



# AeroSpace FRONTIERS

VOLUME 22 • ISSUE 4 • APRIL 2020

## Orion Spacecraft Testing Success!

Page 4

## Unity Empowers Workforce

Page 5

## Early Careerists Become Ambassadors

Page 12

## Breaking Ground for New Facility

Pages 2–3





## Stay Safe and Communicate

As we celebrate the successful completion of the Artemis I Orion Crew and Service Module environmental test campaign, I am once again reminded of the dedication and commitment of Glenn's workforce to deliver the mission. Our workforce is truly key to our success. The protection and health of our workforce continues to be my top priority as we respond to the coronavirus situation. Please continue to follow recommendations, monitor the agency [NASA People website](#) for the latest information and communicate regularly with your supervisor. Together, we will get through this and continue to accomplish great things for the nation and humanity. Please take care of yourselves and your families.

### *AeroSpace Frontiers*

is an official publication of Glenn Research Center, National Aeronautics and Space Administration. It is published the second Friday of each month by the Office of Communications & External Relations in the interest of the Glenn workforce, retirees, government officials, business leaders and the general public.

Submit short articles and calendar items to the editor at [doreen.b.zudell@nasa.gov](mailto:doreen.b.zudell@nasa.gov).

Editor: **Doreen B. Zudell**, ATS,  
216-433-5317

Assistant Editor: **S. Jenise Veris**, ATS

Design: **Rhys Sampson**, ATS

Managing Editor: **Kelly R. DiFrancesco**

Circulation: **Angela Williams**, ATS,  
216-433-8921

# Center Breaks Ground on Aerospace Communications Facility

NASA Glenn and agency senior leaders and guests ceremoniously broke ground at the construction site of the agency's new Aerospace Communications Facility (ACF), March 4. They then joined center employees in the MIC Auditorium to celebrate the event.

Dr. Joel Kearns, Glenn's director of Facilities, Test and Manufacturing, kicked off the festivities. He was joined by Center Director Dr. Marla Pérez-Davis; NASA Assistant Administrator for the Office of Strategic Infrastructure Calvin Williams; and Glenn's Chief of the Communications and Intelligent Systems Division Dawn Emerson. The event included a large signature board of an artistic rendering of the new building for employees to sign, along with musical selections by the Lewis Ensemble.

"We are celebrating the construction of the ACF, Glenn's first new facility in over 35 years wholly focused on one of our research and development activities," Kearns said. "Previous construction by Austin Company in Cleveland on projects of significant technical complexity, along with the experienced and dedicated design team from Ross Barney Architects and Glenn, gives me great confidence that this effort will be highly successful."



GRC-2020-C-01187

Photo by Bridget Caswell

*Calvin Williams joins Dr. Pérez-Davis for ceremonial cake cutting.*



GRC-2020-C-01135

Photo by Marvin Smith

*Members of the NASA Glenn leadership and Communications and Intelligent Systems Division, and NASA Associate Administrator for the Office of Strategic Infrastructure, participate in the groundbreaking for the ACF. Pictured, left to right: Dr. Kearns, Emerson, Dr. Félix Miranda, Dr. Robert Romanofsky, Associate Center Director Larry Sivic, Dr. Pérez-Davis, Williams and Dr. Ajay Misra.*

The new 54,000-square-foot facility will be NASA's premier location for radio frequency communications technology research and development. It will allow NASA and commercial partners to develop faster, higher capacity communications for future missions to the Moon and Mars. It will also house research in advanced communications for future urban air mobility and autonomous flying vehicles.

Pérez-Davis shared her excitement for the ACF as part of a series of improvements and new construction at Lewis Field, under the center's Master Plan to modernize and transform the campus. She highlighted a key design feature of the facility—a great deal of flexibility—to easily reconfigure space to meet NASA priorities of today, and decades to come. She also encouraged employees to learn about Glenn's Master Plan for future construction/renovations, which Kearns presented earlier at a GRC Connections event.

The ACF is designed to achieve Leadership in Energy and Environmental Design (LEED) Gold certification and comply with current Life Safety and Americans with Disabilities Act

requirements. Williams said this brings Glenn's total to seven LEEDS-certified (four gold and three silver) buildings constructed since NASA began its Sustainability Design and Construction Program in 2004.

Emerson expressed appreciation for the new ACF as an important milestone for the center and agency communications competency. "As we look to the future, NASA has very ambitious goals for exploration, science and aeronautics," she said. "Glenn has a rich heritage and award-winning talent that has developed new communications technologies and novel systems solutions that will help the agency in achieving these bold goals."

The ACF is targeted for completion in May 2022. To view renderings of the new ACF, visit [NASA Glenn's Flickr](#) page.

By S. Jenise Veris



*On the Cover: Kimberly Sivillo, left, and Michelle Morris sign the large signature board of an artistic rendering of the new building.*

GRC-2020-C-01161

Photo by Jef Janis

# Glenn Successfully Completes Orion Spacecraft Testing!



Photos by Marvin Smith  
GRC-2020-C-01311

*The Orion spacecraft in the Space Environments Complex vacuum chamber.*

In a small ceremony on March 14, NASA Glenn marked the completion of environmental testing of the Orion spacecraft for Artemis I at Plum Brook Station. Orion arrived at the Space Environments Complex in November for thermal vacuum and electromagnetic environment testing.

“Today, we are here to celebrate and recognize the amazing work just completed here at Plum Brook Station by the combined NASA, Lockheed Martin, ESA and Airbus team,” said Center Director Dr. Marla Pérez-Davis. “Over the past 4 months, our team has

been hard at work, 24 hours a day, 7 days a week, subjecting the spacecraft to extreme temperatures and the vacuum of space.”

Pérez-Davis said the spacecraft not only passed all the rigorous tests, but also did so ahead of schedule.

U.S. Rep. Marcy Kaptur and Ohio State Rep. Adam Holmes, as well as Erie County Commissioners Patrick Shenigo, Stephen Shoffner and Matthew Old attended. Former Center Directors Jim Free and Dr. Woodrow Whitlow Jr., who were instrumental in getting the test to Glenn, also attended. Local and international media came to learn more about the testing and spread the word about this milestone.

NASA’s Orion Program Manager Mark Kirasich and Testing Project Manager Nicole Smith shared information about the completed tests and what’s next for Orion.

About a week after the ceremony, Orion was transported to the Mansfield Lahm Airport and flown back to NASA Kennedy. There it will go through final assembly, including installing the solar arrays, and integration with the Space Launch System rocket.

Artemis I is expected to launch next year without a crew and circle the Moon in the first flight of the integrated Orion spacecraft and Space Launch System rocket.



GRC-2020-C-01333

*Smith, left, shares information about the completed tests. At her right are, left to right: Kirasich, Dr. Pérez-Davis and Rep. Kaptur.*

By Doreen B. Zudell

# Steve Shih Visits, Promotes NASA Unity Campaign



*Shih talks about the significance of the NASA Unity Campaign during his town hall meeting.*

On Sept. 6, Administrator Jim Bridenstine announced the launch of the NASA Unity Campaign. The goal of the campaign is to empower NASA's workforce and organizations to work together more effectively to accomplish our missions.

This sentiment is evident throughout Glenn's leadership team. Center Director Dr. Marla Pérez-Davis has pledged her commitment to the campaign and to providing a culture where every employee feels appreciated, connected, empowered and valued.

In March, NASA's Associate Administrator for Diversity and Equal Opportunity, Steve Shih, visited Glenn. During the visit, the center sponsored a town hall meeting at Lewis Field where Shih shared his personal experiences and research findings that stressed how positive relationships among colleagues are vital to achieving goals. He also discussed how the Unity Campaign aligns with NASA's approach for current missions (e.g., Artemis), with an emphasis on transcendent goals and workforce connections (partnership and teamwork).

As an additional benefit of Shih's visit, he conducted anti-harassment training for Glenn supervisors and held a meeting with the senior management team. He also toured several research facilities at Plum Brook Station and Lewis Field.

Stay tuned to Today@Glenn for upcoming NASA Unity Campaign events.

By Doreen B. Zudell



*Left to right: Mike McVetta, Shih, Ashley Cantor and Kathy Zona in Vacuum Facility 6 in the Electric Propulsion Laboratory.*

# Center Celebrates Efforts for 2019 Combined Federal Campaign

Glenn's 2019 Combined Federal Campaign (CFC) Appreciation Event on Feb. 27 acknowledged the efforts of employees, who through their time and donations helped Show Some Love to those in need.

In the 2019 campaign, Glenn employees pledged over \$270,000 and volunteered 428 hours toward causes they care about.

Center Director Dr. Marla Pérez-Davis, Loaned Executive Andrea Bonesteel and CFC Chairperson Issam Boukabou thanked employees for their support throughout the campaign. Campaign Associate Director for the Northern Ohio Zone 28 Carol McClain stressed the willingness of employees to contribute to thousands of charities that work to improve the quality of life for all.

Boukabou and Co-chair Mark Sorrells presented several certificates of achievement and appreciation to keyworkers. Boukabou received the Campaign Hero Award from the CFC management in downtown Cleveland. Diana Chan, Facilities, Test and Manufacturing Directorate, earned Keyworker of the Year. NASA Glenn received the Spirit of the Community Award.

The ceremony ended with Boukabou passing the CFC torch to Sorrells who will chair the 2020 campaign.

By Doreen B. Zudell



GRC-2020-C-01248

Photos by Bridget Caswell

*Dr. Pérez-Davis wishes good luck to Sorrells for taking the CFC torch for the 2020 campaign.*



GRC-2020-C-01242

*Boukabou, right, with Keyworker of the Year Chan.*



GRC-2020-C-01250

*Members of the CFC 2019 team.*

# Glenn Technology Inducted Into Space Technology Hall of Fame

NASA Glenn's Traveling Wave Tube Amplifier (TWTA) technology has been inducted into the Space Technology Hall of Fame. The team includes Glenn's Dr. Rainee Simons, Dale Force, Dr. Jeffrey Wilson (retired) and Edwin Wintucky (retired)—along with their partners from L3 Electron Devices and L3 Communication Systems-West.

TWTAs have been the workhorse for telecommunications, radio science and imaging radar systems on nearly all of NASA's near-Earth and deep space missions. They are reliable and can survive in space for extended periods. More than 90% of satellites launched feature TWTA-based payload configurations.

The team developed space TWTAs at several frequency bands (X-, K-, Ka- and Q-), enabling transmission of unprecedentedly high data rates. Spinoff applications that provide societal benefits include timely meteorology weather alerts, satellite television broadcasting, mobile phones, telemedicine and instant messaging, as well as high-speed internet service and cloud computing. Recent advancements to Q-band space TWTAs have transformed the technology to meet the commercial satellite communications market for the 5G—the fifth generation of wireless communications technology.

The Space Foundation sponsors the Space Technology Hall of Fame to honor scientists, engineers and innovators for effectively adapting space technologies to improve the quality of life for all humanity.

By Lauren Simmers



GRC-2020-C-00960

Photo by Bridget Caswell

Space Technology Hall of Fame inductees Force and Dr. Simons stand next to a 200-W Ka-band TWTA mounted on a cooling platform for lab testing.

## AeroSpace Frontiers Earns Award

On Feb. 28, Ragan Communications recognized NASA Glenn as one of the best internal communicators in the industry during its 2019 Employee Communication Awards gathering. Glenn's *AeroSpace Frontiers* newsletter received an Honorable Mention award as one of nine finalists in the print or digital newsletter category.

Ragan, based in Chicago, provides training, newsletters, seminars and awards for people who work in employee communications, public relations, social media and other fields.



# Author Accounts Cleveland's Contributions to Equality

On Feb. 19, the African Heritage Advisory Group (AHAG) and Office of Diversity and Equal Opportunity co-sponsored a special program honoring Martin Luther King Jr. Day and Black History Month. James D. Robenalt, author and local attorney, gave a thought-provoking account of the characters and events that spurred Cleveland's involvement in the Civil Rights Movement. This included the election of Carl Stokes, the first black mayor of a major U.S. city. Robenalt explained how a speech by activist Malcolm X inspired the title of his latest book chronicling the period, "Ballots and Bullets: Black Power Politics and Urban Guerrilla Warfare in 1968 Cleveland."



*Robenalt, center, accepts a certificate of appreciation from AHAG Chair Eunice Adams-Sipp and AHAG's Executive Sponsor and Glenn's Chief Information Officer Sean Gallagher.*

## NEWS AND EVENTS

### Close Calls and Mishaps While Teleworking

Most people might not consider reporting close calls and mishaps while teleworking. However, the same rules apply as if you were working at your normal work location. If you do experience a close call or injure yourself, please contact your supervisor as soon as possible. If your supervisor is not available, please contact the Mishap Program Manager at 216-433-2085. Before it is reported, the circumstances will be assessed as to whether it is truly work related.

The Occupational Safety and Health Administration (OSHA) Standard: Section 1904.5(b)(7) states: How do I decide if a case is work-related when the employee is working at home? Injuries and illnesses that occur while an employee is working at home, including work in a home office, will be considered work-related if the injury or illness occurs while the employee is performing work for pay or compensation in the home, and the injury or illness is directly related to the performance of work rather than to the general home environment or setting.



## Helpful Resources

Fear and anxiety about the coronavirus can be overwhelming and cause strong emotions in adults and children. Here are some resources that may help.

For voluntary, confidential, short-term and free mental health/wellness support, visit NASA's Employee Assistance Program (EAP) website at [https://www.nasa.gov/offices/ochmo/divisions/health\\_medsys/eap\\_info.html](https://www.nasa.gov/offices/ochmo/divisions/health_medsys/eap_info.html).

Contractors are encouraged to contact their employers for details on these services.

Updated agency guidance is available on the NASA People website at <https://nasapeople.nasa.gov/home.htm>.

For the latest updates on the coronavirus, visit the



Centers for Disease Control and Prevention website at <https://www.cdc.gov>.

Keep the kids busy and learning at the same time on the NASA Kids' club website at <https://www.nasa.gov/specials/nasaathome/index.html>.

## Glenn Analysts Merit SFA Trailblazer Awards

Two NASA Glenn early careerists are the recipients of the agency's prestigious Space Flight Awareness (SFA) Trailblazer Award.

Brandon T. Klefman, Power Architecture and Analysis Branch, received the award for proficient mastery of the System Performance Analysis for Capability Evaluation, a complex space power system simulation code, and its application to support NASA's premier human space flight missions. He works collaboratively on teams responsible for shaping the designs of the Orion Multi-Purpose Crew Vehicle (MPCV) and power and propulsion element's electrical power systems.

Stephen L. McCarty, Mission Architecture and Analysis Branch, received the award for excellence in contributing to NASA's human exploration missions through technical insight, leadership and innovation. He contributed to high-performance computing applied to the trajectory design and optimization for the power and propulsion element (PPE) as the propulsive element of NASA's Gateway.



*Astronaut Douglas Wheelock, Safety and Mission Assurance lead at Plum Brook Station, presents Trailblazer Award to McCarty, center, along with the nominating supervisor, Melissa McGuire.*



*Klefman, right, accepts his Trailblazer Award presented by David Hoffman, his branch chief and nominating supervisor.*

# A Tale of Two Future Cities

Glenn's Danielle Koch and Chris Colwell celebrated Engineers Week with eighth graders at Clark Elementary School in Cleveland and St. Ambrose Catholic School in Brunswick. Both schools built models of their "Future City," complete with moving parts and water systems. The St. Ambrose Future City team won third place in the Ohio Regional Future City Competition in January. They used their city model to inspire and invite students at Clark to give the contest a try. The two model cities were on display in Glenn's cafeteria in March. Koch, Acoustics Branch, and Colwell, Facilities Division Engineering Branch, tutor at Clark during the school year through the Federal Executive Board Tutoring Program.



*Koch, left, and Colwell in front of Future City displays in the Lewis Field cafeteria.*

## MORE THAN A MEMORY



*Curren*

**Norma D. Curren**, 91, a 1962 retiree who served at the NACA/NASA Lewis Flight Research Center, died Dec. 9, 2019. Curren was an executive administrative assistant who first supported the Correspondence Group in the Administration Building before moving to the Compressor and Turbine Division Office. Her husband, Arthur (deceased) was also a NASA employee.

**Francis "Frank" Stenger**, 84, a 1982 retiree with 25 years of service, died Oct. 23, 2019. He began his career in the Propulsion Systems Division, working on the Big Joe Mercury capsule, and helped design the Gimbal Rig. By 1963, he was working on solar cells and the first capillary pumped loop in the Space Power Systems Division, prior to working on electric automobiles for the Transportation Propulsion Division. His wife Fedora (deceased), was a NASA research chemist.



*Stenger*



*Dr. Jacqmin*

**Dr. David Alan Jacqmin**, 74, a 2014 retiree with nearly 34 years of service, died Dec. 12, 2019. Jacqmin was a physicist who worked in the Internal Fluid Mechanics Division for over a decade. He earned a 1996 Outstanding Leadership Medal for scientific achievement contributing to an understanding of the physics of space fluids, directly benefiting NASA's microgravity and materials processing. In 2011, he received a NASA Aeronautics Research Mission Directorate's Seedling Fund grant to develop innovative solutions to aeronautics technical challenges.



April 22, 2020, marks the 50th anniversary of Earth Day

Watch Today@Glenn for details about forthcoming Earth Day activities.



## SPINOFF 2020—SPINOFF.NASA.GOV

NASA has released the annual edition of Spinoff, highlighting all the ways NASA technology makes life better on Earth. This year's edition of Spinoff includes technology to make the air space safer for drones, a camera that will help cars drive themselves and much more. Watch the video and read more at [spinoff.nasa.gov](http://spinoff.nasa.gov).

Since 1976, Spinoff has annually profiled an average of 50 commercial technologies with origins in NASA missions and research. Issues of Spinoff published since 1996 can be read online in HTML or downloaded in PDF. Scanned copies of Spinoff are available in PDF for issues published between 1976 and 1995.



### TRIBA GOLF LEAGUE

The TRIBA Golf league is a fun and competitive mixed league that golfs at Creekwood Golf Course in Columbia Station on Tuesdays, beginning April 14. If you, your colleagues, friends and family are interested in golfing this season, come join the fun!

POC: Richard.A.Manco@nasa.gov or 216-433-6054

### NATIONAL DAY OF PRAYER

The NASA Glenn Prayer Group invites all members of the Glenn community to join them for a Christian observance of this special day, Thursday, May 7. This year's theme is "Pray God's Glory Across the Earth." Observances will be at 7:30 and 11:30 a.m. See Today@Glenn or type "Prayer" in the WING Transporter for locations and details.

POC: Dale Mortensen, 3-6823.

### GSEL MOBILE LIBRARIAN

For details about upcoming Mobile Library locations, please contact Robin Pertz, 3-5776, or Jillien Zudell, 3-8058.

### OUTDOOR SIREN TESTING

The Emergency Management Office staff will conduct an audible siren test on the "shelter and aid stations" tone on Saturday, May 2. A mass notification voice test will be conducted at bldg. 86 on Wednesday, May 6 at Lewis Field.

POC: Allen Turner, 3-6826

### IFPTE LOCAL 28, LESA MEETING

LESA will hold its next membership meeting, Wednesday, May 13, noon, in the Glenn Employee Center's Small Dining Room.

Stay tuned to Today@Glenn for updates on these activities.

National Aeronautics and  
Space Administration

John H. Glenn Research Center

Lewis Field

21000 Brookpark Road  
Cleveland, Ohio 44135

Plum Brook Station

3597 E. Scheid Road  
Sandusky, Ohio 44870

[www.nasa.gov](http://www.nasa.gov)

Read AeroSpace Frontiers online at <http://www.nasa.gov/centers/glenn/news/AF/index.html>.



# Early Careerists Become Ambassadors



*NextGen Ambassador Program Coordinator, Moss, far left, and Center Director Dr. Marla Pérez-Davis, center, with NextGen Ambassadors.*

During the NextGen Ambassador Program Orientation, Feb. 24, 16 early career employees gathered at the Guerin House to learn how they can spread the word about NASA's mission.

The NextGen Ambassador Program is a new initiative at NASA Glenn. The 2-year program engages and develops early career employees in NASA's mission by offering them opportunities throughout the year to support official events, activities and initiatives in various capacities.

"The program will help early careerists expand their professional network, adding outreach experience to their resume and helping NASA connect to one of its most important audiences—the public," said Antoine Moss, program manager.

## **NextGen Ambassadors:**

### **Center Operations Directorate**

Andrew Deenanauth and Megan Sorrelle

### **Facilities, Test and Manufacturing Directorate**

Mark Archual, Emily Fabian, Frank Kaufhold and Gretchen Morales-Valle

### **Research and Engineering Directorate**

Stephanie Booth, Ru-Ching Chen, Anastasia Cunningham, Ian Haskin, Lyndsey McMillon-Brown, Emma Pierson, Leah Struchen Deans, Lucia Tian and Zachary Zoloty

### **Mission and Safety Assurance Directorate**

Daniel Phan

## **Emergency and Inclement Weather Lines**

Lewis Field: 216-433-9328 (WEAT)

Plum Brook Station: 419-621-3333

## **Connect With Glenn**

