



XII ICAO/ASPA Regional Seminar

May 14-15, 2014

Mexico City, MEXICO

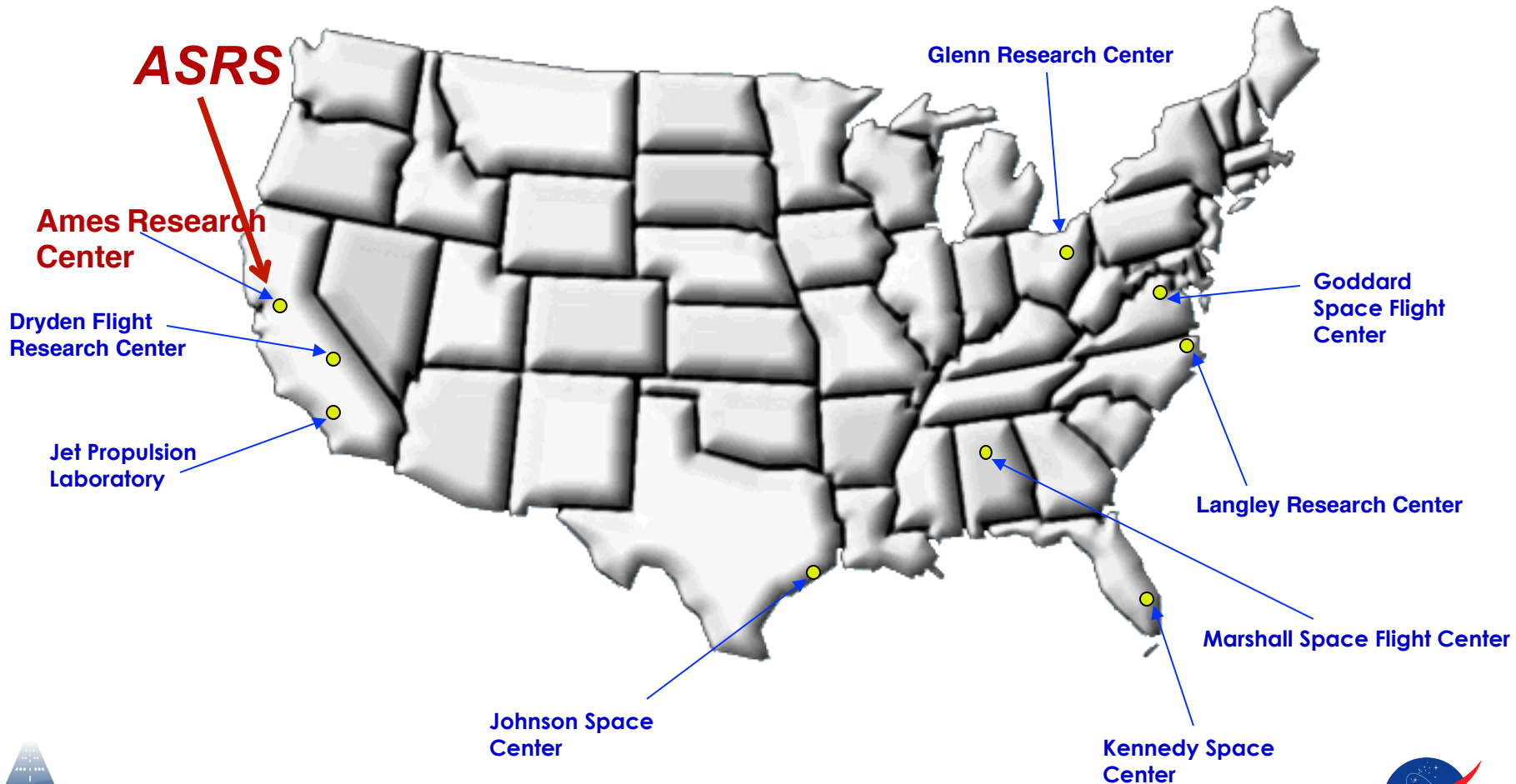
Use and Legal Protection of Safety Information and Its Related Sources

Linda Connell, NASA ASRS Director
Human Systems Integration Division
NASA Ames Research Center

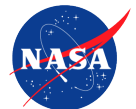
**AVIATION SAFETY
REPORTING SYSTEM**



NASA Aviation Safety Reporting System



Aviation Safety Reporting System



Moffett Field - Hangar One
1932

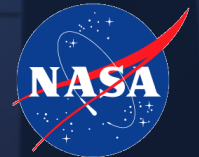




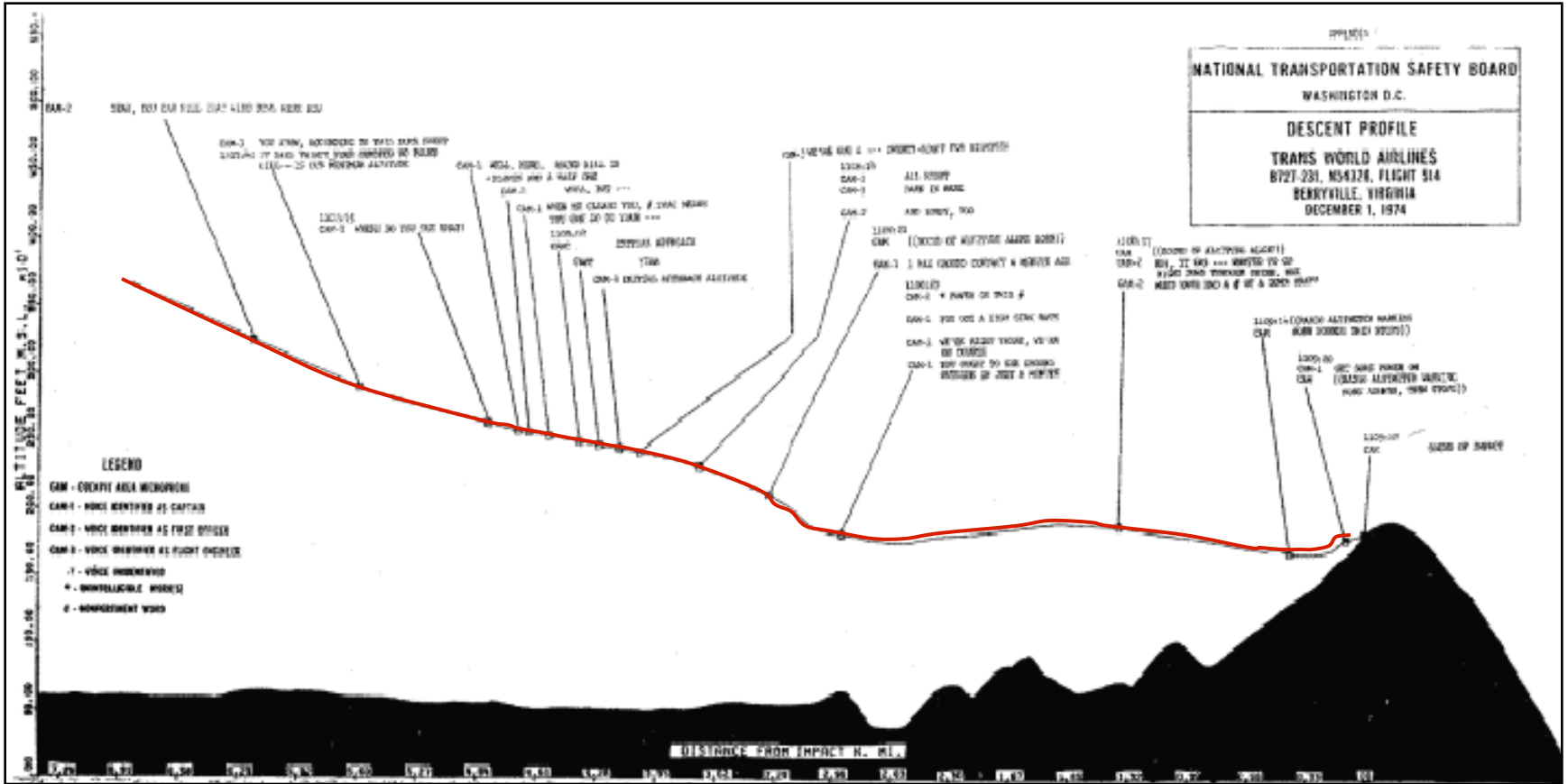
ASRS History and Background



**AVIATION SAFETY
REPORTING SYSTEM**



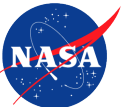
Aviation Tragedy Leads to Genesis of ASRS



TWA 514, December 1, 1974

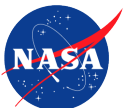
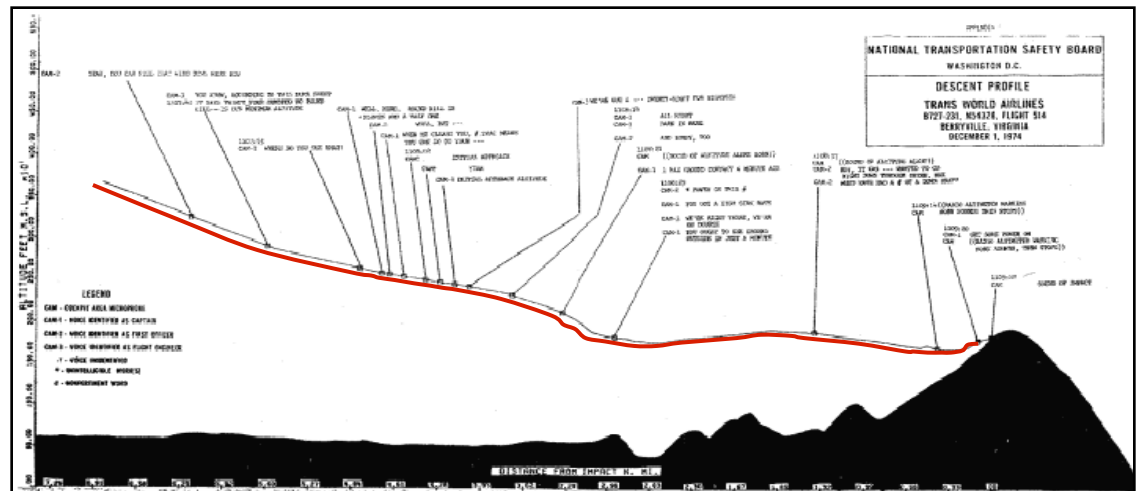


Aviation Safety Reporting System



ASRS History

- The ensuing investigation revealed that six weeks prior, a United Airlines crew had experienced an identical ATC misunderstanding and narrowly missed the same mountain.
- At the time there was no method of sharing the United pilot's experience with TWA and other airline operators.
- This solidified the idea of a national aviation reporting program that would enable information sharing.
- In April 1976, NASA and FAA implemented the Aviation Safety Reporting System (ASRS)



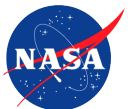
FAA and NASA Partnership

MOA signed by Administrators for FAA and NASA

. . . To provide information to the FAA and the aviation community to assist them in reaching the goal of identifying and eliminating unsafe conditions to prevent accidents.



Aviation Safety Reporting System



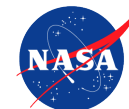
ASRS Gov't/Industry Stakeholders

- **FAA provides reimbursable funding to NASA for ASRS Management & Support**
- **NASA provides funding for Director Program Management**
- **The Aviation Community provides support through advocacy for reporting, feedback, and communications**



Governing Documents

- **Federal Register Notices 1975 & 1976**
- **Federal Aviation Regulation - 14 CFR 91.25**
- **FAA Advisory Circular (00-46A, B, C, D, & E)**
 - **Defines immunity provisions for pilots and others**
- **FAA Facility Operation and Administration Handbook, 7210.3T (Air Traffic Controllers) and new ATSAP MOU**
 - **Defines immunity provision for Air Traffic Controllers**
- **FAA Order 8020.10: Aviation Safety Reporting Program**
 - **Establishes program responsibilities & Safety Study Group**
- **Interagency Agreement (signed and renewed throughout 38 year history)**
 - **IA details such factors as duration, products, expected funding level, termination clause, points of contact, etc.**



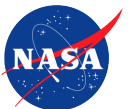
U.S. Code of Federal Regulation 91.25

Prohibition Against Use of Report for Enforcement Purposes

“The Administrator of the FAA will not use reports submitted to the National Aeronautics and Space Administration under the Aviation Safety Reporting Program (or information derived therefrom) in any enforcement action, except information concerning accidents or criminal offenses which are wholly excluded from the Program.”



Aviation Safety Reporting System

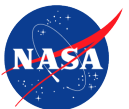


ASRS Legal Immunity Provision

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

9.c. **Enforcement Restrictions.** The FAA considers the filing of a report with NASA concerning an incident or occurrence involving a violation of 49 U.S.C. Subtitle VII, or 14 CFR 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:

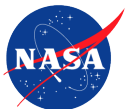
- The violation was inadvertent and not deliberate;
- The violation did not involve a criminal offense, or accident, or action under 49 U.S.C. Section 44709, which discloses a lack of qualification or competency, which is wholly excluded from this policy;
- The person has not been found in any prior FAA enforcement action to have committed a violation of 49 U.S.C. Subtitle VII, or any regulation promulgated there for a period of 5 years prior to the date of the occurrence; and
- The person proves that, within 10 days after the violation, ***or date when the person became aware or should have been aware of the violation***, he or she completed and delivered or mailed a written report of the incident or occurrence to NASA. under ASRS.



What is Safety Reporting?



Aviation Safety Reporting System



ASRS Reporting Principles

VOLUNTARY PARTICIPATION

Aviation personnel voluntarily submit reports concerning events related to safety for the purpose of system alerting, understanding and learning

CONFIDENTIALITY PROTECTION

Protection of identity is provided by NASA through de-identification of persons, companies, and any other information

NON-PUNITIVE

FAA will not use, nor will NASA provide, any report submitted for inclusion under ASRS guidelines or information derived therein for use in any disciplinary or other adverse action (14CFR91.25 & AC 00-46E)

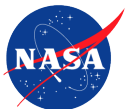
INDEPENDENT

Necessary for trusted report submission and unbiased dissemination of safety information

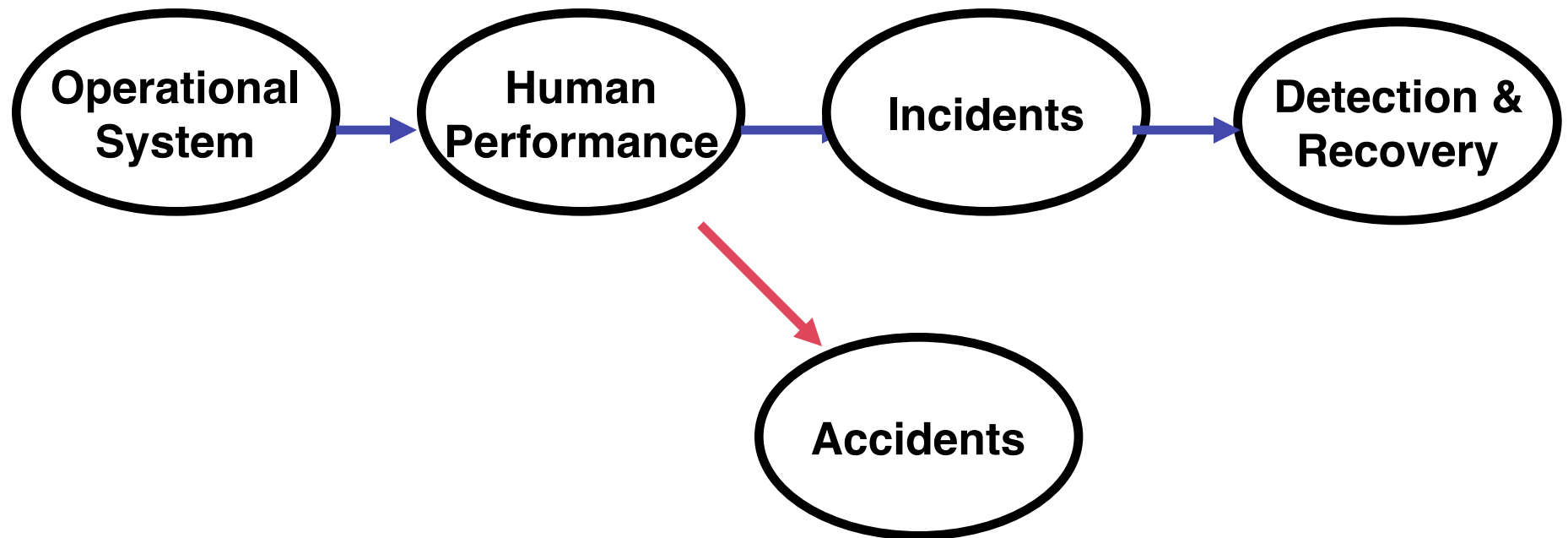


System-Wide Event Occurrences


- ASRS is complementary to other systems of reporting and focuses on precursors to the most severe events



Simplified Event Chain



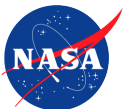


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Why Safety Reporting is Essential for Improving Safety?

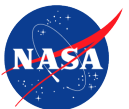


Aviation Safety Reporting System



WHY CONFIDENTIAL REPORTING WORKS

- When organizations want to learn more about the occurrence of events, the best approach is simply to ask those involved.
- People are generally willing to share their knowledge if they are assured:
 - > Their identities will remain protected
 - > There are no disciplinary or legal consequences
- A properly constructed *confidential, voluntary, non-punitive, independent* reporting system can be used by any person to safely share information



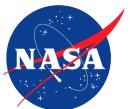
ASRS Purpose and Mission

Identify deficiencies and
discrepancies in the National
Airspace System

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



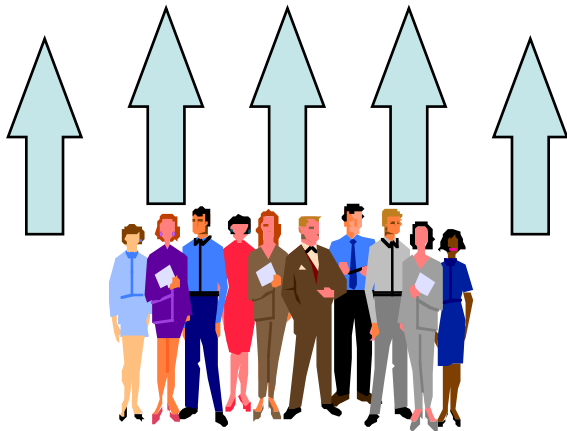
Aviation Safety Reporting System



ASRS Purposes

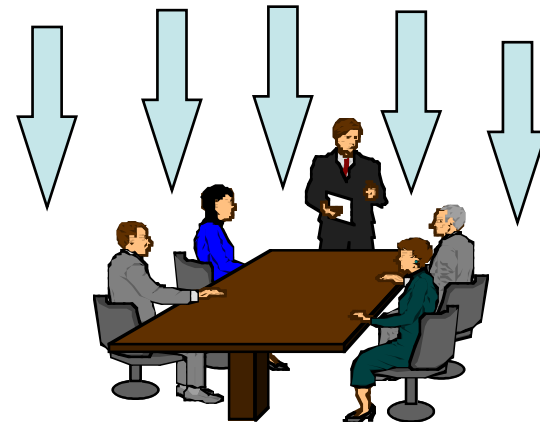
ALERTS

Identify
Deficiencies and
Discrepancies

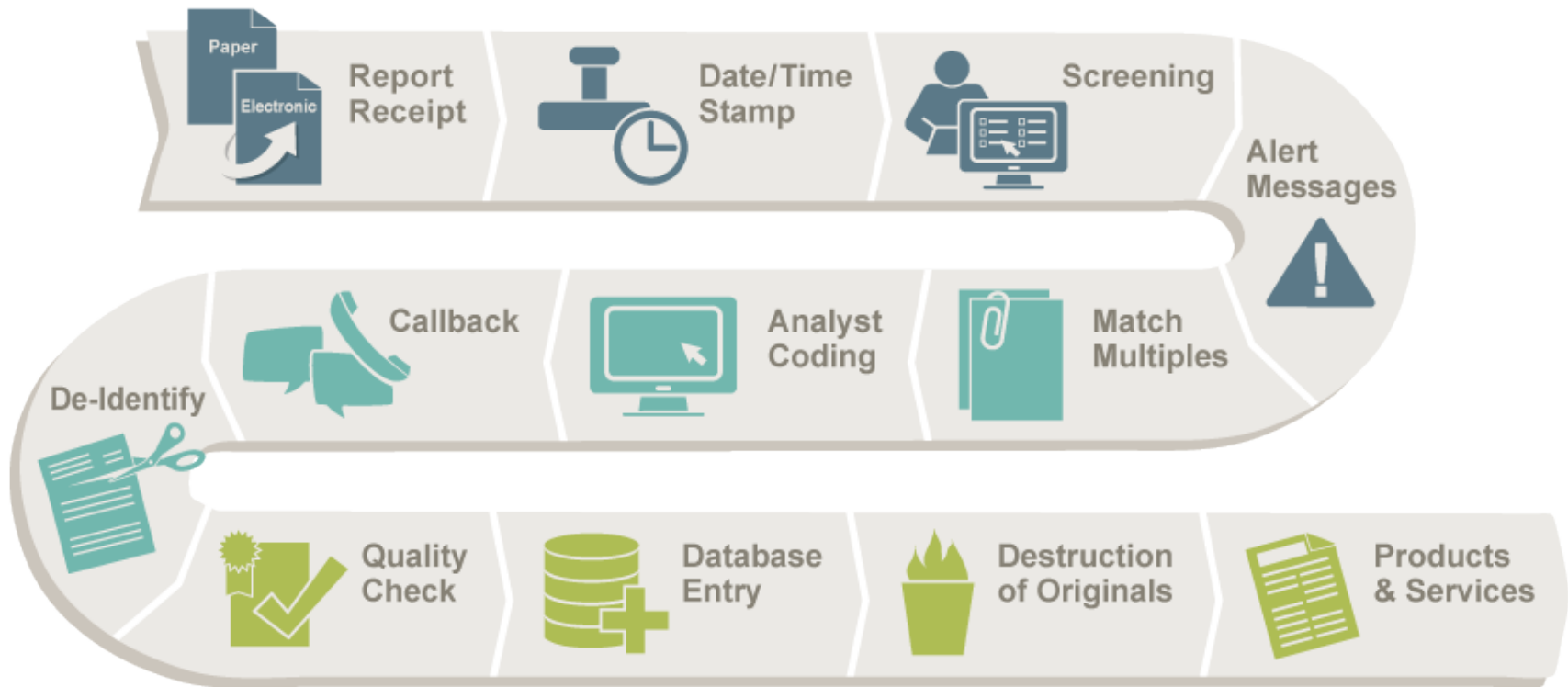


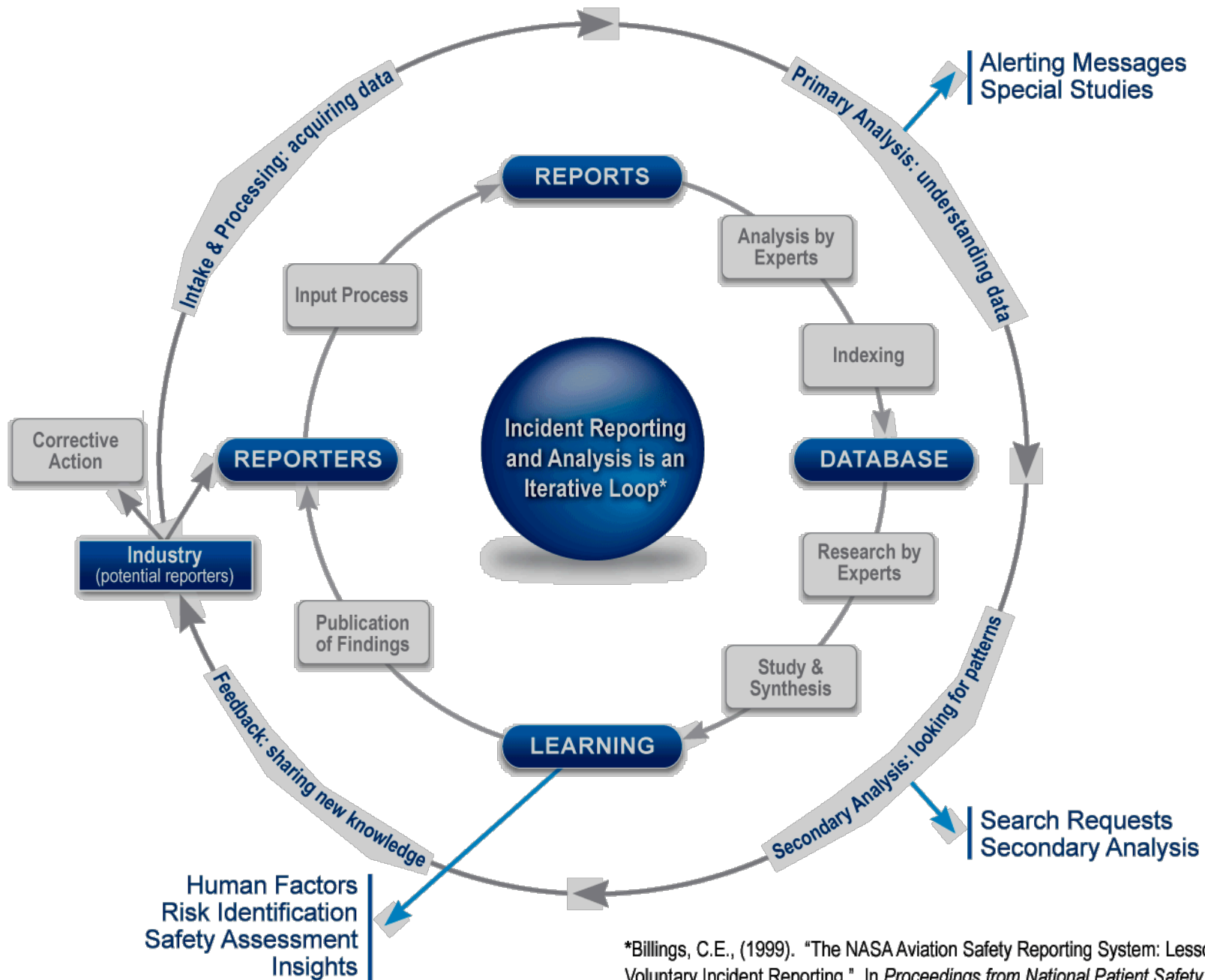
PRODUCTS

Provide Data
for Planning
and
Improvements



Report Processing Flow





*Billings, C.E., (1999). "The NASA Aviation Safety Reporting System: Lessons Learned from Voluntary Incident Reporting." In *Proceedings from National Patient Safety Foundation Conference Enhancing Patient Safety and Reducing Errors in Health Care*.

U.S. Aviation Statistics *

■ FAA Aviation Personnel *

• Pilots	618,707
• Air Traffic Controllers	14,305
• Dispatchers	21,664
• Mechanics	314,931
• Flight Attendants	170,155

■ Active Aviation Labor Force **

• Pilots - Commercial/ATP	99,980
• Aircraft Mechanics	35,070
• Flight Attendants	87,190

Potential Aviation Reporters

TOTAL (Est.) 1,139,795

Flight Volume ***

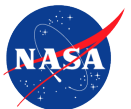
62,000 Flights/Day (Air Carrier, Cargo, Military)

27,178 Flights/Day (General Aviation)



Aviation Safety Reporting System

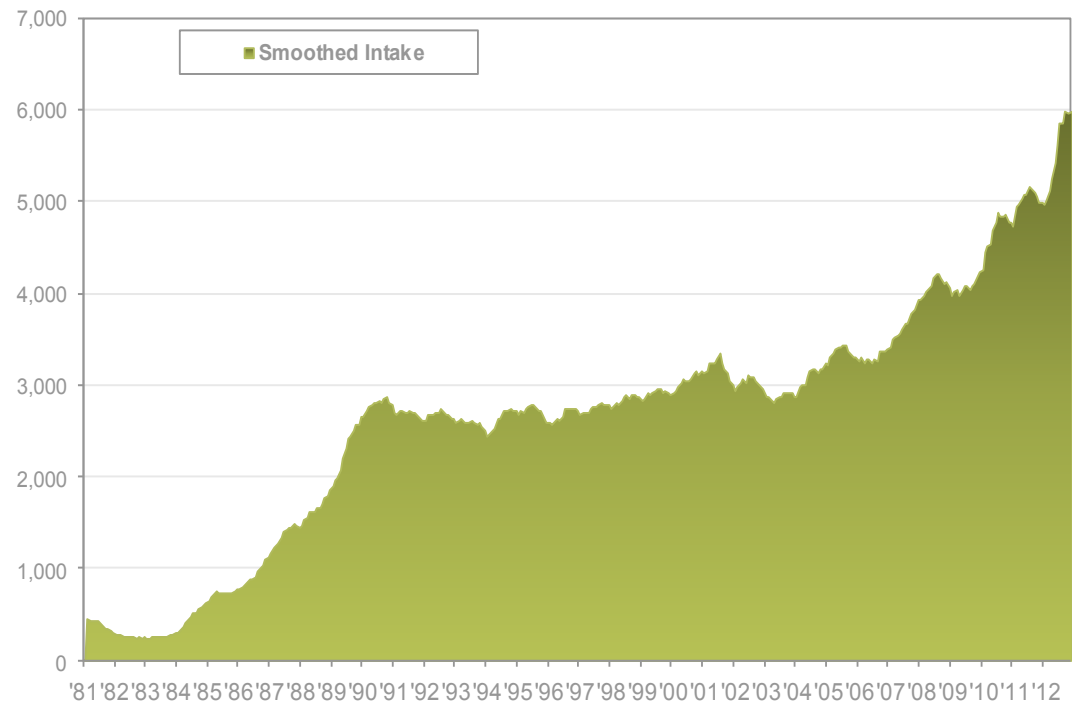
* July 2012 FAA Certification Database
** 2011 Bureau of Labor Statistics
*** RITA Statistics



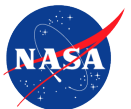
ASRS Report Volume Profile

- 37 years of confidential safety reporting
- Over 1,000,000 reports received
- Over 5,550 alert messages issued
- Over 6,000 reports per month, or 300 per working day
- Total report intake for 2012 was 71,540
- Current rate estimate for 2013 is over 80,000

Monthly Intake
January 1981 – December 2012

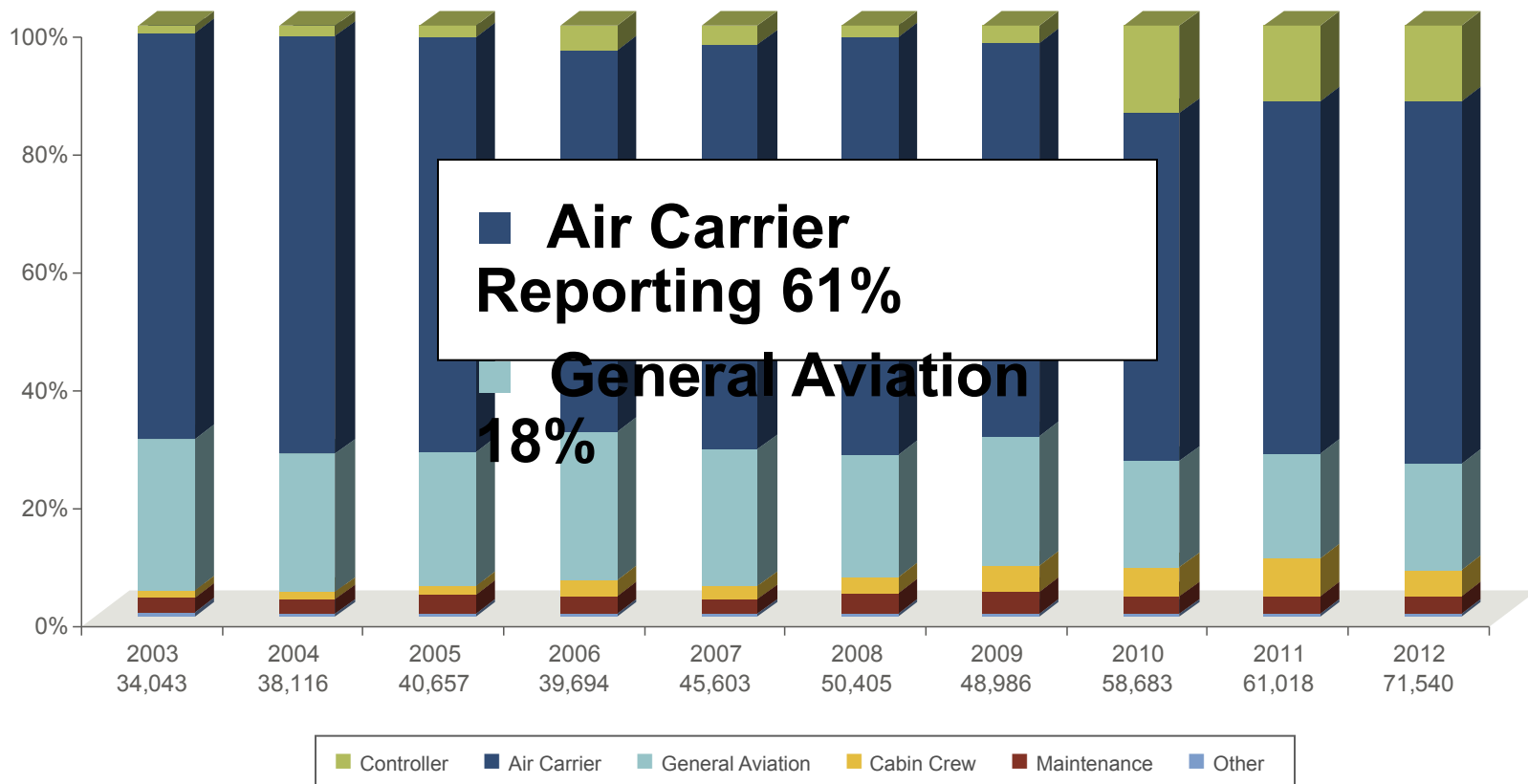


Aviation Safety Reporting System



Incident Reporter Distribution

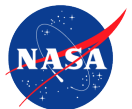
■ Percentage of Total Intake



January 2003 – December 2012



Aviation Safety Reporting System



Incidence of ASRS Multiple Reports

A single ASRS Transportation Form, showing the top section with fields for event location, date, time, and various checkboxes for reporting categories.

Two ASRS Transportation Forms overlapping, illustrating multiple reports from different perspectives.

Three ASRS Transportation Forms overlapping, further illustrating multiple reports from different perspectives.

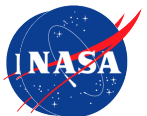
20%

Provides information from each person's perspective on event

100%



Aviation Safety Reporting System



ASRS Report Submittal Options

Direct-to-ASRS

- **Electronic Submission (ERS) from website**
- **Form on website**
 - ▶ Fill out on computer, print, mail
 - ▶ Print, fill out by hand, mail
- **Paper Forms**
 - ▶ Remains a continuing source of reporting

ASAP/ATSAP-to-ASRS

- **Electronic**
(secure electronic transfer protocols)
 - ▶ Direct from Airline Program
 - ▶ WBAT System or other software
 - ▶ Direct from ATSAP
- **Paper Forms**
 - ▶ Continue to be used by some ASAP airlines



ASRS Report Intake – ASAP/ATSAP & Direct

■ Overall ASAP Intake

- 181 Total Programs
- 76 Air Carriers

■ Reporting Groups

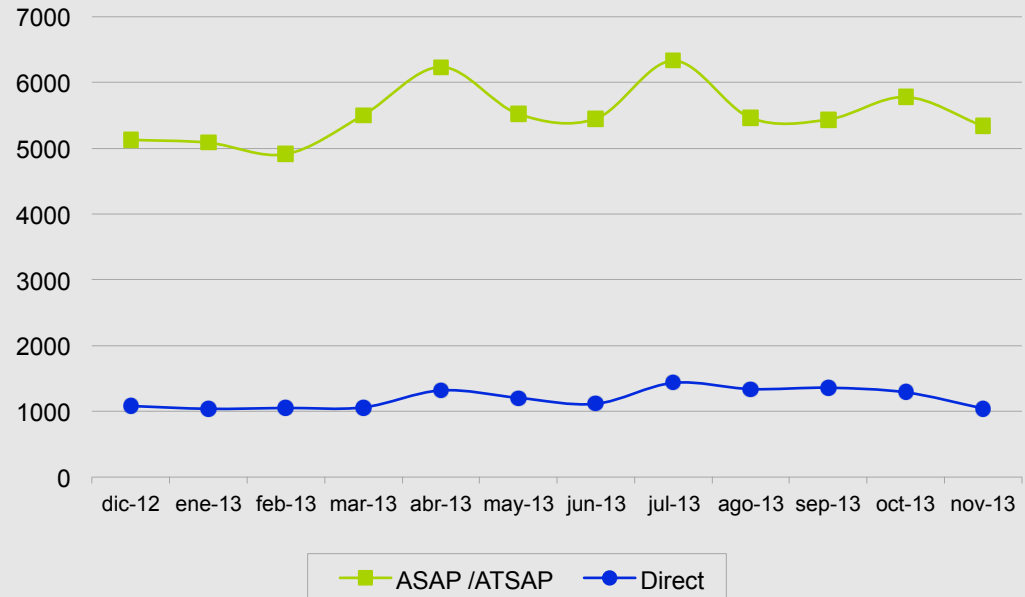
- 74 Pilot
- 44 Mechanic
- 39 Dispatch
- 19 Flight Attendant
- 5 Ground Crew

■ Secure Electronic Data connection protocols between airline and ASRS

- 179 Programs
- 75 Airlines

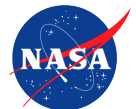


Report Source - ASAP /ATSAP and Direct



ASRS Electronic Transmission
Methodology compatible with
numerous software platforms

More airline programs are
being added continuously



ASRS Products

- These products and services fulfill the program's mission to disseminate safety data



Alert Messages

Safety information issued to organizations in positions of authority for evaluation and possible corrective actions.



CALLBACK

Monthly newsletter with a lessons learned format, available via website and email.



Quick Responses

Rapid data analysis by ASRS staff on safety issues with immediate operational importance generally limited to government agencies.



ASRS Directline

Safety topic summaries based on ASRS reports published to meet the needs of operators and flight crews.



ASRS Database

The public ASRS Database Online and data available in Database Report Sets or Search Requests fulfilled by ASRS staff.

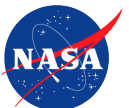


Focused Studies/Research

Studies/Research conducted on safety topics of interest in cooperation with aviation organizations.

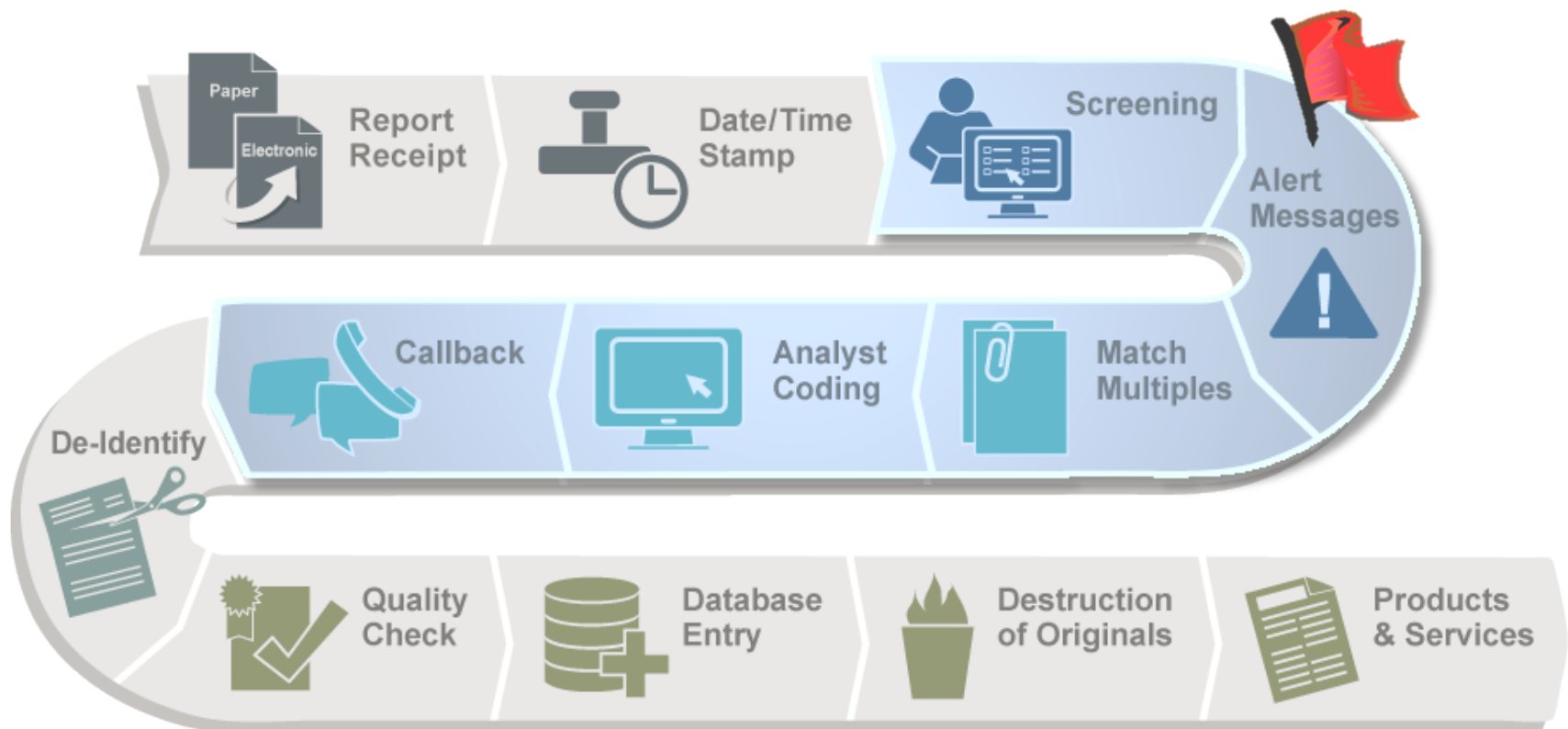


Aviation Safety Reporting System



Report Processing Flow

- Alerts are identified at any point from Screening to Callback



Various Levels of Alerts

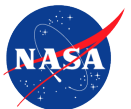
- Alerts are developed according to the level of safety importance of the anomaly that is identified



ASRS has no direct authority to directly correct safety issues.
It acts through and with the cooperation of others.



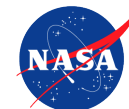
Aviation Safety Reporting System



Alert Responses

1999 – 2012

Response	Percentage	64%
Action taken as a result of the AB/FYI	27%	
Action initiated before AB/FYI received	11%	
Action initiated in response to AB/FYI but not completed	11%	
Issue raised by AB/FYI under investigation	6%	
Addressee agrees with AB/FYI but sees no problem	6%	
Addressee in factual agreement but is unable to resolve	3%	
Addressee disputes factual accuracy of AB/FYI	19%	
Information in AB/FYI insufficient for action	10%	
For information only, no response expected	4%	
Action not within addressee's jurisdiction	3%	



ASRS Alert Messages and Feedback

ALERT BULLETIN

AB 2011:13/11-4
3/23/11
931477

TO: FAA (AFS-800)

INFO: FAA (AFS-230, AFS-200, FTW-AEG, ASA-100), AASC, HAI, ICASS, NTSB,

FROM: Linda J. Connell, Director
NASA Aviation Safety Reporting System

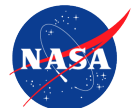
SUBJ: Green Helipad Perimeter Lights not Visible with Night Vision Goggles

We recently received an ASRS report describing a safety concern which may involve your area of operational responsibility. We do not have sufficient details to assess either the factual accuracy or possible gravity of the report. It is our policy to relay the reported information to the appropriate authority for evaluation and any necessary follow-up. We feel you should be aware of the following:

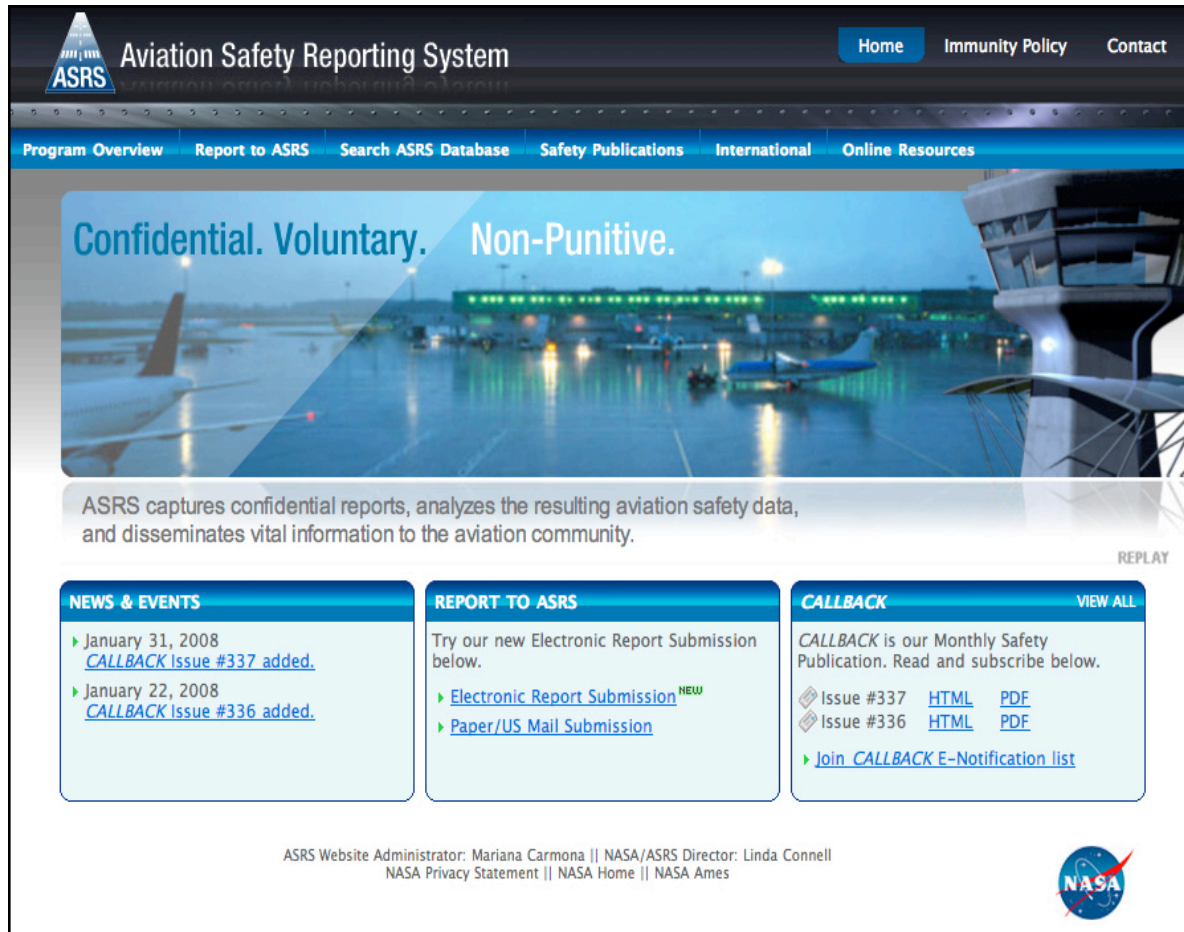
ASRS received a report from the Captain of an EMS helicopter expressing concerns regarding the utilization of Night Vision Goggles (NVGs) for night time operations. The reporter indicated that many hospital helipads use green perimeter lights which become invisible because of the NVG green visual environment. The Captain indicated that more and more EMS operations and aircraft are using NVG operations and that helipad perimeter lighting needs to be changed to another color. The reporter also suggested changes be made to the FAA Safety Alert for Operations that addresses these types of operations.



Aviation Safety Reporting System



ASRS Web Site

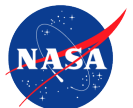


The screenshot shows the ASRS (Aviation Safety Reporting System) website. The header includes the ASRS logo and the text "Aviation Safety Reporting System". Navigation links include "Home", "Immunity Policy", and "Contact". A secondary navigation bar lists "Program Overview", "Report to ASRS", "Search ASRS Database", "Safety Publications", "International", and "Online Resources". The main banner features the text "Confidential. Voluntary. Non-Punitive." over a background image of an airport at night. Below the banner, a paragraph states: "ASRS captures confidential reports, analyzes the resulting aviation safety data, and disseminates vital information to the aviation community." The page is divided into three main sections: "NEWS & EVENTS" with links to "CALLBACK Issue #337 added" and "CALLBACK Issue #336 added"; "REPORT TO ASRS" with links to "Electronic Report Submission" and "Paper/US Mail Submission"; and "CALLBACK" with links to "Issue #337", "Issue #336", and "Join CALLBACK E-Notification list". The footer includes the text "ASRS Website Administrator: Mariana Carmona || NASA/ASRS Director: Linda Connell" and "NASA Privacy Statement || NASA Home || NASA Ames", along with the NASA logo.

- ▶ Launched October 2007
 - Over 10 million sessions in 2008
- ▶ File an ASRS Report
 - Electronic
 - Print and Mail
- ▶ Database Online
- ▶ ASRS Publications
- ▶ Program Information
- ▶ Immunity Policies



<http://asrs.arc.nasa.gov>
Aviation Safety Reporting System



ASRS Database Online (DBOL)

How to Search: ASRS Database Items (Taxonomy)

Step 1: Click + to add search items.
Step 2: In "Current Search Items" section, select "Click Here" in a statement and choose items from Lookup Window.

Date & Report Number

- + Report Number (ACN) was [number]
- + Date of Incident was between [date] and [date]

Environment

- + Flight Conditions were [conditions]
- + Lighting was [condition]
- + Weather was [element]

Aircraft

- + Federal Aviation Regs (FAR) Part was [regulation]
- + Flight Plan was [type]
- + Flight Phase was [phase]
- + Make / Model was [type]
- + Mission was [operation]

Place

- + Location was [identifier]
- + State was [abbreviation]

Person

- + Reporter Organization was [type]
- + Reporter Function was [position]

Event Assessment

- + Event Type was [anomaly]
- + Detector was [equipment / human]
- + Primary Problem was [most prominent factor]
- + Contributing Factors were [problem areas]
- + Human Factors (since 6/09) were [factor]
- + Result was [consequence]

Text: Narrative / Synopsis

- + Text contains [word(s)]

Current Search Items:

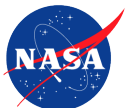
Back Run Search

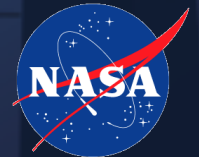
- ▶ DBOL launched August 23, 2006
 - Over 70,000 total online queries completed to date
 - Over 20,966 queries completed in 2009
- ▶ Fixed field and text search capability
- ▶ Data formats (export)
 - MS Word, Excel, CSV HTML
- ▶ Experts version (DBOL II) being proposed



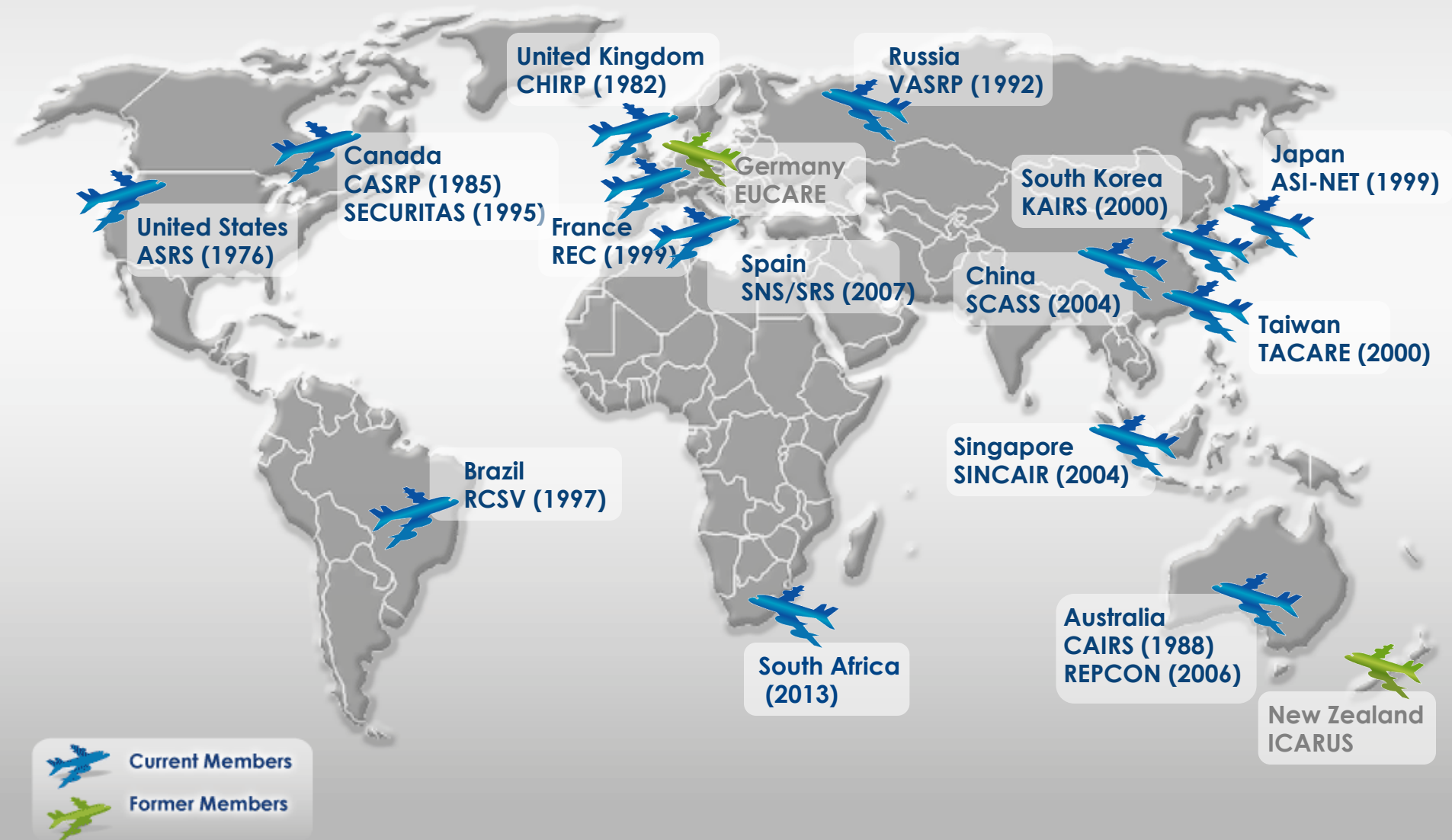
<http://asrs.arc.nasa.gov>

Aviation Safety Reporting System



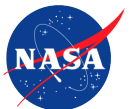


International Confidential Aviation Safety Systems



ASRS Model Applied to Other Industries

- **Confidential Close Call Reporting System (C3RS)**
 - Railroad Safety Reporting System was modeled after ASRS
 - Under development at NASA ASRS through collaboration with Federal Rail Administration and Volpe National Transportation System Center
- **Fire Fighters Near Miss Reporting System**
 - Launched August, 2005 was modeled after ASRS
 - Development Task Force included FAA and NASA ASRS
- **Patient Safety Reporting System (PSRS)**
 - Dept of Veterans Affairs requested that NASA develop a medical reporting system modeled after the ASRS with external, independent, voluntary, confidential, & non-punitive features
 - FAA and NASA were highlighted in the Institute of Medicine (IOM) report, “To Err is Human” in 2000 which was launched nationwide concerning patient safety efforts.





NASA ASRS Model Applied to Railroad Confidential Close Call Reporting System (C³RS)





Your Voice Counts!



**Patient Safety
Reporting System**

**See It. Report It.
Make a Difference.**

VOLUNTARY • CONFIDENTIAL • NON-PUNITIVE



PSRS is a cooperative program between VA and NASA.



Unique Aspects of ASRS Confidential Reporting

System-Wide Perspective - capability to identify hazards identified by aviation personnel and match reports from all segments of aviation community

- ASRS has been catalyst for numerous FAA safety issue focuses

System-Wide Alerting - both national and international capability to provide ASRS Alert Messages to industry and government

Data Processing through Aviation Expert Analysts

- ASRS Office staff include Aviation Expert Analysts with a combined total of 380 years of aviation experience (air carrier pilots, corporate pilots, general aviation pilots, air traffic control, and maintenance)
- Experts read and review 100% of reports and reliably code information to databases

Comprehensive and Time Tested Coding Taxonomy

- Fixed Field Codes combined with Narrative Text yields qualitative data for further secondary analysis techniques (text mining, special studies, focused analytic techniques, etc)



Unique Aspects of ASRS Confidential Reporting

Strong Immunity and Legal Provisions

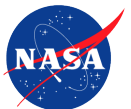
- Federal Law specifically addressing ASRS (14 CFR 91.25)
- FAA Advisory Circular 00-46E
- ASRS Addressed by Congress in 1980's

Information Sharing - both nationally and internationally with industry and government

- Database Search Requests, Database Publically Available, Topical Studies, Structured Telephone Callback Studies, Collaborations with Industry and Gov't (FAA, NTSB, NASA, industry organizations, etc.)

National and International Reputation

- ASRS Recognized Model for Proactive Contribution to Safety Process
- ASRS Model Being Utilized by Other Domains for Safety Improvements



Contact Information

Linda Connell, NASA ASRS Director

Linda.J.Connell@nasa.gov

(408) 541-2827 ASRS Office

(650) 604-0795 NASA Office

ASRS Website:

<http://asrs.arc.nasa.gov>



Aviation Safety Reporting System

