
[JJ] Evening Poster | B (Biogeosciences) | B-CG Complex & General

[B-CG10] Phanerozoic biodiversity change: Extinction and diversification

convener: Yukio Isozaki (Department of Earth Science and Astronomy, Multi-disciplinary Sciences - General Systems Studies, Graduate School of Arts and Sciences, The University of Tokyo), Yusuke Sawaki (The University of Tokyo)

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Biotic evolution was the consequence of repeated extinction and following diversification in the past, which was caused by large-scale environmental changes, in particular, by extremely rapid and drastic forcing that changed the environments of the biosphere. Irreversible and episodic changes in material cycling on the planet and in galactic cosmic radiation are nominated as major driving mechanism for the alleged rapid, large-scale environmental perturbations. The biodiversity change in the fossiliferous Phanerozoic record is characterized by 5 major mass extinctions within the long-term trend of diversity increase. Nonetheless, each extinction event has been explained rather in ad hoc manner, without any universal explanation. This session discusses the Phanerozoic biodiversity change under a new light of the recent progress in geology.

[BCG10-P05] Carbon-cycle perturbations in the deep lapetus during the Great Ordovician Biodiversification Event

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Keywords: Great Ordovician Biodiversification Event (GOBE), organic carbon isotopes, deep-sea bedded cherts, Scotland

The Ordovician represents a period of major biospheric change in the Earth history, including a long-term diversification followed by a short-term extinction; the latter has been linked to a global cooling episode. The three-fold increase in biodiversity of throughout the Ordovician is known as the Great Ordovician Biodiversification Event (GOBE), which has been a focus of numerous paleo-environmental investigations in the fossiliferous shallow-marine strata deposited along continental margins. However, strata of deep-sea facies have not been focused in previous paleo-environmental studies, although they occupied extensive oceanic domains.

Deep-sea bedded cherts in the Ballantrae accretionary complex in SW Scotland is appropriate for checking the Ordovician extinction-related paleo-environmental information in the deep lapetus Ocean. To examine the perturbations in C-cycle in the deep oceans during the GOBE, we preliminary report the organic carbon isotopic records from the Middle Ordovician deep-sea cherts at Bennane Head, Ballantrae Complex, SW Scotland.