

Electro-magnetic survey off tokai region

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Generation of mega-thrust earthquakes is inferred to be related to the existence of water around locked zone. The resistivity structure is very sensitive to the existence of water. Therefore, it is important to obtain the resistivity image around the rupture area of mega-thrust earthquakes. Kasaya et al.(2005) carried out land and marine Electro-magnetic survey on and off Kii peninsula where the 1933 Tonankai earthquake occurred, and obtained a 2D resistivity model. The modeled resistivity structure portrayed the Philippine Sea Plate as resistive region. However, its resistivity becomes more conductive as the plate subducts, showing 10 ohm-m around the down-dip limit. These characteristics are considered to relate to the water of dehydration. Therefore, we infer that water might control the generation of mega-thrust earthquakes.

Tokai region is the subduction zone where a locked plate boundary on the subducting Philippine Sea plate is clearly recognized (Sagiya, 1999). In addition, a slow slip on the plate boundary is recently found (Ohta et al., 2004). Our group start the mulch sensor monitoring plan in this region. Before monitoring, it is important to know a background structure such as reported in Kasaya et al.(2005). Therefore, we carried out electro-magnetic survey using new small sized Ocean bottom Electro-Magnetometer (OBEM) system developed by JAMSTEC with the capability of making high-frequency EM recordings (Kasaya et al., 2006). Six OBEMs were deployed along 60 km survey line off tokai region in NT07-01. In this presentation, we talk about a preliminary result obtained by our recovered OBEMs data.