

On the Rocks



A Newsletter of the Michigan Basin Geological Society

2004-2005 Number 6

www.mbgs.org

February, 2005

EVENTS

February 9, 2005: “Acid - Saline Lakes on Earth and Mars,” by Dr Kathleen Benison, CMU. See abstract below.

March 8, 2005 (Tuesday): Next month is a joint meeting is hosted by SPE. The title of the presentation is “The Growing Demand for Heavy Oil and Natural Gas and the Related Global Warming Issues,” by George Stosur. See flyer below.

March 18, 2005: PTTC Workshop, “Field Experiences – Focus on the Antrim” See flyer below.

May 5-16, 2005: MBGS Grand Canyon Field Trip. A few spaces still may be available, contact Mark Nida at 517-241-6136

NEW MBGS PUBLICATIONS

Northeast Lower Peninsula Geological Field Conference, 2004, CD \$10
Ty Black, Mark Wollensak, 133 pp., illus., maps and presentations.

Historical CD #4: Out-of-print publications, 2004, \$15

1957 – Silurian Rocks of the Northern Peninsula of Michigan

1958 – Cambrian Geology of Parts of Dickinson & Iron Counties, Michigan

1961 – Geologic Features of Parts of Houghton, Keweenaw, Baraga &

Ontonagon Co. 1967 – Correlation Problems of the Cambrian & Ordovician
Outcrop Areas, N. Peninsula 1968 – The Geology of Manitoulin Island

1970 – Devonian Strata of Alpena & Presque Isle Counties, Michigan

MBGS members receive a 10% discount. Additional publications on page 3.
Contact Tom Hoane, hoanet@michigan.gov or 517-241-3769.

MBGS Meeting

February 9, 2005 (WEDNESDAY)

Coyote Creek
6951 Lansing Rd, Dimondale, MI.

Schedule: 5:30 to 6:15 pm Social Hour
6:15 pm dinner
Presentation after dinner

Cost \$25.00 / \$15.00 Student (includes dinner)

“Acid-Saline Lakes on Earth and Mars” or “Going to Mars? Don’t
drink the water!”
by Dr. Kathleen Benison, CMU

MBGS Dinner Meeting Reservation

Name _____

Number attending _____ Society _____

Enclosed Registration Fee _____

Please make checks payable to **MBGS** and return to Pat Poli by **February 8, 2005**.
Members are welcome to attend the presentation after dinner for no charge. Please
contact Pat Poli to ensure adequate seating. Send reservations to:

Pat Poli
Engineering Section
Engineering and Service Quality Division
6545 Mercantile Way
Lansing, MI 48909
Ph: Bus 517-241-6141, Fax 517-241-6071
E-mail: pmpoli@michigan.gov

2004-2005 MBGS Officers

The Executive Committee meeting minutes are available on the website.

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University Talks and Seminars Websites

Western Michigan University:
www.wmich.edu/geology/SeminarGeos.html

Michigan State University:
www.glg.msu.edu/news/lectures.html

University of Michigan, Turner Lecture Series:
www.geo.lsa.umich.edu/announce/turner02b.html

Michigan AIPG Section website: www.aipg-mi.org

MEETING CANCELLATION POLICY

Monthly meetings will be automatically cancelled whenever the National Weather Service issues a "Storm Warning" for the Lansing area. If driving conditions are poor but a "Warning" has not been issued please contact any member of the Executive Committee for the status of the meeting.

MICHIGAN BASIN GEOLOGICAL SOCIETY PUBLICATIONS

Historical CD #1: Nine out-of-print publications from 1949 through 1965 and 1998, Devonian to Silurian Rock Fieldtrips to MI, WI, IL and Ontario, 2000, \$15

Historical CD #2: Four out-of-print publications from 1947, 1959, 1983 and 1991, Northern Devonian and UP Fieldtrips in MI, 2001, \$10

Historical CD #3: Six out-of-print publications from 1947, 1959, 1983 and 1991, Northern Devonian and UP Fieldtrips in MI, 2001, \$12

Special Price - Historical CD #1, #2 & #3, \$30

Stratigraphic Lexicon for Michigan, 2001, prepared by MBGS and published by DEQ, 56 pp., chart, \$2.65 picked up or \$4 mailed, Can be ordered from MBGS or Geological Survey Div. of the DEQ

Prices include postage, handling and any applicable sales tax. MBGS Members receive a 10% discount on MBGS publications. Orders for publications should be prepaid in U.S. Funds and addressed to:

MBGS – Publications
PO Box 18074
Lansing MI 48901-8074

MBGS Mug and Jacket Sale

The Michigan Basin Geological Society is offering mugs and jackets with the society logo for sale. The mugs are \$5.00 each. The jackets are \$60.00 each plus postage. Please contact Dan McGuire at: Phone (517) 772-5219, Fax (517) 772-7021, or danmcguire@sensible-net.com. Remember to include the correct size of the jacket and the quantity of each item. Checks should be made out to the MBGS.

“Acid-Saline Lakes on Earth and Mars” or “Going to Mars? Don’t drink the water!” by Dr. Kathleen Benison, CMU

Extremely acid saline lake systems on Earth may be good models for possible Martian environments. Terrestrial sedimentary acid systems include both Permian deposits in the U.S. mid-continent and modern environments in southern Australia. These terrestrial acid systems are characterized by: (1) saline H₂SO₄-rich lake and ground waters with pH between 4 and -1; (2) bedded and displacive evaporite minerals hosted by red siliciclastic sediments; (3) common sulfate minerals, such as gypsum and anhydrite, and less abundant "acid" sulfate minerals, such as alunite and jarosite; (4) possible acidophilic microorganisms; and (5) lack of carbonate minerals. These acid saline lakes are surrounded by mudflats, sand flats, ephemeral streams, sand dunes, and/or distal alluvial fans. Chemical, mineralogical, and sedimentary data from Mars closely resemble that of terrestrial acid deposits. Both Martian soil and terrestrial acid sediments are rich in hematite and chloride and sulfate salts and contain the rare "acid" sulfate mineral jarosite. In addition, images returned from Martian outcrops show lamina, small-scale cross-bedding and ripple marks, mud cracks, and displacive crystal molds, a common sedimentary structure assemblage seen in the terrestrial acid saline systems. These observations suggest that these terrestrial acid saline environments in the Permian of the mid continent and in modern day Australia are the best possible analogs for Martian environments.

Biography for Dr. Benison

Kathy Benison grew up collecting seashells and rocks on the beaches south of Boston. She received her B.S. in geology and chemistry at Bridgewater State College in Massachusetts, her masters in geology at S.U.N.Y. Binghamton, and her Ph.D. in geology at The University of Kansas. Kathy first became interested in Mars when, in 1997, Pathfinder sent images of the Martian surface, which seemed to look very similar to the Permian red beds that Kathy had been studying. In her eighth year at Central Michigan University, Kathy is a tenured associate professor of geology. Her work on terrestrial acid saline lakes as analogs for Mars has been featured in Geotimes, Newsweek, and an upcoming issue of National Geographic magazine.

PTTC FOCUS ON ANTRIM WORKSHOP



Northern Michigan Society of Petroleum Engineers
Jointly present

[Michigan Field Experiences--Focus on the Antrim](#)

March 18, 2005, 7:30am to 5pm
At the Holiday Inn, Mt. Pleasant, Michigan

One-Day Workshop with Exhibition Area and Core Display with Poster

Join us to hear Michigan geologists, engineers, and service providers who will share

- case histories
- geologic overviews and play projections
- history and results of horizontal drilling
- hydrology, geochemistry, and microbiology of the play
- mapping the base of Drift and Antrim subcrop
- estimates of remaining production
- efficient field management strategies
- use of core and fracture data in predicting future production
- log data processing to better understand fractures
- results of using fracturing fluids that reduce formation damage
- an update on monitoring O₂ and keeping O₂ production low
- Inspection technique to avoid shutdowns due to corrosion/erosion

Come and examine Antrim cores with a poster presentation and participate in the exhibit area of products, services, and opportunities

PROGRAM

- 7:30-8:20 Registration, continental breakfast, time for examining cores and talking with exhibitors
- 8:20-8:30 Welcome
- 8:30-9:00 **Tim Maness**, Maness Petroleum, “**Antrim Production Trends in Time and Space**”
A look at variation of gas, water, and CO₂ production across the play through time.
- 9:00-9:30 **William B. (Bill) Harrison**, Director, Michigan PTTC, “**Results of Horizontal Drilling in the Antrim Shale**” Statistical overview of Antrim horizontal wells their production.
- 9:30-9:45 **Wayne Goodman**, **Martha Goodman**, Northern Lights Energy and **Bill Harrison**, “**Antrim Core Studies—Key to Deciphering Results and Predicting Performance.**”
An introduction to a poster presentation and selected cores for your examination. Significant local potential for infill and replacement drilling and economic impact of abandoning individual wellbores are considered.
- 9:45-10:05 Break
- 10:05-10:35 **Steven P. Kohler**, “**How Much Gas is Left?**” A quick look at Antrim Shale reserve estimating methods--past and present. How does actual production track forecasts? Do gas recoveries vary across the producing trend? How are reserves related to gas in place? How does gas production correlate to water production? How long will Antrim fields continue to produce?
- 10:35-11:05 **Ken Moss**, Baker Atlas, “**Added Value from your CBIL Image Data**” Processing options for image data in Antrim wells that lead to better understanding of fracture dip and direction.
- 11:05-11:35 **Joseph H. (Joe) Frantz, Jr.**, and **Jeron Williamson**, Schlumberger Data and Consulting Services, “**Practical use of core and natural fracture data in the Antrim Shale.**” Practical application of core analysis results and natural fracture interpretation are discussed to help evaluate the Antrim Shale. Examples of using a reservoir simulator to project future production will be provided.
- 11:35-12:45 Buffet Lunch, time for cores and exhibitors

- 12:45-1:15 **Frank Murray**, CMS Gas Transmission Company, “**Update on Monitoring O₂ for the Antrim Transmission Lines and Plant Processing**” Keeping O₂ production levels low in order to prevent corrosion.
- 1:15-1:45 **Jennifer C. McIntosh**, Johns Hopkins University, “**Hydrology, geochemistry, and microbiology of the Antrim Shale gas play, Michigan Basin**” Summary of formation water and gas geochemistry of the Antrim Shale wells along the Michigan Basin margins and central basin trend, and current research on the geomicrobiology of the Antrim Shale gas plays.
- 1:45-2:15 **Terry Wilkinson**, MidAmerican Inspection Services, Inc., “**Corrosion/Erosion inspection for System Integrity**” Ultrasonic inspection of vessels and associated piping at known problematic spots prevents safety problems and down time.
- 2:15-2:45 **Bradley N. (Brad) Yohe**, Yohe Enterprises, Inc., “**Effective field operations**” Organization of field staff for effective coverage of operations; Proper planning and preparation to offset the problems encountered with Northern Michigan winters; the importance of a good safety program to offset accidents.
- 2:45-3:-00 Break
- 3:00-3:30 **Tyrone J. (Ty) Black**, Michigan DEQ, “**Mapping the Base of Drift and Antrim Subcrop**” An example of filtering and treatment of data from the State Geological Survey on-line data to produce geologic maps. The problems of modeling an eroded surface like Base of Drift is handled with ArcView Spatial Analyst extension.
- 3:30-4:00 **Tim Brock**, “**Analysis of the Bagley Otsego Infill Program for 2004 – A Case History**” Planning and results of 2004 development drilling program. This is a unique project because each well is metered individually and the project is not unitized. Four different infill candidates were selected; three were successful.
- 4:00-4:30 **Royer Myers**, BJ Services Co., “**Low Gel-load Fracturing Fluids Reduce Formation Damage**” Fracturing fluids comprised of lower-than-normal amounts of gelling agents reduce residual formation damage potentially leading to better well performance.
- 4:30-5:00 Time for core examination and visiting exhibitors.

For engineers and others who need verification of PDH hours: At the end of the workshop, you will get a certificate with a printed schedule showing this workshop is equal to 6 PDH credits.

Workshop fee: \$75 if received by us by March 10. After that, it's \$95. You'll get a workbook, continental breakfast, a hot buffet lunch and refreshments at breaks. Sorry, but we can't “save” seats without payment.

Booth fee: \$250 and that includes one person who can also attend the workshop. All booths are in the same room as the presentations, so you are visible at all times and hear all the presentations.

Cancellations: We'll refund in full for cancellations received by March 10. After that, we'll refund if a paid participant takes your place.

Time and Place: March 18, 2005, from 7:30am to 5pm at the Holiday Inn, 5665 E. Pickard Road, Mt. Pleasant, MI 48858. For rooms, ask for SPE/PTTC/MBGS rates at (800) 292-8891. Maps at www.hiresort.com

Please see the next page for the Workshop Registration Form

Workshop Registration Form

Michigan Field Experiences--Focus on the Antrim

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____ e-mail _____
(Please print)

_____ **Reserve a booth** (We don't have many, so please reserve early.)

How are you paying? (Please check one payment type)

_____ **By Credit Card:** (please circle one card type) Visa MasterCard *

Card No. _____ Exp. Date _____

*Sorry, we can't take Discover or American Express.

_____ **By check**—made payable to “WMU Geosciences Department” and mail it to:
Workshop
Geosciences Department
Western Michigan University
Kalamazoo, MI 49008-5241

To register with a credit card by phone, please call Kathy Wright at (269) 387-5486 or Linda Harrison at (269) 387-8633 or e-mail linda.harrison@wmich.edu, or send a fax to (269) 387-5513.

Workshop fee: \$75 if received by us by March 10. After that, it's \$95. You'll get a workbook, refreshments, and lunch. Sorry, we can't “save” seats without payment.

Booth fee: \$250 and that includes one person who can also attend the workshop.

Cancellations: We'll refund in full for cancellations received by March 10. After that, we'll refund if a paid participant takes your place.

For more information, please contact Bill Harrison at (269) 387-8633 or at harrison@wmich.edu

PTTC gratefully acknowledges that its primary funding comes through the U. S. Department of Energy's (DOE) National Energy Technology Laboratory (NETL). PTTC also appreciates the support of several state governments, universities, and state geological surveys, mainly through the Regional Lead Organizations. Industry donations and in-kind contributions play an important role, and are tax-deductible. Together, cost share from all sources provides over 50% of PTTC's financial support. PTTC is a national not-for-profit corporation under IRS Code section 501(c)3.



Michigan Section

SPE – MBGS Meeting

Tuesday, March 8th, 2005

Location: Coyote Creek
6951 Lansing Road,
Diamondale, MI 48821

5:00 to 6:00 PM – Social Hour

6:00 PM – Dinner

Presentation after Dinner

Cost (includes dinner): \$25.00 (Students \$15.00)

***Topic: The Growing Demand for Heavy Oil
and Natural Gas and the Related Global Warming Issues
by George Stosur***

SPE Dinner Meeting Reservation

Name: _____

Number Attending: _____

Fee Enclosed: _____ Will Pay at Door: _____

Please make checks payable to **SPE** and return to Tim Griffin by March 7th, 2005

Tim Griffin
El Paso Corporation – ANR Pipeline
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Farmington Hills, MI 48334
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