



C-2014-344

Photo by Chris Lynch

Dr. Gazarik Views New Technology

Dr. Michael Gazarik, associate administrator of the Space Technology Mission Directorate, viewed the deployment of ATK's new MegaFlex solar array at Plum Brook Station on March 12. ATK is developing this solar array for Glenn's Solar Electric Power project. While there, Gazarik learned about the on-going tests and the capabilities of the new technology. Earlier that day, he joined other agency senior executives at Lewis Field to discuss the strategy to develop solar electric propulsion for missions such as the Asteroid Redirect Mission. Gazarik, next to platform, and Mike Eskenazi, co-principal investigator at ATK for the MegaFlex, discuss set up and testing of the solar array in Glenn's Space Power Facility. ATK and Glenn managers, including Center Director Jim Free and Plum Brook Director Dave Stringer, look on.

Budget Request "Keeps Us Moving"

President Obama's Fiscal Year 2015 (FY 2015) budget request, released March 4, includes a proposed \$17.5 billion dollars for NASA. During a teleconference with media and employees across the agency, Administrator Charlie Bolden and Chief

Financial Officer Elizabeth Robinson asserted how the proposed budget reflects positively on agency goals.

"The president's budget, once again, affirms the bi-partisan strategic

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Centers Tackle Sonic Boom

Glenn Wind Tunnel Aids Strategy

Since the Concorde's final landing at London's Heathrow Airport nearly a decade ago, commercial supersonic air travel has been as elusive as a piece of lost luggage. The level of concern over sonic boom annoyance became so significant that the Federal Aviation Administration prohibited domestic civil supersonic flight over land. However, this hasn't stopped NASA from continuing the quest to develop solutions that will help get supersonic passenger travel off the ground once more.

"There are three barriers particular to civil supersonic flight: sonic boom, high altitude emissions and airport noise. Of the three, boom is the most significant problem," said Peter Coen, manager of NASA's High Speed Project with the agency's Aeronautics Research Mission Directorate's Fundamental Aeronautics Program.

Since the maximum acceptable loudness of a sonic boom is not specifically defined under current FAA regulations,

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NESC Recognizes Glenn Engineers for Valuable Work

Center Director Jim Free and Dawn Emerson, NASA Engineering and Safety Center (NESC) chief engineer at Glenn, presented two teams with 2013 NESC Group Achievement Awards, Feb. 25.

The award honors teams whose engineering and technical excellence have contributed substantially to the success of NESC's mission. This includes performing value-added independent analysis and assessment of NASA's high-risk projects to ensure safety and mission success.

Thomas Miller and Concha Reid, Electrochemistry Branch, and Penni Dalton, ISS and Human Health Office, were recognized for their outstanding support to "assessing risk of thermal runaway in lithium batteries used in NASA Systems."

John Thesken, Applied Structural Mechanics Branch, and Eric Baker (CRT), Mechanics and Life Prediction Branch, were recognized for "expediting risk assessment of the Chandra X-ray Observatory's Integral Propulsion System Composite Overwrapped Pressure Vessel (COPV) titanium liner and carbon fiber/epoxy composite."

The NESC was created shortly after the Columbia accident to address NASA's lack of program independent resources for an alternate perspective on difficult technical issues. The NESC is a broad based network of independent technical experts assembled from across NASA, other government organizations, industry and academia to solve complex engineering problems.

To learn more about the NESC visit <http://www.nasa.gov/offices/nesc/home/index.html>.

—By S. Jenise Veris

Pictured above, left to right: Reid, Miller and Dalton from the battery assessment team. Right: Thesken and Baker from the COPV assessment team.



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Photos by Marvin Smith



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FY2015 Proposed Budget

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exploration plan agreed to with the Congress in 2010," Bolden stated. "It keeps us moving toward the missions and breakthroughs of tomorrow even as it enables the tangible successes of today."

In addition to the request for \$17.5 billion, the agency would have access to nearly \$900 million dollars in a new Opportunity, Growth and Security Initiative to advance priority missions. Among those missions that stand to receive increases include commercial crew, Space Launch System (SLS)/Orion and advanced computational fluid dynamics and simulator capabilities.

This budget also provides funding to keep the agency's ambitious deep space exploration program to send

Under the proposal, the center would receive \$587.7 million dollars for Fiscal Year 2015. This is a 3.6 percent increase from Fiscal Year 2014 funding.

humans to an asteroid and Mars, as well as a robust science program that includes money for the James Webb Telescope and multiple Earth science missions. Additionally, this budget supports the continuation of groundbreaking work in technology development and aeronautics, which provide spinoffs and jobs for people here on Earth.

Following the Administrator's briefing, Center Director Jim Free and Glenn's Chief Financial Officer Larry Sivic met with local reporters to discuss budget highlights related to NASA

Glenn. Under the proposal, the center would receive \$587.7 million dollars for FY 2015. This is a 3.6 percent increase from FY 2014 funding.

While pleased with the budget request for Glenn, Free cautioned, "anything can happen" as the proposal goes through Congress. Free and Sivic answered questions relating to Glenn's role in the Asteroid Redirect Mission, Center Master Plan and jobs.

"At this funding level, we still stay around 3,000 jobs," Free said. "That's where my goal is to keep us."

NASA's FY 2015 budget proposal and supporting material are available at <http://www.nasa.gov/budget>.

—By Doreen B. Zudell

Stellar Interns Become Student Ambassadors

Online Network of Ambassadors Service Pipeline

Eighteen Glenn interns are among the 105 top-performing interns, representing 29 states and 67 universities, recently inducted into the 2014 NASA Student Ambassadors Virtual Community (NSAVC), Cohort 6.

This online network is designed to foster greater interaction and mentorship among NASA's outstanding higher education interns. Ultimately, it increases student retention through the NASA educational pipeline and into the science, technology, engineering and mathematics (STEM) workforce.

Student ambassadors collaborate with their peers via instant messenger, message boards and other social media and discuss current NASA events or research/projects identified from the Ambassador profiles posted online. They also engage future interns in-person as a NASA representative at a variety of venues.

The following is a list of Glenn interns in Cohort 6 and their host organizations: Amanda Adams, Multidisciplinary Design Analysis Optimization Branch; Elizabeth Barrios, Durability and Protective Coatings Branch; Christopher Bates and Sibylle Walter, Inlet and Nozzle Branch; Devon Beckett, Advanced Metallics Branch; Connor Beierle, Power Systems Engineering Branch; Peter Bocchini and Maxmillian Holliday, Advanced Metallics Branch; Nathan Boll, Photovoltaics and Power Technologies Branch; Eric Bruckner, Mechanics and Life Prediction Branch; Kier Fortier, Nikhil Garg and Innocent Udom, Bio Science and Technology Branch; Ariel Espinosa Livica, Electron and Opto-Electronic Devices Branch; Ashwin Rane, Structure and Dynamics Branch; Lloyd Utt Jr., Icing Branch; Nomita Vazirani, Propulsion and Control



Illustration by Kelly Shankland

Systems Engineering Branch; and Emma Yee, Combustion Branch.

Glenn's University Programs Office and its mentors confer to nominate deserving students and forward their names to NASA Headquarters' Office of Education, where a panel makes the final selection. More information about student ambassadors is available at <https://intern.nasa.gov/intern/>.

—By S. Jenise Veris

Tackling Sonic Boom



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Photo by Quentin Schwinn

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NASA and its aviation partners have been researching ways to identify a loudness level that is acceptable to both the FAA and the public, and to reduce the noise created by supersonic aircraft.

NASA's recent focus on supersonic research testing began in November 2010 as part of the project's Experimental Systems Validations for N+2 Supersonic Commercial Transport Aircraft effort. Using cutting-edge testing in wind tunnel facilities at Ames and Glenn research centers, NASA has explored scaled models of "low-boom" aircraft designs by Boeing and Lockheed Martin.

The most recent possible supersonic aircraft designs reflect what is needed to meet NASA's low-boom requirements. These requirements specify targets for boom loudness, aerodynamic efficiency and airport noise for an N+2—second generation beyond current technology—aircraft design that could be flying by the years 2020 through 2025.

Data from NASA's wind tunnels is being used to validate computer-based design tools for continued use in future low-boom aircraft design research. To learn more about NASA's efforts towards realizing a viable low-boom, civil supersonic aircraft transport design, visit http://www.nasa.gov/aero/centers_tackle_sonic_boom.html.

—By Frank Jennings and Karen L. Rugg

Left: Inside Glenn's 8- by 6-Foot Supersonic Wind Tunnel, technician Dan Pitts inspects Boeing's 1.79 percent scale model. Shown are the two installed flow-through nacelles.



C-2014-1013

Photo by Marvin Smith

Lightfoot Talks Strategy for NASA's Future

On March 13, NASA Associate Administrator Robert Lightfoot hosted an All Hands meeting at Lewis Field. During his presentation, Lightfoot emphasized the importance of investing in the next generation of researchers to help reach new heights. His visit also included tours of selected sites, which showcased Glenn's work in relation to NASA missions. Pictured, Lightfoot greets Brian Tomko, a young professional on the CubeSAT team that gave a presentation during a working lunch. Center Director Jim Free and members of the director's senior management joined the lunch.



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Photo by Michelle Murphy

Astronaut Personalizes Living in Space

During her mission briefing to Glenn employees, March 20, Astronaut Dr. Karen Nyberg highlighted her 6-month tour as flight engineer for the Expedition 36/37 missions aboard the International Space Station. She shared a video that revealed exciting aspects of living and working in space, such as maneuvering a robotic arm and assisting crewmates in critical spacewalk activities. She cited several Glenn experiments which are among those monitored daily. Another aspect of her daily routine was e-mailing photos to her 3-year-old son and husband and running on the treadmill. She expressed gratitude to Glenn's researchers for the harness design that enabled her to run in relative comfort. Nyberg (front, left) is pictured in Glenn's Exercise and Countermeasures Lab, as Glenn's Gail Perusek introduces her to HULK (Hybrid Ultimate Lifting Kit), a prototype of an advanced exercise device developed by Zin Technologies for NASA.

Glenn Announces 2014 Saturday Tour Lineup

NASA Glenn kicked off its 2014 monthly tour schedule at the Electronic Propulsion Laboratory, April 5. The one-hour tours are offered one Saturday a month from April through October and are free of charge for groups and individuals. Visitor parking is also free.

All tours include a safety briefing and, as time permits, a multimedia presentation on the beginnings of the Glenn Research Center. Researchers who develop and verify cutting-edge technologies for both aeronautics and space flight will be available to talk with visitors.

A tour bus departs from Glenn's main gate every hour beginning at 10 a.m.; the last tour departs at 1 p.m. Each tour concludes with a visit to NASA's gift shop.

The 2014 tour lineup includes:

May 3: Abe Silverstein Supersonic Wind Tunnel

June 7: Flight Research Building

July 12: Icing Research Tunnel

Aug. 2: Aero-Acoustic Propulsion Laboratory

Sept. 13: Telescience Support Center

Oct. 4: High Bay Clean Room.

Tours are open to U.S. citizens and lawful permanent residents. U.S. citizens, 18 years of age or older, are required to present government-issued photo identification (driver's license or U.S. passport). Permanent residents must present their green card with admission. Space is limited and reservations are required.

Reservations may be made starting 30 days in advance, up to one week before the actual tour date. Call 216-433-9653 or send an email to sheila.d.reese@nasa.gov. Pre-registered guests will receive a confirmation notice.



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C-2014-975

Photos by Bridget Caswell

Glenn Celebrates New Micro Market With Ribbon Cutting

NASA Glenn officially opened the center's new Micro Market on the Glenn Café upper mezzanine (building 15), March 11. It offers the Glenn workforce 24/7 vending access to hot and cold breakfast and lunch food items; beverages, including fresh-ground coffee; and a variety of sundries. The market is operated under an agreement with Ohio's Bureau of Services for the Visually Impaired (BSVI). A percentage of the profits from the market and newly installed BSVI vending machines on campus will be returned to the Glenn Exchange. Helping cut the ribbon on this latest addition to Glenn's food services options are, pictured, left to right: Janet Watkins, associate director; Vicki Smith, BSVI area manager; Aneesa Locke-Hines, BSVI program director; Jon Arena, Glenn project legal counsel; Kathy Clark, Disability Awareness Advisory Group chair and Jim Free, center director. Pictured, right: Smith helps employees set up accounts for easy payment of Micro Market items.



C-2014-831

Photos by Marvin Smith



C-2014-818

Glenn Touts Technology, Importance to State Industry

Glenn hosted five members of the Ohio General Assembly and 33 members of the Governor's Ohio Aerospace and Aviation Council (OAAC), March 7. They came to gain a better understanding of how Glenn's research and technology development supports NASA missions. Center Director Jim Free gave an overview to both groups in Glenn's Briefing Center. General Assembly members then exited to tour Lewis Field facilities and OAAC members stayed behind to conduct their quarterly planning meeting. During a working lunch, Free and members of his senior management team discussed Glenn's importance to the growth of the State's aerospace and aviation industry. OAAC members toured after lunch. Pictured, above left: Dave Manzella, far left, speaks to OAAC members about Glenn's work in solar electrical propulsion. Above: Bob Corban, left, explains to Ohio General Assembly members how the Glenn-developed Fluid/Combustion Integration Racks operate on the International Space Station.

Glenn Celebrates Women's Character, Courage and Commitment

Glenn celebrated Women's History Month with a lunchtime program and awards presentation, March 27. Deputy Director Greg Robinson provided the welcoming remarks for this year's event, co-hosted by the Women's Advisory Group (WAG) and Glenn's Business and Professional Women's (BPW) group.

Keynote speaker Margaret Mitchell, president and CEO of the YWCA of Greater Cleveland, shared her perspective on this year's theme, "Celebrating Women of Character, Courage and Commitment." She discussed how courage shapes one's character and commitment and shared examples of how it transcends fear, giving us the ability to meet challenges.

This year, WAG representatives presented two Non-Supervisory Federal Women's Program awards. The honorees include: **Karin Bozak**, an electrical engineer in the Power Systems Development Branch, nominated by Amy Stalker; Mechanical and Rotating Systems Branch; and **Karen Weiland**, lead systems engineer, Systems Definition and Communication Branch, nominated by her branch chief Frank Gati.



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Photo by Marvin Smith
Mitchell, center, and award winners: Bozak, left, and Weiland.

Awards & Honors

Charles Doxley, Avionics Systems Branch, received the "Most Promising Scientist in Government" award during the 28th annual Black Engineer of the Year Awards (BEYA) STEM Conference in February. Doxley was recognized for his technical contributions to NASA's Compatibility Test Sets project and exemplary work in organizing and leading multiple after-school robotics programs in Cleveland.

Dr. Antoine Moss, transportation manager, Logistics and Technical Information Division, has been named one of the 2014 Northeast Ohio Top 25 Under 35 Movers and Shakers in Northeast Ohio. The award is sponsored by the Cleveland Professional 20/30 Club, which recognizes young leaders for their excellent work, civic engagement and philanthropic efforts.

The National Society of Professional Engineers recently named Dr. Rickey Shyne, director of Glenn's Research and Development Directorate, one of the top 10 Federal Engineers of the Year. The prestigious award is based on factors such as engineering achievements, education, professional and technical society activities, awards and honors, and civic and humanitarian activities.



Doxley



Dr. Moss



Dr. Shyne

Welcome to the NASA Family

NASA Glenn welcomed three new employees last month. Wesley Johnson, who transferred from NASA Kennedy, now serves as research engineer in the Propulsion and Propellants Branch. Sherri Lippus assumes the role of Incident Response Manager for the Risk Management and Security Office. Curtis Rimer is a Veteran Program intern assigned to the Human Capital Consultant Division.



Johnson



Lippus



Rimer

Retirements

Carol Stofka, Office of Chief Financial Officer, retired Jan. 3, 2014, with 40 years of federal service, including 35 with NASA.

Joseph Viera, Project Management Branch, Facilities Division, retired March 31, 2014, with 23 ½ years of NASA service.

Retiring Soon?

Are you a civil servant who will be retiring soon? Be sure to fill out the GRC-431 form to include your retirement notice in the *AeroSpace Frontiers*. The form also gives you the option to receive the monthly newsletter at home.

More Than a Memory

Frank Bechtel 95, who retired in 1974 with 33 years of federal service, died Feb. 17. Bechtel was an Air Force Reservist, who joined the NACA/NASA workforce in 1941. He spent much of his 31-year career in the hangar as an experimental electronic equipment mechanic foreman. He supervised instrumentation and telemetry improvements to World War II airplanes, and most of the center's aircraft and missile projects, including the Mercury Program. He also supported operations for the Flight Icing Research, the F-106 and Quiet Engine programs.



Bechtel



Demaline

Russell L. Demaline, 95, who retired in 1974 with 31 years of federal service, died Feb. 11. Demaline was a U.S. Army Veteran of World War II. He served with NASA as a security specialist. His brother Robert, a NASA retiree, preceded him in death. He is survived by son-in-law Joe Richvalsky, a NASA retiree, and his niece, Deborah Demaline (WYLE) currently works in Glenn's Records Management Office.

Dennis J. Eichenberg, 57, who retired in 2012 with 24 years of NASA service, died Feb. 15. Eichenberg spent his NASA career in the Engineering Directorate. His electrical engineering expertise was instrumental to the successful operation of many high-profile projects, including the Surface Tension Driven Convection Experiment, the Small Engine Components Test Facility and the Ohio Hybrid Bus. He authored numerous technical publications and held a patent in the field of hybrid power management. The patent demonstrated his ingenuity to integrate advanced power technologies to improve system performance and efficiency.



Eichenberg



Tulisiak

George Tulisiak, 89, who retired in 1982 with 27 years of federal service, died Feb. 27. Tulisiak was a U.S. Army Veteran of World War II prior to beginning a 24-year career with NASA as a metallurgical aerospace engineer. He served as chief of the Office of Material and Process Control, Fabrication Division. His staff provided quality control through extensive examinations of material properties and manufacturers' products. He earned numerous NASA Tech Brief awards as a coauthor of published technical innovations applicable beyond NASA's aerospace missions.

Calendar



#GLOBAL SELFIE EARTH DAY: NASA invites everyone on the planet

to take part in a worldwide celebration of Earth Day, April 22, with NASA's #GlobalSelfie event. Help us celebrate NASA's work to protect our home planet. Visit <http://1.usa.gov/PfjXln>.

NATIONAL DAY OF PRAYER: NASA Glenn's Prayer Group invites all members of the Glenn community to join a Christian observance of National Day of Prayer. This year's theme is "One Voice United in Prayer." Observances will be held May 1, 7:30 and 11:30 a.m. See *Today@Glenn* or type "Prayer" in the WING Transporter for locations and details.

IFPTE LOCAL 28, LESA MEETING: LESA will hold its next membership

meeting Wednesday, May 14, noon, Employee Center's Small Dining Room.

RETIRED WOMEN'S LUNCHEON: The NASA Retired Women's Lunch will be held Thursday, May 15, 1 p.m., at Bucci's J Bella Restaurant, 12201 Pearl Rd., Strongsville. Please notify Gerry Ziemba, 330-273-4850, for reservations.

ASIAN PACIFIC AMERICAN OBSERVANCE: The National Asian Pacific American Heritage month event will be held May 29, 1:30 to 3:30 p.m. in the Briefing Center Auditorium, building 8. This year's theme is "Diverse Leadership + Expanding Opportunity: An Imperative For America."

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

To Reach the Unreachable Stars

The Cleveland Pops Orchestra is dedicating their April 25th concert at 8 p.m. as a special tribute to the 25 NASA astronauts from Ohio. Center Director Jim Free will join astronauts Mike Foreman and Dr. Don Thomas (retired) at the event. They will participate in this special program that will include NASA video footage. NASA also will provide lobby exhibits for pre-concert and intermission opportunities for the astronauts to interact with the audience. Watch *Today@Glenn* for information about discount tickets. POC: David DeFelice, 216-433-6186.



National Aeronautics and Space Administration

John H. Glenn Research Center at Lewis Field

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

Dynamic Building Cornerstone of Lewis Field Main Campus

The Mission Integration Center (MIC) is NASA Glenn's first high-performance office building and the critical first piece of Glenn's Master Planning central campus revitalization effort.

Three stories tall and roughly 90,000 square-feet, the MIC (building 162) is the cornerstone of Lewis Fields' main campus under Glenn's Facility Master Plan. Located next to building 21, this completely new office building—the first in 40-plus years—takes advantage of new technologies and design practices to provide a flexible, functional work environment.

The MIC can accommodate 300 residents through a combination of private- and open-space offices. It also features a 400-person capacity multi-function auditorium, 24 conference rooms, 4 videoconference rooms and multiple casual gathering and breakout spaces. While office areas are painted in a neutral hue, color is liberally distributed throughout the shared spaces. No government tan!

"This project required the coordination of civil servant and support service contractors from many of Glenn's branches and divisions," explained Project Manager Tim Wardlow, Facilities Division (FD) Project Management Branch. "It was a true team effort."

Designed with the goal of responsible environmental stewardship, the MIC will require 40 percent less water and 30 percent less energy than a typical comparable building. It is targeted to achieve a LEED (Leadership in Energy and Environmental Design) Gold rating. Some of the environmental features include: extensive natural daylight, sustainably harvested wood and water, and energy-saving fixtures and appliances.

"These features will contribute to a healthier, more productive work environment while meeting NASA's goals for reducing energy consumption," said Project Architect Jared Reed, FD Engineering Management Branch. "We hope all Glenn staff will take opportunities to use and enjoy this state-of-the-art building."

Stay tuned to *Today@Glenn* for information on an upcoming MIC ribbon cutting and open house event.

—By Doreen B. Zudell



Photo by Tim Wardlow



C-2014-512

Photo by Bridget Caswell

Above: Interior view of staircase. Below: Auditorium features lots of light and color.