

# **International Committee on Global Navigation Satellite Systems**

**GNSS Training Programme  
11 – 14 January 2022, Pokhara, Nepal**

**Sharafat Gadimova  
Office for Outer Space Affairs**



UNITED NATIONS  
Office for Outer Space Affairs



# Global Navigation Satellite Systems

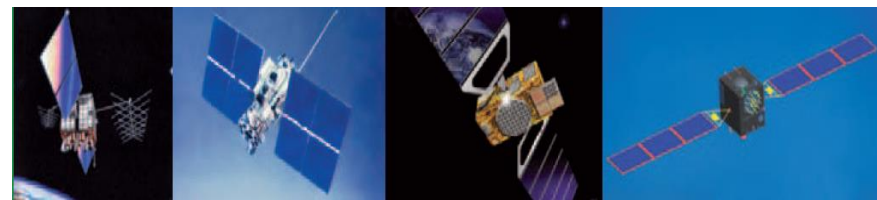
- A constellation of satellites providing signals from space that transmit positioning and timing data to GNSS receivers. The receivers then use this data to determine location

## ***Global Constellations***

- Global Positioning System (GPS, 24+3) of the United States,
- Global'naya Navigatsionnaya Sputnikovaya Sistema (GLONASS, 24+) of the Russian Federation,
- GALILEO (24+3) of the European Union, and
- BeiDou Navigation Satellite System (BDS, 27+3IGSO+5GEO) of China

## ***Regional Constellations***

- Indian Regional Navigation System/"Navigation with Indian constellation" (NavIC, 7) of India;
- The Quasi-Zenith Satellite System (QZSS, 4+3) of Japan.





## International Committee on GNSS (ICG)

- UNOOSA serves as the executive secretariat of ICG
- Established in 2005, ICG provides a mechanism for multilateral discussion and coordination on GNSS issues of concern
- Encourages **coordination** among GNSS providers
- **Promotes** the introduction and utilization of GNSS services in developing countries
- **Assists** GNSS users with their development plans and applications
- Assure GNSS **interoperability and compatibility** among providers and users globally for enhanced services and applications





## ICG: Working Groups

- **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) and its evolution; *examination of performance of atmospheric models, establish dialogue with space weather/RS community*
- **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



## Working Group on Information Dissemination and Capacity Building



Wildlife Conservation



Land Navigation



Precision Farming



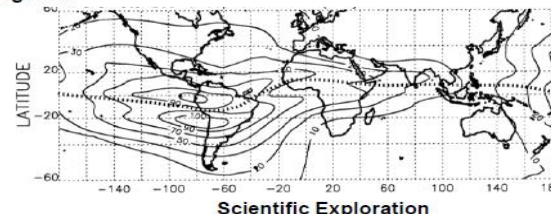
Water Navigation



Air Navigation



Disaster Relief



Scientific Exploration

### Regional Workshops/training courses on the use and applications of GNSS:

- To reinforce the exchange of information between countries and scale up the capacities in the regions for pursuing the application of GNSS solutions
- To provide updated knowledge of how GNSS operate and their applications; to describe the science of SW; and how to perform ionospheric and SW research with GNSS data



# ICG Information Portal



- About Us ▾
- Our Work ▾
- Benefits of Space ▾
- Information for... ▾
- Events ▾
- Space Object Register ▾
- Documents ▾
- COPUOS 2015 ▾

Our Work ▾ ICG

## International Committee on Global Navigation Satellite Systems (ICG)

### MISSION STATEMENT

The International Committee on Global Navigation Satellite Systems (ICG), established in 2005 under the umbrella of the United Nations, promotes voluntary cooperation on matters of mutual interest related to civil satellite-based positioning, navigation, timing, and value-added services. The ICG contributes to the sustainable development of the world. Among the core missions of the ICG are to encourage coordination among providers of global navigation satellite systems (GNSS), regional systems, and augmentations in order to ensure greater compatibility, interoperability, and transparency, and to promote the introduction and utilization of these services and their future enhancements, including in developing countries, through assistance, if necessary, with the integration into their infrastructures. The ICG also serves to assist GNSS users with their development plans and applications, by encouraging coordination and serving as a focal point for information exchange.



International Committee on  
Global Navigation Satellite Systems

The International Committee on Global Navigation Satellite Systems (ICG) strives to encourage and facilitate compatibility, interoperability and transparency between all the satellite navigation systems, to promote and protect the use of their open service applications and thereby benefit the global community. Our vision is to ensure the best satellite based positioning, navigation and timing for peaceful uses for everybody, anywhere, any time.

### VISION STATEMENT

The International Committee on Global Navigation Satellite Systems (ICG) strives to encourage and facilitate compatibility, interoperability and transparency between all the satellite navigation systems, to promote and protect the use of their open service applications and thereby benefit the global community. Our vision is to ensure the best satellite based positioning, navigation and timing for peaceful uses for everybody, anywhere, any time.

At the "United Nations International Meeting for the Establishment of the International Committee on Global Navigation Satellite Systems (ICG)" held on 1-2 December 2005 in Vienna, Austria, the ICG was established on a voluntary basis as an informal body for the purpose of promoting cooperation, as appropriate, on matters of mutual interest related to civil satellite-based positioning, navigation, timing, and value-added services, as well as compatibility and interoperability among the GNSS systems, while increasing their use to support sustainable development, particularly in the developing countries. The participants in the meeting agreed on an establishment of the ICG information portal, to be hosted by UNOOSA, as a portal for users of GNSS services.

### Our Work

Secretariat of COPUOS

Programme on Space Applications

UN-SPIDER

#### ICG

- Members
- Providers' Forum
- Working Groups
- ICG Annual Meetings
- ICG Programme on GNSS Applications
- Resources
- ICG Documents
- Space Weather & GNSS
- Other Events
- ICG Timeline

UN-Space

Space Law

Topics

Photo Gallery

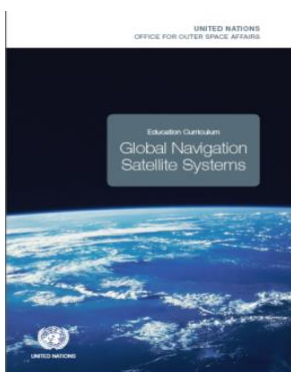
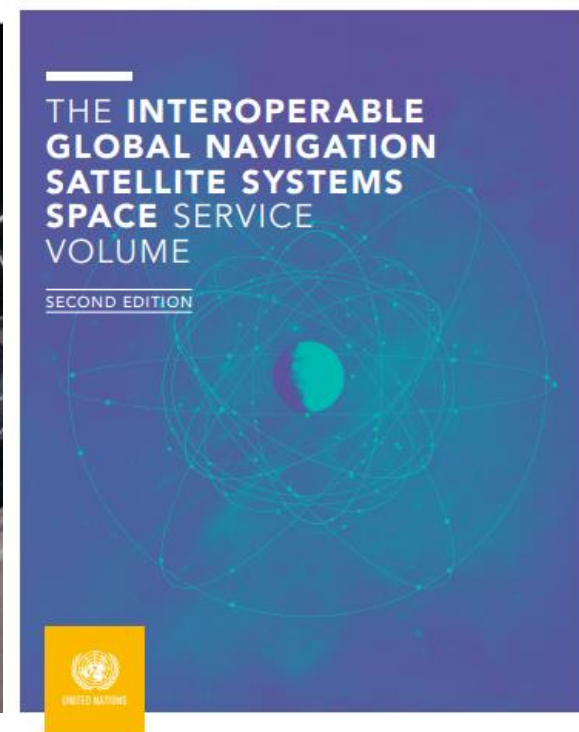
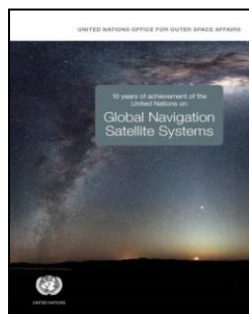
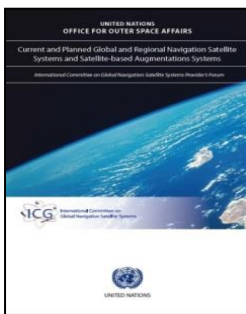
[WWW.UNOOSA.ORG](http://WWW.UNOOSA.ORG)

[WWW.UNOOSA.ORG/OOSA/EN/OURWORK/ICG/ICG.HTML](http://WWW.UNOOSA.ORG/OOSA/EN/OURWORK/ICG/ICG.HTML)





## UNOOSA Publications

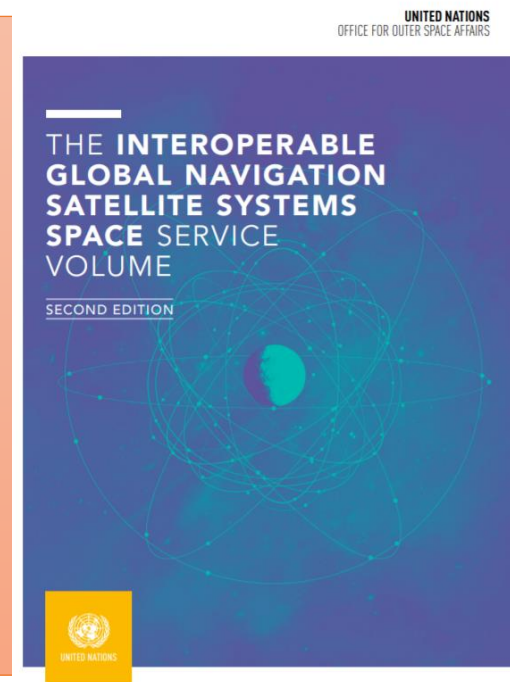


<http://www.unoosa.org/oosa/en/ourwork/icg/documents/publications.html>



## Interoperable GNSS Space Service Volume

- All providers have agreed on the information presented in this booklet, and on several recommendations to continue development, support, and expansion of the multi-GNSS SSV concept.
- This publication, and the work of WGB, show the significant value of GNSS SSV for a much wider scope of future space exploration activities for countries all over the world.
- GNSS SSV and its potential augmentations can enable ambitious future missions and activities in the context of space exploration going beyond low-Earth orbit to the Moon, Mars and other celestial bodies.



[https://www.unoosa.org/res/oosadoc/data/documents/2021/stspace/stspace75rev\\_1\\_0.html/st\\_space\\_75rev01E.pdf](https://www.unoosa.org/res/oosadoc/data/documents/2021/stspace/stspace75rev_1_0.html/st_space_75rev01E.pdf)





## Conclusion

- The activities and opportunities provided through the ICG result in the development and growth of capacities that will enable each country to enhance its knowledge, understanding and practical experience in those aspects of GNSS technology that have the potential for a greater impact on its economic and social development, including the preservation of its environment
- The ICG is an important vehicle in the multi-lateral arena, as satellite-based positioning, navigation and timing becomes more and more a genuine multinational cooperative venture

# THANK YOU



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