



European GNSS Service Centre (GSC) US Coast Guard Navigation Center (NAVCEN) Cooperation

Boulder, November 2015

European GNSS Agency (GSA)
US Coast Guard Navigation Center (NAVCEN)





The centres: GSC and NAVCEN



European
Global Navigation
Satellite Systems
Agency



European GNSS Service Centre (GSC)

- The GSC is the single interface for users of the Galileo:
 - Open Service (**OS**) and Commercial Service (**CS**)
- GSC Nucleus (GSC-n) is the precursor of the fully fledged GSC, and it is conceived as an integral part of the European GNSS infrastructure
- GSC-n basic functionalities: dedicated **Helpdesk**, publication of Notice Advisory to Galileo Users and management of the GSC-n **web portal**
- **GSC v1** (first fully fledged version) is being developed in parallel to support, amongst other, the dissemination of commercial data through a real-time interface
 - The GSC is under GSA management.

<http://www.gsc-europa.eu>



European GNSS Service Centre (GSC)

- GSC site is already ready to deploy the GSC dedicated equipment.
- GSC v1 first equipment deployment → end of November 2015: integration test with the Galileo Core Infrastructure (GMS Val Chain) in Dec 2015.
- After the implementation of new GSC infrastructure requirements and its operational validation, the GSC will be connected to the GMS Operational Chain of the Galileo Core Infrastructure.



US Coast Guard Navigation Center (NAVCEN)

- Primary support node to non-aviation and **non-military civil/commercial users** with GPS issues.
- Coordination with the GPSOC (2nd Space Operations Squadron's GPS Operations Center) for problem reports or inquiries analysis requiring in-depth or specific knowledge
- Service operation and information provision that enhances the **safety, security, and efficiency of U.S. waterways and civil GPS users.**
- Serves as the **U.S. focal point** for implementation of **e-Navigation.**

Sources: <http://www.navcen.uscg.gov/>
<http://www.insidegnss.com/node/802>



GSC-NAVCEN cooperation undertaken within an established frame

EU-US bilateral cooperation agreement:

Establishing the principles for the cooperation activities between the United States of America and the European Union in the field of satellite navigation.

The GPS-Galileo Agreement established 4 working groups for cooperation on:

- A. Radio frequency compatibility and interoperability;
- B. Trade and civil applications;
- C. **Design and development of the next generation of systems;** and
- D. Security issues related to GPS and Galileo.

EC-GSA Exploitation Delegation Agreement:

EC delegates the Galileo Service Provision to the GSA as an initial step towards the full Galileo Exploitation Phase. The agreement provides a framework and budget for the development of services and operations.





GSC – NAVCEN cooperation



Cooperation Channel

Operational Points of Contact:

European GNSS Service Centre Nucleus (GSC-n)

OS Helpdesk

helpdesk@gsc-europa.eu

+34 91520 6568 / 6567

US Coast Navigation Center (NAVCEN)

Navigation Information Services

TIS-PF-NISWS@uscg.mil

+01 703 313 59305900

Operational cooperation:

- ✓ The GSC-n is collaborating with the US Coast Navigation Center (NAVCEN) to **report requests and incidents reported from users**
- ✓ GSC-n web portal will point to the US Coast Navigation Center site so that users interested in GPS may check the GPS system status
- ✓ NAVCEN website will point to GSC-n web portal so that GPS users may check the relevant Galileo information



GSC-NAVCEN cooperation formalization: Status

1. NAVCEN has proposed a text in the format of an exchange of letters of intent. (DONE)
2. The EC legal experts have provided guidance on the process to endorse the coordination between GPS and Galileo Services Centers. (DONE)
3. Proposed “Letter of Intent” under review from the EC/GSA side. (ONGOING)
4. Coming steps:
 - Final text approval from US and EC side.
 - Exchange of letters.
5. Future steps:
 - To investigate and propose an extended set of operational interfaces to improve the customer service experience for global GPS and Galileo users, notably in a **multi-constellation environment**.



Possible further operational interfaces with similar Service Centres already operational in other regions



BEIDOU

<http://en.beidou.gov.cn/index.html>



GLONASS

<http://glonass-iac.ru/en/>



Quasi-Zenith Satellite-1

MICHIBIKI

Special Site



QZSS

<http://www.qzs.jp/en/services/index.html>



IRNSS

<http://www.isro.org/satellites/irnss.aspx>



THANK YOU

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NACVEN PoC:

- Rick HAMILTON (USCG Navigation Center)
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BACK-UP SLIDES



User requests cooperation procedure

Nature of request	Request to GSC-n	Request to NAVCEN
Concerning Galileo	GSC-n internal	Forward to GSC-n for further treatment and notify user
Concerning GPS	Forward to NAVCEN for further treatment and notify user	NAVCEN internal
Concerning Galileo and GPS	Requiring input	Requiring input
	GSC-n to collect answer on GPS part from NAVCEN and reply in a consolidated manner	NAVCEN to collect answer on Galileo part from GSC-n and reply in a consolidated manner
	NOT Requiring input	NOT Requiring input
	GSC-n to reply to user and forward to NAVCEN for information	NAVCEN to reply to user and forward to GSC-n for information
Concerning joint services or compatibility issues between GPS and Galileo	GSC-n to consolidate proposed reply with NAVCEN and reply to user	NAVCEN to consolidate proposed reply with GSC-n and reply to user

Incidents reporting cooperation procedure

Two scenarios have been identified

GPS NAVCEN receives an incident report concerning the Galileo system

- GPS NAVCEN POC forwards the incident report to the GSC-n POC via email
- NAVCEN informs the user that the incident has been forwarded to GSC-n
- GSC-n registers and treats the incident internally following established procedures
- GSC-n replies to the user accordingly

GSC-n receives an incident report concerning GPS

- GSC-n PoC forwards the incident to GPS NAVCEN PoC via email
- GSC-n informs the user that the incident is forwarded to NAVCEN
- NAVCEN registers and treats the incident internally following established procedures
- NAVCEN replies to the user accordingly

