

Aerospace Volunteers Share Wonders of Space with Students at IAC

by **Conor Shine**
October 29, 2019

During last week's [International Astronautics Congress](#) in Washington D.C., The Aerospace Corporation experts were on hand to present papers, network and shape conversations about the future of space.

But they also found time to make a difference in the lives of 20 8th graders from a local middle school, who got a chance to see the action up close with the help of Aerospace volunteers during the IAC's public day.

"It's a way to expose kids from the city of Alexandria school to something they've never seen before. They may have never met an engineer or scientist before," said Julie Reiss, an event co-organizer who works in business development for the Civil Systems Group. "This is a way to open their eyes. This is a potential career. It's an inspirational moment they're not going to be able capture elsewhere."

Students were selected for the field trip through an essay contest tied to the conference's theme of "Space: The Power of the Past, the Promise of the Future."



A group of 8th graders chat with Aerospace CEO Steve Isakowitz at IAC. (Photo: Edalina Rose)



A student tries his hand docking with the ISS using a Boeing simulator. (Photo: Edalina Rose)

The students arrived at IAC wearing Aerospace t-shirts and were welcomed by Aerospace employees. With that, they set out for a day of excitement that included an up-close look at Blue Origin's moon lander, practice docking a spacecraft with the International Space Station using a Boeing simulator and a virtual reality rocket ship experience hosted by SpaceBuzz.

Aerospace volunteers fielded questions and interacted with students over lunch, with several giving talks about the papers they were presenting at the conference. Students even got to visit with Aerospace CEO Steve Isakowitz, who spoke with them at the Aerospace booth about the future of space.

"In your lifetime or your kids' or grandkids' lifetimes, humans will live in space. We'll stay in hotels in space and it'll be as safe as flying on airplanes," Isakowitz told the students.

The volunteer event grew out of efforts in the Crystal City office to support STEM education, with a goal of providing a manageable way for Aerospace employees to give of their time.

"This is a way for Aerospace to step in and bring these kids beyond marshmallows and sticks and into something real," said Colleen Stover, an event co-organizer and project management specialist at the Center for Space Policy and Strategy. "It's a way for volunteers to not worry about having a long-term commitment. They want to engage, but they may not have time."

In total, students saw some 150 booths on the expo floor, learning from space experts and picking up plenty of conference swag along the way.

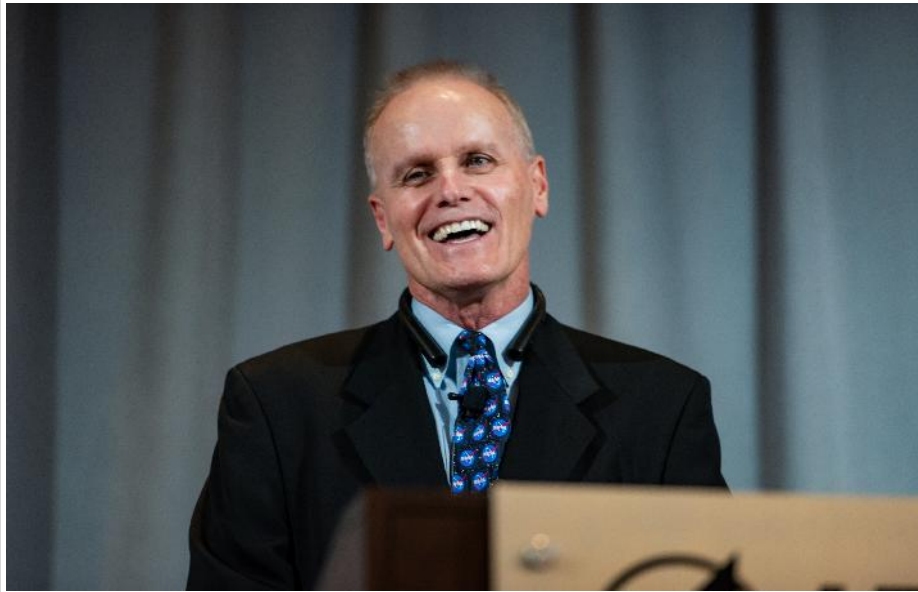
“This event was a great experience. It was very interesting to hear from so many amazing and talented people,” one of the students said after the day of activities. “I loved looking at all the different things and projects that everyone does so that we can continue to explore space. It was very educational and fascinating.”



Students at IAC got to hear a presentation from astronauts. (Photo: Edelina Rose)

Blind NASA engineer shares his Vision for Space

by **Conor Shine**
October 21, 2019



NASA Engineer Tracy Minish spoke to Aerospace employees at an event on Oct. 17, 2019.

Year by year, a degenerative condition known as retinitis pigmentosa slowly eroded Tracy Minish's sight, leaving him today with a field of vision comparable to looking through a drinking straw.

But Minish's condition didn't limit his determination or ambition, which helped propel him up the ranks of NASA, where he now serves as Mission Control Center Systems Ops manager at Johnson Space Center.

"One of the things I believe strongly is that my disability has made me a better person. It's given me a unique sense of humor and it's given me a heart for people that are not like me," said Minish, who is legally blind. "If I did not have this disability, I would not have these opportunities."

Using a blend of humor, music and a few props, Minish shared an inspiring tale of his 36-year career at NASA with dozens of Aerospace employees at the El Segundo campus Thursday, with many more tuning in from around the country.

His "Vision for Space" served as the keynote address at the event hosted by the Aerospace Totally Adaptable Group, which aims to make Aerospace "a better place to work by eliminating barriers to full productivity," said Daniel Winton, the group's national president. The event was co-sponsored by ATAG and Aerospace's seven other employee resource groups.

During his remarks, Minish made a forceful case for the contributions people with disabilities can make to any company, while confronting myths about what those workers are and are not capable of.

"People with disabilities are great problem solvers. We do it every day just to live our lives. We don't think outside the box, we stomp the box." Minish said. "People with disabilities want to be known not for what they can't do, but for what they can do."

Minish shared how early in his career he would fast before meetings, show up 20 minutes early and memorize all of his presentation to avoid calling attention to his disability. He worried about losing responsibilities and opportunities for advancement because of how he was perceived.

Eventually, he asked for help and began utilizing assistive technologies which he said "leveled the playing field." His career saw him travel the world on behalf of NASA, where he held roles that included shuttle programmer, shuttle instructor, Recon Branch chief, Mission Operations Branch chief and more.

On Thursday, Minish encouraged people with disabilities to self-identify to their employers, even if they don't need accommodations, in order to help raise visibility and clear a path for those that come after them.

He also spoke to the myths that can affect people with disabilities, including that they're low performers or are expensive to employ.

“A lot of times society in general...looks at people with disabilities and tells them ‘You can’t do this. Don’t reach out here,’” Minish said. “I really believe every person has the right to dream...I believe it is our duty to train, educate and give the tools to people with disabilities so that when opportunity knocks, they’re ready.”

Thursday’s event also featured remarks from Aerospace executives Dr. Jamie Morin, vice president of Defense Systems Operations, and Malissia Clinton, senior vice president and general counsel. Winton, the president of ATAG, said the group works year-round to support Aerospace employees with disabilities or employees who’s family members have disabilities. This year, the group is working on a new initiative to provide resources to parents of children with special needs.



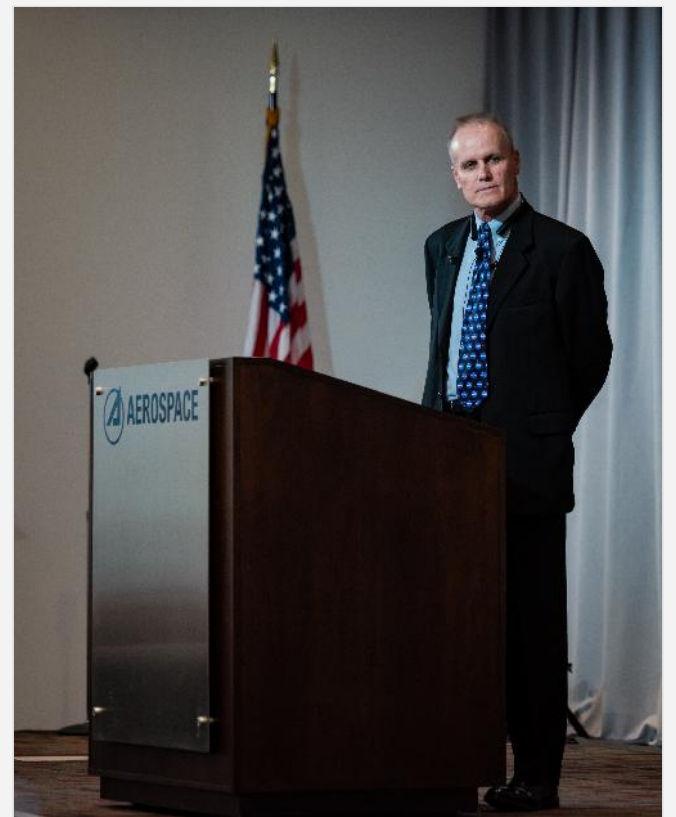
Tracy Minish and Aerospace Totally Adaptable Group national president Daniel Winton on Oct. 17, 2019.

“What I’m hoping people realize is if they have challenges, no matter what they are, they can trust the Corporation to find reasonable accommodations because it does and it always has,” said Winton, a senior project engineer in the Engineering and Technology Group.

Aerospace is sponsoring several other events in conjunction with National Disability Employment Awareness Month, which takes place in October.

On Oct. 24, a group of 25 neuro-diverse students will visit Aerospace for a tour and a career panel with ATAG members. [Click here](#) for more information on how to volunteer.

On Oct. 27, an Aerospace team will participate in the Skechers Pier to Pier Friendship Walk at the Manhattan Beach Pier to support children with special needs. [Click here](#) for more information on how to register.



NASA engineer Tracy Minish spoke to Aerospace employees at an event on Oct. 17, 2019.

A Rollercoaster Approach To Satellite Re-Positioning

October 17, 2019

When a natural disaster strikes or a national security emergency breaks out, every minute counts.

But it can take a satellite in low earth orbit 100 minutes to make one of the many passes needed to provide global coverage. Larger satellites can provide continuous coverage of greater areas but require higher altitudes and still only cover roughly one-third of the Earth.

In critical, fast-moving situations, space operators can find themselves challenged by the stubborn inflexibility of satellite positioning, which, despite numerous technological advances, still requires satellites to rotate or orbit into viewing range to image a target.

The Aerospace Corporation is testing a new approach that leverages atmospheric drag to provide dynamic satellite re-positioning, enabling on-demand responsiveness to emerging situations on the ground.

This new concept, known as Project Rollercoaster, is an alternative to the current, static method of satellite imaging that leverages maneuvering and the atmospheric drag of low Earth orbit (LEO) to rapidly and efficiently alter satellite ground tracks.

“If you want to get eyes on the ground, this will enable you to get there in a very short timeline”, said Travis E. Swenson of Aerospace’s Flight Design and Optimization Section. “The idea is you could deploy one of these Rollercoaster vehicles, use a chute and safely change your orbit so that you could image an area of interest much more responsively than you could have otherwise”.

[Read the full story here.](#)



In this fictional demonstration, the Rollercoaster CONOPS is used to survey damage to San Juan after a hurricane strikes Puerto Rico. The Rollercoaster CubeSat achieves a flyby over San Juan in ~27 hours, whereas the ISS (from which it's deployed) would not have such a viewing opportunity for tens of days.

Aerospace Board of Trustees Elects Two Top Space Leaders

October 10, 2019

The Aerospace Corporation's Board of Trustees added two new leaders with broad space experience. Retired space executive Jeffrey D. Grant and former astronaut and retired U.S. Air Force Col. Pamela A. Melroy were elected Sept. 12 and will assume trustee roles Dec. 11.

Grant retired as vice president and general manager of the Space Systems Division at Northrop Grumman Corporation, where he led efforts to develop space solutions for civil, military, and restricted customers. Prior to joining the private sector, he served the Intelligence Community for 21 years, working at the U.S. Central Intelligence Agency (CIA) and the National Reconnaissance Office (NRO).

Grant has received numerous awards in recognition of his exemplary skills in systems engineering and earned value management, including the Distinguished Intelligence Medal, the Intelligence Medal of Merit, the CIA's Engineer of the Year, the Intelligence Certificate of Distinction, and the CIA Certificate of Distinction. He serves on the board of directors for the Space Foundation.

Melroy is currently a member of the National Space Council Users' Advisory Group and the Australian Space Agency advisory group, and earlier served as a U.S. Air Force officer and a NASA space shuttle pilot and commander. She logged more than 924 hours (over 38 days) in space as a pilot on space shuttle missions STS-92 and STS-112, and as a commander for STS-120. She previously served as deputy program manager for Space Exploration Initiatives at Lockheed Martin, senior technical advisor and director of field operations for the Federal Aviation Administration's (FAA) Office of Commercial Space Transportation, and deputy director of the Tactical Technology Office for the Defense Advanced Research Projects Agency (DARPA).

During her distinguished career, Col. Melroy received the Air Force Meritorious Service Medal; the First Oak Leaf Cluster; the Air Medal, First Oak Leaf Cluster; the Aerial Achievement Medal, First Oak Leaf Cluster; the Expeditionary Medal, First Oak Leaf Cluster; the NASA Distinguished Service Medal; and the NASA Outstanding Leadership Medal. She is a member of the Society of Experimental Test Pilots, the Association of Space Explorers, and The Ninety-Nines, Inc. and a Trustee Emerita of the Wellesley College Board of Trustees.

"Leaders of this caliber come to Aerospace at an absolutely vital moment for the entire space enterprise," said Steve Isakowitz, Aerospace president and CEO. "These leaders provide Aerospace with the critical expertise needed to continue navigating this dynamic for civil, commercial and national security space communities."



Retired U.S. Air Force Col. Pamela A. Melroy and retired space executive Jeffrey D. Grant were elected to The Aerospace Corporation's Board of Trustees on Sept. 12 and will assume trustee roles Dec. 11.

The NFL Inspires a Satellite Docking Tool

October 10, 2019

How do you teach a satellite to park? As spacecraft transition from standalone vehicles to swarms of “self-driving” robots that interact and dock on their own in space, engineers need a way to test those maneuvers here on Earth. An Aerospace team found a possible solution on Sunday Night Football™.

For this team, the action was not on the field, but in the sky, where a camera sailed through the air on a system of cables and pulleys, capturing the game from above. Such cable systems allow cameras to move between any two locations in a three-dimensional space – exactly the kind of maneuvers needed to test and train the next generation of satellites.

An Aerospace version of this concept, dubbed Zipline, utilizes a similar cable system to test the movements and interactions of self-driving, or autonomous, satellites.



Project lead Ben Bycroft believes that the coming “sea change” in space technology will require equally bold advances in testing methods.

“We’re trying to build Zipline as a test bed to prove that we can have space vehicles approach each other without crashing or missing,” said Bycroft, manager of Aerospace’s controls analysis department. “We want to be able to test both the hardware and the algorithms – all the processes you might need to make a bunch of autonomous robots work independently in space.”

[Read more here.](#)



October 2019 Obituaries

by **Conor Shine**
October 01, 2019

Sincere sympathy is extended to the families of:

Edward Breig, member of technical staff, hired June 20, 1966, retired Nov. 1, 1997, died Aug. 1, 2019
Jack Brick, member of administrative staff, hired Aug. 27, 1962, retired Jan. 1, 2003, died Sept. 1, 2019
Charles Daugherty, office of technical support, hired Sept. 26, 1960, retired Jan. 1, 2013, died Sept. 6, 2019
Joseph Dorian, member of technical staff, hired July 10, 1978, retired Jan. 1, 1988, died Jan. 15, 2019
Virginia Ford, member of administrative staff, hired Aug. 17, 1971, retired Sept. 1, 1995, died Aug. 12, 2019
Donald Gordon, member of technical staff, hired Jan. 16, 1973, retired Oct. 1, 1996, died Sept. 2, 2019
Warren Germain, member of administrative staff, hired June 26, 1961, retired Feb. 1, 1995, died Sept. 20, 2019
Joseph Hartman, member of technical staff, hired March 16, 1981, retired Feb. 1, 2007, died July 14, 2019
Ronald Lash, member of technical staff, hired March 4, 1963, retired Oct. 1, 2004, died Sept. 14, 2019
Elizabeth Laudadio, office of technical support, hired Oct. 29, 1984, retired Oct. 1, 1998, died Aug. 26, 2019
Charlotte Lenander (Wise), member of technical staff, hired Sept. 29, 1965, retired July 1, 1998, died Sept. 17, 2019
Marjorie Mims, member of technical staff, hired Dec. 17, 1962, retired Dec. 1, 1990, died Aug. 26, 2019
Barry Moss, member of technical staff, hired Nov. 17, 1960, retired Nov. 1 1991, died Sept. 21, 2019
Marco De Nicolai, member of technical staff, hired June 30, 1961, retired Dec. 1, 1985, died Sept. 18, 2019
Robert Pruett, member of technical staff, hired Aug. 28, 1962, retired Nov. 1, 1985, died Sept. 9, 2019
Eric Stroud, member of technical staff, hired Aug. 24, 1987, retired Aug. 1, 2015, died Aug. 24, 2019
James Tourdot, member of technical staff, hired March 17, 1969, retired Feb. 1, 2006, died Sept. 2, 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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