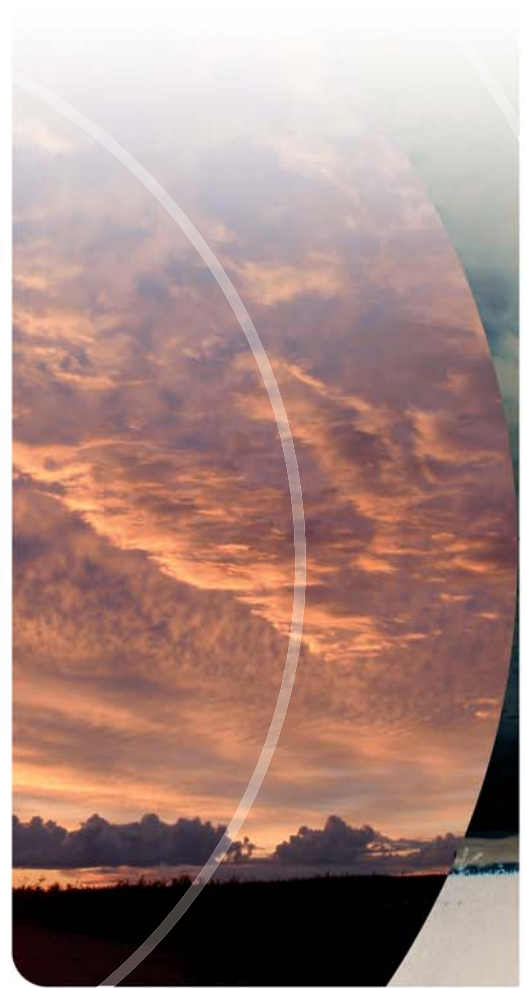
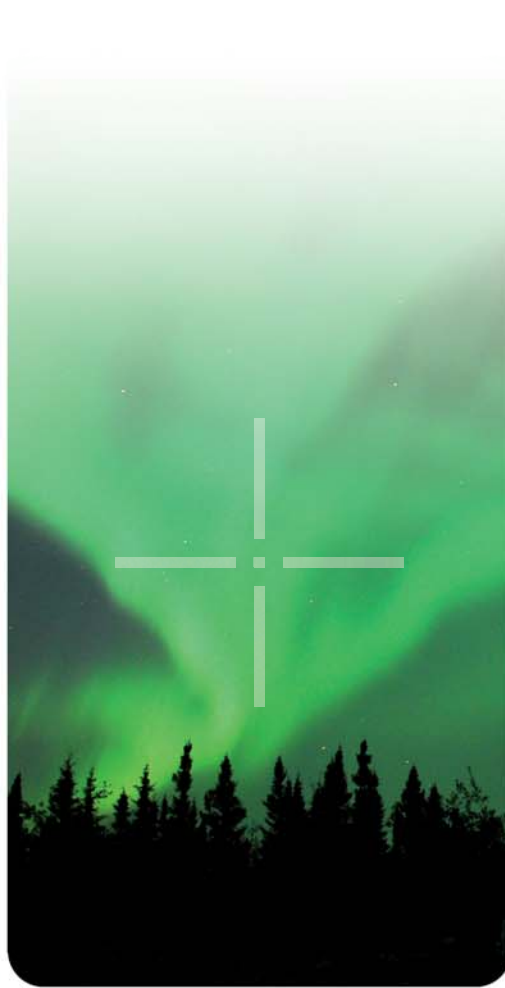


NEW MINERAL EXPLORATION TARGETS

2013 GEOSCIENCE PROJECTS



New Mineral Exploration Targets

2013 Geoscience Projects

PRO 2013-03

Introduction

Géologie Québec presents all the targets of economic interest identified during its 2013 geoscience projects. Geoscience knowledge acquisition is one of the main missions of Géologie Québec. This knowledge is acquired in order to encourage the mining industry to develop Québec's mineral resources by increasing exploration activity and discovering new deposits.

During their fieldwork, geologists of the Ministère des Ressources naturelles identified zones with a favourable geological setting for mineral exploration. These areas of interest have not been studied in detail but warrant further investigations by exploration companies. Newly acquired data on these areas of interest will be made public during Québec Mines 2013.

2013 Mineral Exploration Targets

In this document, a target corresponds to a zone where the geological setting is favourable for mineral exploration. The data provided on these targets are essentially based on field observations and are not, for the moment, archived in Québec's Geomining Information System (SIGEOM). They may eventually be classified as a "showing" once their economic value has been confirmed, notably by geochemical analyses.

As a result of the geoscience projects completed in 2013, 45 targets have been identified. There are three categories of targets: (1) ponctual targets measuring

less than 100 metres, (2) local targets between 100 metres and 1 kilometre in size, and (3) regional targets greater than 1 kilometre in size.

Target locations are shown on the map of Québec and briefly described in a table including, among other, their precise geographical location, the name of the project from which they originate and the corresponding poster number. For further information, those who plan to attend Québec Mines 2013 are invited to consult the posters of knowledge acquisition projects and meet the project geologists, to find out more about these new exploration targets and about the mineral potential in Québec's various regions. In addition, these various targets are located on the site " Gestion des titres miniers, GESTIM " at the following address:

https://gestim.mines.gouv.qc.ca/MRN_GestimP_Presentation/ODM02101_login.aspx

For further details concerning our geoscience knowledge acquisition projects, interested parties can inquire at the Bureau d'exploration géologique du Québec or communicate by e-mail with the persons in charge:

Bureau d'exploration géologique du Québec
400 boulevard Lamaque, bureau 1.02
Val-d'Or (Québec) J9P 3L4
Phone : (819) 354-4514
Fax : (819) 354-4508

Contact	Project	E-mail
Isabelle Lafrance Daniel Bandyayera Carl Bilodeau	Mapping – Lac Henrietta area, Churchill SE	Isabelle.Lafrance@mrn.gouv.qc.ca Daniel.Bandyayera@mrn.gouv.qc.ca Carl.Bilodeau@mrn.gouv.qc.ca
François Leclerc	Mapping and compilation –Lac Lamarck area, Chapais-Chibougamau	François.Leclerc@mrn.gouv.qc.ca
Jean Goutier	Mapping –Lac Pelletan 2 area, Baie-James	Jean.Goutier@mrn.gouv.qc.ca
Pierre Pilote	Mapping and compilation – La Motte area, Abitibi-Témiscamingue	Pierre.Pilote@mrn.gouv.qc.ca
Pénélope Burniaux Hanafi Hammouche	Mapping – Lac des Vœux area, Baie-James	Pénélope.Burniaux@mrn.gouv.qc.ca Hanafi.Hammouche@mrn.gouv.qc.ca
Guillaume Allard Pierre-Luc Deschênes	Mapping and compilation –Bell Project, Abitibi-Témiscamingue	Guillaume.Allard@mrn.gouv.qc.ca Pierre-Luc.Deschenes@mrn.gouv.qc.ca
Abdelali Moukhsil Fabien Solgadi	Mapping –Lac Okaopéo area, Côte-Nord	Abdelali.Moukhsil@mrn.gouv.qc.ca Fabien.Solgadi@mrn.gouv.qc.ca

Please note that other targets have been identified during 2013 in the following publication:

INTISSAR, R. – MAURICE C. – CLARK T. – D'AMOURS I., 2013 – Cibles d'exploration déterminées à partir des données de spectrométrie dans les secteurs du lac Romanet et de la rivière à la Baleine, Province de Churchill. Ministère des Ressources naturelles; PRO 2013-01, 16 pages. (This document identifies 15 areas of interest not covered by mining titles as January 30, 2013).

Editing: Charles Gosselin
Compilation of data: Mehdi A. Guemache
Graphic arts: André Tremblay

www.mrn.gouv.qc.ca/produits-services/mines.jsp
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Number and Name	Size	Localisation (UTM NAD83)	NTS sheet	Project	Poster	Person(s) in charge	Substance(s)	Description
Churchill Province (Great North) – Nord-du-Québec administrative region								
(1) Ceinture Tunulic	Regional	Zone 20V 333000 mE 6357000 mN	24H05	Mapping – Lac Henrietta area, Churchill SE	G30	Isabelle Lafrance Daniel Bandyayera Carl Biloiseau	Various	New mainly felsic volcano-sedimentary belt (25 km x 4-8 km).
(2) IL-3147	Punctual	Zone 20V 339034 mE 6349575 mN	24H05	Mapping – Lac Henrietta area, Churchill SE	G30	Isabelle Lafrance Daniel Bandyayera Carl Biloiseau	Cu-Zn-Mo	Rusty and sulphide zone (<10% PO, 25 m x 1 m) in a silicified amphibolite of the Tunulic Belt. Quartz veins grade 0.19% Cu, 530 ppm Mo and 360 ppm Zn.
(3) MP-217	Punctual	Zone 19V 654607 mE 6329001 mN	24G01	Mapping – Lac Henrietta area, Churchill SE	G30	Isabelle Lafrance Daniel Bandyayera Carl Biloiseau	Cu-Ni-Co-PGE-Au	Rusty zone (20 m x 5 m) in a gabbro with 5% PO, 1% CP-PY as clusters (up to 2 cm) and rare millimetric veinlets: 0.12% Cu, 690 ppm Ni, 110 ppm Co, 16 ppb Pt, 40 ppb Pd and 13 ppb Au.
(4) LP-2103	Punctual	Zone 19V 653855 mE 6341975 mN	24G01	Mapping – Lac Henrietta area, Churchill SE	G30	Isabelle Lafrance Daniel Bandyayera Carl Biloiseau	Cu-Zn-Au	Decimetric silicified zone cut by QZ veinlets in a paragneiss (1% PY, 2-5% PO, 1% PY and < 1% CP): 9 ppb Au, 210 ppm Cu and 120 ppm Zn.
(5) SB-4092	Punctual	Zone 19V 401462 mE 6338885 mN	24G01	Mapping – Lac Henrietta area, Churchill SE	G30	Isabelle Lafrance Daniel Bandyayera Carl Biloiseau	Cu-Zn	Metric sulphide zone (< 1% PO-PY-CP) in a migmatitic paragneiss: 390 ppm Cu et 190 ppm Zn.
(6) IL-3137	Punctual	Zone 20V 401462 mE 6398853 mN	24H10	Mapping – Lac Henrietta area, Churchill SE	G30	Isabelle Lafrance Daniel Bandyayera Carl Biloiseau	Ni-PGE	Decimetric rusty zones in an altered peridotite (1-5% PO, finely disseminated): 680 ppm Ni, 11 ppb Pt and 10 ppb Pd.
(7) IL-3143	Punctual	Zone 20V 407087 mE 6402618 mN	24H15	Mapping – Lac Henrietta area, Churchill SE	G30	Isabelle Lafrance Daniel Bandyayera Carl Biloiseau	Ni	Peridotite with some decimetric to metric rusty zones (1% PO): 760 ppm Ni.
Superior Province (Baie-James) – Nord-du-Québec administrative region								
(8) Ceinture d'Aquilon	Regional	Zone 18U 694121 mE 5985572 mN	33H16	Mapping – Lac des Voeux area, Baie-James	G28	Pénélope Burniaux Hanafi Hammouche	Au-Ni ± PGE	Extension of the Aquilon volcano-sedimentary belt (8 km x 4 km) formed by metavolcanites cut by ultramafic sills showing anomalous Ni content.
(9) Groupe de Guyer	Regional	Zone 18U 632737 mE 5943131 mN	33H10	Mapping – Lac des Voeux area, Baie-James	G28	Pénélope Burniaux Hanafi Hammouche	Au	Extension of the Guyer volcanic belt (5 km x 1 km) composed of amphibolite facies metavolcanites.
(10) Formation de l'Escale	Regional	Zone 18U 663319 mE 5941974 mN	33H10	Mapping – Lac des Voeux area, Baie-James	G28	Pénélope Burniaux Hanafi Hammouche	Au	Extension of the L'Escale volcano-sedimentary belt (5.5 km x 1 km wide) composed of metavolcanites that locally include meter thick layers of metasediments.
Superior Province (Baie-James) – Nord-du-Québec administrative region								
(11) 13-SS-2235	Local	Zone 18U 663695 mE 5901621 mN	33H02	Mapping – Lac Pelletan 2 area, Baie-James	G29	Jean Goutier	Cu-Zn	Two outcrops distant of about 830 m showing metavolcanites containing CD-AT-BO-rich zones. Traces of CP are present. This assemblage is interpreted as metamorphosed zones of proximal volcanogenic alteration.
(12) La Grande-Opinaca Est	Regional	Zone 18U 616855 mE 5891535 mN à 667115 mE 5893155 mN	33H02	Mapping – Lac Pelletan 2 area, Baie-James	G29	Jean Goutier	Au	New E-W segment of the boundary between the La Grande and Opinaca Subprovinces, an auriferous metallotect.

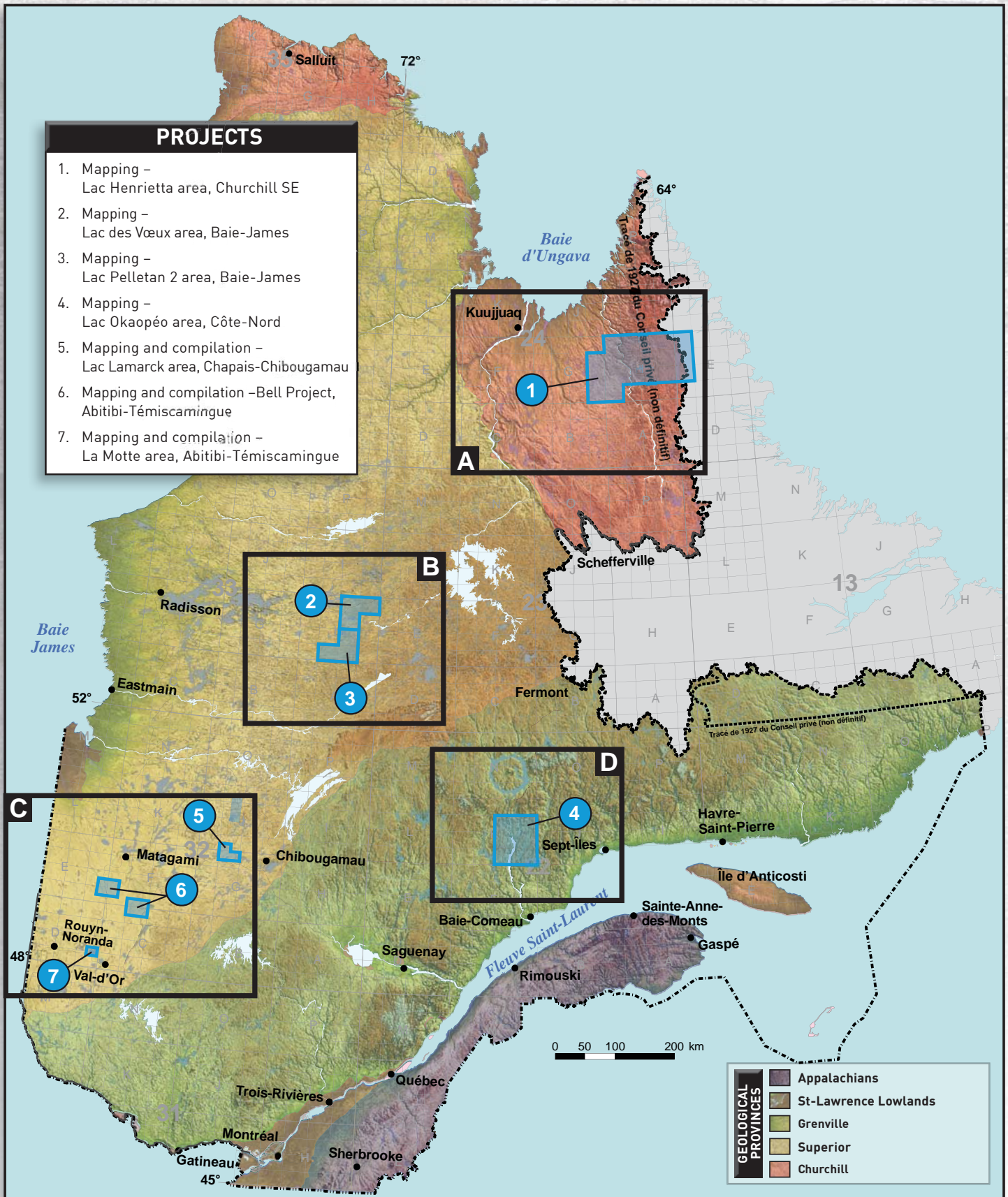
Number and Name	Size	Localisation (UTM NAD83)	NTS sheet	Project	Poster	Person(s) in charge	Substance(s)	Description
Superior Province (Chibougamau) – Nord-du-Québec administrative region								
(13) Bras Pichamobi	Regional	Zone 18U 469487 mE 5536791 mN à 470987 mE 5538000 mN	32G14	Mapping and compilation – Lac Lamarck area, Chapais-Chibougamau	G36	François Leclerc	Zn-Ag-Cu-Au	Felsic lapilli tuff and porphyritic rhyolite of the Pichamobi Member variously altered in SR-CL and containing disseminated PY-PO. FC alteration in E-W shear zone.
(14) Bate Dussault	Local	Zone 18U 467718 mE 5535181 mN à 467835 mE 5535078 mN	32G14	Mapping and compilation – Lac Lamarck area, Chapais-Chibougamau	G36	François Leclerc	Au-Cu	QZ-PY-CP-MC-CL-AK veins that cut andesitic basalts with AK alteration and disseminated PY.
(15) Lac Mahekan	Punctual	Zone 18U 473357 mE 5536278 mN	32G14	Mapping and compilation – Lac Lamarck area, Chapais-Chibougamau	G36	François Leclerc	Au-Cu	Brecciated andesitic basalt with disseminated PY along a decimetric chert layer.
(16) Indice Gladstone	Punctual	Zone 18U 473581 mE 5535163 mN	32G14	Mapping and compilation – Lac Lamarck area, Chapais-Chibougamau	G36	François Leclerc	Au	QZ-SR-AS-PY shear veins in a gabbro with AK alteration. Best gold values are recorded in a QZ-TL vein, with 1.2 g/t to 11.9 g/t Au.
(17) Icestorm	Punctual	Zone 18U 474904 mE 5535674 mN	32G14	Mapping and compilation – Lac Lamarck area, Chapais-Chibougamau	G36	François Leclerc	Au	QZ-PG porphyritic felsic intrusion (<2 m wide) with AK-FC alteration and disseminated PY-AS. It cuts a sheared gabbro.
(18) Indice Queeniemich	Punctual	Zone 18U 476751 mE 5537004 mN	32G14	Mapping and compilation – Lac Lamarck area, Chapais-Chibougamau	G36	François Leclerc	Au	Strongly deformed and AK-CL-SR altered pillow basalt with disseminated PY at the contact with QZ-PG phryic felsic intrusion. This intrusion is cut by a network of centimetric QZ veins. A sample from this zone grades 1.65 g/t Au.
(19) Indice Grizzly	Punctual	Zone 18U 476878 mE 5536064 mN	32G14	Mapping and compilation – Lac Lamarck area, Chapais-Chibougamau	G36	François Leclerc	Au-Cu	Disseminated AS-PY-FC-CP-BN mineralization within a strong AK alteration zone at the contact between a QZ-PG phryic felsic intrusion and a gabbro (CL-AC). Two QZ vein generations are in turn deformed by WSW-ESE shear zones.
(20) Haven-Est	Local	Zone 18U 480796 mE 5530190 mN à 480849 mE 5530052 mN	32G14	Mapping and compilation – Lac Lamarck area, Chapais-Chibougamau	G36	François Leclerc	Zn-Ag-Cu-Au	Felsic lapilli and crystal tufts and sedimentary rocks (siltstone and mudstone) with disseminated PY-PO. Locally, GP clayshale with nodular PY.
(21) Pointe Shearing	Punctual	Zone 18U 478652 mE 5528654 mN	32G14	Mapping and compilation – Lac Lamarck area, Chapais-Chibougamau	G36	François Leclerc	Zn-Ag-Cu-Au	Shear zone with disseminated sulphides (PY) cutting sedimentary rocks (siltstone and mudstone). Mineralization also occurs along sheared contact with a clinopyroxenite intrusion (CX-AM-CL).
(22) A-1	Punctual	Zone 18U 477964 mE 5526730 mN	32G14	Mapping and compilation – Lac Lamarck area, Chapais-Chibougamau	G36	François Leclerc	Au	QZ-CC-CL-EP-TL-FC vein, 40 cm wide, with disseminated PY cutting a foliated basalt of the Bruneau Fm.
(23) Propriété MTK	Local	Zone 18U 484910 mE 5527089 mN à 485152 mE 5526977 mN	32G14	Mapping and compilation – Lac Lamarck area, Chapais-Chibougamau	G36	François Leclerc	Au	Quartz diorite and pillow basalt altered into AK-HM, with disseminated PY (5 %), cut by centimetric to decimetric E-W QZ-PY-CP-TL-FC-HM shear veins. Samples grade between 0.1 g/t and 8.8 g/t Au.
(24) Lac Split	Punctual	Zone 18U 485726 mE 5529100 mN	32G14	Mapping and compilation – Lac Lamarck area, Chapais-Chibougamau	G36	François Leclerc	Cu-Au	AK-CL-EP altered gabbro with disseminated PY-CP-MC. The gabbro is cut by a centimetric QZ vein.
(25) Bery-Est	Regional	Zone 18U 466091 mE 5539615 mN à 469300 mE 5542831 mN	32J03	Mapping and compilation – Lac Lamarck area, Chapais-Chibougamau	G36	François Leclerc	Au-Cu	Disseminated to massive sulphides along pillow selvages and breccias. CL-EP alteration with MG. Basalts cut by QZ-PP felsic intrusions and QZ ± EP veins.

Number and Name	Size	Localisation (UTM NAD83)	NTS sheet	Project	Poster	Person(s) in charge	Substance(s)	Description
(26) La Motte-1	Regional	Zone 17U 707500 mE 5359000 mN	32D08	Mapping and compilation – La Motte area	G32	Pierre Pilote <i>et al.</i>	Ni ±Cu ±Zn	WNW-trending Matbridge deformation corridor. Association of komatiitic volcanic rocks with PY-rich felsic volcanoclastic rocks.
		à 714500 mE 5354000 mN						
(27) La Motte-2	Regional	Zone 17U 708000 mE 5359000 mN	32D08	Mapping and compilation – La Motte area	G32	Pierre Pilote <i>et al.</i>	Cu-Zn	WNW to NW-trending Matbridge felsic volcanic center.
		à 709000 mE 5357000 mN						
Grenville Province – Côte-Nord administrative region								
(28) RO-420	Local	Zone 18U 336807 mE 5422764 mN	32C14	Mapping and compilation – Bell Project		Pierre-Luc Deschênes	Zn	Two anomalous samples of intermediate lapilli tuff with 1-3% PY-SP clusters, grading 542 ppm and 610 ppm Zn. Coincide with a 700 m x 200 m magnetic anomaly and associated with a strong CB alteration.
(28) RO-472	Local	Zone 18U 290261 mE 5453708 mN	32F04	Mapping and compilation – Bell Project		Pierre-Luc Deschênes	Cu	Basalt with PY-PO-QZ-CB veinlets and 1-5% disseminated PY-PO clusters. Value of 510 ppm Cu associated with a magnetic anomaly close to the Harricana Fault. Strong CB alteration.
(30) 12-PL-1049, Indices Ruisseau Partridge	Punctual	Zone 17U 656135 mE 5437708 mN	32E02	Mapping and compilation – Bell Project		Pierre-Luc Deschênes	Zn-Pb	GP-rich black mudrock with several QZ-CB-PY-SP-GL veinlets. A sample grades 1.01% Zn, 0.88% Pb.
(31a) Comtois- Osborne sud Coin N-O	Regional	Zone 18U 330541 mE 5441747 mN	32F03	Mapping and compilation – Bell Project		Guillaume Allard	Au	Anomalous Au values in glacial sediments (till), trending roughly E-W along volcano-sedimentary contact (Glandelet Fm and Valet-Dalet-Poirier Gr). Up to 72 ppb in the fine fraction of the till. Analysis show also slight anomalies in As and W.
(31b) Comtois- Osborne sud Coin S-E	Regional	Zone 18U 351286 mE 5435433 mN	32F03	Mapping and compilation – Bell Project		Guillaume Allard	Au	Anomalous Au values in glacial sediments (till), trending roughly E-W along volcano-sedimentary contact (Glandelet Fm and Valet-Dalet-Poirier Gr). Up to 72 ppb in the fine fraction of the till. Analysis show also slight anomalies in As and W.
Grenville Province – Côte-Nord administrative region								
(32) 13-FS-1006D	Punctual	Zone 19U 505475 mE 5604788 mN	22K10	Mapping – Lac Okaopéo area, Côte-Nord	G26	Abdelali Moukhsil Fabien Solgadi	Fe-Ti ±V	GR-bearing ophitic gabbro, with decimetric layers (10-20 cm) of Fe-Ti oxides. Layers are repetitive over 50 m and show up to 20.2% Fe, 7.8% TiO ₂ and 885 ppm V.
(33) 13-SB-6129E	Punctual	Zone 19U 539616 mE 5547514 mN	22K01	Mapping – Lac Okaopéo area, Côte-Nord	G26	Abdelali Moukhsil Fabien Solgadi	Mo	Whitish pegmatite dykes (1-3 cm wide) injected into a medium-grained gabbro. Large MO crystals occurs along dyke margins. A sample gives 3610 ppm Mo.
(34) 13-SB-6229C	Punctual	Zone 19U 518676 mE 5598399 mN	22K10	Mapping – Lac Okaopéo area, Côte-Nord	G26	Abdelali Moukhsil Fabien Solgadi	Cu-Ni	Disseminated sulphides (2% CP, 2% PO and 1% PY) in rusty zones (30 cm x 60 cm) in contact with quartz monzonite and gabbro. Values of 0.57% Cu and 0.06% Ni.
(35) 13-PA-8120B	Punctual	Zone 19U 566166 mE 5578067 mN	22K08	Mapping – Lac Okaopéo area, Côte-Nord	G26	Abdelali Moukhsil Fabien Solgadi	Ni-Cu-Cr	Clinopyroxene boulder (50 cm x 1 m) with 5% sulphides (PY, CP, PO), disseminated or as centimetric stockworks. Values of 0.27% Cu, 0.22% Ni and 0.1% Cr.
(36) 13-TC-5008D	Punctual	Zone 19U 504614 mE 5585041 mN	22K07	Mapping – Lac Okaopéo area, Côte-Nord	G26	Abdelali Moukhsil Fabien Solgadi	LREE	Whitish granitic pegmatite dyke (1-20 cm wide) that cuts a banded paragneiss (GP-BO-GR). LREE contents of 5065 ppm (1380 ppm La, 2490 ppm Ce and 844 ppm Nd).
(37) 13-TC-5072B	Punctual	Zone 19U 510668 mE 5603384 mN	22K10	Mapping – Lac Okaopéo area, Côte-Nord	G26	Abdelali Moukhsil Fabien Solgadi	LREE	Granitic pegmatite dyke (10-30 cm wide) cutting a foliated and mylonitized megacrystic monzogranite. Value of 4809 ppm LREE (1330 ppm La, 2360 ppm Ce and 788 ppm Nd).
(38) 13-FS-1202C	Punctual	Zone 19U 510162 mE 5601234 mN	22K10	Mapping – Lac Okaopéo area, Côte-Nord	G26	Abdelali Moukhsil Fabien Solgadi	LREE	Whitish BO- and MG-rich pegmatite dyke (1 m wide) cutting foliated quartz monzonite; 6.04% LREE (1.53% La, 2.94% Ce, 1.1% Nd) and 0.28% Th.

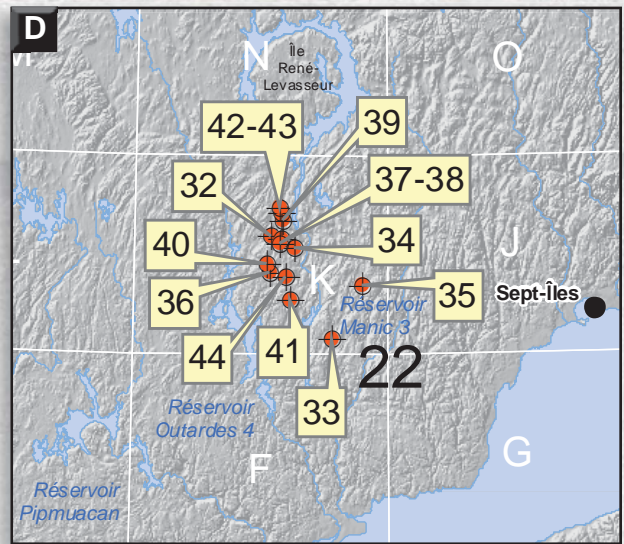
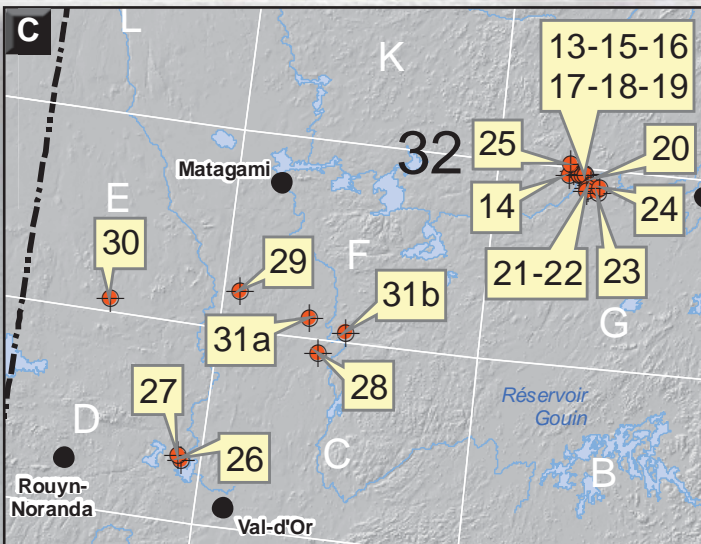
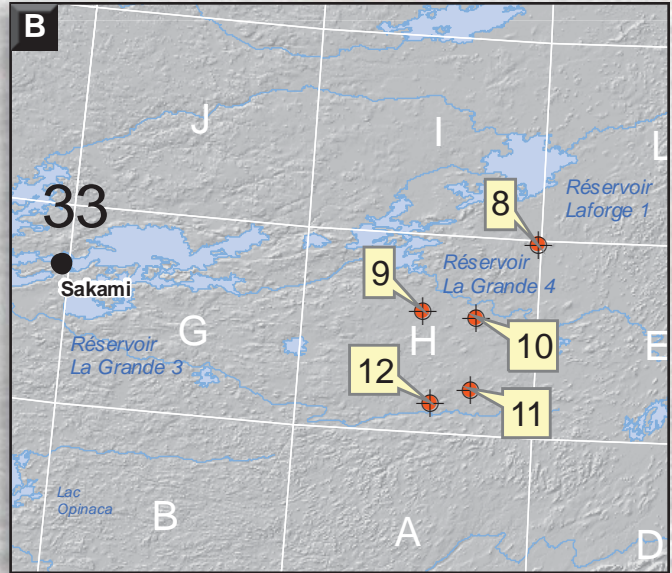
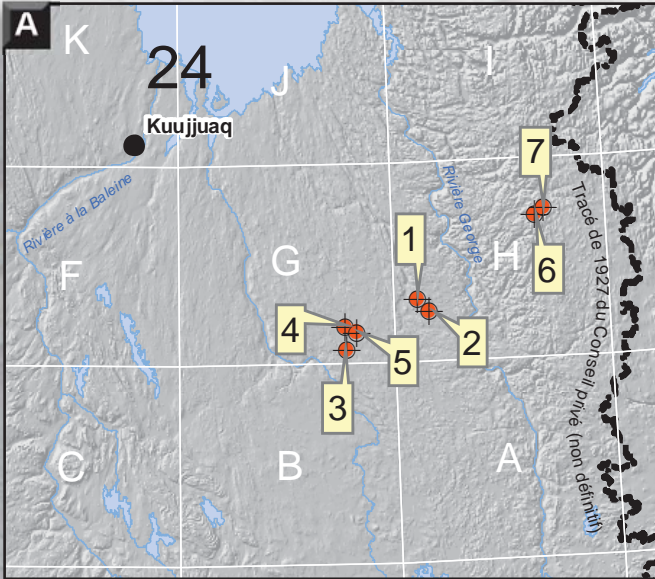
Number and Name	Size	Localisation (UTM NAD83)	NTS sheet	Project	Poster	Person(s) in charge	Substance(s)	Description
(39) 13-AM-013A	Punctual	Zone 19U 512052 mE 5614036 mN	22K10	Mapping – Lac Okaopé area, Côte-Nord	G26	Abdelali Moukhsil Fabien Solgadi	LREE-Th	Whitish granitic pegmatite dyke (10 m x 100 m) cutting BO-rich paragneiss: 6513 ppm LREE (1120 ppm Nd, 3230 ppm Ce, 1660 ppm La), 1130 ppm Th and 2980 ppm Zr.
(40) 13-AE-2149B	Punctual	Zone 19U 503389 mE 5589641 mN	22K07	Mapping – Lac Okaopé area, Côte-Nord	G26	Abdelali Moukhsil Fabien Solgadi	LREE-Th	BO- and MG-rich granitic pegmatite dyke (60-80 cm wide) cutting foliated and porphyritic mangerite. Pegmatite sample grades 8766 ppm LREE (1710 ppm Nd, 4130 ppm Ce), 766 ppm Th and 6340 ppm Zr.
(41) 13-AM-078A	Local	Zone 19U 516447 mE 5569951 mN	22K07	Mapping – Lac Okaopé area, Côte-Nord	G26	Abdelali Moukhsil Fabien Solgadi	Architectural stone	Slightly fractured porphyritic mangerite, greenish on fresh surface to whitish on weathered surface. Volume needs to be assessed.
(42) 13-AM-10B	Punctual	Zone 19U 511247 mE 5618279 mN	22K10	Mapping – Lac Okaopé area, Côte-Nord	G26	Abdelali Moukhsil Fabien Solgadi	LREE-Th	Whitish BO-rich granitic pegmatite dyke (1-2 m wide) cutting a GP- and GR-rich paragneiss: 2170 ppm LREE (318 ppm Nd, 1080 ppm Ce, 639 ppm La), 133 ppm Th and 454 ppm Zr.
(43) 13-AM-07A	Punctual	Zone 19U 510199 mE 5620952 mN	22K10	Mapping – Lac Okaopé area, Côte-Nord	G26	Abdelali Moukhsil Fabien Solgadi	LREE-Th	Whitish BO-rich granitic pegmatite dyke (2-3 m wide) cutting a GR-rich paragneiss: 4008 ppm LREE (639 ppm La, 2020 ppm Ce, 605 ppm Nd) and 400 ppm Th.
(44) 13-AE-2220A	Regional	Zone 19U 513371 mE 5582767 mN	22K07	Mapping – Lac Okaopé area, Côte-Nord	G26	Abdelali Moukhsil Fabien Solgadi	Fe-Ti-P	Massive gabbroonite outcropping for more than 1 km with 15-20 % IM-MG and 2% AP. Two samples grades 11.8% Fe, 3.72% TiO ₂ , 3.69% P ₂ O ₅ and 12.3% Fe, 4.3% TiO ₂ , 4.46% P ₂ O ₅ .

Coordinates indicate the center of the exploration target or both ends of a linear target.

LOCATION OF 2013 GEOSCIENCE PROJECTS



LOCATION OF MINERAL EXPLORATION TARGETS



 Target