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Paleozoic Geology of Southern Ontario

Getting Started Guide

Contents:

Introduction:

The data set can be downloaded from
http://www.geologyontario.mndm.gov.on.ca/mndmaccess/mndm_dir.asp?type=pub&id=MRD219

The Ontario Geological Survey (OGS) has generated an attributed GIS-based, seamless map of the Paleozoic geology of southern Ontario, based primarily on 1:50 000 scale maps produced over the past 33 years. Paleozoic geology map data are provided as ESRI® ArcInfo® coverages in geographic co-ordinate system NAD83, decimal degrees. The map data set consists of 5 coverages capturing information on Paleozoic geological units; linear features, such as faults and contacts; point features, such as quarry, drill hole and outcrop locations; as well as an index containing references to all published OGS Paleozoic maps. Also included is a point coverage hyperlinked to photos depicting key sections of each of the Paleozoic rock formations found across southern Ontario. Other information provided includes a user document and readme file which explain the GIS process, coverages and metadata, as well as a "Getting Started" section. The data are useful for many purposes, including groundwater and surface water studies, other environmental studies, geotechnical investigations, land-use planning and mineral exploration.

This "getting started" document is intended to help clients begin to use the data. The CD also contains a more comprehensive "user document" in the documentation folder, and a "Terms of Use" document attached to this "readme" file. Most of the documentation is in "*.pdf*" format, which may be read using Adobe ® Reader ® software available for download from Adobe's site at http://www.adobe.com/products/acrobat/readermain.html.

Using the data with ArcGIS ® software:

The data may be accessed with ESRI ® ArcGIS ® 8.x, 9.x software, including ArcView ® 8.x, 9.x as follows:
- Copy the contents of the CD to a new directory on your hard drive. The data will occupy about 400 MB of space.

- For each newly copied folder right-click and uncheck the Read-only option check box.

- The 'Fonts' folder provided on the CD contains font files required by ArcGIS ® for symbolizing point features on the map. The fonts must be installed as follows, prior to viewing the data sets in ArcMap ®. In Windows ® 2000 ®, open the 'fonts' subdirectory in your 'winnt' directory, or click start, select Settings, then select 'Control Panel'. In the 'Control Panel' open the 'Fonts' folder, under 'File', click 'Install New Font' and map to the 'fonts' folder copied from the CD or simply copy the 'QUAT.TTF', 'OGScontacts.TTF' and 'OGSFaults.TTF' files located in the 'fonts' folder and paste it into the 'fonts' subdirectory in your 'winnt' directory. For Windows ® XP ®, the font folder is located in c:\WINDOWS\Fonts. Click start, select Settings then select 'Control Panel'. In the 'Control Panel' open the 'Fonts' folder, under 'File' click 'Install New Font' and map to the 'fonts' folder copied from the CD.

- Use ArcGIS ® to open the project file "map.mxd", found in the new directory. Open ArcMap ® and under the File drop-down menu, click 'open' and select map.mxd. The user can simply click on or off whatever layers he/she chooses. The legends for each layer can be viewed by clicking the plus sign next to each layer. Please note that at full map extent, regeneration time for some layers may be slow.

The data can also be opened directly from the CD without copying it to the hard disk. To do this, use ArcGIS ® to open the project file "map.mxd". The project files are found in the top or root folder of the CD.

Contents of the CD-ROM, map projections, scale and base map information:

There is one CD-ROM disk in the Paleozoic geology of southern Ontario data release. This disk contains a complete set of data in geographic projection (decimal degrees, NAD 83 datum).

Tables 1 and 2 detail the contents of the CD.

The scale of the geology data is nominally 1:50 000. Most of the individual maps assembled for the Paleozoic geology of southern Ontario are of this scale, but some smaller-scale data was also used.

The base map that was used in assembling the data is the Ministry of Natural Resources' Land Information Ontario/ Natural Resource Values Information System base map.

Data layers and attributes:

As can be seen in the ArcMap ® legend, there are many layers in the Paleozoic Geology GIS map. Also, individual layers may have many attribute columns that can be used for visualizing or querying the data. The layers and attributes are

described in Table 3 for convenience. The "layers" are ArcInfo ® "coverages", the data format traditionally used by ArcInfo ®.

Table 1: Contents of CD-ROM

Top Folder	Folder	Sub-Folder	Contents
	coverages		All ArcInfo ® coverages.
	Documentation		
		User document	Project Summary and Technical Document
		metadata	Detailed metadata
		Legend	Map legend
	fonts		Font files required for point symbology. Must be loaded by user.
	layerfiles		Layer files used to display proper symbology in creating the mxd.
	photos		All photos – Hyperlinked to paleo_photo coverage.
map_8.3.mxd			ArcMap project file (mxd) found at the root directory of the cd. (version 8.3)
map_9.0.mxd			ArcMap project file (mxd) found at the root directory of the cd. (version 9.0)
map_9.2.mxd			ArcMap project file (mxd) found at the root directory of the cd. (version 9.2)
dd.prj			Projection file.
readme			Getting Started Guide: how to use the data, and basic metadata

Table 2: Map layers and attributes

Layer	Attribute	Description
PALEO_POLY poly (unit polygons)		Paleozoic geology unit polygons, which classify the distribution of Paleozoic bedrock formations.
	ORIG_UNIT	The geological unit number captured from the original map legend (source_map), for example 1, 2, 5, 5a, 5b.
	ORIG_FORMATION	Provides information regarding the formal geological formation from the original map legend, for example "Bobcaygeon Formation".
	ORIG_LITHOLOGY	A lithologic description of each map unit captured from the original map legend (source_map).
	AGE	Geologic age of the rock unit, for example "Ordovician"
	SOURCE_MAP	The original map number used for this compilation.
	UNIT_NUMBER	The geological unit number assigned to the polygon from the project legend, for example 1, 2, 5. Units are stratigraphic formations or in some cases groups as indicated in the legend.
	SUBUNIT	Sub_units are subdivisions of units based on original maps. These may be members within formations, formations within a group, or facies or beds as indicated in original maps. Sub_units may extend across a number of map sheets or may only exist on a single map sheet.
	UNIT_NAME	The stratigraphic unit name assigned to the polygon from the project legend, for example "Queenston Formation" or "Hamilton Group". Units are stratigraphic formations or in some cases groups as indicated in the legend.
	GROUP	The lithostratigraphic unit next in rank above formation.
	FORMATION	Rock unit identified by lithic characteristics and stratigraphic position.
	MEMBER	A lithostratigraphic unit comprising some specially developed part of a formation.
	PRIMARY_LITHO	A lithologic description of each map unit from the project legend.
	DESCRIPT_FULL	A detailed description of each map unit from the project legend.
	DESCRIPT_BRIEF	A summary of the detailed description of each map unit from the project legend.
PALEO_POLY arc (contacts)		Paleozoic geology unit contacts. Contact lines between unit polygons. Level of confidence indicated as per original map. Faulted contacts are indicated by different line types.
	FEATURE_CODE	A character field containing a feature code such as "geolap-0" or "fltmd-0".
	DESCRIPTION	A character field containing each feature's description. For example, the feature code "geolap-0" represents contacts which are approximate.

	SOURCE_MAP	The original map number used for this compilation.
	COMMENTS	A character field reserved for any additional information about the feature.
PALEO_POINT		Outcrops, quarries and drill hole locations digitized directly from original maps.
	FEATURE_CODE	A character field containing a feature code such as "quarry" or "ocx".
	DESCRIPTION	A character field containing each feature's description. For example, the feature code "ocx" represents locations where a bedrock outcrop exists.
	SOURCE_MAP	The original map number used for this compilation.
	COMMENTS	A character field reserved for any additional information about the point feature.
PALEO_FAULT		Captures fault lines with level of confidence indicated as per original map. May be boundary of unit polygon (i.e., coincident with a paleo_poly arc line) or may cross-cut unit polygons.
	FEATURE_CODE	A character field containing a feature code such as "fltmd-0".
	DESCRIPTION	A character field containing each feature's description. For example, the feature code "fltmd-0" represents a fault-contact, ball on downthrown side.
	SOURCE_MAP	The original map number used for this compilation.
	COMMENTS	A character field reserved for any additional information about the feature.
PALEO_PHOTO	HYPERLINK	Contains information and representative photographs of all of the outcropping Paleozoic bedrock units on the map. Point dataset containing hyperlinks which display the representative photo. User activates HYPERLINK button located on the TOOLS toolbar.
	PHOTO_NO	Unique number containing "map unit number", "original image number", and 2 or 3 character codes corresponding to the map units present in the photograph. Original image numbers containing "FRB" are photographs taken by F. Brunton (OGS).
	MAP_UNIT_NO	Main map unit number for main unit in photograph.
	MAP_UNIT	Name of main formation or group in photograph.
	LOCATION_NAME	General location of the photograph.
	OGS_LOC_NO	Location identifier from OGS geologist.
	UTME	Easting
	UTMN	Northing
	UTM_ZONE	UTM grid zone. (17 or 18)
	PHOTO_DESCRIPT	Description of the photograph.
	FOLDER	Hyperlink to the photos.
PALEO_INDEX		Provides information about the individual map tiles used to generate the seamless coverage.
BASE MAP LAYERS (water, roads)	From Land Information Ontario.	

Layers in the ArcMap ® project (mxd file):

The ArcMap ® project file (*.mxd*) provided for this data set was created so that the user can simply double click and open a completed map displaying all the layers and information captured in this data set. Table 3 lists the layers found in the ArcMap ® legend, the GIS layers or coverages used to create that ArcMap ® layer, the attribute displayed and the layerfile used.

Table 3: Layers in ArcMap project (mxd).

ArcMap Layer	coverage	attribute	Layerfile
paleo_index polygon	index	SOURCE_MAP	index polygon.lyr
lakes polygon	lakes		
roads arc	roads		
paleo_point point	paleo_point	FEATURE_CODE	paleo_point point.lyr
paleo_photo point	paleo_photo	FEATURE_CODE	paleo_photo point.lyr
paleo_fault arc	paleo_fault	FEATURE_CODE	paleo_fault arc.lyr
paleo_poly arc	paleo_poly.aat	FEATURE_CODE	paleo_poly arc.lyr
paleo_poly polygon	paleo_poly.pat	UNIT_NUMBER	paleo_poly polygon.lyr