



autumn 2004

the experimental program
to stimulate competitive research

Passing the Torch

After 24 years, The University of Montana is taking over the leadership of the NSF EPSCoR grant. With the 2004-2007 grant proposal, the lead will transfer from Montana State University to The University of Montana for the first time. The PIs and staff at both universities are excited about this change and the new challenges it will bring. Montana State University is ready to turn over the responsibility and “pass the torch.”

Over the past two years, Dr. Chuck Thompson, Director and Gay Allison, Assistant Director at The University of Montana, have been gearing up for this challenge. Anticipating the role changes that would follow, they had the foresight to begin preparations well in advance. In 2001, two employees were hired to tackle the growing programs

and complicated budgets. A part-time hire was also made in 2004 in order to design the new Montana NSF EPSCoR portal page, newsletter, and maintain the web site. All that planning has paid off. The transition has been a smooth one.

After the formal announcement in mid-July of the grant award, an August mini-conference was hosted by UM at the Double Arrow Resort in Seeley Lake, Montana. Representatives from UM, MSU and Montana Tech gathered to share ideas. Valuable lessons learned by MSU were passed on to UM and strategies for implementing the new grant were discussed at length. However, the conference was also a time to celebrate a job well done. At dinner, Dr. Mark Young passed a flaming torch to the amused UM director, Dr. Chuck Thompson, thereby completing the transition and closing the door on one chapter of Montana NSF EPSCoR and opening the door to a new one.



Mark Young and Gary Strobel



UM's Chuck Thompson accepts the torch from MSU's Mark Young



Our Pyramid Scheme

Picture a pyramid, now invert it so that it stands upon the point and the base is pointing skyward. This is Montana NSF EPSCoR's pyramid scheme.

The extremely broad upper surface represents kindergarten through high school students and their teachers, small business owners, guest lecturers, conference attendees, visiting scholars, undergraduates, graduates, technicians, and professors from across Montana.

Dropping down a level we see the State of Montana EPSCoR Committee—a state appointed group whose purpose is to help shape the direction of all EPSCoR funded agencies in Montana. Currently, Montana has active EPSCoR awards from the National Science Foundation, Department of Energy, NASA, Department of Defense, National Institutes of Health, US Department of Agriculture, and the Environmental Protection Agency. Also under this committee's oversight is the task of uncovering ways in which government agency initiatives and directions can aid our state. These ideas create opportunities for the state to utilize EPSCoR funding, where by, accomplishing numerous goals and objectives, which in turn meet many of the State's needs.

Toward the middle of our pyramid the NSF EPSCoR Governance and Internal Advisory committees are positioned. The Governance Committee listens to the recommendations set out by the State EPSCoR Committee and determines how these suggestions fit within the context of Montana NSF EPSCoR initiatives. The Internal Advisory Committee, at each institution

(UM and MSU), refines this process even further by blending the individual universities' focus areas with Montana's science vision.

As we near the point, the EPSCoR offices come into view. These offices represent the everyday workings of the operation. Here, the programs are designed and executed, programs like: SBIR, Undergraduate Research, and K-12 Outreach, to name a few. The University of Montana and Montana State University directors collaboratively share the implementation of

the grant, while the office staff handles the running and maintaining of the programs, managing and monitoring budgets, and producing and reporting a myriad of required documents for the upper level committees and funding agencies.

Finally, at the tip of this pyramid, we see that two funding sources share the fulcrum upon which all reside. The larger source

of funding, at \$9.0M (over 3 years), is from the National Science Foundation Experimental Program to Stimulate Competitive Research (NSF EPSCoR). The State of Montana Board of Research and Commercialization Technology (MBRCT), is providing the required \$4.5M matching funds (\$3.0M for 2004-2006, with the remaining \$1.5M to be applied for in 2006).

People all over Montana receive NSF EPSCoR and MBRCT funds through programs being executed at each institution. Committees add the guidance and direction; NSF EPSCoR offices implement and provide the support; individuals use the money to foster growth and national competitiveness. Now, with this fully functioning, collaborative pyramid, Montana truly reaps the benefits of the National Science Foundation and the MBRCT.



Roberto Barrozo, UM, Undergraduate Summer Diversity Researcher; 2004

SF EPSCoR

The Line Up

We are excited about the new 2004-2007 core focus areas and programs that will be renewed, developed, and made available due to the recent funding provided by the National Science Foundation and the Montana Board of Research and Commercialization Technology. These programs will operate from the EPSCoR offices at The University of Montana and Montana State University.

As with past awards, Montana NSF EPSCoR will continue to promote the ever successful: seminar speaker, scientific conference, graduate student stipend, visiting scholar, undergraduate research, summer undergraduate diversity research, community and educational outreach and SBIR programs.

The new core focus areas will include:

- Biomolecular Structure and Dynamics—Phase II
- Bioengineering—Directional Partnership
- Center for Structural and Functional Neuroscience—A Programmatic and Curriculum UM-MSU Partnership
- Center for Bioinspired Nanomaterials—A Multidisciplinary Partnership
- Core and Facility Support—Building the Informatics, Visualization Technologies and ‘Omics’ Platforms

The new core sub-programs will include:

- Women in Science Engineering Bridging
- New PhD Program in the History of Science and Technology in the West
- Integrated Science Learning Exploratorium “ISLE”
- Science Fair Programs
- Center for Teaching Excellence
- Enhancement of Science & Technology at Montana’s Tribal Colleges - New Faculty Hires

MONTANA NSF EPSCoR

This publication promotes the development of Montana science and technology resources through partnerships involving Montana universities, industry and state research and development enterprises. EPSCoR operates on the principle that aiding researchers and institutions in securing federal funding will develop Montana's research infrastructure and advance economic growth. EPSCoR's goal is to maximize the potential inherent in Montana's science and technology resources and use those resources as a foundation for economic growth.

MONTANA NSF EPSCoR PARTNERS

Montana University System
The University of Montana-Missoula
Montana State University-Bozeman
Montana Tech of The University of Montana
The University of Montana-Western
Montana State University-Billings
Montana State University-Havre

TRIBAL COLLEGES

Blackfeet Community College
Chief Dull Knife College
Fort Belknap College
Fort Peck Community College
Little Big Horn College
Salish Kootenai College
Stone Child College

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MONTANA NSF EPSCoR

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Please send comments and inquiries to:

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EPSCoR Who's Who Montana State University



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Susie Couch
Financial



Sara Young
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Tom McCoy
VP for Research



Leslie Schmidt
Associate VP for
Research

A Toad's Life

The night sky changed quickly from light, summer sky to purple dusk in the forest around us, as we headed out from the little brown cabin, “the caboose” as Dawn called it. We started down the barely visible path as the sky continued to darken. Through the trees we caught movements of deer moving silently through the green, lush forest. We listened for bird calls and even harder for bears and skunks as we wandered down the path to Jones Pond, Dawn’s summer home-away-from-home in UM’s Lubrecht Experimental Forest. Dawn LoBaugh was one of Montana’s 2004 Undergraduate Summer Diversity Research Program participants. She was studying the Boreal Toad, *Bufo boreas boreas* this past summer.



Toad hunting with Dawn LoBaugh and Emilie Simpson

Dawn’s research work took her from the dorm on the UM campus to the forest experimental each week. She spent eight weeks working with Lisa Eby, Professor of Wildlife Biology in the College of Forestry and Conservation, gathering data on the Boreal Toad, for thirty-five hours each week. The data Dawn collected would help shed light on the nocturnal emergence and feeding habits of these declining amphibians. Eight other Diversity students also made this particular evening trip to Lubrecht to experience Dawn’s research setting and learn first-hand about her project. Mayra de los Reyes, from NEIU, Chicago and Rafael Perez from Puerto Rico’s university of the same name, were the most excited to find the radio-collared toads. Dawn had been using some unique equipment for her research. These students were quite anxious to try out her radio-tracking device, check out the night vision goggles, and see if they could locate a toad in the dark themselves.

Dawn’s field study was just one of the program projects that brought students to Missoula this past summer. Twelve participants from Puerto Rico, San Francisco and Chicago

SF EPSCoR

were involved in rich, compelling field and lab research experiences with UM faculty mentors. The field research projects included: a geology study of grain size distributions of Flathead Lake sediment cores; study of the geology of valley



Rafeal Perez hunting by radio signal

spacing and drainage patterns in the Bitterroot Mountains; a forestry project looked at the relationship between cottonwood trees and the adjacent water table along irrigation ditches near the North Fork of the Blackfoot River; a botany investigation took place near Bannack, Montana; and a physical therapy study of peak oxygen consumption for wheel chair users was also researched. The lab research studies included: nucleocapsid protein in HIV; a survey of counselor experiences; asbestos exposure; a cellular study of triggered autoimmunity; the pharmacology of herbal supplements; and research comparing petroleum diesel with bio-diesel.

Back at Lubrecht Forest, Dawn showed us the spot where she would be stationed, undisturbed, on the hill overlooking the pond to make her observations of the first toads emerging for their evening foraging. She showed us the riparian zone where we would quietly hike while



A Boreal Toad in the hands of Mayra de los Reyes

The toads eluded our efforts. We made a slow, half circle turn on the slope and immediately picked up the clear, steady ticking of the transmitter. Mayra's face lit up. She smiled, "Dawn, we have your toad." And, Mayra was off on the stealthy hunt, intent upon finding her target in the growing darkness.

EPSCoR Who's Who

The University of Montana

Chuck Thompson
Director



Gay Allison
Assistant Director



Rhonda Stoddard
Financial/Programs



Deb Fassnacht
Diversity/Outreach



Hank Green
Website/Publications



Dan Dwyer
VP for Research



Claire Carlson
Associate VP for
Research



Patty Haisch
Fiscal Accountant



Montana N

NEW PROPOSAL - NEW PLACE - NEW PUBLICATION

With a new grant in hand, awarded through the NSF EPSCoR (\$9.0M), in collaboration with a match from the Montana Board of Research and Commercialization Technology (\$4.5M), The University of Montana becomes the administrative lead for the first time since Montana joined the EPSCoR family in 1980. Armed with a new proposal (04-07), and a new place (UM), a new publication was designed. Enjoy!

Montana NSF EPSCoR Autumn 2004 Calendar

October

- 1 Montana Tech - URP Proposals reviewed
- 6 UM Big Sky Career Fair
- 6 Montana Tech - URP Rewrites Due
- 8 Quarterly Project Directors and Project Administrators meeting, Washington DC
- 8 UM and MSU Homecoming Festivities
- 8 MSU Bozeman Annual Career Fair
- 9 UM Homecoming Game vs Idaho State
- 9 MSU Homecoming game vs Weber State
- 31 NSF 01-04 grant - Final report due in Fastlane

November

- 2 Holiday - Election Day
- 11 Holiday - Veterans' Day
- 18 - 19 UM -Board of Regents Meeting
- 20 UM - Griz vs Cats Game
- 25 - 26 Thanksgiving Holiday

December

- 8 - 15 UM - Finals Week
- 13 - 15 MSU - Finals Week
- 24 Christmas Holiday
- 27 Montana Tech - 1st half of URP award distributed
- 31 New Year's Holiday

Coal Trust to Board Trust

February 19, 2002 rang in another Montana Board of Research and Commercialization Technology (MBRCT) meeting. The usual members in attendance: Bill Crain, Chairman, Ralph Hutchenson, John Youngberg, and newest member, Tom Kaiserski. Marin Connell and Michael Dolson were away on business. Dave Desch, Executive Director and Jane Todd, Program Specialist, along with guests, Tom McCoy, VP for Research (MSU) and Vernon Grund, Assistant VP for Research (UM) were also present.

“Dr. McCoy discussed the history of The Montana Science and Technology Alliance (MSTA), the Board’s predecessor. (In previous years, the state’s match for EPSCoR funding was provided by MSTa). He explained that funding came from the permanent coal trust. EPSCoR funding was provided to the Montana University System with the requirement that it be paid back to MSTa. . . . Dr. McCoy explained that over the past ten years EPSCoR has provided funding that has enabled MSU and UM to hire over 100 faculty at all levels. Hiring a critical mass of faculty to do research and development is key for discoveries that can be transferred out to the agricultural and high-tech communities. That growth in the state’s research enterprise would not have been possible without EPSCoR dollars to hire faculty.” (*Excerpt from 2/9/02 MBRCT minutes*)

Fast-forward to September 30, 2003—same players—no guests.

“Dave Desch referred the Board to information prepared by the EPSCoR office at MSU, including a newsletter and a computer disk. The Experimental Program to Stimulate Competitive Research (EPSCoR) began in 1980 to assist the research efforts of rural states like Montana to compete nationally for research dollars. The Board is completing a three-year project (01-04), matching a \$3 million a year NSF award with \$1.5 million a year. Nine million dollars has been requested for the next three years from NSF, and a \$1.5 million match per year (04-07), will be requested from MBRCT.” (*Excerpt from 9/30/04 MBRCT minutes*)

Discussion was tabled.

Toward the end of this same September 30th meeting, the EPSCoR project discussion was resumed.

“ . . . it was decided to communicate that the Board matched NSF EPSCoR because of the specific federal requirement for state match, which differentiated NSF EPSCoR from other EPSCoR projects.” (*Excerpt from 9/30/04 MBRCT minutes*)

Jump ahead one more time—July 1, 2004. The Montana NSF EPSCoR programs would again receive match funding from the MBRCT. The Board awarded \$1.5 million annually for FY04 and FY05 to NSF’s \$3 million each year for the 2004-2007 proposal: Montana Infrastructure via Science and Technology Enhanced Partnerships (INSTEP). The Board will review (in 2006), the University’s submission for the remaining \$1.5 million required matching funds.

Looking back, the Board, which was created in 1999 by the Montana Legislature, has provided “a predictable and stable source of funding” for a wide range of projects in research and commercialization: production agriculture, electro-optics, biotechnology and digital imaging, to name a few. This provision has amplified the success of NSF EPSCoR in Montana. For every dollar the MBRCT awards, NSF EPSCoR matches with two.

“This process has worked out very well for Montana with Montana University System grants and contracts expenditures increasing from \$10 million in 1980 to \$100 million today.” (*Excerpt from the 9/30/03 MBRCT minutes, Dave Desch speaking*)

We in the UM and MSU NSF EPSCoR offices think so too. What a match!

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