# MINERAL OCCURRENCE DATA SYSTEM

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# ABSTRACT

The Mineral Occurrence Data System (MODS) is the principal repository for geological information on the province's mineral resources and comprises summaries of data on approximately 6000 mineral occurrences. It offers fast and easy access to the data and is searchable from the Geological Survey's website (http://www.gov.nl.ca/mines&en/geosurvey).

## **INTRODUCTION**

The Mineral Occurrence Data System (MODS) is the principal repository for geological information on the province's mineral resources and is a two-part infobase consisting of a mineral occurrence database and a collection of mineral occurrence maps (O'Driscoll *et al.*, 1991). MODS comprises summaries of data on known mineral occurrences, and is designed to offer fast and easy access to information. It contains about 6000 mineral occurrence descriptions, covering all of Newfoundland and Labrador. The main delivery point for the MODS data is the Geological Survey of Newfoundland and Labrador website (http://www.gov.nl.ca/mines&en/geosurvy).

# MINERAL OCCURRENCE DATABASE

#### MODS (MS-ACCESS<sup>TM</sup>)

MODS uses the MS-Access<sup>™</sup> database management system as the sole repository of mineral occurrence data and serves as a common platform from which data can be input and delivered to clients (Stapleton and Smith, 1999). Each database record, which contains 61 fields, can be queried using the search index on the Geological Survey's website. Its internet application is dynamically linked to the MS-Access<sup>™</sup> database, which gives clients immediate access to the most recent information.

### MODS FOR GIS

#### "Geoscience Resource Atlas" Online

Detailed MODS data can be queried and viewed online in a map environment, in conjunction with other geoscientific data sets, using the "Geoscience Resources Atlas" from the Geological Survey's website.

#### MapInfo<sup>TM</sup> and ArcView<sup>TM</sup>

Selected fields from the mineral occurrence database are also available on CD-ROM as part of the Geoscience Atlas of Newfoundland (Davenport *et al.*, 1999a) and the Geoscience Atlas of Labrador (Davenport *et al.*, 1999b). Both operate as "turn-key" systems on personal computers in MapInfo<sup>TM</sup> and ArcView<sup>TM</sup> formats. These publications enable clients to view mineral occurrence data in broader geoscientific contexts.

## 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. All mineral occurrence locations are 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 MODS project has also published six, on-demand, thematic mineral occurrence maps on geological bases. 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.

All maps are available from the Geological Survey's Geoscience Publications and Information Section, upon request.



**Figure 1.** Index map for Mineral Occurrence Data System project, insular Newfoundland.

#### MODS UPDATE

Integration of information previously contained in the manual WordPerfect<sup>™</sup> files and the computerized R:BASE<sup>™</sup> database into the MS-Access<sup>™</sup> database (Stapleton *et al.*, 2000) is complete for insular Newfoundland (Figure 1) and most of Labrador (Figure 2). The remainder of the Labrador data is expected to be merged into the MS-Access<sup>™</sup> database by early 2004.

The MODS project continues to document and update information on mineral discoveries in the province.

### MODS USERS

MODS is used by mineral exploration company personnel, consultants, independent prospectors, geotechnical consultants, personnel and students of academic organizations, and the general public, and it is used daily by government geologists in land-use-planning. Advice is given to various government departments through the Interdepart-

#### MANDATE

The mandate of the CGKN Mineral Deposit Data Model Sub-group is to provide, through the internet, a digital representation of the nation's mineral occurrences that will assist in supporting such activities as land-use planning, resource assessment, exploration, environmental monitoring, communication, scientific modeling/visualization and education. This will be done from distributed databases maintained by individual agencies. These agencies will work toward a common data model, including geoscience language, particularly for geological parameters that would be most beneficially viewed across the boundaries of individual provinces or territories. The data model will be developed in cooperation with other CGKN working groups, and will follow the open standards that are adopted by CGKN.

The mineral deposit data for each province or territory will reside at the custodial agency where it can be kept current. Applications that assist in viewing and extracting information about mineral deposits via the internet on a national

mental Land Use Committee (ILUC) referral 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.

It is made available to various federal government agencies such as the Mines and Metals Sector, the Geological Survey of Canada (GSC), and will be this province's contribution to the Mineral Deposits Subgroup of the Canadian Geoscience Knowledge Network (CGKN).

# CGKN MINERAL DEPOSIT DATA MODEL

The Canadian Geoscience Knowledge Network (CGKN) is an initiative of the National Geological Surveys Committee (NGSC) to provide an internet portal to Canadian geoscience information. The MODS project is participating in CGKN through the Mineral Deposit Data Model Sub-group. The following paragraphs describe the project's mandate, membership, and planning and implementation strategy and is taken from the CGKN Mineral Deposits Working Group website (http://www.cgkn.net/2002/working/mineral\_e.html). scale will be adopted from either the North American Data Model (NADM) or CGKN software development projects.

### MEMBERSHIP

All territorial, provincial and federal agencies that are actively involved in the collection, compilation and dissemination of mineral-deposit related information will be represented on the subgroup, to guide the development of the data model and its science language. The sub-group will be led by two co-leaders, one representing federal agencies and the other, the provincial and territorial agencies. The co-leaders will be appointed by GSC management and the Committee of Provincial Geologists, respectively.

#### PLANNING AND IMPLEMENTATION

The sub-group will establish a long-term (3 to 5 year) plan to guide the development and maintenance of the national view of the mineral deposit databases. Within this framework, annual plans will be drawn up to establish the role of each agency in accomplishing particular tasks, taking into account the agencies' capabilities in terms of personnel and financial resources for that year. From these annual plans, projects will be designed to attract matching funding from national programs.

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**Figure 2.** Index map for Mineral Occurrence Data System project, Labrador.

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