Ground Operations and ASRS

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Topics of Discussion

- ASRS Program Overview
  - Purpose
  - Report Processing
  - Products

- ASRS Database Online Demonstration
ASRS Program Overview
ASRS Purposes

- **Identify** deficiencies and discrepancies in the National Airspace System
  - Objective: Improve the current aviation system

- **Provide data** for planning and improvements to the future National Airspace System
  - Objective: Enhance the basis for human factors research & recommendations for future aviation procedures, operations, facilities, and equipment
After a fatal TWA crash in 1974, the investigation revealed that six weeks prior, a United Airlines crew had experienced an identical ATC misunderstanding and narrowly missed the same mountain.

Although the information was shared with FAA 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 need for a national aviation reporting program that would enable collection and dissemination of safety information.

In April 1976, NASA and FAA implemented the Aviation Safety Reporting System (ASRS)
FAA provides reimbursable funding to NASA for ASRS Support & Management

NASA provides funding for Director to provide overall management

The Aviation Community provides support through advocacy for reporting, feedback, and communications
ASRS is complementary to other systems of reporting and focuses on precursors to the most severe events.
ASRS in the International Aviation Community

International Confidential Aviation Safety Systems (ICASS)
Report Processing
ASRS receives reports from pilots, air traffic controllers, cabin crew, dispatchers, maintenance technicians, ground personnel and others involved in aviation operations.

ASRS's report intake has been robust from the first days of the program, in which it averaged approximately 400 reports per month.

In recent years, report intake has grown at an enormous rate with intake now averaging 7,000 reports per month.
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 75,000

Aviation Safety Reporting System

Monthly Intake
Ground Operations Safety Reporting

*Intake through August 19, 2013

*ASRS* Aviation Safety Reporting System
Report Processing Flow

1. Report Receipt
2. Date/Time Stamp
3. Screening
4. Alert Messages
5. De-Identify
6. Callback
7. Analyst Coding
8. Match Multiples
9. Quality Check
10. Database Entry
11. Destruction of Originals
12. Products & Services
Report Processing Flow

ASRS paper reports are picked-up daily from the Moffett Field Post Office or are received electronically via website Electronic Report Submission (ERS) or ASAP data transmissions.

Every report is date and time stamped based on the date of receipt.

Two ASRS Analysts “screen” each report within three working days to provide initial categorization and to determining the triage of processing.

ASRS Analysts may identify hazardous situations from reports and issue an Alert Message. De-identified information is provided to organizations in positions of authority for further evaluation and potential corrective actions.
ASRS retains high-level categorization of 100% of reports received. Based on initial categorization, multiple reports on the same event are brought together to form one database “record”

ASRS Analysts identify reports that require further analysis and entry into the public ASRS database. During the detailed Report Analysis process, reports are codified using the ASRS taxonomy.

An ASRS Analyst may choose to call a reporter on the telephone to clarify any information the reporter provided. This information is added to the analysis and final record.

To ensure confidentiality all identifying data is removed. After analysis, the Identification Strip, the top portion of the report, is returned to the reporter. This ID strip acts as the reporter’s proof of submittal. All physical and electronic ID strip data with the reporter’s name, address, date and time stamp is removed.
All reports that receive further analysis go through a Final Check to assure coding accuracy. Quality Assurance checks are also performed for coding quality.

Final coded reports enter the ASRS Database. These de-identified records are then available in the ASRS Database Online, which is available through the ASRS website.

Original reports, both physical and electronic data, are destroyed to completely ensure confidentiality.

ASRS uses the information it receives to promote aviation safety through a number of products and services, such as Alert Messages, Search Requests, a monthly newsletter, focused studies and more.
A sample of 3,533 Flight Attendant reports were analyzed.

Of those reports, 820 are matched to at least one other report.

These 820 reports correspond to a total of 432 unique incidents.

All 1,006 reporters create 432 ASRS database records.
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.
Alert Messages
ASRS Alert Message Priorities

Alert Bulletins
Time critical safety information issued to organizations in positions of authority for evaluation and possible corrective actions.

For Your Information Notices
Less urgent safety information is issued in For Your Information (FYI) Notices.

ASRS Safety Teleconferences & Other Safety Communications
Alert Bulletins and FYI Notices determined appropriate for an in-depth discussion are included in a monthly teleconference with the FAA and others.

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

### January 2003 – December 2012

<table>
<thead>
<tr>
<th>Subject</th>
<th>Total</th>
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<tr>
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<tr>
<td>Navigation</td>
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<tr>
<td>Aircraft Avionics</td>
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### Alerting Responses

**January 2003 – December 2012**

<table>
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<tr>
<th>Response</th>
<th>Percentage</th>
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<tr>
<td>Action taken as a result of the AB/FYI</td>
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<tr>
<td>Action initiated before AB/FYI received</td>
<td>13%</td>
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<tr>
<td>Action initiated in response to AB/FYI but not completed</td>
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<tr>
<td>Addressee agrees with AB/FYI but sees no problem</td>
<td>6%</td>
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<tr>
<td>Issue raised by AB/FYI under investigation</td>
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<tr>
<td>Addressee disputes factual accuracy of AB/FYI</td>
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<tr>
<td>Information in AB/FYI insufficient for action</td>
<td>12%</td>
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<tr>
<td>For information only, no response expected</td>
<td>3%</td>
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<tr>
<td>Action not within addressee's jurisdiction</td>
<td>3%</td>
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<tr>
<td>Addressee in factual agreement but is unable to resolve</td>
<td>2%</td>
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</tbody>
</table>

**Total 59%**
Examples of Safety Alerting Success

- **SFO Taxiway Signage (FYI 2012-102)**
  SFO Airfield Operations office reviewed the pilot's comments and stated they are “...working with Jeppesen to enlarge the inset diagram on page 10-9 depicting Hot Spot #1, which currently shows Taxiways E, J, and F, but excludes Taxiway F1. The more encompassing diagram should assist pilots in quickly identifying the position of each taxiway and thus more effectively follow Tower instructions.”

- **DTW Taxiway "F" Marking Confusion (FYI 2012-97)**
  The DTW Director of Airfield Operations investigated the safety concern stating “As a result of our investigation, a request was made to the commercial chart provider on July 31, 2012 to revise the chart and add a notation for 'Taxiway Fox located south of E-2' to the map.”

- **HS-125 Violent Wing Oscillations (AB 2012:17)**
  The Kansas City Aircraft Evaluation Group responded stating “The result of investigating the source of these ASRS reports found 40 some similar incidences have been reported in various forms. The information has facilitated attention to the matter resulting in effort toward continued operational safety.”
Quick Responses
Recent Quick Response Applications

- An Analysis of Part 121 Similar Call Sign Related Incidents (QR339)
- An Analysis of Part 121 Flight Crew Fatigue Related Incidents (QR338)
- An Analysis of Dual Turboprop Engine Aircraft Icing Encounter Incidents (QR337)
- An Analysis of Part 121, 135 and 91 Turbojet Rejected Takeoff Related Incidents (QR336)
ASRS Database
Information in the ASRS Database is available publicly. ASRS will provide **Search Requests** to government agencies, members of Congress, aviation safety organizations, and others. ASRS searches its database, download relevant reports, and sends to requestor.

Direct access to search de-identified reports in the ASRS database is now available through **ASRS Database Online**
http://asrs.arc.nasa.gov/search/database.html

For your convenience, selected relevant reports on several safety topics are available on the website called **ASRS Database Report Sets**
http://asrs.arc.nasa.gov/search/reportsets.html

The ASRS Database is also available and updated monthly through the FAA Aviation Safety Information Analysis and Sharing (ASIAS) website
http://www.asias.faa.gov/
ASRS Database Metrics

- Since the inception of ASRS, over 7,335 Search Requests (SRs) have been directly provided by ASRS Research Staff to various aviation organizations and agencies, as well as individuals through December 2012.

- The activity on the ASRS website for ASRS Database Online is over 1,638 completed queries a month.

- From the ASRS website, ASRS Database Report Sets are downloaded on average over 3,140 times a month, Report Sets were first posted in January 2000.
Search Requests Samples

- **Ramp Control Related Incidents (SR 7057)**
  - Completed in support of the Air Traffic Procedures Committee

- **Ramp Operation Incidents Involving Physical Injury, Aircraft Damage or Equipment Damage (SR 7077)**
  - Completed for The Boeing Company

- **Tow/Tug Related Incidents (SR 6957)**
  - Completed for the FAA
CALLBACK, the award winning ASRS monthly safety newsletter, has been published since 1979 in a popular “lessons learned” format. CALLBACK presents ASRS report excerpts that are significant, educational, and timely. Occasionally features on ASRS program developments and research are also presented. Over 403 issues have been published and distributed throughout the U.S. and to the international aviation community. All issues since December 1994 are available for download at the ASRS website at:

http://asrs.arc.nasa.gov/publications/callback.html
In addition to being published online, CALLBACK is distributed by email. Subscription is free and available via the ASRS website.

- The total number of email subscribers for 2012 was over 24,500
- CALLBACK views for 2012 (HTML and PDF) were over 300,000
ASRS is a national repository of aviation safety data

Company’s safety processes can use ASRS to obtain a systemic view of emerging issues

Companies can review reports for similarities to their operations to help identify issues not yet encountered

ASRS can help companies recognize important issues within their own processes
ASRS Database Online Demonstration
ASRS Web Site

- Launch Oct. 2007
  - Over 9 million sessions in 2012
- File ASRS Report
  - Electronic
  - Print and Mail
- Database Online
- ASRS Publications
- Program Information
- Immunity Policies

http://asrs.arc.nasa.gov
ASRS Database Online

Welcome to the ASRS Database Online! The ASRS database is the world's largest repository of voluntary, confidential safety information provided by aviation's frontline personnel, including pilots, controllers, mechanics, flight attendants, and dispatchers. The database provides a foundation for specific products and subsequent research addressing a variety of aviation safety issues.

ASRS's database includes the narratives submitted by reporters (after they have been sanitized for identifying details). These narratives provide an exceptionally rich source of information for policy development, human factors research, education, training, and more. The database also contains coded information by expert analysts from the original report which is used for data retrieval and analyses.

ASRS has enhanced ASRS Database Online capabilities – in addition to HTML displays, you can export your search results to Microsoft Word, Microsoft Excel® (.xls), and Comma Separated Value (.csv) formats. The content of the .doc, .xls and .csv formats will be the same as the on-screen incident record. The exports generate one row for each incident record and are limited to 10,000 incident records per download, due to speed considerations.

For new users please visit the following pages found to the right under "Database Online Resources": New Users, Search Strategies, Sample Searches, ASRS Database Items, and About ASRS Data.

Note to users, for best results, turn off your pop-up blocker.

Start Search

ASRS Database Items
An outline of the ASRS taxonomy.

ASRS Abbreviations
A list of ASRS abbreviations used in report narratives.
**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.

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

### Environment
- **Flight Conditions** were [conditions]
- **Lighting** was [conditions]
- **Weather** was [element]

### Aircraft
- **Federal Aviation Regs (FAR)** Part was [regulation]
- **Flight Plan** was [type]
- **Flight Phase** was [phase]
- **Make/Model** was [aircraft 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 [words]

### Current Search Items:

Search is empty.
Your search returned 193 ACNs

Search Criteria:
- Reporter Function was Airport Personnel, FBO Personnel, Gate Agent / CSR, Other / Unknown, Ramp, Vehicle Driver

Display your results:
- Results Online (in HTML)
  - View all reports
  - View only the 10 most recent reports
  - View a list of ACNs

Export Results
- Excel File
- Comma Separated File (CSV)
- Word File

Export Search Criteria
- Text File

Modify Search
- Go back and edit current search
- Start new search
**ACN: 1086645 (1 of 193)**

**Time / Day**
Date: 201305

**Place**
Locale Reference.Airport: ZZZ.Airport
State Reference: US
Altitude.AGL.Single Value: 0

**Aircraft**
Reference: X
Aircraft Operator: Air Carrier
Make Model Name: Commercial Fixed Wing
Crew Size.Number Of Crew: 2
Operating Under FAR Part: Part 121
Mission: Passenger
Flight Phase: Taxi

**Component**
Aircraft Component: Nose Gear Tire
Aircraft Reference: X

**Person**
Reference: 1
Location Of Person: Gate / Ramp / Line
Reporter Organization: Air Carrier
Function.Ground Personnel: Ramp
ASRS Report Number.Accession Number: 1086645

Human Factors: Other / Unknown
Person

Reference: 1
Location Of Person: Gate / Ramp / Line
Reporter Organization: Air Carrier
Function: Ground Personnel
ASRS Report Number: 1086645
Human Factors: Other / Unknown

Events

Anomaly: Ground Event / Encounter: Object
Anomaly: Inflight Event / Encounter: Object
Anomaly: Inflight Event / Encounter: Loss Of Aircraft Control
Detector: Person - Ground Personnel
When Detected: Taxi
Result: Aircraft: Aircraft Damaged

Assessments

Contributing Factors / Situations: Company Policy
Contributing Factors / Situations: Equipment / Tooling
Contributing Factors / Situations: Human Factors
Primary Problem: Ambiguous

Narrative: 1

Equipment failure. Towbar hitch broken causing the towbar to separate away from the aircraft. Aircraft was being towed using a Steward and Stevenson pushback tractor; one of our better pushback tractors but by no means a towing tractor. We have a Goldhofer tow tractor but it is out of service more than in service. We towed across 2 taxiways making a couple left and right turns. As I was guiding the aircraft into the gate, I was positioned to the driver’s right side due to a pre-positioned GPU. Making sure tractor cleared unit. As the tow was almost complete and tow tractor was slowing down I was guiding tractor to stop mark. I happened then to notice the noise of aircraft veering to the left of the tow tractor. I quickly crossed over to the left hand side of tractor to see what was going on only to hear a loud pop and then a second pop. The tractor driver also noticed at the same time and quickly pulled forward going to the right side away from nose of the aircraft. Simultaneously I radio to flight deck to set breaks. This happened so quick we didn’t have time to stop aircraft before it ran over the towbar popping both nose gear tires. My angle of vision was blocked by the position of the GPU and the tow tractor.

Synopsis

Ground crewman supervising an aircraft tow reports a broken tow bar hitch approaching the gate. Before the aircraft can be signaled to set brakes the nose tires run over the towbar popping both tires.

ACN: 1086636 (2 of 193)

Time / Day
Date: 201303
Report Format

Save Changes and Return | Cancel Changes and Return | Reset to Defaults

- Time / Day
  - Aircraft
    - ATC / Advisory
    - Operator
    - Make Model
    - Operating Under FAR Part
    - Navigation In Use
    - Flight Phase
    - Route In Use
    - Flight Plan
    - Mission
    - Maintenance Status
    - Maintenance Type
    - Maintenance Items Involved
    - Cabin Lighting
    - Number of Seats
    - Aircraft Zone
    - Flight Crew Size
    - Airspace
    - Number of Flight Attendants
    - Passengers On Board
    - Component
      - Aircraft Component
      - Manufacturer
      - Problem
  - Person
    - Organization
    - Function
    - Qualification
    - Experience
    - ASRS Report
    - Location Of Person
    - Location In Aircraft
    - Human Factors
  - Events
    - Anomaly
    - Detector
    - Result
    - When Detected
    - Miss Distance
    - Were Passengers Involved In Event
  - Assessments
    - Contributing Factors / Situations
    - Primary Problem
  - Narrative
  - Callback
  - Synopsis
Report Format

Save Changes and Return | Cancel Changes and Return | Reset to Defaults

Check All Fields Listed Below | Uncheck All

- Time / Day
- Place
  - Locale Reference
  - State Reference
  - Altitude
  - Relative Position
- Environment
  - Flight Conditions
  - Weather Elements
  - Light
  - Visibility
  - Work Environment Factor
- Ceiling
- RVR

- Aircraft
  - ATC / Advisory
  - Operator
  - Make Model
  - Operating Under FAR Part
  - Navigation In Use
  - Flight Phase
  - Route In Use
  - Flight Plan
  - Mission
  - Maintenance Status
  - Maintenance Type
  - Maintenance Items Involved
  - Cabin Lighting
  - Number of Seats
  - Aircraft Zone
  - Flight Crew Size
  - Airspace
  - Number of Flight Attendants
  - Passengers On Board
- Component
  - Aircraft Component
  - Manufacturer
  - Problem

- Person
  - Organization
  - Function
  - Qualification
  - Experience
  - ASRS Report
  - Location Of Person
  - Location In Aircraft
  - Human Factors
  - Events
  - Anomaly
  - Detector
  - Result
  - When Detected
  - Miss Distance
  - Were Passengers Involved In Event
  - Assessments
    - Contributing Factors / Situations
    - Primary Problem
  - Narrative
  - Callback
  - Synopsis
ACN: 1086645 (1 of 193)

Synopsis
Ground crewman supervising an aircraft tow reports a broken tow bar hitch approaching the gate. Before the aircraft can be signaled to set brakes the nose tires run over the towbar popping both tires.

ACN: 1086636 (2 of 193)

Synopsis
Baggage handler suggest that the aircraft lavatories should not be serviced while the rear compartment is being loaded and unloaded due to the high winds present at PHOG and the likelihood that the ground crew will get sprayed.

ACN: 1080252 (3 of 193)

Synopsis
A baggage tractor driver, hurrying because he had no accurate way to determine the time relative to the scheduled departure time of flights to which he was delivering bags, attempted to take a turn at too high a speed and was ejected from the vehicle. The unmanned baggage vehicle continued uncontrolled and struck two lavatory trucks and several baggage carts.

ACN: 983727 (4 of 193)

Synopsis
A Ramp Operations Tug Driver reports hooking up a tow bar to a CRJ-200 aircraft and positioning the pushback tug in front of
Your search returned 193 ACNs

Search Criteria:
Reporter Function was Airport Personnel, FBO Personnel, Gate Agent / CSR, Other / Unknown, Ramp, Vehicle Driver

Display your results:
Results Online (in HTML)
- View all reports (50 per page)
- View only the 10 most recent reports
- View a list of ACNs

Export Results
- Excel File
- Comma Separated File (CSV)
- Word File

Export Search Criteria
- Text File

Modify Search
- Go back and edit current search
- Start new search
Your search returned 193 ACNs

Search Criteria:

- **Reporter Function**: was Airport, Agent / CSR, Other / Unknown

**Display your results:**

- **Results Online (in HTML)**
  - View all reports
  - View only the top 10
  - View a list of ACNs

- **Export Results**
  - Excel File
  - Comma Separated File
  - Word File

- **Export Search Criteria**
  - Text File

- **Modify Search**
  - Go back and edit current search
  - Start new search
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<tr>
<th>ACN</th>
<th>Date</th>
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<th>Local Time</th>
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<th>State Ref</th>
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Contact Information

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