

## Paleomagnetism of Hitoyoshi Formation

# Tadayuki Kudo[1]; Hidetoshi Shibuya[2]

[1] Science and Technology, Kumamoto Univ.; [2] Dep't Earth Sci., Kumamoto Univ.

Recent paleomagnetic studies (e.g. Kodama et al., 1995) have revealed that the Southeast Kyushu suffered  $\sim 30^\circ$  counterclockwise rotation since 3.3Ma. Kumamoto University has made paleomagnetic measurements of volcanic fields in Southwest Kyushu to reveal the western limit of the rotation region. There are three volcanic fields in the region, namely Hisatsu, Hokusatsu and Nansatsu fields, and the Hokusatsu field showed western deflected declination while others showed no deflection. In this study, we measured sedimentary rocks in Hitoyoshi formation, which is a small basin opened in the Hisatsu volcanic field at late Pliocene.

Samples for paleomagnetic analysis were collected at 20 sites in Hitoyoshi formation. The sites were set to be spaced equally in the stratigraphy. Samples were primarily collected by a portable electric motor drill, except for 4 sites of lesser solidification where block samples were taken. A few pilot specimens from each site were subjected to progressive thermal and alternating field demagnetization. But alternating field demagnetization was not effective. All remaining specimens were, therefore, subjected to progressive thermal demagnetization. The samples had mean magnetic intensity of  $3.0 \times 10^{-2}$  A/m and  $1.5 \times 10^{-2}$  A/m before and after demagnetization, respectively. Out of 20 sites, block samples from 3 sites were too fragile so that we could not prepare the specimen for thermal treatment, 5 sites were too weak magnetic intensity. As the result, 12 sites were found to have characteristic remanent magnetization (ChRM). But 3 sites of the 12 were thought to be secondary magnetization considering that their *in situ* magnetic direction. As the result, 9 sites (one was normal and 8 were reversed in polarity) were concluded to have primary magnetization. Considering the K-Ar age of the Funato tuff (2.6Ma; Torii et al., 1999), which sits at lower part of Hitoyoshi formation, the reversed polarity sites were correlative to C2r of Matuyama reversed polarity chron. The normal polarity site was correlated to Reunion subchron. This correlation assigns the age of Hitoyoshi formation deposited as 2.0~2.6Ma. If sedimentation rate of Hitoyoshi formation was constant, it was more than 2.3m/ky.

The mean direction of Hitoyoshi formation is  $D=1.0^\circ$ ,  $I=36.0^\circ$  with  $a_{95}=7.8^\circ$ . The mean declination is concordant the paleomagnetic data of the surrounding volcanic rocks in Hisatsu region, and assures the absence of the rotation of the area.