

## Electromagnetic emissions associated with AE in saturated and dry rocks

# Shingo Yoshida[1]

[1] ERI, Univ. Tokyo

Triaxial fracture tests were performed using dry and saturated granite specimens. The AE and the EME were recorded at a sampling rate of 5 MHz. The EME events associated with AE were detected in saturated rock although the number of the events was less than in dry rock.

As Yoshida et al. (1994) and Ikeya (1996) pointed out, the electric signals due to the piezoelectric effect in rock is caused by the effective polarization, which is the difference between the stress-induced piezoelectric polarization and the polarization due to the compensating bound charges. The effective polarization decays with a relaxation time which is proportional to resistivity. Therefore it may be difficult to detect the electric signals from the saturated rocks with a short relaxation time. However the electromagnetic emission (EME) associated with AE may be detectable in a high frequency range. We performed triaxial fracture test using dry and saturated granite specimens. The AE and the EME were recorded at a sampling rate of 5 MHz. The EME events associated with AE were observed in saturated rock although the number of the events was less than in dry rock.