

Bedrock mapping, zircon U-Pb geochronology and Lu-Hf isotopes of the Archaean Kirkenes Gneiss Complex, Kola Craton

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The Kirkenes Gneiss Complex in the northwesternmost Kola Craton is a little-studied part of the Fennoscandian Shield. This master's project intends to supplement the current knowledge of this Archaean domain, including an increased understanding of both magmatic and metamorphic evolution and correlation between the various studied units.

The study area is located northeast of the town of Kirkenes, Northern Norway. Field work was conducted across units that earlier literature describes as the the Kirkenes Granitic Gneiss complex (Siedlecka et al. 1985), the metasupracrustal Jarfjord/ Kola gneiss (Siedlecka et al. 1985) and the Ropelv-type quartz monzonite/syenite (Siedlecka & Nordgulen. 1996). Sampled units include TTG gneisses, metasupracrustal gneisses, mafic and felsic intrusive bodies as well as mafic dykes.

Work conducted in the project thus far includes mapping and sampling, as well as zircon mineral separation. Zircon has been gathered from a total of 27 samples and will be used for U-Pb geochronology and the Lu-Hf isotope analyses to constrain melt evolution and crustal growth. Further methods that will be applied include whole-rock geochemistry and thin sections for mineral identification. The first results are expected in November 2023.

References

- Siedlecka, A. Krill, A.G. Often, M. Sandstad, J.S. Solli, A. Iversen, E. & Lieungh, B., 1985: Lithostratigraphy and correlation of the Archean and Early Proterozoic rocks of Finnmarksvidda and the Sørvaranger district. *NGU Bulletin* 403, 7-36.
- Siedlecka, A. & Nordgulen, Ø., 1996: Berggrunnskart Kirkenes 1:250 000. Norges geologiske undersøkelse.