[JJ] Evening Poster | S (Solid Earth Sciences) | S-GL Geology

[S-GL30]Geochronology and Isotope Geology

convener:Takahiro Tagami(Graduate School of Science, Kyoto University), Yuji Sano(Division of Ocean and Earth Systems, Atmosphere and Ocean Research Institute, University of Tokyo)
Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
Reliable reconstruction of geohistory is of primary importance to better envision the present and future of the Earth. Geochronology and isotope geology play major roles in the reconstruction. This session offers an opportunity to present the results of fundamental studies, including the developments / improvements of analytical methods and age calibration, as well as applications to the Earth and planetary materials. We particularly focus on: (1) radiometric dating, bio-stratigraphy, magneto-stratigraphy and stable isotopic time series that provide the age information, (2) radioisotopes and stable isotopes widely employed for analyzing the Earth and planetary systems and (3) hypothesis and numerical modeling that utilize / assimilate the age and isotopic data. We also welcome contributions that integrate a variety of relevant disciplines.

[SGL30-P01]Spatiotemporal evolution of magmatic pulses and regional metamorphism during a Cretaceous flare-up event: constraints from the Ryoke belt (Mikawa area, central Japan)

★ Invited Papers

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Keywords:U−Pb zircon dating, Flare-ups, low-P/T type metamorphism, Granite, Continental crust formation

The spatiotemporal relationship between granitoid intrusions and low-*P*/*T* type regional metamorphism in the Ryoke belt (Mikawa area, central Japan) is investigated to understand the evolution of the upper- to middle-crust during the Cretaceous flare-up event at the active Eurasian continental margin. Following three stages are recognized; (1) 99−84 Ma: the gneissose granitoid intrusions of the 99 Ma pulse (ca. 99-95 Ma) into the shallow crust and high-*T* regional metamorphism of the sillimanite-grade (97.0 ± 4.4 Ma to 88.5 ± 2.5 Ma) at the middle crust, (2) 81−75 Ma: the gneissose granitoid intrusions of the 80 Ma pulse into the middle crust, and (3) the voluminous massive to weakly-foliated granitoid intrusions of the 70 Ma pulse into ~9−12 km depths accompanied by contact metamorphic aureoles. Cooling of the metamorphic belt started at the final stage of (1). Between (2) and (3), entire regional metamorphic belt should be inclined to the north and exhumed to the depths of ~9−12 km. In spite of the temporal association, lack of spatial association between the highest-grade metamorphic zone and pre- to syn-metamorphic felsic plutons support transient thermal anomaly in the mantle and resulting heat conduction in the crust as a possible mechanism for the regional metamorphism. The successive emplacement of granitoids to shallow, deep and shallow levels of the crust is probably controlled by the thermal structure of the crust at each stage. The voluminous granitic continental crust formation and intrusion into the shallow levels of the crust at ca. 99−70 Ma in the Mikawa area probably reflects drastic and significant thermal/material input from the mantle at the active continental margin.