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SPF Modifications Bring Down the Temperature

Above the insulating atmosphere of the Earth, spacecraft are subjected to extreme temperatures—ranging from hundreds of degrees below freezing to hundreds of degrees above. Major refurbishments to the shroud system in the Space Power Facility (SPF) vacuum chamber at Plum Brook Station are underway to achieve temperatures—ranging from 250 degrees below zero to 150 degrees above zero—to simulate the harsh environment of space.

A team comprised of civil servant and support service contractors from Plum Brook and Lewis Field is

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Photo by Larry Opper

Right: Technicians work 50 feet in the air to connect the cryoshroud support structure to the vacuum chamber.

NASA, Industry Test 3-D Printed Rocket Engine Injector



C-2013-2527

Photo by Michelle Murphy

NASA's Glenn and Aerojet Rocketdyne of West Palm Beach, Fla. have completed testing on a rocket engine injector representing a significant milestone in additive manufacturing, or 3-D printing. Glenn conducted a series of hot-fire tests for Aerojet to demonstrate the ability to design and fabricate an injector—a highly critical rocket engine component—using high-powered laser beams to melt and fuse fine metallic powders into three-dimensional structures. This type of injector manufactured with traditional processes would take more than a year to make but with these new processes it can be produced in less than four months, with a 70 percent reduction in cost. To learn more about this collaboration and progress on this game-changing technology for future NASA missions visit <http://www.nasa.gov/press/2013/july/nasa-industry-test-additively-manufactured-rocket-engine-injector/>.

Left: Task Lead Tyler Hickman (in red shirt) and facility test engineers Diane Legallee and Jason Wendell, inspect the rocket injector assembly during installation in NASA Glenn's Rocket Combustion Laboratory.

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Joint CFC and Sustainability Event

Join us at the 2013 NASA Glenn Sustainability and Combined Federal Campaign (CFC) Agency Fair & Block Party
Sept. 18, 2013



Serving Our Country
Supporting Our Community
Protecting Our Environment



See page 2 for details

Combined Federal Campaign & Green Earth Committees Team

Glenn's Combined Federal Campaign (CFC) Committee and Green Earth Committee are, again, joining forces for a combined event on Wednesday, Sept. 18, from 10:30 a.m. to 1:30 p.m. in front of building 3, near the flag pole.

At noon, Center Director Jim Free, the 2013 North Coast CFC Chairperson, will share his thoughts about CFC and sustainability, along with Glenn's Sustainability Officer and Director of the Facilities and Test Directorate Dr. Rickey Shyne.

The event features Glenn's 2013 CFC Agency Fair, Car Show and Block Party as well as the 2013 Sustainability Fair. Other highlights include the NASA Jam Band, free ice cream and local food trucks (stationed at building 3, instead of building 15).

Shuttle bus transportation will be available.

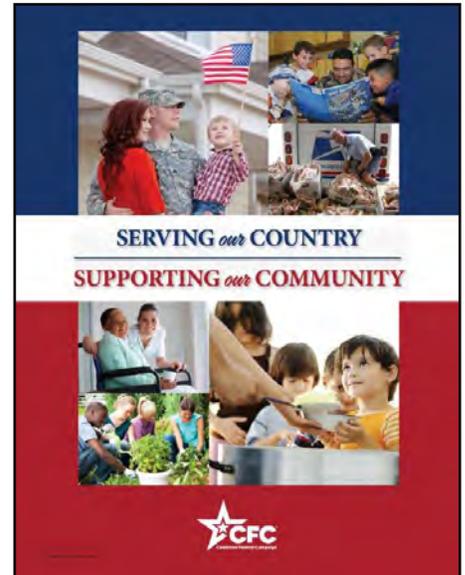
2013 Combined Federal Campaign Highlights

"Serving Our Country, Supporting Our Community"

North Coast CFC Chairperson: Jim Free
NASA Glenn Chair: Jackie Barbetta
NASA Co-Chair: Dawn Pottinger

Upcoming Glenn CFC Events

- September 18: CFC Agency Fair, Car Show and Block Party (Rain date: Sept. 24)
- September 19: CFC Kick-Off, building 3 auditorium
- October 25: Basket Raffle
- November Chili Cook-off
- December International Food Fair
- Pacesetter Campaign
Be a Leader, Be a CFC Pacesetter!
(Through Oct. 17)



SPF Modifications

Continued from page 1

refurbishing temperature panels for the vacuum chamber's shroud system. Many of the components were modified in Glenn's Fabrication Division, and local companies provided specialized services.

Photos by Larry Oppen



Lead engineer Steve Sinclair inspects the massive lifting fixture before moving a shroud panel. The structure is comprised of panels and support beams.

SPF Facility Manager Jerry Carek said the size and complexity of the panels presented a number of challenges for the team. When completed, the structure, comprised of panels and support beams, will measure 40 feet in diameter and about the height of a 5-story building. The team used 20- and 30-ton cranes to lift and secure the structure, which suspends 50 feet from the ground.

"This team's ingenuity and engineering knowledge has dramatically saved time and effort in installing multiple components for the prime support structure that will be used for the shroud system," Carek explained. "Their 'out-of-the-box' thinking allowed them to modify existing hardware instead of starting from scratch."

The project is scheduled for completion in the November-December timeframe. In January, ATK will be the first customer to use the renovated shroud system to test their megaflex solar array. The facility and new shroud will also be used for Orion testing beginning 2015.

—By Doreen B. Zudell



The facility team prepares for lifting a 40-foot-long shroud panel. The team's ingenuity allowed them to modify existing hardware instead of starting from scratch.

LERCIP College Student/Mentors Close Out the Summer

On Aug. 1, college students in the Lewis' Educational Research and Collaborative Internship Project (LERCIP) and mentors gathered at the Lewis Field picnic grounds for certificates of completion and a final networking opportunity. Glenn's Center Operations Deputy Director Mary Lester gave welcoming remarks and introduced astronaut Stephanie Wilson, the featured speaker.

Wilson shared video highlights of her last shuttle flight aboard Discovery's STS-131 mission. She discussed her role and how the spirit of cooperation that transpires across all NASA centers and partnering countries to ensure mission success continues to inspire her.

Carletta McCoy (PATL), educational programs specialist, proudly acknowledged the spirit of cooperation among the interns that helped make this a memorable event.

"Despite the challenges of limited funds available this summer for LERCIP social events, the students focused on networking," McCoy said. "They designed and sold LERCIP T-shirts and solicited donations from local vendors for the picnic, as well as choreographed the entertainment."

This culminating event was one of a series of events and workshops planned by members of the Educational Programs Office, Paragon TEC, Inc./Team Momentum and a dedicated group of mentors who worked tirelessly to ensure Glenn interns have a rewarding summer experience.

—By S. Jenise Veris



Photos by Maurice Reynolds

Above: Wilson chats with interns and autographs her lithograph. Right: Intern Ayodeji Adesida, in LERCIP T-shirt, enjoys the picnic with his mentor, Dr. Robert Okojie, Sensors and Electronics Branch.



High School Interns: Expanding Minds and Opportunities

It was a busy summer for Glenn mentors and staff of the Educational Programs Office and Paragon TEC, Inc./Team Momentum, who hosted over 130 interns, including 29 Glenn High School Internship Project (GHIP) students.

In addition to tours, workshops, special seminars and work assignments offered in a traditional internship at Lewis Field and Plum Brook Station, several high school interns explored new opportunities beyond the gates.

"This year, Glenn's High School Internship Project placed greater emphasis on partnering with local organizations to foster awareness and prepare the next generation for science, technology, engineering and math (STEM) career opportunities in greater Cleveland," said Lynne Sammon, GHIP project manager.

Two New Opportunities

In addition to offering the GHIP/Cleveland Clinic Internship, which provides STEM and medical educational experiences. Glenn, now, partners in the University Circle Inc.'s Future Connections (FC) Intern Program and a GHIP/Small Business Innovation Program (SBIR) pilot.

Throughout the summer, five GHIP students participated in the FC program, while another five interned in the SBIR pilot. The FC Intern Program provides 8-week paid internships to high school students entering their senior year from primarily Cleveland and Lorain school districts. Thirty-three



Photo by Francine McWhorter

NASA mentor Erwin Zaretsky, second from left, briefs GHIP/SBIR interns on NASA technology developed with a small, local company.

local organizations partner to provide learning experiences, in 4-week increments, promoting personal and career development.

The GHIP/SBIR pilot paired them with mentors supporting the SBIR program as technical monitors for small business development in greater Cleveland. They toured and met managers and interns from four local businesses to understand what they do, how NASA technology can improve or advance their product, and learn about STEM career opportunities.

—By S. Jenise Veris

News and Events



C-2013-3123

Photo by Bridget Caswell

Glenn Café Opens

Employees celebrated the grand opening of the Glenn Café pilot program at Lewis Field on Aug. 1. Center Director Jim Free offered welcoming remarks to employees amid a backdrop of mellow music played by the NASA Jam Band and sizzling aromas from two food trucks. Eva the inflatable astronaut stopped by to mingle with employees as they eagerly waited in line and gathered at picnic tables to enjoy the fare. Be sure to check the Glenn Café Web site, <http://www.grc.nasa.gov/WWW/glenncafe/>, for updates on food services and vendors.

Centaur Material Wanted



The Glenn History Office is interested in any Centaur or other historical Glenn material—sans copies of *The Lewis News*—that former employees may wish to donate. There will also be a room available at the Centaur 50th Anniversary Celebration, Great Lakes Science Center, Nov. 22, where former employees can have their stories permanently archived by the Glenn History Office via oral histories. Contact Anne Mills for more information, anne.mills@nasa.gov or 216-433-8715.



C&I Hosts Priceline.com Co-founder

Glenn's Creativity and Innovation Initiative (CI&I) team welcomed Jeff Hoffman, co-founder of Priceline.com, as the Innovation Forum guest lecturer, Aug. 1. Hoffman spoke to the capacity crowd on the Art and Science of Innovation. He explained how the best innovation occurs when we allow ourselves to explore our surroundings with childlike curiosity—asking “why” or “what” about items we see on a daily basis. He shared inspiring examples of how managers who encourage a free flow of ideas identify efficiencies and generate new ideas for streamlining or innovation.

Support Educational Outreach

Glenn's Educational Programs Office (EPO) hosted an Information and Recruitment Fair, Aug. 13, in the upper level of the Café. Past presenters, mentors, tutors and event staff shared their experiences about supporting educational initiatives and outreach activities. Pictured is Nola Bland, detailed to the EPO, sharing information with Dionne Hernández-Lugo, Pathways intern. Contact the EPO at 216-433-6656 to learn how you can become involved year-round and “Inspire the Future”! Federal employees and retirees are needed as tutors, visit <http://clevelandfeb.grc.nasa.gov/> for details.



Photo by Doreen B. Zudell



GO-BIKE Club Supplies Needed Bicycles

For the past several weeks, the GRC GO-BIKE club has been involved in a public service project to collect unused/unwanted bicycles for refugees the United Nations, in association with Catholic Charities and Building Hope in the City, bring to resettle in the greater Cleveland area. They use the bicycles as a cost-saving alternative to riding the bus. Due to the generosity of Glenn employees, the club has donated 74 bikes, so far. Pictured, left to right, are a few of the GO-BIKE members, Dale Stalnaker, Dale Force, Marilyn Groff and Mark Kilkenny, with two of the bicycles to be donated. For more information about this project, visit <http://www.grc.nasa.gov/WWW/AdvisoryGroups/GO-BIKE/>.

Photo by Doreen B. Zudell

Technology on the Hill

Trudy Kortez, Space Technology Project Office, and Dr. Dave Manzella, Space Propulsion Branch, served as NASA Glenn’s technical point of contacts at the 2013 NASA Technology Day on the Hill, July 23. They briefed Congressional members, NASA managers and the public on recent developments in NASA’s Cryogenic Propellant Storage and Transfer Project and solar electric propulsion technology related to the Asteroid Redirect Robotic Mission. Other Glenn-related technology displays included: green propellant, additive manufacturing, PUMA and fuel cells. Pictured: NASA Administrator Charlie Bolden and Representative Dana Rohrabacher, vice chairman of the House Committee on Science, Space and Technology, are briefed by Manzella on Glenn solar electric propulsion work.



Credit: NASA Game Changing Technology



Photo by Marvin Smith

Next Issue: More About Australian Ambassador Visit

The Honorable Kim Christian Beazley, Australia’s Ambassador to the United States, along with various ministers and managers from the Embassy of Australia and the U.S. Air Force Office of Scientific Research, recently visited NASA Glenn. Pictured: Dr. Daniel Sutliff (facing the group) engages the guests during a tour of the Aero-Acoustic Propulsion Laboratory. Left to right: Dr. Jih-Fen Lei, Research & Technology director; Dr. Torgny Josefsson, Embassy of Australia; Dr. Ali Sayir, U.S. Air Force; the Ambassador and his wife Ms. Suzanna Annus; and Center Director Free. Look for more information about the Ambassador’s visit in the October issue.

Correct Hand Washing Combats Germs

Good hand washing is the first line of defense against the spread of many illnesses, from the common cold to more serious illnesses such as meningitis, bronchiolitis, influenza, hepatitis A and most types of infectious diarrhea.

“Germs can be transmitted in many ways throughout the course of a day, so thorough hand washing practices are essential to combatting germs that can cause illness,” explained Burt Stover, nurse coordinator in Glenn’s Occupational Health Clinic/FOH.

When should you wash your hands? Stover recommends washing anytime you touch a surface that might be contaminated. In particular good hand washing is important before and after preparing as well as eating food, when caring for someone who is sick, and after using the rest room or when changing diapers. Always remember to wash your hands or use hand sanitizer after blowing your nose or coughing. And, a thorough hand washing is essential after touching, feeding or cleaning up after the family pet.

Over the coming months, the Occupational Health Clinic staff will promote the value of hand washing and general wellness practices throughout the center in addition to dispensing seasonal flu shots. When you meet them, be sure to ask your health-related questions.



—By Doreen B. Zudell

Hand Washing Essentials

- Use soap and water to wash hands whenever possible (antibacterial or regular soap)
- Rub hands together to make a good lather and scrub them well. Clean in between fingers and top of hand
- Wash hands for at least 20 seconds (sing the “Happy Birthday” song twice)
- Rinse the back of hands well to remove soap that can cause dry, cracked skin
- Dry hands using a clean towel or air dryer
- Assist children in washing their hands
- Carry a portable hand sanitizer (containing 60 percent alcohol) in your purse or car if soap and water are not accessible.

Awards and Honors



Dr. Meador

The American Chemical Society (ACS) has elected Dr. MaryAnn Meador, Durability and Protective Coatings Branch, to the rank of fellow. Meador is recognized for technical contributions to the understanding of cure and degradation mechanisms in high-temperature polymers; and the invention of polymer silica hybrid aerogels and polymer aerogels for use in aerospace applications; as well as contributions to the society serving as counselor and associate editor of the peer reviewed journal, *ACS Applied Materials and Interface*.

The American Chemical Society (ACS) has elected Dr. MaryAnn Meador, Durability and Protective Coatings Branch, to the rank of fellow. Meador is recognized

“Men in Blue,” an image taken at NASA Glenn’s first Web Social celebrating the 50th anniversary of John Glenn’s orbital flight of Friendship 7, earned an Award of Excellence by the APEX 2013 Communications Concepts group. The photographer, Gary Nolan, WYLE/ Imaging Technology Center, supported the Social led by Glenn’s Web Portal team of Kathy Zona, Nancy Kilkenny (SGT) and Kelly Heidman (WYLE). This image and others from the event, are available at http://www.nasa.gov/centers/glenn/multimedia/imagegallery/if_82_bluemen.html.



C-2012-1377

Photo by Gary Nolan

Pictured, left to right, former astronaut Steve Lindsey with three of John Glenn’s fellow Ohio astronauts Greg Johnson, Mike Foreman and Mike Good.

Welcome to the NASA Family



C-2013-2618

Photos by Bridget Caswell

Left to right: Piasecki, Green, Smith, Hau and Roberts.



C-2013-2774

Aretskin-Hariton, left, and Fawcett.



C-2013-2998

Schmitt, left, and O’Diam.

The center welcomed the following Pathway Interns and new employees who reported for duty/orientation during the month of July: Eliot Aretskin-Hariton, Controls and Dynamics Branch; Carrie Green and Matthew Smith, Reliability and System Safety Engineering Branch; Michael Fawcett, Exploration Systems Project Office; Yu Hin Hau, Energy Systems Branch; Tyler O’Diam, Wind Tunnel and Propulsion Test Branch; Marie Piasecki, Antenna and Optical Systems Branch; Anthony Roberts, Aerospace Communications Systems Branch; and Michael Schmitt, Durability and Protective Coatings Branch.

In Appreciation

My family and I would like to thank my Glenn co-workers and friends who provided support, prayers and expressions of sympathy on the recent loss of my dad. Your heartfelt sentiments provided comfort to us all during this sad time.

—Debbie Findley and Family

I wanted to take a moment to thank everyone who supported me during my recent illness. I was overwhelmed with the love and support I received during this very trying time in my life. To everyone who donated leave to me—I don’t know how to thank you enough for your generosity. The prayers, cards, donations, meals for my family and other support were such a blessing during this time. I appreciate you all from the core of my being and I am eternally grateful.

—Marie Krejci (Borowski)

Vincent J. DiPiazza, 92, who retired with 40 years of federal service, died March 17. He was a Purple Heart veteran who served in the U.S. Army during WW II, and later retired from the Air Force Reserves. DiPiazza repaired research instruments and performed complex strain gage applications for specialized cryogenic and high-temperature applications as a NASA technician supporting the Technical Services Section of the Fabrication Division.



Dunn

James H. Dunn, 91, who retired in 1982 with 33 years of federal service, died May 24. Dunn was a U.S. Navy veteran of WW II, who retired from NASA's Planning Analysis and Systems Office, Energy Directorate, after 30 years of service. He was a mechanical engineer who performed tests and analysis on turbocompressor equipment and authored/co-authored numerous technical reports about developing power for manned space flight, particularly the Brayton Power System.

Joseph R. Kubancik, 92, who retired in 1984 with 26 years of NASA service, died April 2. Kubancik was a technician who retired from the Launch Vehicles Section. Kubancik was a dedicated

employee and determined part-time student, who earned a bachelor's degree from John Carroll University (1971), in an unrelated field 20 years into his career. His brother, Frank, a NASA retiree, preceded him in death, March 2011.

Previte Remembered as a Creative, Fun-loving Colleague

Matthew A. Previte, 54, a senior designer at ZINT Technologies Inc. (ZINT), died suddenly, July 18. Previte worked in the aerospace industry over 27 years, including 14 years at ZINT supporting NASA Glenn space flight experiments.

Previte was the lead designer of several active NASA Glenn experiments, including the Observation and Analysis of Smectic Islands in Space Experiment, Coarsening in Solid Liquid Mixtures, Space Acceleration Measurement System, Binary Colloidal Alloy Test and the Preliminary Advanced Colloids Experiment.

"As lead of the design group at ZINT, Matt refined standards and initiated improvements to the products employing his characteristically 'out-of-the-box' vision for which he received several awards," said Jim Bruewer, ZINT vice president of Engineering. "He was a great friend, colleague and mentor who will be sorely missed."



Previte

Dr. Robert L. Thompson, 75, who retired in 1994 with 35 years of federal service, died May 4. Thompson was a U.S. Army veteran, who retired from NASA as a manager in Glenn's Space Experiments Division. During his

33-year career at NASA, Thompson earned two advanced degrees and became a senior research scientist focused on structural analysis. He was program manager for the Combustor Liner Test Facility used to predict gas turbine engine liners stress and strain.



Dr. Thompson

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Calendar

IFPTE LOCAL 28, LESA MEETING: LESA will host its next membership meeting on Wednesday, Sept. 11, noon, Employee Center's Small Dining Room.

GRC CONNECTIONS FORUM: The next forum is Thursday, Sept. 19, from 10 to 10:45 a.m. in the Briefing Center Auditorium.

LUNCH WITH THE DIRECTOR OF: The next Lunch with the Director Of will be Wednesday, Sept. 25, noon to 1 p.m., Small Dining Room, building 15.

POW/MIA EVENT: Glenn's Veteran's Awareness Committee will hold a POW/MIA observance event, Friday,

Sept. 20 at 1 p.m. in the Ad Bldg. Auditorium. Dr. Stephen P. Johnson, historian with the Defense POW/Missing Personnel Office, is the featured speaker.

SEPTEMBER PUBLIC TOUR: The next Saturday tour, Oct. 4, will highlight the Telescience Support Center, where engineers provide operations support for space experiments on the International Space Station. Space is limited and reservations are required. To register, call 216-433-9653 or send an e-mail to sheila.d.reese@nasa.gov. For more information, visit <http://www.nasa.gov/centers/glenn/events/tours.html>.



Exchange Online Gift Shop
www.nasagiftshop.com

HISPANIC HERITAGE: The Hispanic Heritage Month Observance will be held Oct. 10 at 10 a.m. in the Ad. Bldg. Auditorium. Dr. Yajaira Sierra-Sastre, Cornell University, will speak on the HI-SEAS (Hawaii's Space Exploration and Simulation) Program.

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Read *AeroSpace Frontiers* online at <http://aerospacefrontiers.nasa.gov>

Glenn, Nation Benefit From Being Recycling Savvy

New Programs Save Thousands

There are many benefits of recycling, but it takes research and ingenuity to operate an efficient and fiscally effective recycling program. So NASA Glenn's Logistics and Technical Information Division (LTID) has learned the value of being "recycling savvy."

For example, since a pound of segregated copper can generate 100 times the revenue of a pound of mixed metals, LTID recently initiated a scrap metal recycling program to offset the recycling costs of the solid waste contract.

Gail Starcher, COR of the solid waste contract, coordinated with employees at Lewis Field in buildings 49, 50, 51 and at the Plum Brook Station Shipping and Receiving facility to segregate specific types of high-value metals after it was determined that a standard "mixed metal" rate was paid for all metals recycled through the contract.

"Working with the solid waste contractor and NASA employees, we piloted a program to separate the various scrap metals (molybdenum, titanium, nickel alloys, stainless steel, copper, brass and aluminum) instead of placing them all together in one container," Starcher explained. "By separating the metals, NASA now receives the current value of each type of metal instead of the lower 'mixed metal' rate."



Photo by Doreen B. Zudell

Left to right: MacKay, Ubienski and Starcher stand by recycling containers marked to separate scrap metal.

Gregory Blank, Frank Bremenour, Michael Cawthon, Rebecca MacKay and Timothy Ubienski at Lewis Field, along with Max "Lee" Early and Catherine Jensen at Plum Brook were key in planning and implementing this pilot program, Starcher said. She estimates the program will significantly increase revenue generated from the scrap metal recycling program; consequently, greatly increasing the revenue used to offset the recycling costs of the solid waste contract.

LTID implemented another cost-savings measure when the new solid waste contract began this fiscal year. Solid waste dumpsters are now emptied three times a week instead of daily.

"As a result, the new contract was awarded with an overall savings of more than 20 percent from the previous contract, and greenhouse gas emissions are also reduced by 40 percent due to the reduced transportation activity," Starcher said.

Employees interested in participating in the scrap metal segregation program, or other recycling and solid waste reduction efforts can contact Starcher at 216-433-3644.

Visit the new Waste Management/Recycling Services web page at <http://ltid.grc.nasa.gov/>.

—By Sandy Valenti and Doreen B. Zudell