[EE] Evening Poster | S (Solid Earth Sciences) | S-MP Mineralogy & Petrology

[S-MP34]Oceanic and Continental Subduction Processes

convener:REHMAN Ur Hafiz(Department of Earth and Environmental Sciences, Graduate School of Science and Engineering, Kagoshima University), Tatsuki Tsujimori(Tohoku University), Chin Ho Tsai
Sun. May 20, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
This international session aims at bringing earth scientists from Japan and overseas to present their research related to the processes of oceanic and continent subduction, continent-continent collisions, metamorphism of crustal rocks, formation of the oceanic/continental arcs, and accretion/ tectonic erosion of material along subduction boundaries.

Topics such as role of the fore- and back-arcs in the subduction zones, process of accretion of volcaniclastic and terrigenous sediments along the subduction/collision boundaries, deformation and metamorphism of subducted crust, recycling of material via tectonic erosion and exhumation will be the main focus of the session. Exchange of ideas among geoscientists applying different approaches on problems related to the theme of the session are most welcome.

[SMP34-P12]Whole-rock REE composition of the Miyazu granite

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Keywords:The Miyazu granite, batholith, rare earth elements

The Miyazu granite is distributed around northern part of Kyoto Prefecture and Hyogo Prefecture in southwestern Japan. It was formed during Late Cretaceous to Paleogene age and it is a batholith with a size of about 30 km in a diameter. It consists of coarse grained hornblende biotite granite in the middle to northern part and medium grained biotite granite in the southern part. K-Ar ages of the Miyazu granite are 64.8 ± 1.5 Ma and 67.2 ± 1.5 Ma (Nishigaki, 2010). Rb-Sr ages and initial Sr ratios of the Miyazu granite are determined by mineral and whole-rock isochron methods (Terakado and Nohda, 1993). These Rb-Sr ages are obtained by well-aligned two separated isochrones yielding ages of 61.9 ± 0.9 Ma and 60.4 ± 0.9 Ma with initial Sr ratios of 0.70725 ± 0.00003 and 0.70769 ± 0.00004, respectively. Such a difference in initial Sr ratios may suggest that the granite was not formed from a single original magma by simple crystal differentiation at the time of the emplacement. Recently, very few studies are done for the Miyazu granite in this area after the report of K-Ar ages and whole-rock chemical composition of major and trace elements by Nishigaki (2010).In this study, we focused on rare earth elements (REE) of the Miyazu granite to obtain petrogenetic information.The major and trace elements were measured by X-ray fluorescence spectrometry (XRF). The rare earth elements were measured by inductively coupled plasma-mass spectrometry (ICP-MS).In the major elements, SiO_2 content ranges from 64.4 to 74.0 wt.%. TiO_2, Al_2O_3, Fe_2O_3, MnO, MgO, CaO and P_2O_5 are decreased and Na_2O and K_2O are increased with increasing SiO_2. SiO_2 gradually increases from south to north within the batholith. In the trace elements, Th, Pb and Rb are increased and Sr, Zr, Zn, Co and V are decreased with increasing SiO_2. These elements make a trend on the Harker's diagram, however, the other elements do not show a clear trend. Chondrite-normalized REE patterns show rich in light rare earth elements (LREE) and a tendency to be decreasing to the heavy rare earth elements (HREE). Samples from north or south area show positive or negative Eu anomaly, and samples from middle area only show negative Eu anomaly. In south area, the degree of Eu anomaly show a trend of decreasing with increasing the total REE contents. However, this trend is not observed in north or middle area. It shows different trends on the La/Yb - CaO and La/Yb - Sr diagrams in each area. Based on the above results, it is considered that the Miyazu granite is not originated from a single parental magma.

References

T. Nishigaki, **2010**, KWANSEI GAKUIN University, School of Science and Technology, Graduate School of Science and Technology.

Y. Terakado, S. Nohda, **1993**, *Chemical Geology*, *109*, 69-87.