



Summer 2016

Aerocom: Summer 2016

John D. Odegard School of Aerospace Sciences

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AEROCOM

JOHN D. ODEGARD SCHOOL OF AEROSPACE SCIENCES

SUMMER 2016



UND
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A MESSAGE FROM THE DEAN

We are off to an exciting summer at UND Aerospace! In May, we celebrated Bruce Smith's retirement with an enjoyable picnic and short program in one of our maintenance hangars at UND Flight Operations. David Williamson, one of Bruce's longtime friends and UND Aerospace Foundation Board member, led us in the singing of the "North Dakota" song – a special treat. In addition to David, other speakers included Diane Odegard, who thanked Bruce and Ann for their many years of leading UND Aerospace. We sincerely thank you Bruce and Ann for nearly 17 years of outstanding leadership – we will miss you. We will also miss Terri Clark as she retires as Chief Financial Officer of UND Aerospace. Thank you Terri for your 28 years of service!



Another exciting event occurred on June 9th when the Deputy FAA Administrator, Mike Whitaker, and five key members of his staff flew in for a visit. We toured UND Flight Operations and Aerospace campus facilities as well as briefed the visitors on the Odegard School, the Aviation Department, UAS research and the Northern Plains UAS Test Site. We also travelled to the Grand Forks AFB where Colonel Lewis and his staff showed off the Global Hawk/Predator/Reaper aircraft and the UAS Grand Sky airpark. It was exciting to see the Air Force enthusiasm supporting the development and integration of unmanned aircraft systems into the national airspace system. It was a privilege to have the Deputy Administrator take the time to tour our facilities. After his visit, Mike Whitaker personally sent compliments to our maintenance department for their "impeccably clean floors" and he congratulated Aerospace key staff members for helping make his visit so memorable. Thank you for the great team work.

Also in June we had the privilege of hosting Mark Baker, President of the Aircraft Owners and Pilots Association (AOPA). Thanks to the influence of our UND Aerospace alumnus, Steve Kuhlman, we were able to garner about two hours of Mark's time to visit UND Flight Operations and Maintenance and to take a quick tour of UND Aerospace's campus facilities before Mark headed west to Seattle. Thank you Mark and Mike Tompos, AOPA Foundation VP, for taking the time to visit.

On a personal note, thanks to each of you for your overwhelming support during my selection to be your next dean of the John D. Odegard School of Aerospace Sciences. It is a distinct honor and privilege for me to serve as only the third dean of the Odegard School in its 48-year history. UND Aerospace is truly a special place, as Bruce Smith has said many times. Of course, this is because of the dedicated efforts by each and every one of our employees, not only on a daily basis, but over an entire professional career for many of our employees. We will continue our tradition of excellence as we remain focused on our mission statement: "Working together, we will be leaders in creating, preserving, and delivering the highest quality education, research, and services in aerospace and related sciences for our university, our state, and the worldwide aerospace community."

As I begin to serve as your next Dean, we also want to extend a warm welcome to our new University President, Mark Kennedy.

All the best to each of you!

Paul Lindseth | Dean, John D. Odegard School of Aerospace Sciences

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“I’m thrilled to accept this honor, and I’m enthusiastic about taking the Odegard School forward given its tradition of excellence and its international reputation.”

– Paul Lindseth, Dean, page 11

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Cover Image **Lindseth Named Dean**

Full article on page 14 | Cover Photo Credit **Jackie Lorentz**



UND AEROSPACE COMMUNITY PREPARES TO “LAUNCH” ROBIN HALL

Newest Odegard School facility delivers up-to-date enhanced teaching, research space

UND Aerospace is preparing to launch Robin Hall, the latest addition to the on-campus Aerospace complex, marking a new milestone in education and training space for its faculty and students.

“We anticipate full occupancy by mid-July,” says UND Aerospace Foundation CEO Chuck Pineo.

The building, with its distinctive glass tower, was topped off last October by a team that included North Dakota Gov. Jack Dalrymple, who also used the occasion to bestow a posthumous Rough Rider Award to the family of UND Aerospace founder and first dean John D. Odegard.

Si Robin and Mary E. Bazar, the lead benefactors for the project, were also among the dignitaries for the topping off ceremony, about one year after the Aerospace Foundation broke ground on Robin Hall.

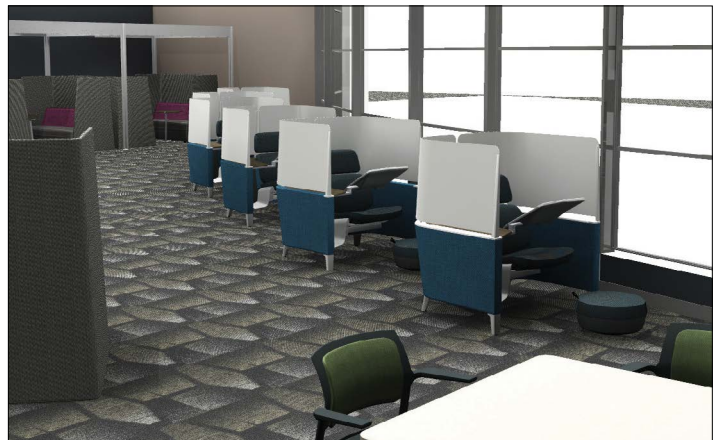
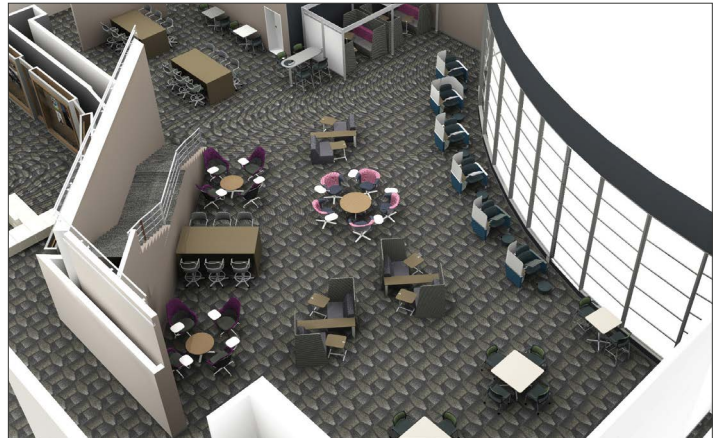
Robin Hall is, literally, a pinnacle of success, rising on the western fringe of the UND campus. It will provide a much-needed space for serving the school’s rapidly growing UAS enterprise as well as other aerospace-related research activities. Like all the buildings in the Aerospace complex, it is connected to its neighbor, Ryan Hall, by a winter-proof glass tube.

UND’s Center of Excellence for Unmanned Aircraft Systems, which will be a major tenant of the new research building, was the first collegiate degree program of its kind in the nation and has become the most widely recognized such program in the world.

The 66,000-square-foot Robin Hall is being funded largely by private donations and \$1.5 million in matches from the North Dakota State Board of Higher Education Challenge Fund. The state authorized UND to spend up to \$25 million on the project. It's being built and managed by the UND Aerospace Foundation, the private-sector support arm of UND Aerospace.

A grand opening is scheduled for July 26, to include the participation of Si and Betty Robin, the building's namesakes. Guests will also include longtime UND Aerospace benefactor James Ray, Clay Lacy, and Joe Clark. Lacy and Clark are known for their special Experimental Aircraft Association-related scholarships for UND students.

— *Juan Miguel Pedraza*



Architectural renderings of the student commons area in Robin Hall

BRUCE SMITH RETIRES AFTER SUCCESSFUL FLIGHT AS DEAN OF AEROSPACE

Bruce Smith retires this summer as dean of the John D. Odegard School of Aerospace Sciences, a post he's held since 2000.

"It's been a terrific time for me here," said Smith, who's built a reputation as a can-do but self-effacing leader. "My philosophy is simple: you can't build and run an organization like the Odegard School without a lot of very talented, highly educated, capable people."

A testament to Smith's leadership style is the incredibly low turnover of his senior staff, many of whom worked with UND Aerospace founder John D. Odegard. Smith is proud that he's helped grow a lot of internal talent at the Odegard School as well, such as Elizabeth Bjerke—a former UND student, founder of the school's Women in Aviation chapter, and now chair of the Aviation department.

But there's a lot more to UND Aerospace than airplanes and pilots. "We've built a formidable research institution here," Smith says, pointing to Ph.D. programs in Aerospace Sciences, Earth Systems Science & Policy, Atmospheric Sciences and Computer Science. "Not bad for a program that was launched by John (Odegard) with two airplanes."

Moreover, Smith points out, students in Aerospace programs—whether they're aiming for a flying job with the airlines or building computer models of storm systems—get a full-fledged education, including the broad benefits of Essential Studies.

At the heart of the Odegard School's stunning record of growth and achievement is its amazing safety track record. "Safety always has to start at the top of the organization," says Smith, who led UND Aerospace to the topmost recognition by the Federal Aviation Administration for UND's Safety Management System.

Smith, a recipient of North Dakota's State Meritorious Service Medal, also credits a small number of spectacular benefactors. Consistent with his sharing the limelight, Smith said, "They have significantly contributed to the success of UND Aerospace programs, focusing their donations on the needs of UND Aerospace and its students."

Among his many personal accomplishments as dean of UND Aerospace, Smith took a developmental leave to write "Nowhere But North Dakota," a history of UND Aerospace that picks up where Odegard's "Flight of the Odegard" left off.

Smith is married to Ann; they have two grown children, Allan and Jay, as well as several grandchildren. They plan to move to Alabama to be near family after Smith retires June 30.

— *Juan Miguel Pedraza*



SMS ACHIEVES ACTIVE CONFORMANCE STATUS

Earlier this year, the John D. Odegard School of Aerospace Sciences received notification from the Federal Aviation Administration (FAA) acknowledging full acceptance of UND's Safety Management System (SMS).

In a letter to UND Aerospace, the FAA stated, "The Federal Aviation Administration congratulates UND on this significant accomplishment in implementing a fully functional SMS in accordance with international requirements. Congratulations on your momentous achievement."

SMS introduces an evolutionary process in safety management, obligating organizations to manage safety with the same level of priority as other core business processes. SMS is required by the FAA for all airlines, and is becoming the accepted standard of safety in the mining, transportation and medical fields.

UND's Director of Aviation Safety, Dana Siewert, says this was an organization-wide commitment encompassing flight training, aircraft maintenance, aviation academics, and unmanned aircraft systems. "UND Aerospace has invested six years in the development and implementation of our Safety Management System," Siewert said.

"To my knowledge we are the first FAA Part 141 flight training program to achieve this goal," Siewert said. "This would not have been possible without the support of UND Aerospace Dean Bruce Smith, the FAA Flight Standards District Office in Fargo, and the personal commitment of many others within the organization."

According to Dick Schultz, Director of Flight Operations, there are other benefits to having an approved SMS. "Being SMS compliant is a standard for nations that are members of the International Civil Aviation Organization," Schultz said. "We provide flight training for several foreign countries, and those customers always ask if we have an SMS program. This is a competitive market and being able to respond positively gives us a significant advantage."

— *Juan Miguel Pedraza*



Brenda Risky



DREAM(LINER) JOB

UND alum Matt Coleman teaches airline pilots globally how to fly Boeing's top planes

In his line of work, UND Aerospace alum Matt Coleman sees a lot of stuff other pilots never do.

Coleman is an instructor pilot in Boeing's Commercial Airplanes, Flight Services division. "I fly with airlines all over the world," says the Seattle-based Coleman, a 1994 graduate of UND's aviation program who spent a couple of years at UND as a flight instructor.

He's had about 9000 hours in the instructor's seat, including ten years instructing in the U.S. Air Force C-17 Globemaster four-engine transport and the C-21 (Lear 35) executive aircraft. "Now I'm an instructor pilot at Boeing, teaching customers how to fly the 737, 777, and the 787 Dreamliner," said Coleman.

How'd he get that work?

"Just like any other airline job, I applied for it," said Coleman, who was a member of the UND Flying Team, coached by John Bridewell at the time. "The job required an extensive flight instruction background."

"When an airline gets a new Boeing airplane, I teach their initial cadre of pilots how to fly it. I train their chief pilots, standardization pilots and others, who then train their line pilots," Coleman explained. "They come to Seattle, and then I hop in the brand new airplane with them and help them deliver it to their destination, staying up to a month. I train them in the initial operating experience, doing passenger revenue flights or instrument approaches and touch-and-go landings with an empty airplane, whatever they need."

Coleman says he learned a lot as a student at UND. "Especially Kent Lovelace's CFI class—lessons I learned in that class I still use every day," Coleman said.

— *Juan Miguel Pedraza*



Jackie Lorentz

WOMEN AVIATORS EMBARK ON ANOTHER AIR RACE CLASSIC

A team of UND women took to the skies again this summer, competing in the 40th Women's Air Race Classic. This is the fourth year that UND has competed in this world-renowned race.

The team, with the help of their ground coordinator and a UND Atmospheric Sciences weather forecast group, placed third among the 17 collegiate teams, and fourth overall among the 55 teams competing.

UND's team—supported by UND Aerospace and a grant from Rockwell Collins—comprised the following students (pictured above from left to right):

- Dana Atkins, pilot, Sycamore, Ill., Aviation Management major
- Emma Kishel, navigator, Virginia, Minn., Commercial Aviation major with a Safety Specialization
- Tina Druskins, co-pilot, Midland, Mich., flight instructor, Aviation Management graduate
- Jenna Annable, ground support coordinator, Winchester, Va., Commercial Aviation and Flight Education major (not pictured)

This year's team, like last year's, was coached and advised by Erin Schoenrock, who works with UND unmanned aircraft systems.

The race launched June 21, in Prescott, Ariz., for a 2,716-mile sprint across the United States that ended Friday, June 24, in Daytona Beach, Fla. The race is chronicled on the team's blog: undairracers.wix.com/undairraceclassic.

— *Juan Miguel Pedraza*



LINDSETH NAMED DEAN

Paul Lindseth, a veteran aviator, educator, and a University of North Dakota academic leader, is the new dean of the John D. Odegard School of Aerospace Sciences following a national search. Lindseth, who has served as associate dean of academics of the school since 1999, steps in following the retirement earlier this year of longtime Dean Bruce Smith.

The announcement was made by Thomas DiLorenzo, UND Vice President for Academic Affairs and Provost. Lindseth's appointment as dean is effective July 1.

"I'm thrilled to accept this honor, and I'm enthusiastic about taking the Odegard School forward given its tradition of excellence and its international reputation," said Lindseth, a U.S. Air Force veteran with experience in several aircraft types, including helicopters. Lindseth joined the Odegard School as a flight instructor before accepting an aviation faculty position in 1988.

"Paul is an exceptional leader with a proven track record," said DiLorenzo. "With more than 4000 hours of flight time, mostly as an instructor, and several years as associate dean, Paul brings a unique blend of both aviation and academic experience to the position of dean of the Odegard School."

Lindseth has taught many courses during his UND career, including fixed and rotary wing private and commercial pilot flight courses as well as aviation safety. Lindseth has expertise in the area of human factors research with an extensive list of publications. In addition, his leadership helped establish the North Dakota Center of Excellence for Economic Development in Unmanned Aircraft Systems. He also led UND's efforts as a designated FAA Center of Excellence in General Aviation Research from 2001-2013.

Lindseth, who grew up on a Silva, N.D. farm began his flying career in 1973, earning his private pilot license through the Air Force ROTC program. While waiting to go on active duty after college graduation, Lindseth taught for one year at Hillsboro (N.D.) High School. After graduating from Air Force pilot and instructor training, he served as an undergraduate T-37 pilot trainer and check pilot. His expertise was recognized twice during this time as "top instructor" and "master instructor".

In addition to flying airplanes, Lindseth was given the opportunity to fly helicopters in 1980. He flew the UH-1 "Huey" helicopter for Air Force search-and-rescue and missile site support operations, serving as an instructor pilot and flight examiner. In 1983, he was selected as the Chief of Aircrew Standardization and Evaluation for Air Force light lift helicopters worldwide.

Throughout Lindseth's active duty, he continued to pursue his general aviation flying. Lindseth received his Ph.D. from the University of Michigan in Ann Arbor.

— *Juan Miguel Pedraza*

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* Deceased



NOT YOUR USUAL 9-5: UND AVIATION ALUM FLIES 1950S ERA CARGO PLANE IN ALASKA

Job takes John Anderson, '86, daily to remote sites, back home evenings

Above: Sitting on the ramp at Dutch Harbor waiting to pick up a load of fish. The wind socks here at the approach ends of the runway will frequently be pointed opposite of each other.

With the sequential flip of four old-fashioned switches, John Anderson starts his workday.

His desk?

The captain's seat in a DC-6, a 50s vintage airliner powered by four Pratt and Whitney R-2800 Double Wasp engines.

His uniform?

"I wear jeans, a flannel shirt, and coveralls," he says.

Douglas Aircraft, a famous but long-defunct company, quit making the DC-6 in 1958 after a 12-year production run. But John's employer, Everts Air Cargo, keeps these old birds (and many newer types, such as the MD-80 twin-engine jet) working the Alaska outback—usually day trips.

"Unlike many other professionals in this field, I'm home just about every night," says Anderson, who graduated from UND in 1986 after completing his commercial aviator training and spending a couple of years flight instructing.

Anderson—who flies year-round from his company's base in Anchorage—notes that the DC-6 in military dress was used by the United States to deliver food and other necessities to the

communist-blockaded Berlin in 1948-49.

Today, the DC-6 that John flies is similarly loaded with cargo, like potato chips, soft drinks, fuel, drill pipe, trucks, cars—“anything that’ll fit on a pallet”—for Alaskan villages or remote construction sites with little or no road access.

“We fly at about 12,000 feet at about 200 knots,” says John, noting that a major challenge flying in Alaska is ice. “It forms on the underside of this aircraft, so it’s hard to detect—but if icing is noted as we climb out of the Anchorage bowl, we’ll turn back.”

What about the pilot shortage everyone is talking about?

Yup, they know about that in Alaska, too—even companies such as Everts are advertising. Their web site has a recent posting: “Everts Air Cargo has openings for Anchorage, Alaska-based DC-6 First Officers and Flight Engineers with good flying skills and a strong work ethic.” The company’s pitch for air crew includes this statement: “With few exceptions, pilots are home every evening with their families.”

The Double Wasp engine, with its two rows of nine cylinders each, is a design that pre-dates the DC-6 by about 10 years, famed earlier for its decisive role as the power behind some



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through the North Dakota Higher Education Challenge Fund

From July 1, 2015 through December 31, 2016, the State of North Dakota will match **\$1 for every \$2** given by private donors to the University of North Dakota Foundation on gifts of at least \$50,000. Qualified gifts must be used to fund endowments supporting scholarships or faculty positions.

\$7 million has been allocated to the University of North Dakota: the first \$2 million must be used for scholarships; when that has been fulfilled, the remaining \$5 million may be used for scholarships or faculty support.





of America’s toughest and winningest war birds, such as the Republic P-47 Thunderbolt (the heaviest single-engine fighter of WWII), says John.

So you can’t go to your local parts store to buy stuff for your DC-6 or its engines.

“Parts are a challenge,” says John, adding that pilots of this kind of plane have to know something about maintenance, even if they’re not certified A&P mechanics. However, there are companies that still manufacture replacement parts for older piston engines such as the air-cooled Double Wasp.

And what’s it really like to fly a piece of history in the Alaskan outback?

“Every day is different—keeps it all interesting.”
— *Juan Miguel Pedraza*

Left: The store front in Deadhorse.



The State of North Dakota will pay for 1/3 of your endowment for scholarships or faculty support at the University of North Dakota.

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UNDAF CELEBRATES TWO KEY TRAINING CONTRACTS

10 years of successful UND pilot education for Tokai University, Air China

The UND Aerospace Foundation (UNDAF) is celebrating ten years (as of late 2015) of continuous aviation training for Japan's Tokai University. "It's a testament to our core values and the excellent education we provide students from all over the world," said Bruce Smith, who retired as UND Aerospace dean this summer, before he traveled to Tokai last fall to help celebrate this anniversary.

"This was very exciting for us," said Chuck Pineo, CEO of the UND Aerospace Foundation, which administers this and several similar international training contracts. "We signed our first agreement with Tokai University in November 2005, and since then 282 Tokai students have gone through our program, with 65 currently in our program and 17 more arriving in August."

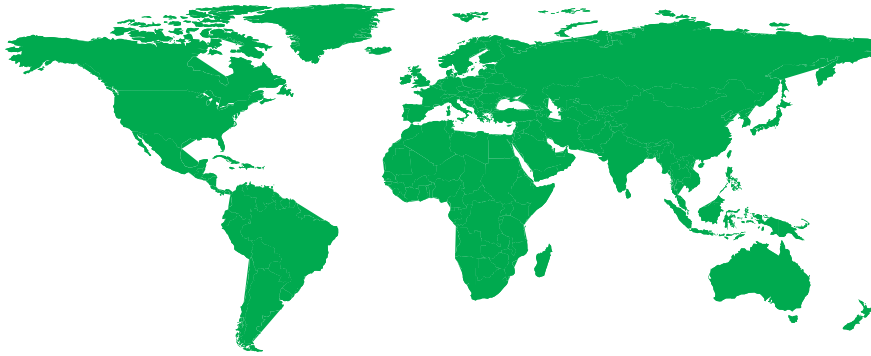
As part of the agreement, Tokai University students attend UND Aerospace for 15 months while training to become commercial pilots. The first four-year agreement had two classes per year of 20 students each. When they leave UND Aerospace, they have both their U.S. Federal Aviation Administration (FAA) certificate as well as their Japan Civil Aviation Bureau credentials.

This year is also the tenth anniversary of a pilot training agreement between UNDAF and Air China (Beijing). UND Aerospace currently has about 120 Air China students in its program. In addition to academics, Air China students complete a 250 hour ab initio flight training program which includes 20 hours of flight in a King Air C90GTi turboprop aircraft. Upon completion of the 12-month program, the students return to the Air China Training Facility in Beijing for advanced simulator training. About 1,300 Air China first officers are from the UND program, which is about 60 percent of all their first officers or about 30 percent of their total pilot contingent.

— *Juan Miguel Pedraza*

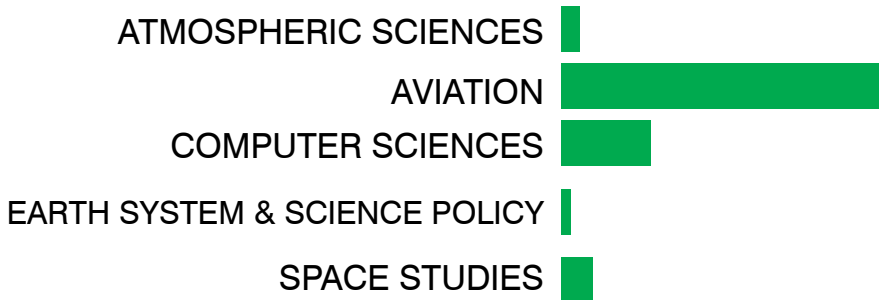
ALUMNIPROFILE

149 INTERNATIONAL GRADS



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

GRADS BY MAJOR



TOP 10 CITIES FOR ALUMNI

1. Grand Forks, ND
2. St. Paul, MN
3. Minneapolis, MN
4. Bismarck, ND
5. Fargo, ND
6. Lakeville, MN
7. Rochester, MN
8. Colorado Springs, CO
9. Prior Lake, MN
10. Seattle, WA

8706 NATIONAL GRADS

AL	42	MT	133
AK	82	NE	73
AZ	220	NV	74
AR	14	NH	37
CA	392	NJ	52
CO	475	NM	31
CT	26	NY	90
DE	9	NC	96
FL	228	ND	1065
GA	162	OH	108
HI	66	OK	27
ID	71	OR	96
IL	274	PA	71
IN	55	RI	11
IA	104	SC	44
KS	63	SD	118
KY	38	TN	67
LA	16	TX	373
ME	12	UT	59
MD	75	VT	6
MA	29	VA	224
MI	104	WA	418
MN	2398	WV	12
MS	18	WI	312
MO	65	WY	38



Jackie Lorentz

FOUNDING UAS PROGRAM DIRECTOR AL PALMER RETIRES, JOHN BRIDEWELL TAKES OVER

Al Palmer, founding director of the UND Center for Unmanned Aircraft Systems Research, Education and Training—also known as the UAS Center of Excellence—retired earlier this year after more than 45 years of military, academic, and flight instruction experience and higher education leadership. UAS Center faculty member John Bridewell, who’s been at UND since 1985, takes over as UAS director. The UAS COE program is now part of the Department of Aviation, where Bridewell holds the title of associate chair.

“I plan no big changes,” says Bridewell. “We want to live up to Al’s great legacy.”

The program hit a couple of milestones this year, including achieving flight status for its Boeing Insitu ScanEagle, a small, long-endurance UAS. Bridewell says the program aims to develop ScanEagle’s potential as a research vehicle.

A second UAS in the program—the Sensurion Magpie—is now part of a new training and certification course, Aviation 238, which meets all the requirements for the FAA’s FAR Part 107, part of the government’s streamlined regulations relating to the operation of small UAS. This course will allow students to get certified to fly these aircraft with only a private pilot certificate as a prerequisite.

“We’re also excited about the new UAS facilities that are part of Robin Hall,” said Bridewell, noting that the facility is nearing completion. “We’ll have a ScanEagle



simulator there and we'll also have MQ-1 Predator and MQ-9 Reaper simulators, offering a broad spectrum of training from big to small."

Bridewell also noted that the program is moving forward in developing a pipeline of UND students to fly UAS for U.S. Customs and Border Protection, part of the Homeland Security family of agencies.

And recently, the U.S. Air Force Research Lab invited UND Aerospace to bring its PRINCE MQ-1/9 simulator to the Interservice/Industry Training, Simulation and Education Conference (I/ITSEC) in Orlando this November. "This is a big deal for us," said Bridewell. "This is the big international simulation conference held annually."
— *Juan Miguel Pedraza*

Left: Mark Hastings (right) explains the working details of the Insitu ScanEagle to UND undergraduate Andrew Schill.

Center: Carrying an Altavian Nova unmanned aircraft back to the control center after a flight.

Right: The Sensurion Magpie pre-flight inspection.

EXTREME COMPUTATIONS: BIG DATA FOR BIG WEATHER RESEARCH

UND atmospheric scientists use global networks of supercomputers to tackle enormous weather questions more quickly

Extreme weather research requires extremely fast supercomputing power, and that's exactly what atmospheric scientists at UND are working with.

Gretchen Mullendore, who's been in the news a lot lately for her work on tropical thunderstorms and their impact on unmanned flight, says it's an exciting time to be working in the world of supercomputing. "A lot of advances continue to be made that will likely change the way we do science," Mullendore said. "This particularly impacts fields like atmospheric science."

A new push in the realm of atmospheric science research is "The Big Weather Web," a National Science Foundation (NSF) project, utilizing a global supercomputing network. "The way we do atmospheric science right now is each researcher downloads all the data they need to local computers," Mullendore said. "But maybe we can change that, and instead of everyone having their own copy of all that data, we could use distributed data models, where the data only resides in certain locations."

Mullendore says The Big Weather Web is trying to do just that, and UND is part of a team of universities generating separate parts of an overall weather forecast. "We are then sharing our different pieces by linking storage servers together over the Internet," she said.

"Not only do we need big computers



to run our forecasting and climate models, we also need big storage," Mullendore said. "If you think about all the measurements we are constantly taking of the atmosphere: the satellites, the radars, the surface instruments, balloons, aircraft—all that data needs to be stored."

Fellow UND atmospheric scientist Matthew Gilmore can relate. He taps into a national network of NSF-funded supercomputers known as the Extreme Science and Engineering Discovery Environment (XSEDE) to conduct computer simulations for his research on tornados.

Gilmore said, "This incredible computing power of a supercomputer, using hundreds to thousands of cores, allows us to generate a weather forecast covering the entire United States or zoom in to resolve the inner workings of a tornado."

In order to keep utilizing XSEDE for the team's tornado research, Gilmore submits an XSEDE proposal every year, requesting a specific amount of core hours needed to accomplish the group's science objectives. "Where a standard NSF grant would provide dollars, XSEDE grants computer time," Gilmore says. "These two types of grants are typically used together, hand-in-hand, so that one pays staff/student salaries while the other 'pays' for computer use."

— David Dodds

MISSION POSSIBLE

With ice in their veins and chops for high-tech gadgetry, UND students compete against the world's top gizmo engineers to design software that aids first responders

A team of UND students is on a mission that might even intrigue super spy Ethan Hunt of the Impossible Mission Force.

The group of undergrad and graduate students—including several from Computer Science—will compete this summer in the so-called “Ice House Challenge” in San Francisco against teams from all over the world for a first-place prize of \$20,000.

The competition, held in conjunction with the Institute of Electrical and Electronic Engineers (IEEE) Body Sensor Networks Conference, is sponsored by IEEE, the U.S. Special Operations Command, and the Massachusetts Institute of Technology. Teams from around the world will compete to create software to aid first responders during a crisis.

The software has to run on an Android smartphone. The teams must also use a Sony Smart Band and a pair of Sony Smart Eyeglasses. Along with a performance evaluation, the teams must explain how the software they developed might find practical applications in real-world scenarios. After recently completing his scientific computing doctoral program at



UND, Jeremy Straub leads the team, which includes four UND students: Courtney Comeau, Grand Forks, computer science undergrad; Kelton Karboviak, Drayton, N.D., a computer science graduate who is beginning post-graduate work in computer science this fall; Jon Sand, Bemidji, Minn., a computer science undergrad; and Thomas McGuire, Inver Grove Heights, Minn., a mechanical engineering undergrad.

“Like most real-world problems, the Ice House competition isn’t just a computer science, physics or engineering challenge,” said Straub, who heads this fall to a teaching position at North Dakota State University. “We’ve brought together both engineers and computer scientists to design and develop what is hopefully a best-of-breed solution combining software information display and decision making capabilities with a mechanical interface device that speeds user interaction.”

Ice House is a simulation designed to mimic real-life scenarios that first responders or special operations soldiers might encounter. Scenarios will take place in a building, which, for the purposes of the Ice House exercise, will

be deemed a hostile environment. The UND team will not know the identity of their competition until they arrive in San Francisco. However, they were informed which institutions they beat during earlier rounds of the competition. To this point, the UND team has beaten teams from Stanford University, Texas A&M, Imperial College London and many others. The U.S. Coast Guard will provide volunteers to complete the scenarios using software created by each team. Each team will have twenty minutes before its scenario to explain the functionality of its software to the volunteers. Given the short amount of time for preparation, user-friendly applications will be preferred.

Along with the equipment provided, the UND team has also created an armband to be used by the volunteers completing the scenario. The small armband contains ten buttons which designate either a certain room within the building being used for the scenario or a specific hazard the user may experience. The armband allows first responders or soldiers to send information to others on their team without being distracted by having to interact with a screen.

— Matt Eidson



ESSP RELEASES LATEST UND GREENHOUSE GAS REPORT

On track with its green commitments

The big news from the Department of Earth System Science and Policy is the Greenhouse Gas (GHG) Inventory Report 2015. It's the latest in a series of GHG reports prepared by ESSP faculty and students under UND's Climate Commitment, first signed in 2008 by then-President Charles Kupchella and supported by the University's leadership since then.

Kupchella signed what was officially called the "American College and University Presidents Climate Commitment," which committed UND to finding "greener" ways to do business. The national climate commitment group subsequently changed its name to Second Nature.

"An additional benefit to UND is reduced energy costs," says Soizik Laguette, ESSP chair, co-chair of the UND Sustainability Council, and the academic advisor of the student team that prepares the University GHG reports, done every couple of years. This year's GHG report team comprised ESSP graduate students Lance DiAngelis and Daniel Dixon.

"We also helped to prepare the University's Climate Action Plan (CAP), which is a living document that establishes a forward-looking direction for the University's green efforts," Laguette notes. The CAP continually reflects changes as UND advances in its goal of carbon neutrality.

"What we aim for is evidence-based policy making with respect to sustainability," Laguette said. "We took a pledge to do these kinds of things."

— *Juan Miguel Pedraza*

JAMES CASLER NAMED CHAIR OF SPACE STUDIES



After several months as acting chair, James Casler, a faculty member in the Department of Space Studies, has been appointed chair of the department. Casler takes over for Santhosh Seelan, professor of Space Studies, who will return to teaching and research.

Casler joined UND in 2007. He is a graduate of the Navy's Test Pilot School and spent more than a decade flight testing new aircraft and systems for the Marine Corps. Among other aircraft, Casler test piloted the Bell Boeing V-22 Osprey tiltrotor aircraft.

Casler has also held various engineering and management positions with what has become the Aerospace Group, Wyle Laboratories. For five of those years, he was the Senior Business Development Manager for Research and Development and was actively engaged in strategic planning and business development efforts oriented to new markets in aeronautical and aerospace research and development, primarily in the NASA engineering and technical services arena.

A student of space colonization since the mid-1980s, Casler did his doctoral research on human performance in space-based manufacturing settings. He continues to investigate future industrial operations, such as mining and manufacturing, on the surfaces of the Moon and Mars.

— *Juan Miguel Pedraza*

FROM

RYAN TO ROBIN

NEW LOCATION, MERCHANDISE & COFFEE STATION

AEROSTOP

WOMEN TACKLE MARS MISSION

ILMH mission launches with all-female crew

Three graduate students from the Department of Space Studies completed a closed 10-day mission earlier this spring in the school's Inflatable Lunar-Mars Habitat (ILMH).

"This was the first mission we did with an all-female crew who performed a variety of experiments mainly related to the psychology of what happens in the isolation of space missions," said Pablo de León, an Associate Professor in the Department of Space Studies and the principal investigator on this third ILMH mission. De León is also director of the UND Space Suit Laboratory, with several NASA grants under his belt, including a recent grant to expand the ILMH. "We were looking into how such isolation affects crew cohesion."

The three crew members are all master's degree candidates in Space Studies:

- Poonam Josan, Amritsar, India: Poonam is an aerospace engineer who researches how confinement (unlike previous ILMH missions, this one did not include any extra-vehicular activities) and sunlight affect mood and circadian rhythms. She is interested in mitigating technologies for vestibular and neuromotor behavior in reduced gravity environments.

- Carolyn Newton, Weeki Wachee, Fla.: Carolyn, with an undergraduate degree in human factors, is researching how personality and humor affect individual stress in isolation and confinement. Her areas of interest are space human factors and space psychology.

- Brittany Zimmerman, San Bernardino, Calif. and Stevens Point, Wis.: Brittany, a mechanical engineer, was in charge of the mission's bio-regenerative life support systems. She studied the use of plants to keep the crew healthy. Her area of interest is the engineering of biospheres and life support systems for long-duration spaceflight with an emphasis on hybrid bio-regenerative and physical-chemical systems. Zimmerman is using her mission experiment as part of her master's thesis.

The mission controller was Sophie Orr, a physical anthropologist and master's Space Studies student from Palo Alto, Calif. Her primary interest is in human physical adaptation to spaceflight. For this mission, Orr supported the crew, developing and implementing the





Jackie Lorentz

Above: Brittany Zimmerman uses plant modules to keep the crew healthy by providing vitamins and psychological relief.

Top Right: The crew members from left to right: Carolyn Newton, Poonam Josan, and Brittany Zimmerman.



Jackie Lorentz

technical setup and the meal plans—including gluten-free and vegetarian meals—prior to “launch.” Orr also proctored the on-board scientific questionnaires and was available 24/7 during the mission to assist with crew needs.

As in the two previous ILMH missions, the all-volunteer student crew and their simulated space mission were part of the UND Space Studies North Dakota Planetary Exploration Initiative. The ILMH missions are part of an ongoing series of trials funded by NASA and by the North Dakota Space Grant Consortium.

De León, the lead investigator on the Planetary Exploration Initiative, foresees that UND will be working a lot more with NASA, the space industry and international partners to make lunar and Mars missions a reality. “We developed the research infrastructure to simulate an entire planetary base scenario, and this puts us in the forefront of lunar and Mars mission planning,” de León said.

As he has noted throughout the ILMH mission program, de León says that for students on his team—both undergraduates and graduates—the work is highly participatory. “Ultimately, it’s about our students—because we’re very hands-on oriented and because I have extensive experience in the space industry, I believe that our students should not just be working from a stack of texts and papers,” said de León. “Our students come to us from all over the world because they’re excited about the research we’re doing here.”

— *Juan Miguel Pedraza*



Jackie Lorentz

AEROSPACE ALUMNI ADVISORY BOARD UPDATE



It has been a busy spring for both the Odegard School and the UND Aerospace Alumni Advisory Board (AAAB). First, we would like to congratulate Paul Lindseth on being named dean of the John D. Odegard School of Aerospace Sciences, following a national search. The Search Committee did a terrific job weighing all of the candidates and recommending the most qualified candidate. Paul has taught many courses at UND as well as having served as associate dean of academics of the school since 1999. I have known Paul for several years and he is a dedicated educator and administrator who brings a tremendous amount of experience, passion and knowledge to a very important job. He is a great North Dakotan who will make not only the Odegard School but the University of North Dakota proud.

In April, the AAAB held its spring meeting in Dallas, TX. The AAAB Executive Committee and faculty met with CAE, AT&T's corporate flight department and Southwest Airlines to get a snapshot of the current state of the industry. The faculty can bring what they learn back to the department and ensure they are current on issues and trends encountered by those of us out in the industry. The AAAB rotates their meetings around the country in order to help the faculty gain wider exposure to different segments of the industry. This helps the Odegard School remain on the leading edge and give the students an education that is always relevant. A huge "thank you" to Brad Troxel and Brad Baas for arranging the visits to Southwest and AT&T's flight department. The AAAB and the faculty greatly appreciate the work you put into arranging the visits.

The spring business meeting of the AAAB was also a success. Matt Kalouner stepped in for me to lead the meeting with help from Vice President Jennifer Storm. We had briefings from distinguished members of the Southwest Airlines management team on hiring trends, training and operations, just to name a few. The faculty updated the board on the dean search, current research projects, enrollment, accreditation, the new training fleet and the commercial program review. The AAAB is currently looking at where we schedule the spring and fall meetings to best help the faculty and maximize the number of board members who can attend.

We are currently exploring the possibility of having the fall meeting outside of Grand Forks and bringing the spring meeting back to campus to coincide with the 2017 Student Aviation Management Association (SAMA) Conference. Look for an announcement in the next two months on the new schedule. We will still try to have some AAAB members on campus at Homecoming to speak with students and help the faculty in any way we can.

As always, thank you from the entire AAAB for the opportunity to serve the students, faculty and alumni of UND Aerospace. This is a very exciting time for all of us.



Corey Stephens '99
President, AAAB
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Operations Research Analyst, FAA

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- 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
- 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

UPCOMING EVENTS

EAA Airventure | July 25-31
Oshkosh, WI

Robin Hall Dedication | July 26
Grand Forks, ND

UND Aerospace Alumni & Industry Reception | July 27, 6-9PM
Hilton Garden Inn, Oshkosh WI

UND Homecoming | October 10-15
Grand Forks, ND

NBAA Convention | November 1-3
Orlando, FL



Mike Lents visits with spectators at the 2014 EAA Airventure in Oshkosh, WI.



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1971 US Air Force Undergraduate Pilot Training (UPT) graduation, Lt. Bruce Smith and T-38 Talon aircraft
("The older I got, the better I was.")

ARCHIVES

