2d Space Operations Squadron

Home of the Global Positioning System

2d Space Operations Squadron

Mission

Provide combat-ready space warfighters delivering position, navigation, and timing to optimize civilian operations and Navigation Warfare (NAVWAR) for the full range of joint and coalition operations, across all domains.

Vision

The world's premier Global Navigation Satellite System (GNSS) provider innovating and accelerating positioning, navigation, and timing through modernization and integration.

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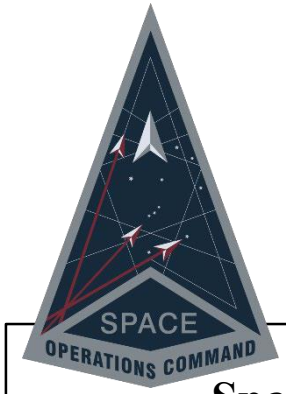
Chief Of Space Operations

Space Force Headquarters Staff



Space Operations Command

Peterson SFB, CO

Responsible For Generating, Presenting, and Sustaining Space Warfighting Capability for Combatant Commanders

Space Systems Command

Los Angeles AFB, CA

Responsible For Developing, Acquiring, Equipping, Fielding, And Sustaining Lethal And Resilient Space Capabilities

Space Training & Readiness Command

Peterson SFB, CO

Responsible For Lethality By Developing Combat-ready Space Forces And Space Warfighting Capabilities And Expertise

The USSF Will Innovate Faster to Outpace Threats From Adversaries

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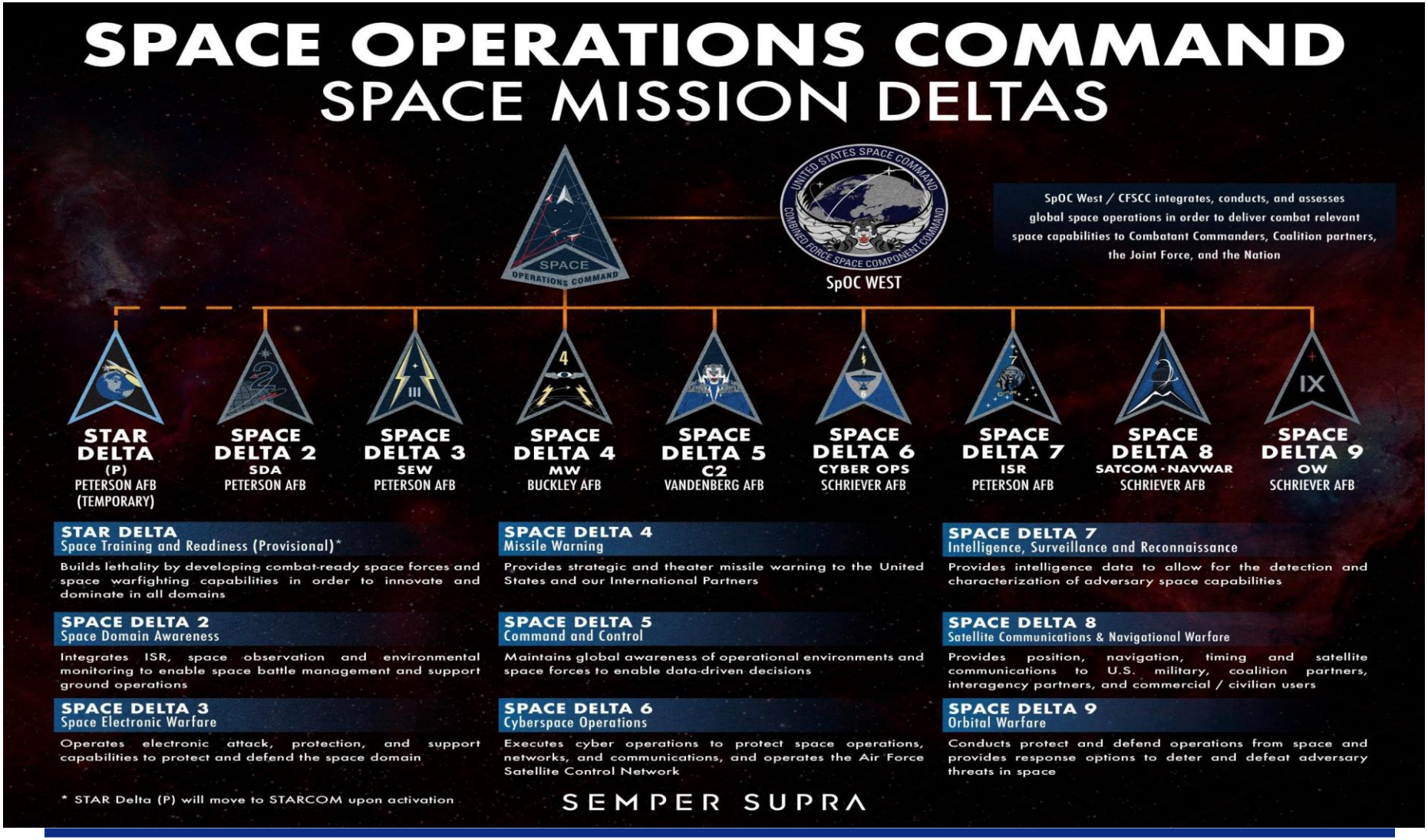


GPS Architecture Overview

Space Segment

Broadcasting since 1978

Control Segment

20 monitoring and control stations worldwide

User Segment

Reaching over 4 billion users every second

Global Reach to Civilian, Commercial, Coalition & Warfighters

GPS Accomplishments & Lines of Effort

- **Modernization**
  - Accepted four Next-Gen GPS III vehicles into active constellation
  - Fielded five C2 updates in last two years
  - Delivered M-Code Early Use (Jun ‘20) – supporting MGUE testing
  - Enabled global M-Code coverage with 24 M-Code capable satellites
  - Conducting early ops for Next-Generation Control Segment (OCX)
- **Innovation**
  - Fielded State of Health Automation
  - Restructured crews to gain manning efficiencies
  - Testing battlespace awareness / common operational picture (COP) tool
- **Warfighter Development**
  - Matured GPS Warfighter Collaboration Cell (GWCC)

Ushering in the Next-Generation GPS Era

GPS Modernization

Space Segment

SV families provide L-Band broadcast to User Segment

GPS IIA/IIR
- Basic GPS
- Nuclear Detonation Detection System (NDS)

GPS IIR-M
- 2nd Civil Signal (L2C)
- New Military Signal
- Increased Anti-Jam Power

GPS IIF
- 3rd Civil Signal (L5)
- Longer Life
- Better Clocks

GPS III (SV01-10)
- Accuracy & Power
- Increased Anti-Jam Power
- Inherent Signal Integrity
- 4th Civil Signal (L1C)
- Longer Life
- Better Clocks

GPS IIIF (SV11-32)
- Unified S-Band Telemetry, Tracking & Commanding
- Search & Rescue (SAR) Payload
- Laser Retroreflector Array
- Redesigned NDS Payload

Control Segment

TT&C of Space Segment assets & distribution of data to user interfaces

Legacy (OCS)
- Mainframe System
- Command & Control
- Signal Monitoring

Architecture Evolution Plan (AEP)
- Distributed Architecture
- Increased Signal Monitoring Coverage
- Security
- Accuracy

OCX Block 0
- GPS III Launch & Checkout System

GPS III Contingency Ops (COps)
- GPS III Mission on AEP

M-Code Early Use (MCEU)
- Update OCS to operationalize Core M-Code

OCX Block 1/2
- Fly Constellation & GPS III
- Begin New Signal Control
- Upgraded Information Assurance

OCX Block 2+
- Control all signals
- Capability On-Ramps
- GPS IIIF Evolution

User Segment

Applies Space and Control Segment data for PNT applications

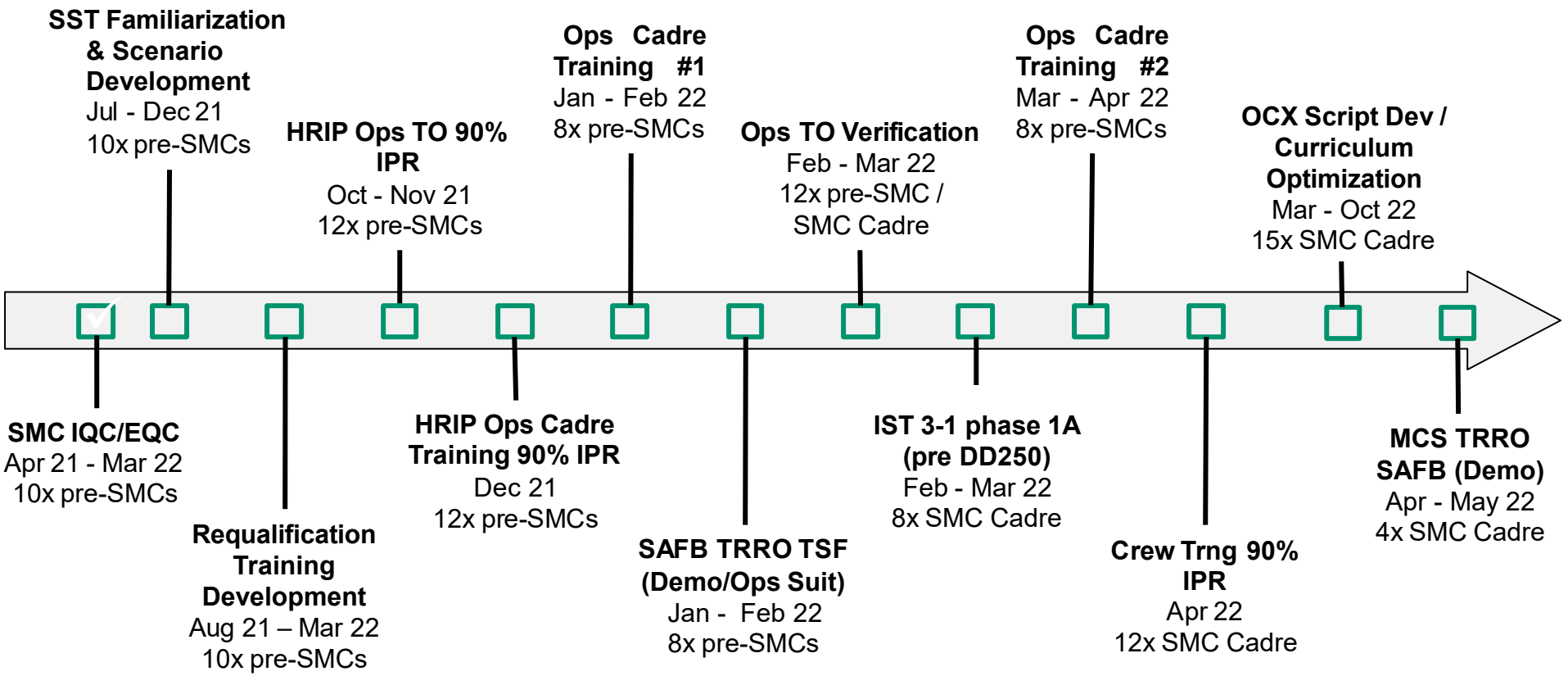
Continued support to an ever-growing number of applications
- Annual Public Interface Control Working Group (ICWG)
- Standard Positioning Service (SPS) Performance Standard Updates
- Precise Positioning Service (PPS) Enhancements
- Sustained commitment to transparency
- Visit GPS.gov for more info

Modernized Civil Signals
- L2C (Various commercial applications)
- L5 (Safety-of-life, frequency band protected)
- L1C (Multi-GNSS interoperability)

Accelerating & Elevating GPS Operations

OCX "At-A-Glance"
Early Operations Events

SMC = Special Mission Certification cadre IAW AFI 13-602 V1



Significant OCX Early Ops Rqmts over Next 20+ Months

OCX "At-A-Glance"
Early Operations Events

2/19 SOPS DOM

1. **Active Duty Component – OCX Special Mission Certification (SMC)**
2. **Reserve Component – OCX Special Mission Certification (SMC)**

Objective: develop OCX cadre responsible for the OCX spacecrew transition including early-operation events, curriculum optimization, certification development, and operational acceptance.

2/19 SOPS DOU

3. **Active Duty Component – OCX Requalification Training (RT)**
4. **Reserve Component – OCX Requalification Training (RT)**

Objective: requalify seasoned AEP operators to OCX operators to support dual operations and OCX steady-state operations.

DEL8 CTS

5. **Active Duty Component – OCX Mission Qualification Training (MQT)**
6. **Reserve Component – OCX Mission Qualification Training (MQT)**

Objective: develop and implement an OCX MQT training program to ensure spacecrew readiness for OCX steady-state operations.

GPS Warfighter Collaboration Cell

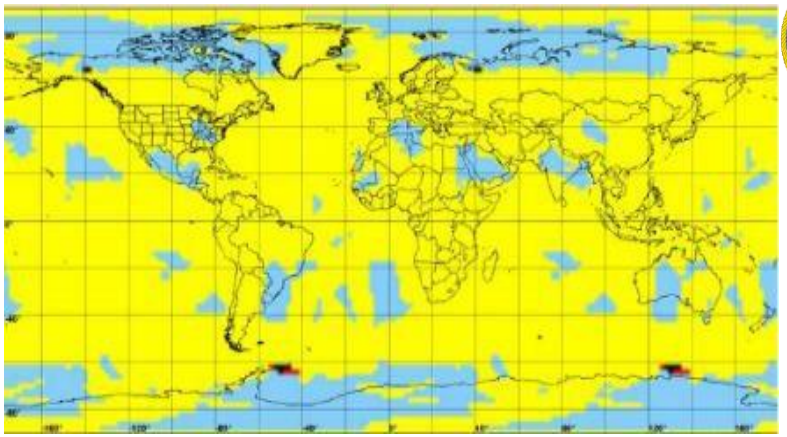
GPS Warfighter Collaboration Cell (GWCC)

- US Gov, Partner focal point for near real-time products to authorized users
- Collaboration w/ 35 MIL & 4 CIV Orgs
- Short-term tasking requests

Products Delivered

- 192 Space Support Requests (SSR) for US and Coalition Forces (via CSpOC)
- 234 Requests for Anomaly Analysis (RAA) worldwide to civil & government users
- 160 Requests for Information (RFI) requiring technical GPS analysis

Performance Products



June 2018-August 2021: ~300,000+ products creates for users

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