

## Friday, March 26

Bryand Global Sciences Center  
(Department of Earth Sciences and  
Climate Change Institute)

12:30 – 2:00: Student poster sessions - 2nd floor atrium

2:00 – 3:30: Student oral presentations - BGSC 100

3:30 – 4:00: Business Meeting - BGSC

4:00 - 5:00: Evening Speaker – To be announced

5:00 – 5:30: Social Hour

5:30 - 6:30: DINNER - York Commons

Daniel F. Belknap  
Dept. Geological Sciences  
University of Maine  
Orono, ME 04469-5790  
<belknap@maine.edu>

For those of you unfamiliar with the Bryand Global Sciences Center, the following are directions:

**Heading South on I-95**, take exit 51 onto Stillwater Avenue. Continue approximately 1 mile on Stillwater Avenue, cross the Stillwater River, and take a right at the light (McDonalds and Kentucky Fried Chicken) onto College Avenue. Proceed approximately 1 mile south on College Avenue past the first entrance (hocky arena), the steam plant and second entrance (Sebec Rd.) to the third entrance (Munson Road) on your left, at Public Safety. Continue as above.

## THE PRESIDENT'S MESSAGE

It was a pleasure to see everyone who participated in the fall meeting at UMF! Many thanks to John Peckenham, Richard Heath, Malcolm Burson, and Robert Gerber for their presentations during the technical session during the afternoon. I hope that the chance to bookend our technical sessions with the climate change presentations was an interesting twist to our typical fall meetings. The opportunity to bookend our technical session with presentations by Paul Mayewski (University of Maine) and William

Ruddiman (University of Virginia) was too good to pass up. While the delivery and data used by each speaker was very different, both challenged the audience to consider the tightly interlinked relationships between humans and past and present climate change. I would like to acknowledge Tom Eastler and Doug Reusch for their work in organizing the presentations by Mayewski and Ruddiman – it was a memorable event.

Hearing the connections made by GSM speakers to climate change on a more regional or local level emphasized the role that geologists will have in addressing future impacts beyond the academic community. Two of the technical talks addressed issues of water quality (Peckenham and Heath), one of the talks dealt with coastal hazards (Gerber), and one talk outlined some of the projected geologic processes impacted by climate change in Maine (Burson). As always, the opportunity for students to hear directly from professionals about current projects and practices in this state is invaluable. My students are always curious about how their degrees might be put into practice, and it's important for them to see not only that professionals are using their geologic backgrounds, but applying math, chemistry, and physics. Thanks to everyone who made the event so engaging!

We held a brief Board meeting. Of particular note, Rob Peale indicated that he would be willing to pass along the title of Treasurer. Rob has done an outstanding job meticulously keeping our records and providing context and guidance on spending to the Board. If you're interested in serving as GSM's treasurer, please contact myself or Rob.

The spring GSM meeting will be hosted by the University of Maine on Friday, March 26. In 2005, the Society decided to rotate the spring meetings between the various participating Maine colleges and universities. Dan Belknap thoughtfully included the planned schedule in the winter 2009 newsletter which can be found in the newsletter archives of the GSM website.

It's time to start planning for next summer's field trip! If you're interested in leading a trip or have a great idea for an area we haven't visited recently, please contact me. I look forward to seeing many of you in Orono.

Julia Daly, President (2009-2010)  
[dalyj@maine.edu](mailto:dalyj@maine.edu)

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## THE EDITOR'S MESSAGE:

Please send items of interest for the News from the Campuses and Member News columns, or other things you'd like to share.

Please check the date on your address label – members more than two years in arrears will be dropped from the mailing list. Send dues to Rob Peale (see address on the last page).

Dan Belknap, Newsletter Editor (1998 – present)  
<[belknap@maine.edu](mailto:belknap@maine.edu)> (207) 581-2159, FAX: -2202

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**GSM WEBSITE:** [www.gsmmaine.org](http://www.gsmmaine.org)

The GSM website is being changed to a new provider because of some serious problems with delays and responsiveness. We hope to have the website open for business by the time you get this hardcopy, if not well before.

***PLEASE CHECK THE DATE ON YOUR ADDRESS LABEL – THIS IS THE DATE TO WHICH YOUR DUES ARE PAID UP. MEMBERS MORE THAN TWO YEARS IN ARREARS WILL BE DROPPED FROM THE MAILING LIST.***

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## THE STATE GEOLOGIST'S MESSAGE

### International Trade Agreements and Ground Water Regulation

Now that the winds of the Ocean Energy Demonstration Area siting process have died down, I can turn my attention back to matters more geological in nature. In the spring of 2009, I wrote in this column of the fourteen bills before the Legislature that addressed concerns over bottled water. Of those, only one survived and was morphed into a study of the potential impact of international trade agreements on the state's ability to regulate ground water withdrawals. The Legislature directed this task to the Water Resources Planning Committee (WRPC), which I chair, and the Citizen Trade Policy Commission (CTPC). The CTPC was established by the Legislature in 2003 to provide an on-going state-level mechanism to assess the impact of international trade policies and agreements on Maine's state and local laws, business environment, and working conditions. The WRPC was established by the Legislature in 2007 to plan for sustainable use of water resources.

The WRPC and the CTPC held five joint meetings from July through December 2009 in order to explore this issue. These meetings included overviews of the alphabet soup of trade agreements – GATT, GATS, NAFTA, etc. All are intended to open up trade opportunities, and from the perspective of these agreements, local and state regulations may be viewed as barriers to trade. As part of our study, the committees received an excellent overview of Maine's ground water resources thanks to Carol White. We also reviewed Maine's current regulatory setting, and the legal doctrines governing ground water use in various states – absolute dominion, reasonable use, correlative rights, and others. As part of our work, we delved into legal briefings on water law becoming quite versed in legal jargon, such as *usufructuarial*, in the process. Fortunately Deputy Assistant Attorney General Linda Pistner was involved in the process and tutored us on the legalese. Finally, on October 15, we held a hearing to receive the public's concerns regarding trade agreements and ground water.

In the end, the interaction of trade agreements and state regulations is a very complex and dynamic issue, as trade agreements are being negotiated constantly and international arbitration tribunals resolve disputes. But a few things are very clear.

- Water in its natural state is not a commodity that is subject to international trade agreements. Bottled water, on the other hand, clearly is a commodity that is subject to these agreements.
- The best defense against challenges under international trade agreements is to adopt regulations that are clear, reasonable, have a sound basis, are applied equitably, and that are established through due process.

Articles and legal briefings by attorneys from diverse backgrounds all confirm this view. Maine's current regulatory framework for ground water withdrawals evolved over years of public debate, and focus on impacts of withdrawals on other water-dependent resources and activities, rather than discriminating against particular uses of ground water, and thus position the State well against challenges under international trade agreements.

- International trade agreements are under constant negotiation by the U.S. Trade Representative, but

with little opportunity for meaningful participation by states.

- The decisions of international arbitration tribunals are not precedential – each tribunal establishes its own basis for decisions, independent of prior decisions. But recent decisions have been very favorable to state concerns and it may be worthwhile to have the results of these decisions codified in future trade agreements.
- Finally, in our review we could not find a basis to assert that Maine's ground water resources would be better positioned to withstand challenges under international trade agreements if it were a public trust resource.

I presented these conclusions to the Legislature's Natural Resources Committee in February with recommendations for actions they might take to ensure that Maine can continue to adequately regulate ground water withdrawals in the age of global markets.

Robert G. Marvinney, Maine State Geologist:

[<Robert.G.Marvinney@maine.gov>](mailto:Robert.G.Marvinney@maine.gov)

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## GSM MEMBER NEWS

**Gary Bucklin, C.G.**, has been appointed the Director of Scientific and Environmental Consulting Services at S. W. Cole Engineering, Inc. He will coordinate services provided by the geologic, environmental and natural resources staff at the firm. Gary can be contacted the Gray office of the firm at 207-657-2866.

Please send member news to:

Carolyn Lepage, Member News Correspondent  
(1996-present) [<calepage@adelphia.net>](mailto:calepage@adelphia.net) or  
PO Box 1195, Auburn, ME 04211-1195 or  
Fax: (207)-777-1370; Phone: (207)-777-1049

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## GSM SECRETARY'S REPORT

Fall Meeting, November 5, 2009  
University of Maine, Farmington

The fall meeting was held at the University of Maine, Farmington on November 5, 2009. The meeting coincided with UMF's Climate Forum titled "Climate Change – Perspectives, Surprises and Opportunities". The forum, which was held in the Lincoln Auditorium in UMF Roberts Learning Center, featured two climate change experts:

**Dr. Paul Mayewski**, Director and Professor of the Climate Change Institute at the University of Maine in Orono. The leader of the Greenland Ice Sheet Project and more than 50 other scientific expeditions to Antarctica, the Arctic, Tibet and other remote regions, Dr. Mayewski is also the author of "The Ice Chronicles -- The Quest to Understand Global Climate Change". His talk addressed the what, why and how fast of climate change, the impact of humans, how small a change in climate is important; and what needs to be done. His talk was titled *Climate Change: Perspectives, Surprises and Opportunities*.

**Dr. William Ruddiman**, professor emeritus at the University of Virginia, and Doherty Senior Research Scientist at Lamont-Doherty Earth Observatory of Columbia University. Dr. Ruddiman's hypothesis is that human impact on climate began long before the industrial revolution. He ties human impacts on climate to the beginnings of agriculture, some 8000 years ago, due deforestation and (upsetting carbon dioxide balance) and methane generation by cultivation of rice in paddies. He raises the possibility that human populations decimated by plagues led to reforestation and declines in greenhouse gases. Dr. Ruddiman is the author of *Plows, Plagues, and Petroleum* and *Earth's Climate: Past and Future*. His talk was titled *Did Early Farming Prevent a New Ice Age? The Answer: Yes!*

Later in the evening Dr. Mayewski and Dr. Ruddiman took part in a panel discussion and took questions from the audience.

The GSM meeting also featured its own mini symposium between 1:30 and 4 pm with speakers and topics as listed below:

- *Arsenic in Drinking Water- Challenges, Problems, and Limits to Knowledge*, John M. Peckenham, Maine Water Resources Research Institute, University of Maine, Orono
- *The Geochemical Legacy of Landfills in Maine*, Richard Heath, Division of Technical Services, Bureau of Remediation and Waste Management, Maine Department of Environmental Protection
- *Planning for Maine's Climate Future: Implications for Geologists*, Malcolm Burson, Office of the Commissioner, Maine Department of Environmental Protection

- *FEMA's New Coastal Zone Flood Maps for Cumberland County*, Robert G. Gerber, P.E. & Certified Geologist, Vice President - Environmental Engineering, Sebago Technics, Inc., Westbrook, ME 04098-1339

Abstracts of some of these talks will be included on the website. A link to the PowerPoint presentations by Malcolm Burson and Richard Heath will be posted on the GSM website as well.

Following the symposium there was a social hour and dinner.

A short business meeting was conducted for the following business.

- An announcement was made that the spring meeting will be held at the University of Maine at Orono, according to the traditional rotation among the college campuses. Dan Belknap volunteered to be the contact person for UMO. Dan noted these meetings are difficult to schedule because of differing spring break and school calendar schedules. He will assemble the various school calendars and establish a date in the near future. The spring meeting will feature student research oral and poster presentations.
- Bob Marvinney presented a request for funding from the Kennebec Land Trust to support their annual lyceum, or lecture series titled "*People and Land: Natural Resources, Natural Features and Culture*". A motion was made by Dan Belknap to provide \$300 from the GSM general fund. The motion was seconded by Julia Daly, and approved by the executive board. The vote was confirmed later by email (Weddle, Daly, Belknap, Lippitt and Mixon voted for the donation; Rob Peale abstained due to his membership in KLT, no votes against).

The meeting was adjourned at 5:30 for social hour and dinner.

Submitted by Martha N. Mixon, Secretary.

[mmixon@acadiaenvironmental.com](mailto:mmixon@acadiaenvironmental.com)

## GSM TREASURER'S REPORT

The Society currently has 263 members; of which 51% are up to date with their dues. In keeping with policy, we will drop any members more than two years in arrears at the end of this calendar year. The present membership is distributed as follows:

Students: 19 Associates: 18



Regular: 219 Institutional: 7  
TOTAL: 263 Total Paid Up: 134

#### Balance On Hand September 30, 2009

Anderson Fund Savings	\$ 3,473.47
Anderson Fund CD	\$ 5,927.39
General Fund Money Market	\$ 3,408.80
General Fund Savings	\$ 525.28
General Fund CD	\$ 5,672.76
General Fund Checking	\$ 25.00
<b>Total</b>	<b>\$ 19,032.70</b>

#### Income

Dues	\$ 1,640.00
Interest	\$ 65.92
Anderson Fund Donations	\$ 57.00
Other Donations	\$ 0.00
Publication Sales	\$ 0.00
Checks never cashed	\$ 0.00
<b>Subtotal</b>	<b>\$ 1,762.92</b>

#### Expenses

Newsletters	\$ 0.00
Honoraria	\$ 0.00
Anderson Awards	\$ 0.00
Other Awards	\$ 0.00
Meeting Expenses	\$ 187.78
Donations	\$ 0.00
Postage	\$ 0.00
Web Site	\$ 0.00
Refunds	\$ 0.00
Miscellaneous	\$ 195.00
<b>Subtotal</b>	<b>\$ 382.78</b>

#### Balance On Hand September 30, 2009

Anderson Fund Savings	\$ 4,184.92
Anderson Fund CD	\$ 5,951.13
General Fund Money Market	\$ 4,026.73
General Fund Savings	\$ 526.16
General Fund CD	\$ 5,698.90
General Fund Checking	\$ 25.00
<b>Total</b>	<b>\$ 20,412.84</b>

**Net gain [or loss]** \$ 1,380.14

Respectfully submitted,  
Rob N. Peale, Treasurer (2004 -present)  
[<Rob.N.Peale@maine.gov>](mailto:Rob.N.Peale@maine.gov)

**Please note that Rob Peale has had 5 years as Treasurer and that if someone else wants the job he would be happy to give it up. He is certainly willing to continue if no one has a burning desire to add the job to their resumes.**

#### Colby College

Eight Colby geomajors participated in the GSA national meetings in Portland, Oregon, where they were either senior or co-authors on presentations. Chris Englert '10 gave a poster on his summer REU research project at the University of Delaware where he has been perfecting a computer program to evaluate marine bedforms. Andrew McCarthy '10 represented the F09 Paleontology class project focused on the fossil assemblages in new outcrops exposed in Baxter State Park, whereas Kristin Gates '10 poster examined the history of building stones on Colby's campus. Tim Becker's ('11) project was the development of a field guide to the Buchan structures in the Waterville Formation, to be used a part of our teaching curriculum. Cassi Knight '10 and Amelia Pludow '11 both presented, respectively, posters on Late Permian and Early Triassic landscapes associated with the Permian-Triassic extinction event in South Africa. Margosia Jadkowski '10 was a co-author with Bill Sullivan on stress relationships in the Cheyenne Belt suture zone. Amanda Smith '09, James Beltran '09, and Bruce Rueger's poster evaluated the trends in heavy metal concentrations in Bermuda since colonization of the archipelago. Kristen and Tim's projects were supervised by Valerie Reynolds; Andrew, Cassi, Amelia's projects were supervised by Bob Gastaldo.

Robert A. Gastaldo, Chair  
Whipple-Coddington Professor of Geology  
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GSM Summer Field Trip stop 10 – Beauchamp Pt., Rockport, ME – 08/09/09. Consensus? DFB

## NEWS FROM THE CAMPUSES

## MEMBERSHIP DUES STATEMENT

**The GEOLOGICAL SOCIETY OF MAINE, INC.** (often referred to as **GSM**) is a non-profit corporation established as an educational Society to advance the professional improvement of its members; to inform its members and others of current and planned geological programs in Maine; to encourage continuing social contact and dialog among geologists working in Maine; and to further public awareness and understanding of the geology of the State of Maine; and of the modern geological processes which affect the Maine landscape and the human environment.

The Society holds three meetings each year, in the late fall (Annual Meeting), early spring, and mid-summer (usually field trips). A newsletter, ***The Maine Geologist***, is published for all members three times a year. The Society year runs from August 1 to July 31. Annual dues and gift or fund contributions to the Society are tax deductible. There are three classes of memberships:

\$20.00	REGULAR MEMBER	Graduate geologists, or equivalent, with one year of practice in geology, or with an advanced degree.	<b>PLEASE NOTE</b>
\$20.00	INSTITUTIONAL MEMBER	Libraries, societies, agencies, businesses with interests in or practicing geology and related disciplines.	<b>NEW</b>
\$10.00	ASSOCIATE MEMBER	Any person or organization desirous of association with the Society.	<b>FEE SCHEDULE</b>
\$ 5.00	STUDENT MEMBER	Persons currently enrolled as college or university students.	<b>AS OF</b>
			<b>February, 2008</b>

### THE GEOLOGICAL SOCIETY OF MAINE ANNUAL RENEWAL / APPLICATION FOR MEMBERSHIP

Regular Member	\$20.00	\$ _____	Name _____	<b>Make checks payable to:</b> Geological Society of Maine Rob Peale, Treasurer Maine Dept. Environmental Protection, State House Station 17 Augusta, ME 04333-0017
Institutional Members	\$20.00	\$ _____		
Associate Member	\$10.00	\$ _____	Address _____	
Student Member	\$ 5.00	\$ _____		
Contributions to GSM		\$ _____		
(please write gift or fund on check)				
<b>TOTAL ENCLOSED</b>		\$ _____	_____	

Email Address \_\_\_\_\_

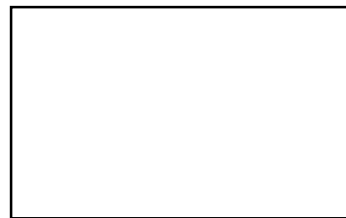
(GSM funds include the Walter Anderson Fund\_\_\_\_, the Education Fund\_\_\_\_, and discretionary gifts as noted by contributor)

**2009/2010 SOCIETY YEAR BEGAN AUGUST 1 - PLEASE SEND DUES TO TREASURER.**

**The DATE on your mailing address refers to PAID UP DUES DATE**

#### THE GEOLOGICAL SOCIETY OF MAINE

c/o Daniel F. Belknap, Newsletter Editor  
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***THE MAINE GEOLOGIST*** is the Newsletter of the Geological Society of Maine, published three times a year, in mid-winter, summer, and early fall, for members and associates.

Return Service Requested

Correspondence about **membership** in the Society, **publications** and **dues** should be mailed to:  
Rob Peale, Department of Environmental Protection  
State House Station 17, Augusta, ME 04333-0017 <rob.n.peale@maine.gov>

Items for inclusion in the **Newsletter** may be directed to:  
Daniel F. Belknap, Dept. Earth Sciences, University of Maine,  
Orono, ME 04469-5790 <belknap@maine.edu>

President	Julia Daly,	UMaine Farmington
Vice President	John Field	Field Geology Services, Farmington, ME
Secretary	Martha Mixon,	Acadia Environmental
Treasurer	Rob Peale,	Maine Dept. Environmental Protection
Newsletter Editor	Dan Belknap,	University of Maine
Directors	Lisa Churchill-Dickson (05-09)	SEA Consultants
	Tom Weddle (06-10)	Maine Geological Survey
	Cliff Lippitt, (09-13)	S.W. Cole, Inc.