

## Preliminary Report on the Resistivity Structure of seismic gaps in Sanin Region, Southwestern Japan

# Ichiro Shiozaki[1], Naoto Oshiman[2], takafumi kasaya[3], Tomofumi Uto[4], Mituhiro Yoshimura[5], Kazunori Yoshimoto[6], Yoshihiro Kuwaba[6], Sei Yabe[7], seturo Nakao[8], Tsuneomi Kagiya[9], Makoto Uyeshima[10]

[1] Dept. of Civil Eng., Tottori Univ, [2] DPRI, Kyoto Univ., [3] JAMSTEC, [4] Graduate School of Engineering, Tottori Univ, [5] Civil Eng, Tottori Univ, [6] Civil Eng, Tottori Univ, [7] TOTTORI OBSERVATORY, RCEP, DPRI, [8] Tottori Obsv., RCEP, DPRI, Kyoto Univ., [9] Earthquake Research Institute, University of Tokyo, [10] Earthq. Res. Inst., Univ. Tokyo

An assumption as for the cause of the earthquake, that is 'There is a deep crust fluid in San-in region. The fluid causes a big earthquake like the Western Tottori earthquake and also causes micro seismic activities with a linear distribution in this region.' was thought out in this study. This assumption is based on the studies of deep resistivity structure especially related to deep crust fluid under an active fault (ex. Miyakoshi and Suzuki, 1978; Yukutake, 1985; Shiozaki and Oshiman, 2000) and the suggestions related to the importance of the deep resistivity structure to understand the inland earthquake mechanism (ex. Sasai and Yoshino, 1996; oshiman, 1997). Crustal resistivity structure investigations using a wide band MT observation have been carried out mainly in Tottori prefecture of Sanin region, aiming to examine the reasonability of the assumption. The investigations carried out in the eastern part of Sanin region clearly show that a low resistivity region (around 10ohm-m) exists in a deep crust of the active seismic area and that seismic activities happen in a high resistivity region above the low resistivity region.

In order to examine the reasonability of this assumption mentioned above, it is very important to determine if this feature can also be seen in the underground of the region without seismic activities. In this study, the resistivity structure investigations were focused on the two areas, the eastern part of Shimane prefecture and the periphery of Mt. Daisen in the western part of Tottori prefecture, where any seismic activities have not occurred.

A tentative result of the investigation in the periphery of Mt. Daisen was already reported in the 2002 joint meeting of Earth and Planetary Science as follows; The periphery of Mt Daisen in the western part of Tottori is known as the region where seismic activities can hardly be seen. The investigation showed that a low resistivity region around 10ohm-m exists in the upper crust under Daisen volcano. However, the data of the observation points on the southern side of Daisen volcano is not reliable because this area was strongly affected by artificial noise. Additional observations were required.

A big earthquake occurred at Izumo region in 880, though the scale of the earthquake is not clear. In order to clarify the factors of seismic activities with a linear distribution in Sanin region, it is very important to examine if the resistivity structure feature found in the hypocentral area of 2002 Western Tottori Earthquake can also be seen in the underground that spreads over the southern part of Shinji lake in the seismic gap, the eastern part of Shimane prefecture.

We have carried out crustal resistivity structure investigations using a wide band MT observation in the southern area of Daisen volcano and the eastern part of Shimane prefecture from summer to fall in 2002. In this presentation, the summary of the investigations is given as a preliminary report.