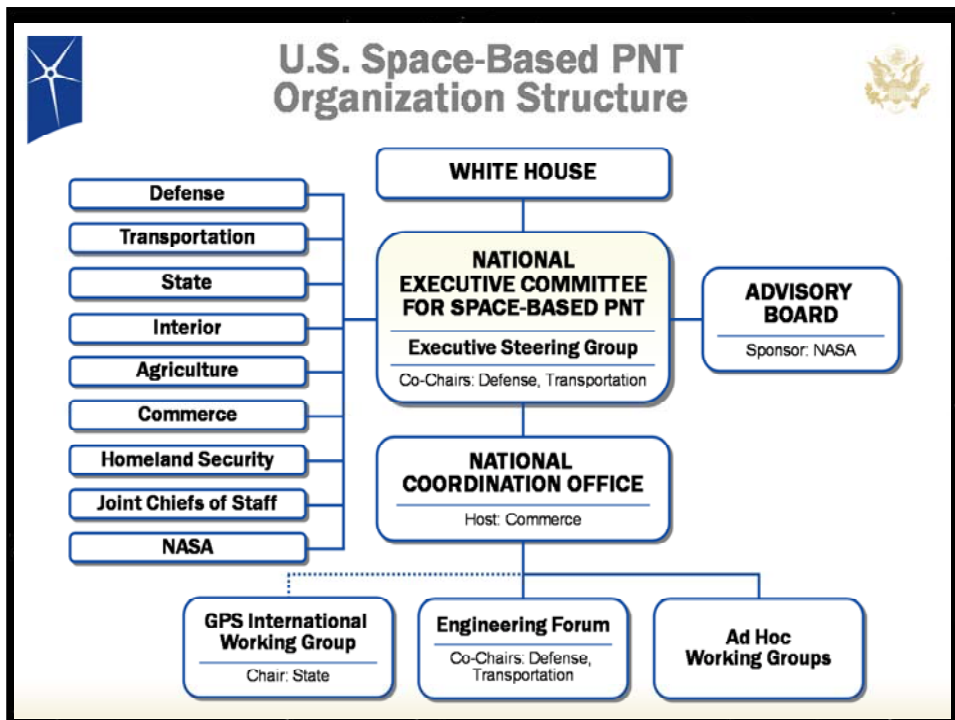


## Space-Based Positioning Navigation and Timing National Executive Committee

A government body created by national policy in December 2004, to coordinate the U.S. Space-Based Positioning, Navigation and Timing (PNT) enterprise across multiple Federal agencies. Coordination activities includes:

- Promoting government-wide coordination & information sharing
- Review and assessment of programs and activities
- Coordination of budgets across multiple agencies
- Conducting or overseeing national-level studies
- Supporting international cooperation and outreach
- Educating the public about program and policies

[WWW.PNT.GOV](http://WWW.PNT.GOV)



## Executive Committee Activities

- **Program Coordination**
  - Five-Year National Plan
  - GPS modernization
  - Civil GPS funding
  - Semi-codeless GPS transition
  - Nationwide Differential GPS
  - Distress Alerting Satellite System
- **International Cooperation**
  - Bilateral
  - Multilateral

- **Spectrum Management**
  - Interference Detection and Mitigation Plan
  - Spectrum protection plan
- **Outreach**
  - Publications, websites
  - Educational exhibits
  - Conferences, workshops, other venues

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## U.S. Space-Based PNT Policy



- Provide GPS and augmentations **free of direct user fees** on a continuous, worldwide basis
- Provide open, **free access to information** needed to develop user equipment
- **Improve performance** of GPS and augmentations
- Seek to ensure international systems are **interoperable** with civil GPS and augmentations or, at a minimum, are compatible

*Policy stability and transparency improve industry confidence and investment*

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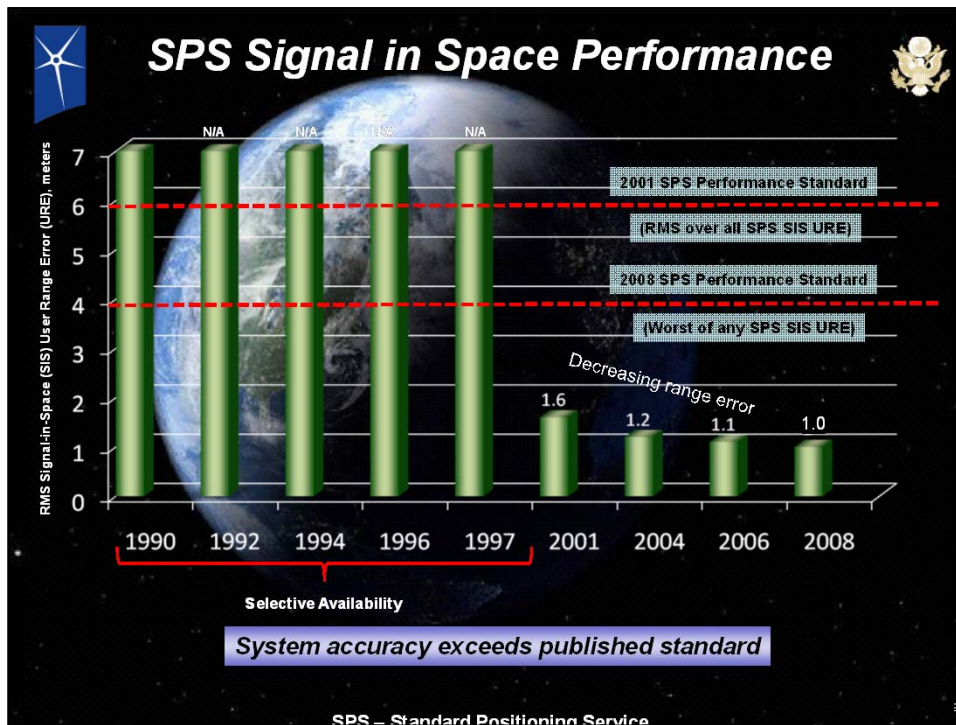
## GPS – Current Status



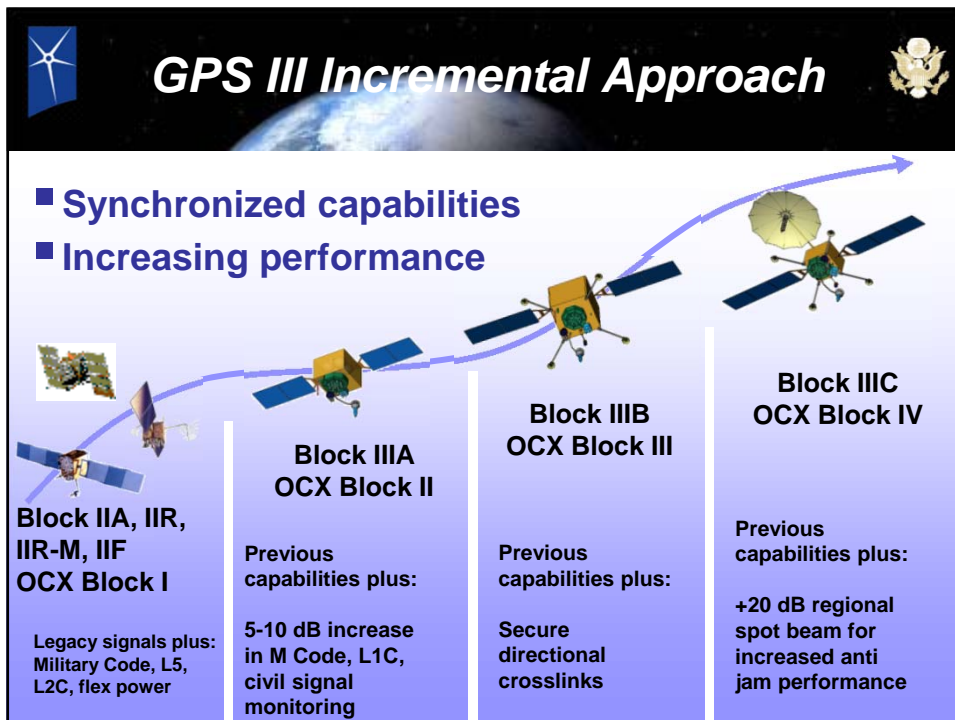
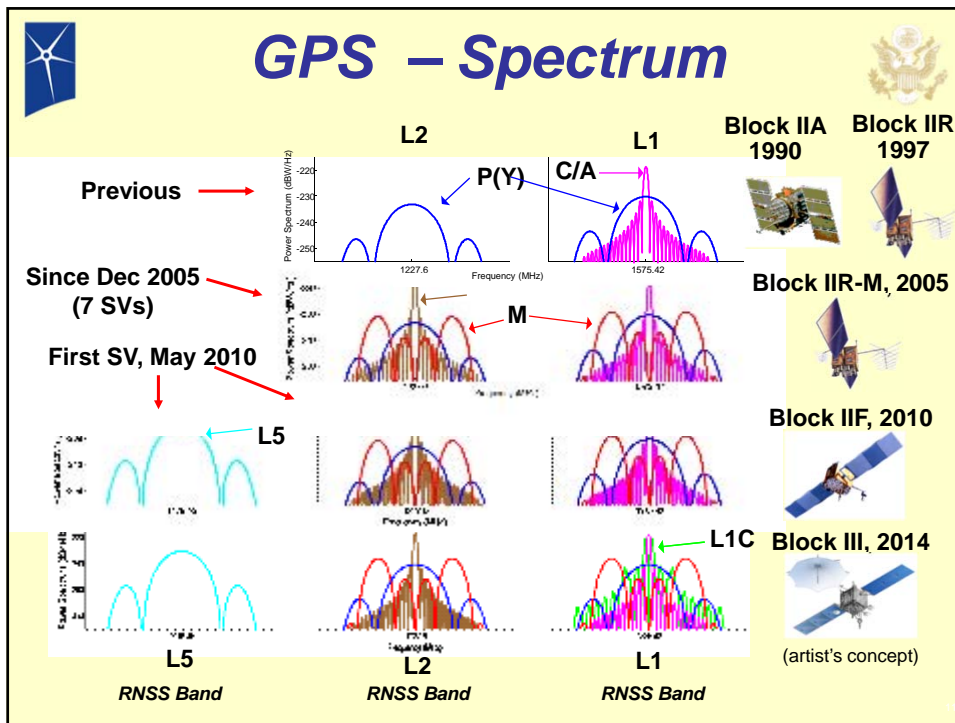
- **Very robust constellation**
  - 30 satellites currently in operation
    - 11 GPS IIA
    - 12 GPS IIR
    - 7 GPS IIR-M
  - 4 additional satellites in residual status
  - 1 additional IIR-M - pending to be set healthy
- **Global GPS civil service performance commitment - met continuously since December 1993**
- **Next GPS Launch – IIF-1, May 2010**

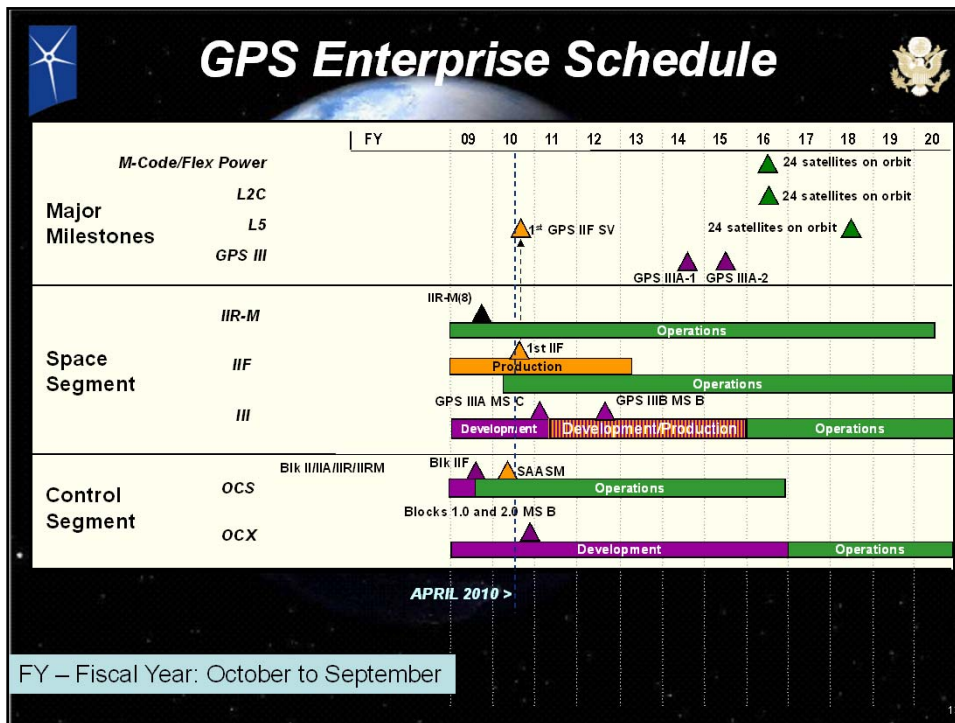


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- ## GPS Modernization – New Civil Signals
- **Second civil signal “L2C”**
    - Meet commercial needs
    - Higher accuracy through ionospheric correction
    - 1<sup>st</sup> launch: Sep 2005 (GPS IIR-M); 24 satellites: ~2016
  - **Third civil signal “L5”**
    - Meet demanding requirements for transportation safety-of-life
    - 1<sup>st</sup> launch: ~ 2010 (GPS IIF); 24 satellites: ~2018
  - **Fourth civil signal “L1C”**
    - Designed with international partners for GNSS interoperability
    - Begins with GPS Block III
    - 1<sup>st</sup> launch: ~2014; 24 satellites: ~2021





- ## Cooperation with other GNSS
- **The US is actively engaged with other GNSS providers**
    - To **ensure RF compatibility** in increasingly crowded GNSS bands
    - To **maximize interoperability** through use of common civil signals (e.g. L1C)
    - **Bi-lateral meetings** with Galileo, QZSS, GLONASS, Compass, IRNSS (India), and others



## **International Committee on GNSS (ICG) & Providers Forum – (1 of 2)**



- **ICG purpose:**

- Promote the use and integration of GNSS into infrastructures
- Encourage **compatibility** and **interoperability** among global and regional GNSS



- **ICG Members:**

- **GNSS Providers (U.S., EU, Russia, China, India and Japan)**
- International organizations, such as FIG and IAG
- International associations

<http://www.unoosa.org/oosa/en/SAP/gnss/icg.html>

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## **International Committee on GNSS (ICG) & Providers Forum – (2 of 2)**



- **ICG conferences held annually**

- U.S. hosted ICG-3 in Pasadena, CA, December 2008
- Russia hosted ICG-4 in St. Petersburg, September 2009
- Italy is hosting ICG-5 in Turin, October 2010

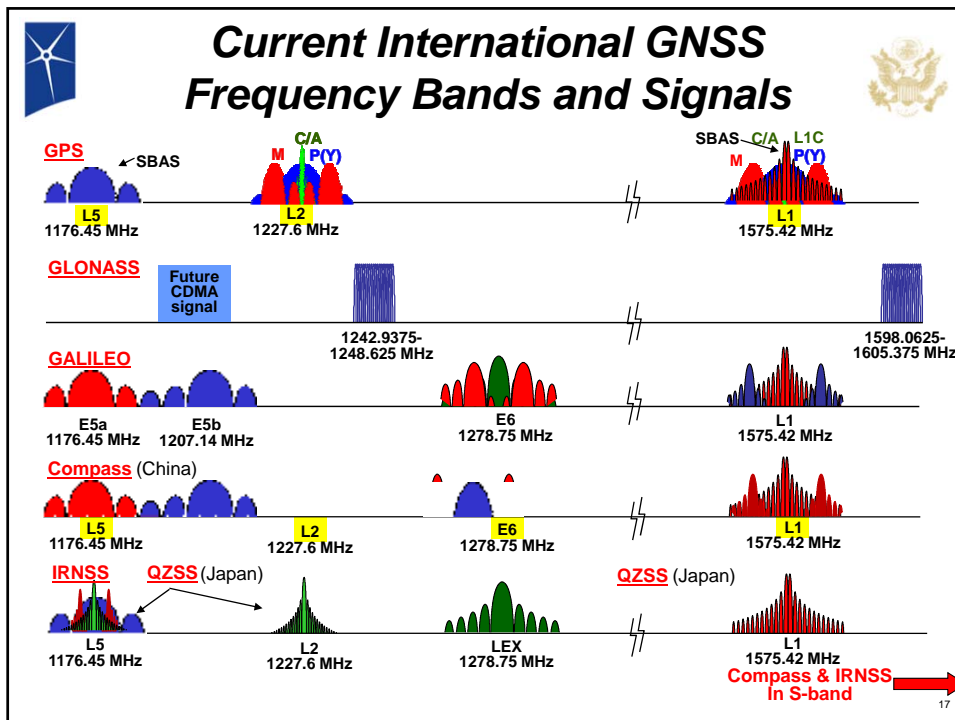
- **ICG Providers Forum enables:**

- **Focused discussions on compatibility and interoperability**
- Encouraging development of systems complementing GPS and other GNSS systems

<http://www.unoosa.org/oosa/en/SAP/gnss/icg.html>

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## Summary

- **US program and National Space-Based PNT policy**
  - providing stable foundation for continued market innovation
  - GPS modernization program – offering further improved service
  - National PNT Executive Committee actively involved in policy implementation
- **Consistent improvements**
  - through constellation management
  - 30-satellite GPS constellation with best accuracy ever
- **GNSS use continues to expand**
  - many new emerging applications
  - GPS playing a primary role
- **International Committee on GNSS (ICG)**
  - serving as very effective foundation for international cooperation among all GNSS providers

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**THANK YOU**

GPS Modernization Program Update  
and GNSS International Cooperation

 **SPACE-BASED POSITIONING  
NAVIGATION & TIMING**  
NATIONAL COORDINATION OFFICE

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