Supporting Information for

Mineralogical, Elemental, and Spatial Variability of Volcaniclastics in Fluvio-Coastal-Aeolian Sedimentary Systems and Their Insights for Mineral Sorting on Mars

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Introduction

Supporting tables for elemental and oxides from XRF method in %wt and molar mass of the elements used to convert %wt to molar for A-CN-K ternary diagram and Chemical Index of Alteration (CIA).

Table S1. Mean elements in %wt for XRF data

Sample	Si	Al	Fe	Ca	Mg	Mn	P	K	Na	Ti
S1A	40.86	16.88	18.07	13.21	1.57	0.37	0.12	4.26	3.13	1.11
S1B	38.24	15.77	20.68	14.13	1.91	0.43	0.11	4.04	2.88	1.33
S2C	43.32	17.26	15.08	12.48	1.12	0.36	0.08	4.50	4.41	1.00
S2A	44.59	18.07	13.02	13.16	1.12	0.37	0.17	4.58	3.54	0.86
S3A	38.88	14.36	18.97	16.13	2.96	0.47	0.37	3.21	2.78	1.35
S4A	44.93	16.56	11.79	15.60	1.62	0.46	0.03	4.32	3.58	0.70
S5A	45.54	17.38	11.83	14.96	1.14	0.40	0.03	4.07	3.49	0.72
S6A	44.18	15.21	24.52	7.19	2.12	0.45	0.04	3.36	1.08	1.38
S7A	42.84	16.84	18.06	12.67	1.49	0.35	0.25	3.04	2.67	1.25
S8A	42.70	16.88	18.67	12.46	1.15	0.45	0.01	4.07	1.85	1.12
S9A	43.05	13.29	20.19	15.39	1.99	0.63	0.02	2.20	1.82	1.00
S10A	40.38	16.53	23.18	11.62	1.26	0.41	0.01	2.39	1.93	1.83
S10D	43.53	15.96	18.76	12.61	1.62	0.44	0.11	2.56	2.87	1.16
S11A	40.46	14.91	15.83	19.39	1.62	0.40	0.03	2.97	2.91	1.09
S11B	34.95	12.24	31.03	11.02	3.46	0.53	0.08	1.77	2.29	2.15
S12A	46.42	15.67	14.60	13.30	1.90	0.38	0.04	3.23	3.18	0.91
S12B	18.31	6.51	58.98	5.83	2.74	0.61	0.15	0.78	0.88	4.50
C1A	41.88	16.65	16.45	15.73	1.77	0.47	0.00	2.71	3.03	0.86
C1B	37.21	11.56	28.96	11.90	3.44	0.56	0.09	1.62	2.09	2.13
C1C	41.60	14.60	20.97	12.82	2.63	0.45	0.11	2.52	2.57	1.34
B1C	37.83	14.72	23.41	13.77	2.68	0.48	0.04	2.39	2.72	1.53
B1D	40.82	16.07	18.48	14.62	2.53	0.49	0.13	2.61	2.67	1.17
B1E	41.17	17.06	18.26	13.89	1.83	0.43	0.01	2.67	2.92	1.34

Table S2. Mean oxides in %wt for XRF data

Sample	Na_2O	MgO	Al_2O_3	SiO_2	K_2O	CaO	TiO_2	MnO	Fe_2O_3	P_2O_5	SO_3
S1A	2.98	1.76	20.58	51.05	2.78	8.93	0.83	0.20	10.60	0.14	0.00
S1B	2.74	2.15	19.39	48.86	2.73	9.92	1.04	0.24	12.60	0.13	0.00
S2C	4.23	1.25	20.88	53.04	2.83	8.11	0.72	0.19	8.52	0.09	0.00
S2A	3.41	1.25	21.86	53.93	2.80	8.32	0.61	0.19	7.22	0.19	0.06
S3A	2.66	3.34	17.62	49.58	2.15	11.16	1.06	0.26	11.49	0.44	0.06
S4A	3.47	1.82	20.07	54.74	2.66	9.85	0.48	0.24	6.50	0.03	0.01
S5A	3.37	1.28	21.04	55.08	2.48	9.37	0.50	0.20	6.46	0.03	0.03
S6A	1.00	2.34	18.27	54.90	2.21	4.97	1.10	0.25	14.73	0.05	0.00
S7A	2.53	1.65	20.39	52.93	1.95	8.44	0.93	0.19	10.44	0.30	0.08
S8A	1.75	1.29	20.53	53.08	2.63	8.38	0.84	0.24	10.87	0.02	0.20
S9A	1.72	2.22	16.19	54.54	1.46	10.60	0.76	0.35	11.97	0.02	0.01
S10A	1.81	1.40	20.15	51.00	1.60	8.14	1.44	0.23	14.03	0.01	0.00
S10D	2.71	1.80	19.27	53.89	1.64	8.45	0.86	0.24	10.86	0.13	0.00
S11A	2.80	1.83	18.37	51.36	1.95	13.17	0.81	0.21	9.30	0.03	0.00
S11B	2.15	3.88	15.13	46.24	1.28	8.36	1.86	0.33	20.46	0.10	0.00
S12A	3.04	2.11	18.82	56.42	2.00	8.52	0.64	0.20	8.09	0.04	0.00
S12B	0.85	3.24	8.69	27.19	0.67	5.33	4.78	0.46	48.15	0.22	0.00
C1A	2.89	1.99	20.26	52.02	1.75	10.50	0.63	0.25	9.54	0.00	0.00
C1B	1.96	3.86	14.22	48.85	1.16	8.88	1.79	0.33	18.65	0.11	0.00
C1C	2.42	2.92	17.70	52.38	1.67	8.85	1.03	0.25	12.50	0.13	0.00
B1C	2.57	3.00	18.05	48.63	1.64	9.86	1.23	0.27	14.52	0.05	0.00
B1D	2.54	2.83	19.54	51.11	1.71	9.96	0.88	0.27	10.86	0.15	0.00
B1E	2.77	2.04	20.73	51.26	1.74	9.40	1.01	0.23	10.66	0.01	0.00

Table S3. Mean oxides in molar for XRF data

Sample	Al2O3	CaO	Na2O	K2O	Na2O+CaO
S1A	0.20	0.16	0.05	0.03	0.21
S1B	0.19	0.18	0.04	0.03	0.22
S2C	0.20	0.14	0.07	0.03	0.21
S2A	0.21	0.15	0.06	0.03	0.20
S3A	0.17	0.20	0.04	0.02	0.24
S4A	0.20	0.18	0.06	0.03	0.23
S5A	0.21	0.17	0.05	0.03	0.22
S6A	0.18	0.09	0.02	0.02	0.10
S7A	0.20	0.15	0.04	0.02	0.19
S8A	0.20	0.15	0.03	0.03	0.18
S9A	0.16	0.19	0.03	0.02	0.22
S10A	0.20	0.15	0.03	0.02	0.17
S10D	0.19	0.15	0.04	0.02	0.19
S11A	0.18	0.23	0.05	0.02	0.28
S11B	0.15	0.15	0.03	0.01	0.18
S12A	0.18	0.15	0.05	0.02	0.20
S12B	0.09	0.10	0.01	0.01	0.11
C1A	0.20	0.19	0.05	0.02	0.23
C1B	0.14	0.16	0.03	0.01	0.19
C1C	0.17	0.16	0.04	0.02	0.20
B1C	0.18	0.18	0.04	0.02	0.22
B1D	0.19	0.18	0.04	0.02	0.22
B1E	0.20	0.17	0.04	0.02	0.21