



SPACE FORCE ASSOCIATION
SPACEPOWER
MAGAZINE

Issue 13,
January 2025

A PUBLICATION OF THE SPACE FORCE ASSOCIATION



**Key Takeaways
from Gen B. Chance
Saltzman's Keynote**

**Guardians, Culture,
and the Future of
the Space Force: A
Keynote by CMSSF
Bentivegna**

**Small Launch, Big
Impact: Teamwork
and Innovation with
Lt. Col. Steve
Hendershot**



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SPACE FORCE ASSOCIATION SPACEPOWER CONFERENCE



**THANK YOU TO OUR
ATTENDEES & SPONSORS!**

SPACEPOWER CONFERENCE 2024 SHOWCASES INNOVATION AND STRATEGIC COLLABORATION

The Spacepower Conference 2024, hosted by the Space Force Association, reinforced its role as a premier platform for advancing spacepower through innovation, collaboration, and strategic dialogue.

This year's event featured a dynamic lineup of presentations from military leaders, industry pioneers, and government officials, highlighting cutting-edge advancements in space technology, operational strategies, and policy development. Discussions covered critical topics such as space architectures, space operations, and the integration of commercial capabilities into national defense strategies.

Collaboration was a key theme, with industry and government leaders coming together to explore new partnerships that will drive the future of space security. The exhibit hall featured groundbreaking technologies from a record number of sponsors and exhibitors, demonstrating the rapid evolution of the space industry and its role in supporting national defense initiatives.

As the space domain becomes increasingly contested and complex, the Spacepower Conference continues to serve as a vital forum for fostering innovation and strengthening partnerships that will shape the future of space operations.





A MESSAGE FROM OUR CEO

WILLIAM WOOLF

Dear SFA Members, Guardians, and Corporate Partners,

As we continue to expand our reach and impact, I want to take a moment to express my sincere gratitude for your unwavering support. The growth of the Space Force Association is a testament to the commitment of our members and the shared belief in advancing U.S. spacepower.

The success of this year's Spacepower Conference is a direct reflection of this incredible community. Your engagement—whether through insightful discussions, industry collaboration, or direct support—has strengthened our mission to champion the Guardians of the U.S. Space Force and drive innovation in the space domain. With every connection made and every conversation sparked, we are shaping the future of space operations and national security.

SFA's continued expansion allows us to provide even more opportunities for advocacy, professional development, and knowledge-sharing. The rebranding of SFA Magazine to ***Spacepower Magazine*** marks another milestone in our evolution, reinforcing our commitment to delivering critical insights and amplifying the voices shaping the future of space.

Looking ahead, we remain focused on growing our network, increasing our impact, and ensuring that the U.S. Space Force has the resources and support it needs to succeed. None of this would be possible without you—our dedicated members, Guardians, and Corporate Partners.

Thank you for being an essential part of this journey. Your contributions make a difference, and together, we are building a stronger space community.

Sincerely,

Bill

A handwritten signature in blue ink that reads 'Bill'.

William Woolf

CEO & Executive President

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LETTER FROM THE SPACEPOWER MAGAZINE EDITOR

KAREN LAWRIE



Dear SFA Members,

Thank you for your incredible support and participation in this year's Spacepower Conference! Your engagement, insights, and enthusiasm made it a truly impactful event, and we are grateful to have such a dedicated community advancing the mission of the U.S. Space Force.

As we continue to grow and evolve, I'm excited to share an important update: SFA Magazine is being rebranded as ***Spacepower Magazine***. This new name reflects our commitment to highlighting the critical role of space in national security and the innovative work being done across the space domain. ***Spacepower Magazine*** will continue to deliver the in-depth stories, analysis, and updates you rely on—now with a sharper focus on the future of spacepower.

We look forward to bringing you even more compelling content in the months ahead and, as always, we welcome your ideas and contributions. Thank you for being an essential part of this journey.

All the best,

Karen Lawrie

Editor, ***Spacepower Magazine*** and SFA Communications Manager
Space Force Association



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SFA Feature Article: Key Takeaways from Gen. B. Chance Saltzman's Keynote at Spacepower Conference 2024



KAREN LAWRIE,
SPACEPOWER MAGAZINE
EDITOR & COMMS MANAGER

As the United States Space Force (USSF) approached its fifth anniversary, Chief of Space Operations Gen. B. Chance Saltzman delivered a compelling keynote address at the Spacepower Conference 2024. His speech celebrated the rapid evolution of the Space Force while outlining key foundational principles that will guide its future. Here are important takeaways from his address.

Celebrating Five Years of Achievement

Gen. Saltzman reflected on the Space Force's impressive progress, from its modest beginnings of fewer than 100 Guardians to its current strength of nearly 15,000 personnel. This unprecedented growth has come with challenges, as the Space Force built an entirely new military branch from the ground up. Despite initial skepticism from outsiders, the service has successfully established its own field commands, service components, and institutions dedicated to space power.

Gen. Saltzman likened the Space Force's journey to climbing a mountain without a summit—an ongoing, ever-evolving mission rather than a destination. He emphasized that although the Space Force's foundational work is often unseen, it is critical for ensuring military readiness in space.

Establishing Core Truths of the Space Force

A major highlight of the keynote was Gen. Saltzman's articulation of six fundamental truths that define the Space Force's identity and mission:

1. Space Matters

Space is essential to national security and prosperity. The U.S. military and critical infrastructure rely heavily on space-based capabilities. Modern warfare cannot function without space assets, making it imperative to defend and sustain them.

2. Space Must Be Defended

As geopolitical tensions rise, adversaries such as Russia and China have expanded their counter-space capabilities, threatening U.S. assets. Gen. Saltzman underscored the need for constant vigilance and robust defense strategies to safeguard space-based operations.

3. We Must Be Ready to Deny Hostile Spacepower

China's rapid expansion of its satellite fleet underscores the growing threat to U.S. space superiority. The Space Force must ensure that adversarial forces cannot leverage space to undermine American and allied security.

4. Space is a Warfighting Domain

Space is not just a support function—it is an operational battlefield. Guardians must view space as a contested domain where they are responsible for securing and maintaining freedom of action.



5. Guardians Are Integral to the Joint Force

Space Force personnel are not merely service providers; they are integral to the joint military effort. Like their counterparts in the Army, Navy, Marines, and Air Force, Guardians must be prepared to execute offensive and defensive operations in their domain.

6. Guardians Are the Preeminent Space Warfighters

The Space Force is the only military service dedicated to training warfighters exclusively for space superiority. Through specialized education and career-long development, Guardians will ensure that the U.S. remains dominant in space.

Achievements and Future Challenges

Among the Space Force's notable accomplishments, Gen Saltzman highlighted the implementation of the Space Force Generation Model, a shift from providing passive space services to actively training and preparing for contested space operations. This model represents a significant departure from legacy approaches and is a major step toward a warfighting-ready Space Force.

Despite these achievements, challenges remain. The Space Force continues to operate with limited resources while refining its operational readiness. Gen Saltzman acknowledged that, like all military branches, the Space Force is constantly evolving to meet new threats and operational demands.

Defining the Guardian Identity

Beyond technological advancements and structural growth, Gen. Saltzman emphasized the importance of fostering a strong Guardian identity. Unlike other military branches, the Space Force's culture is still taking shape, and Guardians play a crucial role in defining what it means to serve in this domain.

The general encouraged Guardians to internalize the six truths and embody them in their daily operations. He called upon service members to educate others, advocate for the Space Force's mission, and stand firm in their warfighting responsibilities.

Conclusion: A Call to Action

As the Space Force looks to the future, Gen. Saltzman's message was clear: The challenges ahead are significant, but the foundations have been laid for a strong and resilient force. He urged Guardians to take pride in their work, recognize their achievements, and remain steadfast in their mission to secure space for the United States and its allies.

The Space Force's first five years have been marked by rapid progress and groundbreaking achievements. As it moves forward, the service's commitment to space superiority and warfighting excellence will be more critical than ever. Through unity, dedication, and a clear vision, Guardians will continue to shape the future of military space power.



SFA Feature Article: Guardians, Culture, and the Future of the Space Force: A Keynote by CMSSF John F. Bentivegna



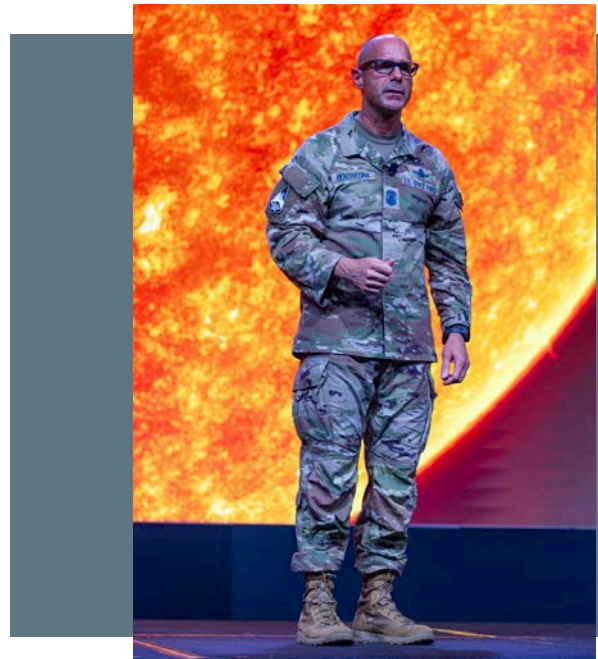
KAREN LAWRIE,
SPACEPOWER MAGAZINE
EDITOR & COMMS MANAGER

At the recent Spacepower Conference hosted by the Space Force Association (SFA), Chief Master Sergeant of the Space Force (CMSSF) John Bentivegna delivered a compelling keynote address centered on the evolving culture of the United States Space Force (USSF). His speech, which highlighted the "Guardian Experience," emphasized the importance of fostering a strong, mission-driven culture within the force. He showcased individual Guardians who are engaged in enhancing the professional and personal lives of Guardians while reinforcing the Space Force's identity as a warfighting entity in an increasingly contested domain.

Elevate the Journey:

CMSSF Bentivegna underscored the Space Force's commitment to improving quality of life and service for Guardians and their families. He recognized several key initiatives that have enhanced morale and strengthened the service's culture.

- **Tech Sergeant Brian Schamb**s was recognized for his "Mentor Minutes," which focused on leadership, resilience, and determination, leading to high morale within his team. These mentoring sessions also encouraged Guardians to apply lessons to both their professional and personal lives.
- **Specialist Jyiquallynn Carter**, a transmission controller, was highlighted for his passion and dedication. Despite being a specialist, he has taken on significant responsibilities, including operating the communications weapon system for nuclear command and control.



Additionally, the Guardian resilience teams, or "Grit Teams," focus on the holistic well-being of service members. These teams integrate physical, mental, and spiritual health resources to ensure that Guardians are fully prepared to meet mission demands. By collaborating with Air Force Operational Support teams, they have established supportive environments to promote resilience and camaraderie.

Cultivate the Warfighter:

CMSSF Bentivegna emphasized that the Space Force must embrace its role as a warfighting service, not just a support entity. He highlighted various efforts that are actively shaping the warfighter mindset within the force.

- **Captain Joshua Hatfield** was praised for his work in developing a baseline program to inform combat crews about threats and tactical responses at an early warning radar site. He also built relationships across various units and labs which enhance operational readiness and strengthen inter-unit collaboration.
- **Tech Sergeant Robert Camblin** was recognized for his work designing professional military education for transitioning Guardians. He leveraged his experience in intelligence to develop skill sets in leadership and critical thinking for the fellows.



The growth of Space Flag, a training exercise that includes cyber threats and operational business integration, plays a vital role in warfighter development. He praised the leaders, **TSgt Robert Hero**, Space Flag Director, and **Sgt Conor Aldridge**, Battle Lab Director, emphasizing how they are delivering vital and realistic training, ensuring they are prepared for the evolving landscape of space warfare.

Create the Future:

Looking ahead, CMSSF Bentivegna stressed the importance of partnerships and technological advancements in securing the Space Force's future. He highlighted initiatives that are driving innovation and collaboration across the industry.

- **2d Lt Anna Ford** was recognized for her work fostering relationships with industry partners to incorporate cutting-edge expertise and training opportunities. These partnerships enhance the Space Force's capabilities and ensure that Guardians stay at the forefront of advancements.

- **TSgt Lee Harder** and his team won a Space Force AI challenge using AI to optimize cyber operations, allowing operators to focus on warfighting tasks. Integration of AI demonstrates the Space Force's commitment to harnessing emerging technologies to improve operational effectiveness.

- **Spc2 Ella Chan** was lauded for her self-directed learning in coding, which is helping to improve intelligence analysis. By fostering a culture of continuous learning and adaptation, the Space Force ensures that its personnel remain agile and innovative.

Foster a Supportive Culture:

CMSSF Bentivegna concluded his keynote by reiterating the importance of fostering a supportive culture within the Space Force. He reminded Guardians that they are part of a close-knit family and emphasized that while the Space Force has made remarkable strides in its first five years, there is still ample room for growth and development.

Conclusion:

CMSSF Bentivegna's keynote at the Spacepower Conference reinforced the Space Force's dedication to cultivating a culture of excellence, resilience, and warfighting readiness. By highlighting key initiatives and outlining the future of the force, he painted a compelling vision for the service. Through mentorship, training, innovation, and unwavering support for its members, the Space Force continues to solidify its role as the guardian of the nation's space capabilities.



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BY



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- TRL 9, fully commercial software
 - Operational in 30-90 days
- a product, not a project

HIGH ACCURACY

- 25-50m in LEO
 - 50-100m in GEO
- make confident predictions

LOW LATENCY

- 5-10 min from observation receipt
- get actionable information, in time

ON-PREMISES

- Private servers or cloud-based
 - Behind your firewall
- proprietary catalog, proprietary analysis

ALL ORBITS

- LEO, MEO, GEO
 - Cislunar
- harmonized across regimes

ALL SENSORS

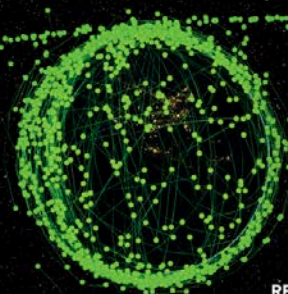
- Optical, radar, RF
 - Ground and space-based
 - Owner/operator ranging and GNSS
- natively process and fuse all data

HIGH CAPACITY

- 100,000+ objects
- track everything

REALISTIC COVARIANCE

- Accounts for maneuvers
 - No scale factor
- know how well you know



Spacepower Conference 2024: Honoring Guardians and SFA's 5-Year Milestone

Mike Wasson, VP and General Manager, COMSPOC

At this year's Spacepower conference, COMSPOC was excited to see how substantially the event has grown in just its second year. The thought-provoking agenda for 2024 and the esteemed selection of keynote speakers underscored the growing importance of this conference and of the Space Force Association more broadly.

At COMSPOC, we admire and support SFA's mission to ensure that the U.S. Space Force maintains "superior national space power." We believe that one key element to fulfilling this vision is that our nation's Guardians must be equipped with the finest technology — including integrated commercial solutions.

Our booth at Spacepower 2024 featured two of our commercial SSA solutions: SSASuite and Spacebook. SSASuite is a turnkey (TRL-9), on-premises SSA solution that powers an entire operations center with SSA capabilities, workflows, catalog maintenance, and actionable reports. Spacebook represents the next generation of internet-based SSA services, offering free data downloads, analysis, and powerful visualization with Cesium. Together, they reflect our commitment to a space domain in which everything is detected, tracked, characterized, and protected.

We look forward to attending Spacepower and celebrating the U.S. Space Force's birthday for many Decembers to come, and we hope to be an increasingly valuable partner in fulfilling the mission of the Space Force Association and the many missions of the Space Force and its Guardians.



Small Launch, Big Impact: Teamwork and Innovation with Lt. Col. Steve Hendershot

SFA FEATURE INTERVIEW



BY MARTIN AMEN,
SFA FLORIDA PRESIDENT

A Dynamic Conversation on Leadership, Responsiveness, and the Future of Space Operations

In this exclusive interview, Space Force Association Magazine's Martin Amen, Florida Chapter President, sits with Lt. Col. Steve Hendershot, Chief of the Small Launch and Targets Division and Materiel Leader of the Rocket Systems Launch Program (RSLP) at Space Systems Command (SSC). Together, they delve into the RSLP's pivotal role in advancing responsive space operations, focusing on its innovative and cost-effective approaches to tackling emerging challenges. With a history dating back to 1972, RSLP boasts over 737 launches and an impressive 99% success rate, underscoring its motto: "Small Launch, Big Impact."

Key Topics:

- **Tactically Responsive Space:** Breaking new ground with missions like VICTUS NOX, achieving rapid launch readiness within 27 hours.
- **Repurposing Decommissioned ICBMs:** Transforming Minuteman and Peacekeeper missiles into launch vehicles, extending their utility for national security.
- **Leadership Development:** How young officers are entrusted with critical responsibilities to grow as leaders.
- **Future of Space Innovation:** Exploring partnerships with emerging launch providers to enhance U.S. space superiority.



Lt Col Steve Hendershot defining the Rocket Systems Launch Program and future of tactically responsive space and innovation

Lt. Col. Hendershot shares his division's unwavering commitment to providing flexible, cost-effective small launch solutions that empower the Department of Defense and the U.S. Space Force to adapt to emerging challenges.

Leadership and Mission Alignment

Martin Amen (MA): When I initially considered interviewing Col. Matthew Flahive, he redirected me to you, stating the incredible impact your team is making with RSLP. That speaks volumes about his leadership. What's your perspective?

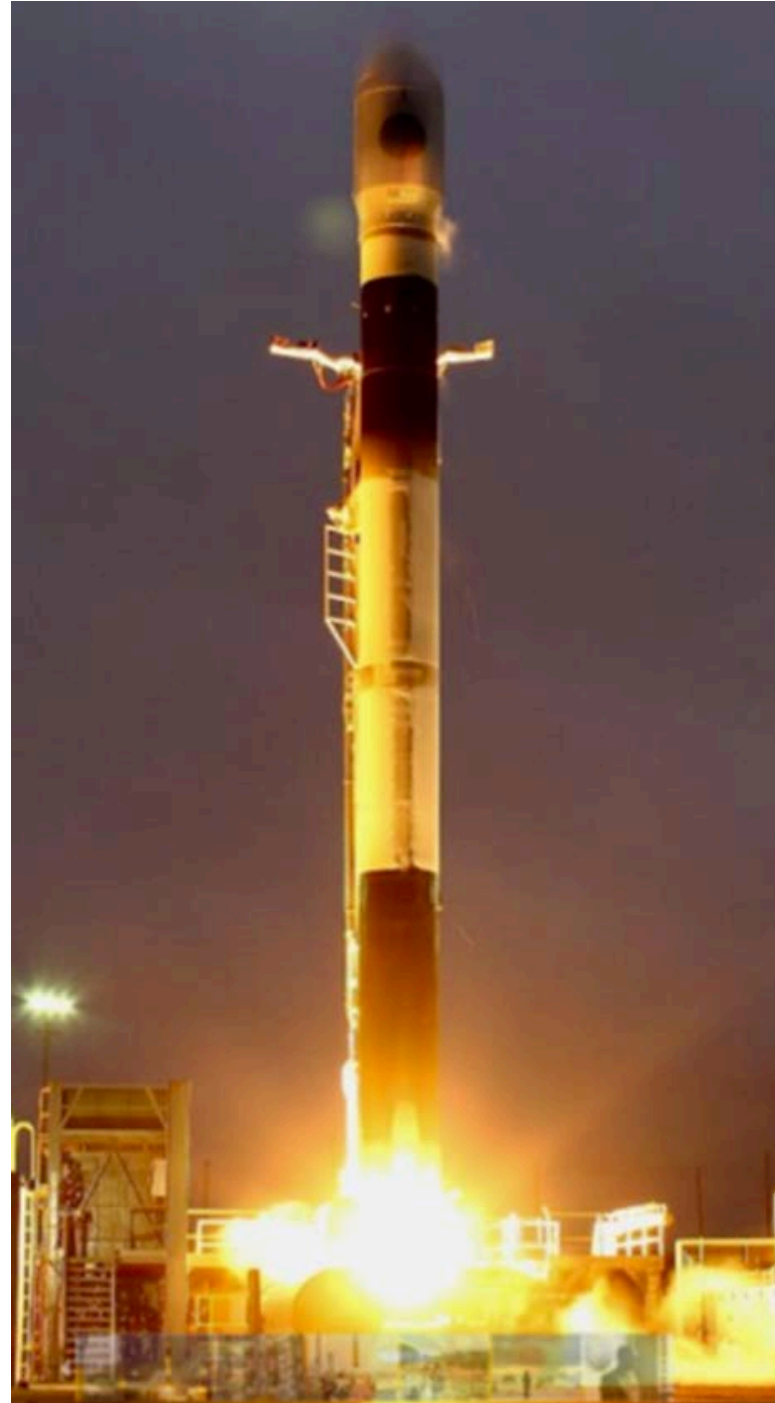
Lt. Col. Steve Hendershot (SH): Col. Flahive epitomizes servant leadership. He focuses on empowering his team and giving us the operational freedom to succeed. He provides the top cover we need while allowing us to focus on mission execution. The Launch Mission Solutions Delta, where we operate, is charged to acquire the full spectrum of launch solutions to deliver warfighting capabilities to the Joint Force. Within that structure, our team specializes in matching launch services to our customers' needs and risk posture and having the ability to provide and reuse intercontinental ballistic missiles (ICBMs) assets when appropriate.

Our division consists of small launch experts with a two-fold mission. We provide custom launch solutions, both orbital and sub-orbital, on a customer-funded basis. We also offer secure, safe storage of the nation's decommissioned intercontinental ballistic missiles. Think Minuteman II, Minuteman III, and Peacekeepers. We're not only storing those for the Department or the DoD; we repurpose some of these into launch solutions that give these critical assets another use. We've got an interesting two-fold mission at RSLP that aligns with Col Flahive's Delta.



The Evolution of the Rocket Systems Launch Program

MA: Since its establishment in 1972, how has the RSLP adapted to meet the changing needs of national defense?

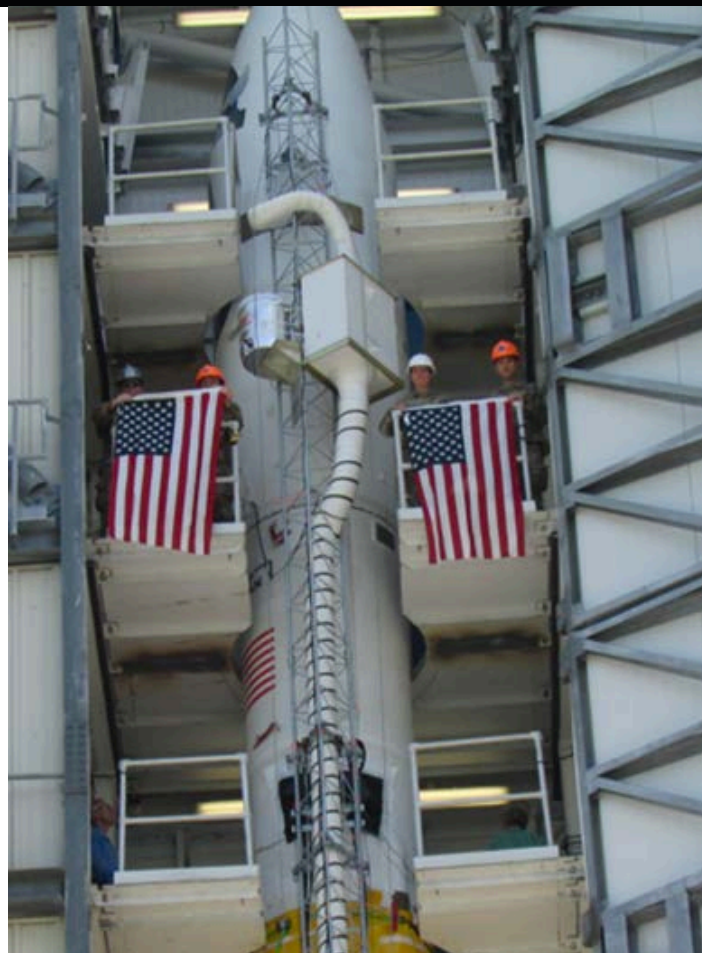


VICTUS NOX set a record for responsiveness in September 2023, "...From the warehouse to on-orbit capability in a week.." - Gen B. Chance Saltzman

SH: The cornerstone of RSLP is its flexibility. Initially established by the Secretary of Defense in 1972 as the Re-entry System Launch Program, it quickly expanded beyond re-entry systems to support broader launch needs. This evolution prompted a name change to the Rocket Systems Launch Program. Over the decades, RSLP has supported various missions, from launching Minuteman-based targets from C-17 aircraft to utilizing Peacekeeper stages for testing NASA's Orion Abort System. Today, RSLP complements the National Security Space Launch (NSSL) program, offering tailored solutions for developmental, demonstration, and operational space vehicles and sub-orbital and orbital research, development, and test efforts.

MA: What role does this adaptability play in maintaining operational readiness?

SH: Adaptability is everything. Our ability to pivot in response to new threats or shifting priorities ensures that we efficiently meet the warfighter's needs. Whether integrating a new payload or reconfiguring a launch plan, our team's agility is crucial to delivering results without compromising reliability. Our use of Indefinite Delivery/Indefinite Quantity (IDIQ) contracts further strengthens this adaptability. These contracts allow us to meet diverse customer needs, from experiments and re-entry vehicles to targets and satellites. Our contracts are responsive and can meet any emerging needs a warfighter may have to achieve capability on orbit or down range.



RSLP members preparing for the NROL-111 mission (Minotaur I), launched successfully from Wallops Flight Facility in Virginia in June of 2021

Tactically Responsive Space

MA: Tactically responsive space is a growing priority. How does RSLP support this initiative?

SH: Tactically responsive space is about delivering space capabilities on demand to address emerging threats. We've demonstrated this capability with our mission partners with two key missions: TacRL-2 in 2021 and VICTUS NOX in 2023. TacRL-2 achieved integration and launch within 21 days. For VICTUS NOX, we pushed the boundaries further by completing payload fueling, stacking, and launching in just 27 hours. These milestones emphasize that responsive space operations require more than speed—they demand seamless coordination across satellites, ground systems, and operational protocols.



RSLP's Marty Moore (left) and 1Lt John Willingham (right: Mission Manager) in front of the Mk21-2 LV at Vandenberg Space Force Base in June of 2024

MA: Can you elaborate on how this capability developed?

SH: Tactically responsive space has its roots at Kirtland Air Force Base, NM, where RSLP resides, with predecessor organizations now folded into the Space Safari organization, which has the overall lead for discipline. Going back, the initial efforts in responsive space were driven by congressional funding and focused on creating rapid-launch capabilities. TacRL-2, for instance, utilized Northrop Grumman's Pegasus Air Launch System to achieve a 21-day integration-to-launch timeline. This success built the foundation for the VICTUS NOX mission in 2023, where we reduced the timeframe to an unprecedented 27 hours.

MA: I have read that RSLP provides a jumping-off point for some new entrants, who can compete for others later after proving themselves. Can you elaborate?

SH: One of the other unwritten missions down here is that we are the incubator of the launch industrial base. We take on new emerging providers and work with them as they develop their capabilities. Many firsts have been flown that we helped foster in some way—the Falcon 1 flew with RSLP, the Falcon 9 flew with RSLP, and the Falcon Heavy flew with RSLP. There are many other unique missions, but the OSP contracts complement our other acquisitions within the launch enterprise. The OSP contracts are IDIQ contracts with a very low minimum barrier to entry. We have 12 different providers on OSP-4 right now, allowing these emerging launch vehicle providers to launch with us for the first time, learn mission assurance processes, and grow their capabilities.

They can compete for NSSL Phase Three contracts and missions with launches under their belts. That contract approach, with responsive and tailorable mission assurance, is the entry point for these providers. We also share lessons learned across the industrial base, which enhances their ability to launch critical missions. It's rewarding to see these companies grow and contribute to national security.

Repurposing Decommissioned ICBMs

MA: Repurposing ICBMs is one of RSLP's most unique capabilities. Could you elaborate on this aspect of your mission?

SH: Certainly. We manage around 500 motors from decommissioned Minuteman II, Minuteman III, and Peacekeeper missiles. These motors are stored securely and undergo rigorous aging surveillance to ensure they remain viable. We provide cost-effective solutions for various missions by repurposing them into launch vehicles. This extends the utility of these assets and supports sustainability by reusing existing resources.

MA: Can you share a specific example of a successful ICBM repurpose?

SH: There are too many to count. RSLP regularly demonstrates how legacy systems could be adapted using a repurposed ICBM motor for modern requirements. These missions underscore our ability to leverage existing assets to meet evolving needs efficiently and effectively. Moreover, these efforts highlight how we maximize taxpayer investments by extending the lifecycle of these assets.

MA: How do you address the challenges posed by aging components?

SH: Our engineers and mission assurance experts regularly inspect and test these motors to meet modern safety and performance standards. This meticulous approach allows us to integrate older components into cutting-edge missions confidently. Furthermore, we've established partnerships with industry experts to innovate ways to rejuvenate and repurpose these components for extended use.

Addressing Range Availability

MA: With increasing demand for launch ranges, how is RSLP contributing to alleviating bottlenecks?

SH: We've worked with these sites for over 20 years, and since 2017, we've invested approximately \$125 million to enhance the capabilities of state-owned spaceports like Pacific Spaceport Complex – Alaska (PSCA) at Kodiak, Alaska, and Mid-Atlantic Regional Spaceport (MARS) at Wallops Island, Virginia. These upgrades increase throughput and reduce dependency on heavily utilized sites like Cape Canaveral and Vandenberg. Our approach optimizes existing infrastructure to ensure mission readiness while maintaining flexibility.

MA: Are there plans to expand the range capabilities further?

SH: We're exploring partnerships with additional spaceports and investing in technologies that streamline operations. The goal is to create a network of launch sites capable of supporting responsive missions with minimal delay. This includes upgrading infrastructure, improving coordination with commercial partners, and integrating new technologies to ensure efficient scheduling and execution.

Building the Launch Industrial Base

MA: How does RSLP support the growth of the U.S. launch industrial base?

SH: RSLP acts as an incubator for emerging launch providers. Through contracts like OSP-4, we enable new entrants to gain critical experience with relatively low barriers to entry. RSLP supported many industry firsts, including Falcon 1, Falcon 9, and Falcon Heavy launches. By fostering competition and innovation, we ensure the industrial base remains robust and capable of meeting future demands.

MA: How do you balance fostering innovation with maintaining mission assurance?

SH: Our tailored mission assurance processes balance encouraging innovation and minimizing risk. They're a structured, tiered approach shared with each provider and tailored to each mission's needs. This does more than give transparency; it allows providers to push the boundaries of technology while ensuring the reliability and safety of each mission. Additionally, we're committed to sharing lessons learned to enhance the capabilities of emerging providers and strengthen the industrial base.



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Operationally Responsive Space 1 Rocket (OSR-1) sits on the launch pad at Wallops Island Launch Facility in Virginia

Empowering the Next Generation

MA: General Saltzman mandated leadership training, acknowledging a gap in space knowledge. I recently interviewed General Sejba (*SFA Magazine, Pre-Spacepower Issue, December 2024*), who highlighted the challenge of getting Guardians trained to step into action-oriented roles like yours. From your perspective, how is the Space Force addressing these training needs?

SH: The Officer Training Course (OTC) is a new initiative to provide a baseline understanding of the Space Force's mission. When I started, I gained similar foundational knowledge courses I took at USAFA, such as astronautical engineering, and through formal training, like Space 100. Establishing a standard training pipeline ensures every Guardian—whether they're space operators, intelligence officers, cyber specialists, or acquisition professionals like me—shares a common lexicon and understanding of the mission.

MA: How does hands-on experience play into this?

SH: It's invaluable. One of the best training tools is operational tours, where Guardians can observe firsthand how the mission unfolds daily. For acquisition professionals, this insight is crucial. Understanding the end-user's requirements and how decisions impact operations significantly affect how we approach our roles. RSLP was recently designated as an operationally related organization, so we'll soon receive OTC graduates. I'm excited to integrate these newly trained Guardians and give them real-world experience working on critical missions.

MA: What do you foresee for the future of training?

SH: The Space Force is on a strong trajectory. By aligning training programs with operational needs and fostering a culture of continuous learning, we're building a workforce ready to tackle the challenges of space operations. The motivated individuals coming through our ranks inspire confidence in our ability to innovate and lead.

Advancing Space Innovation

MA: How does RSLP stay agile in a rapidly evolving industry?

SH: The biggest takeaway is the importance of alignment among all stakeholders—from payload developers to launch providers and mission operators. Responsive space isn't just about rapid deployment or launch; it's about ensuring every piece of the puzzle fits perfectly – the SV, ground, CONOPS, and TTPs. These missions also highlight the value of advanced planning and pre-staging resources. Refining our processes sets a new standard for how quickly and efficiently space capabilities can be deployed. Our collaboration with partners like Space Safari has been instrumental in achieving these milestones.

Balancing Work and Life

MA: How do you balance the demands of your role with your personal life?

SH: My wife and 17-month-old son are my everything. Spending time with them helps me decompress and maintain perspective. Living close to work allows me to prioritize what matters most. I also enjoy hiking, skiing, and exploring the outdoors in Albuquerque and New Mexico, which are great ways to recharge.

MA: Do you have a favorite book that inspired your leadership approach?

SH: Absolutely. One of my favorite books is *The Boys in the Boat* by Daniel James Brown. It's about the University of Washington rowing team that overcame incredible odds to win Olympic gold in 1936. The story highlights the importance of teamwork, trust, and perseverance, which resonate deeply with me. It's a great reminder that individual effort is essential, but true magic happens when everyone works together seamlessly. When the Team succeeds, we all succeed. That's a principle I strive to uphold within RSLP.



Lt Col Hendershot on a hike in Arizona



Lt Col Hendershot and family hiking in New Mexico

Lt Col Hendershot and family hiking in New Mexico

MA: What a great mission and division. Final thoughts?

SH: I'm honored and humbled to lead such an incredible Team. RSLP's mission is to provide a perfect blend of acquisition and operations. It is diverse and profoundly impacts national security. Together, we're shaping the future of launch and responsive space operations while inspiring the next generation of leaders.

RSLP's contributions to national security and space innovation underscore the importance of teamwork, flexibility, and leadership. Since 1972, as the Space Force's trusted small launch experts, RSLP has paved the way for responsive and agile space operations. Small Launch, Big Impact.





US Space Command: Adapting to Modern Threats in the Space Domain

SFA FEATURE ARTICLE



KAREN LAWRIE,
SPACEPOWER MAGAZINE EDITOR
& COMMUNICATIONS MANAGER

At the recent Spacepower Conference, General Stephen N. Whiting, Commander of U.S. Space Command (USSPACECOM), underscored the critical role of USSPACECOM and the U.S. Space Force (USSF) in countering the rapidly evolving threats in space. He emphasized that the space domain is no longer a benign environment, and the threats once considered distant concerns are now operational realities.

A Joint Approach to Space Operations: Gen. Whiting highlighted the unique and vital partnership between the USSF, a service dedicated to space operations, and USSPACECOM, the combatant command responsible for executing those operations. He reinforced that their success is deeply intertwined within the broader Joint Force, which integrates all military services through common operational principles known as the Joint Functions: intelligence, information operations, command and control, fires, protection, movement and maneuver, and sustainment.



Strengthening Intelligence Capabilities: Understanding the space domain requires robust intelligence capabilities. USSPACECOM has significantly enhanced its intelligence posture, expanding its J2 directorate to nearly 600 personnel. This growth has been complemented by intelligence operations at the Combined Space Operations Center, the National Space Defense Center, and key agencies. Gen. Whiting highlighted (con't.)

General Whiting, USSPACECOM Commander tours the Exhibit Hall at Spacepower Conference



advancements like Ion Trail, a machine learning tool for space order-of-battle assessment, and a 24/7 rapid analysis cell, which have bolstered the command's ability to detect, track, and respond to space threats.

Expanding Information Operations and International Cooperation: Space is a strategic domain requiring comprehensive information operations. USSPACECOM has prioritized improved battlespace awareness by integrating new capabilities such as Silent Barker, a space domain awareness system, and the Deep Space Advanced Radar Concept (DARC). The command has also strengthened international partnerships through initiatives like Operation Olympic Defender, now a seven-nation coalition, and the Joint Commercial Operations cell (JCO), which includes 19 international partners. Additionally, a new Department of Defense space security classification policy aims to enhance information sharing, ensuring allies and commercial partners can better contribute to the space mission.

Command and Control (C2): Gen. Whiting declared 2025 as the year of Command and Control as a top priority. The establishment of U.S. Space Forces Space (S4S) ensures that operational capabilities are effectively presented to USSPACECOM. Lt. Gen. Douglas A. Schiess, has been designated the Commander of S4S and the Combined Joint Force Space Component to lead space operations at the operational and tactical levels. USSPACECOM is also refining space operations control measures to integrate all Joint Force elements safely. Gen. Whiting emphasized the need to update the strategic space C2 concept of operations, close kill chain gaps, and determine whether space should be treated as a single operational domain or segmented into Low Earth Orbit (LEO), Geosynchronous Orbit (GEO), and cislunar space.

Enhancing Fires and Protection in Space: Gen. Whiting reiterated that improving defensive and offensive capabilities in space is essential. USSPACECOM has prioritized space-based fires to ensure the protection of U.S. and allied assets and to deter adversarial actions. Protection efforts now include commercial and allied capabilities, with an expanded Commercial Integration Cell to safeguard commercial entities supporting the Department of Defense and the Intelligence Community. With increasing global missile threats, space-based missile defense has also become a critical area of focus.



Advancing Space Maneuverability and Sustainment: Movement and maneuver in space require further development, particularly in the realm of on-orbit refueling. USSPACECOM is actively exploring these capabilities to enable maneuver without constraint, much like aerial refueling revolutionized airpower. Sustainment is another key priority, with ongoing efforts to standardize data collection and maintenance practices. Additionally, coordination with the Space Force on the Commercial Augmentation Space Reserve (CASR) is ensuring that commercial assets can be effectively integrated into military operations when needed.

Facing the Future: A Call to Action: Gen. Whiting concluded by stressing that threats in space are becoming more lethal, complex, and democratized, with competitors actively preparing for conflict in this domain. He underscored the importance of integrating commercial capabilities into military operations, refining joint planning processes, and adapting to emerging threats. With confidence in the talent and innovation of USSPACECOM's personnel, he affirmed that the command is prepared to meet the challenges ahead and secure U.S. interests in space.

The message from Gen. Whiting was clear: ***adapting, innovating, and collaborating*** will be the key drivers of success in the space domain. As threats evolve, so too must USSPACECOM's strategies, ensuring that the United States maintains superiority in this critical warfighting domain.



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To learn more contact us at: support@newsatna.com.

SFA Women in Space Highlight: Samantha "Combo" Weeks: Breaking Barriers in Aviation and Space Exploration



BY SIERRA POLLARD, SFA
WOMEN IN SPACE
MARKETING CHAIR

Samantha "Combo" Weeks is no stranger to breaking barriers. From becoming the first female solo demonstration pilot for the Air Force Thunderbirds to leading groundbreaking space missions with the Polaris Program, her career is defined by a relentless pursuit of excellence and an unwavering belief in the potential of future generations. I had the privilege of speaking with her about her remarkable journey, leadership lessons, and her vision for the future of space exploration.



"Being the first female solo pilot in the Thunderbirds allowed me to showcase to the next generation what women can do."

For Samantha, joining the Thunderbirds was a dream realized, but being the first female solo pilot in the team carried with it an additional layer of responsibility and pride. "Being a Thunderbird was truly an honor and thrill of a lifetime," she said. "Happening to be the first female solo was just an expansion of the opportunity to showcase all those who volunteer to serve in the Air Force and allowed me to share my journey of having a dream and working hard to achieve it." Samantha's role as a trailblazer was not just about personal achievement, but about inspiring young girls and boys watching her at airshows. A few girls, she shared, have since gone on to pursue their own dreams and become pilots themselves.



Leadership has been central to Samantha's career, and her time overseeing the Air Force's largest pilot training base taught her valuable lessons about personal growth and effective leadership. "Everyone, but especially the leader, must be willing to learn and grow," she explained. "Self-reflection is critical to a growth mindset. We can all be better tomorrow than we are today, but it requires us to look in the mirror, assess, and act!" As a leader, Samantha emphasizes the importance of listening and being fully present to those you lead, even when you have a thousand other things on your plate. "I learned that a leader must listen and be fully present. When someone asks for your time, be there for them," she added, underscoring the importance of empathy and active engagement in leadership.

Samantha's leadership style evolved as she transitioned from the military to the corporate world, specifically during her time at Shift4. In the corporate sector, she focused on developing programs and processes that contributed to significant growth. "My contribution to the growth of Shift4 was really about developing programs, processes, and people to be more effective and efficient," she said. Under her leadership, departments like program management, human resources, and internal communications matured, helping Shift4 double its revenue in just three years. When reflecting on the differences between military and corporate leadership, Samantha noted that each organization has its own unique culture. "It's not about military versus corporate leadership; it's about understanding the organization, its people, and where it wants to go," she said. "A leader must be adaptable, listen first, and collaborate to develop the best plan to achieve the organization's goals."

Today, Samantha is focused on a new frontier: space exploration. As part of the Polaris Program, she is working with Jared Isaacman to rapidly advance human spaceflight capabilities. The Polaris Program aims to push the boundaries of what is possible in space, and Samantha is excited to be part of that effort. "The purpose of the Polaris Program motivates and inspires me. Jared Isaacman is a visionary, and this program is about advancing human spaceflight in ways that will impact the world," Samantha said. Beyond the scientific goals, the program also supports important causes, such as raising awareness and funds for childhood cancer research through its partnership with St. Jude's Children's Research Hospital®. Samantha also sees human spaceflight as the next step in her lifelong dream. "I've always wanted to go to space. If my time never comes, I hope my work with Polaris helps grow the opportunities for the next generation," she shared.

Having flown high-performance aircraft like the F-15C and F-16, Samantha has faced high-pressure, high-stakes environments throughout her career. Whether in combat or corporate leadership, she believes that the qualities of a great leader remain the same: decisiveness, confidence, and the ability to make quick, informed decisions, even without all the information. "A great leader needs to be self-reflective and willing to grow," she explained. "They need to fully give to their people because it is your team that makes or breaks a company. Take care of your people, and they will take care of the mission.

Samantha's career is a testament to perseverance, resilience, and believing in yourself. When asked what advice she would give to young women aiming to follow in her footsteps, Samantha's answer was simple but powerful: "Believe in you!" "I probably had more confidence as an 18-year-old than I sometimes do as a 48-year-old," she reflected. "Many people throughout my life told me 'No,' but I heard that 'no' and came back with 'watch me go.' Believing in myself, having tenacity, and using life experiences to grow my grit is what makes me reflect on that youthful girl and find that spark still within me to cast away the voice in my head and still BE BOLD."

"Opportunities are limitless," she said. "Don't let the status quo or the way we've always done things constrain or stifle you, your dreams, or your organization. When you hear 'no,' respond with 'watch me go.'"



Samantha's role with the Polaris Dawn mission is perhaps one of the most exciting chapters in her career. The mission broke several records, including flying higher than any previous SpaceX Dragon mission and reaching the highest Earth orbit ever flown. The team also conducted the first-ever commercial spacewalk, which Samantha described as a major milestone for the space industry. "Polaris Dawn is pushing the boundaries of human space exploration," she said. "We are advancing human spaceflight significantly, from flying through the Van Allen radiation belt to conducting experiments that will increase our understanding of the human body's reaction to space."

The data collected from these experiments will be vital for longer-duration spaceflights and missions to destinations like Mars. The program's collaborations with organizations like SpaceX and NASA are laying the groundwork for future commercial space missions. As Samantha continues her work with the Polaris Program team, she encourages others to embrace the limitless possibilities in both space and their own careers.

Samantha "Combo" Weeks' journey is one of determination, growth, and trailblazing leadership. Whether in aviation, business, or space exploration, she is an inspiring example of how far belief in oneself and a relentless pursuit of one's dreams can take you. Her work with Polaris and beyond is sure to continue impacting generations to come, proving that the sky is not the limit—it's just the beginning.



A Family Affair

GUARDIAN CULTURE COLUMN



BY MSGT PAUL BOYENGA, USSF
SPACEPOWER MAGAZINE
COLUMNIST

I was sitting in my rental at the light right outside the Hilton for what seemed like 10 minutes. Specifically, I was sitting in my blue Hyundai Venue; a deliberate coincidence of sorts as I was offered the pick of the litter at Hertz upon landing Monday evening. As I waited for the light, I watched a gaggle of about 20 Guardians cross the street from the parking garage outside the hotel property.

I'm all alone here.

The Director of Operations from my squadron and I were the only two from our unit in attendance that week, and we traveled separately. I had already made plans with one of my prior troops to meet up with during the week, but there was an unavoidable feeling of being one in a crowd that I couldn't shake. Nevertheless, I was excited to get inside and be a part of what I knew would be a good time.

I parked my car and made my way into the venue where I still needed to register and get my badge. Immediately afterwards, I went to grab a cup of joe and ran into my Vosler Foundations II instructor.

"Hey man, good to see you!"

What were the chances? We caught up for a little bit and I made my way to find my troop to meet up. After a few minutes of chatting, a familiar voice came from my left side.

"Master Sergeant Boyenga, it's me! Major Davis!"

Now that was even crazier; we had been working on revisions for the next Guardian Field Forum for several months and never met in person—only over teams—and had no idea what each other looked like. Wow I thought, what are the chances of THAT? The feeling of being alone had been washed away within the first 10 minutes of walking in the door. On lunch, I made my way to the exhibit booths to gander about, and at the Kirtland table someone I didn't know approached me.

"Are you from New York? Is your dad's name Jerry? He was part of my wedding; we worked together in Jacksonville when you were just a toddler. You look just like him!"

Continued on Page 24

What...were the chances of THAT?!

Over the next 3 days, I ran into, met with, conversed with, reminisced with, planned with, dined with, and anticipated with dozens of Guardians. Some of them were friends of friends; some of them were old friends; some of them were first-time-in-person friends; one of them was my Army drill sergeant from Fort Sill 11 years ago!

All of them were family.

It was mentioned during the conference by multiple announcers and panel members that the conference itself felt like a family gathering—it wasn't a point to argue against. The energy in that place was tangible; in every direction you could see people excited in conversation and bounding from person to person as people would walk by and notice someone they wanted to catch up with or say hi to. There was no escaping it. In the expo room. In the coffee shop. On the escalator. In the parking garage (I walked in a little late on the third day with Chief Master Sergeant Sauv , the Space Systems Command Chief, chatting as we made our way hurriedly down the escalators). Around every corner was a small group conversing or CEOs of industry chatting with junior Guardians, senior leadership engaging with the first line operators of the force, you name it.

The interactions with industry partners were especially worth noting. There was no corporate "buy our product" feel to it like what is normal of government contracting and the world of bureaucracy that comes with it. Instead, it was a conglomerate of organizations that have been imbedded with our service's mission for decades in some cases, and a few years in others, with passion to provide and collaborate on space superiority as the binding similarity among all of them. Listening to the panels of industry mixed with senior military leadership was like watching old friends speak of exciting new developments on a life-long quest. They fielded questions and posed questions; all about the pursuit of maintaining the security of space operations.

Unlike our sister services (who also had people in attendance) our small size means the bridges between one another are shorter, and the connections are stronger. The Spacepower Conference stands as one touchpoint where Guardians can meet, connect with, and build relationships with one another in a pointed fashion dissimilar to any other opportunities within our service. It's not just a conference, it serves as a family reunion that permeates every echelon of our organization. And the opportunities to grow together as a force are more than apparent. It's funny that our birthday is just short of the Christmas season, a time when families usually get together and spend time catching up with one another; the timing couldn't be better.

Alas, all things come to an end eventually. On the final day of the conference I enjoyed the last of the panels, said farewell to my old troop TSgt Clark, and headed towards the escalators of the Hilton towards my smaller, bluer "Venue" in the parking garage. As I shuffled along, I heard another shout.

Paul!

I looked back and saw Dr. Womack, a good friend and collaborator on multiple projects, smiling and waving me down. We took a quick selfie for the records, and he hurried me along towards the exit with a smile. What are the chances of that? I thought, as I smiled and left for my hotel.

SFA THOUGHT COLUMN: A Revolution in Military Affairs



BY TIMOTHY COX,
SFA DC CHAPTER
PRESIDENT

A Revolution in Military Affairs is often associated with radical developments in technology and the new organizational structures necessary to adapt the battlefield to the employment of the new technology. The most famous example in living memory is the defense build-up at the end of the cold war which embraced interlinked communications and data systems, computer processing, space capabilities and the use of novel materials to create whole new generations of aircraft, fighting vehicles, tanks, and ships which served to fulfil and inspire the AirLand Battle doctrine which accompanied them. The embrace of this doctrine and these technologies proved pivotal in the West's cold war victory.

It is important to realize that RMAs occur in manners not necessarily tied to technology or doctrine. In the final analysis, RMAs are a sweeping change in the way policy makers and military personnel think about warfare and their choices of tactics, strategies, policy and resourcing priorities based on the new understanding of reality with respect to warfighting. There is an RMA underway. The enemies of the US know it and many US leaders pay lip service to it. Yet, the flow of resources and policy are not following the clear new path to military dominance on the battlefield.

The RMA underway will bring dramatic changes to the warfighting across the joint force. Key areas of change are cyber network attack and defense, Artificial Intelligence (AI), spectrum management and control and space warfighting. Unlike the RMA of the AirLand Battle era, this revolution will require whole new patterns of thought. Where AirLand Battle required services,

to think of themselves as part of larger battlefield whole, this RMA will require warfighters to think about the opportunities, threats and risks of AI, through a contested spectrum while fighting war by remote control on the web and in space; subject to entirely different understandings of the warfighting environment and the blurring lines between the traditional tactical, operational and strategic levels of war.

Additionally, age old truisms, such as the idea that holding physical ground is the defining qualification for warfighting success, while not irrelevant, must take a back seat to new notions such as: 1) failure to defend in cyberspace may render the nation-state home front unable to continue the conflict, despite battlefield successes by forward military forces; 2) Failure to counter adversary AI while protecting friendly AI may bring the enemy inside the friendly decision making cycle, to the detriment of the warfighter; 3) If friendly forces cannot first win in space, defeating the enemy space forces while retaining space based support capabilities to terrestrial forces, the enemy will dictate terms from orbit.

The first two, Cyber and AI, while still developing, at least have large scale commercial parallels, meaning that industry AI developers and cyberspace network defenders can, should the need arise, be integrated into the military defense of the nation. Additionally, software, the key to both elements is the most rapidly updateable element of any system. While the risk of inaction in these areas is great, the third area, space warfighting, requires considerably longer lead times for the development and testing of the hardware systems in the orbital domain. Further, there is (thankfully) nothing akin to satellite warfare in commercial industry.

If the enemy gains advantage in space, then the homeland could be left without internet, GPS, or accurate weather prediction. The second order effects of these would be a cessation of most financial transactions (dependent on internet

timing) the shutdown of numerous powerplants (Internet timing), the loss of cellular connectivity (internet timing), a lot of lost people (GPS) and inability to plan for weather events. This is just on the home front, on the terrestrial battlefield, in addition to these challenges, there will also be virtually no long-range communications, space-based reconnaissance or signals intelligence, granting the enemy tremendous advantage. To say nothing of the fact, that with control of space, the enemy can retain all these capabilities for use against friendly forces and even employ other weapons from orbit, reducing or even eliminating strategic attack warning for US decision makers.

It seems clear that a critical element (perhaps the critical element) of the RMA currently underway in the recognition of the need to successfully dominate earth orbit in any conflict. If the United States does not embrace this revolution and rapidly develop the ability to win first in space, before defeating terrestrial threats, the US will likely find itself in the same place as the Soviet Union found itself in the last RMA... clearly on the weakening side with no options but to lose or diminish. It seems highly unlikely that any major US adversary would be as accommodating to it as the US was to the Soviets at the end of the cold war.

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SFA THOUGHT COLUMN: Data Systems and Meaningful Force Development Key to SFPMA Success



BY BRIG GEN (RET)
DAMON FELTMAN,
SFA HUNTSVILLE
CHAPTER PRESIDENT

Comments by the Chief of Space Operations and members of the senior Space Force staff over the fall and early winter highlight the work the Service is doing to implement the Space Force Personnel Management Act (SFPMA), which was part of the 2024 National Defense Authorization Act. At a very macro level, the SFPMA combines the Space Force's classic Active Component and the remaining Reserve Component space elements of the Air Force Reserve into a single component and intends to create opportunities for members to serve in both full- and part-time roles during their careers.

While the SFPMA gives the Space Force five years to implement, there are hurdles both inside and outside of the Space Force that must be actively managed, otherwise the Space Force will have a single component in name and authority, but not capability.

The single greatest risk to successful implementation of SFPMA and the CSO's vision of seamless flexibility between full- and part-time status are the numerous personnel, pay, medical, and readiness databases that run the Department of Defense. Each of these was built with classic Active and Reserve Component models in mind, and designs of the databases and IT systems reflect this. And as any reservist can testify, some systems were built without part-time participation in mind at all, causing numerous problems for members and years of delay to get the systems fixed.

Creating a new, SFPMA-unique data structures that work with all these systems will be no small feat and likely no small cost. The added challenge for the Space Force is that it doesn't control its destiny with respect to many of these systems, as most of these databases and software applications are owned and controlled at the Department of the Air Force level or higher. Many of these data systems are joint, making the Air Force's voice for the Space Force diluted with the other services' and agencies' needs.

Meanwhile, the Air Force remains bogged-down with its over-budget and behind-schedule Air Force Integrated Pay and Personnel System (AFIPPS), a program whose requirements and original delivery schedule pre-dates the Space Force. The Department of the Air Force will likely look for any Space Force-unique requirements to fit inside AFIPPS. If this isn't possible, the result will be an increase in scope to an already-late program, require the Space Force to foot the bill, and the delivered product coming very late-to-need.

SFPMA is jammed at the data systems level and the likely way out is through new money, DoD engagement, and perhaps Congressional engagement. Otherwise, the Space Force will have to wait on AFIPPS, see what gaps remain between it and compatibility requirements for SFPMA, cut other programs to get money for the fixes, and wait some more. The other alternative is for the Space Force to go it alone with authority (and money) to jettison AFIPPS and build a system with SFPMA compatibility from the start. In either case, to make sure Guardians aren't left in a lurch for the next few years it is likely the Space Force will have to rely on a hodge-podge of taped-together solutions, including ongoing reliance on the Air Force Reserve's legacy data systems and support organizations.

The second risk is institutional and internal to the Space Force. The Space Force needs to publish an articulate plan for employment and management of its part-time structure soon. Remember, there are several hundred fully trained and mission-ready part-time members in the Reserve waiting to see what the Space Force's plan offers. These part-time members already have long-established missions, understood participation requirements, concepts of operations and mobilization models with Active Duty units, and a career management process that enables personal and professional fulfillment along with options for military advancement.

What everybody appears to agree on is that all initial accessions, both officer and enlisted, will be full-time. That's not much different than status quo as the overwhelming majority of today's Reserve space cadre came from the Active Duty. But it's post-first-tour where the ideas get complicated.

The selling points for SFPMA that get spelled out in public events sound like a beefed-up version of the Career Intermission Program versus a system that incentivizes long-term retention and creates resiliency and scalability in warfighting capability. For one, there appears to be reluctance to members spending too much time in a part-time status over their careers. But most concerning is the concept that the current part-time structure in operational missions, especially for employ-in-place missions like satellite operations, will be moved to institutional activities – i.e., staff, training, test & evaluation, etc.

The Space Force's force design should have part-time structure in all operational missions for two very simple reasons. First, employ-in-place missions will have a wartime manpower surge just like any other operational mission. The surge might not be as large as other ops missions, like space electronic warfare, or augmentation to Service Components, but the need will be there. Second, having missions "fenced-off" from part-time participation will create a two-tiered force

that will foster resentment, lower development opportunities for part-time members, and lower retention.

Part-time participation in all missions is not about preserving legacy Reserve model in the SFPMA world or recreating "The Reserve" in the Space Force. It is about preserving combat capability and talent retention. The Space Force's plan for its part-time members must give them meaningful contribution to national defense, appreciate skills and talent developed outside the Space Force, and continue to promote members with deep experience. The part-time member must see that the institution values their contribution, wants them to stay, and that part-time participation does not scuttle careers. To reinforce the value it will place on its part-time force, the Space Force should codify in policy that future leaders have a significant percentage of part-time experience in their background.

SFPMA has presented the Space Force, Department of the Air Force, and Department of Defense a huge task, potentially as significant in scope and effort as establishing the Service itself. Data system interoperability is so significant and outside the control of the Space Force that it requires DoD-level support, and perhaps help from Congress. Meanwhile, hundreds of current space professionals in the Reserve have options to retrain and stay in the Air Force or move to the Space Force. But like current Active Duty Guardians, the ambiguity on how the part-time force will be used has today's part-time members concerned. The Space Force risks losing hundreds of current, fully-trained members if the ball is fumbled.

The Space Force has no choice but to be fully successful in this effort and the trade space is narrow. The first time a Guardian doesn't get paid correctly, has problems with Tricare, or feels like they were passed over for promotion because of their work in a part-time status, retention will suffer, and the Service's credibility will fall, as will its combat capability.

SFA SPACE PROFESSIONAL SOCIETY COLUMN:



BY SOPHIA 'SKIBA' SKIBA,
SPACE PROFESSIONAL
SOCIETY DIRECTOR

December 3rd, 2023, I've been sitting in Det 025's cadet lounge for the past four hours. Third year cadet, Sindwani, had sent a message to the detachment about some space club meeting, and because the logo of the guest speaker looked kind of cool, I decided to attend. Space has been my lifelong fascination, and I dream of being an astronaut. But frankly it was a very distant dream as several opportunities were closed off due to my lack of money and connections.

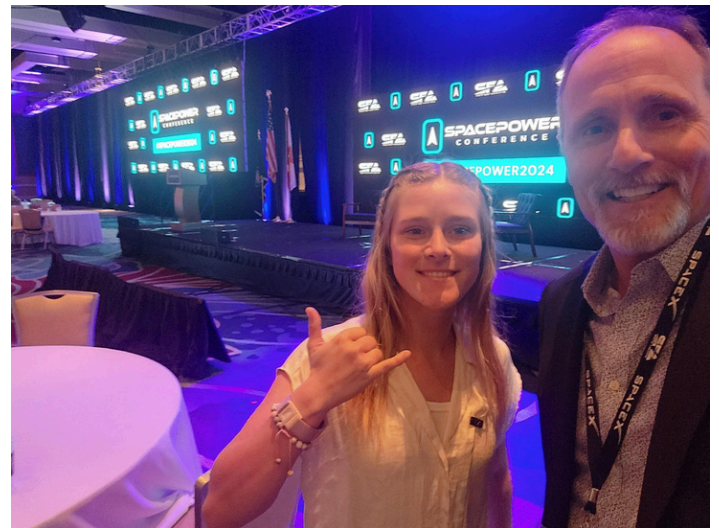
Come nightfall, I navigated the maze that is the ASU campus and found a room holding a handful of students and a projector. It was the Space Business Association of ASU, and the president, Guttilla, admitted that he wasn't entirely sure if the guest speaker would show up due to conflicts of scheduling. However the planets aligned, and the guest speaker arrived.

Bill 'Hippie' Woolf gave quite a peculiar impression to the club. He displayed his own organization, Space Force Association, showing photos of satellites drifting above the earth and generals in ribbon-studded uniforms. He talked quickly and vividly, and when he looked at you, he wasn't just looking at an audience member, he was looking at you. I was especially intrigued by the opportunities presented in the slides. They weren't NASA internships, but they were chances. Chances to finally get into the ever-elusive space domain.

Afterwards he answered our questions and invited me to walk with him and the AZ SFA Chapter Lead, Jonathan Roll. He talked about setting up a program orientated around students, and to be frank, I didn't really follow what he was saying. Then he pointed to me and said, "I want you to be in charge of the program."

That night, I was over the moon, but also deeply worried. I wanted to be a part of this society so badly, but I believed that he was making a bet on a losing dog. He knew nothing of me, and I knew nothing of him. Yet he gave me the chance to be involved.

Becoming the director of the Space Professional Society has profoundly improved my character and made me understand that everyone has a role in space, no matter how small and unimportant someone may seem. To ensure America's further success in the space domain, students must be prepared. Humanity is further reaching out to the stars; there's no more room for ignorance or hesitation.



'Skiba', Space Professional Society Director, and Bill 'Hippie' Woolf, SFA CEO & President



SFA PARTNER ARTICLE: Thought Leadership: [MOOG.com/Space](https://www.moog.com/space)

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Safeguarding Space: Advancing Operations for Mission Success

Space is a highly intricate domain that continues to evolve. Much like a kaleidoscope, its ever-changing nature presents an environment that appears different with each glance. With numerous nations and independent entities developing their own space capabilities and agendas, the complexity and dynamism of the environment is intense, particularly in the context of military operations. The United States Space Force (USSF) continues to make gains in protecting U.S. interests and maintaining operational readiness.

The United States is actively engaged in safeguarding its indispensable space assets. The United States Space Command (USSPACECOM) recently announced its Integrated Priority List that prioritizes "must field" capabilities required to protect and defend space.

"By prioritizing these capabilities, the United States demonstrates its commitment to protecting the space domain. Both the Space Force and USSPACECOM prioritize space as the ultimate high ground, as it will dramatically shape the outcome of political agendas and future conflicts. Whoever controls this domain will control the outcome," said Rob Atkins, Moog National Security Space Manager.

Technology Needed to Address These Concerns

One of the key drivers for achieving operational superiority lies in the adoption of cutting-edge technologies and state-of-the-art systems. Recognizing the importance of dynamic space operations, Moog maintains a leading position in multimode propulsion, and on-board high-speed data processing and communications. The Space Force can enhance its capabilities and maintain a constant state of operational readiness by leveraging these solutions.

Multimode Propulsion:

Multimode propulsion is set to revolutionize spacecraft propulsion by combining a single propellant and a single fuel tank for both chemical and electric propulsion. This will provide flexibility and efficiency as current satellites utilize separate propulsion systems for different maneuvers, resulting in increased mass, volume, and cost. Moog has been at the forefront of research and development related to multimode propulsion, working closely with the USSF and the National Research Laboratory.

The center of a viable multimode system has been the Air Force's green ASCENT monopropellant, an ionic liquid, which at room temperature, can be used to fuel both electric propulsion thrusters and chemical propellants.

"Satellites equipped with multimode propulsion can outmaneuver satellites without such systems and can adapt to different mission priorities throughout their lifespan. Examples are rapid transit through Earth's radiation belts followed by long periods of station-keeping or precise deorbiting at the end of life," Dr. Shae Williams, Moog Staff Propulsion Engineer.

Multimode propulsion systems decouple mission planning from propulsion system design, allowing for mass production of propulsion systems used across various missions.

High Speed Processing and Communications

Today's military and commercial satellites require unique capabilities to sense, observe, and resist the advances of our adversaries. With space-based assets facing frequent threats such as cyber hacking and malicious software attacks, robust cybersecurity measures are essential. This necessitates the technology provider to have a deep understanding of the threats and implement robust solutions to prevent adversarial success.

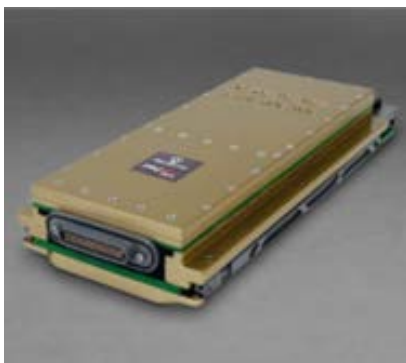


ASCENT Green Thruster

By employing unique cybersecurity measures in its spacecraft avionics, the technology Moog provides can help deter attacks. These measures include strong encryption across data storage and data links, detection of software and hardware anomalies, and continuous data integrity checks across memory, data buses, and external telemetry links,” John Schaf, Space Vehicle Avionics Principal Engineer.

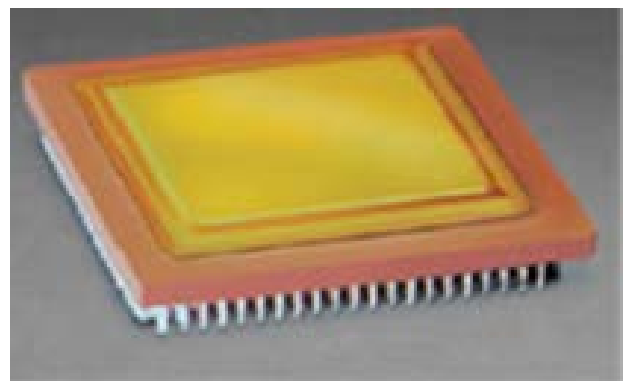
The extended duration and reliability demands of on-orbit operations require a comprehensive approach to radiation protection. Moog designs radiation-hardened components into its satellite avionics and electronic systems that undergo rigorous testing and have a proven track record of effectiveness and capability. Moog allocates a substantial Internal Research and Development (IR&D) budget each year for radiation testing of military and COTS electronic components to ensure their suitability for use in space.

Moog is developing the Cascade Single Board Computer (SBC), which is a next-generation radiation-hardened solution incorporating Microchip’s PIC-64-HPSC processor. The HPSC includes 10-core RISC-V, Layer 2 ethernet switch capability, advanced security features and a mature/validated software development support system. The Cascade SBC will be available in high-radiation tolerant configuration for MEO/GEO, and an optimized configuration for shorter-duration LEO missions. It will leverage the use of traditional radiation hard by design (RHBD) components along with proven COTS devices where applicable.



Cascade Single Board Computer

In addition to designing RHBD components, Moog also develops its own RHBD components for special applications and use cases. For example, Moog’s own system-on-chip microprocessor (SOC), the BRE440 SOC processor, represents an extremely capable microprocessor that is capable of reducing SWaP (Size, Weight, and Power). The capability to host popular real-time operating systems with support for legacy Guidance, Navigation, and Control software has made the BRE440 a strategic choice for spacecraft providers. The BRE440 has decades of on-orbit performance over many flight missions. The BRE440A SOC is currently being updated for improved operational performance while maintaining its radiation-hard performance and support for existing software design infrastructure.



Moog BRE440 Rad Hard SOC

Maintaining the Ultimate High Ground

Space has become congested and competitive, with numerous countries and non-state actors developing and deploying space capabilities. Many of these capabilities are designed with malicious purposes, aiming to eliminate the United States’ “high ground” advantage. The future of space operations and defense will require continuous innovation and technological advancements. By embracing advanced systems and investing in emerging technologies, the Guardians can enhance their capabilities and maintain a constant state of operational readiness.

CULTIVATING THE FUTURE WORKFORCE: EXPANDING ACCESS TO SPACE AND STEM INDUSTRIES



BY DR MELISSA PATTON,
MANAGING PARTNER, PCG

I retired from my tenured psychology teaching position almost 10 years ago. I got tired of talking about what we needed to do and not acting. Bursting with impatience I knew that disruption was necessary; but I was scared to death, knowing what I was thinking was risky and stupid.

But we did it anyway.

My husband and I did not have a Brinks truck in the driveway, nor did we have a money tree, but we were dreamers, and we had a fervent desire to make a difference on our little strip of Florida. We did what every other middle-class crazy couple would do ... we risked it all and bootstrapped a startup enterprise.

The assignment was complicated. We had two boys at home, one was a STEM kid, the other an athlete, but socially and academically they both needed what the other possessed. And as I networked in the community, I realized other moms had the same predicament. We were all looking for a hybrid program that focused on STEM and physical literacy. We called Brevard County home, aka, the Space Coast. We knew we needed local programs more closely related to space/STEM, but even though we were only 10 miles away from NASA and Kennedy, there were still fewer programs.

This is a national problem.

Kids MUST have access early and often to space and STEM. It's imperative for the future workforce and for humanity. The question arises, how do you make such a "far out there sector" attractive for a middle/lower middle class diverse community. A community where rockets are launched monthly, but many children don't feel a connection to space/STEM. More importantly, how do you reach ALL kids, encouraging thoughtful and inclusive mindsets.

We prioritized diversity and space/STEM adjacent children, investigating through experiential learning, what skillsets they brought to the table and how that can be closely aligned with space and STEM. We were able to modernize space/STEM, packaging it in a way that made sense for our demographic and our target population. We impacted kids through space/STEM through the intersection of sports and physical literacy.

A quote by Odyssey shares, "sports can build bridges, transcend borders and cultures, and render even the fiercest conflicts temporarily irrelevant. Whether you are rich or poor, black or white, yellow or brown, sports bring people together in a common goal."

My experience leading that enterprise startup seems like a million years ago. But I realize, even more now than ever, that similar programs are happening all over the country, and are connecting kids with access to space/STEM ultimately bringing them closer to supporting the future of our workforce.

The future of space is NOW.

As a space adjacent executive leader, I was honored to speak on the educational panel at Spacepower Conference in December. Our panel explored how education—spanning K-12, upskilling programs, and partnerships with colleges and universities—can create endless opportunities for developing future Guardians and strengthen our role in space exploration and defense. We emphasized the opportunity and urgency to embrace kids now and bring STEM and space closer to them. I celebrated the Space Force on five years of impact, but I also encouraged them to understand that there is still so much to do.

As I was standing backstage waiting for the technician to remove my mic a young and vivacious woman tapped me on the shoulder, and stated, "so your space/STEM adjacent, huh?" I was reluctant to admit that I fell into this category because I am a minority in this ecosystem in so many ways. I am a black woman, I am not military,

I do not have a STEM degree, I have a doctoral degree in education and change management, and I am a trained therapist. I did not belong on that stage, and she knew it, and she was going to let me know! What the aspiring astronomer said next almost made me trip out of my 3-inch stilettos heels. She asked me, “so how did you do it, and would you be willing to take a call from me and talk about it more?”

I am deeply optimistic about the future of space and the role we all play in shaping it. The SFA is building something exceptional: a new culture of education, innovation, and collaboration. As a young organization, SFA has the unique advantage of starting with a clean slate, which will pave the way for leaders to thrive in an opportunity-rich space ecosystem. Guardians can be mentors, role models, and big brothers to kids who feel the space industry is unattainable. They can be on the front lines educating, and demonstrating that yes, you can be an astronaut, but you can also be a pilot, scientist, people manager, operations lead, analyst, or yes, even an educator. There is literally room for everyone in space!



SPACE POWER PROTECTS (AND IS DEFINED BY) IN-SPACE INFRASTRUCTURE

BY DR RICHARD
NEDERLANDER, PHD

A Nation’s Authority is Projected by Occupying Regions of Cislunar Space

Cislunar space exists in an anarchical state due to the lack of an abundance of in-space infrastructure (e.g., space stations, satellites, habitation modules) and in-space transport (e.g., rockets, orbit raisers). Organizations that build this infrastructure are inherently projecting their home countries’ authority because they exclusively answer to their home countries. Specifically, when issues arise between organizations with in-space infrastructure, the home country’s legal framework (or frameworks, if dealing with multiple nations) are empowered to work towards a resolution. Depending on whether a given country is a signatory to space-relevant treaties (e.g., the Artemis Accords, the Outer Space Treaty), the issue may be resolved according to internationally established norms for responsible behavior for space development and exploration. Unfortunately, the lack of legal enforcement precedents for most potential issues can result in the more powerful nation imposing their will (regardless of any decision).

To a degree, this hypothetical scenario can be observed through the lens of China’s aggression in the South China Sea. Its ongoing development of artificial islands since 2013 has allowed the nation to project authority throughout the region around the Spratly Islands in an effort to control lucrative maritime supply chains. And unfortunately for the maintenance of global order, many of these islands are considered to be infringing on neighboring countries’ exclusive economic zones.

America’s Wild West as an Analogy for Cislunar Space

The anarchical state of cislunar space has parallels to the early years of America’s Wild West. Specifically, in-space infrastructure can be compared to the small towns operating in a vast, lawless, and unfriendly expanse that disconnects them from a central authority. In the early 1860s, these towns lacked speedy communication and a supply chain that could support and expand them. The first transcontinental railroad would not be constructed until 1869. Compounded with the lack of infrastructure surrounding them, these towns minimally felt the federal government’s central authority. This state of affairs resulted in small towns mostly fending for themselves against natural phenomena working to displace them. Similarly, in-space infrastructure may face aggressive enemy infrastructure and unrelenting natural space weather that can destroy them without intervention from the federal government.

This support will need to take the form of policies promoting speedy communication, a supply chain, and adjacent in-space infrastructure.

The Early 21st Century's Space Race

Unlike America's Wild West, any country can access cislunar space if they possess a space program capable of launching rockets from their soil into stable orbits. Already, China has demonstrated incredible in-space capabilities with its 2021 launch of the Tiangong space station and Chang'e lunar modules. Milestones like these are indications that the early 21st century's Space Race will be defined by nations ability and willingness to occupy cislunar space with in-space infrastructure.

For the U.S. to win, it will need to implement policies that tap into the energy that vitalized the mid-1960s Space Race between the Soviet Union and the U.S. During that time, NASA's budget was approximately 4% of the federal budget and empowered American innovation to land the first

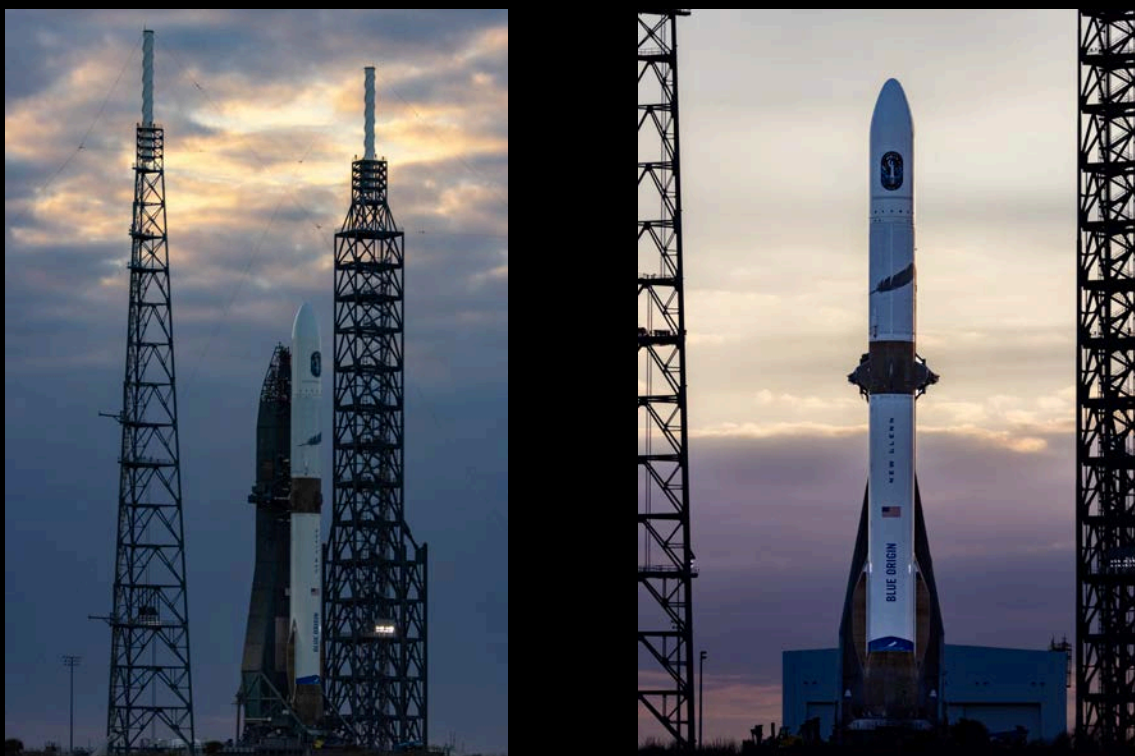
human on the Moon. Currently, there are federal initiatives aimed at promoting in-space infrastructure development. In 2024, NASA devoted funds from its \$24.88 billion budget to its campaign to establish a long-term presence around and on the Moon, and on Mars (known as the Artemis program). While this is certainly a significant amount of money, NASA's budget is only around 0.37% of the total federal budget.

Summary

Cislunar space exists in a state of anarchy that can only be addressed through an abundance of in-space infrastructure. The country with the most in-space infrastructure will become the governing authority capable of imposing its authority on other space powers. As a result, the early 21st century's Space Race will be defined by countries' development of in-space infrastructure.

"All thoughts and opinions are the author's."

Special Guest Photographer: Brandon Lindner



*Blue Origin - New Glenn Rocket, January 2025
Photographs by: Brandon Lindner - Instagram @launchpics*

THOUGHT LEADERS OP-ED: Role of Space Aggressor Squadrons in Promoting International Collaboration and Cooperation in Space

BY PAL SINGH SHAMSHEER

The U.S. Space Aggressor Squadrons have a big role in helping capable countries (other than partner nations) establish friendly and responsible Space Forces and help the US achieve allied dominance in space.

The establishment of the United States Space Force (USSF) in 2019 marked a significant milestone in the field of space, emphasizing national security, enhancing collaboration, and developing new capabilities to address potential threats. Given the crucial role that space-based technologies and systems play in modern-day warfare, the USSF's progress over the years has laid down a robust foundation for this new branch of the armed forces.

To expand on the USSF's international collaborations, it is imperative to familiarize capable nations with the concepts and practices of the Space Force and conduct joint training exercises such as tabletop exercises, Space Situational Awareness (SSA) exercises, and technology demonstrations. These initiatives will enhance interoperability and develop common procedures for space operations. The term "capable nations" refers to nations with high defense budgets, technologically advanced space organizations, and strong air forces that do not have a dedicated Space Force.



The Space Aggressor Squadrons can play a significant role in this initiative by simulating realistic space-based threats and attacks to help emerging military forces better prepare for potential conflicts in space. With enhanced capabilities and simulation-based training, new Space Forces can develop effective strategies to protect space assets and help the US maintain a strategic advantage in space.

The United States has always promoted responsible behavior in space and has been against the weaponization of space. While the initiatives suggested above require a great level of understanding, cooperation, and diplomacy, they work along with the USSF's commitment to reduce the risk of mishaps, misperceptions, and miscalculations in space. All of this could result in the formation of responsible space allies with similar ideologies and a decrease in space threats.

Organizations like SFA can also play a crucial role in promoting international collaboration and cooperation in space by facilitating dialogue, sharing knowledge and expertise, encouraging partnerships, and advocating for international space policies. This can ensure that the benefits of space-based technologies and capabilities are shared by nations around the world, and that space remains a safe and stable environment for all.

Conclusion: While it may seem like a utopian idea, achieving such understanding in a new military domain like space is not impossible. It will help the USSF distribute its load and responsibilities and create a friendly scenario if proper efforts are made in a timely manner. We are at an initial stage, and with focused efforts and strategic collaborations, a safer and more secure space environment can be created. The implementation and success of these ideas would depend on various factors like diplomatic relations and evolving geopolitical dynamics.



THOUGHT LEADERS OP-ED:

Human Hibernation: A Visionary Leap from Science Fiction to Earthly and Military Applications

BY DR. EKATERINA
KOSTIOUKHINA, MD. SPACE
MEDICINE AND HIBERNATION
SCIENTIST

For decades, the idea of hibernation has been confined to the realm of science fiction, captivating imaginations with stories of deep-space travelers suspended in a dreamlike state. Yet, today, this concept is making the leap from speculative fantasy to scientific reality. Recent advancements in the field of human hibernation not only promise to redefine long-duration space exploration but also unveil transformative applications for military and civilian use on Earth.

The Science Behind Hibernation

Hibernation, a state of metabolic suppression observed in certain animals, allows for survival in harsh environments by drastically reducing energy consumption and bodily processes. Inspired by these natural phenomena, researchers are exploring ways to induce similar states in humans. Techniques such as therapeutic hypothermia and metabolic reprogramming aim to decrease cellular activity, slowing down metabolism without causing harm.

At its core, the study of hibernation hinges on understanding how to regulate the body's energy systems safely. Advances in molecular biology have identified potential pathways to artificially control torpor-like states, involving substances such as hydrogen sulfide, which suppress cellular respiration, and pharmacological agents that mimic natural hibernation triggers in animals. Recent experiments in humans, such as the use of dexmedetomidine, an alpha-2 adrenergic receptor agonist, funded by the Translational Research Institute for Space Health (TRISH) and performed at the University of Pittsburgh, have demonstrated the ability to safely reduce metabolic rate and induce prolonged sleep-like states. Additionally, research from institutions like Harvard's Wyss Institute, supported as part of the DARPA Biostasis Program, which funds projects that

aim to extend the time for lifesaving medical treatment, often referred to as "the Golden Hour," following traumatic injury or acute infection. The Wyss Institute has been a participant in the Biostasis Program since 2018, highlights drugs such as Donepezil, traditionally used for cognitive disorders, in facilitating metabolic slowdown, suggesting their potential in hibernation protocols.

Human hibernation could be a game-changer for space exploration. Long-duration missions to Mars or beyond are currently constrained by the need for large amounts of food, water, and oxygen to sustain active astronauts. Inducing hibernation would significantly reduce metabolic demands, cutting resource consumption and minimizing psychological challenges associated with prolonged isolation in confined spaces. Space agencies have already begun exploring the concept of torpor for deep-space travel. Studies suggest that hibernating astronauts could remain in a stasis-like state for weeks or even months, awakening only when critical tasks require their attention. This would enable smaller spacecraft designs, lower mission costs, and enhanced crew safety.

The potential applications of human hibernation are not limited to space. On Earth, its development could revolutionize fields such as critical care medicine. Patients with severe trauma, strokes, or cardiac arrest could benefit from induced hypometabolic states, buying precious time for medical interventions while reducing tissue damage and systemic inflammation. Emergency response teams might employ hibernation techniques to stabilize patients in remote or resource-limited environments, improving survival rates. Human hibernation could also play a pivotal role in disaster preparedness. During catastrophic events such as earthquakes or nuclear incidents, hibernation chambers might allow survivors to endure prolonged periods without access to food or medical care. This technology could become a vital tool for humanitarian aid, offering new ways to safeguard human life in the face of global challenges.



Military Applications: Endurance and Recovery

The military stands to gain significantly from advancements in human hibernation. In combat scenarios, soldiers often endure extreme physical and psychological stress. Hibernation technology could aid in troop recovery by accelerating healing processes or conserving energy during long deployments. Wounded soldiers might be placed in hypometabolic states to stabilize their condition until evacuation is possible, increasing survival rates in austere environments. For the Space Force, this technology could redefine endurance for extended missions in deep-space environments or extraterrestrial outposts. By enabling personnel to enter energy-efficient hibernation states, critical resources like food, water, and oxygen could be conserved. Such capabilities align with the strategic goals of enhancing mission readiness and operational sustainability in isolated and hostile conditions. Additionally, hibernation strategies could support long-term deployments in extreme environments on Earth, such as Arctic or desert

regions, where resource efficiency and physical resilience are paramount. This transformative capability could ensure that military personnel remain mission-ready, regardless of the challenges posed by their surroundings.

The Future of Human Hibernation

The pursuit of human hibernation represents a bold intersection of biology, technology, and imagination. While challenges remain, the progress made so far underscores the transformative potential of this emerging field. From enabling humanity's reach into the cosmos to addressing critical needs on Earth, human hibernation offers a visionary solution to some of our most pressing challenges. As we continue to push the boundaries of what is possible, the line between science fiction and reality grows thinner. Human hibernation, once a speculative dream, may soon become an indispensable tool for advancing exploration, innovation, and resilience in an ever-changing world.


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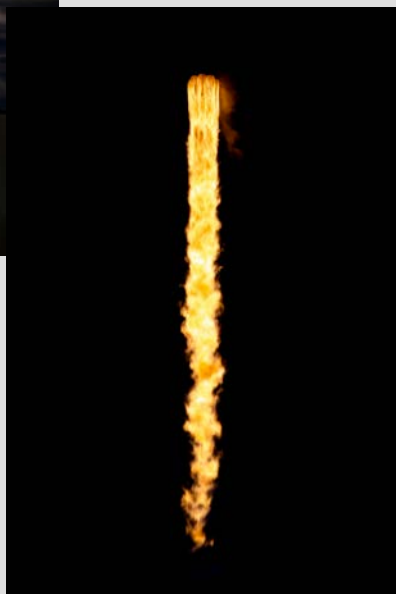
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ULA USSF-51, September 2024

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Bluebird, Bluebird 2024
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Spain Sat NG-1, January 2025
Photographs by: Brandon Lindner - Instagram @launchpics

THOUGHT LEADER OP-ED:

Strategic Partnerships: The Key to Achieving U.S. Spacepower Objectives

BY FRANK T. TOBIN, JR.
PRESIDENT & CEO, GOMSPACE NA

In today's rapidly evolving space domain, achieving and maintaining the ability to control and utilize space for strategic advantage is critical for national security. The U.S. Space Force has recognized that remaining competitive with adversaries requires more than government-led innovation. Their evolving roadmap for commercial partnerships underscores the importance of public-private collaboration in accelerating technological advancements and enhancing operational readiness. I am convinced that this collaborative approach is key to achieving and maintaining Spacepower.

The Space Force's Vision for Commercial Integration
Outlining their partnership strategy in 2024, Lt. Gen. Bratton, the Space Force's deputy chief of space operations, highlighted the need to go beyond traditional satellite communication services and embrace emerging capabilities such as digital engineering, artificial intelligence (AI), and data integration. The initiative he described prioritizes embedding commercial solutions into defense operations and ensuring new technologies are rapidly deployed without bureaucratic delays.

Accelerating Space Capabilities Through Collaboration
Corporate partnerships can significantly reduce the time it takes to deploy space technologies. I've seen many commercial mission managers attempt to build entire satellite systems from scratch to support their payloads, only to face delays, cost overruns, and missed opportunities. It's a scenario that reminds me of the early computing industry when manufacturers tried to produce everything in-house. Eventually, they were outpaced by firms that focused on integrating best-in-class components.

The Space Force's vision emphasizes building an ecosystem of interoperable technologies where commercial and defense systems can collaborate effectively. This reduces duplication and maximizes the value of private-sector innovations.

The USSF collaboration with Anduril Industries exemplifies this approach. In 2024, Anduril secured a \$25.3 million contract with the Space Force to enhance the Space Surveillance Network using its Lattice software, an AI-powered system designed for space situational awareness and missile tracking. This partnership demonstrates how leveraging private sector innovation can lead to rapid deployment of advanced capabilities, ensuring that defense operations remain agile and responsive to emerging threats.

The Role of System Integrators

Integration is another critical piece of the puzzle. I believe that trusted system integrators, like SAIC, play a vital role in rapidly and efficiently assembling mission-ready platforms from individual components. These integrators ensure that payloads, satellite buses, and software systems work together seamlessly. This includes addressing crucial factors like thermal regulation and electromagnetic compatibility—areas where even small missteps can jeopardize mission success.

Economic and Strategic Benefits

One of the most significant advantages of corporate-military collaboration is the ability to leverage private-sector investments in research and development (R&D). Commercial firms invest heavily in early-stage innovation, and the military can adopt these advancements without bearing the financial risks associated with R&D.

This approach also strengthens corporate business models. Investors today seek more than innovative technology—they want a clear path to profitability. When payload developers can demonstrate strong partnerships with trusted providers, they build credibility in the capital markets and increase their chances of securing funding. In my experience, this can be a game-changer for attracting the capital needed to rapidly deploy large-scale constellations. Too often, payload developers - whether they be corporate, scientific, academic, or military - assume they must build entire satellite systems in-house. This not only increases costs but also diverts focus from their core innovations. Instead, they should concentrate on their unique payload and partner with experts for platform and integration work.

Looking Ahead: The Future of Spacepower

As global competition in space intensifies, partnerships will be vital for the rapid development of technologies like on-orbit servicing and debris mitigation. These innovations will enable the U.S. to maintain operational constellations longer, reducing costs and strengthening resilience in the face of potential adversary threats.

The space industry as a whole is rapidly transitioning from individual demonstration missions to large-scale constellations that require rapid deployment and sustained operations. The Space Force's roadmap reflects this shift by prioritizing modular design, AI-driven integration, and scalable solutions that can adapt to evolving mission needs.

I believe that the future of Spacepower will depend on partnerships that combine innovation, expertise, and operational excellence. As companies like GomSpace continue to develop advanced satellite systems, we must work closely with the military to ensure that these technologies support their objectives and meet rigorous performance standards.



Conclusion

Through its strategic approach to collaboration, the Space Force makes a clear statement that it understands that it cannot maintain and rapidly advance American Spacepower in isolation. By forming strategic partnerships with industry leaders, the USSF can accelerate timelines, enhance capabilities, and maintain its strategic edge. The success of future missions will depend on the strength of these collaborations and the shared commitment to innovation and mission success.

Continued investment in public-private partnerships is essential to ensuring that the U.S. remains at the forefront of space exploration and defense. As someone who has dedicated my career to advancing space technologies, I am confident that, together, we can achieve our most ambitious goals and secure the future of American Spacepower.

About Frank Tobin

President and CEO of GomSpace North America, Frank T. Tobin, Jr. PE is a seasoned executive with a long career in the Defense, Homeland Security, and Commercial industries. Today he helps American Federal agencies, military branches, corporations, universities and tech startups leverage the opportunities offered in the Space Economy.

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THOUGHT LEADER OP-ED: Space-Based Supply Chains: Leveraging Blockchain to Secure America's Spacepower

BY IRINA S. LITCHFIELD

Space is rapidly becoming the most contested domain where technological superiority determines national security. Although blockchain is associated with finance, its capacity to enhance space-based supply chains is vital for operational readiness and strategic advantage.

Adversaries such as China are already leveraging blockchain in the military and commercial sectors[1]. Blockchain-enabled logistics and satellite coordination provide China with strategic advantages[2], posing challenges to the U.S. and allies.

The U.S. Space Force and DoD must adopt and integrate this technology to safeguard national security and retain spacepower dominance.

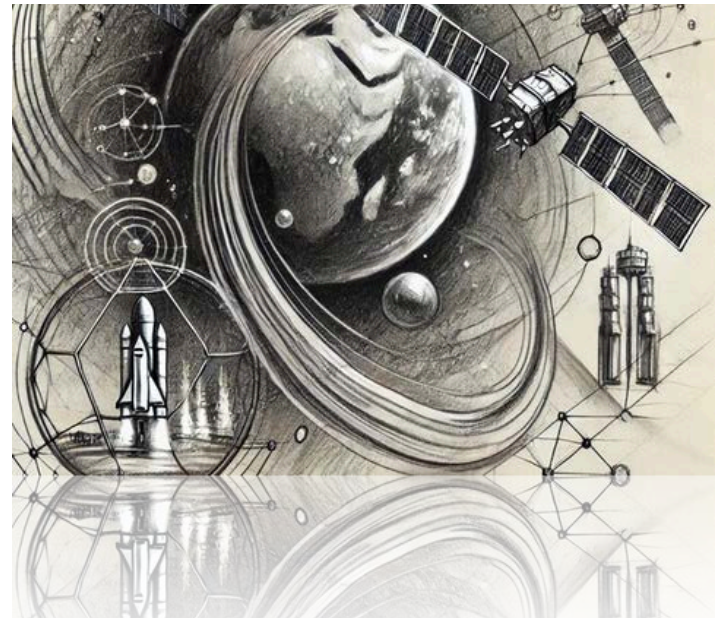
Enhanced Cybersecurity for Mission Assurance

In space operations, supply chain integrity is critical. Blockchain's decentralized architecture eliminates single points of failure, strengthening defenses against cyberattacks[3]. Adversaries like China heavily invest in quantum computing[4] and cybersecurity, threatening traditional centralized systems.

Example: China's blockchain investments[5] demonstrate its ability to create tamper-proof systems that safeguard critical data. The U.S. must respond by adopting blockchain to secure satellite data, fuel depots, and equipment, ensuring resilience against adversarial interference.

Strategic Impact: In contested environments, blockchain fortifies mission assurance by making supply chain information more secure, eliminating single points of failure, and minimizing disruptions that could imperil national security objectives[6].

For the Space Force specifically, blockchain can ensure accurate, real-time asset tracking, with smart contracts automating alerts for delays or malfunctions. This holistic visibility significantly reduces the risk of mission failure by enabling rapid, data-driven decision-making—ultimately preserving critical operations and maintaining strategic advantage over adversaries.



Real-Time Tracking for Operational Precision

Space missions stretch across immense distances, where small errors in asset tracking can have profound consequences. From satellites and spacecraft to fuel depots and ground stations, every link in the supply chain must be continuously monitored to ensure seamless coordination and timely decision-making. Blockchain's distributed ledger provides a secure, real-time view of assets[7], allowing commanders to assess and respond to any issues. By eliminating the need for centralized databases—often vulnerable to hacking or data loss—blockchain ensures that critical information is accurate, tamper-proof and readily accessible by authorized stakeholders.

[1] Finabel, "Blockchain Technology in Defence: Strengthening Security, Logistics, and Data Management," Finabel European Army Interoperability Centre, September 2020, <https://finabel.org/wp-content/uploads/2020/09/FFT-Blockchain.pdf>.

[2] Yihan Jing, Chenyi Chen, Jichang Dong, and Zhou He, "Blockchain-Embedded Strategic Options for Satellite Operators: Sell, SaaS, or Dual?" School of Economics and Management, University of Chinese Academy of Sciences, Beijing, China. <https://www.mdpi.com/2079-8954/11/11/550>

[3] Blockchain Beyond Crypto: Enhancing Cybersecurity," SecureWorld News, accessed January 5, 2025, <https://www.secureworld.io/industry-news/blockchain-beyond-crypto-cybersecurity>

[4] Stephen Ezell and J. John Wu, "How Innovative Is China in Quantum?" Information Technology and Innovation Foundation, published September 9, 2024, <https://itif.org/publications/2024/09/09/how-innovative-is-china-in-quantum/>

[5] Martha Bennett, "China Is Leading Global Blockchain Adoption for Digital Transformation," Forrester Blogs, published October 29, 2021, <https://www.forrester.com/blogs/china-is-leading-global-blockchain-adoption-for-digital-transformation/>

[6] Mohammed Boualam, "Blockchain's Impact on Supply Chain Efficiency and Security," SCM Globe, published September 18, 2024, <https://www.scmglobe.com/blockchains-impact-on-supply-chain-efficiency-and-security/>

[7] U.S. Government Accountability Office (GAO), "Technology Assessment: Blockchain & Distributed Ledger Technologies," GAO-19-704SP, published October 2019, <https://www.gao.gov/products/gao-19-704sp>

Example: China's Belt and Road Initiative employs blockchain for real-time cargo tracking[8], delivering transparency and efficiency. Translating that model to space means continuously monitoring satellites, spacecraft, and vital resources like fuel and spare parts. The ability to trace each asset's precise location and condition at any given moment reduces the risk of unexpected downtime or mission failures.

Strategic Impact: For the U.S. Space Force, integrating blockchain with smart contracts can detect anomalies or delays the instant they arise, automatically triggering alerts or contingency protocols. This proactive, data-driven approach significantly diminishes mission risk by enabling swift, informed decisions—critical in the face of evolving threats and the high stakes inherent in space operations.

Transparency to Strengthen Multi-Stakeholder Trust

Modern space missions increasingly rely on collaborative efforts that span government agencies, international allies, and private-sector partners. Coordinating launches, sharing satellite data, and managing complex logistics require a level of transparency that traditional systems struggle to provide. Blockchain addresses this challenge by creating a single, unified ledger accessible to all authorized stakeholders. Because the ledger is immutable and consensus-driven, it ensures that data remains both consistent and tamper-proof.

Example: China's continued efforts to lead through integrated blockchain networks[9] in an attempt to unify military, commercial, and research entities under a framework to enable rapid decision-making and streamlined logistics. This model is promising to deliver the value of real-time, transparent data sharing for large-scale, strategically important initiatives between multiple stakeholders.

The United States could adopt a similar approach—particularly in programs such as the Artemis Accords—to improve coordination among allied partners and commercial contractors. By granting all parties a clear, verifiable view of mission-critical information, the U.S. can lead to deeper trust and engagement in joint ventures.

Strategic Impact: Blockchain-based transparency is fundamental for multi-partner missions, particularly as the U.S. Space Force expands its operational scope and collaborates with international and commercial stakeholders. When every partner operates from the same verified set of data, they can align on objectives more effectively, reduce administrative friction, and quickly resolve potential conflicts. This reliability and shared accountability strengthen the bonds between allied nations and industry partners, ultimately enhancing mission success rates and reinforcing the United States' leadership in the contested space domain.

Strategic Imperatives for U.S. Space Force & DoD

Blockchain is more than an operational convenience—it is a strategic asset. Its ability to fortify cybersecurity, enhance logistics, and build trust directly supports the Space Force's mission to maintain and defend U.S. space dominance. Moreover, keeping pace with adversaries like China—already innovating in this sphere—is essential to upholding America's technological leadership.

By integrating blockchain into space-based supply chains, the U.S. Space Force secures vital resources, elevates alliances, and fortifies its reputation as a global front-runner in digital space technology. Embracing blockchain now is imperative to sustaining America's strategic edge and ensuring success in an ever-changing and contested space environment.

About the Author:

Irina S. Litchfield is a globally recognized blockchain leader and executive with over a decade of experience. She holds an Executive Master of Global Management (EMGM) in Space Policy, Business, and Leadership from Thunderbird School of Global Management at Arizona State University. As the founder of Lumeria, a strategic consulting and holding company, Irina has played a pivotal role in advancing blockchain applications across industries. Her expertise spans scaling global ecosystems, cultivating multi-stakeholder collaborations, and championing the integration of emerging technologies in space-based solutions.

[8] Ammar Rayes, "Applications of Blockchain Technology Beyond Cryptocurrency," *Journal of Innovation and Entrepreneurship*, published September 24, 2020, <https://pmc.ncbi.nlm.nih.gov/articles/PMC7522652>

[9] "Chinese blockchain project BSN expands to Turkey and Uzbekistan," *Cointelegraph*, <https://cointelegraph.com/news/chinese-blockchain-project-bsn-expands-to-turkey-and-uzbekistan>

THOUGHT LEADER ARTICLE: UF Astraeus Space Institute Emerging As National Leader

BY JOE KAYS, ASTRAEUS SPACE
INSTITUTE

The University of Florida Astraeus Space Institute is emerging as a national leader in space research, bringing together hundreds of UF faculty members with a wide range of expertise in space-related research and fostering new collaborations with other universities, NASA, U.S. Space Force and industry.

The institute, managed by UF Research, is a hub in which scientists and scholars from across UF – including those from the Institute of Food and Agricultural Sciences (IFAS), the Herbert Wertheim College of Engineering, the College of Pharmacy, and the College of Liberal Arts and Sciences – can collaborate, conduct research, and innovate.

The institute is working to enhance existing relationships with Space Florida and the Space Life Sciences Laboratory at the Kennedy Space Center and seeking new partnerships with the International Space Station National Laboratory. The institute will also work to leverage UF's proximity to the growing commercial space ecosystem in Florida. Throughout the next five years, the total economic impact of the commercial space industry in Florida is expected to be more than \$5.3 billion.

In addition to working with the aerospace industry, the institute is seeking closer ties with the United States Space Force to join space science with defense goals, and to provide new opportunities for students in the Reserve Officer Training Corps (ROTC) program.

UF has nationally recognized faculty leaders in all the major National Aeronautics and Space Administration (NASA) fields, as well as more than 100 faculty members conducting over \$17 million in space research annually.

“UF has a long and distinguished history of research in space – from low-Earth orbit to the moon and Mars and beyond, but this new institute is providing a vehicle for a diverse group of researchers to collaborate in new and exciting ways,” said Rob Ferl, the institute’s director, who has conducted decades of research on plants in space. “This will position UF to play a more prominent role in space exploration research in the state, the nation and the world.”

Ferl said strategic funding from the university is supporting interdisciplinary seed projects that will propel UF’s capabilities to the forefront of space research visibility, and it will help recruit world-class leaders in space science and technology to the university.

Below are some examples of current UF space research:

- Rachel Seidler, a professor of applied physiology and kinesiology in the College of Health and Human Performance, is looking at how the human brain reacts to traveling outside Earth’s gravity. Recent findings suggest astronauts should wait three years after longer missions to allow physiological changes in their brains to reset.
- Geology Professor Amy Williams is helping to search for life on Mars as a member of the Perseverance rover team. Williams has also served on the Curiosity rover team since 2009.
- Ferl and colleague Anna-Lisa Paul, a research professor of horticultural sciences and the director of the UF Interdisciplinary Center for Biotechnology Research, are studying whether plants can grow in lunar soil, as part of efforts to return Americans to the Moon this decade. They have also conducted plant experiments on the Space Shuttle and the International Space Station.
- Astronomy Professor Sarah Ballard hypothesizes that one-third of the planets around the most common stars in the galaxy could be in a Goldilocks orbit close enough, and gentle enough, to hold onto liquid water (and possibly harbor life).
- Mechanical and aerospace engineers are developing precision instruments for spacecraft navigation and studying ways to prevent collisions between space debris and the International Space Station.



“Our vision for this hub of space exploration sees experts from many colleges at UF working together on the most demanding questions related to space exploration, development, and commercialization,” said UF Vice President for Research David Norton.

In January, UF joined with the University of Central Florida and Embry-Riddle Aeronautical University as charter members of the Florida University Space Research Consortium, designated in 2024 as the state’s official space research entity. The consortium is working with the Kennedy Space Center. The institutions will provide critical research and development support for NASA’s Moon to Mars Initiative, which aims to advance human presence and exploration throughout the solar system.

“Through this agreement, NASA will benefit in new and exciting ways from our longtime partnership with the universities that make Florida shine,” said NASA Administrator Bill Nelson. “As we move deeper into this golden era of space exploration, a new generation of thinkers and leaders will lead the way – thinkers and leaders like the researchers, faculty, and students of the Artemis Generation, whom we are pleased to work with through the consortium.”



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- USSF Guardian Arena Winners:
- 1st: Minutemen Missileers, Mission Delta 31
 - 2nd: Radiation Nation, Space Delta 3
 - 3rd: The Heisenbergs, Air Force Research Laboratory

USSF Generative AI Challenge Winners



- USSF Generative AI Challenge Winners:
- 1st: Team Babel from USAFE
 - 1st: Team Order 66 from SSC

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- Intelligence Operations
 - Officer: Maj Chris Poje, SPACEFOREUR-AR
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 - Civilian: Stanley Burns, NSIC

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 - Enlisted: SSgt Jason Capostagno, 22d Command & Control Squadron
- Cyber Operations
 - Officer: 1Lt Derek Sallis, 138 EWS, 233d Space Group
 - Enlisted: SSgt Alen Tabrizi, 138 EWS, 233d Space Group
- Intelligence Operations
 - Officer: Capt My-Randa Quinata, 109 EWS, Hawaii Air National Guard
 - Enlisted: SSgt Curtis Grady, 222d Command & Control Squadron



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SpaceX Starship Flight 6, December 2024
Photograph by: Brandon Lindner - Instagram @launchpics