

CAMPUS REPORT

DATE: February 7, 2014
TO: Board of Regents
FROM: Donald M. Blackketter, Chancellor, Montana Tech
RE: Campus Report for the March 6 - 7, 2014 Board of Regents' Meeting

STUDENT ACHIEVEMENT

- Environmental Engineering students from Montana Tech competed in an "Environmental Challenge Competition" in Victoria, British Columbia organized by the Pacific International Section of the Air and Waste Management Association. Two Montana Tech teams took First and Second Places in the competition. The First Place team will compete in the "International Environmental Challenge" Competition to be held in June in Los Angeles. Dr. Kumar Ganesan is advisor but students get help from faculty members campus wide.
- Montana Tech M.S. Geological Engineering student John Anderson, Scott Fleener, a computer science sophomore, Capri Gillam, M.S. student in Environmental Engineering, Amber McGivern, M.S. student in Geological Engineering, and George Williams, M.S. student in Geological Engineering, were among 19 students from Montana colleges who presented their research findings at the October 3 meeting of the Montana Section of the American Water Resources Association meeting in Bozeman, Montana. Anderson (first place), Gillam (second place), and McGivern (third place) all received awards for their poster presentations. Williams received a second place award for his oral presentation. Tech students took 4 of the 6 awards at the meeting.
- Current senior petroleum engineering major Chris Bulau recently completed an undergraduate research project originally titled "The Effects of Handling on the Measured Crush Strength of Proppant," which has been accepted as the basis for a presentation at the Society of Petroleum Engineer's Unconventional Resources Conference in April. Additional undergraduate students are now working on the expanded project, mentored by John Getty, Instructor in Petroleum Engineering.
- Stephen "PJ" Neary, a senior in computer science, attended the SC13 conference held November 16-21 in Denver as student volunteer. When not volunteering, PJ attended technical presentations and learned about the latest High Performance Computing, networking and storage technologies from company representatives in the exhibit hall.
- Jesse Bowden, MS student in metallurgical and materials engineering, headed to Brisbane, Australia in December under Montana Tech's Thesis Abroad program to do additional quantitative analyses on her thesis samples at Griffith University.
- Biological Sciences Professor Dr. Amy Kuenzi presented a paper at the Third Biennial Western Regional IDEa conference in October in Waikiki, HI with student Vincent Siragusa. The paper is cited as: Bagamian, K., J. Towner, V. Siragusa, J. Mills, and A. Kuenzi. *Increased detection of Sin Nombre hantavirus RNA in antibody-positive deer mice in Montana, USA: Evidence of male bias in RNA detection.*
- Four Montana Tech Safety, Health and Industrial Hygiene students were awarded scholarships at the Northwest Occupational Health Conference conducted in Seaside, Oregon in October. Sponsored by the Pacific Northwest Section of the American Industrial Hygiene Association, the scholarships were based on academic achievement, extra-curricular activities and the potential to succeed in the Industrial Hygiene field. The winners were Industrial Hygiene graduate students Rene Mayorga and Sandy Thomas, and undergraduate Occupational Safety and Health students Cassidy Driggers and Kasey Kaszycki. Faculty members Julie Hart, Marlin Maynard, Terry Spear and Theresa Stack attended the conference with the students.

HIGHLANDS COLLEGE

- Highlands College Metals Fabrication students designed and fabricated two large mine headframes and installed them on either side of the main entrance to the college.
- Highlands College Civil Engineering Students made a presentation and request to the Butte-Silver Bow Council of Commissioners regarding their initiative to assign the Highlands Unnamed Peak 10,131 the name Montana Tech Peak. The Council unanimously approved their request.

- Highlands College Faculty member and Chair of the Business Technology Department, Linda Granger, was named a 2013 Person of Distinction by the Montana Standard Newspaper.
- Highlands College partnered with Safe Space to conduct a domestic violence awareness exercise in which students received cupcakes for participating.
- Highlands College students conducted a Tobacco Awareness event for the Great American Smokeout initiative.
- The Highlands College Student Leadership conducted a massive Halloween Open House with trick or treating throughout the building, haunted hallways, movie & cocoa and Charlie Oredigger. A record number of people (mainly families) came to the event.
- The Highlands College Student Leadership sponsored a “Be The Hero In You” Blood Drive with United Blood Services. Tech’s Career Services participated and gave out “I Make A Difference” t-shirts to all blood donors, the annual Thanksgiving Luncheon held in the Commons, and an “Adopt a Family for Christmas” drive, recognizing that some of their fellow Highlands students have significant needs for assistance.

FACULTY EFFORTS

- U.S. News and World Report released the “2014 Best Online Education Program Rankings,” and Montana Tech is the only Montana University System campus on the list of Best Online Graduate Engineering Programs. For the 2014 Best Online Graduate Engineering Programs rankings, U.S. News decreased the emphasis on peer reputation and admissions selectivity while increasing the weights of student engagement, faculty credentials and training, and student services and technology. Montana Tech offers two online graduate engineering programs: Industrial Hygiene Distance Learning/ Professional Track and Project Engineering & Management (MPEM). The Project Engineering Management degree was the first web-based graduate degree program offered by the MUS beginning in 1999. The degree initially was a collaborative degree between MSU and Montana Tech to offer educational opportunities to working engineering and technical professionals without leaving their jobs. In 2002, Montana Tech become solely responsible for the MPEM degree and successfully graduated over 100 candidates. The 30-credit program covers three areas: advanced engineering applications, industrial and management engineering, and business and organizational management. MPEM alumni are managers, supervisors, and owners of businesses located in Montana as well as across the world. Dr. Kumar Ganesan has directed the web-based degree from its inception.
- Liberal Studies Professor Robert Ziegler announces the publication of his article “Coming Together: Michel Houellebecq’s *The Possibility of an Island*” in volume 43 of *Notes on Contemporary Literature*, November 2013.
- The Department of Environmental Engineering has received over \$100,000 funding from Montana MBRCT for continuing the ongoing mercury research project to develop marketable filter products to remove mercury from gas streams. Dr. Kumar Ganesan and his team have been involved in mercury research for the past 15 years. Recently they have developed a filter material that uses metallic nanoparticles to remove toxic metals, specifically mercury from gas streams. MBRCT along with Department of Energy and US Environmental Protection Agency has been funding the team to conduct research on mercury pollution.
- The Environmental Engineering Department of Montana Tech was funded by the Natural Resource Damage Program (NRPD) to conduct and document a riparian assessment on a portion of Blacktail Creek in Butte, Montana. This project was recently completed involving graduate students, faculty members and help from Water Resources Council. The final report is under final review. The principal investigator for the project is Dr. Kumar Ganesan
- Bob Ziegler, Professor of Liberal Studies, reports that his article “Léon Bloy’s Books of Revelation” will appear in the fall of 2014 in issue 58 of *Studi francesi*.
- Montana Tech’s high performance computing (HPC) cluster was recently expanded with the addition of two GPU nodes. These nodes are configured with two 8-core Intel Xeon Sandy Bridge processors, 64 GB of memory, and include three NVIDIA Tesla K20 Graphical Processing Unit (GPU) accelerators. Each of these GPUs contains 2496 cores, so the additional 14976 GPU cores brings the theoretical peak performance of the entire HPC cluster to over 13 TFLOPS (trillion floating point operations per second).
- Optical tracking was added to the 3D visualization system, which includes a 108” visualization wall and is housed in the Museum Building. The tracking system calculates the user’s head position (3

coordinates) and orientation (3 independent angular coordinates) in order to optimize the 3D display as the viewers move in and around their data.

- David Hobbs (Professor of Chemistry), Jeff Braun (Assistant Professor of Computer Science), and Damian Valles (HPC Application Scientist) were again accepted into the HPC Educators Program that funds undergraduate educators to attend the annual Supercomputing Conference (SC13), which was held November 16-21 in Denver. They participated in the SC13 technical conference activities along with special sessions focused on integrating and teaching computer science, computational science, engineering, high performance computing, networking, and data storage to undergraduate students.
- Dr. Suzan Gazioglu of the Department of Mathematical Sciences co-authored a peer-reviewed article with Jiawei Wei, Elizabeth M. Jennings and Raymond J. Carroll. The article "*A note on Penalized Regression Spline Estimation in the Secondary Analysis of Case-Control Data*" appeared in the *Statistics in Biosciences*, Nov 2013, 5(2), 250-260.
- Keith Vertanen, Assistant Professor of Computer Science, had the journal article "Complementing Text Entry Evaluations with a Composition Task" accepted for publication in *ACM Transactions on Computer-Human Interaction*.
- General Engineering Associate Professor Brian Kukay was invited to present on the current state of timber bridge construction and maintenance in the United States as part of the control group. The meeting will convene in Boston, Massachusetts in April.
- Dr. Courtney Young has accepted an offer to return as Editor and Plenary Participant for Gecamin's Hydroprocessing 2014 which will be held in Vina del Mar, Chile, July 23-25.
- St. James Healthcare's gift to Montana Tech Nursing will be used to update equipment in the Nursing Department and create a permanent scholarship endowment for nursing students.
- The nursing baccalaureate degree program was recently accredited by the Commission on Collegiate Nursing Education until 2018.
- Beginning in 2013, the nursing baccalaureate program is available on-line.
- The nursing program's registered nursing students received a 100% pass rate year to date (1/1/2013 to 9/30/2013) on the National Council Licensure Examination (NCLEX-RN). The national average for this time frame is 82.28% and Montana's average is 87.96%.
- John Getty attended the ASTM meeting on standards for evaluation of soil and rock (D18) in Houston, TX in late January 2014. He has been selected as technical lead for creating standards for the proppant crush test and as member of two other work groups.
- The Society of Women Engineers Montana Tech Student Chapter donated \$500 to the Montana Breast and Cervical Health Program, which provides breast and cervical cancer screening for low income women in southwestern Montana. SWE held their annual "Save the Tatas" Fun Run (& Bike) last fall and also sold "Save the Tatas" t-shirts.
- The Montana Standard featured an article on SWE on December 8, 2013. The article, entitled "A growing society: Women in petroleum engineering run deep in some families", focused on three of the current SWE officers, Mandy Brewer (President), Julie Rang (Vice President) and Melanie Brewer (Secretary).
- The Digger Hockey team has started out the spring semester strong. They hosted a tournament the first weekend back from break and won all three games against opponents: Brigham Young University, Boise State University, and Montana State University. The Diggers also split with Weber State University last weekend in Butte; for the first time in their four years of competition in Division II of the American Collegiate Hockey Association, they have beaten WSU.
- Dr. Amy Kuenzi, Professor of Biological Sciences, published the following peer-reviewed paper: Bagamian, K., J. Towner, J. Mills, and A. J. Kuenzi. 2013. Increased detection of Sin Nombre hantavirus RNA in antibody-positive deer mice in Montana, USA: Evidence of male bias in RNA detection. *Viruses* 5: 2320-2328
- Dr. Amy Kuenzi and Dr. Richard Douglass, Professors of Biological Sciences, hosted a Fullbright Scholar from Argentina. Dr. Victoria Waldell collaborated on Drs. Kuenzi and Douglass' research from June through September 2013.
- Dr. Pat Munday, Professor of Science & Technology Studies with the Technical Communication program, contributed an article to a book honored with an award from the Environmental Communication Division of the National Communication Association. *Perspectives on human-animal*

communication: Internatural communication (Edited by Emily Plec; Routledge, 2013) received the annual Christine L. Oravec Research Award in Environmental Communication book award.

- Dr. Munday granted permission to the Grant-Kohrs Ranch Foundation to use his photos of the Deer Lodge valley and surrounding mountains to promote and support the supports the Grant-Kohrs Ranch Natl Historic Site.
- Dr. Munday has been invited to participate in the Tulane Environmental Law Summit, 21-22 February 2014, hosted by the Environmental Law Program at Tulane University in New Orleans. Dr. Munday will speak on the Clark Fork Superfund Megasite, with a focus on environmental impacts and remediation/restoration in the Butte area.
- SHIH faculty Theresa Stack and Sally Bardsley attended the ABET Program Assessment Workshop in Seattle WA September 28, 2013. The SHIH Department houses three ABET-accredited programs—the BS in Occupational Safety and Health, the on-campus MS in Industrial Hygiene, and the Distance Learning Professional Track MS in Industrial Hygiene.
- SHIH Professor Dr. Julie Hart completed her PhD in Toxicology from the University of Montana Department of Biomedical and Pharmaceutical Sciences. Dr. Hart has been an SHIH faculty member since 2000 and is the Program Manager for the on-campus MS in Industrial Hygiene Program.

STAFF/PROGRAM ENDEAVORS

- Beverly Karplus Hartline, Vice Chancellor for Research and Dean of the Graduate School, was one of 388 individuals elected to Fellowship in the American Association for the Advancement of Science nationwide. “Election as an AAAS Fellow honors AAAS members whose efforts on behalf of the of the advancement of science or its application in service to society have distinguished them among their peers and colleagues.”
- Montana Tech’s Spring 2014 schedule of free public lectures has been finalized, featuring nineteen speakers and a broad range of timely and interesting topics, including a Café Scientifique evening co-sponsored by Montana INBRE. Many of the first semester’s talks have been archived by our library for access anytime/anywhere at <http://digitalcommons.mtech.edu/>. Talk-specific flyers will be distributed about a week ahead of each program. Everyone is welcome.
- Montana Tech is part of a recently awarded \$200 K grant from the Economic Development Agency, which is led by the Butte Local Development Corporation. The purpose of the grant is to plan for the Montana Center for Manufacturing Technology. The Center will provide business and technical assistance that supports the start-up of manufacturing efforts by companies with innovative products that will be manufactured in Montana. Ronda Coguill of CAMP is leading Montana Tech’s participation in this effort.
- Ronda Coguill of CAMP attended the fall meeting of The Composites Consortium in Newport News, VA. The meetings bring together pivotal researchers and manufacturers of composite structures for government and private use. Prior to the meetings, Ms. Coguill also spent a day on the USS Bataan getting an in-depth tour to assess corrosion issues on aircraft carriers. She also visited the Little Creek shipyard to assess damage of composite hulls on rib boats and landing craft.

MONTANA BUREAU OF MINES AND GEOLOGY ACTIVITY

- John LaFave (Ground Water Assessment Program Leader), technical advisor to the Yellowstone River Basin Advisory Committee, presented a talk titled Groundwater in the Yellowstone Basin during the Advisory Committee’s December 2013 meeting in Billings, Montana.
- In December 2013 MBMG hydrogeologist Nick Tucci hosted a field trip for the gifted students program at Bozeman, Montana’s, Monforton Middle School. The field trip involved a short presentation on Butte mining history, an underground tour of the Orphan Boy Mine (arranged by Montana Tech Dean of the School of Mines and Engineering Dr. Peter Knudsen and mining engineer Larry Hoffman), and visits to the Granite Mountain Memorial and the Berkeley Pit.
- Margaret Delaney, MBMG’s Mines and Minerals Data Archive (MMDA) program leader attended the January 2013 Modern Archives Institute offered by the National Archives in Washington DC. The training offered by the National Archives is directly applicable to data preservation methods being employed at MBMG to handle incoming mines and mineral deposit data, including coal data from eastern Montana.
- John LaFave (Ground Water Assessment Program Leader), presented an update on Ground Water Assessment program work in Park and Sweet Grass counties to the Legislature’s Water Policy Interim Committee in January 2014.

- John LaFave (Ground Water Assessment Program Leader), presented a public talk titled Groundwater in Carbon County to a public forum organized in Red Lodge, Montana, by the Montana Board of Oil and Gas Conservation in January 2014.
- In January 2014 the Montana Tech Mineral Museum placed a newly purchased specimen of carved covellite on display. Covellite is a showy deep-metallic-blue mineral that occurred in several of the Butte copper mines. The newly acquired specimen has Butte, Montana origins.
- In January 2014 Garrett Smith spoke to Montana Tech graduate school seminar about his on-going research at coal mines near Belt, Montana. Garrett discussed the regional hydrogeology, production of acidic mine-water discharge which enters Belt Creek, and experiments with agricultural methods to control surface water infiltration to the mines and ultimately decrease the amount of acidic discharge.
- In January 2014 hydrogeologist Ginette Abdo, whose 20-year career at MBMG has included research into groundwater resources in the Big Hole and Beaverhead River Basins of southwest, Montana as well as time managing Montana Tech's Mineral Museum, has accepted the position as leader of the Ground Water Investigations Program. The Investigations Program includes 10 research scientists who conduct focused water-resource studies in areas selected by the Montana Ground Water Assessment Steering Committee. Ginette replaces John Wheaton who decided to step down return to hydrogeologic research related to coal and coalbed methane.
- In January 2014 MBMG Hydrogeologist Nick Tucci lead a tour/field trip to Butte Montana's Berkeley Pit for the Montana Tech Biology Department faculty and visiting faculty member/guest lecturer Dr. Stephen Ditchkoff (Auburn University).
- In January 2014 MBMG hired economic geologist Stanley Korzeb of Denver, Colorado, to lead its economic geology program. Mr. Korzeb has 24 years of professional experience in field, exploration, and research geology. He has worked for the U.S. Bureau of Mines, private mining companies, and as an independent consultant. Mr. Korzeb brings extensive knowledge of ore genesis to MBMG and has worked on a variety of ore deposit types including precious and base metals, industrial minerals, and rare earth elements.
- In January 2014, MBMG released Open-File Report 648, Geologic map of the Bozeman 30' x 60' quadrangle, southwestern Montana by MBMG Geologists Susan Vuke, Jeff Lonn, Richard Berg, and Christopher Schmidt (Western Michigan University); MBMG Open-File Report 646 Hydrogeologic investigation of the Scratchgravel Hills study area, Lewis and Clark County, Montana - Technical Report by MBMG hydrogeologists Andrew Bobst, Kirk Waren, Julie Butler, Jane Madison, and James Swierc (Lewis and Clark County Water Quality Protection District).
- MBMG Hydrogeologist Jon Reiten presented a poster titled *Hydrogeology of the Rock Creek Benches, Carbon County, Montana*, to the Montana Section of the American Water Resources Association meeting in Bozeman, Montana, on October 3, 2013. Other presentations included: Hydrogeologist Kevin Chandler presented a talk titled: *Methods for estimating wetland evapotranspiration through groundwater flow modeling of diurnal groundwater fluctuations at Gartside Reservoir Fen, Crane, Montana*; Hydrogeologist Daniel Blythe presented a poster titled: *Using ArcGIS and Model Builder for modified DRASTIC analysis of groundwater susceptibility in the Shields River Basin, Montana*; Hydrogeologist Jeremy Crowley presented a poster titled *Hydrogeologic framework database for Madison and Gallatin Counties, Montana*; John LaFave and hydrogeologist Jeremy Crowley presented a poster titled *Long-term trends in baseflow, recipitation, and groundwater development in the Bitterroot Watershed*; and hydrogeologist James Madison presented a poster titled *Hydrogeologic framework of Cascade and Teton Counties*.
- During October 2013, MBMG's Ground Water Investigations Program (John Wheaton, Program Leader and James Rose, Hydrogeologist) installed 10 shallow monitoring wells for Geological Engineering faculty Dr. Glenn Shaw's research projects. The wells are designed to monitor shallow groundwater and provide data to help solve water- and small-flooding issues at the National Park Service's Grant Kohrs Ranch in Deer Lodge, Montana.
- MBMG geoscientist Garrett Smith participated on a day-long Butte High School field trip on October 22, 2013. The trip's focus was Butte's mining and reclamation history. Smith discussed the impact that the buried Parrot Tailings has on groundwater quality and current efforts to monitor the contamination. He led the students through hands-on monitoring well sampling, and helped them measure the physical and chemical parameters of the bright blue water.

- On October 23, 2013 MBMG together with the Montana Governor's Office, Department of Military Affairs (Disaster and Emergency Services), Ready Montana, Lewis and Clark County, and American Red Cross sponsored the first '*Great Rocky Mountain ShakeOut*' earthquake drill. Almost 108,000 people in Montana 'dropped', 'covered', and 'held on' during the 10:23 a.m. drill designed to increase awareness in Montana's citizens about how to handle themselves during an earthquake. Montana is one of the most seismically-active states in the United States.
- Ground Water Assessment Program Leader John LaFave served as a technical advisor to the Montana Department of Natural Resources and Conservation's Upper Missouri River Basin Advisory Committee during its October 24-25, 2013 meeting in Fort Benton, Montana.
- Kaleb Scarberry, MBMG Geologist, was a coauthor on a poster titled: *Geologic Map of the Hawks Valley-Lone Mountain Region, Harney County, Oregon* presented to the Geological Society of America's 125th anniversary meeting in Denver, Colorado, on October 28, 2013. Other presentations included: Hydrogeologist Ginette Abdo and Montana Tech Professor Dr. Glenn Shaw presented a poster titled: *Shallow Aquifer Recharge from Irrigation Canals near Dillon, Montana*; Montana Tech Geological Engineering faculty Dr. Glenn Shaw and MBMG Hydrogeologist Ginette Abdo presented a poster titled: *Groundwater and Surface Water Interactions in the Beaverhead River, MT*; geologist Richard Berg presented a paper titled: *Comparison of surface morphology of Montana alluvial sapphires by SEM*; and geologist Colleen Elliott was a co-author on a poster titled: *Paleogene record of Anaconda Metamorphic Core Complex unroofing and sediment dispersal in the Deer Lodge Basin of southwest Montana*.
- The Geological Society of America invited the Montana Bureau of Mines and Geology to exhibit one of its geologic maps at a special '*Hall of Maps*' at the October 2013 national meeting in Denver to celebrate the Society's 125th anniversary. MBMG geologist Susan Vuke prepared before (1955) and after (2007) clips from Montana's 1:500,000 geologic maps that illustrate how far MBMG and Montana's geologic mapping capability has come.
- MBMG geoscientist Garrett Smith volunteered to assist the Clark Fork Education Program (CFWEP) during its October 31 field trip for Butte's East Middle School. Garrett discussed the importance of restoration work on Silver Bow Creek, the basics of aqueous chemistry, and conducted hands-on demonstrations on how to measure physical and chemical parameters in stream water samples.
- On November 4, 2013 the MBMG released an enhanced and updated website available at <http://www.mbmgeu.edu/>.
- MBMG geologist Katie McDonald presented a lecture on November 8 about local geology and geologic mapping to students at Granite High School in Philipsburg, Montana.
- MBMG Geologist Dr. Jesse Mosolf presented a talk titled: *The geology of central Chile's long-lived volcanic arc* on November 14 as part of Montana Tech's Public Lecture Series.
- MBMG geoscientist Garrett Smith presented the results of his research on groundwater flow, seasonal recharge, and the potential for cropping systems to control recharge near coal mines near Belt, Montana, to the Montana Salinity Control Association's annual meeting in Great Falls, Montana, on November 19.
- On November 20, MBMG Ground Water Investigations Program Hydrogeologist Ginette Abdo discussed her project: *Lower Wise River water resources investigation*, as a co-presenter with the Montana Departments of Natural Resources and Fish Wildlife and Parks at a Big Hole Watershed Committee meeting.
- On November 20, 2013 MBMG Research Division Chief Thomas Patton was invited to attend a USDA – National Institute of Food and Agriculture funded focus group meeting, a joint effort by the Center for Research on the Changing Earth System, the National Drought Mitigation Center at the University of Nebraska - Lincoln, Texas A & M University, and University of Maryland – Baltimore County. The focus group discussed the occurrence and effects of decadal climate variability (DCV), and possible adaptation measures that can be adopted by the water and agriculture sectors in the Marias sub-basin of the Missouri River Basin.
- On November 25, 2013 MBMG Ground Water Assessment Program hydrogeologist Daniel Blythe and Program Leader John LaFave presented an update on the *Shields River Valley baseline water-quality sampling project* to the Shields Valley Watershed group. The baseline sampling is designed to address citizen concerns about potential hydrofracturing operations in the Shields River Basin.

- MBMG hydrogeologist Jon Reiten served as a technical advisor to the Montana Department of Natural Resources and Conservation's Lower Missouri River Basin Advisory Committee during its December 2-3 meeting in Lewistown, Montana. Jon presented summaries regarding management of Sheridan County's Clear Lake Aquifer, groundwater flow model development for the Fox Hills–Hell Creek aquifer in eastern Montana, data collection and interpretations of the Madison aquifer in central Montana, and recent interpretations relating to high-yield buried channel aquifers in the Sidney area.
- Between October 1 and December 31, MBMG released
 - Open-File Report 643, *Hydrogeologic Investigations of the Scratchgravel Hills study area, Lewis and Clark County, Montana, Groundwater Modeling Report*;
 - Open-File Report 645, *Geologic map of the Stillwater Complex within the Beartooth Mountains Front Laramide Triangle Zone, south-central Montana*;
 - Open-File Report 620, *Impacts of Oil Exploration and Production to the Northeast Montana Wetland Management District*; and
 - Miscellaneous Publication 57 – the 2014 MBMG calendar featuring southeast Montana's *Capitol Rock* and a discussion of the Arikaree Formation.