



ICAO

UNITING AVIATION

DISTRESS TRACKING

**as part of the
GLOBAL AERONAUTICAL DISTRESS and SAFETY SYSTEM
(GADSS)**

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Beacon Manufacturers Workshop, Annapolis Maryland, May 2015

Topics

- **Brief description of the concept**
- **Initial steps taken by ICAO (Aircraft Tracking)**
- **Implementation planning**

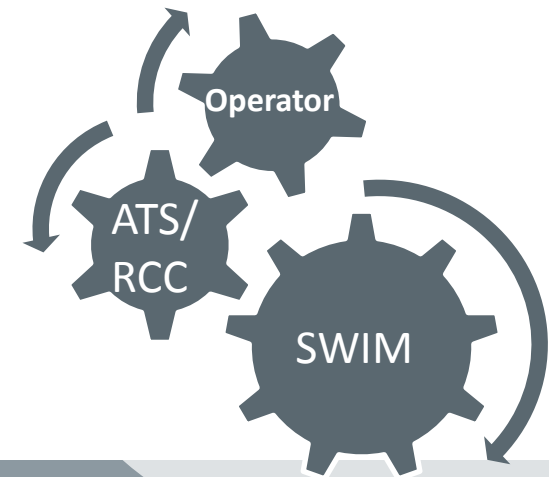
Global Aeronautical Distress & Safety System

 Aircraft Tracking
Normal
Operations
15 Min

 Aircraft Tracking
Abnormal
Operations
1 min?

 Autonomous
Distress Tracking
1 min

 Retrieval of CVR
and FDR Data



GADSS Components

**Aircraft
Systems**

**Air Traffic
Services
&
Operator**

**Search &
Rescue
Systems**

**System Wide
Information
Management**



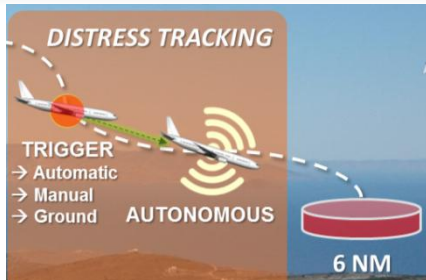
Upcoming Normal Tracking SARPs

Performance-based Standards and Recommended Practices for normal flight tracking

- No change to ATC procedures i.e. no change to SAR alerting
- Establish operator responsibility to track aircraft
- Not technology-specific – using existing technology
- Establish communication protocol between Operator , ATC and RCC
- Targeted area is Oceanic areas where ATC gets position information more than every 15 min
- Aeroplanes with a take-off mass in excess off 27,000 kg and more than 19 seats

Timelines

- ✓ **January 2015**
 - Preliminary review by ICAO ANC
- ✓ **March 2015**
 - State Letter
- **November 2015**
 - Adopted
- **November 2016**
 - Applicable



Upcoming Distress Tracking SARPs

Performance-based Standards and Recommended Practices for distress flight tracking

- Not technology-specific
- Location of an accident site within 6 NM
- Activated
 - Automatically based on flight behavior
 - Manually from the air
 - Manually from the ground
- Power and position information autonomous from other a/c systems
- Applies to new aeroplanes from 2021
- Incentive for early adoption as an alternative to second ELT

Timelines

✓ January 2015

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- Adopted

• January 2021

- Applicable



DISTRESS TRACKING



TRIGGER

- Automatic
- Manual
- Ground

AUTONOMOUS



6 NM



Retrieval of CVR/DFR data

AOC



RESCUE COORDINATION CENTER

Trigger Examples:

- ⊙ unusual attitudes
- ⊙ unusual speed conditions
- ⊙ loss of power on all engines
- ⊙ ground proximity warnings



GADSS CONCEPT

GADSS Components

**Aircraft
Systems**

**Air Traffic
Services
&
Operator**

**Search &
Rescue
Systems**

**System Wide
Information
Management**

- Most lead time
- Forms the baseline for any future developments

Procedures developed to make full use of additional Aircraft capabilities

To be integrated into the work program beginning in 2015 to be available when equipage requirements are applicable

2 Search & Rescue Satellites
LEO/GEO/MEO



3 Local User Terminal



4 Mission Control Center



5 Rescue Coordination Center



5 Rescue Coordination Center



1 Distress call utilizing EPIRB



1 Distress call utilizing ELT



1 Distress call utilizing PLB



Present System for Distress Alerts

COSPAS-SARSAT System Overview

Search &
Rescue
Satellites
LEO/GEO/MEO



DISTRESS TRACKING



TRIGGER
→ Automatic
→ Manual
→ Ground

AUTONOMOUS

Local User
Terminal



Rescue
Coordination
Center



Rescue
Coordination
Center



Mission
Control
Center



ATC



Distress Tracking Concept
GADSS CONCEPT

Search & Rescue Satellites
LEO/GEO/MEO



Other Satellites Systems



DISTRESS TRACKING



TRIGGER
→ Automatic
→ Manual
→ Ground

AUTONOMOUS

Local User Terminal



Rescue Coordination Center



Rescue Coordination Center



Ground Station



Mission Control Center



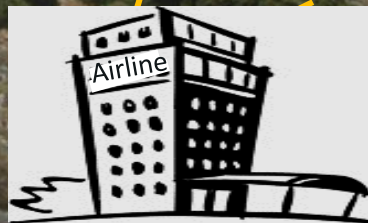
ATC



Control Center



**Distress Tracking Concept
GADSS CONCEPT**



Distress Tracking Concept

- **Technology under development.**
- **Action / re-action may not need to be the same as current procedures**
- **Tracking information availability**
 - Cloud
 - SWIM
- **Performance-based provisions**
 - Not technology specific
 - Procedures need to be in place by 2021



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THANK YOU