



U.S. AIR FORCE

Global Positioning System Operations Status

CGSIC

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Overview

- **Who We Are**
- **Constellation Status**
- **Control Segment Status**
- **User Segment**
- **Significant Awards**
- **Summary**



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Who We Are

2d Space Operations Squadron Mission

To provide positioning, navigation, timing effects, nuclear detonation detection, and launch, anomaly resolution, disposal operations by operating and maintaining the Global Positioning System satellite constellation and dedicated ground network.

Motto

“On Time On Target”





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Who We Are

- **2d Space Operations Squadron**
 - 113 Personnel
 - Operators, Engineers, Analysts, Maintainers, Cyber Professionals
- **19 SOPS reserve squadron partner with 2 SOPS**
 - Launch, Anomaly and Disposal Operations
 - Modernization continuity and subject matter expertise
 - Fully integrated into 2 SOPS mission
 - Maintain certified operators in all crew positions
- **5 Crews conducting GPS operations**
 - 7 Military & 1 Civilian
 - Navigation Warfare Officer (NWO) on-call
- **AF Technical Application Center (AFTAC) Det 46**
- **GPS User Operations Center (GPSOC)**



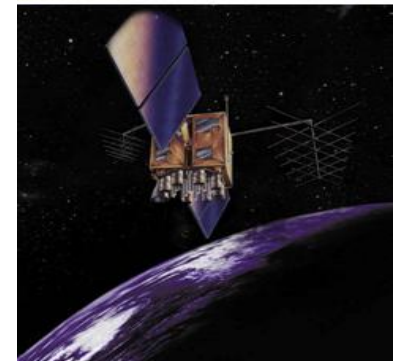


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Constellation Snapshot

31 Operational Satellites
(Baseline Constellation: 24)

- **8 Block IIA satellites operational**
- **12 Block IIR satellites operational**
- **7 Block IIR-M satellites operational**
- **4 Block IIF satellites operational**
- **U.S. Government continuously assessing constellation health to determine launch need**
 - **Newest satellites launched**
 - IIF-3/SVN 65 – 4 October 2012
 - IIF-4/SVN 66 – 15 May 2013
 - **IIF-5 launch scheduled for 17 Oct 2013**
- **Global GPS civil service performance commitment met continuously since 1993**





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GPS Status

(as of 9 Sep 2013)

		Space Segment						
		Primary Slots				Non-Primary Slots		
		1	2	3	4	5	6	7
Plane	A	SVN-65 (PRN-24)	SVN-52 (PRN-31)	SVN-38 (PRN-8)	SVN-48 (PRN-7)	SVN-39 (PRN-9)	SVN-27	
	B	SVN-56 (PRN-16)	SVN-35	SVN-62 (PRN-25)	SVN-44 (PRN-28)	SVN-58 (PRN-12)		SVN-49
	C	SVN-57 (PRN-29)	SVN-66 (PRN-27)	SVN-59 (PRN-19)	SVN-53 (PRN-17)	SVN-33 (PRN-3)	SVN-36 (PRN-6)	SVN-37
	D	SVN-61 (PRN-2)	SVN-63 (PRN-1)	SVN-46 (PRN-11)	SVN-45 (PRN-21)	SVN-34 (PRN-4)		
	E	SVN-51 (PRN-20)	SVN-47 (PRN-22)	SVN-50 (PRN-5)	SVN-54 (PRN-18)	SVN-23 (PRN-32)	SVN-40 (PRN-10)	
	F	SVN-41 (PRN-14)	SVN-55 (PRN-15)	SVN-26 (PRN-26)	SVN-43 (PRN-13)	SVN-60 (PRN-23)		SVN-32

- FMC
- PMC
- NMC
- Residual
- Expanded

Ground Segment											
C2 Segment		Monitor Stations						Ground Antennas			
MCS	AMCS	KWAJM	DIEGOM	ASCNM	CAPEM	HAWAII	COSPM	KWAJG	DIEGOG	ASCNG	CAPEG



■ Architectural Evolution Plan (AEP)

- Day-to-Day command and control of 31 Satellites
- 4 Dedicated Ground Antennas and AFSCN Capability
- 6 Dedicated and 10 NGA Monitor Stations
- Operating on version 5.9.2:
 - Adds redundancy of workstations at the remote sites
 - Improves the overall information assurance posture of the remote sites

■ Launch, Anomaly and Disposal Operations (LADO)

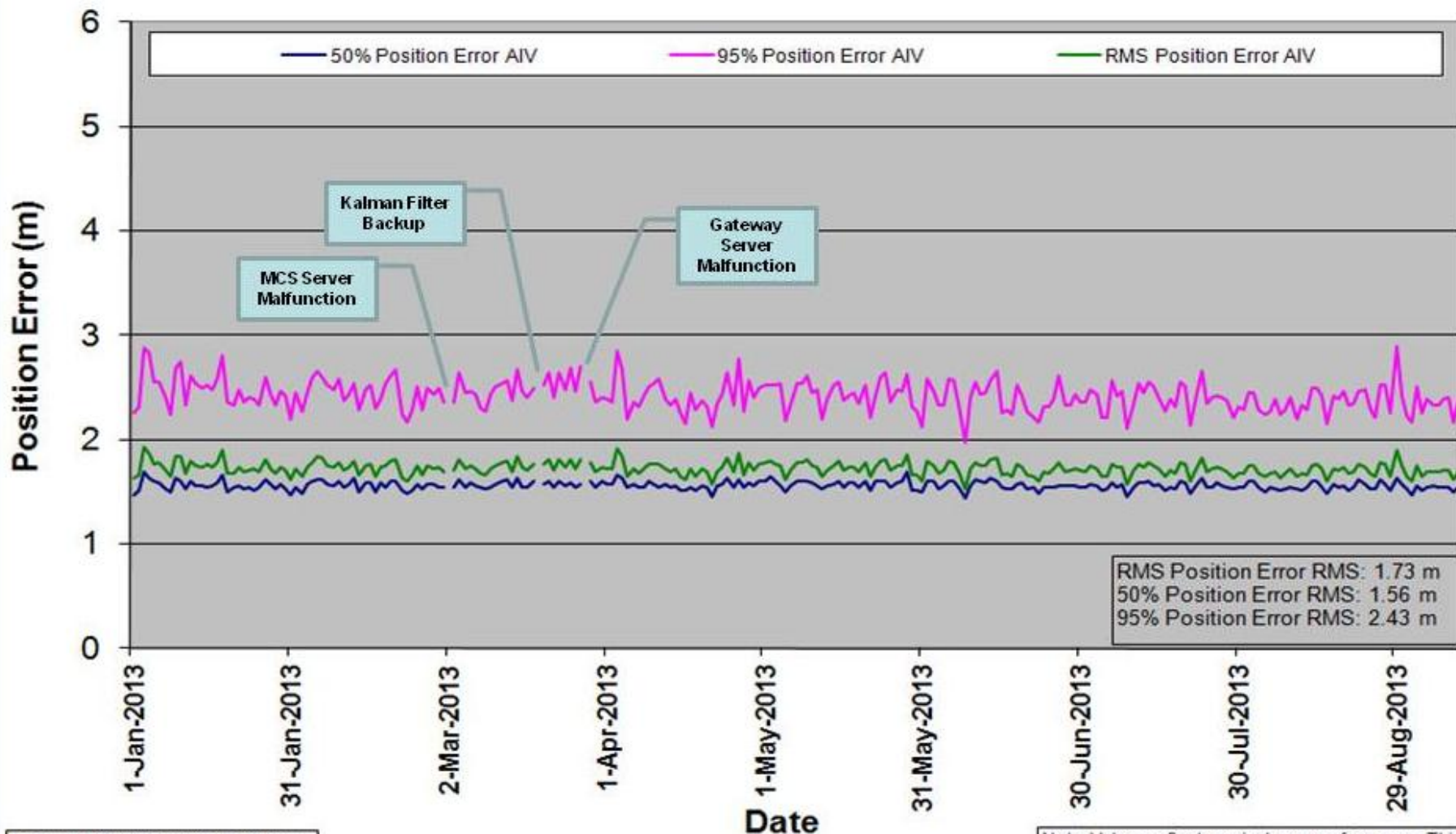
- Day-to-Day command and control of 5 Residual SVs via AFSCN only
- State of health monitoring
- Leverage for some vehicle emergencies
- Launch prep and initial post launch operations



Accuracy: All-In-View Performance

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GLOBAL GPS PERFORMANCE (1 Jan 13 – 1 Sep 13)



Note: Any breaks in data are due to data loss for various reasons.

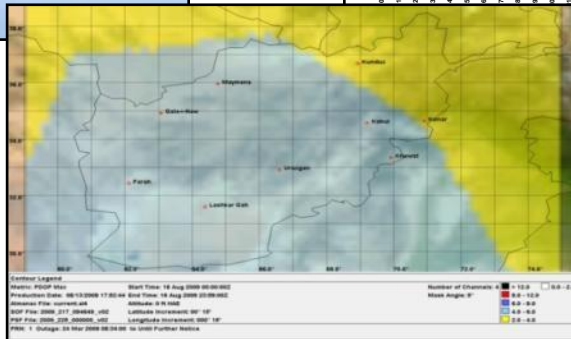
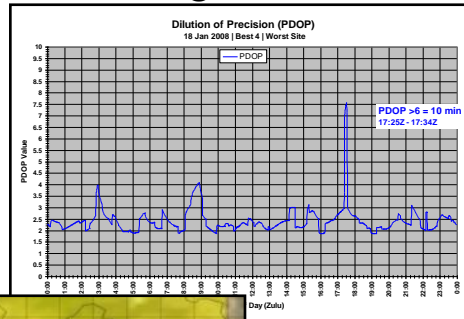
Note: Values reflect nominal user performance. This includes 80 cm of receiver noise.



User Segment: GPSOC

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- **DoD's focal point for operational issues concerning military use of GPS**
 - Constellation Ops
 - User Ops
- **DoD's 24/7 interface to military and civil community**
 - 911 for DoD GPS user emergencies
 - Supports FAA/NAVCEN in resolving civil user issues



Military applications

- Force location
- Navigation
- Force employment
- Weapon guidance
- Satellite positioning
- Comm network timing
- Plus Many Others

Civilian applications

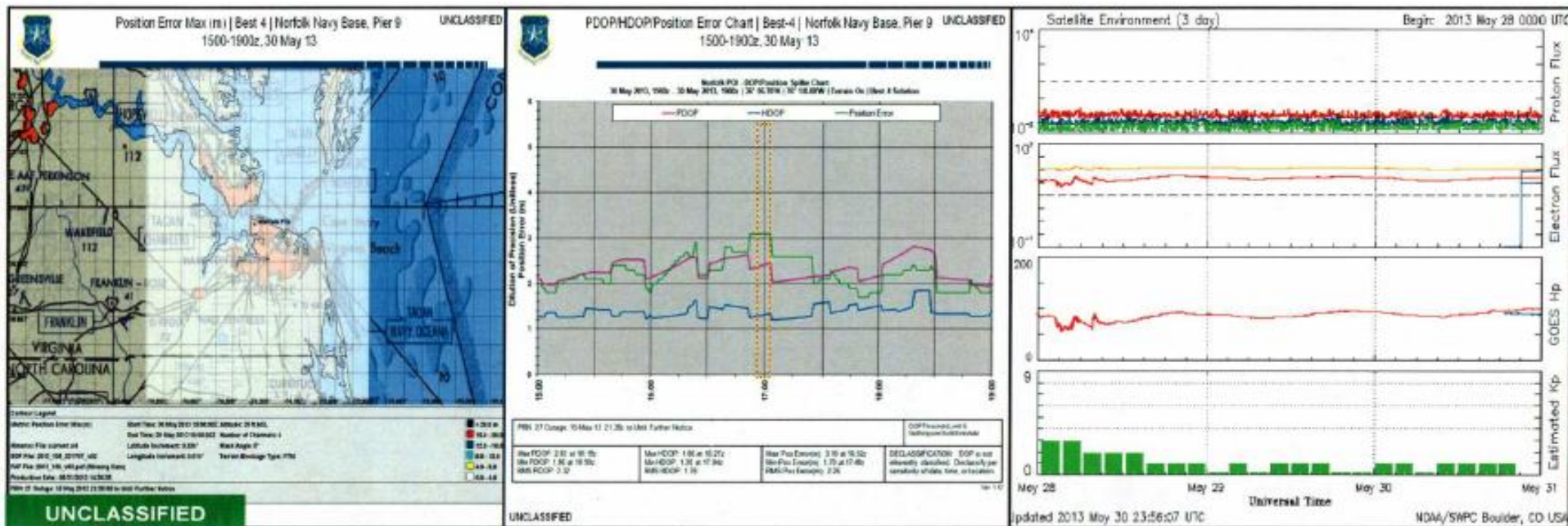
- Aviation / Civil Navigation
- Space Shuttle
- Search and Rescue
- Geodetic Measurements
- Drilling / Mining / Agriculture
- Commercial
- Plus Many Others



Loss of GPS at Norfolk Navy Base

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- On 30 May 13, 2 SOPS/GPSOC helped the NAVCEN troubleshoot localized GPS interference
- Vessels at Norfolk, Pier 9 lost GPS signal reception
- Digital Wideband Transmission System (DWTS) on USN amphibious ship was transmitting on a GPS frequency, effectively jamming all GPS receivers in the area
- Navy transmitted fleet-wide advisory to DWTS users warning them not to transmit on GPS frequencies





Delivering the Best Space-based PNT

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- ***Operating the gold standard in position, navigation & timing***
- ***Sustaining capabilities for civil and military users worldwide***
 - Maintain on-orbit satellites, ground systems
- ***Modernizing constellation with new signals and capabilities***
 - New civil and military GPS signals and control capabilities
 - Launch new satellites
- ***Managing GPS systems and supporting stakeholders***



Committed to responsible stewardship of GPS





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QUESTIONS?

