GIS and digital mapping in the Newfoundland geological survey

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Geoscientific information can be a major instrument for promoting sustainable economic development. The geoscientific database for Newfoundland and Labrador has grown rapidly in both volume and scope over the past 20 years, and is playing an increasingly important role in mineral, hydrocarbon and infrastructure development in this province. To be used to full effect, this information must be readily available to both traditional users and to new user-groups. Information technology has opened up a plethora of new ways to distribute geoscientific information. To maintain a competitive edge, it is necessary not only to maintain an up-to-date database, but also to distribute it via these new techniques. This requires the translation of the database to a digital format.

Several separate datasets have been available digitally for some time, e.g., regional geophysical and geochemical

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data, and mineral occurrence data. More recently desk-top mapping systems, such as ArcView, have been employed to present digital atlases of geochemical, geophysical and related geological and topographic information. These atlases contain both data and interpreted themes for use by both specialist and non-specialist. Themes and databases from individual atlases are easily linked to each other and to digital indexes containing the areal coverage of surveys and reports and bibliographic information from GEOSCAN. An atlas of construction aggregate resources is being compiled currently.

These linkable atlases become increasingly useful as more themes of geological, topographic and land-use data are added. In principle, virtually all of the Survey's information could be disseminated through desk-top mapping systems. Rather than the ad hoc software used to date to prepare the atlases, much of this work will in future be accomplished using the CARIS GIS. Pilot projects to compile comprehensive databases of geoscientific data and information from government, mineral industry and academic sources are being carried out for the Buchans-Roberts Arm belt, Newfoundland, and the Kanairiktok project area in Labrador. CARIS is the main tool for this work, and will likely be used for the organization, storage, retrieval and in-house analysis of the Geological Survey's geoscientific database.