

# Geologic nature and evolution of Western Rayner Complex, with reference to Point Widdows charnockite and its localized hydration process

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The Western Rayner Complex is Neoproterozoic-Cambrian metamorphic terrane exposed in the coastal area of western Enderby Land in East Antarctica, and is separated by the Archaean Napier Complex/Mesoproterozoic Rayner Complex to the east and the Neoproterozoic-Cambrian Lützow-Holm Complex to the west. This area was originally a part of Proterozoic Rayner Complex (e.g., Ravich and Kamenev, 1975; Sheraton et al., 1987), but was later considered to be the late Neoproterozoic to Cambrian reworked western margin of the Mesoproterozoic Rayner Complex (e.g., Kelly et al., 2002). However, the lack of c.900 Ma Rayner event in these area (Shiraishi et al., 1997) and the recent SHRIMP U-Pb zircon ages (Horie et al., 2016) suggested that the Western Rayner Complex is not the reworked part of the Rayner Complex but the an independent Cambrian high-grade metamorphic terrane with mixed protolith ages of either ~780Ma or 2500 Ma. Harley et al. (1990) and Motoyoshi et al. (1995) indicated UHT peak metamorphic conditions and a clockwise P-T trajectory for pelitic rocks from Forefinger Point in the Western Rayner Complex. Apart from the UHT metamorphosed pelitic rocks in Forefinger Point, other lithologies and localities are mostly charnockitic rocks, typical of granulite-facies orthogneisses. No kyanite inclusions have been reported for rocks in the Western Rayner Complex including the UHT gneiss, and is a marked difference from the adjacent Lützow-Holm Complex rocks commonly having prograde kyanite inclusions throughout the area.

This presentation will summarize the geologic nature and available geochronologic data from the Western Rayner Complex, and will present the petrological data of charnockite and its localized hydration process in Point Widdows where we have conducted geologic field survey in 2016 (JARE 58).

## References

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