

Geochemical feature of the basalt from the Iwatsubodani Formation in the Fukuji-Hitoegane area, Hida gaien belt, central

Kazuhiro Tsukada^{1*}, Manchuk Nurumkhaan²

¹Nagoya Univ. Museum, ²MUST

We describe the mode of occurrence and geochemical characteristics of the basalts of the Iwatsubodani Formation, Hida gaien belt, central Japan. The Iwatsubodani Formation includes two types of (1) basalt showing intersertal texture and (2) basalt showing porphyritic texture. These basalts greatly enriched in K, Rb, Fe, Th but reduced in Ti, P, and Nb in comparison to the composition of the mid ocean ridge basalt are clearly of island arc-type. In the discrimination diagrams with Ti and Zr, most of the data are plotted in the field of the low potassium volcanic-arc basalt. The basalts 1 and 2 are suggested to have been from magmas of tholeiite series and calc-alkaline series respectively by the SiO₂ vs. FeO* / MgO diagram and the MnO - TiO₂ - P₂O₅ diagram, and considering that, together with the Rb / K and Ba / Zr ratios, the basalt 1 has a BABB signature.

The lithological contrast between the Iwatsubodani Formation of basaltic rocks and the overlying Hitoegane and Yoshiki Formations of felsic tuffaceous rocks clearly indicates the rapid changing of magmatism from mafic to felsic in Ordovician. The Yoshiki Formation is overlain by the Lower Devonian to Carboniferous limestone of tropical lagoon. The Ordovician to Carboniferous stratigraphy in the Fukuji-Hitoegane area shows that the Ordovician - Silurian volcanism was likely to have been suddenly reduced to change from violent volcanic conditions to a quiet tropical lagoon in early Devonian.

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