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From the Editorial Committee

There is so much happening in North Dakota Aviation! This is an exciting publication to be a part of - constant educational, fun, cutting edge, and developing aviation activities are taking part around us. We hope you enjoy this issue, focusing on unmanned systems - whether we call them UAS, drones, or remotely piloted aircraft, you cannot deny that we are sharing the aviation environment with them, and all of the content is what's happening right here.

Also, please note that we are looking for a paid editor for the *Quarterly*. We'd love to work with you!

Joshua Simmers

Front Cover: "One Busy State!"

Enderlin Airport Flyin (page 10) Aerial photo and grand opening of the new Williston airport (page 24) Grand Sky – "Silicon Valley for Drones" (page 26) Tajae Viaene's 140 (page 29)



North Dakota Putting UAS In Flight

By Luann Dart

The University of North Dakota, along with research partners from Harris Corporation and the Northern Plains Unmanned Aircraft Systems Test Site, continues research in better utilizing UAS. A major industry milestone was reached with the first-ever test flights over a specially developed UAS network of technologies that opens the skies for broad commercial use of drones.

"Some producers are flying unmanned aircraft as part of their operation," said Mark Askelson, interim executive director of the Research Institute for Autonomous Systems at the University of North Dakota (UND) in Grand Forks. "If you need to get down to a certain resolution to do something, then the unmanned aircraft is the way to go."

"It's something we can be proud of that we are playing those kinds of roles in making these technologies and bringing them to the benefit of the people of North Dakota and the country," Askelson shared. "We are doing a lot of things here and we want to see that grow into successful commercialization." Areas of research at UND include:

- Airspace integration. "We need to get into the airspace to do what we need to do," Askelson explained.
- Data management. As a UAS flies over a site, photographing an entire field, for instance, "you're collecting absolutely ridiculous amounts of data," Askelson said. UND is researching the data supply chain, discussing how to collect data, transform it into manageable information, and then apply that information to actual uses.
- Policy. Technology of any kind has drawbacks and drones are no different, but UND wants to play a role in alleviating concerns and bringing solutions, Askelson said.
 "We have to make sure we have the right policies in place

and the right protections in place to limit those kinds of negative impacts as much as possible and get as much beneficial impact as we can," Askelson said.

• Create applications and work on problem sets in the energy industry, farming or other sectors.

"We're trying to use all of these to drive the applications," Askelson said. "Things are changing rapidly, but in a very good way."

The Association of Unmanned Vehicle Systems International shares a report that shows the economic benefit of UAS integration. Its findings shows the benefit will grow through 2025, with more than 100,000 jobs created and an economic impact of \$82 billion in the United States. In North Dakota, the economic impact is at a predicted \$83 million. UAS technology is also significant from a humanitarian standpoint, Askelson pointed out.

"There are things you can do with unmanned aircraft that help save lives at times," he said, such as medication delivery, which could be a future application, or emergency response.

"The ecosystem that we have here in North Dakota is very rich. We have a great balance of research and companies, industry. We have a government in which everybody is behind this trying to make this happen. We have a population who recognize that there can be downsides to any type of technology, but they're also forward-looking and recognize the great benefits that technology provides," Askelson said. "Public awareness and public acceptance of UAS specifically in the state of North Dakota are at an all-time high," Matt Dunlevy, CEO and president of SkyScopes said. "Drones for good are here to stay."

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Northern Plains UAS Test Site Update

By Bob Simmers, Test Site Authority Member



In December, 2013, the Northern Plains Unmanned Aerial Systems Test Site (NP UAS TS) was commissioned, along with five other sites, in the U.S. It received its first COA Authorization in April, 2014, to fly a small Unmanned Aerial Vehicle during the day and in line of site within the state of North Dakota. Today, the Test Site is allowed to conduct test flights beyond line of site at night at any authorized site in the U.S.

My journey on this project started in 2010 as the Senate had issued a message to the FAA to develop six unmanned systems test sites. The FAA issued a Request for Proposal and the race was on. Under the leadership of the North Dakota Department of Commerce, a committee of government and industry representatives was formed. A consulting firm was hired to guide us on the path of success and we were off and running. Much effort and care were taken in producing North Dakota's application.

Unique to our application was the inclusion of General Aviation. The committee felt that in order to be a leader in the development of a test site, General Aviation needed to be at the table. They were right. The North Dakota Aviation Council (Council) was invited by then-Governor Jack Dalrymple to submit a name to sit on the authority which would govern the Test Site, if awarded to North Dakota. The Governor



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appointed me, by recommendation of the Council, to represent you in overseeing UAS development. In December of 2011, North Dakota was invited to appear before the FAA Administrator. The day that we went before the newly positioned administrator, Michael Huerta, his first question was, "Is General Aviation represented here?" To which I replied, "Yes, we are."

One important thing to remember is that the Request for Proposal requires integration of UAS into the National Airspace System (NAS). To me, that means safe integration into the NAS without further restrictions to the existing system. During this process we have actually seen some areas of *fewer* restrictions.

The State of North Dakota has made a significant investment into the development of the Test Site. Results are already measurable and North Dakota has become the leader in UAS research. As a result, infrastructure redevelopment has taken place in a cooperative effort with the Grand Forks Air Force Base. The Test Site is slowly becoming self-sufficient by being able to be reimbursed for the use of our test site services.

We have been conducting UAS test flights in North Dakota and across the nation since 2014. To date, I am not aware of any conflicts in the NAS during the testing on these systems. My concern lies with those flying their UAS who are not informed and are unaware of the dangers that they present to those playing by the rules.

Thanks must be given to Senator John Hoeven, then-Senator Heidi Heitkamp, then-Representative and now Senator Kevin Kramer, and then-Governor Jack Dalrymple for their forward vision and focus in the development of UAS testing. Thanks to our current state leadership for their continued support of this vision.

It is an honor to serve General Aviation in this capacity.

To learn more about the NP UAS TS or to follow them, visit: www.npuasts.com





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For many years, North Dakota has been working arduously to become a national leader in Unmanned Aircraft Systems and unmanned technology. Today, it is exciting to see the incredible position that our state has put itself in which is a direct result of many great people and organizations who have contributed throughout the years to help ensure the state's success. Below are examples of some amazing North Dakota organizations and programs that are leading the way in helping our country to safely grow this technology.



Northern Plains UAS Test Site

In 2011, North Dakota formed an Airspace Integration Team that led a proposal based upon North Dakota's historical leadership in aeronautics and a collaborative statewide "onevoice" approach to providing innovative solutions. This group advocated successfully for North Dakota to become selected as one of seven congressional approved test sites throughout the country. The mission of these test sites is to work with the industry to conduct crucial research to determine how to safely integrate UAS into the national airspace system. Our Northern Plains UAS test site is administered through the North Dakota Department of Commerce and is currently headquartered in Grand Forks, but can conduct research flights anywhere throughout North Dakota and the United States.

North Dakota was the first FAA test site to begin conducting test flights and to this day, the organization continues to help provide expertise and value to those in the UAS industry that want to operate and develop their technology safely outside of current regulatory parameters. The research and development conducted at the test site generates the information that helps to inform the FAA on decisions regarding future regulations on the UAS industry. The North Dakota Aviation Council and the North Dakota Aeronautics Commission both have a seat on the Authority that oversees our test site.

Website - www.npuasts.com

UAS Integration Pilot Program

In 2017, additional efforts began to expedite the safe integration of UAS technology, and the FAA solicited applications from state, local and tribal governments for a new UAS Integration Program. Entities throughout the country enlisted the help of industry, academic, and other government partners to support their proposed operations and 149 applications were submitted for consideration. From this list, the FAA selected 10 lead applicants that included North Dakota's Department of Transportation.

This Integration Pilot Program will enable North Dakota's state agencies to work on policy that can safely advance UAS operations, including beyond visual line of sight, flights over people, and night operations. As the lead applicant and program manager in North Dakota, the NDDOT is working with partners and stakeholders from across the state including the Northern Plains UAS Test Site in Grand Forks as well as city, state, and tribal agencies. The overall goal of this program is to help accelerate the approval of UAS operations that currently require special authorizations.

Website - www.dot.nd.gov/uas

University of North Dakota

The University of North Dakota (UND) has offered aerospace education for over 50 years and has become a world renown aviation training center with one of the largest fleets of civilian aircraft in North Dakota. UND is also home to a Center of Excellence for Unmanned Aircraft Systems and in 2009 became the first program in the country to offer students a UAS undergraduate degree. Their program has continued to grow and has been an integral part in providing the commercial UAS industry and military in the region with highly qualified UAS operators and technicians.

Website - aero.und.edu

Grand Forks Air Force Base

During the last Base Realignment and Closure (BRAC) in 2005, the Grand Forks Air Force Base lost its KC-135 tanker mission, but efforts began soon thereafter to realign with a new designation. These efforts were successful and in 2011, unmanned aircraft missions began through the 319th Air Base Wing. In June, 2019, the mission was further realigned with the 319th Reconnaissance Wing and the Grand Forks Air Force Base became the primary base for all the RQ-4 Global Hawk missions in the United States.

Website - www.grandforks.af.mil

Grand Sky UAS Business Park

Grady Sky is the nation's first and currently only fully operational commercial UAS research and development park in the Unites States. Through joint partnerships between the County of Grand Forks, Grand Sky Development Corporation, and the U.S. military; the commercial UAS industry is able to access and fully utilize the 12,300-foot runway and airspace surrounding the Grand Forks Air Force Base. The business park currently has two anchor tenants, Northrop Grumman and General Atomics, with room for additional growth.

Since 2015, Grand Sky has been the site of continuous UAS industry advancements and milestones, including the first trans-Atlantic MALE UAS flight and the first site to receive regulatory approval to host commercial beyond visual line of sight (BVLOS) flights.

Website - grandskynd.com

These organizations and programs each have their own purpose and mission, but they are able to work together to become both individually and collectively successful. It is easy to see why our state has been referred to as the "Silicon Valley" for UAS operations.

During the last state legislative session, our elected officials decided to provide another opportunity for North Dakota to lead in this area by appropriating \$28 million dollars to allow our UAS test site the opportunity to develop the first statewide radar infrastructure network. The hope is that this network will allow the FAA to grant a statewide approval of beyond visual line of site operations which would unlock additional opportunities for the UAS industry in North Dakota. The end result of these efforts would be the eventual expansion of this technology to the rest of the country.

These are exciting times for the aviation industry, and I am confident that our state will continue to provide leadership and innovative solutions towards safely integrating this technology into the national airspace system.

Wishing you smooth flying, Kyle





So, You Bought A Drone?

So you bought a drone, or maybe you are thinking about it. What things do you need to think about? On a regular basis, our office receives questions about registration requirements, licensing requirements, and limitations for flying unmanned aircraft. Hopefully, I will help answer some of your questions in the next few paragraphs.



Q. Do I need to register my drone?

A. Yes. Although North Dakota does not currently have any registration requirements for unmanned aircraft, there is a requirement to register your unmanned aircraft weighing over half a pound with the FAA. Some states do require a state registration when operating within their state boundaries, so check with them if you cross state lines. The FAA has the following requirements:

- 1. As a hobbyist, the user must register with the FAA.
- 2. The user is assigned a registration number which must be visible on the aircraft when it is flying.
- 3. This registration number may be used on multiple aircraft operated by that user.
- 4. Commercial operators must register each aircraft with the FAA.

Q. Do I need a license?

A. As a hobbyist, the answer is no, for now. The FAA Reauthorization Bill requires recreational users to pass an aeronautical and safety test and carry proof of test passage. Currently, these tests have not been developed, and users should continue to operate under the old rules until the new FAA test is created. Part 107 operators are required to pass a written exam. Current holders of a Part 61 license are able to obtain a Part 107 certificate with ease, and are required to pass a recurrent knowledge test every two years, in addition to flight review within the last 24 months. To begin, we need to answer this question: Do you plan to fly the drone for recreation or commercial purposes?

A recreational user is flying only for fun; there is no compensation for the operation. If you are flying to further a business, for instance, taking photos or video to be used for promotional purposes or to make business decisions, you will need to follow the FAA's Part 107, Commercial Remote Pilot Certificate regulations. This article provides information for the UAS hobbyist. Commercial operators are required to receive some training and therefore should be familiar with many of the requirements.

Q. Where can I fly?

A. Recreational users must fly only for recreation, stay below 400 feet above ground level (AGL), fly in uncontrolled airspace, and maintain sight of the aircraft in operation. Users must never fly over people, wherever operations are prohibited, or while under the influence of drugs or alcohol. While the requirements for commercial operations are similar, it is possible to obtain a waiver to many of the rules for Part 107 certificate holders.

Q. Where can I get more information?

A. The FAA provides excellent information on their website: www.faa.gov/uas or faadronezone.faa.gov

In addition, download the B4UFly app on your tablet or smartphone. The North Dakota Aeronautics Commission website also has information with links to a variety of resources. In addition to resources on the web, there are periodic events around the state such as Drone Focus which takes place in Fargo in May, and the UAS Summit in Grand Forks in August, which specifically addresses unmanned aircraft topics. Feel free to let us know your questions and we will try to offer additional information as needed.

The final resource, and my recommendation to all drone operators, is Know Before You Fly. Visit <u>knowbeforeyoufly.org</u> for more information. Stay safe and have fun!

Who Said Unmanned?

By The Staiger Consulting Group

Unmanned Aircraft Systems (UAS) are anything but unmanned; the difference is that the crew is not inside the aircraft. UAS systems are staffed and guided remotely by any number of people, depending on the sophistication of the system. The North Dakota Aviation Council (NDAC) is somewhat analogous and is also a system with sometimes invisible navigators behind the scenes; they are made up of a board and committees of volunteers from all over the state, plus the executive director team, bringing expertise and resources together to execute the organization's flight plan.

Much like the UAS industry, the NDAC needs to maintain its systems, staff, and volunteers, as well as be responsive to the constituencies we serve in order to play a lead role in these fast-paced industries. To accomplish all this, we need more than spectators. We need people who are excited about their field to help guide the aircraft we call the NDAC and fulfill its mission. We will be respectful of your time and we have a place for you that can be customized to your constraints. Ask us or any board member about available NDAC opportunities. Help us fly this thing!

> Staiger Consulting Group Stacy Krumwiede, Bonnie Staiger, Mike Krumwiede





Enderlin Airport 15th Annual Sunfest Fly-In

By Bobby Geske

On September 22, 2019, the Enderlin Airport hosted its 15th Annual Sunfest Fly-In, a part of the community's Sun-Fest Week of fun. This year we were very fortunate to have Mother Nature cooperate and many pilots and aviation enthusiasts enjoyed a filling breakfast of pancakes, scrambled eggs, and sausage.



This event is hosted by the Enderlin Airport Authority, with proceeds sponsoring a local student at a summer aviation camp. This summer, the airport authority had the privilege of sending Zane Gruba, of Enderlin, to the UND Aerospace Camp.





A sincere thank you to the many pilots and friends that attended, making the event such a great success.



Hoppy Hooligans Already a Long History in Remote Piloting



It's been well over a decade since the last of the F-16s departed the North Dakota Air National Guard's (NDANG) 119th Wing, and more than five years since the last manned aircraft departed the unit. For decades, the 119th Wing, affectionately known as the Happy Hooligans, defended the skies of the U.S., operating its fighter jets in a national defense role. However, the era of fighters in Fargo concluded in 2007. It was at that time, with the impending departure of the F-16s, the 119th Wing and its senior leadership chose to embark on a mission set that was brand new to the Air National Guard, operation of remotely piloted aircraft – the MQ-1 Predator.

The wing began flying the MQ-1 in early 2007, conducting combat line operations to support the Global War on Terror. Today, the Happy Hooligans operate the MQ-9 Reaper,

which it transitioned to in 2018. The MQ-9 is a medium-altitude, long-endurance aircraft capable of precision attack and reconnaissance. The capabilities of the MQ-1 and MQ-9 have proven them to be invaluable assets to the U.S. Air Force and the Department of Defense.

The MQ-1 and MQ-9 play a significant role for the U.S. Air Force and the NDANG. From 1977-2013, the total number of flying hours for all manned aircraft (F-4/F-16/C-21) at the 119th Wing, totaled 141,289 hours, while the total number of flying hours for the MQ-1 and MQ-9, from 2006-present, totals an incredible

158,611 hours. The persistent use of these aircraft executing combat missions overseas is reflected in these numbers and is a testament to the relevance of the NDANG today.

The 119th Wing also operates the MQ-9 at the NDANG base as part of a local Launch and Recovery Element (LRE). The LRE enables pilots, sensor operators and maintainers from the 119th Operations Group and the 119th Aircraft Maintenance Squadron to train to fly and maintain aircraft at home-station, as opposed to having to travel to another location. Currently, the wing operates four MQ-9 aircraft in Fargo.

Additionally, the Happy Hooligans have led trailblazing efforts to demonstrate the capabilities of the MQ-9 in domestic operations situations. The 119th Wing participated in exercise Southern Strike in January 2019 and exercise Patriot North in July 2019. It was the first time remotely piloted aircraft were used in both exercises. Already proven in real-world situations in California, where the MQ-9 has been used to assist firefighters and help rescue hikers, at Southern Strike, the Happy Hooligans demonstrated how the MQ-9 can successfully integrate into search and rescue operations on the Gulf Coast. "This is the first time this aircraft has been used in this region," said the Commander of the 178th Attack Squadron at the 119th Wing. "It was awesome to participate and demonstrate this capability." The Commander went on to say there are many uses for the MQ-9 and to highlight the potential positive impact it will bring in the event of a hurricane disaster scenario.

Southern Strike is a joint, multilateral exercise held across multiple locations in Mississippi. The exercise integrates active duty and reserve components from every branch of

> the U.S. military, presenting them with realistic joint coalition scenarios based on current global crises. Patriot North is a domestic operations training exercise held at Volk Field and Camp Douglas, Wisconsin. The exercise focuses on the understanding of coordination, policies, and procedures required in conducting a joint interagency response.

The Happy Hooligans will continue to be at the forefront of MQ-9 operations in the Air Force. The 119th Wing is continually innovating, ensuring it remains the go-to, requested-by-name MQ-9 unit. The NDANG's global impact,

supporting nearly every combatant commander on earth, has made the unit more relevant today than it ever has been.



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UAS Activity at ND Airports Shows Expertise

Mr. Brown can Moo! Can you? This book is one of my two-year-old son's favorites right now. The book describes Mr. Brown and all the fun sounds he can make. In reading this book over and over, I have to say, Mr. Brown is pretty darn good at making sounds and has a good variety. One could even say Mr. Brown is an expert. I liken Mr. Brown to North Dakota leaders in that they have taken great steps to become a nationwide leader and expert in the Unmanned Aircraft Systems (UAS) industry.

In 2013, the Northern Plains Unmanned Aircraft Systems Test Site, a state entity through the North Dakota Department of Commerce, became designated by the FAA as one of the six UAS test sites across the United States. Since that designation, the Test Site has made numerous strides in expanding the UAS industry across North Dakota, such as flying UAS at night and beyond the visual line of site. During the last legislative session, the Department of Commerce and the Test Site were successful in securing funding for a UAS radar network. AAND was supportive of this effort and provided a letter of support that was provided to legislators. Most recently, the Test Site site was granted approval to fly UAS over people. The growth and expansion on the UAS industry in North Dakota has garnered the attention of companies from across the globe. These companies are coming to North Dakota and testing the capabilities of UAS for several different industries, including agriculture, oil, and energy production. With the expansion of the industry, it was just a matter of time before UAS and airports crossed paths.

In North Dakota, several General Aviation (GA) airports have a UAS operation established on their field. Hillsboro Airport was one of the first to have a UAS operation conduct operations off their field. In 2016, Elbit Systems based their UAS operation in Hillsboro. Elbit was testing UAS applications for the agricultural and energy industries. Larry Mueller, Authority Chairman, said, "There was minimal disruption to airfield operations when Elbit began operation." The only unique feature was the need for a restrictor cable across the runway, which was used to stop the UAS during a long landing roll out. Other than that, the airport didn't have to add in any new operational procedures or increase FOD detection and snow removal efforts. Plus, the operation provided some additional revenue for the airport through hangar rental.

The lone commercial airport in the state with a UAS operator on the field is Hector International Airport in Fargo.





Presently, the North Dakota Air National Guard operates the MQ-9 Reaper off Hector Field. The Reaper is a UAS used for precision attack, reconnaissance, target intelligence production, and expeditionary support capabilities. The guard's operation has blended seamlessly into daily operations. The airport staff did not have to incorporate any new procedures into their operation for the Guard's operation. The Guard and Air Traffic Tower did establish a procedure for lost communication between the operator and tower.

Also worth mentioning is the use of UAS for the safety and security of the airport itself. Airport operators around the country are starting to utilize UAS for wildlife hazard mitigation, fence line inspections, and airfield safety inspections. In North Dakota, Grand Forks International Airport is using a third party company, Aerium Analytics, and their UAS, Robobird, for wildlife mitigation efforts. The Robobird has been successful in harassing birds and getting them to move away from the area around the airport. Robobird is another tool airport staff has to assure the safety of the airfield. As the UAS market continues to grow and there are more UAS in the sky, airport operators will also have to start thinking about counter UAS technology and how that will fit into their operation, not only for the safety of manned aircraft, but also the UAS that are legally operating in the airspace around the airport.

We are in the beginning phase of this industry and it is exciting to see successful UAS integrations at our GA airports. As the UAS industry grows, it will be interesting to see how airports will continue to adapt to support the industry. Will there be dedicated UAS ramps at airports in the future? How will our aircraft rescue firefighters train for the new aircraft? Will we see specialized FBOs? How big of an economic impact will the UAS industry have on the GA airports across the state?

I do not know the answers to these questions, but I do know North Dakota, just like Mr. Brown making sounds, is an expert in UAS and I'm excited to watch it grow right here in my backyard.





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Utilizing UAS for Wildlife Hazard Management

Submitted by Ryan Riesinger, Executive Director, Grand Forks Regional Airport Authority



In the early fall of 2017, Grand Forks International Airport (GFK) personnel began seeing an increasing number of seagulls flocking in the vicinity of the airport. It was a very dry year and the gulls were being attracted to the city of Grand Forks wastewater treatment ponds, which are 1,300 acres of open water located just one mile to the northeast of the airport. The Airport's Wildlife Hazard Management Plan was getting an unusual test and additional measures beyond traditional hazing and permitted lethal take were necessary.

The Airport first contacted personnel from the United States Department of Agriculture (USDA) Fish and Wildlife Services who conducted site visits of both the wastewater treatment ponds and the Airport. USDA personnel estimated the bird population at the ponds to be approximately 16,000, with 13,000 of those being seagulls. Birds at this level had not been seen for many years and a work group initially consisting of GFK Airport, City of Grand Forks Public Works, USDA Fish and Wildlife, FAA Air Traffic Control, and UND Aerospace began meeting weekly to coordinate efforts.

The situation was a perfect wildlife storm that was made more challenging given that GFK is home to the John D. Odegard School of Aerospace Sciences, one of the premier flight training institutions in the world, with over 100 aircraft and 1,300 active flight students. This amount of training





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www.interstateeng.com North Dakota | Minnesota | Montana | South Dakota activity has resulted in GFK being consistently ranked within the top 25 busiest airports in the country. As everyone in aviation knows, aircraft and birds don't mix, and GFK had both in high numbers.

But out of the coordination, collaboration, research, and effort came a novel, new approach that was worth a try. The Grand Forks area had become a literal "Sili-drone Valley" – with the Northern Plains Test Site, Grand Sky UAS Industrial Park, Global Hawk Mission at the Grand Forks Air Force Base, and UAS curriculum at UND Aerospace – so it was only natural that a drone disguised as a bird of prey would come to the rescue.

The local wildlife work group learned of a company named Aerium Analytics, headquartered in Calgary, Alberta, and Clear Flight Solutions, which is based in the Netherlands. Together they own, manufacture, and operate a peregrine falcon drone called the RoBird.[®] After 10+ years of research and development, the RoBird[®] is very effectively able to herd and move large flocks of birds, much like how a border collie herds sheep on the ground, by relying on the instinctual relationship between predator and prey.

To see the RoBird[®] in flight is truly amazing. The drone is incredibly light and durable. There are no propellers or jet propulsion systems. It simply flaps its wings at a high rate of speed and with an overhand toss it is off and flying. It is controlled like any other UAS from the ground and is able to fly for approximately 5-minute durations, much like the hunting female peregrine falcon that it is designed to imitate. While most of the RoBird[®] flying was at the wastewater treatment ponds, a coordinated plan with flying zones and height restrictions was developed between GFK Airport, FAA Air Traffic Control, and the RoBird[®] operators that would have allowed for operations on airport property, if needed.

The combined results with the RoBird[®] included in the wildlife mitigation toolbox have been impressive. Overall bird strikes at GFK have decreased by 33%, but more importantly, strikes of larger birds like gulls were reduced by 92% in one year. With these positive results, the RoBird[®] has attracted the attention of the FAA and other airports around the world.

There is no doubt that the future of UAS at airports is bright. The potential benefits in other areas like airfield inspections, perimeter security, construction surveying and monitoring, and emergency response will spur increased use and integration at airports. As the technology advances and becomes more widely known, utilizing UAS at airports will become the norm rather than the exception.

Sharing the Love of Aviation with a Whole New Generation

By Robbie Lunnie, Assistant Professor of Aviation, University of North Dakota

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AEROSPACE

OF NORTH DAKOTA

I love the smell of a Cessna 150 cockpit and the feeling when the wheels leave the runway. I love hanging around airports and traveling to flight schools. I love seeing the smiles of student pilots, young and old, who just completed their first solo. I love recognizing the friendly voice of the tower controller after receiving clearance to enter the pattern and being made fun of by my wife when I say, "Roger that." I love that pilots in my community still get together on Saturday mornings for weekly safety briefings over coffee and donuts, while perusing the latest copies of the North Dakota Aviation Quarterly and Trade-A-Plane magazine. Listening to stories of exciting flights from years gone-by is one of my favorite pasttimes. I truly love aviation. Luckily for me, I recently found a new way to share my passion with a new generation of aviators.



While I have always loved aviation, I never really had an appreciation for unmanned aircraft. I had grown up with radiocontrolled airplanes and received a toy drone as a Christmas gift many years ago. It all changed when a few years back, when I noticed a trend in my aerospace students enrolling in Unmanned Aircraft Systems (UAS) courses as part of their aerospace degree program. It was then I realized unmanned aircraft are providing an opportunity for a whole new generation to fall in love with aviation. After I purchased - and quickly crashed - my first unmanned aircraft, I was hooked.

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I promptly began exploring unmanned aircraft and their role in aviation, and I was pleasantly surprised to find that North Dakota is a world leader in UAS. I must admit, at first I didn't realize how significant North Dakota is for UAS and how much of a leadership role we play in worldwide UAS operations, education, and research. It is well known that North Dakota is a leader in aviation and aviation education, but did you know we are also a world leader in UAS?

Not only is the North Dakota aviation community a world leader in UAS, we are in a position to continue a legacy of leadership through outreach and educational opportunities. Because of the hard work provided by volunteers at the Dakota Territory Air Museum in Minot, ND and the North Dakota Aeronautics Commission, equipment and supplies were purchased with the goal of exposing a whole new generation to aviation.

The Dakota Territory Air Museum showcased unmanned aircraft this past summer at their 75th Anniversary of D-Day event. UAS were also on display during the Spirit of the Plains Airshow at Minot International Airport this past Fourth of July. During both events, kids of all ages had the opportunity to fly unmanned aircraft in a drone cage and experience the joys and excitement of flight first hand.

These events, and many more like them throughout the state, have given a whole new generation of aviators the ability to fall in love with aviation, while continuing our legacy of worldwide aviation leadership. These public outreach opportunities allow our experienced aviators the opportunity to pass on their passion of aviation to the next generation. This is something we should be extremely proud of as an aviation community and as a state.

Someday, in the near future, a young aviator will be explaining to their family and friends why they love aviation and the aviation community. Their story may include the smell of training aircraft, their passion for airports, and Saturday morning safety briefings over coffee and donuts with friends. They will hang on every word from harrowing stories of missed approaches and live for the opportunity to shake the hands of a student after their first solo. The only difference between our stories and the stories of the next generation of aviation leaders, is they will include a passion for unmanned aircraft!



Do you have an interesting aviation story, event or photos to share?



Do you have airport events, aviation awards, or aviator adventures to share?

We would like to hear them! Submit your ideas or stories for consideration to ndaviationcouncil@gmail.com.

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The Integration Pilot Program: Navigating the Future of UAS in North Dakota

Submitted by the North Dakota Department of Transportation

The Unmanned Aircraft Systems (UAS) Integration Pilot Program (IPP) is a United States Department of Transportation and Federal Aviation Administration (FAA) initiative designed to facilitate the safe incorporation of UAS into communities across the country. The IPP is helping state, local, and tribal governments introduce complex UAS operations, like beyond visual line of sight, operations over people and night operations, into their communities.

The North Dakota Department of Transportation (NDDOT) was among ten participants selected in May 2018 for the IPP. The NDDOT works with Northern Plains UAS Test Site (NPUASTS) and dozens of other state and private industry partners on UAS missions. Each of the lead participants are tasked with testing the components necessary for eventual integration of UAS into the National Airspace System (NAS). UAS operations that include package delivery, infrastructure inspection, and enabling first responders to name a few are being tested across the country. The data that is collected from these operations will help the FAA establish guidelines and regulations both for safety and efficiency.



NDSU Tailgating Event

The first public mission of the North Dakota IPP partners was a drone flight over people on September 29, 2018 at the Fargo Dome. The Test Siter, the NDDOT, and their partners flew multiple drones over a tailgating event prior to a North Dakota State University (NDSU) football game. One of the aircraft was being flown for media purposes by CNN and the other was being used by first responders, represented by Botlink. Significant here was not only a flight over a crowd of people attending the tailgate event, but that approvals were issued for simultaneous drone operations in controlled airspace, as Fargo's Hector International Airport is in close proximity to the Fargo Dome.

This mission not only provided an opportunity to demonstrate how these kinds of flights can be done safely, but it also marked the first time the FAA had granted a waiver for flight over human beings with a parachute. This specific function provided an extra level of safety for the crowd and paved the way for future waivers and flights over people using parachutes.

"The IPP is helping state, local, and tribal governments introduce complex UAS operations, like beyond visual line of sight, operations over people and night operations, into their communities..."

Spring Flood Control Efforts

Spring 2019 brought with it flooding of the Red River on the eastern side of the state. North Dakota IPP partners used drones to monitor flooding conditions between Grand Forks and East Grand Forks, MN as well as further north along Interstate 29, where flooding impacted road conditions. There were multiple UAS operators executing these missions. Most of the operators were able to be coordinated with flying under the privileges of Part 107 while another received approval for operations over people to fulfill their mission set.

This particular effort also allowed for wider dissemination of flood information to the public and at the same time worked to normalize the use of UAS in these kinds of public safety efforts. Oftentimes, people's strongest association with UAS is surveillance, so drones can make them uncomfortable. A positive side-effect of this mission was anecdotal evidence of increased public acceptance of drone use; pictures of the flooding taken by UAS during this mission were widely shared on social media in the area.

ND Highway Patrol and the Burleigh County Sheriff's Department, to receive similar waivers. UAS flights will be used to help reduce traffic fatalities and serious injuries and to improve emergency response efforts, especially in rural areas.

This was facilitated in part through the use of a SafeAir Parachute Recovery System from ParaZero. This system monitors flight in real time, detects critical failures, and autonomously triggers a parachute. It also employs a warning buzzer to alert people below of the falling drone. This SafeAir system means that even if something goes wrong in a flight over people, the risk to the people below is mitigated. This SafeAir system received thirdparty validation from the NPUASTS with over 45 aerial deployment tests in various failure scenarios.

Successful Flights in Urban Areas

The North Dakota IPP team executed successful flights in an urban environment, beyond visual line of sight,

> and over people just this August. The flights were operated by AirBus Aerial and Skyskopes using NDDOT and NPUASTS waivers and existing radar infrastructure, including Echodyne's EchoGuard Radar System, for detect and avoid capabilities. Detect and avoid refers to a UAS being able to detect obstacles in its flight path and avoid a collision. UAS were used to fly over and inspect Xcel Energy electric system infrastructure in Grand Forks, ND.

> Because the distribution lines provide a constant and static route, this use case was a natural first step in testing UAS flights in urban areas. There is a consistent flight path for repeatable missions under varying conditions like different times of day, varying levels of foot and vehicle traffic, and varying levels of other airspace traffic in the vicinity.

These efforts by the North Dakota IPP partners will help pave the way for safe UAS flights in communities across the country and will facilitate industry growth and expansion using UAS technology. The NDDOT, Northern Plains UAS Test Site and partners in the Integrated Pilot Program are excited to be at the forefront of these exciting developments.





Waivers for Flight Over People

In June of this year, the NDDOT received a four-year waiver from the FAA to operate UAS over people. This marks the first time a ND state agency has received a waiver to routinely conduct UAS operations over people. This initial waiver paved the way for other state entities, including the

Where the Bees are

By Patrick Miller

With UND's help, Australian ag-tech company brings its bee-tracking technology to North Dakota

Last week was the first time Paul Snyder, director of the UND Aerospace Unmanned Aircraft Systems (UAS) Program, got a firsthand look at technology from Australia that could help North Dakota sunflower farmers increase production through a process known as precision pollination.

Kate and David Lyall, co-founders of an agricultural technology company called Bee Innovative, came all the way from Australia to run tests using drones equipped with bee sensors on two sunflower fields near Bismarck, N.D. Snyder said he was impressed with how small unmanned aircraft equipped with the company's BeeDar could track the movements of the bees pollinating the sunflowers.

"It's amazing to see the amount of traffic as bees are coming into and moving out of the field all day," said Snyder, the project's principle investigator. "It's like a fine-tuned machine."

BeeDar identifies, tracks and reports honeybee pollination activity in near real time, enabling farmers to make better use of beehives to improve pollination, which increases yields and crop value.

Impressed with North Dakota

For their part, the Lyalls were impressed with the quality of the sunflower crop, North Dakota's farmers and farming operations, as well as the state's beekeeping practices.

"It's a lot greener over here than it is at home," said Kate Lyall, Bee Innovative's chief technology officer. "Australia is having the worst drought in living memory at the moment. They didn't even plant sunflowers last summer.

"It's good to see the beekeeping practices are a little different from home," she added. "We've been talking to beekeepers to understand how they manage their hives."





Bee Innovative, an Australian company, brought its precision pollination technology to North Dakota last week to test it on sunflowers in collaboration with UND researchers. Photo courtesy UND Aerospace.

David Lyall, the company's CEO, said, "Here in the U.S., the farmers seem to be really on top of their game. They have very good rotational programs planned out quite well in advance. They've got really good management systems where they're planting the crops at the right time and putting treatments through — whether it's fertilizer or fungicides to really keep their crops growing at peak performance."

The Lyalls believe the success they've experienced in Australia increasing the production of blueberries and other crops will also translate into improving sunflower yields in the U.S. The goal of the North Dakota project is to compare one sunflower field that's received the benefits of Bee Innovative's technology with one that has not.

"We're hoping to see a 10 percent increase in yield based on weight," David said. "We're expecting to see an increase in oil content as well."

UND research collaboration

UND scientists and researchers are collaborating with Bee Innovative with the support of the National Sunflower Association, headquartered in Mandan, N.D. Last week, a UND drone equipped with a multispectral camera flew over both fields to assess crop health.

Mark Askelson, a professor in atmospheric sciences who also heads UND's Research Institute for Autonomous Systems (RIAS), and doctoral student Mounir Chirt set up two weather stations in each field to remotely monitor the micro-climate.

Haochi Zheng, assistant professor with the aerospace school's Earth Systems Science & Policy Department, has been working with local beekeepers to monitor hive health. She will compare the results from the two sunflower fields and report on the economic impact.

UAS operations conducted by UND and Bee Innovative began last week over two sunflower fields near Bismarck, N.D. Shown from the left are UND UAS pilot James Moe, David Lyall, Kate Lyall, Paul Snyder, Haochi Zheng and student Jiyang Zhany.

Photo courtesy of UND Aerospace.



While Bee Innovative flew drones equipped with BeeDar to track bee pollination activity, the UND Aerospace UAS Program flew drones with sensors to monitor the health of the sunflower crop. Photo courtesy UND Aerospace.

In addition, Bee Innovative has been working with the UND Center for Innovation to establish a business presence in North Dakota. The Center helped in getting a \$59,113 North Dakota Agricultural Products Utilization Commission (APUC) award through the John D. Odegard School of Aerospace Sciences. The aerospace school provided another \$10,000 in funding to support the project.

David praised Snyder and the assistance Bee Innovative has received from UND's UAS program.

"He's been a fantastic person to work with and has a lot of expertise, particularly in UAS," he said. "That's been a big advantage for us. It's been helpful that we're all operating the same UAS platform when we're talking to each other about performance capabilities. We're all on the same page. That opens it up for us to do more things in the future."

As Agweek magazine reported, the couple "searched the world for knowledge on unmanned aerial systems and landed on UND as the most knowledgeable place."

Other opportunities

Canola is a crop with similarities to sunflowers, David explained, and an opportunity Bee Innovative is interested in exploring with UND. He also sees the possibility of enlarging the research project on sunflowers next year.

"There's some other areas to identify and potential collaboration between UND and Bee Innovative," David said.

The Lyalls returned to Australia early this week but plan to come back to the Bismarck area in October to collect more data during the sunflower harvest. They will present project results during the annual National Sunflower Association conference next January.

"We've really enjoyed working with the sunflower association and UND," Kate said. "It's been a fantastic experience, very welcoming."



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Scholar\$hip for Someone Wanting Their Private Pilot Certificate

By Devin Cole, North Dakota Pilots Association President

For the first time, I'm happy to say I was able to attend the annual Props and Hops fundraiser at the Mandan Airport in October. What an awesome event! The music was wonderful, the beer was delicious, and it was all for a great cause. In the past, the event has raised money for an individual in the local aviation community with unexpected medical expenses. This year, as there was no one identified with medical expenses, the funds were raised to help fund local aviation scholarships. The North Dakota Pilot's Association (NDPA) has been asked to help distribute these scholarships, for which we are grateful.

Every year, the NDPA has at least one scholarship to help any individual receive any rating, based on their application. The 2019 recipients included Jarod Jeglum at KJMS and Tatum Hertz at KMOT. The funds raised this year at Props and Hops total over \$12,000 and will create a much more substantial dollar-for-dollar match, helping someone to attain their private pilot certificate out of the BIS or Y19 airports. That's four to six thousand dollars to put towards a first rating! Applications for both scholarships can be made through the NDPA website: www.pilotsnd.com.



Thank you to those who put on this event, especially the donors, musician, and brewers. If you have never been to Props and Hops, I hope to see you at the Mandan Airport next October!

Please encourage interested individuals to apply for the scholarships. The application deadline is January 31, 2020. Props and Hops and NDPA hopes this is just what someone needs to find success in their dreams of flight.

A Fun Time at the 2019 Props and Hops Event







Educating Mechanics During the Transition to Unmanned Flight

ND Aviation Council The Umbrella of Strength Partne **ND Professional Aviation** NDPA Mechanics Association

By Nick Geinert, Aircraft Technician University of North Dakota, NDPAMA President

We have been hearing for some time that there is an aircraft mechanic shortage. It is getting tougher to fill open positions, and that problem is not exclusive to manned aircraft. The Unmanned Aerial System (UAS) industry is also scrambling for qualified maintainers. North Dakota doesn't have its own Airframe and Powerplant (A&P) training program, and the closest one is located in neighboring Minnesota. Northland Community and Technical College, 45 miles across the border in Thief River Falls, MN, has a large aviation facility dedicated to an A&P program that has run for over 50 years. In 2011, they began offering a UAS certificate to the students.

Currently, there is no FAA approved curriculum or certification basis for UAS maintenance like there is for the A&P certificate. Industry-wide, much of the maintenance

to take at Northland. The Large Unmanned Aerial System program is the track typically taken by the A&P students. It educates students on the maintenance and repair of the components of unmanned aerial systems, including Unmanned Aerial Vehicles (UAVs), Ground Control Stations (GCSs), understanding the function of data links or the communication and guidance system between vehicle and satellites (line of sight), and a basic understanding of computer networks and their functionality within UAS. The UAS certificate is a 30 credit addition to the A&P program and the students take it during summer semesters. It adds \$8,000 dollars to the tuition bill.

Second, they offer a Small Unmanned Aerial System program aimed at people other than aircraft mechanics. The Small

training is provided by the manufacturer for their own specific aircraft model. On the other hand, the UAS program requirements at Northland were developed with the help of an advisory committee that included General Atomics,



UAS program focuses on using UAVs where it could be beneficial to their careers or jobs, such as firemen, surveyors, or crop consultants. The course is designed to give the student a broad understanding

Northrop Grumman, and other UAS industry leaders. That helped create a universal training program that would apply to most unmanned systems.

I spoke with Zach Nicklin, an Unmanned Aerial Systems Instructor at Northland College, and he gave some insight on the industry and on their UAS maintenance program. Zach said employers are contacting Northland often looking for graduates. He also stated that their students have a 100% placement rate in the industry, if they can pass a background check. He estimated that about half of the graduates are hired by Northrop Grumman, General Atomics, or System Dynamics International, which have facilities in North Dakota.

There are three educational tracks for unmanned systems

of small UAS at the functional and operational level. It is a 13 credit course offered in the summer that includes regulations, aircraft systems on under 35 pound aircraft, remote sensing, and ground school for the Part 107 license.

The third track is an Associates of Applied Sciences (A.A.S.) degree program. That track includes the previously discussed Small UAS program but also two years of electronics coursework.

The growth of unmanned flight in North Dakota has created a need for maintainers. Maybe in the future, your local FBO will have a Cessna 172 parked next to the newest UAS crop sprayer. Looking forward, the industry will need to adapt and train qualified maintainers for continued safe flight.





Welcome to the people's airport First flight lands at Williston Basin International Airport

By Mitch Melberg mmelberg@willistonherald.com

To a round of thunderous applause, The Williston Basin International Airport is open for business.

The story of XWA has been one of complications, delays and last minute preparation, but also of the indomitable spirit of the Williston community, specifically it's city leaders, who have worked for nearly a decade to get the airport operational.

In a serendipitous twist of fate, a delay actually added to the story of the airport. The United Airlines flight that was scheduled to be the first into the new facility was delayed in Denver due to weather issues, making Delta Connections from Minneapolis the first plane to land. That plane, the first commercial flight into Williston's state-of-the-art new airport, was piloted by none other than Williston native Elliott Monson.

As the first flight touched down, there were cheers and handshakes from city and airport officials, finally able to breathe a sigh of relief as the airport officially commenced operations. Smiling from ear to ear, Airport Director Anthony Dudas stood watching as the plane taxied up to the terminal, where passengers were greeted by Mayor Howard Klug and the rest of the City Commission, who handed out commemorative coins welcoming new arrivals as the first passengers into XWA.

"I've waited for this moment for 10 years," Klug told the Williston Herald. "I knew that we were going to be on time and on budget. The first flight coming in was delayed in Denver for icing issues, but this is even better. The pilot is a Williston native. His mother and his family are here, and to have a Williston native as the first commercial plane to touch down at this airport, it means a lot to us. This airport is really going to push us into where we need to be as a city."

The overall feeling from the city and airport was one of relief, as things came down to the wire in terms of operation.

The FAA did not grant XWA its operating certificate until the night before it was set to open, but once they signed off, everything was a go and the frantic scramble to transition staff and equipment from Sloulin Field to the new facility began.

"It's a relief and a real sense of achievement for the city staff that worked so hard to get us to the finish line," Airport Commissioner Chris Brostuen said. "The time frame ended up being very tight, and I would say a little scary, but through a lot of hard work and dedication, we made it." "That's one nice thing about our city," Commissioner Deanette Piesik added, "All of the departments come together to help out. This wasn't just an airport thing, this is for the entire City of Williston and every city department was out here helping and we're very proud of all of them."

Perhaps the most relieved was Dudas, who has spent countless hours working to ensure that XWA stayed on schedule. With the first flight officially on the ground, and many more coming in the next few days, months and years, he said he was finally able to relax, just a little, and enjoy what is a historic moment for Williston, North Dakota and the country.

"This is what I've been waiting for," Dudas said, a big smile on his face. "I finally am able to sleep a little better tonight."



Williston Basin International Airport has arrived!

By Kyle Wanner, Director, North Dakota Aeronautics Commission

The long-awaited grand opening of the new Williston Basin International Airport has finally arrived. This is the first new airport to open in North Dakota since the Bowman airport was relocated in 2015 and the first new commercial service "greenfield" airport to be developed in the United States in the last eight years. I have had the privilege of working with many incredible and hard-working people who have been involved in this project now for almost a decade. Work began in early 2011 to develop a master plan that justified this relocation project and identified a new and proper location for the airport. This eventually led to a large effort to identify funding solutions which would take place over three consecutive legislative sessions. When funding was secured, the project had to be properly phased and coordinated over three years of construction which has now resulted in the successful opening of a new \$270 million-dollar airport facility. Incredibly, this project also set a record for the fastest amount of time that a new "greenfield" commercial service airport has been built in the modern era. For all of you who believed in this project and



played your part to see this project through to the end – I want to give you my thanks. I also want to commend the city and airport leadership for their hard work, dedication, and vision and I wish them the very best as they work to accommodate air service needs for the Williston Basin region today and for many years to come.

Congratulations to the Williston Basin International Airport







October 4 grand opening celebration

The Leader in Commercial Unmanned Aviation: SkySkopes— driving innovation in drone services

By Kasey Gorman

SkySkopes is a professional Drone Service Provider headquartered in Grand Forks, ND, with several locations across the United States. They are focused on bringing innovative aerial solutions to the energy sector. SkySkopes has successfully executed some of the most high-profile UASbased hurricane disaster relief missions around the country, has conducted successful beyond visual line of sight (BVLOS) missions in several countries across the globe and carries some of the highest levels of aviation insurance in the industry.

Why North Dakota? North Dakota is the thought leader in UAS, being one of the most forward-thinking states



leveraging new technology to solve complex industry problems. Backed by the state legislature, Governor Burgum, Senator Hoeven, Senator Cramer and Congressman Armstrong all do an outstanding job advocating for UAS in Washington, D.C. North Dakota has

also spent about \$34 million to support UAV programs,
research and businesses throughout the state —the New
York Times even called North Dakota "The Silicon Valley of Drones." Given the diverse climate and relatively clear airspace,
North Dakota is an attractive location for drone testing.
In addition, North Dakota has several notable institutions
developing and using UAS technology across the state. And,
they're working together to drive regulatory changes and
solidify North Dakota as the UAS destination in the world.
For example, Northern Plains UAS Test Site is working with

the FAA and industry partners to develop equipment, systems, rules and procedures to safely integrate unmanned aircraft into the National Airspace System (NAS) without negatively impacting existing general or commercial aviation. In Minot, the MAGIC Sky Initiative represents the Minot Area Development Corporation's (MADC's) commitment to grow and develop the UAS industry for all of North Dakota to benefit. With regards to industry partners, General Atomics Aeronautical Systems (GA-ASI) has a major facility in North Dakota. In a recent GovConWire article, David Alexander, the president of General Atomics Aeronautical Systems, said "....this COA will open the skies for more unmanned flights around our North Dakota facility and establish North Dakota as a UAS Training Site of Excellence." North Dakota is even partnering with Harris Corporation to help develop a BVLOS drone operation called HUBNet.

Universities are playing a role in UAS in North Dakota as well. UND was the first to offer a UAS degree in 2009 and has led the way ever since. North Dakota State University is leveraging the Hermes 450 UAS for Ag Research and a Herbicide-Spraying Drone that covers 33 acres in an Hour.

Right in the midst of all of this, SkySkopes is driving UAS innovation. The latest being with UAS-based line stringing for the power utility industry. It's estimated that at least two people per year die in the United States alone in accidents relating to the conventional method of line stringing, which typically involves a crew on a helicopter or using a ladder or cherry picker. Using a multirotor UAS removes the need to lift utility workers to precarious heights, helping keep their distance from high voltage cables increasing safety and efficiency.

These life-saving and efficiency gains have garnered interest from construction and utility companies across the world. This is a great example of the potential that drone technology provides and how it can benefit the industry. For the last few years, SkySkopes has been refining that technology, and recently executed a line stringing mission in Fargo, ND. Their drone installed lines on six Xcel Energy towers and the process took less than a half-hour per flight. This is changing the game not only for the utilities industry but for all drone technology.

"What has really set us apart are our personnel's mindsets

to become pioneers instead of followers in the UAS ecosystem and to pave the way; setting industry standards for innovative ways drones can be utilized to collect actionable data solutions within energy verticals. Line stringing has been one of those pioneering factors at SkySkopes that we have been developing and refining for the past few years." Said Ryan Ach, Chief Revenue Officer at SkySkopes, "Our end goal is to revolutionize the way electric utility lines are strung utilizing drone technology and being a safer and more cost efficient alternative to manned helicopters. We have achieved several milestones along this R&D roadmap and I'm really looking forward to seeing where our new developments have taken us towards the end of 2019, going into Q1 of 2020." In addition to the line pulling modernization, SkySkopes is leading the charge in Light Detection and Ranging (LiDAR) remote sensing. It generates extremely accurate 3D models, allowing precision inspection of assets, terrain and everything in between. Integrated with SkySkopes' LiDAR unit is a 24 MP camera, allowing simultaneous capture of still imagery for easy asset identification.

So, what does all this mean? UAS technology is bringing in huge opportunities and dollars to the economy of North Dakota. This is an extremely exciting time for unmanned aviation and the drone industry. North Dakota is on the bleeding edge – changing aviation and history – and the rest of the world is taking notice.

For more information about SkySkopes, please contact Ryan Ach ryan@skyskopes.com LinkedIn, SkySkopes Home | Facebook. To learn more about current job opportunities, email us at careers@skyskopes.com.



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The North Dakota Aviation Council (NDAC) is looking for an editor for the *North Dakota Aviation Quarterly*. This is a paid position, asking for 20-30 hours of time per issue. This individual or entity will report to the editorial committee, who also serves to assist with the workload and decision making.

Job Summary

The primary function of the Editor is to coordinate the publication of the Aviation Quarterly between the NDAC members and the printing organization. Requirements include and are not limited to: coordinating publication layout, proofreading for release, motivating contributors to solicit articles, coordinating advertisements, and managing advertisers.

Job Skills Requirements

We are looking for someone who has demonstrated a grasp of the English language, indicating knowledge of the Associated Press style, is technologically savvy, has good communication and leadership skills, and is familiar with the area aviation community.

Compensation will be determined by the duties the editor negotiates, as the position's responsibilities can be adjusted to fit the capacities of team members (board members, graphic designer, contributors, proofreaders, and executive director services).



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Insight Gained from My First Bird

By Tajae Viaene, Assistant Chief Flight Instructor, Fargo Jet Center



Out of the corner of my eye, I could see the sharp, hooked talons of a Red-Tailed Hawk. We had just become airborne in my Cessna 140 aircraft, and his nails were inches from my delicate Plexiglass windshield. No sooner had we the chance to widen our eyes and suck in a gulp of uneasy air, than we heard the wisp of his feathers sliding across the top of my fabric winged aircraft. As the bird left our sight and flew on, Dave Stokka and I sighed in relief while together saying, "Did we just hit a bird? Do you think the fabric is okay?"

Dave is a flight instructor working on his tailwheel endorsement, and he has found there is never a dull moment while learning to tame the Cessna 140. In this case, you can imagine our hearts beating fast with a combination of adrenaline and the unknown condition of the top wing of my aircraft, until we were safely back on the ground. Upon further inspection, it was found that we had a little extra luck going for us that day. There was no damage to report, not even a scratch.



As I peered across the airport looking to catch one more glimpse of that hawk, a silly thought crossed my mind. If I could, I'd like to thank that raptor for scooping in his legs just in time to resist sliding those nails across the shiny fabric of my prized possession. Aircraft ownership is a true gift, though it comes with considerable responsibility. I've found freedom like I never had imagined before. I could take off tomorrow and fly the countryside if I wanted to, or I could sneak up tonight and task my little boy with spotting rotating beacons as we pass by small airports in the area.

There is something to be said about discovering the skies on your own terms, on your own course. Do I prepare for the day when my luck will run out and my aircraft may need costly maintenance? Absolutely. Does the thought of that deter me, or cause hesitation in my decision to be an aircraft owner? Not a chance.









Allan Skramstad, 73, of West Fargo, died Tuesday, August 27, 2019. Allan Skramstad was born August 17, 1946, in Sharon, ND, the son of Gene and Edna (Olson) Skramstad. He was raised in Minot, ND and graduated from Minot High School in 1965. Al entered the U.S. Army earning the rank of first Lieutenant. He married Merron Kay Camden,

March 14, 1969 in Kaiserslautern, Germany. Following discharge from the Army, they returned to the Fargo-Moorhead area while he attended Moorhead State University, graduating with a degree in accounting in 1973. Since 1985, he had been a Certified Flight Instructor. He was active in

EXPLORER. ENTHUSIAST.

the North Dakota Wing of the Civil Air Patrol and served as commander. He taught at the John D. Odegard School of Aerospace Sciences at the University of North Dakota in Grand Forks from 1991 until he retired in 2008 as an Associate Professor Emeritus of Aviation. While at UND, he was the flying team coach earning 2 national championships. He earned his Master in Business Administration at UND. In 2010, Al earned the title of Master Instructor Emeritus by the international accrediting authority of Master Instructions, LLC. After retiring from UND, Al owned a small business, AIMS, which conducted aviation training, served on the West Fargo School Board, and worked part-time as an office manager at St. James UCC in Barnesville, MN. Along with his family, he spent many summers at their lake home on Star Lake, MN. As a life member of RMEF, he looked forward to his annual hunting trip to Malta, MN.

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Growing up on a cattle farm east of Ashley, North Dakota, Jen Boehm dreamed of traveling, and travel meant airports. Six years of working on civil engineering projects at Denver International gave her access to one of the world's largest. These days, Jen's wanderlust has her leaving footprints at campgrounds all over her home state while bringing her years of airport engineering experience to projects at Hector International, Bismarck and many other North Dakota airports.



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2020 UPPER MIDWEST AVIATION SYMPOSIUM

SAVE THE DATE

March 1-3, 2020 | Grand Hotel | Minot

Watch for more information at: www.ndacaero.com

CALENDAR of EVENTS

Check out the online calendar for details on these events: www.aero.nd.gov/events

November 2019 Fargo Air Museum - Youth Camp Nov 9 to Nov 30 – KFAR Aviation

North Dakota Aviation Council

February 2020 UND Aerospace Community Day Feb 08 Grand Forks – UND Aerospace

SAVE THE DATE! UMAS 2020 March 1-3 · Grand Hotel, Minot, ND

Please send your event dates to ndaero@nd.gov.