

Metamorphic conditions and occurrences of Grt-Bt gneisses from Vesthovde higasi-iwa, Lützow-Holm Complex, East Antarctica

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The Lützow-Holm complex is exposed in the vast area from the eastern part of Droning Maud Land (35°E) to the western part of Enderby Land (45°E) in East Antarctica (Hiroi et al., 1991; Shiraishi et al., 1994). It is considered to represent the Ediacaran-Cambrian mobile belt. In recent years, several units have been classified based on U-Pb zircon ages and lithofacies (Takahashi et al., 2018; Takamura et al., 2018; Shiraishi et al., 2019; Dunkley et al., 2014; 2020). The divisions are mainly based on the result obtained by the rocks exposed around the Soya Coast; therefore, it is not fully understood.

Vesthovde is a small outcrop scattered on the east hill of Fletta Bay and far west of Lützow-Holm Bay. It is divided into Nishi-iwa, Naka-iwa, Kita-iwa, and Higashi-iwa. They are located about 20–17 km west of Austhovde, which corresponds to the western extension of the Rundvagshetta Suite in the classification of Dunkley et al. (2020). Since there is no report on the metamorphic age and metamorphic conditions of the gneisses in this area, its continuity is unclear. During the JARE 63 field survey, we investigated Vesthovde higashi-iwa, which is exposed over a relatively large area. It is mainly composed of dark brown orthopyroxene-biotite gneiss, accompanied by garnet-biotite gneiss, leucocratic biotite gneiss, mafic granulite, calcsilicate and pegmatite. The foliation shows a northeast-southwest trend and dips moderately to the southeast. Orthopyroxene-biotite gneiss rarely contains garnet. Garnet-biotite gneiss is layered adjacent to leucocratic gneiss, but layers rich in sillimanite and hercynite are occasionally observed. In this presentation, the occurrence of garnet-biotite gneiss and metamorphic temperature-pressure conditions estimated from garnet-biotite-hercynite-sillimanite gneiss and garnet-orthopyroxene biotite gneiss by means of isocheimal modeling and geothermobarometers are introduced.

References

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