Perspectives on Positioning, Navigation, and Timing and Information Sharing

Munich Satellite Navigation Summit

Civil GPS Service Interface Committee
International Information Subcommittee

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Overview

• Theme of CGSIC Session: GNSS Feedback Loop
• Challenges in Information Dissemination
• Focus for the Future
GPS Feedback Loop

GPS Augmentations

- EGNOS
- MSAS
- WAAS
- TASS
- NGA GPS MS
- NDGPS
- WAAS MS
- GGGPS
- CORS
- IGS

Space

- GPS OCS
- GPS

Supporting Infrastructure

- NCO
- NOCC
- NAVCEN
- CGSIC
- NIST
- USNO
- Testing
- Modeling
- Standards
- Mapping/Charting/Geodesy

Users

- Land
- Maritime
- Timing
- Military
- Aviation

GPS OC

Mapping/Charting/Geodesy

- NCO
- NOCC
- NAVCEN
- CGSIC
- NIST
- USNO
- Testing
- Modeling
- Standards

GPS OC
Service Provider Information

GPS

- ICDs /Interface Specifications
- Almanacs
- NANUs/NOTAMs
- SV outages
- Interference Reports
- Testing

Emphasis on “service interface” – interpret what the GPS service provider information means to the end user
Many GPS Users – How Many are “In the Loop”?
GPS Challenged Environments

Ionospheric Disturbances

Dense Canopy

Urban Environment

Underground/Indoors

Inaccurate/Out-of-Date Maps

Electromagnetic Disturbances
Easy to Purchase GPS Jamming Devices

- Growing market for low-cost GPS jammers
  - Concern over being tracked using GPS, particularly among those driving a company or fleet vehicle

- Many devices are battery-operated or can be plugged into a cigarette lighter

- Sold as “privacy protectors”
DOT/RITA PNT Collaboration Website

www.transportationresearch.gov

Launched at January 2011 Transportation Research Board Meeting

PNT is one of 14 Research Clusters

Focus is on PNT Capability Gaps

User Audience:

- Open to the public - emphasis on Research Centers and Universities

- Users may request sign-on privileges to upload documents and to join in on discussions
Summary

- Information Dissemination is a challenge when there isn’t a means to interface with the user community already established

- Users will continue to expect the GPS/GNSS capability to work anywhere and everywhere
  - Including physically and electromagnetically impeded environments
  - Most will not know the difference between GPS, GNSS, Augmentation Systems, Terrestrial, and Autonomous PNT Sources

- Information Dissemination will become more challenging in a multi-constellation GNSS environment and integration with other PNT sources