

Quantitative measurements of electric field change in fracture experiments of granite

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It is well known that fracturing of rocks often induce luminescence or electromagnetic field emission. One of the mechanisms is tribo-luminescence at fracture or at friction: another is piezoelectric effects for material such as granite, which would relate to the piezo-compensating charges inside.

We have performed rock fracture experiments in a basement room with multiple electromagnetic sensors around the specimen. The preliminary results indicated the change of EM field just before the main fracture was about 1-3 V/m at the position from the specimen of 30-50 cm.