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THE *Voice*

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THUNDERSTORM AVOIDANCE

By Dan Petersen

From early on in our flight training, we have learned about thunderstorms and the associated hazards such as turbulence, hail, lightning, wind shear and microbursts. With knowledge of these hazards you would think that we would be smart enough to avoid them. Yet we still have incidents and accidents involving thunderstorms with both private and professional pilots.

Maybe we have gotten away with it before by flirting on the edges of a storm. You might not be so lucky the next time. The best action is to avoid all thunderstorms, give them a wide berth and have a healthy respect for the might that they can wield.

Avoidance of thunderstorms starts with a good preflight weather briefing. Look at the NEXRAD Radar and determine how extensive and severe the storms are, as well as their general direction of movement. I also look to see if they are general airmass type storms or are formed by frontal activity.

Frontal thunderstorms can extend for hundreds of miles and be very difficult to get around, especially in slower aircraft. I might fly around a line of storms 200 miles long, but in a jet flying 8 miles a minute, it only takes 25 minutes. If you are in a small single-engine aircraft the storm might advance too fast for you to make a run around the end, and the best course of action would be to wait it out on the ground. We wait it out on the ground in the airlines, too

Strategic Planning vs Tactical Avoidance

A lot of us in general aviation as well as the airlines use iPads to download weather while inflight. This is a great tool to help us avoid thunderstorms. Remember that what you see on the screen might be several minutes old and will not exactly represent what the storm looks like now. It probably has moved and might be more severe now than what your iPad shows. Use the iPad and satellite weather for strategic planning to avoid storms.

The only tool in the cockpit to use for tactical avoidance of thunderstorms is the onboard radar. It is the only weather avoidance tool that displays what is happening right now and right in front of the aircraft.

An example of the effective use of onboard radar occurred during a flight northeast of Montgomery, Alabama. It was a line of storms along a cold front for over 160 miles. It showed very strong radar returns with steep gradients and asymmetrical shapes – both indicators of a very severe storm. I always try to get on the upwind side of thunderstorms so that the movement is away from our course. Under this situation, I was on the leeward side due to where we departed. When on the leeward side of a severe storm, we give the storm a 20-mile berth and on the other side at least 10 miles.

I hope you have noticed that I always mentioned using these tools for AVOIDANCE never for penetration. Pilots have gotten themselves into trouble thinking that they could go through that little area of mostly green and a little yellow to only find that the storm got more severe and the hole was no longer there, but it was too late.



THE NATA VOICE

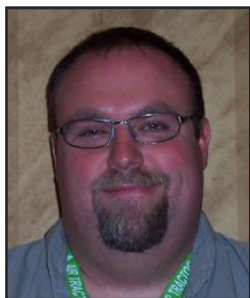
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NEBRASKA DOT AIRPORT INSPECTION WITH DRONES

By Jon Starr, BTSD and Dave Lehnert, Aeronautics

Nebraska DOT has been implementing a UAS (Unmanned Aircraft System) program over the past year. In doing so, we are using drones for a variety of tasks, and evaluating how well they increase our efficiency, provide better quality data, and enhance safety; not only for NDOT employees but the public as well.

As a result of the merger of Aeronautics and Roads to create the Nebraska DOT, we've been working together to implement UAS and other technologies into our airport inspection process. The goal of this investigation is to evaluate traditional inspection processes vs. processes using the UAS to determine if we can meet the overarching goals of efficiency, data quality and safety. The airport inspection process includes evaluating runway approaches for obstructions, identifying which obstruction is the controlling obstruction, whether there are any close-in obstructions, and identifying any objects that violate the Primary Surface or the Transition Zone.



We recently performed UAS missions at the Creighton airport (July 15) to support this effort. This airport was one of a few airports that were considered good sites to perform the initial drone operation and evaluation. It was chosen based on current conditions, and because a recent inspection had been completed using traditional methods with which we could compare results. The operation involved members from the NDOT UAS team (Jon Starr and Shawn Jording), as well as Aeronautics Division team members (Dave Lehnert and Thomas Jacobson). In addition, the team coordinated with the Creighton Airport Authority, which published a Notice to Airmen (NOTAM) regarding the operations and timelines.

The team utilized a DJI Phantom 4 RTK system to gather data on all four approaches, as well as the entire airport property. We are analyzing the data and looking at different workflows with technologies to produce deliverables that satisfy the inspection requirements. Early analysis has shown that the data acquired via the UAS is proving to be highly accurate, more efficient and more easily understood compared to traditional methods of visual observation. We will continue to work on this proof-of-concept and provide an update on our findings in the next edition of this newsletter.

BE AWARE OF FAA AND OTHER AGENCIES' LICENSE EXPIRATION DATE EXTENSION DEADLINES DUE TO COVID-19

Regulatory relief provided by SFAR 118 and amended by SFAR 118-1 earlier this year added a three-month grace period to many FAA Part 61 certificate requirements due to COVID-19 quarantine closures.

It is important to note that the three-month extensions granted by the SFAR are extensions starting from your original expiration date. For example, if your medical certificate was originally due to expire on March 31, 2020, the SFAR gave you until no later than June 30 to renew. To identify which areas of relief were granted and for how long, please refer to the table below or go here for the complete SFAR.

14 CFR	Area of relief	Original SFAR 118 relief	Amended SFAR 118-1 relief
61.56	Pilot Flight Review	Due March–June 2020 has 3 grace months to complete flight review.	Added pilots due July–September 2020.
61.57	Pilot Instrument Currency	9-month currency look-back period (instead of 6 months) for flights April 30–June 30, 2020.	Added look-back period for flights July–September 2020.
61.23	Pilot Medical Certificate Duration	Validity of March–May 2020 medicals extended to June 30, 2020.	Extended medical validity period by 3 calendar months from expiration applies to medicals expiring March–September 2020.

In addition, the Federal Motor Carrier Safety Administration (FMCSA) issued waiver extensions and a notice of enforcement policy that became effective on July 1, 2020. These actions included extending a waiver until Sept. 30, 2020, for states, CDL holders, CLP holders and interstate drivers operating commercial motor vehicles. The waiver covers multiple items including CDL renewals, CLP holders and medical examination and certification. For complete details, visit www.fmcsa.dot.gov/COVID-19.

FATAL ACCIDENT'S SUSPECTED CAUSE SERVES AS A WAKE-UP CALL ABOUT UNKNOWN TANK MIXTURES

By Sam Rogge, owner/operator, Jet Stream Aviation, Fowler, Colorado

In just about every aspect, 2020 has been a rough year and our application industry has been no exception with eight fatal accidents so far. We hope and pray there won't be any more. One of these accidents occurred July 10 in Springfield, Colorado, and as always, the word quickly spread.

There is always speculation about what happened, but the circumstances we were hearing about this accident were quite perplexing. Everyone was telling us that foam from the hopper coated the windshield of the aircraft because of a nitrogen product mixed with a glyphosate product, thereby causing the accident.

To us, this didn't seem to be quite right, so we set up our own "jar test" experiment. The results were unexpected and very surprising. We took a guess at the mix ratio and combined 2 ounces of glyphosate with 8 ounces of a low-salt nitrogen fertilizer. The initial response was a thin white layer that formed over the top of the solution. No big deal there, but after thinking about the conditions in the airplane's tank, we decided to agitate the mix. The result now was a little more spectacular, with foam forming immediately and filling our container to about the 30-ounce level within a few seconds. This did surprise us, and we thought this information should be made available industrywide. Watch the "jar test" video below to see for yourself.

It turns out other operators have experienced significant foaming problems with mixtures as well and not with the same products we used either. We all agreed this information needed to be widely shared with ag pilots and operators, and, as a result, Dr. Scott Bretthauer wrote a NAAREF Fly Safe Message that was released Aug. 10. NAAREF emails these safety briefs as a public service to NAAA member and non-member operators and pilots alike. Dr. Bretthauer, as always, produced an excellent and informative safety brief warning us all about tank mixes. However, there are now a few more important safety-related details to the story I think we should also be aware of. We have a lot of connections to folks at the Springfield operation where the accident occurred, so I called the gentleman who is the mixer/loader for this operator. He and the family were more than willing to provide more information in the hope it will help others to stay safe.

First, they had already taken out a load that morning with a somewhat different mixture. This load had foamed a little but was nothing out of the ordinary and not a cause for concern. They did discuss using a defoaming agent in the next load. The loader then left on other business, and the pilot loaded his plane for his next run. The load sheet indicated two types of nitrogen fertilizer products totaling about 141 gallons and a glyphosate product at about 48 gallons for a total load of 189 gallons. They were sure defoamer would solve any foaming issues, and the loader is pretty sure the pilot added the defoaming agent. But it is unknown how much or if any was added. In any case, it was apparently not enough to solve the foaming issue.

The table was now set for a departure with at least 189 gallons on board. A Grumman G-164B Ag-Cat comes equipped with a 285-gallon hopper, although it is possible to upgrade to a 335-gallon tank. Now, remember what happened during our experiment. This mix probably did not cause the pilot any alarm during loading. We'll never know for sure, but the pilot may have had the spray pump fan on during the takeoff roll, thereby introducing agitation (i.e., mixing) to the loaded products. Whatever the reason, there was sufficient agitation to trigger a reaction. Our experiment showed there was enough foam now being produced to rapidly fill a 600-gallon tank to near capacity.

Witnesses at the airport thought the airplane had caught fire and described white smoke coming from around the cockpit. They were confused, however, by "white chunks" that seemed to be coming out of the aircraft, and the pilot told his wife foam was coming out of the top of the hopper and he just couldn't see. Impact occurred about a half-mile from the end of the departing runway. The pilot survived the crash but succumbed to significant burn injuries from the post-impact fire a few days later.

I don't know if any of us in this industry would have suspected the cause of this accident to be a problem. However, it does illustrate that sometimes it is the smallest things that can bite you. We all need to pay much more attention to the mixes going into our tanks. Don't just pour stuff together in a jar, though. You will need to mix it together to get a true picture of what is going on. But do use proper protection. Chemical reactions can sometimes be very vigorous. It also illustrates we should pay more attention to our personal gear.

For many years before I joined this profession, I flew with a fire-resistant Nomex flight suit and gloves. They are a bit warm to wear, somewhat costly and difficult to find in my size, and I really haven't worn one since I started in this business. However, I believe there are two fatalities just this year related to post-crash burn injuries, and our NAAA leadership has been emphasizing what they have encouraged for many years now: Wear fire-resistant Nomex flight suits and gloves. I'm thinking I should put aside all my excuses and take their recommendations more seriously.

Sam Rogge chairs NAAA's Communications Committee and serves on the NAAA Board of Directors as the Colorado Agricultural Aviation Association's state director.

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Sunday, August 30, 2020

7:00am - 1:00pm

Fremont Municipal Airport

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Western Nebraska Regional Airport

By Ann B. Richart, AAE



Western Nebraska Regional Airport (BFF) in Scottsbluff will be rehabilitating the full length and width of their crosswind runway thanks to an Airport Improvement Program grant from the Federal Aviation Administration (FAA). The 8,002 foot Runway 05/23 has been instrumental in accommodating airlines diverted from Denver International Airport during inclement weather. The airport has experienced dramatic growth over recent years with passenger traffic increasing nearly 500% since 2017. A study being completed by the Nebraska Department of Transportation estimates that the annual economic impact of the Western Nebraska Regional Airport is \$86.4 million. FAA's investment in this runway project will allow BFF to continue to support the economic vitality of the Scottsbluff region. ■



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2020

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