

ON THE ROCKS

A Newsletter of the Michigan Basin Geological Society



2020-2021 Edition 4

www.mbgs.org

January 2021



ANNOUNCEMENTS

Next MBGS Membership Meeting, January 13th, 2020, 7:00PM: Mark Francek, Professor of Geography and Environmental Studies, Central Michigan University will present "Free GIS Resources for Viewing Michigan's Amazing Landscapes". This will be a virtual meeting.

You can join the on-line meeting by using the following links.

Join Zoom Meeting

<https://zoom.us/j/95927911157?pwd=QXV4QXUyZzNqWjlHZmdHdW5Tdm5GZz09>

Meeting ID: 959 2791 1157

Passcode: Y0Jciw

One tap mobile

+13126266799,,95927911157#,,,,*610574# US (Chicago)

+19292056099,,95927911157#,,,,*610574# US (New York)

Dial by your location

+1 312 626 6799 US (Chicago)

+1 929 205 6099 US (New York)

+1 301 715 8592 US (Washington D.C)

+1 346 248 7799 US (Houston)

+1 669 900 6833 US (San Jose)

+1 253 215 8782 US (Tacoma)

Meeting ID: 959 2791 1157

Passcode: 610574

Opportunity for Presenters: MBGS is seeking presenters for Michigan Basin geologically-related topics for our 2020-2021 virtual membership meetings. Our intent is to host monthly one-hour meetings through May 2021. Meetings will be recorded and available after the initial live presentation. If interested, please contact Jennifer Trout at jennifer.l.trout@wmich.edu or at (269) 290-4048.

Volunteer Opportunity: MBGS is in search of a Secretary and Treasurer for the 2020-2021 year. If interested, please contact any one of our officers.

OTHER NEWS

MBGS MEMBERSHIP DUES

MBGS continues to strive to provide a platform for geology and environmental professionals to connect and offer learning and field trip opportunities. For 2020-2021, annual dues are \$35 for professional members and \$10 for students.

Traditional renewal notices are included in the newsletter. MBGS has now made it possible to pay your membership dues electronically via PayPal using a credit card. It is safe and secure, and you do not need a PayPal account to submit your dues payment.

If you are interested in paying your dues electronically, please send an email request to Peter Rose at rosep1@michigan.gov and he will send you an invoice with a link that will allow you to submit your payment. In the near future, we intend to add a PayPal checkout option on the MBGS website, so keep your eyes open for an announcement in a future newsletter when that will be available.

LED FIELD LENS AND MBGS LANYARD

The Michigan Basin Geological Society is offering geological field hand lens and lanyards. The field hand lens is a large 21mm lens with a 20X magnification. A pair of white LEDs provides illumination for all those darkened close-up viewing of rocks, minerals and fossils. A case is provided for the field lens with a key to remove the batteries. Batteries are included. The green lanyard has MICHIGAN BASIN GEOLOGICAL SOCIETY printed on one side of the 1" wide webbing. This lanyard is designed with a breakaway buckle clip and detachable keychain for versatile use and comfortable wearing. MBGS is offering the Lanyard/LED Hand Lens and Case combo for \$15 each and the Lanyard alone for \$5 each if picked up at a meeting or field trip. If you request to have your purchase mailed, standard costs for mailing container and postage will apply. Please contact Mark Wollensak at wollensak@att.net to order.



January 2021 MBGS Membership Meeting (Free)

When: January 13th, 7:00 PM, 2020 (virtual)

Presentation: Free GIS Resources for Viewing Michigan's Amazing Landscapes

Presenter: Mark Francek, Professor of Geography and Environmental Studies, Central Michigan University

Join Zoom Meeting:

<https://zoom.us/j/95927911157?pwd=QXV4QXUyZzNqWjlHZmdHdW5TdM5GZz09>

Meeting ID: 959 2791 1157

Passcode: Y0Jciw

Biography:

Mark Francek is a Professor of Geography and Environmental Studies at Central Michigan University. He has teaching and research interests in earth science education.



EDUCATION

- Ph.D., University of Wisconsin-Milwaukee, 1988
- M.S., University of South Carolina, 1980
- B.A., State University of New York at Geneseo, 1978

PUBLICATIONS

- Steve Reynolds, Robert Rohli, Julia Johnson, Peter Weyland, and Mark **Francek**, *Exploring Physical Geography (2nd edition)*, 2017, McGraw-Hill 664 pp.
- * Kelly E., Marchi, A. Weis, N. Parkin Z., and **Francek**, M. Science Teacher, *Michigan Science Teachers Association Journal*, 2016, Using Kinesthetics for Actively Learning Science (KALS), 61, 3-15.
- Reynolds, S. and Johnson, J. (contributing author) *Exploring Earth Science*, 2015, McGraw Hill, 684 pp.
- *with Showers, L., Wagner, A., Bannasch, T. *Michigan Science Teachers Association Journal* "Science Misconceptions in Hollywood Film." 2014, 59, 62-71.
- Steve Reynolds, Robert Rohli, Julia Johnson, Peter Weyland, and Mark **Francek**, *Exploring Physical Geography*, 2014, McGraw-Hill 696 pp.
- "A Compilation and Review of over 500 Geoscience Misconceptions" to the *International Journal of Science Education* 2013, 35, no. 1, 31-64.

Abstract:

In this short thirty-minute presentation, I provide you with free ArcGIS Online, NRCS, Google, NOAA, USGS, and State of Michigan web resources to discover Michigan's amazing landscapes. We will also delve into locations outside of Michigan and use the Windy.com weather site to follow that latest Alberta Clipper. The format for the presentation is as follows: introduction to each website: two minutes, then three minutes to explore the site on your own.

EVENTS

Many organizations have switched to virtual platforms or have cancelled events. We are providing links for your reference. Please visit these sites to learn more about specific events and happenings. If you have an event to share, let us know!



American Institute of Professional Geologist – Michigan Section – <http://mi.aipg.org/newsletters.htm>

Central Michigan Lapidary and Mineral Society - <http://www.michrocks.org/>

Eastern Section AAPG - <https://www.esaapg.org/>

EGLE Calendar of Events - https://www.michigan.gov/egle/0,9429,7-135-3308_3333---,00.html

Flint Rock and Gem - <https://flintrockandgem.org/events>

Michigan Association of Environmental Professionals - <https://www.maep.org/>

Michigan Basin Geological Society – www.mbgs.org

Michigan Clean Water Corps - <https://micorps.net/about/>

Michigan Mineralogical Society - <https://www.michmin.org/>

Mid-Michigan Rock Club - <http://www.midmichrockclub.com/?Page=1>

Midwest Mineralogical and Lapidary Society - <http://www.mmls.us/>

Society of Petroleum Engineers - <https://www.spe.org/events/calendar/>

Event Schedule

January 25-26, 2021: American Association of Petroleum Geologist, Super Basin 2021 (online event), <http://superbasins.aapg.org/2021>

June 14-16, 2021: Annual Environmental Risk Management Workshop: “The Data Tell the Story” at the Ralph A. MacMullan Conference Center, Roscommon, Michigan.

ONLINE RESOURCES

- **Michigan Geology Maps Available:**
<https://www.michigan.gov/deq/0,4561,7-135-3304-116670--,00.html>
- **Digital Geology Library Overview:**
https://www.michigan.gov/documents/deq/GIMDL-Catalog-2010-01-20_307979_7.pdf
- **GeoWebFace:** https://www.michigan.gov/deq/0,4561,7-135-3311_60700---,00.html
- **Digital Geology Library Mining Overview:**
https://www.michigan.gov/documents/deq/GIMDL-Catalog-2013_06_22_mining_425595_7.pdf
- **Michigan Geological Survey:** <https://wmich.edu/geologysurvey>
- **USGS Michigan Geological Map Data:** <https://mrdata.usgs.gov/geology/state/state.php?state=MI>
- **CMU, Clarke Historical Library, Michigan Geology:**
https://www.cmich.edu/library/clarke/ResearchResources/Michigan_Material_Statewide/Michigan_Oil_and_Gas_Industry/History_of_Michigan_Oil_and_Gas/Pages/Michigan-Geology.aspx

MICHIGAN BASIN GEOLOGICAL SOCIETY OFFICERS 2020-2021

PRESIDENT: CHRIS CHRISTENSEN, Geologist

Michigan Department of Environment, Great Lakes and Energy Remediation and
Redevelopment Division
350 Ottawa NW, Grand Rapids, MI 49503
(616) 446-7582 christensenc@michigan.gov

VICE PRESIDENT: VACANT

SECRETARY: *acting* JOHN A. YELlich, Director

Michigan Geological Survey, Western Michigan University
1903 West Michigan Ave, Kalamazoo, MI 49008-5241
W (269) 387-8649 C (303) 901-2886; john.a.yellich@wmich.edu

TREASURER: *acting* MIKE POZNIAK, Senior Geologist

Arcadis
300 S. Washington Square, Ste 315, Lansing, MI 48933
W (517) 324-5054 C (517) 898-3839 mike.pozniak@arcadis.com

BUSINESS MANAGER: PETER ROSE, Geologist

Office of Minerals Management, Michigan Department of Natural Resources
W (517) 284-5901, RoseP1@michigan.gov

PAST – PRESIDENT: JENNIFER TROUT, Staff Geologist

Michigan Geological Repository for Research and Education
1903 W. Michigan Ave., Kalamazoo, MI 49008-5241
W (269) 387-8633 C (269) 290-4048, jennifer.l.trout@wmich.edu

NEWSLETTER EDITOR: ARLENE ANDERSON-VINCENT, Natural Resource Manager

Nestle Waters North America
19275 Eight Mile Road, Stanwood MI 49346
W (231) 823-8451 arlene.anderson-vincent@waters.nestle.com

PUBLICATIONS: JOHN SHOOK, jshook@detroitssalt.com

ELECTRONIC PUBLICATIONS: MARK WOLLENSAK, CPG, wollensak@att.net

WEBMASTER: JOHN ESCH, eschj@michigan.gov

MBGS PUBLICATIONS

<http://www.mbgs.org/publications.html>

Historical publications now available on USB Flash Drives". Each USB Flash Drive is 8GB

Prices include postage, handling and any applicable sales tax.
Orders for publications should be prepaid in U.S. Funds and addressed to:
MBGS — Publications
P.O. Box 14044
Lansing, MI 48901-4044

Historical CD #1: Nine out-of-print publications from 1949 through 1965 and 1998, 2000, \$15

- The Stratigraphy of Manitoulin Island, Ontario, Canada, June 19-20, 1954
- The Devonian and Silurian Rocks of Parts of Ontario, Canada and Western New York, June 22-23, 1951
- The Traverse Group of the Northern Part of the Southern Peninsula of Michigan, June 16-17, 1949
- The Devonian Strata of the London-Sarnia Area, Southwestern Ontario, Compiled by Erwin C. Stumm, Lewis B. Kellum and Jean Davies Wright, June 9-10, 1956
- The Ordovician Rocks of the Escanaba-Stonington Area, Led by R. C. Hussey, June 2-3, 1950
- The Niagara Escarpment of Peninsular Ontario, Canada, June 18-19, 1955
- Lower Paleozoic and Pleistocene Stratigraphy Across Central Wisconsin, Compiled by C. E. Prouty, Led by L. M. Cline, J. L. Hough and R. F. Black, 1960
- Classic Silurian Reefs of the Chicago Area, by Donald G. Mikulic and Joanne Kluessendorf, June 27, 1998
- Geology of Central Ontario, Canada, 1965

Historical CD #2: Four out-of-print publications from 1947, 1959, 1983 and 1991, 2001, \$15

- Copper Country Field Trip, Michigan, June 20-22, 1947
- Geology of Mackinac Island and Lower and Middle Devonian, South of the Straits of Mackinac, June 12-14, 1959
- Tectonics, Structure and Karst in Northern Lower Michigan, August 1983
- Geology of the Pictured Rocks, Upper Peninsula, Michigan, July 11-13, 1991

Historical CD #3: Six out-of-print publications from 1948, 1952, 1990 - 1995, 2001, \$15

- Pleistocene and Early Paleozoic of the Eastern Part of the Northern Peninsula of Michigan, June 18-21, 1948
- Stratigraphy and Structure of the Devonian Rocks in Southeastern MI and Northwestern OH, June 20-21, 1952
- Lower Ordovician and Upper Cambrian of Wisconsin, May 10-12, 1990
- Guidebook to the Precambrian Geology and Metallogeny of the Central Upper Peninsula of Michigan September 12-13, 1991

Historical CD #4: Six out-of-print publications from 1957, 1958, 1961, 1967, 1968 and 1970, 2004, \$15

- Silurian Rocks of the Northern Peninsula of Michigan, 1957
- Cambrian Geology of Parts of Dickinson and Iron Counties, Michigan, June 1958
- Geologic Features of Parts of Houghton, Keweenaw, Baraga and Ontonagon Counties, Michigan, May 19-21, 1961
- Correlation Problems of the Cambrian and Ordovician Outcrops Areas, Northern Peninsula of Michigan 1967
- The Geology of Manitoulin Island, June 1968
- Devonian Strata of Alpena and Presque Isle Counties, Michigan 1970

Historical CD #5: Five out-of-print publications from 1971, 1989, 2001, and Oil & Gas Fields Vol. 1 & 2, 1969 & 1992, 2006, \$50

- Oil & Gas Fields Symposium, Volume 1, April 1969, 200 pp., maps, illus., second printing with updates
- Oil & Gas Fields Manual of the Michigan Basin, Volume 2, 1992, 520 pp., maps, illus.
- Glacial Geology of Southwestern Michigan, 1989, 53 pp. by A. Kehew, L. J. Schmaltz, and W. T. Straw
- Geology of the Lake Erie Islands and Adjacent Shores, 1971, 65pp., maps, illus. by Jane L. Forsyth
- Glacial Geology of Southwestern Michigan, Landforms of the Lake Michigan Lobe, Southwestern Michigan, 2001, AAPG Eastern Section Meeting Field Trip, 32 pp., maps, illus. by A Kehew and A. Kozlowski

Historical CD #6: Six out-of-print publications from 1946, 1953, 1963, 1966, 1978 & 1987 plus the Richfield Challenge, 1952 & Tom Knapp's MS Thesis, 2007 \$15.

- Guidebook for Ordovician Stratigraphy of the Cincinnati, Ohio and Richmond, Indiana Areas, June 12, 13, 1953 by W. H. Shideler and B. T. Sandefur
- Guidebook for Ontario Geological Excursion to Kettle Point – Owen Sound- Waubesaushene, June 21, 22, 23 1946 by W. A. Roliff, C.S. Evans and J.F. Caley
- Guidebook for the Stratigraphy of the Silurian Rocks in Western Ohio, May 31- June 2, 1963 by C. H. Summerson, Jane L. Forsyth, Karl V. Hoover and J. R. Ulteig
- Guidebook for Cambrian Stratigraphy in Western Wisconsin, May 21, 22, 1966 by Merideth E. Ostrom
- Geology of the Manitoulin Area, Special Papers #3, September 29, 30 and October 1, 1978 by J. T. Sanford
- and R. E. Mosher
- Middle Devonian Cratonic Carbonates and Shales in Southwestern Ontario, November 14, 1987 by Bruce Wilkinson
- The Richfield Challenge, A Review of the Richfield Developments in Michigan, 1952 by Gordon H. Hautan
- A Theory of Rogers City and Dundee Relationships in Central Michigan, Masters Thesis, 1947 by Tom Knapp

Historical CD #7: Field Guidebooks from 1962, 1969, 1977, 1980, 1985 & 1988, \$15

- Silurian Rocks of the Southern Lake Michigan Area, 1962, James H. Fisher, Chairman, MBGS Annual Field Conference
- Studies of the Precambrian of the Michigan Basin, by Harold B. Stonehouse, 1969
- The Geology of the Marquette District: a Field Guide By F. W. Cambray, 1977
- Ordovician and Silurian Geology of the N. Peninsula of Michigan, 1980, R.B. Votaw, 40 pp., illus., maps
- Special Paper #4: Ordovician and Silurian Rocks of the Michigan Basin and its Margins, 1985 K.R. Cercione and J.M. Budai (eds.), 96 pp., illus.
- Upper Keweenaw Rift-Fill Sequence, Mid-Continent Rift System, Michigan, 1988, P.A. Daniels and R.D. Elmore, M.S. Wollensak, ed., 150 pp., illus., maps

OTHER SPECIAL OFFERS

- **Historical CD Set - # 1 – 7 (detailed above) for a special purchase price of \$95**
- **NE Lower Peninsula Geological Field Conf., 2004, T. Black, M. Wollensak, On CD \$10**
- **Stratigraphic Lexicon for Michigan, 2001, prepared by MBGS and published by DEQ, \$4**
- **Robert E. Mosher Geological Studies** A lifetime of geological research on Silurian Rocks with John T. Sanford. The disks are organized chronologically and include field work in North America and Europe. 2007, 2 CDs \$35.



www.mbgs.org

In remembrance of someone who contributed to geologic community in Michigan
Submitted by MBGS members Bill Stelzer and Milt Gere

Thomas David Waggoner
April 10, 1942 –December 7, 2020



Photo courtesy of Goldich Medal Citation

Thomas David Waggoner, 78, of Negaunee Michigan, died Monday morning December 7, 2020, at UP Health System-Marquette. Honoring Thomas' wishes no services will be held. Canale-Tonella Funeral Home is assisting the family where memories may be shared at Canalefuneral.com

Thanks to Bill Stelzer, Milt Gere, Pete Hollin and Ron Seavoy for honoring Tom and his family by providing the following information.

Tom and Jean Vogt were married in 1964 and had the distinguished honor of celebrating their 56th wedding anniversary this year. They have 2 daughters, Wendy and Danielle (married to Todd).

According to Bill Stelzer, Tom was a great fishing and hunting companion throughout our 4 years of high school. We fished most of the lakes in the township year around and rarely let our high school studies get in the way of a good fishing run. We both attended a field trip program run by Cranbrook Institute of Science that offered great opportunities for collecting rocks, minerals and fossils. The program inspired our interest in geology and ultimately led us both to seek geology degrees.

After graduation in 1960, Tom entered Michigan State University (MSU) to seek a BS in geology. I headed to Notre Dame to earn a geology degree, but came to MSU while we were both earning our Masters degree in geology. Upon graduation, Tom took a geology job with Cleveland Cliffs in the UP- a dream location for him as he loved the cold weather and outdoor sports activities it offered. (I headed south to the deserts of West Texas.) In recent years, I worked with Tom in an attempt to solicit support from the Michigan oil industry for the core facility in the Upper Peninsula.

Tom lived life to the fullest and especially enjoyed the outdoors, nature and geology as well as the many gifts the Lord has provided us here on earth. I will miss Tom, but will very much cherish the fun times we had together.

Milt Gere shared the following information:

For a number of recent years, Tom Waggoner has been the Secretary/Treasurer of the Northern Michigan Geologic Repository Association (NMGRA). NMGRA was formed in 2008 to locate and purchase a property to replace the State's outgrown repository for exploration drill core and data library located in Marquette. The NMGRA board membership is made up of active and retired members from the mining and exploration industries and others interested in Michigan's minerals and geology. Tom became very active on-the-ground in the property search and acquisition process. A suitable building was located in 2011 at the former K. I. Sawyer Air Force facility in Marquette County. NMGRA arranged some funding to initially acquire the building and began working with the State to take over the building. The partially paid for building was accepted by the State in 2019. Tom was very active in this process and was working on finalizing the NMGRA/State/EGLE (former DEQ) activities in 2020.

On a more personal note, I first met Tom in the late 1960s. I was going to MSU and he'd received his MS from there a year or so before. He was working as a geologist for the Cleveland Cliffs Iron Company and came to MSU to interview students for possible summer employment. (I was not hired.) After I graduated from MSU and was working for the Michigan DNR, I again met Tom and saw him over the years at Institute on Lake Superior Geology meetings. Then when I was working at the DNR's office in Marquette, Tom offered geological information when requested and got involved in helping us by evaluating and moving drill core to the DNR repository in Marquette. When I moved back to the Lansing DNR office, Tom continued to be a helpful mining/mineral/geology resource person for me. After my retirement, Tom helped me line up a short geology consulting project. Over the years we also have periodically had phone conversations about geology, NMGRA activities, rock collecting and related items. He was always interesting and enjoyable to talk to. He will be greatly missed.

Pete Hollin contributed the following originally to the ILSG membership:

Tom was an ardent supporter of ILSG and received the Goldich Medal in 2013 for his many years of contributions to the Institute and to the local geological community. His Goldich Medal citation (below) was written by Ron Seavoy, who also passed away earlier this year.

Tom remained active in ILSG, leading a field trip during the Iron Mountain meeting in 2018 and attending the Terrace Bay meeting just last year. We all benefited from his knowledge, enthusiasm and support. He will be sorely missed by all who knew him.

Goldich Medal citation (below) written by Ron Seavoy:

Tom helped Cliffs make the transition from underground mining of direct shipping ore to pellets, which are now the life blood of iron mining in the Lake Superior region. The success of his contributions is best measured by 40 years of continual production of pellets from the Empire and Tilden mines that together produce 13 to 14 million tons per year. The transition to pellets is public knowledge but much of the details are lacking. Before pellet production could begin iron formations had to be sampled for their recoverable iron content and ease of recovery. After mining, there had to be day to day adjustment in grinding time, depending on the hardness of taconite, and blending ores in order to control phosphorous contents. Tom's contribution to preserving iron mining in the Lake Superior region has been documented by his colleagues because the skills of company geologists are seldom part of the public domain.

During his long career with Cliffs (1965-1997), Tom actively participated in the teaching function of the Institute. He led 45 field trips for various organization and made numerous poster and oral presentations at annual meetings of the Institute. At his retirement in 1997, Tom was chief geologist. After his retirement he has continued to serve the mining industry. After the state of Michigan ended funding a curator for the core library at Harvey, Tom became the unpaid overseer of the facility and went looking for a building to assemble and preserve the large amount of additional core that exists at scattered location in the Upper Peninsula. Like the core library at Harvey it will be a repository for future exploration geologists who are essential for sustaining mining in the Lake Superior region. He found a building on the grounds of the closed K. I. Sawyer Air Force base that was suitable as a core library and has been actively seeking funding to acquire and maintain it.

INVOICE

ANNUAL DUES FEE:

INVOICE NUMBER	MBGS 2021 Dues
INVOICE DATE	October 5, 2020
OUR ORDER NO.	
YOUR ORDER NO.	
TERMS	30 Days
SALES REP	
SHIPPED VIA	USPS or EMAIL

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
1	MBGS 2021 Annual Dues	\$ 35.00	\$ 35.00
		SUBTOTAL	\$ 35.00
		TAX	
		FREIGHT	
DIRECT ALL INQUIRIES TO: Mike Pozniak			MAKE ALL CHECKS PAYABLE TO: Michigan Basin Geological Society
			\$ 35.00 PAY THIS AMOUNT

MAKE ALL CHECKS PAYABLE TO:
Michigan Basin Geological Society
Attn: Treasurer - 2021 Annual Dues
P.O. Box 14044
Lansing, Michigan 48901

Return this copy
with payment

THANK YOU FOR YOUR CONTINUED SUPPORT!

MICHIGAN BASIN GEOLOGICAL SOCIETY

INVOICE

P.O. Box 14044
Lansing, Michigan 48901

STUDENT ANNUAL DUES FEE:

INVOICE NUMBER	MBGS 2021 Dues
INVOICE DATE	October 5, 2020
OUR ORDER NO.	
YOUR ORDER NO.	
TERMS	30 Days
SALES REP	
SHIPPED VIA	USPS or EMAIL

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
1	STUDENT MBGS 2021 Annual Dues	\$ 10.00	\$ 10.00
		SUBTOTAL	\$ 10.00
		TAX	
		FREIGHT	
			\$ 10.00
			PAY THIS AMOUNT

DIRECT ALL INQUIRIES TO:
Mike Pozniak
Mike.Pozniak@arcadis-us.com
517 337-0111

MAKE ALL CHECKS PAYABLE TO:
Michigan Basin Geological Society
Attn: Treasurer - 2021 Annual Dues
P.O. Box 14044
Lansing, Michigan 48901

THANK YOU FOR YOUR CONTINUED SUPPORT!

Return this copy
with payment