



SPACE-BASED POSITIONING  
NAVIGATION & TIMING  
NATIONAL COORDINATION OFFICE

# GPS Policy and Modernization

***GNSS Application for Seamless Transport Supply Chain  
Connectivity in APEC***

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**October 3, 2011  
Vladivostok, Russia**

# GNSS is Essential to Our Economies



**Satellite Operations**



**Surveying & Mapping**



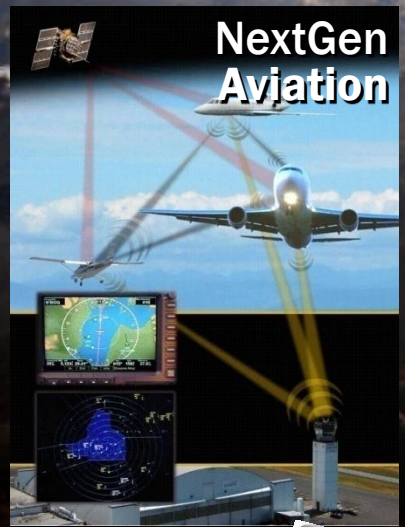
**Power Grids**



**Precision Agriculture**



**Transit Operations**



**NextGen Aviation**



**Trucking & Shipping**



**Intelligent Vehicles**



**Telecom**



**Trucking & Shipping**



**Personal Navigation**



**Disease Control**



**Oil Exploration**



**Fishing & Boating**



# U.S. Policy History

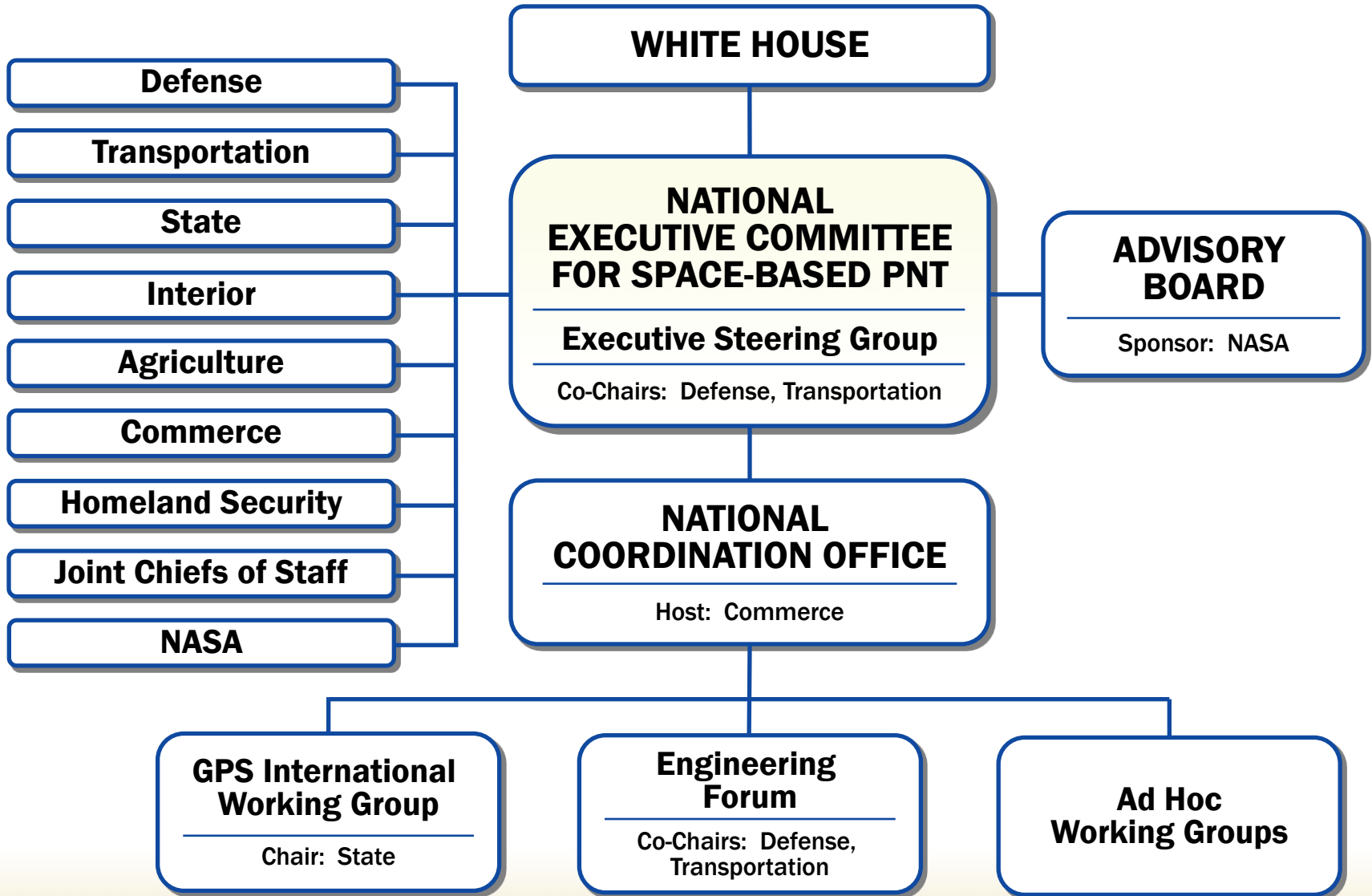


- **1983:** President announces civilian access to GPS
- **1994:** U.S. offers free civil GPS service to International Civil Aviation
- **1996:** First U.S. GPS Policy establishes joint civil/military management
- **1997:** Civil GPS access free of direct user fees codified in U.S. statute
- **2000:** President ends use of *Selective Availability*
- **2004:** President issues U.S. Policy on Space-Based PNT
- **2004:** Agreement signed on GPS-Galileo Cooperation
- **2007:** President announces *Selective Availability* eliminated from future GPS III satellites
- **2010:** New National Space Policy includes specific PNT guidance





# U.S. Space-Based PNT Organizational Structure





# U.S. National Space Policy



- Provide civil GPS services, free of direct user charges
  - Available on a continuous, worldwide basis
  - Maintain GPS constellation consistent with published performance standards and interface specifications
  - Foreign PNT may be used to augment and strengthen resiliency
- Engage with International GNSS providers
  - Encourage *compatibility* and *interoperability*
  - Promote *transparency* in civil service provision
- Enable market access to industry
- Support international activities to detect and mitigate harmful interference

**Space-Based PNT Guideline: Maintain leadership in the service, provision and use of GNSS**

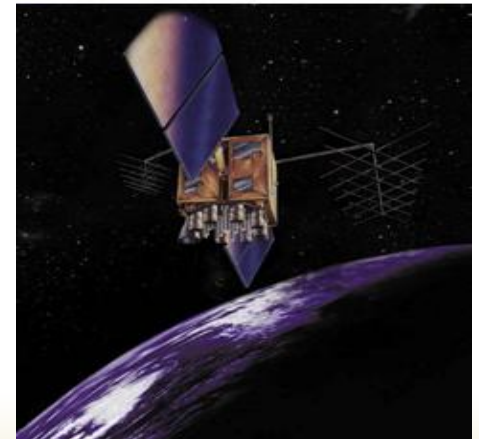


# GPS Constellation Status



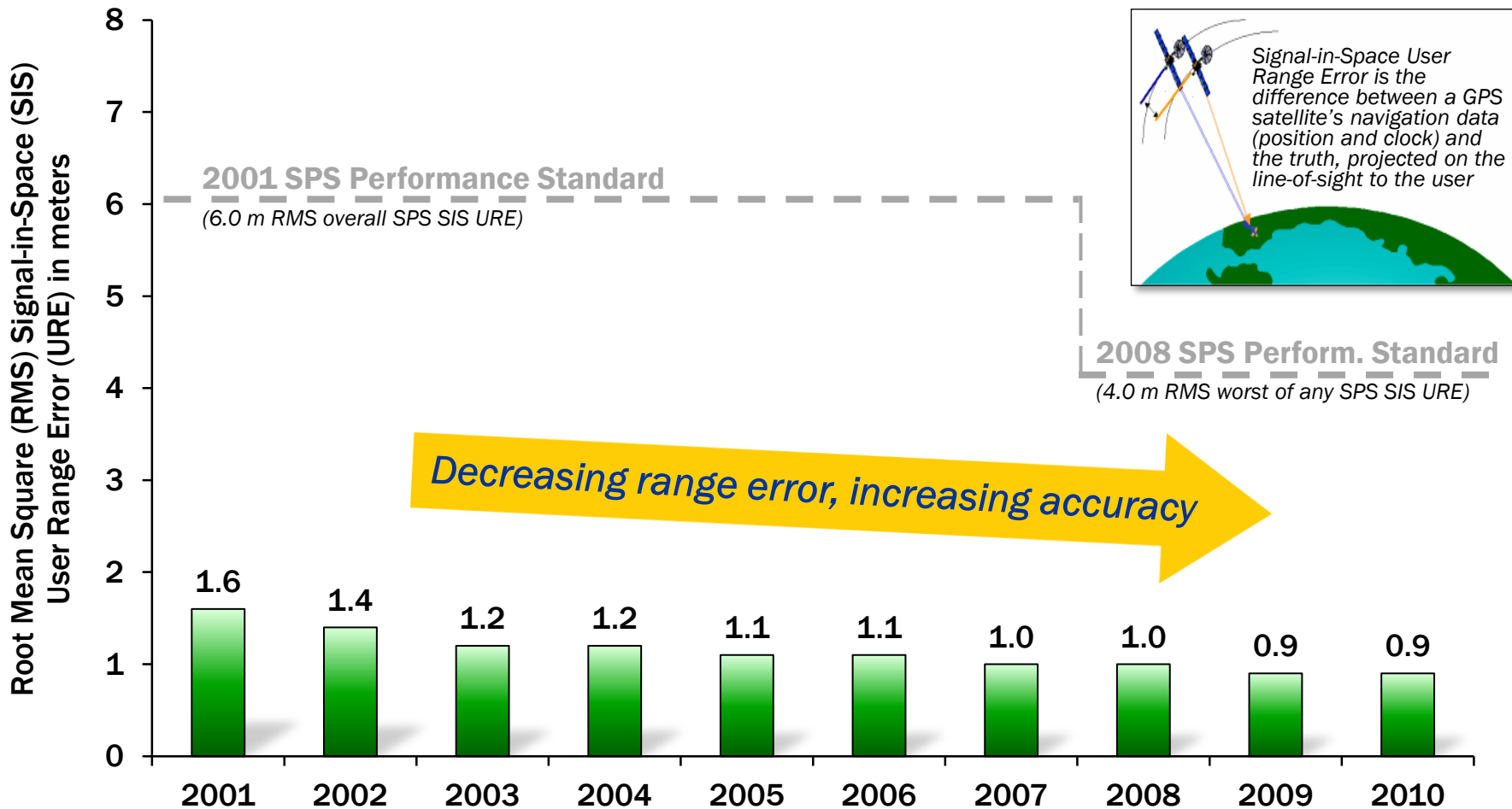
**30 Operational Satellites**  
**Baseline Constellation: 24**

- **10 Block IIA Satellites**
- **12 Block IIR Satellites**
- **7 Block IIR-M Satellites**
- **1 Block IIF Satellite**
  - *IIF-2 launched July 16, 2011*
- **Next Block IIF Launch – 2012**
- **Global GPS civil service performance commitment met continuously since December 1993**





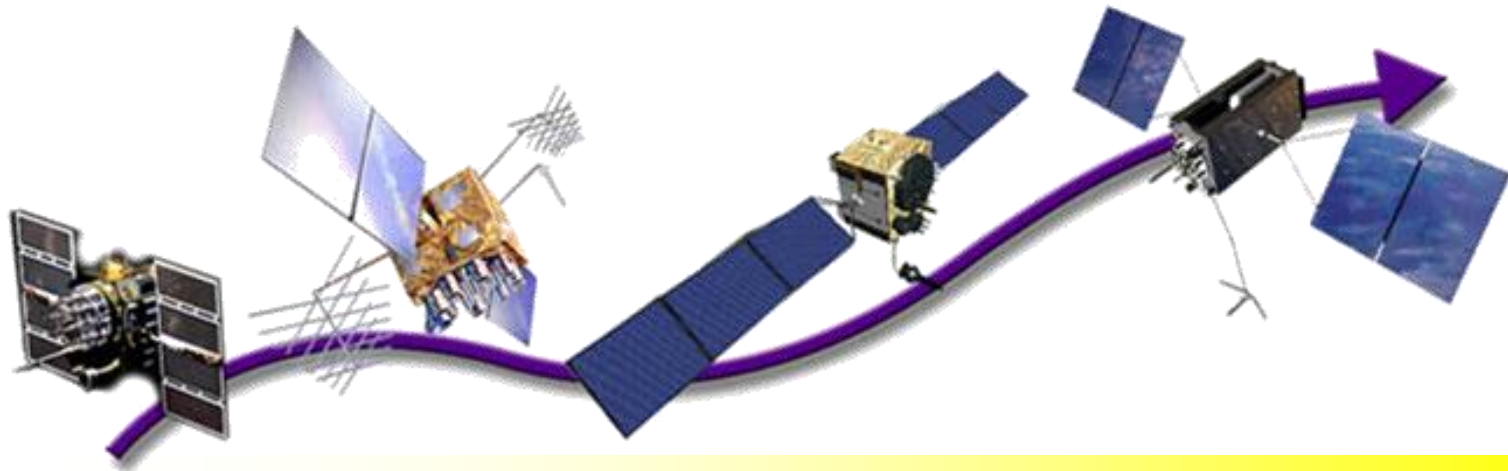
# Standard Positioning Service (SPS) Signal-in-Space Performance



**System accuracy exceeds published standard**



# GPS Modernization Program



*Increasing System Capabilities ♦ Increasing User Benefit*

## Block IIA/IIR

### Basic GPS

- Standard Service
  - Single frequency (L1)
  - Coarse acquisition (C/A) code navigation
- Precise Service
  - Y-Code (L1Y & L2Y)
  - Y-Code navigation

## Block IIR-M, IIF

### IIR-M – Basic GPS capability plus

- 2nd civil signal (L2C)
- M-Code (L1M & L2M)

### IIF – IIR-M capability plus

- 3rd civil signal (L5)
- 2 Rb + 1 Cs Clocks
- 12 year design life

## Block III

- Backward compatibility
- 4th civil signal (L1C)
- 4x better User Range Error than IIF
- Increased availability
- Increased integrity
- 15 year design life





# Summary



- **International cooperation is a priority**
  - *Compatibility, Interoperability, Transparency are critical*
  - *U.S. policy permits use of foreign PNT to augment GPS and increase resiliency*
- **GPS continues to meet or exceed our performance commitments to worldwide users**
  - *Performance is better than ever and will continue to improve with planned modernization*

**Policy stability and transparency improve industry confidence and investment**



# Contact Information



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