British Columbia Geological Survey Publications 2021
including peer-reviewed external papers co-authored by BCGS staff

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Papers

Paper 2021-01
Geological fieldwork 2020, a summary of field activities and current research, 172 p.

Wildgust, N., Jones, L.D., Clarke, G., and Hickin, A.S., 2021. British Columbia Geological Survey annual program review 2020-2021. In: Geological Fieldwork 2020, Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Paper 2021-01, pp. 1-14.

Schiarizza, P., and Friedman, R.M., 2021. U-Pb zircon date for Eocene volcanic rocks on Mount Timothy, south-central British Columbia. In: Geological Fieldwork 2020, British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Paper 2021-01, pp. 15-21.

Schiarizza, P., and Friedman, R.M., 2021. U-Pb zircon dates for the Granite Mountain batholith, Burgess Creek stock, and Sheridan Creek stock, Gibraltar Mine area, south-central British Columbia. In: Geological Fieldwork 2020, British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Paper 2021-01, pp. 23-35.

Jones, G., Ootes, L., Milidragovic, D., Friedman, R., Camacho, A., Luo, Y., Vezinet, A., Pearson, D.G., and Schiarizza, P., 2021. Geochronology of northern Hogem batholith, Quesnel terrane, north-central British Columbia. In: Geological Fieldwork 2020, British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Paper 2021-01, pp. 37-56.

Ferbey, T., and Elia, E.A., 2021. Preliminary surficial geology of the northern Hogem batholith area, north-central British Columbia. In: Geological Fieldwork 2020, British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Paper 2021-01, pp. 57-64.

Van Wagoner, N., Ootes, L., and Thomson-Gladish, J., 2021. Volcanism and geochemistry of the Kamloops Group, south-central British Columbia. In: Geological Fieldwork 2020, British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Paper 2021-01, pp. 65-88.

Greig, C.J., Dudek, N.P., ver Hoeve, T.J., Quinn, T.D.M., Newton, G., Makin, S.A., and Greig, R.E., 2021. Geology of the Tatogga property: Geologic framework for the Saddle North porphyry Cu-Au deposit and the Saddle South epithermal Au-Ag vein system, Iskut district, northwestern British Columbia. In: Geological Fieldwork 2020, British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Paper 2021-01, pp. 89-111.

Rukhlov, A.S., Ootes, L., Hickin, A.S., and Mashyanov, N.R., 2021. Near-surface mercury vapour haloes in air above ore deposits and faults on Vancouver Island: Insights into buried materials in real-time? In: Geological Fieldwork 2020, British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Paper 2021-01, pp. 113-143.

Lett, R.E., and Paulen, R.C., 2021. Soil and till geochemical surveys at the Ace mineral property, central British Columbia. In: Geological Fieldwork 2020, British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Paper 2021-01, pp. 145-165.

Appendix: British Columbia Geological Survey publications and peer-reviewed journal papers authored by BCGS staff and released in 2020, pp. 167-172.

Ferri, F., McMechan, M., Richards, M.B., and Friedman, R., 2021. Organic-rich Upper Devonian shales of the Patry and Exshaw formations (Besa River Group) in the subsurface of Liard basin. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Paper 2021-02, 42 p.

Cui, Y., 2021. A geospatial frame data model to simplify digital map compilation and integration. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Paper 2021-03, 20 p.

Open Files

OF 2021-01

Clarke, G., Northcote, B., Katay, F., and Tombe, S., 2021. Mines, mine development, selected proposed mines, and selected exploration projects in British Columbia, 2020. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Open File 2021-01.

GeoFiles

GF 2021-01

Clarke, G., Northcote, B., Katay, F., and Tombe, S.P., 2021. Exploration and mining in British Columbia, 2020. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-01 (poster).

GF 2021-02

Tombe, S.P., 2021. Exploration and mining highlights, Northwest Region, 2020. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-02 (poster).

GF 2021-03

Clarke, G., 2021. Exploration and mining highlights, North Central and Northeast regions, 2020. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-03 (poster).

GF 2021-04

Northcote, B., 2021. Exploration and mining highlights, Southwest and South Central regions, 2020. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-04 (poster).

GF 2021-05

Katay, F., 2021. Exploration and mining highlights, Southeast Region, 2020. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-05 (poster).

GF 2021-06

Norris, J., and Wallace, B., 2021. Assessment report summary: Expenditures and activities 2019. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-06 (poster).

GF 2021-07

Nixon, G.T., Scoates, J.S., Milidragovic, D., Nott, J.A.M., Manor, M.J., Spence, D.W., and Kjarsgaard, I.M., 2021. Cu-PGE vs. Cr-PGE mineralization in Alaskan-type mafic-ultramafic intrusions. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-07 (poster).

GF 2021-08
Rukhlov, A.S., Spence, J., LaForge, N., Czech, E., Kabel, J., and Kaplenkov, G.N., 2021. Yttrium-rich garnet: a source of HREE? British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-08 (poster).

GF 2021-09
Cui, Y., Miller, D., Fortin, G., Zhao, S., Elia, E., and Orovan, E., 2021. Digital transformation of geoscience to enable analytics in mineral exploration. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-09 (poster).

GF 2021-10
Nelson, J.L., Friedman, R., and van Straaten, B., 2021. LA-ICP-MS and TIMS U-Pb data files from the Iskut project (Dease Lake to Kitsault). British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-10, 13 p.

GF 2021-11
Lett, R.E., and Paulen, R.C., 2021. A compilation of soil and till geochemical data from surveys at the Ace and Getty South mineral properties, British Columbia. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-11, 9 p.

GF 2021-12
Riddell, J., Soriano, J., and Lane, G., 2021. Mineral content of some Gething Formation coals. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-12, 10 p.

GF 2021-13
Arnold, H., 2021. Depth to bedrock dataset for the Interior Plateau. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-13, 6 p.

GF 2021-14
British Columbia Geological Survey, 2021. Critical minerals: From discovery to supply chain, program with abstracts. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-14, 74 p.

GF 2021-15
Rukhlov, A.S., Mashyanov, N.R., Pitirimov, P.V., Hickin, A.S., Golovetskyy, M., and Coats, B., 2021. Supplementary data for gaseous elemental mercury (GEM) response from sediment-covered, volcanogenic massive sulphide mineralization on southern Vancouver Island. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-15, 1 p.

GF 2021-16
Van Wagoner, N., Ootes, L., and Sutcliffe, B., 2021. Geochemical data from the Kamloops Group. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey GeoFile 2021-16, 2 p.

Information Circulars

IC 2021-01
Provincial Overview of Exploration and Mining in British Columbia, 2020. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey, Information Circular 2021-01, 134 p.

Clarke, G., Northcote, B., Katay, F., and Tombe, S.P., 2021. Exploration and Mining in British Columbia, 2020: A summary. In: Provincial Overview of Exploration and Mining in British Columbia, 2020. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey, Information Circular 2021-01, pp. 1-45.

Tombe, S.P., 2021. Exploration and mining in the Northwest Region, British Columbia. In: Provincial Overview of Exploration and Mining in British Columbia, 2020. British Columbia Ministry of Energy, Mines and and Low Carbon Innovation, British Columbia Geological Survey, Information Circular 2021-01, pp. 47-64.

Clarke, G., 2021. Exploration and mining in the North Central and Northeast regions, British Columbia. In: Provincial Overview of Exploration and Mining in British Columbia, 2020. British Columbia Ministry of Energy, Mines and and Low Carbon Innovation, British Columbia Geological Survey, Information Circular 2021-01, pp. 65-79.

Northcote, B., 2021. Exploration and mining in the South Central Region, British Columbia. In: Provincial Overview of Exploration and Mining in British Columbia, 2020. British Columbia Ministry of Energy, Mines and and Low Carbon Innovation, British Columbia Geological Survey, Information Circular 2021-01, pp. 81-100.

Katay, F., 2021. Exploration and mining in the Southeast Region, British Columbia. In: Provincial Overview of Exploration and Mining in British Columbia, 2020. British Columbia Ministry of Energy, Mines and and Low Carbon Innovation, British Columbia Geological Survey, Information Circular 2021-01, pp. 101-119.

Northcote, B., 2021. Exploration and mining in the Southwest Region, British Columbia. In: Provincial Overview of Exploration and Mining in British Columbia, 2020. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey, Information Circular 2021-01, pp. 121-134.

IC 2021-02
British Columbia Geological Survey, 2021. British Columbia coal industry overview 2020. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Information Circular 2021-02, 13 p.

IC 2021-03
British Columbia Geological Survey, 2021. British Columbia Geological Survey. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Information Circular 2021-03, 14 p. (brochure)

IC 2021-04
British Columbia Geological Survey, 2021. Mineral Development Office. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Information Circular 2021-04, 4 p.

IC 2021-05
British Columbia Geological Survey, 2021. Online databases at the British Columbia Geological Survey. British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Information Circular 2021-05, 14 p.

IC 2021-06
The Golden Triangle of northwestern British Columbia. British Columbia. Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Information Circular 2021-06, 6 p.

Contributions to partner publications

Bouzari, F., Lee, R.G., Hart, C.J.R., and van Straaten, B.I., 2021. Mineralogical and geochemical vectors within advanced argillic-altered rocks of north-central British Columbia (NTS 094E/02, 15, 104I/05). In: Geoscience BC Summary of Activities 2020: Minerals, Geoscience BC, Report 2021-01, pp. 91-104.

Jones, G.O., Pearson, D.G., Vezinet, A., Luo, Y., Stern, R.A., Milidragovic, D., and Ootes, L., 2021. Preliminary zircon geochemistry of northern Hogem batholith, Quesnel terrane, north-central British Columbia (parts of NTS 093M/16, 093N/13, 14, 094C/03-06, 094D/01, 08). In: Geoscience BC Summary of Activities 2020: Minerals and Mining, Geoscience BC, Report 2021-01, pp. 105-120.

Zagorevski, A., van Staal, C.R., Bédard, J.H., Bogatu, A., Canil, D., Coleman, M., Golding, M., Joyce, N.L., Lawley, C., McGoldrick, S., Mihalynuk, M.G., Milidragovic, D., Parsons, A., and Schiarizza, P., 2021. Overview of Cordilleran oceanic terranes and their significance for the tectonic evolution of the northern Cordillera. In: Ryan, J.J., and Zagorevski, A., (Eds.), Northern Cordillera geology: a synthesis of research from the Geo-mapping for Energy and Minerals program, British Columbia and Yukon; Geological Survey of Canada, Bulletin 610, 2021 pp. 21-65. <https://doi.org/10.4095/326053>

External peer-reviewed journal and volume publications (access may be limited by publisher)

Alberts, D., Gehrels, G., and Nelson, J.L., 2021. U-Pb and Hf analyses of detrital zircons from Paleozoic and Cretaceous strata on Vancouver Island, British Columbia: Constraints on the Paleozoic tectonic evolution of southern Wrangellia. Lithosphere, <https://doi.org/10.2113/2021/7866944>

Colpron, M., and Nelson, J.L., 2021. Northern Cordillera: Canada and Alaska. In: Elias, S., and Alderton, D., (Eds.), Encyclopedia of Geology, Second Edition. Academic Press, pp. 93-106.

George, S.W.M., Nelson, J.L., Alberts, D., Greig, C.J., and Gehrels, G.E., 2021. Triassic-Jurassic accretionary history and tectonic origin of Stikinia from U-Pb geochronology and Lu-Hf isotope analysis, British Columbia. Tectonics, 40. <https://doi.org/10.1029/2020TC006505>

Haugaard, R., Waterton, P., Ootes, L., Pearson, D.G., Yan Luo, Y., and Konhauser, K., 2021. Detrital chromites reveal Slave craton's missing komatiite. Geology, 49, <https://doi.org/10.1130/G48840.1>

Hickin, A.S., Lian, O.B., Telka, A., Levson, V.M., and Geertsema, M., 2021. Geomorphic and ecological age constraints for paraglacial to non-glacial transition in northeastern British Columbia, Canada. Quaternary Science Reviews 268, 107002. <https://doi.org/10.1016/j.quascirev.2021.107002>

Hunter, R.C., Lafrance, B., Heaman, L.M., and Thomas, D., 2021. Long-lived deformation history recorded along the Precambrian Thelon and Judge Sissons faults, northeastern Thelon Basin, Nunavut. Canadian Journal of Earth Sciences 58, 433-457. <https://doi.org/10.1139/cjes-2020-0108>

Lee, R.G., Plouffe, A., Ferbey, T., Hart, C.J.R., Hollings, P., and Gleeson, S.A., 2021. Recognizing porphyry copper potential from till zircon composition: A case study from the Highland Valley porphyry district, south-central British Columbia. Economic Geology, 116, 1035-1045. <https://doi:10.5382/econgeo.4808>

Milidragovic, D., Nixon, G.T., Scoates, J.S., Nott, J.A., and Spence, D.W., 2021. Redox-controlled chalcophile element geochemistry of the Polaris Alaskan-type ultramafic complex, British Columbia, Canada. The Canadian Mineralogist, 59, 1627-1660. <https://doi.org/10.3749/canmin.2100006>

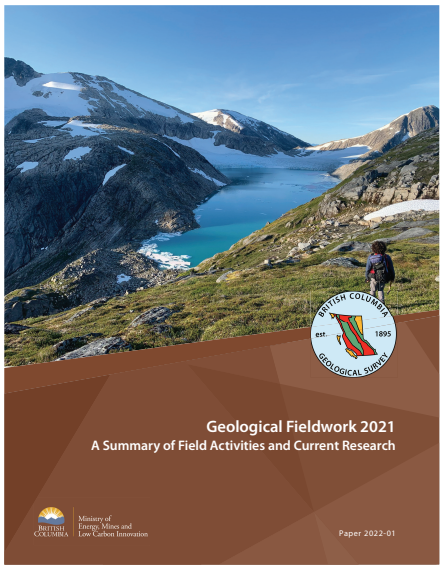
Mohammadzaheri, A., Sigloch, K., Hosseini, K., and Mihalynuk, M.G., 2021. Subducted lithosphere under South America from multifrequency P wave tomography. Journal of Geophysical Research: Solid Earth, American Geophysical Union, 126. <https://doi.org/10.1002/essoar.10503967.2>

Poblete, F., Dupont-Nivet, G., Licht, A., Van Hinsbergen, D.J., Roperch, P., Mihalynuk, M.G., Johnston, S.T., Guillocheau, F., Baby, G., Fluteau, F., and Robin, C., 2021. Towards interactive global paleogeographic maps, new reconstructions at 60, 40 and 20 Ma. Earth-Science Reviews, 214, p.103508. <https://doi.org/10.1016/j.earscirev.2021.103508>

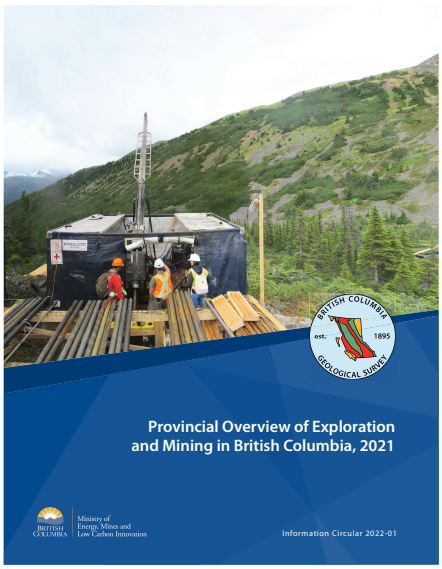
Simandl, G.J., Paradis, S., Savard, J., Miller, D., D'Souza, R., Araoka, D., Carlee Akam, C., Hoshino, M., and Kon, Y., 2021. Mineral control on the geochemistry of the Rock Canyon Creek REE-F-Ba deposit, British Columbia, Canada. Geochemistry: Exploration, Environment, Analysis. <https://doi.org/10.1144/geochem2020-010>

Simandl, L., Simandl, G.J., and Paradis, S., 2021. Specialty, critical, battery, magnet and photovoltaic materials: Market facts, projections and implications for exploration and development. Geoscience Canada, 48, 73-91. <https://doi.org/10.12789/geocanj.2021.48.174>

Each year, the British Columbia Geological Survey publishes Geological Fieldwork, a Summary of Fieldwork and Current Research (this volume), and the Provincial Overview of Mining and Exploration in British Columbia. All British Columbia Geological Survey publications can be downloaded, at no cost, from www.BCGeologicalSurvey.ca



Geological Fieldwork volume, British Columbia Geological Survey Paper 2022-01



Provincial Overview of Mining and Exploration in British Columbia volume, Information Circular 2022-01