

BEAGLE 2003 cruise by R/V MIRAI the round trip in the southern hemisphere bathymetry

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Precise bathymetric surveys of the world ocean has been made it possible to establish continental drift, sea-floor spreading and plate tectonics. However the data have mostly been restricted from the oceans in the northern hemisphere. The precise submarine bathymetric data from the southern hemisphere are quite scarce because of the long distance from the major countries and of being always severe sea conditions with bad weather for the bathymetric swath mapping. Well-surveyed areas of the southern hemisphere are the Indian triple junction, SW and SE Indian Ridges, Southern East Pacific Rise from 13 degree-S to 20 degree-S and Scotia arc-trench-backarc system. We had not been known about the vast area of the southern hemisphere.

We had a bathymetric survey around the southern hemisphere during the cruise of 'BEAGLE 2003'. The project 'BEAGLE 2003' started from Brisbane, on 2003 August and ended at Fremantle, on February 2004 with a great success. In the South Pacific Ocean the line crosses on the 30 degree-S to 32.5 degree-S latitude from Brisbane, Australia to Valparaiso, Chile via Papeete, Tahiti and in the South Atlantic Ocean on the 30 degree-S latitude from Santos, Brazil to Cape Town, South Africa and in the Indian Ocean on the 20 degree-S to 25 degree-S latitude from Tamatave, Madagascar to Fremantle, Australia via Mauritius Islands, Port Louis, respectively.

We had a precise bathymetric survey by using the narrow multi beam system (SeaBeam 2112.004) that is installed in the JAMSTEC R/V MIRAI. Bathymetric survey lines cross the Kermadec Arc-Trench and backarc system, Louisville Ridge, East Pacific Rise spreading center, Peru-Chile Trench, southern Mid-Atlantic Ridge, Central Indian Ridge, Ninety East Ridge and many other oceanic plateaus and seamounts.

We had obtained a narrow band data on the morphologic features of the ridges, trenches, seamounts and oceanic plateaus and we compared the data with those from ETOPO2 that was distributed by Sandwell and Smith (1996). These data offer significant information on the plate tectonics and plume tectonics if we think about the morphology on the global scale.