Japan Geoscience Union Meeting 2015
(May 24th - 28th at Makuhari, Chiba, Japan)

SGL38-05 会場:102B 時間:5 月 25 日 11:15-11:30

房総半島のブルン-松山地球磁場逆転境界における初生残留磁化極性の識別
Discrimination of primary remanent magnetization during Matuyama-Brunhes polarity transition

小田 啓邦 [1*] ; 七山 太 [1] ; 中里 裕臣 [2]
ODA, Hirokuni[1*] ; NANAYAMA, Futoshi[1] ; NAKAZATO, Hiroomi[2]

[1] 産業技術総合研究所, [2] 農業・食品産業技術総合研究機構
[1]Geological Survey of Japan, AIST, [2]National Institute for Rural Engineering

We report preliminary results of magnetostratigraphy from an outcrop in Boso Peninsula, which is considered to record Matuyama-Brunhes polarity transition. The outcrop is ?4m height, facing west and situated along a roadside in Terasaki, Chiba Prefecture, Japan. The sediment mainly consists of massive silt of Kokumoto Formation, Kazusa Group. The outcrop shows several tephra layers including TNTT (Byk-E) residing close to Matuyama-Brunhes polarity transition (Okada and Niitsuma, 1989).

In order to identify the polarity of primary remanent magnetization recorded, we have taken 55 paleomagnetic drill cores at intervals of 1?10 cm. Progressive alternating field demagnetization (PAFD) was conducted on all the sub-samples taken from the drill cores. The higher coercivity (>?20 mT) magnetization component has mostly positive inclination (normal polarity) and shows a swing to negative inclination (reversed polarity) at 76-91 cm below TNTT. Preliminary results of progressive thermal demagnetization shows sharp drop in remanent magnetization by heating up to 175 ℃. By heating above 175 ℃, magnetization decreases gradually up to 300-350 ℃ and becomes unstable above 300-350 ℃.

In order to understand the origin of instability during heating to 30-350 ℃, we have conducted progressive thermal demagnetization in combination with isothermal remanent magnetization acquisition. The results suggest the presence of (titano-)magnetite and greigite, and the production of magnetic mineral during heating above 200-350 ℃ in the laboratory.

Combination of thermal remanent magnetization up to 200 ℃ and further AF demagnetization was conducted in order to extract primary remanent magnetization hidden by the strong secondary magnetization and thermal instability, however, the extraction of primary remanent magnetization was not successful. Further improvements in demagnetization might be pursued to clarify the magnetization at the time of deposition free from later diagenesis.

キーワード: ブルン-松山地球磁場逆転境界, 熱消磁, 交流消磁, 低温消磁, 初生残留磁化, グレイガイト
Keywords: Matuyama-Brunhes polarity transition, thermal demagnetization, alternating field demagnetization, low temperature demagnetization, primary remanent magnetization, greigite