

HDS029-P02

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Offshore active fault survey "Futagawa-Hinagu fault group"(2) Result of high resolution geostatigraphic survey

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Tokai University performed high-resolution geostatigraphic survey to confirm a formation, distribution, and displacement around the coastal area of the Futagawa-Hinagu fault group. We use a parametric acoustic system that has 1) narrow beam with, 2) wide secondary frequencies, 3) high pulse repetition rate, and 4) high resolution technical characters.

The investigation sea area is located central part of Yatsushiro Sea. The Futagawa-Hinagu fault presents the structure of the NE-SW direction in this area. We arranged parallelism and line of perpendicular 500m distances in the dislocation as reconnaissance survey. And we also arranged 25 to 50m-grid line for detailed survey. Total line reached 255km.

Acoustic stratigraphical character: We divided into 4 acoustic stratigraphical layer (L-1, L-2, L-3, and L-4) by the character of reflective surface and reflective formation. L-4 layer is an acoustic basement of this study area, and the top surface is characterized with a reflector full of unevenness. L-3 layer presents a clear reflection pattern in no layered bedding, and the top surface is a comparatively flush reflector. L-2 show excels of horizontally inside reflection and the top surface contacts unconformable relationship with the overlying L-1 layer. L-1 with no layered bedding exist the most upper part of this area.

Results: In the A area (which locates northern end of study area), the main fault develops on a straight line in succession in the NE - SW direction, but changes into a fault zone with graven structure in the northern end part. The drag fold structure (passed to 1,000m) was confirmed with the transcurrent fault, and also confirmed the dip of fold structure becomes gentle toward the northeast side.

The acoustic scattering layer was observed around the northeast part of study area. In this area, the acoustic scattering layer develops toward the northeast along the fault. It seems that we are connected with a development of acoustic scattering layer and a tomographic development.

As the detailed offshore high-resolution geostatigraphic survey with short wide grid line, some transcurrent faults structure such as drag fold structure and flower structure was successfully observed.

Keywords: Futagawa-Hinagu fault group, high resolution geostatigraphic survey, drag fold structure, acoustic scattering layer