

# Astrogram

Communication for the Information Technology Age

## Shuttle board cites physical, organizational problems -- O'Keefe embraces need for change in culture, practices

NASA Administrator Sean O'Keefe addressed "the NASA family" recently, providing his perspective on the Columbia Accident Investigation Board's final report and the agency's future.



NASA photo by Roger Brimmer

Center Director G. Scott Hubbard displays the recent CAIB report while responding to local reporters at a recent media roundtable.

"This is one of the seminal moments in our history," O'Keefe said. "NASA is defined by our tremendous successes and tragic failures. Each has always been followed by an extensive discussion of our charter and future directions. We will go forward now to do our best to make this a much stronger organization."

On Aug. 26, the CAIB issued its long-awaited report on the causes of the loss of space shuttle Columbia and its crew of seven on Feb. 1, 2003. The board offered 29 recommendations to NASA management, 15 essential for "return to flight" and 14 deemed necessary to support "continuing to fly." In all, the board laid out 23 technical recommendations and six organizational ones.

The board found the physical cause of the accident to be "a breach in the thermal protection system on the leading edge of the left wing caused by a piece of insulating foam which separated from the left bipod ramp section of the external tank at 81.7 seconds after launch and struck the wing in the vicinity of the lower half of reinforced carbon-carbon panel number 8." As Ames director and the only NASA member of the CAIB Scott Hubbard put it, "the foam did it."

The board found the organizational causes of the tragedy to be "rooted in the space shuttle program's history and cul-

ture." In the opinion of the board, the organizational causes are "on a par with the physical causes," according to Hubbard.

O'Keefe said that on Feb. 1, NASA made a commitment to the families of the Columbia crew "to find the problem, fix it and return to our exploration objectives." He said that the board's excellent work and detailed report accomplished the first goal. Now, he said, "We must accept the report and comply with its recommendations." The board "has given us a very, very valuable blueprint to move forward," he stated. "We have gotten a pretty good head start. Now, we must choose wisely in selecting options to comply with the board's

recommendations." O'Keefe acknowledged the technical issues and cultural fixes needed ensure that "it's going to be a very long process."

Hubbard joined the administrator at the 'NASA Update' and provided an excellent overview and insight into the board's work, deliberations and conclusions. He said that the board had involved more than 400 engineers from across the agency, had looked at over 30,000 documents, conducted more than 200 interviews and had held 10 public hearings. He paid tribute to the 25,000 people who recovered more than 84,000 pieces of shuttle debris comprising almost 40 percent of the vehicle's weight.

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## Leaders discuss nanotech market

To discuss the trillion-dollar nanotechnology market that experts believe will be born from research at the molecular scale, almost 300 leaders, from

Nanotechnology Forum with U.S. Representative Mike Honda, co-sponsor of the Boehlert-Honda Nanotechnology Bill, H.R. 766.



NASA photo by Tom Trower

NASA Ames Center Director G. Scott Hubbard (second from left) speaks with U.S. Representative Zoe Lofgren (third from left) at the recent nanotechnology conference held at NASA Ames. U.S. Representative Mike Honda (second from right) speaks with Meyya Meyyappan, the director of the Center for Nanotechnology at Ames (far right). UC Santa Cruz Chancellor M.R.C. Greenwood is shown far left.

industry, academia and government, converged on Aug. 19 at Ames.

NASA co-hosted the Bay Area

"Though nanotechnology has its roots in the 20th century, this exciting

*continued on page 12*

## Data mining reveals a new history of natural disasters

NASA Ames' Christopher Potter and research partners are using satellite data to paint a detailed global picture of the interplay among natural disasters, human activities and the rise of carbon dioxide in the Earth's atmosphere during the past 20 years.

According to a new scientific study that recently appeared in the journal *Global Change Biology*, scientists used satellite observations to estimate the amount of leafy cover worldwide and sudden decreases in 'greenness.' Greenness is a measure of the amount of chlorophyll in live plants.

"Green leaf cover is probably the most fragile and vulnerable piece of Earth's ecosystem that scientists can easily monitor during ecological disturbances," said Potter, a scientist at the center and the principle author of the technical paper. His co-authors include Pang-Ning Tan, Michael Steinbach and Vipin Kumar, all of the University of Minnesota, Minneapolis; Steven Klooster and Vanessa Genovese who work at Ames and are from California State University-Monterey Bay, Seaside, Calif. ; and Ranga Myneni, Boston University, Boston.

"The new results come from a technique called 'data mining,' which sorts through a huge amount of satellite and scientific data to detect patterns and events that otherwise would have been overlooked," added Kumar, the principle investigator of a joint project of the University of Minnesota, California State University and NASA Ames to develop data-mining techniques to help Earth scientists discover changes in the global carbon cycle and climate system.

The Earth's land cover is so vast that much of it in the tropics and the tundra is inaccessible to regular ground observations there, according to the study's scientists.

"Many years of satellite observations of remote areas have revealed completely new pictures of ecological changes and disasters, but we have had to develop new formulas to clearly reveal sudden changes in greenness over extensive areas," said Potter.

Detecting sudden changes from large amounts of global data required the development of automated techniques that take into account the timing, location and magnitude of such changes, according to Tan.

Researchers then matched abrupt changes in plant greenness with records of large wildfires or massive crop losses to validate the study's conclusions. "The majority of the potential disturbance events that caused carbon to go into the atmosphere occurred in tropical savanna

and shrub lands or in cold forest ecosystems," Klooster said.

Scientists define an ecological disturbance as an event that disrupts the physical make-up of an ecosystem and how it works for longer than one growing season of native plants. Natural disturbances may include fires, hurricanes, floods, droughts, lava flows and ice storms. Other natural disturbances are due to plant-eating insects and mammals and disease-causing microorganisms.

Human-caused disturbances could happen as a result of logging, deforestation, draining wetlands, clearing, chemical pollution and introducing non-native species to an area, according to scientists.

"Ecosystem disturbances can contribute to the current rise of carbon dioxide in the atmosphere," Potter said. Nine billion metric tons of carbon may have moved from the Earth's soil and surface life forms into the atmosphere in 18 years beginning in 1982 due to wildfires and other disturbances, according to the study. A metric ton is 2,205 pounds, equivalent to the weight of a small car. In comparison, fossil fuel emission of carbon dioxide to the atmosphere each year was about seven billion metric tons in 1990.

Some of the carbon dioxide that goes into the air reenters the Earth's biosphere when plants recover this gas during 'natural recycling.'

Scientists used the advanced very-high-resolution radiometer aboard National Oceanic and Atmospheric Ad-

ministration satellites to measure monthly changes in leafy plant cover worldwide. Boston University used unique NASA computer codes to produce global greenness values. These codes removed interfering data from atmospheric effects. When statistics showed there was much less greenness in specific areas that lasted more than a year, scientists also found a high probability of ecological disturbances.

"Watching for changes in the amount of absorption of sunlight by green plants is an effective way to look for ecological disasters," Potter said. "This study was literally a proof of concept because we learned how to use data mining to bring new knowledge out of existing Earth observation data," Klooster added.

Follow-up studies using much higher resolution satellite images are likely to reveal more localized events, such as floods, hurricanes and major logging operations, according to the study's scientists. "This is important because many natural disasters in remote areas are not noticed and never recorded," Potter explained.

"In the new era of worldwide carbon accounting and management, we need an accurate method to tell us how much carbon dioxide is moving from the biosphere and into the atmosphere," Potter said. "Global satellite images go beyond the capability of human eyesight. All we need to do is look at the data with the proper formulas to filter out just what we need," he concluded.

BY JOHN BLUCK ▲

## Girvan displays latest technologies

In an effort to bring the latest technologies and best companies to NASA, the Girvan Institute of Technology hosted an open house at NASA Ames in August. This was a private mixer, to ensure that NASA and other U.S. federal labs had adequate time to review the technologies and to speak with the representatives from the selected companies regarding their latest technological advancements.

New technologies were on display from products for the sustained delivery of protein-based therapeutics, to cognitive robotics, to fiberoptic communications and high-performance print systems.



NASA photo by Dominic Hart

## Ames MERBOARD featured at SMC-IT conference

The Space Mission Challenges for Information Technology 2003 (SMC-IT) conference was hosted at Ames in July by the NASA Jet Propulsion Laboratory. As part of the program, a reception was held for industry participants where the Ames MERBoard was featured by Jay Trimble of Code IC. Rich Pisarski, deputy chief of the Commercial Technology Office, was also present to network with the industry representatives about opportunities for partnerships.

Other employees from Ames who presented at this conference were: Al Globus of CSC, who spoke on the subject of 'scheduling Earth observing satellites with evolutionary algorithms.' Jason Lohn, of Code IC, discussed 'evolvable systems for space applications.' Kannan Rajan, of Code IC, spoke about 'MAPGEN: the mixed initiative planning and scheduling for the Mars 2003 mission.' Robert Morris, of Code IC,

talked about 'an integrated architecture for science observations scheduling for fleets of Earth-observing spacecraft.' Guillum Brat, of Code IC, spoke on the subject of 'static analysis of the Mars exploration rover flight software.' Joan Walton, of Code IC, talked about the 'collaborative information portal: MER and beyond' and Bradley Betts, of Code IC, discussed 'a software framework to enhance training and operations of space missions.'

SMC-IT is the first forum to gather system designers, engineers, scientists, practitioners and space explorers for the objective of advancing information technology for space missions. The forum provided an excellent opportunity for fostering technical interchange on all hardware and software aspects of IT applications in space missions.



## Former Galileo Probe project manager dies

Joel Sperans, a 30-year veteran of NASA, died on Aug. 10 at his home in Atherton, Calif. Despite the many privations associated with his long illness, Sperans retained, until the end, his wry humor and tenacious will to live. He was 68 years old.

Sperans retired in 1995 as chief of the Space Projects Division at Ames after a distinguished career in the management of unmanned space flight projects. He joined the successful Pioneer Jupiter/Saturn mission team in the late 1960s and was manager of science instruments development for the extremely productive Pioneer Venus missions, which featured an orbiter around the planet and five instrumented penetrations to study Venus' atmosphere.

He was later appointed project manager for the Galileo Probe, which provided the first-ever direct analysis of Jupiter's gaseous atmosphere. As chief of the Space Projects Division, he initiated the Space Station Biological Research Project at Ames while at the same time overseeing a wide variety of studies for other potential future space projects including a large airborne infrared telescope project.

The only son of Russian immigrants, Sperans graduated from the University of Miami in 1956 and served as an Army lieutenant in the Korean

War. He married the late Judith Lynne Reder in 1959. They were married until her death in 1993 and had two children together. In 1994, he married Joan C. Mesirov Rondell.

Sperans loved the outdoors; this love extended from enjoying his garden at home to backpacking in the Sierra. In the latter half of his life, he discovered a love for international travel, the south of France being a favorite destination.

A long-time resident of Atherton, Sperans was a quiet, self-effacing man whose kindness, devotion to family and great humor will be profoundly missed.

Surviving Sperans are his wife, Joan C. Sperans of Redwood City; daughter Joanne Sperans Hartzell of Menlo Park; son James Robert Sperans; and two grandsons, Oliver Wolf Sperans and Nicholas Jacob Sperans, of Swarthmore, Pa. He is also survived by two stepdaughters, Alexis Rondell Rhorer and Gabrielle Rondell.

In addition to private family services, a celebration of Sperans' life will be held Sept. 14 at 3:00 p.m. at 181 Greenoaks Dr., Atherton, Calif. The family asks that in lieu of flowers, donations be made in Sperans' name to the San Francisco Bay Chap-



Joel Sperans

ter Office of the Sierra Club, 2530 San Pablo Avenue, Suite I, Berkeley, CA 94702-2000 Attn: Bill Walsh. The Web site for the Sierra Club is located at: <http://sierraclub.org> or America's Second Harvest, 35 E. Wacker Dr., #2000, Chicago, IL 60601

## CMU RoboCamp students graduate



NASA photo by Dominic Hart

*Carnegie Mellon University RoboCamp-West students at the recent graduation ceremony held in August. After the graduation, students demonstrated the robots to the attendees at the ceremony. The RoboCamp-West program exposes high school seniors to robotics. They learn about vision-based, autonomous mobile robots (robots that have cameras). Each senior builds a three-wheel rover, called a 'TrikeBot.' Each rover has an articulated camera and infrared range finder. TrikeBots are remotely controlled using wireless technology via a laptop computer that runs Java scripts created by the students, or preprogrammed tasks. NASA sponsored 20 underrepresented minority students with full scholarships provided through the Ames Equal Opportunity Programs Office.*

## Former wind tunnel employee passes away

Donald J. Graham, 1919-2002, died at his home in Escondido at the age of 83. After graduating summa cum laude from the University of California at Berkeley, he came to NACA Ames in the early 1940s as an aeronautical research engineer.

Graham's entire career was spent at NACA-NASA Ames. He retired in the 1970s. He rose to branch chief of the unitary plan 11-by-11-foot wind tunnel in the later years of his career and at one time served as mayor of Woodside.

## Bioethics workshop scheduled

NASA Ames, in collaboration with the Girvan Institute of Technology, is presenting a half-day bioethics workshop on Tuesday, Oct. 7 from 9:00 a.m. to 12:00 noon in the Moffett Training Center, in Building 3.

This continuing education opportunity will be of particular interest to principle investigators, research associates, members of the human research institutional review board and anyone in the wider Ames community concerned about ethical issues in investigative medicine and the life sciences.

Three principle topics will be covered in the course of the morning:

- 1) Ethical theory and a methodology for bioethical decision-making;
- 2) Research with human participants: historical review, underlying ethical theory and problematic areas; and
- 3) Stem cell research: therapeutic possibilities and ethical controversies.

The workshop will be led by Ernlé W.D. Young, Ph.D., recently appointed chief, Office for the Protection of Research Participants at Ames. Young is also professor of biomedical ethics emeritus in the Stanford University School of Medicine.

## Computer museum expands tour hours

Tours of the Computer History Museum's visible storage exhibit area are available for individuals. The display spans history from pre-computing to supercomputing and reflects the astonishing development in technology from gears to vacuum tubes to exotic semiconductors. It features more than 450 artifacts including the Honeywell 'Kitchen Computer,' the Cray 1, the Johnniac and an Eniac rack.

Tours are available on Wednesday, Friday and Saturday at 1:00 p.m. and 2:30 p.m. Tours last approximately one hour and 15 minutes. For more information, visit the Web at: <http://www.computerhistory.org> The museum is located at 1401 N. Shoreline Boulevard in Mountain View. Tours are free.

Space is limited. Sign up in advance by calling (650)810-1013 or e-mail [tours@computerhistory.org](mailto:tours@computerhistory.org)

## 'Hoppy' Hopkins passes away

Edward J. Hopkins (Hoppy), 1923 - 2003, died at his home in San Carlos on April 2 at the age of 80. After graduating from Vanderbilt, he came to Ames as an aeronautical research engineer in the early 1940s, spending his entire NACA-NASA career at Ames, retiring in 1976.

Hopkin's career started in the 7 x 10 wind tunnel and continued there for over 10 years. He then transferred to the unitary plan wind tunnels in the mid 1950s. Much of his research concerned the study of airflow over wing-body configurations. His high-speed aerodynamic studies included measurements of boundary-layer flows on the famed X-15. He was also a member of the team evaluating the U.S. supersonic transport in the 1960s. Hopkin was author or co-author of more than 40 technical reports and papers.

## Ames volunteers may change nation's electrical code

Thanks to a continuing volunteer effort by George Williams of Code FEF, Ames is participating in a national study that may result in significant changes in the country's electrical code and other electrical practices. He and others provided labor on their own time and Ames provided a plot of land for a test site.

Williams, a construction manager at the center, volunteered to establish the test site for the National Electrical Grounding Research Project at NASA Ames to measure how ground rods, grounding connections and electrodes may deteriorate or change in local soil conditions over time. This is the kind of data that many other non-NASA test sites across the nation have been gathering for years. The study is part of a multi-year program that includes 16 private, non-profit and public organizations that are conducting tests at seven sites across the country.

"The nationwide study may well lead to changes in the national electric code to coincide with local soil conditions," said Williams. "Depending on conditions, copper rods and connectors can deteriorate over the years when current flows through them and to ground. A poor electrical ground may lead to unsafe or life-threatening conditions such as electrical shocks or structural fires."

According to Williams, if grounding materials degrade, the quality of electrical power also may suffer, damaging sensitive electronic equipment or causing problems with its operation. "The effort is at least a five-year program of monthly readings, to see how various grounding rod materials hold up in different soils and moisture levels," said Williams, who volunteers some of his lunch breaks and non-work hours, to take readings. NASA Ames provided land where volunteers installed the local test site. Volunteers from private industry and non-profit organizations gave parts, materials and labor to build the test facility at Ames in 2001.

The research project began in 1992, when the International Association of Electrical Inspectors, Southern Nevada Chapter, began testing grounding electrodes in Nevada. The Fire Protection Research Foundation, Quincy, Mass., later adopted the project and volunteers soon added more test sites in New York, Virginia, Illinois and Texas. The program will continue for another five years, perhaps longer, according to engineers. Many of them give personal time to the project.

"It happened in pieces," said Travis Lindsey, who began the effort when he worked for the Clark County, Nevada Building Department. Early on, during a local meeting of electrical inspectors,

they had "strenuous" discussions about grounding and how tests could be made that might affect the local code and solve grounding problems, according to Lindsey. "It was to be a small thing,

three or four electrodes and this was 1990," he recalled. "But, by the time we assembled a committee and acquired land, material and volunteers, we had five sites on Nevada Power Company land and easements with about 15 electrodes on each nearly identical site."

After the sites were in operation for a few years, Lindsey made a speech to the National Fire Protection Association in Denver in 1995. "One of the things I was preaching was that it can't just be in Las Vegas that people are having grounding concerns," Lindsey said. "After the meeting, I talked to people who provided funds and support to increase the effort," Lindsey explained.

"We offer our data to our consortium members, who are a cross-section of industry," he said. "They use the information as they will. This means they will use the information back in industry and it will affect people across the country," Lindsey added.

"Travis Lindsey is the heart and soul of this effort," Williams said. "If it hadn't been for Travis, the project wouldn't have worked."

"At NASA Ames, we've put about 30 types and styles of grounding electrodes in the soil for long-term testing," Williams said. "Most have three conductors that run back to three terminal boxes located at the edge of our site at Ames," Williams explained.

"The project's goal is to produce quantifiable, scientific data for possible use by code writers, and for manufacturers, designers, facility owners, insurers and inspectors of grounding electrode systems," according to an annual report that the project issued. "Test results may help to identify better grounding practices by matching the optimum performing electrode type (minimum resistance, least corrosion) to the appropriate environmental and soil condition," the report continues.

Engineers want to provide uninterrupted, high-quality connections to the ground, or integrity--a safe route for

current to go to ground. "We want the electricity to travel through the grounding system to the ground rather than through a person and cause severe electrical shock," Williams said.



George Williams of Code FEF at an Ames test site where grounding electrodes are evaluated.

"We are trying to establish that different grounding systems are needed to provide adequate grounding in different kinds of soil conditions," Williams explained. "Sand, in desert areas, for example, is much less conductive than wetter, rocky soils and so a different class of grounding material or system may be needed to enhance the path to ground."

One of the tests underway at NASA Ames provides direct current (DC) from solar panels and batteries to grounded electrodes. "The copper industry wants to find out how current affects copper grounding systems," said Williams. In extreme cases, over time, ground wires have broken down and failed.

Lindsey, retired from the Clark County, Nevada, Building Department, is the project's technical director. In addition to NASA Ames, project members and sponsors include or have included: AEMC Instruments; Megger (AVO International); Central Hudson Gas and Electric; Clark County, Nevada, Building Department; Copper Development Association, Inc.; Central Hudson Gas and Electric-Empire State Electrical Energy Research Council; Erico, Inc.; FCI Electrical; Harger Lightning Protection; Lightning Eliminators and Consultants, Inc.; Los Angeles Department of Water and Power; Lyncole XIT Grounding; National Fire Protection Association; Underwriters Laboratories, Inc.; Virginia Dominion Power and many unnamed individual donors. Williams works in Ames' Facilities Engineering Branch.

BY JOHN BLUCK

## Researchers find Antarctic lake water will fizz like a soda

Water released from Lake Vostok, deep beneath the south polar ice sheet, could gush like a popped can of soda if not contained, opening the lake to possible contamination and posing a potential health hazard to NASA and university researchers.

A team of scientists that recently investigated the levels of dissolved gases in the remote Antarctic lake found the concentrations of gas in the lake water were much higher than expected, measuring 2.65 quarts (2.5 liters) of nitrogen and oxygen per 2.2 pounds (1 kilogram) of water. According to scientists, this high ratio of gases trapped under the ice will cause a gas-driven "fizz" when the water is released.

"Our research suggests that U.S. and Russian teams studying the lake should be careful when drilling because high gas concentrations could make the water unstable and potentially dangerous," said Dr. Chris McKay of Code SST. McKay is lead author of a paper on the topic published in the July issue of the 'Geophysical Research Letters' journal.

"We need to consider the implications of the supercharged water very carefully before we enter this lake," said Dr. Peter Doran, a co-author and associate professor of Earth and Environmental Sciences at the University of Illinois at Chicago.

Lake Vostok is a rich research site for astrobiologists, because it is thought to contain microorganisms living under its thick ice cover, an environment that may be analogous to Jupiter's moon, Europa. Europa contains vast oceans trapped under a thick layer of ice. Russian teams are planning to drill into Lake Vostok's 2.48 mile (four kilometer) ice cover in the near future, and an international plan calls for sample return in less than a decade.

An important implication of this finding is that scientists expect oxygen levels in the lake water to be 50 times higher than the oxygen levels in ordinary freshwater lakes on Earth. "Lake Vostok is an extreme environment, one that is supersaturated with oxygen," noted McKay. "No other natural lake environment on Earth has this much oxygen."

The research also suggests that organisms living in Lake Vostok may have had to evolve special adaptations, such as high concentrations of protective enzymes, in order to survive the lake's oxygen-rich environment, the researchers say. Such defense mechanisms may also protect life in Lake Vostok from oxygen radicals, the dangerous byproducts of oxygen breakdown that cause cell and DNA damage. This pro-

cess may be similar to that of organisms that scientists theorize may once have lived on Europa, whose ice layer and atmosphere are thought to contain radiation-produced radicals and oxygen.

"We expect to find that the organisms in Lake Vostok are capable of overcoming very high oxygen stress," said co-author Dr. John Priscu, a geo-biologist at Montana State University in Bozeman.

Priscu heads an international group of researchers that will deploy a remote observatory at Lake Vostok within three years and return samples within 10 years.

The team also determined the ratios of gases in the lake. The scientists discovered that the air-gas mixture there, besides dissolving in the water, also is trapped in a type of structure called a 'clathrate'. In clathrate structures, gases are enclosed in an icy cage and look like packed snow. These structures form at the high-pressure depths of Lake Vostok and would be unstable if brought to the surface.

Lake Vostok is located 2.48 miles (four kilometers) beneath the East Antarctic Ice Sheet. The lake, and more than 70 other lakes deep beneath the polar plateau, are part of a large, sub-glacial environment that has been isolated from the atmosphere since Antarctica became covered with ice more than 15 million years ago. Scientists theorize that Lake Vostok probably existed before Antarctica became ice covered and may contain evidence of conditions on the continent when the local climate was subtropical.

For images and further information about plans to return research samples from Lake Vostok, visit the Web at: <http://salegos-scar.montana.edu/>

The paper's authors also include K.P. Hand of Stanford University and Dr. D.T. Andersen of the SETI Institute.

The research was jointly funded by NASA and the National Science Foundation.

BY KATHLEEN BURTON ▲

## Ames rolls out Mac OS X

Ames is officially rolling out Macintosh Operating System 10 (Mac OS X.) The Mac OS X rollout is a project that is undertaken by Code JT and the Ames CIO to facilitate and coordinate the Ames portion of the agency-wide effort to upgrade Apple computers to Mac OS X.

The purpose of the project is to officially roll out Mac OS X for Ames, invite collaboration and participation by the center Mac OS experts and bring together key staff members to outline the approach, process, resources and schedule of events and milestones.

The three major goals and milestones of the Mac OS X rollout are:

- 1) Systems administrator preparation
  - Involves policy evaluation, Ames Mac OS X configuration guide creation and system administration training.
  - A 'Launching Mac OS X to Ames key IT and support staff' townhall meeting was held on Aug. 20. The meeting was held to prepare and inform system administrators of the OS X upgrade.
  - Outreach event: Pre-OS X rollout overview for system administrators, developers

- scheduled for Sept. 29.
  - 2) End-user orientation (beginning in September):
    - Outreach event: end-user orientation scheduled for Sept. 30.
    - Training: Ames Training Office, Code JH, and ODIN will provide lecture halls with presentation and demos and classroom style with hands-on training.
  - 3) Center rollout (September 2003 / April 2004)
    - Track conversation status by organization, report to CIO and provide support where critically required to meet milestones

Stay tuned for centerwide e-mails for event details.

The following resources are also available on the Web: The project Web site is located at: <http://osx.arc.nasa.gov> and includes news, resources, bug tracker and deployment help. The Ames Mac support group Web site is at: <http://msg.arc.nasa.gov> and includes tips, news and events and the Ames Training Office Web site is at: <http://ameshr.arc.nasa.gov/training.html> and lists training opportunities, contacts and training resources.

## Ames researcher Tammy Nguyen passes away

Tammy Thientam Nguyen passed away at the age of 42 on Aug. 13 after a tragic scuba diving accident in Monterey. She is a beloved mother of two sons, Van and Le Nguyen, and the loving daughter of Sieng Nguyen and Gam Pham.

Nguyen was critically injured when she became entangled in kelp while scuba diving off the Monterey Coast on Saturday, Aug. 9. Despite exhaustive efforts by her fellow divers, she was underwater without access to oxygen for some time before being released to the surface. Nguyen was an experienced diver in excellent health and physical condition.

Nguyen overcame many obstacles in her life. In 1975, she arrived in the United States, a young teenage refugee from Vietnam. She lived on her own in Reno, Nev., working odd jobs to have a place to stay and complete high school. After high school, she struggled to earn a living, raise a family and receive an education. During this time, she owned and operated a nail salon in Los Altos and was recognized, in 1988, by the Los Altos Town Crier as Los Altos' Outstanding Female Entrepreneur. Additionally, Nguyen helped other family members move to the United States from Vietnam and continued to support her parents upon their arrival.

Nguyen joined the NASA Ames Fatigue Countermeasures Group through the San José State University Foundation, Code IHS, in 2000 as a research associate. She received both her B.A. (1998) and her M.A. (2001) degrees in experimental psychology from San José State University with an emphasis in stress-related factors and quality of sleep. She was applying to doctorate programs in psychology.

She was an extraordinary individual who had a very high potential for scientific research, specifically focusing on the effects of sleep loss and night work on human neurobehavioral functioning, circadian rhythms, fatigue and alertness of airline pilots. Nguyen was a member of the Aerospace Human Factors Association, the Aerospace Medical Association (AsMA), the Sleep Research Society and the Western Psychological Association (WPA). Based on her research, Nguyen co-authored numerous abstracts and papers in peer-reviewed journals and presented research findings at numerous scientific meetings including the annual meetings of the Associated Professional Sleep Societies, AsMA and WPA. Nguyen had also received awards for Who's Who Among American Universities and Colleges in 2000 and the Inez and Donald Burdick Scholarship

Award in 2000. In addition to scientific research, Nguyen also had an active role in the Fatigue Countermeasures Group's educational training workshops, which provide information toward increasing the awareness of fatigue-related issues within the aviation community and how to manage those issues.

In addition to Nguyen's professional scientific work, she was active in community affairs, providing counseling to at-risk students at various junior high and high schools under a volunteer program of the San José Juvenile Probation Department. Respected for her support and involvement in the local public schools, Nguyen recently served as an interview committee member for a principal position at Franklin-McKinley School District in San José.

Receiving a quality education was one of Nguyen's greatest wishes for her two sons, ages 12 and 19. Her oldest son, Van, is beginning his sophomore year at UC Davis working to achieve an engineering degree while the youngest entered the 8th grade this Fall. Both sons are straight 'A' students. Anyone wishing to contribute to their education fund can drop off a check made payable to the 'Van and Le Nguyen Benevolent Account' with Sandy Bowman of the Fatigue Countermeasures Group in Building 262, Room 196; M/S 262-4; ext. 4-6435 or mail a check directly to:



Tammy Nguyen

Van and Le Nguyen  
Benevolent Account  
c/o Washington Mutual  
Santa Cruz Financial Center  
730 Ocean St.  
Santa Cruz, CA 95060

Nguyen's research skills, intellect, tenacity, analytic ability and thoroughness made her an invaluable member of the NASA Ames Fatigue Countermeasures Group, making very important contributions. Nguyen's enthusiasm, laughter, confidence and knowledge will be truly missed by family, friends and colleagues.

BY TERRY ALLARD AND MELISSA MALLIS ▲

## Exchange seventh annual chili cook-off scheduled at Ames Oct. 9

The Ames Exchange is pleased to announce the seventh annual chili cook-off will be held Thursday, Oct. 9 from 11 a.m. until 1 p.m.

The chili cook-off has proven to be very popular and successful in the past. We expect it to be no different this year.

All Ames personnel are invited to form teams, try out their special chili recipes and compete for trophies in each of the four categories. The exchange will provide a total of \$50 per officially entered team (to a maximum of 20 teams) to help defray the costs of preparing adequate supplies for your recipes to feed small samples to the potentially hundreds of expected attendees. Teams are encouraged to exercise creativity in recipes, presentation, condiments, team naming and

other related areas.

For information about entering the contest and to submit the required paperwork, contact Julia Horner at e-mail: jhorner@mail.arc.nasa.gov or call ext. 4-4017.

This year's event will also include the band Daddy O, a carnival midway, face painter and balloon artist, and the ever-popular dunk tank.

At this event, chili sampling is free for all NASA employees, contractors and other on-site personnel and visitors. Each taster will be given the chance to cast his or her vote for the 'Peoples Choice' award. A select panel of judges will choose the other categories. Trophies will be presented to the winning team in each category. Prizes are in the form of trophies only; there are no cash prizes for this event.

## Ames' second quarter safety awards presented

Under the Ames Safety Awards Program (ASAP) II, Ames recognized 98 employees for their outstanding accomplishments in improving health and safety. ASAP II was established to recognize employee actions, behavior and/or job performance that result in improved health and safety conditions at the center.

There are four levels of awards, tier four being the highest level of achievement. The ASAP II board evaluates each nomination and selects the tier level that most represents the actions and accomplishments of that nomination.

The highest individual awards given this quarter were to Leonard Hee for his work to ensure safety of human test subjects where there may be risk of electrical shock and to Robert Walker for reducing noise levels at the interstellar simulation chamber in Building N-245. A team of 24 individuals was recognized for its work to mitigate legionella hazards from the water system, and a team of six individuals was recognized for its work to re-evaluate confined space hazards in the wind tunnels. The names of the awardees are listed below.

### **Tier Level 3 – Individual awards**

Leonard Hee  
Robert Walker

### **Tier Level 3 – Team awards** **Legionella Remediation Team:**

Stan Phillips  
Daniel Hang  
John Steen  
Herb Hickman  
David King  
Jay Leung  
Shawn Puma  
Craig Martin  
Phil Ting  
Jenny Vodvarka  
Lynne Keswani  
Peter Wan  
Roger Miller  
Mike Norrdin  
Kelly Kasser  
Ariel Vitali  
Steve Frankel  
Gladys Chandler  
Tony Wong  
Peter Chan  
Greg Altberg  
Ramon Backlit  
Tom Biggs  
Manny Castillo

### **Code FO Confined Space**

**Action Team:**  
Dan Bufton  
Scott Nikodym  
Frank Kmak  
Leroy Wilkinson  
Morrow Whitcomb  
Phillips Stich

### **Tier Level 2 – Individual awards**

Mark Hightower  
Kenneth Kono  
Grace Ann Weiler  
James Heineck

### **Tier Level 2 – Team awards** **Code FM Safety Committee:**

Ryan Christianson  
Bob Dorn  
Marty Galinski  
Garry Hallock  
Shawn Meszaros  
Damon Flansburg  
Richard Swain

### **Tier Level 1 – Individual awards**

John Segreto  
Kelly Kasser  
Vito Parado  
Jeanie Howard  
Joan McCullough  
Karen Bunn  
Myesha Domino

### **Tier Level 1 – Team awards** **SOFIA Lower Flexible Door**

#### **Technical Support Team:**

Don Lefforge  
Tom Gilertson  
Douglas Krause  
David VanSickle  
Garry Boub  
Felipe Ugale  
Garret Nakashiki  
Robert Berger  
Gary Parola  
Jim Lesko  
John Torres  
Marty Galinski  
Ron Hovland  
Terry Bland

### **International Space Station Test** **Bed Centrifuge Code FE**

**Design Team:**  
Phil Canlas  
Dan Kalcic  
Dan Dittman  
Mark Mallinson  
James Williams  
Peter Graube

James Hanratty  
Boris Ilinets

### **Systems Engineering Division** **Code FE Safety Committee:**

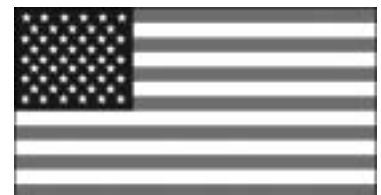
Ron Mancini  
Kim Wagenbach  
Rebecca Averill  
John Segreto  
Kevin Carey  
Jerry Wang  
Jim Daniel

### **NASA Astrobiology Institute** **Central Team:**

Wendy Dolci  
Rosalind Grymes  
David Morrison  
Kristina Wilmoth  
Jeni Joiner  
Kaye Faria  
Patricia Gregory  
Darlene Gadd  
Edward Goolish  
Lisa Faithorn  
Daniella Scalice  
Janet Morrison  
Julie Fletcher  
K. Estelle Dodson  
Shige Abe  
Marco Boldt  
Madelyn Edwards

Each of these employees and teams was nominated by their colleagues for their outstanding actions and accomplishments in improving health and safety conditions at Ames.

*Remembering  
those who lost  
their lives in the  
tragic events of  
Sept. 11, 2001*





# Presidential Rank and NASA Honor Awards 2003 given

The 2003 Presidential Rank and NASA Honor Awards ceremony for Ames was held in July. Ames presented Presidential Rank and NASA honor awards to the 30 employees who had been selected for individual awards and to the managers of the 17 groups which had been selected for the NASA Group Achievement Award.

Presidential Rank of Distinguished Executive  
Nancy F. Bingham

Outstanding Leadership Medal

Dwight L. Balough  
Denny S. Chaussee  
Dennis Cunningham  
David J. Des Marais  
Jolen Flores  
Michael J. Green  
Rosalind A. Grymes  
William S. Hindson  
Michael R. Landis  
J. Victor Lebacqz  
(to be presented at NASA Hqs)

Exceptional Scientific Achievement Medal  
Farid Salama

Exceptional Technology Achievement Medal  
Karl D. Bilimoria  
David A. Stewart

Exceptional Administrative Achievement Medal  
Femy D. McGrath

Exceptional Achievement Medal  
Michael S. Craig  
Laura W. Doty  
Patricia C. Morrissey  
Amber K. Sutton  
Kevin R. Wheeler

Public Service Medal  
Juan Perez-Mercader  
Linda Vrabel

Public Service Group Achievement Award  
Moffett Training and Conference Center (MTCC) Team



NASA photo by Tom Trower

*Vic Lebacqz, acting associate administrator, Office of Aerospace Technology at NASA Headquarters (left) shares a light moment with other award recipients at the recent Presidential Rank and NASA Honor Awards 2003.*

Exceptional Service Medal

Gary J. Atkins  
Daniel A. Heacock  
Kelly J. Kasser  
Maria-Elena Lopez  
Roger A. Miller  
Nicola Muscettola  
John R. Ray  
Huy K. Tran  
Charles E. Wade

Group Achievement Award

Advanced Aircraft Program Technology Development and Flight Test Team  
Ames Freedom to Manage Team  
CRYSTAL-FACE Science Team  
Environmental Impact Statement Team  
Global Hawk Wind Tunnel Test Team  
Increment-4 Project Team  
Investigation Organizer Team  
Legionella Treatment Plan Development Team  
Mail Services Center Team  
NASA Ames Research Center Export Compliance Office Team  
NASA Ames Support Team for Mars Exploration Rover (MER) Entry Descent and Landing (EDL)  
NASA Public Key Infrastructure Group  
Rotorcraft Aircrew Systems Concepts Airborne Laboratory (RASCAL) Team  
UAV Coffee Harvest Optimization Project Team  
UAV Real Time Fire Response Experiment Team  
UH-60 Individual Blade Control Team

## Desilvestre appointed executive assistant

Ingrid Desilvestre has been appointed executive assistant to Center Director Scott Hubbard as of Aug. 24, 2003.

Desilvestre began her career with NASA in 1987 as an international programs specialist, supporting cooperative activities with the then Soviet Union. During the next 15 years, she worked in a series of highly demanding positions requiring exceptional communication skills and the ability to work in rapidly changing environments in both international and national arenas. Her assignments included negotiations and interactions in highly sensitive areas with high-level government, academic and industry officials. She also advised senior NASA managers on foreign developments and opportunities of interest to NASA. Desilvestre drafted and negotiated numerous international agreements that achieved well-defined programmatic or budgetary benefits to NASA.

In 1999, she became NASA's Spain

representative in Madrid. In this role, she had oversight of NASA's interests in the Madrid Deep Space Communications Complex. She served as the liaison between the complex, the Jet Propulsion Laboratory and NASA Headquarters. She led negotiation of the U.S.-Spain agreement for the complex that resulted in a major tax concession from the European Union.

Desilvestre earned a bachelor of arts degree in political science and history from Wellesley College, and a master of international affairs degree from Columbia University's School of International and Public Affairs, with specialization in international political economy and western Europe.

Spain awarded Desilvestre the Aeronautical Cross in 2001 and in 1998 she was awarded the NASA Exceptional Service Medal.

Her office is located in Building 200, room 232, mail stop 200-1A. Her telephone extension is 4-6202.

## Online course to be broadcast from Mars analog

'Searching for Aliens 101' will be offered as an online, one-unit course at



The online 'Searching for Aliens 101' class will be broadcasted live from Rio Tinto. Pictured here is the telecommunications equipment.

San José State University this coming fall. Perhaps a few liberties have been taken with the course title, but the subject matter of the class is essentially just that.

For the last couple of months, NASA has been working hand-in-hand with the Centro de Astrobiología (CAB) and Instituto Nacional de Técnica Aeroespacial (INTA) while drilling for anaerobic bacteria in Rio Tinto, a sparsely populated region in Spain. The Earth has an unusually high concentration of iron in Rio Tinto; so high, in fact, that the water actually runs red in certain spots. The high iron concentration has created unique biological conditions in the region—conditions so unique that NASA is using it to test drill equipment bound for Mars in 2009. While the atmosphere of Mars makes the support of oxygen-demanding life impossible, the existence of subterranean, anaerobic bacteria is a possibility. Not exactly 'E.T.' or 'the Predator' but aliens nonetheless.

Starting on Sept. 29, NASA and INTA scientists will deliver a total of eight online lectures for students attending a one-unit class at San José State University. While online courses are certainly not unprecedented, the online Mars course is the first of its kind—never before has an online course been broadcast from such a remote location.

"The course will bring NASA science and engineering into the classroom like never before," said Matt Sorgenfrei, a NASA employee working on the project at Ames. "Students will actually be able to see scientists doing work in the field as it is happening," he said.

The eight lectures, which will be split by four NASA scientists and four

INTA scientists, will start at 7 a.m. (PST) and last for approximately one hour each. The last 15 minutes of each class will be saved for student questions arriving via a scrolling chat window(s). The course could contain practice quizzes after every lecture and will culminate in an online exam and an essay. NASA hopes to attract 100 registered students to the class and has swallowed 80 percent of the registration fee (making the registration cost \$44) in an effort to meet this goal.

While the lectures will be geared toward the registered students, NASA hopes to get as many people auditing as possible. The online lectures are open to the general public and will be kept in archives for those unable to view them as they happen.

## NAS division secretary passes away

You had to be quick to get past Valerie Steele. Among her duties as secretary for the NASA Advanced Supercomputing (NAS) Division office, Val managed the constant stream of staff wanting 'just a minute' with division managers. While she effectively juggled her bosses' schedules, occasionally she'd let you slip by if you gave her that pleading look she couldn't resist. Sadly, Steele passed away unexpectedly on July 8 from a brain hemorrhage.

Steele was born on March 14, 1951 in East Port, Maine, where parents Daniel and Lorraine raised Steele, her sister and four brothers. The family are members of Maine's Algonquin-Passamaquoddy tribe.

After graduating from high school in Maryland, Steele began to work in the credit department at Jordan Marsh Department Store, followed by two years as a hairdresser. Steele was then off to Boston to work as an administrative assistant at the New England College of Optometry, where she worked for 10 years. Later, after a short real estate venture, Steele served as administrative assistant at Exceptional Parent magazine.

At a ski weekend in New Hampshire, Steele met and later fell in love with Jeff Steele. They married in May 1981 and had two daughters, Nicole and Laura.

Jeff's work soon brought them from Massachusetts to California. She and Jeff started their own business called Clean Sweep, where they specialized in helping owners sell the contents of their homes and preparing them for sale. A job at Moffett Field eventually led to her position in the NAS Division at Ames.

Steele's soft spot for animals brought many critters through her home. Friends often joked that the county animal shelter lost business because of Steele's open-door policy. Cats, dogs, hummingbirds,

The online Mars course, along with several other educational programs being designed at Ames and other NASA centers, provides NASA with a venue to share its technology and information with both educational institutions at all levels and the general public. Those involved in creating the course hope to set off a chain reaction spawning several others. Soon, perhaps online courses featuring scientists in the field will be commonplace both nationally and globally. After all, watching how scientists plan on searching for extra-terrestrial life certainly sounds more exciting than a whole host of other electives.

For more information, visit: <http://robotics.nasa.gov/courses/fall2003>

BY RYAN TIFFANY ▲

ducks—you name it, Steele took care of them all.



Valerie Steele

She is remembered by friends as often thinking of others before herself. At Ames, she was always first in line to organize barbecues and holiday parties. She was really enthusiastic when it came to brewing up a mean pot of award-winning chili at Ames' annual cook-off.

Steele is greatly missed by her friends and coworkers here at Ames. At a memorial service held in Campbell on July 13, Rev. William Johnson shared a prayer that fittingly reflected Steele's love of nature. According to Indian legend, "a wish that is whispered on the wings of a butterfly will be carried silently to the heavens and granted, for they are the messengers of the Great Spirit." The prayer reads, in part: "Bless me with the ability of a butterfly to create and instill the feeling of wonder, passion and excitement towards all of your living creatures."

Family members appreciate donations made to the Humane Society Silicon Valley, 2530 Lafayette Street, Santa Clara, CA, 95050.

## DART sponsors training for top national disaster responders

More than 30 search-and-rescue experts took part in a 6-day, 70-hour training exercise at NASA Ames in late August. The final exercise -- responding to a simulated collapsed-structure incident involving weapons of mass destruction -- included more than 75 rescue specialists, heavy equipment operators, haz-

ardous material response specialists, emergency communications specialists, emergency medical technicians and canine search teams. thoughts and feelings, and staying focused on the task at hand, are issues rescue specialists must face when working in a collapsed structure, Dolci added.

In addition to the training exercises, NASA Ames and NASA's Jet Propulsion Laboratory (JPL), Pasadena, Calif., displayed a variety of NASA-developed technologies of potential importance to urban search and rescue. "We wanted to use this opportunity to highlight how important technology development is to the emergency responder, and to better understand technology needs and priorities to make the emergency response task safer and more effective," Dolci said. Many of the participating rescue specialists expressed considerable interest in and enthusiasm for the technologies being showcased.

Building on knowledge gained from responding to the World Trade Center disaster and in light of the difficulties posed by weapons of mass destruction in the collapsed-structure environment, DART officials also used the weeklong exercise to update future collapsed-structure training classes.

The final exercise took place at DART's unique collapsed-structure training facility near Bldg. N-267. The site includes a large concrete rubble pile with built-in voids and rooms, a simulated concrete collapsed structure, a 30-foot-long twin-engine aircraft 'crashed' into a portion of the collapsed structure, and large concrete loads for lifting and moving. Other features include a hazardous materials field training facility, high-angle rescue training towers, and confined-space and trench-rescue training props.

Many of the participants were from three of California's eight urban search-and-rescue teams, who are considered to be some of the best in the country, Dolci said. Other participants came from Delaware, North Carolina, Washington state and Washington, D.C. Nearly all of the participants previously have taken part in the annual collapsed-structure rescue class at NASA Ames as students or instructors.

NASA Ames, JPL and California Task Force 3, sponsored by the Menlo

Park, Calif., Fire Protection District, sponsored this year's final scenario. More



NASA photo by Jon-Pierre Wiens

Search-and-rescue teams at the recent training exercise at Ames.



NASA photo by Eric James

The collapsed-structure training facility at Ames, which was used during the recent disaster response exercises, provides an excellent and realistic learning experience for 'first responders.'

information about DART is available at: <http://dart.arc.nasa.gov>

BY ANN SULLIVAN

ardous material response specialists, emergency communications specialists, emergency medical technicians and canine search teams.

"We are very proud of our disaster assistance team's accomplishments and service to the public in previous national disasters," said NASA Ames Director G. Scott Hubbard. "We're honored that the collapsed-structure facility at NASA Ames was used for training emergency first-responders from all over the country."

Members of the NASA Ames Disaster Assistance and Rescue Team (DART) have responded to disasters such as the Loma Prieta and Northridge earthquakes, the Oklahoma City bombing, and the Sept. 11, 2001, collapse of the twin towers at New York City's World Trade Center.

"This was an opportunity for invited observers to experience first-hand what rescue specialists think and feel when they work in a collapsed structure," said Robert J. Dolci, director of emergency services at NASA Ames. "Can you imagine the oppressive feeling of crawling through a tiny tunnel carved through twisted concrete and steel? Do you know what it's like to not know if the next space you enter will have enough oxygen left to keep you alive? To wonder if you'll have to recover more bodies before you find your first live victim?" Dealing with these

## Astronomy lecture series presents

On Wednesday, Oct. 8, at 7 p.m., the Silicon Valley Astronomy Lecture Series will present a non-technical illustrated talk, given by David Des Marais of NASA Ames on 'The Mars Exploration Rover Mission: Following the Water.'

Des Marais, a member of the science operations working group for the mission, will describe the plans for landing two advanced rovers on the surface of the red planet in January. Both rovers will have instruments on board that can act as 'robot geologists,' searching for evidence of past water on our neighbor planet.

The talk will be held in the Smithwick Theater, at Foothill College, on El Monte Road and Freeway 280, in Los Altos Hills. The event is free and open to the public. Parking on campus costs \$2. Call the series hot-line at (650) 949-7888 for more information.

The event is co-sponsored by NASA Ames, the Foothill College Astronomy Program, the SETI Institute and the Astronomical Society of the Pacific

# Leaders discuss nanotechnology market

*continued from front page*

discipline will come to maturity during this century and will revolutionize our way of life more than any other technology preceding it," said Center Director G. Scott Hubbard. "Those of us who come together here today realize that the R&D community is on the verge of significant scientific discovery and soon will help bring the nanotechnology revolution front and center in the lives of all who inhabit this planet."

Nanotechnology is the creation of materials, devices and systems through the control of matter on the nanometer scale. A nanometer is one-billionth of a meter. Scientists say nanotechnology could lead to changes in almost everything, from computers and medicine to even automobiles and spacecraft.

"Nanotech represents the 'next best thing' to come after the great high-tech boom that is the basis of our regional economy, and it is important that we do all that we can to ensure that as the field grows, the Bay area shares in that growth," Honda said. "A visit to NASA Ames in early 2002 was when I first became very excited about the potential of this new technology and began to focus on both the funding and policy issues related to nanotechnology," Honda explained.

U.S. Representative Zoe Lofgren, a co-sponsor of H.R. 766, said that the local economic situation is "grim in this area where one-third of households have experienced layoffs" in recent years. She said that she and Honda have seen the Silicon Valley transform into a high-technology center because of investments. The National Science Foundation (NSF) predicted that the worldwide market for nanotechnology products and services could reach \$1 trillion by 2015, according to Honda.

"Just as computers have transformed the way our society operates over the last 30 years, nanotechnology stands ready to transform our future," said U.S. Representative Anna G. Eshoo in a statement read to the crowd by Hubbard.

"As part of our pursuit of NASA aeronautics and space programs, NASA Ames is working to fuse information technology, biotechnology and nanotechnology R&D," Hubbard explained. "This will facilitate NASA's ability to achieve the nation's goals in aeronautics and space. We can reduce the cost of space exploration, bring back better information and help determine whether there is life beyond our planet,"

Hubbard said.

The agency's first priority is to use nanotechnology research to further the mission of America's space program, according to Hubbard. "In doing so, America will be stronger as space travel becomes easier," Hubbard stated.

"NASA's interest in nanotechnology is that it will result in stronger materials, ultra-small electronic devices, perhaps even intelligent spacecraft. Miniaturization also may well enable new space missions with lower-weight parts requiring less power and fuel," Hubbard said.

The Boehlert-Honda Bill, H.R. 766, passed the U.S. House of Representatives by a vote of 405 to 19 in May. The U.S. Senate also has a nanotechnology bill. Honda said he expects the House and Senate will work out a compromise version.

"We are now waiting for the Senate to act on its own nanotechnology bill, which differs slightly in its details from the House bill," Honda said. "President Bush has expressed his support, however, so I expect the bill to come to the Senate floor for approval when we return this fall, a compromise to be worked out, and the bill to be signed by the president," Honda explained.

"The largest chunks of the funding in the bill will either be directed to programmatic efforts of the agencies (to centers and projects at the national labs run by the Department of Energy and facilities such as NASA's nanotechnology center here at Ames) or be distributed through peer reviewed grant competitions (NSF), which academic researchers are quite familiar with," Honda said.

Some nanotechnology advances that scientists expect will benefit NASA include integrated nanosensors that will collect, process and communicate massive amounts of data, said Meyya Meyyappan, the director of the Center for Nanotechnology at Ames, who presented a major talk during the forum. He predicted that 'nano' will enable higher transmission frequencies to increase bandwidth, and permit at least 10 times more data to be sent from spacecraft and other scientific platforms to researchers.

Nanotechnology will impact computing and data storage, materials and manufacturing, health and medicine, energy and environment, transportation,

national security and space exploration, according to Meyyappan

Following the talk by Meyyappan, experts conducted four panel sessions: the federal labs panel, including NASA, Lawrence Livermore National Laboratory, Sandia National Laboratories, Lawrence Berkeley National Laboratory; the industry panel, including Hewlett Packard, Intel, Solectron, Agilent and ChevronTexaco Technology Ventures; the University panel, including Stanford, University of California-Berkeley, University of California-Santa Cruz, and Santa Clara University and finally a Bay area resources panel, including Joint Venture Silicon Valley, Silicon Valley Manufacturing Group, Northern California Nanotechnology Initiative, and the Bay area Science and Innovation Consortium. Joe Natoli, San José Mercury News publisher, introduced the Early Stage Nanotechnology Company keynotes: Dr. Stephen Empeceles of Nanosys and Dr. George Gruner of Nanomix.

Michele Senders, field representative from Sen. Dianne Feinstein's office, moderated the federal labs panel. Dr. Eric Werwa of U.S. Representative Mike Honda's Washington office moderated the industry panel. Adrienne Bousian, the Northern California director of Sen. Barbara Boxer's office, led the university panel. The Bay area resources panel also made presentations, and was moderated by Heather Barbour, principle consultant for the Joint Committee for Preparing California for the 21st Century, California State Assembly. Dr. M.R.C. Greenwood, chancellor of the University of California, Santa Cruz, served as master of ceremonies.

Forum co-sponsors included the Northern California Nanotechnology Initiative; the city of Sunnyvale, Calif.; the city of Mountain View; city of Palo Alto; the North Valley Job Training Consortium, Sunnyvale; the Bay Area Science and Innovation Consortium; the Joint Venture Silicon Valley Network; and the Silicon Valley Manufacturing Group.

More information about NASA nanotechnology can be found on the Web at: <http://www.ipt.arc.nasa.gov>

Additional information about the forum and some presentation notes are available on the Internet at: [www.bayareananoforum.org](http://www.bayareananoforum.org)

BY JOHN BLUCK 

## A message from the deputy director

It is of the utmost importance that all of us at Ames do everything in our power to ensure the safety and security of the people who work at and visit our center, and to protect the institution's property, facilities, operations, functions and products.



To that end, Director Scott Hubbard and I have delegated frontline responsibility for maintaining the safety and security of the center to the professional men and women of the Ames' Protective Services Office. However, they cannot fulfill their mission without the complete cooperation, understanding and support of every one of us.

Understandably, sound and prudent security measures often result in minor inconveniences to our daily lives. One obvious example is the rigorous security screenings that we are now required to undergo prior to boarding an aircraft at any of our nation's airports. After the tragic events of September 11, 2001, however, most travelers would agree that, while it is inconvenient, security screening is a necessary and prudent measure to ensure the safety of commercial airline passengers.

Similarly, we must bear in mind that, as employees and contractors of the U.S. Government working on a federal facility, we too have an extraordinary level of threat. As the world witnessed at the Alfred P. Murrah building in Oklahoma City and at the Pentagon in Washington, D.C., any and all federal employees and facilities are potential targets of individuals wishing ill will against the United States.

Like our nation's airports and other federal facilities, Ames has implemented security measures that may, on occasion, cause inconvenience to our daily routine. One such measure is the center's 'inspection program.' This program is designed to prevent the introduction to Ames property of weapons or dangerous materials capable of causing injury or damage to persons or property. It might interest you to know that the inspections (conducted pursuant to Title 14 Code of Federal Regulations, Part 1204) have prevented 21 illegally pos-

sessed firearms and dozens of other dangerous weapons from entering our installation this year alone.

Employees are reminded that, pursuant to federal regulations and as clearly posted at each entry point to NASA Ames, "entry into, continued presence on, or exit from, this installation is contingent upon your consent to inspection of person and property."

Another critical function performed by the law enforcement officers of the Protective Services Office is enforcement of the center's traffic rules and regulations. Already this year there have been over 47 reported vehicle accidents on Moffett Field. Moreover, during the past few years, Ames has experienced several very serious traffic accidents, including a fatality resulting from running a stop sign, a pedestrian hit by a vehicle while in a cross walk resulting in a fractured pelvis and a vehicle roll-over due to excessive speed in a turn. Your compliance with the traffic rules and regulations is vital for your safety and that of your fellow workers at the center.

It should be noted that qualified and trained special agents and officers of the Protective Services Office are granted statutory authority to carry firearms and make certain arrests pursuant to 42 United States Code, Sections 2456 and 2456a. They serve as the 'first responders' to 9-1-1 calls for all law enforcement-related matters on the installation. Just recently, these agents and officers were part of a coordinated response to the theft of an automobile and an alleged assault and battery. In performing their critical role of ensuring the safety and security of the center, these individuals need the cooperation of all those they strive to protect.

Recently, it has come to my attention that instances have occurred where employees have failed to comply with the directions of our law enforcement officers, including failure to pull over for the red lights and siren of a patrol vehicle. This is not acceptable and this behavior will not be tolerated. The senior management of this center fully expects all employees to comply with any appropriate direction of a NASA special agent or security/law enforcement officer issued in the performance of their official duties.

The men and women of the Protective Services Office place themselves in potential danger on a daily basis to guarantee our safety and security as well as ensuring that the agency and the center can fulfill its mission. It is the expectation of Ames management that they receive the cooperation and respect of every one of us within the Ames family.

We thank you for your assistance and support on this important matter.

## CAIB cites

*continued from front page*

Hubbard said that the board believes NASA must change its approach requiring the need "to prove that it is safe, not prove that it is unsafe." He said the board found that, in NASA, there was a "belief that past success guarantees future success." Hubbard observed that, in the first 50 years of aviation, one million airplanes were built, whereas in the first 50 years of space exploration, there have been only 4,500 launches. "We are still in the infancy of space exploration," he pointed out.

In a news conference with national media representatives on Aug. 27, Administrator O'Keefe said, "We got the point," acknowledging that NASA needs to examine its procedures and the "way we do business."

"This is a very different NASA today than it was on Feb. 1," O'Keefe said, noting that he has almost completely rebuilt the senior management team since his arrival at NASA about 18 months ago. Still, there must be "long-term institutional changes and a new set of values," he acknowledged. "Safety is everyone's responsibility," he reiterated.

We must be as resolute and courageous as the crew's families have been, O'Keefe concluded. "We will go forward with great resolve to follow" the board's blueprint to make human space flight safer, he promised. He added that shuttle flights will only resume "when we are fit to fly."

Later that week back at Ames, Hubbard met with local reporters in a media roundtable to address issues and answer questions. He stressed that the board's intent was "to create a framework for a national debate on the future of space exploration." Representatives from local ABC and NBC television broadcast affiliates, the San Francisco Chronicle, the San Jose Mercury News, the Mountain View Voice, and KCBS and KQED radio were on hand to engage in a dialogue with the Ames director. Earlier in the day, Hubbard had appeared live, in studio, on San Francisco KRON TV's morning show.

One final thing Hubbard made clear to everyone was that, despite the extensive set of recommendations, the board found far more good things within NASA than problems. "The board felt very strongly that the unique exploration that we do justifies the risk," Hubbard said, "as long as we understand it and mitigate it." Indeed, as he had observed at the earlier update with NASA employees, "The board supports the exploration of space. The board supports continuing to fly the shuttle."

BY DAVID MORSE ▲

## Remotely piloted airplane to monitor grapes

A small, unmanned aerial vehicle (UAV) recently made test flights over the world's largest vineyard in Califor-

ture monitoring, it is a very imprecise process," said San Bernabe's chief operating officer, Claude Hoover. "Given the

trends and rates of change will help vineyard managers to make key decisions about the timing of irrigation treatments.

"In contrast to UAV sensors, handheld or vehicle-mounted, frost-monitoring systems are labor intensive," Herwitz said. "It simply is not possible to have a work force distributed over a 20-square-mile stretch of vineyard, such as San Bernabe's, throughout the night. Work fatigue at night is a compounding issue. In addition, sampling on the ground is restricted to road networks, and, as a result, fails to sample high-risk zones in the field interiors," he explained.

Once more, stationary ground-based sensors that make up frost alarm networks are limited in number and require labor-intensive maintenance, according to Herwitz. "These ground-based sensors also are vulnerable to disturbance and degradation by farm operations, wild animals such as rodents and exposure to the weather."

"Fee-based Web site weather data are not specific to the geographic units for where frost control measures might be needed," he added.

Smaller UAVs, like the one flown during the recent grape test missions, cost less than larger UAVs. In addition, recent advances in navigation systems make small UAVs easier to fly. A wireless computer local area network (LAN) operating in the unlicensed 900 MHz radio band will provide instrument control and data downlink of images and other information at up to a 75-kilometer (almost 50-mile) range. A portable radar system was another important component used during the mission to monitor the activity of other aircraft flying in the vicinity of the tests in the national airspace.

Researchers will share the results of their March-to-May 2004 UAV frost-detection mission at the annual meeting of the California Vintners' Association. "The long-term commercial significance of our new technology is its potential value to the wine vineyard community throughout the north and central coast regions of California, which are subject to extremely variable seasonal frost conditions," Herwitz said. The technology also may be good for use in other grape and orchard regions, such as Washington and Oregon, Herwitz concluded.



NASA photo by Dominic Hart

The unmanned aerial vehicle mission team shown here with the UAV.

nia to prepare for nighttime frost studies early next year.

The UAV--a remotely piloted aircraft--is bigger than a model airplane but smaller than a light plane. NASA Ames, university and industry teams are testing the UAV, its imaging and other data-collecting systems, as well as preparing the test team. The test flights took place over San Bernabe Vineyard, which is located just west of King City, Calif., and midway between Salinas and Paso Robles, about 50 miles from the two.

"We are developing wireless operation of a new sensing device that will remotely gauge temperature and other conditions while flying over the grapes," said Stanley Herwitz, director of the Clark University UAV Applications Center at NASA Research Park, at NASA Ames. He also is a professor of Earth science from Clark University, Worcester, Mass.

Remote sensing is the use of sensors by satellites and aircraft to take images of parts of the Earth's surface in many wavelengths, some beyond the reach of the human eye. This technology enables scientists to quickly deduce surface conditions over a wide area, the equal of hundreds of hours of observation on the ground.

"Even though management has significant historical experience in tempera-

ture monitoring, it is a very imprecise process," said San Bernabe's chief operating officer, Claude Hoover. "Given the high cost and potential limited resource availability for frost protection, improving the accuracy and timeliness of information can have significant economic benefit," Hoover explained. Frost damage can decrease annual grape yields by more than 50 percent, according to Hoover. Such a decrease would amount to a loss in revenue of more than \$12,000,000 for this vineyard alone.

"The flight window over the vineyard will be from midnight to 6 a.m. PST," Herwitz said, describing next year's mission. "Fixed flight lines over the vineyard will be flown repeatedly. The imagery will be downlinked to our ground station that will be established in the vineyard data management office located less than 100 meters from the vineyard's private airstrip," he added.

The UAV airplane will transmit thermal images and global positioning system (GPS) information to be overlaid on irrigation maps, showing how the small UAV can help grape growers monitor frost in large areas of vines. "The per image delivery time to the vineyard manager will be within 15 minutes of acquisition," Herwitz said.

This technology also may be useful for monitoring orchards and other frost-sensitive crops. The UAV's infrared camera systems are calibrated to read out temperature directly. Thermal images from the UAV showing temperature

## New UAV center dedicated at NASA Research Park

New and exciting uses for unmanned aerial vehicles (UAVs) will be the focus of a new applications center that was dedicated in August at NASA Research Park (NRP).

The dedication was the official opening of the renovated historic Bldg. 18, which was once used by the U.S. Navy. The building's third floor, which served as a weather center for the Navy for many years, is where the UAV Applica-

speakers at the dedication, in addition to Clark University President John Bassett and Nancy Budwig, the university's dean of research. Paul Coleman, president of the Girvan Institute of Technology, Moffett Field, also spoke. Girvan is a non-profit corporation chartered to foster public-private partnerships for NASA.

"The main objective of the new center is to demonstrate both the research and commercial

uses of UAVs equipped with sensors," said Dr. Stan Herwitz, director of the new center at NRP and professor of Earth science from Clark University located in Worcester, Mass. "Although UAVs now must have special permits from the Federal Aviation Administration to fly in conventional air space, UAVs may well be treated by air traffic controllers like conventionally piloted aircraft in the future. Our research takes that into account," Herwitz added.

"The success of the UAV coffee mission last summer in Hawaii enabled Clark University to establish the UAV Applications Center," Herwitz explained. His team received a group achievement award from NASA for the UAV coffee demonstration project that the team conducted in Hawaii in 2002.

"I gave the UAV Applications Center's first honorary award to Robert Higgins for his significant contributions that helped us immensely in conducting a successful mission." Higgins is a retired contractor who worked for the Ecosystem Science and Technology Branch at Ames for more than 20 years. "You can't find a more reliable guy," Herwitz said.

For several years, the scientists and engineers of the Ecosystem Science and Technology Branch at Ames and its partners have been developing technologies to monitor wildfires, floods, crops and various regions on Earth using an array of remotely piloted aircraft. The new Unmanned Aerial Vehicle Application Center will bring together NASA, other government agencies, universities, students and industry to further develop UAV technologies and applications.

"We plan to provide new, challeng-



Stan Herwitz and Robert Higgins unveiling the UAV Applications Center Clark University sign in August.

tions Center is now housed.

The Ames jazz band provided a festive mood for the occasion as people toured various displays on all three floors of Bldg. 18. More than 200 people attended events inside and outside the building.

Displays included UAV airframes, payloads, tracking antennas, and a running music video documenting the UAV coffee mission over Hawaii last year during harvest time. Among the UAV payloads on display were the thermal sensor for an upcoming UAV fire mission, the hyperspectral imager for the UAV vineyard mission, and the two digital imaging pods that flew on the solar-powered Pathfinder-Plus UAV over Hawaii. The small gas-powered Bat UAV from MLB, Inc. and a small, solar-powered UAV from AC Propulsion, Inc., were on display outside Bldg. 18.

"The UAV Applications Center embodies one of our major goals - to encourage NASA, governments, academia and industry to work together," said G. Scott Hubbard, director of NASA Ames. "By combining our knowledge, cooperative efforts like this one create great opportunities for inventing even better technology," he added.

Hubbard was one of the keynote



NASA photos by Dominic Hart

The new unmanned aerial vehicle (UAV) applications center dedicated at NASA Ames in August is shown above. It will be used to conduct collaborative research and development, leading to enhanced scientific and commercial use of UAVs for high-resolution imaging in the FAA-controlled national airspace system.

ing educational opportunities and transfer innovative technology to the marketplace," Herwitz said. One of the components of the educational plan is to bring university students to the UAV center to analyze aerial images and other UAV-acquired data.

The U.S. Forest Service is interested in learning how to use UAVs to monitor wildfires, according to Herwitz. "We are working to enhance remote-sensing capabilities by UAVs functioning like mobile satellites," he explained. Remote sensing is the use of sensors by satellites and aircraft to take images of parts of the Earth's surface in many wavelengths, some beyond the reach of the human eye. This technology enables scientists to quickly deduce surface conditions over wide areas. Long-duration UAV missions will provide data equivalent to hundreds of hours of observation on the ground.

UAVs also may be used for homeland security, monitoring disaster emergency response or any other airborne use that involves near real-time data transfer to end users.

A UAV aircraft designer is now housed on the second floor of Bldg. 18 in the NASA Research Park.

More information about the UAV center is on the Web at: <http://www.uav-applications.org>

BY JOHN BLUCK ▲

# Recycling is easy at Ames

At Ames, we recycle the following items:

- Aluminum, glass and plastic containers
- Batteries
- Cardboard
- Chemicals
- Toner cartridges
- White and mixed paper
- Books, wood, scrap metal and other commodities for recycling or for reuse

## Aluminum, glass and plastic containers

Code JFS has begun a pilot program for the collection of glass, plastic and aluminum beverage containers only. Look for the blue plastic recycling bin near your work area. New buildings are being added to the program weekly, but if collection containers have not yet been placed in your building, notify Jeanne Jarvis at ext. 4-5672 for schedule information. One container will be used for the collection of plastic, glass and aluminum cans with the commodities being separated after collection.

## Batteries

Batteries are considered to be a 'universal waste.' Here at Ames, they are recycled through our hazardous waste program. To recycle batteries:

1. Fill out Form A - the hazardous waste/material pickup request form; and
2. Submit the form to PAI Corporation at M/S: 221-10. PAI will pickup the batteries and send them for recycling.
3. All batteries should be labeled with a universal waste label.

A sampling of the types of batteries the hazardous waste program currently accepts includes: alkaline, mercury, lithium, magnesium, nicad and lead acid.

## Cardboard

Cardboard recycling collection cages are located in over 50 places throughout Moffett Field. The collection cages are collected once a week or as needed or requested. Full cardboard cages are collected and transported to the cardboard baler where they are baled, banded and staged for pickup by Weyerhaeuser Paper Company.

- **Acceptable cardboard:** Put only clean, broken down and flattened cardboard in these containers and close container lids to keep cardboard contained and dry.
- **Unacceptable cardboard:** Waxed cardboard or cardboard that had previously contained food (pizza boxes, etc.) can not be added to cardboard collection cages.

## Chemicals

Chemical items that are still in the original containers, unopened and in good condition may be donated to the Ames Chemical Exchange (ACE) if:

1. They are labeled. Fill out Form A, the hazardous waste/material pickup request form and check the box 'reuse' under handling instructions. Visit the Internet at: [http://q/qe/forms/chem\\_pickup\\_Form-A.pdf](http://q/qe/forms/chem_pickup_Form-A.pdf) to download the form;

2. Place items at the pickup location used for your hazardous waste. Do not label containers with yellow 'hazardous waste' labels; and then

3. Submit the form to PAI at M/S: 221-10. PAI will pickup and deliver the items to the appropriate storage facility. These items will be added to the ACE list.

## Toner cartridges

Users can recycle empty toner cartridges by using the original carton and affixing manufacturer's (enclosed pre-addressed return label) to the original packaging after sealing. In the event that no label is available, then seal and write 'recycle' or 'used' on the carton. Place carton containing empty cartridges next to either paper recycling set-up or delivery point for pickup. The empty cartridges are then returned to manufacturers.

## White and mixed paper

A paper recycle collection setup consists of one stand, one white bag for white paper and one blue bag to hold mixed paper. Put only white paper in the white recycle bags and mixed colored paper in the blue bags. Do not mix the two types of paper together. Please follow the 'acceptable/unacceptable' guidelines when sorting paper for recycling. The center also provides a sensi-



Left to right: Blue is for mixed paper and white is for white paper. Far right is the container for recycling glass, plastic and aluminum bottles.

tive, privacy act material paper pickup and shred service. Shredded paper must be either put into sealed clear bags or regular plastic bags labeled 'shredded paper.'

## Acceptable white paper

White letterhead, copy machine paper, white tablet paper, misc. computer paper, laser print paper, misc. white paper, staples and paper clips are okay.

## Acceptable mixed paper

Post-it notes, colored paper, white and pastel envelopes (windows okay), coated papers (fax, brochures, no glued bindings), carbonless forms and file folders, paper ream wrappers, magazines and newspapers, shredded paper, large quantities of paper for recycling, such as paper from office moves, phone books, etc.

## Nonacceptable in paper

Carbon, phone books, cardboard, rubber bands, metal fasteners, food wrappers and paper towels.

## Miscellaneous items

Code JFS also collects books, wood, scrap metal and other commodities for recycling or for reuse. For questions about these materials or any other not listed here, call Jeanne Jarvis at ext. 4-5672.

For more information about used chemicals or batteries, call Dan Wittingham at ext. 4-0927. For all other recycling questions, call Jeanne Jarvis at ext. 4-5672 or visit the Web at: <http://q/qe/p2/Recycling/>



## Code FM helps SOFIA 'open her doors'

*...and SOFIA will open many new doors in astronomical research*

The Ames Aeronautics and Spaceflight Hardware Development Division (Code FM) was recently selected to assemble two major components for the Stratospheric Observatory for Infrared Astronomy (SOFIA) telescope door system, the upper rigid door (URD) and the aperture assembly.

When NASA modifications are complete, the Boeing 747 SOFIA aircraft will be a unique airborne observatory carrying a 2.5-meter diameter infrared telescope giving researchers the opportunity to explore the universe beyond the capability of the former Ames Kuiper Airborne Observatory on the Boeing C-141 aircraft. SOFIA is being made possible by a diverse group of contributors including Ames' R&D Services Directorate, which is playing a major role in developing three major operating components that provide the telescope with access to the high-altitude atmosphere during flight. The proven success of the combined Code FE and Code FM design and fabrication team in completing the SOFIA lower flexible door (LFD) was a significant factor in the selection of Ames for the follow-on URD and aperture work, in addition to Code FM's unique capability and competitive cost. The LFD was delivered to L3 Communications at Waco, Texas, where the 747 modifications are underway.

In conjunction with the LFD, the function of the URD and aperture is to provide the opening for the telescope to the atmosphere, enabling researchers to make their observations. The URD will be a crucial part of the 747 fuselage and will shield the telescope from the outside air during takeoff and landing and during flight to and from stargazing altitude. The URD is a top priority for SOFIA and has to comply with strict FAA standards and the challenges that come with flying at or above 41,000 feet and must be installed before flight tests can begin. When completed, the URD will be 16 feet long by 14 feet wide. The photograph shows the size of the fixture that will be used to assemble the URD with the key Code FM technicians assigned to this task.

Precision operation during opening and closing of the URD requires that the maximum overall deviation in its dimensions cannot exceed 0.030 of an inch in the assembled configuration. To put this into perspective, the deviation across the entire length and width of the door can only be slightly more than the thickness of a mechanical pencil lead. Achieving this tight tolerance on such a large object is a difficult but extremely important task requiring time-consuming effort to ensure accurate alignment dur-

ing assembly of this important piece of hardware. The Code FM team is charged with the task of assembling hardware that is not only something they have not previously done, it's something no one has ever done! One of the project management team commented that, "all the guys in the [Code FM] shops are doing an excellent job and are very committed to SOFIA's success. The support from the shops has been phenomenal and without these guys there would

be no SOFIA doors."

BY GERALD MULENBURG ▲



SOFIA upper rigid door assembly fixture: clockwise from left are key Code FM technicians Felipe Ugale, Doug Krause, Ron Hovland, Terry Bland, Gary Parola and Don Lefforge.

## Science poster session is big success

In July, Ames hosted the seventh annual summer science day poster session. The event highlighted 36 posters made by students.

The summer poster session was designed to excite and educate the next generation of scientists and engineers. It gave student interns and employees at Ames a chance to see what the students working here were involved in.

Emily Holton of Code SLR, organized the event this year, under the guidance of the Gravitational Research Branch. "Many students, particularly high school students, will never have an opportunity to attend a national/international science meeting," said Holton. "Also, many students focus their opportunity and don't have an opportunity to talk and learn about project experiences of other students at Ames." Holton was thrilled with the turn-out at this year's event. About 80 people participated in the poster session. "Anytime I see enthusiastic students talking to each other, I am happy. I was particularly happy to see other groups in Ames participating that had not participated previously."

Like many other people there, Holton was walking around looking at all the interesting posters. "I absolutely enjoyed each and every poster. I found all the topics interesting and the students very knowledgeable about

their subjects." All the posters were colorful, filled with pictures and very informative. They were all laid out nicely with hypotheses, purposes, background information, conclusions, future works and facts, which made



NASA photo by Tom Trower

Students displayed their science posters at the recent summer science day poster session.

them easy to understand. Some posters included visual images, and examples of their projects. The 36 posters all fell under six categories: advanced techniques/instrumentation/materials; unique facilities; design and development; altered gravity; fundamental biology; astrobiology and information technology.

BY CONNIE WONG ▲

## Event Calendar

**Ames Amateur Radio Club**, third Thursday of each month, 12 noon, N-T28 (across from N-255). POC: Michael Wright, KG6BKF, at ext. 4-6262.

**Ames Ballroom Dance Club**. Classes on Tuesdays. Begin classes at 6:15 p.m. Higher-level class meets at 5:15 p.m. Held in Bldg. 944, the Rec. Center. POC: Helen Hwang, hwang@dm1.arc.nasa.gov.

**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-215, Rm. 212. POC: Tom Maier, ext 4-3643.

**Ames Contractor Council Mtg**, first Wednesday each month, 11 a.m., N-200, Comm. Rm. POC: Anita Fогtman, ext. 4-4432.

**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](mailto:bmohlenhoff@mail.arc.nasa.gov).

**Ames Federal Employees Union (AFEU) Mtg**, third Wednesday of ea. month, 12 p.m. to 1 p.m., Bldg. 19, Rm 1042. Info: <http://www.afeu.org>. POC: Marianne, 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: Julie ext. 4-4694 or 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 11.30 a.m. - 1 p.m. in the special events room in the Ames Visitor Center in N-223. All are welcome. POC: Jeff Smith, ext. 4-2586.

**Environmental, Health and Safety Information 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/EHseries/> POC: Julie Morsellino 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: Cathy Payne at ext. 4-0003.

**Nat'l Association of Retired Federal Employees (NARFE)**, Former and current federal employees. Your only contact with Congress. Join to protect your federal retirement. Chptr #50 meets the first Fri. of each month at HomeTown Buffet, 2670 El Camino (at Kiely), S. Clara, 11 a.m., lunch \$6.70. POC Earl Keener (408) 241-4459 or NARFE 1-800-627-3394.

**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.

## Precautionary warning given regarding compact disks

Catastrophic compact disk (CD) media failures (shattering), while formerly rare occurrences, are becoming more common as CD drives increase in speed. A 52x or faster drive may spin the disk at 12,000 revolutions per minute or more. Even under normal circumstances, this can create a great deal of stress on the polycarbonate base of the CD. However, if there are existing micro-fractures in the disk or an imbalance in the spinning of the disk in the drive, shattering can sometimes result. Although manufacturers are currently pursuing ways to address this problem (including tighter disk specifications, new clamping mechanisms and reinforced drive doors), there are a number of safety measures that you can take right now.

- When purchasing CD-R media, select high-quality media, rather than 'no-name' value-priced media. This will improve data integrity over time in addition to reducing the risk of shattering.

- When applying labels to CD-R media, try to make sure that the labels are centered and not wrinkled. This will help the CD to spin true in the drive. Also, do not 'stack' labels when repurposing disks.

- Some high-speed drives default to a slightly lower speed and offer a 'turbo boost' feature to increase speed to the maximum. Do not enable this feature. For instance, many 48x drives default to 40x and have a hardware or software switch to increase the speed to 48x. The time saved by moving from 40x to 48x is quite small, while the risk of data loss is much higher.

- Use care in handling your disks. Extreme flexing of disks when pulling them out of cases is a common cause of micro-fractures that can later lead to shattering.

- The most vulnerable area of a disk is the clear inner ring around the center

hole. Take a quick look at your disks before you put them in a drive to make sure that there are no visible cracks or abrasions in this area. If there are, do not put the disk in a high-speed drive! Either discard it or find a lower-speed drive that you can use to pull the data off of the disk.

- Do not move the drive while the disk is spinning.

- Last, but not least, many computer users install their CPUs on top of

their desks. This places the CD drive at approximately eye level resulting in an unacceptable risk to the user should a disk failure occur. We recommend that, where possible, the CPU should be installed below the desktop and to the side of the users legs. If the CPU must remain on the desktop, it should be arranged so that the front of the CD drive does not face the user or any other person.

## Safety Week 2003 events set

This year's Safety Week celebrations are scheduled for Sept. 16 - 18.

The result will be an action-packed week recognizing Ames' commitment to assuring mission success through safety.

The week-long celebration kickoff begins at 9:00 a.m. on Tuesday, Sept. 16 in the main auditorium, Building N201. Ames Center Director G. Scott Hubbard will give the introductory remarks. He will be followed by the keynote speaker, Bryan O'Connor. All employees are encouraged to attend.

On Wednesday, Sept. 17, Hubbard and Deputy Center Director Allen Flynt will present the 2003 ASAP II awards to this year's recipients. This will be followed by an ice cream social.

Thursday, Sept. 18, is Stand-down Day. All center employees are encouraged to take time off from their regular duties and attend the day's

activities. From 11:00 a.m. to 1:00 p.m. will be the safety street fair on Durand Road. There will be health and safety-related booths, vendors, free chair massages, music by the Ames Jazz Band and refreshments.

Also on Thursday, the Fall Fun Run and Walk will be held between 11:30 a.m. to 12:30 p.m. The starting line for the fun run will be near the Fitness Center on DeFrance Ave and finish on Durand Road.

There will be special safety and health training classes offered each day. Visit the Web at: <http://www.q/qh/SafetyWeek2003/SafetyWeek2003a.htm> and follow the link to register for classes.

For more information, call Jim Weller at ext 4-2303 or e-mail [james.j.weller@nasa.gov](mailto:james.j.weller@nasa.gov) or call Jennifer Chan at ext 4-5602 or e-mail: [jschan@mail.arc.nasa.gov](mailto:jschan@mail.arc.nasa.gov)

## 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!

### Housing

Room with large closet in 4 bd/2 ba home in excellent, quiet Mtn View area close to Ames. W/D, microwave, fireplace, wired for cable modem. Tidy person and nonsmoker. Easy access to Ames, 85, 237, & 101. \$475 plus dep. plus share utils. Avail. Sept. 1. Call (650) 964-1900.

For rent: Large 2 bd/1-1/2 ba apartment in 4-plex w/ wireless Internet access included. Sunnyvale, close to Ames. \$1,100/mo. N/S. Call (408) 739-3303.

For rent: 2 bd/1ba in Sunnyvale, upstairs unit, 3 miles from Ames, near Bernardo and El Camino, \$1,200/mo. Call (650) 570-5244, Margaret.

Roommate opportunity in 2bd/2bd beautifully furnished condo, close to Ames. \$680. Swimming pools, tennis courts. Easy going, prof'l male. Bedroom and separate bath can be furnished or not. Kirt (650) 714-1562.

### Transportation

'90 Mercury Sable GS station wagon, brown, 151k mls., ABS, A/C, pwr. locks/windows, radio/cassette, hitch, \$1,850 or B/O, avail. after Aug. 28, prefer e-mail: [cstemmer@stanford.edu](mailto:cstemmer@stanford.edu) or call (650)-328-7407.

'94 Ford F150 extended cab; low mileage, Drake rack, new brakes, toolbox, dual tanks, trlr pkg; one owner. KBB: \$8,600; \$7,000 or B/O. Sal Rositano (408) 238-5310.

'95 Plymouth Grand Voyager, minivan, V6 auto. AC 112k mls, \$3,700. Moving sale. Call (650) 938 0928 or e-mail [ncmaille@netscape.net](mailto:ncmaille@netscape.net).

'96 VW Jetta GLS, A/C, 8-speaker stereo, power steering, sun/moon roof, run excellent, body in good shape w/ minor wear and tear, first owner, \$2,000 or B/O. Call (650) 625-1325.

'99 Ford Contour SE, excellent 65K mls. \$5,000 or B/O. Call (650) 940-7603.

### Car Pool

Car pool from Pleasanton. Call Natalio Mingo at ext. 4-1776 or e-mail [mingo@nas.nasa.gov](mailto:mingo@nas.nasa.gov), or Deepak Kulkarni at ext. 4-4869 or e-mail [kulkarni@ptolemy.arc.nasa.gov](mailto:kulkarni@ptolemy.arc.nasa.gov)

## Hoffman memorial set

A memorial get-together in honor of Larry Hofman, who passed away June 9, is planned for Monday, Sept. 15 at 3 p.m. in the MTCC Ballroom.

Please join your friends, colleagues and Larry's family in this memorial. Contact Pat Elson at e-mail: [pelson@mail.arc.nasa.gov](mailto:pelson@mail.arc.nasa.gov) for more information

## Miscellaneous

Ladies 10 spd bicycle, nds new tires \$25; empty beer bottles, 20 oz. used once in priv. micro brewery, 4 cases, \$5; Sony 53" RPTV, KV series, one of three picture tube is bad, free. Dresser, 72" w/two mirrors. \$50. Jose (408) 205-2722 or e-mail [jrustia@aol.com](mailto:jrustia@aol.com)

Pro women's ice skates, size 7, white boot, newly sharpened Sheffield Pro Model blades. Exc. cond. and comes w/blade covers. \$150 or B/O. Call (650) 424-8138.

Air conditioner, portable (wheels), refrigeration type, Toyotomi, exc. cond, cools one room, 7200 BTU, 115v, \$495 (over \$1,000 new). Sm. window type air cond., Quasar, 5000 BTU, \$80. Dan (925) 933-8706 (H) or (650) 867-3958 (cell).

27" screen Magnavox TV. Great condition. \$125. Esther (650) 961-2732.

Computer desk plus hutch, cherry veneer, like-new, built-in keyboard and CD rack. \$150. Call (408) 817-6727.

Moving sale. Sofabed (futon, white), \$100; kitchen table, \$50; coffee table, \$10; two floor lamps, \$4 ea. Call (650) 938 0928 or e-mail [ncmaille@netscape.net](mailto:ncmaille@netscape.net).

Graco 2-speed electric baby swing. White enamel finish w/blue trim. Great cond. \$20. Call (408) 295-2160.

Disneyland discounted tickets for 6 adults and 3 children. Call (408) 257-2513.

Gray shop vacuum cleaner on rollers, 5 gal. capac. Hose, attachmnts. Pwrful, lightweight! \$30 Brother P-Touch labeler battery/AC plug, uses 1/4"-3/4" tape. PT-320 \$20. ALCATEL Speed Touch BC DSL modem w/installation, drivers disk, man'l, wall attachmnts, \$30. Iomega Zip drive (ext'l), Mac. 100mb. SCSI connection, w/driver disk, disks, case, \$20. Kevin (408) 723-2115.

Reliable 19.' Mitsubishi TV, \$50. Call (650) 960-3798.

DUAL-CPU computer, P2/333MHz, w/integ. U/W SCSI, sound, AGP slot and SVGA monitor. \$110. Mike (510) 278-2601.

## Looking for used books...

Got a bunch of old books cluttering up your office, living room or garage? Have CDs you don't listen to or movies you'll never watch again? Then donate them to the Ames Child Care Center (ACCC) fundraiser and receive a tax donation receipt at the same time!

The ACCC accepts all books, CDs, VHS tapes, DVDs and software for adults and for kids. Items can either be dropped off at the ACCC across from Gate 17 or pick-up can be arranged by emailing [Maya Popovic.maja@sbcglobal.net](mailto:Maya.Popovic.maja@sbcglobal.net) or calling her at (650) 988-6993.

## Astrogram deadlines

Deadline:	Publication:
Sep 26	Oct 2003
Oct 24	Nov 2003

All Ames employees are invited to submit articles relating to Ames projects and activities for publication in the *Astrogram*. When submitting stories or ads for publication, submit your material, along with any questions, in MS word by e-mail to: [astrogram@mail.arc.nasa.gov](mailto:astrogram@mail.arc.nasa.gov) on or before the deadline.

## 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. Make your reservations for Chase Park

**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-223**  
(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.

## Vacation Opportunities

Lake Tahoe-Squaw Valley Twnhse, 3bd/2ba-equipped, balcony view, horseback riding, hiking, biking, golf, river rafting, tennis, ice skating and more. Call (650) 968-4155, [DBMcKellar@aol.com](mailto:DBMcKellar@aol.com)

South Lake Tahoe cottage w/wood fireplace, hot tub. Rates \$50 to \$130 per night. Call (650) 967-7659 or (650) 704-7732.

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.

Incline Village: Forest pines, Lake Tahoe condo, 3 bd/2 ba, sleeps 8. Fireplc, TV/VCR, MW, W/D, jacuzzi, sauna, pool. \$120/night low season; \$155/night high season. \$90 cleaning fee and 12% Nevada room tax. Charlie (650) 366-1873.

Tahoe Donner vacation home, 2 bd/2ba. trees, deck, sun, fun. Access to pools, spa, golf, horseback riding, \$280 wkend, \$650 week. Call (408) 739-9134.

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.

## 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.

## Art auction, exhibition to benefit ACCC

On Thursday evening, Oct. 2, the Ames Child Care Center (ACCC) invites you and your guests to view and

donation, to be paid at the entrance, will provide you with a commemorative wineglass, your first pour of wine, punch, hot and cold hors d'oeuvres and a door prize ticket. Additional wine will be available for purchase by the glass and bottle.



acquire distinct art lithographs, etchings, watercolors and oil paintings. Additional art pieces such as beaded purses and unique clocks will also be available. Art by masters as well as art by lesser-known but equally exciting artists from around the world will be on display. Each piece of art is beautifully custom framed and ready to hang. Come early, examine the art, question the gallery staff on hand, and, at the sound of the gavel, all are yours for the bidding.

The art auction will be held at the Moffett Training and Conference Center in the ballroom of Building 3. Art will be available for preview at 4:30 p.m. and the auction will begin at 5:30 p.m. Local wines and hors d'oeuvres will also be available. Raffle and door prizes will be given away during the auction. A \$10

Proceeds from the art and wine sales will be used for facility improvements at the ACCC. All are welcome. Visitors who are not affiliated with Ames will need to present their driver's license in order to enter the center. Non U.S. citizens will need to contact Sally Miller at ext. 4-5411 or e-mail her at: [sally@nren.nasa.gov](mailto:sally@nren.nasa.gov) for specific information on how to enter the center.

All checks for art purchased will be made payable to the ACCC. Visa, MasterCard, Discover and American Express will also be accepted. Additional information on the ACCC and the art auction fundraiser is on the Web at: <http://acc.arc.nasa.gov/events/auction03.html>. Work by particular artists (any artists) or particular pieces of art can be requested by also contacting Miller.

## Travel Manager news: Super Users

A Travel Manager super user group has been formed, with representatives from many organizations. Super users are able to assist employees to learn the proper use of Travel Manager. For a list of super users, visit the Web at: <http://ifmp.arc.nasa.gov/tm-su.html>.

The Travel Manager team has gathered data from July voucher payments and determined it takes an average of six business days for a traveler to receive reimbursement from the date they signed their voucher. Travelers can expedite the payment process by quickly submitting their receipts to the travel office after management review.

Remember to submit a print out of your travel voucher with your receipts to the travel office, mail stop 203-13. Vouchers will not be paid until receipts are received in the travel office.

FYE Process for travel documents: The split-year travel document process at Ames requires two travel authorizations accompanied by two travel vouchers, one for each fiscal year. A job aid instructing how to prepare split-year travel documents are on the Travel Manager Web site at: [www.travelmanager.arc.nasa.gov](http://www.travelmanager.arc.nasa.gov), located under 'training materis.'

To assist with fiscal year closures, submit all your FY03 vouchers before Sept. 30. And, a reminder that according to travel regulations, travelers must sign their travel vouchers.




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Editor-in-Chief.....David Morse  
Managing Editor.....Ann Sullivan  
Editor, Layout and Design.....Astrid Terlep

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.

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