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Fault distribution and activity on an offshore extension of the Goumura fault zone

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We carried out a marine geological investigation on an offshore extension of the Goumura fault zone. In this area, the Kita-tango earthquake occurred in 1927. This study is the request from Ministry of Education, Culture, Sports, Science and Technology. The main purpose of this study is to clarify the following four points; (1) offshore continuity of the fault zone; (2) the total length of the fault zone; (3) division of the fault segments; and (4) characterization of recent faulting. In the present investigation, 20 lines of high-resolution multichannel seismic reflection surveys were carried out across the Tango Peninsula northwest offshore fault to recognize detailed structures of shallow strata. In addition, the high accuracy topography survey was executed in the coast region where the basement rock was exposed. Furthermore, the sampling of sediments with the pistoncoring was conducted to constrain the sedimentation age. The reflection profiles depict the faults with extremely clear images. The displacement of sea floor and the deformation of Quaternary layer were recognized, and the intermittent displacement of sea floor was identified in the place where basement rock is exposed. Many faults extend to the NNW-SSE direction, and some of the faults extend to the NE-SW or E-W direction. They may conjugate fault. Given the existing data and the results of these surveys, on an offshore extension of the Goumura fault zone, active structure extends to about 40km length is estimated.

Keywords: Goumura fault, Kita-tango earthquake, offshore, active structure, high-resolution multichannel seismic reflection surveys, high accuracy topography survey