Province of Ontario
Ontario Ministry of Natural Resources
Ontario Geological Survey

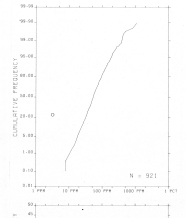
Canada
Department of Energy, Mines and Resources
Geological Survey of Canada

52A and Part of 52H

COPPER (ppm)

OPEN FILE 507

THUNDER BAY AREA 1977



Geochemical Symbol and Data Presentation

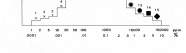
The concentration of an element at a sample site is graphically recorded as one of ten symbols. The symbols are chosen so that each class has no data available a dot is plotted. The symbols are symmetrically arranged so that they first increase in size to the eighth symbol and then decrease in size to the tenth symbol. The class limits are selected at the low end of the scale are used to respectively denote concentrations below the analytical detection limit, or, in the data group containing the lowest values, the lowest concentrations. The remaining class limits i.e. 5,10,25,50,100 etc. five decades can be spanned 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 particular element is made after a study of the regional data. Experience for the total survey data from one, or more contiguous, open-file sheets covered in one field season (above). The eighth symbol is used for the most abnormal as defined by the histograms. This group usually includes the highest one per cent of the data as defined by the 5 th and 95th percentiles. Normal distribution of the data is rare. The class limits selected in symbols are chosen so as to achieve an appropriate graphical impact. An example of all 10 symbols is given below.

The symbol maps, being based on the total survey data distributions, are unaffected by the availability of ever increasing levels of knowledge. They will remain valid for as long as the field observations and analytical techniques, the raw data symbol maps are only intended to assist the rapid recognition of the data for gross regional features. To further the needs of detailed follow-up, the interpretation of the regional picture 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, environmental and recorded data should be utilized. The data separation by bedrock type can often be improved by constructing new data subsets based on the field and lab levels based on the most detailed and up-to-date knowledge available.



Copies of map material and listings of field observations and analytical data from which the material was prepared may be available at users expense by application to:

K.D. Campbell Corporation
808 Wellington Street
Suite 201
Ottawa, Ontario
K1R 6K7

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

INDEX MAP

COPPER (ppm)

OPEN FILE 507

NATIONAL GEOCHEMICAL RECONNAISSANCE MAP 14-1977

URANIUM RECONNAISSANCE PROGRAM

THUNDER BAY AREA 1977

Scale 1:250,000

Kilometres 0 5 0 5 10 Kilometres

Miles 0 5 0 5 10 Miles

Elevations in feet above mean sea level

Mean magnetic declination 1978, 15.0° East, decreasing 3.7' annually. Readings vary from 37.7° in the SE corner to 39½.0° in the NW corner of the map-area

Universal Transverse Mercator Projection
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Base-map assembled by the Geological Cartography Unit from maps published at the same scale by the Surveys and Mapping Branch in 1969, 1970

This map forms one of a series of 16 sheets released under the Geological Survey of Canada, Open Files 506 and 507. The Open Files consist of maps for 11 elements, each for lake sediments, 2 elements for lake waters and sample site location.

COPPER (ppm)

OPEN FILE 507

THUNDER BAY AREA 1977

LEGEND

Note: This legend is common for National Geochemical Reconnaissance Map 13-1977, Open File 506 and Map 15-1977, Open File 507.

PALEOZOIC
- CARBONATITE COMPLEXES
- ALKALIC COMPLEXES (ANDICH)
- 11 Carbonatites, nepheline, hornblendite, augite syenites, gabbro; olivine, nepheline gabbro

LATE MAFIC DIKE ROCKS
- 13 Diabase, gabbro, amphibolite

OSLER GROUP
- 11 Porphyritic rhyolite or dacite, quartz porphyry, felsite

- 10 Diabase, basalt, minor pyroclastic rocks, conglomerate, sandstone

MAFIC DIKE ROCKS
- 9 Diabase, gabbro, porphyritic diabase, gabbro, amorphoitic gabbro (clifs and dykes)

SIBLEY GROUP (SIMK)
- 8 Conglomerate, sandstone, chert, shale, carbonate rocks

MIDDLE PRECAMBRIAN (APHROSIAN) ANDRICH
- 7 Rove Formation (ROG.): argillite, shale, greywacke

- 6 Gunflint Formation: chert (SIAT), chert-carbonate, carbonate rocks, argillite, tuff, taconite

EARLY PRECAMBRIAN (ARCHEAN)
- INTRUSIVE FELSIC TO MAFIC ROCKS
- 5 Granite (GRNT), granitic gneiss (GRNG), granodiorite (GRDI), quartz-feldspar porphyry (QZFP), monzonite, nepheline (MZNT), syenite, pegmatite

MAFIC AND ULTRAMAFIC (GREEN ROCKS SUMM)
- 4 Diabase, diorite, serpentine, hornblendite, amphibolite

METASEDIMENTS
- 3 Conglomerate (CGLM), greywacke (GRCK), arkose, quartzite, sandstone, shale, argillite and gneiss; quartz-feldspar schist and gneiss (SSCF), garnet-feldspar schist and gneiss (GSSC).

METAVOLCANICS
- 2 Felsic to intermediate metavolcanics (RCYS): rhyolite, dacite, minor tuff, porphyritic lava; pyroclastic rocks, derived schists
- 1 Intermediate to mafic metavolcanics (BIMV): basalt, schistose, pillow lava, porphyritic and amygdaloidal lava, pyroclastic rocks and derived schists; undifferentiated metavolcanics with some metasediments (MVCC)

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

Geological boundary.....

Faults.....

Lines of geological mapping (GMN).....

The legend modified and geology derived for this geochemical map from Geology Compilation Series maps 2359 and 2232, Ontario Division of Mines and map 2080, 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 Golder Associates.
Uranium in sediment chemical analyses by Atomic Energy of Canada Ltd. Mineral Chemistry Division, Ottawa, Ontario
Water Chemical analyses by Barringer Research Ltd.

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