

# Cordierite megacrysts in felsic gneiss from Botunnuten in southern Lützow-Holm Complex, East Antarctica

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Lützow-Holm Complex (LHC) is located in the vast area about 500 km between the Western Rayner Complex (WRC) and the Yamato Mountains and is a Cambrian orogenic belt with U–Pb zircon ages of 553–521 Ma (Shiraishi et al., 1994 ; 1997). Many studies have regarded the LHC as a collisional belt during the period of 600–500 Ma, that also extends through Sri Lanka, South India, and Madagascar (e.g., Shiraishi et al., 1994, 2008; Meert, 2003; Boger et al., 2015; Osanai et al., 2016). Recent studies focused on zircon age characterization of the protolith and precursory rocks, and proposed new geological provinces in the Lützow Holm Complex (Dunkley et al., 2014; Takahashi et al., 2018; Takamura et al., 2018). A clockwise metamorphic *P–T* path involving isothermal decompression (ITD) is considered to be applicable to the entire LHC. The ITD process is evidenced by the garnet-breakdown textures to form orthopyroxene and plagioclase symplectite (e.g., Hiroi et al., 1986; Santoshi & Yoshida, 1992; Takahashi et al., 2017; Takamura et al., 2020). In contrast, other ITD textures of garnet breakdown to form a cordierite-bearing association is not reported well except for the specific area (e.g., Rundvågshetta, and Akarui Point), and the cordierite itself is rare in the LHC. A recent study revealed that a progressive increase in metamorphic grade towards the southwest from Shinnan Rocks to Rundvågshetta is problematic based on the result of a local thermal event (ultra-high temperature condition) at Akarui Point (Iwayama et al., 2013) and P-T estimations by Zr-in rutile geothermometer (Suzuki and Kawakami, 2019). Therefore the reevaluation of the regional metamorphic process of the entire LHC is required. During the survey of JARE58, we visited an isolated inland nunatak of Botunnuten, which is located at 60km from the southern edge of the Lützow-Holm Bay. We found coarse-grained cordierite (up to 18 mm)–bearing felsic gneiss. This presentation reports petrography and preliminary metamorphic *P–T* path of the cordierite bearing gneiss.

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