IS-BAO™
International Standard for Business Aircraft Operations

IBAC
International Business Aviation Council

Business Aviation Safety Summit

Bennet Walsh, IS-BAO Programme Director

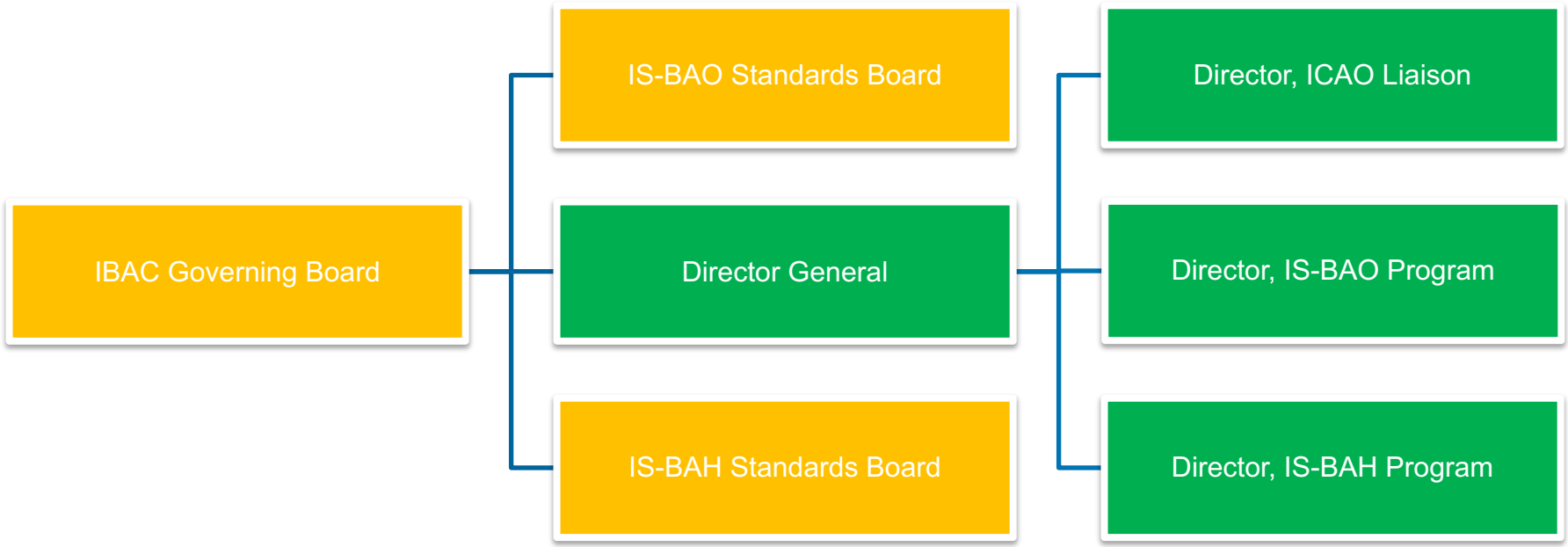
10 MAY 2018

Introduction to IBAC

- What, When, and Why of IBAC
  - Non-Profit NGO founded in 1981
  - Your ICAO Representative & Advocate
  - To “Enhance the safety, acceptance and economic contribution of business aviation globally.”
  - National associations can’t have a voice at ICAO

Who: Member Associations

Coordinated Voice of Bus Av



IBAC at ICAO

- Business Aviation's voice at ICAO
  - Member Associations shape and relay the voice.
  - Operators are the source of that voice.
- IBAC has a voice at the SARP creation level

International Business Aviation Council

IBAC at ICAO

- Cockpit Door on G650ER and Global 7000
- CORSIA impact and Operator tools
- Special Authorizations
- RNP approaches
- SMP Doc 9859 Rev 4
- Ground Handling Task Force
- RVSM and O2 improvements
- ASIAS, D4S, AVDEX, ICAO, and Industry data share
- New technology's impact on Business Aviation

IBAC at ICAO

- GNSS evolution
- Aerodrome operations and capacity
- Operations above flight level 600
- Proposed new global aviation safety oversight system (GASOS)
- Global Aviation Safety Plan (GASP)
- Facilitation of data-driven decision-making in support of safety intelligence to support safety risk management

IBAC at ICAO

- Evolution of the Universal Safety Oversight Audit Programme (USOAP) continuous monitoring approach (CMA)
- Improving the performance of the air navigation system through the aviation system block upgrades
- Implementing minimum air navigation services for international civil aviation through the basic building blocks (BBBS) framework
- Integrated CNS and spectrum strategy
- Cyber resilience

IBAC at ICAO

- IBAC coordinated scores of volunteers on various panels and committees

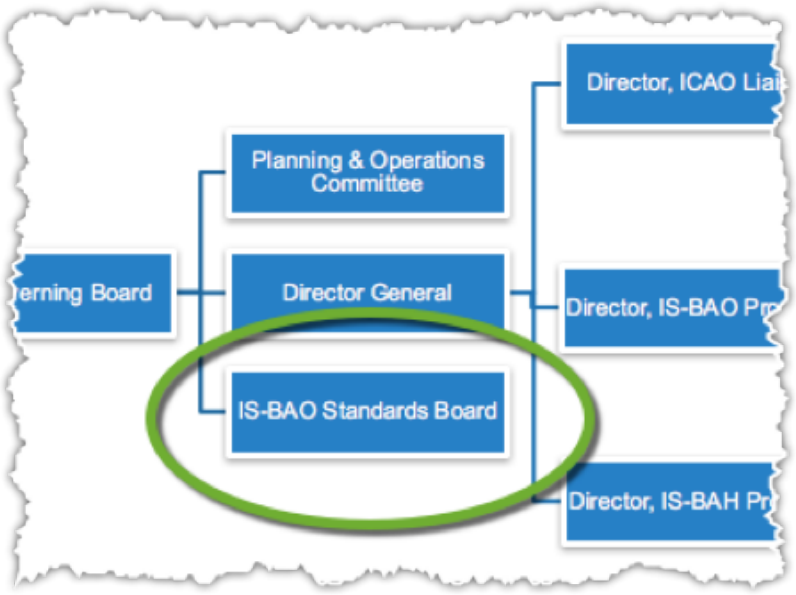
- Michael Holm is the Director of ICAO Liaison at: mhohm@ibac.org

The IS-BAO

- Initiated by NBAA and EBAA in 2000
- Launched in 2002
- Safety & international compliance assurance
- Created and still maintained by operators, for operators, worldwide
- Performance-based, minimal prescription
- Scalable for effectiveness and safety

The IS-BAO Standards Board

- Comprised of industry *volunteers* – experts.
- Is *the* decision-making authority for the IS-BAO
- Develops and approves all revisions to IS-BAO.
- Annual formal meeting - BACE



The IS-BAO Standards Board

- Chairman - David Nigri (NBAA) Textron
- Vice Chairman - Juergen Wiese (GBAA) BMW

- Kurt Edwards (IBAC)
- Jens Henning (GAMA)
- Matt Zuccaro (HAI)
- Doug Carr (NBAA)
- Len Beauchemin (NBAA) Aero Technica
- Chris Buchholz (AsBAA)
- Joanne Wong (AsBAA) Jet Aviation
- Keith Washington (NBAA)
- Brian Garrett (CBAA) TransCanada
- Pat Dunn (AsBAA) Asia Corporate Jet
- Hamza Ghouth (MEBAA) SPA
- Mike Ott (NBAA) Phoenix Air
- Stan Medved (EBAA) Shell
- Dan Boedigheimer (NBAA) Air Crew Academy

The IS-BAO Programme

- IS-BAO is *voluntary*
  - Should manifest out of an organizational “why” – going above and beyond
  - IS-BAO as an AMC with some States
    - Authority to operate predicated on IS-BAO registration, but still voluntary in OTARS Region
    - Memorandum of Cooperation with EASA for NCC
    - Used to demonstrate SMS in over 200 EASA TCO Authorizations
    - Working with France and others on a SAFA inspection fast track for IS-BAO operators
    - Working with Mexican DGAC on new Circular Obligatoria

The IS-BAO Programme

- IS-BAO: **performance-based standards**
  - Key to scalability
  - Tells “what” is required
  - Organization determines “how”
  - **Implementation Guide living document for Industry through NBAA/EBAA Safety Committees and other SMEs**

Improving IS-BAO

- **Listening tour**
  - Operator focus group
  - Auditor focus group
  - New entrant focus group

- Convening Established Operator Focus Group
  - Quality Improvement of Stage 2/3
  - Continuous Monitoring
  - Mentoring and InfoShare

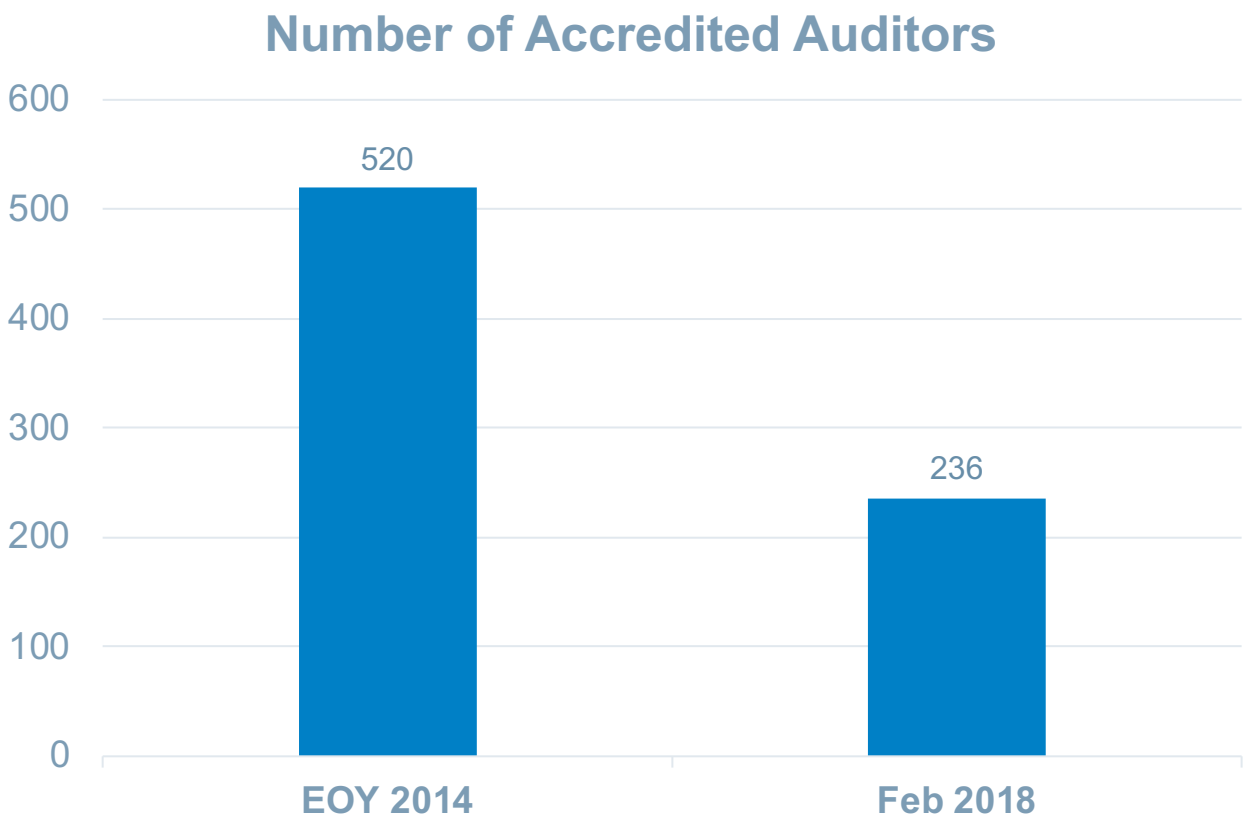
- Service Provider (I3SA) focus group
  - Coordinate evolving technology that inpus into IBAC in order to support Business Aviation

Registered Operators

- Operators in Program nearly 800:
  - Stage 3 most stable group
  - Continuous net growth YOY

- New entrant growth shifting Internationally:
  - New Stage 1 operators in 2016 47% non U.S. based
  - New Stage 1 operators in 2017 54% non U.S. based
  - Programme traditionally 60% U.S. based

Auditor Corp Reduction



Auditor Quality Improvements

1. Auditor Standardization Meetings
2. Update of Auditor Database (currency)
3. AMS adding coordination between Auditor and Operator
4. Auditor Rebview Board
5. Increased audit minimun man days

You Spoke, We Listened

- What is Vision 2020?
  - A whole new paradigm in regards to providing the best, most robust Standard possible and it is shorter.
  - Key elements include:
    - More interaction with the industry
    - Greater Standards Board engagement
  - Outputs of Vision 2020 *so far*:
    - More stable and intuitive IS-BAO for 2018
    - Tools leveraging technology for increased efficiency
    - Operator and auditor focus groups established supporting industry research
    - Greater industry education interface – webinars, online training, updated workshops, BACE meetings

Vision 2020

- Key 2018 IS-BAO Changes (cont.)
  - Some major changes:
    - Re-incorporated ERP standards into IS-BAO as a new chapter
    - Combined Flight Operations with International Operations
    - Reformatted Chapter 6 for flow and clarity
    - Reformatted and reworded Chapter 9 for flow and clarity
    - Edited all chapters
    - Changed SMS evaluation on Protocols – Stage I, II, and III sections – Stage III discrepancies will not receive finding.
    - Changed chapter structure for IS-BA “common core” integration

Vision 2020

- Key 2018 IS-BAO Changes (cont.)
  - Revised effective and applicable dates for the 2018 IS-BAO
    - 1 Jan 2018 – Standard is **now available** in draft form.
    - **1 Jul** 2018 – Standard becomes **effective**
    - **1 Jul 2019** – Standard becomes **applicable**
  - What does this mean for the current Standard?
  - Appropriate cycle for the future…..

Vision 2020

Data tracking built into Protocols can assist your IAP

http://www.ibac.org/?s=protocols

8.5	Flight Data Recorders and Cockpit Voice Recorders	3	0	3	3	100.0%	0	0.0%	3	0	3	3	100.0%	0	0.0%	0	0	0	0		0	
8.6	Minimum Equipment List (MEL)	3	0	3	3	100.0%	0	0.0%	3	0	3	3	100.0%	0	0.0%	0	0	0	0		0	
8.7	EFB Equipment	4	0	4	4	100.0%	0	0.0%	4	0	4	4	100.0%	0	0.0%	0	0	0	0		0	
9	Aircraft Maintenance Requirements	47	2	45	45	100.0%	0	0.0%	46	2	44	44	100.0%	0	0.0%	1	0	1	1	100.0%	0	0.0
9.1	Maintenance Control System	41	2	39	39	100.0%	0	0.0%	40	2	38	38	100.0%	0	0.0%	1	0	1	1	100.0%	0	0.0
9.2	Maintenance Agreements	2	0	2	2	100.0%	0	0.0%	2	0	2	2	100.0%	0	0.0%	0	0	0	0		0	
9.3	Person Responsible for Maintenance Control	3	0	3	3	100.0%	0	0.0%	3	0	3	3	100.0%	0	0.0%	0	0	0	0		0	
9.4	Maintenance Personnel Recency	1	0	1	1	100.0%	0	0.0%	1	0	1	1	100.0%	0	0.0%	0	0	0	0		0	
10	Company Operations Manual	8	0	8	8	100.0%	0	0.0%	7	0	7	7	100.0%	0	0.0%	1	0	1	1	100.0%	0	0.0
11	Fatigue Management Programme	12	0	12	11	91.7%	1	8.3%	10	0	10	9	90.0%	1	10.0%	2	0	2	2	100.0%	0	0.0
12	Environmental Management	8	0	8	8	100.0%	0	0.0%	7	0	7	7	100.0%	0	0.0%	1	0	1	1	100.0%	0	0.0
13	Occupational Health and Safety	8	0	8	8	100.0%	0	0.0%	7	0	7	7	100.0%	0	0.0%	1	0	1	1	100.0%	0	0.0
14	Transportation of Dangerous Goods	11	8	3	3	100.0%	0	0.0%	11	8	3	3	100.0%	0	0.0%	0	0	0	0		0	
15	Security	5	0	5	5	100.0%	0	0.0%	5	0	5	5	100.0%	0	0.0%	0	0	0	0		0	
	TOTAL	369	51	318	314	98.7%	4	1.3%	336	48	288	286	99.3%	2	0.7%	33	3	30	28	93.3%	2	6.7

Vision 2020

- Ibac.org improvements
  - Audit Management System
  - Customized web portals
  - Data reporting

IS-BAO™
International Standard for Business Aircraft Operations

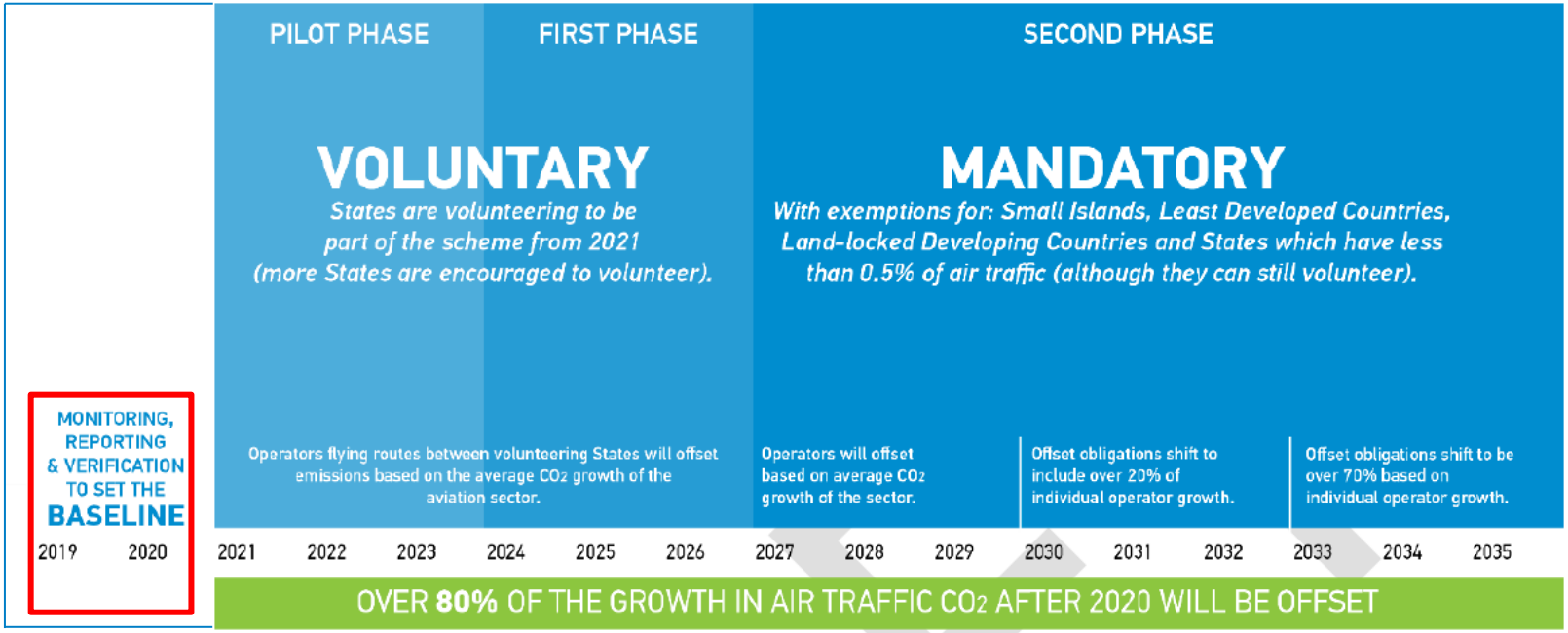
IBAC
International Business Aviation Council

Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

Offsetting

- CORSIA, a market based measure, will be a simple offsetting scheme (as opposed to the EU ETS, which is “cap and trade”)
- The purchase of offsets will be required against growth emissions related to fuel burn above a 2020 baseline in international flying only.
- A baseline for industry emission levels for the industry will be established by ICAO during 2019 & 2020
- Offsets will be required for any emissions growth above the baseline – this will be initially calculated for each operator across the civil aviation sector

CORSIA Key Dates



An Emissions Monitoring Plan (EMP) that will detail how you will monitor and report your emissions will be due by all impacted operators to their Administering Authority by 28th February 2019 towards establishing baseline

Graphic courtesy IATA

Am I Included in CORSIA?

- Starting JAN 2019 all operators must report emissions from **international** flights annually.
- The U.S. is a participating ”volunteer State”.
  - JAN 2019-DEC 2020 reporting only, no offsets.
  - JAN 2021 offsets required
  - CORSIA will replace ETS for International flights for European operators
- Technical exemptions from offsetting requirement:
  - Operators with fewer than 10,000 tonnes of CO_2 emissions in flights covered by the scheme
  - Aircraft of less than 5,700kg/12,500lbs MTOW
  - Humanitarian assistance flights, firefighting etc.

Am I Included in CORSIA?

- **Tiered system** based on overall emissions
  - **Tier 1:** annual emissions **greater than 500,000** tonnes of $CO_{2..}$
  - **Tier 2:** annual emissions **greater than 10,000** tonnes of CO_2.
  - **Tier 3** operators **close to the 10,000 tonne exemption** threshold should engage with their State Administering Authority for guidance.

Illustrative Annual CO_2 Emissions*

Aircraft Type	@ 400 Hrs/Yr	@ 900 Hrs/Yr
	Tonnes of CO_2	Tonnes of CO_2
ACJ 319	2857	6429
BBJ 737	2920	6569
Bombardier 605	1270	2857
Bombardier Global Express	2051	4615
Cessna Mustang	348	783
Cessna Sovereign	1081	2432
Embraer 100	421	947
Embraer 300	672	1513
Falcon 2000LXS	1081	2432
Falcon 7X	1481	3333
Gulfstream G450	2000	4500
Gulfstream G550	1739	3913
Gulfstream G650	1932	4348

Based on average seating, stage length of 600NM

*These figures are for illustrative purposes only and may vary from flight to flight

Available on the IBAC & EBAA CORSIA Webpages

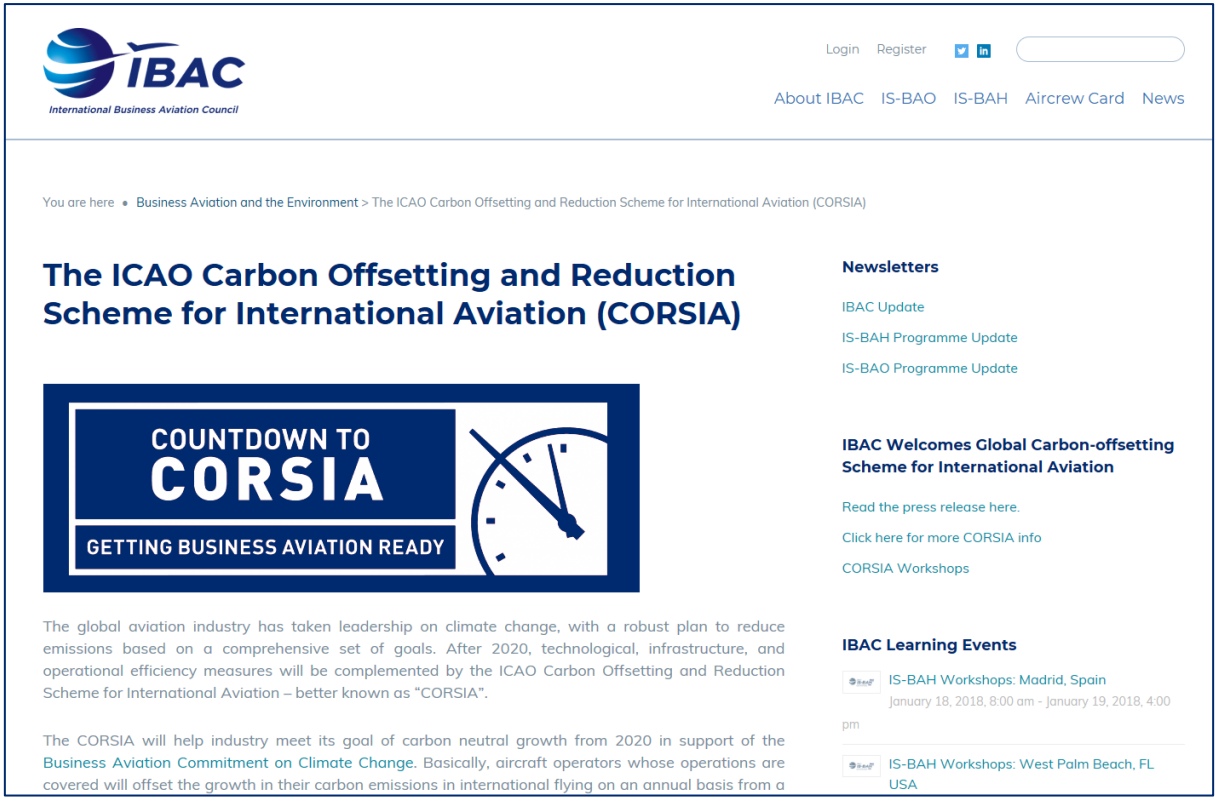
Who is the operator?

- Operator: Person, organization, or enterprise engaged in or offering to engage in an aircraft operation.
- Identified in Item 7 of International Flight Plan
  - ICAO Designator
  - AOC reference or Registration Number
- Treatment or segmentation of aircraft operator may be complicated
  - Private operation
    - Managed aircraft – with or without AOC
    - Fractional & joint/shared ownership
    - AOC – 135 On-Demand Charter
    - Ultimately will depend on guidance from national Authority.

Communications on CORSIA

- IBAC has developed a ***"Countdown to CORSIA"*** **information card** dedicated to business aviation operators, which will help to prepare operators on what to do between now and 2020
  - Available at IBAC attended industry events and published on the IBAC Web site
- The Air Transport Action Group (ATAG) has developed **excellent CORSIA related material**
  - IBAC and its members have access to this material.
  - Excellent Q&A section
  - Can be accessed via the IBAC CORSIA Web page.

Countdown to CORSIA Webpage



http://www.ibac.org/business-aviation-and-the-environment/corsia

CORSIA-dedicated email address: corsia@ibac.org. Central mailing for queries and updates – register now!

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Flight Path Management and Runway Safety

Runway Safety

A basic foundation for effective risk reduction in flight operations Begins with:

- Appropriate policy guidance
- Clear and appropriate SOPs and Checklists
- Regular and appropriate Training

Runway Safety – Flight Path Monitoring

Most threats to Situational Awareness (SA) come from “normal changes”, and are concentrated between the ramp through top of climb and from the arrival to the ramp.

- Flight Path Management (FPM) supports situational awareness:
  - Clearance
  - Control
  - Monitor

- *FPM begins and ends in the chocks.*

Runway Safety - Clearance

Dual verify all clearances between both pilots, or pilot and controller when single pilot.

- Brief the *expected* departure plan ***before*** movement
  - Ramp plan
  - Taxi plan
  - Runway plan
  - Departure plan
- Mitigate clearance changes
  - Dual verify change
  - Create time to re-brief
  - Pull over or stop

Runway Safety - Control

Brief the *expected* plan for positive aircraft control:

- When will checklist flows be permitted
- When will change of control occur
- Single engine taxi – when, who, and how?
- Autoland transition
- “Known starting point” exiting runway in low visibility

Runway Safety - Monitor

The majority of loss of SA events leading to a runway excursion or incident have poor aircraft monitoring as a contributing factor. (https://flightsafety.org/toolkits-resources/flight-path-monitoring/)

- Active Pilot Monitoring (PM) is an essential part of FPM
  - PM thinks and acts like a PF
  - Non essential duties are relegated further down the list of priorities. “Can wait til the gate”
  - As an example, if one altitude awareness call is missed, refocus as PM
- Pilot Non Flying (PNF) is <u>obsolete and dangerous</u>

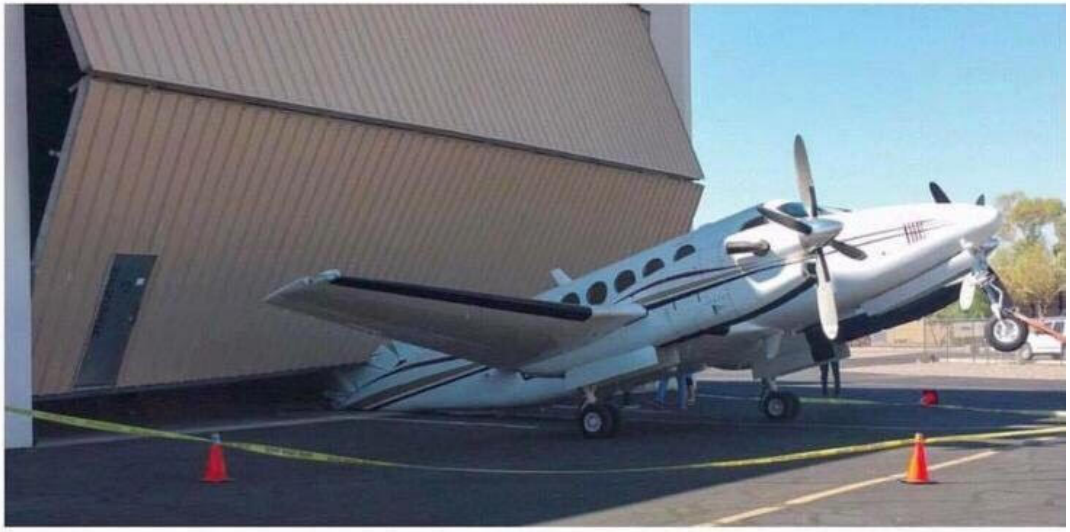
Runway Safety - Time

Time should be managed. Make it your friend and not your enemy.

- Many errors are self induced from rushing..Culture?
- Create time
  - Pull over or stop taxi
  - Say Unable or Go Around


EMERGENCY
4
air bp
4
air bp
4
air bp
FLAMMABLE
JET A
1863
NO SMOKING
R2021


MNG
kargo
Operated by Titan Airways
Servisair
HOUCHIN




ALLIANC

Safety is what ties us together…..


International Standard for
IBAC
IS-BAH™
REGISTERED COMPANY
NATA
Business Aircraft Handling

How do operators pick an FBO

" Customer service is our # 1 priority"

"Standards come secondary to the facilities on offer"

"Its all about quality service"

"the fuel price is determining factor"

"Do the right thing for the customer, whatever that takes…"

IBAC incident data (iro. 290 incidents):

94% resulted in A/C damage;

44% the A/C came into contact with GSE;

58% occurred where aircraft not under own power;

5% where damage found by another party

"an effective SMS should factor in the risks associated with having other entities perform tasks and services that may impact the service provider's performance."

(ICAO SMM Doc 9859 5.3.24)

IF YOU COULD MAKE ANY CHANGES TO IMPROVE THE SAFETY OF YOUR OPERATIONS, WHAT WOULD THEY BE?

THE INTERNATIONAL STANDARDS

FOR BUSINESS AIRCRAFT OPERATORS AND HANDLERS

WWW.IBAC.ORG

IBAC
International Business Aviation Council

IS-BAH™

IS-BAO™

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