

Construction of geological databases from regional surveys

J.P. Hayes

*Geological Survey Division, Department of Natural Resources, Government of Newfoundland and Labrador,
P.O. Box 8700, St. John's, Newfoundland A1B 4J6, Canada*

Regional geological bedrock mapping involves airphoto reconnaissance, ground and helicopter traverses followed by office and laboratory investigation of field samples. The data obtained through these studies are reported in a series of printed maps and reports. A significant portion of the information that a geological map contains is actually an interpretation of the data collected during mapping. Much of the original data is not immediately available to map users. With increasingly powerful computers and improvements in database and mapping software it is now possible to construct detailed digital databases from the original field observations. These technological improvements can provide map users with a means to access the original mapping data and to process and exchange mapping data in digital format.

Digital databases of geological information originating from projects which capture data in a digital format are likely to be more comprehensive than those digitized after collec-

tion. However, much of Newfoundland is already mapped and significant amounts of primary mapping data reside in project archives. A process has been initiated to make these data available in digital format. Together with digitized versions of published geological maps these represent an important information resource.

When complete, each mapping archive will consist of digitized geological maps, traverse and sample location maps. These will be complemented with a database of outcrop and sample descriptions, structural and analytical data. Basic geological information such as rocktype identification and brief description together with comprehensive records of structural information can be extracted from most notebook entries. Application of GIS technology permits the linking of site information in the database with the published map. At this stage it is possible to conduct further analysis of the mapping data in conjunction with other mapping or thematic geological databases.