

Anelastic strain recovery of metamorphic rocks from a drill well near the Atotsugawa fault

Weiren Lin[1]; Kentaro Omura[2]; Futoshi Yamashita[2]; Ryuji Yamada[2]; En-Chao Yeh[1]

[1] Kochi/JAMSTEC; [2] NIED

Anelastic strain of metamorphic rock specimens made from oriented cores taken from a drill well near the Atotsugawa fault was measured after its in-situ stress was released. The main purposes of the measurements are (a) in order to determine orientations of principal in-situ stresses at location near the active fault and, (b) in order to verify whether the ASR (anelastic strain recovery) method in three dimensions can be applied for determining the in-situ stresses on hard metamorphic rocks in a drilling project and to acquire skills in sample preparation and application of appropriate measurement techniques. Preliminary results of the ASR measurements showed that quantity continuously measured about 10 days is dependent lithology of the rocks. Acquired expansional anelastic strains on the mafic minerals-rich rock reached several ten microstrains that could be used for a three-dimensional analysis resulting in the determination of orientations of the principal in-situ stresses.