



THE OHIO GEOLOGICAL SOCIETY



The Newsletter of the Ohio Geological Society

May 2008

An Affiliate (1963) of the American Association of Petroleum Geologists (AAPG)

2007-2008 Officers

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SPRING + GEOLOGY + COOKOUT = GOOD TIMES!

Since spring is finally here, and because John Miller is such a nice guy, our **May 15th meeting at the Horace Collins Laboratory will include a cookout for lunch!** Ron Riley has arranged a very interesting talk for the Society on the Tuscarawas stratigraphic test well that was drilled by the Ohio Geological Survey at the end of last summer. Details of his talk can be found in this newsletter. Also, Greg Schumacher has arranged a tour of the core warehouse for anyone who is interested after Ron's talk, and he will also have some various core sections laid out.

Horace R. Collins Laboratory

The Ohio Department of Natural Resources (ODNR), Division of Geological Survey maintains a 38, 100 ft² research laboratory located at Alum Creek State Park in Delaware County, Ohio. The Horace R. Collins Laboratory, dedicated in 1999, was constructed to house the ODGS core and sample holdings and to provide citizens, industry personnel, and researchers an environment conducive for the study of these holdings. To date, the HRC houses approximately 300,000 feet of core, oil and gas well samples from nearly 5,000 wells, duplicate sets of oil and gas well samples from nearly 1,200 wells, strip logs of samples taken from over 900 oil and gas wells, a large collection of Holocene and Pleistocene sediments, earthquake records dating from the early 1900's, and ODGS publications. (Taken from text of *Core Locations in Ohio and Adjacent States*, Schumacher et al.)

Jeff Spencer's Ohio Oil and Gas presentation was very well received by all who attended. His interest in Ohio's rich oil history was truly apparent in the effort that was put forth to publish his book, and he was very grateful for all of the help that he received gathering images for it. If anyone is interested in buying a copy of Ohio Oil and Gas, the Geological Survey will be selling copies for \$20.

In other news, the golf outing date has been set for September 18th, 2008!

Chris Gordon



THE OHIO GEOLOGICAL SOCIETY

Thursday, May 15th

Talk at 12:00 P.M., lunch will be provided

Horace R. Collins Laboratory
3307 South Old State Road
Delaware, OH 43015

Please RSVP to Chris Gordon at
chris.gordon@dnr.state.oh.us or 614-265-6594

Ohio Geological Survey CO₂ No. 1 Well in Tuscarawas County, Ohio

Ron Riley, Ohio Division of Geological Survey, Columbus, OH 43229

Drilling, coring, logging, and injectivity testing of the Ohio Department of Natural Resources, Division of Geological Survey CO₂ No. 1 Well in Tuscarawas County was completed in August 2007. The well was drilled to a total depth of 8,695 feet in Precambrian crystalline rock. This joint project between the Ohio Geological Survey and Battelle Memorial Institute was accomplished with funding from the state's general revenue fund and the Ohio Coal Development Office clean coal research funds. The stratigraphic test was conducted to provide additional data for evaluation of the CO₂ injectivity and storage capacity of potential reservoirs and the effectiveness of their potential confining units.

Primary reservoirs for evaluation of CO₂ sequestration are the Cambrian basal sandstone and the Rose Run sandstone. Preliminary log analyses from this well indicate that the basal Cambrian sandstone contains 56 feet of net sandstone (greater than 6 percent porosity) with an average porosity of 10 percent. The Rose Run sandstone has 24 feet of net sandstone with an average porosity of 9.0 percent (13.5 percent maximum). Core analyses on 82 sidewall cores include porosity and permeability, geochemistry, thin section petrography, SEM, X-Ray diffraction, and rock mechanics. Slug and constant-pressure injectivity testing was conducted for two zones within the Cambrian basal sandstone and three zones within the Rose Run sandstone.

Following completion of the injection testing, the well was transferred to the operators who own the oil and gas rights to the site. Significant gas shows were encountered during drilling through the lower Black River and Beekmantown units. The upper Beekmantown dolomite was perforated between the depths of 7,229 and 7,242 feet, and after acidizing had an initial open flow of 12 barrels of oil (BO) and 1.2 million cubic feet of gas (MMcfcg). The well was put into production in September 2007, and produced 1,327 BO and 19 MMCFG during the first 3 months of production.



THE OHIO GEOLOGICAL SOCIETY

Official Ballot

2008-2009 Officer Slate

<u>Position</u>	<u>Nominated</u>	<u>Write-In</u>
President	Chris Gordon	_____
Vice President	Steve Zody	_____
Secretary	Amy Lang	_____
Treasurer	John Miller	_____
Trustee 2008-2012	Frank Majchszak	_____

Vote (circle) for not more than one in each position.

Please return ballot by May 29th to:

**Ohio Geological Society
P.O. Box 14304
Columbus, OH 43214**

**PTTC Workshop
June 10, 2008
NRCCE Building, Morgantown, WV**

“Structural Principles and Trap Geometries in the Northern Appalachians”

**Presented by R.A. Nelson
Broken N Consulting, Inc.
Cat Spring, TX**

SUMMARY: This one-day workshop will focus on deformational geometries present in the northern Appalachians. Presentations will address the following;

- 1) Rift-related extensional tectonics related to early Paleozoic and Triassic rift events,
- 2) Thrusting-related compressional tectonics that occurred through the Paleozoic,
- 3) Interaction between extensional and compressional deformational phases leading to structural inversion and thrust structural localization,
- 4) Effect of structural events on subsequent sedimentary facies patterns,
- 5) Resulting structural trap geometries in the region.

Examples will be drawn from the Appalachians, Western US, Africa, the North Sea, and Canada. The presenter will utilize a combination of outcrop, seismic, and physical and numerical modeling approaches to characterize the structural geometries that have been and can be drilled in the region.

Attendees should come away from the workshop with an understanding of regional tectonic timing and stress orientations, and how to best interpret the details of local subtleties of trap geometry for exploration and development.

INSTRUCTOR: Dr. Ronald A. Nelson has worked on structural geology in exploration and development for over 32 years with Amoco, BP Amoco and now Broken N Consulting, Inc. He has taught numerous courses for the AAPG, SEG, SPWLA and NExT, and has authored numerous publications on the subject. He has lectured on the subjects of structural geology and fractured reservoirs to Geological Societies, Universities, and National Oil Companies in over 20 countries and has been an AAPG Distinguished Lecturer twice and an SPE Distinguished Author. He has served as President of the Houston Geological Society and Vice President of the AAPG and as a proposal review panelist for the Dept. of Energy and the Petroleum Research Fund.

DIRECTIONS: The easiest access to NRCCE is from the Star City/WVU exit off I-79 north of the I-68 interchange. Turn right off the ramp if coming from the south, left if coming from the north. Follow the signs for U.S. 19 south/ Rt. 7 East (Monongahela Blvd./Jerry West Blvd.). Go through 4 lights (the 4th is at the Coliseum). At the 5th light, turn left onto Evansdale Drive. The Creative Arts Center will be on your left. A map of WVU's Evansdale Campus is attached and should help you find your way to the NRCCE building once you turn into the campus.

HOTELS: For workshop attendees who may wish to stay in Morgantown, the following is a list of hotels convenient to NRCCE. The first two are right off Monongahela Blvd./Jerry West Blvd. Directions to the hotels are given from the I-79 Star City exit:

Best Western – 800-528-1234 (turn left at the third traffic light from the Interstate, hotel is immediately on the right) 366 Boyers Ave.

Quality Inn - 599-1680 (hotel is just before the WVU Coliseum on the right after the third traffic light) 1400 Saratoga Ave.
Hampton Inn - 599-1200 (turn left at the 4th traffic light on Monongahela Blvd onto Patteson Drive; hotel on left immediately after the 3rd light; 1053 VanVoorhis Rd.
Euro-Suites - 598-1000 (continue past Hampton Inn to the next light and turn right; the hotel is immediately on the left) 501 Chestnut Ridge Rd./Milan Puskar Blvd.

PARKING:

The following are suggestions for parking while attending the workshop:

Paid Parking is available in the short-term pay lot next to the WVU Greenhouse (see map; parking area #1). Rate is \$1.00 per hour and the machine does not give change. It accepts only \$1 bills and coins, so attendees need to arrive with at least 8 \$1 bills in their possession. Attendees should arrive early to use this option.

Free Parking is available in the WVU Coliseum parking lots (see map). Attendees may park at the Coliseum and ride the free university shuttle bus to the Mineral and Energy Resources Building and from there walk (5 minutes) over to NRCCE. Attendees also may choose to walk directly from the Coliseum parking lot to NRCCE. Attendees who choose one of these options should allow an extra 20 minutes to park, catch a bus/walk to NRCCE. Buses depart from the Coliseum Blue Gate every 10 minutes from 7:30 a.m. until 5:00 p.m., and every 15 minutes from 5:00 pm until 10:00 pm.

Access to the NRCCE Building is through the front (first floor) entrance for those who park at the Coliseum and take the short walk from the drop off point, or through the rear (ground floor) entrance for those who park in the pay lot next to the Greenhouse and walk to the NRCCE building. The workshop room will be immediately on the left as one enters the front entrance to the building.

NAME: _____

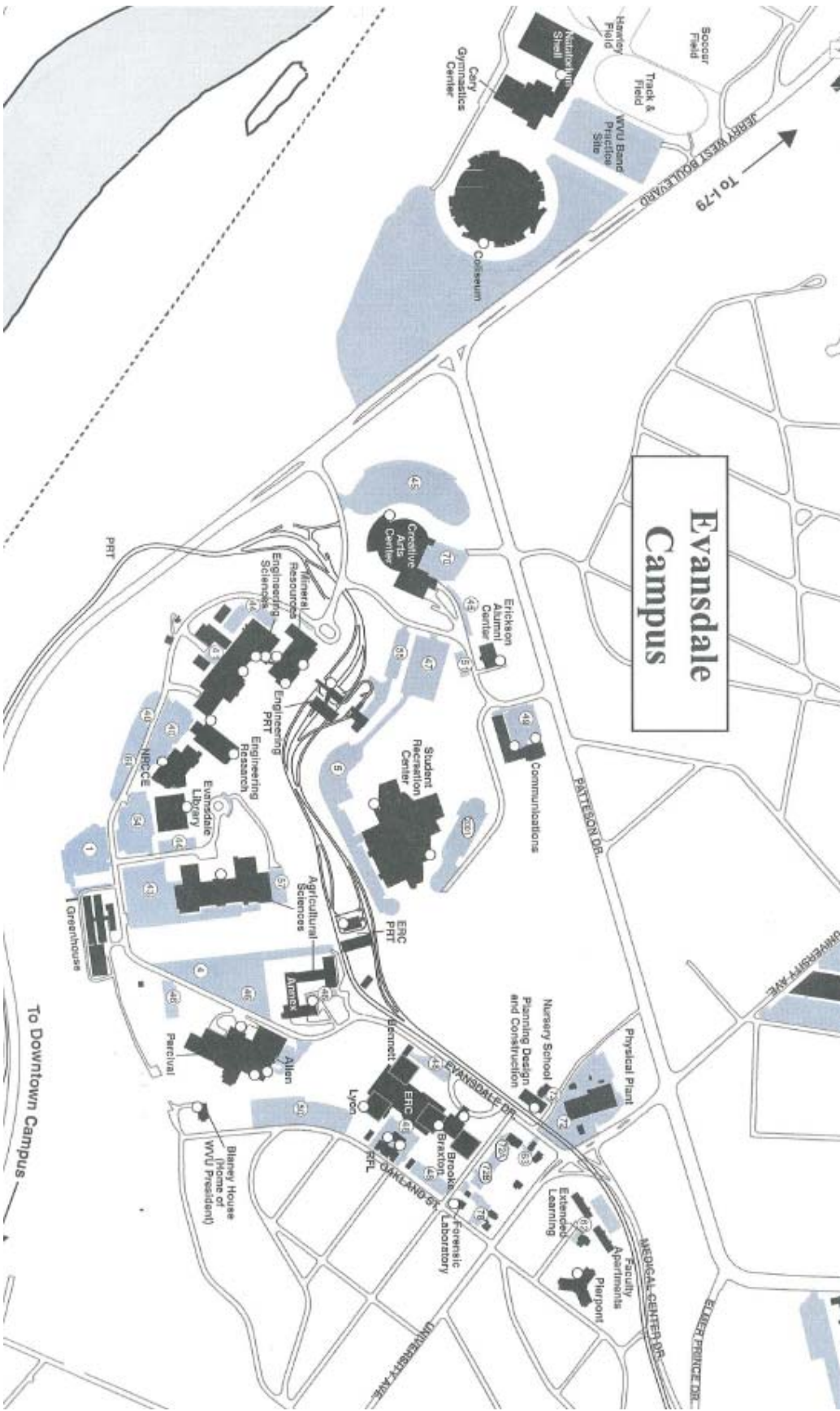
COMPANY: _____

ADDRESS: _____

CITY: _____ STATE: ____ ZIP CODE: _____

E-MAIL: _____

The registration fee for this workshop is \$125. This fee covers the entire workshop, continental breakfast, morning and afternoon breaks and lunch. Please make checks payable to “West Virginia University” and return with this form by June 3, 2008 to: Douglas Patchen, P.O. Box 6064, Morgantown, WV 26506-6064.



Evansdale Campus

To I-79
Jerry West Boulevard

Patterson Dr.

University Ave.
Oakland Dr.
Evansdale Dr.

Medical Center Dr.
Elder Prince Dr.

To Downtown Campus

PRT

Blaney House
(Home of
WJU President)

Allen
Perovai

Greenhouse

Evansdale
Library

Engineering
Research

Engineering
PRT

Engineering
Sciences

Mineral
Resources

Lyon
ERIC
Bennett

Agri
PRT

ERC
PRT

Student
Recreation
Center

Creative
Arts
Center

Erickson
Alumni
Center

Convocation
Center

Cary
Gymnastics
Center

WJU Band
Practice
Site

Track &
Field

Soccer
Field

Hockey
Field

Nursery School
Planning Design
and Construction

Physical Plant

Faculty
Apartments

Pierpont

Extended
Learning

Forensic
Laboratory

Brooke
Graxton

IFEL



Ohio Department of Natural Resources

TED STRICKLAND, GOVERNOR

SEAN D. LOGAN, DIRECTOR

Division of Geological Survey
Lawrence H. Wickstrom, *Chief*

April 16, 2008

To our valued customers:

We apologize for any inconvenience to you, but the Division of Geological Survey will be reducing customer service hours in our main sales office in Columbus. Effective May 19, 2008, the Geologic Records Center at Fountain Square will be open for walk-in customers and phone calls only during the hours of 8:00 a.m. to 11:30 a.m. and 1:00 p.m. to 4:00 p.m. Monday through Friday. Please note that customers will not be permitted to use the records center when it is closed.

The Division of Geological Survey is currently reorganizing personnel and procedures to work more effectively with a reduced level of staff. The Division is also continuing to produce more products in digital format and is making many of these products and data available through our website. Largely as a result of the availability of maps and data on the Internet, walk-in traffic has declined in the Geologic Records Center. We recognize many of our records and products are still only available over the counter and will continue to offer these walk-in hours for your convenience. We welcome your comments about this change or any of our products or services.

Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Larry Wickstrom".

Larry Wickstrom
Division Chief & State Geologist
(614) 265-6988 Direct
(614) 268-3669 Fax

**IOWA DEPARTMENT OF NATURAL RESOURCES
VACANCY ANNOUNCEMENT
JOB VACANCY NUMBER #BR4476**



**Position Title: Environmental Program Supervisor
Environmental Services Division
Iowa Geological and Water Survey**



**Salary Range: \$2,075.20 - \$3,193.60 Bi-Weekly
Location: 109 Trowbridge Hall, Iowa City, Iowa**

JOB DESCRIPTION: The Iowa Geological and Water Survey of the Department's Environmental Services Division has an opening for an Environmental Program Supervisor of the Geology and Groundwater Section. The primary job responsibilities for this position include:

Provide leadership, administration and coordination for the work of the Geology and Groundwater (GAG) Section in order to meet Department goals and objectives. Responsible for supervising and directing the activities of the GAG Section staff and determining project priorities. Work with section staff and the State Geologist to insure the appropriate distribution of work and to resolve conflicting project completion deadlines. Serve as the coordinator for GAG services within the Department. Work with other departmental staff to assess needs and communicate available geological and groundwater related services.

Ensure that personnel practices, including hiring, firing, promotions, reclassifications, leaves of absence, work schedules and assignments, performance reviews and recognition, training, staff development and exit interviews are conducted in accordance with departmental policy, contractual language and DAS/HRE processes and rules. Hear grievances at the first step; resolve work related problems, and administer other personnel related policies and procedures, including but not limited to EEO/AA, ADA, FMLA and FLSA; and approve use of sick leave and vacation. Ensure that Position Description Questionnaires (PDQ) are rewritten as needed to reflect the changing needs of the organization, competencies required and the responsibilities inherent in all positions supervised. Establish and monitor staff performance plans. Assign duties to each staff person and monitor their performance. Prepare and conduct a formal performance appraisal for each employee within the section on an annual basis. All new employees will have a six-month performance appraisal. Ensure that training is scheduled for employees in accordance with agency and individual needs, and availability of funding. Conduct regular staff meetings.

Develop annual goals and performance measures for the Section that are consistent with the Bureau's and Division's strategic plan. Incorporate those goals, means for measuring progress and mechanisms for reviewing and updating goals into the performance expectations for staff. Develop and administer the section's budget to project expenses based upon sound fiscal reasoning and utilize funding most effectively by determining staff and resource needs for current and planned projects. Authorize expenditures for equipment, travel, supplies and outside services. Ensure that expenditures are consistent with the bureau's goals and the division's strategic plan, as well as applicable rules, regulations and the Code of Iowa. Monitor expenditures against the bureau's budget throughout the year with the purpose of maintaining a balanced budget and make recommendations to bureau chief if adjustments are warranted.

Provide expertise in geological and groundwater resources. Prepare and make presentations to internal and external audiences as assigned. Work collaboratively with the State Geologist and other bureau supervisors on intra-division, inter-division or inter-department projects or studies. Provide geological and groundwater information to the general public, private industry, department staff, and other government agencies to inform them of the state's natural resources, the potential for development, and the best way to utilize them.

ABILITIES AND SKILLS: Ability to read and comprehend policies, rules, laws, and technical information related to geology, groundwater, water resources, and Geographical Information Systems. Ability to use computers and basic computer software products for the purposes of data management, performing analytical functions, and generating reports, tables, and charts. Ability to use computers and advanced computer software products for GAG related projects, mapping, and data analysis, as well as for budget preparation, monitoring, and review. Ability to write grant applications for the purpose of securing grants for GAG projects.

Broad knowledge base of DNR programs, policies, operational abilities and regulatory requirements; ability to communicate effectively verbally and in writing with constituents, legislators, Governor's staff, DNR staff, management personnel and other state and federal agencies; ability to work independently with consistent results and minimal supervision; ability to analyze organizational and operational problems and develop timely and economical solutions; ability to plan, organize, and effectively supervise the work of technical staff; knowledge of the principles, techniques and trends of public administration, including financial management, labor relations and other resource management; ability to establish program objectives or performance goals and assess progress toward their achievement; ability to read and interpret complex federal and state laws, rules and regulations; capacity to adjust to change, work pressures or difficult situations without undue stress; must demonstrate initiative, a customer service and team orientation and display high standards of ethical conduct; position is a full-time position and as such, requires regular attendance. Ability to travel with some overnight stays.

EDUCATION, EXPERIENCE AND SPECIAL REQUIREMENTS: Applicants must meet the minimum requirements for an Environmental Program Supervisor based on education, experience and special requirements, or an acceptable combination thereof, as established by the Department of Administrative Services. Applicants with a bachelor's degree in geology or a closely related geoscience field are preferred. Applicants must also qualify for the DAS Selective Certification: #242 Geology, which requires one year of experience, twenty-four semester hours, or a combination of both, practicing geosciences, in areas which can include identification, interpretation and logging of geologic materials, hydrogeology, geologic field work or geologic mapping.

HOW TO APPLY:

Step 1: Interested applicants must submit a State of Iowa application form for this position by the close of business on **May 14, 2008**. Application forms are available from the Iowa Department of Administrative Services' (DAS) web page at www.das.hre.iowa.gov, from any Workforce Development Center, or at the DAS-HRE office in Des Moines. Completed applications must be submitted through the DAS web page or faxed to DAS at 515-281-7970. You must include the job title and job vacancy number on all applications.

Step 2: In addition, in order to be considered for this position,

- A. You must upload a copy of your cover letter, resume and three business references to DAS during the application process.

OR

- B. Email a copy of the materials to dnr.hiringcoordinator@dnr.iowa.gov or send a hard copy of the requested materials to: DNR Hiring Coordinator, **BR4476**, Iowa Department of Natural Resources, 502 E. 9th St., Des Moines, IA 50319-0034. The requested materials must be received no later than 48 hours (excluding weekends and State holidays) after the closing date. Please be precise when outlining your experience as related to the position and any selective(s) noted. Failure to follow these instructions will disqualify you from consideration for this position. For more information about this position, contact Tim Hall at 515-281-8169 or tim.hall@dnr.iowa.gov.

Welcome New Member!

Jeff Spencer

Black Pool Energy

Houston, TX



School of
Earth Sciences



www.earthsciences.osu.edu

All seminars are at 4pm in Mendenhall Laboratory Room 100 unless otherwise noted

- | | | |
|------------|--|---|
| 2008-05-01 | <u>Dr. James E. Hansen</u>
NASA Goddard Institute for Space Studies and Columbia University
Hosted by Dr. Garry McKenzie | BOWNOCKER LECTURE (4PM) How Sensitive is the Earth's Climate? Uh, oh |
| 2008-05-01 | <u>Dr. James E. Hansen</u>
NASA Goddard Institute for Space Studies and Columbia University
Hosted by Dr. Garry McKenzie | BOWNOCKER LECTURE (8PM) Climate Tipping Points: The Threat to the Planet |
| 2008-05-08 | <u>Dr. Phil Meyers</u>
University of Michigan
Hosted by Dr. Larry Krissek | Joint Oceanographic Institute Distinguished Lecture Speaker
"Cretaceous Black Shales, Mediterranean Sapropels, and Greenhouse Climate" |
| 2008-05-15 | <u>Dr. Tim Grove</u>
Massachusetts Institute of Technology (MIT)
Hosted by Dr. Lindsay Schoenbohm | Igneous Petrology |
| 2008-05-29 | <u>Dr. Justin Reiss</u>
Woods Hole Oceanographic Institution (WHOI)
Hosted by Dr. Matt Saltzman | Research Area: carbonates in paleo-oceans |

CALENDAR

Information available for OGS meetings at: www.ohgeosoc.org or contact Chris Gordon at Chris.Gordon@dnr.state.oh.us, 614-265-6594.

- May 7 AIPG Meeting – “*Discovering the Mysterious Trilobite*” – Tom Johnson. Amber Rose, Dayton, OH. RSVP to Matt Justice, 937-285-6040.
- May 10 OAS – State Science Day. The Ohio State University, Columbus, OH. Judging info. – contact John Forman at jforman@att.net or 614-939-2392.
- May 15 **OGS Meeting** – “Ohio Geological Survey CO₂ No. 1 Well in Tuscarawas County, Ohio” – Ron Riley. Horace R. Collins Laboratory, Delaware, OH.
- May 29 PTTC Regional Workshop – “Drilling and Completion In the Shales of Appalachia”, Salt Fork Resort, Cambridge, OH.
<http://karl.nrcce.wvu.edu/workshops.html>
- June 10 PTTC Regional Workshop – “Structural Principles and Trap Geometries in the Northern Appalachians”, Morgantown, WV.
<http://karl.nrcce.wvu.edu/workshops.html>

Check the OGS website at www.ohgeosoc.org/otherevents.html or the PTTC website at <http://karl.nrcce.wvu.edu/calendar.htm> for other meetings and events.

Ohio Geological Society
P.O. Box 14304 • Columbus, OH 43214
<http://www.ohgeosoc.org/>

Ohio Geological Society Publications

The in-print publications of the Ohio Geological Society may be purchased from the Ohio Division of Geological Survey. Members of the Society receive a discount; the member price is in parentheses (M:). For more information on the Society, write the Ohio Geological Society, P.O. Box 14304, Columbus, OH 43214.

- OGS 1. Guidebook to the Middle Devonian rocks of north-central Ohio**, by A. Janssens. 30 p., 1970. \$2.50. (M: \$2.00).
- OGS 2. Geology of Silurian rocks, northwestern Ohio**, by C. F. Kahle and J. C. Floyd. Guidebook for First Annual Meeting, Eastern Section, American Association of Petroleum Geologists. 91 p., 1970. Out of print.
- OGS 3. Seminar on industrial self-help programs for natural gas supplies**, edited by Arie Janssens. 55 p., 15 figs., 1 table, 1977. \$3.50 (M: \$3.00).
- OGS 4. Clinton sandstone papers presented at the Ohio Oil and Gas Association Winter Meetings 1961 to 1978** (abridged reprint of 1980 volume). 228 p., 1985. \$25.00 (M: \$20.00).
- OGS 5. The new Clinton collection--1985**, edited by Jack Gray, Andy Maslowski, Warren McCullough, and W. E. Shafer (2nd printing). This edition includes a transcript of "Deeper Clinton-Medina drilling in southeastern Ohio" from a March 1986 Ohio Geological Society meeting. 257 p., 1985. \$25.00 (M: \$20.00).
- OGS 6. Principles of seismic exploration**. A collection of papers from a seminar presented at the 1987 AAPG Eastern Section meeting. 1987. Out of print.
- OGS 7. Computer-aided analysis of geologic data**, edited by Lawrence H. Wickstrom. A collection of papers from a seminar presented at the 1987 AAPG Eastern Section meeting. 100 p., 1987. \$15.00 (M: \$12.00).
- OGS 8. Maps and cross sections of the Cambrian and Lower Ordovician of central Ohio**, by G. G. Shearrow. 31 p., 8 pls., 1987. \$12.00 (M: \$10.00).
- OGS 9. An update on Ohio's subsurface geology**. Proceedings from the October 1993 technical symposium held in Canton, Ohio. 11 papers, separately paged, 1993. \$25.00 (M: \$20.00).
- OGS 10. The Ohio Geological Society anthology, the Morrow County, Ohio "oil boom" 1961-1967 and the Cambro-Ordovician reservoir of central Ohio**, edited by William E. Shafer. 452 p., 1994. \$25.00 (M: \$20.00).
- OGS 11. Major natural gas plays of the Appalachian basin and surrounding areas**. Proceedings from the October 1994 technical symposium held in Canton, Ohio. 11 papers, separately paged, 1994. \$25.00 (M: \$20.00).
- OGS 12. Structural influences on oil and gas reservoirs**. Proceedings from the October 1995 technical symposium held in Canton, Ohio. 14 papers. 129 p., 1995. Out of print.
- OGS 13. Enhanced recovery--historical development and future potential in Ohio and the Appalachian Basin and Integration of geology and geophysics in exploration**. Proceedings from the October 1996 technical symposium held in Akron, Ohio. 16 papers. 209 p., 1996. \$25.00 (M: \$20.00).
- OGS 14. Ohio Geological Society Fifth Annual Technical Symposium**. Proceedings from the November 1997 technical symposium held in Akron, Ohio. 11 papers. 117 p., 1997. \$25.00 (M: \$20.00).
- OGS 15. Petroleum seismology in the digital age**. Course notes from the Ohio Geological Society's 3-D Seismic Seminar presented at the 1998 AAPG Eastern Section meeting. \$20.00 (M: \$15.00).
- OGS 16. Fossil collecting in the Silica Formation at Sylvania, Ohio**. Guidebook for the 1998 AAPG Eastern Section meeting. 16 p., 1998. \$7.00 (M: 6.00).
- OGS 17. Into the new millennium: The changing face of exploration in the Knox play**. Proceedings from the Sixth Annual Fall Symposium held in Akron, Ohio, October 1999. 16 papers. 120 p., 1999. \$25.00 (M: \$20.00).
- OGS 18. Exploration and Development of the Trenton-Black River of the Appalachian Basin**. Presentation workbook from the PTTC workshop held in Canton, Ohio, April 25, 2002. 10 papers. 2002. \$15.00 (M: \$10.00).

To order any of the Society's publications contact: The Geologic Records Center, Ohio Division of Geological Survey, 2045 Morse Road, Columbus, Ohio 43229-6693. Telephone (614) 265-6576. FAX: (614) 447-1918. E-mail: geo.survey@dnr.state.oh.us.