Elucidation of activity history on Yatsushiro-sea submarine fault group-Challenge to the Seismic Trenching using high-resolution seismic survey-

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[Background]
In the survey for the offshore active faults, generally seismic exploration is used. However, in seismic explorations, these are emphasis on the grasp widely geological structure with survey lines of several 100 meters or several kilometers interval. So, estimation of faulting with high -precision has not yet at offshore area.
[Purpose]
In this study, we aim to clarify the subsurface deformation of fault using high-resolution seismic survey with 20-50 meters interval survey lines.
Target area is Yatsushiro-sea which is located Midwest of Kyushu. Yatsushiro-sea is the south part of Hinagu Fault Zone. Hinagu Fault Zone is extending from Aso volcano to Yatsushiro-sea. In the Yatsushiro-Sea, some seismic explorations were carried out so far.
[Results of seismic survey]
1) Distribution of faults
A-FA1 fault with NE-SW direction is distributed in central part of survey area. And A-FA1 extends to the NNE direction (based on Kagohara et al., 2011). In west side of A-FA1, we observed some faults which is extends to NE-SW direction and curves clockwise. Three faults extend to NW-SE and oblique to A-FA1 with high angle.
2) Acoustic stratigraphy and activity history
We recognized 7 depositional sequences (A1, A2, A3, B1, B2, C, D layers from the top) based on reflection patterns. Result of piston coring, we estimate formed period of some unconformity,1) reflector R1 (between D and C layers) is Last glacial maximum erosion surface,2) reflector R2 (between C and B2 layers) is Post-glacial erosion surface,3) reflector R5 (between B1 and A3 layers) is about 3,000 yBP. Central part of A area, we identified at least 5 paleoseismic events. And the latest paleoseismic event is occurred between 1,700y BP and 1,000 y BP.

Keywords: Hinagu Fault Zone, Yatsushiro-sea submarine fault group, Strike-slip fault, Seismic Trenching

