ALASKAN AVIATION SAFETY FOUNDATION

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Looking out the window at Denali *photo courtesy Colleen Mondor*

Where is the next accident?

By Harry Kieling, Chairman

Ever wonder where the next accident will happen in Alaska?

Ever think what your next accident might be if you were unfortunate enough to have one?

One way to approach this would be statistically. When would the accident be? Probably in the landing phase: crosswinds, runway condition and length, airspeed control, not flying the aircraft all the way to a full stop in the chocks. If that is your next accident you will probably walk away from it, but leave behind some bent metal and a thoroughly embarrassed self-image. But if that accident happened in the final turn and you got slow and stalled the aircraft you might not walk away at all.

So if you see yourself potentially in a starring role in any one of these situations, could you prevent it before it happens? Sure. Fly the airplane. Stay proficient. Ask for help from a CFI if you've gotten rusty. Know the airspeeds to fly in the pattern and religiously fly those airspeeds in a professional stabilized approach. Have the discipline to make a go-around if the pattern isn't right. And finally, think about installing an Angle of Attack system, which I have talked about before.

You need to not only install an AOA but calibrate it accurately and learn to fly it. Get a CFI who understand AOA and AOA gauges to go up with you to teach you to rely on AOA more than airspeed.

Now, let's go back to those "what if" questions. Statistically, if that next accident is a loss of control, (stall-spin, VFR into IMC, or others), you are probably not going to live through it. So what can you do to prevent it from happening? Establish personal weather minimums which are realistic and safe and stick to them. For stall-spin, be extra careful close to the ground and understand the relationship with bank angle and stall speed. And install that AOA system. The ones on the market today will scream at you when you start getting close to that critical angle of attack.

Where is our next accident going to be? Hopefully it doesn't involve you.

VFR into IMC: Trapped by Weather or Trapped by Ourselves?

By Dale Wilson

Why does a qualified pilot flying a perfectly good Cessna crash into a wooded swamp in Florida, killing himself and his two passengers? The NTSB says it was because of his "improper decision to continue visual flight rules (VFR) flight into instrument meteorological conditions (IMC) and his subsequent spatial disorientation."[1]

These types of accidents occur less than twice a month within the United States and Canada — a big improvement since the 1980s when they averaged more than twice a week. However, they are still occurring, with at least thirteen of them in Alaska since 2010. And they are still one of the deadliest accidents with a fatality rate of almost 90 percent. This is why a recent NTSB *Safety Alert* warns GA pilots of the dangers of flying in conditions of reduced visual references, and why they added "hazardous weather" in GA operations to last year's Most Wanted List of Transportation Safety Improvements.

VFR into IMC results in controlled flight into terrain (CFIT) or, in the case of the Cessna 310 pilot in Florida, spatial disorientation (SD) and uncontrolled flight into terrain. Most involve relatively low-time private pilots — our accident pilot fits the profile — but an AOPA study also found that more than a third involved pilots with more than 1,000 hours of flight time. In nine of the thirteen Alaska accidents, the pilots held a commercial or airline transport pilot (ATP) certificate. Not too long ago, half of all fatal air taxi and two-thirds of all fatal commuter accidents in Alaska were caused by VFR-into-IMC, making it the leading cause of occupational fatalities in this State.

Unlike the Florida accident, most of the Alaska accidents occurred in mountainous terrain — a treacherous combination when mixed with weather. Moisture-laden Pacific air arriving over the mountains reduces ceilings and visibilities, severely limiting options for VFR pilots. Too many have met their fate while scud running at low altitudes below the clouds. Several have ventured into dead-end valleys with terrain that rises steeper than their aircraft can climb, or into narrow valleys with insufficient room to conduct a 180-degree turn.

The fact remains that these pilots made a choice — either by active deliberation or by passive default — to initiate or continue VFR flight into adverse weather. I, and other safety specialists, have spent most of our careers trying to figure out why. What we've learned is that it's not just the adverse weather that traps us; it's our own fallible human condition. The following are strategies to help you overcome some of these human limitations.

Get a weather briefing. The more you get, the more knowledgeable you will become about weather. Learn to recognize the signs of deteriorating weather by accurately interpreting METARs, TAFs and FAs. Obtain weather updates while en route on a regular basis from one of 17 Flight Service Stations in Alaska to ascertain any changes in the weather ahead. Consult the Airport/Facility Directory (Alaska Supplement) for the appropriate remote communications outlet (RCO) frequency for your area. Of course briefings and updates are meaningless if you don't heed their warnings. The pilot-rated passenger in the Cessna 310 obtained them several times — he was even told "VFR not recommended" from FSS — but despite very low ceiling and visibility reports, they continued anyway.

Never stop learning about weather. Take a weather course and practice what you've learned by making rule-of-thumb predictions based on existing weather conditions to become what every successful pilot should be — an amateur weather forecaster. You will then get better at recognizing the signs of deteriorating weather both by out-the-window observations and by accurately interpreting aviation weather reports and forecasts.

Comply with your personal weather limits. VFR-into-IMC accidents have occurred in weather conditions that were higher than legal VFR minimums. Your minimums, therefore, should be well above FAA regulatory minimums — especially if you are an inexperienced pilot. A multi-national study confirmed that VFR pilots with the most liberal personal weather minimums were more likely to fly into IMC. Also, can you tell when the weather is approaching minimums? Researchers have discovered that many pilots fly into IMC because of their inability to determine when they are in or nearing it.

Your personal minimums, however, are only as good as your resolve to stick to to them. The pilot-rated-passenger in the Cessna 310 contacted the Vero Beach Airport tower and advised that they were "scud running up the coast" at 500 feet to Sebastian Municipal Airport.

Don't get caught in the dark. At least three of the Alaska accidents occurred at night. You've heard the old adage: flying in the day is no different than flying at night, *except you can't see anything.* That's why your personal weather minimums must be significantly higher at night, and why you should always fly over well-lighted areas and at or above minimum terrain and obstacle clearance altitudes.

Recognize you are biased to continue. We are often our own worst enemy. For example, research conducted by me and my colleague confirmed that most pilots are *unrealistically optimistic*: Most VFR pilots believe they are less likely than their fellow pilots to experience a VFR-into-IMC accident and believe they're more capable at avoiding or successfully flying out of IMC.

We are also biased in how we *frame* our go/no-go decisions. For example, given a choice between a sure win of 85 dollars and an 85 percent chance to win a 100 dollars, most of us are *risk averse* and will take the sure gain of 85 dollars. However, when given a choice between a sure loss of 85 dollars and an 85 percent chance of losing 100 dollars, most of us are *risk seeking* and will choose the chance of losing the 100 dollars. If we frame our decision in terms of the *certain gain* of landing safely, over only a chance of successfully making it to our destination, we're more likely to divert to the nearest suitable airport and wait it out. If we frame it in terms of the *certain losses* of unwanted overnight motel expenses, missed appointments, and other inconveniences ("losses") should we divert, we're more likely to continue.

While driving late one night on country road, my student noticed his gas tank was near-empty. He wasn't sure if he would reach a gas station before he ran out, and if he turned around he knew he would make it to the station he had recently passed. But he struggled with the decision to turn back because he had *too much invested to quit*. This *entrapment bias* makes it difficult for pilots to turn back in the face of deteriorating weather and is one of many complex and unconscious psychological factors that influence our decision to press on — a condition we call *get-home-itis*. Recent statistics confirm the existence of the *last-leg syndrome:* most of these accidents occur on the last leg of a return trip because the desire to get home overrides the pilot's ability to make a sound go/no-go decision.

Alaska appears to have more than its fair share of pilots who deliberately push the weather. With more than 250 communities that rely on aircraft as their primary means of transporting people and goods, the pressure to fly in not-so-pleasant weather is particularly strong for pilots flying for a living. All pilots start their careers flying in their "comfort zone." Sometimes — whether by choice or by necessity — we venture out of this zone, we get very uncomfortable and we work to get back into our safe comfort zone. However, after repeated exposure to less-than-desirable weather, our zone gets larger, the hairs on the back of our neck don't stand up as high, and eventually this expanded zone becomes our new normal — we are no longer afraid of what used to be scary. To some extent, this process is perfectly normal and expected — as you gain more experience with marginal weather your ability to handle it gets better. The problem, however, is no one knows how far they can go until they have an accident. Your comfort zone can expand to such a size that there is little, if any, margin for error, making an accident more likely. Psychologists call this *habituation* or the get-used-to-it effect.

You might think that experiencing an accident would scare a pilot out of having another one. However, research shows that habituation even occurs here: A study on weather-related GA accidents by the NTSB found that a history of accident or incident involvement is associated with a higher risk of being involved in a future weather-related general aviation accident.[2]

Don't let someone else fly your aircraft. Compared to other GA accidents, a greater proportion of VFR-into-IMC accidents carry passengers aboard. Eleven of the thirteen Alaska accidents did — some even had other airplanes with them! When other people influence our go/no-go decisions we are, in effect, no longer flying our airplane — they are. When they encountered deteriorating weather, it appears the less-experienced private pilot flying the Cessna 310 deferred to the judgment of his more experienced commercial pilot passenger in the right seat. Sometimes you must risk being unpopular to avoid the risk of an accident. It take assertiveness mixed with diplomacy to effectively communicate your intentions to others, but you have the responsibility and authority as PIC to do that — don't let a family member, a friend, a boss, or even a more experienced pilot make your decisions for you.

Get an instrument rating. Instrument-rated pilots find themselves in fewer VFR-into-IMC accidents than their non-instrument-rated peers. Keeping instrument-current and proficient, and filing IFR whenever the weather looks questionable, is a sure way to avoid the hazards of scud running — a practice responsible for countless VFR-into-IMC accidents. Shortly after reporting to approach that they had inadvertently entered IMC, the Cessna 310 crashed because of pilot spatial disorientation: He was not instrument-rated and had logged only 3.3 hours of instrument time. However, just because you have the ticket doesn't make you immune — a little more than half of the thirteen Alaska accident pilots were instrument-rated.

Ask for help. The pilots of the Cessna asked Orlando ATC for help; unfortunately, it was too late. Pilots are reluctant to ask for help, but fessing up to ATC could save your life. They can vector you toward better weather, give minimum obstacle clearance altitudes, and provide an IFR clearance (assuming you're rated and current) if you elect to climb through the cloud to avoid a possible CFIT accident.

Consider a precautionary landing. If you have waited too late and the weather is closing in all around you, consider an off-airport landing. It's not without risk, so if you haven't practiced one in a while, obtain some refresher training from an instructor who has. Landing on a beach or field could be your best option.

If you inadvertently find yourself in the soup, focus on maintaining control of your aircraft using your flight instruments and perform a 180-degree turn. If terrain clearance is a concern, climb and declare an emergency. ATC can help you get through this scenario, as long as you maintain aircraft control and your composure. Also, don't be more afraid of the possible repercussions of requiring emergency assistance than the hazardous weather itself. You will likely get a follow-up call from the FAA, but you need to ask yourself which is worse, a talk with the FAA or dying in an accident.

Dale Wilson teaches courses in human factors and risk management at Central Washington University in Ellensburg, Washington. You can learn more about this, and other hazards, in his new book Managing Risk: Best Practices for Pilots (available at asa2fly.com*), which describes many of the significant threats to safe flight operations, offers insights into how and why pilots make errors that exacerbate them, and provides strategies necessary to effectively manage them.*

Upcoming Events

April 21: Anchorage Users' Meeting, Maintenance Complex, 5470 DeHaviland Ave. *10AM-12PM*

April 25: Alaska Aviation Spring Seaplane Safety Seminar, Assembly Chambers at Loussac Library *8:30AM-4PM*

May 01: Anchorage FSDO Annual Designee Meeting inviting all CFIs, ANC FSDO *8AM*

May 02-03: Great Alaska Aviation Gathering, Fed Ex Maintenance Hangar, Anchorage

May 09-10: Valdez Fly-In and Airshow

May 16: Fairbanks Aviation 2015 Overview, UAF Hangar, 3504 South University Ave. *7AM-2PM*

June 6: Palmer Fly-In and Pancake Breakfast, New Horizon's Telecom Hangar *8AM-10AM*

June 25: Merrill Field BBQ

Attention Floatplane Owners & Operators

By Brianne Blackburn

Last year, I had the opportunity last April to attend the 28th Seminar held at Lake Hood in Anchorage, Alaska. I was invited to talk about the aquatic invasive plant, Elodea, and the impact it has for Alaska.

It is critical to understand how transporting recreational equipment (floatplanes, boats, trailers, etc.) can distribute Elodea and hopefully be avoided with human intervention.

At the seminar, we discussed how Elodea has the ability to photosynthesize under ice after native plants have deteriorated, how it can disperse and reproduce from a minimal plant fragment, and how its growth can be so hyper-abundant that boat traffic is impeded. These characteristics can result in a reduction of waterfront property value and increase the demand of biological oxygen to the point that salmon (and other fish) are deprived of oxygen.

I talked about current statewide efforts to survey and map infestations and about the local partnerships that are working to develop and implement management plans in Fairbanks, Anchorage and the Kenai Peninsula. I wanted to update you now on last summer's management progress and inform you about recently discovered infestations.

Elodea surveys were conducted throughout the state and it was observed that Elodea is still constrained to three lakes on the Kenai Peninsula as previously documented (Beck, Daniels, and Stormy Lakes). Eradication treatments that began this summer in these lakes are expected to be successful. Results thus far reflect a substantial decline in Beck and Daniels Lake.

An 87% reduction was noted in Beck Lake and NO Elodea was found in Daniels Lake. Elodea grew in Stormy Lake throughout the summer due to funding delays, but the Elodea did show signs of necrosis by the end of summer. For more information visit the Kenai Elodea Eradication Project or read the recent update from partners at the Kenai National Wildlife Refuge.

In Cordova, Elodea was discovered in additional waterbodies then previously noted. Elodea was also discovered in the Mat-Su, for the first time, in Alexander Lake. Alexander Lake is a remote lake that is only accessibly during the summer by boat and floatplane. This newly found infestation reminds us that remote areas are not immune to invasive species.

In response to these new discoveries, DNR is collecting voluntary data about movement of recreational equipment between potentially impacted waterways. Please consider taking this survey if you travel between waterbodies in Anchorage, Cordova, Kenai Peninsula, Fairbanks, or Mat-Su. Information is anonymous and will help DNR prioritize future Elodea surveys.

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