

# CALLBACK

## 25th Anniversary Edition

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NASA'S AVIATION SAFETY REPORTING SYSTEM

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## Half a Million Incident Reports Later The ASRS Celebrates Its 25th Anniversary

On April 15, 2001, the world's largest confidential voluntary aviation reporting system, the NASA Aviation Safety Reporting System (ASRS), will celebrate its 25th year of operation. Just prior to this anniversary, the ASRS will reach another milestone – the processing of its 500,000th aviation incident report.

The ASRS was founded in 1976 through a Memorandum of Agreement between the Federal Aviation Administration (FAA) and National Aeronautics and Space Administration (NASA). The longevity and success of the ASRS program is a remarkable example of how cooperation between government agencies can create an effective agent for safety improvements against the backdrop of changing times.

### Origins of the FAA / NASA Partnership

Progress often comes at a price, and the founding of the ASRS was no exception. A tragic and potentially avoidable airline accident was the direct motivation for establishing a national aviation incident reporting system.

On December 1, 1974, TWA Flight 514 was inbound through cloudy and turbulent skies to Dulles Airport in Washington, DC. The flight crew misunderstood an ATC clearance and descended prematurely to the final approach altitude, below the minimum safe altitude for the area through which they were flying. The aircraft collided with a Virginia mountain top, killing all aboard.

A disturbing finding emerged from the NTSB accident investigation. Six weeks earlier, a United Airlines flight crew had experienced an identical clearance misunderstanding and narrowly missed hitting the same mountain during a nighttime approach. The United crew discovered their close call after landing and reported the incident to their company's new internal reporting program. A cautionary notice was issued to all United pilots.

Unfortunately, at the time there existed no method to share this knowledge with TWA and other airline operators. Following the TWA accident, it was determined that such safety information *must* in the future be shared with the entire aviation community. Thus was born the idea of a national aviation incident reporting system.

### Two Agencies, One Purpose

The first step was to design a system in which the aviation community, both individually, and collectively, could place a high degree of trust.

The FAA quickly recognized that its regulatory and enforcement roles would discourage the aviation community from using the new program. It therefore asked NASA to act as the independent third party that would administer the program and fulfill the role of an honest broker attending to the interests of both sides.

NASA, a research organization with no regulatory or enforcement role, saw a unique opportunity to enhance its research capability through access to the human factors data generated by the new system.

NASA accepted the proposal to support the FAA in its mission to eliminate unsafe conditions in the national aviation system, and the ASRS began operation in 1976. The FAA provides funding for all ASRS program operations, while NASA administers the program and supplies "in-kind" funding support.

### The Role of the ASRS Advisory Committee

A major factor in the success of the ASRS has been the involvement of the entire community of aviation stakeholders in the form of an industry-government Advisory Committee to NASA. The FAA Office of System Safety provides a representative that is a standing member of this group.

At the very beginning of the program, Committee representatives were actively involved in program development and oversight, and became strong advocates for the ASRS with their professional organizations and unions. The widespread acceptance and use of the ASRS program in aviation circles is due largely to their efforts.

Today, the NASA/ASRS Advisory Committee continues to offer its guidance, aviation expertise, criticism, and advocacy in semiannual meetings. This ensures that the major ASRS stakeholders are informed about program developments, and that NASA and the FAA, in turn, are aware of stakeholder views and important industry trends.

### Safety Depends on "Lessons Learned"

The great strength of confidential reporting systems is that they are a means of converting incident information into a resource for improving the safety of aviation operations, and protecting the welfare of all participants.

As the ASRS has demonstrated for many years, if a system's users – the people at the "sharp end" of day-to-day operations – are encouraged to report the safety problems they encounter to a program they can trust, safety goals will be reached much sooner than if we never hear the stories of those lessons learned.

#### ASRS Recently Issued Alerts On...

Opening of CL-65 cabin oxygen access panels inflight
Fokker 100 uncommanded pitch-up during initial climb
A300 passenger entertainment system electrical box fire
Runway incursion problems at a major Northeast airport
An ATC facility's problems using backup radar (CENRAP)

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#### February 2001 Report Intake

Air Carrier / Air Taxi Pilots	2217
General Aviation Pilots	608
Controllers	52
Cabin/Mechanics/Military/Other	188
<b>TOTAL</b>	<b>3065</b>

# ASRS Feedback to the Aviation Community

A reporting system's information output directly reaches the system's users, enables a learning process to take place, and helps ensure that corrective actions will be appropriate and effective. What has the ASRS produced that contributes to safety "lessons learned"?

**Alert Bulletins and For Your Information Notices** – a crucial ASRS mission is to serve as a "front line" for alerting on safety issues that affect many aviation users, or pose a significant safety hazard. The ASRS has issued approximately 4,000 alerting messages of all types to the FAA manufacturers and aviation community authorities since the program's inception. Twice a month the ASRS has teleconferences with the FAA Office of System Safety on the most important alerting items seen in its recent report flow.

**Quick Response Studies** – Another important ASRS mission is to support government organizations such as the FAA, NTSB, and Congress during rule-makings, procedure and airspace design efforts, accident investigations, and other *ad hoc* circumstances. Recent Quick Response efforts include a study of passenger misconduct incidents and runway incursion events involving pilots.

**Operational Research** – ASRS has conducted and published 57 research studies since the program's inception. ASRS research has always been designed to examine human performance issues in real-world operations.

**Database Search Requests** – Information in the ASRS database is available to interested parties at no cost. To date more than 6,000 database searches have been performed in support of government, industry, academic and other requests.

**Publications** – The ASRS has developed two publications, *CALLBACK* and *ASRS Directline*, to provide feedback to its constituencies. *CALLBACK's* goal is to educate a broad aviation audience in safety issues by using a "lessons learned by others" approach in a monthly safety bulletin format. *ASRS Directline* is published periodically to meet the needs of the operators and flight crews of complex aircraft, such as commercial carriers and corporate fleets. Articles focus on subjects of special interest to this group.

**Program Outreach** – NASA and ASRS staff members participate in important aviation industry meetings and conferences to interact directly with stakeholders across the system and stay in touch with current aviation issues and concerns. The ASRS web site (<http://asrs.arc.nasa.gov>) has become an increasingly important resource for program outreach. Program users can find reporting forms, recent issues of the ASRS publications, data report sets on frequently requested topics, and much other program information for downloading at the ASRS site.

## The ASRS Reporting Model

There is a growing recognition that the ASRS model of safety incident reporting is a proven and effective way to complement accident investigations, mandatory event reporting, and other information gathering systems.

The idea behind the ASRS has been emulated by aviation systems worldwide, and is now catching on in industries outside aviation such as maritime, nuclear power, and medicine. That idea is fairly simple and straightforward:

- When organizations and industries want to learn more about safety incidents and why people did what they did, the best approach seems to be to simply ask the participants.
- People are generally willing to share their knowledge if they are assured their identities will remain anonymous and the information they provide will be protected from disciplinary consequences.
- A properly structured *confidential, voluntary, non-punitive* incident reporting system can be used by any person to share this information.
- Such a system has the means to ask, and frequently answer, the question of *why*. There is no substitute for knowing why a system failed or why a human erred.
- A voluntary incident reporting system cannot succeed without the cooperation, oversight, and guidance of the community that will use it. It must be viewed as a safety information resource accessible and responsive to all.
- A voluntary reporting system usually must *exclude* from its protections some types of incidents, such as criminal acts and intentional unsafe acts.
- The safety data gathered from incident reporting can be used to identify system vulnerabilities and gain a better understanding of the root causes of human error. Incident reporting data is complementary to the data generated by other mandatory or monitoring systems.
- The ultimate achievement of an incident reporting system is that it can identify potential safety hazards and prevent accidents.

