

Geological age of the Miocene Nojima Group in Northwestern Kyushu based on FT dating

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Fission-track dating was carried out on zircon crystals in volcanoclastic rocks and tuffaceous sandstones of the Lower to Middle Miocene Nojima Group, northwest Kyushu, Japan. The Nojima Group consists of the Oya, Fukazuki, and Minamitabira Formations in ascending order. Two samples from the Oya Formation, two samples from the Kojimazaki Tuff Breccia at the base of the Fukazuki Formation, and two samples from the lower Fukazuki Formation, and one sample from the Minamitabira Formation were obtained for the fission-track dating. Dating was carried out by the external detector method, which was applied to the internal (ED1) and external surfaces (ED2) of zircons.

As a result, the fission-track age of 18.4 - 17.1 Ma for Oya and lower Fukazuki formations including the Kojimazaki Tuff Breccia, and 15.3 Ma for lower Minamitabira Formation were obtained. The subsidence rate of the sedimentary basin, which is 800 m/my, suggests quite rapidly subsiding rift basin. The result supports the notion that the basin was formed under transtentional stress regime during the Early to Middle Miocene opening of the Japan Sea.