

Relations between strike-slip deformation around the Tanna fault zone and paleomagnetism of the Taga and Usami volcanoes

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We conducted geomorphological and paleomagnetic studies in order to reveal the broad strike-slip deformation around the Tanna and Sukumoyama-Okuno faults. The Sukumoyama-Okuno fault is located to the south of the Tanna fault and has uplifted the western block during the Quaternary (Koyama, 1982). In our geomorphic study, we could not find evidence of activity of the Sukumoyama-Okuno fault during the Holocene. We sampled basalt lava (TV5 in the Taga volcano) in the western side of the Tanna fault and andesite lava (the upper and middle units of the Usami volcano) around the Sukumoyama-Okuno fault for paleomagnetic measurements. The K-Ar age of the basalt lava is 0.64 ± 0.06 Ma (Matsumoto et al., 1993) and that of the andesite lava is $0.45\text{--}0.72$ Ma (Kaneoka et al., 1970). Stable primary thermal remanent magnetizations of the samples are isolated through progressive thermal and alternating field demagnetization tests and we obtained site-mean paleomagnetic directions. The declinations of the andesite lava ranged from about 90 to 180 degrees although the inclinations ranged from about -30 to -60 degrees. This fact suggests counter clockwise differential vertical-axis rotation. We found a negative correlation between the distances from the Sukumoyama-Okuno fault and relative rotation angles by comparing the declinations.