



ICAO | UNITING AVIATION

ICAO UPDATE



16 April 2018



Overview

- **Global Picture and the challenges aviation is facing**
- **PBN implementation update**
- **ICAO Developments**
 - PBN
 - AIM
 - **Flight Inspection**





ICAO | UNITING AVIATION

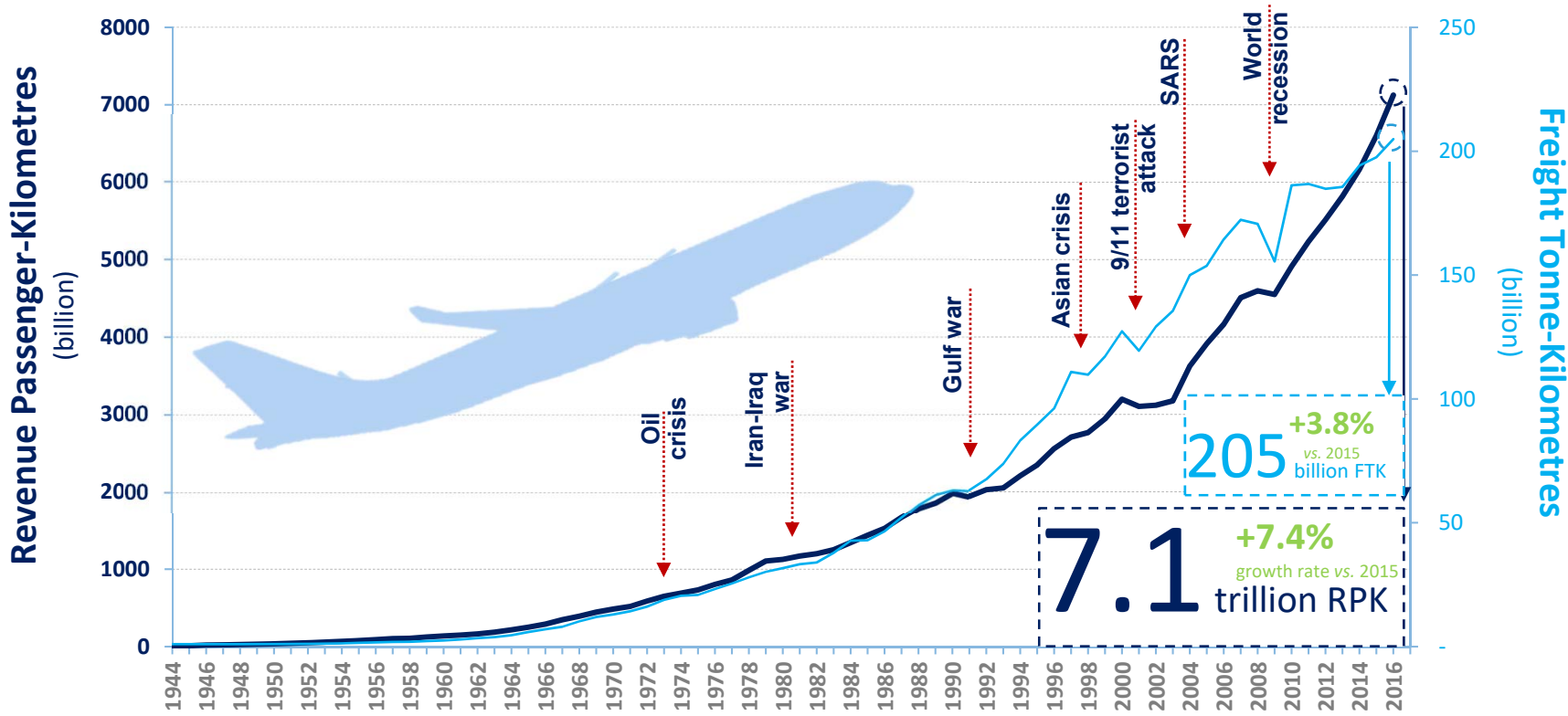
Global Overview

GLOBAL PICTURE AND THE CHALLENGES AVIATION IS FACING

16 April 2018



Growth of Air Transport



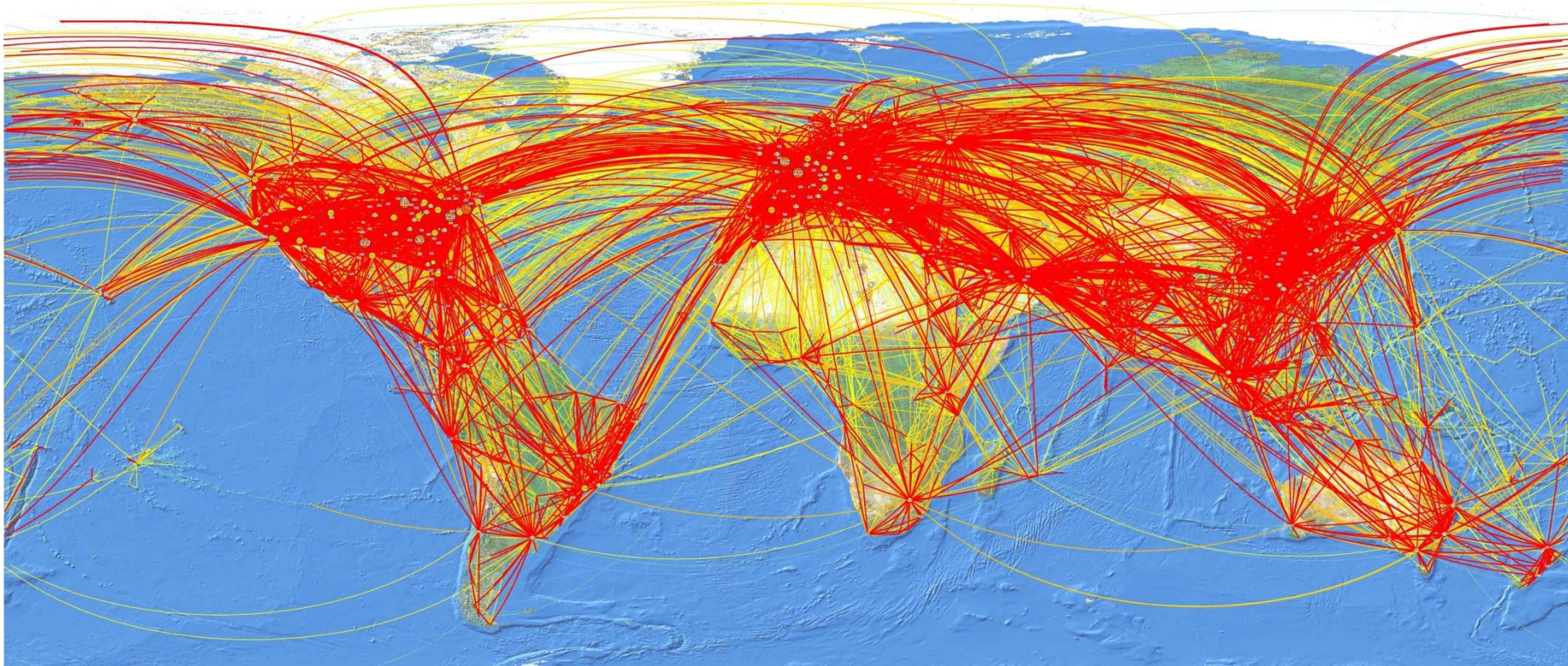
Source: ICAO Annual Report of the Council

Scheduled commercial traffic
Total (international and domestic) services



TRAFFIC DENSITY

2040





A Global Picture

3.8 BILLION

PASSENGERS
carried by airlines
(6.8% increase
from 2015)

53 MILLION

TONNES OF FREIGHT
carried by airlines
(4.0% increase
from 2015)

35 MILLION

**SCHEDULED
COMMERCIAL FLIGHTS**
flown by airlines
(3.7% increase
from 2015)

62.7 MILLION

JOBS SUPPORTED

54,000

ROUTES WORLDWIDE
(over 2,000 new
routes from 2015)

49 BILLION

KILOMETRES FLOWN
by airlines
(5.3% increase
from 2015)

76 MILLION

HOURS FLOWN
by airlines
(5.0% increase
from 2015)

3.5 PER CENT

OF GDP SUPPORTED

\$2.7 TRILLION

ECONOMIC IMPACT

Source: *Aviation Benefits 2017* (<https://www.icao.int/sustainability/Pages/IHLG.aspx>)



Link aviation to socio-economic benefits

- ICAO's Strategic Objectives are strongly linked to **15 of the 17** United Nations Sustainable Development Goals (SDGs).
- ICAO is fully committed to work in close cooperation with States and other UN Bodies to support related targets



Source: <https://www.icao.int/about-icao/aviation-development/Pages/SDG.aspx>



**ZERO
FATALITIES**

Our
Aspirational
Safety Goal



We are not that far...

Regional Accident Statistics: 2013					
RASG	Estimated Departures (in millions)	Number of accidents	Accident rate (per million departures)	Fatal accidents	Fatalities
AFI	0.7	9	12.9	1	33
APAC	8.6	19	2.2	1	49
EUR	7.9	21			
MID	1.1	2			
PA	13.8	39			
WORLD	32.1	90			

Regional Accident Statistics: 2015					
RASG	Estimated Departures (in millions)	Number of accidents	Accident rate (per million departures)	Fatal accidents	Fatalities
AFI	0.8	6	7.3	0	0
APAC	9.8	24	2.5	3	98
			3.0	1	150
			2.5	1	224
			2.6	1	2
			2.8	6	474

**For 2017 (non-validated results)
MID and AFI
(APAC 2 – PA 1)
ZERO fatalities**

Regional Accident Statistics: 2016					
RASG	Estimated Departures (in millions)	Number of accidents	Accident rate (per million departures)	Fatal accidents	Fatalities
AFI	0.7	6			
APAC	10.2	18	1.8	3	449
EUR	8.9	26	2.9	1	298
MID	3.0	7	2.3	2	39
PA	9.9	41	4.1	0	0
WORLD	33	98	3.0	7	904

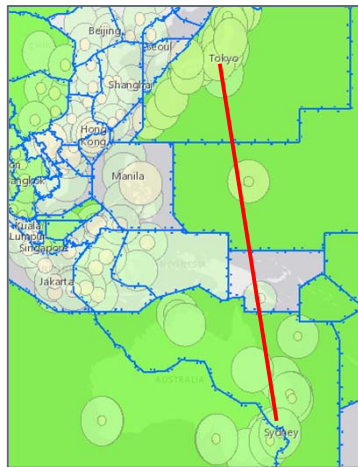
RASG	Estimated Departures (in millions)	Number of accidents	Accident Rate (per million departures)	Fatal Accidents	Fatalities
			1.2	1	1
APAC	10.7	19	1.8	2	50
EUR	8.7	24	2.8	2	64
MID	1.3	3	2.3	2	67
PA	13.3	28	2.1	0	0
WORLD	34.9	75	2.1	7	182



Other Challenges



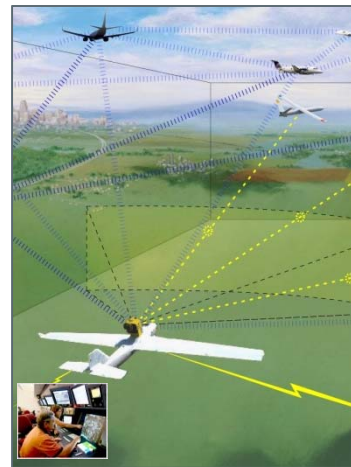
Conflict Zones



Global Tracking



Cyber Safety



RPAS



Space Transportation



ICAO | UNITING AVIATION

Global Overview

GLOBAL PLANS AND THE 13TH AIR NAVIGATION CONFERENCE



16 April 2018

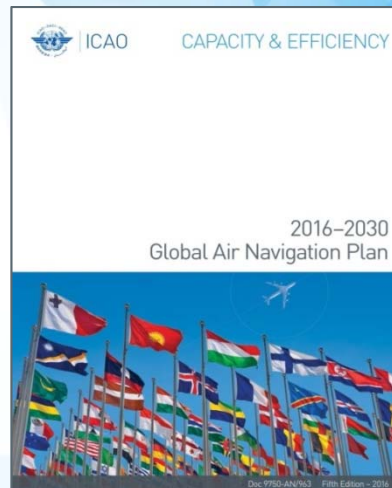


ICAO | UNITING AVIATION

39th

TRIENNIAL ASSEMBLY

ICAO HQ, MONTREAL, 27 SEP-07 OCT 2016



ICAO

UNITING AVIATION

13th AN Conference – October 2018

40th Assembly – October 2019

16 April 2018



ICAO | UNITING AVIATION

Global Overview

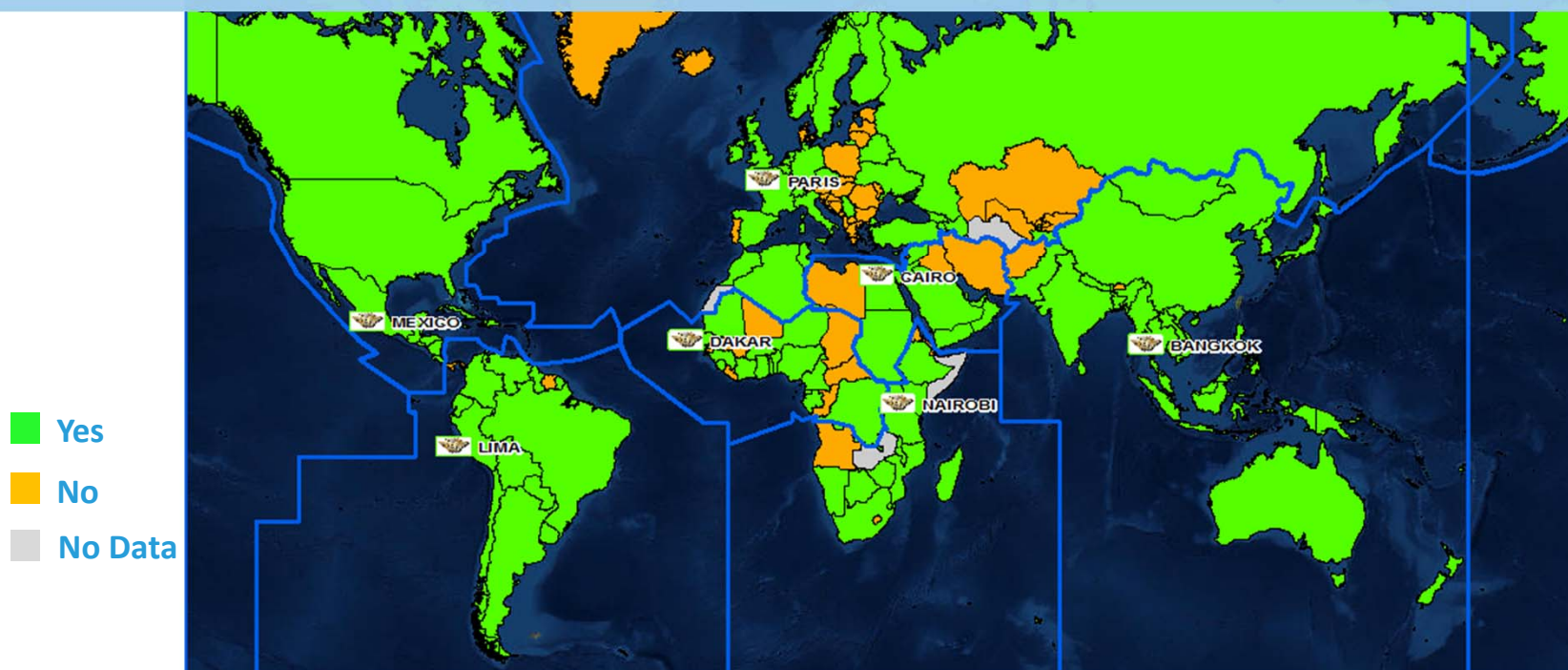
PBN IMPLEMENTATION UPDATE



16 April 2018

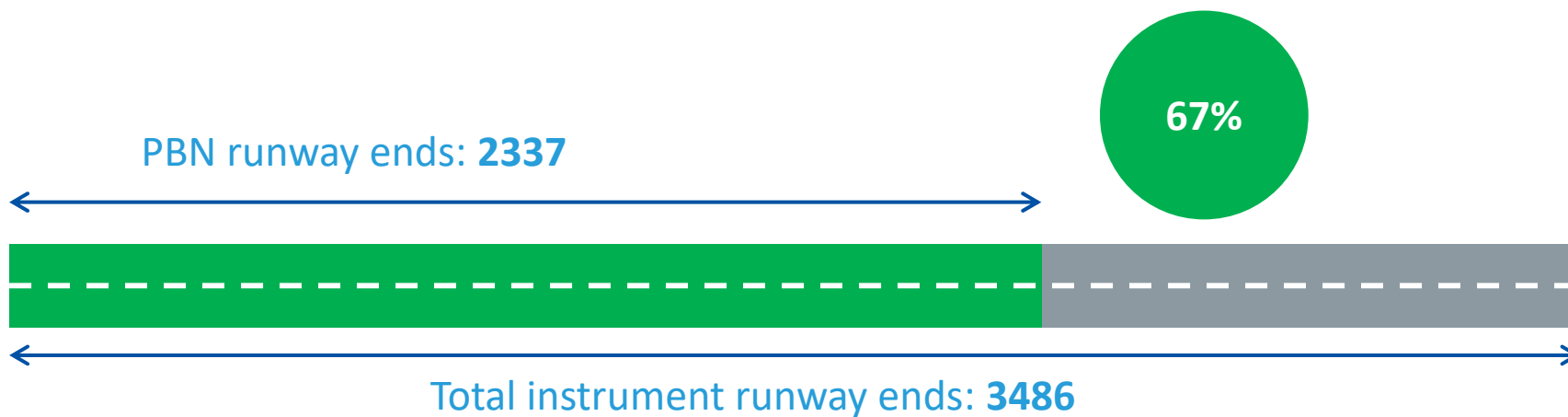


PBN Implementation Plan



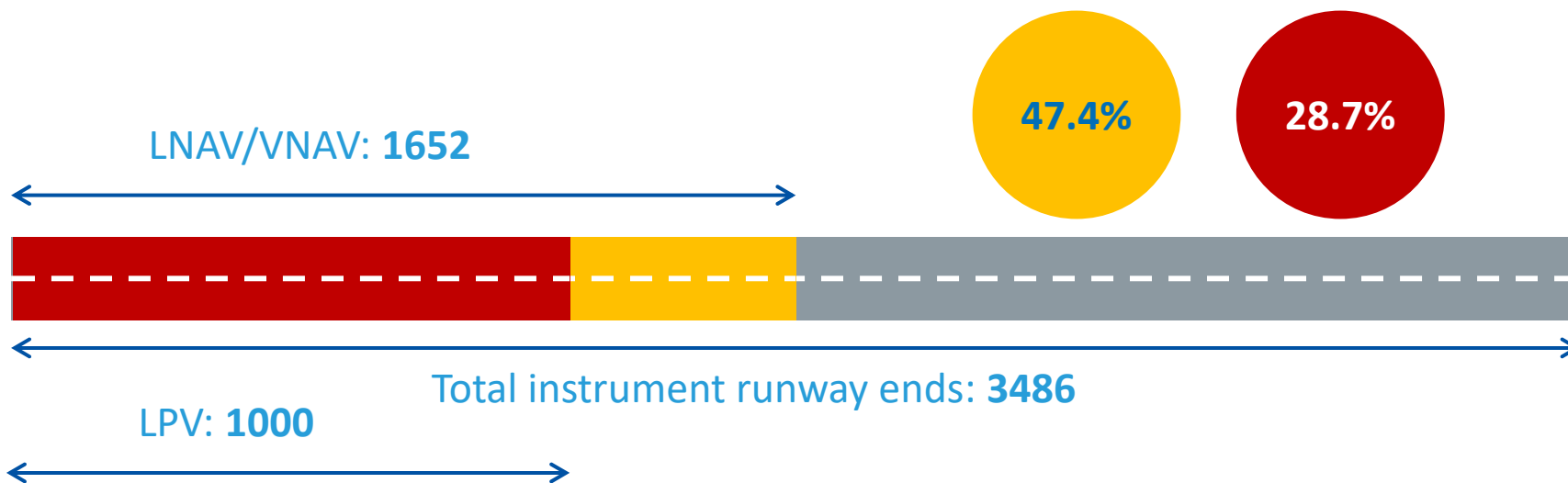


Implementation of PBN Approach Procedures (World total)



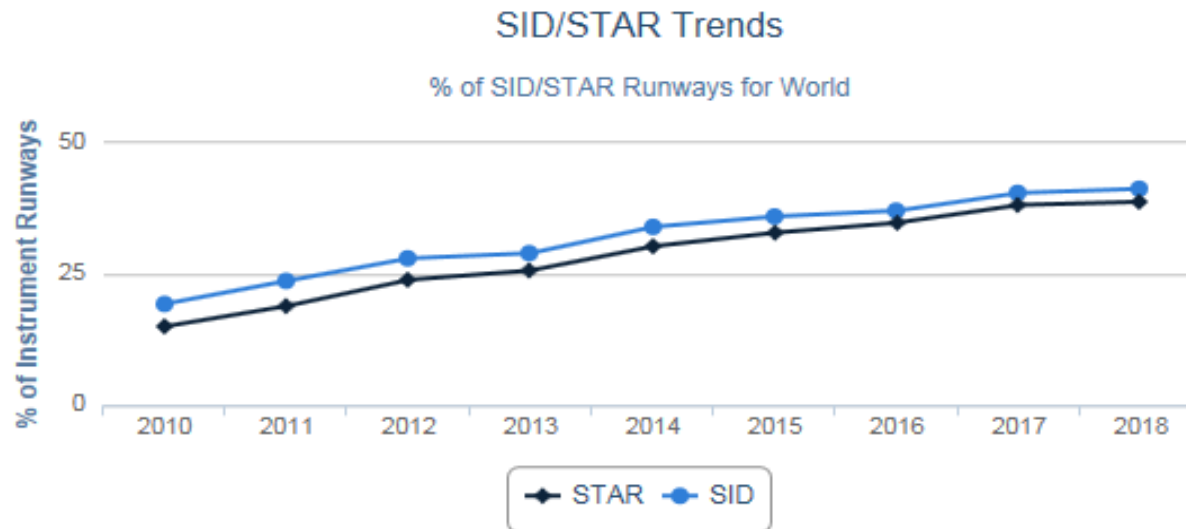


Implementation of PBN Approach Procedures – With vertical guidance (World total)





PBN SID/STAR Implementation (World)





Summary

- Still some way to go:
 - Not all States have a PBN Implementation plan
 - Not all runways have PBN approaches
 - A37-11 **EXPIRED** at the end of 2016

New impulse required through GANP and GASP



Global Overview

RECENT AND UPCOMING DEVELOPMENTS - PBN



16 April 2018



Flight Operations

PBN Ops approval – (Annex 6)

- Ops Approval for PBN
- Only AR requires **Specific Approval**
- All PBN requires regulator approval
 - Approve the Operations Manual with PBN included



Flight Operations



RNP AR APCH Approvals

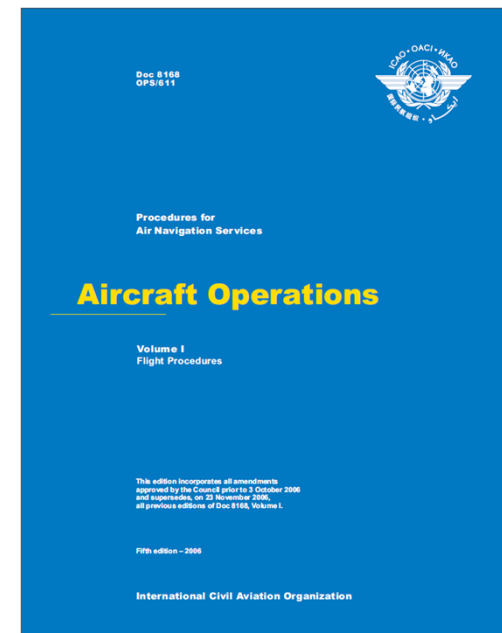
- Simplification of the process
- Maintain high standard of oversight
- Develop guidance on how to conduct approval
 - Coordinated with PBN SG



Flight Operations

PBN procedures for pilots and dispatchers

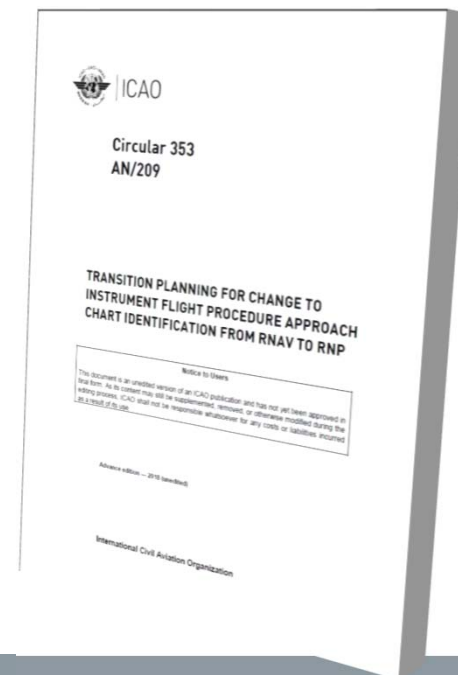
- PANS OPS Vol I (Applicable 2018)
 - New structure
 - All new PBN content
 - PBN requirements in PANS for 1st time





RNP Chart Identification

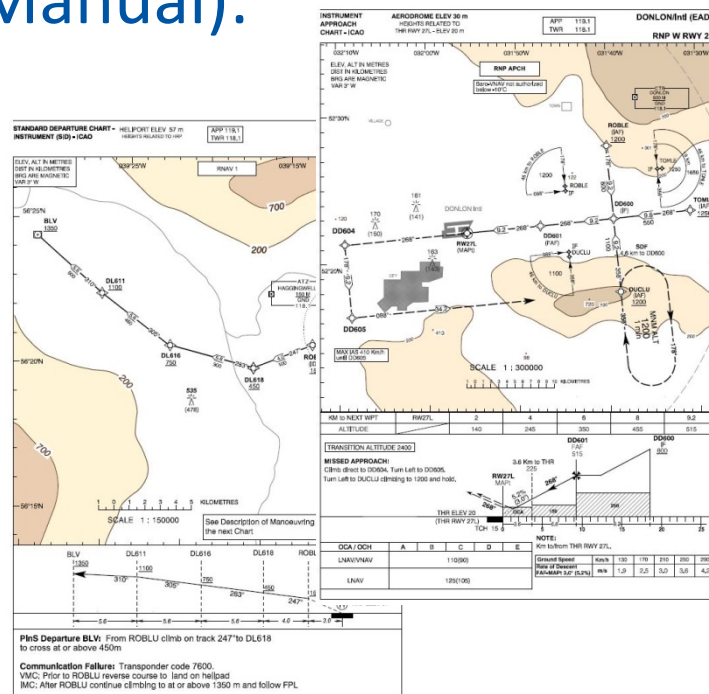
- Circ. 353 published
 - Advanced Copy
- Transition plan
 - Change from RNAV to RNP
- Regional Plan
 - Coordinate with States
 - Determine timeframe
 - Develop sequence
- Global Plan
 - Coordinated with PBN Programme Office





Sample Charts for PBN (AIS Manual):

- A-RNP Examples
- PBN SID and Star
- RNP AR APCH





PBN Applications

PBN to xLS

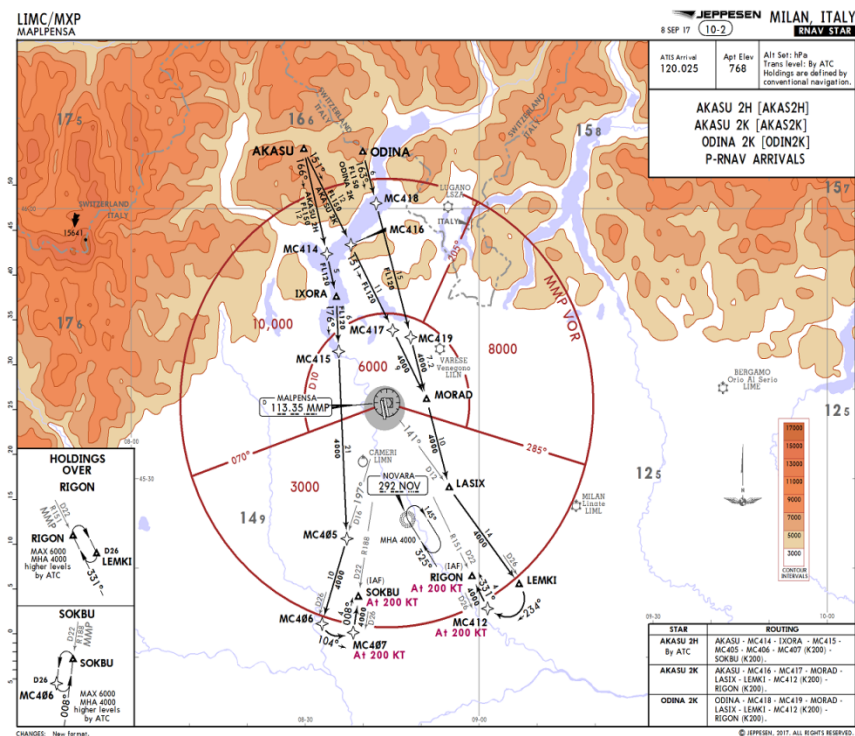
- Hybrid procedures maximize flexibility
- PBN path to a precision approach
- Efficient and predictable path
- Better access to airports



PBN Applications

Transitions

- Currently developed by many States
- No consistency
- Need standardized criteria





PBN applications

Parallel Approach Operations

- Extended to include PBN
- RNP AR APCH
- RNP APCH with vertical guidance

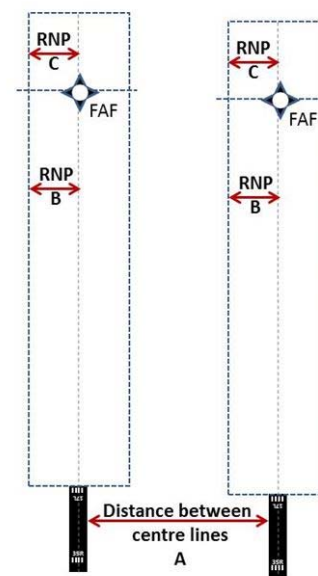


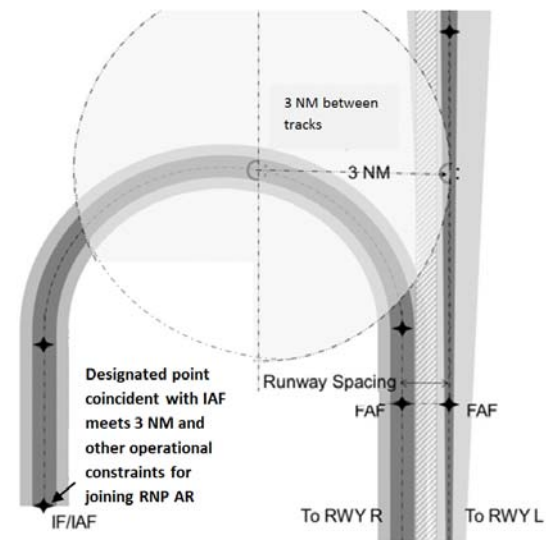
Figure 6-2— RNP value and distance between centre lines



PBN applications

Established on RNP

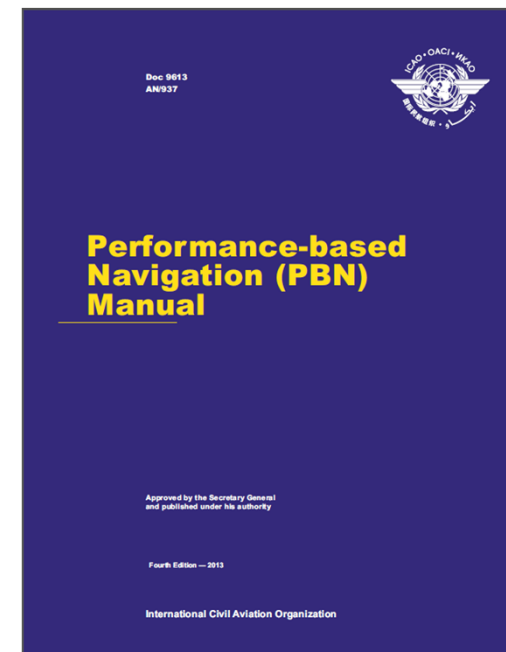
- RNP AR APCH only
- Aircraft ‘established’ after IAF
- Separation can be reduced accordingly





New PBN requirements

- PBN Manual 5th Planned for 2019
 - New **AR Departures** specification
 - Guidance for use of RF Legs
 - Additional Guidance
 - Advisory VNAV explanation
 - A-RNP implementation
 - All RNAV must be PBN
 - Includes free route airspace





Global Overview

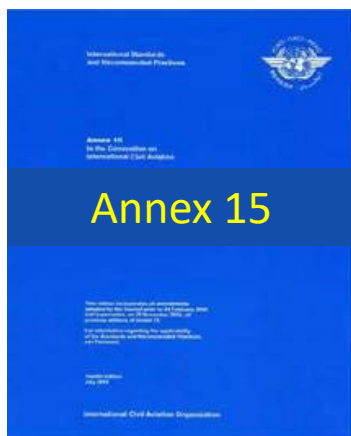
RECENT AND UPCOMING DEVELOPMENTS – AIS TO AIM



16 April 2018



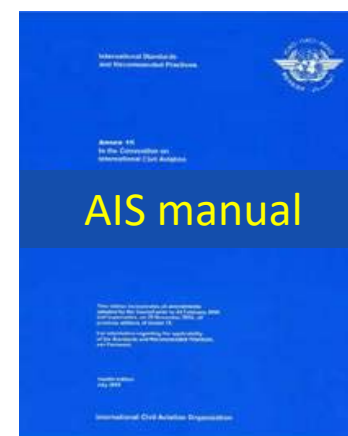
New AIM Provisions



- ✓ Requirements and performance specifications
- ✓ State provisions (or « what »)



- ✓ Operational provisions
- ✓ AIM Practitioners' instructions (or « how to »)



- ✓ Explanatory Guidance text

AIM- SG/ First meeting



AIM Steering Group

AIM Implementation



- 1) AIM Awareness
- 2) Training
- 3) QMS Implementation & Oversight
- 4) Data Origination
- 5) AIRAC
- 6) WGS-84
- 7) Aeronautical Charting
- 8) NOTAM
- 9) Digital Datasets
- 10) AIM interoperability
- 11) AIM for SWIM
- 12) AIM for drones



Global Overview

RECENT AND UPCOMING DEVELOPMENTS – FLIGHT INSPECTION

16 April 2018



Flight Inspection – doc 8071 update

- Truly flight inspection
 - Flight validation in doc 9906
- Emphasis on operational impact of testing Nav Aids
- Types of inspection extended - Consistency
- Modern systems
- Organizational aspects (QA, SMS)
- Flight inspection interval



Flight Inspection – doc 8071 update

- ILS – extended def of ILS, DME and alternative height checks
- DME – build-in test, together with PBN as support
- PBN – satisfies reference from PBN Manual
- VOR – material bends, roughness, scalloping errors, alternative errors
- PAR – modern type PARs
- NDB – minor additions on coverage
- En-route VHF marker – improvement of measurement of coverage distance



ICAO | UNITING AVIATION



16 April 2018