

Notes from Flight Safety Conference, 17-18 Sept 2012, LHR

The following are some notes and quotes from the various speakers. Their full presentations will follow if anybody wishes to have them.

Day 1: Monday 17th September 2012

Opening Remarks from the Chair, David Learmount, Flight Intl

There is a belief in certain parts of the industry that the challenges to avoid accidents are too expensive, accidents are occasionally inevitable and are simply the cost of doing business. This is not acceptable.

For example, there have been 12 fatal accidents since 2000 in which a loss of control was caused by a loss of SA, caused in part by poor monitoring.

- 2010: Afrique A330, Ethiopian 737
- 2009: AF447, Jemenia A310, Caspian 154, Colgan
- 2008: Aeroflot 737, Adam Air
- 2006: Armavia A320
- 2004: Flash Air 737
- 2000: Gulf Air A320, Crossair SF340

Ben Alcott, Head of group safety systems, CAA

“The stats show that the global accident rate has levelled off” ie has stopped improving.

The regs are:

- EU Reg for OR/AR – “more regs about risk rather than compliance”
- European Aviation Safety Plan – “Looks at outcomes not just a collection of actions”
- COM 670 An SMS for Europe
- ICAO Annex 19 Safety Management

“The CAA will still be doing compliance finding but will be doing it more intelligently.”

Patrick Davis, Manager Operational Risk - Corporate Safety and Quality, British Airways

Understanding how to manage risk and avoid recurring incidents

- Reactive – Investigating incidents/accidents
- Proactive – FDM analysis
- Predictive – Risk management

“We are trying to achieve a significant reduction in accidents and incidents.” Think of the cost of minor incidents which are not covered by the insurance due to the excess.

Risk Modelling - Bow-Ties

“People and organisations don’t manage accidents, they manage the controls* that prevent or recover accidents” eg:

- Cause: High energy approach
- *Preventative control: SOPs, education campaign
- Event: Long landing
- *Recovery control: Reverse thrust, brakes
- Effect Outcome: Overrun

Black Swans

Q. How did we not spot the black swan (event)? A. Because we did not know that black swans existed so we were not looking for them.

“Some stuff will come along that you simply cannot predict (the black swans). But let us not forget about the white swans!”

After you have seen a black swan your next surprise will be a pink swan, etc, etc.

Harry Nelson, Advisor to Head of Product Safety, Airbus

10^{-7} Where do we go from here?

4th Gen FBW aircraft have been in operation for 23 years and the accident rate has stabilised at 10^{-7} . With the predicted rate of growth of air traffic we will have a fatal accident every 3 months by 2030.

Grab the low hanging fruit:

- Reduce the need for tailwind landings (noise, approach aids, etc) birds don’t land downwind!
- Eliminate circling approaches and offer alternatives, eg RNAV, RNP approaches etc
- Harmonise SID & STAR design globally.
- Ensure that the basics are understood, eg stalling
- Better runway design, eg more grooving, safe overrun areas
- Better runway condition reporting

Training:

- Keep the training in step with industry
- Ab-initio emphasis
- Review CBT methods on high-tech aircraft
- Improve training on monitoring
- Have the right learning tools, chalk & talk vs CBT, iPad, classroom, sim, line etc

The significant seven deals with the symptoms, not the disease. Eg CFIT, GPWS is a (good) sticking plaster, but the disease is poor situational awareness. NB too many sticking plasters can become another disease.

The A340 engine run accident was caused by a **silent drift of standards**. Over the previous 20 years the ratio of ex-mil to non-ex-mil groundcrew had reduced. Ex-mil groundcrew would always chock aircraft before engine runs because they were used to aircraft with a large excess of thrust. At the time of the event the A340 was in its 7th engine run of the day and was light on fuel, an incident on the flightdeck caused the thrust to increase and the aircraft overpowered its parking brake. Would have been prevented by chocks.

Carl Downing, Technical and CRM Training Manager, Thomson

Connecting safety and training with the goal of continuous improvement

Recent accidents – what can we learn to improve training? Eg THY 737 at AMS, Spanair MD80 at MAD, THF 737 at BOH. The common theme was that a minor failure was not detected which lead to a loss of control.

Linking technical and CRM training to improve diagnosis and monitoring skills?

Assessing pilot experience and competency. What problems are faced by their different training needs? “Thomson has a wide range of pilot age, experience and ability and training needs to cope with it”. ATQP will allow a move towards targeted training. This may allow a reduction in recurrent training spent on high performers and allow the resources to be used on low performers.

One option under consideration is to just have one (longer) annual sim visit, in winter because THF are seasonal. Because deep learning is better than frequent learning.

Dr Ratan Khatwa, Senior Chief Engineer, Honeywell

New technologies

New IntuVue weather radar:

- Simplified operation & simplified data
- Has no tilt control but uses “volumetric scanning” to ensure that the most reflective part of the cell is reflected.
- Identifies & displays wx associated with the vert & horiz flight path.
- Can select wx present at any FL, all corrected for earths curvature
- Uses lighting and hail icons on display where likely to occur.

Smart Landing: Addresses runway excursions

Smart Runway: Addresses runway incursions

Smart View: Addresses CFIT, Loss of Control & runway incursion. It is a fusion of EGPWS with HUD to give a 3D rendering of terrain (EVS).

Day 2: Tuesday 18th September 2012

**Captain John Monks, Training Regulation and Development Manager, Flight Operations
British Airways**

Pilots in 2012 and beyond: Automation, the future of the cockpit and the pilot

ATQP enables 6hrs testing & 10hrs training annually. "The focus is on upskilling in the operational environment."

The balance of motor skills to cognitive skills from previous generation of pilots (Vanguards & BAC1-11s) to this generation (B777 & A380) has/must change.

Does this generation (and the next) want to disconnect the A/P & A/T anymore? And do we as safety managers want them to?

Can we develop the future cockpit to be age/experience/culture proof?

Carl Holt, Safety Manager (Technical) Group Safety, Emirates

SMS Training & Safety Performance Measurement

Emirates has 3000 pilots from 89 nationalities only 53% of whom are native English speakers. EK conducted a Cultural Attitudes Survey amongst the pilots and found that they all had very similar traits.

Safety Performance Measurement:

- Recorded events (FDM)
- Reported events (Safety reports)
- Reported false events (erroneous SRs)
- Unrecorded real events (the things FDM cannot detect) – Unknown unknowns!

Safety Risk Indicators are outside your control eg birdstrikes, ATC errors or runway incursions by other aircraft.

Phil Barton & Scott Derbyshire, FRMS safety manager, easyJet

Fatigue Risk Management (FRM): A case study

A legal roster can be very fatiguing and an illegal roster may not be. Eg number of sectors takes no account of how long or difficult they are, eg Innsbruck cf Faro. Prescriptive regulation is not enough.

6-3-6-3 roster was CAP371 compliant but produced safety event spikes on day 1 (first early after 3 short days off), day 4 (transition to lates) and day 6 (last late of 6th duty day).

Got a CAA alleviation to 5 earlies-3 off-5 lates -4 off. Event spikes reduced, more days off for pilots and productivity went up. Everybody was a winner.

Interestingly most pilots prefer lates and say they perform better but the stats show more events on late shifts. This shows how difficult it is to assess your own performance.

Panel Discussion: Flight Time Limitations: The debate

- Jean-Marc Cluzeau, Head of Flight Standards, EASA
- Phil Barton, Head of FRMS, easyJet
- Dr Robert Hunter, Head of Safety and Security, BALPA

JMC: EASA is not a regulator, it is a technical ctte. It makes a proposal to the EC who make the legislation.

DrRH: BALPA has concerns about the scientific credibility of the EASA study. Also gave an example of how Sub part Q was less restrictive than CAP371.

PB: Regulations are a good starting point but are not always appropriate.

JMC: All scientific studies are not always relevant or are misapplied. Stated that less restrictive example loophole had been closed as a result of the consultation process.

DrRH: Wanted EASA to commission a full scientific review of Sub part Q.

Captain Tim Price, Manager Regulatory Affairs, BA Flight Operations

Runway incursions and excursions

Pilots do not aspire to have a runway incursion; they are all caused by a breakdown in SA.

- A runway incursion is usually caused by confusion about position or sequence in traffic
- A runway excursion is usually caused by confusion about position or energy.

What can we influence?

- Pilots/Pilot Management – Workload management, sterile flightdeck
- Airports – Runway/Taxyway design, signage & markings
- ATC – Standardisation of procedures, LVOS

Technology to improve SA include Runway Awareness and Advisory System (RAAS), SmartRunway by Honeywell.

Technology wish list:

- GCAS – A ground TCAS
- T/O sequence notification
- Energy monitor – T/O & landing, real-time alerting with actual runway conditions.

Captain Joe Elliott, Flight Safety Officer/ Deputy Safety Manager, Aer Lingus

Improving flight safety analysis procedures

FDM cant stand alone and must be part of our SMS

FDM examples:

- Plot out TCAS RAs to locate hotspots
- Count up types of TCAS events and inject most common (Adjust vertical speed) back into the sim.

Integrating analysis from flight data management into training programmes and simulators