

*NATIONAL AVIATION
OPERATIONAL MONITORING
SERVICE (NAOMS)*



Development
and
Proof of Concept

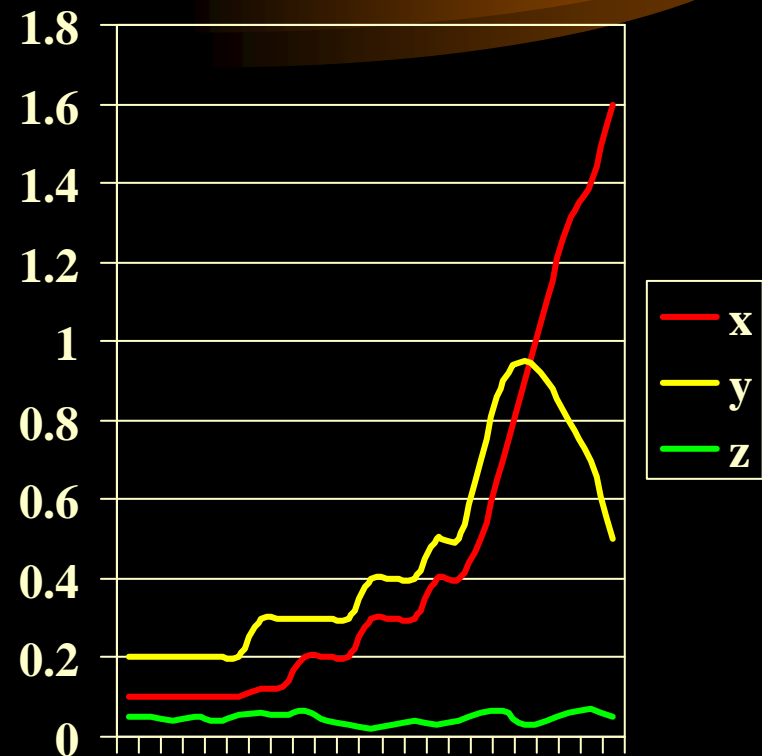
Concept



Actively monitor the safety of the national aviation system by regularly surveying the pilots, controllers, and others who operate it; achieve scientific integrity by using meticulously designed survey instruments and a carefully crafted statistical sampling design.

Other Federal Agencies Use Surveys to Monitor Safety and Health

- National Notifiable Disease System (NNDSS)
- Behavioral Risk Factor Surveillance System (BRFSS)
- CDCP Division of Acute Care, Rehab and Disability



Program Timetable



- ❑ Initial Methodology Development, FY 98
- ❑ Test Project, FY 99
- ❑ Full Implementation, FY 00 and beyond
 - If test project has promising results

Development Team

Managed by Battelle ASRS

- Loren Rosenthal Program manager
- Robert Dodd Sc.D. Principal investigator
- Jon Krosnick Ph.D. Survey methodologist
- Joan Cwi Ph.D. Survey application
- R. Iachan Ph.D. Statistician
- Mike Silver M.S. Survey methodologist

**WHY UNDERTAKE A NEW
AVIATION SAFETY DATA
COLLECTION ACTIVITY?**

Why Institute a New Aviation Safety Data Collection Service?

- ❑ Better more stable numbers
 - Sufficient to support policy decisions
- ❑ Better and more rapid feedback on system change
 - Technological and procedural
- ❑ Escape from event-driven safety policy
 - The accident *du jour* response syndrome

Measurement Objectives



- Measure NAS safety levels
- Detect and interpret NAS safety trends
- Evaluate impacts of new technologies and procedures

Required Attributes of Measurement Service



- Independent
- Timely
- Flexible
- Operationally-oriented
- Proactive
- Solution-oriented

Data To Be Collected

☐ Participant activity (i.e., exposure levels)

- Flight hours
- Hours controlling traffic
- Etc.

☐ Participant experiences

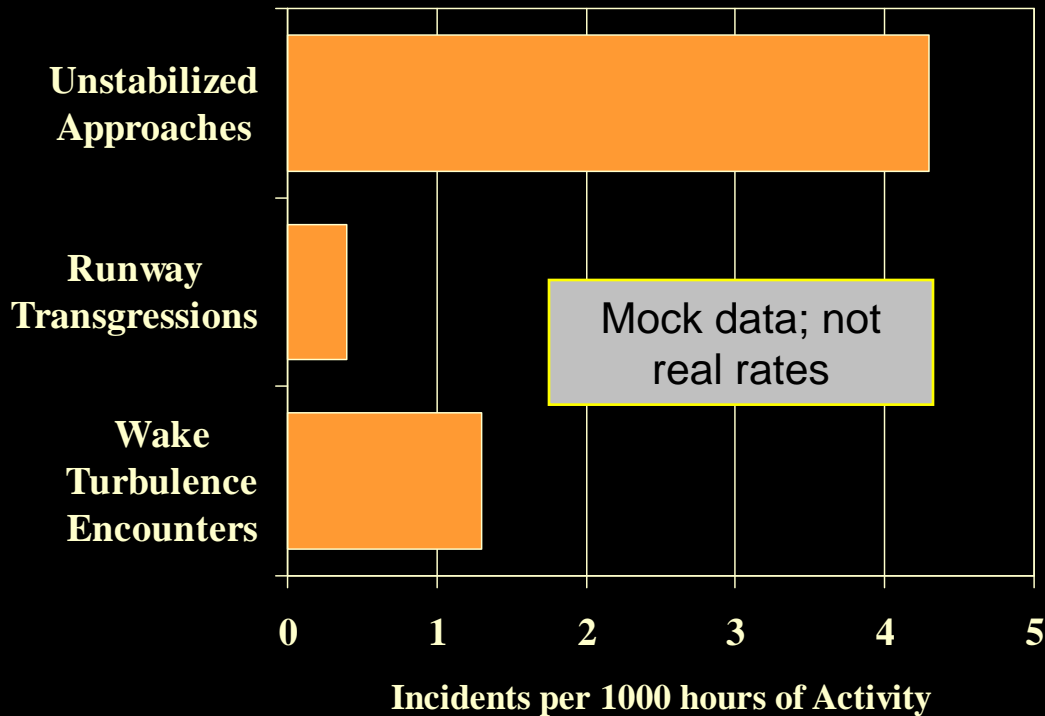
- Operational safety incidents experienced
- Experiences using new technologies / procedures

☐ Participant opinion (limited)

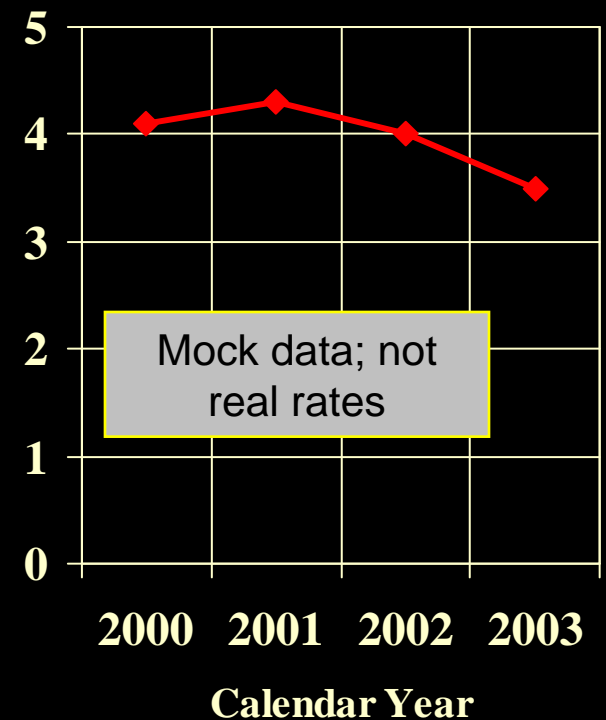
- Views related to safety of the NAS
- Will aid interpretation of experience data

Proposed Form of NAOMS Safety Rates

SAFETY EVENTS (CY 2001)



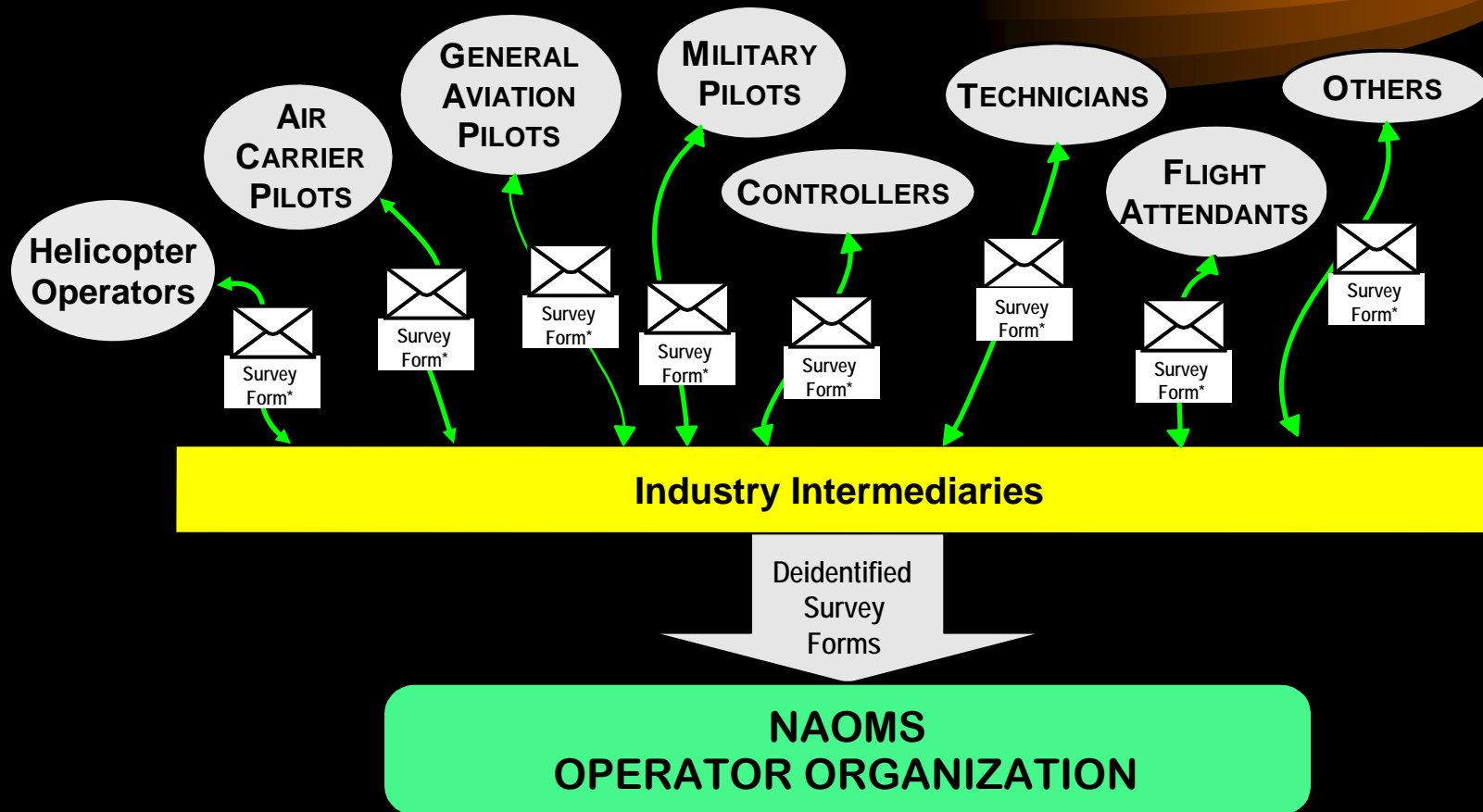
UNSTABILIZED APPROACHES (CY 2000-03)



NAOMS will help the aviation safety industry move beyond event-driven safety policy; it will provide policy makers with key data on safety levels and trends while giving technology developers crucial feedback on the effectiveness of the equipment and procedures they are introducing to the aviation environment.

POTENTIAL PARTICIPANTS

A Broad Range of Potential Participants



* The survey may use data collection methods other than paper forms. For example, data may be collected electronically or by phone.

Participant Confidentiality is Assured

- ❑ NAOMS will work through industry and labor intermediaries
- ❑ It will have no means of tracing a survey response to the individual who provided it
- ❑ Neither FOIA or discovery actions will pose a confidentiality risk to NAOMS

FY 98

ACTIVITIES

FY 98 Goals

- ❑ Identify topics important to the aviation community
- ❑ Determine initial attitudes toward surveys and specific collection modes
 - Mail, telephone, electronic, person-to-person
- ❑ Estimate pilot and controller recall ability
 - Timeframe and accuracy of memory

FY 98 Goals (cont.)

- Collect participant demographic data
- Develop a draft survey instrument
- Develop initial sampling design
- Estimate numbers of persons that will need to be surveyed
- Plan an FY 99 test project

FY 98 Accomplishments

- ❑ FY 98 background research completed
- ❑ Focus groups and cognitive interviews done
 - Pilots completed (n ~ 60 subjects)
 - Controllers in progress (n ~ 50 subjects)
- ❑ Draft survey instruments nearly complete
 - Draft pilot questionnaire developed
 - Controller questionnaire under development
- ❑ Test plan drafted

Some Preliminary Findings



- ❑ Pilot recall is highly accurate for about one week, but highly inaccurate after one month
- ❑ Event categorization is consistent among pilots
- ❑ Pilots are very sensitive about confidentiality

Questionnaire

□ Draft pilot survey developed

- Three sections
 - Demographics
 - Events for tracking
 - Special interest section
- No open ended questions for trial phase

DEMOGRAPHICS				
<i>Operational Experience (please update data on your total aviation experience and describe your level of aviation activity during the months of Jan, Feb, and Mar 1998)</i>				
Type	TOTAL EXPERIENCE		ACTIVITY JAN thru MAR 98	
	Years	Hours	Months	Hours
Air carrier flying, scheduled, major or national carrier				
Air carrier flying, scheduled, regional carrier				
Air carrier flying, cargo operation				
Air carrier flying, air taxi operation				
Air carrier flying, other				
General aviation flying, corporate				
General aviation flying, agricultural operations				
General aviation flying, other commercial activity				
General aviation flying, personal and other				
Military flying, air transport				
Military flying, tactical and other				
Air traffic control, TRACON				
Air traffic control, MILFAC				
Air traffic control, Tower operations				
Flight Service Specialist				
Technician / Mechanic				
Flight Attendant				
Dispatcher				
Etc.				

FY 99

ACTIVITIES

Program Goals for FY 99

- ❑ Determine whether air pilots and controllers will participate in sufficient numbers to make NAOMS viable
- ❑ Determine whether a pilot survey project can collect operational useful safety information
 - Expected respondent size: 4800
(n=2,400 pilots & 2,400 controllers)
- ❑ Determine best combination of survey modes
 - High response rate and high candor
- ❑ Estimate costs of fully-developed, national scale system

FY 99 Tasks

- Complete Controller cognitive interviews (Dec 98)
- Develop a draft controller questionnaire (Jan 99)
- Conduct a one-day industry workshop in (Jan 99)
- Begin test survey application (Apr 99)
- Finish test survey (Jun 99)
- Present findings at second workshop (Sep 99)

Summary

- ❑ NAOMS sound concept with great potential
- ❑ Current effort will provide scientifically based evidence of
 - Utility
 - Cost
 - Potential for system-wide implementation
- ❑ Two opportunities in FY 99 for industry / labor review and interaction with development team