

## Preliminary reports of U-Pb zircon age of charnockites in Aker Peaks of the Napier Complex, East Antarctica

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The Napier Complex in East Antarctica has attracted considerable interest on account of its long Archaean crustal history from 3800 Ma to 2500Ma as well as position in Precambrian supercontinents as well as its extremely high peak metamorphic temperature (UHT: ultra-high temperature), which exceeds 1100 °C. The discovery of extremely ancient crustal material of ca. 4000Ma obtained by Pb-Pb isochron in the Fyfe Hills (Sobotovich et al., 1976) generated intense interest in the Napier Complex. Similar evidences of ancient crustal materials were reported for the Mt. Sones and Gage Ridge region (Black et al., 1986; Harley and Black, 1997). Belyatsky et al. (2011) reported Eoarchean U-Pb zircon age of  $3981 \pm 8$  Ma from charnockites in Aker Peaks. In this study, we report preliminary geochronological and geochemical data of zircons collected from two charnockite samples of Aker Peaks.

The sample #22a is phlogopite-bearing orthopyroxene-mesoperthite-charnockite and contains zircon, monazite and rutile as accessory mineral. Phlogopite replaces orthopyroxene forming symplectites with quartz. The sample #36a is phlogopite-bearing orthopyroxene-mesoperthite-cataclastic charnockite and contains zircon as accessory mineral. Plagioclase is replaced by mesoperthite which is corroded by quartz. The zircon grains separated from both samples were analyzed using a sensitive high-resolution ion microprobe (SHRIMP) at National Institute of Polar Research.

Both samples show Paleoarchean to Eoarchean evidence. The sample #22a yielded two age peaks centered at ca. 3600 Ma and ca. 3500 Ma. The former is the protolith age and the latter indicates the timing of recrystallization. On the other hand, some zircon grains in the sample #36a shows core-rim structure. The age data are scattered from >3700 Ma to 3300 Ma and major age peak is ca. 3630 Ma. The Pb-Pb age of rim is ca. 2500 Ma, which corresponds to the timing of UHT metamorphism. The results are consistent with previous report that early high-temperature metamorphic event accompanied by the emplacement of granodiorite intrusions occurred in the vicinity of Aker Peaks at 3620-3630 Ma. Further geochemical information such as trace element concentrations including rare earth elements will be demonstrated.

Keywords: Napier Complex, U-Pb zircon, Antarctica, SHRIMP