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Geochemical Effect of Bezymianny Volcano Eruption.

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During the eruption of the Bezymianny Volcano an immense quantity of pyroclastic substance has been ejected.

As a result of rains and mainly of intensive snow melting great quantities of water pass through the agglomerate flow and the zone of ash fall, carrying out into the ocean dissolved substances.

To determine the potential quantity of mineral substances subject to be carried out by the surface waters in the Pacific an extraction of easily dissolved substances from fresh pyroclastic mass was made. The extraction was carried out in a loose fraction with diameter of less than 1 mm. The analysis was made with water drawings obtained by fourtime extraction of samples in equal water amounts at room temperature during 48 hours.

These conditions of extraction resemble a miniature process of the washing of eruptions products by surface waters and are able to give an orientation to the quantity of water-carried substances.

The water extracts were used to determine the contents of Cl', SiO_2, Fe, $Ca^{\cdot\cdot}$, $Mg^{\cdot\cdot}$, Na, K and SO_4''.

The results obtained are given in Table 1, where:

I—water extract from ashes fallen in the volcano neighbourhood at the initial period of eruption.

II—water extract from ashes fallen during the main explosion.

III—water extract from the substance of agglomerate flow.

(mean values from the analysis of five samples).

Table 1.

Samples	Contents in mgr/100 gramms of the substance							
	Cl'	SO_4''	SiO_2	Fe	$Mg^{\cdot\cdot}$	$Ca^{\cdot\cdot}$	Na	K
I	95.88	400.4	2.95	10.57	21.5	157	8.1	3.11
II	55.04	198.4	2.71	8.83	10.2	81.2	5.15	1.68
III	22.7	165	2.4	5.6	3.11	54	5.5	1.7

During the main explosion on March 30, 1956 about 0.5 km^3 of ashes was ejected and the same quantity at the initial period of the eruption. The volume of the agglomerate flow makes to 3 km^3. The specific weight of loose rocks is assumed to be

1.8. Hence the weight of the eruption products is: $0.9 \cdot 10^9$ tons for ashes of the first and the main phases and $5.5 \cdot 10^9$ tons for the agglomerate flow.

Considering that fine fraction of the agglomerate flow is but about 80 per cent of the whole mass we get the following values of easily-dissolved components of pyroclastics:

Table 2-

Samples	Contents in tons							
	Cl^-	SO_4^{--}	SiO_2	Fe	Mg^{++}	Ca^{++}	Na	K
I	$8.6 \cdot 10^5$	$3.6 \cdot 10^6$	$2.7 \cdot 10^4$	$1.0 \cdot 10^5$	$1.9 \cdot 10^5$	$1.4 \cdot 10^6$	$7.2 \cdot 10^4$	$2.7 \cdot 10^4$
II	$5.0 \cdot 10^5$	$1.8 \cdot 10^6$	$2.4 \cdot 10^4$	$0.8 \cdot 10^5$	$0.9 \cdot 10^5$	$0.7 \cdot 10^6$	$4.5 \cdot 10^4$	$1.5 \cdot 10^4$
III	$10.0 \cdot 10^5$	$7.4 \cdot 10^6$	$10.0 \cdot 10^4$	$2.5 \cdot 10^5$	$1.4 \cdot 10^5$	$2.4 \cdot 10^6$	$29.5 \cdot 10^4$	$7.6 \cdot 10^4$
Total	$23.6 \cdot 10^5$	$12.8 \cdot 10^6$	$15.1 \cdot 10^4$	$4.3 \cdot 10^5$	$4.2 \cdot 10^5$	$4.5 \cdot 10^6$	$41 \cdot 10^4$	$11.8 \cdot 10^4$

Thus, the total quantity of dissolved substances is found to be $21 \cdot 10^6$ tons.