

Estimate of dike-shaped calc-alkaline magma beneath cinder cone alignment, Bajawa, Flores, Indonesia

¹MURAOKA, H., ²NASUTION, A., ¹URAI, M., and ¹TAKAHASHI, M.

¹Geological Survey of Japan, Tsukuba, Japan; ²Volcanological Survey of Indonesia, Bandung, Indonesia

Flores Island is situated in the Lesser Sunda Islands which are an immature island arc system, East Indonesia. Bajawa area, central Flores, has long been remarked from remote sensing imagery, because the imagery presents numerous spectacular cinder cones trending in the north-south direction. In this area, volcanic activity has continued from 4 Ma until the present, and a conspicuous event was an appearance of Bajawa caldera at later than 0.15 Ma. Bajawa caldera is an affinity of a small rift valley rather than a typical caldera. The fragmentary caldera walls are not closed and elongated to the north-south direction as a whole, reflecting a subsurface dike-shaped magma chamber. Chemical compositions of all the effusive rocks from this caldera including the caldera-forming tuff and post-caldera cones are plotted to a small area on the variation diagrams. This strongly suggests a single and homogeneous dike-shaped magma chamber beneath alignments of numerous post-caldera cinder cones. Although majority of volcanic rocks in the study area is basaltic and tholeiitic, the Bajawa caldera magma system is andesitic and calc-alkaline in composition. Three steaming grounds and one voluminous hot spring in the study area, the Mataloko, Nage, Wolo Bobo and Mengruda areas, are basically explained by the dike-shaped Bajawa caldera magma system as a heat source.