



Air Traffic Surveillance Views and Expectations of Airspace Users

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To represent, lead and serve the airline industry





IATA today

www.iata.org

- 260 Airline Members from 143 countries accounting for 94% of total international traffic
- 200 partners
- Representation in 90 countries
- 1500 staff

2006 fuel
bill:

US\$115
billion



ATS Infrastructure Improvements

➤ Must be Benefits Driven

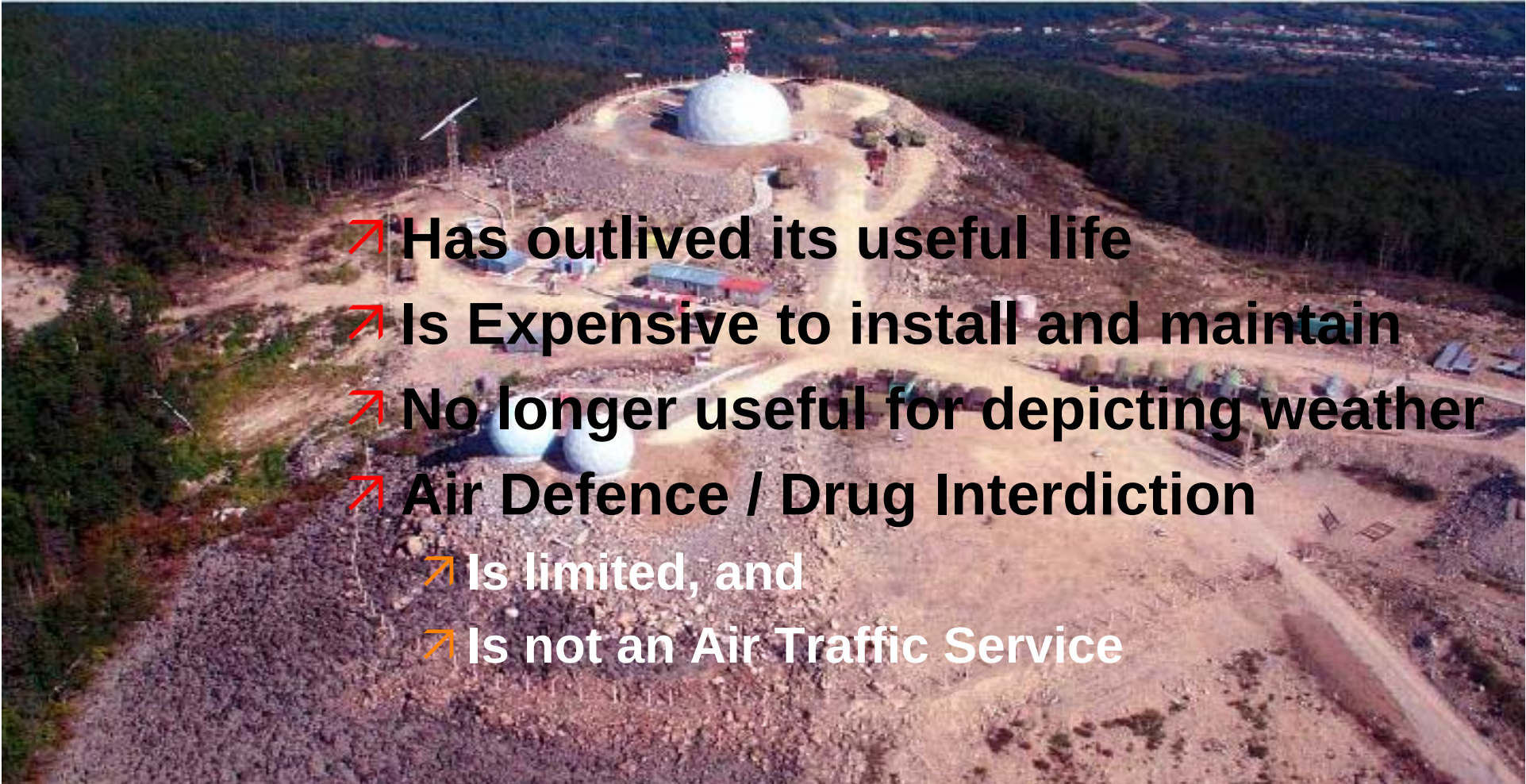
- Safety
- Operational Efficiency
- Traffic Management
- Environment

➤ In Consultation with the Airspace User

ATS Infrastructure - Surveillance

- Procedural position reports
 - Primary Radar
 - Secondary Radar
 - Automatic Dependant Surveillance
 - Contract
 - Broadcast – IN
 - Broadcast – OUT
 - Multilateration
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Primary Radar

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- An aerial photograph of a radar station situated on a hill. The station features a large white dome-shaped radar antenna and several smaller structures. The surrounding area is a mix of cleared land and forest. The text is overlaid on the right side of the image.
- **Has outlived its useful life**
 - **Is Expensive to install and maintain**
 - **No longer useful for depicting weather**
 - **Air Defence / Drug Interdiction**
 - **Is limited, and**
 - **Is not an Air Traffic Service**

Secondary Radar

- More economical in Cost / Power Consumption than PSR
 - Mode C
 - Uses 4096 transponder codes for flight identification
 - Mode S
 - Unlimited codes as each aircraft is allocated a code for life
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Automatic Dependant Surveillance

- **Automatic** – transmit of information, by
 - Contract
 - Broadcast
 - **Dependant** – upon the navigation & broadcast capability
 - **Surveillance** – Standard (current position) or enhanced (predictive, shared, weather)
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ADS – C

- Designed for Oceanic and Remote Airspace
- Is a position report set up by “contract” between ATC and pilot
 - FMS derived position report (IRS + GPS updates) of 3 position reports is data linked to ATC
 - (present position, next position, next + 1 position)
 - Usually given every 14 - 27 minutes
 - Displayed on scope similar to radar
 - Contract position report could include weather information (winds/temp)

ADS – B

- Designed for Domestic Airspace
 - 1-2 returns per second
 - More accurate tracking than radar
 - ADS-B is being introduced with BENEFITS!
 - Radar like separation of 3-5 NM between targets
 - 1/10th the cost of normal radar!!!
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ADS-B ground stations cost 1/10th the price of traditional radar

ADS-B

~ \$100K-\$400K USD

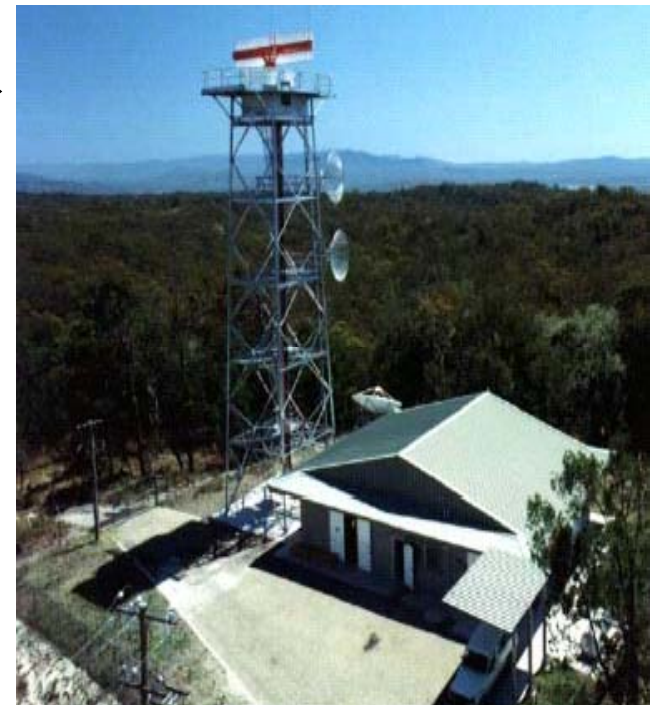


Cost Comparison

Maintenance
Power
Site space
Building
Road
Environmental
Rotating machinery

RADAR

~ \$1M - \$4M USD



ADS – B OUT

- Broadcasts horizontal/vertical position and velocity
- Used by ATC for radar-like surveillance
- Position transmitted via data link
 - Mode-S Enhanced Squitter (1090 MHz)
 - VDL-4
 - UAT (Alaska)

ADS – B OUT

- IATA supports Mode S ES only
 - With DO-260 or DO-260A transponders
 - Where justified by operational and business cases, radar should migrate towards ADS-B OUT
 - New surveillance implementations should consider ADS-B OUT in airport and continental airspace
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ADS-B Datalink Selection

- Mode S Extended Squitter (1090 ES) to be used as the single, interoperable data link for ADS-B in the near term
- 1090 ES is available, mature technology, enabling early implementation
- Boeing, Airbus, CANSO support 1090 ES
- Most fleets have 1090 ES (LATAM)
 - Rest will have it soon
- IATA recognizes that a link with greater performance will be required in the future
- This selection must be made purely on application performance requirements and return on investment
 - not political considerations

ADS – B IN

- ADS information is received and displayed in cockpit to provide an enhanced 'see and avoid' surveillance
- Few air transport aircraft are equipped by ADS-B IN
- IATA believes its premature to devote resources to ADS-B IN implementation

Multilateration

- A ground based surveillance system which uses transponder, TCAS, ADS-B to triangulate position.
 - No separation standards exist today – although ICAO (SASP) expects a 3nm separation minimum by 2009
 - IATA will support Multilateration when it is supported by clear operational requirement, SARPS and Cost/Benefit analysis involving all stakeholders
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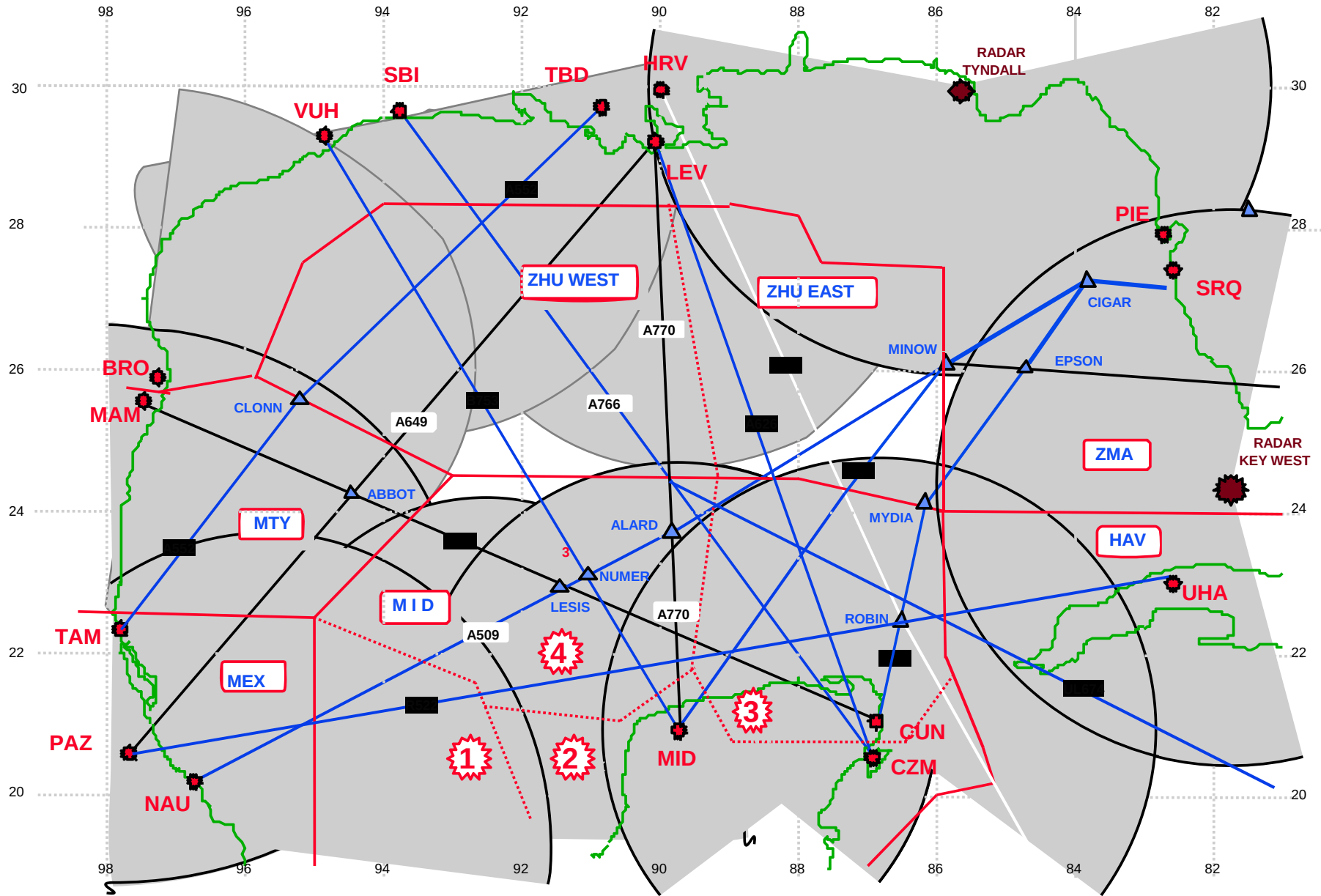
IATA Position

- Recognizes ADS-B as a prime enabler of ATM applications
 - safety and capacity benefits
 - Supports the cost-effective implementation of ADS-B
 - No adequate ground based surveillance is available in many areas of the world
 - ADS-B can provide a cost effective surveillance solution
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Gulf of Mexico - Benefits

- Increase capacity
 - Increase schedule flexibility
 - Increase flight path efficiency
 - Reduce disruption (delays, diversions and cancellations) due to congestion in the Gulf
 - Provide increased route flexibility for traffic during convective weather events
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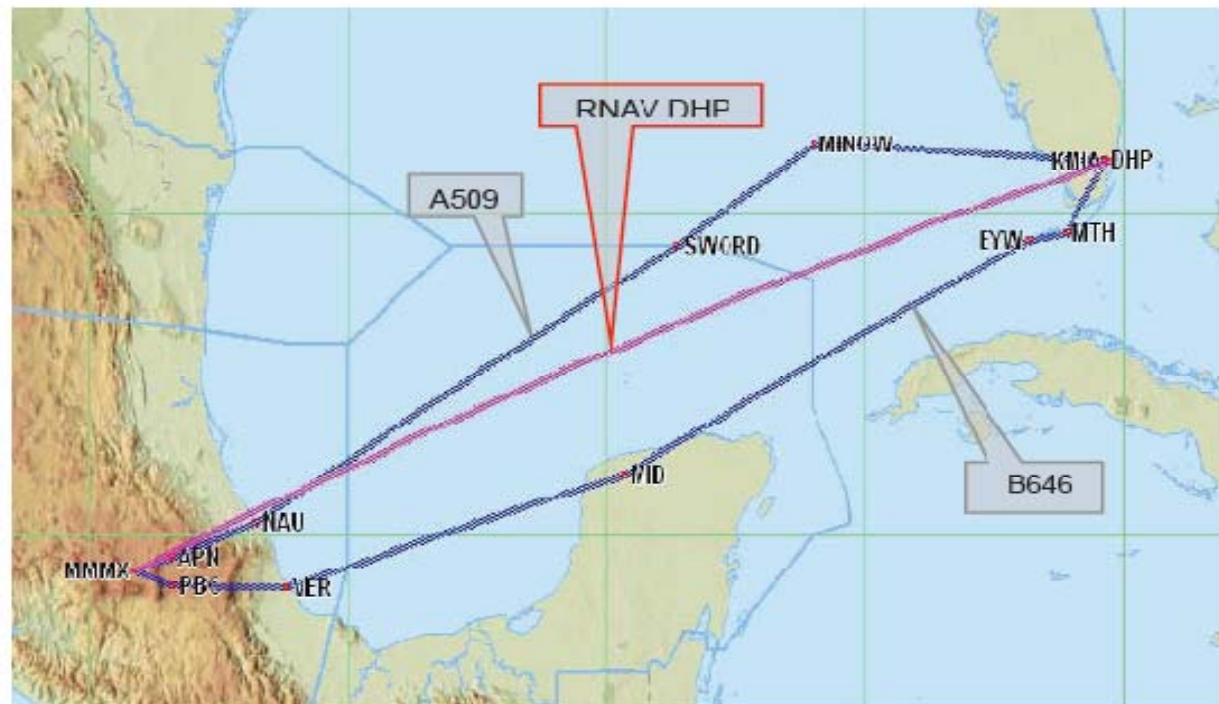
RADAR SHARING



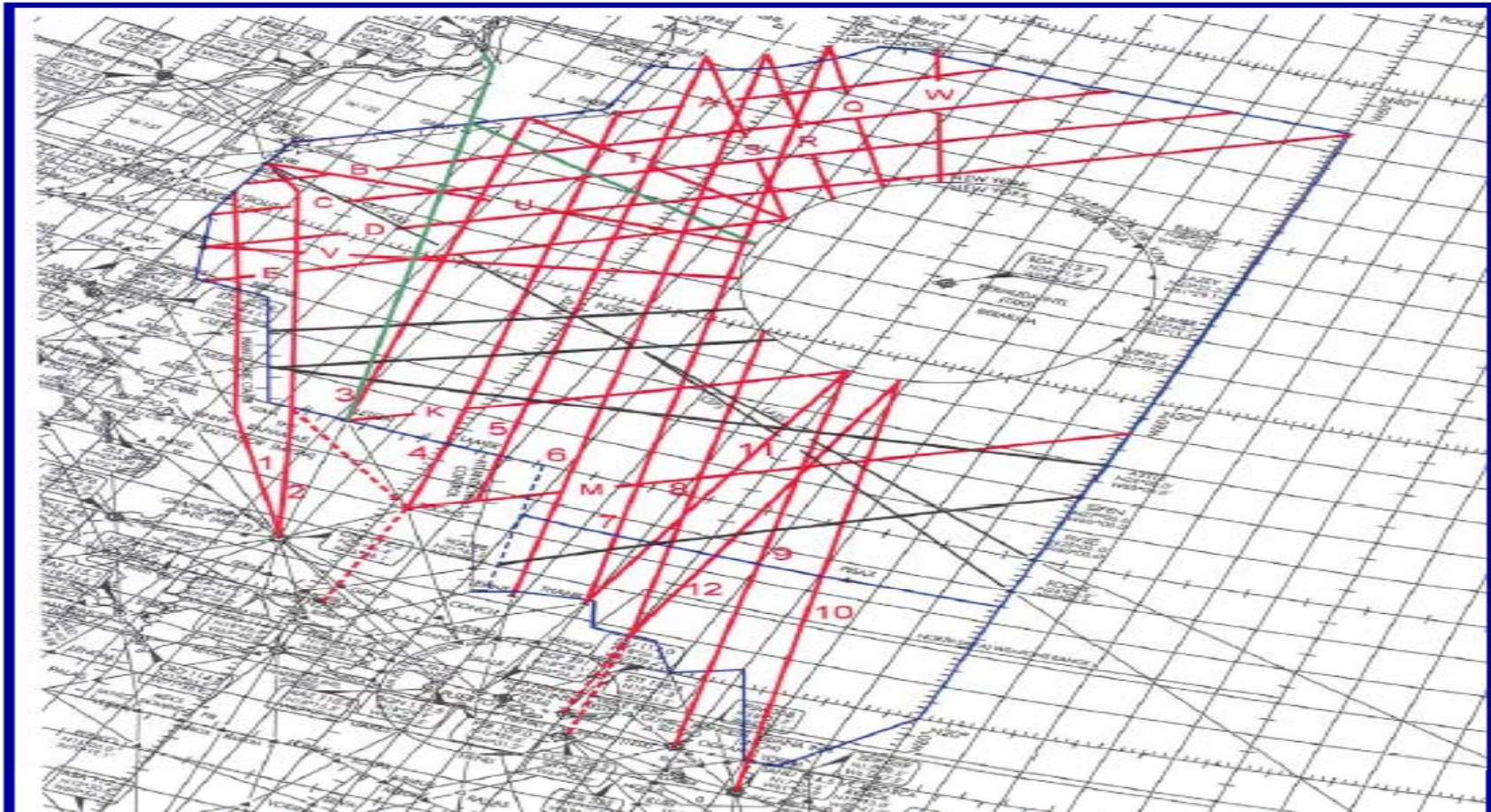
Gulf of Mexico - Savings

MIA-MEX Savings

- 33 NM (vs. A509)
- 53 NM (vs. B646)
- USD 3.4M/yr



Proposed WATRS Airspace



Next Steps

- Develop an ADS-B OUT implementation plan to include:
 - identifying sub-regional areas where there is a positive cost/benefit for near-term implementation
 - standardized and systematic task-list approach to implementation
 - educational seminars for regulators, ANSPs and operators
 - Near term ADS-B datalink selection
 - 1090 ES
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Our common goal:
A harmonized set of
global standards that
will make the safest
form of transport
...even safer





Thank You