

Attempt of exploration and monitoring of electric conductivity in Tokai region by EM-ACROSS

Takahiro Nakajima[1]; Keizo Sayanagi[2]; Naoyuki Fujii[3]; Mineo Kumazawa[4]; Toshiyasu Nagao[5]

[1] IORD, Tokai Univ.; [2] IORD, Tokai Univ; [3] Geosci., Shizuoka Univ.; [4] Earth and Environmental Sci., Nagoya Univ.; [5] Earthquake Prediction Res. Center, Tokai Univ.

Observation test is made on the EM-ACROSS signals in Tokai region. We settled an electrical current dipole for the transmitting electromagnetic field in Shizuoka University. The dipole moment of the current dipole is 560m x 20A. This is about one order larger than the existing EM-ACROSS transmitter in Tono, Gifu Prefecture, to overcome the noise in Tokai region. We carried out a trial observation in the frequency range 0.1-20Hz. We observed the EM-ACROSS signal by magnetometers in the area up to a few km from the transmitter, and obtained a set of reliable components of the transfer function. In the measurements of electric field, where the receivers are located more than 10km far away from the transmitter, the noise level decrease as theoretically expected during the continuous operation, and high SNR results are acquired. The results of this observation have provided us with a substantial milestone towards the routine methodology for the active monitoring of the underground states in the research works for the prediction of earthquake generation and volcanic activities.