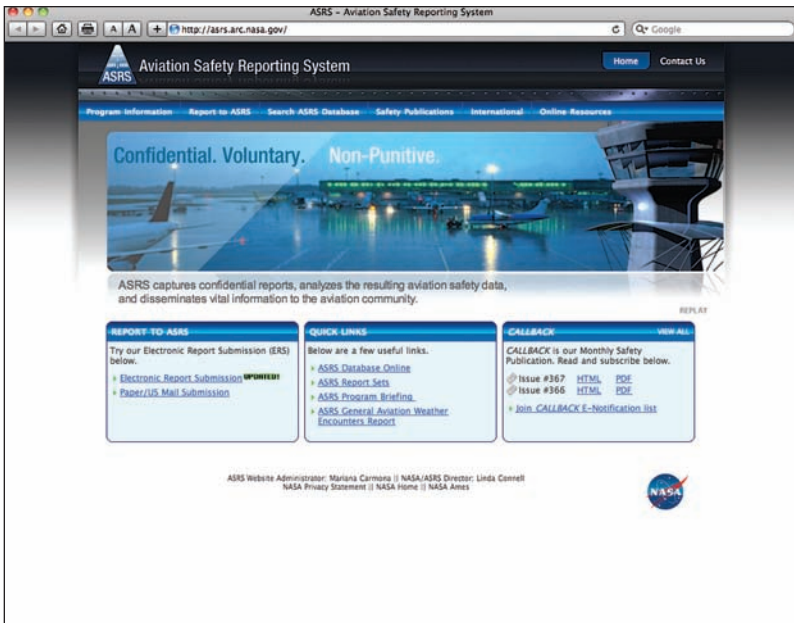# Hot Spots

NASA's Aviation Safety Reporting System:
Gathering data to improve safety

You can submit ASRS reports by mail or online at <http://asrs.arc.nasa.gov/>.

When most people think of NASA, images of exploding supernovas and spiraling galaxies come to mind. But for airmen who use the National Airspace System (NAS), NASA's significance takes on a much different meaning. For the past 35 years, NASA has been the backbone of the Aviation Safety Reporting System (ASRS), a program that relies on candid feedback from airmen to promote the quality and safety of the nation's aviation system. Yet, despite its positive influence on aviation safety, there are still many questions and misconceptions about the program that keep it from being used more frequently. A closer look can reveal just how easy-to-use and effective this system is in promoting safer skies for you and your fellow airmen.

The success of the ASRS program is directly attributed to the users of the NAS whose reports on unsafe conditions and self disclosures help identify discrepancies and deficiencies in all facets of aviation operations. The program accepts comments from pilots, mechanics, dispatchers, ground personnel, flight attendants, and most recently, air traffic controllers. Comments received—on everything from airport lighting issues to engine problems—all feed into the heart of the system, which is the ASRS database. With nearly a million reports received since the program's start, the ASRS database is considered the largest source of voluntary aviation safety information in the world.

"Safety hazards and incidents may occur regularly in the NAS," says Jay Pardee, FAA Chief Scientist and Technical Advisor for Vulnerability Discovery and Safety Measurement. "Without the firsthand flight-crew perspective offered in ASRS reports, many of these system-safety problems would go unnoticed and unresolved."

Consider the following ASRS report, which describes a Cessna 172 pilot who becomes disoriented while taxiing at night, resulting in a runway incursion on each of the airport's three runways:

> I expected my taxi clearance would take me down the west side of Runway 2, but realized later that this route did not exist. Ground gave me an unexpected clearance of D3 to D to D1. I decided to taxi down it until I saw Delta. Once on D3, however, the confusion of lights and the odd angles of runway and taxiway intersections confused me and I found myself taxiing down Runway 2 with no immediate way off. I notified Ground that I was 'lost' and needed some help. Experiencing a sort of 2-dimensional spatial disorientation among the lights, I made another false start onto Runway 6...and in the darkness, overshot the somewhat faded hold line for Runway 31 by about 10 feet.

Keeping it Confidential
Despite its many benefits, it's understandable how an airman might be hesitant to submit an ASRS report on an unsafe condition, especially if it involves a possible violation of federal regulations. For this reason, FAA designed the program to safeguard the anonymity and confidentiality of the reporter. This explains NASA's involvement: The

agency acts as a non-regulatory third party to receive and analyze the reports, and to ensure they are de-identified before being passed on.

To further encourage a free flow of information, the program also offers immunity from disciplinary action under certain circumstances. The conditions required to have immunity from a penalty or certificate suspension include:

- An ASRS report form submitted within 10 days of the event
- A violation that is inadvertent and not deliberate
- A violation that does not involve a criminal offense or accident
- An airmen who is qualified or competent to hold his/her certificate
- The person who submits the report has not been involved in an FAA enforcement action and found in violation of federal aviation regulations within the previous five years

How Does It Work?

To submit an ASRS report, use ARC Form 277B, (or simply the "NASA form"). Visit your local Flight Service Station or Flight Standards District Office (FSDO) for hard copies, or you can request one by mail from NASA. Airmen can also submit a report online at http://asrs.arc.nasa.gov/report/electronic.html. Pilots should select the General form.

Each form has a tear-off portion that contains the submitter's name and contact information, as well as a section for details about the event or situation. When NASA receives the report, the tear-off section is removed, time-stamped, and returned to the submitter as a receipt. Going a step further to protect anonymity, NASA also deletes all details elsewhere in the form that could potentially identify the submitter. The only exception to this de-identification of personal data is with criminal offenses and accidents which are reported, in full, to the Department of Justice and NTSB.

FAA is also bound to uphold this non-punitive agreement by Title 14 Code of Federal Regulations (14 CFR) section 91.25, which prohibits using ASRS reports in any enforcement action, except with regard to accidents and criminal offenses. The FAA's level of commitment and continued support of this program speaks volumes about how much it values the safety information gained by these reports. There has never been a breach of confidentiality in the ASRS program's history.

A Win-Win for Aviation Safety

During the last 20 years, ASRS reporting has steadily increased and now averages more than 4,000 reports a month. General aviation reports contribute to nearly 30 percent of total ASRS reports. For FAA Aviation Safety Analytical Services Manager Vivek Sood, these thousands of reports represent more than just numbers.

Help improve safety—use ASRS to report safety incidents.

"They translate to real opportunities to improve safety and monitor trends that can benefit everyone in the system."

One way reports are leveraged to promote safety is through an alert messaging system. The alerts relay safety information about a potentially unsafe situation, e.g., a confusing approach procedure, to the appropriate FAA office or aviation authority for evaluation and corrective action if needed. Another ASRS product is *CALLBACK*, a popular monthly newsletter that incorporates information from reports in an insightful and thought-provoking style. The issues are at: http://asrs.arc.nasa.gov/publications/callback.html.

The concept of ASRS-type reporting isn't limited to the United States. Brazil, China, Spain, and more, have adopted their own versions. Industries like medicine and railroad safety have also adapted the ASRS model to help them identify problem areas.

"The ASRS concept is simple, but its impact on aviation safety is far-reaching," says Pardee. "This trusted system has demonstrated for decades the ability to help prevent avoidable accidents by relying on its biggest asset and best source for information—the eyes and ears of frontline users."

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