

FOCUS



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KENTUCKY HOSTS NATIONAL EPSCoR CONFERENCE

The Kansas NSF EPSCoR (KNE) office coordinated the attendance of 11 participants at the November 2006 National EPSCoR Conference in Lexington, Kentucky. The Kansas contingent included university faculty, legislators, and Kansas Technology Enterprise Corporation (KTEC) officers and board members, in addition to the KNE project director, associate director and staff.

Rising above the Gathering Storm: Innovating to Compete in a Global Economy provided a theme and focus for explorations and discussions on how the EPSCoR community can contribute to advancing science and technology in a rapidly changing world.

Dr. Leonard Krishtalka, Director of the KU Natural History Museum and Biodiversity Research Center, and KNE co-leader of the Ecological Forecasting major initiative, presented *National Priorities: Forecasting Environmental Phenomena* as part of a panel, *Applying the Innovating Culture to High-Priority National Needs*.

Kevin Carr, KTEC Chief Operating Officer presented a talk describing *Commercialization of EPSCoR Investments*.

The attendees, including Kansas Legislators Rep. Terrie Huntington (R-Topeka) and Rep. Lana Gordon (R-Mission Hills) were hosted on tours demonstrating examples of northern Kentucky's economic development and tourism such as the thoroughbred horse racing and breeding industry and the high-tech Toyota Motor Manufacturing plant located in Georgetown, KY.

The featured speaker was William C. Harris, President and CEO of the Science Foundation Arizona and former Director of the Science Foundation Ireland. Harris spoke of his experiences in Ireland as the government transformed its economy from nearly bankrupt to one of the strongest in the European Union largely due to a significant investment in the expansion of the nation's R&D enter-



KANSAS ATTENDEES INCLUDED (L TO R) DOUG BYERS, KANSAS NSF EPSCoR BUDGET AND ACCOUNTS ADMINISTRATOR, J. DAVID McDONALD, ASSOCIATE PROVOST FOR RESEARCH AT WSU, KRISTIN BOWMAN-JAMES, KANSAS NSF EPSCoR PROJECT DIRECTOR, KANSAS REPRESENTATIVE LANA GORDON, VERN SILVERS, KTEC UNIVERSITY PROGRAMS COMMITTEE CHAIRMAN, KANSAS REPRESENTATIVE TERRIE HUNTINGTON, AND SIMON LAUWO, KSU GRADUATE STUDENT.

prise. He talked about how similar strategies could be effective in the United States, particularly EPSCoR states, in maintaining its international competitiveness.

In addition, graduate student Simon Lauwo, KSU Department of Civil Engineering, presented a poster titled *Coupling Crop and Hydrological Models for Decision Support in the High Plains Aquifer*. The presentation addressed the decline of groundwater resources in the High Plains region of western Kansas. Researchers are integrating geo-data-



KANSAS NSF EPSCoR PROJECT DIRECTOR, KRISTIN BOWMAN-JAMES, ENJOYS A TOUR OF KEENELAND RACE COURSE WITH J. DAVID McDONALD, ASSOCIATE PROVOST FOR RESEARCH AT WSU AND KEITH YEHLER, KU GOVERNMENTAL RELATIONS.

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bases with GIS data to generate models to help stakeholders make informed decisions on how to use groundwater for the present and future generations.

FROM THE DIRECTOR

Dear Colleagues:

Greetings from Kansas NSF EPSCoR (KNE). This last year has been eventful for KNE with a number of changes at home and in Washington as we head toward our third year of funding in Phase V. Our long term Associate Director Barbara Paschke retired last December. Barb has been a mainstay of the program over two previous Directors. The smooth running of the program is largely due to her efforts, not the least of which included working with programmers in the Information Technology and Telecommunications Center to create a database for our awardees that is second to none. We in the office wish her success in her future endeavors. We have now reorganized the office structure and Doug Byers, our former Budget and Accounts Administrator, has been appointed the Assistant Director. It is a great pleasure to work with Doug in his new capacity.

In Washington, the EPSCoR office has been relocated to the Office of Integrative Activities, headed by Dr. Nathaniel Pitts, which is in the Office of the Director. Dr. Henry N. Blount, III has also succeeded Dr. Sherry Farwell as EPSCoR Office Head.

In Kansas, the Ecological Forecasting project has completed its first year of funding. At last count there were 101 researchers associated with this single major initiative funded in Phase V. Highlights from its first successful symposium are on page 3.

KNE has funded two other types of initiatives this past year, which include two Planning and Innovation grants and five Education and Diversity awards. The latter awards are specifically designed to focus on increasing diversity in the research enterprise in Kansas. These awards are particularly exciting in that they bridge from K-12, through community colleges and the universities,

and include encouraging participation of Native American students in the biological sciences. In the next Newsletter more will be coming on the progress of these newly awarded projects.



KRISTIN BOWMAN-JAMES,
PROJECT DIRECTOR

PLANNING AND INNOVATION GRANTS

KNE sponsored a Planning and Innovation Grants competition to encourage faculty in development of large, collaborative, multi-investigator, multi-disciplinary, NSF research proposals. Two awards were made in December 2006.

Logistics, Distribution, and Infrastructure Planning for Kansas Biofuels and Biomass



DR. JANET TWOMEY

Industries 2020, awarded to Dr. Janet Twomey, WSU Department of Industrial and Manufacturing Engineering, will use KNE funds to plan a proposal to conduct research, infrastructure planning, policy and decision making for Kansas biofuels (ethanol in particular) and biomass industries for the year 2020 and beyond.

Two major problems confront the industry of renewable energy crops. New research is needed to find new energy crops and more profitable uses of byproducts, and there continues to be a lack of logistics and efficient distribution.

Twomey's grant will focus on the logistics,

distribution and infrastructure to support these industries. For example, ethanol refineries are being built without analysis related to plant location. Proximity to efficient and low-cost rail transportation is preferable to costly transport by truck.

Another grant, *Assembly and Properties of Functionalized Carbon Nanotubes*, awarded



DR. CHRISTER AAKERÖY

to Dr. Christer Aakeröy, KSU Department of Chemistry, will assemble new and experimental data from four research groups at KSU in areas related to nanoscale science. The synthesis, assembly and characterization of functionalized (and soluble) carbon nanotubes (CNT's) are expected to influence areas such as ion-channel blockers, superconductivity, biosensors, and high-strength composites.

The newly created research group will address critical issues that may subsequently allow the transformation of CNT's into chemical architectures that can be interfaced with biomaterials.

HIGH SCHOOL GIRLS ENJOY WOMEN AND SCIENCE CONFERENCE

The Women in Science Conference, sponsored by the University of Nebraska-Lincoln Center for Science, Mathematics and Computer Education and Nebraska EPSCoR, was held February 23-24, 2007 to encourage young women students to pursue careers in science.

The annual conference offers students the opportunity to meet and interact with career and academic professionals in science as well as with graduate and undergraduate university students. Participants discover the vast number of career opportunities open to them in countless professions as diverse as biology,

engineering, pharmacy, and a variety of medical fields.

Four students from Topeka's Highland Park High School and three students from Topeka High School were sponsored by KNE to attend the conference. In total, 58 young women and 20 sponsors representing 16 schools were in attendance.

Keynote speakers, panels of professional women discussing educational and career backgrounds, and tours or workshops introduced participants to the challenges and opportunities of the career options open to women who study mathematics and the sciences.

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ECOLOGICAL FORECASTING SYMPOSIUM

EDUCATION AND DIVERSITY GRANTS



THE SYMPOSIUM PLAYED HOST TO THE PROJECT'S EXTERNAL SCIENCE ADVISORY COMMITTEE, FROM LEFT TO RIGHT: SHASHI VERMA, UNIVERSITY OF NEBRASKA-LINCOLN, DR. LEONARD KRISTHALKA, ECOLOGICAL FORECASTING PROJECT CO-LEADER AT KU, JAMES MACMAHON, UTAH STATE UNIVERSITY, LUIZ DASILVA, VIRGINIA TECH, KRISTIN BOWMAN-JAMES, KANSAS NSF EPSCoR PROJECT DIRECTOR, AND WALTER DODDS, ECOLOGICAL FORECASTING PROJECT CO-LEADER AT KSU.

Kansas team members highlighted the first year of research activities for *Forecasting Ecological Change in the Central Plains* at the first Annual Ecological Forecasting Symposium, April 2007 at the Kansas State University Union, Manhattan. Dr. Leonard Kristhalka, Director of the KU Natural History Museum and Biodiversity Research Center, and Dr. Walter Dodds, KSU Dept. of Biology, co-direct the project.

More than 40 attendees were updated as to the progress of the project which includes the KU Natural History Museum and Biodiversity Research Center, the KSU Division of Biology, and the Ft. Hays State University Department of Biological Sciences. Nine researchers involved in various aspects of the project gave formal presentations highlighting key findings of their research to date. The presentations were preceded by an update of NSF's NEON initiative by Dr. James MacMahon, College of Natural Resources, Utah State University. Dr. MacMahon serves on NEON's Senior Management Team and National Network Design Committee and is the chair of NEON, Inc.



DR. JAMES MACMAHON,
UTAH STATE UNIVERSITY

The symposium also coincided with the first annual meeting of the External Science Advisory Committee. This committee, assembled by the Kansas NSF EPSCoR Project

Director, is charged with evaluating and providing scientific, technical and management guidance to the researchers leading the Ecological Forecasting initiative. The members were treated to a tour of the Konza Prairie Biological Station prior to attending the symposium. Serving on the committee are James MacMahon, Director of the Ecology Center, College of Natural Resources, Utah State University, Shashi Verma, Charles Bessey Professor of Natural Resource Sciences in the School of Natural Resources, University of Nebraska-Lincoln, Luiz DaSilva, Associate Professor of Electrical Engineering, Virginia Tech, and David Allen, Professor and Associate Dean, School of Natural Resources & Environment, University of Michigan (not present).

The event was also host to a poster session that provided for lively discussion during breaks. More than 20 posters highlighting research activities were presented by both Ecological Forecasting faculty and students.

Additional information about Ecological Forecasting can be found at: <http://www.k-state.edu/ecoforecasting/>



DR. SHARON BILLINGS,
UNIVERSITY OF KANSAS

In July of 2007, KNE awarded five Education and Diversity Grants. Education and Diversity Grants are designed to enhance science, technology, engineering and mathematics (STEM) education in Kansas by supporting activities that will lead to an expanded STEM workforce or prepare a new generation for STEM careers. It is anticipated that these awards will benefit a broad spectrum of the Kansas population from K-12 students and teachers to community colleges to Native American students.

- *Ecology and Evolution: Helping Students Understand a Changing World*, Joseph Hepfert, KU. This project will provide professional development to twenty middle school teachers at Kansas City Kansas Public Schools (USD 500). Participants will explore aspects of the Kansas NSF EPSCoR research on ecological forecasting, and will be able to bring cutting edge ecology research techniques and findings into their classrooms.

- *Empowering Community Colleges with Cybersecurity Programs*, Kameswara Rao Namuduri, WSU. KNE funds will be used to enhance laboratory facilities and research activities in the area of Information Assurance in community colleges and increase awareness of information security related issues in the community. The activities are expected to lead to the establishment of a nationally recognized center for excellence in Information Assurance at WSU within the next two years.

- *Recruiting Native Americans into the Environmental Sciences*, Raymond Pierotti, KU. The long-term goal of this project is to build a critical mass of skilled Native American Environmental professionals to work with tribal and other Indigenous communities. The grant will support increased research opportunities and activities that enhance the educational experience of Native American undergraduate students. These students will receive broad exposure to technical and policy issues involved in wetlands and watershed management.

- *A Systematic Approach to Infusing Science Research into K-12 Classrooms*, Jacqueline D. Spears, KSU. This project will develop a more systematic process for selecting research applications that address diversity issues through the inclusion of research applications more

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RECENT CHANGES AT NSF

Early in 2007, the Washington NSF EPSCoR office was moved from the Directorate of Education and Human Resources to the Office of Integrative Activities (OIA).

The OIA supports the efforts and policy of the Director and the Deputy Director of the National Science Foundation. The move will allow for a more effective integration of the program across all of NSF's directorates.

In late May, Dr. Henry N. Blount, III, was appointed head of NSF EPSCoR. Dr. Blount is a long term NSF program officer coming to EPSCoR from the Directorate for Mathematical and Physical Sciences where he was most recently head of the Office of Multidisciplinary Activities. Blount received his bachelor's degree in chemistry from the University of North Carolina in 1963 and his doctorate in chemistry from the University of



NATIONAL SCIENCE FOUNDATION

DR. HENRY BLOUNT, III

was recently appointed to an exciting position in the Office of Legislative & Public Affairs at NSF. Dr. M. Edward Galindo has taken over as program officer for KNE. Dr. Galindo received his BS from the University of Idaho in Animal Science and his Ph.D. from Utah State University in Earth and Space Science Education. He has previously served as PI on several federal awards including initiatives that increase the participation of Native Americans in the sciences.

Georgia in 1969. Before joining NSF in 1984, he was on the faculty of the University of Delaware.

Other Washington news is that KNE has a new NSF program officer after long-term program officer, Karen Sandberg,

DIVERSITY GRANTS

(continued from page 3)

likely to appeal to female students and Hispanic students. It plans to create an infrastructure that involves a much broader network of teachers in the process of evaluating and disseminating web-based science research lessons.

• *Research Experiences for Teachers*, Bala Subramaniam, KU. Four area high school chemistry teachers will engage in full-time research for six weeks in the summer of 2008 to learn how to integrate sustainable engineering and technology concepts and practices into their curriculum. Talented teachers will be recruited from area school districts that serve a majority of under-represented and economically disadvantaged students.

BARBARA PASCHKE RETIRES

In December 2006, Associate Director, Barbara Paschke, retired from KNE. Paschke joined EPSCoR when Dr. Ted Kuwana was Project Director, later working with Dr. Thomas Taylor and Dr. Kristin Bowman-James as project directors.

She assisted with the development of three successful Research Infrastructure Improvement proposals to NSF as well as numerous other initiatives like the Great Plains Network. Her expertise in dealing with researchers state-wide and coordinating Kansas' efforts at the national level have been an important part of EPSCoR's success.

Dr. Taylor said, "Barb Paschke brought a professional portfolio of skills to the NSF program at both the state and national levels that made the Kansas program a model for other EPSCoR jurisdictions." He added, "Her commitment to the program provided a level of continuity that made it possible for numerous groups of Kansas researchers to develop significant and lasting collaborations that have advanced research agendas within the state and its institutions."

BOWMAN-JAMES AND BYERS HONORED

Four University of Kansas faculty members were recently named University Distinguished Professors including Kristin Bowman-James. The designation is made wholly on the basis of merit to those among the top scholars in their fields and who possess an international reputation.

Doug Byers was named the August 2006 unclassified employee of the month. His service to KNE and the State was recognized by KU Provost, Richard W. Lariviere at an unannounced visit to Byers' office in Foley Hall.

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