

Tectonic rotation revealed by paleomagnetism nearby an active strike-slip fault; an example from the Enago fault in central Japan

Haruo Kimura[1], Yasuto Itoh[2], Hiroyuki Tsutsumi[3]

[1] Geophysics, Kyoto Univ., [2] Earth Sci., CIAS Osaka Pref. Univ, [3] Dept. Geophysics, Kyoto Univ.

We made magnetic measurements on samples from the Kamitakara pyroclastic flow deposit (Quaternary welded tuff) at fifteen sites nearby the Enago fault (an active dextral strike-slip fault), in order to evaluate vertical-axis surface deformation around the fault. We determined the precise fault trace by geomorphological survey. We found that all sites preserved stable primary magnetization through progressive demagnetization tests using thermal and alternating field methods, and then we obtained tilt-corrected site-mean directions. As a result, we recognized relative clockwise rotation nearby the fault. Concerning the sites which gained magnetization at the same time, we discovered negative correlation between the distances from the fault trace and the amount of this rotation.

We made magnetic measurements on samples from the Kamitakara pyroclastic flow deposit at fifteen sites nearby the Enago fault, in order to evaluate vertical-axis surface deformation around the fault. The Kamitakara pyroclastic flow deposit is Quaternary welded tuff whose K-Ar age is 0.63 ± 0.04 Ma (Watanabe et al., 1999). The Enago fault is an active right-lateral strike-slip fault, in a part of the Takayama-Ohara fault zone, and lies along the southern margin of the Takayama basin in central Japan. By means of the aerial photograph analysis and the geomorphological and geological mapping, we determined the precise fault trace. We found that all sites preserved stable primary magnetization through progressive demagnetization tests using thermal and alternating field methods, and then we calculated site-mean directions, and applied tilt-correction for the directions. As a result, we recognized relative clockwise rotation nearby the fault. Concerning the sites which gained magnetization at the same time, we discovered negative correlation between the distances from the fault trace and the amount of this rotation.