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MINERAL INVENTORY PROJECT

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ABSTRACT

The primary mandate of the Mineral Inventory Project is to document all geological and mineral resource information on the Province's mineral occurrences and to make the information available to the public. Mineral Inventory personnel are also responsible for reviewing all land-use applications and environmental assessment projects submitted to the Provincial Government, with the aim of minimizing their impact on the Province's documented mineral resources and areas of high mineral potential.

INTRODUCTION

The Mineral Inventory Project maintains the principal repository for geological information on the Province's mineral resources. The repository is a two-part infobase consisting of the Mineral Occurrence Data System (MODS), which is a digital mineral occurrence database, and a collection of mineral occurrence maps (Stapleton *et al.*, 2000).

The MODS is composed of summaries of data including geological descriptions, location, mineralogy, deposit type, bibliography, work histories, resource and/or reserve statistics and analytical results on known mineral occurrences. It is an important mineral exploration and research tool that offers fast and easy access to mineral occurrence information throughout all of Newfoundland and Labrador. The main delivery point for the MODS data is the Geological Survey of Newfoundland and Labrador website (http://www.nr.gov.nl.ca/nr/mines/Geoscience/ index.html).

Clients can search the database using either the 'Mineral Deposit (MODS) Index Search Form' or the 'Geoscience Atlas'. It provides clients with a current, high-quality, online mineral deposit database that helps guide mineral exploration efforts in the Province. The data generated by the Mineral Inventory Project contributes toward long-term benefits evidenced by increased investment in the mineral exploration and mining industries (Stapleton *et al.*, 2014).

MINERAL OCCURRENCE DATA SYSTEM (MODS)

The MODS data are housed within an Oracle database management system; however, data entry is achieved using an application of Microsoft-Access database software (Stapleton *et al.*, 2005). Microsoft-Access connects to the Oracle database using object database connectivity technology (ODBC).

The MODS data are obtained from three main sources; mineral industry assessment reports, government reports and academic reports, and theses (Figure 1). Data is reviewed to ensure compliance with the MODS coding standards before information is delivered to clients as occurrence specific, mineral inventory reports, *via* the Geoscience Atlas and the MODS query form. Selected fields from the MODS database record (Table 1) can be downloaded from the Geoscience Atlas, which gives users the ability to use the data spatially in a GIS environment.

The MODS internet application is dynamically linked to the Oracle database, which serves as the common platform for all of the Geological Survey's databases. This enables efficient sharing of information between the databases giving clients same-day access to updated information.

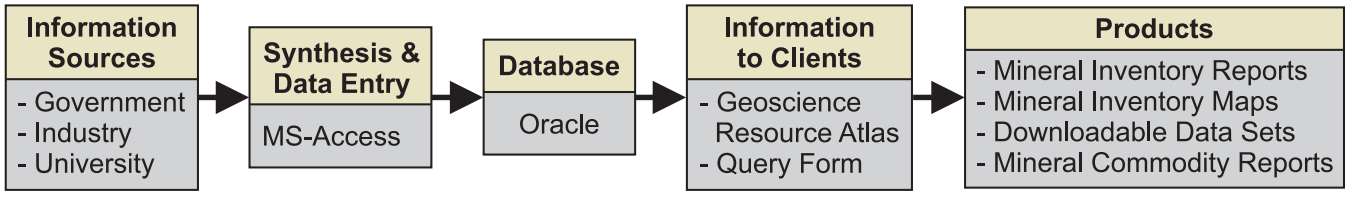

Figure 1. *MODS flow chart.*

Table 1. Fields and field descriptions from MODS for GIS record

Depname	Usual name
Altname	Alternate name
Recid	Record ID number
Nmino	National mineral inventory number
Comname	Major commodity present
Modslabel	Symbol for major commodity present
Commods	Secondary commodities present
Deptype	Deposit type; coded genetic classification of deposit
Desc	Description of deposit type
Status	Indicating amount of work done and hence the amount of information available on a deposit
	Producer - Commodity is extracted for sale
	Developed Prospect - Reserves or demonstrated resources of the commodity can be calculated, but the commodity has not yet been produced (i.e., three dimensional data plus grade)
	Past Producer Dormant - The commodity is no longer produced, although there are known reserves or demonstrated resources
	Past Producer Exhausted - The commodity is no longer produced and there are no longer reserves or demonstrated resources
	Prospect - Two-dimensional data and grade are available, but not enough data to calculate reserves
	Showing - Mineralization exists in outcrop with little information known about its spatial extent; assay data exists
	Indication - An indication of the existance of the commodity (i.e., field observation, map symbol)
Depchar	Deposit description
Geoprov	Geological province
Tectbelt	Tectono-stratigraphic zone
Strunit	Stratigraphic unit
Stratigrap	Stratigraphic age of the host unit
Rocks	Rock type(s) associated with deposit
Trench	Trenching? y = trenching done
DDH	Number of drillholes into the deposit
Working	Type of mine workings Underground - u, Open Pit or Quarry - o Underground and Open Pit – uo
Adit	Adit? y = adit present
Shaft	Shaft? y = shaft present
Utmeast	Easting coordinate
Utmnorth	Northing coordinate
Utmzone	UTM Zone

MINERAL OCCURRENCE MAPS

Mineral occurrence maps on geological bases have been published at 1:250 000 scale, and selected areas have been published at 1:50 000 and 1:100 000 scales. An industrial minerals map for insular Newfoundland, at 1:1 000 000 scale, on a coloured geological base, is also available. These maps provide the location, minerals present and status of each occurrence. Mineral occurrence locations are also plotted on 1:50 000-scale topographic maps and are available for viewing at the Geological Survey's offices in St. John's, NL.

The Mineral Inventory Project has also published six, thematic mineral occurrence maps on geological bases, which are produced on demand. These are, Epigenetic Gold and Related Mineralization, Newfoundland; Copper and Associated Mineralization, Newfoundland; Zinc–Lead and Related Mineralization, Newfoundland; Mississippi Valley Type Lead–Zinc Mineralization, Newfoundland; Volcanogenic Massive Sulphide Deposits, Dunnage Zone, Newfoundland; and Metallic Mineral Occurrences of the Avalon Zone, Newfoundland.

Some of these maps can be downloaded from the Geofiles database and all maps are available, upon request, from the Geological Survey's Geoscience Publications and Information Section.

MINERAL COMMODITY REPORTS

Since the early 2000s, the Geological Survey has produced 9 Mineral Commodity Reports (Table 2). They are short summaries of particular commodities with emphasis on their geological settings and exploration potential.

Table 2. Published Mineral Commodity reports

Zinc and Lead	Number 1, 2000, revised 2008
Nickel	Number 2, 2000, revised 2005, 2008
Copper	Number 3, 2000, revised 2005, 2007
Gold	Number 4, 2005, reprinted 2008
Uranium	Number 5, 2009
Rare-earth Elements	Number 6, 2011
Iron Ore	Number 7, 2012
Fluorite	Number 8, 2013
Barite	Number 9, 2014

The primary information base for developing such reports is the MODS, which serves as a critical reference, providing location data and occurrence descriptions. Work continued in 2015 on both a silica report, and a report on molybdenum-tungsten-tin (a combined treatment). These reports will provide a brief summation of silica and molyb-

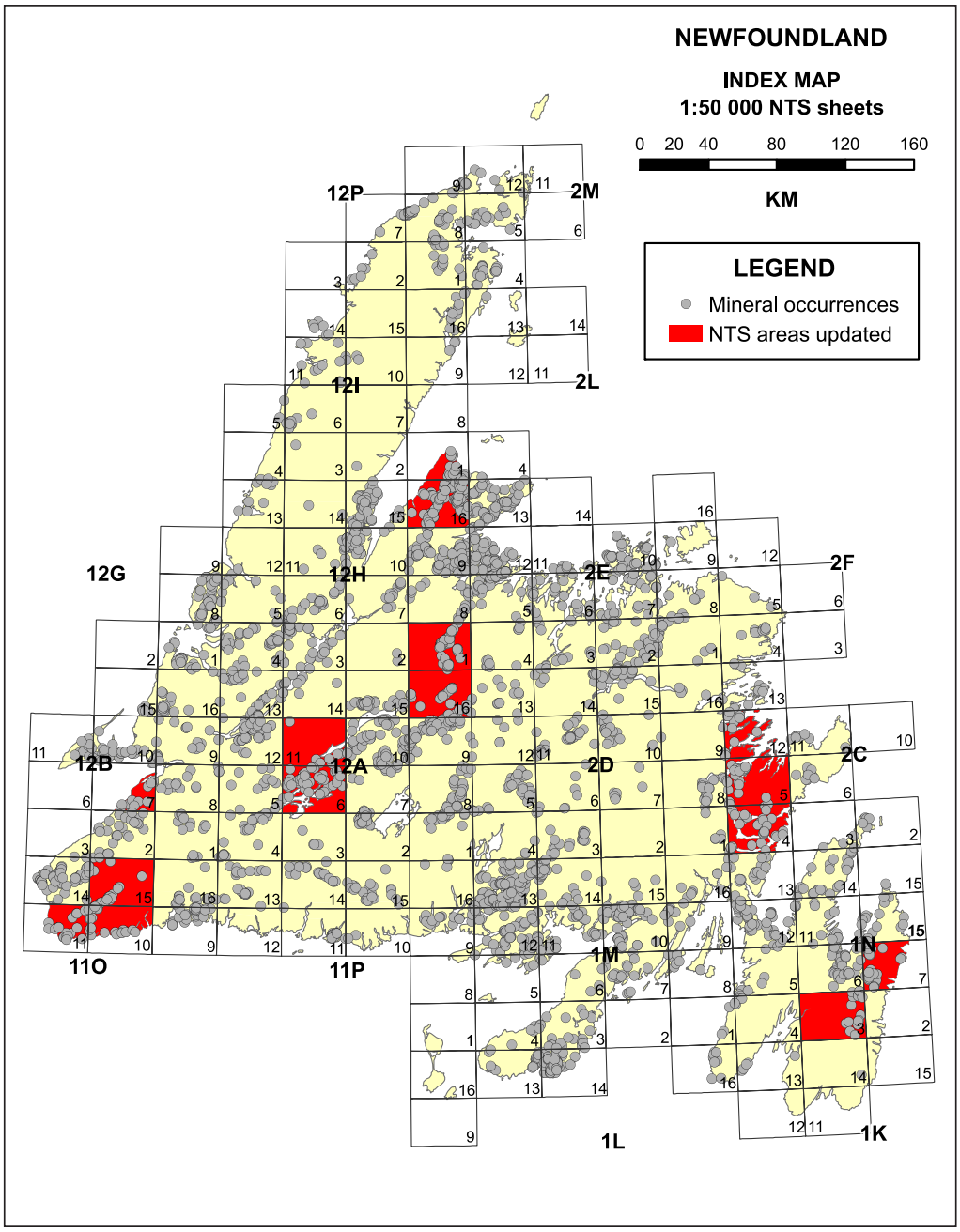

Figure 2. *NTS areas updated, Newfoundland.*

denum–tungsten–tin commodities within the Province, including their geological setting and production history. The commodity series reports are intended to act as a bridge between summary information of a promotional nature and the detailed information that is accessible through MODS and in the Geological Survey of NL geofiles library.

UPDATES

During 2015, Mineral Inventory staff continued to update information on existing mineral occurrences and to document new discoveries. Work proceeded on a Province-wide basis, primarily by accessing information from mineral industry press releases and assessment reports as they gained public-domain status. NTS map areas 1N, 2C, 11O, 12A, 12B, 12H, 12I (Newfoundland) (Figure 2), 3D, 13D, 13E, 13N, 13J, 14C, 14D, 23I, 23J (Labrador) (Figure 3) were updated, in part.

This update of the database provides the mineral exploration community with the most current dataset that will

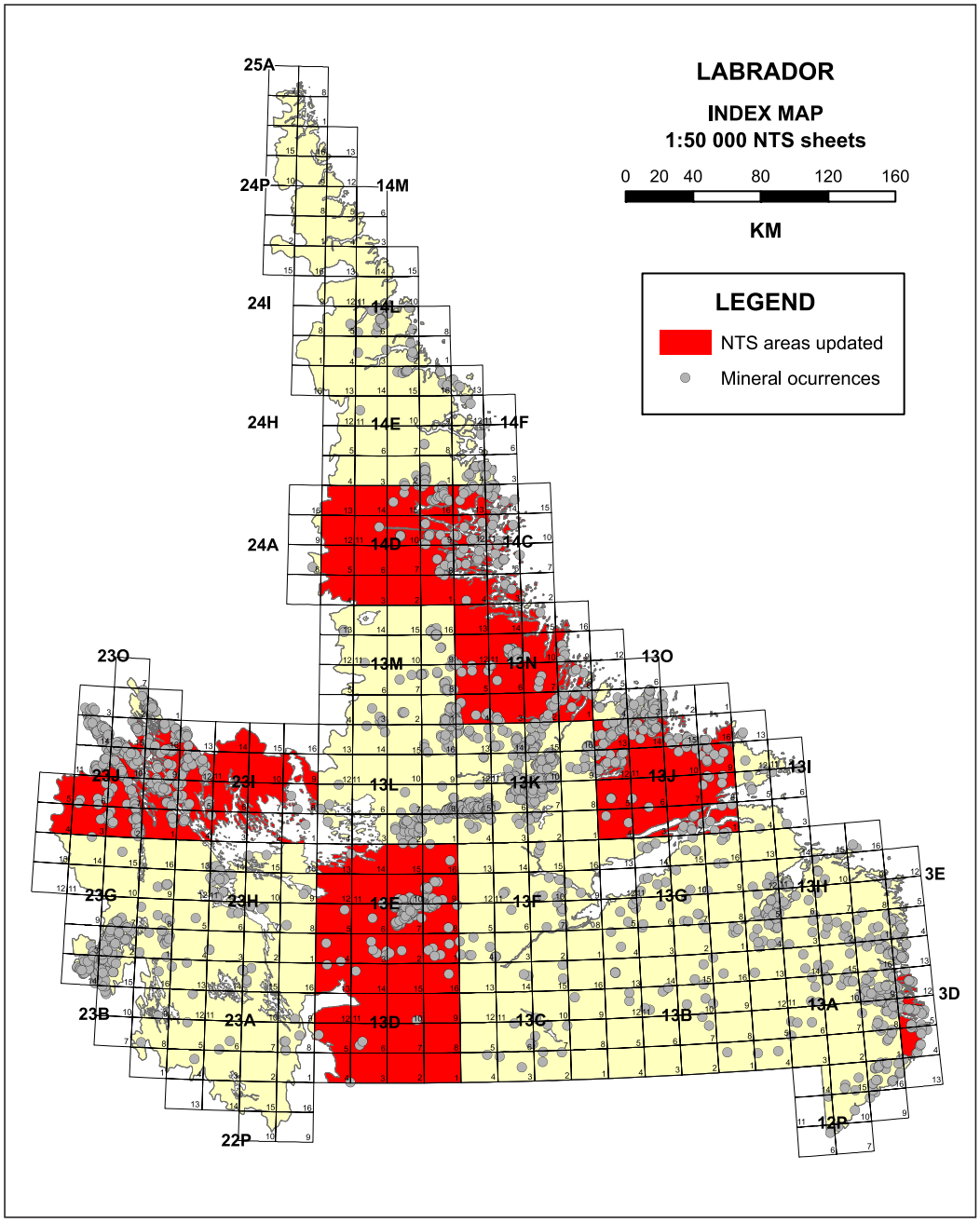

Figure 3. *NTS areas updated, Labrador.*

help guide mineral exploration efforts in the Province. The data generated by the Mineral Inventory Project will contribute toward longer term benefits evidenced by increased investment in the Provincial mineral exploration and mining industries.

In 2015, consistent delivery of new information through both the Online Query Form and the Geoscience Atlas continued with updated non-confidential records being copied to the public domain daily.

MODS USERS

The MODS is used by mineral exploration company personnel and consultants, independent prospectors, personnel and students of academic organizations and the general public. The 2015 web server statistics for the Mineral Inventory Database indicated that it was accessed 20919 times (Figure 4), and during the past ten years it has been consistently used, averaging 26215 hits per year. A hit is logged when the user opens a mineral inventory record. A detailed

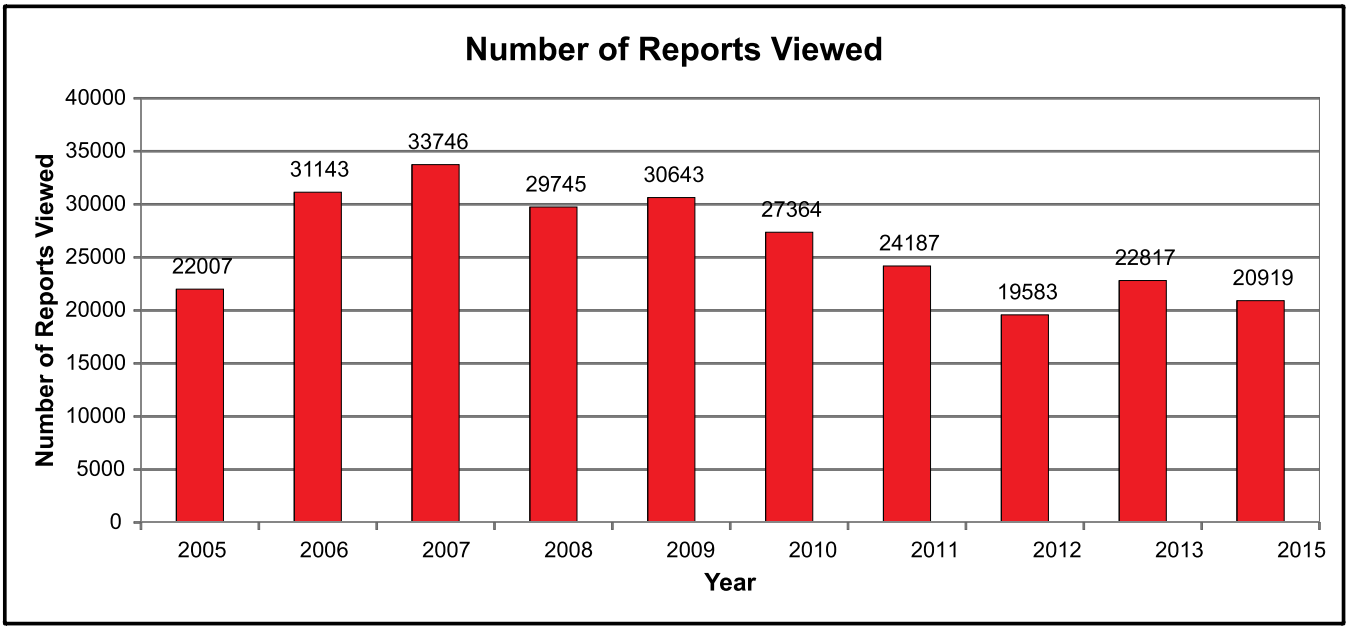

Figure 4. *Number of reports viewed per year 2005-2015 (data for 2014 unavailable).*

study of the 2013 web server statistics (Stapleton *et al.*, 2015) indicated that the database has a global audience; being accessed from one hundred countries, which represents approximately half of the countries of the world. It is accessed most frequently from Canada and the commodity of greatest interest is gold.

LAND-USE PLANNING

The MODS is used daily by government geologists in land-use planning. Advice is given to various government departments through the Interdepartmental Land Use Committee referral process and the environmental assessment registration process on establishing wilderness areas, hydro developments, provincial and national parks, cottage developments, water reservoirs, etc., so that, where possible, these developments proceed in areas of low mineral potential. In 2015, project personnel reviewed over 1100 land-use applications and 58 environmental assessment registrations.

REFERENCES

Stapleton, G. J., Smith, J.L. and Adams, T.
2014: Mineral Inventory Project. *In* Current Research. Government of Newfoundland and Labrador, Department of Natural Resources, Geological Survey, Report 14-1, pages 129-134.

Stapleton, G.J., Smith, J.L. and Parsons, W.K.
2005: Mineral Occurrence Data System. *In* Current Research. Government of Newfoundland and Labrador, Department of Natural Resources, Geological Survey, Report 05-1, pages 253-256.

Stapleton, G., Smith, J.L., Pollock, J.C. and Way, B.C.
2000: Mineral Occurrence Data System. *In* Current Research. Government of Newfoundland and Labrador, Department of Mines and Energy, Geological Survey, Report 2000-1, pages 341-348.

Stapleton, G.J., Smith, J.L., Schofield, M.D. and Adams, T.
2015: Mineral Inventory Database: Web Server Statistics. *In* Current Research. Government of Newfoundland and Labrador, Department of Natural Resources, Geological Survey, Report 15-1, pages 139-142.