

GEOLOGICAL MAP OF LABRADOR



SYMBOLS

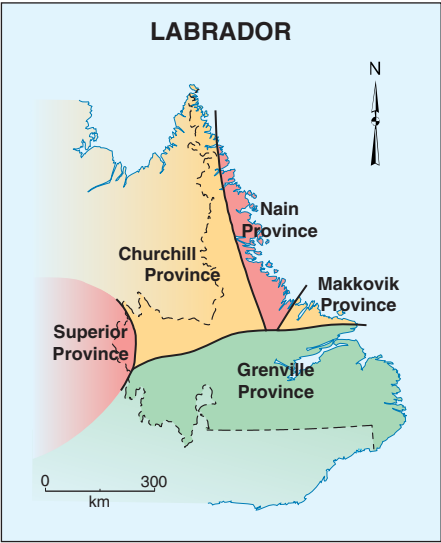
| | |
|--|--|
| Geological contact | |
| Boundaries of areas covered only by pre-1970, reconnaissance-scale mapping | |
| Thrust or reverse fault (teeth represent dip direction); major, minor | |
| Thrust fault reactivated as normal fault | |
| Normal fault (pattern indicates downthrown side); major, minor | |
| Transcurrent fault (arrows indicate displacement sense); major, minor | |
| Fault (sense of displacement unknown); major, minor | |
| Ductile shear zone; (arrows indicate sense of displacement where known) | |

Recommended Citation: Wardle, R. J., Gower, C. F., Ryan, B., Nunn, G. A. G., James, D. T., and Kerr, A., 1997. Geological Map of Labrador; 1:1 million scale. Government of Newfoundland and Labrador, Department of Mines and Energy, Geological Survey, Map 97-07.

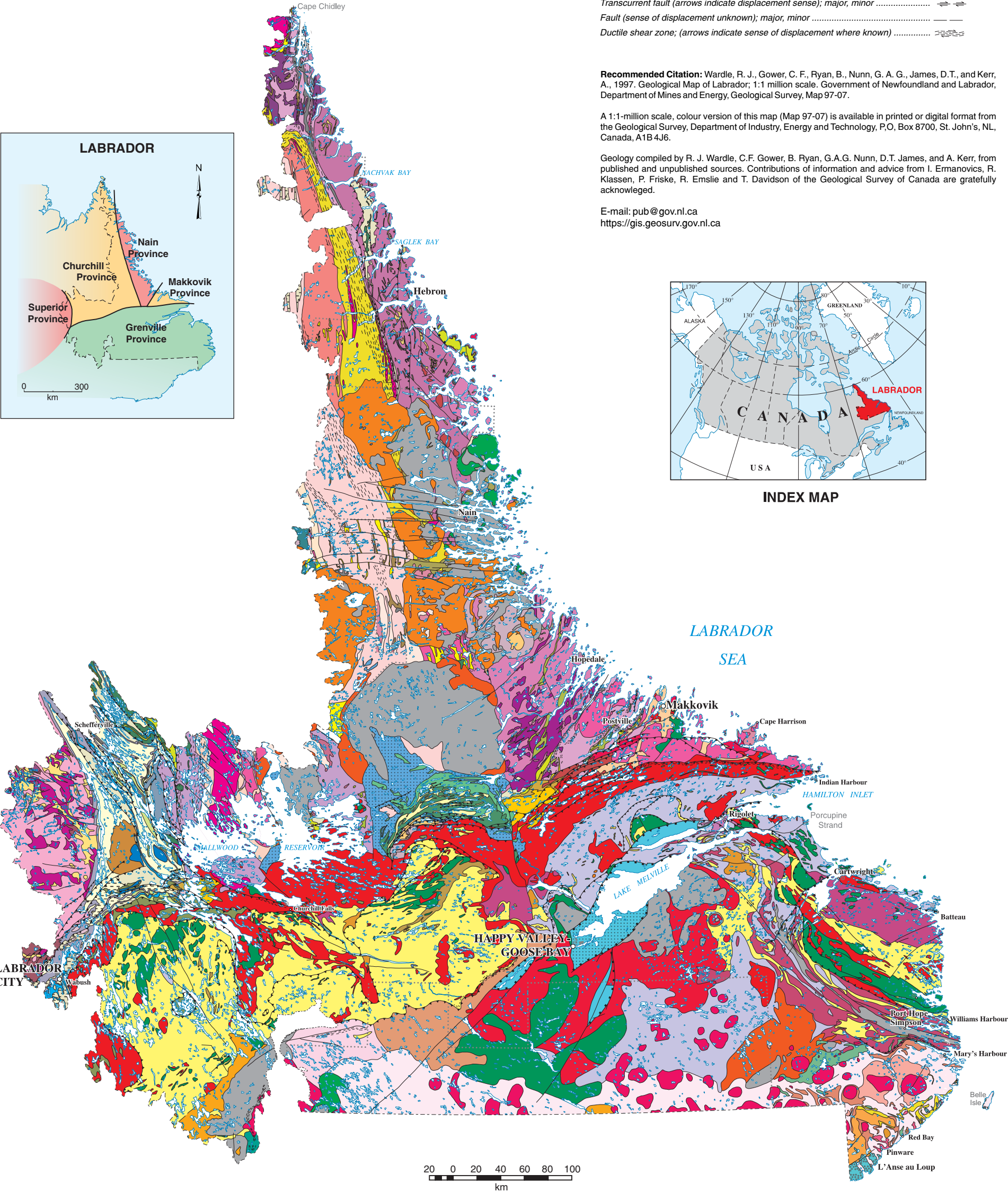
A 1:1-million scale, colour version of this map (Map 97-07) is available in printed or digital format from the Geological Survey, Department of Industry, Energy and Technology, P.O. Box 8700, St. John's, NL, Canada, A1B 4J6.

Geology compiled by R. J. Wardle, C.F. Gower, B. Ryan, G.A.G. Nunn, D.T. James, and A. Kerr, from published and unpublished sources. Contributions of information and advice from I. Ermanovics, R. Klassen, P. Friske, R. Emslie and T. Davidson of the Geological Survey of Canada are gratefully acknowledged.

E-mail: pub@gov.nl.ca
<https://gis.geosurv.gov.nl.ca>



INDEX MAP



LEGEND

| Age (numerical limits in Ma) | | STRATIFIED ROCKS (including metamorphosed extensions of units) | | IGNEOUS ROCKS (including metamorphosed extensions of units) | | METAMORPHIC ROCKS | |
|---------------------------------|--------------------------------|---|---|--|---|---|--|
| EON | ERA | SUB-ERA | | | | | |
| PROTEROZOIC | PHANEROZOIC | Tertiary [T] | <div>Tm</div> Impact breccia and melt sheets [<i>Mistastin Lake crater</i> ; 39 Ma Ar-Ar age, northern SECP] | | | | NOTES |
| | | Neo-proterozoic-Cambrian NC | <div>NCs</div> Sandstone and nodular limestone; local basalt at base of sequence [<i>Labrador Gp</i> ; <i>Strait of Belle Isle</i> area, southeastern GP] | | | | |
| | 545 | NEO-PROTEROZOIC [N] | <div>Ns</div> Arkose and conglomerate [<i>Double Mer Fm.</i> , <i>Lake Melville rift system</i> , northeastern GP] (dots indicate inferred extent under Quaternary cover) | | | | |
| | MESOPROTEROZOIC [M] | Late Mesoproterozoic [M ₃] | | <div>Grenville Province</div> <div>M₃gs</div> Late- to posttectonic granite and syenite plutons [1080 to 956 Ma, southern GP] <div>M₃gs?</div> - Inferred posttectonic granitoid plutons [areas of southern GP mapped only at reconnaissance level] <div>M₃mg</div> Monzonite to granite [<i>Pinware terrane</i> , southeastern GP] <div>M₃gr</div> Syenite to granite [<i>Pinware terrane</i> , southeastern GP] <div>M₃g</div> Granitoid rocks [1133 to 1123 Ma] <div>M₃a</div> Anorthosite and other, locally layered, mafic rocks <div>M₃ga</div> Gabbroic plutons <div>Anorthosite - monzonite - charnockite-granite suite [e.g., <i>Atkonak River massif</i>, western GP]</div> | | | |
| | | | Middle Mesoproterozoic [M ₂] | <div>Grenville, Southeastern Churchill and Nain provinces</div> <div>M₂s</div> Siltstone, shale and quartzite, minor dolomite <div>M₂mv</div> Subaerial basalt flows <div>M₂sg</div> Arkose, grading south into quartzite <div>M₂pv</div> Peralkaline felsic volcanic rocks [e.g., <i>Letitia Lake Gp.</i> , 1327 Ma, northern GP; <i>Flowers River Igneous Suite</i> , ca. 1291 Ma, northern NP] <div>e.g., <i>Seal Lake Gp.</i>, southern SECP and northern GP</div> | <div>Grenville, Southeastern Churchill and Nain provinces</div> <div>M₂ga</div> Gabbro sills [e.g., <i>Seal Lake Gp.</i> , 1250 to 1224 Ma, north-central GP] <div>M₂gr</div> Granite plutons [e.g., <i>Upper North River pluton</i> , ca. 1296 Ma, GP] <div>M₂pg</div> Peralkaline granite and syenite intrusions, locally with ring structure [<i>Strange Lake intrusion</i> , 1240 Ma, SECP; <i>Flowers River igneous suite</i> , ca. 1290 Ma, NP; <i>Red Wine Intrusive Suite</i> , ca. 1337 Ma, north-central GP] <div>M₂as</div> Alkaline syenite and metamorphic equivalent rocks [<i>Red Wine Intrusive Suite</i> , north-central GP] <div>M₂g</div> Granitoid rocks, including rapakivi varieties [1351 to 1292 Ma] <div>M₂a</div> Anorthositic rocks [1331 to 1305 Ma] <div>M₂mga</div> Intermediate rocks, chiefly ferrodiorite [1333 to 1301 Ma] <div>M₂tga</div> Layered intrusions of troctolite, gabbro, norite and anorthosite [1322 to 1305 Ma] <div>Anorthosite - monzonite - charnockite - granite suites [Nain Plutonic Suite, NP and eastern SECP]</div> | | |
| | | Early Mesoproterozoic [M ₁] | <div>Grenville and Southeastern Churchill provinces</div> <div>M₁ga</div> Olivine gabbro and metamorphic equivalents, including coronitic varieties [<i>Shabogamo and Michael gabbros</i> , ca. 1480 to 1425 Ma, northern GP; southwestern SECP] <div>M₁g</div> Granitoid rocks [1500 to 1420 Ma] <div>M₁a</div> Anorthosite and other, locally layered, mafic rocks <div>M₁tga</div> Layered gabbro - anorthosite - ultramafite intrusions [e.g., <i>Kyfanan Lake intrusion</i>] <div>M₁aq</div> Arkose, quartzite and minor conglomerate [<i>Sims Fm.</i> , northwestern GP, southern SECP] | <div>Grenville and Southeastern Churchill provinces</div> <div>M₁ga</div> Olivine gabbro and metamorphic equivalents, including coronitic varieties [<i>Shabogamo and Michael gabbros</i> , ca. 1480 to 1425 Ma, northern GP; southwestern SECP] <div>M₁g</div> Granitoid rocks [1500 to 1420 Ma] <div>M₁a</div> Anorthosite and other, locally layered, mafic rocks <div>M₁tga</div> Layered gabbro - anorthosite - ultramafite intrusions [e.g., <i>Kyfanan Lake intrusion</i>] <div>M₁qd</div> Quartz diorite [<i>Rigolet quartz diorite</i> , 1489 Ma, eastern GP] <div>Anorthosite - monzonite - charnockite - granite suites [Harp Lake, Michikamau and Mistastin suites, SECP; Upper Paradise River intrusion, southeastern GP]</div> | | | |
| | 1600 | PALEO-PROTEROZOIC [P-M] | <div>Grenville Province</div> <div>P-Msv</div> Metasedimentary and felsic volcanic rocks [1650 to 1450 Ma, <i>Pinware terrane</i> , southeastern GP] | <div>Grenville Province</div> <div>P-Mg</div> K-feldspar-megacrystic granitoid plutons <div>P-Msy</div> Syenite, monzonite and diorite <div>P-Mgs</div> Granite, syenite, monzonite, diorite and derived gneiss [1650 to 1450 Ma]; P-Mgs? - rocks of inferred similar age and composition in areas mapped only at reconnaissance level [southeastern GP] <div>P-Mga</div> Gabbro and derived amphibolite [southwestern GP] | | | <div>Grenville Province</div> <div>P-Mgn</div> Gneisses of possible mixed composition and age [area of southern GP mapped only at reconnaissance level] |
| | 1600 | Late Paleoproterozoic [P ₃] | <div>Grenville Province</div> <div>P₃lv</div> Rhyolitic to andesitic volcanic rocks including ash-flow tuff and agglomerate [e.g., <i>Bruce River</i> and <i>Blueberry Lake gps.</i> , ca. 1650 Ma] <div>P₃vs</div> Volcaniclastic sandstone, arkose and conglomerate [e.g., <i>Bruce River</i> and <i>Blueberry Lake gps.</i>] <div>Volcanogenic rocks related to Trans-Labrador batholith; ca. 1650 Ma, northern GP</div> | <div>Grenville, Nain and Makkovik provinces</div> <div>P₃gr</div> Granite, quartz monzonite, granodiorite, syenite and minor quartz diorite [e.g., ca. 1650 Ma; <i>Trans-Labrador batholith</i> and coeval rocks in GP and MP] <div>P₃g</div> Granitoid rocks [1645 to 1626 Ma; including some ca. 1780 to 1720 Ma rocks] <div>P₃a</div> Anorthosite and other, locally layered, mafic components [1645 to 1625 Ma] <div>P₃ga</div> Mafic intrusive suites (gabbro-norite, lesser diorite), some metamorphosed at amphibolite to granulite facies [e.g., <i>Adavik Intrusive Suite</i> , 1649 Ma, MP; <i>White Bear Arm</i> and <i>Ossok Mountain suites</i> , ca. 1650 to 1623 Ma, GP] <div>P₃tga</div> Layered gabbro, troctolite and anorthosite, generally recrystallized [<i>Bridges intrusion</i> , 1667 Ma Sm-Nd age, central NP] <div>P₃t</div> Quartz diorite to granodiorite plutons <div>P₃gm</div> K-feldspar megacrystic granite and other granitoid plutonic rocks <div>P₃eg</div> High-level, locally fluorite-bearing granites [1776 to 1719 Ma, northeastern NP and MP] | <div>Anorthosite - monzonite - charnockite - granite suites [Mealy Mountains and North West River intrusive suites, GP]</div> <div>Early Labradorian rocks [1680 to 1660 Ma; eastern GP and central SECP]</div> | | <div>Grenville Province</div> <div>P₃ggn</div> Granitic orthogneiss, commonly migmatitic, locally includes pre-Labradorian ca. 1780 to 1720 Ma rocks in the <i>Mealy Mountains</i> terrane; P ₃ ggn? - inferred granitic orthogneiss <div>P₃gdn</div> Granodioritic orthogneiss (lesser quartz dioritic and granitic orthogneiss), commonly migmatitic; P ₃ gdn? - inferred granodioritic orthogneiss (s.l.); may include Mesoproterozoic rocks <div>P₃mgn</div> Mafic gneiss, probably of supracrustal origin, mainly at granulite facies [e.g., <i>Beaver gneiss</i>] <div>P₃sgn</div> Pelitic, migmatitic metasedimentary gneiss and minor psammitic gneiss at amphibolite to granulite facies [e.g., <i>Disappointment Lake gneiss</i> , central GP] <div>P₃dm</div> Dolomitic marble and calc-silicate rock |
| | 1800 | | <div>Southeastern Churchill, Makkovik, Nain and Grenville provinces</div> <div>P₂mfv</div> Basalt, andesite, dacite and conglomerate [<i>Ingrid Gp.</i> , ca. 1900 Ma, eastern SECP] <div>P₂lv</div> Rhyolite, ash-flow tuff, breccia and hypabyssal rhyolite intrusions; volcaniclastic siltstone and sandstone; minor basalt [e.g., <i>Upper Allik Gp.</i> , ca. 1860 to 1807 Ma, MP] <div>P₂nmv</div> Basaltic flows, breccias and pyroclastic rocks of predominantly subaerial origin [<i>Mugford Gp.</i> , ca. 1950 Ma, northern NP] <div>P₂pmv</div> Pillow basalt, basaltic pyroclastic rocks; minor siltstone and greywacke [<i>Doublet Gp.</i> , western SECP; <i>Petscapiskau Gp.</i> , central SECP] <div>P₂mva</div> Schistose amphibolite derived from mafic volcanic rocks [<i>Moran Lake</i> and <i>Lower Allik gps.</i> , MP] <div>P₂as</div> Arkosic siltstone and sandstone, locally dolomitic [<i>Knob Lake Gp.</i> , western SECP] <div>P₂st</div> Siltstone - shale - greywacke sequences of deep water, turbiditic origin [upper <i>Knob Lake Gp.</i> western SECP]; sts - Schistose equivalent rocks [upper <i>Knob Lake Gp.</i> , western GP] <div>P₂amv</div> Alkaline basalt flows, pyroclastic rocks and local peralkaline felsic volcanic rocks; minor ultramafic rocks [<i>Knob Lake Gp.</i> , 1877 Ma, western SECP] <div>P₂l/is</div> ls - Cherty ironstone and underlying quartzite [<i>Knob Lake Gp.</i> , western SECP] is - Schistose to gneissic equivalent rocks [<i>Knob Lake Gp.</i> , western GP] <div>P₂d/dm</div> d - Dolomite and chert breccia [<i>Knob Lake Gp.</i> , western SECP] dm - Equivalent dolomitic marble [<i>Knob Lake Gp.</i> , western SECP] <div>P₂mv</div> Massive to pillowed basalt flows [<i>Knob Lake Gp.</i> , ca. 2142 Ma, western SECP] <div>P₂sh</div> Sh - Shale and sandstone of shallow- to deep-water origin [lower <i>Knob Lake Gp.</i> , western SECP; <i>Ramah</i> , <i>Mugford</i> and <i>Snyder gps.</i> , northern SECP and NP; <i>Moran Lake Gp.</i> , MP] ss - Equivalent pelitic schist [lower <i>Knob Lake Gp.</i> , GP; <i>Petscapiskau Gp.</i> , central SECP; <i>Lake Harbour Gp.</i> , northern SECP; lower <i>Allik Gp.</i> , MP] <div>P₂ac</div> Arkose and conglomerate [<i>Knob Lake Gp.</i> , western SECP] | <div>Southeastern Churchill, Makkovik and Nain provinces</div> <div>P₂t</div> Tonalite, granodiorite and lesser granite [1910 to 1885 Ma, northern SECP; <i>Island Harbour Bay Plutonic Suite</i> , ca. 1805 Ma, MP] <div>P₂g</div> Granite and granodiorite [1840 to 1795 Ma, central SECP and MP] <div>P₂cg</div> Orthopyroxene-bearing tonalite to granite plutons [<i>Killinek suite</i> , 1909 to 1830 Ma, northern SECP; <i>De Pas batholith</i> , 1830 to 1810 Ma, central SECP] <div>P₂u</div> Ultramafic sills [<i>Retty Peridotite</i> , western SECP] <div>P₂ga</div> Gabbro and leucogabbro sills [e.g., <i>Wakuach Gabbro</i> , ca. 1884 to 1874 Ma, western SECP; MP] <div>P₂eg</div> Granite plutons [ca. 2134 Ma, locally 2032 Ma, northern NP; 1973 to 1891 Ma, MP] | | <div>Southeastern Churchill and Makkovik provinces</div> <div>P₂ggn</div> Granitic gneiss [northern SECP] <div>P₂tgn</div> Tonalite, granodiorite and monzogranite gneiss; minor amphibolite, calc-silicate and felsic (metavolcanic?) gneiss [<i>Cape Harrison Metamorphic Suite</i> , MP] <div>P₂mgn</div> Mafic gneisses of mixed intrusive and extrusive origin [SECP] <div>P₂cg-gn</div> Mixture of granitic to tonalitic metaplutonic rocks, supracrustal gneiss and tonalitic gneiss, at granulite facies [<i>Lac Lomier complex</i> , ca. 1840 to 1830 Ma, northern SECP] <div>P₂sgn</div> Migmatitic, quartz - feldspar - sillimanite - biotite - graphite metasedimentary gneiss, mainly mylonitic [<i>Tasiuyak gneiss</i> , 1940 to 1895 Ma detrital ages, northern SECP] <div>P₂sgn</div> Pelitic metasedimentary gneiss, minor marble and calc-silicate rock [northern SECP] | |
| | 2100 | Early Paleoproterozoic [P ₁] | | <div>Southeastern Churchill Province</div> <div>P₁ga</div> Gabbro-norite and derived gneiss [part of the granitic to gabbroic <i>Pallatin</i> intrusive suite; ca. 2300 Ma; central SECP] | | | |
| 2500 | ARCHEAN-PALEOPROTEROZOIC [A-P] | | <div>Southeastern Churchill Province</div> <div>A-Pa</div> Anorthosite, leucogabbro, leuconorite and derived gneiss [e.g., <i>Hutton anorthositic suite</i> , northern SECP] <div>A-Pg</div> Granite [central SECP] | | <div>Southeastern Churchill Province</div> <div>A-Pggn</div> Granitic gneiss [northern SECP] <div>A-Ptgn</div> Orthogneiss and associated migmatite of tonalite - granodiorite - granite composition [northern SECP] <div>A-Pmgn</div> Mafic gneisses derived from gabbroic intrusions and metavolcanic rocks [northern SECP] <div>A-Psgn</div> Pelitic gneiss, minor marble and calc-silicate rock [northern SECP] <div>A-Pgn</div> Undifferentiated gneiss [parts of northern SECP mapped only at reconnaissance level] | | |
| 2500 | | <div>Southeastern Churchill Province</div> <div>A₁mv</div> Mafic metavolcanic, metasedimentary and metagabbroic rocks [central SECP] | <div>Southeastern Churchill and Makkovik provinces</div> <div>A₁a</div> Anorthosite and leucogabbroic rocks [central SECP and MP] | | | | |
| ARCHEAN [A] | NEOARCHAIC [AN] | | <div>Nain and Superior provinces</div> <div>ANcg</div> Late- to posttectonic charnockite plutons [<i>Kammasuit granite</i> , northern NP] <div>ANg</div> Granitoid plutons and derived gneiss [<i>Ashuanipi Complex</i> , SP] <div>ANga</div> Gabbroic plutons [<i>Ashuanipi Complex</i> , SP] <div>ANt</div> Tonalite, quartz diorite and minor diorite [<i>Ashuanipi Complex</i> , SP] | | <div>Superior, Southeastern Churchill and Grenville provinces</div> <div>ANrgn</div> Tonalitic and other gneisses reworked under retrograde metamorphic conditions during Grenvillian orogenesis [rocks equivalent to the <i>Ashuanipi Complex</i> , western GP] <div>ANmt</div> Metatonalite and tonalite gneiss at granulite facies [<i>Ashuanipi Complex</i> , 2696 to 2669 Ma, SP] <div>ANGgn</div> Granitic gneiss [central SECP] <div>ANDgn</div> Diatexite of granodiorite - monzogranite composition; minor metasedimentary gneiss, tonalite and mafic gneiss; generally at granulite facies [<i>Ashuanipi Complex</i> , 2685 to 2650 Ma, SP] <div>ANtgn</div> Metatonalite and tonalite gneiss [2682 to 2675 Ma, central SECP] <div>ANsgn</div> Metasedimentary quartz - feldspar - biotite ± garnet gneiss; generally migmatitic and at granulite facies [ca. 2700+ Ma detrital ages, SP; central SECP] | | |
| | | 2800 | <div>Southern Nain and Makkovik provinces</div> <div>AMmv</div> Mafic volcanic and volcaniclastic rocks, lesser sedimentary and felsic volcanic rocks, and mafic - ultramafic sills; at greenschist to amphibolite facies [<i>Florence Lake</i> and <i>Hunt River gps.</i> , ca. 3000 Ma; southern NP and equivalent rocks in northern MP] | <div>Southern Nain Province (Hopedale block)</div> <div>AMgd</div> Granodiorite, tonalite and minor granite [<i>Kanairiktok Intrusive Suite</i> , ca. 2850 to 2830 Ma] | <div>Southern Nain and Makkovik provinces</div> <div>AMrgn</div> Tonalitic and other gneisses reworked and retrograded during Makkovikian orogenesis [MP] <div>AMtgn</div> Tonalitic to granodioritic migmatitic orthogneiss containing abundant mafic to ultramafic inclusions and relict mafic dykes [e.g., <i>Maggo gneiss</i> , ca. 3200 to 2800 Ma, southern NP] <div>AMmgn</div> Mafic gneisses including rocks of intrusive and extrusive origin [southern NP] | | |
| | 3200 | | <div>Northern Nain Province (Saglek block)</div> <div>APa</div> Anorthosite, leucogabbroic and minor ultramafic rocks, usually in deformed, layered suites | <div>Northern Nain and Southeastern Churchill provinces</div> <div>APrgn</div> Tonalitic and other gneisses reworked and retrograded during Paleoproterozoic orogenesis [northern SECP] <div>APTgn</div> Tonalitic to granodioritic migmatitic gneisses containing abundant mafic to ultramafic inclusions and relict mafic dykes [e.g., <i>Uvak gneiss</i> , ca. 3800 to 3600 Ma], plus minor Mesoproterozoic rocks [northern NP] <div>APmgn</div> Mafic gneisses including rocks of intrusive and extrusive origin [northern NP] <div>APsgn</div> Pelitic metasedimentary gneiss, lesser marble, quartzite, ironstone and amphibolite-mafic granulite [e.g., <i>Upernivik</i> and <i>Nulliak suites</i> , northern NP] | | | |
| 4000 | EO- to PALEO-ARCHAIC [AP] | | | | | | |