

Otoskwin-Attawapiskat

River Provincial Park

Intrusive Rocks (units 12 to 19) Typically felsic to intermediate plutonic suites consist predominantly of rocks of granitic to dioritic composition but they also may contain volumetrically minor components of mafic and ultramafic rocks usually as enclaves. These enclaves of mafic and ultramafic rocks are typically too small to be displayed on the geological map. Plutonic rocks assigned to the late-tectonic to posttectonic intrusive suites (units 17, 18, 19) are thought to postdate most Neoarchean formation based on dominantly nontectonically foliated texture locks of these suites are also commonly observed to crosscut foliations in the rocks that they intruded. Rocks of the syenite suite (unit 18) were not observed in outcrop or

in diamond-drill core, but are included based on the compilation map of Buse et al. (2009), and are likely correlative with the Wapikopa In contrast, plutons assigned to the syntectonic and/or synvolcanic suites (units 12, 13, 14, 15, 16) are tectonically foliated intrusive and metamorphosed intrusive rocks. Unit 14 is likely synvolcanic based on geochronology. Other units do not have known volcanic quivalents. Units 13 and 14, and inferred older portions of unit 12, may have been emplaced prior to regional tectonism. Unit 13 is defined as a separate unit, as age constraints in the

central map area suggest that a body of tonalite, circa 2773 Ma exists to the northwest of units 9 to 11. The extent of this unit is poorly known and speculative. Units 12 and 13 comprise very similar rock types and both may represent several distinct generations of ranodiorite- to tonalite-dominated bodies that are characterized by low magnetic susceptibility. Mafic and Ultramafic Intrusive Rocks (units 6 to 11) These map units encompass Neoarchean or Mesoarchean metamorphosed, intrusive rocks of anorthositic to dunition composition, including oxide dominated rocks, namely chromiti (a rock dominated by the mineral chromite) and magnetitite (a roc

dominated by the mineral magnetite). They have been subdivided into 3 subsuites (units 9, 10 and 11) based on rock type, geological relationships, regional distribution and mineralization styles. Variable eformed, ultramafic rocks are typically serpentinized or tale carbonate altered. Rocks of unit 9 host all known magmatic chromite nd nickel-copper-PGE-enriched sulphide deposits in the map area. Rocks of unit 11 may have intruded rocks of unit 10 and unit 9. The Mesoarchean Highbank-Fishtrap intrusive complex (unit 8; circa 2809 Ma) consists of a deformed, layered, mafic rock-dominated intrusive complex, informally subdivided into a western Fishtrap Lake intrusion and an eastern Highbank Lake intrusion. It is a redominantly hornblende-bearing gabbro to anorthosite with rare pyroxenite and is locally magnetite-rich, locally apatite-rich and locally olivine-bearing. Some magnetite-rich horizons are vanadiumand titanium-enriched. Mafic and ultramafic rocks of uncertain age and/or tectonic affinity are assigned to units 6 and 7. These may correlate with units 8, 9 10 or 11, but field, geochemical or isotopic age constraints do no

permit assignment to these units based on knowledge at the time of

Mesoarchean and Neoarchean Metasedimentary and Metavolcanic Rocks (units 1 to 5) Unit 5 consists of chemical metasedimentary rocks, predominantly banded iron formation. Unit 4 consists of metamorphosed clastic metasedimentary rocks (units 4a to 4f) and their gneissic equivalents unit 4g). Metavolcanic rocks have been subdivided into 3 ma roupings: felsic to intermediate metavolcanic rocks (unit 3) that a considered to be metamorphosed equivalents of a compositiona range from andesite to rhyolite; mafic metavolcanic rocks (unit 2) that are considered to be metamorphosed equivalents of a ompositional range from basalt or basaltic andesite; and ultramafic etavolcanic rocks (unit 1) that represent metamorphosed volcan ocks with MgO content over 18% or their assumed equivalents as

determined by visual or petrographic observations.

cartographic preparation.

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Buse, S., Smar, L., Stott, G.M. and McIlraith, S.J. 2009. Precambrian geology of the Winisk Lake area; Ontario Geological Survey, Preliminary Map P.3607, scale 1:100 000. Gao, C. and Crabtree, D.C. 2016. Results of regional till and modern alluvium sampling in the McFaulds Lake ("Ring of Fire") area, northern Ontario; Ontario Geological Survey, Open File Report Heaman, L.M., Kjarsgaard, B.A. and Creaser, R.A. 2004. The temporal evolution of North American kimberlites; Lithos, v.76, ntario Geological Survey-Geological Survey of Canada 201 ntario airborne geophysical surveys, gravity gradiometer and magnetic data, grid and profile data (ASCII and Geosoft®

formats) and vector data, McFaulds Lake area; Ontario

Ontario Geological Survey, in press. Magnetic supergrids, Ontario

Geological Survey, Geophysical Data Set 1037—Revised.

airborne geophysical surveys; magnetic data, grid data; Ontario

Geological Survey, Geophysical Data Set 1068.

G15,12,17

Ratcliffe, L.M. and Armstrong, D.K. 2013. The Hudson Platform Project: 2013 field work and drill-core correlations, western Moose River Basin; in Summary of Field Work and Other ctivities 2013, Ontario Geological Survey, Open File Report Sage, R.P. 2000. Kimberlites of the Attawapiskat area, James Bay Lowlands, northern Ontario; Ontario Geological Survey, Open latitude 49°30'; Ontario Geological Survey, Miscellaneous

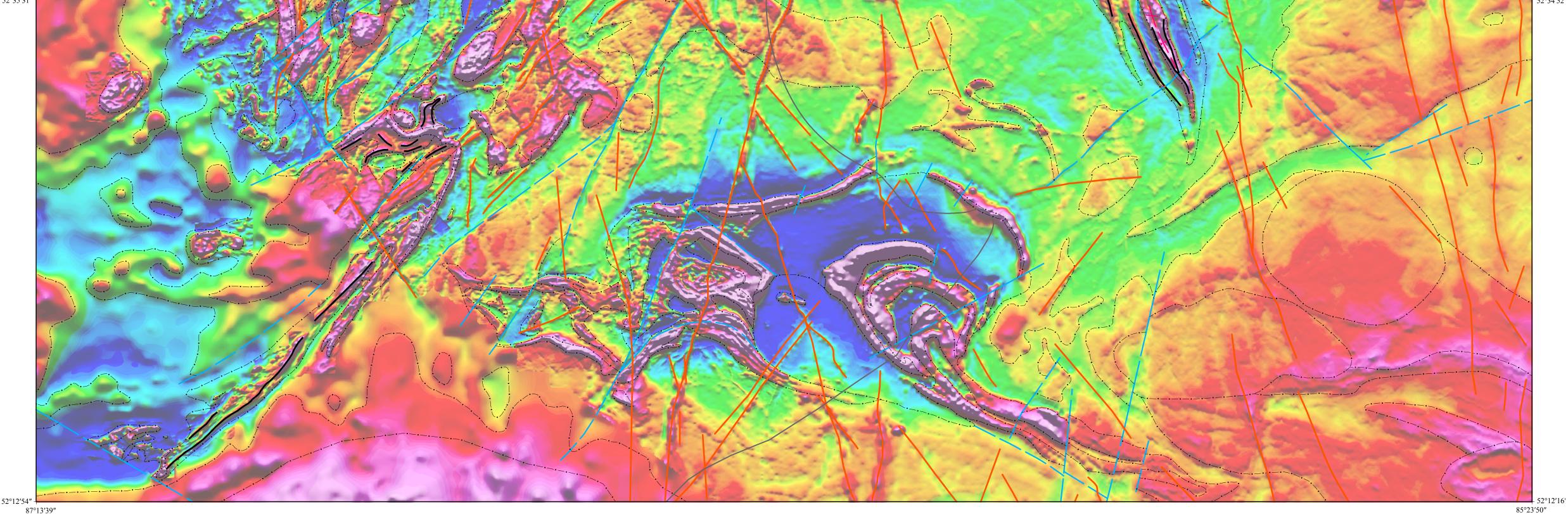


Figure 1. Remnant magnetic intensity image of the area, at 1:200 000 scale, showing interpreted geophysical contacts, dikes, geophysically defined faults and the Archean-Paleozoic unconformity. Symbology is the same as on the map face. Aeromagnetic data are from OGS (in press).

able 1. Summary of mineral occurrences displayed on the map. Data modified from the OGS Mineral Deposit Inventory (MDI) database (OGS 2016). Additional information can be found in OGS MRD 343 (Metsaranta and Houlé 2017). 497428 5789296 Occurrence 552881 5809744 Discretionary occurrence 554160 5806252 Occurrence

111 Kyle Lake No. 1

Abbreviations: DDH - diamond-drill hole; VMS - volcanogenic massive sulphide; PGE - platinum group elements.

44 COMP 554430 5805669 15 Dioritic feldspar porphyry 2728.40±0.52

46 COMP 593549 5824221 15 Hornblende-biotite quartz diorite to 2724.3±0.8

45 COMP 554080 5802520 8 Pegmatitic gabbro

* The location of this sample is uncertain

MDI43C06NW00002 Diamond Kimberlite-hosted diamond 608450 5813590 Developed prospect with reserves

Map P.3607, scale 1:100 000. Table 2: Summary of new and compiled geochronology data for the map area see "Sources of Information" for details). Easting and northings are provided in NAD 83, Zone 16. For drill core samples, locations are projected vertically to surface from their ocation along the trace of the drill hole. Additional information can be found in OGS MRD 343 (Metsaranta and Houlé 201 tario Geological Survey, Open File Report 6097, 127p. Map Sample Easting Northing Map Unit Rock Type by the Jack Satterly Geochronology Laboratory, University of sedimentary component, west of the Highbank igneous complex, deposited after circa 2725 Ma —— 2014. LA-ICPMS geochronology of rocks from northwest Ontario; zircon ID-TIMS This study, McNicoll et al., inpublished report for the Ontario Geological Survey by the Jack Satterly Possibly crystallization age of tonalite, possibly zircon ID-TIMS This study, Kamo (2016) Gao, C. and Crabtree, D.C. 2016. Results of regional till and modern maximum age if all 3 zircon grains analyzed are alluvium sampling in the McFaulds Lake ("Ring of Fire") area, northern Ontario; Ontario Geological Survey, Open File Report 6309, 164p. Creaser (2004) Heaman, L.M., Kjarsgaard, B.A. and Creaser, R.A. 2004. The temporal zircon ID-TIMS OGS, Stott, G.M.

Crystallization age

47 COMP 609277 5787608 17 Granodiorite gneiss Crystallization age zircon SHRIMP Rayner and Stott (2005) A-ICPMS) of rocks from the Grenville and Superior provinces of Ontario Parts 1 and 2; unpublished report for the Ontario Geological Survey by the Abbreviations: COMP - compiled data; DC - drill-core sample; ID-TIMS - isotope dilution thermal ionization mass spectrometry; LA-ICP-MS - laser ablation inductively coupled plasma mass spectrometry; OC - outcrop sample; SHRIMP - sensitive high-Jack Satterly Geochronology Laboratory, University of Toronto, 11p. ——— 2013. Preliminary report on U-Pb ID-TIMS geochronology of rocks from the Grenville and Superior provinces of Ontario; unpublished report for the Ontario Geological Survey by the Jack Satterly Geochronology Laboratory, University of Toronto, 36p. ——— 2014. Report on U-Pb CA-ID-TIMS geochronology on volcanic and plutonic rocks, Superior and Grenville provinces, Ontario; unpublished report prepared for the Ontario Geological Survey, Jack Satterly Geochronology Laboratory, University of Toronto, 27p. ——— 2016. Results summary for two foliated biotite tonalite samples for Riku Metsaranta (analyses performed Fall 2014); unpublished report for the Ontario Geological Survey by the Jack Satterly Geochronology Laboratory, University of Toronto, 4p. Lahti, H.R. 2008. Updated technical report on the McFaulds Lake project,

unpublished data

zircon ID-TIMS Stott et al. (2010)

zircon SHRIMP Stott et al. (2008)*

Il-core relogging and drill-core compilation data from the Winiskisis Channel, McFaulds Lake and Highbank Lake areas, "Ring of Fire" region, northern Ontario; Ontario Geological Survey, Miscellaneous sources and Forestry, scale 1:100 000, with modifications by staff Murahwi, C., San Martin, A.J., Gowans, R.M., and Spooner, J. 2012. Technical report on the updated mineral resource estimate for the Blackbird Chrome Deposits, McFaulds Lake project, James Bay Lowlands, Ontario databases, OGSEarth, Mines and Minerals Division, Ministry of Northern

SOURCES OF INFORMATION

Assessment Files and Activity Reports-Mineral Exploration online

Mapping conducted using Universal Transverse Mercator (UTM)

co-ordinates in North American Datum 1983 (NAD83), Zone 16.

Compiled geology, geochronology and geophysical interpretation

evolution of North American kimberlites; Lithos, v.76, p.377-397.

Laboratory, University of Toronto, 26p.

Kamo, S.L. 2011. Report on U-Pb CA-ID-TIMS geochronology on volcanie

Porcupine Mining Division, James Bay Lowland, Ontario, Canada, for UC Resources Limited and Spider Resources Inc. by Deep Search

Exploration Technologies Inc., August 30, 2008; Technical Report under

NI 43-101, filed September 4, 2008, with SEDAR®, 96p.

and plutonic rocks, Grenville and Superior provinces, Ontario; unpublished

report for the Ontario Geological Survey by the Jack Satterly Geochronology

of the Ministry of Northern Development and Mines.

Ontario Geological Survey, in press. Magnetic supergrids, Ontario airborne Some diamond-drill core information was compiled from proprietary company data contributions. The authors gratefully acknowledge Northern nield Resources Inc., Melkior Resources Inc., Noront Resources Ltd KWG Resources Inc., MacDonald Mines Ltd., Fancamp Exploration ——2016. Mineral Deposit Inventory; Ontario Geological Survey, Mineral td., Probe Metals Inc., Bold Ventures Inc., White Pine Resources Inc. Deposit Inventory (April 2016 update), online database. and Metalex Ventures Inc. for access to drilling data not available in the rborne geophysical surveys, gravity gradiometer and magnetic data, rid and profile data (ASCII and Geosoft® formats) and vector data, McFaulds Lake area; Ontario Geological Survey, Geophysical Petrus, J, 2013. Final report on U-Pb Geochronology; unpublished report

Bostock, H.H. 1962. Geology, Lansdowne House, Ontario; Geological Centre, Department of Earth Sciences, Laurentian University, 12p. Survey of Canada; Preliminary Map 4-1962, scale 1:253 440. Rayner, N. and Stott, G.M. 2005. Discrimination of Archean domains Buse, S., Smar, L., Stott, G.M. and McIlraith, S.J. 2009. Precambrian geology of the Winisk Lake area; Ontario Geological Survey, Preliminary Geological Survey, Open File Report 6172, p.10-1 to 10-21 Sage, R.P. 2000. Kimberlites of the Attawapiskat area, James Bay timberlite indicator mineral and geochemistry survey carried out in the wlands, northern Ontario; Ontario Geological Survey, Open File cinity of the upper Attawapiskat and Ekwan rivers, northern Ontario; Stott, G.M. 2008. Precambrian geology of the Hudson Bay and James Bay lowlands region interpreted from aeromagnetic data—east sheet; northwest Ontario; unpublished report for the Ontario Geological Survey tario Geological Survey, Preliminary Map P.3598—Revised,

> Stott, G.M., Corkery, M.T., Percival, J.A., Simard, M. and Goutier, J. 2010. ield Work and Other Activities 2010, Ontario Geological Survey, Stott, G.M. and Josey, S.D. 2009. Post-Archean mafic (diabase) dikes and other intrusions of northwestern Ontario, north of latitude 49°30'; ——2009. Regional geology and mineral deposits of northern Ontario, north of latitude 49°30′; Ontario Geological Survey, Miscellaneous Release—Data 265. Stott, G.M., Josey, S.D., Rainsford, D.R.B. and McIlraith, S.J. 2008. Precambrian geology and aeromagnetic data of the Hudson Bay and James Bay lowlands region with Precambrian basement depth estimates

and related tables of geochronology and diamond-drill hole data; Ontario Geological Survey, Miscellaneous Release—Data 233. Thurston, P.C. and Carter, M.W. 1969. Operation Fort Hope: Attawapiskat River sheet, districts of Kenora (Patricia Portion) and Thunder Bay; Ontario Department of Mines and Northern Affairs, Preliminary Map P.563, scale 1:126 720. Thurston, P.C., Sage, R.P. and Siragusa, G.M. 1971. Operation Winisk Lake: Winiskisis Channel sheet, District of Kenora (Patricia Portion Ontario Department of Mines, Preliminary Map P.714, scale 1:126 720. —— 1971. Operation Winisk Lake: Winisk Lake sheet, District of Kenora (Patricia Portion); Ontario Department of Mines, Preliminary

Geology is not tied to surveyed lines. Magnetic declination for the centre of the map area, approximately 7°41.88'W in 2017, with an annual change of 1.4' eastward. Metric conversation factor 1 foot equals 0.3048 m.

Tonalite to granodiorite, biotite bearing, foliated, medium grained, locally plagioclase porphyritic, typically characterized 3g Biotite bearing g 3h Hornblende bearing Xenolith bearing Foliated Tonalite to Granodiorite (various age constraints) Tonalite to granodiorite, typically moderately foliated, locally neissic, biotite bearing. Various age constraints, ranging anada, for Noront Resources Ltd. by Micon International Ltd., April 18, to underlie areas of low magnetic signature on total magneti field maps. Some areas coded as 12 on the maps may also physical surveys; magnetic data, grid data; Ontario Geological Survey, 2g Biotite bearing 2h Hornblende bearing 2l Xenolith bearing 12s Strongly foliated or gneissi NEOARCHEAN Mafic and Ultramafic Intrusive Rocks

Ring of Fire Intrusive Suite (circa 2734 Ma) (units 9 to 11) or the Ontario Geological Survey by the Mineral Exploration Research Melagabbro to anorthosite. Layered, locally magnetite- and ilmenite-rich, locally apatite bearing. Includes numerou vanadium- and titanium-enriched oxide-bearing horize Locally observed to crosscut unit 10.

INTRUSIVE CONTACT Mafic Intrusive Rocks^g Gabbro to anorthosite, typically nonmagnetic, layered. In gradational contact with unit 9 where the contact is not faulted.

> GRADATIONAL IGNEOUS CONTACT Dunite to pyroxenite, commonly broadly layered. Hosts sever nickel-copper-PGE and chromite occurrences and deposits. 9d Pyroxenite (foliated)^g 9g Semimassive chromitite^g 9h Layered chromitite^g 9i Chromite bearing (generally a few percent disseminated 9l Talc-carbonate schist^g

Ontario Geological Survey MAP P.3806

MESOARCHEAN

Mafic Intrusive Rocks

8e Anorthosite

Mafic Intrusive Rocks

7a Melagabbro to pyroxenite g

Ultramafic Intrusive Rocks

Chemical Metasedimentary Rocks

4d Graphitic and/or sulphidic mudstone

Felsic to Intermediate Metavolcanic Rocks

3c Vesicular and/or amygdaloidal flows *g*

c Vesicular and/or amygdaloidal flows⁹

is a common legend and applies to the 3 maps (OGS Maps P.3804,

23805 and P.3806, and corresponding GSC Open Files 8200, 8201

of data that is included with OGS MRD 343 (Metsaranta and Houlé

^b This legend is a field legend, although some data have been verified by

^c The order of Precambrian map units in the legend does not strictly imply

relationships between various units are not well constrained. In some

geochemical or petrographic studies. All Precambrian rocks have been subjected to regional metamorphism; many nonmetamorphic

terms are used for the sake of brevity and where the protolith is

relative age relationships. This is in part because the contact

cases, the nature of contacts between units is more speculative.

^d The letter "C" preceding a code refers to data compiled and interpreted

from geological maps listed under "Sources of Information". In many

geology differs markedly from observations from this study. In these

cases, the first number is the original map coding, and the second

the location of compiled outcrops may be less precise than those

^e The letter "G" preceding a code refers to geology interpreted from the

f Information". Where multiple map units follow the letter G, for

example, "G2,3,4", there is either uncertainty in which map unit is

where the map unit is uncertain, but where it is thought to be one

f The letter "D" preceding a code refers to data derived from examination

diamond-drill core locations, including collar information, compiled

^h Letter codes were applied only to outcrop stations. Additional details

compilation and relogging are present in OGS MRD 343 (Metsarant

unknown generation

Schistosity (inclined

drill hole location

with commodity

☐ Mineral occurrence

about specific rock types and modifiers noted during drilling dat

rock types, drill-hole traces, is included in OGS MRD 343

(Metsaranta and Houlé 2017).

Approximate

Paleozoic rocks

Geological contact,

interpreted

Fault, geophysically

unknown generation,

_____trend only, interpreted

unknown generation

Compositional layering

and parallel foliation

unknown generation

(vertical)

(inclined, vertical,

dextral displacement,

dike (inclined, vertical,

Examined by the lead author during this study; additional data can be found in OGS MRD 343 (Metsaranta and Houlé 2017).

ABBREVIATIONS

MINERALIZATION

....platinum group elements

unknown generation

√10 primary (inclined)

/10 no facing (inclined)

/ Igneous layered,

trend only)

(trend only)

unknown asymmetry,

Bedding, unsubdivided,

interpreted

interpreted from

^g Unit absent on this map (Highbank Lake area).

of diamond-drill core by the authors. The letters "DC" preceding a code

ta is shown on the map face because of cartographic constraints.

efers to diamond-drill hole data based on compilation; not all compiled

flore detailed information for the displayed compiled and re-examined

present, or multiple map units may be present that cannot be

ifferentiated at the scale of the map. In cases where a hyphe separates the map units, for example, "G2-7", it indicates a situation

map unit or the other, but not a mixture of the two.

aeromagnetic and/or gravity geophysical surveys listed under "Sources

is the observation or reinterpretation based on this study. Note that

cases the map unit shown is based on both geophysical interpretatio

original map coding. Codes containing a hyphen, for example

dicate a compiled outcrop where a previously interpreted

2017). Not all codes or rock units are present on each map.

202, respectively) in this series as well as a more detailed compilation

Ultramafic Metavolcanic Rocks^g

5d Sulphide iron formation *g*

4 Clastic Metasedimentary Rocks

4g Gneissic to migmatitic

d Tuff, lapilli-tuff

2a Massive flow^g

established or assumed.

Mafic Metavolcanic Rocks

GEOPHYSICAL MODIFIERS

anadium-enriched oxide-rich layers.

8I Area of lower magnetic response in unit 8

Unsubdivided Mafic and Ultramafic Intrusive Rocks

NEOARCHEAN OR MESOARCHEAN

M Area of higher magnetic response in unit 8

Mesoarchean and Neoarchean Metasedimentar

and Metavolcanic Rocks

Melagabbro to pyroxenite

PHANEROZOIC

CENOZOIC

PROTEROZOIC

QUATERNARY

PLEISTOCENE

PALEOZOIC

diamondiferous.

Mafic Dike Swarms

20e Unsubdivided

Pz Paleozoic rock

Bog, fen, lake and river deposits

UNCONFORMITY

UNCONFORMITY

21 Kyle Lake "Kimberlites" (circa 1123±20 to 1076.2±3.8 Ma)

Ob Pickle Crow dike swarm (circa 1878 Ma)

20d Matachewan dike swarm (circa 2454 Ma)

INTRUSIVE CONTACT

Felsic to Intermediate Intrusive Rocks

☐ Granite to granodiorite, medium grained to pegmatit

generally massive to weakly foliated. Unit typically occurs

as minor sills and dikes in diamond-drill core. Commonly

Late-Tectonic to Posttectonic Suites

biotite-, muscovite- and/or garnet-bearing

19p Pegmatitic dike or sill

18 Syenite Suite^g

Granite and/or alkali feldspar granit

Medium- to very coarse-grained, hornblende-bearing syenitoid rocks. Locally apatite bearing.

Weakly Foliated Granodiorite to Granite (<circa 2704 Ma)

Granite to granodiorite, fine grained to pegmatitic, massive

to weakly foliated, typically biotite bearing, leucocratic to

map-scale plutons. Typically low magnetic susceptibility,

mesocratic. Occurs as thin sills and dikes but also as

although locally magnetite bearing.

7g Fine-grained dike or sil 17r Graphic texture

Si Magnetite bearing g

16n Alkali feldspar phyric

elongate xenoliths and autoliths.

Granite and/or feldspar granite

of Diorite and/or quartz diorite

5n Alkali feldspar phyri

15o Plagioclase phyric

14s Strongly foliated⁹

5d Monzonite and/or quartz monzonite

INTRUSIVE CONTACT

Granite and/or alkali feldspar granite^g

INTRUSIVE CONTACT

Foliated Tonalite Suite (circa 2773 Ma)^g

Synvolcanic Tonalite to Granodiorite Suite (*circa* 2734 Ma)^g

cterized by round quartz phenocrysts, likely synvolcanic

Biotite bearing, locally hornblende bearing, locally magnetite

☐ Tonalite, granodiorite and granite. Foliated, commonly

□ (circa 2728 Ma)

7c Granite and/or alkali feldspar granite

INTRUSIVE CONTACT

Alkali Feldspar Megacrystic Granodiorite to Granite Suite

grained potassium feldspar phenocrysts. Typically biotite-

and hornblende-bearing, commonly magnetite-bearing.

coarse-grained, locally pegmatitic. Characterized by coarse

Syntectonic and/or Synvolcanic Suites

6d Monzonite and/or quartz monzonite^g

INTRUSIVE CONTACT

Hornblende-Magnetite Tonalite-Granodiorite-Diorite Suite

Granodiorite to tonalite, rare porphyritic diorite, Typical

Two Mica Granite Suite (no age constraints)

20c Marathon dike swarm (circa 2126 to 2101 Ma)

Unsubdivided, altered ultramafic alkalic rocks. Locally

Marine, glacial, glaciofluvial, glaciolacustrine deposits

Highbank-Fishtrap Intrusive Complex (circa 2809 Ma)

□ Deformed, layered, hornblende gabbro to anorthosite, locally

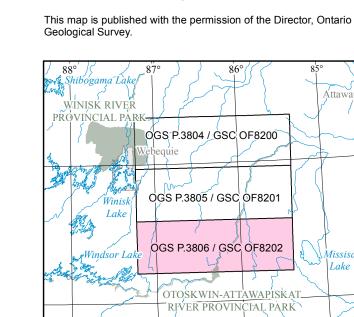
pyroxenite, locally apatite bearing, minor iron, titanium- and

OPEN FILE 8202

Geological Survey of Canada PRECAMBRIAN GEOLOGY

HIGHBANK LAKE AREA "RING OF FIRE" REGION, ONTARIO SOUTHERN SHEET

Scale 1:100 000 NTS References: 43 C/4, 5, 6, 11, 12; 43 D/1, 2, 3, 6, 7, 8, 9, 10, 11 © Queen's Printer for Ontario, 2017. This map is published with the permission of the Director, Ontario



1 cm equals 30 km d Geoscience Initiative (TGI) of the Geological Survey of Canada and is a contribution of the Lands

ns and Minerals Sector of Natural

Resources Canada.

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Editing by M.A. Rutka and R.M Easton. presponding and additional digital data related to information portraved on the map are available from the following Ontario Geological Survey

aurentian University), as listed in the "Sources of Information".

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Digital drafting by R.T. Metsaranta, M.G. Houlé, S. Evers and A. Morin.

ochronology Laboratory, University of Toronto), J. Petrus and R. Lodge

Metsaranta, R.T. and Houlé M.G. 2017. Geochronology, mineral deposit. drill-core relogging and drill-core compilation data from the Winiskisi nannel, McFaulds Lake and Highbank Lake areas, "Ring of Fire"

n, northern Ontario; Ontario Geological Survey, Miscellaneous ery possible effort has been made to ensure the accuracy of the formation presented on this map; however, the Ontario Ministry of Northern Development and Mines does not assume liability for errors

that may occur. Users should verify critical information.

Information from this publication may be quoted if credit is given. It is ecommended that reference to this map be made in the following form Metsaranta, R.T. and Houlé, M.G. 2017. Precambrian geology of the Highbank Lake area, "Ring of Fire" region, Ontario—southern shee Ontario Geological Survey, Preliminary Map P.3806; Geological Survey of Canada, Open File 8202, scale 1:100 000. doi:10.4095/299712

> OPEN FILE DOSSIER PUBLIC they a DLOGICAL SURVEY OF CANADA que soumises par l'auteur. 2017

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