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Geochronology Inventory of Ontario—2019

by Ontario Geological Survey

This compilation can be downloaded from OGSEarth (www.ontario.ca/ogsearch) or from http://www.geologyontario.mndm.gov.on.ca/mndmaccess/mndm_dir.asp?type=pub&id=GeochrON.

Geoscience data, collected by the Ontario Geological Survey (OGS), are provided as data layers through OGSEarth (www.ontario.ca/ogsearch), which can be viewed using user-friendly geographic information programs such as Google Earth™ mapping service.

Other OGS publications can be downloaded from GeologyOntario (www.ontario.ca/geology).

Introduction

The Ontario Geological Survey has updated the geochronology inventory for Ontario, previously released in 2001 as Miscellaneous Release—Data 75 (“Geochronology Data for Ontario”). This database is an inventory of geochronological information in, and adjacent, to the province of Ontario and supersedes previous compilations of geochronological information. Originally compiled in the early 1980s by R.M. Easton and updated by him at various times since, the database is now continually being reviewed and updated by staff of the Earth Resources and Geoscience Mapping Section of the Ontario Geological Survey.

The Geochronology Inventory provides information on isotopic age determinations from localities across Ontario and in adjacent jurisdictions where geology is contiguous with that in Ontario. There are 2 main requirements for inclusion in the Geochronology Inventory: 1) there must be a source that can be referenced for the age and 2) there must be sufficient information provided on the location of the unit to which the age applies. Each Geochronology Inventory record provides all or some of the following information: reference number, age in Ma, error in Ma, method mineral, method mineral description, age type, age interpretation, number of points or grains analyzed, original sample number, stratigraphic unit, greenstone belt, rock class, rock type (abbreviated), rock name, comments, location precision, original co-ordinate system, original latitude (degree, minute, second), original longitude (degree, minute, second), latitude (in decimal degrees, used for spatial files), longitude (in decimal degrees, used for spatial files), original easting, original northing, NAD83 zone, NAD83 UTM easting, NAD83 UTM northing, location comments, 1:250 000 scale NTS sheet, 1:50 000 scale NTS sheet, geological subprovince, geographic province (or state), original input date, revision date (if applicable), revision comment, abbreviated source (may contain multiple sources, *see* “GeochrON—2019 Bibliography” for specifics), primary source author(s), primary source year, primary source title, primary source journal, primary source volume, primary source issue, primary source page numbers, publication type, where available. Further details regarding all of these categories are provided in the document “GeochrON Background Information”.

The compressed (*GeochrON-2019.zip*) download file provides Geochronology Inventory data in 2 formats: 1) a relational database (Microsoft® Access® 2016 (.*accdb*) file) and 2) geospatial (ESRI® shape file) provincial coverage. For the geospatial data, basic geochronological information (age, method mineral, age type, stratigraphic unit, comment and abbreviated source) is provided. Geospatial data are provided in North American Datum 1983 (NAD83) geographic co-ordinate system using decimal degrees using Geodetic Reference System 1980 (GRS80).

Data

Important Note about GeochrON—2019

This is the first release in this configuration and it should be considered to be a “beta” version.

We welcome comments and suggestions from users regarding changes to the query criteria, report form, etc.

In addition, users may report any errors and omissions.

Please use the following contact information: e-mail: Pubsales.ndm@ontario.ca
subject: GeochrON-2019 suggestions

Contents of the Compressed File

There is 1 compressed (.*zip*) file for the *Geochronology Inventory of Ontario—2019*: “GeochrON—2019.zip”.

The data in this compressed (.*zip*) file are stored in 2 folders: 1) Access Database, and 2) Geospatial Data. There are also several documents, provided as a portable document format (.*pdf*) files, which accompany these data. The document “GeochrON Background Information” contains definitions of the various categories used in this database and how the data were compiled. The document “GeochrON—2019 Bibliography” provides all source references cited. The document “GeochrON—2019 Reference Number List” provides documentation of the cross-referencing of sources between the database and the bibliography.

“Access Database” Folder

The GeochrON database, provided as a Microsoft® Access® 2016 (.*accdb*) format file, contains data for more than 8200 isotopic age determinations from Ontario and adjacent areas. For background information on the database, *see* supporting documentation in “GeochrON Background Information”, as well as information provided as other accompanying documents (provided as portable document format (.*pdf*) files).

To assist with querying geochronology inventory records, a custom query and report tool (interface) has been developed that launches when the GeochrON database is opened. This allows users to select records based on any of the following criteria: GeochrON reference number, sample number, method system, method mineral, age interpretation, rock class, rock name, NTS sheet (1:250 000 scale), greenstone belt, geographic province, stratigraphic unit, source (abbreviated). For each category, a pick list of possible choices is provided if one does not want to enter a specific term. Unfortunately, in its current “beta” configuration, it is only possible to search on **one** item at a time: the use of multiple search parameters is not possible (e.g., you can search for rock class: volcanic, **or** you can search for greenstone belt: Abitibi; but you cannot search for rock class: volcanic **and** greenstone belt: Abitibi). Once a search has been completed, the selected records can be viewed using the scroll arrows in the bottom right of the screen (scroll symbols are, in order: first record, previous record, next record, last record). The Microsoft® Excel® 2016 button allows the user to export the selected records to a Microsoft® Excel® file. The button with the × in a red circle clears the search.

“Geospatial Data” Folder

Geospatial files are provided for the Geochronology Inventory using the ESRI® shape file format . Each shape file consists of several subfiles, including a feature geometry file (.*shp*), a database file (.*dbf*), a lookup index file (.*shx*), and a projection file (.*prj*).

All ArcView® themes have a corresponding database (.*dbf*) format file. These files store all the attributes related to that theme. These attributes can be viewed and queried in ArcView®, or opened for viewing directly in other programs, such as Microsoft® Excel® or Microsoft® Access®.

Projection

The georeferenced spatial data in this data release are provided in North American Datum 1983 (NAD83) geographic co-ordinate system (GCS_NAD83) (as decimal latitudes and longitudes) using Geodetic Reference System 1980 (GRS80) and Transverse Mercator projection.

“KML file” for OGSEarth

All the geochronological data are provided as a data layer (*.kml* file) through OGSEarth (www.ontario.ca/ogsearth), which can be viewed using user-friendly geographic information programs such as Google Earth™ mapping service.

Data in the *.kml* file have been grouped into the following 5 categories based on estimated user preference:

- U-Pb Data Zircon and Baddeleyite: these are generally emplacement, eruption or deposition ages
- U-Pb data for any other mineral: these are generally metamorphic ages or cooling ages, although, in some cases, they can reflect emplacement ages
- Potassium-argon and argon-argon: any mineral; these are generally cooling ages
- Rubidium-strontium and lead-lead methods: these are generally metamorphic ages or cooling ages
- Other methods: includes lutetium-hafnium, neodymium-samarium, rhenium-osmium, fission-track ages

Each category uses a different colour age symbol. When a particular age symbol is selected in OGSEarth, a pop-up window will appear showing age, method mineral, method system, age type, age interpretation, stratigraphic unit, rock class, rock type, comments and source (abbreviated). In instances where there are multiple ages from the same location, clicking on the age symbol will expand to show all of the ages available at that site. Selecting each individual age will result in the pop-up window appearing with the details for that age.

R.M. Easton
Ontario Geological Survey
July 2019