



Letter from the Interim Director



Daan Liang, Ph.D., P.E.

The month of May marks the end of the spring semester when professors are busy posting grades and advisors are preparing students for May graduation. This year, we celebrate the graduation of Venkatesh Singarao earning his Doctoral Degree in Wind Science and Engineering (under Dr. Vittal Rao) along with fourteen undergraduates earning their Bachelor of Science Degrees in Wind Energy. Now, many of our faculty affiliates and research assistants quickly shift their focus onto sponsored research while others prepare for summer classes. This is also a critical period for NWI to work with the Office of the Vice President for Research on setting the operating budget for the next fiscal year and tying up any loose ends.

Earlier in May, three representatives from NWI – Xinzhong Chen, Delong Zuo, and I – were invited to a US-Japan Workshop on Wind Engineering in Tokyo, Japan, to promote bilateral collaboration. We enjoyed stimulating exchanges with both Japanese and US colleagues as well as experiencing the Japanese culture and landscape, and discussion has started about organizing a future meeting on physical simulations of tornado wind done by NWI and other universities aimed at standardizing experimental settings and result reporting, and leading to a greater level of synthesis and collaboration.

Once again, NWI maintains a prominent presence at the annual AWEA WindPower conference in New Orleans with a booth staffed by our wind energy students and staff. Many visitors stopped to ask questions about NWI research projects and educational programs, and a number of NWI representatives (including Drs. Anna Young, Andy Swift, and me) connected with wind energy companies to promote our successes. My special thanks go to Dr. Young who led the NWI's participation and to NWI staff members who worked on every detail of logistics. Congratulations to such an outstanding team!

As many of you have noticed, NWI's main website (www.nwi.ttu.edu) is going through a major overhaul thanks to a dedicated working group. In the next few weeks, the entire layout will be changed to conform to a new University standard, and we'd love to hear your ideas about how to make the website even more useful.

I'd like to conclude my message by stressing the importance of the safety of our people – faculty, staff, students, and visitors. NWI continues to invest in the human and financial resources necessary to eliminate potential hazards in our laboratories and at our field site. We hold our researchers accountable for completing required safety trainings and following best practices, and one of our faculty affiliates – Dr. Stephen Bayne of Electrical Engineering – was recently recognized as a winner of a *SafeRaider Award* by the Whitacre College of Engineering and setting a good example for all of us. However, we have to stay vigilant as we were reminded by an accident that occurred at NWI's Debris Impact Facility. NWI is strengthening its safety protocol and giving our Senior Superintendent the authority to shut down any activities in Building 250 and the field site if deemed unsafe. We are also developing a formal approval process for lab tours to ensure the safety of visitors. Please help inspire safe practice and develop a culture of safety.

Go Raiders!

NWI Lead Advisor Nominated for TTU President's Advising Award



NWI's Lead Advisor, Kacey Young, was recently nominated for the prestigious President's Excellence in Advising Award, an annual recognition designed to spotlight achievement in the world of academic advising on campus.

Kacey has been part of NWI since 2013, and in that time, has advised several hundred students in the burgeoning BSWE program, along with other duties.

"I congratulate Kacey for her nomination to this prestigious award", added Dr. Daan Liang, Interim NWI Director. "She is definitely one of the most dedicated and capable advisors with whom I have had the privilege to work at Texas Tech."

NWI is proud of our great team of staff. Congratulations, Kacey.

Idaho National Laboratory and EPRI visit NWI

Representatives from the Electric Power Research Institute (EPRI), Idaho National Laboratories, and North Carolina State University recently toured TTU-NWI's facilities to learn more about the innovative research that we undertake.

Thanks to all who were involved with the success of this visit.

(Right) – The group examine the splinters from an impressive demonstration with the Debris Impact Cannon.



Crosbyton Middle School tour NWI



(The National Wind Institute (NWI) believes wholeheartedly in educating current and future scientists, and that includes opening the doors of our innovative research facilities to the seventh graders of Crosbyton Middle School. More than 20 students were shown projects ranging from the Debris Impact cannon to the wind tunnel, and followed up with some great questions. Thanks to all who were involved in helping this tour to be a success. (Photo Credit: Dr. Chris Pattison.)

BSWE Graduates as 2016 Banner Bearer for University Programs



Graduating senior Denton Shaw (BSWE and WESA member) was selected to hold the prestigious position of Banner Bearer for University Programs during the recent commencement ceremony held at the United Supermarkets Arena in May.

There is a total of twelve individual students who represent each of the separate colleges on campus, and the position of Banner Bearer in each college goes to an outstanding student who has been selected on all-around achievement, both in academic and overall campus involvement.

"We're excited that Denton was chosen and they couldn't have picked a better student," added Dr. Chris Pattison, Assistant Director of Education at NWI. "It was well deserved and we know that he'll do great things for his new employer, Nextera."

May 21st also marked the 10th graduating class of NWI's Bachelor's of Science in Wind Energy (BSWE) program. The BSWE has grown in size and prestige since its inaugural year when it first housed 49 undergraduates.

Fourteen BSWE graduates celebrated commencement, including high-point GPA honoree, Denton. Additionally, May's commencement marked 2016 as the first year that a Wind Energy graduate

has had a cumulative GPA high enough to receive this campus recognition. Denton finished the semester with better than a 3.9 Cumulative GPA.

Though our graduates primarily intern and find employment through NextEra, alumni are also entering the industry with organizations such as Blattner Energy, Alliance Energy, and Group NIRE. Others are pursuing graduate degrees, most commonly Data Science or STEM MBAs.

REMINDER: Safety on Campus and at Field Site

The National Wind Institute (NWI) and the NWI Debris Impact Facility (DIF) are committed to the safety and well-being of the NWI employees, students, and customers as our number one priority. To insure that all employees are properly educated and aware of potential safety hazards and as part of the Texas Tech University's EH&S safety protocol, NWI requires all employees who conduct work at the Reese Center Campus to take all required safety modules (i.e. Laboratory Safety, Laser Safety, Hazard Communications, Safety Awareness, Forklift Certification (as applicable)) as well as to sign a Facilities Use Agreement.

DIF uses a safety checklist designed specifically for the DIF laboratory. DIF conducts a mandatory safety meeting before any work is conducted, and any irregularities unique to the specific test or product are discussed at this meeting.

On Wednesday, March 30, 2016, DIF performed a normal storm shelter debris impact test. At the completion of this test, a DIF student assistant was attempting to open a steel storm shelter latched door. The frozen latch mechanism gave way mashing the assistant's thumb. DIF management reacted immediately by administering first aid and taking the assistant to the emergency room. DIF management contacted NWI management, who then contacted TTU's Risk Management as well as EH&S and the AVPR of Research Conduct. The assistant was released from the emergency room within hours and was released to go back to work the very next test day. Several days later, the assistant was admitted into the hospital where it was discovered that he had an unknown reaction to the antibiotics administered by the ER doctor. The assistant was immediately taken off the antibiotics and is doing very well. The assistant has now graduated in May and is happily employed in his home town.

We share these stories in hope to encourage a culture of safety and the importance of maintaining safety at all times, especially by having faculty mentor students. We appreciate all our students, faculty and affiliates who make NWI safety our number one priority!

Faculty represent NWI at U.S.-Japan Workshop

On May 12-14, 2016, NWI's Drs. Daan Liang, Xinzhong Chen, and Delong Zuo participated in the sixth U.S.-Japan Workshop on Wind Engineering at the University of Tokyo in Japan. With the theme of "Windstorm Hazard Reduction of Critical Infrastructure," the major objectives of the workshop were to report ongoing research and practice, to identify new challenges in the reduction of severe wind storm disasters (which both the U.S. and Japan have experienced in recent years), and to develop and implement strategic planning that will benefit both countries.

As three members of the 17-member U.S. delegate, the professors presented some of the most recent advancements in wind hazard-related research at NWI: Dr. Chen presented his work on the buffeting response of long-span bridges to non-stationary winds; Dr. Liang presented the recent progress of his work on the impact performance of above-ground non-complying shelter doors, and Dr. Zuo presented a new methodology that he and his student have developed for the modeling and simulation of non-stationary winds. These presentations contributed to the enhancement of NWI's presence in the community of wind hazard mitigation in both US and Japan, and by interacting with other workshop participants, NWI faculty were able to explore possible opportunities for future collaborations with other attendees.

The professors also participated in a technical tour that featured visits to the Honjo Life Safety Learning Center and the Tokyo Skytree (the tallest tower in the world at 614 m) in Tokyo. At the Life Safety Learning Center, the workshop attendees experienced simulated wind, earthquake, and fire hazards, and then learned about the actions to take in the events of these hazards. While at the Tokyo Skytree, the chief designer of the tower introduced the group to the philosophy and methodologies used in the wind and earthquake resistant design of the tower through both a presentation and an expressly arranged visit to the core of the tower to witness structural details. Both visits were invaluable to the NWI professors as they were able to experience first hand how the research in hazard mitigation is applied in real life.



(Above) - Participants of the U.S.-Japan Workshop on Wind Engineering in Tokyo, Japan, from May 12-14.

NWI GRANTS AND CONTRACTS — MAY 2016

Investigator	Unit	Credit	Award Amount Credited	Title	Agency	Project Period
Boal, Clint W.	Coop Fish & Wildlife Research Unit, CASNR	100%	\$74,448	NWI TCU#390 Assessing Influences of Wind Energy Development on Breeding Swainson's Hawks	DOE/BWXT Pantex, LLC.	03/04/2014 - 03/16/2017
Ancell, Brian C.	Geosciences	100%	\$119,286	CAREER: Quantifying Inadvertent Weather Modification and Education through Museum Programs	National Science Foundation	05/11/2012 - 04/30/2017
Bayne, Stephen B.	Ctr for Pulsed Pwr, Pwr Electronics	100%	\$107,604	NWI: The REAP program	Academy of Applied Science	01/01/2016 - 12/31/2016

NWI Debris Impact Lab Collaborate with AISC for Safer Structures

Texas Tech's National Wind Institute and the National Storm Shelter Association (NSSA) is developing finite element (FE) simulation models and conducting laboratory impact studies to determine thickness and fastening requirements for metal decking for use in high-wind storm shelter construction to meet industry standard ICC-500 Debris Hazards. The project will characterize and quantify the potentially beneficial contribution of framing systems, insulation, sheathing, and other typical elements present with the deck for debris resistance. Once developed and validated, the FE models will allow the research team to further investigate the adequacy of alternate designs with thinner decks and lesser attachments in providing the necessary safety to shelter occupants during severe storms.

On May 20, 2016, the sponsor's representatives, the American Institute of Steel Construction (AISC) Research Committee, witnessed a day of testing of roof panels designed by NWI's Debris Impact Facility, as seen below. The final report of the testing and modeling is due in August 2016.

(Photo Credit: Tammy Pitzer, NWI.)



(Above) - (L-R) Madison Rice (Student Assistant), Olivia Sievers Ross (Student Assistant), Sayed Saeed Ahmadisoleymani (Research Assistant), Glenn Allen (Senior Technician), Ken Charles (Steel Joist Institute), Dr. Daan Liang (NWI Interim Director), Tom Schlafly (AISC), Tanner Pletcher (Student Assistant), Eva Schexnider (Student Assistant), and Larry Tanner, Assistant Research Professor and Debris Impact Facility Manager.

NWI MOVERS & SHAKERS

- NWI was well represented at the WindInspire 2016 International Summer Colloquium on *Wind Power Plants: Interaction, Control, and Integration* in Dallas from May 22-24. This is the third conference where world-leading experts meet under the NSF-funded international network, WindInspire, to discuss pressing issues in wind energy research. Texas Tech University is a co-organizer of this network with Johns Hopkins University. Participants included (among other TTU faculty) NWI Drs. **Archie Ruiz-Columbe**, **Andy Swift**, and **Carsten Westergaard**. Graduate students included **Larry Brock**, **Walter Gutierrez**, and **Amelia Taylor**, and TTU alumna **Mackenzie Brown** (BSWE 2013 graduate) was also in attendance at the event. For more information, please see: <http://windinspire.jhu.edu/>.



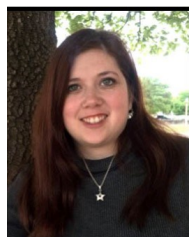
UPCOMING CONFERENCES/WORKSHOPS:

- Speaker Event: Dr. Sudha Radhika, Professor and Head of the Department of Electrical and Electronics, Geethanjali College of Engineering in Hyderabad, India, will be visiting campus on Wednesday, June 15 at 2 p.m. in CE 209. The title of her presentation will be "Use of Post-Storm Images Along for Wind Damage Mitigation," and all are welcome.
- NWI post-doc Dr. Zhou Tang and graduate students Changda Feng and Liang Wu will be presenting at the 8th International Colloquium on Bluff Body Aerodynamics Applications at Northeastern University on June 7-11.

NWI Staff Recognized for TTU Length of Service Achievements

Three NWI staffers were recently recognized for their Length of Service Achievements to Texas Tech University. Congratulations go to the following:

- Dr. Anna Thomas Young**, Associate Managing Director and Research Faculty, was recognized for **10** years of continuous service.
- Maggie Durham Gilchrest**, Unit Coordinator (Advising), was recognized for **5** years of continuous service.
- Patricia Bela**, Senior Business Assistant, was recognized for **10** years of continuous service.



(Above L-R) - Patricia Bela, Maggie Durham Gilchrest and Anna Thomas Young.

If you are interested in having your latest scholarly endeavors featured in the next NWI newsletter, please forward your information (publications, proceedings, conference/workshop attendance, or other news etc.) to Liz Inskip-Paulk (email: Elizabeth.paulk@ttu.edu). Go Red Raiders!