

CAMPUS REPORT

DATE: December 12, 2017
TO: Board of Regents
FROM: Donald M. Blackketter, Chancellor, Montana Tech
RE: Campus Report for the January 12 Board of Regents' Conference Call Meeting

STUDENT ACHIEVEMENT

- Renee Schmidt, MS student in Geochemistry in the Laboratory Exploring Geobiochemical Engineering and Natural Dynamics (LEGEND) of the Department of Chemistry and Geochemistry, received the 2nd Place Student Poster Award at the Montana American Water Resources Association (AWRA) Meeting Oct. 13-14th at the Fairmont Hot Springs Resort. The conference focused on "Water Quality & Quantity in a Changing Climate" and Renee's poster detailed geochemical changes in flooded mine shafts.
- Renee Schmidt of LEGEND (Chemistry and Geochemistry) gave a talk at the MBMB Mining and Mineral Symposium held Oct. 19-22 on geochemical changes in flooded mine shafts. Her abstract will be published.
- Renee Schmidt of LEGEND (Chemistry and Geochemistry) had her abstract about geochemical changes in flooded mine shafts accepted for publication and poster presentation at the American Geophysical Union (AGU) Fall Meeting in San Francisco Dec. 11-16.
- Georgia Dahlquist, MS in Geochemistry student of LEGEND (Chemistry and Geochemistry), had her abstract entitled "What's in the Mud? Water-Rock-Microbe Interactions in Thermal Mudpots and Springs" accepted for publication and poster presentation at the AGU Fall Meeting in San Francisco.

FACULTY EFFORTS

- Assistant Professor Alysia Cox of the Laboratory Exploring Geobiochemical Engineering and Natural Dynamics (LEGEND) in the Department of Chemistry and Geochemistry has received a grant as a Co-Principal Investigator (Co-PI) in collaboration with Arizona State University (ASU) from NASA Exobiology for the project, "Geochemical and Biomolecular Changes at the Transition to Photosynthesis." The PI at ASU is Dr. Everett Shock with Co-PIs Dr. Jason Raymond and Dr. Jordan Okie. ASU PhD student, Grayson Boyer, and now postdoc, Dr. Kris Fecteau, are also collaborators. The grant is to Arizona State University in the amount of \$852,867 and Montana Tech's sub award is \$179,702.
- Assistant Professor Alysia Cox of LEGEND (Chemistry and Geochemistry) gave a talk entitled "Defining Microbial Habitats in Mining Impacted Watersheds" at the Montana American Water Resources Association (AWRA) Meeting held October 13-14th at the Fairmont Hot Springs Resort. LEGEND members and Tech Chemistry and Geochemistry undergraduates, Jordan Foster and McKenzie Dillard, and MS in Geochemistry students, Renee Schmidt and Georgia Dahlquist, were coauthors.
- Assistant Professor Alysia Cox of LEGEND (Chemistry and Geochemistry) gave an invited talk at the Yellowstone Studies Center Consortium Fall Meeting on Oct. 21 entitled "Research and Education in YNP: Hydrothermal Ecosystems and Environmental Chemistry."
- Assistant Professor Alysia Cox of LEGEND (Chemistry and Geochemistry) had her abstract entitled "Habitability from the surface to the deep" accepted for publication and oral presentation at the American Geophysical Union (AGU) Fall Meeting in San Francisco Dec. 11-16. LEGEND members and Tech Chemistry and Geochemistry undergraduates, Jordan Foster and McKenzie Dillard, and MS in Geochemistry students, Renee Schmidt and Georgia Dahlquist, are coauthors.
- Dr. Henrietta Shirk, Montana Tech Writing Program, will be presenting a paper to the 2017 Berkshire Conference on the History of Women, Genders and Sexualities. The conference will be held on June 1-4, 2017, at Hofstra University, Hempstead, New York.
- Dr. Dawn Atkinson and Ms. Ann Staton have each been awarded a Conference on Composition and Communication (CCCC) Professional Equity Project grant to help defray the cost of attending the 2017 CCCC, in Portland, Oregon.
- Dr. Robert Pal, Assistant Professor, Biological Science delivered an oral presentation (Escape from negative plant-soil feedbacks in the alpine?), and was co-author in another talk (Liao et al.: Context-dependency and the effects of species diversity on ecosystem) at the Annual Meeting of the Ecological Society of America in Fort Lauderdale. He was also president of the Species Interactions session.

- Dr. Robert Pal, Assistant Professor, Biological Science published a per-reviewed paper in *BIOLOGICAL INVASIONS* in the frame of an international collaboration (authors: Huixuan Liao, Wenbo Luo, Robert W Pal, Ragan M Callaway), entitled: *How initial composition affects the later development? - A secondary successional study in differently managed agricultural sites.*
- Dr. Waleed Al-Rawashdeh, Associate Professor of Mathematics, is the author of the peer-reviewed paper: "Compact Weighted Composition Operators between Generalized Fock Spaces" *Missouri J. Math. Sci.*, Vol28 (2016).
- Dr. Glenn Shaw, Associate Professor of Geological Engineering, has had a paper accepted in the journal **Water Resources Research** titled 'Insights into Hydrologic and Hydrochemical Processes Based on Concentration-Discharge and Endmember Mixing Analyses in the Mid Merced River Basin, Sierra Nevada, California.' The paper is published with a colleague at Lincoln University and one from the University of California, Merced.
- Dr. Larry N. Smith, Department of Geological Engineering, published a paper as a solo author in the January 1, 2017 issue of *Quaternary Science Reviews*, entitled: *Repeated sedimentation and exposure of glacial Lake Missoula sediments: A lake-level history at Garden Gulch, Montana, USA*
- Todd Hoffman was invited to speak at the Society of Petroleum Engineer's workshop on Strategies for Identifying and Exploiting the Sweet Spot in Unconventional Reservoirs in Houston Texas on November 10. Todd's talk was titled 'Enhanced Oil Recovery for Unconventional Reservoirs: The Time is Ripe'.
- Dr. Chris Gammons (Geological Engineering) led a field trip around the Warm Springs Ponds Superfund Site for attendees of the 2016 annual meeting of the American Water Resources Association in Fairmont Hot Springs.
- Dr. Gammons, along with undergraduate student Jon Szarkowski and graduate students Kyle Eastman, Ben Schubert, Joshua Messenger, Sara Edinberg, and Jenna Kaplan, all gave presentations at the Fall 2016 MBMG "Mining and Minerals Symposium" in Butte.
- Dr. Gammons was awarded the first "Stan and Joyce Lesar Professorship", a private endowment to Montana Tech to stimulate research and teaching in topics that relate to the sustainable development of natural resources.
- Trisha Southergill, Research Office and Graduate School, collaborated with Tammy Good of Indiana University on an article published in the National Council of University Research Administrator's October magazine titled "Work Smart." This publication is distributed to the over 7,000 members of NCURA both domestically and abroad.

CAMPUS KUDOS

- Montana Tech football team won their second consecutive Frontier Conference Championship this season finishing with a 10-2 overall record. The Orediggers won 10-straight games, a first by a Tech team. The Orediggers made it to the Quarterfinals of the NAIA FCS. The team produced 13 All-Conference selections including Offensive Player of the Year Nolan Saraceni and Defensive Player of the year Gunnar Kayser. Sixth year head coach Chuck Morrell was named Frontier Coach of the Year, his third time receiving the honor. Six Orediggers were named NAIA Scholar Athletes, junior or seniors with GPAs greater than 3.5.
- Montana Tech's volleyball team finished second at the Frontier Conference Tournament and received an at-large bid to the NAIA Volleyball National Tournament. The Orediggers have not reached the NAIA National Tournament since 1988. After winning a home match in the first round, Montana Tech traveled to the final site in Sioux City, Iowa. The Orediggers finished 2-1 in Pool Play and made it to the Final 16-team Bracket. Tech lost 3-2 to Midland (Neb.) in the final bracket. The Orediggers finished 25-10. Montana Tech has not won 25 matches in a season since 2003. The Orediggers placed six on the All-Conference team and two on the AVCA All-Region teams. One Orediggers was named Daktronics-NAIA Scholar Athlete.
- Stax, a new Coffee Shop and Quick Service venue is scheduled to open in December 2016 in the Montana Tech Library and will offer an early morning and late night foodservice alternative for students on the North side of campus. Crust, a small format retail pizzeria/bakery outlet is planned for the Student Union Building lobby with anticipated opening in March of 2017. Flatz, a fresh burrito bar is scheduled to replace the current sub-shop operation in the Dining Hall early in the upcoming year.
- On October 1, the second annual fundraiser, Purse Strings, hosted by the Women of Tech to benefit Butte's Safe Space increased in attendance from 150 to 250, and the amount donated to Safe Space grew from \$13,350 to over \$21,000. Thanks to all the Montana Tech faculty and staff that made this event a great success and make a positive impact on our community, and to all the women who participated, donated, and purchased items.

MONTANA BUREAU OF MINES AND GEOLOGY ACTIVITY

- At the Montana Section of the American Water Resources Association (AWRA) annual conference on October 12-14, 2016, MBMG hydrogeologists presented nine papers and seven posters on topics ranging from *Fluoride Concentrations in Montana's Groundwater*, to *Changing irrigation practices in the Jefferson River Valley; potential impacts on the river and tributary streams near Waterloo, Montana*.
- On October 17-19, 2016, MBMG Hydrogeologists Dr. Elizabeth Meredith and Shawn Kuzara demonstrated a Rolling Rivers Interactive Table at the Agriculture section of the Northern International Livestock Exposition (NILE) Rodeo in Billings, Montana. The demonstration presented concepts about stream health to about 2,000 local and regional fourth grade students.
- MBMG Geochemist Steve McGrath pumped water from the Parrott Tailings and described the water chemistry to Butte High School science students on October 19, 2016. About 75 freshmen through senior students participated in a Butte Superfund tour that included Silver Bow Creek, the Butte Treatment Lagoons, and the Diamond Overlook.
- The Montana Bureau of Mines and Geology hosted the second annual Mining and Mineral Symposium on October 19-22, 2016 on the Montana Tech campus. The symposium theme was the *Geology of Metallic Mineral Deposits, Northern Rockies, USA*. The program included 25 speakers from Montana, Colorado, Washington, and Idaho; research presentations from five Montana Tech students; two full-day field trips to historic area mines; and a Map Chat with MBMG field geologists.
- Director of Earthquake Studies and MBMG Seismologist Mike Stickney presented an invited talk on *Montana's historic earthquakes and seismic hazards* to the Yellowstone Studies Center's Fall Conference in West Yellowstone, Montana, on October 21, 2016.
- On October 29, 2016 MBMG Director and State Geologist Dr. John Metesh convened the fall 2016 MUS Geology Conclave at the MBMG. Earth sciences faculty from Montana Tech, Montana State University, the University of Montana Missoula, University of Montana Western, and Rocky Mountain College gathered to discuss issues ranging from sharing geologic courses such as field camps between campuses, to preliminary plans to publish a Centennial Volume on Montana Geology coincident with MBMG's centennial anniversary in 2019.
- MBMG Director of Earthquake Studies Mike Stickney and Geologist Jeff Lonn received a grant from the US Geological Survey's Earthquake Hazards Program to investigate *Late Quaternary fault scarps along the Bitterroot Fault in western Montana*. The MBMG proposal was one of 37 funded out of a pool of 212 submissions.
- A proposal by MBMG Director of Earthquake Studies Mike Stickney and Director of the University of Utah Seismograph Stations Dr. Keith Koper to produce *High-resolution Imaging of recent seismic swarms in the Challis, ID Region* was approved (pending funding) by the US Geological Survey's Earthquake Hazards Program.
- On November 15-17, 2016 MBMG Hydrogeologists Jon Reiten and Kevin Chandler attended the Montana Association of Conservation Districts Annual meeting in Sidney, MT. They presented information about MBMG's Clear Lake Aquifer model, the recently completed Fox Hills-Hell Creek Aquifer inventory, and the upcoming Lower Yellowstone Buried Channel Aquifer project.
- MBMG Hydrogeologists James Rose, John LaFave, Ginette Abdo, and Mike Richter attended a planning meeting of the Gallatin Local Water Quality District and the Big Sky Water and Sewer District on November 29, 2016. The attendees discussed how to monitor additional water use and treated water discharge issues caused by new development at Big Sky.
- Ground Water Assessment Program Manager John LaFave and MBMG Software Engineer/Database Manager Luke Buckley attended the Federal Advisory Committee on Water Information (ACWI) Subcommittee on Ground Water (SOGW) meeting in Las Vegas, Nevada, December 5-8, 2016. John presented a *National Ground-Water Monitoring Network--Data Provider update* and Luke presented *National Ground-Water Monitoring Network--Database/IT/Web Services*.
- MBMG Hydrogeologist James Rose was an invited speaker at the *Big Sky Water Solutions Forum: Town Hall Meeting* on December 6, 2016. James discussed issues surrounding the geology of Big Sky, groundwater occurrence, and sampling and monitoring efforts by the MBMG's Ground Water Investigations Program.
- On December 8, 2016, Ground Water Investigations Program Leader Ginette Abdo gave an invited lecture on *What hydrogeologists do... Using the GWIP Dillon project as an example of groundwater/surface-water interaction*, to Dr. Robert Payn's Watershed Hydrology class at Montana State University.

- On December 8, 2016, MBMG Hydrogeologist Ted Duaine was interviewed by a science reporter for Atlantic Magazine. Ted provided information about the geology of the Berkeley Pit and the worldwide shipment of bulk water-quality samples for pit-water treatability studies. The interview was spurred by the recent Berkeley Pit Snow Geese kill.
- The Montana Bureau of Mines and Geology released its 2017 Calendar: *Big Butte and the Lowland Creek Volcanics*, by MBMG Geologist, Dr. Kaleb Scarberry.