February 22, 2022

Require Common Traffic Advisory Frequency Areas in Alaska

Introduction

The National Transportation Safety Board (NTSB) is providing the following information to urge the Federal Aviation Administration (FAA) to take action on the safety recommendations in this report. They are derived from our investigation of a midair collision involving a de Havilland DHC-2 airplane and a Piper PA-12 airplane. The NTSB is issuing two safety recommendations to the FAA.

Background and Analysis

On July 31, 2020, about 0827 Alaska daylight time (AKDT), a de Havilland DHC-2 (Beaver) airplane, N4982U, and a Piper PA-12 airplane, N2587M, were destroyed when they were involved in a midair collision near Soldotna, Alaska. The pilot and five passengers on the DHC-2 were fatally injured, as was the pilot on the PA-12. The midair collision occurred during day visual meteorological conditions.[1]

The float-equipped DHC-2 departed Longmere Lake, Soldotna, Alaska, about 0824 and was transporting passengers to a remote lake on the west side of Cook Inlet. The PA-12 departed Soldotna Airport (SXQ) also about 0824 on a personal flight, destined for Fairbanks, Alaska.

According to flight track data, after departure from SXQ, the PA-12 traveled on a north-northeast heading until it crossed over a highway then turned right to an east-northeast heading on a converging course with the DHC-2. After the DHC-2 departed from Longmere Lake, it climbed on a west-northwest heading. The DHC-2 crossed over the highway a few seconds after the PA-12. Both airplanes continued on their respective headings and collided about 0827, about 2.5 miles northeast of SXQ, and about 3 miles west of Longmere Lake, at an altitude of about 1,200 ft (see figure 1).

[1] More information about this accident, NTSB case number, ANC20LA074, is available from the NTSB's Case Analysis and Reporting Online (CAROL) query tool.

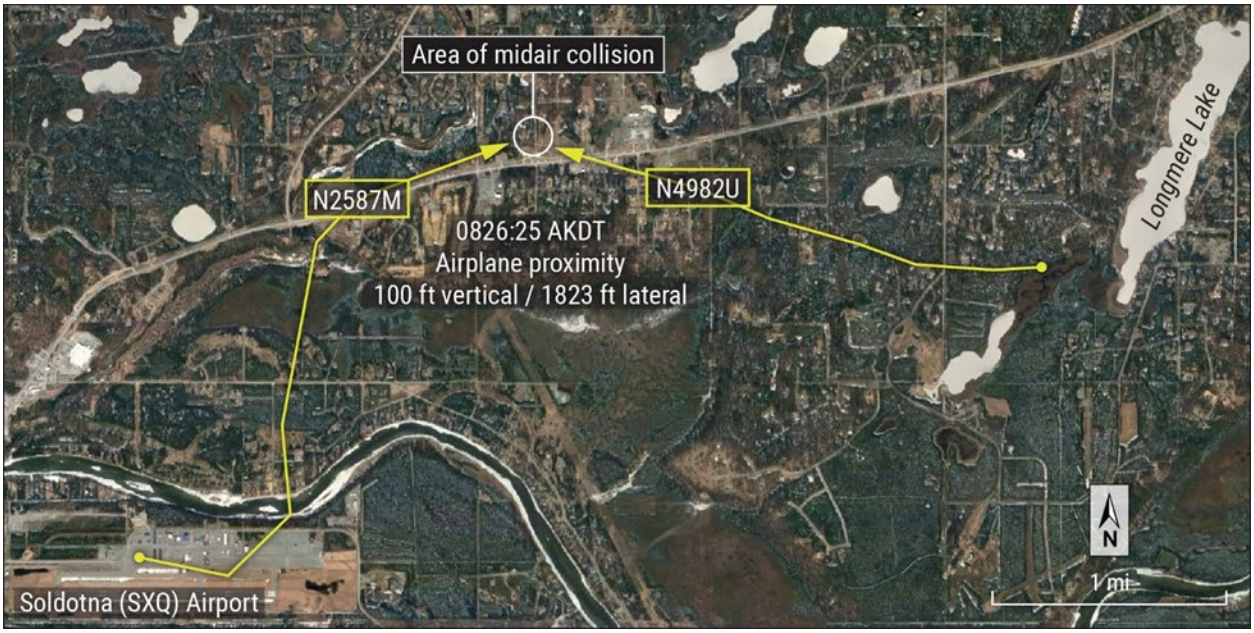

Figure 1. Radar data tracks for both airplanes and location of midair collision.

SXQ (the PA-12's departure location) did not have an air traffic control tower (ATCT). As a result, communication among aircraft departing SXQ and aircraft transitioning the area was accomplished via the common traffic advisory frequency (CTAF) of 122.5 MHz, which was published on the visual flight rules sectional chart and FAA chart supplement for the area.[2] Conversely, Longmere Lake (the departure location for the DHC-2) was not listed as a charted seaplane base and did not have a radio frequency published on the visual flight rules sectional or the FAA chart supplement for the area. However, according to the chief pilot for the DHC-2 operator, the normal procedure for their operation was to monitor area traffic on the SXQ CTAF channel (122.5 MHz).

While SXQ was the closest airport to Longmere Lake with a CTAF channel, the NTSB's investigation determined that 21 airports were within a 30-mile radius of SXQ, with five different charted communication frequencies (one ATCT frequency and four different CTAFs) (see figure 2), many of which overlapped.[3] A postaccident

[2] According to the FAA *Aeronautical Information Manual* (page 4-1-9), a CTAF is a frequency designated for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower. The CTAF may be a UNICOM, MULTICOM, flight service station, or tower frequency and is identified in appropriate aeronautical publications.

[3] Of the 21 airports, 16 were land-based airports, 4 were seaplane bases, and 1 was a heliport. These airports were listed on the visual flight rules sectional and/or in the FAA Chart Supplement - Alaska.

examination of both airplanes could not determine the radio frequencies selected at the time of the accident.

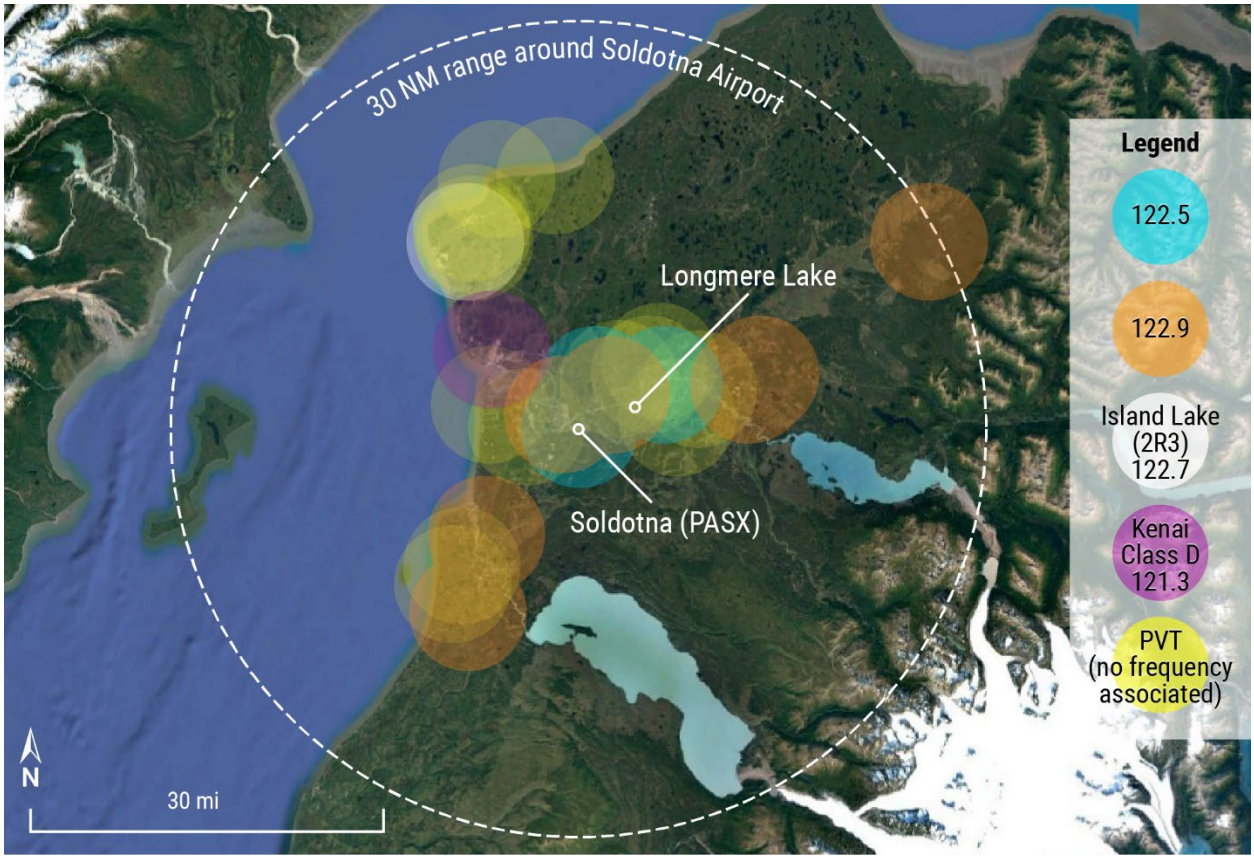

Figure 2. CTAF locations within a 30-mile radius of SXQ (note: One additional CTAF, 123.05, was used by oil platforms in Cook Inlet. Because its location frequently changed, it is not indicated on figure 2).

Because both airplanes were operating in uncontrolled airspace, it was the responsibility of both pilots to visually acquire aircraft flying in their vicinity and maintain separation from them. This concept is referred to as "see-and-avoid." As discussed in NTSB Safety Alert 058, which was issued to help pilots avoid midair collisions:

> The "see-and-avoid" concept has long been the foundation of midair collision prevention. However, the inherent limitations of this concept, including human limitations, environmental conditions, aircraft blind spots, and operational distractions, leave even the most diligent pilot vulnerable to the threat of a midair collision with an unseen aircraft.[4]

[4] For more information, see Safety Alert 058, Prevent Midair Collisions: Don't Depend on Vision Alone.

Pilot diligence in acquiring and avoiding other aircraft is particularly important for operations in non-towered airport environments; pilots are responsible for announcing their position near the airport and in the traffic pattern. To emphasize this responsibility, FAA guidance (Advisory Circular 90-66B, Section 10.1) recommends the following:

> All traffic within a 10-mile radius of a non-towered airport or a part-time towered airport when the control tower is not operating should continuously monitor and communicate, as appropriate, on the designated CTAF until leaving the area or until clear of the movement area.

The NTSB notes that, in the state of Alaska, only 13 airports have ATCTs, meaning that most of the airports are non-towered.[5]

The prevention of midair collisions in Alaska has been a focus for the NTSB and the aviation industry for many years. During the period from 2005 to 2020, 14 midair collisions have occurred in the state, 12 of which occurred in uncontrolled airspace. These midair collisions resulted in 35 fatalities and 15 serious injuries. After three midair collisions occurred in the summer of 2011, a working group composed of industry and government representatives was formed to examine and recommend ways to mitigate this hazard.[6]

One of the accidents the working group examined involved two airplanes that collided midair while operating in visual meteorological conditions; both were preparing to land on Amber Lake in Talkeetna, Alaska (NTSB case number ANC11FA071). The NTSB investigation revealed the pilots were communicating on two different radio frequencies, and FAA guidance was unclear regarding which CTAF frequency should be used in the area. Additionally, due to a high concentration of airports in the area, many of the frequency boundaries overlapped. As a result of this accident (and others), the working group evaluated published guidance regarding CTAF usage and examined CTAF assignments, flight patterns, ATC infrastructure, and the results of an Aircraft Owners and Pilots Association survey of pilots.

[5] According to the FAA's webpage on the Alaska region, four ATCTs are in the Anchorage area, three are in the Fairbanks area, and six are dispersed throughout the remainder of the state. For more information, see https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/systemops/fs/alaskan/alaska/fai/atc/.

[6] More information about these accidents, NTSB case numbers ANC11FA062, ANC11FA071, and ANC11FA091, can be found using our CAROL query tool.

The working group submitted several recommendations to the FAA in the fall of 2013.[7] These recommendations included: (1) establishing discrete CTAF zones in the Matanuska-Susitna Valley, the Cook Inlet area,[8] and the Knik Glacier area; (2) depicting these areas on the appropriate terminal area chart, the Alaska supplement, and the appropriate visual flight rules sectional charts; and (3) changing all airport CTAFs within these areas to be the same frequency. The FAA acted on these recommendations, which went into effect in May 2014.

One of the FAA's actions in response to the recommendations was to designate new "CTAF areas" in the south-central region of Alaska within which all airports would be on the same frequency, and overlap from adjacent airport frequencies would be eliminated.[9] These areas also depicted recognizable landmarks to enable pilots to announce their location when near these landmarks.

The NTSB recognizes the FAA's efforts in attempting to increase safety by establishing CTAF areas within some parts of Alaska. However, since the CTAF areas went into effect, four additional midair collisions have occurred within CTAF areas in Alaska. We note that there is currently no FAA requirement for pilots to communicate on the established frequencies within CTAF areas. The NTSB believes this lack of a requirement hinders the intended safety benefit of the CTAF area.

For example, a Cessna 210 and a DHC-2 were involved in a midair collision in a CTAF area in Wasilla, Alaska in 2016.[10] The flight instructor and student pilot onboard the Cessna were conducting practice takeoffs and landings in the traffic pattern, and the pilot of the DHC-2 entered the traffic pattern from the north. A review of the CTAF recording revealed the Cessna instructor made radio transmissions throughout the first three traffic patterns, but no radio transmissions were heard from the Cessna pilots during the final (accident) traffic pattern. If a requirement were in place for pilots to report their position on each leg of the traffic pattern, it is possible the Cessna pilots may have been more diligent in their position reports, and the DHC-2 pilot may have been aware of their presence.

We recognize that pilots who are in controlled airspace or otherwise in communication with ATC will likely already be receiving traffic advisories and can't be expected to also communicate on the CTAF frequency. However, for pilots not in

[7] For more information, see https://blog.aopa.org/aopa/2013/11/21/mat-su-traffic-working-group-makes-recommendations/

[8] The Cook Inlet area did not include Soldotna.

[9] For more information, see https://blog.aopa.org/aopa/2014/05/14/mat-su-valley-ctaf-frequencies-change-on-may-29th/.

[10] More information about this accident, NTSB case number, ANC16FA052, can be found using our CAROL tool.

contact with ATC, required communication on an established frequency when operating in a CTAF area is an additional means to reduce the risk of a midair collision. For example, in the Soldotna accident, the airplanes departed from different locations, about 4 nautical miles apart, about the same time. They flew on converging flightpaths for about 2 minutes until the collision. If a CTAF area had been established for the Soldotna area and a requirement had been in place for pilots to communicate their positions when entering the CTAF, the accident may have been avoided.

The NTSB concludes that without a requirement that pilots report their positions on the designated CTAF frequency when operating in CTAF areas, pilots may remain unaware of the presence of other airplanes even though a method of communications exists; thus, the benefits of establishing CTAF areas are not fully recognized. Therefore, the NTSB recommends that the FAA require all pilots to monitor and communicate their positions on the designated CTAF when entering and exiting dedicated CTAF areas throughout Alaska, as well as near established reporting points and airport traffic patterns within the CTAF area, unless already communicating with air traffic control.

We note that since the CTAFs were put in place in Alaska, we continue to see midair collisions outside those designated CTAF areas. Of particular concern are high-risk areas, such as (but not limited to) areas encompassing multiple airports with different communication frequencies and high-traffic areas surrounding popular scenic landmarks (these were some of the concerns that led to the creation of the original CTAF areas).

For example, as discussed previously regarding the Soldotna accident, 21 airports were within a 30-mile radius of SXQ, with 5 different charted communication frequencies, many of which overlapped. Additionally, in the Talkeetna accident discussed previously, FAA guidance was unclear regarding which CTAF should be used in the area and as a result, the pilots were communicating on two different radio frequencies before the collision. These accidents demonstrate the possibility for confusion regarding which frequency pilots should be using in a particular area. Further, if pilots are communicating on two different frequencies within the same area, they may not be aware of the presence of the other airplane.

One example of a midair collision that occurred in a high-traffic area surrounding a popular scenic landmark occurred in Ketchikan, Alaska, in 2019. This collision occurred in uncontrolled airspace (outside of all existing CTAF areas) involving a DHC-2 and a DHC-3. Both were operating as sightseeing flights that converged on the same scenic waterfall where they collided.[11] The collision may have

[11] More information about this accident, NTSB case number CEN19MA141, can be found using our CAROL tool.

been avoided if the airspace near the waterfall had been part of a designated CTAF area within which pilots were expected to report their position.

The NTSB concludes that pilots would benefit from the creation of additional dedicated CTAF areas in locations where there is a high risk for midair collisions so that pilots are more aware of nearby traffic and communicate on a single frequency in one area, thus helping to mitigate the risk for midair collisions. Therefore, the NTSB recommends that the FAA establish additional CTAF areas in locations throughout Alaska at high risk of midair collisions, designate one frequency that is associated with all non-towered airports within the geographical boundaries of these CTAF areas, and define mandatory position reporting locations and reporting requirements within these areas.

Conclusions

Findings

Without a requirement that pilots report their positions on the designated common traffic advisory frequency (CTAF) when operating in CTAF areas, pilots may remain unaware of the presence of other airplanes even though a method of communications exists; thus, the benefits of establishing CTAF areas are not fully recognized.

Pilots would benefit from the creation of additional dedicated common traffic advisory frequency areas in locations where there is a high risk for midair collisions so that pilots are more aware of nearby traffic and communicate on a single frequency in one area, thus helping to mitigate the risk for midair collisions.

Recommendations

To the Federal Aviation Administration:

Require all pilots to monitor and communicate their positions on the designated common traffic advisory frequency (CTAF) when entering and exiting dedicated CTAF areas throughout Alaska, as well as near established reporting points and airport traffic patterns within the CTAF area, unless already communicating with air traffic control. (A-22-4)

Establish additional common traffic advisory frequency (CTAF) areas in locations throughout Alaska at high risk of midair collisions, designate one frequency that is associated with all non-towered airports within the geographical boundaries of these CTAF areas, and define mandatory position reporting locations and reporting requirements within these areas. (A-22-5)

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