



**NTSB**

# ***SAFETY ALERT***

National Transportation Safety Board



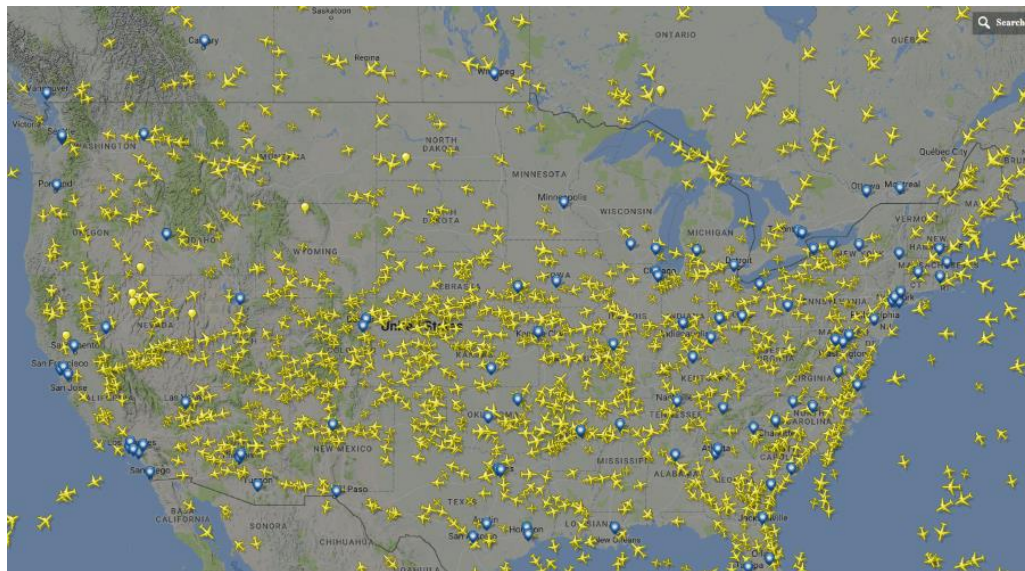
## **Pilot Weather Reports (PIREPs): Pay It Forward**



***More and better PIREPs enhance safety for all***

### ***The problem***

- Sparse reporting and inaccurate or incomplete information adversely affect the usefulness of PIREPs (brief reports from pilots describing observed in-flight weather conditions) for improving weather forecasts and advisories and helping pilots avoid weather hazards.<sup>1</sup>
- Pilots submit relatively few PIREPs compared to overall traffic volume (see figure).
  - Pilots may be unaware that PIREPs of all weather conditions are important, including good or “as forecasted” weather.
  - Pilots may lack confidence in their ability to assess weather.
  - Pilots may not be proficient or comfortable with the various PIREP submission methods.
  - Pilots may think that their PIREPs will not be disseminated to others.



**Figure.** The approximate volume of air traffic nationwide captured in one instant in July 2016. By comparison, only a few dozen PIREPs were submitted during a 1-hour period about this time. (Image excerpted from the flightradar24 website.)

<sup>1</sup> The problems listed here and related safety recommendations are documented in the National Transportation Safety Board’s (NTSB) Special Investigation Report SIR-17/02, [Improving Pilot Weather Report Submission and Dissemination to Benefit Safety in the National Airspace System](#).

- PIREPs often contain inaccurate or incomplete information.
  - Time or location errors in a PIREP greatly diminish its usefulness to pilots for strategic and tactical flight planning and to meteorologists for verifying forecasts or issuing advisories.
  - Incomplete information or the use of nonstandard terminology or coding when reporting weather phenomena and intensity classifications significantly reduces a PIREP's effectiveness because computers (and sometimes humans) cannot interpret the information. For example, such errors may prevent weather programs from automatically creating a graphical depiction of the PIREP.

### ***Importance of PIREPs to flight safety***

Historically, weather-related accidents involving general aviation aircraft that encountered poor visibility have a higher fatality rate than all other types of accidents, and accidents involving encounters with in-flight turbulence account for the most injuries to passengers and flight attendants on board US air carriers. As documented in the NTSB's [SIR-17/02](#), PIREPs play a vital role in improving the weather information used to support flight safety for all aircraft operations—small and large—to avoid inadvertent encounters with hazardous weather and prevent such accidents:

- The NTSB issued numerous safety recommendations in March 2017 (in [SIR-17/02](#)) to improve how air traffic controllers, flight service station specialists, and others record and disseminate PIREPs; however, to improve the effectiveness of the PIREP system, pilots must also do their part to increase the quantity and improve the quality of their reports.
- PIREPs are one of the most important sources of information that weather forecasters use to verify or amend aviation forecast and advisory products.
- A single PIREP can influence a weather forecaster's decision to issue (or discontinue) a hazardous weather advisory, such as an AIRMET or a SIGMET, and/or amend its area.
- Weather researchers use PIREPs to improve the accuracy of global forecast models and turbulence and icing weather advisory products.
- Other pilots, flight-planning personnel (such as dispatchers), and air traffic controllers need PIREPs when performing strategic and tactical route planning to avoid weather hazards. PIREPs of null/negative or light conditions can help air traffic controllers decide whether to route aircraft through blocks of altitude that they had previously routed traffic around.

### ***What can pilots do?***

- Provide PIREPs when workload permits. Even late-reported PIREPs (filed after landing) are valuable if the time and location of the weather phenomena are reported accurately.
- Report the time and location of the weather phenomena as precisely as possible.
- Use standard terminology and/or coding when reporting the type and intensity of weather phenomena. Refer to official Federal Aviation Administration (FAA) publications (links provided below) for guidance.
- Although you should be as complete and concise as possible when giving a verbal PIREP to an air traffic controller or flight service station specialist, don't be deterred if you are unsure of the format. The person who receives your PIREP can request clarification if needed.
- Remember that PIREPs for null and light conditions, as well as conditions that are "as forecasted," are as important as reports of hazardous or unexpected weather.

- Familiarize yourself with all the different methods of submitting PIREPs. In addition to providing reports verbally, other options include electronic submission tools, such as web-based applications or certain aircraft equipment.
- Use whichever PIREP-submission method seems most appropriate for the circumstances, considering your workload, the type of weather information, and any other relevant factors. For example, for urgent weather hazards, providing your PIREP to the air traffic controller via the radio would likely result in the most rapid local dissemination of the information.

### ***Interested in more information?***

The information in this safety alert was excerpted from the NTSB's [SIR-17/02](#), which can be accessed from the NTSB's [Safety Studies and Special Reports](#) web page (available from [www.nts.gov](http://www.nts.gov)). Information about the NTSB's June 2016 forum, "[PIREPs: Pay it Forward...Because Weather for One is Weather for None](#)," can be found on the NTSB's [Previous Events](#) web page (also available from [www.nts.gov](http://www.nts.gov)).

The following FAA resources (available from [www.faa.gov](http://www.faa.gov)) provide guidance on how to properly report weather phenomena and their respective intensity classifications:

- The [Aeronautical Information Manual](#) section 7-1-19, "PIREPs," provides information on how to report icing, turbulence, visibility restrictions, and other hazards.
- Advisory Circular 00-45H, "[Aviation Weather Services](#)," contains information on how to report and read PIREPs, apply intensity modifiers for precipitation and other weather phenomena, and use the remarks section to further describe the weather phenomena.

The FAA Safety Team (FAASafetyTeam) provides access to (and, through the WINGS—Pilot Proficiency Program, credits for) the online, interactive course ALC-96, "[SkySpotter: PIREPs Made Easy](#)," which was developed by the Aircraft Owners and Pilots Association (AOPA) Air Safety Institute. The course explains the importance of PIREPs, provides guidance on how to submit them, and includes guidance on assessing cloud cover elements and classifying other weather phenomena. (In April 2017, in [response](#) to NTSB Safety Recommendation A-17-14, the AOPA Air Safety Institute stated that it plans to update this course.) This course and others can be accessed from the FAASafetyTeam website ([www.faasafety.gov](http://www.faasafety.gov)). Course access requires login through a free FAASafetyTeam account.

Electronic PIREP submission information can be found from the following sources:

- The flight service provider Leidos (formerly known as Lockheed Martin Flight Services) supports the electronic submission of PIREPs from some aircraft equipment and web-based flight-planning applications. More information about [electronic PIREP submission](#) can be found from the Flight Service website ([www.1800wxbrief.com](http://www.1800wxbrief.com)).
- The Aviation Weather Center (AWC) enables pilots and dispatchers to [register for a PIREP submission account](#) to file PIREPs online using its web-based submission tool. Registration instructions can be accessed from the AWC's website ([www.aviationweather.gov](http://www.aviationweather.gov)) under the "User" menu and "Register" option. PIREPs submitted via the web-based tool are displayed immediately on the AWC ADDS (Aviation Digital Data Services) web page ([www.aviationweather.gov/airep](http://www.aviationweather.gov/airep)) in graphical and text formats.

The NTSB's Aviation Information Resources web page, [www.nts.gov/air](http://www.nts.gov/air), provides convenient access to NTSB aviation safety products. This safety alert and others can be accessed from the [Aviation Safety Alerts](#) link.