



INTERNATIONAL CIVIL AVIATION ORGANIZATION

Search and Rescue (SAR) & Civil Military Coordination

Regulatory framework

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International Civil Aviation Organization

North American, Central American and Caribbean Regional Office

Overview



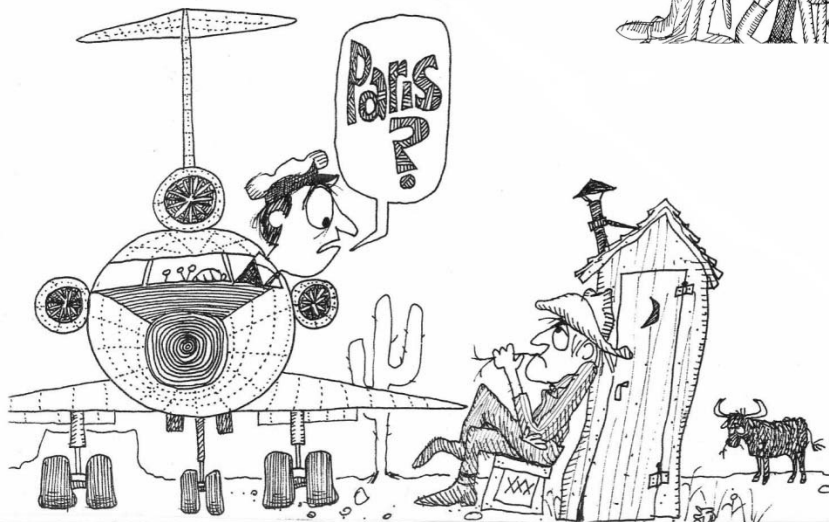
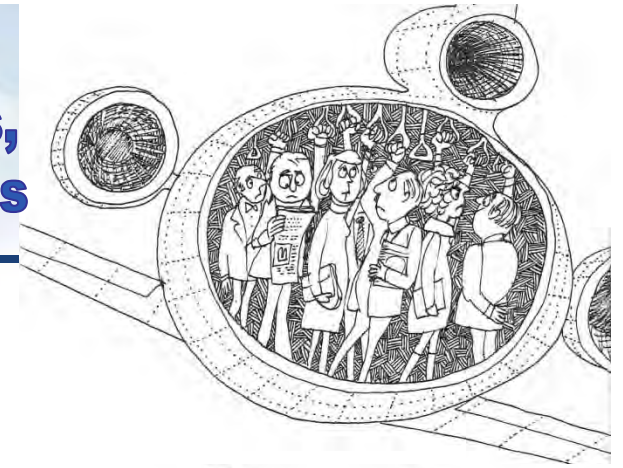
- Chicago Convention
- Annexes 11, 12, 14
- Regulatory framework
- Airport Operations
- ATS contingency planning
- Main elements
- State responsibilities
- Natural disasters
- Our strengths
- Future challenges

Slide 2

LM2

Loretta Martin, 23-Nov-10

**Without international rules,
air travel would be in chaos**



CHICAGO CONVENTION

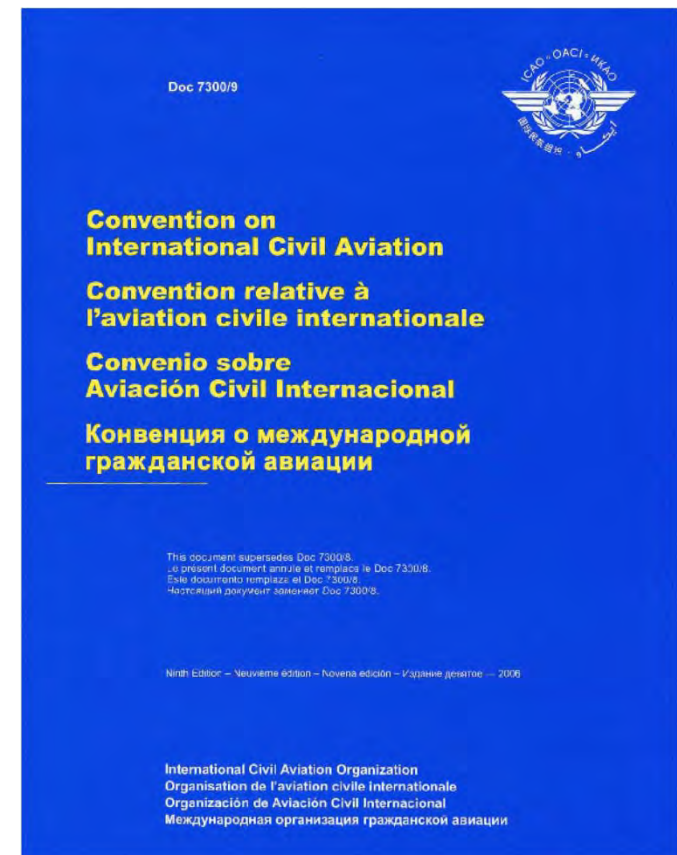


✓ Contracting States

✓ 96 Articles

➤ Fundamentals:

- every State has complete sovereignty over its airspace
- no scheduled international air service may operate into a State's territory without consent

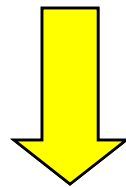


Legal Obligation

Article 25 to Chicago Convention



- Each Contracting State undertakes to provide such measures of assistance to aircraft in distress in its territory as it may find practicable.....
- Each Contracting State, when undertaking search for missing aircraft, will collaborate in coordinated measures which may be recommended from time to time pursuant to this convention



Annexes 11, 12, 14

ICAO Provisions on Civil/Military Coordination and Cooperation



Convention on International Civil Aviation (Doc 7300)

- *Article 3 (a, b, c and d)* Civil and State aircraft – State aircraft are excluded from its scope of applicability, define State aircraft, no State aircraft shall fly over territory of another state without authorization and State aircraft will have due regard for the safety of navigation of civil aircraft
- *Article 3 bis and 9* - Refrain from using weapons against civil aircraft in flight and prohibited areas shall be of reasonable extent and location so as not interfere unnecessary with air navigation

ICAO Provisions on Civil/Military Coordination and Cooperation



🌱 Resolution A37-15, App. O

- Common use by civil and military aviation of airspace and of certain facilities and services;
- Regulations of States ensure operations state aircraft do not compromise safety, regularity and efficiency of civil air traffic over high seas and comply with Annex 2
- ICAO to provide advice and guidance on best practices for civil/military coordination and cooperation;
- Contracting States include representatives of military authorities in their delegations to attend ICAO meetings; and
- ICAO should serve as international platform to facilitate improved civ/mil cooperation, collaboration and sharing of best practices.

ICAO Provisions on Civil/Military Coordination and Cooperation



Annex 2 — *Rules of the Air*

- Submission of a flight plan – Chapter 3, 3.3
- ✈️ Interception – Chapter 3, 3.8
- ✈️ Attachment A - Interception of Civil Aircraft

Annex 11 — *Air Traffic Services*

- ✈️ 2.17- Coordination between military authorities and air traffic services
- ✈️ 2.18- Coordination of activities potentially hazardous to civil aircraft

ICAO Provisions on Civil/Military Coordination and Cooperation



The Procedures for Air Navigation Services – *Air Traffic Management (PANS-ATM, Doc 4444)* and Regional Supplementary Procedures (Doc 7030)

- PANS-ATM contains procedures for the application of the rules of the air and air traffic services.
- Procedures applicable to in-flight contingencies as strayed or unidentified aircraft involving coordination with military authorities.
- Miscellaneous procedures for the conduct of special military operations.
- Regional SUPPs procedural part of Air Navigation Plans to meet needs not covered in world wide provisions as the Annexes SARPs or PANS.

ICAO Provisions on Civil/Military Coordination and Cooperation



Manual concerning Interception of Civil Aircraft. (Doc 9433)

- Consolidation of ICAO Provisions and Special recommendations related to the interception of civil aircraft
- States ensure manual is brought to the attention of all civil and military administrative or operational personnel related with identification and interception of civil aircraft

Manual Concerning Safety Measures Relating to Military Activities Potentially Hazardous to Civil Aircraft Operations (Doc 9554)

- ✈️ Promote effective coordination so that activity potentially hazardous to civil aircraft operations may be accommodated within agreed airspace
- ✈️ Coordination between responsible military authorities and appropriate ATS authorities essential to safety of civil aircraft operations whenever activities potentially hazardous are planned and conducted by any military units

ICAO Provisions on Civil/Military Coordination and Cooperation




Global Air Navigation Plan (Doc 9750)


- Contains near and medium term guidance on air navigation systems improvements necessary to support a uniform transition to the ATM system envisioned in the ATM operational concept
- Flexible use of airspace (FUA):
 - The optimization and equitable balance in the use of airspace between civil and military users.
 - FUA is based on the principle that airspace should not be designated purely as civil and military, but rather as a continuum.
 - FUA should result in the removal of large tracts of permanent or transient restricted airspace and greater benefits associated with FUA obtained through inter-State cooperation through regional and sub-regional agreements

ICAO Provisions on Civil/Military Coordination and Cooperation



 *Global Air Traffic Management Operational Concept (Doc 9854)*

 Scope of the concept- Operate the global air traffic system up to and beyond 2025. Increase user flexibility and maximize operating efficiencies.

 Components of the concept: Airspace organization and management among others. Usable resource, use airspace based on principles of access and equity. Restrictions transitory. Organized to accommodate needs of users on a timely basis. Management dynamic, flexible and based on services demanded.

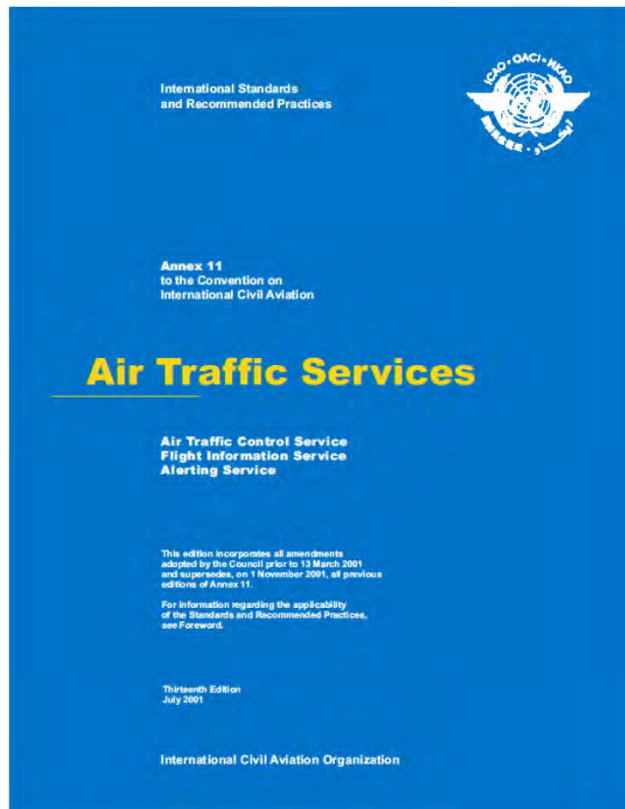
ICAO Provisions on Civil/Military Coordination and Cooperation



Regional Plans and Regional Planning Groups

- CAR/SAM Regional Air Navigation Plan (Doc 8733)
- Regional Planning Group for CAR/SAM regions: GREPECAS

Annex 11: ATS



- ✈ Emergency in flight procedures
- ✈ Safety advisories
- ✈ Assistance to pilots
- ✈ Ensure airspace operations
- ✈ Resume normal operations
- ✈ Allow secure aircraft landing

Annex 11



- ✈️ ATS shall establish and maintain close co-operation with military authorities that may affect flights of civil aircraft
- ✈️ Best arrangements for activities potentially hazardous to civil aircraft shall be coordinated with ATS
- ✈️ Avoid hazards to civil aircraft and minimize interference with the normal aircraft operations.
- ✈️ Activities potentially hazardous to civil aircraft, over the territory of a State or overseas, with appropriate ATS
- ✈️ Coordination early enough to permit timely promulgation of information activities (Annex 15)

Military activities



- ✈ Practice firing or testing of any weapons air-to-air, air-to-surface, surface-to-air or surface-to-surface in an area or in a manner that could affect civil air traffic;
- ✈ Military operations such as air displays, training exercises, and the intentional dropping of objects or of paratroopers;
- ✈ Launch and recovery of space vehicles; and
- ✈ Operations in areas of conflict or the potential for armed conflict

Agreed normal coordination process



- Location(s) or area(s), time(s) and duration(s) so as to avoid closure or realignment of established ATS routes, blocking of the most economic flight levels, or delays of scheduled aircraft operation, unless no other options exist;
- Smallest size of the airspace designated for the conduct activity;
- Special safety measures which need to be taken by the unit(s) conducting the activity, the ATS unit(s) concerned, or civil aircraft operating in the vicinity of the area;
- Coordination needed between ATS and the military unit during the activity

Agreed normal coordination process



e) the means and methods:

- exchanges of information regarding the start(s) and stop(s) of the activity;
- exchanges of information regarding the identity of civil aircraft, when necessary
- coordination of special safety measures, including alerting and search and rescue services; and
- coordination in the event that civil aircraft emergencies or other unforeseen circumstances require discontinuation of the activities or parts thereof

Information



NOTAM:

 Obstacles:

 military exercises;

 Displays:

 Races; and

 major parachuting events outside promulgated sites

Arrangements on potentially hazardous



- ✈️ the locations or areas, times and durations for the activities should be selected to avoid closure or realignment of established ATS routes, blocking of the most economic flight levels, or delays of scheduled aircraft operations, unless no other options exist
- ✈️ The size of the airspace designated for the conduct of the activities should be kept as small as possible
- ✈️ direct communication between the appropriate ATS and the organization or unit conducting the activities should be provided for use in the event that civil aircraft emergencies or other unforeseen circumstances require discontinuation of the activities.
- ✈️ ATS shall be responsible for initiating the promulgation of information regarding the activities.

Arrangements...



- ✈️ If activities take place on a regular basis, special committees should be established to ensure that the requirements of all parties concerned are adequately coordinated.
- ✈️ To prevent emission of laser beams from adversely affecting flight operations (Annex 14, Vol. I; Doc 9815, Manual on Laser Emitters and Flight Safety)
- ✈️ In order to provide added airspace capacity and to improve efficiency and flexibility of aircraft operations, States should establish procedures providing for a flexible use of airspace reserved for military or other special activities, so as to permit all airspace users to have safe access to such reserved airspace.


Arrangements...




- 🌱 to permit information relevant to the safe and expeditious conduct of flights of civil aircraft to be promptly exchanged between air traffic services units and appropriate military units.
- 🌱 ATS shall (agreed procedures) provide appropriate military units with pertinent flight plan and other data concerning flights of civil aircraft.
- 🌱 Avoiding the need for interceptions ATS shall designate areas or routes where the requirements of Annex 2 (flight plans, two-way communications and position reporting) to ensure that all pertinent data is available facilitating identification of civil aircraft.



Special procedures:

-  a) ATS are notified if a military unit observes that an aircraft is approaching or has entered any area in which interception might become necessary

-  b) all possible efforts are made to confirm the identity of the aircraft and to provide it with the navigational guidance necessary to avoid the need for interception



Identification process Of Civil Aircraft

 correlation for positive identification of civil aircraft by:

a) air traffic services units;

b) airline flight schedules;

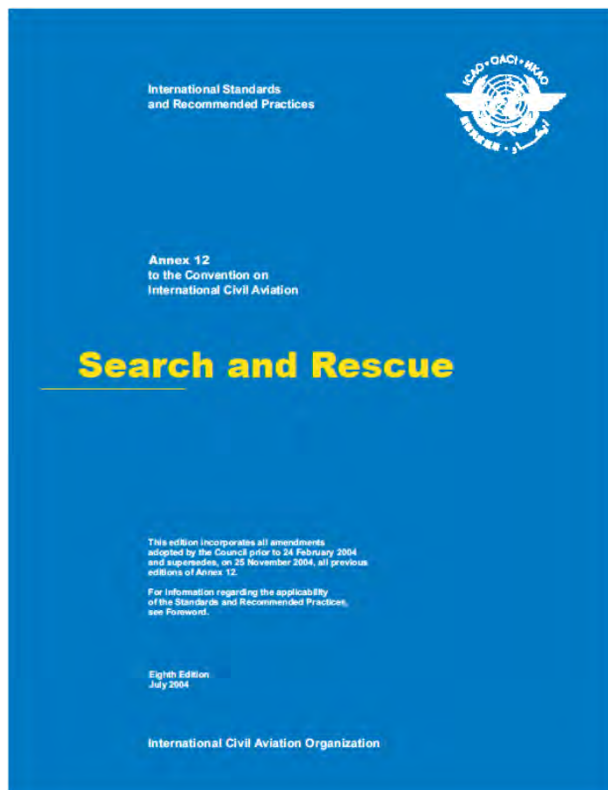
c) flight plans data and related messages;

d) departure messages and flight progress reports;

e) electronic emissions from aircraft, including emissions from airborne weather radar and radio altimeters, and SSR responses; and

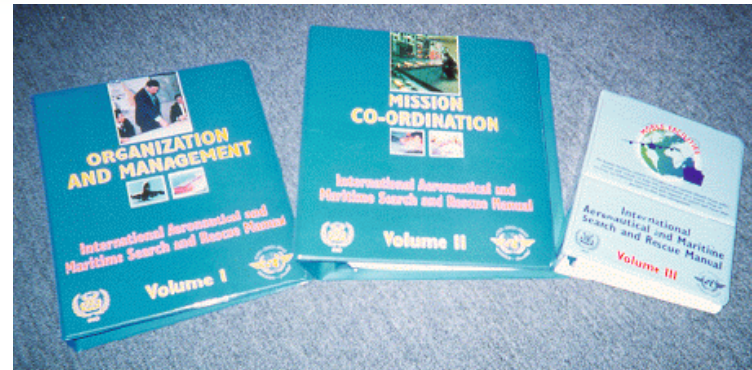
f) visual observations.

Annex 12: SAR



- ✓ Warnings SAR units on aircraft emergency phase(INCERFA – ALERFA - DETRESFA)
- ✓ Aeronautical-Maritime agreements between civil-military bodies, ATS, aerodromes and aircraft operators
- ✓ Regional cooperation between States, Territories and International Organizations
- ✓ **Training and Exercises: To achieve and maintain maximum efficiency in SAR, Contracting States shall provide for regular training of their SAR personnel and arrange appropriate SAR exercises**
 - ✓ ...make arrangements for joint training exercises involving their SAR units, those of other States and operators, in order to promote SAR efficiency.

INTERNATIONAL AERONAUTICAL AND MARITIME SAR MANUAL (IAMSAR, Doc.9731)



🌱 SHARING USE OF RESOURCES

🌱 COOPERATION



THE GLOBAL SAR CONCEPT



ICAO Goal:

✈️ To provide a world-wide SAR system that will provide assistance to all persons in distress regardless of nationality or circumstance ...

✈️ The fastest, most effective and practical way to achieve this goal is to develop regional systems associated with each ocean area and continent.

THE GLOBAL SAR ...



SAR response

International

Regional

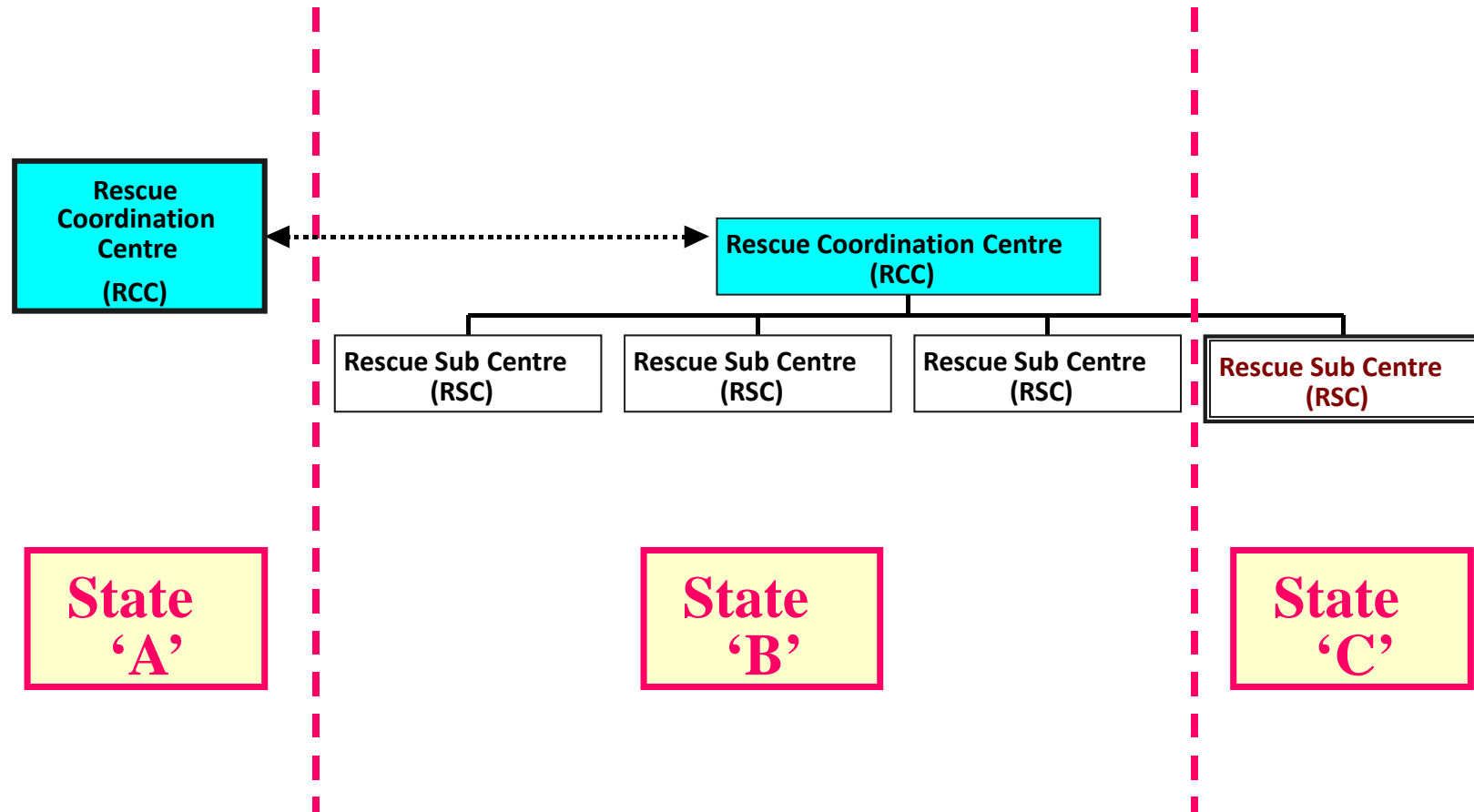
State

Airport

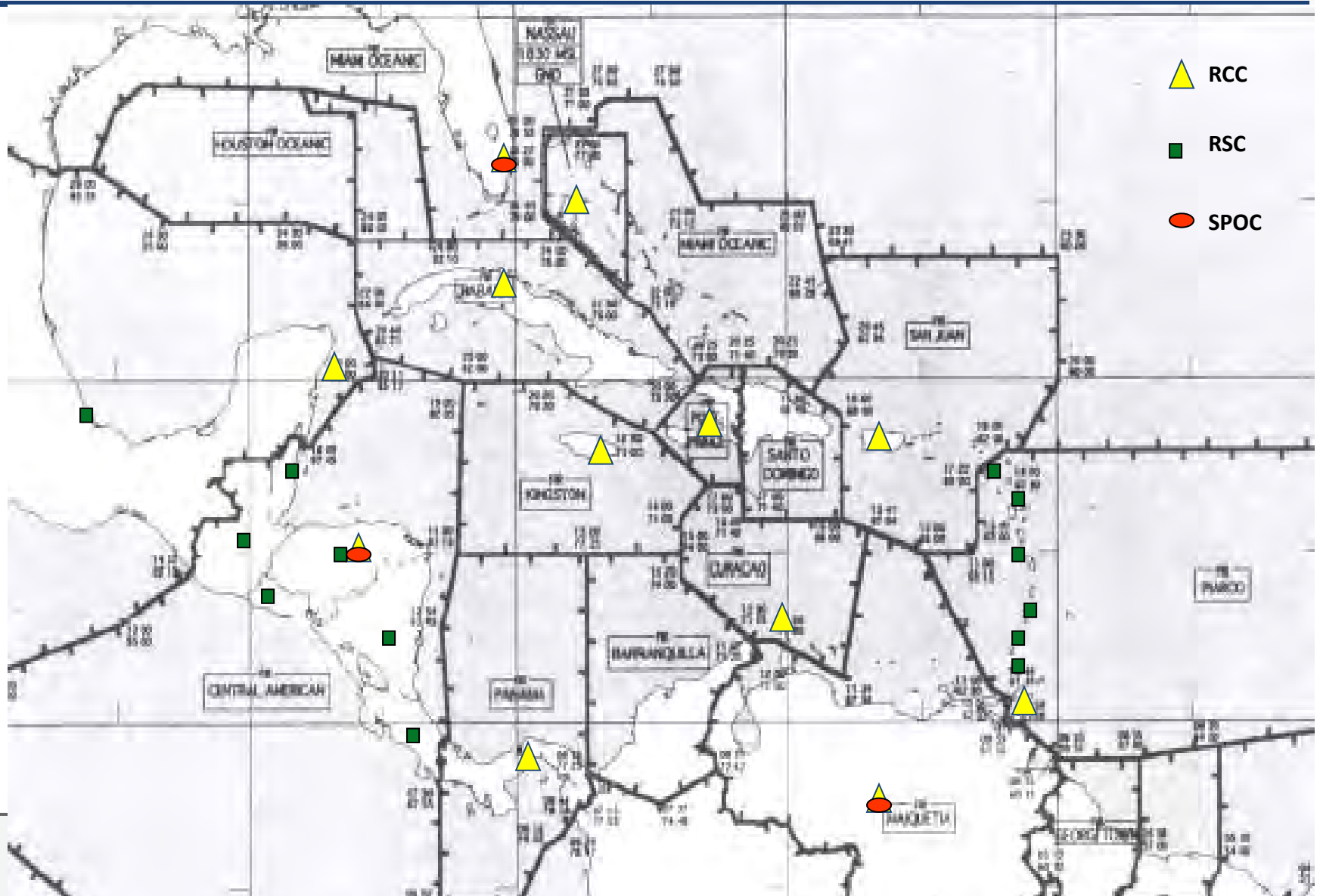
Event



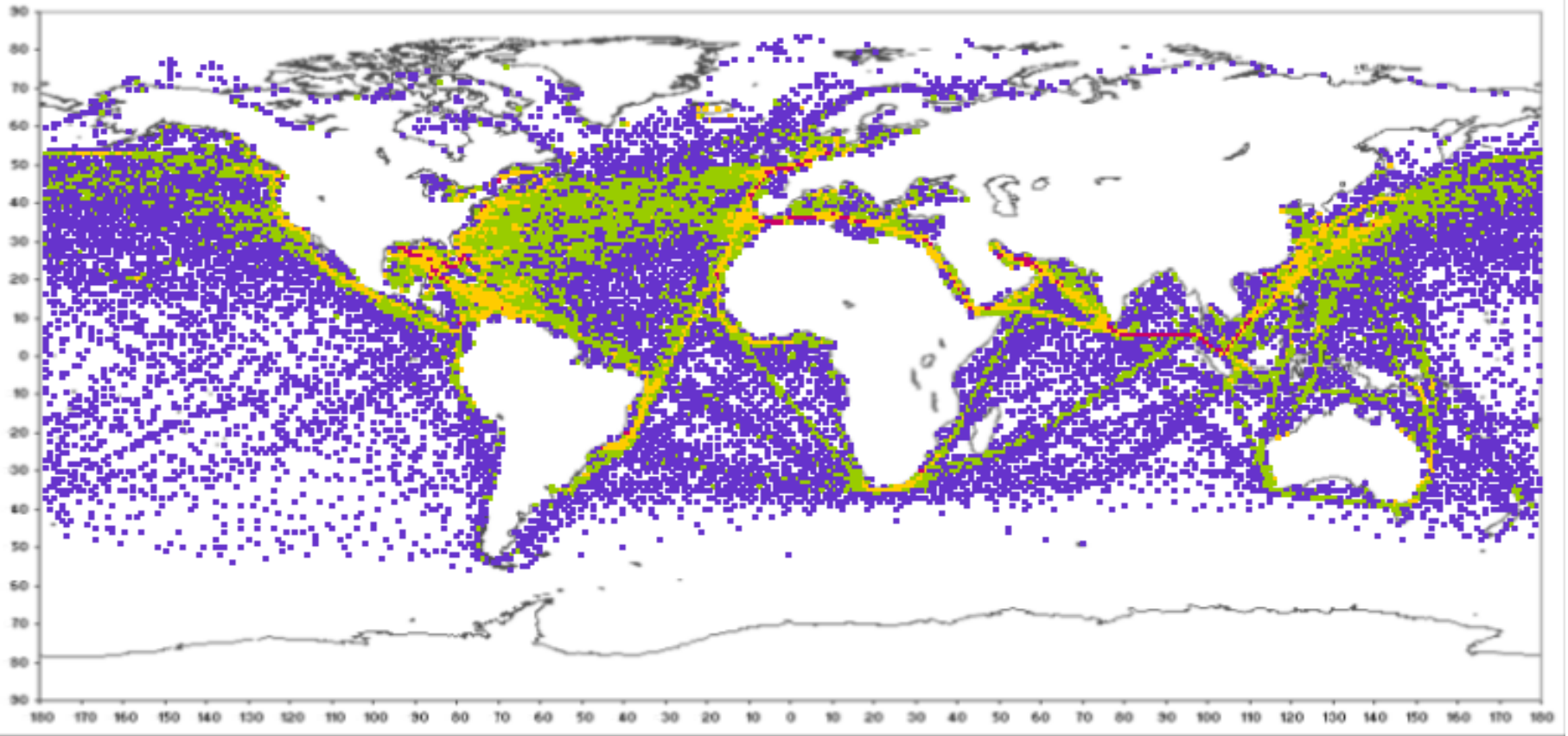
Regional SAR System



SAR / RCCs - FIRs / CAR



AMVER



Shipping Patterns

Annex 14 - Aerodrome



- **Airport Emergency Plan**
 - to be tested with a full-scale emergency exercise at intervals not exceeding two years with a partial emergency exercise held in the intervening years
- **Save life and maintain secure aerodrome operations**
- **Airport Rescue Services require special equipment and facilities when approach operations over water nearby airports**



ATM Operational Concept (Doc 9854)

AO — Airport Operations / Doc 4444




- ✓ ATC units shall maintain full and complete coordination, and personnel shall use their best judgement in handling emergency *and contingencies* situations

- ✓ When an emergency is declared, the ATS unit should take all possible actions immediately to safeguard all aircraft concerned
 - ✓ AGA
 - ✓ MET
 - ✓ COM



Annex 11, par. 2.28



 To raise awareness for need to develop preventive measures in the event of disruption or potential disruption of air traffic services and related supporting services in the airspace for which States are responsible



ATS Contingency Planning



PLANNING

DEVELOPMENT,
PROMULGATION
AND APPLICATION

IMPLEMENTATION

RISK
ASSESSMENT

Contingency
measures &
emergency
preparedness
response

Specific
Strategies /
actions

Ensure
Coordination
process between
parties concerned

Approval by the
President of the Council

Training

Simulations

NOTAM
dissemination

Follow-up
coordination &
implementation

MONITORING PROGRAMME

- Risk assessment
- Management process
- Quality assurance
- Continuous improvement

Main Elements of ATS Contingency Plans



- ✈️ Contingency route network scheme
- ✈️ Flight level allocation scheme to ensure lateral and vertical separation
- ✈️ ATS provision in airspace over the high seas or in delegated airspace
- ✈️ Provision of adequate CNS and MET information
- ✈️ Basic information for NOTAM publication

State responsibilities



- Monitor and initiate effective contingency actions
- Establish a contingency unit to provide 24 hour/day up-to-date information on the situation and associated measures
- Create a team to coordinate activities during the ATS disruption period
- Develop contingency plans based on risk assessment
 - possible consequences of natural disasters
 - public health emergencies
 - acts of unlawful interference
 - military conflict

Natural Disasters

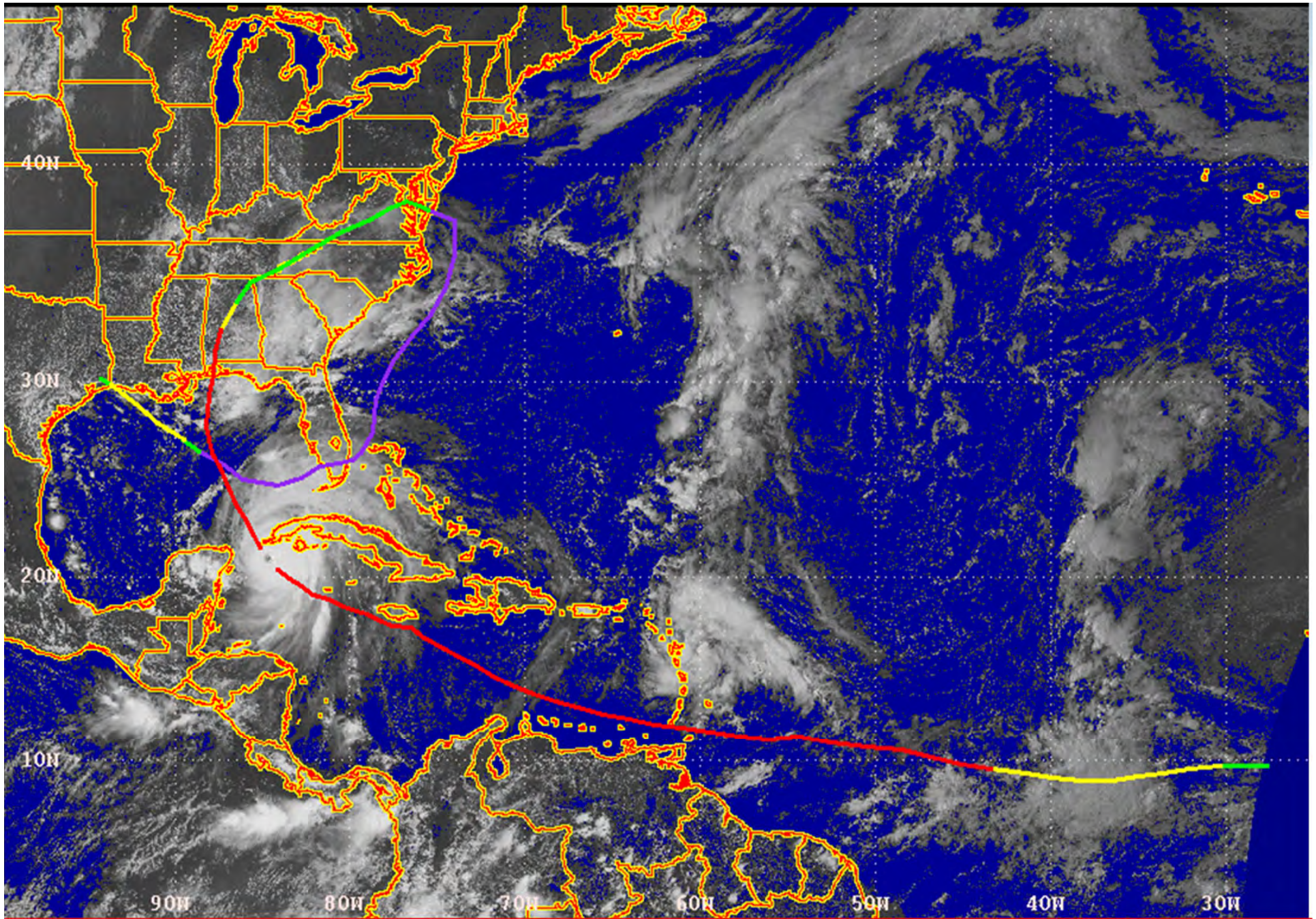


- **Western Hemisphere is regularly impacted by natural disasters**
 - **National and regional coordination of emergency response measures are required**

- **Emergencies range from earthquakes and volcanoes to tsunamis, hurricanes, and civil unrest**
 - **Reduced economic and commercial activities**
 - **Reduced domestic air transport system**
 - **Aviation security effectiveness significantly reduced due to changes in airports configuration**

- **When these emergencies affect the aviation system essential goods and services may not be available**

- **Humanitarian flights become the primary mechanism used by the air transport system to deliver basic goods and services to affected areas**

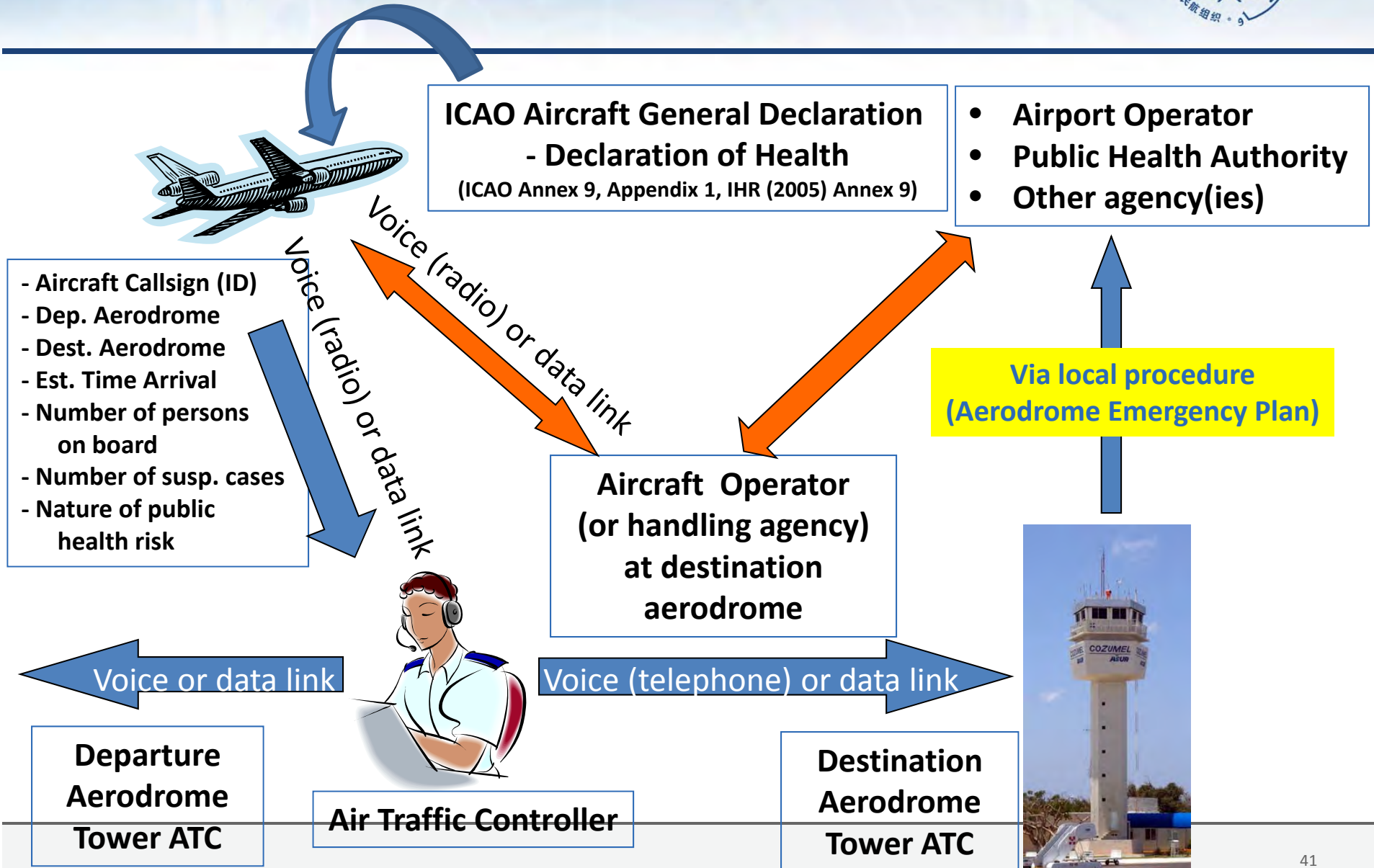


Hurricane Ivan (September 2004)

Volcanic Ash



NOTIFICATION OF SUSPECTED COMMUNICABLE DISEASE, OR OTHER PUBLIC HEALTH RISK, ON BOARD AN AIRCRAFT



Our Strengths



- ✈️ ATS contingency plans completed on a regional basis
- ✈️ Coordination procedures as preventive measures against natural disasters (Volcanic Ash & Hurricane)
- ✈️ Aeronautical notification of suspected communicable disease or other public health risk

Future Challenges



- ✈️ States, ANSPs and ICAO shall develop effective national and regional coordination
- ✈️ Regional emergency preparedness and response coordinated plans
 - ✈️ States
 - ✈️ ICAO
 - ✈️ IMO
 - ✈️ PAHO
 - ✈️ OEA



INTERNATIONAL CIVIL AVIATION ORGANIZATION



FINAL REFLECTION

“In your hands are contributions to safeguard human life through achieving improvements for aeronautical and maritime Search and Rescue system keeping in mind contemporary view harmonization and standardization”

