Reconstruction of seamounts by stratigraphy and geochemistry of greenstones in an accretionary complex in the Mitsuishi area, Hokkaido, Japan

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Seamounts and oceanic islands are ones of the common volcanoes on the earth. Their structures and growth processes have been modeled mainly by observation of deep sea drill cores and uplifted submarine volcanic complex (ex. Schmincke, 2010). However, modern volcanoes can provide limited information on their internal structure.
A large amount of greenstones occurs in the Kamuikotan zone of Hokkaido, Japan. Nakano&Komatsu (1979) interpreted that they originated from oceanic island alkali basalts based on the common occurrences of aegirine and kaersutite. While Kimura et al. (1994) assumed an oceanic plateau for their origin based on geochemistry of greenstones, plate tectonic reconstruction, and occurrences of chert xenoliths. Sakakibara et al. (1999) considered its age as Late Jurassic based on radiolarian fossils from chert xenoliths. Although their origins are still controversial, eruptive structures and stratigraphy preserved in the southern Kamuikotan zone will provide further knowledge on internal structure of intra-plate submarine volcanoes.
Therefore, this presentation tries to reconstruct volcanic structures from stratigraphy, eruptive and sedimentary features, and geochemistry of greenstones in the Kamuikotan zone of the Mitsuishi area.
The Futagawa unit along the Futagawa River, a tributary of the Mitsuishi River, is characterized by non-deformed greenstones associated with sedimentary rocks, and shear zones consisting mainly of pelitic mixed rock.
Greenstones in the Futagawa unit can be classified into slightly enriched mid-ocean ridge basalt (T-MORB), ocean island alkali basalt (OIA), and ocean island basalts showing a transitional composition of tholeiitic and alkaline series (OITB). The Futagawa unit is subdivided into sheets A, B, and C, bounded by the shear zones.
Sheet A consists of pillow lava of T-MORB and OITB, dolerite sills of OIA, and sedimentary rocks such as chert and clastic limestone at the bottom of the sequence. Therefore, it is speculated to have formed at a foothill of a volcano in the deep sea during the initial undersea volcano stage of ocean island formation. Sheet B consists of chert at the bottom, overlying pillow lava of relatively homogenous OITB, and large amounts of dolerite sill. It was considered to have formed at a deep sea foothill of the volcano in the shield volcano stage. Sheet C consists of vesicular lavas and pyroclastic rocks of OITB, with a dike crosscutting them. It suggests a central part of the undersea volcano at a relatively shallow level, although it is difficult to assign exact evolutionally stage.

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