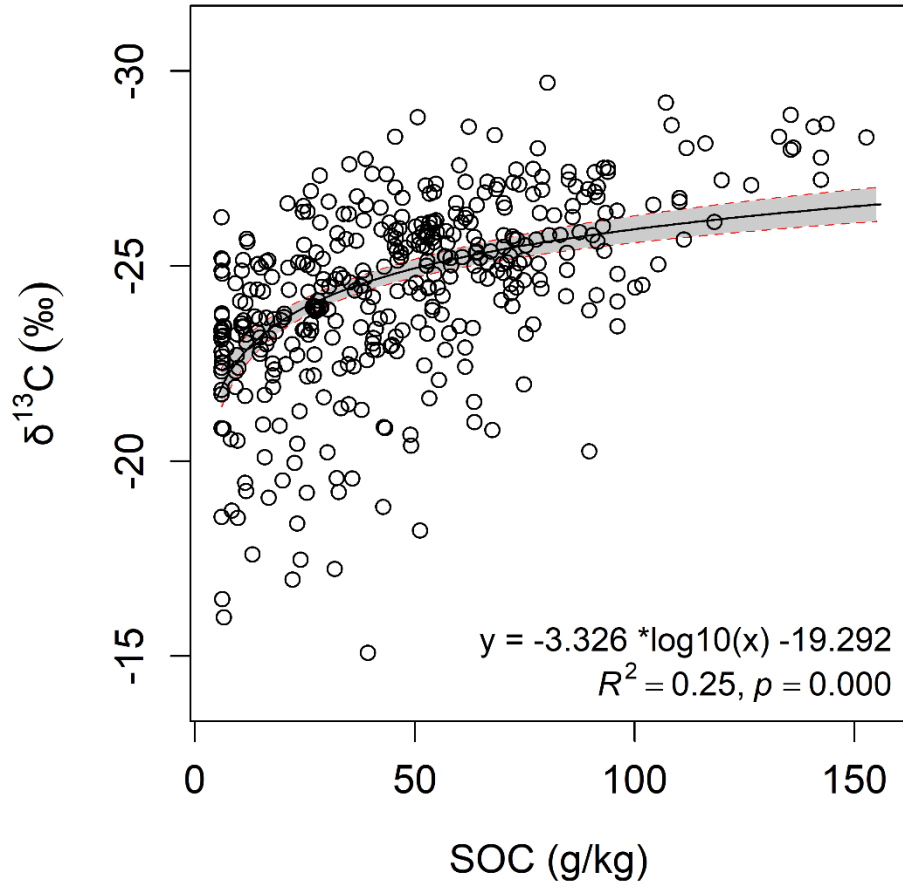
Figure S1. Relationships of soil δ¹³C with SOC content in 0-5 c

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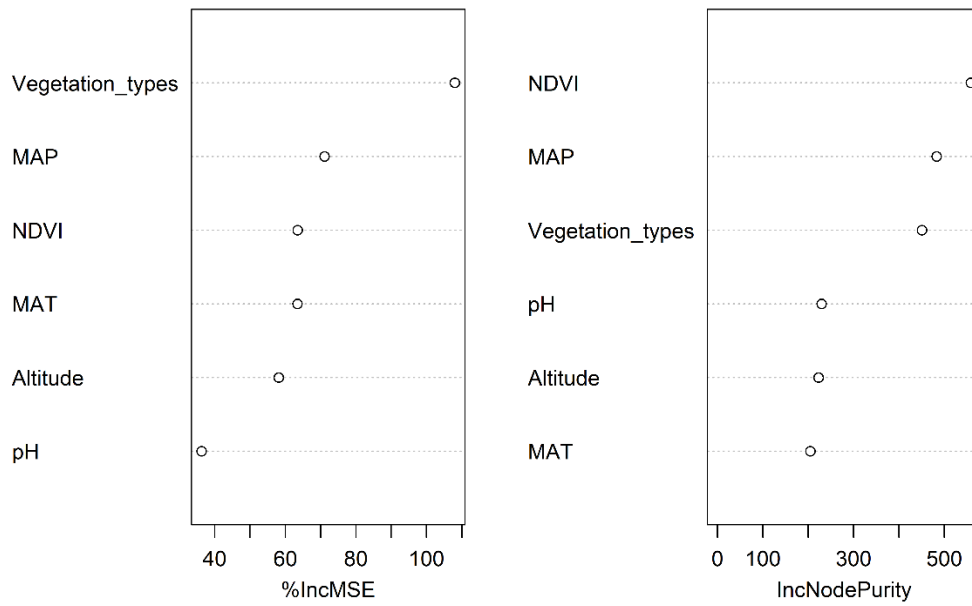
Figure S2. Importance of variables, denoted by percentage increase of mean-squared error

(%IncMSE) (left) and the increase in node purity (IncNodePurity) (right), for topsoil $\delta^{13}C$ estimation

RF model built from training dataset without considering plot location uncertainty. Vegetation_types,

MAP, NDVI, MAT, Altitude, pH, represent the ecosystem types, annual mean precipitation,

normalized difference vegetation index, elevation, soil pH, respectively.

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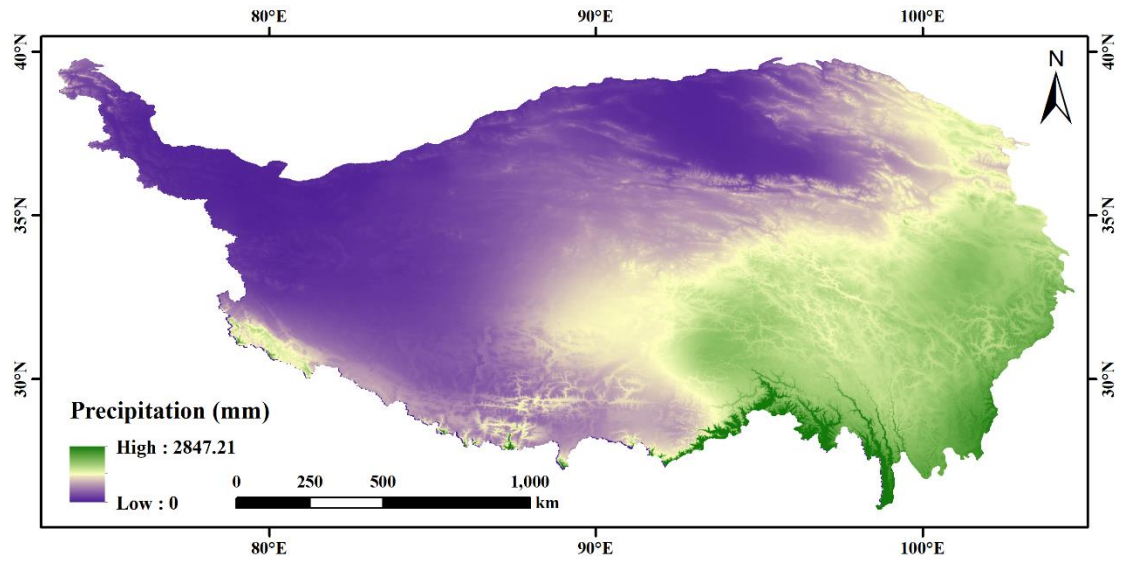
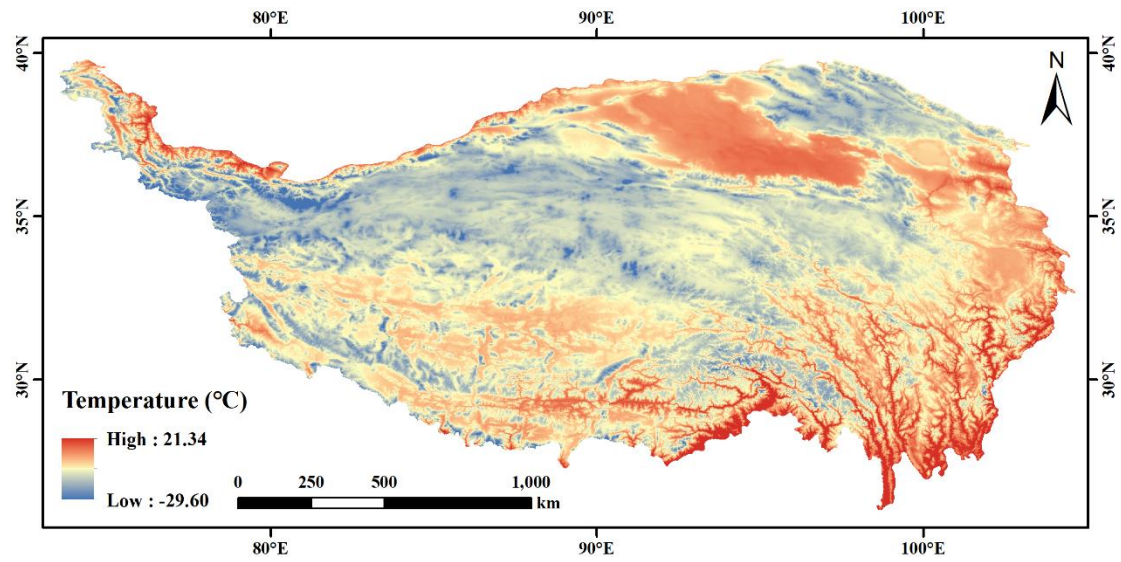


Figure S3. The distribution of precipitation during 2000-2010.

42

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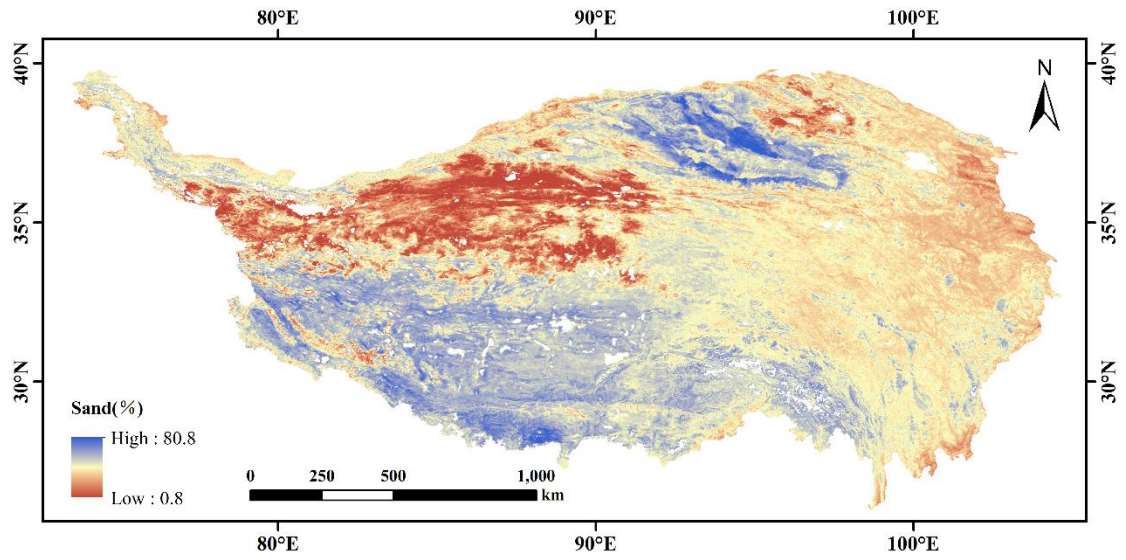
44   **Figure S4.** The distribution of temperature during 2000-2010.

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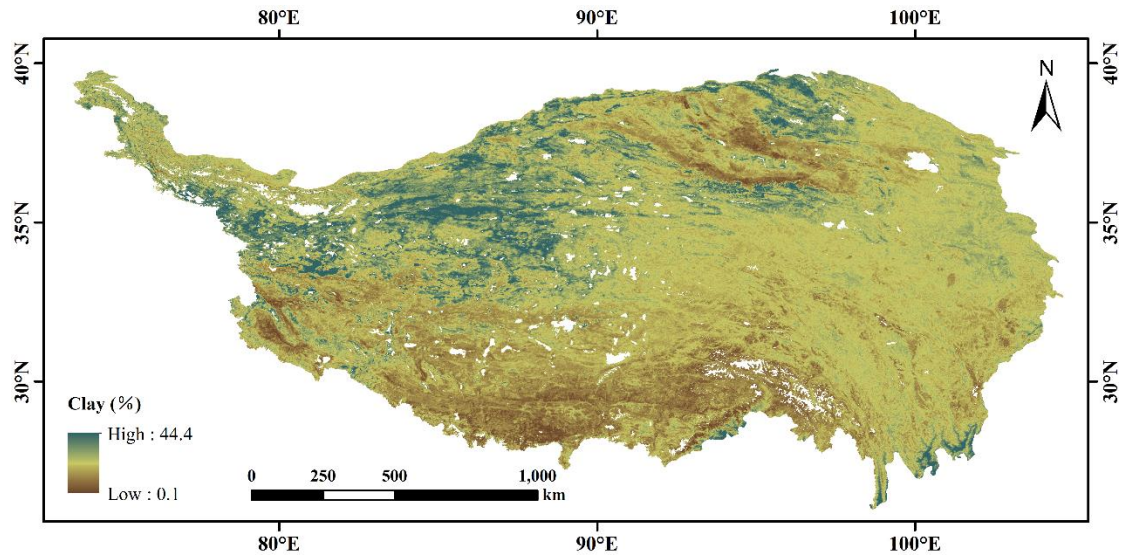
46   **Figure S5.** The distribution of soil sand content on the Tibetan Plateau.

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48   **Figure S6.** The distribution of soil clay content on the Tibetan Plateau.

        Table S1. General descriptions of the dataset used in this study.

Ecosystem types	N	Mean	Standard Deviation	Minimum	Maximum
Forests	103	-26.3	1.60	-29.7	-18.8
Shrublands	59	-24.3	2.00	-28.8	-18.2
Grasslands	218	-23.9	1.84	-27.6	-18.5
Deserts	16	-18.9	2.37	-22.5	-15.1

50   N are the number of soil samples.