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Survey of resistivity structure of Izu-Oshima volcano by using Active, a kind of CSEM method

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ACTIVE is the system proposed for monitoring of resistivity changes in the underground structure of an active volcano (Utada et al.2007). The system consists of a transmitter, that is grounded wire and making alternative pulse DC current, dipole used to generate a controlled transient electromagnetic (EM) field and an array of receivers, that is induction coil and monitoring induction current with 1000Hz sampling, used to measure the vertical component of the transient magnetic field at various distances, with automatic operation of both units. We can estimate the resistivity structure and its changes by requiring response functions, which is the ratio of magnetic field of each sites divided by current of transmitter for each frequency.

We carried out a resistivity survey by using Active over the caldera of the Izu-Oshima Volcano, Central Japan, in January 2011. This survey aimed to monitor temporal changes in underground resistivity structure. At the same time we carried out MT survey there. So we could also compare the result with MT survey. This study will show the result of this survey and required techniques, 3D modeling, inversion and so on.