

Reverse Mentoring Luncheon Offers Forward-Thinking Collaboration

by Gail Kellner
May 30, 2018

We all know that mentoring enables more experienced employees to share their knowledge with the next generation, but what happens when you turn that practice on its head and reverse the natural order of who mentors whom?

A large group of Aerospace senior leaders and managers, led by President and CEO Steve Isakowitz, did exactly that in El Segundo on Wednesday, May 30, to tap into some fresh ideas and gather new perspectives.

Aerospace is committed to an open and inclusive workplace, and Isakowitz wanted to experiment with an event that made it clear that everyone has something important and meaningful to offer. He asked participants to be open and honest and jokingly said, "Vegas rules apply here."

The event consisted of three rounds of mentoring, each about 12 minutes in length.

Senior leaders asked some of Aerospace's newer employees questions, such as:

- What are you most proud of while working at Aerospace?
- What should we be doing differently?
- What lessons have you learned?
- How are your expectations being met?

A variety of feedback was gathered through conversations with a number of senior leaders. Some employees said they were proud of helping various space startups by making them aware of who we are and what we do, and others mentioned Aerospace's commitment to mission success and the opportunity to create innovative solutions and technologies.

This informal, inaugural event was organized by the Aerospace Totally Adaptable Group and Aerospace American-Indian and Alaskan-Native Council, and supported by the Aerospace Asian Pacific American Association and Aerospace Lambda Alliance.



Steve Isakowitz talks with Michelle Yohannes and Kristopher Horton (Photo: Elisa Haber)



Senior leaders talk with newer employees at the Reverse Mentoring event in El Segundo (Photo: Elisa Haber)

Isakowitz Discusses Space as a Business Opportunity

by Wendy O'Dea
May 23, 2018

Aerospace President and CEO Steve Isakowitz had the audience in the palm of his hands.

Participating in a panel discussion at the Milken Institute Global Conference, Isakowitz impressed the crowd by pulling a PicoSat out of his shirt pocket while discussing the need for national security space systems to go from a few large satellites to many small ones. He also brought along an AeroCube 6, showcasing both satellites, and highlighting their characteristics and capabilities, to transfixed attendees.

Now in its 21st year, the four-day conference held in early May in Beverly Hills, drew more than 4,000 international leaders in business, government, science, philanthropy, academia, arts, and culture. It also generated more than 900,000 video views and more than two million post views on Facebook.

The 2018 conference theme was “Navigating a world in transition,” and there is perhaps no area undergoing greater dynamic change than the domain of space. The panel, which also included four other prominent leaders from the civil and commercial space industry, was titled “The Final Frontier: Space as a Business Opportunity.” It was attended by 275 people and moderated by CNBC correspondent Jane Wells.

Wells launched the discussion by noting that the space business is worth \$350 billion today, and Merrill Lynch projects that within 30 years it will be worth nearly \$3 trillion. Seeking to put this hype in perspective, she first broached the tantalizing topic of a mission to Mars. Isakowitz quickly framed the potential for a public-private partnership for this endeavor by analogizing it with the government initiative to map the human genome.

Isakowitz explained that the human genome project, started by the Department of Energy, drew the interest of biotechnologist-businessman Craig Venter who asserted that the federal government was too slow and he could move it forward faster with private money. That competition increased the speed of the public effort and, together with Venter’s company, the human genome was mapped three years ahead of schedule. Isakowitz envisions a similar future partnership for a mission to Mars.

When Wells asked panel members to identify the most intriguing thing they were working on, Isakowitz cited the megatrend in national security space and how it is impacting innovation at Aerospace. He expressed concern that a lot of satellites that support GPS, communications, and missile warning have become “juicy targets” in this age of contested space, with some as large as a school bus.

The potential for an extensive number of small satellites orbiting in space to replace their larger counterparts then led to a discussion about space traffic management. Isakowitz noted there have been 40,000 objects put into space, and 20,000 remain today—although only 2,000 are still active.

Isakowitz then outlined an Aerospace plan to place a miniature GPS transponder on all active satellites so we always know where they are and can maneuver them to avoid collisions. He concluded by saying, “The good news is, the private sector recognizes this (problem), and we are taking steps to address it.”

In this era of rapid change, Isakowitz later commented, “Commercial industry is driving technologies, and the government realizes that. So now it’s a question of how does the government leverage all those things that are going on?” The government must not only address this challenge, but also the issue of balancing economics and national interests with other countries that are vying for control of resources in space in the future.

“The last thing you want is countries going out and planting the flag,” Isakowitz stated, which would be expanding the battles here on Earth into space. He ended on a note of hope, however, adding that there are mechanisms in place to help ensure such problems do not emerge.



Steve Isakowitz discuss satellite sizes at the Milken Institute Global Conference (Photo compliments of The Milken Institute).

Wells wrapped up the discussion by asking the panelists to share one thing that frustrates them about how space is developed, on the public or private side, that they would like to see changed.

Isakowitz's biggest concern was not one related to policy, but rather with the lack of public awareness. "I don't think the public appreciates how much we do in space today," he said. Although he feels people take for granted how much space enables their way of life, he expressed optimism that space is "cool again" and that lines at student career fairs are longer for the space industry than they are for traditional industries.

Rest Easy, the Future is in Good Hands

by **Gabriel A Spera**
May 29, 2018

Inspired. Impressive. Innovative.

That's the best way to describe the students who took part in this year's Robert H. Herndon Memorial Science Competitions that took place on May 17 in Chantilly and May 24 in El Segundo. The middle and high school students presented an array of experiments and inventions—both practical and aspirational—that drew upon the traditional disciplines of electrical, mechanical, structural, and environmental engineering as well as biology, material science, physics, and more.

In addition to tabletop demonstrations, the competition included an essay component. Students also gained experience in pitching their ideas to decision-makers (i.e., the judges), an important skill for any career in science and engineering. The judging panels included representatives from both Aerospace and the Air Force.

The Herndon Science Competition is a highlight of the annual STEM activities at Aerospace. Below is a recap of the events in both locations.

Chantilly

Senior Vice President Cathy Steele welcomed students to the East Coast competition, which drew competitors from more than 30 schools. Joining her was Allen Compito, general manager of the Electronics and Sensors Division. Highlights of the day included a keynote address by Lt. Col. Kenyatta Ruffin, of the United States Air Force, who spoke on "Inspiring Today's Innovator's for Tomorrow's Challenges."

The tabletop demonstrations featured titles that seemed to leap from the pages of an academic journal or patent application, including:

- "Novel Dopants for Lithium Garnet"
- "The Effect of Shape on Skyscraper Wind Turbulence"
- "High-Performance, Low-Cost Silicon-Based Solar-Blind Detector Systems for Missile Plume Detection"
- "EMP Power Transmission"
- "A Novel Method for Remote Detection of Missing Craft in the Ocean Using Passive Commercial Satellite Multispectral Imagery"
- "Novel Detection Method of Subatomic-Scale Motion Through Plasmonic Resonators"
- "The Magnus Effect as a Method of Propulsion"
- "Fabrication, Optimization, and Characterization of Dye-Sensitized Solar Cells"

In the high school experiment category, Sydney Jones and Kathleen Love of Yorktown High took first place, Sreya Vangara from Poolesville took second, and Kobi Robinson and Danielle Jefferson of From the Heart Christian School took third. First place in the high school essay competition went to Chase Reid of Tatnall School. In a particularly noteworthy achievement, Sreya Vangara from Poolesville won second place in both the high school essay and experiment categories.



Senior Project Engineer Carl Billingsley congratulates winners in El Segundo (Photo: Erik Henderson)

In the middle school experiment category, Kaylee Board of Williamsburg Middle School took first place, Pratyusha Mandal from Takoma Park took second, and Alexandra Fall from Swanson took third (a returning champion, having won first place in 2017). Glasgow Middle School took all the honors in the middle school essay category, with Mera Seifu in first place and Nardos Demilew in second.

El Segundo

The West Coast competition kicked off with opening remarks from Vice President Tammy Choy and competition chair Carl Billingsley and included a keynote address by President and CEO Steve Isakowitz. Isakowitz spoke about the exciting developments of space entrepreneurship, space warfare, and space exploration.

Billingsley said he was impressed by the ingenuity and creativity displayed by the projects. "They're trying to solve problems I didn't even know existed," he said. He also praised the dedication and enthusiasm of the numerous volunteers who worked diligently behind the scenes to ensure a successful event.

The students presented their ideas for tackling current and future challenges through technologies involving optical sensors, passive energy storage, ionic thrusters, autonomous nanobots, water desalination, water purification, biodegradable plastics, color-based candy sorting (a must-have for any engineering lab), mudslide forecasting, fuel-efficient cars, truck stabilization, and more.

Competing for the first time was the Girls Academic Leadership Academy, a new STEM-centered all-girls school in the L.A. Unified School District. Principal Dr. Elizabeth Hicks was pleased to participate, noting that the program gives students an opportunity to work independently and gain practical experience. "It helps them explore a real-life problem and look at all dimensions of it in a way they couldn't do in a classroom," she said.

Sherman Oaks Center for Enriched Studies took top honors in the high school experiment category for the second year in a row. Second place went to El Segundo High, and third place was tie between Leuzinger and Lawndale. An all-girl team from Sherman Oaks took first place in the middle school competition, followed by Dana Middle School in second place and J.H. Hull in third.

In the high school essay competition, Anoushka Gupta of West Torrance took first place, followed by Omar Rashad of West Torrance in second place and Samuel Hirsch of DaVinci Science in third. In the middle school essay competition, Anhad Singh of Bert Lynn took first place, followed by Joseph Beard of Dana Middle School in second and Calvin Nitsos, also from Dana, in third place.

Gupta, Rashad, and Singh were all returning champions, having won awards in previous Herndon essay competitions.

This was the 41st annual Robert H. Herndon Memorial Science Competition, founded in 1977 to honor the legacy of Robert Herndon, who joined Aerospace shortly after its inception in 1961. Herndon was well respected for his ability, humility, and passion for inspiring students.

List of 2018 Student Winners

CHANTILLY EXPERIMENT COMPETITION

High School:

1. Kathleen Love and Sydney Jones (Yorktown), "Prototype of a Filter-less Water Purification System Using CO₂"
2. Sreya Vangara (Poolesville), "Novel Detection Method of Subatomic-Scale Motion through Plasmonic Oscillations"
3. Kobi Robinson and Danielle Jefferson (From the Heart Christian School), "Wait, Watch Out: Using Sonar for the Vision Impaired"



A student at Chantilly's Herndon Science Competition explains his exhibit to Aerospace Senior Vice President Cathy Steele. (Photo: Kelly Hart)



Students at the 2018 Herndon Science Fair in El Segundo present to the judges. (Photo: Elisa Haber)

Middle School:

1. Kaylee Board (Williamsburg), "The Effect of Bacteria and Number of Origami Star Points on Amount of Electricity Conducted"
2. Pratyusha Mandal (Takoma Park), "Fabrication, Optimization, and Characterization of Natural Dye Sensitized Solar Cells"
3. Alexandra Fall (Swanson), "Radiation Electrification!"

CHANTILLY ESSAY COMPETITION

High School:

1. Chase Reid (Tatnall School), "A Machine Learning Approach for the Classification Of Clinically Actionable Genetic Mutations Using Deep Learning"
2. Sreya Vangara (Poolesville), "Novel Detection Method of Subatomic-Scale Motion through Plasmonic Oscillations"

Middle School:

1. Mera Seifu (Glasgow), "Why We Shouldn't Ignore Pollution"
2. Nardos Demilew (Glasgow), "The Negative Consequences of an AI Dominated World"

EL SEGUNDO EXPERIMENT COMPETITION

High School:

1. Shannon Lamb, Ava Basileo, Smit Rajyaguru, Cristopher Barillas, Ray Sakanoue (Sherman Oaks Center for Enriched Studies), "Nanofabrication: The Process of Programming Claytronics"
2. Shrenil Sharma, Hayden Crabbs, Carson Doering, Nolan Young, Matthew Tritasavit (El Segundo), "The UN-Flippable Enforcer"
3. (Tie) Nery Arevalos, Manuel Angeles, Bryan Chuc, Lizandro Franco, Jesse Velazquez (Lawndale), "Brothereye"; and Anh Tran, Bryant Nguyen, Jose Frausto, Ana Munoz Escobar, Thanh Derek Nguyen (Leuzinger)

Middle School:

1. Graciela Arancibia, Sofia Arancibia, Kayla Kossoff, Zoe Ramirez, Vaidehi Zala (Sherman Oaks Center for Enriched Studies), "Color Candy Sensor Sorter"
2. Michael Consolazio, Patrick Dassm, Winston Bird, Harrison Fischer-Huber, Maya Waller (Dana), "Washing Water with Robotic Arms"
3. Zakana Zenuali, Kahlan Hart, Brianna Santalunea, Liliana Ralph (J.H. Hull), "Bio Plastics! Does it Really Biodegrade?"

EL SEGUNDO ESSAY COMPETITION

High School:

1. Anoushka Gupta (West Torrance), "The Future of Fusion in Nuclear Technology"
2. Omar Rashad (West Torrance), "The Parkinson's Effect"
3. Samuel Hirsch (DaVinci Science), "Condoms Limited Use as a Prevention Method for Anal Cancer"

Middle School:

1. Anhad Singh (Bert Lynn), "From Human Learning to Machine Learning"
2. Joseph Beard (Dana), "A Safe and Efficient Way to Use Nuclear Waste as Energy"
3. Calvin Nitsos (Dana), "Quantum Computing"



First place winners of the 2018 Herndon Science Fair in Chantilly. (Photo: Kelly Hart)

Aerospace in the News: Bloomberg, Space News, and Quartz.com Feature Aerospace Experts

May 15, 2018

The media continues to feature Aerospace experts in the news. Check out these recent stories:

[Bloomberg grapples with the issue of space traffic management, highlights Aerospace's role](#)
[Torrey Radcliffe on the real price of a trip to Mars](#)
[Ed Swallow talks to Space News about the importance of STEM education for young children](#)

Press Release: Aerospace Selects Kathi Chambers as Vice President for National Systems Group

May 08, 2018

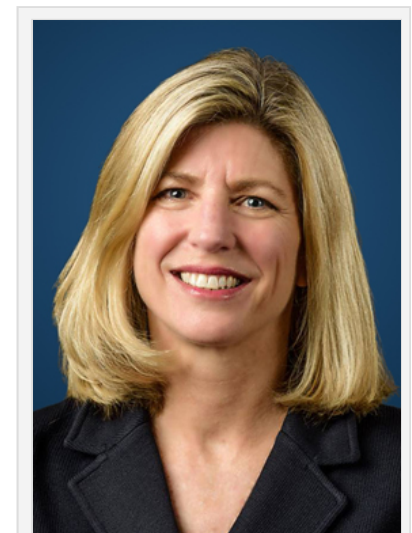
EL SEGUNDO, Calif. (May 8, 2018) –The Aerospace Corporation (Aerospace) announced today that Katherine (Kathi) Chambers has been selected as the vice president for the National Systems Group. In this role, Chambers will lead Aerospace's geospatial intelligence and signal intelligence strategies in support of the government's intelligence space platforms.

"For more than 20 years, Kathi has a proven track record of success in engineering, strategy, business, and acquisition for the Department of Defense, as well as for the civil, national security, and intelligence communities," said Steve Isakowitz, Aerospace president and CEO. "Kathi's strong leadership and vast expertise will bring innovative, critical solutions more rapidly to our customers."

Chambers joined Aerospace from Integrity Applications Incorporated (IAI), where she served as vice president for Intelligence and Information Technologies. In this role, she managed delivery and growth strategies for intelligence community programs and also led expansion of research and development into new markets, supporting defense and intelligence customers.

Chambers brings to Aerospace a broad range of leadership and technical expertise in design, development, systems engineering, strategy and business development, and program management for advanced national security space technologies and systems. Her past leadership roles also included serving as director of Engineering and Science for five national agency government organizations at Booz Allen Hamilton. Earlier in her career, Chambers was the director of Strategy and Business Development for Raytheon's Space & Airborne Systems division, successfully leading strategy, business development, client relationships, and advanced sensor technology and solutions for defense, civil, and national missions.

Chambers earned both a bachelor of science degree in electrical engineering and a master of science degree in electrical engineering from the University of Maryland, College Park. A leader in government and industry, she was a member of the board of directors for Women in Aerospace. Chambers was recognized with NASA's Exceptional Achievement Medal and Special Achievement Award in 1994 and received a U.S. Department of State Meritorious Honor Award in 1992.



Katherine Chambers, vice president for the National Systems Group

Data Caper Team Mines Aerospace Resources

May 07, 2018

The winner of the Great Data Caper challenge is team SAM, led by Adaeze Esiobu with membership spanning the Information Systems and Cyber and Systems Engineering Divisions of the Engineering and Technology Group as well as Launch Program Operations.

Working with the Agile Mission Assurance team and EIS, team SAM will begin implementation of their proposed architecture to provide Aerospace with an effective way to access the vast body of knowledge across the entire corporation to improve the ability to discover and share data among staff and applications.

“Thank you to all who participated in the Great Data Caper,” said Dr. Malina Hills, senior vice president of Space Systems Group. “The enthusiasm and cross-corporate engagement, from the initial collection of user stories to participation in the challenge event, reflect the interest and importance of this initiative.”

The Great Data Caper challenge was issued in mid-February via an internal Request for Proposal. There were 13 submitted proposals which were down-selected to four teams for a four-week incubation phase. During the incubation phase, three teams merged resulting in two proposals on the pitch day, which was held April 26.

The winning team intends to improve search and discovery of relevant data resources across the entire enterprise by incorporating all viable data sources, labeling and classifying them using modern Natural Language Processing methods, and relating them to individual POCs.

An Enterprise Data Service layer and alerting mechanisms will provide personalized search results based on users’ areas of interest and patterns of use.

The team’s goal is to have the basic architecture in place with at least two applications by the end of the fiscal year.



Team SAM was the winner of the Great Data Caper challenge. (Photo: Elisa Haber)

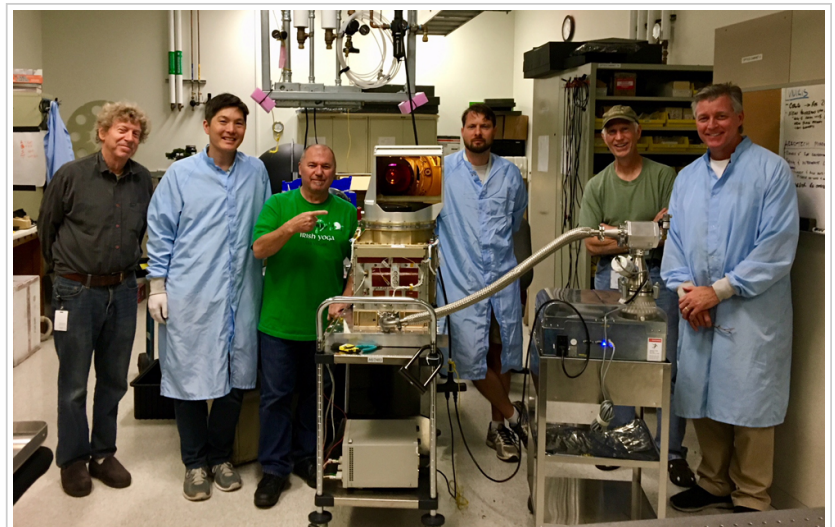
Near Infrared Airglow Camera Shipped

May 14, 2018

The Near Infrared Airglow Camera (NIRAC), developed by Aerospace, was shipped to Johnson Space Flight Center in early May.

The device will be sent to the International Space Station this year as part of the Department of Defense Space Test Program and will study lower atmospheric processes that affect space weather and exploit airglow for nighttime imagery applications.

[Read more about the NIRAC and its applications to study atmospheric glow.](#)



Some of the NIRAC team members prepare the ISS instrument for shipment. (Photo: Deb Salvaggio)

May 2018 Obituaries

by Jessie Ding
May 01, 2018

Sincere sympathy is extended to the families of:

Richard W. Berkemeyer, member of technical staff, hired Jan. 25, 1965, retired Apr. 1, 1991, died Mar. 10, 2018
William Chatterley, member of technical staff, hired July 14, 1975, retired Oct. 1, 1988, died Mar. 15, 2018
Wesley Greayer, member of technical staff, hired June 8, 1964, retired Apr. 1, 1979, died Apr. 18, 2018
Victor R. Guerrero, office of technical staff, hired Oct. 22, 1979, retired Feb. 1, 2011, died Mar. 25, 2018
David Hoenisch, member of administrative staff, hired Aug. 28, 1961, retired Mar. 1, 1995, died Mar. 30, 2018
La Verne Hollapeter, office of technical support staff, hired July 15, 1961, retired Nov. 1, 1991, died Mar. 11, 2018
Vadim Karpenko, member of technical staff, hired July 20, 1981, retired Feb. 1, 1991, died Mar. 28, 2018
Paul A. Malachesky, member of technical staff, hired June 27, 1988, retired Oct. 1, 2004, died Mar. 28, 2018
Richard A. Marten, member of administrative staff, hired Aug. 21, 1961, retired July 1, 1980, died Mar. 28, 2018
Margaret Millea, member of administrative staff, hired Jan. 8, 1990, retired Oct. 1, 2006, died Mar. 25, 2018
George Schick, member of technical staff, hired Apr. 8, 1985, retired Dec. 1, 1990, died Feb. 4, 2018
Robert Therriault, member of technical staff, hired May 3, 2010, died Apr. 7, 2018
Ronald Towe, office of technical staff, hired June 14, 1965, retired June 1, 2004, died Apr. 23, 2018

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

www.aerospace.org

Orbiter staff: orbiter@aero.org

Editor: Lindsay Chaney, 310-336-0961, lindsay.d.chaney@aero.org