

SHORTER CONTRIBUTIONS

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The Chemical Constituents of the Eruptives from Mt. Mihara, Oshima Island

— A Geochemical Study on Volcano (VII) —

by

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The explosion of Mt. Mihara occurred on the 15th of July in 1950. Scoriae were collected at the bottom of the crater by the members of the Oshima Weather Station about two months before the explosion. On these scoriae some saline matter was found adhering. On the 23rd of July, 1950 (8 days after the explosion), scoriae were collected at the south-western side of the crater. The authors made total analyses of these scoriae and compared them with older rocks of Mt. Mihara. (Table 1)

Table 1. Chemical composition of scoriae and lava of Oshima.

	1940 (scoriae)	1950 (scoriae)	mean value of lava (by Dr. Iwasaki)	world mean of basalt
SiO ₂	52.12%	52.19%	51.87%	49.87%
TiO ₂	0.88	1.00	0.94	1.38
Al ₂ O ₃	13.00	13.37	14.68	15.96
Fe ₂ O ₃	4.85	3.43	3.82	5.47
FeO	6.27	7.98	9.95	6.47
MnO	0.17	—	0.29	0.32
MgO	4.43	4.63	4.91	6.27
CaO	14.31	13.42	10.97	9.09
Na ₂ O	1.42	2.20	1.98	3.16
K ₂ O	0.54	0.25	0.44	1.55
P ₂ O ₅	—	—	0.23	0.46
H ₂ O(+)	1.84	0.21	—	—
H ₂ O(-)	0.37	0.15	—	—
total	100.20	99.33	100.00	100.00

Fig. 1 shows the chronological variation of the scoriae in chemical compositions and we can see that there is no distinct relation between volcanic activity and the

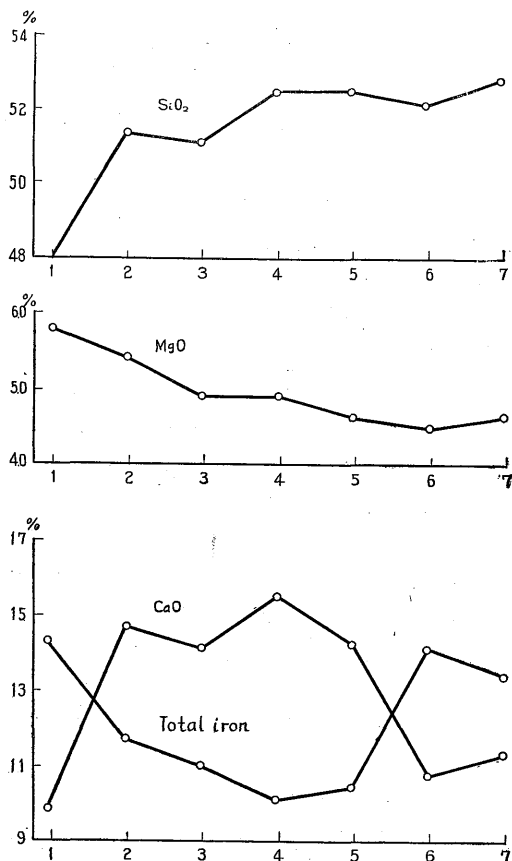


Fig. 1. The change in chemical composition of the eruptives in regard to the time of explosion.

1. The oldest lava in the pre-historic age
2. The older lava in the pre-historic age
3. The old lava on the somma
4. The lava ejected in 1777
5. " " 1912
6. " " 1940
7. " " 1950

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References

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variation of the chemical compositions of eruptives, but it may be said that there is an inverse correlation between CaO and the total iron.

Table 2 shows the chemical compositions of the saline matter adhering on the scoriae collected before the recent explosion. Major constituents are CaSO₄, MgSO₄ and water, the remaining sulphate may

Table 2. Chemical compositions of saline matter adhered on scoriae.

Ca	11.97%
Mg	4.36
SO ₄	60.97
H ₂ O	18.30
total	95.60
CaSO ₄	40.67%
MgSO ₄	21.56
H ₂ O	18.30
remaining sulphate	15.07
total	95.60

be alkali sulphate such as K₂SO₄. Al, Cl and Mn had been detected in the saline matter of Mt. Aso by one of the authors (MIYAKE), but they were not found this time, it is probably due to the fact that the soluble matter was washed away by rain water and only less soluble salts remained on the scoriae.