



**A Global Service Provision
Perspective**

International Symposium on GNSS

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CGSIC Deputy Chair
Kyoto, Japan
November 16, 2015

OUTLINE

*Evolving
Organization*

- Organization and Management
- Outreach
- Global Service Center

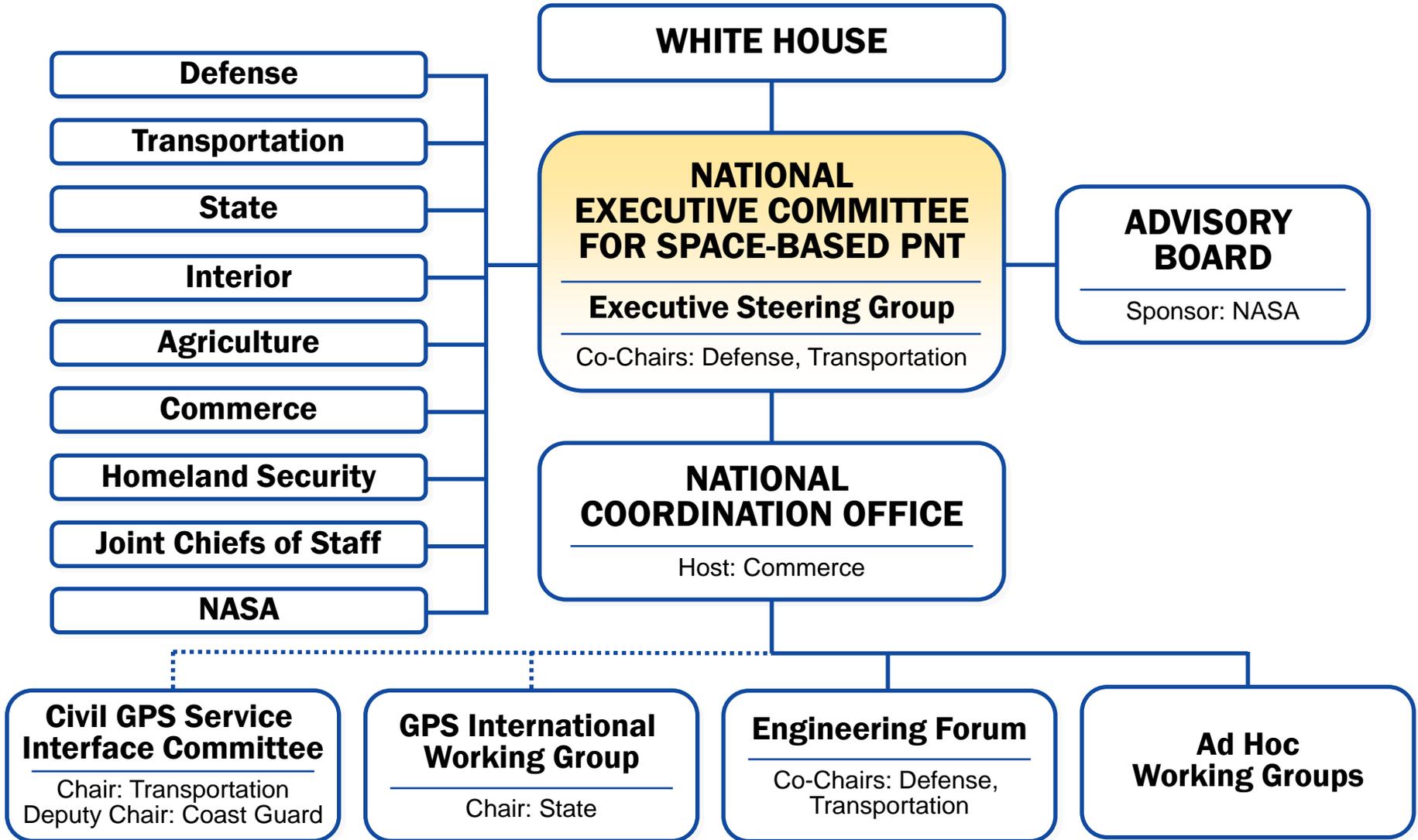
*Common
Issues*

- Mapping
- Timing
- Finance
- Search and Rescue
- Service Center Cooperation

Dual-Service Management Activities

- Space-Based PNT Executive Committee - **Governance**
- National Coordination Office - **Policy**
- National Space-Based PNT Engineering Forum (NPEF) - **Analysis**
- Space-Based PNT Advisory Board - **Independent Review**
- Civil **Program Management** Review (PMR)
- Interagency Forum for **Operational Requirements** (IFOR)
- CGSIC – **User Forum**

U.S. Space-Based PNT Organization Structure

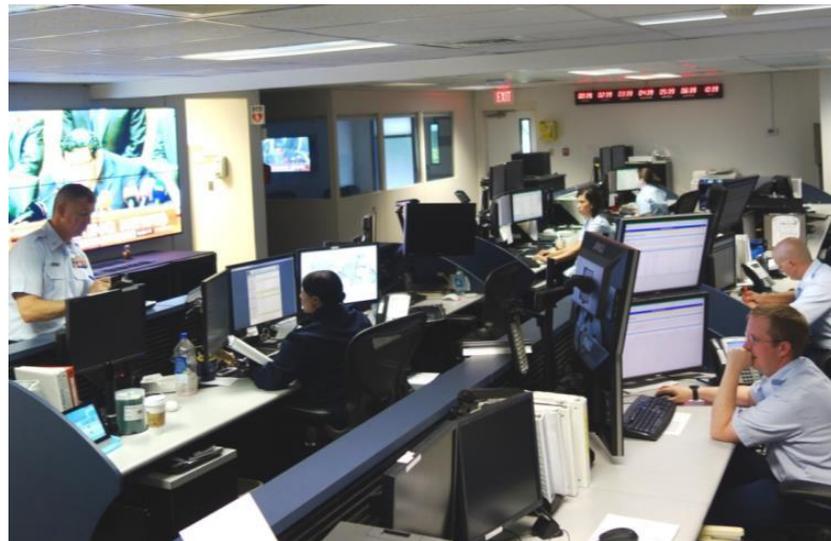


CGSIC Organization for Outreach

- Organization established in 1986 to brief users on status of programs and solicit feedback on changing user requirements.
- CGSIC Plenary Committee and Subcommittees:
 - International Information Subcommittee
 - Timing Subcommittee
 - State and Local Government Subcommittee
 - Survey, Mapping and Geo-Sciences Subcommittee

A Global Service Center

- U.S. Coast Guard Navigation Center (NAVCEN) is U.S. government **civil service center** for GPS.
- Website, RSS feeds and e-mail list servers **distribute** all operational GPS data products and interface documents.
- **Answer inquiries** and disruption reports from around the world 24/7/365 customer service **watch** .
- Represent user communities and **advocate** for civilian use of GPS at meetings of the GPS Program.
- **Coordinate** operations with other Provider service centers.



Users reporting mapping problems

- “My Grandmother’s address is wrong in GPS and I am worried about emergency services getting to her. You need to fix it.”
- “My customers cannot find my business location in GPS, please fix it.”
- “GPS is directing customers to a competitor’s location instead of mine. The address is wrong and needs to be corrected.”
- “GPS is sending trucks down our road that cannot fit. You have to stop them.”
- “If you send one more car down my driveway in the middle of the night, I don’t care, I’m putting out a spike strip.”

Easy to dismiss but....

- These are your users and system as a whole is blamed
- Some are economically important business users:

Grocery Stores

Hotels

Dealerships

Tech industry

Gas Station

Government Services

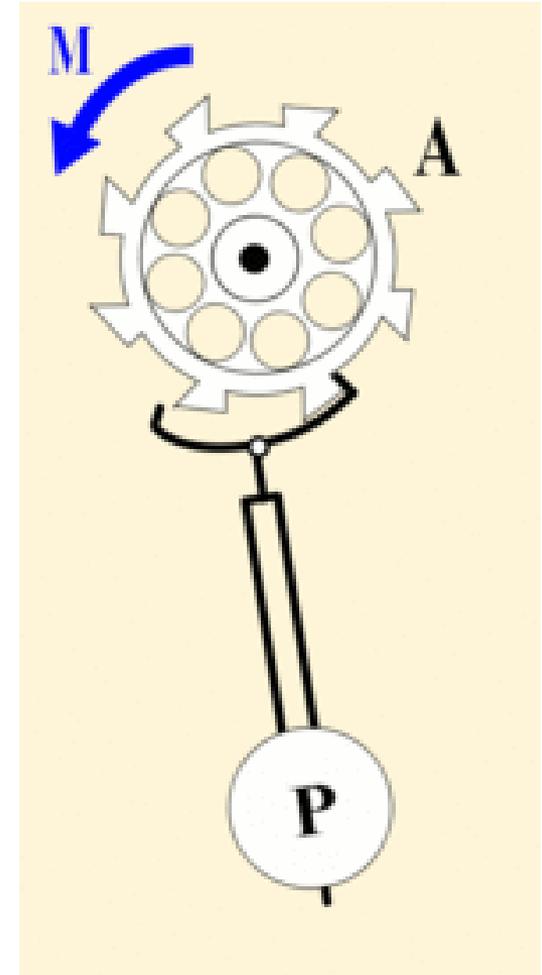
Financial services



- Unless the address has been accurately recorded by a Geographic Information Systems (GIS) data mapper, it may, in fact, not be in the correct location.
- Education is important and necessary

Timing compatibility

- Much of the world's precise timing comes from our GNSS satellites.
- Need to work towards compatible time in a system of systems
- CGSIC Timing Subcommittee has looked into the issue of Leap Seconds insertion and issued an opinion which they have forwarded to the ITU
 - Leap seconds should cease to be inserted in the near future
 - UTC should become a unique and continuous reference time scale
 - A period of at least 5 years be allowed so that operators of navigational systems can make adequate preparations.



International Finance

- Machine assisted trading dominates
 - Requirement for precision timing
 - Soon requiring time stamping of ALL financial transactions
 - One US bank alone transacts over \$35 Trillion dollars a day
 - NYSE averages over \$15B in the first 2 minutes after the opening
- Challenges:
 - Developing a timing solution accurate to $1\mu\text{S}$ per transaction across a data center
 - Developing the ability to time stamp every transaction
 - Developing analytics to measure the performance of the transaction environment at 100's of millions of transaction per second.
- Market transparency
 - Did all market participants have fair and equal access?
 - Are all the markets seeing information at nearly the same time?

COSPAS-SARSAT

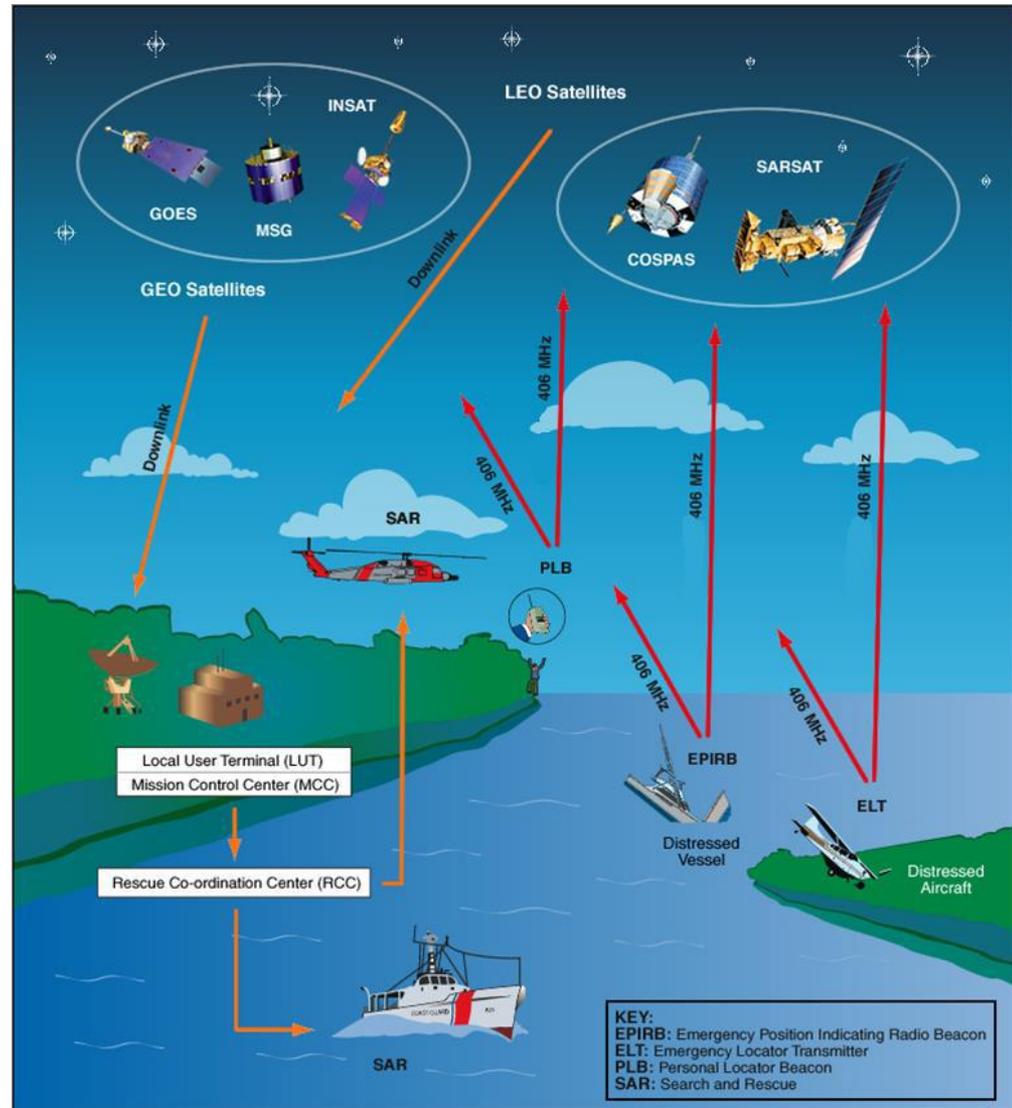
5 Low Earth Polar Orbiting Search And Rescue (LEOSAR)

7 Geostationary Orbiting Search And Rescue (GEOSAR) with 2 under test

8 Medium Earth Orbiting Search and Rescue (MEOSAR)

30 mission control centers

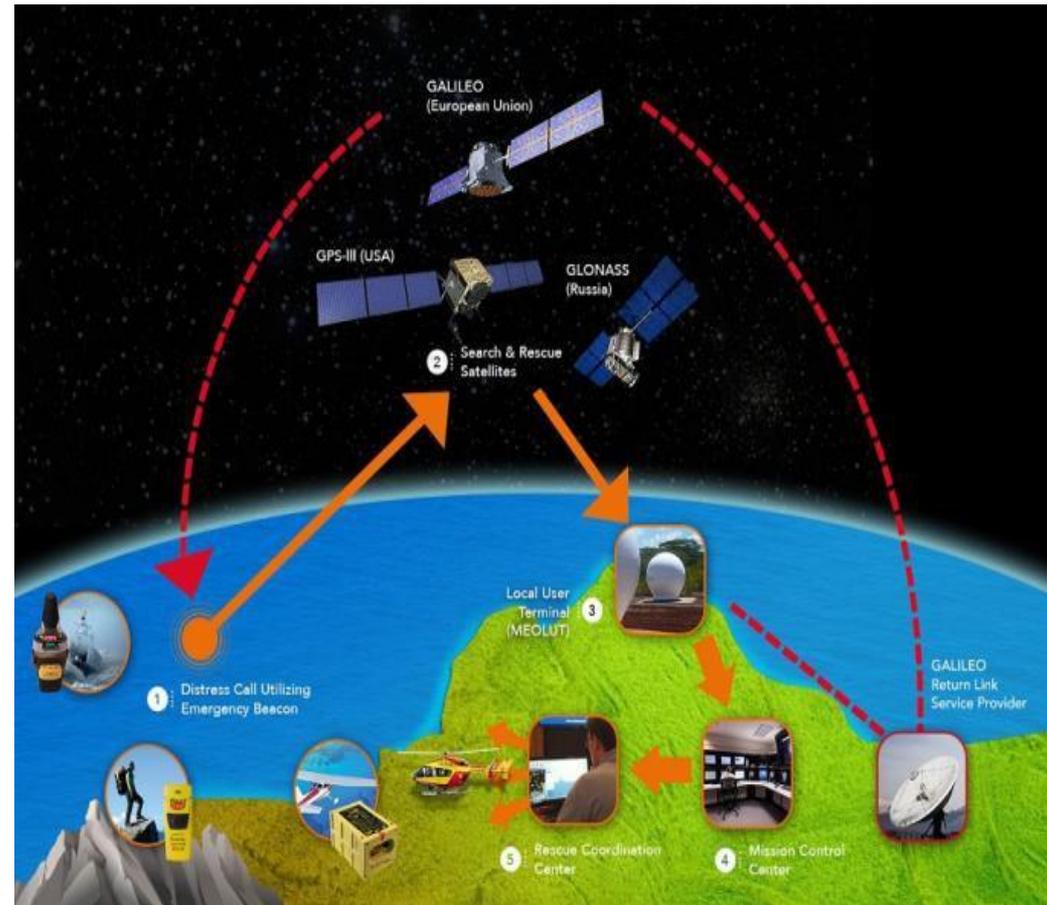
MEOSAR will replace the LEO SAR portion of the program when the LEO satellites reach end-of-life. GPS-III SV #11 and beyond



MEOSAR

The COSPAS-SARSAT Program uses some MEOSAR constellation already. Includes 3 satellites with an operational L-band downlink repeater: **2** Glonass-K1 and **6** Galileo satellites (**2 IOV and 4 FOC**).

- Experimental Distress Alerting Satellite System (DASS) repeaters with S-band downlink aboard all IIR-M and IIF GPS satellites.
- **18** active now.
- DASS scheduled for all GPS-III satellites #01 - #08.
- #11 and beyond planned to have the new GPS-SAR L-band payload.



Cooperation between Global Service Centers

- Work on interoperability, compatibility and transparency in our systems through the International Committee on GNSS.
- Work country-to-country through official bi-lateral GNSS talks to improve communications between centers.
- Connect our service centers together for day-to-day operations to benefit user communities of the world.
- Improve processes for Information sharing to respond to the needs of equipment manufacturers and user communities.

Home » Support » CGSIC » Meetings » Tampa 2015

SUPPORT:

Frequently Asked Questions

Address, Route, & Map Problems

Service Outages & Status Reports

Civil GPS Service Interface Committee (CGSIC)

Meetings

U.S. State & Local Govt Subcomm

International Info Subcomm

Timing Subcomm

Surveying, Mapping, & Geo-Sciences Subcomm

Technical Documentation

External Links

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55th Meeting of the Civil GPS Service Interface Committee



**At the Institute of Navigation GNSS+ 2015 Conference
Tampa Convention Center
14-15 September 2015**



Agenda

Jump to session:
Timing | USSLS | IISC | SM&G | Plenary

MONDAY, 14 SEPTEMBER 2015

8:15 a.m. Registration

Morning Concurrent Sessions:

· **TIMING SUBCOMMITTEE** ·
Chair: Dr. Włodzimierz Lewandowski, European Space Agency (ESA) Navigation Program Board (PB-Nav)
Co-Chair: Dr. Victor Zhang, National Institute of Standards and Technology (NIST)

Civil GPS Service Interface Committee (CGSIC)

Contact Information

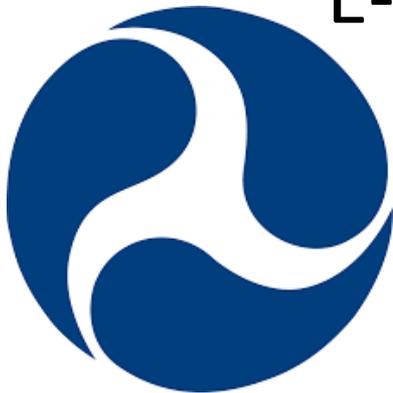
U.S. Coast Guard Navigation Information Service

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Executive Secretariat

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