Louisiana EPSCoR
Experimental Program to Stimulate Competitive Research
Volume 1
Number 4
August 2004

Universities Awarded Grant to Increase Oil & Gas Discovery, Productivity

Increasing oil and gas discovery and productivity in the Gulf of Mexico via a powerful computing and monitoring system is the goal of a $1.2 million grant awarded to three Louisiana universities. The three-year Department of Energy EPSCoR grant could be extended to six years. The Board of Regents Support Fund is matching the award with $1.2 million and participating universities have pledged over $1.5 million, bringing the total to over $3.9 million.

"Increasing our nation's domestic petroleum supply and decreasing its dependence on petroleum imports relies heavily on the efficient production of energy resources in the Gulf of Mexico. It is also imperative for Louisiana's economy to more progressively employ emerging technologies to enhance energy productivity and management," said E. Joseph Savoie, commissioner of higher education.

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The LONI Forum
September 2-3

See page 2 for information.

Researchers at the University of Louisiana at Lafayette (ULL), the lead institution, Louisiana State University and A&M College (LSU) and Southern University and A&M College (SU) will develop a powerful ubiquitous computing and monitoring system (UCoMS) by integrating the scattered computing and centralized communications systems currently in use. Establishing Louisiana as a national center for the development of grid computing technology with applications in oil and gas exploration and production is the prime objective.

"This multi-disciplinary project has the potential to establish new industry procedures that promise truly revolutionary gains," said Michael Khonsari, Louisiana EPSCoR project director. "The massive computation power of the UCoMS grid will ensure maximum utilization of oil and gas fields by substantially improving oil and gas well productivity and characterizing reservoirs."

The key project participants are Nian-Feng Tzeng, principal investigator, ULL professor of computer engineering, and seven co-principal investigators: Magdy A. Bayoumi, director, ULL Center for Advanced Computer Studies (CACS); Hongyi Wu and Dmitri Perkins, CACS assistant professors; H. Edward Seidel, director, LSU Center for Computation and Technology; Gabrielle Allen, LSU associate professor of computer science; Christopher D. White, LSU assistant professor of petroleum engineering; and John Dyer, SU professor of computer science. *(Continued of page 2)*

ULL researchers testing wireless communication equipment to be deployed for the powerful ubiquitous computing and monitoring system funded by the DOE EPSCoR program are, left to right, Haining Chen, Dr. Hongyi Wu, Denvil Smith, Atif Siddiqui and Dr. Dmitri Perkins. Chen, Smith and Siddiqui are graduate assistants.

DOE Grant *Continued*

According to Tzeng, the research will focus on: 1) a wireless networked system, 2) grid computing with massive computation power and storage for the discovery and management of energy resources, and 3) discovery and management applications that take advantage of UCoMS. Additional benefits will include:

- accurate status of drilling and reservoir conditions;
- optimal utilization of oil and gas reservoirs;
- improved detection and location of potential oil and gas pipeline leakage, platform damage, and hostile intrusions by people or animals;
- improved oil and gas platform safety; and
- the ability to analyze real-time data with archived data and scenarios to precisely locate and quickly remove causes of risk problems, and the eventual possibility of foreseeing or predicting them.

In addition to the key project investigators, the research cluster includes another four faculty researchers, a postdoctoral researcher, an information technology analyst, and 19 graduate and undergraduate students. Industrial partners include, among others, Stone Energy Corporation and Fenstermaker & Associates, Inc, both in Lafayette, and Landmark Graphics in Austin, Texas.

Resources supporting the UCoMS project include interconnected workstations, servers, storage devices, a computational grid composed of a 96-node cluster system at ULL, and LSU's SuperMike, a computer cluster with 1,024 Pentium4 processors and one of the world's fastest supercomputers.

The Office of the Governor, Board of Regents' Louisiana NSF EPSCoR, and LSU's Center for Computation and Technology proudly present The LONI Forum.

Louisiana Optical Network Initiative is a statewide fiber optic network that will connect researchers thousands of times faster than currently possible, connecting the State to the National Lambda Rail.

For more information and to register for this event, visit http://www.cct.lsu.edu/news/loniforum.php

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