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MILSATMAGAZINE

April 2025

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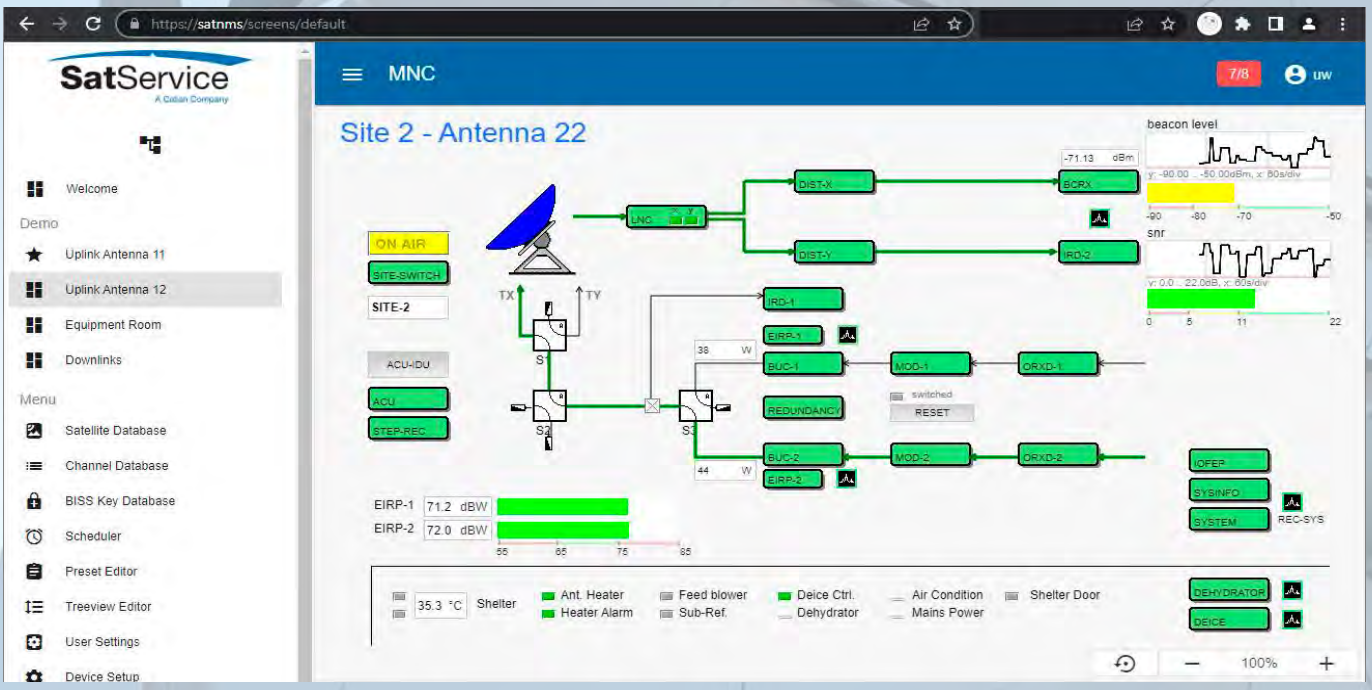

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DISPATCHES

Airbus to build the communication network for the French air and naval force, stage 3 Rifan3 - @Marine Nationale

The French Defence Procurement Agency (DGA) has awarded the contract for the IP Network of the Naval Force (RIFAN) stage 3 to an industrial consortium led by Airbus Defence and Space and also comprising Naval Group.

With a maximum value of 480 million euros and a maximum duration of 10 years, the contract covers the development of RIFAN upgrades, their deployment and operational maintenance.

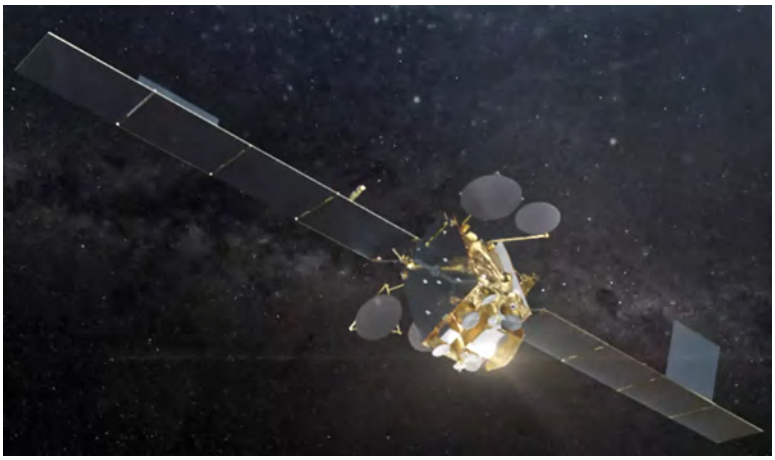
The developments will be carried out incrementally between 2026 and 2030 and deployed on ships between 2028 and 2032.

More than 80 vessels will be equipped with the RIFAN 3 network: aircraft carriers, amphibious helicopter carriers, frigates, command and supply vessels, patrol vessels, minesweepers, submarines and support vessels.

This new RIFAN 3 contract aims, in particular, to increase inter-ship connectivity to progressively meet the needs of collaborative combat, thanks to new high-speed, low-latency transmission means that will be deployed on front-line vessels.

The resilience of the network will also be strengthened by the development of rapid reconfiguration mechanisms to adapt to the available means of communication in different tactical and operational scenarios. In the face of growing cyber threats, the network will also rely on enhanced cybersecurity to preserve the integrity and continuity of operations.

The RIFAN 2 system was commissioned by the French Navy and Airbus Defence and Space and its partners between 2012 and 2016 and brings together and operates all the communication resources available on board, such as ***Syracuse IV***, ***Comcept***, commercial satellite constellations (*LEO, MEO and GEO*) and radio resources. It allows the vessels to communicate on an IP network guaranteeing a very high level of security, and to exchange data with classification levels ranging from 'unprotected' to 'secret.'



The Airbus-built SYRACUSE IV is the 4th generation secure military satellite communications system. The two SYRACUSE 4A and 4B satellites deliver increased communications capacity and enhanced functionality, including higher throughput and flexibility, along with a broader coverage area and resistance to jamming.

> *"Airbus Defence and Space has been involved in the development and deployment of the network and communication systems of French Navy ships for almost 15 years," said **Eric Even**, Head of Space Digital at Airbus Defence and Space. "With RIFAN 3, we are preparing for the next stage, that of collaborative naval combat, networked combat of all assets and platforms involved in naval operations."*

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DISPATCHES

First AI-enabled PicoSat platform for new space apps for military & defense, public safety, agriculture and more, launches from Aitech

Aitech has introduced a new pico satellite (PicoSat) platform, IQSat. The IQSat is AI-enabled for pattern of life analysis for a range of applications, including public safety, agriculture, military and defense, climate, biology, and more.

Aitech is showcasing the new IQSat PicoSat platform at the ***National Space Symposium*** in Colorado Springs, Colorado in **booth #612** from April 7-10.

With more than 30 years of electronics in space and trillions of miles flown in space, the new IQSat is built on Aitech's proven experience. The PicoSat's affordability allows for redundancy for deploying dozens or hundreds of units to deliver information on any spot on Earth frequently. The IQSat is small enough to be held in the palm of a hand, and with an IQSat constellation, coverage is powerful enough to deliver actionable information rapidly and frequently from any desired point on Earth. The IQSat supports high-order, low-resource learning anomaly detection, enabling new uses across many market segments:

Military and Defense: With a low probability of intercept and low probability of detection, IQSat can deliver critical information on threat locations, directions, and velocities in any area of interest at tactically significant update rates directly to the Warfighter.

Space Situational Awareness: With flexible sensor options and constellation configurations, IQSat brings low-cost capability to detect space debris to prevent space collisions, monitor orbital traffic, detect changes in satellite trajectories or potential anti-satellite threats, and more.

Space Habitat: Placed in vicinity of Space Habitats, IQSat can deliver temperature, radiation levels, and other variables to evaluate structure integrity and health by detecting micro-meteorite impacts or material degradation external to Space Habitats, or external surveillance to detect space debris collision threats.

Public Safety: A low-cost LEO constellation of IQSats can provide rapid detection of remote areas of natural disasters, such as floods, fires, assist in remote search and rescue operations through detection of objects, locations and movement directly to the rescuer, or can monitor infrastructure surveillance of dams, bridges and others.

Agriculture: IQSat can assist farmers by delivering soil, weather, and other critical information rapidly and frequently to help improve crop output. Science and Research: A constellation of IQSats can provide researchers and scientists with a low cost solution for tracking unique weather patterns, monitoring wildlife migrations around a region or the world, tracking ocean currents and wildlife, and many more capabilities.

The IQSat platform development units will be available by Q4 2025 for mission development and ready for LEO flight in Q1 2026.

GaNLink Solid-State Family

Multiple product configurations shown

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DISPATCHES

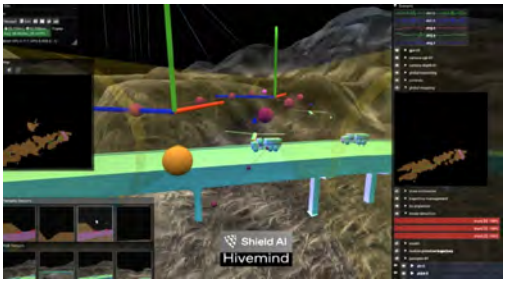
L3Harris + Shield AI team for autonomy breakthrough

***L3Harris Technologies* [NYSE: LHX] and *Shield AI* will collaborate on a demonstration to enable an electronic warfare (EW) operation with AI-enabled unmanned systems that will sense, adapt and act while simultaneously executing physical and electromagnetic movements.**

Seasats Lightfish autonomous vessel

At the core of this effort is ***L3Harris' Distributed Spectrum Collaboration and Operations***, or **DiSCO™**, a software-defined *Electromagnetic Battle Management* ecosystem that can detect, collect and analyze known and unknown threat signals within minutes.

This specific collaboration pairs DiSCO with ***Shield AI's Hivemind***.



"*Our warfighters face a complex, multi-domain battlefield full of rapidly evolving threats*," said ***Ed Zoiss***, President, Space and Airborne Systems, L3Harris. "*DiSCO will leverage Shield AI's Hivemind autonomy software to accelerate the ability to make faster, more informed decisions*."

> *"Adversaries' kill webs are complex, restrict access and put assets at risk. Countering them requires shifting to distributed, autonomous kill webs that sense, decide and act in real-time," said* ***Christian Gutierrez,*** *VP of Hivemind Solutions, Shield AI. "Integrating Hivemind autonomy with L3Harris' EW capabilities*

Solid-State Power Amplifiers for Satellite Telemetry, Tracking and Control

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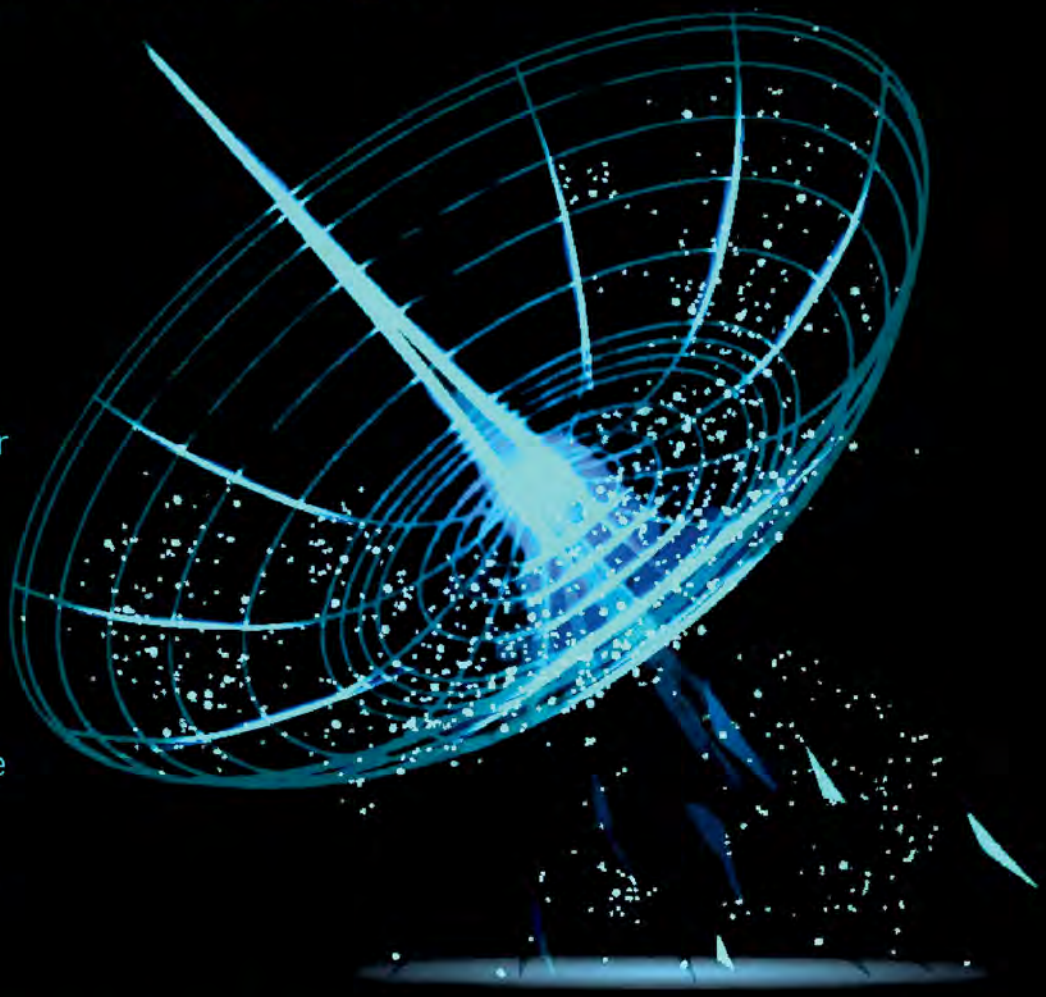

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DISPATCHES

Ariane 6 performs first commercial flight with successful launch of CSO-3 satellite

The CSO-3 military observation satellite has been successfully launched by Arianespace atop an Ariane 6 from Europe's spaceport in French Guiana. Carrying a very-high-resolution optical instrument built by Thales Alenia Space, the joint venture between Thales (67%) and Leonardo (33%), the satellite was developed by prime contractor Airbus Defence & Space for the French defense procurement agency DGA on behalf of the French Air and Space Force's Space Command, with delegated oversight from the French space agency CNES. (Photo by Satnews.)

The third and last component in the CSO system for France's *MUSIS* military program, CSO-3 will provide increased coverage and revisit capabilities to enable more effective conduct of military operations and faster crisis response.

Designed to the most stringent intelligence and defense requirements, CSO-3 is equipped with a cutting-edge instrument developed by Thales Alenia Space. This instrument is the core of the mission, affording exceptional resolution and detail of Earth's surface. Its unrivaled performance enables it to acquire imagery at extremely high resolution, even in low-light conditions and at night thanks to its infrared capabilities. Its advanced technologies include latest-generation optical systems and ultra-sensitive sensors.

Like the previous Helios 1, Helios 2 and Pleiades satellites, Thales Alenia Space designed strategic equipment for the CSO system, including the solar arrays, very-high-throughput image telemetry systems, and encryption/decryption modules to ensure data security and confidentiality. The company also supplied the system's telemetry, tracking and control transponders.

> *"The launch of CSO-3 is a major milestone for French sovereignty in space, both in terms of launch capabilities and satellite technology," said **Hervé Derrey**, Thales Alenia Space CEO. "With the completion of this system, France is leading the way in optical space reconnaissance. The CSO system's exceptional performance is based in particular on the optical instrument built by the teams at Thales Alenia Space and our industry partners. These unique skills in Europe are strategically important and demonstrate our ability to meet the new challenges facing French and European sovereignty."*

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DISPATCHES

Lockheed Martin, Nokia + Verizon advance defense capabilities via 5G.MIL® collaboration

Demonstration advances interoperability of commercial 5G connections with military communications systems—successfully integrated Nokia's military-grade 5G solutions and Verizon network management capabilities into Lockheed Martin 5G.MIL hybrid base station

Lockheed Martin (NYSE: LMT), Nokia (NYSE: NOK) and Verizon (NYSE: VZ) have successfully integrated Nokia's military-grade 5G solutions into Lockheed Martin's 5G.MIL® Hybrid Base Station (HBS).

This technology advances new capabilities to integrate commercial 5G connections with military communications systems to provide decisive information for national defense. 5G is playing an expanding role in supporting tactical military missions, seamlessly complementing existing battlefield solutions.

In a series of recent demonstrations, Lockheed Martin integrated Nokia's military-grade 5G solutions into the *5G.MIL* Unified Network Solutions ecosystem, including interoperability with Verizon's network operations and management solutions. These tests successfully integrated traditional tactical communications solutions with 5G using open systems architecture and commercial standards. Leveraging open standards in this way allows for rapid integration of new, advanced capabilities into HBS configurations, ensuring new products and technology solutions are drop-in ready with no risk of vendor lock.

Initial integration was completed with equipment from Nokia's leading 5G portfolio at Verizon's Boston Innovation Center and HBS components at Lockheed Martin's Valley Forge laboratory in Pennsylvania. Final systems integration, testing and demonstration were accomplished at Lockheed Martin's facility in Ft. Worth, Texas.

The demonstration included HBS connectivity to hybrid user equipment (HUE) that allows users to switch access links between commercial 5G and tactical LPx waveforms while maintaining uninterrupted user application sessions on an Android user device. LPX designates low-probability-of-detection, interception, exploitation, jamming, geolocation and spoofing.

By integrating the 5G.MIL HBS with Nokia's 5G solutions, as well as demonstrating interoperability with Verizon's public 5G network and leveraging their network operations management software, Lockheed Martin and its strategic collaborators are well positioned to bring new levels of performance, scalability, and reliability to military, national security wireless, and ally international defense networks.

This strategic collaboration for Lockheed Martin, Nokia, and Verizon will enable continuing integration of new technology advancements, including incorporation of Nokia's 5G technology at Lockheed Martin's 5G.MIL Experimental Network site in Orlando, Florida, joining Verizon's capabilities already available on-site. With 5G's low latency, high bandwidth, and secure connectivity, warfighters can leverage real-time data and advanced situational awareness in dynamic operational environments.

The team will continue to refine and enhance technical offerings, including expanding hybrid network testing to include additional user device types, broader tactical communication system interoperability, and secure public-private network configurations. This will create new ways for customers to apply enhanced capabilities to global military, national security, and homeland defense mission areas, giving operators greater connectivity, faster and more reliable wireless networks, and enhanced interoperability in support of Joint All Domain Operations.

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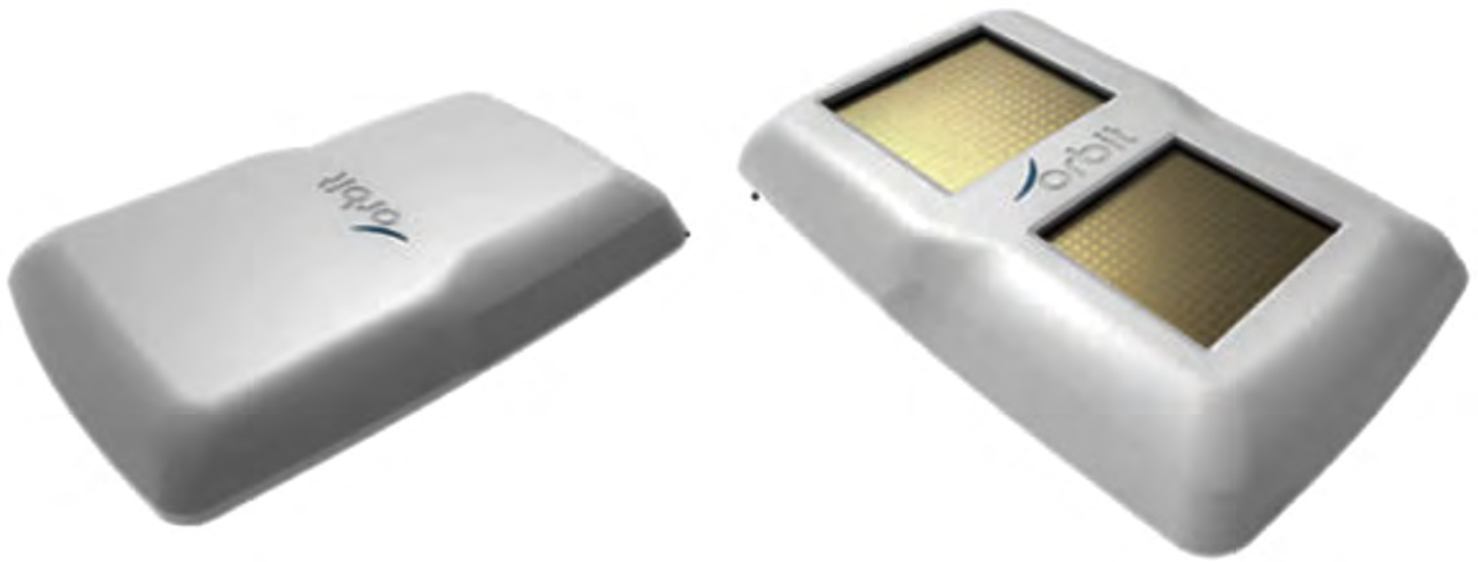

Orbit unveils OrBeam MIL—next-generation ESA

Orbit Communication Systems Ltd. is unveiling the company's new OrBeam MIL Electronically Steerable Antenna (ESA) at Satellite DC 2025. This cutting-edge phased array antenna is designed to meet the growing demand for continuous, reliable satellite communications across LEO, MEO, and GEO orbits.

With the rapid increase in satellite constellations and the evolving needs of defense, commercial, and enterprise users, Orbit's OrBeam MIL ESA delivers an agile, multi-orbit solution that requires no user intervention. The system's electronically controlled beam steering allows seamless connectivity with multiple satellites, enhancing operational efficiency and uninterrupted communication across the most challenging environments.

The new antenna supports Ka- or Ku -frequencies and is designed for seamless connectivity with GEO, MEO, and LEO satellites. Its flat-panel design with no moving parts ensures lower power consumption and high reliability, while its compact and lightweight structure enables fast deployment across aerial, maritime, and land-based platforms.

The system is capable of *Make-Before-Break* (**MBB**) satellite handovers, providing solutions for high-speed, uninterrupted low-latency satellite communications.

> *"As the satellite communication landscape evolves at an unprecedented pace, Orbit continues to push the boundaries of innovation," said Daniel Eshchar, CEO of Orbit. "Our new OrBeam MIL ESA system represents a breakthrough in multi-orbit connectivity, providing defense and commercial customers with a highly reliable, low power consumption, and future-ready SATCOM solutions."*

About Orbit Communication Systems:
Orbit Communication Systems, a global leader in airborne and maritime communications, satellite tracking, and ground-station technology, revolutionizes global connectivity with cutting-edge solutions for the new space era. Our state-of-the-art systems are utilized on a wide range of platforms, including mission aircraft, trainers, rotary-wing aircraft, transport vessels, tankers, jet fighters and unmanned platforms. Our reach extends to naval vessels, armored land platforms, cruise ships, ground stations, and offshore platforms, ensuring comprehensive coverage across maritime and terrestrial domains. Orbit provides innovative, cost-effective, and reliable solutions to commercial operators, major air forces, navies, space agencies, and emerging New Space companies. Orbit is publicly traded on the Tel Aviv Stock Exchange and is under the control of the FIMI Investment Fund. The company maintains a subsidiary in Florida, USA, which provides production, integration, and support capabilities for the North American market. Its global operations, encompassing, marketing, sales, and customer service, extend across Europe, and the Far East.

DISPATCHES

GA-ASI welcomes USAF designation for new Collaborative Combat Aircraft—YFQ-42A

***General Atomics Aeronautical Systems, Inc.* (GA-ASI) welcomes the U.S. Air Force's designation for its Collaborative Combat Aircraft: the new uncrewed jet fighter will be called the YFQ-42A—this announcement followed an earlier USAF decision in 2024 that GA-ASI was selected to develop and build the YFQ-42A.**

The U.S. Air Force selected YFQ-42A as the *Mission Design Series* (**MDS**) for GA-ASI's CCA prototype, representing the first in a new generation of unmanned fighter aircraft. YFQ-42A will be critical in securing air dominance for the Joint Force in future conflicts, leveraging autonomous capabilities and crewed-uncrewed teaming to defeat enemy threats in contested environments.

The U.S. Air Force is developing *Autonomous Collaborative Platforms* to maintain its air superiority. Semi-autonomous aircraft, such as the YFQ-42A, will enhance flexibility, affordability, and mission effectiveness. YFQ-42A will enhance air superiority as a flexible, affordable force multiplier. It is designed to integrate seamlessly with current and next-generation crewed aircraft, expanding mission capabilities and ensuring continued air dominance. In short, YFQ-42A provides fighter capacity – affordable mass—at a lower cost and on a threat-relevant timeline.

The YFQ-42A designation follows the U.S. Air Force's decision to designate GA-ASI's highly common predecessor aircraft as the *XQ-67A Off-Board Sensing Station*. The XQ-67A was ordered by the Air Force Research Lab to support the development of concepts necessary to implement the vision for CCA.

In the U.S. Air Force system, an "X" plane is designed for testing and experimentation, while "Y" describes initial production-representative aircraft, usually ahead of a formal program. "F" is for fighter and "Q" designates an uncrewed aircraft. Once the production-representative aircraft moves into production, the "Y" will drop from the prefix.

> *"We're proud to get a new official aircraft designation," said GA-ASI President **David R. Alexander**. "YFQ-42A continues a long and distinguished history for GA-ASI that dates back to the 1990s and the debut of the RQ-1 Predator®, which later changed to MQ-1 Predator. These aircraft represent an unrivaled history of capable, dependable uncrewed platforms that meet the needs of America's warfighters and point the way to a significant new era for airpower."*

DISPATCHES

Curtiss-Wright receives $18 million follow-on order from USMC for tactical comms

Curtiss-Wright's Defense Solutions Division has received a follow-on order from the U.S. Marine Corps, PEO Land Systems, via Defense Logistics Agency – Tailored Logistic Support (DLA-TLS) contract, to provide the Modular Open Systems Approach (MOSA) based, tactical communications technology for use in the Application Server Module (ASM), part of the Combat Data Network (CDN) program.

Under the contract, Curtiss-Wright will supply PEO Land Systems with its ***size, weight and power*** (**SWaP**) optimized ***PacStar® 400-Series*** technology, including the ***PacStar 451 Server***, ***PacStar 453 GPU Enhanced Server***, and ***PacStar 448 10-port 10 GbE Switch modules***.

These products provide ***small form factor*** (**SFF**) ruggedized compute and switching capability at the tactical edge, significantly improving mobility and enhancing speed of deployment while improving transmission rates and data access. The contract is valued at approximately $18 million.

"Curtiss-Wright is proud to have received this follow-on contract from the U.S. Marine Corps to provide our industry-leading, cost-effective tactical edge communications hardware in support of the Combat Data Network," said ***Brian Perry, Senior Vice President and General Manager, Curtiss-Wright Defense Solutions Division****. "This win builds upon our earlier selection as a critical supplier for the CDN program, including WAN Services Module – Light (WSM-L) in 2020, User Access Case (UAC) in 2021, and WAN Services Module – Expeditionary (WSM-X) in 2022."*

DISPATCHES

WISeKey recruits space experts to enhance WISeSat collaboration with Swiss Armed Forces

***WISeKey International Holding* (NASDAQ: WKEY; SIX: WIHN) with its subsidiaries *WISeSat.Space* and *SEALSQ Corp*. (NASDAQ: LAES) ("SEALSQ") has added several key space experts to the company's team—this expansion will further strengthen the company's capabilities in space operations and regulatory compliance, and enhancing its collaboration with the *Swiss Armed Forces*.**

New team members include…

» **Edward Burger,** *Space Regulatory Operations Specialist. Mr. Burger brings extensive experience in navigating the complex landscape of telecommunications law and regulation for space operations, ensuring projects comply with national and international requirements.*

» **Yiorgos Lemos,** *Space Operations Specialist. Mr. Lemos' knowledge in operational processes and satellite technology will enhance WISeKey's operational efficiency and effectiveness in mission execution.*

» **Eric Bottlaender,** *Space Technology Monitoring Specialist. Mr. Bottlaender will focus on monitoring emerging technologies and trends in the space sector, enabling WISeKey to remain at the forefront of innovation.*

» **Philip Haemelink,** *Space Project Manager & Software Engineer. Mr. Haemelink brings valuable experience from the space sector and will oversee project coordination between WiseSat and clients while leading software integration efforts.*

» **Vlad Dancau,** *Space Software Engineer. Mr. Dancau brings deep expertise in applied cryptography, network security, and telecommunications, empowering WISeKey to advance secure satellite communications.*

*"We are thrilled to have these talented professionals join our team," said **Carlos Moreira, CEO and Founder at WISeKey**. "Their expertise will not only enhance our capabilities but also strengthen our partnership with the Swiss Armed Forces as we work toward innovative solutions in the space industry. With the addition of this expert team, WISeKEY is poised to take on new challenges and opportunities in collaboration with the firm's esteemed partners."*

SPACE SYSTEMS COMMAND BRIEFING

FORGE

FUTURE OPERATIONALLY RESILIENT GROUND EVOLUTION

SENSE, MAKE SENSE, WIN

Space Systems Command's FORGE Ground System is the Next Evolution in Missile Warning, Tracking

Author: Lisa Sodders, Space Systems Command Public Affairs

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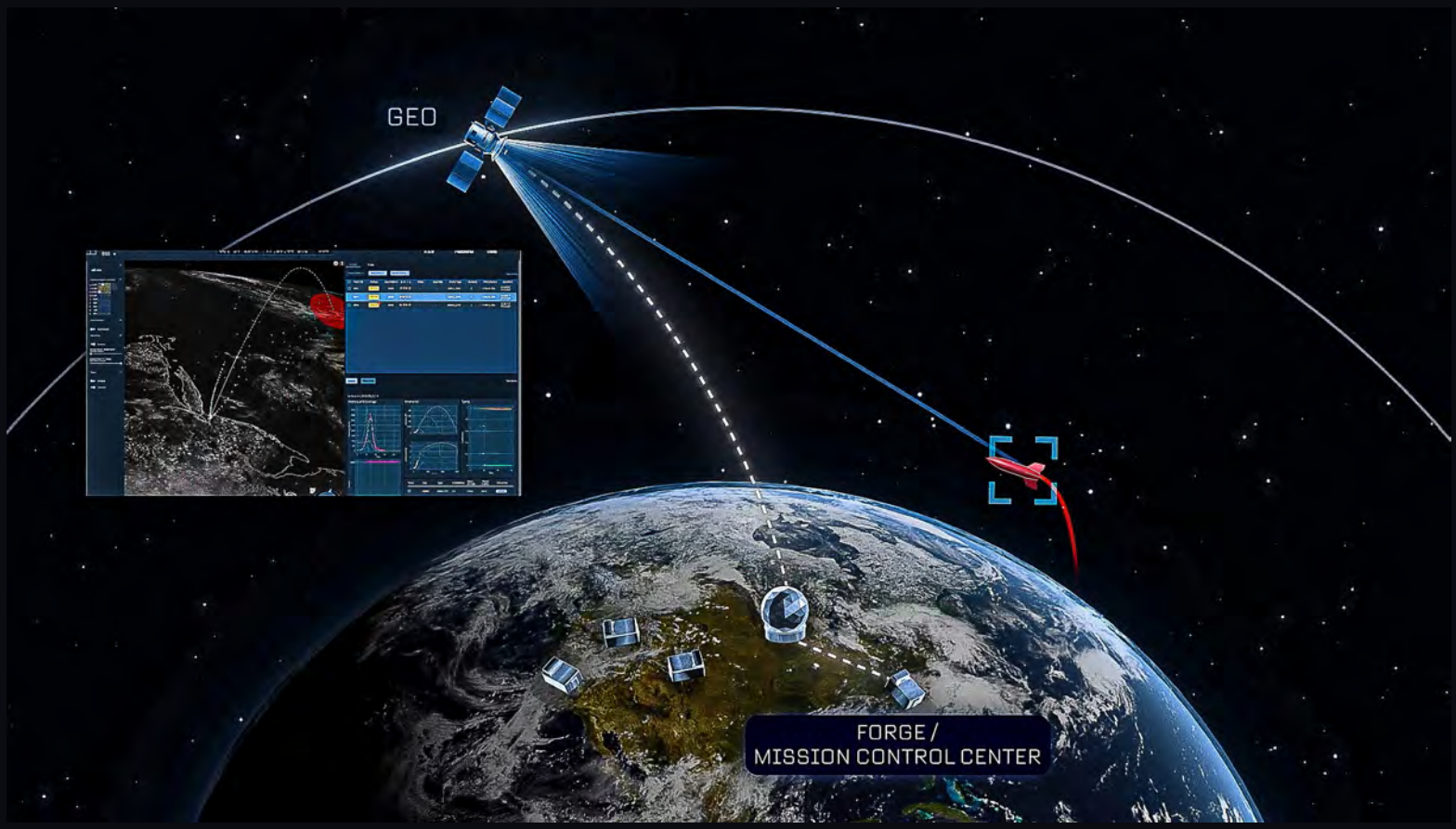
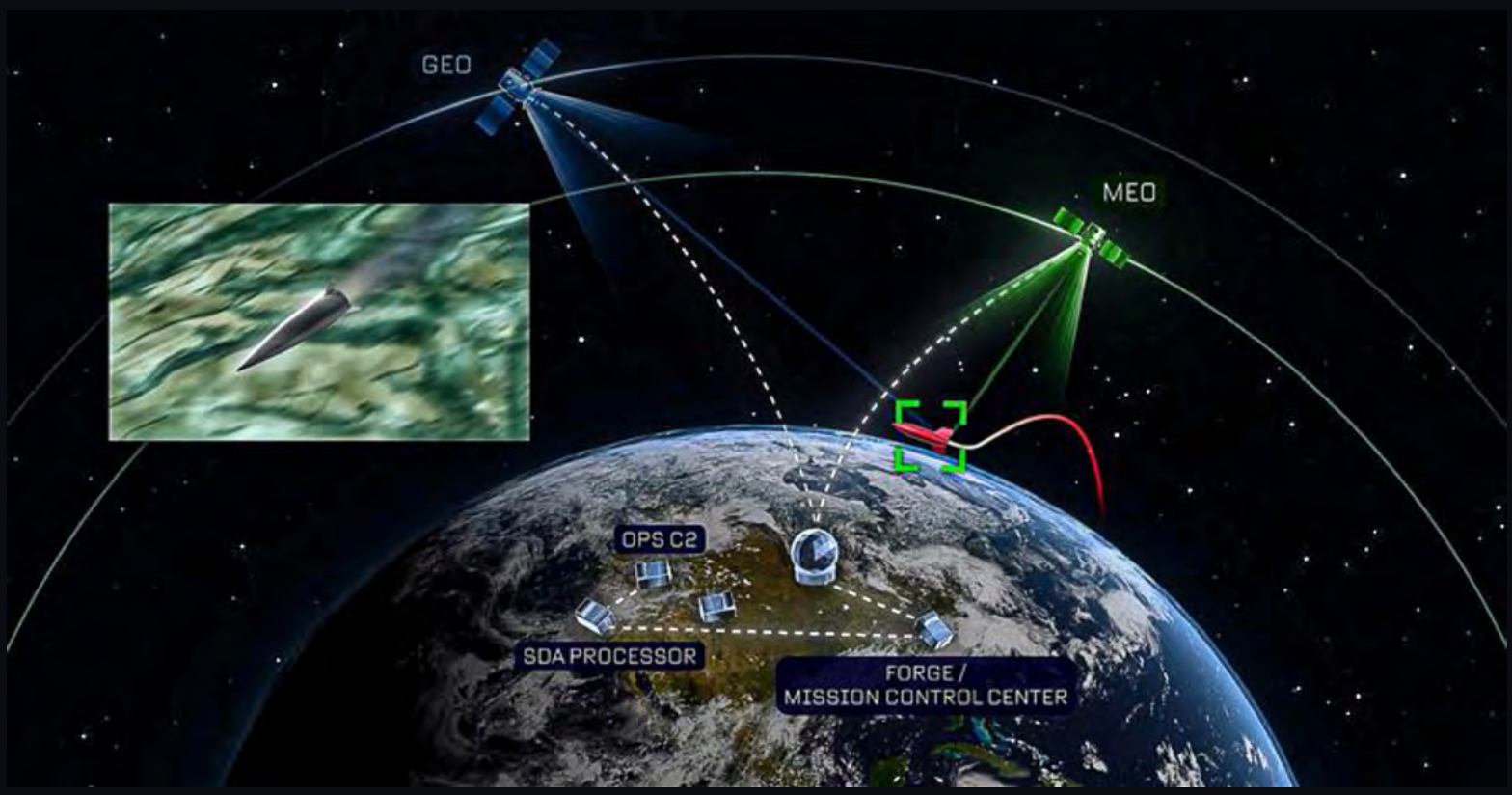


When it comes to protecting the Nation, setting the standard for missile warning and tracking isn't enough. The most modern ground system to securely accept, analyze and distribute the data is also required.

The U.S. Space Force (USSF) needs to be able to gather data from every possible source—legacy as well as future satellite constellations, sensors on orbit and on the ground.



Then, that data must be fused, quickly processed and delivered to U.S. warfighters and their allies at the speed of the fight.

Space Systems Command's FORGE, or ***Future Operationally Resilient Ground Evolution***, is modernizing the missile warning and tracking ground system for both next-generation and legacy programs while advancing enterprise tactical **C2** (***command and control***) capabilities.

The FORGE program will deliver a government owned, modular and open architecture capable of leveraging the latest industry innovations to maintain the highest level of missile warning and tracking—even as emerging threats shift and change.

The missile warning and tracking mission originally was accomplished by relying on data from a few large, expensive and highly specialized satellites in ***Geosynchronous Orbit*** (**GEO**), said *USSF Lt. Col. Dan Groller*, Materiel Leader, FORGE.


Lt. Col. Dan Groller

Today, the ***U.S. Department of Defense*** (**DoD**) plans to launch proliferated ***Low Earth Orbit*** (**LEO**) and ***Medium Earth Orbit*** (**MEO**) constellations over multiple planes and in multiple phases, to improve the accuracy and lethality of U.S. defenses by improving USSF's ability to track threats, versus merely detect and warn.

> *"Just from a sheer numbers perspective, FORGE has to be ready to process all that data. We're postured and having those conversations now to understand what it looks like in the future," Groller said. "The legacy system alone is not meant to process the sheer amount of data being presented to operators."*

The threat is evolving: both Russia and China are developing hypersonic weapons—weapons that can travel at speeds above Mach 5, or five times the speed of sound. These weapons also appear dimmer on radar; some with a glide phase and the ability to maneuver, which makes them particularly difficult to track. SSC's FORGE will enable the Space Force to track them earlier and longer.

> *"As we bring data from LEO and MEO, we'll be better able to track hypersonic weapons," Groller said. "We won't just see a boost phase and then it disappears and reappears. The whole premise of proliferated LEO and MEO constellations is that they're closer to the surface of the Earth and that's the tracking piece. FORGE is one of the systems that's going to process that data and make it usable."*

FORGE is more than just software. It's a sophisticated system that incorporates four different components: ***1) the framework, incorporating the hardware that the software platform runs on***; ***2) the data processing system***; ***3) the command-and-control system for satellites***, including mission management, telemetry, tracking and commanding, and ground control; and ***4) the ground stations***, said *Col. Stevie Medeiros*, senior materiel leader for Strategic MW Ground and Integration at SSC.

> *"With the older technology, you didn't get as much data," Medeiros said. "And what you did get, you had to sort through it to get to the truth. What we're finding is that in some of the data we had sorted in the past, there may be remnants of other mission areas, and other ways of using that data for other things."*

In many cases, that data also was stovepiped, Medeiros explained. With FORGE, all the data will be processed centrally.

FORGE began as a prototype, with the first contract signed in August of 2020 to provide the mission data processing application framework, Groller said. It is currently processing ***Overhead Persistent Infrared*** (***OPIR***) data from the existing, legacy SBIRS satellites in GEO and **HEO** (*Highly Elliptical Orbit*.)

Col. Stevie Medeiros

Groller said FORGE is also processing data from the legacy **DSP** (***Defense Support Program***) satellites.

These DSP GEO satellites were first launched starting in the 1970s to provide strategic and tactical missile launch detection.

> *"As long as DSP is pushing data, we have the ability to ingest that data," Groller said. "Whatever DSPs are remaining and pushing data to the OPS floors, I need to be able to pick that up and run with it because any time I turn off a sensor I've now created a degradation to current operations."*

FORGE gained its first "*operational acceptance*"—official approval that the system is ready for use in real-world operational scenarios—last spring for the framework running on the **OBAC** (***Overhead Persistent Infrared Battlespace Awareness Center***) at ***Buckley Space Force Base***, Colorado, Groller said.

An additional contract award for the next iteration of the framework was awarded in March and another is in progress.

The full FORGE configuration of FORGE apps on the framework, with added cybersecurity and the ability to process all the data, is expected this summer, Groller shared.

OBAC provides battlespace awareness and technical intelligence for theater-level, mission events, and by early 2027, FORGE will be supporting the 24/7/365 no-fail mission carried out by the ***2nd Space Warning Squadron*** (**2 SWS**) that the Nation relies on.

In addition to all the current satellite data, FORGE will also be able to handle the coming ***Next-Gen OPIR GEO*** and ***Polar*** satellites and ***Resilient Missile Warning and Tracking*** MEO space systems once they are on-orbit.

Those new satellites will provide even better data that will enable USSF to improve its ability to characterize threats, Medeiros said, adding, "*So not only are we doing the missile warning aspect of it, but we can also do a better job of taking that data, analyzing it and giving the operator better information to make sense of what the reality is.*"

> *"Data is data to me, and the great thing about FORGE is that it's not attached to just one type of data set," Medeiros said. "It's a modern system, so we can ingest multiple data sets and then do an analysis of that data to give our operators an advantage.*

> *He conrinued, "With FORGE as that core, it's not just for space constellations, it's for any other data out there that we can bring into FORGE and leverage to do better analysis."*

In addition to expanded data exploitation—getting every usable scrap of information from a vast treasure trove of data—FORGE also boasts modernized user interfaces to make it easier for warfighters to make critical decisions quickly.

Enhanced cybersecurity was baked into the design from the beginning and is significantly improved from the existing ***Program of Record***.

In the future, FORGE will ingest data from sensors that aren't even on-orbit, such as ground-based sensors, to give warfighters the most accurate, most complete data possible, Groller said.

One example of these are the ***Upgraded Early Warning Radars*** (**UEWRs**), located across the United States and the U.S. European Command. The UEWRs have 240 to -360 degree coverage and are designed to detect and track ***Intercontinental Ballistic Missiles*** (**ICBMs**) and ***Sea Launched Ballistic Missiles*** (**SLBM**) while conducting general space surveillance and satellite tacking.

> *"With FORGE, we can take advantage of all these different systems," Medeiros said. "We're getting better quality on the tracking, so we may get a hit from SBIRS and can correlate that to information we're getting from ground radar."*

Image of an Upgraded Early Warning Radar system

The system is government-owned, but with a modular, open architecture that will allow USSF to keep FORGE up-to-date as technology—and the threats—continue to evolve.

> *"This is why we looked at going to a software acquisition pathway or staying on a Middle Tier Acquisition in perpetuity and never go into sustainment because it's a very, very software-intensive program," Groller explained. "By design we should never be done. We should have a system that allows us to continuously evolve as technology evolves, and as things are launching and becoming available to us. We should be ingesting that data. We're looking at all data available to operators in order to sense, make sense, and win."*

Space Systems Command is the U.S. Space Force 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. Contact Space Systems Command at ***SSC@spaceforce.mil*** *and follow on* ***LinkedIn****.*

Image of all of SSC's launches

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COMMAND CENTER: IAN CANNING

President and Chief Executive Officer, Eutelsat America Corp. and OneWeb Technologies (EACOWT)

*As president and chief executive officer (CEO), **Ian Canning** is responsible for furthering the combined **Eutelsat America Corp. and OneWeb Technologies Inc (EACOWT)** vision of providing global satellite connectivity, innovative solutions and exceptional support focused on meeting the mission requirements of the U.S. government.*

Ian brings a wealth of multinational leadership experience and a proven track record in driving strategic growth, operational excellence and commercial success within the global satellite communications (SATCOM) and telecommunications industries. Ian initially joined Trustcomm as chief operating officer in 2012, playing a key role in its growth from a small service provider to a leading player in the industry. He was instrumental in Trustcomm's successful acquisition by OneWeb and its subsequent transformation into OneWeb Technologies, the U.S. proxy of OneWeb. His leadership was pivotal later in helping to achieve its merger with Eutelsat America Corp. He assumed the role of president and CEO in January 2025.

Prior to Trustcomm, he led global product innovation and marketing at Stratos Global Corp. where he was responsible for the company's global product and marketing portfolio. At Iridium Satellite LLC, he led sales for Europe and the Middle East and Africa (EMEA) and leveraged personal relationships to establish key partnerships for the business. Prior to that, he held leadership positions driving commercial initiatives, sales and business development within global leaders Inmarsat, Nortel and Motorola.

Ian holds a master's degree in business administration from Greenwich School of Management in London.

Good day, Mr. Canning. As you have take the helm as president and CEO of Eutelsat America Corp. and OneWeb Technologies Inc (EACOWT), what are your immediate priorities for the combined organization?

IAN CANNING

Our focus, as you would imagine, is the customer and making certain we continue to deliver on our differentiated solutions effectively and efficiently. Maintaining the "*customer first*" commitment through all our customer interface teams (*sales, sales engineering, operations, engineering, etc.*) is foundational to our corporate mentality. To achieve this, we have been focused on stability of the organization, and on continuing to integrate the skills and knowledge of the combined group. I am very fortunate to work with such a talented and dedicated group of professionals.

America Corp. (EAC) and OneWeb Technologies (OWT) brought together impressive GEO and LEO capabilities. How does this integration uniquely benefit your government customers and what opportunities does it create for innovation and growth?

IAN CANNING

As the only operator that has assets in both GEO and LEO orbits, it gives us a unique insight into user applications of the various solutions. We're leveraging that knowledge and experience to bring forward the most optimal solution for specific use cases, especially within the Government sector.

The merger has also bought together our go-to-market strategy, as well. Our Partners are key to adding value to our core GEO and LEO solutions, but it is also imperative that we maintain direct access to the user to be able to represent our unique capabilities.

As we look forward, expect our innovation to be focused on how we can effectively package and deliver the combination of GEO and LEO, leveraging some of the latest orchestration capabilities (*either hardware or software*). We have recently entered a development to enable interaction between our GEO capacity management capabilities and the ***United States Government***'s (**USG**)'s preferred orchestration platform.

Please tell the readers what are the most significant trends you foresee shaping the SATCOM landscape in the coming year, and how is EACOWT preparing to help enable them?

IAN CANNING

The COMSATCOM industry has fundamentally changed over the past 24- to 6 months with the introduction of new, not traditional competitors. This has forced the space sector to review its approach to business and to be clearer about its value proposition.

EACOWT is focused on delivering flexible, adaptable and highly-available end-to-end critical communications for the USG and its allies. This requires fully understanding the satellite element of delivery as well as also integrating with the terrestrial networks.

It also demands the highest standards of cyber security to meet the increasingly stringent requirements of government and corporate network environments. Being able to seamlessly integrate into the user's environment, whether that's orchestration, IP network, terrestrial, security expectations and deliver full transparency of that capability is vital. It always sounds simple but the implementation across the organization, to deliver on these commitments, relies on having an in-depth strength within and across the team—which we are fortunate to have.

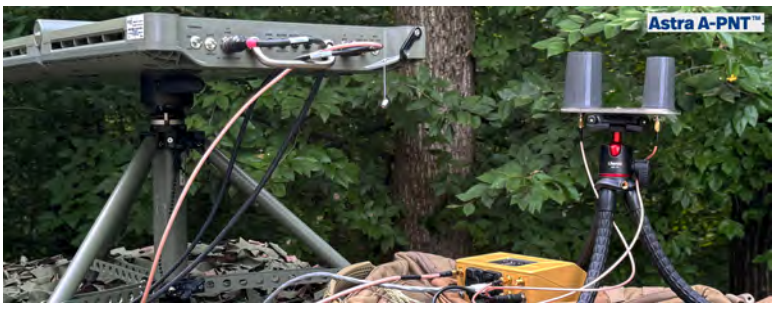
EACOWT recently introduced a packaged positioning, navigation, and timing (PNT) solution designed for environments where GPS/GNSS is unavailable. Could you share more about this technology and its potential impact on government operations reliant on resilient navigation solutions?

IAN CANNING

Alternate sources of ***Position Navigation and Timing*** (**A-PNT**) have been identified as an absolute necessity to support many elements of ***Critical National Infrastructure*** (**CNI**), not limited to, but including communications.

Due to the complex nature of our network environment, timing is key, so we undertook an initiative as EACOWT, aligned with the Group, to do an initial Assessment of Alternatives that led to a development of ***AstraPNT***.

AstraPNT enables us to take all ***Global Navigation Satellite System*** (**GNSS**) feeds, ***GPS*** plus ***Galileo***, ***GLONASS*** and ***BeiDou***, along with the ***Iridium STL*** service, to provide a consistent, easily digestible, ***GPS L1*** feed for ingestion into systems requiring a resilient timing.



In addition, working with our partner ***Viavi***, AstraPNT includes a holdover capability that, should the GNSS feeds, including Iridium, enter into a jammed environment, we then provide a four hour holdover capability.

The capability has proven itself to be highly resilient in extremely challenged environments, including the recent ***U.S. SOCOM Artic Warrior*** technical experiment exercise.

Would you provide insights into recent collaborations and how they support the U.S. government's mission-critical connectivity needs?

IAN CANNING

Collaboration underpins our go-to-market strategy in support of the U.S. government. EACOWT have an extensive partnerships with key industry players (*in no particular order*), such as ***SES-GS***, ***Viasat***, ***Ultisat***, ***Intelsat***, ***Hughes,*** who have long standing relationships with the USG customer and also have value-add capabilities they add to our offerings to further differentiate the overall proposition.

User terminals are also a key enabler to our ability to deliver so we work incredibly closely with the likes of ***Kymeta***, ***Intellian***, ***Hughes*** and others to deliver terminals tailored to meet USG needs. The combination of the EACOWT partnership meets, and in many cases exceeds, the mission critical and ***Primary, Alternative, Contingency and Emergency*** (**PACE**) needs of our community, not to mention the AstraPNT relationships with ***Iridium*** and ***Viavi***.

Eutelsat is set to introduce its Flexsat solution in the next year or so – how does EACOWT plan to implement those capabilities and how will that benefit your government customers?

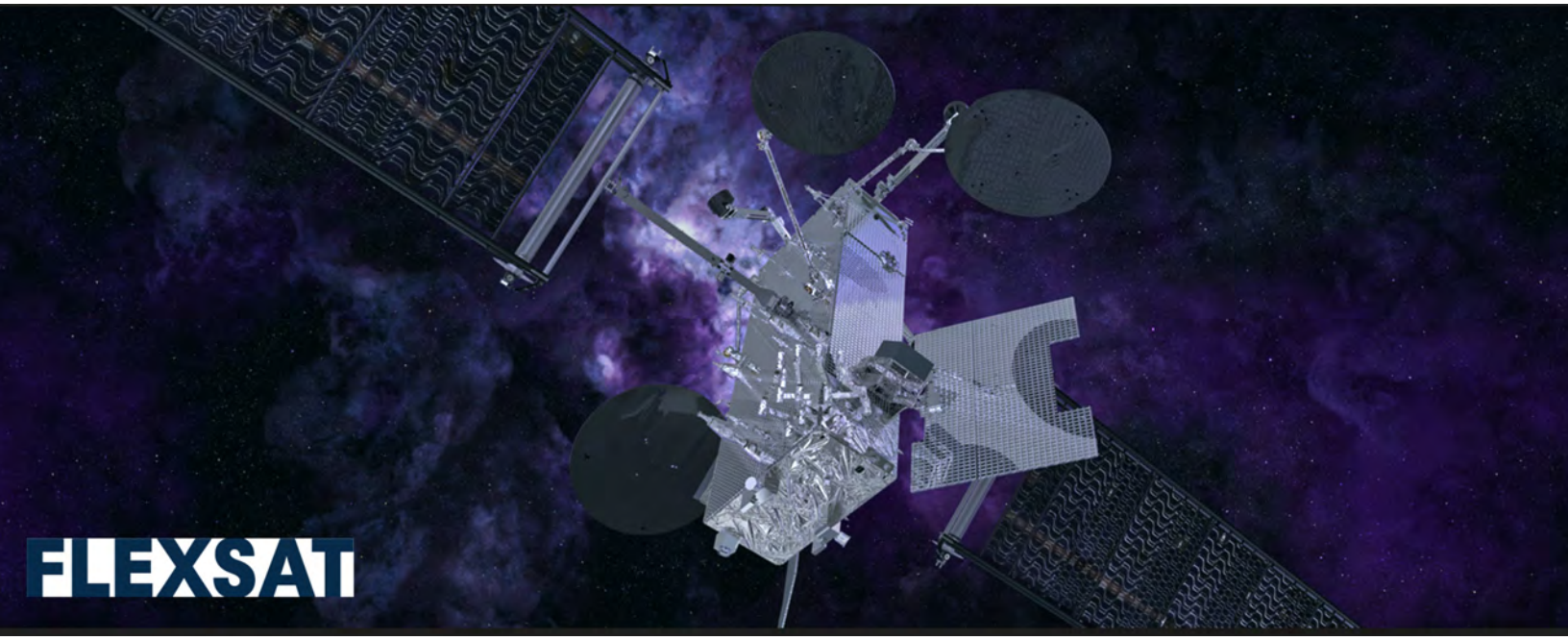
IAN CANNING

As Eutelsat Group adds incremental capability and capacity into the overall fleet of GEO and LEO, EACOWT plays a key role in working with the Group to ensure core U.S. government needs are understood within the requirement definition phase and then available to the USG through delivery.

EACOWT represents all the Group's capability, ***FLEXSAT*** specifically offers a highly flexible and adaptable platform allowing us to be adaptable to government requirements taking advantage of its High Throughput Satellite (HTS) capacity along with the software definition if the satellite payload. This flexibility and adaptability on capabilities is exactly what the Government is demanding going forward.

eacowt.com

eutelsat AMERICA CORP + OneWeb Technologies
EUTELSAT GROUP



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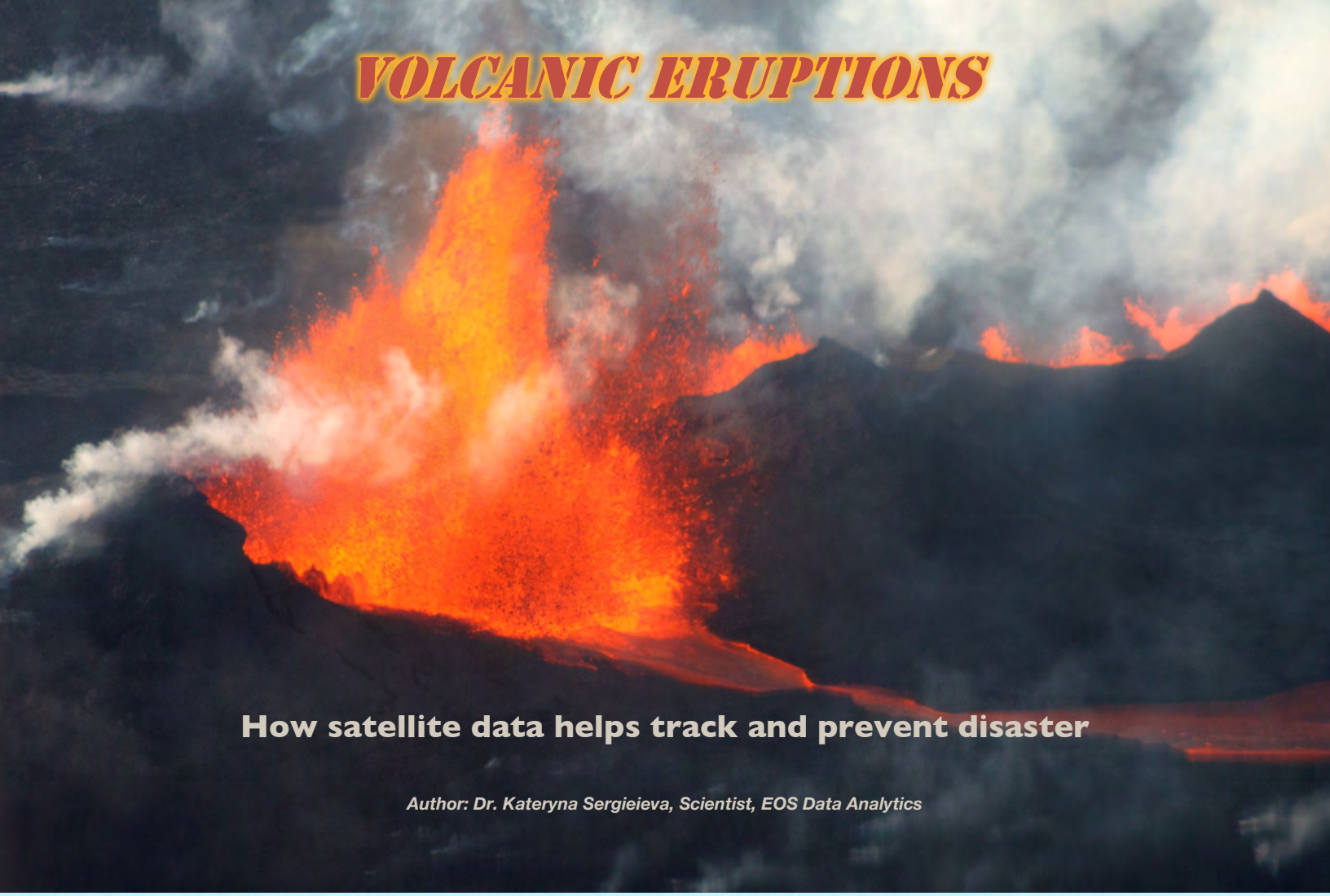


How satellite data helps track and prevent disaster

Author: Dr. Kateryna Sergieieva, Scientist, EOS Data Analytics

While volcanic eruptions can be unpredictable and devastating, modern technology is changing how we monitor these fiery giants. Satellites, orbiting high above Earth, provide an unprecedented view of volcanic activity, capturing critical data that can help scientists track warning signs, assess hazards, and even prevent disasters before they unfold.

By detecting changes in temperature, gas emissions, and ground deformation, satellite data offers a broader, more continuous perspective than traditional ground-based monitoring. With a ***live satellite view of your AOI***, as a researcher you can observe volcanic activity in near real-time, making it easier to identify early warning signs and assess risks.

This level of remote monitoring enables timely evacuation plans, reduces damage to infrastructure, and ultimately saves lives. As climate change influences global volcanic activity, the role of space-based observation is becoming even more vital. The ability to predict eruptions and act swiftly in response is no longer some sort of faraway dream but one made real through ever-advancing satellite capabilities.

Satellite data and its role in volcanic eruptions

Predicting volcanic eruptions has always been one of the greatest challenges in geoscience. While some warning signs, such as tremors, gas emissions, and ground swelling, can be detected through ground sensors, these methods are often limited by accessibility, harsh environments, and the unpredictable nature of volcanic behavior. This is where satellite technology transforms the field, offering a more comprehensive, real-time approach to volcanic monitoring.

Live satellite view of Earth allows scientists to monitor changes across vast, remote regions that would otherwise be difficult or impossible to access. Unlike ground-based systems, which are often placed near a volcano's crater, satellites capture a broader perspective, detecting even the most subtle shifts in a volcano's activity. Through thermal imaging, satellites can track rising magma beneath the surface, while specialized sensors measure gas emissions like sulfur dioxide—key indicators of an impending eruption.

One of the greatest advantages of satellite monitoring is its ability to provide continuous, large-scale surveillance. Many active volcanoes are in remote or dangerous locations where installing ground instruments is not feasible. With satellite data, researchers can analyze long-term trends in volcanic behavior, compare current activity with historical patterns, and issue alerts when signs of an eruption become evident. This proactive approach gives local authorities and disaster response teams critical time to prepare, evacuate communities, and minimize destruction.

Satellites also help mitigate the impact of false alarms. Not every tremor or plume of gas signals an eruption, and the reliance on ground data sometimes brings about unnecessary evacuations. Satellite observations, put together with seismic and geological data, enable scientists to distinguish normal volcanic activity from truly dangerous events, ensuring that warnings are timely and accurate.

As technology advances, the capabilities of satellite-based volcanic monitoring continue to improve. High-resolution imagery, real-time analytics, and AI-powered models are making eruption predictions more precise than ever. With the ability to monitor volcanic activity on a global scale, satellites are changing not just how we predict eruptions but also how we protect lives, infrastructure, and even whole ecosystems from nature's most unpredictable disasters.

Underwater eruptions and their detection using satellite imagery

Unlike their land-based counterparts, underwater volcanoes erupt in near silence, hidden beneath vast ocean depths. Without visible lava flows or towering ash plumes, these eruptions often go unnoticed until their aftermath is detected on the ocean's surface. However, satellites are changing that. By capturing real-time data from above, they provide a powerful tool for detecting and analyzing these hidden geological events, offering insights that were once beyond our reach.

A live stream satellite view of Earth's oceans allows scientists to identify subtle but telling signs of an underwater eruption. One of the most crucial indicators is the sudden discoloration of seawater caused by volcanic gases and minerals being released into the ocean. Sulfur, iron,

Kilaeua volcano in Hawaii

Hunga Tonga-Hunga Ha'apai eruption in 2022

and other elements create swirling patches of yellow, green, or brown on the water's surface—signals that something is stirring in the deep. Satellites also track surface temperature anomalies.

While the deep ocean is cold, an erupting submarine volcano releases immense heat, sometimes warming the surrounding water by several degrees. Infrared sensors aboard satellites can detect these thermal changes, helping scientists pinpoint where an eruption is occurring, even in the most remote areas of the ocean.

Another key advantage of satellite monitoring is its ability to detect pressure waves from explosive underwater eruptions. When a massive eruption occurs, it can trigger shockwaves that ripple through the atmosphere. By analyzing these disturbances, researchers can not only confirm an eruption but also estimate its intensity and potential impact.

Beyond detection, satellite data plays a critical role in predicting the effects of underwater eruptions. Tsunamis, for example, are a major threat following submarine volcanic activity. By monitoring changes in sea level and ocean currents from space, satellites help provide early warnings, giving coastal communities valuable time to prepare and evacuate if necessary.

As satellite technology continues to evolve, so does our ability to monitor the hidden world beneath the ocean's surface. With improved resolution, real-time data processing, and AI-driven analysis, scientists are gaining an unprecedented understanding of underwater volcanic activity. What was once an unseen force of nature is now being revealed one satellite image at a time.

Volcanoes Observed from Space

From the fiery summits of the Andes to the hidden depths of the Pacific, satellites have provided critical insights into some of the world's most active and dangerous volcanoes.

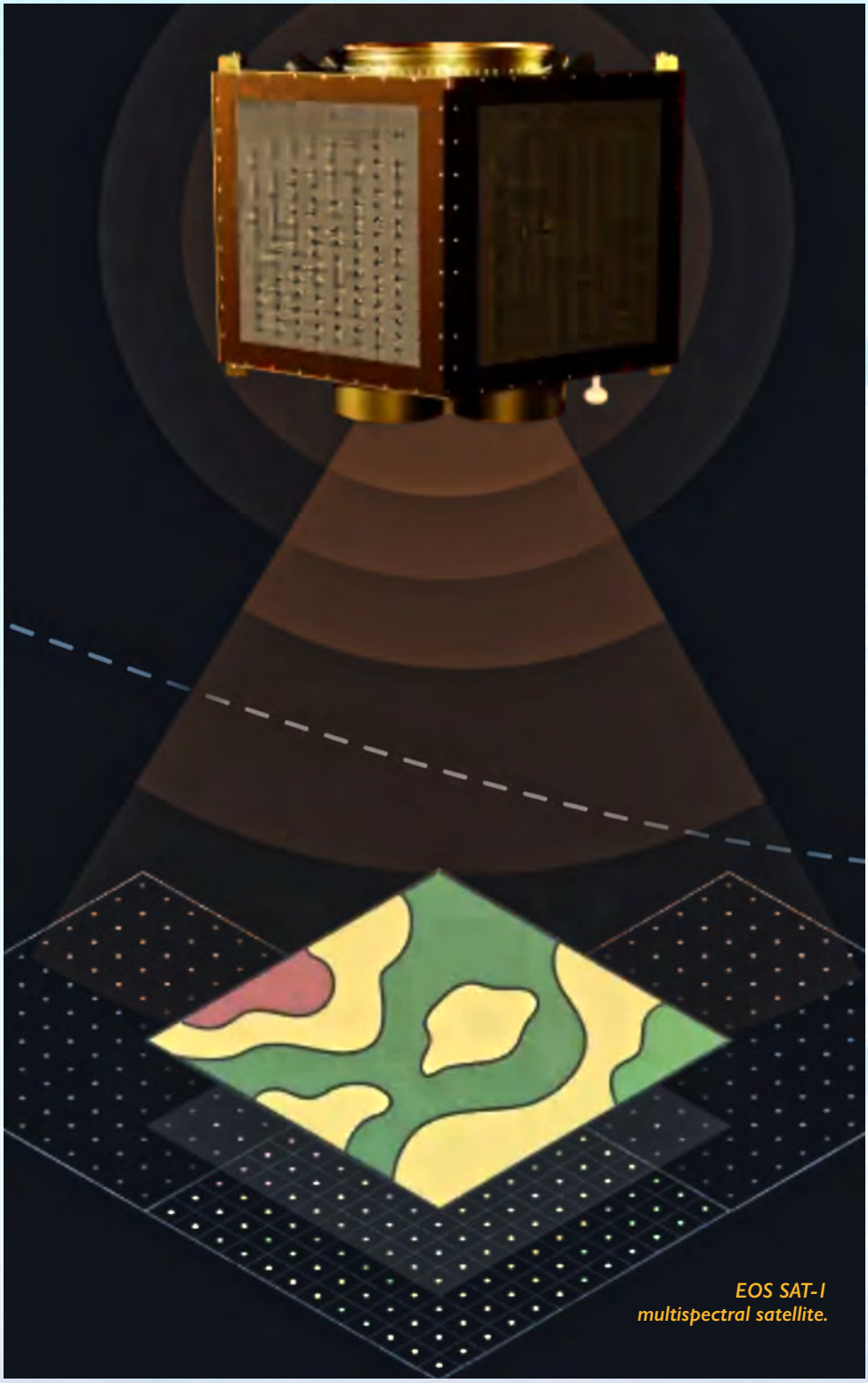
One of the most striking examples is ***Mount Etna*** in Italy, Europe's most active volcano, where satellites routinely track its frequent eruptions and lava flows.

In the Pacific, the ***Hunga Tonga-Hunga Ha'apai eruption*** in 2022 was one of the most powerful underwater eruptions ever recorded. Satellite imagery captured the massive ash cloud that reached the stratosphere and the pressure waves that circled the planet multiple times.

Meanwhile, in Indonesia, ***Mount Merapi,*** one of the most hazardous volcanoes on Earth, has been closely monitored using satellite data to detect changes in gas emissions and surface deformation, helping to issue timely evacuation warnings.

Even remote volcanoes, like ***Kilauea*** in Hawaii and ***Nyiragongo*** in the Democratic Republic of Congo, are observed from space, providing invaluable data on lava lake activity and ground instability.

Whether towering above cities or hidden beneath the sea, these restless giants are under constant watch, proving that no volcano, no matter how remote, is beyond our reach.



EOS SAT-1
multispectral satellite.

Look Into the future

As technology advances, the way we monitor volcanoes from space is evolving at an unprecedented pace. Today, satellites equipped with thermal imaging, gas sensors, and radar can track volcanic activity in near real-time.

But the future holds even greater promise. The integration of AI and machine learning is transforming how we analyze satellite data, making eruption predictions faster and more accurate than ever before.

With real-time satellite view, scientists will soon be able to detect even the most subtle signs of volcanic unrest before they escalate into full-scale eruptions.

AI-driven algorithms will automatically scan massive amounts of satellite data, identifying patterns that might go unnoticed by human analysts. This will allow for earlier and more precise warnings, giving people more time to evacuate and prepare for potential disasters.

New satellite missions, such as hyperspectral imaging systems, will also improve our ability to monitor volcanic gas emissions, while advanced radar technology will track ground deformation with millimeter precision.

These innovations will be particularly crucial for monitoring remote or underwater volcanoes, where traditional observation methods fall short.

In the coming years, satellites will not only help predict eruptions but also assess their impact in real time. High-resolution satellite live view of Earth will assist in disaster response, guiding emergency teams to the most affected areas and helping communities rebuild faster.

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EOS DATA ANALYTICS

Author Kateryna Sergieieva has a Ph.D. in information technologies and 15 years of experience in remote sensing. She is a scientist responsible for developing technologies for satellite monitoring and surface feature change detection. Kateryna is an author of more than 60 scientific publications.

KEEPING PACE WITH EVOLVING THREATS

Author: Simon Swift, Engineering Director - Digital Technologies at ETL Systems and Chair of the DIFI Specification Working Group

As the threat landscape and the nature of warfare continue to evolve, so, too, does the technology being trialed by global governments.

As part of the ***Future Soldier*** program, UK soldiers recently tested the next generation of body-worn technologies, aiming to, "*integrate available technology into wearable tech for soldiers, advancing battlefield awareness and allowing faster tactical decision making.*"

Other examples of new technologies being trialed included laser and drone thermal detection and ground sensors to detect enemy movement with alerts then sent to body-worn systems.

To effectively process all the additional data flying around the battlefield, a reliable, resilient, flexible—but most importantly secure —connection is needed, with those on the ground and in control centers making mission-critical decisions based on real-time data and information.

The question is, what impact does this have on both tactical and strategic ground stations and networks, and can they deliver what is now required?

Investment is set to increase—bandwidth must follow

One paper, published in 2022, emphasised that SATCOM was by far the biggest project within the UK's *Defence Space Strategy*.

SKYNET 6, the MOD's family of military communications satellites designed to provide strategic communication services to the UK Armed Forces, is at its center... "*this priority is by no means surprising – increasing bandwidth is critical as part of the integration into other domains, with new intelligence, surveillance, and reconnaissance (ISR) capabilities transmitting large amounts of data being just one example.*"

Increasing network capacity in line with growing demand across both government and enterprise markets is clearly a key priority, and something of which the ***Institute of Electrical and Electronics Engineers' (IEEE)*** is acutely aware.

Currently, the highest standardized rate of Ethernet available is 400 Gigabit per second (*Gb/s*). Positively, the 800G Ethernet standard, developed by the ***IEEE P802.3df Task Force***, was approved in February of 2024, with work on the 1.6 Tbit/s Ethernet also anticipated to be completed by the ***IEEE's 802.3dj Task Force*** in July of 2026—two big steps forward for the industry.

Both of these task forces were formed following the release of the ***IEEE's 802.3 2020 Ethernet Bandwidth Assessment***, where it was highlighted that bandwidth growth rates in 2025 were expected to have grown by 2.3 to 55.4 times the traffic levels that were experienced in 2017.

Now, we know that bandwidth growth rates did continue to increase, albeit at a slightly slower rate in 2024, owing to the ongoing thirst for consuming data on the move. According to one ***TeleGeography*** report, total international bandwidth now stands at 1,479 Tbps, representing a 4 year ***compound annual growth rate*** (**CAGR**) of 25%

Digitization will also have a big impact

In addition, SATCOM is entering a new era of digitization, both in space and on the ground. Digitizing the RF spectrum will help overcome many of the common hurdles associated with transporting

signals through analogue means, ensuring more flexible, reliable and resilient connectivity.

Last year, ***ETL Systems***' new technology, ***GENUS DIGITAL 5000***, was demonstrated at a major trade event. GENUS DIGITAL converts analog RF signals to IP and then back again on a live, satellite link, meeting ***Digital IF Interoperability (DIFI) Consortium*** 1.2 standards.

The company is already working on the development of a 'DIGITAL 1000' product line, aiming to bring the benefits of Digital IF to terminal/edge devices, which will also benefit government and defence organizations around the world. While this remains a nascent technology, there are significant benefits to digitization.

Preventing signal degradation

Those looking to deploy RF over fiber solutions will need to offset the problems that come with signal degradation and the inherent limit of the distances RF signals can travel from the antenna via the terrestrial networks. Unlike analog RF signals, no signal conditioning is required for an IP data stream.

Remoting antennas

Whether for ***intelligence, surveillance and reconnaissance*** (**ISR**), or communications purposes, there are many benefits to remoting the antenna away from human operators and classified or sensitive equipment.

Consider monitoring equipment overlooking a valley. A ***Light Electronic Warfare Team*** (**LEWT**) would always prefer to be dug in out of the line of fire, something that this technology is able to facilitate. For a communications link, increasing the distance between any RF emitter, which is vulnerable to ***direction finding*** (**DF**) and kinetic strike, will increase security.

Bringing the benefits of virtualization to the edge

Another key benefit of digitization is virtualization. Breaking the modem away from the hardware allows a tactical terminal to operate multiple waveforms using the same hardware. This brings significant advantages in terms of ***Size, Weight and Power*** (***SwaP***). The digitizer, as part of the future edge terminal and being waveform agnostic, allows multiple software modems servicing multiple satellite constellations.

Reducing the ground infrastructure

A key challenge for defense organizations is the infrastructure needed to support communication systems. When personnel are deployed on covert missions, or in remote locations, this challenge is heightened.

Those running RF signals over long distances—over fiber—require amplifiers, resulting in isolation challenges and return loss. By digitizing the signal, the number of antenna feeds is reduced. Instead of having a large/complex cable system exiting an antenna, only an Ethernet link is required.

Limiting interception to ensure information security

As digital signals do not radiate in the same way that analog signals do from coaxial cable, there's a further security benefit to digitization—the act of intercepting the signal becomes far more difficult.

Interestingly, there's much debate among the DIFI community about the topic of information security. As security requirements increase, so, too, does the cost, and there's also the added complexity of every country having different security algorithms, requirements, and mission deployments. Some believe that it's better to use dedicated network security appliances, with security grading appropriate to the mission in question, rather than embedding the cost of such capabilities into every connected device.

RF architecture won't become redundant

Whatever decisions are made, I'm certain that this new technology won't make traditional RF architecture redundant, especially for applications with less onerous security requirements. In some cases, analog RF will make the most sense—both for governments and commercial organizations—will be keen to maximize their existing investments.

Operators with large investments in analog RF processing equipment certainly won't be looking at an immediate requirement to switch to a digital environment. The flexibility of Digital IF technology will facilitate a gradual transition from analog equipment to the digital realm, leading to a hybrid approach in which both analog and digital technologies work in cooperation.

Looking ahead

Given the growing need for increased capacity, there's no doubt that ground stations and networks will continue to advance over the coming years, with government and military organisations likely to be early adopters as they look to combat new threats.

Investing in this area will enable reliable, resilient and secure connectivity, even in the harshest and most challenging locations, helping to keep personnel safe and improve intelligence gathering capabilities.

THE AUTONOMOUS AGE

2025 Tech Trends

Authors: NXTSL Editorial Team

Every passing year, technology innovations in defense applications grow more sophisticated. In 2025, industry experts predicted a surge in defense technology innovation fueled by advancements in artificial intelligence (AI), autonomous systems, and more.

The future of defense capabilities in the U.S. will depend largely on domestic innovation and trending technologies. Technical progression will fall by the wayside without a renewed focus on rapid prototyping.

Accessing technology for research and development can be challenging for government agencies. However, *Other Transaction Authority* (OTA)— a flexible government acquisition mechanism—streamlines this process so facilities can quickly access the needed R&D resources.

Each of 2025's tech trends, as listed below, and each will rely on using the **OTA**... here are some of those trends...

- ***AI Dominance**: AI is pervasive across domains, powering predictive maintenance for equipment, enhancing autonomous systems for land, sea, and air, and bolstering cybersecurity defenses against sophisticated threats.*
- ***Hypersonics**: The development of hypersonic weapons continues to be a priority, with OTA-funded projects exploring advanced materials, propulsion systems, and guidance technologies to achieve unprecedented speeds and maneuverability.*
- ***Space-Based Capabilities**: Space is increasingly recognized as a critical warfighting domain. OTA-enabled projects are pushing the boundaries of space situational awareness, satellite communications, and space-based weapons systems.*

OTAs are playing a part in developing each of these technology areas. An OTA is a contracting alternative that empowers the ***Department of Defense*** (**DoD**) to partner with non-traditional defense contractors, including startups and universities, that are often on the brink of the most cutting-edge technologies.

Projects Leveraging the OTA

- ***Hypersonics Testing Development**: The MACH-TB 2.0 project, powered by the S2MARTS OTA, is bridging the gap between ground testing of low Technology Readiness Level (TRL) technologies and full system flight testing of high TRL technologies. This will reduce overall hypersonic development risks and provide rapid innovative hypersonic technologies to the warfighter.*
- ***AI-Powered Logistics**: Space Systems Command, through the SpEC OTA, is funding the OPIR TAP Lab AI/ML Applications opportunity. This project will solve the challenges fueled by the introduction of machine learning (ML) and other artificial intelligence (AI) technologies to a variety of applications, including target detection, tracking, and characterization of infrared (IR) events.*
- ***Space Command & Control**: The **FORGE C2 prototyping project** will serve as the foundation for a government-owned, cyber-secure Modular Open Systems Approach (MOSA) for Missile Warning satellite command and control, including mission management, ground control, telemetry, tracking, and commanding. The next phase of FORGE C2 is expected to be awarded early in 2025. FORGE C2 is also powered by SpEC.*

In conclusion, the future of U.S. defense hinges on embracing rapid innovation, particularly in the realms of AI, hypersonics, and space.

The OTA is proving to be a crucial enabler, fostering collaboration with non-traditional defense contractors and accelerating the development of cutting-edge technologies. By leveraging OTAs, the DoD can navigate the complexities of modern warfare, ensuring that our military maintains a technological edge in an increasingly competitive global landscape.

NSTXL is focused on building a network of innovators and creators across the most sought-after emerging technology fields. Within the platform, NSTXL supports two OTAs, including the ***Strategic & Spectrum Missions Advanced Resilient Trusted Systems*** (**S2MARTS**) and ***Space Enterprise Consortium*** (**SpEC**). S²MARTS Research is creating a more connected and streamlined OTA ecosystem, uniquely positioned to better establish the relationship between research and prototyping.

NSTXL's experts are committed to helping government agencies capitalize on trends in emerging technology. Learn more about becoming an NSTXL member ***at this direct infolink...***

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EMERGING THREATS + THE ROLE OF COMMERCIAL SATCOM IN HOMELAND DEFENSE

Our southern border faces a novel and ever-changing threat environment. Satellite technology offers a promising solution.

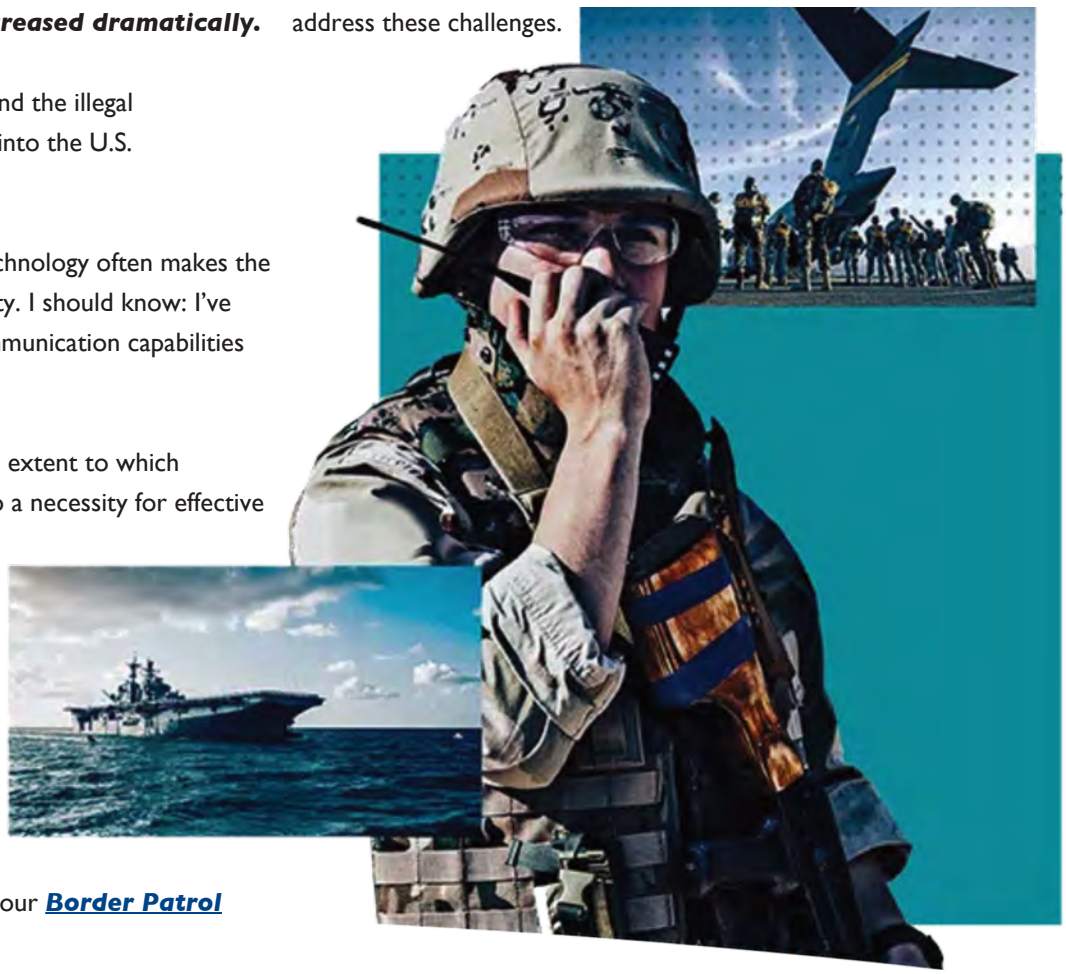
Author: Dave Broadbent, President of Government Solutions, Intelsat

In recent months, the crisis at the southern U.S. border has become top of mind for policymakers and U.S. citizens alike—illegal border crossings have increased dramatically.

Policymaker concerns around cartel activity and the illegal transportation of substances such as fentanyl into the U.S. have escalated.

In the complex theater of border security, technology often makes the difference between awareness and vulnerability. I should know: I've dedicated my career to advancing secure communication capabilities for our nation's most demanding missions.

In recent months, I've witnessed firsthand the extent to which connectivity has transformed from a luxury to a necessity for effective border operations.



Our southern border spans nearly 2,000 miles, much of it through territory where cellular networks are non-existent and terrestrial communications infrastructure is impractical to deploy.

In the rugged terrain of Arizona's deserts and the dense brush country of South Texas, our ***Border Patrol*** agents face unforgiving environments.

Traditional infrastructure simply cannot reach these remote areas, creating dangerous blind spots.

Speak with law enforcement agents on the ground, and you will find that their concerns are consistent. They need to coordinate responses across multiple agencies. They need to deploy surveillance technologies that can see what human eyes cannot—and increasingly, they need to process enormous amounts of data in real-time to make informed decisions.

They can do none of this without effective communications technology.

At ***Intelsat***, we've developed a wide range of multi-orbit, secure SATCOM managed services that have been specifically designed to address these challenges.

Our solutions provide the reliable high-throughput global coverage of our geostationary earth orbit space-and-ground network along with the high-speeds and low latencies of our *Low Earth Orbit* (**LEO**) network partners.

This means we are providing law enforcement agencies, as well as first responders, with the resilient, high-performing connectivity they require to stay connected to their missions.

The operational impact is transformative. At the sheriff's office in ***Cochise County, Arizona***, we recently deployed our ***multi-layer satellite communications system*** (**MLCS**).

Image is courtesy of Intelsat.

We've integrated satellite, cellular, and ground-tactical radio systems via a managed service that ensures seamless communication with the Sheriff's 911 dispatch center, even when officers are two miles away from their patrol vehicles.

Beyond ensuring more effective missions, these systems have shown the potential to make law enforcement officers safer in an ever-escalating threat environment.

The reality we must confront is that adversaries at the border are constantly evolving their tactics. They exploit gaps in our awareness and communications. They target the seams between agencies and jurisdictions. They operate in the shadows where our infrastructure is the weakest.

Ensuring that our law enforcement agents at the border have the best possible communications infrastructure isn't just about technology—it's about eliminating these vulnerabilities, ensuring that the dedicated men and women protecting our borders have tools that match or exceed those used by the threats they face.

As we look to confront our border security challenges head-on, I believe that three priorities should guide our approach to satellite communications infrastructure:

- ***First, we must invest in capacity. The volume of data required for modern border operations will only increase as more advanced sensors and analytics come online. Our satellite networks must be scaled accordingly.***
- ***Second, we must focus on interoperability. Border security involves multiple agencies at federal, state, and local levels. Satellite communications systems must facilitate seamless information sharing across these organizational boundaries.***
- ***Finally, we must remain agile. National security threats at our border have evolved rapidly, and our technology must move just as quickly. This requires close partnership between government and industry to ensure innovations in satellite communications are rapidly fielded where they're needed most.***

The security of our southern border is too important to be constrained by communications limitations. Through strategic deployment of satellite connectivity, we can ensure that remote geographies are no longer constrained by operational vulnerability.

The technology exists. The expertise is ready. What's needed now is the commitment to deploy these capabilities at the scale our border security demands.

Author Dave Broadbent is the President of Government Solutions at Intelsat, a leading provider of secure satellite communications to U.S. government and military customers.

David Broadbent

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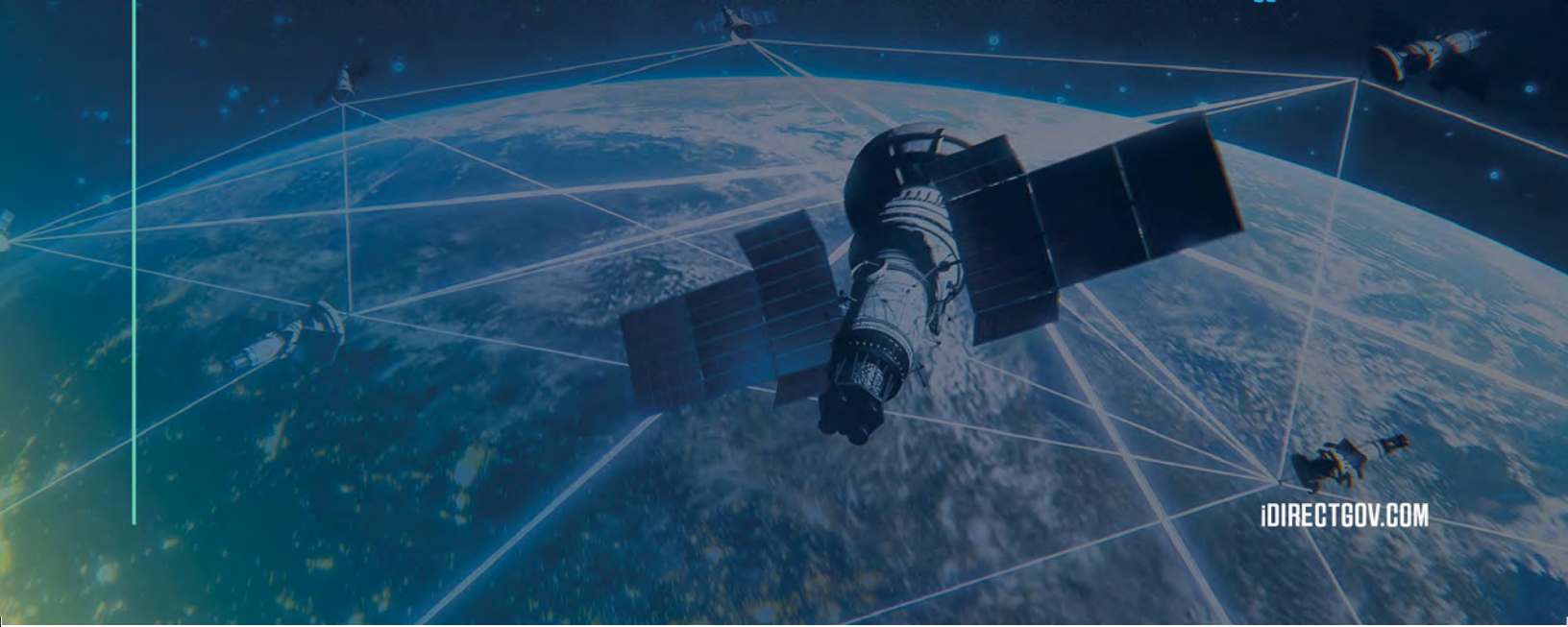

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