Atlantic Interoperability Initiative to Reduce Emissions (AIRE)

ATL and MIA CDA Status Update

Presented to: E Operations Workshop

Date: December 5, 2007
LAX RIIVR STAR CDA Example
Descent Optimized for a Variety of Aircraft

RIIVR ONE STAR
CDA Simulation Results
11/30/2006

Descent Optimized for a Variety of Aircraft

RIIVR

331 ft/nm

300 kt

FL210

GRAMM (65nm AER)

HABSO

RIIVR

KRAIN

TAROC

MUSIK

 TOUCHDOWN

70 FUELQ

97 100

120 140

170

ATC speed intervention area

DIKES

(128nm AER)

EMMEY

(104nm AER)

DYPSO

HEC

(FL 375)

(FL 430) (FL 410)

(FL 330)

(FL 310)

(FL 330)

(FL 300)

(FL 260)

B-757

B-767 HEC transition

B-767 ATC speed intervention (slow)

B-767 PGS transition

Top Of Descent @ FL350

Calculated TOD @ FL230 and FL410

(XXX) Calculated descent windows

XXX Published altitude restrictions
AIRE Continuous Descent Arrival (CDA) Plan

• **Evaluate the operational feasibility and benefits of Continuous Descent Arrivals (CDA)**
  
  – Methodology to assess key metrics for the implementation of CDAs
    • Establish pre-demonstration baseline to measure key metrics in current operational environment
    • Define and chart optimal vertical paths for aircraft and airspace efficiencies
    • Determine expected level of benefit via modeling and simulation
    • Establish data collection and analysis plan; and
    • Perform post-demonstration operational evaluation to validate savings of emissions, fuel, time and noise
AIRE CDA Plan con’t

• Develop and refine tools, knowledge, and best practices relating to CDA procedure integration into the NAS and CDA usage during various traffic conditions.

  – Use existing procedure development 18-Step Process
  – Provide and refine procedure development expertise and capture lessons learned
  – Assess airspace and traffic flow impact of design and implementation of CDA procedures
  – Enhance controller familiarity with CDA operations through human-in-the-loop simulations
  – Develop a deeper understanding of the key factors affecting aircraft vertical performance
AIRE CDA Features

Key Features:

• RNAV STAR
  – Fixed lateral path

• Optimized Vertical Profile
  – Minimize level segments
  – Idle descent with minimal speed intervention
  – Uses existing Descend Via phraseology

• Benefits
  – Uses FMS capabilities to manage energy and reduce cockpit workload
  – Reduces pilot/controller communications
  – Fuel savings
  – Reduced noise
  – Reduced emissions

• Inter-aircraft separations priority
  – Evaluate metering scheme
  – Limit controller intervention below initiation altitude
## AIRE CDA Schedule

### CDA Schedule

<table>
<thead>
<tr>
<th>(Draft)</th>
<th>FY 2008</th>
<th>FY 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st Qtr</td>
<td>2nd Qtr</td>
</tr>
<tr>
<td>CDA Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATL CDA</td>
<td>Modeling and Simulation</td>
<td>Demo</td>
</tr>
<tr>
<td>MIA CDA</td>
<td>Modeling and Simulation</td>
<td>Demo</td>
</tr>
<tr>
<td>CDA Baseline</td>
<td></td>
<td></td>
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<tr>
<td>CDA Post Analysis</td>
<td></td>
<td></td>
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<tr>
<td>Safety Analysis</td>
<td></td>
<td></td>
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<tr>
<td>Environmental Analysis</td>
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FY ’08/09 Timeline – Continuous Descent Arrival Demo

AIRE CDA Update
December 5, 2007
AIRE CDA Milestones

- September 2007 – FAA/Industry AIRE CDA Kickoff Meeting - **Completed**
- October 2007 – Establish ATL and MIA CDA working groups - **Completed**
  - Regular meetings commenced
- November/December – Lateral and vertical path development - **In progress**
- February 2008 – Finalized CDA procedure designs
- March 2008 - Human In the Loop Simulations
- May 2008 – Baseline Airspace Evaluation Complete
- May 2008 – Begin CDA Demonstration Flights
- August 2008 – Post-Demonstration Benefits Assessment Report
QUESTIONS?