

Next Generation Space Defense

MILSATMAGAZINE

February 2024



*General Atomics Electromagnetics GA-75
Satellite and Optical Communication Terminal
for Resilient Optical Communications.
Image is courtesy of the company.*



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DISPATCHES

BlueHalo + Eqlipse Technologies combine forces to provide global defense technology support



BlueHalo, a company engaged in global defense tech, will acquire Eqlipse Technologies (Eqlipse), a provider of differentiated products and solutions to the Department of Defense (DoD) and Intelligence Community (IC).

Bolstered by Eqlipse's high-end technical talent and suite of products, BlueHalo will deliver enhanced scale and broader capabilities to its customers, accelerating the development and fielding of its advanced defense technologies. The combined entity will have a total employee count of nearly 2,400 across 11 states and annual revenue approaching \$1 billion. The transaction is expected to close in Q1 2024.

Current BlueHalo CEO, **Jonathan Moneymaker**, will lead the combined company.

Since forming in 2019, BlueHalo has established itself as a trusted partner to the DoD and IC, serving as the prime contractor awardee on top-priority contracts such as the USSF's recent \$1.4 billion **Satellite Communication Augmentation Resource (SCAR)** program.

BlueHalo is the first to successfully operationally field High Energy Laser Counter-Unmanned Autonomous Systems (C-UAS) with its **LOCUST** system and has become a leader in **Radio Frequency (RF) C-UAS**, delivering its 1,000th system last year.



From laser communication payloads to critical Class-A satellite subsystems, BlueHalo has more than 260 systems flying on-orbit. Eqlipse offers a deep portfolio of solutions delivering industry-leading capabilities, spanning full spectrum cyber and **signals intelligence (SIGINT)** engineering, **Electronic Warfare (EW)**, digital operations and identity management, and cutting-edge R&D.

Eqlipse will further enhance BlueHalo's ability to provide next-generation products and solutions to its customers by adding world-class EW products and capabilities, adding significant depth within

the company's current cyber franchise, expanding BlueHalo's best-in-class suite of **Open Source Intelligence (OSINT)** offerings, and augmenting the combined entity's advanced R&D capabilities.

Upon completion of the transaction, BlueHalo will hold nearly 90 patents, employ more than 200 PhDs in relevant fields, and offer 20 product lines featuring industry-leading solutions across four key mission areas: **Space, C-UAS and Autonomous Systems, Cyber and EW, and Artificial Intelligence (AI)** — all stated priority areas for the DoD.

The company will remain headquartered in Arlington, Virginia, and will continue to invest in bringing the latest technological advancements to the defense industry.

BlueHalo and Eqlipse are both portfolio companies of **Arlington Capital Partners**, a Washington, D.C.-area private investment firm specializing in government regulated industries.



"The only constant in global defense is the certainty that threats will continue to evolve, new battlefields will emerge, and the landscape will change," said **Jonathan Moneymaker**. *"Combining BlueHalo and Eqlipse—both with a shared passion for pairing innovative technology with customer intimacy—creates an enhanced organization with the proven ability to deliver on some of the most complex and challenging problems our customers face in these uncertain times. This acquisition squarely catapults us to the forefront of the industry, providing additional size and scale, and solidifying the company's position as the top alternative to the largest government contractors. It furthers our ability to drive unbridled, rapid prototyping and innovative work our customers have come to rely on without the bureaucratic obstacles, which typically slow development and inflate budgets."*

"I'm incredibly proud of what we have been able to accomplish to date with Eqlipse and am excited for the many benefits this combination will provide for both our employees and our customers," said **Dennis Kelly**, CEO of Eqlipse. *"With enhanced scale and capabilities, BlueHalo will remain dedicated to providing the rapid innovation needed by our customers and delivering a protective ring around everything we hold dear."*

"Unifying BlueHalo and Eqlipse's capabilities will accelerate our development of new technologies for our defense and intelligence customers to a pace that others cannot match," said **David Wodlinger**, a Managing Partner at Arlington Capital Partners. *"The strategic combination of BlueHalo and Eqlipse creates a scale of innovation that establishes the combined company as one of the preeminent defense technology platforms in the industry."*



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DISPATCHES

General Atomics awarded SDA optical comms terminals contract



General Atomics Electromagnetic Systems (GA-EMS) was recently awarded a contract from the Space Development Agency (SDA) to demonstrate the capabilities of the company's Optical Communication Terminals (OCTs) hosted on GA-EMS' GA-75 (75 kilogram class) spacecraft while in LEO.

GA-EMS is designing and building two OCTs to provide robust space-to-space communication in a

degraded environment and establish and maintain links to meet SDA standards and requirements.

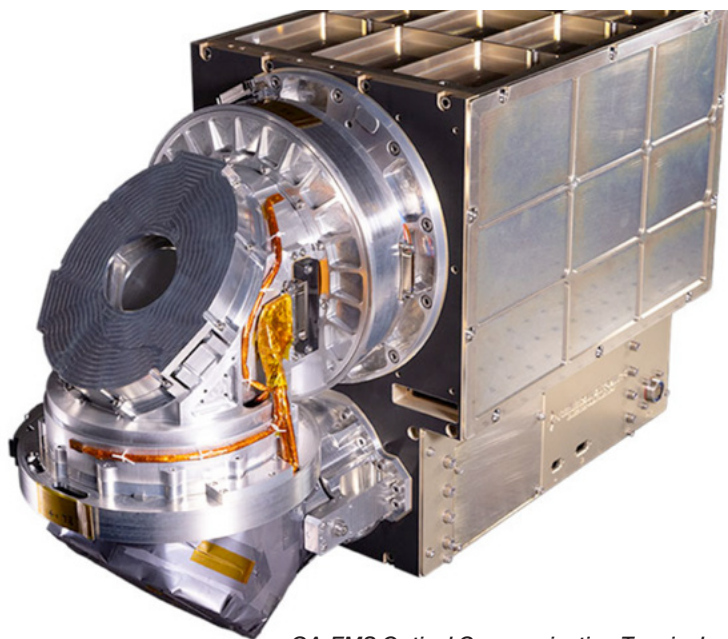
The OCTs can support a vast network of satellites, data and information sharing, and collective on-orbit computing resources to support customer and mission requirements.

The OCTs will be integrated on two GA-EMS GA-75 spacecraft. The GA-75 is a resilient, modular, and configurable half-ESPA bus design with capabilities to support a variety of communications and Intelligence, Surveillance, and Reconnaissance (ISR) payloads and missions.

The GA-75 is a commercially available platform that utilizes standard payload interfaces to enable seamless integration and mission-ready delivery times. It is also compatible with multiple launch vehicles and can package two spacecraft per ESPA port or fill a single ESPA port depending on mission payload size.

"We're excited to continue working with SDA and look forward to demonstrating our OCT capability developed, built, and tested by GA-EMS, and integrated on GA-EMS-designed and built spacecraft," said Scott Forney, president of GA-EMS. "This contract supports the deployment of next generation optical communication technologies that will provide faster, more secure, higher fidelity transmissions, and greater resiliency to ensure 24/7 connectivity from the Earth to space."

General Atomics Electromagnetic Systems (GA-EMS) Group is a global leader in the research, design, and manufacture of first-of-a-kind electromagnetic and power generation systems. GA-EMS' history of research, development, and technology innovation has led to an expanding portfolio of specialized products and integrated system solutions supporting aviation, space systems and satellites, missile defense, power and energy, and processing and monitoring applications for defense, industrial, and commercial customers worldwide.



GA-EMS Optical Communication Terminal, compliant with SDA v3.1 OCT Standard

DISPATCHES

GEOST to provide missile warning sensor for Sierra Space satellites in the SDA Tracking Layer



GEOST will provide Sierra Space with 16 of the company's *Mercury* missile warning and missile tracking payloads and two of its *Phoenix* fire control payloads for multi-domain missile defense. The company will also be delivering mission processing solutions integrated with its payloads.

GEOST's design leverages company internal research and development investments in leading-edge sensor designs and advanced algorithms, as well as investments to significantly expand its production capacity. It builds on existing GEOST expertise developing and building high-performance, multi-orbit payloads for classified and unclassified missions that are affordable, low weight and low power, with integrated on-orbit processing and ground-based infrastructure.



of LightRidge Solutions. "LightRidge is proud to be part of SDA's transformational architecture that will provide critical capability to the warfighting infrastructure. This award continues LightRidge's dedication to delivering impactful and differentiated capabilities for integral U.S. National Security Space missions."

GEOST, LLC (GEOST), a LightRidge Solutions company, will provide the mission payloads as a subcontractor under prime awardee Sierra Space for the Space Development Agency's (SDA) Tracking Layer Tranche 2 missile warning and tracking satellites.

The Tracking Layer Tranche 2 satellites are a critical component in SDA's proliferated warfighting space architecture to counter hypersonic and advanced missile threats.

"The SDA Tracking Layer Tranche 2 award opens new avenues for GEOST including applicability to other space-based persistent infrared missions in low- and medium-Earth orbits (LEO / MEO). The contract represents a strategic win for Sierra Space and GEOST as we continue to scale and expand into new mission areas," said Bill Gattle, CEO

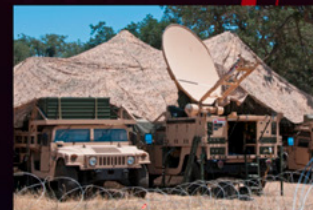
"The SDA Tracking Layer Tranche 2 award opens new avenues for GEOST," said Rich Gray, President of GEOST, "including applicability to other space-based persistent infrared missions in low- and medium-earth orbits."

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DISPATCHES

Kratos wins million\$\$\$ award for USSF SATCOM C2 system



Kratos Defense & Security Solutions, Inc. (Nasdaq: KTOS) is the single recipient for the **Command and Control (C2) System Consolidated (CCS-C) Sustainment and Resiliency (C-SAR) indefinite-delivery/indefinite-quantity (IDIQ) contract from Space Systems Command (SSC) with a maximum value of \$579 million, if all options are exercised.**

The start date is December 1, 2023, with options going to May 31, 2032. Future task/delivery orders will be issued to support operations, sustainment, or enhancements of the CCS-C and related systems.

C-SAR ensures secure and integrated communications for the U.S. MILSATCOM

requirements. CCS-C provides consolidated MILSATCOM tracking, telemetry and command capability for SSC, for on-orbit and anomaly resolution operations.

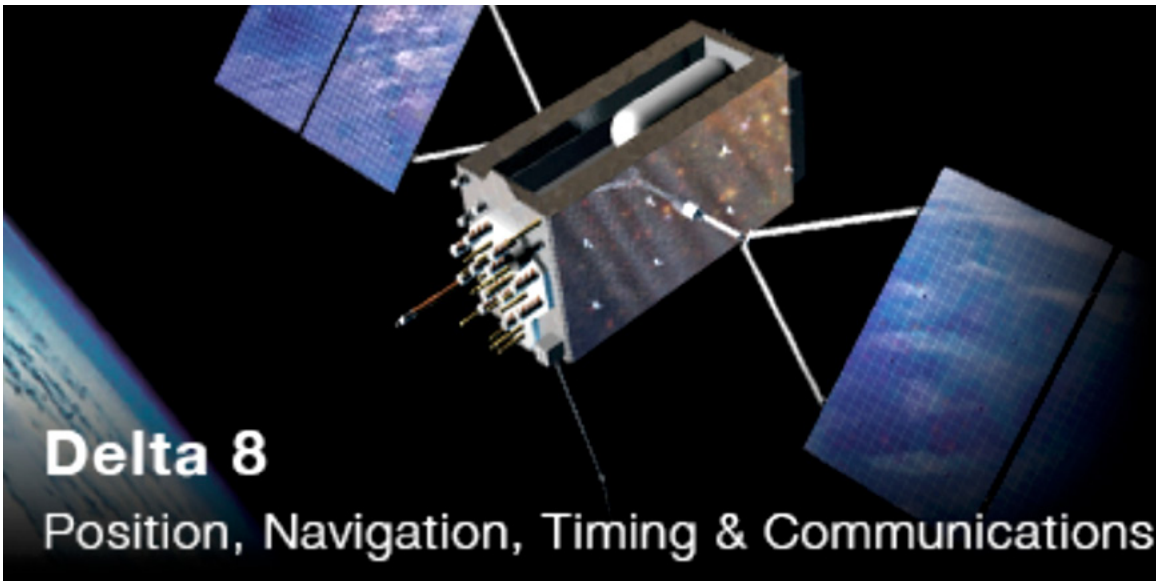
The CCS-C program develops the C2 system for most U.S. MILSATCOM systems, including the Defense Satellite Communications System, Milstar, Wideband Global SATCOM and Advanced Extremely High Frequency satellites.

Delta 8 consists of three active duty squadrons headquartered at Schriever Air Force Base, Colorado: 2nd and 4th Space Operations Squadrons and 50th Operations Support Squadron.

The C-SAR contract provides sustainment, post-production development services and enhancements for the CCS-C system. C-SAR provides satellite and communication system products, hardware and equipment in support of the SSC's mission to develop, acquire, equip, field and sustain lethal and resilient space capabilities.

Phil Carrai, President of the Kratos Space, Training and Cyber Division, said, "Through CCS-C, Kratos supports the U.S. military with the satellite-based services to achieve their mission. This is an important recompete win for one of our largest space domain contracts. Kratos is one of the few companies that can provide a mix of cutting-edge technology and expertise to strengthen global capabilities of the U.S. Space Force, other branches of the U.S. military and international allies."

"C-SAR is critical to delivering C2 services required by the warfighter and Kratos will maintain mission-specific requirements without risking gaps in operations," said **Larry Lind, Senior Vice President of Kratos Federal Space.** "These services and solutions for the U.S. Space Force are fundamental to addressing today's competitive domain."



DISPATCHES

SSC selects Lockheed Martin for early design of next MUOS satellites



The fifth Mobile User Objective System (MUOS) satellite is seen in Lockheed Martin's Sunnyvale, California, satellite manufacturing facility prior to launch.

The **U.S. Space Force's Space Systems Command** recently awarded Lockheed Martin [NYSE: LMT] a firm-fixed-price contract valued at \$66 million for risk reduction activities and early design work in support of the Mobile User Objective System (MUOS) Service Life Extension (SLE) program.

MUOS is a satellite-based network that provides the U.S. military with ultra-high frequency (UHF) voice and data communications. The MUOS constellation consists of four active satellites and one on-orbit spare, all built and operated by Lockheed Martin. The SLE program will extend this advanced capability into the 2030s by adding two more MUOS satellites to enable the continuation of four fully operational satellites, with spares supporting legacy UHF channels.



MUOS SLE Phase 1 is a one-year base period with potential for an additional six-month option. The base period is intended to reduce risks through early design activities in support of the Phase 2 acquisition for final design and production of two space vehicles. MUOS SLE Phase 2 is a separate competition for final design, production, spacecraft testing and delivery to the U.S. Space Force for launch by 2030.

MUOS provides the advanced Wideband Code Division Multiple Access (WCDMA) waveform, giving warfighters 10 times the communications capacity of the legacy UHF SATCOM system, while supporting interoperability with legacy UHF terminals. In 2017, MUOS was approved for early use and testing, including use during humanitarian response and disaster relief missions, with the system being deemed cyber-survivable and approved for use in warfighting environments in 2019 after rigorous testing.

Most recently, Canada became the first partner nation to successfully access the MUOS Narrowband Global SATCOM System, marking an important international milestone for the program.

"Lockheed Martin revolutionized military communications for mobile forces by developing MUOS, which provides simultaneous, crystal-clear voice, video and mission data that extends connections beyond line-of-sight around the world," said Joe Rickers, Lockheed Martin Space's vice president for Connectivity, Transport and Access missions. *"This extension effort speaks to the operational effectiveness of MUOS, and as the industry leader in military satellite communications, we are eager to leverage our experience to strengthen the system and ensure the warfighter's needs continue to be met."*

DISPATCHES

SSC delivers 1st USSF WSF-M satellite to Vandenberg SFB for launch



This innovative spacecraft represents a new era in the U.S. Space Force's next generation of modernized, *space-based environmental monitoring (SBEM)* systems that will augment capabilities provided by the legacy *Defense Meteorological Satellite Program (DMSP)*.

WSF-M will enable the production of enhanced weather prediction and analysis capabilities for joint warfighters conducting mission planning and operations globally.

"This delivery represents a major milestone for the WSF-M program and is a critical step towards putting the first WSF-M satellite on-orbit for the warfighter," said Col. Daniel Visosky, senior materiel leader, SSC's Space

Sensing Environmental and Tactical Surveillance program office. "It represents a long-term collaboration and unity-of-effort between the Space Force and our combined teams at Ball Aerospace, support contractors and government personnel."

"The WSF-M satellite is a strategic solution tailored to address three high-priority Department of Defense SBEM gaps – specifically, ocean surface vector winds, tropical cyclone intensity, and energetic charged particles in low Earth orbit," said David Betz, WSF-M program manager, SSC Space Sensing. "Beyond these primary capabilities, our instruments also provide vital data on sea ice characterization, soil moisture, and snow depth."

Space Systems Command is the U.S. Space Force's field command responsible for acquiring, developing, and delivering resilient capabilities and groundbreaking technologies to protect our nation's strategic advantage in and from space and manages an \$15.6 billion space acquisition budget for the Department of Defense.

Space Systems Command (SSC) has successfully delivered the U.S. Space Force (USSF)-62 Weather System Follow-on – Microwave (WSF-M) Space Vehicle (SV) from Ball Aerospace, Boulder, Colorado, to Vandenberg Space Force Base, California, where it will be processed at the Space Vehicle processing facility.

The satellite will undergo a series of post-shipment functional testing, followed by the loading of onboard propellant. After accomplishing these vital testing procedures, the WSF-M satellite will enter the encapsulation phase, after which the payload will be horizontally integrated with the SpaceX Falcon 9 launch vehicle before its voyage to space projected for late March.

Ball Aerospace was responsible for designing, building and integrating the spacecraft bus and ground data processing software. The satellite also features a government-built Energetic Charged Particle (ECP) sensor that will provide space weather measurements. Photo of satellite being moved to transport is courtesy of Ball Aerospace.

Under the leadership of the SSC Space Sensing's Environmental and Tactical Surveillance program office, the WSF-M satellite is the first of two satellites that Ball Aerospace will deliver.



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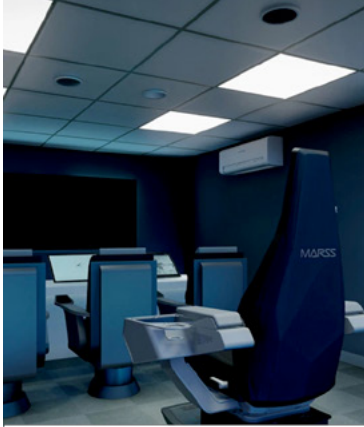
Artistic rendition of the USSF WSF-M satellite on-orbit, courtesy of Ball Aerospace.



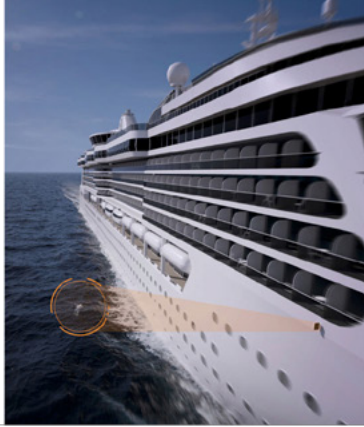
The WSF-M satellite prepares to be unloaded from its cargo carrier. U.S. Space Force photo by Airman 1st Class Ryan Quijas.

DISPATCHES

MARSS advances critical infrastructure protection



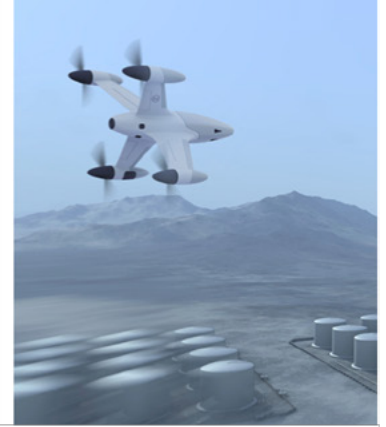
NiDAR Core



MOBtronic



NiDAR X-JOC



Interceptor

MARSS will deliver and commission up to 40 of the firm's RADiGuard high security surveillance units for a critical infrastructure site in the Middle East, as part of a significant contract valued at \$5.5 million.

This latest phase builds on a multiyear program delivered by MARSS since 2018 at the same site. Working as the scheme's primary contractor and technology partner,

MARSS will manage the integration of up to 40 new RADiGuard units with existing MARSS systems and other legacy sensors, alongside its NiDAR platform, to provide unparalleled 24/7 autonomous monitoring, detection, tracking and decision support in the event of a security incident.

The site's security area will also be expanded under the project, with the latest RADiGuard units providing enhanced coverage and protection of the wider perimeter.

There will also be an upgrade to the existing control room, accompanied by plans that ensure business continuity.

The installation phase, scheduled for 2024, followed a year of designing and refining the project to meet the latest set of requirements, including a need for flexibility, scalability, adaptability and efficiency.

Fully integrated with MARSS' sensor-agnostic NiDAR platform, this system will significantly reduce the burden on operators by consolidating all sensor

data onto a single screen. This streamlined approach would allow a single security member to effectively monitor the entire system, as well as coordinate any response to potential threats.

RADiGuard will provide surface detection, identification and classification of land-based threats across multiple site zones. The flexibility of the NiDAR suite means it can also suggest or automate responses based on the sensitivity of different areas.

MARSS' regional team has been – and will continue to be – a hands-on, flexible and adaptable source of support throughout the project's lifecycle. The team has navigated specific site challenges – such as limited working hours – and has helped the customer overcome specific challenges, sourcing and delivering additional RADiGuard units at short notice.



Fahad Alayadhi, MARSS Senior Project Manager, said, "RADiGuard provides an invisible fence. Anything entering this site will be detected, identified, and classified in real time by MARSS' NiDAR platform. This allows the operator to choose the most appropriate response, with NiDAR even able to recommend the best recourse for the detected threat. The project has been made possible because of the passion of the MARSS team from its regional headquarters in the KSA. No other organization is able to deliver and commission security solutions, at the speed and quality needed, to protect critical sites, bases and borders from persistent, ever-evolving threats."



DISPATCHES

NSA + partners spotlight People's Republic of China (PRC) targeting of U.S. critical infrastructure

JOINT CYBERSECURITY ADVISORY

Co-Authored by: **TLP: CLEAR** Product ID: AA24-038A
February 7, 2024

Australian Government Australian Signals Directorate ASD ACSC
Canadian Centre for Cyber Security
National Cyber Security Centre PART OF THE GCSB
National Cyber Security Centre a part of GCHQ

“This is something we have been addressing for a long time,” said **Rob Joyce**, NSA’s Director of Cybersecurity and Deputy National Manager for National Security Systems (NSS). “Our insights on PRC pre-positioning have driven action across the cyber community. We have gotten better at all aspects of this, from understanding Volt Typhoon’s scope, to identifying the compromises likely to impact critical infrastructure systems, to hardening targets against these intrusions, to working together with partner agencies to combat PRC cyber actors.”

The CSA notes **Volt Typhoon’s** choice of targets and pattern of behavior are not consistent with traditional cyber espionage or intelligence gathering. Their ability to access OT could allow the group to disrupt OT functions across multiple critical infrastructure entities.

This report is paired with a technical guide, also released today, entitled “**Identifying and Mitigating Living Off the Land (LOTL)**.” LOTL is a technique often used by Volt Typhoon to access and embed undetected in existing systems.



The **National Security Agency (NSA)** has joined partners to issue a **Cybersecurity Advisory (CSA)** to address **People’s Republic of China (PRC)** targeting of **U.S. critical infrastructure**.

The CSA focuses on PRC-sponsored cyber actor, **Volt Typhoon**, targeting IT networks of communications, energy, transportation, water, and wastewater organizations in the U.S. and its territories.

The CSA, entitled “**PRC State-Sponsored Actors Compromise and Maintain Persistent Access**”

[Read the full report here.](#)



to **U.S. Critical Infrastructure**,” is led by the **Cybersecurity and Infrastructure Security Agency (CISA)** in partnership with NSA, the **Federal Bureau of Investigation (FBI)** and additional government agencies.

The authoring agencies recognize the reality that the PRC has already compromised these systems. In some cases, the cyber actors have

been living inside IT networks for years to pre-position for disruptive or destructive cyberattacks against **operational technology (OT)** in the event of a major crisis or conflict with the United States.

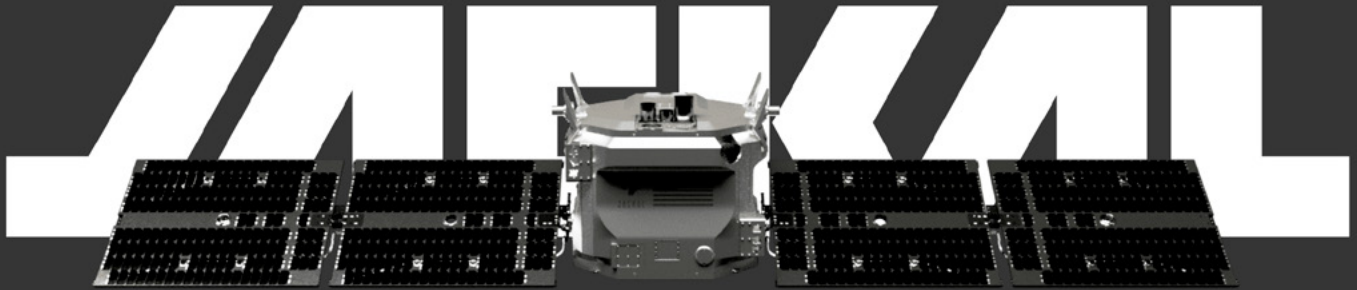
[Visit the NSA’s full library for more cybersecurity information and technical guidance.](#)



DISPATCHES

True Anomaly's 1st Jackal AOVs are ready for launch at Vandenberg SFB

True Anomaly



True Anomaly's first two Jackal autonomous orbital vehicles (AOVs) have arrived at Vandenberg Space Force Base and have completed functional testing, fueling, and mating to the SpaceX Falcon 9 Rideshare plate.

The satellites are officially ready for launch as part of **SpaceX's Transporter-10** mission no earlier than March of 2024.

Once on orbit, True Anomaly will commence with "**Mission X**"—what the company has internally dubbed the flight test and demo of the first two Jackal AOVs. The Jackals will capture high-resolution images and **full-motion video (FMV)** of

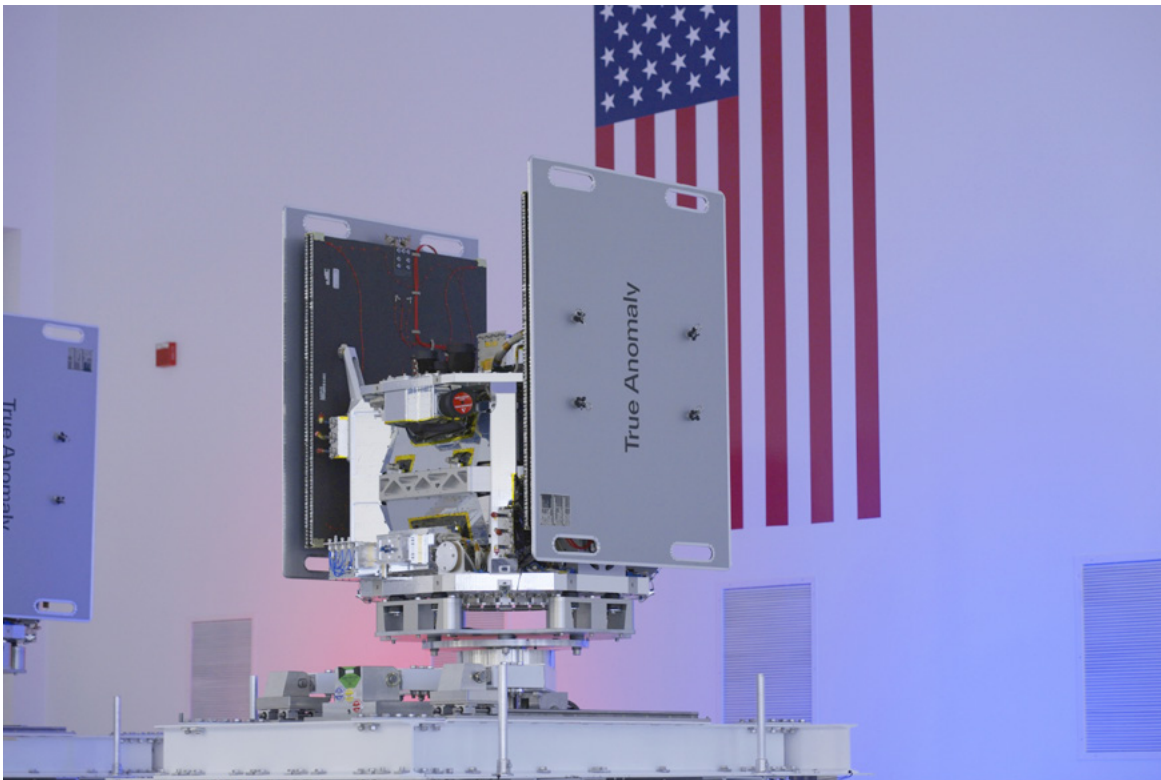
one another while maneuvering in close proximity. This type of activity, known as **rendezvous and proximity operations (RPO)**, is one of the most challenging space missions to master.

The goals of Mission X are to demonstrate RPO for advanced non-Earth imaging, test and evaluation, and on-demand training. With this milestone, True Anomaly is one step closer to delivering space capabilities that support deterrence and secure space for future generations.

"What the True Anomaly team has accomplished in just under 18 months is incredible," said Sean Ozdemir, Director

of Spacecraft Development. "What began with a white board and three-person team working in a small office above a coffee shop has transformed into a 35-person spacecraft team with exceptional breadth and depth of industry expertise. Not only did the team build two complex and capable ESPA-class spacecraft—they stood up the production process, in-house test facilities, and built the factory in parallel. I'm extremely proud of this team for accomplishing this milestone and look forward to soon validating our capabilities on-orbit."

"Not all spacecraft fit into the binary designations of 'expensive and effective' or 'inexpensive, but compromised,'" said Even Rogers, True Anomaly CEO and Co-Founder. "With the Jackal AOV, we've designed an attritable system with which we can iterate quickly and build rapidly at scale without compromising on mission effectiveness. This is a new class of space vehicle, purpose-built for national security space missions. It was designed for operators, by operators in partnership with world-class engineers. I could not be prouder of our team for designing, building, and testing two novel spacecraft in record time without sacrificing on excellence and quality. We acknowledge that the hard proof lies ahead of us as we look toward the Jackals' first orbital flight and tech demonstrations. Go, Jackal. Go, True Anomaly. Go, U.S. Space Force!"



A mission-ready Jackal autonomous orbital vehicle (AOV) in the GravityWorks clean room, on January 30, 2024, Centennial, Colorado.

DISPATCHES

U.S. DoD first to order the new Ovzon T7 mobile satellite terminal

Ovzon



Ovzon has received the first order for the new Ovzon T7 mobile satellite terminal (photo above) from the United States Department of Defense (U.S. DOD) – this order will represent the first delivery of this mobile satellite terminal.

According to the company, the Ovzon T7 mobile satellite terminal is the smallest, lightest, most powerful and easiest-to-use satellite terminal in the industry.

At just 2.8 kg/6.2 lb it can fit into a very small backpack and facilitates fast, easy, and instant connection in all environments regardless of weather conditions.

The Ovzon T7 is the first Ovzon mobile satellite terminal designed and produced for operation on the Ovzon 3 satellite's [On-Board-Processor](#), and is capable of taking full advantage of its resiliency features specifically designed for a contested environment.

Using the Ovzon On-Board-Processor, the Ovzon T7 will be capable of frequency hopping, below the noise floor signalling, and operating independently of a teleport.



"We are delighted to see the first sale of the Ovzon T7 mobile satellite terminal to the U.S. DOD, and we are excited to bring on line the "near peer" capability the Ovzon T7 will deliver when operating on the Ovzon 3 satellite and the Ovzon On-Board-Processor. The Ovzon T7 is the perfect combination of performance,

mobility and resiliency in an incredibly small package and will change the way critical missions are executed by elevating Ovzon's SATCOM-as-a-Service to new dimensions," said Ovzon's CEO, Per Norén.

Ovzon offers world-leading mobile satellite communications services, SATCOM-as-a-Service, to customers across the globe. The services combine high data speed with high mobility. Ovzon's SATCOM-as-a-Service meets the growing demand for global connectivity for customers with high performance and security requirements such as Defense, Emergency Services, NGOs, Media and Commercial organizations. Ovzon was founded in 2006 and has offices in Stockholm, Sweden, Herndon, VA and Tampa, FL in the USA. Ovzon is listed on Nasdaq Stockholm Small Cap.

DISPATCHES

SSC launches 6 satellites for MDA + SDA on SpaceX Falcon 9



USSF-124 MISSION

Space Systems Command (SSC) and its mission partners successfully launched the U.S. Space Force (USSF)-124 mission on a [SpaceX Falcon 9](#) rocket today at 5:30 p.m. EST from Space Launch Complex 40, Cape Canaveral Space Force Station, Florida.

The satellites for the [Missile Defense Agency \(MDA\)](#) and [Space Development Agency \(SDA\)](#) were safely delivered to their intended orbit.

USSF-124's mission was to place a new generation of missile detection, missile tracking and networked communications satellites into orbit, bringing new capabilities to the nation and its Allies.

This was the first NSSL mission of 2024 to use a flight-proven **Falcon 9** booster that previously supported six earlier missions.

The rapid reusability of SpaceX's Falcon 9 benefits all launch customers and the Space Force's continued partnership with SpaceX provides for manifest flexibility and cost savings.

*"We're proud to support both the MDA and SDA with this co-manifested National Security Space Launch," said **U.S. Space Force Col. Jim Horne**, senior materiel leader for SSC's Launch Execution Delta. "We worked side-by-side with our launch service provider and space vehicle partners to achieve the mission on-time and with precision. Today's mission supports our global warfighters and people across the globe in every facet of life."*

*"We're reaping the benefits of this innovation with every launch. We began working this concept seven years ago, understanding the economic benefits and efficiencies that come with this formula and now we're executing to a common plan," said **Dr. Walt Lauderdale**, AATS mission director at SSC. "As we move forward together with SpaceX, we're methodically expanding reuse to leverage the benefits for the USSF and our space vehicle teammates."*

"The mission team was able to add the Tranche 0 satellites to USSF-124 in under 30 days, less than six months from the then scheduled launch date. This unprecedented responsiveness is a needed capability for the Space Force to confront today's threat environment."

Space Systems Command is the U.S. Space Force's field command responsible for acquiring, developing, and delivering resilient capabilities to protect our nation's strategic advantage in, from, and to space. SSC manages a \$15.6 billion space acquisition budget for the Department of Defense and works in partnership with joint forces, industry, government agencies, academic and allied organizations to outpace emerging threats. Our actions today are making the world a better space for tomorrow.

DISPATCHES

U.S. Air Force + U.S. Space Force announce sweeping changes to maintain superiority



The [Department of the Air Force's](#) senior civilian and military leaders have unveiled sweeping plans for reshaping, refocusing, and re-optimizing the U.S. Air Force (USAF) and U.S. Space Force (USSF) to ensure continued supremacy in those domains while also better posturing the services to deter and, if necessary, prevail in an era of Great Power Competition.

Taken together, the changes made public on February 12th and endorsed by Secretary of the Air Force [Frank Kendall](#), performing the duties of Acting Under Secretary [Kristyn Jones](#), USAF Chief of Staff [Gen. David Allvin](#) and Chief of Space Operations [Gen. Chance Saltzman](#), represent one of the most extensive recalibrations in recent history for the USAF and USSF.

"Today, we are announcing 24 key decisions that are going to address the current force and our ability to stay competitive," Kendall said in announcing the changes and the rationale behind them. "We need these changes now; we are out of time to reoptimize our forces to meet the strategic challenges in a time of Great Power Competition."

While the changes feature a mix of near-term and longer-term initiatives, senior leaders emphasized the need for speed. "We are out of time," Kendall said repeatedly in urging action on the changes.

The changes included in the plan are grouped in four main categories – Develop People, Generate Readiness, Project Power, Develop Capabilities – and include...

Develop People

- Consolidate force development functions under an expanded Airman Development Command to provide Airmen a common, mission-focused development and training path.
- Expand technical tracks for officers and create technical tracks for enlisted Airmen; reintroduce warrant officers in IT and Cyber fields to maintain technical leadership in these highly perishable skills.
- Develop "Mission Ready Airmen" with training focused on a mix of skills needed for wartime operational mission readiness.
- Continue to transform leadership development and training at U.S. Air Force

Academy, Officer Training School, and ROTC to prepare new officers to effectively lead Airmen and Guardians in the context of Great Power Competition and redesign career

paths to produce Guardians that meet our high-tech operational demands.

Generate Readiness

- Reorient Air Combat Command to focus on generating and presenting ready forces to combatant commanders.
- Implement large scale exercises and mission-focused training encompassing multiple operational plans to demonstrate and rehearse for complex, large-scale military operations.
- Incorporate no-notice/limited-notice operational readiness assessments and inspections in the Air Force and Space Force to reflect pacing challenge requirements.
- Restructure key processes related to aviation spares and weapons systems to be data-driven and risk-informed to improve weapon systems health.
- Implement Space Force readiness standards that reflect operations under contested conditions rather than those of a benign environment.
- Conduct a series of nested exercises in the Space Force, that increase in scope and complexity, fit within a broader Department of the Air Force-level framework, and are assessed through a Service-level, data-driven process to measure readiness.

Project Power

- Structure Air Force Operational Wings as mission ready "Units of Action" categorized as Deployable Combat Wings, In-Place Combat Wings or Combat Generation Wings. Each will have its own structure, with a redesigned concept of support for agile combat employment or ACE, to ensure the wings are prepared to execute their missions with assigned Airmen and units.
- Establish the relationship between Combat Wings and Base Command. Combat Wings will focus on mission level warfighting readiness and Base Commands will focus on supporting Combat Wings and operating the base in competition, crisis and conflict.
- Elevate AFCYBER to a standalone Service Component Command, reflecting the importance

of the cyber mission to the Joint Force and across the Department of the Air Force.

- Formalize Space Force Combat Squadrons as Units of Action, complete activation of the remainder of Space Force Service Components and accelerate implementation of the Space Force Generation model.

Develop Capabilities

- Create a Department of the Air Force Integrated Capabilities Office to lead capability development and resource prioritization to drive Department of the Air Force modernization investments.
- Combine disparate efforts to create the Office of Competitive Activities to oversee and coordinate sensitive activities.
- Create a Program Assessment and Evaluation Office to foster structure and incorporate a more strategic and analytically based approach to resourcing decisions.
- Establish Integrated Capabilities Command to develop competitive operational concepts, integrated requirements, and prioritized modernization plans to align with force design.
- Create a new Information Dominance Systems Center within Air Force Materiel Command (AFMC) to strengthen and elevate the Air Force's focus on Command, Control, Communications, and Battle Management; Cyber; Electronic Warfare; Information Systems; and Enterprise Digital Infrastructure.
- Strengthen the support to nuclear forces by expanding the Nuclear Weapons Center to become the Air Force Nuclear Systems Center within AFMC. This will provide comprehensive materiel support to the nuclear enterprise; establish a 2-star general officer as the Program Executive Officer for Inter-Continental Ballistic Missiles.
- Refocus the Life Cycle Management Center within AFMC as the Air Dominance Systems Center to synchronize aircraft and weapons competitive development and product support.
- Establish an Integration Development Office within AFMC to provide technology assessments and roadmaps. It will drive alignment and integration of mission systems across centers and provide technical expertise to assess operational concept feasibility.
- Create Space Futures Command, a new field command, that develops and validates concepts, conducts experimentation and wargames, and performs mission area design.

DISPATCHES

Viasat's 1st U.S. Navy Military Sealift Command Ship installation



Viasat, Inc. (NASDAQ: VSAT) has completed the first ship installation for the **U.S. Navy Military Sealift Command (MSC)** under the **Next Generation Wideband (NGW) Follow-On (FO) 10-year, Indefinite Delivery/Indefinite Quantity (IDIQ) contract** awarded to **Inmarsat Government** by the **Defense Information Systems Agency (DISA)** on June 30, 2022.



Photo from the General Dynamics National Steel and Shipbuilding Company (NASSCO) Builder's Trial of USNS John Lewis (T-AO 205), the Navy's lead ship of its new class of fleet replenishment oilers. Builder's Trials consist of a series of in-port and at-sea demonstrations that allow the Navy and the shipbuilder to assess the ship's systems and readiness prior to acceptance trials and delivery to the Navy. (Courtesy photo by General Dynamics NASSCO)

Under the contract, the company maintains and operates commercial communications infrastructure, which includes satellite systems, teleport services and terrestrial services. Inmarsat Government is now part of Viasat's government business, following Viasat's acquisition of Inmarsat on May 30, 2023. This first installation of 105 ships demonstrates the company's ability to deliver a robust, reliable global managed satellite communications (SATCOM) solution.

The company upgraded the MSC ship's primary afloat network from Ku-band to the **Global Xpress (GX)** Ka-band system and **ELERA Enhanced L-band Maritime Antenna (ELMA)**, a variant of the award-winning, LAISR L-band solution to provide communications on the move via a small-size, high throughput terminal.

The hybrid solution of Ka- and L-band service ensures that the MSC ships have secure, resilient, worldwide communications capabilities, as well as a reliable global, on-demand backup network. This approach is designed to provide significant enhancements over legacy Ku-band by providing higher and scalable data rates on ships' primary and back-up systems, and uniform coverage across the GX and ELERA networks.

Additionally, by delivering the primary and secondary SATCOM capabilities in a holistic, managed service model that includes satellites, ground networks and type-approved terminals – SATCOM as a Service.

The MSC fleet benefits from an integrated, worldwide solution that delivers high throughput with RF (Radio Frequency) band and path diversity to ships at sea.

All of the network aspects are designed as a single solution and for mobility, so users experience a reliable, on-demand continuous service.

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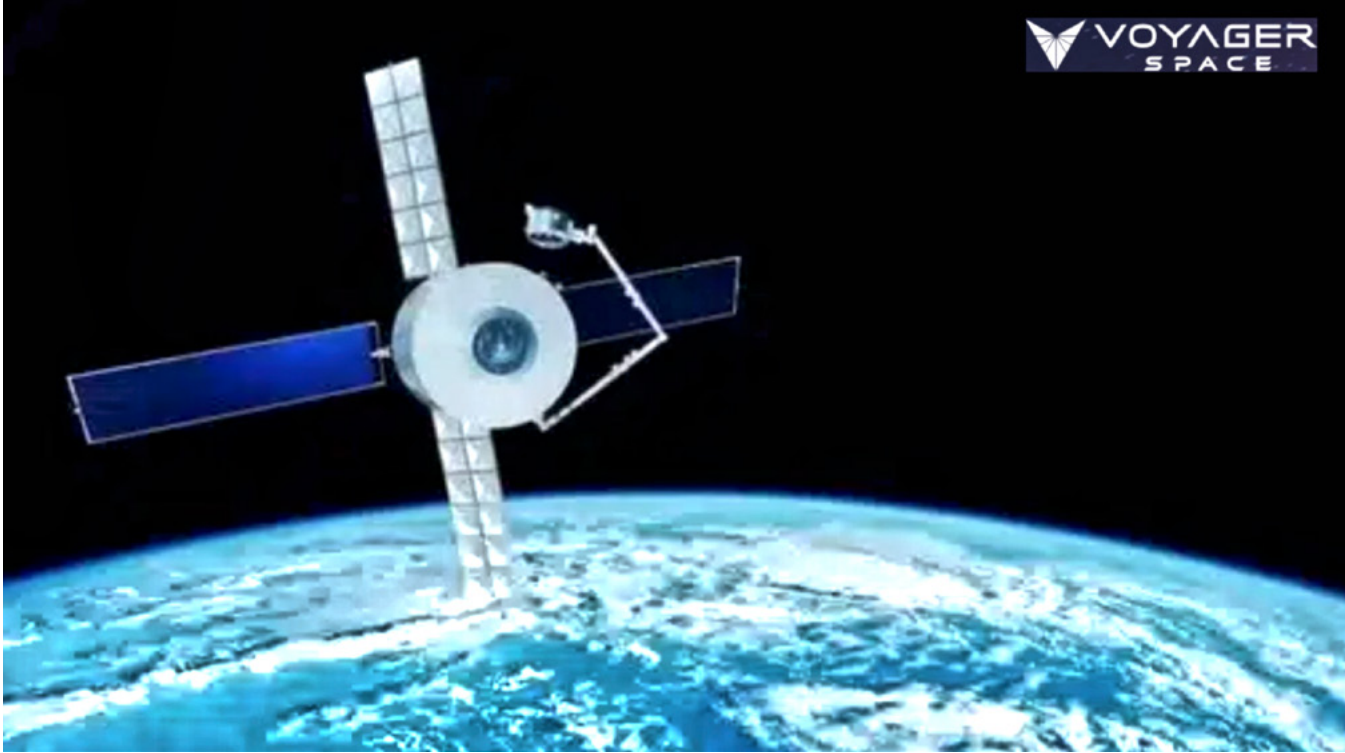
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DISPATCHES

Voyager Space + Palantir to advance national security capabilities



ML and edge processing capabilities to support Starlab station development, manufacture, and future operations.

Sample use cases include space domain awareness (SDA), data fusion, and processing at the edge to enable autonomous decisions and secure collaboration with Allies.

The collaboration extends beyond the two companies, as both parties will actively identify opportunities for cooperation with other national security

stakeholders. This includes government agencies, working groups, commercial partners, or partner nations, such as NATO or Five Eyes countries.

"This alliance represents a shared commitment to advancing the frontiers of global commerce, civil, and national security capabilities, reaffirming the critical role industry has to bring leading-edge technology to the evolving landscape of space

exploration and security," said **Shyam Sankar**, CTO of Palantir. *"The opportunity to partner with Voyager will set the stage for collaboration across the ecosystem of leading technology firms dedicated to this mission,"* Sankar added.

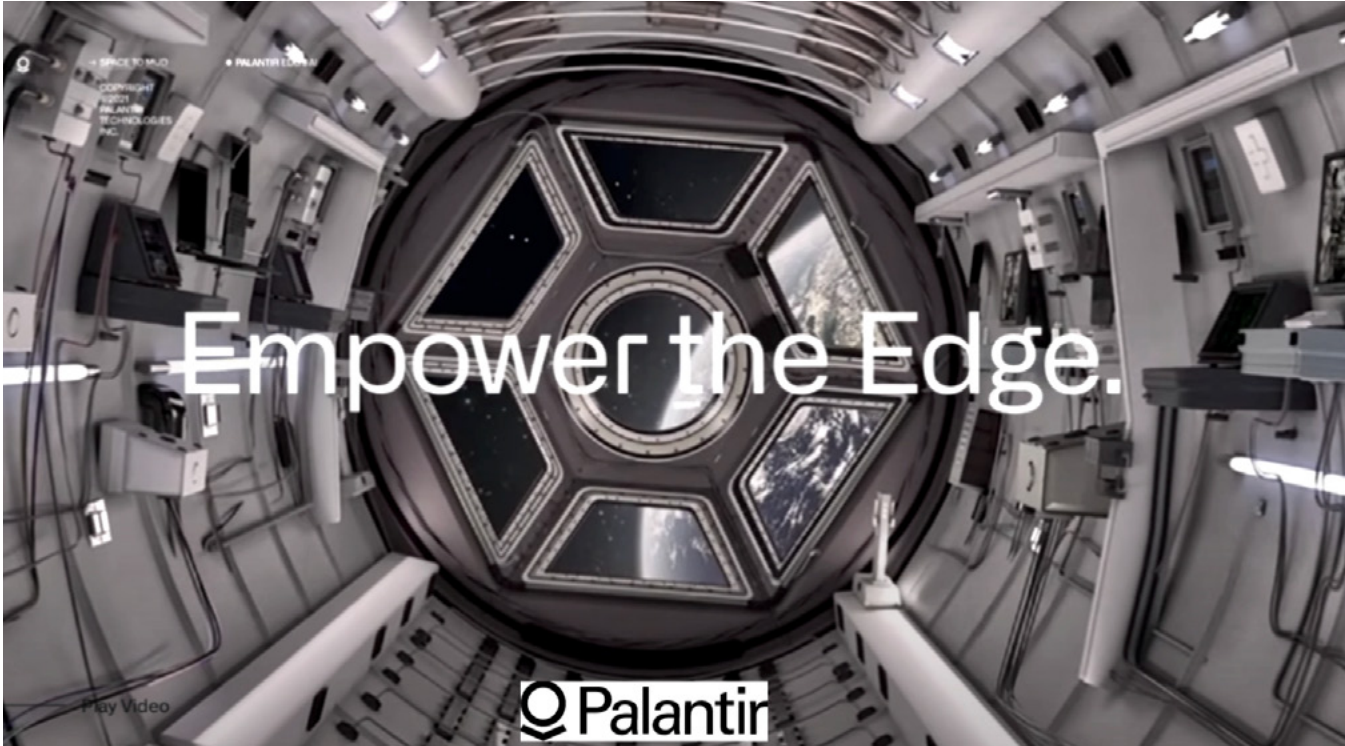
"This strategic collaboration signifies a major milestone in harnessing the combined expertise of Voyager and Palantir to elevate space domain security," said **Marshall Smith**, CTO of Voyager.

Voyager Space (Voyager) has signed an MOU and teaming agreement with Palantir USG, Inc. that is focused on exploring and enhancing national security capabilities within the commercial space domain.

The collaboration between Voyager and Palantir will center around the joint exploration of cutting-edge Artificial Intelligence (AI) and Machine Learning (ML) capabilities, aimed toward technology demonstration missions on the International Space Station and the future Starlab commercial space station.

As part of the agreement, Voyager and Palantir will explore the integration of Palantir's AI /

Palantir provides adaptable software solutions and architectures to ensure the resilience, effectiveness, and availability of U.S. defense and space capabilities.



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THE BLAKE BRIEF WILL NEW SPACE BE NUCLEAR?

Authors: Curt Blake, Senior Of Counsel, and Peter Bratton, Associate, Wilson Sonsini Goodrich & Rosati

Over the last 70 years, advancements in nuclear technology, space exploration and international law have paralleled and informed each another. This article looks at three dramatic developments in the course of that intertwined history.

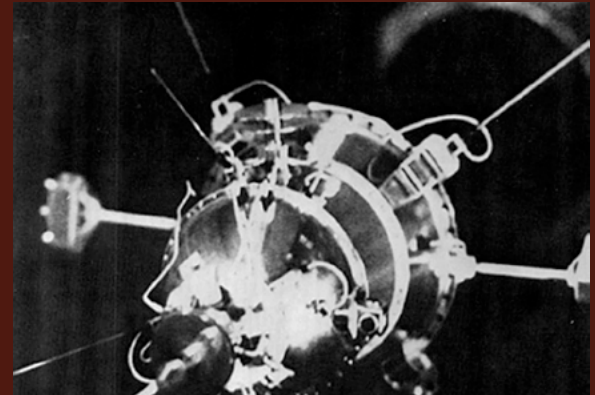
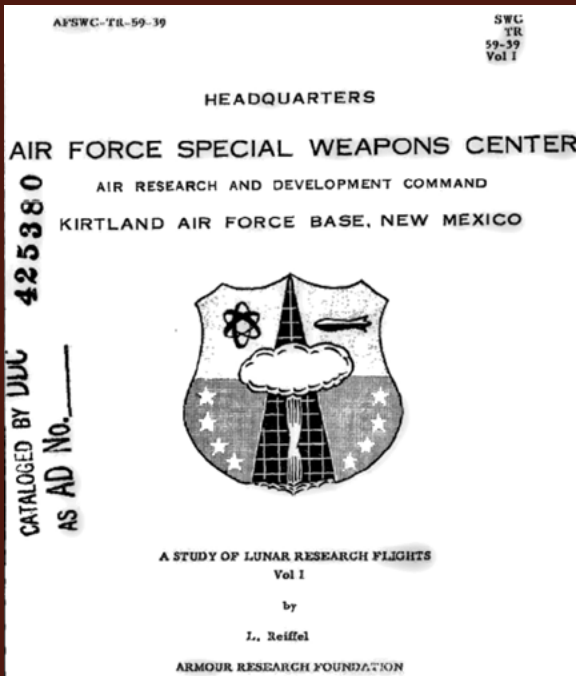
First, *Project A119*, which was the U.S. Air Force (USAF)'s ill-fated scheme to test nukes on the moon and the initial emergence of international limits on nuclear weaponry in space.

Next, *Kosmos 954*, the Soviet satellite disaster that spread uranium across northern Canada and prompted international blowback against mixing nuclear and space.

Finally, *Project MEP*, America's ambitious plan to reach — and return from — the Red Planet, and the legal, regulatory, and perhaps nuclear support necessary to make that a reality.

With the Cold War focus on building bigger and bigger nuclear weapons came the need for bigger and bigger nuclear tests. The tests served both scientific and political purposes, as the U.S. and U.S.S.R. vied to achieve not only the greatest technological advances, but also the greatest displays of power.

For example, in *Operation Fishbowl* (view the [YouTube video of this historic program, courtesy of Atomic Test Channel](#)) the U.S. blew up five different nuclear bombs 400 kilometers over the Pacific (one of which, "*Starfish Prime*," the USAF seriously considered even exploding a hydrogen bomb on the lunar surface. Although no mushroom cloud would rise from a surface with barely any atmosphere, the secretive "Project A119" was designed so that an explosion of dust and debris would appear on the "*Terminator Line*" between the dark and visible sides of the moon, such that the explosion would still be visible to an earthbound observer's naked eye.



Soviet photo of the Kosmos 954 satellite prior to launch. Image is courtesy of historicwings.com.

A young **Carl Sagan** himself was tasked with running the visibility calculations. Apart from Project A119's (*arguably thin*) scientific goals, the experiment was conceived as a dramatic political response to **Sputnik**. Not to be outdone, the Russians started planning their own lunar blast, code named "**E4**."

Fortunately for **Neil Armstrong**, the U.S. decided that planting (*American*) human footprints on the lunar surface would be a better use of resources than blasting out new lunar craters. The shift toward the **Apollo** missions mirrored an international consensus toward more peaceful uses of space.

As **President Kennedy** put it, "We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard." — and reaching limits on nuclear hazards was certainly one of those difficult but worthwhile "other things."

After a remarkable campaign of public and private diplomacy (*including private letters from President Kennedy directly to Russian Premier Khrushchev*), Washington and the Kremlin came to terms on reasonable nuclear testing limits.

By 1963, the U.S. and U.S.S.R. had signed the **Limited Nuclear Test Ban Treaty**, agreeing to forgo nuclear bomb testing underwater, in the atmosphere as well as in outer space. Four years later, nearly every U.N. Member State agreed: "not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner."

The 1967 Outer Space Treaty can truly be regarded as an arms control treaty at its core. So, in a sense, nuclear technology motivated the first and arguably the most important precept of international space law.

In the years that followed, while escalating warhead stockpiles received headlines, teams on both sides of the Iron Curtain were finding ways to harness nuclear technology for smaller scale space undertakings. Radioisotope thermoelectric generators quietly became a reliable power source for space operations, using the decay heat of **plutonium-238**. However, only a decade after Earth's leaders agreed not to send nuclear bombs up into space, nuclear danger found its return from space back down to the Earth.

In 1978, in a move far more modest than a moon blast and certainly intended to go unnoticed, the Russians decided to power a new spy satellite with 110 pounds of enriched uranium. Unfortunately, they lost control of **Kosmos 954** early on, resulting in satellite debris strewn across Canada's Northern Territories and Nunavut. Despite the heroic recovery efforts of "**Operation Morning Light**" to recover the highly radioactive waste, the natives of the region have since suffered increased cancer rates.

The crash of Kosmos 954 was not the first space related nuclear accident, but it became the accident the public most remembered. There were relatively "successful" failures on the American side, as well: in 1964, plutonium aboard an aborted launch dispersed into the upper atmosphere; in 1968, the U.S. recovered a failed satellite's nuclear fuel container and even reused its plutonium; and in 1970, the nuclear generator intended to power lunar-based



instruments for the **Apollo 13** astronauts ultimately sunk to the depths of the Pacific, with no release detected.

Nevertheless, the Kosmos 954 spectacle of millions in U.S. and Canadian taxpayer money being used to shovel radioactive space junk from the snow was too vivid of a public relations disaster to be easily overlooked. At the time, President **Jimmy Carter** said, "If we cannot evolve those fail-safe methods, then I think there ought to be a total prohibition against [nuclear-powered] Earth-orbiting satellites. I would favor at this moment an agreement with the Soviets to prohibit Earth-orbiting satellites with atomic radiation material in them."

On the international legal stage, Kosmos 954 became a significant milestone, as Canada cited the U.N. Space Treaty corpus in its eventual legal claim against the U.S.S.R. Although the two nations never proceeded to litigation, and the U.S.S.R. did not formally accept legal responsibility, the Soviets did ultimately pay \$3 million Canadian dollars as partial reimbursement for the cleanup costs.

When the US also lost a (*non-nuclear*) satellite over Australia, the U.S. followed the Kosmos 954 precedent, acknowledging "[t]here is no question that the United States will pay damages." In its "**Principles Relevant to the Use of Nuclear Power Sources**" in Outer Space, the U.N. later recommended that "the use of nuclear power sources in outer space shall be restricted to those space missions which cannot be operated by non-nuclear energy sources in a reasonable way." In other words, nuclear power was to be the last resort.

In the years that followed, even when it seemed there may be new opportunities for the nuclear and space industries to collaborate, disaster continued to drive the two apart. For example, discussions occurred in the 1990s around the clever (*if economically far-fetched*) idea of using the expanse of space as a nuclear waste dump, assessing the shuttle missions as an opportunity to rid Earth of spent waste deposits that were piling up. The **Challenger** tragedy put an end to those discussions.

Even as space flight has become dramatically less expensive, the real images of hazmat suits scouring Canada for uranium and exploded launch vehicle remnants have combined to keep the proposal politically unfeasible. While Congress cannot agree on whose constituents should be forced to babysit nuclear waste for the next million years, it seems everyone can agree that we do not want it strapped to a rocket and sent over our heads.

As the world has witnessed a revived interest in all things space, nuclear possibilities have been caught up in the New Space excitement and, once again, legal developments are supporting and informing technological innovation.

With NASA focused on the **MEP (Mars Exploration Program)** and spacecraft designers are looking for propulsion options more efficient than chemical and more reliable than solar, NASA and **DARPA (Defense Advanced Research Projects Agency)** have resurrected work on nuclear propulsion systems, previously explored via the **Nuclear Engine for Rocket Vehicle Application (NERVA)** program, a joint investigation by NASA and the **Atomic Energy Commission (AEC)** into nuclear propulsion.

A nuclear propulsion system could — theoretically — get humans to Mars in 45 days (as opposed to 9 months) and keep them alive on the hostile planet (*à la "The Martian"*), in spite of storms that could cut them off from solar power. While getting our men and women to Mars and safely home faster is the "headline" case for nuclear, the implications for the use of nuclear power for the colonization of Mars are far reaching.

Washington is taking note. On the executive side, the **Trump White House** streamlined the system for approving the launch of nuclear space systems (*a broad term meant to cover power, heating, and propulsion*). Under the new regulatory review system, which had not been substantially updated since 1977, systems now fall into three tiers.

The tiers are mostly separated by "total quantities of radioactive material based on the A2 value listed in Table 2 of the International **Atomic Energy Agency's (IAEA) Specific Safety Requirements** and on the probability of radiation exposure to the public."

According to then-Director **Kelvin Droegemeier** of the **Office of Science and Technology Policy**, the system is designed to “better ensure rigorous risk-informed safety assessment without excessive redundancy or wasted time and cost.”

On the budget side, Congress has delegated “about \$100 million annually for NASA to advance nuclear thermal propulsion capabilities with the goal of conducting a future in-space flight test” allowing the agency to make such development a priority.

The government shut down NERVA in 1973 (after spending \$1 billion on the program), when “budget cuts and a lack of political will kept concepts for nuclear propulsion on the ground.” Only now, with the renewed ambition to explore further and further away from Earth, has the U.S. developed the political appetite to push this technology forward.

Since 2021, DARPA has been working with commercial partners on **DRACO**, the **Demonstration Rocket for Agile Cislunar Operations** program. Just last year, DARPA and NASA announced they will be working together on the next two rounds of the DRACO program, which call for a commercial contractor to design and build a rocket capable of carrying a fission reactor safely into space for testing. The current plan envisions an in-space demonstration during fiscal year 2027.



The U.N., for its part, while not necessarily disavowing earlier concerns regarding nuclear power in space, has come to acknowledge the technology's importance for space and is actively working to encourage proper regulatory controls. In 2022, the UN “welcomed the fact that some States and an international intergovernmental organization were developing, or considering developing, legal and regulatory instruments on the safe use of nuclear power sources in outer space.”

In November of 2023, the **U.N. Committee on the Peaceful Uses of Outer Space, Scientific and Technical Subcommittee** recently stated in its draft plan for 2024-2028 that, “Nuclear power sources (NPS) have opened the solar system to exploration, allowing the observation and understanding of dark, distant planetary bodies that would otherwise be unreachable. Nuclear reactor power sources, for habitation purposes and in-space propulsion and power supply of spacecraft, may enable faster and more robust crew and cargo missions to the Moon, Mars and beyond, and scientific missions to the outer solar system. The experience gained during many decades of NPS applications has led to a good understanding of the risks involved and the lessons learned, which provide context for evolving safety practices.”

From the detonation of nuclear bombs in LEO and targets aimed at on the moon, on through the development of international legal accords against using nuclear weaponry in space, and all the way through the political storms of nuclear accidents, there has now emerged a new consensus that our loftier space ambitions cannot afford to keep nuclear on the sidelines.

Time will tell whether the uneasy union of nuclear and space will remain in the public's good graces long enough to move humans to Mars and then return them to Earth.

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GOVERNMENTS WORLDWIDE NOW SEEK TO CLOSE THE GAP WITH SATCOM

Author: Thorleif Astrup-Hallund, Senior Business Development Director, Gatehouse Satcom

In today's modern society, the unpredictability of the world around us is evident. Recent global events have underscored the fact that, despite our desires, we cannot always control nature and external forces. Satellites, on the other hand, serve as a reliable safeguard for our crucial communication infrastructure, providing protection in the event of major disruptions that could affect essential aspects of our lives such as financial transactions, trade, communication, the media, security, and power distribution.

WE MUST MASTER OUR OWN DOMAINS.

To governments all over the world, the lesson is quite clear: every nation needs to strengthen its ability to adapt, deploy and control its critical communication infrastructure under all thinkable circumstances — be it international conflicts, climate changes, earthquakes or what else the future holds in store for us.

In this regard, few technologies hold as much promise as the ones bridging the gap between satellite-based, non-terrestrial 5G infrastructure and the terrestrial 5G infrastructure we know already. This bridge has an enormous potential to improve the way in which governments can fulfill their need for resilient critical

communication in times of trouble. On top of that, being able to bridge non-terrestrial and terrestrial 5G will furthermore spawn a great number of new business opportunities across the satcom and telecom industries.

AN OPEN DOOR TO TRANSFORMATIVE APPLICATIONS

One of the most obvious examples is the deployment of high-speed, low-latency mobile broadband internet via satellite in remote and rural locations. This is typically established through satellites beaming internet to a dish on the users' roof, which then passes the signal on to a Wi-Fi router. Another example of new business emerging is the first 5G NR-compatible smartphones, and even though it is still early days, this area has already shown us simple services like emergency messaging and car assistance. But with the advance of 5G NR, new high-speed data and voice services will most certainly be launched.

Using 5G satellite connectivity thereby opens the door to transformative applications across various sectors such as precision agriculture where farming practices are enhanced through the optimization of water usage, pest control, and boosting crop yield. Maritime and aviation connectivity likewise



provide reliable, continuous connectivity for improved navigation and safety. 5G connectivity can also help transform the mining industry, enabling remote machinery operation whereby human risk in hazardous conditions can be minimized and at the same time, overall operational efficiency is enhanced.

EASIER SAID THAN DONE

Although things might start to look promising, we're not quite there yet. The fact remains that what may be simple to achieve in a terrestrial network can be extremely complicated in a non-terrestrial network. For instance, how do you provide direct connectivity between a satellite constellation and a standard mobile phone? This is a real challenge due to factors like spectrum, link budgets, high doppler shifts, and increase in latency due to interference from terrain and weather — just to mention a few.

One of the major initiatives to bridge the gap is the IRIS2 satellite constellation — the **European Union's** answer to the pressing challenges of tomorrow. The constellation will be offering enhanced resilient and innovative 5G communication capacities to governmental users and businesses, while at the same time allowing mass-market commercial applications including mobile and broadband satellite access.

To develop this resilient and innovative network, governmental organizations, and private companies, across the terrestrial and non-terrestrial connectivity industry must work together to close the gap. A joint consortium has been established and will be led by companies such as **Airbus Defence and Space**, **Eutelsat**, **Hispasat**, **SES** and **Thales Alenia Space**, together with the intergovernmental organization **ESA (European Space Agency)**.

The integrated team aims to foster collaboration among all European players across the entire connectivity value chain with a view to support a large variety of governmental applications in the domains of surveillance, crisis management, connection, and the protection of key infrastructures. The consortium is currently building the foundation of the new network and is reaching out to specialist SMEs, such as **Gatehouse Satcom** in Denmark, to provide critical components making the grand project viable.

THE PRIVATE SECTOR IS CONSOLIDATING, AS WELL

The EU's **IRIS2**-space program may be the first large-scale case of the unification of standardized 5G terrestrial and non-terrestrial network technology. However, the story has more to it than securing critical governmental needs; it's also about ensuring connectivity to our mobile phones in "dead zones" and how we access the internet from our homes. Big things are happening here too. Recently, the **GSMA (Global System for Mobile Communications Association)** and the **ESA** signed a **Memorandum of Intent** to formalize a new, strategic partnership. The purpose is to enhance the competitive edge of both the mobile and satellite network industries and fast-track the development of innovative technology solutions for both governments, businesses, and consumers.

Another good example is from the UK, where the government is working to establish a potential £160 million scheme called "**Connectivity in Low Earth Orbit**" - or **CLEO**, in short. The purpose of this is to fund a next generation 5G satellite communication constellation. **CLEO** aims to deliver the R&D needed to support the launch of hundreds of satellites into space, revolutionizing the UK's communication infrastructure and closing connectivity gaps.

WHAT LIES AHEAD OF US?

The future of bridging the critical communication infrastructure gap will depend largely on decisions made by governments and policymakers which will help essential 5G terrestrial and non-terrestrial network technologies expand. The path forward is still complex and less predictable than many of us would prefer.

Some factors can hinder efficient cooperation and may be perceived as obstacles. Barriers may arise from bureaucratic rivalries, narrow-minded perspectives, inflexible organizational rules, and procedures, inadequate information, detrimental leadership, and more. But there is little doubt that the integration of terrestrial and non-terrestrial networks will bring about a profound transformation of the communications landscape.

This, in turn, will lead to a wealth of new business opportunities and competitive solutions for both governments, corporations, and private consumers. The important thing is that we keep providing citizens and governments worldwide with a resilient and versatile communication infrastructure capable of withstanding the effects of natural disasters, climate change and the like.

As these events unfold, Gatehouse Satcom will continue to explore key developments and share insights across our industry.

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