



Updates on the Regional Air Navigation activities related to Safety

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Outline

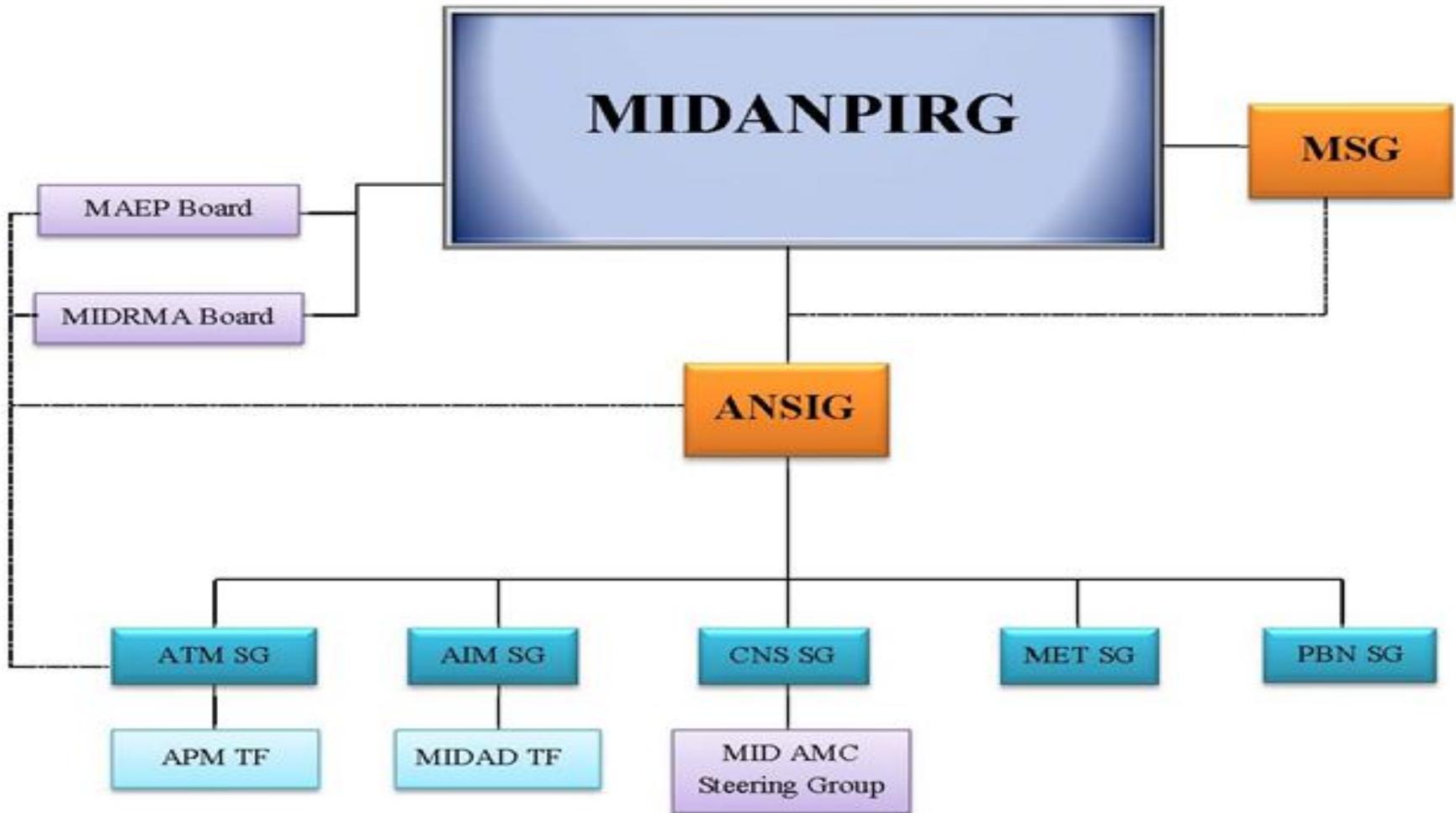
- **MIDANPIRG**
- **MID Air Navigation Strategy**
- **PBN**
- **Call Sign Confusion**
- **RPAS**
- **Search and Rescue**



Middle East Air Navigation Planning and Implementation Regional Group (MIDANPIRG)

- MIDANPIRG was established by the Council of ICAO on 19 November 1993, through CNP/9819 during the 7th meeting of 140th session (C140/7)
- Composed of the 15 MID States
- Work in accordance with the MIDANPIRG Procedural Handbook (MID Doc 001)
- All regional agreement related to air navigation planning are contained in the MID Air Navigation Plan (ANP).

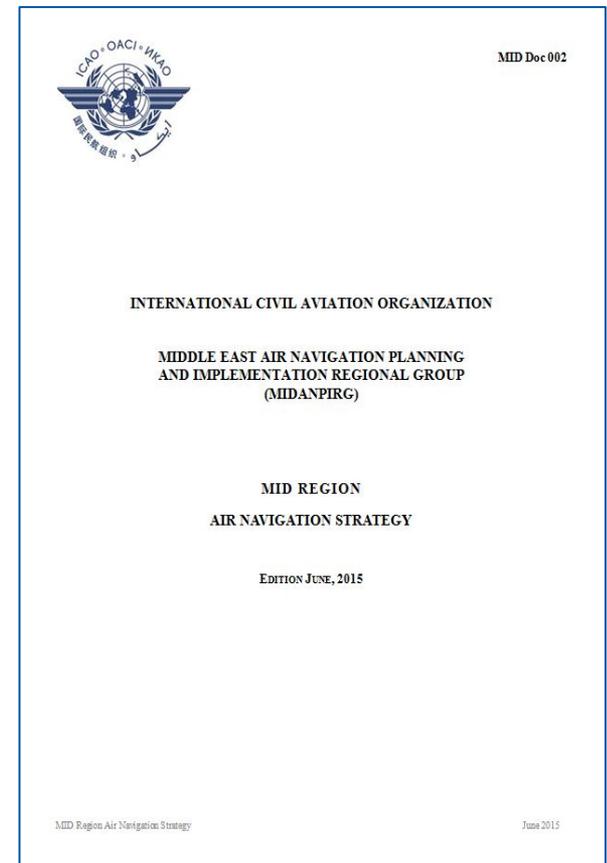
MIDANPIRG Organizational Structure





Air Navigation Strategy

- The Strategy was endorsed by MSG/4 meeting (Cairo, 24-26 November 2014), based on the outcome of the relevant MIDANPIRG subsidiary bodies and inputs received from stakeholders.
- The Strategy was further reviewed and updated by MIDANPIRG/15 meeting, Bahrain, 8-11 June 2015, and endorsed as ICAO MID Doc 002, which is available on the MID Office website.





Strategy Main Objectives

The MID Region air navigation objectives are set in line with the global air navigation objectives and address specific air navigation operational improvements identified within the framework of the MIDANPIRG to:

- realize sound and economically-viable civil aviation system in the MID Region that continuously increases in capacity and improves in efficiency with enhanced safety while minimizing the adverse environmental effects of civil aviation activities; and
- maintain regional harmonization.



The Strategy presents a 15 year rolling approach for the implementation of the ASBU Modules in the MID Region in accordance with GANP (2013-2028) as follows:

- **Near-term (2013 - 2017): ASBU Block 0**
- **Mid-term (2018 - 2022): ASBU Block 1**
- **Long-term (2023 - 2028): ASBU Block 2 and 3**





MID ASBU Block 0 Modules Prioritization

- **The MID Region Air Navigation Strategy includes 11 ASBU Block 0 Modules identified as priority for implementation in the MID Region.**

Note. States should develop their national performance framework, including action plans for the implementation of relevant priority 1 ASBU Modules and other modules according to the State operational requirements.

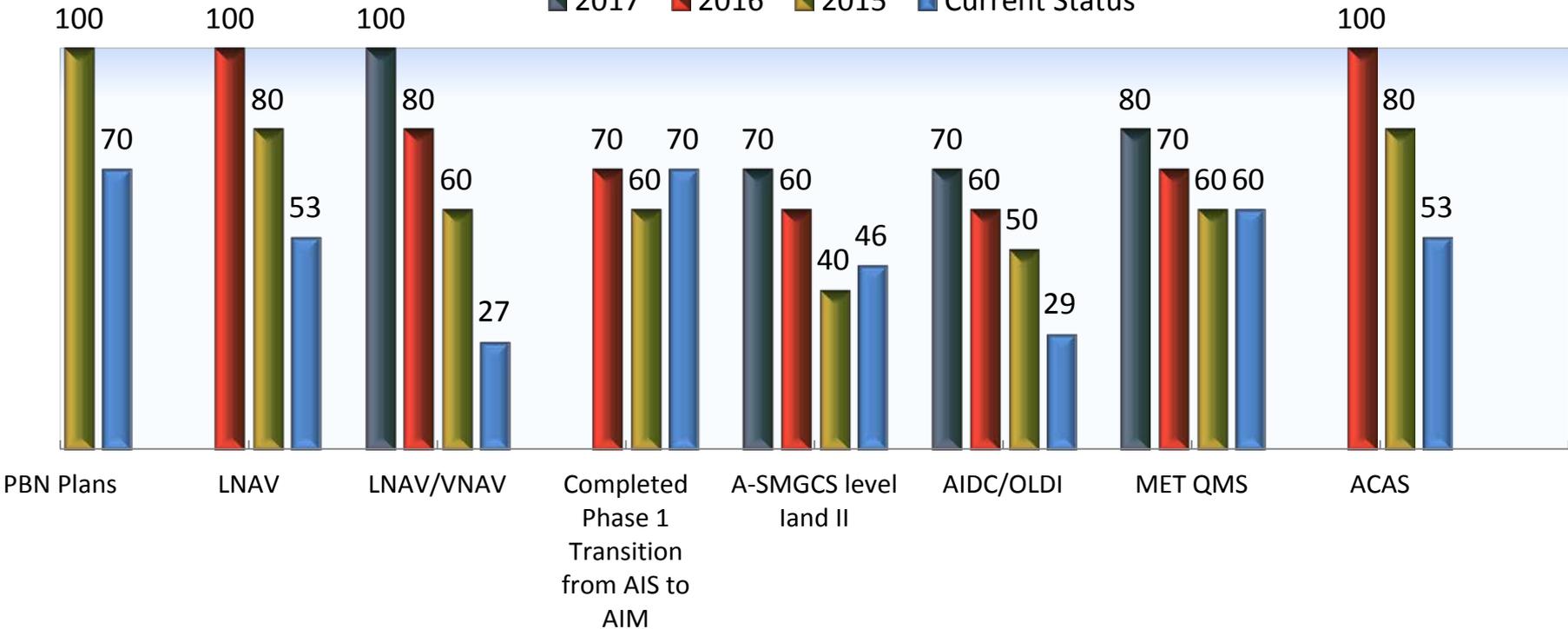


Performance Improvement Areas (PIA)	Module	Priority	Module Name
PIA 1: Airport Operations	APTA	1	Optimization of Approach Procedures including vertical guidance
	WAKE	2	Increased Runway Throughput through Optimized Wake Turbulence Separation
	RSEQ	2	Improved Traffic Flow through Sequencing (AMAN/DMAN)
	SURF	1	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)
	ACDM	1	Improved Airport Operations through Airport-CDM
PIA 2: Globally Interoperable Systems and Data - Through Globally Interoperable System Wide Information Management	FICE	1	Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration
	DATM	1	Service Improvement through Digital Aeronautical Information Management
	AMET	1	Meteorological information supporting enhanced operational efficiency and safety
PIA 3: Optimum Capacity and Flexible Flights – Through Global Collaborative ATM	FRTO	1	Improved Operations through Enhanced En-Route Trajectories
	NOPS	1	Improved Flow Performance through Planning based on a Network-Wide view
	ASUR	2	Initial Capability for Ground Surveillance
	ASEP	2	Air Traffic Situational Awareness (ATSA)
	OPFL	2	Improved access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B
	ACAS	1	ACAS Improvements
	SNET	2	Increased Effectiveness of Ground-based Safety Nets
PIA 4: Efficient Flight Path – Through Trajectory-based Operations	CDO	1	Improved Flexibility and Efficiency in Descent Profiles (CDO)
	TBO	2	Improved Safety and Efficiency through the initial application of Data Link En-Route
	CCO	1	Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)

Status of Implementation of the MID Air Navigation Priorities as of April 2016

Targets

■ 2017 ■ 2016 ■ 2015 ■ Current Status





Performance Based Navigation (PBN)



Air Navigation Priority

Why PBN?



Why PBN?

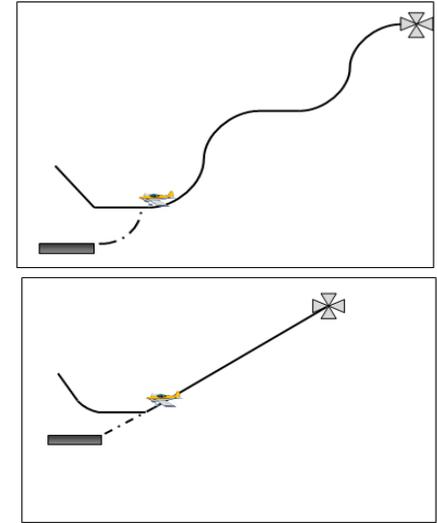


PBN and Safety

- Approach procedures to runways that do not currently have an approach
- Straight-in approach procedures (vice circling)
- Approach procedures with vertical guidance (APV)
- Back up procedures to existing conventional precision approaches

PBN reduces:

- Unstable approaches
- Runway excursions
- CFIT



JULY 7, 2013:

ASIANA AIRLINES FLIGHT 214 CRASH LANDING IN SAN FRANCISCO

A TIMELINE OF EVENTS

The devastating Asiana Airlines crash landing that killed two and injured nearly 200, happened in the final seconds of a 10 and a half hour flight from Seoul, South Korea, to San Francisco on July 6, 2013. The aircraft was carrying 291 passengers and 16 crew members. Here's a timeline of events:

Click on the dates below to find out more ▾

11:27 a.m. PT Plane Crashes 11:35 a.m. PT 1 p.m. PT 4:18 p.m. PT 7:47 p.m. PT Video 1 Video 2

Share

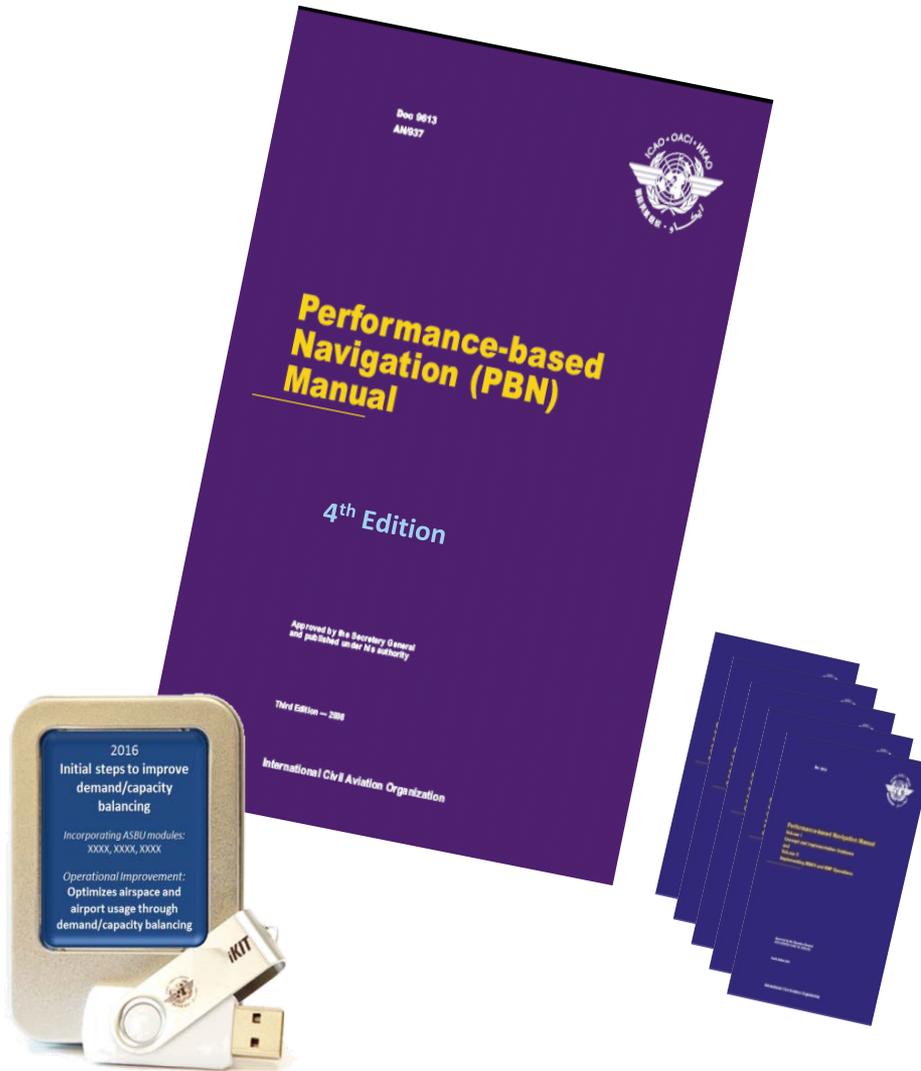
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View

BY TIMELINE

BY LIST

PBN Documentation Framework



- PANS Ops Volume I
- PANS Ops Volume II
- PBN Manual (Doc 9613) 4th Edition
- RNP AR Procedure Design Manual (Doc 9905)
- PBN Ops Approval Manual (Doc 9997)
- Manual on PBN Use in Airspace Design (Doc 9992)
- CDO Manual (Doc 9931)
- CCO Manual (Doc 9993)
- GNSS Manual (Doc 9849)
- Procedure QA Manual (Vol 1 to Vol 6) (Doc 9906)

PBN

Challenges:

- Shortage of PANS-OPS, Airspace Planners and OPS-approval experts
- Insufficient procedure design work in some States to attain or maintain proficiency
- Lack of airspace and procedure design training: initial, OJT, and/or recurrent
- Lack of capabilities to implement PBN
- Lack of regulatory support for the process leading to the publication
- Need to raise awareness among all stakeholders on PBN advantages and how to achieve an effective implementation
- Unstable political and security situation in some States

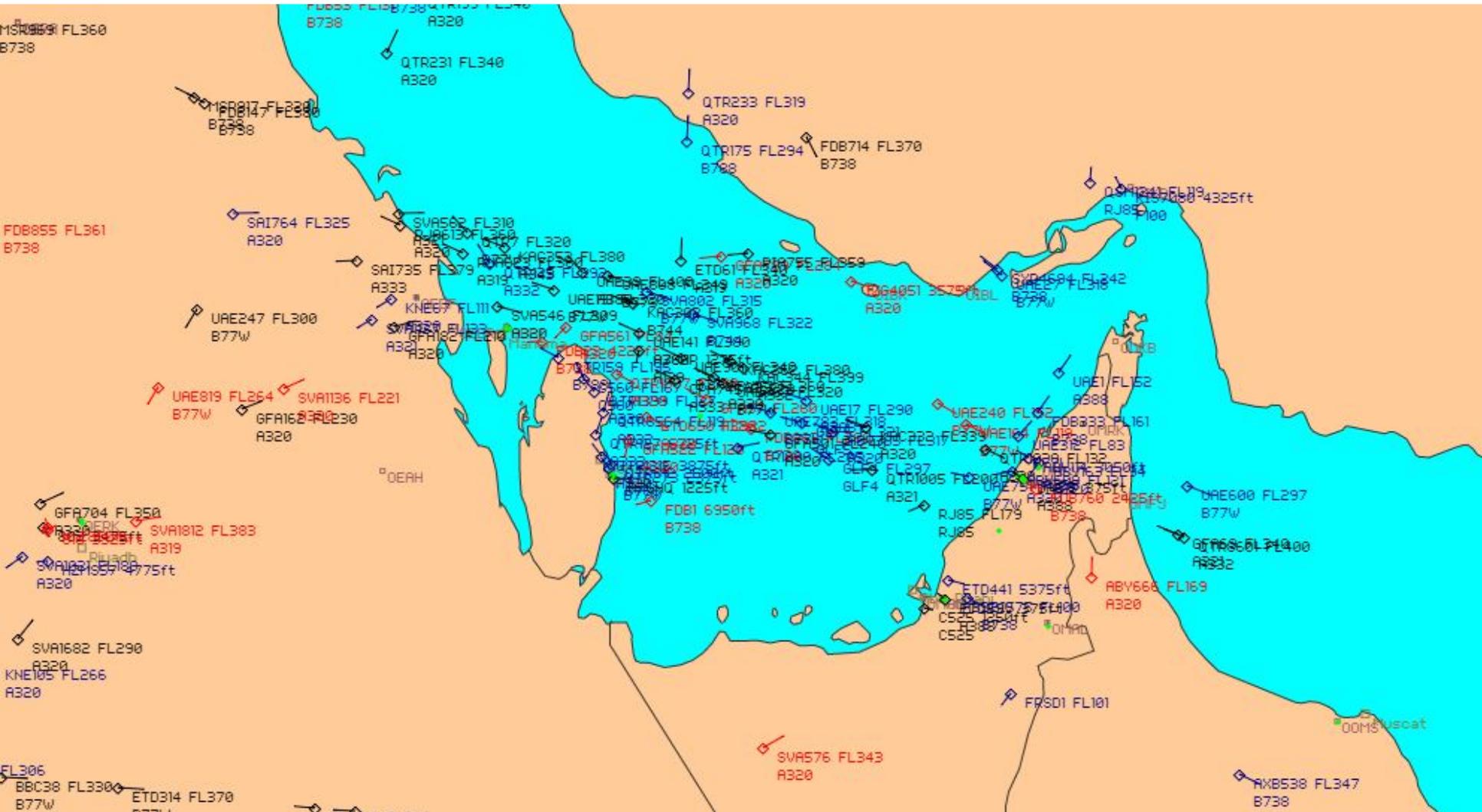
Some mitigation measures:

- States were encourage to:
 - ensure the training/recruitment of qualified experts in the fields of FPD, airspace design, and operations
- provide support for the training and implementation of PBN
- organize at national level PBN Workshops

The MID FPP would provide the optimum solution and foster the implementation of PBN



Call Sign Confusion





Call Sign Confusion

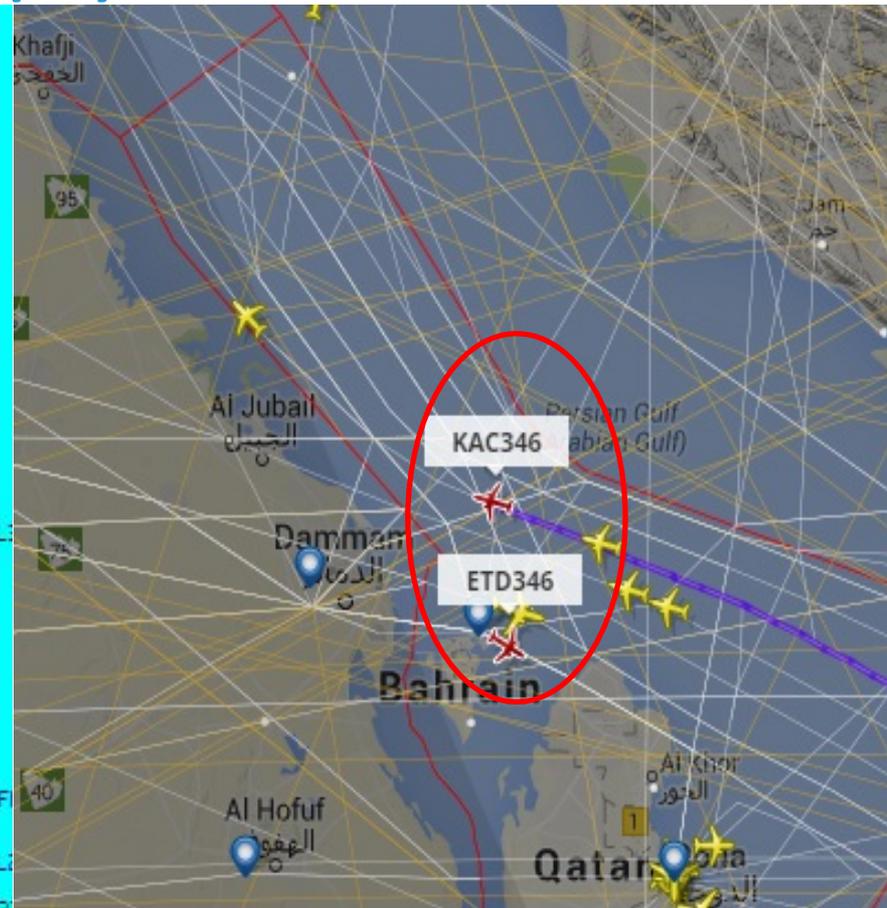
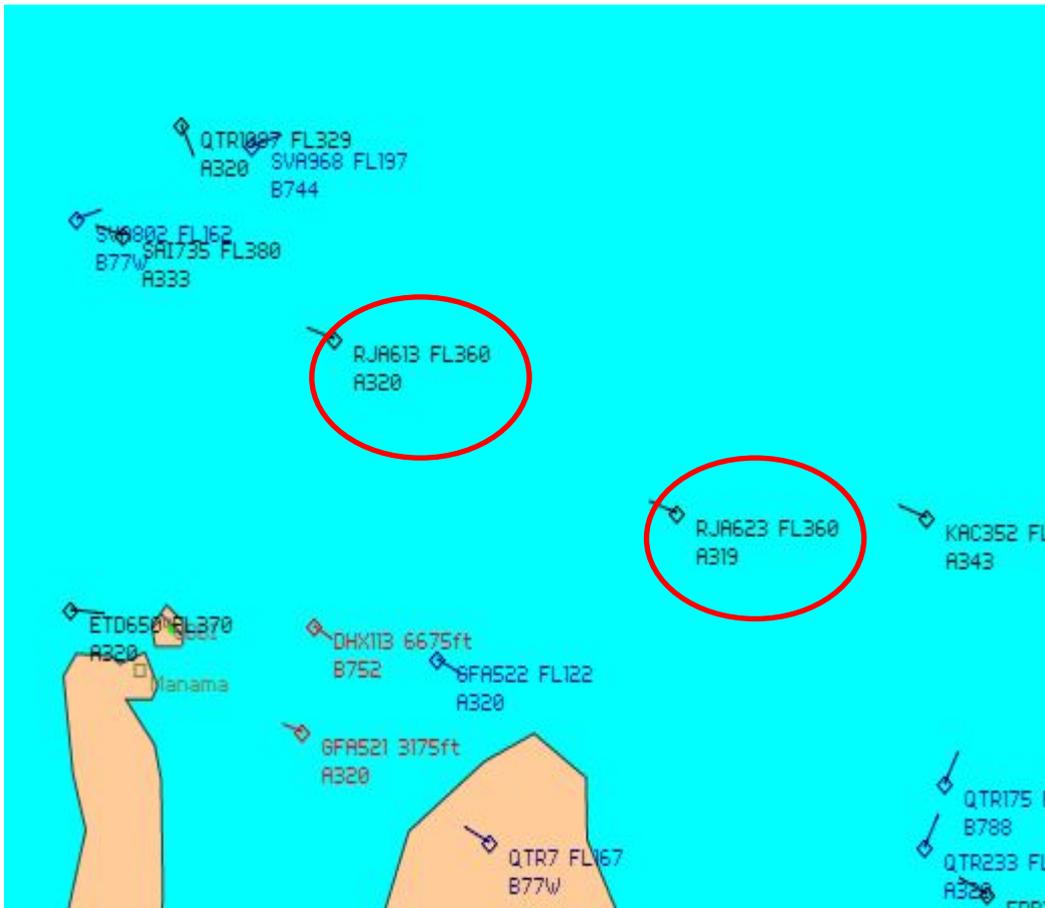
- Call Sign Similarity: 2 (or more) aircraft operating in the same area, on the same frequency.
- Call Sign Similarity could lead to Call Sign Confusion (safety risk)

Flight strips:



Call Sign Confusion

Radar displays





Call Sign Confusion



Call sign Initiative is being implemented under MAEP framework:

- Etihad Airways is the lead supported by EUROCONTROL, IATA and ICAO
- Testing phase is ongoing
- RSA-04 was issued
- De-confliction should start within the same AO

ATC are strongly encouraged to report CSC occurrences



Remotely Piloted Aircraft System (RPAS)

RPAS Programme Team

ICAO HQ:

- Leslie Cary, Programme Manager
- Miguel Ramos, Technical Officer
- Denis Jauvin, Technical Officer
- RPAS@icao.int

ICAO MID Regional Office:

- Elie El Khoury: ekhoury@icao.int

Remotely Piloted Aircraft Systems Panel (RPASP)

- Approved by ANC during the 196th Session in May 2014.
- Continue the work from the former UASSG.
- Manage the work programme in accordance with the job cards approved by ANC.
- Focal point and coordinator of all ICAO RPAS related work.





Objective and scope

- **Develop Standards and Recommended Practices (SARPs), procedures and guidance to facilitate safe, secure and efficient integration of remotely piloted aircraft (RPA) into non-segregated airspace and aerodromes**
- **Maintain the existing level of safety for manned aviation**
- **Priority is instrument flight rules (IFR) operation in controlled airspace**



Structure:

- **Composed by six working groups with experts in:**
 - **airworthiness**
 - **telecommunications for command and control (C2) and air traffic control**
 - **detect and avoid (DAA)**
 - **personnel licensing – 2018 adoption**
 - **RPAS operations**
 - **air traffic management**
- **Members: 23 States and 11 international organizations**
- **Observers: 3 States and 5 international organizations**



Interdependencies

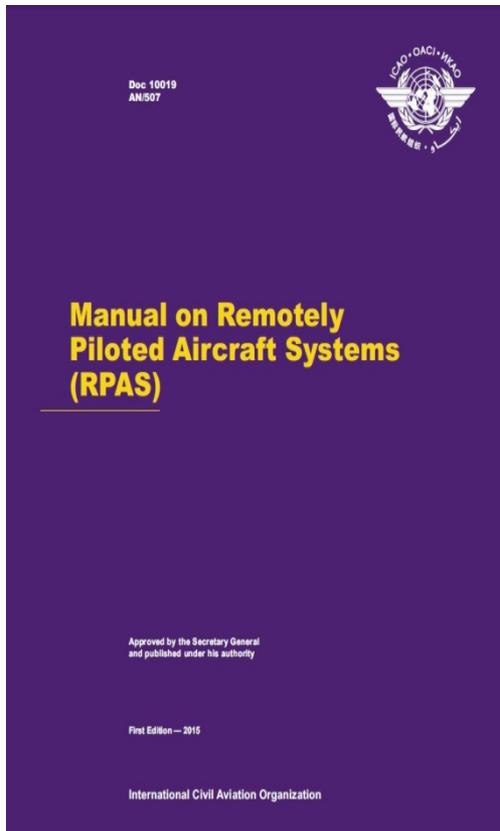
- Other panels of the ANC are involved in RPAS/UAS topics such as accident investigation, communications, flight recorders, frequency spectrum, surveillance and safety management.
- Coordination beyond ANC:
 - ❖ Aviation Security (AVESC) Panel - The Council on 15 June 2015 (C-DEC 205/4) recognized two different security-related issues, namely: one concerning the unlawful usage of RPAS; and the other related to the security threat to RPAS systems. It was understood that the former would be considered by the AVSEC Panel, while the latter would be handled by the RPAS Panel.
 - ❖ Legal Committee - The Legal Committee is conducting a study on liability issues relevant to unmanned aircraft.
 - ❖ Committee on Aviation Environmental Protection (CAEP) - The CAEP Technical Committee is currently reviewing the status of RPA noise certification. The aim is to determine whether there is a need for work during the next CAEP cycle (2016 to 2019) in this area.

ICAO Focus

- **International IFR operations**
- **Global interoperability**
 - **Priority is fundamentals to initiate international operations**
 - » **Certificate of airworthiness**
 - » **RPAS operator certificate**
 - » **Remote pilot license**
- **National Authority Focus: Domestic operations, which may differ significantly from international OPS.**



Guidance material and resources



PREPARING FOR THE FUTURE

RPAS are a new component of the aviation system, one which ICAO, States, International organizations and industry are working to understand, define and ultimately integrate into non-segregated airspace.

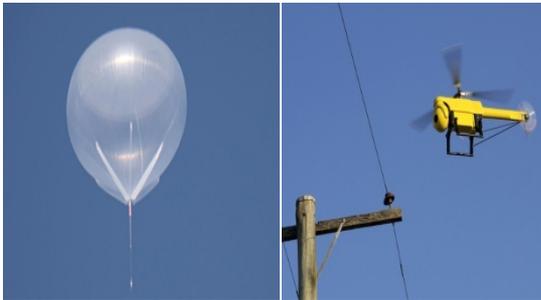
The goal of ICAO in addressing RPAS is to provide an international regulatory framework through Standards and Recommended Practices (SARPs), procedures



UA versus RPA

Unmanned Aircraft include:

- Free balloons
- Fully automatic and/or autonomous aircraft



Remotely Piloted Aircraft (RPA)

- Airspace/aerodrome integration
- Requires control
- Control, in real time, provided by a licensed remote pilot



Unmanned Aircraft are aircraft whether remotely piloted, autonomous automatic, or somewhere in between.



Next steps

- **Addition of small drones to the ICAO work programme**
- **RPAS workshops**
 - **Will demonstrate how to interact between regulator and operator using content of RPAS Manual**
 - **Started 2nd Qtr. 2016**
 - **RPAS and Remote ATS Symposium, Stockholm, Sweden, 9-10 May 2016**



Regional Level

- **RPAS was addressed by the ATM SG/2 meeting and the fourth meeting of the RASG Steering Committee (RSC/4) and RASG-MID/5. States were encouraged to:**
 - **use the guidance material related to RPAS provided in the ICAO Doc 10019 and the information available on the RPAS webpage;**
 - **consider the developments related to RPAS, and take necessary measures for the amendment of the relevant civil aviation regulations and procedures in a timely manner, in order to ensure safe integration of the RPA into the non-segregated airspace; and**
 - **attend the RPAS Workshop that will be held in the second quarter of 2016 in ICAO Headquarters, Montreal, Canada.**
- **ICAO MID Office working with all stakeholders to support States with RPAS issues.**
- **Taking into consideration that the work of RASG-MID is based on data driven processes, States have been urged through RASG-MID CONCLUSION 5/18 to report any safety occurrence related to RPA operations to the ICAO MID Regional Office for review and analysis by the Accident and Incident Analysis Working Group (AIA WG).**



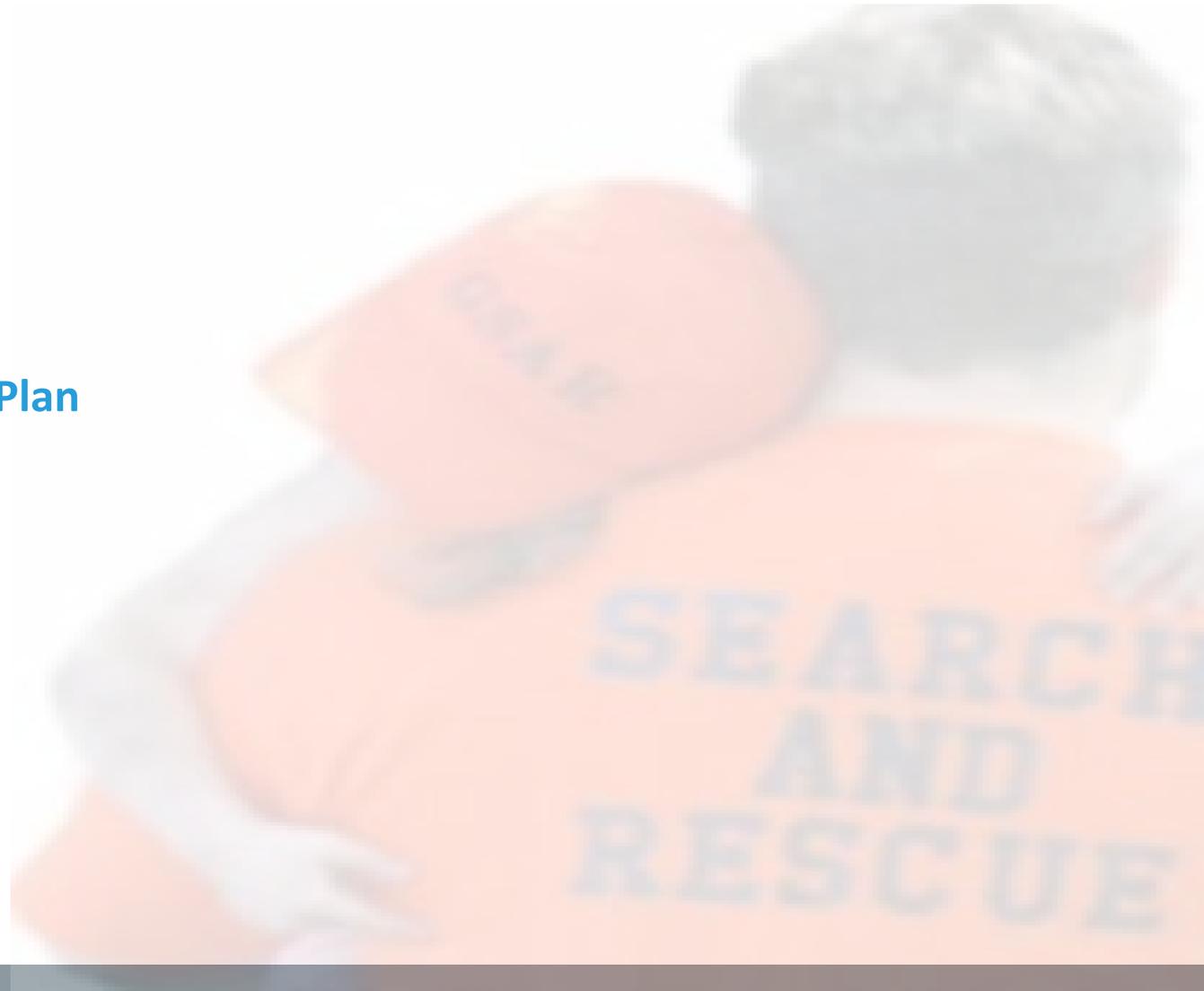
Search and Rescue

Reference

- Chicago convention
- Annex 12
- MID Air Navigation Plan
- Doc 9731 (IAMSAR)

Link with:

- Annex 6
- Annex 13
- Annex 10
- Annex 15
- Doc4444
- Cir 330





Search and Rescue

ICAO works closely with the International Maritime Organization (IMO) on all SAR issues through the ICAO/IMO Joint Working Group on Harmonization of SAR (JWG).

Annex 12 – Under consideration

- Recommendations from AF447 Investigation
 - Carriage of Self Locating Datum Buoy
- Recommendations from HLSC 15
 - Transition from Annex 12 to Annex 13
- Considerations from GADSS CONOP
 - GADSS Advisory Group to recommend

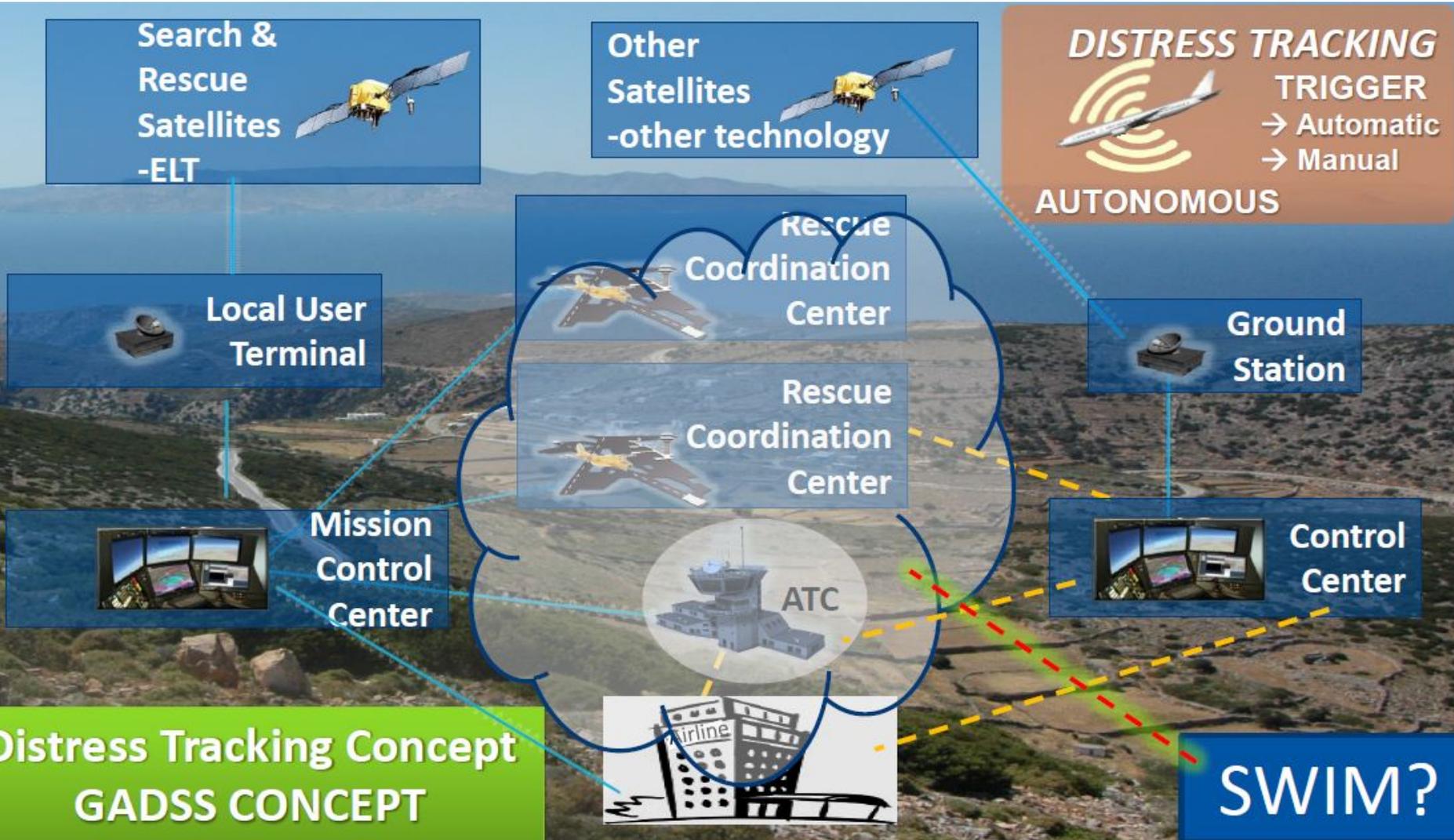
Annex 12 – Areas for consideration

- Consequential Standards from Distress Tracking Annex 6 SARPs
- Ongoing harmonization with Maritime SAR Convention

Annex 6 – Amendment in relation to Normal Tracking with applicability of 2018 and in relation with Flight Data Recovery and Distress Tracking with applicability in 2021

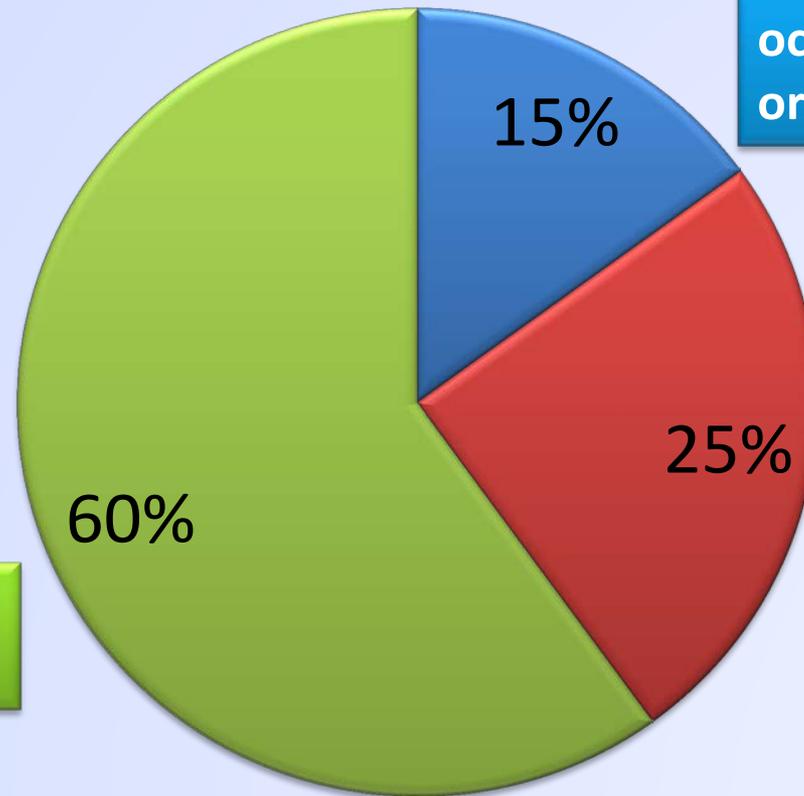
Updating process of the IAMSAR-Doc 9731 is ongoing on a three year cycle and the next edition will be released in 2016

Search and Rescue



SAR Missions related to the Incidents location

■ Air ■ Land ■ Maritime



Aircraft incidents occur over land or maritime

Maritime are much more experienced

SAR Effective Implementation at global level is 61.9% and at the MID regional level is 65.18%.

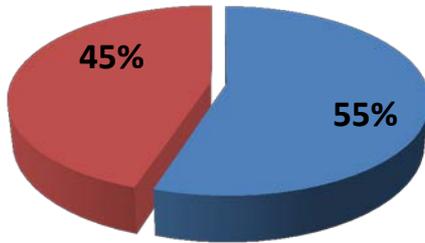
Signatures of SAR Agreements

■ Not Completed



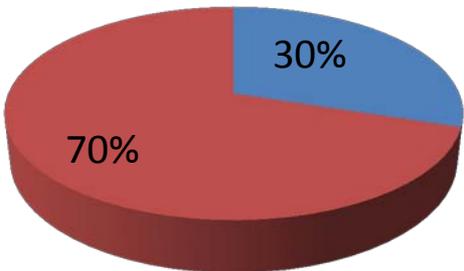
Lack of Provisions

■ Implemented ■ N/A



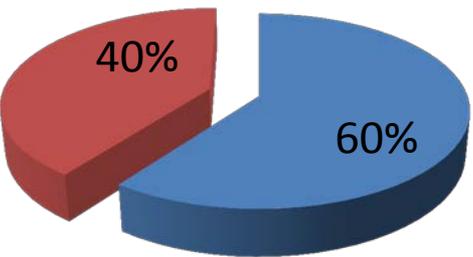
SAREX

■ Compliant ■ No SAREX



ELTs

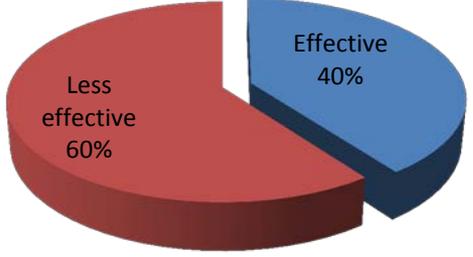
■ Compliant ■ Non compliance



SPOC



Effective SAR Oversight





SAR regional activities

- MID SAR Action Group composed of SAR Experts from volunteer States (Bahrain, Egypt, Iran, Saudi Arabia and UAE) and ICAO to:
 1. *carry out a Gap Analysis related to the status of implementation of SAR services in the MID Region;*
 2. *develop a SAR Plan for the MID Region based on the Asia/Pacific experience and other best practices; and*
 3. *develop an action plan for the conduct of regional/sub-regional SAR training exercises.*
- An Inter-regional AFI/APAC/MID SAR Workshop will be held in Seychelles from 19 to 22 July 2016 to share experience and ensure harmonized implementation of SAR services. It will include a SAREX on the 4th day.



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Thank You