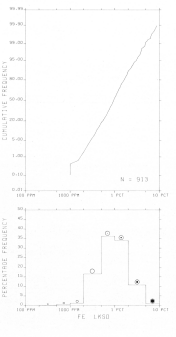
Province of Ontario
Ontario Ministry of Natural Resources
Ontario Geological Survey

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

IRON (%)

OPEN FILE 509

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 no value reported, the site is shown by a dot symbol. Values are arranged so that they first increase in size to the eighth symbol and then increase in blackness to the fifteenth. The two cutoff crosses at the fifth symbol are used to represent values that are at the detection limit, below the analytical detection limit, or, in the data group containing the detection limit. The data are grouped on a semi-logarithmic scale, with 10 groups per cycle. The choice of symbols and the data groups within each 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 specific element is made after the data have been compiled and displayed for the total survey data from one, or more contiguous, quadrilla sheets covered in one field season (above). The eighth symbol is used for the largest group which includes the median value. The seventh usually includes the mother-of-the-data as defined by the 0.5 (50%) point on the cumulative frequency plot. Some, or all, of the remaining 13 symbols may be used to show anomalous or unusual value graphical impact. An example of all 15 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 in bedrock and surficial geology, and other environmental factors. Therefore, they will not require updating periodically, as will the production of the geochemical thematic overlays. To satisfy the needs of a more specific and thorough interpretation, the raw 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, environmental and geochemical data should be used. The interpretation by bedrock type can often be improved by constructing new data subsets and deriving local threshold levels based on the most detailed and available 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:

E.G. Campbell Corporation
840 Wellington Street
Suite 1
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

Elevations in feet above mean sea level

Mean magnetic declination 1978, 2°0.6' West, increasing 2.3' annually. Readings vary from 2°00.2' in the SE corner to 2°12.7' in the NW corner of the map area

IRON (%)

OPEN FILE 509

NATIONAL GEOCHEMICAL RECONNAISSANCE MAP 11-1977

URANIUM RECONNAISSANCE PROGRAM

THUNDER BAY AREA 1977

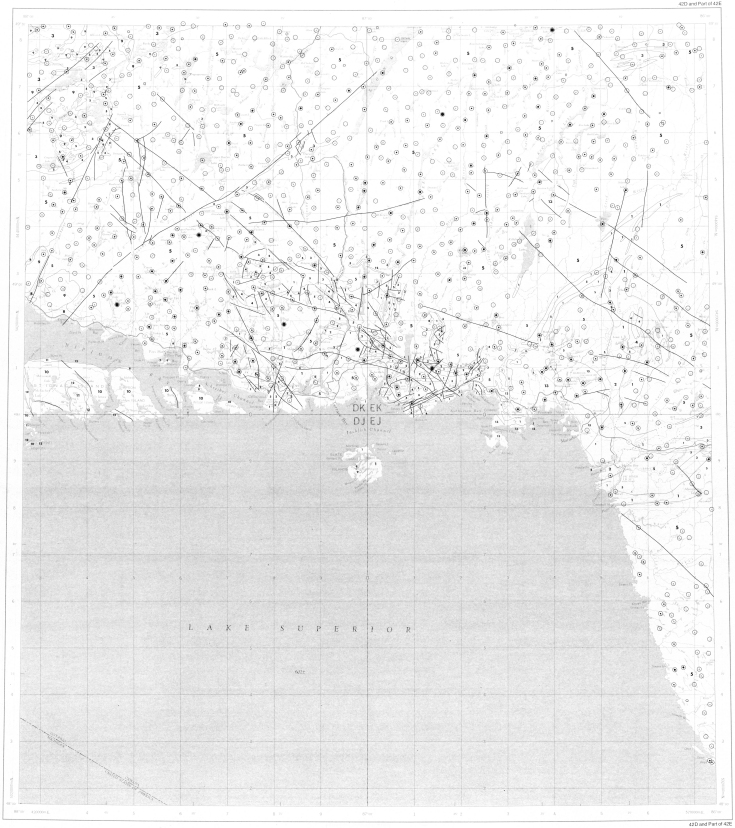
Scale 1:250,000

Kilometres 5 0 5 10 15 20 Kilometres

Miles 5 0 5 10 Miles

Universal Transverse Mercator Projection

© Crown Copyrights reserved



LEGEND

Note - This legend is common for National Geochemical Reconnaissance Map 11-1977, Open File 506 and Map 10-1977, Open File 507.

PRECAMBRIAN

LATE PRECAMBRIAN (HELIKIAN) INTRUSIONS

CHROMATITE - ALKALIC COMPLEXES [KAM]*

11 — Ultramafic rocks, peridotite, hornblendite, augite syenites, gabbro; pitchstone, nephelite gabbro

LATE MAFIC DOKIRIS ROCKS

10 — Diabase, gabbro, anorthosite

KOLER GROUP

11 — Porphyritic rhyolite or dacite, quartz porphyry, felsite

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

MAFIC DOKIRIS ROCKS

9 — Diabase [DOKI], porphyritic diabase, gabbro, anorthositic gabbro (olivine and dykes)

SIBLEY GROUP [SMAG]

8 — Conglomerate, sandstone, chert, shale, carbonate rocks

MIDDLE PRECAMBRIAN (APHEBIAN) INTRUSIVES

7 — Rove Formation [ARAG]: argillite, shale, greywacke

6 — Gunflint Formation: chert [CHRT], chert-carbonate, carbonate rocks, argillite, tuff, taconite

EARLY PRECAMBRIAN (ARCHEAN)

FELSIC DOKIRIS AND METAMORPHIC ROCKS

5 — Granite [GRAN], granodiorite [GRDO], granodiorite [GRDO]; quartz-feldspar porphyry [QFP], monzonite, nepheline [MONT], syenite, pegmatite

MAFIC AND ULTRAMAFIC DOKIRIS ROCKS [DMFC]

4 — Gabbro, diorite, serpentine, hornblendite, amphibolite

METASEDIMENTS

3 — Complexmerite [CXLM]: greywacke [GRCK], arkose, quartzite, argillite, slate, mica schist and gneiss; quartz-feldspar porphyry and gneiss [QCSP]; quartz-feldspar schist and gneiss [QMSC]

METAVOLCANICS

2 — Felsic to intermediate metavolcanics [MVFI]: rhyolite, pillow lava, porphyritic lava, pyroclastic rocks, derived schists

1 — Intermediate to mafic metavolcanics [MAVF]: basalt, andesite, pillow lava, porphyritic and aquaphyllad lava, pyroclastic rocks and derived schists; undifferentiated metavolcanics with some metasediments [MAVC]

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

Geological boundary

Fault

Limit of geological mapping [LIMT]

The legend modified and geology derived for this geochemical map from Geology Compilation Series maps 2320 and 2321, Ontario Division of Mines and map 2363, 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 Development Laboratories, Bells Corners.
Water chemical analyses by Barringer Research Ltd.

This map forms one of a series of 28 sheets released under the Geological Survey of Canada, Open Files 506 and 509. The Open Files consist of maps for 11 elements, each for lake sediments, 2 elements for lake waters and sample site location.

IRON (%)

OPEN FILE 509

THUNDER BAY AREA 1977