

On the Rocks



A Newsletter of the Michigan Basin Geological Society

2004-2005 Number 4

www.mbgs.org

December 2004

EVENTS

December 7, 2004: Michigan Chapter, American Institute of Professional Geologists meeting. Michael Johnston will speak on "Michigan Manufacturers Perspective on Current and Pending Environmental Regulation in Michigan." See information below.

December 15, 2004: This month will be a joint MBGS – SPE meeting, our speaker will be Dr. Heather L. Petcovic; her topic is 'The View From Below: Using Dike-Wallrock Interactions to Estimate Eruption Rates of the Columbia River Flood Basalts.' See Dr. Petcovic's biography and abstract below.

May 5-16, 2005: MBGS Grand Canyon Field Trip.

MEETING LOCATION

Following last year's closing of the Lansing Mountain Jacks, we have searched for another site, which is convenient and affordable to hold MBGS meetings. The next few MBGS sponsored meetings will be held at **Coyote Creek** (formerly The Pour House), 6951 Lansing Road, Diamondale 48821. Take Exit 98 south off I-96. Coyote Creek is on the west side of Lansing road, south of I-96 (in front of the State Secondary Complex).

Map available at :

http://maps.infospace.com/_1_BBCT160222TT7E_info.four/kevmap?op=MoveMap&otmpl=%2Fkevmap%2Fmap-out.htm&lat=42.6778&long=-84.6515&lat_p=42.6778&long_p=-84.6515&QA=6951+Lansing+&QC=Lansing&QS=mi&QZ=48821&QO=US&width_o=360&height_o=270&detail_o=1&scale_o=1&matchpass=ZIP9&width=478&height=359&detail=1&scale=2

LAST CALL FOR DUES

If you have not renewed your MBGS dues for the 2005 season, please take the time to return the information below with your dues. **If your e-mail or postal label indicates 2004, then you have not paid your 2005 dues. If you believe there is an error in our records please contact Tom Wellman at 517-241-1530. This is the last notice.**

Michigan Basin Geological Society Dues Notice

Please fill out this form when paying your dues for 2004-2005. Dues are \$25.00 for active member and \$10.00 for students.

Name _____

Address _____

Phone _____

E-Mail _____

Amount enclosed _____

Send Newsletter by e-mail _____ or Mail _____ @ address above

Make check payable to: MBGS

Send to: Tom Hoane
1748 Danby Lane SE
Grand Rapids, MI 49506

LICENSING GEOLOGISTS IN MICHIGAN

As you may know, a bill was introduced June 30, 2004, into the Michigan House to license Professional Geologists. You may view the **current** entire text of that bill by going to the following website.

<http://www.michiganlegislature.org/documents/2003-2004/billintroduced/house/pdf/2004-HIB-6063.pdf>

NEW PUBLICATIONS

Mineralogy of Michigan, update and revised by George W. Robinson.

This is a major revision of this important reference. Now in an 8.5" by 11" format with over one hundred full color illustrations of minerals found in Michigan. To order, contact Ms. Sharon Carter, Office of Geological Survey, DEQ, 525 W. Allegan Lansing, MI 48909-7756. Or call 517-241-1520 or email at carters1@michigan.gov

Price \$ 45.00 (plus shipping)

MBGS Meeting

December 15, 2004 (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/member \$15.00 Student (includes dinner)

Topic: “The View From Below: Using Dike-Wallrock Interactions to Estimate Eruption Rates of the Columbia River Flood Basalts”

By
Dr. Heather L. Petcovic

MBGS Dinner Meeting Reservation

Name_____

Number attending _____ Society_____

Enclosed Registration Fee _____

Please make checks payable to **MBGS** and return to Pat Poli by **December 6, 2004**. 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

Price Includes 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
c/o Dept. of Geological Sciences
206 Natural Sciences Building
Michigan State University
East Lansing, Michigan 48824-1115

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.

The View from Below: Using Dike-Wallrock Interactions to Estimate Eruption Rates of the Columbia River Flood Basalts

Heather L. Petcovic

Abstract: During the mid-Miocene, vast amounts of basaltic lava were erupted from fissures and vents in eastern Washington, northeastern Oregon, and western Idaho. These flows make up the Columbia River Basalt Group (CRBG), which is currently recognized as the earth's youngest and smallest large igneous province. The CRBG also includes some of the earth's largest individual lava flows, many of which exceed 2,500 km³ in volume and traveled over 750 km from their sources. Feeder dikes to many of these large-volume flows are exposed in the Wallowa Mountains of northeastern Oregon. Most dikes are chilled against their wallrock; however, rare dikes caused their wallrock to undergo partial melting. Wallrock melting reactions record the thermal history of basalt flowing through the dike and, consequently, can be used to determine surface eruption history. Partially melted wallrock adjacent to a feeder dike of the large-volume Wapshilla Ridge flow was examined in detail. Results of thermal modeling constrained by this field example suggest that basalt flowed through this dike for 3-4 years. This dike likely represents an upper-crustal (~2 km paleodepth) exposure of a long-lived point source in the CRBG, possibly analogous to the central vent phase of a Hawaiian-style eruption. Based on the thermal modeling results, eruption rates for the Wapshilla Ridge flow ranged from 3.4 to 4.6 km³/day, about 10 times greater than the largest historical basalt eruption and 1,000 times greater than the ongoing eruption at Kilauea volcano. Atmospheric loading of CO₂ during this and other CRBG eruptions may have led to the Neogene global cooling event.

Biography: Dr. Petcovic discovered geology as an undergraduate at Smith College (Northampton, Massachusetts), graduating in 1995. Her undergraduate honors thesis research led her to the Oregon Cascades, where she mapped and analyzed Quaternary lava flows near Mt. McLoughlan and Crater Lake. After graduation, she was an intern with the USGS Water Resources Division in Boston, Massachusetts, and worked briefly in environmental consulting. She returned to the Pacific Northwest for graduate work at Oregon State University (Corvallis, Oregon), where she earned her M.S. in 2000 and her Ph.D. in June, 2004. While engaged in her dissertation research on the flood basalts, she also was awarded an NSF GK-12 Teaching Fellowship and spent a year working with an urban 6th grade classroom. Since this time, she has worked with Oregon State University's outreach efforts to urban public school teachers and students. She joined the faculty at Western Michigan University in August, 2004 with a joint appointment in the Geosciences Department and the Mallinson Institute for Science Education. Her research currently involves the preparation of Earth Science teachers, and aspects of teaching and learning geology.

Michigan Chapter American Institute of Professional Geologists

Michael Johnston

Michigan Manufactures perspective on current and pending environmental regulation in Michigan

Location: Sheraton Lansing Hotel, 925 Creyts Road, Lansing, 48917. Directions: On I-496 to Creyts Road (exit #1). Turn north on Creyts Road; turn right (east) at first light(Anacapri Blvd.) The Sheraton is the second drive on the right). .

Cost: Students \$ 25.00, Members \$ 35.00, Non-members \$ 40.00

Dinner: Buffet

Contact Scott Cesarz at (248) 596-1170 or cesarzs@superioreenvironmental.com with reservations no later than December 3, 2004

Mr. Michael Johnston, the director of regulatory affairs for the Michigan Manufacturers Association (MMA). As director of regulatory affairs for MMA, Johnston is responsible for advocacy to state regulatory agencies and the legislature in the areas of air and water quality, solid and hazardous waste, wetlands, economic growth issues and electric industry restructuring. In addition to testifying on behalf of the manufacturing industry, Johnston leads several MMA member policy committees, including the MMA Air Quality, Water Quality and Environmental Quality Advisory Committees.

Johnston has extensive experience in state government and the legislative process. He served as director of Republican Programs and Research in the Michigan House of Representatives under both Speaker Paul

Hillegonds and Republican Leader Ken Sikkema. Johnston started his work in the legislature in 1991, on the Programs and Research staff, as a policy advisor to the Business and Finance Committee. Among several other committee assignments, he served as lead staff person on the re-write of Michigan's Air Act. Prior to that post, Johnston served in the Michigan Department of Commerce and worked as an environmental ombudsman in the Office of the Michigan Business Ombudsman. He joined MMA in 1999.

Johnston holds a bachelor's degree in philosophy from the University of Michigan.