

ESR analysis of the Nojima Fault pseudotachylyte: A new index for fault heating

Tatsuro Fukuchi[1]

[1] Earth Sci., Yamaguchi Univ.

<http://www.cc.yamaguchi-u.ac.jp/~fukuchi/index.html>

I have carried out ESR analysis of the Nojima Fault pseudotachylyte with several sheets of layer, which was found after the 1995 Kobe Earthquake. As a result, a huge ESR signal derived from a trivalent iron compound is detected from each pseudotachylyte layer. Thermal annealing experiments show that the pseudotachylyte presumably has been subjected to heat equivalent to heating for about 1 minute at 400 degree C, and that the maximum temperature may have risen until the melting point instantaneously in fault frictional motion. This ESR signal is very useful as an index of fault heating. Furthermore, the enhancement of this signal implies that of magnetic susceptibility, so that the intensity of terrestrial magnetism may change with the generation of a large quantity of pseudotachylyte.