



# Helicopter Flight Data Monitoring Workshop

Joint Helicopter Safety Implementation Team Information,  
Systems & Equipment Implementation Working Group

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HELIX-EXPO HFDM Workshop Intro and IHST Update

22 February 2010

Houston, Texas



# HFDM Workshop Agenda:



- ✓ **Intro and IHST update**
- ✓ **Industry's View**
  - ✓ FSF
  - ✓ NASA
  - ✓ Eurocopter
  - ✓ Shell Aircraft
- ✓ **Coffee Break**
  - ✓ Door Prize
- ✓ **Operator's Experiences**
  - ✓ CHC Europe
  - ✓ PHI
  - ✓ Air Methods
  - ✓ Arkansas Children's
- ✓ **HFDM Vendor Intro's**
- ✓ **Networking Event**
- ✓ **Breakout Session - Helicopter Flight Analysis Profile - HFAP(P)**



# THANK YOU!



*A special thanks to the following supporters:*

Coffee Break compliments of:



Heli-Expo Booth: 2045  
[www.flightscape.com](http://www.flightscape.com)

Networking Event compliments of:



Heli-Expo Booth: 2837  
[www.sagemavionics.com](http://www.sagemavionics.com)

Door Prize compliments of:



Heli-Expo Booth: 3221  
[www.appareo.com](http://www.appareo.com)

Program compliments of:



[www.ga-fdm.com](http://www.ga-fdm.com)



# IHST's attitude towards safety:



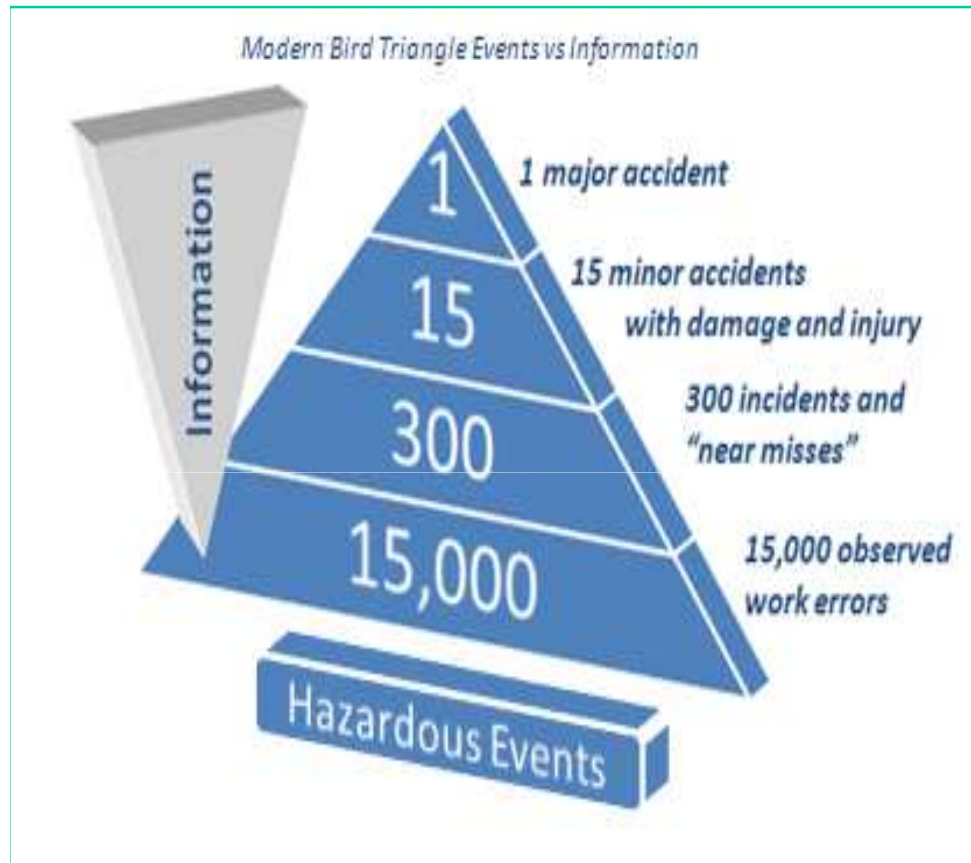
- *IHST takes a proactive attitude that anyone's helicopter accident belongs to all of us.*
- *Accidents affect our collective reputation as providers of air transportation and suppliers of air services...*
- *We don't need to accept accidents or a high industry accident rate, and it affects our profitability if we do so.*
  - Jack Drake, IHST JHSAT Accident Analysis Group
  - Presented at ISASI 2008

IHST Goal: To reduce worldwide helicopter accident rate by 80% by 2016!



Reduce accidents...save lives!!!

# A visual explanation of FDM:



**Current Intervention Point**

**1 crash**



**FLY**



**CRASH**

**FIX**

**FDM Intervention Point**

**300-15K unreported incidents**



**FLY**

**CRASH**

**FIX**

IDENTIFY RISKS THROUGH HFDM

# JHSAT Standard Problem Statements:

*U.S. Joint Helicopter Safety Analysis Team: Year 2000 Report*

Q: What other areas can be impacted by FDM?

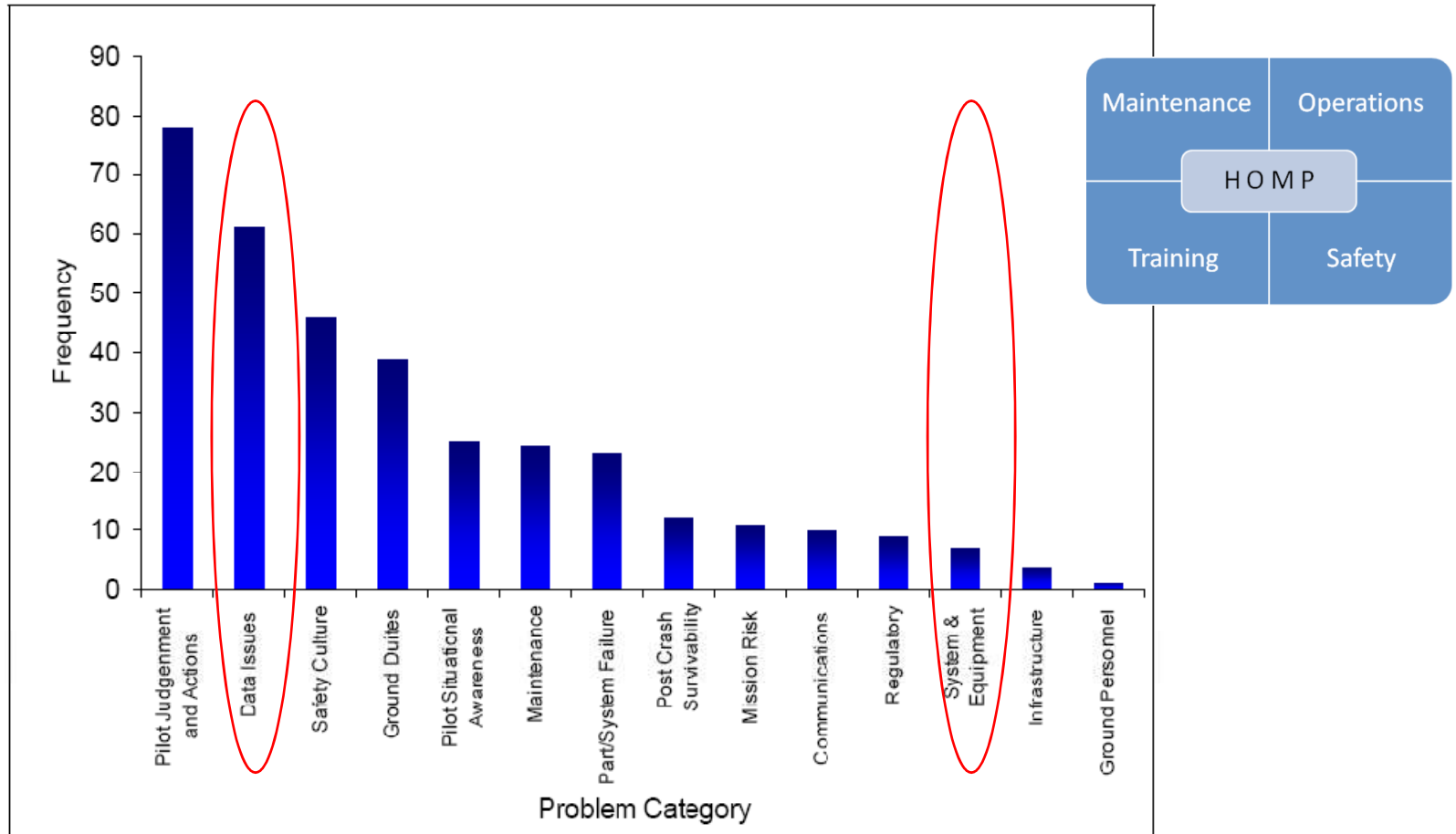
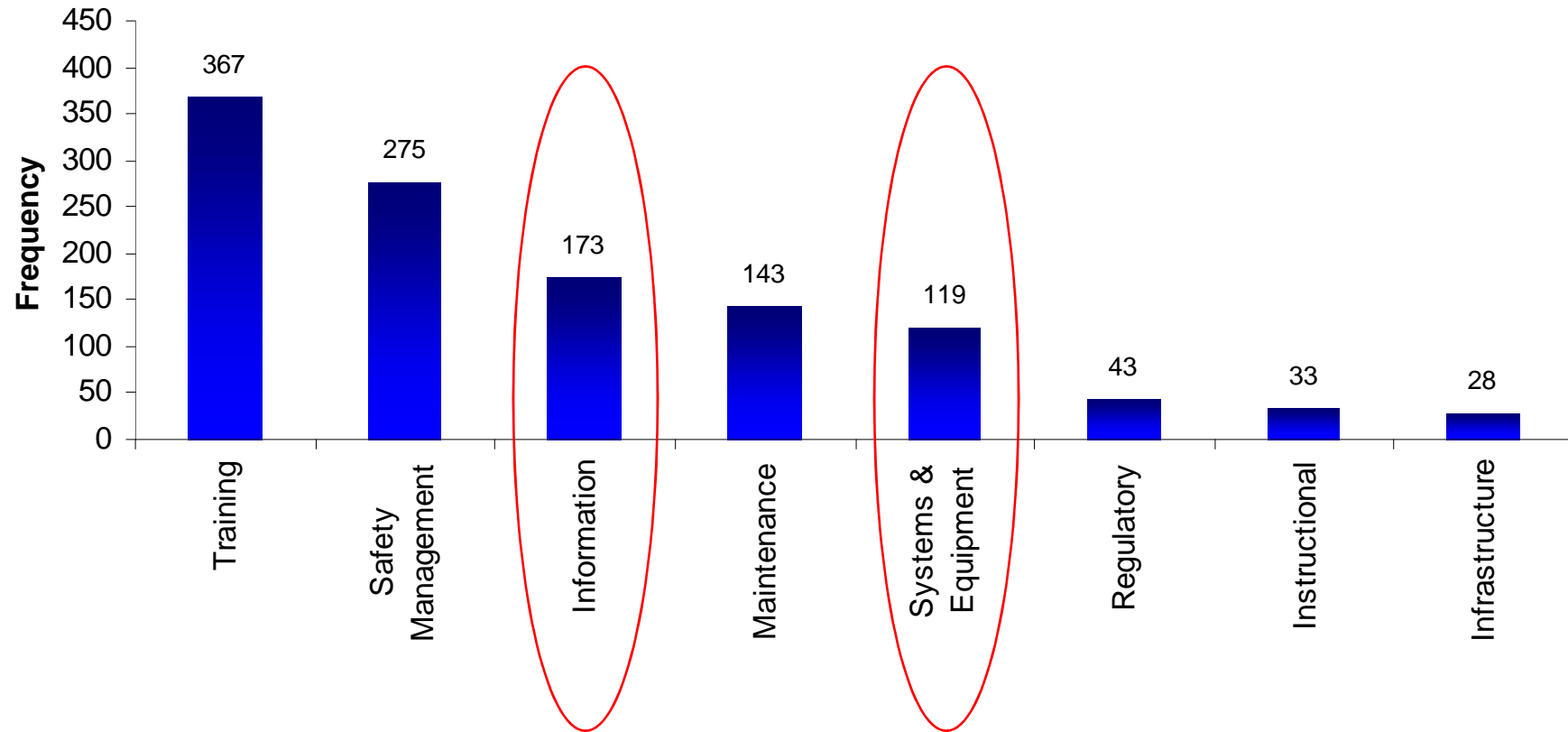


Figure 6-8. Percent of Accidents in which Problem Categories were identified at least once

## JHSAT Intervention Categories



# US JHSAT Recommendations:

- Utilize **flight data monitoring** systems such as HOMP or FOQA to evaluate flight operations and to address unsafe/undesirable flight crew habits.
- Install flight data retrieval systems such as:
  - Cockpit image recorder
  - Flight parameter recorder
  - Cockpit information recorder
  - Quick Access Recorder (QAR)
  - Multi-function data acquisition unit (MFDAU)
  - Cockpit voice flight data recorder (CVFDR)

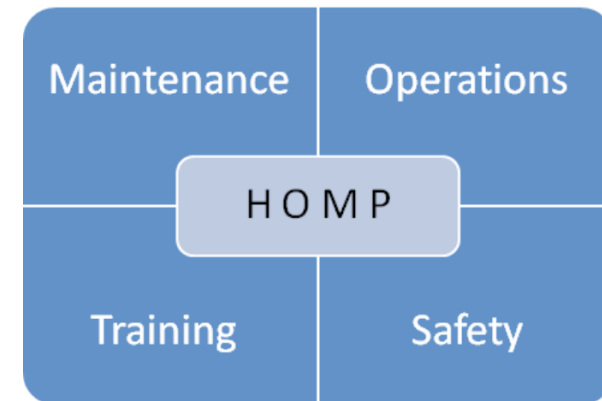
Source: Year 2000 U.S. JHSAT Report

# Information Recommendation Strategies:

- Install flight data retrieval systems, and utilize this equipment to implement flight data monitoring systems such as HOMP/FOQA/HUMS.
  - Publish flight data retrieval & management system guidance for industry
  - Sponsor flight data monitoring workshop at Heli-Expo 2009 (and 2010), IHSS 2009
  - Encourage airframe and avionics Original Equipment Manufacturers (OEMs) to develop and install low-cost flight data retrieval systems

# Who is using FDM?

Operator	Primary Mission (Secondary)
Bristow	Oil and Gas (SAR)
Bristow/Air Logistics	Oil and Gas
CHC	Oil and Gas (SAR)
Cougar Helicopters	Oil and Gas (SAR)
ERA Aviation	Oil and Gas (EMS)
PHI	Oil and Gas (EMS)
Arkansas Children's Hospital	EMS
Air Methods	EMS



# Flight Data Monitoring History

- 1960s: FDM with British Airways and TAP Air Portugal
- 1993: FSF recommends FOQA beyond airlines
- Late 1990s: Airline FOQA becomes commonplace
- 2002: Final CAA HOMP trial paper issued
- June 2005: FSF/NBAA C-FOQA Trial
- Late 2006: New recorder technology enables GA FDM
- 2008: ERA – first FAA-Approved HFOQA program
- 2008: Bristow/Air Logistics FAA-approved (light FDR)
- 2009: Arkansas Children's Hospital (HEMS)

# FDM History: Lost in translation



Question: “*What does it all mean?*”

Answer: *Any ideas?*

# FDM History: Lost in translation Pt. II

## Meet: Capt. Ian St. Ian

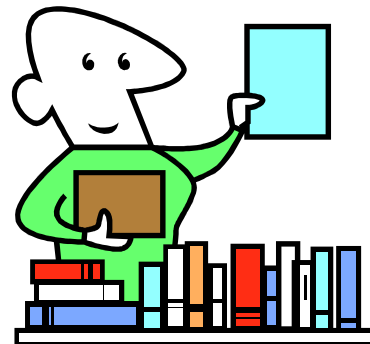
- Aviation Safety Enthusiast
- Circa 1960s
- “Speedbird” Skipper
- Trilingual: Fluent in English, French and binary

## Meet: Ian’s boss

Q. *“What does it all mean?  
Translate it – or your fired!”*  
*\*note pre-SMS/Just Culture”*



+



=

A. *“\$%\*&@” read me  
before the accident – I’m  
data rich and you’re  
information poor!*



## Implementation – the challenge

- 2009 HFDM Workshop Comment: *“None of this is new – the airlines have been doing this for over 30-years.”*  
(IHST is modeled after CAST, right?)
- CAST provided a path to implement:
  - EGPWS/TAWS (CFIT)
  - TCAS (mid airs)
  - ALAR training/education (“stable approaches”)
  - Predictive Windshear equipment (weather)
  - Voluntary safety programs (FOQA, ASAP, LOSA, etc).
  - All have enhanced safety.



## Implementation – the challenge

- The challenge is...how do you frame it?
- From CAST, each deliverable had ~3 basic elements (equipment, education and training)
- CAST also delivered a mindset – “*one level of safety*”
- Safety is a joint responsibility (FAA call to action)
  - It’s incumbent upon the operator to employ programs that are non-punitive and promote safety within the framework of a SMS.
  - It’s incumbent upon the pilot to operate professionally within the guidelines set forth by the company and regulators.

# FOQA is not a “silver bullet”

Flight Operational Quality Assurance Programs are only effective when coupled with an active SMS in a “just culture.”



# HFDM Resources: this is a great start!

- HELI-EXPO
  - Vendors/Operators
- HFDM Workshop
  - Breaks
  - Networking Event
  - Download Proceedings
- IHST HFDM Toolkit
  - Resource listing
    - Regulatory Guidance
    - Industry Studies
    - Etc.



Visit [www.isht.org](http://www.isht.org) to download:  
HFDM Workshop Proceedings  
HFDM Toolkit  
SMS Toolkit  
Risk Assessment Toolkit  
Training Toolkit



## Advisory Circular

Subject: FLIGHT OPERATIONAL QUALITY ASSURANCE Date: 4/12/04 AC No: 120-82  
Initiated By: AFS-210 Change:

1. PURPOSE. This advisory circular (AC) provides guidance on one means, but not necessarily the only means, of developing, implementing, and operating a voluntary Flight Operational Quality Assurance (FOQA) program that is acceptable to the Federal Aviation Administration (FAA).

a. FOQA is a voluntary safety program that is designed to make commercial aviation safer by allowing commercial airlines and pilots to share de-identified aggregate information with the FAA so that the FAA can monitor national trends in aircraft operations and target its resources to address operational risk issues (e.g., flight operations, air traffic control (ATIS), airports). The fundamental objective of this new FAA/pilot/carter partnership is to allow all three parties to identify and reduce or eliminate safety risks, as well as minimize deviations from the regulations. To achieve this objective and obtain valuable safety information, the airlines, pilots, and the FAA are voluntarily agreeing to participate in this program so that all three organizations can achieve a mutual goal of making air travel safer.

b. A cornerstone of this new program is the understanding that aggregate data that is provided to the FAA will be kept confidential and the identity of reporting pilots or airlines will remain anonymous as allowed by law. Information submitted to the FAA pursuant to this program will be protected as "voluntarily submitted safety related data" under Title 14 of the Code of Federal Regulations (14 CFR) part 193.

(1) In general, aggregate FOQA data provided to the FAA under 14 CFR part 193, section 193.401, should be stripped of information that could identify the submitting airline prior to leaving the airline premises and, regardless of submission venue, should include the following statement:

WARNING: This FOQA information is protected from disclosure under 49 U.S.C. 40123 and part 193. It may be released only with the written permission of the Federal Aviation Administration Associate Administrator for Regulation and Certification.

Air Log 110MP 3 & 6 Plus



Helicopter Operations Monitoring Program  
Implementation and Operations Plan