

Amagmatic tectonics in the southern Parece Vela Basin: preliminary report from the YK03-09 Leg 2 submersible diving cruise

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The seafloor formed over the Miocene in the Parece Vela Basin (PVB) is characterized by chaotic topography and the well-developed mullion structures, indicating a weak magma supply and mantle exposure in a backarc basin.

Satellite altimetry reveals a continuous, N20E-trending bathymetric feature, extending from the Yap Trench through the North Yap Escarpment to the Parece Vela Rift, suggesting a genetic relationship.

There have been no systematic surveys on the southern Parece Vela Rift north of the North Yap Escarpment, limiting us to discuss the genetic relationship between the Yap arc and the Parece Vela Rift.

During the YK03-09 Leg 2 cruise aboard R/V Yokosuka, we conducted mapping and diving study at the southern Parece Vela Rift. The results are:

1. The North Yap Escarpment terminates at 12 deg. 04 min. north, not directly continuing to the Parece Vela Rift.
2. There are no apparent rift morphology in the surveyed area, apparently contrasting to the observations in the Parece Vela Rift north of 15 deg. north.
3. Although there are no rift basins, several fracture zones are recognized.
4. We found a deep with large water depth (~ 7200 m). We tentatively named it the Shinkai deep, which we interpret as a pull-apart basin. The deep exposes mantle peridotite below the 6180 m water depth.

The results of this study indicates that amagmatic tectonics played a major role also at the southern Parece Vela Basin at 12 deg. 50 min. north.