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ASSEMBLY — 37TH SESSION

TECHNICAL COMMISSION

Agenda Item 35: The global air traffic management (ATM) system

GPS AUGMENTED NAVIGATION PROJECT

(Presented by Colombia)

EXECUTIVE SUMMARY

The GPS Augmented Navigation project is expected to improve the minimum operational requirements in a cost-efficient manner at low-traffic airports, enhancing safety. The GPS Augmented Navigation system is helping to boost the competitiveness of Colombian air transport. This is a major challenge that will involve full use of the following:

a) existing infrastructure such as the GEORED network of the National Geological Institute *Ingeominas*;
b) knowledge of the equatorial ionosphere and the research capabilities of the National University of Colombia; and
c) the operational knowledge base of Colombian civil aviation for an air navigation solution.

Action: The Assembly is invited to consider the plan of action as a possible solution for low-traffic airspace, with a view to improving operational efficiency, reducing the likelihood of air accidents and incidents and offering a low-cost technological solution.

1. BACKGROUND

1.1 *Colombia Vision Bicentennial, Fulfilling the Potential of Outer Space for Sustainable Development and National Competitiveness*, hereinafter referred to as *Vision 2009*, prepared by the Colombian Space Commission (Comisión Colombiana del Espacio – CCE), sets forth major objectives to mark the bicentennial of our independence. The GPS Augmented Navigation project serves two of those objectives by contributing to:

a) an economy that guarantees a higher standard of living by fostering scientific and technological development, produces the infrastructure needed for national development and provides a strategy for sustainable growth, in particular in air navigation; and

b) an efficient society that works for its citizens, especially the aviation community and users of air transport in Colombia.

1.2 Furthermore, given the operational requirements of Colombia's Air Navigation Plan, namely the navigation requirements set out in Chapter 4 of the Plan, the project is of special benefit to navigation in the approach phase at low-traffic airports.

1.3 The Vice-President of the Republic of Colombia has established a number of specific objectives, in particular:

a) draft and develop national satellite navigation plan;

b) reinforce the powers of national institutions in the roll-out, development and use of the global navigation satellite system (GNSS);

c) promote the implementation of satellite navigation technologies with more social, environmental and economic applications; and

d) pool efforts and investments among institutions and sectors in the implementation and use of satellite navigation systems.

1.4 All of the above are in line with the ICAO strategic objectives stated in its consolidated mission and vision statement. This is especially true for Objective A: Safety – Enhance global civil aviation safety and Objective D: Efficiency – Enhance the efficiency of aviation operations.

1.5 The GPS Augmented Navigation project is a great challenge that builds on the following:

a) existing infrastructure such as the GEORED network of the National Geological Institute *Ingeominas*;

b) knowledge of the equatorial ionosphere and the research capabilities of the National University of Colombia; and

c) the Unidad Administrativa Especial Aeronautica Civil (UAEAC) operational knowledge base, which offers an air navigation solution and makes us more competitive in the aviation community.

2. CLOSER LOOK AT THE ISSUE

2.1 The introduction of new communications, navigation, and surveillance/air traffic management (CNS/ATM) technologies for air transport requires heavy investments by both the civil aviation authorities and aircraft operators. All such efforts should be guided by a detailed plan for the operational requirements, so as to meet the projected domestic and international demand.

2.2 Then again, growth in flight operations varies around the world and even within countries, with certain geographical areas and airports growing faster than others. In Colombia, there is a marked difference between international airports like Bogotá El Dorado and other airports.

2.3 Moreover, current systems have been found to be deficient or outdated in some respects, preventing certain regions from carrying out the installation and/or maintenance work needed to improve navigation capabilities on the approach and landing phases.

2.4 GNSS offers one possible solution, but improvements are required to meet the aviation communication and navigation performance standards.

2.5 Specifically, Colombia is determined to find ways of bringing down air accident fatalities, most of which occur in general aviation.

2.6 To this end, the Civil Aviation Authority (CAA) of Colombia has resolved to seek less costly alternatives to serve low-traffic airspace presenting terrain and atmospheric challenges that render it unsustainable from a cost-benefit point of view.

2.7 This initiative contributes to the efficiency of operations in areas that are regularly affected by closures or where approaches are often missed, thus improving safety risk management.

2.8 Colombia is doing its part to improve air traffic management, enhance GNSS performance on the approach phase and adopt new technologies, both in response to the planning and implementation requisites for air navigation systems and in pursuit of its national interests. To this end, we submit the following plan of action for the consideration of the international community. The project phases are as follows:

a) Phase I – Analysis and design;

b) Phase II – Simulation of the preliminary design;

c) Phase III – Preoperational, certification; and

d) Phase IV – Operational.

2.9 Phases I and II will be completed by December 2012. The CAA of Colombia will give periodical reports to the international community on the progress of the project.

3. CONCLUSION

3.1 The international growth and development of air transport is uneven. Nevertheless, the ICAO Contracting States have committed to implementing CNS/ATM technologies in order to achieve the strategic objectives adopted by the Organization, in particular Objective A: Safety – Enhance global civil aviation safety and Objective D: Efficiency – Enhance the efficiency of aviation operations.

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