

Petrology and geochemistry of volcanic rocks on the Hakuho-maru Cruise KH-07-4 Leg 2, Southwest Indian Ridge 34-40E

Hiroshi Sato[1]; Ryoko Senda[2]; Kentaro Nakamura[2]; Shiki Machida[3]; Natsuki Neo[4]; Hidenori Kumagai[5]; Nobukazu Seama[6]; Kyoko Okino[7]

[1] School Business Administration, Senshu Univ.; [2] IFREE, JAMSTEC; [3] ORI, Univ.Tokyo; [4] none; [5] JAMSTEC; [6] Research Center for Inland Seas, Kobe Univ.; [7] ORI

The mid-ocean ridge process depends on a balance between spreading rate and melt supply. And the melt supply should reflect the physical and chemical character of mantle beneath the ridge. We target on the Southwest Indian Ridge 34-40E, because the spreading rate (ultraslow, ~15mm/yr) is the same along this long portion of the ridge. On the other hand, the eastern part of the area appears to have anomalously large melt supply maybe due to the proximity to the Marion hotspot but this effect does not seem to reach the western segments where each ridge axis has an offset along a series of fracture zones.

We performed in total 8 dredge hauls during the KH-07-4 Leg 2 cruise along western part of the Southwest Indian Ridge (SWIR). From west to east, 1 haul from segment between Marion and Prince Edward (MP) fracture zones (DR7), 1 haul from small ridge along Prince Edward fracture zone (DR8), 2 hauls from segment between Prince Edward and Eric Simpson (PE) fracture zones (DR1, DR2), and 4 hauls from segment between Eric Simpson and Discovery (ED) fracture zones.

The main results can be summarized as follows:

- (1) Small pieces of glass were recovered from segment center of west-PE segment (DR1).
- (2) Plagioclase porphyric basalts with aphyric to phyric basalts were recovered from edifices near ridge axis at east-PE and west-ED segments (DR2, DR4).
- (3) Fragments of relatively fresh lava flow including ropy lava were recovered from segment center of MP segment (DR7) and axial high at west-ED segment (DR6).
- (4) Fragments of peridotite in silt were recovered along Prince Edward fracture zone (DR8).