

Catching a Ride on a Solar Sail

by **Conor Shine**

June 24, 2019

Imagine a spacecraft soaring through the solar system at speeds surpassing 2,000 meters per second, propelled by a sail filled, not with wind, but sunlight.

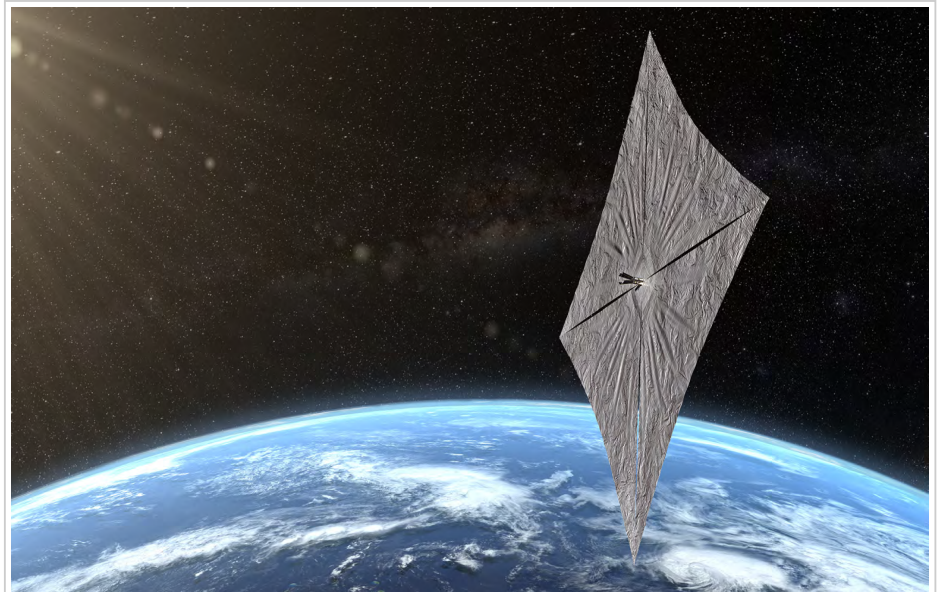
It's an idea that stretches back centuries. The possibility that the energy of the Sun could one day be used to traverse space was first credited to 17th-century German astronomer Johannes Kepler after he witnessed the passing of what was later-identified as Halley's Comet.

Several hundred years later, engineers are using that insight in the design of solar sails that use reflective materials to harness photons from the Sun to carry a spacecraft deep into the cosmos. A number of organizations, both public and private, are developing and testing solar sails in pursuit of a propulsion system that doesn't rely on carrying its own propellant into space with it.

The most recent example of this burgeoning technology is The Planetary Society's Light Sail 2, a CubeSat-based system featuring a massive solar sail and equipped with two cameras designed by The Aerospace Corporation scheduled to launch as part of the payload on SpaceX's Space Test Program-2 mission on June 24.

The Aerospace camera, which was also a part of the 2015 Light Sail 1 mission, plays a critical role of capturing images during the deployment of the solar sail. It's information that's especially useful should something go awry, providing context and data to engineers looking to troubleshoot any issues.

Read more about Aerospace's involvement [here](#).



A rendering of the solar sail technology being tested by The Planetary Society. (Image: The Planetary Society)

The Aerospace Corporation Recognizes Employee Excellence at 2019 Corporate Awards

by **Conor Shine**
June 28, 2019



Dozens of employees were celebrated for their significant technical and leadership achievements over the past year during The Aerospace Corporation's 2019 Corporate Awards "Recognition of Excellence" ceremony Thursday.

"It's important to spotlight our successes, in which each of us—in some way—plays a part. This ceremony further provides a unique opportunity to learn about the tremendous work being done at Aerospace that you may not have heard about," The Aerospace Corporation President and CEO Steve Isakowitz said in kicking off the event. "It's also a reminder that while we are spread out across the nation, we are one company. We are One Aerospace."

Thursday's ceremony built on efforts started two years ago to consolidate the awards program to celebrate triumphs across the entire company.

The categories were aligned to emphasize Aerospace's corporate values and strategic imperatives, with new awards acknowledging achievement in Shaping the Future, Innovation, Growth in Our Value, Velocity, Dedication to Mission Success, Technical Excellence and Commitment to Our People. Aerospace Employee Resource Group award recipients were also recognized during the ceremony.

"This year we expanded the awards, building on the foundation of the previous awards program," Aerospace Executive Vice President Dr. Wayne Goodman said. "There is so much extraordinary work being done across Aerospace. We wanted to recognize many, not just a select few, while also increasing diversity in the nominations."

As a result, this year's award program featured a 60 percent increase in nominations compared to 2017, with nearly three times as many nominations for non-MTS employees and a roughly 40 percent increase in the diversity of those nominated.

Traditional honors such as the President's Award and the Program Recognition Award were also handed out. The company's highest honor, the Trustees' Award, was presented by Lt. Gen. Susan Helms.

A standing room-only crowd was on hand at AGO for the Thursday morning ceremony, which was followed by a light reception, with many families and friends of the award winners turning out to show their support. Hundreds more Aerospace employees tuned in to web and audio broadcasts from around the country to follow along.

The honorees and a guest were invited to a private dinner celebration with Aerospace executives Thursday evening.

Trustees' Distinguished Achievement Award



GPS Lifetime Achievement

Rita Lollock, retired general manager of the Navigation Division, received Aerospace's highest honor for "a lifetime of leadership and dedication to mission success of the GPS enterprise."

"In a career that spanned 29 years at the corporation, Rita spent 26 of them with the Global Positioning System Program. And her impact there cannot be overstated," Lt. Gen. Susan Helms said when presenting the award.

Lollock was a key member of the GPS Navigation Warfare Analysis of Alternatives, which looked at electronic warfare protection that was key to GPS modernization.

She also led a multi-organization group from FFRDCs and industry developing technical models used in the GPS Interference and Navigation Tool, known as GIANT; drove Aerospace's modernization of GPS space, control and user segments, including readiness reviews and successful launch of 20 GPS satellites; and ultimately oversaw the Aerospace team to a successful launch of GPS III SV-01.

In addition to her contributions to the GPS program, Lollock's award recognized the significant impact her leadership had at Aerospace, where she played a critical role in the Early Career Development Network, served on the Aerospace Diversity Action Council and established a track record supporting innovation at the company.

President's Distinguished Achievement Award



REACH Constellation Deployment

Dr. Joseph Mazur, William Crain and Douglas Holker were cited for their work fielding REACH, the Responsive Environmental Assessment Commercially Hosted System. The system is a resilient, affordable, spatially dense near-real-time network of radiation monitors for spacecraft anomaly resolution and discrimination between natural and hostile acts.

The Aerospace team designed, manufactured and qualified the first six payloads for flights in less than a year, and were directly responsible for growing the constellation from six to 32 payloads.

It's the first U.S. Air Force commercially hosted payload in low Earth orbit and serves as a leading example of the transfer of in-house Aerospace designs to a small business.

"Through their unusual vision and skill, they quickly developed an amazing system," Isakowitz said Thursday. "A system for which the GAO reported savings of 92 percent over a Free-Flyer satellite constellation of the same capability."

Prototype SIGINT Fielding

Timothy Bielawa, senior engineering specialist in the Digital Electro and Electromagnetics Department, was recognized for designing, building, testing and deploying a high-priority prototype SIGINT processor on an aggressive three-month timeline.

Bielawa assembled and led a small team to tackle the mission, which required unique capabilities to meet a Sponsor Agency Director level imperative. Their successful field demonstration provided the Sponsor Agency a field-proven, unique technical capability ready to meet a USG Cabinet-level mission requirement on-demand.

"Tim's admirable commitment not only displayed tremendous innovation and velocity, but it was a perfect example of Aerospace's capacity for rapid prototyping," Isakowitz said in recognizing Bielawa.

SBIRS and DSP On-Orbit Anomalies

Jerome Snowiss, principal engineer in OPIR Space Systems, demonstrated the unique, in-depth expertise and solutions Aerospace provides to customers through his leadership on solving two critical on-orbit anomalies for SBIRS and DSP.

Snowiss led the investigation and mitigation of two different yet significant infrared sensor features over a one-year period that posed serious potential performance problems for critical missile warning assets. Working with engineering personnel, Snowiss helped orchestrate a novel analysis that illustrated a more likely cause of the anomaly and proposed on-orbit testing which validated his theory.

Among other outcomes, the work helped ensure the SBIRS GEO-3 launch took place on time with high confidence.

"He faced difficult deadlines as well as doubts from the SBIRS contractor. But his keen foresight and unflappable commitment helped deliver crucial solutions to both anomalies," Isakowitz said when recognizing Snowiss.

Program Recognition Award

The Global Positioning System and National Security Space Launch (NSSL) Falcon 9 Launch System.

These two programs were honored for their excellent achievements and milestones. They will be honored at a special event later this year.

Dedication to Mission Success Award



Liquid Apogee Engine Team

The team was awarded for its accomplishment in the investigation and recovery of liquid apogee engine anomalies. The team developed strict screening criteria and operational procedures to lower the risk level, drawing on technical expertise across multiple disciplines.

Those recognized were Greg Kobayashi, Mark Mueller, Dr. Jennifer Smolke, and Geoffrey Reber.

Without their two-plus years of effort, multiple SMC programs would have faced more risk at every launch due to the demonstrated high failure rate of the mission-critical engine.

Their findings will also help inform the development and qualification of new engines to avoid anomalous behavior.

AI Yah 3 Rescue Mission Team

With precious mission life being lost with each passing day, this team generated flight-quality maneuver plans within a week, enabling a rescue from anomalous orbit in less than three months that salvaged 8.5 years of mission life.

Their work helped the customer meet minimum contract service requirements, preserving company revenues while significantly reducing NGIS penalties and saving insurance company policy payouts for a total financial impact worth tens of millions of dollars.

The team consisted of Marc DiPrinzio, Dr. Peter Edelman, Dr. Jose Guzman, Dr. Rosemary Huang, Dr. Demyan Lantukh, Robert Markin, Dr. Christopher Ranieri.

Their non-intuitive results led to new innovations that will improve resiliency to launch injection errors and led to techniques applicable to national security missions.

Technical Excellence Award



Blind Interference Signal Suppression (BLISS) Rapid Prototyping Team

The team redefined state-of-the-art for GPS anti-jamming with the invention of the BLISS technology. It comes at a time when incidents of jamming are rapidly rising, threatening civilian and military GPS users.

Their work grew Aerospace's influence beyond its traditional mission assurance role by offering innovative solutions to SMC customers, contractors and users, making BLISS the first Aerospace proprietary technology to be licensed for non-exclusive use in new and existing products.

The recognized team consisted of Philip Dafesh, Alinn Herrera, Phillip Hess and Thomas Powell.

Commitment to Our People: Diversity and Inclusion Award



Shawné Raiford

Raiford, administrative specialist in the Facilities Division general manager's office, has demonstrated a sustained commitment to Aerospace and her community through her work inspiring a new generation of STEM talent.

Raiford has been instrumental in the recruitment and professional development of Aerospace employees, while also helping drive STEM outreach activities.

Her work includes organizing and chairing the Girls STEM day event at Aerospace that aims to motivate and inspire students to become interested in STEM.

Commitment to Our People: Leadership/Mentorship Award



Willard Downs

Downs, principal engineer/specialist in the Computer Applications and Assurance subdivision, was recognized for his role “self-initiating mentorship platforms that have enriched and advanced many employees.”

He currently leads a weekly section manager mentoring session for the Information Systems and Cyber Division and was part of the planning and execution team for the first ETG Level 2 Manager Bootcamp.

Downs willingly shares his vast network of contacts with his mentees so that they can be paired with other mentors to help in their development and he’s had a positive impact preparing a diverse group of leaders for the next steps in their careers.

Commitment to Our People: Corporate Citizenship/Community Outreach Award

Albuquerque Office Team

This geographically and organizationally distributed team was recognized for their successful efforts establishing Aerospace’s Albuquerque office as a critical location for the corporation and positioning it for future growth to support key customers and the national Engineering and Technology Group initiative.

This major growth effort involved securing key resources, facility requirements, furniture purchases and computer equipment, with employees working above and beyond their regular job duties.

The award recognized David Batt, John Biggs, Judith Harger, Jeffrey Jacobson, Pamela Mathis, Riaz Musani, Edgar Vaughan and Gayla Walden.

Commitment to Our People: Safety Award

Unstable Batteries Team

This group accepted potential personal risk in volunteering to safely stabilize and remove batteries that were believed to be unstable and energetic.

The batteries were rendered safe, allowing Building A6A to return to regular operations without needing to involve outside agencies. The team identified various factors leading to the incident, resulting in new processes that create substantially safer work operations.

Those recognized with the safety award are: Valerie Ang, Karl Arcadio, Jeff Chen, Dr. Andrew Cortopassi, George Drexinger, John Halpine, Paul Joseph, Dr. Shannon Klaus, Kevin MacDougall, Alonzo Prater, Justin Stocker, Yoshimi Takeuchi, Chung-chu Wan, Dr. Margot Wasz, David Witkin and Hila Wright.

Shaping the Future Award



Future NRO Architecture Team

This award recognizes work that goes above and beyond to make unique, unprecedented and high-value contributions to critical next-generation architecture in the National Security Space enterprise.

The work of the Future NRO Architecture team that was recognized Thursday is of a classified nature, but it will have a significant and lasting impact supporting our customer's ability to protect our nation.

The award winners are Karl Doty, Dr. Matthew Ferringer, Kyle Hanifen, Dr. Lake Singh, Christopher Walsh, William Whittecar and Lawrence Wolfe.

Innovation Award

Complex Space Security Concept Team

The team was recognized for its classified work analyzing and developing a complex concept that is shaping space security.

Their highly innovative and extremely effective effort furthered Aerospace's bold steps to assess and address the situation, leading to impressive results that will affect current and future missions.

Their work made a significant impression on senior U.S. government customers and was included as part of a briefing to the Vice President of the United States.

Those recognized are Jeremy Eckhart, Elisha Murrell, Martin Oetting, Whitney Plumb-Starnes, Dr. George Pollock and Dr. Christopher Ranieri.

Growth in Our Value Award



National Nuclear Security Administration Program Team

This team was recognized for its efforts applying Aerospace's core technical capabilities to U.S. nonproliferation programs to respond to a growing adversary threat.

Their work resolved key risk reduction issues for a space-based nuclear detonation detection system, improving production timelines and delivery schedules for system integration.

As a result, Aerospace has established itself as a sustaining technical partner with the NNSA.

The team is made up of Edward Boucheron, Robert Huelskamp, Peter Thomas and Vera Scheidlinger.

FFRDC Contract Renewal Team

This cross-functional team was responsible for a 2.5 year effort that spanned 500 audit questions, eight white papers and more than 4,100 pages of proposal documentation resulting in the successful renewal of the FFRDC contract that will provide \$12 billion over the next 10 years.

This critical contract provides the framework for over 90 percent of Aerospace's annual revenue, funding the work of thousands of employees who support National Security Space customers in a variety of critical areas.

Team members worked side by side with the government to reduce contract schedule renewal time and proactively addressed all concerns and improved processes to avoid future concerns.

Those recognized with the award are Caley Albert, James Ford, Lisa Fujiki, Peggy Kearney-Sorrano, Kien Le, Steven Matsushima, Daniel Menzie, Lisa Neufeld, Steve Rhee, Robert Schalbe and Christine Stevens.

Velocity Award



EPIC System Team

The successful development and deployment of the Electronic Procurement Information Center has already created estimated time savings of 9,300 hours and counting, equal to more than five full-time equivalents.

The digitization of paper-based processes has led to the creation of more than 3,500 purchasing binders available to any buyer, yielding significant space savings and an easier ability to create, update or locate information.

Their work pioneering a new agile architectural development approach is being used to accelerate the development of other systems.

Those receiving the award are Jeanne Campanella, Michael Cryderman, Robert Davis, Tamara Flaherty, Nicholas Grant, Janelle Hu and James Orzechowski.

Employee Resource Group Award

Dr. Alexander C. Liang Asian Pacific American Achievement Award

Kate Lee and Dr. Jason Ly were recognized for their significant individual achievements, contributions to the corporate mission and contributions to the community.

Robert H. Herndon Black Image Award

Michelle Carter was recognized for her exemplification of professional and humanitarian qualities at the individual, corporate and community levels.

Aerospace Woman of the Year Award

Dr. Angie Bukley, Shawné Raiford and Dr. Ashley Williams were recognized for significant achievements in the areas of job performance, community involvement, professional or academic achievement and for extraordinary leadership in activities that promote and contribute to the advancement of the company.

Tool Day Event Promotes Collaboration and Knowledge Sharing

by **Conor Shine**

June 12, 2019

Every day at The Aerospace Corporation, scientists, technologists, and engineers are developing, improving, and using an ever-growing array of tools in pursuit of mission success.

But at a company with thousands of employees at campuses spread across the country, it's not always easy to know what else is out there and whether the tool you're developing might already have been created by someone else.

That's one of the challenges organizers hoped to address with Tool Day, an event that brought together workers from across departments and disciplines to showcase their work this week on the El Segundo campus.

"We need to be smarter about when we do things," said Christine Stevens, a principal engineer in Space Program Operations who helped organize the event. "I look around and I see a lot of duplication of effort. I see tools being reinvented that have been done before. It's just that people don't know what's out there."

More than two dozen tools were on display Tuesday, covering subjects from orbit visualization and analysis to staff and parts resource management systems to assessing the impacts of small satellite constellations on resiliency.

Scores of employees, including Aerospace executives, wandered among the various stations, chatting with technical staff who were on hand to explain their tools.

Stevens said increased collaboration can make the tools more effective and help keep them up to date.

"What we want to do is expose the tools to potential customers but also to expose the tools to each other so developers who have common capabilities or common activities, maybe they can collaborate together," she said. "We can leverage work that's already been done and be more efficient."

Future Tool Day events are planned at the Chantilly campus, and a third, to-be-determined location.



Aerospace employees discuss their work at the Tool Day event on June 12. (Photo: Elisa Haber)



Sonia Henry explains the ASSET data framework to The Aerospace Corporation President and CEO Steve Isakowitz at Tool Day. (Photo: Elisa Haber)



Photo: Elisa Haber



Photo: Elisa Haber



Photo: Elisa Haber

Awards and Recognitions, June 2019

June 17, 2019

Aerospace employees frequently earn recognition for their professional accomplishments. This Orbiter feature acknowledges those honors and awards, including the publication of books. To nominate someone for consideration in this section, send details of the award in a timely fashion to orbiter@aero.org

Jeff Laube

Jeff Laube, a senior project leader in Civil and Commercial Launch Projects within the Launch Systems Division, has been installed as the chief of the Integration and Outreach Division (IOD) for the American Institute of Aeronautics and Astronautics (AIAA).

In this three-year, senior leadership role, he is one of three division chiefs who oversee and guide the membership efforts of the Institute.

Laube is a 40-year member of AIAA, and prior to becoming division chief, served different roles such as chair of the Orange County Section, chair of the Space Operations and Support technical committee and deputy director for technical activities – Region 6 (West Coast).

AIAA is the world's largest aerospace technical society. With nearly 30,000 individual members from 85 countries, and 95 corporate members, AIAA brings together industry, academia, and government to advance engineering and science in aviation, space, and defense.

Before joining The Aerospace Corporation in 2011, Laube worked on a variety of expendable and reusable launch vehicle programs as well as other large space system projects for companies including McDonnell Douglas, Lockheed Martin, and Northrop Grumman.

Laube has B.S. and M.S. degrees, respectively, from California State Polytechnic University Pomona and the University of Southern California.

The Aerospace Corporation

The Aerospace Corporation is a winner of the 2019 James S. Cogswell Outstanding Industrial Security Achievement Award, given annually by the Defense Security Service (DSS). Aerospace was honored for performance at its Crystal City, Virginia, location.

Fifty-one facilities were selected for the awards, which were presented at the annual NCMS society of industrial security professionals training seminar on June 12 in St. Louis, Missouri. These 51 facilities were chosen from approximately 13,000 cleared facilities. The award criterion focuses on principles of industrial security excellence. Factors include establishing and maintaining a security program that far exceeds the basic National Industrial Security Program requirements; and providing leadership to other cleared facilities in establishing best practices while maintaining the highest standards for security.

The award was established in 1966 in honor of the late Air Force Col. James S. Cogswell, the first chief of industrial security within the Department of Defense. Cogswell was responsible for developing the basic principles of the Industrial Security Program, which includes an emphasis on the partnership between industry and government to protect classified information.

Aerospace Team Support for SMC

An Aerospace team supported Air Force Space and Missile Systems Center teams that recently won the David Packard Excellence in Acquisition Award.

The Packard award is given annually to Department of Defense teams, organizations, and groups that have demonstrated acquisition excellence and greater efficiency and productivity.



The SMC Enhanced Polar System team and the Enhanced Polar System-Recapitalization team were acknowledged with the Packard award. They were involved in various activities dealing with acquiring a new protected satellite communication capability and with placing payloads on satellites that will be launched by Space Norway, a company wholly owned by the government of Norway.

Overall, the teams reduced costs and avoided delays to vital communication systems, while demonstrating innovative acquisition strategies.

The Aerospace EPS/EPS-R team, led by Steve Breese, Gil Ayan, and Bruce Steiner, works closely with their SMC counterparts.

June 2019 Obituaries

by **Christine T Kato**

June 03, 2019

Sincere sympathy is extended to the families of:

Robert Carlton, member of technical staff, hired Oct. 9, 1980, retired July 1, 1989, died April 8, 2019

James Holt, member of technical staff, hired July 24, 1961, retired Nov. 1, 1991, died May 6, 2019

Judith McAfee, member of administrative staff, hired Oct. 23, 1973, retired Oct. 1, 1993, died April 27, 2019

Monte Miller, member of technical staff, hired Jan. 14, 1980, retired Feb. 1, 1994, died May 2, 2019

Loretta Mills, office of technical support, hired May 15, 1979, retired Feb. 1, 1989, died April 20, 2019

Mohamed Refaie, member of technical staff, hired Dec. 3, 1979, retired May 1, 1982, died March 5, 2019

Klaus Schroeder, member of technical staff, hired Nov. 2, 1970, retired July 1, 1993, died May 9, 2019

Bernice Varnado, office of technical support, hired Aug. 26, 1991, retired Sept. 1, 2001, died March 21, 2019

Marga Weber, office of technical support, hired Jan. 19, 1961, retired Aug. 1, 1987, died April 10, 2019

Thomas Willis, member of technical staff, hired Sept. 8, 1987, retired May 1, 2002, died May 4, 2019

David Yustein, member of technical staff, hired Nov. 3, 1997, retired May 1, 2008, died May 7, 2019

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

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