Geological Society of Minnesota

Board Meeting Minutes (amended_20170227)

for meeting held 9 February 2017

Board members present: Dan Japuntich, Dave Wilhelm, Deborah Naffziger (by phone),

Dick Bottenberg, John Jensen, Ruth Jensen, Kate Clover, Mary Helen Inskeep, Theresa Tweet

Others present: Alan Smith, Becky Galkiewicz, Bill Robbins, Steve Erickson

Not present but mentioned in this report: Joe Wright, Ed Steffner, Randy Strobel, Sherry Keesey

Agenda approved.

Future board meetings:

- 18 May 2017 (changed from the usual 2nd Thursday)
- · 10 August 2017
- 9 Nov 2017

Board Status: (Dick)

- · Although we are currently at full complement of 9 members, we do not have a Secretary at this time. We could add another member to the Board to fill this vacancy.
- · Balanced distribution of term expirations so that we will have continuity as new board members come on board thru the next few years.
- · It should be noted that this is our Treasurer's (Mary Helen) last year. Members are asked to be on the lookout for someone to fill this role.
- · See attached report

Treasurer's report: (Mary Helen)

- · Short version we are in good shape financially (but read on)
- · Paid yearly insurance (required for State Fair, also covers field trips)
- · Old uncashed checked are getting cleaned up.
- · Mary Helen will be stepping down at end of 2017 because of term limits
- Working on better Treasurer transfer protocol for next Treasurer
- · We are financially ready for Minnehaha Park marker project
- Theresa proposed that we conduct a financial audit because there has not been an audit in recent memory. After discussion, Mary Helen, Theresa, and Kate volunteered to determine what the audit should be and who should conduct it. . They will recommend a course of action at the May Board meeting.
- · Noted that Sherry has two boxes of Treasurer items that need to be moved to Mary Helen. Theresa and Mary Helen will work with Sherry to transfer the boxes.

- · Mary Helen has been looking thru past financial reports and it appears that the video library fund may have more funds earmarked than we realize, will continue to investigate
- Motion by Dave to accept Treasurer's report, seconded by Deb, motion carried.

Membership Report: report at later date.

Lectures and Labs: (Steve)

- Still looking for a few more lecturers for 2017-2018. Steve plans to have the schedule set by May. Steve may have Agate speaker lined up (in progress), possibly Pluto geology.
- \cdot Dan and Theresa have been checking the doors after 7:00 PM, Dan let in over 20 people on the night of Randy Strobel's lecture.
- Attendance for first 9 lectures of 2016-2017 is 96, compared to 95 for all of 2015-2016. Randy Strobel's lecture on 06 FEB had record attendance of 145.

Status of Lecture Video Project: (Bill)

- · Bill has uploaded some test video
- \cdot We need to get someone to ask each speaker if we can video their lecture (copyright concerns) and get their Powerpoint presentation
- · Joe is looking at combining Powerpoint with lecture audio
- \cdot Deb talked to a cable company about borrowing video equipment from them. The cable company was remarkably unhelpful.

Status of new GSM web site: (Alan, Kate)

- http://gsmn.geosocmn.org
- · Alan has updated the home page, navigation and layout of the GSM site
- Board members are asked to review by end of February and send comments to Alan Kate has volunteered to work with Alan to assist with website content editing and navigation.
- · Tentative rollout on March 15
- · Rollout will be transparent to GSM members, website will automagically switch to new look
- · Repeating <u>no action required by members for new website roll out</u>

Field Trip Planning Report: (Dave)

- · Upcoming solar eclipse field trip planned for Nebraska
- · Group discussion noting that hotels are already booked
- · Bill Robbins mentioned a possibility of camping in Valentine, Nebraska on Joe Cross's property. Dave will pursue.
- Randy Strobel is planning three local field trips: Mississippi River in Stone Arch Bridge vicinity, Minnehaha Falls Park, and biking trip along both banks of the Mississippi River from Lock & Dam #1 to Stone Arch Bridge and back.
- See attached Field Trip Report

State Fair: (Dan)

- · Short version State Fair Planning in on track
- Dan brought a very nice chart showing what needs to be done to make this happen.
- · See attached report

GSM Marker Survey project: (Becky)

- Becky plans to call a Marker Committee meeting to review the status of the Marker Survey and solidify the approach to completing the survey this summer.
- · Do-it-yourself trips will be on new website
- Will have GPS co-ordinates
- · State will be divided into zones with groups of markers in each zone
- · Markers will have "Verified" and "Needs to be found" attributes on website

Minnehaha marker and replacements: (Dick)

- · Short version going well but going slowly due to unavailability of Park Board personnel.
- · Kate has consolidated and edited the text for the new big picture marker. The text is pretty much done, need to get orientation to fit into layout required by Mpls Park board
- Possible installation in May

GSM Student Outreach: (Theresa)

- · Theresa will be applying for a Chaplain residency this fall. If successful, the position will require her to work full time / irregular hours.
- · We need someone to take this position
- · Steve will contact Carlton College to determine what their needs are
- · Dick volunteered to store the rocks used to assemble rock boxes.
- · See attached report

The GiveMN site: (Theresa)

· We are on the site

Newsletter status: (Theresa)

· Newsletter will be switching to labeling these as Feb, May, Aug, and Nov issues to facilitate publishing (instead of Spring, Summer, Fall, Winter)

Video Library: (Dave)

- · Video Library is doing well, may need a 5th box!
- · Got a generous donation of 7 Great Courses videos from GSM Member Patrick Pfundstein

- · Have been getting a few video reviews, could use more,
- · To send a video review just email it to Dave
- See attached report

New PO Box Location Status: (Mary Helen)

- Have received mail at new box
- Have been using new address on correspondence
- · New address is on email and website

2017 Goals: (Dick)

- · Install new big-picture marker at Minnehaha Falls this year,
- · Will address the missing markers as ongoing project.
- Continue developing a GSM marker database and survey the markers in 2017
- · Lecture Video have first videotape of a lecture on the new website in 2017.

GSM funding for ILSG Student Travel Scholarships detail

- · Used to defray travel costs for student attendees
- GSM gets acknowledged by ILSG
- · Dave proposed \$200, Mary Helen seconded, motion passed
- \cdot Dave is contacting Pete Hollings to determine specifics of making the contribution.

MESTA (Minnesota Earth Science Teacher Association) Conference (Steve)

· Steve attended, reported intellectually stimulating conference

March for Science (https://www.marchforscience.com/) Earth Day, Saturday, April 22.

- · Suggested by GSM member Donna Rodel.
- https://www.marchforscience.com/
- · There currently are plans for two MN marches, in St. Paul and Rochester.
- · These marches are being held on Earth Day, Saturday, April 22, 2017.

Motion to close meeting by Dave, seconded by Deb, motion carried

Respectfully submitted,

John Jensen, Acting Temporary Substitute Ad-hoc Secretary

Embedded reports:

- · Board Status
- · Field trips report
- State Fair Report
- GSM Markers
- GSM Questions
- · Video Library report
- · Lecture Attendance Report

Board Status Report

Member	Start	Eligible through end of	
Deborah Naffziger	2017	2020	
Dave Wilhelm	2017	2020	
Dick Bottenberg	2016	2019	
Kate Clover	2016	2019	
Dan Japuntich	2015	2018	
John Jensen	2015	2018	
Theresa Tweet	2015*	2018	* Term began November, 2015.
Mary Helen Inskeep	2014	2017	
Ruth Jensen	2014	2017	

Field Trip Report

GSM Tours and Fields Trips in 2017

Field trip summaries back to 2011 now on the web site.

2017 Field trip info on the GSM web site as of 08-FEB-2017:

The following field trips and tours were offered by the Geological Society of Minnesota in 2017:

On Saturday afternoon, January 28, Dave Wilhelm organized a 2+ hour tour of the Wildlife Science Center in Columbus, MN. About 40 GSM members and guests participated, including some young children. The temperature hovered around 25 degrees, so the animals were fairly active to maintain body heat. The tour started with an indoor presentation about WSC and its inhabitants, followed by an outdoor tour to observe the animals up close. We saw, heard (and smelled) gray & red wolves, coyotes, foxes, a mountain lion, bobcat, porcupine, and screech owl, and got detailed explanations of their behaviors and interactions (great photos here). And we were exhilarated by choruses of wolf howls a few times during our visit. The current address of WSC is 5463 W Broadway Ave, Columbus, MN, near Carlos Avery Wildlife Area. This is about 31 miles (35 minutes) north of downtown St. Paul. The Center will be moving in March, so our event was one of the last opportunities to tour the present site. Photos from this tour are here.

The following tour is planned by the Geological Society of Minnesota in 2017:

On Saturday, 11 Feb 2017 from 10 AM until 12 noon, we will be given a tour of the American Engineering Testing Company in at 550 Cleveland Avenue North in St. Paul by Dan Vruno and Chris Tillema of AET. AET specializes in petrography (study of detailed descriptions of rocks) and making and testing cement. Among other projects, AET has been involved with the new St. Croix River Bridge (subject of Dec. 5 GSM lecture) and the Green Line Light Rail. If you have not already signed up for the tour, send e-mail to Steve Erickson at sgerickson3821@centurylink.net.

The following field trips and tours are <u>tentatively</u> planned by the Geological Society of Minnesota for 2017. This page will be updated with dates and other specifics as each event is scheduled. GSM members will also receive e-mail notices. Some of these events are just ideas at this time; we do not expect that all will actually happen in 2017. If you have particular interest in one of these trips, consider helping with the planning and organizing; contact Dave Wilhelm at <u>dewilhelm53@msn.com</u>.

Starting in winter 2017, GSM plans to arrange one or more weekday tours to the St. Anthony Falls Laboratory each semester as member interest dictates.

Randy Strobel will lead the following three separate field trips this summer:

- Walking trip of Minnehaha Falls and the nearby Mississippi River gorge,
- Walking trip of the Minneapolis riverfront at the Stone Arch Bridge, including a visit to Mill City Museum; and
- A biking trip on both sides of the Mississippi River Gorge from Lock & Dam # 1 to up to the Stone Arch Bridge and back.

These are areas that Randy described in his February 6 lecture to GSM. As dates and other details are determined, we will make them available by e-mail and web site.

A visit to **Eagle Lake Observatory**, hosted by the <u>Minnesota Astronomical Society</u>. The primary purpose of this visit would be to view Saturn as its rings are oriented to nearly their best viewing angle from Earth, but of course we would also observe other astronomical bodies. See photos from our 2016 visit to this observatory **here**.

There will be a total solar eclipse across the United States on Monday, August 21, 2017. Here are web sites that track its path:

http://www.eclipse2017.org/2017/maps.htm

http://www.eclipse2017.org/2017/path_through_the_US.htm

http://www.eclipse2017.org/xavier_redirect.htm

https://www.greatamericaneclipse.com/best-places-to-view/

GSM is planning a field trip whose primary purpose will be to view the eclipse. But since we will head many hundreds of miles south or southwest, we might as well include some geology and make a week of it. A likely destination is southern Missouri, with the Ozarks, and southern Illinois, which also has some beautiful landscapes. These are within easy car driving distance from Minnesota, with a Saturday departure. Further away would be Colorado, which of course has lots of geology and scenery. Idaho and Oregon are also possibilities, but then you'd either need to fly, or spend much longer driving there. Recently, I asked members for their interest in such a field trip. So far, over 40 persons have expressed significant interest in such a trip, so we will continue planning. If you are interested and have not yet responded, do so as soon as possible to Dave Wilhelm at dewilhelm53@msn.com, as further e-mails on this trip will be sent only to those who have indicated interest.

A trip to Theodore Roosevelt National Park in September 2017, in conjunction with an astronomy trip being planned by Minnesota Astronomical Society.

A half-week trip to museums in Chicago, including the **Field Museum** and the **Museum of Science and Industry**. We might also include a stop at <u>Indiana Dunes National Lakeshore</u>.

GSM State Fair Committee Report for February 9, 2017

Chair: Daniel Japuntich

<u>State Fair Committee:</u> Rebecca Galkiewicz, Dan Japuntich, Debra Preece, Dick Bottenberg, Edward Steffner, Ly Preece, Mary Helen Inskeep, Roger Benepe, Sandra Steffner, Theresa Tweet

Report:

- · Registration for the license for the 2017 Minnesota State Fair booth was sent in last fall, and the License Registration Confirmation Card was received in November.
- · The next step in April is the receipt of the 2017 License Agreement. At that time, the GSM will:
 - o Receive license agreement/invoice and return payment.
 - o Submit proof of liability insurance (certificate of ins. To State Fair)
 - o Submit Workers' comp. Insurance form (lime color to fair)
 - o Booth staffing recruitment note in newsletter
 - o Begin Booth staffing lecture announcements

GSM Markers -

Do-it-yourself Geology Field Trips in Minnesota

Submitted by Rebecca Galkiewicz

Minnesota has a lot to offer when it comes to scenery and geology. The GSM is not a tourist bureau, but has helped tourists and citizens understand the geologic wonders. How? By erecting 60 geological markers around the state.

The next time you take a trip to the North Shore, along the Minnesota River, the Metro Area, or anywhere else in the state, consider visiting several geology markers along the way, using "Do-it-yourself Geology Field Trips".

Here is a list of twelve suggested "Do-it-yourself Geology Field Trips", covering the entire state.

- Northwest Corner
- Brainerd-Lake Mille Lacs
- Alexandria and Big Stone
- Minnesota River Valley
- Southwest Corner
- Karst Country (Southeast Corner)
- Mississippi River Valley (from Hastings south)
- St. Croix River Valley
- Metro Area
- North Shore
- Route 35 North
- Iron Range

GSM members can provide a helpful service by reporting any marker vandalism and GPS coordinates to the GSM Marker Committee. We plan to make these DIY Geology Field Trips available to the general public through our website.

GSM Questions Report

GSM Question listing update: 7/29/2016-1/2017

Keep in mind that this list is comprised of the questions that the GSM website had received thus far, and that it does not contain all of the correspondences pertaining to each of the questions.

- 1. Classroom Presentation (Theresa Tweet wanted class presentation during December 12-20, Finals week. Lindsay said to keep her in mind for next year.)
- 2. Classroom presentation (Theresa Tweet, Michael Murphy did the presentations).
- 3. Rock Identification (Theresa Tweet invited Todd to a GSM Lecture perhaps someone there could identify it. Also, sent the Rock Shop link as another option.)
- 4. Agate Advice (Val After forwarding the pictures that were sent, Val answered and said that it was, for lack of a better word, a large piece of jasper.)
- 5. Attending Lectures (Theresa Tweet we no longer go by the time posted on the inner lecture hall clock, instead we use cell-phone time. Actually, we have just been standing out by the door for 15 minutes so that we don't miss anyone.
- 6. Winner @ Swedish GSM Fall Conference (Theresa Tweet what? Mistakenly sent email to the wrong address).
- 7. Fossil Identification 10/14/2016: (Theresa Tweet even with photos, the fossils were difficult to identify.
- 8. Fossil Identification 9/22/2016: (Theresa Tweet because Shannon asked about fossils, I asked for pictures none were given.)
- 9. Object ID Program / Science Museum 9/16/2016: (Theresa Tweet removal of the Science Museum's Identification from our webpage.)
- 10. Class presentation - 9/14/2016: , (Theresa Tweet Katy wanted a presentation during finals week maybe next year?)
- 11. Rock Identification - 8/30/2016: , (Theresa Tweet recommended our "Rock Shop" webpage in hopes that a local rock shop would be able to help with identification (?)
- 12. Stone Tool Identification - 8/21/2016: , (Theresa Tweet recommended our webpage http://gsmmn.mngeology.net/content/some-rock-and-mineral-shops-minnesota in hopes that a local rock shop would be able to help with the identification.)
- 13. Formation found while digging 8/14/2016: (Dave, asked for pictures, but when they were received, it was too difficult to say what the formation was).
- 14. USGS Map Folios to give away 8/11/2016: , (Theresa Tweet wrote back many times, so I am guessing that they are no longer available).
- 15. Presenter to compliment FOSS 8/10/2016: . (Theresa Tweet the Outreach program was not up and running yet for the year, so we were unable to fill this request).

Video Library Report

New VL members: 4 paid to Dave plus?

Rentals: 35 J

Purchases: 12 (\$81.91 + \$79.61)

Donations: Patrick Pfundstein donated 7 videos (Great Courses) to the Library.

Total Titles: 286

New reviews: ~5 by Deborah Naffziger; 2 by John Jensen

Finances: \$41 cash

\$21 for new labeling supplies taken from cash.

GSM Lecture Attendance Report

GSM Lecture Attendance

2016-2017

Summary 2016-2017 to date: 9 lectures, 864 total attendance, 96 average attendance

2017-02-06 ~145 Geology of the Mississippi River Gorge of the Twin Cities (highest attendance in a least 5 years; ~15 new persons - too many to count: GSM web site; U of M home page; U of M alumni web site; recommended by a GSM member; e-mail from St. Thomas; googled "Geology Minnesota"; flyer on campus; flyer from state fair)

2017-01-23 100 On the Hunt for Chunks of Earth's Mantle in Central Arizona: Vignettes from an Active Geoscientific Study (2 new persons -1 from web site; 1 recommended by member)

Summary Fall 2016: 7 lectures, 619 total attendance, 88 average attendance

2016-12-05 105 Bridging the Geological Features of the St. Croix River Valley (3 new persons - 2 recommended by member (me 9); 1 from web site)

2016-11-21 95 Polar Research: Geology and the Ends of the Earth: The high-resolution imagery revolution (6+ new persons - State Fair; came with friend; e-mail from PGC; one was a "fuelie" in Antarctica)

2016-11-07 96 Arizona rocks and outcrops (4 new persons - 3 from State Fair; 1 from website)

2016-10-24 87 Protecting Groundwater: Minnesota's Primary Drinking Water Source (4 new persons - from website, friend, daughter, recommendation of geologist leading Grand Canyon rafting trip (!))

- 2016-10-10 81 Shouts and Murmurs: Eavesdropping on Earth (3 new persons from website)
- 2016-09-26 62 "Thar be Fe & Mn in 'dem dar' hills!" A mining history and geology of the Cuyuna Iron Range (2 new persons 1 came with acquaintances, 1 person from state fair; same night as presidential debate)
- 2016-09-12 93 The Wondrous World of Carbonate Sands (Fall Banquet; includes 6 who did not come for lecture but were heard discussing it afterwards)

2015-2016

Summary: 15 lectures, 1428 total attendance, 95.2 average attendance (excludes lab)

- 2016-05-02 103 Have Canoe, Will Travel: Geology of the Boundary Waters Canoe Area Wilderness (Spring Banquet; ~9 new attendees State Fair, our web site, friend)
- 2016-04-18 84 Was Southern Alaska Once Part of California? How Tiny Minerals Answer Big Questions about Alaska Geology (no survey taken of new attendees)
- 2016-04-04 82 Wisconsin Wild Minerals (~1-3 new persons knows lecturer)
- 2016-03-21 129 Volcanoes and Our Past (~10-12 new persons accompanied friend, accompanied daughter, state fair, state fair pamphlet)
- 2016-03-07 83 Assessing the Influence of Copper-Nickel-Bearing Bedrock on Baseline Water Quality in Three Northeastern Minnesota Watersheds (4 new persons accompanied friend, Dept. of Health web site, U of MN events calendar)
- 2016-02-22 76 An Overview of Cu-Ni Deposits in Minnesota: A Geological Perspective (last minute substitute topic; ~3 new persons accompanied friend)
- 2015-02-20 26 LAB at Macalester: CSI Mineralogy Using Photons, Electrons and X-rays to Investigate Geologic Unknowns
- 2016-02-08 104 Iceland: a Cold Geological Hot Spot (-11 new persons -recommendations from friends and family)
- 2016-01-25 112 Where Diamonds Come from and Where They Are Going (~10 new persons -recommendation from friend, e-mail, U of M Events calendar, alumni newsletter (U of MN?), MN Mineral Society)

Summary Fall 2015: 7 lectures, 655 total attendance, 93.6 average attendance

- 2015-12-07 133 A Tour of the Solar System (-20 new persons Many of these from Minnesota Astronomical Society, to which the announcement was forwarded; recommendations from friend/spouse)
- 2015-11-23 87 A Slippery Slope: Towards Better Understanding and Prediction of At-Risk Hillsides (4 new persons recommendations from members)
- 2015-11-09 87 An 'In-Depth' Look at Oceanography (3 new persons 1 from state fair, 2 from classroom recommendation)
- 2015-10-26 104 Groundwater/Surface-Water Interactions: How Aquifer Water Balance Controls Streamflow and Lake Level (~15 new persons (!) -from state fair, from web sites, from friend recommendation, some kids with their dad, a teacher from Minneapolis South High with ~5 students)
- 2015-10-12 94 Climate Change in Our Backyards (4 new persons -1 person from state fair, 2 from class recommendation, 1 from both of these)
- 2015-09-28 85 How Geologists Work With Deep Time (3 new persons 1 couple from online, 1 person from state fair)
- 2015-09-14 65 Paleontology of the National Parks of the Colorado Plateau (Fall Banquet; 5 new persons 4 from state fair, 1 came with her dad)

2014-2015

Summary: 16 lectures, 1172 total attendance, 73.2 average attendance (excludes lab)

- 2015-05-04 92 Como Bluff, Brontosaurs, and Beyond: William Harlow Reed and the Rise of American Vertebrate Paleontology (Spring Banquet & Silent Auction; no new persons)
- 2015-04-27 70 The Geoheritage of Michigan's Keweenaw Peninsula (bonus lecture; no new persons)
- 2015-04-20 78 Oil Field Earthquakes in Oklahoma (~3 new persons classroom recommendation; GSM members from St. Cloud.)
- 2015-04-06 76 Industrial Sand Mining in Wisconsin Geology and Controversies (-6 new persons knew the speaker)

2015-03-23 recommenda	99 tion)	An Introduction to Hydraulic Fracking (-10 new persons - friend's recommendation, web site, classroom		
2015-03-09	73	Straight Talk about Folds (~8 of the regulars on NV field trip)		
2015-02-28	42	LAB at Macalester: CSI Mineralogy - Using Electrons and X-rays to Investigate Geologic Unknowns		
2015-02-23 recommenda	2015-02-23 57 Where the USGS comes from and Where it is going in Minnesota (1 new person - from friend's recommendation)			
2015-02-09 recommenda	80 tion)	North Shore Geological Mapping (~5 new persons - from friend's recommendation, internet, classroom		
2015-01-26	59	Sustainability & Mineral Stewardship (~4 new persons - from friend's recommendation, library, internet)		
2014-12-08	43	The Purpose of the Minnesota County Atlas (did not record new attendees)		
2014-11-24	85	Where the Dinosaurs Roam (8-10 new persons - from friend's recommendation, state fair, internet)		
2014-11-17 73 What Minnesota Lakes tell us about the last 10,000 Years (delayed one week due to weather; ~6 new persons - from professor's recommendation, state fair, brochure in Edina (?) library)				
2014-10-27	73	Geothermal Energy, Energy from the Earth (-5 new persons - from internet search, state fair, friend)		
2014-10-13	62	The Mount Simon Aquifer (~8 new persons - from U of M events calendar, state fair, class announcement)		
2014-09-29	62	A River Runs Through It-Understanding Himalayan Tectonics through River Systems		
2014-09-15	90	Trilobites 101 (Fall Banquet; ~10 new persons, mostly from state fair)		
2013-2014				
Summary: 14 lectures, 998 total attendance, 71.3 average attendance (excludes lab & bonus lecture)				
2014-05-05 Banquet)	75	MAPPING MINNESOTA'S PRECAMBRIAN BEDROCK: Primer, history, methods, examples, and relevance (Spring		
2014-04-21 83 Decay of Polar Ice and its Environmental Impact (~6 new persons - from U of M events calendar and from a list of environmental seminars)				
2014-04-07	72	Geology is All about Change (1 new person - from Bill's e-mail)		
2014-03-31 22 Comparison of the electrical response of dry rocks as a function of uniaxial stress (unplanned bonus seminar with only a few days notice)				
2014-03-24	77	Records of Climate Change from Caves (3 new persons - all from the U of M events calendar)		
2014-03-10 73 Tectonic Escape: an unusual mechanism to explain volcanoes, earthquakes and mountains in Turkey, and elsewhere (1 new person - from internet; had attended the February lab)				
2014-02-24 78 Subterranean Twin Cities (last minute substitution lecture; 4 new persons - referral; from U of M event calendar; 5-year returnee)				
2014-02-10 63 Remote Sensing of a Remote Place: Using high-resolution Imagery for Mapping the Poles (1 new person - saw poster at Roseville library)				
2014-02-08	64	LAB at Macalester: Paleontology Laboratory		
2014-01-27 M classes can	75 ncelled)	Dinosaurs: The Science Behind the Stories (was a "featured" U of M event; temperature around -5 to -10; U of		
2013-12-02	50	Update on the Passive Seismic Studies in Minnesota (some snow before the lecture)		
2013-11-18	77	Geology of the Lakes of the East African Rift Zones		
2013-11-04	60	The Discovery of French Saltpeter Caves in Minnesota		

2013-10-21	79	World Energy Report
2013-10-07	77	The Minnesota Mineral Collection
2013-09-23	59	Geology of the Mojave National Preserve and Death Valley, California
2012-2013		
2013-05-04		Spring Banquet and Silent Auction.
2013-04-22	45	Geology of the Lakes of the East African Rift Zone
2013-04-08	92	Planetary Geology
2013-03-25	67	Geobiology
2013-03-11	51	Reinventing the Twin Cities Army Ammunition Plant, an MPCA perspective
2013-02-25	67	The Rock Cycle and the Many Possible and ever-changing Manifestations of Matter
2013-02-11	43	Aggregate Resources of Minnesota
2013-01-28	52	The past 75 years of the Minnesota Environment
2012-11-26	76	Seeing through Mud: Using sediment cores to reconstruct history of urban lakes in the Twin Cities
2012-11-12	102	Fracking Sands of Minnesota and Wisconsin
2012-10-29	75	Geology and Late Pleistocene History of Glacier National Park, Montana
2012-10-15	84	Geology of Copper and Nickel Deposits of the Duluth Complex
2012-10-01	80	Tectonics, When a well known theory is not so well known
2012-09-17		Fall Banquet: Status of Minnesota Geological Survey Investigations