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A wide band MT observation, around Onikobe caldera

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Onikobe is an Quaternary Caldera with 7.5km (EW)x 10km(NS) depression. It has a resurgent dome in the northern part and the latest magmatic activity at Takahinata-yama in the southern part. As for the seismic activity around the region, we have Onikobe earthquake (M5.9, 1996) at the northwestern rim of the caldera and Iwate-Miyagi Nairiku earthquake (M7.2, 2008) to the north. The aftershocks of the latter earthquake reached the southeastern rim of the caldera. These earthquakes are characterized by high angle reverse faults which can take place only with the existence of fluids.

Thus the Onikobe area provides us with a model field to study the fluids in the crust in relation to intraplate earthquake activity.

Magnetotelluric(MT) method is an electromagnetic method to image the deep crust and mantle using the natural electromagnetic sources such as lightning and magnetic storm. MT is suitable to study fluid distribution in the crust, because the small amount of fluid connectivity can influence dramatically on the bulk resistivity of crustal rocks at depth.

We have obtained new wideband magnetotelluric dataset consisting of 30 stations with roughly 3 km grid spacing. We will present the distributions of apparent resistivity, phase tensor and induction vectors and preliminary two- and three-dimensional moelings.