

Senator Voinovich attends Town Hall

The NASA Flexibility Act will help the Agency move ahead with its Vision of Space Exploration.

Center Director Dr. Julian Earls welcomed NASA Administrator Sean O'Keefe and U.S. Senator George Voinovich to Glenn's Town Hall event on October 12 to discuss the importance of the NASA Flexibility Act.

Sponsored by Senator Voinovich and signed into law on February 24, 2004, the act allows NASA more flexibility in recruiting, retaining, and rewarding a new generation of engineers at a variety of skill levels. "It's crucial to NASA's ability to move ahead with our exciting agenda," O'Keefe said.



Photo by Marvin Smith C-2004-1473

Senator Voinovich and Administrator O'Keefe answered questions from the audience during the Town Hall event.

Voinovich said he championed the bill because he believes in the importance of the work done at NASA and the unique challenges it presents to the workforce.

"It takes the right people, with the right skills, for the right job," he said. "I believe that this law will help change the culture of the Federal workforce by making it more competitive with private industry. . . and careers in public service more attractive to youth." One-third of the Agency's workforce will be eligible for retirement in the next 3 to 5 years.

Photo by Marvin Smith

C-2004-1421



The event was followed by questions from the audience, and then a tour of some of Glenn's research facilities. ♦

Left to right: Administrator O'Keefe, Dr. Earls, and Senator Voinovich learn about fuel cell technology from Dr. Patricia Loysell, (in background) Lisa Kohout, Dr. Valerie Lyons (hidden), Albert Juhasz, and Dr. Sheila Bailey, all from the Power and Electric Propulsion Division.

Glenn welcomes director of R&T

Dr. Theo G. Keith, Jr., former Distinguished University Professor in Mechanical Engineering at the University of Toledo, was appointed Glenn's Director of Research and Technology, effective August 29.



Dr. Keith

Keith joins Glenn as a Senior Executive Service (SES) Inter-governmental Personnel Act (IPA) appointee with over 17 years of management experience and 7 years as a Government employee. His connections to Glenn go back more than 30 years, including 10 years as a member of the Ohio Aerospace Institute (OAI) Executive Team where he held a joint appointment as the first director of Research and director of Education, and vice president of Workforce Enhancement.

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Across the Agency

NASA infrared camera helps map brain tumors

Doctors at the Keck School of Medicine at the University of Southern California in Los Angeles are using an infrared video camera developed by scientists at NASA's Jet Propulsion Laboratory, in partnership with Indigo Systems Corp., Goleta, CA, to see if they can create useful maps of brain tumors. They are trying to sketch tumor margins by detecting temperature changes during surgery, since tumor cells emit more heat than healthy ones. The camera's precision allows it to map temperature differences of 100th of a degree Celsius at a high resolution. An advantage of thermal imaging is that it is noninvasive. It measures heat energy emerging from patients without exposing them to X-rays or intravenous solutions, and is performed without incisions or contact to the brain tissue. For more information on the infrared camera, visit <http://www.jpl.nasa.gov/technology/features/tech930.html>.

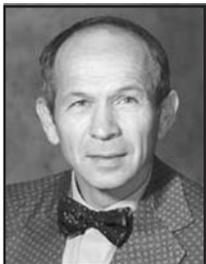


Now showing at a theatre near you

Regal Entertainment Group (REG) moviegoers across the country are getting a lesson in science, technology, engineering, and mathematics through a unique partnership with NASA Langley's Center for Distance Learning. An estimated 14.4 million patrons will see newsbreaks from the award-winning NASA Kids Science News Network (KSNN) on the lobby plasma screens in more than 400 REG theatres including Regal Cinemas, United Artists Theatres, and Edwards Theatres. To learn more about KSNN and other distance learning programming, visit <http://ksnn.larc.nasa.gov/about.html>.

In Memory

Dr. Maxime A. Faget, the man who designed the original spacecraft for Project Mercury and is credited with contributing to the designs of every U.S. human spacecraft from Mercury to the space shuttle, died on October 9. During his NASA career that spanned four decades, Faget conceived and proposed the development of a one-man spacecraft, later used in Project Mercury. He was one of the original 35, assigned as a nucleus of the Space Task Group to carry out the Mercury project in 1958, which later evolved into the NASA Johnson Space Center. Faget was also part of the original feasibility study and team responsible for the space shuttle development. He retired from NASA in 1981 following the second shuttle mission (STS-2). For additional information about Faget, visit <http://grin.hq.nasa.gov/ABSTRACTS/GPN-2002-000223.html>.



Dr. Faget

Leroy "Gordon" Cooper, Jr. (Colonel, USAF, Ret), the youngest of the original seven astronauts, died on October 4 at the age of 77. Cooper piloted the sixth and last flight of the Mercury program and later commanded Gemini V. Cooper's flight in his *Faith 7* spacecraft stretched the capabilities of the Mercury capsule to the limits. The mission, May 15 and 16, 1963, lasted beyond 34 hours and 22 orbits, which was more than three times the longest U.S. human space flight until that time, and far exceeded the initial design capability of the capsule. During that flight, he became the first astronaut to sleep in space. Cooper was the backup command pilot of Gemini 12, launched in November 1965 and for Apollo 10, which flew in May 1969. He left NASA and retired from the Air Force as a colonel on July 31, 1970. More information on Cooper including his official NASA biography is available at http://www.nasa.gov/vision/space/features/cooper_obit.html and <http://www.jsc.nasa.gov/Bios/htmlbios/cooper-lg.html>.



Cooper, Jr.

HQ awards procurement efforts

The NASA Headquarters Office of Procurement recently awarded Glenn two Acquisition Improvement Awards.

● **The Outsourcing Desktop Initiative for NASA's (ODIN) Aerospace Research Mission Centers.** Glenn board members included Don Sosoka, program manager; Thomas Murray, contracting officer representative; Thomas Spicer, contracting officer (CO); Leahmarie Stervagi, alternate CO; Carl Silski, small business officer; and Jacqueline Barbeta, industrial property manager. Glenn led this initiative with board representation from each of the other aerospace research mission centers. These members were individually recognized for their innovative techniques, streamlining practices, and commitment to further NASA's procurement initiatives leading to multiple contract awards for comprehensive computer services.

● **The Simplified Acquisition Templates for use with SAP.** The team included Glenn employees Jean Boylan, Adele Szuhai, Robin Strohacker, Elaine Shuman (IDI), and Celeste Dalton, Headquarters. The team was recognized for its outstanding work in creating a solution to a problem associated with the IFM-SAP. They were tasked to review a number of difficulties with the use of the forms, terms and conditions, and representations and certifications associated with simplified acquisitions within the IFM-SAP system. As a result of the teams' creativity, duplicative effort was eliminated at the Centers, and the decision was made to centralize clause maintenance to ensure consistency and quality across the Agency. The difficulties associated with the use of the new Core Financial Module for the creation of simplified procurements have been significantly reduced as a result of this teams' efforts. ♦



Remember our
Veterans
November 11

Walz presents two Silver Snoopy awards

Astronaut Carl Walz presented Silver Snoopy awards to Dr. Suleyman Gokoglu and Dr. Subramanian Sankaran (NCRM), members of Glenn's Micro-gravity Division, on September 23.

The Silver Snoopy Award is the astronauts' personal tribute to individuals whose single effort or long-term outstanding performance has contributed to flight safety and mission success—the main priorities for human space flight. The recognition focuses on efforts that enhance the probability of mission success, such as improvements in design, administration, technology, production techniques, business systems, flight and/or system safety, and error identification, correction, or prevention.

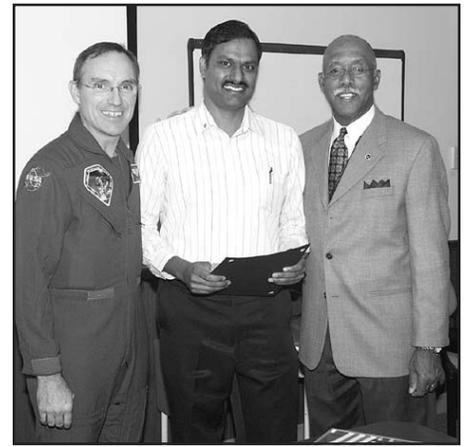
Gokoglu was recognized as the project scientist of the Water Mist Fire-Suppression Experiment (Mist), which was flown on STS-107 onboard *Columbia*. Despite the ill fate of the mission, over 90 percent of the data gathered in orbit was recovered. His expertise in combustion science and chemically reacting systems was critical for the successful execution



Astronaut Walz, left, presents a plaque to Dr. Gokoglu recognizing his contributions to NASA's human space flight.

of the experiment from conception through post-flight analysis. His efforts and careful planning were essential to development of an efficient flight operational approach.

Sankaran was recognized as the project scientist for the Physics of Colloids in Space (PCS) series of experiments. His most notable contributions include facilitating a clear, measurable, and



Astronaut Walz, left, and Center Director Dr. Julian Earls, right, recognize Dr. Sankaran's contributions to human space flight.

verifiable set of science requirements working with a large team of scientists and engineers involved in the PCS experiment that was operated for over 10 months on orbit in the International Space Station. He was also crucial in assuring that high-quality standards were met for an important element of the human space flight program. ♦

Two receive Space Flight Awareness honors

Matthew Melis and Dr. J. Michael Pereira, Structural Mechanics and Dynamics Branch, were recently recognized as Space Flight Awareness (SFA) honorees for their key roles in NASA's Return to Flight program.

The honoree activity included a tour of Kennedy Space Center, reception, and award dinner. The SFA award, sponsored by the Office of Space Flight and the NASA-Industry-SFA Panel, is one of the highest and most prestigious awards available to employees of the NASA-Industry-Shuttle-Space Station Team. Deputy Director Richard Christiansen represented Glenn senior management at the honoree events on August 25.

Melis and Pereira both have served in key roles as technical leads and coordinators for Glenn's Ballistic Impact Laboratory, which was called upon to support the investigation into the Columbia Accident and NASA's Return to Flight program with an extensive analysis and testing program relating to the shuttle external tank, orbiter windows, and orbiter wing leading edges since March of 2003. Each element of the program is on the critical path to clear the shuttle



Pictured, left to right, Associate Administrator, Space Operations Mission Directorate William Readdy, Dr. Pereira, Melis, and NASA Johnson's Deputy Center Director and astronaut Bob Cabana.

for safe return to flight status. The next launch is expected to occur in spring of 2005. ♦

Astronaut candidates visit

During their first visit to Glenn on September 17, NASA's new astronaut candidate class learned how the Center contributes to the Agency mission, through facility tours and meetings with employees. During a news briefing with local media, the candidates expressed their excitement about the research conducted at the Center and praised the talented, friendly employees. The 11-member class includes three educator astronauts who were selected from thousands of teachers across the country. It also includes three military pilots, a Navy SEAL, an astrophysicist, two physicians, and an engineer. Three Japan Aerospace Exploration Agency astronauts joined the candidates. Pictured, right, is Terry O'Malley, Missions Operations and Integration Projects Office, giving an overview of the Combustion Integrated Rack Experiment Assembly Flight Unit, which is planned for a 2007 launch to the International Space Station.



Photo by Marvin Smith

C-2004-1472



Photo by Doreen Zudell

Technology alliance

Guests and media witnessed the announcement of a new effort to invigorate Ohio's economy on October 6 at Glenn's Visitor Center. The Glenn Alliance for Technology Exchange is a newly formed collaboration between Glenn and two long-term partners, OAI and Battelle. Working closely with the Northeast Ohio Technology Coalition (NorTech), the alliance will work to build robust partnerships between Glenn and industry as well as academia, enhance Glenn's positive economic impact on both the region and the state, and help further NASA's mission through the development and transfer of new technologies. Pictured, left to right, Center Director Dr. Julian Earls; Chris Varley, NorTech; Don Majcher, OAI; and Pierrette Woodford, Battelle.

Safety 24/7

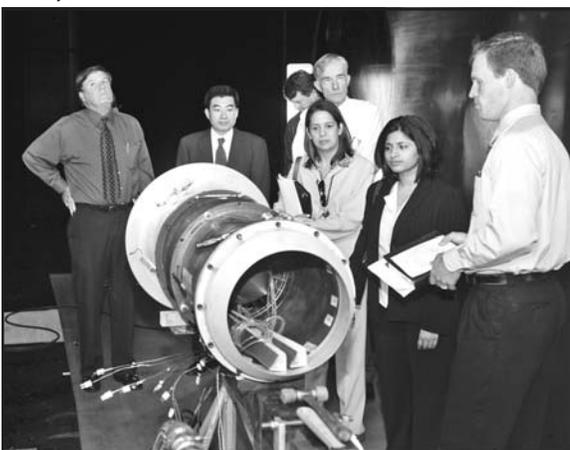
The Safety 24/7 celebration sponsored by Glenn's Safety Office attracted nearly 600 employees eager to participate in games, prizes, and a free continental breakfast while learning how to maintain a safe environment not only in the workplace but also at home. Bonita Haupt and Jean Farah, SHS/Medical Services, coordinated the event that featured 17 different stations displaying safety equipment and pamphlets for employees to learn. Pictured right, left to right, Sharon Thomas, AKAC/R&D Labs Technical Branch, and David Forth SAIC/Environmental Management Office, staff a station where participants spun a wheel to answer questions about the material and to earn prizes.



Photo by Ahmed Abumeri

Photo by Quentin Schwinn

C-2004-1474



OMB visit

Irene Brahmakulam, who replaced Paul Shawcross as the Office of Management and Budget's (OMB) new examiner for NASA Aeronautics programs, recently visited Glenn to familiarize herself with each of NASA's four aeronautics research facilities and their institutional issues. Accompanied by several members of the NASA Headquarters staff, Brahmakulam toured the 9- by 15-Foot Low Speed Wind Tunnel, the 10- by 10-Foot Supersonic Wind Tunnel, the Advanced Subsonic Combustor Rig, the Icing Research Tunnel, and the Electric Propulsion Lab. Pictured in the 10- by 10, Glenn Fuller and Jaiwon Shin Headquarters Aeronautics Research Mission Directorate (ARMD); Jeff Swan, Research Testing Division; Tom Biesiadny, Inlet Branch; Irma Cortes, ARMD; Brahmakulam; and Dave Stark, Facility Management and Planning Office.



Ask the Director

Q: In the event of a buy-out, what would your policy be regarding an employee taking a buy-out and immediately returning to work as a support service contractor?

A. (9/16/04) Employees who accept a separation incentive must refund that incentive if they are reemployed by the U.S. Government within a period of 5 years. In this context, "employed" includes working for a contractor in a way that creates a personal services relationship to the government. To preclude the creation of such personal service relationships, in previous buyouts the Center has not permitted employees who have taken a buyout and accepted employment by a Center contractor to have a duty station on the Center. While the commitment to avoid creating personal services relationships still remains the same, the Center will no longer preclude employees who accept a buyout from working for a Center contractor onsite.

Q. I recently found out that the contractors don't have to attend the Team Effectiveness Training. How can you effectively bring about a change in the culture at the Center if a large portion of its workforce doesn't have to attend the core training?

A. 9/16/04 This question has been raised by employees throughout the Agency and is being addressed by appropriate Headquarters officials. NASA recognizes that our contractor employees, while a part of their own company cultures, are also a part of the NASA culture. The current contract with Behavioral Science Technologies, Inc. (BST) includes a task to conduct interviews and "prepare a white paper on the role of operating contractors and contractor employees in changing NASA culture." The paper will "address the ways in which contractors influence and are influenced by the NASA culture and shall make recommendations for how NASA can assure the desired culture can be achieved." I am sure the Agency will respond to the recommendations from BST in a way that will further the positive cultural changes we are making. ♦

The above questions were chosen by the Director as a sampling from the Ask the Director Web site.

News Notes

LESA MEETING: LESA/IFPTE, Local 28, will hold its next monthly membership meeting on Wednesday, November 10, at noon in the

NATIVE AMERICAN OBSERVANCE: Keith Little, a member of the Navajo Nation who served as a WWII code talker, will be the keynote speaker for the Native American Month Observance program, from 10 a.m. to noon on Wednesday, November 10, in the DEB Auditorium. Little will speak on the theme, "Expanding the Circle."

VETERANS DAY OBSERVANCE: The Veterans Awareness Committee will conduct its annual Veterans Day Observance from 1 to 2 p.m., November 10, in the DEB Auditorium. U.S. Marine Corps veteran Keith Little will be the keynote speaker.

SATURDAY VISITOR CENTER EVENT: The Glenn Visitor Center (VC) will present "NASA's Great Observatories" on Saturday, November 20, from 10 a.m. to 3 p.m. Learn more about NASA's magnificent Hubble, Compton, Chandra, and Spitzer observatories; view the latest pictures; and see how their results are revolutionizing the field of astronomy. Presentations: 11 a.m. "Hubble Space Telescope—Its History and Future" and 1 p.m. "Compton, Chandra and Spitzer: Other Great Observatories." As always, free photos for everyone at the "Picture Yourself in Space" digital photo booth, kids craft activities, and plenty of handouts! Reservations are suggested for the presentations. For more information or to make your reservations, call 216-433-9653 or e-mail <http://visit.grc.nasa.gov>.

AFGE MEETING: AFGE Local 2182 will hold its next monthly membership meeting on Wednesday, December 1, at 5 p.m., at Denny's Restaurant, 25912 Lorain Road, North Olmsted. All members are encouraged to attend.

WOMEN RETIREE LUNCHEON: The next luncheon for Glenn female retirees will be Thursday, November 18, noon, at Donauschwaben's German American Cultural Center, 7370 Columbia Road, Olmsted Township. For further information, contact Betty Callaghan at 440-268-9662.

Check Today@Glenn for the One NASA Transformation Dialogue Broadcast schedule.

NASA VISION
 To improve life here,
 To extend life to there,
 To find life beyond.

2004 R&D 100 awards

Glenn innovation celebrated among today's top technologies.

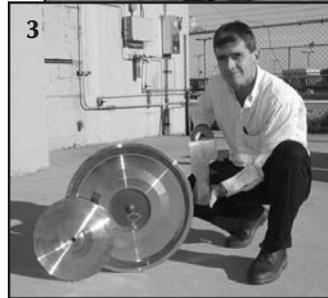
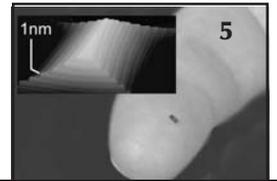
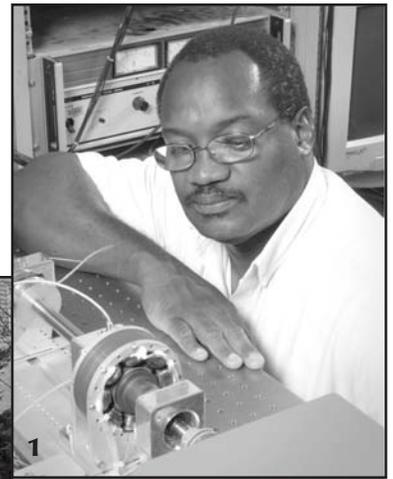
The editors of *R&D Magazine* and a panel of 50 experts chose three Glenn-developed technologies this year to be among the 100 most significant new products to receive the highly coveted R&D 100 Award. Entries in 16 functional categories from many of the most prestigious companies, research organizations, and universities in the world were submitted to the 42nd annual competition and displayed at the R&D 100 Exhibition and Banquet at Chicago's Navy Pier on October 14.

The following Glenn technologies were selected in the categories of materials, electronics/communications, and microscopy.

Glenn materials researchers, in collaboration with engineers from GE Aircraft Engines and Pratt & Whitney, developed the **ME3 Advanced Turbine Disk Alloy**, a nickel-based powder metallurgy superalloy that will not only withstand higher combustion temperatures for improved engine efficiency, but also help prolong the life of turbine and compressor disks. ME3 enables engines to withstand higher combustion temperatures and pressure ratios, translating into increased fuel efficiency, lower fuel burn, and reduced emissions. ME3 is optimized for aircraft with long takeoffs or high-speed cruise missions, such as newly conceived super jumbo jets, high-speed civil transports, supersonic business jets, and several advanced military aerospace vehicles. Engine manufacturers can also use ME3 at current operating temperatures to increase the time between required engine maintenance, since it is estimated to last nearly 30 times longer than current disk material.

Named for its inventor, Carlos Morrison, the **Morrison Motor** is a bearingless switched-reluctance motor with an 8-pole stator and 6-pole rotor. The motor is characterized as bearingless because it operates with magnetic levitation instead of bearings, ideal for applications in which

Photos by Marvin Smith and Quentin Schwinn



large temperature variations or other extreme conditions exist. The motor employs a hybrid rotor and a stator that contains poles with a single set of windings instead of the two sets used in conventional bearingless motors. This reduces overall power consumption, produces less mechanical noise due to lower rotor eccentricity, and suppresses vibration better than bearing-based motors. Its compact design and simpler motor control logic, coupled with an infinitely variable torque/levitation load ratio, makes the Morrison Motor an attractive tool for use in pharmaceutical centrifuges, compact industrial grinders, milling machines, and high-power density motors for aircraft propulsion.

Glenn engineers, in collaboration with Sest, Inc., and OAI, have also developed a diagnostic tool to evaluate and verify the operation and calibration of instruments for measuring nanoscale objects, as the use of nanotechnology is expected

Photo captions

(1) Carlos Morrison, Life Prediction Branch, displays his Morrison Motor. (2) The ME3 team, back row, left to right, William Karpinski, QSS, Tim Gabb, David Ellis, and John Gayda, Advanced Metallics Branch. Front, Robert Draper, Vehicle Systems Projects Office; Anita Garg, Advanced Metallics; and Jack Telesman, Life Prediction. Not present are Pete Kantzos, OAI/Life Prediction; Michael Nathalz, Advanced Metallics; Brian Shannon, AKAC; David Mourer and Kenneth Bain, General Electric Aircraft Engine; and Paul Reynolds and Rick Montero, Pratt & Whitney. (3) Draper displays forgings of small and large engine ME3 disks. (4) Back, far left, Peter O'Neill, GLTC/Battelle, joins members of the Nanometer SHS team including Dr. Phillip Neudeck and Andrew Trunek, OAI/Sensors and Electronics Branch; and front, Dr. Phillip Abel, Tribology and Surface Science Branch; and J. Anthony Powell, Sest/Sensors and Electronics.

Continued on next page

Communication supports new NASA culture

The feedback process is designed to strengthen and continually improve employee communication and relationships.

BY DOREEN B. ZUDELL

The Columbia Accident Investigation Board report and numerous other surveys conducted over the past 2 years have pointed to the need for a cultural change initiative within NASA.

Earlier this year, the Agency commissioned Behavioral Science Technology, Inc. (BST) to assess the existing culture within NASA and to introduce tools for positive change. In its March 2004 report, "Assessment and Plan for Organizational Culture Change at NASA," BST concluded, "The present NASA culture does not yet fully reflect the Agency's espoused core values of Safety, NASA Family, Excellence, and Integrity."

Glenn and Stennis are the first two field centers to initiate a centerwide three-part approach to cultural change, which includes (1) 360° evaluation and coaching of leaders, (2) observation and feedback, and (3) team effectiveness training. NASA Johnson, Kennedy, and Headquarters are currently conducting the process in specific areas within their organizations.

Glenn's Leadership Observation and Feedback Team (LOFT) is playing a vital role in the process. The 11-member team, chaired by Leslie Greenbauer-Seng, chief of the Durability and Protective Coatings Branch, and Dr. Rickey Shyne, chief of the Nozzle Branch, is working to support the overall improvement of the culture at the Center by identifying and encouraging positive behaviors and promoting constructive dialogue among employees and organizations at all levels.

The observation aspect involves LOFT members attending meetings throughout the Center. This is conducted openly and always preceded with notification and discussion with the manager. Observers follow the prescribed Critical Behavior Inventory, drawn from the BST Safety Climate Survey and Glenn



Photo by Doreen Zudell

Pictured, center, Rick Manella, chief of the Structural Systems Dynamics Branch, conducts a staff meeting while Dr. Greenbauer-Seng, right of Manella, attends as a LOFT observer.

Implementation Team recommendations, to record successful leadership traits. Following the meeting, the observer speaks with the manager about each observed behavior and its effect on the meeting attendees.

"The purpose is to provide recognition of desired behaviors, such as openness and consistency, and to understand reasons for undesired behaviors," Greenbauer-Seng said, "Feedback is delivered respectfully and is based on positive communication to encourage managers to consider opportunities for change."

"Giving and receiving 'effective' feedback, both positive and negative, is a valuable skill not only for supervisors but also for peers and subordinates," Shyne said. "While the feedback process encourages and supports the use of desirable leadership behavior and skills, all employees need to understand that their feedback counts as well."

Greenbauer-Seng and Shyne said that the observation and feedback process supports the cultural change initiative in fostering leadership excellence and providing a work environment that will strengthen the Center's ability

to contribute to the success of the Agency's future. The new process will be incorporated as a "best practice" at Glenn. ♦

Glenn earns three R&D 100 awards

Continued from page 6

to grow dramatically over the next decade. The **Nanometer Step Height Standard** (Nanometer SHS) is a calibration standard with arrays of atomic scale staircases. Each staircase features regularly spaced steps nearly 1 micrometer apart with atomically flat terraces between step risers of either 0.5 or 1.0 nanometers, as chosen during fabrication. These heights are around 10 times smaller than those of previous standards for scanning probe microscopy calibration. The new devices are fabricated from highly durable single crystal silicon carbide, whose unique crystal properties enable the atomic scale staircase formation. The SHS team is working with Peter O'Neill from GLITEC, NASA's midwest regional technology transfer office, to potentially market the product. ♦

Emergency drill designed to prevent loss and injuries

Testing emergency scenarios is vitally important in the event of a major accident.

During an hour-long drill simulating an emergency response to a fire onboard NASA's KC-135 aircraft, Glenn's tarmac became the scene of an exercise to test NASA's and local agencies' abilities to respond to an aircraft incident.

The September 16 event was designed to test and strengthen disaster preparedness procedures among crews from Glenn, Brook Park and Fairview Park fire departments, Cleveland Hopkins Airport Crash Rescue, and Fairview and Southwest General hospitals.

About 30 Glenn employees from several directorates at the Center participated by playing the role of victims undergoing treatment by emergency personnel. This created the feel of a realistic event and helped rescue crews, local hospitals, and Glenn employees to perform as if an actual emergency were occurring.

Victim injuries were triaged and assigned severity codes that were written on 3-by 5-inch cards prior to evacuation of the aircraft. Victims with severe injuries were transported to Fairview Hospital and treated by the hospital team.

"Drills such as this help each agency experience problems that may occur during an actual emergency and make corrected actions if mistakes occur," said Jeff Wagner, Environmental Management Office. "The drill also provided an opportunity for all the agencies to train together and establish stronger working relationships."

Wagner said that Glenn will continue to work with local agencies to conduct emergency preparedness drills. ♦



Photo by Doreen Zudell

Frank DeAngelo, Glenn Safety Office, roleplays a victim for Hopkins Aircraft fire fighters Alex Kundrant and Wesley Arnold.

New R&T director

Continued from page 1

Among his many responsibilities at OAI were the Senior Research Associate Program, the NASA/OAI Summer Intern Program, and the collaborative NASA, American Society for Engineering Education, Case Western Reserve University, OAI Summer Faculty Fellow Program.

During his 33-year tenure at the university, Keith taught over 45 different graduate and undergraduate level courses, and published and performed research in many NASA-relevant areas, including propulsion, turbomachinery, aircraft icing, aeroelasticity, space power, tribology, computational fluid dynamics, heat transfer, and fluid dynamics. For more than 20 years, many of his graduate courses were taught onsite at Glenn. Keith is also the author or coauthor of more than 260 articles in archival journals and conference proceedings. He is a Fellow of the American Society of Mechanical Engineers and the Society of Tribologists and Lubrication Engineers.

"As director of Research and Technology, Dr. Keith will assist in the reshaping of the research model at the Center," said Center Director Dr. Julian Earls. "His experience in working with private industry and academia will make him invaluable in leading the change. Dr. Keith is a welcome addition to the SES corps at Glenn."

Systems will focus on human assets

The Office of Workforce Planning will be implementing two new Agency systems. These systems will assist project managers and senior management in the planning and allocation of our most valuable asset: YOU!

The Workforce Integrated Management System (WIMS) provides essential workforce data to Center management in order to make better workforce staffing and management decisions. WIMS will address the need to strategically assess the Center's Human Capital by program/project, by organization, and by competency. End-user training begins in November.

The Competency Management System (CMS) is coming this month. It is part of the Strategic Plan for the Agency that contains knowledge on the capability of the workforce, the competencies required for each position, and the competencies needed for each project. Each civil servant will be asked to input his or her primary and secondary competencies into the system to help prepare Glenn for the future. Look for more information on *Today@Glenn* in the coming weeks. Contact Trey Carlson at 216-433-8609 for more details.

Veterans awareness: honoring sacrifice and service

BY S. JENISE VERIS

In recognition of Veterans Day, November 11, the *AeroSpace Frontiers* spoke with three Glenn employees who recently returned from serving in Iraq.

George Saad, Prototype Development Branch, retired from the United States Air Force Reserves (USAFR) in July after a combined 26 years of military service. Saad's last tour of duty was 2 years spent as the USAFR 910th avionics flight chief, supporting the 910th Airlift Wing from Youngstown, OH. First, they went to Germany; then on to Camp Justice, Masirah, an Air Base off the peninsula of Oman, Iraq (for support in Iraq and Afghanistan); and then to Ali Al Salem, Kuwait.

"We were responsible for the recovery, repair, and launch of three different C-130 models' avionics systems—whatever was necessary to keep the planes operable," Saad said. "I had to go through quite a learning process to work on the aircraft, but I found that my experience at Glenn and the military were mutually beneficial."

A mechanical engineering technician at Glenn, Saad fabricates sensors used in aircraft and flight experiment instrumentation. However, most of his military career was spent as an avionics instrumentation technician responsible for system maintenance of C-130's (a.k.a. Hercules), the military's most versatile aircraft.

For Erick Lupson, 30 years of Federal services include being a NASA employee and a USAF veteran and reservist.



USAFR First Sergeant Lupton, right, is greeted upon his arrival by other first sergeants stationed at Al Drafra, AB, April 2004.

Right, USAFR flight chief Saad stands outside the Camp Center at Camp Justice in Oman.

Below, USAR staff sergeant Williams stands guard near one of the water purification plants his company set up in Tikrit, Iraq.



Lupson, who is a contracting officer in the Services and Constructional Branch of the Procurement Division, began his NASA career in 1979.

Lupson first saw active duty with the USAF during the Vietnam War, then as a reservist in the Desert Shield/Desert Storm war in 1990. More recently, Lupson was called to serve in Iraq where he addressed an emergency situation at the El Drafra Air Base (AB) in the United Arab Emirates on the southern end of the Persian Gulf.

"As USAFR first sergeant in the 76th Aerial Port Squadron, assigned to the 910th (Airlift Wing at Youngstown, OH), I was responsible for supervising over 145 soldiers and dealing with personnel issues to maintain the welfare of the troops. Fifty of those soldiers are still on active duty in the Persian Gulf."

James Williams, a systems electrical/electronics technician in the R&D Labs Technical Branch, joined the United States Army Reserves (USAR) after graduating college and becoming a naturalized U.S. citizen. Last year, after serving NASA and the USAR simultaneously for the past 17 years, he was called to active duty.

Although he escaped the strife of civil war in his homeland of Liberia, ironically he served a year in Iraq. As staff sergeant, E-6, he trained members of 428 Quarter

Master Company to perform a number of duties specific to their location. They set up water purification and distribution plants for combat support, handled ammunition and bulk deliveries, and set up retail fuel lines. In Tikrit, the hometown of Saddam Hussein, their mission was to set up a water plant; and at the Tikrit-South airport, they had charge of inventory of weapons.

"At Glenn I support several different researchers and the experiments performed in the Optical Instrumentation Lab by setting up hardware and outtakes for laser activity," Williams said. "The various roles and responsibilities require considerable organization and technical skill. Those skills and a healthy respect for the chain of command helped me get things done in Iraq as well."

The Glenn Veterans Awareness Committee (VAC) has erected a "Wall of Honor" in Building 15 honoring these and other Glenn employees who serve in the U.S. Armed Forces (Active/Reserve). Glenn employees who have a family member serving in either the Active Armed Forces or Reserves may also request a Blue Star Banner to display. E-mail or call VAC members Claudette.J.Wlasuk@grc.nasa.gov, 216-433-2516, or Linda.M.McMillen@grc.nasa.gov, 216-433-8031. ♦

Promotions



Klem

Mark Klem was selected for the position of Low Emissions Alternative Power (LEAP) project manager, Vehicle Systems Projects Office. Klem, who currently serves as the Next Generation Launch Technology Propulsion R&T project manager, brings to his new position experience in development of the space shuttle main engine combustor gained while employed at NASA Marshall and demonstrated ability to integrate technical feasibility based on systems requirements to implement key projects at the Center. His space propulsion experience will be an asset to LEAP advocacy in hydrogen-based propulsion as well as propulsion and power technology and system concept development for Mars exploration, a potentially new addition to the Vehicle Systems Program technology portfolio.

Kestutis Civinskas was selected for the position of Ultra-Efficient Engine Technology (UEET) project manager, Vehicle Systems Projects Office. Civinskas, who currently serves as deputy chief of the Aeropropulsion Projects Office, has extensive technical and project management experience, including research conducted in fluid dynamics and heat transfer of advanced air-breathing and space propulsion turbomachinery, project management of two Base R&T projects, and as former UEET manager of the Highly Loaded Turbomachinery Subproject. His demonstrated management of large technical projects and ability to integrate technologies will be particularly valuable to the UEET project and the Quiet Airplane Technology Project.

Honors

As a part of an annual celebration of National Business Women's Week, three employees were recognized for their contribution within NASA Glenn's Business & Professional Women (BPW) organization and the Glenn community on October 9, at the BPW Region 3 Meeting in Akron. BPW Honoree Anita Alexander, Office of the Director, was recognized for her "innovative membership programs," being the first to collaborate the BPW club with diversified groups at NASA. BPW Honoree Kimala Laster, Research Testing Division, was recognized for "overcoming barriers for women" through her active role as a mentor and promoting education for women. Community Honoree Olga Gonzalez-Sanabria, Engineering and Technical Services Directorate, was recognized for "empowering others to follow their dreams" by her leadership and as a role model for Hispanics. ♦



Pictured, left to right, Laster, Alexander, and Gonzalez-Sanabria.

NASA Values: Safety, NASA Family, Excellence, and Integrity

Ronald "Joe" Sovie,

who retired January 2003, recently died. Following an initial assignment with the Army Rocket and Guided Missile Agency, Sovie began his 42-year NASA career serving as a research physicist in such areas as plasma physics, electric propulsion, and space power. Most recently, he was a consultant for onsite contractor Northrop Grumman.



Sovie

Remembered as a focused and straightforward guy, who worked tirelessly on behalf of the Center, Sovie devoted most of his NASA career to the development of aerospace power systems. As deputy chief of the Power and On-Board Propulsion Technology Division for 10 years and acting chief for 2, Sovie led advanced space power technology development supporting numerous NASA missions. Among his noted accomplishments was chair of the Independent Evaluation Group supporting the Strategic Defense

Continued on next page

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DEADLINES: News items and brief announcements for publication in the December issue must be received by noon, November 10. The deadline for the January issue is noon, December 17. Submit contributions to the editor via e-mail, doreen.zudell@grc.nasa.gov, fax 216-433-8143, phone 216-433-5317 or 216-433-2888, or MS 3-11. Ideas for news stories are welcome but will be published as space allows. View us online at <http://AeroSpaceFrontiers.grc.nasa.gov>.



In Memory

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Initiative Organization Power Program with oversight of multimewatt power technology development activities; and deputy program manager for the national multiagency SP-100 Program to develop a national nuclear space power system capability. He also managed major NASA programs in collaboration with the Department of Energy during the energy crisis of the 70's; was deputy director, Power, Propulsion, and Energy Division at NASA Headquarters; and served on the Headquarters Technology team for the new NASA Exploration Initiative. Prior to retirement, he led Spacecraft Systems Program development activities for Glenn's Space Directorate.

Sovie received the NASA Exceptional Service Medal for his leadership efforts in nuclear and solar space power in 1989 and the AIAA Aerospace Power Systems Award in 2002 "for a lifetime of personal contributions in the guidance and management of advanced space power technology research and development, including the development of a foundation for a national nuclear space power capability as deputy program manager for the SP-100 program."

He is survived by his wife and four children including daughter, Amy Jankovsky, Life Support and Habitation Projects Office, and her husband, Robert, Electric Propulsion Branch, who carry on the Glenn legacy.

Glenn Cowgill, 74, who retired with 30 years of Federal service, died in May. Cowgill was a U.S. Army veteran and served in Glenn's Computer Services Division for many years prior to his retirement in 1985.



Gordon

Murray Gordon, 83, who retired in 1976 with 34 years of Federal service, recently died. Gordon became the Center's first labor relations lawyer and was recognized for a decade of achievement on

Behind the Badge

a closer look at our colleagues

Marie Borowski



Photo by S. Jenise Veris

Borowski shares the joy of scrapbooking with her 4-year-old daughter, Lauren.

Job Assignment: I am an education program specialist in the Education Programs Office.

Time at NASA: I will have served 20 years this coming June.

Describe your family: My husband Brian and I live in Strongsville with our two children, Michael (6) and Lauren (4). Brian works for Analex supporting the Microgravity Division.

Favorite quote: "I am convinced that life is 10 percent of what happens to me and 90 percent how I react to it. And so it is with you...we are in charge of our attitudes." —Charles Swindoll

Social/professional activities at Glenn: I manage the Shadowing Program for the Center, the NASA/Tennessee State University College Bound Program, and Helping One Student to Succeed (HOSTS). I am also the point of contact for the NASA College Scholarship Fund for Glenn.

Dream job: I really had to think hard about this one. I do like working at the Center, and I love what I do here. Interior decorating interests me quite a bit, but so does forensic science. In all honesty, putting paychecks aside, I think the thing I would really love the most is to just be a wife and mother—that's my true "dream job."

Hobbies/interests outside of NASA: I have many personal interests. I love to spend time with my family and friends. I enjoy painting, crafting, gardening, reading, being outdoors, and home decorating. I especially enjoy scrapbooking because not only does it let me utilize my creativity but it also enables me to do something for my family (many times with my family and friends) that will last for generations. I'm capturing a part of our family history, special moments together, and making sure that our children know how special they are to us by journaling with the photos. Through this hobby, I've been able to capture many special moments that we've spent together that we can enjoy for a lifetime.

Food temptations: Ice cream, chocolate, and homemade chocolate chip cookies!

Vacation fantasy: I wouldn't really say it's a "fantasy," but I look forward to going back to Maine where we went on our honeymoon. I would love to go back there with my husband and our children and also spend time in the New England states.

behalf of his successful pioneering efforts in NASA labor relations.

William Sanders, 74, who retired in 1995 after 37 years of NASA service, recently died. Sanders spent his entire career as a research metallurgist in the Materials Division. His early work was in the field

of compatibility of nuclear fuels with metallic containment materials. He was a leader of NASA's initial efforts to investigate silicon carbide and silicon nitride as advanced gas turbine materials, which provided the ground work for Glenn's current efforts in ceramic matrix composites.

Laboratory expansion aids future long-term missions

BY S. JENISE VERIS

With the expansion of Glenn's Stirling Research Lab, the number of test beds available to advance development of a high-efficiency Stirling Radioisotope Generator (SRG 110) for NASA space exploration missions has tripled.

The SRG is being developed for multimission use, including providing electric power for unmanned Mars rovers and deep space missions by a government team including NASA Glenn, the Department of Energy (DOE), Lockheed Martin, and Stirling Technology Company. DOE requested Lockheed Martin as the system integration contractor to develop the qualification unit, with an option for the first flight units using two opposed Stirling convertors and two General Purpose Heat Source modules. Stirling Technology Company previously developed the Stirling convertors under contract to the DOE and now continues as a subcontractor to Lockheed Martin. Lockheed Martin selected Glenn, which has been actively involved with Stirling technology for over 25 years, in a supporting technology role and to conduct the extended operation of the Stirling convertors, perform mapping

of the units, and to provide some of the analytical capabilities to simulate the whole system using Glenn's world-class facilities.

Jeff Schreiber, Thermal Energy Conversion Branch, is team lead for the Glenn effort that includes Lanny Thieme, lead for technology, and Mary Ellen Roth, lead for in-house testing. They recently surpassed 10,000 hours of operation with two technology demonstration convertors (TDC) flight prototypes TDC's 13 and 14, which have operated around the clock since April 2003.

"We created the new laboratory to increase our test stands from two to six and to accommodate a power system test bed in the center of the room so that we can mock up a whole system within one room to simulate the spacecraft electrically," said Schreiber. "Each test stand can accommodate two TDC's or two advanced Stirling convertors, referred to as EE-1 and 2 built by Sunpower, Inc., of Athens, OH, under a Phase II Small Business Innovation Research grant."



Photo by S. Jenise Veris

Schreiber, far right, and Salvatore Oriti at work inside Glenn's expanded Stirling Research Lab.

The SRG is one of two radioisotope-based generators being developed by DOE to improve efficiency over current power systems used by NASA. The increase in efficiency, by a factor up to 4, could permit a new era of solar system missions designed for agility, longevity, flexibility, and comprehensive scientific exploration. These essential improvements on Glenn's current technology would enable "all weather, anywhere, anytime" exploration of planetary surfaces. The technology is also directly applicable as the power source for a wide range of exploration missions for the Science Mission Directorate. ♦

National Aeronautics and Space Administration

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