



# AEROSPACE

## Frontiers

## MER: the adventure to Mars continues

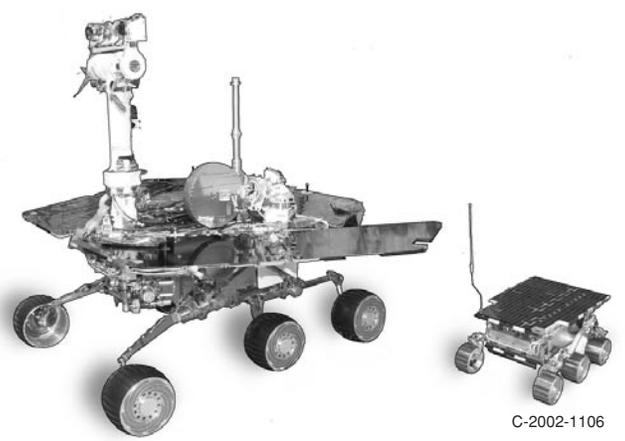
BY S. JENISE VERIS

Excitement surrounding the Mars Exploration Rover (MER) mission grows as the launch window, May 30 through June 25, nears. The sequel to the successful adventure of the 1997 Mars Pathfinder rover, Sojourner, MER gives Dr. Geoffrey Landis, Photovoltaic and Space Environments Effects Branch, the chance to repeat his performance in a supporting role.

Landis was principal investigator for the Materials Adherence Experiment, a solar cell experiment that measured dust on Sojourner. Last year, he was among 28 researchers selected to participate in the MER mission with twin Mars rovers. The

rovers, outfitted with a sophisticated set of geological instruments and a rock abrasion tool (the "RAT") to grind into the interior rocks, will be deployed to separate regions of the red planet to investigate evidence of water.

"For this particular experiment, I'm working with Phil Jenkins, OAI/Photovoltaic and Space Environments Effects Branch, to find two pieces of information. First, how well do solar cells perform in the actual Martian environment? A short-circuit current cell will measure the amount of energy the solar



MER 2, left, with a model of its predecessor, Pathfinder's Sojourner.

C-2002-1106

cells generate under Mars sunlight," Landis explained. "We're also interested in Martian dust to answer the question, how dusty can the solar array get before it begins to lose power? Part of that information will come from the short-circuit solar cell (calibration solar cell) and part from an optical calibration target that we will image with the panoramic camera."

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## Expedition 6 ready for reentry

Expedition 6 Commander Ken Bowersox, Flight Engineer Nikolai Budarin, and NASA Station Science Officer Don Pettit will return to Earth aboard the Soyuz TMA-1 spacecraft this month after more than 5 months aboard the International Space Station.



Originally scheduled to return in March aboard the Space Shuttle *Atlantis*, STS-114 mission, the Expedition 6 crew is taking advantage of the final days of a three-man presence on the station before the new Expedition 7 crew is launched.

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The Expedition 6 crew, left to right, Don Pettit, Ken Bowersox, and Nikolai Budarin.

### Inside

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Dr. Quang-Viet Nguyen fits right in at Glenn

# NASA award recognizes contractors

Glenn nominees RS Information Systems (RSIS), McLean, VA, and Williams International (WI), Walled Lake, MI, won the 2002 George M. Low award for Small Business Services and Small Business Products presented at the 17<sup>th</sup> NASA Continual Improvement and Reinvention Conference on Quality Management held in the Hilton-Alexandria Mark Center, VA.



The Low award is the Agency's premier award that recognizes large and small businesses that demonstrate excellence and outstanding technical and managerial achievements in quality and performance on NASA-related contracts or subcontracts.

A prime contractor on several projects at Glenn and Goddard, RSIS was nominated for its performance on Glenn's Professional, Administrative, and Computational Engineering contract providing support in networking and security, business applications and outreach, and advanced computing. WI was lauded for the FJX-2 turbofan engine that was designed and developed under the turbine engine element of the NASA General Aviation Program program cooperative agreement. This effort, initiated in 1996 and advanced in subsequent NASA contracts, is credited with helping to revitalize the U.S. general aviation industry.

Other Low Award winners include Analytical Services & Materials, Inc., Hampton, VA, for Small Business Service; and Jacobs Sverdrup, Huntsville, AL, and ManTech International Corporation, Greenbelt, MD, for Large Business Service. ♦

# NASA awards innovative technology

Software technology that is proven to be invaluable for law enforcement investigations and a mathematical method received NASA's Commercial and Government Invention of the Year awards.

The Video Image Stabilization and Registration System (VISAR) is NASA's Commercial Invention of the Year. This innovative technology was created by Marshall Space Flight Center employees Dr. David Hathaway, a solar physicist, and Dr. Paul Meyer, an atmospheric scientist.

VISAR turns the dark, jittery images captured by home video, security systems, and video cameras in police cars into clearer, stable images that reveal clues about crimes. The system is also being used in the Space Shuttle *Columbia* accident investigation.

The NASA Government Invention of the Year is a mathematical method called Computer Implemented Empirical Mode Decomposition Method, also known as the Hilbert-Huang Transformation

(HHT) Method. The inventor is Dr. Norden Huang, director, Goddard Institute of Data Analysis at Goddard Space Flight Center.

The HHT Method can be applied in a variety of fields to study things such as basic nonlinear mechanics, climate cycles, solar neutrinos variations, earthquake engineering, geophysical exploration, submarine design, structural damage detection, satellite data analysis, nonlinear wave evolution, turbulence flow, blood pressure variations, and heart arrhythmia. ♦

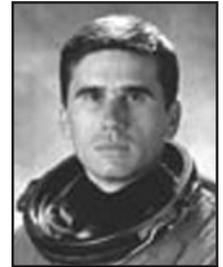
Photo by Emmett Given, Marshall



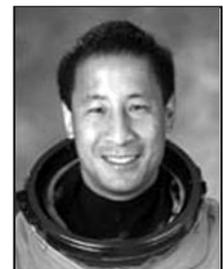
# Space station's new residents

Continued from page 1

The decision to reduce the crew size was based on the temporary grounding of the shuttle fleet, which limits the capability to deliver consumables, such as water, to the station. An unmanned Russian *Progress* supply vehicle will be launched to the station in June.



Malenchenko



Lu

Bowersox and Pettit recently reconfigured critical power cables and continued the external outfitting of the station during a 6-hour, 26-minute spacewalk designed to complete a number of get-ahead tasks for future station assembly. No spacewalks are planned for the two-person crews that will occupy the station beginning with Expedition 7.

Veteran Russian cosmonaut Yuri Malenchenko (colonel, Russian Air Force) and veteran NASA astronaut Ed Lu have been named to the Expedition 7 crew, scheduled for launch in a Russian Soyuz TMA-2 spacecraft from the Baikonur Cosmodrome, Kazakhstan, no earlier than April 26. The crew would dock with the station 2 days later.

Malenchenko previously commanded a 4-month mission aboard the *Mir* in 1994. Lu is a veteran of two shuttle flights including the *Atlantis* STS-84 mission to transfer U.S. astronauts to and from *Mir* in 1994. This mission reunites the two, who were also members of the *Atlantis* STS-106 mission in 2000 that prepared the station for permanent human occupancy. ♦

Dr. Paul Meyer, left, and Dr. David Hathaway, both from Marshall, view a license plate number revealed by using VISAR.

# IFMP on right track for One NASA

BY JONATHAN BAGGS

*This is the second in a series of articles that feature an employee from each NASA center who has a "One NASA" story to share.*

There's a picture of "Wisdom" on Thom Holden's office wall.

The picture is of an elderly bespectacled man in deep thought and it serves as a salve for any frustration that creeps into Holden's soul.

"Every time I look at it I realize there is more knowledge to be gained—more I can do to benefit all of NASA," Holden said.

He uses the same analogy when talking about the Agency's One NASA concept—something that Holden readily agrees with and supports.

"I think it's a great idea—long overdue," Holden said. "For NASA to fulfill its missions, all of the centers really do need to operate as one entity. We need to pull together on projects and goals that reach across the Agency, and I believe we are on the right track toward achieving that."

Holden, 45, leads the Implementation Support Team at the Marshall Center.

He's responsible for providing change management support to the Integrated Financial Management module projects at the Center. These module projects are all part of the Integrated Financial Management Program (IFMP), which is a NASA-wide effort to modernize its financial and administrative systems and processes. The IFMP exemplifies the One NASA approach to business. The program is implementing a series of new enterprise software systems and business processes through module projects.

"We've got 10 IFMP module projects," Holden said. "NASA has implemented three of those module projects to date—Resume Management, Position Description, and Travel Manager."

Resume Management, also known as NASA Stars, is enabling the Agency to have one staffing and recruiting process. Position Description Management allows supervisors to use a common database for writing job descriptions. Travel Manager provides NASA with one standard system for processing travel requests.



*Holden, with a picture of "Wisdom" in the background, works to make One NASA a reality with the IFM Program.*

The Core Financial Project is the fourth in the series of IFMP modules and is considered the "backbone" of the entire IFMP. It's being rolled out in waves, and implementation at all NASA centers for the Core Financial Project is scheduled to be completed later this fiscal year.

"The Core Financial module is the foundation for the whole IFM Program," Holden said.

The reason it is considered the foundation is that it will allow NASA staff to provide timely, consistent, and reliable information for management decisions and provide an accounting and budgeting structure to enable full-cost management.

"IFMP is ushering in entirely new and different tools for NASA employees to use and enabling the Agency to conduct its financial and business affairs in a much more efficient manner," Holden said. "The IFM Program will enable One NASA with 10 interdependent centers. It's doing that."

"As a part of One NASA, integrated financial management is a change of culture, a change of thought, a change in the way we do business," Holden continued. "There will be rough spots, but if people will stay the course and give One NASA and the IFM Program a chance, the American people will benefit as well as the NASA community."

Jonathan Baggs, ASRI, is the editor of the *Marshall Star*. ♦

## AIAA honors Deep Space 1 team

The team that developed and flew NASA's Deep Space 1 (DS1) spacecraft received the American Institute of Aeronautics and Astronautics (AIAA) prestigious Space Systems award. The award was presented on April 2 during the Responsive Space Conference in Redondo Beach, CA.

The DS1 team was honored for their outstanding performance during design, implementation, test, operations, and extended mission, including spaceflight testing of 12 important, high-risk technologies.

Launched on October 24, 1998, DS1 was designed and built in just 3 years. Among the 12 trailblazing technologies tested was a solar array that concentrated sunlight for extra power and the Glenn-designed ion engine, part of an autonomous navigation system that computed and corrected DS1's course without intervention of human controllers on Earth.

For more information about NASA's DS1 spacecraft, visit <http://www.jpl.nasa.gov/missions/past/deepspace1.html>. ♦

### Earth Day zoocast

To celebrate Earth Day 2003, over 1300 students in 16 states and Canada participated in two Webcasts hosted by Glenn and the OhioView Consortium. These "zoocasts" originated from Adventure Hall at the Cleveland Metroparks Zoo on April 11 and 12. Scientists from the University of Toledo, Cleveland State University, and Kent State University interacted with students at the zoo and across the country. Students learned about and performed activities related to remote sensing and how satellite information is used daily. Zoo facts about the Earth and rain forests were also presented by the zoo staff. A "Students as Scientists" project in which students collected and recorded data on snow and clouds to help validate satellite data was also highlighted. Dr. Kevin Czajkowski, University of Toledo, seated, led an interactive classroom utilizing LANDSAT-7 images video-streamed over the Internet.



Photo by Rita Foreman



Photo by S. Jenise Veris

### Library open house

Vendors from Information Handling Services (Chuck Campagna), the Institute for Scientific Information (Tom Zamojcin), and Cambridge Scientific Abstracts (Carol Hauk) demonstrated their services and fielded questions from employees who attended Glenn's International Special Library Day celebration on April 10. Librarian Susan Oberc and staff organized the event to heighten employee awareness and to improve use of these and other electronic resources available through Glenn's Technical Library. Door prizes, compliments of the library and vendors, and refreshments, compliments of Glenn's Exchange, added to the festivities. The Library's home page at <http://techlib.grc.nasa.gov/> provides a wealth of resources including those demonstrated at the open house. Pictured is Information Handling Services vendor, Chuck Campagna (at computer keyboard), providing a demonstration.

### Retirees planning for NACA reunion

Plans are underway for the NACA Reunion X, which will be held right here in Cleveland. The event runs October 10 through 12, and will include a number of exciting activities in and around downtown Cleveland as well as a tour of Glenn Research Center.

NACA and NASA retirees Richard "Dick" and Irene Geye, cochairpersons for the reunion, are excited about seeing many of their friends and reminiscing about the "good old days." Retirees Jean Chapman and Jan Kline have been assisting the Geyes by generating and maintaining the invitations and confirmations, which are pouring in by the hundreds! Other retirees are aiding in a variety of areas to ensure an enjoyable experience.

"We will need the help of many more people—greeters, hosts, bus guides, etc.," Irene Geye said. "We would like to hear from attendees who would like to help us."

Retirees interested in attending and/or volunteering to assist in the celebration can contact the NACA Reunion X Committee office at 216-433-5358. ♦

*Members of the NACA Reunion X Committee, left to right, Jean Chapman, Irene Geye, and Dick Geye in the committee office at Glenn.*



Photo by Doreen B. Zudell



## Director's Corner

With Donald Campbell

### The journey continues

In the months following the *Columbia* tragedy, NASA's commitment to space exploration is being demonstrated through several exciting missions.

Last month, the Space Infrared Telescope Facility (SIRTF), the last addition to NASA's suite of Great Observatories, was successfully launched. This facility will use infrared technology to study celestial objects that are either too cold, dusty, or far away to otherwise be seen. By studying the structure and composition of planet-forming discs around stars, SIRTF will aid the search for Earthlike planets that may harbor life.

Meanwhile, excitement mounts as the launch window of the Mars Exploration Rover mission nears. The rovers, outfitted with a sophisticated set of geological instruments

and a rock abrasion tool to grind into the interior rocks, will be deployed to separate regions of Mars to investigate evidence of water.

Yet another exciting venture, the Expedition 6 crew will return to Earth aboard the Soyuz spacecraft after more than 5 months on the International Space Station. They will leave the welcome mat out for NASA astronaut Ed Lu and Russian cosmonaut Yuri Malenchenko, who make up the Expedition 7 crew.

These three missions exemplify the Agency's commitment to carry out its mission *to understand and protect our home planet, to explore the universe and search for new life, to inspire the next generation of explorers . . . as only NASA can.* ♦

## News Notes

**AFGE MEETING:** AFGE Local 2182 will hold its next monthly membership meeting at 4:30 p.m. on Wednesday, May 7,

**GOLFERS WANTED:** NASA Hickory Nut Golf League is welcoming new members for 2003. Starting May 7 through September, the league plays on Wednesdays at 4:20 p.m. at the Hickory Nut Golf Club

. The membership fee of \$20 covers prizes and part of the picnic costs. If interested or for additional information, contact Walter Kim, 216-433-3742, John Haggard, 216-433-2832, or Tom Wallet, 216-433-FORE.

**LESA MEETING:** LESA/IFPTE, Local 28, will hold its next monthly membership meeting on Wednesday, May 14, at noon in the Employee Center.

**INTERNATIONAL SCIENCE FAIR:** More than 1200 students from 40 nations will showcase cutting-edge science projects and compete for over \$3 million in scholarships and awards at the International Science and Engineering Fair, May 11 to 17 in the

Public admission is free and limited to Thursday, May 15,

9 a.m. to 9 p.m., and Friday, May 16, 9 a.m. to 1 p.m. Dubbed the "Olympics of Science Fairs," the event will feature an astronaut panel celebrating the Wright Brothers invention of flight, May 15 from 3 to 5 p.m., following hands-on activities targeted for grades 4 to 12, from 9 a.m. to 2 p.m.

**WOMEN RETIREE LUNCHEON:** The next luncheon for Glenn (Lewis) female retirees is Thursday, May 15, noon, at Demetrios Restaurant

. For further information, contact Mary Beranek, 440-238-6501.

**LLF GOLF OUTING:** Lewis Little Folks (LLF) onsite child development center will host its annual golf outing on Friday,

May 30, at Springvale Golf Course, . The event begins at 8 a.m. (shotgun tee-off). The cost is \$55 per person and includes green fees, cart for 18-hole game, dinner, awards presentation, and prizes. Contact Carmella Genaro, 216-433-5264, or Dave Williams, 440-716-0798.

**LOCALEVENTS:** Glenn will be participating in several local celebrations—through exhibits and parades—in the months of May and June: International Science and Engineering Fair, Cleveland, May 11 to 17; MAPS Air Show, Akron, May 20 to 22; City of South Euclid Parade, May 26; and Lorain International Parade, June 29. Come out to say hello to coworkers and enjoy the activities. Anyone interested in helping with these events can contact Orlando Thompson, 216-433-3642.



## Centennial events

This month, Glenn supports two Centennial events. **WPAFB Air Power 2003, Dayton, OH (May 10-11)** is Wright-Patterson Air Force Base's premiere centennial event and an Air Force tribute to the Wright Brothers' achievements. **Festival of Flight, Fayetteville, NC (May 16-26)**, a series of aviation-related events for the Wright Brothers' first flight 100th anniversary, is the largest public centennial event in North Carolina. Visit <http://centennial.grc.nasa.gov> or call Lori Manthey, 216-433-9658, for participation information.

# Laboratories overhaul address power and energy storage

BY DOREEN B. ZUDELL

The Electrochemistry Branch recently held an open house to spotlight the extensive renovation of facilities used to support research and development of electrochemical systems—specifically fuel cells and batteries that provide power and energy storage for NASA's aeronautics and space missions.

Five laboratories were totally refurbished and outfitted with

visitors and answered specific questions in the laboratories."

In addition to renovations in other upgraded laboratories that support research performed by the Power and On-Board Propulsion Division were highlighted during the open house. In building 302, the Battery and Cell Component Thermal Characterization Test Facility has been established and a Fuel Cell Power System Test and Development Laboratory is now functional in . A joint effort between the Electrochemistry Branch and the Information Systems Division

to utilize Glenn's GRUVE Lab, a virtual reality facility in , was illustrated in poster displays.

Construction is underway on a new fuel cell test facility in , located next to the . Scheduled for completion this fall, the facility will address the specific requirements associated with large-scale fuel cell and electrolyzer test capabilities.

"We're excited about the new capabilities," Manzo said "These state-of-the-art laboratories will enable us to conduct the research necessary to develop the products of the future." ♦



Photos by Doreen B. Zudell

Electrochemistry Branch members Doris Britton, middle, and Jael Panagaris, right, brief Deputy Director of Aeronautics Dr. Jaiwon Shin on equipment in the Electrochemical Cell Component Development and Testing Laboratory in

electrochemical analysis capabilities, cell construction hardware, and automated test stations. Two other laboratories were refurbished and outfitted with state-of-the-art analytical equipment.

During the open house, visitors toured the updated laboratories in and the Dry Room addition, which was built adjacent to the building. The Dry Room is capable of maintaining an extremely dry atmosphere (<1-percent relative humidity) for the reactive and moisture-sensitive components that make up lithium-based cells.

"Our staff, who work in the laboratories on a regular basis, had considerable input into the development of these facilities," said Michelle Manzo, acting chief of the Electrochemistry Branch. "During the tour, researchers greeted

## Laboratory Lineup

*The following is a brief description of the new laboratories included in the recent renovation by the Electrochemistry Branch.*

**Imaging and Material Analysis Laboratory:** supports the branch's battery and fuel cell component development and characterization activities by providing state-of-the-art instrumentation for microscopic examination and for elemental analysis.

**Thermal and Material Analysis Laboratory:** supports the branch's battery and fuel cell component development and characterization activities by providing state-of-the-art instrumentation for spectroscopic and thermal analyses.

**Electrochemical Cell Component Development and Testing Laboratory:** equipped for the preparation and testing of electrochemical cell components (electrodes, electrolytes, substrates, etc.). The laboratory supports R&D activities for various aqueous-based and organic and/or polymer-based cell chemistries, including nickel-based and lithium-based chemistries.

**Fuel Cell and Electrolyzer Testing and Development Facility:** used for fuel cell component development and evaluation.

**Electrochemical Cell and Battery Test Facility:** used to perform characterization, validation, and life testing of cells and batteries.

**Nickel-Hydrogen Cell Life Test Facility:** dedicated to evaluating low-Earth-orbit cycle life and electrical performance of nickel hydrogen cells.

Continued on next page

## Laboratory Lineup

## MER mission

Continued from page 1

Determining the efficiency of solar cells is critical to powering the rovers that will be delivering the experiments. Solar panels on top of the rovers supply power to the computer that houses the brain controlling the rover and the scientific instruments. They also power the radio to send and retrieve data from Earth. A lot of time was devoted to training the science team on use of all the software and tools that will control the science and direct the rover to specific sites.

Twice the size and 16 times the weight of Sojourner, the MER rovers have increased strength and range of mobility. Their size, however, created technological challenges when attempting to use a landing system similar to the highly successful one used with the Mars Pathfinder. During risk analysis testing conducted in the Space Power Facility at Plum Brook Station, it was discovered that the airbags were too small to safely land the rovers, and had to be redesigned along with a redesign of the parachute.

Picking the right site for landing is of paramount importance not only because of the potential for exciting discovery, but also to avoid potential hazards. The first rover will be targeted to land at Gusev Crater, south of Mars' equator. A month later, the second rover will land at Meridiani Planum, a broad area of mineral deposits halfway around the planet from Gusev.

Landis will be at Kennedy Space Center for the evening launch of the second rover, and will be at mission control in Pasadena for the landing. It will be challenging to cover the schedules of two different rovers that are exploring land sites almost 12 hours apart.

"We're extremely interested in the first day's data because it will tell us the performance of the solar cell before any dust lands on it," Landis said. "Modeling solar arrays to handle the harshness of the Mars environment was particularly difficult; it will be exciting to get data from two different locations. We think the models of our solar cells are very good." ♦

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**Dry Room:** a unique facility at Glenn that augments the branch's electrochemical laboratories by providing a dry (<1-percent relative humidity), shirt-sleeve environment for safe and efficient handling of moisture sensitive materials.



*Tom Miller, right, conducts a tour in the Nickel-Hydrogen Cell Test Facility in*

**Fuel Cell Stack, Ancillary and System Test and Development Lab:** configured to test hydrogen and/or air PEM fuel cell stacks and systems. It is used to evaluate fuel cells, ancillary components, and power plant designs for future aer propulsion applications.

**Fuel Cell Technology Thermal Vacuum Test Facility:** used to evaluate regenerative fuel cell system components such as gas storage tanks, gas dryers, pressure controllers, loop heat pipe systems, etc.

**Battery and Cell Component Thermal Characterization Facility:** houses the accelerating rate calorimeter to support battery and fuel cell thermal characterization of base materials and cells.

**Fuel Cell Membrane Electrode Assembly Construction:** houses a number of presses that will be used for the construction of fuel cell components using a novel film adhesive technique that can eliminate elastomer (o-ring type) seals.

**GRUVE Lab:** joint effort initiated with the Information Systems Division to integrate fuel cell stack and component models developed by the Electrochemistry Branch with the visualization environment that supports the GRUVE Lab, Glenn's virtual reality facility.

Construction is underway on a new fuel cell test facility next to the . It will house three test cells (1400 sq ft total area) and is designed to test complete fuel cell, electrolyzer, and regenerative fuel cell systems up to 25 kW. The building will also house a control room, data acquisition room, and a buildup area. The facility is sited to accommodate hydrogen, oxygen, and nitrogen tube trailers and is designed to permit unattended operation. ♦

# Glenn prepares to lift off Inventing Flight

BY DOREEN B. ZUDELL

Glenn's Centennial of Flight subteams are eagerly preparing for Inventing Flight, a spectacular celebration of the 100<sup>th</sup> anniversary of powered flight, July 3 through 20, in Dayton, OH. This event is the Nation's largest and longest Centennial of Flight activity that will center on the dream of flight inspired by the Wright Brothers, who lived in Dayton. The brothers invented the first flying machine that could be controlled while in the air.



Deed's Point, a 12-acre area in downtown Dayton, will serve as the hub of excitement and a springboard for all the special attractions throughout the Dayton region. Among the attractions, visitors can explore the impact of aviation on our society, our culture, and our economy within four pavilions.

"NASA exhibits, including artifacts, graphics, and interactive media, will sprawl across a large portion of the Communication and Inspiration Pavilion," explained Glenn's Theresa Benyo, NASA's Inventing Flight project manager. "This will enable us to showcase the Agency's contributions—past, present, and future—to powered flight."

NASA Day, beginning the evening of July 17 and continuing through July 18, will feature astronaut visits and other NASA-centered activities that showcase the Agency's contributions. Senator John Glenn, secretary general of Inventing Flight, will take part in this special occasion as well as Agency officials.

NASA will be involved in several Inventing Flight activities outside of Deeds Point. At the Huffman Prairie Flying Field, adjacent to Wright-Patterson Air Force Base, for example, the Center will staff an exhibit featuring an electric-powered airplane that has been converted from traditional fuel. Meanwhile, the nearby Carillon Historical Park will house a Glenn exhibit entitled *Tunneling the Winds for Flight*. This interactive display features a wind tunnel and provides information on how the Wright Brothers used wind tunnels in their research.

An event of this magnitude requires participation by many employees. Thirteen support committees—transportation, housing/staffing, information technology, speakers, and publishing services, to name a few—are working diligently to ensure a smooth and enjoyable experience.

"The support committees, comprised of employees and retirees, are critical to making this event a success," Benyo said. "In fact, participation from Agency employees is expected to peak to 60 people a day, with 60 percent of that total coming from Glenn."

Benyo stressed that Inventing Flight will be a tribute to the Wright Brothers and all those they inspired—especially the men and women of NASA. She encourages employees to visit the Centennial Web site at <http://centennial.grc.nasa.gov> and click on "staffing registration" to explore opportunities where they can be part of this once-in-a-lifetime celebration. ♦

## Inventing Flight events

**The Centennial Celebration  
Deeds Point  
July 3–20**

**Gala Opening Ceremonies at  
Celebration Central  
Deeds Point  
July 3**

**Dayton Art Institute  
July 4–20**

**Carillon Historical Park  
July 4–20**

**The RE/MAX Balloon Celebration  
WPAFB\* Museum  
July 4–6**

**Huffman Prairie Flying Field  
WPAFB\*  
July 4–6 (Venue open)  
July 10–16 (NASA Exhibit)**

**International Blimp Meet  
WPAFB\* Museum  
July 11–13**

**Dayton Black Cultural Festival  
Montgomery County Fairgrounds  
July 11–13**

**AIAA International Air and Space  
Symposium  
Dayton Convention Center  
July 14–17**

**Dayton Air Show  
Dayton International Airport  
July 17–20**

**National Aviation Hall of Fame  
Ceremonies  
Dayton Art Institute and  
WPAFB\* Museum  
July 18–19**

**NASA Day  
Deeds Point  
July 18**

**\*WPAFB: Wright-Patterson Air  
Force Base**

## Asian Heritage Month Observance spotlight

# Dr. Nguyen and Glenn: a great match

BY S. JENISE VERIS

One good match led to another in 1996 when Dr. Quang-Viet Nguyen left California to join his wife (then fiancée) who had just moved to Cleveland. As a result, Nguyen ended his position as a post-doctoral fellow at Sandia National

fueled rig capable of operating at pressures of up to 60 atmospheres.

The majority of Nguyen's research focuses on basic science, with the end-products of his efforts typically resulting in journal publications or reports.

He has also developed a unique high-speed shutter system currently used in the HPGC facility. A patent has been filed for this hardware and it is in the process of commercialization as a licensed technology.

As part of a recent influx to Glenn of young engineers, Nguyen appreciates the diversity on Lab and benefits daily from senior engineers and technicians who bring a wealth of information, experience, and wisdom that contribute to the success of his own projects. Because his work is often divided between two test cells, Nguyen said that he must rely on a group of engineers

of experience while assisting Nguyen on projects assigned in the test cells.

Nguyen also enjoys working with a variety of different groups across the Center. He is currently collaborating with members of the Instrumentation and Controls Division and Communications Technology Division to develop new diagnostic and communications technologies using quantum entanglement. Nguyen was also instrumental in the startup of a new Bubble Combustion Research Program at Glenn funded by the Department of Energy to study the combustion physics and chemistry inside tiny bubbles.

Since becoming a member of Glenn's Asian/Pacific Islanders Advisory Council (APIAC) a little over a year ago, Nguyen has enjoyed the opportunity to meet socially with other Asians onsite and the comfort of knowing that there is a place to go if he has any questions or concerns. As a member of APIAC, he worked with Information Systems Division personnel to develop an anonymous comment Web page for the group's Web site.

"It's been nice working at NASA because it's one of few places that you can really work on projects that you create. You come up with an idea, and someone will actually give you funding to pursue it," Nguyen said. "Doing what you really enjoy makes a job easier, and to be able to get the resources you need makes for a great working experience!" ♦

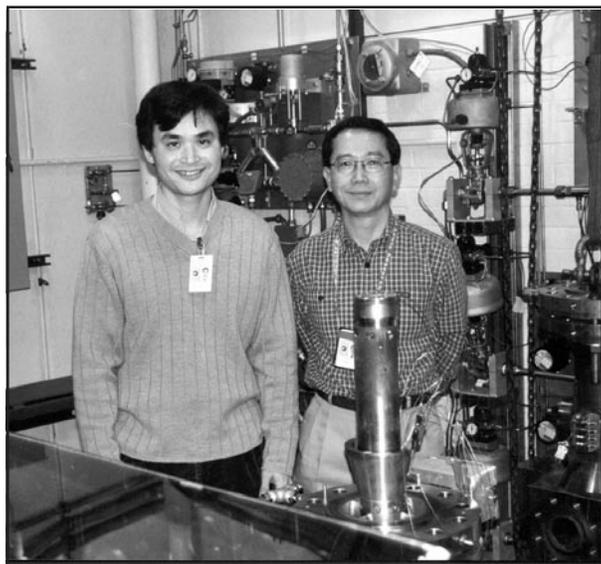


Photo by S. Jenise Veris

Dr. Nguyen, left, with Combustion Branch Chief Dr. Chi-Ming Lee in the High Pressure Gaseous Burner facility.

Laboratories and began a career as an aerospace research engineer at Glenn.

"I was offered other positions in both academia and industry," Nguyen said. "But NASA (Glenn) had an opening that was a very good match to my capabilities and training."

Nguyen, a U.S. citizen of Vietnamese descent, has immersed himself in several projects since starting at Glenn. His major efforts, however, are principally devoted to the area of laser diagnostics as a member of the Combustion Branch in the Turbomachinery Division. Nguyen designs and builds experiments that use lasers and optics for measuring properties in high pressure flames. Currently, Nguyen performs tests in an optically accessible High Pressure Gaseous Burner (HPGB), a unique hydrogen-

and technicians for the test cells' daily operations. Their experience lends additional support to those Nguyen mentors—college interns and a faculty fellow, as well as the research associates from the National Research Council and the University of Toledo—who gain a wealth

### ***A Taste of Culture***

The Asian Heritage Month celebration will be held May 30, 10 a.m. to noon in the Ad. Bldg. Auditorium. This year's theme, A Salute to Liberty, will feature special performances including a Samoan ceremonial fire dance by a Hawaiian employee from NASA Goddard and selections from a Filipino opera singer from the Cleveland Opera. Cultural booths with displays from Cambodia, Vietnam, Philippines, Japan, and China will once again offer "A Taste of Culture" that includes artifacts and samples of the country's cuisine.

## Retirements



Burkhart



Mehed



Niezgoda



Spalvins

**James Burkhart**, Hypersonics Project Office, retired on March 3, 2003, with 38 1/2 years of NASA service.

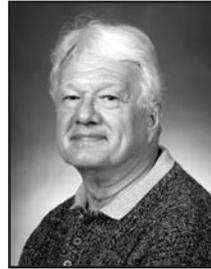
**Oral Mehed**, Structures and Acoustics Division, retired on January 3, 2003, with 41 years of NASA service.

**Thomas Niezgoda**, Engineering Design and Analysis Division, retired on January 1, 2003, with 40 years of NASA service.

**Talivaldis Spalvins**, Materials Division, retired on January 3, 2002, with 38 years of NASA service.



Sovie



Stannert

**Ronald "Joe" Sovie**, Space Directorate, retired on January 3, 2003, with 41 1/2 years of NASA experience.

**Herbert Stannert**, Manufacturing Engineering Division, retired on March 31, 2003, with 41 years of NASA service.

## In Appreciation

I want to send out my most sincere thanks and appreciation to everyone in the Ad Bldg. for the adorable Dr. B. floral arrangement and special notes. I also want to thank CTO for the sweet cookie bouquet, and to all who shared stories, calls of concern, cards, and prayers for good wishes and a speedy recovery. You truly were a comfort during a difficult time of healing. I sincerely thank you!

—Debbie Burak

The Albert C. Taylor family would like to thank the NASA Glenn family for its love and support. We would especially like to thank Al's many friends in AHAC, BIG, BWAG, ERE, the Get-Go Team, LPSA, Microgravity, NTA, the Office of Safety and Assurance Technologies, SHERE, and UBFFT for their generous contributions of money and flowers.

—The Albert C. Taylor family

I wish to extend my sincere gratitude to those of you who offered their concern, prayers, cards, flowers, and friendship during my time of grief due to my mother's battle with cancer. I thank each and every one of you for easing the pain of my great loss.

—Cynthia L. Phillips

## Exchange Corner

- Discount movie tickets for Regal Cinema, General Cinema, and Cinemark theaters are available in the Exchange Store. Cedar Point and Six Flags amusement park tickets for the 2003 season are also available.
- Jewelry Is Fun will be back on Thursday, May 8, in the Main Cafeteria alcove from 10 a.m. to 2 p.m. Save 30 to 70 percent off retail prices. Jewelry Is Fun is a Reader's Digest Company, the same company that has sponsored the Books Are Fun book fairs for over 10 years.
- A Customer Appreciation Sale will be held Thursday and Friday, May 8 and 9. Save 20 percent off items in the Exchange Store. This is a good time to shop for Mother's Day (May 11) gifts.
- A Ribs & Chicken BBQ Cook Out is scheduled for Thursday, May 22. It will be served on the Main Cafeteria Patio during lunch hours from 11 a.m. to 2 p.m. Help celebrate the start of the BBQ season.
- Don't forget the Main Cafeteria for your catering needs. The Catering Department can help plan your next party. For more information, call Becky Tinlin at 216-433-5534.

*AeroSpace Frontiers* is an official publication of Glenn Research Center, National Aeronautics and Space Administration. It is published the first Friday of each month by the Community and Media Relations Office in the interest of the Glenn workforce, retirees, government officials, business leaders, and the general public. Its circulation is approximately 6700.

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DEADLINES: News items and brief announcements for publication in the June issue must be received by noon, May 16. The deadline for the July issue is noon, June 13. 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

Ideas for news stories are welcome but will be published as space allows. View us online at <http://AeroSpaceFrontiers.grc.nasa.gov>.



## People

### Appointments

**Lori Manthey**, who previously served as a program support officer in the Ultra-Efficient Engine Technology Office, has been named the Center's liaison officer. Manthey brings an outstanding background of working with numerous organizations, including other NASA centers, Government organizations, industries, and universities. She has led several team activities at Glenn.

**Jack Salzman**, chief of the Microgravity Science Division, is currently serving a detail as acting deputy Director of Space. Salzman brings a wealth of experience as a leader, manager, and supervisor to this position.

The realignment of the Plum Brook Management Office results in two key senior-level appointments. **Robert Smalley** is now serving a 6-month detail as chief of Operations at Plum Brook Station. He will oversee the day-to-day operations, including the test facilities, civil servants, and support service contractors. **Robert Kozar** has been named executive liaison in Glenn's Engineering and Technical Services Directorate, though his office will continue to be located at Plum Brook. In this new capacity, Kozar will convey the broad range of capabilities available at Plum Brook as its representative on Agency-level boards and alliances. He will also serve as the primary liaison from Plum Brook to other NASA centers, the Air Force, Department of Defense, industry, and other high-level associates.

### In Memory

**Robert Bowman**, 67, who retired from Glenn with 34 years of NASA service, recently died. He retired in 1996 as chief of Space Flight Operations.

**William Green**, 68, who retired from Glenn in 1972 with 28 years of service, recently died. He worked as a welder in the Fabrication Division.

**Joyce Jones**, 77, who retired from Glenn in 1978 with 26 years of Federal



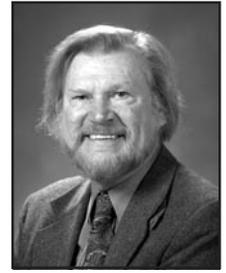
Kozar



Manthey



Salzman



Smalley

### Behind the Badge

#### a closer look at our colleagues

##### Linda Ryan



**Job assignment:** Food and nutritional service manager at the onsite child development center, Lewis Little Folks, Inc.

**Time at NASA:** Five years.

**Hometown:** I was raised in Cleveland's Westpark neighborhood, near Kamm's Corner. I currently live in

**Describe your family:** I've been married to the love of my life, Rob, for 6 years. We have 2 daughters: Tabitha, 14, and Jessica, 3. We share our home with a big dog named Beau and a cockatiel named Zeke. My grandfather has lived on

for more than 60 years and my parents live in , so we are able to visit them often.

**Career alternative:** Ergonomics specialist. I love to organize and efficient"ize."

**Favorite food:** I love all food. My favorites are chicken paprikash, tiramisu, and margaritas.

**Favorite music:** My taste in music is eclectic.

**Favorite Web site:** Anything to do with classic cars, especially Chevy muscle cars.

**Favorite movie:** Monty Python's *The Holy Grail*.

**Person you most admire:** My parents. They allowed me to learn through experience. I was able to do things "all by myself" even though tasks may have taken twice as long to accomplish. They answered my "but why?" questions with real answers, even after the 20<sup>th</sup> time of being asked. Most of all, they have been there to help me up or kick me into gear. I still don't know how they knew which to do when. I hope I can share with my children what was so unselfishly given to me.

**Activities when away from NASA:** I enjoy spending time with family and friends; making home improvements; gardening; and watching PBS, HGTV, TLC, and Food Network.

**What do you see as an area of expertise at NASA:** I love to hear about NASA's outreach programs. It is encouraging to know that an organization with great resources is willing to help communities, schools, and social causes. We embrace this philosophy at Lewis Little Folks by participating in Glenn's Harvest for Hunger campaign, the Animal Protective League's Pennies for Pets, the Greater Cleveland Hunger Network food drives, and the Salvation Army's Hough Avenue daycare partnership. I also applaud NASA's commitment to education, especially math and science.

service, recently died. She had worked as a budget analyst.

**John Kline**, 85, who retired from Glenn in 1982, recently died. He had worked as an aerospace engineer.

**Hsiao Kao**, 73, who retired from Glenn in 2002 with 24 years of service, recently died. Kao had served as an aerospace engineer in the Nozzle Branch.

# Employees support recycling

In 1990, Glenn kicked off its recycling efforts with the collection of scrap computer paper. The program has grown steadily over the years to include telephone books, magazines, cardboard, newsprint, toner cartridges, scrap metals,

aluminum beverage cans, plastic bottles, glass juice bottles, wood, fluorescent lights, and batteries. The Center also reprocesses or reclaims for recovery used oil, solvents, anti-freeze, and lubricating oils.



Photo by Doreen B. Zudell

*Deborah DePiero, EXCH/Office of the Chief Financial Officer, disposes of trash in a collection station located outside the Main Cafeteria.*

"The latest addition to Glenn's recycling efforts is indoor collection stations that are being placed at high traffic areas around the Center for the collection and segregation of various listed recyclables," said Recycling Coordinator Michelle Kenzig, Logistics and Technical Information Division (LTID).

Kenzig explained that while the Resource Conservation and Recovery Act, Executive Order 13101, and Public Law 103-329, Section 608, drives Glenn's recycling efforts, the program has grown because of the support and participation of Center personnel.

"Employees' continued participation through depositing recyclables in designated areas, reusing current materials, and purchasing materials containing recovered materials contribute greatly to the success of the program," she affirmed.

**Affirmative Procurement:** buying products containing recycled and/or reused content.

**Recyclables:** products or materials that can be collected, separated, and processed to be used as raw materials in the manufacture of new products.

**Reuse:** the reuse of waste or reutilization of a material in an environmentally sound manner that it will not result in a hazard to human health or the environment.

Working with Glenn's Environmental Management Office or Environmental and Safety Offices creates opportunities for the recycling program to support and participate in pollution-prevention programs and projects as well. Together, they identify and introduce nonhazardous alternatives and provide substitutes for hazardous chemicals currently being used throughout the Lab.

For further information on Glenn's recycling program, visit the Web site at [Recycle.grc.nasa.gov](http://Recycle.grc.nasa.gov) or contact Kenzig at 216-443-3043. ♦

National Aeronautics and  
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AeroSpace Frontiers  
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