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# LITHOGEOCHEMICAL CHARACTER OF MAFIC AND ULTRAMAFIC PLUTONICS IN NORTHERN SWEDEN

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Northern Sweden is dominated mainly by Paleoproterozoic rocks. Igneous activity during the Svecofennian orogeny (1.93–1.87 Ga) created vast amounts of both volcanic and plutonic rocks within and around the Archaean craton. Post-orogenic 1.80–1.77 Ga granitoids were formed later within the same region. it has Distinguishing between the different mafic and ultramafic members of such plutonic suites was proven problematic during bedrock mapping . Geochronology may be of use to discriminate between suites; however, it is not a cost-efficient method for dealing with large amount of samples. The mafic and ultramafic rocks have three dominating suites, the Haparanda suite (1.94–1.85 Ga), the Perthite-monzonite suite (PMS) (1.87 Ga) and the Edefors suite (1.80–1.79 Ga). This study focuses primarily on Rare Earth Elements (REE's) and trace element geochemistry to trace the distribution and distinguish between the three mafic and ultramafic suites as a tool for geochemical mapping of the northern bedrock.

Lithogeochemical data (e.g. major elements, REEs and trace elements) covering the majority of northern Sweden gathered during bedrock mapping was provided by the Geological Survey of Sweden (SGU). Plutonic rocks ranging from gabbros to quartzdiorites and monzonites comprised nearly 80 analyses. Normalized spider plot patterns of REEs and trace elements served as a basis for subdivision into groups by similarities in key identification parameters. Several patterns are characterized by a pronounced Eu – trough while the middle – to HREEs display a rather flat trend, criteria that are related to rocks from the Haparanda suite, while samples with positive Eu-anomaly (Eu/Eu* > 1) and a nearly flat trend from La to Pr with a marked positive peak at Sr and generally less enriched in LILE, are consistent with the Edefors suite. An approximately uniformly depleted trend throughout the HREE with a slight concave upward shape from the LREEs towards the HREEs and an

apparent enrichment in Sr and Nd and depletion in P could relate to either the Haparanda or the PMS suite. Among the others, statistical methods will be used to compare the correlation between the REEs within the datasets to find suitable elements for further analysis and thereby assigning the groups to appropriate suites, thus, the distribution of rock based on key tracers for related suites will be presented accordingly.