



Evolution: An Investigator's Perspective on Adaptation to new Technology and a Safety Solution for the 21st Century

**A Presentation to the American Helicopter Society
May 2009**

LEVERAGING OUR STRENGTHS

We are Evolving...

- Aircraft Technology
- Accident Investigation Tools
- Aircraft Accidents
- Pilot Community
- Safety Culture
- Flight Data Analysis



Aircraft Technology

- Then...



- Now...



Accident Investigation Tools

- Then...



- Now...

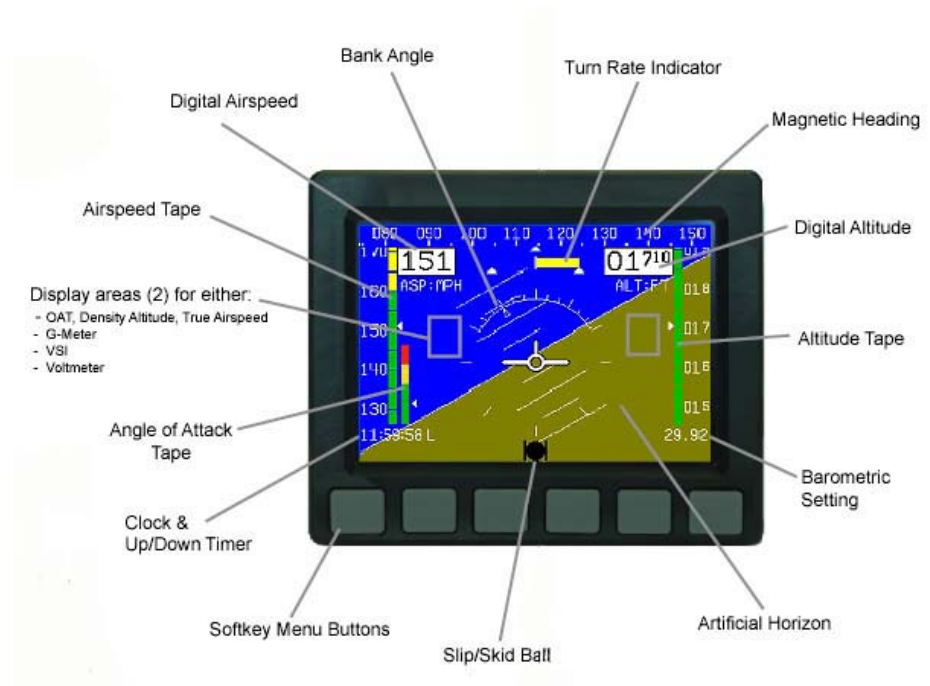


Accident Investigation Tools

• Then...



• Now...



1010100001000111100000101...???



Accident Investigation Tools

- Then...



- Now...



Aircraft Accidents

- Then...



photo: Canadian Forces (RCAF)

- Now...



More complex accidents and aircraft...but less data!!!



Pilot Community

- Then...



- Now...



Safety Culture

- Then...



- Now...



Safety Culture

- Then...

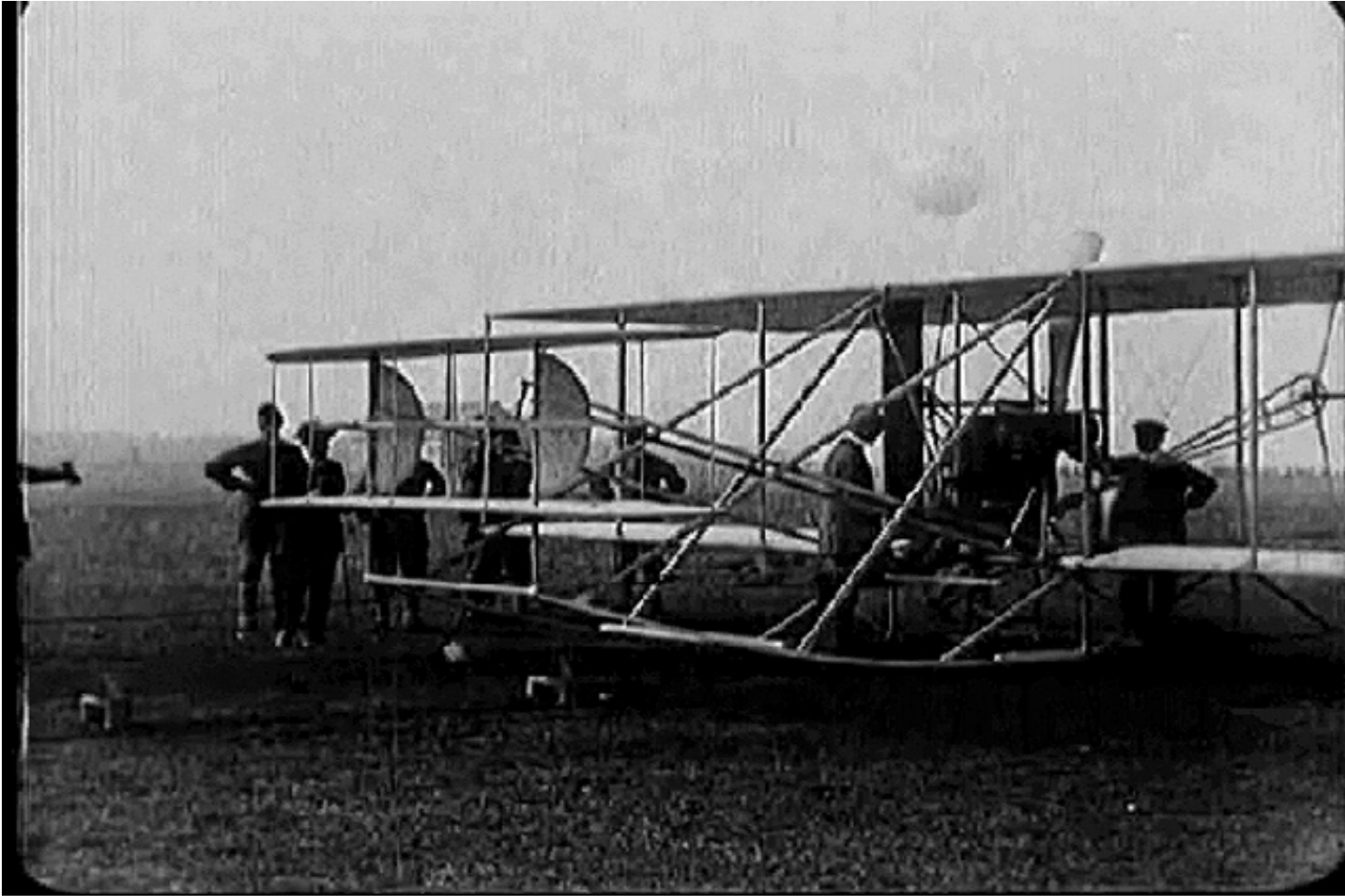


- Now...



Flight Data Analysis

- Then...



Flight Data Analysis

- Now...



Evolution of a Flight Data Solution

 **eurocopter** recognized the following:
an EADS Company

Challenges:

- Lack of information available in accident investigations to make long term safety improvements
- Need for low-cost, light-weight data acquisition equipment for legacy and new aircraft



Solution:

- Image, audio, and inertial data acquisition system



So what is the Solution?.....

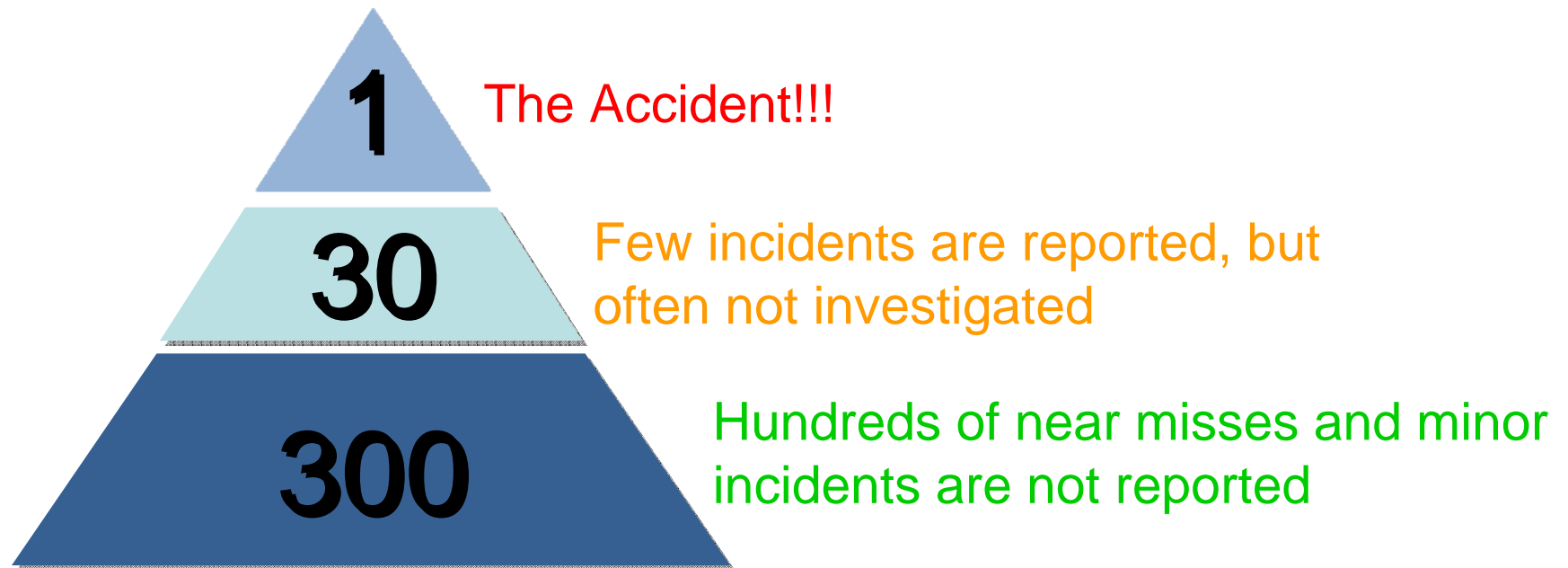
Flight Data!!!



- Allows Helicopter Flight Data Monitoring (HFDM)
- Source of information in accident/incident investigations
- Improves training and flight test programs
- Provides fleet information
- Recommended by IHST and NTSB



Accident Prevention Starts Early...

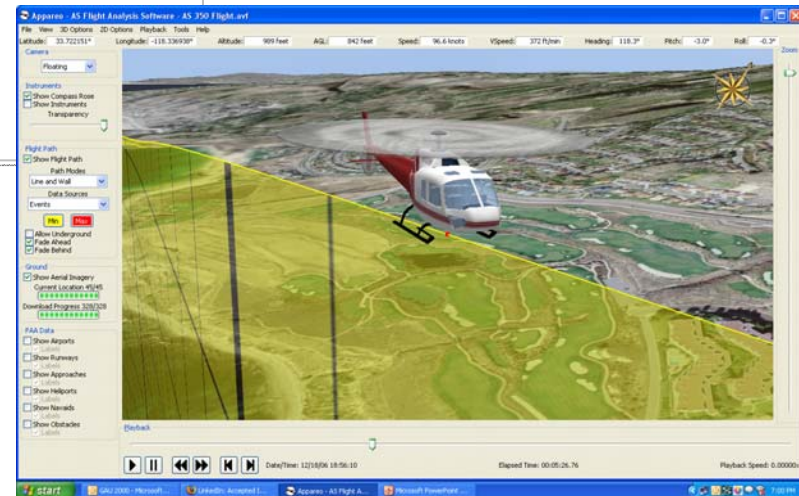
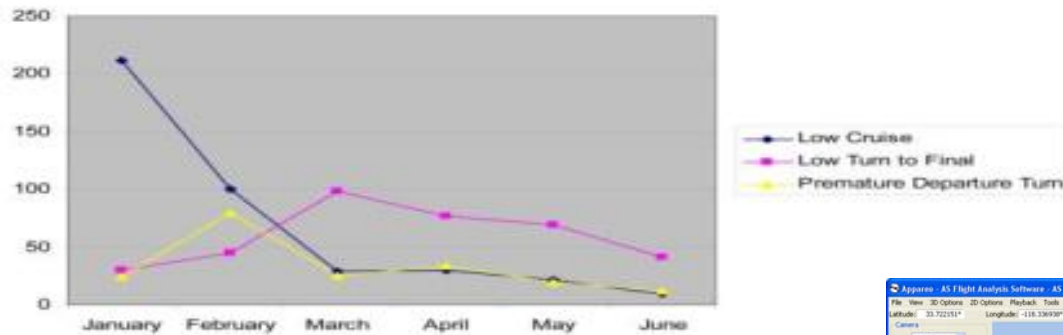


Flight Data Monitoring (FDM) Really Works!



95% Reduction in Low Cruise Events

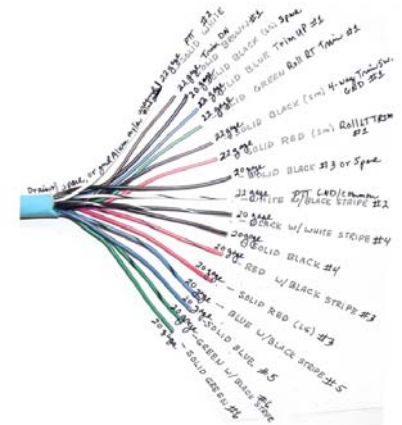
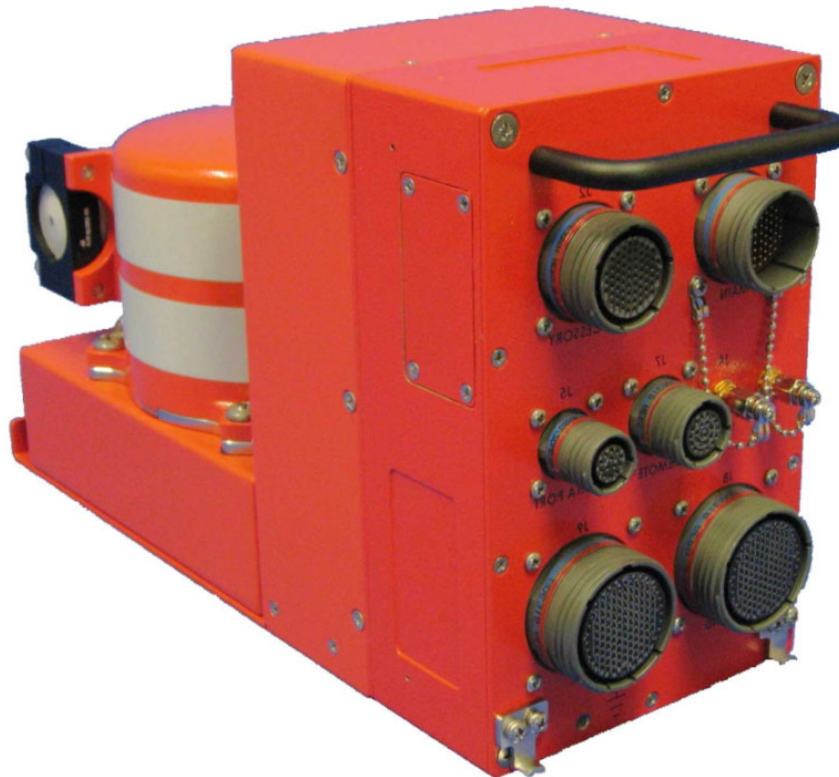
Low Altitude Trend



Flight Data Challenges...

Traditional Flight Data Recorders impractical for light helicopters and general aviation aircraft:

- Heavy equipment
- Intrusive hardware
- Insufficient sensors
- Expensive



A Flight Data Solution

- Then...



- Now...



Evolution of a Flight Data Solution

ALERTS Vision 1000



The New Face of FDM



Vision 1000 Product Overview



Self Contained Data Acquisition

- Image acquisition
- Ambient audio capture
- GPS Positioning
- Inertial Measurement Unit (IMU)

Data Storage

- Removable memory (SD)
- Internal memory (Crash Hardened)
- 2 hr image/audio; 200 hr inertial data



Ideal for Light and Legacy Aircraft



Small and light weight

- 54mm X 63mm X 92mm
- Weighs less than 9 oz./300 g

Minimally Intrusive

- Aircraft power and ground only

Affordable

- A fraction of the cost of traditional flight data recorders



Flight Data Playback

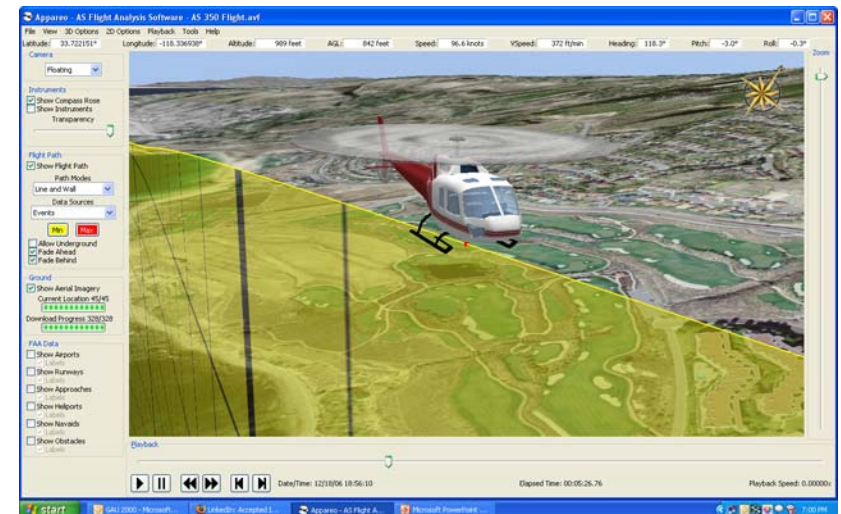


Image and Audio Playback

- 2 MP Image Resolution
- 4 Frames Per Second
- Ambient Audio Recording (50Hz-15KHz)
- Capable of Day, Night and NVG image collection

3-D Visual Analysis

- Award winning AS Flight Analysis software
- Recreation of flight in 3D over virtual landscape
- Synthesize flight instruments
- 2D graphical representation of data



ALERTS Flight Data Analysis Software

Detect Events

ALERTS Search Data Files Reports View Queue Account Options Help Logout

Home Event Triggers Profiles Recorders EDits

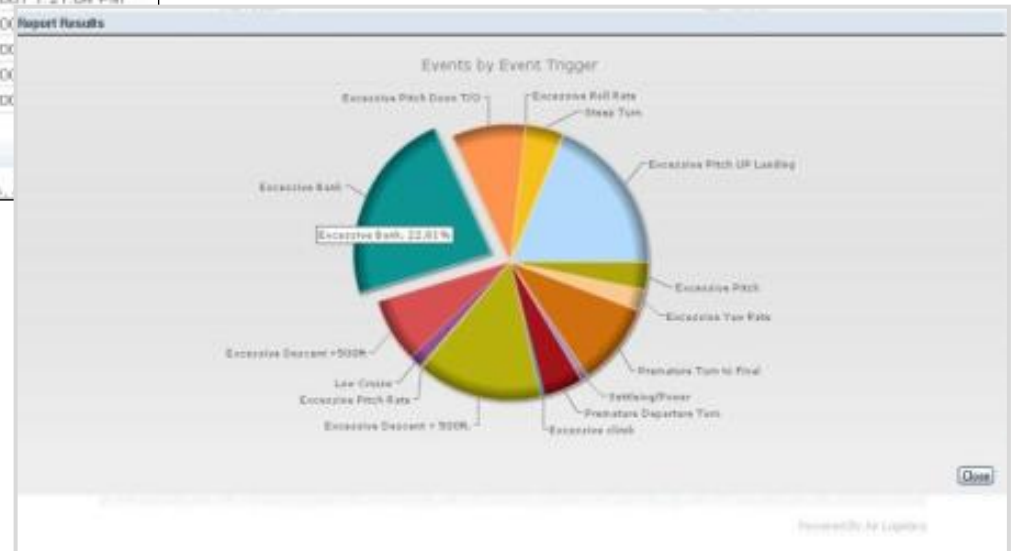
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Generate Powerful Reports

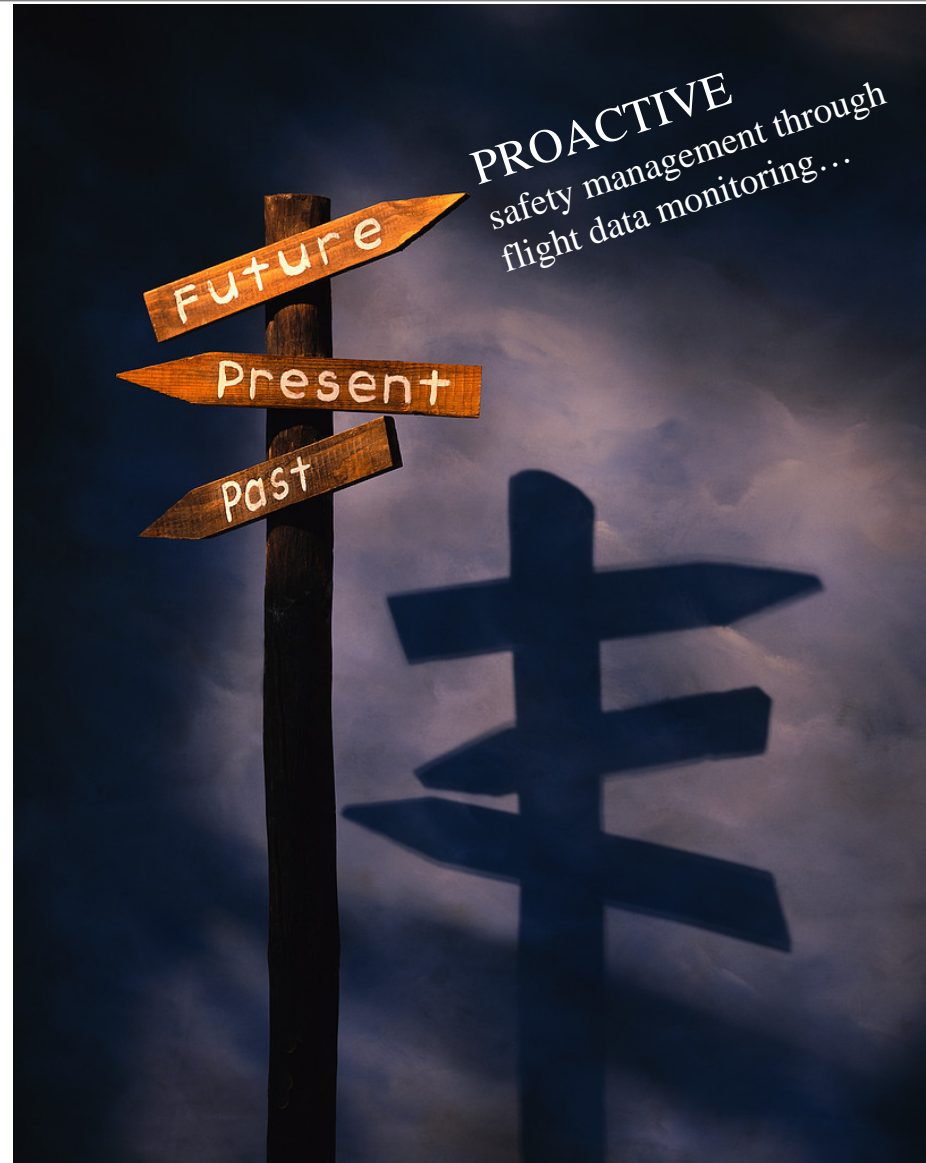


In Summary...

- Accident Investigators need new sources of information for the investigation of incidents & accidents
- Operators can proactively improve operational safety by employing Helicopter Flight Data Monitoring (HFDM) programs
- Flight instructors can enhance training
- Flight Test programs will benefit from robust data acquisition
- Operators, investigators, regulators and insurers can benefit from better fleet information
- Recommended by IHST and NTSB



We are Evolving...



Questions?



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