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August 21, 2018

Mr. Jeff Black U.S. Department of Transportation Docket Operations, M–30 1200 New Jersey Avenue SE West Building Ground Floor, Room W12–140 Washington, DC 20590–0001

Re: FAA Docket Number FAA-2018-0649; Request for Public Comment on Proposal to Discontinue the Hazardous Inflight Weather Advisory Service (HIWAS).

Dear Mr. Black,

The Aircraft Owners and Pilots Association (AOPA), the world's largest aviation membership association, submits the following comment in response to the FAA's proposal to discontinue the Hazardous Inflight Weather Advisory Service (HIWAS). We appreciate the FAA proceeding with a public comment period to allow pilots to provide feedback on the impact the discontinuance of HIWAS would have on their operation. As we have noted in previous letters to the FAA, a comprehensive programmatic decision must be made for HIWAS. Site-specific HIWAS decommissioning ignores the gradual degradation of the network that will occur and the inevitable adverse result of a disjointed and ineffective network. The FAA must have a clear vision for the future of this service and communicate it to the public.

We agree HIWAS is one of several sources available to pilots to receive weather information in the cockpit; however, the FAA must carefully consider the impact of removing this resource as it may affect access to critical information. Weather accidents are the most consistently fatal for General Aviation and reducing the weather information available to pilots should not be undertaken lightly. To determine the utilization of this service, we have conducted numerous surveys of our members. The FAA should consider this information and the results from a safety risk analysis before making a final decision.

Hazardous Weather Information Available to Pilots

Following a fatal accident that occurred in 1980 caused by flight into a thunderstorm, the National Transportation Safety Board (NTSB) submitted a safety recommendation to the FAA recommending significant meteorological information be transmitted over navigation aids. The recommendation was made because Air Traffic Controllers (ATC) and Flight Service Station (FSS) specialists were failing to provide critical weather updates over the operational frequency. Pilots at the time had few alternatives for inflight status updates. The NTSB noted²:

"FAA's Air Traffic Service stated that broadcasts of aviation inflight weather advisories over control frequencies and VORs were frequently delayed or not accomplished because controllers

¹ National Transportation Safety Board. (1981). *Safety Recommendation A-80-138*. https://www.ntsb.gov/ layouts/ntsb.recsearch/Recommendation.aspx?Rec=A-80-138

² National Transportation Safety Board. (1984). *Aircraft Accident Report AAR-84/13*. https://www.fss.aero/accident-reports/dvdfiles/US/1983-11-24-US.pdf

Mr. Black August 21, 2018 Page 2 of 5

had higher priority duties. When such broadcasts are needed, often a controller's task of separating aircraft is also most demanding, and [FSS] specialists are often busy providing services to airborne aircraft during adverse weather periods."

In agreement with the NTSB's recommendation, the FAA implemented HIWAS which would provide continuous broadcast of information on dangerous weather over VORs. The FAA adopted HIWAS system wide in 1988. This broadcast reduced the workload for ATC and FSS while increasing the information available to pilots.

Since that time, there have been many improvements in the inflight information available to pilots. As of July 2018, every weather product provided over HIWAS is also provided over FIS-B, a free weather service for pilots, except for the Alert Severe Weather Watch Bulletin (AWW). The Storm Prediction Center issues the AWW for the aviation community when thunderstorms that produce hail, tornadoes, or damaging winds are forecast. This product is similar to a Convective SIGMET, which is provided over FIS-B, but with a narrower focus. Pilots receive the information provided in the AWW when speaking to any FSS Specialist.

As AOPA's surveys show, there has been an increasing number of pilots accessing weather information via FIS-B and other sources, such as SiriusXM. The number of pilots utilizing iPads and other types of Electronic Flight Bags (EFB) is also increasing. Accessing weather via FIS-B or SiriusXM allows the graphical depiction of weather products along the route of flight. This offers numerous benefits to a pilot and can save considerable time when compared to the process of listening to a HIWAS broadcast and then plotting the weather. These services also offer many more weather products to choose from than HIWAS does, so it is important the FAA continue to promote these alternative services. However, the cost for equipage to participate in datalink services can be limiting for many pilots, and participation is nowhere near 100 percent.

The FAA must ensure the NTSB's original safety concern, specifically ATC and FSS failing to provide pilots notice of hazardous weather information inflight, is adequately addressed prior to HIWAS being removed. FAA guidance should be reviewed to ensure ATC and FSS are appropriately alerting pilots when hazardous weather information is in the area. A verbal advisory over the frequency increases pilot awareness and is an important prompt. Should HIWAS be discontinued, ATC and FSS will need to be prepared to read or summarize the details of the hazardous weather over the frequency for pilots who may not have access to FIS-B, SiriusXM, or another inflight weather source.

General Aviation's Utilization of HIWAS

AOPA Flight Service Survey, May 2016³

In collaboration with the FAA, AOPA conducted a survey of a subset of our Continental United States (CONUS) members on utilization of FSS services. In total, 414 pilots answered this HIWAS question: "Hazardous Inflight Weather Advisory Service (HIWAS) is a continuously recorded broadcast of hazardous weather conditions accessible to airborne pilots. In the last 12 months, during flights in proximity to adverse weather where HIWAS is available, how often do you tune into a VOR to listen to HIWAS?" Most pilots indicated "rarely" or "never" (64%); 23% listened to HIWAS "sometimes"; and 13% of pilots used the service "frequently" or "always." For those pilots who did not frequently or always utilize HIWAS, the majority of pilots stated they received their inflight weather information from FIS-B, XM Satellite, or AWOS/ASOS.

³ AOPA. (May 3, 2016). AOPA Flight Service Survey Two.

Mr. Black August 21, 2018 Page 3 of 5

AOPA Weather Survey, June 2017⁴

In another survey of our CONUS members on weather issues, we asked what source(s) are utilized for inflight weather information during the cruise phase of a long cross-country flight. The smallest number of pilots (6%) selected HIWAS. More pilots indicated their source was AWOS/ASOS or ATC.

AOPA Weather Survey, April 2018⁵

As the result of a January discussion about discontinuing HIWAS, AOPA volunteered to work with the FAA to survey our members on the utilization of this service. The full analysis of the results of these questions are attached. In summary, most subjects (68%) never or rarely used HIWAS in the past 12 months. Respondents who reported that the removal of HIWAS would not have a negative impact on their ability to access weather information were more often: between the ages of 45 – 54; current, instrument rated pilots; and Airline Transport Pilots (ATPs) or commercial pilots. Still, 9% of respondents frequently or always used HIWAS when flying, and 14% of pilots believed that the removal of HIWAS would have a negative impact on their ability to access weather information.

The FAA Must Understand the Risk Associated with Discontinuance

The FAA's proactive and formal safety culture is essential to why the United States' National Airspace System (NAS) is the safest and most efficient air traffic system in the world. AOPA strongly supports the safety management system process and is an active participant in countless FAA safety risk management panels each year. Notably, the risk of HIWAS not being available has been assessed previously. The FAA must consider the risk of discontinuing a service that provides weather information when weather is a leading cause of fatal accidents in General Aviation.

When Lockheed Martin was awarded the Flight Service 21 contract, the FAA conducted a safety panel regarding the automation of HIWAS, which previously had been a manual recording prepared by a specialist. The risks that safety panel identified, which were reaffirmed in 2010, indicated the unavailability of HIWAS would be a low risk and the likelihood of an adverse outcome was extremely remote. The panel stated, "the failure of the HIWAS functions would create an inconvenience and slight increase in workload of pilots and specialists." This determination was based on certain assumptions, so a different panel would need to evaluate the risk of discontinuing the entire service permanently.

In January 2018, a safety risk management panel was convened to evaluate the discontinuance of the HIWAS service. Unfortunately, the FAA had little data to assist the panel with understanding how widespread the utilization of this service is. Due to the lack of utilization data, the panel disbanded before completing a comprehensive assessment; however, there were clear indications by many on the panel that the risk would be more severe than "low risk" due to a pilot's reduced ability to obtain information regarding adverse weather conditions. Before the FAA makes the decision to discontinue the service, the legitimate and unresolved safety concerns from that previous panel must be addressed and the risk formally documented.

⁴ George, T., & Duke, R. (Aug. 4, 2017). *AOPA 2017 Weather Survey*. https://download.aopa.org/advocacy/2017WxSurvey.pdf

⁵ Duke, R., George, T., Davis, K. & Bell, E. (Jul. 6, 2018). *AOPA 2018 Weather Survey*. https://download.aopa.org/advocacy/2018/0803-AOPA_2018_Weather_Survey_Report.pdf

⁶ Federal Aviation Administration. (September 12, 2006). *Safety Risk Management Document for Hazardous Inflight Weather Advisory Service*.

⁷ Federal Aviation Administration. (November 2010). *Addendum to Safety Risk Management Document for Hazardous Inflight Weather Advisory Service*.

Mr. Black August 21, 2018 Page 4 of 5

As part of the Flight Service NAS Efficient Streamlined Services (FSNESS) initiative, the FAA has discontinued or downsized other services that are considered redundant or out dated. In 2016, an FAA sponsored safety panel assessed the risk of reducing the number of Remote Communication Outlets (RCO) available for pilots and FSS to communicate over. The panel's discussion of risk centered on the conceivable inability of a pilot to communicate with FSS because of the reduction of radio frequencies. Several hazards were identified including one related to adverse conditions. In the safety risk management document, the panel listed HIWAS as a control, which is anything that currently reduces a hazard's causes or effects. Theoretically, the risk level of RCO reduction could increase with the discontinuance of HIWAS. The FAA should review other safety risk management documents to determine if HIWAS is a required mitigation or control for some other change currently taking place in the NAS.

Conclusion

According to the AOPA Air Safety Institute 26th Joseph T. Nall Report, weather accidents consistently suffer the highest lethality of all accidents. In 2014, weather contributed to the largest number of General Aviation fatal accidents. General Aviation pilots need effective weather information to make good decisions and to understand what impacts their flight. The FAA Administrator implemented the "Got Weather?" campaign to help raise pilot awareness of available weather resources and to expand the weather information available. Cautious consideration must be given to any reduction in the weather resources available to pilots.

In response to the FAA's proposal to discontinue HIWAS, AOPA believes the following to be important considerations that should be addressed:

- a) There must be a clear vision for the future of HIWAS and that vision communicated to the public;
- b) There must be a plan to promote alternative weather services, including FIS-B;
- c) The FAA's guidance should be reviewed to ensure ATC and FSS are appropriately alerting pilots when hazardous weather information is in the area;
- d) The concerns expressed by pilots participating in AOPA surveys regarding HIWAS discontinuance should be adjudicated;
- e) The legitimate and unanswered safety concerns from the January safety panel must be resolved and the risk of HIWAS discontinuance formally documented;
- f) Other safety risk management documents supporting current NAS changes should be reviewed to determine if HIWAS is a required mitigation or control;
- g) The FAA knowledge exams for ATP, Commercial, Instrument, and Private Pilot, and FAA guidance like the Aeronautical Information Manual, will need to be updated to remove HIWAS references;
- h) There should be a transition period during which HIWAS stations continue to broadcast adverse weather information, and a message is transmitted advising of discontinuation and what alternative weather resources are available to pilots.

⁸ Federal Aviation Administration. (November 2016). FAA Flight Service NAS Efficient Streamlined Service: Safety Risk Management Document for Reduction of Flight Service Remote Communication Outlet (RCO) Infrastructure.

⁹ AOPA Air Safety Institute. (August 2017). 26th Joseph T. Nall Report: General Aviation Accidents in 2014. https://www.aopa.org/-/media/files/aopa/home/training-and-safety/nall-report/26thnallreport2017.pdf

¹⁰ Huerta, M. (July 26, 2017). Got Weather? https://www.faa.gov/about/initiatives/got_weather/

Mr. Black August 21, 2018 Page 5 of 5

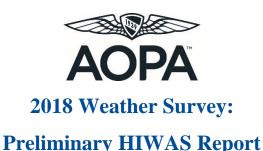
We appreciate the FAA's transparency regarding the proposed change and for soliciting the public's feedback. We believe HIWAS is an important resource for General Aviation pilots to access adverse weather information, but we recognize new technology and datalink weather products provide enhanced information and have increasing utilization. Thank you for reviewing our comment on this important issue. Please feel free to contact me at 202-509-9515 if you have any questions.

Sincerely,

Rune Duke

Senior Director, Airspace and Air Traffic

The Aircraft Owners and Pilots Association (AOPA) is a not-for-profit individual membership organization of General Aviation Pilots and Aircraft Owners. AOPA's mission is to effectively serve the interests of its members and establish, maintain and articulate positions of leadership to promote the economy, safety, utility, and popularity of flight in General Aviation aircraft. Representing two-thirds of all pilots in the United States, AOPA is the largest civil aviation organization in the world.



Introduction

Background

AOPA's 2018 Weather Survey served as a follow-up to two AOPA Flight Service surveys¹, a Pilot Report (PIREP) survey², and a Weather survey conducted last year.³ The present research was conducted to further investigate pilots' needs for weather resources such as HIWAS.

Method

A short survey on weather-related topics (e.g., use of FIS-B, HIWAS, PIREPs, and more) was created using Qualtrics, an online survey tool. The survey consisted of 40 questions in total, 37 of which were shown to subjects from the continental United States (CONUS), and 33 of which were shown to subjects from Alaska. An email invitation to take the survey was sent to a total of 1,516 AOPA members from Alaska with current medicals (all possible members) and a random sample of 30,003 AOPA members with current medicals from CONUS, for a total of 31,519 people invited to take the survey. Subjects received additional reminder emails asking them to take the survey. CONUS subjects received 2 reminder emails; Alaskan subjects received 3 reminder emails, in an effort to increase the small sample size and decrease the related margin of error for the AK group. No incentive was offered in exchange for participation.

Key Findings

More key findings will be added later. For now, note:

- Most (68%) subjects never or rarely used HIWAS in the past 12 months.
- Respondents who reported that the removal of HIWAS would *not* have a negative impact on their ability to access weather information were more often:
 - \circ Between the ages of 45 54
 - o Current, instrument rated pilots

¹ Middlestadt, S. E., Smith, T., Hu, Y., & Ison, D. (June 1, 2016). Technical Research Report on General Aviation Pilot Beliefs About Obtaining a Standard Pilot Weather Briefing.

² George, T., & Duke, R. (July 26, 2016). AOPA 2016 Pilot Report Survey.

³ George, T., & Duke, R. (Aug. 4, 2017). AOPA 2017 Weather Survey.

o ATP or commercial pilots

2018 Survey Results

A total of 90 AOPA members with current medicals from Alaska and 2,705 AOPA members with current medicals from the continental United States (CONUS) responded to the survey in April of 2018, over the course of a 4-week period. A total of 1,516 pilots from Alaska and 30,003 pilots from CONUS were originally invited to take the survey. Thus, the margin of error for Alaskan pilots was approximately 10% at a 95% confidence level, while the margin of error (considering pilots from all regions) was approximately 2% at the same 95% confidence level.

Demographics / Sample Characteristics

Most subjects (74%) were at least 55 years old (Figure 1). The sample characteristics were similar to those found in AOPA's 2017 Weather Survey. About 54% of all subjects were private pilots (see Table 1). About 51% of respondents were instrument current; 18% had an instrument rating but were not current; 32% did not hold an instrument rating (Figure 2). Most subjects (about 68%) reported flying single-engine piston, fixed gear aircraft (not Light Sport, as illustrated in Figure 3). Respondents reported logging an average of 113 hours in the past 12 months, and an average of 3,431 hours in total.

Detailed Findings: HIWAS

Questions pertaining to HIWAS were directed at subjects from CONUS. In other words, pilots from Alaska were not presented HIWAS questions). About 68% of respondents reported never or rarely using HIWAS in the past 12 months (Figure 4). Approximately 60% of subjects reported that the removal of HIWAS would *not* negatively impact their ability to access weather information (as illustrated in Figure 5). About 14% of CONUS subjects believed the removal of HIWAS would negatively impact their ability to access weather information.

We asked respondents to elaborate on why the removal of HIWAS would, or would not, impact them in an open-response follow-up question. We received a total of 314 comments from respondents who felt that removing HIWAS would impact them, and 1,387 comments from respondents who felt otherwise (see Figures 6-7 for relevant illustrations of the most common words and ideas). Comments are still being coded for overarching themes and ideas.

For now, it seems that pilots believe the removal of HIWAS may negatively impact them because:

- HIWAS often acts as an important safety precaution or redundancy
- HIWAS is especially useful for those who may not have access to other electronic options inflight (perceive no substitute for their needs)

- HIWAS is convenient, and/or easy to use. HIWAS offers useful weather updates inflight that help make decisions (leading to safer pilots).
- Some pilots feel it is better to use HIWAS than to bother ATC

Examples of comments from pilots who *would* be negatively impacted by the removal of HIWAS include:

"It gives a pilot a great in flight situational awareness. The removal of this will be a negative impact on pilots who's aircraft don't have the latest avionics."

"Removes a valued "back-up" source of weather information (in other words, I may not use it all the time – but the fact that it is there is invaluable. I can always use it if I need to!!!)"

"Although the hazardous weather information can be obtained from other sources, the tools for the safety of flight should be augmented not reduced in number. Using multiple sources ensures an accurate picture of your route of flight current and impending weather."

On the contrary, many pilots believe that the removal of HIWAS would *not* negatively impact them because:

- They do not currently use (and do not think they will ever need to use) the service.
- Acceptable substitutes (including other weather resources and ATC) exist, and can be easily accessed and used.
- The information provided by HIWAS can be vague, inconvenient, or otherwise not useful.
- Pilots may avoid flying in the type of challenging weather which would necessitate the use of HIWAS.

Examples of comments from pilots who would *not* be negatively impacted by the removal of HIWAS include:

"I have multiple weather sources prior to departure and in-flight that provides access to current weather. I use these anytime there is significant weather."

"I usually need more specific and localized information."

"I avoid flying in bad weather. VFR only."

"With proper pre-flight weather planning, there are very rarely any in-route surprises that appear."

"I don't use it."

Interestingly, pilots on opposite sides of the HIWAS debate used very similar language to explain why the change would (or would not) impact them.⁴ Figures 6 and 7 illustrate the similarities between words used by pilots of either opinion. The same attribute can be seen as useful or as pointless, depending on perspective of the pilot. For example, one pilot may view the availability of alternatives as a positive (alternative or back-up sources act as failsafes that ensure safety during flight) or as a negative (the service is redundant, and never used).

We also noted a unique relationship between age and the perceived importance of HIWAS (see Figure 8). There was not a strict linear progression, such that as age increased or decreased, so did the perceived importance of HIWAS. Rather, subjects who were between 45 and 54 years old reported that the removal of HIWAS would not negatively impact them more often than any other age group. Much younger (e.g., 34 years old or younger) and much older (e.g., at least 75 years old) respondents were the least likely to report than the removal of HIWAS would negatively impact them (though, the majority still did hold that belief).

There seems to be a relationship between the amount of experience a pilot has and their apparent dependence on the HIWAS system. Current instrument rated pilots were more likely to believe that they would *not* be negatively impacted by the removal of HIWAS (compared to pilots who were instrument rated but not current and pilots who were not instrument rated, as illustrated in Figure 9). Pilots who held an ATP or commercial certificate also reported that the removal of HIWAS would not negatively impact their ability to access weather information, more so than any other comparable group of pilots. Thus, more experienced pilots seem less dependent on HIWAS than less experienced pilots.

Discussion

HIWAS

Many pilots believed that the availability of HIWAS was important for their safety inflight. Respondents often reported not having access to (or fearing losing access to) other sources during flight. If HIWAS is eliminated, then it will be important to reach out to these pilots to ensure that they will have access to alternative sources of weather information, perhaps by improving the accessibility of other, existing sources.

⁴ In fact, 14 out of the 15 most frequently used words in Q10.b ("Please explain why the removal of HIWAS would affect your ability to access weather information") were the same as the most frequently used words in Q10.c ("Please explain why the removal of HIWAS would not affect your ability to access weather information."), even after excluding common English stopwords (e.g., "I," "myself," "our," etc.).

 $[\]chi^2 = 32.832$, simulated p = 0.0035

 $^{^{6}\}chi^{2}(4) = 74.996, p < 0.001$ $^{7}\chi^{2} = 44.597$, simulated p = 0.000498

Less experienced pilots (e.g., those who were not instrument rated, not instrument current, or who were among the youngest age groups) appeared to depend on HIWAS even more. Perhaps greater training is needed for these "less experienced" pilots, to ensure that they understand how to use and access alternative weather resources to remain safe during flight.

Limitations

There are several important limitations to note. These limitations are as follows:

- AOPA's 2018 Weather Survey benefitted from a larger overall sample size than those of
 previous years. However, a smaller sample size and larger margin of error for AK group
 may lead to more uncertainty in the relevant statistics and estimates. Additionally, the
 margin of error will be higher (and thus, estimates will be less reliable) where individual
 questions have fewer responses.
- A potential for bias towards AOPA exists, as the survey was released by AOPA, to AOPA members. It is possible that those who decided to respond and take the survey also already had more favorable opinions regarding AOPA. In particular, this bias may have impacted the observed number of people who use AOPA Flight Planner (i.e., it is possible that subjects who were AOPA members and already predisposed to "liking" AOPA were also more likely to use AOPA's products and services).
- Finally, it is important to avoid making assumptions about comments (incl. those that are vague and would require inferences regarding the subjects' intent). To this end, the use of only one coder for free-response questions may contribute, in part, to a potential lack of reliability.

Appendix

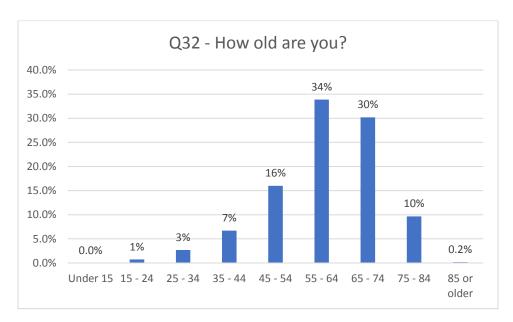


Figure 1. Subject age, as measured by responses to Q32, "How old are you?"

Table 1.

Highest level of pilot certificate held.

Certificate	AOPA 2018 Survey		AOPA 2017 Survey		FAA	
	Count	%	Count	%	Count	%
Student	69	2%	17	4%	149,121	24%
Sport	19	1%	0	0%	6,097	1%
Recreational	4	0.1%	0	0%	153	0.03%
Private	1,504	54%	191	50%	162,455	27%
Commercial	740	27%	107	28%	98,161	16%
ATP	452	16%	63	17%	159,825	26%
No pilot certificate	0	0%	2	1%	-	-
Total	2,788	100%	380	100%	609,306	100%

Note. This table compares responses to AOPA's 2018 WX Survey to AOPA's 2017 WX Survey, in addition to the current FAA numbers. FAA estimated active airmen certificates accurate as of the last update (12/31/17; source: FAA U.S. Civil Airmen Statistics)

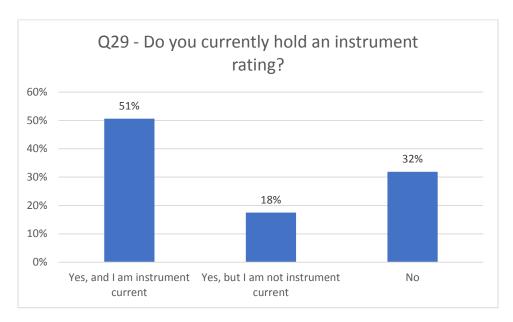


Figure 2. Number of pilots in current sample who were instrument rated (measured by responses to Q29, "Do you currently hold an instrument rating?"). Also note that the FAA reports 306,652 (50% of total pilot number) instrument rated pilots, as of 12/31/17 (Source: <u>FAA U.S. Civil Airmen Statistics</u>).

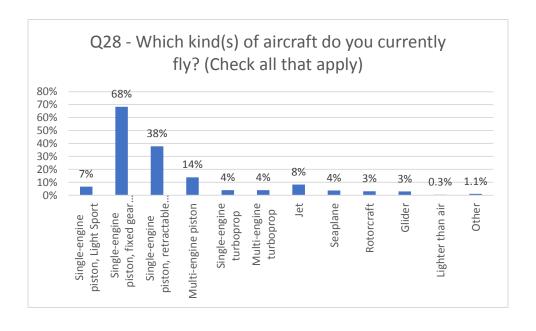


Figure 3. Responses to Q28, "Which kind(s) of aircraft do you currently fly? (Check all that apply)." Percentages reflect the number of people who selected that response out of the total number of subjects who answered the question (n = 2312).

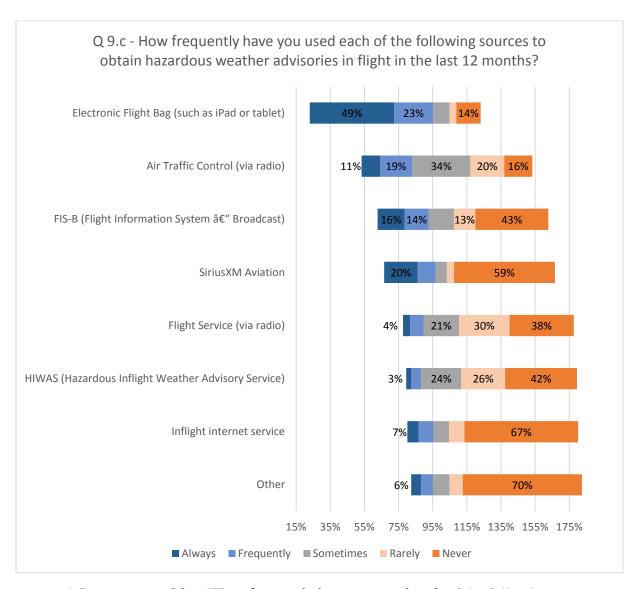


Figure 4. Responses to Q9.c, "How frequently have you used each of the following sources to obtain hazardous weather advisories in the last 12 months?" Question was shown only to CONUS respondents.

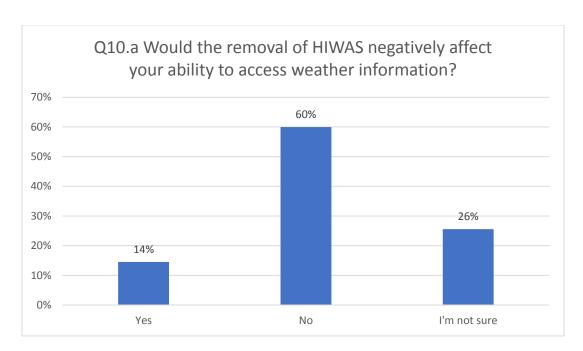


Figure 5. Responses to Q10.a (directed to CONUS subjects), "Would the removal of HIWAS negatively affect your ability to access weather information?"



Figure 6. Word cloud for Q10.b ("Please explain why the removal of HIWAS would affect your ability to access weather information")

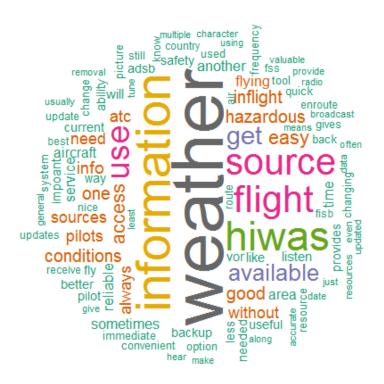


Figure 7. Word cloud for Q10.c ("Please explain why the removal of HIWAS would *not* affect your ability to access weather information"). Note that almost all of the most frequent words (e.g., access, available, conditions, easy, flight, good, hazardous, hiwas, inflight, information, one, source, use, weather) are the same as those in Q10.b (Figure 6).

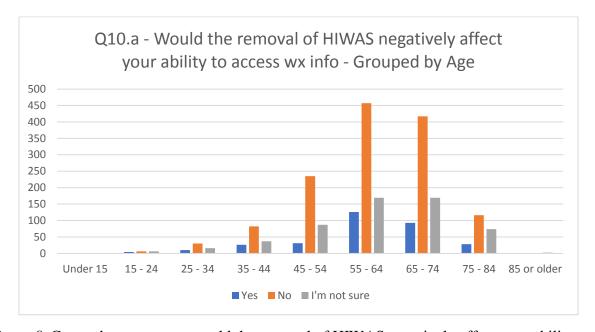


Figure 8. Counts by age group, would the removal of HIWAS negatively affect your ability to access weather information?

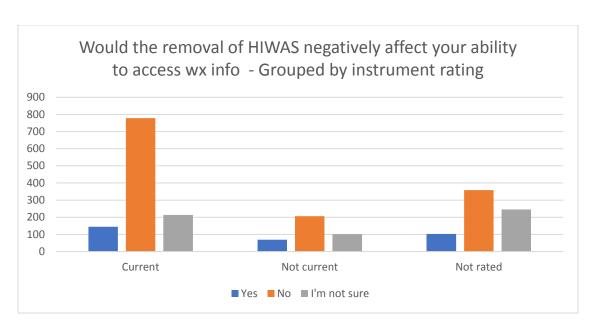


Figure 9. Counts by instrument rating (rated and current, rated but not current, or not rated) for if the removal of HIWAS would negatively impact ability to access weather information