



**SUMMARY**  
**of the Twenty-Eighth Meeting of the Providers' Forum**  
**held in conjunction with the Seventeenth Meeting of the International Committee**  
**on Global Navigation Satellite Systems (ICG)**

**15 and 19 October 2023**

**Madrid, Spain**

The Twenty-eighth Meeting of the Providers' Forum, chaired by the European Union, was held in conjunction with the Seventeenth Meeting of the International Committee on Global Navigation Satellite Systems (ICG) in Madrid, Spain, on 15 and 19 October, in a hybrid format with both in-person participation and virtual participation. The meeting agenda is attached as an annex to this report. China, India, Japan, the Russian Federation, the United States of America, and the European Union were represented at the meeting.

**Open Service Information Dissemination**

The European Union gave an update of the Galileo Programme emphasising the Services already provided and the new Services under preparation. The audience was also invited to participate in the upcoming User Consultation Platform.

**Service Performance Monitoring**

China introduced progress of international GNSS monitoring and assessment system. The performance of four global navigation satellite system was reviewed through daily monitoring per-slot availability and continuity, Signal-in-Space range error, Coordinated Universal Time (UTC) offset error, standard positioning accuracy, and ionosphere activity influences to positioning accuracy. The outcome of the latest work on continuous monitoring Beidou Navigation Satellite System (BDS) and Galileo Precise Point Positioning (PPP) services, analysis of Advanced Receiver Autonomous Integrity Monitoring (ARAIM) integrity support message parameters and global availability of multi-GNSS, and equal-arc-length method developing for position dilution of precision (PDOP) statistic to support ICG and International GNSS Monitoring and Assessment System (IGMA) work was also shared.

**Multi-GNSS Demonstration Project in the Asia/Oceania Region**

Japan provided an update on Multi-GNSS Asia (MGA), which promotes multi-GNSS in the Asia/Oceania region. The next annual MGA conference is planned to be held on 30 January to 2

February 2024 in Chiang Rai, Thailand. The MGA co-chair (Thailand) via video message invited participants of the Providers' Forum and ICG to contribute to the MGA conference.

### **ICG Information Centres: Regional Centres for Space Science and Technology Education (affiliated to the United Nations)**

The executive secretariat of ICG informed that the nine - month postgraduate courses on GNSS would be held at the regional centres for space science and technology education, affiliated to the United Nations, in the academic year 2023/2024. It was also noted that the Regional Centre for Space Science and Technology – in French Language, in Rabat, hosted the intersessional meeting and related workshops of the ICG Working Group on Systems, Signals and Services from 28 to 31 August 2023. Participants of the Providers' Forum were invited to contribute to the work of the centres by providing educational materials and expertise.

### **Potential areas of coordination between the ICG and the international organizations**

The liaisons from the Interagency Operations Advisory Group (IOAG) to the ICG presented an update on all of their five work packages activities, updates of the database of space missions that use GNSS and in particular activities in the area of lunar PNT, the 5th meeting of the Interoperability Plenary in June 2023, and the 26th Annual Meeting (IOAG-26) held in September 2023. Highlights from those activities included progress of the “LunaNet” framework of standards for lunar communications and PNT interoperability and a recommendation for a joint workshop led by IOAG and ICG to provide an international forum for coordination of GNSS and lunar communications and navigation providers. At IOAG-26, the release of the LunaNet Interoperability Specification (LNIS) draft documents was announced, with comments sought by 30 November 2023.

### **Other Matters:**

#### **Membership and Participation in ICG**

The Providers discussed the requests from the following Member States of the United Nations regarding membership status of ICG:

- Pakistan, received 4 January 2021 and 24 May 2023
- Republic of Korea, received 7 February 2023
- Turkiye, received 13 February 2023
- Algeria, received 31 May 2023
- Australia, received 10 August 2023
- New Zealand, received 11 August 2023

The Providers agreed to recommend to the plenary meeting of ICG to accept Algeria's request for membership of ICG.

India highlighted once again the incompleteness of the information provided by Pakistan in response to its request for additional information, as well as the gross incorrectness of the international boundaries depicted in the presentation given in support of the application and indicated that it was not in a position to support the application pending the additional information and the relevant rectification. With regard to Turkiye's request for ICG Membership, India asked for more time to consider this request.

The Providers received a proposal from China to amend the Terms of Reference of ICG, which was under the discussion of ICG Terms of Reference (ToR) ad hoc working group and agreed to submit it for further discussion by the Providers' Forum.

The Providers also discussed the requests of Republic of Korea, Australia and New Zealand to change to "current and future space-based regional and augmentation system providers" as per the ICG ToR. As no consensus was reached it would be further discussed by the Providers' Forum.

### **Terms of Reference of the Providers' Forum**

Based on a proposal submitted by China, the Providers reviewed the Terms of Reference of the Providers' Forum and agreed to reinstitute rotation mechanism into the selection of Chair of the Providers' Forum. On 19 October the Providers' Forum adopted by consensus a revised Terms of Reference with a new paragraph 7, which reads as follows:

In the case a provider hosts an ICG annual meeting, it will chair the Providers' Forum meetings for the year of that ICG annual meeting. Otherwise, the chair of the Providers' Forum will rotate among its members subject to a decision on the basis of consensus. The Office for Outer Space Affairs of the United Nations Secretariat, consistent with its role as the Executive Secretariat of ICG, will also fulfil these responsibilities for the Providers' Forum, in support of the chair.

The Providers' Forum agreed that the United States will chair the Providers' Forum meetings in 2024 and China in 2025.

## AGENDA

<b>Sunday, 15 October 2023</b>	
<i>Venue: Hotel Meliá Avenida América (C. de Juan Ignacio Luca de Tena, 36, 28027 Madrid)</i>	
<i>Time: Madrid (Spain) Local Time (UTC+2 hours)</i>	
<b>12:00 – 18:00</b>	<b>On-site Registration</b>
<b>14:00 – 18:00</b>	<b>First meeting of the Providers' Forum</b>
	<i>Chair: Pieter DE SMET, European Commission</i>
	<b><i>Attended by only the Providers.</i></b> <i>The primary purpose is: (i) to discuss the agenda and meeting procedures for ICG-17 and the 28<sup>th</sup> Meeting of Providers' Forum; (ii) to develop response or suggest amendments to the Working Groups draft recommendations; (iii) to address any other matters; (iv) to compose a temporary drafting group on the preparation of the Providers' Forum report</i>
	<b>Opening Remarks</b>
	<b>Review of Providers' Forum Agenda</b> <ul style="list-style-type: none"><li>- <i>Composition of a drafting group on the preparation of the report of the Providers' Forum</i></li></ul>
	<b>Open service information dissemination</b> <ul style="list-style-type: none"><li>- <i>GALILEO Programme Status, Juan Pablo BOYERO, European Commission</i></li></ul>
	<b>Service performance monitoring</b> <ul style="list-style-type: none"><li>- <i>International GNSS Monitoring and Assessment System — Status and Update, Changjiang GENG, China</i></li></ul>
	<b>Spectrum protection: interference detection and mitigation</b>
	<b>Multi-GNSS demonstration project in the Asia/Oceania region</b> <ul style="list-style-type: none"><li>- <i>Multi-GNSS Asia (MGA), Satoshi KOGURE, Japan</i></li></ul>
	<b>ICG Information Centres: Regional Centres for Space Science and Technology Education (affiliated to the United Nations)</b>

	<ul style="list-style-type: none"> <li>- <i>The activities carried out in 2023 and to be organized in 2024, Sharafat GADIMOVA, United Nations Office for Outer Space Affairs</i></li> </ul>
	<p><b>Potential areas of coordination between the ICG and the international organizations</b></p> <ul style="list-style-type: none"> <li>- Report from Interagency Operations Advisory Group (IOAG) to ICG, Joel PARKER, National Aeronautics and Space Administration (NASA) and Werner ENDERLE, European Space Agency (ESA)</li> </ul>
	<p><b>Comments on the Agenda of the ICG-17 Meeting</b></p>
	<p><b>Other Matters</b></p> <p><b>Membership of ICG</b></p> <ul style="list-style-type: none"> <li>- Republic of Korea – application for change of Member Status in ICG as “Current and future space-based regional and or augmentation system providers” (7 February 2023)</li> <li>- Australia – application for change of Member Status in ICG as “Current and future space-based regional or augmentation system providers” (10 August 2023)</li> <li>- New Zealand - application for change of Member Status in ICG as “Current and future space-based regional or augmentation system providers” (11 August 2023)</li> <li>- Pakistan - application for Member Status in ICG (4 January 2021) and Aide Memoire (Note Verbale, 24 May 2023)</li> <li>- Türkiye - application for Member Status in ICG (13 February 2023)</li> <li>- Algeria – letter of interest for Member Status in ICG (31 May 2023)</li> </ul> <p><b>Chairperson (s) for the meeting in 2024</b></p> <ul style="list-style-type: none"> <li>- Expressions of Interest: <i>China and the United States</i></li> </ul>
16:00 -16:20	<i>Coffee Break</i>
16:20 – 17:20	<b>Meeting with the Working Groups Co-Chairs</b>
	<p><i>Attended by only the Providers and the co-chairs of the Working Groups.</i></p> <p><i>The primary purpose is: (i) to identify issues for discussion in the working groups; and (ii) to consider their reports on the status of the implementation of the agreed recommendations from the previous ICG meetings.</i></p>
	<b>Providers’ Forum Meeting</b> <i>(continued as needed)</i>
18:00	<b>Adjourn</b>

<b>Thursday, 19 October 2023</b>	
<b>16:00 – 18:00</b>	<b>Second meeting of the Providers’ Forum</b>
	<p><b>Attended by only the Providers and the co-chairs of the Working Groups (as needed).</b></p> <p><i>The primary purpose is: (i) to discuss any draft recommendations to the ICG from the working groups; (ii) to develop response or suggest amendments to the draft recommendations if needed.</i></p>
	<b>Recommendations of the Working Groups</b>
	<b>Adoption of the Providers’ Forum report</b>
	<b>Concluding remarks</b>
<b>18:00</b>	<b>Adjourn</b>