



*International Civil Aviation Organization*

**THE EIGHTH MEETING OF THE ASIA/PACIFIC GBAS/SBAS  
IMPLEMENTATION TASK FORCE (GBAS/SBAS ITF/8)**

*(Melbourne, Australia, 12-14 May 2026)*

**Agenda Item 2:** Reports of relevant meetings and workshops

**REPORT ON THE NAVIGATION SYSTEMS PANEL ACTIVITIES**

(Presented by Co-Chairs)

**SUMMARY**

This paper presents the recent activities of ICAO Navigation Systems Panel (NSP). There were two NSP meetings since the 7th meeting of the APAC GBAS/SBAS Implementation Task Force. Current focuses of the NSP related to GBAS and SBAS are DFMC GBAS baseline standards and SBAS authentication standards.

**1. INTRODUCTION**

1.1 ICAO Navigation Systems Panel (NSP) is working on developing standards and recommended practices (SARPs) and related documents on GNSS. The GBAS Working Group (GWG) is responsible for matters related to GBAS. The GNSS SARPs Working Group (GSWG) is responsible for matters related to GNSS core constellations and SBAS.

1.2 There were two NSP meetings since the 7<sup>th</sup> meeting of the GBAS/SBAS Implementation Task Force.

1.3 The 15<sup>th</sup> meeting of the ICAO NSP Joint Working Groups Meeting (NSP JWG/15) was held from 10 to 20 November 2025 at the IATA Headquarter in Montreal, Canada.

1.4 The 8th full panel meeting of the ICAO NSP (NSP/8) was held from 26 January to 6 February 2026 at the ICAO Headquarter in Montreal, Canada.

1.5 This paper reports on the status of discussion in the ICAO NSP on GBAS and SBAS in the two NSP meetings

**2. DISCUSSION**

**GBAS**

2.1 The main focus of the GWG is the development of the dual-frequency and multi-constellation (DFMC) GBAS standards. A new service type based on the DFMC GBAS is called “GBAS Approach Service Type (GAST) E.” It is deemed to be able to provide availability even under severe ionospheric conditions.

2.2 The GWG is working on developing the Baseline Development SARPs (BDS) for DFMC GBAS to be delivered for approval by the NSP/9 in June 2027. Operational validation based on the DFMC GBAS BDS will follow. Completion of DFMC GBAS SARPs validation is still planned by 2030.

2.3 To support deployment of existing GBAS (GAST C and D), GWG works on updates and maintenance of existing ICAO standards, guidance materials, and manuals. GWG started to work on a new manual on GBAS (GBAS Manual). The first complete draft was presented at the NSP/8. The final draft of the GBAS Manual for approval by the NSP will be delivered to the NSP/9 in June 2027.

### **SBAS**

2.4 There were a couple of major topics of the GSWG related to SBAS. One is the SARPs for automatic landing with SBAS, and the other is the SARPs for SBAS Message Authentication.

2.5 Annex 10 amendment proposal including requirements and guidance material for automatic landing with SBAS were presented to and approved by the NSP/8. The Annex 10 amendment proposal will be reviewed by the Air Navigation Commission (ANC).

2.6 The SBAS Message Authentication is a mechanism to ensure authenticity of SBAS Messages broadcast from SBAS satellites. Validation of the SBAS Message Authentication SARPs is being conducted by the SBAS Authentication Ad Hoc Group (SAAG). It is targeted to be delivered to the NSP/9 in June 2027 for approval.

### **GNSS Core Constellation**

2.7 The Galileo Navigation Message Authentication (OSNMA) is a mechanism to ensure the authenticity of navigation messages broadcast from Galileo satellites. Final draft of SARPs for the Galileo OSNMA were presented to and approved by the NSP/8. The Annex 10 amendment proposal will be reviewed by the Air Navigation Commission (ANC).

2.8 Baseline Development SARPs (BDS) for Vertical Advanced Receiver Autonomous Integrity Monitoring (V-ARAIM) are under development by the GSWG. V-ARAIM BDS are targeted to be delivered to the NSP/9 in June 2027 for approval. Completion of validation of V-ARAIM SARPs is planned by 2030.

### **GNSS Manual (Doc9849)**

2.9 The GNSS Manual (ICAO Doc9849) is being update with focuses on changes related to the GNSS radio frequency interference (RFI) issues. The updates will be the 6th Edition of the GNSS Manual. The GNSS Manual ad hoc group is working on finalizing the draft to be presented to the NSP JWG/16 meeting in November 2026.

### **Administrative Topics**

2.10 The NSP decided to have a second Vice Chair of the NSP, and the election was conducted in NSP/8. Among the two nominations, Mr. Gao Shu, the NSP Panel Member nominated by Singapore, was elected.

2.11 Following retirement of the rapporteur of the NSP Validation Working Group (VWG), which deals with the validation of draft SARPs developed by the NSP to ensure the traceability and

transparency of the SARPs development, Mr. Susumu Saito, a technical advisor to the NSP Panel Member nominated by Japan, was appointed as a new VWG rapporteur during the NSP JWGs/15 meeting.

**Next Meeting**

2.12 The next NSP JWGs/16 meeting is scheduled for 9 - 20 November 2026 in Montreal.

**3. ACTION REQUIRED BY THE MEETING**

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) discuss any relevant matters as appropriate.

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**Executive Summary for consideration for inclusion in the Meeting Report**

**REPORT ON THE NAVIGATION SYSTEMS PANEL ACTIVITIES**

Since the 7th meeting of the GBAS/SBAS Implementation Task Force, there were two NSP meetings, the 15th meeting of the ICAO NSP Joint Working Groups Meeting (NSP JWG/15) (10-20 November 2025) and the 8th full panel meeting of the ICAO NSP (NSP/8, 26 January-6 February 2026). Regarding GBAS, Baseline Development SARPs (BDS) for DFMC GBAS is under development and will be delivered to NSP/9 in June 2027. The first draft of the new GBAS Manual was presented to NSP/8 and will be delivered to NSP/9. Regarding SBAS, SARPs for automatic landing with SBAS has been approved by NSP/8. SBAS Message Authentication SARPs will be finalized for approval by NSP/9. GNSS Manual (Doc9849) update related to GNSS RFI, Galileo OSNMA, and V-ARAIM were also discussed. The 2nd Vice Chair of the NSP was elected from the APAC region. A new rapporteur of the Validation Working Group was appointed from the APAC region. The next NSP meeting (JWG/16) is scheduled in November 2026.