



ICAO

International Civil Aviation Organization  
North American, Central American and Caribbean Office

INFORMATION PAPER

NACC/WG/4 — IP/30  
17/03/14

**Fourth North American, Central American and Caribbean Working Group Meeting  
(NACC/WG/4)**

Ottawa, Canada, 24 to 28 March 2014

**Agenda Item 3: Follow-up on the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (NAM/CAR RPBANIP) Progress**  
**3.3 ANI/WG and other regional group progress reports**

**GULF OF MEXICO ROUTE REDESIGN AND AUTOMATIC DEPENDENT SURVEILLANCE-BROADCAST (ADS-B): STAKEHOLDER BENEFITS GAINED**

(Presented by United States)

**EXECUTIVE SUMMARY**

This information paper provides an update on stakeholder benefits gained from the successful implementation of the Gulf of Mexico (GOMEX) Route Redesign project that initiated on January 10, 2013. Houston Air Route Traffic Control Centre (KZHU) presented validation of the intended project results by providing source data that outlines specific advances and overall improvement in efficiency for operations in the GOMEX airspace. JetBlue Airways, KZHU, and Miami Air Route Traffic Control Centre (KZMA) participated in an Automatic Dependent Surveillance-Broadcast (ADS-B) route test in the GOMEX airspace from August 15, 2013 to October 15, 2013. This test yielded favourable results that demonstrated an increase in efficiency and cost saving benefits to the user when alternative ADS-B routes were used during periods when weather impacted the GOMEX airspace.

<i>Strategic Objectives:</i>	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Air Navigation Capacity and Efficiency</li> <li>• Environmental Protection</li> </ul>
<i>References:</i>	<ul style="list-style-type: none"> <li>• CA/ANE/WG/7 / C/CAR/WG/9 — WP/23</li> <li>• KZHU GOMEX Effectiveness Report 24 February 2014</li> </ul>

**1. Introduction**

1.1 On January 10, 2013, at 0630 UTC, the United States, Federal Aviation Administration (FAA), *Servicios a la Navegación en el Espacio Aéreo Mexicano* (SENEAM) and *Dirección General De Aeronautica Civil Mexico* (DGAC) implemented the GOMEX RNAV routes based on 50 NM lateral separation. These RNAV routes replaced most, but not all, existing ATS routes. Routes that are flown by reference to ICAO standard ground-based navigation aids (VOR, VOR/DME, NDB) and Special Area Navigation routes Q100, Q102 and Q105 were not affected.

## 2. Discussion

2.1 On February 24, 2014, Houston Air Route Traffic Control Centre (KZHU) provided a list of benefits gained by stakeholders as a result of the successful implementation of GOMEX. The gains are as follows:

2.1.1 Over 40% of air traffic in the GOMEX travel between the Houston Texas Area and the Yucatan Peninsula. Prior to the implementation of the Route Project, only two routes existed that accommodated this traffic. The successful implementation of the GOMEX project allowed the use of three routes in the same airspace due to reduced lateral separation. A notable benefit gained from the establishment of these routes is that pilots are not dependent on land-based navigational aids... The existence of more route options has created greater flexibility when weather impacts the Gulf of Mexico. As an example, on Friday, 21 February 2014, weather was impacting the Gulf of Mexico. In the past, with only two airways, one airway would be closed and Traffic Management Initiatives (TMI) would be initiated to reduce traffic on the single, remaining route across the Gulf or re-route traffic over land; both resulting in major cost to the user. With the three airway configuration, two airways were used for a more efficient operation instead of having to use a single airway operation with TMIs in effect.

2.1.2 In KZHU Ocean West Sector, all non-radar airway crossing points have been moved into radar surveillance. Prior to the GOMEX project, controllers would need to use multiple flight progress strips and post them in different fix posting bays in order to detect and correct potential non-radar conflicts. Any amendment to the flight, such as an altitude change, would require the controller to manually amend every strip. Currently, a single strip is used for each aircraft, resulting in a significant reduction in controller “heads down” duties.

2.1.3 In KZHU Ocean East Sector, one of the busiest traffic flows is the northbound routing over MYDIA waypoint. Approximately 80 to 100 aircraft per day fly this route and consists of traffic from Cancun, Cozumel, and Central American airports destined to the east coasts of the United States and Canada, and Europe. Prior to GOMEX, this airway, B881, converged with multiple airways. A509 converged and was the primary airway from the Mexico City area to the southeast United States and Europe. A758 was the airway for Merida and Guatemala City departures to the United States east coast. This necessitated the use of 15 minutes non-radar crossing separation. As a result, numerous aircraft would not receive their requested, more optimal flight level. M219 is the GOMEX airway that replaced B891. This airway was reconfigured to maintain 50 NM lateral separation with M580/M215, which replaced A509 and A758. Northbound traffic entering KZHU airspace on M215 and M219 are laterally separated until the aircraft are under radar surveillance. As such, more aircraft are able to fly at their requested altitude. Additionally, the northbound route over MYDIA is a direct flight track to KNOST waypoint. A direct track from MYDIA to KNOST crosses Warning Area 168. When this area is inactive, Miami and Houston Centers have an agreement that allows KZHU to clear aircraft direct KNOST waypoint. This is a significantly shorter route compared to the previous B881 route.

2.1.4 Another advantage has been gained for the occasional aircraft that flight plan across the Gulf from east to west, or west to east. There are no airways for this traffic mainly because this is not a major traffic flow. Prior to GOMEX, KZHU would route aircraft direct MINOW and MAEKO waypoints. This route would cross every non-radar airway. This resulted in aircraft being assigned lower than optimum altitudes (below FL300) or higher than attainable altitudes (above FL410). If the aircraft would not accept these altitudes, they were routed north over Q100 or Q102 in Jacksonville Center’s airspace, increasing an aircraft’s route of flight. The GOMEX project provided additional waypoints for two routes (L214 and L333) that are inside usable radar coverage, which now allows KZHU to apply radar separation.

2.1.5 Recently KZHU, KZMA, and JETBLUE Airways conducted an ADS-B test predicated on predetermined test routes that would allow radar surveillance in areas of limited or no radar coverage. The test period was in effect from August 15, 2013 to October 15, 2013. The objective was to determine efficiency and cost saving that would result from the use of ADS-B routes during periods when weather impacts the GOMEX airspace. The FAA and JETBLUE Airways completed an analysis of the test on 3 February 2014 titled “JetBlue GOMEX ADS-B Test Route Benefits’ Assessment Review. This study is attached in Annex 1 of this Working Paper. To summarize, the test yielded positive results that indicated that stakeholders would benefit from further implementation of ADS-B in the GOMEX airspace.

### **3. Conclusion**

3.1 The NACC is invited to note the information provided.