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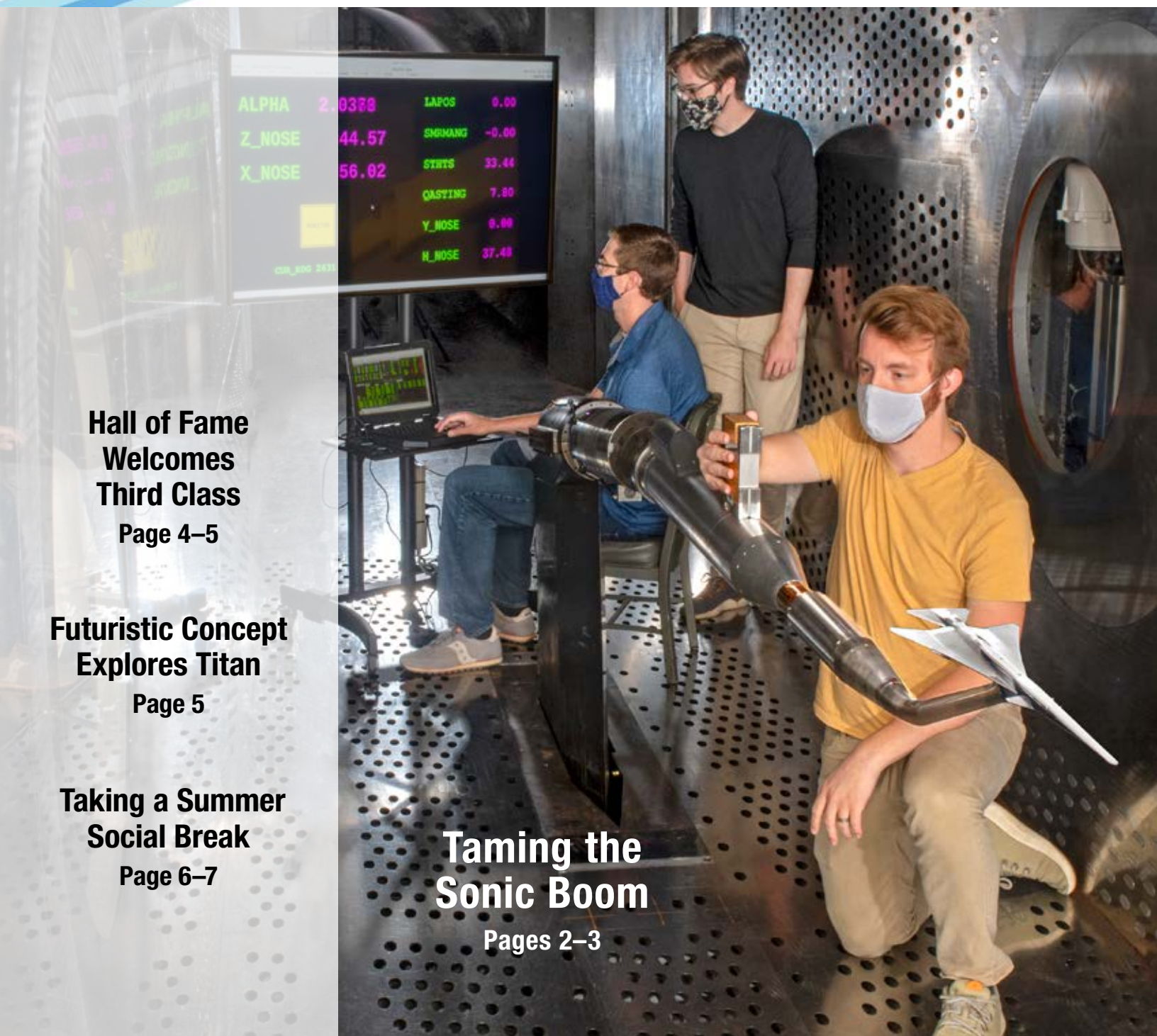

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Weather Safety

Recent events such as Hurricane Ida and the wildfires in the western U.S. remind us that we're quickly approaching the winter weather season in northeast Ohio. Winter storms can bring snow, sleet, and freezing rain, resulting in traffic accidents due to slippery roads as well as slips, trips, and falls whether working on-site or at telework locations. Please be mindful of weather hazards for your safety. The National Weather Service has excellent reference resources at https://www.weather.gov/safety/winter. Also, regularly check Today@Glenn for any weather-related notices throughout the winter weather season.

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Submit short articles and calendar items to the editor at doreen.b.zudell@nasa.gov.

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Glenn Works to Tame the BOOM

NASA engineers are hoping to lift the ban on commercial supersonic flight over land by replacing the piercing sonic boom with a quieter sonic "thump."

In September, Glenn researchers began a test of NASA's X–59 Quiet SuperSonic Technology (QueSST) airplane in the 8- by 6-Foot Supersonic Wind Tunnel (8x6 SWT) as part of the Commercial Supersonic Technology project. Using a small model—measuring about a foot and a half in length—this test will produce pressure, or "shock wave," data to compare with computer modeling and better predict actual sonic thumps during flights.

A sonic boom is created when shock waves come together as an object travels through the air faster than the speed of sound. Sonic booms generate enormous amounts of sound energy, about 110 decibels, similar to an explosion or a thunderclap to the human ear.

"With the X–59, we want to demonstrate that we can reduce the annoying sonic booms to something much quieter, referred to as 'sonic thumps,'" said John Wolter, Inlets and Nozzles Branch, and lead researcher on the X–59 sonic boom test. "The goal is to provide noise and community response data to regulators, which could result in new rules for supersonic flight over land. We

GRC-2021-C-02755 Photos by Quentin Schwinn

HX5 Sierra employees Chris Yager, left, Mitchell Ahaus, right, and Emily Wetzig, back, check the X–59 sonic boom model position in the 8x6 SWT.

GRC-2021-C-02732

The X–59 sonic boom model is in the sting configuration with the 14-inch pressure rail mounted on the ceiling of the 8x6 SWT test section.

hope to show that we don't just have a design that is quieter, but that we also have the tools to predict the noise of future designs. The sonic boom test will be our chance to test the accuracy of our predictions."

Wolter said extra effort went into readying the 8x6 SWT, as this is the first test performed in the solid-wall test section of this tunnel in its 72-year history. "We will be hosting researchers from NASA's Ames and Langley," he added. "It's a real team effort."

Clayton Meyers, Aeronautics Mission Office, and deputy project manager, Commercial Supersonic Technology Project, said this is the team's opportunity to get data at such low sound levels. "It all comes down to our ability to measure the 'thump'."

In the spring of 2021, members of a multi-center X–59 team evaluated an air data probe in Glenn's 8x6 SWT. The probe is installed at the tip of the aircraft's nose and is used to measure key flight parameters, as well as the aircraft's altitude while flying. The probe was subjected to various flight conditions, including runs at takeoff, transonic, and supersonic speeds, to fine-tune and verify successful hardware and software operation.

This is the last opportunity Glenn will have for subscale testing before the full-scale aircraft—measuring 99.7 feet long with a wingspan of 29.5 feet—begins to fly next year. NASA and Lockheed Martin will conduct initial flight tests to prove the aircraft is safe to operate and its performance is robust. Then NASA will demonstrate that the quiet supersonic technology works as designed, before transitioning to the community overflight phase.

After this series of testing, the model will go to Tokyo for additional verification testing by the Japan Aerospace Exploration Agency.

By Doreen B. Zudell

GRC-2021-C-02747

HX5 Sierra employees Kevin Joyce, left, and Dan Albertini clean and prepare the X–59 sonic boom model for testing after a model change.

On the Cover:

Back to front, Joe Dussling (seated), Kyle Wiatrak (Jacobs Technology), and Antonio Grandinetti (HX5 Sierra) verify X–59 sonic boom model attitude in the 8- by 6-Foot Supersonic Wind Tunnel and check the COBRA data program in the process.

Photo by Quentin Schwinn
GRC-2021-C-02744

Glenn Announces Third Class

As part of Glenn's 80th Anniversary celebration, the center welcomed the third class of inductees into the NASA Glenn Research Center Hall of Fame. On Sept. 20, Center Director Dr. Marla Pérez-Davis announced the names of 10 individuals who have contributed greatly to our center's success and inspire others through their character and embodiment of the NASA spirit.

"This third class of inductees has led the center in pushing boundaries and breaking barriers," said Pérez-Davis. "The 2021 inductees are an excellent addition to this distinguished group of leaders and pioneers who continue to inspire us today."

Six years ago, the center began a new tradition for celebrating our past by establishing the NASA Glenn Hall of Fame. This institution recognizes the pioneers, trailblazers, and champions who built exemplary careers and made a significant contribution to NASA's success.

The first induction ceremony in 2015 included six individuals and one group of researchers and was held in celebration of the 100th anniversary of the National Advisory Committee for Aeronautics. In 2016, the second class of inductees entered the Hall of Fame as part of NASA Glenn's 75th anniversary celebration and included nine honorees.

Glenn's History Officer Anne Mills coordinated the selection process in which current employees nominate candidates who have either retired or resigned from the center. Inductees were then chosen by committee. A ceremony for the recent inductees will take place in 2022.

To learn more about past honorees and details about the 80th Anniversary class members and view a special video, visit the Glenn Hall of Fame website at https://www1.grc.nasa.gov/glenn-history/hall-of-fame/.

2021 Inductees

Bruce Banks—Glenn's most patented researcher and champion of technology transfer.

Olga Gonzalez-Sanabria—Leader in battery research and project management and the center's first Latina senior executive.

Dr. Henry Kosmahl—Pioneer of traveling wave tube technology whose work led to the center's emergence as a leader in space communications. He passed away in 2011.

Dr. Patricia O'Donnell—Leader in high-energy propellants, energy conversion, and batteries, and Glenn's first patented female inventor.

Tony Powell—Innovator of silicon carbide applications that resulted in a multimillion-dollar industry with aeropropulsion, power generation, and space applications.

Bobby Sanders—Advanced nozzle and inlet research fundamental to the development of many subsequent high-speed inlet designs. He passed away in 2020.

John Sloop—Grandfather of Glenn's rocket propulsion expertise and leading advocate for liquid hydrogen as a propellant for upper stage rockets such as Saturn and Centaur. He passed away in 1992.

Frank Spurlock—Developer of the launch vehicle trajectory optimization program used to launch over 60 preeminent NASA missions. He passed away in 2014.

Jesse Strickland—Influential architect who modernized our approach to facility planning and design. He passed away in 2011.

Erwin (Erv) Zaretsky—Internationally recognized expert in tribology and bearings research.

# of Inductees Into Hall of Fame


Banks


Gonzalez-Sanabria


Dr. Kosmahl


Dr. O'Donnell


Powell


Sanders


Sloop


Spurlock


Strickland


Zaretsky

Futuristic Concept to Explore Titan

Science and technology advancements start with big ideas and creativity. NASA Glenn researchers have imagined a new, early-stage concept for a lander to Saturn's moon Titan. The team is exploring technologies capable of collecting surface samples and returning them to Earth for laboratory analysis.

The team's futuristic idea was selected for a $125,000 NASA Innovative Advanced Concepts (NIAC) program grant to begin studying the concept's feasibility.

"NIAC is one way the agency fosters 'wild' ideas that require a decade or more of development but could eventually lead to revolutionary innovations that contribute to new and exciting missions," said Thomas Zurbuchen, the associate administrator for the agency's Science Mission Directorate. "The missions of today were 'wild' ideas years ago."

The scientists and engineers working on the Titan sample return concept are part of Glenn's Compass Lab. Previously, the group envisioned a submarine that would explore the shores and depths of Titan's methane seas.

Why Titan? Titan can help us understand the origins of the solar system.

"Titan is an amazing world," said Geoffrey Landis, the science lead investigator for Compass. "It is covered in organic compounds protected with a thick nitrogen atmosphere and has liquid natural gas seas the size and depth of Earth's Great Lakes on its surface. Beneath its crust, Titan is an ocean world, with a second ocean of liquid water hidden deep below the surface."

To learn more about this early-stage concept for a lander to Saturn's moon Titan, visit https://go.nasa.gov/3eI3JA1.

Virtual Summer Social Brings Employees Together

Glenn's workforce came together virtually for a fun-filled day of activities and comradery during the Summer Social on Aug. 19. The event kicked off with a virtual welcome presentation by Center Director Dr. Marla Pérez-Davis, Deputy Director Susan Motil, and Associate Director Larry Sivic, which was followed by appreciation videos for the workforce from senior managers.

The latter half of the kickoff presentation featured a prerecorded, interactive cooking demonstration by Cleveland Clinic chef Jim Perko. Hundreds of employees tuned in to learn Perko's healthy meal ideas and grilling tips. Following the cooking demonstration, the popular virtual Vehicle Show returned for the second consecutive year and featured the addition of radio-controlled (RC) vehicles.

Prior to the event, employees submitted photos for a Let It Glide Challenge and a Show Us Your Green Thumb photo contest. Attendees voted for their favorite glider and green thumb photo during the event. Online games and activities featuring several trivia contests rounded out the day.

"The goal of the virtual Summer Social was to thank employees and interns for all of their hard work and dedication during a challenging year," said Seth Harbaugh, Center Operations Directorate deputy and event champion. "The event was a great success thanks to the planning committee who worked hard to make it happen."

By Adam Schabel

GRC-2021-C-02523

Vehicle Show People's Choice and Antique Categories winner: Mark Huml

GRC-2021-C-02727

Let It Glide winner: Craig Weeks

Emcee and NextGen Ambassador Gretchen Morales-Valle introduced senior managers.

Photo by Jef Janis
GRC-2021-C-02461

GRC-2021-C-02728

Show Us Your Green Thumb winner: Jack Weigand

GRC-2021-C-02537

Photo by Imaging Technology Center

The 2021 Glenn Virtual Summer Social Planning Team.

GRC-2021-C-02461

Photo by Jef Janis

Senior Leaders, left to right: Sivic, Dr. Pérez-Davis, and Motil welcome the workforce to the Summer Social.

GRC-2021-C-02515

Vehicle Show RC Category winner: Daniel Raible

GRC-2021-C-02512

Photo by Jef Janis

Chef Perko, left, prepares a dish with Glenn's Madison Weiss, center, and Ru-Ching Chen.

Online Activity Winners

80th Anniversary Trivia
Karen Weiland, 19/20 Questions

NASA Acronym Trivia
Danielle Reinhardt, 18/20 Questions

Star Trek Trivia, Group Team Battle
Research and Engineering Directorate

Star Wars Trivia, Group Team Battle
Research and Engineering Directorate

Breaking Barriers in the Workplace

How do we advance gender diversity in STEM fields and equality for women in the workplace? Dr. Hala Annabi, associate professor, University of Washington, addressed this topic during Women's Equality Day Observance on Aug. 26. Hosted by Glenn's Office of Diversity and Equal Opportunity and the Women's Advisory Group, the virtual presentation celebrated the ratification of the 19th Amendment to the Constitution, which granted women the right to vote. Annabi discussed the lack of gender diversity in STEM fields, social and structured barriers women experience in the workplace, and interventions to advance career equity for women.

NEWS AND EVENTS

NASA Women Participate in STEM Ask Me Anything

In honor of Women's Equality Day on Aug. 26, the Agency Recruitment Team hosted an Ask Me Anything Q&A on LinkedIn. Three NASA women engineers and scientists answered questions from the public about what it's like to work in STEM at NASA. This session featured Glenn's Mary Lobo, director of the Office of Technology Incubation and Innovation; and Dr. Dionne Hernandez-Lugo, chief technologist, Human Exploration and Operations Mission Directorate; along with NASA Goddard's Mikayla Huffman, intern, Office of STEM Engagement. They answered questions in the comments section of LinkedIn's pinned post, which indicated a wide interest in the careers of Women in STEM.

Lobo

Dr. Hernandez-Lugo

Huffman

Promotions

Jacob Jevec has been selected chief, Program and Project Integration Office for the Space Flight Systems Directorate. He has been serving as acting chief of the office on detail since February 2021. Prior to his detail, Jevec served as deputy chief of the Resource Analysis Division in the Office of the Chief Financial Officer.

Dr. Xiao-Yen Wang has been selected chief, Propulsion Systems Analysis Branch, Propulsion Division for the Research and Engineering Directorate. She recently served as acting chief for the branch. Prior to that detail, Wang supported both space and aeronautics NASA projects and programs as a recognized expert in both system-level and detailed modeling for thermal and propulsion fluid/cryogenic systems.

Jevec

Dr. Wang

Glenn Helps Fill Food Banks

Thank you to everyone who participated in this year's virtual Feds Feed Families campaign!

Due to your efforts and generosity, NASA raised 157,958 pounds of food, with approximately 200 pounds contributed by Glenn toward the NASA total. Every year federal agencies are invited to participate in the Feds Feed Families campaign. Feds Feed Families is a volunteer food drive that encourages employees from all federal departments and agencies to give in-kind contributions—food, services, and time—to food banks and pantries of their choice.

Interactive Aerospace Exhibit Comes to GLSC

Great Lakes Science Center (GLSC) recently opened "Above and Beyond," an interactive traveling aerospace exhibition developed in partnership with NASA and the Smithsonian National Air and Space Museum. Within the exhibition, guests can step into a simulated space elevator that takes them to the edge of the universe; design and test a supersonic jet to face off in a virtual high-speed flying competition; experience a flight simulation with motion-sensing technology to get a sense of what it's like to fly like a bird; and discover concepts for future aircraft. The exhibit runs through Jan. 2, 2022. For more information about the exhibit and how to reserve tickets, visit: https://greatscience.com/explore/exhibits/above-and-beyond.

GRC-2021-CN-00058

Photo courtesy of Evergreen Exhibitions/Great Lakes Science Center

"Above and Beyond" interactive exhibit highlights the guest experience.

2021 Combined Federal Campaign

Celebrating 60 Years of Giving

Now through Jan. 15, 2022
Chair: Tonya Mitchell
Help us meet our goal of $275,000
To donate, visit ohiocfc.org

Retirement

Steven Fedor, Office of Technology and Incubation, retired Sept. 30, 2021, with 40 years of NASA service.

Fedor

More Than a Memory

Rusmisel

Rusmisel's Testing Helped Advance Fuel Technology

Kurt Rusmisel, 48, research laboratory mechanic and work lead for Jacobs/TFOME in the Facilities Testing Division, died Aug. 12.

During his 13 ½ years at NASA, Rusmisel worked on various projects, including seal projects for turbine engines. He also tested sealing capabilities of various ball valves in a simulated lunar dust environment, performed destruction testing for the ballistics lab on aircraft carbon fiber fan shrouds, performed emission/particulate testing of alternative fuels, and applied different nozzles and injectors to atomize the fuel. This testing was accomplished with the aid of lasers.

"Kurt was liked by many people, and he will be greatly missed," said Paul Butterfield, supervisor and friend.

Patrick M. Finnegan, 87, a 1990 retiree with 33 years of federal service and an Air Force veteran, died July 12. After retirement, Finnegan returned to Glenn as a support service contractor for 10 years before concluding his career. He evaluated power system concepts for the early space station designs and briefly headed the Solar Dynamic Power System Branch. Finnegan participated in the Strategic Planning Working Group that developed the center's first strategic plan. He received a Group Achievement Award (1981).

Thomas C. von Deak, 67, a 2018 retiree with over 20 years of NASA service, died July 30. He worked on both the Advanced Communications Technology Satellite (ACTS) Program and the Space Communications and Navigation Program. He authored several reports on satellite communications networks and received an ACTS Experiments Development Team group award (1992).

Finnegan

von Deak

Cybersecurity Awareness Month

October is National Cybersecurity Awareness Month, which focuses on promoting the importance of cybersecurity across our nation and ensuring all Americans have the resources they need to be safer and more secure online.

Virtual Event: Wednesday, Oct. 13

Topic: SolarWinds Cyberattack 2020

Guest Speaker: Branko Bokan, Department of Homeland Security

NASA centers will also be hosting various virtual events throughout the month. Details are available on both Today@Glenn and the Cybersecurity Awareness area of Glenn's Office of Chief Information Officer website.

Graphic by Elyse Sawka

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!

SPACE SERENITY AL-ANON

The Space Serenity Al-Anon group meets the second Tuesday of each month. The next meeting is Oct. 12, 1–2 p.m. This is a fellowship that offers a program of support and recovery for the families and friends of alcoholics, whether or not the alcoholic recognizes the existence of a drinking problem or seeks help. Please contact Glenn's partner at NASA Johnson to join this meeting in Teams (jsc-employeeassistanceprogram@mail.nasa.gov) or call 281–483–6130.

INFORMATION CAFÉ

On Wednesday, Oct. 20, from 11–11:45 a.m., the Library will present "GRC Celebrates National Archives Day." Bob Arrighi, Glenn archivist, will highlight artifacts from our history and archives collection. Join our celebration!

Check Today@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, Nov. 3, at Lewis Field. An audible siren test will be conducted on the "all clear" tone on Saturday, Nov. 6.

POC: allen.r.turner@nasa.gov

Deadline for the next calendar section is **Wednesday, Oct. 13, noon**. News and feature stories require additional time.

NASA Glenn Employees: For more calendar information, visit **https://wing.grc.nasa.gov/event-calendar/**.

National Aeronautics and Space Administration

John H. Glenn Research Center

Lewis Field
21000 Brookpark Road
Cleveland, Ohio 44135

Neil A. Armstrong Test Facility
3597 E. Scheid Road
Sandusky, Ohio 44870

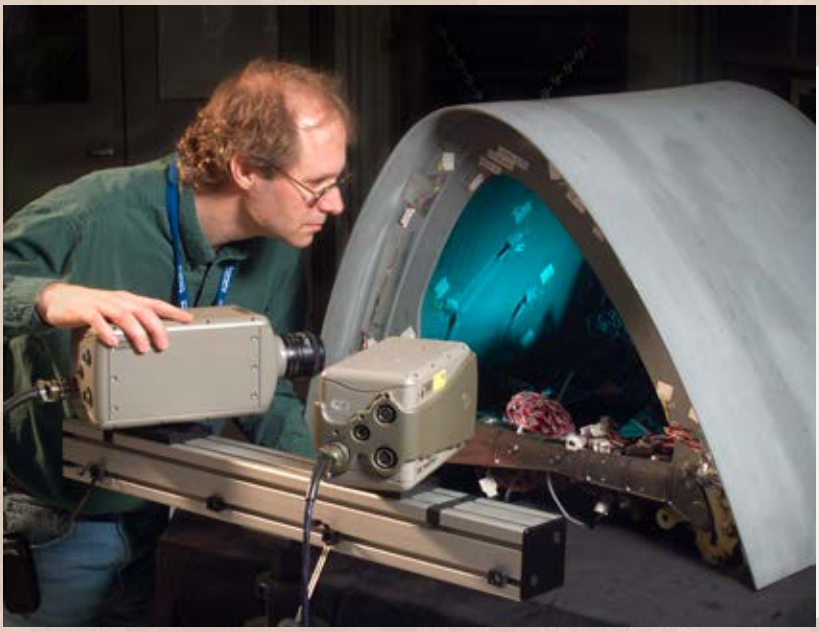
www.nasa.gov

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

Celebrating 80 Years
Looking Back Through the Decades

NASA Glenn was originally established in 1941 as the Aircraft Engine Research Laboratory (AERL), part of the National Advisory Committee for Aeronautics (NACA). The laboratory became a national resource for innovations in aircraft engine technology that transformed commercial and military propulsion systems.

Over the decades, NASA's Cleveland-based scientists and engineers advanced technology in both aviation and space exploration, propelling the U.S. into a leading role in the aerospace industry.



GRC-2004-C-00972 Photo by Marvin Smith

The center played a key role in NASA's Return to Flight effort following the February 2003 loss of the Space Shuttle Columbia. This 2004 photo shows Matt Melis, Structural Mechanics Branch, calibrating a high-speed stereo imaging system to capture a space shuttle orbiter leading-edge thermal protection panel deformation as it undergoes ballistic impact testing.

The Next Chapter in Human Spaceflight: 2000–2010

The 2003 introduction of the Vision for Space Exploration revived NASA's human space exploration program. Glenn was given responsibility for several aspects of the effort, including the Crew Exploration Vehicle. The center also contributed to the Return to Flight effort following the Columbia space shuttle accident.

Emergency and Inclement Weather Lines

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

Connect With Glenn