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Langley Research Center

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Awaiting A Cosmic Prize

Genesis Mission Poised To Return To Earth With Sun Particles

NASA's Genesis sample return capsule was scheduled to be retrieved in midair by helicopter on Sept. 8 at the U.S. Air Force's Utah Test and Training Range, southwest of Salt Lake City.
NASA illustration

By D.C. AGLE
Jet Propulsion Laboratory

In a dramatic ending that marks a beginning in scientific research, NASA's Genesis spacecraft is set to swing by Earth and jettison a sample return capsule filled with particles of the Sun that may ultimately tell us more about the genesis of our solar system.

"The Genesis mission — to capture a piece of the Sun and return it to Earth — is truly in the NASA spirit: a bold, inspiring mission that makes a fundamental contribution to scientific knowledge," said Steven Brody, NASA's Program Executive for the Genesis mission.

On Sept. 8, the drama will unfold over the skies of central Utah when the spacecraft's sample return capsule will be snagged in midair by helicopter. The rendezvous will occur at the Air Force's Utah Test

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Langley Has 'Dynamic' Role In Genesis Mission

By JIM ROBERTS
Researcher News editor

One might say Langley Research Center has a "dynamic" role in the success of NASA's Genesis mission.

Three Langley employees — Neil Cheatwood, Prasun Desai and Ron Merski — contributed to the aerodynamics, flight dynamics and aerothermodynamics research for the Genesis sample return capsule, which was scheduled to return to Earth with Sun particles on Sept. 8.

Desai, fresh from a similar assignment with Mars Exploration Rover, helped develop the capsule's entry, descent and landing sequence. He was on-hand at Jet Propulsion Laboratory to monitor its orbit and decide whether or not conditions were favorable for its return and, if so, to predict where it would land.

(Genesis was scheduled for a mid-air retrieval by helicopter — to preserve the integrity of the Sun particle samples — within a 40-by-25 km "landing footprint" at the U.S. Air Force's Utah Test

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Langley Research Center employees (left to right) Ron Merski, Neal Cheatwood and Prasun Desai played a significant role in NASA's Genesis mission.
Photo by Jeff Caplan

Inside This Issue:

NASA Vision: *To improve life here, To extend life to there, To find life beyond*
NASA Mission: *To understand and protect our home planet ● To explore the Universe and search for life To inspire the next generation of explorers ... as only NASA can*

Briefs

Around the Agency

FINAL ENGINE TESTED FOR RTF MISSION

Engineers at Stennis Space Center in Mississippi have successfully tested what's expected to be the last of three Space Shuttle Main Engines (SSMEs) that will carry the next Space Shuttle into orbit.

The engine tested on Aug. 19 will be shipped to Kennedy Space Center for installation on Space Shuttle Discovery for its Return to Flight mission, designated STS-114. NASA plans to launch Discovery to the International Space Station no earlier than March 2005.

The test began at about 9:10 p.m. EDT. It ran for 520 seconds, the length of time it takes a Space Shuttle to reach orbit. Initial indications are all test objectives were successfully met.

"Piece by piece, milestone by milestone, we're getting closer to flying the Shuttle again," said Michael Kostelnik, NASA's Deputy Associate Administrator. "Today's engine test is another important step to make sure we give the STS-114 crew a safe ride to and from the Space Station."

Miguel Rodriguez, director of the Propulsion Test Directorate at Stennis, said, "Our NASA and contractor team has continued to work hard over the past year and a half to make sure the Shuttle's main engine maintains its safety record. All the effort will pay off when we see Discovery lift off next year."

For more information about NASA's Return to Flight efforts, visit: <http://www.nasa.gov/returntoflight>. NASA HQ RELEASE: 04-273

SCIENTISTS DISCOVER NEW CLASS OF PLANETS

Astronomers announced on Aug. 31 the first discovery of a new class of planets beyond our solar system about 10 to 20 times the size of Earth — far smaller than any previously detected. The planets make up a new class of Neptune-sized extrasolar planets. In addition, one of the new planets joins three others around the nearby star 55 Cancri to form the first known four-planet system.

The discoveries consist of two new planets. They were discovered by the world renowned planet-hunting team of Paul Butler and Geoffrey Marcy of the Carnegie Institute of Washington and University of California, Berkeley, respectively; and Barbara McArthur of the University of Texas, Austin. Both findings were peer-reviewed and accepted for future publication in the Astrophysical Journal. NASA and the National Science Foundation (NSF) funded the research.

"NASA, along with our partner NSF, is extremely proud of this significant planetary discovery," said Al Diaz, Associate Administrator of NASA's Science Mission Directorate. "The outcome of the tremendous work of the project scientists is a shining example of the value of space exploration."

For more information, visit: <http://planetquest.jpl.nasa.gov>. NASA HQ RELEASE: 04-281

Researcher News

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The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

The Researcher News accepts signed letters to the editor from Langley Research Center employees, on-site contractors and retirees. Letters are limited to 250 words and will be edited only for grammar. When necessary, letters may be edited for space, but only with the author's approval. Letter-writers are limited to one submission on a topic every six months. Questions regarding this policy should be directed to Keith Henry, managing editor, at 864-6120 or <h.k.henry@nasa.gov>.

Read the Researcher News online at <http://researchernews.larc.nasa.gov>.

'Rocket Girls'

Girl Scouts launched model rockets as part of the "Explore and Discover" Girl Scout Day Camp from Aug. 23-27 at the Virginia Air and Space Center in Hampton. Langley Research Center's Office of Education supported the event.

Photo by Jeff Caplan

NIA Names Two Professors

The National Institute of Aerospace (NIA) recently announced the appointment of two Langley Professors.

Kathryn Logan was named Langley Professor in Multifunctional Design by the Virginia Polytechnic Institute and State University, and **James E. Hubbard Jr.** was named Langley Professor in Smart, Adaptive Aerospace Vehicle Technology and Concept Development by the University of Maryland.

Logan

Hubbard

Logan and Hubbard are the second and third of six Langley Professors to be appointed by the six founding member universities of NIA. Logan will be the principal Virginia Tech faculty member resident at NIA, and will lead NIA's research program in the field of development of aerospace design elements having multiple functions. Hubbard will be the principal University of Maryland faculty member resident at NIA, and will lead NIA's research program with primary focus on morphing aircraft structures.

"Dr. Logan is an internationally recognized expert in ceramic engineering and brings with her 30 years of experience designing new materials," said Robert Lindberg, NIA president and executive director. "Dr. Hubbard's experience in aerospace research as well as entrepreneurial abilities will directly affect NIA's mission to bridge the gap between government, academia, and industry."

More information about the NIA is available at: <http://www.nianet.org>.

In Memoriam

Robert W. Fralich

Robert William Fralich died on Aug. 17 at the age of 80. Fralich, a native of Cincinnati, worked as a theoretical research engineer at NACA and NASA from 1947 to 1980. He also taught at George Washington University, Thomas Nelson Community College and Hampton Roads Academy.

Wayne S. Slemp

Wayne Sherman Slemp died on Aug. 23 at the age of 68. Slemp, a native of Lee County, worked as a materials research engineer at Langley Research Center, retiring after 36 years of service. He specialized in the development of materials used in the space program, including those flown on the Space Shuttle, the International Space Station and the Long Duration Exposure Facility satellite.

Corrections

The Aug. 27 edition of the Researcher News contained several errors.

In the story "Langley's Olympians: Center Hosts Annual Honor Awards Ceremony," the reference to the "X-42A flight" in Roy D. Bridges' quote should have read "X-43A flight."

In the photo caption accompanying the story "SRGULL Code Receives ICB Award," the names of Langley Research Center employees Laura Bass and Shelley Ferlemann were transposed.

Also in the SRGULL story, portions of the writer's original submission were omitted for space, including these two paragraphs:

"Bass' role in SRGULL creation came into play as the code began to be used by other programs and ran for Software of the Year. As an integration specialist, Bass works for the Hyper-X Program. She designed and formatted the layout for a 400-page manual creating graphics and making this highly complex code more easily understandable. She also helped put together presentations and the design for the software CD and packaging.

"While the application process was a challenge, it was well worth getting the recognition and monetary award that all their hard work deserved. They encourage other Langley employees and contractors to submit nominations for the Space Act Invention Award to help Langley technologies and inventors get the recognition they deserve."

Langley Research Center employees (left to right) Lesa Roe, Ken Winter, Leah Meisel and Cathy Mangum speak about different aspects of the Center's re-organization at an all-hands meeting on Aug. 24 in the H.J.E. Reid Conference Center.

Photo by Jeff Caplan

'We Have To Work As A Team'

Employees Get First Glimpse Of Center's Transformation Process

By JIM ROBERTS
Researcher News editor

Langley Research Center's Kick Start Implementation Team offered employees a first glimpse of how the Center will transform to its new organizational structure at an all-hands meeting on Aug. 24 in the H.J.E. Reid Conference Center.

Four employees — Lesa Roe, Ken Winter, Leah Meisel and Cathy Mangum — spoke about different aspects of the new organization, which will take effect on Oct. 3.

Roe, Langley's Deputy Director, offered a background on the re-organization, and Winter, Langley's Chief Financial Officer, offered some budgetary insight, but it was Mangum and Meisel who answered the big questions on employees' minds: Who will be in what positions, and where will everyone be located?

Meisel, director of Langley's Office of Human Resources, explained what is being referred to as "the crosswalk," a systematic way to realign employees from the old organization to the new organization.

She said the leadership assessment process for SES positions was expected to be done in September, and supervisory GS-15 employees will be realigned "as is" initially, with a follow-on leadership assessment conducted in October 2004.

"The GS-15 assessments will provide the 'best' placement recommendations for these positions to a panel led by the Center Director or the Director of the new organization where the positions reside," she said.

She said all other positions were mapped based on the "best fit" of how their functions and work were reorganized.

Meisel concluded by announcing a buyout request for up to 300 positions in 2005. The total number of positions eligible to apply for the buyout is 1,200.

"This is necessary to provide a broad enough position base to reach the desired result of approximately 300 actual buyouts," she said.

If approved by NASA Headquarters, the buyout would be offered between November and January of 2005. Meisel emphasized that current buyout amount of $25,000 might be "strategically reduced" in 2005.

Mangum, Langley's Chief Information Officer, updated employees on "space planning," saying between 50 and 75 percent of all employees will move beginning in October. Moving 30 employees per day, it will take about 100 days to complete all the moves.

Mangum said employees can help the process by doing four things: purging unnecessary clutter; leaving their offices in a clean state; being prepared for the actual move; and unpacking in a timely manner.

SES employees will get 200 to 300 square feet of office space, and civil servant supervisers will get 150 to 200. All remaining employees will get 80 to 150 square feet. The Center's goal is to average 125 square feet per employee.

So far, the Office of Chief Information Officer has moved, and the NASA Engineering and Safety Center and Flight Research Services Competency are in the process of moving. Six organizations are scheduled to move in October: Office of Director, Office of Chief Counsel, Office of Chief Financial Officer, Office of Human Resources, Office of Procurement, and the Strategic Partnership, Planning and Management Office.

All remaining organizations will move between November and January of 2005.

"We all are asking for your support and dedication to make this re-organization work," Mangum said. "We have to work together as a team. We need to go through this transformation so we can be successful in the future, continue to support the agency and continue doing amazing things here at this Center."

Center Director Roy D. Bridges Jr. began the meeting by encouraging employees to stay positive through the transition.

"We can control how we respond," he said. "The one thing we need to be aware of in times of change like this is what attitude we are projecting. We can succeed with our mission while going through this change."

Bridges spoke again during the question-and-answer session after an employee reminded the panel that NASA is not a profit-making organization.

"No, we are not for-profit," Bridges said, "but we are a steward of the taxpayers' money. We are a business that is affected by our costs — not just the big things. Across the board, we need to understand our costs."

For more information, visit Langley's Kick Start web site: <http://kickstart.larc.nasa.gov/>.

'Wednesday Forums' Continue Through December

Langley Research Center's Kick Start Teams hosted the first "Wednesday Forum" at 11 a.m. Aug. 25 in the Hampton Room of the H.J.E. Reid Conference Center. Additional forums are scheduled at 11 a.m. every Wednesday through December. The Sept. 15 forum will take place at the same time but will be held in the Center cafeteria.

Each forum will include four Kick Start Team representatives — two from institutional teams and two from technical teams — and an opportunity for employees to ask questions about NASA's Transformation.

For more information, visit the Kick Start web site: <http://kickstart/>.

Six Langley Employees Complete LDP

New Program Replaced NASA's Professional Development Program

By CHRIS WILLIAMS
NASA Headquarters

Six Langley Research Center employees were were among the 19 from throughout NASA to graduate from the Leadership Development Program (LDP) on July 26.

The LDP, which replaced NASA's Professional Development Program, is designed to create powerful leaders who align with NASA's vision, mission and values and who create results that matter to the American people. Program elements include developmental assignments, a class project, individual coaching, training and briefings by NASA and outside leaders. Participants must be grades 13-15 and are competitively selected at the agency level

Langley's graduates were Melvin J. Ferebee Jr., Shawn T. Gallagher, Laura A. O'Connor, Elizabeth B. Plentovich, Paul W. Roberts and William L. Willshire Jr.,

NASA Deputy Administrator Frederick Gregory spoke at the graduation ceremony, thanking the participants for the contributions they made to the Agency as part of their developmental assignments. He also praised them on the completion of their class project: "Achieving Mission Success in the 21st Century through Collaboration."

A link to the project can be found on the LDP web site: <http://ldp.nasa.gov/>.

Chris Williams is NASA's LDP Program Director.

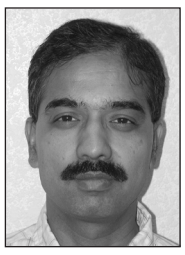
NASA Deputy Administrator Frederick Gregory (center) poses with Langley Research Center's Leadership Development Program graduates (left to right): Melvin J. Ferebee Jr., Shawn T. Gallagher, Paul W. Roberts, Laura A. O'Connor, Elizabeth B. Plentovich and William L. Willshire, Jr.

Photo courtesy of NASA Headquarters

Colloquium and Sigma Series Lectures

Vaidyanathan On 'Improved Composite Materials'

Ranji Vaidyanathan will present a Colloquium lecture titled "Improved Composite Materials For Exploration Systems" at 2 p.m. Sept. 14 in Langley Research Center's Pearl Young Theatre. A Sigma Series lecture will follow at 7:30 p.m. at the Virginia Air & Space Center in Hampton.



Vaidyanathan

The Lecture

The mass of future exploration systems will drive in-space propulsion and launch requirements. However, trimming masses from existing materials reduces margins and reliability. Nanomaterial additives are an attractive means to enhance the required properties without reducing the weight. Recent work has shown that nanomaterial and aerogel additions into the composites could result in systems with improved shielding from radiation, thermal, acoustic and EMI effects. Simple fabrication processes such as VARTM, RTM and rapid prototyping have been developed for these new composites. The presentation will discuss processing challenges and the results based on current work.

The Speaker

Vaidyanathan holds a bachelor's degree in metallurgical engineering from Banaras Hindu University, a master's degree in mechanical engineering from North Carolina A&T State University, and a doctorate in materials science and engineering from North Carolina State University. He was a Research Associate at Rutgers University and a Post-doctoral Research Fellow at Johns Hopkins University. He has been an Adjunct Associate Professor in the Advanced Materials Engineering Department at the University of Arizona since 2000.

Vaidyanathan is currently the manager for Advanced Materials at Advanced Ceramics Research and works to develop flexible manufacturing techniques for ceramic and polymer matrix composites. He also works with the University of Arizona on outreach programs to improve K-12 education and to enhance enrollment into the engineering programs at the university. He received an R&D 100 Award in 2001 for developing a water-soluble mandrel material for polymer composite materials.

Future Lectures

■ **Oct. 5:** Bob Somerville on "A Century of Innovation — 20 Engineering Achievements That Transformed Our Lives"

■ **Nov. 2:** Neil deGrasse Tyson on "America's Future in Space and PBS NOVA Series 'Origins'"

■ **Dec. 7:** Robert Rose on "Fuel Cells: Hope or Hype?"

For more information about the lecture series, visit <http://shemesh.larc.nasa.gov/Lectures/> on the Internet.

Fort Monroe Marina Opens To NASA Employees

Officials at Fort Monroe recently announced that all federal employees and retirees may access services at Old Point Comfort Marina.

Owned and operated by the U.S. Army, the marina offers a full complement of services, including 314 floating slips and temporary dockage for vessels up to 50 feet.

"We've been trying to extend this opportunity to all non-DoD federal employees for quite some time," said Don Van Patten, project manager of Fort Monroe's Morale Welfare Recreation (MWR) division. "I know there are a lot of Veterans Affairs Medical Center and NASA employees in particular that have been looking forward to this opportunity."

The marina also includes shower and laundry facilities, a ship's store and restaurant that opens at 7 a.m. Monday through Saturday.

Theresa Grogan, the marina's manager, is excited to offer service to more people.

"We've been trying to extend this opportunity to all non-DoD federal employees for quite some time."
Don Van Patten

"When you think of the large military complex that occupies the Hampton Roads area," she said, "you realize how vital this tremendous facility will become in support of boating enthusiasts who can now depend on the Old Point Comfort Marina as their home base."

The new access action also includes non-appropriated fund civilians. Reservists, National Guardsmen and contractors working at Fort Monroe will continue to have full access. Public access to the marina is authorized but limited.

For more information, call 788-4308.

‘Not Just A Job, An Adventure’

Former Naval Officer Settles In To Position At The NESC

By MEREDITH CARR
Langley Research Center

As a former submarine commander, Clinton Cragg is used to important assignments with a heavy emphasis on safety. That’s one of the reasons he was picked by NASA to serve as a leader in the NASA Engineering and Safety Center (NESC).

As a principal engineer, Cragg leads many of the independent technical assessments completed by the NESC. An independent technical assessment involves a diverse team of experts to explore dissenting opinions or safety issues for a component of any NASA program that has a need for an outside view. Principal engineers bring together these experts from NASA centers, industry or academia to reach a solution for the engineering problem at hand.

Since January, Cragg has been working on an NESC assessment to determine a better analysis for inspecting the safety of the fuel flowliner on a space shuttle. The flowliner is what makes the flow of liquid fuel smooth between the external fuel tank and the orbiter engine. This independent technical assessment is determining the root causes of cracks in space shuttle flowliners and then resolving the problems or lowering risks to an acceptable flight level.

Cragg’s Navy career, which included a stint as commanding officer of the USS Ohio, has helped him bring a unique and experienced perspective to the NESC.

“The submarine itself is a big machine,” Cragg said, “so in my career we’ve had a lot of problems we’ve had to fix, and one of the things I’ve had to learn was to fix problems at sea — when everybody wanted to go home.”

This has enabled Cragg to look at the “overall picture” when leading a team working toward a solution.

Since January, Cragg has been working on an NESC assessment to determine a better analysis for inspecting the safety of the fuel flowliner on a space shuttle.
Photo by Jeff Caplan

He admits the Navy and NASA are run quite differently but says its has allowed him to suggest new ideas and different problem-solving techniques to NASA.

Most recently, Cragg served as the Chief of Current Operations at the U.S. European Command. He was getting ready to retire from a Navy career of more than 20 years when a coworker suggested he look into career opportunities at NASA. He found a job offer online that was a perfect match for his backgrounds in systems and nuclear engineering. In November 2003, Cragg joined the newly formed NESC as a principal engineer.

Cragg flew from Europe to an NESC meeting in Washington D.C. during the hiring process and liked the NASA employees he met right away. This became one of his reasons for taking the job, and is still his favorite thing about working for NASA. He said he feels that liking the people you work with is one of the most important aspects of a job, because it is necessary to get along to work effectively together. However, switching from the rigid structure of the Navy to a very different organization and communication style has been a bit of a challenge for Cragg. “I’m still getting used to the NASA culture and how all the centers interact,” he said.

His move to work at NASA was his 17th, because of the relocating a military career calls for. He now lives in Yorktown with his wife, two sons and a daughter. Cragg is glad to be able to stay at home for longer periods of time now, but said, “Every place has its own attributes and it’s kind of neat to see different parts of the world and the country.”

When he is not working on engineering challenges for NASA, Cragg enjoys his hobbies of photography, skiing and reading books on history.

The U.S. Naval Academy, the Navy’s Submarine and Naval Nuclear Power Training Program, and a master’s degree from the Naval War College are all part of Cragg’s academic history. Education in systems engineering and nuclear engineering has made him a “jack-of-all trades,” using both to solve problems on submarines and now leading independent technical assessments for the NESC.

Meredith Carr, a Longwood University student, worked in Langley’s Public Affairs Office this year through the Langley Aerospace Research Summer Scholars (LARSS) program.

Genesis

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and Training Range, southwest of Salt Lake City.

“What a prize Genesis will be,” said Genesis principal investigator Don Burnett of the California Institute of Technology. “Our spacecraft has logged almost 27 months far beyond the moon’s orbit, collecting atoms from the Sun. With it, we should be able to say what the Sun is composed of, at a level of precision for planetary science purposes that has never been seen before.”

The prize Burnett and company are waiting for is a set of hexagonal wafers of pure silicon, gold, sapphire, diamond and other materials that have served as a celestial prison for their samples of solar wind particles. These wafers have weathered 26-plus months in deep space and are now safely stowed in the return capsule. If the capsule were to descend all the way to the ground, some might fracture or break away from their mountings; hence, the midair retrieval by helicopter, with crewmembers including some who have performed helicopter stunt work for Hollywood.

“These guys fly in some of Hollywood’s biggest movies,” said Don Sweetnam, Genesis project manager at NASA’s Jet Propulsion Laboratory (JPL). “But this time, the Genesis capsule will be the star.”

The Genesis capsule — carrying the agency’s first sample return since the final Apollo lunar mission in 1972, and the first material collected beyond the moon — will enter the Earth’s atmosphere at 9:55 a.m. Mountain time. Two minutes and seven seconds after atmospheric entry, while still flying supersonically, the capsule will deploy a drogue parachute at 33 kilometers (108,000 feet) altitude. Six minutes after that, the main parachute, a parafoil, will deploy 6.1 kilometers (20,000 feet) up. Waiting below will be two helicopters and their flight crews looking for their chance to grab a piece of the Sun.

“Each helicopter will carry a crew of three,” said Roy Haggard, CEO of Vertigo Inc. and director of flight operations for the lead helicopter. “The lead helicopter will deploy an eighteen-and-a-half foot long pole with what you could best describe as an oversized, Space-Age fishing hook on its end. When we make the approach we want the helicopter skids to be about eight feet above the top of the parafoil. If for some reason the capture is not successful, the second helicopter is 1,000 feet behind us and setting up for its approach. We estimate we will have five opportunities to achieve capture.”

The helicopter that does achieve capture will carry the sample canister to a clean room at the Michael Army Air Field at the U.S. Army Dugway Proving Ground, where scientists await their cosmic prize. The samples will then be moved to a special laboratory at Johnson Space Center (JSC), where they will be preserved and studied by scientists for many years to come.

“I understand much of the interest is in how we retrieve Genesis,” Burnett said. “But to me the excitement really begins when scientists from around the world get hold of those samples for their research. That will be something.”

JPL, a division of the California Institute of Technology, manages the Genesis mission for NASA’s Science Mission Directorate. Lockheed Martin Space Systems developed and operates the spacecraft. Los Alamos National Laboratory and JSC contributed to Genesis payload development, and JSC will curate the sample and support analysis and sample allocation.

For more information, visit: <http://www.nasa.gov/genesis>.

Langley

Continued from Page 1

and Training Range.)

“We’re going to do everything possible to bring the particles back safely,” Desai said during a news conference two weeks before the retrieval.

Langley’s contributions to Genesis actually date back to 1997.

Cheatwood conducted aerodynamics tests on Genesis models in the Free Flight Facility at Eglin Air Force Base to determine the behavior of the capsule at parachute deployment, while Cheatwood and Merski teamed to perform heating analyses by running computations and by testing in Langley’s 20-Inch Mach 6 Tunnel. Their tests helped determine suitable materials for the forebody of the capsule and, more importantly, what effect bolt holes on the forebody would have on the capsule’s ability to withstand several thousand-degree temperatures during its reentry into Earth’s atmosphere.

Ultimately, the capsule forebody was designed out of carbon-carbon with three one-inch bolt holes to allow it to be attached to the Genesis spacecraft.

Their work could indirectly lead to answers about the origin of the universe. Desai said the solar isotopes collected by Genesis may answer questions like “What was the early make-up of our solar system?” and “How did our solar system form?”

AdVentures

CLASSIFIED

FOR SALE: 1992 Dodge Grand Caravan LE, blue/grey, 130K miles, automatic, V6, built-in child seats, $3,000 or best offer. Call 867-9697.

FOR SALE: Victorian antiques and vintage furniture from the 1930s and 40s, all in excellent condition, includes chairs, marble-top tables, sofa, desk, accent tables. For details, call 373-9595.

FOR SALE: White wicker guest bedroom set, includes two twin beds, eight-drawer dresser and mirror, two-drawer nightstand and lots of linens, very good condition, $250 or best offer. Call 896-2190.

FOR SALE: Nordic Track Pro Ski Machine with electronic monitoring package, excellent condition, $125; Worksman bike, $50. Call 238-3388.

FOR SALE: 19-inch color TV with remote, $60; twin-size pillow-top mattress and box spring, $120; both items less than nine months old. Call 870-6191.

FOR SALE: Large executive desk, 3-by-7 feet with white formica top and maple base in a natural finish, five drawers, two of which are file size, good condition, $75. Call 865-0586.

FOR SALE: Green iron baker's rack with natural finish work surface and four shelves, $50; blue and white Tiffany-style chandelier, $35. Call 725-3631.

FOR SALE: Large capacity washer and dryer, mixed set, $200 or best offer; queen-size mattress and box spring, good shape, $200. Call 846-4763.

FOR SALE: Large Papasan chair with tropical pattern cushion, $50; white baby crib with mattress, $100. Call 867-9697

FOR SALE: Baby stuff: Child Craft crib, solid oak, medium-dark stain, all pieces, both sides go down, great condition, with clean Sealy mattress, $75; double in-line stroller for twins with adjustable awnings, storage, other extras, excellent condition, $50. Call 596-7936.

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The deadline for the Sept. 24 edition is Sept. 13. Send submissions to <j.r.roberts@larc.nasa.gov>.

LAA Will Meet On Sept. 15

Langley Research Center's Alumni Association (LAA) will meet at 11:30 a.m. **Sept. 14** in the Langley Room of the Center cafeteria. The program will feature Ralph Roe, who will discuss the mission and activities of the NASA Safety and Engineering Center (NESC). For information about the LAA, call 864-7330.

Blood Drive On Sept. 15

The American Red Cross will host a blood drive on **Sept. 15** in Langley Research Center's H.J.E. Reid Conference Center. Langley employees, contractors and retirees are invited to participate. Civil servants should charge their time to "Excused Leave." The final blood drive for 2004 will be held on **Nov. 24.**

For more information, contact Connie Small at 864-2564 or <Connie.J.Small@nasa.gov>.

Nobel Laureate To Speak At ODU

Old Dominion University will host two lectures by Nobel Prize winner Carl E. Wieman in September. Wieman will speak about "Bose-Einstein Condensation: Quantum Weirdness at the Lowest Temperatures in the Universe" at 10 a.m. **Sept. 17** in the Constant Convocation Center and about "The Circuitous Route of a Scientific Discovery" at 10 a.m. **Sept. 18** in Constant Hall. ODU and the lecture venues are located in Norfolk.

For more information, contact Amin Dharamsi at 683-4467 or <adharams@odu.edu>.

New IMAX Film Opens At VASC

"Forces of Nature," a new IMAX film documenting earthquakes, tornadoes, volcanoes and other destructive natural forces, opened at the Virginia Air and Space Center on Aug. 20. "Forces of Nature" is a National Geographic film, funded in part by the National Science Foundation.

For showtimes and advance tickets, call 727-0900, ext. 703 or visit the VASC web site at: <http:www.vasc.org>.

The VASC is Langley Research Center's official visitor center.

VASC 'NASA Days' In October

The Virginia Air & Space Center will host "NASA Appreciation Days" from **Oct. 8-10**. NASA employees and retirees will receive free admission to the museum and other benefits, including $10 off the purchase of a membership, a 20 percent discount in the Museum Store, and $20 off the price of a paver.

The VASC is Langley Research Center's official visitor center.

For more information, contact Jessica Wharton, Membership Coordinator, 727-0900, ext. 718.

Soccer Club Hosts Weekly Games

Langley Research Center's Soccer Club hosts co-ed games after work every Tuesday and Thursday. All levels are welcome; players are asked to bring a white T-shirt and a dark T-shirt for ease of team identification.

For more information or to be added to the Soccer Club's e-mail list, contact Mahyar Malekpour at 864-1513 or visit the club's web site: <http://larc-exchange.larc.nasa.gov/lea/soccer/>.

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National Aeronautics and Space Administration

Langley Research Center
Hampton, Virginia 23681-2199

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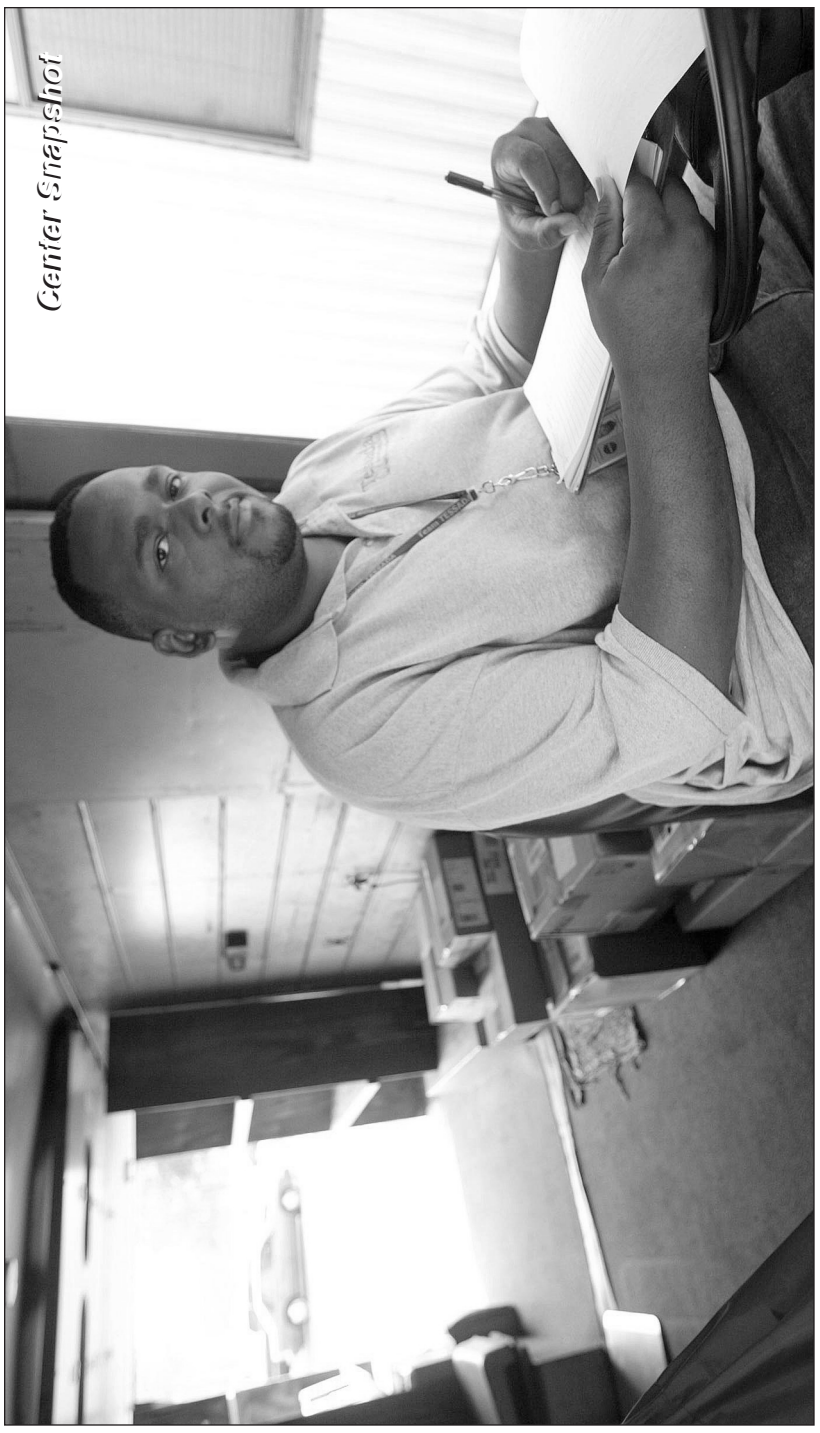
Center Snapshot



Daniel Barrett has worked on contract at Langley Research Center since graduating from Bethel High School 10 years ago. He started working with the Center's movers and now works for Tessada & Associates, delivering packages and other runs in a "medium" truck. In his free time, he enjoys listening to music, watching movies, going to clubs and making people laugh. What does he like about the time he has spent at Langley? "The satisfaction I see in customers eyes when I deliver packages," he says.

Photo by Jeff Caplan