[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-P01]Pumpellyite-bearing retrograde mineral assemblage of the Yunotani eclogite and the areal extension of eclogite-facies metamorphism in the Omi area, Japan

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Keywords:Yunotani eclogites, blueschist-facies, pumpellyite, Omi Schists, Renge metamorphic belt, Late Paleozoic

Paleozoic glaucophane-bearing eclogites occur as mafic layers within a unit of paragonite- and garnet-bearing pelitic schist of the Omi Schists in the Yunotani valley, Omi area, Hida Mountains. Previous studies suggested a so-called 'hairpin'-type metamorphic evolution in which the epidote-blueschist-to-eclogite prograde mineral assemblage was recrystallized in the epidote-blueschist-facies. Our new observations, however, found retrograde pumpellyite coexisting with secondary glaucophane. The calculated phase diagram suggests that the pumpellyite + glaucophane assemblages is stable at a low temperature and pressure portion of the lawsonite-glaucophane stability. This is the second example of the occurrence of pumpellyite + glaucophane mineral assemblage in the Hida Mountains; the assemblage has been known only in the Kuzuryu area. The inferred retrograde pressure-temperature (P–T) path after the eclogite-facies metamorphism is similar to that of Paleozoic garnet-glaucophane schist with relict eclogite-facies mineral inclusions of the Osayama serpentinite mélange, Chugoku Mountains. These retrograde paths after eclogite-facies metamorphism in both Omi and Osayama requires a significant cooling and hydration during the exhumation history.

We have also examined the areal extension of eclogite-facies metamorphism in the Omi area using mineral assemblages of the pelitic schists. Previous studies of the Yunotani Valley revealed that the eclogite-hosted pelitic schist was characterized by the mineral assemblage garnet + paragonite + phengite ± ferroglaucophane + rutile + quartz. Our new exploration in the Kanayamadani Valley, located about 3 km south-east of the Yunotani Valley, confirmed abundant paragonite- and garnet-bearing pelitic schist. The calculated stability of the mineral assemblage in a P–T pseudosection overlaps with a P–T condition of the Yunotani eclogites. This supports the previous prediction of the areal extension of 'Eclogitic Unit' ; our study revealed that the Eclogitic Unit extends

at least 3 km from the Yunotani to the Kanayamadani Valley.