APPENDIX

Detailed descriptions of pyroclastic deposits

Five eruptive units of pyroclastic ejecta from Esan Volcanic Complex (EVC), named EsHD4, EsHD3, EsHD2, EsHD1, and EsMP (Esan Motomura Pyroclastic deposit; Ando, 1974; Committee of Disaster Prevention Council for Esan Volcano (CDPCEV), 2001) in order of decreasing age.

EsHD4

<Fig. DR1

EsHD4 is a newly defined unit corresponding to parts of the formerly named Kaiko-zan pyroclastic flow and talus deposits described by Ando (1974). The EsHD4 unit is the oldest magmatic event at the EVC, and the deposit rests mainly on the northern apron of the Ka lava dome (Fig. 2). This relationship implies that EsHD4 originated from the Ka dome. EsHD4 is a distinctive unit that consists of block-and-ash flow and ash-fall deposits. The total volume of the EsHD4 unit is up to 5×10^6 m^3 (DRE). The juvenile component of the EsHD4 unit is a hornblende-bearing, two-pyroxene andesite with 59–60 wt% SiO_2 (Fig. 5), indicating a correlation with the Ka dome.

EsHD4 ash-fall

The EsHD4 ash-fall is a yellow-ochre crystal-rich, ash-fall deposit up to 4 cm in thickness. A modal analysis of EsHD4 shows it is glass-poor (up to 4%) and crystal-rich (up to 51%), and the order of mafic crystal abundance is orthopyroxene >> clinopyroxene > hornblende. The mode of the refractive index of glass in the EsHD4 ash-fall is ca. 1.500 (Fig. DR1B). An isopach map of the EsHD4 ash-fall could not be constructed due to its limited exposure.

EsHD3

EsHD3 is a newly defined unit including parts of the formerly named Nanatsuiwa pyroclastic flow deposit and the talus deposit described by Ando (1974). The EsHD3 unit is the second oldest magmatic event at the EVC, and rests mostly on the apron of, or blankets, the Ns lava dome (Fig. 2). This relationship suggests that the EsHD3 unit originated from the Ns dome. EsHD3 is a distinctive unit comprised of deposits from block-and-ash flows, pyroclastic surges, and ash-falls. The total volume of the EsHD3 unit is up to 3×10^6 m^3 (DRE). The juvenile component of EsHD3 is a quartz- and hornblende-bearing, two-pyroxene andesite and dacite, with a wide range in SiO_2 from 57 to 65 wt%, which is similar to EsHD2 (Fig. 5), and can be correlated with the Ns dome.

EsHD3 ash-fall

The EsHD3 ash-fall is subdivided into upper and lower subunits. No significant eruption <Fig. DR2 hiatus can be observed between the two subunits (Fig. 3). The upper subunit of EsHD3 is a pale green crystal-rich, ash-fall deposit up to 45 cm in thickness. A modal analysis shows that this upper subunit is glass-poor (up to 5%) and contains a moderate amount of crystals (up to 30%), with subequal amounts of orthopyroxene and hornblende, and subordinate clinopyroxene. The mode of the refractive index of glass in the upper subunit of EsHD3 ash-fall is 1.500 (Fig. DR1B).

The lower subunit of EsHD3 is a pale green crystal-rich, ash-fall deposit up to 10 cm in thickness (Column No. 15 in Fig. 3). A modal analysis shows it is glass- (up to 20%) and crystal-rich (up to 55%), with subequal amounts of orthopyroxene and clinopyroxene, and subordinate hornblende. The refractive index of glass in the lower subunit of EsHD3 ash-fall varies between 1.510 and 1.520, and is similar to that of EsHD2, which are both distinct as compared with the other ash-falls (Fig. DR1B). An isopach map of the EsHD3 ash-fall suggests that its source was the Ns lava dome (Fig. DR2D).

EsHD2

EsHD2 is the third most recent magmatic event at the EVC and is a newly defined unit that includes parts of the formerly named Nanatsuiwa and Kaiko-zan pyroclastic flow deposits described by Ando (1974). The EsHD2 unit rests mostly on the apron of, or blankets, the Ss lava dome (Fig. 2). This relationship suggests that the EsHD2 unit likely originated from the Ss dome. EsHD2 is a distinctive unit comprising deposits produced by block-and-ash flows, debris avalanches, and ash-falls. The total volume of the EsHD2 unit is up to 1×10^6 m^3 (DRE). The juvenile component of EsHD2 is a quartz- and hornblende-bearing, two-pyroxene andesite and dacite, with a wide range in SiO_2 contents from 57 to 64 wt% (Fig. 5), indicating an origin from the Ss dome.

EsHD2 ash-fall

The EsHD2 ash-fall is a brown crystal-rich, ash-fall deposit up to 35 cm in thickness (Column No. 17 in Figs. 3 and 6). A modal analysis of the deposit shows it is glass- (up to 24%) and crystal-rich (up to 60%), and the order of mafic crystal abundance is orthopyroxene >> clinopyroxene >> hornblende. The lower subunit of EsHD2 (EsHD2L) is a pale brown glass-rich, ash-fall deposit up to 10 cm in thickness. The mode of the refractive index of glass in EsHD2 varies from 1.510 to 1.520, and this wide range is distinct as compared with the other units (Fig. DR1B). An isopach map of the EsHD2 ash-fall indicates that its source was the Ss lava dome (Fig. DR2C).

EsHD1

EsHD1 is the product of the penultimate magmatic event at the EVC. EsHD1 is a newly defined unit that includes parts of the formerly named Nanatsuiwa pyroclastic flow and Skai-zawa nueé ardente deposits described by Ando (1974). Because the EsHD1 unit mostly rests on the apron of, or blankets, the Td and Sk lava domes (Fig. 2), it is inferred to have originated from Td and/or Sk domes. EsHD1 is a distinctive unit made up of deposits produced by block-and-ash flows, debris avalanches, lahars, and ash-falls. The Ko-h ash-fall deposit, which was derived from Hokkaido-Komagatake volcano at 20 ka (Yoshimoto et al., 2008), overlies the PDC deposits of EsHD1 (Fig. 3). This relationship indicates that the pyroclastic eruptions of EsHD1 occurred prior to 20 ka. The total volume of the EsHD1 unit is up to 8×10^6 m^3 (DRE). Half of this volume consists of a mass wasting unit derived from the southern part of the Sk lava dome and, thus, the main volume of pyroclastic ejecta is up to 4×10^6 m^3 (DRE). The juvenile component of EsHD1 is a quartz- and hornblende-bearing, two-pyroxene andesite with 59–62 wt% SiO_2 (Fig. 5), indicating its source was the Td and/or Sk domes.

EsHD1 ash-fall

The EsHD1 ash-fall is a pale green crystal-rich, ash-fall deposit up to 10 cm in thickness. A modal analysis of the deposit shows it is glass-poor (up to 10%) and crystal-rich (53%), with subequal amounts of orthopyroxene and hornblende, and subordinate clinopyroxene. The mode of the refractive index of glass in EsHD1 is 1.500 (Fig. DR1B). An isopach map of the EsHD1 ash-fall also indicates that its source was the Td and/or Sk lava domes (Fig. DR2B).

EsMP

The EsMP unit is the most widely distributed and the most recent pyroclastic unit at the EVC (Fig. 2). The EsMP unit mostly crops out on the aprons of the Ed lava dome, but some pyroclastic flow deposits extend as lobes far from the source dome. This spatial relationship suggests that the EsMP unit originated from the Ed dome. EsMP is a composite unit including deposits of lithic block-and-ash flows, pumiceous block-and-ash flows, lahars, and ash-falls. The thick block-and-ash flow deposit (up to a few tens of meters thick) makes up most of the EsMP unit, which was previously known as the Esan Motomura pyroclastic flow deposit (Ando, 1974; CDPCEV, 2001). Apart from the lithic block-and-ash flow deposit, minor amounts of pumiceous flow deposits are found in the EsMP. This type of pumiceous deposit may have formed during a sub-Plinian event at certain stages of lava dome growth. The total volume of the EsMP ejecta is up to 5×10^6 m^3 (DRE). The juvenile component of EsMP is a quartz-bearing, two-pyroxene dacite with 62–64 wt% SiO_2 (Fig. 5), and is comparable to rocks of the Ed and Mi domes.

Apart from the main EsMP unit, several smaller events, named Es–1 to Es–6, have been erupted from sources nearby the Ed lava dome after the EsMP eruption (Okuno et al., 1999; CDPCEV, 2001; see Fig. 3). Es–6 is the youngest eruption at the EVC and occurred in AD 1874. Es–1 to Es–6 are mostly phreatic eruptions and comprise ash-fall, pyroclastic surge, and lahar deposits, erupted at a recurrence interval of up to a few thousand years. The volume of each unit is ca. 10^4 to 10^5 m^3 (i.e., ca. 0–1 in eruption magnitude; CDPCEV, 2001), being one to three orders of magnitude smaller than the EsMP unit or the Ed lava dome. Es–1 to Es–6 are too small to enable the calculation of magma discharge rates. Although these smaller events were not observed in the older part of the EVC geological record, such small eruptions may have occurred between every major eruptive episode.

EsMP ash-fall

The EsMP ash-fall is a pale brown ash-fall deposit up to 40 cm in thickness, and is found in black soils formed in the past 10 kyr. The modal composition of the EsMP ash-fall deposit is glass- (up to 35%) and crystal-rich (up to 47%), and orthopyroxene is more abundant than clinopyroxene. The mode of the refractive index of the glass shards is 1.495–1.505 in the EsMP ash-falls (Fig.

DR1B). An isopach map of the EsMP ash-fall indicates that it was sourced from the Ed lava dome (Fig. DR2A).

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TABLE AND FIGURE CAPTIONS FOR APPENDIX

Figure DR1. Refractive indices of glass from ash-fall deposits and their correlatives erupted from Esan Volcanic Complex: (A), and modal proportions of phenocrysts in rocks from the EVC: (B). Compared with other ash-fall deposits of the EVC, EsHD2 has a distinctive refractive index that can be used to determine the stratigraphic sequence of lava domes and pyroclastic ejecta. The difference in modal composition between samples is broadly proportional to the difference in SiO_2 between samples. As such, the phenocryst abundance controls the bulk-rock SiO_2 content. The composition of the melt in each sample is generally constant throughout the entire sequence of eruptions (67–70 wt% SiO_2).

Figure DR2. Isopach maps for ash-fall deposits from Esan Volcanic Complex. (A) EsMP. (B) EsHD1. (C) EsHD2. (D) EsHD3. Note that isopachs for EsHD4 were not constructed due to insufficient outcrops of this deposit. The thicker termination of the isopach contours for each ash-fall unit lies close to the lava dome that produced each unit (i.e., EsMP: Ed and Mi domes; EsHD1: Td-Sk domes; EsHD2: Ss dome; EsHD3: Ns dome.) The basal topographic map is from a 1:25,000 topographic map of the Geographical Survey Institute, Ministry of Land, Infrastructure, Transport and Tourism, Japan.

Table DR1. Bulk-rock chemistry for the samples of the ejecta from Esan Volcanic Complex.

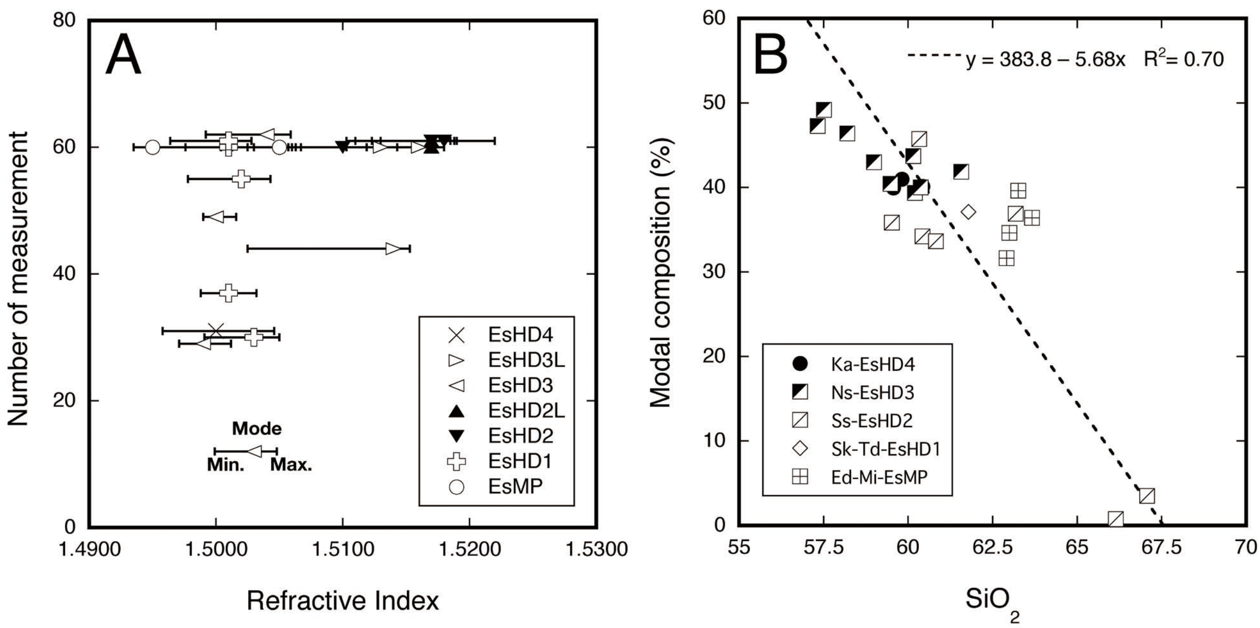
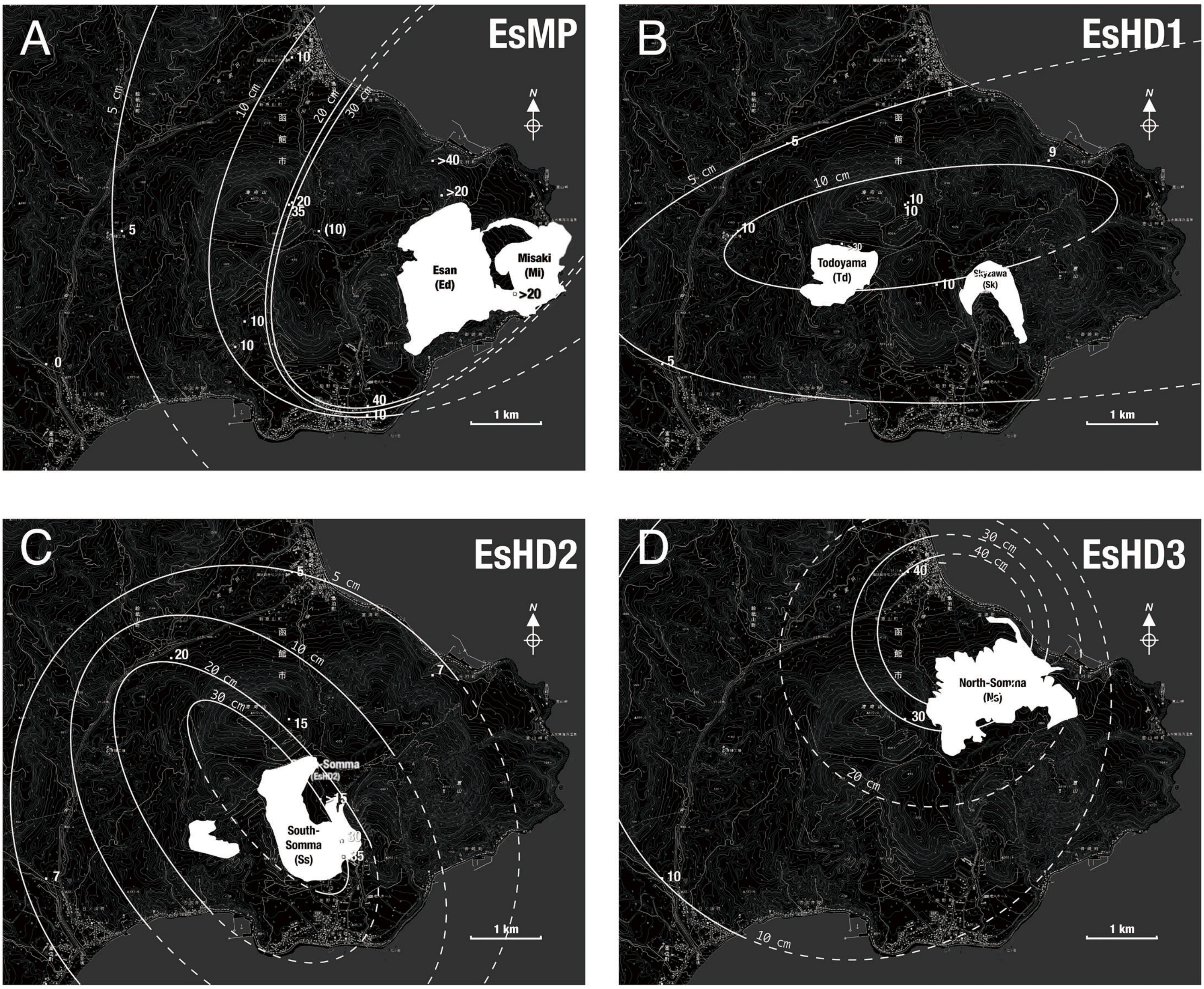

A
Number of measurement
Refractive Index
EsHD4
EsHD3L
EsHD3
EsHD2L
EsHD2
EsHD1
EsMP
Mode
Min.
Max.
B
y = 383.8 – 5.68x R2= 0.70
Modal composition (%)
SiO2
Ka-EsHD4
Ns-EsHD3
Ss-EsHD2
Sk-Td-EsHD1
Ed-Mi-EsMP

Figure DR1



A
EsMP
5 cm
10 cm
20 cm
30 cm
Esan (Ed)
Misaki (Mi)
>40
>20
>20
20
35
(10)
10
5
0
40
1 km
N
B
EsHD1
5 cm
10 cm
Todoyama (Td)
Sk (Sk)
9
30
1 km
N
C
EsHD2
5 cm
10 cm
20 cm
30 cm
Somma (EsHD2)
South-Somma (Ss)
20
15
7
30
35
1 km
N
D
EsHD3
30 cm
40 cm
20 cm
10 cm
North-Somma (Ns)
40
30
10
1 km
N

Figure DR2

TABLE DR1. BULK-ROCK CHEMISTRY FOR THE SAMPLES OF THE EJECTA FROM ESAN VOLCANIC COMPLEX.

	Lava dome													
Sample No.	06101402-01	06101406-01	06101505-01	08051703-01	08051704-01	111006-01a	07070804-01	07070805_01	07071005A-01	08051805-01	070709A03-01	07070905-01	07070905A-01	07070906A-01
Unit name	Mi	Mi	Mi	Ed	Ed	Ed	Td	Td	Sk	Sk	Ss	Ss	Ss	Ss
SiO_2	63	63.26	63.67	63.49	63.66	63.18	60.56	60.33	61.79	60.18	58.81	64.7	59.66	60.43
TiO_2	0.442	0.452	0.467	0.46	0.47	0.43	0.59	0.608	0.544	0.56	0.62	0.44	0.63	0.627
Al_2O_3	16.44	16.22	16.85	16.61	16.06	15.64	17.09	17.38	17.05	16.48	17.23	16.34	17.24	17.01
Fe_2O_3	6.934	7.113	7.186	7.34	7.38	6.93	8.84	8.65	8.08	8.53	9.16	6.75	9.02	9.16
MnO	0.156	0.159	0.174	0.16	0.16	0.15	0.19	0.185	0.175	0.19	0.2	0.15	0.19	0.2
MgO	2.539	2.566	2.538	2.63	2.56	2.44	3.36	3.22	2.96	3.16	3.49	2.41	3.29	3.37
CaO	6.563	6.394	5.517	5.89	5.69	5.57	7.17	7.46	6.94	7.14	7.76	6.29	7.68	6.55
Na_2O	2.84	2.777	2.629	2.63	2.72	2.2	2.52	2.5	2.63	2.5	2.07	2.74	2.35	2.53
K_2O	0.892	0.913	0.767	0.86	0.92	0.88	0.54	0.59	0.64	0.57	0.34	0.92	0.51	0.56
P_2O_5	0.04	0.038	0.038	0.03	0.04	0.05	0.03	0.04	0.02	0.05	0.04	0.02	0.04	0
Total	99.84	99.9	99.83	100.11	99.65	97.49	100.89	100.96	100.83	99.36	99.72	100.75	100.62	100.44
ig.loss	0.22	0.08	1.51	1.47	0.87	0.7	0.41	0.2	0.54	0.27	0.32	0.39	0.14	0.91

	Pyroclastic ejecta													
Sample No.	060711A05-01	06101503-01	07101401-03	07101501-01	07101601-06b1	07101601-06b2	07101601-06b3	07101601-06b4	08051701-01	08051801-01	08051801-02	06070504-05	07070801-01	07070802-01
Unit name	EsMP pfl	EsMP pfl	EsMP fall	EsMP fall	EsMP fall	EsMP fall	EsMP fall	EsMP fall	EsMP pfl	EsMP pfl	EsMP pfl	EsHD1 pfl (pm)	EsHD1 pfl	EsHD1 pfl
SiO_2	62.54	62.92	63.52	62.92	62.98	63.65	63.13	62.47	62.45	63.64	63.73	61.63	59.58	59.59
TiO_2	0.505	0.455	0.46	0.52	0.47	0.46	0.46	0.48	0.49	0.46	0.46	0.551	0.61	0.62
Al_2O_3	16.26	16.62	16.1	17.58	16.02	16.37	16.45	16.7	16.11	16.16	16.14	17.11	17.39	17.16
Fe_2O_3	8.009	7.051	7.27	7.68	7.36	7.31	7.25	7.62	7.74	7.11	7.06	8.145	8.75	8.98
MnO	0.164	0.154	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.16	0.15	0.174	0.19	0.19
MgO	2.602	2.456	2.6	2.73	2.54	2.66	2.59	2.77	2.77	2.5	2.5	2.844	3.13	3.32
CaO	5.841	6.222	6.45	4.71	6.16	6.28	6.05	6.13	6.61	6.46	6.4	6.17	6.87	6.99
Na_2O	2.642	2.552	2.75	2.05	2.78	2.73	2.66	2.62	2.61	2.63	2.59	2.435	2.52	2.47
K_2O	0.894	0.901	0.91	0.96	0.94	0.91	0.91	0.9	0.84	0.93	0.95	0.68	0.56	0.56
P_2O_5	0.039	0.038	0.04	0.04	0.03	0.02	0.02	0.02	0.04	0.04	0.04	0.048	0.05	0.05
Total	99.5	99.36	100.26	99.33	99.43	100.55	99.7	99.89	99.83	100.07	100.01	99.79	99.66	99.94
ig.loss	1.55	1.23	0.55	2.81	0.23	0.52	0.89	1.27	0.53	0.49	0.69	1.94	0.68	1.03

Abbriviations: pfl: pyroclastic flow deposit; da: debris avalanche deposit; surge: pyroclastic surge deposit; debris: debris flow deposit. Others are same to the text.

Lava dome

07070906-02	07070806_01	07070807_01	08051105-01	080513A01-01	080513A02-01	080513A03-01	080513A04-01	061017A03-01	061016S01-01	060707A06-01	06101803-01	061016S03-01	06101802-01	07071004S-01
Ss	Ss	Ss	Ss	Ss	Ss	Ss	Ss	Ns	Ns	Ns	Ns	Ns	Ns	Ns
60.82	67.07	66.15	62.33	59.19	59.16	58.76	59.55	58.2	58.99	59.48	60.2	60.37	60.15	59.2
0.58	0.751	0.829	0.52	0.62	0.63	0.63	0.61	0.624	0.616	0.61	0.599	0.599	0.611	0.64
17.55	14.35	14.7	16.85	17.3	17.14	16.96	17.39	17.17	17.18	16.83	17.77	17.17	17.12	17.47
8.41	7.59	7.34	7.89	8.96	9.07	9.22	8.88	9.558	9.15	8.871	8.829	8.539	9.044	9.32
0.186	0.047	0.181	0.17	0.19	0.2	0.2	0.19	0.196	0.197	0.178	0.187	0.186	0.199	0.2
3.09	1.86	1.33	2.88	3.23	3.31	3.45	3.2	3.703	3.431	3.436	3.168	3.137	3.343	3.39
7.08	4.49	5.08	7.15	7.7	7.46	7.63	7.44	7.795	7.586	7.34	6.526	6.848	6.765	6.72
2.58	3.2	3.37	2.42	2.33	2.32	2.3	2.23	2.169	2.366	2.326	2.496	2.497	2.497	2.19
0.55	0.7	0.65	0.55	0.47	0.5	0.49	0.55	0.458	0.504	0.491	0.537	0.551	0.521	0.49
0.05	0.14	0.16	0.05	0.04	0.04	0.04	0.01	0.038	0.043	0.054	0.05	0.056	0.041	0.04
100.9	100.19	99.79	100.8	100.03	99.83	99.69	100.06	99.91	100.07	99.61	100.37	99.95	100.29	99.66
0.64	1.53	0.77	0.4	0.31	0.56	0.26	0.5	0.49	0.47	0.92	1.41	1.09	0.84	1.38

Pyroclastic ejecta

07070803-03	070709A07-01	07071101-01	08051402-01	08051403-01	08051504-01	08051505-01	08051602-01	08051603-01	08051604-01a	08051604-01b	06070504-01	07070903-06	070709A04-01	07070904_01
EsHD1 pfl	EsHD1 pfl	EsHD1 pfl	EsHD1 da	EsHD1 da	EsHD1 da	EsHD1 da	EsHD1 pfl	EsHD1 pfl	EsHD1 pfl	EsHD1 pfl	EsHD2 pfl (pum)	EsHD2 pfl	EsHD2 da	EsHD2 pfl
60.13	59.52	61.71	61	60.03	59.34	59.61	61.73	60.82	61.11	61.22	57.62	58.7	59.83	63.19
0.63	0.606	0.56	0.53	0.54	0.63	0.58	0.54	0.51	0.53	0.54	0.677	0.66	0.63	0.468
17.07	17.3	16.65	16.91	17.11	17.15	17.41	16.3	17.23	16.61	16.68	18.2	17.25	17.26	16.44
8.99	8.84	8.26	7.97	8.04	8.92	8.51	8.32	7.62	7.99	8.17	9.69	9.61	9.05	7.36
0.19	0.192	0.18	0.17	0.18	0.19	0.18	0.19	0.17	0.18	0.18	0.218	0.21	0.19	0.163
3.27	3.28	3.01	2.84	2.88	3.21	3.14	3.02	2.7	2.9	2.98	3.77	3.65	3.29	2.63
6.8	7.18	7	6.93	7.16	7.66	7.51	6.79	7.47	7.01	6.97	7.43	7.44	7.54	6.18
2.52	2.58	2.53	2.51	2.44	2.35	2.47	2.49	2.61	2.57	2.5	2.21	2.3	2.39	2.77
0.54	0.54	0.62	0.66	0.6	0.52	0.53	0.66	0.63	0.66	0.64	0.48	0.51	0.51	0.92
0.05	0.05	0.05	0.05	0.04	0.04	0.05	0.07	0.05	0.05	0.05	0.04	0.04	0.01	0.04
100.2	100.09	100.57	99.58	99.01	100.01	100	100.1	99.82	99.6	99.92	100.33	100.35	100.71	100.14
0.84	0.57	0.29	0.55	1	0.21	0.43	0.29	0.02	0.54	0.56	2.1	0.68	0.34	0.9

Lava dome					
070711A02 -04	07102301- 01	07102301- 02	07102302- 01	06101304- 01	06101305- 01
Ns	Ns	Ns	Ns	Ka	Ka
59.69	63.71	62.57	59.68	59.56	59.82
0.59	0.47	0.49	0.63	0.671	0.586
17.74	16.12	16.93	17.12	16.54	17.08
8.41	7.48	7.54	9.43	9.846	8.617
0.18	0.16	0.16	0.19	0.206	0.188
3.04	2.7	2.7	3.27	3.445	3.187
7.12	6.27	5.78	6.27	6.764	6.888
2.49	2.71	2.57	2.33	2.42	2.574
0.51	0.91	0.88	0.51	0.48	0.559
0.05	0.02	0.01	0.05	0.062	0.052
99.83	100.56	99.62	99.48	99.99	99.55
0.77	0.34	1.68	1.31	0.82	0.62

Pyroclastic ejecta														
07071101- 02	08051104- 01	08051804- 01	11100701-a	11100701-b	06101101- 01	06101101- 02	061017S06- 01	070706010 1-01	07071201- 04	07101501- 02	07101701- 02bD	07101701- 02bL	08051201- 01	08051202- 03
EsHD2 pfl	EsHD2 pfl	EsHD2 pfl	EsHD2 pfl	EsHD2 pfl	EsHD3 pfl	EsHD3 pfl	EsHD3 pfl	EsHD3 surge	EsHD3 pfl	EsHD3 pfl	EsHD3 pfl	EsHD3 pfl	EsHD3 pfl	EsHD3 surge
61.25	63.54	57.94	58.12	58.76	57.52	57.33	61.57	57.08	58.44	63.42	63.64	64.47	56.82	57.33
0.55	0.55	0.64	0.62	0.57	0.641	0.655	0.554	0.785	0.65	0.48	0.47	0.47	0.68	0.62
17.32	14.91	17.12	16.5	16.65	17.39	17	16.13	19.78	16.76	16.62	16.35	15.91	17.48	17.37
8.24	8.5	9.58	9.17	8.44	9.71	10.01	7.875	10.94	9.88	7.42	7.22	7.17	10.47	10.35
0.18	0.18	0.2	0.2	0.18	0.197	0.208	0.155	0.221	0.21	0.16	0.16	0.16	0.26	0.2
2.9	3.05	3.64	3.44	3.11	3.714	3.926	3.166	3.7	3.83	2.64	2.55	2.51	3.95	4.06
6.56	5.86	8.2	6.78	7.14	8.238	8.05	7.322	4.57	7.94	5.61	6.2	5.96	7.27	7.79
2.37	2.37	2.16	1.91	2.05	2.285	2.191	2.394	1.83	2.31	2.61	2.8	2.74	2	2.04
0.55	0.68	0.43	0.49	0.54	0.456	0.445	0.649	0.46	0.49	0.8	0.92	0.95	0.45	0.51
0.02	0.05	0.04	0.06	0.06	0.04	0.032	0.056	0.04	0.02	0.04	0.03	0.04	0.02	0.01
99.93	99.69	99.95	97.28	97.51	100.19	99.84	99.87	99.4	100.52	99.8	100.32	100.38	99.4	100.25
1.25	1.02	-0.01	0.8	0.6	-0.02	0.43	0.78	4.51	0.03	1.3	0.48	0.62	1.65	1.2

Pyroclastic ejecta			
08051203-01	06101302-02	07102101-05	07102101-06
EsHD3 pfl	EsHD4 pfl or debris	EsHD4 pfl	EsHD4 pfl
58.65	60.43	59.53	59.66
0.62	0.616	0.6	0.62
17.03	17.08	17.24	17.08
9.15	8.874	8.96	8.98
0.2	0.189	0.2	0.2
3.41	3.228	3.31	3.27
7.68	6.914	6.85	6.98
2.31	2.538	2.53	2.52
0.47	0.567	0.56	0.56
0.02	0.055	0.05	0.05
99.55	100.49	99.83	99.89
0.29	0.54	0.77	0.74