



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

**9 and 13 October 2022**

**Abu Dhabi, United Arab Emirates**

The Twenty-sixth Meeting of the Providers' Forum, chaired by the Russian Federation, was held in conjunction with the Sixteenth Meeting of the International Committee on Global Navigation Satellite Systems (ICG), on the 9<sup>th</sup> and the 13<sup>th</sup> of October 2022, in a hybrid format with both in-person participation in Abu Dhabi, United Arab Emirates and virtual participation. The meeting agenda is attached as an annex to this report. China, India, Japan, the Russian Federation, the United States and the European Union were represented at the meeting.

**Open Service Information Dissemination**

The following presentations were provided:

**- Lunar Search and Rescue Update (LunaSAR)**

The United States presented an update on its distress notification and tracking for lunar exploration. LunaSAR allows a crew member on the lunar surface to send a distress signal should they become endangered and/or are separated from their crew members. In addition to the architecture of LunaSAR, the potential of international collaboration and cooperation, such as possible interoperability with ESA's Moonlight, were also addressed.

**- Galileo Programme Status, including System Performance**

The European Commission presented the current programme status of Galileo. The status of Open Service Navigation Message Authentication (OSNMA), High Accuracy Service (HAS), I/NAV message improvement, Search and Rescue (SAR), Emergency Warning Service and other upcoming services/features were reported. Overview of Galileo 2nd Generation was also explained.

**Service Performance Monitoring**

The following presentation was provided:

- **iGMAS Update**

China presented an update on its International GNSS Monitoring and Assessment System (iGMAS), including system infrastructure and evaluation results. Monitoring and evaluation results part gives the signal-in-space ranging error (SISRE), availability and continuity, UTCOE and positioning accuracy assessment results of BeiDou, GPS, GLONASS and Galileo. The recent update of the system is the evaluation of the BeiDou system precise point positioning (PPP) service, showing SISRE and positioning accuracy of PPP signals. The service performance of multiple GNSS systems will be continuously evaluated and the service performance of new signals and services will be tracked.

### **Spectrum Protection and Interference Detection and Mitigation**

The following presentations were provided:

- **January 2022 Global Positioning System (GPS) Interference event in Denver, Colorado**

The United States presented a report of a recent interference event. It was reported that even for this accidental interference event, US Government's interagency GPS interference detection and mitigation (IDM) Process functioned, including published notice to air missions. As US Resilience Posture Outreach, GPS interference Happens and Time Guidance for Network Operations Insight Guidance Documents was developed to further educate infrastructure operators.

- **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. Status of Rapid Prototype Development Challenge 2022 Programme is reported. The annual MGA conference is planned to be held on 31 January to 2 February 2023 in Chiangmai, Thailand.

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

The ICG Executive Secretariat noted that the nine-month postgraduate courses on GNSS will be held at the regional centres in the academic year 2022/2023. The Regional Centre in Rabat, Morocco hosted a workshop on Space Weather and GNSS in May 2022. This workshop was co-organized by the Office for Outer Space Affairs, Boston College, United States and the International Centre for Theoretical Physics (ICTP), Italy. It was also noted that the second edition of the Interoperable GNSS Space Service Volume booklet, launched at the ICG-15 meeting, was distributed to all regional centres for educational purpose.

## **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 the 25<sup>th</sup> Annual Meeting (IOAG-25) held on 9 May 2022 and the first intersessional teleconference (IOAG-25a) held on the 13 September 2022. At IOAG-25, the liaisons presented proposed areas of coordination with ICG and its Space Use Subgroup in the context of lunar PNT services. IOAG has created a Lunar Communications and Navigation Working Group to study these services and will include the ICG liaisons as members. IOAG has also created an Interim Committee to Study LunaNet Governance, which will recommend a governance structure for interoperable lunar PNT services under the LunaNet umbrella.

### **Other Matters:**

- **Membership and Participation in ICG**

The Providers discussed the request from 04 January 2021 for membership status in the ICG from Pakistan.

- **Request for an observer of the ICG: Radio Technical Commission for Maritime Services (RTCM)**

The 24 May 2022 request from RTCM for Observer Status in the ICG was discussed by the Providers. The Providers' Forum agreed that RTCM should be accepted as an observer of ICG.

- **Terms of Reference of the Providers Forum**

The Providers reviewed the Terms of Reference and agreed on the changes on chair rotation procedure for future Providers' Forum meetings. The Terms of Reference of the Providers Forum were amended accordingly.

## TWENTY-SIXTH MEETING OF THE ICG PROVIDERS' FORUM

Abu Dhabi, United Arab Emirates

9 and 13 October 2022

### AGENDA

*Venue: Hotel Conrad Abu Dhabi Etihad Towers*

<b>Sunday, 9 October 2022</b>	
<i>Time: Abu Dhabi (UAE) Local Time (UTC+4 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>Attended by only the Providers. The primary purpose is: (i) to discuss the agenda and meeting procedures for ICG-16 and the 26<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>
14:00	<b>Opening Remarks</b>
14:05	<b>Review of Providers' Forum Agenda</b>  - <i>Composition of a drafting group on the preparation of the report of the Providers' Forum.</i>
14:10	<b>Open service information dissemination</b>  - Lunar Search and Rescue (SAR), <i>Anthony FOSTER, Search and Rescue Mission Office, National Aeronautics and Space Administration (NASA), United States of America</i>  - Programme Status including System Performance, <i>Dominic HAYES European Commission (virtual)</i>
14:50	<b>Service performance monitoring</b>

	<ul style="list-style-type: none"> <li>- iGMAS Status and Updates, <i>Changjiang GENG, China Satellite Navigation Office (CSNO), China</i></li> </ul>
15:10	<b>Spectrum protection: interference detection and mitigation</b> <ul style="list-style-type: none"> <li>- January 2022 GPS Interference event in Denver, Colorado, <i>James AVILES, Department of Transportation and Rick HAMILTON, Coast Guard, United States of America (virtual)</i></li> </ul>
15:30	<b>Multi-GNSS demonstration project in the Asia/Oceania region</b> <ul style="list-style-type: none"> <li>- MGA Activities Report, <i>Satoshi KOGURE, National Space Policy Secretariat, Cabinet Office, Japan</i></li> </ul>
15:50	<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 2022 and to be organized in 2023, Sharafat Gadimova, United Nations Office for Outer Space Affairs</i></li> </ul>
16:00 -16:20	<i>Coffee Break</i>
16:20 – 17:20	<b>Meeting with the Working Groups Co-Chairs</b>
	<i>Attended by only the Providers and the co-chairs of the Working Group. 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>
	<b>Providers' Forum Meeting (continued)</b>
17:20	<b>Potential areas of coordination between the ICG and the international organizations</b>
17:30	<b>Comments on the Agenda of the ICG-16 Meeting</b>
17:40	<b>Other Matters:</b> <ul style="list-style-type: none"> <li>- <i>Terms of Reference of the Providers' Forum</i></li> <li>- <i>Request for a member of the ICG: Pakistan</i></li> <li>- <i>Request for an observer of the ICG: Radio Technical Commission for Maritime Services (RTCM)</i></li> </ul>
18:00	<b>Adjourn</b>
<b>Thursday, 13 October 2022</b>	
16:00 – 18:00	<b>Second meeting of the Providers' Forum</b>
	<b>Attended by only the Providers and the co-chairs of the Working Group (as needed).</b> <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>

	<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>