

Oceanic core complexes in the Philippine Sea

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Oceanic core complexes are domal bathymetric highs with corrugations orthogonal to spreading axis, interpreted as portions of the lower crust and/or upper mantle exposed via low-angle detachment faulting at mid-oceanic ridge axes. Tucholke et al. [1998] called these corrugated domal highs as megamullions. Oceanic core complexes have been recognized in many places along intermediate, slow and ultra-slow spreading ridges. Oceanic core complexes are often inferred to represent periods of reduced magmatism at a given section of the spreading segment, providing opportunities of understanding the oceanic lithosphere as tectonic windows.

In backarc basins, the world's largest oceanic core complex, Godzilla Mullion, was discovered in the Parece Vela Basin [Ohara et al., 2001]. Thanks to the extensive survey of the Japan's Law of the Sea program, several oceanic core complexes have newly been discovered in the Philippine Sea. These are

1. Chaotic Terrain in the Parece Vela Basin [Ohara et al., 2007]
2. Shikoku Basin floor to the east of Kyushu-Palau Ridge at 25N [Miura, PhD thesis, 2005]
3. Shikoku Basin spreading axis at 24N [R/V Hakuo KH07-2-Leg 4 cruise]
4. Chaotic Terrain in the West Philippine Basin, near the CBF Rift [Japan's Law of the Sea program]
5. Chaotic Terrain in the Kita-Daito Basin [Basic researches on exploration technologies for deep-sea natural resources]
6. Higashi-Ryusei Spur of the Kyushu-Palau Ridge at 25N30M [Basic researches on exploration technologies for deep-sea natural resources]

In this talk, we will summarize the features of these newly discovered oceanic core complexes, with the implications for the Philippine Sea tectonic evolution.