

エンダビーランド：南極域の大陸の進化と分裂のダイナミクスを探る鍵

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Enderby Land: key for understanding the dynamics of continental evolution and breakup in the Antarctic region

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Dynamics of continental formation, evolution and fragmentation is one of fundamental questions in Earth science. The Antarctic Continent is comprised of a substratum that formed over a period of 4 billion years, and traces of the Gondwana supercontinent fragmentation can be found on the seafloor of the Antarctic Ocean that surround the Antarctic continent. Therefore, the Antarctic region is ideal field for studying continental evolution since Archaean and fragmentation process as well as seafloor spreading evolution during the initial breakup of supercontinent.

We propose research plan combined with geological and geophysical method for elucidating continental evolution and fragmentation process. The target area of geological studies are Napier and Rayner Complexes in the Enderby Land formed during Archaean-Proterozoic, and focused on Archaean-Proterozoic crustal formation and continental evolution. On the other hand, geophysical studies such as seismic structures and magnetic anomalies are centered on estimation of inland extension of geological structures and tectonic provinces by using aircraft and research vessel around the Enderby Land. Seafloor spreading evolution associated with the breakup of the Gondwana around this region is also deduced from potential and seismic structural studies. Our research project will elucidate tectonic history and evolution and fragmentation of the continent since Archaean around the Enderby Land from integrated studies with geology and geophysics, and provide new constrains on global dynamics.

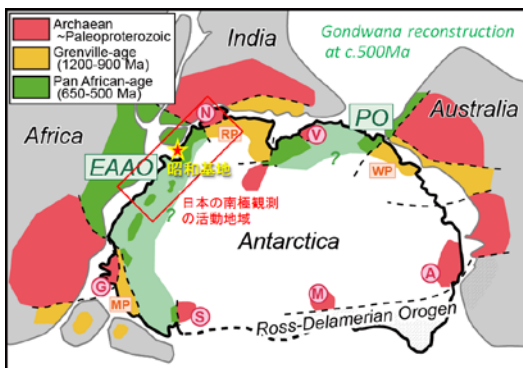


Figure 1. Antarctica and the surrounding continents at 550Ma.

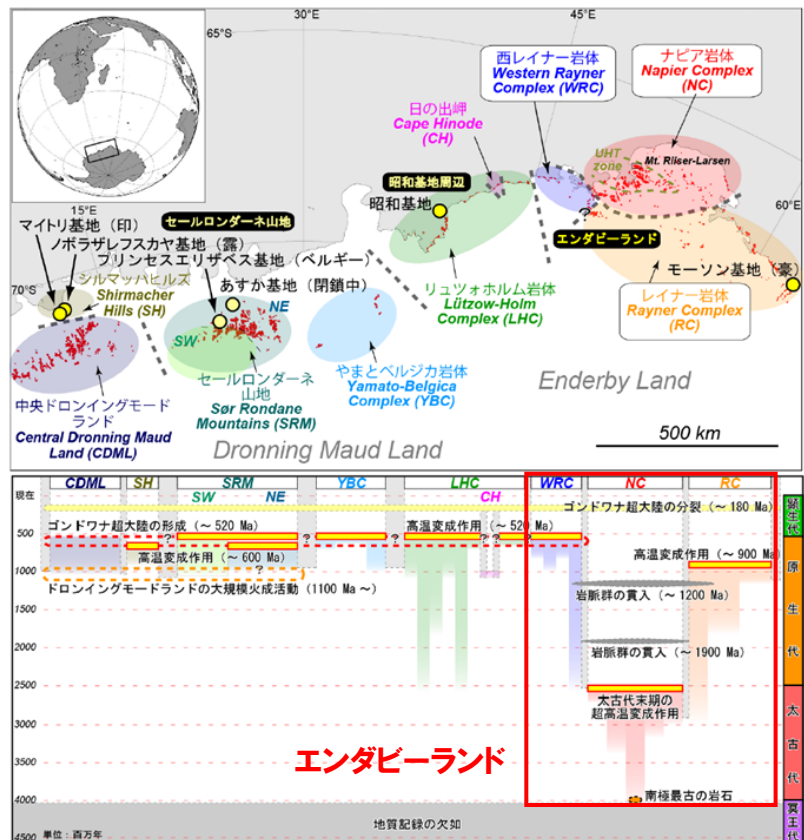


Figure2. Summary of the geologic terrains in central-eastern Dronning Maud Land to Enderby Land, East Antarctica (modified after Shiraishi et al., 2008).

References

Shiraishi, K. et al., Geochronological constraints on the Late Proterozoic to Cambrian crustal evolution of eastern Dronning Maud Land, East Antarctica: a synthesis of SHRIMP U–Pb age and Nd model age data, In: M. Satish-Kumar et al. eds., Geological Society of London Special Publications, 308, 21-67, 2008.