

Supplementary Table S3 The correlation of environmental factors on the ratio of $\text{N}_2\text{O}/(\text{N}_2\text{O} + \text{N}_2)$ rate by Spearman correlation analysis at both regional scale (all regions) and subregional scale (Loess Plateau steppe, Inner Mongolia Plateau and Xizang Plateau).

$\text{N}_2\text{O}/(\text{N}_2\text{O}+\text{N}_2)$	All	LP	IMP	XP
Altitude	0.025	0.364**	-0.017	-0.005
MAT	-0.306**	-0.354*	-0.117	-0.334*
MAP	0.127	-0.548**	0.282*	0.751**
pH	-0.432**	0.541**	-0.595**	-0.621**
Moisture	-0.063	0.096	-0.257	-0.003
EC	0.057	-0.253	0.262	0.529**
Bulk density	-0.095	0.221	-0.259	-0.540**
TOC	0.359**	-0.541**	0.361*	0.720**
TC	0.152	-0.378**	0.274	0.713**
TN	0.397**	-0.525**	0.289*	0.814**
TP	-0.064	0.031	0.13	0.251
TK	0.132	0.217	-0.305*	-0.2
C/N	-0.288**	0.401**	0.221	-0.271
DOC	0.084	-0.435**	-0.074	0.763**
DC	-0.179*	-0.416**	-0.358*	0.577**
DIC	-0.520**	-0.02	-0.525**	-0.470**
NO_2^-	-0.147	-0.022	-0.101	-0.329*
NH_4^+	0.345**	-0.071	0.094	0.657**
NO_3^-	0.180*	-0.192	0.375**	0.214
DN	0.288**	-0.22	0.318*	0.470**
N addition	0.568**	0.645**	0.591**	0.371**