

AEROCOM

JOHN D. ODEGARD SCHOOL OF AEROSPACE SCIENCES

SUMMER 2014



UND
UNIVERSITY OF
NORTH DAKOTA

AERO.UND.EDU

A MESSAGE FROM THE DEAN



Over the course of the past few years my travels have taken me to many places and I have met many interesting people. It has been exciting, interesting, and sometimes tiring, but the most rewarding part has been that everywhere I go there is always someone who recognizes the quality of the Odegard School and is impressed with the extent of our programs and the professionalism of our graduates.

The Odegard School has now grown to the point where we have a profound effect on all of the industries we serve. This is not just because of numbers, but because of quality. Our training and education is rigorous, challenging, and comprehensive. At the same time it provides an experience that is well-rounded, based in the liberal arts, while still providing a myriad of leadership and face-to-face collaborative opportunities. We have remarkable stability in our programs, faculty, and senior leadership. There is no other place like this in the world.

It seems like everything we do is exciting. From flight training to research into living on Mars, from environmental issues to unmanned aircraft, from weather research to scientific computing, and yes even a proposal for a new super computer coming years after dismantling the Cray.

Due to heavy rains in the spring the campus is glorious. The foliage is as dense as I can ever remember. Of course it has added nearly 50 years of growth since I first stepped foot on campus as a freshman undergraduate student in 1965.

If you haven't been back on campus for some time, please consider a trip back to Grand Forks. You will be impressed with the beauty of the University and the growth of the Odegard School. Many things have changed over the years, but one concept that has held constant is the quality of the experience provided by the University of North Dakota and the education provided by the John D. Odegard School of Aerospace Sciences. You can be proud to be a part of it.

Bruce A. Smith | Dean, John D. Odegard School of Aerospace Sciences

Bruce A. Smith

CONTENTS

AEROCOM



05 AIR RACE CLASSIC



06 STORMING THE COUNTRY



09 20 YEARS MESA



10 FROM ACROSS THE COUNTRY & AROUND THE GLOBE



18 LEON OSBORNE 511 TRAVEL SYSTEM

NEWS

- 04 New Flight Plan For UAS
- 08 Cessna Citation II Research Jet Testing New Sensors
- 09 20 Years in Mesa, AZ
- 12 Lovelace Receives Founders Award From NIFA
- 13 FAA Advances UND to Safety Management Level III
- 14 Elizabeth Bjerke Promoted to Aviation Chair
UND Aerospace Places Order with Piper
- 15 Trevor Mikacevich
Aviation Department & American Eagle Partner
- 16 UND, Northrop Grumman Sign Three Year Pact
- 17 Computer Science Offers Innovative 3D Printing
Another Summer of Popular Robotics Camps
- 18 Earth System Science & Policy Achieves Milestone
- 20 Space Studies Chair Named Chester Fritz Professor
- 21 Annual Space Studies Capstone Conference
Space Studies Colloquium Series 2014
- 22 Aerospace Alumni Advisory Board
- 23 Events

AEROCOM

Robert O. Kelley President, University of North Dakota
Bruce Smith Dean, John D. Odegard School of Aerospace Sciences
Paul Lindseth Associate Dean
Ken Polovitz Assistant Dean
 Editor **Josh Christianson**
 Design & Layout **Courtney Jacob**
 Past issues of Aerocom available online aero.UND.edu

Cover Image **Jerris Tagavilla** and her hand crafted UAS
 Full article on page 10 | Cover Photo Credit **Jackie Lorentz**

NEW FLIGHT PLAN FOR UAS IN NORTH DAKOTA

UND is key player in federally mandated UAS testing program in North Dakota

The U.S. Department of Transportation's Federal Aviation Administration (FAA) announced earlier this year that North Dakota was the first to go live of the six test sites chosen to perform unmanned aircraft systems (UAS) research.

The announcement of the two-year Certificate of Authorization (COA) to the N.D. Department of Commerce was made by FAA Administrator Michael Huerta at a news conference at the University of North Dakota John D. Odegard School of Aerospace Sciences. Huerta was invited to North Dakota by U.S. Senator John Hoeven, R-N.D., and U.S. Senator Heidi Heitkamp, D-N.D.

UND Aerospace and the UND College of Engineering & Mines—which works on sense-and-avoid technologies and payload issues—lead the state in UAS research, education, and service. The UND UAS Research Compliance Committee is the first of its kind in the nation to look at protocols, privacy issues, and other concerns. The committee provides guidance to the research process.

The UND Center of Excellence for UAS—part of UND Aerospace—will play a key role in UAS testing and evaluation. It follows the FAA decision late last year to name North Dakota one of six sites in the nation where UAS research, development and testing will take place to help the agency integrate these remotely piloted aircraft to operate in the national air space.

"North Dakota has really taken the lead in supporting the growing unmanned aircraft industry," said Transportation Secretary Anthony Foxx in a release about the announcement. "We look forward to the contributions they and the other test sites will make toward our efforts to ensure the safe and efficient integration of UAS into our nation's skies."

"The advancement of technologies required to fly such sophisticated systems can only come from partnerships among research universities, like the University of North Dakota and North Dakota State University; the federal and state agencies that will test and regulate UAS usage; and the



Jackie Lorentz

industries that manufacture these exciting flight platforms," said UND President Robert Kelley. "It will be satisfying to see UND continue its leadership role in the Northern Plains Unmanned Aircraft Systems Test Site."

"An important part of this decision is the whole area of education and research, and the economic development piece as linked to a research university," said UND Vice President for Academic Affairs and Provost Thomas DiLorenzo. "This is a really exciting time in history. I can imagine students from all over the world wanting to come here to be a part of the future of aviation and UAS."

While supporting a precision agriculture project, the Northern Plains Unmanned Aircraft Systems Test Site also will collect safety-related operational data needed for UAS airspace integration. The information will help the FAA analyze current processes for establishing small UAS airworthiness and system maturity. Maintenance data collected during site operations will support a prototype database for UAS maintenance and repair.

"This data will lay the groundwork for reducing risks and ensuring continued safe operations of UAS," said Huerta. "We believe the test site programs will be extremely valuable to integrating unmanned aircraft and fostering America's leadership in advancing this technology."

— *Juan Miguel Pedraza*



Jackie Lorentz

AIR RACE CLASSIC

UND Aerospace this year fielded a three-person team for the 38th all-women Air Race Classic. The UND team—pilot Carly Namihira, co-pilot Amy Warbalow, and navigator Jen Pinkowski—and their UND Cessna 172 #608 were one of more than 50 teams initially registered for the race.

Warbalow, Namihira, and Pinkowski started and finished their two week adventure at the Grand Forks airport. This year's Air Race Classic, dubbed "From Sea to Shining Sea," covered 2,338.5 nautical miles, or 2,691 miles from the starting point in Concord, Calif., to the race terminus at Capital City Airport in New Cumberland, Pa.

Warbalow provided continuity—she was the principal pilot on last year's team, the first to compete in the annual Air Race Classic, along with Katrina Kugler, now a UND flight instructor in Phoenix, AZ. This year, Jenkowsky filled the new role of team navigator. She said she got a few hours at the controls during the flights to and from the race.

Also new this year was an all-student meteorology team recruited, organized and coordinated by Atmospheric Sciences faculty member Gretchen Mullendore. This team was on the ground at UND, assisting the UND racers. The weather team consisted of Brandon Bigelbach, Danny Burtch, Grant Gutierrez, Andrea Neumann, and Mariusz Starzec.

"This was a neat addition to this year's Air Race Classic effort, using the expertise of a number of Atmospheric Science students, under the direction of Mullendore and Fred Remer, another Atmospheric Sciences faculty member, to provide in-depth weather forecasting," said UND Aviation chair Beth Bejrke. "For our group of pilots to have a personal team of weather experts working with them is a big advantage."

These plucky UND aviators posted this comment on their final leg home, nicely summing up their grand experience: "We had a nice flight today. Stopped in Rochester, MN for lunch and then returned safely to Grand Forks. This was a great adventure for us all. Definitely looking forward to the next race!"

ABOUT THE AIR RACE CLASSIC

Women's air racing all started in 1929 with the First Women's Air Derby; 20 pilots, including famed aviation pioneer Amelia Earhart, raced from Santa Monica, Calif., to Cleveland, Ohio, site of the National Air Races, according to the Air Race Classic website. Contestants are usually given four days, flying by visual flight rules to reach the finish. The race is run only during daylight hours.

— *Juan Miguel Pedraza*



/AIR-RACE-CLASSIC-2014-UND-TEAM



UNDAIRRACER.BLOGSPOT.COM

STORMING THE COUNTRY

Matthew Gilmore's Thunderstorm Experience course prepares students for weather careers by chasing the big ones through 'Tornado Alley'

Matthew Gilmore, associate professor of Atmospheric Sciences in the UND John D. Odegard School of Aerospace Sciences, wrapped up a storm chasing road trip with several students earlier this summer. The trip also helped the students hone their weather forecasting skills as part of a summer semester class, Atmospheric Sciences 499—Thunderstorm Experience Lab.

In a rented 12-passenger van equipped with computers and displays of real-time weather data from the National Weather Service, they let the clouds tell them where to go.

The summer Thunderstorm Experience Lab class took the group to south of Texas and New Mexico and back up through Nebraska, South Dakota, Wyoming and Montana. They finished the storm-chasing journey on Monday, June 2.

Gilmore, whose tornado research has been funded by the National Science Foundation, recently has published as author or co-author to several research papers about tornadic thunderstorms.

For Gilmore and the five UND summer students on the trip, the student driver and an Atmospheric Sciences teaching assistant, there was more than “let’s-take-a-look” curiosity at work.

“The senior-level Thunderstorm Experience Lab is a chance for students to apply their forecasting skills and witness first-hand the storms they have been studying in school for the past four years, Gilmore said. “For many students, severe thunderstorms are what had sparked their original interest in weather. We learn something new every time we go out.”

On a cell phone call from the vicinity of Glasgow, Mont., where the team was positioning for that day’s storms, UND Atmospheric Sciences senior Molly Aufforth, a native of Bowbells, N.D., said she was keen to learn more about how to predict and track potentially severe storms.

“I want to get into the operational side of this business either at the National Weather Service or in broadcast meteorology,” said Aufforth, who chose UND because it offered, relatively close to home, the major she wanted. “This is a very hands-on experience. I’m trying to learn as much as I can.”

Jamestown High School alum and UND Atmospheric Sciences senior Ryan Strankowski is on the trip armed with the knowledge of Skywarn, the National Weather Service’s storm spotter training program, that helps

him identify and describe the structure of storms such as the ones they’re chasing now.

“Learning how to interpret the weather models is an important part of the forecast,” said Strankowski, who also aims to get into forecasting.

Gilmore says the field observations are critical to expanding the science of storms and building the next generation of scientific talent, like the five undergraduates on this trip.

“We’ve seen several supercells on this trip and a tornado near Big Spring, Texas,” said Gilmore, explaining a supercell as a thunderstorm that contains a strong rotating updraft, the parent circulation that gives birth to a tornado. The group blogged about its field experiences on Twitter at twitter.com/UNDChase.

The Thunderstorm Experience Lab team comprised Gilmore; the students mentioned; Adam Gill, Colorado Springs, Colo., a senior in Atmospheric Sciences who is going to grad school with the aim of becoming a researcher; Kevin Mahoney, Cannon Falls, Minn., a senior in Atmospheric Sciences who wants to go on to a graduate degree and, eventually, forecasting; and Jackson Perrault, Champlin, Minn.,

a senior who majors in Air Traffic Control with a minor in Atmospheric Sciences. Driving the van is junior, David Agee, from Naperville, Ill., who is majoring in Atmospheric Sciences. The teaching assistant, Zack Hargrove, is from Cartersville, Ga., and is an experienced storm chaser working on a graduate degree in Atmospheric Sciences.

“We’ve been staying in inexpensive motels, places like Motel 6,” said Gilmore. “In addition to their tuition for this course, the students each paid a \$1,300 field trip fee which totaled \$6,500, and we got a \$2,500 grant from our department to buy equipment, such as the computer and monitor for displaying weather data, navigation devices and mapping software. In addition we got a grant from the Office of Instructional Development to install microphones and a sound system in the van so that we could talk to each other over the ambient noise in the vehicle, plus an in-vehicle printer for creating weather maps for hand analysis. The total budget for this trip from all sources is \$11,300.”

— Juan Miguel Pedraza



UND Storm Chasers: UND students pose in front of a supercell thunderstorm near Hobbs, N.M., on Sunday, May 25. From Left to Right: Zack Hargrove, Cartersville, Ga., the team’s teaching assistant; Adam Gill, Colorado Springs, Colo.; Ryan Strankowski, Jamestown, N.D.; Kevin Mahoney, Cannon Falls, Minn.; the team’s driver, David Agee, Naperville, Ill.; Molly Aufforth, Bowbells, N.D.; and Jackson Perrault, Champlin, Minn.



Atmospheric Sciences

UND'S CESSNA CITATION II RESEARCH JET TESTING NEW SENSORS, RESEARCHING WEATHER

With an operating ceiling of more than 43,000 feet, the University of North Dakota's Cessna Citation research jet can really soar. With the capability to fly about 10,000 feet higher than commercial airlines typically fly, the Citation II gets an up-close look at the clouds, and the physics behind them.

Late last year, private industry partner Ophir Corporation, a Colorado-based subcontractor to major U.S. Aerospace corporations, wanted to test its latest instrument, the Optical Air Data Sensor, and chose UND, the only public university that owns and operates a research jet.

"If you want to test or develop an instrument, the Cessna serves as a platform," said David Delene, a UND Atmospheric Sciences faculty member who specializes in atmospheric research.

The aircraft, owned and operated by the UND Department of Atmospheric Sciences, is equipped with several instruments used to measure atmospheric properties.

The Citation flew a weather research mission this spring on the East Coast and flies another weather mission in September right out of its home base at UND.
— *Juan Miguel Pedraza*



Neil Nowatzki



UND Flight Operations is the hub of one of the country's busiest flight schedules and home to the world's largest non-military fleet of training aircraft.

That includes a corner of Arizona where for the last 20 years UND has run an increasingly successful satellite operation—the UND Aerospace Phoenix Flight Training Center at the Phoenix-Mesa Gateway Airport.

That program—celebrating 20 years next February—is jointly run by the John D. Odegard School of Aerospace Sciences, UND Aerospace Foundation, and Chandler-Gilbert Community College (CGCC) in a long-term partnership. Students there can do a two-year degree program at CGCC with the option to continue flight training and receive a four-year aviation degree at the University of North Dakota.

"Our Phoenix program combines CGCC's unmatched expertise in providing a dynamic learning community and UND's international reputation of excellence in aerospace education," said Don Dubuque, UND Aerospace director of extension programs, which includes the Phoenix operation.

The Phoenix program director is aviator Rex Ginder, a UND alum.

"It's a full-fledged academic center, with a two-plus-two program, where students can do two years there and their last two years here," said Dubuque, who visits the Phoenix facility at least four times yearly and is on the phone and online with them daily. "We have 80 to 100 students there at any one time, plus about 25 contract students from Taiwan."

The training fleet there consists of 15 aircraft—including a couple of twin engine planes—plus two simulators. More aircraft will be delivered soon.

"A big advantage for our students in Phoenix is that our articulation agreement with Chandler-Gilbert means that all

their credit hours transfer smoothly to UND," said Dubuque, an aviator with special expertise in mountain flying.

Part of UND's recruitment strategy there is working with East Valley Institute of Technology, a high school program.

"We help students get their private pilot's license in their senior year, then they can go to our college program there," he said. "I'm a big believer in working with high schools all around the country because we cannot wait for the young people to come to us."

"There's room for growth there, and we're very excited about the opportunities that offers students," Dubuque said.
— *Juan Miguel Pedraza*

CGCC-UND Grand Opening March 1995
From left to right: Dave Lutz; Flight Instructor, John Odegard; Dean, Jamie Gunderson; Flight Instructor, Jon Witten; Site Manager, Don Dubuque; Director



FROM ACROSS THE COUNTRY & AROUND THE GLOBE

By Juan Miguel Pedraza | Photography By Jackie Lorentz

JERRIS TAGAVILLA AND HER HAND CRAFTED UAS

Oh, she got by with a little help from her...mom!

And that included a big push out of her comfortable home in Hawaii to school in North Dakota.

For University of North Dakota aviation and air traffic control major Jerris Tagavilla, a native Hawaiian, that was a big—and unexpected—move.

“Basically, I wanted stay home for college, but my mom knew I wanted to become a pilot without going into the military to do it,” said Jerris, who also is minoring in biology. “So my mom looked around and discovered UND had a total aviation program without any military requirements, so here I am. My older sister Jacey Tagavilla also came here, and graduated with a major in Air Traffic Control in 2012”

For Jerris, the aviation bug hit hard when she got a free ride in an airplane at an air show at Hickam Air Force Base in Hawaii.

“It was for kids 10 and under, and the pilot did some loops and turns and showed us what G’s were all about,” said Jerris. “I felt so good up there, I was having so much fun that when we landed I told my parents that I wanted to become a pilot.”

Her mother and father convinced her UND was good move (they both visited her earlier this year for the Aerospace awards and scholarships banquet).

“UND is an awesome experience, I’ve come to the understanding that if you’re looking to get your foot in the door for the aviation industry, UND will give you the shoe



Jackie Lorentz

“UND is an awesome experience, I’ve come to the understanding that if you’re looking to get your foot in the door for the aviation industry, UND will give you the shoe to put on” - Jerris

to put on” said Jerris, who also took a different path after taking an introductory unmanned aircraft systems class.

“After my advisor suggested I should check it out, I decided to study more about UAS, and even built one—a quadcopter, a four-propeller UAS—with a camera,” she said. “I also took the aviation public safety course and went to a lecture about aerial firefighting given by a UND alumnus and figured that someday my knowledge of UAS might kick into that.”

Jerris plans to graduate next year with degrees in commercial aviation, air traffic control, and UAS operations.

She also was a part of a ground support group for this year’s Air Race Classic team—three UND students who participated in this all-women air race.

Jerris already is mulling her options.

“It’s never too early to start looking, so many doors are open,” she said.



Jackie Lorentz

“The first thing I noticed is that people here are very easy to get along with — I got a lot of support from faculty, fellow students, and other Sri Lankans at the UND International Center” - Malith

SRI LANKA - MALITH SILVA

There’s all kinds of distance between Malith Silva’s tropical home in Sri Lanka and his chosen college campus, UND—about 9,000 miles as the airliner flies. Or 20 hours in the air at today’s speeds.

“I never imagined I’d travel to North Dakota,” said Malith, an aviation student and instructor at UND Aerospace. “I was thinking about going to school in Australia at one point.”

Then he ran the numbers after a conversation with his kin in Manitoba and a friend who already was at UND.

“UND definitely is an excellent deal compared with other aviation programs,” said Malith, whose dad, captain of a ship that carries Sri Lankan tea exports, tried to convince him to go to sea. “I knew I wanted to see the world, but not from the bridge of a ship.” He figured aviation was a good choice—and he built an ambition to one day join SriLankan Airlines and become a captain of an intercontinental jet liner.

So he set his sights on UND—even though he’d been warned by his friends about winters up here.

“OK, I figured ‘no big deal,’ I’ll take some warm clothes along,” said Malith, who finished high school one week and was in North Dakota the next.

“The first thing I noticed is that people here are very easy to get along with—I got a lot of support from faculty, fellow students, and other Sri Lankans at the UND International Center,” Malith said. “The first few days of winter were OK, I thought the first snow I’d ever seen was beautiful—but no one can prepare you for the sustained weeks below zero. The coldest it gets at home is 80 degrees—above zero!”

Another challenge was the language, especially “tower speak”, or directions from the air traffic controllers.

“I got through that, too,” he said.

The study culture here is positive and encourages focus on the prize: the degree.

“Compared with where I’m from—the Colombo area, the capital city of Sri Lanka and a major south Asian metropolis—it’s real quiet in Grand Forks, far fewer distractions,” said Malith. “It’s easy to get stuff done here. With the reasonable basic costs plus scholarships, and the supportive learning environment, I feel very fortunate to come here—I’ve learned so much, and I feel I’m getting very good value.”

— Juan Miguel Pedraza

DID YOU KNOW?

Odegard Hall opened as CAS 1 in August 1984 - 30 years ago.

"The main reason we did this was because of the friendship with John and the growth of the Odegard School since its beginning."

Donate your aircraft and make a big difference in the lives of UND aviation students.

WHY DONATE?

Your aircraft could help:

- Provide student scholarships each year.
- Foster professional development for faculty.
- Enhance equipment and facilities for students.
- Increase your income by creating a charitable remainder trust.

HOW TO DONATE?

For information on how to best structure your gift to benefit the John D. Odegard School of Aerospace Sciences, contact:

Josh Christianson

Director, Alumni Relations and Development

701.777.4637 | joshc@aero.UND.edu | aero.UND.edu



Jackie Lorentz

FAA ADVANCES UND TO SAFETY MANAGEMENT SYSTEM LEVEL III

UND Aerospace sets the pace nationally in developing a model SMS

Photo: Sherry Breland, Avionics Technician, left, along with Paul Snyder, Assistant Director Extension Programs, middle, and Frank Argenziano, Assistant Director Aviation Safety discuss the application of Safety Management Systems (SMS) practices.

UND Aerospace was asked by the FAA to be part of its pilot program to develop an SMS for the school's Part 141 FAA-approved flight training program. This pioneer SMS will be used as a model by other Part 141 schools.

"Safety is a deeply ingrained part of our culture at UND Aerospace," said Frank Argenziano, since 2005 the school's assistant director of aviation safety and security. Level 3 is the next critical step of four in the FAA's SMS process.

"SMS is the formal application of best management practices to the business of aviation safety," said Argenziano. "SMS provides more structure, a better system of checks and balances, and more input on safety concerns by students and staff."

UND Aerospace has a 12-member SMS working group in place. The group's executive committee comprises Argenziano; Paul Snyder, assistant director of extension programs; Gary Ullrich, associate professor of aviation; and William Watson, assistant professor of aviation.

SMS is important across the industry and across borders. It's based, in part, on the International Civil Aviation Organization (ICAO) requirement that each member state (country) mandate its air carriers to have an SMS program if they operate internationally.

"While we don't operate internationally we do have many customers from other countries" Snyder said, "and those customers are asking if we have an SMS program in place."

"This is still a relatively new concept for aviation schools such as ours," said Ullrich. "UND was the first Part 141 program to have a safety management system recognized by the FAA."

It's not just a one-time showpiece activity.

"SMS requires continuous improvement of the organization's safety programs, as well as the participation of everyone in the organization," Watson said.

It's also about enhancing student safety, already a vital principle in UND's aviation education program.

"SMS helps students on every single flight," Snyder said.
— *Juan Miguel Pedraza*

LOVELACE RECEIVES FOUNDERS AWARD FROM THE NATIONAL INTERCOLLEGIATE FLYING ASSOCIATION



Jackie Lorentz

Professor Kent Lovelace was recently selected to receive the Founders Award from the National Intercollegiate Flying Association (NIFA). The award is given to individuals whose volunteer efforts and contributions have had a substantial and lasting impact on the continued operation of NIFA. In its almost 100-year history, NIFA has given this award less than a dozen times.

Kent's involvement with NIFA started in the 1970s when he participated on and captained the St. Cloud State Flying Team. Since that time, Kent went on to become an Assistant Coach, Head Coach, Faculty Adviser, NIFA Regional Representative, and ultimately the Chairman of the NIFA Council. As the Head Coach and Faculty Adviser at UND, Kent led the UND Flying Team to an unprecedented five consecutive National Championships – a record that has never been duplicated in NIFA's history. As Chairman, Kent shepherded NIFA through difficult financial times and helped the organization embrace newer-generation flight technologies by transforming many of its competitive events.

ELIZABETH BJERKE PROMOTED TO AVIATION CHAIR



Elizabeth Bjerke took the reins of the University of North Dakota Department of Aviation on July 1. Kent Lovelace, chair for the past 20 years, announced earlier this year that he was stepping down. The department is part of the John D. Odegard School of Aerospace Sciences.

Bjerke will be running a department with about 1,500 majors and about 50 faculty. She came to UND as a student in 1996. She has been associate chair of the department for two years, following nine years as the assistant chair of assessment and faculty.

She got her undergraduate degree,

her MBA, and a Ph.D. in Educational Leadership, all at UND.

Widely published in the area of aviation education, Bjerke began her career in collegiate aviation education following an opportunity to teach while she worked as a UND flight instructor.

"I discovered that I really loved being in the classroom, working with students," said Bjerke, who has published several research journal articles and given numerous presentations on various aviation-related topics.

"I am very excited to have the opportunity to lead our amazing faculty and students," Bjerke stated, "However, the chance to serve is somewhat bittersweet. Kent Lovelace was a great department head and accomplished a lot over the last 20 years while always being there for the faculty and students. I am very grateful to have had him as an amazing mentor over the last 15 years. In fact, he was the first faculty adviser for the Women in Aviation chapter when it was started in 1998! When I approached him as a timid student, he agreed in a heartbeat to serve. A few years later he planted the seed in my mind to consider making my career in aviation higher education as well, and I

will forever be grateful for that advice."

During this transition, Kent Lovelace acquired a new role in the Aviation Department as the Director of Aviation Industry Relations. "I will be focusing some of my energies there, working to maintain and develop relationships with industry, looking at employment opportunities for our students, and acting as a liaison between UND Aerospace and the aviation industry," Lovelace said.

Bjerke is actively involved with the Aviation Accreditation Board International (AABI), where she has served on the Board of Trustees since 2007. She is also a member of the University Aviation Association (UAA), and a FAAS Team Lead Representative for the North Dakota Region. Prior to her current role on the faculty, Dr. Bjerke served as a Lead Flight Instructor and an Assistant Chief Flight Instructor for UND's Part 141 flight training program.

Bjerke, a native of Whitehall, Wisc., also was instrumental in organizing and leading the UND chapter of Women in Aviation. She still is the faculty advisor to the group.

— *Juan Miguel Pedraza*

UND AEROSPACE PLACES ORDER WITH PIPER

Piper Aircraft Inc. has taken orders for three twin-engine piston-powered Piper Seminole aircraft from the UND Aerospace Foundation, which provides training and aircraft for the Odegard School. The training aircraft will be delivered later this year and join the Aviation Department's training fleet of more than 120 aircraft. The announcement was made at the start of Aero Friedrichshafen in Germany held from April 9 to 12. The Piper Seminole is the training aircraft of choice for UND's multi-engine and (MEI) flight courses. The new Seminoles will be fully IFR equipped with Garmin G1000 avionics and GFC 700 autopilots. This delivery will add to the 17 Avidyne-equipped Seminole aircraft that UND plans to replace with the G1000 Seminoles over coming years.

— *Juan Miguel Pedraza*

TREVOR MIKACEVICH

Student employee of the year



The 2014 Student Employee of the Year Committee selected Trevor Mikacevich, who works in Aerospace Flight Operations-Flight Support Services, as the recipient of the 2014 Student Employee of the Year Award for UND.

A native of St. Paul, Minn., Trevor is on the flight-line ground support crew that takes care of both fixed-wing aircraft and helicopters in the training fleet.

"I felt very honored when I received Student Employee of the Year," Trevor said. The Student Employee of the Year is a program sponsored by the National

Student Employment Association (NSEA), which UND has been involved in for six years.

Trevor has worked for Flight Operations-Flight Support Services as a line service operator since May 2013. He is pursuing a bachelor degree with a major in Commercial Aviation. He plans to be a certified flight instructor after graduation and continue working for UND Aerospace.

"I really enjoy working for UND Line Service Operations," he said. "The full-time and part-time staffs are great to work with. I also like that I get to work with airplanes and Dispatch for my job. I think it is beneficial to be a part of the flight operations aspect of aviation."

Deldrick Smith, a fellow line service operator, and Danny Holwerda, Flight Operations-Flight Support Services manager, nominated Mikacevich for the award because of his reliability and quality of work.

According to Holwerda, Trevor is a key reason his crew is able to support more than 110,000 flying hours by UND Aerospace pilots each year. Trevor has personally performed 1,700 services, safely refueling aircraft with 27,000 gallons of aviation gasoline.

"Trevor is the right person to execute these challenging and critical duties," Holwerda said. "He accomplishes these duties flawlessly without incident or accident and he can be counted on to perform these tasks the right way each time."

— *Chen Wu, student writer*

AVIATION DEPARTMENT AND AMERICAN EAGLE PARTNER ON MENTORING/HIRING PROGRAM

The Odegard School of Aerospace Sciences and American Eagle Airlines have partnered on a pilot mentoring/hiring program that provides a defined career path for students to transition from UND to a first officer position with the airline. The American Eagle Airline pipeline program selects UND students at the sophomore level from specific academic aviation majors. As the selected students progress through their academic program, they will be mentored by the Aviation Department faculty and staff as well as American Eagle pilots and staff. The program includes a \$10,000 scholarship once the graduate is hired and commits them for a two year period as a first officer.

When the student candidate completes the Bachelor of Science degree, they will work as a certified flight instructor to build their flight experience to the level required by the FAA for a first officer with a commercial carrier. While the program doesn't automatically move the graduate into a first officer position, they are guaranteed an interview with the airline.

— *Juan Miguel Pedraza*

UND, NORTHROP GRUMMAN SIGN THREE YEAR PACT TO DELIVER SPECIALIZED UAS TRAINING

Company's SandShark™ will star in UND-based research and training program



Northrop Grumman

Northrop Grumman and University of North Dakota (UND) representatives announced a cooperative pilot training agreement at the 2014 AUVSI trade show in Orlando, Florida. Pictured, from left, are Brig. Gen. Al Palmer (retired), director UAS Center of Excellence, UND; Ken Kilmurray, SandShark program manager, Northrop Grumman; Mike Corcoran, deputy director, UAS Center of Excellence, UND; and Karl Purdy, program manager, Northrop Grumman.

Northrop Grumman Corporation and the University of North Dakota in Grand Forks recently signed a cooperative agreement to offer unmanned aircraft system (UAS) pilot training to domestic and global customers using SandShark™, a remotely-piloted aircraft (RPA) trainer.

SandShark™ emulates manually flown RPAs, offering pilots a realistic, hands-on flying experience. The aircraft is optimized for 10 times the number of takeoffs and landings of an operational RPA, providing significantly more affordable training. SandShark™ aircraft and ground terminals are based at select airfields across the nation. Pilots fly the aircraft from anywhere in the country through a commercial broadband Internet connection or 4G cellular network.

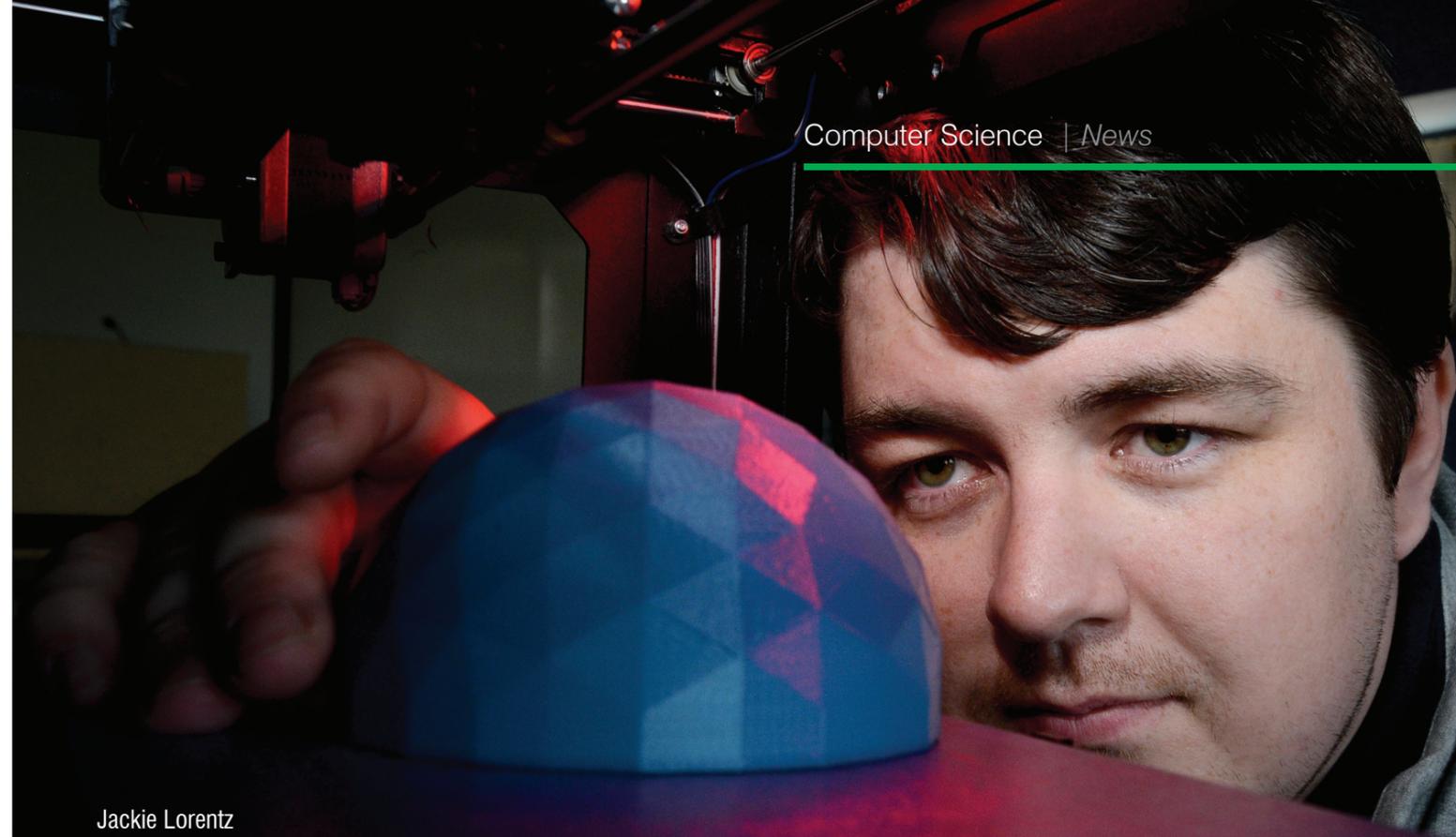
Under the three-year cooperative agreement, Northrop Grumman will provide two SandShark™ RPAs and a ground station to advance research collaboration between the company and the university, and to broaden the university's flight training program by extending training to the university's international students.

"The international UAS training market is growing exponentially and the University of North Dakota is considered a UAS training center of excellence," said retired Brig. Gen. Al Palmer, director, Center for UAS Training, Research and Education. "Until now, we haven't offered international UAS pilot training because of our minimal deployment experience. Our partnership with Northrop Grumman, using SandShark™, enables us to provide

training to international students on their native soil."

The agreement also facilitates new career development programs and employment opportunities for students in science, technology, engineering and mathematics (STEM) disciplines and aviation programs.

"We are committed to working with the university to build and strengthen a diverse STEM workforce and we are proud to provide key technology that enables expansion of their training pursuits," said Bob Gamache, director, special mission systems, Northrop Grumman Technical Services. "The real-world training these students receive will prove invaluable as they enter the aviation profession."
— *Juan Miguel Pedraza*



Jackie Lorentz

Jeremy Straub with a plastic dome that was printed using a 3D printer.

COMPUTER SCIENCE OFFERS INNOVATIVE 3D PRINTING WORKSHOP

The Department of Computer Science delivered two exciting workshops this summer: the first was targeted to local and area businesspeople, the second was aimed at teachers in the region. The goal: demystify 3D printing, from designing and building the printers to laying out and producing a 3D print job. The workshops were organized by CS graduate student Jeremy Straub and CS instructor Scott Kerlin.

— *Juan Miguel Pedraza*

COMPUTER SCIENCE RUNS ANOTHER SUMMER OF ITS POPULAR ROBOTICS CAMPS

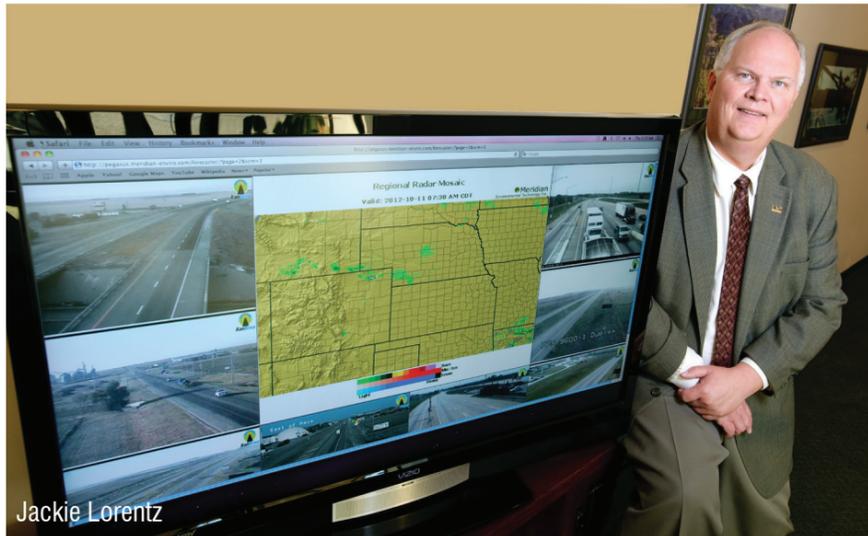
The UND John D. Odegard School of Aerospace Sciences Department of Computer Science again offered a busy summer camp program focusing on robotics for school-age children, from beginner to advanced. Among other skills, the youngsters at the camps learn how to control robots to avoid obstacles, find, pick up and carry objects, and even compete in a Sumo-style robot competition. There's an advanced camp for students who have attended the introductory camp or have prior NXT™ experience.

New to the camp program this year is the use of Alice 3.1, a version that features greatly improved graphics and characters from the Electronic Arts Sims® game. Alice is a computer program that makes creating a virtual world to tell a story or play a game easy.

— *Juan Miguel Pedraza*

FOR MORE INFORMATION CHECK OUT: camps.cs.UND.edu

LEON OSBORNE - 511 TRAVEL SYSTEMS



Jackie Lorentz

If you ever dialed 511 on the freeway, you tuned into a system revolutionized by University of North Dakota meteorologist Leon Osborne. That system now is used by state road info services across the country.

Osborne, Chester Fritz Distinguished Professor of Atmospheric Sciences, holds degrees in physics and meteorology, joining UND in 1979. Today he is director of the Regional

Weather Information Center and the Surface Transportation Weather Research Center. With his wife Kathy and two partners he started Meridian Environmental, a surface weather information venture since sold to an international company.

“We changed the 511 paradigm, a phone number designated by the federal government for traveler information,” Osborne said. “North Dakota and

South Dakota partnered with UND to develop this technology in the early 1990s. Working with other groups, we boosted value by becoming involved with agriculture as the go-to climate and weather information service.”

The big impetus behind the 511 system was safety.

“Severe weather conditions, such as blinding ground blizzards, account for 1.5 million car accidents annually and more than 7000 fatalities, with an annual economic impact of \$25 billion,” Osborne said. “We got a lot of direct support from John (John D. Odegard, UND Aerospace founder).”

“It’s the kind of value added that produces high-tech jobs,” Osborne said. — *Juan Miguel Pedraza*

THE DEPARTMENT OF EARTH SYSTEM SCIENCE AND POLICY ACHIEVES 10 YEAR MILESTONE

The Department of Earth System Science and Policy (ESSP), part of the John D. Odegard School of Aerospace Sciences at the University of North Dakota, hit its 10th anniversary this year. The Department includes a graduate program offering M.S., M.E.M., and Ph.D. degrees; the Northern Great Plains Center for People and the Environment and other research efforts; and the collaborations of the Upper Midwest

Aerospace Consortium, involving several regional universities.

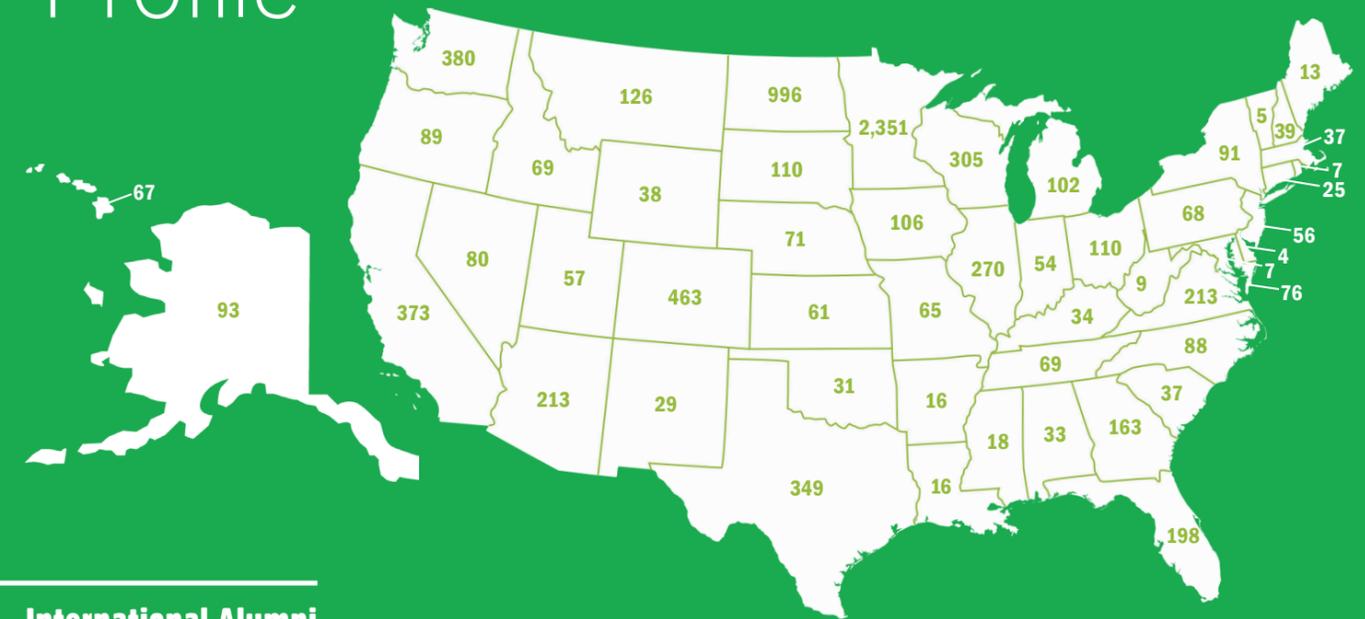
ESSP was founded in 1995 by Dr. George Seielstad with funding from NASA, and has grown to include over thirty faculty, staff and students at the University of North Dakota, together with colleagues at South Dakota State University, Sinte Gleska University, North Dakota State University, University of Minnesota-Crookston,

Montana State University, University of Idaho, University of Wyoming, and the North Dakota Association of Tribal Colleges.

ESSP is chaired by Soizik Laguette, who earned her Ph.D. in agricultural engineering at the French Institute of Forestry, Agricultural and Environmental Engineering in Paris. — *Juan Miguel Pedraza*

Alumni Profile

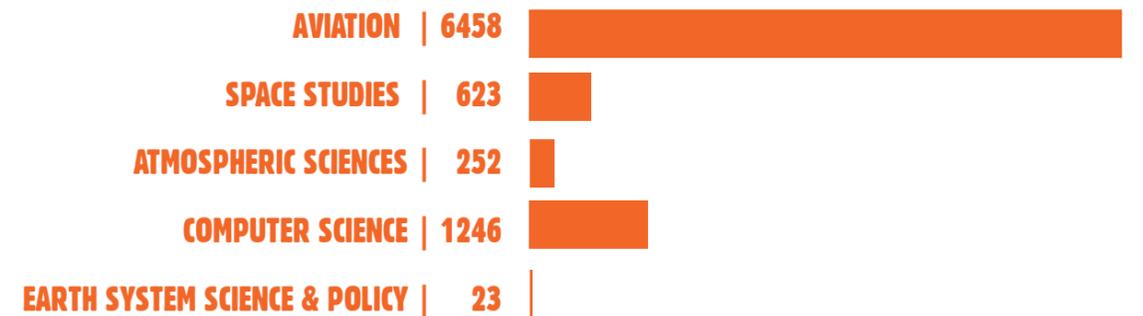
Find Odegard School alumni across the globe
NUMBERS REPRESENT ALUMNI LIVING IN EACH STATE



International Alumni

Antarctica, Argentina, Australia, Belgium, Bolivia, Canada, China, Croatia, Estonia, Germany, Greece, Guam, Hong Kong, Iceland, India, Italy, Japan, Mexico, Nigeria, Norway, Papua New Guinea, Puerto Rico, Saudi Arabia, Singapore, St Lucia, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Kingdom

GRADUATES BY DEPARTMENT



FOR MORE INFORMATION CHECK OUT: aero.UND.edu



Jackie Lorentz

SPACE STUDIES CHAIR NAMED CHESTER FRITZ DISTINGUISHED PROFESSOR

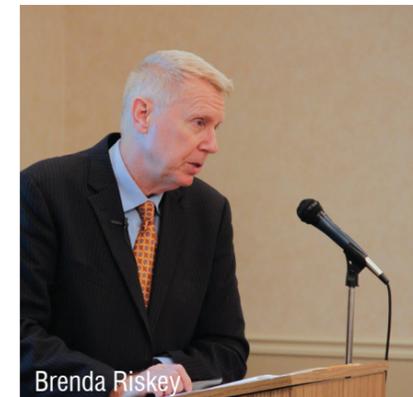
Santhosh Seelan, chair, Space Studies, was named Chester Fritz Distinguished Professor at this year's spring commencement ceremony. Seelan, an expert in satellite remote sensing, was appointed chair of Space Studies in 2010 and also is director of the North Dakota Space Grant Consortium and director of North Dakota National Aeronautics and Space Administration (NASA) EPSCoR (Experimental Program to Stimulate Competitive Research).

Seelan, a native of Cuddalore, a town in Tamil Nadu, India, became a part of the Space Studies faculty in fall 2005. He first was chair of the UND Department of Earth System Science & Policy. He came to UND in 1998 to work at the Upper Midwest Aerospace Consortium (UMAC) where he helped establish a sophisticated geospatial lab and lead a NASA-sponsored project.

Prior to joining UND, Seelan worked as a land information consultant and with India's remote sensing program for seventeen years. He has won nationwide recognition and a nomination for a National Mineral Award in India and has authored or co-authored more than 150 articles, conference papers, technical reports, books, book chapters and abstracts.

— *Juan Miguel Pedraza*

ANNUAL SPACE STUDIES CAPSTONE CONFERENCE FEATURES PHYSICIAN, NEUROSCIENTIST AND HIGH ALTITUDE PARACHUTIST JONATHAN CLARK



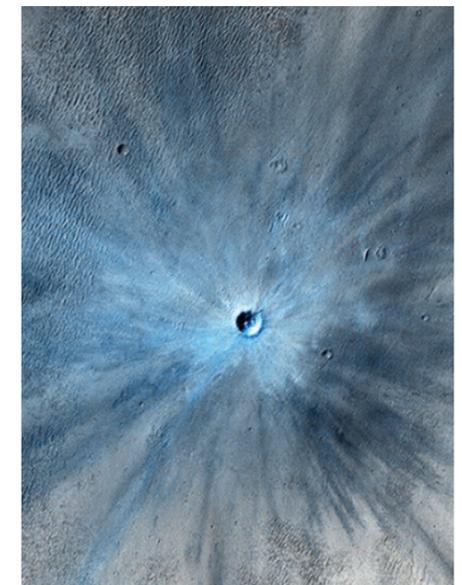
Brenda Risky

The annual University of North Dakota Space Studies Capstone Conference this year featured Jonathan B. Clark, associate professor of neurology and space medicine at Baylor College of Medicine. His presentation, "Crew Health Support for a Mars Fly By Mission: The Inspiration Mars Project," was delivered at the conference banquet at the Hilton Garden Inn.

Clark, also the Space Medicine Advisor for the National Space Biomedical Research Institute (NSBRI), is a Clinical Assistant Professor at the University of Texas Medical Branch in Galveston where he teaches at the Aerospace Medicine Residency.

Clark worked at NASA from 1997 to 2005 and was a Space Shuttle Crew Surgeon on six shuttle missions and was Chief of the Medical Operations Branch. He was Medical Director of the Red Bull Stratos Project, a manned stratospheric balloon freefall parachute flight test program, which on 14 October 2012 successfully accomplished the highest stratospheric freefall parachute jump.

— *Juan Miguel Pedraza*



SPACE STUDIES COLLOQUIUM SERIES 2014 FOCUSES ON MARS HUMAN FLYBY MISSION

The Spring 2014 University of North Dakota Space Studies Colloquium Series focused on "Human Flyby Missions to Mars" and featured several leading experts in the field. The final presentation in the series featured David Willson, research engineer, National Aeronautics and Space Administration (NASA) Ames Research Center. He spoke about Mars Exploration and Sample Return using Dragon: A New low cost paradigm for Mars science missions. Colloquium presentations are viewable at space.edu.

— *Juan Miguel Pedraza*

Photo courtesy of NASA
 "A spectacular new martian impact crater, taken February 5th, 2014."

AEROSPACE ALUMNI ADVISORY BOARD UPDATE



The UND Aerospace Alumni Advisory Board (AAAB) got an up close and personal look at the Delta Air Lines operation this April as we held our spring meeting in Atlanta. Thanks in large part to AAAB member, and Delta pilot, John Klinger '90, the meeting was a huge success. Faculty from the University alongside AAAB members were on site and participated in meetings with Delta Management, including the Senior Vice President of Flight Operations, Director of Flight Training, Manager of Pilot Hiring, FOQA and ASAP Managers, and the SMS Program Manager. Air Traffic Controllers weren't left out either, as faculty from the ATC program were escorted by AAAB member Rich Baker '00 on tours of ATL Center, ATL Tower/TRACON, and the FAA Regional Operations Center. In addition, the group toured the Delta campus, got to fly a 777 simulator, and held a very productive spring board meeting.

During the AAAB meeting, the Board took care of its old and new business, and came up with some exciting new ideas to increase our involvement with the University. The first new initiative will have AAAB members conducting mock interviews via telephone with students in the Senior Capstone Course. Each student will participate in a 15 minute, one on one, mock interview conducted by an AAAB member. AAAB members will be paired up with students majoring in their profession to help in providing them with a realistic interview experience and debriefing.

Another new activity that increases the interaction of AAAB members on campus is an Internet chat room. This forum will be hosted by the University and set up for a "trial run" in selected classes this fall. Student interaction on the forum will be required as part of the curriculum and allow students to post questions and get timely answers from industry experts on the Aerospace Alumni Advisory Board. In addition, it will provide an opportunity for students to work on their written communication skills and professionalism. If the trial run is successful we anticipate this project to expand to other classes in the future. As you can see, the spring meeting allowed the AAAB to add new activities to our ongoing scholarship program, advisory role, and campus visits to help support the University.

The Board also welcomed 4 new members: Derek Manki, Brian Schroeder, Brad Secrist, and Doug Webster. These individuals will provide great expertise on atmospheric sciences, airport management, airline dispatch, and operations. The Aerospace Alumni Advisory Board still has a couple of areas where we are in need of more expertise. We are currently looking for graduates with professional experience in the following areas: FAR Part 132 Education Centers, Aircraft/Airline Dispatch, and UAS Operators from various backgrounds (agriculture, large, small UAVs) who would be willing to donate time, energy, and professional knowledge toward the AAAB and UND. If you are interested, please send an email to me at mkalouner@hotmail.com or to Josh Christianson at joshc@aero.UND.edu.

I hope you are having a great summer and I look forward to updating you on the progress of the Aerospace Alumni Advisory Board after our Homecoming meeting in Grand Forks this fall.



Matt Kalouner '01
President, AAAB
mkalouner@hotmail.com
First Officer, Alaska Airlines

- Matt Kalouner **01**
PRESIDENT
- Corey Stephens **99**
VICE PRESIDENT
- Justin Stimpson **01**
SECRETARY/TREASURER
- Rich Baker **00**
PAST PRESIDENT
- Aiken, Joel **92**
- Anderson, Chad **98**
- Annis, Jay **98**
- Baas, Bradley **86**
- Baker, Rich **00**
- Barnes, David **01**
- Blumhorst, Jonathan **11**
- Boxrucker, Craig **00**
- Castor, Jimmy **03**
- Coleman, Doug **84**
- Cooper, Chris **05**
- DuVernay, Jason **06**
- Ems, Michelle **05**
- Geisler, Robert **86**
- Gillen, Michael **92**
- Gora, Brian **83**
- Hall, Eric **90**
- Hansmann, Glen **89**
- Hauge, Tom **92**
- Hedrick, Robert **82**
- Heining, Joel **92**
- Hess, Erich **00**
- Hopper, Josh **03**
- Huff, Matt **03**
- Jensen, Kurt **79**
- Kalouner, Matt **01**
- Kappenman, Jeff **83**
- Klinger, John **90**
- Kluenker, John **01**
- Kneseck, Daniel **97**
- Kuhlman, Steve **89**
- Lasky, Todd **02**
- Laventure, Andrew **10**
- Leon, Steve **90**
- Leonard, Tim **87**
- Lounsberry, Tom **82**
- Lukasezck, Bryan **92**
- Manki, Derek **03**
- Martin, Roger **73**
- Miller, Andrew **93**
- Muhs, Bob **77**
- Muhs, Jack **87**
- Nelson, John **90**
- Nemec, Joe **01**
- Odegard, John **89**
- Olson, Erin **05**
- Schermerhorn, Rob **86**
- Schofield, Jodi **91**
- Schroeder, Brian **98**
- Secrist, Brad **99**
- Shields, Josh **00**
- Stephens, Corey **99**
- Stimpson, Justin **01**
- Stork, Richard **04**
- Strack, Brian **01**
- Stubbe, Joseph **02**
- Swing, Jeff **96**
- Tomlin, Nicholas **94**
- Toivola, Kevin **01**
- Troxel, Brad **06**
- Webster, Doug **83**
- Wright, Corey **05**

EVENTS

JULY - DECEMBER 2014



EAA AIRVENTURE - OSHKOSH

28-30
JULY-AUGUST
EAA Airventure 2014
Hangar D
Oshkosh, WI

30
AUGUST
UND Aerospace Alumni
& Industry Reception
Hilton Garden Inn
6-9pm
Oshkosh, WI

19-21
SEPTEMBER
Aviation Alumnae
Weekend
Brainerd, MN

4
OCTOBER
Aviation Day for
Prospective Students
UND

6-12
OCTOBER
UND Homecoming
"Sweet Home UND"
For details:
[UNDalumni.org/
homecoming14](http://UNDalumni.org/homecoming14)

21
OCTOBER
UND Aerospace Alumni
& Industry Reception
Orange County
Convention Center
Orlando, FL

27
OCTOBER
Minneapolis Prospective
Student Outreach
7pm-10pm
Hilton Minneapolis/ St.
Paul Airport
3800 American Blvd E
Minneapolis, MN

8
NOVEMBER
Aviation Day for
Prospective Students
UND

19
NOVEMBER
Denver Prospective
Student Outreach
7pm-10pm
Embassy Suites SE
7525 E Hampden Ave
Denver, CO



Aerocom is published for alumni and friends of the John D. Odegard School of Aerospace Sciences. Aerocom welcomes your suggestions, story ideas, alumni profile information and photos for use in future publications. Permission to reprint any portion of text or photography may be granted upon request. Visit our website at aero.UND.edu Please send your information via email to joshc@aero.UND.edu or via mail to:

**John D. Odegard
School of Aerospace Sciences**
Attention: Josh Christianson
3980 Campus Rd, Stop 9007
Grand Forks, ND 58202-9007

Non-Profit
U.S. POSTAGE
PAID
Grand Forks, ND
Permit #10

1975

This radar system was used in early weather modification research. It was acquired by a Department of Aviation weather research group which eventually evolved into the Department of Atmospheric Sciences.

ARCHIVES

