GEOSCIENCE INFORMATION SERVICES PROJECTS

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SUMMARY

Geoscience Information Services section has focused on an extensive program of GIS-based map compilation at regional (1:250 000) and detailed (1:50 000) scales. Digital maps at 1:250 000 scale have now been produced to cover approximately half the province. Detailed compilation is focused on greenstone belts, with the Lynn Lake-Leaf Rapids region the initial target. Publishing and data distribution is changing to CD-ROM based "electronic reports" and print-on-demand publishing of maps.

INTRODUCTION

The Geoscience Information Services section of the Geological Services Branch is responsible for:

- all GIS and CAD production in the Branch,
- preparation of maps and figures for publication,
- design and maintenance of data management systems,
- preparation and packaging of digital files for "electronic reports",
- preparation of material for presentation on the Departmental web site, and
- technical support for software systems in the Branch.

BEDROCK GEOLOGY COMPILATION MAP SERIES

The final map of the Bedrock Geology Compilation Map (BGCM) series (Manitoba Energy and Mines, 1999) produced by manual drafting techniques (NTS 63H, Norway House) was released in May 1999. All subsequent production in this 1:250 000 geological compilation program will be done using ArcInfo GIS technology. The total number of completed compilation maps is now 28 sheets, covering the entire Churchill Province, core areas of the Superior Province and the capital region of Manitoba. Of the remaining 26 full and part sheets required to complete province-wide coverage, 17 sheets are in areas of Phanerozoic bedrock and 9 sheets are in areas of the Superior province with either little bedrock exposure or areas composed dominantly of granitoid rocks.

Conversion to digital format of all the existing BGCM maps created since the project started in 1985 has progressed well over the last year. The project follows a 3 step process: primary digitizing to capture the line work and unit identifiers of the original maps, upgrading of the maps (primarily extrapolation of contacts using geophysical data but also including correction of errors and inclusion of new data) and conversion to ArcInfo digital coverages. Of the 28 existing compilation maps, all have undergone the primary digitizing stage while 17 sheets have had contacts upgraded and complete conversion to GIS format. Additionally, 6 of the sheets have been edge-matched and merged into a single digital coverage. This digital conversion program serves 3 purposes:

- to make reprinting, revision and reissuing of BGCM 1:250 000 compilation maps more efficient and cost effective,
- to produce a seamless 1:250 000 digital compilation of Manitoba geology to be used as a map base for Internet publishing of data such as mineral occurrence data, geochronology and geochemistry, and
- to provide a 1:250 000 base to help in the revision of the 1:1 000 000 Geology of Manitoba map.

DETAILED COMPILATION PROJECTS: 1:50 000

Geological Services Branch has started a program to convert existing 1:50 000 maps to digital format, upgrade the geological base and compile the maps on a "belt" level. This is primarily focused on producing high quality compilations of major greenstone belts. Currently there are three project areas underway at various levels: Lynn Lake-Leaf Rapids belt, Flin Flon-Snow Lake belt and Gods-Oxford-Knee lakes region.

The Lynn Lake-Leaf Rapids digital compilation is the most advanced project with seven 1:50 000 sheets compiled and edge-matched in the Lynn Lake region and one 1:50 000 sheet in the Leaf Rapids area. The Lynn Lake compilation is currently used as the base for the poster presentation on trace element geochemistry in the Lynn Lake belt based on the Open File Report by Zwanzig et al. (1999).

Compilation in the Flin Flon-Snow Lake region is a continuation of work started under the NATMAP Shield Margin Project (1991-98) and initially focuses on the Athapapuskow Lake and Elbow Lake areas.

DATA PUBLISHING

Geological Services Branch has made major advances in "electronic publishing", in the form of CD-ROM release of Open File Reports and digital release of maps. Following on from the 1998 release of the Operation Superior multimedia geochemical survey results (Fedikow, et al., 1998) in both hard copy and digital version there have been 3 releases of CD-based reports:

- The results of year 3 of Operation Superior multimedia geochemical survey results (Fedikow, et al., 1999). Similar to the previous release, the CD-ROM focused on multiple data formats to support the widest possible software base, but additional emphasis was placed on producing hyperlinked Portable Document Format files that duplicate the total content of the printed report.
- A 1:1 000 000 compilation of geological and geophysical data (Viljoen et al., 1999) that was jointly developed with the Geological Survey of Canada and released simultaneously by both organizations. This CD-ROM contains a geological map of Manitoba in several GIS formats, georeferenced geophysical images, attribute data for the map and extensive HTML-based metadata documents.
- A CD-ROM (Bezys and Conley, 1999) containing 30 stratigraphic maps including 6 new Lower Paleozoic and Precambrian maps (1:2 000 000), as well as 24 recently digitized maps previously published at various scales. The CD includes the data source for the maps, the Manitoba Stratigraphic Database, containing stratigraphic data for deep wells including stratigraphic, mineral exploration, oil and gas, water and hydro wells. See also Conley (GS-30, this volume) for more details.

Acquisition of a second large-format inkjet plotter supplements conventional map printing with in-house short-run colour printing and print-on-demand capabilities.

INTERNET PROJECTS

Work in this area has focused on implementing an Internet map server system for the Geological Services Branch. Because the entire provincial government has undergone a complete renewal and upgrading of computer and network systems over the last year it has not been possible to implement the ArcView Internet Map Server software other than on an intranet. This situation has now been rectified and work is currently underway to bring this project online. Projects have been developed to provide interactive maps of geology and mining claim structure.

REFERENCES

Bezys, R.K. and Conley, G.G. 1999: Manitoba Stratigraphic Database and the Manitoba Stratigraphic Map Series; Manitoba Energy and Mines, Geological Services, Open File Report OF98-7, CD-ROM.

Fedikow, M.A.F., Nielsen, E., Conley, G.G., and Lenton, P.G. 1999: Operation Superior: multimedia geochemical survey results from the Webber Lake, Knife Lake, Goose Lake and Echimamish River greenstone belts, northern Superior Province, Manitoba (NTS 53L and 53K); Manitoba Energy and Mines, Geological Services, Open File Report OF99-8, CD-ROM.

Fedikow, M.A.F., Nielsen, E., Conley, G.G., and Matile, G.L.D. 1998: Operation Superior: multimedia geochemical survey results from the Edmund Lake and Sharpe Lake greenstone belts, northern Superior Province, Manitoba (NTS 53K); Manitoba Energy and Mines, Geological Services, Open File Report OF98-5, CD-ROM.

Manitoba Energy and Mines. 1999: Norway House; Manitoba Energy and Mines, Geological Services, Bedrock Geology Compilation Map Series, NTS 63H, scale 1:250 000.

Viljoen, D., Chackowsky, L., Lenton, P.G., and Broome, H.J. 1999: Geology, magnetic and gravity maps of Manitoba: a digital perspective; Manitoba Energy and Mines, Geological Services, Open File Report OF99-12; Geological Survey of Canada, Open File Report OF D3695, CD-ROM.

Zwanzig, H.V., Syme, E.C., and Gilbert, H.P. 1999: Updated trace element geochemistry of the ca. 1.9 Ga metavolcanic rocks in the Paleoproterozoic Lynn Lake greenstone belt; Manitoba Energy and Mines, Geological Services, Open File Report OF99-13.