

The first report of the occurrence and petrography of garnet-orthopyroxene granulite from Oku-iwa Rock in the Lützow-Holm Complex, East Antarctica

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The Lützow-Holm Complex (LHC) exposed along the Prince Olav Coast and around the Lützow-Holm Bay, East Antarctica, is composed of high-grade metamorphic rocks and intrusive rocks (e.g., Hiroi et al., 1983). The LHC is characterized by the southwestward increase in metamorphic grade from amphibolite- to granulite-facies with clockwise pressure-temperature paths and high- to ultrahigh-temperature metamorphic conditions during *ca.* 650–500 Ma (Hiroi et al., 1983; Shiraishi et al., 1994; Motoyoshi and Ishikawa, 1997; Hokada and Motoyoshi, 2006; Yoshimura et al., 2008; Dankley et al., 2014).

Oku-iwa Rock on the Prince Olav Coast is far from the Syowa Station by *ca.* 70 km toward east and located in the transitional zone between amphibolite- and granulite-facies zones (Hiroi et al., 1983). The area consists of hornblende-biotite gneiss, migmatitic biotite-hornblende gneiss and leucocratic biotite gneiss with various degree of migmatitization and folding (Nakai et al., 1981). The granitoid intruding into hornblende-biotite gneiss in the northwest part gives the Rb-Sr isochron age of 480 ± 50 Ma (Nishi et al., 2002).

The short field survey in Oku-iwa Rock was operated in the 60th Japanese Antarctica Research Expedition. Our geological team discovered the occurrence of garnet-orthopyroxene granulite from its central part situated nearby the boundary between hornblende-biotite gneiss and migmatitic biotite-hornblende gneiss on the geological map. The granulite occurs as a lenticular block (*ca.* 3 m length and 1.5 m width) with orientating along the foliation of host migmatitic felsic gneiss. The garnet porphyroblast associated with symplectite can be observed by naked eye only at the center of the block. Toward the margin, garnet and orthopyroxene are replaced by biotite+plagioclase symplectite and orthoamphibole, respectively. The margin is just composed of hornblende, biotite and plagioclase without symplectite. The detail petrography will be shown in the presentation, and the implication of the occurrence and petrographic characteristics of garnet-orthopyroxene granulite from Oku-iwa Rock will be discussed.

References

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