



ICAO NACC SAR Implementation Workshop (07-08 AUG 2023)

OVERVIEW OF GLOBAL SAR SYSTEM

Wes Geyer, United States Coast Guard (USCG)

The Paris Convention of 1919, The Convention Relating to the Regulation of Aerial Navigation was signed. It was the first international convention to address the political difficulties and intricacies involved in international aerial navigation.

The *Convention Regarding Commercial Aviation of 1928 (Havana Convention)* was signed by twenty-one Western Hemisphere States. The Convention, which applied exclusively to commercial aircraft, provided basic principles and rules for aeronautical traffic, recognizing that every State has complete and exclusive sovereignty over the airspace above its territory.

The Chicago Convention of 1944 established core principles permitting international transportation by air and led to the creation of the International Civil Aviation Organization (ICAO).

General Regulations Annexed to the International Radiotelegraph Convention of 1927, provides extensive regulations for distress signals and procedures. Of note, the Regulations provided for the use of MAYDAY as an international radio voice call.

In 1940, US President Franklin Roosevelt established the Ocean Weather Station Program, conducted by the Coast Guard in cooperation with the U.S. Weather Service from 1940 through 1977. The program established two ocean stations between Bermuda and the Azores, a heavily traveled aircraft route. One of the purposes of the oceans stations was to provide search and rescue services.

CONVENTION
ON
INTERNATIONAL
CIVIL AVIATION
DONE
AT CHICAGO
ON THE
7TH DAY OF DECEMBER
1944

Aeronautical & Maritime SAR Cooperation & Coordination

ESSENTIAL



Search and Rescue

Search: Use available personnel & facilities to locate persons in distress.

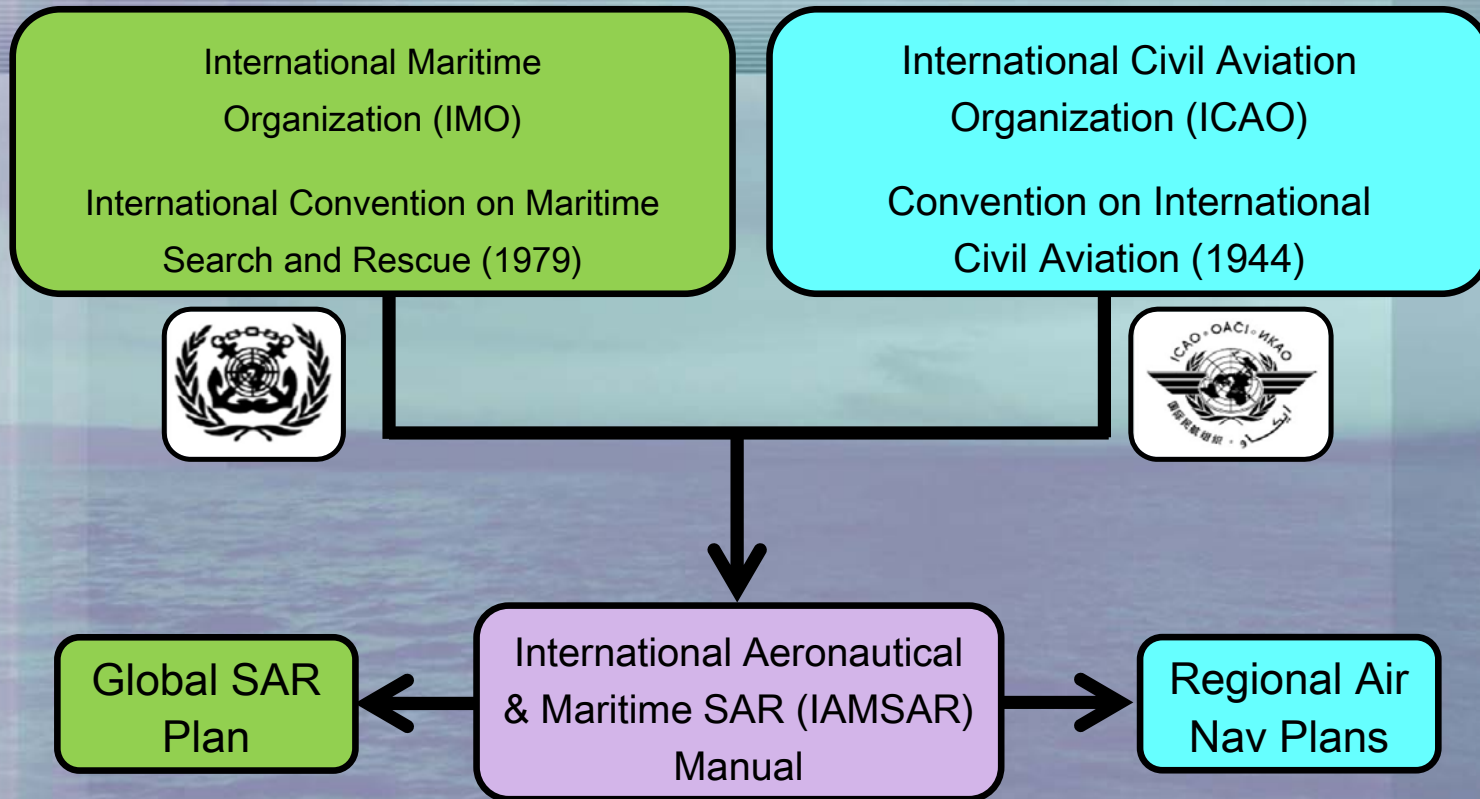
Rescue: Retrieve persons in distress and deliver them to a place of safety.

Search and Rescue is

... In other words,

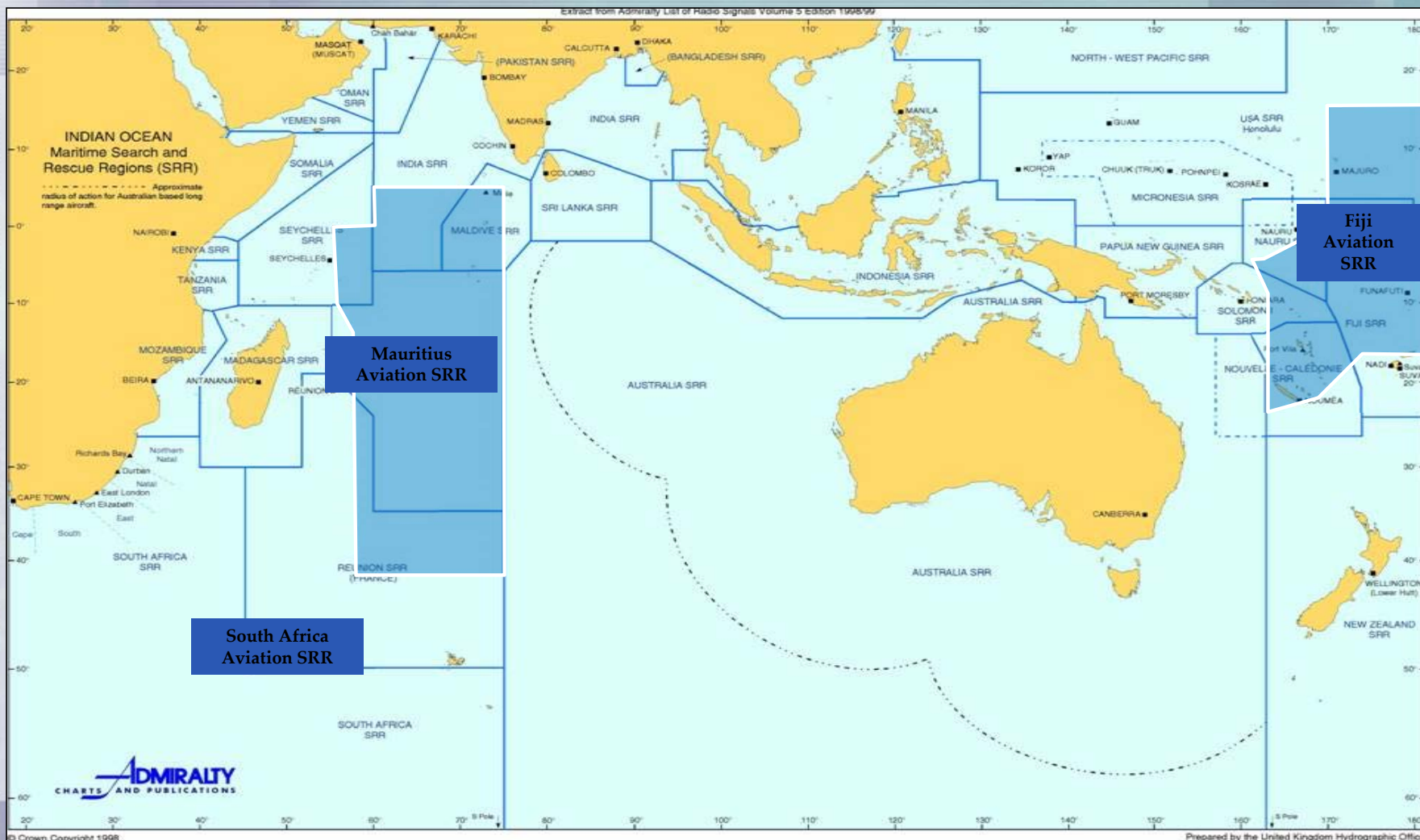
- ⦿ **The use of available resources,**
- ⦿ **to assist/save persons and property,**
- ⦿ **in potential or actual distress.**

International SAR Organization



International Convention on Maritime Search and Rescue (SAR) 1979 aimed at developing an international SAR plan, so that, no matter where an accident occurs, the rescue of persons in distress at sea will be coordinated by a SAR organization and, when necessary, by co-operation between neighboring SAR organizations.

How do Maritime and Aviation work together?



Harmonization of Aeronautical & Maritime SAR

ICAO & IMO goals:

- **Harmonize** global aeronautical and maritime SAR systems
- Encourage establishment of **Joint Rescue Coordination Centres (JRCCs)**, or if not practicable, close cooperation between Aeronautical and Maritime RCCs
- **Implementation** by all States of requirements of the Maritime SAR Convention and Annex 12 – Aeronautical SAR

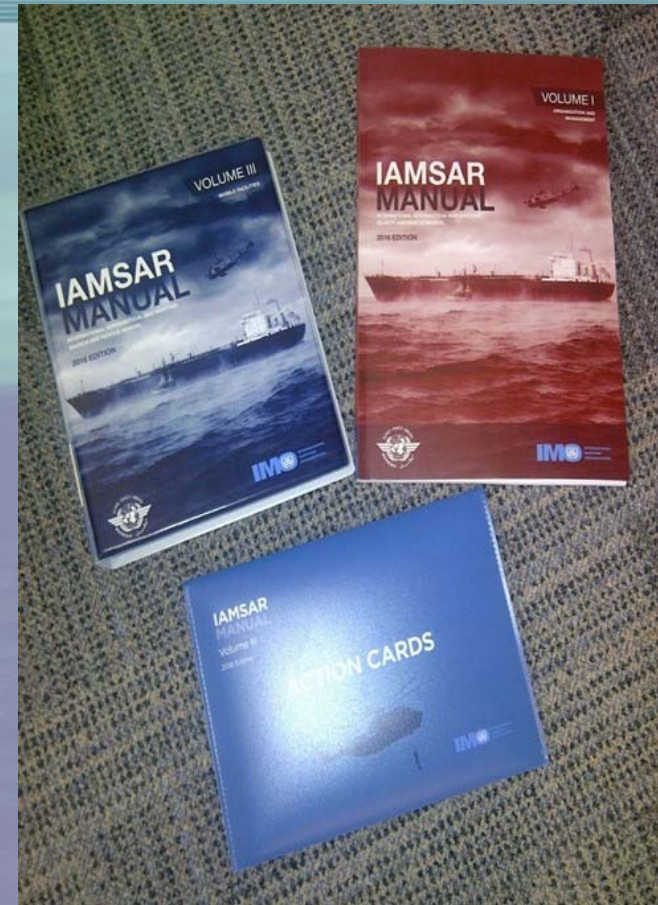
Two SAR Systems – One Country

Harmonize by:

- Standard documents, practices, procedures,
- Coordinate with other agencies
- Coordinate with neighboring countries
- Participate in regional forums
- As you work on your SAR services, align the IMO Global SAR Plan and the ICAO Regional Air Navigation Plan
- Use ship reporting systems (your maritime authority can assist on points of contact)

International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual

Harmonizes aeronautical and maritime search and rescue organization, procedures, equipment, and terminology internationally



JOINT RESCUE COORDINATION CENTER (JRCC)

- Joint = aeronautical and maritime
- Staff of military, military/civil or all civil
- Perform all functions OR some efficiently performed by another competent agency.
- Aircraft communications through air traffic services or direct with JRCC.
- Current staff and funding may be sustained since joint effort can offset cost increases.
- Decreases confusion as to if the other agency is properly handling the SAR case.
- Enhanced understanding of both SAR disciplines by working together.

GOVERNMENT PROCESSES TO ESTABLISH A SAR SYSTEM

ICAO and IMO Guidance/Conventions

International Aeronautical and Maritime Search and Rescue Manual (IAMSAR Manual)

ICAO: <https://www.icao.int/publications/Pages/catalogue.aspx>

click on EN button on right side

IMO: <https://www.imo.org/en/publications/Pages/Home.aspx>

ICAO Regions

North American,
Central American
and Caribbean
(NACC)

ICAO
HQ

Europe and North
Atlantic
(EUR/NAT)

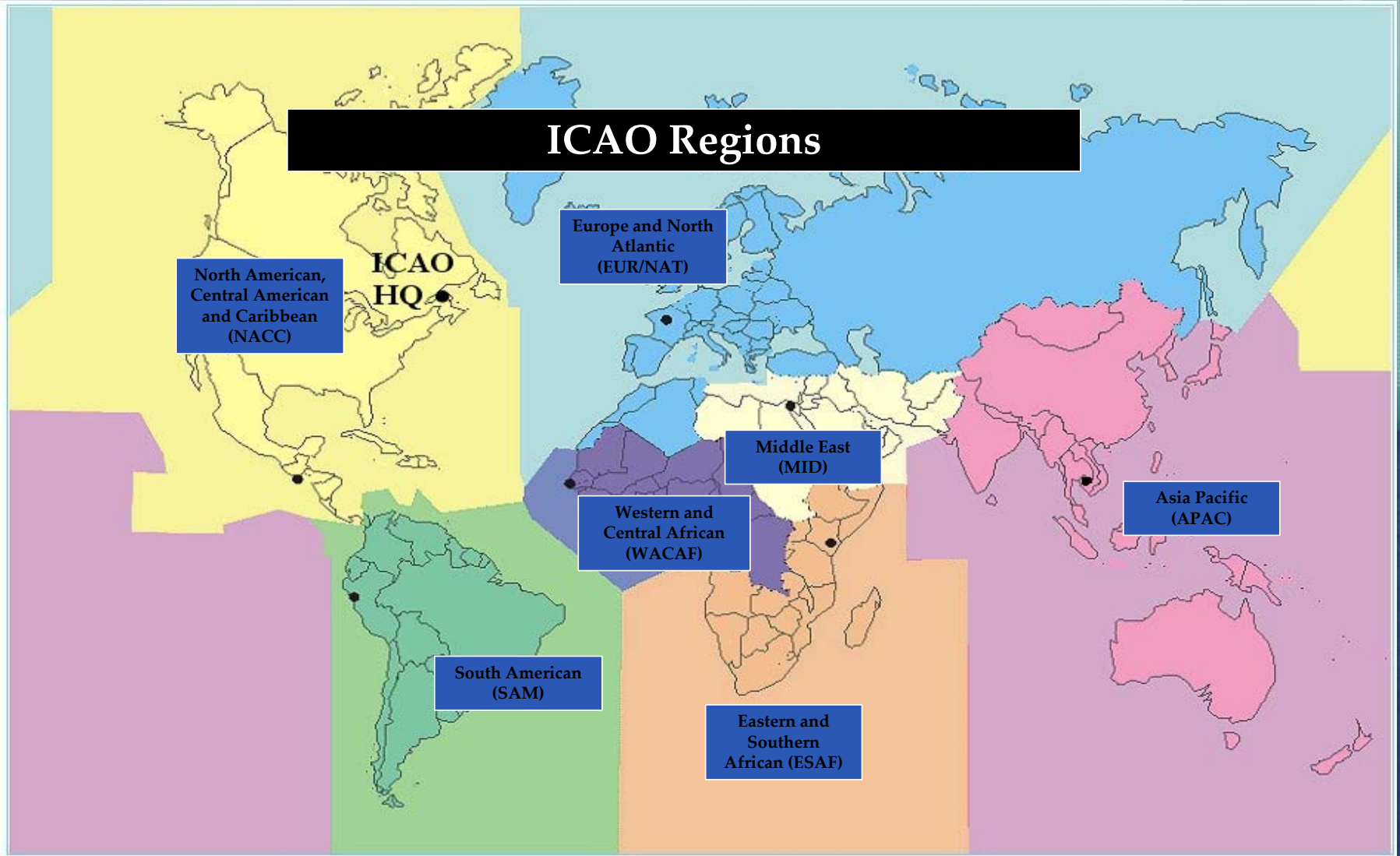
Middle East
(MID)

Western and
Central African
(WACAF)

Asia Pacific
(APAC)

South American
(SAM)

Eastern and
Southern
African (ESAF)



BENEFITS AND CONSEQUENCES

High risk of negative consequences to a State which does not provide an adequate SAR response to an aircraft or vessel in distress.

- Loss of lives, which may have been saved.
- Damage to a State's reputation internationally and potential economic loss to sensitive State industries such as tourism and transport.

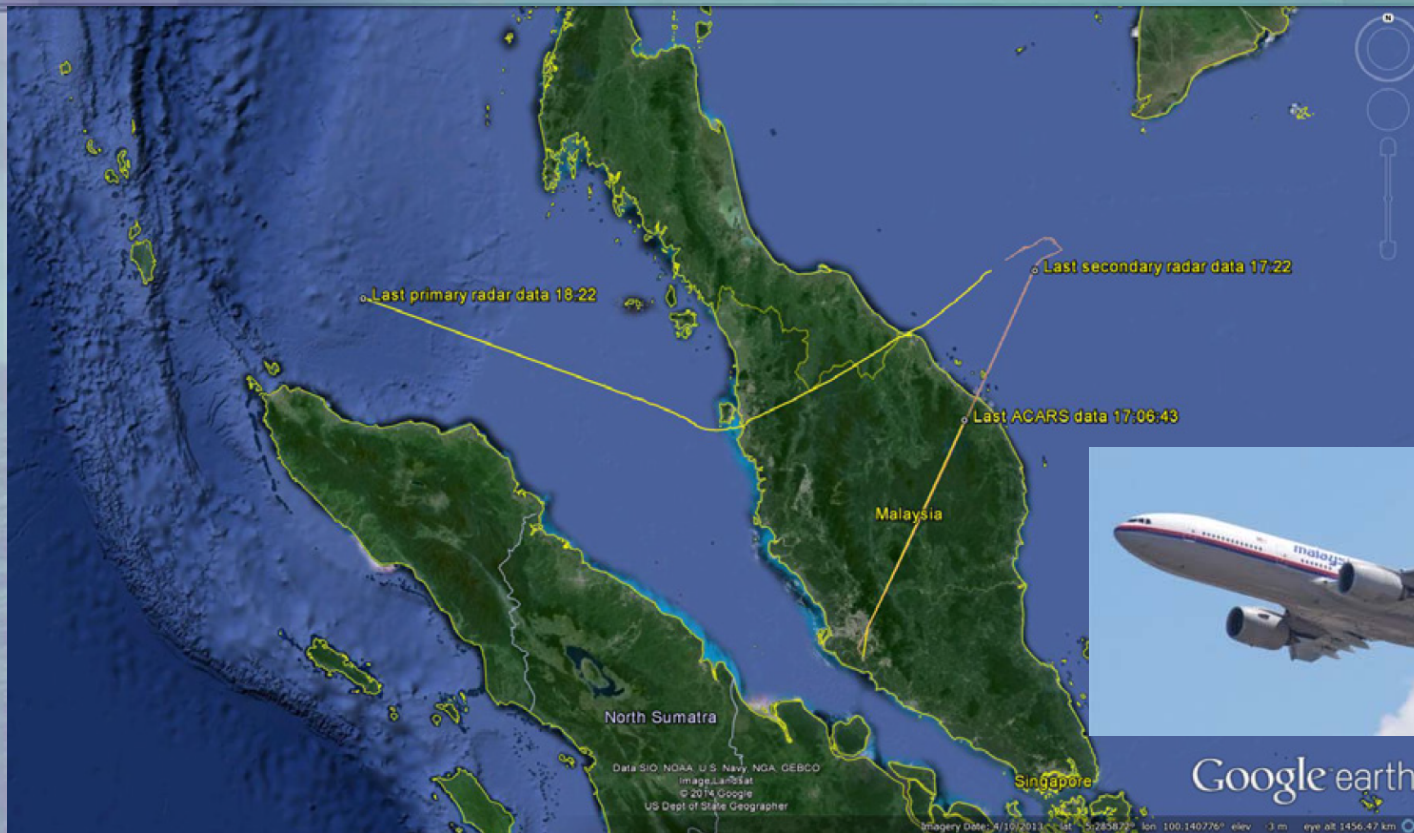
Benefits of an effective and reliable SAR service to States **offers many advantages.**

- Reduce loss of life and human suffering
- Safer and more secure environment for aviation and maritime related industries, commerce, recreation and travel.
- Availability of SAR resources for wider emergency response such as natural and man-made disasters.
- Increased safety may promote use and enjoyment of aviation and maritime environments, tourism and economic development.
- Positive publicity leading to public confidence in that State's reputation and commitment to providing a safe environment - increased confidence to conduct activities beneficial to that State's economy.
- SAR's relatively non-controversial and humanitarian mission → excellent opportunity to enhance cooperation and communication between States and organisations, not only for SAR.

NEED FOR IMPROVED FLIGHT TRACKING AND DISTRESS ALERTING



NEED FOR IMPROVED FLIGHT TRACKING AND DISTRESS ALERTING



MH370 – 2014 Flight Path – Primary and Secondary RADAR

Autonomous Distress Tracking (ADT)

- **ADT is another type of notification that an aircraft in flight might be in distress**
- **New requirement for new built large passenger and cargo aircraft on international flights.**
- **Maritime SAR gets the most benefit from this capability for notification and location information where aircraft surveillance is not good.**





QUESTIONS AND DISCUSSION

PLANNED QUESTIONS:

(HOW DO YOU ENSURE...)

- Rapid notification of the distress alert to SAR authorities?
- Timely reaction by your SAR authorities?
- Ability for other SAR responders to rapidly go to the scene of distress to assist (merchant ships, neighboring States)?
- Proper search planning?
- Timely rescue (search craft may not be able to rescue)?