

<b>AVIATION SAFETY CONFERENCE 2016</b>
<b>HONG KONG, CHINA (SAR) MAY 5-6</b>
<b>RAPPORTEUR BRIAN LEGGE, IFALPA REGIONAL VICE-PRESIDENT NORTH PACIFIC</b>

<b>EXECUTIVE SUMMARY</b>
<ol style="list-style-type: none"> <li>1. The purpose of the meeting was to discuss current and topical safety issues primarily affecting the Asia-Pacific air transportation system.</li> <li>2. Representatives from IATA and individual airline representatives, regulators from Hong Kong, Macau, Australia, and several others, representatives from airports, maintenance organizations, and aircraft / component manufacturers Airbus and Thales attended the conference.</li> <li>3. The next conference will be held at a location TBA in 2017.</li> <li>4. Actions: <ol style="list-style-type: none"> <li>1) IFALPA should continue to attend future Aviation Safety Conferences as well as the ICAO ATM meeting in Bangkok in July with the intention of voicing our concerns over A461 (black star airway ex-HKG) and the lack of progress on rationalizing the Pearl River Delta airspace.</li> </ol> </li> </ol>

## **1. GENERAL INFORMATION**

- 1.1 Mr. Patrick Goudou moderated the conference. The conference consisted of a number of guest speakers from industry partners including: Hong Kong CAD, ICAO, Qantas, drone manufacturers, Thales, and Hong Kong International Airport presented at the conference.
- 1.2 Approximately 100 delegates attended the meeting representing most of the Asia Pacific region's primary stakeholders. These included IATA and individual airline representatives, regulators from Hong Kong, Macau, Australia, and several others, representatives from airports, maintenance organizations, and aircraft / component manufacturers Airbus and Thales.
- 1.3 **Review of Agenda Items**
  - 1.3.1 **Agenda Item 1: "The International Challenge"**
  - 1.3.2 **Agenda Item 2: SSP / SMS – A Way to Improve Safety at Organizational Level**
  - 1.3.3 **Agenda Item 3: Air Traffic Management – A Way to Improve Safety and Efficiency**
  - 1.3.4 **Agenda Item 4: Human Resource Management and the Supply of a Competent Workforce**
  - 1.3.5 **Agenda Item 5: Emerging Safety Issues**

## **2. Agenda Item 1: "The International Challenge"**

- 2.1.1 Former ICAO Secretary General Mr. Raymond Benjamin gave this presentation. Since 2010, ICAO has been working with stakeholders to reduce runway incursions and excursions resulting in improvements in runway safety. One challenge for emerging economies is the ability of certain low income States to fund the infrastructure to support the air transportation system underscoring the need to secure a global funding mechanism with donor States and other stakeholders to make up the shortfall.

### 2.1.2 Meeting the Safety Challenges: A Hong Kong Perspective

Mr. Norman Lo, Hong Kong CAD Director General pointed out that traffic growth for the next 20 years will exceed 5% per year. Hong Kong has nearly reached capacity at 68 movements per hour. It is estimated they are turning away 100 flight requests per day. The short/medium-term solutions include a study on wake turbulence re-categorization and a study on runway optimization. The long-term solution is the Three-Runway System (3RS). It was noted that human capital will be the largest challenge of the coming 14 years: pilots, AMEs, ATC, and airport personnel are already in short supply. This challenge is coupled with mass retirements, competition for personnel, and the complexity of the jobs and training required.

IFALPA Question / Comment from RVP-NOP: The 3RS in Hong Kong is a good step forward to increase capacity. However, there needs to first be airspace rationalization so that we can move forward to establish PBN procedures. What is the status of the airspace rationalization in the Pearl River Delta and what lessons can you share with other Member States facing similar issues? *Response: There is a difference in standards between Hong Kong and China (feet – meters etc.). There will be “no significant improvement in the short-medium term”. The PRD Rationalization progress remains secretive. It has been concluded that the PRD will contain a maximum of 7 runways: 3 in Hong Kong, 3 in Shenzhen, and 1 in Macau.*

## 2.2 Agenda Item 2: SSP / SMS – A Way to Improve Safety at Organizational Level

### 2.2.1 Qantas Experience with Safety Management and Just Culture

One key component of SMS, according to Qantas, is ‘Just Culture’. This requires every manager, employee, and contractor is responsible for identifying hazards and reducing risk. Lessons learned: You cannot manage what you do not measure. Just Culture ensures people and assets can address hazards by looking at error in a way that generates system-wide learning.

### 2.2.2 Safety Management through the lens of the LCC

Hong Kong Express gave a presentation on safety from the LCC perspective. Their view of safety management is summarized by: simplicity, transparency, and accountability. People choose LCC for on-time performance, safety, and reliability (according to a 2014 study). HKE uses a risk-based index (RBI) to assess risks in their operation using a complex mathematical algorithm.

### 2.2.3 Hong Kong Safety Reporting Database

HKCAD started collecting safety data several years ago from all stakeholders including airlines and air traffic control. They have not yet matured to a point where they can process it and feed it back into the system however they are offering data protection at this point.

### 2.2.4 Operational Safety in MROs

China Aircraft Services (CASL) presented on safety management from a maintenance supply perspective. This highlighted the need to listen to the front line personnel to identify hazards and evaluate error. Safety promotion videos were shared with the audience.

## **2.3 Agenda Item 3: Air Traffic Management – A Way to Improve Safety and Efficiency**

### **2.3.1 Singapore Air Navigation Targets and Capabilities**

Singapore presented on their ADS-B capabilities. They introduced space-based ADS-B as an emerging technology to circumvent the need for multiple ground-based stations with limited range. Singapore also introduced the possibility of a multi-State Air Traffic Flow Management framework that works with neighbouring States to maximize efficiency both at departure airports but also enroute ANSPs and arrival airports as well.

### **2.3.2 Thailand Air Navigation Targets and Priorities**

AeroThai presented on the implementation of air navigation targets in Thailand. Thailand is reaching capacity constraints in their 36 existing and 5 new airports. To meet demand, AeroThai is upgrading their CNS/ATM capability, implanting PBN including CDO operations, and ATFM.

### **2.3.3 Enhancing Performance in Constrained Airspace: A UK Perspective**

Mr. Dave Curtis from NATS presented technology and advances in the UK used to enhance safety and efficiency. Examples include Controlled Airspace Infringement Tool (CAIT) and Barometric Pressure Setting Advisory Tool (BATS). XMAN arrival management looks at 350nm to 550nm (extended AMAN horizon) to make minor changes to aircraft speed to manage arrival times; this reduces holding times and saves airlines fuel. Time Based Separation (TBS) shows benefits of setting different targets for various wake separations increasing landings by +1.2 per hour in all wind conditions and +2.9 landings/hour for headwinds > 20 knots, reducing delays by 50% and reducing holding times. Some studies have suggested that there could be up to 40 different wake turbulence categories according to NATS.

## **2.4 Agenda Item 4: Human Resource Management and the Supply of a Competent Workforce**

### **2.4.1 Airbus Presents Global Safety Challenges**

Based on a ten year moving average, the fatal accident rate for fourth generation aircraft (777,787, A320/330/40/50) is 0.10 per million flight departures. The fatal accident rate is  $10^{-7}$ . We need to think and work collectively to manage risks: the largest risk identified in their recent survey was the growth levels (2000+ new jets and 20,000+ new pilots and mechanics by 2019). This means we need to change the way we train pilots.

### **2.4.2 A350 Entry into Service: An Operational Perspective**

Captain Chris Kempis (CX GM Flying) gave a presentation on the implementation of the A350 under a common type rating. CX has 42 A330 and will be bringing in 48 A350s. CX has implemented a risk management plan, which addresses operational risks. These include training, recency, automation / HUD dependency, etc. Mitigations include currency requirements that are restrictive including the need to fly both aircraft (A330 and A350) at least once every 45 days. A full flight simulator (FFS) will be on site even though it isn't required by regulation. Also included is 11 days of ground training (4 days ground school, 7 days APT and FFS) which is longer than the Airbus training footprint. This will be preceded by 3 days of flight observation and in-seat flight familiarization (2 sectors in jumpseat & 4 in operating seats). Additionally the HUD training adds 2 days to the training. Program challenges: the unknown (it is an unknown entity and never flown); entry rate of A350s at nearly 2 per month for the first year; and pilot experience.

#### 2.4.2 Airport Authority Initiatives to Attract More Human Capital

The Deputy Director of Hong Kong International Airport gave a presentation on Initiatives to attract more people to work at the airport. HKIA voluntary turnover rate is 15%. The top three reasons for difficulties in recruitment: working conditions (location, working hours, shiftwork); skills / experience required; and salary packages. Construction jobs will create 139,000 man-years during the construction phase (130,000 direct jobs and 165,000 indirect jobs). Most workers have to take buses (approx. 1 hr trip time) from their home to the airport.

### 2.5 Agenda Item 5: Emerging Safety Issues

#### 2.5.1 Safety Challenges Related to Cyber-security

- 2.5.1 Thales gave a presentation titled “Security Challenges Related to Cyber-security.” The in-flight networks and aircraft flight operational networks are designed to be independent and totally separate. However, airlines may be able to inadvertently link the two systems due to flexibility in the systems. Ex. Hugo Teso, a US hacker, claimed he was able to access an aircraft’s FMS through the ACARS system. In 50% of cases, cyber-incidents involve someone with authorized access. The top cyber-security risk is not necessarily what people are thinking (ISIS etc.) they are often mistakes or untargeted attacks.

IFALPA Question from RVP-NOP: Does the regulator have the expertise to analyze, anticipate, let alone regulate cyber-security prevention or is the onus on the supplier of these technologies such as Thales... If so, do you have the opportunity to cooperate collectively with suppliers and industry partners? *Answer: There needs to be a shared responsibility by both regulators and suppliers of technology. Currently, regulators do not have adequate resources or operational knowledge to keep up with technological advances. Thales was working with other departments including suppliers of flight management technology to share ideas and work more collectively. However, with the exception of trade meetings and conferences there has been limited opportunity to develop a global approach with other vendors.*

- 2.5.2 ICAO Presentation on Emerging Issues, Global Flight Tracking, and Conflict Zone Mitigation  
Len Wicks (ICAO Secretariat) presented on Global Flight Tracking & Conflict Zone Mitigation, and other Emerging Issues. Normal Aircraft Tracking Implementation Initiative (NATII) is working on performance-based standards for flight tracking primarily in response to MH370. ANSP do most of the flight tracking through HF and ADS-C in remote airspace. For normal operations flight tracking will consist of a report every 15 minutes. For distress flight-tracking updates will be not more than 1 minute giving approximately 6nm range from potential accident site. Space-based ADS-B technology is emerging: Instead of HF or ADS-C reports used in NATII, the Aireon ADS-B service on 66 Low Earth Orbit (LEO) Iridium NEXT satellites will be available to give near real-time updating (approx. 6 seconds) starting in 2017. Conflict Zone Mitigation: States have responsibility to issue risk advisories regarding any threats to the safety of civilian aircraft operating in their airspace. Operators are responsible for assessing global airspace risks. ICAO has established a Conflict Zone Information repository and SPACE CZ Briefing site. In Afghanistan, there are no assurances of ANS continuity beyond September 2016, no official Kabul FIR contingency plan yet, and a diversion scheme is planned if necessary but Iran and Pakistan have to complete some actions before an organized track system (OTS) with considerable additional traffic will be available. Ballistic Launch/Space Re-entry: ICAO is facilitating the open communication and regulation of the safety protocols for the launch and inevitable re-entry of space junk, particularly prevalent in the South Pacific.

Len highlighted that there is a widening gap between advanced States and lesser developed administrations – the problem lies with the States that do not attend these ICAO conferences

and do not have the resources they need thus ICAO is developing the No State Left Behind (NSLB) plan to assist these nations.

#### 2.5.3 UAS Presentation from Yuneec Executive

The global aerial drone market is growing by an estimated 15% per year in the civilian markets. Consumer aerial growth rate in UAS is 30%. Investments in drone markets have gone from \$121m in 2015 to \$438m in 2016 in China alone. China is responsible for 20% of the world drone production. The most common civilian use is aerial photography. Drone accidents reported in the US in 2015 was 35 and trending up exponentially. The FAA is expected to publish its Final Rule by spring 2016. Recommendations from the manufacturer: integrated no fly zones using GPS, propulsion redundancy, flight control redundancy, active collision avoidance, GoHome and Fail Safe solutions, telemetry real time display, and real time flight log data backup. Future developments should include 3D airspace management.

#### 2.5.4 French Experience Concerning UAS Regulations

Regulation needs to be easily understandable and implementable. General aviation enthusiasts in France can fly <500'. France's regulations currently require: visual line of sight (VLOS), day flights, not in public space or populated areas, away from airports, prior authorization required in controlled airspace or restricted area, and maximum height 150m except when certain criteria are met. France will have a specific theoretical certificate for every professional remote pilot requiring practical learning objectives, practical training of the remote pilots, and no self-training. A license will be required for (BVLOS) beyond visual line of sight remote pilots. Future issues will revolve around newer technologies, harmonization of policies and regulation, new international standards, security management, etc.

### 3. CONCLUSION

- 3.1 The conference was well attended and well organized. It covered a range of topics relevant to safety, in particular emerging issues such as UAS and cyber-security, which are relevant to IFALPA. There were opportunities to pose questions to the panel for discussion and RVP-NOP took advantage several times.

Additionally, I was able to meet with Len Wicks, ICAO BKK Office, and Dragonair General Manager Safety regarding A461 and the delays / disruptions that have resulted in IFALPA maintaining its black star status. ICAO was supportive of the move and KA GMS confirmed that an analysis from last month's flights found that flight disruptions varied between 5 hours to up to 12 hours on A461 and A470 to Beijing and Shanghai. These disruptions caused considerable problems from a passenger management and AFTL perspective. Len Wicks proposed IFALPA should attend the next ATM meeting in Bangkok in July and be prepared to speak vocally about the issue of Chinese airspace issues as well as the Pearl River Delta airspace issue affecting Hong Kong and its 3RS system.

### 4. IFALPA ACTIONS

- 4.1 It is recommended IFALPA continue to attend future Aviation Safety Conferences as well as the ICAO ATM meeting in Bangkok in July with the intention of voicing our concerns over A461 (black star airway ex-HKG) and the lack of progress on rationalizing the Pearl River Delta airspace.