

Assured Access to Space (AATS)

SML Reverse Industry and Collaboration Day "Opening Remarks"

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13 September 2022

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Assured Access to Space

SPACE ACCESS

AATS Inherent Activities

LTRS - Range Sustainment: Materiel and Services

Operate Vandenberg SFB, Patrick SFB, Cape Canaveral SFS, Eastern and Western Ranges

Procurements: NSSL, RSLP; Multi-Mission Manifesting

Orbital/Sub-Orbital Launches; Storage, Surveillance, and Refurbishment of Decommissioned ICBM Motors

National Federation of Spaceports



USG and State Spaceports Collaborations



Commercial Range Ops & **Business Models** Multi-Use Range Facilities: **Complex Allocation**

Next-Gen Range Services & Mission Assurance

Mission Lifecycle Management

SV Processing Management; **Building Capacity** AATS-Level Ops Centers for Monitoring Hardware **Movements and Assets**



The Future of Assured Access to Space

OPERATIONS INTEGRATION

Spaceports/Launch/Satellite Ops



SSC Spaceflight Worthiness & Certification

Enterprise Mission Assurance Team

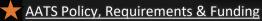
COCOM Space Effect Integrator





New Effort

AATS Program Incubator



2 USSF RANGES 2 ARMED SERVICES **3 TRACKING SITES 9 LOCATIONS 100+ MISSION PARTNERS 10K PERSONNEL**



Currently Executing

RAPID DELIVERY

Sub-Orbital Rapid Strategic Mobility



Rocket Cargo AFRL Vanguard Program;

Point-to-Point Rapid **Global Mobility**



ORBITAL RESILIENCY

Tactically Responsive Space



Provide responsive warfighter space capabilities on demand to maintain space superiority through all phases of conflict



On-Orbit Servicing, Maneuver, & Debris Removal

Orbital Servicing

Remove/Replace Payloads On-Orbit; Drive Common Standards; Commercial Refueling Capability



Orbital Maneuver

Leverage commercial industry for on-orbit maneuvers; Small-launch to LEO, use on-orbit stages to higher altitudes



Debris Removal

Engage and Energize Industry Solutions





Space Mobility, Logistics, and Servicing Commercial Services Strategy

- USSF planning supports burgeoning Space Mobility, Logistics, and Servicing Industry
 - National and Service-level guidance driving rapid capability exploration
 - White House (WH) National Orbital Debris Implementation Plan Jul 22
 - WH In-space Servicing, Assembly, and Manufacturing (ISAM) Strategy Apr 22
 - USSF validated / JCB approved SMS ICD developed from extensive capability gap analysis
 - · Newly formed Commercial Services Office in place to maximize use of commercial capabilities
- Multi-pronged, multi-agency efforts funded to accelerate ops capability availability
 - \$16.9M in FY22 funding identified to support multiple SAML innovation efforts in partnership with Defense Innovation Unit, Air Force Research Lab, and Space Systems Command prototyping efforts
 - USSF working with NASA to mature In-Space Servicing, Assembly, & Manufacturing (ISAM) commercial industry
 - USSF SpaceWerx launched innovative \$100M 'Orbital Prime' program to spur market for on-orbit services
 - X-Prize Foundation initiating space debris removal competition to spur innovation and policy development
- Evaluating industry readiness and developing business approaches to move quickly to ops employment
 - "Reverse" Industry Engagements underway
 - State of the Space Industrial Base Summit (May 22)
 - Tactically Responsive Space Industry Forum (Aug 22)
 - Space Mobility & Logistics Industry Day Forum (Sep 22)
 - Conducting Unsolicited Proposal Reviews
 - Developing strategy to support requirements definition and flow into PPBE resourcing process
 - Establishing new SMS PEO
 - Standing up program of record for development and fielding of SMS technologies
 - Executing accelerated AoA to define exploit-buy-build tradeoffs, business cases, & acquisition strategies

Leveraging Commercial Capability to Enhance Persistence, Maneuverability, and Resiliency of NSS Missions in a Contested Space Environment



- ISAM = In-Space Servicing, Assembly, and Manufacturing
 - Highlights assembly and manufacturing and broadly covers maneuver and servicing ~National Science and Technology Council ISAM National Strategy
- OSAM = On-orbit Servicing, Assembly, and Manufacturing
 - Highlights servicing, assembly, and maneuver ~NASA
- SML = Space Mobility and Logistics
 - USSF defined core competency addressing space access, replenishment of consumables, on-orbit servicing ~Space Capstone Publication, *Spacepower*
- SAML = Space Access, Mobility, and Logistics
 - Describes Space Access, Mobility, and Logistics ~SAF/SQ Mission Area Team / SSC AATS
- SMS = Space Maneuver and Servicing
 - Identifies validated capability gaps for on-orbit mobility and servicing ~SMS Initial Capabilities Document (ICD)

Evolving Terminology for Evolving Mission Area ... SSC Uses "SAML" as Most Accurate Description of Broader Space Mobility Applications



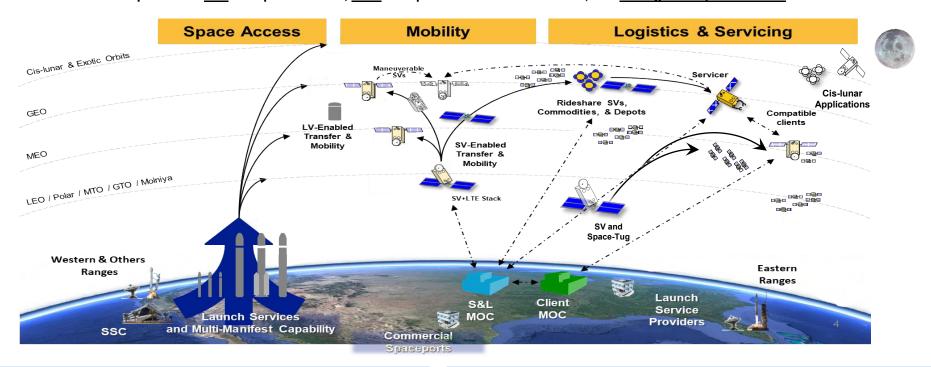
Backup



Space Access, Mobility, and Logistics

Enabling USSF SML Core Competency

Space Mobility and Logistics defined as the movement and support of military equipment and personnel into the space domain, from the space domain back to Earth, and through the space domain.



Space Access thru DOD and IC Launch Enterprise

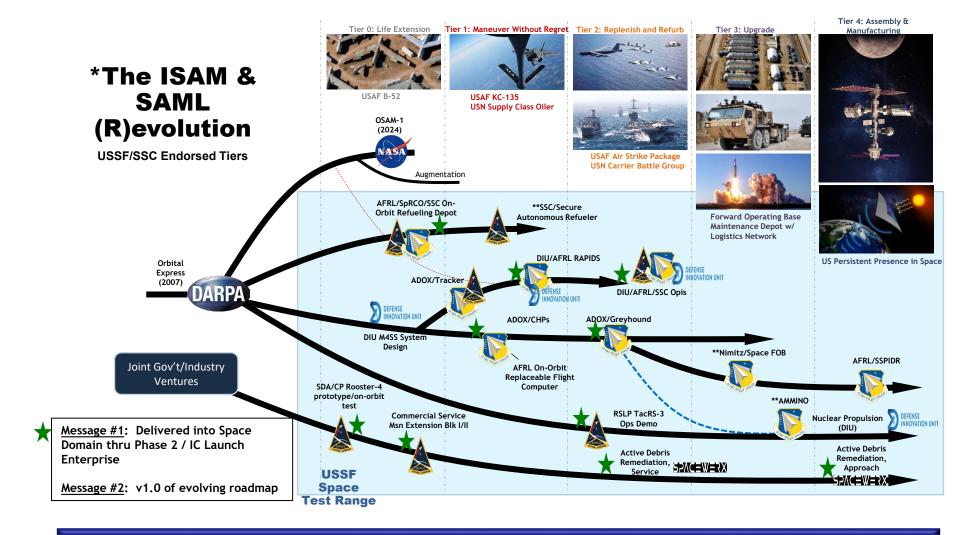
- Focused on launch for National Security Space missions
- Contracts also provide access for DoD SAML prototyping
- Developing LV upperstage maneuver capability for greater agility
- Missions spread across multiple contract vehicles
 - Phase 2 contract National Security Space Launch
 - Streamlined Launch IDIQ Contract (SLIC) NRO
 - Orbital Services Program 4 (OSP-4) contract RSLP

Cultivating emerging **Space Mobility & Logistics** technologies

- Anticipate capabilities supplied using commercial services approach
- Procured services incorporate space access into total service costs
- Multiple DoD/Commercial prototyping efforts underway to mature technologies and establish robust industry base for services
- Space Maneuver and Servicing (SMS) ICD in place and DOTmLPF-P Change Request underway to stand up Acquisition arm for future service procurements



Evolving SAML Roadmap Multi Agency Efforts



SSC Leveraging Whole of Government to Enable Commercial SAML Services Through Industrial Base Development, Tech Maturation, and Interface Standards

SPACE SYSTEMS COMMAND

Next Steps & Key Enablers

- POMing for SML capabilities--Working to buy commercial services for real capability ASAP
- Establish M&L Program of Record; complete SMS "AoA"; POM & execute
- Digital Ecosystem -- environment, models, tools, use cases/demos: \$5M now
- Continue to evolve & expand M&L activities -- "move the ball":
 - DIU etc partnerships/demos: \$5-10M
 - In-space manufacturing applied research, includes ML dev: \$3M
 - Procure servicing/maneuver demo mission: \$100-200M?
 - Procure debris collect/return demo mission: \$ TBD
 - Collaborate with allied nations & industry: priceless
 - Dev secure C2 to mesh commercial services w/USSF for prox ops: \$50M to start

Assured Access to Space (AATS) (SSC/AA) 22 Aug 2022 SPACE Director AATS & YSTEMS COMMAND Program Manager **PEO AATS** AATS SEL **Deputy PEO** > IMA to the Director NH-04 Exec Director T Deputy Director **Chief of Staff** USSF USAF SSC Staff Liaison Col Doug Pentecost * **Brig Gen Stephen Purdy** CMSgt Susan Sparks Col Jamie Fernandez Mr. Z. "Walt" Jackim Mr. John Steinmeyer Col Jim Horne Ms. Rosema Hermano **IMA** to CC **AATS Action Grp** IMA to CC Mission Solutions Launch Execution Mr. Steven (Jay) Folds Space Launch Col Nolan **Space Launch AAM AAL** Vacant Delta 45 SEL **SLD Staff Agencies** Delta 30 Col Erin Gulden SML Col Chad Melone SEL Brig Gen Stephen Purdy SLD Staff Agencies CP EO HC HO CP EO HC HO Col Robert Long CMSgt Sparks IG IN IP JA **CMSgt Jennings** MU PA PM SB XP IG IN IP JA MU PA PM SB XP Rocket Systems **ULA Senior Lead** 45 WS NH-04 **Executive Director Executive Director** * 2 ROPS Launch Program (RSLP) Mr. Sanjume SML Mr. Kraver Sq/CC Col King Lt Col Beltz * Mr. Stevens Sq/CC Lt Col Somerman 1 ROPS **SpaceX Senior Lead** Director of Staff **Director of Staff** Dr. Lauderdale Payload Mgt & Msn * Sq/CC Lt Col Mims 2 SLS Mr. Hayes Col DeLauter Integration (MMO) 5 SLS Atlas/Delta Systems Sa/CC Lt Col Rexius **CV-Operations** Lt Col Galindo Lt Col Carstetter **CV-Operations** Sq/CC Lt Col Schill Col Shoemaker * **30 CES** CSB Psn Col Titus CSB Psn * **45 CES Vulcan Systems** Future Procurement Launch & Test Range Sys (LTRS) NH-04 Mr. Healy * Lt Col Hansen Sq/CC **CV-Installation Spt** Lt Col Hackbarth (NSSL Phase 3) Lt Col Barnes Sq/CC **30 FSS** Col Sheffield CSB Psn Lt Col Longo 45 CONS **Falcon Systems CV-Installation Spt** Sa/CC Lt Col Houser **Senior Enlisted Airman** Lt Col Overmyer Col Graham Sq/CC Lt Col Wall * **30 LRS CMSgt Mosley 45 SCS Senior Enlisted Airman** Sq/CC Lt Col Killian CMSgt Duvall Sq/CC Lt Col Cross Program Safety **AATS Staff Functions** 30 CONS Col Tulier 45 SFS Managers Safety Sq/CC Lt Col Spear Talent Mgt - AA1 Ops Integration – AA3 **30 MDG** Lt Col Brenoskie Sa/CC Col Youngson **30 SCS National Security** Vacant Col Horne CSB Psn Col Cunningham **45 MDG** 45 CPTS Space Launch (NSSL) Sq/CC Lt Col Deyoung TBD Sustainment - AA4 TBD Intelligence - AA2 Sg/CC Lt Col Williams Col Pentecost * Col Hamilothoris CSB Psn * **30 SFS** 30 HCOS Vacant Vacant **45 FSS** 45 HCOS Sq/CC Lt Col Walker Lt Col Temple Rocket Systems Sq/CC Maj Khurt Sq/CC Lt Col Salaski Engineering - AAE NH-04 Financial Mgt - AAF **30 CPTS** Launch Program (RSLP) 30 OMRS **Spaceport Integration - CCSFS** 45 OMRS Col Strizzi Lt Col Beltz * Mr. Yew Sq/CC Maj Debois Sg/CC Lt Col Cervantes Maj Compton Sg/CC Lt Col Jordan NH-04 Contracting - AAK Tech & Innovation - AA6 **30 OSS** NH-04 Launch & Test **DET 2-Ascension** Innovation Lt Col Munshi Mr. Hobbs Sq/CC Maj Clements Range System (LTRS) Det/CC Maj Diefenderfer Lt Col Munshi Mr. Healy * **45 LRS** Data Int/AI/ML Sg/CC Mai Jaime Lt Col Kimbrough