S3. Results of the SEM-EDS analyses on volcanic aggregates

Semiquantitative EDS analyses were conducted on volcanic aggregates from samples M326 (Gr 3a), M345 (Gr 2a), and M328 (Gr 3b). Point analyses were performed on aphyric clasts, while for more heterogeneous materials, such as tephrites and porphyritic/hyalopilitic pumices, area analyses (polygons) were employed to represent the bulk composition of the clasts observed in thin sections. Legend: b.d. = below detection limit; n.d. = not determined; st. dev. = standard deviation.

Sample	Clast	Type	Spectrum	Na_2O	MgO	Al_2O_3	SiO_2	P_2O_5	SO_3	K_2O	CaO	TiO_2	MnO	Fe_2O_3	Ba	Na_2O+K_2O
M326	cl1	Vesicular tephrite (Bulk)	1 (point)	3.39	3.02	18.07	51.56	1.08	b.d.	4.20	9.02	1.50	b.d.	8.16	b.d.	7.59
			2 (point)	4.03	2.86	18.59	49.08	0.80	b.d.	3.44	13.01	1.03	b.d.	7.17	b.d.	7.47
			3 (point)	2.95	1.18	27.63	49.25	0.00	b.d.	1.79	13.78	0.44	b.d.	2.98	b.d.	4.74
			Average	3.46	2.35	21.43	49.96	0.63	b.d.	3.14	11.94	0.99	b.d.	6.10	b.d.	6.60
			St. dev.	0.44	0.83	4.39	1.13	0.46	n.d.	1.01	2.09	0.43	n.d.	2.25	n.d.	1.32
	cl3	Vesicular tephrite (Bulk)	1 (bulk area)	4.90	2.59	19.21	51.56	0.81	b.d.	3.55	9.84	0.80	b.d.	6.74	b.d.	8.45
			Average	4.90	2.59	19.21	51.56	0.81	b.d.	3.55	9.84	0.80	b.d.	6.74	b.d.	8.45
			St. dev.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
	cl7	Aphyric (Groundmass)	1 (point)	4.13	0.37	19.32	62.05	b.d.	b.d.	8.72	3.21	0.00	b.d.	1.79	b.d.	12.85
			2 (point)	4.72	0.56	18.77	61.22	b.d.	b.d.	8.13	3.00	0.45	b.d.	2.53	b.d.	12.85
			3 (point)	4.84	0.57	18.40	61.12	b.d.	b.d.	8.22	3.49	0.52	b.d.	2.25	b.d.	13.06
			4 (point)	5.02	0.53	18.66	60.74	b.d.	b.d.	8.07	3.18	0.43	b.d.	2.72	b.d.	13.09
			5 (point)	4.98	0.70	18.35	61.21	b.d.	b.d.	7.95	3.07	0.45	b.d.	2.62	b.d.	12.93
			6 (point)	4.04	0.43	19.54	61.65	b.d.	b.d.	8.90	3.44	0.00	b.d.	1.65	b.d.	12.94
			7 (point)	4.85	0.49	18.40	60.85	b.d.	b.d.	8.17	3.48	0.52	b.d.	2.62	b.d.	13.02
			Average	4.65	0.52	18.78	61.26	b.d.	b.d.	8.31	3.27	0.34	b.d.	2.31	b.d.	12.96
			St. dev.	0.37	0.10	0.44	0.42	n.d.	n.d.	0.33	0.19	0.22	n.d.	0.40	n.d.	0.09
	cl8	Vesicular tephrite (Bulk)	1 (bulk area)	2.55	6.70	15.39	50.22	0.43	b.d.	2.48	14.35	0.96	b.d.	6.70	b.d.	5.03
			Average	2.55	6.70	15.39	50.22	0.43	b.d.	2.48	14.35	0.96	b.d.	6.70	b.d.	5.03
			St. dev.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
M345	cl1	Hyalopilitic pumice (Groundmass)	1 (area)	3.12	1.75	19.51	53.99	0.36	0.00	6.13	7.46	0.76	0.20	6.27	b.d.	9.25
			2 (area)	3.00	1.76	19.93	53.29	0.44	0.00	5.89	8.05	0.78	b.d.	6.43	b.d.	8.89
			3 (area)	2.74	2.14	19.38	52.12	0.43	0.20	5.68	8.77	0.87	b.d.	7.26	b.d.	8.42
			4 (area)	2.90	2.11	18.21	53.69	0.43	b.d.	6.41	7.53	0.86	0.21	7.14	b.d.	9.31

			5 (area)	3.10	1.83	18.95	53.34	0.47	b.d.	6.16	7.26	0.89	b.d.	7.54	b.d.	9.26
			6 (area)	2.85	1.91	19.32	53.23	0.41	b.d.	6.20	7.85	0.83	b.d.	7.03	b.d.	9.05
			7 (area)	3.17	1.80	19.80	53.04	0.46	b.d.	5.40	8.29	0.77	b.d.	6.92	b.d.	8.57
			Average	2.98	1.90	19.30	53.24	0.43	0.03	5.98	7.89	0.82	0.06	6.94	n.d.	8.96
			St. dev.	0.15	0.15	0.54	0.54	0.03	0.07	0.32	0.49	0.05	0.09	0.42	n.d.	0.33
	cl2	Aphyric pumice (Glass)	1 (point)	3.59	0.86	18.98	56.86	0.02	0.10	9.34	4.74	0.48	0.20	4.20	b.d.	12.93
			2 (point)	3.57	0.90	18.74	57.20	b.d.	b.d.	9.55	4.65	0.58	b.d.	4.19	b.d.	13.12
			3 (point)	3.57	1.13	18.87	56.84	b.d.	b.d.	9.52	4.37	0.61	b.d.	4.43	b.d.	13.09
			4 (point)	3.55	0.92	19.08	56.81	0.20	b.d.	9.33	4.68	0.58	b.d.	4.22	b.d.	12.88
			5 (point)	3.43	0.86	19.24	57.12	b.d.	b.d.	9.30	4.49	0.53	0.20	4.18	b.d.	12.73
			6 (point)	3.45	0.87	19.13	57.18	b.d.	b.d.	9.49	4.48	0.52	0.19	4.09	b.d.	12.94
			7 (point)	3.20	0.90	18.92	57.26	b.d.	b.d.	9.68	4.79	0.54	b.d.	4.11	b.d.	12.88
			8 (point)	3.56	0.86	19.07	56.97	b.d.	b.d.	9.59	4.48	0.52	b.d.	4.28	b.d.	13.15
			Average	3.49	0.91	19.00	57.03	0.03	0.01	9.48	4.59	0.55	0.07	4.21	n.d.	12.97
			St. dev.	0.12	0.08	0.15	0.17	0.07	0.03	0.13	0.14	0.04	0.10	0.10	n.d.	0.13
	cl3	Aphyric pumice (Glass)	1 (point)	3.52	1.05	18.95	57.01	b.d.	b.d.	8.93	5.24	0.55	b.d.	4.11	b.d.	12.45
			2 (point)	3.79	1.02	18.83	57.25	b.d.	b.d.	9.07	4.59	0.53	0.16	4.13	b.d.	12.86
			3 (point)	3.27	1.00	18.88	56.54	b.d.	b.d.	9.26	5.63	0.57	b.d.	4.23	b.d.	12.53
			4 (point)	3.20	0.87	19.08	56.89	b.d.	b.d.	9.30	5.18	0.60	0.19	4.09	b.d.	12.50
			5 (point)	3.45	1.03	18.83	56.74	b.d.	b.d.	9.56	5.17	0.47	b.d.	4.15	b.d.	13.01
			6 (point)	3.38	1.02	18.73	57.00	0.15	0.04	9.33	5.05	0.48	b.d.	4.15	b.d.	12.71
			Average	3.44	1.00	18.88	56.91	0.03	0.01	9.24	5.14	0.53	0.06	4.14	n.d.	12.68
			St. dev.	0.19	0.06	0.11	0.22	0.06	0.01	0.20	0.31	0.05	0.08	0.04	n.d.	0.20
	cl4	Aphyric pumice (Glass)	1 (point)	3.51	0.77	18.94	58.84	b.d.	b.d.	9.30	3.71	0.50	b.d.	3.74	b.d.	12.81
			2 (point)	3.66	0.72	18.98	58.83	b.d.	b.d.	9.34	3.59	0.53	b.d.	3.66	b.d.	13.00
			3 (point)	3.58	0.80	18.95	58.56	b.d.	b.d.	9.31	3.62	0.53	0.16	3.82	b.d.	12.89
			4 (point)	3.65	0.81	18.96	58.64	b.d.	b.d.	9.36	3.60	0.53	0.16	3.65	b.d.	13.01
			5 (point)	3.97	0.74	19.25	58.96	b.d.	b.d.	8.97	3.42	0.60	b.d.	3.48	b.d.	12.94
			6 (point)	4.10	0.73	19.00	58.57	b.d.	b.d.	9.12	3.46	0.52	0.16	3.68	b.d.	13.22
			7 (point)	4.25	0.80	18.87	58.24	b.d.	0.19	9.10	3.62	0.60	b.d.	3.69	b.d.	13.35

			Average	3.82	0.77	18.99	58.66	n.d.	0.03	9.21	3.57	0.54	0.07	3.67	n.d.	13.03
			St. dev.	0.27	0.03	0.11	0.22	n.d.	0.07	0.14	0.09	0.04	0.08	0.10	n.d.	0.18
	cl6	Aphiric pumice (Glass)	1 (point)	3.82	0.72	19.11	57.98	b.d.	b.d.	9.68	3.75	0.55	b.d.	3.78	b.d.	13.50
			2 (point)	3.41	0.74	18.61	56.79	b.d.	b.d.	10.53	4.08	0.63	b.d.	4.51	b.d.	13.94
			3 (point)	3.76	0.69	19.17	58.05	b.d.	b.d.	9.77	3.52	0.59	b.d.	3.80	b.d.	13.53
			4 (point)	3.72	0.72	19.03	57.77	b.d.	b.d.	9.77	3.90	0.46	0.20	3.79	b.d.	13.49
			5 (point)	3.80	0.72	19.03	58.24	b.d.	b.d.	9.69	3.64	0.49	b.d.	3.77	b.d.	13.49
			6 (point)	3.89	0.75	19.11	58.01	b.d.	b.d.	9.58	3.66	0.52	b.d.	3.81	b.d.	13.47
			Average	3.73	0.72	19.01	57.81	n.d.	n.d.	9.84	3.76	0.54	0.03	3.91	n.d.	13.57
			St. dev.	0.15	0.02	0.19	0.47	n.d.	n.d.	0.32	0.18	0.06	0.07	0.27	n.d.	0.17
	cl7	Tephrite (Bulk)	1 (bulk area)	6.58	0.88	20.73	55.14	b.d.	b.d.	4.05	7.08	0.54	b.d.	4.88	b.d.	
			Average	6.58	0.88	20.73	55.14	n.d.	n.d.	4.05	7.08	0.54	b.d.	4.88	n.d.	10.63
			St. dev.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
	cl8	Hyalopilitic pumice (Groundmass)	1 (area)	2.89	2.18	18.78	53.09	0.34	b.d.	6.14	8.37	0.79	b.d.	6.93	b.d.	9.03
			2 (area)	2.82	2.42	18.46	53.68	0.44	b.d.	6.44	7.71	0.81	b.d.	6.81	b.d.	9.26
			3 (area)	2.88	1.67	19.59	54.25	0.49	b.d.	6.49	7.38	0.72	b.d.	6.04	b.d.	9.37
			4 (area)	2.78	2.40	18.26	52.72	0.48	b.d.	6.18	7.81	0.93	b.d.	8.00	b.d.	8.96
			Average	2.84	2.17	18.77	53.44	0.44	n.d.	6.31	7.82	0.81	n.d.	6.95	n.d.	9.16
			St. dev.	0.04	0.30	0.51	0.58	0.06	n.d.	0.15	0.36	0.08	n.d.	0.70	n.d.	0.17
M328	**c2**	Vesicular tephrite (Bulk)	1 (bulk area)	3.91	3.48	19.27	52.00	0.78	b.d.	3.87	9.30	0.91	b.d.	6.28	b.d.	7.78
			Average	3.91	3.48	19.27	52.00	0.78	b.d.	3.87	9.30	0.91	b.d.	6.28	b.d.	7.78
			St. dev.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
	c1	Aphyric pumice (Bulk)	1 (bulk area)	3.68	2.68	19.41	52.62	0.79	b.d.	3.92	8.69	1.17	b.d.	6.78	b.d.	7.60
			Average	3.68	2.68	19.41	52.62	0.79	b.d.	3.92	8.69	1.17	b.d.	6.78	b.d.	7.60
			St. dev.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
	cl3	Aphyric pumice (Glass)	1 (point)	4.31	0.88	19.47	59.07	b.d.	b.d.	8.81	3.12	0.48	b.d.	3.29	b.d.	13.12
			2 (point)	3.07	0.74	19.19	58.11	b.d.	b.d.	9.90	3.66	0.59	b.d.	4.13	b.d.	12.97
			3 (point)	3.12	0.82	18.84	57.70	0.39	0.37	10.03	3.42	0.50	b.d.	4.13	b.d.	13.15
			4 (point)	3.31	0.78	19.16	57.98	b.d.	b.d.	9.75	3.47	0.65	b.d.	4.25	b.d.	13.06
			5 (point)	3.39	0.71	19.27	57.76	b.d.	b.d.	9.76	3.58	0.44	b.d.	3.88	0.62	13.15

			6 (point)	3.25	0.94	19.13	58.22	b.d.	b.d.	9.57	3.60	0.56	b.d.	4.18	b.d.	12.82
			7 (point)	2.37	0.86	18.31	56.53	b.d.	b.d.	10.79	4.18	0.76	b.d.	5.16	b.d.	13.16
			Average	3.26	0.82	19.05	57.91	0.06	0.05	9.80	3.58	0.57	n.d.	4.15	0.09	13.06
			St. dev.	0.53	0.08	0.35	0.70	0.14	0.13	0.55	0.30	0.10	n.d.	0.51	0.22	0.12
	cl4	Aphyric pumice (Glass)	1 (point)	3.85	2.08	17.90	57.26	b.d.	b.d.	7.78	5.31	0.67	b.d.	4.60	b.d.	11.63
			2 (point)	3.89	1.79	18.24	57.51	b.d.	b.d.	8.25	4.88	0.68	b.d.	4.17	b.d.	12.14
			3 (point)	4.42	1.20	18.84	57.98	b.d.	b.d.	8.35	3.92	0.53	b.d.	4.12	b.d.	12.77
			4 (point)	4.21	1.10	19.00	57.84	0.34	b.d.	8.33	3.75	0.68	b.d.	4.20	b.d.	12.54
			Average	3.84	1.22	20.97	56.17	0.06	n.d.	6.85	6.32	0.60	n.d.	3.63	n.d.	10.70
			St. dev.	0.40	0.58	3.73	2.17	0.13	n.d.	2.06	2.84	0.09	n.d.	1.02	n.d.	2.41
	cl5	Hyalopilitic /Porphiritic pumice (Groundmass)	1 (area)	6.74	1.39	19.99	54.72	0.60	b.d.	4.00	6.79	0.52	b.d.	4.69	b.d.	10.74
			2 (area)	6.73	1.08	20.17	55.32	0.53	b.d.	4.17	6.53	0.49	b.d.	4.46	b.d.	10.90
			3 (area)	6.73	1.08	20.41	55.21	b.d.	b.d.	4.25	6.35	0.47	b.d.	4.86	b.d.	10.98
			Average	6.73	1.18	20.19	55.08	0.38	n.d.	4.14	6.56	0.49	n.d.	4.67	n.d.	10.87
			St. dev.	b.d.	0.15	0.17	0.26	0.27	n.d.	0.10	0.18	0.02	n.d.	0.16	n.d.	0.10
	cl6	Aphyric pumice (Glass)	1 (point)	3.50	1.07	19.05	57.96	b.d.	b.d.	8.71	4.02	0.73	b.d.	4.37	b.d.	12.21
			2 (point)	3.74	1.22	19.00	57.46	b.d.	b.d.	8.50	4.41	0.56	b.d.	4.50	b.d.	12.24
			3 (point)	3.79	1.29	18.80	57.79	b.d.	b.d.	8.28	4.37	0.62	b.d.	4.49	b.d.	12.07
			4 (point)	3.45	1.32	18.75	57.85	b.d.	b.d.	8.54	4.36	0.49	b.d.	4.61	b.d.	11.99
			5 (point)	3.84	1.32	18.77	57.75	b.d.	b.d.	8.56	4.18	0.76	b.d.	4.24	b.d.	12.40
			Average	3.66	1.24	18.87	57.76	n.d.	n.d.	8.52	4.27	0.63	n.d.	4.44	n.d.	12.18
			St. dev.	0.16	0.09	0.13	0.17	n.d.	n.d.	0.14	0.15	0.10	n.d.	0.13	n.d.	0.14
	cl7	Aphyric pumice (Glass)	1 (point)	3.75	0.96	19.08	58.17	b.d.	b.d.	9.40	3.65	0.59	b.d.	3.73	b.d.	13.15
			2 (point)	3.31	0.74	19.27	58.06	b.d.	b.d.	9.90	3.76	0.52	b.d.	3.91	b.d.	13.21
			3 (point)	3.96	0.84	19.05	58.20	b.d.	b.d.	9.55	3.53	0.54	b.d.	3.73	b.d.	13.51
			4 (point)	4.00	0.73	19.19	58.16	b.d.	b.d.	9.36	3.63	0.48	b.d.	3.76	b.d.	13.36
			5 (point)	3.99	0.91	18.67	58.01	b.d.	b.d.	9.42	3.60	0.72	b.d.	4.01	b.d.	13.41
			6 (point)	4.56	0.94	19.24	59.04	b.d.	b.d.	8.54	3.48	0.42	b.d.	3.20	b.d.	13.10
			Average	3.93	0.85	19.08	58.27	n.d.	n.d.	9.36	3.61	0.55	n.d.	3.72	n.d.	13.29
			St. dev.	0.37	0.09	0.20	0.35	n.d.	n.d.	0.41	0.09	0.09	n.d.	0.26	n.d.	0.15

	cl8	Aphyric pumice (Glass)	1 (point)	3.14	0.74	19.35	57.67	b.d.	b.d.	10.28	3.64	0.57	b.d.	3.28	0.80	13.42
			2 (point)	3.36	0.85	19.40	57.81	b.d.	b.d.	9.65	3.86	0.69	b.d.	3.67	b.d.	13.01
			3 (point)	3.56	0.88	18.95	57.92	b.d.	b.d.	9.67	4.05	0.46	b.d.	3.90	b.d.	13.23
			4 (point)	2.84	0.56	20.0	58.51	b.d.	b.d.	10.37	3.30	0.46	b.d.	2.63	0.95	13.21
			5 (point)	3.60	0.96	19.08	57.83	b.d.	b.d.	9.50	3.94	0.51	b.d.	3.95	b.d.	13.10
			6 (point)	3.62	0.76	19.10	57.91	b.d.	b.d.	9.43	3.86	0.63	b.d.	4.06	b.d.	13.05
			7 (point)	3.41	0.95	19.16	57.54	b.d.	b.d.	9.60	4.14	0.63	b.d.	3.95	b.d.	13.01
			8 (point)	3.22	0.84	19.04	57.59	0.17	b.d.	9.57	3.97	0.62	b.d.	4.29	b.d.	12.79
			Average	3.34	0.82	19.26	57.85	0.02	n.d.	9.76	3.85	0.57	n.d.	3.72	0.22	13.10
			St. dev.	0.25	0.12	0.31	0.28	0.06	n.d.	0.34	0.25	0.08	n.d.	0.50	0.38	0.18
	cl9	Vesicular tephrite (Bulk)	1 (bulk area)	4.06	2.37	20.81	51.89	0.78	b.d.	3.58	9.03	1.13	b.d.	6.35	b.d.	7.64
			2 (bulk area)	4.83	1.98	20.68	53.21	0.74	b.d.	3.48	8.05	0.84	b.d.	6.19	b.d.	8.31
			3 (bulk area)	4.72	2.45	19.66	52.10	1.00	b.d.	3.60	8.53	1.04	b.d.	6.75	b.d.	8.32
			4 (bulk area)	4.45	2.74	19.65	52.40	0.72	b.d.	3.52	8.44	1.18	b.d.	6.89	b.d.	7.97
			Average	4.52	2.39	20.20	52.40	0.81	n.d.	3.55	8.51	1.05	n.d.	6.55	n.d.	8.06
			St. dev.	0.30	0.27	0.55	0.50	0.11	n.d.	0.05	0.35	0.13	n.d.	0.29	n.d.	0.28