



UNITED STATES
SPACE FORCE

Cyber Enabled Space Operations

*Colonel John Smail
Senior Cyber Officer
U.S. Space Force*



Strategic Environment

Adversaries aim to leverage space & cyberspace in an asymmetric manner to degrade US space capability and erode the power gap with their own militaries

The USSF must deter these adversaries from attacking Space systems in, through, and from cyberspace and the EMS

End State

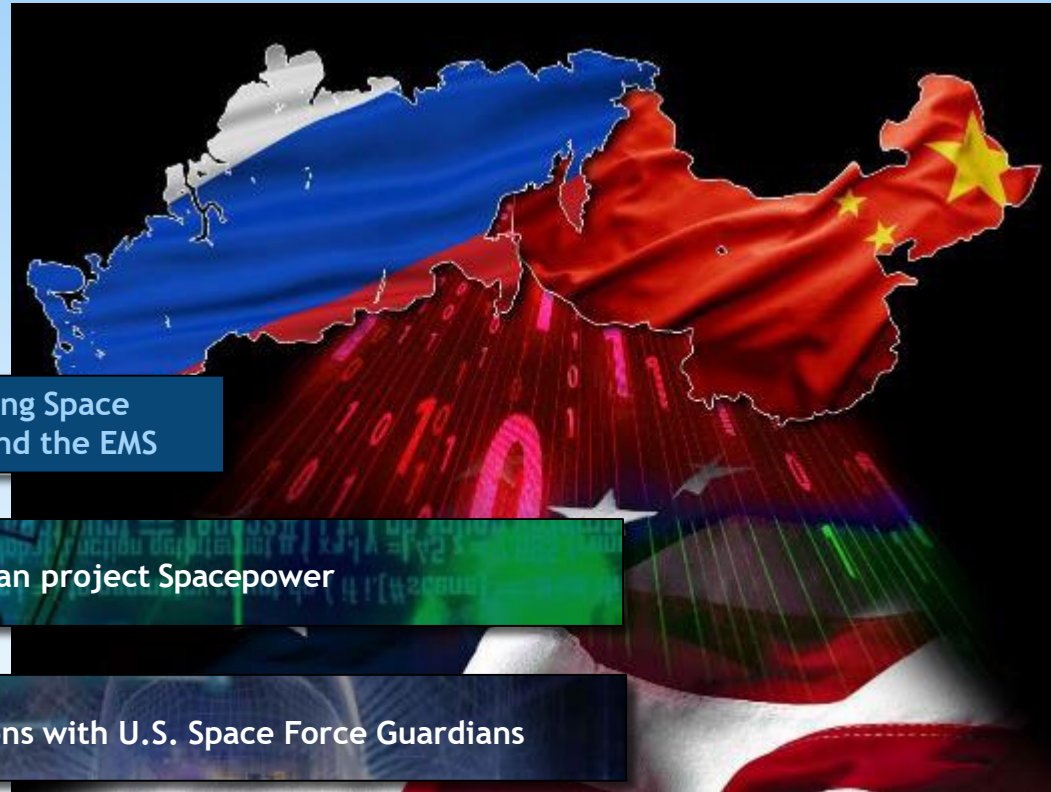
Space Force can project Spacepower

Ways

Conduct Cyberspace Operations with U.S. Space Force Guardians

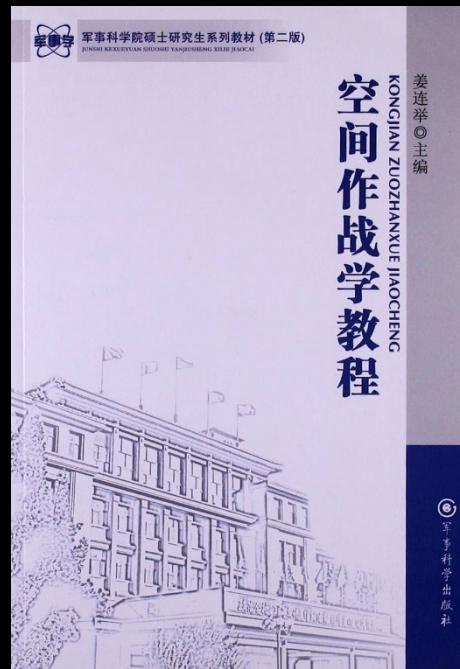
Means

Field Cyber Operations capabilities to deter our adversaries, and if necessary defeat them





Textbook for the Study of Space Operations (空间作战学教程)



“Whoever is the strongman of military space will be the ruler of the battlefield; whoever has the advantage of space has the power of the initiative; having ‘space’ support enables victory, lacking ‘space’ ensures defeat.”

By Jiang Lianju and Wang Liwen
Military Science Publishing House, 2013



Russian OCO disrupt Ukrainian Government Satellite Communications



24 Feb 2022 6:02am: High volumes of malicious traffic detected in the Ukrainian government's comm network with Viasat equipment

24 Feb 2022 6:48am: Russian tanks crossed into Ukraine

24 Feb 2022 7:15am: Destructive command to overwrite key data in flash memory was executed to disconnect Viasat terminals, impacted Ukrainian government and military agencies' ability to communicate and coordinate a response to the Russian invasion

Russian OCO gained access into Viasat network via exploiting a misconfigured VPN in the management network that services Ukraine and parts of Europe

Our advisories will target U.S. Space and Cyber capabilities in the lead up to any conflict in order to deafen, blind, and mute U.S. ability to response

Sources:

Viasat. (2022, March 30). *Ka-Sat Network Cyber Attack Overview*. Viasat.com.

Waterman, S. (2022, March 24). *Hackers attacked satellite terminals through management network, VIASAT officials say*. Air Force Magazine.



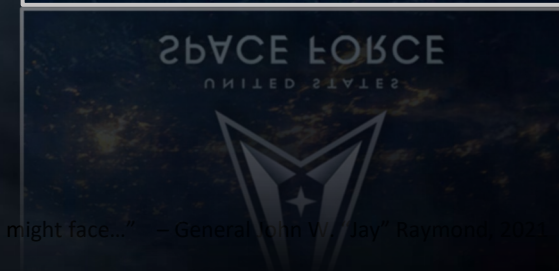
Military Spacepower

THREE CORNERSTONE RESPONSIBILITIES

- 1) Preserve Freedom of Action
- 2) Enable Joint Lethality and Effectiveness
- 3) Provide Independent Options

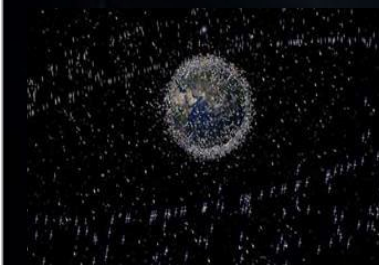
FIVE CORE COMPETENCIES

- 1) Space Security
- 2) Combat Power Projections
- 3) Space Mobility and Logistics
- 4) Information Mobility
- 5) Space Domain Awareness





SEMPER SUPRA



**Orbital
Warfare**



**Space
Electronic
Warfare**



**Space
Battle
Management**



**Space
Access &
Sustainment**



**Space
Intelligence**



**Engineering &
Acquisition**



**Cyber
Operations**

No Spacepower without Cyberpower!



Space Operations Command





SEMPER SUPRA

National Reconnaissance Office



NRO Mission: Overhead Intelligence Systems for National Security. The NRO acquires, operates, and maintains collection, processing, and dissemination systems used to produce overhead intelligence

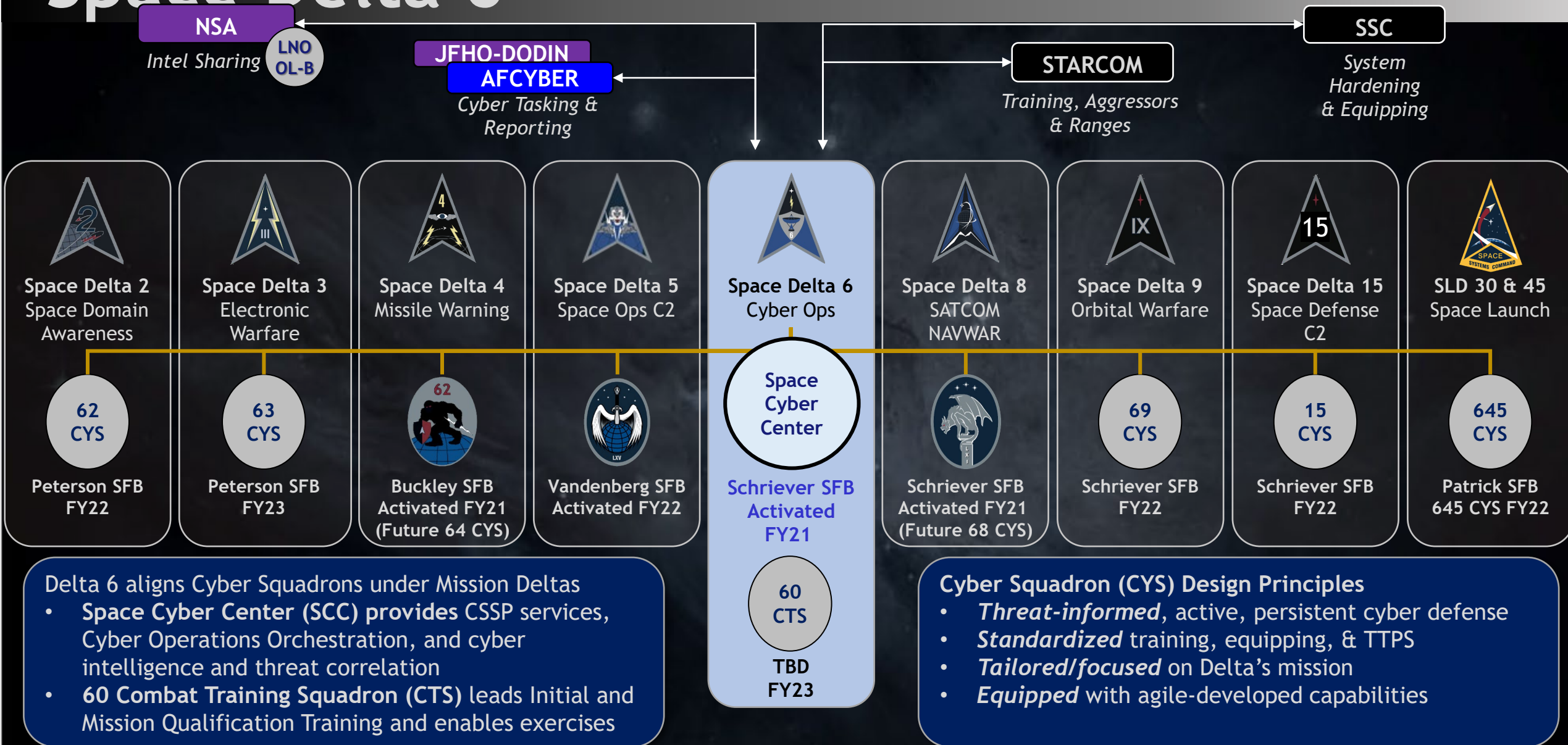
NRO Cyber Delta 26 Mission: Ensure highly reliable and resilient IT Services and cyber defense for the NRO and its mission partners

- (U) 1,800 member Delta consisting of **5 squadrons, 2 Division & 6 Detachments** supporting 70,000 users at over 800 sites worldwide
- (U) Oversees 24/7/365 IT and Cyber Operations for the **Intelligence Community's largest network** supporting global intelligence dissemination and over 140 DoD, NASA, NRO and Space-X launches annually
- (U) Supports **6 NRO Space Deltas** delivering Cyber C2 and an enterprise view of NRO mission system cyberspace terrain to provide direct, on-net defense of assigned mission systems





Space Delta 6





Cyber Enabled Space Operations

Space Cyber Center



USCYBERCOM / USSTRATCOM / USSPACECOM

Defensive capabilities
facilitate integrated cyber
effects for space operations



Cyber Ops Planning
Cyber Ops Orders
Enterprise Cyber Ops
Cyber Threat Intelligence
Modeling & Validation
Maintenance & Sustainment



DEL 8 CYS

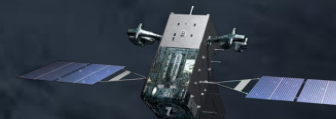
MILITARY
SATCOM



GPS



MISSILE WARNING



SATELLITE CONTROL
NETWORK

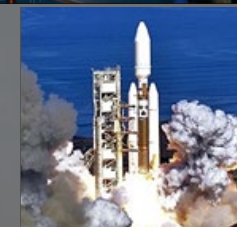


DEL 4 CYS



DEL 6 & 9 CYS

Continue to scale
cyber capabilities
and onboard
mission systems



Securing and Defending the National Space Enterprise



Cyber Enabled Space Operations

Cyber Guardians

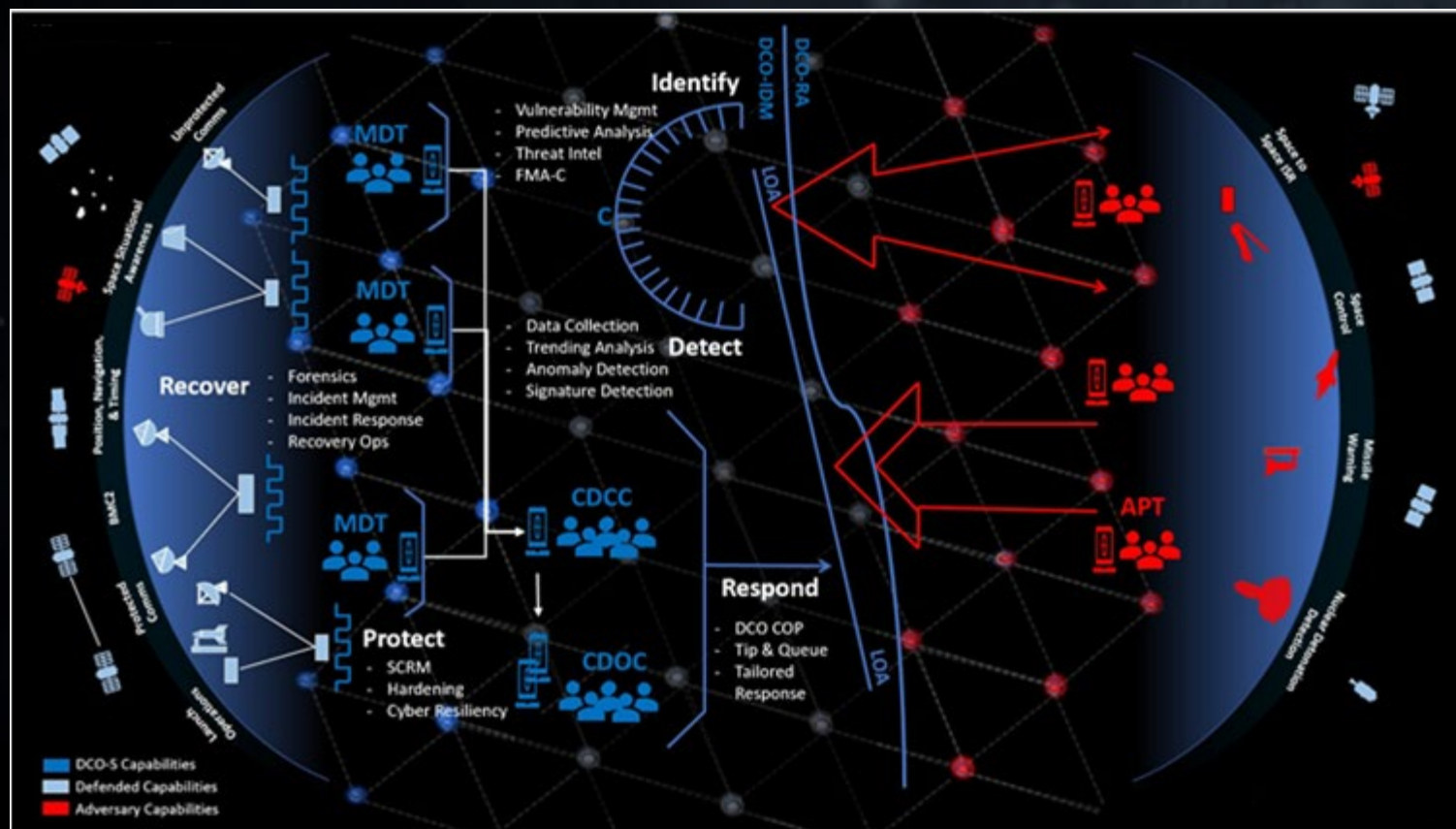
- What we are doing today...
 - SATCOM & Mission Communications
 - Defensive Cyber Operations - Space (DCO-S)





Cyber Enabled Space Operations

Cyber Defense Platform



Space Force's Cyber Defense Platform Integrated into Space Mission Systems



Space Force Combat Squadrons enable the Space Force Generation Model





Questions





SEMPER SUPRA

Cyber Guardians Wanted



UNITED STATES
SPACE FORCE

Apply at www.spaceforce.com