National Aeronautics and Space Administration

AEROSPACE Frontiers

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NASA, FAA Demonstrate Wireless Communications

For the first time ever, a team of NASA Glenn engineers conveyed aviation data—including route options and weather information—to an airplane over a wireless communication system for aircraft on the ground.

The demonstration was conducted at Glenn's Communications, Navigation and Surveillance testbed in collaboration with the Federal Aviation Administration and Hitachi, Ltd. It demonstrated two technologies that could change airport operations worldwide.

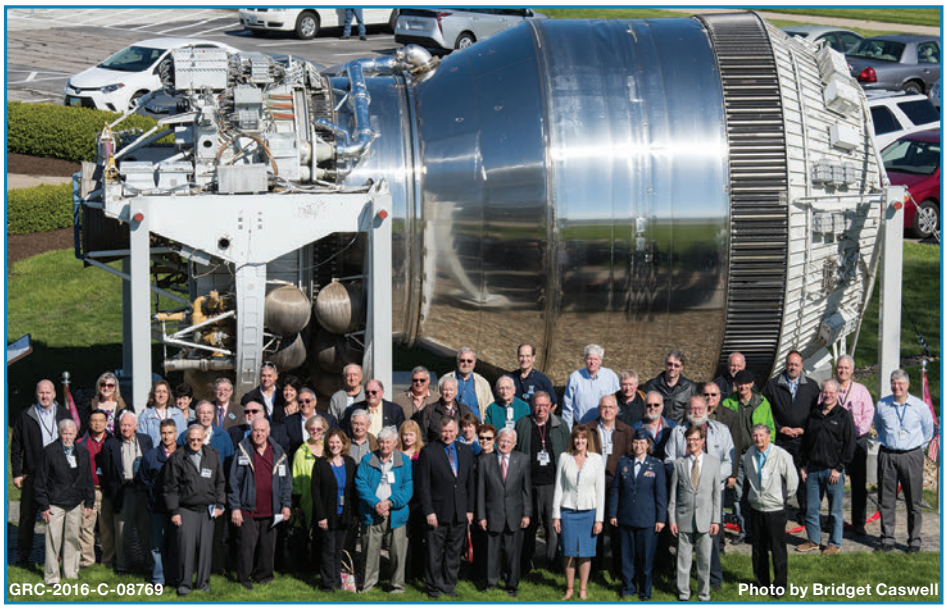
"This was the first time we provided this type of information to an airplane over a ground wireless network," said Paul Nelson, Glenn's project manager for Cyber-Security and Secure Communications, Navigation and Surveillance.

For more information about these technologies,visit http://go.nasa.gov/1qiy9vM.

Photo courtesy of NASA

This FAA Bombardier Global 5000 test aircraft was used in the wireless communication system demonstration.

Center Dedicates Centaur Rocket Display



Centaur retirees, current employees and special guests gathered in front of the Centaur G-Prime upper stage display shortly after the dedication and ribbon-cutting ceremony.

NASA Glenn officially welcomed home a significant piece of the center's history with the dedication of the Shuttle/Centaur G-Prime Upper Stage Rocket display, May 6. Centaur is the world's first high-energy upper stage rocket to burn liquid hydrogen and liquid oxygen. Glenn, then NASA Lewis Research Center, was responsible for the design and development of the Centaur.

The 6,600-pound test article, now on display in front of the Administration building at Lewis Field, may be the sole surviving Centaur G-Prime configuration. This rare artifact was recently transported

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Center Hosted High-Level Conferences

NASA Glenn recently became the hub for three high-level gatherings that centered on crucial areas within the agency. Staff from across NASA met to discuss ways to work more efficiently and effectively in the areas of financial management, senior management and facilities.

During the week of April 4, the MIC became the home to more than 150 attendees from across NASA as Glenn's Office of the Chief Financial Officer (CFO) hosted the Agency Financial Management Forum. The week began with a CFO face-to-face meeting and training for property accountants. Forum topics

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In This Issue

Recommit to Safety During National Safety Month

Glenn joins the National Safety Council in observing National Safety Month in June. The theme—SafeForLife—stresses the importance of factoring "human" into our mission and daily lives. Our annual **Safety and Health Awareness Day, June 22**, offers an impressive lineup of speakers and activities centering on awareness and responsibility to health and safety practices. Activities planned throughout the months ahead reinforce the fact that safety is a choice we make every day. I hope these opportunities will empower us to continue to make safe decisions in every aspect of our lives.

Join me on June 22 in learning more about safety practices that prevent injuries and save lives.

—Janet

Hot Engines Meet Ice Clouds in Icing Video

Icing tests were performed in the PSL.

Research scientists at NASA Glenn recently put cameras into a hot aircraft engine to help understand how ice builds up inside when exposed to ice crystal clouds. The cameras and other advanced instruments were mounted on a small section of the engine internal flow path, where air passes through the engine, during a simulated experiment in the Propulsion Systems Laboratory (PSL).

To view the video of this testing, visit http://go.nasa.gov/1qglZUg.

Centaur Dedication

Pictured, left to right: Hartline, Ross, Dr. Kavandi, Oberg and Williams cut the ribbon.

Continued from page 1

from Huntsville, Alabama, where it was on display for many years at Huntsville's U.S. Space & Rocket Center.

During the dedication ceremony, Center Director Dr. Janet Kavandi welcomed employees and special guests, including nearly 40 retirees, along with current employees, who had worked on the Centaur program. She thanked them for their skills and dedication to developing the rocket, and called the display a commemoration of their accomplishments.

"The Centaur is a huge part of our history," she said. "It's the largest and most prominent program our center has supported to date."

Designed to be launched from the cargo bay of an orbiting space shuttle, the Shuttle/Centaur G-Prime Upper Stage Rocket was developed between 1981 and 1986 to launch performance-demanding interplanetary missions such as the Galileo mission to Jupiter and national security payloads. Although the Shuttle/Centaur program was cancelled following the Challenger accident in 1986, the G-Prime configuration was quickly adopted by the U.S. Air Force and integrated into their new Titan IV launch vehicle booster.

Facilities, Test and Manufacturing Director Thomas Hartline led a distinguished lineup of speakers at the dedication. He recognized the efforts it took to coordinate the transport and setup of the precious artifact. Former Director Lawrence Ross, who served as director of Space Flight Systems during the Shuttle/Centaur program; aerospace engineer Craig Williams, Chemical and Thermal Propulsion Systems Branch; and former Titan IV Mission Manager Colonel Elena Oberg, each shared a few memories of the challenges and rewards surrounding this complex undertaking. Williams was a U.S. Air Force lieutenant stationed at Glenn during the Shuttle/Centaur program. He spoke on behalf of scheduled speaker Donald Palac, who was also in the U.S. Air Force at the time and unable to attend the event.

"This program was a manifestation of really good strategic planning," Ross said, "and ventured the center into the world of human spaceflight."

By Doreen B. Zudell

Center Recognizes Students' ISS Hardware

GRC-2016-C-02669 Photo by Bridget Caswell

Glenn's Dr. DeVon Griffin, center, asks students from East Troy High School in Wisconsin questions about their food preservation project.

Glenn engineers reviewed projects designed by HUNCH (High School Students United With NASA to Create Hardware) Design and Prototype teams during a Final Design Review at Lewis Field, April 22. Students designed space slippers, food preservation methods, sports games and more, to aid astronauts living and working on the International Space Station (ISS). The following day, Glenn's HUNCH Project Manager Nancy Hall and supporting staff hosted a HUNCH recognition ceremony and tour at Plum Brook Station for students from 11 schools in Wisconsin, Ohio and New York.

OHTec Week Activities Challenge Innovators

Glenn's Office of the Chief Information Officer (OCIO) hosted the Cleveland location for the 2016 NASA Space Apps Challenge, April 22–24, which was part of OHTec's Tech Week activities. NASA offered 26 challenges in six mission-related categories. More than 150 participants developed mobile applications, software, hardware, data visualizations and platform solutions that could contribute to space and aeronautics missions. Glenn's Scientific Computing and Visualization Team earned a "Tech Team of the Year" award during OHTec's Tech Week. OHTec's annual Best of the Tech Awards recognize innovative companies that promote the region as a remarkable place to work and live.

GRC-2016-C-02403 Photo by Rami Daud

The first place team at the Space Apps Challenge Cleveland location, D.R.E.A.M. (Damon Recovery and Extraction Air Machine), works on their project.

Photo courtesy of Every Angle Photography

Glenn's Graphics & Visualization (GVIS) team, members of the OCIO, include, left to right: Paul Catalano, Rich Rinehart, Calvin Robinson, Brian Tomko, Herb Schilling and Brian Sommers. Not pictured: Tad Kollar and Drayton Munster.

Focus on Sustainability

GRC-2016-C-02632 Photo by Marvin Smith

One of the many vendor demonstrations.

Glenn's annual Sustainability Fair, held May 5 in the MIC auditorium, showcased a variety of resources aimed at improving our environment on a local scale. Glenn's Green Earth Committee and Logistics and Technical Information Division (LTID) sponsored the event, which featured 18 external and 7 internal sustainability vendors. Highlights included artistic examples of recycled treasures; demonstrations of environmentally friendly home and personal skin care products, healthy food faire, and a chance to win a rain barrel.

Observance Celebrates AAPI Heritage

Photo courtesy of APIAG

Michael Byun accepts a plaque of appreciation presented by, left to right: APIAG's Executive Sponsor Dr. George Schmidt, Associate Director Janet Watkins, and APIAG Chair Wayne Wong.

Glenn celebrated Asian American Pacific Islander (AAPI) Heritage Month, May 11, featuring keynote speaker Michael Byun, presidential appointee to the AAPI Advisory Commission. Byun's address focused on embracing this year's theme: "Walk Together, Embrace Differences, Build Legacies." Cultural performances by Yume Daiko and Shaolin Kung Fu Institute were additional highlights of the event sponsored by Glenn's Asian Pacific Islander Advisory Group (APIAG).

Celebration Events

Industry Day Focuses on Women in Business

GRC-2016-C-02592 Photo by Bridget Caswell

Pictured, left to right: Glenn Procurement Division Chief Kaprice Harris (standing) moderates a panel that includes Ann Heyward, Ohio Aerospace Institute; Gail Dolman-Smith, Paragon Tec; Cheryl Stasiak, Pinnacle Construction Development Group; and Patricia Grospiron and Gloria Ware, Jumpstart.

In conjunction with National Small Business Week, Glenn and Cuyahoga Community College (Tri-C) hosted a Women-Owned Small Business Industry Day, May 3, at Corporate College East in Warrensville Heights. The event, which supports the agency's Office of Small Business Programs, centered on promoting and integrating small businesses into the competitive base of contractors that pioneer the future of space exploration, scientific discovery and aeronautics research.

National Lab Day Promotes STEM Careers

Glenn hosted National Lab Day at Lewis Field, May 12, and Plum Brook Station, May 18. Nearly 400 students participated in facility tours, an engineering design challenge and demonstrations that form the basis of Glenn's work. The events were aimed at motivating and inspiring students to pursue Science, Technology, Engineering, and Mathematics (STEM) careers. NASA Associate Administrator for Education Donald James provided opening remarks at Lewis Field. Special guest astronauts, Stephanie Wilson (at Lewis Field) and Doug Wheelock (at Plum Brook), discussed their careers and shared spaceflight videos.


GRC-2016-C-6376 Photo by Bridget Caswell

Students enjoy a robot challenge at Plum Brook Station.


GRC-2016-C-5378 Photo by Marvin Smith

Participants at Lewis Field learn more about STEM during a facility tours.

Glenn's 75th Anniversary

Plum Brook Station Open House

June 11 and 12
10 a.m. to 6 p.m.

Park at Kalahari
Convention Center
(Just east of Plum Brook)

www.nasa.gov/glenn75

Mark your calendar and bring your family and friends.

Astronaut Tosses First Pitch on NASA Day!


GRC-2016-C-02706 Photo by Rami Daud

Pictured: Good with Slider, the Cleveland Indians' mascot, at the game.

Glenn employees enjoyed NASA Day at Progressive Field, May 14, when the Cleveland Indians hosted the Minnesota Twins. Hometown NASA astronaut Mike Good tossed a ceremonial first pitch and signed autographs during the game. Employees donned NASA gear to help celebrate Glenn's 75th anniversary! NASA exhibits and activities were featured on the Family Deck.

Celebrating a 75-Year Legacy

This is the fifth in a monthly series of historical highlights commemorating Glenn's 75th anniversary and extraordinary technical accomplishments that reach across seven decades.

Looking Back: 1980s

In 1984 NASA Lewis (Glenn) partnered with Lockheed to create the Advanced Communications Technology Satellite (ACTS). ACTS was designed to demonstrate new experimental communications tools conceived to help the United States regain its leadership in the expanding communications satellite field.

ACTS new technologies included operation in the Ka Band, which was less frequently used than the traditional Ku Band and allowed the transmission of larger quantities of data. The increased data transmission rates were made possible by a highly efficient travelling wave tube invented by NASA Lewis' Dr. Henry Kosmahl and first demonstrated, in 1976, on the Communications Technology Satellite (CTS). ACTS also employed multiple transmission beams that improved efficiency by rapidly switching between sites.

The Multistage Depressed Collector tube made it possible for the CTS to operate at power levels 10 to 20 times higher than previous satellites. The extra power improved television broadcast capabilities throughout the world. NASA received an Emmy Award in 1987 for its role in the CTS.

Following its launch from the space shuttle in 1993, Lewis successfully operated ACTS for six years before turning it over to private researchers for continued investigations. ACTS proved to be a useful tool for industrial, educational and medical applications. The communication industry's focus on developing fiber optics and cellular technologies during the 1990s, however, precluded the direct commercialization of these tools.

Today, society relies on communications satellites more than ever. With so many satellites transmitting through the Ku band frequency, there is an increasing effort to utilize the infrequently used Ka band. Glenn can be proud that ACTS, the first all-digital satellite, demonstrated that Ka band transmissions were feasible.

Courtesy of NASA Glenn History Office

Our @NASAglenn's Twitter account reached 100,000 followers!

Upcoming 75th Anniversary Events

Plum Brook Station Open House
June 11 and 12

AirVenture
July 25 to 31

Retiree Reunion
Aug. 10

Former and Current Center Directors Panel Forum
Aug. 10

Centerwide Picnic
Aug. 10

Chicago Air and Water Show
Aug. 20 and 21

Cleveland National Air Show
Sept. 3 to 5

GRC Hall of Fame Induction
Sept. 14

Evening with the Stars
Sept. 20

Dr. Landis Receives Space Achievement Award

The Rotary National Award for Space Achievement (RNASA) Foundation presented a Stellar Award to Dr. Geoffrey Landis, Photovoltaic and Electrochemical Systems Branch, at the annual Space Awards Gala, April 29. Landis received a "Late Career" Stellar Award for exceptional technical achievement and leadership across 28 years of service in developing photovoltaic power systems and advanced concepts in support of NASA missions. He is renown for his research on the effects of the Martian atmosphere; particularly dust, on NASA rovers' power system. Pictured, right: Dr. Landis with astronaut Stephanie Wilson, one of the Stellar Award presenters.

Dr. Landis and Wilson.

FEB Wings of Excellence Awards

The Cleveland Federal Executive Board (FEB) honored seven Glenn employees with a Wings of Excellence Award, May 6. The award recognizes employees from federal agencies across Northern Ohio for their outstanding service and contributions of significance to a major project, national program or outreach to the community and/or nation.

Dr. Cheryl Bowman, Materials and Structures Division, for her role in building the technical portfolio and engaging NASA, academia and industry to advance hybrid electric and turboelectric aircraft technology for NASA's aeronautics research mission. Bowman serves the community as a mentor and a member of the NASA Speakers Bureau and the executive committee of ASM International Cleveland Chapter.

Richard Haas, Office of the Chief Information Officer (OCIO), for mentoring and providing personalized project management training toward establishing the OCIO Project Management Office. Customizing leading-edge cloud-based software, Haas also constructed an oversight and life cycle management process that enables staff to monitor the performance of over 100 active information technology projects within the organization's portfolio.

Kimberly Kearns, Facilities Planning and Integration Office, for serving as Glenn's Configuration Control and Maximo program manager. Kearns' technical leadership of Glenn's computerized maintenance management system (Maximo) has resulted in greater efficiencies and successful operation and maintenance of critical facilities and systems. Her work helps to ensure the safety of the 3,000 plus members of the Glenn community.

Monica Palivoda, Office of the Director, for demonstrating the highest degree of competence and impeccable administrative skills as executive assistant to the Center Director. Palivoda chairs the Senior Executive Assistants Team, which strives to promote excellence, share corporate knowledge and strengthen teamwork. She volunteers in the pre-K ministry at her church and is an officer of her homeowners association.

Dr. Herbert Schilling, Information and Applications Office, for serving as a computational scientist, highly regarded across the agency for his knowledge of scientific computing and visualization. Schilling has supported projects across many disciplines at the center including icing, materials and acoustics. His dedication to mentoring and educational outreach is inspiring to numerous students attending Northeast Ohio schools and nonprofit organizations.

Allen R. Turner, Office of Protective Services, for collaborating with multiple law enforcement agencies on emergency preparedness and continuity of operations plans to significantly improve the overall safety of the NASA Glenn personnel. Turner is respected for his leadership and management of such programs as the Closed-Point of Dispensing exercise supporting the Northeast Ohio Heroes Exercise and the Advanced Law Enforcement Rapid Response Training for active shooters response.

Nikki Welch, Office of Technology Incubation and Innovation, for sharing Glenn's mission with internal and external partners through her innovative leadership and effective marketing for projects such as the Regional Economic Development Team, Evening with the Stars and Glenn Technology Day. Welch is active in the community and served as an FEB tutor, Food Bank volunteer and youth mentor in her church. She currently serves in the Office of Communications and External Relations.

Congratulations Glenn Honorees!

Dr. Bowman

Palivoda

Haas

Dr. Schilling

Kearns

Turner

Welch

Photos for Kearns and Palivoda, courtesy of NASA. All other photos are courtesy of Louis Stokes Cleveland VA Medical Center.

By S. Jenise Veris

Dr. Romanofsky Named Senior Technologist

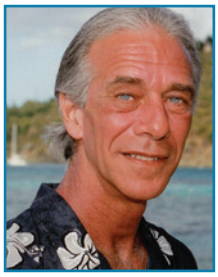
Dr. Romanofsky

Dr. Robert R. Romanofsky has been appointed Senior Technologist (ST) of Aerospace Communications Technology, in Glenn's Communications and Intelligent Systems Division. He becomes one of 12 distinguished STs, recognized as the center's most accomplished scientists and engineers whose career contributions promote and advance a technology that is extremely valuable in meeting Glenn's commitments to the agency.

Prior to this appointment, he served as a senior research engineer for most of his 32-year career at the center, leading the development of cryogenic electronics, frequency and phase agile devices and antenna systems for aerospace communications applications.

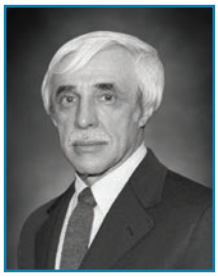
He is a graduate of Pennsylvania State University, the University of Toledo and Cleveland State University, where he is an adjunct professor. He has received the Rotary National Stellar Space Award, NASA's Exceptional Technology Achievement Medal, and was inducted into the Space Technology Hall of Fame in 2013.

More Than a Memory



Branch

George H. Branch, 69, a 2004 retiree with 30 years of federal service, died March 19. Branch was a U.S. Air Force veteran of the Vietnam War, who joined the NASA workforce as a mechanical engineering technician supporting primarily the Test Installation Division. Branch received a NASA Honor Award in 1998, and later became a facility manager (2002) until his retirement. He was a long-time member of the center's Dark Side softball team.



Cunnan

Walter S. Cunnan, 89, a 1994 retiree with 33 years of NASA service, died Feb. 6. He was an aeronautical engineer who worked in the Engine Components Branch of the Aeropropulsion Facilities and Experiments Division. Cunnan received a 1990 NASA Group Achievement Award for the Supersonic Throughflow Fan Operations Team and a 1994 Acquisition Improvement Award as a member of the Source Evaluation Committee. He participated in the center's Shadowing Program and tutored students in math.

Dr. Himmel

Dr. Seymour C. Himmel, 91, a 1981 retiree with more than 30 years of federal service, died March 20. Himmel was a U.S. Army veteran who began his NACA/NASA career in 1948. He dedicated his career to serving the cause of space exploration: as Lewis' first Agena Project manager; an expert panelist to the Apollo 13 Failure Review Board; director of Aeronautics; and the center's Associate Director from 1978 until retirement. Himmel was a senior member of NASA's Aerospace Safety Advisory Panel and continued as a consultant after retirement.

Hudach

Victor T. Hudach, 85, a 1990 retiree with 28 years of federal service, died March 22. Hudach was a U.S. Marine Corps veteran who entered NASA's Apprentice Program and graduated as an aerospace mechanic in 1966. He was assigned to the Test Installation Division (TID), working with the 10- by 10-Foot Supersonic Wind Tunnel test crew. He later became a supervisor and retired as the TID deputy chief. He also served on the center's Property Utilization Committee. His son, Tom Hudach, retired in 2014.

Retirements

Havasi

Lisy

Paul G. Havasi, Data Systems Branch, Testing Division, retired April 30, 2016, with 35 years of service.

Robert P. Lisy, Procurement Division, Center Operations Directorate, retired April 30, 2016, with 34 years of service.

Teresa Monaco, Procurement Division, Center Operations Directorate, retired March 31, 2016, with 33 years of service.

Calendar

GRC CONNECTIONS: June 16—Peter Buca, vice president Technology & Innovation, Parker Hannifin Corporation, 10 to 11 a.m., Briefing Center. June 23—Dr. Evalyn Gates, executive director & CEO, The Cleveland Museum of Natural History, 10 to 11 a.m., Ad Building Auditorium. See *Today@Glenn* for more details.

IFPTE LOCAL 28, LESA MEETING: LESA will hold its next membership meeting, Wednesday, July 13, noon, in the Glenn Employee Center's Small Dining Room.

PBS REUNION: Plum Brook Station's (PBS's) seventh reunion will be held on Saturday, Sept. 24. All current and former PBS and Lewis Field employees, support service contractors and surviving spouses are invited. A luncheon and program on PBS activities are planned. To place your name on the mailing list, contact Bill Brown in writing, 3802 Windsor Bridge Circle, Huron, OH, 44839 or email to huronbill@bex.net or Jack Crooks at jackcrooks@aol.com. If you know of others who should be contacted, please send their names and addresses as well.

Connect With Glenn

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July 2016 Calendar section deadline: June 15, noon
News and feature stories require additional time

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

Agency Events

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covered shared services, challenges and opportunities for the CFO community in the future.

NASA Glenn hosted the Agency Senior Management Council meeting, May 4, at Lewis Field. The agency management team met to conduct an Innovation Workshop, focusing on the importance of NASA management encouraging innovation within the workforce and consciously eliminating barriers to innovation.

Glenn's Facilities Division hosted the 2016 Facilities and Real Estate Conference, May 17–19, at Lewis Field. This event brought together 250 facilities and real estate personnel from across the agency to meet face to face with their NASA counterparts on such topics as infrastructure resilience, facility management tools, operations and maintenance, sustainable design and energy. Frank Aucremanne, Cleveland Clinic's director of Buildings and Properties, and Lesa Roe, NASA deputy associate administrator, gave key addresses.

By Doreen B. Zudell

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

GRC-C-2016-02460 Photos by Marvin Smith

NASA's senior leaders attended the Agency Senior Management Council meeting at Lewis Field. The meeting focused on NASA's Innovation: Present and Future. Many of the managers also toured Plum Brook Station.

GRC-C-2016-02307

The Agency Financial Management Forum drew more than 150 attendees.

GRC-C-2016-02851

Cleveland Clinic's Aucremanne addressed Facilities and Real Estate Conference attendees.