

Sunken coral reef at the bottom of the Palau Trench -A storyboard tells us a tale-

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We conducted the survey at the southern part of the Palau Trench where we found the sunken coral reef by submersible Shinkai 6500 #190 dive in 1993. The Palau Trench extends about 300 km north to south. The Palau Trench is lack of deep earthquakes and active volcanoes like the Yap Trench whereas the Japan Trench and Izu-Bonin Trench do have them. Instead active volcanoes and deep earthquakes Tertiary basalts and andesites and old uplifted coral reefs develop on the islands. Especially the latter is called a Mecca of divers and the largest in the northern hemisphere. Previously bathymetric and collection of rocks and sediments were conducted by many cruises. The piston cores from deeper than 8000 m was obtained from the northern Palau Trench floor, which yielded many carbonate turbidites within the core (Yamamoto et al. 1987). The seismic reflection survey was also carried out across the Palau Trench and showed that the lower part of the trench slope it is ubiquitous to have accretional prism (Kato et al. 1984). We have proposed the idea that a huge coral reef sided down to the bottom of the Palau Trench by the submersible observation in 1993. This time we conducted two dives at the forearc side two dives at the seaward slope to reconfirm the slid blocks. We recognized huge slid coral reefs at the landward but never found the slid coral reefs at the seaward slope. The coral reefs observed at water depth of 6500 m represent the similar structure of the onland-uplifted coral reefs. However, deep sea coral have some dissolution and recrystallization structure of carbonate. The size of coral is some 2km long, 1km thick with intercalated black band. Bathymetric map collected during the cruise horseshoe structure is notable at shallow part of the trench slope and the distribution of this collapsed coral may more than several kilometers. Based on the observation at the seaward slope where the basaltic rocks distribute instead coral reefs. This means the origin of the coral reefs is the landward slope of the Palau Trench, that is land or very shallow area of the trench. Bathymetric map of our survey shows a large horseshoe structures around the 1000 m contour lines. More over if we look all over the Palau Trench such kind of collapse structures are seen everywhere the trench landward slope. If these structures are due to the huge collapse of coral reefs of the Palau Trench it must be a catastrophic event at the Palau Trench and occurred at some time before. Such kind of huge collapses may cause a huge tsunami along the Palau trench. In the historical Palau Island there are storyboard that are curved a tale of the historic story on the surface of boards. The Legend of Palau that is a collection of Palauan stories on the history of the island. One of the stories of the title 'Sinking of Palau Island' that the catastrophic event sunk the island in the past. Piston core collected from the bottom of the Palau Trench at water depth of 8000 m must be the result of this story. The trigger of the sidling and collapse of coral reefs may be the subduction of seamounts on the Caroline Plate like that of the Costa Rica Margin of the middle America Trench where the seamounts of Galapagos hot spot continuously subducting underneath the land. Accretionary prism-like structure of the seismic profile may be the subducted seamounts. The Palauan storyboard tells us the catastrophism eloquently.