

## High-resolution Seismic Profiling Survey on Holocene Reefal Sediments, East of northern Amami-o-shima Island

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High-resolution seismic profiling survey, bathymetric mapping and ROV (remote operating vehicle) submersible observations were carried out to the east of northern Amami-o-shima Island. The survey area is located in a northern part of the Ryukyu Island Arc and close to the present-day northern limit of coral reef formation in the northwestern Pacific. We carried out a high-resolution 8 channel seismic survey using a boomer plate. This was performed for the site survey for IODP and ICDP proposals. The survey lines of the western area with a direction of WNW-ESE ranged in length from 2 to 2.5 km, where water depth was 10-60 m and active coral reefs formed nearby. The survey lines of the eastern area with a direction of NW-SE ranged in length 3 to 4 km, where water depth was 60-160 m.

In the western area where modern coral reefs formed, the ROV video images and bathymetric map indicate that an eastern part of this area is characterized by presence of irregularly-shaped mounds of modern coral reefs. In contrast, the flat seafloor, consisting mainly of coarse-grained sediments, extends in a western part of this area. Distinct, randomly undulated reflector which may represent erosional surface formed in the last glacial period is recognized throughout the survey area. The Holocene stratified sediment overlies this reflector; their thickness decrease eastward. The grooves which may correspond to eroded valleys formed during the last glacial period are found in the western margin of the area characterized by the active reef mounds. These results indicate that the coarse-grained sediment transported from Amami-o-shima Island has been trapped into grooves and that limited transportation of sediments into the eastern part may have allowed the coral reef formation in this area during the last deglaciation.

In the eastern offshore area, we clearly observed distinguished unconformity that is overlain by the stratified sediment of c.a. 0.07 s (two-way travel time) in thickness. The stratified sediment can be divided into two sedimentary units. Lower unit is characterized by onlapping reflection terminations and is overlain by the upper progradational unit. The high-resolution multi-channel seismic profiles reveal the detail depositional migration which is related to sea level change during the last deglaciation.