

3-Dimensional effect on Izu-Oshima CSEM measurement

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The Dipole-Dipole resistivity measurement could detect the resistivity change associate with the eruption of Izu-Oshima volcano in 1986. A change of temprature, intrusion of gases and rising magma through the bent were considered as the cause of resistivity change.

We have constructed a system, for the eruption in future, to monitor the resistivity structure beneath Mt.Mihara volcano by using of current dipole source and magnetmeters. In advance, we conducted a resistivity sturcture survey by using of the same mesurement system on the central caldera. Data were interpreted with an inversion with assuming horizontally stratified earth. Results imply the existence of conductive layer under sea level, that is the same feature as those of DC resistivity survey. On the other hand, observation points near the summit show CSEM response that cannot be interpreted by 1-Dimensional structure. In order to interpret the cause of this phenomenon, we have developped 3-Dimensional EM simulator by using of IE(Integral Equation) method and apply to the model which includes topography. We simulates a eruption and resistivity change based on a scenario of the previous eruption in 1986.