



Supplement of

A lacustrine surface-sediment pollen dataset covering the Tibetan Plateau and its potential in past vegetation and climate reconstructions

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Table S1. Summary statistics of geophysical, climate variables, Net Primary Production (NPP), and pollen percentages of the dataset on the Tibetan Plateau ($n=476$, Min: minimum; Med: median; Max: maximum, SD: standard deviation).

Parameter	Min.	Med.	Max.	SD.	Pollen taxa	Min.	Med.	Max.	SD.
Longitude	79.36	91.76	102.55	91.88	Ericaceae	0.00	0.00	3.08	0.07
Latitude	27.62	33.13	39.36	32.93	Euphorbiaceae	0.00	0.00	30.94	0.23
Elevation	2668	4544	5433	4518	Fabaceae	0.00	0.20	5.53	0.40
Mt _{co}	-23.48	-14.33	-2.65	-14.15	Gentianaceae	0.00	0.00	6.49	0.25
Mt _{wa}	1.77	7.86	19.26	8.17	Hippophae	0.00	0.18	10.80	0.50
T _{ann}	-9.09	-2.71	6.93	-2.54	Lamiaceae	0.00	0.00	8.77	0.20
P _{ann}	97	351	788	390	Picea	0.00	0.18	10.63	0.51
NPP	0.16	444.70	6617.36	660.54	Pinus	0.00	1.60	64.98	5.80
Pollen taxa	Min.	Med.	Max.	SD.	Poaceae	0.00	5.32	87.74	9.51
<i>Abies</i>	0.00	0.00	8.59	0.23	Polemoniaceae	0.00	0.00	15.21	0.09
<i>Alnus</i>	0.00	0.17	8.86	0.48	Polygonum	0.00	0.23	20.50	0.69
<i>Artemisia</i>	0.00	11.3	70.05	16.28	<i>Quercus</i> _deciduous	0.00	0.00	5.21	0.07
Asteraceae	0.00	1.70	33.56	16.28	<i>Quercus</i> _evergreen	0.00	0.00	27.81	1.17
<i>Betula</i>	0.00	0.36	30.59	1.49	Ranunculaceae	0.00	1.00	84.46	0.01
Brassicaceae	0.00	0.37	28.17	0.96	<i>Rheum</i>	0.00	0.00	3.73	2.53
Caryophyllaceae	0.00	0.30	10.79	0.59	Rosaceae	0.00	1.00	17.41	0.30
Amaranthaceae	0.00	2.08	64.89	6.54	<i>Salix</i>	0.00	0.00	7.16	1.76
Crassulaceae	0.00	0.00	2.49	0.06	<i>Thalictrum</i>	0.00	0.63	12.05	0.33
Cupressaceae	0.00	0.00	88.50	0.83	Saxifragaceae	0.00	0.00	4.69	1.10
Cyperaceae	0.00	38.37	96.68	43.01	Thymelaeaceae	0.00	0.00	8.33	0.12
<i>Ephedra</i>	0.00	0.15	7.45	0.36	<i>Tsuga</i>	0.00	0.00	6.47	0.03
Ericaceae	0.00	0.00	3.08	0.07	<i>Urtica</i>	0.00	0.00	3.87	0.23

Table S2. Importance (imp) of different pollen taxa on the spatial distribution of Net Primary Production (NPP) and mean annual precipitation (P_{ann}) repeatedly assessed by the Random Forest algorithm (RF) based on the 476 pollen assemblages on the Tibetan Plateau.

NPP		P_{ann}	
Pollen taxa ($n=28$)	Importance (imp)-run3	Pollen taxa ($n=33$)	Importance (imp)-run2
<i>Salix</i>	19.4839986	Amaranthaceae	31.1037824
<i>Pinus</i>	19.8022754	Cyperaceae	26.4987187
<i>Betula</i>	17.7791088	<i>Salix</i>	23.1811138
Amaranthaceae	13.9496322	<i>Betula</i>	22.9971708
Ranunculaceae	12.1631207	<i>Pinus</i>	16.8917440
<i>Quercus</i> evergreen	11.6310224	<i>Thalictrum</i>	15.6379411
Rosaceae	10.6234364	Poaceae	13.9012905
<i>Thalictrum</i>	9.9464501	<i>Picea</i>	12.7461460
<i>Artemisia</i>	9.3907533	<i>Ephedra</i>	12.2018925
Poaceae	9.0934940	<i>Artemisia</i>	10.8837170
<i>Picea</i>	8.6308727	Cupressaceae	9.7513824
<i>Ephedra</i>	7.7736029	Ranunculaceae	9.5576085
<i>Polygonum</i>	7.3053366	<i>Quercus</i> evergreen	8.6028444
Cupressaceae	7.1944707	<i>Polygonum</i>	8.2891315
<i>Abies</i>	5.6786919	Caryophyllaceae	7.8953665
Caryophyllaceae	5.4357953	Ericaceae	7.3228007
Lamiaceae	4.6565913	<i>Abies</i>	6.3238765
Ericaceae	3.9006778	Euphorbiaceae	6.2325398
<i>Tsuga</i>	3.6106466	Brassicaceae	5.7070695
<i>Rheum</i>	3.4326692	<i>Quercus</i> deciduous	5.5538244
Euphorbiaceae	3.4245700	Polemoniaceae	4.1431988
<i>Hippophae</i>	3.3500095	<i>Tsuga</i>	3.4107383
<i>Alnus</i>	2.6025614	Asteraceae	2.8274240
Fabaceae	2.4004326	<i>Alnus</i>	2.7715730
Brassicaceae	2.2107667	Rosaceae	2.7022827
Asteraceae	1.4448549	Crassulaceae	2.2734196
Crassulaceae	1.2139072	<i>Rheum</i>	2.0161046
Saxifragaceae	0.8734724	Lamiaceae	1.7719331
		Gentianaceae	1.2938579
		<i>Hippophae</i>	0.9779099
		Apiaceae	0.7277241
		Fabaceae	0.2016468
		Saxifragaceae	0.1072096