

PUBLICATIONS

Data Repository Items

DRI2023007

Till-matrix geochemistry re-analyses data from far northeastern and far northwestern Manitoba (parts of NTS 54E, F, L, 64J, K, N, O)
by M.S. Gauthier and P.-M. Godbout

DRI2023015

Till geochemistry and heavy mineral analyses (gold, MMSIM[®], visual KIM) of the western Fox River greenstone belt area, northeastern Manitoba (NTS 53M15, 16, parts of 53N13, 54C4, 54D1): year 2
by M.S. Gauthier and T.J. Hodder

DRI2023016

Compilation of Sm-Nd isotope results for archived samples from the Manitoba Geological Survey's Far North projects (parts of NTS 64I, K, M, N, P)
by Manitoba Geological Survey

DRI2024001

Till heavy mineral analysis (gold, MMSIM, visual KIM) from eight sections near the confluence of the Hayes and Gods rivers, northeastern Manitoba (parts of NTS 54C2, 7)
by M.S. Gauthier, L.N. Mesich and T.J. Hodder

DRI2024002

Till geochemistry from eight sections near the confluence of the Hayes and Gods rivers, northeastern Manitoba (parts of NTS 54C2, 7)
by L.N. Mesich, M.S. Gauthier and T.J. Hodder

DRI2024003

Till-matrix geochemistry data from the 2022–2023 field seasons in southeastern Manitoba (parts of NTS 52L, 62P, 63A)
by T.J. Hodder

DRI2024004

Gold and indicator-mineral data derived from glacial sediments (till) in southeastern Manitoba (parts of NTS 52L, 62P, 63A)
by T.J. Hodder

DRI2024005

Till-clast–lithology data, western Fox River greenstone belt area, northeastern Manitoba (NTS 53M15, 16, parts of 53N12, 13, 54C4, D1)
by M.S. Gauthier, M. Budge and M. Friesen

DRI2024006

Till-clast–lithology data, Gillam area, northeastern Manitoba (parts of NTS 54C, D, 64A)
by M.S. Gauthier

DRI2024007

2023 aggregate field visits: Quaternary site data, composition, and ice-flow indicators from gravel pits in southern Manitoba (parts of NTS 62H15, I13, P5)

by M.S. Gauthier and J. Rentz

DRI2024008

Rock Volatiles Stratigraphy data from drill cuttings from four oil wells in southwestern Manitoba (parts of NTS 62F2, K3)

by M.P.B. Nicolas, C.M. Smith and M.P. Smith

Microsoft® Excel® file supplements:

Nicolas, M.P.B., Smith, C.M. and Smith, M.P. 2024: Rock volatiles analysis of drill cuttings to evaluate the helium and hydrocarbon prospectivity of southwestern Manitoba (parts of NTS 62F2, K3); *in* Report of Activities 2024, Manitoba Economic Development, Investment, Trade and Natural Resources, Manitoba Geological Survey, p. 153–163.

DRI2024009

Salvaged diamond-drillcore at the Thompson Facility and Compound, east-central Manitoba (parts of NTS 54C, 63P, 64A): updated

by C.G. Couëslan

Microsoft® Excel® file supplements:

Couëslan, C.G. 2024: Thompson Facility and Compound core recovery project, east-central Manitoba (parts of NTS 64A1, 8): year two; *in* Report of Activities 2024, Manitoba Economic Development, Investment, Trade and Natural Resources, Manitoba Geological Survey, p. 127–128.

DRI2024010

Field-based ice-flow-indicator data collected during the 2023 and 2024 field seasons in southeastern Manitoba (parts of NTS 52L, M, 62P)

by T.J. Hodder

Microsoft® Excel® file supplements:

Hodder, T.J. and Lian, O.B. 2024: Reconnaissance-scale Quaternary geology investigations to support lithium exploration in southeastern Manitoba (parts of NTS 52L, M, 62P, 63A); *in* Report of Activities 2024, Manitoba Economic Development, Investment, Trade and Natural Resources, Manitoba Geological Survey, p. 200–208.

DRI2024011

Geochemical data of bulk-rock samples collected in the 2022 and 2023 field seasons from the Lynn Lake greenstone belt, northwestern Manitoba (parts of NTS 64C10–12, 14–16)

by X.M. Yang

Microsoft® Excel® file supplements:

Yang, X.M. 2024: New uranium-lead zircon dates from the Lynn Lake greenstone belt, northwestern Manitoba (part of NTS 64C14): implications for diverse granitoid magmatism and gold mineralization; *in* Report of Activities 2024, Manitoba Economic Development, Investment, Trade and Natural Resources, Manitoba Geological Survey, p. 129–144.

DRI2024012

Compilation of gas compositions from oil and gas wells in southwestern Manitoba (NTS 62G12, 62K3, parts of 62F)

by M.P.B. Nicolas

Microsoft® Excel® file supplements:

Nicolas, M.P.B. 2024: Geologic hydrogen in the Williston and Hudson Bay basins, southwestern and northeastern Manitoba (parts of NTS 53, 54, 62, 63); *in* Report of Activities 2024, Manitoba Economic Development, Investment, Trade and Natural Resources, Manitoba Geological Survey, p. 164–171.

DRI2024013

Whole-rock geochemistry and interactive GIS map file from the Cross Lake pegmatite field (parts of NTS 63I3–6, 11–14, 63J1–3, 6–11, 14–16)

by T. Martins, J. Janssens, P. Lenton, T. Corkery and A. Anderson

Microsoft® Excel® file supplements:

Martins, T., Janssens, J. and Lenton, P. 2024: Spodumene-bearing pegmatites from the Cross Lake pegmatite field, east-central Manitoba: mineralogy and petrography descriptions (parts of NTS 63I12, 63J9); *in* Report of Activities 2024, Manitoba Economic Development, Investment, Trade and Natural Resources, Manitoba Geological Survey, p. 77–84.

GeoFiles

GeoFile 2-2023

Manitoba till-matrix geochemistry compilation: silt plus clay (<63 µm) size-fraction by inductively coupled plasma–mass spectrometry after an aqua-regia or modified aqua-regia digestion

by M.S. Gauthier

GeoFile 5-2023

Updates to the Manitoba Mineral Deposits Database

by M.L. Rinne

GeoFile 7-2023

Manitoba till-matrix geochemistry compilation: total carbonate of the silt plus clay (<63 µm) size-fraction

by M.S. Gauthier

GeoFile 8-2023

Manitoba till-matrix geochemistry compilation: visible gold grains in the heavy mineral (<2 mm) size-fraction

by M.S. Gauthier

GeoFile 2-2024

Manitoba till-matrix geochemistry compilation: silt plus clay (<63 µm) size fraction by inductively coupled plasma–mass spectrometry after an aqua-regia or modified aqua-regia digestion

by M.S. Gauthier

GeoFile 5-2024

Updates to the Manitoba Mineral Deposits Database

by M.L. Rinne

Open Files

OF2024-1

Quaternary site, till composition and ice-flow indicator datasets in the Kaskattama highland area, northeastern Manitoba (parts of NTS 53N, O, 54B, C)

by T.J. Hodder, M.S. Gauthier, S.E. Kelley and M. Ross

OF2024-4

Bedrock geology of Manitoba

by Manitoba Geological Survey (scale 1:1 000 000)

Preliminary Map

PMAP2024-1

Bedrock geology of the northwestern Burntwood Lake area, west-central Manitoba (part of NTS 63N7)

by C.G. Couëslan (scale 1:10 000)

EXTERNAL PUBLICATIONS

- Amor, S.D., Couëslan, C.G., Gauthier, M.S., Martins, T., McCurdy, M.W., Day, S.J.A. and Adcock, S.W. 2024: Regional lake-sediment geochemical data from northern Manitoba (NTS 064-G): reanalysis data and QA/QC evaluation; Geological Survey of Canada, Open File 9197, 27 p.
- Amor, S.D., Couëslan, C.G., Gauthier, M.S., Martins, T., McCurdy, M.W., Day, S.J.A. and Adcock, S.W. 2024: Regional lake-sediment geochemical data from northern Manitoba (NTS 064-J and 064-K): reanalysis data and QA/QC evaluation; Geological Survey of Canada, Open File 9187, 28 p.
- Annesley, I.R., Cardenas-Vera, A., Santos, A.C., Martins, T. and Partin, C.A. 2024: Tapping the rare earth elements (REE) potential of northern Saskatchewan, Canada: new critical minerals initiative, research approach, and potential implications [abstract]; AGU2024, December 9–13, 2024, Washington, D.C., United States.
- Breasley, C.M., Barker, I.R., Linnen, R.L, Martins, T. and Groat, L.A. in press: The use of X-ray micro-computed tomography to visualize and quantify lithium-bearing silicate minerals in pegmatites: examples from the Tanco pegmatite, Manitoba, Canada; *American Mineralogist*.
- Breasley, C.M., Groat, L.A., Martins, T., Linnen, R.L. and Larson, K. in press: Petrology and mineralogy of the petalite-type Prof pegmatite, Revelstoke, British Columbia, Canada; *Mineralogical Magazine*.
- Breasley, C.M., Groat, L.A., Martins, T., Linnen, R.L., Larson, K. and Henry, R.E. 2024: Mineralogy and petrology of the petalite-subtype prof pegmatite, Revelstoke, British Columbia, Canada; Geological Association of Canada–Mineralogical Association of Canada and the 10th International Symposium on granitic pegmatites, Joint Annual Meeting, May 19–22, 2024, Brandon, Manitoba, Program with Abstracts, v. 47, oral presentation.
- Brennan, C.J., Student, J.J., Hill, T., Martins, T. and Sirbescu M.-L.C. 2024: Trace element concentrations and chemical zoning of spodumene from magmatic and hydrothermal origins; *Ore Geology Reviews*, v. 169, art. 106089, URL <<https://doi.org/10.1016/j.oregeorev.2024.106089>>.
- Brewer, V., Hodder, T., Gauthier, M., Schaarschmidt, M. and Lian, O.B. 2024: Optical dating of proglacial lake sediments, Roseau River, Manitoba, Canada; Canadian Quaternary Association and Canadian Geomorphology Research Group Biennial Meeting, August 18–21, 2024, Regina, Saskatchewan, poster presentation.
- Chen, Y., Li, L. and Yang, X.M. 2024: Nitrogen isotopic insight into the genesis of Archean continental crust [abstract]; Geological Association of Canada–Mineralogical Association of Canada and the 10th International Symposium on granitic pegmatites, Joint Annual Meeting, May 19–22, 2024, Brandon, Manitoba, Program with Abstracts, v. 47, oral presentation; *Geoscience Canada*, v. 51, p. 127, URL <<https://doi.org/10.12789/geocanj.2024.51.211>>.
- Chinaglia, S., Miles, A., Martins, T., Goodenough, K. and Groat, L. 2024: The petrogenesis of pegmatites from Shatford Lake and Cat Lake, Manitoba, Canada; Geological Association of Canada–Mineralogical Association of Canada and the 10th International Symposium on granitic pegmatites, Joint Annual Meeting, May 19–22, 2024, Brandon, Manitoba, Program with Abstracts, v. 47, poster presentation.
- Couëslan, C.G. 2023: GAC-MAC: field guide summary; *Geoscience Canada*, v. 50, p. 313–315.
- Couëslan, C.G. 2023: Stratigraphy and implications for magmatic Ni-Cu deposits in the Halfway Lake area, Thompson nickel belt, Manitoba; Central Canada Mineral Exploration Convention, November 6–7, 2023, Winnipeg, Manitoba, abstract and oral presentation.
- Couëslan, C.G. 2024: The Tower VMS deposit, a juvenile arc-hosted system within the Superior Boundary Zone [abstract]; Geological Association of Canada–Mineralogical Association of Canada and the 10th International Symposium on granitic pegmatites, Joint Annual Meeting, May 19–22, 2024, Brandon, Manitoba, Program with Abstracts, v. 47, p. 75.
- Dias, F., Lima, A., Roda-Robles, E. and Martins, T. 2024: Lithium aluminosilicate textures and lithium distribution from the aplite-pegmatites of northern Portugal: outcrop and drill core comparisons; Geological Association of Canada–Mineralogical Association of Canada and the 10th International Symposium on granitic pegmatites, Joint Annual Meeting, May 19–22, 2024, Brandon, Manitoba, Program with Abstracts, v. 47, poster presentation.

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- Garate-Olave, I., Roda-Robles, E., Santos-Loyola, N., Martins, T., Lima, A. and Errandonea-Martin, J. 2024: Crystallization sequence of the spodumene-rich Alijó pegmatite (northern Portugal) and related metasomatism on its host rock; *Minerals*, v. 14, no. 7, art. 701, URL <<https://doi.org/10.3390/min14070701>>.
- Gauthier, M.S., Hodder, T.J., Dalton, A.S., Brewer, V., Lian, O., Finkelstein, S.A., Schaarschmidt, M. and Mereghetti, A. 2024: MIS 3 Laurentide Ice Sheet retreat and advance in the Roseau River area of southern Manitoba, Canada; Canadian Quaternary Association and Canadian Geomorphology Research Group Biennial Meeting, August 18–21, 2024, Regina, Saskatchewan, oral presentation.
- Gauthier, M.S., Hodder, T.J., Dalton, A.S., Brewer, V., Lian, O.B., Finkelstein, S.F., Schaarschmidt, M. and Mereghetti, A. in press: South-central Laurentide Ice Sheet dynamics and the formation of proglacial Lake Vita during MIS 3; *Quaternary Research*.
- Gauthier, M.S., Hodder, T.J., Dalton, A.S., Lian, O.B., Schaarschmidt, M., Ross, M., Väiliranta, M. and Finkelstein, S.A. 2024: Preservation of probable MIS 7 deglacial and nonglacial deposits near the edge of the Hudson Bay Lowland in Manitoba, Canada; *Canadian Journal of Earth Sciences*, e-First, URL <<https://doi.org/10.1139/cjes-2024-0019>>.
- Hart, B., Hofmann, M., Flynn, J., Nicolas, M., Ko, T. and Longstaffe, F. 2024: Geochemistry- and petrophysics-based detection of breaks in the stratigraphic record of Cenomanian-Turonian deposit, eastern Cretaceous Western Interior Seaway: how complete is the stratigraphic record and why does it matter?; SEPM International Sedimentary Geosciences Congress 2024, May 5–8, 2024; Flagstaff, Arizona, United States, Program with Abstracts, oral presentation, URL <<https://virtual.oxfordabstracts.com/#/event/public/4532/submission/78>> [May 2024].
- Hnatiuk, T., MacDonald, J.A., Chakhmouradian, A.R., Couëslan, C.G. and Martins, T. 2023: Determining the origins of Precambrian-hosted carbonates by petrographic observation and trace element investigation, northern Manitoba, Canada; Central Canada Mineral Exploration Convention, November 6–7, 2023, Winnipeg, Manitoba, poster presentation.
- Hodder, T.J. and Martins, T. 2024: Effective drift prospecting for Li-bearing pegmatites in Manitoba, Canada; Geological Association of Canada–Mineralogical Association of Canada and the 10th International Symposium on granitic pegmatites, Joint Annual Meeting, May 19–22, 2024, Brandon, Manitoba, abstract and oral presentation.
- Hodder, T.J., Gauthier, M.S., Ross, M., Kelley, S.E., Lian, O.B., Dalton, A.S. and Finkelstein, S.A. 2024: Unravelling the fragmented sediment–landform assemblage in an area of thick Quaternary sediment, western Hudson Bay Lowland, Canada; *Canadian Journal of Earth Sciences*, e-First, URL <<https://doi.org/10.1139/cjes-2024-0018>>.
- Hodder, T.J., Gauthier, M.S., Ross, M., Lian, O.B., Schaarschmidt, M., Dalton, A.S., Finkelstein, S.A. and Gowan E. 2024: Stratigraphic evidence for early ice advances and predominance of Quebec-Labrador Dome glacial dynamics across the western Hudson Bay Lowland; Canadian Quaternary Association and Canadian Geomorphology Research Group Biennial Meeting, August 18–21, 2024, Regina, Saskatchewan, oral presentation.
- MacRae, B., Partin, C., McDonald, B., Pastula, C., Hodder, T. and Martins, T. 2024: The Kipalu Formation of the Belcher group, Nunavut, as a possible source of jasper clasts in Manitoba till; Geological Association of Canada–Mineralogical Association of Canada and the 10th International Symposium on granitic pegmatites, Joint Annual Meeting, May 19–22, 2024, Brandon, Manitoba, abstract and poster presentation.
- Martins, T. 2023: Lithium in Manitoba: production and exploration potential; Central Canada Mineral Exploration Convention, November 6–7, 2023, Winnipeg, Manitoba, oral presentation.
- Martins, T. 2024: Cs enrichment in white mica from Manitoba Li pegmatites; Lunch and Learn talk series, Department of Earth Sciences, University of New Brunswick, Fredericton, New Brunswick.
- Martins, T. 2024: Li mineralization styles in LCT pegmatites: compare and contrast; 50th AGS Colloquium and Annual Meeting, February 2–3, 2024, Moncton, New Brunswick, oral presentation.

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- Martins, T. 2024: The legacy of Petr Černý in the study of granitic pegmatites [abstract]; 37th International Geological Congress 2024, August 25–31, 2024, Busan, Republic of Korea.
- Martins, T., Deveau, C. and Falck, H. 2024: Classifying the production of lithium, caesium and tantalum from the Tanco Mine, Manitoba, Canada, according to the United Nations Framework Classification for Resources – a case study; ECE/ENERGY/GE.3/2024/12, UNECE Resource Management Week 2024, April 22–26, 2024, Geneva, Switzerland, URL <https://unece.org/sites/default/files/2024-04/Tanco_Lithium_CS_ECE-ENERGY-GE3-2024-12.pdf> [October 2024].
- Martins, T., Deveau, C. and Falck, H. 2024: Classifying the production of lithium, cesium and tantalum from the Tanco mine, Manitoba, Canada, according to UNFC – a case study; UNECE Resource Management Week 2024, April 22–26, 2024, Geneva, Switzerland, oral presentation.
- Martins, T., McFarlane, C. and Yang, P. 2024: Complex zoning in white mica from spodumene pegmatites at Cross Lake, Manitoba, Canada [abstract]; AGU2024, December 9–13, 2024, Washington, D.C., United States.
- Martins, T., Breasley, C., Groat, L., Linnen, R., Deveau, C. and Rankmore, S. 2024: The Tanco pegmatite: geological setting, internal zonation, mineralogy, and mining of a world-class rare element pegmatite deposit; Field trip guidebook, Geological Association of Canada–Mineralogical Association of Canada and the 10th International Symposium on granitic pegmatites, Joint Annual Meeting, May 19–22, 2024, Brandon, Manitoba, 39 p.
- Maxeiner, R.O., Boseman, S.A., Card, C.D., Marsh, A., Morelli, R.M., Couëslan, C.G., Martins, T., Reid, R., Easton, R.M., Knox, B., Mihalyuk, M.G., Ootes, L., Cui, Y., Grobe, M., Guemache, M.A., Lawley, C.J.M., Böhm, C. and Ashton, K. 2024: Classifying intrusive and strongly metamorphosed rock units: CLASS – a cooperative lithodemic and stratigraphic system; Canadian Journal of Earth Sciences, v. 61, p. 1014–1042.
- Menzies, J., Paulen, R.C., Reitner, J.M., Gao, C., Hodder, T. and Ross, M. 2023: Subglacial tills: a process model based on microsedimentological clues; Journal of Sedimentary Research, v. 93, no. 110, p. 705–728, URL <<https://doi.org/10.2110/jsr.2022.017>>.
- Mesich, N., Ross, M., Gauthier, M., Hodder, T.J. and Hathaway, J. 2024: Unravelling the complex Quaternary history and till provenance along the Gods and Yakaw rivers, northeastern Manitoba; Canadian Quaternary Association and Canadian Geomorphology Research Group Biennial Meeting, August 18–21, 2024, Regina, Saskatchewan, poster presentation.
- Nicolas, M.P.B., Smith, C.M. and Smith M.P. 2024: Volatiles analysis of drill cuttings to evaluate helium prospectivity in Manitoba; Canadian Energy Geoscience Association–Canadian Society of Exploration Geophysicists Annual Convention (GeoConvention 2024), June 17–19, 2024, Calgary, Alberta, URL <<https://geoconvention.com/wp-content/uploads/abstracts/2024/103996-volatiles-analysis-of-drill-cuttings-to-evaluate-h.pdf>> [September 2024].
- Pastula, C., Partin, P., McDonald, B., Hodder, T. and Martins, T. 2024: Testing the provenance of omar glacial erratics in Manitoba glacial till: preliminary results and insights from the Omarolluk Formation in the Belcher Islands, Nunavut; Geological Association of Canada–Mineralogical Association of Canada and the 10th International Symposium on granitic pegmatites, Joint Annual Meeting, May 19–22, 2024, Brandon, Manitoba, abstract and poster presentation.
- Roush, J., Martins, T., McFarlane, C.R.M., Rinne, M.L. and Groat, L. 2024: Preliminary results from the Tappy, Eagle and F.D. no.5 pegmatites, Cat Lake-Winnipeg River pegmatite field, southeastern Manitoba; 50th AGS Colloquium and Annual Meeting, February 2–3, 2024, Moncton, New Brunswick, abstract and oral presentation.
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- Silva, D., Martins, T., Groat, L. and Linnen, R. 2024: Host rock lithogeochemical perspectives of Li-enriched pegmatite, Wekusko Lake pegmatite field, Manitoba; Geological Association of Canada–Mineralogical Association of Canada and the 10th International Symposium on granitic pegmatites, Joint Annual Meeting, May 19–22, 2024, Brandon, Manitoba, abstract and poster presentation.
- Sotiriou, P., Polat, A., Kusky, T., Windley, B.F., Frei, R. and Yang, X.M. 2024: Geochemistry of Archean anorthosite-bearing layered intrusions; *Earth-Science Reviews*, v. 249, art. 104654, URL <<https://doi.org/10.1016/j.earscirev.2023.104654>>.
- Wang, X., Yin, C., Lin, S., Couëslan, C.G., Böhm, C.O. and Qian, J. 2024: Ultrahigh temperature metamorphism recorded in mafic granulites from the Pikwitonei Granulite Domain of the northwestern Superior Province; Geological Association of Canada–Mineralogical Association of Canada and the 10th International Symposium on granitic pegmatites, Joint Annual Meeting, May 19–22, 2024, Brandon, Manitoba, Program with Abstracts, v. 47, p. 124.
- Yang, X.M. 2023: Updating the study of granitoids in Manitoba: metallogenic and petrogenetic implications [abstract]; Central Canada Mineral Exploration Convention, November 6–7, 2023, Winnipeg, Manitoba, Program with Abstracts, oral presentation, URL <<https://ccme-convention.ca/eric-yang-2/>> [November 2023].
- Yang, X.M. and Lawley, C.J.M. 2024: Adakite-like granitoid intrusions in the Paleoproterozoic Lynn Lake greenstone belt, northwestern Manitoba, Canada: implications for geodynamic setting and gold mineralization [abstract]; Geological Association of Canada–Mineralogical Association of Canada and the 10th International Symposium on granitic pegmatites, Joint Annual Meeting, May 19–22, 2024, Brandon, Manitoba, Program with Abstracts; *Geoscience Canada*, v. 51, p. 127, URL <<https://doi.org/10.12789/geocanj.2024.51.211>>.
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