

ACTIVITIES OF THE COMPUTER UNIT

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The Computer Unit was established in 1982 to provide data processing service to geologists involved in data analysis. The Computer Unit has a staff of three, viz., a manager, a system analyst and a programmer. Computer application needs of the Mineral Development Division are met by the use of the mainframe computer for large databases and the use of microcomputers for smaller datasets.

The mainframe computer used by the Division is the AMDAHL 5860 situated at Newfoundland and Labrador Computer Services Centre at Higgins Line. This computer is accessed through a cluster of three terminals and a printer connected via a permanent telephone line operating at 4800 baud. Some of the programs and their applications which are used by the staff of the Division are:

- SPSS-X for management of geochemical and geological data.
- SAS for management of geochemical and geological data.
- GRASP for management of mineral deposit data.
- SIR for management of surficial geology data.

In addition, plotting programs are used for display of spatial distribution of samples and the various chemical elements.

The Division's microcomputers are used by field geologists for data analysis and plotting of geochemical diagrams, e.g. X-Y plots and ternary diagrams. Since most of the geologists are not familiar with computer systems, the emphasis has been on the development of suitable programs that can be used by geologists without them having to become familiar or proficient in either computer systems or computer

languages. Data are downloaded from the AMDAHL mainframe to the Tektronix 4054 Graphic System where geologists have been using MICRO-GRASP program for data analysis.

MICRO-GRASP is a program designed for the storage, transformation, and selection of data in tabular form. The user controls the execution of MICRO-GRASP by entering a series of 'commands'. These commands allow users to enter new data records, establish selection criteria, calculate summary statistics, display selected data values, and perform arithmetic operations. In addition, the user can do graphics work such as plotting X-Y and ternary diagrams. These can either be drawn on the screen or output to a high resolution plotter which can produce camera ready plots.

A portable microcomputer (Compaq Portable) was used in the field this year by a departmental geophysicist; the microcomputer was used to record, store and reduce magnetic data. Once entered, the field data was manipulated to give a hard copy output either as listings or profiles. The microcomputer was used to carry out the necessary calculations and corrections to reduce the raw field data to their final format, examples of this being magnetic corrections.

In addition to providing support and help to end users, the unit will be involved in developing systems which will allow the integration of data from various disciplines within the geosciences for the purpose of highlighting areas of potential mineralization. The Division will be involved in a pilot project called Characteristic Analysis, which is a multi-variate statistical procedure developed specifically for integrating regionalized multi-variate data in geology, geochemistry, geophysics and remote sensing. This will allow a quantified analysis of the favourability of mineralized areas to contain deposits of a certain type.