



NTSB National Transportation Safety Board

Offices of Research and Engineering and Aviation Safety

HEMS Safety of Flight Issues

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HEMS SAFETY OF FLIGHT ISSUES

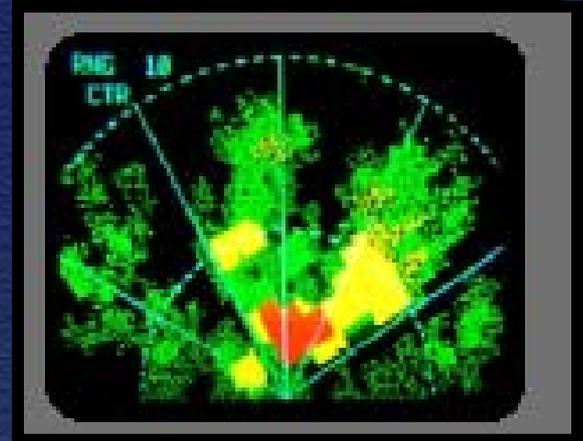
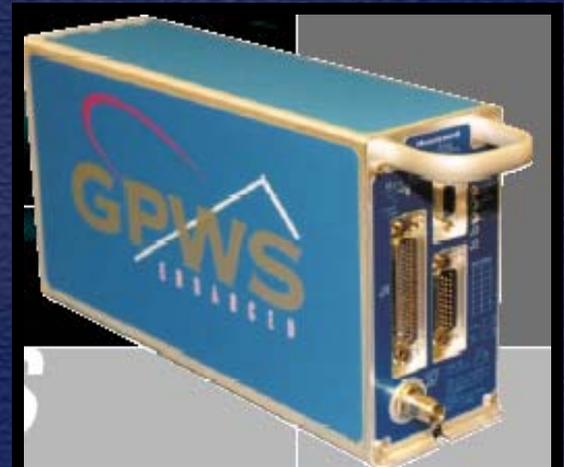
1. Safety Equipment
2. Airspace Infrastructure
3. Pilot Training
4. Safety Oversight

Safety Equipment

- Terrain Awareness Warning Systems (TAWS)
- Night Vision Imaging Systems (NVIS)
- Autopilot / Dual Pilot Operation
- Recorders

Terrain Awareness Warning Systems

- TAWS Safety Rec. A-06-15
 - “Open-Unacceptable”
- 2006 SIR:
 - 13 of 41 helicopter accidents might have been prevented by TAWS
- Only 30% of HEMS fleet has HTAWS, despite availability
- FAA initiating rulemaking



Night Vision Imaging Systems

- Many HEMS accidents are controlled flight into terrain (CFIT) and related types of accidents
- 2006 SIR – 13 of 55 accidents may have been prevented by NVIS
- Capability, availability, cost have improved in recent years
- NVIS received broadest consensus at Public Hearing



Autopilot / Dual Pilot

- Most HEMS operations are single pilot
- Predominantly non-IFR certified
- High workload frequently encountered
- Canadian HEMS industry experience
 - No fatal accidents since 1977
- Autopilot can enhance pilot's ability to cope with high workload
- Part 135 requires 2nd pilot or autopilot under certain conditions

Flight Recorders

- Recommendation A-09-11 (Feb. 2009)
Open – Acceptable Response
- Essential for flight data monitoring
- Lightweight/crash resistant recorders now available
- EUROCAE standards ready
- FDM software available
- FSF has initiated research



Airspace Infrastructure

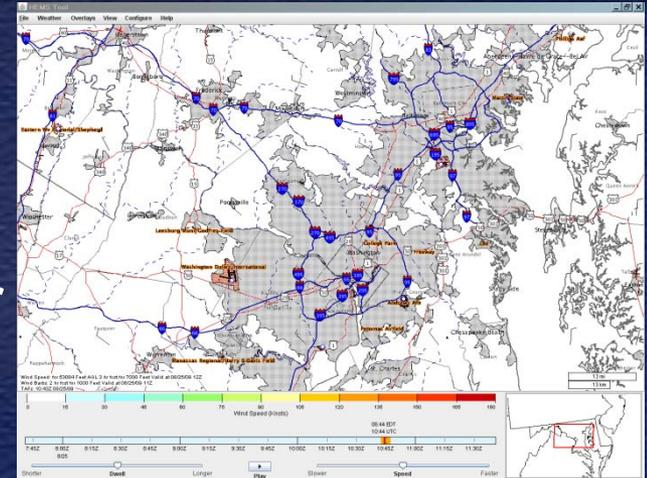
- IFR vs VFR Flight
- Low Altitude Infrastructure
- HEMS Weather Tool

Airspace Infrastructure

- Industry consensus regarding deficiencies with low-altitude infrastructure for helicopters
- Most HEMS operators operate VFR
- FAA contends that flying IFR is best countermeasure against CFIT because of ATC
- FAA promises ADS-B by 2013

HEMS Weather Tool

- Number and access to weather reporting stations inadequate
- FAA tool for low-altitude weather depiction
- FAA Notice 8000.333 :
 - “Experimental” - prohibited for use as an “official” weather product
- Consensus at NTSB Public Hearing: tool provides valuable information



Pilot Training

- Instrument Proficiency
- Scenario-Based Training
 - *Simulators*
 - *Flight Training Devices*
- Safety Equipment

Pilot Flight Training

- No FAA rules for instrument proficiency
- Cost-effective simulators & FTDs available now
- Scenario-based training strongly advocated by HEMS community
- Training required for NVIS, HTAWS, etc.
- PHPA's no. 1 safety issue: training



Oversight and Safety Management

- Collect and report safety data
- Implement flight data monitoring
- Implement SMS
- Ensure proper regulatory oversight

Safety Data Reporting

- Activity data (flight hours, trips, etc.) are needed to measure safety performance
- Voluntary GAATAA Survey is only official source of HEMS activity data
- GAO and NTSB have advocated for better activity data
- FAA has no plans to change data collection process

Flight Data Monitoring

- Low-cost, lightweight flight data recorders are available
- EUROCAE standards for lightweight flight recorders have been adopted
- FAA promises to move quickly to develop technical standard order (TSO)
- Several vendors have developed software to read and analyze recorded data



Safety Management Systems (SMS)

- ICAO called on member states to establish SMS programs by January 2009
- No current requirements exist for HEMS operators
- HAI, CAMTS, and GAO provided written submissions supporting an SMS requirement
- IHST has developed an SMS toolkit for small operators

HEMS Regulatory Environment

- 40 HEMS operators are government entities
- FAA does not oversee “public” operations
- Few FAA requirements
- Not consistent with Part 135 HEMS operations
- National Park Service, Maryland State Police, Fairfax County, etc.





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