

Fault rocks of in situ lower crust dredged from the Godzilla Mullion, Parece Vela Basin (Philippine Sea)

Yumiko Harigane[1]; Katsuyoshi Michibayashi[2]; Yasuhiko Ohara[3]

[1] Shizuoka Univ.; [2] Inst. Geosciences, Shizuoka Univ; [3] Hydrographic and Oceanographic Dept.of Japan

The Godzilla Mullion, recently discovered within the Parece Vela Basin spreading ridge (Parece Vela Rift), Philippine Sea, is several times larger than oceanic core complexes found along the Mid-Atlantic Ridge. Rock samples dredged from a longitudinal section across the Godzilla Mullion consist dominantly of peridotite and gabbroic rocks, which are pervasively mylonitized, indicating intense shearing within deeper oceanic lithosphere that extends to lithospheric mantle. We selected the gabbroic rocks from KR03-01 of R/V Kairei, KH07-2-Leg 2 and 4 of R/V Hakuho in the Parece Vela Basin (KH07-2-Leg 2 and 4 were conducted for an IODP site survey during August to September 2007). The mineral composition of the gabbroic rocks vary from the D6 site to the D10 site, suggesting that these rocks resulted from several different magmatism, possibly related to the development of the Godzilla Mullion. Crystal-preferred orientation (CPO) of plagioclase shows an alignment of [100] axis parallel to the lineation and a girdle of (010) planes normal to the lineation. Hornblende CPO data show a strong concentration of [001] axis parallel to the lineation and (100) plane normal to the foliation. These gabbroic rocks demonstrate a number of remarkable features related to the development of the detachment fault within the Godzilla Mullion.