Province of Ontario
Ministry of Natural Resources
Geological Branch

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

31 F

Geochemical Sediment Reconnaissance Map

Geology derived from the map 1214-A, Hearst-Kapuskasing Sheet, Ontario Geological Survey, by Barry A.R. Poole and D.F. Sangster, 1968

Geological cartography by the Geological Survey of Canada

Base-map at the same scale published by the Mapping and Charting Establishment, M.C.E. 1966-67

Base magnetic declination 1977, 3°44.5' West decreasing
Annual change 0.1' decreasing
Corner to GRID/UTM to the corner of the map area

Elevation in feet above mean sea-level

Geochemical Symbol and Data Presentation

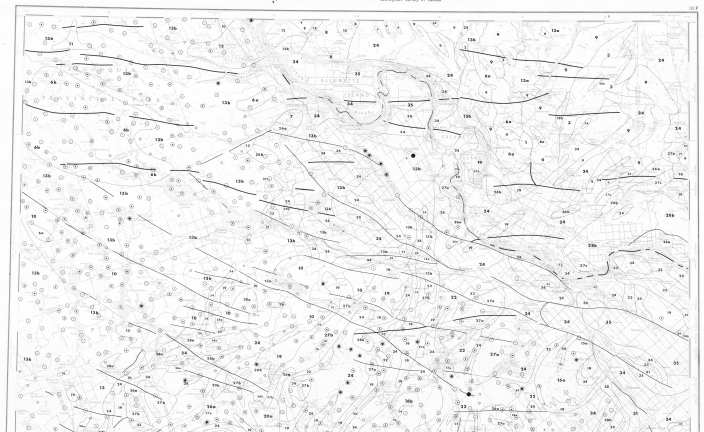
The concentration of an element at a sample site is graphically represented as one of 10 symbols. The symbols are arranged on an arithmetic scale and are easily identified. The symbols are symmetrically arranged so that the highest concentration is given to the eighth symbol and then increase in blackness to the fifteenth. The ten symbols are used to show the range of values from the lowest concentration to concentrations below the analytical detection limit, or, in the same group completing the concentration limit. The data are grouped on a semi-logarithmic scale, i.e. 1,2,5,10,20,50 etc. Statistical parameters are calculated for each element and are used as a guide in selecting Canada wide series of maps constituting the National Geochemical Reconnaissance.

The choice of symbols and the data groups they represent for any specific element are made by the author of the report. Normally, the eighth symbol is used for the mean, from one, or more contiguous, open fifths nearly equal to one field census. The eighth symbol is used for the model group as defined by the histogram. Only group boundaries are shown on the histogram. The mean, median, mode, standard deviation, coefficient of variation, and the percentage of samples in each symbol are shown in the accompanying data table.

The symbol shapes, being based on the most survey data distributions, are unaffected by the availability of ever increasing levels of knowledge in bedrock and surficial geology. Each symbol represents a group of values. Each symbol group is arbitrarily selected to satisfy the rapid presentation of the data for gross regional features. To fulfill the needs of a more specific and thorough interpretation, the raw symbol data is available on punched cards. The data is also available in digital form on magnetic tape and other machine-readable media. To assist in the appraisal of multivariate data presented in terms of the symbol map bedrock geology, a table of summary statistics and proposed threshold values for the elements determined in the sediment samples collected in the Hearst survey area, is presented below the histogram. Until bedrock geology is known by subsurface exploration, with the sample location map and data listings as indicate above threshold concentrations, data clarify that the map, the appearance of many geochemical features is inadequate. Any such effect is also observed that within the total data appears to approximate a log normal distribution. The proposed threshold values are calculated by assuming a normal distribution. The proposed threshold values are believed to be useful in interpreting the data from a mineral exploration viewpoint. Locations of samples with concentrations above the proposed threshold values are shown on the sample location map. The above threshold concentrations can be due to a wide variety of natural and environmental factors, but one of these could be the presence of abnormal concentrations of mineral deposits. Such deposits may be of economic significance.

To comprehensively study an area, all available geological, environmental and recorded data should be utilized. The data separated by bedrock type can often be combined to show a single population. The proposed threshold levels based on the most detailed and up-data knowledge available.

The data reliability factor and value that appears below the table is an estimate of the reliability of the data presented. The factor is based on the number of times a sample was analyzed in case we stated that there is a 95% chance that if any data is remeasured and identical methods of sample preparation and analysis are used the new value will fall within the limits of the original value times the reliability factor. This factor takes into account variability due to such heterogeneity of the bedrock-like bedrock sediments and sample preparation and analytical causes.



NATIONAL GEOCHEMICAL RECONNAISSANCE MAP 2-1976
NICKEL IN LAKE SEDIMENTS

CANADA-ONTARIO SUBSIDIARY AGREEMENT ON MINERAL EXPLORATION AND DEVELOPMENT

Scale 1/250,000

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

Universal Transverse Mercator Projection
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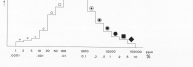

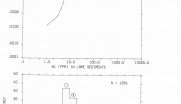

Table of Thresholds for Major Geological Units

Lithology	No. of Samples	Mean	S.D.	C.V.%	Threshold
Limestone	13	23.9	46.1	192	101
Dolomite	13	23.9	46.1	192	101
Schists	42	6.3	3.0	47	15
Tuffs	20	10.7	5.5	51	40
Basalts	105	50.2	24.5	49	100
Conglomerate	10	11.3	4.4	39	20
Bedrolite	79	12.1	6.1	49	30
Gabbro	7	70.7	29.3	41	100
Granite	28	86.7	400.0	461	40
Granodiorite	102	6.0	3.3	54	10
Quartz	14	11.3	4.4	39	20
Gabbro	14	11.3	4.4	39	20
Amphibolite	83	14.3	11.4	77	60
Gneiss	83	14.3	11.4	77	60
Peridotite	1	10.0	0.0	0.0	10
Pigeonite	90	14.5	10.7	73	60
Unknown	0	11.0	3.0	30	15

Data units are ppm — Reliability Factor = 1.66

NATIONAL GEOCHEMICAL RECONNAISSANCE MAP 2-1976
OPEN FILE 406

Resource Geophysics and Geochemistry Division

Geological Survey of Canada, Ottawa

Geochemistry and Federal-Provincial coordination by E.M.A. Hornbrook
Field operation supervised by C.E. Durham
Sample preparation by R.G. Garrett
Data monitoring by R.G. Garrett, N.G. Lund and D. Eliason

Ontario Geological Branch

Federal-Provincial coordination by R.B. Caird

Contractors

Sample preparation by Bondar Associates
Chemical analyses by Chemex Labs Ltd.

This map forms one of a series of 33 sheets released under Open File 406 and listed in the table below. The open file contains 2 data for 33 elements each, per card two on synthron and sample site location.

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

The Director,
Computer Science Centre,
Department of Energy, Mines and Resources,
Ottawa, Ontario K1A 0E4

NATIONAL GEOCHEMICAL RECONNAISSANCE MAP 2-1976
OPEN FILE 406
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