

Supplementary Materials

Table S1. Grain size distribution.

Grain size		Soil				Sediment		
		ORB6	ORB5	ORB4	ORB3	ORB2	ORB1	ORB7
mm	φ	Class weight (%)						
> 2	> -1	-	-	-	-	37	1.8	4.2
2-1	-1-0	-	-	-	-	9.9	0.6	1.8
1-0.5	0-1	-	-	-	-	13	1	1.1
0.5-0.25	1-2	-	-	-	-	13.7	4.8	3
0.25-0.125	2-3	-	-	-	-	11.8	58.7	59.6
0.125-0.063	3-4	15.2	21.5	18.1	12.3	5.5	31.1	27.7
0.063-0.031	4-5	11.7	11.1	21.3	17.2	9.1	2	2.6
0.031-0.016	5-6	27.9	24.1	19.8	29.2	-	-	-
0.016-0.008	6-7	24.4	24.3	19.8	24.5	-	-	-
0.008-0.004	7-8	13.9	12.6	15	11.7	-	-	-
0.004-0.002	8-9	6.9	6.4	6	5.1	-	-	-
Median	φ	5.86	5.75	5.48	5.73	0.56	2.85	2.83
Sorting (σ)	φ	1.6	1.76	1.68	1.4	2.14	0.65	0.94

Table S2. Chemical composition of the studied samples (wt%).

Sample		Na ₂ O	MgO	Al ₂ O ₃	SiO ₂	P ₂ O ₅	K ₂ O	CaO	TiO ₂	MnO	Fe ₂ O ₃	LOI
Soil	ORB6	0.29	2.78	19.92	55.27	0.14	3.95	0.93	1.16	0.21	10.29	5.06
	ORB5	0.37	2.63	17.03	60.33	0.13	4.07	1.01	1.17	0.2	9.41	3.65
	ORB4	0.42	3.39	19.18	55.52	0.09	3.97	0.93	1.12	0.26	9.52	5.6
	ORB3	0.33	3.1	19.35	54.75	0.11	4.05	0.99	1.15	0.22	10.16	5.79
Sediment	ORB2	0.3	4.4	4.54	24.85	0.16	1.95	34.41	0.68	0.23	6.56	21.92
	ORB1	0.48	1.86	8.71	42.42	0.12	2.22	20.77	0.55	0.26	10.65	11.96
	ORB7	0.58	1.89	9.35	42.89	0.1	2.08	19.97	0.45	0.22	9.58	12.89

Table S3. Concentrations of trace and rare earth elements (mg/kg).

	Soil				Sediment		
	ORB6	ORB5	ORB4	ORB3	ORB2	ORB1	ORB7
Li	72	61	114	101	50	34	35
Be	3.4	2.9	4.2	3.2	1.3	3.9	4.4
Sc	16	14	14	17	7.8	10	10
V	113	111	127	118	82	90	78
Cr	89	119	146	103	60	54	47
Co	15	16	22	15	8.2	12	13
Ni	47	45	57	54	25	33	36
Ga	15	14	17	17	6.8	10	11
Rb	137	129	128	136	63	101	102
Sr	215	231	155	140	292	534	595
Y	28	26	27	27	13	20	21

Zr	93	86	108	92	43	92	100
Nb	13	13	15	13	6.9	9.9	12
Mo	1.7	1.6	4.2	2.5	1.6	0.4	0.62
Cs	10	9.3	11	12	4.1	8.3	8.6
Ba	518	547	453	413	308	462	423
Hf	2.8	2.6	2.8	2.7	1.3	2.7	2.4
Ta	0.96	0.96	0.99	0.94	0.48	0.62	0.63
W	1.9	1.9	2.2	2	0.82	1.5	1.7
Pb	40	35	60	49	25	18	21
Th	15	13	14	16	6.1	13	14
U	1.9	1.9	2.5	2.4	1.8	1.8	2
La	45	40	42	44	21	38	37
Ce	94	88	99	85	40	82	79
Pr	12	11	10	11	5.9	9.6	8.7
Nd	46	42	39	41	23	36	32
Sm	9	8.3	7.9	8	4.4	7.1	6.4
Eu	1.9	1.8	1.7	1.7	0.91	1.6	1.5
Gd	7.4	6.9	6.5	6.8	3.6	6	5.5
Tb	1.1	0.97	0.97	0.98	0.5	0.79	0.77
Dy	5.5	5.1	5.3	5.3	2.6	4.1	4.1
Ho	1	0.94	0.97	0.99	0.47	0.73	0.74
Er	2.6	2.5	2.6	2.6	1.3	1.8	1.9
Tm	0.35	0.34	0.37	0.36	0.16	0.25	0.26
Yb	2.1	2	2.3	2.2	1	1.5	1.5
Lu	0.3	0.29	0.32	0.32	0.13	0.22	0.22
