16ch high-resolution Seismic reflection survey in the Northeastern off Okinawa Island -Tectonics of the Ryukyu Island Arc-

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Marine geological survey of GH08 cruise was carried out in the east off of Okinawa Island during 28 July to 29 August, 2008. The seismic reflection data was acquired by the GI-gun or the Cluster-gun systems with 16ch digital streamer cable. The Ryukyu Island Arc extends from Kyushu to Taiwan, a distance of 1200 km, along the Ryukyu Trench where the Philippine Sea Plate is subducting beneath the Eurasian Plate. The Okinawa Trough, a back arc basin has formed behind the Ryukyu Island Arc in late Pliocene to early Pleistocene. The survey area of GH08 was located on upper fore-arc slope of the Ryukyu Trench system.

Seismic reflections of the upper fore-arc slope show a distinct reflector which may represent erosional unconformable surface. The distinct reflector had tilted southeastward and was overlain by the stratified reflections with high-angle unconformity. The normal faults were found between Okinawa and Yoron Islands. The faults strike northwest which is orthogonal to the Ryukyu Trench axis. The most conspicuous fault along southern margin of the Yoron Island has been active since the early Pleistocene inferred from seismic stratigraphy and calcareous nannofossil biochronology. The maximum displacement reaches to 0.7 s two-way travel time in depth. Our data indicate that the tilting of Ryukyu Island Arc plays the most important role of formation of the fault in a NW-SE direction.