

房総半島を対象としたMT探査と予察的考察 (2)

MT survey and its preliminary result at Boso Peninsula, Japan (2)

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A magnetotelluric (MT) survey is one of the methods to understand the underground electric properties. In Boso area, Japan, there are three main topic to perform the MT survey; (1) to estimate underground resistivity structures related to the plate boundaries, seamount, asperities, and slow slip events; (2) to obtain a regional realistic resistivity structure for the numerical simulation in generation and propagation mechanisms of electromagnetic precursors, and (3) to develop a new MT technique to reduce the cultivated noises such as DC-driven train system and factories. For challenges to solve them, we decided to carry out the MT survey in Boso area, Japan during 2014-2016. Due to sensing down to 100 km depth, we used induction and fluxgate magnetometers. We set 41 and 12 sites for induction and fluxgate type magnetometers, respectively.

The preliminary 1-D inversion results for 41 induction sites show that we can presume apparent resistivity about 1 km - 10 km depth from the surface, but relatively not clear about 100 m - 1 km and 10 km - 100 km depth from the surface. In addition, we found that the noises tend to be weaker in the southern region compared to the northern region.

To presume resistivity structure in Boso Peninsula, it is necessary to remove the artificial noises from observed MT data. The observed noises have characteristics of transient signals and processes in time domain are required such as singular spectrum analysis. Moreover, we will analyze the observed data of 12 stations in which we used fluxgate type magnetometer to obtain lower frequency and deeper information.

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