



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 7: Discussion on the extension of the mandate of the Task Force

REGIONAL COORDINATION ON GNSS-RELATED NSP JOB CARDS FOLLOWING THE COMPLETION OF THE GBAS/SBAS ITF MANDATE

(Presented by Singapore)

SUMMARY

This paper presents a summary of the latest Navigation Systems Panel (NSP) Job Cards related to Global Navigation Satellite System (GNSS) evolution, including SBAS, GBAS, GNSS radio frequency interference (RFI), Position, Navigation and Timing (PNT), and the Resilient Navigation Operational Network (RON). These Job Cards were approved by the Air Navigation Commission and are currently under active development at the global level.

Given the breadth and technical depth of these Job Cards, this paper highlights the relevance of continued regional engagement to support NSP activities. In particular, it invites the meeting to consider the feasibility of drawing on experts from the existing GBAS/SBAS ITF to sustain coordinated regional contributions after the conclusion of the current ITF mandate.

1. INTRODUCTION

1.1 A series of the NSP Job Cards were approved by the Air Navigation Commission on 16 June 2025, addressing various aspects of GNSS evolution, resilience, and operational continuity. These Job Cards represent ongoing and future work streams that are of direct relevance to States and stakeholders in the Asia/Pacific (APAC) Region.

1.2 The approved Job Cards include the following:

- GNSS Evolution – Multi-constellations (NSP002.06)
- **GNSS Evolution – SBAS (NSP003.06)**
- GNSS Evolution – Advanced Receiver Autonomous Integrity Monitoring (ARAIM) (NSP004.06)
- **GNSS Evolution – GBAS (NSP005.06)**
- **GNSS Radio Frequency Interference (NSP006.07)**
- Mitigation of Space Weather Effects (NSP007.05)
- **Position Navigation and Timing (PNT) (NSP009.07)**
- **Resilient Navigation Operational Network (RON) (NSP010.01)**

- 1.3 This paper calls for a review of selected NSP Job Cards and discusses the feasibility of making coordinated contributions through the continued engagement of experts within the APAC Region by establishing an appropriate successor mechanism.

2. DISCUSSION

2.1 Overview of the Selected NSP Job Cards

2.1.1 The GNSS Evolution – SBAS Job Card focuses on the continued development and enhancement of SBAS to support safety-of-life aviation operations. This includes matters related to system performance, service provision, certification, and the introduction of new capabilities such as dual-frequency and multi-constellation (DFMC) operations. The Job Card also considers operational aspects such as service availability, monitoring, and post-implementation activities, which are critical for States planning or operating SBAS services.

2.1.2 The GNSS Evolution – GBAS Job Card addresses the development and deployment of GBAS, including support for precision approach operations and future enhancements. The scope of this Job Card includes technical standards, safety assessment considerations, operational approval, performance monitoring, and the evolution towards advanced GBAS capabilities. It also recognises the importance of operational feedback from States with deployment or trial experience to validate global concepts and assumptions.

2.1.3 The GNSS RFI Job Card focuses on the increasing vulnerability of GNSS to intentional and unintentional interference. It addresses the identification, monitoring, reporting, and mitigation of interference events, as well as their operational impact on GNSS-based services, including SBAS and GBAS. The Job Card seeks to strengthen resilience and continuity of service through coordinated technical and operational measures.

2.1.4 The PNT Job Card introduces the concept of Complementary PNT (C-PNT), aimed at ensuring continuity of navigation services in the event of GNSS degradation or outage. This Job Card considers the use of a combination of terrestrial navigation aids, aircraft-based autonomous capabilities, and other supporting technologies. The development of C-PNT concepts requires the identification of operational use cases, reversion strategies, and integration with existing navigation infrastructure.

2.1.5 The RON Job Card addresses the need to maintain a minimum level of navigation service to support safe aircraft operations during GNSS disruptions. The Job Card examines how existing navigation aids and networks can be configured or retained to provide operational resilience, including support for GNSS reversion and recovery. It also seeks to clarify interpretations of resilience concepts and their practical application across different regions.

2.1.6 Collectively, these Job Cards reflect a shift towards a more resilient and multi-layered navigation environment. Their successful development and implementation depend not only on global standards and concepts, but also on operational experience and regional input. The following section therefore analyses the feasibility and added value of leveraging expertise from the existing ITF to support selected NSP Job Cards through continued regional coordination.

2.2 Analysis of Feasibility and Added Value

2.2.1 The proposal for continued regional coordination on selected NSP Job Cards is considered feasible, as the existing ITF has already demonstrated, through its past work, the technical expertise, operational experience, and collaborative mechanisms required to support such activities.

2.2.2 Over multiple meetings, the ITF has developed and applied regional expertise in key areas directly relevant to the selected NSP Job Cards. This includes the review and development of safety assessment guidance material for GBAS and SBAS, particularly in relation to anomalous ionospheric

conditions; the examination of GNSS performance and availability in operational environments; and the discussion of system resilience, including mitigation of GNSS radio frequency interference. These activities align closely with NSP work on GNSS evolution, integrity, and robustness.

2.2.3 The ITF has also served as a forum for States to share practical implementation and operational experience with GBAS and SBAS systems. Contributions from States and industry have covered system deployment, flight inspection, procedure design, ATC integration, performance monitoring, and post-implementation issues. This operationally grounded experience provides valuable input to NSP Job Cards, which require validation of global concepts against real-world operational constraints and regional conditions.

2.2.4 With respect to GNSS RFI and resilience, the ITF has maintained sustained discussions on interference events, monitoring arrangements, and mitigation measures, including national frameworks for GNSS performance assessment. Such experience is directly relevant to NSP Job Cards addressing GNSS vulnerability, resilience, and continuity of service, and enables the Region to contribute evidence-based operational perspectives rather than purely theoretical considerations.

2.2.5 Although some NSP Job Cards, such as those related to C-PNT and RON, extend beyond the traditional scope of SBAS and GBAS, the ITF's past work provides a relevant foundation. The Task Force has already examined GNSS outage scenarios, reversion strategies, and the role of conventional terrestrial navigation aids in supporting minimum levels of navigation service. This experience supports informed regional contributions to the development and validation of C-PNT and RON concepts at the global level.

2.2.6 From an organisational perspective, the ITF has demonstrated an effective and efficient model for regional coordination. Established expert groups, structured review processes, and consolidation of regional views prior to elevation to CNS Sub-Group, APANPIRG, and relevant ICAO panels have enabled the Region to provide coherent and timely inputs to global activities. Leveraging this existing framework avoids duplication of effort and preserves continuity of expertise.

2.2.7 Importantly, the proposal does not pre-suppose an expansion of mandate or the creation of new structures. Rather, it envisages the continued use, or adaptation, of an existing regional coordination mechanism to support selected NSP Job Cards where there is clear alignment with regional expertise and interest. This flexible and proportionate approach allows APANPIRG to determine appropriate arrangements while ensuring that the Region's technical and operational experience continues to contribute effectively to global navigation system development work.

3. **Expected Conclusion / Decision**

Conclusion/Decision XX/XX - Continued Regional Coordination on GNSS-Related Issues	
<p>What: The meeting agrees to support continued regional coordination on various GNSS-related issues by retaining expert engagement through the existing GBAS/SBAS ITF or by establishing an appropriate successor task force following the completion of the current ITF mandate.</p>	<p>Expected impact:</p> <p><input type="checkbox"/> Political / Global</p> <p><input checked="" type="checkbox"/> Inter-regional</p> <p><input type="checkbox"/> Economic</p> <p><input type="checkbox"/> Environmental</p> <p><input checked="" type="checkbox"/> Ops/Technical</p>
<p>Why: To ensure that Asia/Pacific regional perspectives, operational experience, and technical expertise continue to contribute effectively to global standardisation work on GNSS evolution, resilience, and alternative navigation solutions.</p>	<p>Follow-up: <input checked="" type="checkbox"/> Required from States</p>

When: 27-Sep-26	Status: Draft to be adopted by PIRG
Who: <input checked="" type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: XXXX	

4. ACTION REQUIRED BY THE MEETING

4.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) identify areas where the Asia/Pacific Region can contribute through regional collaboration; and
- c) discuss the feasibility of retaining experts from the current GBAS/SBAS ITF to continue the scope of work.

Executive Summary for consideration for inclusion in the Meeting Report

CONSIDERATION OF CONTINUED REGIONAL COORDINATION ON GNSS-RELATED NSP JOB CARDS

The meeting reviewed the status of GNSS-related NSP Job Cards and noted their continued relevance to the Asia/Pacific Region. The meeting recognized the value of sustained regional coordination to support global NSP activities, particularly in areas related to SBAS, GBAS, GNSS interference, C-PNT, and RON. The meeting discussed options for retaining expert engagement by establishing a successor mechanism to ensure continued regional contributions following the completion of the current ITF mandate.