



# ASTROGRAM

Newsletter of NASA Ames Research Center, Moffett Field, California

January 2007

## GeneSat shows small satellites can deliver big science

A very small Ames satellite has proven that scientists can quickly design and launch a new class of inexpensive spacecraft -- and conduct significant science.

The 11-pound (5-kilogram) GeneSat-1, carrying bacteria inside a miniature laboratory, was launched in December. It was a secondary payload on an Air Force four-stage Minotaur 1 rocket that delivered the Air Force TacSat 2 satellite to orbit. GeneSat-1 began to transmit data on its first pass over the mission's California ground station. Scientists still receive data from the satellite regularly.

"GeneSat proves that big science can be done using small satellites," said GeneSat project manager John Hines, an engineer and scientist at Ames. "GeneSat's success points out how NASA can spend less money and time to learn new things in space," Hines observed.

GeneSat-1 was designed and built at NASA Ames, and the mission is



NASA photo Dominic Hart

*A GeneSat prototype. GeneSat-1 was launched in December and continues to orbit Earth. The satellite is expected to reenter the atmosphere and burn up before the end of the year.*

being managed from Ames. According to Hines, GeneSat-1 is NASA's first fully automated, self-contained biological spaceflight experiment on

a satellite of its size. "Based on this success, we expect that in the near future, this class of small satellite will see increasing acceptance and usage by the science community," Hines noted.

"All systems - the biology experiment, the life support, ground antenna and communications - performed beyond our wildest expectations," Hines said. "These small satellites will help us understand the hazards and risks associated with human space travel," Hines ventured.

The cost to develop the GeneSat satellite class, launch the first spacecraft and operate it was a fraction of what it normally costs to conduct a mission in space, according to scientists. Subsequent GeneSat-class missions will cost much less, Hines predicted.

Researchers say that knowledge gained from GeneSat-1 will help

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## Inspirational program at Ames celebrates Dr. Martin Luther King

On Jan. 10, the African-American Advisory Group (AAAG) hosted a Dr.

ing approximately 100 people. As attendees were arriving, they enjoyed

rights movement. Steven Zorntezzer, associate director for institutions and research at Ames, gave a very memorable welcome, reflecting on his experience as one of the 250,000 people that participated in the March on Washington where King delivered his famous 'I Have A Dream' speech.

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*Sheila Johnson of the Public Affairs Office at Ames (left) shared information on the life of Dr. Martin Luther King's wife, Coretta Scott King, during a recently held tribute to the famous leader of the American civil rights movement. The event was hosted by the African-American Advisory Group at Ames. Dr. Martin Luther King is seen with his wife, Coretta, on the presentation screen in the photo.*

Martin Luther King (MLK) celebration in the main auditorium, attract-

a slide show featuring photos of King, a famous leader of the American civil

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## Computer screens to be virtual 'NASA spaceship windows' over Mars

NASA Ames is providing a unique opportunity to the public to suggest photo targets for the Mars Reconnaissance Orbiter (MRO), the spacecraft that recently took a history-making image of the Mars Exploration Rover Opportunity on the rim of Victoria Crater.

MRO, which began orbiting Mars on March 10, 2006, carries a sharp-eyed camera called the High Resolution Imaging Science Experiment (HiRISE), that can image objects as small as an easy chair on the martian surface while the spacecraft orbits 186 miles (300 kilometers) overhead.

The HiRISE, with 14 charge-coupled device (CCD) detectors, takes pictures having more than 300 times more pixels than found in a typical consumer 8-megapixel camera image. As MRO continues its mission to survey our neighboring planet, NASA's Mars science team will review suggestions from the public for photo targets and task the spacecraft to take pictures of those proposed targets having the greatest scientific merit.

Here are URLs to visit to make suggestions for Mars picture-taking and for viewing images: <http://marsweb.nas.nasa.gov/hirise/>, or <http://hirise.lpl.arizona.edu>

This Web site contains many images of Mars taken during previous missions and by other satellites still orbiting the planet. These wider views give Internet users a way to survey the red planet from a distance, and then zoom into closer views to pinpoint where new, even more-detailed pictures could be taken by HiRISE.

"We are creating a Web site where one can virtually explore Mars using a variety of high-resolution images," said Glenn Deardorff, the HiRISE Web developer at NASA Ames. He has built the preliminary Web site with images available from Mars missions

as old as the two Viking orbiters of the 1970s.

The Web site includes complete directions explaining how to locate areas on Mars and make suggestions for picture taking. Generally, here's how you can make a suggestion:

First, before making a proposal, the user must locate where a super-high-resolution picture is to be taken.

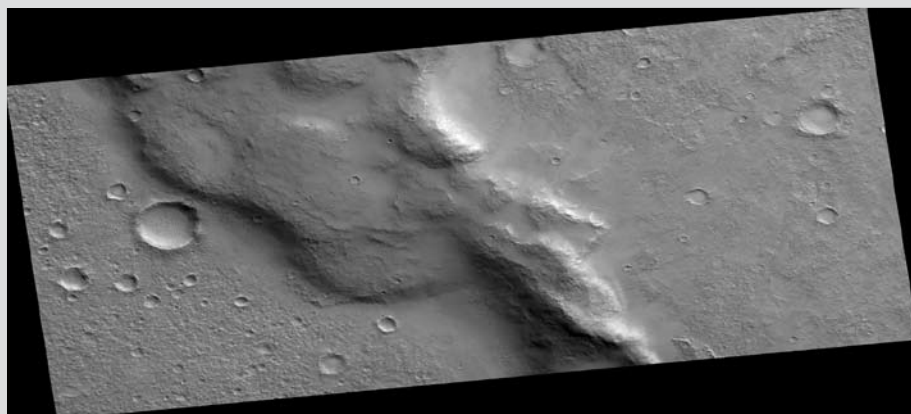


Image taken of wrinkle ridges in Solis Planum by the High Resolution Imaging Science Experiment (HiRISE) camera onboard the Mars Reconnaissance Orbiter spacecraft on Nov. 20, 2006.

This is done by looking at wider views of the planet, and gradually zooming in to locate interesting features. The user can select the area of interest on the Mars pictures by clicking and dragging a mouse or selecting area outlines of a HiRISE image 'footprint.' When the user does this, the Web site's HiRISE 'tool' automatically displays latitude and longitude numbers.

Second, the user needs to fill in a form on-line. The selected latitude and longitude figures automatically appear in the form after the user has zeroed in on a Mars location.

Then, the requestor needs to choose a 'science theme' that best fits his/her suggestion. Some examples of science themes are 'volcanic,' 'glacial processes' and 'future landing sites.' There is a block where the requestor must write a short justification for the suggestion.

In order to submit a suggestion, one has to first register, according to Dr. Virginia Gulick, who holds a doctorate in geosciences. She also is a HiRISE science team member and education and public outreach lead from the SETI Institute, Mountain View, who works at Ames. The requester

will create a user name and password. These will allow the user to go back to the Web site to view his/her suggestions and to permit the HiRISE team to send return e-mail to alert suggesters when an image or images within their region of interest were acquired.

"We are doing this because HiRISE is only going to image about 1 percent of the planet's surface, and we want

to image the best - or the most interesting areas," Gulick said. Mars' surface is about the same area as Earth's continental areas.

The team also will invite Internet users to volunteer to be 'click workers.' "We will ask volunteers to help us initially locate and eventually create databases of boulders, gullies, craters - any kind of geo-

logic feature on the surface that may be of interest in the images," Gulick explained.

"The resulting databases can provide a better understanding of how these surface features formed, as well as provide better insight into the planet's geologic and climatic history," Gulick said. "Scientists or students can use these data bases to propose theories about Mars that could be proven by future exploration," she added.

According to Gulick, scientists expect the mission to last at least two years. "But it may last another decade, if we're lucky, partly because we didn't have to use as much fuel as originally planned to make flight corrections on the way to Mars," she explained. The primary HiRISE science phase started in November 2006. "That's when we began taking pictures officially for science after the orbit circularized," said Gulick.

In addition to pictures and image submission forms, the site contains information about each HiRISE science theme. "So, if you don't know what 'aeolian processes' are, you will learn that they are wind-related. If

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## Jack Boyd marks his 60th year at NASA

Jan 15, 2007 marked the 60th anniversary of the day that Jack Boyd, senior advisor to the Ames center director, first reported to work at what is now NASA Ames. Boyd originally traveled on a transcontinental train from Virginia to the San Francisco Bay Area. Most of his Virginia Tech classmates chose to work at Langley, but Boyd chose another path, Ames.

He first reported to work on Jan. 15, 1947, with a starting salary of \$2,644 a year. Walter Vincenti was his branch chief, Harvey Allen, his division chief. Aircraft and spacecraft fly better because of his research in the Ames 1-foot-by-3-foot and 6-foot-by-6-foot wind tunnels -- including swept wings, conical camber, canards on supersonic aircraft, flights through non-Earth atmospheres, and the shaping of space capsules.

In 1963, Harvey Allen called on Boyd for technical assistance to marshal all the new work at Ames into comprehensive research programs. In the late 1960s, he served as the Ames' point person with NASA Headquarters in creating new research programs when America was redefining its exploration mission.

He became deputy director for aero-

autical and flight systems at Ames; deputy director of Dryden Research Center; acting deputy director and associate director of NASA Ames and then associate administrator for management at NASA Headquarters. He was tasked to work on the consolidation of NASA's helicopter research program, preparing Dryden as a shuttle landing site; implementing affirmative action programs for the agency; completing NASA's advanced secure computing facility; working with defence agencies on classified research, and leading NASA to implement the reorganization and reforms of the Packard report on federal laboratories.

In his 'second career' at Ames, he began in educational outreach. Even when he became the executive assistant to the director, his primary role was that of advisor, teacher and mentor.

Today, he is the senior advisor for history and the center Omsbud, as well as the senior advisor to the center director at Ames. He has inspired generations with his unfailing optimism and enthusiasm, his desire for efficiency and accomplishment, his spirit of fairness and cooperation, his love of learning and teaching, and his understanding of the value of history in envisioning our



NASA photo by Tom Truver

Jack Boyd, senior advisor to the center director at NASA Ames, during the recent celebration in January of his 60-year mark at the center.

future. The agency is a much better place because of his dedication and commitment to it.

By ASTRID OLSON, WITH INFORMATION COMPILED FROM LETTERS WRITTEN IN JANUARY TO JACK BOYD FROM AMES CENTER DIRECTOR S. PETE WORDEN AND NASA ADMINISTRATOR MICHAEL GRIFFIN.

## Bay Area native remembers the Macon at Moffett Field

This poem was written by Ted Drenton of San Francisco, who is now 85. He wrote the poem in 1935, when he was 15, while attending Campbell High School. He spent his childhood and adolescence on a Santa Clara prune orchard at the corner of Saratoga Avenue and Pruneridge Avenue, which back then were simple country roads. As a youth, he assisted his father in his 14-acre prune orchard.

During that time, he witnessed the Macon fly over the pruneyard and was inspired by the site of the immense airship. He also used to visit Moffett Field with his parents and saw the massive airship slip out of its hangar, rising into the sky and fly south toward the Pacific Ocean.

He heard about the recent search for the remains of the Macon off of Point Sur and thought that having the poem published would show what an immense impact the Macon had on so many people whenever it flew over the county.

The poem was sent to Jack Boyd to be published in the Astrogram.

*'The Glorious Macon -- My Zeppelin'  
My ancient memory-wrapped zeppelin,  
My silver-wild Macon  
Hovering over my green prune orchard,  
Motor-murmuring child-dream,  
Parting!  
Only then I dream of summer's  
wonder-tasting prunes  
Spread on trays, so wrinkled and black,  
Such splattered square wooden-  
splintered trays,  
Spread over them black prunes  
simmering in the sun.  
Now like a blue-bright cloud the  
quivering airship  
Slides horizonward.  
Then, alas, the sparrow-singing  
orchard stills--*

*Waits?--  
Like me, forlorn, for my glorious  
Macon to appear  
Again?  
With its pulsing motors once more  
haunting me  
Into hazy childhood dreams.  
Ah later!--  
I horror-heard--  
My Macon had crashed into the  
sad-clouded Pacific sea.  
Thus so alone my tears cried with me  
For my lost great wondership up there.  
So long ago amidst Santa Clara  
Valley prune blossoms  
I stood in my orchard  
Of Never-Again!*

-- Ted Drenton



Photo courtesy US Navy

The US Navy Zeppelin ZRS-5 at Moffett Field. The airship was built with a rigid hull made of aluminum alloy and was kept aloft by 12 large, helium-filled cells inside the hull. The zeppelin was 785 feet long and uniquely designed to carry five single-pilot Sparrowhawk biplanes that could be released and retrieved in mid-air using a special skyhook-trapeze mechanism. Although weighing 200 tons when fully loaded, the airship could reach speeds of 80 miles per hour, thanks to eight large propellers driven by eight powerful gasoline engines. In 1933, the Macon was deployed to the West Coast and berthed at a specially built hangar at Moffett. The Navy planned to use the Macon and its Sparrowhawks as long-range reconnaissance for the Pacific Fleet, warning Navy battleships of distant threats from air and sea.



## What is the NASA Ames Diversity Plan?

In November 2006, Ames Center Director S. Pete Worden held a center all-hands meeting to kick off the Center Diversity Implementation Plan. In his comments, using an example from past experiences, Worden stated that “diversity is a way to solve problems,” that you never know where the solution will come from. He cited an example where a diverse group of people found a solution to a problem from someone they least expected, and that when a group is not all of one mind, more possibilities for ideas and solutions exist.

The Ames Diversity Implementation Plan is a major step forward toward ensuring the ongoing creation of a working environment that places a value on and utilizes employee contributions at all levels. It will support an environment that encourages open dialogue and values individual ideas.

The purpose of this plan is to establish an overarching structure for managing the implementation of di-

versity initiatives at Ames. This includes addressing objectives identified within four elements: assessment, awareness, accountability and actions.

Working teams were developed for each element, made up of volunteers from across the center, including diversity leadership alumni, representation from employee, management, and supervisory and directorate levels. Teams were responsible for the development of the Ames plan. To review the Ames plan visit



NASA photo by Dominic Hart

The working team leads are (left to right): Awareness, Leticha Hawkins; Accountability, Darlene Gross; Action, Mike Liu; and Assessment, Ruth Marlaire. Each team developed goals and objectives and identified activities to address each element within the diversity plan.

the ODEO Web page at: <http://eo.arc.nasa.gov/ARC%20Diversity%20Plan.pdf>

BY DARLENE GROSS

## Ames' commitment to diversity demonstrated with DEOB

NASA's Policy Statements on Diversity and Equal Opportunity state that “NASA provides an environment that honors excellence, teamwork, fairness and equity. We strive to exemplify in all of our decision making the principle that employees have the freedom to compete on a fair and level playing field. To design the most effective systems, NASA must have a diversity of views, ideas and perspectives. This requires taking into account all the possible sets of training and experience that come from people of different backgrounds and life experiences. It is the widest diversity of viewpoints and considerations that go into making good technical solutions for NASA.”

In accordance with NASA policy statements on diversity and equal opportunity, the Ames Diversity and Equal Opportunity Board (DEOB) was reestablished in the spring of 2005. The DEOB is chaired by the center director and its membership is comprised of all directorate heads, the director of diversity and equal opportunity, the chief counsel, the director of human capital, a representative from the Ames Federal Employees Union, and a representative from each of the Ames employee advisory groups.

The responsibilities of the DEOB members are extensive. Members are

to maintain current knowledge and engage in continuous learning on diversity and EO issues and trends at the national level and at Ames. They must closely monitor the effects of



such trends and issues at Ames and they must promote diversity and equal opportunity policies and help to demonstrate commitment to such policies in all NASA programs, processes and practices at all levels throughout the center.

In addition, members must assist in the development and implementation of internal/external outreach programs to accomplish Ames' diversity objectives and address unique center-wide diversity and equal opportunity

problems and challenges that require center attention and make or implement recommendations for resolution. They must provide leadership to management and center employees on MD-715 requirements and provide leadership to center management when implementing plans for historically black colleges and universities, Hispanic-serving institutions, and tribal colleges and universities. They must also support efforts to ensure that minority and women-owned business enterprises have an opportunity to fully participate in the performance of NASA contracts. Finally, they must lead Ames' efforts to assist individuals with disabilities by addressing architectural and communication barriers.

In FY 2006, the DEOB demonstrated its commitment to diversity and equal opportunity through various important actions. The DEOB approved the Ames Diversity Implementation Plan, which will be put into practice at Ames over the next three years. The DEOB also has taken an active role in identifying barriers to equal opportunity at Ames as is required by Management Directive 715. The DEOB is currently looking into barriers that impede the inclusion of women and minorities in the SES employment program. In addition, the DEOB has

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## In memory of . . .

### Bradford A. Evans, former Ames public information officer

Bradford Alden Evans, former public information official at NASA Ames, died Nov. 27, 2006, in Southern Pines, N.C. He was 88.

Evans was born in Boston and raised in the San Francisco area. He graduated from the College of San Mateo and earned his bachelor's and master's degrees with honors from Boston University. He also graduated from the Air Force Command and Staff College.

During World War II, Evans served in the North African and Ital-

ian campaigns and was the commanding officer of the 96th 'Red Devils' Squadron of the 2nd Bombardment Group. He commanded and was the lead pilot of the Mediterranean Allied Air Force bombing of the historic Monte Cassino monastery in Italy. He was awarded the Distinguished Flying Cross for his role in the mission.

Evans also served tours of duty in the Pentagon as a planning officer, in Korea on the United Nations staff at the Panmunjom truce talks and in Cape Canaveral, Fla., as an interna-

tional relations officer. He retired from the Air Force with the rank of lieutenant colonel.

Evans then joined Ames as a public information officer in 1962. Ames colleagues remember him as an outgoing man who led the center's new efforts in public affairs during the decade when preparations for the nation's moon landing were at their peak.

Evans is survived by his wife of 53 years, Dorothy; and a son, Bradford, of Woodside, Calif.

### Remus Bretoi, former avionics research branch chief

Remus N. Bretoi was born April 9, 1925 and passed away on Dec. 28, 2006. A family funeral and interment has taken place in Minnesota. A memorial service was held in January in Los Altos.

Bretoi earned his bachelor of science degree in aeronautical engineering from the University of Minnesota in 1945 and a master of science degree in the same discipline in 1946. He played football for the University of Minnesota Gophers.

He worked for 18 years with Minneapolis Honeywell, and for 30 years at NASA. His first job with NASA was at the newly formed Electronics Research Center (ERC) in Cambridge, Mass., across the street from MIT. The ERC opened in September 1964 and served to develop the space agency's in-house expertise in electronics during the

Apollo era. The ERC was closed in 1970 and Bretoi transferred to NASA Ames. At Ames he had several roles, including chief of the Avionics Research Branch, head of a division advanced planning team, and he later did work in human factors for human space flight. He received an MBA degree from Golden Gate University in 1979. He was a long-time, enthusiastic member of the Toastmasters group at Ames. Bretoi retired from NASA in 1997.

He is considered a pioneer in the field of flight control. He was a 60-year member of the American Institute of Aeronautics and Astronautics. He is survived by his wife, Yvonne, of 53 years, sons Christopher, Stephen and Kim, daughter Anita (Ralston), seven grandchildren, two great-grandchildren, and sisters Viorica Hawley and Elena Bretoi. Memorials to the Univer-



Remus Bretoi

sity of Minnesota Institute of Technology, or to St. Stefan's Romanian Orthodox Church in South St. Paul, Minn., are suggested.

## Computer screens to be virtual NASA spaceship windows over Mars

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you want to take pictures of dunes or dust tracks, then you should suggest aeolian processes as a science theme. The suggestion will then be ranked by priority by the HiRISE team members responsible for that science theme," Gulick said.

The site also will provide a way for users to browse, zoom and view extremely large HiRISE images overlaid with other Mars data such as elevation, latitude and longitude and mineral and infrared data.

"For students and educators, we currently have coloring books for younger children, comic books geared

for middle and high school students and activity books for kindergarten through sophomore college level," Gulick observed. "These books will teach students more about Mars, and also help them learn how to make a good image suggestion," she continued.

HiRISE educational materials comply with national science standards, and there are teacher guides for each activity book. The guides contain answers and solutions for each activity and background material.

"We want to share this excellent resource with everybody," Deardorff added. "It is called the 'people's cam-

era' by the team," he explained.

NASA's Jet Propulsion Laboratory, operated by the California Institute of Technology in Pasadena, Calif., manages the Mars Exploration Rover and Mars Reconnaissance Orbiter missions for the NASA Office of Space Science, Washington, D.C. The Lunar and Planetary Lab, University of Arizona, includes the HiRISE operations center, where researchers plan and process images. The HiRISE camera was designed, assembled and tested at Ball Aerospace and Technology Corp. Boulder, Colo.

BY JOHN BLUCK

## Inspirational program celebrating Dr. Martin Luther King held at Ames

*continued from front page*

The rest of the program covered the 'Life, Dream and Legacy of Dr. King.' Kicking off the 'life' portion of the presentation, Fay Farrow of Code CS painted a vivid picture of King's life including time before the civil rights movement. Sheila Johnson of Code EX continued by sharing information on the life of King's wife, Coretta Scott King. Both speeches were recited while a picture of the young Martin and Coretta was displayed in the background. Darlene Gross commented, "The impact this presentation had on me was that I learned more about Martin Luther King and Coretta and the messages they shared and it will stay with me longer and in a new way."

The 'dream' portion of the program was narrated by Leticha Hawkins of Code HRM, while displaying a picture of one of King's many arrests. Kevin Jones, AAAG chair, Code TNE, read parts of King's letter from the Birmingham jail to his fellow clergymen. The screen was changed to show a photo of the March on Washington, and then Ernest Jennings delivered King's 'I have a Dream Speech.' Two months to the day before King was assassinated, he delivered 'The Drum Major's Instinct' sermon, which was read by Terrence Montgomery. Many say this sermon was King's own eulogy. Afterwards, Marion Brewer sang a soulful rendition of 'Precious Lord, Take My Hand.' The audience's emotions were running high and tears flowing, as participants were taken back to 1968 by the poignantly delivered dramatic readings and heartfelt vocal.

During the last segment of the program, the 'legacy' of Dr. King, David Morse, Code E, shared news of a groundbreaking ceremony held in celebration of a national King memorial being built in Washington, D.C. Situated across the water from the Thomas Jefferson Memorial and near the Washington Monument and Lincoln Memorial, construction is already under way with an anticipated

completion in 2008. For more information about the King Memorial, including a virtual tour and pictures of the groundbreaking, visit the Internet at <http://www.mlkmemorial.org>.

After the event, Morse conveyed the following: "I've seen a lot of events, but this was one of the most inspirational and best executed that I have ever seen, at Ames or anywhere. I feel truly privileged and proud to have been asked to participate."

The program concluded with a brief closing by Jones, during which he thanked the AAAG event planning committee and the many supporters that made this event so successful.

Thanks to the Ames Exchange and Ames Softball League, participants enjoyed refreshments in the lobby while viewing more photos of King's life, dream and legacy. Karen Bradford of Code D wrote, "This truly was the best presentation I have seen in the past 7 years I have been at Ames, and one of the best seen in my 18-plus years with the government."

For those unable to attend the Martin Luther King program, a DVD capturing the event will be available shortly on the AAAG Web site located at: <http://eo.arc.nasa.gov/AAAG/indexnw.htm>

BY KEVIN JONES

## Astronaut Jeff Williams speaks at Ames



Astronaut Jeff Williams spoke at Ames in January, briefing the Ames community about Expedition 13 and the two Ames experiments. One of the experiments was Fungal Pathogenesis, Tumorigenesis, and Effects of Host Immunity in Space (FIT), which studied the susceptibility to fungal infection, progression of radiation-induced tumors and changes in immune function in sensitized *Drosophila*, or fruit flies; and the other was Analysis of a Novel Sensory Mechanism in Root Phototropism (Tropi), which observed the growth and collected samples of plants sprouted from seeds. By analyzing the samples at a molecular level, researchers gain insight on what genes are responsible for successful plant growth in microgravity. Williams served as the NASA science officer on the expedition that lasted from March - September 2006.

NASA photo by Tom Trower



## Ames' Joel Lachter wins district Toastmasters' contest



Joel Lachter of the Human Systems Integration Division and Jetstream Toastmasters was the winner of the Toastmasters District 4 Humorous Contest held recently with more than 100 people in attendance. District 4 Toastmasters covers the area from San Francisco to Monterey and has more than 200 clubs. Lachter competed at the club, area and division contests to reach the district level contest, where he competed with seven other speakers. Lachter said shortly after winning the contest, "I can hardly believe that I won this contest. I always had a reputation as a pretty poor speaker and suddenly I am giving a speech and people loved it."

Come visit Jetstream Toastmasters and see how Toastmasters can help you with your speaking, listening, thinking and leadership skills. Jetstream Toastmasters, a member of Toastmaster International, is an Exchange-supported club that meets in Bldg. N-269, conference room 179, every Monday from 12 noon to 1 p.m. The very supportive, low-pressure atmosphere in the meetings is very conducive to improving one's speaking abilities. The photo shows Joel Lachter, second from right, with trophy, along with three other club members from, left to right, Mirwa Hayashi, club president; Etta Rosamond and Frank Chang. All Ames staff are cordially invited to attend the meetings.

## NESC Academy delivers course on human factors

The NASA Engineering and Safety Center (NESC) Academy offered its fifth knowledge-capture course 'Human Factors: Learning from the Past and Looking to the Future with Dr. Cynthia Null and Colleagues.' Thirty-two students gathered in the Science Technology I Building at George Mason University in Fairfax, Va., recently to participate in this unique learning experience.

Null, the NESC discipline expert (NDE) for this course, assembled a diverse team of experts in the field of human factors. Topics included human characteristics and capabilities, development of in-space systems, engineering new systems, procedure development, maintenance and manufacturing, lessons learned from mishap investigations, control center design and ground operations.

Null's human factors course became available in late January 2007 as an online Web-based course for those interested in taking it in a self-paced mode. The four previous courses, given by Henry Rotter (Active Thermal Control and Life Support Systems), George Hopson (Space Propulsion Systems), Robert Kichak (Power and Avionics) and Cornelius Dennehy (Satellite Attitude Control Systems), are also currently available online. Stu-

dents may register for these courses on the NESC Academy Web site located

as they develop expertise in technical problem solving; and to foster interest in NASA careers. NESC, the National Institute of Aerospace, and CIBER partner to design, develop and deliver these three-day classroom experiences led by selected NDEs.

The Academy will offer a total of 11 courses by September 2008, each focusing on a specific discipline area, such as flight sciences, propulsion, robotic operations, and materials. The next course is scheduled for March 12-15, 2007, and features Michael Aguilar and colleagues on the topic of software. For more information about the NESC Academy, please visit <http://www.nescacademy.org>.

BY MARSHA GIBSON, NESC



The recent graduating class from the fifth course, "Human Factors: Learning from the Past and Looking to the Future with Dr. Cynthia Null and Colleagues," was held recently in Fairfax, Va. The courses are sponsored by the NASA Engineering and Safety Center.

at <http://www.nescacademy.org>.

Null currently serves as the NDE for human factors at NESC. Since 1997, she has been the base research and technology program manager for aviation operating systems at Ames. Prior to coming to NASA, she served as executive director for the Federation of Behavioral, Psychological and Cognitive Sciences and as an associate professor at the College of William and Mary.

The NESC Academy was established to capture, share and preserve the lifetimes of experience and knowledge of NASA's senior scientists and engineers; to guide the next generation of NASA scientists and engineers

[www.nescacademy.org](http://www.nescacademy.org).



Because of security reasons, access to geographic information system (GIS) via the Web is temporarily suspended. For services, please contact Charlie Tonda at ext. 4-5003.

# Ames Ongoing Monthly Events Calendar

**Ames Amateur Radio Club**, third Thursday of each month, 12 noon, N-T28 (across from N-255). POC: Michael Wright, KG6BFK, at ext. 4-6262.

**Ames Ballroom Dance Club**, Classes on Tuesdays. Beginning classes meet at 5:15 p.m. Higher-level class meets at 5:50 p.m. Held in Bldg. 944, the Rec. Center. POC: Helen Hwang at helen.hwang@nasa.gov, ext. 4-1368.

**Ames Bicycling Club**, Every 3rd Wednesday of the month. The meeting location is Building 19, Conference Room 1083 and the meeting time is 12 noon - 1 p.m. Contact Julie Nottage at jnottage@mail.arc.nasa.gov, ext. 4-3711. By-laws of Ames Bicycling Club can be found at <http://zen.arc.nasa.gov>; the link is right under the picture.

**Ames Bowling League**, Homestead Lanes on Thursday nights at 6:20 p.m. Seeking substitute bowlers. Questions to sign up: Mike Liu at ext. 4-1132.

**Ames Child Care Center Board of Directors Mtg**, every other Tuesday in N-229/Rm 117 from 12 - 1:30 p.m. POC: Julie Schonfeld, ext. 4-6504.

**Ames Contractor Council Mtg**, first Wednesday each month, 11 a.m., N-200, Committee Room. POC: Chris Johnson, ext. (650) 938-8017.

**Ames Federal Employees Union (AFEU) Mtg**, third Wednesday of ea. month, 12 p.m. to 1 p.m., Bldg. 221, Rm 104. Guests welcome. Info at: <http://www.afeu.org>. POC: Marianne Mosher, ext. 4-4055.

**Ames Mac Support Group Mtg**, third Tuesday of ea. month, 11:30 a.m. to 1 p.m., Bldg. N262, Rm 180. POC: Tony ext. 4-0340.

**Ames Model Aircraft Club**, flying radio-controlled aircraft at the north end of Parsons Ave. on weekend mornings. POC: Mark Sumich, ext. 4-6193.

**Ames Sailing Club Mtg**, second Thursday of ea. month (March through Nov), from 12:00 p.m. -1:00 p.m. in Bldg. N-262, Rm 100. URL: <http://sail.arc.nasa.gov/>. POC: Becky Hooey, ext. 4-2399.

**Environmental Forum**, first Thursday every other month, 9:00 a.m. to 10:00 a.m., Bldg. 218/2nd floor training room. URL: <http://q/qe/events/EHSseries/> POC: Stacy St. Louis at ext. 4-6810.

**The Hispanic Advisory Committee for Excellence (HACE) Mtg**, first Thurs of month in N255 room 101C from 11:45 a.m. to 12:45 p.m. POC: Eric Kristich at ext. 4-5137 and Mark Leon at ext. 4-6498.

**Jetstream Toastmasters**, Mondays, 12 p.m. to 1 p.m., N-269/Rm.179. POC: Miwa Hayashi at ext. 4-1397, [mhayashi@mail.arc.nasa.gov](mailto:mhayashi@mail.arc.nasa.gov), Web: <http://jetstream.freetoasthost.com>

**Native American Advisory Committee Mtg**, fourth Tues each month, 12 noon to 1 p.m., Bldg. 19, Rm 1096. POC: Mike Liu at ext. 4-1132.

## Safety Data

### NASA-Ames Occupational Illness-Injury Data for Calendar Year-to-Date 2006 Jan. 1, 2006 – Dec. 31, 2006

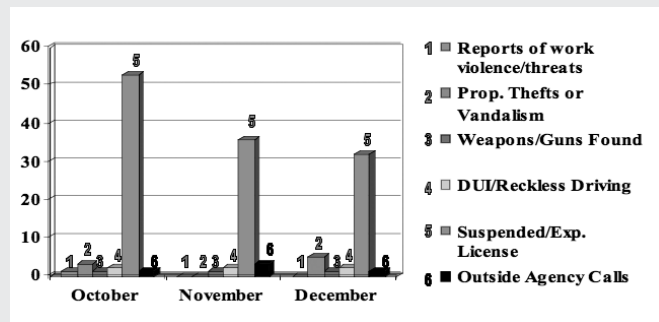
	Civil Servants	Contractors
First aid cases	16	21
Lost Workday cases	0	6
Recordable cases	3	11
Restricted duty days	0	0

Above data are as of 12/31/06. May be subject to slight adjustment in the event of a new case or new information regarding an existing case.

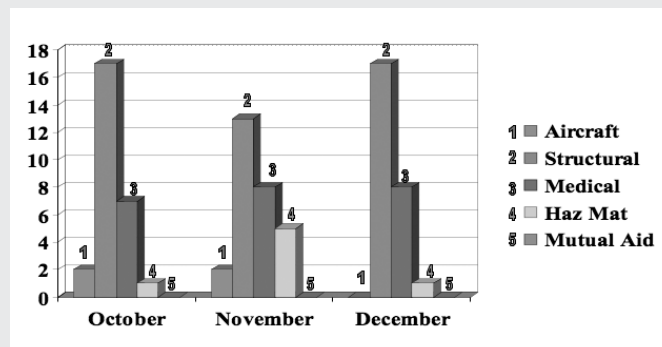
## Protective Services monthly activity

A statistical summary of activities of the Protective Services Division's Security/Law Enforcement and Fire Protection Services units for the month of Dec. 2006 is shown below.

Security/Law Enforcement Activity



Fire Protection Activity





## Ames Classifieds

Ads for the next issue should be sent to [astrogram@mail.arc.nasa.gov](mailto:astrogram@mail.arc.nasa.gov) and must be resubmitted for each issue. Ads must involve personal needs or items; (no commercial/third-party ads) and will run on a space-available basis only. First-time ads are given priority. Ads must include home phone numbers; Ames extensions and email addresses will be accepted for carpool and lost and found ads only. Due to the volume of material received, we are unable to verify the accuracy of the statements made in the ads. Caveat emptor!

## Miscellaneous

The Ames Cat Network needs help finding homes for cats trapped at Moffett. They range from feral to abandoned/lost pets. Tested, altered and inoculated. Call Iris at ext. 4-5824 if you or someone you know are interested in fostering or adopting a cat.

**Child Care:** We are interested in sharing an infant slot at the Ames Child Care Center beginning around March, 2007. Our baby only needs the day care two days per week and the other three would be available to your infant. Other arrangements may be possible. The Ames Child Care Center currently charges \$610 every two weeks for full time care (5 days/week). If interested, please call Jolene or Jay at (408) 720-1417.

**Time share for sale.** Club Tahoe at Incline Village, Nevada week 19 runs May 13-20 one week, Sunday to Sunday. Sleeps six, has two bedrooms two baths and a loft. Fully furnished, dishes, linens, towels, fireplace, etc. Unit 79. Asking \$4,500 or B/O. Call (408) 973-1842 or e-mail: [citwox@comcast.net](mailto:citwox@comcast.net)

**Trundle bed and pullout, \$245.** Cover and pillows included. Call (650) 339-9375. See <http://home.comcast.net/~aqkua/trundle/> for pics.

## Housing

**Short term house rental from July 8 to Dec. 10, 2007.** Fully furnished 5 bd/2 ba house. Includes gardener, membership in swim/tennis club around the corner. Quiet street. Beautiful garden. 8 minutes to Ames. \$2,500 monthly. Call (650) 494-6492.

**The NASA Lodge**  
Rooms starting at \$45 a night.



<http://naccenter.arc.nasa.gov/lodging.html>

Having a B-I-G family reunion and just run out of bedrooms and inflatable beds? Reserve rooms at the NASA Lodge

Ames employees and contractors can "host" their friends or relatives at the Lodge, and it doesn't have to be government or NASA related.

Let Us Welcome You!

Call (650) 603-7101



## Exchange Information

Information about products, services and opportunities provided to the employee and contractor community by the Ames Exchange Council. Visit the web site at: <http://exchange.arc.nasa.gov>

**Beyond Galileo Gift Shop** N-235 in the cafeteria, 8 a.m. to 2 p.m., ext. 4-6873

Don't forget to purchase your baby shower, birthday, holiday gifts at Ames' two gift shops!

**Visitor Center Gift Shop** N-943 M-F, 10 a.m. to 4 p.m. and Sat 12 p.m. to 4 p.m., ext. 4-5412

NASA logo merchandise, souvenirs, toys, gifts and educational items.

**Tickets, etc...** N-943 outside the main gate, 10 a.m. to 4 p.m., ext. 4-5412 and Beyond Galileo, 8 a.m. to 2 p.m. ext. 4-6873

**Mega Bites Cafeteria** N-235, 6 a.m. to 2 p.m., ext. 4-5969/Catering ext. 4-2161

See daily menu at: <http://exchange.arc.nasa.gov>

**Moffett Field Golf Club** with 'Tee minus 1' Grill and Sports Bar. Call (650) 603-8026.

**RV Lots Available** Call to reserve a space at (650) 603-7100/01.

Civilian/Contrators, \$50/mo; military \$25/mo

**NASA Lodge (N-19)** 603-7100

Where to stay when you're too tired to drive home? What about the lodge?! Two types of rooms: Bldg. 19 (43 rooms), rate: \$55/night (\$5 ea add'l adult); Bldg. 583 (150 rooms), rate: \$45/night (\$5 ea. add'l adult)

**Ames Swim Center (N-109)** 603-8025

The pool is heated year round! The pool is currently available for lap swim, pool parties and special events. POC -Chana Langley, Pool Manager (650) 603-8025. Memberships: single memberships: \$40/yr. Family memberships: \$60/yr. After purchasing a membership, there is an entrance fee: daily entrance fee - \$3/day or lap pass fee - \$40 for 20 uses. Platinum membership - \$360/yr. (no daily fee). Special events: include military training, swim team events, kayak role practice, etc. The cost for special events is \$50/hr.

## Vacation Opportunities

**Lake Tahoe-Squaw Valley Townhse, 3bd/2ba.** View of slopes, close to lifts. Per night: \$250, plus \$145 cleaning fee. Two night minimum. Includes linens, propane fireplace, fully equipped. Call (650) 968-4155, [DBMcKellar@aol.com](mailto:DBMcKellar@aol.com)

## Astrogram deadlines

Please submit articles, calendar and classified advertisements to [astrogram@mail.arc.nasa.gov](mailto:astrogram@mail.arc.nasa.gov) no later than the 10th of each month. If this falls on the weekend or holiday, then the following business day becomes the deadline. For Astrogram questions, contact Astrid Olson at the aforementioned e-mail address or ext. 4-3347.

**Vacation rental, Bass Lake, 4 mls south of Yosemite.** 3bd/1.5 ba, TV, VCR, MW, frplc, BBQ, priv. boat dock. Sleeps 8. \$1,050/wk. Call (559) 642-3600 or (650) 390-9668.

**Big Sur vacation rental, secluded 4bd/2ba house** in canyon setting. Fully eqpd kitchen. Access to priv. beach. Tub in patio gdn. Halfway between Carmel and Big Sur. \$175/night for 2; \$225 for 4 and \$250 for more, plus \$150 cleaning dep. Call (650) 328-4427.

**Pine Mountain Lake vacation home.** Access to golf, tennis, lake, swimming, horseback riding, walk to beach. Three bedrooms/sleeps 10. \$100/night. Call (408) 799-4052 or (831) 623-4054.

**Incline Village, Forest Pines, Lake Tahoe condo,** 3 bd rms/2 ba, sleeps 8, fireplace, TVs/VCR/DVD, stereo w/CD player, microw, W/D, jacuzzi, sauna, outdoor pool. Walk to lake. Close to ski areas. Visit web site for pictures: <http://www.ACruiseStore.com> \$135/night spring and fall, \$173/night summer and winter (holidays higher) plus \$125 cleaning fee and 12 percent Nevada room tax. Charlie (650) 743-8990.

**New York, 5th Ave.** One fully furnished bedroom in 24 hour security bldg. overlooking Washington Square Park, \$2,000/wk or \$3,000/mo. negotiable. Call (650) 349-0238.

**Paris/France:** Fully furnished studio, 5th Arr, Latin Quarter, Notre Dame and Lie-St. Louis., \$1,400/wk. negotiable. Call (650) 349-0238.

**Santa Cruz townhouse, 2 bedrooms plus study, 2 baths, decks, totally furnished, 3 blocks from beach,** available July, August, September; \$1,600 per month. Call (831) 423-5777 (H) or (831) 277-8476 (C).

**Lake Tahoe cabin rental in Agate Bay, North Shore.** 4bd/3ba tri-level, AEK, cable TVs, fireplace, BBQ, deck, sleeps 10. Closest skiing is Northstar, Alpine and Squaw. Rates are \$375 a weekend, \$1,000 a week. Call (408) 867-4656.

**Florida west coast vacation in St. Petersburg, beautiful 2bd/2ba condo, fully equipped kitchen and furnished, sunset views, 1/4 mile from St. Pete Beach,** monthly or 2 week minimum rentals only. Call (703) 299-8889 or e-mail: [jdgoehler@aol.com](mailto:jdgoehler@aol.com)

**Maui luxury oceanfront resort one-bedroom condo** available one week. Rents for \$345/night now, \$495/night in the summer. We will rent to an Ames family for \$1,750 for the week. See the condo at <http://www.starwoodvo.com/resorts/villafeatures.jsp?resortID=12> Call (650) 572-8877 for availability and questions.

**Monterey Bay vacation rental at Pajaro Dunes, 20 miles south of Santa Cruz, 3bd/2ba beach house** with distinctive architecture. Beautiful ocean and valley views, only 150 ft from the beach, first-class tennis courts. \$700/wkend, \$2,100/wk including cleaning by the maid service when you depart. Call (408) 252-7260.

## Ames emergency announcements

To hear the centerwide status recording, call (650) 604-9999 for information announcements and emergency instructions for Ames employees. You can also listen to 1700 KHz AM radio for the same information.

# Genesat shows small satellites can deliver big science

*continued from front page*

scientists understand how spaceflight affects the human body. GeneSat-1's onboard micro-laboratory includes sensors and optical systems that can detect proteins that are the products of specific genetic activity.

Biological data returned so far have exceeded the project's pre-launch success criteria, according to GeneSat-1 lead biologist Macarena Parra. "Throughout the experiment, the temperature remained constant and all systems functioned properly to record our required data," Parra said.

Researchers will further analyze GeneSat-1's on-board systems during the remaining life of the satellite, according to Bruce Yost, the GeneSat-1 mission manager.

"We plan to conduct a number of engineering tests and evaluations to increase our confidence in the GeneSat platform," Yost said. "In the next few weeks, we will hand over the GeneSat-1 spacecraft to Santa Clara University, Santa Clara, Calif., for use as a training tool for future aerospace engineers." GeneSat-1 will reenter the Earth's atmosphere and burn up before the end of the year.

"Our partnership with the Santa Clara University mission operations

team has surpassed all of our expectations with their level of performance and professionalism," Hines said.

"This is the first NASA mission to be operated by a student-based team; they worked around the clock and over a holiday break to complete our primary mission. It was a remarkable success," Hines added.

"Having students apply their engineering knowledge and skills in compelling, real-world applications is a critical component of our robotics program," said Professor Chris Kitts of Santa Clara University. "Our partnership with NASA on the GeneSat-1

mission is a great example of this. SCU students are an integral part of an exciting, cutting-edge space mission, and they are gaining valuable experience in applying their engineering skills within the context of a diverse, interdisciplinary team," Kitts added.

"We are looking forward to flying more small satellites," Hines concluded.

The Small Spacecraft Office at NASA Ames teamed with industry and local universities to develop GeneSat's fully automated, miniature spaceflight system that provides life support for small living things.

BY JOHN BLUCK

# Ames' commitment to diversity

*continued from page 4*

demonstrated its support for the assistance of individuals with disabilities by asking Ames Center Director S. Pete Worden to request that all NASA Research Park participants consider architectural barriers when building or remodeling existing structures in the NASA Research Park. The DEOB also approved a recruitment plan that will take into consideration the targeted recruitment of women and minorities for employment at Ames beginning in FY 2007.

As the DEOB moves into FY 2007, it continues to foster a workforce culture at Ames that is built on trust, respect, teamwork, communication, empowerment and commitment in an environment free from discrimination. The DEOB meetings are an open forum and welcome employees to bring any concerns or questions. For additional information about meetings or to ask to be placed on the agenda, please contact Barbara Miller at ext. 4-0783.

BY GABRIELLA GANNON



National Aeronautics and Space Administration

Ames Research Center  
Moffett Field, CA 94035-1000



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**ASTROGRAM**

The Ames Astrogram is an official publication of Ames Research Center, National Aeronautics and Space Administration.

Editor-in-Chief..... Laura Lewis  
Managing Editor..... Ann Sullivan  
Editor, Layout and Design..... Astrid Olson

You can reach the Astrogram Office at: [astrogram@mail.arc.nasa.gov](mailto:astrogram@mail.arc.nasa.gov) or by phone at (650) 604-3347.  
Astrogram Web site: <http://www.nasa.gov/centers/ames/news/astrogram/2006/06astrograms.html>

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