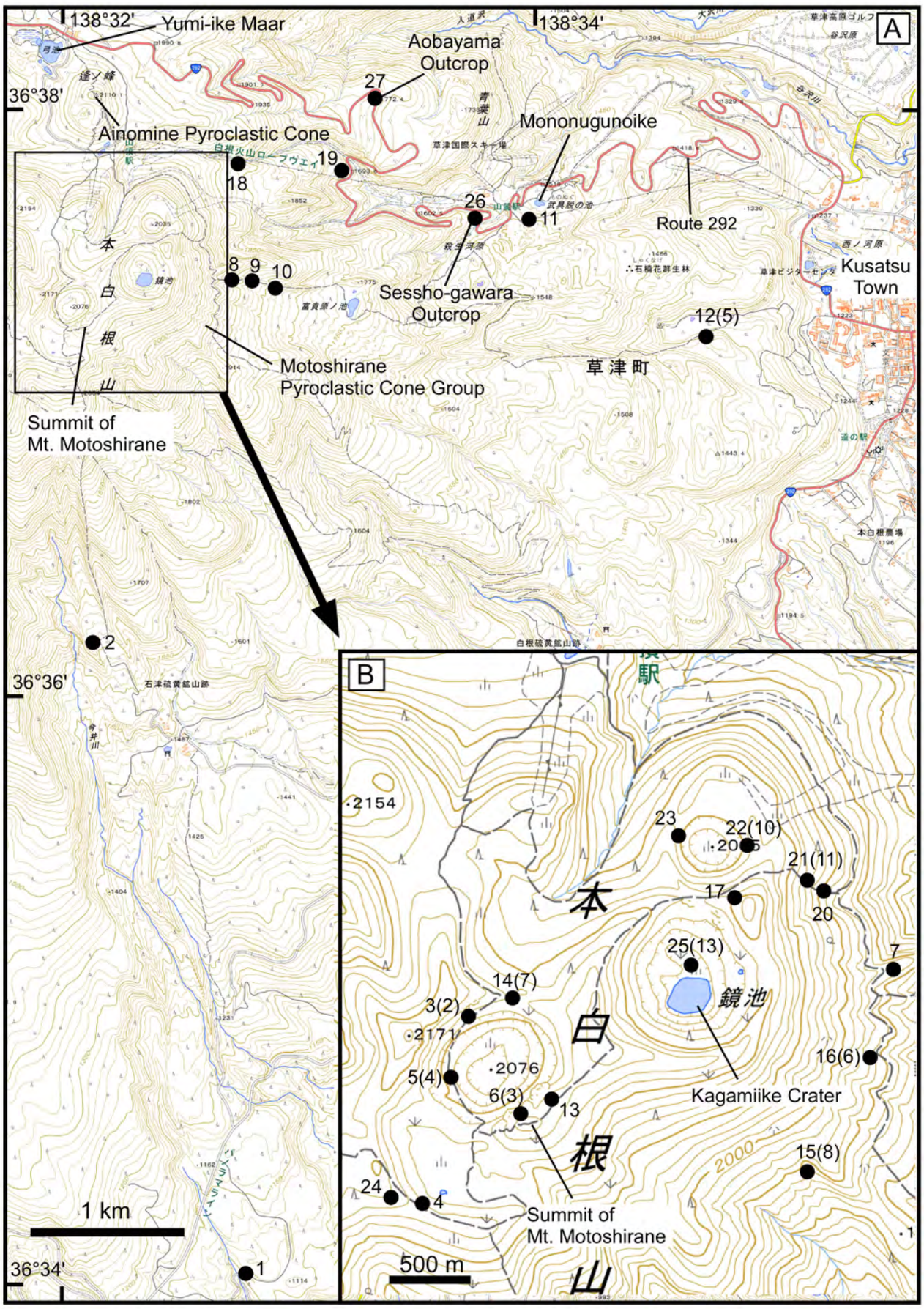

Appendix 1. Sampling locations for whole-rock chemical analyses. Numbers in parentheses correspond to outcrop numbers in Figures 2 and 3.

Eruption products of the Komotoshirane Pyroclastic Cone

Unit	Iz	Iz	Iz	Iz	Iz	Iz	Iz	Iz	Iz	Iz	KMPD	KMPD	KMPD	KMPD
Sample No	130917-1/3	130917-1/5	130917-1/7	130917-1/8	130917-1/9	140919-1/2	140919-1/3	140919-1/6	140919-1/7	140919-1/8	130905-3/6	130906-3/1	130906-3/3	140919-2/1/1
Locality	1	1	1	1	1	2	2	2	2	2	3	4	4	4
Rock Type	Lava	Lava	Lava	Lava	Lava	Lava	Lava	Lava	Lava	Lava	JB	JB	JB	JB
Major Elements (wt.%)														
SiO_2	60.19	59.78	60.25	60.08	59.90	60.71	59.74	59.73	60.59	59.98	60.52	60.86	61.52	60.87
TiO_2	0.70	0.72	0.70	0.70	0.73	0.68	0.70	0.70	0.68	0.71	0.69	0.67	0.63	0.65
Al_2O_3	16.14	16.22	16.14	16.05	15.77	15.85	15.89	16.01	16.01	15.89	16.09	16.64	16.00	15.78
Fe_2O_3*	8.16	8.24	8.16	8.28	8.56	7.95	8.32	8.30	7.97	8.46	8.47	7.74	7.94	7.93
MnO	0.13	0.13	0.13	0.13	0.13	0.12	0.13	0.12	0.12	0.13	0.13	0.13	0.12	0.12
MgO	3.59	3.64	3.62	3.60	3.76	3.38	3.62	3.52	3.38	3.60	3.45	3.48	3.14	3.41
CaO	6.74	6.97	6.91	6.85	6.78	6.35	6.74	6.72	6.56	6.78	6.17	6.16	5.93	6.24
Na_2O	2.82	2.81	2.82	2.83	2.75	2.85	2.80	2.84	2.86	2.83	2.56	2.56	2.73	2.78
K_2O	1.69	1.66	1.69	1.67	1.68	1.85	1.69	1.72	1.82	1.71	1.60	1.76	1.99	1.86
P_2O_5	0.14	0.14	0.14	0.14	0.15	0.10	0.14	0.12	0.14	0.13	0.13	0.13	0.13	0.14
Total	100.31	100.31	100.56	100.33	100.22	99.85	99.77	99.79	100.12	100.23	99.81	100.13	100.15	99.77
FeO*/MgO	2.05	2.03	2.03	2.07	2.05	2.12	2.07	2.12	2.12	2.11	2.21	2.01	2.27	2.09
LOI	0.32	0.30	0.04	0.06	0.26	0.27	0.17	0.00	0.19	-0.04	0.89	0.75	0.23	0.11
Trace Elements (ppm)														
Rb	44	41	43	44	42	47	46	43	46	43	42	43	50	46
Sr	273	277	275	274	265	264	269	273	267	272	254	251	247	251
Ni	20	21	21	20	20	18	19	19	20	21	21	20	15	22
Y	22	21	21	23	22	23	21	22	22	22	21	22	24	23
Zr	100	100	101	103	103	112	102	104	107	104	108	114	119	110
V	183	184	187	191	199	178	184	188	178	193	181	172	170	162
Ba	406	387	407	409	405	438	412	399	435	412	418	469	483	442
Modal Analysis (vol.%, vesicle-free basis)														
Plagioclase	25.1	28.7	24.9	26.5	22.1	24.6	28.3	26.5	26.2	26.0	19.2	23.1	26.1	25.1
Quartz	tr	nd	nd	tr	0.1	0.7	nd	nd	nd	nd	0.1	tr	tr	tr
Amphibole	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Orthopyroxene	2.6	2.2	3.5	1.9	3.4	2.7	3.6	3.5	4.4	3.7	1.5	1.9	3.2	4.2
Clinopyroxene	4.2	3.5	5.1	4.4	5.2	5.2	3.3	4.5	4.2	3.1	3.3	3.5	4.2	4.2
Olivine	0.3	nd	0.1	nd	0.2	0.2	tr	nd	0.1	tr	nd	tr	nd	nd
Opaque	0.6	0.8	0.4	0.8	0.9	1.0	0.7	1.4	1.8	0.7	0.7	0.4	0.9	1.0
Groundmass	67.3	64.8	66.0	66.5	68.2	65.5	64.0	64.1	63.2	66.6	75.3	71.1	65.6	65.5
Phenocryst	32.7	35.2	34.0	33.5	31.8	34.5	36.0	35.9	36.8	33.4	24.7	28.9	34.4	34.5
Vesicle	6.7	15.7	1.0	0.1	1.2	2.7	5.9	7.7	2.0	2.8	0.1	3.9	0.5	0.3

Appendix 2. Whole-rock chemical and modal compositions of the eruption products of the Motoshirane Pyroclastic Cone Group. Sampling locations are shown in Appendix 1. Modal compositions were determined by pointcounting to a total of ~2000 point for each sample. Phenocrysts were defined as those measuring >0.2 mm along their longest axis. Total Fe is expressed as Fe2O3. Loss on ignition (LOI) was measured by igniting the powdered samples at 900 ° C for 2 h. Abbreviations: Dw = densely welded lava-like section; JB = jointed block; SC = scoria; BB = breadcrust bomb; tr = present in samples but not observed in point counts; nd = not detected.

Eruption products of the Shinmotoshirane Pyroclastic Cone

Unit	SMPD	SMPD	SMPD	SMPD	SMPD	SMPD	SMPD	SMPD
Sample No	130905-1	130906-6/1	130906-6/2	130906-7/1	130906-7/2	130906-8/1	130906-8/2	130906-8/3
Locality	5	6	6	6	6	6	6	6
Rock Type	Dw	Dw	Dw	Dw	Dw	JB	JB	JB
Major Elements (wt.%)								
SiO_2	61.04	60.57	59.66	58.05	60.91	61.35	61.30	60.35
TiO_2	0.62	0.62	0.63	0.66	0.61	0.63	0.62	0.63
Al_2O_3	16.06	15.71	16.03	15.76	15.87	16.06	15.89	15.81
Fe_2O_3*	7.83	8.60	8.48	8.76	8.13	7.34	7.66	8.22
MnO	0.12	0.13	0.13	0.14	0.12	0.12	0.12	0.13
MgO	3.42	3.48	3.81	4.05	3.41	3.49	3.34	3.58
CaO	6.63	6.45	7.10	7.32	6.54	6.34	6.44	6.73
Na_2O	2.62	2.69	2.64	2.64	2.76	2.76	2.74	2.73
K_2O	1.83	1.82	1.66	1.62	1.84	1.86	1.91	1.77
P_2O_5	0.13	0.12	0.13	0.10	0.13	0.08	0.13	0.13
Total	100.30	100.18	100.26	99.08	100.33	100.03	100.14	100.08
FeO*/MgO	2.06	2.23	2.00	1.95	2.14	1.90	2.06	2.07
LOI	0.60	-0.20	0.16	0.20	-0.12	0.59	0.75	-0.09
Trace Elements (ppm)								
Rb	46	47	46	41	47	47	50	45
Sr	246	239	252	255	243	248	244	249
Ni	19	23	22	19	20	20	20	19
Y	24	21	21	21	22	24	23	22
Zr	105	106	97	88	105	113	109	107
V	178	179	187	199	172	170	171	177
Ba	447	432	428	391	442	454	456	441
Modal Analysis (vol.%, vesicle-free basis)								
Plagioclase	21.1	19.3	23.3	13.7	24.3	20.3	23.4	17.9
Quartz	0.3	tr	nd	nd	0.3	tr	0.4	0.3
Amphibole	0.0	0.1	nd	nd	nd	nd	nd	nd
Orthopyroxene	0.8	2.4	2.8	2.0	2.5	4.2	3.4	4.0
Clinopyroxene	5.7	2.5	4.4	4.1	4.5	5.3	5.0	4.3
Olivine	0.1	tr	tr	0.1	0.3	tr	tr	0.2
Opaque	0.8	0.7	1.0	1.4	1.3	1.2	0.8	0.8
Groundmass	71.3	75.1	68.6	78.7	66.9	68.7	66.9	72.6
Phenocryst	28.7	24.9	31.4	21.3	33.1	31.3	33.1	27.4
Vesicle	2.0	0.2	1.0	3.6	1.5	2.5	4.3	0.5

Appendix 2. Comtinued

Eruption products of the Kagamiike Pyroclastic Cone

Unit	Ss	Ss	Ss	Ss	Ss	Ss	Ss	Ss	KIPD	KIPD	KIPD	KIPD
Sample No	130909-3/1	131027-2/1	131027-2/2	131027-2/3	131027-2/4	131027-2/5/2	131027-2/5/1	131027-2/6	130906-5/1	130906-5/2	130906-5/3	130911-2/1
Locality	7	8	9	10	11	11	11	11	13	13	13	13
Rock Type	Lava	Lava	Lava	Lava	Lava	Lava	Lava	Lava	JB	JB	JB	JB
Major Elements (wt.%)												
SiO_2	60.96	59.74	60.40	61.69	63.12	59.45	63.11	63.16	61.73	61.91	60.66	61.45
TiO_2	0.62	0.66	0.64	0.62	0.60	0.69	0.60	0.58	0.63	0.62	0.65	0.63
Al_2O_3	15.94	15.90	16.14	15.92	15.69	16.15	15.27	15.69	15.78	15.82	16.06	15.84
Fe_2O_3*	7.97	8.22	7.85	7.57	7.02	8.26	7.05	6.78	7.45	7.28	7.75	7.36
MnO	0.12	0.13	0.12	0.12	0.11	0.13	0.11	0.11	0.12	0.11	0.12	0.12
MgO	3.46	3.64	3.57	3.28	2.91	3.86	2.81	2.72	3.22	3.13	3.56	3.20
CaO	6.26	6.74	6.74	6.22	5.81	6.51	5.51	5.60	6.15	6.16	6.62	6.23
Na_2O	2.77	2.82	2.85	2.89	2.94	2.77	2.93	2.94	2.90	2.93	2.89	2.93
K_2O	1.86	1.74	1.77	1.98	2.18	1.71	2.29	2.25	2.00	2.00	1.77	1.96
P_2O_5	0.12	0.15	0.14	0.14	0.13	0.16	0.13	0.13	0.14	0.13	0.14	0.13
Total	100.07	99.73	100.25	100.43	100.49	99.68	99.81	99.96	100.10	100.10	100.24	99.84
FeO*/MgO	2.07	2.03	1.98	2.08	2.17	1.92	2.26	2.24	2.08	2.09	1.96	2.07
LOI	0.06	-0.06	-0.02	0.08	0.14	0.48	0.14	0.20	0.02	0.12	-0.04	0.25
Trace Elements (ppm)												
Rb	47	43	47	53	57	44	59	59	53	56	47	52
Sr	249	272	269	255	241	263	231	235	258	260	278	265
Ni	22	23	19	21	16	27	16	16	15	18	23	21
Y	25	21	22	24	24	22	25	23	21	23	22	24
Zr	108	102	104	116	122	104	126	124	116	116	106	114
V	172	170	173	165	151	175	150	143	161	159	172	163
Ba	436	420	430	462	502	411	525	523	475	479	436	466
Modal Analysis (vol.%, vesicle-free basis)												
Plagioclase	25.9	25.4	25.0	27.6	27.9	24.4	27.9	30.8	21.8	30.9	24.1	22.2
Quartz	nd	nd	nd	nd	nd	nd	nd	0.1	nd	tr	nd	tr
Amphibole	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Orthopyroxene	4.6	2.6	1.6	2.0	4.2	2.8	3.6	3.0	2.7	2.3	3.5	3.9
Clinopyroxene	2.9	3.2	4.1	1.9	4.4	3.3	5.6	4.1	3.6	4.5	5.8	2.8
Olivine	tr	0.7	0.4	0.2	0.3	0.5	0.4	nd	nd	0.2	0.1	tr
Opaque	0.9	0.4	0.9	0.9	1.2	0.3	0.9	1.1	1.0	0.3	1.0	0.4
Groundmass	65.7	67.8	68.0	67.4	62.0	68.8	61.6	60.9	71.0	62.1	65.6	70.7
Phenocryst	34.3	32.2	32.0	32.6	38.0	31.2	38.4	39.1	29.0	38.0	34.4	29.3
Vesicle	0.1	1.9	9.9	1.8	8.1	1.9	12.8	11.9	2.1	tr	0.1	0.6

Appendix 2. Comtinued

Eruption products of the Kagamiike Pyroclastic Cone (continued)

Unit	KIPD	KIPD	KIPD	KIPD	KIPD	KIPD	KIPD	KIPD	KIPD	KIPD	KIPD	KIPD
Sample No	130911-2/2	130911-2/4	130909-2/4	130909-2/5	130909-2/6	130909-2/7	130910-1/1	130910-1/2	130910-1/3	130910-1/4	130908-3/4	130919-2/4
Locality	14	14	15	15	15	15	16	16	16	16	17	17
Rock Type	JB	JB	JB	JB	JB	JB	JB	JB	JB	JB	JB	JB
Major Elements (wt.%)												
SiO_2	60.91	60.66	61.06	61.00	61.49	61.74	61.79	62.27	61.96	62.01	61.16	61.59
TiO_2	0.64	0.65	0.63	0.64	0.63	0.62	0.63	0.63	0.62	0.63	0.62	0.60
Al_2O_3	15.73	15.91	15.93	15.99	15.87	15.95	15.95	15.90	16.15	16.13	16.00	15.80
Fe_2O_3*	7.58	7.82	7.77	7.56	7.64	7.37	7.36	7.18	7.04	7.20	7.40	7.42
MnO	0.12	0.12	0.12	0.12	0.12	0.11	0.12	0.11	0.11	0.11	0.11	0.12
MgO	3.59	3.65	3.61	3.65	3.34	3.24	3.25	3.18	3.25	3.17	3.30	3.21
CaO	6.56	6.58	6.32	6.58	6.27	6.15	6.25	6.07	6.19	6.13	6.21	6.22
Na_2O	2.85	2.87	2.85	2.87	2.91	2.91	2.85	2.88	2.91	2.91	2.85	2.81
K_2O	1.88	1.80	1.87	1.85	1.92	1.96	1.95	2.03	1.97	1.96	1.95	2.04
P_2O_5	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.13
Total	100.00	100.20	100.29	100.40	100.32	100.18	100.28	100.37	100.34	100.39	99.74	99.91
FeO*/MgO	1.90	1.93	1.94	1.86	2.06	2.05	2.04	2.03	1.95	2.04	2.02	2.08
LOI	0.31	0.16	-0.08	0.04	-0.12	-0.02	0.72	0.26	0.48	0.14	0.82	0.34
Trace Elements (ppm)												
Rb	49	46	48	46	49	50	51	51	51	52	50	51
Sr	268	272	266	263	266	260	266	257	268	265	268	264
Ni	20	25	27	24	15	20	20	19	18	22	20	20
Y	20	22	20	22	21	23	24	24	22	23	22	23
Zr	110	112	108	110	113	117	112	119	113	112	112	114
V	169	175	172	166	165	159	162	162	157	162	158	165
Ba	433	429	445	441	454	467	474	477	476	476	455	469
Modal Analysis (vol.%, vesicle-free basis)												
Plagioclase	25.7	24.1	26.4	26.3	21.8	26.8	23.1	25.3	23.9	22.2	23.1	23.0
Quartz	nd	tr	0.1	nd	nd	tr	nd	0.1	nd	nd	tr	0.1
Amphibole	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Orthopyroxene	4.1	3.3	2.2	3.1	3.9	3.0	2.9	2.6	2.3	2.5	4.0	3.5
Clinopyroxene	3.5	3.4	2.7	2.7	3.0	4.2	4.6	5.8	4.8	4.1	3.7	5.7
Olivine	0.1	0.3	0.2	0.1	tr	0.1	0.2	tr	0.1	tr	tr	0.1
Opaque	0.7	1.0	0.3	0.5	1.1	0.4	1.1	0.4	1.7	0.4	1.1	0.8
Groundmass	66.1	68.0	68.3	67.5	70.3	65.6	68.1	65.7	67.3	70.8	68.2	66.9
Phenocryst	34.0	32.0	31.8	32.6	29.8	34.4	31.9	34.3	32.7	29.2	31.8	33.1
Vesicle	tr	0.2	tr	tr	tr	0.7	1.6	3.4	0.7	0.2	1.2	0.7

Appendix 2. Comtinued

Eruption products of the Kagamiike-kita Pyroclastic Cone

Unit	Fr	Fr	Fr	Fr	Fr	KKPD	KKPD	KKPD	KKPD	KKPD	KKPD	KKPD
Sample No	131028-1/3	131028-1/4	131028-1/5	131028-1/6	131028-1/7	130907-2/1	130907-2/2	130907-2/3	130907-2/4	130907-3/1	130907-3/2	130912-4/5
Locality	18	19	19	19	19	20	20	20	20	21	21	22
Rock Type	Lava	Lava	Lava	Lava	Lava	JB	JB	JB	JB	JB	JB	SC
Major Elements (wt.%)												
SiO_2	58.31	60.44	60.67	60.83	61.16	60.42	58.06	57.87	58.44	60.57	58.64	57.72
TiO_2	0.68	0.64	0.65	0.64	0.62	0.64	0.69	0.68	0.69	0.63	0.68	0.71
Al_2O_3	16.44	15.91	16.13	15.98	16.06	16.20	16.53	16.29	16.51	16.22	16.46	16.87
Fe_2O_3*	8.69	7.91	8.08	7.95	7.77	7.79	8.94	8.81	8.92	7.96	8.73	8.94
MnO	0.14	0.12	0.13	0.13	0.12	0.12	0.14	0.14	0.14	0.12	0.13	0.14
MgO	3.90	3.22	3.25	3.24	3.17	3.42	3.90	3.83	3.97	3.30	3.77	3.84
CaO	7.45	6.46	6.51	6.53	6.44	6.55	7.58	7.42	7.50	6.65	7.34	7.67
Na_2O	2.73	2.91	2.90	2.91	2.93	2.84	2.74	2.77	2.73	2.86	2.74	2.73
K_2O	1.42	1.76	1.74	1.78	1.80	1.72	1.37	1.48	1.39	1.75	1.45	1.30
P_2O_5	0.13	0.14	0.14	0.14	0.14	0.13	0.15	0.15	0.14	0.14	0.15	0.16
Total	99.87	99.52	100.20	100.12	100.21	99.84	100.09	99.44	100.42	100.20	100.09	100.06
FeO*/MgO	2.00	2.21	2.24	2.21	2.20	2.05	2.06	2.07	2.02	2.17	2.08	2.09
LOI	-0.04	0.00	0.19	0.02	-0.02	0.22	-0.08	-0.08	0.22	-0.06	-0.08	0.32
Trace Elements (ppm)												
Rb	35	51	44	45	50	43	35	37	34	42	35	32
Sr	271	254	256	256	253	261	273	270	278	256	267	287
Ni	19	16	13	15	12	18	21	18	16	17	21	14
Y	20	21	22	22	21	20	20	21	20	23	19	19
Zr	88	108	108	109	109	105	86	87	89	104	89	83
V	191	177	186	178	175	168	205	190	198	179	195	211
Ba	379	432	433	443	440	429	354	363	366	426	390	342
Modal Analysis (vol.%, vesicle-free basis)												
Plagioclase	22.5	21.8	20.3	22.2	22.8	25.3	23.8	23.5	23.4	23.4	29.1	9.1
Quartz	nd	tr	0.1	nd	0.1	nd	nd	nd	nd	nd	nd	nd
Amphibole	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Orthopyroxene	3.1	3.8	2.2	2.6	4.1	2.6	2.0	2.9	2.0	2.1	1.9	2.3
Clinopyroxene	3.1	4.9	2.9	2.0	4.2	4.0	2.9	3.3	3.0	2.5	3.1	3.0
Olivine	0.1	tr	0.1	tr	0.2	tr	0.1	0.1	tr	nd	0.1	tr
Opaque	0.4	1.3	0.9	0.6	1.8	0.8	0.8	0.5	0.3	1.9	0.8	0.5
Groundmass	70.8	68.1	73.5	72.7	66.8	67.3	70.4	69.8	71.4	70.1	65.0	85.2
Phenocryst	29.2	31.9	26.5	27.3	33.2	32.7	29.6	30.2	28.6	29.9	35.0	14.8
Vesicle	8.9	6.0	9.9	8.5	13.2	9.0	2.4	0.5	5.4	0.8	7.5	24.1

Appendix 2. Comtinued

Eruption products of the Kagamiike-kita Pyroclastic Cone (continued)

Unit	KKPD	KKPD	KKPD	KKPD	KKPD	KKPD	KKPD	KKPD
Sample No	130912-4/7	130919-1	130913-2/1	130913-2/4	130913-2/2	130913-2/3	130919-2/1	130919-2/3
Locality	22	22	23	23	23	23	23	23
Rock Type	SC	BB	BB	JB	JB	JB	JB	JB
Major Elements (wt.%)								
SiO_2	58.13	57.68	57.75	57.30	57.29	57.31	57.61	57.47
TiO_2	0.72	0.71	0.72	0.73	0.72	0.74	0.72	0.72
Al_2O_3	16.77	16.77	16.84	16.76	16.76	16.80	16.70	16.70
Fe_2O_3*	8.95	9.16	9.05	9.29	9.35	9.44	9.11	9.18
MnO	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
MgO	3.81	3.79	3.85	3.83	3.83	3.86	3.81	3.83
CaO	7.48	7.65	7.61	7.84	7.82	7.84	7.72	7.63
Na_2O	2.66	2.79	2.74	2.76	2.74	2.75	2.78	2.73
K_2O	1.32	1.31	1.30	1.21	1.23	1.22	1.28	1.29
P_2O_5	0.16	0.16	0.16	0.15	0.16	0.15	0.16	0.15
Total	100.14	100.15	100.17	100.00	100.05	100.23	100.03	99.84
FeO*/MgO	2.12	2.18	2.12	2.19	2.19	2.20	2.15	2.16
LOI	0.58	-0.20	0.46	-0.18	-0.24	-0.12	-0.14	0.24
Trace Elements (ppm)								
Rb	32	33	31	29	30	30	31	29
Sr	282	286	281	286	285	287	286	279
Ni	18	16	19	18	12	15	16	14
Y	21	20	20	20	22	19	19	20
Zr	86	82	84	78	83	80	82	83
V	202	203	210	207	217	216	212	218
Ba	365	360	355	350	339	334	347	348
Modal Analysis (vol.%, vesicle-free basis)								
Plagioclase	27.7	21.6	13.7	15.0	21.9	19.6	19.4	14.0
Quartz	nd	nd	nd	nd	nd	nd	nd	0.1
Amphibole	nd	nd	nd	nd	nd	nd	nd	nd
Orthopyroxene	1.0	1.4	1.6	2.0	2.5	0.9	1.8	1.9
Clinopyroxene	2.9	3.0	1.5	2.5	2.5	2.2	2.9	4.0
Olivine	0.3	0.3	tr	0.1	0.2	tr	0.1	tr
Opaque	0.4	0.1	0.3	0.3	0.5	0.2	0.2	0.8
Groundmass	67.6	73.6	82.8	80.2	72.6	77.1	75.7	79.3
Phenocryst	32.4	17.2	19.8	27.4	22.9	26.4	24.3	20.7
Vesicle	33.3	29.8	3.8	0.3	2.7	0.9	12.3	23.0

Appendix 2. Comtinued

Jointded blocks from the surface of the Komotoshirane Pyroclastic Cone and the crater floor of the Kagamiike Pyroclastic Cone

Sampling Point	Surface of KMPC	Surface of KMPC	Surface of KMPC	Floor of KIC	Floor of KIC	Floor of KIC
Sample No	130906-2/1	130906-2/2	130906-2/3	130908-2/1	130908-2/2	130908-2/
Locality	24	24	24	25	25	25
Rock Type	JB	JB	JB	JB	JB	JB
Major Elements (wt.%)						
SiO_2	58.13	58.74	61.27	57.66	57.79	57.38
TiO_2	0.64	0.63	0.61	0.71	0.70	0.73
Al_2O_3	15.91	15.96	15.91	16.71	16.80	16.82
Fe_2O_3*	9.38	8.54	7.84	9.27	8.92	9.27
MnO	0.14	0.13	0.12	0.14	0.14	0.14
MgO	4.11	3.93	3.34	3.85	3.80	3.84
CaO	7.41	7.10	6.29	7.62	7.68	7.76
Na_2O	2.59	2.66	2.76	2.76	2.79	2.76
K_2O	1.50	1.63	1.91	1.31	1.30	1.26
P_2O_5	0.14	0.13	0.13	0.16	0.16	0.16
Total	99.95	99.46	100.17	100.20	100.08	100.12
FeO*/MgO	2.05	1.96	2.11	2.16	2.11	2.17
LOI	-0.02	-0.10	-0.08	-0.14	-0.10	0.00
Trace Element (ppm)						
Rb	39	42	51	32	29	29
Sr	256	250	240	284	285	284
Ni	25	21	18	18	15	18
Y	21	20	20	21	20	21
Zr	88	93	109	82	83	80
V	198	198	167	213	213	211
Ba	390	406	459	361	351	344
Modal Analysis (vol.%, vesicle-free basis)						
Plagioclase	16.3	19.2	18.5	19.2	20.9	17.6
Quartz	nd	0.1	tr	nd	nd	nd
Amphibole	nd	nd	tr	nd	nd	nd
Orthopyroxene	3.9	3.2	2.4	1.7	2.8	1.9
Clinopyroxene	3.7	7.3	3.8	3.3	2.6	2.6
Olivine	0.6	0.5	0.2	0.2	0.1	0.1
Opaque	0.8	1.3	0.3	0.5	0.5	0.6
Groundmass	74.7	68.4	74.9	75.3	73.0	77.2
Phenocryst	25.3	31.6	25.1	24.7	27.0	22.8
Vesicle	0.3	0.1	0.1	tr	28.1	0.3

Appendix 2. Comtinued

Jointded blocks and breadcrusted bombs from the Loc. 8, Aobayama Outcrop and Sesshogawara Outcrop

Sapling Position	Area X in Fig. 6C	Area X in Fig. 6C	Area X in Fig. 6C	Area X in Fig. 6C	Area X in Fig. 6C	Area X in Fig. 6C	Y in Fig. 6C	Z3 in Fig. 6C	Z2 in Fig. 6C	Z1 in Fig. 6C	12L Volcanic Sand	12L Volcanic Sand	12L Volcanic Sand	12L Volcanic Sand
Sample No	130909-2/8	20151023-1/1	20151023-1/2	20151023-1/3	20151023-1/4	20151023-1/5	140922-1	140922-2	140922-3	140926-1/1	130918-20	130904-1/3	130904-1/4	130904-1/6
Locality	15	15	15	15	15	15	15	15	15	15	26	27	27	27
Rock Type	BB	SC	SC	BB	BB	BB	JB	JB	JB	JB	JB	BB	BB	JB
Major Elements (wt.%)														
SiO_2	57.83	58.79	59.12	57.52	60.39	58.69	60.29	61.44	61.98	60.44	61.22	60.77	60.48	61.62
TiO_2	0.70	0.68	0.68	0.73	0.67	0.68	0.64	0.66	0.62	0.67	0.64	0.63	0.67	0.64
Al_2O_3	16.80	16.65	16.40	16.67	16.31	16.67	16.09	15.49	15.86	15.71	15.78	16.44	16.20	15.75
Fe_2O_3	9.12	8.41	8.61	9.56	8.36	8.52	8.15	7.86	7.34	8.37	7.85	7.44	7.82	7.52
MnO	0.14	0.13	0.13	0.14	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.12
MgO	3.79	3.84	3.93	3.84	3.45	3.89	3.37	3.26	3.11	3.59	3.35	3.53	3.65	3.23
CaO	7.65	7.42	7.37	7.71	6.58	7.46	6.75	5.99	6.01	6.43	6.30	6.42	6.37	6.07
Na_2O	2.80	2.76	2.75	2.77	2.86	2.76	2.85	2.87	2.93	2.81	2.92	2.85	2.81	2.88
K_2O	1.32	1.43	1.43	1.24	1.72	1.43	1.74	2.00	2.05	1.83	1.91	1.81	1.80	2.00
P_2O_5	0.16	0.14	0.15	0.16	0.15	0.15	0.14	0.14	0.13	0.14	0.14	0.14	0.14	0.14
Total	100.32	100.26	100.57	100.33	100.61	100.38	100.14	99.82	100.15	100.13	100.23	100.14	100.07	99.97
FeO*/MgO	2.17	1.97	1.97	2.24	2.18	1.97	2.18	2.17	2.12	2.10	2.11	1.90	1.93	2.09
LOI	-0.22	0.16	0.23	-0.27	-0.16	0.31	0.11	-0.07	0.04	0.04	0.13	0.99	0.92	0.25
Trace Element (ppm)														
Rb	31	34	34	27	42	34	43	49	51	47	50	48	46	53
Sr	284	271	265	280	262	273	258	261	256	264	270	273	267	255
Ni	17	18	19	14	20	23	14	20	19	24	22	21	27	19
Y	21	20	21	19	21	23	24	26	23	22	22	21	23	23
Zr	82	88	87	79	100	86	102	116	119	107	112	106	105	118
V	201	192	197	204	178	189	184	167	156	173	166	166	179	162
Ba	353	377	382	356	423	370	432	482	483	427	456	438	429	477
Modal Analysis (vol.%, vesicle-free basis)														
Plagioclase	20.9	22.0	19.2	19.4	24.2	22.8	21.7	32.2	20.7	27.4	23.9	12.7	13.6	24.2
Quartz	nd	0.5	nd	nd	tr	nd	nd	nd	nd	0.2	tr	nd	nd	nd
Amphibole	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Orthopyroxene	3.3	2.1	1.0	1.6	2.2	1.7	2.9	2.2	1.6	2.1	2.7	2.8	1.3	1.3
Clinopyroxene	2.1	2.8	4.1	2.2	2.4	1.7	4.1	2.1	1.2	4.1	4.8	3.5	1.5	3.7
Olivine	0.2	0.1	0.6	0.3	0.4	0.6	0.1	nd	0.1	tr	0.1	0.1	0.4	0.4
Opaque	0.6	0.5	0.6	0.9	0.9	0.5	1.9	0.6	0.1	0.7	0.5	0.6	tr	0.9
Groundmass	72.9	72.0	74.6	75.6	70.1	72.8	69.4	62.9	76.4	65.6	68.1	80.3	83.2	69.5
Phenocryst	27.1	28.0	25.4	24.4	29.9	27.2	30.6	37.1	23.6	34.4	31.9	19.7	16.8	30.5
Vesicle	5.9	23.3	27.5	4.4	0.1	22.7	4.0	tr	tr	0.1	0.6	13.6	11.1	2.0

Appendix 2. Comtinued