



GPS and the International Committee on GNSS (ICG): Helping Build a Multi-GNSS World

**Munich Satellite Summit
Munich, Germany**

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U.S. Policy Promotes Global Use of GPS Technology

- No direct user fees for civil GPS services
 - Provided on a continuous, worldwide basis
- Open, public signal structures for all civil services
 - Promotes equal access for user equipment manufacturing, applications development, and value-added services
 - Encourages open, market-driven competition
- Global **compatibility and interoperability** with GPS
- Service improvements for civil, commercial, and scientific users worldwide
- **Protection of radio-navigation spectrum from disruption and interference**



Planned Global and Regional Satellite Navigation Systems

- Global Constellations

- **GPS (24+3)**
- GLONASS (24+)
- GALILEO (24+3)
- BDS/BEIDOU (27+3 IGSO + 5 GEO)

- Regional Constellations

- QZSS (4+3)
- IRNSS (7)

- Satellite-Based Augmentations

- **WAAS (3)**
- MSAS (2)
- EGNOS (3)
- GAGAN (2)
- SDCM (3)





International Committee on GNSS (ICG) Mission Statement (2013)

- Promote voluntary cooperation on matters of mutual interest related to civil satellite-based positioning, navigation, timing, and value-added services
- Contribute to the sustainable development of the world
- Encourage coordination among GNSS Providers to ensure greater **compatibility, interoperability, and transparency**
- Promote the introduction and utilization of GNSS services in developing countries, by assisting with the integration into their infrastructure
- Assist GNSS users with their development plans and applications, by encouraging coordination and serving as a focal point for international information exchange



International Committee on GNSS (2)

- U.S. a leader in the GNSS **Providers Forum** - Members include the U.S., EU, Russia, China, India, and Japan
 - Focused discussions on **compatibility and interoperability**, encouraging development of complimentary systems
 - Exchange detailed information on systems/service provision plans
- Consensus reached on Principles and general definition of ***compatibility, interoperability and transparency*** in civil service provision
 - Compatibility definition includes spectral separation between each system's authorized service signals (e.g. U.S. M-code) and other systems' signals
- ICG leading efforts to promote GNSS *radio-frequency interference detection and mitigation* efforts
- Next **Provider's Forum** (14th) Meeting: June 2015, Vienna, Austria



ICG-9 Meeting in Prague - Nov 9-14, 2014

- Interference Detection and Mitigation (IDM)
 - Nations should evaluate & implement existing/emerging **IDM capabilities** and work with the telecom industry on standards for crowd sourcing IDM techniques
 - The ICG Secretariat and IDM taskforce will organize UN-sponsored workshops on **RNSS spectrum protection** and IDM for user community member nations
 - IDM Task Force initiated a discussion on **GNSS as critical infrastructure**
- International Multi-GNSS monitoring (IGMA)
 - Existing civil service centers should establish a link to a new ICG web portal allowing users to easily find GNSS monitoring information and products
 - Conduct a workshop in 2015 focused on **multi-GNSS open service monitoring**, parameters to be monitored, and an organizational approach
- Interoperability Task Force and System **Providers** should continue to assess industry feedback received at 4 **interoperability** workshops
- **Providers** should develop a booklet defining the characteristics of a fully **interoperable space service volume**
- **Providers** will continue discussing the topic of **fair "Market Access"**



ICG-10 - November 1-6, 2015

- **U.S. will host in Boulder, Colorado**
 - 45 km from Denver
- Meeting Venue: University Corporation for Atmospheric Research (UCAR)
 - Consortium of more than 100 member colleges and universities focused on atmospheric research and Earth system sciences
 - UCAR manages the National Center for Atmospheric Research (NCAR) on behalf of the National Science Foundation
- **Tour Sites confirmed**
 - National Oceanic and Atmospheric Administration, [National Space Weather Prediction Center](#)
 - UNAVCO: University-governed consortium, which facilitates geoscience research and education using geodesy
 - National Institute of Standards and Technology, Time and Frequency Laboratory



UCAR Center Green Facility



UN Workshops on the Use and Applications of GNSS

- Office for Outer Space Affairs (OOSA), through its Program on GNSS Applications:
 - Organizes regional workshops, training courses and international meetings focusing on capacity-building in the use of GNSS-related technologies;
 - Has developed an in-depth GNSS education curriculum for the training programs at all UN-affiliated Regional Centres for Space Science and Technology Education, also acting as the ICG information centres.
- These activities bring together a large number of experts, including those from developing countries, to discuss and act on issues that are also of high relevance to the ICG
- International Meeting on GNSS, 14 – 18 December 2015, Vienna, Austria



Summary

- U.S. policy encourages worldwide GPS/GNSS use
 - International cooperation to ensure **compatibility, interoperability, and transparency** is a priority
- GPS and augmentations continue to provide enhanced capabilities while maintaining backward compatibility for all users
- Assured service, policy stability, transparency, and continuous improvement are the keys to success in GNSS Programs
- The ICG and the work OOSA is doing through its Program on GNSS Applications are important vehicles for helping build a multi-GNSS world



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U.S. Attends ICG-9 in Prague, November 9-14

International Committee on Global Navigation Satellite Systems

The United States participated in the 9th meeting of the International Committee on GNSS (ICG), which convened in Prague, Czech Republic.

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To improve global understanding about GPS, we are pleased to offer key portions of this website in multiple languages. Please note that some pages link back to English content.

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