NATIONAL AVIATION OPERATIONS MONITORING SERVICE
(NAOMS)

January 26, 2000

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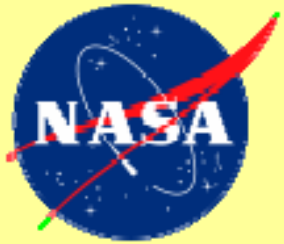


Background

- **White House Commission on Aviation Safety and Security (Gore Commission)**
  - Called for 80% reduction in fatal accidents in 10 years
  - Encouraged NASA to actively participate
- **NASA initiated multi-year aviation safety program to support the Commission goal**
- **Focused Aviation Safety Program (AvSP)**

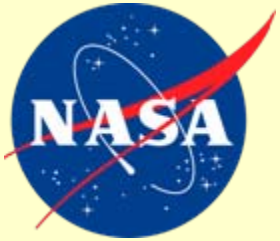
Challenge

We need to be able to accurately measure progress towards the National Safety goal

Desired Measurement Characteristics

- **System-wide**
- **Operationally focused**
- **Timely**
- **Reliable**
- **Valid**
- **Flexible**
- **User accepted**

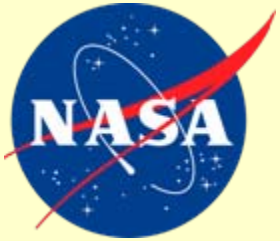
Measurement Objectives



- **Better, more comprehensive numbers**
- **Better and more rapid feedback on technological and procedural change**
- **Escape from event-driven safety policy**
- **Create a data-driven basis for safety decisions**

NAOMS will measure the frequency of NAS safety events. NAOMS measures will be comprehensive and statistically valid. They will be used to develop data-driven safety agendas; identify and track NAS safety trends; and assess the effectiveness of new aviation technologies and procedures.

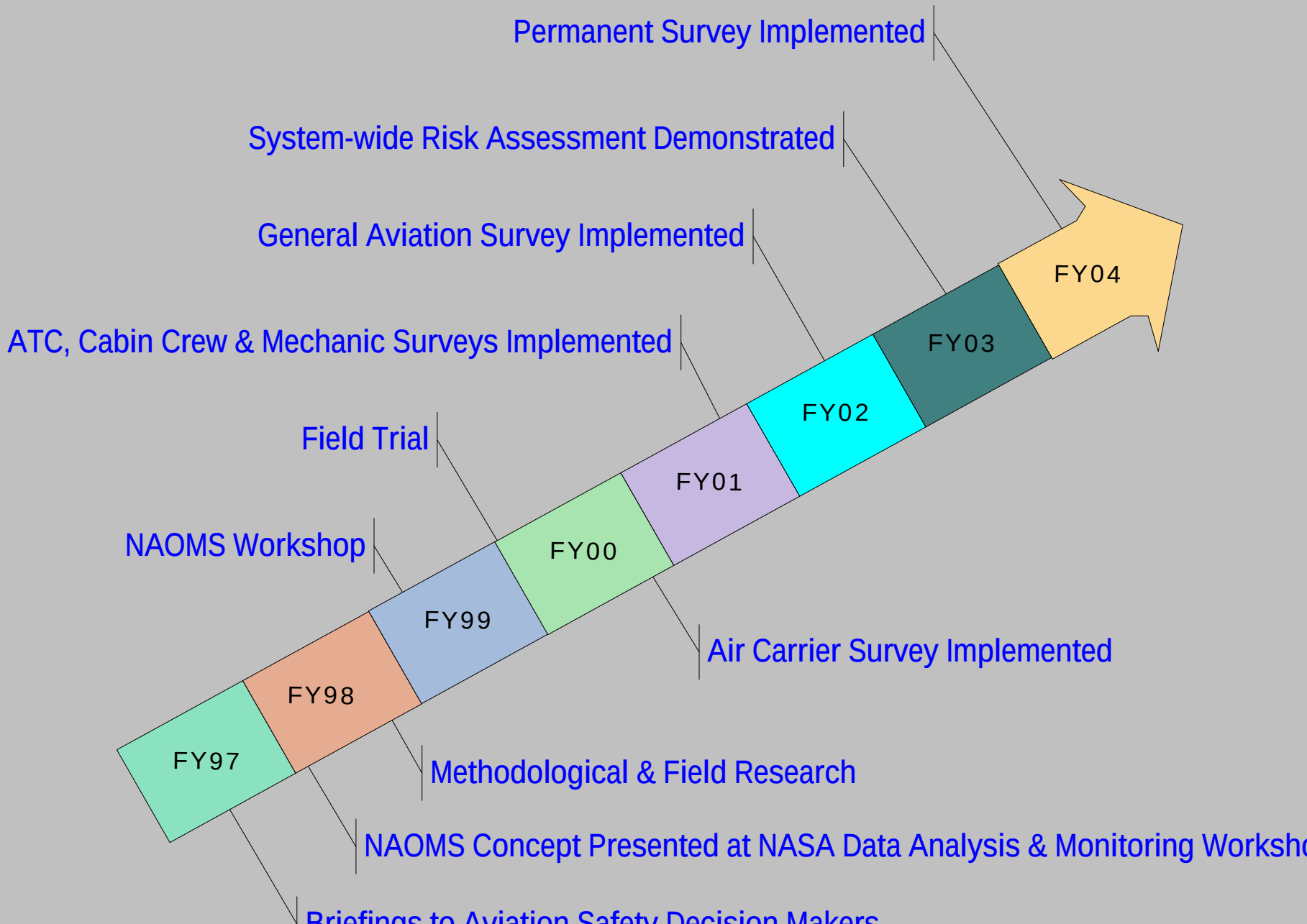
NAOMS Approach



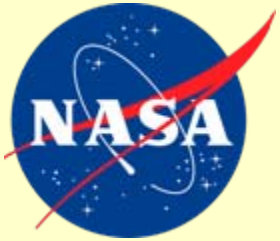
- **Regularly survey pilots, controllers, mechanics, flight attendants and others who operate the national aviation system (NAS)**
- **Achieve scientific integrity by using well crafted survey instruments and carefully designed statistical sampling methods**

Insert Other Federal Surveys Slides

NAOMS Development Timeline

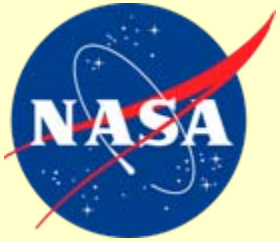


Pre-Implementation Activities



- **Engagement of Aviation Community**
- **Demographic Research**
- **Focus Group Sessions**
- **Methodological Research**
- **Field Trial**

Purposes of Field Trial



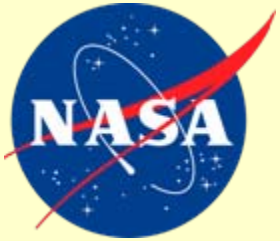
- **Evaluate methods and survey questionnaire**
  - Response rates
  - Data quality and completeness
  - Data reliability and validity
  - Collection modes
  - Question wording
  - Respondent feedback on survey
- **Estimate scale of a fully operational system**
  - Costs
  - Required sample sizes

Field Trial Specifics

- **Desired Sample Size: 642**
  - Randomly selected from Medical Certificate database
- **Alternative Data Collection Methods**
  - Mail
  - Telephone
  - Face-to-Face
- **Survey Sections**
  - Flight Experience
  - Core Questions (incident experiences)
  - Focus Questions
  - Questionnaire Feedback

Core Question Subsections
Airborne Spatial Deviations
Airborne Conflicts
Ground Events
Weather and Turbulence Events
Flight Crew Events
Equipment-Related Events
Aircraft Handling Events
Cabin- and Passenger-Related Events
ATC-Interaction Events

Field Trial Status



- Most data have been collected
- Analysis begun
- Interim summary report drafted
- Analysis will continue through February 2000

Field Trial Findings*

Mode	Current Response Rate	Status Unknown	Actual Refusal Rate
Mail	64%	31%	5%
Telephone	67%	24%	9%
Face-to-face	37%	60%	3%

Total number of surveys completed =519

* Findings are of 14 Jan 2000. Data collection will continue to mid-February 2000.

Field Trial Findings: Pilot Comments

- **Confidence that they reported events accurately**
  - Extremely Confident = 47.3 %
  - Very confident = 39.5 %
  - Confident = 8.5 %
  - Moderately confident = 4.1 %
  - Not at all confident = 0.5 %

- **Are the questions relevant to long-term trends in aviation safety?**
  - Yes = 86.4 %
  - No = 13.6 %

Field Trial Findings: Pilot General Comments

- **Positive comments include:**
  - "Enthusiasm for the concept"
  - "Great concept"
  - "Great you are doing it"
  - "Good but will it make a difference?"
  - "We need more of this"
  - "Its about time"

TO BE REPLACED WITH TABULATIONS

- **No concerns expressed about confidentiality**

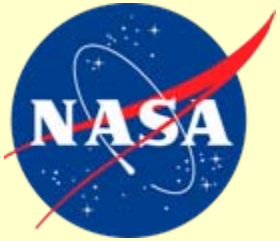
Conclusions

- **Methodology validated**
- **Pilots very positive**
- **Response rates high**
- **Data quality goals appear achievable**
- **Confidentiality not cited as a problem**

Next Steps

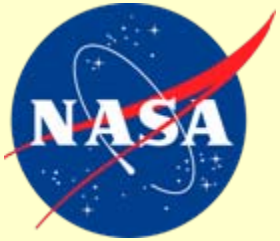
- **March 1, 2000 Workshop**
  - Present field trial findings
  - Obtain critical input from industry / government partners
  - Discuss future focus
- **Implement survey for air carrier population**
  - FY2000 milestone
- **Initiate development steps with next participant groups**

Current Data System Limitations



- **A number of publicly available data collection programs already exist**
  - SDR / OpError / AIDS
  - ASRS
  - NTSB accident database
  - And others
- **They do not provide**
  - An adequate top down view of NAS safety trends
  - Measure of new technologies and procedures impact

NAOMS Benefits



- **Framework for understanding NAS safety performance**
- **Supplements current and future data systems (FOQA, ASAP)**
- **Tracks safety trends**
- **Monitors impacts of technological and procedural changes**

NAOMS Products

- **EXPECTED OUTPUTS**
  - Summarized aviation operational experience data
  - Statistically reliable estimates of safety event incident rates
  - Near real-time feedback on impacts of new technology and procedures
  - Structured NAOMS data sets
- **PRODUCT CONSUMERS**
  - Decision makers (government and industry)
  - Safety professionals and research organizations

Field Trial Findings: Cost

Mode	Cost per Survey
Mail	$60
Telephone	$75
Face-to-face	$225