

## Reconstruction of the Setouchi Volcanic Rocks in Kagawa Region, northeast Shikoku.

# Tomoaki Sumii[1], Hironao Shinjoe[2]

[1] Geochem. Dept., GSJ, [2] Fac. Business Administration, TKU

K-Ar ages are determined for the Miocene Setouchi Volcanic Rocks in the northeast Shikoku region including the Shodoshima Island, major/trace whole rock compositions of the same samples are also analyzed. The obtained ages are concentrated to the narrow period between 14Ma and 13Ma. These ages are about one or two million years younger than those in the West Shikoku areas and the Kinki district. The result shows that the volcanic sequence in the Sanuki plain started before ahead of that in the Shodoshima Island. In the Sanuki plain, the andesites of the mesa-like mountains like Yashima or Goshikidai are about 14Ma in age and older than the andesites of the cone shape mountains like Aonoyama which are dated as 13.5 to 13 Ma.

K-Ar ages are determined for the volcanic rocks of the miocene Sanuki Group; Setouchi Volcanic Rocks in the northeast Shikoku region including the Shodoshima Island, and major/trace whole rock compositions of the same samples are also analyzed. From these data, the authors reconstructed the miocene volcanic history of this region.

Most of the Miocene volcanic rocks in this region are isolated lavas and necks, and it is difficult to reveal the stratigraphic relationships by the field occurrences. The volcanic rocks vary in rock type, from olivine andesite, pyroxene hornblende andesite to biotite dacite. As the radiometric ages on these rocks were not so sufficient, we could not know the total history of the miocene volcanic activity in this region. The volcanic rocks in the region can be divided to four groups by the rock type and the geographical distributions; the rhyolites in the Sanuki Plain, the andesites/basalts in the Sanuki Plain, the rhyolites in the Shodoshima Island, and the andesites/basalts in the Shodoshima Island. The general stratigraphic relation in the field suggests that the rhyolites are covered/intruded by the andesites/basalts in the Sanuki Plain and also in the Shodoshima Island;(Ujike,1970; Sato,1982; Tatsumi,1983).

The results of this study are as bellow;

- 1.The K-Ar ages of the andesites are concentrated to the narrow period between 14Ma and 13Ma. These ages are younger than those of the previous studies on the region. Detailed petrographic observations of each specimen suggests that the alteration affection is negligible except some samples. And the obtained ages show good coincidence to the stratigraphic/sequential relation.

The obtained ages; 14Ma to 13Ma are about one or two million years younger than those of the andesites of the Setouchi Volcanic Rocks in the Nijo Group, Osaka region (Yoshikawa, 1997) and in the Northwest Shikoku region (Sumii, submitted).

- 2.The volcanic rock sequence in the Shodoshima Island is younger than that of the Sanuki Plain region. The rhyolites in the Sanuki Plain erupted preceding 14Ma, and the andesitic/basaltic lavas in that region erupted in 14Ma to 13Ma. The rhyolites in the Shodoshima Island erupted about 13.5Ma, and the andesitic/basaltic lavas erupted in the Island in 13Ma or 12.8Ma .

These results suggest that the center of the volcanic activity at the beginning stage was in the Sanuki Plain, then was shifted north to the Shodoshima Island. Or they suggests that independent two volcanic sequences from rhyolites to andesites/basalts were existed in the Sanuki Plain and in the Shodoshima Island.

3. The ages of the andesites in the mesa-like mountains; Yashima, Shiunzan, Goshikidai, and Kiyama in the Sanuki Plain, are concentrated in 14Ma to 13.8Ma. The andesites in the isolated cone shape mountains such as Aonoyama and Asahiyama, shows the younger age about 13.5Ma to 13Ma. These morphological differences to the age might be explained by the thickness of the clastic deposits covering the granitic basement at each eruption.