

## Intrusion directions of the radial dike swarm of Komochi Volcano, central Japan

# Nobuo Geshi[1]

[1] GSJ, AIST

The radial dike swarm of Komochi Volcano, Gunma Prefecture, consists of dikes with lateral and outward intrusion directions (L-type dikes) and dikes with vertical and upward intrusion directions (V-type dikes). Intrusion directions of these dikes were examined by the combined analysis of the preferred orientations of deformed vesicles and anisotropy of magnetic susceptibility (AMS).

The L-type dikes distribute over the area of the dike swarm radiating from the central conduit and the V-type dikes occur mainly in the peripheral portion of the volcano.

The L-type and V-type dike also can be distinguished by their petrological characters. The L-type dikes are characterized with evolved whole-rock compositions similar to those of rocks consisting of the central conduit, whereas the V-type dikes have a less-fractionated composition and are rich in mafic phenocryst as compared to the L-type dikes. The outward intrusion directions of the L-type dikes and their petrological similarity to the rock of the central conduit indicate that these dikes intruded from the shallow part of the central conduit where the magmas underwent fractional crystallization and degassing. The less fractionated composition of the V-type dikes suggests that the less-fractionated magma intruded directly from a magma chamber, in which mafic phenocryst crystals accumulated. The larger dike thickness and higher magnetic foliation of the V-type dike as compared to those of the L-type dike indicate higher magmatic overpressure, which was possibly a result of the direct connection to the pressurized magma chamber and the vertical growth of dikes with buoyant magma. Solidification of the central conduit is favorable for the accumulation of the excess internal pressure in the magma chamber to break the wall rock. Fissure eruptions independent of the central conduit have occurred in many volcanoes and these eruptions might be fed by the dikes directly propagated from the deeper magma chamber.