



Granite State Geologist

The Newsletter of the Geological Society of New Hampshire, Summer-Fall (September) 2009 Issue No.67

www.gsnhonline.org

2009-2010 GSNH Officers:

President –Jutta Hager
Hager GeoScience
Woburn, MA
hgi@hagergeoscience.com

Vice President-Council – Mike Burke
Terracon
Manchester, NH
mrburke@terracon.com

Vice President –Society - Doug Allen
Haley & Aldrich
Manchester, New Hampshire
dallen@HaleyAldrich.com

Secretary – Muriel Robinette
New England EnviroStrategies, Inc.
murielrobinette@neenvirostrategies.com

Treasurer – Jim Degan
USGS, Pembroke, NH
jrdegan@usgs.gov

Past-President – Julie Spencer
AECOM
Westford, Massachusetts
jspencer@ensr.aecom.com

Members-at-Large:

Paul Rydel
Sanborn, Head & Associates
Concord, New Hampshire
prydel@sanbornhead.com

Wayne Ives
NHDES
Concord, NH
wives@nh.des.gov

Membership:

Doug Allen
Haley & Aldrich, Inc.
Manchester, New Hampshire
dallen@HaleyAldrich.com

Website:

Rich Mehaber
webmaster@gsnhonline.org

Newsletter:

Bettina Eames
Loureiro Engineering Associates
Merrimack, New Hampshire
beeames@loureiro.com

IN THIS ISSUE:

- **Message from the President**
- **Membership Update**
- **Fall Groundwater Levels**
- **January 2010 Winter Dinner Meeting Information**
- **Corporate Sponsorship Info**
- **Student Speaking Opportunities**
- **GSNH Spaulding Fund**
- **Madison Boulder Efforts**
- **2010 GSNH Board Results**

And all Sorts of Good Stuff!

MESSAGE FROM THE PRESIDENT - Jutta Hager, GSNH 2009-2010 President

Thanks to everyone for a successful October meeting at the Red Blazer. Our official count of 76 participated in the annual election, picked up materials for Earth Science week, and had the chance to hear about research in Alaska. As an added bonus, we managed to speed up our movement through the buffet line after we were able to persuade the Red Blazer staff that it was after all possible to serve ourselves from both sides of the buffet table.

We had to move our January meeting from the Red Blazer to Alan's of Boscawen, so remember to take your vehicles off the Red Blazer "auto pilot" until April, when we'll be back in Concord. Our January speaker, Steve Arcone, an Antarctic researcher from CRREL, will leave the ice for UXOs and talk about his work at the New Boston Air Force Base near Manchester. New Hampshire Borings began our meeting sponsorship program at the October meeting, and New England EnviroStrategies, Inc. will be sponsoring the January one. We thank them both for their support. Starting next month, we are also following up on a member's suggestion to offer students a chance to showcase posters or presentations at our meetings. We'll let you know more as plans evolve. The October mineral raffle winners were: 1. Epidote donated by Bob Whitmore: Mike Burke, 2. Aragonite donated by the UNH Earth Science Department: Scott Higgins, 3. Quartz donated by the UNH Earth Science Department: Russ Wilder, and, 4. Amethyst donated by Suzanne Wall: Tania Coffin.

JANUARY 2010 DINNER MEETING SPONSOR IS NEW ENGLAND ENVIROSTRATEGIES

**New England
ENVIROSTRATEGIES, INC.**

New England EnviroStrategies, Inc., provides strategic environmental and water resources services and solutions. Thank you for your sponsorship!

GSNH SPAULDING FUND - GSNH Board

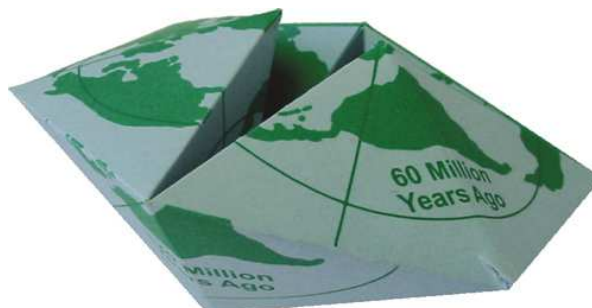
In 2001, a generous donation was made by Charles "Chuck" Spalding to the GSNH. The money was earmarked for the purpose of helping the GSNH defray the costs of a speaker of note. To date your GSNH Board has used these funds for just such purposes. Remember these great speakers? Dr. Lawrence Krissek spoke about Iceberg-Rafted Sediment in the Deep Ocean, Dr. Paul Mayewski presented his views on Climate Change and Chris Laughrey educated us about the Marcellus Shale Play in Pennsylvania. As of this writing, the Spalding Fund is in need of further donations. If you, or your company, are interested in seeing that the Spalding Fund can continue to help the GSNH in its efforts to provide speakers of this level, please consider making a tax deductible donation to the GSNH Spaulding Fund. You can make it anonymous, if you wish, or we can recognize your donation in a subsequent GSNH newsletter and at the event itself. Contact the GSNH president for information on how to donate and also receive documentation for tax purposes. Thank you.

LOOKING FOR CEUS?

The Weston Observatory Department of Geology and Geophysics, Boston College has announced its schedule for the Spring 2010 semester. The schedule is available at: http://www.bc.edu/research/westonobservatory/meta-elements/pdf/colloquium_09-10.pdf.

TECTONOCYCLE - GSNH Education and Outreach Committee

At the October 15, 2009 GSNH Dinner Meeting, your dinner table had copies of the Mineral Industries Institute (Mii @ <http://mii.org/tectonocycle.html>) Tectonocycle. The GSNH purchased these for dinner attendees, in celebration of Earth Science Week 2009. Printed on heavy paper and pre-scored, the Tectonocycle helps demonstrate the concept of Continental Drift due to Sea Floor Spreading and Plate Tectonics. Do you think your local Earth Science Teacher would find these useful, instructive and fun to use with their students? They are \$20 for a classroom set of 25. See: <http://mii.org/tectonocycle.html>. Check with your son's/daughter's/neighbor's local Earth Science teacher and see if they would



welcome a donation of a set of these...compliments of your company/employer/self. Plus such a donation is a tax deduction!

NHGS FALL GROUNDWATER LEVELS

Ground-water level measurements for June, July and August 2009 were collected by NHGS staff member Genevieve Al-Egaily.

September 21 -15, 2009: The statewide average ground-water level showed a 0.74-foot decrease from August. Decreases were seen in all wells. When compared with September 2008, the statewide average ground-water level decreased 0.07 feet. The data are available from NHGS, and are shared and posted on the USGS website approximately a month later.

October 26-30, 2009: The statewide average ground-water level showed a 0.20-foot increase from September. When compared with October 2008, the statewide average ground-water level decreased 0.23 feet. Development and sampling of the new bedrock wells has been completed for the year. The data are available from NHGS, and are shared and posted on the USGS website approximately a month later. Please let me know if you have any questions.

November 20-25, 2009: The statewide average ground-water level showed a 0.40-foot increase from October. When compared with November 2008, the statewide average ground-water level increased 0.06 feet. The average ground-water level in the new bedrock wells also showed an increase of 0.89 feet when compared with October. The data are available from NHGS, and are shared and posted on the USGS website approximately a month later.

For historical groundwater data, please go to <http://nh.water.usgs.gov/WaterData>.

GSNH and the Madison Boulder Lee Wilder, Education and Outreach Committee

You will remember that in 2006, substantial new graffiti was discovered on the Madison Boulder. As of this writing, SB 22-FN, relative to criminal mischief of property with geologic value, supported by NH State Geologist Dave Wunsch, was signed into law. As a further response to that and the “needy condition” of the Madison Boulder Natural Area, the Department of Resources and Economic Development (NH Division of Parks and Recreation), the Town of Madison, the Madison Conservation Commission (MCC) and the GSNH (in consultation with the NH Geological Survey) have exchanged Letters of Agreement re security, maintenance and improvements at the Madison Boulder geologic site. To quote parts of the GSNH Agreement: *“The types of support that the Society can periodically provide to the Town include:*

- *Volunteer labor as needed;*
- *Donations of certain materials;*
- *Assistance with fundraising activities;*
- *Development, construction, and installation of interpretive-experience trails and related exhibits and amenities such as informative signage and educational materials in consultation with the NH Geological Survey; and*
- *Publication of promotional and/or program information regarding the natural historic and geologic significance and the educational potential of the Natural Area.*

The Society will cooperate with the Town, via its Conservation Commission, to plan and arrange for the above forms of support, and it will actively participate with the Town in the preparation of the Annual Work Plan for the Natural Area as required by the Agreement. The

goal of the Society shall be to help the Town as requested and as necessary to maintain the Natural Area in a safe, visually attractive, and visitor-friendly condition at all times, and to encourage visits to the site for both recreational and educational purposes. The Society agrees to revisit this Letter of Agreement upon the expiration of the Agreement with DRED. Currently the term of that permit runs July 1, 2009-June 30, 2012.”

Discussions are now taking place to see how the GSNH can help the Town of Madison “to maintain the Natural Area in a safe, visually attractive, and visitor-friendly condition at all times, and to encourage visits to the site for both recreational and educational purposes.”

Brian Fowler, of the Madison Conservation Commission (MCC), and Erik Nelson, of the Land Division of the NH Department of Resources & Economic Development (DRED), discussing some possible maintenance and improvements on a recent visit to the Madison Boulder. This type of Agreement re NH Parks is new. We are part of a process that could work for some other geological sites in NH. As you may know, there are five Geological Natural Areas under the ownership of NH Parks and recreation. Besides the Madison Boulder (off NH Rte. 113 in Madison), there is the:

- Chesterfield Gorge Natural Area on NH Rte. 9 in Chesterfield
- Sculptured Rocks Natural Area between Routes 3A & 118 in Groton
- Bear’s Den Natural Area on NH Rte. 10 in Gilsum
- Plummer’s Ledge Natural Area off NH Rte. 25 in Warren



Visitors to some of these wonderful, unique natural sites in this state have a right to see them at their best. It is possible that such public/private/volunteer cooperative efforts may make this possible. Want to help?

Photo: Brian Fowler (right) of the MCC and Erik Nelson of DRED at a recent meeting at the Madison Boulder.

2009 EARTH SCIENCE ACTIVITIES YEAR IN REVIEW Education and Outreach Committee

Every year the American Geological Institute (AGI) hosts Earth Science Week in cooperation with sponsors as a service to the public and the geoscience community. In 2009, Earth Science Week was held from the 11th to the 17th and was designed to encourage people everywhere to explore the natural world and learn about the geosciences. “Understanding Climate,” the theme of Earth Science Week 2009, was designed to promote scientific understanding of a timely, vital topic: Earth’s climate. This year the GSNH and the NH Geological Survey to support Earth Science Week, conducted the following activities:

- The NHGS distributed nearly 50 AGI ES Week 2009 Teacher to NH Science Teachers.
- Some 75 geoscientists attended the GSNH Earth Science Week Dinner held at the Red Blazer in Concord, NH on October 15th. The evenings program featured a presentation by Seth Campbell, Research Physical Scientist of the USACE Cold

Regions Research and Engineering Laboratory, Hanover, NH who presented a topic entitled "Application of Ground Penetrating Radar and Geodetics to the Selection of an Ice Core Drill Site on the Kahiltna Glacier of Mount McKinley, Alaska.

- GSNH members Deb Kure and Lee Wilder lead the Alton, NH School 5th grade science students of Derek Pappaceno, on a Geology Field Trip in Franconia Notch State Park.
- The NHGS and the Capital Mineral Club assembled an Earth Science Week Display in the Lobby of the NH Department of Environmental Services.
- An Earth Science Week 2009 Proclamation was signed by NH Governor, John Lynch.
- The NH Science Teachers Association sponsored a science teacher Quarry Tour at the Rock of Ages Quarry, Barre, VT.
- NHGS staff Kristen Svendsen and Lee Wilder introduced elementary school students to "What does a geologist do" at the Danbury Schools, River Days 2009, held at Profile Falls, Smith River, Bristol, NH.
- The NH Science Teachers Association sponsored a science teacher Quarry Tour at the Swenson Granite Works, North State Street, Concord, NH.

Earth Science weeks in 2010 will be October 10 to 16th, in 2011 will be October 9 to 15th and in 2012 will be October 14 to 20th.

AGI RELEASES 2010 PUBLICATIONS CATALOG

The American Geological Institute (AGI) has released its 2010 Publications Catalog in PDF format on the AGI website. Provided in both printer and browser-friendly versions, this catalog details all of AGI's publications from general interest books, to resource materials, DVDs, CD-ROMs, EARTH Magazine, AGI services and more. Most of the publications and services listed in the catalog are hyperlinked to allow users to simply click on the listing and be taken directly to the AGI publications page that features that item. The catalog also highlights new items available from AGI. For the first time, EARTH Magazine T-Shirts are available for order through the AGI bookstore. The EARTH T-shirt is a high-grade, durable 100% cotton tee available in a range of sizes.

Also, the highly popular "Geoscience Handbook" is now in its 3rd printing. Slightly revised in this printing, it now has updated material such as the revised 2009 Geologic Timescale published by the Geological Society of America. The Handbook covers diverse subjects, from geophysics to geologic map symbols to GPS usage, and everything in between. To download or view the 2010 AGI Publications and Services Catalog visit the AGI homepage <http://www.agiweb.org>.

GEOLOGICAL SOCIETY OF LONDON - THE LYELL COLLECTION

To mark its 200th Anniversary in 2007, the Geological Society of London has created a completely new electronic publishing service. The Society's new online Lyell Collection - whose creation has been made possible by the generosity of our Bicentennial platinum sponsors BP and Shell - features the full content of its wholly owned journals, Special Publications and key book series. This completely new service will be available to the Earth science community worldwide, with the support of Schlumberger. [Visit the Lyell Collection at www.lyellcollection.org](http://www.lyellcollection.org).

GSNH JANUARY 2010 WINTER DINNER MEETING INFO

The GSNH winter dinner meeting will be held on January 14, 2010 at Alan's Restaurant, Boscowen, NH. The evening's speaker will be Steven A. Arcone, U.S. Army ERDC-Cold Regions Research and Engineering Lab, Hanover, NH. Steve's topic will be "*GPR Detection of UXO within Lacustrine Strata: A Site Investigation of Joe English Pond on the New Boston AFS, New Boston, NH*". Steve's Abstract for the upcoming meeting is provided below.

ABSTRACT



We have used 135-MHz GPR reflection profiles to determine the depths and distribution of possible subbottom unexploded ordnance (UXO) within a small New England lake used as a bombing range from 1942–1958. Maximum water depth was 8.6 m. The primary munitions were unarmed practice bombs, but fragments from large, live munitions led us to seek stratigraphic obliteration and distortion, which would have resulted from the shock waves. Our line profiles reveal hundreds of objects beneath the central basin, which imply thousands exist, some of which are possible UXO.

Many objects reside beneath the lake margins, as well. Metallic objects have a unique GPR signature, and we used side scan sonar to verify that many other objects are logs. The intact natural sedimentary strata suggest that live bombs were unlikely to have been used in the pond. The only stratigraphic disturbances beneath more than one meter of water are perforations, within which metallic objects originate. The more than 8 m of subbottom penetration is enigmatic because it is consistent with the high quartz and low clay content of the sediments, but it contradicts the high attenuation rates we measured for bottom samples.

2010 BOARD OF DIRECTORS ELECTION RESULTS

The election of the 2010 GSNH Board of Directors (BOD) was recently held at the Annual Dinner Meeting on October 15, 2009, at the Red Blazer Restaurant in Concord. Fifty-five (55) GSNH members voted. The winners are indicated below, along with the term they will be entering noted:

President

Jutta Hager (3rd term)

Society Vice-President

Doug Allen (1st term)

Council Vice-President

Mike Burke (3rd term)

Secretary

Muriel Robinette (1st term)

Treasurer

Jim Degnan (1st term)

Member-at-Large

Wayne Ives (1st term)

The second Member-at-Large is Paul Rydel, who is entering the second year of his current two-year term for 2010. Congratulations to the 2010 Board of Directors! Contact information for each of the BOD members is shown to the left and is also posted on the GSNH website. In addition, biographical sketches of the Board Members may be found in the September newsletter (soon to be posted on the GSNH website).

SPEAKING OPPORTUNITIES FOR COLLEGE STUDENTS

Starting with the January 2010 meeting, we're going to be trying something new. Students will be allowed to display and discuss their work at professional meetings and such. Our first volunteer is Adria Bregani, who will be presenting her NE Section GSA poster evaluating the influence of bedrock geology on the acid buffering capacities of St. Lawrence County (NY) rivers. Stop by and talk with her about her research during the social hour at our Winter Dinner meeting in January 2010. If you know of other students who might be interested in similar presentations at the April 2009 or future meeting(s), please contact one of the Board members.

CONGRATULATIONS TO PAUL RYDEL

Congratulations to Paul Rydel of Sanborn Head & Associates for his appointment as a member of the NH Board of Professional Geologists.

MEMBERSHIP UPDATE

Membership renewal forms for the 2010 calendar are include this newsletter. Please take the time to complete the renewal form to keep your membership active. Now is the opportunity to update your contact information - mailing address and email - to facilitate timely delivery of your quarterly newsletter and electronic communication, including meeting and event reminders, throughout the year. Your contact information can be updated anytime by contacting Doug Allen at dallen@haleyaldrich.com. GSNH currently has 210 active members. Please help the Society grow by encouraging colleagues to join. Additional copies of the membership application/renewal form can be found on GSNH's website membership page, <http://www.gsnh.org/membership/membership.shtml>. Thank you in advance for your ongoing participation with GSNH.

CORPORATE SPONSORSHIP FOR GSNH

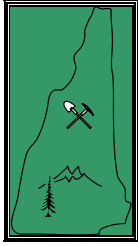
Would you like to make your company more visible to fellow GSNH members? Don't forget that we now have a corporate sponsorship program for GSNH. There are still two Dinner Meetings available for sponsorship in 2010: April and October. Corporate sponsorships for dinner meetings are available for \$250. Meeting sponsorship includes:

- The logo of the corporate sponsor on the meeting notice
- A brief write-up about the sponsoring company on the website and in the newsletter
- A link to the sponsor's website on the meeting announcement page of the GSNH website
- Introduction during the meeting, an opportunity to speak to the attendees and to provide literature for the tables

Meeting sponsorship must be made at least 6 weeks prior to the meeting date in order to be included on the meeting notice. The deadline to be a sponsor for the April meeting is March 11, 2010. The deadline for sponsorship of the October meeting will be announced in a later newsletter. Plans are underway for the 2010 Summer Field Trip and sponsorship is also available for this event. Details about the field trip are forthcoming. We will be seeking a single sponsor for the field trip at the level of \$500. Field trip sponsorship will include:

- ✓ The logo of the corporate sponsor on the field trip handouts and the notice posted on the GSNH website
- ✓ A brief write-up about the sponsoring company on the website and in the newsletter
- ✓ A link to the sponsor's website on the field trip notice page of the GSNH website
- ✓ Introduction during the field trip and an opportunity to speak to the attendees

The tentative deadline for field trip sponsorship is July 15, 2010. All requests for sponsorship must be directed to: Julie Spencer at julie.spencer@aecom.com. Payment for sponsored activities should be sent to: Geological Society of New Hampshire, PMB 133, 26 South Main Street, Concord, NH 03301



Geological Society of New Hampshire

2010 WINTER DINNER MEETING

Topic:

“GPR Detection of UXO within Lacustrine Strata: A Site Investigation of Joe English Pond on the New Boston AFS, New Boston, NH”

Speaker:

Steven A. Arcone, U.S. Army ERDC-Cold Regions Research and Engineering Lab, Hanover, NH,

Thursday, January 14th, 2010

Alan's Restaurant

Boscawen, NH

6:00 pm Social Hour, 7:00 pm Buffet Dinner, 7:45 pm Speakers

GSNH 2010 Winter Dinner Meeting, Thursday, January 14th, 2010

Advance Reservations: _____ Member (Dues Paid) @ \$22.00.

- Member at the Door or Non-Member with Reservation (\$24.00).
- Non-Member without Reservation (\$26.00).
- Students \$10.00 with valid student ID card (Reservation Requested).

Note: GSNH will also accept dinner reservations by e-mail, which will then allow you to pay at the door. Please note that e-mail reservations constitute an agreement with the Society for which you will be responsible to pay, whether you are able to attend or not, unless you cancel your reservation by noon the day before the Dinner.

Reservations will be taken until Monday, January 11, 2010! Checks payable to GSNH. **Mail to: Lee Wilder, 477 Putney Hill Road, Hopkinton, NH 03229.** Reply via e-mail to: boslwne@tds.net

Name(s): _____

Address: _____

Phone and/or Email: _____

Half the cost of the dinner may be tax-deductible as a business expense. **The lecture part of the program counts as 1.5 hours of CEU contact hour credit.**



Geological Society of New Hampshire
PMB 133, 26 South Main St.
Concord, NH 03301

Fall – Winter(December 2009) Issue No. 67