

Glenn assigned Vision for Space Exploration work

BY DOREEN ZUDELL

NASA's Project Constellation is getting to work on the new spacecraft that will return humans to the moon and blaze a trail to Mars and beyond—and Glenn is playing a major role.

On June 5, NASA Administrator Mike Griffin announced the distribution of work across centers, and how each will contribute to the Vision for Space Exploration. Glenn will lead the Crew Exploration Vehicle (CEV) Service Module and Spacecraft Adapter integration, providing oversight and independent analysis of the prime contractor's development of these segments. The center was also given lead responsibilities for the Crew Launch Vehicle (CLV) upper stage, including:

- Design and develop the thrust vector control subsystem
- Design and develop the electrical power and power distribution system
- Developmental flight instrumentation package
- Leak detection sensors development
- Purge system
- Hazardous gas detection system
- Upper stage systems engineering and integration
- J-2X engine thermal/vacuum testing at Glenn's Plum Brook Facility
- Vehicle integration design analysis support

The center will also take the lead in the development of an upper stage module for the Advanced Development Flight Test (ADFT)-0.

In the media briefing at Glenn, Whitlow said that the work assignments "give us a stable and enduring role in where the agency is going in space exploration."

On June 6, Deputy Administrator Shana Dale, Deputy Associate Administrator for the Exploration Systems Mission Directorate Doug Cooke, Constellation Program Manager Jeff Hanley, CEV Project Manager Skip Hatfield, and CLV Project Manager Steve Cook, joined Center Director Dr. Woodrow Whitlow, Jr., in an All Hands Meeting to provide further details on Glenn's responsibilities.



C-2006-973

Photos by Marvin Smith



C-2006-974

Above: left to right, Hatfield, Cook, Cooke and Hanley provide details on Constellation Program work during the All Hands Meeting.

Left: Whitlow and Dale at the All Hands Meeting.

"This center has significant capabilities and skill sets to offer," Dale said. "Glenn is the right place for the service module and adapter and the upper stage systems."

Dale noted that "more work will continue to rollout to the center—although not immediately—in time."

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Progress takes on a diverse effort

BY S. JENISE VERIS

As the featured speaker for Glenn's 2006 Asian/Pacific American Heritage Day celebration on May 18, John Mok spoke to the theme of "Celebrating Decades of Pride, Partnership and Progress."

Former director of the Cleveland Hopkins Airport System, Mok discussed the challenges of his position and how important it is to collaborate with community partners. Mok presented an overview of Cleveland's strategic plan that was initiated during his tenure, and noted how the airport became more competitive to attract new business, positioned itself for the future in



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C-2006-1007

Right: Mok spoke of partnership and progress.



Left: Glenn staff and family display their traditional Asian cultural costumes.

Photos by Michelle Murphy

terms of global travelers and became more customer-oriented. Finally, Mok highlighted CLEsmartfares.com, the only airport-operated Web site that provides

updated fares to ensure travelers get the best airfares to and from Cleveland.

Dale's visit looks to the future

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Whitlow explained that the Glenn workforce would build on its history of accomplishments in space. This will include some retooling, including continued center reorganization and structure, to position the center to meet these new challenges.

Deputy Director Rich Christiansen added that the retooling involves transitioning "the nature of our work from basic research to system development." He said that Glenn is working with the agency to define the systems engineering requirements so that the center can determine how best to apply employees' current backgrounds to these designated areas.

Whitlow noted the recent Constellation Program announcement answers parts one and two of the agency's three-phase process that is aimed at maintaining America's preeminence in space. The three-phased approach includes these steps: (1) What type of work will we be doing, (2) Where will the work be done, and (3) Defining the resources to deliver on commitments.

"We are pleased that the Administrator and program managers recognized how well our capabilities are aligned with the priorities of the agency," Whitlow said. "There's still much to be done as we prepare for space exploration, but NASA Glenn is up to the challenge and looks forward to a bright future in space flight systems development."



Photo by Doreen Zudell

For information on Constellation Program work at Glenn, visit <http://www.nasa.gov/centers/glenn/home/index.html>.

Glenn interns met with Dale during her visit.

Following Mok's presentation, the audience enjoyed diverse examples of Asian culture, including: musical selections performed on the zither from China and the flute and kanjia from India; a traditional costume parade featuring Asian/Pacific Islander Advisory Council (APIAC) members; and sampling of a wide variety of Asian cuisine. In addition, a booth demonstrating the art of paper folding inspired participants to discuss the "New Year of the Dog," one of 12 zodiac signs based on the Chinese Lunar Calendar. The event was sponsored by APIAC and the Office of Equal Opportunity Programs.

NASA Engineering Network premiers

Rearchitecting the way engineers share knowledge, the new NASA Engineering Network (NEN) is an enhanced knowledge-management system that provides capabilities to search across distributed engineering data sources, builds technical communities of practice and creates online presence for agency engineers. The network's centerpiece is the "lessons learned" repository that documents critical success factors for flight projects. This repository replaces the former Lesson Learned Information System.

Sponsored by NASA Chief Engineer Chris Scolese, the NEN is managed by the Jet Propulsion Laboratory's Knowledge Management Technologies Program. Access the network at <http://nen.nasa.gov>.

From the Director

We earned it!

I've found that most great achievements in life involve planning, effort and perseverance. The recent Constellation Program assignments for Glenn to lead the Crew Exploration Vehicle's (CEV) Service Module and Spacecraft Adapter Integration, as well as the development of the Crew Launch Vehicle (CLV) upper stage systems is proof of this belief. In other words, we earned it!

I would like to congratulate and thank the many employees across the center who worked hard to bring this work here. It was a team effort that took many months of planning, partnering, collaborating, advocating and proving that we can do the job and do it well.

Shortly after President Bush announced the Vision for Space Exploration on January 14, 2004, our employees began working together to help determine how this center could best serve the president's plan.

When Mike Griffin became the Administrator, he tasked the agency to complete the important Exploration System Architecture Study that defined the CEV and CLV. We participated in that study and others as well—both internally and on multicenter teams. That led to an early role in the CEV Propulsion Advanced Development Project, a multicenter effort to investigate propellant combinations.

Along the way, we recognized the need to collaborate with the space flight centers. Guided by the strong leadership from center-level managers at Glenn and Marshall Space Flight Center, a team of Glenn and Marshall experts leveraged each center's strengths to design and build the CEV Service Module. All are to be commended for a good working relationship that resulted in a technically sound plan for the Service Module. The plan was presented to Headquarters and program management at Johnson Space Center.

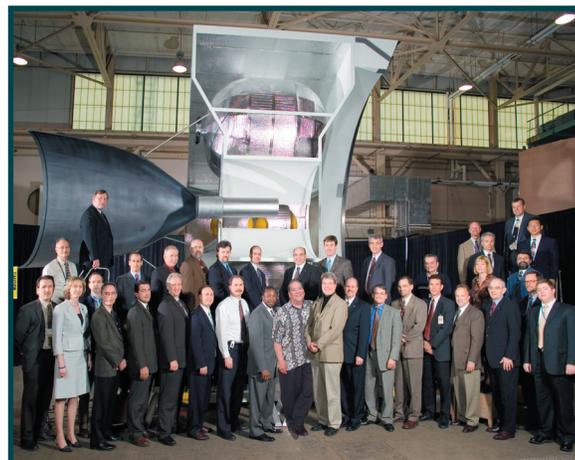
With our experience in this design effort, we built a full-scale CEV Service Module mockup using in-house engineering and

technician skills, which visually communicated our center's capabilities.

The Smart Buyer activity started in January involving multicenter teams to review and create a NASA CEV design parallel contractor study. The study involved an intense, eight-week effort sponsored by the NASA Engineering and Safety Center. The study produced a wealth of knowledge and understanding of the CEV baseline design, and our experience and effort were instrumental to the success of this activity.

This past winter, an independent evaluation was conducted to verify that the center still had the expertise and ability to support a major space flight project. The organizational readiness assessment led by Headquarters concluded that Glenn has the technical competence and capabilities to manage major space flight projects for the agency.

Last, but not least, we are fortunate to have an Administrator who believes that the agency needs ten healthy centers to implement the vision. He encouraged agency program managers to consider the capabilities of the NASA centers first when making decisions on where the



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Photo by Marvin Smith

Glenn-Marshall partnership team in front of the CEV Service Module full-scale model.

work will be done. This was a significant factor in allowing us to showcase our capabilities.

Thanks to your technical abilities, this center *will* play a stable and enduring role in the agency's future. In doing so, we'll need to do what we have done so well for so long—deliver quality space flight hardware on time and within budget. We can't make extraordinary achievements with ordinary efforts, and I thank you all for doing those extra things to ensure a strong future for Glenn and the agency. ♦

Let's celebrate!

Celebration of Work Picnic
Thursday, July 20
2 to 5 p.m.
Picnic Grounds

AeroSpace Frontiers online

Thank you for your feedback!

The *AeroSpace Frontiers* staff extends a sincere thank you to those who participated in the online readership survey last month.

Below are some comments and suggestions that were taken from the survey:

- Profiles of each division and major projects would be a good ongoing feature
- Include more news about Plum Brook Station operations
- Move to HTML format
- Keep focusing on the people working at Glenn and their stories

In addition to providing general feedback, survey respondents also suggested a number of story ideas that they would like to see addressed in future issues. The editorial staff appreciates your comments and looks forward to making changes that will improve Glenn's monthly newsletter. ♦

Glenn establishes Diversity Management Council

BY S. JENISE VERIS

NASA is fully committed to diversity as a model for helping to identify and develop the best talent, create effective teams, achieve excellence and realize mission success."—Administrator Michael Griffin

Maintaining a dynamic workforce with the skills to achieve mission success is Center Director Dr. Woodrow Whitlow's ultimate goal since returning to Glenn. To that end, he recently commissioned the Diversity Management Council. The council will serve as an advisory board to support Robyn Gordon, chief of the Diversity Management Office, in implementing a comprehensive diversity program for the center.

"Diversity is a necessary fact of a healthy work environment and will be increasingly important as time goes on and the demographics of the workforce change," Whitlow stated. "A healthy and productive work environment can only exist if employees believe they are being

treated equitably and fairly based on the organization's policies."

Vernon "Bill" Wessel, director, Safety and Mission Assurance, was appointed to chair the council, which includes 18 members representative of the center's diversity. All members were vested and approved by Whitlow. In addition to Gordon and Wessel, the council includes, Anita Alexander, Office of Strategic Management; Robert Angus, R&D Labs Technical Branch; Joseph Connolly, Communication Systems Integration Branch; Kelly DiFrancesco, Community and Media Relations Office; Lancer Foster, Inlet and Nozzle Branch; Dr. Kaprice Harris, Office of Chief Council; Luz Jeziorowski, Occupational Health Branch; Dr. Chi-Ming

Lee, Combustion Branch; Dr. Shantaram Pai, Structural Mechanics and Dynamics; Lori Pietravoia, Program and Policy Office; Robert Romero, Office of Equal Opportunity Programs; David Sagerser, Advanced Aircraft Projects Office; Mary Salvo, Computing Science Division; Vincent Satterwhite, Aviation Environments Technical Branch; Duane Schaft, Financial Management Division; Lizalyn Smith, Applied Structural Mechanics Branch; Thomas Spicer, Office of Human Resources and Workforce Planning; and Vanessa Webbs, Diversity Management Office.

Wessel will report council findings and recommendations directly to Whitlow. "I believe we have a council that can clearly provide input and communicate effectively issues concerning program development, and serve as a barometer for the center's progress," Wessel said.

Working with the aid of an outside consultant, the council has drafted a mission statement and charter that has been submitted to Whitlow for his approval. The group also is reviewing successful organizations' best practices results, as well as creating benchmarking measures of where the center is and/or could be in terms of its work in diversity. In addition, three subcommittees—communications, education and assessment—will recommend initiatives within their respective areas that will collectively help the center reach its goal in maintaining a diverse workforce.

"Our goal is to make the Diversity Initiative part of the strategic fabric of the center, instead of an occasional dialogue or training course," Gordon said. "Diversity doesn't eliminate anybody—it's about making sure that everyone on this lab can contribute and reach their career potential." ♦

Improving Shuttle Safety

This is the first in a series of articles highlighting Glenn's research and test efforts in improving space shuttle safety.

Cable Tray Testing

In March and April, Glenn conducted tests in the 8-by-6-Foot Supersonic Wind Tunnel (SWT) to help verify the space shuttle can safely fly without the Protuberance Air Load (PAL) ramps on the external fuel tank. The ramps protect a cable tray, two pressurization lines and a feedline during liftoff. During the launch of Space Shuttle *Discovery* in July 2005, a section of the PAL ramp came loose. Wind tunnel tests led by Glenn's Research Testing Division helped determine whether the cable tray, pressurization lines and a feedline could withstand the aerodynamic environment without PAL ramps. The test used modified hardware from tests done in 2003 and 2004, when Glenn documented the steady state airflow environment with and without the PAL ramps. The 2006 test documented the unsteady airflow environment. The data is being evaluated to determine the overall aerodynamic environment that the cable tray hardware will experience without the PAL ramps. Team leads: Scott Williamson and Joe Panek Research Testing Division, and Tom Vannuyen, Engineering Systems Division.



C-2006-992 Photo by Quentin Schwinn

Pictured, bottom to top, Christine Yeblik, Williamson, Pete Cooper, and Steve Scott setting up for testing in the 8-by-6-Foot SWT.

Correction: Robyn Gordon was incorrectly identified in the June issue of *AeroSpace Frontiers* as Director of Diversity in the Center Operations Directorate. Her correct title is chief of the Diversity Management Office, Office of the Director.

News and Events

"First Man" booksigning

Glenn's History Office sponsored a book signing and discussion featuring Dr. James Hansen, author of the "First Man: The Life of Neil A. Armstrong," in the Visitor Center, June 16. Hansen, who is an Auburn University professor and former NASA historian, discussed how he captured the essence of Armstrong's life and dispelled the myth of Armstrong's childhood dreams to explore. He revealed Armstrong's passion for flight begun at the age of 6, and reflected on a career driven by the opportunity to develop cutting-edge flight technology. Pictured at the booksigning, left to right, Bryan Palaszewski, Combustion Branch; Theresa Scott, CIO Business Office, Glenn Historian Ann Powers, Logistics and Technical Information Division; and Hansen.

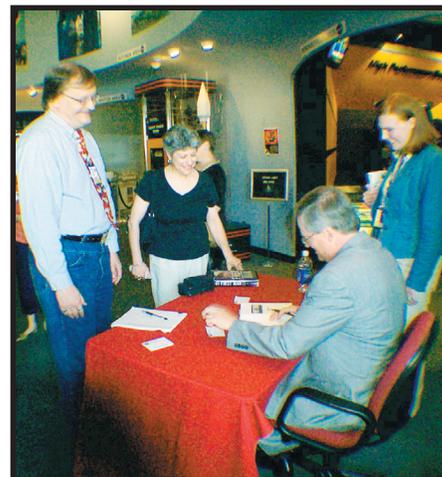


Photo by S. Jenise Veris

Native Americans intern



Photo by S. Jenise Veris

On June 9, Native American summer interns and a faculty fellow enjoyed the first of several social events planned by Glenn's Native American Advisory Council (NAAC) to welcome the young people to the center. Five of the students are here as part of a pilot program with the American Indian Science and Engineering Society sponsored by NASA's Exploration Systems Mission Directorate. Dennis Stocker and Nancy Hall, Microgravity Division, and Avis Hudson, NAAC advisor, proposed and now manage this internship program. Five more students and one faculty fellow are here as part of an agencywide internship program launched this summer with the American Indian Higher Education Consortium. All but one is assigned to Research and Development tasks supporting the Vision; the other supports the Office of Equal Opportunities Program. Pictured are students and mentors in fellowship at the Guerin House.

GATE recognition

On June 12, Certificates of Recognition were presented to 80 Glenn employees who have participated in the Glenn Alliance for Technology Exchange (GATE) programs for the past 18 months. These programs include Ohio Cluster-Focused Technology Commercialization, Small Company Partnership Awards and Research and Technology Innovation Platforms. During the ceremony, Deputy Director Rich Christiansen noted how GATE has enhanced Glenn's identity and broadened its role and impact on technology development throughout the state of Ohio. GATE is a collaboration of Glenn and Battelle designed to foster spin-in and spin-out of NASA's cutting-edge technologies and world-class capabilities into Ohio companies. Pictured is Christiansen acknowledging employees for their participation in GATE programs.



Photo by Patricia Oleksiak



Photo by Tim Dedula

Glenn Explorers

Students from each of Glenn's three Explorer Posts—Aviation Activities, Computer Technology, and BalloonSat—took turns presenting highlights of the 2005 Exploring Program projects and activities to friends and family during a Mini Research Conference held May 16 in the Administration Building Auditorium.

Exploring is a worksite-based program offered in collaboration with the Boy Scouts of America's Learning for Life career education for young men and women, ages 14 to 20. From October through May, Glenn volunteers serving as Explorer advisors guided students in NASA mission-related projects such as designing and launching a rocket to meet design predictions; designing and programming a robot; and developing individual payloads for flight aboard the controlled launch of a

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People

Appointments

Kenny Aguilar, Glenn's director of Center Operations, was named acting assistant administrator for Diversity and Equal Opportunity at Headquarters in May. He is acting for Dr. Dorothy Hayden-Watkins, who recently retired. Aguilar reports to Charles Scales, associate administrator for the Institutions and Management Office, who formerly served as Glenn's director of Center Operations. NASA Deputy Administrator Shana Dale named John Hairston, Jr., acting assistant administrator for the agency's Education Office for approximately three months. Hairston, who is Glenn's director of External Programs, will oversee the development and implementation of NASA's educational outreach and informational programs that strengthen public awareness and contribute to NASA's scientific goals and missions. Angela Diaz, who recently became director of Strategic Communications and Development for the Ames Research Center, previously served in this position.



Aguilar



Hairston

Honors



Dr. Fleming

Dr. David Fleming, Mechanical Components Branch, Materials and Structures Division, has been named a Fellow of the American Society of Mechanical Engineers, the highest elected grade of membership. Fleming, who has served at NASA for 40 years, works with gas turbine engines and research programs related to rotor dynamics, bearings, seals and other components.



Dr. Stanford

Dr. Malcolm Stanford, Tribology and Surface Science Branch, was selected for the 2006 NASA Administrator's Fellowship Program, which is designed to enhance the professional development of NASA employees and faculty of minority-serving institutions. Participants have demonstrated success in securing individual and institutional research awards and mentoring students to pursue NASA-related research.

Dr. Larry Viterna, who leads Glenn's Strategy and Business Development Team, received NASA's inaugural Blue Marble Award, which was presented by the Office of Infrastructure and Administration, Environmental Management Division (EMD) during the Environmental and Energy Conference in Portland, Ore., in June.

The Blue Marble Award recognizes excellence in environmental and energy management in support of NASA missions. Viterna was recognized for excellence in energy and water management based on his design method that dramatically increased the efficiency of wind tunnels. It has also become part of an international standard with adaptability for renewable energy and wind energy systems. To learn more about Viterna's work and Glenn's efforts in wind energy, visit http://www.nasa.gov/vision/earth/technologies/wind_turbines.html.



Dr. Viterna, center; accepts the Blue Marble Award presented by left, James Leatherwood, director of the NASA's Environmental Division, and Ed Pinero, Federal Environmental Executive, White House staff.

Glenn's Chief Scientist Dr. Anthony Strazisar will receive the 2006 American Institute of Aeronautics and Astronautics (AIAA) Air Breathing Propulsion Award during the AIAA/ASME/SAE/ASEE Joint Propulsion Conference in July. Strazisar is cited for pioneering research contributions in the area of gas turbine fluid dynamics and, in particular, for advancing the compressor technology through development of laser anemometer measurement techniques and compressor stall control strategies.



Dr. Strazisar

April Bohannon, an Undergraduate Student Researcher who has worked in the Optical Instrumentation and NDE branch for the past two summers, was awarded a National Science Foundation (NSF) Graduate Research Fellowship. The grant will enable Bohannon, who was mentored by John Lekki, to continue her research in dense coding for optical communication utilizing photon orbital angular momentum states.



Bohannon

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.

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DEADLINES: News items and brief announcements for publication in the August issue must be received by noon, July 14. The deadline for the September issue is noon, August 11. 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>.



News Notes

LESA MEETING: LESA/IFPTE, Local 28, will hold its next monthly membership meeting on July 12, at noon in the Employee Center.

THIRD SATURDAY AT THE VC: On Saturday, July 15, Glenn's Visitor Center (VC) will host "Our Nearest Star!" from 10 a.m. to 3 p.m. The sun is the closest star to Earth, a mere 93 million miles away. Visitors will learn more about NASA's research of the sun and the nature of other distant stars. During the 11 a.m. and 1p.m. presentations, special guest speakers will talk about the sun and its role in our solar system. Topics will include the solar cycle, sunspots and how the sun compares to other stars in the solar system. For reservations, call 216-433-9653. For details on this and other Glenn events, log on to glennevents.grc.nasa.gov.

WOMEN'S RETIREE LUNCHEON: The next luncheon for Glenn female retirees will be Thursday, August 17, noon, at Bucci's Restaurant in downtown Berea. For further info, contact Gerry Ziembra, 330-273-4850.

PBS REUNION SET: A Plum Brook Station (PBS) Fourth Reunion will be held on Saturday, September 23, at the Engineering Building Cafeteria. All current and former PBS employees, including government and support contractor personnel are invited. A luncheon, program, and facility tours are being planned. Contact Bill Brown at 3911 James Ave, Huron, Ohio 44839, or e-mail huronbill@buckeye-express.com.

*Center Celebration
Picnic
See page 2*

In Appreciation

We sincerely appreciate the cards, flowers and prayers our family received following the passing of our father/ father-in-law Warren Weisenbach. The concern and support we received from our co-workers, especially once we were able to bring him [Warren] home, was greatly appreciated. Thank you, NASA family.

—Susan Johnson and Eric Baumann

Government communicators recognize Glenn

Glenn's Community and Media Relations Office earned three of the National Association of Government Communicators' (NAGC) 2005 Blue Pencil and Gold Screen Awards presented during the NAGC annual Communications School Conference in Baltimore. Over 600 entries were submitted for the competition recognizing excellence in written, filmed, audio/video-taped, published and photographed government information products disseminated within and outside the government. The Web Portal team won a second place trophy in Electronic Publications for the "Return to Flight" page produced by Kathleen Zona, Jan Wittry (SGT), Jennifer Sapienza (RSIS) and the Imaging Technology Center (RSIS) team. The *AeroSpace Frontiers* team received a Certificate of Excellence for Internal Newsletter produced by Kelly DiFrancesco, Doreen Zudell (SGT) and S. Jenise Veris (SGT). Orlando Thompson accepted a Certificate of Excellence for Display/Exhibits on behalf of Exhibits team members Richard Manco and Dwayne Hunt (BTAS) for a display entitled "Space Exploration Experience: Past, Present, Future."



Pictured, left to right, Zona, Thompson, DiFrancesco, Veris and Wittry at the NAGC Blue Pencil and Gold Screen Awards.

Explorer Post students highlight season

Continued from page 5

weather balloon satellite. In addition, students toured selected Glenn facilities, volunteered at the Cleveland Food Bank and enjoyed recreational outings.

"Glenn's Exploring Program had another successful and exciting year due to our outstanding Explorer advisors

and inspiring activities," said Stephanie Brown-Houston, Glenn's Explorer program manager. "We also enjoyed an increase in participation from the underserved youth of the Cleveland metropolitan area."

To learn more about Glenn's Explorers Program, visit <http://explorersposts.grc.nasa.gov/>

In Memory

Patrick Donoughe, 80, who retired from NASA in 1981 with 33 ½ years of federal service, has died. He served as staff director at the Plum Brook Reactor Facility and later as program manager for satellite communications experimentation.

Eugene Gleisner, 89, who retired in 1975 with 32 years of NASA service, has died. Gleisner served as a production controller.

Robert Humbel, 82, who retired from NASA in 1979 with 29 ½ years of federal service, has died. Humbel served in the U.S. Army prior to joining NASA.

Herbert "George" Hurrell, 82, who retired from NASA in 1989 with 43 years of federal service, has died. Hurrell served in the U.S. Air Force prior to serving NASA as an aerospace engineer in the Propulsion Systems Division.

Winston Johnson, 55, who retired from NASA in 2004, has died. Johnson served as a mechanical engineering technician.

Harold F. Kallhof, 84, who retired from NASA in 1976 with 32 years of federal service, has died. Kallhof served in the U.S. Army prior to working at NASA as a model maker in the Sheet Metal Section.

Lewis Little Folks celebrates two decades of dedication and care

BY S. JENISE VERIS

The 20th graduation ceremony of Lewis Little Folks (LLF) marked a new beginning for 40 kindergarteners and preschoolers, and another decade of a successful partnership between teachers and parents.

"LLF offers a unique childcare atmosphere where parents can be very involved because they are located nearby their children," explained LLF Director Maureen Sartain. "Parents volunteer to do presentations, fundraisers, and make contributions of various sorts because they want to be part of their child's life during these formative years."



Photo courtesy of Cathy McDonnell

Sartain said that the loving atmosphere and longevity of the child development center is attributed to the partnership between the staff and the Board of Directors, which is comprised of LLF parents. Together, their goal is to give students the best value for each tuition dollar.

LLF offers the lowest full-time daycare tuition based on comparable services in the area; low child-to-teacher ratio; supplemental programs in music and gym; foreign language for preschool-aged children; a state-certified kindergarten teacher and curriculum; summer camp; former students (K-3) care during school holidays; and most importantly, low teacher turnover.

Cathy McDonnell, who has taught at LLF since it opened in 1985, can attest that the facility is more than a place where parents leave their children for a few hours each day. "Many students who have attended over the years return to say hello and



Photo by Tonyia Williams

Above: Kindergarten teacher Sharon Foster leads the procession of the 2006 graduates. Left: Members of the 1986 graduation class and other students circle around a cake to celebrate.

relive precious childhood memories," McDonnell said. "But having one of my students return as a student teacher was so surreal! It's been a pleasure to see how my students have grown up and to know that my care and nurturing was a positive influence. I believe you reap what you sow, and I've already received twofold."

For more information about LLF, call 216-433-5264/5265 or visit <http://www.grc.nasa.gov/WWW/OHR/Childcare/>. ♦

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