



## Cleveland Celebrates John Glenn's 50th Anniversary of Flight

*"People ask me about my legacy. I tell them legacies are looking back... I'm interested in a 'livacy'—looking forward."—John H. Glenn, Jr., 2012*

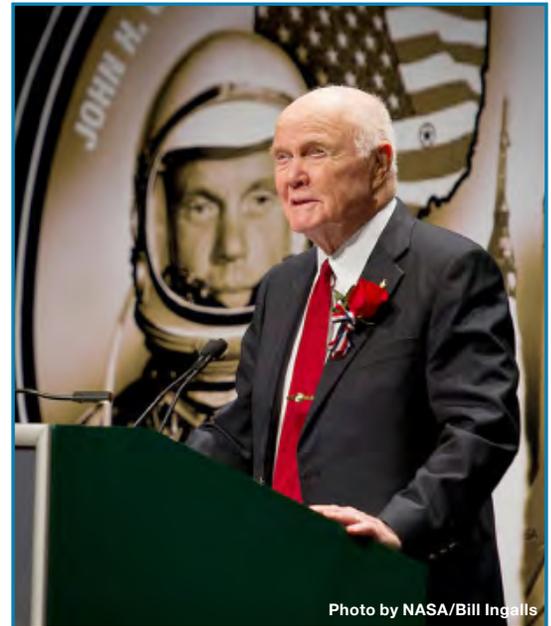
On March 2, an audience of nearly 3,000 gathered in Cleveland to celebrate Senator John H. Glenn, Jr.'s legacy and commemorate the 50th anniversary of the first orbital flight around Earth by an American aboard Friendship 7.

The 1-hour program, held at the Cleveland State University (CSU) Wolstein Center and aired live on NASA TV, included tributes in the form of music, video and numerous standing ovations. NASA Administrator Charles Bolden; Center Director Ray Lugo; CSU President Dr. Ronald Berkman; and former astronaut Steve Lindsey, the pilot of Glenn's 1998 flight on space shuttle Discovery, shared the podium and offered anecdotes and accolades for the American hero.

Director Lugo spoke of the pride and pioneering spirit Glenn inspires among employees at the center renamed in his honor; Berkman spoke of Glenn's indelible source of courage in the face of trial and adversity; Lindsey spoke

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*Sen. John Glenn, right, gives remarks at the celebration held at the CSU Wolstein Center.*



## Innovative Design Process Ensures Efficient Tunnel Upgrades Team Delivers on Time and on Budget

Time was of the essence following the announcement that NASA Glenn's renowned Icing Research Tunnel (IRT) was chosen to receive funds from the American Recovery and Reinvestment Act (ARRA) of 2009. The Facilities Division (FD) knew managing the \$20 million renovation project in the "usual" way was not an option.

"The project had to be planned, procured and executed before expiration of the ARRA funds in September 2011," explained Project Manager Jeff Chambers, Project Management Branch. "This was an aggressive and accelerated timetable for a project of this size and complexity."

The FD opted for an accelerated procurement cycle that reduced the procurement process by 3 months. They also managed the project using a design-build concept. This required choosing a prime contractor, providing them with a set of performance requirements, and then, allowing them to take control of the process.

While the prime contractor was Jacobs Technology based in Tullahoma, Tenn., an estimated \$10 million of the project stayed in the local economy.

"Backing off on the design specifics took us way out of our comfort zone, but it also enabled the contractor to fast-track

project completion by concurrently designing while building, that is, laying the foundations while the design was still maturing," Chambers said. "We still maintained close communications with the contractor, but we didn't get deeply involved with the day-to-day details."

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*Center Director Lugo*

## Positioning Glenn to Be Competitive

I want to update you on a few items of interest. First, I would like to share the status of the senior management teambuilding effort. Recently NASA Glenn engaged the services of The Moore Group to work with senior management to improve the team's performance. The effort began in October 2011 and was completed in March.

The senior management team has made significant progress, due largely to the investment of time and effort by the individual members. In addition, the recent offsite Director's Strategic Management team retreat was very productive, due largely to the work done over the last 6 months. I am very satisfied with our results, and have committed to investing more time in this effort over the balance of this year.

I also want to share the status of the Start/Stop/Continue Study

and the Jefferson/Avascent work on our technology assessment. To be clear, this effort is and will always be about a NASA Glenn excellence effort. In order to be "world class" in any endeavor, an organization has to make hard choices. The assessment data has been reviewed by our senior leaders and it is clear that Glenn has far too many lines of research and technology development and needs to focus its efforts to have the ability to impact the agency and the nation in a credible way.

We have identified some areas that will be reviewed in more depth and we are developing a strategy of divestiture. This will not happen overnight. I plan to solicit input from the workforce and then brief agency leadership. This is very important to the future health of

the center as we face additional budget pressures and reductions in our full-time equivalent (FTE) ceiling. It will be a tremendous challenge for me and the leadership team. However, it is a necessary step in positioning NASA Glenn to be competitive in the future.

Concerning the budget, fiscal year 2013 will be a challenging year. We are faced with reducing our Center Management & Operations spending by about \$10 million as well as reducing our FTE ceiling by an additional 24 billets. None of these tasks will be easy.

I know people are concerned about the future. Currently, I am focused on improving the center and making things work better, and hopefully these efforts will help us be successful regardless of what the future holds. If you are uncomfortable with this strategy and need someone to talk to, I ask that you start with your supervisor or anyone in your leadership chain. If you feel your questions are not being answered, post a question on the blog or send me an e-mail.

## Plum Brook Performs Ariane 5 Fairing Separation Tests

We have separation!

Testing begins this month in Plum Brook Station's Space Power Facility (SPF) on a new horizontal separation system for the Ariane 5 Launch Vehicle. The system is designed to separate the payload fairing from the rocket about 2 minutes into flight.

The fairing separates (jettisons) at an altitude of some 400,000 feet—high enough that the fairing is no longer needed to protect a spacecraft. Pyrotechnic charges separate the fairing halves vertically, with a separate charge needed to provide horizontal separation so that the fairing can fall away harmlessly as the rocket continues its ascent.

SPF Manager Jerry Carek explained that the hardware being tested at Plum Brook is designed to reduce shock and vibration levels felt by Ariane 5's satellite

and spacecraft payloads. The payload fairing measures 70 feet tall by 17 feet wide in diameter, fitting nicely into SPF's 122-foot-tall by 100-foot-wide vacuum chamber.

RUAG Space Switzerland manufactured the separation system. A team of RUAG representatives along with Glenn's civil servant and support service contract technicians and engineers dedicated the past 3 months to preparing the chamber for testing. After April testing, the team will refurbish and retrofit the chamber for another series of tests scheduled for June.

"The electronic systems in some spacecraft are extremely sensitive to mechanical stresses," Carek said. "Testing in the SPF will help prove the functionality of the new design and ensure the payload experiences minimum shock and the fairing separation has plenty of clearance from



*Ariane 5 fairing awaiting testing in SPF.*

the launch system as it separates and falls back to Earth."

How important is this testing? Carek said the proven system eventually would be used in the launch of the James Webb Space Telescope.

—By Doreen B. Zudell

## Glenn Honored at CSU

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of Glenn's integrity, humility and kindness; and Administrator Bolden spoke of Glenn's steady confidence and courage that enabled him to achieve an American dream.

When Senator Glenn stepped up to the podium, he captivated the audience with a combination of humor, humility and conviction.

"Every bit of progress starts with curiosity—a desire to do better, or try something different—and NASA has had a dominant role in discovery of the unknown," Glenn said. "As we look back, I would like the value of my efforts to be viewed as stepping stones towards a future that energizes young people do something better, then all the celebration will be worthwhile."

For those who had the privilege of attending the public event, including about 600 NASA Glenn employees and 500 local students, it was a rare opportunity to be in the presence of a true pioneer. To view more images from this event, visit <http://twitter.com/#!/nasaglenn>.

—By S. Jenise Veris



C-2012-1291

Photo by Christopher Lynch



C-2012-1377

Photo by Gary Nolan

*Pictured, clockwise: Sen. Glenn addressing well-wishers at CSU. • (on stage) CSU President Dr. Berkman, former astronaut Lindsey, Sen. Glenn and Administrator Bolden join, left to right, (below) former Glenn center directors Donald Campbell, Dr. Julian Earls and Dr. Woodrow Whitlow, and Deputy Director Jim Free in a standing ovation for Annie Glenn. • Lindsey and astronauts Greg Johnson, Mike Foreman and Mike Good.*



C-2012-1321

Photo by Michelle Murphy



## Glenn's First Tweetup Unites Tweep NASA Enthusiasts

On March 2, as NASA Glenn commemorated the 50th anniversary of John Glenn's first orbital flight by an American, it also celebrated the launch of the center's first Tweetup.

The Tweetup allowed people, who regularly interact with one another

via Twitter, to meet in person and discuss their passion for NASA, space and science. Nearly 80 space enthusiasts from across the country came to Cleveland to participate in a full day of activities that included tours of three Lewis Field facilities, a visit to NASA Glenn's Visitor Center

at the Great Lakes Science Center and a ticket to the ceremony at Cleveland State University's Wolstein Center recognizing John Glenn and his historic flight on Friendship 7.

Tweeters also had an opportunity to talk with several Cleveland-native astronauts and join the media for a news conference with John Glenn and an astronaut panel. Fingers zoomed over Smart phone buttons and zipped on computer keyboards as tweeps shared their experiences throughout the day with their Twitter followers.

Tweeters unanimously agreed—It was a great #NASAtweetup @NASAglen!

For more details on the Tweetup, visit [http://www.nasa.gov/centers/glenn/technology/glenn\\_tweetup.html](http://www.nasa.gov/centers/glenn/technology/glenn_tweetup.html).



(NASA/Bill Ingalls)

*Tweeters, left, enjoy time with Administrator Bolden, Senator Glenn and Center Director Lugo during a question and answer session.*



## Administrator Visits Center >

NASA Administrator Charles Bolden stopped by Glenn's Propulsion System Laboratory (PSL) to learn more about upgrades to the facility that will benefit research relating to engine icing in aircraft, and shared these highlights with local media on Feb. 21. He also met with senior managers and answered questions regarding the proposed fiscal year 2013 budget during an employee all hands.



C-2012-914

Photo by Marvin Smith



C-2012-1039

C-2012-1036

Photos by Bridget Caswell

## ^ Fuel Cell Demonstration

Members of the media had the opportunity to witness a milestone in award-winning non-flow-through fuel cell technology that will allow rovers to go farther and last longer in the extreme environment of space. The rover used to demonstrate the fuel cell system in Glenn's Simulated Lunar Operations (SLOPE) facility, called SCARAB, was developed by the Carnegie Mellon Robotics Institute, Pittsburgh, under a grant from Glenn. SCARAB (pictured above) is regularly used for human robotic systems project mobility research. The fuel cell system (inset photo) includes a hydrogen tank, an oxygen tank, 16-cell fuel cell stack, and passive balance-of-plant. More information on the demonstration is available at [http://www.nasa.gov/centers/glenn/news/pressrel/2012/12-010\\_fuel.html](http://www.nasa.gov/centers/glenn/news/pressrel/2012/12-010_fuel.html).

## Grand Old Lunar Flag ~

April 16 marks the 40th anniversary of the launch of the Apollo 16 mission (April 16-27)—and the U.S. flag placed on the moon during that mission still flies high. Evidence of this flag's existence and two others at the Apollo 12 and the Apollo 17 missions sites, has been captured in numerous images transmitted via the Lunar Reconnaissance Orbiter (LRO). The LRO spacecraft provides a comprehensive atlas of the moon's



Photo courtesy of NASA

features and resources necessary to design and build a lunar outpost. Although it had been accepted that the flags, purchased for only \$5.50, had likely disintegrated over the past 40 years of harsh space exposure, new evidence discovered by NASA Glenn's James Fincannon, Power Systems Engineering Branch, shows otherwise. These findings and others derived by studying LRO imagery may prove useful in NASA's plans to return to the moon and beyond. To learn more about his findings, visit <http://apolloflags.wordpress.com/>.

## Earth Week and Beyond



Glenn's Earth Day and America Recycles Day committees have joined forces to present activities that focus on environmental awareness between the months of April and November, concluding with a sustainability fair as the focal point in August. This year's fair theme is "Greening NASA GRC—One Event at a Time."

**Kick-off event:** April 26, from 2 to 4 p.m., Ad Building Auditorium at Lewis Field; Introductions and program with a brief discussion; giveaways and light refreshments  
**Sustainability Fair:** August 23, 10:30 a.m. to 1:30 p.m., outside building 15 café area with vendors, exhibits and more (rain date: Aug. 30)

### April Events Include:

April 22—Earth Day at the Zoo. POC: Suzanne Aldrich, 3-9473 or [Suzanne.E.Aldrich@nasa.gov](mailto:Suzanne.E.Aldrich@nasa.gov).

April 26—Kick-Off Event (see above)

April 27—Mustard Pull, 12 to 1 p.m., Lewis Field, West Area, Duck Bank Road near Abrams Creek. Help pull weeds that kill native plants—and garlic mustard is no exception. Trash bags and gloves provided. Bring a hat, sunglasses and sunscreen for protection. POC: Teresa Monaco, 3-8293 or [Teresa.L.Monaco@nasa.gov](mailto:Teresa.L.Monaco@nasa.gov).

Look for monthly events in *AeroSpace Frontiers* and *Today@Glenn*.

## Dr. Shin Holds All Hands, Tours Facilities ›

Dr. Jaiwon Shin, associate administrator for the Aeronautics Research Mission Directorate (ARMD), and members of the Headquarters ARMD staff met with Glenn leadership (pictured) and toured aero research facilities before he joined Center Director Ray Lugo to host an ARMD All Hands last month. Dr. Marla Perez-Davis, Glenn's Aeronautics Research Office director, provided opening remarks and welcomed Shin, who updated Glenn personnel on NASA Aeronautics goals and objectives. Shin also fielded questions with Director Lugo and Dr. Tom Irvine, ARMD deputy director, regarding future opportunities for work and constraints of the proposed fiscal year 2013 budget.



C-2012-1395

Photo by Bridget Caswell



C-2012-877

Photos by Bridget Caswell



C-2012-857

## Black History Month ^

Glenn's African Heritage Advisory Group and the Black Women's Advisory Group celebrated the unique contributions of black women in American culture, history, education, the arts and society during the 2012 Black History Month Observance on Feb. 16. A thought-provoking panel discussion, dance performances by a nationally renowned choreographer, a violin performance by a local celebrity, a slide presentation, art vendors and authentic food samples addressed the theme "Black Women in American Culture and History." Pictured, above, left to right: Robyn Gordon, director of Center Operations; Dr. Rose Ure Mezu, associate professor of English and Comparative Literature at Morgan State University, Baltimore; Debra Adams Simmons, editor of *The Plain Dealer*; Teleange Thomas, program officer of Health for the Sisters of Charity Foundation. Inset photo: Obed "Obie" Shelton, local journalist and musician.

## Women's History Month Web Feature ›

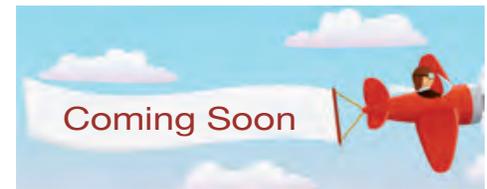
Three NASA Glenn employees have been named to the Women@NASA Web site, <http://women.nasa.gov>, as part of the agency's Women's History Month celebration for 2012. Amy Bower, an industrial hygienist, Safety, Health and Environmental Division; Anne Mills, the center's History Officer, Logistics and Technical Information Division; and Dr. Margaret "Meg" Nazario, project manager for Solar Electric Propulsion, Space Technology Office, are among the diverse group of NASA women featured this year. They discuss their accomplishments and offer encouragement to women and girls considering technical careers. The Web site also provides information about NASA internships and career opportunities.

Photos by Bridget Caswell



## Where in the World is Box?

Now you see him...now you don't. NASA Glenn's Associate Director of External Programs and astronaut Greg "Box" Johnson is a busy man! Starting with the May 2012 issue of *AeroSpace Frontiers*, you'll see just how busy Box is as he shares NASA's mission throughout our six-state region in the Midwest and beyond.



Bower



Mills



Dr. Nazario



## Awards, Honors and Promotions

## Sierra Lobo Wins NASA's George Low Award

Sierra Lobo, Inc. (SLI) of Milan, Ohio, earned NASA's prestigious George M. Low Award



in the Small Business Service category. The award was announced on Feb. 23 at NASA's 9th annual Project Management Challenge in Orlando. Named for the former NASA deputy administrator, the award recognizes large and small businesses that demonstrate excellence and outstanding technical and managerial achievements in quality and performance on NASA-related contracts.

SLI manages the NASA Glenn contract for Technical, Facility, Operations, Maintenance and Engineering (TFOME) for support services to R&D programs and test operations at Plum Brook Station and Lewis Field, as well as contracts at four other NASA field centers. SLI previously won the Low Award, in 2007, in the Small Business Product category.

**Toastmasters  
Open House**

Come learn about Glenn's Aerospace Toastmasters Club and meet International Toastmasters President, Michael Notaro, during an open house on April 26 from noon to 1 p.m., building 54, room 101.



## In Appreciation

I want to thank the Lewis Little Folks and NASA family for all the support, prayers and love that was shown to my family and me during my unexpected illness. I am doing well now thanks to all your prayers and well wishes. I will never forget the outpouring of love.

—Cathy McDonnell, LLF teacher

My family and I would like to thank my NASA family for all their kindness that we received during the passing of my mother, Soo Kuen Fong. Your prayers, encouragement and support have been a tremendous blessing during her illness and homegoing.

—Don Fong

## Suggestion Awards

Center Director Ray Lugo recently presented certificates recognizing the ingenuity of five employees whose ideas were adopted under the Employee Suggestion Award. The program allows cash awards, up to \$7500, paid to employees who submit suggestions that directly improve efficiency, economy and/or effective execution of government operations.

The following employees received an award during the Jan. 17 Director's Strategic Management meeting for their suggestions:

**Thomas Sours and Michael Swiatek**, Space Power & Propulsion, Communication and Instrumentation Branch: "A Big Gas Bag Method



*Pictured, seated left to right: Swiatek and Sours.; and standing, Belock. Not pictured: Manco and Zolo.*

for Xenon Recycling." These two technicians developed an innovative way of capturing and recycling the xenon used in the testing of electric propulsion in various vacuum test facilities throughout Glenn. This idea has proven to be a reliable and cost-effective process with a very large return on investment generating savings for years to come.

**Scott Belock**, JSV/Wind Tunnel and Propulsion Test Branch. Suggestion: "A Specialized Tool/Fixturing for Milling Machine Repair." Belock developed a specialized tooling and fixturing arrangement to remove the top head of a milling machine without using hoisting equipment. This allows bench repair of the top head of the milling machine promoting safer and more efficient repairs.

**Richard Manco**, SLI/Aviation Environments Technical Branch. Suggestion: "Helping Glenn Power Needs During Peak Summer Use." Manco developed an innovative process for using excess power generated while conducting research on solid lubricant materials. The excess power generated could save the center money and help reduce the risk of power outage during peak usage.

**Sandra Zolo**, Space Environment and Experiments Branch. Zolo is responsible for two credible suggestions. Suggestion #1: "Security Officer Occasionally in Buildings." Zolo suggested that increasing the frequency and number of security officers walkthroughs among Glenn's more "public" buildings to ensure a safer environment. Suggestion #2: "Travel Tax Exemption." This suggestion will assist in informing travelers of hotel tax exemption forms to secure the most cost-effective arrangements when traveling on official business.

The Employee Suggestion Award Committee is eager to reward employees for a great idea. To learn tips and guidelines for submitting ideas, visit <http://www.grc.nasa.gov/WWW/OHR/Suggestion>.



## Retirements

**Harold McKenzie**, Aviation Environments Technical Branch, Testing Division, retired on March 31, 2012, with 23 years of federal service, including 17 with NASA.



*McKenzie*

**Patricia Parker**, Office of the Director, retired on April 3, 2012, with 36 1/2 years of federal service, including 32 with NASA.



*Parker*



## In Memory



Papcke

### Passionate Protector of the Planet

Daniel A. Papcke, 59, an environmental engineer serving in the Energy and Environmental Management Office, died on March 10.

A former employee of the U.S. Environmental Protection Agency (EPA), Papcke brought considerable experience and expertise to NASA Lewis/Glenn in 1990, and became a valued member of the Environmental Compliance Office. His work focused on asbestos abatement projects to ensure all regulatory requirements were met. He was later named team lead for Glenn's Pollution Prevention (P<sup>2</sup>) Program that was created to identify and implement projects to reduce or eliminate hazardous materials in various facilities across the lab.

Papcke was a longstanding member of Glenn's Earth Day Committee and passionate participant of other awareness events promoting employee responsibility as caretakers of the environment. He enjoyed the outdoors, traveling and participating in triathlons. He was a member of the NASA Men's Golf League for over 20 years.

"Dan was a dedicated civil servant who quietly and humbly found joy in serving the needs of others—whether aiding emergency response, donating blood, swimming for the Diabetes Foundation, leading Adopt-a-Highway or assisting his coworkers. He was truly a model for a life well lived," said Luz Jeziorowski, Safety, Health and Environmental Division, a longtime friend and coworker. "We will surely miss him."

Dan Cica, 76, who retired in 1998 with 38 years of federal service, died on Dec. 10, 2011. He was a senior computer analyst, and the first analyst at the center involved in developing computer programming for wind tunnels. He also was a member of the Lewis Information Network (LINK) Implementation Team responsible for one of the most successful local network communications systems of any research center in the country. Cica was highly respected by his peers across the agency and in private industry and frequently served on civil and government programming panels sharing his expertise as the computer industry rapidly developed. Cica was the recipient of the NASA Exceptional Service Medal (1995) and many other Group Achievement Awards. He mentored many during his career. Cica is remembered for his enthusiasm and scientific curiosity.



Cica

Dr. Bernard Gross, 85, who retired in 1989 with 34 years of NASA service, died Dec. 17, 2011. Gross was a U.S. Merchant Marines veteran of World War II, who joined Cleveland's NACA/NASA workforce in 1955, rising to the level of senior research scientist in the area of materials and structural mechanics. Gross was widely published and received numerous service awards as a contributor to the development of



Dr. Gross

computational methods for predicting stress and failure of materials used for space exploration. His career spanned more than four decades, including serving as a Distinguished Research Associate and, later, as an independent contractor/consultant. Gross was a founding officer of Lewis' Chapter of the Society of Professional Engineers and an avid tennis player on several teams in the Lewis Tennis League.



## Calendar

**NATIONAL DAY OF PRAYER:** NASA Glenn's Prayer Group invites all members of the Glenn community to a Christian observance of this special day. This year's theme is "One Nation Under God." Observances will be on Thursday, May 3, 7:30 a.m. and 11:30 a.m. See *Today@Glenn* or type "Prayer" in the WING Transporter for locations and details. POC: Dale Mortensen, 433-6698.

**IFPTE LOCAL 28, LESA MEETING:** LESA will hold its next membership meeting on Wednesday, May 9, at noon in the Employee Center's Small Dining Room.

**ANNUAL WALK:** Enjoy the great outdoors and a chance to win a door prize on Wednesday, May 16. Participate in the annual 1.4 mile walk using the Taylor/Walcott Road loop anytime between 10 a.m. and 2 p.m. at Lewis Field. Be sure to register outside building 15 and indicate the Directorate or Office that you support. The group with the highest percentage of participation will be awarded the Golden Shoe award.

**ASIAN-PACIFIC HERITAGE EVENT:** This year's event will be held on Wednesday, May 30, 10 a.m. to noon in the Administration Building Auditorium. "Striving for Excellence in Leadership, Diversity and Inclusion" is this year's theme with keynote speaker Dr. Hiroyuki Fujita, president and chief executive officer of Quality Electrodynamics (QED) along with cultural performances and food sampling. Due to the popularity of this event, priority serving will be given for those attendees who arrived at the beginning of the event. POC: Fran Lawas-Grodek at 433-5052.

### FOLLOW NASA GLENN ONLINE



### Article Deadlines

News items and brief announcements for publication in the May issue is noon, April 20. Larger articles require at least one month notice.

**READ US ON THE INTERNET:**  
<http://aerospacefrontiers.grc.nasa.gov>

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## National Aeronautics and Space Administration

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## IRT Upgrades Improve Capabilities

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Paul Kuehn, Project Management Branch, led the FD team. He brought together members from icing research, tunnel operations and facilities engineering to guide the design-build contractor and ensure that the critical performance requirements were satisfied.

Since the IRT is Glenn's busiest facility, it was vital to complete the upgrades with minimum impact to its customers. To achieve this goal, the construction team erected an 8,400-square-foot building next to the existing building in which state-of-the-art refrigeration and other operating equipment was installed. This allowed the existing systems to remain functional and tunnel testing to continue during the construction process. This reduced a potential 2-year tunnel shutdown to less than 6 months. The IRT resumed normal operations in November 2011 with re-calibration of the tunnel and started serving its test customers in February 2012.

The FD team not only met its overall budget effectively but it also stayed on its baseline schedule. This innovative process was recognized by NASA Headquarters and presented at the Global Wind Tunnel Symposium in Pasadena, Calif.

"This project has been an outstanding success and a model for NASA in almost every respect," said Timothy Marshall, director of NASA's Aeronautics Test Program. "Few NASA research facility development projects have been more ambitious, and even fewer project management teams would have been up to this task."

As a result of the upgrades, the tunnel is colder and faster and offers better flow quality and temperature stability than ever before. The massive 26-foot-high by 50-foot-wide wall of heat air exchanger coils now creates temperatures of minus 40 degrees Fahrenheit. The tunnel's previous coils were limited to a minus 25 degrees Fahrenheit. It now holds the distinction of being the coldest icing research facility in the world for testing aircraft components—well equipped to meet the needs of the agency and its partners for another generation.

Editor's Note: *An American Society of Mechanical Engineers national landmark, much of the IRT's original*



*Pictured, above, top: New heat exchanger system as viewed from the downstream side. Inset photo: New low temperature refrigeration system vessels.*

*1945 equipment, designed by air conditioning pioneer Dr. Willis Carrier, will be cataloged and donated to museums.*

—By Doreen B. Zudell