Fall 2009

Archive

Bilek on IRIS Board of Directors

December 16, 2009 -- Congrats to Sue Bilek who was elected to the Incorporated Research Institutions for Seismology (IRIS) Board of Directors for a 3-year term. Details

More

AGU 2009


Person Featured in Science

November 27, 2009 -- An article about freshwater springs along the Atlantic coastal shelves, co-written by Mark Person, was an Editor's Choice under Geology in the 27 Nov 2009 issue of Science.
MEVO Lava Lake

November 12, 2009 -- Thom Guengerich reports on the expedition to Mt Erebus in Antarctica to image the lava lake. Article.

Geothermal Drilling Project Begins on M-Mountain

October 21, 2009 -- NMT began drilling a geothermal slim hole as part of plans to heat the campus using geothermal energy on October 21. Updates of drilling progress can be found here -- now including VIDEO! More details are in this NMT article and this New York Times article.

Alaska Volcano Research

October 21, 2009 -- For a taste of what volcano research in Alaska is like, read this article on the Alaska Report website -- Geophysics in Alaska -- an interesting story about works at IRIS PASSCAL at NMT.

Hendrickx Hosts Scintillometry Workshop


Special Day for Earthquake Awareness
October 7, 2009 -- October 11-17, 2009, is National Earth Science Week. New Mexico Tech took it a step farther and proclaimed October 15 as Earthquake Awareness Day.

Rick Aster, along with Nelia Dunbar, Dave Love, Mike Timmons, and Stacy Timmons of the Bureau, prepared radio spots about their specialties which were aired during Earth Science Week.

NMT article. An article about New Mexico's seismicity with comments about the August 2009 swarm are here.

EES Undergrad is "Standout Techie"

October 1, 2009 -- Geology Undergrad Niranjan Khalsa is featured on NMT's homepage as a "Standout Techie."

Pie Town Earthquake

September 23, 2009 -- There was a 2.5 earthquake close to Pie Town around 7 am on September 23rd. Details are here.

NMT Member of WInSAR

September 14, 2009 -- New Mexico Tech is now a member of the Western North America InSAR (WInSAR) Consortium of universities and research laboratories to facilitate collaboration in, and advancement of, Earth science research using radar remote sensing. For more information, please visit sar.unavco.org or talk with our Institutional Representative, Mark Murray.
Boston on Polluted Caves

September 8, 2009 -- Penny Boston is quoted in an article on the Environmental Health Sciences website about how polluted caves can endanger water supplies and wildlife.

Blamey Receives Honors from Aberdeen

September 4, 2009 -- One of our department's faculty, Nigel Blamey, has been awarded an honorary Research Fellow position at the University of Aberdeen in Scotland. The University of Aberdeen was established in 1595, and the department of Geology and Petroleum Geology has an excellent reputation world wide. Nigel flew to Aberdeen in July to discuss the on-going fluid inclusion research with their department head, and to date, three projects are active that include space exploration, metamorphic fluids, and Snowball Earth.

MSEC Wall Project

September 4, 2009 -- The EES department is looking into livening up the south wall outside of MSEC, with the blessing and input of other departments housed in the building. The current idea is to create a design using mosaic tiles. Please email your ideas to sdelap@nmt.edu or bring copies of your drawings to the EES office in MSEC 208.

Lemitar Earthquake Swarm

September 4, 2009 -- The Socorro area has been experiencing a lot of seismic activity since August 19th. The swarm was preceded by a 2.3 quake a few miles NE of Escondida on the east side of the Rio Grande. Within a few days, numerous small events punctuated by a few larger quakes (1.9-2.6) have been occurring a few miles NE of Lemitar, also east of the Rio Grande. The latest details are here. Several articles have been written on this including the following: NMT, ABQ Journal, El Defensor Chieftain. Rick Aster was interviewed by KRQE TV on September 8th. See the video
IRIS and NMT Receives Funding For Greenland Ice Sheet Monitoring

August 28, 2009 -- IRIS was awarded $1.9M in funding from the NSF to develop a seismic monitoring network on the Greenland Ice Sheet. PhD Candidate in Geophysics Kent Anderson is a co-director of the project. NMT's IRIS PASSCAL Center (PI is Rick Aster) will be working on the engineering and technical side of the project. More details are here.

NMT article

Curtis Wins Speleological Award

August 25, 2009 -- Aaron Curtis, an incoming geochemistry graduate student who will be working with Philip Kyle on the ice caves on Erebus volcano in Antarctica, recently won the James G. Mitchell award from the National Speleological Foundation.

NMT article

Koski Wins Speleological Award

August 25, 2009 -- Katrina Koski, PhD Candidate in Hydrology, won the Ralph Stone Award from the National Speleological Society. Each year, the NSS awards two Ralph W. Stone Graduate Fellowships for cave-related thesis research. NSS members currently pursuing graduate studies anywhere in the world are eligible to apply. Past recipients are Diana Northup (UNM who collaborates with

NMT article
Some details from Katrina’s proposal: Karst aquifers supply about 25% of the world’s population with water, and nearly all potable water to certain regions (e.g., 90% of Florida’s drinking water). Unique to karst aquifers is the presence of conduits, which are analogous to surface streams. Phreatic conduits are connected water-saturated tubes (below the water table) from one centimeter to tens of meters in diameter that contain most of the flow (all of it turbulent) but less than five percent of the storage of the aquifer. The water-saturated rock surrounding the conduits contains little of the aquifer flow, but comprises most of the aquifer volume and hence most of the storage. While the residence time of water in the conduit is days to weeks, the residence time of water in the matrix is decades to centuries. Thus, in chemistry and behavior, the conduit water is like surface stream-water whereas the matrix-water is ground-water. This is a unique physical system where there is a large, distinct volume of water similar to surface water below the water table (sometimes a hundred meters or more below).

John Wilson and I are studying the exchange of water between the conduit (underwater cave) and matrix (rock) in a karst aquifer. Because I am a certified cave diver (and rumor is John is going to become one!), we are able to take observations and place instruments inside the conduit and the matrix adjacent to the conduit. One variable we have to quantize to fully understand the conduit-matrix coupling is how and when the sediment moves through the conduit. My Ralph Stone Award proposal detailed a simple experiment to release tagged, artificial sediment in a karst conduit and track its movement.

EES Geophysics/IRIS PASSCAL Workshop

August 24, 2009 -- The EES Geophysics Group and the IRIS PASSCAL Instrument Center jointly put on an Antelope seismic database workshop on August 24-25, 2009. The main objective was to provide the opportunity to learn and develop a better understanding of event detection, data processing tools, and to develop software interfaces with Python and Matlab. More details are here.
May 16, 2009 -- This morning, New Mexico Tech graduated over 280 students, including 10 Bachelor degrees and 18 graduate degrees from the department of Earth & Environmental Science. The graduates are listed below including those who graduated in August and December 2008.

Antoinette V. Abeyta - BS Earth Science-Geology, December 2008
Heather Lynn Casey - BS Earth Science-Geology 2009
James B. Craft - BS Environmental Science-Hydrology 2009
Shaun P. Finn - BS Earth Science-Geophysics 2009
Jestina A. Hansen - BS Earth Science-Geology, August 2008
Jared M. Hawkins - BS Earth Science-Geology, December 2008
Robert E. Salaz - BS Earth Science-Geology 2009
Kelsey L. Seals - BS Earth Science-Geology 2009
Sophia C. Sigstedt - BS Environmental Science-Biology, August 2008
Paul R. A. Slezak - BS Earth Science-Geology
Shasta Marrero, MS graduate in Hydrology, won the Founder's Award, the top award given to a graduate student at New Mexico Tech. Shasta is continuing on at NMT to study for a PhD in Hydrology.

Student Awards/Faculty Roast Party

May 7, 2009 -- EESers held their annual end-of-the-school-year party at the Capitol Bar. Barbara Fazio, Leigh Davidson, and Pat Valentine put together a great barbecue while the 113-year-old saloon lent its usual ambiance.

Jeff Johnson was Master of Ceremonies for the Awards Presentation (video below)

Undergraduate students received the following awards:
NMGS Pipkin Book Scholarship

- Heather Casey
- Shaun Finn
- Paul Slezak

NMGS Pipkin Senior Award

- Frank Hack

NMGS Pipkin Award – Grants-In-Aid

- Kelsey Seals
- Peter Johnson
- Alicia Candelaria

Estwing Award

- Robert Salaz

Road Runner Gem and Mineral Society Scholarship

- Niranjan Khalsa
- Whitney Defoor

The following awards were presented to graduate students:

Outstanding Teaching Assistant Awards
Jeff also announced some special staff awards:

**Three top awards to administrative staff** who gave above and beyond the call of duty:

- Barbara Fazio
- Pat Valentine
- Leigh Davidson

The administrative staff presented the *Biggest Loser Award* to Jan Hendrickx, who lost a 28-ft trailer for 19 years. (See footage after the Faculty Roast skit.)
Students than presented the **Faculty Roast**, which was a live skit. (Video below)

Finally, Lisa Majkowski presented her homage to Bruce Harrison:

Thanks to Whitney Defoor for filming the festivities!

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**Condie Making Headlines Around World**

May 2009 -- Kent Condie, the lead author of an article published in Earth and Planetary Science Letters, is making headlines around the world. Some places he has been featured are *New Scientist*, USA Today, *Discovery Channel*, and two news sites in India. The article, cowritten with Craig O'Neill and Rick Aster, discusses a lull in volcanic activity on Earth beginning about 2.45 billion years ago and lasting for 200-250 million years. Oxygenation of the atmosphere occurred 2.4 billion years ago as well as widespread glaciation which they propose are related. [NMT article](#).

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**Aster Delivers Earth Day Lecture at NMMNHS**

April 22, 2009 -- Professor of Geophysics and EES Chair Rick Aster spoke at the New Mexico Museum of Natural History and Science in Albuquerque tonight as part of the IRIS/SSA Distinguished Lectureship series. Rick's presentation was "Taking Earth's Pulse and Temperature Using Seismology: Roaring Oceans and Singing Icebergs." Also attending the lecture was a contingent of students from Socorro who enjoyed dinner with Rick at La Placita in Old Town and late-night ice cream at Baskin Robbins.
Zimmerer Wins NMGS Kottlowski Fellowship

April 14, 2009 -- Matt Zimmerer, PhD Student in Geology, was selected by the New Mexico Geological Society (NMGS) to receive the 2009 Kottlowski Fellowship for his proposal "U-Pb and Ar/Ar dating of New Mexico mid-Tertiary plutons: using the plutonic record to understand caldera volcanism, mineralization, and crustal processes." Matt will receive the award at the NMGS Spring Meeting where he will also be presenting a poster related to his master's research and a talk related to southwestern New Mexico plutonism and volcanism. Congratulations, Matt!

Aster Elected President of SSA

April 13, 2009 -- Professor of Geophysics and EES Chair Rick Aster was recently elected 2009-2011 president of the Seismological Society of America (SSA), an international scientific society devoted to the advancement of seismology and its applications in understanding and mitigating earthquake hazards and in imaging the structure of the earth. The society was founded in 1906 in San Francisco, a few months after the great San Francisco Earthquake. It has members throughout the world representing a variety of technical interests: seismologists and other geophysicists, geologists, engineers, insurers, and policy-makers in preparedness and safety.

Heath Photo on Cover of Nature

April 2, 2009 -- Hydrology PhD Candidate Jason Heath's photograph of the Chaffin Ranch CO2 Geyser, Utah, made the cover of this week's Nature. The photo was taken in 2004. Jason had studied this geyser and several others as part of his MS thesis at Utah State University, which was the hydrogeochemical characterization of leaking carbon dioxide-charged fault zones in east-central Utah. Jason assisted the lead author with field work and introduced him to the various geysers in the area. Jason's PhD research involves caprock analysis for geologic CO2 storage.
Stankova-Pursley Wins AGU Best Student Paper Award

March 31, 2009 -- NMT/EES alumna and employee Jana Stankova-Pursley (MS Geophysics 2009) was notified today that she had been selected to receive an Outstanding Student Paper Award for her presentation at AGU's 2008 Fall Meeting in San Francisco. Danica Williams of the Seismology Section of the American Geophysical Union (AGU) said, "Your presentation was recognized as among the best of a strong group of student presenters, which sets an example for your fellow students and the entire AGU membership." Jana's presentation was titled "Apparent stress variation in response to seamount subduction at Nicoya Peninsula, Costa Rica."

Jana will receive her MS degree in Geophysics in May 2009, and she is currently employed by New Mexico Tech in the EES department as a Seismic Lab Technician. Jana's advisor is Sue Bilek. NMT Article.

Antarctic Team Report

March 12, 2009 -- Thirteen faculty, students, and support staff returned from a three-month stint in Antarctica to image the interior of the Mt. Erebus volcano. Phil Kyle, Daria Zandomeneghi, Omar Marcillo, and Matt Zimmerer from the EES department were members of the team. Read the NMT article for more details.

Johnson on National Geographic Radio

February 28, 2009 -- An interview with Assistant Professor of Geophysics Jeffrey Johnson aired this weekend on the radio program National Geographic Weekend.
Featured in the interview are audio clips of five different explosions from Santiaguito Volcano in Guatemala recorded on January 1, 2009, that have been sped up to be audible to the human ear. Each explosion corresponds to kilometer-high emissions of gas, ash, and hot blocks.

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**Ulmer-Scholle Studies Uranium**

*February 26, 2009* -- EES Adjunct Faculty Dana Ulmer-Scholle has written a new study on uranium and nuclear energy for the New Mexico Center for Energy Policy at NMT. [NMT article](#).

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**EES at Mt. Taylor Quad**

*February 15, 2009* -- EES members Andy Campbell, Peter Mozley, and Mark Person and Stacy Timmons from the Bureau participated as NMT Team Rock in the [Mt. Taylor Winter Quadrathlon](#). EES solo participants competing were Rick Aster, Matt Earthman, Kyle Rybacki, and Russell White. Photos above are by Laurie Crossey at University of New Mexico.

Participants raced their way up the 11,301-ft-high peak of Mt. Taylor beginning at the streets of Grants, New Mexico, on bike. When the paved road ran out, they shifted to running, cross-country skiing, and finally snowshoeing. After reaching the top, they did it all in reverse -- twenty-two miles each way.
Solo EES competitors finished as follows:

36th - Rick Aster, 5:22:54
86th - Russell White, 7:08:46
92nd - Kyle Rybacki, 7:21:41
99th - Matt Earthman, 8:17:35

NMT Team Rock placed 28th among the teams with a time of 5:27:42, well ahead of the Snow Queenies and Granny's Gang.

So how did Rick finish ahead of a team of four? Peter's broken ski? Steroid doping? Rick responded with these pictures and caption, "Getting ready for another injection at the top of Heartbreak Hill."

Blamey Attends Geothermal Workshop

February 9, 2009 -- Visiting Professor of Geochemistry Nigel Blamey attended the Stanford Geothermal Workshop on Feb 9-11 as part of the department's commitment to geothermal energy. He spoke to many people to find out more about how we may harness the geothermal resource at M Mountain for possibly heating campus. Oregon Institute of Technology has heated their campus for decades and currently they are establishing an electric generation system to power their campus. We do not have the high temperatures that OIT has, but it is feasible to provide assisted heating like NMSU. AltaRock has an interest but will only be opening discussions with us in about a year as they have other projects to implement at this juncture.
Jones Exhibits Photography

January 19, 2009 – Kyle Jones, MS Student in Geophysics, exhibited his Antarctic photography for the first time at Macey Center from Jan 6 - Feb 1. Mountain Mail article.

Summer 2009

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Boston Looks to Exoplanets for Life

August 3, 2009 -- Penny Boston is part of a NMT-JPL team that recently received a NASA EPSCoR grant for $732,000 to design and build an infrared spectrometer to study the atmospheres of known extrasolar planets in our galaxy. The instrument will be capable of detecting molecules that are present in the exoplanet's atmosphere as the planet travels in front of its sun which provides backlighting. If scientists find an atmosphere that is not in chemical equilibrium, this suggests the presence of life on the exoplanet. The spectrometer will be used with the Magdalena Ridge Observatory 2.4-meter telescope and should be operational by mid-2011. NMT Article.
**Inventory Goddess**

*July 30, 2009 --* Leigh Davidson was proclaimed Inventory Goddess today after successfully completing the department's inventory 1 day early. Thanks to everyone for complying with Leigh's requests to account for all your stuff.

Read about Jeff Johnson's volcano class in Ecuador [here](#).

The 2009 New Mexico Water Research Symposium, held on August 11 at Macey Center, is dedicated in memory of [Rob Bowman](#).

Bill McIntosh and EES Adjunct Faculty Steve Cather, Nelia Dunbar, and Peter Scholle have published an article about a hypothesis that links extreme volcanism to global cooling. [Article](#).

EES Adjunct Faculty Thomas Kieft was mentioned in a news feature in *Nature* about how microbes survive deep underground.

**Geothermal Energy at NMT**
June 18, 2009 -- Mark Person and others were interviewed by the Associated Press on the NMT geothermal heating project. One plan is to tap into naturally heated groundwater to heat the campus. The US Dept of Energy has awarded $473K to drill a 1500-foot geothermal test well in the foothills of Socorro Peak.

The CREST project was recently highlighted in the AAPG Explorer. Rick Aster is the PI.

Robert S. Bowman 1950 - 2009

June 6, 2009 -- Rob Bowman died June 6, 2009, at his home in Lemitar after a short battle with cancer. Dr. Bowman, 58, was a professor of hydrology in the Earth and Environmental Science department at New Mexico Tech since 1987.

The service will be at the Polvadera Cemetery on the frontage road next to San Lorenzo Catholic Church in Polvadera at 10 a.m. Wednesday, June 10. A potluck lunch will be at Virgil Lueth's house on Community Road following the service. Please, no flowers. Instead, if you wish, donate to the Socorro General Hospital hospice program in Rob's name.

Rob is survived by his wife, Karen Bailey-Bowman and his son, Danny. NMT Tribute