

Fault geometry on Miura-hanto fault group presumed by comparison of various seismic reflection records

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Miura-hanto fault group (MHFG) mainly appeared at the land area of Miura Peninsula, southern part of Kanto district and are consist from main and southern parts, both showing right-lateral slip with vertical displacement. The main part of the MHFG is divided into two parallel faults whose strikes are WNW-ESE, i.e. Kinugasa-Kitatake fault (north side) and Takeyama fault (southern side).

In a land area and a seaward extension of these faults, several seismic reflection surveys were conducted to elucidate fault geometries and those activities. Further long seismic survey line was set crossing at high angle with the trend of the MHFG from Sagami bay to Tokyo bay to reveal the geometry of the Philippine Sea plate's upper surface.

Since spatial resolutions of these surveys arranged from several centimeter to several hundred meter order, it makes us possible to discuss a detailed fault geometry of MHFG from the sea bottom to the depth of the PHS plate boundary by careful comparing between these seismic profiles.

Then we estimated the location of Takeyama fault from the shallow to the deep by using a high-resolution chirp sonar image, a fine single-channel profile, middle range multi-channel profiles and other previous seismic profiles derived in the study region.

As a result of careful examination on the seismic reflection profiles, bending of the sea floor and kink-like deformation structures of strata are recognized, implying the existence of a fault. In addition, the fault at the deeper depth is also configured from single and multi-channel profiles as reflection discontinuities. The location of this fault is correlated to the seaward extension of the Takeyama fault, and therefore, we judged the fault as the Takeyama fault. . This fault has the northward dipping, changing inclination angle from steep to gentle as increasing depth. In contrast, there are tilted reflections derived from the Philippine Sea plate (Ministry of education, Culture, sports, Science and Technology 2003). Based on the spatial relationship between Takeyama fault derived in this study and the deeper reflector, there is a possibility that these two faults might continue. However, since we can't continually encompass all the reflections compared to the depth direction, we are planning on discussing it including the comparison with the velocity structure.

Keywords: Miura-hanto fault group, Sea area, Active fault, Seismic reflection survey