

# ORBITER NEWS

News, announcements, and more.

## From Chuck: A Letter to Aerospace by Dr. Gustafson

June 30, 2021

*Recently, the Orbiter featured the virtual retirement celebration of Dr. Charles L. Gustafson. In appreciation of the thoughts, memories and well wishes expressed by the Aerospace community, Chuck would like to share the following letter.*

Dear Friends and Colleagues,

I want to thank you for all of the wonderful notes and letters I've received in the last couple of weeks. It's been just wonderful to hear from

so many of you, to replay some great memories, and to reflect on so many aspects of my time at Aerospace. I've been incredibly fortunate to have worked at Aerospace for the last 37 years, to have been a part of the company's work and mission and to have had the chance to work with a truly exceptional and dedicated workforce.

I have thought a good bit in recent years about what I would say or write upon retirement. I thought of writing about key career stops and some of the people who most influenced me. But, instead, like a good PowerPoint ranger, I'm just going to write down a nice bulletized list of favorite memories. In the same jumbled order as they emerged from my brain:

- ♦ **The great good fortune I had to hire into the Control Analysis Department.** I made many lifelong friends there, had many great mentors and teammates, and first saw the dedication to mission – to the greater good – that is in so many ways the soul of Aerospace. When I started



there, I thought I might just stay at Aerospace a few years. When I left, I'd become a lifer, and couldn't really imagine working anywhere else.

- ♦ **The great ride that was the TSAT program.** Holy cow, was that a rollercoaster and political football! A splendid vision, perhaps flawed in some ways, but a sincere attempt to leverage technology for enormous gains in communications. In fact, much of what we saw then is still part of today's vision (and may it yet succeed!). And what a great developmental experience – to delve into and live the processes that our community and country uses to build our armed forces – and to work with an extraordinary group of people dedicated to defining and nurturing such a monster of a program. I developed a deep and profound appreciation for the Aerospace program offices – and their customers – for their ability to manage a dozen simultaneous crises, not lose their minds in the process and somehow keep focused on the big picture.
- ♦ **A three-year sojourn into technical intelligence with Project West Wing.** What a unique resource for Aerospace and the nation! And the home of some of the coolest technical projects you could ever imagine. Not to mention some truly great and dedicated people – with an idiosyncratic (shall we say) sense of humor – that helped make it a terrific place to work. And the opportunity to work with data from so many of our space and ground systems was a profound influence in thinking about how we design, procure – and operate (!) – those systems.
- ♦ **The SpaceX Falcon 9 certification effort.** Such an interesting and rewarding challenge – to figure out how to take a launch system built with new and very different processes and adapt it for government use (which has been known to like its processes) – without losing the attributes that made it attractive in the first place. The opportunity to help guide that effort, to help build a great Aerospace team, with a wee bit of political intrigue along the way, was truly memorable. And it helped me appreciate what commercial industry can bring to the defense world, a lesson that seems to grow more relevant every day.
- ♦ **The chance to lead ETG.** My dream job, really – an opportunity to help shape the future of the what is arguably the company's greatest resource, and certainly a national treasure. The chance to see the full breadth of the company's engagement, to build, nurture and develop the company's workforce, and to ensure the availability of the technical depth needed for the mission – I could not have asked for more. I have enjoyed every job I've had at Aerospace, but my heart will always be with ETG.
- ♦ **The Aerospace Players.** What a great opportunity to grow and develop in the world of the arts and have a role in the community around us. I found great reward and joy in being a part of so many musical theater productions – a truly satisfying right-brain hobby to complement a left-brain day job. And I'm incredibly grateful to have worked with so many people so dedicated to putting on these shows – and all on a volunteer basis, doing it just because they loved it.
- ♦ **Finally, and most unexpectedly, leadership of our corporate response to the COVID-19 pandemic.** What a great final note – to help guide the company through an incredibly different and difficult challenge – and to help define the future work-scape of the company. Built into this

was the opportunity to learn much more of the services and operations side of the company and develop enormous respect for these organizations. We could not have weathered the pandemic as seamlessly as we have without the deep dedication and expertise of the people working in this world – Security and Safety, Facilities, Finance, CorpComm, EIS, Legal, People Ops. We all owe them a huge debt of gratitude.

And, though this note has now gone on long enough, I have a few more words yet, not on work directly, but on people. I am incredibly grateful to all of you for the chances to work together over the years, and for the many deep friendships developed from that work. I would love to walk around campus (all of the campuses!), shake your hands, look you in the eye, and say “thank you”, but will have to settle instead for a last thank you – a thanks beyond measure for a zillion great collaborations, for many great learning moments, for leaders, role models and friends too numerous to list, and for the highest standards of ethics, dedication and integrity.

With great respect and deepest thanks,

Chuck

# GPS III-5's Successful Delivery on Reused Booster Marks Major Milestone

June 29, 2021

The Aerospace Corporation supported the successful delivery of the fifth GPS III space vehicle (SV05) into a medium Earth transfer orbit. Nicknamed “Armstrong” in honor of Neil Armstrong, the space asset lifted off on a SpaceX Falcon 9-123 rocket on June 17 at 12:09 pm (EDT) from Launch Complex-40 at Cape Canaveral Space Force Station (CCSFS). The mission ICD orbit insertion accuracy (OIA) requirements were satisfied and the orbit at spacecraft separation compared very well to the SpaceX Monte Carlo results for this mission, with all Orbital Insertion Accuracy (OIA) parameters at SC separation within  $\sim 0.9$  sigma of predictions.



*A Falcon 9 rocket carrying a GPS III-5 satellite into orbit launches from LC-40 at Cape Canaveral Space Force Station, Fla., June 17, 2021. The GPS III satellites have signals three times more accurate than the current generation of satellites and eight times the jamming resistance.*

This was unique and historic mission inasmuch as it was the first time a previously flown booster was used for a National Security Space Launch (NSSL). In fact, it was the same booster that flew first on the GPS III-4 mission on Nov. 5, 2020. Aerospace had been at the forefront in defining standards and criteria for reuse and our team was actively engaged in reuse non-recurring design validation (NRDV). This was a huge effort as it validated several months of reuse NRDV by the combined U.S. government and Aerospace team. The Aerospace effort on reuse will enable the U.S. Space Force to continue to leverage reusability to increase reliability, responsiveness, flexibility, and affordability while maintaining an unprecedented record of mission success.



*Recovery of the Falcon 9's first stage on a drone ship. (Photo Credit: SpaceX)*



GPS III is the newest generation of GPS satellites designed and built to deliver positioning, navigation and timing (PNT) information with three times the accuracy and up to eight times the anti-jamming capability required of its predecessor. This is crucial for warfighters, who will benefit immensely from the increased protection and decreased mission interruption due to adversary spoofing and jamming once fully operational. The more powerful signals and improved accuracy also enhance the efficacy of GPS, which is utilized by more than four billion users and supports critical missions worldwide.



*The GPS III-5 satellite before launch. (Photo Credit: Lockheed Martin)*

The Aerospace team performed outstanding work in the days leading up to launch adjudicating several issues, including but not limited to, post static fire engine inspections to exonerate a suspect data signature, Hardware in the Loop (HITL) test configuration, and ground processing and integration issues. Quick action by the Falcon and Mission Management team allowed these issues to be solved accurately and efficiently, resulting in a successful and on-time launch.

After separation of the GPS III satellite from the Falcon 9, a joint team comprised of Space and Missile Systems Center, contractor, and Aerospace personnel successfully conducted SV05's 11-day early orbit operation out of the Lockheed Martin-Waterton operations center in Colorado, and an operations node from the Aerospace campus in El Segundo. That team successfully executed all planned maneuvers, deployments, and component activations that included: seven burns of SV05's Liquid Apogee Engine that placed SV05 into its intended medium Earth orbit; deployment of SV05's solar arrays and its NDS antenna; a station acquisition maneuver that successfully placed SV05 into its designated slot in the

GPS satellite constellation; and activation of SV05's navigation payload. This led to the USSF 2nd Space Operations Squadron accepting satellite control authority of SV05 from SMC on June 28.

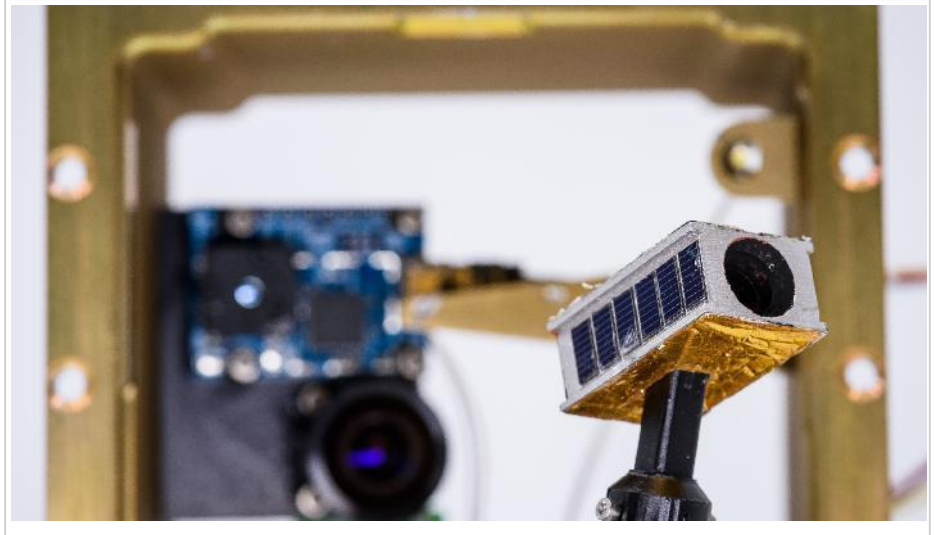
Building on the successful COVID-19-era campaigns of GPS III-03 and GPS III-04, the teams leveraged established COVID protocols and distributed locations to ensure mission success with minimized risk to the team. The significant achievements of the team were highlighted by Space Force and Aerospace leadership, acknowledging the outstanding work in demonstrating resilience by working long hours to mitigate emerging issues – maintaining technical excellence and dedication to mission success. As with all missions, the Aerospace team will be performing a detailed Post Flight Review in July to ensure significant observations are adjudicated prior to the next NSS Launch.

*Written by Akhil Gujral, General Manager of Launch Systems Division*

# Fast-Tracking Space Systems with Modularity and Open Standards

June 28, 2021

Space-based technology has become essential to modern society, and the accelerated pace of innovation continues to increase demand for space-based services. This has prompted a need for more resilient and responsive satellite development and launch processes that can streamline the mission lifecycle to reduce time and cost, while providing greater flexibility and adaptability for space access.



Recognizing the need for modernizing the space enterprise, The Aerospace Corporation has emphasized the adoption of Continuous Production Agility (CPA) principles, which leverages increased production and launch tempo rates, interoperability standards and open architecture to enable greater agility and resiliency for space systems.

A prime example of Aerospace efforts in this area is a program named Slingshot, which looks to advance on-orbit experiments using modular and autonomous technologies on next-generation satellite systems. In essence, Slingshot looks to simplify the architecture with open standards and plug-and-play interfaces to streamline bus-to-payload, satellite-to-satellite, and space-to-ground communications.



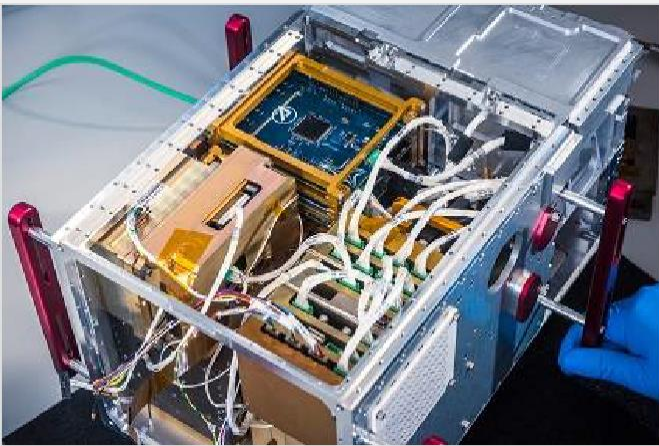
*Aerospace engineers assembling payloads onto the Slingshot platform.*

## Advancing Modularity for the Future of Space

“There have been a lot of efforts to create standard interfaces in space. As is common in the tech world, a standard that satisfies everyone can end up satisfying no one, because the standard can get weighed down by a lot of requirements and things can get very complicated very quickly,” said Dr. Randy Villahermosa, general manager of Aerospace’s iLab. “With Slingshot, we’ve created an open standard interface where



payloads plug together with a satellite, using a reduced number of requirements. This enables clients who want to get to space as quickly as possible to do so, without adding risk.”



*The Slingshot platform uses a SatCat5 ethernet switch architecture, which is able to simultaneously provide high throughput and low-power consumption.*

Wider adoption of modular, open standards for spacecraft enables greater speed, flexibility and agility to meet the needs of a “launch-on-schedule” model.

Furthermore, a modular architecture could help to extend spacecraft lifespans by allowing for individual components to be more efficiently upgraded or replaced as needed. Aerospace is building upon its own innovations in the area of modularity to advance the state-of-the-art.

For many years now, Aerospace has been flying new technologies for customers on its AeroCube CubeSat platform, and an early version of a simple standard

interface helped accelerate many of these emerging technologies into space.

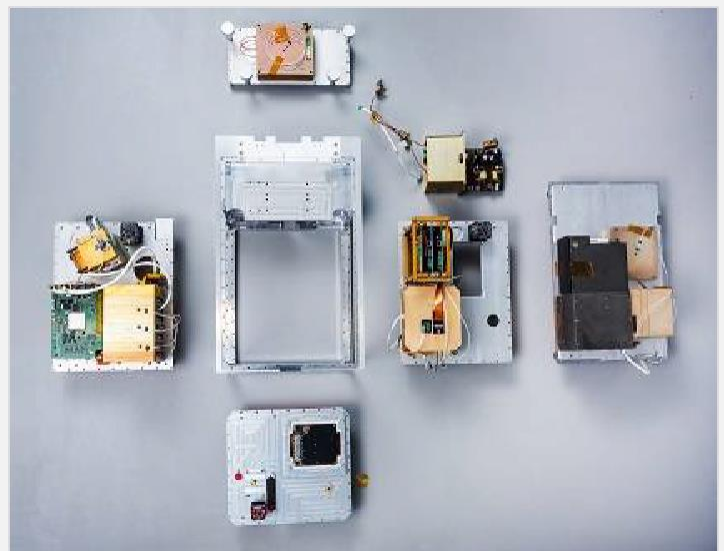
### **A New Standard for SmallSats**

A key feature of the Slingshot platform is the use of SatCat5, an open source mixed-media ethernet switch architecture that enables a variety of devices to communicate on the same network. Unlike other existing standards, such as CAN and SpaceWire, SatCat5 is able to simultaneously provide high throughput and low-power consumption using ethernet technologies and an end-to-end payload development kit.

Slingshot also uses one common bus-to-payload interface, providing a reusable standard that can eliminate the ad-hoc proliferation of complex, dissimilar protocols that have historically bogged down connectivity and driven up costs.

“We’ve created an interface that’s comparable to connecting a thumb drive to your laptop,” said Dan Mabry, Mission Systems Engineer for the project. “Another benefit is that after the first unit, the development cost for the software is essentially zero for future units.”

*The Slingshot 1 mission is slated for launch in early 2022. Read the [full article on Aerospace.org](https://www.aerospace.org) to learn more about the mission and Slingshot platform.*



*Slingshot will host 17 different payloads on a 12U Blue Canyon Bus smallsat.*

# A Recognition of Excellence: 2021 Corporate Awards

June 24, 2021



*2021 Aerospace Corporate Awards Ceremony banner*

The Aerospace Corporation celebrated groundbreaking technical feats, inspirational examples of going above-and-beyond for the customer, important achievements that strengthen the company for the future, and more at the 2021 Corporate Awards Ceremony Thursday.

Hosted by Aerospace President and CEO Steve Isakowitz and Executive Vice President Wayne Goodman, the virtual event kicked off with a performance of “America (My Country, ‘Tis of Thee)” by the Aerospace Musician’s Network Virtual Choir.



Isakowitz congratulated employees on the ingenuity, resilience, and hard work they've shown over the past year, despite the challenges from the COVID-19 pandemic.

"This past year has been unlike any other in our corporation's history. We've been challenged to think creatively and operate in different ways, to learn new tools, and to come up with innovative approaches to continue accomplishing our critical mission," Isakowitz said. "What hasn't changed is our depth of technical expertise, our dedication to solving the hardest problems in space, and our commitment to one another."

Awards were given out in a number of categories aligned with the company's values and strategic imperatives: Shaping the Future, Innovation, Growth in Our Value and Velocity, as well as awards for Dedication to Mission Success, Technical Excellence and Commitment to Our People. Winners of Employee Resource Group awards from the previous year were also recognized.

"The achievements we're recognizing today are built on the foundation provided by our core values and guided by our strategic imperatives," Goodman said. "Together, they help us sustain the excellence that has been a hallmark of this company throughout its history, and propel us forward as we work to fulfill our vision as the nation's trusted partner, solving the hardest problems for the preeminent space enterprise."

The program concluded with the awarding of Aerospace's highest honors — the President's Distinguished Achievement Award and the Trustees' Distinguished Achievement Award.

### **Velocity Award**

The Velocity Award goes to the **Remote STARS Implementation Team** for its extraordinary effort, innovation, and teamwork to rapidly achieve remote launch capabilities in response to COVID-19 restrictions. Faced with limited on-site staffing, the team worked quickly to deploy a virtual intercom system and remote access to high-bandwidth, real-time telemetry data display and analysis software. These achievements provided remote capabilities that enabled the same depth of launch support during normal operations. This contributed to the successful launch of five national security space missions while revolutionizing Aerospace's ability to conduct fleet surveillance for non-NSS launches.

**Team members:** Jason Anderson, Cheryl Bien, Luz Blurfrushan, Arturo Candelas, Jonathan Co, Daniel Goodenberger, Andrew Grant, Walter Green, Ed Kawamoto, Robert Maltese, Marvin Simon, Matthew Uller, Larry Wang

### **Velocity Award**

The Velocity Award is presented to the **Enterprise Analytics Team** for the development and rollout of an enterprise-wide analytics capability that supports better, more consistent and more-informed business decisions. The cross-organizational team led a multi-year effort that combined analytics best practices with best-of-breed technologies to significantly improve Aerospace's ability to exploit organizational data, laying the foundation for key corporate processes and initiatives, including the COVID-19 response. In addition to the technical aspects, the team coordinated extensive training and communications outreach, supporting a rapid and widespread adoption of the framework across the enterprise.

**Team members:** Gavin Cain, Grant Cooperstein, Joseph Fares, Douglas Fitzpatrick, Tamara Flaherty, Donald Hall, Sherry Hsia, Sandra Johnson, Sergey Kochetkov, Vaishakhi Lahoti, Jennifer Lew, Kelly Lynch, Mary Ponce, Sean Reeves, Jehangir Shah, Anne Soukup, Stewart Sutton, Charles Yun, Jesse Zepeda

### **Growth in Our Value Award**

The Growth in Our Value Award goes to the **Hypersonic Missile Defense Team** for its development of analytical tools to assess the performance of existing and future approaches to countering this critical threat. Starting with a minor task, the team's initial insights led to requests for additional support from the customer and subsequent investments in tools that will be useful to multiple customers. The team brought together hypersonic experts from across Aerospace to share knowledge, tools, and techniques, strengthening a capability that will benefit Aerospace and the government for years to come.

**Team members:** Andre Brochier, Brian LeCompte, Mackenzie Ott, Steven Taylor, Damian Toohey

### **Innovation Award**

The Innovation Award is presented to the **Rogue Alpha Beta CubeSat Team** for demonstrating a novel rapid reconstitution capability to thwart adversary threats on a compressed timeline. Utilizing commercially available parts, the team designed, built, and fielded a new optical payload concept with two CubeSats within 18 months. The project has become a pathfinder for rapid deployment options to assure mission continuity in the event of a high-value asset satellite or system outage, and new data from its sensors are paving the way for future architectures and analyses.

**Team members:** Russel Benson, Brian Hardy, Dr. Sara Lampen, Dr. Dee Pack, Darren Rowen, Deborah Salvaggio, Paul Su

### **Shaping the Future Award**

The Shaping the Future Award is presented to the **Artemis Program Team** in recognition of its contributions advising NASA leadership with integrity and objectivity as the team determined the best approach for returning humans to the Moon. The Aerospace team developed the implementation strategy for returning humans to the lunar surface and later to Mars, and defined operations concepts for lunar demonstrations and Mars surface operations. The team also provided a visionary approach to the establishment of the Artemis program organizational structure and the strategy to incorporate national policy into mission scenario and system architectures.

**Team members:** Alida Andrews, Stratis Catacalos, Michael Chandler, Bret Drake, Martha Hess, Dr. Stephen Hoffman

### **Commitment to Our People Award for Safety**

The Commitment to Our People Award for Safety goes to the **COVID-19 Risk Assessment Team**, for its outstanding efforts to limit the spread of COVID-19 in the workplace and protect the health and safety of our people. The team acted swiftly to develop a reporting, response, and notification plan to prevent transmission of the coronavirus in the workplace, and has conducted more than 1,900 risk assessments since the start of the pandemic. The team coordinated notifications of close contacts, oversaw office

closures and cleanings, and kept leadership apprised of the evolving situation, all while protecting employees' privacy and responding with care, sensitivity, and transparency.

**Team members:** Richard Alexander, Agustin Alvarez, Karl Brian Arcadio, Erik Baer, MaryAnn Bailey, Ellen Baum, Jason Bayonne, Jeff Chen, Rena Collins-Nelson, Winston Cortenbach, Howard Dotson, George Drexinger, Abraham Gonzalez-Silva, Jill Greenlaw, Robert Hastings, Eric L. Johnson, Joyce Lew, Jayalakshmi Mohan, Karen Perez, Glenn Portillo, Brett Randall, Nakeisha Seymore, Laura Simpson, Emma Slattery, Madeline Smith, Carissa Thomas, John Tunell, Elizabeth Uyeda, Kimberly Vargas, Christopher Voegtli, Andrea Wright, Hila Wright

### **Commitment to Our People Award for Corporate Citizenship/Community Outreach**

The Commitment to Our People Award for Corporate Citizenship/Community Outreach goes to **Camille Keely**, for her enduring commitment to STEM education, mentoring, and outreach to the next generation of scientists and engineers. Ms. Keely is a trusted confidante who actively mentors Aerospace employees at all levels of the organization, providing guidance, constructive feedback, and encouragement to help them accomplish their goals. She also devotes substantial time to volunteering in her community—helping young people lay the foundations for future success, including through the establishment of a non-profit robotics organization to educate and engage students.

### **Commitment to Our People Award for Leadership/Mentorship**

The Commitment to Our People Award for Leadership/Mentorship goes to **Sonia Henry** for her leadership and efforts to advance diversity, inclusion, and excellence at Aerospace and in the community. Through her mentorship and active involvement with the summer internship program, Ms. Henry has played a critical role recruiting and retaining an exceptional and diverse talent base at Aerospace. She has been a leader and active participant in the Aerospace Black Caucus, Aerospace Women's Committee, and the Black Engineers Network, and volunteers significant time outside of work supporting STEM activities and other charitable causes.

### **Commitment to Our People Award for Diversity, Equity, and Inclusion**

The Commitment to Our People Award for Diversity, Equity, and Inclusion is presented to **Jamie Dronen**, for building a diverse, high-performing team that is forging high impact U.S.-allied acquisition partnerships for the Space Force. Mr. Dronen has strategically grown his organization and provided career development opportunities, in the process bringing together a technical staff and management team that is the most diverse in the Space Systems Group. The team has produced exceptional results for Aerospace and the customer as it seeks to build partnerships with a similarly diverse international defense space community.

### **Technical Excellence Award**

The Technical Excellence Award goes to the **SRM Nozzle Redesign Team** for its persistence in championing an approach that led to considerable schedule savings and continued access to space for critical programs. After initial qualification tests for a new solid rocket motor—that is, an SRM015—displayed anomalous erosion in the nozzle throat, the team advocated for robust design improvements and elevated concerns to the customer. Based on the team's efforts, work began on a contingent throat design which was ultimately

implemented and successfully qualified, avoiding additional development delays and the potential for future launch failure.

**Team members:** Aaron Cozart, Dr. John Klug

### **Dedication to Mission Success Award**

The Dedication to Mission Success Award goes to the **Cryogenic Payload Anomaly Recovery Team** for the creative and timely resolution of a complex suite of pre-launch failures. The team developed one-of-a-kind analytical and experimental techniques to identify the anomalies, involving simulation, development of a rapid test apparatus, and deployment of a diagnostic imaging method. Their work led to the expedited recovery, acceptance, test, and delivery of the completed system earlier than other methods would have allowed.

**Team members:** Joseph Altebrando, David Gutierrez, De-Ling Liu, Mark Nelson, Terita Norton, Jerome Snowiss

### **Program Recognition Award**

The Program Recognition Award goes to the **New National Security Space Mission Enterprise Integration Team**, which delivered a revolutionary activity-based intelligence system to a program of national importance. The team led across all phases of acquisition including program inception, prototyping, requirements development, source selection, hardware procurement, algorithm innovations, and enterprise integration.

In the process, the team demonstrated tireless commitment in coordinating across a diverse customer enterprise, providing unique solutions to develop this first-of-its kind capability. The mission has demonstrated capabilities that surpassed expectations and will enable new categories of products designed to address emerging threats. The work of the team has been recognized at the highest government levels and is an excellent example of Aerospace's ability to lead complex enterprise integration activities through cross-organizational collaboration.

### **Employee Resource Group Awards**

Throughout the year, several Employee Resource Groups hold award ceremonies to honor individuals who embody the ideals of their organizations through their stellar work and their extraordinary contributions to the company and their communities.

The Aerospace Asian Pacific American Association's Dr. Alexander C. Liang Asian Pacific American Achievement Award went to **Vincent Kong**.

The Aerospace Black Caucus's Robert H. Herndon Black Image Award went to four recipients, **Stephen Blanchette, Rosalind Harden, Sherreth Vaughan and Dr. Brianne Williams**.

And three people were honored with the Aerospace Women's Committee Woman of the Year Award, **Darlene Covington, Dr. Dewanne Phillips and Dr. Seema Sud**.



## **President's Distinguished Achievement Award**

The first President's Distinguished Achievement Award went to **Tamra George** for her outstanding contributions in coordinating the design, development and delivery of technically innovative tools and methods to accomplish highly complex extravehicular activity missions on the International Space Station.

With the cooling system on the Alpha-Magnetic Spectrometer's particle detector in need of replacement, Ms. George, in her role as the EVA hardware lead, was instrumental in developing a workable plan to restore the functionality of this \$2 billion asset. The plan introduced new tools and methods that had never before been used on spacewalks, including cutting steel tubes and swaging new tube connections in their place, raising the bar for what humans can accomplish on-orbit in a spacesuit.

Ms. George led development of numerous unique tools and crew aids, and coordinated activities of multiple organizations with the highest levels of integrity and objectivity, with the safety of the spacewalkers remaining the utmost priority.

Her efforts culminated in four successful ISS spacewalks in late 2019 and early 2020, earning her widespread recognition and the opportunity to continue providing technical support for ISS missions and future planetary exploration mission.

The second President's Distinguished Achievement Award went to the **Getting Heights Team**, for the rapid design, development, testing and fielding of a critical national security capability. Jean Michael accepted the award on the team's behalf.

And the final President's Distinguished Achievement Award is for lifetime achievement, and it was awarded to **Dr. Mark Brosmer** for unwavering dedication over the course of his career to technical excellence and to ensuring satellites critical to our national security are successfully delivered to orbit.

Dr. Brosmer has been embedded in launch operations since joining Aerospace in 1987 as an engineer in ETG conducting thermal radiation and thermofluids analyses of rocket motors and engines. He joined the Evolved Expendable Launch Vehicle program – now known as National Security Space Launch – in 1996 and worked collaboratively to develop the Launch Verification Matrix, which to this day forms the framework for Aerospace's launch mission assurance responsibilities and has played an instrumental role in the unprecedented legacy of success of the program.

In his role as General Manager of Launch Operations Division since 2011, Dr. Brosmer has guided the Aerospace team to 100 percent mission success across 60 National Security Space Missions. At the same time, he's worked to establish highly streamlined mission assurance processes that freed up resources to address other program needs and formed the basis for many Agile Mission Assurance initiatives.

With over two decades of continuous leadership of the EELV and NSSL program, Mark's objectivity and integrity are recognized throughout the customer and contractor community as the embodiment of the excellence that Aerospace brings to ensuring mission success.

## **Trustees' Distinguished Achievement Award**

This year's Trustees' Distinguished Achievement Award was presented by Board Chair Stephanie O'Sullivan. The award goes to **Andrew Shearon** for his unwavering dedication to the birth and success of a classified mission over the course of a decade.

Mr. Shearon is the chief architect of a game-changing advanced communications capability, making mission-essential contributions to every phase of the program, from its earliest concept to current operational support to the end user.

He pioneered rapid acquisition approaches and worked closely with the program office, leading side-by-side troubleshooting and developing innovative workarounds to maintain forward progress. His tireless work ethic is exemplified by the more than six months he spent deployed to oversee system checkout, where he educated satellite operators and trained users. He displayed great ingenuity and problem solving in helping to overcome unforeseen operational challenges, and made a number of diving catches that led to recovery from near-catastrophic satellite anomalies.

Through his efforts, Mr. Shearon shepherded the entire enterprise to success, and his contribution were recognized at the highest customer and government levels, including being highlighted to the Secretary of the Air Force by the government program manager. His work enabled a four-times increase in STE, and led his customer to tell their peers "This is what Aerospace can do for you."

Isakowitz closed Thursday's ceremony with a final congratulations and thank you to Aerospace employees.

"It's been a truly extraordinary year, marked by big challenges and even bigger successes," he said.

"Whether you were working from home, in a lab, in a secure facility or somewhere else, all of you played a role in helping us deliver on our mission at this critical time, and I'm so proud to call all of you colleagues."

# Kevin Bell Named New Senior Vice President of Space Systems Group

June 21, 2021

EL SEGUNDO, Calif., June 21, 2021 – To ensure continued U.S. leadership in space and collaborate on the space enterprise of the future, The Aerospace Corporation (Aerospace) has selected Aerospace executive, Kevin Bell, to serve as the new senior vice president of the Space Systems Group (SSG). Bell will partner with government customers to advance future space architectures, rapid acquisition, innovation, and commercial opportunities.



“Kevin has the deep technical knowledge and customer experience that will ensure our continued record of mission success,” said Steve Isakowitz, Aerospace president and CEO. “He also possesses a proven track record of leadership and the strategic vision to help our company excel during this dynamic time in space.”

Prior to this role, Bell served as vice president of Space Program Operations in SSG for the past four years, working directly with the Air Force, government, and industry partners to develop military satellites and to advance national security space systems. He assisted with the development of system requirements, provided schedule/cost risk assessments, and solved systems development problems. In addition, he oversaw four major mission areas: communications, surveillance, weather, and navigation.

Bell joined Aerospace as a member of the technical staff in the Vehicle Systems Division of the Engineering and Technology Group in 1992. Throughout his 30-year career, he has held numerous leadership positions within the corporation’s National Systems Group and supported commercial ventures, the U.S. Air Force, NASA, Missile Defense Agency, and National Reconnaissance Organization customers.

Prior to joining Aerospace, Bell held technical positions in industry and academia, including a position at NASA Ames Research Center.

Bell earned a bachelor’s degree in both mechanical engineering and aerospace engineering from the University of California, Davis, as well as a master’s degree in aerospace engineering from Stanford University.

# Aerospace Elects New Board Leaders; Former NASA Chief and Recent Deputy Secretary of Defense Join as Trustees

June 17, 2021

EL SEGUNDO, Calif., June 17, 2021 –

The Honorable Stephanie L.

O’Sullivan was elected chair of The Aerospace Corporation (Aerospace) Board of Trustees, effective June 11.

Retired U.S. Air Force Gen. Paul J.

Selva will serve as vice chair,

replacing O’Sullivan in this role. The

Honorable Jim Bridenstine, former NASA administrator, also joined the

board effective June 8, along with the

Honorable David Norquist, former Deputy Secretary of Defense, who will begin his term on Sept. 8.



The Honorable Jim Bridenstine, former NASA administrator, also joined the board effective June 8, along with the Honorable David Norquist, former Deputy Secretary of Defense, who will begin his term on Sept. 8.

“Stephanie and Paul bring extensive knowledge of our customers’ needs to the board, and they provide insight into how Aerospace can deliver solutions to those needs that work across the space enterprise,” said Steve Isakowitz, Aerospace president and CEO. “I’m thrilled for them to take on these new roles, and I look forward to their continued stewardship at Aerospace.”

O’Sullivan was elected to the board in June 2017 and elected vice chair in December 2019. She has served the Intelligence Community throughout her career, most recently as principal deputy director of National Intelligence in the Office of the Director of National Intelligence (ODNI). She also served as the associate deputy director of the Central Intelligence Agency (CIA), working with the director



*The Honorable Stephanie L. O’Sullivan was elected Chair of Aerospace’s Board of Trustees, and retired U.S. Air Force Gen. Paul J. Selva will serve as Vice Chair.*



and deputy director in the overall leadership of the agency and day-to-day management of the organization. Prior to this role, O'Sullivan led the CIA's Directorate of Science and Technology (DS&T) – the part of the agency responsible for developing and deploying innovative technology in support of intelligence collection and analysis.

Selva joined Aerospace's board in December 2019 after retiring from his position as the 10th Vice Chairman of the Joint Chiefs of Staff, where he had been the nation's second-highest-ranking military officer. Prior to this assignment, he served as commander of United States Transportation Command, responsible for overseeing all global air, land, and sea transportation systems for the entire Department of Defense. Selva's distinguished career in the Air Force spanned 39 years and numerous positions in staff, leadership, and command in nearly every operational tier of the Air Force.



Regarding Bridenstine and Norquist, Isakowitz said, "I'm also excited to welcome Jim and David to our board. Each is a highly respected leader in his own right, and together they deepen Aerospace's expertise across both the national security and civil sectors as we work to integrate and strengthen activities across all space sectors."

Under Bridenstine's leadership, NASA launched its new human lunar exploration mission, the Artemis Program. He managed the continued commercial resupply of the International Space Station and led agency efforts to partner with American businesses on the Commercial Crew Program.

Additionally, Bridenstine established the Commercial Lunar Payload Services Program to partner with private enterprise in landing rovers on the lunar surface. Previous to NASA, Bridenstine served as the United States Representative for Oklahoma's 1st congressional district, from January 3, 2013, to April 23, 2018.

Norquist was the deputy secretary of defense from 2019 until earlier this year. In this role, he was responsible for the day-to-day business operations of the Defense Department, managing the Pentagon's budget as well as overseeing efforts to reform the military's acquisition and accounting practices. Prior to this position, he served as undersecretary of defense chief financial officer. During the early days of President Joseph Biden's administration, while the Senate considered the nomination of current Secretary Lloyd Austin, Norquist served as acting secretary of defense.

## **ABOUT THE AEROSPACE CORPORATION**

The Aerospace Corporation is a national nonprofit corporation that operates a federally funded research and development center and has more than 4,000 employees. With major locations in El Segundo, California; Albuquerque, New Mexico; Colorado Springs, Colorado; and the Washington, D.C., region, as well as a wholly owned subsidiary in the United Kingdom, Aerospace addresses complex problems across the space enterprise and other areas of national and international significance through agility, innovation,

and objective technical leadership. For more information, visit [www.aerospace.org](http://www.aerospace.org). Follow us on Twitter: [@AerospaceCorp](https://twitter.com/AerospaceCorp).

# Aerospace Names Stem Scholarship Winners; One in SoCal and Four Across Nationwide Locations

June 17, 2021



EL SEGUNDO, Calif., June 16, 2021 – Building on The Aerospace Corporation’s (Aerospace) continued commitment to diversity, equity, and inclusion, Aerospace named five winners of its scholarship and mentoring program—one from the initial flagship program in Southern California and, in an expansion of the program, four from regions where the company has major offices: Los Angeles, Calif.; Huntsville, Ala.; Colorado Springs, Colo.; Albuquerque, N.M.; and Arlington/Alexandria, Va.



*Antonio Garcia, the 2021 recipient of the Dr. Wanda M. Austin STEM Scholarship.*

This year’s recipient of the Dr. Wanda M. Austin STEM Scholarship, the company’s top scholarship, was awarded to Antonio Garcia, a graduate of Lennox Mathematics, Science and Technology Academy in Lennox, Calif. This award includes a paid summer internship, mentoring, and a grant for up to \$10,000 a year, renewable for four years. Garcia will be attending Loyola Marymount University in the fall to pursue a bachelor’s degree in mechanical or civil engineering.

“We’re excited to support and mentor Antonio and this exceptional group of students from across the country as they continue their educational journeys,” said Steve Isakowitz, Aerospace president and CEO. “They represent the vast talent and potential inherent in this next generation of scientists and engineers,

and the diverse perspectives they bring will help advance our nation's excellence in STEM fields, including in space."

Increasing diversity in science, technology, engineering, and mathematics (STEM) is at the core of Aerospace's outreach initiatives. The Dr. Wanda M. Austin STEM Scholarship program was established in 2015 to increase STEM opportunities for high-achieving, underrepresented students. With the launch of the Future STEM Leaders program, Aerospace is building on this success by expanding opportunities for first-generation, college-bound students in areas where Aerospace employees live and work.

Each recipient of the Future STEM Leaders Scholarship receives a one-time \$5,000 scholarship upon acceptance into a four-year college or university. The students are also matched with Aerospace employees who act as academic mentors and coaches from college admission to entry into the working world. All recipients demonstrate a record of leadership and participation in community-service activities as well as an interest in pursuing a four-year college or university degree in physical sciences, computer sciences, engineering, or mathematics. Here are the new recipients:



**Nancy Dofour** is an upcoming senior at T.C. Williams High School in Alexandria, Va. She is also currently studying at Northern Virginia Community College (NOVA) and George Washington University. She plans to obtain her undergraduate degree in biology and apply to medical school.

**Jaylen Maull** is a student at Jemison High School in Huntsville, Ala. While he works hard at pursuing his interests in engineering, Maull is very interested in the arts as well. He combines these two passions through audio engineering and creating his own music.

**Patrick Baca** is a senior at the top of his class at College and Career High School in Albuquerque, N.M. Even though still in high school, he has already earned two associate degrees—in liberal arts and sociology—and is on track to earn additional associate's degrees in criminology and biology by August 2021.

**Ana Rojas** is a student athlete at Doherty High School in Colorado Springs, Colo. Along with excelling in engineering and STEM classes, Rojas competes at the national level in swimming. She has accepted an athletic scholarship to swim and continue her academics at Purdue University.

Both the [Dr. Wanda M. Austin STEM Scholarship](#) and [Future STEM Leaders Scholarship](#) are funded through the [Aerospace STEM Endowment Fund](#), which is sustained solely through employee and trustee donations, charitable organizations, and estate gifts.



## **ABOUT THE DR. WANDA M. AUSTIN STEM SCHOLARSHIP**

The Dr. Wanda M. Austin STEM Scholarship is an invitation-only scholarship, where recipients receive a paid internship at Aerospace and a scholarship of up to \$10,000 per year, renewable for up to four years. Scholarship recipients are required to pursue undergraduate studies in a STEM field at a four-year college and maintain a 3.0 grade point average. The Dr. Wanda M. Austin STEM Scholarship was named after Aerospace's former CEO and president for her dedication and support of STEM education.

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# Aerospace Women's Committee Celebrates 2021 Promotees

June 10, 2021

The Aerospace Women's Committee (AWC) recently hosted a virtual event to celebrate and recognize the professional advancements of women employees from all Aerospace locations over the past year. The annual AWC Promotion Party, a company tradition held for more than 30 years, included events in El Segundo, Chantilly, Albuquerque and Colorado Springs. This year, 180 people attended the event where over 145 employees' promotions were celebrated.



Opening remarks were provided by Jean Michael, General Manager of the Space Enterprise and Warfighting Division, who provided some insight into her career path, teamwork and experience at Aerospace. "While we all have differing roles, we must work together to meet our shared objectives – staff do not do great things, but teams can change the world," she said. "We must all use where we are as an opportunity to do the best, and to be willing to take the feedback to get even better."

Although ongoing COVID-19 protocols made this the second consecutive year the event was held virtually, it was nonetheless a success, providing an essential venue for honoring and saluting the accomplishments of women at Aerospace, as well as an important networking and career development resource.

"The Aerospace Women's Committee, represents all women of the corporation, comprising all races, ages, job categories and corporate groups," said Shawne' Raiford, National President of the AWC. "The committee serves as a resource for women to share experience and expertise; a support network that recognizes and celebrates the achievements of women; and a forum where women participate in opportunities for growth and contribution to the advancement of the company."

Closing remarks were provided by Rosalind Lewis, General Manager of Space Program Operations, while Denise Betts, Graphics Design and Publications Manager of Technical Communications, served as the event announcer.

“On behalf of AWC, we are so proud of you and would like to wish you even more success in the future,” said Raiford.

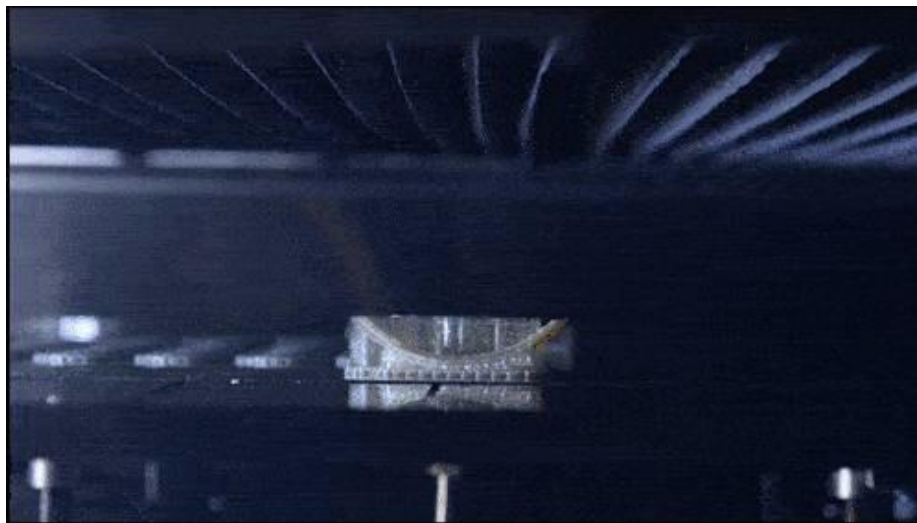
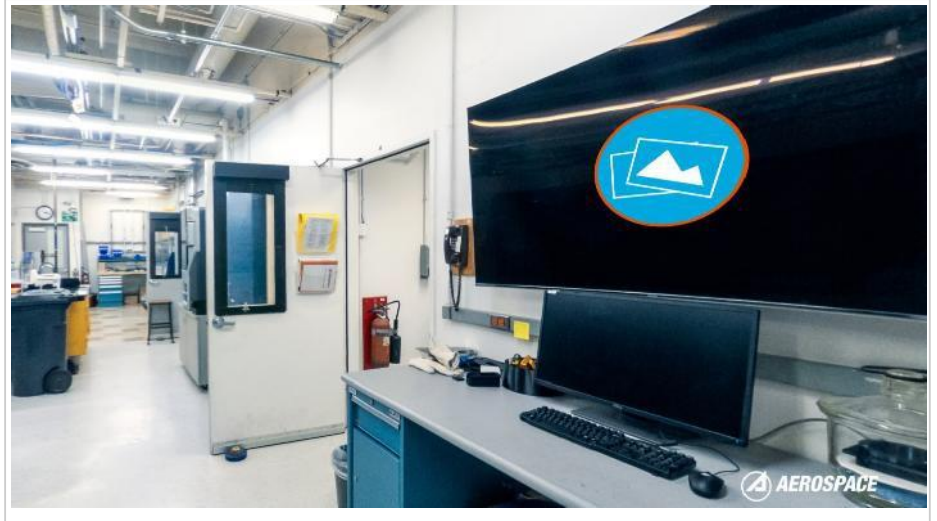
Congratulations to these talented and deserving Aerospace women!

# Take a Virtual Tour of Aerospace's Additive Manufacturing Laboratory

June 09, 2021

*The [Aerospace Virtual Tours](#) allow you to digitally navigate through some of our world-class labs to learn more about the innovative and complex work our experts do every day to advance space capabilities. Be sure to check out what other virtual tours are available on [Aerospace.org](#).*

Aerospace has been a leader in additive manufacturing since 2012, combining our hands-on manufacturing experience with materials science expertise and component characterization capabilities to understand the relationship between the manufacturing process and the part performance.



Aerospace's experts can study the microstructures that are unique to additively manufactured parts, which enables engineering unique solutions like composite replicated optics and innovative antenna structures. Components made via additive manufacturing could help reduce the cost and enhance the capability of future space systems.

Explore our [\*\*Additive Manufacturing Lab\*\*](#) to see what we're doing to make that happen.



# Joint-ERG Event Explores How Allyship Makes Aerospace Better

June 08, 2021

Aerospace's Employee Resource Groups (ERG) recently collaborated to host an interactive virtual event focused on "How to Be an Effective Ally: Creating A Culture of Trust, Inclusion, and Belonging." The joint-ERG event offered employees an opportunity to participate in discussions about their own experiences and observations, as well as actions they can take to help create a better environment for their colleagues and communities.

"Aerospace gets better when we have leaders who take risks and who take action. You bring a vision of what Aerospace can do to be more inclusive and more effective," said Jamie Morin, Vice President of the Defense Systems Group, who provided the opening remarks. "Allyship is not a passive thing. It does require investing in time to understand what can and must be done, and it requires investing in personal risk and the willingness to put yourself out there, but it's worth it. Allyship will promote the dignity and worth of each individual. Yes, we do that because it's the right thing to do in its own right, and that's enough, but we also know it because makes us stronger and it makes us more effective."

Effective allyship enables team members to feel heard and empowered to voice different perspectives and opinions. Lifting each other's voices creates safer environments for more understanding while also helping combat groupthink and unconscious biases, which is especially applicable given Aerospace's unique role.

In conjunction with the event, Aerospace's eight ERGs issued a joint statement against injustice:

*Aerospace Employee Resource Groups are committed to helping our organization create a sustained culture of trust, inclusion and belonging. We recognize that we play a specific role in bringing awareness to our Aerospace community by providing inclusive experiences and serving as a forum to uphold diversity, equity and inclusion. We stand together and*



*The Aerospace American-Indian and Alaskan-Native Council (AAIANC), the Aerospace Asian Pacific American Association (AAPAA), Aerospace Black Caucus (ABC), Aerospace Lambda Alliance (ALA), Aerospace Latino Members Association (ALMA), Aerospace Military Veterans (AMV), Aerospace Totally Adaptable Group (ATAG) and the Aerospace Women's Committee (AWC) actively represent their constituencies at Aerospace, and their lead officers are members of the Aerospace Diversity Action Committee (ADAC).*

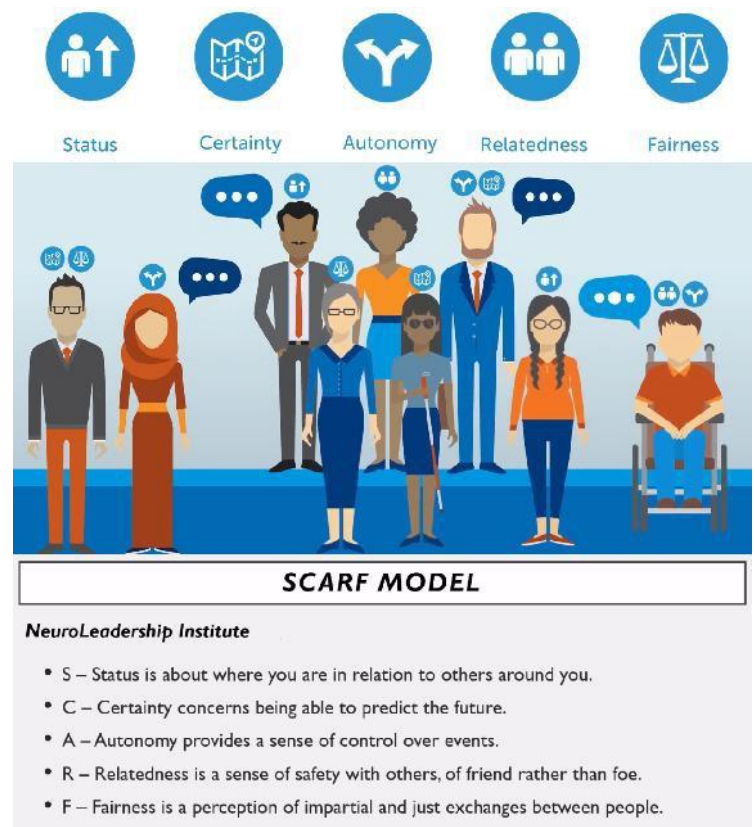
*unequivocally condemn acts of violence, hate and inequity, and pledge to take action in ensuring greater equality. Everyone deserves respect and fairness in the pursuit of all basic human rights including liberty, justice and safety for all.*

“We can no longer be silent bystanders, but allies who speak and stand up for what is right whenever the opportunity presents itself,” said Sonia Henry, Vice President of the Aerospace Black Caucus (ABC) and moderator of the event. “Allyship is about actively advocating for what is right as we seek to build inclusivity and respect for all at Aerospace and in our world ... creating and maintaining a diverse, equitable and inclusive culture is everyone’s responsibility. One small action on your part can bring about change and mean a world of difference.”

As part of the discussion, participants learned more about the NeuroLeadership Institute’s INCLUDE program, which Aerospace launched for managers to develop stronger, more collaborative teams to promote a more inclusive environment for all employees.

The program focuses on using the SCARF® Model to bring conscious awareness to five domains of human social experience: Status, Certainty, Autonomy, Relatedness, and Fairness. Facilitators Kathryn Carmean and Daniel Jean from Aerospace’s People and Organizational Development team then led breakout sessions where employees were asked to focus their discussions on two important questions:

- Why is allyship important at Aerospace?
- What are some actions to take to foster allyship at Aerospace?



Among the various insights employees shared were that allyship requires courage and conviction to advocate for others and amplify the voices of the unheard. There was a recognition for the importance of asking questions and not shying away from difficult conversations, and that being active as an ally is essential to broadening one’s scope and exposure. Employees also said that allyship is an important trait for leaders as it helps foster a better team environment and inspires others.

The values discussed at the event was perhaps best encapsulated by an African proverb referenced as part of the conversation. As the saying goes, “If you want to go fast, go alone; but if you want to go far, go together.”

The ERGs will host a follow-up event, tentatively scheduled for July 8, to continue the discussion on ways to become an effective ally. Membership and participation in all ERGs are open to all employees, regardless of identity. If you are interested in joining an ERG please [click here](#) for more information.

If you have any thoughts you would like to share on the importance of allyship at Aerospace or actions to foster allyship, please do so in the comment section below.

# After the ISS: What's the Future for Space-Based Microgravity Research?

June 07, 2021

*As plans for the end of the International Space Station are being made, Aerospace's Chief Technology Officer Dr. David Miller shared his thoughts on the progress and the future of space-based microgravity lab facilities on Aerospace's Medium channel.*

Technology research is no longer solely a terrestrial endeavor. Crucial interactions between the zero gravity environment and the physics of spacecraft can't be replicated in a 1-G environment on Earth. A benefit of human space exploration has been the ability to test space innovations in the environment where they will eventually operate.



*The International Space Station has served as a critical laboratory for microgravity research. (Credit: NASA)*

Critical space-enabling technologies have been developed in the microgravity labs aboard space stations including Mir, the Space Shuttle, and most notably the International Space Station (ISS). Long-duration microgravity experiments, impossible to perform by traditional means, have been successful only because of the modular hardware and software design of these facilities.

In the same way researchers might use a wind tunnel, the microgravity environment in on-orbit facilities permit early phase technology to be tested to its limits without harm to the testbed, the operator, or the human-rated vehicle under the conditions expected in space — an essential step to identifying the limits of knowledge and capabilities and to focus future investment in space technology.





*The Middeck 0-g Dynamics Experiment (MODE), developed through NASA support, helped pioneer the use of the Shuttle middeck as a research laboratory and was among the first US experiments in the Shuttle-Mir program. MODE flew on two Shuttle missions, STS-48 in 1991 and STS-62 in 1994. (Credit: NASA)*

In my career, I've had the opportunity to help develop three micro-gravity technology research facilities, studying the dynamics of physical structures of spacecraft and the control actuators used for spacecraft stabilization and maneuvering.

Testing in a real microgravity environment has led to numerous critical and highly visible advancements, such as understanding the structural stability during temperature changes associated with the large primary mirror on the James Webb Space Telescope. Fuel slosh testing in microgravity has been essential for understanding the stability of spinning launch vehicle upper stages. The Middeck Active Control Experiment (MACE) developed spacecraft attitude and vibration control systems that learn from measurements taken on orbit in order to autonomously improve spacecraft pointing and steering performance.



As the first free-flyer experiment inside ISS, SPHERES is a national facility supporting dozens of researchers from academic, industrial and governmental organizations. SPHERES free-flyer dynamics allow astronauts on the ISS to collaborate directly with researchers on the ground.

The SPHERES lab not only serves as a research facility, but as a tool to inspire the next generation. For over a decade, SPHERES has been host to Zero Robotics, an international STEM robotics and coding challenge for over 20,000 middle and high school students worldwide. Student teams learn to program the SPHERES robots and compete against each other virtually on board the ISS.

# ACE Champion Q&A: Supporting Our Teammates to Be Their Best Selves

June 03, 2021

*Aerospace Committee for Equality (ACE) assesses, recommends and executes the corporation's diversity, equity and inclusion (DEI) actions through the focus areas of Recruitment, Representation, Retention, Education and Training, K-12 STEM Outreach and Community Outreach. Throughout the year, the Orbiter will feature guest Q&As from each focus area executive champion.*



*Our guest for this installment is Marty Whelan, executive champion for the Retention focus area.*

## **What makes you passionate about your Aerospace Committee for Equality (ACE) focus area: Retention?**

The Retention team focuses on keeping our highly capable employees here at Aerospace. As a company, we put a great deal of time and energy into identifying and recruiting the very best to join the Aerospace team – that is why we are here. The Retention team puts its energy into keeping people on the Aerospace team – keeping them sold on the value they bring to mission success. What makes me passionate is that this is a complex puzzle and not everyone is on the same journey. We need to constantly communicate with the workforce and provide them reasons to remain engaged members of our team. It's complex, which makes it challenging and fun!

## **What initiatives is the Retention focus group currently**

**working on?**



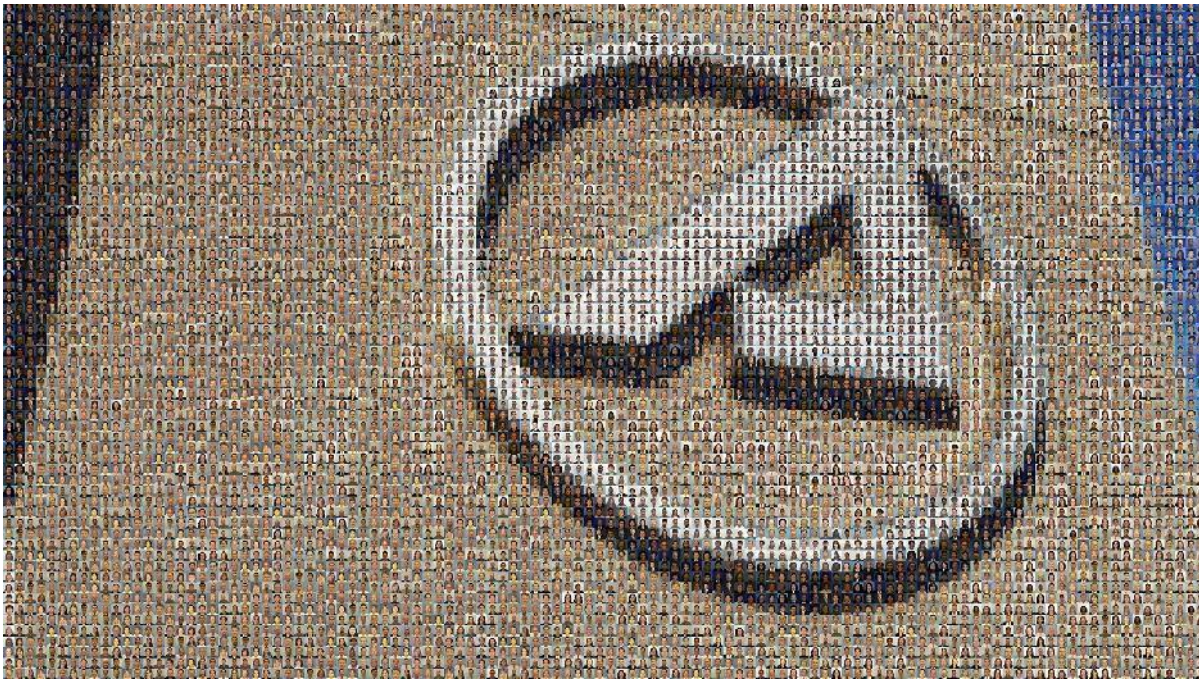
Early on, the Retention team focused on removing barriers that might have driven people to feel less appreciated. We championed the Pay Equity study with our partners in People Ops to help ensure everyone is compensated in norm with their peers. People Ops has been doing Pay Equity studies for more than four years. We used this existing tool to answer key questions on pay equity across many employee groups.

Another initiative was to institute “stay interviews” with some employees. Rather than be reactive when someone departs the company, we wanted to proactively engage people and understand what is keeping them at Aerospace so we can ensure those activities continue. When we discovered some opportunities, we were able to work with our Strategic People Partners and managers to ensure they were addressed and our talented people were retained.

Moving forward, we are working on a pilot to train managers to lead through coaching. This leadership approach is designed to help our managers ask better questions and provide new avenues for growth to their managers and employees. We also have some members of the Retention team working to better understand the promotion process. Their aim is to provide better transparency to the process and remove some of the opaqueness that sometimes creates anxiety. This is a longer-term project, but it should serve to help people understand our processes and help retain our talent.

**We often talk about creating a culture of trust, inclusion and sense of belonging. What does this look like to you?**

Trust, inclusion and a sense of belonging are founded on strong character and openness. We have a very honorable workforce committed to solving hard problems for our customers. Each of us brings that strong desire to overcome obstacles and provide solutions. We build on that in both our technical work and in our teamwork. Using that strong trust, we establish and build teams. But we need to be attuned to the needs of others on the team so everyone can be their very best, every day. Including teammates in the thinking, rationale and decisions invites them to be a bigger part of a larger solution. Inclusion allows each of us to contribute and flourish. As we grow our networks and our confidence, we will develop a sense of belonging – this is my team! We are not perfect at each of these elements, but at Aerospace we start with a strong foundation and we need to continue to grow and include diverse opinions so everyone here can be part of the team that solves the hardest problems for the space enterprise.



### **How can employees get involved to help Aerospace drive our DEI efforts forward?**

Well the analogy I use is based on a sports situation. Many of us have watched what is happening around us, whether it was the killing of George Floyd or seeing one of our teammates treated poorly. We might even speak up from where we sit to express disappointment or frustration. But now is the time to get out of the stands and on the field. It isn't enough to shout at the people on the field, we all need to join them and make change happen. The beauty is, like in a sports game that needs players, coaches, referees and entertainers, our need for change needs many different skillsets. You can support peaceful protests or write letters to your local paper. You can serve as a mentor or bring your skills to STEM education. You can help recruit or simply work to include others in your workspace. We all have different talents and different comfort levels. Find something and start. Get out of the stands and on the field! If you need ideas, ask your supervisor, peers, friends, or reach out to me. There is room for all of us to make Aerospace and our communities better.

### **As Aerospace continues to make progress in its DEI efforts, is there a specific DEI accomplishment or experience that you are most proud of and why?**

Yes. While it was before my time at Aerospace, it changed my life for the better. When I was in the Air Force, our speaker for Black History Month cancelled the day before the presentation. Left without a speaker, one of my fellow commanders and I got talking about where and how we grew up. He was a 50- year-old who grew up in the projects in Montgomery, Alabama. I was a 50-year-old who grew up on Air Force bases, including five years in Montgomery, Alabama. We began to talk about how the assassination of Dr. Martin Luther King played out in his predominately black neighborhood and how it played out in my mostly white neighborhood. It was tragic for both, but it hurt his neighborhood more. We talked about when Hank Aaron broke the home run record. In his neighborhood, he was idolized. In my neighborhood, some people said he cheated and tried to lessen the great accomplishment. And we talked about the shooting of Alabama Governor George Wallace and what that meant in our neighborhoods.

The next day, Col. Ray Scott and I took the stage, talked about our experiences and how different they were. Then we talked about the day we joined the Air Force. Though imperfect, it provided opportunity for all. We grew up in the Air Force differently but ended up as colonels and commanders at the same base. The Air Force was our great “equalizer.”

What I am most proud of is we quickly realized we each experienced the same events in different ways. But given the chance to belong and flourish, we both took the opportunity. We can do the same here at Aerospace and in our communities. Find our differences, but also celebrate those “great equalizers” that are presented to us and build on them.



# Students Re-Imagine the Future of Space at 44th Herndon Science Competition

June 02, 2021

The next generation of STEM minds answered our call to reimagine the future of space at the 44th Annual Robert H. Herndon Memorial Science Competition. For this year's contest, middle and high school students were asked to submit a science essay that captured "the important role that space plays in shaping the way we experience the world, and how engineering and science can shape space exploration in a new way" and expressed the theme Re-Imagining the Future of Space.



"As aspiring scientists, each one of you has the power to design new technology, solve challenging problems, and answer questions about our world that will shape our future in space," said Todd Nygren, Senior Vice President of the Engineering and Technology Group (ETG), during opening remarks at the contest's awards ceremony, held virtually on May 27.





The annual Herndon Science Competition launched in 1977 and is named for the late Robert H. Herndon, an Aerospace engineer and manager who served as a mentor for many at the corporation. Herndon was the first black engineer at North American Aviation. He joined the Aerospace Corporation as a structural engineer in 1961 and went on to serve as a group director of the Advanced Mission Analysis Directorate. The competition is aimed at promoting interest among minority students in science, engineering, and technology, and increase diversity across the aerospace industry.

The 2021 competition was open to seven Aerospace locations including AGO, WAO, COS, TX, ABQ, AL, and FL. Earlier this year, East Coast Aerospace employees participated as judges at regional science fairs including Prince William County Regional Fair, Fairfax County Regional Fair, and Northern Virginia Regional Fair where 20 outstanding students were selected for awards and invited to participate in the 2021 Herndon Science Competition. The competition received essay submissions from 30 students representing 11 schools. Essay entries were judged by Aerospace employees from various engineering fields and ranked by four factors: Initial Planning, Level of Effort/Organization, Quality of Work and Presentation.

This year's keynote speaker was Kenneth Harris, Senior Project Engineer in Systems Integration and Protection, who has been recognized by Forbes magazine amongst the world's youngest and most impactful individuals in the field of science and is a member of the Prince George's County Department of Education in Maryland.

"My passion for education comes from everyone who played a part in my life up to this point because I wouldn't be where I am without them," said Harris. "And I realize that a lot of students who look like me need more opportunity to see people who look like them in this field."



*Keynote speaker Kenneth Harris, senior project engineer in the Systems Integration and Protection division, stressed the importance of education and giving back.*

Harris discussed his path in engineering and his work on the James Webb Space Telescope while stressing to students the power of education and the importance of giving back to the next generation of aerospace engineers.

“The most important thing I want to leave each of you with today: As you become extremely successful, as I know each of you will, don’t forget to reach back and pour into the next generation just as those who are here now are pouring into you,” Harris said. “It’s up to you to set the tone for whoever comes next.”

# June 2021 Obituaries

*Sincere sympathy is extended to the families of:*

- ♦ **Erwin Anisman**, member of technical staff, hired Nov. 12, 1979, retired Feb. 1, 1994, died April 29, 2021
- ♦ **Charles Borrell**, member of technical staff, hired June 12, 1962, retired Oct. 1, 1993, died March 3, 2021
- ♦ **Eugene Brouillette**, member of technical staff, hired June 9, 1966, retired March 1, 1990, died May 2, 2021
- ♦ **Dennis Dote**, office of technical support, hired Nov. 9, 1970, retired April 1, 2008, died April 29, 2021
- ♦ **George Henderson**, member of administrative staff, hired Dec. 21, 1964, retired April 1, 2002, died Feb. 26, 2021
- ♦ **Oreta Kaye**, member of administrative staff, hired May 28, 1966, retired June 1, 1989, died March 11, 2021
- ♦ **Ronald Lambert**, member of technical staff, hired Oct. 4, 2004, retired Feb. 1, 2016, died Oct. 25, 2020
- ♦ **Katherine McComb**, member of administrative staff, hired Jan. 12, 1981, retired Sept. 1, 2000, died May 19, 2021
- ♦ **Doris Plimpton**, office of technical support, hired March 10, 1969, retired August 1, 2006, died April 30, 2021
- ♦ **Charles Price**, member of technical staff, hired August 21, 1961, retired June 1, 1989, died May 8, 2021
- ♦ **Karlene Duncan Schenk**, member of technical staff, hired Nov. 22, 1999, retired Feb. 28, 2019, died April 10, 2021
- ♦ **Jack Shafer**, member of administrative staff, hired August 17, 1992, retired May 1, 2018, died Feb. 3, 2021
- ♦ **Edwin Stofel**, member of technical staff, hired August 14, 1961, retired Dec. 1, 1996, died April 2, 2021
- ♦ **Charles Teenor**, member of administrative staff, hired August 26, 1963, retired Nov. 1, 1992, died May 14, 2021
- ♦ **Daulton Whitehead Jr.**, member of technical staff, hired July 26, 1979, retired Dec. 1, 2012, died May 9, 2021

*To notify Aerospace of a death and have it included in the Orbiter, please contact People Operations at (310) 336-5107.*

*These articles are reprinted from The Orbiter, a publication of The Aerospace Corporation 2310 E. El Segundo Blvd., El Segundo, CA 90245-4691 310-336-5000*

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