United Nations Office for Outer Space Affairs

Committee on the Peaceful Uses of Outer Space & Capacity-Building

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UNOOSA

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CONVENER

Facilitate global cooperation among UN Member States

To develop new space policy through COPUOS - the Committee on the Peaceful Uses of Outer Space

GATEWAY

The sole UN agency dedicated entirely to Space

A gateway between technology & Member States to support their needs & the SDGs

CAPACITY BUILDER

Access to space-data & information & training

Empowering States to use space solutions to address national priorities

COPUOS

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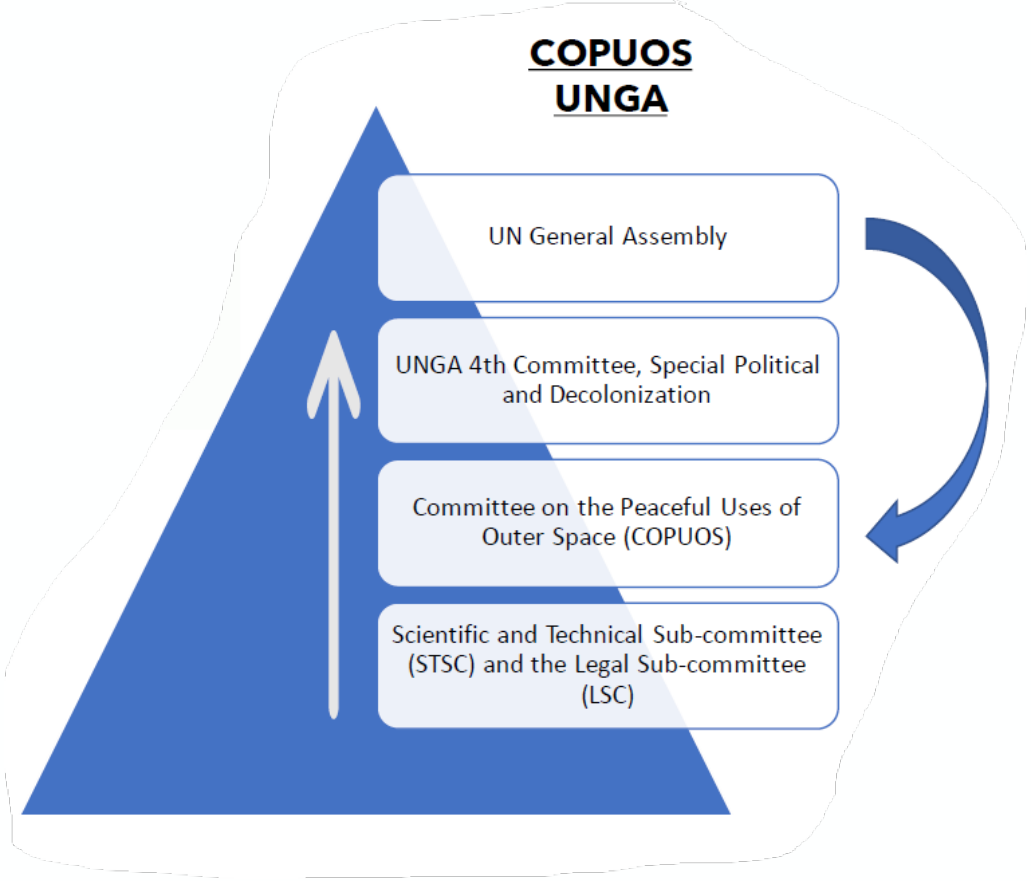
- 1959: Established as the Committee on the Peaceful Uses of Outer Space (with 24 member States)

Mandate

- Review international cooperation in the peaceful uses of outer space
- Identify space-related activities that could be undertaken by the UN
- Organize the mutual exchange / dissemination of information on outer space research; encourage space research programmes
- Study legal problems arising from the exploration of outer space.



Topics addressed by COPUOS

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International Committee on GNSS

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Key responsibilities:

Executive Secretariat

Int'l Committee on GNSS (ICG) (37)

- ***Est. 2005*** - *meets* annually
- Voluntary cooperation, coordination, promoting utilization ***of multiple GNSS signals***

Working Groups

- Systems, Signals, Services; Enhancement of GNSS Performance, New Services and Capabilities; *Information Dissemination & Capacity-building*; Reference Frames, Timing and Applications; *Lunar PNT*

Provider's Forum

- ***Compatibility & interoperability***

ICG Membership

System Providers: Global and Regional Constellations

China (BDS, 27+3IGSO+5GEO), Russian Federation (GLONASS, 24+), United States (GPS, 24+), European Union (Galileo, 24+), India (NavIC, 7), Japan (QZSS, 7)

Services and Applications *(15)*

Algeria, Australia, Italy, Malaysia, New Zealand, Republic of Korea, Türkiye and United Arab Emirates

Augmentation Systems

India, Japan, *Nigeria*, Russian Federation, United States and *European Space Agency*

Assoc. Members + Observers: *IGO, NGO, UN entities (22)*

International Committee on GNSS

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ICG is holding annual meetings to review and discuss developments on GNSS, including GNSS science and innovative technology applications and future commercial applications.

- 19th meeting of ICG, October 2025, Busan, Republic of Korea

ICG: Working Groups

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- **Systems, Signals and Services** (*United States & Russian Federation*): Compatibility and spectrum protection; interoperability and service standards; system-of-system operations
- **Enhancement of GNSS Performance, New Services and Capabilities** (*India, China & ESA*): Future & novel integrity solutions; implementation of interoperable GNSS Space Service Volume (SSV) examination of performance of atmospheric models, *establish dialogue with space weather*/RS communities and its evolution;
- **Information Dissemination and Capacity Building** (*UNOOSA*): Focused on education and training programmes, promoting GNSS for scientific exploration (incl., *space weather and its effects on GNSS*)
- **Reference Frames, Timing and Applications** (*IAG, IGS & FIG*): Focused on monitoring and reference station networks
- **Lunar Positioning Navigation and Timing** *(United States, Japan, China & ESA):* GNSS is Earth orbit will serve a meaningful role in Lunar PNT, particularly for vehicles in transit between the Earth and Moon, and supplement Lunar PNT services in the lunar activity

ICG: Working Group B Recommendation

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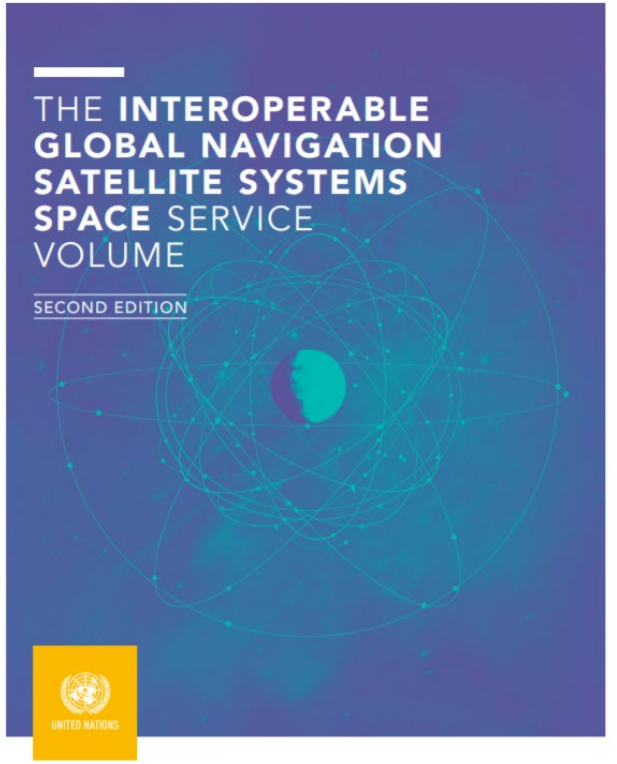
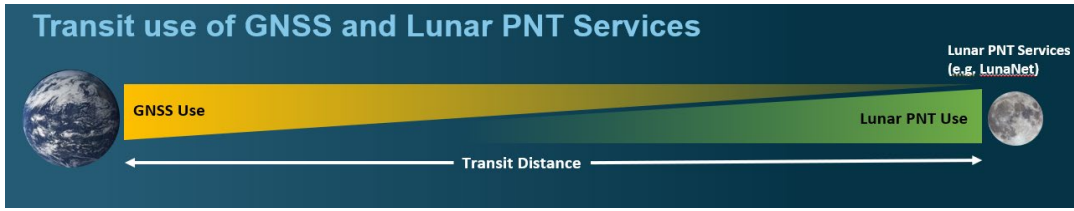
New Working Group Establishment: Working Group L

ICG WG B Space Use Subgroup WP4 was formed in 2021 to understand how the GNSS SSV could be used in content with future Lunar PNT systems to support lunar operations. Since that time, through active execution of its workplan, WP4 has gained significant insight into the scope of such PNT systems and use cases that are under development, as well as the meaningful role GNSS will serve in lunar PNT, particularly for vehicles in transit between the Earth and Moon.



https://www.unoosa.org/res/oosadoc/data/documents/2021/stspace/stspace75rev_1_0_html/st_space_75rev01E.pdf

- Lunar PNT systems & Lunar PNT applications
- Lunar PNT signal compatibility
- Lunar PNT flight experiments
- Lunar reference frames & Lunar time systems
- Lunar PNT international cooperation models



ICG: Working Group B Recommendation

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Participation in Joint ICG-IOAG Multilateral Cislunar PNT Workshop

The goal of the workshop is to provide an open international coordination forum for lunar PNT services providers, including GNSS providers, to foster interoperable, compatible, and available lunar PNT systems for the future

- ❑ Lessons learned from GNSS community will be needed to ensure compatibility and interoperability between GNSS and Lunar PNT systems and services
- ❑ Coordination on the topics of lunar spectrum management, common lunar reference frames, and lunar time systems

- ❑ **Workshop on Cislunar Positioning, Navigation, and Timing (PNT), 11 – 13 February 2025, VIC, Vienna**

https://www.unoosa.org/oosa/en/ourwork/icg/working-groups/b/CislunarPNT2025.html

ICG: Working Group D Recommendations

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Publication of a Policy Brief on the Uses of GNSS for Disaster Risk Reduction

*The "**Applications of GNSS for Disaster Risk Reduction**" Task Force is exploring how GNSS technology can enhance disaster risk reduction strategies and bolster natural hazard early warning systems. Currently, TF focuses on four GNSS-based techniques, which have broad applications, spanning for instance earthquakes, tsunamis, floods and solar storms*

- *Precise Point Positioning (GNSS-PPP)*
- *Reflectometry (GNSS-R)*
- *Radio Occultation (GNSS-RO)*
- *Ground based Total Electron Content (GNSS-TEC)*

❑ ***The policy Brief on the Uses of GNSS for Disaster Risk Reduction***:

https://www.unoosa.org/oosa/en/ourwork/icg/resources/Regl-ref.html

ICG: Information Dissemination & Capacity Building

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- Cooperation ICG & The University of Tokyo, Japan: *To focus on GNSS data types, GNSS errors, coordinate systems and applications, and low-cost receiver system data*

- Cooperation ICG, ICTP, Italy and Boston College, US: *To enhance capacity building on GNSS for Space Weather monitoring*

- Cooperation ICG, FIG, IAG and IGS: *To focus on reference frame in general with a specific focus on the UN initiatives, global and regional frames as well selected national case studies*
  - Reference Frame in Practice Seminar, 5 – 6 April 2025, Brisbane, Australia

- Low-cost GNSS receiver system for space weather: *To focus on low-cost GNSS receiver systems for high-accuracy PNT and associated applications*

Thank you

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