National Aeronautics and Space Administration

AEROSPACE Frontiers

VOLUME 15 ISSUE 10 OCTOBER/NOVEMBER 2013

The government shutdown affected publication of the October *AeroSpace Frontiers*. See page 2 for details.

New Home for Shipping and Receiving Services

NASA Glenn's new Shipping and Receiving Facility, or SaRF, will become fully operational Nov. 25. This is the final of three planned phases to Lewis Fields' main gate security enhancement effort in accordance with the Facility Master Plan.

The 12,700-square-foot building facilitates the receiving, documenting, screening and distributing of materials and equipment throughout Lewis Field, as well as the inspecting and sorting of incoming mail. The new SaRF is located in the front perimeter of the campus and outside the main gate. This allows for a significant reduction in truck traffic through the campus and improved traffic patterns at the main gate for all vehicles entering and exiting Lewis Field. To gain access to the facility, employees follow the Truck Inspection loop off NASA Parkway to the parking lot entrance where they will need to scan their badges.

SaRF is located in the front perimeter of the Lewis Field campus and outside the main gate.

C-2013-3100 Photo by Bridget Caswell

"I'm excited about the opening of SaRF, as many individuals have worked very hard to design and construct this premier facility," said Glenn Transportation Officer and Mail Manager Dr. Antoine Moss, Logistics and Technical Information Division

Continued on page 2

Glenn Celebrates NASA Agency Honor and Center Awards

NASA Glenn employees received 70 Honor Awards, 28 Agency Awards and 28 Center Awards. See page 6 for a listing of honorees.

C-2013-4066 Photo by Bridget Caswell

In This Issue

Australian Ambassador to U.S. Visits Center

On Aug. 27, Center Director Jim Free welcomed Australian Ambassador to the U.S., the Honorable Kim Beazley, his wife Susanna Annus, members of the Australian embassy and representatives of the U.S. Air Force Office of Scientific Research (AFOSR) for a full day of activities at Lewis Field and Plum Brook Station. The visit was designed to provide a general understanding of Glenn's technical capabilities and to identify opportunities for research collaboration.

The Ambassador's visit came on the heels of recent activities, involving Dr. Jih-Fen Lei, Dr. Michael Meador and Dr. Felix Miranda, to establish basic research collaborations related to Glenn nano-fabrication technologies in advanced materials, sensors, electronics and communication devices with Australian universities, the Commonwealth Scientific and Industrial Research Organization, the Australian National Fabrication Facility and the AFOSR.

Dr. MaryAnn Meador demonstrates polymers fabricated in her laboratory for the Ambassador (foreground), other guests and Glenn senior managers.

Following a center overview and introductions to senior staff, the Ambassador and other special guests toured eight of Glenn's world-class facilities determined to offer the greatest potential for collaboration.

To date, Australia's most notable collaboration with NASA has been hosting one of the agency's three Deep Space Network stations: the Canberra Deep Space Communication Complex at Tidbinbilla, Australian Capital Territory. NASA and partners in the High Ice Water Content project, including Australia's Bureau of Meteorology, will participate in a flight campaign at Darwin, Australia in the Jan.–March 2014 timeframe to characterize atmospheric conditions related to aircraft engine icing.

By S. Jenise Veris

SaRF

Continued from page 1

(LTID). "Our LTID personnel look forward to continuing to provide the Glenn community excellent institutional support and services through SaRF."

The building incorporates sustainability design strategies as well as energy conservation and reduction principles to achieve a Leadership in Energy and Environmental Design (LEED) Gold Certification for New Construction from the U.S. Green Building Council. This effort encompasses the integration of civil, architectural, structural, mechanical, plumbing, fire protection, electrical, security access and data and communication systems disciplines.

By Jeff Schultz & Doreen B. Zudell

Services to Relocate From Building 21 to SaRF, Building 152:

Shipping
Receiving
Transportation Dispatch
Mail Center
Supply Management

Hours of Operation (Beginning Nov. 25):
Monday through Friday, 7 a.m. to 4:30 p.m.

Presenting....

Special Combined AeroSpace Frontiers

Did you miss reading your *AeroSpace Frontiers* in October?

Due to the government shutdown, the NASA Glenn *AeroSpace Frontiers* staff was unable to publish the October 11 issue. To make sure our readers didn't miss a beat, we combined the October and November issues into one exciting 16-page publication.

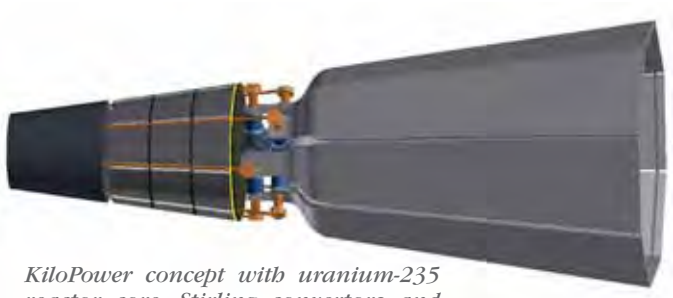
We hope you enjoy reading this special October–November edition.

Kelly R. DiFrancesco
Doreen B. Zudell
S. Jenise Veris

NASA Glenn Earns Two R&D 100 Awards!

Center's Total R&D Awards Rises to 116

NASA Glenn researchers who teamed with industry in developing two technologies are being recognized among the nation's 100 most important technological innovations at this year's *R&D 100* Awards Ceremony, Nov. 7, in Orlando, Fla.



KiloPower concept with uranium-235 reactor core, Stirling convertors and radiators.

Courtesy of NASA

The end of the Cold War resulted in a shortage of plutonium-238, previously used in radioisotope thermoelectric generators (RTGs) that powered numerous space probes like the Curiosity rover on Mars, the Cassini-Hyugens to Saturn and Galileo and Pioneer-10/11 to explore Jupiter and other planets in our solar system. However, the collaboration of NASA Glenn and National Security Technologies led by Los Alamos National Laboratory has developed an alternative type of space nuclear power system. Known as **KiloPower**, it uses plentiful uranium-235 as the heat source, along with a cluster of small Stirling power convertors capable of generating 500 to 1,500 watts of electricity for extended space missions.

Courtesy of Harris Corp.

The Ka-Band SDR before installation of the SCaN testbed.

The NASA/Harris Corporation's **Ka-Band Software-Defined Radio** (SDR) was chosen for being the first, fully reprogrammable space-qualified SDR operating in the Ka-band frequency range via NASA's Space Communications and Navigation (SCaN) Testbed aboard the International Space Station. Providing higher data communication rates than previously possible, this space SDR offers in-orbit reconfiguration, multi-waveform operation and fast deployment through modular hardware and software. It also offers potential for development cost, risk and scheduling reductions.

The names and photos of the NASA employees who contributed to these award-winning technologies can be found in the NASA Honor Awards section on page 11. Additional information on these technologies and other 2013 *R&D 100* winners is available on the *R&D* website: http://www.rdmag.com/award-winners/2013/07/2013-r-d-100-award-winners. Glenn researchers seeking information on submissions for future nominations should contact Kim Dalgleish, Innovation Projects Office, 216-433-8047.

Stirling Research Lab Reaches Operation Milestone

On Aug. 25, NASA Glenn's Stirling Research Laboratory (SRL) surpassed 600,000 hours of cumulative convertor operations. This helps advance state-of-the-art free-piston Stirling energy conversion systems for aerospace and nonaerospace applications. These systems can be used for spacecraft exploration over long mission durations, where solar power is not feasible.

The SRL has 14 test stations permitting 24/7 operation of up to 28 convertors for performance verification testing of components and systems to validate design methods and analytical predictions. Members of the Thermal Energy Conversion Branch have been testing two models of free-piston Stirling convertors: the 55 W Technology Demonstration Convertor (TDC), manufactured by Infinia Corp., Kennewick, Wash., and the 80 W Advanced Stirling Convertor (ASC), manufactured by Sunpower, Inc., Athens, Ohio.

Stirling Research Lab personnel, left to right, Wayne Wong, Scott Wilson (seated), James Withrow, and Salvatore Oriti discuss ASC-E3 test results.

The longest operating convertor has been running for over 78,000 hours, compared to the typical automobile engine that accumulates about 3,000 hours of operation. Cumulative testing of the convertors began in 2001 with the TDCs, then the ASCs in 2007, followed by the latest model, ASC-E3, in January 2013.

The ASC extended operation test data supports life certification for the Advanced Stirling Radioisotope Generator project, which hopes to develop a flight system to support NASA science missions before the end of the decade.

A 50-Year Anniversary

Centaur Rocket:

(Photo left) The Centaur upper stage rocket being readied for testing in the B-2 Facility. (Above) Summer interns at Plum Brook Station work on Centaur's RL-10 engines.

Interns Refurbish Centaur Hardware

Two LERCIP students assigned to Plum Brook Station this summer worked on restoring the RL-10 rocket engines used on the Centaur display.

With the aid of historical manuals, drawings and NASA mentors, Daniel Meter, majoring in aerospace engineering at The Ohio State University, and David Carson, majoring in civil engineering at Tuffs University, replaced valves and piping on the display's upper stage engines.

Not a bad way to craft their engineering skills!

Centaur has enormous historical significance to Lewis/Glenn and the U.S. space program—

- The workhorse upper stage for NASA's most ambitious exploration missions
- The first application of liquid hydrogen as a rocket fuel (RL-10 engine)
- The main career experience for many Lewis/Glenn employees and center leaders

The Exchange Store is offering special Centaur-themed shirts. To shop online, visit www.nasagiftshop.com.

America's Workhorse in Space

Nov. 27 marks the 50th Anniversary of the first successful launch of NASA Lewis/Glenn-managed Centaur upper stage rocket.

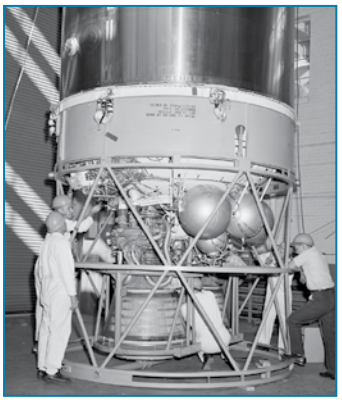
Centaur was the world's first high-energy upper stage to burn liquid hydrogen (LH_2) and liquid oxygen (LOX). Lewis' development of liquid hydrogen in the 1950s and early 1960s paved the way for the propellant's use on not only the Atlas-Centaur, but also the upper stages of Saturn rocket and the space shuttle main engine.

NASA Glenn was assigned responsibility for the Centaur Program in October 1962. Glenn engineers put the vehicle through a rigorous 2-year test and evaluation program which resulted in the successful Surveyor missions to the moon in the mid-1960s. Centaur, known as America›s Workhorse in Space, has been used to boost scores of satellites into orbit, propel the first U.S. spacecraft to the moon, and send spacecraft to every corner of the universe. Fifty years after its first successful launch, the Centaur stage continues to reliably launch a variety of payloads into space.

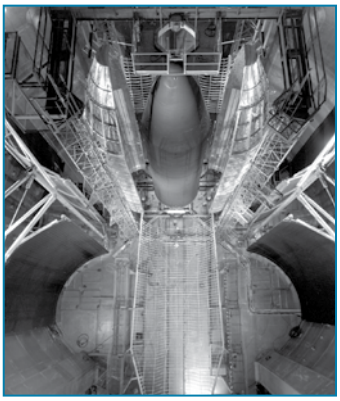
For more than 20 years, NASA Glenn was responsible for Centaur's launch schedule, trajectories, payload integration, and coordination with other NASA centers, customers, and vehicle and engine manufacturers General Dynamics and Pratt & Whitney, respectively. During that period the Centaur vehicle continued to evolve, including its pairing with the Titan IV booster for the Viking and Voyager launches in the mid-1970s. In the early 1980s, Centaur was reconfigured to fit into the space shuttle's payload bay, but the program was cancelled in the wake of the Challenger incident. Shortly thereafter, NASA decided to relinquish control of its launch services to private industry. Glenn, however, continued to oversee Centaur launches, which carried government payloads until the Cassini mission in 1997.

Although its name is not used in the commercial Atlas or Titan families of launch vehicles, the Centaur continues to serve as America's most powerful upper stage for these rockets. In 2011, an Atlas-5 with a Centaur upper stage sent the Curiosity rover to Mars.

To learn more about Centaur, visit these sites:
http://www.nasa.gov/centers/glenn/about/history/centaur.html
http://www.nasa.gov/centers/glenn/about/history/centaur_anniv.html
Taming Liquid Hydrogen: The Centaur Upper Stage Rocket, 1958-2002: http://history.nasa.gov/SP-4230.pdf.


C-1963-66502


C-1962-66160


C-1973-3949


AC2-302

Join the Community Celebration!

Mark your calendar for Friday, Nov. 22, to gather at the Great Lakes Science Center (GLSC) in Cleveland to celebrate the 50th Anniversary of the first successful launch of the Centaur rocket, America's workhorse in space!

Come learn about Centaur's rich history, including NASA Glenn's role in perfecting its performance and using it for more than 100 launches, from an impressive line up of guests—such as former NASA Glenn center directors, Larry Ross and Andrew Stofan, as well as industry representatives. NASA Associate Administrator Robert Lightfoot will share highlights of NASA's future in space exploration. Center Director Jim Free will provide opening remarks.

Special Centaur Anniversary Program
Space Saturday, Nov. 23
10 a.m. to 5 p.m.
Great Lakes Science Center

All festivities will be inside the NASA Visitor Center at the GLSC. Doors open at 5:30 p.m. for the reception, when guests will have an opportunity to mingle and explore the NASA galleries. Dinner begins at 6:30 p.m. For more information on the event, registration and ticket purchasing, please visit www.oai.org/Centaur50th.

(Photos right, top to bottom) Centaur 6A being prepared for testing at Lewis; Atlas-Centaur vent test in 10- by 10-Foot Supersonic Wind Tunnel; Centaur Standard Shroud in Space Power Facility; Atlas-Centaur-2, the first launch on Nov. 27, 1963.

HONOR AWARDS

On Wednesday, Sept. 11, Scott Altman, former NASA astronaut and vice president of ASRC Federal Space and Defense (pictured with the 3rd Battalion, 25th Marine honor guard), addressed the honorees and joined Center Director Jim Free in presenting the agency and center awards.

OUTSTANDING LEADERSHIP MEDAL

Ruben Del Rosario
For sustained leadership and exceptionally high-impact achievements in the development strategy to NASA research projects for commercial subsonic transport technologies.

Linda D. Dukes-Campbell
For exceptional leadership of dynamic media and outreach teams at the NASA Glenn Research Center. Her 22-year legacy remains a benchmark for NASA media managers to emulate.

Carol A. Ginty
For outstanding leadership of significant Agency projects including Space Environmental Test, Commercial Space, and Cryogenic Propellant Storage and Transfer.

Julie A. Grantier
For exceptional and sustained leadership while serving as the technical lead for the European Space Agency Service Module team.

Glen M. Horvat
For exceptional and sustained leadership while serving as the GRC Senior Spaceflight Chief Engineer.

Mark W. Manthey
For outstanding and sustained leadership in the Procurement Division, resulting in significant improvements in contractual products and services to the Glenn Research Center.

Laura A. Maynard-Nelson
For outstanding leadership in the advancement of the software engineering discipline to meet NASA's missions and goals.

Carolyn R. Mercer
For exemplary service as the Space Power Systems Project Manager, Human Spaceflight Architecture Technology Team member, and SBIR Space Power Subtopic Lead.

Steven R. Oleson
For sustained outstanding leadership of the Collaborative Modeling for Parametric Assessment of Space Systems Team in developing innovative conceptual spacecraft designs.

David J. Steigman
For exceptional leadership and innovation in effectively managing resources and services critical to achieving Agency objectives and program milestones.

James J. Zakrajsek
For exceptional leadership in promoting a creativity and innovation culture at Glenn Research Center, managing people, and leading the Source Evaluation Board.

OUTSTANDING PUBLIC LEADERSHIP MEDAL

Brian W. Rice
For outstanding leadership in support of the test facilities and operations at NASA Glenn Research Center's Lewis Field and Plum Brook Station.

EXCEPTIONAL SERVICE MEDAL

Jeffrey S. Balser
For sustained outstanding service in advanced aircraft technology development through NASA research programs and collaboration with other government organizations.

Robert M. Button
For exceptional service as an Electrical Engineer working to meet NASA's mission requirements and goals.

Frederick W. Elliott
For sustained exceptional service on the Space Environmental Test project, Cryogenic Propellant Storage and Transfer project, and the Multi-Purpose Crew Vehicle program.

Patrick A. Iler*
For exceptional service in managing initiatives that provide transparency to external stakeholders and advance the reputation of the Agency, thereby serving the NASA mission.

Eric S. Neumann
For exceptional technical leadership and service in the management and operation of microgravity test facilities in support of NASA missions.

*Photo unavailable.

Kenneth M. O'Connor

For exceptional service in leading the Mishap Investigation Support Office, and the NASA Safety Center, and for invaluable contributions to the Safety and Mission Assurance community.

Calvin T. Ramos*
For exceptional technical excellence and service in supporting the Aerospace Communications Competency workforce, projects, and missions at NASA Glenn and the Agency.

Andrew L. Reehorst

For sustained contributions and impact for improving aviation safety in the field of in-flight icing.

William R. Schoren

For dedication and technical excellence in implementing system safety processes to ensure human safety, asset integrity, and mission success for NASA programs and projects.

EXCEPTIONAL PUBLIC SERVICE MEDAL

Robert S. Arrighi

For exceptional achievement in documenting, preserving, and promoting the rich history of NASA, its mission, and its valuable historical cultural resources.

E. Allen Arrington

For exceptional technical contributions to the Nation's wind tunnel testing community.

EXCEPTIONAL ACHIEVEMENT MEDAL

Brett A. Bednarcyk

For exceptional contributions to the state of the art of efficient multiscale analysis of advanced composite materials and structures.

Konstantinos S. Martzaklis*
For outstanding leadership in developing and delivering a comprehensive Strategic Action Plan for the Glenn Research Center.

Claudia M. Meyer*
For exceptional achievement in formulating and executing the NASA Space Technology Research Grants Program and developing the next generation of space technologists.

Linda J. Moore

For the exceptional achievement of developing Agency-wide guidance for the development of programmable logic devices and complex electronics.

David S. Morgan*
For exceptional achievement, dedication, and technical excellence in establishing nondestructive evaluation techniques and solutions for heater heads on the Advanced Stirling Radioisotope Generator Project.

Vincent E. Satterwhite

For exceptional achievement in the advocacy, development, and leadership provided to the technician apprenticeship program.

Kathleen E. Schubert*
For exceptional leadership resulting in a European-Space-Agency- (ESA-) provided Multi-Purpose Crew Vehicle Service Module implementing arrangement and successful completion of the ESA Service Module System Requirements Review and Systems Definition Review.

Robert J. Shaw

For the exceptionally successful promotion of the applicability of NASA's technology to critical sectors of our Nation's economy.

Del R. Simonovich

For outstanding leadership and innovation managing several complex, multiphase security projects and enhancements, which have elevated the Center's security posture.

Rodney L. Spence

For outstanding support to the Space Communications and Navigation program for interference analysis to assess potential impacts to NASA from proposed Nation-wide commercial broadband deployments.

Bryan W. Welch*
For outstanding leadership and contributions to the Communications System Engineering and Antenna Pointing System efforts of the Space Communications and Navigation Testbed.

James P. Withrow

For outstanding achievement to integrate and manage NASA's support to complete and verify the design of the Advanced Stirling Radioisotope Generator.

EXCEPTIONAL PUBLIC ACHIEVEMENT MEDAL

James D. May

In recognition of outstanding contributions in advancing the effectiveness and impact of technical excellence for NASA Safety and Mission Assurance.

Vedha Nayagam

For exceptional achievements in droplet combustion phenomena and in reacting systems in reduced gravity for advanced life-support systems.

Dawn M. Vincej

For exceptional commitment to NASA's Information Technology community on multiple projects and initiatives.

EXCEPTIONAL ENGINEERING ACHIEVEMENT MEDAL

Patrick H. Dunlap

For exceptional engineering achievement in developing and demonstrating advanced environmental seal design for the International Low Impact Docking System.

**Photo unavailable.*

EXCEPTIONAL SCIENTIFIC ACHIEVEMENT MEDAL

Rebecca A. MacKay
For pioneering insights into single-crystal nickel-base superalloy behavior, leading to the development of new turbine blade alloys.

James L. Smialek
For advancing the understanding of failure mechanisms for thermal barrier coatings on turbine blades to enable more durable turbine blade coatings.

EXCEPTIONAL TECHNOLOGY ACHIEVEMENT MEDAL

Colin S. Bidwell
For sustained leadership and successful development of the LEWICE3D Computational Fluid Dynamics code and technology transfer to external organizations.

Paul S. Greenberg
For exceptional and innovative technology achievements and technology transfer in aerosol sensors and microgravity diagnostics and their profound impact on human exploration.

Robert A. Miller
For contributions to development of erosion-resistant thermal barrier coatings and methods to demonstrate their durability in laboratory-simulated turbine engine environments.

EXCEPTIONAL ADMINISTRATIVE ACHIEVEMENT MEDAL

Helen J. Kabak*
For continuous and substantial improvements to the Center Operations Directorate administrative procedures, thereby enabling senior leaders to excel in meeting NASA's mission.

Lynne M. Wiersma
For exceptional leadership and administrative services to the Glenn Research Center.

EARLY CAREER ACHIEVEMENT MEDAL

Adam E. Bihary
In recognition of significant facilities project management and engineering contributions to fulfill the mission of the Glenn Research Center.

Brent G. Gardner
For the development of systems, controls, and components for the next generation of aerospace power systems necessary to meet NASA's mission.

Daniel A. Herman
For outstanding early career performance and leadership in electric propulsion and strategic development and planning for NASA's Solar Electric Propulsion Technology Demonstration Mission.

Heather K. Hickman
For exceptional contributions in the area of in-space propulsion on highly visible NASA programs.

John E. Hild
For outstanding achievement developing innovative security design improvements resulting in more efficient operations and significant cost savings for 22 construction projects.

Ra-Deon L. Kirkland
For outstanding professional and personal achievements in contract support to NASA and GRC projects and programs.

Ashley G. Murry
For developing innovative improvements to capital asset business processes and contributing to improvements in NASA's accounting and financial analysis practices.

William D. Peters
For exceptional dedication and technical excellence in providing materials, processes, and risk management to the G-6 Flywheel and Flow Boiling and Condensation Experiments.

Vikram Shyam
For significant achievement and team leadership in the development of turbine heat transfer and Computational Fluid Dynamics technology.

GROUP ACHIEVEMENT AWARDS

Buildings 500 and 501 Clean-up Team
For exceptional efforts in executing and expediting all actions associated with the closure and transfer of Buildings 500 and 501.

Crew Module Pallet Vibration Test Team
For outstanding achievement in successfully conducting the Multi-Purpose Crew Vehicle, Crew Service Module Project, and Crew Module Pallet Vibration Test.

Cryogenic Fluid Management Technology Maturation Team
For exceptional achievement in successfully maturing cryogenic fluid management technology for use on future Agency missions involving cryogenic propulsion stages.

Curiosity Education and Outreach Team
For exceptional development and execution of the Glenn Research Center Curiosity Education and Outreach Plan, which informed and engaged the public about the August 2012 Mars landing and mission.

Glenn Creativity & Innovation Team
For outstanding effort in promoting, organizing, and implementing a multifaceted initiative to enhance creativity and innovation culture within the Glenn Research Center.

*Photo unavailable.

GRC COMPASS Concurrent Engineering Design Team
For creating a Glenn Research Center capability of advanced space systems concept design, assessing space technology utilization, and integrated vehicle analysis for challenging NASA missions.

John Glenn's 50th Anniversary Planning Team
For outstanding planning and coordination of a historic event celebrating the 50th anniversary of John Glenn's orbital flight.

Mobile Cooling Tower Project Team
For the efforts of the Mobile Cooling Tower Project Team resulting in a significant reduction in water use and substantial avoidance of cost.

Multi-Purpose Crew Vehicle Service Module Implementing Agreement Team
For outstanding efforts which led to the establishment of the NASA-European Space Agency implementing arrangement for the Multi-Purpose Crew Vehicle Service Module.

NASA Glenn Special Journal Issue Team
For outstanding efforts in the publishing of a special issue of the Journal of Aerospace Engineering honoring the 70 years of research and technology at Glenn Research Center.

NASA Twin-Otter Airborne Sensor Development Team
In recognition of outstanding achievement conducting the modification and deployment of the NASA Twin-Otter aircraft, advancing airborne science capabilities within the Agency.

Occupational Health Service Provider Research Team
For exceptional achievement in formulating and implementing an alternative and cost-effective approach for delivering quality medical services and wellness programs to GRC.

SEPP Process Improvement Team
For the Science and Engineering Promotion Process Team's efforts in significantly improving the process for Dual Career Ladder promotions of Glenn Research Center scientists and engineers.

Space Technology Research Grants Group
For exceptional success in stimulating innovation and accelerating the development of promising technologies through novel research fellowships and early career opportunities.

Travel Request/Purchase Requisition Consolidation Team
For outstanding contributions to Center efficiency in consolidating Travel Request and Purchase Requisition business practices into a single business unit.

PRESIDENTIAL RANK AWARD
The President of the United States of America has conferred upon

Rickey J. Shyne
the rank of Meritorious Executive in the Senior Executive Service for sustained superior accomplishment in management of programs of the United States Government and for noteworthy achievement of quality and efficiency in the public service.

The President of the United States of America has conferred upon

Isaiah M. Blankson
the rank of Distinguished Senior Professional for sustained extraordinary accomplishment in the conduct of programs of the United States Government and for professionalism exemplifying the highest standards of service to the public, reflecting credit on the career civil service.

LENGTH OF SERVICE AWARDS
FORTY-YEAR SERVICE AWARD
Michael T. Chornak
Space Power and Propulsion, Communication and Instrumentation Branch

Diane L. Duly
Office of the Chief of Staff

Terrence B. Flowers*
Data Systems Branch

Mark E. Kilkenny
Strategic Integration and Project Control

Peter F. Klein*
Space Combustion and Materials Branch

Michael A. Micham
Operations Management Branch

Robert H. Pelaez
Space Combustion and Materials Branch

George W. Readus*
Space Power and Propulsion, Communication and Instrumentation Branch

Donald J. Sawyer*
Contract Analysis Branch

Lynne M. Wiersma
Office of the Director

FORTY-FIVE-YEAR SERVICE AWARD
James A. DiCarlo
Structures and Materials Division

Fred J. Kohl
ISS and Human Health Office

Mack G. Thomas
Community and Media Relations Office

FIFTY-YEAR SERVICE AWARD
John P. Gyekenyesi*
Mechanics and Life Predictions Branch

Albert J. Juhasz
Thermal Energy Conversion Branch

Peter M. Sockol
Combustion Branch


Chornak


Duly


Kilkenny

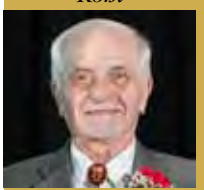

Micham

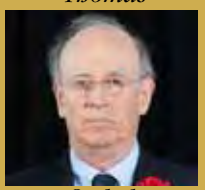

Pelaez


DiCarlo


Kohl


Thomas


Juhasz


Sockol


Wintucky

SERVICE AWARDS

*Photo unavailable.

HONOR AWARDS

Edwin G. Wintucky
Electron and Opto-Electronics Branch

SIXTY-YEAR SERVICE AWARD

Earl R. Hanes*
Ceramics Branch

SCIENTIFIC AND PROFESSIONAL (ST) APPOINTMENT

Christopher DellaCorte
Christopher DellaCorte was appointed to the position of Senior Technologist, Tribology and Rotating Machinery, effective November 18, 2012.

INVENTIONS AND CONTRIBUTIONS BOARD (ICB) AWARD
EXCEPTIONAL ICB AWARD

"CT-CURS: Novel Software Method for Computed Tomography Cylinder Data Unwrapping-Reslicing & Analysis, v2"
Peter J. Bonacuse*
Don J. Roth
Richard Martin*
Richard Rauser*

"Fully-Premixed Low-Emissions High-Pressure Multi-fuel Burner"
Quang-Viet Nguyen*

"Polyimide Aerogels"
Mary Ann Meador*
Haiquan N. Guo

"Polymer-Nanoparticle Composites with Improved Processability and Properties"
Sandi G. Miller

Roth

Guo

ICB AWARDS

Miller

CENTER AWARDS

FEDERAL ACQUISITION CERTIFICATION FOR PROGRAM AND PROJECT MANAGERS

Federal Acquisition Certification for Program and Project Managers
For satisfaction of NASA-Federal Acquisition Institute requirements for the Senior Expert Level. It grants membership into NASA's Professional Acquisition Community and is recognized throughout the Federal Government.
Renato O. Colantonio*
Ruben Del Rosario
Kathleen E. Schubert*

JSC CENTER DIRECTOR'S COMMENDATION AWARD

Stephanie D. Wilson
For exceptional service as the chief of the International Space Station Integration Branch in the Astronaut Office.

ABE SILVERSTEIN MEDAL

Mark G. Potapczuk
For outstanding contributions that have led to solutions toward increased aviation safety through development and distribution of icing simulation software and research in supercooled large droplet icing physics.

Daniel L. Dietrich
For novel advancements in human pulmonary function measurement and for leadership in droplet combustion and spacecraft fire safety research.

CRAFTSMANSHIP AWARD

Manufacturing Technologies

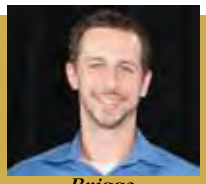
Timothy A. Dunlap
For the ingenious thermocouple solutions developed for the Flow Boiling and Condensation Experiment. The work exemplifies NASA ingenuity and provided critical input into the design.

STEVEN V. SZABO ENGINEERING EXCELLENCE AWARD

Demonstration Using Flattop Fissions Experiment Team
For achievement in demonstrating the feasibility of small space reactor power systems by successfully testing a Uranium-235 fission heat source with Stirling power conversion.

Marc A. Gibson
Maxwell H. Briggs
Lee S. Mason
James L. Sanzi

Gibson



Briggs

Mason

Sanzi

DISTINGUISHED PUBLICATION

Raymond S. Castner*
"Exhaust Nozzle Plume Effects on Sonic Boom."

DIVERSITY LEADERSHIP AWARD

Joseph W. Connolly
For strong leadership and advocacy for inclusion through mentoring and outreach to diverse communities and for encouraging interest and engagement in science, technology, engineering, and mathematics.

GRC SMALL BUSINESS TECHNICAL TEAM OF THE YEAR

For efforts to perform market research and discuss various teaming arrangements to set aside procurement to a service-disabled-veteran-owned small business.

Scott D. Haumesser*
Brian S. Huth*
Erick N. Lupson*
Reinhold (Ron) Mohr*
Teresa L. Monaco
Donald J. Ornick*
Del R. Simonovich
James S. Zakany*

**Photo unavailable.*

GRC SMALL BUSINESS PROCUREMENT PERSON OF THE YEAR

Joan V. Haug*

For diligent efforts in performing extensive market research in order to set aside numerous simplified acquisition procurements for small business.

GRC SMALL BUSINESS SPECIALIST OF THE YEAR

Teresa L. Monaco

For enthusiastic and unending support of and outreach to small businesses, enabling the Center to meet its socioeconomic goals.

GRC SMALL BUSINESS PRIME CONTRACTOR OF THE YEAR

Sunpower, Inc.

For excellent performance, cost, and schedule control in developing the Advanced Stirling Radioisotope Generator Engineering Unit and contributing to NASA's mission objectives.

GRC LARGE BUSINESS PRIME CONTRACTOR OF THE YEAR

Jacobs Technology

For success in actively partnering and subcontracting with small businesses. They meet or exceed their small business subcontracting goals, and the goals are reasonable for the type of work performed.

GRC SMALL BUSINESS SUBCONTRACTOR OF THE YEAR

Tri Models Incorporated

For excellent work in providing mechanical design and fabrication services to comply with aerodynamic and low boom design requirements.

SUPPORT ASSISTANT/CLERICAL AWARD

NASA GLENN RESEARCH CENTER

Dennie W. Gonia

In recognition of exceptional service to the NASA Safety Center.

Brian R. Shefchuk

In recognition of outstanding service to the Chief Engineer Office and the Center.

Ethel L. McLaughlin

In recognition of exceptional performance serving as Executive Support Assistant for the Research and Technology Directorate, and demonstrating outstanding initiative in all assignments.

CENTER 50th AWARDS

SGT, INC.

Patricia A. Michalski

In recognition for commitment to the success of customers, initiative to streamline processes, and the fostering of a team-oriented atmosphere within the Logistics and Technical Information Division.

Ruthann Parise

In recognition of excellent logistics and coordination skills for customers to quickly respond to mishap investigations and audits in support of the NASA Safety Center.

Andrea M. Popiel

In recognition of exceptional administrative support and acquiring subject matter knowledge and computer skills in order to assume additional responsibilities for the Thermal Energy Conversion Branch.

Citations are reproduced from the Honor Awards Program. Graphic Design by Lisa Liuzzo and photos by Marvin Smith and Bridget Caswell.

R&D 100 AWARD

"NASA/Harris Ka-Band Software-Defined Radio"

For outstanding achievement in the research and development of the first fully reprogrammable, space-qualified software-defined radio operating in the Ka-band frequency range.

Jeffery Anderson*
Joseph A. Downey
Sandra K. Johnson
Thomas J. Kacpura
Kevin Moran*
Richard C. Reinhart

"KiloPower"

For outstanding achievement in making deep-space exploration feasible again with KiloPower technology.

David Dixon*
Marc A. Gibson
James Holt*
Lee S. Mason
Patrick McClure*
David Poston*

R&D Magazine annually recognizes researchers involved in the year's 100 most impressive advances. Congratulations to this year's NASA Glenn winners. See page 3 for more in-depth coverage of Glenn's winning technologies.

Pictured left, clockwise: Joseph Downey, Richard Reinhart, Sandra Johnson and Thomas Kacpura. Pictured right: Lee Mason Marc Gibson.

*Photo unavailable.

Glenn's 2013 Combined Federal Campaign Activities Begin

C-2013-4289 Photos by Bridget Caswell

C-2013-4289

Above: Scott Sanders, Earth Day Coalition, left, presented a community award to Dr. Shyne and Free.

Two Great Causes, One Exciting Event

It was "A time for growing! A time for giving! A time for greening"! when NASA Glenn's 2013 Combined Federal Campaign (CFC) and Green Earth Committee joined forces for one exciting event, Sept. 18. Fresh air and sunshine greeted employees as they gathered on the front lawn of building 3 for the 2013 CFC Block Party and Sustainability Fair. The event showcased CFC-sponsored agencies and environmentally friendly information and products—plus classic cars, food vendors, the NASA Band, free ice cream and socializing among co-workers supporting two great causes. Center Director Jim Free, this year's North Coast CFC chairperson, and Glenn Sustainability Officer Dr. Rickey Shyne, director of the Facilities and Test Directorate, stopped by to share their support.

C-2013-4283

CFC volunteers Janice Gassaway and Mark Kilkenny dished up ice cream at the fair.

C-2013-4600 Photo by Michelle Murphy

CFC Kickoff Inspires Sharing

During the CFC Kickoff, Sept. 19, Glenn employees heard examples of how generosity makes a difference in the lives of fellow Americans. Kate Dunlap, head librarian in Glenn's Science and Engineering Library, LTID (pictured, left) gave a heartfelt testimony about her battle with cancer over the past year. She talked about how a CFC charity helped her and her family through challenging times. Steffani Baker of the Cleveland Alzheimer's Association talked about how her charity can help those impacted by this devastating disease. North Coast CFC Chairperson, Center Director Jim Free, along with Glenn's CFC Chairperson Jackie Barbetta and Co-chair Dawn Pottinger, also provided information about the campaign and upcoming events to encourage employee participation.

See page 14 for upcoming CFC activity dates.

Valuing our Veterans, POW/MIAs

More than 83,000 Americans remain unaccounted for from past wars and conflicts. During Glenn's POW/MIA Ceremony, Sept. 20, Dr. Stephen P. Johnson, a historian in the Department of Defense's (DOD) Prisoners of War/Missing Personnel Office, shared gripping examples of the dedication and coordination of DOD personnel to locate soldiers, recover the remains and return them to their families for burial. Glenn's Veterans Awareness Committee (VAC) annually sponsors this event and others—Memorial Day and Veterans Day observances—to remember the ultimate sacrifice paid by the soldiers and their families. The VAC also coordinates several luncheons throughout the year for veterans to share their experiences and receive appreciation for their service.

Photo by Marvin Smith

Above: Center Director Jim Free greets center vets and guests from the USAF Reserve at Youngstown attending the Aug. 23 luncheon. Left: Dr. Johnson speaking.

ACTS Reaches Anniversary Milestone

Eighty employees and retirees celebrated the 20th launch anniversary of the Advanced Communications Technology Satellite (ACTS), Sept. 12, at the NASA Glenn Picnic Grounds. NASA Glenn, then Lewis Research Center, managed the project.

The ACTS satellite launched in September 1993, and after a two-and-a-half month, on-orbit system checkout, the Experiments program began on Dec. 1, 1993. Experiments were continuously operated for 78 months, as the satellite supported 103 experiments and over 80 demonstrations. On May 31, 2000, the ACTS Experiments Program officially came to a close.

The 103 experiments were proposed by 61 unique principal investigator (PI) organizations. Of those experiments selected during the life of the program, 50 percent were from government organizations, 34 percent from industry and 16 percent from academia. Experiment hours on the spacecraft totaled over 74,000 throughout the whole program.

Pictured, above, left:ACTS Project Manager Dick Gedney and Senior System Engineer Tom Tanger reminisce during the anniversary picnic. Pictured, above, right: ISS and Human Health Office Chief Tom St. Onge, left, visiting with NASA retirees who returned to celebrate the ACTS milestone, former Center Director Larry Ross (center) and Joe Nieberding.

Balloon-based Mission

NASA's first balloon-based mission devoted to the study of a comet, the Balloon Rapid Response for ISON (BRRISON) project, launched from Fort Sumner, New Mexico, Sept. 28. Managed by NASA Glenn, BRRISON was a time-critical balloon mission developed and built in collaboration with the Johns Hopkins University Applied Physics Laboratory (APL) and the Southwest Research Institute (SwRI), just 1 year after discovery of the comet ISON, a rare type of comet making its first appearance in the inner solar system. BRRISON had only 1 day to observe the comet's travels and take measurements of the water and carbon dioxide content that might help unveil how the solar system was formed. Unfortunately, the payload suffered an anomaly following launch that prevented the collection of mission data. Explore the BRRISON website at http://brrison.jhuapl.edu/index.php for more details.

Glenn Supports Feds Feed Families Food Drive

Above: Several Lewis Field personnel posed with donations just before the final pickup. Left: Plum Book personnel took a break in between loading donations for drop off at the local food kitchen.

NASA Glenn joined federal agencies across the nation in the fight against hunger by participating in the 5th Annual Feds Feed Families food drive during the month of August. Lewis Field and Plum Brook Station employees donated a total of 1,628 pounds of food items that were distributed to the Cleveland Food Bank and Victory Kitchen in Sandusky. Food drive coordinators—Andrea Bonesteel (Lewis Field) and Geneva Biglin (Plum Brook)—noted that although the total weight was down from last year, the nutritional value of the food surpassed past donations.

Awards, Honors and Promotions

The Career Communications Group's *Women of Color* magazine will present a Technology Rising Star Award to Dr. Azlin Biaggi-Labiosa during the 18th Annual Woman of Color STEM Conference, Oct. 17–19. Biaggi-Labiosa, a research electronics engineer in Glenn's Sensors and Electronics Branch, is recognized for technical excellence in developing new nano-based materials for chemical sensor applications and her commitment to educational outreach.

Dr. Biaggi-Labiosa

ATC club members applaud Robinson, far right, following club competition.

Alfreda Robinson, CHI/Operations Management, moved on to the Western Division competition, Oct. 26, after winning the Humorous Speech category at the Toastmasters West Area-42 Sectional at Westlake Porter Public Library, Sept. 21. Robinson was one of two Glenn Aerospace Toastmasters Club (ATC) members who won the club's competition and the right to compete in the Sectional. William Marshall, Propulsion and Propellants Branch, won in the Table Topics/Impromptu category. The ATC is an affiliate of Toastmasters International, focused on helping members build skills needed to become effective communicators and strong leaders in the workplace and their communities. For more information on the club, visit http://aerospace.toastmastersclubs.org.

Adam Bihary has been selected project manager lead in the Facilities Division Project Management Branch, Facilities and Test Directorate. Bihary is a registered professional civil engineer, who has been involved in several high-profile projects at Lewis Field and Plum Brook Station, while also serving on selection boards and as a member of the Process Systems Safety Committee.

Bihary

Griffin

Thomas Griffin has been selected mechanical engineering technical lead for the Propulsion Systems Laboratory in the Wind Tunnel and Propulsion Test Branch, Testing Division. Griffin has gained extensive technical knowledge and experience serving NASA Glenn as a test engineer for the past 26 years, including 22 working for the U.S. Army Research Laboratory, Vehicle Technology Directorate.

Mark your calendar!

CFC Events Rescheduled

Now is the time to participate in the 2013 Combined Federal Campaign (CFC) events.

CFC Pacesetter Campaign
Extended through Friday
There is still time to become a CFC Pacesetter! The CFC Pacesetter Campaign has been extended to Nov. 8. You can donate via Employee Express, pledge card or anonymously. Be a leader, donate today!

CFC Chili Cook-Off
November 12
Administration Bldg. Auditorium

CFC Basket Raffle
November 22
Location to be determined

In Appreciation

I want to thank everybody for the good wishes, beautiful gifts, cake, flowers and patriotic banners in celebration of my retirement in May. Jacky and Nancy, you made my day so beautiful! Although I have many projects I am working on in retirement, it will take some time for me to disconnect from NASA—the best place to work. I think of it every day and thank God to have been working there. I miss the mechanical design group and all my friends at NASA.

—Elena Ispas

Welcome to the NASA Family

Glenn was two for two the past two months! Two Pathfinder interns joined the NASA family in August: Dionne Hernández-Lugo, Electrochemistry Branch; and Jeremiah O'Callahan, Procurement Division. In September, two more employees came aboard: Daniel Dessauer, an intern in the Center Operations Directorate, and Jordan Wiker, a full-time civil servant in the Quality Engineering and Assurance Branch.

Hernández-Lugo

O'Callahan

Dessauer and Wiker

A Nation Mourns—Mercury 7 Astronaut Scott Carpenter

Carpenter

M. Scott Carpenter, 88, one of the original seven Mercury astronauts, died Oct. 10, 2013. Carpenter was the only American who served as both an astronaut and an aquanaut.

Carpenter was a U.S. Navy test pilot and veteran of the Korean War, prior to selection as an astronaut in 1959. He was backup pilot to John H. Glenn, the first American to orbit the Earth, Feb. 20, 1962, and became the second American to orbit the Earth, 2 months later on May 24, 1962. After his spaceflights, Carpenter helped design the Apollo Lunar Landing Module and served as liaison with the Navy for underwater (neutral buoyancy) crew training for spacewalks until retirement in 1969.

"His accomplishments truly helped our nation progress in space from the earliest days to the world leadership we enjoy today," said NASA Administrator Charlie Bolden. The official NASA biography on Carpenter is available at http://www.jsc.nasa.gov/Bios/htmlbios/carpenter-ms.html.

Thomas E. Cowell, 66, who retired in 1996 with 16 years of federal service, died Aug. 21. Cowell was a U.S. Air Force veteran of the Vietnam War who joined the NASA workforce as a photographer. He served as a member of the Photolab & Illustrations Team, Technical Information and Services Division. Cowell was also a performing tenor with the Cleveland Orchestra Chorus and the Cleveland Opera Theatre Ensemble.

Eugene "Gene" Krawczonek, who retired from NASA in 1988 with 33 years of federal service, died July 27. Krawczonek joined NASA in 1955 from the Naval Ordinance Department (Calif.) He began working as an operations engineer on installation of the Rocket Engine Test Facility, where he worked the bulk of his career. Krawczonek was a former chief of the Engineering Operations Branch, Chemical Propulsion Division.

S. Stanford Manson, 93, who retired in 1974 with 32 years of NASA service, died July 7. Manson was a metals researcher whose decades-old formulas are still in use to predict metal fatigue on Earth and in space. He transferred from NACA Langley to NACA Lewis in 1943. He wrote several books and helped discover the Manson-Coffin Law and the Manson-Hirschberg Method of Universal Slopes—findings crucial to space engines and heat shields. Manson retired as Materials and Structures Division chief.

Lee Harold Wagner, 94, who retired in 1988 with 31 years of federal service, died Aug. 15. Wagner began his NASA career as an aeronautical engineer working in space propulsion technology on the Saturn 5 launch vehicle for Apollo missions. He earned honors as a member of the Advance Gas Turbine Project team that designed, built and tested the first fuel-efficient, high-temperature turbine engine for automobiles. Wagner was a U.S. Air Force pilot in WWII and active member of the Experimental Aircraft Association.

Cowell

Wagner

Calendar

VETERANS DAY OBSERVANCE: In lieu of the regularly scheduled Veterans Day Program, the Veterans Awareness Committee will honor veterans with a wreath laying ceremony at the flag pole outside of building 3, Thursday, Nov. 7, noon. For further information, please contact Samantha Brinkman, 216-433-6613.

IFPTE LOCAL 28, LESA MEETING: LESA will host its next membership meeting on Wednesday, Nov. 13, noon, Employee Center's Small Dining Room.

NATIVE AMERICAN HERITAGE MONTH OBSERVANCE: Glenn's 2013 Native American Heritage celebration will be Wednesday, Nov. 20, from 1:30 p.m. to 3:30 p.m. in the building 3 Auditorium, featuring a review of the movie, "Reel Injun," and cultural food. POC: Avis Hudson-Burnette, 216-433-6072.

GRC CONNECTIONS FORUM: The next forum is Thursday, Nov. 21, from 10 to 12 p.m. in the Briefing Center. The event is expanded to host a new Business Awareness and Appreciation event that will feature key speakers and interactive activities. Refreshments will be served. POC: Mr. Harvey Schabes, 216-433-5309.

RETIRED WOMEN'S LUNCHEON: The NASA Retired Women's Luncheon will be held Thursday, Nov. 21 at 1 p.m. at Clementine's, 8092 Columbia Rd., Olmsted Falls. Call Gerry Ziemba, 330-273-4850 for reservations.

National Aeronautics and Space Administration

John H. Glenn Research Center at Lewis Field
21000 Brookpark Road
Cleveland, Ohio 44135
www.nasa.gov

AeroSpace Frontiers is an official publication of Glenn Research Center, National Aeronautics and Space Administration. It is published the second Friday of each month by the Community and Media Relations Office in the interest of the Glenn workforce, retirees, government officials, business leaders and the general public. Submit short articles and calendar items via e-mail to the editor: doreen.b.zudell@nasa.gov or 216–433–5317.

December issue copy deadline: Nov. 15, noon

Editor: **Doreen B. Zudell**, SGT, Inc.
Assistant Editor: **S. Jenise Veris**, SGT, Inc.
Managing Editor: **Kelly R. DiFrancesco**

Safety & Health Day Activities Stress "Safety Depends on You"

Glenn personnel from the Safety and Mission Assurance Directorate (SMAD) hosted the center's annual Safety & Health Awareness Day, Sept. 12, featuring speakers, information booths, health walks and a mishap panel to reinforce the message of individual responsibility to ensure a safe and healthy work environment. SMAD Director Anita Liang welcomed employees and shared some of the center's 2013 safety achievements during the kickoff held in the Lewis Field hangar and aired on GlennTV for Plum Brook Station (PBS). The featured presentations by motivational speaker Steve Uzelac, and keynote speaker Wayne Hale, NASA's former Space Shuttle Program Manager, provided poignant examples of our capacity to be heroes by observing basic rules of safety and envisioning potential risks, so we can accomplish our mission and go home at the end of a workday.

By S. Jenise Veris

Photos by Michelle Murphy and Doreen B. Zudell

Clockwise: PBS Deputy Manager Dave Taylor, (far right) joins PBS employees on the Health Walk; Keynote speaker Hale shares his personal reflections on the root cause of the accident that led to loss of Space Shuttle Columbia and the STS-107 crew; Erie County Hazardous Material Team personnel, left, explain equipment and procedures to PBS's Greg Gradisek; and Mishap panelist Keith Peecook, second from right, leads a discussion on the mishandling of asbestos mitigation in a Lewis Field laboratory.