R004-P06
ポスター 2 ：9/25　AM1/AM2 （9:00-12:30）

#臼井　洋一 [1)]
([1] 金沢大学

Limited variations in North Pacific magnetofossils around the Cretaceous-Paleogene (K-Pg) transition

#Yoichi Usui[1)]
([1]Kanazawa University

Pelagic clays, particularly old ones, often contain a large proportion of biogenic magnetite produced by magnetosomes (magnetofossils). Many studies have reported octahedral grains as the dominant magnetofossil morphology in pelagic clay. A notable exception of bullet-shaped magnetofossils has been observed from sediments around Minamitorishima Island. The bullet-shaped magnetofossils are interpreted to reflect increased organic carbon flux. Such a condition may be found under the paleo-equatorial zone, corresponding to the latest Cretaceous for Minamitorishima. Alternatively, a large biological perturbation, such as the K-Pg transition, might have also affected the magnetofossil abundance. To test this latter hypothesis, we investigate sediments from DSDP Site 576, which lies around 10º North of Minamitorishima Island.

Previous studies identified the K-Pg transition as a peak in Ir content at 54.5 mbsf with a resolution of around 5 cm. Continuous magnetic susceptibility measurements using a touch sensor on the split surface detect a peak at 54.51 mbsf with a width of around 15 cm, which we interpret as the K-Pg boundary. We took discrete samples from 54.22 to 55.44 mbsf with approximately 1 cm resolution. First-order reversal curve diagrams show that the susceptibility peak corresponds to reduced relative contribution from the central ridge, indicating that the susceptibility peak reflects an influx of relatively coarse (“PSD”) magnetic grains, possibly as a spinel associated with impact spherules. Ferromagnetic resonance spectroscopy also reveals a more symmetric shape just at the K-Pg boundary. Otherwise, there is no clear indication of changing morphology of magnetofossils such as those observed around Minamitorishima Island. This result suggests that the distribution of bullet-shaped magnetofossils may be limited to the paleo-equatorial zone, suggesting a potential for a paleogeographic marker.