Province of Ontario
Ontario Ministry of Natural Resources
Ontario Geological Survey

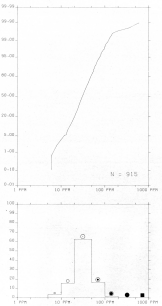
Canada
Department of Energy, Mines and Resources
Geological Survey of Canada

420 and Part of 430

COPPER (ppm)

OPEN FILE 906

THUNDER BAY AREA 1977



Geochemical Symbol and Data Presentation

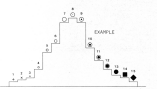
The concentration of an element at a sample site is graphically represented as one of 15 symbols. If a sample was collected but there is insufficient material for analysis, "no sample" symbols are used. Assigned on their log-thirds increase in value, the symbol size and their increase in blackness to the fifteenth. The last small crescent at the top end of the scale are used to respectively denote concentrations below the analytical detection limit, or, in the data group containing anomalous values, to indicate that the sample was not analysed for the element. For 1,2,5,10,20,50,100,200 etc. fine decades can be summed and this arbitrary division has been chosen for the continuing Canada wide series of maps constituting the National Geochemical Reconnaissance.

The choice of symbols and the data groups they represent for any one element is governed by the nature of the frequency distribution for the total survey data from one, or more contiguous, open file sheets covered in one field season (above). The eighth symbol from the smallest usually includes the median value and the largest usually includes the median of the data as defined by the 0.5 (50) point on the cumulative frequency plot. Some, or all, of the remaining symbols are assigned to data groups in geometric progression (ratio). An example of all 15 symbols is given below.

The symbol map, being based on the total survey data distributions, are unaffected by the availability of near reconnoisy levels of knowledge in bedrock and surficial geology, and other environmental factors. Therefore, groups of symbols of equal blackness may not always indicate areas of comparable data significance or mineral potential. The density and blackness of a more specific and thorough interpretation, the new symbol maps should be modified using the field and analytical data provided in the data listings and any other knowledge available.

The data listings contain notes on survey and analytical methods, raw data listing with legend and statistics for total data as well as for data grouped on the basis of rock type.

To comprehensively study an area, all available geological, exploration and geochemical data should be used. The final selection of geochemical target can often be hastened by constructing raw data subsets and deriving local threshold levels based on the most detailed and up-to-date knowledge available.



Copies of map material and listings of field observations and analytical data for the area mapped or surveyed may be available at nominal expense by application to:

R.A. Campbell Corporation
886 Wellington Street
Box No. 278
Ottawa, Ontario
K1R 6K2

The data is 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

Elevations in feet above mean sea level

Mean magnetic declination 1978, 2°5.1' West, increasing 0.2' annually. Readings vary from 2°54.2' in the SW corner of the map-area to 2°51.2' in the NW corner of the map-area.

Base-map assembled by the Geological Cartography Unit from maps published at the same scale by the Surveys and Mapping Branch in 1965, 1969

Scale 1:250,000

Kilometres 5 0 5 10 15 Kilometres

Miles 3 0 3 6 9 Miles

Universal Transverse Mercator Projection
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This map forms one of a series of 28 sheets released under the Geological Survey of Canada, Open Files 506 and 507, and the Ontario Geological Survey, Preliminary Maps and Lake sediments, 2 elements for lake waters and sample site location.

COPPER (ppm)

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THUNDER BAY AREA 1977

LEGEND

Note: This legend is common for National Geochemical Reconnaissance Map 17-1977, Open File 506 and Map 18-1977, Open File 507.

PHANEROZOIC
CENOZOIC ERATHEMS (UNDIVIDED)
TERTIARY

CARBONATITE - ALKALIC COMPLEXES (EARLY*)
Carbonatite, melanolite, hornblendite, nepheline syenites, gabbro; alkalites, nephelinite-gabbro

LATE MAFIC INTRUSIVE ROCKS

10 Diabase, gabbro, anorthosite

SILVER GROUP

11 Porphyritic rhyolite or dacite, quartz porphyry, felsite

12 Diabase, basalt, minor pyroclastic rocks, conglomerate, sandstone

MAFIC INTRUSIVE ROCKS

13 Diabase, gabbro, porphyritic diabase, gabbro, anorthositic gabbro (Sibley and Gyke)

SIBLEY GROUP (SMB)

14 Conglomerate, sandstone, chert, shale, carbonate rocks

PROTEROZOIC PRECAMBRIAN (UPPER(LOW) ARCHEAN)

7 Nova Formation (ANGA): argillite, shale, greywacke

6 Conflict Formation: chert (CONF), chert-carbonate, carbonate rocks, argillites, tuff, taconite

EARLY PRECAMBRIAN (ARCHEAN)
FELSIC INTRUSIVE AND METAMORPHIC ROCKS

5 Granite (GRNT), granite gneiss (GRNG), granodiorite (GRDR); quartz-feldspar porphyry (QFPP), monzonites, aegyrite (MGRT), syenites, pegmatite

MAFIC AND ULTRAMAFIC INTRUSIVE ROCKS (UMI)

4 Gabbro, diorite, serpentine, hornblendite, amphibolite

METASEDIMENTS

3 Conglomerate (CGLM), greywacke (GRCK), arkose, quartzite, argillite, slate, mica schist and gneiss, quartz-feldspar schist and gneiss (SCHT), garnet-feldspar schist and gneiss (GNSS)

METAVOLCANICS

2 Mafics to intermediate metavolcanics (MEVP):
Amphibolite, pillow lava, porphyritic and aquagloclastal lava, pyroclastic rocks and derived schists, andiffe-mentated metavolcanics with some metasediments (MMCS)

1 Intermediate to mafic metavolcanics (MEVF):
Mafites, schistose, pillow lava, porphyritic and aquagloclastal lava, pyroclastic rocks and derived schists, andiffe-mentated metavolcanics with some metasediments (MMCS)

* A four letter mnemonic name recorded as rock type as part of field observations

Geological boundary

Faults

Limit of geological mapping (DANK)

The legend modified and geology derived for this geochemical map from Geology Compilation Series maps 2228 and 2232, Ontario Division of Mines and map 1560, Ontario Department of Mines

Geological Survey of Canada
Resource Geophysics and Geochemistry Division

and

Ontario Ministry of Natural Resources
Ontario Geological Survey

CONTRACTORS

Sample collection by Marshall Macklin Monaghan Ltd.
Sample preparation by Chemex Labs Ltd.
Uranium in sediment chemical analyses by Atomic Energy of Canada Ltd.
Other sediment chemical analyses by Chemex Labs Ltd.
Water chemical analyses by Barringer Research Ltd.

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