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## Preliminary report on a 2D resistivity structure in the middle-western part of Tottori Prefecture, southwest Japan

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The purpose of this study is to estimate an electrical resistivity structure beneath the Middle-western Tottori prefecture in the eastern part of Sanin regions, southwestern Japan in order to clarify the relationship between deep crustal conductors and the seismicity in these regions. In this presentation, a preliminary report on a investigations of this study and a two-dimensional resistivity structure beneath these regions, based on the result of the wide band MT observations carried out from fall to winter of 2009, is given.

Our research group has shown that there is a clear relationship between resistivity and seismicity in the Sanin and Shikoku regions. We investigated deep crust resistivity structures in the measurement lines that traverse a linear seismic activity area along with the coastal part of Japan Sea, including Yoshioka and Shikano seismic fault of Tottori earthquake in 1943, M7.2 and the epicenters of the remarkable earthquakes in the eastern part of San-in region, for example, Western Tottori earthquake in 2000, M7.3, and so on. As the result, in the eastern part of San-in region, it was found that a conductive area exists in the deep crust part under the seismic region, which is a resistive area, along with the seismic activity area stretching nearly in the east and west direction. These studies suggest that high conductivity is possibly caused by the existence of deep crustal fluids, which probably play an important role in the inland earthquake occurrence mechanism of these regions.

Wide-band MT observations were carried out from fall to winter of 2009 along a N-S line in the middle-western Tottori, where the Middle-western Tottori earthquake (Mj5.3) occurred in 2002. This area is also a western extension part of the seismic activity zone of Tottori earthquake in 1943, and Central Tottori earthquake in 1983, and is located in the eastern side of a seismic gap of the quaternary volcano Mt. Daisen.

An investigation was carried out from the beginning of November to the end of it in 2009. A total of 5 Phoenix measurement devices were used to observe three geomagnetic field and two electric field components. The numbers of observation points were eight in total. Unfortunately, a remarkable geomagnetic disturbance could not be recorded during the observation. A Preliminary 1-D model shows that there is a resistivity boundary in the crust beneath this area. However, the clear relationship between resistivity and seismicity in other Sanin regions may not have been found here as mentioned above. In this presentation, a preliminary report of 2-D resistivity modeling performed will be shown.

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Keywords: resistivity, MT, Tottori Prefecture, San-in region