Aviation Safety Reporting System Program Overview

Updated through Fourth Quarter 2003

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ASRS Concept and Mission

The Aviation Safety Reporting System (ASRS) receives, processes and analyzes voluntarily submitted incident reports from pilots, air traffic controllers, flight attendants, maintenance technicians, and others. Reports submitted to ASRS describe both unsafe occurrences and hazardous situations. ASRS's particular concern is the quality of human performance in the aviation system.

ASRS Purpose

Identify deficiencies and discrepancies in the National Aviation System

- Objective: Improve the current aviation system

Provide data for planning and improvements to the future National Aviation System

- Objective: Enhance the basis for human factors research & recommendations for future aviation procedures, operations, facilities, and equipment

NASA Aviation Safety Reporting System

- Voluntary
- Confidential
- Non-Punitive

ASRS Background

WW II	Industry and Military recognized value of voluntary incident reporting
1958	Need for U.S. Incident Data System raised during FAA Enactment Hearings
Oct. 1974	United Airlines incident foreshadowed TWA 514 Accident
Dec. 1974	TWA 514 Accident
April 1975	Study of the National Air Transportation System as a Result of the Secretary's Task Force on the FAA Safety Mission
May 1975	Aviation Safety Reporting Program (ASRP) Implemented (FAA)
May 9, 1975	Advisory Circular 00-46 Issued
April 1976	Aviation Safety Reporting System (ASRS) Implemented (NASA/FAA)

Documents Governing ASRS Immunity & Confidentiality

- Federal Register Notice, 1975 & 1976
- Federal Aviation Regulations Part 91.25
- FAA Advisory Circular Number 00-46D
- Facility Operation and Administration Handbook, 7210.3S

The Immunity Concept: Pilots

(FAA Advisory Circular AC No. 00-46D)

c. The filing of a report with NASA concerning an incident or occurrence involving a violation of 49 U.S.C. Subtitle IV, or the FAR, is considered by FAA to be indicative of a constructive attitude. Such an attitude will tend to prevent future violations. Accordingly, although a finding of a violation may be made, neither a civil penalty nor certificate suspension will be imposed if:

(1) The violation was inadvertent and not deliberate;

(2) The violation did not involve a criminal offense, or accident, or action under 49U.S.C. Section 44709 which discloses a lack of qualification or competency, which are wholly excluded from this policy:

(3) The person has not been found in any prior FAA enforcement action to have committed a violation of 49 U.S. C. Subtitle VIII, or any regulation promulgated there for a period of 5 years prior to the date of the occurrence; and

(4) The person proves that, within 10 days after the violation, he or she completed and delivered or mailed a written report of the incident or occurrence to NASA under ASRS. See paragraphs 5c and 7b.

NOTE: Paragraph 9 does not apply to air traffic controllers. Provisions concerning air traffic controllers involved in incidents reported under ASRS are addressed in Order 7210.3.

The Immunity Concept: Controllers

(Facility Operation and Administration Handbook, 7210.3S)

2-2-10 Performance Deficiency Corrective Actions

a. Remedial training shall be conducted in accordance with Chapter 2, Section 3, of FAAO 3120.4, *Air Traffic Technical Training*.

b. Performance deficiencies which have proven not to be correctable through the remediation process shall be resolved under FAAO 3500.7, I, or FAAO 3550.6, Performance Management and Recognition System.

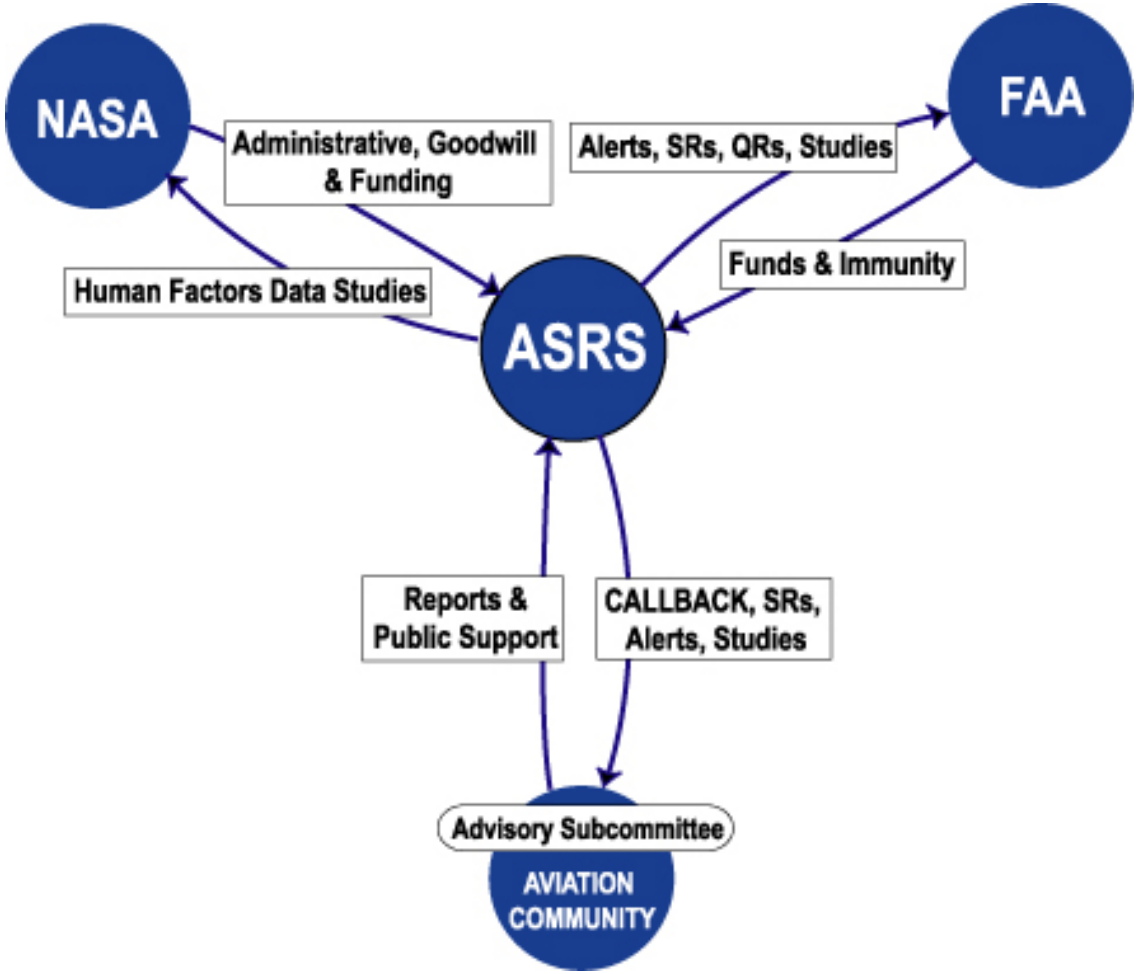
c. Disciplinary action may not be taken against an employee for performance which led to an operational error or deviation if all the following conditions were met:

(1) The employee's action or lack of action was inadvertent; and

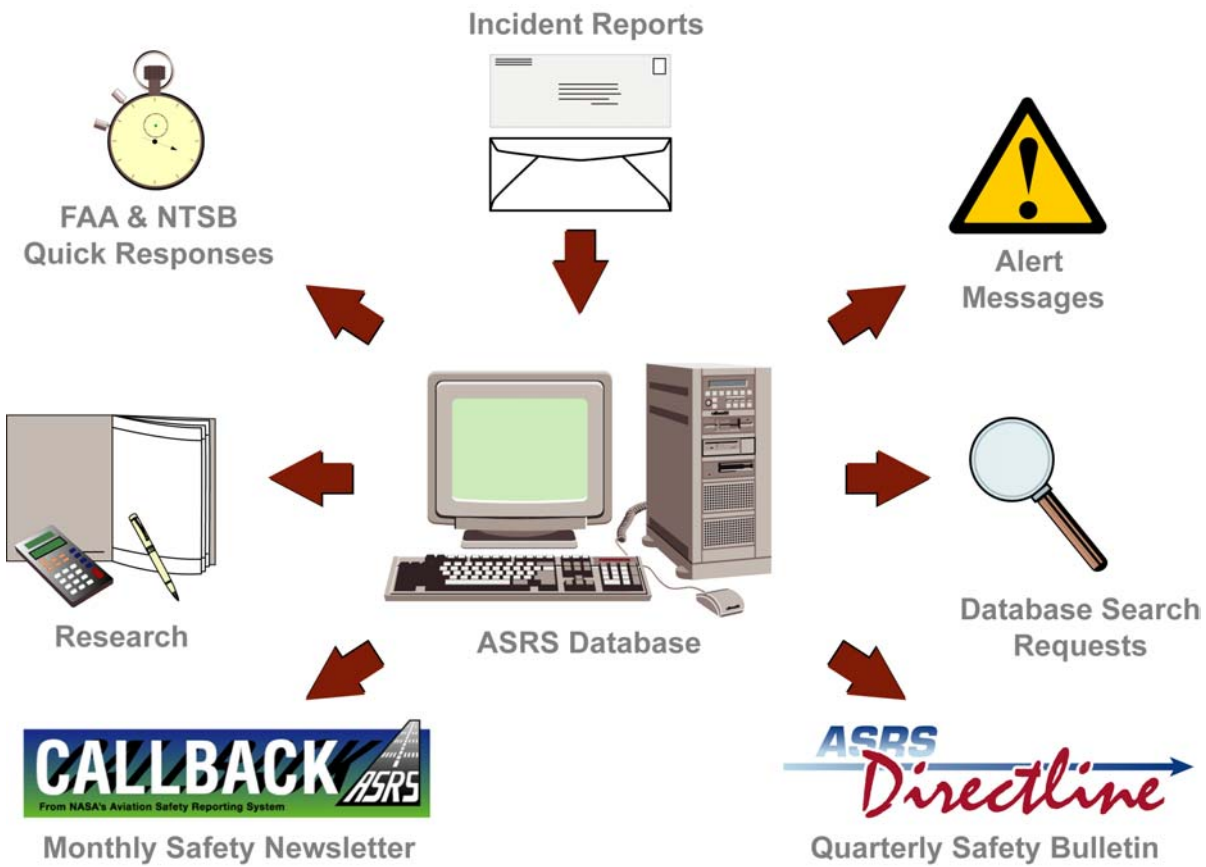
(2) The employee's action or lack of action did not involve a criminal offense, accident, or action under Section 609 of the Federal Aviation Act which discloses a lack of qualification or competency, which is wholly excluded from this policy; and

(3) The employee shows proof that within 10 days after the occurrence of the operational error or deviation he/she completed and delivered or mailed a written report of the occurrence to National Aeronautics and Space Administration (NASA), Aviation Safety Reporting System (ASRS).

Beneficiaries & Providers



ASRS Produces a Wide Variety of Products & Services for the Aviation Community



ASRS Staff

The ASRS staff is composed of aviation professionals, as well as highly qualified researchers, systems experts, managers, and administrative staff.

The professional staff brings to the program many decades of prior experience as pilots, air traffic controllers, maintenance technicians, research scientists, and managers.

ASRS Metrics

January 1976 – December 2003

Significant Item	Quantity
Incident Reports Received	605,133
Safety Alert Messages Issued	3,467
Search Requests/Quick Responses	6,864
CALLBACK Safety Bulletins	291
DIRECTLINE Issues	10
Major Research Studies	59

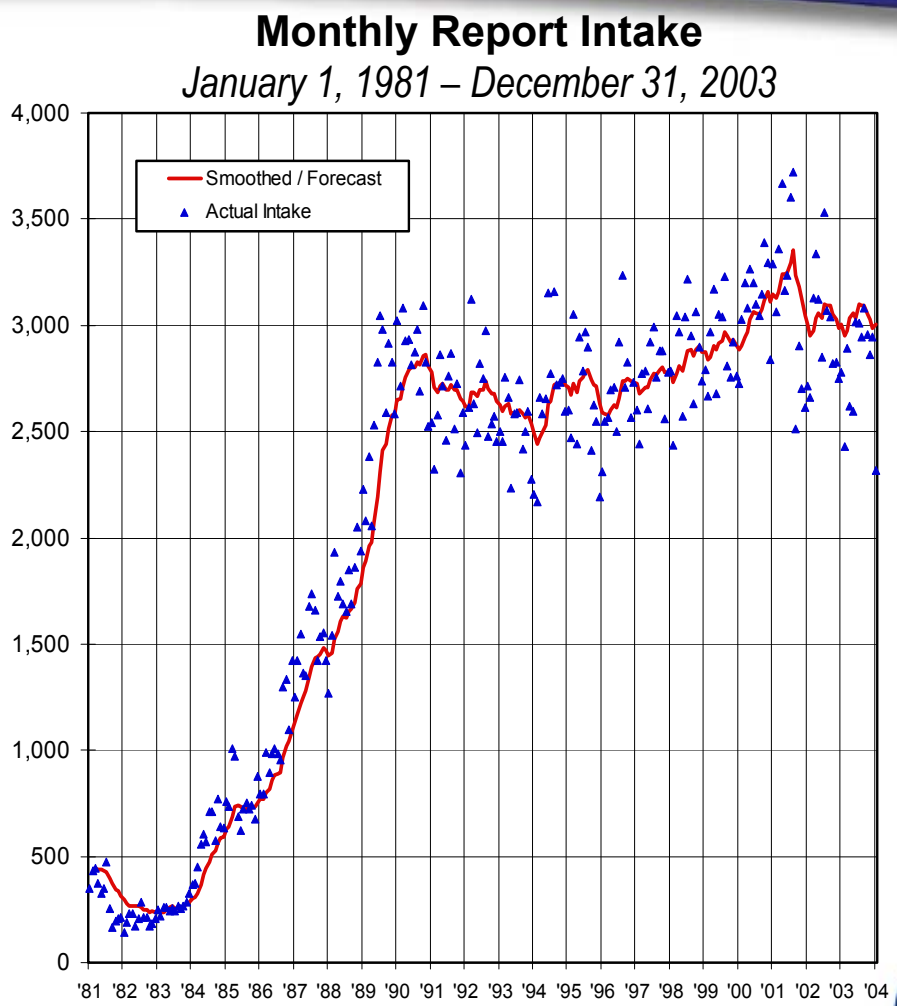
REPORT PROCESSING

Report Intake Overview

ASRS receives reports from pilots, air traffic controllers, flight attendants, maintenance technicians, and a variety of other individuals. ASRS's report intake has been robust from the first days of the program, averaging approximately 400 reports per month. In recent years, report intake has grown at an enormous rate. It now averages 673 reports per week and more than 2,845 reports per month.

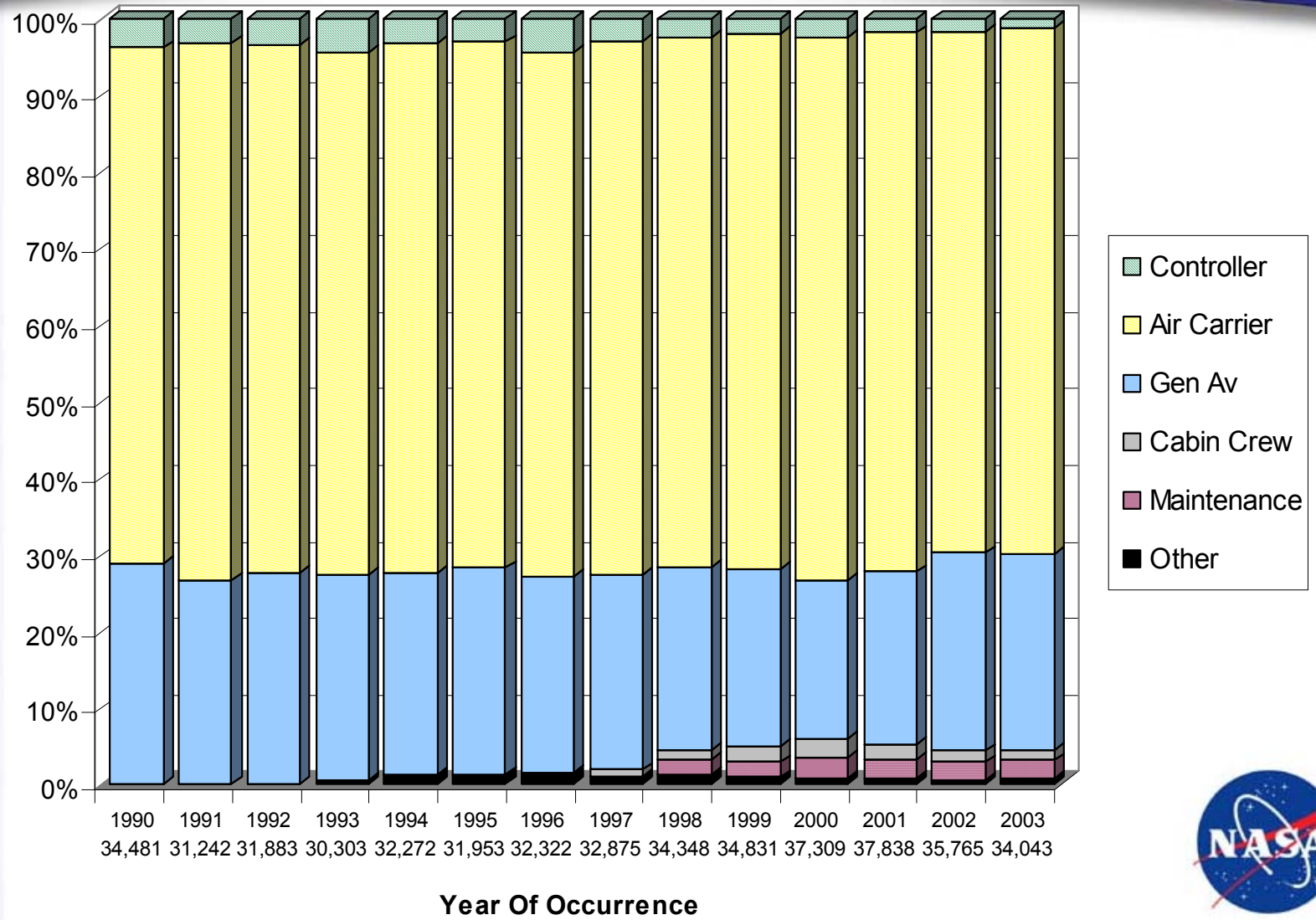
ASRS Report Intake

- **An Increase of 70% Since 1988**
- **Averaging 2,845 Reports Per Month**
  - **135 per working day**
- **Total 2003 Report Intake = 34,043 Reports**



Incident Reporter Distribution

January 1990 - December 2003

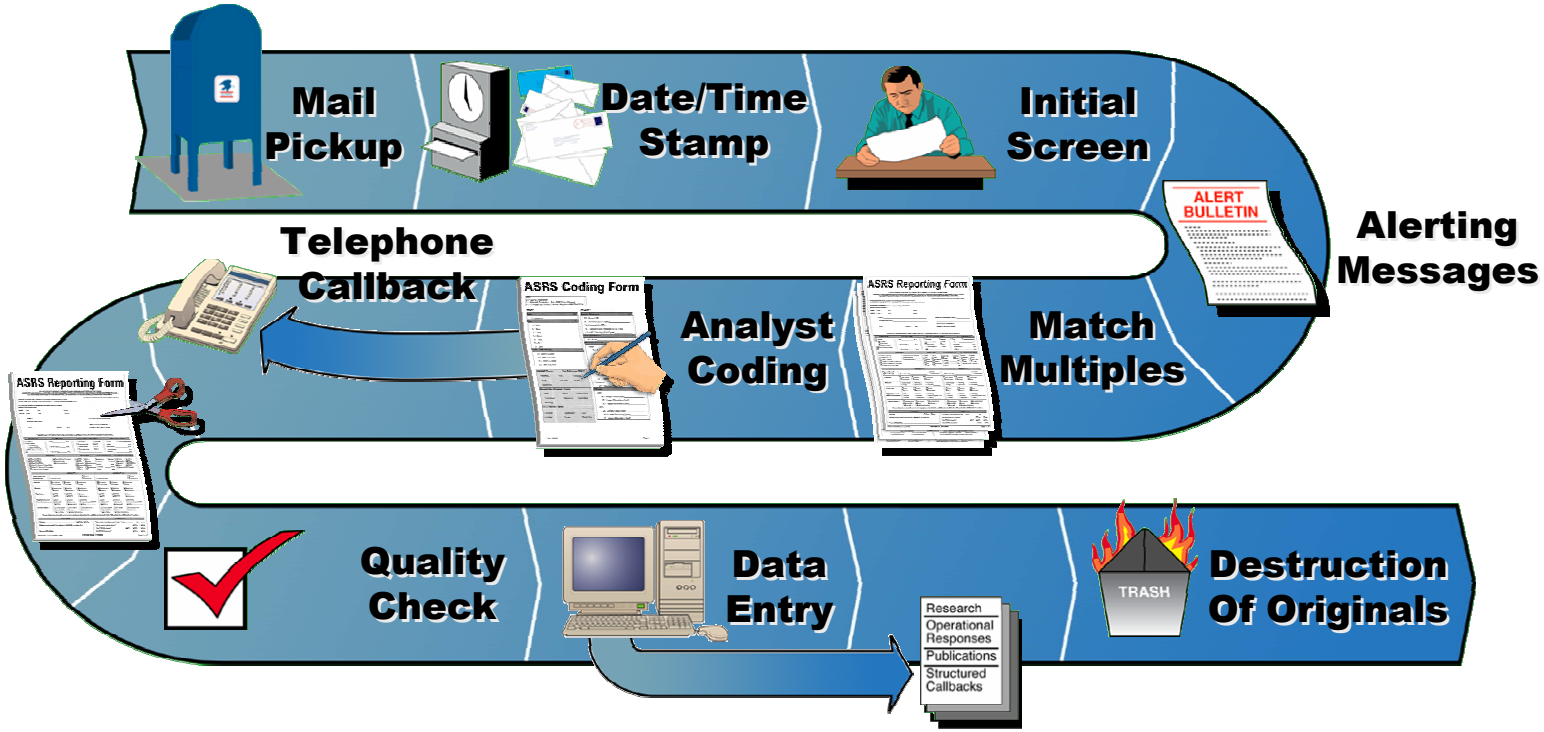


Report Processing Overview

ASRS report processing begins at the pickup of the reports at the post office and ends with the final coded report either entering the ASRS computerized database or filed. Intermediate steps include: (1) screening reports for actionable hazards, (2) deidentification of reports to protect reporter confidentiality, (3) matching multiple reports, and (4) codification and analysis.

These activities result in the ASRS database which is widely regarded as one of the world's best sources of information on aviation safety and human factors.

Report Processing Flow



ALERTING MESSAGES

Alerting Message Overview

- When ASRS receives a report describing a hazardous situation, for example, a defective navigation aid, an aircraft system anomaly, a confusing procedure, or any other circumstance which might compromise safe flight – an alerting message is issued using deidentified information provided in the reports.
- Alerting messages have a single purpose: *to relay safety information to individuals in a position of authority so that they can evaluate the information and take needed corrective actions*.
- ASRS has no direct operational authority of its own. It acts through, and with the cooperation, of others.

ASRS Alerting Pyramid

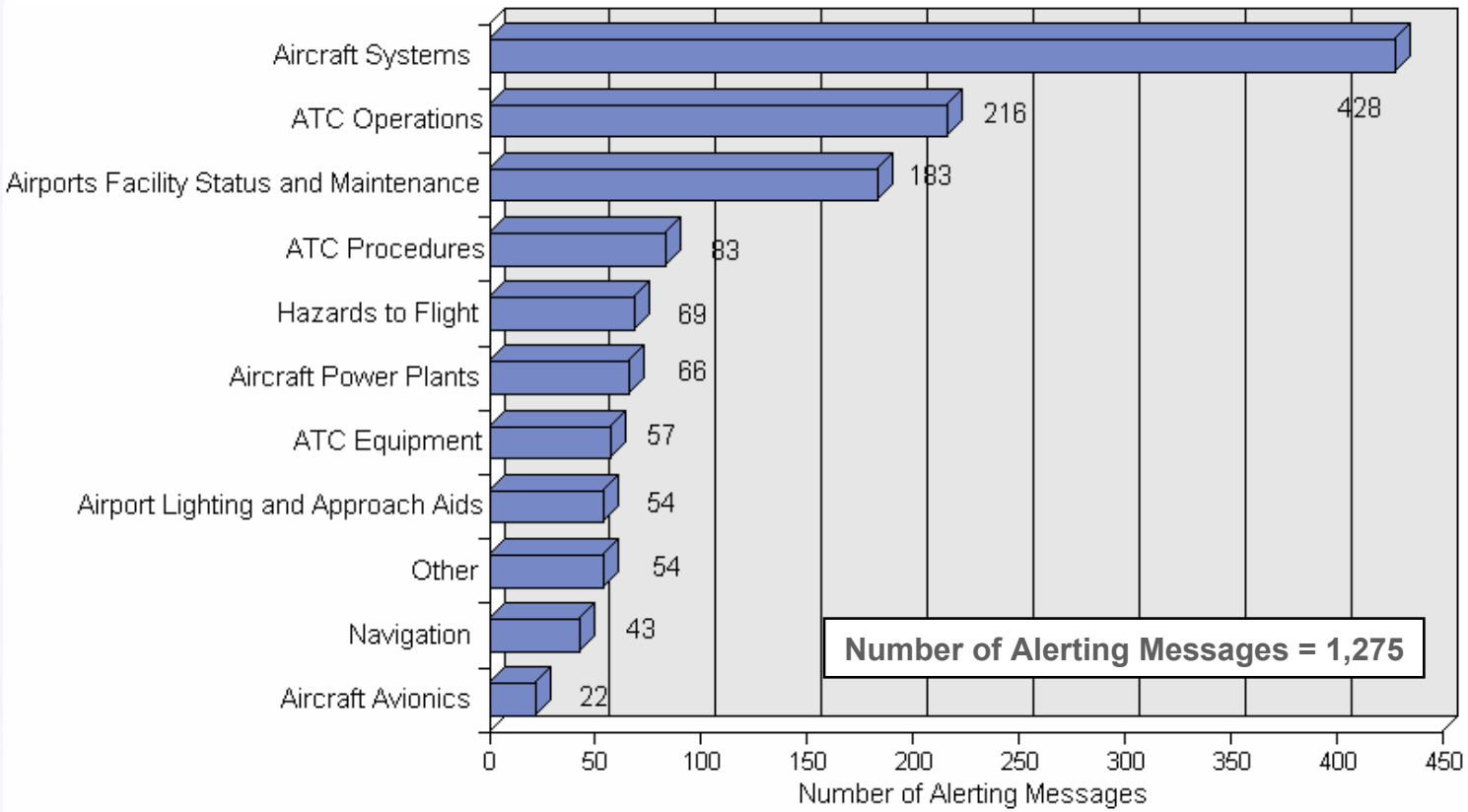
Alerting Metrics

January 1999 – December 2003

	1999	2000	2001	2002	2003
Alert Messages Issued	78	87	88	61	115
For Your Information Notices Issued	75	168	190	151	99
Response Rate to ABs/FYIs	35%	26%	24%	25%	28%
Response Rate - Non-Manufacturer	75%	42%	32%	32%	38%

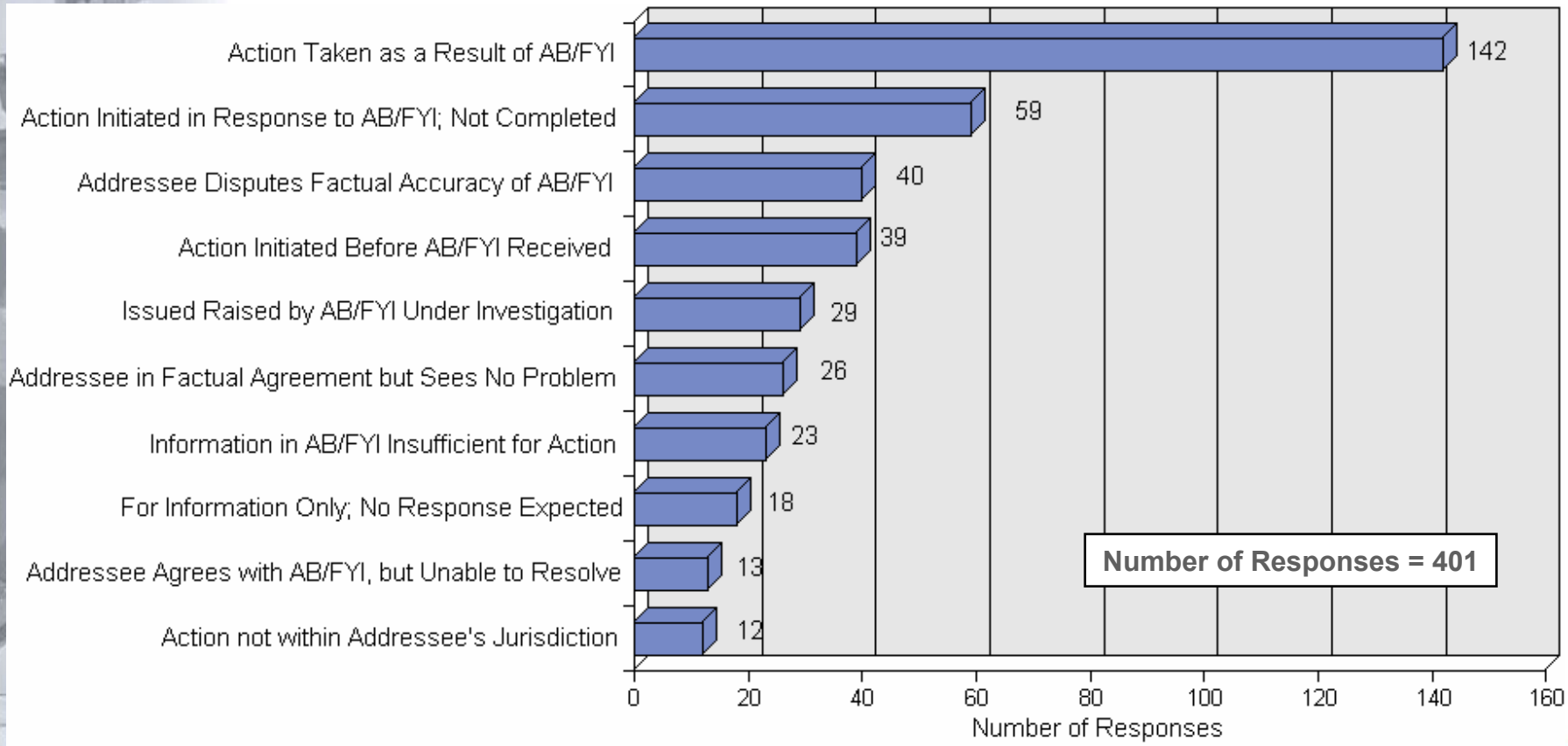
Alerting Subjects

January 1999-December 2003



Alerting Responses

January 1999-December 2003



Examples of AB/FYI Safety Alerting Successes

Non-Use of Runway Closure X's - HNL (AB 2003:10)

- Controller report concerning the airports nonuse of runway closure X's. Airport Management will correct this safety concern and thanked ASRS for bringing this to their attention.

BOS Taxiing Incident (AB 2003:15)

- Taxiing B757 at night, experienced a surface incident with another B757 that was under-tow, both the aircraft and the tug had their lights on. Tower management indicated that increase staffing and team briefings would be held to increase awareness.

Bell 407 Helicopter Cracked Rotor Mast (AB 2003:18)

- It was reported that a Bell 407 helicopter had a 60 degrees circumference crack in the rotor mast. The manufacture issued an Operations Safety Notice to all owners/operators to inspect their rotor mast for corrosion and cracks.

PIT Runway/Taxiway Surface Uneven (FYI 2003-51)

- Beech 1900 encountered a uneven/unleveled surface in the ramp/taxiway area at PIT. Both FAA and Airport Management will schedule repairs as part of their 2004 Rehabilitation program.

DATABASE SEARCH REQUESTS

Database Search Requests

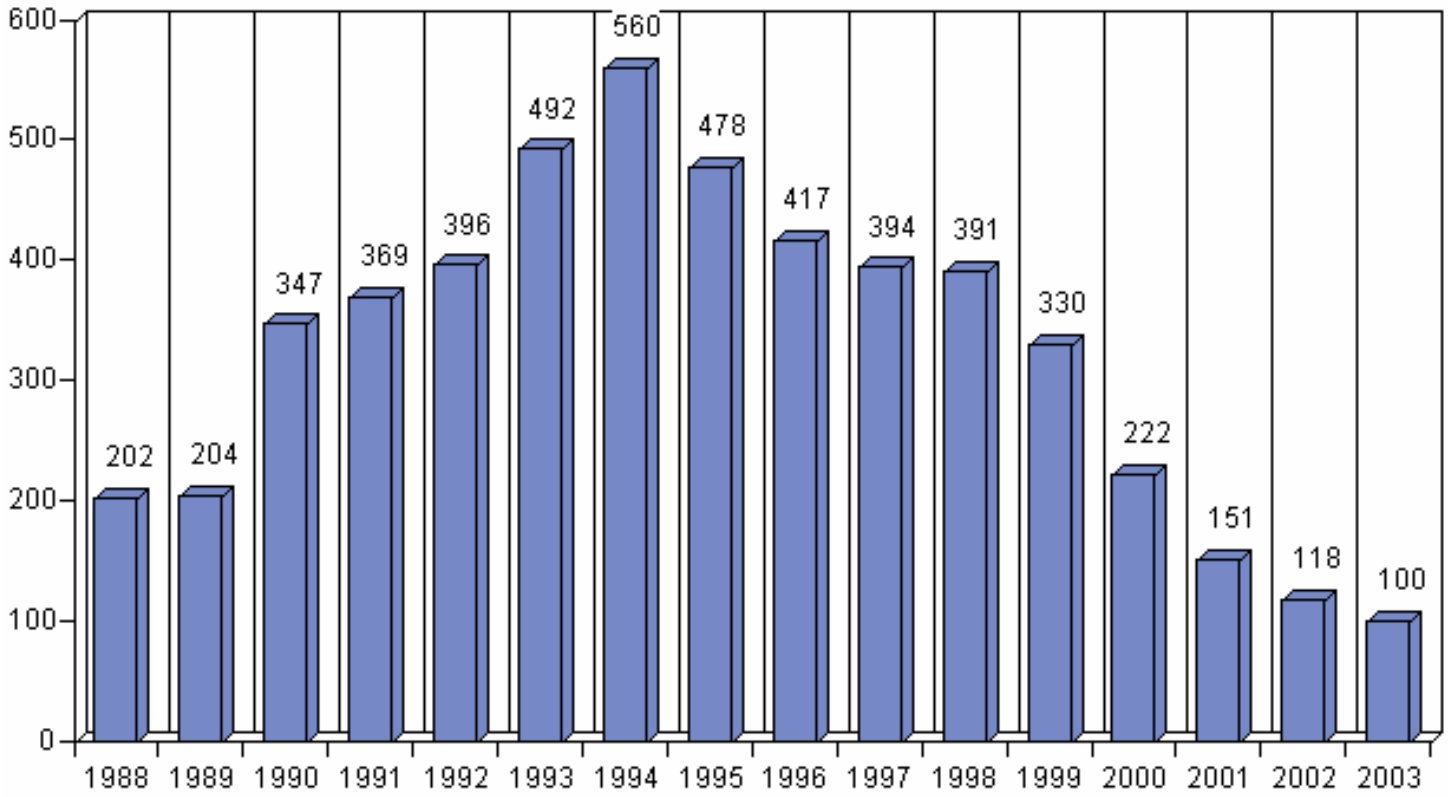
Information in the ASRS database is available to government agencies, members of congress, and aviation safety organizations. Requestors need to state the subject in which they are interested. ASRS will search its database and download relevant reports. They also include caveats and explanations of the document set.

The public can download elected ASRS database sets are available to download at the ASRS website (http://asrs.arc.nasa.gov/). Direct access to the ASRS database is also available for the public and other interested parties through the FAA web site (http://nasdac.faa.gov/) which is updated quarterly.

Search Request Metrics

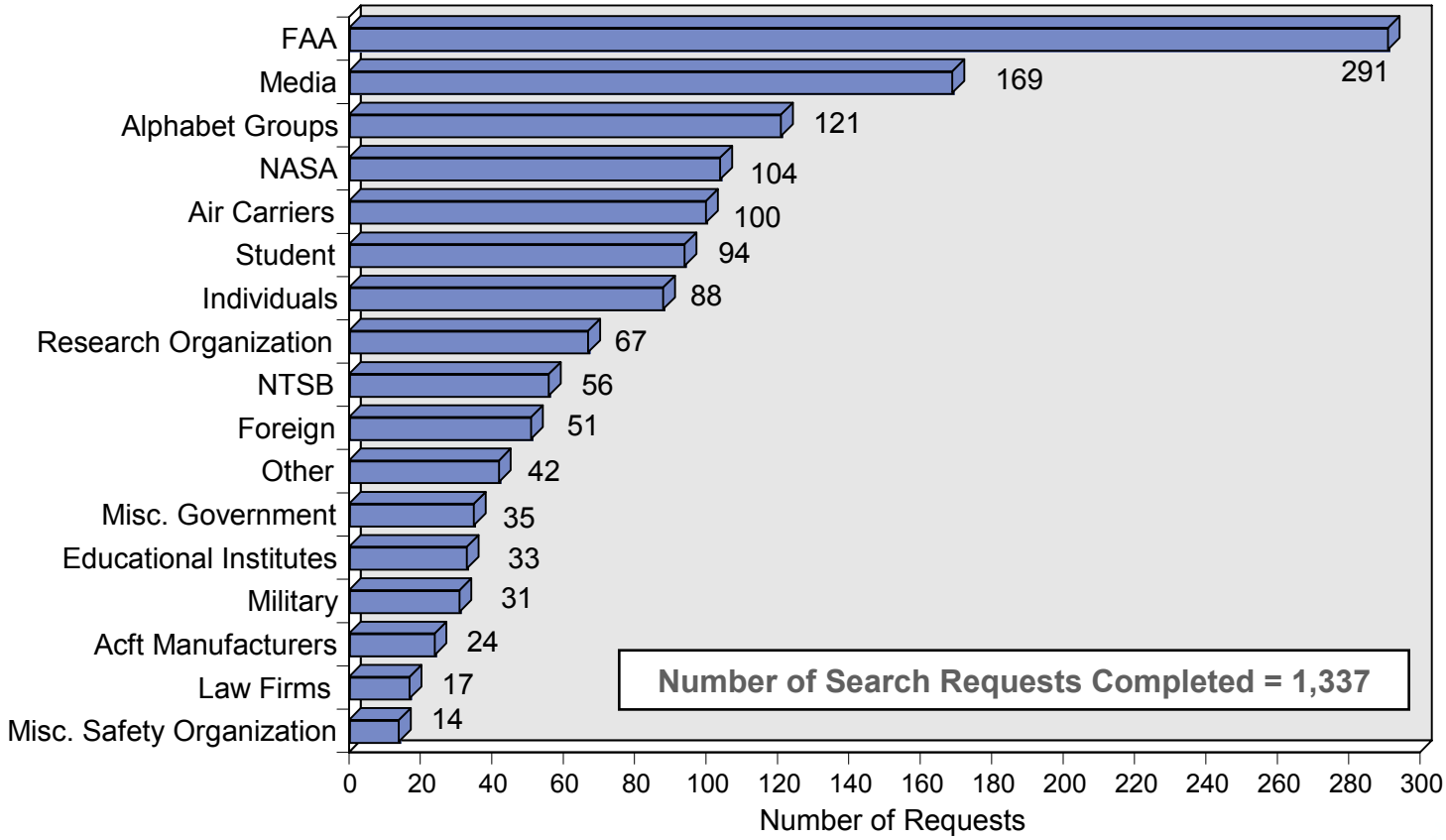
- Over 6,864 Search Requests (SRs) have been accomplished by the ASRS staff through December 2003
- Over 50,000 database sets have been downloaded from the ASRS website (Database sets first posted on 15 January 2000)

Utilization of ASRS's Search Request Program



Search Requestors by Organization

January 1999-December 2003



Recent Notable Search Requests

Cockpit Blowout Panel Incidents (SR 6420)

- For the NTSB to aid in developing an Emergency Safety Recommendation Report

North Las Vegas (VGT) Runway Incursion Incidents (SR 6447)

- For the NTSB & FAA Office of Accident Investigation
- Follow-up to the runway incursion accident at North Las Vegas airport

LA Basin Training-Related NMAC Incidents (SR 6476)

- Completed for the FAA

EMB 135/145 Aircraft Seat Malfunction Reports (SR 6494)

- For the FAA Office of System Safety (ASY-300) and the FAA Flight Standards Certification Surveillance Division (AFS-900)

QUICK RESPONSES

Quick Responses Overview

Quick Responses are rapid turnaround data analysis accomplished within two to ten days of the request. They are a high value service directed towards safety issues with immediate operational importance. Quick Responses are limited to government agencies such as the FAA, NTSB, NASA, and U.S. Congress.

Recent Quick Response Applications

- An Analysis of Passenger Misconduct Incidents (QR316)
- An Analysis of Runway Incursion Incidents 91.129i (QR317)
- An Analysis of General Aviation Incidents (QR318)
- General Aviation Controlled Flight Towards Terrain Incidents (QR319)

CALLBACK

CALLBACK Overview

CALLBACK **is ASRS's award-winning monthly safety bulletin that began publication in 1979. It has an estimated readership of more than 150,000. Over 291 issues have been published and distributed throughout the U.S. and to the international aviation community. All issues are available for download at the ASRS website.**

CALLBACK
From NASA's Aviation Safety Reporting System

CALLBACK is a Hit with the Aviation Community

Winner of four major aviation industry awards:

- *Aviation/Space Writers Association (1982, 1992)*
- *Flight Safety Foundation (1981, 1987)*

Sample reader comments:

- *"Thank you very much for an excellent publication which I have both enjoyed and benefited from for several years."*
- *"I enjoy and appreciate the CALLBACK publication. It's one of the best, real-world safety tools. It should be mailed to all licensed pilots with current medicals."*
- *"Each edition of CALLBACK is widely read and enjoyed within our division. Keep up the good work."*

DIRECTLINE

DIRECTLINE

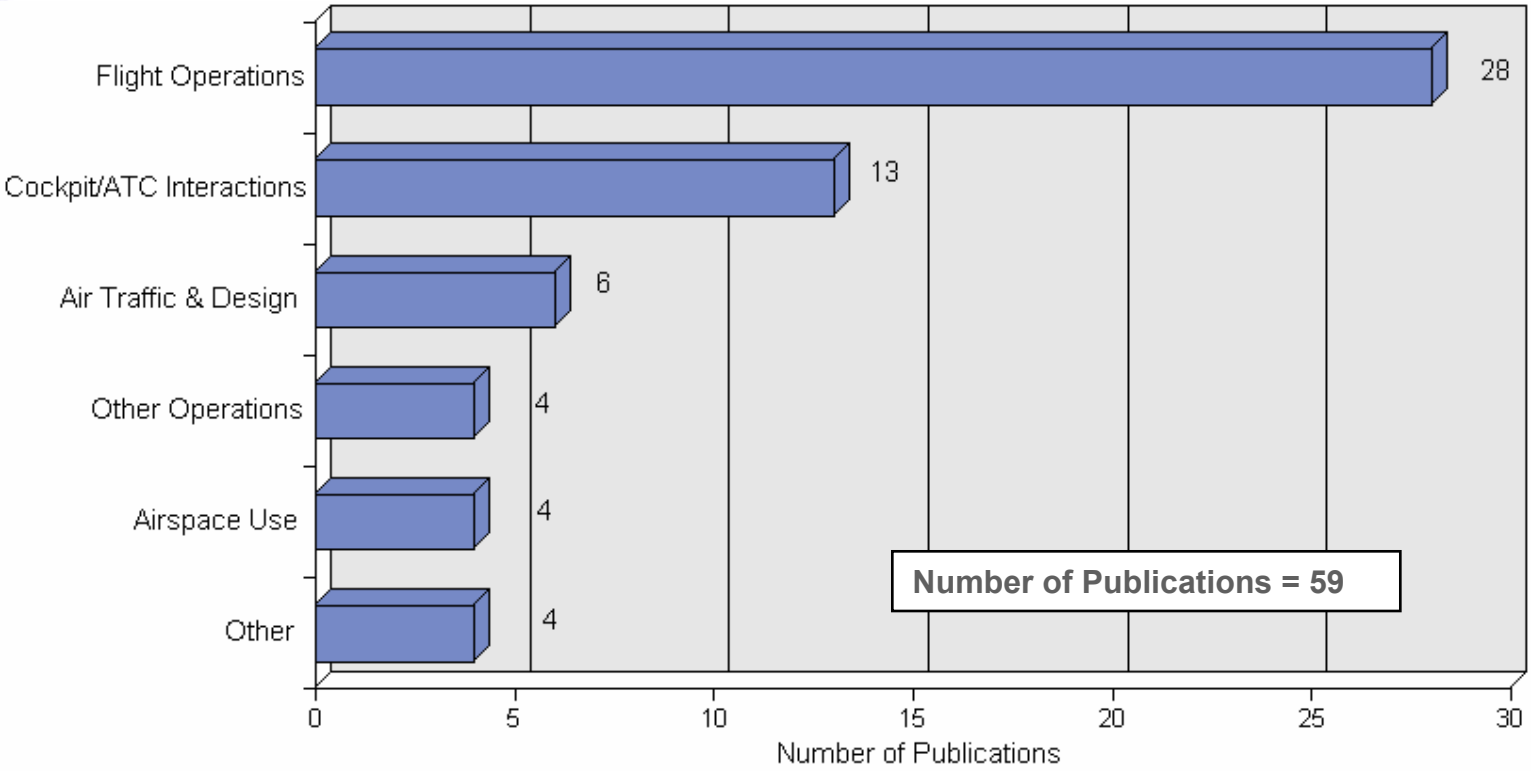
DIRECTLINE **is another award-winning ASRS publication. This safety journal has an estimated readership of 20,000. Ten issues have been published since 1991 with a baseline of three to five articles per issue. All issues are available for download at the ASRS website.**

ASRS RESEARCH

ASRS Research Focused on Operations and Human Factors

- **59 Research Studies and Special Papers Published To Date**
  - NASA Contractor Reports (CRs) and Technical Memorandums (TMs)
  - Ohio State University Aviation Psychology Symposium
  - Industry Liaison
- **Research Agenda developed from collaborations with government and industry safety organizations**

Published ASRS Research Topics



ASRS Summary

ASRS is a highly successful and trusted program that has served the needs of the aviation community for over 25 years. It is available to all participants in the National Aviation System who wish to report safety incidents and situations.

Because of the success of ASRS, there is a growing interest in utilizing the ASRS model for application to other disciplines such as medicine, maritime, rail, and others.

ASRS Model Applied Internationally

UNITED STATES

- Aviation Safety Reporting System (1976)

UNITED KINGDOM

- Confidential Human Incident Reporting Program (1982)

CANADA

- Confidential Aviation Safety Reporting Program (1985-95)
- SECURITAS (1995-present)

AUSTRALIA

- Confidential Aviation Incident Reporting System (1988)

RUSSIA

- Voluntary Aviation Reporting System (1992)

TAIWAN

- Taiwan Aviation Confidential Aviation Reporting Enterprise (2000)

KOREA

- Korean Confidential Aviation Incident Reporting System (2000)

ASRS Model Applied to the Medical Industry

Patient Safety Reporting System (PSRS)

The VA Patient Safety Changes Were Initiated in 1995

- **1995** Vision for Change Initiated
- **1997** National Patient Safety Partnership
  - Expert Advisory Panel Meetings
- **1999** VA National Center for Patient Safety Established (NCPS)
- **1999** Patient Safety Centers of Inquiry Established
- **2000** Development Of NASA/VA Patient Safety Reporting System (PSRS)

The PSRS is an Expansion of the VA's Commitment to Quality and Safety

ASRS Model Applied to the Medical Industry

Patient Safety Reporting System (PSRS)

The PSRS is being initiated progressively throughout VA Networks nationwide in order to:

- Capture events, lessons learned, innovative ideas, and human factors lessons affecting patient safety that may not be detected through other reporting systems.
- Learn about system vulnerabilities and practices.
- Provide opportunity to report insights and "early warning" notices for improving safety.
- Provide "proof-of-concept" for patient safety reporting systems based on aviation model.

ASRS Model Applied to National Security

Security Incident Reporting System (SIRS)

SIRS will be initiated progressively while evaluating the constructive principles from the ASRS model as applied to the area of aviation security

* * * * * * * * * *

- Prototype system for reporting of events and close calls related to security
- Validation of reporting methodology
- Confirmation of data utilization
- Proof-of-concept for the aviation and security communities

ASRS Model Applied to National Security

Security Incident Reporting System (SIRS)

- **SIRS is expected to hear about and identify security concerns and issues for *early warning* of potential system vulnerabilities or problems**

- **SIRS will hear from the "human element" – from the reporter community that interacts directly with the aviation system;**

- **The reporters will be encouraged to describe security events having face validity and solely from the reporter's unique point of view**

APPENDIX