

GEOLOGICAL SOCIETY OF MINNESOTA

NEWS

SPRING 2010
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WELCOME NEW MEMBERS

MaryBeth Bibeau
Sue Ann Finsick
Michael Hamlin, Jr.
Peter M. Morales & Family
Erik Rubinyi
Christopher J. Sullivan, M.D.
Noah Willhite

President's Message

The GSM continues its solid programs to educate, involve and immerse the community in Minnesota geology...and while we are at it, we are working on some new things as well.

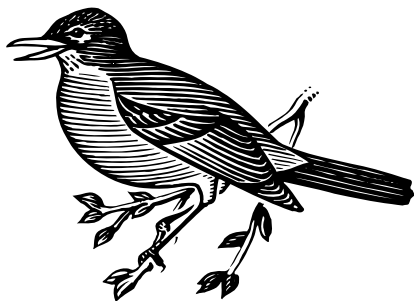
In 2009, our cornerstone activities provided many different ways to showcase Minnesota geology and reach out to the community: 16 Seminars and labs, 3 field trips, the GSM booth at the State Fair, rock boxes for teachers, the GSM Newsletter, the GSM website and the end of the year Christmas party – that's a lot of stuff in one year!

So what were the new things?

1. We have revamped our website to link it with other Geological sites, to make it more user friendly and to position our site to be the "go to site" for geology in Minnesota. There is still more to do this year to finish up, but we have a great start. Great work by Alan Smith, Ly Preece and Harvey Thorliefson.
2. We received a grant from the Minnesota Historical Society for \$30K to fund the building and erection of 9 historical markers. This was a significant undertaking with a very successful result. Great work by the team of Doug Zbikowski, Ed Steffner, Theresa Tweet and Gerry Paul. We hope to continue this work in 2010.

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EDITOR'S NOTE



Think Spring

2010 Board of Directors

Officers

Dick Bottenberg, President
Janine Atchison, Vice President
Paul Jansen, Treasurer
Bently Preece, Secretary

Other Directors

Allan Bowles
Darrell Mytty
Alan Smith
Harvey Thorliefson
Theresa Tweet

GSM NEWS

Editor: Judy Hamilton
Production Mgr: Katy Paul

Geological Society of Minnesota is a 501(c)3 nonprofit organization. The purpose of this newsletter is to inform members and friends of the activities of the Geological Society of Minnesota. GSM NEWS is published four times a year: **February 15, May 15, August 15, and November 15.** GSM NEWS welcomes unsolicited Geology and Earth Science related articles and photographs. Deadline for article submission is the first of the month, before the date of publication. Send all material for GSM NEWS to the address below.

OFFICERS:

Dick Bottenberg, *President*
Janine Atchison, *Vice President*
Paul Jansen, *Treasurer*
Ly Preece, *Secretary*

Directors in addition to the officers listed above: Allan Bowles, Darrell Mytty, Alan Smith, Harvey Thorliefson; Theresa Tweet.

Send all GSM membership dues, change of address cards, and renewals to:

GSM Membership Chair
P.O. Box 390555
Edina MN 55439-0555

Membership levels are \$10 Full-Time Students;
\$20 Individuals; \$30 Families

Upcoming Field Trip Meeting

Janet Hopper, Field Trip Chairperson, will be holding a Field Trip Meeting to plan our 2010 summer trips. All members are invited .

The meeting will be held on March 1, 2010, at 7:00 p.m. at Janet's home, 2304 - 19th Ave. N.E. Minneapolis. Please mark your calendars and call Janet at 952-922-9026 or e-mail jrhopper@comcast.net to RSVP and get directions to her house.

Bring your ideas/suggestions and THINK SPRING.

Spring Banquet

Monday, May 3, 2010, **Grand City Buffet**
9812 Highway 7, St. Louis Park
in Knollwood Village Mall
N.E Corner Interstate 169 & Hwy 7
Speaker: Greg Brick, Ph.D., U of M
Subject:

Underground Minneapolis

(President's Message Continued from Page 1)

3. Janet Hopper and Theresa Tweet led the effort as we held our first annual Recognition Banquet and Silent Auction. This was a big success with some outstanding auction bargains. Thanks to those who donated an adventure boat trip, rocks, minerals, maps and books for the auction.

Thank you to all the volunteers, committee chairs and board members who made all this happen. Special thanks goes to outgoing president Ly Preece as well as outgoing board members Sandy Steffner, Ed Steffner and Gerry Paul...it is good to know that all three will continue to be involved in supporting GSM activities. For those who want to get involved, please contact me. Contribution of your time and energy is vital to our continued success.

Finally, all are asked to welcome our four new board members: Theresa Tweet, Janine Atchison, Darrell Mytty and Allan Bowles. They will be a great addition to our team.

See you at a lecture, or on a field trip, etc.

Dick Bottenberg

Haiti Quake Occurred In Complex, Active Seismic Region

The magnitude 7.0 earthquake that triggered disastrous destruction and mounting death tolls in Haiti on Jan. 12, 2010, occurred in a highly complex tangle of tectonic faults near the intersection of the Caribbean and North American crustal plates, according to a quake expert at the Woods Hole Oceanographic Institution (WHOI) who has studied faults in the region and throughout the world. Jian Lin, a WHOI senior scientist in geology and geophysics, said that even though the quake was "large but not huge," there were three factors that made it particularly devastating: First, it was centered just 10 miles southwest of the capital city, Port au Prince; second, the quake was shallow—only about 10-15 kilometers below the land's surface; third, and more importantly, many homes and buildings in the economically poor country were not built to withstand such a force and collapsed or crumbled. All of these circumstances made the Jan. 12 earthquake a "worst-case scenario," Lin said. Preliminary estimates of the death toll ranged from thousands to

hundreds of thousands. "It should be a wake-up call for the entire Caribbean," Lin said.

The quake struck on a 50-60-km stretch of the more than 500-km-long Enriquillo-Plantain Garden Fault, which runs generally east-west through Haiti, to the Dominican Republic to the east and Jamaica to the west. It is a "strike-slip" fault, according to the U.S. Geological Survey, meaning the plates on either side of the fault line were sliding in opposite directions. In this case, the Caribbean Plate south of the fault line was sliding east and the smaller Gonave Platelet north of the fault was sliding west.

But most of the time, the earth's plates do not slide smoothly past one another. They stick in one spot for perhaps years or hundreds of years, until enough pressure builds along the fault and the landmasses suddenly jerk forward to relieve the pressure, releasing massive amounts of energy throughout the surrounding area. A similar, more familiar, scenario exists along California's San Andreas Fault.

Such seismic areas "accumulate stresses all the time," says Lin, who has extensively studied a nearby, major fault, the Septentrional Fault, which runs east-west at the northern side of the Hispaniola Island that makes up Haiti and Dominican Republic. In 1946, an 8.1 magnitude quake, more than 30 times more powerful than this year's quake, struck near the northeastern corner of the Hispaniola.

Compounding the problem, he says, is that in addition to the Caribbean and North American plates, a wide zone between the two plates is made up of a patchwork of smaller "block" plates, or "platelets"—such as the Gonave Platelet—that make it difficult to assess the forces in the region and how they interact with one another. "If you live in adjacent areas, such as the Dominican Republic, Jamaica and Puerto Rico, you are surrounded by faults."

Lin said the Haiti quake did not trigger an extreme ocean wave such as a Tsunami, partly because it was large but not huge and was centered under land rather than the sea. The geologist says that aftershocks, some of them significant, can be expected in the coming days, weeks, months, years, "even tens of years." But now that the stress has been relieved along that 50-60-km portion of the Enriquillo-Plantain Garden Fault, Lin says this particular fault patch should not experience another quake of equal or greater magnitude for perhaps 100 years.

However, the other nine-tenths of that fault and the myriad networks of faults throughout the Caribbean are, definitely, "active."

Minnesota to Participate in National Geothermal Data Compilation

Significant growth in the role that geothermal energy plays in the national energy portfolio will require reducing the risks and cost of defining resources, characterizing new classes of larger energy resources, optimizing management and expansion of exploited geothermal fields, and ensuring a path for technology growth into the future, thus providing the science and engineering basis for both conventional and enhanced geothermal systems (EGS).

US Department of Energy (DOE) funding announcements in late 2009 therefore included an indication that State Geological Surveys nationwide will receive \$17.79 million over the next three years to compile geothermal data. To arrange for the funding, the Association of American State Geologists (AASG) organized a coalition of 40 states that will populate a new National Geothermal Data System (NGDS) with relevant state-specific geothermal data.

Compiling state-specific geothermal data in an integrated, distributed, and searchable data system is expected to drive renewed efforts to identify, assess and exploit geothermal energy resources across America. This national collaboration of State and Federal agencies, universities, and industry, has the potential to reshape America's energy landscape, reduce greenhouse gas emissions, and leverage non-renewable petroleum resources well into the 21st Century.

The project team, coordinated by Arizona Geological Survey, will bring data from the State Geological Surveys into the NGDS, by digitizing at-risk legacy, geothermal-relevant data such as paper records and samples, by preparing existing digital data using standard NGDS data formats, and through collection of new data in areas lacking critical information.

Arizona is also coordinating development of data discovery, access, and exchange formats for the data system as a member of the Geothermal Data Consortium, under a previous award from DOE, building on web services architectures and capabilities developed for the Geoscience Information Network (GIN), coordinated by AASG and the US Geological Survey.

The project will enhance states' abilities to preserve and disseminate geothermal data, to facilitate geothermal resource characterization and development efforts, to expand the scope of data available to the geothermal community, and to foster new services and applications built by third-parties to take advantage of the system's capabilities and content.

As a member of the coalition, the Minnesota Geological Survey (MGS) will work in the region in cooperation with the University of Minnesota Department of Geology and Geophysics, the Duluth-based Natural Resources Research Institute (NRRI), and the University of North Dakota (UND).

The Minnesota-based work will include compilation of regional geological and drillhole data by MGS staff, while a program to collect new downhole temperature profiles will be conducted by the partner agencies. Will Gosnold of UND will provide overall coordination of the data collection, while data collection will also be coordinated by Steve Hauck of NRRI, and Martin Saar of the University of Minnesota.

The result will be Minnesota drillhole data in National Geothermal Data System format, a report on relevant geology, and a database and report on existing and new downhole temperatures across the State of Minnesota.

Submitted by: Harvey Thorleifson, Director, Minnesota Geological Survey, 2642 University Ave W, St Paul, MN 55114-1057 USA; Telephone 612-627-4780 ext 224; Fax 612-627-4778; thorleif@umn.edu

GSM Appreciation Dinner And Silent Auction

The Appreciation Pot-Luck Dinner and Silent Auction was successfully held January 23, 2010 at the Eisenhower Community Center in Hopkins. Both bidding and food tables were set up about 3:00 p.m. and participants ate at 4:30. As is always the case at a GSM function, the food was delicious and most was homemade. Our president, Dick Bottenberg, read some interesting information regarding Edward Burch, the founder of the Geological Society of Minnesota. He then read the names of folks receiving thanks for their contribution to the society. He gave hand lenses to those people, a certificate of appreciation for those who had served as president during the past 5 years, and presented outgoing president, Ly Preece, with a rock hammer.

Items to be bid on were set up on several tables as well as “cash and carry” tables. The silent auction was held from 5:45 until 6:45 p.m.. Some of the items donated were from the New Enchanted Rock Garden (Peter Orabgrande), The Minnesota Geological Survey, Mountain Press and Adventure Vacations. Members donating items were Dorothy Kuether, Mavis Daffer, Steve Erickson, Ted Chura, Marian Smith, Dick Hegland, Katy Paul and Theresa Tweet. (If anyone has been omitted, please forgive us.)

Helpers setting up included Steve Erickson, Dorothy Kuether, Dick Bottenberg, Janet Hopper, Paul Jensen, Theresa Tweet, Jerry Tweet, Mavis Daffer, Marian Smith and her granddaughter, Charlotte.

Thanks to all those who contributed their time, food and donations.

Photographs by Jerry Tweet

Information for the above article was submitted by Theresa Tweet



“A geologically related poem”

A Grain of Sand
By Robert W. Service

For look! Within my hollow hand,
While round the earth careens,
I hold a single grain of sand
And wonder what it means.
Ah! If I had the eyes to see,
And brain to understand,
I think life's mystery might be solved,
In this grain of sand.



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