
**Geology of Proterozoic anorthosite intrusions in the
Nain Plutonic Suite, Nain Bay area, Labrador**

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The Nain Plutonic Suite (NPS) comprises a 19 000 km², undeformed, Proterozoic massif type anorthosite terrane, dominated by anorthositic and granitic rocks, with subordinate amounts of troctolite, ferrodiorite, and monzonite. Emplacement occurred between 1.36-1.30 Ga, with no subsequent regional deformation, making the NPS one of the best exposed, undeformed Proterozoic anorthosite suites in the world. The discovery of the NPS-related Voice's Bay ore deposit, in the mid 90s, has highlighted the economic importance of understanding anorthosite magmatism, which remains one of the last great remaining puzzles in igneous petrology.

Three summers of fieldwork on the NPS, covering over 400 km² immediately west of the town of Nain, have been compiled at a scale of 1:20 000. The study area straddles a previously defined, major petrographic division in the NPS, between orthopyroxene-bearing anorthosite in the west, and olivine bearing anorthosite in the east. The area includes parts of four major anorthosite intrusions, as well as scattered bodies of ferrodiorite, quartz monzonite, granite, and country rock. Though there are significant structural and compositional differences between igneous bodies, most appear to be composite, fracture-controlled bodies, with broadly similar components.

Extremely coarse-grained anorthosite interiors are surrounded by marginal leuconorite, gabbro-norite, ferrodiorite, and monzonite sheets. Petrography and new mineral chemistry data will be discussed under the context of the presented mapped plutonic units. New major, trace and isotope geochemistry data will also be presented, and will be used to better define plutonic units identified in the field. New geochronological data will be presented, and will be used to argue for active shearing during emplacement of NPS bodies.
