

AOPA Views on
Aviation Weather Services

East Coast Workshop on
Weather Forecasting
and Dissemination

Samuel V. Wyatt
Weather Consultant to AOPA

It is a real pleasure for me to present the AOPA views on aviation weather service at this workshop. Before retiring in 1975, I spent 33 years as a professional meteorologist for the National Weather Service. Most of this time was in the aviation weather services, with the last ten years spent managing the aviation safety and quality control programs. Since retirement I have been serving as a weather consultant for aviation safety cases and for general aviation organizations including AOPA. I also am an active general aviation pilot. This background gives me a firsthand knowledge of the problems facing the government in providing aviation weather services as well as the general aviation industry's requirements for these services. You might say that I have now worked both sides of the street.

Before I get into the AOPA views on aviation weather services, let me give you a little background on the Aircraft Owners and Pilots Association, better known to most of you as AOPA. The Association now has more than 240,000 members made up of pilots and aircraft owners. This is by far the largest pilot organization in the world. Thus, AOPA provides a strong voice for the general aviation industry. AOPA along with other general aviation organizations has always provided strong support for improvements in the aviation weather services for general aviation.

Perhaps I should define what we mean by the term "general aviation" as

used in this discussion. General aviation is defined as all civil aviation operations except those conducted by the certificated airlines. There are 700,000 general aviation pilots and 250,000 aircraft in the general aviation fleet. In 1978, general aviation pilots flew 36.6 million hours compared to 6.8 million hours flown by the certificated route airlines. There are 14,000 plus airports in the U.S. About half of these (7,000) are open to the public and only 627 of the public-use airports are served by the certificated airlines.

Now let's take a look at the general aviation accident record. In 1978, there were a total of 4,496 general aviation accidents. Of these, 796 were fatal accidents with 1,690 fatalities. Weather was involved in 904 of the total accidents and 307 of the fatal accidents. Weather involvement in 39 percent of the fatal general aviation accidents is of grave concern to everyone in the general aviation industry. This one fact alone points to the urgent need for improvement in aviation weather services. Improvements are needed in the observing, forecasting and dissemination of aviation weather information. I will discuss each of these categories separately.

First, let's talk about the general aviation requirements for weather observations. My first consultant job for the AOPA was to conduct a study of the "Requirements for Weather Observations at General

Aviation Airports." On completion, the study was published by the AOPA and distributed widely to government and industry. The study showed that there were approximately 1,000 general aviation airports in the continental U.S. with approved instrument approach procedures but no weather service. It was concluded that each of these airports needed weather observations to support safe instrument approaches to the airports. It is readily apparent that the Federal Government is not going to provide the staffs for a thousand new aviation weather reporting stations. The best hope then lies in the development of a suitable automatic aviation weather observation and reporting station.

Development of a "low cost" automatic weather station for general aviation airports has been underway for some time both within and outside the government. These observing systems are being developed in modular form so that additional sensors can be added later. The systems being developed now provide automatic sensing and reporting of wind direction and speed, temperature, altimeter setting and density altitude. These data are broadcast over designated frequencies by computer generated voice output. The industry developed system was tested at the Shenandoah Valley Airport at Staunton, Virginia. It was recently approved by the FAA for operational use. AOPA urges expeditious implementation of this equipment at general aviation airports with approved instrument approach procedures with no weather observations. It is hoped that the Aviation Trust Fund can be used to support these installations. AOPA also urges that the development of sensors for visibility and cloud heights to be added to these observing systems be expedited.

In addition to the 1,000 general aviation airports that require full weather observing service, there are over 5,000 public-use general aviation airports used for VFR operations. Since adverse wind conditions are found to be a major cause of nonfatal general aviation accidents, there is an urgent need for better wind observing equipment

at these airports.

Aviation forecasts and advisories are essential to the safety and efficiency of general aviation flight operations. The thousand airports that have approved instrument approach procedures but no weather observations need terminal forecasts. Since observations would be needed to support the terminal forecasts, these two requirements go hand in hand. The National Weather Service is at present issuing forecasts for 477 terminals. It is quite obvious that they could not provide the staffs necessary to manually produce 1,000 additional terminal forecasts. However, a development program is underway to automate the terminal forecast program. Automated terminal forecasts offer the best hope for getting the additional terminal forecasts needed for general aviation airports.

In addition to terminal forecasts, general aviation pilots require aviation area, route and winds aloft forecasts and in-flight advisories. The general aviation pilot is much more dependent on these for safe and efficient flight than are airline pilots. In the past, the National Weather Service had separate forecasters dedicated to aviation. Several years ago the aviation forecast staffs were combined with other forecast staffs, such as public and marine. In many cases the aviation forecasters were removed from the airport offices and thus taken out of an aviation environment. We believe the aviation forecast program has suffered as a result of these actions. AOPA supports the return to dedicated aviation forecast staffs.

The present program for assigning National Weather Service meteorologists to the Air Route Traffic Control Centers is a step in the right direction. By taking some of the forecasters from the combined forecast staffs and putting them with the Center Weather Service Units (CWSU's), it should be possible for these units to issue aviation forecasts and advisories as well as provide weather support for the ATC system and the flight service stations.

NATIONAL WEATHER DIGEST

The third and last area of aviation weather services I wish to discuss is dissemination. Aviation weather information is disseminated to general aviation through a number of channels. The basic, long-standing system is the Service A teletypewriter circuit operated by the FAA. This circuit carries observations, pilot reports, radar information, forecasts and warnings. The circuit is available at all pilot briefing offices of the FAA and National Weather Service. It is also available at many fixed base operations offices across the country for the use of general aviation pilots.

Preflight weather briefings can be obtained by telephone, and in many cases in person, from all flight service stations and from some weather service offices. Transcribed telephone briefings are available at many locations and telephone access to the TWEB on low frequency channels is available at some locations.

The AM Weather program on public television with some 250 TV outlet stations over the country is an excellent pre-flight planning tool. AOPA has been the primary sponsor of this program since its inception several years ago.

Weather information is available to the airborne pilot through radio contacts with flight stations including the Enroute Flight Advisory Service (EFAS), which has a dedicated frequency for exchanging significant weather information with enroute pilots. Some limited weather information, selected observations and in-flight advisories are available to airborne pilots on the scheduled broadcasts on certain VHF frequencies including the VORs. There are some problems with the scheduled broadcast. These include delays and missed broadcasts, pilots not tuning the broadcast at the right time or being out of reception range when the broadcast is made, or the broadcast frequency being out of service.

AOPA believes that most of these deficiencies in the scheduled broadcasts could be eliminated by automation. This way the information would be available whenever the pilot

tuned to the station.

There are two new weather dissemination systems being developed that hold a lot of promise for general aviation pilots in the not too distant future. One is the Voice Response System being developed by the FAA and tested in the Washington area at the present time. With this system, a pilot can use a touch-tone telephone to request weather reports and forecasts for any route in the country. The information is provided from computer storage through computer-generated voice to the pilot's phone. AOPA considers this to be an excellent preflight weather service and recommends that the system be implemented on a nationwide basis as soon as possible.

The other system being developed is the National Weather Service program for Automation of Field Operations and Services (AFOS). This is a computerized, high-speed, weather communications system that will collect, store and disseminate all weather information for National Weather Service operations. When the system is complete, all of the weather information in the system can be accessed at any location through the use of a computer terminal on the circuit with the information presented on a cathode-ray tube. It is anticipated that somewhere down the road the computer terminal connections on the AFOS circuit will replace the Service A teletypewriter in pilot briefing rooms.

AOPA believes that the safety and efficiency of general aviation flying can be significantly enhanced by the implementation of automatic weather reporting stations at all airports having approved instrument approach procedures, by expanding the terminal forecast program to include these same airports, and by improved aviation weather dissemination such as the Voice Response System and the AFOS.

Once again, I appreciate having the opportunity to discuss AOPA's views on the present aviation weather services and offer suggestions for improving these services for the use of general aviation pilots. Thank you.