[EE] Evening Poster | U (Union) | Union

[U-02]Pacific-type orogeny: From ocean to mantle

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Pacific-type convergent margins (ocean - continent) and their related orogenic belts exist/form over subduction zones, which are the only ways to deliver surface materials to the deep mantle. Pacific-type orogens keep records of the evolution of paleo-oceans, formation and transformation of continental crust at their active margins, and generation of hydrous-carbonated plumes in the mantle transition zone (MTZ) and its related intra-plate magmatism. An approach linking paleo-oceans, active margins and plume magmatism stands on three "whales": the model of Ocean Plate Stratigraphy (OPS), the parameters of active convergent margins and the model of hydrous-carbonated plumes. The OPS model was created by many detailed studies of western Pacific, in particular Japanese, accretionary complexes; it allows recognizing different oceanic plates within one paleo-ocean and evaluating their sizes and ages. Pacific-type convergent margins are places of major continental growth by island-arc juvenile magmatism and accretion, but they are also places of strong plate interactions and crust destruction. There are two contrast types of those margins: accreting ones accompanied by the formation of accretionary complexes, and eroding ones accompanied by the tectonic and subduction erosion of accretionary wedge, fore-arc prism and volcanic arc. The materials of oceanic and continental crust, which are eroded at Pacific-type convergent margins, can accumulate in the MTZ and affect mantle conditions. All those processes, the subduction of hydrated and carbonated oceanic crust, the destruction of continental crust at eroding margins, and the accumulation of mafic and sialic materials in the MTZ can synergistically trigger the generation of hydrous-carbonated mantle plumes in the MTZ, mantle melting and upwelling, and intra-plate continental magmatism. We welcome papers on results from Pacific-type orogenic belts worldwide and from Archean to Cenozoic ages.

[U02-P03]Lawsonitology: *in-situ* LA-ICPMS Sr-Pb isotope analyses

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In order to better understand the geochemical contribution of subducting slab for the deep mantle, numerous geochemical considerations or interpretations for chemophysical processes occurring within the mantle throughout the Earth's history have been conducted based on the trace elements, stable isotope, and radiogenic isotope compositions of mantle-derived melt rocks. We have worked on a high-pressure mineral `lawsonite' that can be a proxy of Pb and Sr of a bulk subducting slab, especially of crustal lithologies. New trace-elements mass balance using a metabasaltic lawsonite eclogites confirmed the previous study that has suggested lawsonite can feature the bulk crust Pb-Sr isotope ratio due to its high concentration. Our new *in-situ* LA-ICP-MS Sr-Pb isotope analyses of lawsonite in Guatemalan lawsonite eclogites found that the preservation of original isotope signature in metabasalts and ancient seawater signature in a metachert. We also found isotope zoning in some lawsonite, indicating isotope modification by fluid-mediated metasomatism in the slab-mantle interface (or mantle wedge). We have also applied the same method to zoisite and clinozoisite and succeeded. Reconnaissance *in-situ* isotope analyses for hydrous Ca-Al silicate minerals have just begun. This method will bring new era for the studies of metamorphic rocks, consequently, convergent boundary and global

scale mantle processes. Systematic isotope study of Ca-Al hydrous silicate minerals, including lawsonite, pumpellyite and epidote, have a great potential to understand Earth's secular change.