

Astrogram

Communication for the Information Technology Age

NASA technologies featured at NextFest event



NASA photo by Dominic Hart

San Francisco Mayor Gavin Newsom stops by the NASA exhibits at the recent NextFest technology show. He is seen here speaking with Nora Normandy of NASA Headquarters.

Cutting-edge NASA research and technology were featured May 14 to 16 at Wired NextFest, a festival showcasing more than 100 innovative exhibits. A



Ames' Jonas Dino, far left, speaks to Giants fans about the full-scale Mars Exploration Rover on display in Willie Mays Plaza at SBC Park in San Francisco.

variety of displays highlighted the future of design, entertainment, exploration, health, the home, security and transportation. The agency showcased a One NASA theme, supported by personnel from Dryden, JPL, Marshall and Headquarters in addition to Ames.

The event was sponsored by General Electric and Wired magazine in the Fort Mason Festival Pavilion in San Fran-

NASA highlighted at SF Giants game

David Des Marais, NASA Ames research scientist, threw out the ceremonial first pitch at the San Francisco Giants vs. the Philadelphia Phillies baseball game on May 13 at SBC Park in San Francisco.

Des Marais was honored at the game, which was part of GE and Wired NextFest Day at SBC Park, because of his role as lead scientist of the long-term planning team in NASA's Mars Exploration Rover (MER) mission. In that capacity, he helps plan day-to-day operations for the twin rovers, Spirit and Opportunity, coordinates activities between the rovers and the Mars orbiter and investigates how liquid water has influenced rocks and soils at the two rover sites, Gusev Crater and Meridiani.

"We are very proud that Dr. David Des Marais, a distinguished Ames scientist, is making such an important contribution to the success of the MER mission," said Ames Center Director G. Scott Hubbard. "Of course, if Dave were throwing the ceremonial first pitch at a martian baseball game, he'd be able to throw the ball about 60 percent farther

cisco. Approximately 25,000 people attended the two-day event.

Featured in the NASA exhibit were several displays, including technologies representing space exploration, the personal exploration rover, the personal satellite assistants, a full-scale model of the Mars Exploration Rover, a model of the scramjet (supersonic combustion ramjet) engine-powered hypersonic X-43 aircraft and a display of 'power beaming,' a futuristic concept that uses lasers to beam energy to an aircraft so it doesn't need to carry fuel.

Also included were a video and display of sub-vocal voice recognition technology and an authentic moon rock collected during one of NASA's Apollo missions.

BY MICHAEL MEWHINNEY



photo courtesy SF Giants

David Des Marais tosses the ball to home plate while the centerfield scoreboard announces his presence in the background.

because of Mars' weaker gravity," noted Hubbard.

BY KATHLEEN BURTON

Ames names supercomputer after Columbia astronaut

On May 12, NASA dedicated its new Altix supercomputer during a ceremony held to honor the memory of astronaut Kalpana "KC" Chawla, one of the seven crew members aboard the space shuttle Columbia, lost Feb. 1, 2003.

Before joining the astronaut program, Chawla worked as an aerospace engineer at Ames from 1988 to 1995. Chawla, the first Indian-born woman to fly in space, served as a flight engineer and mission specialist aboard Columbia.

"It is indeed an honor to name NASA's new SGI® Altix™ 3000 supercomputer after Kalpana Chawla," said Ames Center Director G. Scott Hubbard. "She was not only a member of the NASA family, but also a special member of our own Ames family. We all miss her and her many contributions to the agency."

At Ames, Chawla had the challenging task of computing the airflow surrounding a jet-supported, delta-wing aircraft during landing. During an in-

study the effects of dust on weather and the environment.

"Fittingly, the SGI® Altix™ 3000 supercomputer that will be named 'Kalpana' is being used to develop substantially more capable simulation models to better assess the evolution and behavior of the Earth's climate system," said Ghassem Asrar, NASA's associate administrator for Earth science.

The new supercomputer is being used for a group effort by NASA Headquarters, NASA's Jet Propulsion Laboratory (JPL), Pasadena, Calif., NASA

Ames and NASA Goddard Space Flight Center, Greenbelt, Md., to deliver high-resolution ocean analysis in the framework of the ECCO (Estimating the Circulation and Climate of the Ocean) Consortium, which involves JPL, the Massachusetts Institute of Technology, Cambridge, Mass., and the Scripps Institute of Oceanography, La Jolla, Calif.

Chapman, a former director of astronautics at Ames who developed heat protection systems for the space shuttle;

- 'Lomax,' a 512-processor SGI Ori-



Hubbard speaks at the dedication ceremony of the Altix computer, honoring the memory of astronaut Kalpana "KC" Chawla, one of the seven crew members aboard the space shuttle Columbia lost Feb. 1, 2003.



NASA photos by Roger Brimmer

Ames Center Director G. Scott Hubbard (second from left) poses with, left to right, Walt Brooks, Anthony Robbins (SGI), and Tom Edwards at the recent 'Kalpana' supercomputer dedication.

terview in 1995, Chawla predicted that her exposure to a wide variety of computer systems at Ames would be especially useful to her as an astronaut.

Of the dozens of experiments successfully conducted by the Columbia crew, Chawla's favorite was the Israeli Mediterranean Dust Experiment, which involved pointing a camera at Earth to

tion at the research center of naming its new supercomputers after pioneers in the supercomputer industry or others in recognition of their achievements. A total of six supercomputers at Ames are named as follows:

- 'Chapman,' an SGI Origin 3000, 1,024-processor single-image, shared memory system named after Dr. Dean

gin 2000 supercomputer named after Dr. Harvard Lomax, a pioneer in computational fluid dynamics who also worked at Ames;

- 'Steger,' a 128-processor Origin 2800 supercomputer named after Joseph Steger, whose work in computational technology revolutionized the use of computers to solve complex aerospace problems;

• 'Lou,' the main production storage system at the NASA Advanced Supercomputing Division named after Ames research scientist Louis Lopez;

- 'Grace,' a 64-processor Origin 2000 supercomputer named after Grace Hopper, a pioneer in computer science and

• 'Turing,' a 24-processor SGI Origin 2000 supercomputer named for Alan Turing, a mathematician and early computer pioneer.

"With the addition of the SGI Altix system, NASA's high-end computing testbed activities in support of the agency's science and engineering missions are greatly enhanced," said Walt Brooks, chief of the NASA Advanced Supercomputing (NAS) Division at NASA Ames. "Thanks to its outstanding performance capabilities, this supercomputer is helping NASA achieve breakthrough results to meet major challenges in climate and ocean modeling and aerospace vehicle design," Brooks added.

For more information about NASA's 512 CPU SGI Altix 3000, visit: <http://www.nas.nasa.gov/Main/Features/2004/Winter/altix.html>

BY MICHAEL MEWHINNEY

New NASA safety assurance organization reports findings

The NASA Engineering and Safety Center (NESC), created in the aftermath of the space shuttle Columbia accident to serve as an independent technical resource for NASA managers and employees, reported in May on its initial assessments.

Results of the center's four 'Pathfinder' studies were reported to senior NASA leadership from around the country at a meeting at NASA Headquarters. The reporting approach -- proactively sharing lessons learned -- was modeled after a similar method used by the U.S. Navy Board of Inspection and Survey.

The NESC was created in November 2003 to improve safety by performing in-depth independent engineering assessments, testing, analyses and evaluation to uncover technical vulnerabilities and to recommend appropriate preventative and corrective actions for problems, trends or concerns within NASA's programs, projects and institutions.

"I feel very good about what we've accomplished in our first six months," said Ralph Roe, NESC director based at NASA Langley Research Center, Hampton, Va. "We have a talented core of people working within NESC and an outstanding group of people matrixed to NESC that we can call upon when needed. We have positive feedback from the partnerships we've begun with industry and academia. We've completed our first four technical assessments; we're working on several new major activities, and requests for our services keep coming in," he added.

The initial assessments were related to four research projects: 1) Cloud-Aerosol LIDAR and Infrared Pathfinder Satellite Observation (CALIPSO) spacecraft, an earth science satellite set to launch in 2005; X-43A; 2) a hypersonic research vehicle that made news with a successful flight in March; 3) the space shuttle orbiter rudder/speed brake system; and 4) the Mars Exploration Rovers, now exploring the surface of Mars.

While the NESC's current focus is on a successful space shuttle return to flight and the International Space Station, it is involved in other activities across NASA. For example, NESC is providing independent expertise for the Cassini Saturn Orbit Insertion critical events readiness review.

The initial study topics were picked because of their importance, their manageable size and because of their potential to teach the NESC how best to orga-

nize itself and conduct independent analyses of critical technical issues.

In the case of CALIPSO, a joint science mission that includes NASA and the French space agency, a concern about possible leaks of the spacecraft's highly-reactive fuel from joints in the fuel lines during ground processing led to multiple recommendations to minimize risk to personnel, the mission and the environment.

The record-breaking hypersonic X-43A did not fly until a dissenting opinion by one X-43A team member was properly addressed. The employee contacted the NESC with a concern that the research vehicle's aerodynamic characteristics could potentially lead to a loss of vehicle control, resulting in failure to achieve mission objectives. The NESC worked in conjunction with the X-43A project to ensure that the employee's concern was properly addressed.

During renewal of hardware in a space shuttle orbiter rudder/speed brake system, a concern was raised about the effectiveness of grease in the gear set of the replacement hardware that had been retrieved from long-term storage. NESC conducted extensive tests and

analyses to determine that the grease is still effective. A lesson learned was that programs should periodically review hardware components to ensure that qualification and certification limits are not exceeded.

Prior to the two Mars Exploration Rover landings on Mars in January, the NESC participated in two program reviews. One review dealt with the very human challenge of supporting round-the-clock staffing for a mission to Mars, where the martian day is 40 minutes longer than an Earth day. The second review looked at entry, descent and landing data from the first rover landing as a guide to fine-tuning the entry, descent and landing of the second rover. While both landings were highly successful, the review revealed that current spacecraft instrumentation was not designed to adequately record the aerodynamic environment encountered during descent.

Summaries of the four Pathfinder reports, a video clip, publication quality images and additional information about NESC are available on the Internet at: <http://nesc.nasa.gov>

First NESC awards presented

The first NASA Engineering and Safety Center (NESC) awards were presented to NASA employees representing four NASA centers at the NESC leadership briefing in May. They were presented to Goddard, Langley, Marshall and Glenn employees

Four award categories have been established to recognize individual employees for "outstanding contributions to NESC's sponsored activities and to encourage critical examination of engineering problems."

The NESC Leadership Award was presented to Luat T. Nguyen, NASA Langley, for exceptional leadership in responding to a dissenting opinion regarding the modified Pegasus/X-43A launch vehicle aerodynamics. Also presented the award was Michael G. Ryschkewitsch, NASA Goddard, for exceptional leadership in promoting an environment in which technical concerns are brought forward and appropriately addressed.

The NESC Engineering Excellence Award was presented to Timothy R. Jett, NASA Marshall, for extraordinary leadership that contributed to engineering excellence in support of the Rudder and Speed Brake Independent Assessment Team.

The NESC Director's Award was presented to Richard M. Wood, NASA Langley, in recognition of his personal commitment to advocating further assessment of the aerodynamic risks associated with the flight of the modified Pegasus/X-43A launch vehicle. Also honored was Erwin V. Zaretsky, NASA Glenn, in recognition of his exemplary contributions and personal leadership in advocating further inspection and testing of the space shuttle orbiter rudder and speed brake actuators.

The fourth award category, the NESC Group Achievement Award, was not presented.

Celebrating the environment comes naturally at Ames

In recognition of national Earth Day, the Environmental Services Office

Biodiesel, the Ames Native American Advisory Committee, the Ames conservation program, the Ames Environmental Management Systems, the Ames Pollution Prevention Program, the Ames recycling program, the Ames Restoration, the Ames storm water pollution prevention program, the Ames Supply Store featuring 100 percent recycled paper, the Bay Area Air Quality Management District, the City of Mountain View, the City of Sunnyvale, the Common Ground Garden Supply, the Don Edwards Wildlife Refuge, the Earth Save, the Electric Auto Association, the Electro Ride Bikes, Falcon's Court, the Foundation for Global Community, Good Humans, Green Home, Moffett Park Business and Transportation Association, Monterey Bay Aquarium, PG&E, Restoration and Storm Water, RideShare, San Francisco Bay Bird Observatory, Santa Clara Valley Urban Run off, Save the Bay, SF Bay Joint Venture, Silicon Valley Bicycle Coalition, Toyota Material Handling, Turf and Industrial and Valley Transportation Authority.

out the afternoon. In the front row, jumping to the music, were the tiny tots from the Ames Child Care Center. They were dressed in their homemade Earth Day vests.

In addition to the varied exhibits, employees learned about the environment at Ames by taking part in the bird hikes around the Ames campus led by the Ames wildlife biologist. During the two-hour hikes, the groups walked through the northern part of Ames to experience the wildlife in four different types of habitat.

This year also marked the second annual Earth Day photo contest. Submissions were intended to reflect the Earth Day theme 'Little choices today, big impact tomorrow.' Street fair attendees voted for their favorite photos. The photo contest winners were:

- 1st Place: 'Mother Black-Eyed Albatross Feeding Her Chick' by Chuck Chakerian;

- 2nd Place: 'Barbara's Garden at Building 19' by John Scarborough;

- 3rd Place: 'Hatched' by Phil Ting

All winning photos are available for public viewing in building 221 throughout the month of May. A complete posting of all entries can be found on the Earth Day Web site at <http://q.arc.nasa.gov/earthday>.

The Environmental Services Office raffled off two give-aways to participants who completed the raffle quiz about the Ames environmental policy. The raffle winners were:

- One-hour therapeutic massage at the Ames Fitness Center. The winner was Julian Gomez.

- Two tickets to the Monterey Bay Aquarium. The winner was Janessa Langford

BY STACY ST. LOUIS



NASA photo by Dominic Hart

Attendees check out the exhibitor booths at the recent NASA Ames Earth Day street fair.

hosted a variety of environmental events during the month of April.

The festivities began with presentations by two environmentalists with unique perspectives. On April 9, the Environmental Services Office hosted internationally renowned sustainable architect William P. McDonough. McDonough shared his perspective on the value of living in an eco-effective manner through the creation of sustainable architecture and products. On April 21, Craig Breon, executive director of the Santa Clara Valley Audubon Society, gave a presentation on wildlife in Silicon Valley. Based on 11 years of experience, Breon shared facts and figures about the rise and decline of wildlife species in the Bay Area.

On Earth Day, April 22, Ames employees piled onto Durand Road for the Earth Day street fair. Throughout the day, guests stopped to look at the exhibitor booths that included Ames organizations, local municipalities, non-profit environmental groups and eco-conscious retail organizations. As they strolled through the exhibits, employees stopped at their favorite booths.

Crowds gathered to gaze at the African eagle perched on the Falcon's Court exhibit. Others rode through the fair on electric scooters from Electro Ride Bikes and electric golf carts from Turf and Industrial Equipment. Many chose to browse leisurely through all of the exhibits, which included: Akeena Solar, the Ames Café, the Ames Child Care Center, the Ames Commute Alternatives program, Ames' Code S science exhibits, Ames JFP Energy and Composting, Ames Motor Pool

Sunnyvale, the Common Ground Garden Supply, the Don Edwards Wildlife Refuge, the Earth Save, the Electric Auto Association, the Electro Ride Bikes, Falcon's Court, the Foundation for Global Community, Good Humans, Green Home, Moffett Park Business and Transportation Association, Monterey Bay Aquarium, PG&E, Restoration and Storm Water, RideShare, San Francisco Bay Bird Observatory, Santa Clara Valley Urban Run off, Save the Bay, SF Bay Joint Venture, Silicon Valley Bicycle Coalition, Toyota Material Handling, Turf and Industrial and Valley Transportation Authority.

Behind the noise of the crowd, Ames jazz band played festive tunes through-

How to report technical concerns

The NESC provides an independent line of communication to ensure that all NASA employees have an alternate path to report technical concerns and to encourage consideration of all points of view on critical technical issues.

All general questions and requests for NESC technical reviews should be sent to e-mail NESC@nasa.gov. Anonymous technical requests may be made by mailing them to NESC, NASA Langley Research Center, Mail Stop 112, Hampton, VA 23681.

Each NASA field center and headquarters has a local NESC representative who serves as a point of contact

for center-based issues related to the NESC. Find information for your local contact through the NASA X.500 directory.

Center contacts are NASA Ames, Michael S. Freeman; NASA Dryden, Michael W. Kehoe; NASA Glenn, Derrick J. Cheston; NASA Goddard, Michael Hagopian; NASA Headquarters, John E. Tinsley; Jet Propulsion Laboratory, Matthew R. Landano; NASA Johnson, David A. Hamilton; NASA Kennedy, Timmy R. Wilson; NASA Langley, Michael G. Gilbert; NASA Marshall, Danny Johnston; and NASA Stennis, T. Randy Galloway.

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Mandatory federal purchasing requirements detailed

If you use a government credit card or if you purchase anything under a federal contract, you are a federal purchaser. With a few exceptions, federal purchasers are required to buy items that meet mandatory requirements contained in the Federal Acquisition Regulations, including Energy Star items, Comprehensive Procurement Guideline (CPG) recycled items and bio-based items soon to be designated by the U.S. Department of Agriculture. Even though you may use a government credit card, you may not be aware of these mandatory purchase items because there are more than you think.

The US Environmental Protection Agency created an on-line database called Environmentally Preferable Purchasing or EPP at <http://www.epa.gov/opptintr/epp>. EPP contains the actual environmental standards for the specific product you want to buy, whether it must be made with recycled materials or must be energy efficient to meet the Energy Star standards. The database also contains vendor lists with product brands that meet the federal standards, and examples of contract language to use in requests for proposals or statements of work.

EPP can be searched by product category, for example 'office furniture,' or by specific product name, for example desk. The category search, which usually gives better results than the product search, will return a table with links to vendor lists, GSA purchasing sources and/or the CPG supplier database for each product name in the table. The table also contains links to the specific requirements, either recycled content percentages or energy savings features for equipment. The CPG supplier database is very useful for finding an in-state supplier for products that meet the federal requirements.

Bio-based products are made from renewable biological or agricultural materials including animal, plant, and marine materials such as soy beans, wheat, corn, canola, forestry products and grasses that can be produced and harvested domestically. Products that are bio-based reduce our reliance on petroleum which is largely imported, is non-renewable and contains hazardous by-products that are released during refining, manufacturing, and use. The Farm Security and Rural Investment Act of 2002 required the U.S. Department of Agriculture (USDA) to designate bio-products to be purchased by federal agencies in place of the traditional petroleum equivalent products. Last December, the USDA proposed 11 categories of bio-based products that, once the regulations are finalized, will become

mandatory purchase items for federal agencies. These categories are listed on the USDA bio-based products Web site at <http://www.biobased.oce.usda.gov> and include lubricants, cleaners, paper and construction materials. Each of the 11 categories contains many products. For example, the 'lubricants' category lists 17 items including brake fluids, crank case oils, hydraulic oils, metal working fluids and cutting oils.

On April 30, the U.S. Environmental Protection Agency added seven items to the CPG that contains the recycled product guidelines that federal agencies must follow when making purchases. These items are:

- modular threshold ramps
- non-pressure pipe

- roofing materials
- office furniture
- rebuilt vehicular parts
- bike racks
- blasting grit

Visit these links and review the mandatory purchase items before you make your next purchase. The EPA environmentally preferable purchasing Web site is located at <http://www.epa.gov/opptintr/epp>.

The USDA bio-based products Web site is located at <http://www.biobased.oce.usda.gov>

For additional questions, contact Christel VanArsdale ext. 4-1175, or Mark Lacy ext. 4-1406.

Alexander presents planetary lectures



NASA photo by Tom Trower

Dr. Claudia Alexander from JPL visited Ames recently. Alexander currently serves as project manager and project scientist for the U.S. section of the Rosetta Project, launched this March and heading for a rendezvous with and landing on a comet in 2014.

She presented two lectures while she was here, titled 'Life on Ganymede (not really!)' and her second lecture, which she presented at Foothill College in Los Altos entitled 'A Galileo Wrap Up: What we have learned about giant Jupiter and its marvelous moons.'

Ames docents recognized



NASA photo by Astrid Terlep

An appreciation dinner was held on May 17 for the NASA Ames docents who volunteer their time at the Ames Exploration Center on a continuing basis. Certificates of appreciation were presented in recognition of their dedication to making the public's visit to NASA Ames a worthwhile and memorable experience.

NASA Ames develops artificial intelligence for rovers

NASA is planning to add a strong dose of artificial intelligence (AI) to planetary rovers to make them much more self-reliant, capable of making basic decisions during a mission.

NASA Ames scientists are developing very complex AI software that enables a higher level of robotic intelligence. In the past, very simple artificial intelligence systems on board rovers allowed them to make some simple decisions, but much smarter AI will enable these mobile robots to make many decisions now made by mission controllers.

"Human beings make decisions in response to their environment. How do you encapsulate this behavior into a rover, or a robot, sitting on a planet millions of miles away? That's what we are working on," said Kanna Rajan, an Ames computer scientist. "We want to put software on rovers to give them the capability to be artificially intelligent," Rajan explained.

Large teams of human beings on Earth direct the Mars Exploration Rovers (MER) now rolling across the martian terrain to look for evidence of water. It now takes the human-robot teams on two worlds several days to achieve each of many individual objectives.

"It takes about three days for a MER rover to visualize a target, get to the target and do some contact science," said Rajan. "Part of the problem is we are not closing the loop on board the rover. Signals from the rover have to go to Earth for a human with his/her cognitive capacity to deliberate on the information in the signal and make a decision. Based on that decision, a signal goes back to Mars to instruct the rover to take pictures or do other work," Rajan noted.

A robot equipped with AI, on the other hand, could make an evaluation on the spot, achieve its mission faster and explore more than a robot dependent on decisions made by humans on Earth. Today's technology can make a rover as smart as a cockroach, but the problem is it's an unproven technology, according to Rajan.

"The way new space technology is generally proven is to have field tests here on Earth -- to have an Earth analog mission," Rajan explained. "You take a rover - similar to the ones on now exploring Mars -- to a location that resembles the martian terrain here on Earth, and you simulate the entire mission, but you also install an AI capability on the rover to take over decision-making that would normally be done by human beings."

"State-of-the-art artificial intelligence software will deliberate on board the rovers. One such state-of-the-art,

complex, AI-based agent software is based on an ambitious architecture called Intelligent Deployable Execution Agents, or IDEA, developed at NASA Ames over the last four years," Rajan explained. An agent is software that mimics the human thought process to do things a human being wants to be done.

"What we expect to do within the next 10 years is to not only deploy one AI-based rover, but a collection of rovers using the AI-based IDEA architecture, which cooperatively perform tasks orders of magnitude more complex than the MER rover, and do it in a much more robust way," Rajan predicted.

Using surveying instruments, teams of robots may well be able to map large tracts of the surface of Mars, according to Rajan, who said there are many reasons to use a large robot team. "One reason is better coverage of a large area of land. Another reason is redundancy; if one or more of the robots fails, you still can accomplish the mission. Also, a team could do complex tasks that a single rover could not do. Better science results

from a team effort, whether it is by robots, humans or even a robot-human team," Rajan said.

Robotic spacecraft may also fly in 'swarms,' or teams, to make scientific observations of planets, moons and other celestial objects, according to Rajan.

"Creating strong AI software is a very exciting and challenging problem, and it inspires us and our students to work on this bold effort," said noted artificial intelligence expert professor Milind Tambe of the University of California, Los Angeles, who has worked with Rajan. Tambe explained that AI research inspires the next generation of computer scientists because when they hear about NASA AI work, "their eyes light up, and then they understand what this research could mean for the future."

The Advanced Space Technologies Program, Office of Exploration Systems, NASA Headquarters, Washington, funds this artificial intelligence research. Images are available on the World Wide Web at: <http://amesnews.arc.nasa.gov/releases/2004/ai/ai.html>

BY JOHN BLUCK

Colloquium set for June 10

Professor Douglas Osheroff from Stanford will present a Director's Colloquium at 2:00p.m. on Thursday, June 10, in the main auditorium, N-201. The title of his colloquium will be 'The Discovery of Superfluidity in helium-3 as seen through the eyes of a graduate student.'

This is his Nobel lecture, which describes the serendipitous discovery of superfluidity in helium-3, which he made during his fifth year of graduate study at Cornell University. He begins by tracing his development from a child to a graduate student, and then chronicles the chain of events that led to the discovery, including all the miss-steps and wrong conclusions along the way. It is a talk that anyone can understand and appreciate.

His current research interests center around studies of quantum fluids and solids and glasses at ultra-low temperatures.

Osheroff shared the 1996 Nobel Prize with David M. Lee and Robert C. Richardson for discovering superfluidity in helium-3. He is member of the National Academy of Sciences. Other honors include the Sir Francis Simon Memorial Prize for discoveries in low-temperature physics; the



Professor Douglas Osheroff

American Physical Society's Oliver E. Buckley Prize in Condensed Matter Physics, a Walter J. Gores Award for Excellence in Teaching; and a MacArthur Prize. He was also a member of the Columbia Accident Investigation Board.

All Ames employees are cordially invited to attend.

Ames Exchange hosts free lunch at new picnic venue

The Ames Exchange Council recently invited all center employees, including contractors, to help celebrate the grand opening of the new employee BBQ area. The Exchange proved there is such a thing as a free lunch by providing hot dogs, chips, soda and cookies at no charge to all attendees.

The Ames Park BBQ area is an alternative to Chase Park and is located at the site of the former child care center (NA291) between Buildings 244 and 245.



NASA photos by Dominic Hart

Ames to celebrate Asian/Pacific Islander heritage month

Asian/Pacific American Heritage Month kicked off in May, beginning a month of celebration and exploration of Asian Pacific American heritage, achievements and identities. This year's theme for Asian/Pacific American Heritage month is 'Freedom for all. A nation we call our own.'

Asian/Pacific Americans have contributed to the growth of America in every walk of life. From the arrival of Chinese and Filipino immigrants during the early 18th century through today, Asian/Pacific Americans continue to assist in the development of our nation. Asian/Pacific American contributions can also be seen in our daily lives here at Ames.

In celebration of Asian/Pacific American Heritage Month, NASA Ames' Equal Opportunity Programs Office will host a featured keynote speaker, Angela E. Oh, author of *Open: One Woman's Journey*. Oh is a nationally recognized expert on race relations. She is an accomplished public speaker who has addressed diverse audiences both nationally and internationally. In June 1997, she was appointed by President Bill Clinton to the President's Initiative on Race. She spent three years between 1998 and 2002 on a lecture tour on race relations and leadership development. Her speeches and writings reflect the

opportunities and challenges that diversity presents.

Join in this key event on May 27, 11 a.m. to 12:30 p.m., in Bldg. 3 ballroom. All Ames employees and contractors are invited. For questions, contact the NASA Ames Equal Opportunity Programs Office at ext. 4-1064.

Many other events have been planned throughout the month of May in the various Bay Area communities. Join in celebrating the accomplishment of Asian/Pacific men and women by attending and participating in these activities.



NASA photo by Astrid Terlep

Center Director G. Scott Hubbard and members of the agency's Real Property Mission Analysis team tour the Ames Exploration Center during a recent visit.

NASA tests new emergency rescue technologies

NASA recently brought together emergency responders and technology

gies in NASA Ames' Collapsed Structure Rescue Training Facility.



NASA photo by Tom Trower

NASA's DART team during a recent emergency drill to test new emergency rescue technologies.

developers from across the country to test and refine new technologies and to highlight the importance of technology development to the emergency responder.

The technology testing was part of the 15th annual collapsed structure rescue workshop sponsored by NASA Ames' Disaster Assistance and Rescue Team (DART). The workshop was an ongoing, nationwide collaborative effort to share knowledge and expertise, and to develop and improve techniques and tools used in urban search and rescue. Better understanding of technology needs and priorities made the emergency response task safer and more effective, according to workshop organizers.

"We are very proud of our Disaster Assistance and Rescue Team's service to the public in national and natural disasters," said NASA Ames Center Director G. Scott Hubbard. "We are honored to host this important workshop to test new technologies that may help first responders in the event of future terrorist attacks or disasters."

"This is a rare opportunity for technologists to learn how to refine or modify existing technologies to meet the specific needs of emergency responders," said Robert J. Dolci, director of emergency services at NASA Ames. "This workshop also will have a heavy emphasis on technology development for the emergency responder." The technology developers worked hand-in-hand with highly skilled urban search-and-rescue specialists to test the technolo-

gies in NASA Ames' Collapsed Structure Rescue Training Facility. In addition to 30 urban search-and-rescue participants, the workshop included more than 30 technologists and technology developers. Technologies showcased included robots, unmanned aerial vehicles, biosensors, environmental sensors, victim-locating systems, hazardous

material sensors, responder tracking devices, responder health-monitoring systems and data and communication management systems.

The workshop provided an opportunity for technologists to experience first-hand what rescue specialists face when they work in a collapsed structure. Technologists experienced the oppressive feeling of crawling through a tiny tunnel carved through twisted concrete and steel or feel what it's like for responders not to know if the next space they enter will have enough oxygen left to keep them alive. "This workshop gave non-responders a rare look into the world of collapsed-structure rescue," Dolci said. "It also gave technologists a real appreciation for the needs of the first responder."

During the last two days of the work-

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International travel requirements

The following is a list of items required for international business travel.

- You must have medical clearance. Call the Health Unit for your foreign travel appointment at ext. 4-5287;
- You must have security clearance. Call the Safeguards Office for your foreign travel briefing appointment at ext. 4-1779;
- You must have a valid government business (official) passport. Call for your passport (and visa) appointment at ext. 4-5291;
- You must have country clearance from the Department of State. Ask your associate gatekeeper for assistance in completing the headquarters advance notice form (to initiate country clearance) as soon as you know you will be traveling;
- You must have your non-program travel package (travel orders and all supporting documentation) in process with your associate gatekeeper at least six weeks prior to your proposed departure date. The associate gatekeeper will submit your completed travel package to the principal gatekeeper's office. Completed packets, reviewed and approved by the principal gatekeeper, must arrive at NASA Headquarters at least four weeks prior to your proposed departure date for their review and approval; and
- Program travel does not require NASA headquarters approval, but

completed travel packages must still be reviewed and approved by the principal gatekeeper -- work with your associate gatekeeper to submit your completed travel package at least two weeks prior to your proposed departure date.

Visit the new travel Web site at <http://travel.arc.nasa.gov>. Launched with the traveler and associate gatekeeper in mind, this Web site contains downloadable forms, contact information, resource links, and informative descriptions covering nearly every aspect of your foreign business travel process. If this site is missing something helpful, or if you have comments on how the process or site can be improved, contact the Ames principal gatekeeper staff during normal business hours. The Ames principal gatekeeper is Raj Shea at ext. 4-1955 or e-mail Gatekeeper@mail.arc.nasa.gov

To learn more about passport covers to protect you and your official documents, visit the Web at <http://travel.arc.nasa.gov/passports.html>

Each directorate has an associate gatekeeper who will be your in-house resource and checkpoint. Check the Web at <http://travel.arc.nasa.gov/gatekeepers.html> for your associate gatekeeper's contact information.

If you have questions about Ames' international travel process, check the Web site at <http://travel.arc.nasa.gov>, contact the associate gatekeeper for your directorate, or e-mail Gatekeeper@mail.arc.nasa.gov.

NASA, Lockheed grants presented to Yellowstone Park

Yellowstone National Park's hot springs -- extreme habitats for amazing life forms -- will be the subject of new outdoor exhibits thanks to grants from the NASA Astrobiology Institute (NAI) with home offices at NASA Ames and Lockheed Martin Corporation. Scientists say that 'extremophile' organisms that live in Yellowstone's hot springs may well help explain the origins of life on

ing at living thermophiles -- but at fossil remains of thermophiles, some of which lived four billion years ago. By studying changes in these fossil records, scientists are forming a picture of the



Yellowstone National Park's Old Faithful geyser erupts right on schedule as its name promises.



Grand Prismatic is the largest hot spring in Yellowstone and certainly the most spectacular. Its outline resembles a giant sunburst pattern flaring out from Yellowstone's Midway geyser. The colors present are influenced by different species of algae that thrive in extreme water temperatures.

Earth and provide clues in the search for life on other planets.

Astrobiology is the study of the origin, evolution, distribution and future of life in the universe. The grants, totaling \$66,000 (\$34,000 from Lockheed Martin and \$32,000 from NAI), to the Bozeman, Montana-based Yellowstone Park Foundation will fund exhibit development.

"Thermal springs like those in Yellowstone are natural oases for diverse life forms and hot spring mineral deposits can preserve fossils," said David Des Marais, a member of the Mars Rover science operations working group and lead of the Ames astrobiology team. Yellowstone's natural wonders are guiding the search for evidence of ancient martian thermal springs, and, potentially, for traces of martian life, he noted. "Volcanic activity has interacted with water on Mars, as well as on Earth," Des Marais added.

Microscopic organisms that have inhabited Yellowstone's thermal springs for billions of years tell the story of life on Earth, and could pave the way for discovery of life on other planets, scientists believe. The primary focus of this research at Yellowstone is on microscopic organisms, 'thermophiles,' that inhabit the boiling waters of the park's hot springs. Scientists are not only look-

ing at living thermophiles.

"The hydrothermal features (at Yellowstone) have fascinated visitors for more than a century," said Linda Young, deputy chief of interpretation for Yellowstone National Park, "but who would have thought that any living thing could not only survive, but thrive in

these extreme conditions. We now know that Yellowstone's hot springs are more than just beautiful to look at—they are proving to be enormously valuable in what they are revealing about our own planet's geologic and biologic past."

"Yellowstone National Park offers the public the perfect portal to astrobiology," said Kenneth Reightler, president, Lockheed Martin Space Operations. "It is a wonderful opportunity for NASA to help share new scientific discoveries with three million park visitors annually. We believe that when park visitors understand the connections between the biology and geology in Yellowstone, they will develop an even more profound appreciation of why the park ex-

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Need help giving a speech?

Toastmasters will be presenting a four-week series on speech preparation starting June 21.

The group meets at 12 noon for one hour in Bldg. N269, Rm. 179. The agenda is as follows:

- June 21: Organizing a speech
- June 28: Preparing and practicing a speech
- July 12: Using body language and vocal variety
- July 19: Knowing your audience and being persuasive

For further information contact: Becky Brondos ext. 4-1959 or Stephanie Langhoff ext. 4-6213.

FAA schedules workshop

FAA Flight Technologies is hosting a new technologies 'Focus on the Future' workshop on Aug. 24-25, at the Doubletree in Arlington, Va. The workshop will focus on communication, navigation and surveillance applications that support the evolution to performance-based Air Traffic Management.

For demonstration/promotion of your new technologies, contact Cindy Smith at (336) 461-0553. For registration information, visit the Web at www.cmpmeetings.com/faaafs. Registration and demonstration space are complimentary. Space is limited.

Richard Keller receives pollution prevention award

Last month, the Environmental Services Office (Code QE) presented Richard Keller with the 2003 pollution prevention/sustainability award for his work to improve the Ames shuttle service and increase the number of employee riders. Each year, Code QE selects an individual or team nominated to receive the award for an activity or project that helps Ames to reduce pollution and/or conserve resources. Last year, Keller voluntarily worked with the Ames Commute Alternatives Program to improve the shuttle service. Here are some of the things Keller accomplished that ultimately earned him this award.

Keller worked with the Ames Commute Alternatives Program (ACAP) on behalf of the Ames Federal Employees Union to develop a new shuttle schedule. About a year ago, ACAP had planned to discontinue service to the Mountain View CalTrain station and limit service to the Valley Transportation Authority Light Rail station. This would have resulted in fewer train riders using the shuttle. By working with riders and ACAP to change the schedule to accommodate the majority of riders, Keller enabled ACAP to maintain the service to the CalTrain station.

Keller was instrumental in obtaining an increase in the government subsidies for CalTrain tickets for federal employees from \$30 to \$100 per month.

This helped to increase the number of train riders and shuttle service users.

Keller conducted surveys of riders to ensure the schedules and service were adequate to maintain ridership among employees. He was able to get the shuttle service hours extended as a result of feedback received from the surveys.

You may be working on something right now that has environmental benefits, whether by intention or as a result of a 'non-environmental' activity, for example a project to reduce your group's operating costs. If so, you or someone you know could be the next recipient of the Ames Pollution Prevention/Sustainability Award. Code QE will accept nominations for the award



Richard Keller of Ames is the winner of the 2003 Pollution Prevention/Sustainability Award for his work to improve Ames' shuttle service. He is shown here standing next to one of Ames' shuttle buses.

any time. The rules for nomination are simple. Just see the pollution prevention Web site for details at <http://q/qe/p2/>.

NASA tests new emergency rescue technologies

continued from page 8

shop, participants took part in an exercise in DART's unique collapsed-structure training facility. The site included a large concrete rubble pile with built-in voids and rooms, a simulated concrete collapsed structure, a 30-foot-long twin-engine aircraft, a railroad tanker car and large concrete loads for lifting and moving.

Participating technologists included representatives from NASA Ames; NASA Jet Propulsion Laboratory (JPL), Pasadena, Calif.; Lawrence Livermore National Laboratory, Livermore, Calif.; the National Institute of Standards and Technology, Boulder, Colo.; Tri-Sentinel Inc., Milpitas, Calif.; PureSense, Moffett Field; Carnegie Mellon Univer-

sity at NASA Research Park; Stanford University; University of South Florida and its Center for Robot-Assisted Search and Rescue, Tampa; and the UAV Applications Center at NASA Research Park.

Participating emergency responders included representatives from California Task Forces 3, 7 and 8; NASA Ames DART; NASA JPL Emergency Response Team; North Carolina Task Force 1; Delaware Task Force 1; Florida Task Force 3; Indiana Task Force 1; FEMA Region 9; and the Army Explosives Ordnance Disposal.

The workshop was sponsored by NASA Ames with support from NASA JPL and the Center for Robot-Assisted Search and Rescue at the University of South Florida.

NASA Ames' Disaster Assistance and Rescue Team has 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.

BY ANN SULLIVAN

Ask the 'export expert'

Question:

What does 'controlled technology' mean?

Answer:

Controlled technology is really useful, highly desirable results of your hard work that Uncle Sam doesn't want the rest of the world to have yet.

The Department of Commerce's Export Administration regulations define controlled technology as "specific information required for the development, production, or use of a

product which is itself controlled. The information takes the form of technical data (blueprints, plans, diagrams, models, formulae, tables, engineering designs and specs, manuals and instructions written or recorded on other media, etc.) or technical assistance (may involve transfer of technical data)."

Do you have a question for the export expert? Then e-mail it to kwall@mail.arc.nasa.gov. And, visit the Web at <http://jp.arc.nasa.gov/EC/EC.html>.

Ames Hispanic committee awards scholarships

The NASA Ames Hispanic Advisory Committee for Employees (HACE) partnered with the Enlace Honors Soci-

ety at Evergreen Valley College (EVC) to provide another outstanding opportunity for scholarship awards to deserving Hispanic students.

ty says to participate in the round of reviews for those seeking to be recipients of the \$500 scholarships. HACE awarded four students, from the Enlace Honors Society Program, scholarships that will allow them to continue their academic goals and realize future aspirations.

The recipients are truly committed to their education and success; they are the first in their families to attend college. Eric Kristich, HACE co-chair and other HACE members were instrumental in organizing event fundraisers for the scholarship funds and look forward to the 2004 – 2005 awards.

HACE offered the same scholarships last year to ENLACE, an update of last year's recipients. Three of the students were accepted to San Jose State University and they are studying biological sciences, psychology and pre-medicine. The fourth student was accepted to San Diego State University and is also studying psychology. Dr. Frank Espinoza from EVC chaired the scholarship selection committee. HACE would like to thank those Ames and EVC employees who continue to support community and outreach activities.



At an informal ceremony held recently, the NASA Ames Hispanic Advisory Committee for Employees (HACE) presented four scholarships to deserving students. Left to right: Bobby Jackson (HACE member); Barbara Miller (EEO specialist); Adriana Cardenas (EEO officer for NASA Ames); Norma Ramirez (award recipient); Nancy Cortez (award recipient); Elizabeth Gomez (award recipient); Andres Lucero (award recipient), Eric Kristich (HACE co-chair) and Mark Leon (HACE co-chair).

ty at Evergreen Valley College (EVC) during 2003 – 2004 school year to pro-

vide another outstanding opportunity for scholarship awards to deserving Hispanic students. Students attending the community college submitted applications and es-

NASA AA, Astronaut Cagle share vision for space exploration



NASA Assistant Administrator Paul Pastorek (left) shared the excitement surrounding the Vision for Space Exploration with the next generation of explorers at Poplar Middle School in Poplar, Mont. in April. Pastorek was accompanied by astronaut Yvonne Cagle (right). During their visit, Pastorek and Cagle spoke with students about America's destiny as explorers, NASA's stepping-stone approach to exploring Earth, the Moon, Mars and beyond, how space impacts our lives, and how people and machines rely on each other in space.

McDonough speaks at Ames



NASA photo by Dominic Hart

Environmental designer William McDonough spoke at Ames recently, on the topic entitled 'A Whole New World Right Here on Earth.' McDonough is a noted internal authority on green building and sustainable development. See June issue for follow-up article.

Seventh annual Botball robotics competition held

Future engineers and computer scientists demonstrated their robotics skills at the seventh annual northern California Botball Robotics Tournament at the Leavey Center on the Santa Clara University campus in April 17. Thirty-one middle and high school robotics teams from 23 Bay Area and northern California schools were involved in the event.

Botball is the robotics program designed to engage students in learning science, technology, engineering and math. Students are given six weeks to design, build and program two microcontrolled robots with LEGO structures to compete in a fast-paced regional tournament.

The top four teams overall, in or-

der, based on a score which combined their efforts in head-to-head competition, seeding rounds and development documentation were Crystal Springs Uplands School, Hillsborough; Hillsdale High School, San Mateo; Tennyson High School, Hayward; and Los Altos Community Team, Los Altos.



The Northern California Botball teams competing at the recent tournament.

Ames Child Care Center to host golf tournament

The Ames Child Care Center (ACCC) will host its 9th annual charity golf tournament on Friday, June 18 at the Moffett Field Golf Course. Registration and lunch will begin at noon, followed by a shotgun start at 1:00 p.m. There will be hors d'oeuvres and a raffle prize drawing immediately following the tournament. The ACCC is looking forward to a great turnout on what promises to be a great day for golf and fundraising. The proceeds from this tournament will be used to purchase of playground equipment for a new ACCC facility.

The cost of registration will be \$70 per player (teams of four are \$280). The registration fee includes a round of golf, lunch before the tournament and one raffle ticket per player. Six mulligans per team with a maximum of two per any player will be available for two for \$5. A limited number of electric carts are available on a first-come, first-served basis at an additional cost of \$24 per cart; pull-carts may be rented for \$4. The format for the tournament will be a four-person scramble (best shot from your team used for each stroke). Prizes will be awarded to the teams with the lowest three net scores and the lowest gross score. There will be prizes at select holes for the 'longest drive' and 'closest to the pin.'

The ACCC is a non-profit child care and preschool, accredited by the prestigious National Association for the Education of Young Children (NAEYC) located at the NASA Ames. It provides full-time, quality day care to children of civil servant and on-site contractor personnel. The tuition paid by the parents covers salaries and operational costs only. All other costs are covered by fundraising activities such as the ACCC

charity golf tournament.

Plans are still underway for a new, permanent facility to be located adjacent to Bush circle. The new ACCC is expected to be complete by the end of this year. Part of the proceeds from the June tournament will go toward a fund that will furnish the new facility and buy equipment for the new classrooms and playground. Help get the perma-

nent facility fund off to a good start by signing up to today for this fundraising event.

Registration forms are available for download from the ACCC Web site: <http://acc.arc.nasa.gov>.

Registration forms can also be requested by contacting the ACCC at MS T20-D at Ames or by e-mail at childcare@mail.arc.nasa.gov.

Admin professionals recognized



NASA photo by Tom Trower

Ames recently sponsored a breakfast workshop entitled 'Communicate Your Way through Change' in observance of Administrative Professionals week. This was held in recognition of the valuable contributions that the support staff at Ames has provided toward the success of its programs and projects at the center.

Legionella team in action at NASA Ames

Over the past year, through a combined effort with Codes FEF, QH, DMJM, PAI, JFP, and Johnson Controls, this legionella team has demoed out thousands of feet of piping in 11 buildings, insulated thousands of feet of remaining piping to keep them from becoming too warm or too cold (and therefore reaching the legionella breeding temperature zone). They also removed old drinking fountains that were at risk for containing legionella bacteria, installed new ADA compliant drinking fountains; and removed over 50 showerheads that were not in use enough to be safe from legionella growth.

All 11 buildings were chlorinated successfully. All the post-chlorination samples came back below the accepted level for legionella bacteria colony forming units (cfu). The maximum allowed is 10 cfu. Most results were less than 0.4 cfu, and all were under 2 cfu. Looking at some pre-construction/chlorination samples, this is an impressive number. Some outlets (sinks or showers) were above 250 cfu!

The legionella team is currently working on the minimization of legionella bacteria in the next set of 11 buildings for FY '04. Visit Code Q's Web site at <http://q.arc.nasa.gov/legionella/updates.php> and click on the



From left to right: Greg Altberg (DMJM); Tony Wong (Code FEF); Diana Harrington (PAI); Jenny Vodvarka (DMJM); Ramon Baclit (DMJM); and John Steen (Code QH). The photograph was taken in the basement of Building 19 in front of the new heat exchanger that was installed, replacing two 1,500 gallon water holding tanks, a breeding ground for legionella bacteria.

appropriate links for more safety, health and construction information regarding legionella.

For those of you whose building is

affected by the legionella project construction work, thank you for your patience in allowing us to make your building a safer place to work.

BY JENNY L. VODVARKA

NASA Ames robotics team wins Chairman's award

The NASA Ames Robotics team, the Cheesy Poofs, competed recently in the FIRST (For Inspiration and Recognition of Science and Technology) robotics competition as Team 254. FIRST is a national organization that focuses on inspiring students about math and science. FIRST, among other things, runs a national robotics competition; this competition involves students, adults, and engineers in the challenging and multifaceted robot design and construction process. The Cheesy Poofs competed recently and won the Chairman's award. This award recognizes a team's commitment and efforts toward achieving this goal. It remains FIRST's most prestigious award.

The Cheesy Poofs Robotics Team, 254, has evolved over the past five years from the smallest program in the country in 1999, at a struggling high school, to a large program based at the NASA Ames. While the team's



NASA Ames robotics team the 'Cheesy Poofs' won the Chairman's award at the recent FIRST robotics competition held in Atlanta, Ga., in April.

student members have changed, the Cheesy Poofs have continued to flourish.

For more information about FIRST, visit the Web at www.usfirst.org.

Events Calendar

Ames Amateur Radio Club, third Thursday of each month, 12 noon, N-T28 (across from N-255). POC: Michael Wright, KG6BFB, at ext. 4-6262.

Ames Ballroom Dance Club. Classes on Tuesdays. Beginning classes meet 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, 4-1368.

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

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

Ames Contractor Council Mtg, first Wednesday each month, 11 a.m., N-200, Comm. Rm. POC: Anita Fogtman, 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.

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

Ames Mac Support Group Mtg, third Tuesday of ea. month, 11:30 a.m. to 1 p.m., Bldg. N262, Rm 180. POC: 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/EHSseries/> POC: Stacy St. Louis at ext. 4-6810.

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

Jetstream Toastmasters, Mondays, 12 p.m. to 1 p.m., N-269/Rm.179. POC: Becky Brondos at ext. 4-1959, bbrondos@mail.arc.nasa.gov or Bob Hilton at ext. 4-1783, bhilton@mail.arc.nasa.gov.

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. 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.

NASA technology enhanced for use in private sector

NASA software created to help scientists search and organize their research documents is now available to the general public to help organize complex computer data.

Originally developed at NASA Ames, NETMARK software has been licensed by Black Tulip Systems Corp., in San Jose to make this tool available to people and organizations that need rapid searching of computer networks and systems.

"NETMARK combines the best practices of computer program modeling to support complex data creation," said David Lackner of the Technology Partnerships Division at NASA Ames. "It takes advantage of the object-relational database model using very efficient keyword searches spanning both content and context," Lackner said.

This program, originally designed to manipulate NASA's vast amounts of unstructured and semi-structured documents, has been enhanced by Black Tulip Systems to aid law enforcement investigators and regulation compliance personnel to search, store, manage and retrieve documents more efficiently.

"This product provides more robust search tools. The increased speed will bring important evaluations to a faster conclusion," said Black Tulip Systems' president and CEO Ted Munnich.

The software can be installed either on a network server or on a single workstation. Intended for use by independent auditors, attorney generals, prosecutors and other investigators needing to search computerized data, this software potentially could save a tremen-

dous amount of time and money spent on search tasks.

"This is another example of how innovative private companies can leverage taxpayers' money invested in the space program and benefit the way we live and work on Earth," noted Lackner.

For more information about the commercial version of NETMARK, visit the Internet at <http://www.blacktulipsystems.com>. For more information about technology partnership opportunities, visit the Web at <http://technology.arc.nasa.gov>

BY VICTORIA STEINER

Grants given to Yellowstone Park

continued from page 8

ists, and the significance of protecting it for future generations," Reightler added.

Installation of the new Yellowstone exhibits is expected to begin during the 2004 visitor season. The new interpretive exhibits are the start of what the NASA Astrobiology Institute and Lockheed Martin hope will be an ongoing collaboration with Yellowstone National Park and the Yellowstone Park Foundation to educate the public about

the discoveries being made possible by research at the park. Future funding may pay for educational pamphlets and interactive indoor exhibits at the visitor education center to be built at Old Faithful.

More information about the Yellowstone Park Foundation is on the Web at: <http://www.ypf.org>

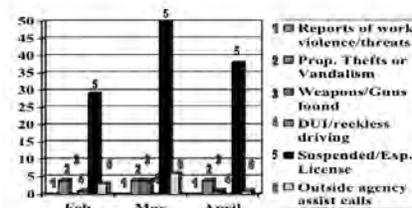
BY JOHN BLUCK

Protective Services monthly activity

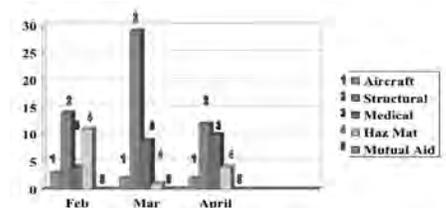
A statistical summary of activities of the Protective Services Division's Security/Law Enforcement and Fire

Protection Services units for the month of April 2004 is shown below.

Security/Law Enforcement Activity



Fire Protection Activity



Ames Classifieds

Ads for the next issue should be sent to astrogram@mail.arc.nasa.gov 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

Oregon State Univ. student looking for housing near Ames for summer internship working w/salt pond acquisition project. Prefer furnished room from approx. June 20 through end Aug. Non-smoker, very responsible, courteous and a delight to have around. Desired rent ~\$500/mo and would like a parking friendly neighborhood. Ames contact: Dana drogoff@mail.arc.nasa.gov, ext. 4-3615.

Room for rent in quiet Los Altos close to Ames. Share w/prof, l males/females. Large house and yard w/gardener. W/D, N/S, no pets. Available now. \$575/mo plus deposit and 1/4 utils. Call (650) 964-2913.

Room for rent in San Mateo. Christian female preferred. \$600 monthly w/utills included. Carolyn (650)357-8511.

3 bd/2 ba house for rent in West San Jose. Moreland schools, Prospect High School. Includes gardener, 2 car garage, separate family and living rooms. \$1,875/mo. Available June 1. Call (408) 445-8437.

For rent: 3bd/2ba, thoroughly modern and refinished, 2,200 sq ft., 2-car garage house in Cambrian. Great neighborhood, close to schools and shopping, easy access to Hwy 85. \$2,200/mo. (408) 348-4665.

Transportation

'86 ACURA Legend, orig owner silver/grey; 4 dr 5spd, A/C, moon roof, looks new, very clean, well maintained, low miles on new engine/clutch, \$1,500. Call (650) 328-4633.

'91 Mazda Protoge, automatic, sun roof, power windows, air, gd. running condition, 169K mls. Blue book is \$1,175, selling for \$900. [Ephie morphew@mail.arc.nasa.gov](mailto:emorphew@mail.arc.nasa.gov)

'99 Mustang GT, 4.6 V8, green, 69k, 5spd, all options fully loaded, priced to sell at \$9,500. Mike (408) 529-6953.

'01 suzuki esteem GLX sedan, 5 speed, black, all options, 50K mls, gd condition and great commuter, 30mpg average. Asking \$4,500. Jerry (510) 742-6896.

Miscellaneous

2 oak bar stools, \$15 for both. Stacking chairs (6), \$50. Wrought iron patio umbrella stand (2), \$10 each. One-year-old pair of love seats, \$500 for both. Annette (408)323-4872.

Credenza, 20in x 30in x 46in, beautiful honey-laquer finish, excellent condition, \$350. Call (650) 473-0604.

Wanted: Basketball hoop with stand in good condition. E-mail: falcon7777_2000@yahoo.com

1995 Mac computer (G-3 upgrade), printer and peripherals including turboball and zip drive, good condition, \$100 or B/O. Shelby (408) 745-7437.

Moving-out-of-state sale until end of June (within Ames community housing, near main gate. Dining set (5 foot glass-top table and 4 chairs); complete bedroom set (bed, head frame, dresser, high boy); bookcases, TV, entertainment center, desks and chairs, L-sofa, new washer/dryer, mattresses, mini refrigerator, exercise bike, books and misc. Call before come at (650) 625-1325.

Digital video camera system, SONY DSR-300 digital video camera with Canon YH18X6.7 18X zoom lens. GEAs new, condition with only 128 total hours. Includes the following accessories: PortaBrace CO-PC camera case; PortaBrace SCD-300 carrying case; SONY LC-424TH hard case; NRG 1291004 a/c power supply; SONY BP-L90 lithium ion battery; SONY BC-L50 battery charger; Bogen 3191 tripod; Bogen 3066 tripod head. Asking \$7,000. E-mail redfrog3@earthlink.net

Exercise equipment: Nordic Track Pro 500 including personal performance monitor/pulse (LCD readout of speed, time, calories, pulse rate, distance) with instruction video and manual. Simulates cross country ski motion. Orig. \$600. Folds compactly. \$125 or B/O. Call (408) 863-0835.

Teak desks (2 available), simple Scandinavian modern style, no drawers, exc. condition. Smaller one is 60L x 30D x 28H @ \$75. Bigger one is 72L x 36D x 28H @ \$100. Call (408) 663-2728.

Teak bookcase, simple Scandinavian modern style, Exc. condition. 75 inches tall x 11 inches deep x 35 inches wide. Call (408) 663-2728.

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-943 (10 a.m. to 4:00 p.m.) ext. 4-5412

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

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

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

NASA Lodge (N-19) 603-7100

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

Vacation Opportunities

Lake Tahoe-Squaw Valley Townhse, 3bd/2ba, balcony view, horseback riding, hiking, biking, golf, river rafting, tennis, ice skating, Equipped and more. Summer rates. Call (650) 968-4155, 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.

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.

Spacious 2 bdrm Maui suite available (can accommodate up to 6 people) for 1 week. Cooking facilities, color TV, swimming pools, access to beach and much more. Located nearby shopping centers, golf courses, and all water activities. \$1,200 a week or B/O. Call (408) 446-4416 for more information.

Incline Village: Forest Pines, Lake Tahoe condo, 3 bd/2ba, sleeps 8. Fireplace, TV/VCR/DVD, MW, W/D, jacuzzi, sauna, pool. Walk to Lake, close to ski areas. Visit Web page for pictures: <http://www.ACruiseStore.com>. \$120/night low season, \$155/night high season (holidays higher) plus \$156 cleaning fee and 12% Nevada room tax. Charlie (650) 355-1873.

Disneyland area vacation rental home, 2 bd/1ba. Nearing completion completely remodeled w/ new furniture. Sleeps 6 (queen bed, bunk beds, sleeper sofa). Air hockey and football tables. Introductory rate \$600/wk, once completed rate will be \$1000/wk. Security deposit and \$100 cleaning fee required. Call (925) 846-2781.

Safety Data

	Civil Servants	Contractors
Not recordable first aid cases	4	0
Recordable no lost time cases	0	0
Lost time cases*	0	0
Restricted duty days	0	0
Lost work days	0	0

Data above is as of 4/29/04. May be subject to slight adjustment in the event of a new case or new information regarding an existing case.

Note: Under new OSHA rules, lost time is defined as lost work days, restricted duty or job transfer.

Astrogram deadlines

Deadline:	Publication:
May 27	June 2004
June 25	July 2004

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 on or before the deadline.

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.

NASA Tech Briefs associate editor tours Ames

In April, NASA Tech Briefs Associate Editor Cathleen Lambertson, visited

Arc Jet and Thermal Protection Systems work.

development, current planning and future expectations of the Arc Jet program. She also was introduced to the complexities of thermal protection materials development.

NASA Tech Briefs magazine has the largest circulation of any engineering magazine.

Contact Lisa Williams at liwilliams@mail.arc.nasa.gov or ext. 4-2954 to learn about using NASA Tech Briefs to promote your exciting Ames innovations or to receive a copy of the publication.



NASA photos by Dominic Hart

Cathleen Lambertson, associate editor of NASA Tech Briefs magazine, right, shown during her tour of the facilities and Sarah Beckman, lower left, study electromicrograph images.

NASA Ames. Her visit was coordinated by the Technology Partnerships Office in cooperation with the Thermo-physics Facilities Branch and the Thermal Protection Materials and Systems Branch.

During her visit, Lambertson viewed several facilities unique to Ames

Lambertson's primary interest during her tour was the Arc Jet Facility. She interviewed several of the key players in the early



Joe Hartman points out the intricacies of the arc jet system to Lambertson during her recent tour of the facility.



National Aeronautics and Space Administration

**Ames Research Center
Moffett Field, CA 94035-1000**

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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 or by phone at
 (650) 604-3347.

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