

R004-07

Zoom meeting A : 11/4 AM2 (10:45-12:30)

11:00-11:15

Paleomagnetism of sediment cores taken from the Ontong-Java plateau

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Abstract: We studied sediment cores taken from the Ontong-Java plateau and managed to extract the geomagnetic paleointensity variation from them. Relative paleointensity (RPI) variations are widely used to understand geomagnetic field behavior and to develop age models for sedimentary sequences. Biogenic and terrigenous magnetic components are considered as the two major components, but for RPI estimations it is conventionally assumed that these two contribute to the remanent magnetization acquisition in an identical manner. However our RPI estimation shows some intriguing results. Relative paleointensity normalized by ARM shows artificial downcore decreases, and it has an inverse correlation with the kARM/SIRM ratio, which suggests that as the proportion of biogenic to terrigenous magnetic components increases, the RPI record becomes weaker. So varying proportion of biogenic components may have considerable influence on RPI signal recording in the sediments. Moreover, NRM-ARM demagnetization diagrams show curvature, which can be interpreted as the coercivity distributions of NRM and ARM are different. Therefore, we tried to distinguish the different contributions of the biogenic and terrigenous components to the RPI record by recalculating NRM-ARM demagnetization slopes in relatively higher and lower alternating field intervals. If we assume that the higher coercivity component correspond to biogenic magnetites while the terrigenous component is in lower coercivity distributions as some previous studies did, NRM acquisition efficiency of the biogenic component may be lower than that of the terrigenous component. But our result contradicts with the previous studies using the similar method, and the reason remains to be studied. The purpose of our research is trying to figure out the mechanism how magnetic minerals derived from different sources contribute to the remanent magnetizations of sediments. Then, it is expected that influences on the relative paleointensity records brought by different proportions between the biogenic and terrigenous components in the sediments is able to be known.

Keywords: geomagnetic paleointensity; biogenic magnetite; coercivity distribution; Ontong-Java plateau