

カナダ・グレンビル岩脈 (570Ma) の古地磁気研究の予察的結果

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Preliminary paleomagnetic study of the 570Ma Grenville dike, Canada: toward a determination of Ediacaran paleointensity

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Recent numerical simulation for the long-term evolution of the geodynamo revealed that high heat flux at the core-mantle boundary (CMB) generates a continuous high virtual dipole moment of $6 \times 10^{22} \text{Am}^2$ throughout an Earth's history (nearly 3.8Ga - present) and that low heat flux at CMB shows secular weakening of the moment to less than $2 \times 10^{22} \text{Am}^2$. The PreCambrian paleointensity study can solve this enigmatic result but is still lack of reliable data due to heavy alteration and metamorphism. Although a single silicate grain paleointensity method is a best way for the study, more primitive but basic test to reveal a reliable primary thermal remanent magnetization is a full baked contact test with hybrid zones. The Grenville dike is of the Ediacaran Grenville dike swarm intruding tonalitic gneiss (1Ga) of the Grenville Structural Province (Ontario, Canada). Hyodo and Dunlop (1993) reported a successful result of full baked contact test with hybrid zone. The characteristic remanence component of the Grenville dike yields a virtual geomagnetic pole position at 51N and 145W, being different from the compiled VGP positions of the other Grenville dike (Murthy 1971). Therefore, we employ this dike to study the paleointensity of Ediacaran period. Nakayama (2010MS) reported a preliminary result of Thellier-Thellier type paleointensity measurement for the chilled margin samples of the 570Ma (40Ar/39Ar age) Grenville dike. Since he measured about 15 samples and the number of successful result is limited, I will present an additional data for the dike including more chilled margin samples.