

## Introducing an oceanic core complex in the Shikoku Basin: Mado Megamullion

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Oceanic core complexes (OCCs) are domal bathymetric highs with axis-normal corrugations, and with exposure of serpentinized peridotite and gabbroic rocks, interpreted as exhumed footwalls of low-angle detachment faults. OCCs provide a valuable opportunity to directly study the architecture of oceanic lithosphere, together with the tectono-magmatic processes associated with its formation and evolution.

A significant fraction of the ocean floor is created in backarc basins where water plays a major role in generating backarc basin basalts, strikingly contrasting to magmatic process at mid-ocean ridges. The opportunity to explore the recent formation of backarc basin lower crust and upper mantle is, therefore, an important contribution to understanding the ocean basins. The extensive multi-beam bathymetric mapping by Japan's continental shelf survey has revealed the presence of potential OCCs in the multiple portions of the Philippine Sea Plate, such as in the Parece Vela Basin, Shikoku Basin, Kita-Daito Basin and West Philippine Basin. Among these, Godzilla Megamullion in the Parece Vela Basin is the largest known OCC on the Earth, and is one of the well-studied OCCs in the world.

In order to advance our understanding of the lithospheric composition of the Philippine Sea Plate, we need to utilize the potential Philippine Sea OCCs as tectonic windows to sample the lower crust and upper mantle materials. However, these potential OCCs have been remained largely unsampled and unstudied except only a few locations. We thus have started a new project focusing on the Shikoku Basin OCCs. Two cruises in the 2018 summer (YK18-07 and KH-18-2) collected peridotites and gabbros from the main Shikoku Basin OCC, here we named "Mado Megamullion". The scheduled YK19-04S cruise in 2019 April will collect more datasets on this OCC.

In this contribution, we will show the general tectono-magmatic characteristics of Mado Megamullion. The OCC provides the information on the Shikoku Basin lower crust and upper mantle for the first time. Mado Megamullion is an ~20 km square OCC, the areal size is comparable to Kane Megamullion in the Mid-Atlantic Ridge. Thus it should be easier for us to make a comparative study between the two OCCs, providing useful information to understand the difference of the lithospheric characteristics between the two major ocean environments.

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