

SCG086-21

Room: Function Room B

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## Seismicity at 37E on Southwest Indian Ridge; Tectonics from seismicity and 3D seismic velocity structure.

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The mid-ocean ridge process depends on a balance between spreading rate and melt supply. In general, maximum depth of earthquakes at ridges increases with decreasing spreading rates from observations at fast and slow spreading areas. Southwest Indian Ridge (SWIR) is an ultra-slow spreading ridge, and we have very few data about seismicities and structures because this area is far from lands and bad weather condition. To obtain seismicity and seismic structure of ultra-slow spreading ridge, we conducted a controlled seismic experiment and seismicity survey at a segment of SWIR around 44S, 37E during KH-07-4 cruise of the R/V Hakuho-Maru (Japan Agency for Marine-Earth Science and Technology). This area appears an oblique spreading ridge.

The observation period was from January 13 to January 16, 2008. We used ten ocean bottom seismometers (OBS), and 20l x 2 air guns. We deployed the OBSs at grid pattern, along the ridge segment.

During the observation period (4 days), 171 events were observed, and most of events occurred within the median rift valley. The maximum depth in the events is about 6 km from sea floor, and this result is consistent with former studies. The observed events can be divided into 3 groups; east part, west part, and the boundary area of 2 parts. From topographic and seismic structure survey, both west and east parts seem to be small ridge segments. The east part has very low velocity, so events at the east part may represent volcanic activities. The west events occurred along WNW-ESE lineaments and had focal mechanism of normal fault type. Focal mechanism of the boundary area was strike slip type (transform type). From these results, we conclude that this area, which appears an oblique spreading ridge, consists of two small segments and a transform fault, like a leaky transform fault system.

Keywords: ridge, ultra-slow spreading rate, seismicity, Southwest Indian ridge, Leaky transform fault