

ELEVENTH AIR NAVIGATION CONFERENCE**Montreal, 22 September to 3 October 2003****Agenda Item 6 Aeronautical navigation
: issues****THE GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS)
MANUAL**

(Presented by the Secretariat)

SUMMARY

This paper presents the Global Navigation Satellite System (GNSS) Manual, which is currently being processed for publication.

1. INTRODUCTION

1.1 Following the third meeting of the Global Navigation Satellite System Panel (GNSSP/3, 12 to 23 April 1999), the panel completed its validation of the first package of Standard and Recommended Practices (SARPs) for GNSS, which were introduced in Annex 10 — *Aeronautical Telecommunications*, Volume I — *Radio Navigation Aids* as a part of Amendment 76 and became applicable as of 1 November 2001. Amendment 77 to the same Annex introduced a number of GNSS enhancements with the applicability date of 28 November 2002. Guidance material on application of GNSS SARPs was also introduced in Annex 10, Volume I, Attachment D in order to elaborate on various, primarily technical aspects of SARPs and ensure better understanding of the system design and operation.

1.2 In accordance with its work programme task to develop material for inclusion in various ICAO documents as necessary to support GNSS introduction, the panel also produced additional guidance material which describes concepts of operation using the core satellite constellations (Global Positioning System (GPS) and GLObal NAVigation Satellite System (GLONASS)) and augmentation systems, and addresses implementation issues. This guidance material was deemed to be appropriate for publication as an ICAO manual entitled the *Global Navigation Satellite System Manual*.

2. **PURPOSE OF THE MANUAL**

2.1 The primary purpose of the manual is to provide information on GNSS implementation aspects, which could assist States in the introduction of GNSS operations. The document is therefore aimed at air navigation service providers responsible for fielding and operating GNSS elements, and at regulatory agencies responsible for approving the use of GNSS for flight operations. The manual also provides GNSS information to aircraft operators and manufacturers. It includes a basic explanation of satellite navigation technology including satellite constellations augmentations and avionics, and describes implementation considerations that should be taken into account in planning the orderly introduction of service based on GNSS guidance. Finally, the document describes future prospects for the evolution of GNSS.

2.2 On 17 April 2003 the Air Navigation Commission (163-2) agreed to publish the manual and noted that the manual is planned to be distributed at the Eleventh Air Navigation Conference as an information paper. The conference is expected to use the attached manual as reference material in the discussions on Agenda Item 6.

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