

THE CIVIL SCOOP

The Department of Civil Engineering
The University of Minnesota Duluth

VOLUME 4, ISSUE 2

APRIL 2014

INSIDE THIS ISSUE:

A Message from
the Department
Head 2

Scholarships/
Awards 5

Department News 7

Research News 9

Student
Organization
News 12

FRC Concrete Bowling Ball



UMD Civil Engineering students competed in the ACI FRC Concrete Bowling Ball Competition. Three students traveled to the convention held in Reno, Nevada in late March to compete. Pictured above L-R: Anthony Johnson, Sean Brown, Peter Demshar.

OUR MISSION

The mission of the Department of Civil Engineering at the University of Minnesota Duluth is to prepare graduates for professional practice and graduate study through a program firmly based in strong technical skills, fundamentals, hands-on learning, sustainability, and professionalism.

A Message from the Department Head

This is the second edition of *The Civil Scoop* since I became Department Head in Civil Engineering at University of Minnesota Duluth. Many good things have happened since my arrival, things which are a reflection of the great students and faculty at UMD. There have also been a few changes that have been disappointing.

Jill, the heart of the department since it was founded in 2008, has taken retirement. She is spending more time with family. We miss her friendship, great competence, and her quick smile, but we also wish her great fun with Jay, the kids, and grandkids. The last event that Jill organized was the CE Annual Career Fair, held in February while she enjoyed the beach in Florida. As it has been in the past when she organized it, it was a great time. This issue of *The Civil Scoop* will provide some details on the Career Fair. It is nice to have the industry come and talk to our students.

We have had a series of faculty honors. Dr. Carlos Carranza-Torres has been appointed one of the two Editor – in – Chiefs for Engineering Geology, an international journal. Dr. Rebecca Teasley has been privileged to travel to both Chile and New Zealand as part of her research activities. David Saftner has been invited to participate in the ASCE ExCeed Teaching Workshop this summer at West Point and was recognized with the Outstanding Faculty Advising Award for 2014. We have two new Structures faculty; you met Dr. Christiansen in the last issue of *The Civil Scoop*. This issue you will meet Dr. Rania Al-Hammoud. We are delighted that she is with us, and will introduce her in this newsletter. Excellent people make work fun.

This February, the Duluth ASCE Chapter organized and sponsored the Toothpick Bridge Competition. The CE Department hosted the event in the UMD CE high bay. It was a great opportunity for the Civil Engineering industry, and UMD CE faculty and students to interact with the students from 11 local high schools. With guests and advisors there were more than 350 in attendance at the event. There were tours given of both Civil Engineering and Mechanical Engineering. It was a great event.

In addition to the Toothpick Bridge activity, you may have seen UMD CE faculty and students in the news on a number of other occasions. There was a media coverage of two of our structures classes breaking a pair of 16' x 1'x2' beams, one standard reinforced concrete and one post tensioned beam. Dr. Mary Christiansen and Dr. Rania Al-Hammoud were interviewed regarding roof snow load and our Duluth winter. Dr. Eshan Dave was interviewed by the local news for a media spot on potholes in Duluth. The news media pointed out something we all know; we have set a new record with 71 consecutive days with temperatures at zero or below. The old record was 51 days. Dr. Nate Johnson was interviewed regarding the relationship between sulfate chemistry and wild rice. Again, it is nice to work with really exceptional individuals.

In the last issue of *The Civil Scoop*, we reported on our cardboard canoe loss to the Mechanical Engineering students at Homecoming. This semester we are convinced we will do much better in our student competitions. The ACI students are at the National Conference as I write this, and will be participating in the FRC Concrete Bowling Ball Competition. Their results will be in the newsletter. The ASCE student chapter created a concrete canoe that is a “Laker” theme. The canoe is red and black with depth markings down the side. During the two person races, both the red and black will be visible, but it will be a sleek black vessel during the 4 person events. We are looking forward to a great performance by them in the Regional Competition in Iowa City, IA.

Adrian T. Hanson, Ph.D., PE, BCEE
Department Head and Professor
Department of Civil Engineering

New Faculty



Dr. Rania Al-Hammoud
Assistant Professor in Structural Engineering

Dr. Rania Al-Hammoud joined the Swenson College of Civil Engineering at UMD in January 2014 as a faculty member. Dr. Al-Hammoud holds a Bachelor’s degree in civil engineering from the American University of Beirut, a MASc and a PhD degree also in civil engineering from the University of Waterloo, Canada. She worked as a field engineer with HILTI for five years working on several industrial and commercial projects. Dr. Al-Hammoud’s research experience is in the rehabilitation of structures, the use of advanced composites, fatigue, large-scale experimental testing and reliability analysis. She published seven refereed papers including five journal papers in the field of rehabilitation of structures. She worked as a lecturer at the University of Waterloo from Fall 2010 to Fall 2013 and has taught ten undergraduate civil engineering courses. She is a current member of American Society of Civil Engineers (ASCE), American Concrete Institute (ACI), Professional Engineers in Ontario (PEO) and Women in Engineering at the University of Waterloo.

Dr. Al-Hammoud has recently won the “Ameet and Meena Chakma award for exceptional teaching by a student” from University of Waterloo. Her students regard her as an innovative teacher who introduced new ideas to the classroom. Such ideas include using “props” to increase students’ understanding of the materials, as well as using new technology such as i-clickers. Dr. Al-Hammoud also organized a bridge-building contest into one of her courses. See blurb about the award on page 6.

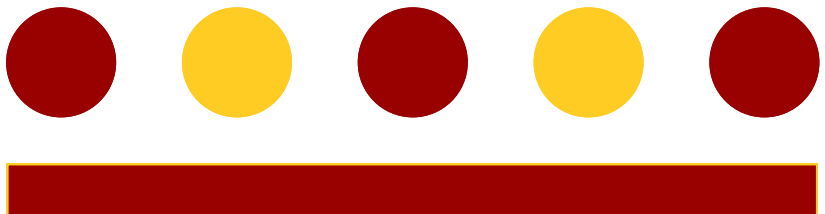
Dr. Al-Hammoud is currently helping organize a student chapter with “bridges to prosperity”. The aim will be to design and build footbridges in needy communities. This will be a great opportunity for students to learn with hands on experience. It is also a good opportunity for local companies who want to sponsor and be part of the project. If you are interested in being involved in the project, and for more information e-mail Dr. Al-Hammoud at ralhammo@d.umn.edu.



Sanna Shields
Executive Administrative Specialist

Sanna Shields joined the department on December 30, 2013 as our Executive Office and Administrative Specialist. She previously worked as the Program Assistant for the Enweyang Ojibwe Language Nest at UMD. Sanna has a Bachelor of Science degree in Child Development from NDSU and is a Master of Education candidate at UMD and expects to graduate this May.

Sanna is originally from Bemidji, MN and has lived in Duluth for 7+ years with her husband and three daughters. She makes the most of the long Duluth winter through cross country skiing and enjoys biking and family camping trips in the summer.



Students Attend the 62nd Annual Minnesota Geotechnical Engineering Conference in St. Paul



CE students and faculty at the 62nd Annual Minnesota Geotechnical Engineering conference in St. Paul.

Pictured left (L-R): Brett Carlson, Neal Smith, Nicholas Maki, Maxwell Engen, Ryan Armstrong, Michael Swartz, Heidi Olson, Andrew Lund, Aaron Mika, Neal Ramdhan, Tyler Reich, Peter Demshar, Dr. David Saftner and Dr. Carranza-Torres.

In late February of every year students and faculty of the CE program at UMD have been attending the Annual Geotechnical Engineering Conference of the Minnesota Geotechnical Society. This year was no exception and a group of students and geotechnical engineering faculty headed to the Twin Cities to participate in the 62nd annual conference of the society, which took place on Friday February 28, 2014, from 8:00 AM to 4:00 PM, in St. Paul (see photo).

Professionals from academia, consulting and contracting industry, and from government agencies presented topics covering recent advances in slope stability assessment, analytical element method for groundwater modeling, inflow rates in tunnels, transient seepage, deep foundations for slope stability, anchored earth reten-

tion, and recent case histories. The conference was well attended by more than 200 engineering professionals, including representatives of various companies that had conference booth displays at the event, and this provided an excellent opportunity for our civil engineering students to interact with participants, particularly during scheduled breakfast, lunch and refreshment breaks. Also, this year, our students were offered the opportunity to help with the organization of the event; some of our students assisted in the registration desk, while other students assisted with audio and light support during the presentations. Like every year, after the conference, attending CE students and attending faculty shared a happy hour at a grill restaurant close to the St. Paul campus of the University of Minnesota, where the conference took place.

Scholarships/Awards



Front row (L-R): Aaron Anderson, Evan Zik, Robert Learmont, Nathan Nohner, Gage Morgan, Jonathan Nevala-Plagemann, Jakob Lee, Peter Demshar, April Boehne
Back row (L-R): Ed Welch, Curtis Cammack, Richard Thomas, Darren Preiner, Randy Paul, Mitchell Nelson, Neal Smith, Edward Taylor
Not pictured: Miranda Anderson, Alison Berreth, Kyle Morberg

Nineteen Civil Engineering students received scholarships at the 25th annual University of Minnesota Duluth Engineering/Industry Banquet on October 21st, 2013. The Department of Civil Engineering extends sincere thanks to the following alumni, faculty, friends and organizations who supported our students and programs with a charitable gift. Listed below are the names of those who donated to Civil Engineering Department funds between January 1, 2012 and May 31, 2013. Thank you for your generous contributions!

Barr Engineering Co.

BendTec Inc.

Oscar J. Boldt Company

John H. Carlson

Carlos M. Carranza-Torres

Cliffs Natural Resources

Kathleen S. Croke

Raymond L. Erickson

Gary Finley

Krech Ojard & Associates

Lake Superior Consulting

LHB Inc.

Minnesota Assn. of Asphalt Paving Tech.

Minnesota Power Foundation

Noramco Engineering Corp.

SRK Consulting

Terry Swor

TKDA & Associates Inc.

Ulland Brothers, Inc.

Robert J. Wahlstrom



Faculty Awards

Dr. Rania Al-Hammoud receives Amit & Meena Chakma Award for Exceptional Teaching by a Student



Dr. Al-Hammoud was recognized for her excellence in teaching at the University of Waterloo and received the 2014 Amit & Meena Chakma Award for Exceptional Teaching by a Student. The following is a blurb written about Dr. Al-Hammoud from the University of Waterloo's website. The article can be found at <http://www.bulletin.uwaterloo.ca/2014/mar/25tu.html>.

"Rania Al-Hammoud completed her Masters of Applied Science and Doctor of Philosophy in Civil and Environmental Engineering at the University of Waterloo. From Fall 2010 to Fall 2013, Rania taught a total of ten undergraduate courses in the Civil and Environmental Engineering program including 4 different core second-year courses and 2 advanced fourth-year courses on structural systems and structural analysis. Her dedication to enhancing student learning in a range of undergraduate courses is greatly appreciated by the students. Students regard her as a "hard working, caring and intelligent instructor". A student writes, "She would not rest until we not only knew *how* but also *why*." Her extraordinary ability to teach and ensure student engagement and a deep understanding of the course material through various interactive teaching methods, in particular within large classes, has had a great influence on student learning. She recently secured a faculty position at the University of Minnesota-Duluth."

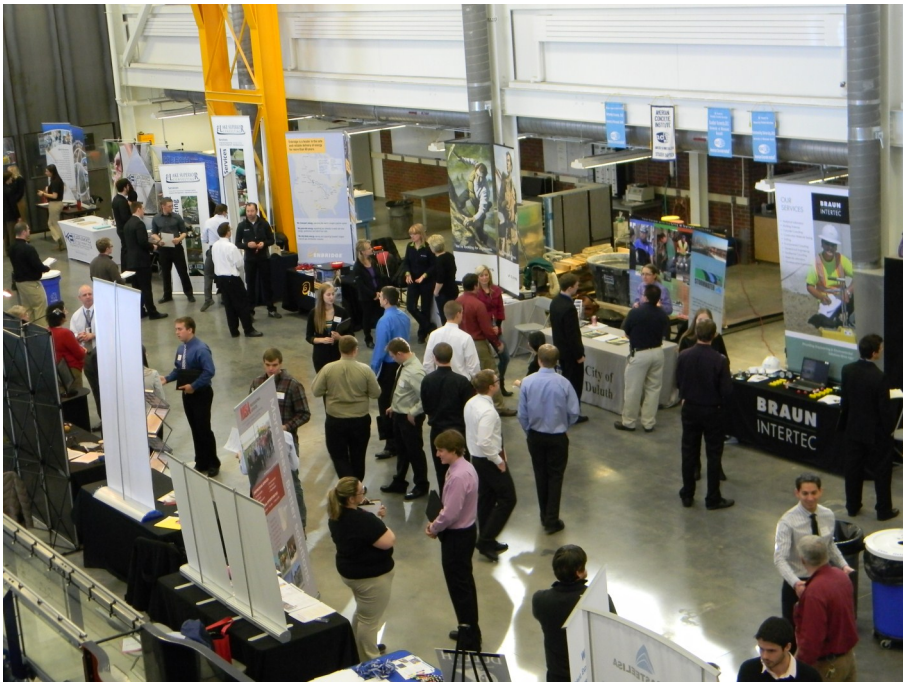
Dr. David Saftner earns Outstanding Advising Award



Dr. David Saftner has been named the 2013-14 Outstanding Faculty Adviser for the Swenson College of Science and Engineering. Outstanding Faculty Adviser Awards are given each year to faculty members who have demonstrated outstanding service to their students. Good advising is vital to the success of University of Minnesota Duluth students. It is a very nice honor to be recognized as one of the top advisors in the ranks of the 112 full time tenure track faculty in the college. The award will be presented at an all-campus reception Tuesday, May 6th at 2:30 p.m. in the Rafters.

Department News

Third Annual Civil Engineering Career Fair held February 7, 2014



Above: Students talking to a representative from Twin Ports Testing. Left: The high bay filled with students and company representatives

The Third Annual Civil Engineering Career Fair was held this February in the High Bay of the Civil Engineering Building. The career fair allows students to connect with company representatives and pursue employment opportunities. The night before the career fair, representatives can give a presentation about their company. This allows students the chance to learn more about each company and ask questions regarding day to day operations. This year, twenty one companies registered, and roughly one hundred students participated in this event. The companies who attended this year were:

Braun Intertec

City of Duluth

Cliffs Natural Resources

Enbridge

Karvako Engineering

Krech Ojard & Associates, Inc.

Lake Superior Consulting

Larson Engineering, Inc.

LHB, Inc.

Meyer Borgman Johnson

MnDOT

MSA Professional Services

Normanco Engineering Corporation

Northeast Technical Services, Inc.

Permasteelisa

Short Elliott Hendrickson, Inc.

St. Louis County

Twin Ports Testing

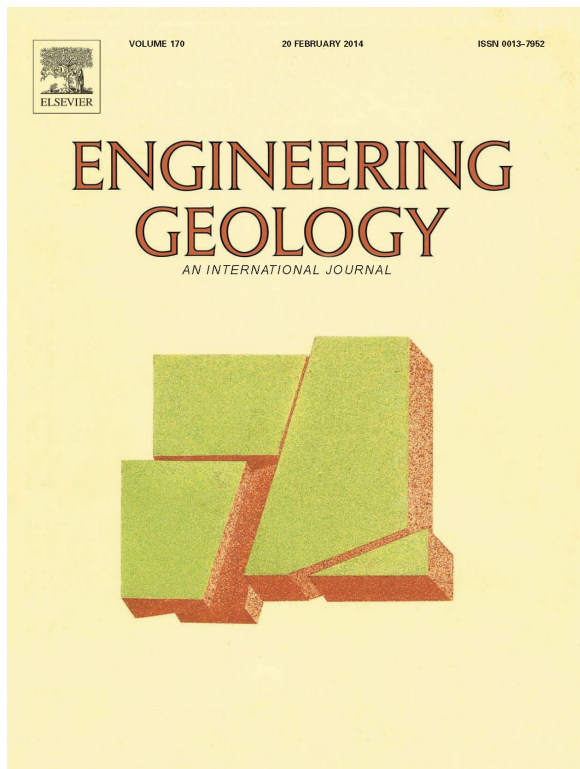
Van Sickle Allen & Associates, LLC

Western Lake Superior Sanitary District

WisDOT



Dr. Carranza-Torres appointed as co-editor-in-chief of Engineering Geology journal



A current front page of the journal Engineering Geology.

-editor-in-chief to decide whether the manuscript is to be published or not in the journal (since his appointment as one of two current co-editors, Dr. Carranza-Torres estimates that the tasks of managing the flow of incoming manuscripts demands at least 8 hours of work per week).

Co-editors-in-chief Dr. Carranza-Torres and Dr. Juang are supported by members of an editorial board comprised by approximately forty professionals who work in various fields of engineering geology. Members of the editorial board of

the journal are affiliated to academia, government and industry institutions from a variety of countries around the world (the site 'www.journals.elsevier.com/engineering-geology/editorial-board/' lists the names and affiliations of members of the editorial for Engineering Geology).

Starting January 2014, and for an initial period of 3 years, Dr. C. Carranza-Torres, a geotechnical faculty in our CE program, was appointed co-editor-in-chief of the journal Engineering Geology, together with Dr. C.H. Juang from Clemson University, South Carolina.

The Engineering Geology journal is an international multidisciplinary peer reviewed journal established in 1965 which is published by Elsevier, a leading academic publishing company of technical literature. The journal is intended for academic scientists, industry and applied researchers, and policy and decision makers working in the field of engineering geology.

The engineering geology field bridges the fields of civil engineering and geology, and as such, topics of interest for the journal include, among others, rock and soil mechanics, hot-waste storage, groundwater rehabilitation, landscape planning, natural hazards (seismicity, hydrology, geomorphology, subsidence, slope stability), pollution and contamination, and remote sensing techniques.

The task of co-editing a major international journal like Engineering Geology involves managing the approximately 600 manuscripts that the journal receives from contributors for evaluation and possible publication. The management of manuscripts includes inviting independent reviewers ('peer' reviewers) who assist in the process of evaluation of the manuscripts; after the evaluation process is completed, it is the responsibility of the co

Research News

Environmental Lab

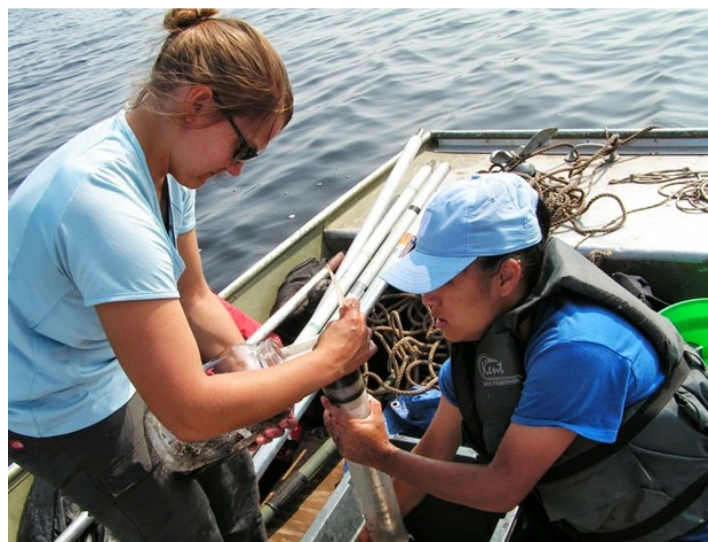
A 1200+ s.f. lab space is supporting teaching and research facilities for students studying Environmental Engineering. For the first time, CE 3025 is using the space in spring 2014 for labs related to drinking water and wastewater treatment. Among others, the lab hosts equipment for the analysis of basic water quality parameters including suspended and dissolved solids, BOD, bacteria, alkalinity, and hardness. Samples obtained in partnership with the Western Lake Superior Sanitary District (WLSSD) are used for the class and provide the context of the targeted removal processes implemented at the plant. The most recent bi-annual tour of the facility provided students an opportunity for close up interactions with WLSSD's facilities that lingered on clothes for a few days, but in students' minds for the remainder of the semester.

On the research side of the lab, Dr. Johnson and his students are studying geochemical processes that affect contaminant transport in aquatic sediments. Will DeRocher, (MS-Civil Engineering, exp. 6/2014) and Aaron Mika (BS, Civil Engineering,

exp. 6/2014) are investigating the rate at which sulfate is converted into sulfide at warm and cold temperatures and the implications of iron levels in trapping sulfide introduced to sediments. Logan Bailey (MS-Water Resources Science, exp. 7/2014) has spent the last two years studying the influence of sulfate on the production and transport of the bioaccumulative form of mercury, methylmercury. Amanda Brennan (PhD-Water Resources Science) recently received an award from the University of Michigan Water Center to study the implications of habitat restoration efforts on the bioavailability of sediment contaminants in aquatic sediments. Amanda and undergraduate Anna Jefferson (BS-Civil Engineering, exp. 12/2015) are using newly developed passive sampling techniques to quantify the amount of sediment contaminants most likely to present risk to human and ecosystem health. Dan Fraser (Junior Scientist, BS Biology-UWS) recently joined the group to support another contaminant-related project in the St. Louis River Estuary.



Laboratory equipment for testing bioaccumulation of sediment-associated contaminants.



Collecting sediment from an intact core on a boat in the St. Louis River Estuary (Pictured are Amanda Brennan and Yer Lee).

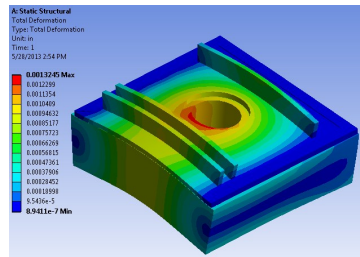
GeoWall Competition Preparation



Jacob Erickson, a senior in the Department with an interest in geotechnical engineering, was recently awarded funding through the Undergraduate Research Opportunity Program. This program, administered through the University of Minnesota system at each of the five campuses, encourages undergraduates to explore their area of interest in more depth by providing funding for 140 hours of work over a semester long period. Jacob's project focuses on testing methods for the pullout strength of soil reinforcement. Interest in this project came from a desire to begin competing in the Geo-Institute of ASCE's GeoWall Competition. In this competition, a retaining wall is constructed using paper as reinforcement in sand backfilled into the box shown to the left. Jacob has found methods of using the equipment available in the UMD Soil and Rock Laboratory to test the pullout strength of paper in a backfill material of his choice. Lessons learned from this project and his geotechnical engineering coursework will allow Jacob to captain UMD's first GeoWall team which will be formed in the fall semester.



Pavement Research Update



Left: Bond pull-out tests that were conducted during the rapid set patching materials project
Above: finite element model of the test

The temperatures outside are climbing, which means that the pavement rehabilitation and construction seasons are just around the corner. This year will prove to be every bit as busy as last year. This spring marks the beginning of a new project for Dr. Dave's group that involves the evaluation of pothole patching techniques. The rapid set concrete patching mix project will be completed during this spring as well. There will also be a continuation of ongoing projects that include: (1) Development of laboratory performance test for asphalt mixes; (2) Evaluation of coarse asphalt mixes; (3) Field evaluation of bridge deck wear course systems.



Left: The disk-shaped compact tension (DCT) test for determining thermal cracking potential of asphalt mixes;
Above: Thermally induced crack in North- Western Minnesota

Dr. Dave's research group is comprised of research engineer (Mr. Jay Dailey) and four full time students. Graduate students Ben Helmer and Robert Kostick will be conducting their research through this coming fall. Chelsea Hoplin is an undergraduate researcher that is working on a GIS project to aid tracking of pothole patches and on computer modeling to determine effects of asphalt fracture energy on pavement cracking. Undergraduate research assistant Jared Munch provides help over a broad spectrum focusing on testing of asphalt mixtures in laboratory.

The research projects that are being conducted this year are sponsored by the Minnesota Department of Transportation.



Dr. Teasley Joins NSF Sponsored Reconnaissance in New Zealand



Pictured Left to Right: Dr. William Siembieda, Dr. Rebecca Teasley, and John Allen, PE

A team from the Geotechnical Extreme Events Reconnaissance (GEER) Association, supported by the National Science Foundation, was mobilized to investigate the impacts of the wide spread liquefaction as a result of the Darfield and Christchurch earthquakes on the recent flooding that occurred in Christchurch, New Zealand over March 6th through 8th, 2014. The team included John Allen (TRI/Environmental), Dr. Craig Davis (City of Los Angeles, Department of Water and Power), Dr. Laurie Johnson (Laurie Johnson Consulting), Dr. William Siembieda (Cal Poly San Luis Obispo), Dr. Nina Stark (Virginia Tech), and Dr. Rebecca Teasley (University of Minnesota Duluth). These engineers and scientists are working with New Zealand experts to compile as much data as possible and document both failures and performance of infrastructure during the flood event.

The City of Christchurch and surrounding communities experienced two large earthquakes in September of 2010 and February of 2011. During these events and subsequent aftershocks there has been widespread liquefaction and lateral spreading damage in the western suburbs and along rivers that run

through the city. Reconstruction and repair to the city's infrastructure began within hours of each event and continues today. The team will be focusing on understanding how a large liquefaction event impacts the magnitude of another extreme event. The team will be focusing on critical infrastructure performance such as sewer and water networks, foundations of critical structures, levee networks, and other lifelines. In addition, the team will be investigating how the changes in the subsurface and surface topography from one extreme event impact the severity of another type of extreme event. The recent flood in Christchurch poses a unique opportunity to investigate two different extreme events that occurred within a relatively short period of time to each other and to investigate if the first event possibly impacted the severity of the second event. Additional information is available on the GEER website at: <http://www.geerassociation.org/>.

Future Collaboration on Environmental Flows in Chile



In January, Dr. Rebecca Teasley traveled to Chile with Dr. Samuel Sandoval-Solis and Dr. Helen Dahlke who are both on faculty at UC Davis Department of Land, Air, and Water Resources. The trip was focused on collaboration building and developing a proposal with University faculty from Civil Engineering at the Universidad de Concepción. The proposed research focuses on evaluation of stream flow in rivers throughout the Cordillera de los Andes. The aim of the research is to develop prescriptive stream flows that support both a healthy ecosystem and sufficiently meet human demands for water, such as irrigation. The flows can be achieved through management options such as reservoir operation and changes in water diversion volumes and timing.

Left to Right: Dr. Helen Dahlke, Dr. Samuel Sandoval-Solis, and Dr. Rebecca Teasley below the Universidad Glacier in the Chilean Andes

Student Organization News

SME



■ ● **Tour to Hibbing Taconite** ● ■

The Society of Mining, Metallurgy, and Exploration (SME) student group has been busy, having tours of industrial sites and several industry speakers lately. Recent highlights include a presentation by SEH about emergency action planning, a presentation by Barr about being a consultant, a presentation from the Environmental Manager at Hibbing Taconite, and a tour of ME Elecmetal, a foundry in Duluth. SME members also had the chance to attend the National SME Conference in Salt Lake City, Utah, this past February.

The SME is open to all students – mining encompasses all of our major areas in civil engineering: ge-

otechnical, water, transportation, structural, and environmental. Most club events, tours, and industry speakers will be of interest to civil engineers. Additional tours and speakers are in the process of being planned. The SME is a great club for developing interests, skills, and networking with potential employers. All civil engineering students are encouraged to attend, and food is provided at all meetings. Keep on watching your email and looking for meeting notices posted in SCiv for information about club events. Feel free to contact civil engineering student Robert Learmont at learm011@umn.edu or SME Club President Robert Wallant at walla386@d.umn.edu with any questions.

SWE

This fall the UMD SWE chapter set out to attend the National Conference for the first time. Being a fairly new chapter, UMD has attended the regional conference for the past few years, but October marked the first time a trip was made to the national level. The conference happens each October, this year it was held in Baltimore, MD. Five seniors from UMD headed to Baltimore on Wednesday, October 23rd. There were two ChemEs, an IE, ME, and MIE. Next year we would love to see a Civil or Electrical student join in.

The conference was three days of seminars, large groups sessions, tours, and a career fair. The sessions were on a wide variety of topics such as Being an Engineer and a Mother, Working Abroad, and Renewable Energy. The large group sessions gave us face-to-face time with table hosts from sponsor companies including John Deere and Exxon Mobile. The career fair included

companies from all over the country including Ford, GE, Kimberly-Clarke, and Life Technologies. Many companies sent 40+ employees to staff each booth so that there was always someone to talk to. I would highly recommend heading to the hospitality booths before the career fair. This is where companies have the opportunity to wine and dine potential employees. There is free food and lots of fun.

Each location sets up tours of tourist attractions and engineering companies in the area. We spent our free time exploring the harbor on our own. Next year the conference is in Los Angeles, CA. The conference chairs are getting the trip in the works now. If you are interested in joining us please contact Thatcher Banh at banhx005@d.umn.edu or Kristina Olsen at olsen672@d.umn.edu.

ACI Student Competitions



Left: Permeability testing of the pervious cylinders

Below: UMD students that attended the Fall competition. L-R: Ashton Kogel, Miranda Anderson, Ian Johnson, Jacob Warkel, Matt Eull, Jack Nelson, Denis Mikulic



Above: UMD students that attended the competition.

L-R: Anthony Johnson, Sean Brown, Peter Demshar



Left: One of the concrete bowling balls after being loaded.

Twice a year the American Concrete Institute (ACI) holds an international convention for the concrete industry. Faculty, students, practitioners, suppliers, and many others attend the convention that includes workshops, committee meetings, sessions, and student competitions. ACI is the code writing body for the national Concrete Building Code and has a membership of over 20,000 people worldwide. Each convention includes a student competition to promote the concrete industry and involve young people. This is a great opportunity for students to gain knowledge through valuable experience and network with professionals in the industry.

In October 2013, seven UMD Civil Engineering students attended the Fall ACI convention in Phoenix, AZ to compete in the student Pervious Cylinder Competition. The goal was to produce pervious concrete which balances permeability and splitting tensile strength. There were thirty four teams from across the Americas competed in two categories, Load-to-Cost Ratio and Overall Cylinder Performance. The Overall Cylinder Performance was based on a combination of factors including: Split Tensile Strength, Permeability, and Load-to-Cost. Out of the thirty four teams that competed, UMD placed 13th.

In March 2014, three UMD Civil Engineering students attended the Spring ACI convention in Reno, NV to compete in the student FRC Bowling Ball Competition. The objective of this

competition is to demonstrate the effect of fibers in reinforcing concrete, to gain experience in forming and fabricating a concrete fiber-reinforced element, and to encourage creativity in engineering design and analysis. There were thirty three teams from across the Americas competed in two categories, Bowling Ball Performance and Presentation. The Performance category included results from the following tests: mass test, diameter consistency test, bowling test, final deformation load test, toughness load test. The Presentation category was based on a poster that each team submitted to represent their FRC Bowling Ball. UMD placed 16th out of the thirty three teams that competed.

The UMD ACI Student Chapter would like to thank all of the organizations that helped out with the competition and travel costs. The sponsors were: **Twin Ports Testing, Van Sickle, Allen & Associates, Boldt Construction, American Engineering Testing, Concrete Paving Association of Minnesota, Krech Ojard & Associates, Mortenson Construction, and Arrowhead Concrete.**

The UMD ACI Student Chapter is planning to compete in future ACI Student Competitions. If you are interested in sponsoring or participating in future competitions, please contact ACI Student Chapter President Denis Mikulic at mikul044@d.umn.edu.

ASCE

Every year during homecoming week the mechanical engineering club on campus hosts a cardboard boat race on Rock Pond near Bagley Nature Area. The race typically draws ten entries or so from various student groups, ranging from pieces of cardboard folded in half to twenty-foot replicas of pirate ships painstakingly constructed from the highest quality cardboard available.

After upsetting the boat before even leaving the shoreline last year, the team for this year's race was eager to prove themselves. Mario Gilland, Nicholas Osmundson, Kyle Lau, Gage Morgan, Neal Smith, and others spent long hours crafting this year's boat from old refrigerator boxes, tape, caulking, and paint. In order to meet race requirements duct tape could be used inside the boat but paper tape had to be used on the outside, and non-latex paint could not be used. The boat was christened "The Wrath of Kohn" by Stafford Carlson in honor of Brian Kohn, who is an instructor in the civil engineering department.

On race day, the Wrath of Kohn performed very well with Mario Gilland, Nicholas Osmundson, and Ashton Kogel paddling. The team won third place, and some of the building crew took the boat out in the pond for a joyride after the races. The boat eventually began to break up and sink after being in and out of the water repeatedly. Overall this year was a great improvement from last year, and ASCE hopes to build an even better boat next year. Special thanks to Mark Roberts for his help finding quality cardboard and providing construction advice, and to Dr. Adrian Hanson and the Department of Civil Engineering for providing the funds to purchase materials.



Pledge Card

Pledge amount \$ _____

_____ Check if you are interested in a named option (named labs or logo display)

Donor Name(s) _____

Address _____

City _____ ST _____ Zip _____

(For named giving options, Carrie Sutherland will contact you for plaque and/or logo information)

Payment Options:

_____ Credit Card Charge

_____ VISA _____ MasterCard _____ Discover _____ American Express

Credit Card Number _____

Exp. Date _____ Security Code _____

Name on Credit Card _____

_____ Check (Payable to University of Minnesota Duluth)

I would like to be reminded of my pledge _____ quarterly

_____ semi-annually or _____ annually.

_____ Securities (Please contact me with information about making my gift with securities).

Signature _____ Date _____

Please return completed form to:

Carrie Sutherland
Development Officer
102 Engineering Building, 1303 Ordean Court
Duluth, MN 55812
218-726-6984 or csutherl@d.umn.edu

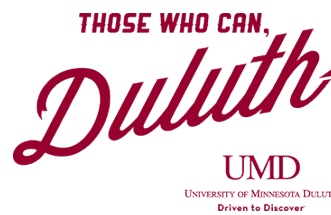
A donation to the CE program in any amount is greatly appreciated — our hands-on type of program requires a significant amount of equipment to properly train students.

Named giving options are available as well. Please contact Carrie Sutherland with any questions (address at the bottom of this form).

Named Giving Options:

High Bay Lab	\$300,000
Structures Lab	\$300,000
Construction Material Lab	\$100,000
Soil and Rock Lab	\$75,000
Classroom (1 remaining)	\$50,000
Computer Lab	\$10,000
Model Shop	\$10,000
Conference Room	\$10,000
Logo Display in Hallway (large company logo in hallway between Engineering Building and Civil Engineering)	\$5,000

**Department of Civil Engineering
University of Minnesota Duluth
221 Swenson Civil Engineering Building
1405 University Drive
Duluth, MN 55812**



**Department of Civil Engineering
University of Minnesota Duluth
221 Swenson Civil Engineering Building
1405 University Drive
Duluth, MN 55812
Phone: 218-726 6444
Email: civileng@d.umn.edu
Web: www.d.umn.edu/civileng/**