

The 424th Geodynamics Seminar

Estimate of subduction of island arcs to the deep mantle

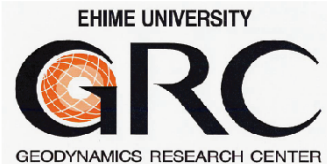
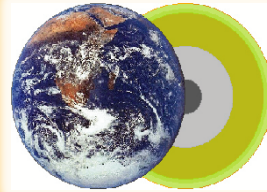
Dr. Hiroki Ichikawa (Postdoctoral Researcher, ELSI-ES, GRC)

Date: 10.2.2015 (Fri) 16:30 ~

**Venu: Meeting Room #486, Science
Research Bldg 1, Ehime Univ.**

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**場所: 愛媛大学 総合研究棟 I
4階 共通会議室**



Abstract

Evolution of life on the Earth is strongly related to the oceans and the continents, both of which are unique to the Earth. Continental materials contain a large amount of incompatible and radiogenic elements, which may affect terrestrial thermal history and chemical evolution, as well as the Earth's surface environment. Geological studies have revealed that continental materials subduct from the Earth's surface via the following three mechanisms: tectonic erosion, sediment subduction, and direct subduction of immature oceanic arcs, which are found, for example, in the western Pacific. In the first two processes, the continental materials are conveyed through subduction channels of thickness of 2-3km just above the subducting slabs. Here, in order to estimate the supply rate of continental materials of oceanic arcs to the deep mantle, we have conducted numerical simulations of subduction of arcs based on the finite element method, using relevant rheology models. The results show that the subduction rate highly depends on temperature profiles of the subducting slabs and the geometry of the arcs.