



SPACE-BASED POSITIONING
NAVIGATION & TIMING

NATIONAL COORDINATION OFFICE



Global Positioning System *“Quo Vadis?”*

MUNICH
SATELLITE NAVIGATION
SUMMIT 2010



9 March 2010

Anthony Russo, Director
National Coordination Office for Space-Based PNT
United States of America



Keys to the Global Success of GPS



- **Program Stability and Performance**
- **Policy Stability and Transparency**
- **Private Sector Entrepreneurship and Investment**

GPS stimulates productivity and increases efficiency in our economy



Satellite Operation



Surveying & Mapping



Power Grids



Precision Agriculture



Transit Operations



NextGen



Disease Control



IntelliDrive



TeleComm



Trucking & Shipping



Personal Navigation



Oil Exploration



Fishing & Boating



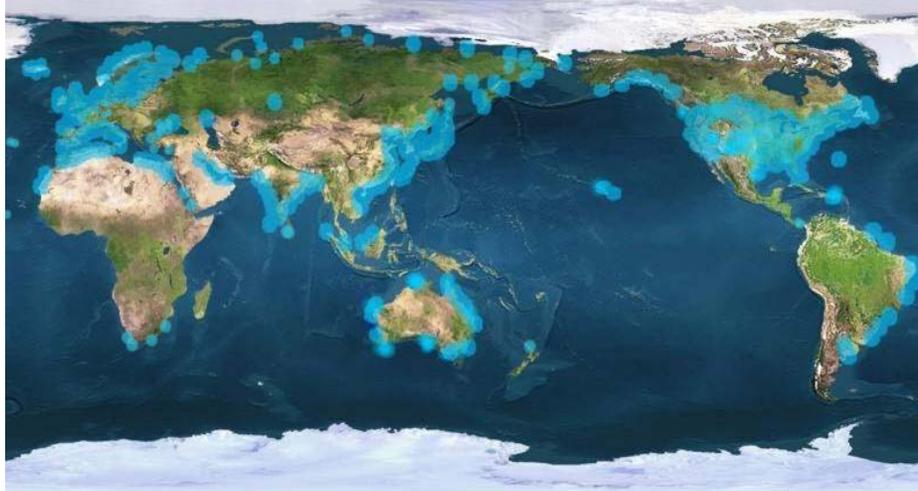
GPS Constellation

- **Very robust constellation**
 - 30 space vehicles currently in operation
 - 11 GPS IIA
 - 12 GPS IIR
 - 7 GPS IIR-M
- **4 additional satellites in residual status**
- **1 additional IIR-M waiting to be set healthy**
- **Global GPS civil service performance commitment met continuously since December 1993**

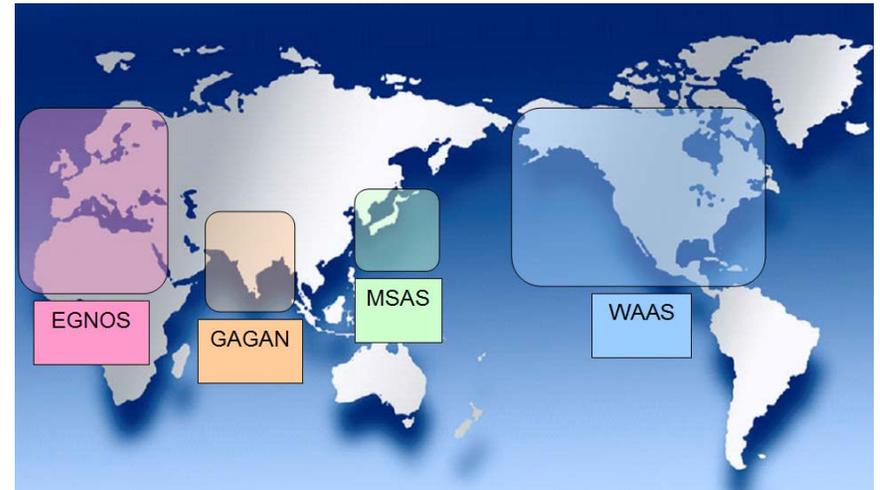




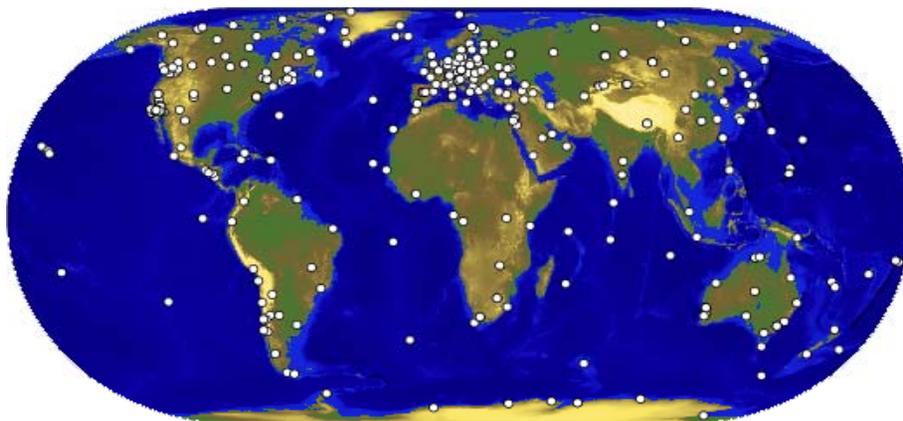
International Augmentations



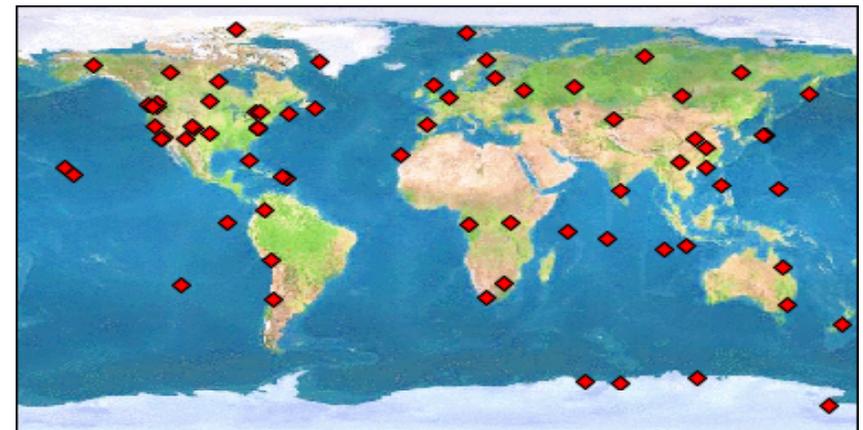
Differential GPS Networks



Satellite-Based Augmentation Systems



International GNSS Service



Global Differential GPS System



U.S. Policy Promotes Global Use of GPS/GNSS Technology



- **No direct user fees for civil GPS services**
- **Open, public signal structures for all civil service**
- **Encourages open, market-driven competition**
- **Protection of radionavigation spectrum**
- **Service improvements for users worldwide**
 - **Published updated Performance Standards for SPS & WAAS**
- **Global compatibility and interoperability with GPS**



U.S. Objectives in Working with Other GNSS Service Providers



- **Ensure compatibility**
 - Radio frequency compatibility
 - Spectral separation between M-code and other signals
- **Achieve interoperability**
 - Primary focus on the common L1C and L5 signals
 - Requires coordination on standards, reference frames and certification criteria
- **Ensure a level playing field in the global marketplace**

U.S. pursuing through both bilateral and multilateral cooperation



Private Sector Competition



- **Competition in GNSS receiver/application markets leads to greater innovation, lower costs**
- **Fair competition means no preferential treatment for any particular companies**
 - Equal access to markets and information
- **Freedom of choice desired for end users**
 - Standards and other governmental measures should not effectively mandate use of one GNSS over another
- **U.S. agreements with other GNSS providers include language on fair trade and open markets**
 - Working Group “B” established under GPS-Galileo Agreement to discuss non-discriminatory approaches to trade in civil applications markets



Summary



- **U.S. Space-based PNT Programs, Policy Implementation and Diplomatic efforts are progressing well**
 - Continuing to improve GPS and Augmentation Systems
 - International cooperation is a priority for the U.S.
 - Compatibility, Interoperability, Market-Driven Competition
- **GNSS use continues to expand with many new applications emerging**

As new space-based GNSS emerge globally, transparency in “signal and service provision information” is the key to “success for all”



For Additional Information...



Global Positioning System

http://www.gps.gov/chinese.html

English | Español | Français | 普通话 | العربية

全球定位系统 为全世界服务

全球定位系统 (GPS) 是美国以空间为基地的无线电导航系统, 在全世界范围内为民间用户提供不间断的定位、导航和定时服务, 而且对所有人免费。任何人只要有一个接收机, 这个系统就可以为他提供位置和时间。GPS可在任何气候条件下, 在白天或夜间, 在世界任何一个地方为无限数量的人提供准确的位置和时间信息。

GPS由三部分组成: 围绕地球的卫星; 地面上的监控站; 以及用户拥有的接收机。GPS卫星从空间发射可由接收机收到和识别的信号。每个接收机可以给出三维位置 (经度, 纬度和海拔) 外加时间。

人们可以从商店里随时买到GPS手持机。配备有这种GPS接收机, 用户就可以精确地知道他们的位置并且很容易找到他们要去的地方。不论是步行、驾车、飞行或开船。GPS已经成为全

系统信息

- 全球定位系统
- GPS的增强系统

应用

- 定时
- 道路和高速公路
- 空间的应用
- 航空

GPS.gov

National Executive Committ...

http://pnt.gov/

SPACE-BASED POSITIONING NAVIGATION & TIMING NATIONAL EXECUTIVE COMMITTEE

Home
What is PNT?
U.S. Policy
Charter
Membership
Meetings
Coordination Office
Advisory Board
Working Groups
International Cooperation
Public Releases
Major Documents
FAQ
External Links
Site Index

The National Executive Committee for Space-Based Positioning, Navigation, and Timing (PNT) is a U.S. Government organization established by **Presidential directive** to advise and coordinate federal departments and agencies on matters concerning the **Global Positioning System (GPS)** and related systems.

The National Executive Committee is chaired jointly by the Deputy Secretaries of Defense and Transportation. Its **membership** includes equivalent-level officials from the Departments of State, the Interior, Agriculture, Commerce, and Homeland Security, as well as the Joint Chiefs of Staff and NASA. Components of the Executive Office of the President participate as observers to the National Executive Committee, and the FCC Chairman participates as a liaison.

A National Coordination Office located in Washington, D.C., provides day-to-day staff support to the National Executive Committee. It consists of an interagency staff headed by Director Michael Shaw. The National Coordination Office is a point of contact for inquiries regarding PNT policy.

An Advisory Board provides independent advice to the National Executive Committee through its sponsor agency, NASA.

Several working groups support the National Executive Committee through staff-level, interagency collaboration on

Get GPS status info and other user support at the [Navigation Center](#)

Learn more about the uses of space-based PNT at www.GPS.gov

What's New...

- Press Release from ICG-3
- Presentations and Reports from ICG-3
- New Web Section: Congressional Legislation
- New Web Page: U.S. Policy Overview
- Update: Frequently Asked Questions
- Biennial GPS Report to Congress
- New Web Section: Major Documents
- Presentation from Berlin GNSS Symposium
- Presentations from CGSIC Tokyo
- Joint Announcement on U.S.-Japan GPS Cooperation
- Fact Sheet on Growth of WAAS Runway

PNT.gov