

MT investigation at the Southern Boso Peninsula (Kamogawa Region)

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Permanent ULF electromagnetic stations have been installed at Kamogawa region in Southern Boso peninsula. There are three stations (KYS, UCU, FDG) with intersensor distance of 5 km and 3 components of magnetometer fields and 2 horizontal components of geoelectric fields are measured with 50 Hz sampling rate and 24 bit ADC. And one additional station (IYG) has been installed at 20km west from the above array stations. The system is synchronized by GPS clock. The observed data are transferred to the laboratory at Chiba University. Using these electromagnetic data, we carried out MT survey. The data were down-sampled to 1 Hz RRRMT; Robust Remote Reference Magneto-Telluric developed by Chave et al., (1989) has been adopted to the impedance estimations. As for impedance tensor estimation, we choose the algorithm of Groom and Bailey (1989) and for 1-D inversion, the method of Constable et al., (1987).

The obtained results are in the following. The strikes of impedance tensor were found to be N-S and E-W approximately. This is consistent with geological structure around the stations. 38 results for 1-D inversion analysis (KYS:8, UCU:17, FDG:5, IYG:8) were obtained. The conductivity structure under these 3 stations are about 10^2 -100 ohm-m from surface to 10km depth. We found low resistive structure at 10km depth and over 1000 ohm-m at 60-70 km depth. As for IYG, the low resistive structure was found at 1-2 km depth.

The depth of upper boundary of Philippine sea plate under the stations is about 10-20 km according to Ishida (1991). Sato et al. (2005) suggests that the depth of the boundary is rather shallower than the previous report. As for seismic reflections survey, it is likely that the layer rich in water must be exist around 10-20 km depth. Our MT result shows there may exist the conductive layer a little bit shallower than that of estimated by seismic survey.