

An overview of the generation mechanisms of seismo-electric phenomena

Toshiyasu Nagao[1]; Masashi Kamogawa[2]

[1] Earthquake Prediction Res. Center, Tokai Univ.; [2] Dep. of Phys., Tokyo Gakugei Univ.

So-called electromagnetic phenomena attract high attention for their possible usefulness in earthquake prediction. It is often questioned, however, why they appear only pre-seismically and not co-seismically. This point makes scientific community dubious about earthquake related electromagnetic signals in general.

Furthermore, lack of quantitatively approved signal generation and transmission mechanisms.

Generation mechanism of electromagnetic signal emission may be different for different frequencies. They may involve the electro-kinetic effects and pressure induced polarization effects for DC to low frequency signals, and piezo-electric effects and exo-electron emission for higher frequency ones. Apart from these, a mechanism involving so called positive holes (p-holes) in rock forming minerals under stress has also been proposed recently.

In the presentation, we would like to review the proposed signal generation mechanisms, critically. And one of the most important issues of this presentation is to connect mechanical processes and electromagnetic processes.