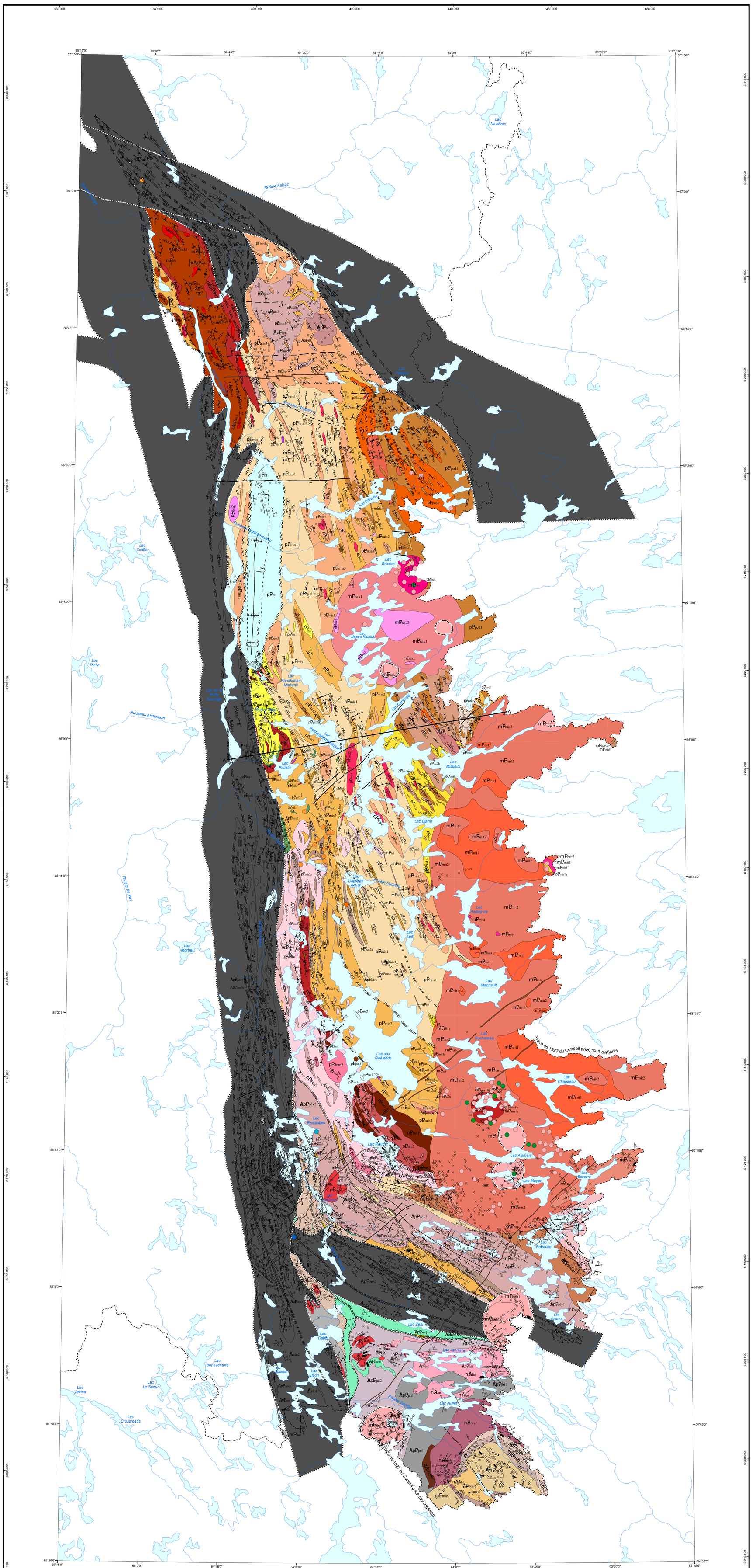
Mistinibi-Raude lithotectonic domain, southeastern Churchill Province, Nunavik, Quebec, Canada: geological synthesis



STRATIGRAPHIC LEGEND

CHURCHILL PROVINCE
MISTINIBI-RAUDE LITHOTECTONIC DOMAIN
MESOPROTEROZOIC

Lac Brisson Pluton (1240 ±2 Ma, Miller *et al.*, 1997)
- mPbri — Massive fine-grained light grey aegirine-riebeckite alkali feldspar granite

Slippery Dykes (1268.5 ±3.5 Ma, Corrigan *et al.*, 2015)
- mPsp — Subophitic, massive and medium-grained olivine gabbro

Harp Dykes (1273 ±1 Ma, Cadman *et al.*, 1993)
- mPhar — Ophitic, massive and very fine to medium-grained olivine gabbro

Falcoz Swarm
- mPfal — Subophitic, massive and fine-grained olivine gabbro and olivine gabbronorite

Slanting Dykes
- mPsla — Subophitic fine to very fine-grained amphibole-clinopyroxene-magnetite-epidote gabbro

Misery Syenite (1409.7 ±1.2 Ma, David *et al.*, 2012)
- mPmsy1 — Fine to coarse-grained fayalite-hedenbergite quartz syenite; minor amounts of ferrosyenite
  - mPmsy1b — Quartz syenite containing ferrosyenite enclaves
  - mPmsy1a — K-feldspar porphyritic fayalite quartz syenite

Napeu Kainut Suite
- mPnak2 — Massive biotite-hornblende granite
- mPnak1 — Homogeneous massive biotite-hornblende-clinopyroxene ± orthopyroxene mangerite and quartz monzonite

Mistastin Batholith (1439.3 ±2.3 - 1423.3 ±1.8 Ma, Kerr and Hamilton, 2014)
- mPmit5 — Massive anorthosite and associated mafic rocks
  - mPmit5a — Leucogabbronorite and leucogabbro
- mPmit4 — Massive pink leucocratic granite and syenogranite
- mPmit3 — Massive medium-grained hornblende-biotite quartz monzonite and quartz syenite
  - mPmit3a — Biotite-hornblende granite; biotite-hornblende-olivine-magnetite monzonite, quartz monzonite and syenite layers; minor amounts of amazonite pegmatitic granite
- mPmit2 — Massive K-feldspar porphyritic biotite-hornblende quartz syenite and syenogranite, locally rapakivi
  - mPmit2a — Massive K-feldspar porphyritic biotite-hornblende quartz syenite and syenogranite, rapakivi
- mPmit1 — Massive K-feldspar porphyritic biotite-hornblende-clinopyroxene quartz syenite and hypersthene syenogranite, locally rapakivi

Michikamau Suite (1469 ±1 Ma, Kerr and McNicoll, 2010)
- mPmic5 — Magnetic massive gabbronorite and gabbro; sparse leuconorite
- mPmic4 — Massive leuconorite and gabbronorite; sparse gabbro
- mPmic3 — Massive medium to coarse-grained anorthosite, gabbro and gabbronorite
- mPmic2 — Massive coarse-grained anorthosite containing irregular decimetric leuconorite clusters
- mPmic1 — Massive coarse-grained leucotroctolite; minor amounts of gabbro dykes

Juillet Syenite (1479.9 +12.6/-5.4 Ma, David *et al.*, 2012)
- mPjui2 — Homogeneous massive biotite-fayalite-magnetite gabbro
- mPjui1 — Massive clinopyroxene alkali feldspar syenite; local enclaves of paragneiss, iron formation and mafic volcanics; sparse centimetric monzonite dykes

Ramusio Granite (1481.7 ±4.3 Ma, David *et al.*, 2012)
- mPram1 — Even-grained biotite ± hornblende ± fluorite granite
  - mPram1a — K-feldspar porphyritic biotite ± hornblende ± fluorite granite

PALEOPROTEROZOIC

Dumans Suite (1808 ±17 Ma, David, personal communication, 2018)
- pPdmn2 — Homogeneous medium-grained biotite-sphene-epidote ± hornblende monzogranite and granodiorite
- pPdmn1 — Homogeneous leucocratic biotite-muscovite-epidote ± hornblende granite

Hutte Sauvage Group (<1987 ±7 Ma, Corrigan *et al.*, 2018)
- pPht — Muscovite-hematite-specularite conglomeratic meta-arkose and meta-arenite; muscovite-hematite schist; minor amounts of muscovite-specularite granite

Mistinibi Complex (<2220 Ma, Godet *et al.*, 2018)
- pPmis4 — White muscovite-garnet-biotite granite containing paragneiss enclaves
- pPmis3 — K-feldspar-biotite ± garnet diatexite derived from paragneiss
  - pPmis3a — K-feldspar-biotite-hypersthene diatexite derived from paragneiss
- pPmis2 — Migmatized biotite-garnet paragneiss
  - pPmis2a — Biotite-garnet-sillimanite paragneiss; marble and quartzite layers
- pPmis1 — Migmatized granoblastic biotite potassic paragneiss
  - pPmis1a — Migmatized granoblastic biotite-hypersthene potassic paragneiss

Déat Suite
- pPdea2 — Homogeneous medium-grained biotite-magnetite granite
- pPdea1 — Porphyraceous biotite ± hornblende granodiorite, monzogranite and quartz monzodiorite

Résolution Suite
- pPrso2 — Speckled pyroxene-hornblende-magnetite ± biotite mangerite; minor amounts of charnockite and opdalite
  - pPrso2a — Speckled pyroxene-garnet-hornblende-magnetite ± biotite mangerite
- pPrso1 — Even-grained fine-grained hypersthene gabbronorite and diorite; amphibolitized magnetite gabbro
  - pPrso1a — Even-grained fine-grained garnet gabbronorite

Lac Cabot Suite
- pPcab — Porphyroclastic to augen biotite-hornblende-epidote-magnetite monzonite and granite; minor amounts of quartz monzodiorite

Pelland Suite (2322 ±5 Ma, 2320 ±21 Ma, Corrigan *et al.*, 2018)
- pPped4 — Heterogeneous gneissic biotite-magnetite ± hornblende granite
- pPped3 — Foliated biotite-magnetite-orthopyroxene-garnet charnockite; foliated chlorite-epidote-magnetite granite
- pPped2 — Granoblastic pyroxene-biotite-magnetite jotunite and opdalite, generally porphyraceous
- pPped1 — Granoblastic fine-grained pyroxene-biotite ± amphibole gabbro and gabbronorite
  - pPped1a — Foliated hypersthene quartz diorite and enderbite

Raude Suite (2332.8 ±4.5 Ma, David, personal communication, 2018)
- pPrae3 — Porphyroclastic biotite-amphibole-pyroxene quartz monzonite
- pPrae2 — Homogeneous speckled hornblende-pyroxene-biotite diorite; minor amounts of quartz diorite and quartz monzonite
- pPrae1 — Fine to medium-grained pyroxene-amphibole gabbronorite

Pallatin Intrusive Suite (2343.7 ±5 Ma, 2332 Ma, Girard, 1990; David, personal communication, 2018)
- pPpal3 — Foliated to mylonitic porphyraceous biotite-hornblende quartz monzodiorite and granodiorite
- pPpal2 — Homogeneous fine to medium-grained pyroxene-amphibole metagabbronorite and metagabbro
  - pPpal2a — Homogeneous fine to medium-grained pyroxene-amphibole-garnet metagabbronorite and metagabbro
- pPpal1 — Homogeneous medium to fine-grained amphibole metawebsterite

Complexe de Ntshuku (2373 ±7 Ma, 2373.7 ±2.8 Ma, Corrigan *et al.*, 2018; Davis and Sutcliffe, 2018)
- pPnts3 — Impure marble, calcosilicate rocks; minor amounts of mafic and intermediate metavolcanics
- pPnts2 — Massive or banded amphibolitized basalt
- pPnts1 — Metavolcaniclastics, augen schist and gneiss, quartz-feldspar porphyry

ARCHEAN TO PALEOPROTEROZOIC

Zeni Complex (2480 ±11 Ma, Clark *et al.*, 2008)
- ApPzen3 — Foliated homogeneous fine-grained biotite garnet ± muscovite ± hypersthene paragneiss
  - ApPzen3b — Pyrrhotite ± chalcopyrite paragneiss and sulphide facies iron formation layers
  - ApPzen3a — Fine to medium-grained biotite-muscovite ± garnet ± sillimanite ± tourmaline schist
- ApPzen2 — Felsic to intermediate biotite-garnet-magnetite ± hornblende mylonite; minor amounts of amphibolite
- ApPzen1 — Fine-grained pyroxene-magnetite ± garnet ± quartz ± biotite amphibolite

Nekuashu Suite (2514.5 ±1.1 Ma, David, personal communication, 2018)
- nApPnek3 — Foliated biotite-epidote ± hornblende syenogranite and quartz syenite
- nApPnek2 — Foliated fine-grained hornblende-biotite monzodiorite and monzogabbro
- nApPnek1 — Homogeneous purplish amphibole-biotite-clinopyroxene-epidote monzodiorite, leucogabbro, monzogabbro and anorthosite

Terriault Complex
- ApPter2 — Foliated homogeneous hornblende-biotite-hypersthene enderbite
- ApPter1 — Enclave-rich heterogeneous biotite-hornblende granodiorite and tonalite

La Pinaudière Granite (2571 +6/-5 Ma, James *et al.*, 2003)
- nAlai — Porphyroclastic to augen coarse-grained biotite-hornblende-sphene-magnetite ± garnet granite and quartz monzonite

Brass Intrusion (2581 +10/-3 Ma, James *et al.*, 2003)
- nAbrs2 — Homogeneous augite-hornblende-fayalite-hypersthene-magnetite olivine gabbro
- nAbrs1 — Homogeneous even-grained biotite-amphibole-hypersthene enderbite; minor amounts of opdalite and hypersthene diorite

Advance Complex
- ApPadv3 — Foliated medium-grained biotite-hornblende-epidote monzodiorite and quartz diorite
- ApPadv2 — Banded biotite-hornblende-sphene-epidote monzogranitic and monzodioritic gneiss
  - ApPadv2a — Banded mylonitized biotite-hornblende ± garnet ± pyroxene monzogranite, diorite, quartz diorite, tonalite and granite
- ApPadv1 — Hornblende-biotite-sphene-epidote dioritic to quartz dioritic gneiss
  - ApPadv1a — Foliated hornblende-biotite diorite and quartz diorite

Jannière Complex
- ApPjai2 — Leucocratic biotite-magnetite ± hornblende tonalite; minor amounts of foliated granite and granodiorite
- ApPjai1 — Foliated to mylonitic, locally migmatitic, biotite-hornblende ± garnet tonalitic and granitic gneiss

Elson Complex
- Aelo2 — Banded biotite-hornblende-muscovite granitic gneiss
- Aelo1 — Banded biotite-hornblende-muscovite tonalitic gneiss

PROSPECTIVE ZONE FOR MINERAL EXPLORATION

- Rare earth elements

STRUCTURAL DOMAIN

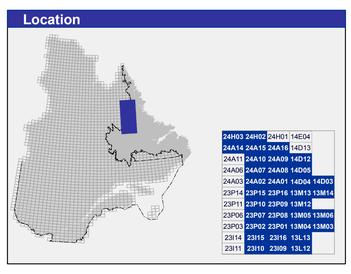
- Shear zone

SHOWING AND DEPOSIT

- Silver, copper, rare earth elements, molybdenum
- Nickel, niobium, gold, thorium
- Uranium, vanadium, zirconium
- A —— A' Structural section

Symbols and abbreviations used on this map are described in the DV 2014-06 publication of the Ministère de l'Énergie et des Ressources naturelles.

Location



Metadata

Geodetic reference frame :	GRS 80 ellipsoid
Geodetic reference system :	NAD 83 compatible with the world geodetic system WGS 84
Cartographic projection :	Universal Transverse Mercator (UTM), zone 20
Original longitude :	64°15'
Original latitude :	0°

Border

– – – – – – Quebec - Newfoundland and Labrador border (this boundary is not final)

0 5 10 15 20 25km

1/250 000

Sources

Data

Base de données géographiques et administratives (BDGA 1M)

Organization

Ministère de l'Énergie et des Ressources naturelles

Realization

Geology : Isabelle Lafrance et Benoit Charette (2018)

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