National Aeronautics and Space Administration



# AeroSpace FRONTIERS

VOLUME 24 • ISSUE 4 • APRIL 2022

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#### **Organizational Silence**

I hope you took the opportunity to fully engage in the recent SATERN training on Organizational Silence. Combating organizational silence is truly critical to our continued mission success.

I encourage you to practice the following actions: reverse your thinking; change your emotions; be present; invite dialogue; intentionally include; and create a positive and safe environment.

We need to be open and fully engaged as we implement our key mission priorities with safety and excellence.



#### 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 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.

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### Robotic Dog Helps Prevent Hearing Loss

*Employees are discovering that a dog—even a robotic one—can be a co-worker's best friend.* 



GRC-2022-C-00207

Astro assists with equipment inspections in building 64.

Photo by Jef Janis

The Central Air Equipment Building, 64, provides central air service to aeronautics and aerospace test facilities at Lewis Field. When large motors and compressors inside the building are running, they make a lot of noise. This is harmful to employees' hearing, even when utilizing double hearing protection.

A robotic dog named "Astro" is working to reduce those risks.

"We worked with Glenn's Safety and Mission Assurance Directorate to discover methods to reduce noise levels, but many of the options would be costly and require too much time to implement," said John DeGreen, chief, Systems Management and Operations Branch.

Glenn discovered an affordable and time-saving alternative. A robotic dog was purchased from Boston Dynamics to assist with noise mitigation efforts. Astro serves as the eyes and ears for employees when conducting inspections in building 64. The robot is operated by staff via remote control, can work autonomously, and is controllable over three levels of the facility.

Despite the noise, Astro can spend as much time as necessary inside the facility, which allows for thorough inspections of equipment. Robot operators remain in the control room and



GRC-2022-C-00216

Astro traverses the stairs in building 64.



GRC-2022-C-00946 Photo by Marvin Smith Project Coordinator/Engineering Technician LePreece Thomas was responsible for coordinating the acquisition of the robot. She also came up with the name Astro.

view what Astro sees via camera. This keeps employees out of harm's way while machines are running.

During inspections, Astro evaluates equipment function and alerts the staff if it discovers potential issues or abnormalities that need to be corrected. The robot also collects and stores high sample rate data for future analysis. Astro "sees" in infrared with 40 times zoom, utilizes thermography and a microphone, and maps its surroundings.

Once Wi-Fi capabilities are enhanced in building 64, operators plan to utilize web-based applications and additional programming to allow Astro to capture even more types of data. If the robot continues to effectively execute its duties, Astro may soon have a pal in the Engine Research Building.

By Adam Schabel

On the Cover:

Central Process Operator Dan Loeffler demonstrates Astro near an exhauster in the Central Air Equipment Building.

> GRC-2022-C-00944 Photo by Marvin Smith



## Dr. Augustin Named Human Resources Deputy

Dr. Debbie A. Augustin has been selected as deputy director of the Human Resources Office (HRO). She is responsible for helping manage the day-to-day operations of HRO.

Before joining Glenn, Augustin worked at NASA Headquarters for four years. She managed several agencywide leadership and organization development programs.

She then went on to serve in independent contributor and supervisory positions within HRO for 10 years at NASA's Goddard Space Flight Center. Augustin had oversight for a broad range of human resource management and development functions.

Augustin previously held management, consulting, and training positions with organizations such as Kaiser Permanente and the Center for Rehabilitation Research and Education at The George Washington University (GWU).

She earned a Master of Arts degree in education and human development with a concentration in rehabilitation counseling and a doctorate in human resources development with a focus in leadership development and organizational effectiveness from GWU.



Dr. Augustin

# NASA's Future of Work: People First. Mission Always.

In mid-March, agency and center leaders held town hall meetings with the workforce to discuss NASA's Return to On-Site Work and Future of Work activities. Starting in April, all centers are able to increase their on-site population from 50% to 75% occupancy.



In addition to the increase in occupancy level, the discussions also shared many themes, such as revisiting an individual's work schedule, so it provides flexibility, but also supports the mission and the agency's needs. Leaders reminded employees of the importance of being vigilant and "in the moment" when returning on-site, to avoid mishaps and ensure a safe working environment for all.

In May, NASA Glenn will begin the Experimentation Phase of its Future of Work Pilot, which will allow employees to try out the center's hybrid work model and hoteling, or desk sharing, activity. Organizations will also use this time to establish and communicate organizational meeting norms with their teams and assess property management needs, moving forward.

Visit the agency's Future of Work website for guidance and information about NASA's new hybrid work environment and Glenn's website for center-specific details.

### Humans in Space Flammability Project Will Help Select Safe Materials for Moon, Mars

Do you wonder how engineers will design fire-safe homes for the Moon, where only 12 people have walked, or Mars, where no human has even visited? How will they study flammability in these little-known environments?

The Solid Fuel Ignition and Extinction (SoFIE) project, a set of experiments that recently launched aboard Northrop Grumman's 17th cargo resupply mission to the International Space Station, could light the way to a deeper understanding of fire in space. SoFIE will run in the station's Combustion Integrated Rack (CIR), which features a chamber where experiments can burn safely. CIR was designed and built at Glenn.

SoFIE consists of five investigations to study the flammability of plexiglass, cotton-based fabrics, and other materials commonly used in spaceflight.

"With NASA planning outposts on other planetary bodies like the Moon and Mars, we need to be able to live there with minimal risk," said Glenn's Paul Ferkul, SoFIE project scientist. "Understanding how flames spread and how materials burn in different environments is crucial for the safety of future astronauts."

The station's unique microgravity environment enables scientists to study the true nature of flames isolated and unaltered by gravity. Data from SoFIE will help NASA select materials and designs for spacesuits, cabins, and habitats. The experiments also will help NASA identify the best ways to put out fires or smoldering materials in space as it prepares to go farther and stay longer.

Although SoFIE's purpose is to study spacecraft fire safety, data from the experiments could help improve fire safety on Earth. The data will add to the existing body of knowledge that could improve screening tests to evaluate fire-safe materials for the home, office, aircraft, or other uses.

To learn more about SoFIE and each of its experiments, visit https://go.nasa.gov/3LHgSrh.



GRC-2022-CN-00022

Photo by NASA

To demonstrate flame growth, decay, and extinction in space, a preliminary test called Burning and Suppression of Solids burned a synthetic resin on the space station several years ago. The top row shows the flame growing, while the bottom row shows it going out.

# **Promotions**

**Dr. Jon C. Goldsby** has been selected chief, Ceramic and Polymer Composites Branch, Materials and Structures Division for the Research and Engineering Directorate. Throughout his career, Goldsby has provided expertise and leadership on a wide range of ceramic-based materials technologies using both experimental and computational methods.

**Terrian Nowden** has been selected chief, Power Architecture and Analysis Branch, Power Division for the Research and Engineering Directorate. She recently served as deputy discipline lead for the Human Landing System Power System team. Nowden also served as deputy project manager for the Orion Ascent Abort Acoustic Test at the Neil A. Armstrong Test Facility. Prior to that, she was a mechanical engineering technician.



Dr. Goldsby



Nowden

#### Can you dance in space?

## Local Students Talk With Space Station Astronauts

It was anything but a typical day for students from several Northeast Ohio schools when they connected with astronauts aboard the International Space Station.

NASA Glenn's Office of Communications and Office of STEM (OSTEM) Engagement, in partnership with Great Lakes Science Center (GLSC), provided a unique learning experience for more than 1,300 local students in grades kindergarten through 12 on March 2. The event featured a downlink between students and astronauts on the space station with participating schools and students on-site at GLSC. Glenn's Abigail Rodriguez emceed the event.

Center Director Dr. Marla Pérez-Davis welcomed students and educators. She talked about Glenn's roles in Artemis, including the Orion Spacecraft, Space Launch System rocket, and Gateway outpost.

"Without a doubt, the journey to the Moon and Mars goes through Ohio!" she said.

Ohio Governor Mike DeWine, and Cleveland Mayor Justin Bibb also welcomed students with prerecorded remarks. During the live downlink from NASA's Johnson Space Center, Expedition 66 astronauts Raja Chari and Thomas Marshburn answered students' questions centering on living and working in space. Questions ranged from "What is your favorite experiment?" to "Can you dance in space?" More than 3,600 people viewed the broadcast live while over 1,800 others have viewed replays posted to NASA YouTube accounts.

Ohio senators Sherrod Brown and Rob Portman provided prerecorded remarks that affirmed the value of NASA's research and STEM-related education.

When the downlink concluded, an astronaut here on Earth, Stephanie Wilson, participated in a virtual discussion with students about the future roles for Artemis astronauts.

A STEMonstration video titled "Five Senses" led into interactive hands-on activities facilitated by OSTEM staff for participants at the schools and GLSC.

By Doreen B. Zudell

Tracy Milan of Warrensville Elementary School was one of several students who asked space station astronauts prerecorded and live questions.

GRC-2022-C-00341 Photo by Bridget Caswell

Down on Earth, astronaut Stephanie Wilson from NASA's Johnson Space Center talks live with students after the downlink.



If you had to live on the space station for the rest of your life, what three items would you bring with you?

What is the most interesting experience you've had in space?

How do you get fresh water to drink in space? How do you stay clean?

What is your favorite experiment on the International Space Station?

GRC-2022-CN-00020 High school students from the Cleveland Metropolitan School District traveled to GLSC to participate in the event.

<image>

Astronauts Raja Chari, left, and Thomas Marshburn answer students' questions during the downlink.





Photo by Jef Janis

### University Day Promotes NASA Internships

GRC-2022-C-00263

Glenn's Office of STEM Engagement hosted a virtual "University Day" on Feb. 17. The event provided an opportunity for 290 graduate and undergraduate students from 66 colleges and universities across the country to learn about NASA's internship programs, facilities, and how to apply for internship opportunities. Students engaged in a "How to Apply" live workshop, took part in conversations with a panel comprising current interns and mentors, and participated in virtual tours of the SLOPE Laboratory and Icing Research Tunnel.

# NEWS AND EVENTS

# Earth Day 2022

Earth Day is Friday, April 22. Glenn's Environmental Management Office will kick off its Earth Day 2022 celebrations with a prerecorded guest speaker. Throughout the year, it will share presentations that focus on various sustainability topics.

This year's theme is "The Benefits of Trees." Visit Glenn's Sustainability webpage: https://www.grc.nasa. gov/f/fe/sustainability/ for up-to-date information.

Looking for sustainability activities in your local area? Visit https://www.earthday.org to find the latest event happenings.

#### Tell Your Friends and Family! Glenn's Virtual Tours Return

Do you want to reconnect with NASA Glenn and its world-class facilities? From April to June and September to November, join Glenn's Office of Communications to explore the unique facilities nestled inside Glenn's gates.

Learn more about Glenn's facilities and research that support programs like Artemis—where NASA will land the first woman and first person of color on the Moon to explore more of the lunar surface than ever before.

Register to explore Glenn through a virtual facility walk-through and go behind the scenes with experts to learn how the journey back to the Moon and on to Mars goes through Cleveland.

#### New this year is a Glenn overview tour along with a live Q&A session.

The six virtual facility tours will be offered at 1 p.m. ET on the following dates:

- April 13—Simulated Lunar Operations Laboratory)
- May 18—8- by 6-Foot Supersonic Wind Tunnel
- June 15—Space Environments Complex
- Sept. 14—Ballistic Impact Laboratory
- Oct. 12—Electric Propulsion and Power Laboratory
- Nov. 9—NASA's Glenn Research Center Overview

Guests will receive a confirmation email with additional information and details regarding their designated virtual tour, including login information. To register for a tour, visit https://www.nasa.gov/ glennvirtualtours. For a list of frequently asked questions, visit https://go.nasa.gov/3MQr3dL.



GRC-2017-C-00904

Ballistic Impact Lab

Photo by Quentin Schwinn



GRC-2020-C-01311

Space Environments Complex P

Photo by Marvin Smith

GRC-2021-C-00487 Photo by Bridget Caswell

Simulated Lunar Operations Laboratory

### Calling Former Club and Sport Team Members!

Building 15 will soon be a memory and the center is looking to rehome the collection of sports and club trophies with former members. Trophies and plaques from softball, golf, tennis, and chess are among those available. Items will be available on a first-come, first-served basis.

If you are interested in claiming one of these mementos, please contact Alan Hewston at 216–433–3556 or alan.w.hewston@nasa.gov, or Anne Mills at anne.mills@nasa.gov for more information. Current employees can also reach Hewston or Mills via Teams chat.



GRC-2022-CN-00006 Items in this trophy case in the Employee Center at Lewis Field are looking for a home.

#### **More Than A Memory**

Anthony "Tony" Gagat, 98, a 1978 retiree with 32 years of NACA/ NASA service, died Oct. 24, 2021. He was appointed the center's Fire Protection Engineer in 1974. Gagat retired as head of the Equipment Engineering Section of the Engineering Design Division. He was an instructor in the Apprentice Program as well as a member of the Speakers Bureau and Supervisors Club.



Gagat

#### **Award**

Mark R. Sorrells, Science and Space Technology Systems Branch, received a Science Spectrum Trailblazers Award during the 2022 Black Engineer of the Year Awards (BEYA) Science, Technology, Engineering, and Math Conference in February. The award recognizes outstanding achievement in developing innovation. Nominees are reviewed and recommended for this award by a panel of leaders from industry, government, and academia.



Sorrells

### **Retirements**

**David Carek,** Chief Engineer Office, Research and Engineering Directorate, retired March 31, 2022, with 34 years of NASA service.

**Rick Manella,** chief engineer, Chief Engineer Office, Research and Engineering Directorate, retired Dec. 31, 2021, with 34 years of NASA service.

Jeannette Owens, Office of Communications, Center Operations Directorate, retired March 11, 2022, with 31 years of NASA service.



Carek



Owens

#### **Century Federal Credit Union Back On-Site!**

The credit union has opened a brand-new branch office, located in the new Research Support Building, Room 115. The hours are 8 a.m to 3:30 p.m., Monday through Friday. Visit the new office while onsite at Lewis Field for all your banking needs.









GRC-1990-C-10088

#### Do You Know This Person?

Glenn's Logistics and Technical Information Division needs your help identifying people, places, and research from archived images. If you recognize a photo placed here, email GRC-ITC@mail.nasa.gov.

To ensure your email reaches the right individuals, please enter "DYKTP" into the subject line. Although we cannot respond to individual emails, please know your participation is appreciated!

#### Correction

The photo credit in the BOOM...Thump article on page 5 in the March AeroSpace Frontiers was incorrectly identified. The photo was taken by Jonathon Ponder.



#### **INSIDE GLENN TIPS**



Where are "My Submissions"?

With the migration of WING to Inside Glenn, employees and organizations may now submit announcements and events using NASA Community. In Community, you can see news articles that you have submitted by clicking this link.

#### INFORMATION CAFÉ

Each month the Glenn Library hosts Information Café, a forum to highlight a library or information resource. Join them on the third Wednesday of each month from 11–11:45 a.m. The April 20 discussion will showcase the new Glenn library collection materials, both electronic and physical. It will include a virtual tour of the physical library and a discussion on how the Glenn library can support the "now" of work! Check Inside Glenn for the link.

POC: robin.n.pertz@nasa.gov

#### OUTDOOR SIREN TESTING

Emergency Management Office staff will conduct a mass notification voice test at building 87 on Wednesday, May 4, at Lewis Field. An audible siren test on the "shelter and aid stations" tone will be conducted on Saturday, May 7.

POC: allen.r.turner@nasa.gov

Deadline for the next calendar section is **Wednesday, April 20, noon**. News and feature stories require additional time.

For more information on upcoming events, visit https://nasa.sharepoint.com/sites/grc/SitePages/calendar.aspx National Aeronautics and Space Administration

John H. Glenn Research Center

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www.nasa.gov

Read AeroSpace Frontiers online at https://www.nasa.gov/glenn/aerospacefrontiers.

# **Keeping the Center Moving** *Forward*

# While many employees transitioned to telework due to the pandemic, others remained on-site to ensure a safe and secure environment at the center. This column highlights these services.

It is paramount that the data generated from NASA Glenn's research is accurate. Glenn's Calibration Laboratory (Cal Lab), operated by Alcyon Technical Services, is responsible for minimizing any measurement uncertainty and ensuring the accuracy of test equipment. The Cal Lab has continued to perform this vital function throughout the various stages of NASA's Framework for Return to On-site Work (RTOW).

At the beginning of the pandemic, the Cal Lab focused its efforts on electronic data initiatives and enhanced capabilities by launching a user data portal. This allowed user access into the data stored in the lab's operating system and electronic signature signoff.

When center leadership began approving on-site mission critical projects, a portion of the Cal Lab staff returned to provide services for those projects. As the number of on-site mission critical projects grew, staff increased to meet the growing volume of customers.

To ensure test equipment was verified for the appropriate project, the lab adjusted its automated equipment maintenance notification system. Instead of identifying equipment with a specific employee, equipment was tagged by project. This way employees associated with approved projects were sent reminders and serviced first.

To adhere to COVID–19 safety protocols, staff utilized barriers, wore masks, and maintained social distancing. They were assigned to various workstations to reinforce the protocols and meet customer needs.

The Cal Lab thanks its customers for their patience and cooperation in adapting to adjustments in scheduling and prioritization.

Right: Ron Pecora, front, and Jim Gentry work on data acquisition calibration. They are two of the Cal Lab's staff members who have helped ensure work continued in a safe and efficient manner over the past two years.



GRC-2022-C-00939

Photo by Marvin Smith

#### **Emergency and Inclement Weather Lines**

Lewis Field: 216–433–9328 (WEAT) Neil A. Armstrong Test Facility: 419–621–3333

