



New Science Mission Directorate AA Gets Up-Close View of Glenn

NASA’s Science Mission Directorate (SMD) Associate Administrator (AA) Dr. Thomas Zurbuchen visited NASA Glenn, April 11. Accompanied by SMD Deputy Associate Administrator Dennis Andrucyk, Zurbuchen toured several Lewis Field and Plum Brook Station test facilities and interacted with employees during an All Hands meeting.

At the All Hands, Zurbuchen talked about the importance of innovation. He shared several examples of current and future missions that address three key science themes: Safeguarding and Improving Life on Earth, Searching for Life Elsewhere and Expanding our Knowledge.

“Every mission we fly should make the next mission more successful.”

—Dr. Zurbuchen

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GRC-2017-C-01528

Photo by Marvin Smith

Wayne Wong, right, Thermal Energy Conversion Branch chief, discusses the benefits of high-efficiency Stirling converters for future radioisotope power systems while providing Andrucyk, left, and Dr. Zurbuchen a tour of the Stirling Research Laboratory.

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Research Network Forms Partnerships, Helps Revitalize Local Economy

In 2015, the State of Ohio set aside \$20 million to work with Ohio-based universities and industry to create jobs. Part of this effort included the establishment of the Ohio Federal Research Network (OFRN) to enable universities to address the technical needs of four federal institutions located in Ohio, while they also developed a strong research talent base.

The process began when NASA Glenn, plus three Dayton-based institutes—the Air Force Research Laboratory, National

Air and Space Intelligence Center and Naval Medical Research Unit—shared technical requirements necessary to achieve their future missions and programs. Several Ohio-based universities each created competitive projects in partnership with at least one other Ohio university, one or more Ohio companies, and at least one Ohio-based federal researcher. The goal of the partnership is to attract outside public and private investments and retain and create new jobs in Ohio.

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Approaching Another Construction Season

As the weather warms, it reminds us that we are coming upon another busy construction season. Lewis Field will undergo several high-visibility projects this summer, including repairs to the steam distribution system. Additionally, the Ohio Department of Transportation will close the Brookpark Road bridge for 3 months to perform repairs. While navigating through orange barrels and alternate routes can be inconvenient, construction is a means to improving our infrastructure and ensuring our safety. Please remember to slow down and identify potential hazards when walking and driving; it is crucial to the safety of everyone.

Be safe!

—Janet



Newsletter Enhancements

It's been nearly a decade since Glenn's official newsletter underwent a redesign. So, beginning in June, *AeroSpace Frontiers* will have a new look and feel that takes advantage of NASA's amazing images, photos and graphics.

Along with an issue delivered to your mail stop, you'll also find extra copies in new publication stands that will be located in popular areas at Lewis Field and Plum Brook Station, including both main gates.

That means you can pick up an extra copy and share it with a friend!

Up-Close View of Glenn

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GRC-2017-CN-00006

Photo by Dave Stringer

Zurbuchen and Andrucyk answered several questions from the audience and via the Conferences i/o Audience Response System. They noted the importance of Glenn's technology in enabling current and future missions.

“Many technologies are at the gate; we need to push them over the fence.”

—Dr. Zurbuchen

By Doreen B. Zudell

Left to right: Andrucyk, Center Director Dr. Janet Kavandi and Dr. Zurbuchen stop at the Reverberant Acoustic Test Facility while on tour at Plum Brook Station.

NASA Glenn RED Team Helps EP+R Sterilize Ambulances

NASA Glenn's Regional Economic Development (RED) Team helped breathe life into a new product designed by Emergency Products and Research (EP+R) of Kent, Ohio, and potentially a new standard for public health.

EP+R CEO Jim Doherty and Vice President Jason Thompson identified a critical need in the medical emergency industry to develop a product that would decontaminate and sterilize ambulance interiors between patients. But after conducting their own research, they still needed expert advice on using oxidizers to decontaminate public health surfaces.

During a RED technology roadshow, EP+R made a connection through the Manufacturing Advocacy and Growth Network (MAGNET), the regional Manufacturing Extension Partnership that joins with others to help companies tackle technical issues. Laurie Stauber, a member of Glenn's RED team, suggested NASA's Sharon Miller, Environmental Effects and Coatings Branch, serve as their mentor. Miller has extensive experience with atomic oxygen plasma and sterilization using a plasma. NASA uses atomic oxygen plasmas to test the durability of spacecraft materials that will be used in low-Earth orbit and Mars orbit.

"They needed information on how many times they could sterilize an ambulance with the ionized mist, which contained a strong oxidizer, without damaging any sensitive equipment in the ambulance," Miller explained. "I provided information on what would be the most oxidation-sensitive surfaces and some reaction literature. I also guided them in how to set up a test plan to check out the product with an old donated ambulance."

Since participating in the NASA RED activity, EP+R has implemented the AMBUstat™ system in public health agencies around the country. Through its pilot programs in key regions, the firm continues to identify best practices to achieve the effective decontamination of spaces while minimizing downtime and optimizing safety.

For the full story and more information about NASA's Regional Economic Development Program visit <https://www.nasa.gov/feature/red/nasa-glenn-red-team-helps-epr>.



GRC-2017-CN-00009 Photos by EP+R, Stephen Herron
Miller inside Glenn's large-area atomic oxygen chamber.



GRC-2017-CN-00010
EP+R's Doherty, left, and Thompson pose with their AMBUstat™ system.

Research Network

Continued from page 1

Since OFRN began, 18 projects have been competitively selected engaging 11 different Ohio universities and more than 50 Ohio companies and hospitals. Center Director Dr. Janet Kavandi is Glenn's representative to the OFRN Executive Review Board.

"Some of the technical progress to date improved battery life, advanced flexible electronics and addressed unmanned area vehicle ice protection," explained Sandy Reehorst, deputy director of the Office of Technology Incubation and Innovation. Reehorst serves as a member of the OFRN Technical Review Board, the team responsible for assessing all OFRN project proposals. "As a result, numerous successful NASA Glenn partnerships and teams have been formed across our state, including colleagues from other Ohio federal institutes, industry, academia and nonprofits."

For more information on OFRN, please contact Sandy Reehorst at sandra.t.reehorst@nasa.gov.



GRC-2017-CN-00008

The Ohio State University's (OSU) Dr. Randall Mathinson provides direction to a grad student on the setup of the Turbine Test Facility at OSU, for testing on the Turbine Cooling Project. This is one of the OFRN projects of specific interest to NASA Glenn.

Efficient Operating Model: BSA Update

A panel of NASA Glenn senior managers discussed the impacts of NASA's approved Business Services Assessment (BSA) decisions in the areas of Information Technology, Human Capital, Procurement, Facilities and Budget Management, April 5. NASA's BSA seeks to establish a more efficient operating model that maintains critical capabilities and meets current and future mission needs. Panelists pictured, left to right: Associate Director Janet Watkins; Agency BSA Implementation and Change Leadership Manager, Leah Hollander; Deputy Chief Information Officer Louise Moroney; Director of Center Operations Robyn Gordon; Director of Human Capital Management Lori Pietravoaia; Director of Facilities, Test & Manufacturing Tom Hartline; and Chief Financial Officer Larry Sivic. For more information on the BSA, visit <https://www.grc.nasa.gov/glennbsa>.



GRC-2017-CN-00007

Photo by Steve Crimaldi

Dr. Kavandi Joins Panel at Space Symposium

Center Director Dr. Janet Kavandi was one of five NASA center directors who participated on the panel, "Center Directors in a Time of Transition," during the 33rd annual Space Symposium, April 3-6. Among the topics was the President's reinstatement of a National Space Council. Pictured, left to right: Ellen Ochoa, Johnson Space Center director; Kavandi; Michael Watkins, Jet Propulsion Laboratory director; and Dr. David Livingston, panel moderator and founder-host of "The Space Show." (Not pictured: Robert Cabana, Kennedy Space Center director, and Todd May, Marshall Space Flight Center director.) Glenn's Outreach and Space Flight Mission Directorate team members coordinated and staffed a display that included NASA's Solar Electric Propulsion spacecraft and engine models.



Patrons Get "GVIS" Experience During National Library Week

Graphics and Visualization (GVIS) Lab intern Alejandro Diaz helps an employee adjust a head-mounted visual reality display that simulates visiting the space station without leaving the library. The demonstration was part of Glenn's National Library Week activities offering employees an opportunity to learn about tools that aid engineers early in a design. Earlier, Glenn's Science & Engineering Library staff hosted Customer Appreciation Day, as part of the week's activities, to introduce the new programs available through the Learning Center.



GRC-2017-CN-00011

Photo by S. Jenise Veris

News and Events

Glenn Trailblazers Share Positive Influences

Employees gathered for a Brown Bag Networking Luncheon to celebrate Women’s History Month, March 22. Attendees participated in a panel discussion with Glenn Trailblazers—Associate Director Janet Watkins; Office of Human Capital Management Director Lori Pietravoia; Diversity and Equal Opportunity Director Aretha Carr; and European Service Module Integration Manager Susan Motil. Panelists shared personal and professional experiences that influenced their lives and careers. Patricia Ryan, a Wright-Patterson Air Force Research Laboratory employee detailed to Glenn’s Office of the Director, shared examples of trailblazing women who made an enormous impact on her life. Networking with panelists and co-workers followed.

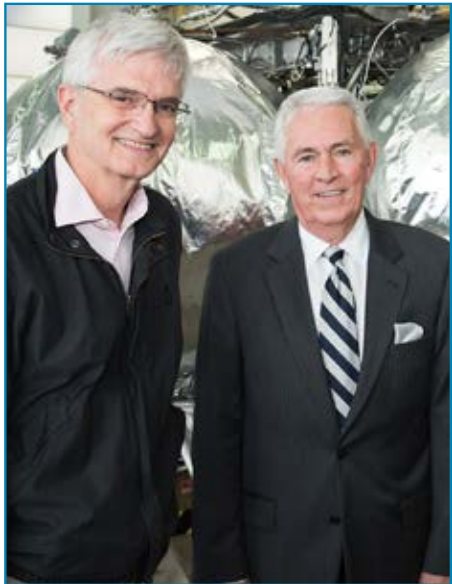


GRC-2017-C-01553

Photo by Rami Daud

ODOT Director Visits Plum Brook

The Ohio Department of Transportation (ODOT) Director Jerry Wray and Plum Brook Station Director Dave Stringer stop in front of the Integrated Cryogenic Propulsion Test Article during a tour of the In-Space Propulsion Facility, April 4. NASA Glenn is working with ODOT on a multiyear project that will help facilitate the future movement of articles to and from Plum Brook. This could include components of Orion, the nation’s next human-rated spacecraft designed to take astronauts farther into space than they have ever gone before.

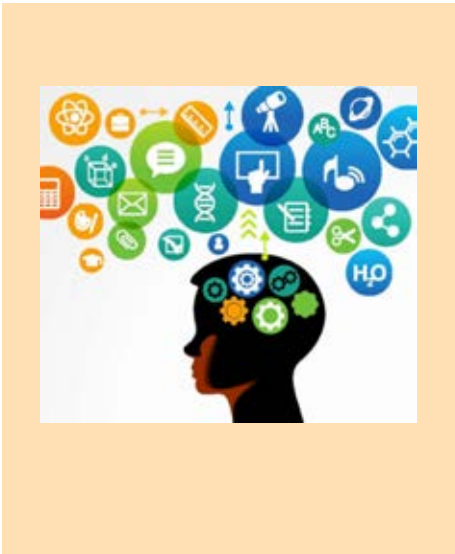


GRC-2017-C-01500

Photo by Marvin Smith

Glenn Participates in Community Day STREAM Conference

NASA Glenn supported “Community Day” activities, March 18, one of three action-packed days during the Northeast Ohio Science, Technology, Recreation, Engineering, Arts and Mathematics (NEO STREAM) Conference. Congresswoman Marcia Fudge, in collaboration with Cuyahoga Community College (Tri-C), sponsored the event to increase awareness, education and opportunities in STREAM fields in Ohio. Dovie Lacy and Zachary Lucas, Office of Communications and External Relations, oversaw NASA exhibits and an educational presentation related to the movie “Hidden Figures.”



Connect With Glenn

Emergency and Inclement Weather Lines
 Lewis Field: 216-433-9328 (WEAT)
 Plum Brook Station: 419-621-3333

Shadowing Day Connects Students With NASA Glenn

Twenty-one local high school and home-schooled juniors and seniors learned more about NASA and STEM-related careers during High School Shadowing Day at Lewis Field, April 12. Hosted by Glenn's Office of Education, the event included one-on-one time with mentors, a panel discussion and tours of the Icing Research Tunnel (IRT) and the Glenn Extreme Environments Rig (GEER). Students received information about educational opportunities at Glenn and how to stay connected with NASA.



GRC-2017-C-01780

Photo by Rami Daud

Shannon Eichorn, top center, and Kyle Phillips, top left, provide an overview of the GEER to students.



GRC-2017-C-01764

Photo by Bridget Caswell

Mentor Gabriel Benavides, far right, takes students into a space environment simulation chamber in the Electric Propulsion Laboratory.

Awards

Pathway Intern Honored

Aviation Week Network, in collaboration with the American Institute of Aeronautics and Astronautics, selected NASA Glenn Pathway intern **Geoffrey Andrews** as one of "Tomorrow's Engineering Leaders: The 20 Twenties." A Purdue University student interning in the Propulsion Division, Andrews is one of 20 students from around the world honored for significant contributions to their fields of study.



Andrews


Dr. Myers Named ACS Oklahoma Chemist of the Year

The American Chemical Society (ACS) awarded its 2017 Oklahoma Chemist Award to **Dr. Dwight L. Myers**, a NASA Summer Faculty Fellow in Glenn's Materials and Structures Division for 10 years. Myers, a professor and co-chair of East Central University's Chemistry Department, pursues research in thermodynamics and materials chemistry, particularly high-temperature chemistry, leading to numerous technical papers and lasting contributions to the center.



Dr. Myers

SAVE THE DATE!



Glenn Safety and Health Awareness Day
Tuesday, June 13
MIC Auditorium

Retirements



Liou



Robinson



Stewart

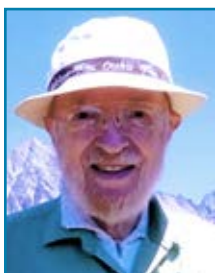
Dr. David J. Chato, Fluid and Cryogenic Systems Branch, Propulsion Division, retired March 31, 2017, with 32 years of service.

Larry Liou, Space Science Project Office, Space Flight Systems Directorate, retired March 31, 2017, with 28 years of service.

Frank Robinson Jr., associate director, Safety and Mission Assurance Directorate, retired April 3, 2017, with 33 years of service.

Syreeta J. Stewart, Exploration Systems Branch, Procurement Division, retired March 31, 2017, with 28 years of service.

More Than a Memory



Dr. Katsanis

Dr. Theodore Katsanis, 91, a 1985 retiree with 22 years of service, died March 23. Katsanis began his NASA career in 1963 and earned his Ph.D. in Mathematics from Case Western Reserve University (1967). He wrote over 60 technical reports/briefs on computer programs for analyzing flow through turbomachinery. Katsanis earned the Society of Automotive Engineers' Charles M. Manly Memorial Medal (1974) for co-authoring MERIDL, a FORTRAN-IV computer program developed to obtain a subsonic or shock-free transonic flow solution on the hub-shroud of a turbomachine.



Moeckel

Wolfgang "Wolf" E. Moeckel, 95, a 1978 retiree with over 30 years of NACA/NASA service, died April 6. Moeckel retired as NASA Lewis' Chief Scientist. Early in his career, Moeckel was a pioneer of supersonic aerodynamics, and wrote groundbreaking papers on theoretical design of engine inlet shapes. Later, as Chief of Electromagnetic Propulsion Division, his research focused on using unconventional propulsion systems for Earth satellites and interplanetary travel. Moeckel won NASA's Medal for Exceptional Scientific Achievement (1969) for his pioneering research and subsequent contributions to electric propulsion. His nephew, Steven Mainger, works in Glenn's Avionics Branch.



Yager

James E. Yager, 87, a 1997 retiree with 35 years of service, died March 11. Yager was an electrical engineer who served primarily in the Engineering Design Directorate. He was honored with a NASA Group Achievement Award for "the detailed design for hardware and mechanical/electrical support systems for the Wave Rotor Project, an important development in aircraft propulsion research to improve jet engine performance." He also supported the Lewis High-Speed Research Program. Yager's son, James C. Yager, HX5 Sierra, supports Glenn's Wind Tunnel and Propulsion Test Branch.

Calendar

JUNE OUTDOOR SIREN TESTING:

The Emergency Management Office staff will conduct an audible siren test focusing on the "HAZMAT" tone on Saturday, June 3, at Lewis Field. An outdoor "voice" test will be conducted at Buildings 100 and 301 on Wednesday, June 7. POC: Allen Turner, 3-6826

IFPTE LOCAL 28, LESA MEETING:

LESA will hold its next membership meeting, Wednesday, June 14, noon, in the Glenn Employee Center's Small Dining Room.

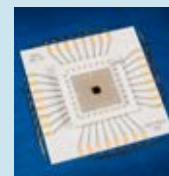
Trending With Tech Transfer

Silicon-Carbide Fabrication

Fayetteville, Arkansas-based Ozark Integrated Circuits signed a technology licensing agreement to evaluate the use of Glenn's silicon-carbide fabrication technologies for creating integrated circuits to help monitor and control systems at temperatures near 500 degrees Celsius. The circuits are able to operate in extreme environments like the surface of Venus or inside a jet engine.

GRC-2015-C-00598

Photo by Marvin Smith



Acoustic Liner Technology

San Jose, California-based Tellus Aerospace signed a startup licensing agreement to commercialize NASA Glenn's compact, lightweight acoustic liner technology. Tellus is also a winner in the 2016 SPACE RACE startup challenge, a competition to launch startups and encourage the adoption of NASA technologies.

GRC-2017-CN-00018

Photo by Carol Harrison, NASA Langley



National Aeronautics and Space Administration

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

S.S. John Glenn Carried Two NASA Glenn Experiments

NASA Glenn sent two experiments, the Zero Boil-Off Tank (ZBOT) experiment and the Spacecraft Fire Experiment-III (Saffire-III), to the International Space Station (ISS), April 18. The Glenn-developed experiments flew aboard the S.S. John Glenn, Orbital ATK's seventh commercial supply service ship.

Rocket fuel and other liquids used in space are stored at cryogenic temperatures of -423 to -243 degrees Fahrenheit. As these liquid cryogenics are warmed by the environment, they evaporate, which increases pressures inside storage tanks. Results from the ZBOT experiment will help improve tank design for long-term cryogenic liquid storage and pressure control, reducing the risk and cost of future deep space exploration missions.



GRC-2017-CN-00016

Photo by NASA

The ZBOT experiment will study ways to relieve pressure inside liquid storage tanks without loss of fluid.

Saffire-III is the third in a series of experiments to ignite a large-scale fire in microgravity. The experiments were designed to improve understanding of fire growth in microgravity and safeguard future space missions. The investigation begins when the trash-filled Cygnus resupply vehicle departs the ISS with Saffire aboard.

For more information about these experiments, contact William Sheredy, ZBOT project manager, william.a.sheredy@nasa.gov; and Dr. David Urban, Saffire principal investigator, david.urban@nasa.gov.

Honoring the Legacy

Orbital ATK has named each of its Cygnus spacecraft in tribute to influential astronauts. The commercial cargo ship, dubbed S.S. John Glenn in March 2017, honors the legacy of NASA Glenn's namesake.



GRC-2017-CN-00017

Photo by NASA

Orbital's ATK Cygnus spacecraft, dubbed the S.S. John Glenn, in the high bay area at Kennedy Space Center.