

Relationship between particle alignment and flow lineation in the Sanbe pyroclastic flow deposits

Morihiko Kori[1]; Keiko Suzuki-Kamata[2]; Kazuhiko Kano[3]

[1] Earth and Planetary Sci., Kobe Univ; [2] Earth and Planetary Sci, Kobe Univ.; [3] Inst. Geosci., Geol. Surv. Japan, AIST

<http://www.kobe-u.ac.jp/volcano/kohri/kohri.html>

The Sanbe pyroclastic flow erupted about 30,000 years ago from Mt.Sanbe in northern Tyugoku, Japan. It consists of the associated non-welded pyroclastic flow deposits. The original vent of the pyroclastic flow deposits was presumed in the Mt.Sanbe area.

Flow lineation was measured using imbrications of contain pumice and the orientation of the elongated crystal and lithic fragments in thin section, the preferential alignment of magnetite microphenocrysts, which were measured anisotropy of magnetic susceptibility(AMS).However, these measuring method is distinguished by characteristics of deposits. Therefore, there have been no previous cases in which comparing these methods.

This report is divided into two parts. The first discusses comparing with the orientation of elongated crystals and lithic fragments in thin section, and the preferential alignment of magnetite microphenocrysts, which were measured by AMS in the same points. The second discusses relationships between particle size and alignment in the non-welded Sanbe pyroclastic flow.

The measuring method of observing thin section is measuring the long column particle (0.1-10mm) which is major axis-minor axis per 2:1 in thin section, and calculating the statistical superiority. On the other hand, The measuring method of AMS, the microphenocrysts are aligned with the long axis of the clasts. The grains are then deposited parallel to the flow lineation with an imbrication.

The results of both measuring show almost the same direction in same points. And it is in line with presumed flow lineation. Therefore, the Sanbe pyroclastic flow is estimated that was controlled topographic barriers and ran out to northwest and south. The fine grain, less than 10mm in diameter, is flowed in dilute flow that has a high degree of freedom for correspond the direction and eroding aggraded.