Geological Survey of Canada

Mission

“The Geological Survey of Canada provides public geoscience knowledge to sustain the exploration effectiveness and international competitiveness of the mineral and energy sectors, inform the stewardship of onshore and offshore lands, and increase the safety and security of Canadians.”

Vision

“To sustain and extend Canadian prosperity and well-being through internationally authoritative and accessible geoscience, anchored in a continuously improved understanding of earth dynamics and natural resources.”
GSC offices across Canada

Over 400 employees, in six Divisions across Canada – A networked organisation connected to P/T, Academia, Industry, NGOs

Leverages a wide range of HQP geoscience expertise and fixed S&T assets: offices, laboratories, curation, libraries, IT/IM, to carry its work across the nation.

Canada- Nunavut Geoscience Office in Iqaluit (Part of Northern Division)

GSC-Pacific
- Vancouver
- Sidney

GSC-Calgary

GSC-Central
GSC-Northern
- Ottawa

GSC-Atlantic
- Halifax

UNCLOS Program
- Dartmouth

GSC-Quebec
- Québec City

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Collaboration to Deliver Public Geoscience in Canada

*The Intergovernmental Geoscience Accord (IGA) defines the complementary roles of Canada’s geological surveys, as well as mechanisms for cooperation and collaboration.

**ROLE**
Science, technical and regional expertise

**ROLE**
Guidance, site-specific data and information

**ROLE**
Science expertise and student training

**ROLE**
Provide insights on the needs of Northerners

**ROLE**
National thematic science and technical expertise

*The Intergovernmental Geoscience Accord (IGA) defines the complementary roles of Canada’s geological surveys, as well as mechanisms for cooperation and collaboration.*
Geoscience Directions to set us on the path to 2023

- **Geological Knowledge for Canada’s Onshore and Offshore Land Decisions**
  - Understand the geologic context to support land use decisions

- **Geoscience for the Sustainable Dev’t of Natural Resources**
  - Evidence to support sustainable development of Canada’s natural resources and the shift to a low carbon economy

- **Keeping Canada Safe from Natural Hazards**
  - Reduce risk and build capacity to reduce disasters and respond to climate change

- **Geoscience for Society**
  - Engage in societal, economic and environmental geoscience issues and foster Canadians’ interest in geoscience

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Geoscience Directions to set us on the path to 2023

Public geoscience gearing up
• for decision making through policy INTEGRATION
• for consensus building through scientific INTEGRITY
• for socio-economic-environmental dividends through technological INNOVATION

Frontier geoscience

Geoscience to inform land use decisions

Understanding Hazards

Authoritative & accessible geoscience knowledge

Disaster risk reduction & climate change adaptation

Continued science excellence

Contribute to indigenous reconciliation

Geoscience for low-carbon resource dev’t

Technologies for early warning and operational response

Geoscience supporting innovation to discover new mineral resources

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Current Programs

Geo-Mapping of Energy and Minerals
Complete modern regional-scale geological maps and data sets for Canada’s North

Targeted Geoscience Initiative
Generating geoscience to enhance effectiveness of deep exploration for Canada’s key economic minerals

Geoscience for New Energy Supplies
Using data collected from other programs perform analyses & assessments of energy resources in Canada’s frontier basins

Environmental Geoscience Studies & Assessments
Targeted studies to understand geochemical cycles in the environment (air-soil-rock-water), and technical expertise for assessments

Climate Change Geoscience
Studies to understand climate change risk to land-based and coastal infrastructure in the North

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## Current Programs

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<th>Program</th>
<th>Description</th>
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<tr>
<td><strong>Groundwater Geoscience</strong></td>
<td>Targeted field work and analyses to assess 30 key aquifers (transboundary, or archetypical)</td>
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<tr>
<td><strong>Public Safety Geoscience</strong></td>
<td>Underlying causes and impacts of geohazards and their probability of occurrence in Canada’s onshore and offshore lands</td>
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<tr>
<td><strong>UNCLOS: Extended Continental Shelf Program</strong></td>
<td>Mapping the continental shelf beyond 200 nautical miles as an obligation UNCLOS.</td>
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<tr>
<td><strong>Open Geoscience</strong></td>
<td>Ensures Canadians have freely available access to our geoscience data, information, and knowledge</td>
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<tr>
<td><strong>Canada in 3D Project</strong></td>
<td>A 3-D compilation of the geology of Canada, and analysis of multilayers of information</td>
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Combining science and engagement

Engage and plan field work

Culturally significant areas

Updating and filling knowledge gap

Local businesses and training opportunities

School visits

Northern perspectives are valued in all stages

Updating and filling knowledge gap

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A plan that helps position Canada as the leading mining nation and lay the foundation for lasting success at home and abroad.
Next Generation Geoscience

Credit: Canadian Space Agency, 2015

Survey drone Photo Credit: Detour Gold

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In Canada-3D (C3D) aims to be the national compilation of the geology of Canada

- Authoritative evergreen synthesis of CAN geology
- One-stop web access to CAN geology
- Integrating data and knowledge from multiple sources
An international collaboration agreement was initiated between GSC and the Australian ARC LINKAGE project, under the auspice of OneGeology in order to advance 3-D modelling.

Joining resources and leveraging technology and expertise will contribute to:

- Accelerate and improve efficiency in national efforts
- Facilitate the establishment of common framework and standards, and of decision support tools for the development of mineral and energy resources
- Broaden the audience of national projects, such as Canada in 3-D, by integrating C3-D mapping with OneGeology web-portal thereby increasing the impact of GSC research
- Broaden open data and access benefits for Open Science