

Study on heterogeneous structure beneath the Beppu-Haneyama fault zone

KAMIZONO, Megumi^{1*} ; MATSUMOTO, Satoshi² ; NAKAMOTO, Manami² ; MIYAZAKI, Masahiro¹

¹Department of Earth and Planetary Sciences, Graduate School of Sciences, Kyushu University, ²Institute of Seismology and Volcanology, Faculty of Sciences, Kyushu University

The Beppu-Haneyama fault zone is the active fault zone in Japan, running from the Beppu Bay to western part of Oita prefecture. In the Beppu area, the seismogenic layer is thin (about 10km). Since the structure beneath this layer could affect the thickness, we need to get acquaintance of subsurface structure. This study estimated the heterogeneous structure of this fault zone from distribution of the reflectors based on seismological analysis.

We analyzed the data observed at seismic stations deployed by Kyushu and Kyoto Universities, NIED and JMA. For simplicity, we assumed homogeneous velocity structure to analyze the observed data. Normal move-out (NMO) processing was applied to detect reflectors. Seismic section normal to the strike direction of the fault zone reveals that reflective zone of the depth about 25km, which could correspond to the Moho discontinuity. Since numerous reflected waves beneath the seismogenic zone were detected. The distribution of the reflectors generating these reflected phase might relate to the thickness of the zone.

Keywords: Beppu-Haneyama fault zone, heterogeneous structure, reflector