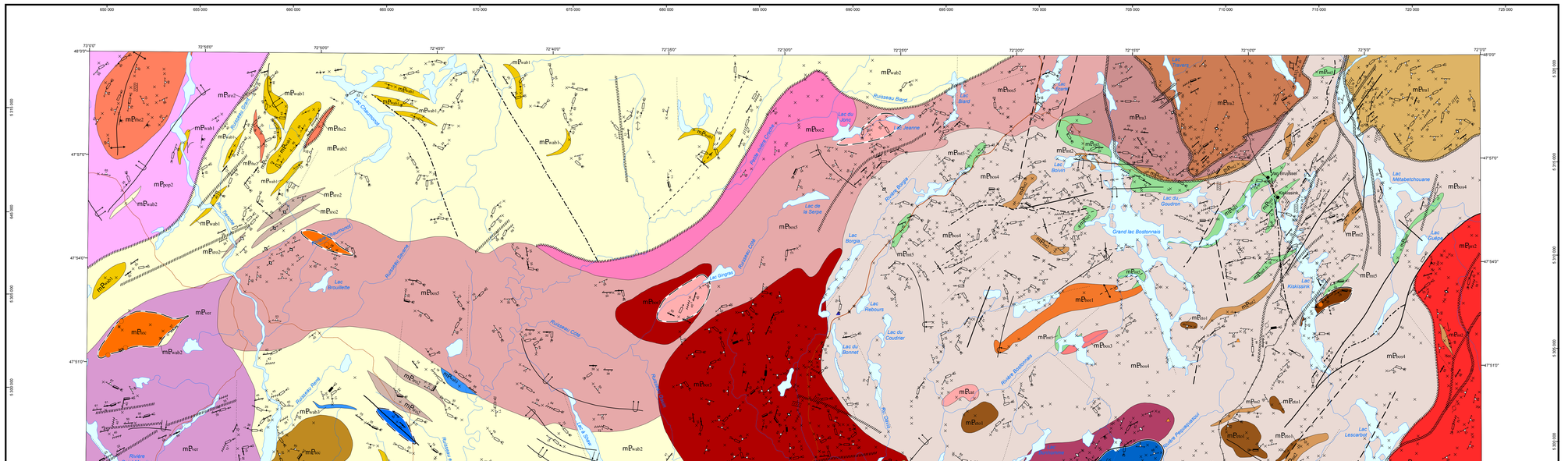
Geology of the Borgia Lake Region, Grenville Province, North of La Tuque, Mauricie and Saguenay – Lac-Saint-Jean Regions, Quebec, Canada



STRATIGRAPHIC LEGEND

GRENVILLE PROVINCE
ALLOCHTON
MESOPROTEROZOIC

Rhéaume Intrusive Suite (1019 ±2 Ma, David, 2017)

- mPrhe1 — Syenite, quartz x nepheline syenite, Fe-Ti-P-oxide gabbronorite; minor amounts of hypersthene syenite, foid monzonite, syenogranite, monzogranite and mangerite

Rivière-à-Pierre Suite (1058 ±1 Ma, Nadeau *et al.*, 1992)

- mPrap — Porphyraceous granite and monzonite, leucocratic; monzodiorite; minor amounts of granodiorite, mangerite and syenite

Catherine Granite

- mPcat — Syenogranite, granite, quartz monzonite, mangerite, quartz monzodiorite, locally porphyritic, granitic pegmatite dykes

Roc Suite (>1012 ±1 Ma, Moukhsil *et al.*, 2015)

- mProc — Fe-Ti-P-oxide-sulphide gabbronorite; minor amounts of gabbro and leuconorite
- mProc2 — Foliated gabbronorite and gabbro; minor amounts of Fe-Ti-P-oxide mafic rocks
- mProc1 — Olivine websterite, pyroxenite, gabbronorite, gabbro

Borgia Suite (1072.1 ±5.4 Ma, Konstantinos Pappavriou, personal communication)

- mPbor5 — Syenite, hypersthene syenite, mangerite, syenogranite, charnockite; minor amounts of granite and monzonite
- mPbor3 — Massive, medium to coarse-grained granite; mangerite, syenogranite; minor amounts of gabbronorite, charnockite and monzonite. All associated with a strong magnetic anomaly
- mPbor1 — Pinkish to brownish monzonite, locally K-feldspar-plagioclase porphyritic, massive; mangerite, syenite, K-feldspar syenogranite

Travers Suite (1076.2 ±8.4 Ma, Konstantinos Pappavriou, personal communication)

- mPtra3 — Massive K-feldspar porphyritic granite, syenogranite, minor amounts of gabbronorite, monzonite and quartz syenite; pangneiss enclaves
- mPtra2 — Mangerite, syenite, hypersthene syenite, minor amounts of syenogranite and granite
- mPtra1 — Gabbronorite, hypersthene diorite, mangerite, minor amount of K-feldspar-hypersthene granite

Étoile Suite

- mPetoi1 — Granite (syenogranite) with or without orthopyroxene (charnockite), hypersthene syenite and syenite; medium to coarse-grained, massive, locally augen; minor amounts of mangerite
- mPetoi2 — Coarse-grained black anorthosite, gabbronorite, minor amounts of trocolaite, orthopyroxenite and pyroxenite

Trenche Anorthosite

- mPtre — Gabbronorite, porphyritic anorthosite, foliated, granoblastic; leuconorite; minor amounts of mangerite; pangneiss enclaves

La Tuque Anorthosite

- mPltu — White anorthosite, fine to medium-grained, locally granoblastic; minor amounts of gabbronorite

Langelier Anorthosite

- mPlag — White anorthosite, fine-grained, with high plagioclase recrystallization; minor amounts of gabbronorite

Édouard Gabbronorite (>1164.7 ±3.6 Ma; David *et al.*, 2010)

- mPedo — Gabbronorite, medium-grained, locally poikilitic hornblende porphyraceous, 35-55% hypersthene-augite-hornblende, accessory biotite-ilmenite-magnetite, massive with occasional foliation and weak magmatic banding; minor amounts of leuconorite, mangerite, gabbro and diorite
- mPedo1 — Medium-grained pyroxenite, massive to foliated with local chalcopyrite; websterite with or without olivine; minor amounts of harzburgite, lamprophyre and diabase

Wabash Complex (maximum age 1204 ±2 Ma, Moukhsil *et al.*, 2015)

- mPwab6 — Silicate and oxide iron formation with chert banding, sulphide garnetite, amphibolite (mafic volcanic rock), quartzofeldspathic gneiss (felsic volcanic rock), fragmentary rock?; minor amounts of biotite paragneiss
- mPwab5 — Garnet-clinopyroxene ± orthopyroxene amphibolite, garnetite; quarzofeldspathic rock (felsic metavolcanic rock?) ± sillimanite ± garnet; ultramafic/mafic granulite
- mPwab4 — Calcitic to dolomitic marble, minor amounts of paragneiss, calcosilicate rocks and quartzite
- mPwab3 — Rusty biotite ± graphite ± garnet ± sillimanite ± pyrite ± pyrrhotite paragneiss; minor amounts of quartzite, pyrite-chalcopyrite-garnet quartzitic wacke, granite and granitic gneiss
- mPwab1 — Migmatitized paragneiss, sedimentary migmatite, granite

Pope Plutonic Suite (1352 ±6 Ma, Jean David, personal communication)

- mPpop2 — Granite, charnockite, granitic gneiss, mangerite; highly magnetic; minor amounts of quartz monzodiorite, monzonite, enderbite and K-feldspar granite

Vermillon Plutonic Suite (1373 ±21 Ma, Jean David, personal communication)

- mPver — Charnockite and granitic gneiss, minor amounts of enderbite, granite, K-feldspar granite, quartz monzodiorite and jotunite

Parc des Laurentides Complex (1391 ±11, 1344 ±2.8 Ma, David *et al.*, 2009)

- mPgn3 — Foliated quartz monzonite, medium-grained, usually porphyraceous or augen, brownish, 15-20% biotite-hornblende, cut by aplite dykes
- mPgn2 — Medium-grained granitic orthogneiss, augen or stripe texture, pinkish grey, partly migmatitic, 10-15% biotite ± hornblende ± garnet, with amphibolite boudins, aplite dykes and some paragneiss screens
- mPgn1 — Fine-grained biotite-magnetite leucogranite, foliated, saccharoidal, with buff-coloured patina and pinkish fresh surface; monzogranite and syenogranite
- mPgn1 — Hornblende-biotite metatexitic granitic gneiss, fine-grained

La Bostonnais Complex (1400-1370 Ma, Nadeau and van Breemen, 1994; Corrigan, 1995)

- mPbos5 — Granodiorite, gabbronorite, quartz monzodiorite, minor amounts of diorite, gabbro, monzogabbro, and mangerite; all fine to medium-grained, massive to gneissic and migmatitic
- mPbos4 — Gabbronorite, gabbro and diorite ± quartz, homogeneous, medium-grained, dark bluish grey, 30-40% hornblende-biotite ± hypersthene relic ± augite relic ± garnet ± Fe-Ti oxides, foliated to massive; minor amounts of monzonite, monzogabbro, hypersthene monzodiorite and syenite
- mPbos3 — Granodiorite and tonalite, homogeneous, medium to coarse-grained, light bluish grey; 10-20% hornblende-biotite; widely massive, partly gneissic and migmatitic
- mPbos2 — Granodioritic and tonalitic gneiss, 10-20% hornblende-biotite ± garnet, light bluish grey, medium to coarse-grained, heterogeneous, migmatitic, local transposed and boudinaged metamorphic banding
- mPbos1 — mPbos2-frame heterogeneous gneiss with numerous klippes and enclaves of paragneiss and amphibolite

Montauban Group (1450 Ma, Nadeau and van Breemen, 1994)

- mPmo6 — Granoblastic amphibolite (volcanic? basalt, andesite), lapilli tuff; fine to medium-grained, locally in boudins, ± garnet porphyroblastic, rusty patina, trace Fe sulphide, generally homogeneous, strong local centimetric compositional banding (relic bedding), foliated; variable amounts of biotite paragneiss, quartzofeldspathic gneiss and garnetite
- mPmo5 — Light grey quartzite, granoblastic, vitreous
- mPmo3 — Light grey mesocratic paragneiss, fine to medium-grained, locally banded (centimetre scale); 10-25% hornblende-biotite, locally migmatitic
- mPmo1 — Rusty pyritic paragneiss, fine to medium-grained, siliciclastic, 10-25% biotite-muscovite-garnet-sillimanite, accessory pyrite-graphite, local relic bedding, variably migmatitic, some horizons of quartzite and amphibolite; in places overwhelmed with aluminous pegmatites

PROSPECTIVE ZONE FOR MINERAL EXPLORATION

- Copper
- Rare earth elements
- Iron
- Nickel
- Sillimanite
- Vanadium

SHOWING AND DEPOSIT

Metallic Substance

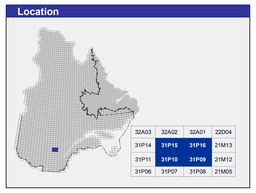
- Copper, Nickel, Vanadium

Non-metallic Substance

- Mica, Sillimanite, Other off-list substance(s)
- Architectural stone
- Industrial stone

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

Location



Metadata

Geodetic reference frame :	Ellipsoide GRS 80
Geodetic reference system :	NAD 83 compatible with the world geodetic system WGS 84
Cartographic projection :	Universal Transverse Mercator (UTM), zone 18
Original longitude :	72°30'
Original latitude :	0°

Sources

Data

Base de données topographiques et administratives (BDTA 250k)

Organization

Ministère de l'Énergie et des Ressources naturelles

Realization

Geology :	Abdelali Moukhsil et Gabriel Côté (2017)
References :	Laurin, A. F., Sharma, K. N. M. (1975) - RG 161 Nadeau, L. *et al.* (1997) - CG SIGEOM31P09 Newham, W. D. N. (1964) - DP 150 Perreault, S. (1992) - CG SIGEOM31P16 Rondot, J. (1978) - DPV 594
Technical assistance :	Julie Sauvageau
Production :	Ministère de l'Énergie et des Ressources naturelles Direction générale de Géologie Québec
Distribution :	Ministère de l'Énergie et des Ressources naturelles Direction de l'information géologique du Québec

This document has no legal value
© Gouvernement du Québec, 2nd trimester of 2018

0 2 4 6 8 km

1/85 000

BG 2018-01-C01

Map of the Bulletin géologiQUE : http://gq.mines.gouv.qc.ca/bulletins-geologiques_en/lac-borgia_en/

To obtain the most recent data for this region, we suggest that you consult the geomatics products of Québec's Geomining Information System (SIGEOM)

Bulletin géologiQUE

SIGÉOM
Système d'information géominière du Québec

Énergie et Ressources naturelles
Québec