

Hahajima Seamount revisited -A new data set lets us think about the origin and development-

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An enigmatic block, the Hahajima Seamount consisting of various kinds of rocks is located at the junction between Izu-Bonin and Mariana forearc slopes and represents a notable rectangular shape. A new bathymetric swath mapping showed the Hahajima Seamount is cut by two predominating faults with combination of topographic depressions and knolls, trending NE-SW and NW-SE to form the lines. These lineaments are thought to be of fault origin based on the topographic cross sections and three-dimensional view (whale's eye view). The NE-SW trending lineament is parallel to the transform faults of the Parece Vela Basin whereas the NW-SE trending one is to the nearby unnamed transform fault on the subducting Pacific Plate. The rocks obtained by dredges hauls are harzburgite, boninite, basalt, andesite, gabbro breccia and sedimentary rocks, which characterize an island arc and an ocean lithosphere. New drillings at the small serpentinite knoll and at the flat area other than knoll show the in situ existence of serpentine mud as well as serpentinized peridotites as for the former and muds and mudstones as for the latter. The gravity measurement and seismic reflection survey offer neither definite gravity anomaly at the seamount nor definite internal structures beneath the seamount. The NW-SE trending fault and small scale serpentine flows were observed during the submersible dives and deep sea drilling at the Hahajima Seamount. The rectangular shape, size of seamount, various kinds of rocks and all the geophysical measurements strongly support that the Hahajima Seamount is not a simple serpentine seamount but a tectonic block unlike previously believed that was controlled by various tectonic movements. One possible model is transform cooking model, that is, a kind of tectonic inversion.