British Columbia Geological Survey

British Columbia Geological Survey
Mines and Mineral Resources Division
Ministry of Energy, Mines and Petroleum Resources
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.

Structure of the British Columbia Geological Survey

Cordilleran Geoscience Section  Resource Information Section  Mineral Development Office

The information provided by the Survey is used for sound land use management, effective mineral exploration, and responsible governance. This information benefits decisions that balance the economy, the environment, and community interests.

Survey activities serve government, the general public, First Nations, local communities, the minerals industry, public safety agencies, environmental scientists, and other research organizations.
Survey activities

- conducts research
- delivers results online
- provides expertise
- curates historical data
- promotes mineral exploration, monitors industry activity
- attracts global investment
- trains the next generation of geoscientists
Role of the Survey

Many societal issues centre on the Earth sciences

Similar to publicly funded geological surveys worldwide, the British Columbia Geological Survey is an information organization. This information drives evidence-based policies on resource development, land use management, environmental stewardship, and public safety.

Survey maps, databases, and publications are freely available online, connecting the public, First Nations, local communities, industry, and government to geoscience information.
Mapping is the most fundamental form of geoscience research

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

British Columbia Geological Survey geologists continue to undertake field mapping and laboratory projects to document and better understand the land base of the province in three dimensions.
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.

Data are captured digitally in the field. This enables rapid map production, efficient integration of previous maps, and prompt web delivery.

MapPlace 2, the Survey’s online geospatial platform, provides easy access to these data and the tools to use them.
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 more than a century’s worth of information. 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.

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

Data: from the field to your computer

MapPlace 2 is more than just a viewing platform: through MapPlace 2, databases talk to each other. With a simple interface, MapPlace 2 is easy to use.
The British Columbia Geological Survey offers workshops that use scenario-based exercises to help users get the most out of MapPlace 2.
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 85,000 samples.
The British Columbia Geological Survey publishes Papers, Geoscience Maps, Information Circulars, Open Files, and GeoFiles. All publications are available online, free of charge. Geological Fieldwork, published each January, includes papers highlighting current activities.

To receive notification of our latest releases email: Geological.Survey@gov.bc.ca

Other annual publications include the Provincial Overview of Exploration and Mining in British Columbia and the British Columbia Coal Industry Overview.

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Mineral Development Office (MDO)

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

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.

Regional Geologists Program

Regional Geologists are based in Smithers, Prince George, Kamloops, Cranbrook, and Vancouver. They monitor exploration and mining activities, and provide expertise to prospectors and mineral exploration companies. They also work in their communities to enhance the understanding of local geoscience and to foster a healthy and prosperous minerals sector.
The Survey is responsible for assessing British Columbia’s geology and related coal and mineral resources. We help reduce the cost of exploration by

- providing the geological framework to identify areas with high mineral potential
- increasing exploration efficiency by gathering regional information useful for property-scale evaluation
- archiving exploration results and activities so that explorationists can advance projects without duplicating previous work

Exploration and mining are important to the provincial economy. In 2017 total exploration expenditures were $250 million and the total value of mine production was $9.82 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.
For 2018, the Survey's core program included geological mapping and mineral deposit studies (porphyry Cu-Au-Mo, epithermal and orogenic Au, orogenic Ni-Cu-PGE, carbonatite mineralization, specialty metals); updating province-wide compilations and BC digital geology; updating province-wide geochemical databases; and creating a new geochronologic database.
Regional mapping and compilation

Northwest BC
Iskut bedrock geology compilation
Contact: joanne.nelson@gov.bc.ca

Northwest BC
Stikinia magmatism: Horn Mountain Formation; Latham Creek
Contact: bram.vanStraaten@gov.bc.ca

Northwest BC
Porphyry transitions: magmatic belts of Stikinia
Contact: mitch.mihalynuk@gov.bc.ca

Central BC
Hogem batholith and Stikinia
Contact: luke.ootes@gov.bc.ca

South-central BC
Geological framework, Nicola arc and basin
Contact: paul.schiarizza@gov.bc.ca

Southeastern BC
Co-rich VMS mineralization, Kootenay arc
Contact: mitch.mihalynuk@gov.bc.ca

Deposit studies
Gold systems of the Llewellyn fault
Contact: luke.ootes@gov.bc.ca

Convergent margin Ni-Cu-PGE; Polaris ultramafic
Contact: dejan.milidragovic@gov.bc.ca

Carbonatites, Blue River
Contact: alexei.rukhlov@gov.bc.ca

Specialty metals, Rock Canyon Creek
Contact: george.simandl@gov.bc.ca

Province-wide projects
BC Digital Geology
Contact: yao.cui@gov.bc.ca

Optimizing till sample geochemistry
Contact: travis.ferbey@gov.bc.ca

Geochronologic database
Contact: tian.han@gov.bc.ca
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.
Other 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.
Partnerships

The British Columbia Geological Survey is a collaborative agency.

We partner with federal, provincial, and territorial governments, universities, other national and international geoscience organizations, and the mineral exploration and mining industry.

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