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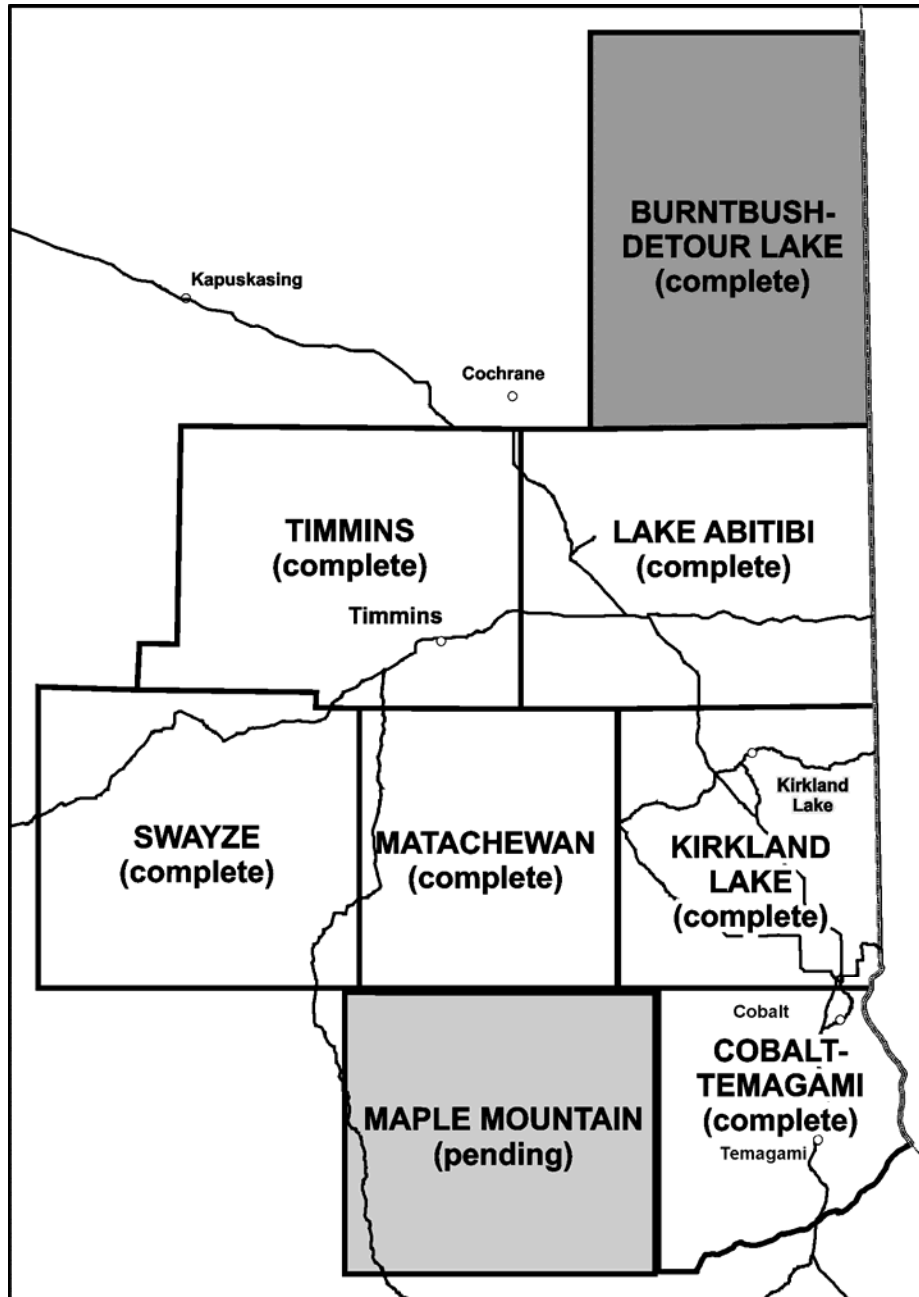
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The data are presented as Microsoft® Excel® (.xls) files, raster files (.jpg and .tif), and portable document format (.pdf) files. A copy of the published cartographic map (P.3609) is included, in both geodatabase and shapefile formats prepared with ESRI® ArcGIS® 9.2 software. Details of the GIS data sets are provided in this readme and the metadata files.

The scale of the compilation is 1:100 000. The coordinate system used in this compilation is UTM zone 17, NAD 83. Data can be viewed by opening the ESRI® map document (.mxd file extension). Two map documents have been created for use in various ArcGIS® software versions and different file formats (see “Description of the map document (.mxd) files”, below).

Some data included in the geodatabase and as shapefiles are also included as a series of Microsoft® Excel® spreadsheets, specifically: the geochemistry, geochronology and drill hole data.



Location map showing the Burntbush–Detour lakes area.

Data Layers and Attributes

The contents of MRD 245 are organized into folders based on data type. Folder names indicate the type of data contained in each folder. The readme and metadata files are located in the root directory, while the map documents (*.mxd*) and a PDF of map P.3609 are located in the folder: Mapfiles_P3609_DetourBurntbush.

The data can be transferred to the local computer's hard drive, but it is very important to retain the folder names and file structure. The map documents are dependent upon the current file structure. The entire project folder can reside anywhere on the computer.

Description of the map document (*.mxd*) files:

1. **Detour_Burntbush_P3609.mxd** requires ArcGIS® 9.2 and references data housed in a geodatabase.
2. **Detour_Burntbush_P3609_SHAPEFILE_VERSION83.mxd** requires ArcGIS® 8.3 and only references data housed in shapefiles.

Description of the folder contents:

- a) Drill_holes: The majority of the drill holes submitted for assessment credit (*Detour_DCL.dbf*) have been coded according to the legend of the Burntbush–Detour lakes area map. The *Detour_DCL.shp* shapefile contains the drill core data from the Timmins–Kirkland Lake drill core library database.
- b) Geochem: the *Detour-Burntbush geochem.xls* file contains geochemistry data collected for this project.
- c) Geochron: the *Detour_geochron.xls* file contains geochronology data for the study area.
- d) Geophysics: this folder contains georeferenced GeoTIFF images of airborne magnetics, digital elevation model (DEM) and gravity for the Detour–Burntbush compilation area. The magnetic images were created from the Burntbush (Geophysical Data Set 1063, OGS 2009a) and Detour (Geophysical Data Set 1062, OGS 2009b) magnetic gradiometer surveys, which were superimposed (but not merged) on the province-wide magnetic grid (Geophysical Data Set 1036, OGS 1999). Also included are the gridded magnetic data from the Quebec MRNF (Ministère des Ressources naturelles et de la Faune) for NTS sheet 31M (data set DP-96-08).

The gravity images were created from the Ontario Single Master data set (Geophysical Data Set 1036, OGS 1999).

All images are georeferenced to UTM zone 17, NAD 83. The colour resolution is 24 bit and the pixels are 50 m and 25 m for the gravity and magnetic images, respectively.

Colour scale bars accompanying colour images are denoted by the suffix "_bar"

The following is a description of all geophysical images provided:

B-D_TFmag_C:	residual magnetic field; colour image
B-D_TFmagShad_d0i45:	shadow image of the residual magnetic field illuminated from the north; grey-scale image
B-D_TFmagShad_d45i45:	shadow image of the residual magnetic field illuminated from the northeast; grey-scale image
B-D_TFmagShad_d315i45:	shadow image of the residual magnetic field illuminated from the northwest; grey-scale image
B-D_TFmagShad_d90i45:	shadow image of the residual magnetic field illuminated from the east; grey-scale image
B-D_1VDMag_C:	first vertical derivative of the residual magnetic field; colour image

B-D_1VDMagShad_d0i45:	shadow image of the first vertical derivative of the residual magnetic field illuminated from the north; grey-scale image
B-D_1VDMagShad_d45i45:	shadow image of the first vertical derivative of the residual magnetic field illuminated from the northeast; grey-scale image
B-D_1VDMagShad_d315i45:	shadow image of the first vertical derivative of the residual magnetic field illuminated from the northwest; grey-scale image
B-D_1VDMagShad_d90i45:	shadow image of the first vertical derivative of the residual magnetic field illuminated from the east; grey-scale image
B-D_2VD_C:	second vertical derivative of the residual magnetic field (detailed surveys only); shaded colour image
B-D_Bgrav_C:	colour contoured bouguer gravity; shaded colour image
B-D_1VDgrav_C:	colour contoured first vertical derivative of the bouguer gravity; shaded colour image
B-D_DEM_C:	Shuttle radar digital elevation model; shaded colour image

e) Lithochem: the file *Detour_Burntbush_LGC.dbf* contains previously sampled data present in the lithochemical (LGC) database on GeologyOntario. Care should be exercised in using the trace element data from 20+ years ago.

f) Mapfiles_P3609_DetourBurntbush:

i) *Detour_burntbush.mdb* (Geodatabase)

The geodatabase is a relatively new data file format by ESRI®. It is a single file that contains spatial and attribute data. Within the geodatabase are ‘folders’ (feature data sets) that contain the spatial/attribute data (feature classes). Feature classes are very similar to shapefiles. The geodatabase also contains tables for attribute data.

ii) *SHAPEFILES*

All GIS data are also provided in shapefile format in the SHAPEFILES subfolder. Point shapefiles have been created for annotation for users who do not have the most recent version of ArcGIS® and cannot use the annotation available in the geodatabase. Shapefiles can also be imported into other GIS software such as MapInfo®.

iii) *FONTSandSTYLES*

This subfolder contains true type fonts and ESRI® style files for correct symbolization of GIS data in ArcMap™.

iv) *P3609.pdf*

This is the copy of the published cartographic map in portable document file format.

g) MDI: includes files containing information on the mineral deposits for the area from the Mineral Deposit Inventory (MDI) database on GeologyOntario.

h) Rasters: The Rasters folder contains two subfolders. The “Originals” subfolder contains the original TIF or JPG images of the hard copy maps used to compile the geology. The second subfolder - “Rubbersheeted” - contains the georeferenced versions of the images from the Originals folder (NAD83, zone 17).

Using the Data with ArcGIS® 9.2 and 8.3:

The map documents provide a thematic representation of all associated data. Geology polygons are, for example, coloured according to lithology, and structural features are symbolized as per OGS standards.

Users with ArcGIS® 9.2 have access to a map document (*.mxd*) which references the data in geodatabase format (**Detour_Burntbush_P3609.mxd**).

Users with ArcGIS® 8.3 have access to a map document (.mxd) which only references the data in shapefile format (**Detour_Burntbush_P3609_SHAPEFILE_V83.mxd**).

To access a detailed description of the rock codes, use the “Identify” tool from the tool bar. In the Identify from: window, select the ROCK_CODE feature class or shapefile. Using the Identify pointer, drag a box around the rock code of your choice. In the values portion, you will see descriptions for the first four rock types of the rock code.

Correct symbolization of point features requires that a series of true type fonts and ESRI® style files be copied onto the working computer.

To install fonts

- on the computer, navigate to start\control panel\fonts
- select file\install new fonts
- select all fonts in the OGS fonts folder in this product and install

To copy over the style file

- copy the style files from the *FONTSandSTYLES* folder from this product to C:\program files\ArcGIS\styles folder on the computer

Using the Data with Earlier Versions of ESRI® Software:

Users with older versions of ArcGIS® 8.x or ArcView® 3.x can work with the shapefile data in MRD 245, but the map documents or projects will have to be re-constructed. Users will then have to manually symbolize all data in these shapefiles. ArcGIS® 8.x users can manually symbolize point structures with the standard OGS symbols using the *FONTSandSTYLES* files provided. The lithology polygons (*LITHO_POLY* shapefile in the Geology subfolder in SHAPEFILES) can also be manually coloured using the colour chart below.

To match to symbols in the style

(a) Structures

- open ArcMap™ and add the point structure shapefile (*COMPILED_DATA* folder)
- right click the *carto_structures* shapefile in the table of contents and open up the file properties
- navigate to the symbology tab
- under ‘Show’, select ‘Categories\match to symbols in a style’
- select the value field ‘FEATURE NAME’
- select the style to match to (browse, select *ogstructural.style*)
- hit the ‘match symbols’ box
- select all the symbols and change the size to 18
- select the advanced button/rotation/select geographic and ‘ROTATION’ for the rotation field
- dip values can be displayed as labels
- to display the dip values, right click the *DIP_TEXT* shapefile, select properties/labels tab
- select ‘Text_string’ in the label field box, and choose 6 for the font size
- check on the ‘label features in this layer’ box at the top left

(b) Geochronolgy

- follow all the same steps as above except substitute the *Detour_GEOCHRON* point shapefile.
- use the ‘CLASSIFICATION’ value field and use the *Detour_GEOCHRON* style file.

To display MDI (Mineral Deposit Inventory) points

- to correctly symbolize the MDI points, you need to use values from three different fields. In the symbology tab of the layer properties, select ‘Show /Categories/Unique values, many fields’. In the value fields select the following fields in order from top to bottom: comm, STATUS, and Dep_type.

The following table specifies the proper symbolization for the different values in the fields. The symbols used to display the MDI points are available in the font *MDISM.TTF*.

Commodity	colour	R/G/B
Arsenic	purple	159/31/239
Au	yellow	255/255/0
Cu	red	255/0/0
Fe	black	0/0/0
Ni	blue	100/148/237
Zn	green	34/140/34

Status	symbol size (pts)
Occurrence	10
Prospect	16
Mine	24

Deposit Type	Character Marker Symbol (MDI_symbols font)
Vein Replacment Deposit	◆
Volcanic Associated	▼
Unknown Hard Rock Deposit	●
Sediment Associated	◆
Mafic to Ultramafic Volcanic and Intrusion Associated	▲

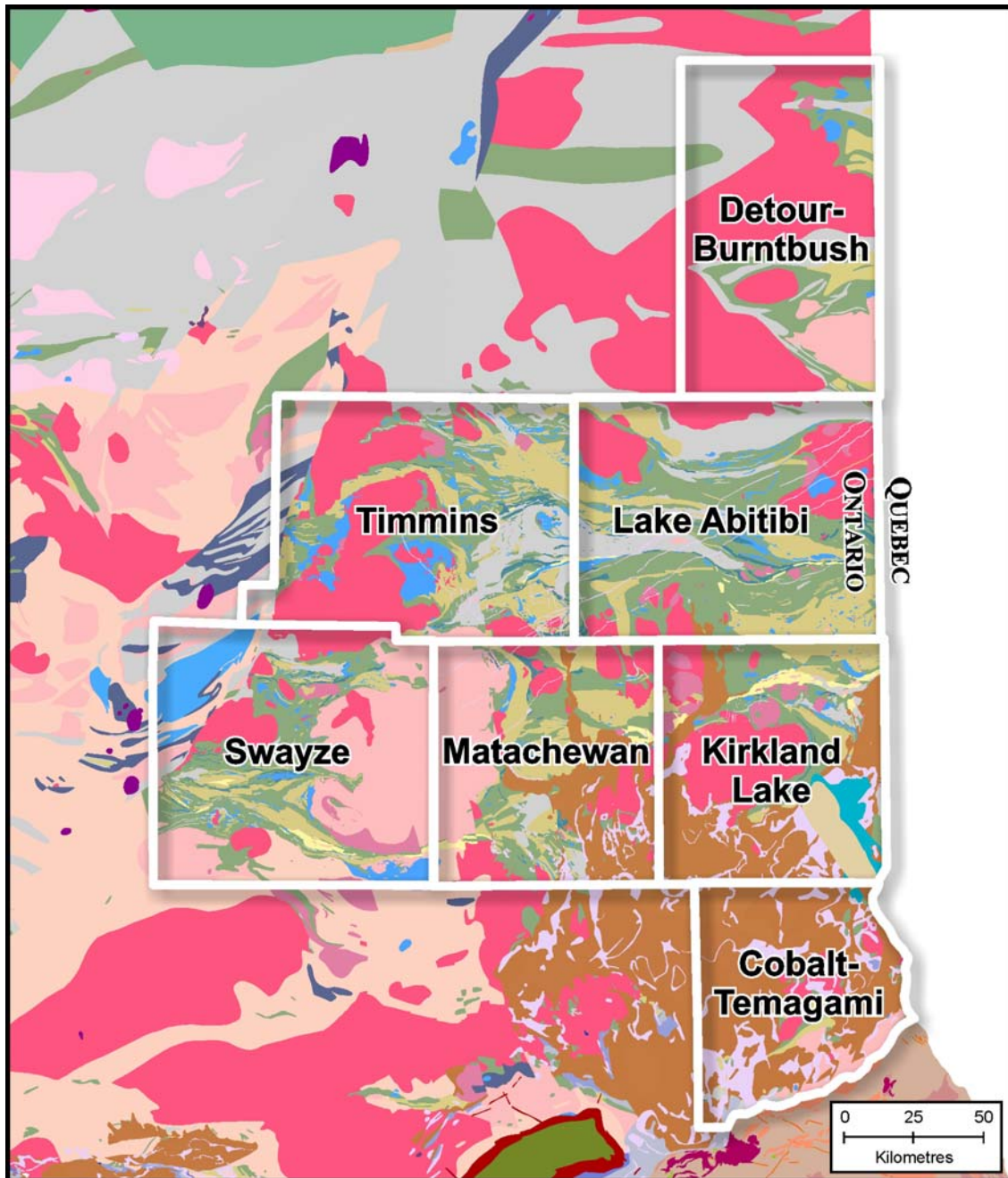
To display geology polygons (litho-polygon):

- right click LITHO_POLY/properties/symbology
- select 'Show/Categories/Unique values'
- select 'ROCK_CODE' as the value field and hit 'add all values'
- change the colour boxes for each lithology with the r/g/b values in the table below, double-click a colour box/fill colour/more colours and enter in the r/g/b values

ROCK CODE	ROCK DESCRIPTION	RED	GREEN	BLUE
1	Ultramafic to Mafic Metavolcanic Rocks	204	179	255
2	Mafic to Intermediate Metavolcanic Rocks	107	255	102
3	Intermediate to Felsic Metavolcanic Rocks	204	255	153
4	Felsic to Intermediate Metavolcanic Rocks	255	255	51
6	Clastic Metasedimentary Rocks	191	191	194
9	Ultramafic Intrusive Rocks	120	255	255
10	Mafic Intrusive Rocks	222	255	255
11	Porphyry Suite	255	0	158
12, 12b	Felsic to Intermediate Intrusive Suite	255	194	156
15, 15a	Diabase Dikes	255	170	0

Introduction to the Compilation of the Burntbush–Detour Lakes Area

Preliminary Map P.3609 and MRD 245 are the seventh of a series of 1:100 000 scale maps and GIS data sets of the Abitibi Subprovince in Ontario. Preliminary Maps (P.Map) and Miscellaneous Releases—Data (MRD) published to date include: the Timmins area (P.Map 3379, Ayer and Trowell 1998; MRD 36, Ayer et al. 1998); the Lake Abitibi area (P.Map 3398, Ayer, Berger and Trowell 1999; MRD 46, Ayer, Trowell, Berger et al. 1999); the Kirkland Lake area (P.Map 3425, Ayer and Trowell 2000; MRD 58, Ayer et al. 2000); the Swayze area (P.Map 3511, Ayer and Trowell 2002; MRD 93, Ayer, Trowell et al. 2002); the Matachewan area (P.Map 3527, Ayer, Trowell et al. 2003a; MRD 94, Ayer, Trowell et al. 2003b); and the Cobalt–Temagami area (P.Map 3581, Ayer, Chartrand et al. 2006; MRD 214, Ayer, Chartrand et al. 2007). In 2005, a geological compilation at a scale of 1:250 000 of the first 5 sheets was published (P.3565, Ayer et al. 2005).



Regional geology showing compilation map areas.

The geological map of the Burntbush–Detour lakes area was compiled from published maps and reports of the Ontario Geological Survey and the Geological Survey of Canada. In addition, information from unpublished reports and maps on file with the Ontario Geological Survey, university theses, papers in professional journals, geophysical maps and satellite images were used in the preparation of this map and the MRD. Geological interpretation was further enhanced by utilizing the GeologyOntario website databases such as the Assessment File Resource Inventory (AFRI), the Lithogeochemical (LGC) database and the Mineral Deposit Inventory (MDI) database and especially the Drill Hole (DH) database. Other data used were satellite imagery including Landsat Thematic Mapper images and a Digital Elevation Model (DEM) produced by the Ontario Ministry of Natural Resources.

The digital base map is derived from the Ontario Land Information Warehouse, Land Information Ontario, Ministry of Natural Resources, scale 1:20 000, with modifications by staff of the Ministry of Northern Development, Mines and Forestry. The map co-ordinates are in UTM zone 17, NAD 83.

The Abitibi Subprovince

The Abitibi Subprovince is an 800 by 300 km Archean “granite-greenstone” domain situated along the southern margin of the Superior Province. It is dominated by supracrustal and granitoid rocks with a range of ages from 2.75 to 2.67 Ga (Jackson and Fyon 1991). Historically, the Abitibi greenstone belt was considered to be that portion of the Abitibi Subprovince extending to the western margin of the extensive granitoid complexes west of Timmins. New mapping and geochronological evidence (Heather, Shore and van Breemen 1995) shows that the Swayze greenstone belt contains many of the structures and stratigraphic ages typical of the Abitibi belt in the Timmins–Kirkland Lake area and is now interpreted to represent a deeper erosional level of a once-continuous Abitibi greenstone belt extending to the Kapuskasing Structural Zone. The Abitibi greenstone belt is one of the world’s largest, best preserved and most economically productive greenstone belts.

The Burntbush–Detour lakes map sheet covers the area from the northern boundary of the Lake Abitibi sheet north to the southern end of Newnham Bay of Kesagami Lake and from the Québec border west to just east of Little Abitibi Lake. Rocks are classified on the basis of their dominant lithology using textures, structures and both approximate and specific compositions to refine the classification. Geological information has been primarily compiled from drill-hole data and previous mapping. New interpretations of the extent of lithological units, specifically in the areas lacking outcrop, have greatly benefited from the use of the reprocessed geophysical data for this area. As well, geochemical data have allowed for some subdivision of the metavolcanic rocks. Additional geochemical data can be accessed through the Lithogeochemical Database at the GeologyOntario website. The detailed information provided in the diamond drill-hole data indicate that a very complex geology comprising highly interleaved mafic to felsic metavolcanic rocks and clastic and chemical metasedimentary rocks is present.

The only past-producing mine within the map area is the Detour Lake mine. It was actively explored and developed from 1979 to 1999. Underground and open pit operations between 1983 and 1999 produced 1 764 986 ounces of gold from 14.3 million tonnes of rock at an average grade of 3.82 g/t Au (Kallio 2006). The property was largely dormant until 2007 when a new exploration and development drill program increased the currently known measured and indicated (NI43-101 compliant) resource to 335 tonnes Au (10.76 million ounces) from 242.9 million tonnes of rock grading 1.38 g/t Au (Risto et al. 2008).

The map area thus has good potential for the discovery of new gold and base metal deposits. Areas of obvious potential include the east-trending fault systems, including the system hosting the Detour Mine, but also the fault system extending into the northern Burntbush area from the Casa Berardi gold mine located several tens of kilometres to the east in Québec. In addition, the volcanic stratigraphy in the map area is similar in ages and rock types to those hosting synvolcanic massive sulphide Cu-Zn deposits at Selbaie, Joutel, Matagami and Estrades along strike to the east in Québec (Ayer et al. 2007b).

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