British Columbia Geological Survey

BRITISH COLUMBIA

Ministry of
Energy, Mines and
Petroleum Resources

Information Circular 2020-03

The Survey

Celebrating its 125th anniversary in 2020, the British Columbia Geological Survey is the oldest scientific agency in the province. The Survey conducts research to establish the geological evolution and mineral resources of the province. Drawing on continuously advancing concepts and technologies, the Survey creates knowledge to guide societal decisions centred on the Earth sciences.

Survey maps, reports, and databases are freely available online, connecting the public, First Nations, local communities, the minerals industry, public safety agencies, environmental scientists, other research organizations, and government to the province's geology and mineral resources.

This information benefits decisions that balance the economy, the environment, and community interests.

Mapping is the most fundamental form of geoscience research

British Columbia Geological Survey geoscientists undertake field mapping and laboratory projects to document, access, and better understand the land base of the province.

Bedrock geology, surficial geology, geochemistry, and geophysical maps are used to

- estimate mineral and aggregate potential
- document geochemical patterns in rocks, soils, sediments, and waters
- unravel the geological evolution of the province to guide mineral exploration
- evaluate risks posed by natural hazards
- determine groundwater sources and flow paths
- establish geotechnical properties for construction and engineering projects

Survey structure

The Survey staff of 27 geologists conducts research, curates historical data, provides easy online access to information, monitors industry activity, aids mineral exploration, attracts global investment, and trains the next generation of geoscientists.

The Survey is structured into three working groups.

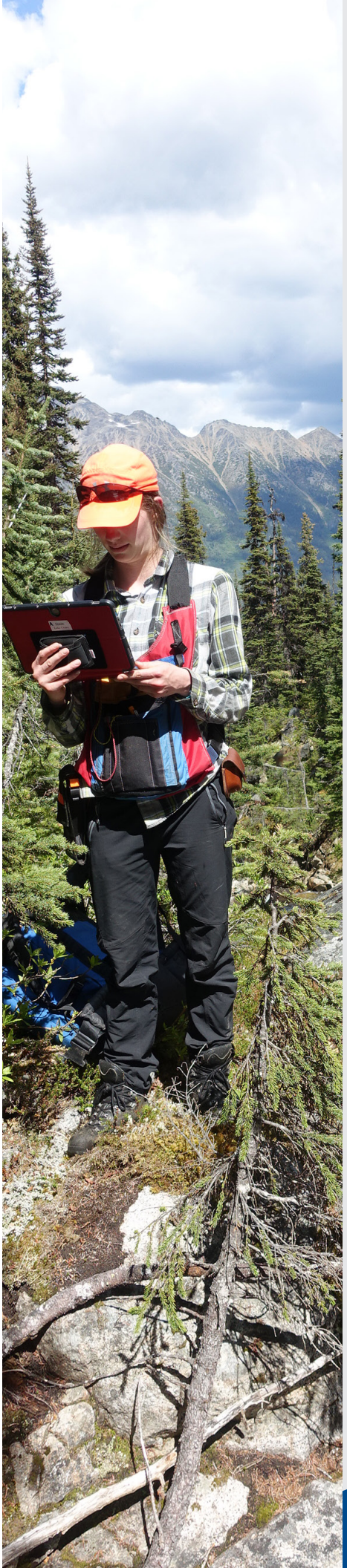
- Cordilleran Geoscience Section
- Resource Information Section
- Mineral Development Office

Cordilleran Geoscience Section

The Cordilleran Geoscience Section is responsible for generating new geoscience knowledge through field-based bedrock and surficial geology mapping programs, regional geochemical surveys, and targeted mineral deposit studies. It also manages the Survey's laboratory and curates the provincial sample archive.

Cordilleran Geoscience Section geologists conduct field-based projects

- regional bedrock mapping
- stratigraphy
- Quaternary and surficial geology
- geochronology
- geochemistry and isotopic studies
- tectonic evolution
- mineral deposits and mineral potential
- drift prospecting, till geochemistry, and indicator minerals
- exploration methods, models, and predictive tools

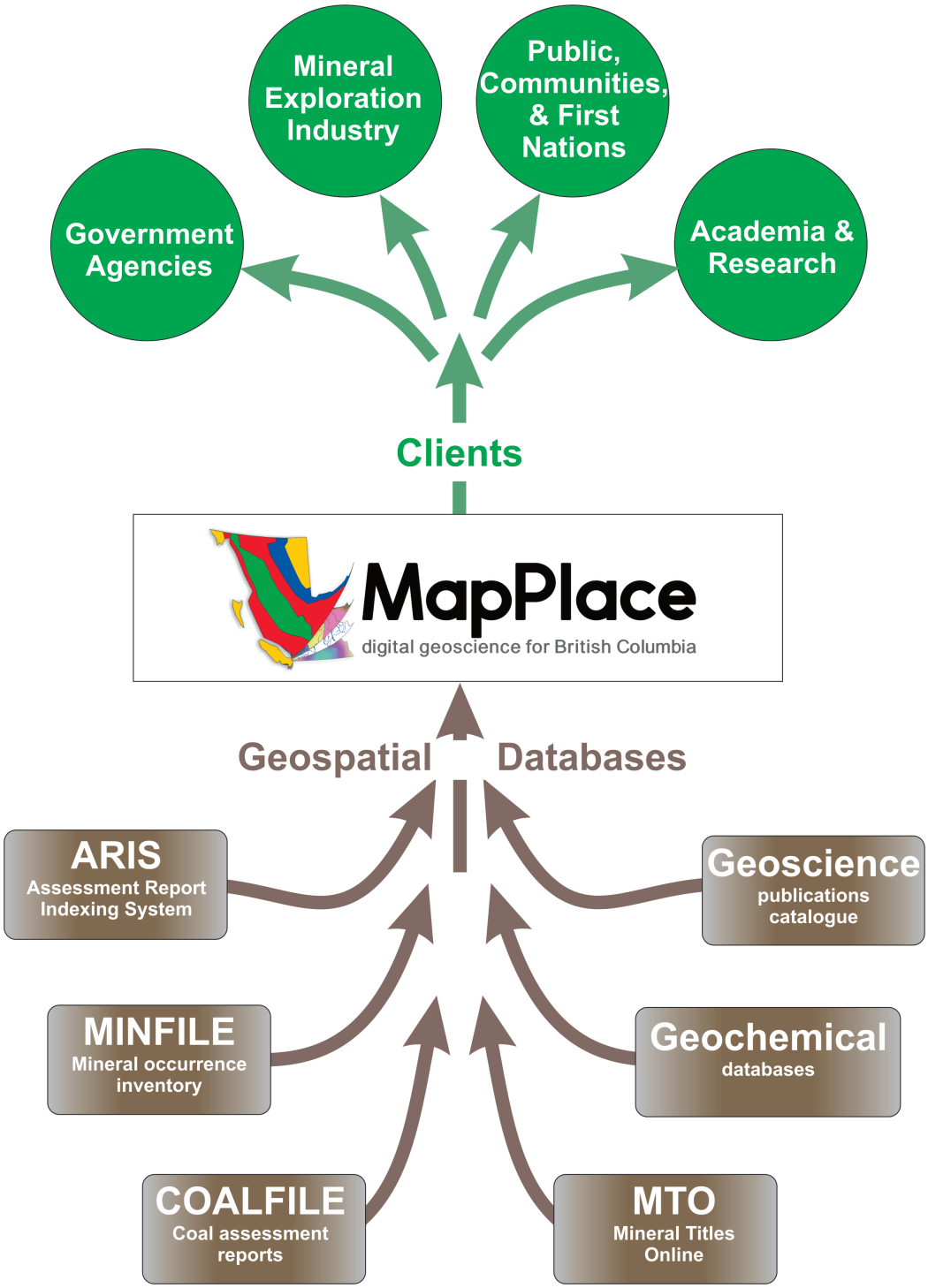


Resource Information Section

The British Columbia Geological Survey is the custodian of all provincial public geoscience data. It preserves, archives, and provides free web-based access to information gathered for more than 125 years. Since 1995, MapPlace, our database-driven geospatial web service, has provided open geoscience data and custom map-making tools to help decision makers from diverse disciplines reduce the costs of accessing and analyzing information.

MapPlace 2 allows anyone with an Internet connection to mine multiple, regularly updated, provincial geoscience databases.

MapPlace 2 is more than just a viewing platform. ARIS, MINFILE, COALFILE, Property File, geochemical surveys, mineral titles, geological and topographic maps, and the British Columbia Geological Survey publication catalogue can be queried simultaneously, and the output projected onto base imagery of choice.



Mineral Development Office

The Mineral Development Office (MDO) is the Vancouver base of the British Columbia Geological Survey. It links the more than 800 global exploration and mining companies headquartered in Vancouver to provincial mineral and coal information.

The MDO distributes British Columbia Geological Survey data and provides technical information and expertise about mineral opportunities to the investment community. It also coordinates the exploration and mining reviews produced each year by the Regional Geologists.

Exploration and mining

Exploration and mining are important to the provincial economy. In 2018, total exploration expenditures were $331 million and the total value of mine production was $9.66 billion.

As the steward of mineral and coal resources in the province, the Survey has an important role in stimulating activity, attracting investment, and providing continuous research based on a corporate memory that extends back more than 125 years.

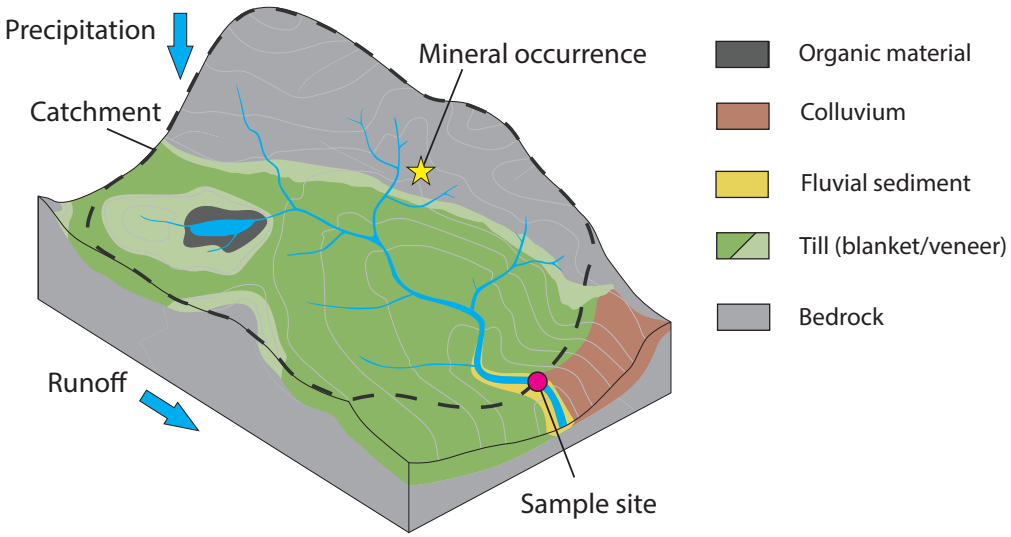
The Survey reduces exploration costs by: providing the geological framework to identify areas with high mineral potential; increasing exploration efficiency by gathering regional information used for property-scale evaluation; and archiving exploration results so that projects can be advanced without duplicating previous work.

Regional Geologists Program

Based in Smithers, Prince George, Cranbrook, Kamloops, and Vancouver, the Regional Geologists monitor exploration and mining activities in their jurisdictions. They also provide information on exploration trends, possible investment opportunities, land-use processes, First Nation capacity building, and public outreach.

Laboratory, sample archive, geochemical databases

Survey staff work with field samples at our in-house laboratory, and our upgraded storage library contains more than 600,000 samples collected since the 1970s. The Survey maintains geochemical databases that include about 5 million determinations from more than 86,000 samples.



Geological Fieldwork 2019

A Summary of Field Activities and Current Research

Publications

The British Columbia Geological Survey publishes Papers, Geoscience Maps, Open Files, GeoFiles, Information Circulars, and Digital Geoscience Data. All publications are available online, free of charge.

Geological Fieldwork, published each January, includes papers highlighting current field activities and research. Other annual publications include the Provincial Overview of Exploration and Mining in British Columbia and the British Columbia Coal Industry Overview.

Partnerships

The Survey works to make best use of limited resources. We partner with federal, provincial, and territorial governments, universities, other national and international geoscience organizations, and the mineral exploration and mining industry. Please contact us to ask about partnerships.

Skills training

The Survey invests in the next generation of geoscientists by hiring and training student assistants, supporting graduate students, and mentoring student research.

It also helps geoscientists learn new skills and better understand Cordilleran geology by providing presentations, short courses, workshops, and field trips.

Meetings

The British Columbia Geological Survey distributes maps and reports at regional, national, and international meetings. Survey staff regularly give presentations highlighting new developments in Cordilleran geology.

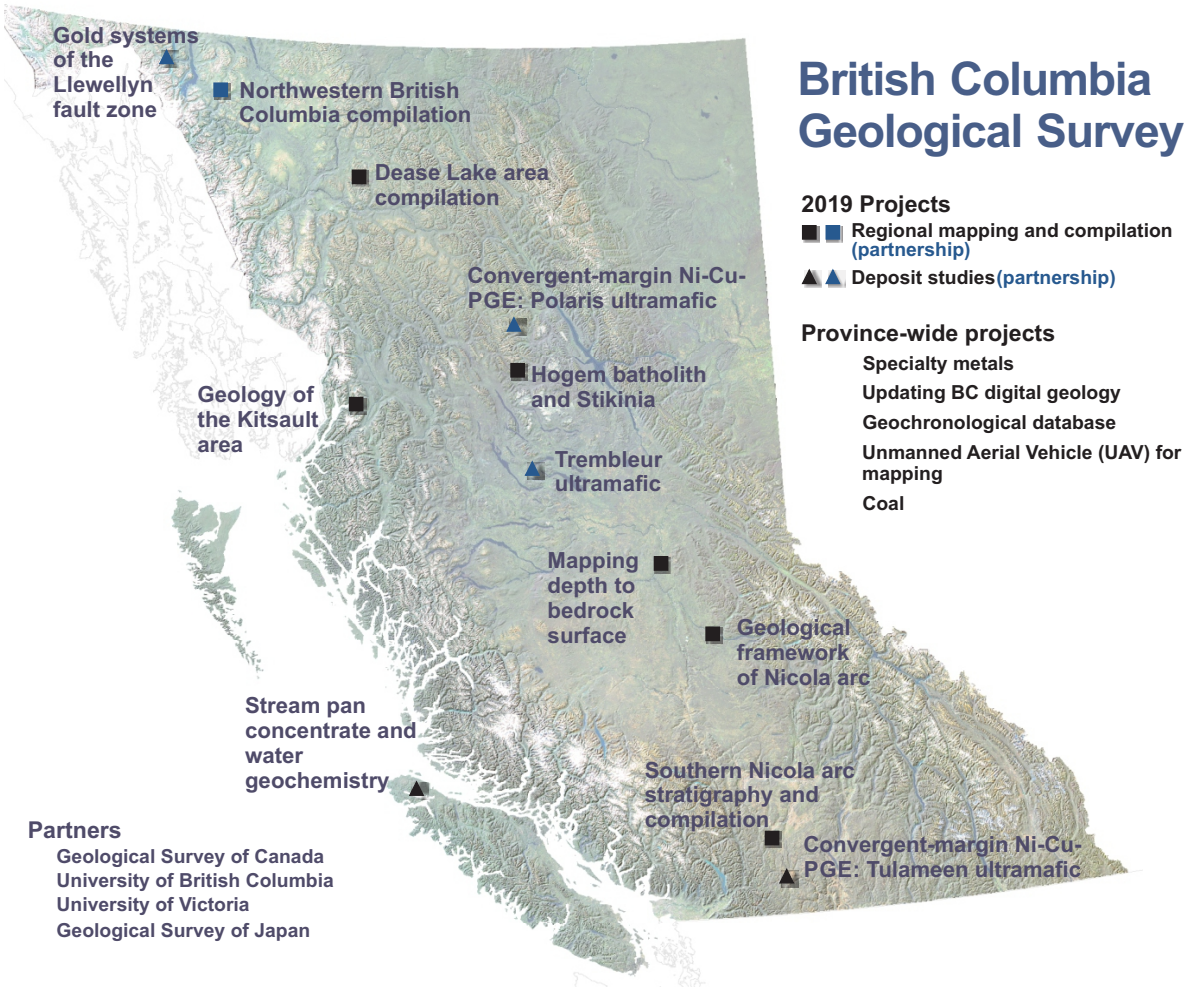
Look for the Survey booth at the Kamloops Exploration Group (KEG) meeting in Kamloops, the Minerals South meeting in Nelson, Cranbrook, or Trail, the Mineral Exploration Roundup in Vancouver, and the Prospectors and Developers Association of Canada (PDAC) meeting in Toronto.

Cordilleran geoscience: A 2020 perspective

The British Columbia Geological Survey, the Geological Survey of Canada, and the Yukon Geological Survey will be holding a workshop devoted to the latest research about the geology, geophysics, metallogeny, and mineral deposits of the Cordillera. Please join us, March 2020, in Vancouver.

2019 projects

- geological mapping and mineral deposit studies in northern Hogem batholith (porphyry Cu-Au and orogenic and epithermal Au) and nearby at the Polaris Alaskan-type ultramafic intrusion (NI-Cu-PGE)
- testing the feasibility of sequestering CO_2 through reactions with alteration minerals in serpentinized Trembleur unit ultramafic rocks
- new mapping and stratigraphic studies in the mineral-rich Kitsault area, part of northwestern BC's Golden Triangle
- testing new water and till-based exploration methods on northern Vancouver Island
- mapping depth-to-bedrock in the porphyry-rich but largely drift-covered central part of Quesnel terrane
- updating and compiling new geoscience mapping (Dease Lake, southern Nicola arc, and northwestern British Columbia)
- updating province-wide geochemical databases



Contacts

Chief Geologist and Executive Director
Adrian Hickin
250-953-3801; Adrian.Hickin@gov.bc.ca

Director, Cordilleran Geoscience Section
Neil Wildgust
250-480-8556; Neil.Wildgust@gov.bc.ca

Director, Resource Information Section
Larry Jones
778-698-7215; Larry.Jones@gov.bc.ca

Director, Mineral Development Office
Gordon Clarke
604-660-2094; Gordon.Clarke@gov.bc.ca

email
Geological.Survey@gov.bc.ca

Mail
British Columbia Geological Survey
PO Box 9333 Stn Prov Gov't
Victoria BC, V8W 9N3

Main Office
6th floor
1810 Blanshard Street
Victoria BC, V8T 4J1

Mineral Development Office
300-865 Hornby Street
Vancouver BC, V6Z 2G3

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