EUROPEAN AVIATION SAFETY AGENCY
AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE
EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT

EHEST
Component of ESSI
European Helicopter Safety Team

7th EASA Rotorcraft Symposium 2013
4-5 Dec, Cologne, Germany

The European Helicopter Safety Team (EHEST): 2013 Achievements and Plans

IHST
International Helicopter Safety Team

Prepared by M. Masson, EASA
EHEST Secretary

Your safety is our mission.
easa.europa.eu

International Helicopter Safety Team (IHST)
European Helicopter Safety Team (EHEST)

John Black, EHOC

EHEST co-Chair

EHEST within the IHST

EHEST is the European component of the IHST

- Objective to reduce the civil helicopter accident rate by 80% by 2016
- Recently reformulated:

Zero Tolerance
Zero Accidents

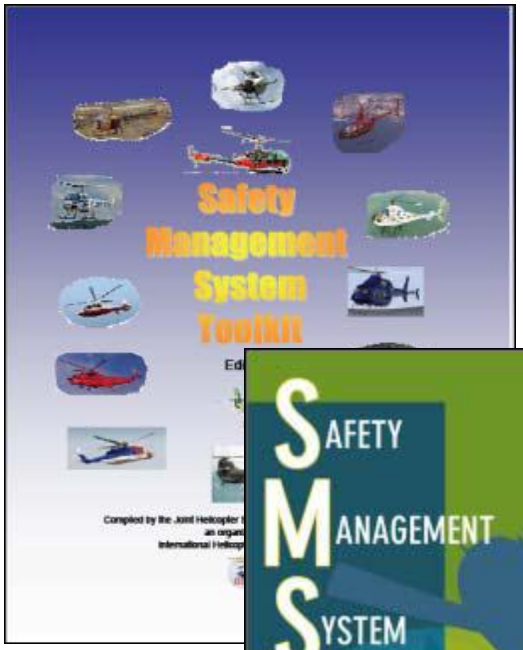
IHST

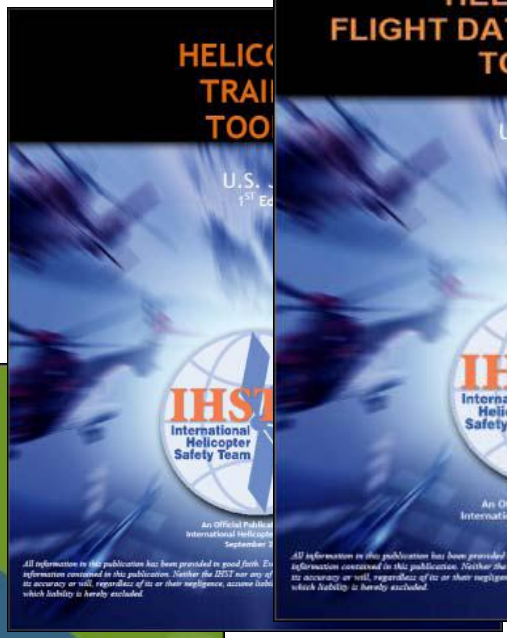
International Helicopter Safety Team

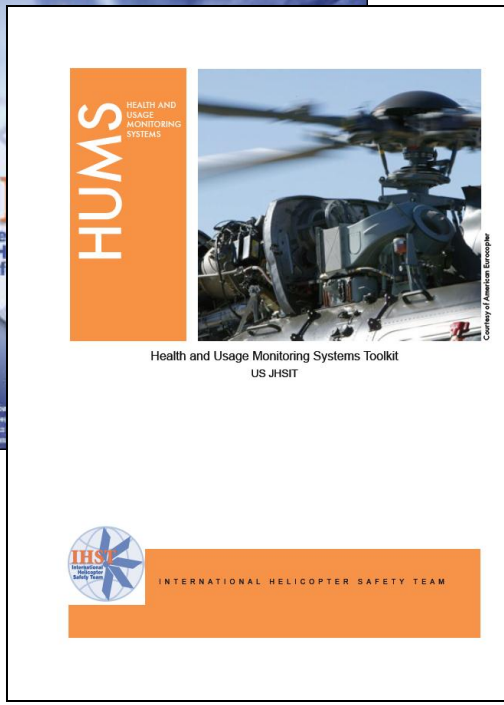
Our Vision: An International Civil Helicopter Community With Zero Accidents

SMS 1st Edition

Edition 2







Translation of Toolkits in Progress

EHEST within the ESSI

Luftfartstilsynet
CIVIL AVIATION AUTHORITY - NORWAY

BHA
BRITISH HELICOPTER ASSOCIATION

ENAC
ENTE NAZIONALE PER L'AVIAZIONE CIVILE

dgac

Cranfield
UNIVERSITY

AIR-GLACIERS
COMPAGNIE D'AVIATION

elilombarda

CHC

Civil Aviation Authority

DLR

AgustaWestland

NLR

ECA
European Cockpit Association

ROYAL AERONAUTICAL SOCIETY
1866

inaer
fly the future

BFU

E.H.O.C. - EUROPEAN HELICOPTER OPERATORS COMMITTEE

TraFi
Ilmailu

EHAC
European HEMS & Air Ambulance Committee

rega

ONERA
THE FRENCH AEROSPACE LAB

IAA

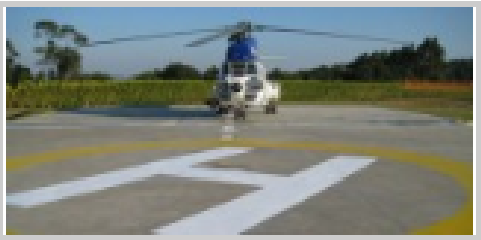
Safety Partnership with more than 50 organisations

elicopter Safety Days, an EASp Action

Enac: confronto e di dialogo con gli operatori di elicotteri

Pubblicato il 19-07-2013 14:19:34

18 July 2013



«Una giornata di confronto e di dialogo con gli operatori di trasporto pubblico con elicotteri». Così l'Enac ha definito l'incontro da esso organizzato ieri, 18 luglio, in collaborazione con l'AEI-Associazione Elicotteristica Italiana e con interventi diretti di rappresentanti dell'industria. La relazione introduttiva della giornata è stata illustrata dal vice direttore generale dell'Enac Benedetto Marasà, seguito dagli interventi del direttore centrale Standardizzazione Sicurezza Enac, Enea Guccini, del direttore Regolazione Navigabilità e Operazioni Enac, Marco Silanos, del presidente dell'AEI Gianmario Bettiga e da altri contributi. Il workshop, spiega l'Enac, è nato dall'esigenza del settore di prepararsi all'attuazione del Regolamento comunitario n. 965/2012 che stabilisce nuove norme relative sia alle operazioni commerciali di trasporto aereo effettuate con aeromobili e con elicotteri, sia sulle condizioni relative al rilascio, al mantenimento, alla modifica, alle limitazioni, alla sospensione o alla revoca dei certificati di operatori aerei.

Pubblicato in: Industria, Istituzioni

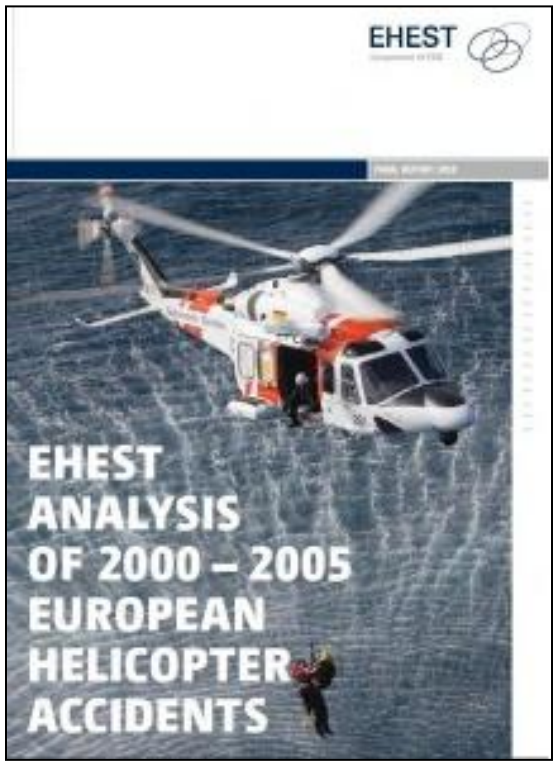
European Helicopter Safety Team (EHEST)

Martin Bernandersson, EASA

EHSAT Safety Analyst

EHEST Analysis Report 2006-2010

- 2000-2005: 327 accidents analysed
- 2006-2010: 162 accidents analysed



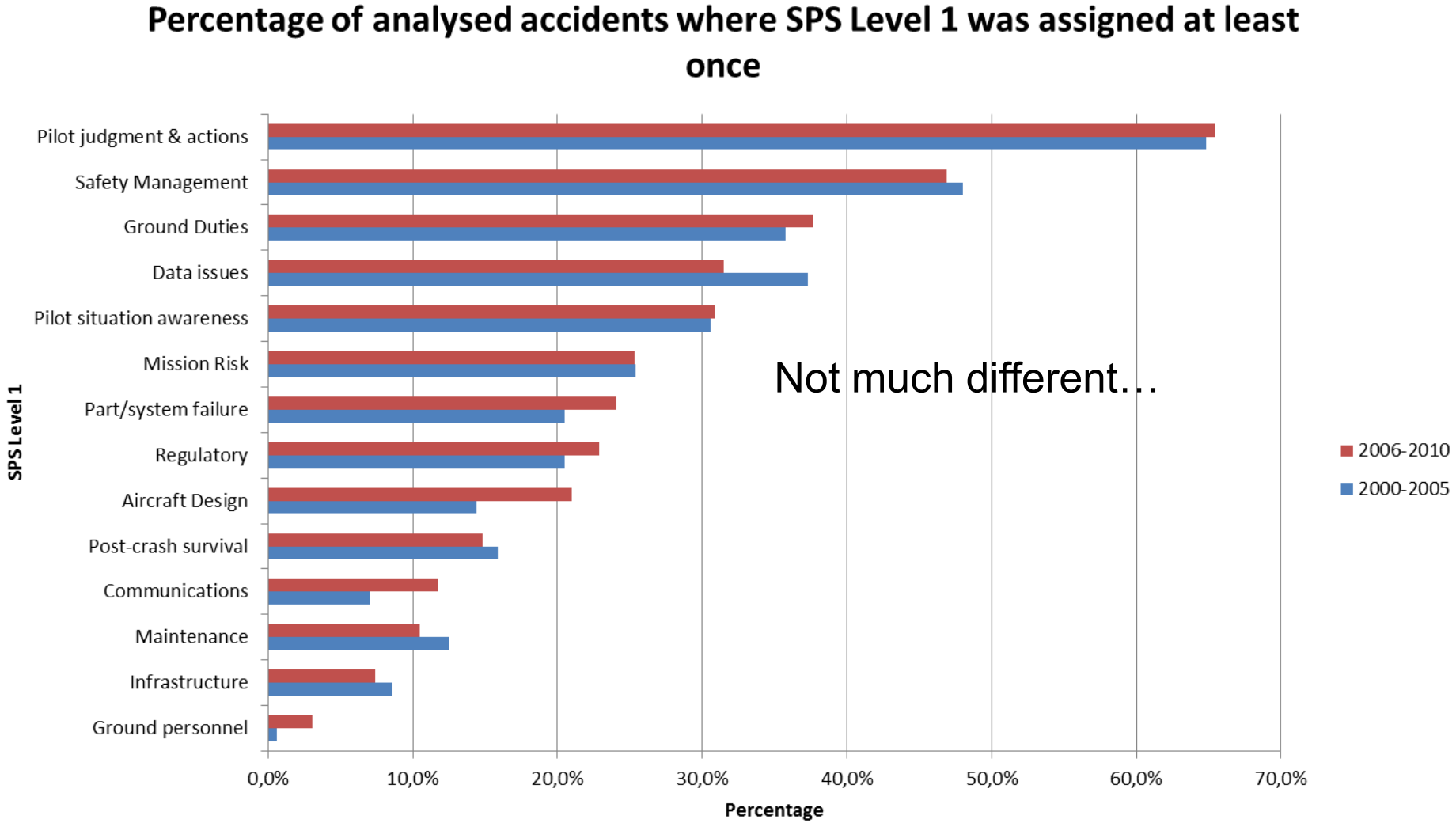
EHEST Report 2006-2010

In preparation, to be published in 2014

What's new?

Preview

What's new?


Percentage of analysed accidents where SPS Level 1 was assigned at least once
Pilot judgment & actions
Safety Management
Ground Duties
Data issues
Pilot situation awareness
Mission Risk
Part/system failure
Regulatory
Aircraft Design
Post-crash survival
Communications
Maintenance
Infrastructure
Ground personnel
SPS Level 1
0,0%
10,0%
20,0%
30,0%
40,0%
50,0%
60,0%
70,0%
Percentage
2006-2010
2000-2005
Not much different…

Preliminary Conclusions

- The analysis of the 2006-2010 accidents is globally consistent with the results from 2000-2005

- The new data continue supporting the safety actions taken based on the 2000-2005 data

European Helicopter Safety Implementation Team (EHEST)

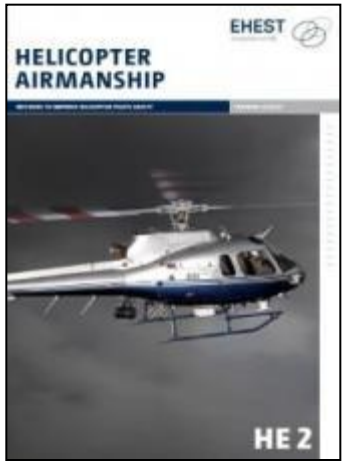
John Steel, Irish Aviation Authority

EHSIT co-Chair
IHST Director Europe

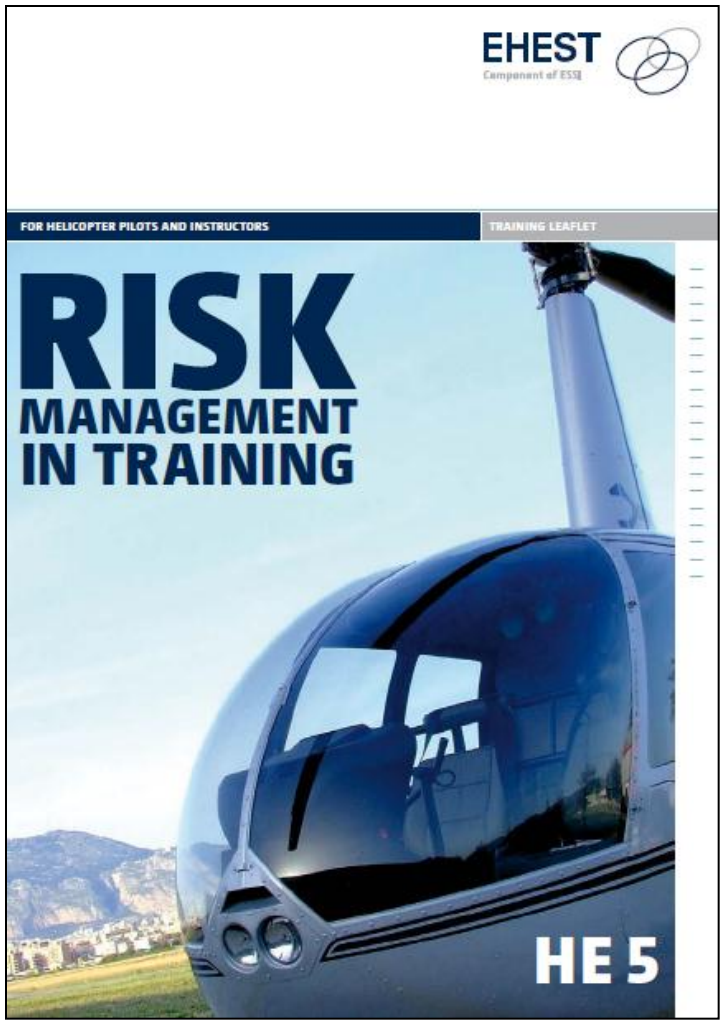
From Analysis to Safety Action

… leading to the development of Action Plans and safety material

More than 300 2000-2005 accidents analysed…



Most recent leaflets: HE5



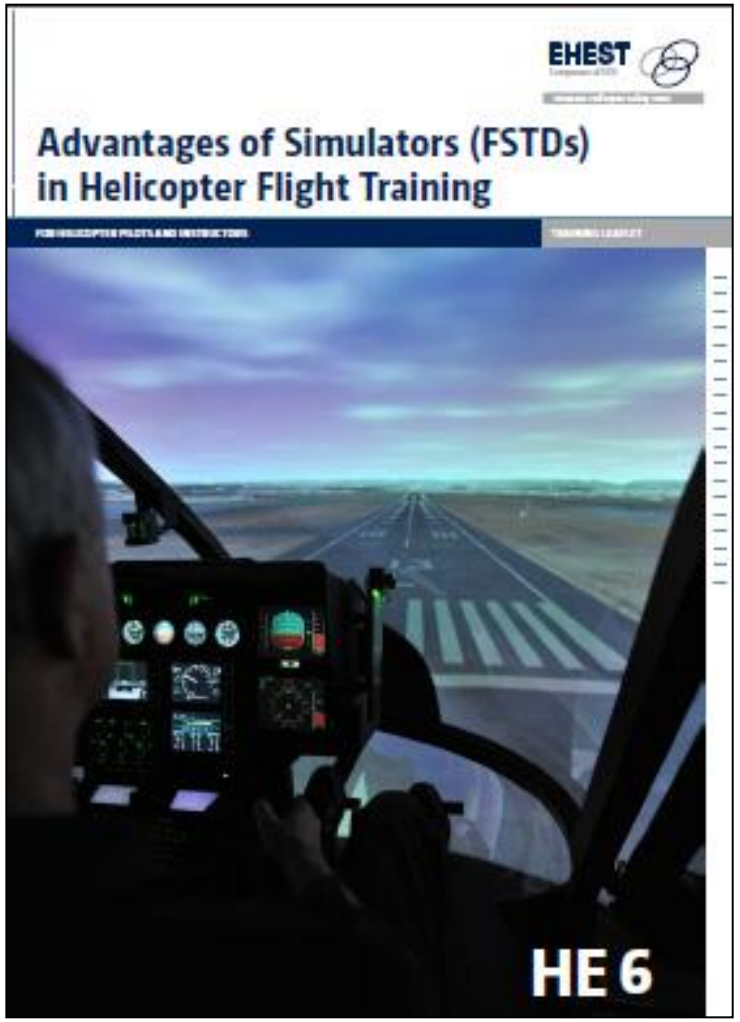
Published March 2013

https://easa.europa.eu/essi/ehest/main-page/training/

Most recent leaflets: HE6

Published June 2013

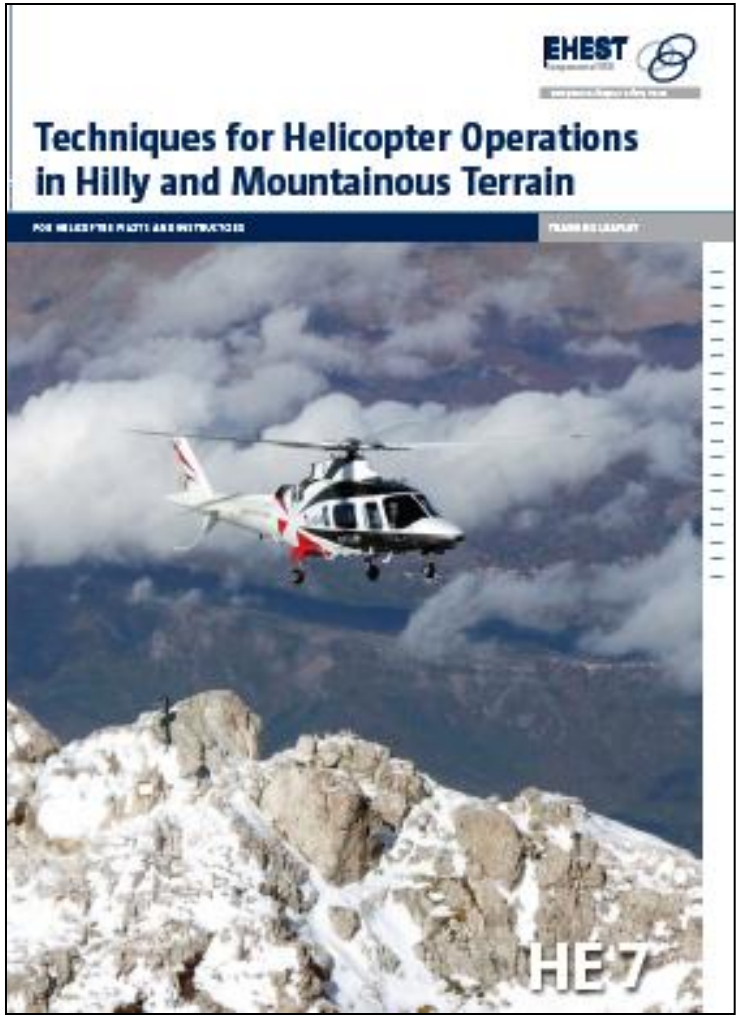
https://easa.europa.eu/essi/ehest/main-page/training/



Most recent leaflets: HE7

Published March 2013

https://easa.europa.eu/essi/ehest/main-page/training/



Most recent leaflets: GA7

Re-published Oct 2013

https://easa.europa.eu/essi/ehest/main-page/training/

Initially develped for Airplanes, also applies to Helicopters

Safety Videos

Video – Degraded Visual Environment and Loss of control

The EHSAT analysis shows that spatial disorientation is one major cause of accidents. This video was developed for EHEST by the French 'Institut pour l'Amélioration de la Sécurité Aérienne'.

Degraded Visual Environment & Loss of Control from IASA Institut.

Video – Passenger management

Version for Pilots

The video was produced by the IASA Institut.

Translations

EHEST
Составная часть ESSI

ПОЛОЖЕ
ПО БЕЗОПАС

ПРЕДЛАГАЕТСЯ
ЕВРОПЕЙСКОЙ ВЕРТОЛЕТНОЙ ГРУПП
И
ООО «ЭЛАЙД ЭВИЭШН КО

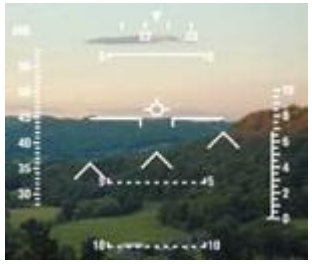
Video – Spanish – Operating in the vicinity of electric utility infrastructure

The information presented in this video provides general safety guidelines related to operating aircraft in the vicinity of electric utility infrastructure.

- Part 01 – 70 Mo
- Part 02 – 66 Mo
- Part 03 – 55 Mo

This video was originally produced in English by the US HAI (Helicopter Association International) and was translated into Spanish by INAER Aviation Spain.

Safety Benefits of Technologies
Presented at Avionics Europe and Helitech 2013



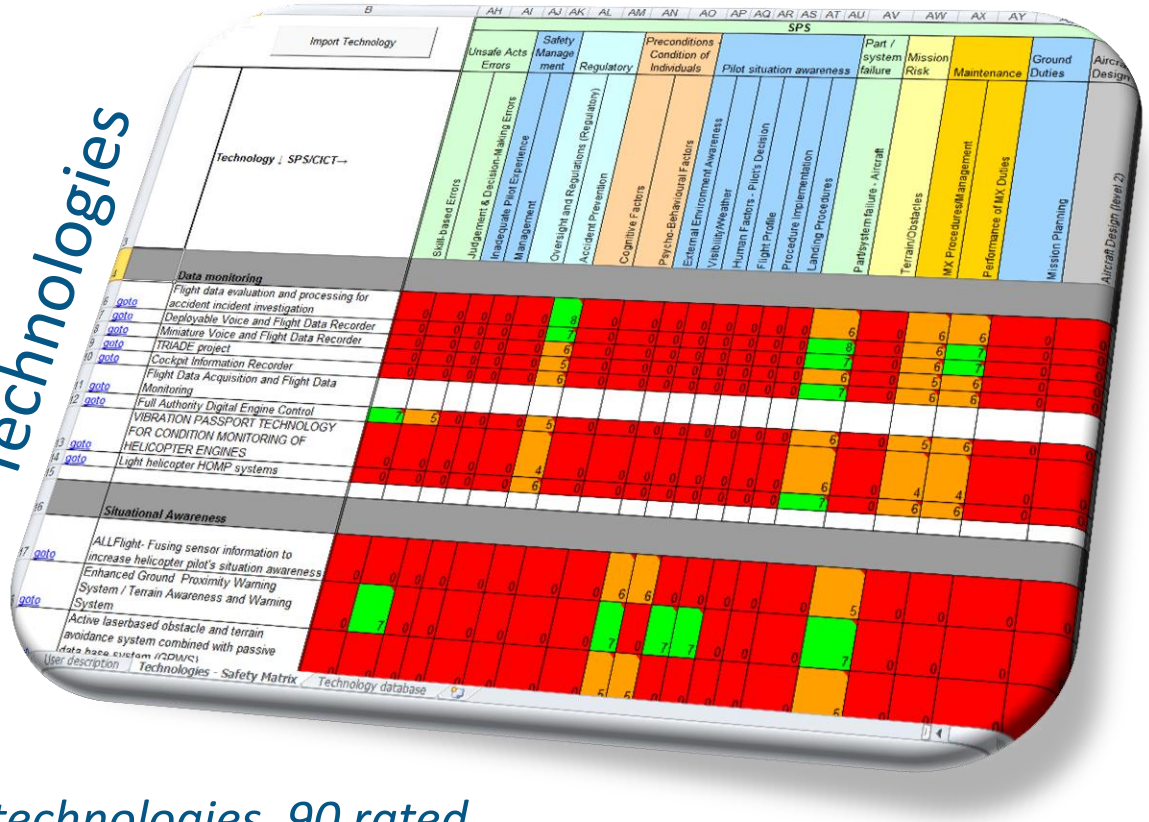
Predictive ground collision avoidance

Deployable System for Crash–Load Attenuation

Sensor based obstacle and terrain avoidance

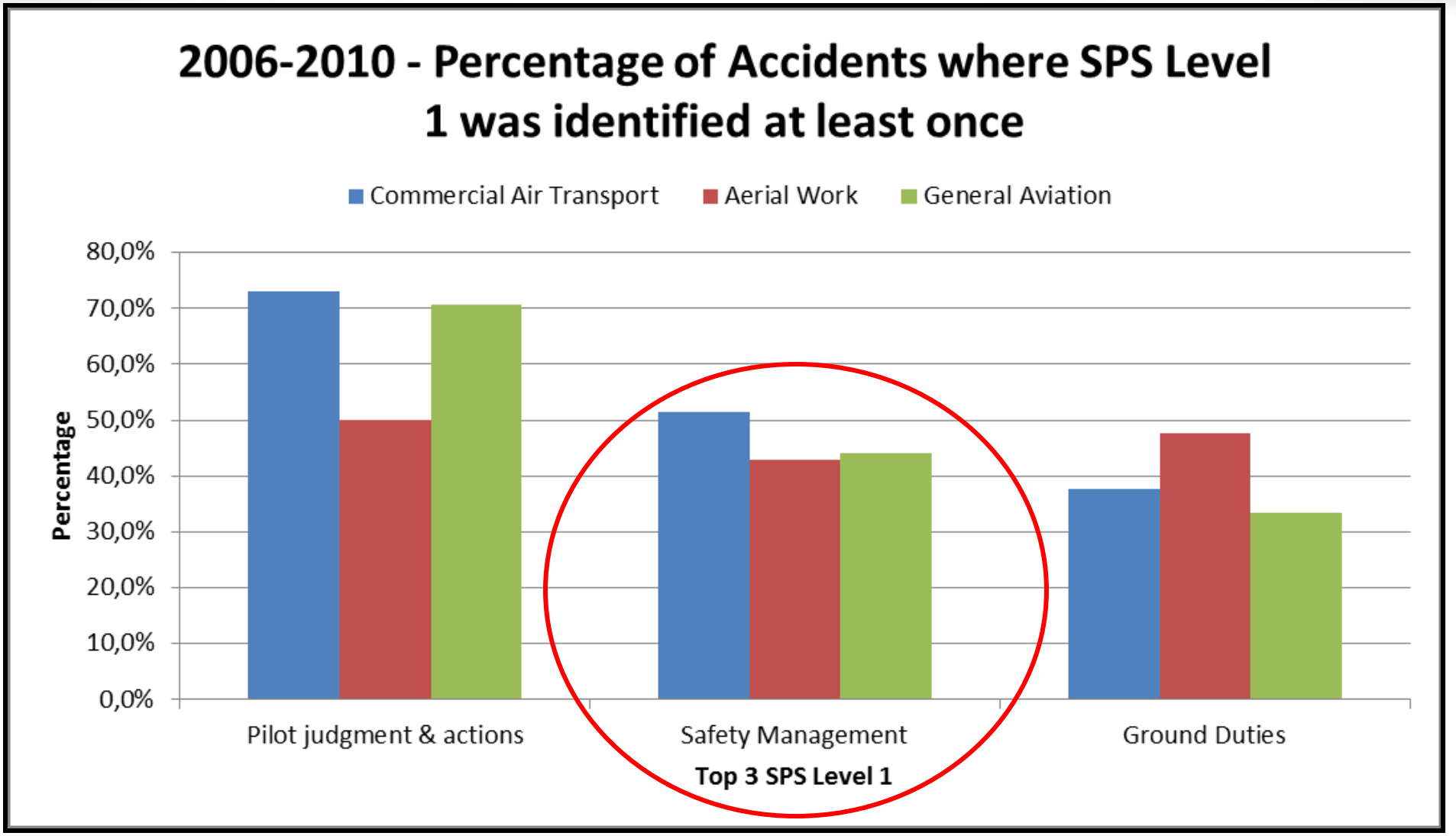
Safety Issues

Technologies



150 technologies, 90 rated

Safety Management still ranks high!

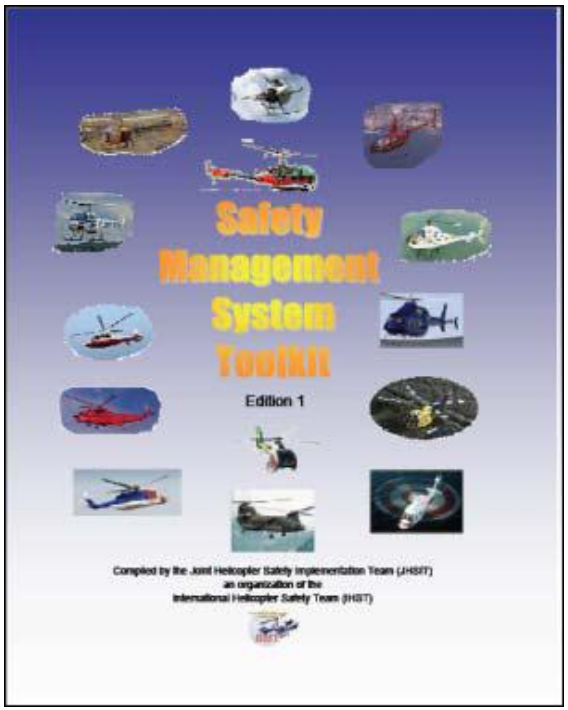


IHST

International Helicopter Safety Team

Our Vision: An International Civil Helicopter Community With Zero Accidents

Edition 1



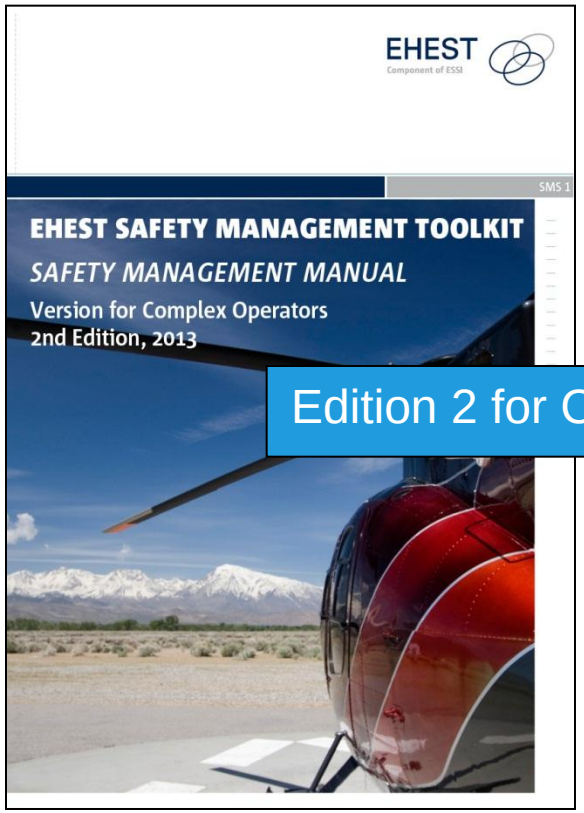
Edition 2

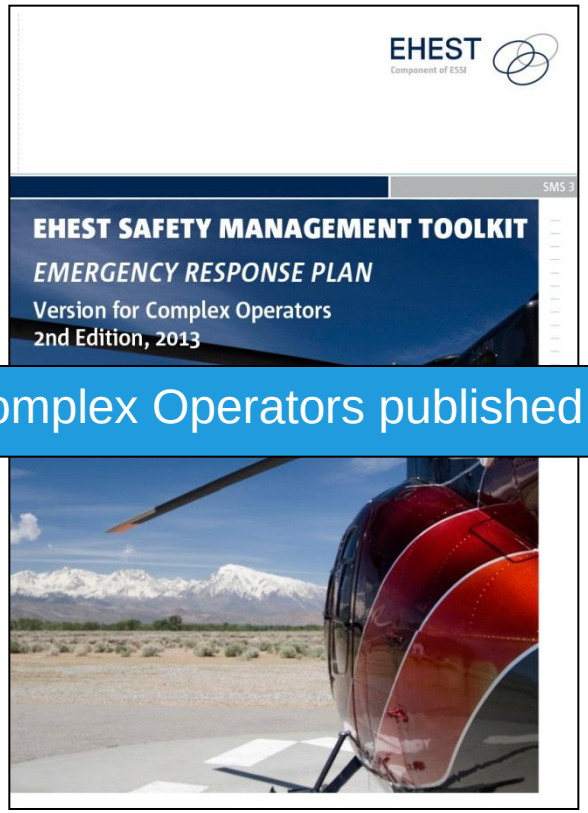
SMS Video by HAI

Italian version by ENAC

EHEST SMS Toolkit Complex Operators

Based on European Rules





Edition 2 for Complex Operators published in April 2013

http://easa.europa.eu/essi/ehest/main-page/ehest-safety-management-toolkit/

EHEST SMS Toolkit NCOs

Based on European Rules

Edition 1 for Non Complex Operators published in Dec 2013

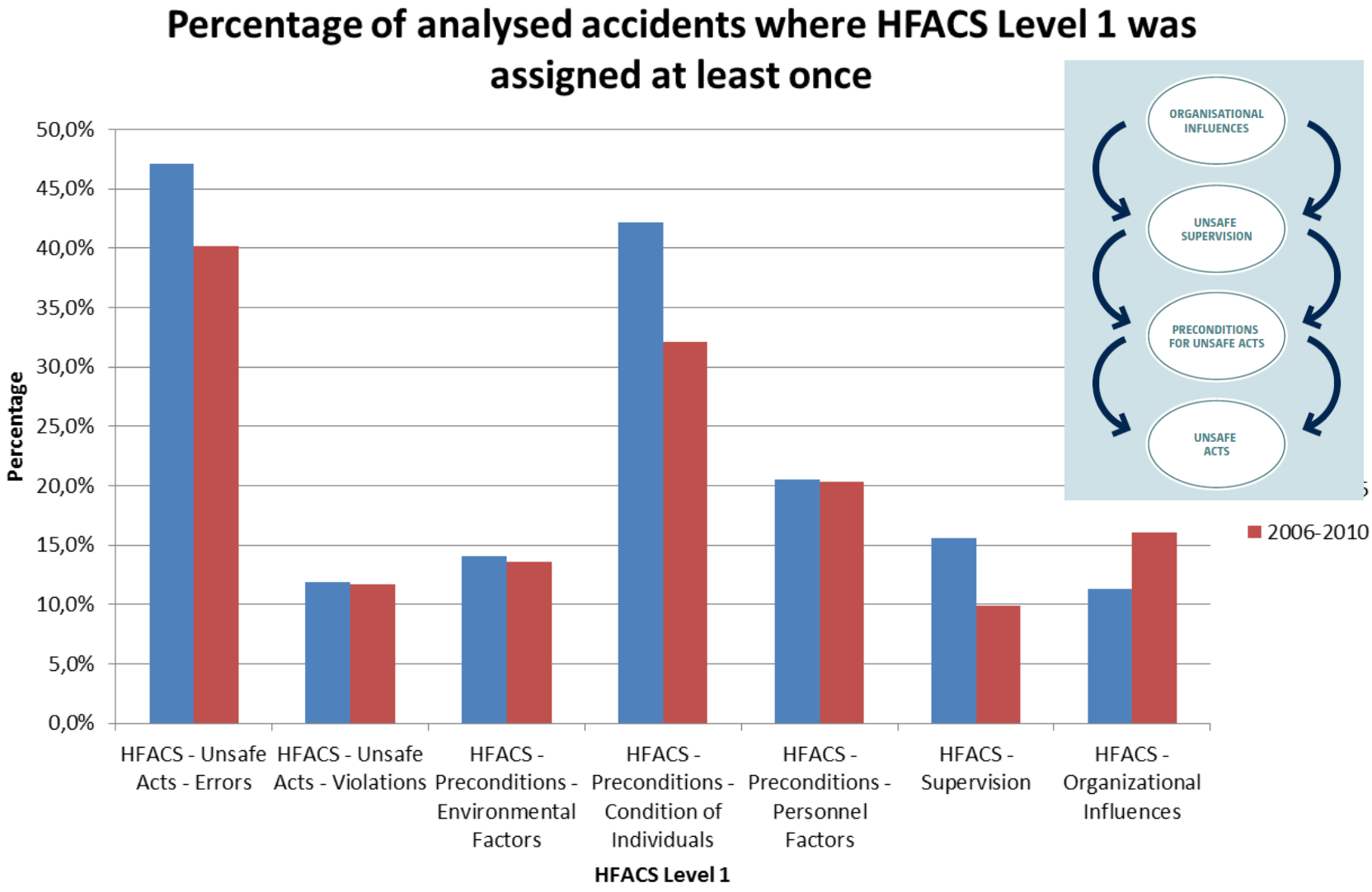
New!

http://easa.europa.eu/essi/ehest/main-page/ehest-safety-management-toolkit/

EHEST also encourages using IS-BAO by IBAC

- Compatible for helicopter ops since 2012
- Encouraged by BHA and EHEST

Any difference?



Communication

Stefan Becker, REGA and EHAC

Helitech, 24-26 Sep 2013, London

- IHST and EHEST Workshops material published

IHSS 2014, 27-28 Feb 2014, Anaheim, CA, USA

- To be held just ahead of Heli-Expo
- Regional team updates
- Sharing operator experiences

We want to hear more from you!

A survey performed in 2013 by Eurocopter Training Services (ETS) indicates that approx. 80 % of the trainees, who all received the IHST and EHEST material, never read or used it…

- And you?

- What do you need from us?
- And would you consider sharing other, more adapted or “sophisticated” material through EHEST?

EUROPEAN AVIATION SAFETY AGENCY
AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE
EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT

IHST
International Helicopter Safety Team

Thank you!

Mailbox:

ehest@easa.europa.eu

Additional Slides

To be Used on Request

EHSAT – The New Accidents Report

EHEST Report 2006-2010

In preparation,

to be published in 2014

EHSIT Specialist Team Ops & SMS

Photo Stefano Burigana

EHEST SMS Toolkit NCOs

Single RADEC Form

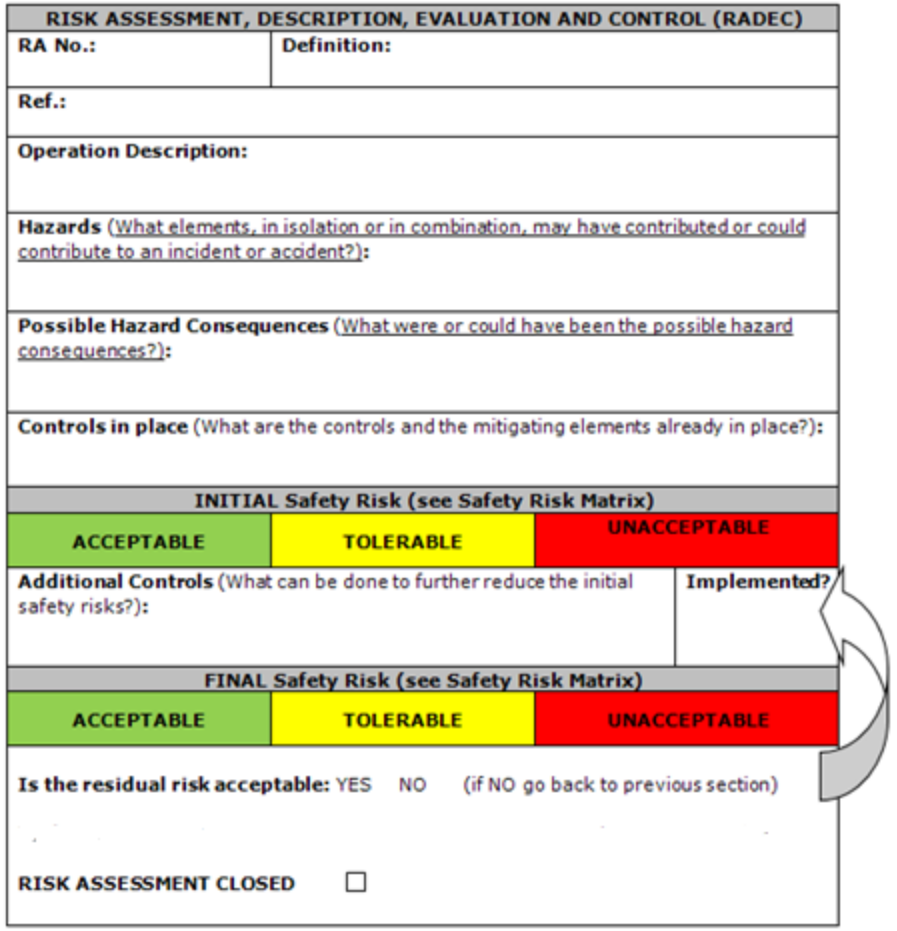
Risk

Assessment

Description

Evaluation and

Control



RISK ASSESSMENT, DESCRIPTION, EVALUATION AND CONTROL (RADEC)		
RA No.:	**Definition:**	
Ref.:		
Operation Description:		
Hazards (What elements, in isolation or in combination, may have contributed or could contribute to an incident or accident?):		
Possible Hazard Consequences (What were or could have been the possible hazard consequences?):		
Controls in place (What are the controls and the mitigating elements already in place?):		
INITIAL Safety Risk (see Safety Risk Matrix)		
ACCEPTABLE	**TOLERABLE**	**UNACCEPTABLE**
Additional Controls (What can be done to further reduce the initial safety risks?):		**Implemented?**
FINAL Safety Risk (see Safety Risk Matrix)		
ACCEPTABLE	**TOLERABLE**	**UNACCEPTABLE**
Is the residual risk acceptable: YES NO (if NO go back to previous section)		
RISK ASSESSMENT CLOSED ☐		

EHEST SMS Toolkit NCOs

RISK MANAGEMENT

Example:

SLING LOAD OPERATIONS

Hazards

RISK ASSESSMENT, DESCR

RA No.: H001

Ref.: Sling load Standard Ope

Operation Description: Sling

Hazards (What elements, in is
contribute to an incident or acc

H 1. Trees and vegetation
H 2. Wires, power lines
H 3. Meteorological conditio
H 4. Wind, turbulence, dow
H 5. Confined landing sites

Hazard Consequences

Possible Hazard Consequences (What were or could have been the possible hazard consequences?):

HC 1. Main rotor strikes ground obstacles
HC 2. Tail rotor strikes ground obstacles
HC 3. In flight contact with wires, power lines
HC 4. Ground personnel injuries due to lifted loads or h
HC 5. Inadvertent or accidental cargo release
HC 6. Damages on ground
HC 7. Power loss in flight
HC 8. Power settling
HC 9. Uncontrolled cargo swing

Controls

Controls in place (what are the controls and the mitigating elements already in place?):

C 1. Minimum size of the landing area (25 mt. x 25 mt.)
C 2. Pilot experience (minimum 500 FH in aerial work)
C 3. Area must be inspected by Company personnel before landing
C 4. High and low recognition before the first landing
C 5. Sling load operating procedures
C 6. Wire, power lines area mapping before sling load operations

INITIAL Safety Risk (see Safety Risk Matrix)		
ACCEPTABLE	TOLERABLE	UNACCEPTABLE

Risk Matrix

RISK LIKELIHOOD	RISK SEVERITY				
	NEGLIGIBLE (A)	MINOR (B)	MAJOR (C)	HAZARDOUS (D)	CATASTROPHIC (E)
FREQUENT (5)	5 A	5 B	5 C	5 D	5 E
OCCASIONAL (4)	4 A	4 B	4 C	4 D	4 E
REMOTE (3)	3 A	3 B	3 C	3 D	3 E
IMPROBABLE (2)	2 A	2 B	2 C	2 D	2 E
EXTREMELY IMPROBABLE (1)	1 A	1 B	1 C	1 D	1 E

Likelihood Assessment

RISK LIKELIHOOD	MEANING	VALUE
FREQUENT	**Likely to occur many times.** Has already occurred in the Company (Freq. > 3 times per year – indicative*). Has occurred frequently in the history of the aviation industry.	**5**
OCCASIONAL	**Likely to occur sometimes.** Has already occurred in the Company (Freq. < 3 times per year – indicative*). Has occurred infrequently in the history of the aviation industry.	**4**
REMOTE	**Unlikely to occur, but possible.** Has already occurred in the Company at least once or. Has seldom occurred in the history of the aviation industry.	**3**
IMPROBABLE	**Very unlikely to occur.** Not known to have occurred in the Company but has already occurred at least once in the history of the aviation industry.	**2**
EXTREMELY IMPROBABLE	**Almost inconceivable that the event will occur.** It has never occurred in the history of the aviation industry.	**1**

Severity Assessment

SEVERITY OF OCCURRENCE	MEANING				VALUE
	PERSONNEL	ENVIRONMENT	MATERIAL VALUES & ASSETS	REPUTATION	
CATASTROPHIC	Multiple fatalities	Massive effects (pollution, destruction, etc.)	Catastrophic financial loss Damage > 1 M€ (*)	International impact	E
HAZARDOUS	Fatality	Effects difficult to repair	Severe financial loss with long term effects Damage < 1 M€ (*)	National impact	D
MAJOR	Serious injuries	Noteworthy local effects	Substantial financial loss Damage < 250K€ (*)	Considerable impact	C
MINOR	Light injuries	Little impact	Financial loss with little impact Damage < 50K€ (*)	Limited impact	B
NEGLIGIBLE	Superficial or no injuries	Negligible or no effects	Financial loss with negligible impact Damage < 10K€ (*)	Light or no impact	A

Risk Assessment - Initial Risk

RISK LIKELIHOOD	RISK SEVERITY				
	NEGLIGIBLE (A)	MINOR (B)	MAJOR (C)	HAZARDOUS (D)	CATASTROPHIC (E)
FREQUENT (5)	5 A	5 B	5 C	5 D	5 E
OCCASIONAL (4)	4 A	4 B	4 C	4 D	4 E
REMOTE (3)	3 A	3 B	3 C	3 D	3 E
IMPROBABLE (2)	2 A	2 B	2 C	2 D	2 E
EXTREMELY IMPROBABLE (1)	1 A	1 B	1 C	1 D	1 E

Additional Controls

INITIAL Safety Risk (see Safety Risk Matrix)		
ACCEPTABLE	TOLERABLE	UNACCEPTABLE

Additional Controls (What can be done to further reduce the initial safety risks?):		**Implemented?**
C 7.	Personnel on ground must be in radio contact with the pilot	YES
C 8.	Personnel on ground must wear helmets and personal safety devices	YES
C 9.	Minimum cable length = higher obstacle + 15 feet	YES
C 10.	Maximum take-off weight with cargo reduced by 5%	NO

FINAL Safety Risk (see Safety Risk Matrix)		
- ACCEPTABLE	- TOLERABLE	- UNACCEPTABLE

Risk Assessment - Final Risk

RISK LIKELIHOOD	RISK SEVERITY				
	NEGLIGIBLE (A)	MINOR (B)	MAJOR (C)	HAZARDOUS (D)	CATASTROPHIC (E)
FREQUENT (5)	5 A	5 B	5 C	5 D	5 E
OCCASIONAL (4)	4 A	4 B	4 C	4 D	4 E
REMOTE (3)	3 A	3 B	3 C	3 D	3 E
IMPROBABLE (2)	2 A	2 B	2 C	2 D	2 E
EXTREMELY IMPROBABLE (1)	1 A	1 B	1 C	1 D	1 E

Risk Evaluation

Additional Controls (What can be done to further reduce the initial safety risks?):		**Implemented?**
C 7.	Personnel on ground must be in radio contact with the pilot	YES
C 8.	Personnel on ground must wear helmets and personal safety devices	YES
C 9.	Minimum cable length = higher obstacle + 15 feet	YES
C 10.	Maximum take-off weight with cargo reduced by 5%	NO

FINAL Safety Risk (see Safety Risk Matrix)

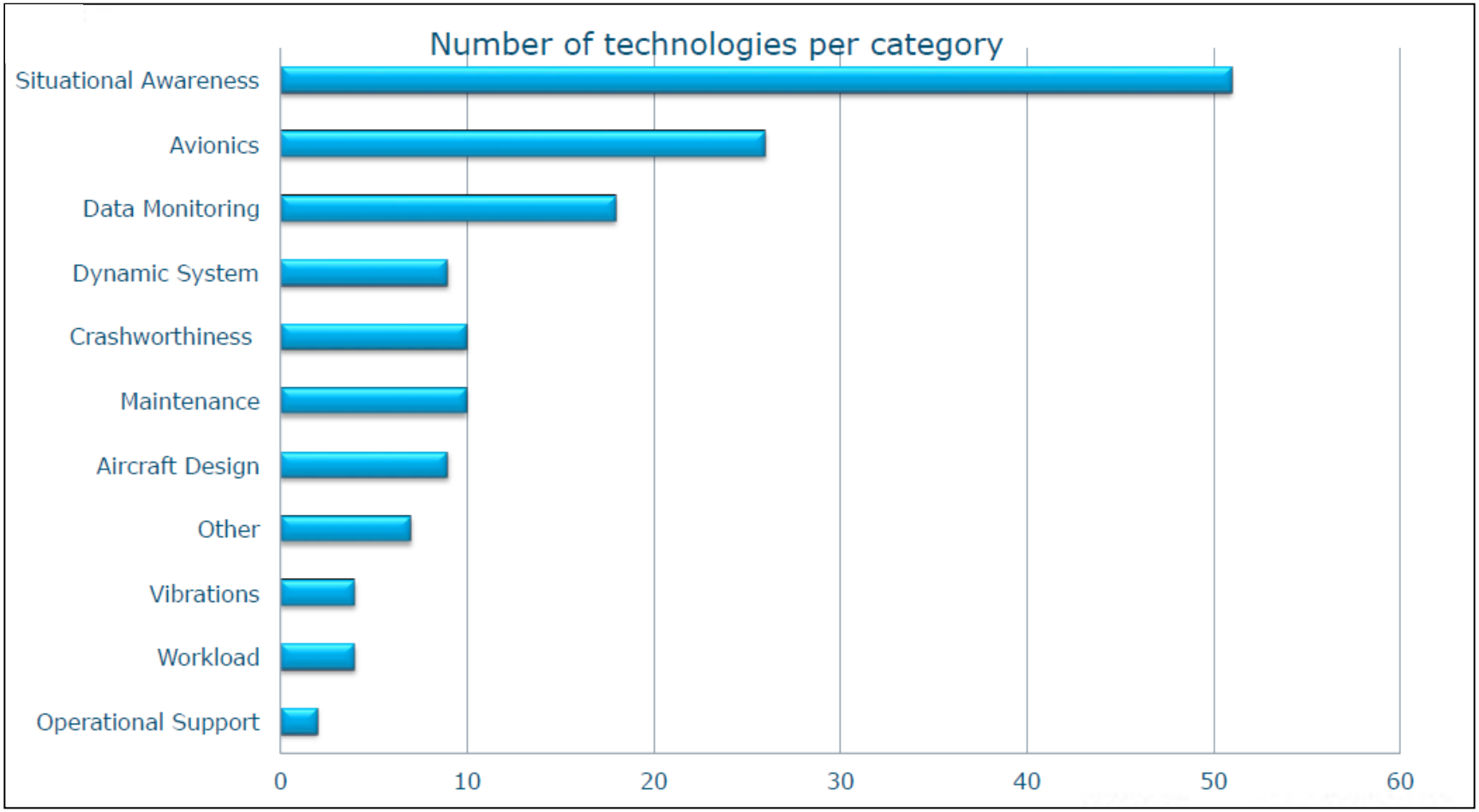
~~ACCEPTABLE~~	– TOLERABLE	– UNACCEPTABLE

Is the residual risk acceptable: ~~YES~~ NO (if NO go back to previous section)

RISK ASSESSMENT CLOSED ☒ END

EHSIT Specialist Team - Technology

Which Technologies?



150 technologies addressed as of Nov. 2013

Presentation at Avionics Europe 2013

Dedicated to innovation in aerospace

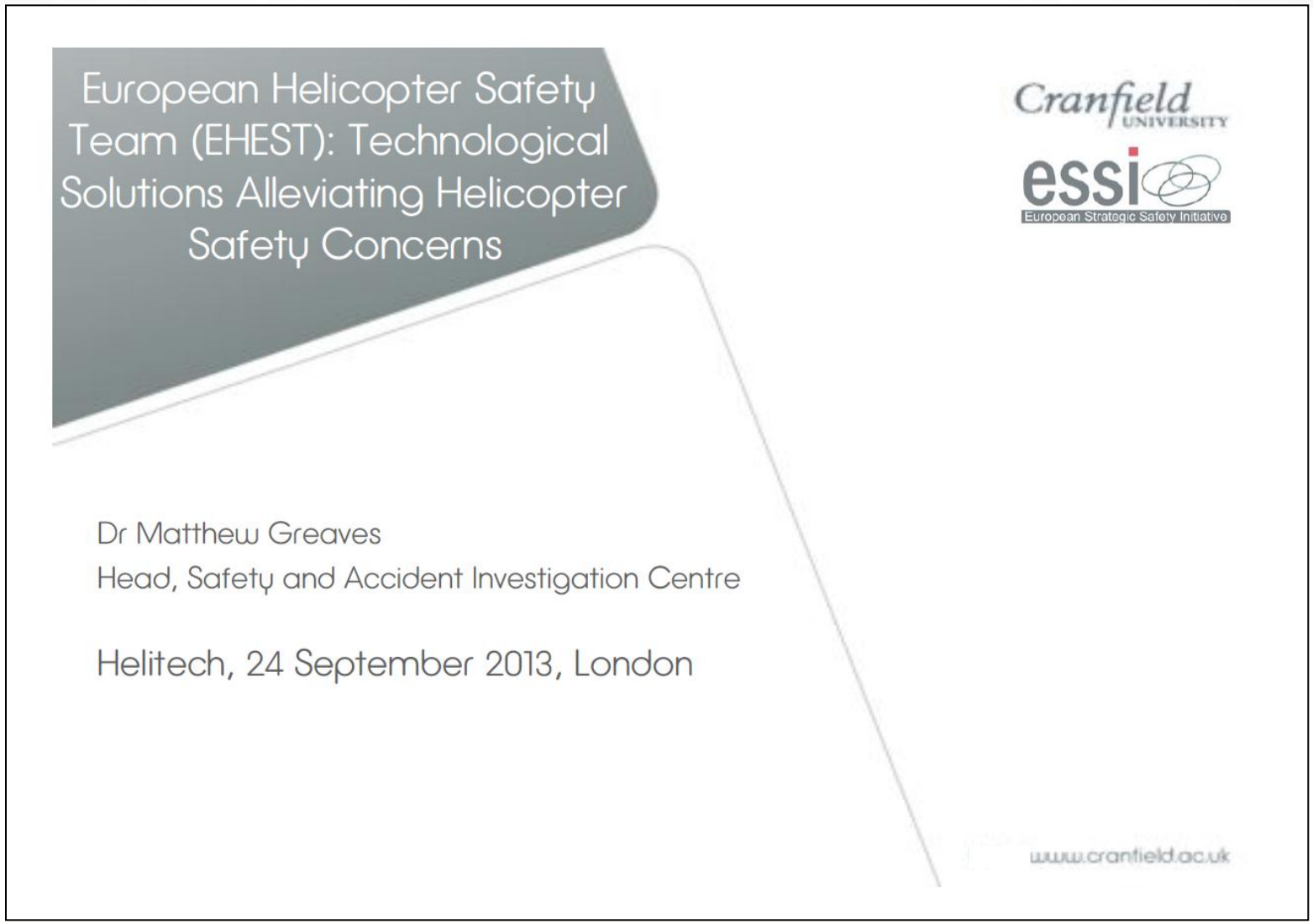
EUROPEAN HELICOPTER SAFETY TEAM (EHEST): TECHNOLOGICAL SOLUTIONS ALLEVIATING HELICOPTER SAFETY CONCERNS

Joost Vreeken, NLR (presenter) — *Joost.Vreeken@nlr.nl*
Jos Stevens, NLR — *Jos.Stevens@nlr.nl*
Michel Masson, EASA — *michel.masson@easa.europa.eu*
EHSIT Specialist Team Technology

Avionics Europe 2013, 20-21 February 2013, Munich, Germany

Nationaal Lucht- en Ruimtevaartlaboratorium – National Aerospace Laboratory NLR

Presentation at Helitech 2013



EHSIT Specialist Team Regulation

Top subjects

1. Aircraft Data Recording and Analysis
2. Inadvertent entry into IMC/DVE
3. Authority oversight
4. Safety Equipment Requirements
5. Ditching, Water Impact and Survivability
6. Helicopter Stability and Handling Qualities
7. ADELT
8. Airworthiness Procedures and Documentation
9. Intervention Times
10. Radio Altimeter Provision
11. Wire strike protection

Products and Plan

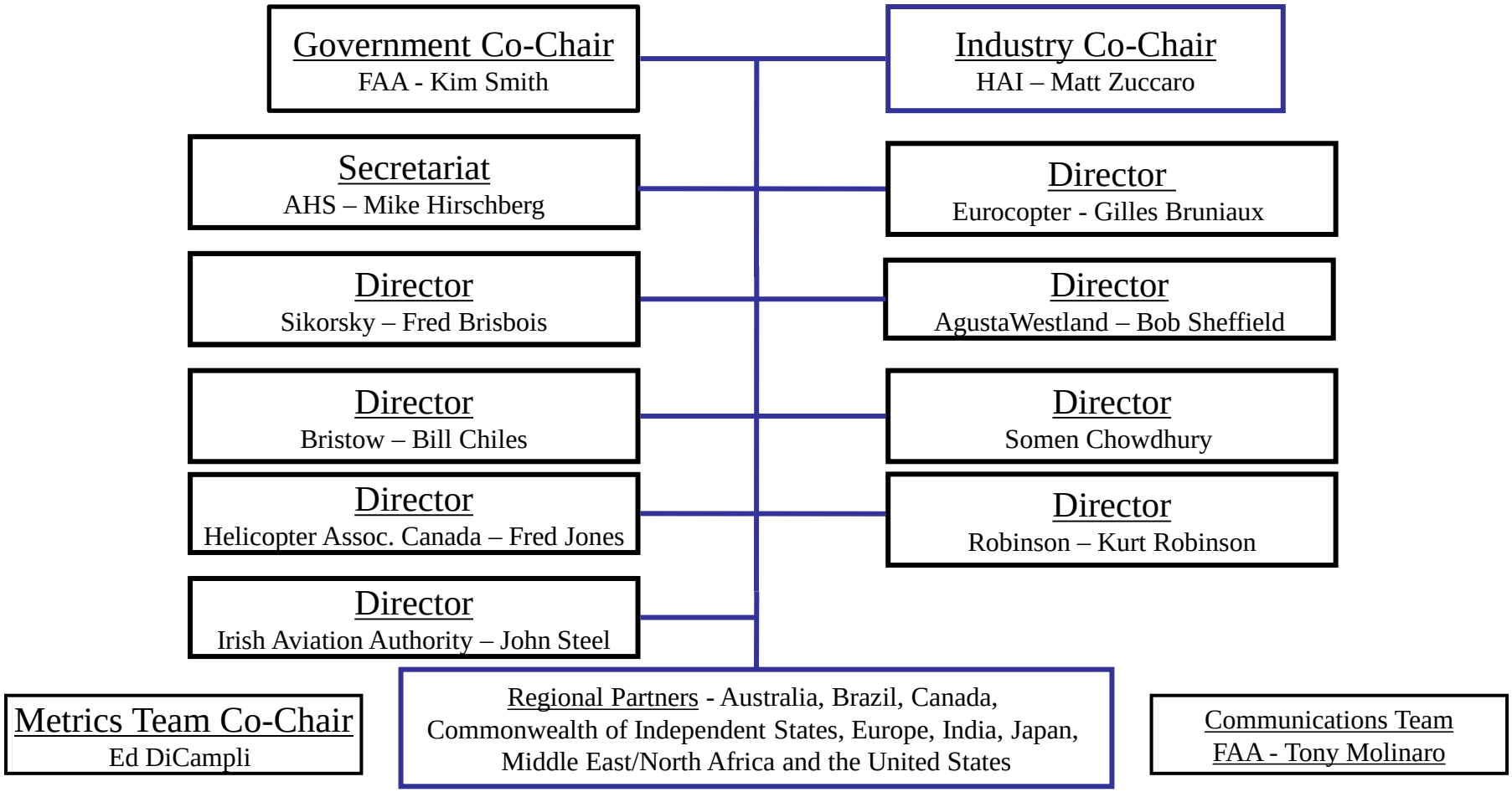
- May take the form of:
  - Proposals for future rulemaking tasks (using standard processes)
    - To NAA, EASA, or ICAO, depending on applicability
  - AMC/GM
  - Safety Information Bulletins
  - Recommendations for best practices (voluntary adoption)
- Using standard EASA pre-Regulatory Impact Assessment (RIA) process

IHST

IHST

International Helicopter Safety Team

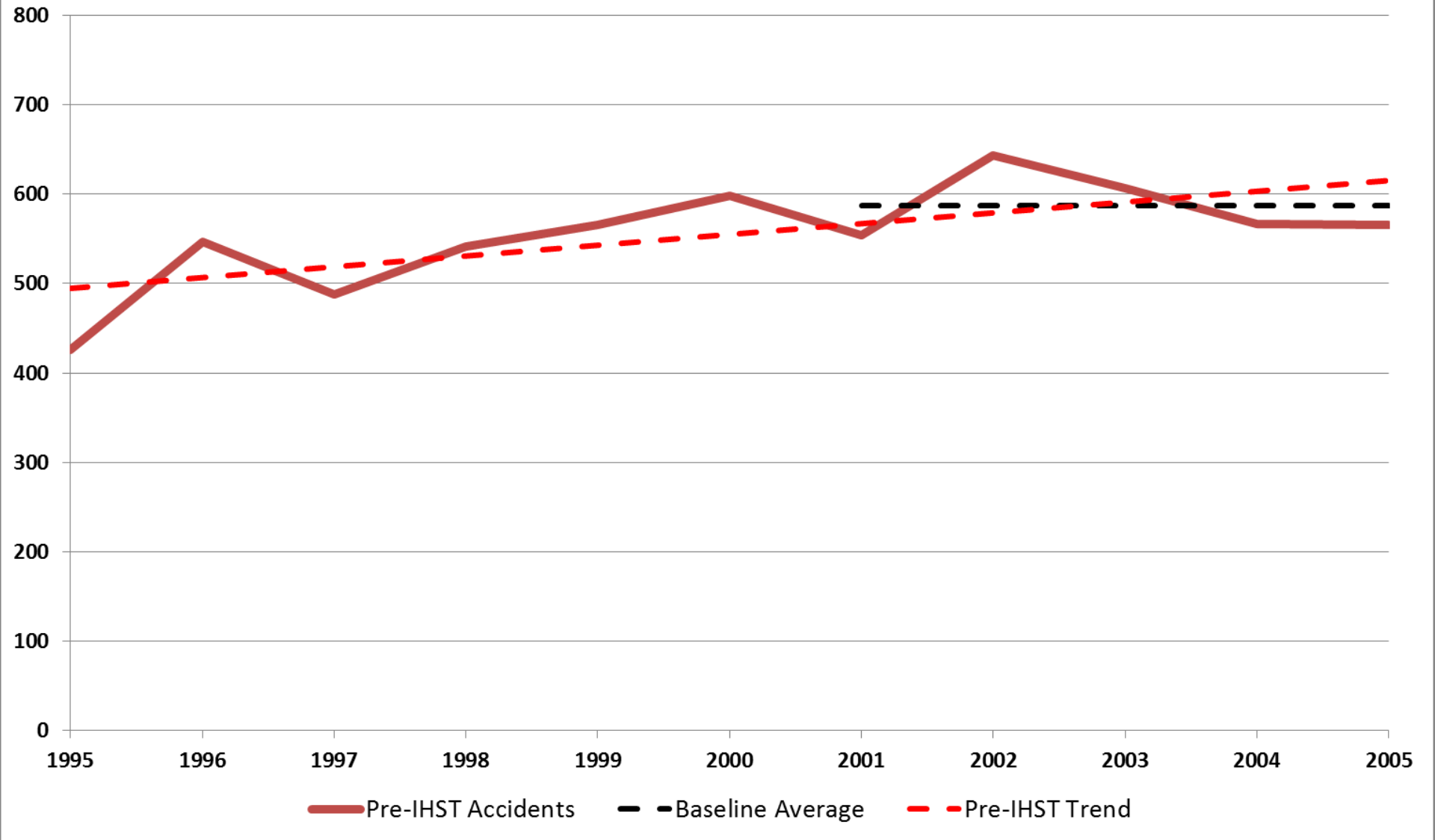
Our Vision: An International Civil Helicopter Community With Zero Accidents



500 Volunteers in over 40 Countries Growing each Year

- Led by teams in the US, Canada and Europe, the IHST now has teams in:
  - Australia
  - Brazil
  - the Commonwealth of Independent States
  - India
  - Japan
  - the Middle East & North Africa
- The IHST is working to establish effective teams in
  - **Asia**
  - Mexico and the Spanish-speaking countries in Central and South America
  - New Zealand
  - South Africa

Global Civil Helicopter Accidents



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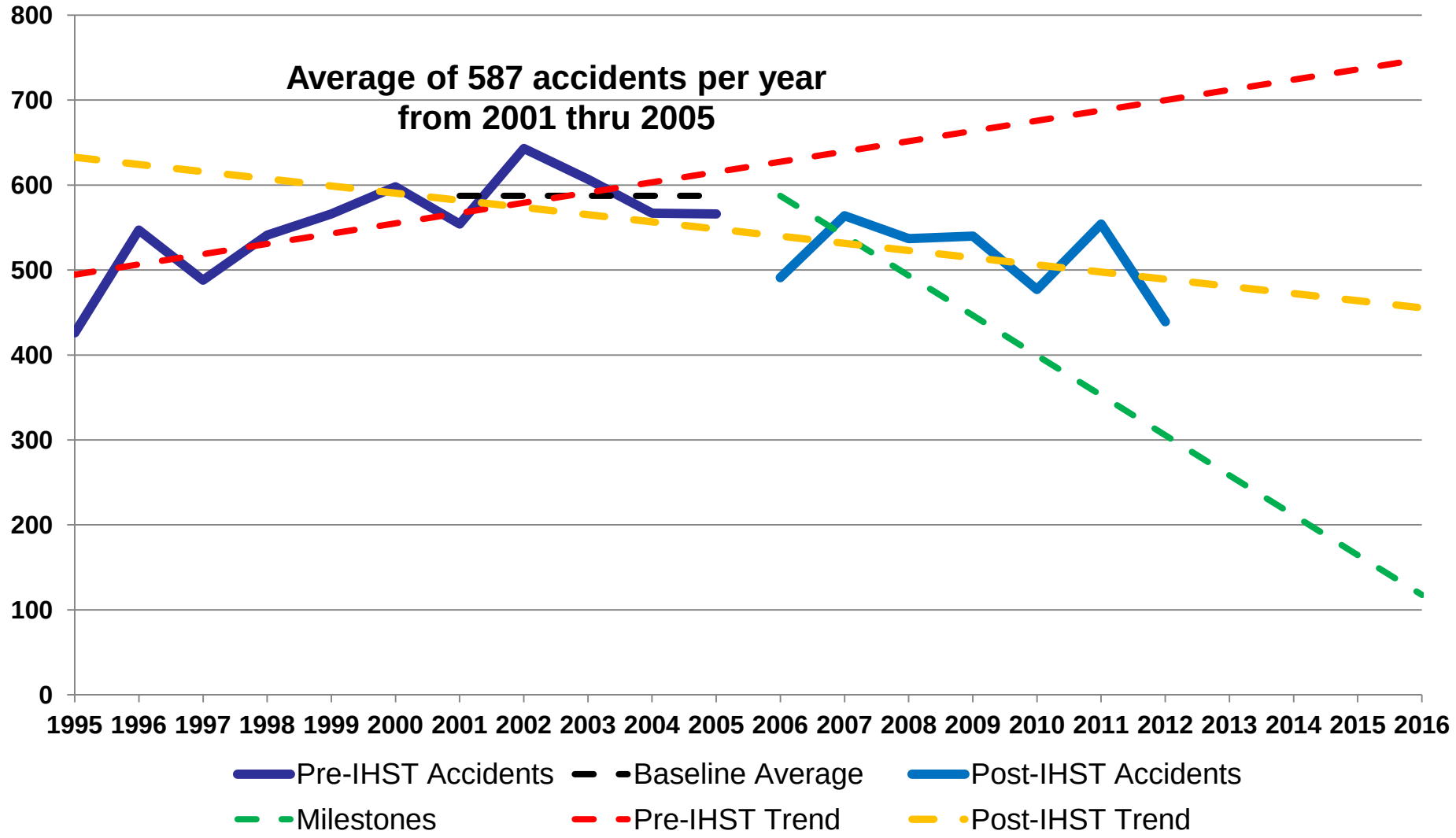
Global Civil Helicopter Accidents

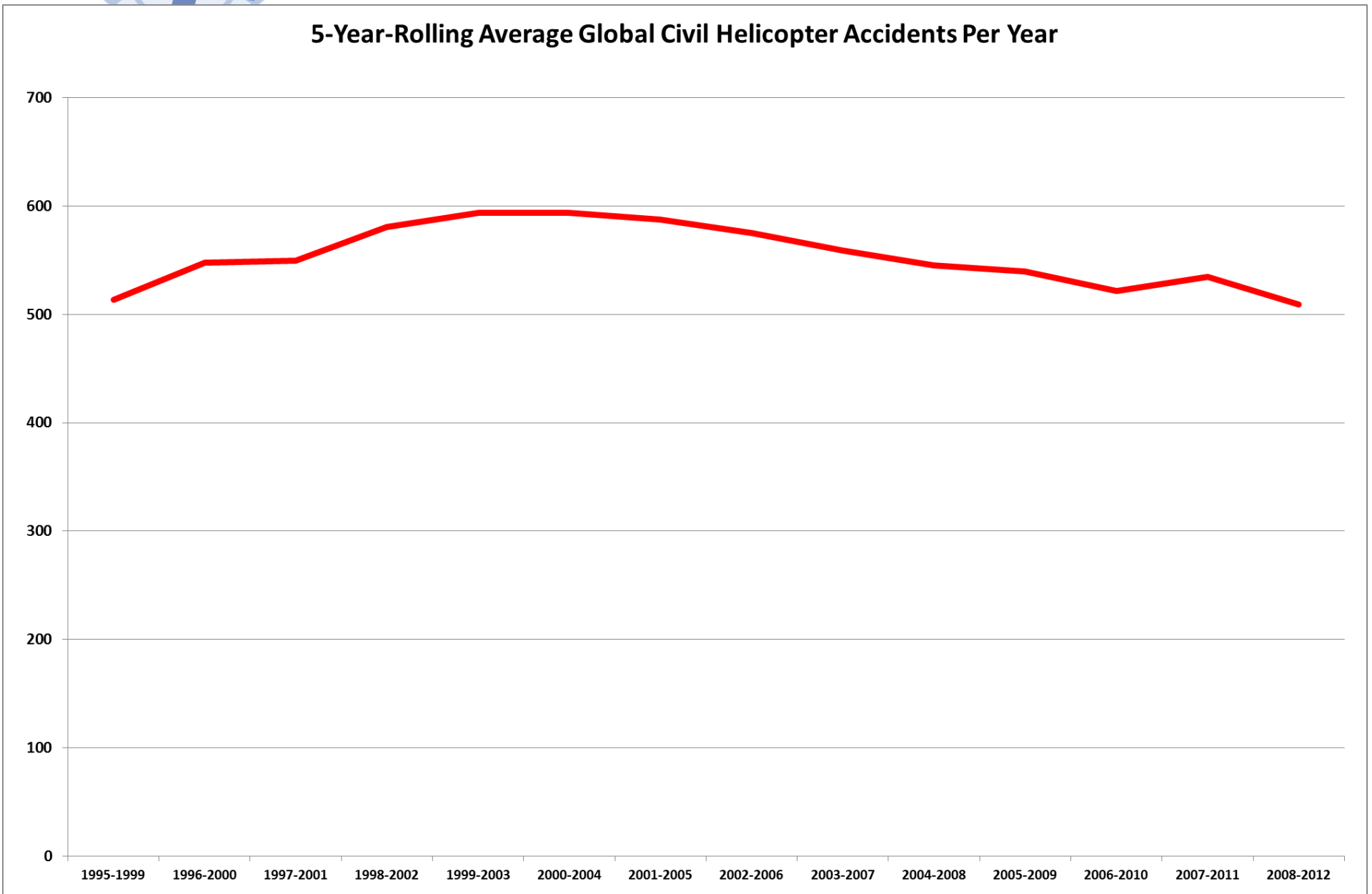


IHST

International Helicopter Safety Team

Our Vision: An International Civil Helicopter Community With Zero Accidents

5-Year-Rolling Average Global Civil Helicopter Accidents Per Year



CORPORATE NEWS

Helicopter Safety Makes Few Gains

By Andy Pasztor And Daniel Michaels

The fatal crash of a **Eurocopter** oil-rig helicopter in the North Sea last month underscores stalled progress in reducing commercial helicopter accidents world-wide.

In spite of advances in cockpit technology and enhanced pilot training, helicopters' global safety record has failed to improve dramatically over the past few years—and still lags far behind standards for airliners.

That is particularly bad news for Eurocopter, a division of **Airbus** parent **European Aeronautic Defence & Space** Co., which even before the latest accident was struggling to overcome persistent safety concerns among regulators and oil-rig workers.

"We have reputation and image damage in the U.K. that we clearly must face," Eurocopter Chief Executive Guillaume Faury said earlier this week.

Flying at night in low clouds, the Super Puma helicopter went down roughly two miles short of the Shetland Islands on Aug. 23, killing four of the 18 people aboard. Operators voluntarily grounded flights of the AS332 model over British waters, though that restriction was largely lifted six days later.

Investigators still haven't identified the cause of the accident, which both pilots survived. But on Thursday, the U.K. Air Accidents Investigation Branch issued an update disclosing that both engines were working prior to impact and no "technical failure has been identified." The statement, which indicates the probe is focusing on weather, navigation issues, possible pilot confusion or other non-mechanical factors, was significant because the model is a workhorse for oil producers, law-enforcement agencies and even some heads of state around the globe.

Agence France-Presse/Getty Images

A view of a Super Puma AS332, the same model as the helicopter that crashed in the North Sea last month.

In the U.S. and elsewhere, the number of civil helicopter crashes has stayed basically flat over the past decade at around 400 accidents annually world-wide. Despite extensive industry efforts to raise the safety bar, the global fatal-accident rate for all choppers has improved only slightly since 2007; and the rate for those used in oil-and-gas operations also has remained largely unchanged through most of those years.

While the design and aerodynamic principles of any helicopter make it more prone to mechanical failures and in-flight hazards than fixed-wing aircraft, critics say the industry has fallen far short of its own safety projections.

"This is an industry that by its own admission has an unacceptably high accident rate," according to Gary Robb, a plaintiffs' attorney from Kansas City, Mo., whose firm has litigated scores of civil accident cases. Particularly in offshore and air-ambulance operations, according to Mr. Robb, bad weather and poor visibility frequently mean "we're sending pilots out on missions that are inherently dangerous."

In 2009, after a spate of air-ambulance crashes in the U.S. sparked a public outcry, helicopter makers and operators stepped up an international safety campaign and reiterated the goal of slashing world-wide accidents rates 80% by 2016. But with the number of accidents in this country spiking in the last quarter of 2012 and the start of 2013, senior officials of that voluntary effort told industry gatherings earlier this year that the latest global and U.S. trends were still running nearly three times higher than that goal.

More worrisome to some experts is that even modest improvements in the U.S. accident rate essentially stopped around 2010. "So far this year, we're seeing an uptick in U.S. accidents," said Scott Burgess, who heads the helicopter operations program at Embry-Riddle Aeronautical University and serves on two major U.S. industry safety groups. "It's pretty clear," Mr. Burgess said in an interview, that many accidents "come down to pilot decision-making."

The accident rate for choppers used in U.S. oil and gas operations has hovered around eight fatal crashes per one-million flight hours. By contrast, the risk for a U.S. airline passenger averages out to roughly one fatality in 45 million flights. In nine of the last 10 years, no U.S. passenger carrier has suffered a fatal crash.

Adopting strategies from the airlines, the International Helicopter Safety Team, or IHST, a voluntary body established in 2006 to lead the safety drive, has worked to analyze dangers in rotary flight and develop measures to tackle problems. The Super Puma accident is "an additional reason ... to understand why incidents continue to happen and how to address them," said Michel Masson, secretary of the European arm of the IHST, and a safety expert at the European Aviation Safety Agency.

Matt Zuccaro, industry co-chair of the IHST, wasn't available for comment.

Eurocopter has defended the safety record of various versions of its Super Puma helicopters, three of which have gone down in the North Sea since last spring.

"The Super Puma family's overall safety record is excellent," said Mr. Faury. "One reason there are so many Super Pumas in the North Sea oil-and-gas business is their safety."

While the rate of fatal accidents in Super Pumas may be low relative to their use, the grounding and recent crash have sparked an unprecedented social-media campaign in the U.K. against the Eurocopter model.

The company's chief executive said "there is a very big gap between perceptions of operators and professionals," versus "what is said on social media." He added that "we must close the gap," so Eurocopter will "respond with facts and figures" linked to a broader review of helicopter safety in the U.K.

Executives at **BP** PLC said they won't resume flights of the model that crashed Aug. 23 in the North Sea until the recent accident's cause is known. France's **Total** SA plans to resume Super Puma flights in coming days, but to address concerns and build confidence among workers, the flights will initially carry only senior executives out to offshore platforms before passenger flights are resumed.

—Selina Williams contributed to this article.