



AeroSpace FRONTIERS

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Thank You for a Safe Year

From the successful completion of the Boundary Layer Ingestion and Low-Boom Supersonic tests, the 9- by 15-Foot Low-Speed Wind Tunnel acoustics upgrades, the Vacuum Facility 6 (VF-6) vacuum chamber modifications, the advanced electric propulsion thruster testing, the spacecraft environmental testing at Plum Brook Station, and many others, NASA Glenn has delivered on our commitments in a most impressive—and safe—way this year! The Glenn community has addressed close calls and collectively kept our workforce free from harm. Your attention to safety, as you worked hard and achieved these accomplishments, is noticed and appreciated.

Thank you for continuing to honor this great agency with your dedication and professionalism!

Janet

AeroSpace Frontiers

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

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

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

Design: **Jami Drost**, ATS

Managing Editor: **Kelly R. DiFrancesco**

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

Glenn Showcases Technology, Alliances at Summit



GRC-2017-C-08340

Photos by Marvin Smith

Dr. Ian Jakupca, right, conducts a demonstration for attendees on fuel cell technology.



On the Cover:

During a tour in the Simulated Lunar Operations Lab, Colin Creager, right, discusses the advantages of nonpneumatic tires to Meeting of the Minds attendees.

GRC-2017-C-08358

NASA Glenn participated in the *Meeting of the Minds 2017 Annual Summit*.

The event brought together urban sustainability and technology leaders to share knowledge and build alliances toward the goal of making more sustainable cities.



Dr. John Sankovic, Office of Technology Incubation and Innovation director, informs attendees about the impacts of NASA technology.



Eric Clark, front, left, discusses ROSA (Roll-Out Solar Array) technology. Back, right, Santo Padula discusses shape memory alloy technology.

The summit welcomed more than 400 “opinion-shapers, policymakers, leading thinkers and innovators” from around the world to attend sessions at the Global Center for Health Innovation in downtown Cleveland, Oct. 23–25. Attendees represented the private, public and nonprofit sectors; elected officials; and academia.

Along with activities at the Global Center for Health Innovation, the summit offered 10 workshop tours at local innovative organizations. A group of delegates traveled to Glenn’s Lewis Field to see first-hand research, technology and innovative solutions being transferred out of NASA for real-world applications.

Glenn’s Office of Technology and Innovation hosted the workshop tour, which featured shape memory alloys, algal blooms and advanced energy technologies. Technology transfer booths provided information on three NASA programs that encourage partnerships: Regional Economic Development, Small Business Innovation Research/Small Business Technology Transfer, and Technology Transfer.

The workshop tour also included a look at Glenn’s Icing Research Tunnel and the Simulated Lunar Operations (SLOPE) Laboratory.

By Doreen B. Zudell

Eight Employees Honored With Prestigious Silver Snoopy Awards

Center Director Dr. Janet Kavandi joined astronaut Nicole Mann in presenting eight members of the Glenn workforce with the NASA Silver Snoopy Award during a ceremony at Lewis Field, Nov. 13.

Pictured, left to right: Krivanek, Dr. Meyer, Van Lear, Dr. Kavandi, Astronaut Nicole Mann, Yee, Wade, Hack and McCallum. Not pictured: Ryan.



GRC-2017-C-09331
Photo by Bridget Caswell



Each year since 1968, the agency's Astronaut Office awards the Silver Snoopy pin, a sanctioned symbol of spaceflight excellence, to less than 1 percent of the eligible workforce. The following Glenn employees were recognized for their outstanding performance and professional dedication to human spaceflight safety or mission success:

Kurt Hack, Mission Architecture and Analysis Branch, for coordinating with multiple NASA and international partners to design and refine the human Mars architecture. His leadership with that team and with the Asteroid Redirect Mission helped develop the Power and Propulsion Element, a new spacecraft effort led by Glenn.

Thomas Krivanek, Systems Engineering and Architecture Division, for his extensive expertise in spaceflight hardware development to design concepts, advance materials development, outline acquisition strategies and improve separation simulations for the Space Launch System's (SLS's) Universal Stage Adapter. Krivanek's efforts ensured the required subsystems met all readiness, safety and cost requirements.

Peter McCallum, Radioisotope Power Systems Program Office, for his expertise and guidance as chair of several pre-ship review boards in the completion of more than 30 different flight research investigations under the Space Flight Systems Directorate, all with varying degrees of technical complexity, safety considerations and scientific objectives.

Dr. Marit Meyer, Combustion Physics and Reacting Processes Branch, for aiding the advancement of NASA's understanding of spacecraft fire detection systems, dust management and air quality requirements. Through a variety of experiments and tests, which she personally developed, Meyer has enhanced crew safety and future development of spacecraft and habitats.

Stephen Ryan, Aeronautics and Ground-Based Systems Branch, for his critical role in verifying mission and fault management (M&FM) algorithms, developing prototype code and associated modeling tools, and processes for the Space Launch System. Ultimately, Ryan was able to expedite Vehicle Management End-to-End Testbed deliverables far ahead of project deadlines.

Benjamin Van Lear, Manufacturing Engineering & Process Branch, for providing the Orion Program Office invaluable insight on modeling and simulation for manufacturability, where he also serves as a NASA European Space Agency liaison responsible for maintaining collaborative integration with NASA's European partners regarding Orion's Service Module.

Raymond Wade, Avionics Branch, for developing innovative, lightweight, low-power avionics packages, both ground and flight, for the Radio Frequency Mass Gauge payload supporting the Satellite Servicing Capabilities Office's Robotic Refueling Mission-3. Wade used his expertise and innovative design techniques to retrofit existing commercial hardware that will be deployed to the ISS.

Glenda Yee, Aeronautics and Ground-Based Systems Branch, for her critical role in the development of the Radio Frequency Mass Gauge system to be demonstrated on the Robotic Refueling Mission-3. Yee's broad technical expertise and tailored approaches to system development enabled mentoring less experienced team members to ensure successful development of the flight system.



GRC-2017-CN-00063

Photo by David DeFelice

Speakers Bureau Coordinator Clark, right, talks with new member Joe Sessa at an informal information session.

Join NASA Glenn's Speakers Bureau!

Want to share your enthusiasm for NASA and what you do with the public?

Every year, NASA Glenn's Speakers Bureau receives hundreds of requests for speakers to address groups of all sizes, ages and backgrounds. The success of this program relies on employees, like you, to further the NASA story and inform the public about what we do.

"You don't have to be a researcher or engineer to be in the Speakers Bureau," explained Coordinator Wyatt Clark, LI-2/Office of Communications and External Relations. "Civil servant and support service contractor members serve in different capacities throughout the center. Sometimes you tell the NASA story and other times you share the story of your personal role at NASA. Retirees are also welcome!"

The Speakers Bureau is an agencywide program with Glenn employees responding primarily to requests from Ohio, Illinois, Indiana, Michigan, Minnesota and Wisconsin, within the six-state region the center officially serves. Speakers address audiences—from preschoolers to senior citizens—at a variety of locations and with no set number of speaking engagements.

"Being a member of the Speakers Bureau enables me to share interesting and exciting NASA technology that often benefits the public in everyday life," said member, Aimee Crane, MORI/Exploration Systems Project Office. "The topics and opportunities are endless. Every event has been a positive experience. People are so excited to talk with NASA Glenn employees!"

To find out more about the Speakers Bureau, contact Clark at 216-433-2003.

By Doreen B. Zudell



Speakers Bureau member Crane at a STEM event for Fredericktown Boys and Girls Scouts in Fredericktown, Ohio.

GRC-2017-CN-00064

Lightfoot Visits, Holds All Hands Meeting With Employees

NASA Acting Administrator Robert Lightfoot, Acting Deputy Associate Administrator Krista Paquin and Center Director Janet Kavandi held an All Hands Meeting at Lewis Field, Oct. 24.

During the meeting, Lightfoot provided an update on the new administration's focus on NASA. "We've [NASA] had a lot of interest from the new administration," Lightfoot said. "There's been positive engagement with both the president and vice president."

Lightfoot shared the progress made on the Capability Leadership Model, Business Services Assessment and Mission Support Architecture aspects of the Agency's Operating Model. For a number of years, NASA has been working to enhance the Agency's Operating Model to support the success of its current and future missions. Various technical, programmatic and institutional assessments have been conducted to enable NASA to make strategic decisions regarding its core capabilities and advance the agency's endeavors in aeronautics, science and space.

Lightfoot explained that the process for creating the new Agency's Operating Model is taking all the pieces and looking at a way to reorganize them. "It's about working more efficiently to achieve the mission the best way we can."

Following this discussion, Lightfoot and Paquin answered questions from the employees in the audience and through the Conferences i/o Audience Response System.

By Doreen B. Zudell



GRC-2017-C-08626

Photo by Rami Daud

Paquin, left, and Lightfoot address questions from employees during All Hands Meeting.

GRC CONNECTIONS Highlights Role in Cassini Mission



GRC-2017-C-08062

Photo by Marvin Smith

Former and current Glenn employees discussed the center's role—then Lewis Research Center—in the Cassini Mission during GRC CONNECTIONS, Oct. 17. John Sankovic, director of the Office of Technology Incubation and Innovation, moderated a panel that included, left to right, former Center Director Donald Campbell; former Deputy Center Director Jerry Barna; and Research and Engineering Directorate members Phillip Paulsen and Glen Horvat. Cassini-Huygens was a collaboration between NASA, the European Space Agency and the Italian Space Agency to explore Saturn and its complex systems of rings and moons. The spacecraft completed the final phase of its mission, Sept. 15.

See the *AeroSpace Frontiers* June 2017 issue for details on Glenn's role in Cassini.
<https://www.nasa.gov/centers/glenn/news/AF/index.html>

NEWS AND EVENTS

NASA Targets Top Native American Talent

Six of NASA's 10 field centers supported the 40th American Indian Science and Engineering Society (AISES) 2017 National Conference, held in September. The 3-day event focused on developing top Native STEM talent and preparing the next generation of STEM Leadership. Considered the largest STEM career fair in Indian Country, it attracted 200 exhibitors and drew 1,900 attendees! Glenn personnel participated as career panelists, conducted mock interviews and identified several future Glenn interns and employees at the NASA Career Fair booth. The NASA outreach team also conducted preconference hands-on STEM activities (pictured) at the local Alameda Junior and Senior High School in Denver.



Photo by Torrey Johnson, NASA/GSFC
GRC-2017-CN-00067

Service Dogs Enable Independence

Glenn's National Disability Employment Awareness Event, Oct. 31, focused on how service dogs enhance the lives of people with disabilities. Mandy Mueller, Northern Ohio Chapter of Canine Companions for Independence (CCI), explained the definition and qualifications of service dogs and service dog etiquette. She then led a demonstration with other CCI volunteers and their dogs. Kathy Corrigan, Propulsion Division, shared personal experiences about life in and outside of the workplace with her service dog Bailey. Glenn's Office of Diversity and Equal Opportunity and the Disability Awareness Advisory Group coordinated the event.



GRC-2017-C-08497

CCI member and speaker Mueller, second from right, join other CCI volunteers and the dogs they are fostering.



GRC-2017-C-08521

Photos by Marvin Smith

Corrigan with her service dog Bailey.



GRC-2017-C-08293

Photo by Bridget Caswell

Glenn Hosts University Day

More than 150 students and staff from 13 universities across Ohio attended University Day (UD) at Glenn, Oct. 20. UD is a college internship awareness program designed to attract and increase a pool of underserved/underrepresented NASA interns. The Office of Education coordinated the event, which included facility tours and career-focused presentations. A panel, representing diverse careers at the center, shared experiences and tips on preparing for an internship.

Panelists, left to right, include Ashlie Flegel, Dr. Antoine Moss, Miguel Kortright (intern), Dr. Tiffany Williams and Calvin Robinson.

“Traditional Knowledge, New Ideas, A Better World”

Building a Pipeline for Native Americans



GRC-2017-CN-00066

Photo by Doreen Zudell

Glenn’s Native American Month Observance, Nov. 9, centered on the importance of exposing Native American students to STEM-related fields. Keynote speaker and Ojibwe Indian, Mark Abotossaway, pictured, shared how his involvement in the First Nations Launch competition, sponsored by NASA and the Wisconsin Space Grant Consortium, introduced him to high-powered rocketry and helped propel his engineering career with The Boeing Company. Abotossaway then joined Torry Johnson, NASA Goddard’s Minority University Research and Education Program, and Priscilla Mobley, Glenn Office of Education, on a panel discussing how educational outreach can help build a pipeline for Native American students into NASA. Glenn’s Advisory Group for Native Americans sponsored the event.

Inspiring Next-Gen Astronauts at Young Astronaut Day

NASA astronaut Sunita Williams delivered the keynote address to inspire the next generation of astronauts at the 25th annual Young Astronaut Day, held at Lewis Field, Oct. 28. More than 400, first-through 12th-grade students competed in six design challenges applicable to living and working in space. They also designed and built a space shuttle replica made entirely of canned goods, which was later dismantled and donated to the Greater Cleveland Food Bank.



GRC-2017-C-08825

Astronaut Sunita Williams chats with participants.



GRC-2017-C-08793

Photos by Marvin Smith

Students test the strength of their composite material developed for the “Space Material Challenge” guided by Glenn’s David Bremenour, left, and Emily Timko, seated.



DECEMBER 2017



Choose your cause and *Show Some Love* today.

2017 Combined Federal Campaign

Campaign runs through January 12, 2018

Center Goal: \$400,000



GRC-2017-C-08722

Photo by Rami Daud

Several of Glenn's 2017 CFC workers, along with guests from the Ohio CFC Zone 28 team and representatives from four local organizations, gathered at the kickoff.

Charity Fair

Wednesday, December 13

11 a.m. to 1 p.m., MIC Auditorium

National Day of Service

Coming in January 2018

New features for the 2017 CFC:

Participants can now also donate **Volunteer Time**.

Federal retirees can now also donate.

Chair: Dale Hopkins

Deputy Chair: Terri Rodgers

Loaned Executive: Quynhgiao Nguyen

Senior Executive: Janet Watkins

Glenn is now part of Ohio CFC Zone 28—see <http://cfczone28.org/> for more information.



Gordon

Gordon Honored for Advancing Women in Aerospace

Women In Aerospace recently presented Director of Center Operations Robyn Gordon with the Aerospace Awareness Award. She was recognized for “excellence in public outreach and innovative approaches to increasing public understanding of aerospace development and activities; commitment to advancing and defining the roles of aerospace in society; commitment to professional growth; and serving as a role model to aid advancement of women in aerospace.”

PROMOTIONS



Oriti



Redding

Kathryn (Katie) Oriti has been selected associate manager in the European Service Module (ESM) Integration Office, Space Flight Systems Directorate. She previously served as project manager and technical authority for the Advanced Electrical Bus CubeSat Project.

Adam M. Redding has been selected deputy branch chief, Aviation Test Branch, Test and Manufacturing Directorate, supporting the Aero-Acoustic Propulsion Laboratory, Engine Research Building (ERB) and Icing Research Tunnel test facilities. He previously supported turbomachinery and flow physics research for Aeronautics in the ERB.

MORE THAN A MEMORY

Galofaro Contributed to ISS Power System Design



Galofaro

Joel Galofaro, 64, who served in Glenn's Photovoltaic and Electrochemical Systems Branch as a physicist, died suddenly, Oct. 18. He earned numerous special act or service and group achievement awards over his 35-year NASA career.

Early in his career, most of Galofaro's work encompassed testing power system components, under a simulated space environment, in Glenn's world-class Plasma Interaction Facility (PIF). He correlated flight test data to validate analytical models and accurately predict safe operation of space power systems. His research contributed to the electrical power system design and operation of the International Space Station (ISS) as well as the analysis of solar array arcing and failure events on various commercial spacecraft. Those guidelines and design practices are still used today. More recently, his work involved PIF testing of advanced solar array blanket designs for the operation of high-voltage photovoltaic systems to support high power and solar electrical propulsion missions.

"Joel's family and colleagues will always remember him as being very passionate about his work at NASA," said Michael Piszczor, a former branch chief. "He was also an amateur astronomer who loved exploring space in his own small way."



Kravanya



Zelko

Rudolph (Rudy) F. Kravanya, 104, a 1977 retiree with 35 years of NACA/NASA service, died Oct. 30. Formerly head of Lewis' Flight Operations Service Section of the Test Installations Division, Kravanya began his career as an aircraft mechanic who helped make operational the Engine Propeller Research Building of Cleveland's Aircraft Engine Research Laboratory. He oversaw support to the Nozzle Flight Research Program conducted from Selfridge Air Force Base, Michigan, and later, fabrication of research pods flown on the F-106 supersonic jet for the NASA Global Atmospheric Sampling Program.

Frank A. Zelko, 88, a 1991 retiree with 37 years of service, died Aug. 25. Zelko was a U.S. Air Force veteran of the Korean War who graduated from NASA's Apprentice Program in 1958 as an instrument mechanic to serve in the Test Installation Division. He earned a group achievement award and several special act/service awards as a member of the Abe Silverstein 10- by 10-Foot Supersonic Wind Tunnel team supporting the Propulsion Research Program.

Upcoming Center Events

GSEL MOBILE LIBRARIAN

The Glenn Science and Engineering Library (GSEL) Mobile Librarian will be making its way across the center in 2018.

BUILDING

DATES

HOURS

6

January 9 to 18

1 to 3 p.m.,
unless noted

15

January 23 to February 1
(11 a.m. to 1 p.m.)

23

February 6 to 15

49

February 20 to March 1

54

March 6 to 15

77

April 10 to 19

86

April 24 to May 3

110

May 8 to 17

162

June 5 to 14

3

June 19 to 28



JANUARY OUTDOOR SIREN TESTING

The Emergency Management Office staff will conduct an outdoor "voice" test at Lewis Field in building 3 on Wednesday, Jan. 3. An audible siren test focusing on the "tornado" tone will be conducted on Saturday, Jan. 6. POC: Allen Turner, 3-6826

IFPTE LOCAL 28, LESA MEETING

LESA will hold its next membership meeting, Wednesday, Jan. 10, noon, in the Glenn Employee Center's Small Dining Room.

Deadline for next calendar section is **Dec. 15, noon**. News and feature stories require additional time.

A Glenn reference librarian will be ready to assist employees with subject searches, finding specific books and articles and other information needs on the spot!

POC: Robin Pertz
3-5776



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





Cyber Security Awareness Highlights Safe Internet Usage

Glenn's Office of the Chief Information Officer (OCIO) coordinated a series of events to mark the 14th annual National Cyber Security Awareness Month. The event focused on raising employees' information technology (IT) security awareness by reminding us to STOP, THINK and CONNECT safely when using the Internet.

OCIO hosted more than 230 employees for its Cyber Security Awareness Day, Oct. 19, featuring guest speakers and video presentations, that afforded credit for fiscal year 2018 Cyber Security & Sensitive Unclassified Information Awareness Annual Training. Participants learned how cyber criminals use spyware, malware, spoofing, phishing and botnet techniques to gather personal information.

Keynote speaker Steven Allison, an international information security leader, shared scenarios from his 25-plus years of system security engineering and security leadership. He drew from varied assignments ranging from service as a cyber security architect of Symantec Corporation's National Security Programs to U.S. Air Force Intelligence Operations at the Air Force Information Warfare Center. Allison joined a panel of Glenn security and communication managers to field questions on how to deter and detect threats to our cyber security at work and in the home.

Glenn employees also had the benefit of OCIO posting weekly links to cyber security tips and resources to heighten awareness of potential pitfalls while maneuvering the Internet. In addition, a Vendor's Day was held to acquaint employees with some of the technologies and processes developed to ensure the integrity of NASA data, as well as to protect personal information.

By S. Jenise Veris



Glenn's deputy Chief Information Officer Louise Moroney engages one of the vendors.



GRC-2017-C-08150
Photos by Marvin Smith

Allison joins George Crawford, Glenn's lead Counterintelligence/Counterterrorism special agent; Steve Fedor, Export Control manager; and Gilbert "Gib" Winter, Chief Information Security officer, in a question and answer session.

Emergency and Inclement Weather Lines

Lewis Field: 216-433-9328 (WEAT)
Plum Brook Station: 419-621-3333

Connect With Glenn

