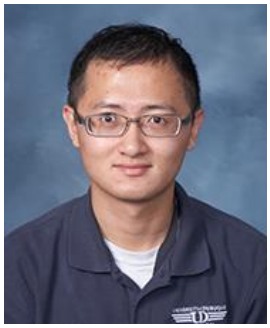
AVIATION SAFETY NEWSLETTER

Spring 2016 (Issue 03)

Edited/Formatted by: Matthew Muilenburg & Chaminda Prelis

Safety Manager: New Beginnings

By Ching-Kuan Su, Flight Instructor & Safety Manager



Ching-Kuan Su

"Safety of the Operation is EVERYONES Responsibility"

Safety is not just the responsibility of the Safety Manager. Safety of our operation at the University of Dubuque is everyone's responsibility--students, staff, professors and everyone with whom you come into contact. Whether it is in the classroom or on the ramp, we expect all stakeholders to behave in a safe, ethical, and professional manner.

The University of Dubuque Aviation Department is requesting your support, energy, and caring attitude to ensure we can make our flight training operation safe. Our safety program is not just for the safety of our students, but for the safety of our staff and faculty, as well as all users of the National Airspace System (NAS). It is designed to provide you with an understanding of consistent and effective procedures. It is an education in risk mitigation and risk management strategies to ensure the safety of all stakeholders.

As the new Safety Manager for the Aviation Department, I challenge all students, staff, and faculty in our program to actively engage in risk mitigation and risk management strategies. We apply the new *Compliance Philosophy* from the FAA to our safety program (FAA Safe Briefing, January/February 2016, p. 23-26). This does not mean you can violate or ignore the rules or regulations. It does mean that we would be applying non-punitive measures to any unintentional transgressions of operational rules, procedures, or policies. It also means we will provide you more effective safety training and also make modifications based on your capabilities.

In summary, the safety program at the University of Dubuque is a system that enhances the safety of our flight training program while ensuring high completion rates. Our goal is to provide the safest environment in the aviation industry and to offer more efficient aviation training to our students.

Tips for your Practical Test

By Suzanne Peterson, Assistant Chief Flight Instructor

Suzanne Peterson

It is the big moment you have been waiting for. Your instructor says you have been flying consistently well and they are going to endorse you for the practical test. Here are a few tips to help you be successful when the day comes to take your practical test.

Check rides can cause a lot of anxiety whether you are a low-time pilot taking the Private Pilot Practical Test or you have a few check rides under your belt. Try to take a deep breath and remember that we examiners are not trying to trip you up and make you fail. Our job is simply to make sure you know the material and can operate the aircraft safely. Contrary to popular belief, examiners do not like to watch you squirm and struggle, but rather we enjoy the satisfaction of shaking your hand and congratulating you on your new certificate or rating. Your instructor already has confidence in your ability; otherwise they would not have endorsed you. So have confidence in yourself when you come for the Practical exam.

One way to be able to build that confidence is by knowing what to expect on the test. The FAA publishes a Practical Test Standards for every certificate or rating. They can be downloaded for free on the FAA website, so don't wait until the last minute to look at this document. All material on an end-of-course examination comes from the Practical Test Standards, so there should be no guessing. Additionally, this document contains references for each area of the operations so you know where to look when you are studying. If you take the time to read the Practical Test Standards, no topic should be a surprise.

Another piece of advice is to come prepared. Have your flight plan prepared well in advanced. You are more likely to make mistakes if you are rushing against time to complete it before you meet with your examiner. Bring a full weather briefing, including an Area Forecast, Airmets, Sigmets, and NOTAMS, not just a screen shot of the METAR, TAF, and Winds Aloft. If you have this information ahead of time, you can review it and look up any abbreviations about which you are unsure. Also, bring current documents and references in case you are asked something that slips your mind. On a regular basis, I still get asked questions that I may not remember or know the answer to, but the important part is being able to find the answer.

My final tip would be to get a good night's rest and try not to over stress about your upcoming practical test. Also, utilize aeronautical decision-making in regards to the flight portion of the test. Remember, you are the pilot in command of the aircraft and have final authority over the flight.

Safety Climate vs. Culture:

By Kim Bruggenwirth, Aviation Business Manager

Kim Bruggenwirth

> "In a strong safety culture, everyone feels responsible for safety and pursues it on a daily basis; everyone goes beyond "the call of duty" to identify unsafe conditions and behaviors, and intervene to correct them."
>
> *- Occupational Safety & Health Administration -*

Safety climate has an impact on all levels of a successfully run safety culture. From aircraft maintenance to financial health and prudence, it's important to remember that safety is not a destination… unless you are heading to Safety Harbor, Florida. I wouldn't mind being there right now instead of middle-of-winter Iowa! My point is we will never arrive at safety. It is a journey that we all must make together and is a continuous road. We rely on a system of reporting, acknowledging, and process modification in order to meet the changing needs of the climate we strive to enjoy in our safety culture.

Our safety climate is defined by our perceptions of what our organizational safety focus reality is. We can have numerous policies and procedures in place however if even a few of us aren't adhering to them, we can say that we have a high risk safety culture. The good thing about safety climate is that we have the power to change it quickly. When we utilize the reporting policies in place, we take our first step in changing our safety climate.

Each of us can affect the safety climate everyday by simple acts of integrity. Recall that integrity is a noun. It is a state of being. We act in a certain way, preferably in a way that reflects high morals, even when no one is around to witness our behavior. Many times these actions of integrity begin with our thoughts. When we are all striving to have the best flight environment as our outcome we begin to have a unified vision and a climate of safety.

It's important to pay attention to detail on basic functions, from filling out flight logs to diligently completing our pre-flight aircraft inspection. Not simply because it's the right thing to do, or our instructor or supervisor says we must, but because each aspect of flight safety works together like one big puzzle. Each piece joined together creates a picture that is a reflection of our safety culture.

Safety Culture

Every Task – Every Person – Every Day

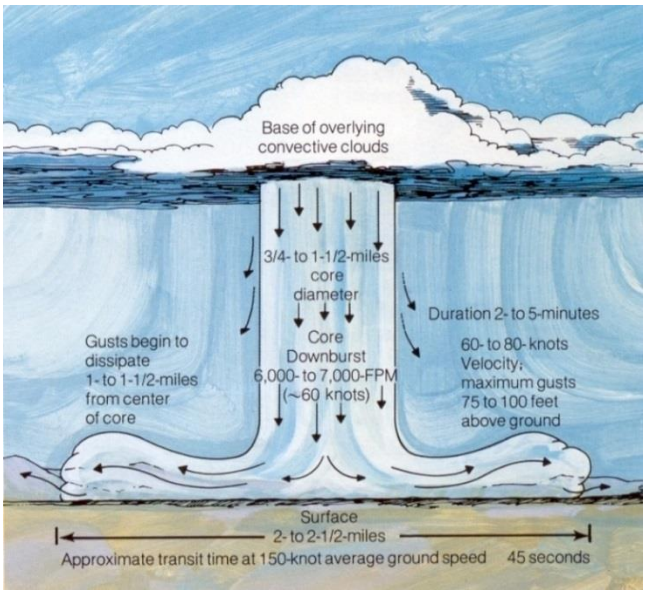
Microbursts: What you should know

By Alex Baker, Kevondae McCullough-Blackmon, and Curtney Moore

A weather phenomenon that is relevant no matter the time of the year, microbursts are occurrences that are most dangerous to pilots. A microburst is a sudden downdraft of air that is caused when an airmass less than 2.5 miles in diameter becomes colder and less buoyant than the air around it, causing it to descend at incredible speeds, up to 170 MPH. A microburst is also a short-lived event that is not easily sustained, and, as such, they can disappear just as quickly as they appear. However, they can be in effect long enough for an aircraft to traverse the diameter of the microburst while it is active. When a microburst hits the ground, it creates a circular plume of air that moves in a circle outward from the initial impact point and creates vortices along the edge of the downdraft. Microbursts can be categorized in two ways, either as dry or wet, and both are equally dangerous. However, they are both caused by thunderstorms, which can be the indication the pilot needs in order to be aware of a potential microburst.

Dry microbursts are caused due to high cloud bases and low relative humidity. The clouds that produce dry microbursts have typically higher bases, and they will have low levels of rain, verga, or no precipitation at all, hence why they are considered 'dry'. A dry microburst is produced when the dry air that is around the cloud is mixed with rain or moisture. The dry air causes the water to evaporate, and the evaporation process causes the air to cool down. Because the cool air is less buoyant than the air around it, it rapidly descends to the ground. This type of microburst is especially dangerous because it is nearly invisible to the naked eye. The only indication of a microburst might be a ring of kicked-up dust on the ground.

A wet microburst, however, occurs inside of a thunderstorm that is close to the ground and has high humidity, hence why it is considered 'wet'. The reason wet microbursts occur is much different than dry microbursts. Relying less on colder, less buoyant air to carry a section of air downward, a wet microburst is accelerated by water loading, which is the effect of water causing drag on the air around it and pulling it down. When there is warmer air underneath a low base



Source: FAA

thunderstorm, a section of air may start to descend downward. This colder air can be further cooled by the melting of ice, which provides the air with a downward force of the rain as well as a colder airmass, increasing the descent speed of the airmass. Because a wet microburst is aided with descending precipitation, it will have an incredibly visible impact. However, it should be noted that a wet microburst is just as sudden and unexpected as a dry microburst, and that just because a wet microburst can be seen does not guarantee that a pilot can avoid a wet microburst or see it in time.

How it affect pilots: Microbursts are one of the most dangerous conditions that a pilot might find themselves in. If a pilot does not know how to identify and react to a microburst, their actions might be what puts them in the most peril. Therefore, it is important that pilots know how to act throughout a microburst in order to improve their chances of getting through one if they find themselves in one.

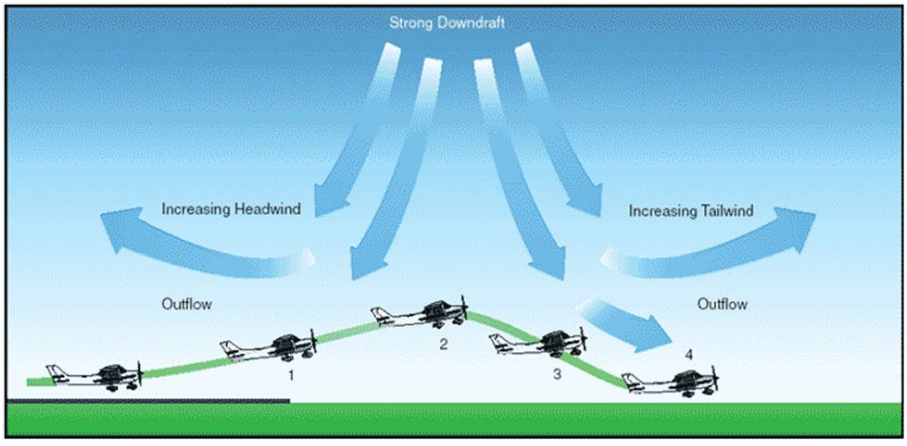
It is important to recognize that microbursts pose the greatest threat to pilots who are either taking off or landing, a time when the power settings are most likely to be retarded or the speed of the aircraft might be limited. The threat to a pilot that a microburst poses can be divided into two components while they are close to the ground: the initial headwind and the

secondary tailwind. Because a microburst is always circular, when the pilot enters a microburst the pilot will experience a headwind, either head on or at a deflection to the aircraft. Either way, this headwind will increase the lift on the aircraft and cause the craft to climb. This climb is incredibly pronounced, due to the terrific wind speeds that a microburst generates. The initial reaction of a pilot in either a controlled climb or descent might be to reduce the power or lower the nose of the aircraft in order to maintain a speed or stay on a glide slope. This behavior is what feeds into why a microburst can be so deadly.

Source: FAA

After the initial headwind, an aircraft will enter a portion of the microburst where they will be affected by a tailwind. Because of the circular nature of a microburst, as soon as an aircraft is no longer facing the center of the burst, it will experience a tailwind. Therefore, there is no way to avoid being caught in the tailwind portion of the microburst. The tailwind will rob the aircraft of all the lift that it gained from the headwind portion of the burst, causing it to drop in altitude and for the nose of the aircraft to possibly drop. If the pilot of an aircraft has further reduced speed or pitched down in order to maintain control, the tailwind portion will exacerbate the action. Because of the slower airspeed or loss of power, the craft will continue to descend after the initial tailwind exposure. Thus, if corrective action is not taken after entering the tailwind section of the microburst, a crash can happen.

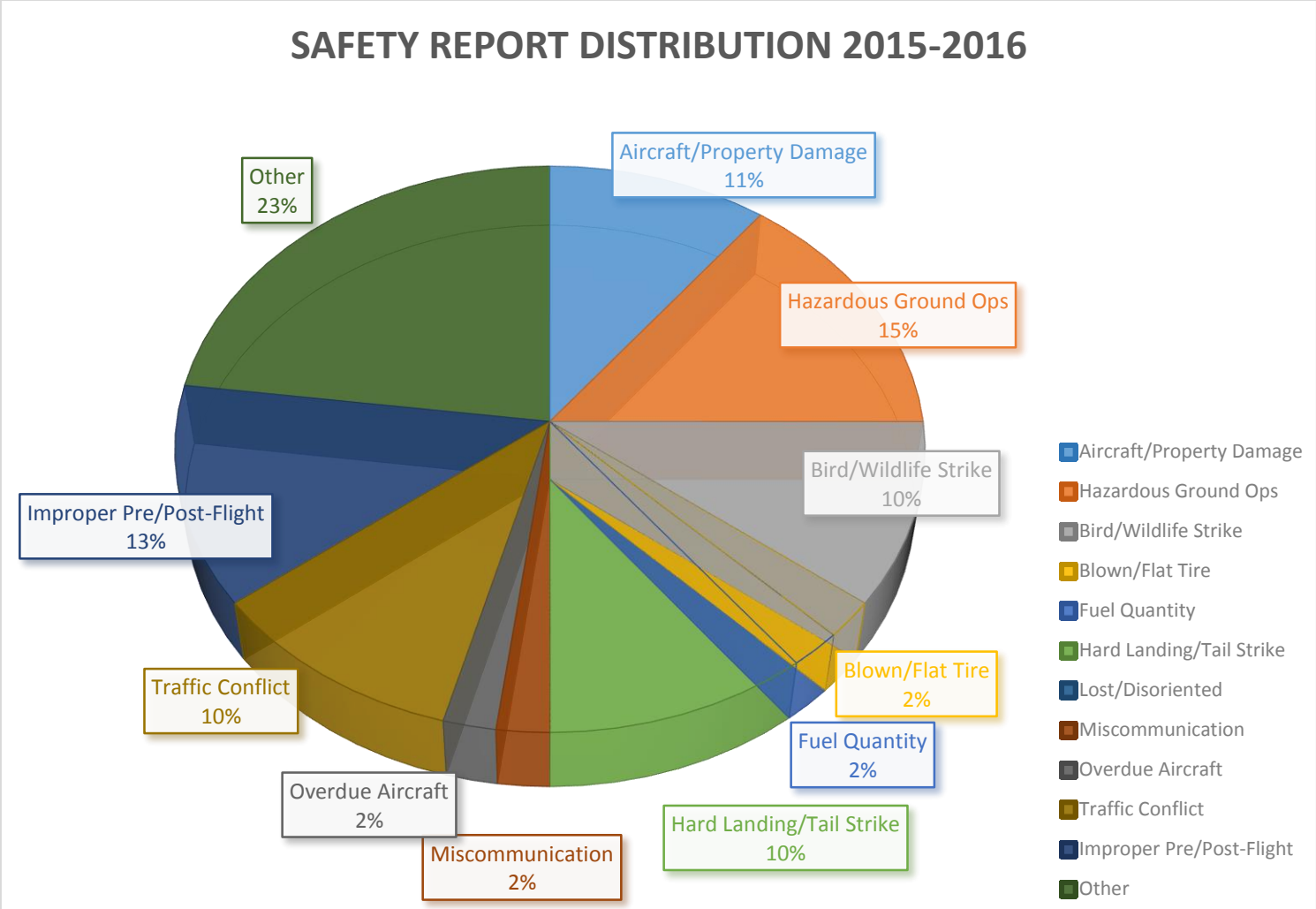
So what are some things that pilots can do in order to decrease the damage done by microbursts? The first is planning. When planning on a flight, identify where there may be thunderstorms or clouds along the flight path. If a flight is to go through an area where takeoff or landing may occur near or in conditions where a microburst may happen, be prepared for the possibility of a microburst. If you think that you might be in an area where a microburst could happen, make sure you are prepared to look for the signs of one and remember any procedures taught for dealing with a microburst. To avoid damage, the next thing that can be done if you are in a microburst is to climb out of it. If you experience the conditions that are typical of a headwind, such as a sudden increase in altitude, increase your power and do not attempt to descend to maintain a glide path. By establishing a climb, you will increase your chances of making it out of the tailwind portion of a microburst. If you are coming in for a landing, abort the landing and go missed. The safety of the aircraft is more important than making a landing in hazardous conditions. Microbursts do not last very long, and by the next time a landing is attempted it should be gone. If you are able to increase your power and climb out during the headwind portion of the burst, continue to do so when in the tailwind portion. The only way to exit this portion is to attempt to increase altitude and keep power up until you exit. If you have not taken these steps, do so as soon as you realize that you are in the tailwind portion. The timing of the increase in power and pitching the nose up is paramount to increasing your chance of exiting the tailwind, as the effects are immediate and fast acting. This timing is even more important if in an aircraft has delayed thrust.



Source: FAA

Safety Data:

By Ching-Kuan Su, Assistant Chief Flight Instructor



Type of Report	2015-2016 *Jan 2015 – Jan 2016*
Aircraft/Property Damage	5
Hazardous Ground Ops	7
Bird/Wildlife Strike	5
Blown/Flat Tire	1
Fuel Quantity	1
Hard Landing/Tail Strike	5
Lost/Disoriented	
Miscommunication	1
Overdue Aircraft	1
Traffic Conflict	5
Improper Pre/Post-Flight	6
Other	11
Total	**48**