Zircon fission track analysis of Nojima fault borehole samples

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We analyzed zircon separates from borehole samples of Nojima fault by using the fission track method. We made a preliminary fission track (FT) analysis of samples from 500m borehole and the first analysis of samples from GSJ borehole (the fault at 625m), and found shortened tracks in zircons nearby the fault of both cores. In this study, we made the second FT analysis of GSJ borehole samples using artificial fracturing method to correct bias of track length distributions for quantitative analysis. As a result, the track length distribution shows bimodality, similar to the case of the first analysis. Further away from the fault, however, we found more shortened tracks than the first. We are investigating the bias of track length distributions and correction of them.

We analyzed zircon separates from borehole samples of Nojima fault by using the fission track method. This fault was activated during the Hyogo-ken Nanbu earthquake (M7.2) on January 17th, 1995. Several boreholes penetrated into this fault for various geological and geophysical investigations. Samples were collected from Cretaceous granitic rocks using 500m borehole at Toshima, GSJ (the Geological Survey of Japan) borehole (Ito et al., 1996; Tanaka et al., 1999) at Hirabayashi.

We made a preliminary fission track (FT) analysis of samples from 500m borehole (Tagami et al., 1999) and the first analysis of samples from GSJ borehole (the fault at 625m), and found shortened tracks in zircons nearby the fault of both cores. In this study, we made the second FT analysis of GSJ borehole samples using artificial fracturing method (Yamada et al., 1998) to correct bias of track length distributions for quantitative analysis. As a result, the track length distribution shows bimodality, similar to the case of the first analysis. Further away from the fault (~200-300m depth), however, we found more shortened tracks than the first. We are investigating the bias of track length distributions and correction of them.