ASIO UPR ZONE

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About INSPIRE

- The Indian Ocean Strategic Partnership to Reduce Emissions is a collaborative network of partners and peer organizations across the Indian Ocean and Arabian Sea Region dedicated to improving the efficiency and sustainability of aviation. The INSPIRE was founded by the ANSP partners viz The Airservices Australia, the Air Traffic & Navigation Services South Africa and Airports Authority of India in March 2011.
- The INSPIRE founding Partners were joined by the ANSPs of Sri Lanka, Maldives, Seychelles, Mauritius, Reunion, Madagascar, Kenya, Ethiopia, Somalia, Sultanate of Oman, Abu Dhabi Department of Transport, Abu Dhabi Airports Company (ADAC), Dubai Air Navigation Services (DANS) and the United Arab Emirates General Civil Aviation Authority (UAE GCAC) participate and contribute as peer organizations in the activities of INSPIRE.
- The nine participating Airlines in INSPIRE activities are – Emirates Airlines, Etihad Airways, Cathay Pacific Airlines, Singapore Airlines, Qatar Airways, Ethiopian Airlines, Kenya Airways, South African Airways and Virgin Australia.

User Preferred Routes

- A User Preferred Route (UPR) during the oceanic phase of flight is defined as a lateral profile developed for each individual flight by the flight operator. These lateral profiles are customised in order to meet the specific needs of the aircraft operator for that flight, such as fuel optimisation, cost-index performance, or specific mission requirements.
- Typically, a UPR will be calculated by an aircraft operator's flight dispatch based on factors such as forecasted winds, aircraft type and performance, convective weather, and scheduling requirements.
- UPRs are a favoured enhancement to oceanic operations where air traffic control (ATC) limitations previously required that aircraft fly on fixed air traffic services (ATS) routes, or published flexible track systems. This enhancement is directly attributable to the implementation of ground and airborne improvements such as automated conflict prediction, conformance monitoring and automatic dependent surveillance (ADS).


Libya
Egypt
Saudi Arabia
Iraq
Iran
Afghanistan
Pakistan
China
India
Chad
Sudan
Yemen
Ethiopia
Somalia
Kenya
Arabian Sea
DR Congo
Tanzania
Angola
Zambia
Mozambique
Namibia
Zimbabwe
Botswana
Madagascar
South Africa
Indian Ocean
Thailand
Indonesia
Papua New Guinea
Australia
NT
QLD
WA
SA
NSW
VIC
TAS
User preferred Routes take advantage of optimized wind conditions

ASIO UPR Zone - Genesis

- In its first meeting in May 2011 in Abu Dhabi, INSPIRE team had planned four INSPIRE Green flights to adapt the best practises for reducing emissions and demonstrate the results. AAI facilitated the INSPIRE Green flights to fly UPRs in Mumbai FIR in July 2011. The flights were successful in demonstrating reduction in carbon emission of 73,000 Kgs. Encouraged by the results and the WP presented by IATA in its second meeting in Cape Town South Africa, the INSPIRE team adopted UPR implementation as an initiative in its work programme.

- In the working group meeting of INSPIRE in Dubai on 21 and 22 May 2012 pledged support to the UPR trials programme that may lead to establishment of UPR zone in AS IO region

The systematically planned process

- **In order to plan for the establishment of the UPR zone INSPIRE team in its second meeting in Cape Town, South Africa (November 2011) decided a phased approach as follows,**
- **Phase 1: Data analysis**
- **Phase 2: Paper trials.**
- **Phase 3: Operational trials**
- **Phase 4: Post trial analysis**
- **Phase 5: UPR Geo Zone**

Data Analysis and Paper Trials

- Data analysis: IATA, New Delhi Office, analysed traffic flows and airlines' proposals and recommended flight for trials. The City Pairs proposed by IATA for the UPR Trials were,

  Abu Dhabi/Doha/Dubai – Melbourne/Perth/Sydney/Brisbane

  Hong Kong – Johannesburg

  Singapore – Johannesburg

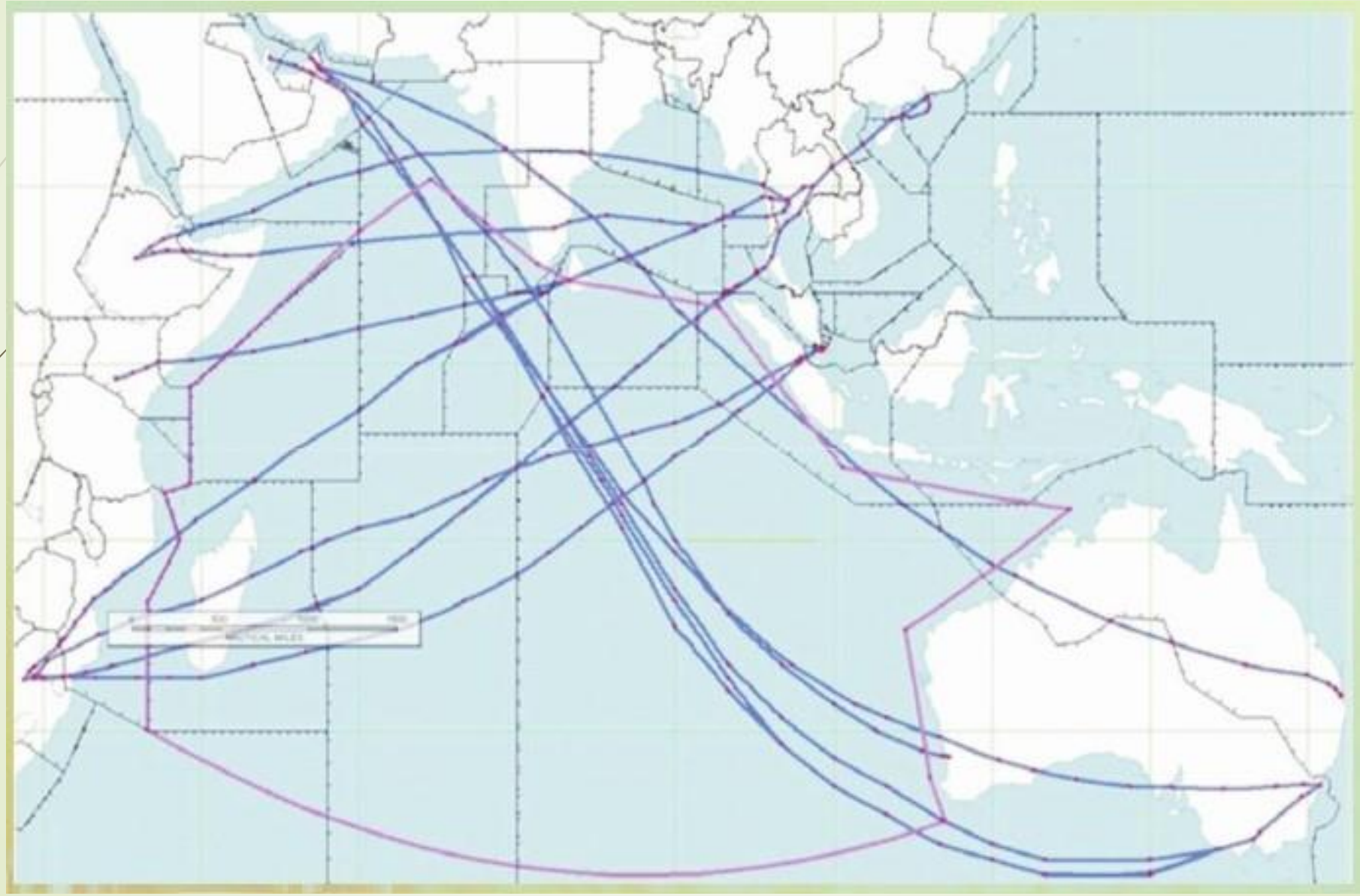
  Nairobi – Bangkok

  Addis Ababa – Bangkok

- The paper trials: Initially conducted in Mumbai FIR by Mumbai Oceanic Control Centre and later by Colombo, Male, Melbourne and Seychelles FIRs.

  Methodology: The synthetic tracks were generated in the standby string of the automation system as per the flight plan data and flights were tracked throughout the journey in real traffic scenario

Identified UPR Geo Area with Violet boundaries & UPR Paper trial Tracks in blue



Operational Trials

- The operational trials of UPR flights were conducted in phases throughout 2012.
- The fuel savings for the initial 55 flights were 52,724 kg, and the CO2 emissions reported were 166.11 Tonnes. The average CO2 emission savings per UPR flight was thus 3.02 Tonnes.
- On behalf of INSPIRE, AAI submitted a working paper at the ICAO AN-Conf/12 held in Montrèal, Canada in November 2012. The initiative was widely accepted and supported
- In the third meeting held at Mumbai in December 2012, INSPIRE partners took the formal decision for the establishment of ASIO UPR Zone

The User Preferred Route Geographic Zone identified by INSPIRE spans 15 FIRs and involves 3 ICAO Regions i.e. APAC, the MID East and the AFI. It is spread over approximately 13 million Square NM of Arabian Sea and Indian Ocean.

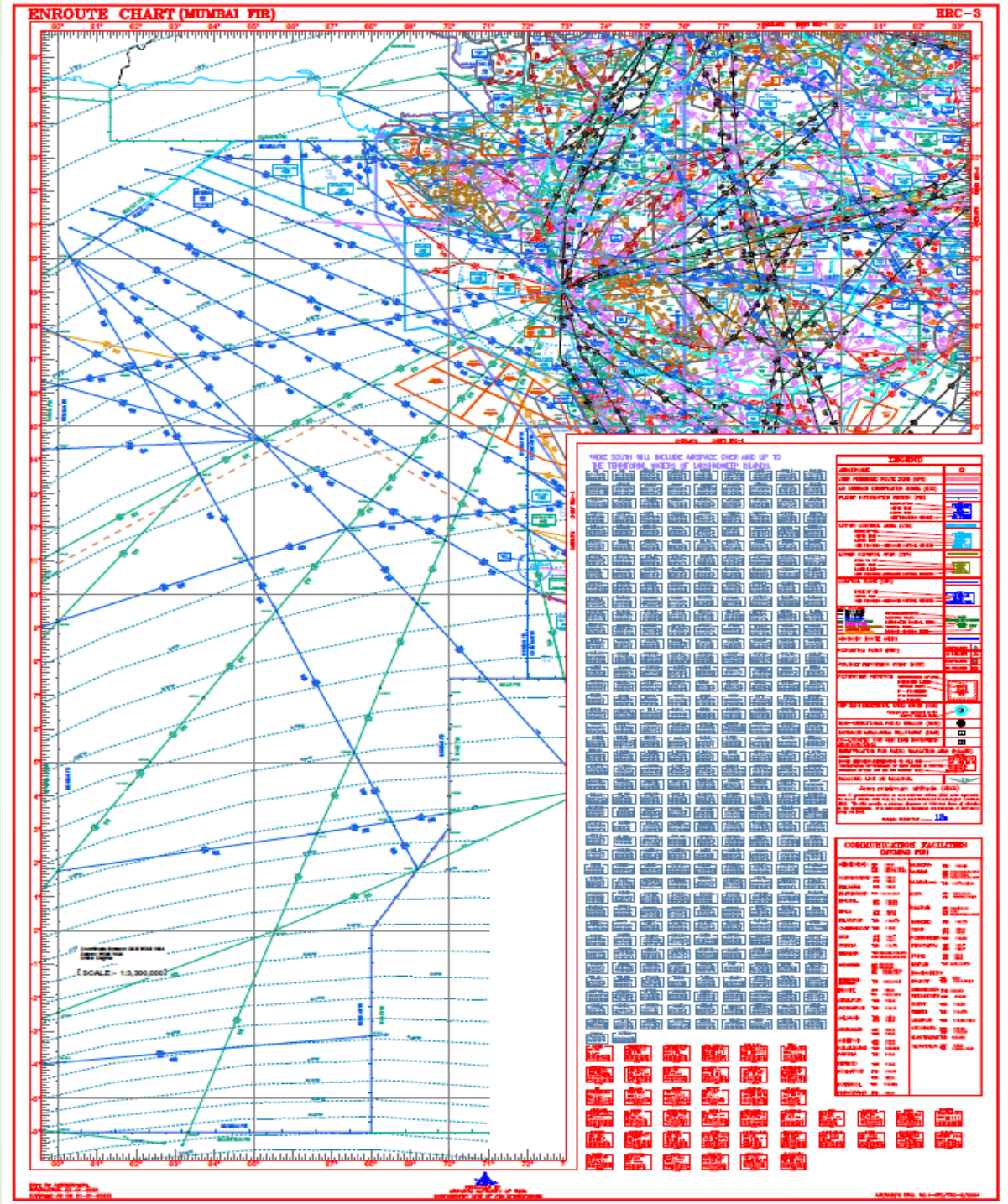
Establishment of ASIO UPR ZOne

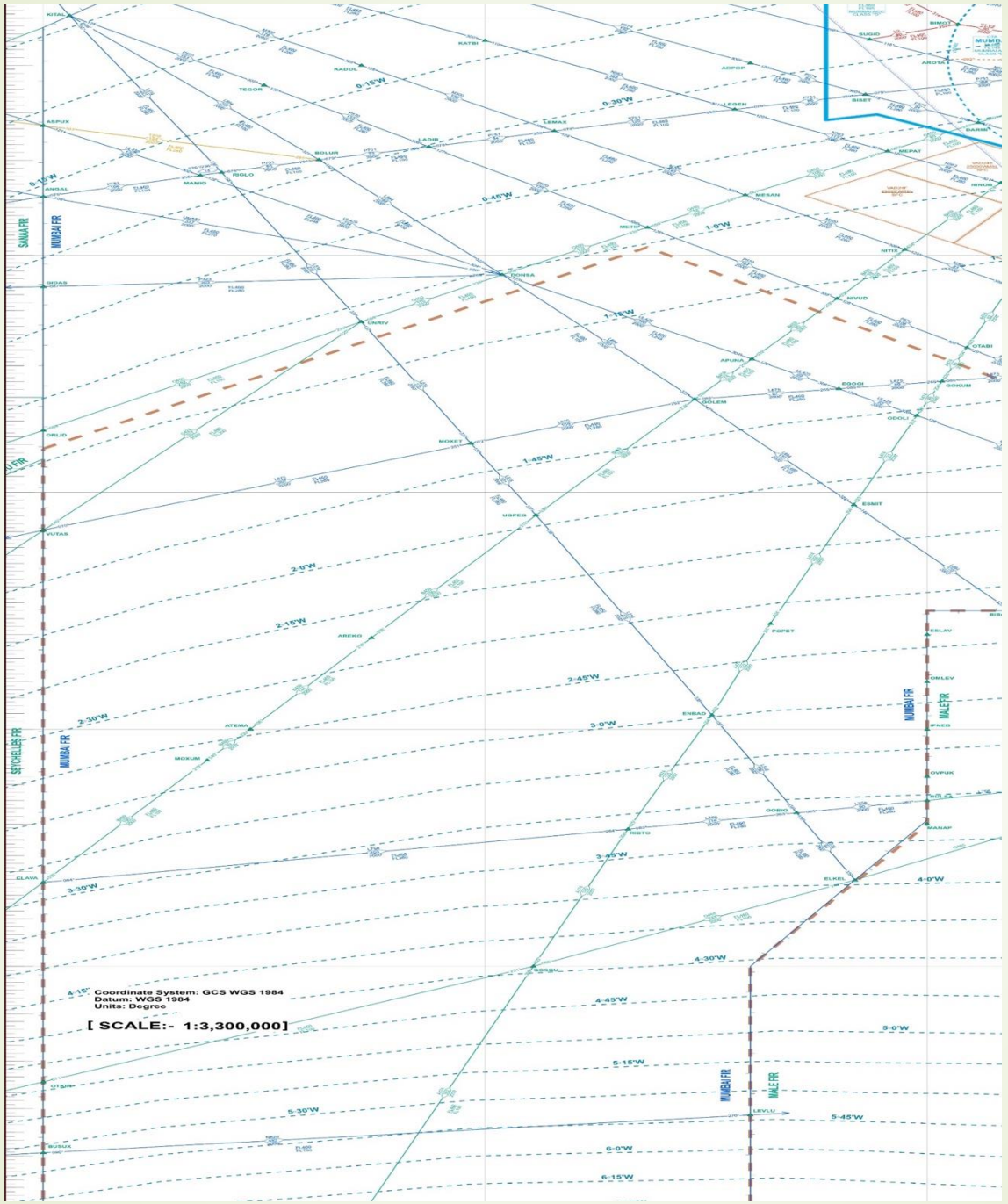
- During 2012-2013, each ANSP promulgated UPR Zones about airspace under their jurisdiction, conjoining with the agreed boundaries on neighbouring ANSP airspace to form a large Arabian Sea – Indian Ocean User Preferred Routes Geographic Zone.
- Well-coordinated efforts between ANSPs and airlines, along with IATA progressed to establish the UPR Geo Zone spread over 13 million square nautical miles in the record time of 23 months (conceptualization in December 2011 to reality in October 2013).
- As per conservative estimates, 10 UPR flights for a day across the region result in carbon dioxide emissions savings of 10,000 tonnes per year.
- INSPIRE received the ATC Global Award 2013 for "Strategic Advancement in Air Transport."
- ASIOACG won the IHS Jane's ATC Award 2014 under the Service Provision category – for contributing to safe and efficient airspace management.

Current Challenges -

- Increase in traffic on trunk routes connecting South Asia/SouthEast Asia/Far East & Middle East
- Increase in traffic on crossing routes between the African Continent and India, and further to the East
- Concentration of crossing traffic on P751 (likely due to underlying geopolitical issues).
- Likelihood of shift of crossing traffic on adjacent crossing route – G450 – in the future!!!

FIR MAP




Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree
[SCALE:- 1:3,300,000]
SANAA FIR
MUMBAI FIR
SEYCHELLES FIR
MALE FIR
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5-45'W
6-0'W
6-15'W

Solutions-

- **Proposal**
  - **ANGAL P751 BOLUR LADIB LEMAX LEGEN BISET BBB**
  - **ANGAL UM551 DONSA G450 METIP MESAN MEPAT DARMI BBB**
  - **GIDAS P323 DONSA G450 METIP MESAN MEPAT DARMI BBB**
  - **UPR route between VUTAS to ANODA**

THANKS