



# Aviation Safety: Progress and Next Step

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Director, Air Navigation Bureau  
International Civil Aviation Organization (ICAO)

*Fondazione 8 ottobre 2001, Milan*

*21 – 22 October 2014*



### Compliance & Verification

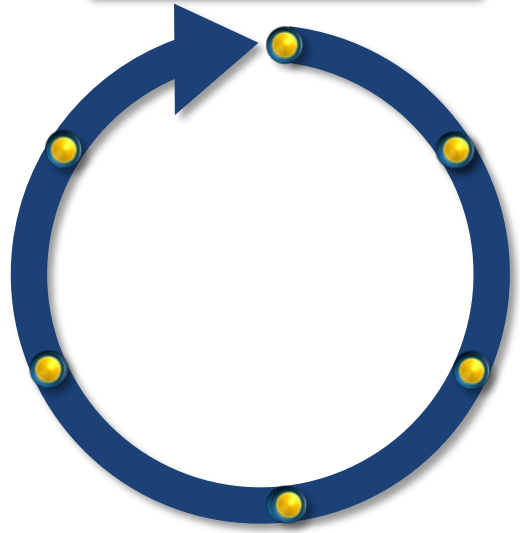
*if needed*

### Needs Analysis / Validation

### Global Plans

**Global & Regional**

### Assess & Measure



### Implementation Planning

**Training & Guidance**

### SARPs & PANS



# Global Aviation Safety Plan (GASP)

## Objectives and Priorities

### Near-term

## 2017

- All States establish **effective safety oversight systems**
- States with effective safety oversight (over 60% EI) **fully implement SSP**
- States / Stakeholders support RASGs with the **sharing of safety information**

### Mid-term

## 2022

- All Member States **fully implement the ICAO SSP Framework**
- RASGs incorporate **regional monitoring and safety management** programmes

### Long-term

## 2027

- Member States implement **safety capabilities** as necessary to support future Air Navigation Systems

### PRIORITIES

**RUNWAY SAFETY**

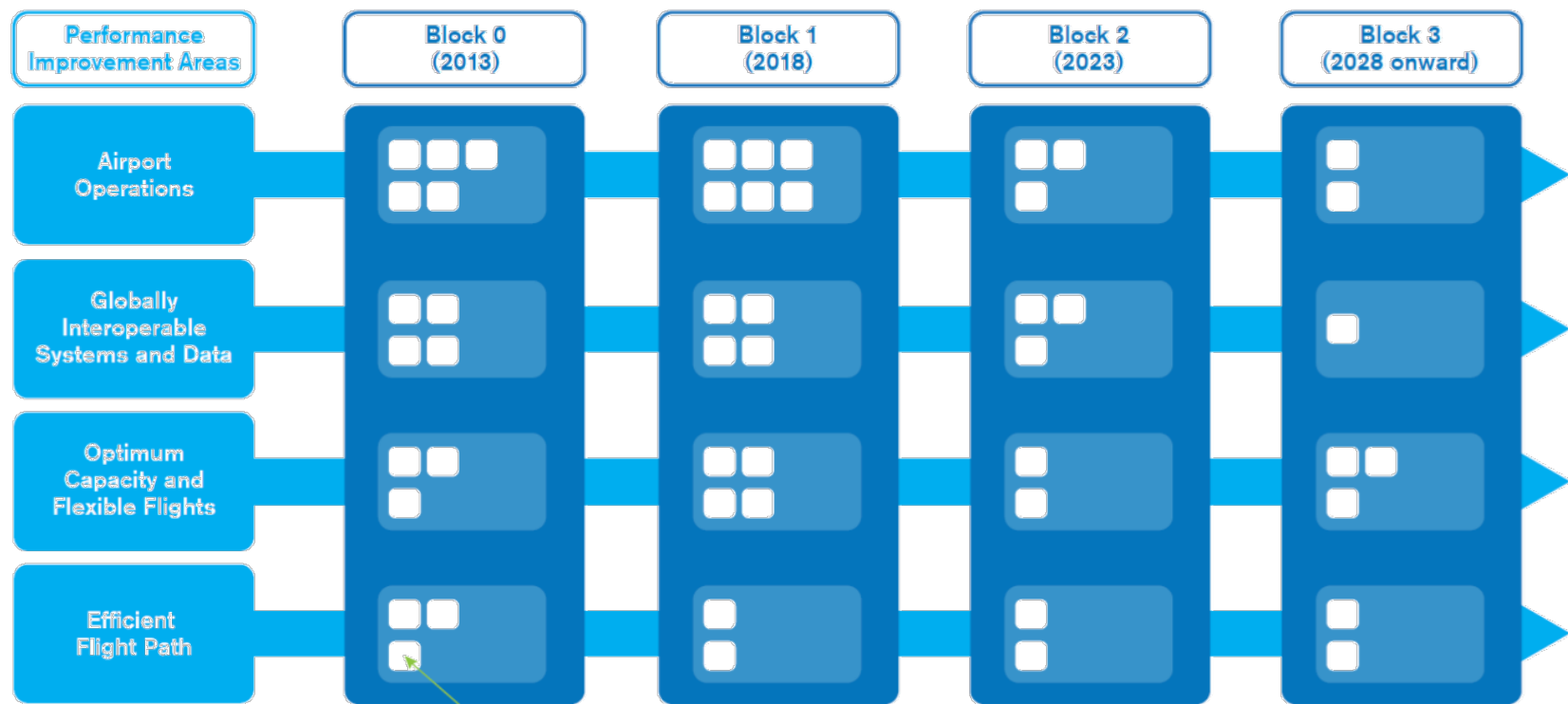
**CONTROLLED FLIGHT INTO TERRAIN (CFIT)**

**LOSS OF CONTROL IN-FLIGHT (LOC-I)**



# Global Air Navigation Plan (GANP)

## Objectives and Priorities



**PRIORITIES**

- PERFORMANCE BASED NAVIGATION (PBN)
- CONTINUOUS DESCENT AND CLIMB OPERATIONS (CDO/CCO)
- COLLABORATIVE DECISION-MAKING (CDM & A-CDM) & ATFM



*Status of Aviation*  
**SAFETY**



# Key Priorities - *Runway Safety*

## Runway Safety Programme

- Led by ICAO with 12 Partners
- Multi-disciplinary and collaborative approach



## Achievements in 2013/2014

- 1<sup>st</sup> Edition Runway Safety Team handbook
- Updated / revamped website
- Runway Safety Implementation Kit (iKIT)
- 4 RRSS (AFI, CAR, EUR & APAC)



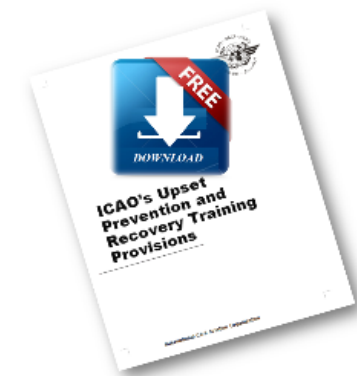
## Planned for 2015

- Update RST handbook, including translation
- PANS-Aerodromes 1<sup>st</sup> Edition
- USOAP audit protocol questions on RSTs



# Key Priorities – *Loss of Control In-flight*

- **LOC-I Symposium**, 20 – 22 May 2014 at ICAO HQ, Montréal
  - 300 attendees
  - CAAs, airlines, training organizations, research centers, accident investigation bodies, universities, pilot organizations
- **Key Outcomes:**
  - Data sharing
    - Fusion of multiple data sources
    - Harmonize analysis processes
    - Protection of sensitive information
  - Research website
    - Outline current research and their operational implications
    - To be collaboratively developed by research centers (NLR, NASA)
  - Lifecycle model for pilot training
    - To meet different training needs at different career points
    - To address human performance issues
  - Implementation of Upset Prevention and Recovery Training
    - Regional UP&RT Rollout Workshops
    - Development of UP&RT Implementation Assistance Teams
    - Development of implementation tools





# Cargo Safety and Dangerous Goods

- **Lithium Metal**

- **Passenger Aircraft:** Prohibition on passenger aircraft starting **1 Jan. 2015**
- **Cargo Aircraft:** Further research needed on risks to cargo aircraft

- **Lithium Ion**

- **Passenger Aircraft:** New research on fire suppression suggests identified risk and hazard to passenger aircraft
- **Cargo Aircraft:** Further research needed on risks to cargo aircraft

- **Oversight of manufacturing States**

- **Multidisciplinary approach required to mitigate all risks**

- Operations, Airworthiness, Cargo Safety







# Cabin Safety

- **Recent deliverables:**

- Cabin Crew Safety Training Manual (Doc 10002)
- Cabin crew procedures for Lithium battery fires (in Doc 9481)

- **What's next:**

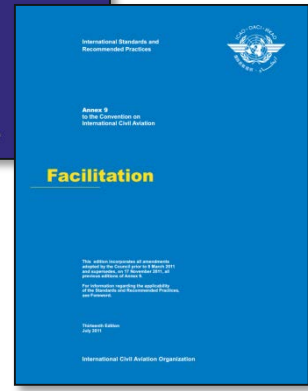
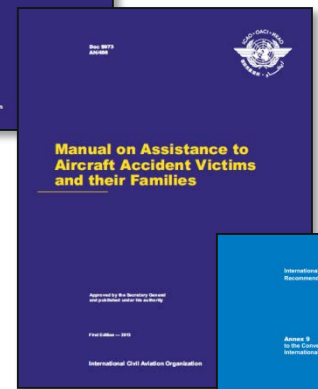
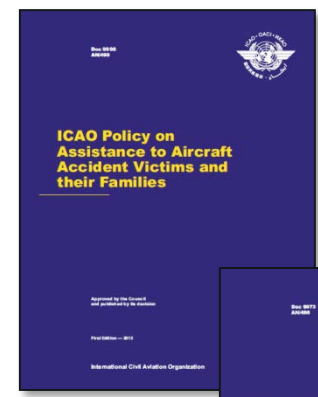
- Expanded use of personal electronic devices (Dec 2014)
- Safety of infants/children and use of child restraints (July 2015)
- Cabin safety aspects in accident investigation (2016)
- Minimum cabin crew requirements (2016)





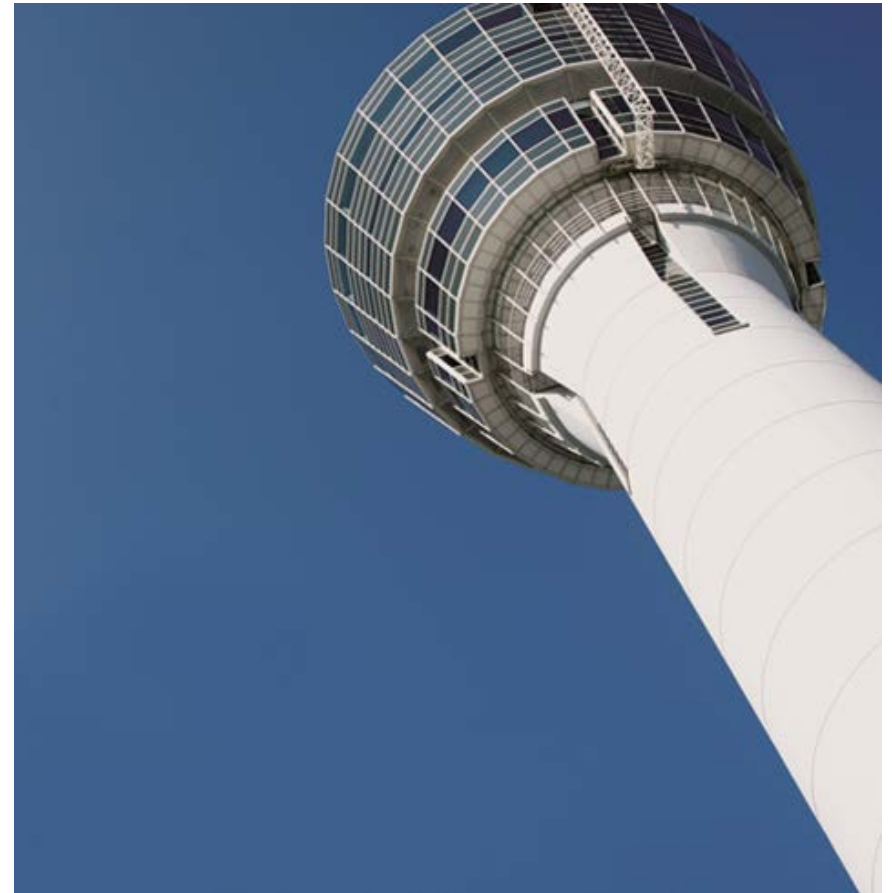
# Assistance to Accident Victims and Their Families

- **ICAO Policy on Assistance to Aircraft Accident Victims and their Families**
  - Doc 9998 – First edition 2013
- **Manual on Assistance to Aircraft Accident Victims and their Families**
  - Doc 9973 – First edition 2013
- **Facilitation Panel will consider development of SARPs on family assistance in Annex 9 during its meeting in the 2<sup>nd</sup> Quarter 2015**





# CONTEMPORARY ISSUES AND CHALLENGES



# Global Aircraft Tracking

- **Multi-disciplinary** meeting with States, Industry, Chairs and co-chairs of several panels, and related specialists
- **Date:** 12-13 May 2014
- **Attendees:** 207 participants from
  - 44 Member States
  - 19 International Organizations
  - 5 Industry representatives
  - 8 Panel chairs
- **Outcomes:**
  - *Consensus that **aviation's near-term priority is to track airline flights, no matter the location or destination***
  - IATA to initiate **global tracking on a voluntary basis**, and establish an Aircraft Tracking Task Force (ATTF) to provide recommendations on best practices
  - **6 Conclusions, 10 Recommendations**



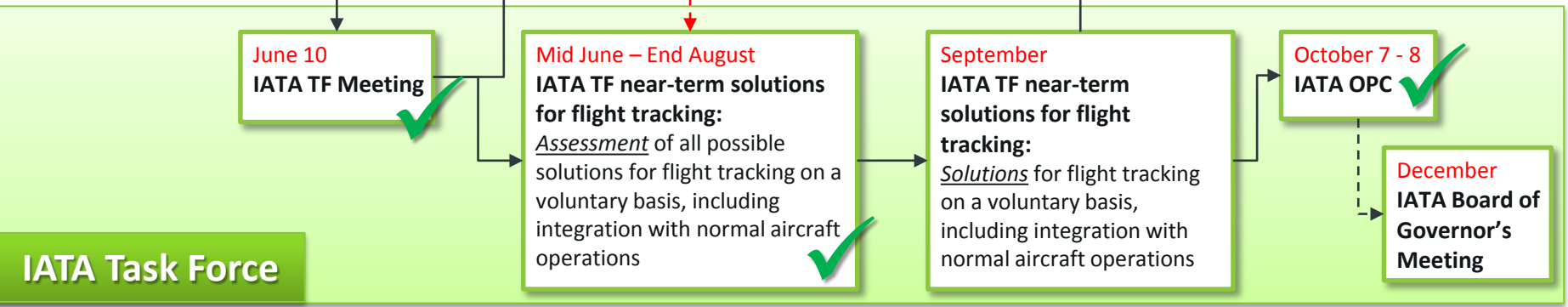
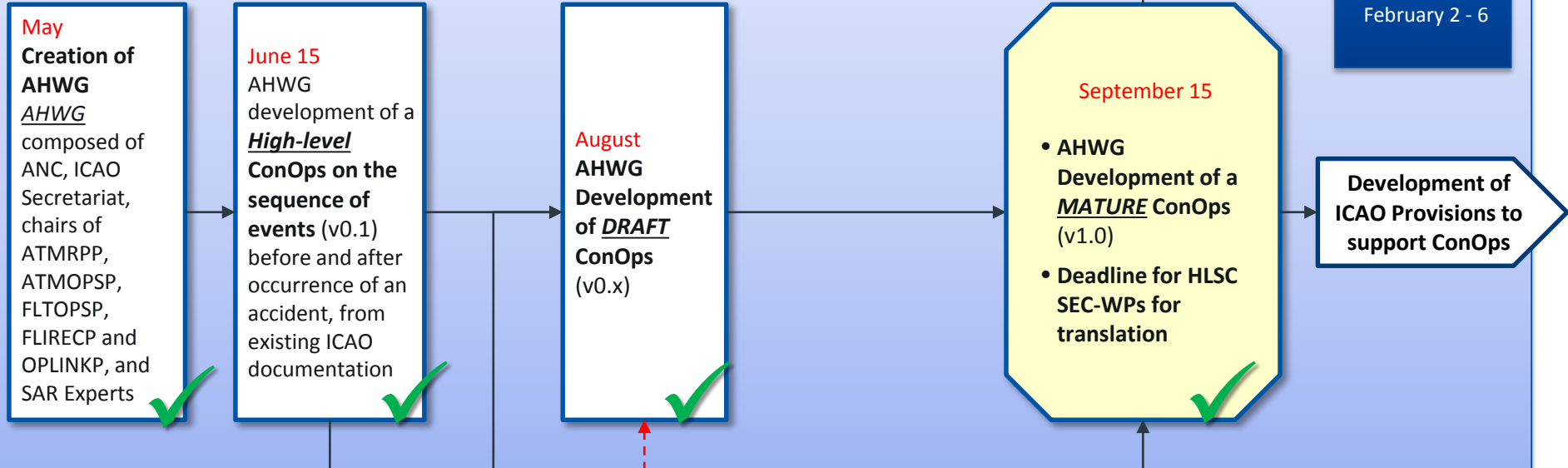
# Global Aircraft Tracking

- **Outlined vulnerabilities on:**
  - Timely identification and location of aircraft in distress
  - Availability and sharing of valuable information
- **Activities:**
  - IATA Aircraft Tracking Task Force (ATTF)
    - Industry initiative on addressing the short-term response for aircraft tracking
  - ICAO Ad-hoc Working Group
    - Concept of Operations, including outcomes of the IATA ATTF
  - Concept and concrete plan for medium/long term





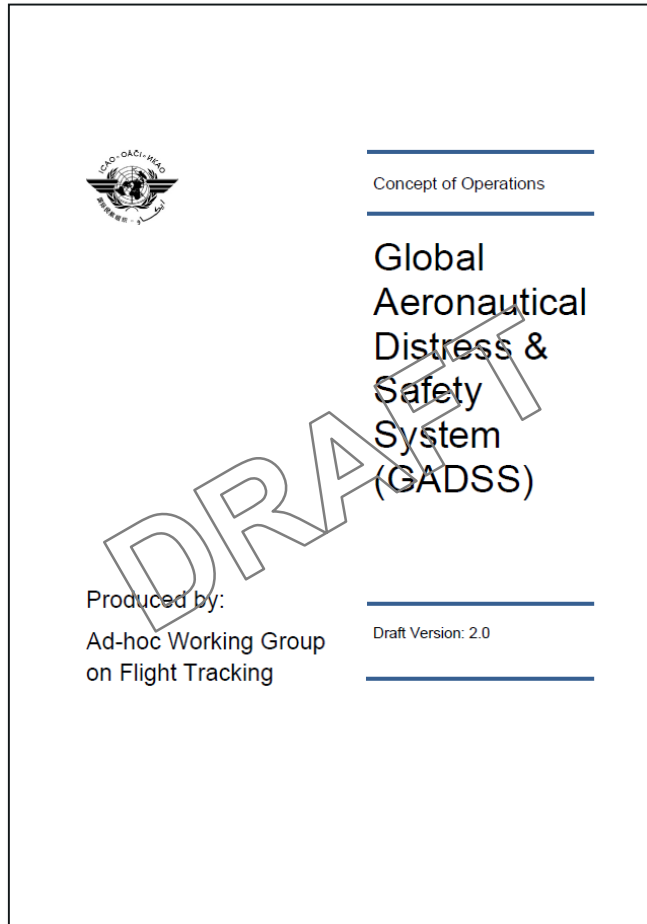
**ICAO Provisions**



**IATA Task Force**



# Global Aircraft Tracking – GADSS ConOps



- **Requirements**

- Enhance the ability to **rescue** survivors
- Provide **immediate notification** when an aircraft experiences an abnormal event.
- Ensure that the location of an accident site can be determine to a degree of accuracy, in a timeframe and to a level of confidence acceptable to the stakeholders.
- Function **worldwide**
- Use **performance-based standards** and be independent of any one prescriptive technology
- Be **sufficiently flexible** to accommodate diverse regional needs.
- Not cause **degradation** of the baseline SAR service
- Be **seamless** across ATSU (Air Traffic Service Units) boundaries



# Global Aircraft Tracking – Flight Recorders

## AF447 Recommendations to ICAO (*Extract*)

TOPIC	DESCRIPTION	ICAO ACTION
<b>Automatic Deployable Flight Recorders (ADFRs)</b>	1. Tasked the Flight Recorder Panel (FLIRECP) to formulate <b>proposals for implementing deployable recorders</b> compliant with the EUROCAE ED-112A specifications for commercial aeroplanes	<ul style="list-style-type: none"><li>• <b>Recommended practice</b> for carriage of ADFR proposed to ANC (2012, 2013); <b>referred back to FLIRECP in 2013</b> for further consideration; To be presented to ANC (first Q - 2015).</li><li>• <b>Proposal for ADFR container accepted</b>, applicable in 2014; Definition of ADFR <b>referred back to FLIRECP in 2013</b> for further consideration; To be presented to ANC (first Q - 2015)</li></ul>





# Global Aircraft Tracking – Flight Recorders

## Deliverables for Enhancing Accident Site Location

### Standards and recommended practices for autonomous distress flight tracking

- Location of accident site within 6 NM radius
- Not technology-specific
- A **performance-based approach** considering GADSS recommendations

### Recommended practice for deployable recorders

- **Replacement of** (instead of additional) current combination (Cockpit Voice Recorder - CVR / Flight Data Recorder - FDR) flight recorder requirements

## Timelines

- **January 2015**
  - Preliminary review of proposal by ICAO ANC
- **March 2015**
  - State Letter
- **November 2016**  
*(if adopted)*
  - Applicability of amendment(s)





# Global Aircraft Tracking – Practice Exercises

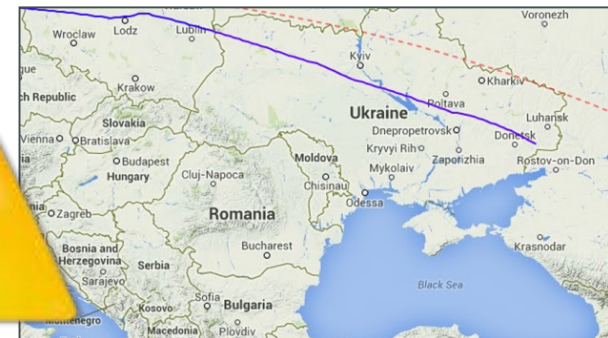
- Recommendation from the Global Flight Tracking Meeting:
  - Skill sets are perishable
  - Encourage States to **regularly run practice exercises** involving airlines operation centres, air navigation service providers (ANSPs) and rescue coordination centres (RCCs)
  - Test and verify their ability to respond and coordinate together in an integrated manner to abnormal flight behaviour scenarios

CONCLUSIONS AND RECOMMENDATIONS OF THE MULTIDISCIPLINARY MEETING ON GLOBAL FLIGHT TRACKING MONTRÉAL, 12-13 MAY 2014	
<p>The International Civil Aviation Organization (ICAO), upon the completion of this Special Meeting on Global Flight Tracking of Aircraft, forged consensus among its Member States and the international air transport industry sector on the near-term priority to track airline flights, no matter their global location or destination. Furthermore, the meeting established a framework for future efforts in this regard for the medium and long term.</p>	
Conclusions	Recommendations
<p><b>Near term</b></p> <p>a) global tracking of airline flights will be pursued as a matter of priority to provide early notice of and response to abnormal flight behaviour;</p> <p>b) a DRAFT concept of operations on flight tracking will be developed that includes a clear definition of the objectives of flight tracking that ensures that information is provided in a timely fashion to the right people to support search and rescue, recovery and accident investigation activities, as well as, the roles and responsibilities of all stakeholders;</p> <p>c) under the ICAO framework, the contribution by the industry through an Aircraft Tracking Task Force (ATTF) will help address the near-term needs for flight tracking;</p> <p>d) ICAO will consider establishing a short term joint ICAO/IATA advisory group to support the global tracking initiative;</p> <p>e) airlines will be encouraged to use existing equipment and procedures to the extent possible to support flight tracking pending the outcome of the ATTF; and</p> <p>f) in partnership with the task force, ICAO will develop guidance material, based on available flight tracking best practices;</p>	<p><b>Near term</b></p> <p>a) a FINAL high level concept of operations should be delivered to the ICAO High Level Safety Conference (HLSC 2015, February, Montreal);</p> <p>b) ICAO should increase its resources allocated to the Search and Rescue in order to improve the effectiveness across national and regional boundaries;</p> <p>c) ICAO should, in collaboration with a pool of search and rescue experts, identify and address operational search and rescue challenges with implementation of existing Annex 12 provisions, and provide assistance to States, including aiding in the setting of priorities for the mid and long term;</p> <p>d) ICAO should facilitate the sharing of experience and lessons learned from States that were recently involved in accidents where flight tracking could have facilitated search and rescue efforts to all other States;</p> <p>e) ICAO should strongly encourage States to regularly run practice exercises involving airlines operation centres, air navigation service providers (ANSPs) and rescue coordination centres (RCCs) to test and verify their ability to respond and coordinate together in an integrated manner to abnormal flight behaviour scenarios;</p> <p><b>Mid term</b></p> <p>f) ICAO performance based provisions should be developed, using a multidisciplinary approach, on flight tracking to support the location of an accident site in a timely manner for the purpose of search and rescue and accident investigation;</p>



# Risks to civil aviation arising from conflict zones

- **Response to MH17 accident**
- **High-level Meeting on 28 July 2014**
  - Strong condemnation of the **use of weapons against civil aircraft**
  - Establishment of a **senior-level task force (TFRCZ)** to address issues to safety and security of civil aircraft operation near or in conflict zones
- **TFRCZ Meetings**
  - Held **2 meetings** so far: 14 – 15 August and 25 – 26 August 2014
  - Developed **key objectives** and **proposed work programme**
  - Several Pilot Projects are already underway





# Risks to civil aviation arising from conflict zones

- **Proposed work programme have been assigned and several tasks are already underway**
  - **Pilot Project 1** on using the current **NOTAM system** for making information about conflict zones available
    - Process definition for a centralized collection system for NOTAMs related to conflict zones
    - Information dissemination using the AFTN
    - Expected to conclude by **mid October**, with a working paper **to be presented to the HLSC**
  - **Pilot Project 2** to determine how security-related information can be used to support conflict zone risk assessments
    - Participants from Australia, Canada, France, Japan, Netherlands, Portugal, UK, US, EASA, EUROCONTROL and IATA was convened on **9 October** via teleconference
    - Second teleconference during first **week of November** to:
      - Determine **security-related information required for reliable risk assessments** and **how these can be used to support risk management decisions** alongside NOTAMs and flight prohibitions
      - Develop a **glossary of terms** required to support harmonized risk assessment process



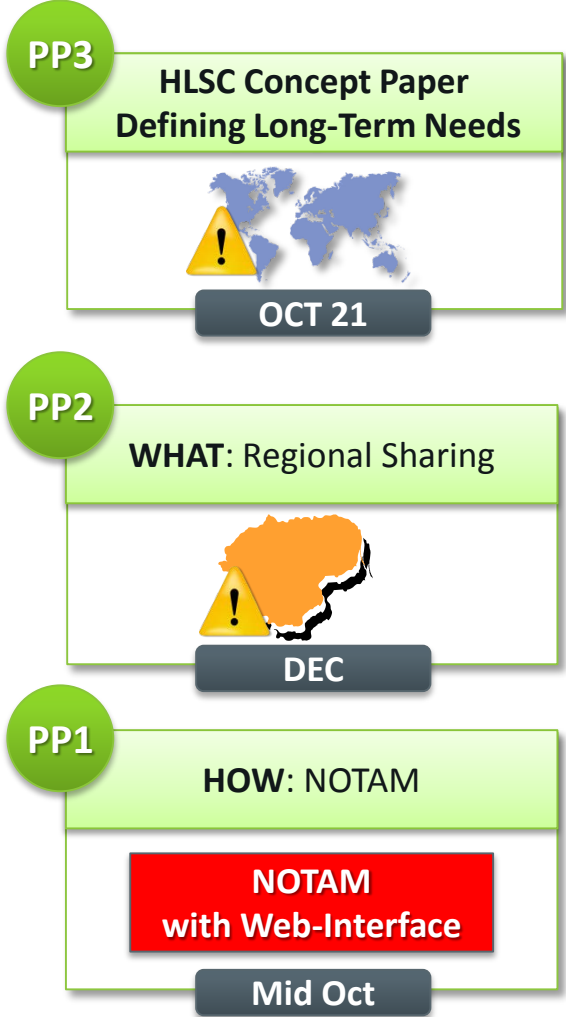
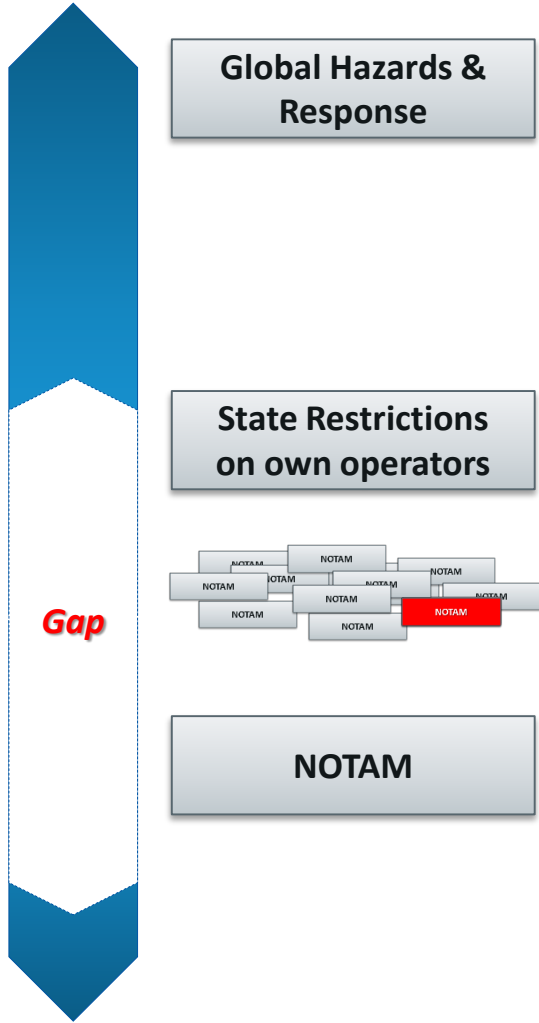
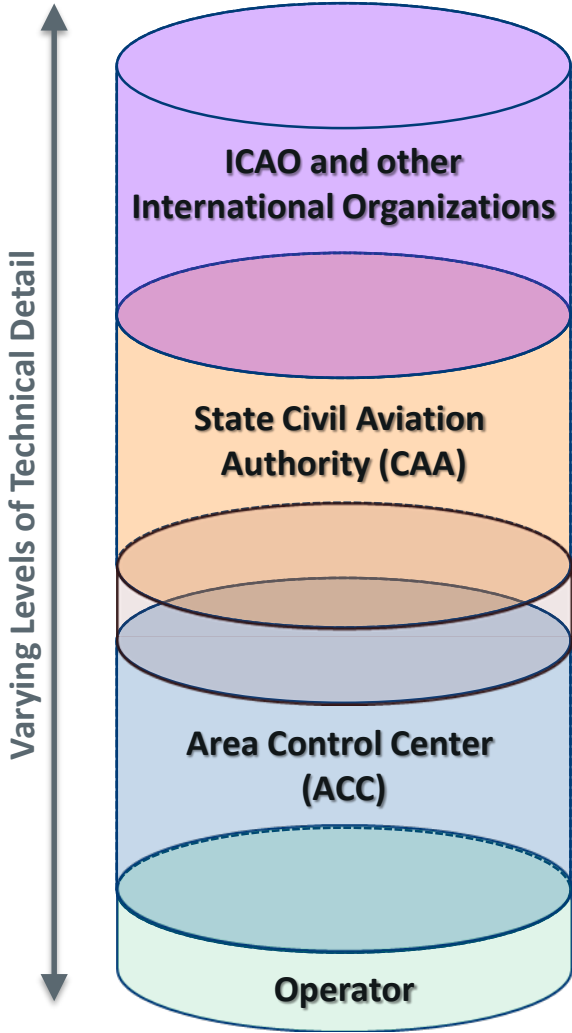
# Risks to civil aviation arising from conflict zones

- **Proposed work programme have been assigned and several tasks are already underway (continued)**
  - **Pilot Project 3** to deal with a broader conceptual design to enhance existing mechanism for the collection and dissemination of information related to conflict zones.
    - **Working paper for the HLSC**, covering a wide variety of available and suggested options
- **Initiation of remaining tasks largely dependent on conclusions and deliverables of Pilot Projects 1 and 2**
  - ANC and Council **review of the results** of the IATA Task Force have been initiated
  - Further activities are also dependent on the **Council considerations** of Task Force results

STAKEHOLDERS

FLOW/TYPE OF INFORMATION

PROPOSED ACTION





# Ebola Virus Disease (EVD)

- **WHO declared the outbreak a public health emergency of international concern (PHEIC)**
  - WHO prepared the Ebola Response Road Map to guide international support efforts
- **Countries with widespread and intense transmission are:**
  - Guinea
  - Liberia
  - Sierra Leone
- **Flight cancellations and other travel restrictions continue to isolate affected countries**
  - Detrimental economic consequences
  - Hinder relief and response efforts
  - Increased number of cases
  - Risking further international spread





# Ebola Virus Disease (EVD)

- **Emergency Committee convened by WHO Director General**
  - Strongly reiterated that **there should be no general ban on international travel or trade**
    - Appropriate travel restrictions outlined in the Temporary Recommendations regarding the travel of EVD cases & contacts
  - Advised that **affected countries should fully engage with transport sector**,
    - Especially the aviation and maritime sectors
    - Facilitate a mutual understanding of potentially diverse viewpoints
    - Develop a coordinated response
- **ICAO coordinated the Joint Ebola Travel and Transport Task Force**
  - Includes participation of WHO, ICAO, IATA, ACI, IMO, ICS, CLIA, UNWTO, WTTC
- **Several joint communication messages have been issued to reinforce:**
  - Health regulations and aviation standards
  - Guidance (including IATA)
  - Joint recommendations discouraging travel restrictions imposed by States and the suspension of services by operators



# Ebola Virus Disease (EVD)

## ICAO Recent and Future Actions

- ICAO has signed a MOU with the UNDP on *“Operational Aspects of Ebola Response Multi-Partner Trust Fund”*
- **ICAO web application** for tracking Ebola related NOTAMs has been developed (iSTARS/SPACE)
- **Action Plan for States and International Organizations** has been developed by ICAO to facilitate harmonized implementation of WHO recommendations relevant to the aviation sector;
- ICAO, IATA, ACI, supporting WHO and US CDC to **develop several procedures & guidance material on management of EVD** in the aviation sector (**Ongoing**)
  - Planning guide for screening, procedures for aircraft cleaning crew, etc.



# Ebola Virus Disease (EVD)

## ICAO Recent and Future Actions *(continued)*

- WHO and ICAO recommend **exit screening of passengers**, not entry
- ICAO has facilitated the **lifting of restrictions** on flights by some States
- ICAO has attended the CASSOA Ministerial Meeting on Ebola which resulted in a declaration for States to **avoid imposing restrictions on flights**
- **Joint ICAO/WHO assistance visits** to States and international airports have been requested by States and will be undertaken under CAPSCA ([www.capsca.org](http://www.capsca.org))
- The next annual **CAPSCA Global Coordination Meeting** will be held in Cairo from 17 to 20 November.



*Upcoming Global*  
**KEY EVENTS**



# Key Global Events – 2014 & 2015



**70** CELEBRATING 70 YEARS  
of the Chicago Convention

**ICAO** | **NEXT GENERATION OF AVIATION PROFESSIONALS**  
*Celebrate the Past, Prepare for the Future*  
Montréal, Canada, 3 - 4 December 2014



**UN / ICAO Commercial AeroSPACE Symposium**  
18-20 March 2015, ICAO Headquarters, Montréal



**2nd High-level Safety Conference**  
2 - 5 February 2015, ICAO Headquarters, Montréal



**Remotely Piloted Aircraft Systems (RPAS) Symposium**  
23 - 25 March 2015, ICAO Headquarters, Montréal



**Block Upgrade Demonstration  
Showcase and Symposium  
(BUDSS)**

19 - 21 May 2015  
ICAO Headquarters, Montréal



# High Level Safety Conference 2015

- Updated Agenda

- **Reviewing the Current Situation**

- Achievements and Remaining Work
- Emerging Safety Issues

- **Future Approach to manage aviation safety**

- State Safety Programme
- Safety Information Protection
- Safety Information Sharing
- Evolution of the GASP

- **Facilitating increased regional cooperation**

- Effective and Efficient Regional Collaboration



*Bring together senior management within States' CAAs to formulate decisions for the effective and efficient progress of key safety activities*



ICAO

North American  
Central American  
and Caribbean  
(NACC) Office  
Mexico City

South American  
(SAM) Office  
Lima

ICAO  
Headquarters  
Montréal

Western and  
Central African  
(WACAF) Office  
Dakar

European and  
North Atlantic  
(EUR/NAT) Office  
Paris

Middle East  
(MID) Office  
Cairo

Eastern and  
Southern African  
(ESAF) Office  
Nairobi

Asia and Pacific  
(APAC) Sub-office  
Beijing

Asia and Pacific  
(APAC) Office  
Bangkok



THANK YOU



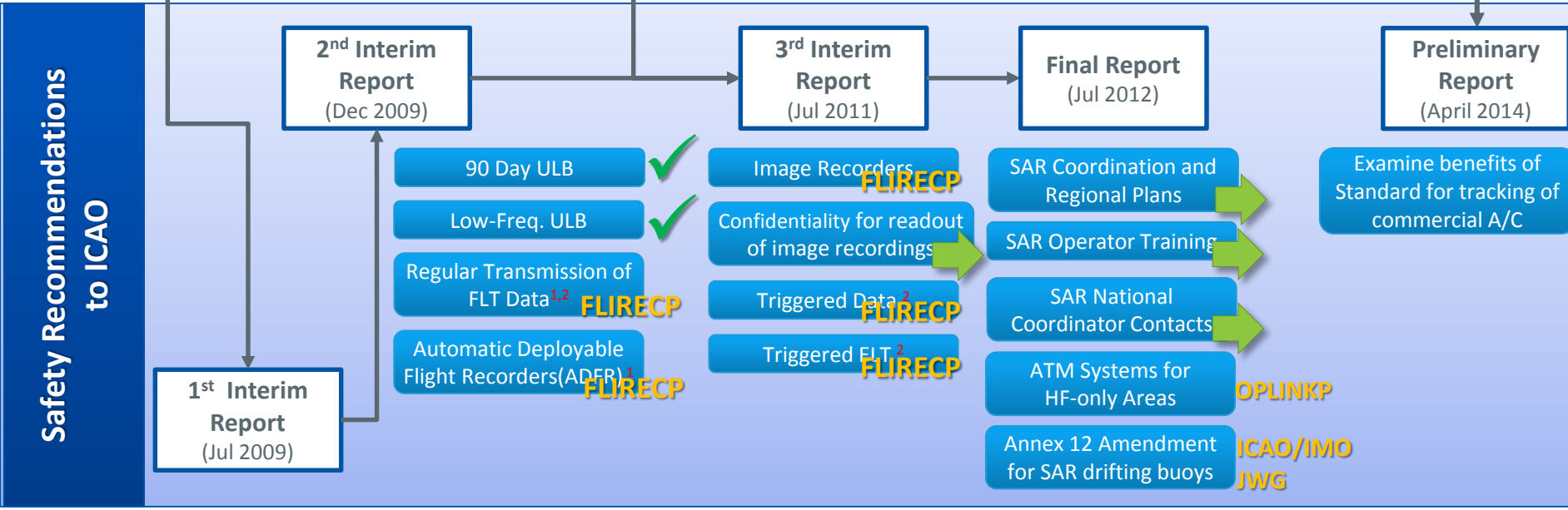
# BACKUP

**AF447**  
1 Jun 2009

**Aeroplane Found**  
Apr 2011

**FLIRECP Annex 6 Proposed Amendments to ANC**  
2012 2013

**MH370**  
8 Mar 2014



<sup>1</sup> BEA Flight Data Recovery Working Group  
<sup>2</sup> BEA Triggered Transmission of Flight Data Working Group