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Searching for Solutions to Alaska's High Rate of Deadly Air Crashes

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Sept. 21, 2021, 12 p.m. EDT

Our investigation revealed that Alaska has a growing share of the country's deadly crashes from small commercial flights. Here's what experts say could be done to improve aviation safety in the state.

Photo Illustration: Alex Bandoni/ProPublica; Source Images: Getty Images

Co-published with KUCB and CoastAlaska

This article was produced for ProPublica's Local Reporting Network in partnership with KUCB and CoastAlaska. Sign up for Dispatches to get stories like this one as soon as they are published.

More than five decades ago, a flight carrying Doug Groothuis' father crashed while taking off from the northernmost community in Alaska. Labor leader Harold Groothuis was killed, as were the plane's pilot and five other passengers.

Doug Groothuis, who was 11 at the time, remembers being in his bedroom that November 1968 night and watching Walter Cronkite mention his father by name in a CBS Evening News report on the fatal accident in Barrow, now known as Utqiagvik.

Groothuis' mother went back to work and raised him in Anchorage, far away from relatives in California and New York. Sometimes Groothuis, an only child, wonders what his life would have been like if his father hadn't died.

"Most Alaskans, Alaskan boys, love to hunt and fish, and they can fire guns and cut up fish and cut up moose and go trapping and all these things. I was kind of on that road with my dad because he was a great outdoorsman," Groothuis said. "But when he died, there was nobody to take over to help me learn how to do those Alaska-specific kinds of things."

Doug Groothuis, whose father, Harold Groothuis, died in a plane crash in the northernmost community in Alaska. Brian Adams for ProPublica

Crashes involving small commercial aircraft, like the one that carried Groothuis' father, have long drawn the attention of federal officials. Though decades have passed, these accidents persist at high rates.

In June, KUCB and ProPublica reported that Alaska makes up a growing share of the country's fatalities from crashes involving commuter, air taxi and charter flights. As deaths in crashes involving these operators have plummeted nationwide, Alaska's share of fatalities in such crashes has increased from 26% in the early 2000s to 42% since 2016, our analysis showed. Many experts told us that the Federal Aviation Administration hadn't done enough to improve aviation safety in the state. The FAA oversees air travel in the country and carries much of the responsibility for making Alaskan air travel safer.

We spoke with experts in government, regulation and aviation safety, as well as Alaska flight operators, to ask what could be done to improve Alaska aviation. They offered a range of solutions: bolstering weather information for aviators, expanding the use of collision avoidance technology, and providing more opportunities for pilots to use technology for flying through poor weather. Below are details on their recommendations.

A Need for Better Weather Information

Alaska is bigger in area than Texas, California and Montana combined, but it is the nation's most sparsely populated state. More than 80% of communities cannot be accessed by the road system. Planes are essential to everyday life, but flying conditions in Alaska are more challenging than almost anywhere else. Weather conditions change rapidly.

In general, pilots are guided in flight by one of two ways: when the weather is clear — without clouds or storms — pilots can rely on their vision to spot other airplanes and terrain they want to avoid. But at higher elevations or in bad weather, electronic instruments and controls in the cockpit are vital; a pilot cannot fly without them.

In Alaska, instrument flight is hampered by two obstacles: inadequate access to weather information and a lack of FAA-approved approaches that pilots could use to fly with instruments into and out of many of the state's airports.

The equipment necessary to monitor weather patterns and relay them to pilots isn't as robust as in the lower 48, and there are places where there isn't any weather information available. In these areas, flying with instruments isn't permitted at the low altitudes where most smaller planes fly, leaving pilots reliant on what they see out of their cockpits or grounded when the weather is bad.

When weather conditions deteriorate rapidly, pilots flying without instruments can become disoriented, lose track of where they are and crash. Between 2010 and 2020, there were at least six fatal commercial crashes in Alaska in which investigators listed weather as a cause or factor, according to data from the National Transportation Safety Board. (The federal agency, which investigates transportation accidents, was founded a year before the crash that killed Groothuis' father.)

Over the years, the FAA has worked to increase access to weather information, through both weather cameras and systems that transmit automated broadcasts to pilots. The FAA is also currently testing a new technology that can provide weather bulletins plus video of the current weather directly to pilots' mobile devices or through flight service stations. These new systems cost about half as much as the older stations because they are easier to set up and their sites take up less space on the ground. Some pilots say they are equally as effective if not more so.

Despite that, the FAA does not currently provide sufficient weather information for many villages. Only half of Alaska's publicly owned airports have the FAA-approved weather reporting necessary for instrument flight.

Some operators are tired of waiting for the FAA.

"We have spent a ton of money putting in advanced avionics in all of our aircraft — glass cockpits and everything — that make everything safer," said Dan Knesek, vice president of operations at Grant Aviation, an airline that serves the Yukon-Kuskokwim Delta, Bristol Bay and the Aleutian Islands. "We would love to be able to operate to the majority of our villages under instrument flight rules, which is a much safer and controlled environment. But we cannot."

Scott Van Valin is the co-owner and director of operations for Island Air Express, a small commuter air carrier offering scheduled service between Ketchikan and Prince of Wales Island, as well as charter service. Van Valin said Island Air Express installed its own weather station at El Capitan Lodge on Prince of Wales Island, something the FAA has approved under a program that allows operators to create their own company weather programs. It cost Island Air Express about $90,000 and Van Valin said it took about six months for the FAA to sign off on the routes his company developed to fly into and out of the city of Klawock. The route, known as an approach, was specifically tailored to their aircraft to let them fly with instruments at lower altitudes than typically allowed.

Island Air Express is currently working to build up to 18 instrument approaches across southeast Alaska; Van Valin hopes they will be finished in the next year.

The FAA acknowledges in an interim report from its new Alaska Aviation Safety Initiative that "many if not most" small commercial aircraft are not equipped to fly using instruments and that Alaska's mountainous terrain and weather "underscore the need for reliable infrastructure" that supports both instrument flight at low altitudes and flights where pilots go by what they can see out the window.

In a written statement, the FAA added that for the last two decades improving Alaska aviation safety through expanded flight tracking and increased access to real-time weather information has been one of the agency's top priorities.

Technology Can Prevent Collisions, but It's Not Always Used

Collision avoidance technology can alert pilots to the presence of other aircraft flying nearby. Automatic Dependent Surveillance Broadcast systems, or ADS-B, and their associated ground infrastructure were hailed as a marked improvement over traditional radar systems when they launched in the 1990s.

A joint industry and FAA research project called Capstone equipped 388 aircraft in southeast Alaska and the Yukon-Kuskokwim Delta in the western part of the state with ADS-B systems between 1999 and 2006. The project found crash rates in the Yukon-Kuskokwim Delta decreased after the planes were equipped with the technology.

That led the FAA to introduce rules in January 2020 to mandate the use of ADS-B for nearly all of the lower 48. But the rule only applies to most controlled airspace, which the agency defines in a way that excludes most of Hawaii and Alaska.

Many planes in Alaska are not equipped with ADS-B, in part because it is only required at very high altitudes and around the Ted Stevens International Airport in Anchorage. And even for planes that are equipped, there is limited ground station coverage: under half the state at 3,000 feet above ground level is covered and even less than that at lower altitudes, although the FAA says the stations cover most popular flight paths. Ground stations provide weather and traffic information to planes; planes with the proper equipment can also see each other's location without ground stations.

"There are black holes in the state," said Knesek, of Grant Aviation. "We move aircraft around all the time between bases, and I see it all the time. I see in the Aleutian chain, when they drop below a certain altitude, we do not see them on ADS-B anymore."

Four aviation groups wrote to the FAA and Alaska's congressional delegation in October 2019 asking for additional ground stations. "Filling these gaps should also encourage more aviation businesses and aircraft owners who fly in Alaska to equip, as they will obtain the benefits in the areas they operate."

The NTSB, on the other hand, believes use of ADS-B should be mandatory in more areas. The agency investigates accidents and makes safety recommendations, although it has no authority to enact them.

In its final report on a May 2019 midair collision in Ketchikan, where six people were killed and 10 were injured, the NTSB included recommendations that ADS-B be required for all aircraft in high-traffic air tour areas, like Ketchikan.

The FAA would not say if it plans to expand the areas in Alaska where ADS-B is mandated. In a written statement, the FAA said it has worked with the Alaska aviation industry to provide enhanced coverage. For now, the agency said, it is focused on encouraging operators to voluntarily equip themselves with the technology.

Not all pilots want ADS-B in their aircraft. On pilot Facebook groups, some have raised concerns that it would function as a surveillance tool "used by big brother to watch you, and potentially violate you," according to one pilot.

Jens Hennig, vice president of operations at the General Aviation Manufacturers Association and a member of several FAA rule-making committees, said he doesn't understand why that stops people from using the technology.

"The FAA will not be conducting enforcement actions unless you're out there doing something that is questionable, illegal or against the rules," Hennig said. "And based on their resources these days you pretty much have to be out there doing something pretty egregious for the FAA to go after you."

Another reason some pilots say they aren't interested in ADS-B is the cost, which would likely be borne by operators or plane owners. Garmin sells full ADS-B devices — which transmit a plane's location and show where other aircraft are — for $5,395; it has partial units, for $1,795, that broadcast an aircraft's location to other ADS-B systems and ground stations.

Mandating Additional Safety Plans a Priority for Some, Not for Others

The NTSB's latest Most Wanted List, which highlights the safety board's highest priority recommendations, includes two aviation-related measures. One would mandate commercial operators that carry passengers to have a formal safety management system. For example, prior to a flight, an operator might fill out a risk assessment form, recording information on such items as the weather conditions, a pilot's emotional state and the weight of the aircraft. Then, another person could review the form and determine whether it is safe to fly under those conditions.

Since 2015, the FAA has required large commercial airliners such as United, American, and Delta to use these safety systems. But the FAA does not require them for smaller commercial operators, many of which operate in Alaska. Some experts say they should be required.

A week before the NTSB declared that safety plans were a top priority, Richard McSpadden, senior vice president of the Aircraft Owners and Pilots Association, a national nonprofit aviation group, wrote a letter to then-NTSB Chairman Robert Sumwalt opposing the effort. He wrote that when the plans are "thrust upon operations without regard to the size, and type of operation," they "can be a deceiving facade, expensive and time-consuming to develop with no real impact on operations."

The NTSB said the safety management system mandate would look very different for a large airline like Southwest than it would for a single-pilot operation. Across the board, though, it requires operators to write down what they are doing to manage risk.

Matt Atkinson, the co-owner of Northern Alaska Tour Company, Warbelow's Air Ventures and Wright Air Service, said his companies, which together have nearly 40 planes, are currently developing safety management programs, even though they are not required to do so. He said the companies, which conduct flights around Fairbanks and the North Slope, are spending hundreds of thousands of dollars to get their programs up and running, with a staff member dedicated to the effort.

But Atkinson said the systems might be challenging for smaller operators, who already do many of these safety checks in their heads.

"I think that for smaller operators, the concepts that are trying to be conveyed by SMS are quite difficult to capture — at a single pilot or a very small pilot operation — because they're just so ingrained, you know," Atkinson said. For a company his size, he said, SMS does make sense in order to "capture some things that are going to make us safer and catch or capture a trend and prevent something from happening."

The FAA is expected to announce a proposed rule regarding these safety systems in September 2022, though the agency wouldn't say what it would cover.

Another top NTSB recommendation would require commercial operators to install devices on their planes to collect data about their flights, and then analyze it. Flight data monitoring programs are separate systems meant to identify anomalies in past flying. Experts say the insights from analyzing this data can help prevent accidents.

In Alaska, Atkinson says some operators already do limited flight data monitoring by paying for satellite tracking of their planes.

"There Is a Place for the Law"

To this day, Doug Groothuis, who splits his time between Colorado and Alaska, has never flown on a small plane. Recently, a friend — who is a pilot — invited him on a flight, but Groothuis declined the offer because it would have been purely for enjoyment. For him, the risk of injury or death is too high unless the trip were part of his livelihood or to help others.

"Maybe I'm not a very good Alaskan, because I don't really like risks a whole lot, at least risk to life and limb, you know," Groothuis said. "I'm not a big hunter or mountain climber or anything like that."

Even as a self-proclaimed political conservative, Groothuis hopes for serious discussion of what possibilities exist for better aviation safety in Alaska and that elected officials will look at, if applicable, appropriate legislation.

"Alaskans have this real independent streak. And that can be good. Be self-reliant. Not want to sponge off other people. Be hardy. Live off the land. That's all terrific, but we're still part of a state and a nation," Groothuis said. "There is a place for the law to try to minimize unnecessary injury and fatalities."

Alex Mierjeski contributed reporting.

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