



USSF SPACE SYSTEMS COMMAND

Space Sensing Update

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Space Systems Command

THE RACE IS ON



North Korea unveils first tactical, nuclear-armed submarine REUTERS

8 Sep 2023

Russia deploys ICBM that Putin says will make enemies 'think twice' AP

1 Sep 2023

SPACE WFO **China launches classified Yaogan remote sensing satellites (video)**

7 Sep 2023

How missiles are changing the Middle East The Economist

The proliferation of missiles with greater range and precision is altering the military landscape

22 Nov 2023

This is genuinely a new age of missile power



SECAF: MUST BE READY FOR A FIGHT UNLIKE ANYTHING ALL OF US SERVING TODAY HAVE EVER SEEN.

"We have a well-resourced strategic pacing challenge that is showing no sign of slowing down or quitting. We are in a race for technological and operational superiority."



GLOBAL ANNUAL MISSILE LAUNCHES

HOW WE WILL WIN THE RACE



SECAF - OI 1: SPACE ORDER OF BATTLE



CSO - COMPETITIVE ENDURANCE



SAE - ACQUISITION FORMULA FOR SUCCESS



SSC - BE READY FOR THE FIGHT TONIGHT



Pivot to Resilient Architectures



Design for Deterrence by Denial of Benefit



Deliver Faster



Aggressively Exploit, Buy, Build

Government-Industry Partnership is Essential to Win this Race



DELIVER INTEGRATED & RESILIENT SPACE SENSING CAPABILITIES TO SENSE, MAKE SENSE, & WIN!

ONE TEAM, ONE FIGHT
800 Members Strong

\$24.4B Portfolio
(FY24 PB)



OUR NATION'S INVINCIBLE EYE

MISSILE WARNING/TRACKING/DEFENSE

SPACE BASED ENVIRONMENTAL MONITORING

TACTICAL SURVEILLANCE RECONNAISSANCE & TRACKING



<p>Gaps 1,2</p> <p>Cloud Characterization Weather Imagery</p>	<p>Gap 11</p> <p>Energetic Charged Particles</p>	<p>Gaps 3, 8</p> <p>Ocean Surface Vector Winds & Tropical Cyclone Intensity</p>	<p>Gaps 5, 6, 9</p> <p>Snow Depth, Soil Moisture, Sea Ice Characterization</p>	<p>Gaps 4, 7, 10, 12</p> <p>Ionospheric Density & Scintillation, Electric Field, Auroral Characterization</p>
<p>TODAY: DMSP, EWS-G FUTURE: EWS</p>	<p>TODAY: DMSP FUTURE: WSF-M</p>	<p>TODAY: DMSP, COSMIC-2 FUTURE: Non-Materiel Solutions</p>		



EXPLOIT



Data analytics tools ingest existing data to give the warfighter the tactical edge

BUY



Delivering Operational Planning Products (OPPs) using commercial capabilities to CCMDs at the speed of need

Combined Program Office
w/ MDA, SDA



FIGHT TONIGHT: GLOBAL STRATEGIC MW
2026: RESILIENT MWTD

Capability Development w/
NOAA



FIGHT TONIGHT: SYSTEM OF SENSORS
2026: PIVOT TO HYBRID USSF/COMM'L/INT'L

Pathfinding with CCMDs
and Commercial Providers



FIGHT TONIGHT: COMM'L MARKET PILOT
2026: SCALED TO ALL CCMDs

MISSILE WARNING, TRACKING, AND DEFENSE (MWTd)



MEO Epoch 2 RFP release Summer 2024

- **EXPLOITING** current operational capabilities
 - Using WFOV Demo to pathfind ITW/AA certification for proliferated sensor architecture
 - False Track Reduction Using Machine Learning
 - Utilizing AI/ML to make sense of data to support Missile Warning/Missile Defense timelines/actions and Battlespace Awareness integration into joint all-domain awareness, *what's next?*
- **BUILD FASTER** requires low NRE – *need industry investment*
 - Intelligent tasking management for multi-satellite tracking
 - Algorithms for multi-orbit 3D track fusion
 - Automation for detecting evolving threats in cluttered scenes
 - On-board edge-processing to optimize downlinked data
 - End user visualization/notifications – challenge of limited operators, increased detections



SPACE SENSING GOING FAST

Quicker program initiation

- 5 years SBIRS
- 4 years Next Gen OPIR
- < 2 years MEO MW/MT

Shorter development

- 10 years SBIRS
- 7 years Next Gen OPIR
- 4 years MEO Epoch 1
- 3 years MEO Epoch 2

SPACE-BASED ENVIRONMENTAL MONITORING PIVOT



Operational SBEM - through 2023

2024

2025

2026

2027



DMSP

Gaps 1,2

Cloud Characterization, Weather Imagery

EWS, EWS-G

Gap 11

Energetic Charged Particles

Gaps 3, 8

Ocean Surface Vector Winds & Tropical Cyclone Intensity

WSF-M

Gaps 5, 6, 9

Snow Depth, Soil Moisture, Sea Ice Characterization

Gaps 4, 7, 10, 12

Ionospheric Density & Scintillation, Electric Field, Auroral Characterization

COSMIC-2



Space Threats

RESILIENCY

RESILIENT-BY-DESIGN SBEM ARCHITECTURE
based on **EXPLOIT - BUY - BUILD**

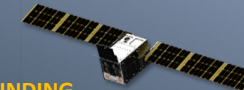
Threat-informed to ensure warfighters retain this key informational advantage

Partner with stakeholders to optimize capabilities for sensitive operational use, including submarine & aircraft ops



DELIVERING OPERATIONAL EWS SMALLSAT PROTOTYPE
Sep 2025 launch

PROLIFERATION



PATHFINDER PROLIFERATED SBEM EWS CubeSat Demo
Mar 2024 launch

DISAGGREGATION

DELIVERING FAST: disaggregated SBEM capability
WSF-M
Mar 2024 launch



EXPLOITED on-orbit NOAA assets for critical INDOPACOM "EWS-G" Operational Use



COSMIC-2
PARTNERING TO WIN
International/Academic Partnership delivered operational constellation



SBEM Reverse Industry Day

Explore Exploit/Buy Opportunities

Optical Threats
RF Threats

AIR & SPACE FORCES MAGAZINE

How This Little-Known Air Force Data Center Affects the Entire Military

DoD Weather Center - 557th

TACTICAL SURVEILLANCE, RECONNAISSANCE & TRACKING (TacSRT)



- **2023: Successful proofs of concept – SSC Space Sensing Guardians utilized existing commercial TacSRT data to develop analytical products at the speed of need**
 - SOUTHCOM exercises
 - AFRICOM humanitarian responses
- **2024: Pilot will deliver decision-quality Operational Planning Products for Combatant Commands using commercial TacSRT**
 - Initiating TacSRT Pilot
 - Building on existing SSC successes

Entry points
for Industry

- SRT Marketplace to **BUY** commercial TacSRT
- SRT TAP Lab to **EXPLOIT** commercial TacSRT



Leveraging commercial capabilities to rapidly deliver unclassified and fully releasable Operational Planning Products to support CCMD needs