NTS - This Support to Canada-Ontario Map Area

Province of Ontario
Ministry of Natural Resources
Geological Branch

Canada
Department of Energy, Mines and Resources
Geological Survey of Canada

GEOLOGY

Geology derived from the work of J.A.A. Stirling Gattinger at the scale of 1 : 31,680 (1 inch to 1/2 mile) and from A.M. Pasche and D.G. Sandilands, 1977

Geological cartography by the Geological Survey of Canada

Base-map at the same scale published by the Surveys and Mapping Branch, Department of Energy, Mines and Resources, Ottawa, 1976

Mean magnetic declination 1977, 13°30'E, west decreasing
Grid declination at centre of map, 0°30'W
Lower to 1975) 0' in the N.W. corner of the map area

Elevation in Feet above mean sea-level

Geochemical Symbol and Data Presentation

The concentration of an element at a sample site is graphically represented as an open circle, the diameter of which is proportional to the concentration of the element to be plotted. The symbols are symmetrically arranged so that they first increase in size to the eighth symbol and then increase in blackness to the fifteenth. The two symbols which follow the fifteenth are used to plot concentrations of the element which are below the analytical detection limit, or, in the data group containing the detection limit. The data are grouped on a semi-logarithmic scale, i.e. 1,2,5,10,20,50,100 etc. The range of concentrations represented by each symbol is shown in the legend. Only those Canada wide series of maps contributing the National Geochemical Reconnaissance.

The choice of symbols and the data groups they represent for any specific element is based on a statistical study of the regional data for that element. Data from more than one, or some combination, of the symbols covering a two field square. The eighth symbol is used for the most anomalous as defined by the histogram, this group usually contains the highest 2 percent of the data, but may be as low as the highest 1 cumulative frequency plot. Some, or all, of the remaining 14 symbols are chosen so that they represent a geometric progression of the background and weakly anomalous data.

The symbol sizes, varying based on the total survey data distributions, are unaffected by the availability of most increasing levels of knowledge in bedrock and surficial geology, and other environmental factors. Therefore, the raw data symbol maps are directly comparable from area to area throughout the National Geochemical Reconnaissance. To fulfill the needs of a more scientific and thorough interpretation, the raw symbol maps should be modified using the field and analytical data provided in the data tables. Modification of the symbol maps should be based on a statistical interpretation of the data in terms of the symbol map boundary settings, a table of summary statistics and proposed threshold values for each mapped bedrock unit, or broad lithologic unit, and the location of the sample sites. Modification of the symbol maps by the user can be used either, or in conjunction, with the sample location map and data listings to indicate above threshold samples where they occur on the map. In many instances, the above threshold samples will be clustered in areas of known mineralization or geochemical levels in bedrock type. It may often be also observed that within the total data appears to approximate a log-normal distribution the data for individual bedrock units may be multimodal or positively skewed. The above threshold concentrations presented are believed to be useful in interpreting the data from a mineral exploration viewpoint. Locations of samples with concentrations in excess of the above threshold values should be investigated in the search for mineral deposits. The above threshold concentrations can be due to a wide range of geological and environmental factors, but one of those could be the presence of abnormal concentrations of the element in the bedrock underlying the sample location.

To conveniently study an area, all available geological, environmental and recorded data should be utilized. The data acquisition by bedrock type can often be used to advantage in the search for mineral deposits. Prospectivity levels become on the basis of detailed and up-to-date knowledge available.

The non-residuality factor and value that appears below the table is an estimate of the probability that a sample value will fall within the range of values for the soil horizon sampled. It can be stated that there is a 95 chance that if any value is multiplied by the non-residuality factor and divided by the non-residuality factor the value will fall between 2 x XF and 4 x XF where X is the original value obtained. This factor takes into account variability due to both heterogeneity of the centre-line bottom sediments and sample preparation and analytical causes.

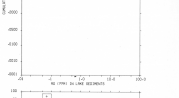

Table of Threshold for Major Geological Units

Lithology	No. of Samples	Mean	S.D.	E.F.1	Threshold
Limestone	13	0.11	0.10	28	0.5
Sandstone	22	0.10	0.00	0	0.5
Schists	7	0.10	0.00	0	0.5
Gneiss	21	0.10	0.00	0	0.5
Marble	10	0.10	0.00	0	0.5
Conglomerate	3	0.10	0.00	0	0.5
Granite	76	0.10	0.00	10	0.5
Rhyolite	2	0.10	0.00	0	0.5
Syenite	69	0.10	0.00	410	0.5
Diorite	12	0.10	0.00	0	0.5
Granodiorite	3	0.10	0.00	0	0.5
Gabbro	4	0.10	0.00	0	0.5
Diorite	5	0.10	0.00	0	0.5
Quartzite	10	0.10	0.00	0	0.5
Basalt	67	0.10	0.00	0	0.5
Paragneiss	11	0.10	0.00	10	0.5
Migmatite	4	0.10	0.00	310	0.5
Unknown	0	0.10	0.00	0	0.5

Data units are ppm — Reliability Factor = 1.10

NATIONAL GEOCHEMICAL RECONNAISSANCE MAP 1-1976
OPEN FILE 485

Resource Geophysics and Geochemistry Division

Geological Survey of Canada, Ottawa

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Field sampling by D.G. Sandilands
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Ontario Geological Branch

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Contractors
Sample preparation by Golder Associates
Chemical analyses by Chemex Labs Ltd.

This map forms one of a series of 18 sheets released under Geological Survey of Canada, Open File 485-485. The open files consist of data for 11 elements each, per cent loss on ignition and sample site locations.

The data are also available in digital form. For further information please contact:

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NATIONAL GEOCHEMICAL RECONNAISSANCE MAP 1-1976
OPEN FILE 485
SOUTHAMPTON ORTHRO, 1976
RILLYER

NATIONAL GEOCHEMICAL RECONNAISSANCE MAP 1-1976
ONTARIO
ELLIOTT LAKE SHEETS

CANADA-ONTARIO SUBSIDIARY AGREEMENT ON MINERAL EXPLORATION AND DEVELOPMENT

Scale 1:250,000

Kilometres 0 5 10 15 20 25
Miles 0 5 10 15

Universal Transverse Mercator Projection
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