

東南極大陸、ラングホブデ・日の出岬地域のリュツォホルム岩体の古地磁気情報

石川 尚人 [1]

[1] 京大・人環

Paleomagnetic information from Langhovde and Cape Hinode areas in the the Lutzow-Holm Complex, East Antarctica

Naoto Ishikawa[1]

[1] Human and Environmental Studies, Kyoto Univ.

Although East Antarctica had been considered to behave as a single craton in the period from the break-up of Rodinia to the formation of Gondwana continent, tectonic blocks with different movements have been suggested in East Antarctica recently. The Lutzow-Holm Complex (LHC), extending in the coastal region between longitudes 39 and 45E in East Antarctica, is a metamorphic belt of amphibolite to granulite facies. The LHC provides geochronological data of about 500 Ma, indicating that the LHC had suffered the Pan-African orogenic event related to the amalgamation of Gondwana members. Previous paleomagnetic data from East Antarctica has supported the amalgamation event. In order to re-examine tectonic movements in East Antarctica during the amalgamation process, paleomagnetic analyses has been performed on the LHC, and paleomagnetic results from Langhovde and Cape-Hinode blocks will be presented.

In Cape Hinode area, metamorphic rocks of granulite facies exist, whereas amphibolite facies metamorphic rocks are exposing in the surrounding areas. SHRIMP zircon ages of about 1.0 Ga were reported from the metamorphic rocks, and there are no evidence for ~500 Ma event in zircons in the rocks. Cape Hinode area has been thus regarded as an extraneous block (called Cape-Hinode block (CHB) in this study) in the LHC. Metamorphic rocks and intrusive rocks (granites, mafic dikes) were collected at 13 sites in Cape Hinode area. In Langhovde area, granitic rocks and metamorphic ones of granulite facies were collected at 42 sites.

Progressive thermal demagnetization analyses provided characteristic remanent magnetic components (ChRMs) carried by magnetite, which were isolated in high temperature above 500C, and site-mean directions of the ChRMs were obtained at 16 sites in Langhovde area and 5 sites in Cape Hinode area. The mean directions were well grouped in each area, and provided paleomagnetic poles close to mean paleomagnetic poles of 500 and 510 Ma in the synthetic APWP for East Gondwana. According to K-Ar and Ar-Ar mineral (hornblende and biotite) ages of 530-480 Ma from metamorphic rocks and pegmatites in Cape Hinode area, it is suggested that the CHB had been belonged to the LHC as well as Langhovde area at about 500 Ma, and that the LHC had constituted East Antarctica and East Gondwana at that time. It is implied that the CHB might have suffered a metamorphic event of granulite facies in a different region before 500 Ma.