



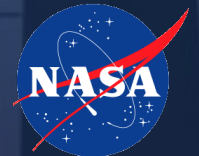
# NASA Aviation Safety Reporting System



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April 22, 2021

**AVIATION SAFETY  
REPORTING SYSTEM**



# Agenda

- ASRS Background and Immunity Protection
  - ASRS Processes
  - Applying the ASRS Model to other Domains



# ASRS Mission Mandate

ASRS captures confidential voluntary safety reports, analyzes the resulting aviation safety data, and disseminates vital information to the aviation community.

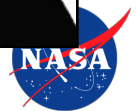
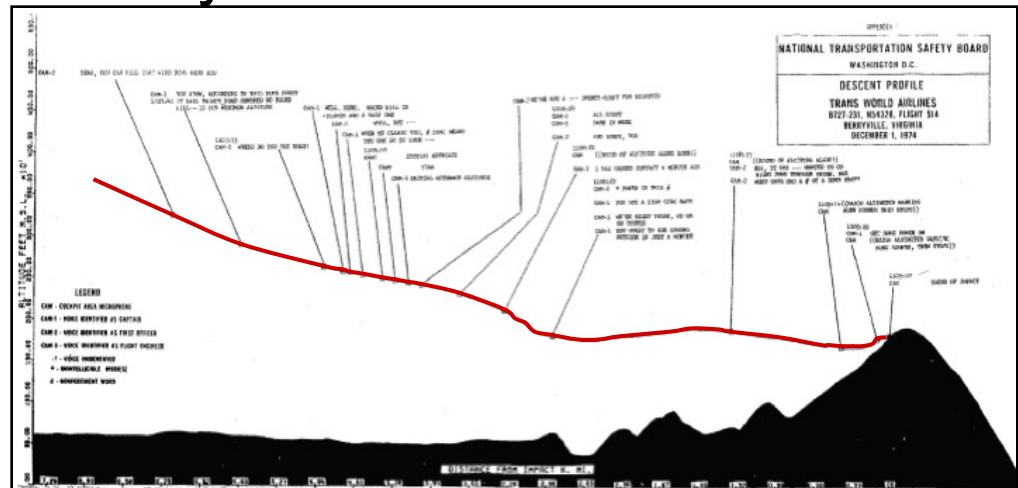
Purpose:

- 1) Identify deficiencies and discrepancies in the National Airspace System
- 2) Provide data for planning and improvements for the future National Airspace System



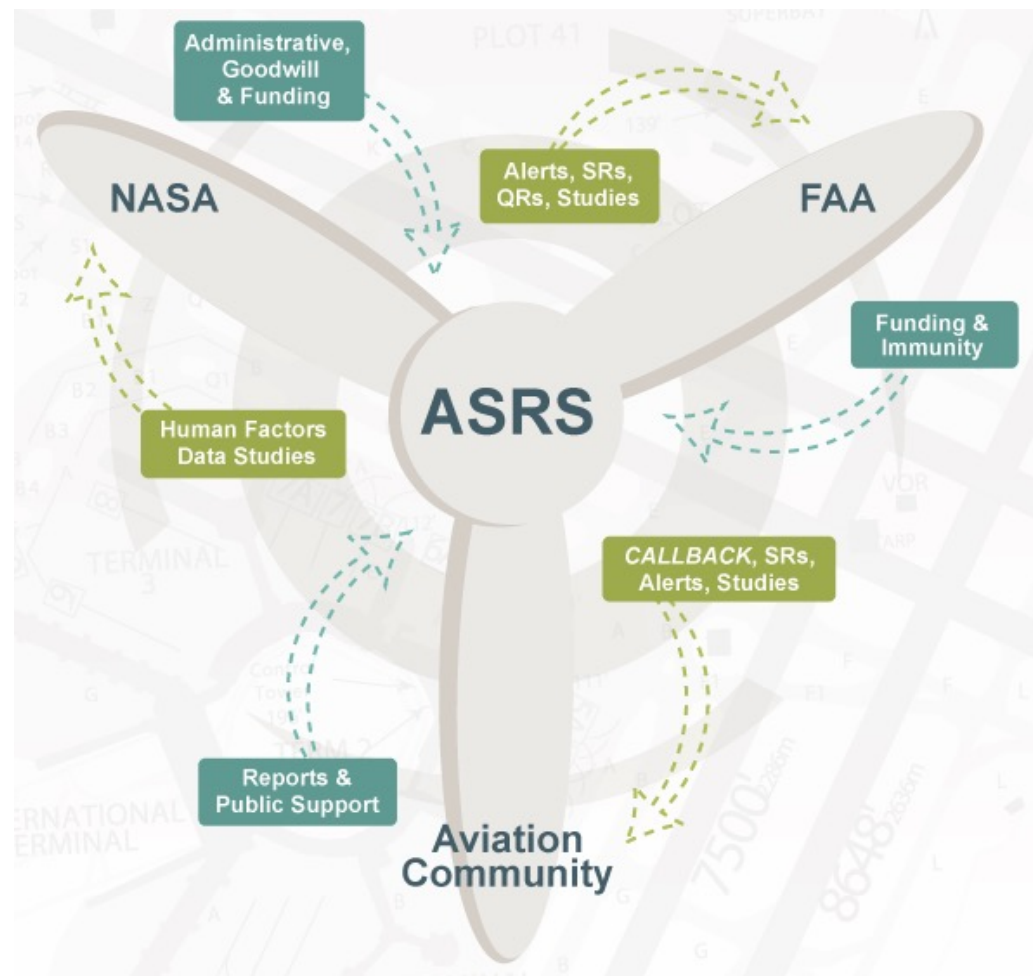
# Historical Perspective

- In December 1974, TWA Flight 514 crashed into Mt. Weather on approach to Dulles airport, killing all 92 souls on board, after a pilot-ATC miscommunication.
- Just 6 weeks prior, a UAL crew had experienced an identical misunderstanding and narrowly missed the same mountain.
- The pilots reported to their company, but there was no mechanism to share that safety information with other airlines
- In April 1976, NASA and FAA implemented the Aviation Safety Reporting System (ASRS)



# Government/Industry Partnership

- FAA provides funding to and immunity protections
- NASA provides program management
- The Aviation Community provides advocacy for reporting, feedback, and communications



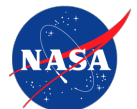
# ASRS Concept & Mission

- ASRS receives, processes and analyzes voluntarily submitted incident reports from pilots, ATC, dispatchers, cabin crew, maintenance technicians, UAS operators, and others.
- Reports submitted to ASRS may describe both unsafe occurrences and hazardous situations.



## Examples of Report Topics:

- Near-mid air collisions,
- Airspace violations,
- Runway incursions
- Confusing airport signage
- Charting / navigation issues
- Confusing phraseology
- Aircraft / Equipment failures
- Automation Failures / Over-reliance
- Training



# ASRS Philosophy

- Focus is on safety problems not people - Emphasis on “WHY” not “WHO”
  - Understanding contributing factors, often with an emphasis on human factors
- Focus on accident and incident precursors or vulnerabilities in a system to supports proactive mitigation of systemic safety issues.
  - System-level learning
  - Detecting safety issues – sometimes “weak signals”
  - Sometimes requires large volumes of data on a topic before we have a full understanding
- Promote safety culture where people can share and learn from mistakes

ASRS is NOT:

A Whistleblowing System

An Accountability / Enforcement System



# ASRS 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 identifying information*

## **INDEPENDENT**

*Necessary for trust building and unbiased dissemination of safety information*

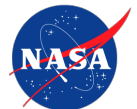
## **NON-PUNITIVE**

*FAA will not use any report submitted for inclusion under ASRS guidelines, or information derived therein, for use in any disciplinary or other adverse action (14 CFR 91.25 & AC 00-46F)*



# ASRS Governing Documents

- Federal Register Notices '75 & '76
- Federal Aviation Regulation – 14 CFR 91.25
- FAA Advisory Circular (00-46 F)
  - Defines immunity provisions for pilots and others
- FAA Facility Operation and Administration Handbook, 7210.3R (Air Traffic Controllers)
  - Defines immunity provision for air traffic controllers
- MOA's between FAA and NASA
- Interagency Agreements
  - Renewed every 5 years



# Federal Aviation Regulation (14 CFR 91.25)

## Prohibition against use of reports for enforcement purposes

“The Administrator of the **FAA will not use reports submitted to NASA** under the ASRS Program (or information derived therefrom) **in any enforcement action** except information concerning accidents or criminal offenses which are wholly excluded from the Program.”



# Legal Immunity Provision

## FAA Advisory Circular AC No. 00-46E Waiver of Imposition of Sanction

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 the 14 CFR to be **indicative of a constructive attitude**. Such an attitude will tend to prevent future violations. Accordingly, although a finding of 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, accident**, or action under 49 U.S.C. § 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 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.



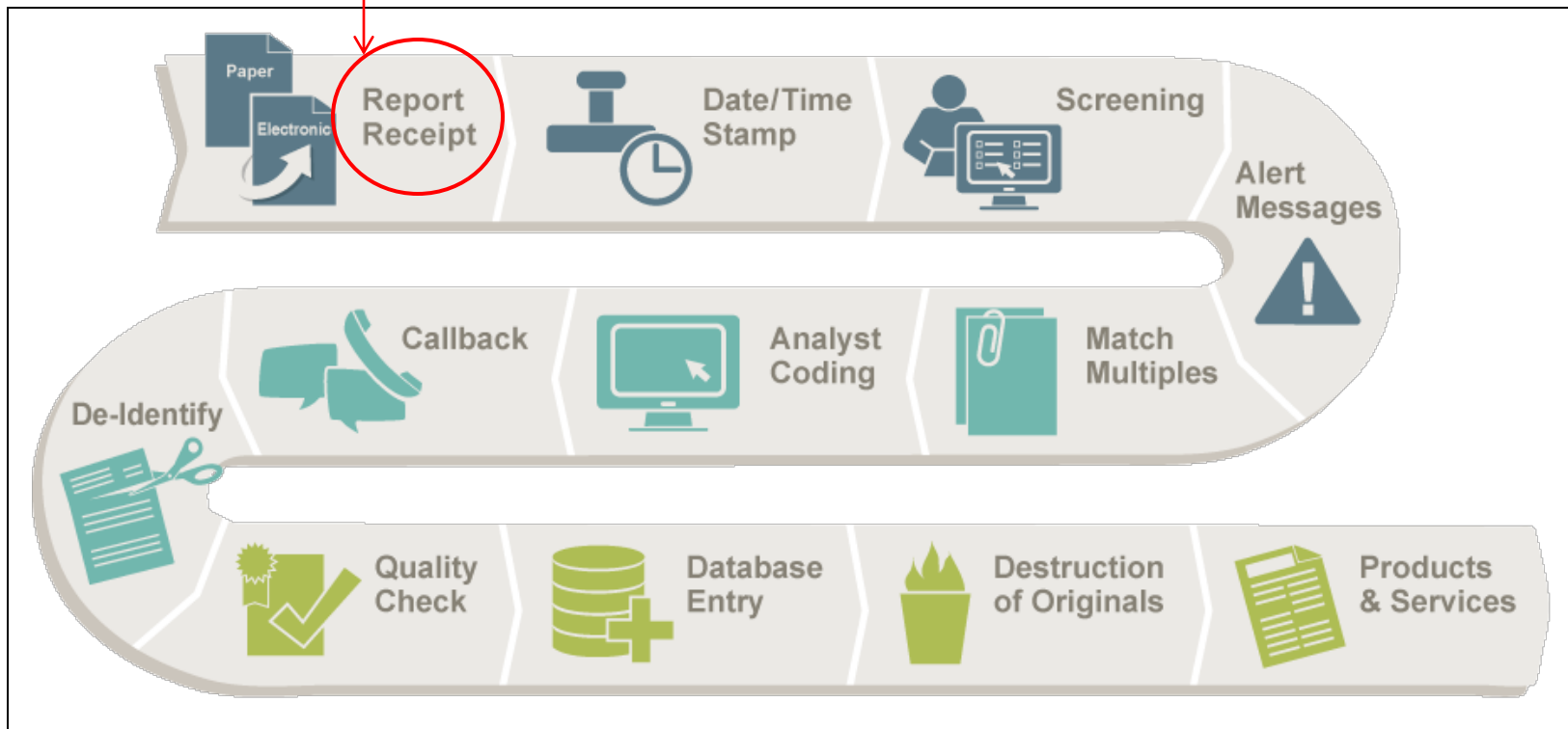
# Agenda

- ASRS Background and Immunity Protection
- ASRS Processes
- Applying the ASRS Model to other Domains



# ASRS Report Processing Flow

Direct Reports (Electronic and Paper)  
ASAP and ATSAP Reports



# ASRS General Report Form

IDENTIFICATION STRIP: Please fill in all blanks to ensure return of strip.  
NO RECORD WILL BE KEPT OF YOUR IDENTITY. This section will be returned to you.



TELEPHONE NUMBERS where we may reach you for further details of this occurrence.

HOME  HOURS

OTHER  HOURS

NAME (required)

ADDRESS/PO BOX (required)

ADDRESS LINE 2

CITY (required)  STATE  ZIP (required)

TYPE OF EVENT/SITUATION  
( Select Type of Event )

Other:

DATE OF OCCURRENCE (MM/DD/YYYY)

LOCAL TIME (24 HR. CLOCK) [HH:MM]

ITEMS WHICH APPLY TO THIS EVENT OR SITUATION.

	CERTIFICATES & RATINGS	ATC EXPERIENCE
IRS	<input type="checkbox"/> Student	<input type="checkbox"/> Flight Instructor
	<input type="checkbox"/> Sport/Rec	<input type="checkbox"/> Multiengine
IRS	<input type="checkbox"/> Private	<input type="checkbox"/> Instrument
	<input type="checkbox"/> Commercial	<input type="checkbox"/> Flight Engineer
IRS	<input type="checkbox"/> ATP	<input type="checkbox"/> Other: _____
		<input type="checkbox"/> FPL <input type="checkbox"/> Developmental
		radar _____ yrs
		non-radar _____ yrs
		supervisory _____ yrs
		military _____ yrs

PLEASE FILL IN APPROPRIATE SPACES AND CHECK ALL ITEMS WHICH APPLY TO THIS EVENT OR SITUATION.

## ID Strip

AIRSPACE	CONDITIONS / WEATHER ELEMENTS	LIGHT / VISIBILITY	ATC / ADVISORY SVC.
<input type="checkbox"/> Class A <input type="checkbox"/> Class E	<input type="checkbox"/> VMC <input type="checkbox"/> fog <input type="checkbox"/> snow	<input type="checkbox"/> dawn <input type="checkbox"/> night	<input type="checkbox"/> Ramp <input type="checkbox"/> Center
<input type="checkbox"/> Class B <input type="checkbox"/> Class G	<input type="checkbox"/> IMC <input type="checkbox"/> hail <input type="checkbox"/> thunderstorm	<input type="checkbox"/> daylight <input type="checkbox"/> dusk	<input type="checkbox"/> Ground <input type="checkbox"/> FSS
<input type="checkbox"/> Class C <input type="checkbox"/> Special Use	<input type="checkbox"/> Mixed <input type="checkbox"/> haze/smoke <input type="checkbox"/> turbulence	Ceiling _____ feet	<input type="checkbox"/> Tower <input type="checkbox"/> UNICOM
<input type="checkbox"/> Class D <input type="checkbox"/> TFR	<input type="checkbox"/> Marginal <input type="checkbox"/> icing <input type="checkbox"/> windshear	Visibility _____ miles	<input type="checkbox"/> TRACON <input type="checkbox"/> CTAF
	<input type="checkbox"/> rain <input type="checkbox"/> other: _____	RVR _____ feet	ATC Facility Name: _____
AIRCRAFT 1		AIRCRAFT 2	
Your Aircraft Type (Make/Model) (e.g. B737, Not "N#", Fit#, etc.): _____		Operating FAR Part: _____	
Operator		Other Aircraft:	
<input type="checkbox"/> air carrier	<input type="checkbox"/> fractional	<input type="checkbox"/> military	<input type="checkbox"/> air carrier
<input type="checkbox"/> air taxi	<input type="checkbox"/> FBO	<input type="checkbox"/> personal	<input type="checkbox"/> air taxi
<input type="checkbox"/> corporate	<input type="checkbox"/> government	<input type="checkbox"/> other: _____	<input type="checkbox"/> corporate
<input type="checkbox"/> passenger	<input type="checkbox"/> cargo/freight	<input type="checkbox"/> ferry	<input type="checkbox"/> passenger
<input type="checkbox"/> personal	<input type="checkbox"/> training	<input type="checkbox"/> other: _____	<input type="checkbox"/> cargo/freight
<input type="checkbox"/> VFR	<input type="checkbox"/> SVFR	<input type="checkbox"/> none	<input type="checkbox"/> VFR
<input type="checkbox"/> IFR	<input type="checkbox"/> DVFR	<input type="checkbox"/> none	<input type="checkbox"/> IFR
<input type="checkbox"/> taxi	<input type="checkbox"/> climb	<input type="checkbox"/> final approach	<input type="checkbox"/> taxi
<input type="checkbox"/> parked	<input type="checkbox"/> cruise	<input type="checkbox"/> missed/GAR	<input type="checkbox"/> parked
<input type="checkbox"/> takeoff	<input type="checkbox"/> descent	<input type="checkbox"/> landing	<input type="checkbox"/> takeoff
<input type="checkbox"/> initial climb	<input type="checkbox"/> initial approach	<input type="checkbox"/> other: _____	<input type="checkbox"/> initial climb
<input type="checkbox"/> Route in Use	<input type="checkbox"/> STAR (ID): _____	<input type="checkbox"/> visual approach	<input type="checkbox"/> airway (ID): _____
	<input type="checkbox"/> direct	<input type="checkbox"/> oceanic	<input type="checkbox"/> direct
	<input type="checkbox"/> SID (ID): _____	<input type="checkbox"/> vectors	<input type="checkbox"/> SID (ID): _____
	<input type="checkbox"/> other: _____		

If more than two aircraft were involved, please describe the additional aircraft in the "Describe" section.

Altitude: \_\_\_\_\_ (single value)  MSL  AGL

Distance: \_\_\_\_\_ and/or Radial (bearing): \_\_\_\_\_ from:

Airport \_\_\_\_\_  ATC Fac \_\_\_\_\_

Intersection \_\_\_\_\_  NAVAID \_\_\_\_\_

Estimated miss distance: \_\_\_\_\_

Was evasive action taken? \_\_\_\_\_

Was TCAS a factor? \_\_\_\_\_

Did terrain warning system activate? \_\_\_\_\_

NASA ARC 277B (May 2009) **GENERAL**

<https://asrs.arc.nasa.gov/report/electronic.html>

▶ General Report Form

▶ ATC Report Form

▶ Maintenance Report Form

▶ Cabin Report Form

▶ UAS Report Form

## Report Narrative

DESCRIBE EVENT/SITUATION

Keeping in mind the topics shown below, discuss those which you feel are relevant and anything else you think is important. Include what you believe really caused the problem, and what can be done to prevent a recurrence, or correct the situation.

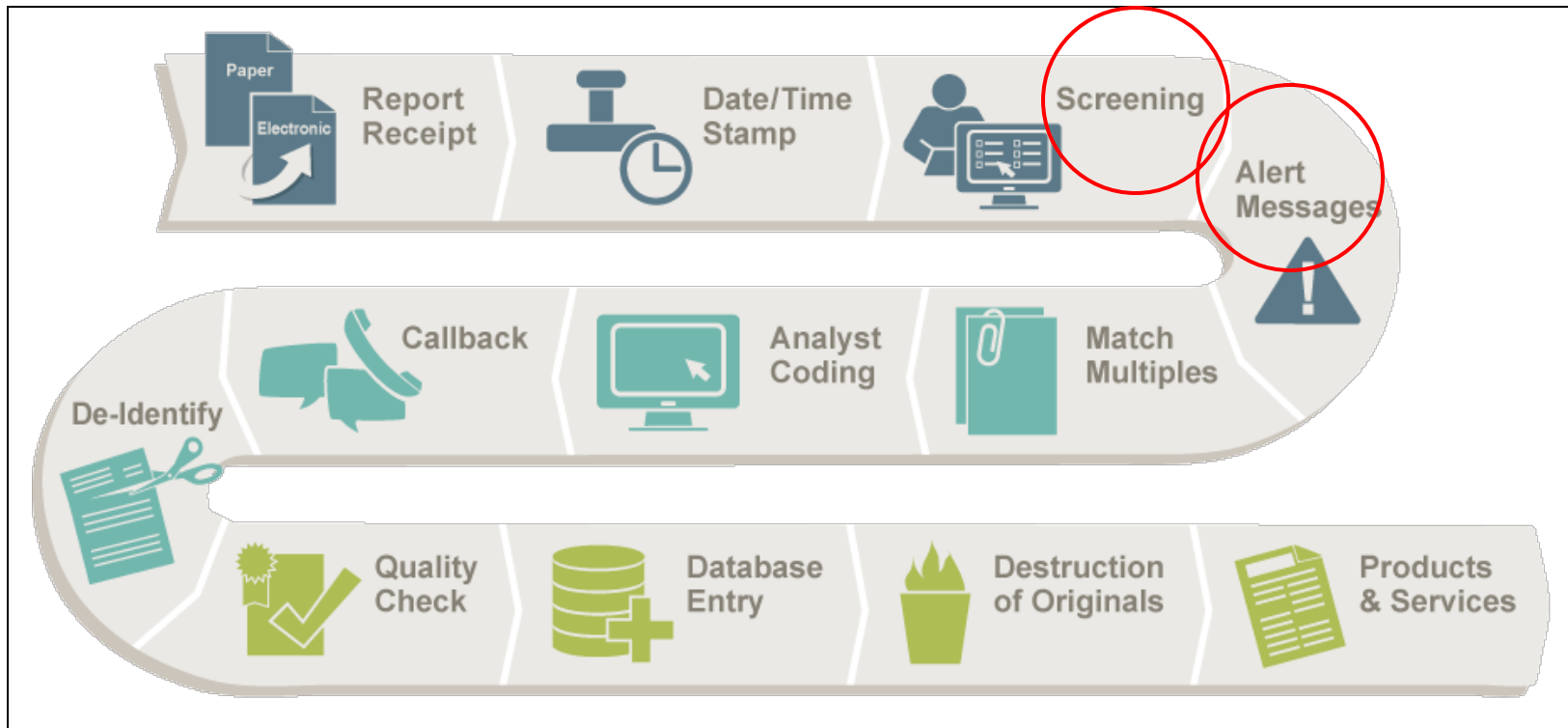
Tell us Your Story

“The usefulness of incident reporting lies in the insights that can be gained from careful study of the narratives submitted, in all their contextual richness, not in quantitative knowledge one can gain from counting adverse events.” (Charlie Billings)



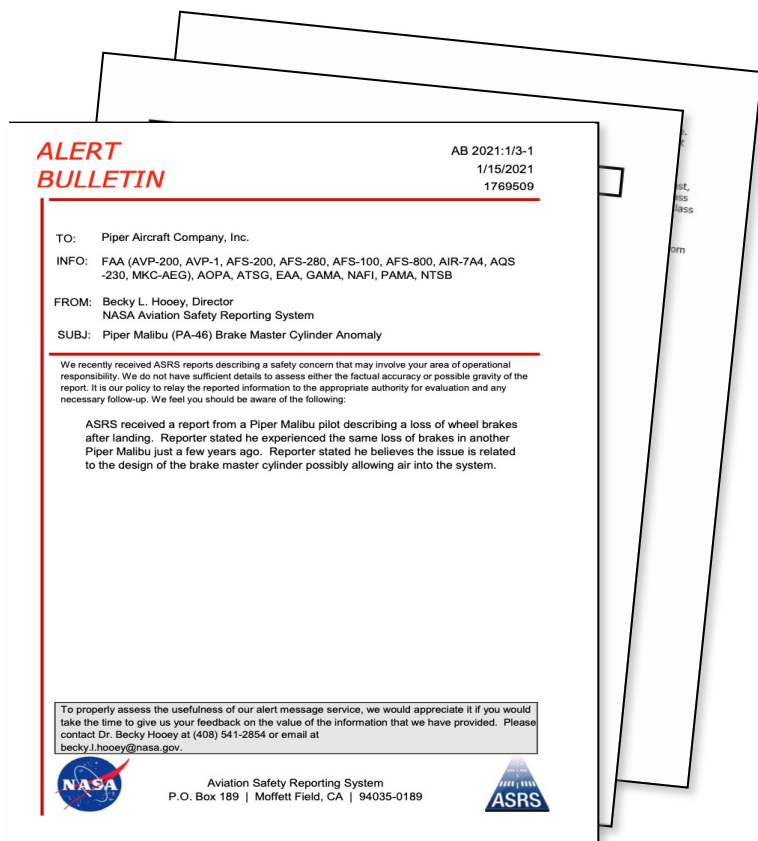
Aviation Safety Reporting System

# ASRS Report Processing Flow

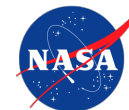


# Screening for Safety Alert Messages

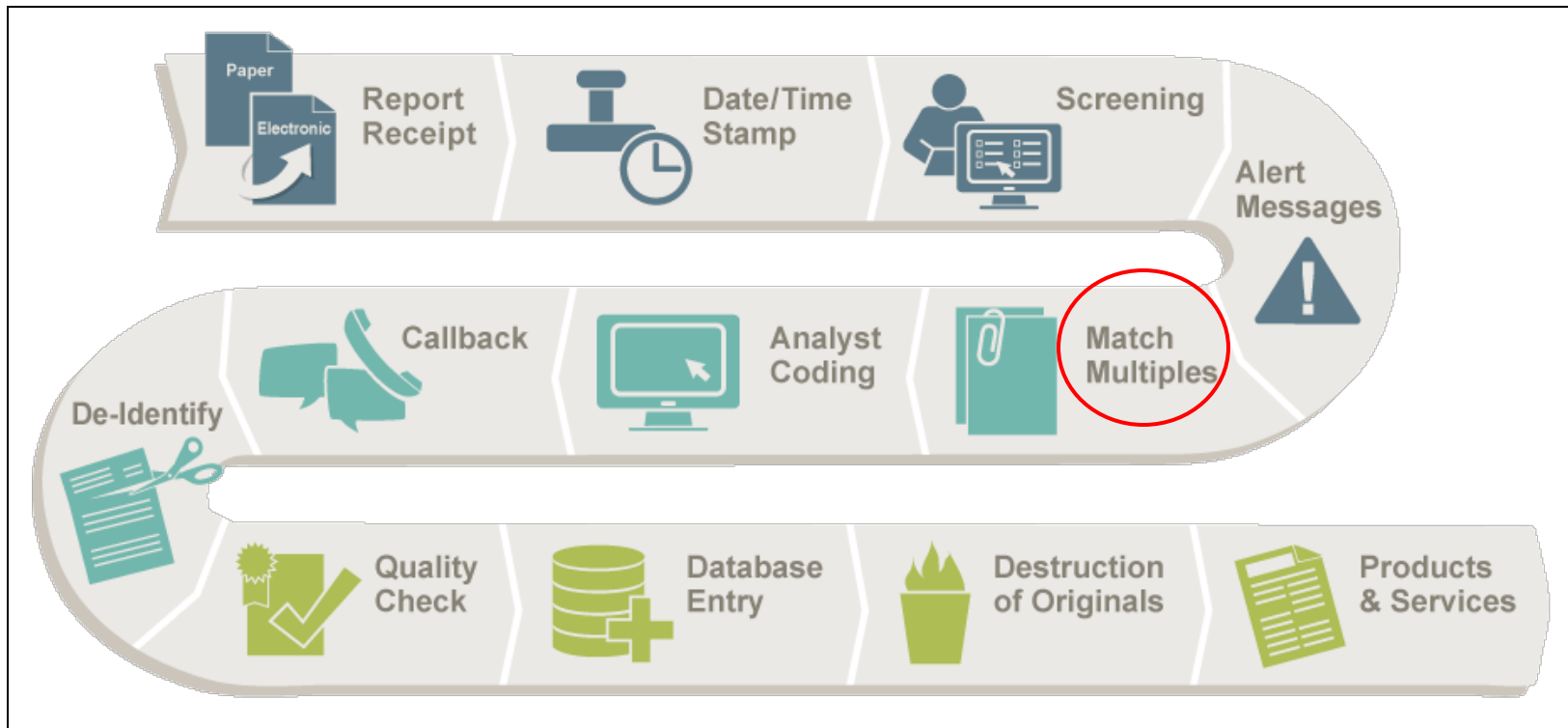
- All reports are screened by two subject matter experts within 3 days
- ASRS Expert Analysts are pilot, ATC, dispatch, and maintenance qualified, each with over 30 years experience
- ASRS Assistant Analysts are pilots and flight instructors with commercial and instrument ratings



▶ ASRS has issued over 6,800 Safety Alerts and FYI messages

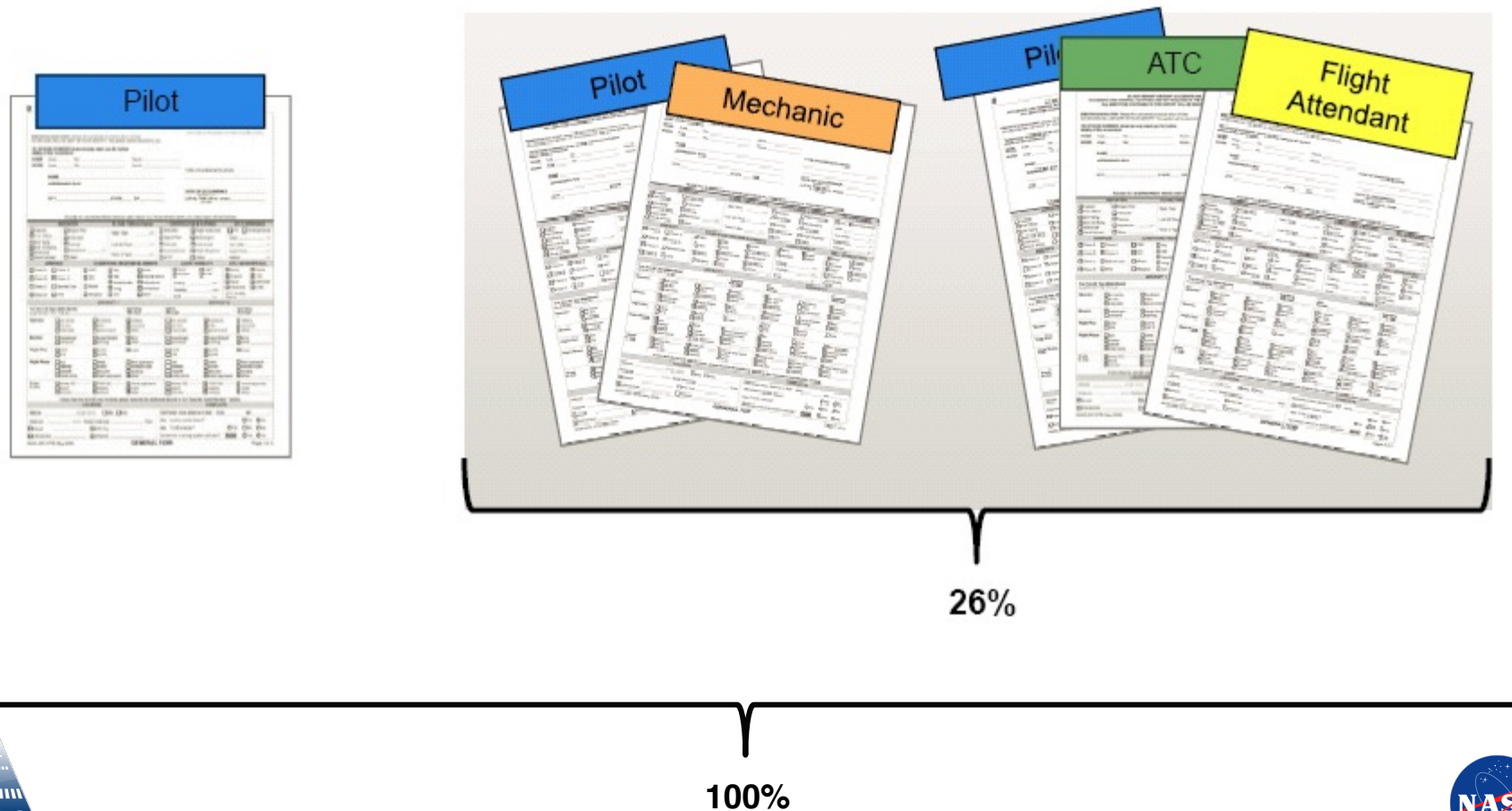


# ASRS Report Processing Flow

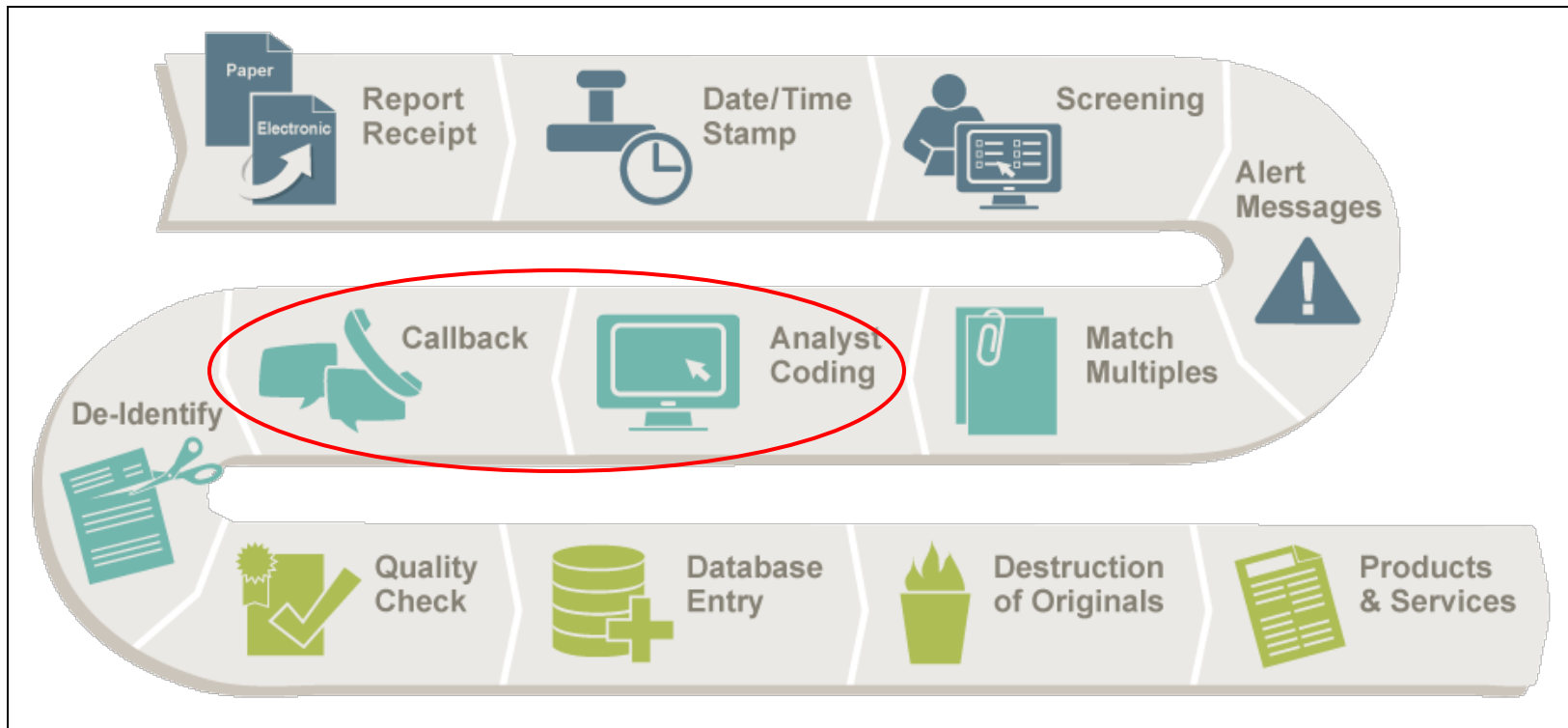


# ASRS Report Matching

- Provides information from more than one person's perspective on a single event



# ASRS Report Processing Flow



*Comprehensive and Time-Tested Coding Taxonomy*

# ASRS Report Coding by SMEs

Time & Place Environment Aircraft Component Person **Events**

Anomalies Detection, Miss Distance Result

**Aircraft Equipment**

Critical  
 Less Severe

**Airspace Violation**

All Types

**ATC Issue**

All Types

**Flight Deck / Cabin / Aircraft Event**

Illness  
 Passenger Electronic Device  
 Passenger Misconduct  
 Smoke / Fire / Fumes / Odor  
 Other / Unknown

**Conflict**

NMAC  
 Airborne Conflict  
 Ground Conflict, Critical  
 Ground Conflict, Less Severe

**Deviation - Altitude**

Crossing Restriction Not Met  
 Excursion From Assigned Altitude  
 Overshoot  
 Undershoot

## Comprehensive and Time-Tested Coding Taxonomy

**Deviation - Speed**

All Types

**Deviation - Track / Heading**

All Types

**Deviation - Procedural**

Clearance  
 FAR  
 Hazardous Material Violation  
 Landing Without Clearance  
 Maintenance  
 MEL  
 Published Material / Policy  
 Security  
 Weight And Balance  
 Other / Unknown

**Ground Excursion**

Ramp  
 Runway  
 Taxiway

**Ground Incursion**

Runway  
 Taxiway

**Ground Event / Encounter**

Aircraft  
 FOD  
 Gear Up Landing  
 Ground Strike - Aircraft  
 Loss Of Aircraft Control  
 Object  
 Person / Animal / Bird  
 Vehicle  
 Other / Unknown

**Inflight Event / Encounter**

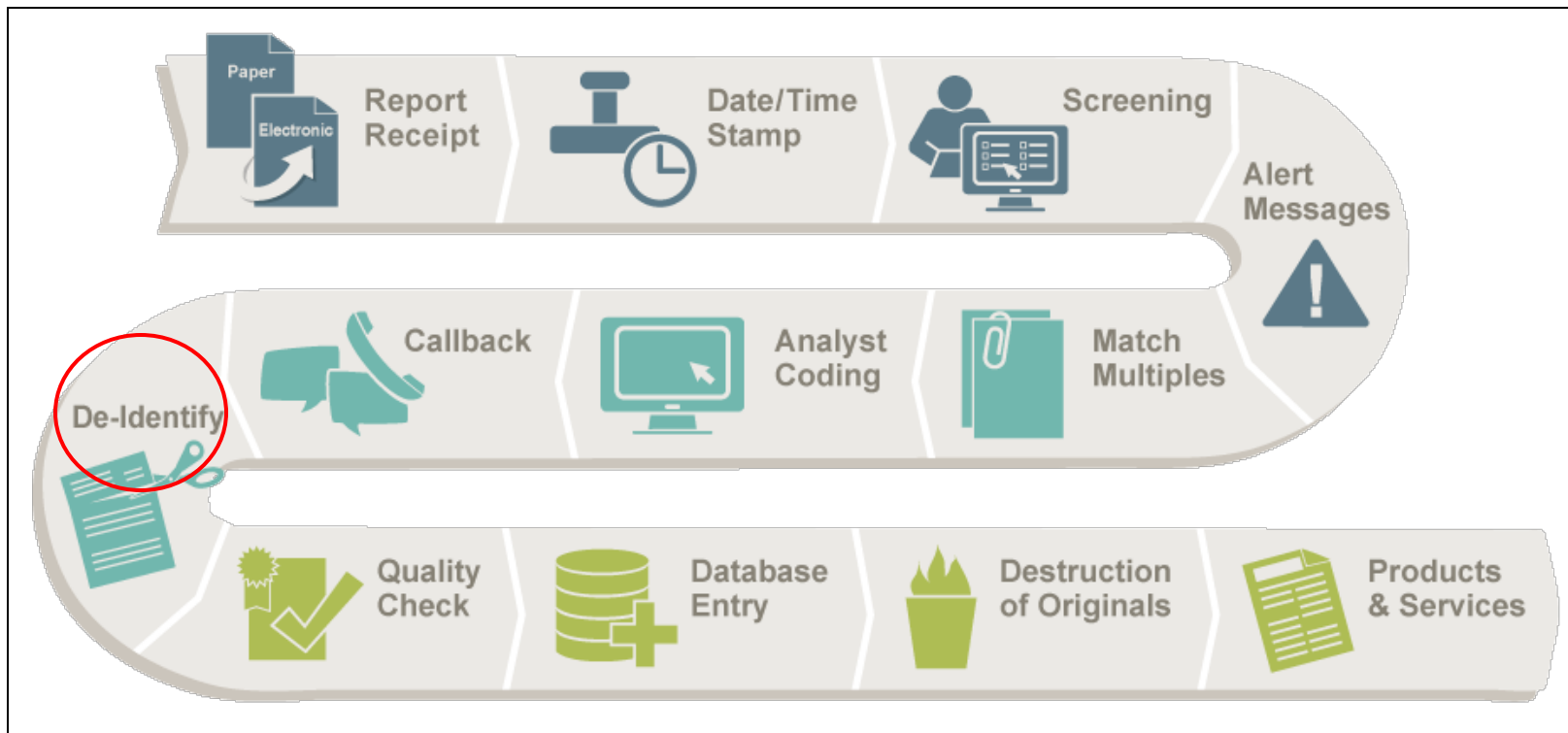
CFTT / CFIT  
 Fuel Issue  
 Loss Of Aircraft Control  
 Object  
 Bird / Animal  
 Unstabilized Approach  
 VFR In IMC  
 Wake Vortex Encounter  
 Weather / Turbulence  
 Other / Unknown

**No Specific Anomaly Occurred**

All Types

**Other**

# Report Processing Flow



# Report De-Identification


- ASRS returns the Identification Strip to the mailing address provided.
- ID Strip serves as the proof-of-submission
- Manual, context-dependent, de-id of report narratives and fixed-field codes
- Some fields are generalized (date/time)



**DO NOT REPORT AIRCRAFT ACCIDENTS AND CRIMINAL ACTIVITIES ON THIS FORM.**  
**ACCIDENTS AND CRIMINAL ACTIVITIES ARE NOT INCLUDED IN THE ASRS PROGRAM AND SHOULD NOT BE SUBMITTED TO NASA.**  
**ALL IDENTITIES CONTAINED IN THIS REPORT WILL BE REMOVED TO ASSURE COMPLETE REPORTER ANONYMITY.**

(SPACE BELOW RESERVED FOR ASRS DATE/TIME STAMP)

**IDENTIFICATION STRIP:** *Please fill in all blanks to ensure return of strip.*  
*NO RECORD WILL BE KEPT OF YOUR IDENTITY. This section will be returned to you.*

 NASA AMES, MFT. FLD.

TELEPHONE NUMBERS where we may reach you for further details of this occurrence:

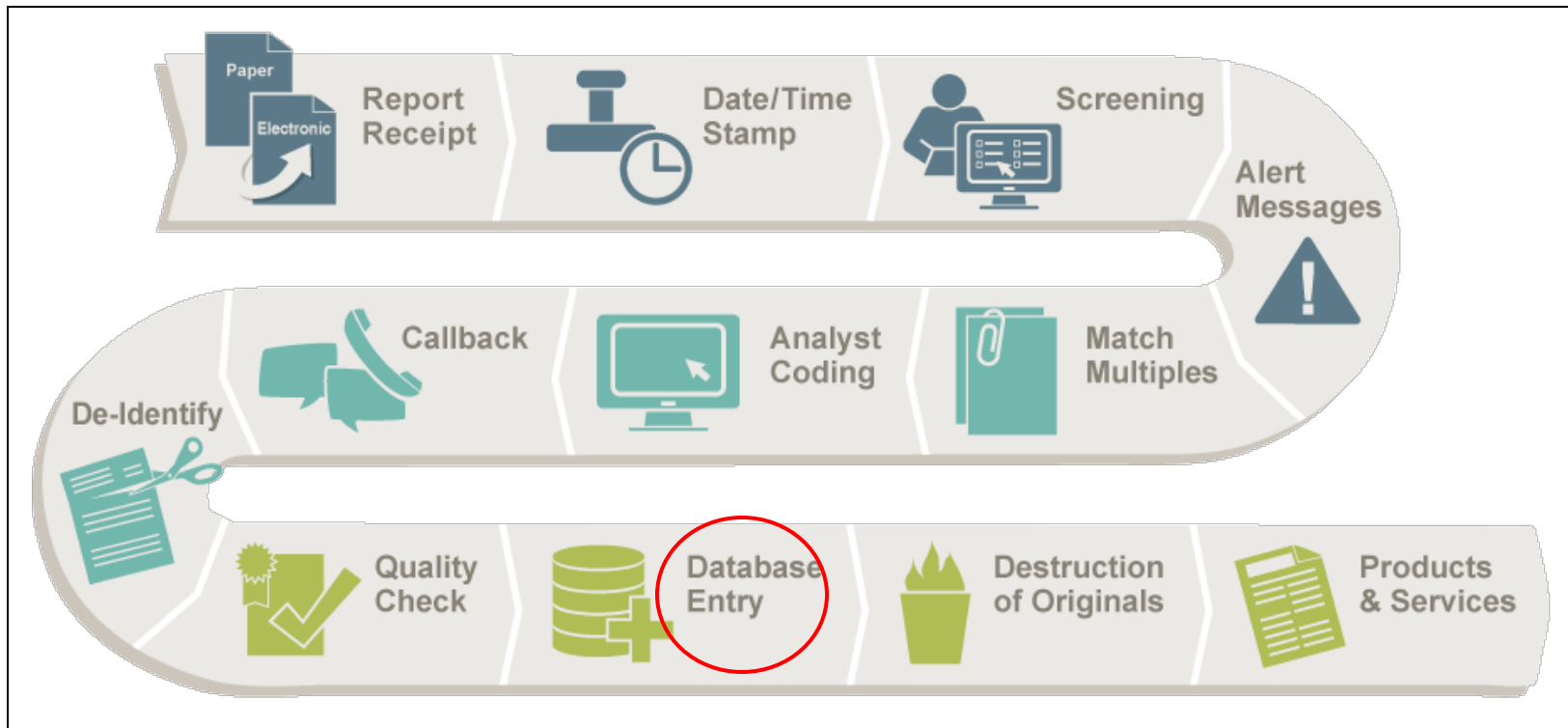
HOME Area \_\_\_\_\_ No. \_\_\_\_\_ Hours \_\_\_\_\_  
WORK Area \_\_\_\_\_ No. \_\_\_\_\_ Hours \_\_\_\_\_

NAME \_\_\_\_\_  
ADDRESS/PO BOX \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

TYPE OF EVENT/SITUATION \_\_\_\_\_  
DATE OF OCCURRENCE (MM/DD/YYYY) \_\_\_\_\_  
LOCAL TIME (24 hr. clock) (HH:MM) \_\_\_\_\_

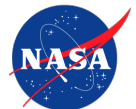
PLEASE FILL IN APPROPRIATE SPACES AND CHECK ALL ITEMS WHICH APPLY TO THIS EVENT OR SITUATION.

# Report Processing Flow



## ASRS Report Records Are Public:


- Direct request to ASRS Office via website “Contact Us”, email, or phone
- Direct Access to Database Online (DBOL)























# ASRS Database Online

Direct access to search de-identified reports in the ASRS database is available through **ASRS Database Online (DBOL)** at <https://asrs.arc.nasa.gov/search/database.html>.


How to Search:

**Step 1:** Click  to add search items. Note: Make sure your Pop-up Blocker is off.

**Step 2:** In "Current Search Items" section, select "Click Here" in a statement and choose items from lookup window.

<b>Date &amp; Report Number</b> <ul style="list-style-type: none"> <li> Report Number (ACN) was [number]</li> <li> Date of Incident was between [date] and [date]</li> </ul>	<b>Place</b> <ul style="list-style-type: none"> <li> Location was [identifier]</li> <li> State was [abbreviation]</li> </ul>
<b>Environment</b> <ul style="list-style-type: none"> <li> Flight Conditions were [conditions]</li> <li> Lighting was [conditions]</li> <li> Weather was [element]</li> </ul>	<b>Person</b> <ul style="list-style-type: none"> <li> Reporter Organization was [type]</li> <li> Reporter Function was [position]</li> </ul>
<b>Aircraft</b> <ul style="list-style-type: none"> <li> Federal Aviation Regs (FAR) Part was [regulation]</li> <li> Flight Plan was [type]</li> <li> Flight Phase was [phase]</li> <li> Make/Model was [aircraft type]</li> <li> Mission was [operation]</li> </ul>	<b>Event Assessment</b> <ul style="list-style-type: none"> <li> Event Type was [anomaly]</li> <li> Detector was [equipment/human]</li> <li> Primary Problem was [most prominent factor]</li> <li> Contributing Factors were [problem areas]</li> <li> Human Factors (since 6/09) were [factor]</li> <li> Result was [consequence]</li> </ul>

**Text: Narrative / Synopsis**

-  Text contains [words]

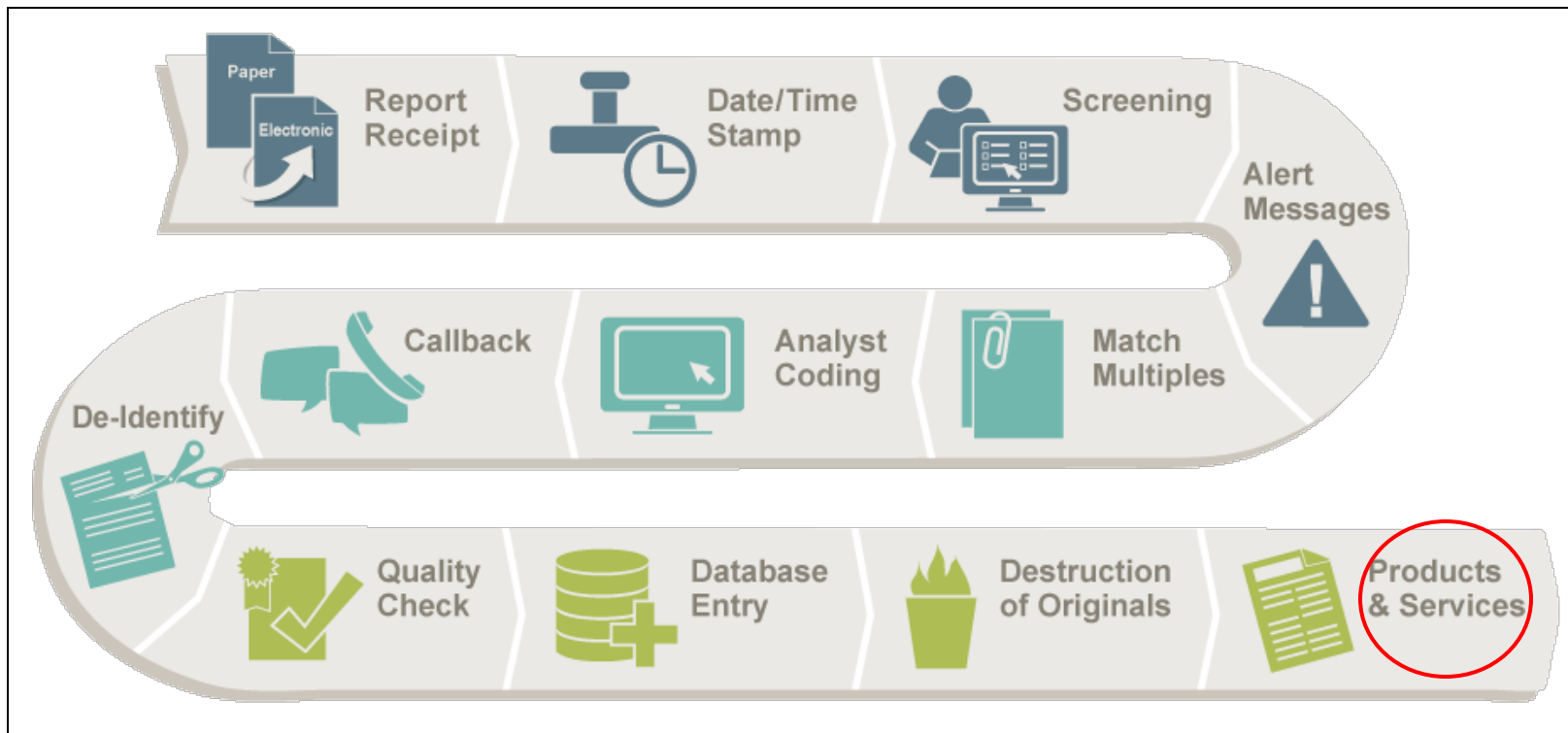
## Database Users

Gov't	Operations
FAA	Air Carriers
NASA	Airport
NTSB	Unions
DHS	Aircraft Manufacturers
Military	Equipment Manufacturers
Safety Orgs	Research
AOPA	Research Orgs
GAMA	Academia
NBAA	Media
HAI	Legal
	Individuals

Over 21,000 Database Searches are conducted each year



# Report Processing Flow



# ASRS Data 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.



## **QUICK RESPONSES**

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



## **ASRS DATABASE**

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



## **CALLBACK NEWSLETTER**

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



## **SPECIAL STUDIES**

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

# ASRS Special Studies and Topic Areas

## COVID (FAA AVP)



## General Aviation (FAA AVP)



FAA, Aviation Safety 2020

## UAS (FAA AUS-430)



## Wake Vortex (FAA AJP)



## HazMat (FAA AXH-1)

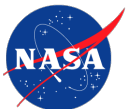


## NextGen/Human Factors (FAA ANG-C1)



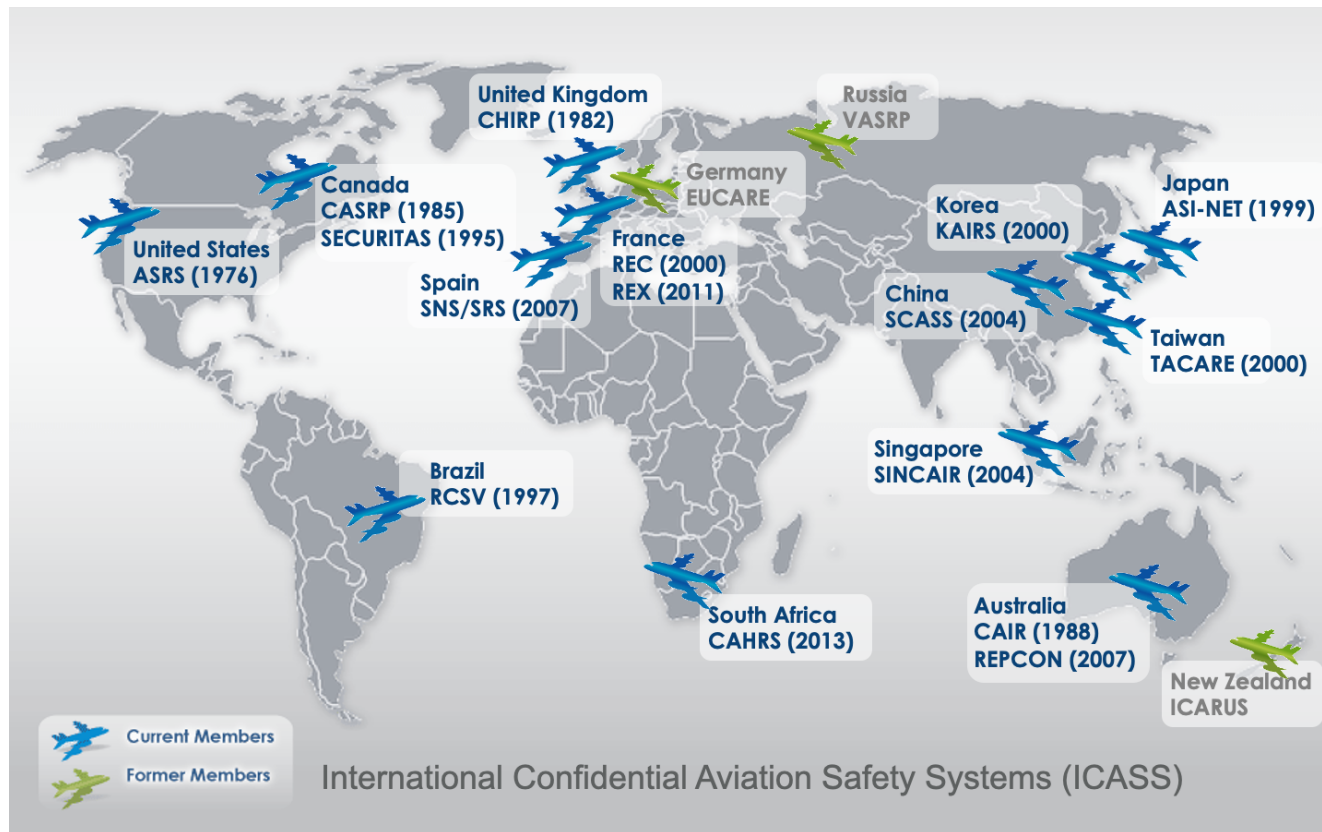
# Agenda

- ASRS Background and Immunity Protection
- ASRS Processes
- Applying the ASRS Model to other Domains



# ASRS Model Application Areas

- **International Confidential Aviation Safety Systems (ICASS)**
  - 12 other countries have ASRS-type reporting systems



# ASRS-Model Application Areas



RAIL



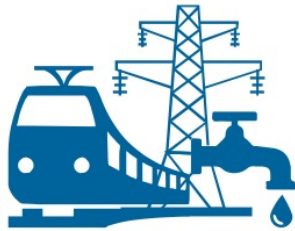
MEDICINE



SECURITY



FIREFIGHTING



PUBLIC UTILITIES



MARITIME



STRUCTURAL  
ENGINEERING



Patient Safety Reporting System



# Important Characteristics of ASRS

- Voluntary reporting
- Independent / trusted third party
- Non-Punitive - Strong immunity and legal provisions
- Confidential - Secure data confidentiality protections
- Reports screened and coded by aviation domain experts
- Rapid system-wide alerting and data sharing
- National publicly available repository of safety reports



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

**Aviation Safety Reporting System** Home Contact Us

Program Information Report to ASRS Search ASRS Database Publications/Studies International Online Resources

ASRS Database Online  
ASRS Database Report Sets  
Requesting ASRS Data

Confidential. Volu

ASRS captures confidential reports, analyzes the resulting aviation safety data, and disseminates vital information to the aviation community.

**CALLBACK**  
Receive FREE monthly newsletter by email! (Please Read)  
[Subscribe to CALLBACK](#)

**NOTAM Issues**  
July 2015, Issue 426  
[HTML](#) | [PDF](#)

**Select a Form To Submit a Report**

- ▶ [General](#) - Pilots, Dispatchers, Others
- ▶ [Air Traffic Control](#) - Air Traffic Controllers
- ▶ [Maintenance](#) - Mechanics
- ▶ [Cabin](#) - Cabin Crew

**How to Report Online**

Review proper browser settings, security tips, and provisions.

- ▶ [FAQ for Electronic Report Submission](#)
- ▶ [Online Security Tips](#)
- ▶ [Immunity Policy](#)

**View Program Briefing**

Learn more about ASRS such as report processing and reporting metrics.



Becky Hooley, Director , NASA Aviation Safety Reporting System (ASRS)  
[Becky.L.Hooley@nasa.gov](mailto:Becky.L.Hooley@nasa.gov)

