



WORKING PAPER

FOURTEENTH AIR NAVIGATION CONFERENCE

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Agenda Item 3: Air Navigation System Performance Improvement
3.1: Proposals to improve the efficiency of air navigation services contributing to LTAG

THE IMPORTANCE OF PROVIDING GUIDANCE TO STATES ON THE OPERATIONAL REQUIREMENTS FOR IMPLEMENTING TERMINAL APPROACH PROCEDURES WITH A SATELLITE-BASED AUGMENTATION SYSTEM (SBAS)

(Presented by the Dominican Republic and supported by 19 Latin American Civil Aviation Commission (LACAC) Member States²)

EXECUTIVE SUMMARY

This paper highlights the benefits of satellite-based augmentation system (SBAS) and the importance that States understand the operational requirements for implementing terminal approach procedures supported by SBAS.

Action: The Conference is invited to recognize the options available for States in implementing SBAS-supported terminal approach procedures and the need for specific guidance to facilitate the process.

1. INTRODUCTION

1.1 satellite-based augmentation system (SBAS) is a wide-ranging system that provides users with augmentation information via satellite. SBAS offers a more precise navigational service than the basic global navigation satellite system/receiver autonomous integrity monitoring (GNSS-RAIM) systems as well as the high degree of integrity needed to improve air navigation operations. Because of these benefits, several interoperable SBAS systems have been installed or are being rolled out around the world.

1.2 To implement SBAS approach procedures such as localizer performance with vertical guidance (LPV) and localizer performance (LP), air navigation services providers (ANSPs) must be properly informed of the technical and operational requirements of this augmentation system in order to maximize the benefits and ensure safe and efficient flight operations.

¹ Spanish version provided by Dominican Republic.

² Argentina, Aruba (Kingdom of the Netherlands), Belize, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

2. DISCUSSION

2.1 SBAS allows for approach with vertical guidance (APV-I and APV-II) and Category I precision approach services, as long as there is coverage and service in the area. This improves approach precision without the need for additional costly ground aids.

2.2 SBAS can be useful to States even outside the service area. Annex 10 — *Aeronautical Telecommunications*, Volume I — *Radio Navigation Aids*, para. 6.2.3 states: ‘*An SBAS may provide accurate and reliable service outside the defined service area(s). The ranging, satellite status, basic differential corrections and ionosphere-free differential correction functions are usable throughout the entire coverage area. The performance of these functions may be technically adequate to support en-route, terminal and non-precision approach operations by providing monitoring and integrity data for core satellite constellations and/or SBAS satellites.*’

2.3 In the process of restructuring its airspace, the Dominican Republic will be designing standard continuous descent arrivals, standard continuous climb departures, and vertical guidance approaches with barometric vertical navigation (BARO-VNAV) at all international airports in the country. We would like for the project to include SBAS approaches, but we do not know what the required SBAS operational parameters are for our territory. We understand that many other States may be facing a similar situation.

2.4 In 2013, the International Civil Aviation Organization (ICAO) developed a manual for implementing ground-based augmentation systems. We believe it is crucial that similar efforts be deployed in providing guidance to States for the implementation of SBAS approaches.

3. CONCLUSION

3.1 International experience shows that SBAS not only improves flight safety and efficiency but can also be useful outside of defined service areas, providing critical data for en-route, terminal and non-precision approaches. This potential is of particular interest to countries such as the Dominican Republic that are in the process of restructuring their airspace.

3.2 To make progress toward this end, it is essential for ICAO and other relevant organizations to continue providing guidance and technical support to States similar to that given for the implementation of ground-based augmentation systems in 2013. Such efforts would ensure that States are able to achieve effective and efficient implementation of SBAS approaches, which would rebound in improved air navigation safety and efficiency worldwide.

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