

SEM031-P20

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Wideband MT survey in Aridagawa nonvolcanic earthquake swarm area in NW Kii Peninsula

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In order to obtain geophysical insight on the origin of the nonvolcanic earthquake swarm activity in the Aridagawa area, NW part of Kii Peninsula, wideband MT survey was performed in July-August, 2009. 7 sets of Metronix ADU07 were deployed in the area along a baseline in NNW-SSE direction, and one ADU07 was set in Okura Village, Yamagata, as a remote reference. The baseline length was about 20km from the south of Kainan City to the east of Gobou City.

Impedance tensors were estimated with the aid of a robust processing code rrrmt (Chave and Thomson, 1989) for two bands with 1024Hz and 15Hz sampling frequencies. For the former and the latter bands, we used horizontal components of magnetic field at Okura (by us) and Sawauchi (operated by the Nittetsu Mining Consultants Co. with Phoenix MTU5), respectively, as remote references. Due to significant DC-powered railways and weak geomagnetic activities, data quality was generally not very good except southernmost two stations.

From the phase tensor analysis (Caldwell et al., 2005), 2-D strike direction was estimated to be in the E-W direction. The strike direction determined from the GB decomposition (Chave and Smith, 1994) was consistent with the phase tensor results. Thus, we tried to obtain a 2-D resistivity structure along N-S profile with the aid of the REBOCC 2-D inversion code (Siripunvaraporn and Egbert, 1999). We want to show the result of the inversion and discuss about relationship between the structure and the microearthquake foci. Just beneath the center portion of the profile, where micro-earthquake foci were located as shallow as 4km, conductive anomaly can be detected. The swarm activities seem to be related to the existence of interstitial water.

Keywords: resistivity structure, aridagawa, non volcanic seismic swarm, crustal fluids