

Characteristics of pyroclastic flow deposits and volcanic hazard of the Heisei eruption of Fugen-dake, Unzen Volcano.

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Unzen volcano on Shimabara Peninsula began its eruption in November 1990, after 198 years of dormancy. It continued for about 4 years, and ceased in February 1995. The effusion of dacitic lava domes and much pyroclastic flows of Merapi type (block and ash flow) generated by the collapse of lava dome characterized this eruption. The event of repeated lava dome collapse produced many pyroclastic flows, ash-cloud surges and ash-fall deposits. More than 9000 times pyroclastic flows were counted and they gave a serious damage on human society. Although the knowledge on nature of pyroclastic flow is very important to mitigate the disaster, a little is known on the nature because of its dangerous property.

This study intends to discuss on the mechanisms of deposition and disaster due to the pyroclastic flow based on the geological survey.

The summary is as follows.

The deposit was characterized by poor vesiculated lithics. Grain size analysis shows that fine fragments are grading in main part of the pyroclastic flows. And coarse fragments (larger than 1m) are gathered upper part of the deposit.

The pyroclastic flow flowed down along the valley. When the flow collided with the wall at the curved valley, pyroclastic surge separated from the main body, and kept its high temperature nature, and covered much more wide area than that by main body of pyroclastic flow.

According to the survey on the disaster area, the thickness of pyroclastic surge was about 5 meters, and kept high temperature enough for causing fire within about 2 km after the separation.

According to the survey on a little damaged house, the nature of the pyroclastic surges are elucidated.