



TEXAS TECH UNIVERSITY

Wind Science and Engineering Research Center™

Bi-Weekly Newsletter Faculty, Staff, and PhD Student Updates

Texas Tech and Partners to Power Up First Wind

Research Farm: Texas Tech, industry and research partners are poised to power up their first of several planned renewable energy test facilities to help resolve key scientific and technology issues facing the wind power and broader clean energy industries. The first wind turbines will be placed at Reese Technology Center in Lubbock, where a groundbreaking for the research farm is currently being planned and will be announced in the coming weeks.

The [National Institute for Renewable Energy](#) (NIRE), a public-private partnership formed earlier this year by the Innovate Texas Foundation with collaborative support from Texas Tech, will design, construct and operate the research wind farm and provide research access to Texas Tech and the [National Wind Resource Center](#) (NWRC), a non-profit research center. As strategic research partners to Texas Tech, South Plains Electric Co-Op in coordination with Golden Spread Electric will purchase the power generated through this effort.

Established by Texas Tech, the NWRC will centralize the research, with support from many of the nation's leading research universities, each utilizing its unique areas of expertise within the renewable energy sector.

The initial research goals of the NWRC are to tackle the three main challenges faced nationally in the wind power industry: enhancing the performance and reliability of wind power, decreasing the cost of wind power and addressing power storage issues.

"There are several new turbine technologies we plan to deploy at the Reese Technology Center," said David L. Miller, chairman of the NIRE Board of Directors. "We are also currently evaluating several additional sites for the deployment of a scalable energy storage solution."

In July the Texas Emerging Technology Fund awarded \$8.4 million to Texas Tech to support the launch of NIRE and NWRC.

Additionally, national organizations supporting NIRE include the American Wind Energy Association, The Wind Alliance and The Wind Coalition. They will be joined by as many as 30 private-sector firms with large investments in renewable energy projects.

The [Innovate Texas Foundation](#) is a non-profit institution that serves as a catalyst for collaboration and transactions among universities, industry, investors and government enabling them to engage with the global economy more efficiently and effectively.

The [Reese Technology Center](#) is a regional world-class, high technology research, educational training, and business community by generating capital and intellectual wealth. Reese Technology Center consists of a main campus centered in education, research, engineering and technology, and an airfield comprised of three runways.

DOE Grants Announcement from Dr. John Schroeder:

DOE announced over \$5M in total funding to support five wind energy related projects. Two of these projects will support improvements to short term wind forecasting, while three will support the development, testing and commercialization of midsized wind turbines. I am pleased to announce that Texas Tech University (TTU) will be playing a role in two of these new projects.

Stephen Ekwaro-Osire (ME) led a multidisciplinary TTU team comprised of Doug Smith (CE), Jennifer Rice (CE), Stephen Bayne (EE) and Qing Hui (ME) to respond to the midsized turbine development RFP. The TTU group is working closely with General Dynamics and Carter Wind to adapt a turbine featuring two blades located downwind of the tower. This turbine design builds upon a commercially-produced architecture and scales it up to a 500-kilowatt rated output. The tilt-down guyed tower (braced by guy wires and hinged near its base) allows installation without cranes.

John Schroeder (ATMO) and Brian Ancell (ATMO) will work with AWS Truepower, LLC, on a forecasting improvement project. The project will target a region of high wind energy use in Texas, and will assess utility system benefits with the Electric Reliability Council of Texas, which manages an electric power system with the largest amount of wind power capacity in the United States. The project team will also include North Carolina State University, the University of Oklahoma, the National Renewable Energy Laboratory, and consultants MESO, Inc., and ICF International.

It is an exciting time. Thanks to everyone for working together to make these private/public partnerships a reality through writing competitive proposals to DOE. It should be noted that Heather Morris in the VPR's office and Shayne Simms in ORS were especially helpful during the submission process.

Other WISE Faculty Grants Received:

***Dr. Brian S. Nutter** was awarded \$20,581 by the National Science Foundation. The title of the proposal was "MRI RAPID: Acquisition of a Field Spectroscopy Environmental Analysis System for Gulf Oil Spill Research."

***Dr. Daan Liang** was awarded \$41,163 by the National Science Foundation. The title of the proposal was "MRI RAPID: Acquisition of a Field Spectroscopy Environmental Analysis System for Gulf Oil Spill Research."

***Drs. Xinzhong Chen and Delong Zuo** were awarded \$124,708 by the Texas Department of Transportation. The title of the proposal was "0-6649 Development of Design Guidelines and Mitigation Strategies for Wind-induced Traffic Signal Structure Vibrations."

Wall Street Journal Features Storm Shelters & Dr.

Kiesling: On September 14th, The Wall Street Journal website and author Wendy Bounds published an article about the growing market for storm shelters. The article also covered different kinds of safe rooms sold in the industry. Dr. Kiesling was interviewed for his thoughts on current safe rooms.

Check out the article here:

http://online.wsj.com/article/SB10001424052748703466704575489800075285706.html?mod=WSJ_HomeAndGarden_LEADTopNews

And there's a short video from WSJ about the article with TTU Debris Impact Facility footage here:

<http://online.wsj.com/video/news-hub-not-your-fathers-bomb-shelter/6BDC8893-5952-4C79-B1A7-D741AE221F47.html>

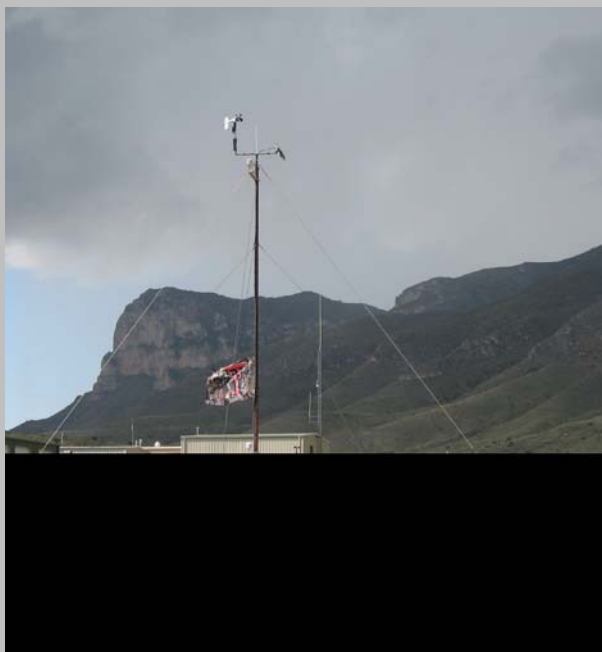
Congratulations NNSA and Dr. Kiesling on bringing more awareness to this growing need for windstorm safety.



Congratulations to Jason and Katie McNeill on the birth of their son, Clayton James. He was born on September 11th and weighed in at 8 lbs and 1 oz, 20 inches.

West Texas Mesonet grows to 60 Stations:

Congratulations to Wes Burgett and the West Texas Mesonet Team! They have erected their sixtieth Mesonet station on September 16th at Pine Springs, Guadalupe National Park (Culberson County Texas...station is 120 miles east of El Paso). This is a partnership station with the National Park Service, National Weather Service offices in Midland and Lubbock, and the National Weather Service Southern Region HQ. Wes mentioned that the clouds overhead were fairly full of electricity which could have been perilous, but he risked it to get the station up and running. The WTM ID for the station is GUMO. The mountain in the background is the highest point in Texas (Guadalupe Peak at 8751 feet). Station elevation is 5571 feet. Way to go, WTM!



Amber Reynolds participates in NASA GRIP Forecast

Trip: WISE Ph.D. Candidate Amber Reynolds was in Fort Lauderdale, FL, from August 21 - 29. She served on the NASA Genesis and Rapid Intensification Processes (GRIP) forecast team and while there she had the opportunity to go on her first science flight on August 24, 2010. Amber said, "I have always been on the ground collecting data up to this point, so it was quite an exciting and new experience for me". The image below shows the DC-8 aircraft emerging from anvil clouds during the science flight to the Gulf of Mexico. The main objectives of the flight were to perform a broad survey of convection in a frontal zone that forecast models had shown to further organize and to perform a cloud microphysics module. A Tropical Rainfall Measurement Mission (TRMM) satellite overpass also occurred during the flight, which will allow for future validation. More information and updates on the NASA GRIP field campaign can be found at <http://grip.nsstc.nasa.gov>.



WISE Fall Semester BBQ at Dr. Mehta's House was a success. Thanks to everyone who attended and we hope you had fun!



Alstom is setting up at Reese: Photos courtesy of Jeff Livingston. Jeff also said the photos show Alstom is busy constructing one of the world's largest cranes to erect their wind turbine at Reese, setting power lines, and other parts of the crane. The round object with the white top is the pedestal base. Two regular cranes are on site to put together the larger crane. Rattlesnakes are now constant companions at the construction site. Visitors are advised to watch their step.

