



ASTROGRAM

Newsletter of NASA Ames Research Center, Moffett Field, California

July 2006

NASA launches new education initiative for minority students

NASA kicked off a new initiative with the United Negro College Fund Special Programs Corp. on June 28. The initiative will give researchers and students from minority institutions direct access to NASA facilities, scientists and capabilities.

Funded by a \$3.5 million grant from NASA, the corporation will establish the NASA Science and Technology Institute for Minority Institutions. The institute will be in the NASA Research Park at NASA Ames.

Focused on science, technology, engineering and mathematics, the institute will bring together the talent and expertise of historically black colleges and universities; Hispanic-serving institutions; tribal colleges and universities; and other minority institutions through research-based fellowships, internships, co-ops and grants.

"I am truly delighted that NASA is partnering with the corporation to establish this revolutionary new institute," said NASA Ames Center Director S. Pete Worden. "This joint venture will

give minority students and researchers access to NASA and the opportunity to collaborate with researchers in the surrounding community of universities, high-tech research and development companies."

The goal of the initiative is to provide professional development that will prepare faculty, students, researchers, visionaries and entrepreneurs to become highly-skilled science and technology leaders and managers. The preparation will enable them to compete in the national and global workforce.

"The establishment of this institute truly demonstrates and highlights NASA's continuing commitment to pro-

moting science, technology, engineering and mathematics excellence in the



NASA photo by Tom Trower

Aron Andrews, president and CEO of the United Negro College Fund Special Programs Corporation (left) and NASA Ames Center Director S. Pete Worden (right) congratulate each other on the launch of the new initiative between the corporation and NASA to establish the NASA Science and Technology Institute for Minority Institutions. The institute will be located in NASA Research Park at Ames.

minority higher education community," said Aaron R. Andrews, president and CEO of the corporation.

Officials announced the formation

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Lisa Porter visits Ames, discusses future of NASA aeronautics

During the morning of June 30, the main auditorium had reached its capac-

ity and many waiting outside were turned away. Inside, the crowd squeezed into every available seat eagerly awaiting an update on NASA aeronautics and the effect on Ames of a recent restructuring of aeronautics research programs by Lisa Porter, associate administrator of the Aeronautics Research Mission Directorate.

In an unexpected move, NASA Ames Director

S. Pete Worden, rather than immediately introducing Porter, played a KPIX-

TV news story featuring Quenton Bonds, a student intern involved in Ames' new partnership with the United Negro College Fund Special Programs Corp. The news clip set the tone of the all-hands, looking to the future.

When Porter stepped to the podium,

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NASA photo by Dominic Hart

Dr. Lisa Porter, associate administrator for the Aeronautics Research Mission Directorate, visited Ames on June 30. In addition to seeing various Code A sites and personnel, she hosted an all-hands meeting at the center to discuss recent developments in aeronautics.

ity and many waiting outside were turned away. Inside, the crowd squeezed

NASA studying plants to help astronauts grow food in space

Someday, astronauts may grow food efficiently in space and use plants to clean spaceship air, thanks to a two-year experiment underway aboard the International Space Station.



An *Arabidopsis thaliana* plant, a common weed, that is part of the Ames Tropi experiment, carried aboard the recent STS-121 space shuttle to the International Space Station. The plant is a model specimen for space research since the plant's genetic structure has been fully mapped.

The latest space shuttle mission, STS-121, carried the Tropi experiment's apparatus into space when the shuttle hurtled into orbit after its July 4 launch. Scientists will study a weed in the cabbage and mustard family, to see if its roots grow more readily toward red or blue light, according to scientists.

"*Arabidopsis thaliana* is a common weed, which we've found in our parking lots," said Mike Eodice, the experiment's project manager at NASA Ames. "NASA has selected this plant as a model specimen for space research since the plant's genetic structure has been fully mapped. The plant is also a good research specimen because it is very hearty," Eodice explained.

Researchers will use a small video camera to observe the roots while they grow inside seed cassettes. The cassettes will be housed within a special plant research facility, called the European Modular Cultivation System (EMCS), developed by the European Space Agency.

For three days, the dry seeds will be given water and light, which will allow them to grow to a size of about 1.2 inches (3 centimeters). At that point, the plants are large enough to begin the experiment.

"Plants have several mechanisms to perceive and respond to light stimuli. Their ability to sense specific wavelengths (color) of light is why we are studying both the blue- and red-light-sensing system in the Tropi experiment," said Dr. John Kiss, project principal investigator at Miami University, Oxford, Ohio. "These issues are important for the use of plants to support life on long-term space missions such as spaceflights to Mars," Kiss said.

Researchers also will study how combinations of gravity levels and light affect plant growth. To create different levels of artificial gravity, researchers will spin plants at various speeds on a centrifuge.

The mustard plant experiment is the third part of a comprehensive study of how crop yields could be increased for missions that could last many months or even years. Plants that will be used

for food may well be used to filter spaceship air and produce oxygen.

Scientists discovered in previous missions that spaceship parts emit ethylene gas, the same emission that creates the new car smell that consumers notice in automobiles and other new products. Earlier experiments also showed that exposure to the gas produced less starch in the roots of the affected mustard-family plants and reduced their growth.

"In space, materials off-gas (new car smell) and these emissions can be harmful to plants. We design hardware to eliminate these toxic gasses," said Eodice.

To eliminate emissions of ethylene and other toxic gases, a team of NASA Ames engineers designed and manufactured the most highly sophisticated plant hardware ever built for a space shuttle mission, called the Tropi Experiment Unique Equipment. Engineers designed this machine to prevent the build-up of toxic gases harmful to plants. Ethylene removal is accomplished by special equipment inside the EMCS facility.

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Artificial intelligence control of Mars drill tested in Arctic

In the latter part of July, a Drilling Automation for the Mars Exploration (DAME) Project's field exercise was performed at the Haughton Crater on Devon Island in Canada's Nunavut Territory north of Ontario and Quebec.

An eight-person team, made up of scientists and engineers from NASA Ames, set up drilling equipment controlled by artificial intelligence to bore a crater in the Canadian arctic. This was the first time that a drill rig has ever been controlled by artificial intelligence alone, with the main objective of the exercise to evaluate the automation software.

Earth-based experiments such as this one will help scientists learn if synthetic brain power is able to control a rig on Mars for many hours of drilling without human intervention. Future Mars missions with drills will likely have the ability to communicate with Earth only once or twice a day.

The DAME project is sponsored by the Mars Instrument Development Project, part of NASA's Mars Exploration Program. For more information about this project visit <http://www.marsonearth.org/reports/dame.html>



The Mars drill prototype device at NASA Ames is controlled by artificial intelligence. Such a device was used in the Arctic in July to evaluate the automation software, in preparation for its future use on Mars.

www.marsonearth.org/reports/dame.html

BY JOHN BLUCK

Bigelow spacecraft carries NASA 'GeneBox' for tests in orbit

A NASA Ames shoebox-size payload, called 'GeneBox,' is now orbiting Earth as a passenger inside Bigelow

relay its data to the ground for further analysis.

"In later flights, when we become fully operational, the micro-laboratory model we are testing today will be housed in micro-satellites, beginning with GeneSats," Hines said.

NASA is exploring this option as a potential inexpensive platform for conducting fundamental research to understand the mechanisms of bone and muscle loss and weakening of the immune system.

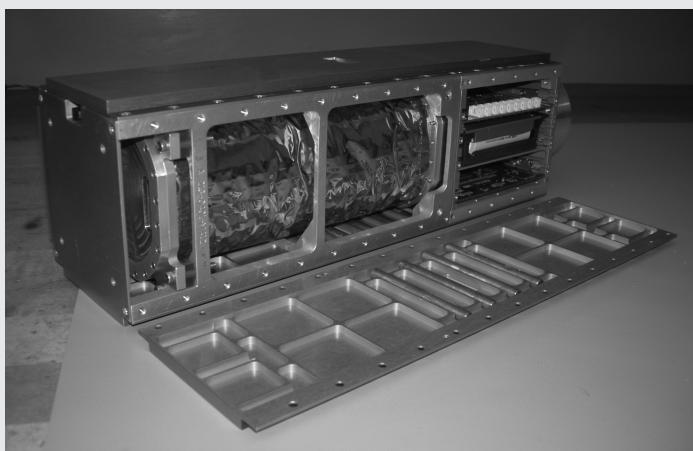
GeneSats will include control of humidified air, pressure and tem-

perature. Light emitting diodes (LEDs) will provide light for analytical sensors that can help scientists detect proteins that have been engineered to glow when



photos by John Bluck

Bruce Yost, GeneSat mission manager who also is responsible for GeneBox operations. In later flights, the micro-laboratory will be housed in micro-satellites, beginning with GeneSats.



Internal components similar to the NASA GeneBox payload. GeneBox is NASA shoebox-size payload is now orbiting Earth as a passenger inside Bigelow Corporation's one-third scale, inflatable Genesis I test spacecraft which was launched by a Russian rocket on July 12, 2006. Attached to the large inflatable spacecraft's internal structure, GeneBox contains a miniature laboratory. In future flights, it will analyze how the near weightlessness of space affects genes in microscopic cells and other small life forms.

Corp.'s one-third scale, inflatable Genesis I test spacecraft.

On July 12, a Russian rocket lofted 'GeneBox' into Earth orbit within Bigelow's Genesis I spacecraft. Attached to the large inflatable spacecraft's internal structure, GeneBox contains a miniature laboratory. In future flights, it will analyze how the near weightlessness of space affects genes in microscopic cells and other small life forms.

"During this mission, we are verifying this new, small spacecraft's systems and our procedures," said John Hines, the GeneBox project manager at NASA Ames, where scientists and engineers designed and built GeneBox. "GeneBox is an example of a low-cost spacecraft model that we hope will provide a short turn-around time for scientists, is responsive to their needs and that we feel will contribute to the Vision for Space Exploration."

The micro-laboratory includes sensors and optical systems that can detect proteins and specific genetic activity. Plans called for the Bigelow ground control station in Las Vegas, Nev., to activate the GeneBox. Scientists expect that after the device has executed all of its test functions, the micro-laboratory will



E.coli cultures in Petri dishes. E.coli are scheduled to launch in the first GeneSat on Nov. 13, 2006.

they are treated with special chemicals as an indicator of genetic activity.

"The GeneBox test is the first of many planned projects from the newly formed Small Satellite Center at Ames," Hines said. NASA GeneBox partners include

Santa Clara University; Stanford University, Stanford; and California Polytechnic University, San Luis Obispo. Bigelow Aerospace Corp. provided space on its Genesis I test mission for GeneBox.

According to Hines, the NASA-Bigelow Aerospace collaboration reflects the emerging focus on government and commercial partnerships in entrepreneurial space endeavors. He added that this opportunity on the Bigelow commercial space test mission will provide NASA an early verification of technologies contained in the GeneBox miniature laboratory.

BY JOHN BLUCK

NASA, U.S. Forest Service test UAS wildfire capabilities

Researchers from NASA Ames recently joined US Forest Service experts at a technology demonstration at the Fort Hunter Liggett Garrison near King City, Calif. The demonstration objective was to exhibit platform and thermal imaging technologies, platform communications, data handling, autonomous operations and operations within a hazardous environment. NASA and US Forest Service researchers evaluated advanced unmanned aerial systems (UAS) technologies to expand wildfire imaging and mapping capabilities.

"The ability to more easily, rapidly and accurately monitor wildfire conditions is why first responders are so interested in these new technologies," said Vince Ambrosia, senior scientist and principal investigator of the project at Ames. Ambrosia and other team members evaluated selected UAS capabilities for suitability of aircraft operations and wildfire imaging and mapping.

NASA is interested in evaluating platform capabilities and sensor systems and showcasing NASA-developed technologies that are of benefit to other federal and state agencies. The Forest Service is interested in evaluating UAS capabilities in an operational environment, collecting fire-related thermal imagery during a major event to help improve real-time information during a wildfire event. Four small unmanned aerial vehicles will be present: AeroVironment PUMA, IntelliTech Microsystems' Vector P, The Insitu Group's Scan Eagle, and NASA Ames UAV Collaborative's APV-3

UAS participants demonstrated mobility, imaging and real-time air-to-ground fire information and capabilities for effective flight and data gathering. Teams also assessed technologies for current and projected progress, possible integration and use in wildland fire management and future testing needs.

"The Forest Service feels that unmanned aerial systems provide a unique technology for adding niche capabilities to existing mapping assets," said Everett Hinckley, Forest Service liaison and special projects group leader. As part of its firefighting routine, the Forest Service uses piloted-aircraft mapping of wildfire areas, but it also sees UAS capability as a promising means of further im-

proving and augmenting this technology, according to Hinckley.

Because of the difficulties of simulating wildfires either in a laboratory or with small fires, the Fort Hunter Liggett Garrison fire department used controlled burns to enable UAS data collection and assessment over a 'real world' scenario. The controlled burns also provided opportunities for fire personnel training and fuel density management.

As part of the demonstration, the Ames team showcased its 'repeater-in-the-sky' technologies. Traditionally, remote radio communications between fire camps and field personnel involved strategic placement of repeater stations on ridges and high points to avoid radio shadows or 'drop-outs.' The 'repeater-in-the-sky' embeds the repeaters on a small unmanned aerial system, allowing maximum communication with a 'remote' field team with fewer communications drop-outs. This demonstrated the maintenance of constant communications in emergency situations in rugged terrain where locating repeater stations on high terrain is not feasible.

The UAV Collaborative of the NASA Research Park at Moffett Field also par-



A NASA Ames unmanned aerial system collaborative APV-3 vehicle, one of four such vehicles recently presented a technology demonstration in King City, Calif. Ames researchers participated in the event to demonstrate mobility, imaging and real-time air-to-ground fire information and capabilities for effective flight and data gathering.

ticipated, demonstrating a 'Sense-and-Avoid Display System' (SAVDS). The SAVDS is a ground portable radar system that provides situational awareness capabilities for low-altitude, long-endurance unmanned aerial systems. The high-resolution display shows a georectified topographic base map overlaid with aircraft identification and positional information illustrating UAS location and speed, including the location and speed of return targets detected using a portable ground-based radar system. SAVDS enables UAS pilots to be fully aware of the local air traffic environment to ensure safe operations.

BY RUTH MARLAIRE

NASA studying plants in space

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After astronauts return the space-grown plant samples from the experiment to Earth, scientists will examine the plants' genes to learn how the space environment has affected plant growth.

According to scientists, further understanding of how plants grow and develop at a molecular level can lead to significant advancements in agricultural production on Earth.

"A better understanding of the role light and gravity play in plant growth has the potential to improve crop yield in arid regions that have fewer resources to support plant life, such as space, water, light, air or soil," concluded Eodice.

For more information about the Tropi experiment on the Web, visit: <http://exploration.nasa.gov/programs/station/Tropi.html>

BY RUTH MARLAIRE

Diversity awareness - Acknowledging everyone's contribution

The Office of Diversity and Equal Opportunity continues to provide Ames employees with information about diversity to increase awareness and enhance education on the topic. Here is important information from a diversity fact sheet based on studies conducted on the subject of diversity in the workplace.

Studies indicate a company that:

- embraces and values diversity as an integral part of its goals can have a positive impact on individual productivity, organizational effectiveness and sustained competitiveness;

- values and recognizes the significance of diversity maintains its competitive advantage;

- moves beyond creating a more diverse workplace based on numerical representation of certain groups will maximize the usage of their human capital;

- understands that diversity is an essential ingredient to a successful operation and adopts a systematic approach to apply diversity concepts to core business practices and the management leadership philosophy will have less employee turnover.

Effective promotion of diversity in the workplace encourages employees to experience the following:

- participate in training opportunities for career development;

- communicate their vision for organizational success;

- openly discuss prohibited employment and discriminatory practices with management to seek guidance or resolution;

- be creative and innovative to achieve professional objectives;

- enjoy an environment that makes them feel engaged in departmental decisions;

- always seek ways to improve procedures and processes;

- eagerly come to work and have favorable discussions about the work site;

- support strategic plans, goals, directives, and objectives;

- approach management for direction or mentoring;

- share their knowledge and partner with other employees in different work centers on projects;

- build partnerships with local or-

ganizations and the community

- advocate for a family-friendly work environment; and

- acknowledge one another and recognize their colleagues for commendable performance.

Diversity practices may include:

- treating employees with dignity and professional respect;

- ensuring that individual differences are managed in a positive manner for the benefit of the organization and retention

- communicating with employees in a manner that facilitates inclusion and teamwork;

- developing employees at all levels to maximize their potential, productivity, creativity, career promotion opportunities and satisfaction; and

- recognizing employees for exceptional performance (i.e. as teams or individuals).

If you are interested in learning more about diversity, visit the Web at <http://www.diversityresources.info>, <http://www.diversityinc.com> or <http://www.diversityhotwire.com>. If you have any questions, contact Barbara Miller, diversity program manager at bmiller@mail.arc.nasa.gov or call ext. 4-0783.

BY BARBARA MILLER

Patricia Cowings to receive National Women of Color leadership award

Patricia Cowings, research scientist at Ames in the Human Systems Integration Division, will receive the Research Leadership Award at the 11th



Patricia Cowings of Ames will be the recipient of the Research Leadership award at the 11th Annual National Women of Color Technology Awards Conference in Atlanta in October for her outstanding leadership at Ames.

Annual National Women of Color Technology Awards Conference in October 2006 in Atlanta.

The conference has become world renowned for its focus on addressing the under-representation of minority women in technology and other business sectors where technology is making a tremendous impact.

"I was flattered to be nominated for this award and both surprised and elated when I was informed that I had won the Research Leadership Award," said Cowings.

The Ames' Office of Diversity and Equal Opportunity, in support of the center's efforts to recognize women and minority employees, has prepared and submitted numerous internal and external award nominations. The National Women of Color Technology Award, the Hispanic Engineer National Achievement Awards Corporation and the Minorities in Research Science are some of the previous nomination packages submitted to external organizations.

"Ames Research Center is extremely pleased and honored that one of our scientists, Dr. Pat Cowings of the Human Systems Integration Division, has been selected as the recipient of this year's Research Leadership Award at the upcoming Annual National Women of Color Technology Awards Conference. Pat has had an outstanding career and is an excellent choice for this award," said Ames' Associate Center Director for Institutions and Research Steve Zornetzer.

This major international forum was founded 11 years ago to celebrate the remarkable achievements of women of color; create an environment for professional, career and personal development; develop networking opportunities; and provide role models and mentoring relationships. The conference is an initiative of Career Communications Groups Inc., publisher of Women of Color, US Black Engineer and Information Technology, Hispanic Engineer and Information Technology and Science Spectrum magazines.

Sandy Olliges receives Exceptional Leadership Award



NASA photo by Tom Trower

Sandy Olliges was recently recognized with the NASA Director's Environment and Energy Award for exceptional leadership for her outstanding accomplishments, including her work on comprehensive indoor testing at Ames and her creation of an environmental sustainability group in Code Q.

In June, Sandra Olliges, deputy director of the Safety, Environmental and Mission Assurance Office (Code Q) at NASA Ames, earned the NASA Director's Environment and Energy Award for Exceptional Leadership.

Olliges makes apparent to all who work with her that effective stewardship of the environment is a personal belief, not merely a job function. In doing so, she inspires others to follow her by example - a primary trait of all good leaders - and earns the respect of her peers.

As examples of her ongoing leadership within the division and centerwide, in 2005, Olliges set a new standard in the environmental community for comprehensive indoor air testing. Over 1,500 air samples have been completed to date within several buildings that are located above a contaminated groundwater plume. The large number of samples captured seasonal and yearly evolution.

This large database of samples provided real data, which eliminated the need for the use of modeling. This level of sampling activity is unprecedented in contemporary facilities management, making Ames a leader in indoor air testing.

Another example of Olliges' forethought in leading NASA is in her creation of a sustainability group within Code Q. This group's charter is to influence positive environmental improvements in energy efficiency, use of bio-based products, and use of green building and recycled-content products to name a few. Ames is the only NASA center with an active component focused on sustainability.

Overall, Olliges has demonstrated outstanding leadership within the division, across Ames and in agency-level environmental programs.

BY STACY ST. LOUIS

Ames astrobionics manager John Hines receives AIAA award

John Hines, manager of the Astrobionics Integrated Program/Project Team (IPPT) at Ames, is the recent recipient of the American Institute of Aeronautics and Astronautics (AIAA) 2006 Jeffries Aerospace Medicine and Life Sciences Research Award. The award is presented for outstanding research accomplishments in aerospace medicine and space life sciences.

The award recognizes the importance of scientific endeavors to aeronautics and space in the field of medicine and was established in 1940 by the AIAA to honor the memory of the American physician, John Jeffries, who made the earliest recorded scientific observations from the air.

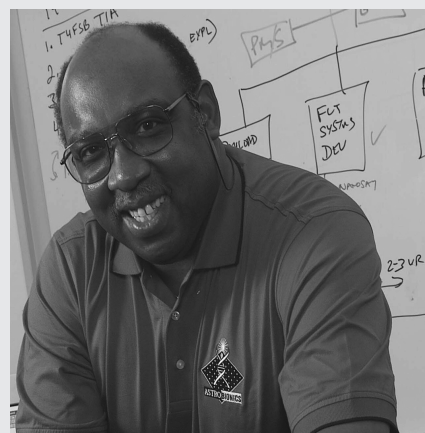
Hines is being recognized for committed outstanding work in developing and implementing biomedical and life detection sensors supporting both aerospace missions and application to civilian needs.

IPPT develops and applies advanced, in-situ technologies for medical/biological, biotechnology and free-

flying small satellite applications. Hines also is the principal investigator/technologist for Smart Healthcare Monitoring Systems, which is directed at developing and applying next-generation sensors, biotelemetry and measurement systems for human space exploration applications. In addition, he manages the exploration probes and small satellites project, which is developing small (less than 50 pounds) satellites and associated technologies for space exploration applications.

Hines has a bachelor's degree in electrical engineering from Tuskegee University and a master's degree in biomedical and electrical engineering from Stanford University and has over 30 years of combined NASA and Air Force experience in biological and biomedical technology development, project management, engineering, satellite and spaceflight hardware development.

Headquartered in suburban Washington, DC, the AIAA serves over 35,000 members in 65 regional



NASA photo by Dominic Hart

John Hines, recipient of the AIAA Jeffries Aerospace Medicine and Life Sciences Research Award. The award is presented in recognition of outstanding research accomplishments in aerospace medicine and space life sciences.

sections and 79 countries. AIAA membership is drawn from all levels of industry, academia, private research organizations and government and focuses on emerging technologies in aviation, space and defense.

Two Ames teams receive Space Act Award recognition

The Space Act Award program, coordinated through the Ames Technology Partnerships Division (Code DTP) is designed to provide official recognition of, and to grant monetary awards for, those inventions and other scientific and technical contributions that have helped to achieve NASA's aeronautical, commercialization and space goals.

The program also stimulates and encourages the creation and reporting of similar contributions in the future. To accomplish these objectives, the Inventions and Contributions Board (ICB), funded by NASA Headquarters, is authorized to evaluate nominations received from NASA field centers and recommend monetary awards.

NASA Ames has two teams that have recently received Space Act Award program recognition with over \$13,000 recently awarded to them. Advanced XML Database Integration Technique for Managing Unstructured Documents (NETMARK) is one of those teams, consisting of David Maluf of Universities Space Research Association; Yuri Gawdiak, Chris Knight and Shu-Chun Lin of Ames; David Bell of RIACS; Tracy La of CSC and Peter Tran of QSS.

NETMARK enables data stored in a

variety of databases and documents, meaning that users would have to look in several places for related information. NETMARK allows users to search and query information across all of these sources in one step.

NASA projects that use NETMARK include ERASMUS, NASA's Enterprise Management Tool, Integrated Financial Management Program (IFMP), International Space Station Knowledge Management, Mishap and Anomaly Information Reporting System (MAIS) and the Mars Exploration Rover.

The second team to receive recognition developed the 'Smart Surgical Probe.' The award recipients were Robert Mah of Ames; Russell Andrews of the Veterans Affairs Medical; and Stephanie Jeffreys of Stanford University Medical Center. The probe was originally developed by Ames' Smart Systems Research Lab to provide tools for astronauts responding to medical emergencies during long space flights. It provides a means of intelligent fusion of data from multiple sources that enables accurate diagnosis from a minimally invasive tissue sample. This technology, initially developed for neurosurgery applications, not only has enor-

mous potential for the diagnosis and treatment of breast cancer, but broad



The Ames Smart Systems Research Lab team was a recent recipient of the Space Act Award for their Smart Surgical Probe (above). The probe provides intelligent fusion of data from various sources that provides accurate diagnosis from tissue samples.

applicability to a wide range of medical challenges.

For more information about the Space Act Award program, visit the Web at <http://icb.nasa.gov> or contact the Ames Space Act Award liaison officer, Robin Orans, at e-mail rorans@mail.arc.nasa.gov.

BY LISA WILLIAMS

Ames nominee for NASA Software of Year award 2006: FACET

The NASA Ames nominee for the 2006 Software of the Year Space Act Award is FACET (Future ATM* Concepts Evaluation Tool.) FACET is a flexible software-based analysis environment for exploration, development and evaluation of advanced air traffic management concepts. FACET has been funded by, and directly supports, the Airspace Systems Program under

NASA's Aeronautics Research Mission Directorate.

FACET's unique capabilities as a research and development tool continue to support NASA's mission by guiding the development of the Next Generation Air Transportation System, specifically by facilitating the design of higher capacity airspace systems.

Excellence in software is vital to the

agency's leadership role in developing aeronautics and space technologies and transferring them to government and industry. The NASA Inventions and Contributions Board Software of the Year Space Act Award competition allows us to recognize and appreciate the NASA team members that set high standards for significant software that is creative, usable, transferable and possesses inherent quality.

The Space Act Award program, which is coordinated through the Ames Technology Partnerships Division (Code DTP), is designed to provide official recognition of, and to grant equitable monetary awards for those inventions and other scientific and technical contributions that have helped to achieve NASA's aeronautical, commercialization and space goals; and to stimulate and encourage the creation and reporting of similar contributions in the future. To accomplish these objectives, the Inventions and Contributions Board funded by NASA Headquarters is authorized to evaluate nominations received from NASA field centers and recommend monetary awards.

For more information, please contact the Space Act Awards liaison officer, Robin Orans, at e-mail rorans@mail.arc.nasa.gov or call her at ext. 4-5875.

BY ROBIN ORANS

Ames' chief life scientist Tore Straume honored by US Department of Energy

Ames' new chief life scientist, Dr. Tore Straume, helped settle a lengthy and fascinating debate on radiation levels in post-atomic bomb Japan.

For his groundbreaking work, Straume recently received a high honor from the U.S. Department of Energy.

To read all about Straume's 'tour de force' research - and a bit of science history in the making - go to: <http://www.nasa.gov/centers/ames/research/lifeonearth/straume.html>



photo by Jonas Dino

Earlier this year, Tore Straume, Ames chief life scientist, received the prestigious U.S. Department of Energy's Special Achievement Award for his work on radiation studies.

Asian Pacific Americans and SJSU dean honored at luncheon

Ames employees of all backgrounds gathered at Ming's Restaurant in Palo Alto on June 22 to mark Asian Pacific American Heritage Month with a luncheon and a keynote speech by pioneering San Jose State University (SJSU) Engineering Dean Belle Wei.

Asian Pacific American Heritage Month honors the contributions of Americans of Asian and Pacific Islander descent, and Wei embodies that ideal. She is the first woman to head the SJSU engineering school and is the only Asian American female to lead a four-year accredited engineering program.

At the start of her talk, Wei wryly observed that her challenge was to keep the audience engaged after a six-course meal on a warm summer day. "I know this is an uphill battle. But based on what I studied in statistics, I know that the shorter my speech, the better (my) chances are," she joked.

Wei spoke passionately about the need to meet the challenge of keeping America at the forefront of technology. She talked of a student named Jerry Yan, who was inspired by Neil Armstrong's moonwalk to someday work at NASA. Years later, Yan is one of 222 Ames civil servants who claim Asian or Pacific Islander lineage.

Now, as NASA embarks on a new round of space exploration, there is a

need for a new generation of technologists. To meet this goal, Wei offered three suggestions. First, students need



NASA photo by Dominic Hart

San Jose State University Dean Belle Wei spoke to the guests at the Asian Pacific Heritage Month luncheon held in June about the need to meet the challenge of keeping America at the forefront of technology.

to have their imaginations captured by innovation such as Apollo did years ago. These days, the spark could come from a novel, and potentially Earth-saving, idea like converting weeds into biofuel.

Secondly, students must understand the realities of global competition. In today's economy, workers can labor in any part of the world and compete with others thousands of miles away. SJSU sent students to China and Taiwan, to tour top universities and companies to

learn how the competition develops and trains talent.

"Our students have been thoroughly transformed by this trip," Wei said. "Before, they thought China and Taiwan were America's factories. They were proven wrong after visiting the Intel China Research Laboratory in Beijing. Our students realized they have to change to be competitive."

Lastly, future engineers need to find meaning in their work. This year, SJSU students built e-learning centers in remote Chinese villages to help alleviate poverty. Wei said the students were "constantly challenged on what they have taken for granted, and forced to be creative in using their limited resources."

Wei said leadership for technology should not come from above, but begin with each person, and in the family, communities and workplaces. Tutoring science and math to students can be a start.

"The future is up to us," Wei concluded. "A half-century ago, we successfully rose to the challenge. And we will successfully rise to the challenge again. In America, we are blessed with the dynamism and hard work of people from rich and diverse cultural and ethnic backgrounds."

BY TERRY PAGADUAN

'Spare the Air' days and how Ames employees can help

The Ames Environmental Services Division and the Ames Commute Alternatives Program are committed to helping reduce environmental impacts. The greatest environmental impact is the use of vehicles for transportation, therefore, they are encouraging employees to choose alternative forms of transportation.

There were three days in June when smog levels in the Bay Area violated established health standards. They were called 'Spare the Air' days by the Bay Area Air Quality Management district and residents were asked to refrain from activities that cause pollution.

With the possibility of future Spare the Air days during the summer, here are a few ways you can help improve air quality on smoggy days:

- Register online for Spare the Air Day e-mail alerts at <http://airalert.sparetheair.org>. When the Air District predicts that ozone levels for

the next day will violate health standards, it will notify you at approximately 1:15 pm.

- Take transit, carpool, telecommute, walk or bike instead of driving;
- Avoid using gas-powered lawn mowers and leaf blowers;
- Avoid using consumer spray products (e.g., hairspray, household cleaners);
- Avoid using lighter fluid to ignite your barbecue; and
- Refuel your car at night and avoid topping off the tank to lessen fumes.

The number one source of smog in the Bay Area is the automobile. More than 6.8 million people live in the Bay Area, driving 4.6 million cars 144 million miles a day. That creates over 322 tons of air pollution each day! Other sources of air pollution include consumer spray products like hairspray and household cleaners (52 tons per day), gasoline powered lawn and garden

equipment (13 tons per day), recreational boats (29 tons), fumes from car refueling (11.2 tons), and spillage from topping off during car refueling (1.7 tons per day). For more information about 'Spare the Air,' visit the Web at www.sparetheair.org

BY AMES ENVIRONMENTAL SERVICES DIVISION



STS-121 launch draws hundreds to Ames on July 4

The launch of STS-121 on July 4 drew throngs of visitors to the NASA Ames Exploration Center. John Allmen (upper right photo) manager of Ames' Return to Flight program, spoke with many of the local media during the event. Many visitors also got a chance to have their photos taken in the photo booth area designed to make visitors appear as if they were in a spacesuit with the International Space Station nearby. The purpose of STS-121 was to provide supplies and materials to the space station and also to bring the Ames' Tropi experiment (as described to visitors by Carol Elland of the Life Sciences Division, second photo from top right column) and fruit fly experiments to the station for scientific observation purposes.



photos by Astrid Olson

Lisa Porter visits Ames, discusses future of NASA aeronautics

continued from front page

she continued the acknowledgement of the interns. She encouraged the Ames staff to lend as much support as possible, since eventually we will hand the reins to the next generation to continue the scientific and technical excellence at Ames.

Turning to her prepared presentation, Porter reemphasized the core principles used in the reorganization of NASA's aeronautics programs:

- to re-establish our commitment to mastering the science of subsonic (rotary and fixed wing), supersonic and hypersonic flight;
- to protect and maintain NASA's key aeronautics research and test facilities as national assets;
- to focus research in areas that are appropriate to NASA's unique capabilities; and
- to directly address the needs of the next generation air transportation system in partnership with the Joint Planning and Development Office.

As NASA aeronautics moves into the implementation phase, the program will continue to adhere to these principles, Porter stressed.

During the planning phase for the four programs -- fundamental aeronautics, airspace systems, aviation safety and the aeronautics test program -- Porter said she wanted to recognize several key personnel. In fundamental aeronautics, she acknowledged Chad Frost, Gloria Yamauchi, Wayne Johnson, Tom Norman, Ed Irby, Seokkwan Yoon, Nagi Mansaur, Alan Wray, Mike Rogers and Deepak Srivastava. In airspace systems, she recognized Mike Landis, Harry Swenson, Parimal Kopardekar, Sandy Lozito, Banavar Sridhar, Bob Windhorst, Dave McNally, Doug Isaacson, Yoon Jung and Todd Farley. In aviation safety, Mike Feary, Leighton Quon, Kalmanje Krishnakumar, Joe Totah, Serdar Uckun were the key Ames personnel.

Porter stressed the implementation rules for implementing the four programs: long-term research with milestones, integrated research across the NASA enterprises and no 'stove-piping.' She mentioned that all spacecraft leaving for or returning from space must pass through the atmosphere, which poses opportunities for the aeronautics community.

Porter also emphasized the building of partnerships with academia and industry. As NASA proceeds with the

NASA research announcements (NRA) in aeronautics, the goal is to develop partners, not simply to use the NRA as a mechanism to hand out money, Porter stated.

In her conclusion, Porter said that aeronautics research is the 'seed corn' of fundamental knowledge to advance human and robotic exploration, while pursuing technical excellence and truth, preserving scientific integrity and striving for excellence.

During the question-and-answer portion of the program, Porter was asked if she had any advice for the students in the audience. In response, she asked all of the students and interns in the audience to stand up; it was a pleasant surprise that quite a few people stood to be acknowledged by the audience. Porter said she hoped the students will con-

tinue their technical studies because deciding to be a scientist or engineer is a real commitment. She noted that government service can be difficult, but said the students would be greatly rewarded by their exposure to the excellence found at NASA.

When asked about the prospects of aeronautics work at Ames and whether the questioner should be looking for a job at another center or outside of civil service, Porter said, "you should feel very excited about aeronautics and Ames." She added, "Ames clearly has a very important role to play across all of the projects."

After the all-hands meeting, the mood seemed positive with a sense of readiness to implement the hard-worked plans of the past year.

BY JONAS DINO

NASA's new education initiative

continued from front page

of the new NSTI-MI during a news conference hosted by Google, Inc., at its corporate offices in Mountain View.

"As part of our ongoing efforts to help introduce more minorities into the technology workforce, we are happy to

Center will help foster strong ties with UNCFSP and its students, and we look forward to welcoming interns to Google."

The UNCFSP is a spin-off of the United Negro College Fund. Founded



NASA photo by Tom Trower

Attendees at the recent kick off event for a new initiative with NASA and the United Negro College Fund Special Programs Corporation held on June 28 at Google Inc., in Mountain View. The initiative was created to give researchers and students from minority institutions direct access to NASA facilities, scientists and capabilities.

host NASA and UNCFSP as they announce their joint initiative," said Alan Eustace, senior vice president of engineering and research for Google. "Our close proximity with the Ames Research

in April 2000, the UNCFSP is an independently established nonprofit organization with the broad mandate of serving domestic and international minority institutions.

BY LAURA LEWIS

Ozen Engineering is poised for growth

Ozen Engineering, July's NRP partner of the month, has set the stage for a spurt of new growth.

Ozen, which serves as California's sole distributor and consultant for Pennsylvania-based ANSYS simulation software, just joined a major European soft-

grams, both potential ANSYS customers.

While at Ames, Ozen has doubled the company's client base from 30 to 60 customers.

"We see possible collaborations at the Research Park in software simulation and R&D projects," Ozen said.

Currently, Ames' Fluid Mechanics Lab uses the ANSYS CFX application, and another group uses ANSYS for finite element analysis.

Ozen hails from Turkey and his earlier career includes being an archaeological tour guide in Turkey and Egypt.

He's put together a multinational staff of talented ANSYS engineers, including Gunsu Temirer, also from Turkey, and newly minted young talent, including Chris Cowan from the U.S., Can Ozcan from Turkey and MBA marketer John Mutungi from Kenya.

"We see a bright future ahead and we think the NASA Research Park right now is the right place to be," said Ozen. "At the rate we are going, in five years, we'll need more space, test labs, a wet lab and parallel computing power to fuel our growth."

BY KATHLEEN BURTON



Photo by Kathleen Burton

Ozen engineering staff (standing, left to right) John Mutungi and Chris Cowan. (Sitting, left to right) Can Ozcan and Metin Ozen. Ozen Engineering has been a tenant at the NASA Research Park at Moffett Field since June 2005 and is the distributor and consultant for ANSYS simulation software.

ware alliance called TechNet, jump-starting its plans to expand their global customer base.

"TechNet will increase our visibility in Europe and the U.S.," said company CEO Metin Ozen. "However, in the near term, we will also expand our California customer base," he said, adding that his location at the NRP in the heart of the Silicon Valley positions the company perfectly to meet this goal.

A tenant at the NRP since June 2005, Ozen has found the NASA connection an important piece of his growth plan. He has applied for an SBIR grant with the U.S. Marine Corps, and has "dress-rehearsed" his software simulations with potential customers at the Ames Calibration Lab, a strong selling point for his clients.

Ozen's flexible ANSYS software, geared for simulations in semiconductors, biotech and medical devices, allows users to do an array of tasks -- everything from modeling drug dispersion rates in the human body to computational fluid dynamics applications.

The company's relocation to the NASA Research Park was largely motivated by the ability to be close to other NRP startups and NASA Ames pro-

Aviation authors present their works



NASA photo by Tom Trower

Authors Julie Jervis (far right) and Nick Veronico (center) discussed their books at the Ames cafeteria book signing with Munro Dearing and his daughter Rachel (left) during Author's Day on July 12. The event was sponsored by the Ames Exchange. Both Veronico and Jervis have been associated with Ames for many years and are accomplished authors. Veronico has recently published a pictorial history, simply titled 'Moffett Field' (Arcadia Publishing). Jervis has written 'The World Beneath Their Wings' (InFlight USA) with inspiring stories of 15 of the most remarkable women in aviation today.

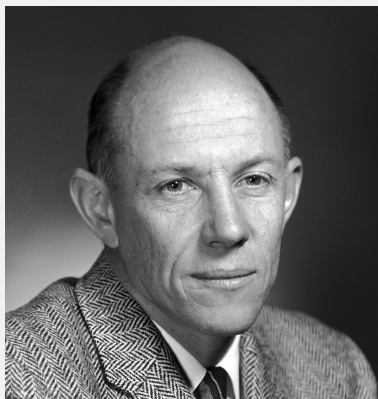
Ames-UCSC author holds book signing event



On June 17, NASA Ames-UCSC University Affiliated Research Center joint appointment researcher Beth Ann Hockey (top right) participated in a book signing event at Leigh's Favorite Books in Sunnyvale. The book 'Putting Linguistics into Speech Recognition' presents a detailed description of Regulus, an Open Source toolkit for building speech-enabled systems that the authors have developed over the last four years. Hockey is a project scientist for UC Santa Cruz at Ames, the project lead for the NASA Clarissa project as well as a visiting professor of linguistics at UC Santa Cruz.

In Memory of . . .

G. Allan Smith, distinguished aero research scientist



Dr. G. Allan Smith

G. Allan Smith, PhD, passed away on June 11 in Portland, Maine. He was 89, two months short of 90.

Smith joined Ames in 1946, where he was assigned to the Instrument Development Branch. Later, Smith and the other automatic control engineers left the branch to form the Vehicle Instrument Research Branch, in Bill Harper's Full Scale and Flight Research Division, specifically to pursue automated aircraft systems.

While at Ames, Smith took a year's leave to work with Stark Draper at M.I.T. Draper is considered to be the

father of inertial guidance.

Later, during the 'space age,' Smith spent a year at NASA Headquarters pushing the manned missions (Apollo, Soyuz and Skylab), particularly by visiting universities as an advocate for the missions. In recognition of his outstanding contributions to the manned space flight programs (Apollo, Apollo/Soyuz and Skylab) he was awarded a certificate from NASA with a mounted flag that was carried to the moon aboard Apollo XV11, December 1972.

Aerospace design engineer Dale Shute

Dale Ingram Shute, age 85, died on June 15, in Sequim, Wash. Shute was born in Oakland, Calif., on April 8, 1921 and grew up in Los Gatos. After graduation, he attended Tech High in San Jose, which launched him into a long and distinguished career in tool-making and design.

In 1941, Shute began to work for the National Advisory Committee for Aeronautics, which later became NASA. Shute spent 32 years at Ames working on the design and creation of aerospace projects. During WWII,

he was a Naval fireman at Moffett Field's dirigible hangars.

Shute was honored by the federal government on several occasions for patents and various projects. He helped design and create space helmets with brain probes for mice, created wind tunnel models for the Apollo re-entry spacecraft, fabricated a teflon heart catheter, helped make seismic lunar sensing equipment and many other fascinating projects. Among them, he designed and created a device that froze sea urchin eggs at different times of

gestation. The project was designed to determine the effects of space and weightlessness on living organisms - a precursor to sending mankind into space. He also created devices that found their way to the moon.

After retiring from NASA, Shute worked an additional five years at Diffraction Optics in Palo Alto where he machined lenses, some of which were used in the space shuttle program. He was also a longtime member of the National Association of Retired Federal Employees.

Jeff Kuhn discusses using small satellite to study sun



Astronomer Jeff Kuhn presented a director's colloquium June 19 in the Space Sciences auditorium at Ames. The title of his talk was 'Measuring the sun from a small satellite -- microarcsecond astrometry.' He discussed the role of small satellites as space platforms for small aperture solar telescopes, and how they can yield astrometric solar information orders of magnitude more accurate than ground-based instruments. He also discussed the progress made toward measuring the sun's shape and size with an accuracy approaching a few microarcseconds.

Reentry Breakup Recorder passes drop test

The combined power, sensor, electronics, communication and ground systems for the aerospace-designed Reen-

need to deorbit hardware into an instrumented range. As a result, data can be recovered from reentry events occurring anywhere on Earth. The device is not designed to survive ground impact and does not need to be recovered.

A helium-filled weather balloon was used to carry the REBR test article, several other instrument packages and a parachute system to a approximately 86,000 ft. The balloon ruptured at that point and the string of devices fell. As the altitude decreased, the para-

chute gradually became more effective, ultimately resulting in a relatively soft landing in a farmer's field, where it was recovered.

During the flight, REBR 'phoned home' its data to a modem in Colorado Springs, where Eric George, of Space Operations Requirements and Technology, who developed the ground system, watched as the data arrived. George provided a running commentary to Bill Ailor of the Center for Orbital and Reentry Debris Studies, project director; and Preston Partridge of the Antenna Systems Department; the Aerospace team in Montana; and Dan Rasky and Mark Newfield of Ames. Communication from the REBR package was excellent during the test, and the GPS system provided precise information on the

impact location. REBR contains accelerometers, rate gyros, temperature sensors, GPS and special thermal sensors. The sensors were developed by Ames. Data flow and communications are managed by an electronics package designed by Dan Rumsey of the Digital and Integrated Circuit Electronics Department. Preston Partridge designed the antenna system. The REBR aeroshell and internal structure was designed by Ian Fernandez of Ames.

Emerging requirements specify that



The Reentry Breakup Recorder (REBR) balloon ready for launch. Preston Partridge, second from left, holds the REBR capsule. REBR is designed to provide detailed information on how an upperstage or spacecraft breaks apart during reentry.

Reentry Breakup Recorder (REBR) were verified in a high-altitude balloon drop test conducted in conjunction with NASA Ames and Montana State University in June. The test was the first flight test of the complete system.

REBR, projected to weigh about three pounds and be about one foot in diameter in its final configuration, will activate during reentry of space hardware into the atmosphere and record data during breakup of the hardware. It will broadcast the recorded data as it falls vertically prior to Earth impact.

A heat shield, developed by Ames, will protect REBR's electronics and sensors during reentry. REBR communicates its data via the Iridium satellite network, which provides global communications coverage, eliminating the



The Reentry Breakup Recorder team in Montana. From left to right: Mark Newfield, of Ames; Preston Partridge of the Antenna Systems Department; Bill Ailor of the Center for Orbital and Reentry Debris Studies, with the REBR capsule; and Dan Rasky, NASA Ames. Not pictured but also present: Hiep Khuc of NASA Ames.

space hardware must be deorbited if the hazard to people on the ground for a random reentry exceeds a threshold value. REBR was designed to provide detailed information on how an upper stage or spacecraft breaks apart during reentry, and data returned by REBR may ultimately help spacecraft designers reduce the hazard, extending mission life for satellites in low-altitude orbits.

In addition, REBR could be used as a 'black box' for space systems designed to survive reentry, or it could be the basis for a new family of small reentry vehicles to collecting atmospheric data on Earth and other planets or to flight test new thermal protection systems for crewed vehicles and planetary probes. REBR, under development for several years, is a corporate IR&D project partially funded by SMC. NASA Ames is providing aeroshell design and manufacture.

BY DAN RASKY

Gene Hubbard pays visit to Ames

Gene Hubbard, director, Facilities and Engineering and Real Property at NASA Headquarters and his staff met with Ames Associate Center Director for Institutions and Research Steve Zornetzer and others at Ames for a master plan meeting during their two-day tour and visit of Ames in June.



NASA photo by Dominic Hart

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 noon to 1 p.m. in Building 245, Room 215. POC: Julie Nottage at jnottage@mail.arc.nasa.gov or ext. 4-3711. Guest welcome.

Ames Bowling League, Palo Alto Bowl on Tuesday nights. Seeking full-time bowlers and substitutes. Questions to sign up: Mike Liu at ext. 4-1132.

Ames Child Care Center Board of Directors Mtg, every other Thursday (check Web site for meeting dates: <http://acc.arc.nasa.gov>), 12 noon to 1:30 p.m., N-210, Rm. 205. POC: Cheryl Quinn, ext 4-5793.

Ames Contractor Council Mtg, first Wednesday each month, 11 a.m., N-200, Comm. Rm. POC: Doreen Cohen, ext. 4-5203.

Ames Diabetics (AAD), 1st & 3rd Weds, 12 noon to 1 p.m., at Ames Mega Bites, Sun room. Support group discusses news affecting diabetics. POC: Bob Mohlenhoff, ext. 4-2523/e-mail at: bmohlenhoff@mail.arc.nasa.gov.

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 (Feb 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 of each month, 8:30 a.m. to 9:30 a.m., Bldg. 221/Rm 155. URL: <http://q.arc.nasa.gov/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: Bob Hilton at ext. 4-2909, bhilton@mail.arc.nasa.gov.

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.

NASA Ames co-sponsors space 2006 conference in silicon valley

NASA Ames is partnering with Lockheed Martin and the U.S. Air Force to bring the Space 2006 Conference and Exposition to Silicon Valley for the first time this September. Organized by the American Institute of Aeronautics and Astronautics (AIAA), the conference will be held Sept. 19 to 21, 2006 at the San Jose McEnery Convention Center in San Jose.

Under the theme 'The Value Proposition for Space: Security, Prosperity, Discovery,' the conference will explore the importance of space access and exploration for civil, commercial, security

and scientific purposes, as well as the associated science, technologies, logistics and economics. Panel discussions and technical sessions featuring government, industry and academic experts will address topics such as 'The New Race for Commercial Value in Space,' 'Emerging Entrepreneurs and Their Business Cases,' 'Space Partnering Initiatives' and 'Technologies to Enable Global Security.'

For more information about the conference, or to register, visit: www.aiaa.org/events/space

NASA PM Challenge 2007 set

The call-for-speakers is now open for PM Challenge 2007, NASA's 4th annual project management conference. Visit the internet at <http://pmchallenge.gsfc.nasa.gov/> for more details.

The conference is Feb. 6 to 7, 2007 in Galveston, Texas. The contact person for this notice is Niloo Naderi at (301) 286-5694.

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.

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Safety Data

NASA-Ames Occupational Illness-Injury Data for Calendar Year-to-Date 2006
Jan. 1, 2006 - June 30, 2006

	Civil Servants	Contractors
First aid cases	6	11
Lost-time cases	0	2
Recordable cases	1	3
Lost workdays	0	2
Restricted duty days	0	0

Above data are as of 07/01/06. May be subject to slight adjustment in the event of a new case or new information regarding an existing case.

Ames Classifieds

Ads for the next issue should be sent to 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!

Housing

Room available for rent in house in mid town Palo Alto, with kitchen, laundry, and pool, \$500 plus \$50 toward utilities, for a quiet, neat, stable and conscientious person or couple. E-mail jims@eos.arc.nasa.gov; ham call wb6yoy.

Researcher looking for temporary housing close to NASA Ames from Sept. 1 to Dec. 9, 2006 while working at Ames during that time period. Single room or apt for quiet couple. E-mail ash@plugin-creations.com or Call (541) 579-3991.

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.

Wanted: 40-foot aluminum extension ladder. Call (408) 281-7011.

Wanted: small table top electric saw. Call (510) 468-2537 or e-mail dadams1940@aol.com

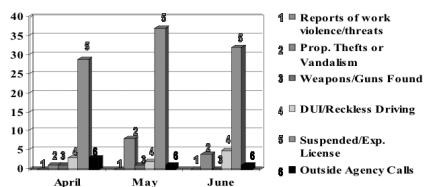
ViewSonic 15" flat screen computer monitor, \$30; Craftsman 20" lawn mower, \$50; Scott's spreader, \$10; mahogany airplane models (P3, SR-71, F/A-18), \$100 each. E-mail acullivan@comcast.net

Lifestyler Cardio 930 low impact, \$50. Call (408) 244-9934.

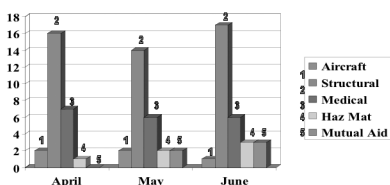
Protective Services monthly activity

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

Security/Law Enforcement Activity



Fire Protection Activity



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 N-235 (8 a.m. to 2 p.m.) ext. 4-6873

Ask about NASA customized gifts for special occasions.

Mega Bites N-235 (6 a.m. to 2 p.m.) ext. 4-5969

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

Visitor Center Gift Shop N-943 (10 a.m. to 4:00 p.m.) ext. 4-5412

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

Tickets, etc... (N-235, 8 a.m. to 2 p.m.) ext. 4-6873

Check web site for discounts to local attractions, <http://exchange.arc.nasa.gov> and click on tickets.

NASA Lodge (N-19) 603-7100

Open 7 days a week, 7:00 a.m. to 10 p.m. Rates from \$40 - \$50.

Ames Swim Center (N-109) 603-8025

Ames Swim Center, 25 meter swimming pool open and heated year round. (80-82 degrees) Lap swim: Mon, Weds, Fri, 10 a.m. to 1 p.m. and 3-6 Tues to Thurs 10 a.m. to 1 p.m. and 4 p.m. to 7 p.m. Seasonal recreation swim; swim lessons. Locker rooms w/sauna and shower facility. Open to all civil servants and contractors. Location: Bldg. 109 across the street from the tennis courts. Fees vary depending on activity. POC: Tana Windhorst, ext. 3-8025; e-mail: tw4lsb@aol.com

Vacation Opportunities

Lake Tahoe Squaw Valley townhouse, 3bd/2ba-equipped, balcony view, horseback riding, hiking, biking, golf, river rafting, tennis, ice skating and more. Summer rates \$100 per night, 2 night minimum. Call (650) 968-4155, e-mail DBMcKellar@aol.com

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, microwv, 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, \$1,000/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).

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. \$600/wkend, \$2,100/wk, including cleaning by the maid service when you depart. Call (408) 252-7260.

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

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, \$2100/wk including cleaning by the maid service when you depart. Call (408) 252-7260.

Astrogram deadlines

Please submit articles, calendar and classified advertisements to 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 Terlep at the aforementioned e-mail address or ext. 4-3347.

Ames emergency announcements

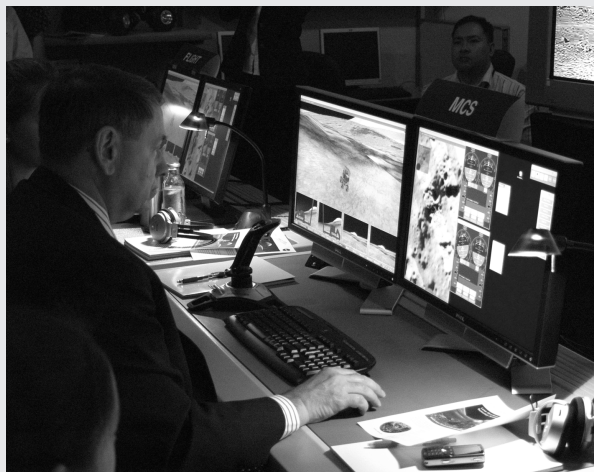
To hear the centerwide status recording, call (650) 604-9999 for information announcements and emergency instructions for Ames employees. You can also listen to 1700 KHz AM radio for the same information.

MicroRover Mission Control enables tele-operation of robots

The NASA Ames Intelligent Avionics Groups (Code TI), NASA Ames Evolvable Systems Group (Code TI) and NASA Education have joined with Carnegie Mellon West to form a working collaborative with a collection of labs, facilities and resources called the 'Nexus Collaborative.'

This integrated team with a wide range of expertise can answer the called-for missions such as Lunar MicroRover initiative--a demonstration showing how NASA software, in concert with CMU hardware and firmware, works seamlessly to achieve mission goals, while significantly saving costs.

The technology demonstration mission objectives are: the tele-operation of microrovers through a mission control center at Ames to simulate lunar exploration searching for signs of water in shadows and craters; the actual remote operation of microrovers over low bandwidth, high latency satellite data links in a distant, harsh environment: the Atacama Desert in Chile; and the demonstration of live software reconfiguration and microrover contingency capabilities including a simulated primary sensor failure on one microrover.



The MicroRover Mission Control center, shown below, located in the Education Resource Center in Bldg. 226 at NASA Ames, permits the tele-operation of microrovers in the Atacama Desert in Chili, simulating exploration of the lunar surface. NASA Ames Center Director S. Pete Worden, left, recently operated a robot remotely in Atacama, watching the screen and noticing what the robot actually did in response to his commands.



NASA photos by Jim Taylor



National Aeronautics and Space Administration

Ames Research Center
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