AEROCOM

JOHN D. ODEGARD SCHOOL OF AEROSPACE SCIENCES

WINTER 2024

UNIVERSITY OF NORTH DAKOTA

AERO.UND.EDU

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COVER PHOTO **INFLATABLE LUNAR HABITAT (ILH)**

Welcome to the Winter 2024 edition of UND Aerospace's Aerocom magazine. We want to start off by congratulating our Aerobatic team for winning their 11th National Championship! A lot of time and practice went into getting the team ready for their competitions, and they couldn't have done it without the great support of alumni and friends. Our NIFA Flying Team continued its success at the Regional competition and looks forward to competing for their next National Championship in May. We also want to congratulate Bob Cary and David Kuznicki for winning a regional Emmy award for documentary production about our Lunar/ Mars Habitat. Excellence abounds!

Weather modification research has long been a part of our School, and that work continues. Dr. David Delene has been leading students to Saudi Arabia to conduct cloud seeding and atmospheric experiments.

Aviation mental health remains a high priority, and this fall, we saw participation in the Aviation Mental Health Summit, an NTSB Roundtable, and will be participating in an FAA Aviation Rulemaking Committee, all looking to improve mental health access for pilots across academia and industry. With strategic investment funds from the University, we have started a Center for Aerospace Medicine and Research in conjunction with the Medical School, Student Health Services, and the University Counseling Center.

In October, we inducted Dean Emeritus Bruce Smith and Pat Halligan into the UND Aerospace Hall of Fame, recognizing them for their many years of dedication and career success, as well as being inspirations for others to follow in their footsteps. Nominations are being accepted for next year's induction.

We recently said farewell to Dick Schultz, who moved into retirement after serving at UND for 38 years, starting as a flight instructor and working his way up to Director of Flight Operations. At the FlyND Conference in March, we will celebrate Dan Kasowski, our Director of Maintenance, as he is inducted into the North Dakota Aviation Hall of Fame.

Fundraising for the new Flight Operations Complex continues. We established a fund for donations and have a website with more information for all who are interested in being part of the future of UND Aerospace.

We will be out and about throughout the Spring semester at professional conferences and alumni events. Stay tuned for one in your area. Our SAMA conference and career fair, department scholarship ceremonies, and end-of-year banquets will be held on April 25-27th. We also hope to see as many of you as possible at the EAA Airventure Fly-In in Oshkosh, where we will hold our annual social event on Wednesday, July 24th.

Thank you for your continued support of UND Aerospace. We hope you enjoy this issue and look forward to hearing from you.

ROBERT KRAUS | DEAN, JOHN D. ODEGARD SCHOOL OF AEROSPACE SCIENCES

UPCOMING EVENTS

FEBRUARY

15-18 NGPA Winter Warm Up - Palm Springs, CA

26-29 HAI HELI-EXPO - Anaheim, CA

MARCH

3-5 FLY-ND Conference - Grand Forks, ND

12-13 SoARS Conference - Grand Forks, ND

21-23 WAI International Conference - Orlando, FL

22 UND Aerospace Alumni & Industry Reception - Orlando, FL

APRIL

6 UND Aerospace Community Day - Grand Forks, ND

13 View UND Aerospace - Grand Forks, ND

22-24 AUVSI Xponential - San Diego, CA

25 SAMA Conference - Grand Forks, ND

26 SAMA Career Fair - Grand Forks, ND

26 Atmospheric Sciences Banquet - Grand Forks, ND

27 Aviation Scholarship Ceremony & Banquet - Grand Forks, ND

MAY

11 UND Spring Commencement - Grand Forks, ND

13-18 NIFA SAFECON - Janesville, WI

JUNE

3-5 PAPA Expo - Las Vegas, NV

JULY

22-26 EAA Airventure - Oshkosh, WI

24 UND Aerospace Alumni & Industry Reception - Oshkosh, WI


Patrick Halligan

2023 UND AEROSPACE HALL OF FAME

On Oct. 6, UND's John D. Odegard School of Aerospace Sciences inducted two new alumni members into the UND Aerospace Hall of Fame.

The 2023 honorees were Patrick Halligan and Bruce Smith.

Family and friends joined both inductees at the ceremony to honor them. The event was also attended by notable alumni as well as all four UND Aerospace first spouses, whose support of the inductees shows the impact they have left on UND Aerospace.

In their acceptance speeches, both Halligan and Smith attributed their success to the University and the family they found here. Smith compared being dean to "being a conductor in the world's greatest symphony orchestra."

> "John Odegard was always a visionary, these programs were John's visions as well. It led Diane Odegard to say one of the nicest things anyone could say to me: 'We made John's dreams come true.'"
>
> **BRUCE SMITH**
> Dean Emeritus
> John D. Odegard School of Aerospace Sciences


Bruce Smith

Nominate an alum for 2024 Hall of Fame!
aero.und.edu/events/hall-of-fame.html

ANOTHER FIRST FOR UND AVIATION

NGPA Scholarship Eases Financial Burden for LGBTQ+ Students

Ted Fosselman, ’19, and Jared Herndon, ’08

The UND chapter of the National Gay Pilots Association (NGPA) will award an NGPA Scholarship to one of its members in April 2024. UND’s John D. Odegard School of Aerospace Sciences is the first college to establish a scholarship specifically for NGPA members.

UND was also the first college to launch an NGPA chapter. Since 2015, the chapter has grown from six members to more than 40, with a mission to build, support, and unite the LGBTQ+ aviation community and its allies.

Ted Fosselman, ’19, a captain with PSA Airlines, spearheaded the scholarship effort. “I’ve always had the philosophy that you want to leave a place better than you found it,” he said.

Also leading the project is Delta First Officer Jared Herndon, ’08, who knows cost is often “the biggest hurdle” aviation students face. “I want to make sure finances are not the only thing that keeps someone from pursuing this career,” he said.

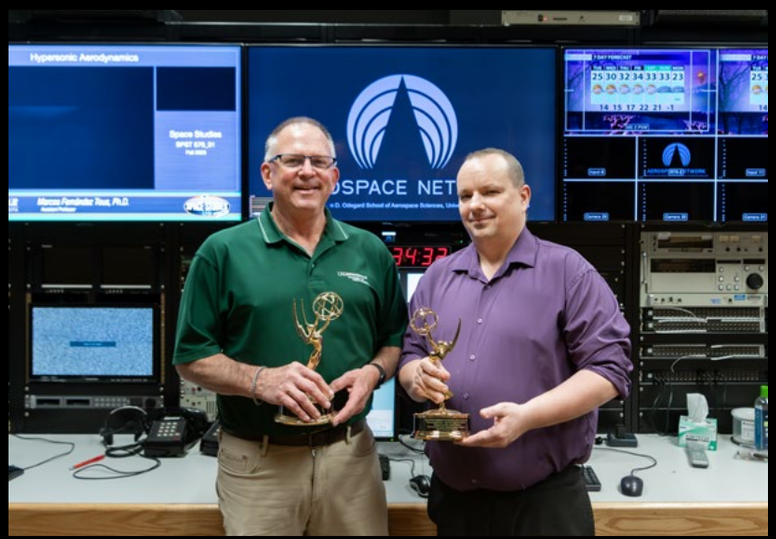
“It’s common for students from an LGBT background not to receive financial support from their parents solely based on the fact that their sexuality is different from what their family would like,” Jared said.

The scholarship will help students make career connections by developing a solid network between alumni and students in UND’s chapter, Jared added.

Chapter advisor and UND Pride Center director Jeff Maliskey said, “The scholarship will provide an opportunity for students to focus on their academic study and engage in the LGBTQ+ aviation community without having to worry about the financial burden of an aviation student.”

The scholarship effort, stalled because of COVID-19, was restarted last spring. Ted and Jared continue seeking others to donate. “We know it will be a process,” Jared said. “But if you don’t start, it’s not going to happen.”

UND AEROSPACE NETWORK (ASN) WINS REGIONAL EMMY AWARD



Aerospace Network (ASN) Bob Cary and David Kuznicki

On Oct. 14, UND Aerospace Network producers David Kuznicki and Robert Cary won the Upper Midwest Regional Emmy for their eight and a half minute video, “Welcome to Mars, N.D.”

The video won the award for “Education/Schools — Short or Long Form Content.” It was one of five nominees in the category.

“I originally texted Bob that we lost,” joked Kuznicki in reference to winning the award. “It’s always nice to be recognized by your peers. It’s great to get a vote of confidence from people cross the country.”

Through the Upper Midwest Regional Emmys, the National Academy of Television Arts, and Sciences recognizes individuals for their contributions to television and video. The chapter includes members from Iowa, Minnesota, North Dakota, South Dakota, and Wisconsin.

“This is really a great atmosphere to work in,” said Cary, regarding working on the project at UND. “They want you to succeed here. That’s the reason I’ve been here for 30 years: the opportunities I have had in this career, I would have never believed when I first got here.”

Watch on YouTube!
Visit the **@UNDaerospace** channel

UND FLYING TEAM & AEROBATIC TEAM TAKES FIRST PLACE

This year, with the UND Flying Team winning the regional title and the UND Aerobatic Team being crowned National Champions, there is no question of the incredible skill these teams possess! Their accomplishments and dedication to their aviation expertise are a source of pride for UND's John D. Odegard School of Aerospace Sciences

UND Flying Team

Congratulations to the UND Aerospace Flying Team for their win at the National Intercollegiate Flying Association Region 6 Safety and Flight Evaluation Conference Championship!

The team secured 852 points (second place had 491). They made 1st place in every event they competed, qualifying them for the NIFA National SAFECON Competition in May. The top scoring competitor was senior Mikayla Weiss, with six members scoring in the top 10. Nine UND Flying Team members were named national champs!

"The dedication, professionalism, knowledge, and skills that our Flying Team members showcase in these competitions are a great representation of our School and University and will serve them well as they move into careers as aerospace and aviation professionals," said Robert Kraus, Dean of the Odegard School of Aerospace Sciences.

UND Aerobatic Team

The UND Aerobatic team was named National Champions of the IAC Collegiate Series for the 11th time in the team's storied history.

On top of an excellent team finish, UND also fielded the competition's top two individual scorers. Andrew Coughlin and Shawn Higgins Jr. took first and second overall, respectively.

"Our 2023 team started strong and kept the momentum throughout the season and into Nationals in September. They supported each other through the contest season, relying on their personal experiences to train to a higher standard. I'm proud of how each represented UND, growing as professionals, individuals, and a team.

This year's team included Andrew Coughlin, Shawn Higgins, Ryan Peene, Devin Graves, Tyler Sperry, Spencer Patterson, and Mikaila Gillis. They worked hard and earned it against tough competition from the US Air Force Academy and the Metropolitan State University of Denver." - Mike Lents

COACH MIKE LENTS

At the end of October, pilots from around the globe made their way to Jean, Nevada, for the 2023 World Advanced Aerobatic Championships. Among them was UND's own Michael Lents as part of the United States Advanced Aerobatic Team.

The World Advanced Aerobatic Championships (WAAC) is a 10-day competition between aerobatic pilots and teams from around the world. Each pilot goes through 4 flights and is given a score based on the precision of the maneuvers they complete.

"It's an amazing community," Lents. "While competitive, everyone wants to see each other do well, and together, we can bond over aviation. The camaraderie is really neat."

The US Team arrived in time to get some training done in Nevada airspace before the competition. After rigorous international competition, the US team took third, and Lents placed an excellent 19th overall.

"I was happy to be a part of the team and to contribute to its success as a whole," said Lents. "The competition presented new challenges and took some work to be precise. I got a huge sense of accomplishment and fulfillment."

As an Assistant Professor and UND's Aerobatic and Spin Training Flight Lead, Lents uses his experience as an aerobatic pilot to help students grow as pilots. He aims to make flight training an enjoyable and impactful experience for students.

"One of the rewarding things about being involved with UND and coaching students is seeing alumni at these competitions," said Lents. "I like to see where they have been able to take things with their careers and reconnect with them again."

INSIDE UND'S NEW COMMERCIAL-JET SIMULATOR

"Demand for airliners soars," read a headline in The Wall Street Journal in June. And as one Airbus executive confirmed in the story, "We cannot make planes fast enough."

Given those sentiments and the fact that Boeing forecasts call for 42,600 new commercial jets over the next 20 years, the question arises: Who will train the pilots to fly those planes?

We don't know the complete answer to that question. But we do know part of the answer, and it's this: UND.

In fact, UND's Commercial Aviation students can now learn to operate those aircraft by practicing on a state-of-the-art simulator that's more realistic than ever before.

This week, the first Commercial Aviation students at the John D. Odegard School of Aerospace got to experience training in the brand new ALSIM, learning skills that will help them throughout their careers.

First of its kind

The first of its kind in North America, the ALSIM is a French-made trainer that simulates the operation of major commercial jetliners. The simulator is customizable, allowing it to simulate the cockpit of either an Airbus or Boeing aircraft.

"The main attractive feature of the sim is that it's flexible," said Andreas Anagnostos, one of the UND students on the flight. "It can switch between the A320 and 737 training philosophies. We operated it in the A320 configuration."

The ALSIM creates an extremely realistic training experience. It features a completely enclosed cockpit, allowing students to immerse themselves in the environment without distractions. Sitting within, it becomes easy to forget that it is not a real aircraft.

"The realism is amazing," said instructor Alan Murray. "You can program a whole flight from departure to landing. It will simulate the parameters of what we enter – even the weight and balance. If we program it with a certain amount of fuel and weight, it will react accordingly."

The ALSIM can be customized to any environment that might be encountered during flight. It can be programmed to simulate different airports, weather, other traffic, and much more. Students can practice all sorts of situations, even taxiing directly to a gate at an airport.

Throughout the flight, instructors with industry experience give instructions and advice on how to operate a large jet, allowing students to learn in a safe way.

"You are learning how to fly a jet," said UND student Mason Plowman. "You can work out the kinks and find out what works and what doesn't before you get into an actual airliner. It's a lower-stakes environment where you can learn and make mistakes."

The ALSIM even features emergency equipment,

The first of its kind in North America, the ALSIM can be configured to simulate either Airbus or Boeing's newest aircraft

allowing students to practice emergency responses while remaining safe on the ground.

Crew resource management-capable

As Anagnostos and Plowman ran through their procedures, they were given the chance to practice crew resource management, or CRM. This training procedure is used by airline pilots every day and is a way of dividing tasks among crew members to improve safety.

"We are actually running it as a crew environment," said Plowman. "In most of our training, we are trying to achieve single pilot ratings, but we don't get a lot of experience in the CRM environment – which for many of us will be the bulk of our careers. Here, we are learning how to work in a team in a practical setting."

"A lot of the training at UND focuses on the theory of CRM, but there is very little of that going on in the aircraft through most of the training," added Anagnostos.

"If you think about your future job, that is all you are expected to do. You have to operate as a crew and operate well to ensure safety. Getting the chance to practice that here will prepare you for your career and start transitioning you into a team mindset."

The excitement of the students and their instructor was palpable. The ALSIM will be an addition to the CRJ-200 simulator the university has used for over 20 years. With advancements in technology and changes within the industry, the ALSIM provides valuable flexibility as the university enters a new era within aviation.

"The CRJ has very little automation, whereas most airliners now are highly automated," said Anagnosotos. "The experience in the ALSIM is more akin to what you will experience in your career."

Both students remarked on how important this experience is to transition to an airline career after graduation.

"The regionals are becoming less of a stepping stone, so the ALSIM models an aircraft that you might go directly to," stated Plowman.

"Getting the opportunity to practice on an aircraft that I could be potentially flying within a year or so is invaluable," said Anagnostos. "Now all of the 'uncertainty' in trying to transition from general aviation to airline flying happens here, instead of on the job."

The ALSIM marks a new step in hands-on learning for students, preparing them for a career before they even get on the job.

"It's invaluable for transitioning to the real world of flying," said Murray.

"By having this class available, the first time you go through training at the airlines, you are more likely to pass because you have been through all the maneuvers before. Students will be way ahead of the game by going through this course."

MISIÓN CUMPLIDA:
COLOMBIAN AIR FORCE CREW SPENDS 13 DAYS IN UND LUNAR/MARS HABITAT

Simulating a mission on Mars, the crew researched health, communication, and other factors astronauts likely will encounter

In late October, five officers from the Colombian Air Force completed a two-week mission within the UND Aerospace Integrated Lunar/Mars Analog Habitat (ILMAH).

The group of five spent 13 days within the ILMAH, simulating a mission on Mars and conducting research from within, while a sixth member supported the group from the ground.

The team egressed into a cold morning with smiles on their faces and a perky “good morning!” from Capt. Diego Ernesto Cortés Guaje, commander of the mission. Members of the group remarked that this was their first time seeing snow.

The team included Diego Ernesto Cortés Guaje – commander; José David Ortega Pabón – communication officer; Brian Ingerman Sánchez Ayala – medical officer; Second Lt. Indrid Xiomara Bejarano Cifuentes – aerospace engineer; Second Lt. Joseph Néstor David Sequeda Ramón – data officer; and Lt. Jeimmy Nataly Buitrago Leiva – mission support officer.

“It was amazing,” said Cortés Guaje. “We learned a lot and developed a briefing for each mission. Overall, it was a big success.”

The group researched various topics within the habitat to gather more than a thousand pieces of data. The plan is to take this data back to Colombia for further analysis.

“It gives us ideas for future missions,” said Cortés Guaje. “Now we know what software to develop.”

Each member of the crew was responsible for conducting a different “mission” or research project. Each crew member also focused on communication, both with each other and with Mission Support outside the habitat.

Members of the crew studied extravehicular surface communications and task loading for operations outside the habitat in rovers and space suits, as well as the effects on communication hardware from vacuum chambers. They also coped with 10-minute delayed communication with Mission Support, which simulates the time it would take to send messages from Earth to Mars.

“We tried to get ahead of the message,” said Cortés Guaje. “We would send the message 10 minutes before we needed the response and would try to figure out how to solve any problems we had on our own first.”

Other topics studied during the stay included the effects of isolation on crew mental and physical health, as well as the effects of exercise on fitness, diet, and overall crew well-being.

“On the fourth day, we felt really slow and tired in the morning,” said Cortés Guaje. “We noticed that our heart rate lowered as the mission went on.”

The crew was also responsible for growing and overseeing plant care within the habitat. Bejarano Cifuentes, the aerospace engineer, spent significant time with the plants in the Plant Production Module.

“I loved working with the plants,” Bejarano Cifuentes said. “To me, it was amazing because I would say ‘hello’ and talk to them.”

While the crew was often busy with tasks, they also took time for themselves, spending time together watching movies.

With the mission completed, the members placed a sticker with their logo on the rover hatch in the Core Module, adding theirs to the list of successful missions within the habitat.

Moving forward, the habitat will continue to support experimenters from not only the United States but also around the world in the preparation for long-duration spaceflight. The facility plans to host at least four simulated missions in 2024.

KEEPING IT COOL:
GLACIER RESEARCH IN PERU

In the Cordillera Vilcanota mountain range lies the Ausangate glacier, one of the world's largest tropical glaciers and the focal point of UND graduate student Anaí Caparó Bellido's research.

This past July, Anaí spent seven days in Peru to study the glacier in person as part of her research for her Ph.D. in Earth System Science and Policy (ESSP). Her research uses satellite images to see the effects of climate change in the "Cordillera del Vilcanota" mountains.

During the trip, Anaí spent time camping out on the edge of the glacier, conducting measurements and taking imagery. This was an exploratory trip to see the area of study and evaluate the feasibility of data sampling.

"This initial trip was to learn about the area," said Anaí. "We took pictures with a temperature-sensitive camera and compared it to satellite imagery. We want to be able to compose a 3D image of the glacier."

↑ Anai taking a break at the southwest face of the Ausangate mountain, 13,000 feet above sea level

← The beautiful landscape hides a sad reality: between 1988 and 2016, there was an 18% increase in the number of lakes in the Cordillera del Vilcanota

Originally from Peru, Anaí expressed that mountains have always attracted her. When choosing a place to research debris-covered glaciers, Peru seemed to be a perfect spot.

"Just being there in person is amazing," said Anaí. "The trip was tiring but beautiful. It was very different from the photos on Google Earth."

Anaí plans to travel back to the glacier in July or August to continue her research. Her hope is to take water samples from the glacier to see how much water runoff contributes to a nearby river.

"These kinds of field trips are better during the dry season, and in the Cordillera del Vilcanota, this is between June and August," said Anaí. "However, this is also winter in Peru. When you are walking over 4000 meters above sea level, you don't know what to expect from the weather conditions. Also, altitude sickness affects everyone differently, and just walking at that altitude is different than walking at Grand Forks altitude."

Anaí's original background is as an environmental engineer. She received her master's in Geography and is now working towards her Ph.D. as part of the Earth System Science and Policy department of UND Aerospace.

"When we talk about glaciers, usually we imagine these white and shiny masses of ice," she stated. "However, some glaciers are under a layer of soil or rocks - these are debris-covered glaciers. There is not too much research on them in the Cordillera del Vilcanota. I feel really confident in my research, and the support from my department has been wonderful."

MORGEN W.V. BURKE MEMORIAL GRADUATE FELLOWSHIP

Navodi Rodrigo, a graduate student pursuing her master's degree in Geography, was awarded the Morgen W.V. Burke Memorial Graduate Fellowship for the 2023-2024 school year.

The fellowship is given to graduate students pursuing a degree in Geology or Earth System Science and Policy. Rodrigo was presented with the fellowship in a ceremony in September. She is the first recipient of the award.

This graduate fellowship is made in memory of graduate student Morgan Burke, who completed his M.S. in Geography and his Ph.D. in Earth System Science and Policy at UND. Shortly after graduation, Burke received a terminal brain cancer diagnosis. The fellowship was created to honor his legacy.

"Burke was the dream student," said Associate Professor Jeff VanLooy. "He was very hardworking and willing to help everyone. When looking for someone to receive the fellowship, we wanted someone who fit this spirit."

Preference is also given to students engaged in applications of remote sensing or other geospatial technologies in environmental science, Burke's main study area during his time as a student.

Rodrigo was proud to earn the fellowship last fall. Originally from Sri Lanka, Rodrigo came to UND in December 2020 to pursue her master's degree.

"This scholarship really benefited me," said Rodrigo. "When I started, I didn't have a lot of financial assistance. I want to thank the donors and especially Morgan Burke's family."

Consider giving today

For more infromation, scan the QR code or visit: **undfoundation.org/Morgen-Burke-Memorial**

CLOUDS & CULTURE

WEATHER MODIFICATION IN SAUDI ARABIA

This past October, members of UND Aerospace's Department of Atmospheric Sciences and Weather Modification's Citation research aircraft were deployed to the Thumamah Airport in Riyadh, Saudi Arabia, for the "Saudi Aerosol-Cloud-Precipitation Enhancement Campaign" or "SARPEC IOP1". This field project aims to determine the effectiveness of operational cloud seeding techniques for rainfall augmentation within the arid climates of the Kingdom of Saudi Arabia.

This research project was done in collaboration with the National Center for Meteorology in Saudi Arabia. The goal – observe the differences between seeded and non-seeded clouds to show the effects of the seeding agent used in weather modification.

"Our overall goal was to study developing convective clouds," said Lynnlee Rosolino, a UND graduate student. "We looked some at the environment in which the clouds develop, including temperature, dewpoint, and pressure, among other things. However, we focused mostly on the microphysics within the clouds. The cloud droplets' shape and size, concentration of the droplets, and the state of the droplets are some things our instruments can measure that helps us better understand the storm."

Cloud seeding is used to change the type or amount of precipitation that falls from a storm. This type of weather modification involves aircraft flying into clouds to disperse the agent responsible for changing the precipitation.

"It was eye-opening seeing the way different countries go about their research," expressed Rosolino. "It was interesting getting to experience a different culture from a scientific perspective rather than as a tourist. You get to see a completely different side of the country."

The trip involved Dr. David Delene, Dr. Andrea Neumann-Skow, Lynnlee Rosolino, Michael Willette, and Dr. Marwa Majdi. The team spent weeks gathering data from in-cloud observations at different temperatures.

"I loved being in the plane flying through the clouds," said Rosolino. "It's really cool being able to experience weather from inside the storm as it's developing."

Over 70 hours of airborne research was conducted on 21 flights, where convective clouds were sampled at different altitudes to obtain measurements with in-situ cloud probes. The data collected by the team will continue to be analyzed by the UND Atmospheric Sciences Department and the Saudi Arabian National Center for Meteorology. This is to verify the effectiveness of cloud seeding on the weather.

"We had a lot of fun," said Rosolino. "We got to joke around and laugh while flying between the clouds. Then we turn on the science brain and learn a lot while gaining work experience in the field."

The Citation's instruments and sensors got to work as it approached an unseeded convective cloud for it's first pass at 21,000 feet.

The long pole, mounted just outside of the flight deck windows, is a 5-port gust probe for measuring three-dimensional atmospheric wind vectors.

The pylons on the left and right wings each house four different instruments for measuring cloud and atmospheric state parameters.

FINDING A WAY

Cade Bice, UND Alum, treads a new path towards career goals

In December of 2023, student Cade Bice became the first graduate of UND's online Aviation Studies degree program.

Originally from Arizona, Bice completed his degree entirely online while gaining flight hours at UND Aerospace Phoenix. Bice was able to finish his degree and gain the necessary flight hours in just over three years.

"Studying online asynchronously gave me the latitude to work as a flight instructor while maintaining a full-time school schedule in my free time," stated Bice. "This, combined with the reputation UND upholds as an aviation school, is what drew me to the program."

This online program allows students to gain a Bachelor of Science in Aviation Studies in approximately four years. Students from anywhere can gain greater expertise in aviation from a globally recognized school.

"For students trying to get this degree online, I recommend starting as soon as possible," said Bice. "The restricted ATP offered as part of the program, combined with the flexibility of an asynchronous program, played a significant role in my success."

Bice plans to transition from a UND flight instructor to a first officer position with Allegiant Airlines in the coming weeks. He hopes to continue teaching at the airline level and eventually gain a position with a legacy airline.

"Completing flight school and instructing at UND has turned out to be the best coming-of-age experience I could've asked for," said Bice. "It is a formative experience I couldn't recommend more for a young person who loves aviation. The experiences you will have building hours and going through flight school will be full of growth and are where you will make some of your greatest friends."

UND AEROSPACE FOUNDATION

What is the UND Aerospace Foundation?

The UND Aerospace Foundation (UNDAF) is a non-profit corporation that develops alternative revenue sources to support the core activities of the John D. Odegard School of Aerospace Sciences in Grand Forks, ND. The Foundation develops innovative business ventures with private industry and governments, which provides the John D. Odegard School of Aerospace Sciences flexibility, adaptability, and confidentiality to enter into contracts and deliver aviation-related services. UNDAF supports the Odegard School by utilizing its excess revenues to subsidize the cost of training for traditional US students and by purchasing assets for use by the Odegard School.

Earn your Education and Training with the UND Aerospace Foundation and UND Aerospace:

1. Become a student at Chandler-Gilbert Community College (CGCC) in Phoenix, Arizona, and do your flight training through UND Aerospace Foundation's Phoenix site while enrolled in the CGCC associates program. Once complete, students can transfer to UND Main Campus or continue their four-year degree online.

2. Become an online student with the University of North Dakota John D. Odegard School of Aerospace Sciences and do your flight training at UND Aerospace Foundation's Phoenix site through the UNDAF Fast Track: one year (or accelerated) program.

3. All training options through UNDAF earn a Restricted ATP certificate once the student completes the degree at UND and the flight training through UNDAF's Phoenix Site.

4. To ensure degree progress, students enrolled in the UND online program will be connected with a UND Aerospace Success Center Advisor.

5. Students receive the same world-class flight training through UNDAF that traditional students receive in Grand Forks.

LEARN MORE

Scan or visit **airlinepilot.training**

ENJOY YOUR RETIREMENT DICK SCHULTZ!

In November 2023, Schultz retired as the Director of Flight Operations after 38 years of service.

"For over two decades, Dick Schultz has been an amazing mentor for me and many others who began our careers at UND Flight Operations. As I transitioned to the academic side of the program, Dick remained a close colleague and confidant whom I could always rely on for honest feedback and incredible insights in discussing aviation education and training."

Beth Bjerke, Associate Dean/Professor

"Dick did it all at Flight Operations. From starting out as a CFI and SOF and moving up to Director of Operations, Dick was involved in all areas during his 38 year time at Flight Ops. Schultz left his mark improving the program, the facilities at Flight Ops, and the way we operate to provide flight training to our students."

Jeremy Roesler, Interim Director Flight Operations

"I have had the privilege of sharing Dick's friendship throughout his 38-year career at UND Aerospace — yes, we could tell a few good stories. I would like to thank Dick for his vision, leadership, work ethic, and more importantly, his sense of humor and goodwill. Successfully leading the number one Flight School in the nation is not an easy task! Congratulations on a successful career and a well-earned retirement, you will be missed!"

Daniel Kasowski, Manager Flight Support Srvcs

"Dick is responsible for stabilizing the helicopter department during our most turbulent time and setting us on course for success. I will always appreciate his vision, patience, and determination to give us the tools we needed to thrive."

Wesley Van Dell, Chief Flight Instructor-Helicopter

SUN, MOON AND BALLOONS

UND scientists, students launch weather balloons in Colorado to track atmospheric changes caused by solar eclipse

Eleven UND students hit the road for a 22-hour car ride with atmospheric science professors Dr. Jared Marquis and Dr. Montana Etten-Bohm in October. Along for the ride were 30 balloons, radio equipment, cloth gloves and several canisters of helium.

Their destination: Cortez, Colo., a small municipality nestled in the southwest corner of the state near New Mexico. Cortez and nearby Mesa Verde National Park fell in the thin strip stretching from Oregon to Panama where the annular solar eclipse (when the sun is partially covered, creating a "ring of fire" around the moon) was visible on Oct. 14.

The students and faculty traveled there to collect data as part of the Nationwide Eclipse Balloon Project, a NASA- and National Science Foundation-sponsored program started in 2017 at Montana State University. The project teaches students from 75 schools around the country about atmospheric sciences and engineering by launching weather balloons during annular and total solar eclipses.

Dr. Jared Marquis, assistant professor of atmospheric sciences at UND, said the department started preparing for the event last fall, when plans for the trip fell into place. Last summer, Marquis and his colleague in atmospheric sciences, assistant professor Montana Etten-Bohm, traveled to Kentucky to learn about the process of launching weather balloons. Then, they went about relaying this information to students.

Marquis used his experience in Kentucky to create a semester-long course which would explain the data they were trying to collect and walk students through the launch process. The course culminated in a launch in Clifford Hall's parking lot a month before the eclipse.

"We started launching them at nine in the evening, after it was dark outside," said Marquis. "We wanted to practice launching in semi-adverse conditions, so we were working in the dark using headlamps to see what we were doing."

Test balloons were provided by NEBP, and Marquis and Etten-Bohm worked with the North Dakota Space Grant Consortium to buy helium for their test launches. The consortium also helped pay for student meals on the trip to Colorado.

The process can be delicate, said Marquis. Students have to wear cloth gloves when handling the balloons to protect them from oil on their skin, which can affect the elasticity of the balloon and cause the balloon to burst too soon.

The filling of balloons requires an equal amount of care. The balloons ascend more than 100,000 feet, Marquis said. That means too much helium could cause a balloon to burst too soon as the gas expands, but an underfilled balloon could drift off course as it rises too slowly.

"In Colorado, one of our balloons floated 160 miles downrange. We were out in the middle of nowhere when I got a call from the sheriff saying they found it in a powerline," Marquis said with a laugh.

The balloons must reach high altitudes in order to work well above the tropopause, the thin layer of atmosphere between the stratosphere and troposphere. The tropopause contains the jet stream, a powerful river of wind and an interesting location for measuring changes in the atmosphere at the time of a solar eclipse.

Several large canisters of helium were on site to fill the balloons to a specific pressure. Each balloon had to be filled just before its launch, as team members didn't want to leave the balloons filled for too long, Marquis said.

Sondes – small transmitters that signal changes in the atmosphere to a station on the ground – were attached to each balloon. Using these tools, the students collected data to see if the annular eclipse affected air pressure, temperature and wind speed.

Marquis said that the information collected as a part of NEBP is helpful for several reasons.

“Understanding what’s happening in the atmosphere during eclipses can be useful for figuring out whether our existing models are working,” Marquis said. “It’s also helpful for our understanding of how the atmosphere is functioning. We can look at how things work when the sun is ‘turned off’ in this relatively small area to see how that might change things on the ground and throughout the atmosphere.”

In total, the three groups launched a balloon an hour for 30 hours. Marquis said they started the launches 24 hours before the eclipse to establish a baseline to compare to the data collected during the annular eclipse.

The groups worked out of an unfinished lab space offered to them by Pueblo Community College, not far from Mesa Verde National Park, where the balloons were launched.

Further, Marquis said that the hands-on experience of launching weather balloons and learning how data is collected makes the practice of analyzing that data less abstract for students..

“They get a lot of auditory and visual explanations in our lectures, and then they get hands-on experience out in the field for some experiential learning. It really taps into all of the ways students learn,” he said. “Going out and collecting your own data is also, I think, much more exciting than looking at data from 30 years ago.”

Right now, the students who participated in the launches are working on projects using the experiences and data they amassed in Cortez to benefit future students of atmospheric sciences. Marquis said that class groups were free to choose the focus of their projects, but the data would help future students.

“We can use this data for future semesters, so even students who didn’t collect the data themselves will be able to hear about the project and use research from their own department to study the eclipse’s effects,” he said.

Some students focused on what Marquis describes as “hardcore science,” analyzing the eclipse’s effects on weather and atmosphere. Other groups used their experience to develop learning modules to share the process with students in introductory courses.

Marquis said UND will launch balloons as a part of the NEBP in April 2024, this time for a total solar eclipse. The team is considering Illinois and Indiana as possible destinations and anticipates many of the students will return for the spring launches.

After 30 hours, UND’s crew successfully launched 28 of the 30 balloons, losing one after its GPS signal was lost and another after a balloon popped miles before the tropopause.

However, Marquis said these mishaps can provide good data points and, most importantly, are valuable for student learning. He emphasized that courses and experiences like this offer experiential learning opportunities that will help them in their careers.

“These balloons are launched twice a day, every day, at roughly 100 sites around the country for analyzing data and initializing weather models,” he said. “This training is useful for students who might want to do this at weather service offices, but it’s also good for aviation students who want to understand where this data is coming from. It’s a perfect learning experience, and it’s also fun.”

FOCUSING ON MENTAL HEALTH WITH SUPPORT FROM JOHN'S FUND

Thank you for remembering John Hauser by supporting the John A. Hauser Mental Health in Aviation Initiative Fund. Over the past year, UND faculty, staff, students, and alumni have been involved in many important initiatives focusing on mental well-being.

THE LAUNCH OF UPLIFT – PEER SUPPORT

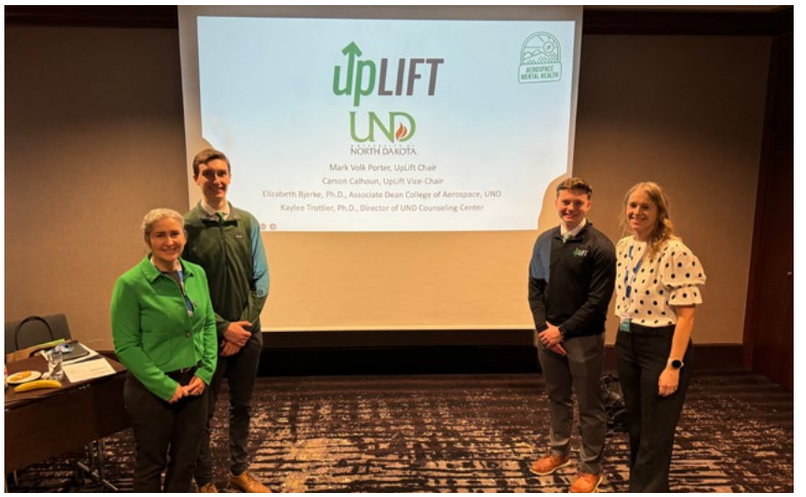
In November of 2022, our students launched UpLift, a student-led peer support program structured similarly to impactful programs found in many of the airlines. UpLift is supported by our newly embedded aviation psychologist, a new position shared with the University Counseling Center.

AVIATION MENTAL HEALTH SYMPOSIUM

The third Aviation Mental Health Symposium was held November 1-2 at Middle Tennessee State University in Murfreesboro, TN. Four representatives from UND attended the Symposium, including students Quin McCarroll and Zoe Thompson and Dr. Sky Overbo, our embedded psychologist. While there, the team met with Anne Suh, John Hauser's mother, to share the program's impact.

INTERNATIONAL PILOT PEER ASSIST COALITION

Also in November, UpLift representatives presented at the International Pilot Peer Assist Coalition (IPPAC) conference in Cologne, Germany. UpLift Chairs and students Mark Volk Porter and Carson Calhoun represented UND and led the discussions focusing on the future of peer support.



PARTICIPATING IN NATIONAL CONVERSATIONS SUPPORTING MENTAL HEALTH

UND had great representation on December 6, 2023, at the NTSB Summit focusing on mental health. Many alumni and current faculty were asked to speak on various panels, with many more alumni present in the audience representing their organizations and focusing on this vital topic. Many of these individuals were asked to serve on the newly formed FAA Aviation rule-making committee focusing on Mental Health and Aviation Medical Clearances.

LEARN MORE & SHOW SUPPORT

Thank you to those who have supported the fund in memory of John.
Scan or visit **UNDalumni.org/giving-impact/johns-fund**.

2023

SUMMER INTERNSHIP HIGHLIGHTS

↓ JULIANNA LEDUM

Title: Flight Crew Training, Scheduling, and Compliance Intern

Location: Las Vegas, Nevada

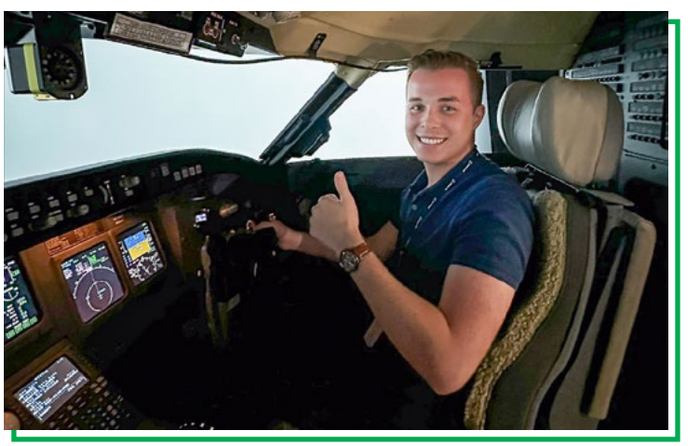
"I recently interned with Allegiant Air as the Flight Crew Training, Scheduling, and Compliance Intern. In this role, I developed training schedules for pilots and monthly schedules for flight instructors, all while ensuring compliance with the FAA. I was lucky enough to be offered a part-time remote position as an Associate Scheduler for Pilot Training, which I will work on as I finish my last year of college."

↓ MARK VOLK PORTER

Title: United Aviation and Pilot Hiring Intern

Location: Chicago, Illinois

"This summer, I was fortunate to work in Chicago at United Airlines' corporate headquarters. I worked with various teams in the Pilot Hiring department, and it was a fantastic summer with a range of experiences. Working with United's events team, I was fortunate to be able to help plan experiences such as Aviate participant events and industry conferences. Additionally, I worked with our technology team to assist in the implementation of a new pilot hiring application and myAviate app. This once-in-a-lifetime experience allowed me to see another perspective in the airline industry."



↑ CHARLIE WILLIAMS

Title: Flight Operations Intern

Location: Minneapolis-Saint Paul, Minnesota

"This summer, I was fortunate to intern at Endeavor Air within their Flight Operations department. It was a great experience, and I gained valuable experience creating flight operations newsletters and updating pilot flight manuals. I also assisted the Director of Flight Operations in helping to transition to electronic flight releases. It was an enriching summer, and I'm proud to have increased my industry knowledge."

↑ JOSH SALMI

Title: Sales Operations Intern | Location: Wichita, Kansas

"This past summer, I was fortunate to work as a Sales Operations Intern for Textron Aviation, where I gained a variety of valuable experience. I assisted in the sales of both Cessna and Beechcraft aircraft, hosted clients, conducted research for clients and the market, and gave tours of the facilities. No day was the same, and I was even able to travel around Kansas to experience different company operations. I had a blast learning to sell everything from pistons to turboprops to jets, and I would recommend this opportunity to others!"

STUDENT ORG SPOTLIGHT

AESOP
Aviation Education Student Outreach Program

2023 HIGHLIGHTS

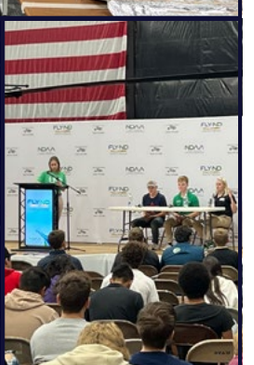
10
events AESOP participated in/hosted

811
students educated

2
states visited (ND & MN)

ACTIVITIES INCLUDED:

- Reading an aviation sectional
- Cross-country flight planning
- 4 forces of flight
- Foam aircraft
- Parts of the airplane
- Bernoulli's principle
- and more!



SAAC STUDENT AEROSPACE ADVISORY COUNCIL

In 1974, founder and Dean John D. Odegard created the Student Aviation Advisory Council to better hear the voices of students in the then-fledgling program. Odegard knew the student voice was the key to the college's success, so he entrusted a group of student leaders to find, sculpt, and work to answer it. In the years that followed, and through a name change or two, SAAC has continually improved the lives of UND Aerospace students. We're proud to represent an increasingly diverse group of students, both by background and field of study, and we're excited to support our students as they pursue their careers.

This year, SAAC made quality-of-life-focused improvements for our peers. On top of expanding our student-to-student mentorship program, we launched the Industry Mentorship Program in collaboration with the Aerospace Alumni Advisory Board. The IMP allows our upperclassmen students to be paired with alumni within the industry to support their transitions to the workforce. We continue to recruit alumni to help our students - please visit undmentorship.com for more information.

I'm excited to see what our peers do in the future. It's safe to say what starts at UND Aerospace goes on to change the aerospace industry, and I'm proud to be a part of that legacy.

Arjun Jagada
President, Student Aerospace Advisory Council

HIGHLIGHTS

ICARUS DEVICE ENHANCES HELICOPTER TRAINING AT UND | NOV 7, 2023

By simulating clouds or fog while flying, the device — a lightweight visor that changes opacity — helps pilots practice the critical transition to instrument flight.

Recently, UND Aerospace procured a device that trains helicopter pilots to respond to precisely those conditions, thereby helping to ensure that the pilot stays calm and in control. The ICARUS is an intelligent, view-limiting device that allows flight instructors to change flight visibility for the student in flight..

blogs.UND.edu

SPACE STUDIES | DECEMBER 12, 2023

The NDX-4 is a second generation 3D printed spacesuit.

The NDX-4 spacesuit was 3D printed at the UND Aerospace and underwent testing to show its mobility. Ph.D student Pranika Gupta is wearing the NDX-4 spacesuit, while Ph.D student David Mateus and Prof. Pablo de Leon assist. This NASA-funded research is taking place at the Human Spaceflight Laboratory at UND Aerospace. This research will help NASA, the National Aeronautics and Space Administration, develop the next generation of spacesuits supporting long-duration missions to the Moon and Mars.

A BATTERY-POWERED PLANE AT 44,000 FEET? NO PRESSURE! | NOV 14, 2023

After successful pressure-suit test at UND, Helios Horizon pilot preps for record-breaking flight in Nevada

Some tense moments arose on Nov. 8 in the room housing UND's high-altitude chamber located on the ground floor of Odegard Hall. As the chamber climbed to an eye-watering 44,000 feet, a daredevil test pilot put his suit through its paces to prepare for the real thing.

blog.UND.edu

LEADERS IN AEROSPACE

TOP 40 UNDER 40

2023 Airport Business

JOE MARANA, A.A.E., '10

Director of Operations & Facilities
Allen County Airport Authority

Joe Marana has worked for Indiana's Fort Wayne-Allen County Airport Authority for 12 years. He oversees maintenance, operations, and public safety departments for Fort Wayne International Airport and Smith Field Airport. His many initiatives at the airport include assisting in creating an operations department, starting a new line of business as the airport's sole fixed base operator, numerous multi-million dollar - federally funded projects, and working on a $140 million terminal expansion. Before moving to Fort Wayne, Joe worked at Hector International Airport in Fargo, North Dakota.

"I'm proud to be part of a community of UND Airport Management alumni that has been instrumental in my professional development since graduation. UND has a great reputation in the airport industry, and my education has been pivotal to my success." - Joe

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FLIGHT ASSIST COMMENDATION AWARD

AOPA Air Safety Institute

JUSTIN MENDELSON '10

Air Traffic Controller
Columbia Tower and Approach Control (CAE)

Congratulations to alum Justin Mendelson on receiving the AOPA Air Safety Institute Flight Assist Commendation Award, a prestigious accolade designed to honor controllers with exceptional service, keen situational awareness, and outstanding teamwork when assisting general aviation pilots facing challenging circumstances to achieve safe landings.

"I am a #UNDproud alumni due to the well-rounded quality education it provided me to be successful in the air traffic control arena." - Justin.

Faces OF THE Industry:

DISCUSSIONS IN AVIATION DIVERSITY

SAVE THE DATE

OCTOBER 15, 2024

UND MEMORIAL UNION

aero.UND.edu/events/
faces-of-the-industry

"This is about showing the communities...that they have a place in aerospace, that this industry is somewhere where you can pursue your dreams."

SKYLER BAQUERO
President, UND Latino Pilots Association

UND™ AAAB

AEROSPACE ALUMNI ADVISORY BOARD

JOHN D. ODEGARD SCHOOL OF AEROSPACE SCIENCES

This past October, the UND Aerospace Alumni Advisory Board concluded its final meeting of 2023, and we are extremely excited for the future of UND Aerospace and the AAAB.

The AAAB meets twice per year, in person and remotely, with our spring meeting coinciding with the SAMA Conference and Career Fair and our fall meeting held in mid-October.

During our Fall meeting, we had 35 members participating, and during our normal business, we were extremely happy to bring on a few new members, Phil Burke, Doug Rock, and Nathan Ruedy. In addition to the new members, we also elected a new Executive Committee to begin their two-year term.

I am extremely honored to have been elected as President of the UND AAAB and to join a very strong executive committee: Matthew Brown (Vice President), David Barnes (Secretary/Past President), and Christopher Cooper (Treasurer). Matthew is an international pilot at United Airlines, David is a Captain at Delta Air Lines, Chris is a pilot at PSA Airlines, and I will round out the executive board with my experience as a Captain for Delta Air Lines. We will continue the course by continuing to build upon the foundation that was laid before us by our past executive leadership, John Klinger, David Barnes, and the UND Aerospace faculty.

This past year, we continued to see growth and continued advancements in our mentor program with 45 AAAB mentors supporting over 60 students, continued support for safety initiatives at UND Aerospace, a new AAAB logo, and the continued need to help our undergraduate students pursue their degrees through scholarship and time on campus.

We encourage all students, faculty, and fellow alumni to take advantage of the diversity and experience that is present within the AAAB. Regardless of the title we hold within the AAAB, all members have dedicated their time and experience to uphold the UND Aerospace legacy. As the next generation of aerospace students take to the skies, we welcome and encourage all alumni who may want to give back. If you are interested in joining the board, please send an email to brad_secrist@yahoo.com or matt.mamura@gmail.com.

Lastly, the entire UND Aerospace Alumni Advisory Board would like to thank you for the opportunity to serve the students, faculty, and alumni of UND Aerospace.

Sincerely,
Brad Secrist '99
President, AAAB
Captain, Delta Air Lines

AEROSPACE CONNECTIONS

01

02

03

04

05

06

07

08

1. **Rob Alward '05** and **Brian Mulrooney '92** are two Delta pilots from Eagle River, Wisconsin that finally had the opportunity to fly together. Their families have been friends for generations.

2. On June 30th, 2023 **Moses Kirubi '17** presented **Benjamin Flores '17** and **Dominique Lord '18** with their wings at United indoc/737 ground school graduation ceremony.

3. **Evan Warren '16** & **Zak Skorczewski '16**, were pictured together as First Officers on the B767 with Delta Air Lines from Lisbon to New York City (JFK).

4. **Timothy Miscovich II '09** and **Captain Larry Tillman '99**, flying American Airlines in December 2022.

5. First Officers **Laura Miner '08**, American Airlines & **Jack Eastes '11**, United Airlines. Photo taken in July of 2019 in Orlando.

6. **Wade Fredheim '92** and **Peter Rakowski '14** flying United Airlines PHX-EWR.

7. **Brandon Geist '05** and **Tim Bathke '05** photographed in August of 2023 in the MSP Delta Air Lines Chief Pilot's Office. Tim and Brandon were roommates at UND.

8. Captain **Will Caturia '18** (Left). Captain **Joe Caturia '89** (Middle). First Officer **Jack Caturia '21** (Right). SkyWest Airlines flight from Minneapolis, MN to Williston, ND. The flight was flown by Will and Jack (brothers) while Joe (their dad), Rode in the jumpseat. The photo was taken in the cockpit of a CRJ 200 on the ground in Minneapolis. This was Will's last flight with SkyWest before he started with Delta.

9. **Dr. Marissa Saad '14 & '22**, Evaluation Specialist for NASA Office of STEM Engagement, Performance & Evaluation, **Kam Yee '15**, Deputy Director for the Washington Space Grant Consortium, **Dr. Caitlin Milera '12 & '22**, Director of the North Dakota Space Grant Consortium. Research Assistant Professor, UND Aerospace were photographed at the NASA Office of STEM Engagement Better Together Conference 2023

10. Photographed together on May 1, 2023 during an APA picketing event at the CLT airport is **Michael Lowe '02** a First Officer, 777, CLT for American Airlines with his wife **Janessa (Lunceford) Lowe '02**, Former First Officer EMB-170 at Republic and is now a stay-at-home mom to their 3 kids.

11. **Josh Sanchez '19** First Officer for Delta Air Lines photographed in New York with Captain **Andrew Philbin '05**. They flew from DFW to JFK.

12. **Tom Merrill '09**, B-767 Captain at FedEx & **Gene Cao '16** MEM to ORD.

SEND US YOUR ALUMNI PHOTOS!

STAY CONNECTED!

Join our **UND Aerospace Alumni** Facebook group!

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