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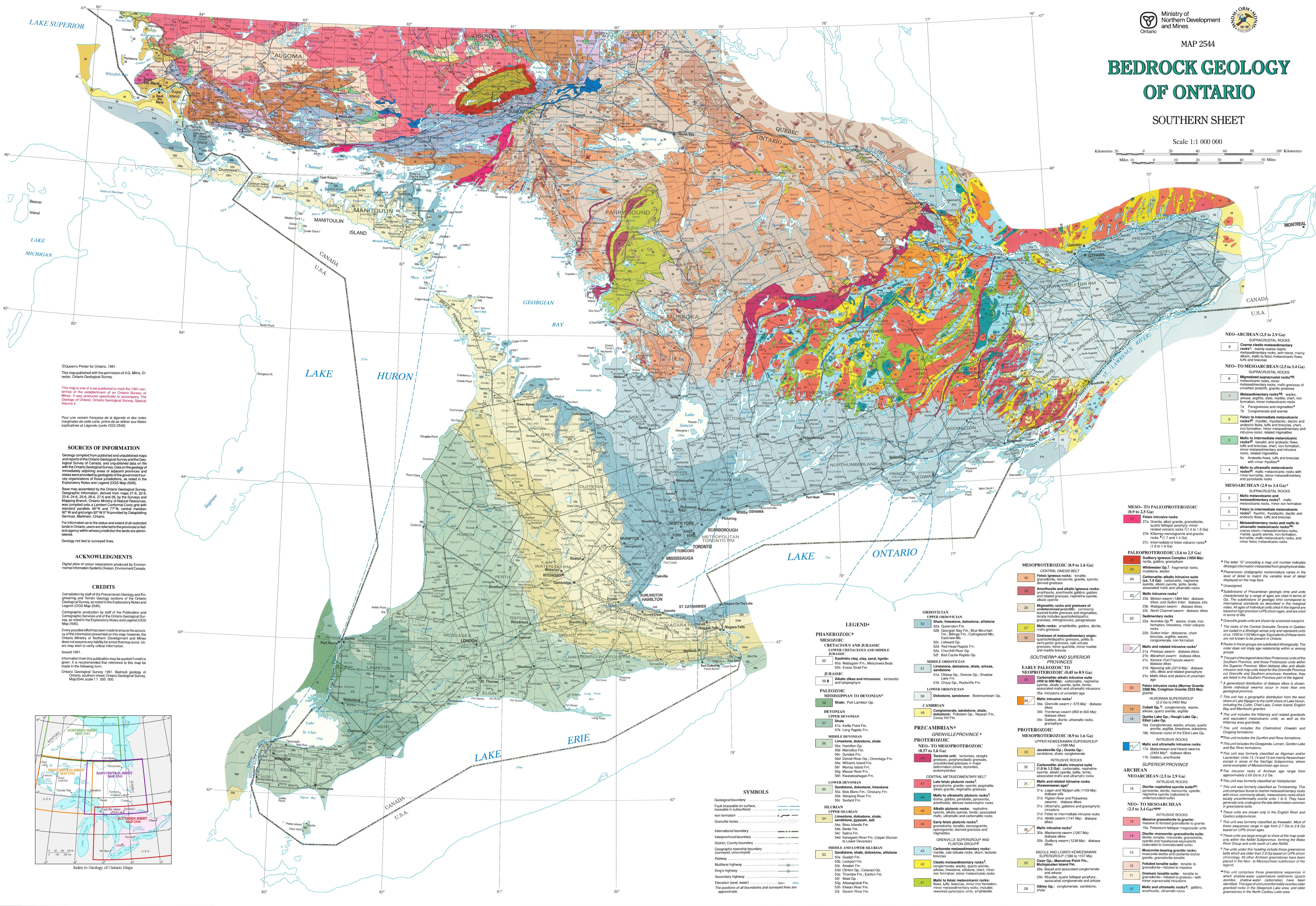
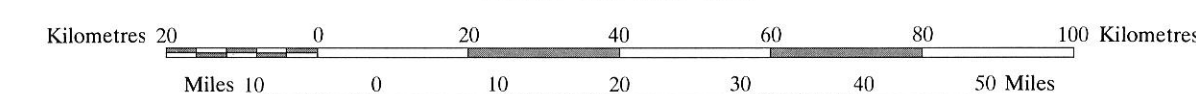
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BEDROCK GEOLOGY OF ONTARIO

SOUTHERN SHEET

Scale 1:1 000 000



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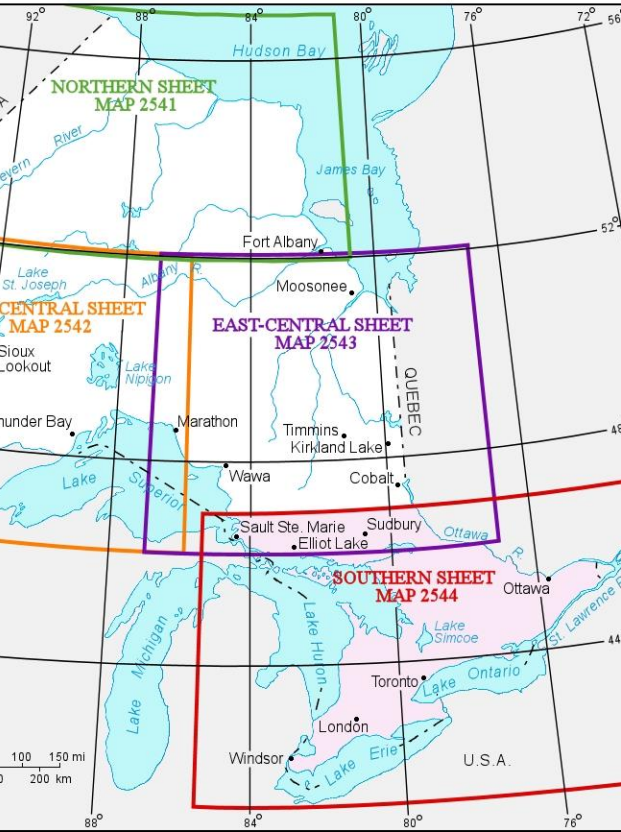
This map is one of a set published to mark the 1991 centennial of the establishment of an Ontario Bureau of Mines. It was produced specifically to accompany The Geology of Ontario, Ontario Geological Survey, Special Volume 4.

Pour une version française de la légende et des notes marginales de cette carte, prière de se référer aux Notes explicatives et Légende (carte OGS 2545).

SOURCES OF INFORMATION
Geology compiled from published and unpublished maps and reports of the Ontario Geological Survey and the Geological Survey of Canada, and published data on file with the Ontario Geological Survey. Data on the geology of immediately adjoining areas of adjacent provinces and states were provided by geologists of the government survey organizations of those jurisdictions, as noted in the Explanatory Notes and Legend (OGS Map 2545).
Basis was assembled by the Ontario Geological Survey, Geographic Information, derived from maps 21-6, 22-6, 23-6, 24-6, 25-6, 26-6, 27-6 and 28, by the Surveys and Mapping Branch, Ontario Ministry of Natural Resources, was compiled onto a Lambert Conformal Conic grid with standard parallels 49°N and 77°N, central meridian 82°W and grid origin 52°W N provided by Data Processing Services, Markham, Ontario.
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ACKNOWLEDGMENTS
Digital plots of colour separations produced by Environmental Information Systems Division, Environment Canada.

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Compilation by staff of the Precambrian Geology and Engineering and Terrain Geology sections of the Ontario Geological Survey, as noted in the Explanatory Notes and Legend (OGS Map 2545).
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PRECAMBRIAN*

GREENLLEPROVINCE*

PROTEROZOIC

NEO- TO MESOPROTEROZOIC (0.57 to 1.6 Ga)

48	Tectonic units: tectonites, straight gneiss, porphyroclastic gneiss, unfoliated gneisses in major deformation zones, mylonites, protomylonites
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MESOPROTEROZOIC (0.9 to 1.6 Ga)

CENTRAL GNEISS BELT

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MESOPROTEROZOIC (0.9 to 1.6 Ga)

UPPER KEWENAWAN SUPERGROUP (0.98 to 1.6 Ga)

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INTRUSIVE ROCKS

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Mafic intrusive rocks¹⁰

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6	Felsic to intermediate metavolcanic rocks ¹⁴ : rhyolite, hydrothermal, dacitic and andesitic flows, tuffs and breccias, chert, iron formation, minor metasedimentary and igneous rocks
5	Mafic to intermediate metavolcanic rocks ¹⁵ : basaltic and andesitic flows, tuffs and breccias, chert, iron formation, minor metasedimentary and intrusive rocks, related migmatites
5A	Andesitic flows, tuffs and breccias with minor rhyolites ¹⁶
4	Mafic to ultramafic metavolcanic rocks ¹⁷ : mafic metavolcanic rocks with minor ultramafic rocks; metasedimentary and pyroclastic rocks

MESO- TO PALEOPROTEROZOIC (0.9 to 2.5 Ga)

Felsic intrusive rocks

27	Granite, alkalic granite, granodiorite, quartz felsic porphyry, minor related volcanic rocks (1.4 to 1.5 Ga)
27C	Killarney monzogranite and granitic rocks (1.7 and 1.4 Ga)
27E	Intermediate to felsic volcanic rocks ¹⁸

PALEOPROTEROZOIC (1.6 to 2.5 Ga)

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23	Mafic intrusive rocks ¹⁹
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Sedimentary rocks

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Felsic intrusive rocks (Murray Granite 588 Ma, Crofton Granite 255 Ma): granite

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INTRUSIVE ROCKS

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NEO- TO MESOARCHAIC (2.5 to 3.4 Ga)

INTRUSIVE ROCKS

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15	Massive granodiorite to granite: massive to foliated granodiorite to granite
14	Diorite-monzonite-granodiorite suite: diorite, tonalite, monzonite, granodiorite, syenite (saturated to oversaturated suite)
13	Muscovite-bearing granitic rocks: granitic, granitoid, tonalite
12	Foliated tonalite suite: tonalite to granitoid
11	Oreitic tonalite suite: tonalite to granitoid; quartz latite porphyry; associated conglomerate and arkose
10	Mafic and ultramafic rocks ²³ : gabbro, anorthosite, ultramafic rocks

NEO-ARCHAIC (2.5 to 2.9 Ga)

SUPRACRUSTAL ROCKS

Coarse clastic metasedimentary rocks²⁴: mainly coarse clastic metasedimentary rocks, with minor mafic to felsic metavolcanic flows, tuffs and breccias

NEO- TO MESOARCHAIC (2.5 to 3.4 Ga)

SUPRACRUSTAL ROCKS

Migmatized supracrustal rocks²⁵: mafic gneisses of uncertain protolith, granitic gneisses

Metasedimentary rocks²⁶: wacke, arkose, argillite, slate, marble, chert, iron formation, minor metavolcanic rocks, tuff and breccia

Paragneisses and migmatites²⁷

Conglomerate and arenite

Felsic to intermediate metavolcanic rocks²⁸: rhyolite, hydrothermal, dacitic and andesitic flows, tuffs and breccias, chert, iron formation, minor metasedimentary and igneous rocks

Mafic to intermediate metavolcanic rocks²⁹: basaltic and andesitic flows, tuffs and breccias, chert, iron formation, minor metasedimentary and intrusive rocks, related migmatites

Andesitic flows, tuffs and breccias with minor rhyolites³⁰

Mafic to ultramafic metavolcanic rocks³¹: mafic metavolcanic rocks with minor ultramafic rocks; metasedimentary and pyroclastic rocks

MESOARCHAIC (2.9 to 3.4 Ga)

SUPRACRUSTAL ROCKS

Mafic metasedimentary and metasedimentary rocks³²: mafic metasedimentary rocks, mafic metasedimentary and igneous rocks

Felsic to intermediate metavolcanic rocks³³: mafic metasedimentary rocks, mafic metasedimentary and igneous rocks

Metasedimentary rocks and mafic to ultramafic metavolcanic rocks³⁴: mafic metasedimentary rocks, mafic metasedimentary and igneous rocks, mafic to ultramafic metavolcanic rocks, mafic to ultramafic metavolcanic rocks

NEO- TO PALEOPROTEROZOIC (0.9 to 2.5 Ga)

Felsic intrusive rocks

Mafic intrusive rocks³⁵

Sedimentary rocks

Mafic and related intrusive rocks³⁶

Granite

Ultramafic, mafic and associated conglomerate and arkose

Sibley Gp.: conglomerate, sandstone, shale

Footnotes:

*The letter 'C' preceding a map unit number indicates information interpreted from geophysical data.

¹ Phanerozoic stratigraphic nomenclature varies in the level of detail to match the variable level of detail displayed on the map.

² Unassigned.

³ Subdivisions of Precambrian geologic time and units characterized by a range of ages are cited in terms of Ga. The subdivisions of geologic time correspond to the Phanerozoic eons, eras, periods, and epochs as defined in the marginal notes. All ages of individual units cited in the legend are based on U-Pb zircon ages, as described in the Explanatory Notes and Legend (OGS Map 2545).

⁴ Granulite grade units are shown by screened patterns.

⁵ The rocks of the Central Granulite Terrane in Quebec are dated at 1050 to 1150 Ma. Ages of these rocks are not shown on this map.

⁶ Rocks in this group are subdivided lithologically. The order does not imply age relationship within or among groups.

⁷ This part of the legend describes Proterozoic units of the Southern Province and their Proterozoic units within the Superior Province. Most diabase dikes and alkalic intrusive rock map units listed for the Grenville Province and Southern Province, therefore, they are listed in the Southern Province part of the legend.

⁸ A generalised distribution of diabase dikes is shown. Some individual swarms occur in more than one geological province.

⁹ This unit has a geographic distribution from the west shore of Lake Nipigon to the north shore of Lake Huron, and from the Cobalt, Croker Island, English Bay and Manitowish granites.

¹⁰ This unit includes the Killarney and related granophyre and equivalent metavolcanic units, as well as the Killarney granite.

¹¹ This unit includes the Chemung, Onawa and Chazy formations.

¹² This unit includes the Quicke and Rove formations.

¹³ This unit includes the Gowganda, Lorrain, Gordon Lake and Bar River formations.

¹⁴ This unit was formerly classified as Algonquin and Laurentian. Units 13, 14 and 15 are many Neoproterozoic units which occur in the Sturgeon Subprovince, where some examples of Mesozoic age range from approximately 2.6 Ga to 2.2 Ga.

¹⁵ This unit was formerly classified as Hallyburton.

¹⁶ This unit was formerly classified as Timiskaming. This comprises felsic to mafic metasedimentary rocks with minor, commonly alkalic, metavolcanic rocks which locally uniformly overlie units 1 to 4. They have generally only undergone the late deformational correction in Grenville belts.

¹⁷ These units are shown only in the English River and Ontario Subprovinces.

¹⁸ This unit was formerly classified as Keweenaw. Most of these sequences range in age from 2.7 Ga to 2.8 Ga based on U-Pb zircon ages.

¹⁹ These units are large enough to show at the map scale only with the Abasik Subprovince, forming the Abasik River Group and units south of Lake Abasik.

²⁰ The units under the heading include those proterozoic units which overlie the Huronian Supergroup, and are dated chronologically. All other Archaean granitoids have been placed in the Neo- to Mesozoic subdivision of the legend.

²¹ This unit comprises those granitoid sequences in which smaller-scale superimposed sedimentary (quartz arenites, shallov water carbonates) have been identified. This type of unit unconformably overlies older granitoid rocks in the Sleepers Lake area, and older granitoid rocks in the North Carleton Lake area.