

## **Geochemical and Os isotopic studies on the pelagic Triassic-Jurassic mass extinction levels**

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A Triassic-Jurassic (T-J) bioevent is famous for one of the big five mass extinctions during Phanerozoic time, which has been considered to be caused by the Central Atlantic Magmatic Province (CAMP) volcanism. However our Os isotopic study on pelagic sequence [1] does not fit well to this hypothesis. We therefore have conducted high-resolution (100yr order) geochemical analyses on the pelagic T-J boundary strata from SW Japan, New Zealand and Europe to clarify its direct cause.

Three stepwise bioevents within 0.2 m.y., interval of the pelagic T-J boundary sequence have been recognized, acidic ocean event (e1), late Triassic conodont extinction (e2), and radiolarian (siliceous zooplankton) T-J faunal turnover (e3). The obtained Os isotope profile exhibits a small positive spike between from the (e1) to (e2), and enrichment of Ca and alkali metals such as K and Cs at the (e3) are detected.

These results suggest that the oceanic acidification (e1) made to decrease the primary production and/or extinctions which recorded in the latest Triassic negative spike of  $\delta^{13}\text{C}$ , and succeeding positive spikes of Os and  $\delta^{13}\text{C}$  isotopic ratios and high contents of alkaline elements resulted from high influx of terrestrial materials to ocean caused by acidic erosion. Finally T-J faunal turnover of Radiolaria (e3) occurred by alkaline ocean hardly making siliceous skeletons.

[1]Kuroda et al. (2010) *Geology*, 38, 1095-1098,