



British Columbia Geological Survey



Ministry of
Energy, Mines and
Low Carbon Innovation

Information Circular 2021-03



The Survey

Founded in 1895, 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

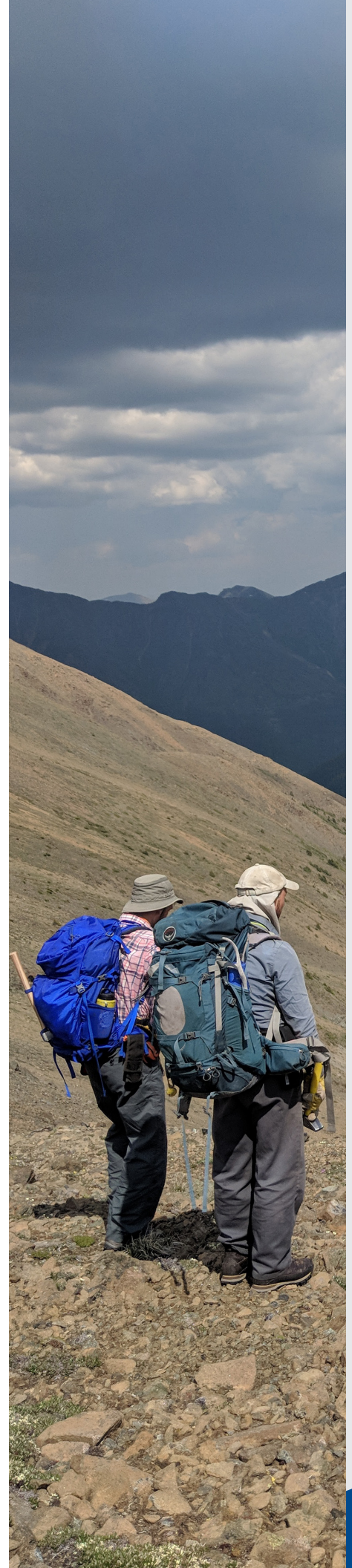
- estimate mineral and aggregate potential
- document geochemical patterns in rocks, soils, sediments, and waters
- unravel the geological evolution of the province to guide mineral exploration
- evaluate risks posed by natural hazards
- determine groundwater sources and flow paths
- establish geotechnical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

Survey structure

The Survey staff of 30 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





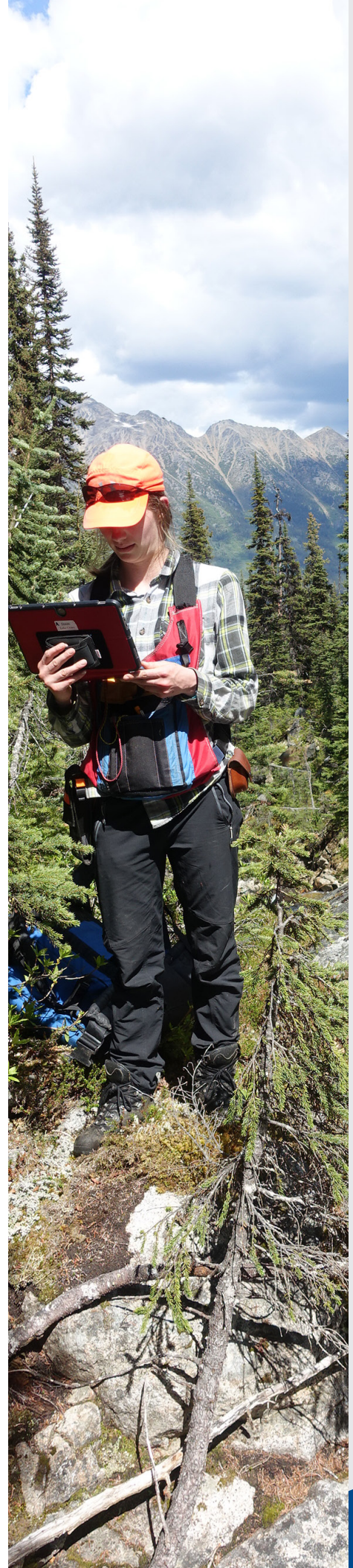
Cordilleran Geoscience Section

The Cordilleran Geoscience Section generates new geoscience with field-based bedrock and surficial geology mapping programs, regional geochemical surveys, targeted mineral deposit studies, and emerging technologies.

Providing low-cost support to field programs, the Section manages the Survey's laboratory facilities. It also curates the provincial archive of field samples, permitting the Survey and its partners to re-examine legacy specimens as analytical techniques evolve.

Cordilleran Geoscience Section geologists conduct field-based projects

- regional bedrock mapping with ancillary geochemical, geochronologic, and isotopic studies
- tectonics and metallogeny
- Quaternary and surficial geology; drift prospecting, till geochemistry, and indicator minerals
- deposit studies and mineral potential evaluations
- exploration methods, models, and predictive tools



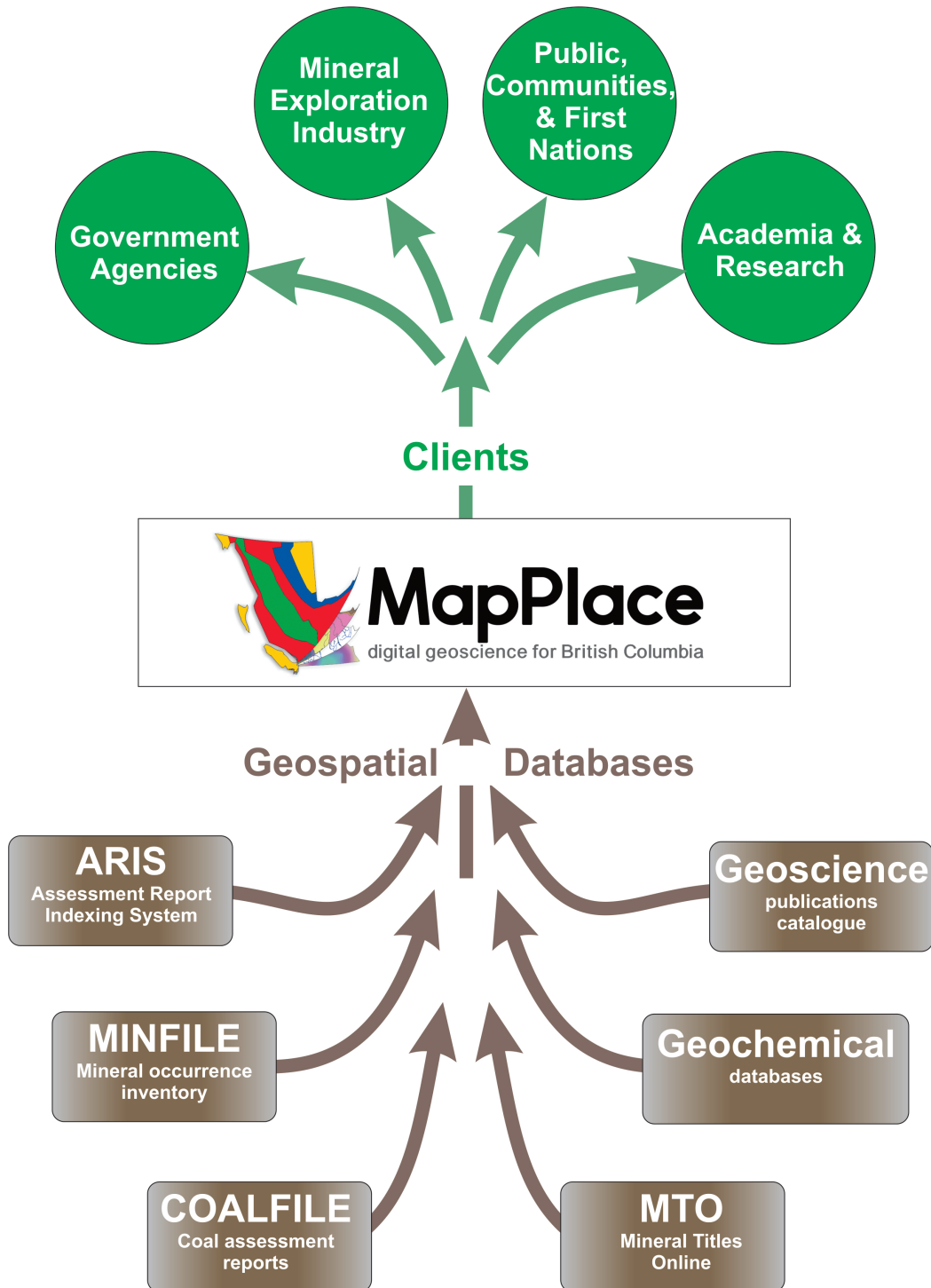


Resource Information Section

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 2019, total exploration expenditures were \$329.5 million and the total forecast of mine production was \$8.80 billion.

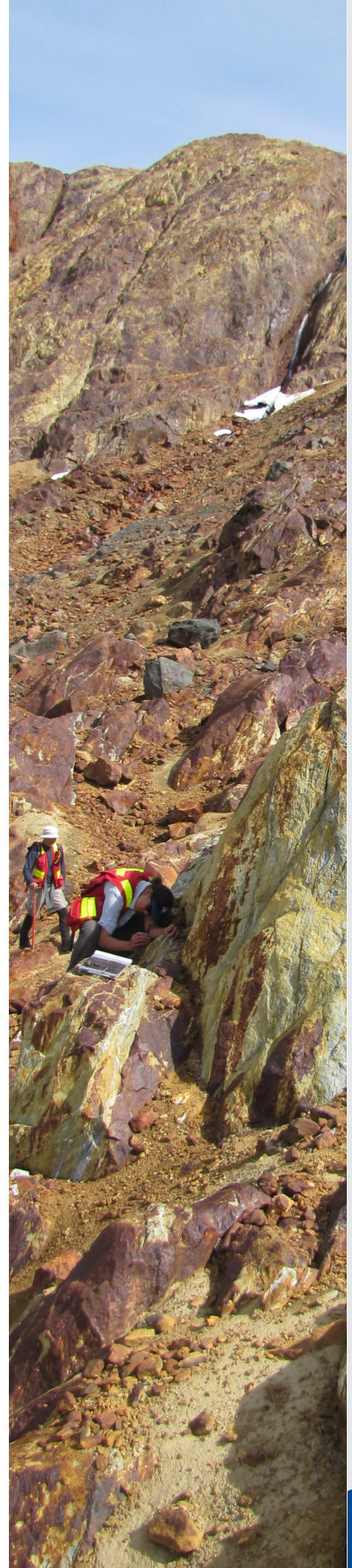
As the steward of mineral and coal resources in the province, the Survey has an important role in stimulating activity, attracting investment, and providing continuous research based on a corporate memory that extends back more than 125 years.

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

Based in Smithers, Cranbrook, and Vancouver, the Regional Geologists monitor exploration and mining activities in their jurisdictions. Positions in Prince George and Kamloops are currently vacant.

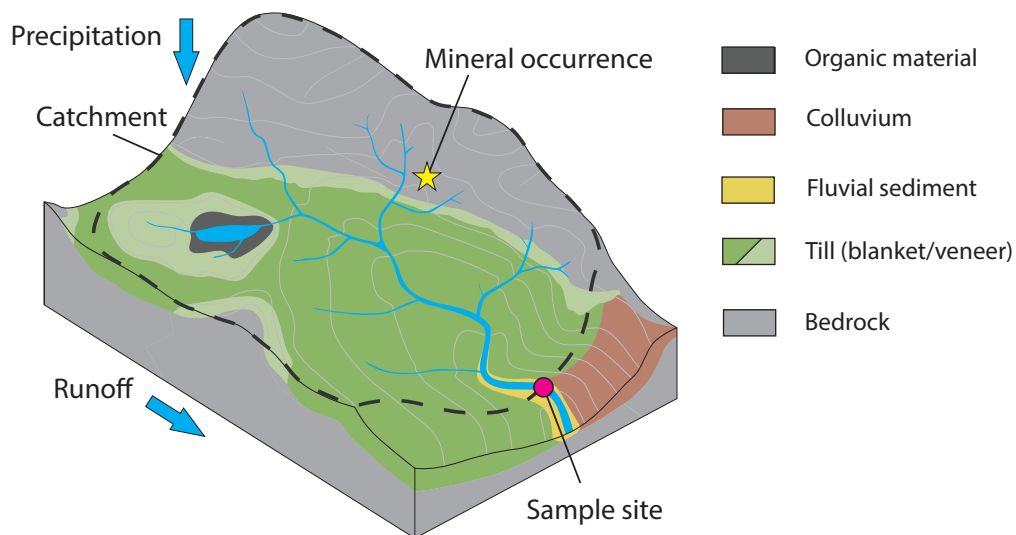
The Regional Geologists also provide information on exploration trends, possible investment opportunities, land-use processes, First Nation capacity building, and public outreach.





Laboratory, sample archive, geochemical databases, geochronologic database

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, and has a geochronologic database with almost 8,300 age determinations.



Geological Fieldwork 2020

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

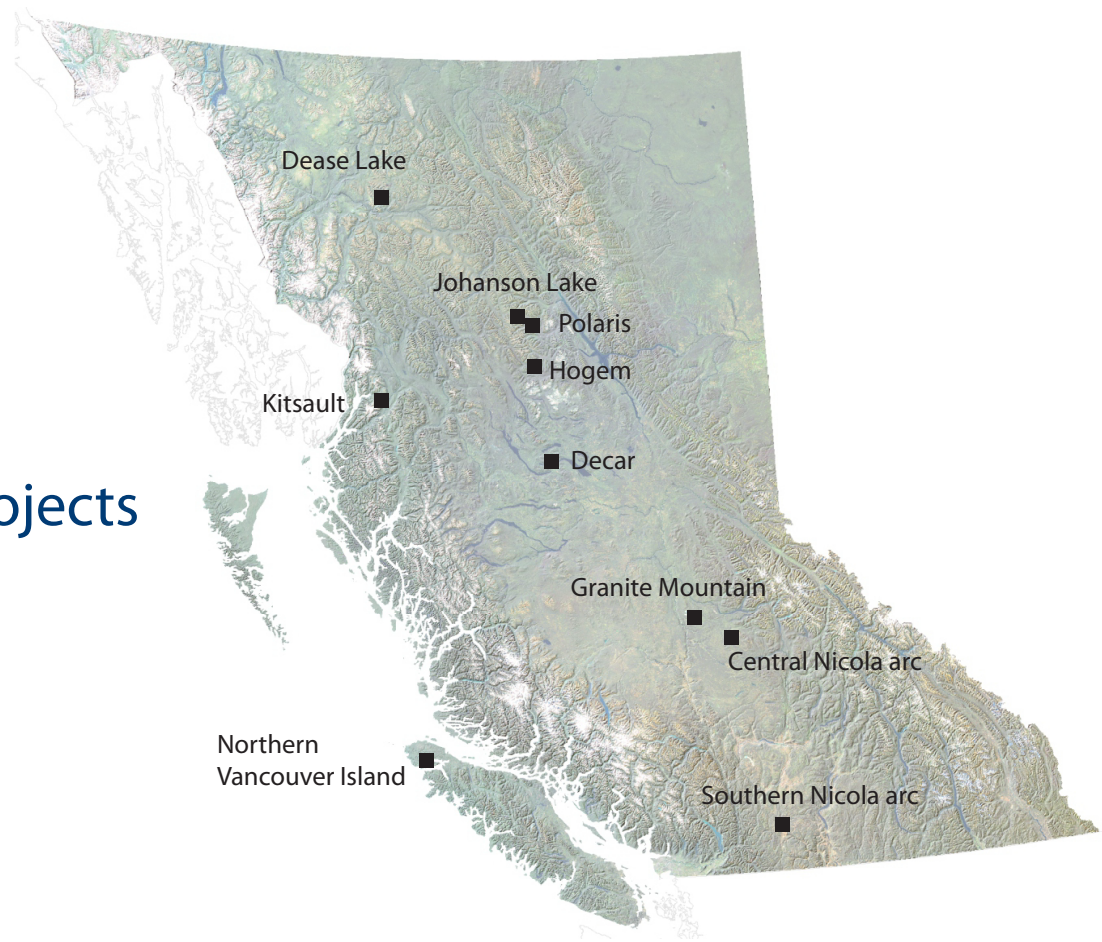
The British Columbia Geological Survey distributes maps and reports at regional, national, and international meetings. Survey staff regularly give presentations highlighting new developments in Cordilleran geology.

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.

British Columbia Geological Survey Open House

Each November, the British Columbia Geological Survey holds an Open House in Victoria. Co-sponsored with the Pacific Section of the Geological Association of Canada, the Open House features talks, posters, and fieldtrips devoted to Cordilleran geoscience.

2020 projects



Geological framework studies

- geochronology, geochemistry, mineral deposits, northern Hogem batholith
- Quaternary geology, northern Hogem batholith
- geochronology, Granite Mountain batholith
- stratigraphy, central Nicola arc
- geochronology, geochemistry, Eocene magmatic rocks
- geochemistry magmatic rocks, Kitsault
- geochemistry Neogene plutons, northern Vancouver Island
- depth-to-bedrock mapping, central Quesnel terrane

Deposit studies

- coal mineral matter, ash chemistry indices
- specialty metals

Information management

- BC digital geology; compilation of mapping near Dease Lake, Johanson Lake, Polaris, Decar, southern Nicola arc
- geochronologic database
- geochemical database update
- assessment report-sourced databases
- MapPlace for mobile devices
- regular updates; MINFILE, COALFILE, Assessment Report Index System (ARIS), Property File
- mineral potential evaluations: the next generation

Emerging technology

- drone geophysical surveying
- in-situ atmospheric mercury measurement



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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