

THE GEOSCIENCE ATLAS

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ABSTRACT

The Newfoundland and Labrador Geoscience Atlas provides a portal to easily view, query and download the geoscience data layers for Newfoundland and Labrador. Access to the Atlas is through the GeoScience OnLine web page, which also provides links to Mines Branch Services (consisting of Mineral Lands Claim Staking, Geofiles Metadata Search, Mineral Rights Inquiry Form, Geological Reports and Maps, and the Mineral Occurrence Data System), Energy Branch Services (consisting of Onshore Petroleum Maps and Data), and National GIS Resources (consisting of the NRCan Geoscience Data Repository, NRCan Free Topographic Datasets and the NRCan Atlas of Canada).

The Geoscience Atlas GIS layers provide the spatial access to the geoscience information for the Province. These layers are continuously updated but on different schedules: Mineral Claims and Historical Claims are updated in real time, Mineral Occurrences and Quarry Sites are updated every night, and all other layers are updated periodically as new information is added to the database. The following databases have been updated recently: Detailed Bedrock Geology and Contacts and associated Generalised, Lithofacies and Tectonic Bedrock Geology and Contacts (completed for the Island of Newfoundland), Geochemical Surveys Index, Detailed Surficial Geology, Till Geochemistry, Striations, Aggregate layers, geophysical Airborne Surveys, and the Drill Core database.

Changes to the Geoscience Atlas include the addition of new layers from the Energy Branch consisting of Onshore Petroleum Wells, Onshore to Offshore Petroleum Wells, Onshore Seismic Lines, Onshore Permits and Leases and onshore petroleum Basins. These layers are located within the Petroleum Resources Group.

Various databases have been updated with new column names. Various help files, such as the Map Viewer HELP, have also been updated. The “What’s New” link provides a summary list of recent updates.

The Geoscience Atlas structure is continuously being upgraded. Future upgrades include the reorganization of the Index Group and the Map Themes section, new GIS layers, such as a Surficial Geosciences index layer, as well as links to more data, maps and reports to provide streamlined access to the geoscience data and information for the Province.

INTRODUCTION

The Geoscience Atlas is the public internet portal to view, query and download geoscience datasets of Newfoundland and Labrador (NL). Access to the Atlas is through the GeoScience OnLine web page, which also provides links to many other services.

The goal of the Geoscience Atlas is to provide a map-based graphic format to easily access the geoscience data and information of the Province. This complements the text-based search format of the Geofiles collection. The Atlas map layers are presented in two ways: as a display of the *location of specific features*, such as geology units and till

samples, and also as a display of the *extents* of surveys in the Index Group layers. Complementary datasets, such as roads, power lines and exempt lands, are also provided in the Atlas, to aid in the assessment of exploration and mining feasibility. Update schedules for the GIS layers on the Atlas vary from updates in real-time to only periodic updates. The Geoscience Atlas structure is also periodically upgraded to provide more streamlined access to the geoscience data and information for the Province.

GEOSCIENCE ONLINE

The GeoScience OnLine web page (<http://gis.geosurv.gov.nl.ca/>) provides direct access to the Geoscience

Atlas as well as access to a number of local and national services. The local *Mines Branch Services* include links to the Mineral Lands Claim Staking system (MIRIAD), Geofiles Metadata Search, Mineral Rights Inquiries, Geological Reports and Maps, and the Mineral Occurrence Inquiries. A new link to *Energy Branch Services* provides a link to maps, data and reports about the onshore petroleum rights, seismic lines and well locations. The *National GIS Resources* consist of links to the Natural Resources Canada (NRCan) Geoscience Data Repository, NRCan Free Topographic Datasets, and the NRCan Atlas of Canada.

Access to the Geoscience Atlas is either through the *Interactive Maps* link or by clicking on the image of Newfoundland and Labrador.

GEOSCIENCE ATLAS

The Geoscience Atlas opens to a regional view of Newfoundland and Labrador displaying the default set of layers, which include *Map Staked Claims* and the *Mineral Tenure* layer on a topographic base map. On the right side of the Atlas, layers of interest can be turned on and off, and the map view refreshed to display the new configuration. The tools, such as zooming in and out, querying and downloading data, are available on the left side. To view the colour legend, go to the top right side of the Atlas and click on Toggle Legend; click on Toggle Legend again to return to the Table of Contents. Further information on the layers and tools is available through the *Map Viewer HELP* file in the Links section (lower right side of the Atlas) and in Honarvar *et al.* (2011).

RECENT UPDATES

The Geoscience Atlas GIS layers provide the spatial access to the geoscience data and information for the Province. The various layers on the Atlas are updated on different schedules: *Map Staked Claims*, *Historical Claims*, *Original Boundaries*, *Mineral Rights Cancelled* and *Notices Gazetted* are updated in real time, *Mineral Occurrences* and *Quarry Sites* are updated every night, and all other layers are updated periodically as new information is added to the database.

The following layers have been updated in the last few months. The *Map Staked Claims* layer was recently upgraded. Along with its link to the *Mineral Rights Inquiry Report*, it now has an additional link to the *Geofiles* collection, providing direct links to any available pdf assessment reports related to the licence of interest.

The *Detailed Bedrock Geology* and *Contacts* and associated *Generalised*, *Lithofacies* and *Tectonic Bedrock Geol-*

ogy and *Contacts* layers (in the *Bedrock Geology Map Theme*) have been completed for the Island of Newfoundland with coverage completed over the Burin, Bonavista and Avalon peninsulas (Crisby-Whittle, 2012). This layer will be updated periodically as new maps are published. Meanwhile, compilation of the detailed geology of Labrador has begun, starting with the maps in the southeast (Gower, 2010) and working inland to the west and north.

Detailed Surficial Geology maps (in the *Surficial Geology Map Theme*) have been updated with new mapping on the Island within NTS map sheets 1M, 2E, 2L, 12A and 12H, 12I. The *Till Geochemistry* layer (in the *Geochemistry Sites Group*) has been updated with new samples on the Avalon Peninsula (NTS map sheets 1N/07 and 10) and in the east Gander Lake area (NTS map sheets 2D/16 and 2C/13). The *Striation* layer (in the *Surficial Geology Map Theme*) has been updated with new sites on the Avalon Peninsula (NTS map sheet 1N/10) and in the northeast Gander Lake area (NTS map sheets 2E/08 and 2F/04). The *Aggregate* layers (in the *Surficial Geology Map Theme*) have been updated with new information from Labrador southwest (NTS map sheets 23A/04, 05 and 12, and 23B/14 to 16), south central (NTS map sheets 13E/01, 13F/03 and 04) and north (NTS map sheets 14D/05 to 08).

Geophysical *Airborne Surveys* (in the *Indexes Group*) have been updated with new surveys jointly released by the Geological Survey Division (Department of Natural Resources, Government of Newfoundland and Labrador), the Direction Générale de Géologie Québec (Ministère des Ressources naturelles et de la Faune du Québec), and the Geological Survey of Canada (Natural Resources Canada). These consist of airborne geophysical surveys over the southern Ashuanipi Complex north of Labrador City/Wabush (parts of NTS map sheets 23G and 23J), the Mistastin Batholith survey (parts of NTS map sheets 13M, 14D, 23P and 24A), and the Strange Lake area survey (part of NTS map sheet 24A/08). Many detailed airborne geophysical surveys, flown as part of industry exploration programs in Newfoundland and Labrador, have also been released.

The *Drill Core* layer has been updated with drillhole data from holes within NTS map sheets 1M, 2D, 2E, 12A, 12B, 12H, and 23G.

A new group of layers from the Energy Branch has been added to the Geoscience Atlas. The *Petroleum Resources Group* consists of the layers *Onshore Petroleum Wells*, *Onshore to Offshore Petroleum Wells*, *Onshore Seismic Lines*, *Onshore Permits and Leases* and *onshore petroleum Basins*.

Along with database updates, including changes to column names, various help files have also been updated, including the *Map Viewer HELP* that now contains answers to Frequently Asked Questions.

The “*What’s New*” link, located on the GeoScience OnLine webpage and on the lower right side of the Geoscience Atlas, provides a summary list of items that have recently been updated.

FUTURE PLANS

As more NL Geological Survey digital information (*i.e.*, reports, maps and data) is made available to the public, the Geoscience Atlas can assist in this distribution and dissemination by providing more links to the information. Presently, the search for and download of Geological Survey digital information is predominantly through a text search of the Geofiles collection. In the future, the Geoscience Atlas will provide not just a spatial display of the data but also link more features, such as survey areas or sample sites, to associated reports, maps and data that can be viewed and downloaded. Layers, such as the *Map Staked Claims*, *Historical Claims*, *Drill Core* and *Airborne Surveys*, already provide links to further information, such as non-confidential assessment reports.

Most of the upgrades to the Atlas will occur in the *Indexes Group*. This *Group* presently consists of layers indicating the spatial extents or NTS map overlap of geological, geochemical and geophysical reports, maps and data, providing a visual tool to spatially search for information of interest. The *Identify* and *Select-by-Rectangle* tools can be used to search the Map Window; the *Query* tool can be used to search the associated attribute data. The *Indexes* are predominantly for NL Geological Survey products, but do include geophysical surveys from industry assessment reports in the *Airborne Surveys* index layer.

Along with the *Bedrock Maps*, *Geochemical Surveys* and *Airborne Surveys* index layers, a *Surficial Geosciences* and a *Publications* index layer will be added to provide links to surficial geology maps, aggregate maps and published reports. As well, the *Bedrock Maps* and *Geochemical Surveys* index layers will be restructured and each record will provide, where available, a link to a reference in the *Geofiles*

collection and from there, any associated digital reports, maps and databases.

The *Detailed Geology* of Labrador has begun to be compiled, starting with the maps in the southeast (Gower, 2010) and working inland to the west and north. As a first step, this information will be made available on the Geoscience Atlas for download as vector polygon and line files with the original geological unit attributes included but without a common legend theme or colour set.

The *Map Themes* section of the Geoscience Atlas will be reorganized into drop-down groups, similar to the *Layers* section above it, removing the popup ‘options’ boxes. This will allow the plotting of point and line layers, such as *Topographic Contours*, on other maps such as *Bedrock Geology* or *Surficial Geology*.

Overall, the Geoscience Atlas will become more streamlined to provide easier access to the geoscience data and information for the Province.

REFERENCES

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