INTERNATIONAL CIVIL AVIATION ORGANIZATION
WESTERN AND CENTRAL AFRICAN OFFICE

FOURTEENTH MEETING ON THE IMPROVEMENT OF AIR TRAFFIC SERVICES OVER THE SOUTH ATLANTIC (SAT/15)

Lisbon, Portugal, 19 to 20 May 2010

Agenda Item 1: Air traffic management (ATM)

1.2. Follow up of the AORRA airspace implementation

Additional Entry/Exit Waypoints for Efficient Access to AORRA Airspace
(Presented by IATA)

SUMMARY
This paper discusses additional Entry/Exit waypoints to facilitate access to AORRA airspace for aircraft operating from the Middle East but applies generically to all operators.

1. INTRODUCTION

1.1 On the 21st of December 2006, the South Atlantic States implemented a Random Route area for aircraft operating between Africa and South America called Atlantic Ocean Random Routing RNAV Area (AORRA). Random Routing in Oceanic airspace is not new having been first implemented in the North Atlantic in the early 1970s, in the 1990s in the Pacific and more recently in the Indian Ocean from South Africa and the Middle East to/from Australia.

1.2 Participating airlines will be able to realise large benefits from the tracks designed to maximize wind affect by seeking tailwinds and avoiding headwinds. Maximum airline participation is encouraged by minimal requirements and restrictions applied to the use of the Random Routes. In the Indian Ocean example, the extrapolated benefits from actual data on savings are estimated to be in excess of 2.7 million kilograms of fuel per annum within the Melbourne FIR alone.

1.3 The implementation of the AORRA area within the South Atlantic is complicated by the coordination required amongst the Air Traffic Service Providers in this Region. Aircraft flying Random Routes within AORRA will use the conventional fixed routes outside of the AORRA area and commence Random Routes at a published waypoint on the boundary. As the conventional fixed ATS-Route structure will not always position the aircraft efficiently for the optimum route on any given day, benefits to airlines can increase with the availability of additional Entry/Exit waypoints on the AORRA boundary along with suitable transitions from the existing Domestic airway structure.

1.4 IATA reiterated the need for airlines to concentrate on utilising the processes and procedures instigated by dedicated ANSPs to assist airlines in achieving fuel efficiencies. An associated benefit of reduced fuel burn is the subsequent reduction in green house gas emissions.

2. DISCUSSION

2.1 The original AIP SUPPs defining the South Atlantic AORRA area specified a limited number of existing Waypoints as Entry/Exit points for Random Routing. These were basically waypoints on Airways at the Oceanic Boundary. It is submitted that to gain ultimate flexibility a number of additional named Waypoints need to be defined on the AORRA boundary. Examples are attached from the North Atlantic where Entry/Exit waypoints into the Oceanic area are located on 1° increments of Latitude on both sides of the North Atlantic.

2.2 As an example, a pictorial of the Gander Oceanic Entry Points is shown in Attachment A, to this Working Paper.

2.3 Similarly, Attachment B shows a graph of the Shanwick Oceanic boundary, along with their waypoints.

2.4 Attachment C lists a series of waypoint data in Latitude/Longitude format as candidates for named 5-letter waypoints.

2.5 It is also requested that Entry/Exit waypoints be published on the Northern boundary of the Random Routing area on a 5° Longitude basis to allow aircraft to enter/exit the AORRA area when operating on a North-East or South-West axis. These are given in Attachment D.

2.6 The addition of these named Waypoints by the participating States will allow work to begin with the Air Navigation Service Providers (ANSPs) on defining more efficient hook-ups to these Entry/Exit Waypoints from the existing Domestic Route structure outside of the current AORRA boundaries.

2.7 Individual ANSPs have limited potential to improve long haul fuel efficiencies. However multiple ANSPs working to a common goal have the capacity for dramatic gains. And with the deployment of Ultra-Long Range aircraft on new city-pairs around the world, it is incumbent that ANSPs work together to provide efficiencies in areas and on route orientations where it was never envisaged before.

2.8 In parallel with the ULR aircraft, ANSPs also must, to the degree possible, have similar operational procedures with other Oceanic airspaces around the world. The operating crews today can operate in the North Atlantic one week, the South Pacific the next week, and the Indian Ocean the third week, and now the South Atlantic all in the same month. Operational requirements and crew procedures for the various contiguous airspaces around the world need to be as harmonious as possible in this new environment.

2.9 Experience in the Indian Ocean tells us that more Waypoints are required than one would consider useful. In the June-to-August timeframe on Dubai/Melbourne, flight plans are filed that are consistently up to 6° Latitude South of the destination, Melbourne, only to pick up the strong Jet Streams along the Roaring 40s.

2.10 The SAT 13 and 14 Task Force Meetings reviewed and noted the benefits to the airlines by the Random Routing areas and upheld the requirements for Air Navigation Service Providers (ANSPs) to actively support airlines efficiency. It also agreed that publishing more waypoints will be useful and that multiple ANSPs working to a common goal have the capacity for greater gain than individual ANSPs limited potential.

2.11 The need for SAT States and concerned FIRs to define and support more efficient hook-ups to the current Entry/Exit Waypoints from the existing Domestic Route structure that are outside of the current AORRA boundaries should be encouraged by all concerned FIRs .

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Publish the waypoints listed in the Attachments in 5-letter format, as soon as practicable,
b) Support and encourage ongoing collaborative development of efficient route segments within the South Atlantic AORRA area by providing choices for airlines and defining efficient hook-ups to these Entry/Exit Waypoints from the existing Domestic Route structure outside of the current AORRA boundaries.

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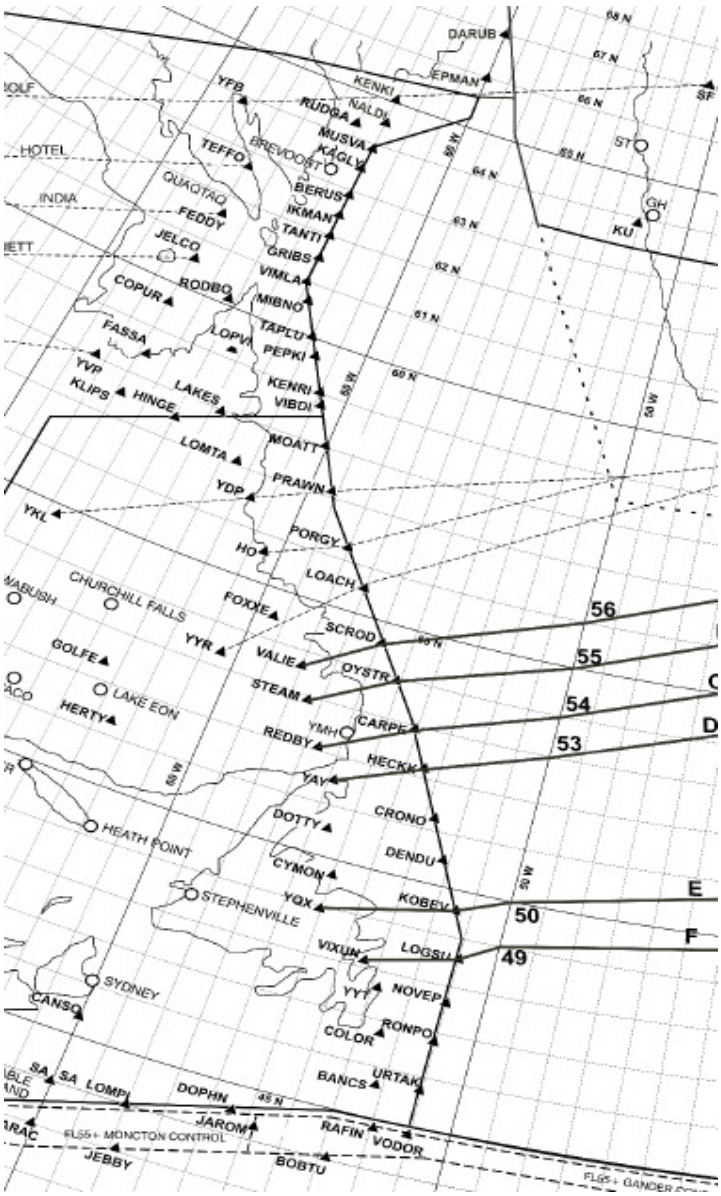
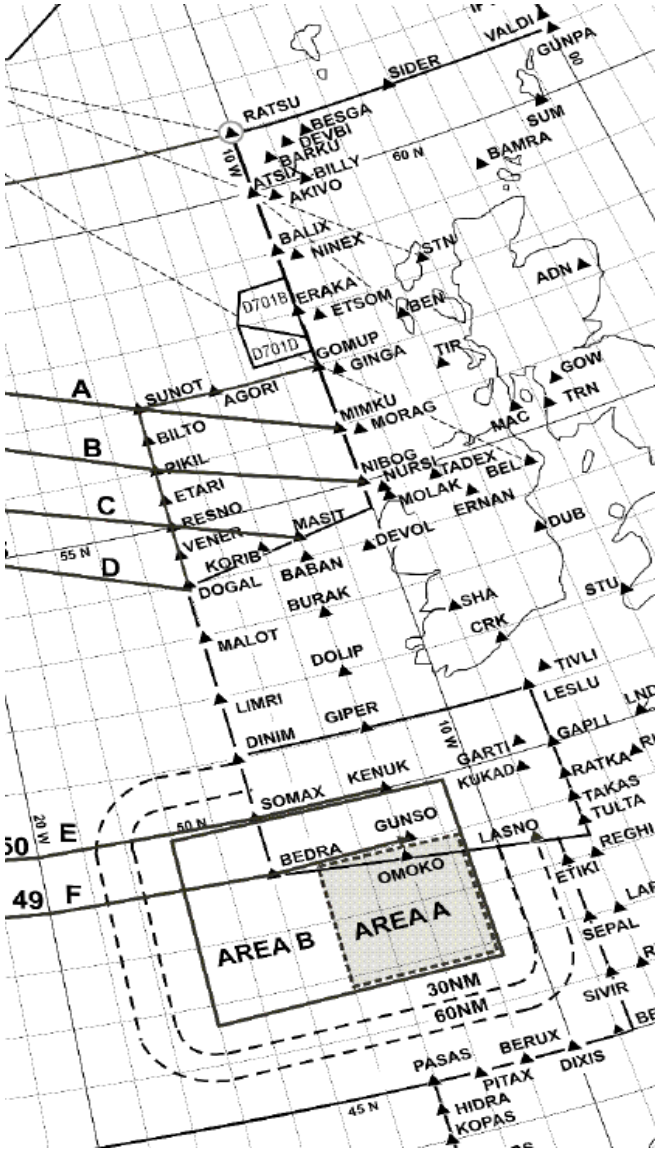
Attachment A



Gander Oceanic Entry Points

Attachment B



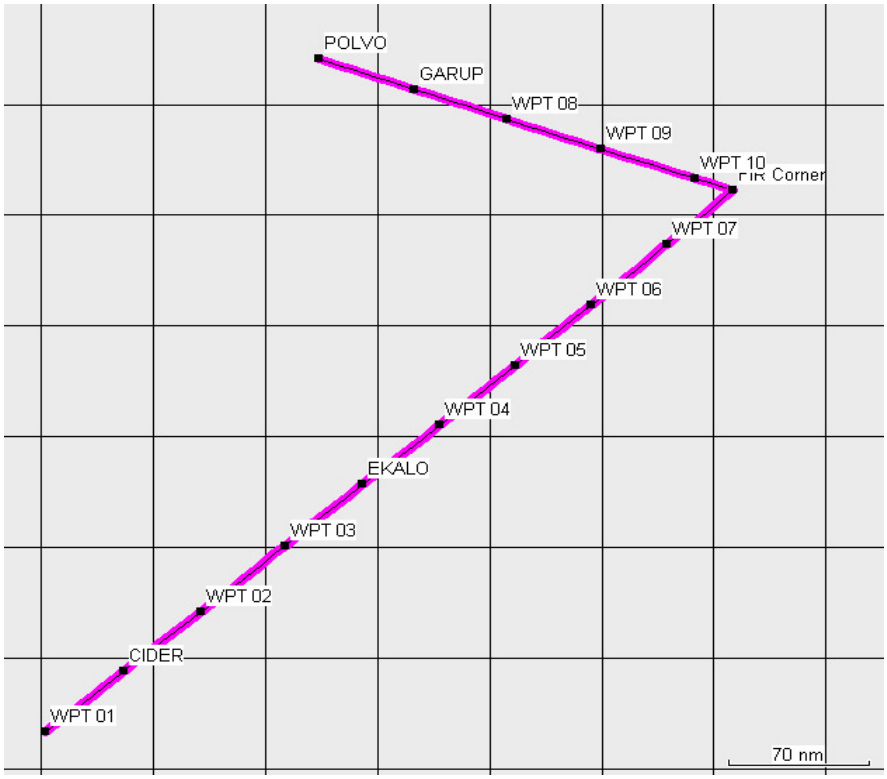
Shanwick Oceanic Entry Points

Airspace users' proposals for AORRA/3 entry/exit points

Accra FIR
TYE VOR to:
MERID
EDORO
N00 00 00.0 W002 00 00.0
OPUGA
ACC VOR to:
EDORO
N00 00 00.0 W002 00 00.0
OPUGA
Accra/Abidjan FIRs
TYE VOR to:
N00 00 00.0 W004 00 00.0
N00 00 00.0 W005 00 00.0
ACC VOR to:
N00 00 00.0 W004 00 00.0
N00 00 00.0 W005 00 00.0
N00 00 00.0 W006 00 00.0
N00 00 00.0 W007 00 00.0
Abidjan/Roberts FIRs
ABJ VOR to:
N00 34 43.0 W007 55 58.0
N01 09 27.0 W008 31 56.0
N01 44 10.0 W009 07 58.0
N02 18 53.0 W009 43 56.0
N02 53 35.0 W010 19 59.0
N03 28 15.0 W010 56 03.0
Roberts FIR
ROB VOR to:
N03 28 15.0 W010 56 03.0
N04 02 54.0 W011 32 11.0
N04 37 32.0 W012 08 21.0
N05 12 07.0 W012 44 35.0
N05 46 41.0 W013 20 53.0
N06 21 12.0 W013 57 16.0
LGI VOR to:
N06 21 12.0 W013 57 16.0
N06 55 41.0 W014 33 43.0
N07 30 07.0 W015 10 16.0
N08 04 30.0 W015 46 54.0
N08 38 50.0 W016 23 39.0
Roberts/Dakar FIRs
BIS VOR to:
N08 38 50.0 W016 23 39.0
N09 13 06.0 W017 00 30.0
N09 47 18.0 W017 37 29.0
N10 21 27.0 W018 14 35.0
N10 55 31.0 W018 51 49.0

Dakar FIR
DKR VOR to:
N10 55 31.0 W018 51 49.0
N11 29 31.0 W019 29 12.0
N12 03 25.0 W020 06 44.0
N12 37 15.0 W020 44 25.0
Brazzaville FIR
DLA VOR to:
N00 00 00.0 E003 00 00.0
N00 00 00.0 E004 00 00.0
N00 00 00.0 E005 00 00.0
N00 00 00.0 E006 00 00.0
N00 00 00.0 E007 00 00.0
Luanda FIR
MUNDA - S07 00 E011 00
MTI - S07 00 E011 00
MTI - OPAPO
BUDEL - S09 00 E011 15
VNA - S09 00 E011 15
VNA – S11 00 E011 23.1
Atlantico FIR
Suitable Transitions Ebnd & Wbnd from MRC, CPO, & VTR VORs to the following Waypoints:

WPT 01 S24 39 55.5	W40 57 33.1
WPT 02 S23 34 53.5	W39 34 09.5
WPT 03 S22 58 57.4	W38 49 15.4
WPT 04 S21 53 43.4	W37 26 46.6
WPT 05 S21 21 04.9	W36 46 00.0
WPT 06 S20 48 26.4	W36 05 32.8
WPT 07 S20 15 47.9	W35 25 05.5
WPT 08 S19 08 04.2	W36 50 25.7
WPT 09 S19 24 14.5	W36 00 23.2
WPT 10 S19 39 54.8	W35 10 08.2



Airspace users proposals for AORRA/3 entry/exit points

- Dakar and Roberts FIRs -