

Table S4 Whole-rock major (wt.%) and trace element ($\times 10^{-6}$) compositions for pyroclastic rocks and sedimentary rocks from the Laofengkou area, West Junggar

Rock type	The dark green lithic crystal tuff		The gray-green fine sandstone	
Sample	19TL-80	19TL-81	19TL-88	19TL-89
SiO ₂	60.59	61.58	61.36	62.93
TiO ₂	1.08	0.97	0.48	0.37
Al ₂ O ₃	14.13	14.38	17.55	15.85
Fe ₂ O ₃ ^T	8.31	7.42	4.79	5.47
MnO	0.17	0.14	0.12	0.13
MgO	2.65	2.32	4.13	3.94
CaO	4.78	5.11	1.62	2.25
Na ₂ O	4.11	3.83	2.56	1.73
K ₂ O	1.15	1.33	3.31	2.98
P ₂ O ₅	0.25	0.22	0.20	0.11
LOI	2.34	2.19	3.95	4.02
Total	99.56	99.49	100.08	99.78
Li	10.4	11.2	49.7	48.0
Be	0.8	1.0	1.5	1.3
Sc	27.3	21.9	8.9	8.0
Ti	6387	5701	2831	2164
V	216	148	93	63
Cr	7.1	15.8	5.0	3.7
Mn	1322	1099	966	1025
Co	16.3	14.3	9.8	11.9
Ni	5.3	6.9	4.5	6.5
Cu	45.4	30.1	51.8	8.5
Zn	88.3	84.7	77.1	83.0
Ga	20.2	18.8	19.4	18.1
Rb	15.4	19.5	68.1	64.1
Sr	286.4	566.9	175.0	228.1
Y	28.1	24.5	25.5	17.9
Zr	90.9	100.3	143.1	114.6
Nb	2.9	3.6	7.3	6.6
Mo	1.0	0.5	0.3	0.3
Sn	0.9	0.9	1.1	1.2
Cs	0.7	0.7	2.3	1.8
Ba	151	312	575	606
La	9.1	10.5	34.4	28.1
Ce	21.2	23.0	67.9	48.7
Pr	3.25	3.40	7.93	5.52
Nd	15.4	15.6	28.9	19.7

Sm	4.21	4.09	5.37	3.68
Eu	1.42	1.30	1.11	0.83
Gd	4.72	4.33	4.60	2.97
Tb	0.82	0.74	0.74	0.48
Dy	4.84	4.29	4.10	2.69
Ho	1.03	0.91	0.86	0.57
Er	2.89	2.51	2.40	1.64
Tm	0.46	0.40	0.38	0.28
Yb	2.85	2.49	2.46	1.87
Lu	0.42	0.38	0.39	0.28
Hf	2.8	3.0	4.4	3.7
Ta	0.2	0.2	0.6	0.6
W	0.21	0.13	0.22	0.11
Tl	0.09	0.11	0.15	0.15
Pb	3.5	4.8	7.0	8.9
Th	1.1	1.4	11.2	10.7
U	0.36	0.44	3.65	0.87
ΣREE	72.65	73.98	161.49	117.23
δEu	0.97	0.94	0.66	0.74
(La/Yb) _N	2.30	3.04	10.00	10.79

Note: LOI = loss on ignition; $\delta\text{Eu}=2\text{Eu}_\text{N}/(\text{Sm}_\text{N}+\text{Gd}_\text{N})$; $(\text{La}/\text{Yb})_\text{N}=(\text{La}/0.237)/(\text{Yb}/0.17)$