Michigan Geology: A Bibliography

Peter Voice

March, 2016

Michigan Geological Survey Data Compilation Series
Volume 1
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Cover Illustration: View of Haymeadow Falls flowing across the Haymeadow Member of the Trenton Formation, southern central Upper Peninsula. Picture courtesy of Mrs. Linda Harrison.
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A Brief Introduction to the Bibliography of Michigan Geology

Introduction

The Michigan Geological Survey produced a historic Index of Michigan Geology with an extensive bibliography in 1956. This current bibliography is an update of the bibliography in the Martin and Straight compilation. It is not comprehensive, but provides a starting place for anyone interested in Michigan Geology. The Michigan Geological Survey plans to update this bibliography periodically with newly published citations as well as other older citations we find.

Sources

The following sources were used to compile this bibliography:


In addition, targeted searches were performed using the bibliographic search engines: Georefs, Geoscienceworld, Proquest Dissertations and Web of Science and in publisher search engines: Springerlink, Elsevier’s Science Direct and Taylor and Francis Online. Citations were compiled into an Endnote library. Bill Harrison, Alan Kehew and John Esch provided lists of publications and suggestions for sources that were used to compile the current bibliography.

Bibliographic lists of theses from the major universities with graduate geology programs were also used to compile the bibliography. The lists were filtered for theses that dealt with all aspects of Michigan Geology. Larry Lemke provided a list of Wayne State University
Department of Geology theses. The Library Research staff, John Gierke and Wayne Pennington provided information on Michigan Tech’s student works – from the Department of Geology and Geological Engineering and its predecessors. Clara Castro and Lori Tschirhart provided lists and advice on accessing the library resources at the University of Michigan in order to find student work from the Department of Earth and Environmental Sciences. The faculty (Ron Chase, Bill Harrison, Al Kehew, Carla Koretsky, R.V. Krishnamurthy, and Bill Sauck) in the Western Michigan University Department of Geosciences provided lists of the students that they oversaw who worked on aspects of Michigan geology as well as relevant publications. Mike Velbel, Dave Long and Duncan Sibley provided lists of Michigan State University Department of Geological Sciences student theses and dissertations. Mark Wollensak assisted with finding older Michigan Basin Geological Society (and is predecessor the Michigan Academy of Arts, Science and Letters, Section of Geology and Mineralogy) publications. Linda Harrison and Jenny Trout provided lists of historic documents generated by the Institute of Water Sciences and the Michigan Geological Repository for Research and Education at Western Michigan University.

Attempts were made to record items that had undergone some critical review before publication. Journal articles, theses, edited books and survey publications were added first. Some publications from the gray literature - magazine articles, popular works, etc. were also incorporated into this database when relevant. Conference abstracts were usually ignored, unless they were longer (Conference papers) or one of the few resources on a specific formation.

Finding these Citations


Organization

The references compiled in this database were sorted with 4 main keywords: Basin, Glacial, Precambrian and Other. These keywords were assigned as the reference was added to the original endnote library. Some references fell under more than one of the 4 categories – and can be found in two or more sections of the bibliography. The terms Basin, Glacial and Precambrian best encapsulate the three major partitions in Michigan Geology and provide a natural way to organize the bibliography.

Precambrian papers deal with the metallic economic resources of the western Upper Peninsula including copper, iron, nickel and gold. Precambrian stratigraphy and bedrock mapping were also included. Papers dealing with the pre-basin rock record in the Lower Peninsula were added to this section on the assumption that these rocks are likely Precambrian in age. Topics also include Precambrian Paleontology (microfossils, grypania, stromatolites).

Basin papers deal with the sedimentology, stratigraphy, paleontology and petroleum geology of the Paleozoic rocks of Michigan. This section also includes papers that deal with non-petroleum resources hosted in Paleozoic rocks – salt, crushed rock, and bedrock aquifers. Papers on
karsting of Michigan’s shallow limestones are included in both this section and in the glacial section of the bibliography. The small set of papers dealing with the Jurassic deposits in the central basin were also included in the Basin section – these papers primarily dealt with biostratigraphy and descriptions of the Jurassic rocks in the basin.

Glacial papers include topics such as soil science, hydrology/hydrogeology, environmental geology and modern depositional environments. In addition, papers dealing with the Pleistocene glaciation including landform analysis, glacial dynamics, quaternary paleontology and glacial depositional environments/sedimentology are in this section. Publications that describe aggregate resources were also added to the glacial section.

Other documents include a variety of topics that do not necessarily fit into the other three general categories. This section includes papers on the history of the geological survey and biographies of famous Michigan Geologists. In addition, documents that provide broad overviews of Michigan Geology or of Michigan’s natural resources were included in this section. Materials designed for the general public including Martin’s county overviews and other educational resources were included in the Other section.

**Bibliography Metrics**

Approximately, 6,600 citations were entered into the Michigan Geology Bibliography. The oldest publications in the database were published in 1821 and publications are found almost every year after that to the present (see Figure 1). Figures 2 through 5 show trends in the publication history sorted for specific aspects of Michigan geology.

**Feedback**

Any feedback on the Bibliography of Michigan Geology is greatly appreciated. If you come across citations that are not in this bibliography but should be, please contact the author.
Figure 1: Historical trends in publication counts per calendar year. Note the overall increase in publication through the late 1970’s followed by a drop off in publication.
Figure 2: Trends in publications dealing with all aspects of Precambrian geology in Michigan. Note that Precambrian studies dominated the early history of Michigan geologic research until the 1930’s. After the 1930’s, Precambrian studies continued to be important through the 1990’s.
Figure 3: Studies of the Paleozoic geology of Michigan became prevalent in the 1920’s as hydrocarbon exploration started to boom in the state. Note that Paleozoic studies were the dominant type of research over the mid-part of the twentieth century until the 1990’s.
Figure 4: Studies of the Quaternary sediments in Michigan show an increasing trend over time, with the bulk of studies performed after 1960.
Figure 5: Production of student work exhibits a dramatic increase in the late 1940’s suggesting the influence of the post-World War II GI Bill. Production of theses and dissertations remained relatively constant through the 1990’s, but has dropped off to a lower plateau over the last 20 years.
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The GEM Center and the Institute for Water Sciences were long running programs in Western Michigan University's Department of Geology. Their missions were to produce resources and publications on the nature, quality and distribution of Michigan’s Groundwater for the general public, for teachers and for state officials. The list below represents some of the documents produced by these programs. In addition, journal articles and other peer-reviewed documents were generated by the staff of the Institute for Water Sciences - these are cited in the Quaternary section.


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