

Department of Earth Sciences New Publications 2014-15

Chapters in Academic Books:

Schaub, C., Smith, R., 2014, Determining the feasibility of a real time geophysical magnetic and electric measurement system for monitoring strain underground – laboratory magnetic test.: Proceedings of the Seventh International Conference on Deep and High Stress Mining. 16-18 September, 2014, Sudbury, ON, Canada. Australian Centre for Geomechanics.

Smith, R.S. and A. K. Volkovitskiy, in press, Airborne Electromagnetic Prospecting systems: in Kaufman, A.A., and Oristaglio, M., (Eds), Principles of electromagnetic methods in surface and borehole geophysics. Methods in Geochemistry and Geophysics, Volume 45. ISSN 0076-6895.

Articles (in refereed journals):

Alimohammadi, M., Alirezaei, S., and Kontak, D.J. (2015): Application of ASTER data for exploration of porphyry copper deposits: A case study of Daraloo- Sarmeshk area, southern part of the Kerman copper belt, Iran. *Ore Geology Reviews*, vol. 70, 290-304.

Bindi, L, Cooper, M.A. & McDonald, A.M. (2015): Twinning and disorder in the crystal structure of kurilite, Ag₈Te₃Se: Toward a new fast ionic conductor? *The Canadian Mineralogist* (*Accepted for publication 26 February, 2015*).

Cabri, L.J., McDonald, A.M., Stanley, C.J., Rudashevsky, N.S., Poirier, G., Wilhelmiz, H.R., Zhe, W. & Rudashevsky, V.N. (2015): Palladosilicide, Pd₂Si, a new mineral from the Kapalagulu Intrusion, Western Tanzania and the Bushveld Complex, South Africa. *Mineralogical Magazine* (*Accepted for Publication 6 March, 2015*).

Desmarais, J.K., Smith, R.S., 2015, Combining spatial components and Hilbert transforms to interpret ground-time-domain-electromagnetic data: *Geophysics*, in press.

Desmarais, J.K., Smith, R.S., 2015, Decomposing the electromagnetic response of magnetic dipoles to determine the geometric parameters of a dipole conductor: *Exploration Geophysics*, in press.

Desmarais, J.K., Smith, R.S., 2015, Survey design to maximize the volume of exploration of the InfiniTEM system when looking for discrete targets: *Journal of Applied Geophysics*, 115, 11-23. doi:10.1016/j.jappgeo.2015.02.012

Dostal, J., Kontak, D.J. and Karl, S.M. (2014): Early Jurassic Bokan Mountain peralkaline granitic complex (southeastern Alaska): geochemistry, petrogenesis and rare-metal mineralization. *Lithos*, vol. 202-203, 395-412.

Gallagher, M., Turner, E.C., and Kamber, B.S., 2015. In-situ trace metal analysis of Neoproterozoic – Ordovician shallow-marine microbial carbonate-hosted pyrites. *Geobiology* DOI: 10.1111/gbi.12139

Gloucerol, B., Thurston, P., Kontak, D.J. and Côté-Mantha, O. (in press): The geochemical signature of chert from banded iron formations (BIFs) in the Meadowbank gold deposit, Western Churchill Province, Nunavut, as determined from LA ICP-MS analysis: Implications for the origin of gold mineralization in BIF-hosted deposits. *Chemical Geology*.

- Gordon, S.C.** & McDonald, A.M. (2014): A mineralogical study of the origin, evolution and spatial distribution of NC pyrrhotite from the Copper Cliff Offset Dike, Sudbury, Ontario. *The Canadian Mineralogist* (Accepted for publication 17 September 2014).
- Haring, M.C.** & McDonald, A.M. (2014): Franconite, $\text{NaNb}_2\text{O}_5(\text{OH}) \cdot 3\text{H}_2\text{O}$: Crystal-structure determination and the role of H-bonding, with comments on the crystal-chemistry of franconite-related minerals. *Mineralogical Magazine* 78, 591-607.
- Kolaj, M.**, and Smith, R., 2015, A multiple transmitter and receiver electromagnetic system for improved target detection: *Geophysics* in press
- Kolaj, M.**, and Smith, R., 2014, Robust conductance estimates from spatial and temporal derivatives of borehole electromagnetic data: *Geophysics*, 79(3), E115–E123. doi: 10.1190/geo2013-0387.1
- Kolaj, M.**, and Smith, R., 2014, Mapping lateral changes in conductance of a thin sheet using time-domain inductive electromagnetic data: *Geophysics*, 79(1), E1-E10. 10.1190/GEO2013-0219.1
- Lafrance, B., **Bygnes, L.** & McDonald, A.M. (2014): Emplacement of metabreccia along the Whistle-Parkin Offset, Sudbury: implications for post-impact modification of the Sudbury impact structure. *Canadian Journal of Earth Sciences* 51, 466-484.
- Lafrance, B., Gibson, H.L., Pehrsson, S., Schetselaar, E., **DeWolfe, Y. M.**, and **Lewis, D.**, In Press. Structural reconstruction of the Flin Flon volcanogenic massive sulfide mining district, Saskatchewan and Manitoba, Canada, In press. A Special Issue on volcanogenic massive sulfide deposits of the Trans-Hudson Orogen, *Economic Geology*.
- Lanteigne, S.**, Schindler, M. and McDonald, A. (2014) Distribution of metal(loid)s in smelter-derived particulate matter in soils, mineralogical insights into their retention and release in a low-T environment. *Can. Mineral.* 52, 453-472.
- Lodge, R.W.**, Gibson, H.L., Stott, G.M., Franklin, J.M., and Hamilton, M.A. 2014. Geodynamic reconstruction of the VMS-hosting Winston Lake Greenstone Belt: new trace element geochemistry and U-Pb geochronology. *Economic Geology*
- Lodge, W.D.**, Gibson, H.L., Sott, G.M., Franklin, J.M., and Hudak, G.J., 2015. Geodynamic setting, crustal architecture, and VMS metallogeny of ca. 2720 Ma greenstone belt assemblages of the northern Wawa subprovince, Superior Province. *Canadian Journal of Earth Sciences*, vol. 52, p. 196-214
- Lussier, A.J., Hawthorne, F.C., Abdu, Y., Ball, N.A., Tait, K.T., Back, M.E., Steede, A.H., *Taylor, R.* & McDonald, A.M. (2015): Ferro-ferri-nybøite, $\text{NaNa}(\text{Fe}_3+3\text{Fe}_3+2)\text{Si}_8\text{O}_{22}(\text{OH})_2$, a new mineral of the amphibole group from Mont Saint-Hilaire, Rouville RMC, Montérégie, Quebec, Canada: Description and crystal structure. *The Canadian Mineralogist* 53, 1-7.
- Lymburner, J.** and Smith, R.S., 2014, A procedure for collecting electromagnetic data using multiple transmitters and receivers capable of deep and focussed exploration: *Geophysics*, 80(1), E1-E10. doi: 10.1190/geo2014-0251.1
- Malcolm, K.J.**, Leverington, D.W. and Schindler, M. (2015) A Landsat-Based Study of Black Rock Coatings Proximal to Base Metal Smelters, Sudbury, Ontario, Canada. *International Journal of Remote Sensing* (in press)
- Mathieu, J.**, Kontak, D.J., Turner, E.C., Fayek, M. and Layne, G. (in press): In situ SIMS (O, S) and LA ICP-MS (trace elements) micro-analysis of multiple cement phases reveal a complex diagenetic fluid history: A case study of Phanerozoic cements on Victoria Island, NWT. *Chemical Geology*.

- McDonald, A.M., Cabri, L.J., Stanley, C.J., Good, D.J., Redpath, J., Lane, G. Spratt, J. & Ames, D.E. (201X): Coldwellite, Pd₃Ag₂S, a new mineral species from the Marathon deposit, Coldwell complex, Ontario, Canada. *The Canadian Mineralogist* (*Accepted for publication 22 April, 2015*).
- McDonald, A.M., Tarassoff, P. & Chao, G.Y. (2015): Hogarthite, (Na,K)₂CaTi₂Si₁₀O₂₆•8H₂O, a new member of the lemoynite group from Mont Saint-Hilaire, Quebec: Characterization, crystal-structure determination and origin. *The Canadian Mineralogist* (*Accepted for publication 27 January, 2015*).
- Medig, K.P.R., Thorkelson, D.J., Davis, W.J., Rainbird, R.H., Gibson, H.D., Turner, E.C., and Marshall, D.D., 2014. Pinning northeastern Australia to northwestern Laurentia in the Mesoproterozoic. *Precambrian Research* v. 249, p. 88-99.
<http://dx.doi.org/10.1016/j.precamres.2014.04.018>
- Mukwakwami, J.**, Leshner, C.M., Lafrance, B. 2014. Geochemistry of deformed and hydrothermally mobilized magmatic Ni-Cu-PGE ores at the Garson Mine, Sudbury. *Economic Geology*, 109, 367-386.
- Mukwakwami, J.**, Lafrance, B., Leshner, C. M., Tinkham, D. K., Rayner, N. M. & Ames, D. E., 2014. Deformation, metamorphism, and mobilization of Ni-Cu-PGE sulfide ores at Garson Mine, Sudbury. *Mineralium Deposita*, **49**, 175-198.
- Olaniyan, O.**, Smith, R.S., and Lafrance, B., 2014, A constrained potential field data interpretation of the deep geometry of the Sudbury structure: *Canadian Journal of Earth Sciences*, 51(7): 715–729
dx.doi.org/10.1139/cjes-2013-0212
- Olaniyan, O.**, Smith, R.S., Lafrance, B. 2015. Regional 3D geophysical investigation of the Sudbury structure. *Interpretation*, Vol. 3, No. 2 (May 2015); p. SL63–SL81
- Ordonez-Calderon, J.C.**, Lafrance, B., Gibson, H.L., Schwartz, T., Pehrsson, S., and Rayner, N.M., In Press. Petrogenesis and Geodynamic Evolution of the Paleoproterozoic Trout lake Volcanogenic Massive Sulfide Deposit, Flin Flon, Manitoba, Canada. A Special Issue on volcanogenic massive sulfide deposits of the Trans-Hudson Orogen, *Economic Geology*.
- Pandur, K., Ansdell, K., and Kontak, D.J. (in press) Graphic-like melt inclusion textures in apatite: Evidence for pegmatitic processes in a REE-enriched carbonatites? *Geology*.
- Pandur, K., Kontak, D.J. and Ansdell, K. (2014): Hydrothermal evolution in the Hoidas Lake vein-type REE deposit, Saskatchewan, Canada: Constraints from fluid inclusion microthermometry and evaporate mound analysis. *Canadian Mineralogist*, vol. 202-203, 395-412.
- Pehrsson, S., Gibson, H.L., and Gilmore, K., In Press, Preface: A Special Issue on volcanogenic massive sulfide deposits of the Trans-Hudson Orogen, *Economic Geology*.
- Petersen, S., Westhues, A., Monecke, T., Hannington, M., Gemmell, B., Sharpe, R., Peters, M., Strauss, H., Lackschewitz, K., Augustin, N., Gibson, H., and Kleeberg, R., 2014. Drilling shallow-water massive sulphides at the Palinuro Volcanic Complex, Aeolian Island Arc, Italy. *Economic Geology*, v. 109.
- Piilonen, P.C., Rowe, R., Poirier, G., Grice, J.D. & McDonald, A.M. (2014): Discreditation of thorogummite. *The Canadian Mineralogist*, 52, 769-773.
- Poulin, R.Y.**, McDonald, A.M., Kontak, D.J. & McClenaghan, M.B. (201X): Crystal-chemical influences on the cathodoluminescence of scheelite. *The Canadian Mineralogist* (*Accepted for publication 13 May, 2015*).

Raharimahefa, T., Lafrance, B., and Tinkham, D.K., 2014. New structural, metamorphic, and U-Pb geochronological constraints on the Blezardian Orogeny and Yavapai Orogeny in the Southern Province, Sudbury, Canada. *Canadian Journal of Earth Sciences*, 750-774.

Richan, L., Gibson, H.L., Houle, M.C, and Leshner, C.M., In Press, Mode of emplacement of Archean komatiitic tuffs and flows in the Selkirk Bay area, Melville Peninsula, Nunavut, Canada. *Precambrian Research* (2015).

Ross, K.C., Petrus, J.A. & McDonald, A.M. (2014): An empirical assessment of two-dimensional (2D) Debye–Scherrer-type image-plate X-ray diffraction data collapsed into a 1D diffractogram. *Powder Diffraction*, 29, 337-346.

Schetselaar, E., Pehrsson, S., Devine, C., Lafrance, B. , White, D., Malinowski, M., in press. 3D Geologic Modelling in the Flin Flon Mining Camp, Trans-Hudson Orogen, Canada: Evidence for Polyphase Imbrication of the Flin Flon - 777- Callinan VMS Ore System. *Economic Geology*.

Schindler, M. (2014) A mineralogical and geochemical study of slag in the historical O'Donnell Roast Yards, Sudbury, Ontario, Canada. *Can. Mineral.* 52, 433-452.

Schindler, M. and Hochella, M.F. (2015) Soil memory in mineral surface coatings: environmental processes recorded at the nanoscale. *Geology* 43, 415–418.

Schindler, M., **Legrand, C.A.**, Hochella, M.F. (2015) Alteration, adsorption and nucleation processes on clay-water interfaces: Mechanisms for the retention of uranium by altered clay surface on the nanometer scale. *Geochim. Cosmochim.* 153, 15-36.

Smith, R. S., 2014, Electromagnetic induction methods in mining geophysics from 2008 to 2012: Surveys in Geophysics, *Surveys in Geophysics*: 35(1), 123-156. DOI 10.1007/s10712-013-9227-1

Thurston, P. (In press). Greenstone belts and granite-greenstone terranes: constraints on the nature of the Archean world. *Geoscience Canada*

Articles/reports (in non-refereed journals):

Gao, J.-F., Jackson, S.E., Dube, B., Kontak, D.J., and DeSouza, S. (2015): Genesis of the Canadian Malartic, Côté Gold, and Musselwhite gold deposits: Insights from LA-ICP-MS element mapping of pyrite. *In: Targeted Geoscience Initiative 4: Contributions to the Understanding of Precambrian Lode Gold Deposits and Implications for Exploration*, (eds) B. Dubé and P. Mercier-Langevin; Geological Survey of Canada, Open File XXXX.

Gourcerol, B., Thurston, P.C., and Kontak, D.J. (2015): Depositional setting of Algoma-type Banded Iron Formation from the Meadowbank, Meliadine and Musselwhite gold deposits. *In: Targeted Geoscience Initiative 4: Contributions to the Understanding of Precambrian Lode Gold Deposits and Implications for Exploration*, (eds) B. Dubé and P. Mercier-Langevin; Geological Survey of Canada, Open File XXXX, p. .

Gourcerol, B., P.C. Thurston, D.J. Kontak, and O. Côté-Mantha 2014: Interpretations and implications of preliminary LA ICP-MS analysis of chert for the origin of geochemical signatures in banded iron formations (BIFs) from the Meadowbank gold deposit, Western Churchill Province, Nunavut **GSC Current Research 2014-1**

Gourcerol, B., P.C. Thurston, D.J. Kontak, and O. Côté-Mantha 2014: The geochemistry of chert from Banded Iron Formation-type gold deposits at Musselwhite, Meadowbank and Meliadine: Distinguishing primary- versus and mineralization-related signatures of chert. **GSC Current Research**. Submitted March 26, 2014

- Gourcerol, B.**, Thurston, P.C. Kontak, D., and Cote-Mantha, O., 2014. Interpretations and Implications of Preliminary LA-ICP-MS analysis of chert from the origin of geochemical signatures in banded iron-formations from the Meadowbank gold deposit, western Churchill Province, Nunavut. Geol. Survey Canada Current Research 2013-20 22p.
- Hahn, K.E.**, and Turner, E.C., 2014. High-precision trace-element analysis of deep-water, vent-related dolostone in the Borden Basin, Nunavut. Summary of Activities 2013, Canada-Nunavut Geoscience Office, p. 1-9.
- Harrison, J.C., Thorsteinsson, R., Mayr, U., Lynds, T., Ford, A; Turner, E.C. 2014. Geology, tectonic assemblage map of Wellington Channel, Cornwallis and western Devon islands, Nunavut. Geological Survey of Canada, Canadian Geoscience Map 33, (ed. prelim.), 2014; 1 sheet, doi:10.4095/292831
- Katz, L.R.**, Kontak, D.J., Dubé, B., and McNicoll, V. (2015): The Archean Côté Gold intrusion-related Au(-Cu) deposit, Ontario: A large tonnage, low-grade deposit centred on a magmatic-hydrothermal breccia, *In: Targeted Geoscience Initiative 4: Contributions to the Understanding of Precambrian Lode Gold Deposits and Implications for Exploration*, (eds) B. Dubé and P. Mercier-Langevin; Geological Survey of Canada, Open File XX.
- Katz, L.R.**, Kontak, D.J., Dubé B., and Rogers, J.R. (2015): Chemical fingerprinting of the Archean Côté Gold deposit: A large-tonnage, low-grade intrusion-related deposit system, Ontario, Canada; *in TGI 4 – Intrusion Related Mineralisation Project: New Vectors to Buried Porphyry-Style Mineralisation*, (ed.) N. Rogers; Geological Survey of Canada Open File XXX.
- Kontak, D.J., **MacInnis, L.M.**, Ames, D.E., Rayner, N., and Joyce, N. (2015): A geological, petrological, and geochronological study of the Grey Gabbro unit of the Podolsky Cu-(Ni)-PGE deposit, Sudbury, Ontario, with a focus on the alteration related to the formation of sharp-walled chalcopyrite veins, *In: Targeted Geoscience Initiative 4: Canadian Nickel-Copper-Platinum Group Elements-Chromium Ore Systems — Fertility, Pathfinders, New and Revised Models*, (eds) D.E. Ames and M.G. Houle; Geological Survey of Canada, Open File XXXX
- Lafrance, B. 2015. Structural and lithological controls on gold mineralization at the Cheminis mine: Implications for the formation of gold deposits along the Larder Lake – Cadillac deformation zone, Ontario. *In: Targeted Geoscience Initiative 4: Contributions to the Understanding of Precambrian Lode Gold Deposits and Implications for Exploration*, (eds) B. Dube and P. Mercier-Langevin; Geological Survey of Canada.
- Rainbird, R., Ielpi, A., Turner, E.C., and Jackson, V.A., 2015. Reconnaissance geological mapping and thematic studies of northern Brock Inlier, Northwest Territories. Geological Survey of Canada Open File 7695, 10 p.
- Tóth, Z.**, Lafrance, B., Dubé, B., McNicoll, V., Mercier-Langevin, P., and Creaser, R.A., 2015. Banded iron formation-hosted gold mineralization in the Geraldton area, northwestern Ontario: Structural setting, mineralogical characteristics, and geochronology, *In: Targeted Geoscience Initiative 4: Contributions to the Understanding of Precambrian Lode Gold Deposits and Implications for Exploration*, (eds) B. Dube and P. Mercier-Langevin; Geological Survey of Canada.
- Tóth, Z.**, Lafrance, B., Dubé, B., Mercier-Langevin, P., and McNicoll, V. J, 2015. Structural setting, mineralogical characteristics and geochemical footprints of banded-iron-formation-hosted gold mineralization in the Geraldton area, Ontario; Geological Survey of Canada, Open File 7667, doi: <http://dx.doi.org/10.4095/295526>

Tóth, Z., Lafrance, B., Dubé, B., Mercier-Langevin, P., and McNicoll, V. J. 2014. An update of the structural and stratigraphic setting and geochemical footprint of the gold mineralisation in the Beardmore-Geraldton Belt, NW Ontario. Open File Report, Geological Survey of Canada.

Tóth, Z., Lafrance, B., Dubé, B., Mercier-Langevin, P., and McNicoll, V. J. 2014. Targeted Geoscience Initiative 4. Lode Gold Deposits in Ancient Deformed and Metamorphosed Terranes: Relative chronology between hydrothermal activity, gold mineralization and deformation events in the Geraldton area, NW Ontario; *in* Summary of Field Work and Other Activities 2014, Ontario Geological Survey, Open File Report 6300, p. 40-1 to 40-10.

Turner, E.C., *in press*. Gossans of the Cornwallis District, central high Arctic islands, Canada. Geological Survey of Canada, Open File.

Turner, E.C., 2015. Base-metal enrichment in Stage-5 (mid-Cambrian) black shale of the Hess River Formation, Misty Creek Embayment, Selwyn Basin, *in* Paradis, S., ed., Targeted Geoscience Initiative 4: sediment-hosted Zn-Pb deposits: processes and implications for exploration; Geological Survey of Canada, Open File 7838, p. 75-95. doi:10.4095/296328

Published conference proceedings (papers, reports, summaries, abstracts):

Alimohammadi, M., Kontak, D.J., and Alirezaei, S. (2014): Geology, Geochemistry and Alteration-Mineralization of the Porphyry Cu±Mo Deposit at the Daraloo and Sarmeshk Copper Deposits, central part of the Dehaj-Sardoeieh belt, South Iran. Geological Association of Canada-Mineralogical Association of Canada Annual Meeting, Fredericton, NB, May 2015, Program with Abstracts, vol. 38.

Alimohammadi, M., Kontak, D.J., Alirezaei, S., and Kyser, T.K. (2014): Stable Isotopes (O, H, S, C) and Fluid Inclusions Document Fluid Mixing in the Ore-forming Systems of the Daraloo and Sarmeshk Copper Deposits, central part of the Dehaj-Sardoeieh belt, South Iran. Geological Association of Canada-Mineralogical Association of Canada Annual Meeting, Fredericton, NB, May 2015, Program with Abstracts, vol. 38.

Alimohammadi, M., Kontak, D.J., and Kyser, T.K. (2014): Fluid Inclusions and Stable Isotopes (O, H, S, C) Document Fluid Mixing in the Ore-forming Systems of the Daraloo and Sarmeshk Porphyry Cu Deposits, Central Part of the Dehaj-Sardoeieh Belt, South Iran. Program with Abstracts, 12th Pan-American Current Research on Fluid Inclusions Conference, Denver, CO, p. 57-58.

Baldwin, G.J., Turner, E.C., and Kamber, B.S., 2014. Tectonostratigraphy of the Rapitan Group, NWT and YT. Geological Association of Canada – Mineralogical Association of Canada Joint Annual Meeting, Fredericton, May 20-23, p. 17-18.

Burns, M., G., Kontak, D.J., McDonald, A., Kyser, T.K., and Groat, L.A. (2014): Textural, chemical and isotopic evidence for open-system behaviour during fluid-mediated metasomatism in a rare-element pegmatite: A case study of the Little Nahanni LCT-type pegmatites, NWT, Canada. Geological Association of Canada-Mineralogical Association of Canada Annual Meeting, Fredericton, NB, May 2015, Program with Abstracts, vol. 38.

Chen, L., Kontak, D.J., and Creaser, R.A. (2014): Further Re-Osarsenopyrite geochronology from selected Meguma Au deposits, Meguma Terrane, Nova Scotia: Possible evidence for a protracted gold-forming system. Geological Association of Canada-Mineralogical

Association of Canada Annual Meeting, Fredericton, NB, May 2015, Program with Abstracts, vol. 38.

Chen, L., Creaser, R., and Kontak, D.J. (2014) Further Re-Os arsenopyrite geochronology from selected Meguma Au deposits, Meguma terrane, Nova Scotia: Possible evidence for a protracted gold-forming system. Geological Society America Meeting, Vancouver BC, October 2014, Abstracts with Programs, v. 46

Crowell, S., Hanley, J.J., and Kontak, D.J. (2014): Secondary gold precipitation involving immiscible methane-nitrogen-rich and aqueous fluids, Lupin Gold Deposit, Nunavut. Nunavut Geoscience Forum, Yellowknife NWT, November 2014, Program with Abstracts.

Desmarais, J. K., Pan Y., McDonald, A.M. & Tse, J.S. (2015): Crystal and Electronic Structure of (Fe,Ni,PGE)-Pentlandites: Planetary and Economic Implications, Montreal, May, 2015. AGU-GAC-MAC meeting.

Engelbert, M.S., Friesen, V., Gibson, H.L., and Lafrance, B. 2014. Volcanic reconstruction of the productive VMS ore interval in the Paleoproterozoic Chisel sequence, Snow Lake, Manitoba. In Program with Abstracts, GAC/MAC Annual Meeting, Fredericton.

Engelbert, M.S., Fisher, B., Turner, ECT and Kontak, D.J. (2014): Targeting carbonate-hosted Zn-Pb ore in the Mackenzie Mountains: Where to look and why. Geological Society America Meeting, Vancouver BC, October 2014, Abstracts with Programs, v. 46.

Engelbert, M.S., Lafrance, B., and Gibson, H.L. 2014. Structural controls on volcanogenic massive sulfide deposits in the Paleoproterozoic Chisel sequence, Snow Lake, Manitoba. 2014 Geological Society of America Annual Meeting, Vancouver, BC.

Friesen, V., Engelbert, M., DeWolfe, M., and *Gibson, H.*, 2015. Volcanic reconstruction of the Powderhouse Dacite in the Paleoproterozoic VMS hosting Chisel Sequence, Snow Lake, Manitoba. In, Program with Abstracts, GAC/MAC/AGU Joint-Annual Meeting, Montreal.

Gibson, H.L. and Lafrance, B. (2014) Geologic setting, mineralogy, and geochemistry of the Paleoproterozoic Photo Lake VMS deposit, Snow Lake, Manitoba. 2014 Geological Association of Canada-Mineralogical Association of Canada (GAC-MAC) Joint Annual Meeting Program with Abstracts.

Gibson, H.L., Ulrich Schwarz-Schampera, Michelle DeWolfe, **Margaret Engelbert** and Ralf Freitag, 2015. Contrasting the settings of seafloor massive sulfide deposits on the South Central Indian Mid-Ocean Ridge: Results of the Bundesanstalt für Geowissenschaften und Rohstoffe (BGR) INDEX 2013 cruise. In Program with Abstracts, GAC/MAC/AGU Joint-Annual Meeting, Montreal.

Gibson, H.L., et al., 2014. Reconstruction of the ore interval and environment for the Paleoproterozoic, Lost and Ghost Lake VMS deposits, Snow Lake, Manitoba. In Program with Abstracts, GAC/MAC Annual Meeting, Fredericton.

Gourcerol, B., P.C. Thurston, D.J. Kontak, O. Côté-Mantha and J. Biczok 2015: Depositional Setting of Algoma-type Banded Iron Formation from the Meadowbank, Meliadine and Musselwhite gold deposits. PDAC Poster abstract, March 2, 2015

Gourcerol, B., P.C. Thurston, D.J. Kontak, O. Côté-Mantha 2014: The Geochemistry of banded iron formations (BIF) at the Meadowbank gold deposit, Churchill Province: Implications for the origin of gold mineralization in BIF deposits. GAC/MAC Abstract vol. 37: 107.

Gourcerol, B., P.C. Thurston, D.J. Kontak, O. Côté-Mantha, 2014 : The Geochemical Signature of Chert from Banded Iron Formation (BIFs) in the Meadowbank Gold deposit, Nunavut:

Implications for the Sources of Fluids in Gold Mineralized BIF Deposits. Poster Presentation, Prospectors and Developers Assoc. of Canada, March 3, 2014

Hahn, K., and Turner, E.C., 2014. Marine diagenesis of Mesoproterozoic deep-water seep mounds. Geological Society of America Annual Meeting, Vancouver, Oct. 19-22.

Hahn, K.E. and Turner, E.C., 2014. Seep-related microbial carbonate accumulation in the tectonically active Mesoproterozoic Borden Basin (NU). Geological Association of Canada – Mineralogical Association of Canada Joint Annual Meeting, Fredericton, May 20-23, p. 110-111.

Hall, M., Lafrance, B., and Gibson, H., 2015. Deformation and structural controls at the Broken Hammer deposits, Sudbury. On. In, Program with Abstracts, GAC/MAC/AGU Joint-Annual Meeting, Montreal.

Hastie, E.C.G., Kontak, D.J., Lafrance, B. (2015): Gold Metallogeny of the Southern Swayze Greenstone Belt: Poor or Rich Cousin to the Abitibi? In Program with Abstracts, Student Poster Session, PDAC Meeting, Toronto, ON, March 2015.

Hunter, R., Lafrance, B., Heaman, L. 2015. Deformation, Litho-geochemistry and New U-Pb Geochronology of the Aberdeen Lake area, Central Rae Craton, Nunavut. In: Joint Assembly, American Geophysical Union, Canadian Geophysical Union, Geological Association of Canada, Mineralogical Association of Canada, Abstract Volume, Montreal.

Hunter, R., **Lafrance, B.**, Thomas, D. (2014). Structural controls on unconformity-type uranium mineralization with comparisons to the newly discovered Tatiggaq Zone, northeast Thelon Basin, Nunavut, Canada. 2014 Geological Association of Canada-Mineralogical Association of Canada (GAC-MAC) Joint Annual Meeting, Workshop on Structure and Ore Deposits, Fredericton, New Brunswick.

Katz, L., Kontak, D.J., Dubé, B., McNicoll, V., and Creaser, R.A (2014): The Archean Côté Gold intrusion-related Au (-Cu) deposit, Ontario, Canada: A large-tonnage, low-grade deposit centered on a magmatic-hydrothermal breccia. Geological Association of Canada-Mineralogical Association of Canada Annual Meeting, Fredericton, NB, May 2015, Program with Abstracts, vol. 38.

Katz, L., Kontak, D.J., Dubé, B., and Roger, J. (2014): Geology and geochemistry of an Archean intrusion related Au gold deposit: The Archean Côté Gold deposit of northern Ontario, Canada. Geological Association of Canada-Mineralogical Association of Canada Annual Meeting, Fredericton, NB, May 2015, Program with Abstracts, vol. 38.

Katz, L. and Kontak, D.J., Dube, B., and McNicoll, V. (2015, invited): The Cote Gold deposit, northern Ontario: Nature and origin of an Archean intrusion-related Au-(Cu) system. Northeastern Ontario Prospectors Association Annual Meeting, Kirkland Lake ON, March 2015.

Kolaj, M., and Smith, R., 2014, A multiple transmitter and receiver electromagnetic system for improved target detection. SEG Technical Program Expanded Abstracts 2014: pp. 1754-1758. Presented October 30. doi: 10.1190/segam2014-0133.1

Kolaj, M., and Smith, R., 2014, Conductance estimates from spatial and temporal derivatives of borehole electromagnetic data. SEG Technical Program Expanded Abstracts 2014: pp. 1764-1769. Presented October 30 doi: 10.1190/segam2014-0132.1

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- Kontak, D.J. (2014, invited): Meguma gold deposits: Insights into the role of multiple and protracted earth-system processes during formation of a sediment-hosted, orogenic-type gold system. Geological Society America meeting, Vancouver BC, October 2014, Abstracts with Programs, v. 46.
- Kontak, D.J. (2015, invited): Magmatic-hydrothermal ore-forming systems: Products of resurgent boiling, fluid focusing and changing PTX conditions. Annual Atlantic Geoscience Society Meeting, Sackville NB, February 2015, Program with Abstracts.
- Kontak, D.J., Chattopadhyay, A., Petrus, J.A., and Fayek, M. (2014): Zircon is not always robust: A case example of dissolution-reprecipitation and variable discordance in zircon from syn-tectonic Neoproterozoic granitoids in the Gavilgarh-Tan shear zone, central India. Geological Association of Canada-Mineralogical Association of Canada Annual Meeting, Fredericton, NB, May 2015, Program with Abstracts, vol. 38.
- Kontak, D.J., Dostal, J., Petrus, J.A., Fayek, M., and Shellnut, G. (2014): Textural, chemical and isotopic evidence for pervasive high-temperature metasomatism in type examples of the Cretaceous Mongolian Ongonites. Geological Association of Canada-Mineralogical Association of Canada Annual Meeting, Fredericton, NB, May 2015, Program with Abstracts, vol. 38.
- Kojonen, K., McDonald, A.M., Stanley, C.J., Johanson, B. & Tranber, J. (2014): On the occurrence of an unusual Se-bearing moncheite and Te-bearing palladseite, Miessi River, Inari Commune, Finland. International Mineralogical Association meeting, Johannesburg, South Africa.
- Kontak, D.J., **Poulin, R.Y.**, McDonald, A.M. & McClenaghan, M.B. (2014): A review of scheelite chemistry and its use as a discriminator in ore-deposit settings, use as an indicator mineral and monitor of ore-forming processes. International Applied Geochemistry Symposium, Tucson, Arizona (April 2015).
- Lafrance, B. 2014. Structural evolution of the Sudbury impact structure: implications for mineral exploration. MERC/DES/GSM Exploration Workshop, Sudbury, Ontario.
- Lafrance, B. 2014. La faille de Larder Lake – Cadillac: perspectives ontariennes et comparaison avec la faille Ridout. Carrefour Quebec Mines 2014, Quebec, PQ.
- Lafrance, B. 2015. Structural and lithological controls on gold mineralization at the Cheminis mine: Implications for the formation of gold deposits along the Cadillac – Larder Lake deformation zone, Ontario. NEOMM Kirkland Lake symposium - Targeted Geoscience Initiative 4 (TGI-4) Lode Gold project workshop, Kirkland Lake, Ontario
- Lafrance, B., Gibson, H.L. (2014) Primary and Secondary Structural controls on VMS deposits. Workshop on Structure and Ore Deposits, GAC-MAC Annual Meeting, Fredericton, New Brunswick.
- Lafrance, B., **Mukwakwami, J.**, Nailey, J., Leshner, C.M. (2014) Structural controls on Ni-Cu sulfide deposits. Workshop on Structure and Ore Deposits, GAC-MAC Annual Meeting, Fredericton, New Brunswick
- Lam, J.**, Tinkham, D., and Gibson, H.L., 2014. Characterization of gold occurrences with respect to metamorphism at the Lalor Deposits, snow lake, Manitoba. In, Program with Abstracts, GAC/MAC Annual Meeting, Fredericton.
- MacNaughton, R.B., Pratt, B.R., Fallas, K.M., and Turner, E.C., 2014. History of Mackenzie Arch and its influence on Cambrian sedimentation in the eastern Mackenzie Mountains and adjacent Mackenzie Plain, Northwest Territories. Geological Association of Canada –

- Mineralogical Association of Canada Joint Annual Meeting, Fredericton, May 20-23, p. 171.
- McDonald, A.M. (2014): Raman spectroscopy: Identification and characterization of minerals and applications to solving geoscience-related issues. GAC-MAC Joint Annual Meeting, Fredericton, Canada (*Invited, Keynote*).
- Mahmoodi, O.**, and Smith, R., 2015, Rock boundaries selection from more than one geophysical log using principle component and derivative analyses: GeoConvention 2015, May 4-8, 2015, Calgary, Alberta. Extended Abstract.
- Mahmoodi, O.**, and Smith, R., 2014, Clustering of down-hole physical properties measurement to characterize rock units at the Victoria Cu-Ni property. SEG Technical Program Expanded Abstracts 2014: pp. 1742-1747. Presented October 29. doi: 10.1190/segam2014-0190.1
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- McDivitt, J.**, Lafrance, B., and Kontak, D.J. (2015): Gold mineralization at the former Renabie Mine: The importance of an early hydrothermal anisotropy on shear zone localization. In Program with Abstracts, Student Poster Session, PDAC Meeting, Toronto, ON, March 2015.
- Medig, K., Thorkelson, D., Davis, W.J., Rainbird, R., Gibson, H.D., Turner, E.C. and Marshall, D., 2014. Reconfiguring supercontinent Columbia: pinning northeastern Australia to northwestern Laurentia using a near-unimodal detrital zircon population. Geological Society of America Annual Meeting, Vancouver, Oct. 19-22.
- Naprstek, T.**, and Smith R., 2014, Modelling the radio imaging method using electric dipoles in a homogeneous whole space. SEG Technical Program Expanded Abstracts 2014: pp. 1822-1826. Presented October 29. doi: 10.1190/segam2014-0288.1
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- Poulin, R.S.**, McDonald, A., Kontak, D.J., and McClenaghan, B. (2014): Scheelite: Geochemical characteristics of a misunderstood mineral and potential to chemically fingerprint hydrothermal ore deposits. Geological Association of Canada-Mineralogical Association of Canada Annual Meeting, Fredericton, NB, May 2015, Program with Abstracts, vol. 38.
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- Poulin, R.S.**, McDonald, A.M., Kontak, D.J. & McClenaghan, M.B. (2015): Scheelite chemistry and its use as an indicator mineral for hydrothermal ore deposits: Montreal, May, 2015. AGU-GAC-MAC meeting.
- Ross, K.C.**, McDonald, A.M., Kontak, D.J., Thurston, P.C. Kendall, J. & Cole, J. (2014): Gold Sniffing: The design of a portable device for in situ measurement of particulate gold and its application in exploration. GAC-MAC Joint Annual Meeting, Fredericton, Canada.

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Mountain Batholith, Nova Scotia, Canada Program with Abstracts, 12th Pan-American Current Research on Fluid Inclusions Conference, Denver, CO, p. 54-55.

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