

Overview of seismic survey for reflection characterization of subduction zone in the region of Off-Sanriku earthquake

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From many studies of slip distribution of the 1994 Off-Sanriku (Sanriku Haruka Oki) Earthquake ($M_w=7.5$), the distribution of coseismic slip indicates that large slip occurred at the central and western parts of the rupture area. The slip distribution is very heterogeneous around the epicenter, and aftershocks occurred where the coseismic slip was small. There are extremely low aftershock areas around the epicenter, where are also low moment release. It is important to examine whether they are non-asperity or not. To investigate the possibilities of non-asperities and causes of this heterogeneity of slip distribution, we conducted seismic refraction-reflection surveys. Characteristics of reflection from the plate boundary are key to reveal the cause of the heterogeneity.

The surveys were carried out in two phases. One was conducted in August, 2003 using R/V Kairei, JAMSTEC. Overview of this survey was presented by Kodaira et al. (2003). The other survey was conducted in September, 2003 using R/V Shintatsu. Thirty OBSs were placed on three lines, and 57 litter airguns were used as seismic sources. The present report describes the outline of the experiment and shows preliminary results.