

National Aeronautics and
Space Administration



AeroSpace FRONTIERS

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DIRECTOR'S SAFETY CORNER

Staying Engaged

At the Stage 1 Safety Stand Down last month, we discussed important information and reminders to prepare for returning to on-site work. Entering Stage 1 allows us to increase on-site capacity and further reduce other COVID-19 restrictions across the center. As we transition out of the pandemic and into the next phase of the Future of Work, there will be some employees continuing to work remotely while others work on-site. It is critical to ensure all employees stay engaged during this time of change by conducting meetings and working sessions in hybrid environments to ensure mission success. I encourage you to maintain good communication with your supervisor and co-workers, regardless of your work location. We need everyone to be mindful and inclusive as we move forward together, safely and with technical 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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Budget Request Invests in Innovation and Leadership

NASA Administrator Sen. Bill Nelson presented his 2022 State of NASA address to the workforce from NASA's Kennedy Space Center on March 28. He announced the Biden administration's \$26 billion fiscal year 2023 budget request for NASA, which is a significant increase over last year's budget. It marks the largest funding request for science in the agency's history.

The proposed \$26 billion for NASA includes \$830 million in spending at NASA Glenn. This will help Glenn continue to advance aviation, technology, and humanity's future in space during fiscal year 2023.

The budget would allow NASA to sustain America's global innovation leadership and keep NASA at the forefront of exploration and discovery by returning to the Moon with the Artemis program, among other efforts. It would enable NASA to address climate change; drive economic growth; and promote diversity, equity, inclusion, and accessibility.

"This budget reflects the Biden-Harris Administration's confidence in the extraordinary workforce that makes NASA the best place to work in the federal government," Nelson said. "It's an investment in the businesses and universities that partner with NASA in all 50 states and the good-paying jobs they are creating. It's a signal of support for our missions in a new era of exploration and discovery."

For more information regarding NASA's budget, visit <https://www.nasa.gov/news/budget/index.html>.

Vision	Exploring the secrets of the universe for the benefit of all.
Mission	NASA explores the unknown in air and space, innovates for the benefit of humanity, and inspires the world through discovery.



Theme	Discover	Explore	Innovate	Advance
Strategic Goals	1. Expand human knowledge through new scientific discoveries	2. Extend human presence to the Moon and on towards Mars for sustainable long-term exploration, development, and utilization	3. Catalyze economic growth and drive innovation to address national challenges	4. Enhance capabilities and operations to catalyze current and future mission success

Above are NASA's vision, mission, and strategic goals, as outlined in the NASA 2022 Strategic Plan.



On the Cover:

Robert Cataldo, right, is recognized for an Exceptional Service Medal and 55 years of NASA service during the 2021 Honor and Center Awards Ceremony. Cataldo is pictured with Associate Director Larry Sivic, who presented the awards.

GRC-2022-C-00944
Photo by Jef Janis

Final Flames Ignited in Quest for Combustion's Secrets

Flames were not just relevant to life in antiquity but are integral to our modern lives. They heat our homes and water, cook our food, produce our electricity, propel our vehicles, and more. Yet, given their great complexity, there is still much we do not understand about the details of flame behavior.

To gain a deeper understanding of the combustion phenomena, teams of investigators from academia, NASA, and other organizations recently completed a series of studies on the International Space Station. The in-orbit testing for the Advanced Combustion via Microgravity Experiments (ACME) project began in 2017 and included six successful investigations of non-premixed flames of gaseous fuel.

The highly successful project has yielded valuable data that is being made available to the public.

"A microgravity environment enables researchers to explore flame behavior without the influence of gravity, so they can investigate the underlying physics behind flame structure and behavior," said Glenn's ACME Project Scientist Dennis Stocker. "That knowledge can help designers and engineers develop furnaces, power plants, boilers, and other combustion systems that are more efficient and less polluting."

ACME includes the following investigations:

- **Burning Rate Emulator**
- **Coflow Laminar Diffusion Flame**
- **Cool Flames Investigation With Gases**
- **Electric-Field Effects on Laminar Diffusion Flames**
- **Flame Design**
- **Structure and Response of Spherical Diffusion Flames**

The ACME experiments were conducted with a single modular set of hardware in the space station's Combustion Integrated Rack (CIR). The tests were

remotely commanded from the Glenn ISS Payload Operations Center.

"Over 1,500 flames were ignited, more than three times the number originally planned," said Stocker. "Several 'firsts' were also achieved, perhaps most notably in the areas of cool and spherical flames."

Stocker said about 50 personnel from NASA Glenn, academia, and ZIN Technologies Inc. supported ACME during four and a half years of in-orbit operations. Meanwhile, more than 30 crew members from six countries played an essential role in setting up the hardware for each investigation and replacing gas bottles, igniter tips, etc., as needed.

ACME's hardware has been removed from the CIR to make room for the Solid Fuel Ignition and Extinction (SoFIE) hardware that launched in February 2022. It will return to Earth in the coming months but may launch again to the space station with future experiments.

By Doreen B. Zudell

Right: Expedition 64 Flight Engineer Kate Rubins reconfigures hardware for the next ACME experiment.

Iss064e029405.jpg
Photo by NASA



2021 NASA AGENCY HONOR AND CENTER AWARDS

Thanks to the efforts of Krasynthia Murphy, Human Resources Office, and a dedicated team of employees across the center, NASA Glenn held its 2021 Agency Honor and Center Awards Ceremony—in person—in the MIC Auditorium on April 11. This was especially notable because it was one of the first large-scale in-person events for the center since the pandemic. Associate Director Larry Sivic awarded the medals and certificates, and NASA's Chief Scientist and Senior Climate Advisor Dr. Katherine Calvin gave the keynote presentation.



Dever



Gaudreau



Molnar



Windau

AGENCY HONOR AWARDS

Outstanding Leadership Medal

Stephen J. Barsi*
Joyce A. Dever
Sue A. Gaudreau
Paul G. Molnar
Angela D. Windau
June F. Zakrajsek



Zakrajsek



Pertz



Blank



Borato

Outstanding Public Leadership Medal

Robin N. Pertz

Exceptional Service Medal

Gregory C. Blank
Frances M. Borato
Robert L. Cataldo
John R. Gatto*
Natalie L. Henrich
John E. Hild
Thomas J. Kacpura
Timothy L. Krantz*
Susan M. Motil*
John R. Oldenburg*
Peter M. Pachlhofer



Cataldo



Henrich



Hild



Kacpura

*Not pictured

Exceptional Public Service Medal

Deborah L. Demaline
Christopher J. Detardo
Paul V. Ferkul
Paul W. Giel
Robert L. Norman
Phillip A. Oberhaus
Marvin G. Smith

Exceptional Achievement Medal

Nicole R. Barcellos
Maxwell H. Briggs*
Carlos A. Flores
Rochelle L. Gallagher
Michael J. Garrett
Robyn N. Gordon
Nancy R. Hall*
Stephen J. Hayes
James B. Jackson
Frank J. Kaufhold
Julie E. Kleinhenz
Craig I. Mehl
Marie T. Piasecki
Kurt A. Shalkhauser*
Rickey J. Shyne

Exceptional Public Achievement Medal

Sandra M. Bennett
Bridget R. Caswell
Julie M. Glynn
Sandra C. Mason



Pachlhofer



Demaline



Detardo



Ferkul



Giel



Norman



Oberhaus



Smith



Barcellos



Flores



Gallagher



Garrett



Gordon



Hayes



Jackson



Kaufhold



Kleinhenz



Mehl



Piasecki



Shyne



Bennett



Caswell



Glynn



Mason



Wong



Padula



Pesich



Smith



Schoenholz



Eck



Ernst



Sheets



Thompson



Almansour



Boomer



Chan



deFiebre



Dye



Eppig



Falkenbach



Hammett



Johnson



Kratz



Lefebvre



Peery



Scheidler



Turnbull



Veneziano



Wakefield



Brandl



Held



McVetta



Sadhukhan



Emerson

Exceptional Engineering Achievement Medal

Calogero Dirienzo*
Hani Kamhawi*
Edmond Wong

Exceptional Scientific Achievement Medal

Santo A. Padula
Justin M. Pesich
Timothy M. Smith

Exceptional Technology Achievement Medal

Matthew C. Deans*
Sameer Kulkarni*
Bryan L. Schoenholz

Exceptional Administrative Achievement Medal

Kara L. Eck
Maria F. Ernst
Christina Hyder*
Donna J. Sheets
Deborah M. Thompson

Early Career Achievement Medal

Amjad S. Almansour
Kristen T. Boomer
Yousef K. Chahine*
Diana Chan
Jesse H. deFiebre
Laurel A. Dye
Bethany M. Eppig
Daniel J. Falkenbach
Donald W. Hammett
Aaron M. Johnson
Jonathan L. Kratz
Mark A. Lefebvre
Brandon W. Peery
Justin J. Scheidler
Elizabeth R. Turnbull
Jonathan J. Veneziano
Piper E. Wakefield

Silver Achievement Medal

Douglas T. Astler*
Donald E. Brandl
Brian A. Held
Michael S. McVetta
Debashis Sadhukhan
Edward J. Zampino*

Senior Executive Service Appointment

Robert E. Conway*
Steven J. Dykeman*
Carlos Garcia-Galan*

Scientific and Professional Appointment

Ronald D. Noebe*
Mark G. Turner*
Adabelle Narvaez-Legeza*

Presidential Rank Award

Dawn C. Emerson

GROUP ACHIEVEMENT AWARDS

Advanced Full Range Engine Team

Agency-Wide Virtual VHDL Training Team

Analysis of Alternatives Study for Acoustics, Icing, and Combustion

Collaboration Modernization Team

Creative Management Technologies Janitorial Staff

Flow Boiling and Condensation Experiment Team

GRC COVID-19 Team

GRC SolarWinds Cybersecurity Response Team

GRC Space Launch System Mission and Fault Management Team

High Voltage Emergency Response and Restoration Team

HLS Small Multipurpose Research Facility (SMiRF) Test Team

KSC Institutional, Facility, Operational Safety Audit (IFOSA) Team

N95 Mask Ozone Sterilization System Team

PPE KDP-0 Cost Estimating and Scheduling Team

Research Support Building Team

Saffire-IV and -V Development and Operations Team Swept Wing Icing Research Team

Unmanned Aircraft System/National Airspace System Team

W7 Small-Core High-Pressure Compressor Team

SILVER GROUP ACHIEVEMENT AWARDS

80th Anniversary Planning Team

Broadcast Services Team

Compact Additively Manufactured Innovative Electric Motor (CAMIEM) Team

GRC Virtual Tours Team

Influenza and COVID Vaccination Events Team

Orion Mechanism Fracture Control Implementation Team

SMA Technical Excellence Program (STEP) 2020

Space Communications and Navigation (SCaN) Wideband Team

*Not pictured

CENTER AWARDS

2021 Distinguished

Publication Award

Experimental Investigation of an Ultra-High Bypass Ratio Embedded Boundary Layer Ingesting Propulsor for Subsonic Cruise Aircraft

David J. Arend, John D. Wolter, Stefanie M. Hirt, and John A. Gazzinga, NASA Glenn Research Center; and William T. Cousins, Larry W. Hardin, Dmytro M. Voytovych, and Om P. Sharma, United Technologies Research Center

Diversity Leadership Award

Charles A. Doxley

Diversity Leadership Group Award

GRC Gender-Neutral Restrooms Project Team

Team Safety Award

HVAC Assessment and Design Team

Supervisor Award

Jeffrey C. Brown
James R. Demers
Gary S. Williamson

Support Assistant/Clerical Award

Anabel Falcon

Alcyon Technical Services Exceptional Administrative/Clerical Performance Award

Carole A. Bruck
Shawanda M. George
Patty A. Gross
Wendy Lapsevich*

Federal Acquisition Certification for Program and Project Managers

Nicole Smith*



Doxley



Brown



Demers



Williamson



Falcon



Bruck



George



Gross

*Not pictured

CAREER SERVICE AWARDS

40 Years of Service

Deborah J. Bizon*
Helen M. Ceh*
Rex A. Delventhal
Steven L. Fedor*
Randall B. Furnas*
Steven M. Geng*
Daniel S. Gorman*
Christopher E. Hughes*
Dereck F. Johnson*
Daniel J. Kovach
Robert R. Kowalski*
Maria A. Kuczmarski*
Jerry Lang*
Sharon K. Miller
Jonathan A. Salem
Patrick Spanos

George L. Stefko*
Boyd M. Vance*
Darlene S. Walker
Mark A. Woodling

45 Years of Service

Cynthia S. Acquaviva
James A. Blankschaen*
Thomas O. Cressman
Robert J. Makovec
Kathleen A. Zona

50 Years of Service

Donald Swedinovich*

55 Years of Service

Robert L. Cataldo



Delventhal



Kovach



Miller



Salem



Spanos



Walker



Woodling



Acquaviva



Cressman



Makovec



Zona



Cataldo

Text provided by the 2021 NASA Honor Awards Program.

Photos provided by the Imaging Technology Center.

Get Your Issues Here!

Changes to AeroSpace Frontiers Distribution

As employees transition to a hybrid work environment, the center's newsletter is doing so as well. Glenn's Office of Communications will continue to produce AF and send notifications about its availability on the second Friday of each month. In response to higher online readership, changes in on-site staff levels, and a desire to be more environmentally sustainable, the hard copy issues will no longer be distributed via mail stops. However, a limited number of hard copies will be available at our publication stands located throughout Lewis Field and the Neil A. Armstrong Test Facility.

Hard copy publication stands are available in the following locations:

Lewis Field: Main Gate, Administration Building, Research Support Building, Mission Integration Center, and Fitness Center. Neil Armstrong Test Facility: Main Gate and Engineering Building (more locations to come).

Additional copies are available in the AeroSpace Frontiers Office in the Administration Building, room 5. Please contact Editor Doreen Zudell via Teams if you have any questions.

Back Copies Available

This month, a limited number of undistributed 2020-22 AeroSpace Frontiers issues will be available for pick up in the MIC lobby. Look for details on Inside Glenn.



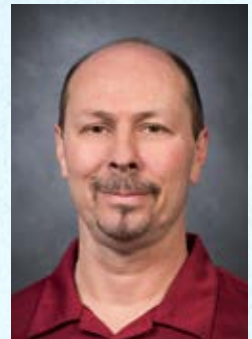
More Than a Memory

Hunt Enthusiastically Shared NASA Research

Dwayne Hunt, 55, an Alcyon Technical Services (ATS) employee who served as exhibits outreach supervisor in Glenn's Office of Communications (OCOMM), died unexpectedly on March 29. He was a U.S. Marine Corps veteran. Hunt supported NASA Glenn since 1999 as an exhibit specialist and traveled throughout the country setting up and supporting traveling exhibits that educated and excited the public about NASA's research.

"Dwayne had a positive approach to life and work, a good sense of humor, and a wonderful tendency to focus not on a problem but how to solve it," said ATS TIALS 2 Program Manager Ann Heyward. "He had a deep and genuine passion for NASA and making NASA's amazing work and achievements accessible to everyone."

"Dwayne was a part of our office 'family' throughout his NASA career," said Acting Chief of OCOMM David DeFelice. "He will be terribly missed by all of us."



Hunt

Johnnie L. Poole, 73, a 2008 retiree with 40 years of NASA service, died March 16. Poole began his NASA career in the Machine Shop, Fabrication Division, in 1967, and graduated from the Apprentice Program as an experimental metal maker in 1971. He soon moved to the Test Installations Division, where he served in several branches, and earned a distinction as a skilled machinist and fabricator. Poole retired in the Research Testing Division's Space Power and Technology Branch. He received several incentive and group achievement awards.



Poole

Celebrate Glenn's Historic District

May is National Preservation Month. The month celebrates the nation's heritage through historic places. In celebration, NASA Glenn's Cultural Resources Management Program has made "The Evolution of the Historic District" video—produced during our 75th anniversary—available to employees to learn more about the history of our center. Visit <https://www.grc.nasa.gov/f/fe/programs/#CulturalResources>. (Look under Links and click on "Evolution of Historic District Video.")



Promotion



Graham

Kimberly D. Graham has been selected executive support assistant in the Center Operations Directorate. She previously served on a detail assignment in this position. During the past 13 years, Graham has provided administrative and clerical services as a support service contractor in the Tribology and Mechanical Components Branch, Office of STEM Engagement, and the Lean Six Sigma Office.

Retirements

Thomas Haag, Electric Propulsion Systems Branch, Propulsion Division, Research and Engineering Directorate, retired April 9, 2022, with 37 years of NASA service.

Karen J. Weiland, Science and Space Technology Systems Branch, Systems Engineering and Architecture Division, Research and Engineering Directorate, retired March 31, 2022, with 31 years of NASA service.



Haag



Weiland

GLENN HAPPENINGS

INSIDE GLENN TIPS

If you haven't checked Inside Glenn for a while and are wondering what you have missed, you're in luck! The [Daily Digest Archives](#) button in the Quick Links section includes all Center News, Director's Corner, and Glenn Community announcements in reverse chronological order. Check it out!

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 May 18 discussion will focus on the partnership between Glenn's library and the Cuyahoga County Public Library. 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 buildings 100 and 302 on Wednesday, June 1, at Lewis Field. An audible siren test on the "HAZMAT" tone will be conducted on Saturday, June 4.

POC: allen.r.turner@nasa.gov

Deadline for the next calendar section is **Wednesday, May 18, 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
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Neil A. Armstrong Test Facility

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Sandusky, Ohio 44870

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.

From the onset of the pandemic and throughout the stages of the NASA Framework for Return to On-site Work (RTOW), the Protective Services Office has safeguarded NASA Glenn's people and facilities.

When the center entered Stage 4 of the RTOW Framework, Protective Services (operated with Golden SVCS employees) worked with senior leadership to evaluate the office's services. While there was a small reduction in staff who could telework, uniformed officers, supervisors, and medical first responders were needed on-site at Lewis Field and the Neil A. Armstrong Test Facility.

The immediate challenge was to provide the necessary services while adhering to all COVID-19 guidelines. The office initiated procedural changes, such as shift adjustments, to follow social distancing mandates.

As most facilities were vacant or had limited occupancy, officers became the eyes of the center by conducting regular building walk-throughs to assess physical issues. This proved to be a valuable activity, as they discovered issues, such as cracks and leaks, that would have resulted in serious damage if left unattended.

From the beginning, Protective Services took on the task of overseeing the center access list. This involved updating the on-site access list daily and checking employees through the gates. The office instituted a card reader program to assist in safely and efficiently clearing personnel through the gates. Officers also handled attestation forms and verified COVID-19 test results for approved visitors. Occupancy reports were provided to senior leadership to ensure on-site population levels were maintained.

Many thanks to our Protective Services staff for rising to the challenge and protecting Glenn's people and facilities during the pandemic, and beyond.

Right: Security Guard McKenzie Myers checks the center access list at the Lewis Field Main Gate to ensure that employees have been granted access.



GRC-2022-C-01392

Photo by Jef Janis

Emergency and Inclement Weather Lines

Lewis Field: 216-433-9328 (WEAT)

Neil A. Armstrong Test Facility: 419-621-3333

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