



A BAR PILOT TRAVELS THE COLUMBIA RIVER DURING CALMER WEATHER. OSU RESEARCHERS ARE ADAPTING EXISTING RADAR TECHNOLOGY TO HELP BAR PILOTS NAVIGATE THE DANGERS PRESENT AT THE MOUTH OF THE COLUMBIA RIVER. (photo courtesy of the Columbia River Maritime Museum)

SHOWING THE UNKNOWN: RADAR MAKING COASTAL AREAS SAFER

The Columbia River spans the states of Oregon and Washington, and just west of Astoria, Ore., it meets the Pacific Ocean to form a harsh mixture of waves, currents, and wind to greet thousands of shipping vessels each year as they travel to deliver goods around the world. The havoc the mouth of the river wreaks on ships of all sizes has earned the bar the chilling nickname “The Graveyard of the Pacific,” sinking over two-thousand large ships in the area since the start of the 19th-century.

Tasked with navigating the ships to safety through the often-difficult conditions are the Columbia River Bar Pilots, a group of approximately 20 well-trained ship captains who are familiar with this unforgiving environment. Formed in 1846, the pilots board and take control of nearly every vessel that passes through the area, steering approximately 40 million tons of cargo valued at \$23 billion to safety each year.

Although the safety record for ships passing through the bar has improved throughout the years, the pilots are often forced to make decisions on the fly, navigating the dangerous waters with little more than forecasts, weather radar data, and their

well-trained eyes. With that in mind, coastal engineers in the School of Civil and Construction Engineering at Oregon State University are working to make better wave and current information available in real time. The information would be useful to bar pilots as they steer ships through the rough and changing waters or when faced with the decision to close the bar altogether until calmer waters prevail.

Led by OSU associate professor Merrick Haller, his research team (graduate assistant Dave Honegger and faculty research associate Guillermo Diaz) is using conventional marine radar technology and adapting it as a tool to observe waves and currents in coastal areas. The work has the bar pilots one step closer to accessing this important piece of information.

“At our east coast field site we first discovered a new data processing technique that allowed us to capture rip current outbreaks using radar technology,” Haller said. “From there, we wanted to apply the technology at the mouth of the Columbia River during a big field experiment for the Office of Naval Research. We used it in order to observe wave and current processes,

and we immediately started to see new and unexpected things. The current dynamics are especially complex there.”

Using the technology, bar pilots will be able to identify and efficiently navigate through current fronts, the boundaries along the currents that can make sharp changes in direction and strength. Although the data is currently unavailable in real-time to the pilots, it is being used to educate the group as to how ships are reacting to these hidden fronts.

“The radar data gives the pilots the opportunity to see why ships are reacting adversely in certain situations,” Haller said. “Once we are able to provide real-time wave and current data to the pilots, work at the bar can become more efficient, potentially saving companies hundreds of thousands of dollars; and, most importantly, keeping their people and cargo safe.” (...continued, page 3)

FROM THE INTERIM HEAD



As a faculty member in the OSU School of Civil and Construction Engineering for the past 10 years, I have always appreciated and been amazed by the terrific work of our students,

faculty and staff. When Dr. Scott Ashford, the previous school head, was appointed dean of the OSU College of Engineering earlier this year, I was honored to be given the opportunity to lead the school during the search for a replacement. In the short few months since assuming my new role, it is even more apparent our school is comprised of talented people who help make a global impact.

For instance, coastal and ocean engineering professor Merrick Haller and his research team (page 1) have adapted existing radar technology to analyze waves along our nation's shorelines. Specifically, the research has helped the Columbia River Bar Pilots reach a better understanding of the wave conditions within the "Graveyard of the Pacific," improving the safety of a critical piece of the Pacific Northwest's transportation infrastructure that sees over \$23 billion in goods travel through the area each year.

I have also been impressed with the continued involvement of our alumni and industry partners. Hal Pritchett once again played an integral role in the success of our students at the annual ASC Reno Competition. Started by Hal as a small student paper competition, it has grown into an impressive partnership between schools, alumni and industry, providing students with a valuable opportunity to enhance their education (page 2).

Of course, our students remain the lifeblood of our school and we graduated an outstanding group into the workforce this year (page 4). Among those students is Kristina Milaj, a civil engineering major who will finish her degree this summer and was honored as one of the 10 New Faces of Civil Engineering by the American Society of Civil Engineers (page 3). The award was one of many received by our students and faculty, making us all proud to be a part of Beaver Nation.

I hope this newsletter finds you well and we have the chance to meet soon. Please contact me at any time, as I am always eager to learn about the work our alumni and friends are doing across the globe.

Go Beavs!

Michael H. Scott
Associate Professor/Interim Head



Volunteering at the ASC Regions 6 & 7 Student Competition since its beginning, Hal Pritchett (far right) poses with the OSU Heavy Civil team at this year's contest. (L to R: OSU Professor David Trejo, Connor Edlund, Zach Toney, Kasey Clemens, Nolan Knox, Corbett Stewart, and Kyle Conklin).

ASC COMPETITION REMAINS FIXTURE FOR OSU STUDENTS

In February, approximately 30 schools and over 1500 students travelled to Sparks, Nev., for the 27th annual Associated Schools of Construction Region 6 & 7 Student Competition. The competition, where students have the opportunity to present solutions to real-world problems to an industry panel, was originally started as a student paper contest by now-OSU emeritus faculty member Hal Pritchett and a few colleagues. Thanks to the work of Pritchett, and many others, it has grown into one of the highlights of the year for construction engineering students around the region.

"It has been great to see how the competition has grown over the years," Pritchett said. "It has been a tremendous success story and it takes a real effort. So many people have been instrumental in its expansion; however, everyone jokes with me that Dave Rogge (current OSU associate professor) and I are the fathers of the competition."

Pritchett continues to remain active in the contest during his retirement. Each year, he and his wife, Ann, load supplies for the OSU teams and transport them to the competition site. His volunteer efforts helped OSU capture two team titles this year as the school won the Marine and Mechanical contests while finishing second in Determining Project Risk.

"I am happily retired; but, my wife and I still enjoy taking the time to travel and help with the competition," Pritchett said. "It is great to see so many students dressed up and competing and it always shows me why I have such faith in the direction of the construction engineering management industry."

Pritchett's contributions to the annual competition are not lost on past and current students alike as they recognize the important role the event plays in their career development.

"For everyone involved in the competition, travelling to Nevada is the highlight of the year," said Chris Duty, OSU junior and the president of the AGC student group. "To have the support of Hal means so much. We know we would not be able to do this without his work and the help of so many others. The competition is a chance to show our skills to potential employers; so, I think it is an essential part of our overall education."

Despite the tremendous success of the event, Pritchett remains more impressed by the work graduates of the program have done in the industry.

"I am very proud of how the competition has grown over the years," Pritchett said. "More importantly, it has been great to see what former and current students have accomplished during that time. My family and I were at a banquet in Portland a few weeks ago and we met so many former graduates who are successful in the industry. It is great to see and it is nice to think the student competition played a small role in their development."

The school would like to thank the following industry partners for their support of the ASC Reno Competition and the annual AGC golf tournament: Kiewit, Andersen Construction, Edward Lynch, Hamilton Construction Company, Kerr Contractors, Fortis Construction, JH Kelly, Slayden Construction Group, Traylor Brothers, Western Partitions, Inc., Wildish Construction Company, Coffman Excavation, Perlo Construction, PMCA Construction, Turner, and PCL.

STUDENT SPOTLIGHT – KRISTINA MILAJ

Kristina Milaj, who will complete her bachelor's degree in civil engineering this summer, was recently named one of the 10 New Face of Civil Engineering by the American Society of Civil Engineers. Originally from Albania, Milaj will remain at OSU to pursue a dual master's degree in structural engineering and wood science. Recently, she took some time to talk with CCE News about her time at OSU and plans for the future.

ARRIVING AT OSU AS AN INTERNATIONAL STUDENT, HOW WOULD YOU DESCRIBE YOUR TIME AT OSU?

I love OSU and Corvallis. I grew up in a small town and went to small schools; so, it was great to be at a place that had so much to offer. As a freshman, I think I tried to join every club on campus (laughing). As an international student, I have been amazed by how welcoming everyone has been. Corvallis is incredibly beautiful and the people are so friendly. It has a real sense of community, is safe and it has been great to meet so many students with different backgrounds.

YOU ARE A MEMBER OF ENGINEERS WITHOUT BORDERS AND PARTICIPATED IN A TRIP TO KENYA IN 2012, HOW WAS THAT EXPERIENCE?

Amazing. Serving on the board (secretary) for the Kenya trip was my first chance to serve in a leadership role. We worked with so many smart, hard-working, and dedicated people. It was inspiring. To have the chance to go and experience Kenya is something I will always remember. It has been great to hear the community is following through on our project (providing clean water to a village) with continued improvements.

HOW HAVE INTERNSHIPS SHAPED YOU DURING YOUR TIME AT OSU?

I had the chance to work with the city of Vancouver, Wash., in their transportation department. I enjoyed the people I worked with and tried to make the most of the opportunity I had to learn from those with so much experience in the field. Working with Jason Ideker's (OSU assistant professor) research group has helped me learn so much about the research process. I've learned how to ask interesting questions and then work to find the answers. It is challenging work; but, it is really important.

ONCE YOU'VE COMPLETED GRAD SCHOOL AT OSU, WHAT ARE SOME OF YOUR CAREER GOALS?

Once I start practicing as a full-time engineer, one of the first things I want to do is volunteer to teach in math and science at a nearby school. Eventually, I would love to go back to Albania and help make teaching math and science a priority. I really want to help educate in those areas.

Following graduate school, Kristina Milaj hopes to volunteer and educate students in math and science.



RADAR CONTINUED...

The OSU group has received positive feedback from the pilots about the study and is currently looking to secure funding to provide the guides instantaneous wave conditions. In addition, the group is using the marine radar technology to help gain a better understanding of rip currents on open ocean beaches as the tides claim more lives than floods, tornadoes, lightning, and hurricanes each year.

"We think marine radar technology can be another beneficial tool to help tackle several of the challenges facing coastal and ocean engineers today," Haller said. "Using real-time data, we will be able to make ocean and coastal areas safer for all users."

CCE NEWS AND NOTES

ASCE STUDENT CHAPTER EARNS NUMBER OF HONORS

The ASCE national organization recognized the OSU student chapter for excellence in a number of areas as the chapter was honored with the following:

2014 Richard J. Scranton Outstanding Community Service Award – Top chapter in the nation. OSU ASCE was recognized for their work in Nicaragua.

2014 ASCE Distinguished Chapter Award for Region 8

2014 Outstanding Practitioner Advisor Award for Region 8 – Ken Archibald

2014 Outstanding Faculty Advisor Award for Region 8 – Tom Miller, Ph.D., P.E.

OSU STEEL BRIDGE TEAM COMPETES AT NATIONALS

The OSU ASCE steel bridge team captured the team title at the 2014 ASCE Pacific Northwest Student Conference. With the victory in the steel bridge competition, OSU advanced to the ASCE national competition, held May 23-24 in Akron, Ohio, where they finished ninth. The performance at regionals marked the first time in over 10 years the group has advanced to nationals.

The victory in the bridge competition capped a solid performance for OSU ASCE at the regional student conference as the group placed second in the environmental competition and concrete bowling ball competition while the concrete canoe team placed third.

OSU CCE RECOGNIZED FOR OUTSTANDING WORK

The winter and spring terms saw OSU CCE students, faculty and staff receive recognition from a number of national organizations. Below is a sampling of the honors:

David Hurwitz, Ph.D. – ASCE ExCEEEd New Faculty Excellence in Teaching

Michael Olsen, Ph.D. – NSF Early Career Development Award

Chris Higgins, Ph.D., P.E. – AISC Special Achievement Award

Annika O'Dea – Recipient of the Fulbright U.S. Student Award.

For a complete list of awards and honors, visit cce.oregonstate.edu.

IN THIS ISSUE OF CCE NEWS

A LETTER FROM THE INTERIM SCHOOL HEAD

A message from CCE Interim Head and associate professor Michael Scott.

SHOWING THE UNKNOWN

OSU researchers are using traditional radar technology to provide wave analysis, making coastal areas safer.

STUDENT SPOTLIGHT

Kristina Milaj sits down to discuss her time at OSU as well as some of her future plans.

HAL PRITCHETT AND THE ASC COMPETITION

A fixture for many OSU students, the annual ASC student competition would not be possible without the work of Pritchett and others.

CCE NEWS AND NOTES

The school is recognized with several national honors.

CONGRATULATIONS!

OSU CCE graduates another outstanding class.

CONGRATULATIONS TO THE OSU CCE CLASS OF 2014!

The OSU School of Civil and Construction Engineering handed out 181 undergraduate and 46 graduate degrees during the 2013-14 academic year as the class was honored at the annual CCE Graduation Ceremony on Friday, June 13, at the LaSells Stewart Center on the OSU campus.

The event was attended by over 1200 people and was an opportunity to recognize the hard work and positive impact the group had on the school during their time at OSU.

Many graduates will immediately enter the workforce (construction engineering majors have a near 100-percent job placement this year) while others are continuing on to graduate school in their discipline of choice.

To discuss potential job opportunities for students in the school, contact Lauren Farnen, AGC Industry Liaison, at lauren.farnen@oregonstate.edu, or 541-737-4096.



Among the OSU School of Civil and Construction Engineering graduates in 2014 are (L to R): Kasey Clemens, Richard Carradine, Kyle Conklin, Austin Williams, Connor Edlund, Alyssa Martin, Christine Solberg, and Zach Toney.