

Potential impact event recorded in the deep-sea sediments at the Triassic/Jurassic boundary

Toru Fujiki[1], Rie HORI S.[2], Eriko Inoue[3], Jun-Ichi Kimura[4]

[1] Earth Science, Ehime Univ., [2] Dept. Earth Science, Ehime Univ., [3] Dept. Geoscience, Shimane Univ., [4] Dept. Geosci., Shimane Univ.

Platinum-group elements (PGEs) contained in deep-sea sediments are regarded to be one of the good geochemical markers for extraterrestrial impact events related with mass extinction. However, such the evidences have not yet been reported for the Triassic/Jurassic (T/J) boundary. We present analytical results of PGEs in bedded cherts from the Mino and Ashio Belts, which were deposited near the T/J boundary.

The stratigraphic position of T/J boundary in the bedded cherts was determined by the first occurrence of *Pantanelium tanuense* which is an index radiolarian fossil of Hettangian stage (the lowest Jurassic). Upper Triassic radiolarian fossils also disappears remarkably just below the T/J boundary. Instead, abundance of *Spumellaria* which have small spherical shells increase rapidly just above the T/J boundary. These characteristic faunal changes have been recognized in the Ashio Belt as well as in Queen Charlotte Island, Canada, and therefore are considered to be a global event. This boundary corresponds to an intercalation of marked event layer, which consists of a pair of yellow and red thin bands in green chert beds.

Ir, Ru, Pt and Pd (PGE) contents in bedded cherts are mostly less than 2ppb. Binary element ratio plots using PGEs (e.g., Ir/Al vs. Pt/Al) shows that ordinary cherts plot in the field of basalts and continental crust. In contrast, those of the event layer plot separately and fall within the impact melt rock field, which is intermediate between crustal and chondritic values. $\text{SiO}_2/\text{Al}_2\text{O}_3$, $\text{TotalFe}_2\text{O}_3/\text{Al}_2\text{O}_3$, and Ni/Al of the event layer are also extremely high, suggesting distinct nature of the layer. Based on the geochemical data and also REE patterns, the anomalous chemical properties of the event layer cannot be explained not by the supply extraordinary volcanogenic and terrigenous materials alone, but rather contamination of extraterrestrial materials as dust fluxes.