

Astrogram

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Diaz finds optimism in transformation at NASA and Ames

Ames Research Center will play a critical role in helping NASA meet the "tremendous challenge" of undergoing a major transformation, according to Al Diaz, associate administrator for the Science Mission Directorate.



NASA photo by Tom Trower

Associate Administrator for the Science Mission Directorate Al Diaz at the March 23 all hands at NASA Ames.

Speaking at an all-hands meeting on Mar. 23 in the main auditorium, Diaz remarked that he was impressed by the large turnout. "At Goddard, to get this many people to attend a meeting, we had to offer them free food," he said. "I hope I'm not the meal," he joked.

Diaz was named to head the Science Mission Directorate by former NASA Administrator Sean O'Keefe last August, having previously served as the director of NASA Goddard Space Flight Center for eight years. He said he learned of his new job during a phone call from O'Keefe in June while vacationing in Italy.

Turning to the subject of NASA's transformation, Diaz said it began shortly after O'Keefe joined the agency and the Columbia Accident Investigation Board (CAIB) issued its report, citing the cause of the tragedy and calling for changes to prevent it from happening again.

Included in those recommendations

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Conversation with Congressional reps



NASA Ames hosted U.S. Rep. Anne Eshoo (14th District), top left; U.S. Rep. Mike Honda (15th District), and U.S. Rep. Zoe Lofgren (16th District) at Ames on April 4. They had a discussion concerning the on-going NASA transformation and affirmed the important role that NASA Ames, as an integral part of the Silicon Valley community, plays in cutting-edge science and technology.

Astrobiology expedition yields findings

A group of scientists announced in March that they have identified habitats and microbial life using a rover in Chile's arid Atacama desert, one of the harshest environments on Earth, and that their findings may bode well for future missions to Mars.

Results were announced at the 36th Lunar and Planetary Science Conference held in Houston March 14 to 18 and were based both on the remote science team's interpretation of rover data and on laboratory analysis of returned samples collected during the 'Life in the Atacama' expedition from September to October 2004.

Samples first identified and documented by the remote science team using the rover showed positive identification of natural fluorescence of organic

molecules including chlorophyll and, after application of fluorescence dye



The Carnegie Mellon University Zoë robot in the Atacama Desert, Chile

probes, identification of DNA and protein. Those samples were brought back to the lab and "preliminary results showed biological activity," said Nathalie Cabrol, a planetary scientist

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-- NASA searches for answers to questions as old as humanity, and asks new ones

New Business Office—Ames' important strategy for success

Change is in the air. In the past year or so, the exploration vision has brought about a focus on near-term, high-TRL work. We have begun to feel the effects

top priority large proposal efforts; using lessons learned, training and establishment of standards to improve the Ames proposal 'win rate'; and establishing new

business practices and processes at Ames. In addition, the NBO will work closely with the Ames Strategic Research Council during 2005, on implementing processes for managing the

repeatable approach. Look for future workshop announcements on the 'Learning' section of the NBO Web site. The NBO is the Center's primary interface with NASA's new proposal submission system, called the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES). Ames civil servant principal investigators are strongly encouraged to register immediately and request affiliation with the Center (<http://nspires.nasaprs.com/>). The NBO is in the process of delegating proposal submission authority to the directorates/divisions in order to streamline the pro-



of full-cost accounting and IFMP. Direct funding has been cut back and competition for funds is on the rise. Ames is responding to this changing environment by developing new strategies, aggressively seeking new customers, cutting costs, and—you guessed it—establishing an Ames New Business Office (NBO). Led by Wendy Dolci, the NBO is one part of an overall strategy to build a new and stronger Ames.

So, what is the NBO and what does it do? One of the NBO's essential functions is to provide a central point of communication for new business at Ames. It is a place to go for information, support and guidance. The NBO slogan 'One Aim. One Ames.' stems from the belief that by collaborating across center organizations and focusing our efforts, the Center's potential for bringing in revenue will increase.

One of the critical NBO efforts underway is capturing the Center's portfolio of new business: identifying new business pursuits that are in progress at Ames, and identifying existing, emerging and potential customers. Publishing regular reports on the Center's pursuits makes these efforts visible across the Center, develops a stronger 'One Ames' point of view and captures lessons-learned for re-use. In March 2005—as a way to receive updates on progress, identify problems and provide support—monthly reviews of Ames' top priority new business pursuits began.

The NBO is responsible for a number of other functions, including proposal development support ranging from 'self help' information and tools on the Web, to more extensive support for large proposal teams.

In a changing environment, it is important to stay flexible; the New Business Office will evolve over time to suit the Center's needs. The focus in 2005 will be on scouting, distributing and matchmaking for funding opportunities; providing support for the Center's

Center's investment account. The purpose of the investment account is to fund research and development of emerging, new ideas that have potential to become future projects and to fund large proposal efforts. Investment account elements include the Director's Discretionary Fund internal research and development funds and bid and proposal funds.

The NBO Web site, located at www.NewBusiness.arc.nasa.gov is an internal resource for immediate 'self-help' assistance in searching for funding opportunities and proposal development. The 'funding opportunities' section contains links to NASA internal and external funding sources. The 'projections' page links to a six-year rolling projection of opportunities to help in long-term planning. A wealth of other available information and useful tools includes pointers to the Center's most up-to-date costing workbook, writing samples and lessons learned.

Together, the Ames Training Office and the NBO are sponsoring 'Proposing to Win' workshops to help researchers hone their skills at proposal writing and development. These workshops extend beyond improvement of basic writing skills. Workshop participants learn to focus on the customer, increase their knowledge of strategic business development, improve their proposal generation strategies and learn how to develop better proposals in less time by following a disciplined, systematic and



The Ames New Business Forum meets every two weeks to discuss plans and strategies for new business at Ames.

positional management function.

A 'situation room' in Building 244 in Room 203B was established by the NBO to provide a physical location for developing strategies and plans. As a 'think tank' for new business, it provides a venue for sharing information about Ames capabilities, for information about potential customers and funding opportunities and for linking capabilities with opportunities. The situation room is a convenient place to hold seminars and brainstorming sessions on new business focus areas. In the situation room you will find information about funding opportunities, future projections, wall space and white boards for posting information or sketching out ideas, as well as the Ames capabilities 'one-pagers' which are posted for browsing. The situation room was opened March 24.

The NBO has founded the Ames New Business Forum (NBF)—a grassroots network of people who want to bring about positive change at the Cen-

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Ames technical writer Beth Minneci passes away

Members of the Intelligent Systems Division at Ames are mourning the tragic loss of their friend and colleague Eliza-



Beth Minneci

beth (Beth) Minneci, who passed away unexpectedly at the age of 37 from natural causes at her home in Palo Alto. Her untimely death stunned and saddened all who knew her and who had the pleasure of working with her during her time at Ames. Minneci came to the (then) Computational Sciences Division as a technical writer on the division outreach team in January 2003. Her skills as a science writer and journalist, her

intelligence and curiosity, and her friendliness and the ease with which she could coax a busy researcher to pause and talk about his or her work made her an invaluable contributor and earned her a great number of friends throughout the division.

After graduating with a degree in journalism from the University of Florida in 1993, Minneci wrote for several newspapers in Florida, Massachusetts and Colorado, before her spirit, sense of adventure and scientific curiosity took her to McMurdo Station in Antarctica, where she spent several months writing and editing for the weekly Antarctic Sun. She followed that with a stint as a writer and editor for the Berkeley Daily Planet.

For the last two years, Minneci has been the editorial voice of the Intelligent Systems Division for both Web and print publications, one of the faces greeting visitors to division exhibits at major conferences and scientific meetings, and the narrative voice—usually reading her own words—on division videos. As outreach writer and editor, she worked closely with all research groups in the division, creating Web, video and print materials about the division's research for both public and technical audiences. She also provided invaluable writing and editing assistance during the recent Headquarters funding proposal cycles.

Minneci was never one to shirk from new challenges or adventures. She enjoyed running, scuba diving and bass fishing, and was an avid reader in subjects ranging from international politics to penguins. She also loved to travel. In addition to her time in Antarctica, she visited Australia and New Zealand, and recently completed a three-week trip through Cambodia and Viet Nam. She was working on a degree in linguistics, and had begun studying Mandarin with plans for teaching English in Taiwan after she left NASA.

Minneci is survived by her parents Judy and Ross Minneci; brother and sister-in-law Mike and Caroline Minneci; sister and brother-in-law Sue and William Stevenson and their three children Ella, Anna and Jonathan; grandmothers Tina Minneci and Florence Matas; and aunt Sharon Guest. Funeral services were held March 15 at St. Mary Magdalen Catholic Church in Altamonte Springs, Fla. Minneci was laid to rest in All Faiths Cemetery in Casselberry.

The thoughts and prayers of all who were honored with her friendship are with her family at this difficult time. She will be remembered fondly and sorely missed by all who knew her, worked with her, and whose lives she touched during her time among us.

BY BOB DUFFY AND SUE BLUMENBERG

Robotic expedition yields findings

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who leads the science investigation at the SETI Institute at NASA Ames.

Also participating in the rover field experiment were scientists from Carnegie Mellon University, Pittsburgh; the University of Tennessee, Knoxville; the University of Arizona, Tucson; the University of California at Los Angeles; Universidad Católica del Norte in Chile, the British Antarctic Survey, Cambridge and the International Research School of Planetary Sciences in Pescara, Italy.

Using a long-range, solar-powered, automated rover named Zoë developed by Carnegie Mellon University, scientists explored the Atacama and tested a scientific payload to search for microbial life. Investigations at two sites, each lasting a week, encompassed both the most humid coastal region of the desert and its arid core and required the rover to make multi-kilometer traverses to sample the distribution of organisms.

While the rover was in the Atacama, the remote science team was located in Pittsburgh, receiving science and engi-

neering telemetry once per day. The remote rover operations simulated the current Mars mission in many respects: team organization, pre-mission datasets, bandwidth, command cycles and orbital support imaging.

"Life is barely detectable over most of the desert," Cabrol explained. "Its geological, climatic and biological evolution provides a unique training ground for designing and testing exploration strategies and especially life-detection methods for the robotic search for life on Mars."

In addition to searching for life, scientists have sought to understand the physical and environmental conditions associated with habitats and learn how various organisms have contributed to the modification of their environments. Cabrol especially focuses on the development of 'life-seeking' exploration strategies using the highly mobile rover.

"We created Zoë to reliably and efficiently roam the desert and make sci-

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New Business Office

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ter. The forum meets every two weeks to discuss ideas and strategies and to plan its activities. Minutes from forum meetings are posted on the NBO Web site. Recognizing that increasing Ames instrument and hardware development is one path to increased revenue for the Center, one of the forum's first events is the Ames Instrumentation Workshop 2005. Planned for April 13, the goals of the workshop are to identify Ames past successes in building instrumentation, the work now in progress, funding opportunities and the matching of Ames capabilities with opportunities.

The Ames New Business Office will soon be located in Building 244, Room 236 (pending upcoming office moves). Stop by and see us, or contact the NBO via e-mail at NewBusinessOffice@mail.arc.nasa.gov or by campus mail at MailStop 244-14.

NASA simulates martian 'dust devils,' wind in vacuum tower

Befitting the powerful Roman god of war for which Mars was named, the red planet's 'dust devils' can be as lofty as five miles (eight kilometers) tall. A dust devil is a wind-generated vortex,

NASA is simulating both of them in a laboratory at NASA Ames. Scientists are interested in Mars' dust devils because they produce particle motion that may well change Mars' landscape by moving material and causing erosion.

The laboratory has two pieces of equipment that scientists use to study how winds and dust devils may affect the red planet's landscape and environment. The Mars Surface Wind Tunnel simulates normal martian winds, and the Vortex Generator simulates dust devils.

"Sand and dust storms on Mars result from local and regional winds blowing across the surface and from vortexes, called dust devils," explained principal investigator Ronald Greeley, a scientist at Arizona State University, Tempe. The university operates the simulation equipment for NASA. "Active dust devils have

surface and picks up dust. This dust makes the vortex visible and gives the 'dust devil' its characteristic appearance.

The NASA Mars Surface Wind Tunnel is housed within a 100-foot-tall (30.5-meter) concrete tower's interior space in Bldg. N242. Scientists decompress the atmosphere within the tower to very low air pressure to simulate Mars' atmosphere at ground level. Originally, NASA built the tower, the Structural Dynamics Laboratory, to test large rockets and simulate their ascent through Earth's atmosphere. The facility was completed in 1965, and included heaters, shakers and noisemakers to 'shake, bake and sound-blast' rockets.

The small Mars Surface Wind Tunnel sits in the center of the six-foot (1.8 meter)-thick concrete floor of the facility. The wind tunnel is about 43 feet (13.1 meters) long and has a test section measuring four feet (1.2 meters) wide and three and a quarter feet (1.1 meters) high. The plywood and Plexiglas tunnel resembles a railroad tunnel through a mountain -- a straight, tube-like formation to allow air to pass freely through it. In contrast, many wind tunnels that engineers use to test airplane models are loop-shaped because air recycles through them.

To mimic wind conditions at normal Earth-like air pressure, a fan generates air speeds of as much as 36 feet (11 meters) per second through the Mars wind tunnel. However, instead of using a fan to simulate martian wind, scientists send high-pressure air out the end of the tunnel, which draws thin air into and through the tunnel.

The simulated martian atmosphere in the wind tunnel is so tenuous that a fan would have to spin at too high a speed to blow thin wind through the test section. The high-pressure air draws thin air through the tunnel like a vacuum cleaner sucks air. Scientists also compare this process to a person sucking water through a straw. The resulting simulated Mars wind moves at about 230 feet (70 meters) per second.

To one side of the wind tunnel is the apparatus that makes simulated Mars dust devils. This 'vortex generator' consists of an eight-foot (2.4-meter) vertical frame supporting a four-foot-tall (1.2-meter) stovepipe-like tube, measuring 1.5 feet (0.5 meters) to three feet (0.9 meters) in diameter. Blades spinning

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Photo credit: Arizona State University

The Arizona State University Vortex Generator, CO₂ visualization experiments.

or whirlpool in the atmosphere. Nearly every child has seen small whirlwinds that spin dust or leaves in spirals on Earth.

Besides large 'dust devils,' the martian environment, from time to time, spawns huge dust storms that may cover nearly the entire planet. Both martian winds and dust devils, big and little, are constantly changing the planet's environment.

To expand knowledge of dust devils and the red planet's feisty winds,

been seen from orbiting spacecraft and from the Mars Pathfinder Lander," he said. A former NASA scientist, Greeley, along with a colleague, designed the Mars tunnel, which was built in the mid 1970s.

Dust devils are common in dry and desert landscapes on Earth, as well as on Mars. They form when the ground heats during the day, warming the air just above the surface. As the warmed air nearest the surface rises, the air spins. The spinning column moves across the

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inside the tube push air to its edges, creating a vortex, which simulates a martian dust devil. Simulated dust devils become visible once dust particles are injected into the airflow. The study of simulated martian dust devils has been ongoing for a few years in the Mars wind tunnel facility. Experiments also take place at Arizona State University to simulate dust devils on Earth for comparisons with those of Mars.

During experiments, scientists inject various kinds of particles into the wind flow of both the dust devil generator and the Mars wind tunnel to imitate conditions on Mars. Because of gravitational differences between Mars and Earth, scientists often use walnut shell dust or particles to simulate rock dust on Mars. Scientists also use beach sand, chromium dioxide (similar to sand paper grit) and silica flour - as well as assorted other materials to simulate different martian particle sizes and densities.

Scientists pump air from the facility to reduce its air pressure in order to simulate Mars' extremely 'thin' air. Air pressure on Earth at sea level is 29.54 inches of mercury (1 bar) of pressure. Mars' air pressure is measured in millibars. Each millibar -- one-thousandth of a bar -- is about 0.03 inches of mercury.

"The facility is 100 feet (30.5-meters) tall, and it can be pumped to 4 millibars, which is close to a 'hard' vacuum, but we take it to only 10 millibars of pressure," explained Eric Eddlemon, a member of a team conducting Mars dust devil and wind simulations at NASA Ames. "Mars' atmosphere is about 7.5 millibars, or less than one-hundredth the air pressure on Earth's surface," added Eddlemon, who manages the facility for principal investigator Greeley, who is conducting the dust devil studies.

"The reason we only go to 10 instead of 7.5 millibars is because Mars' air is mostly carbon dioxide, and Earth's atmosphere is mostly a mix of nitrogen, oxygen and other gases. The properties of Earth's atmosphere at 10 millibars are comparable to Mars' carbon dioxide atmosphere at 7.5 millibars," he explained.

"We know there are dust devils on Mars, because we have seen them in action," said Eddlemon, speaking about pictures various spacecraft have taken of Mars' surface that show evidence of active dust devils. "They leave tracks

behind on the martian soil."

Comparing the martian whirlwinds to the four-foot (1.2 meter)-tall ones scientists create in the laboratory, Eddlemon said, "On Mars, dust devils can be thousands of times bigger. Typically, what we are interested in, though, is the diameter of the 'core' (eye) of the dust devil."

There is a difference between Mars wind blowing dust, and 'dust devils' lifting dust. Like a vacuum cleaner, a dust devil has lower pressure in its core, which means that it is easier for dust devils to put dust particles in motion than for wind to do so.

"We've generated thousands of dust devils in both Earth conditions and simulated martian conditions," Eddlemon said. "What we are interested in is the types of material that martian dust devils are able to move."

"Dust on Mars is extremely fine, being about the size of flour used in baking bread," Greeley said. For simulated Mars dust, researchers often use 'Carbondale red clay,' because it is less than 0.0000787 of an inch (two microns, or 2 millionths of a meter) in size.

"We run two kinds of experiments," Greeley said. "In the first type, we want to learn how particles are picked up by

dust devils, and how much dust is injected into the atmosphere. In the second type of experiment, we want to learn how the surface of Mars is modified by dust devils, including the formation of the tracks seen in images from Mars," Greeley explained.

"In the past, dust devil tests have taken place on a flat, relatively smooth test bed, but now we are introducing rough surfaces to simulate rough terrain," Eddlemon said. "We've put various size pegs on the surface of the test bed to create hill-like conditions."

"We found that when we added the small pegs to the flat surface, the dust devils moved material more easily. However, when we added bigger pegs, the dust devils had a more difficult time moving material - even more difficult than on a flat surface," he added.

"We're looking at the atmospheric processes that move material on the surface of Mars," he said. "We are also doing experiments to find out how much material can be suspended in simulated Mars dust devils."

For more information about the Mars Wind Tunnel facility visit: <http://cmex.arc.nasa.gov/Aeolian/aeolian.html>

BY JOHN BLUCK

DDF poster session held at Ames



NASA photo by Dominic Hart

The DDF poster session was held recently in the NASA Ames Conference Center (Bldg. 3). This was an opportunity to view some of the most innovative, leading-edge research being carried out at the Center.

Ames employees visit the Ronald McDonald House

In February, Ames employees visited the Ronald McDonald House, located in Palo Alto. The Ronald McDonald House at Stanford provides

threatening illnesses receiving treatment at local hospitals. The newly remodeled house contains 47 rooms, it also features two specialized immune wings. The Garden Immune Wing contains six rooms for children after they have received bone-marrow transplants, the treatment of last resort for a little one with cancer, and the Maya Immune Wing with eight suites, for heart and lung transplant recipients.

Ames employee Patricia Montes Gregory, of the NASA Astrobiology Institute, organized this volunteer effort. "My nephew was a resident on two separate occasions. My family is very appreciative of this facility and the

level of care provided by the staff at the Ronald McDonald House. I am delighted to work at a place that allows me



Patients at the Palo Alto Ronald McDonald house are seen pictured here with their parents.

a home-away-from-home and support for all families of children with life-



the opportunity to give back to my community. Although many of the children do attend school, they are not able to go on field trips, so I take the field trip to them," she said.

Victoria Callor, life sciences outreach, provided invaluable support. She set up and operated the NASA photo booth. The theme was Junior Astronauts on Mars, our next generation of explorers. This project was financed in part by Lockheed Martin Space Operations. NASA teddy bears were provided to immune-suppressed children, who could not participate.

These Ames employees did so much more than simply take pictures of these children. They created a snapshot of a moment in time. Many of the residents have been separated from their parents and siblings for months. Their parents often have to remain in their state, or country of origin to work, or care for remaining family members. Several families asked for duplicate pictures to send back home. They wanted to send the pictures to their family members, whom they haven't seen in months. In this aspect Ames' employees served to unite these families.

The success of these types of outreach projects is testament to the interconnectedness between organizations and individuals at NASA Ames. It shows how Ames' employees can contribute to their community in a positive manner.

Aerospace Corp. and Ames sign MOU



Photo credit: The Aerospace Corp

NASA Ames Research Center Director G. Scott Hubbard (left) is seen here with Dr. Bill Ballhaus, president and chief executive officer of the Aerospace Corporation, signing a memorandum of understanding (MOU). The MOU calls for collaboration between NASA Ames and the Aerospace Corp. to develop new small, lightweight, low-cost re-entry systems and related nano and pico spacecraft technologies, including miniature sensor systems.

Intel's president speaks at Ames



NASA photo by Dominic Hart

Paul Otellini, president and chief operating officer of Intel Corporation, recently presented a director's colloquium entitled 'Riding Moore's Law' in the main auditorium at Ames.

Otellini discussed the status and future implications of Moore's Law. Topics included applications in supercomputing such as NASA's Project Columbia and a view into the next inflection points in the computing and communications industry.

As Intel's president and chief operating officer, Otellini is responsible for all internal operations and has been elected to serve as the fifth chief executive officer of Intel, effective in May 2005, succeeding Craig R. Barrett.

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were a variety of major organizational and cultural changes aimed at transforming the way the agency does business.

"NASA had become something it never was intended to be and it needed to be fixed," Diaz said. "NASA needed to undergo a transformation and refocus the agency's energies on the right problems."

Among the first steps taken toward transformation was the consolidation of NASA's former enterprises into four mission directorates. As part of that change, Ames became part of the Science Mission Directorate, along with the Goddard Space Flight Center and the Jet Propulsion Laboratory.

In its early days, NASA was heavily involved in exploration in a variety of space missions, including the Rangers, the Surveyors, the Pioneers and the Viking, which were "driven by the idea that we wanted to find out what was out there," Diaz ventured.

In its second phase of exploration, Diaz said NASA made major investments in space science and in Earth science, but not in Mars exploration. However, that all changed with the landings of the Mars Exploration Rovers Spirit and Opportunity last year. Today, bolstered by the Vision for Space Exploration, NASA is looking at future missions to the red planet, including "the inevitable landing of humans on Mars."

With astrobiology as one of its core competencies, Diaz said Ames will play a key role in helping NASA achieve that goal.

"With the landings of Spirit and Opportunity, we finally have established a foothold on Mars," Diaz observed. "Astrobiology will be essential in the future exploration of Mars."

After concluding his presentation, Diaz listened to a litany of concerns expressed by attendees and answered a series of tough questions. Many in the audience expressed their frustration and concerns with a variety of issues rang-

ing from full-cost accounting, to having to compete for funding for their research - and even for their base salaries.

One speaker observed that, under the new funding procedures, he had to spend a large part of his time writing proposals for small grants to secure funding and that, even if the proposal was successful, there was no guarantee that the money would be forthcoming and not be diverted. "It's bleeding people," he stated.

Another speaker said it seemed that Ames was "under attack" because even major Ames-based projects, such as the Stratospheric Observatory for Infrared Astronomy (SOFIA) and the Kepler mission, were experiencing funding problems -- even though both had successfully competed for funds, only to find that the funds are being withheld or delayed.

Citing the extensive review process that projects now have to undergo in order to secure funding, another speaker observed that seven independent review teams had to review a project submitted by Ames scientists.

In response to a question about whether NASA values internal research development, Diaz said that the agency does value it, as evidenced by the research being conducted at the research centers, including Goddard and JPL, but not limited to those two. However, he stressed that NASA does not exist to do science, but instead to enable science. "That doesn't mean that we don't do science, but there are lots of outside organizations to do science; our job is to enable science," Diaz ventured.

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A keyboard tray is a keyboard tray--or is it?

Not all keyboard trays are created equal. Some are more stable than others. Some have what is called a 'mouse forward' attached mouse pad that puts the mouse even closer to the user than the traditional style. Other trays have fewer or more adjustments depending on the brand. There are even keyboard trays that are made to attach to a straight edge, curved edge, or 90-degree angle. The last style typically requires the use of a 'corner converter.'

Some companies have keyboard trays that are designed specifically for the Microsoft Natural or Goldtouch keyboards. Big deal, you say? Actually, it is. Without the correct style of tray, you can easily set yourself up for an ergonomic injury, especially if you're computing on a corner set-up.

A tray not designed for a corner usually will not pull out far enough for you to adjust the height of the tray or give you room to mouse. The Center's

ergonomic evaluators have seen numerous instances of employees sitting too low or trying to use a mouse that is actually under the work surface. In addition, the use of keyboard drawers is not recommended because they are usually not height-adjustable and many do not have enough room for a mouse. You get the biggest 'bang for the buck' by purchasing a 'fully articulating' keyboard tray.

Do you need help deciding on what type of tray to purchase? The 2005 AIB Express catalogue has a page that demonstrates how to choose the proper keyboard tray. Humanscale has a Web page where you can create your own system based on your particular needs. You can also contact Miriam Glazer, Ames' ergonomics program manager, at ext. 4-5172 or Deborah Hunter, safety and ergonomics specialist, at ext. 4-3352 for further assistance.

By DEBORAH HUNTER

Ames to lodge Iraq vets' families during hospital visits

Relatives of veterans injured in the Iraq War now can stay in Ames' employee exchange lodging here at Moffett Field at a reduced rate or at no cost, while the families visit injured relatives at a nearby veterans' hospital.

The NASA Ames Exchange Council is allowing relatives of injured service members to stay at the NASA Exchange Lodge at reduced cost while the Iraq War veterans are undergoing treatment at the Department of Veterans Affairs (VA) Hospital, Palo Alto. This will enable families to visit their loved ones -- sometimes for extended periods -- and offer vital support during the service

members' recovery, without the family having to incur the potentially overwhelming financial burden of lodging in California's high-cost Silicon Valley.

"Palo Alto is a very expensive place to stay, and I know our nurses and social workers have struggled to help the families of these service members with accommodations and other needs during their stay here," said Elizabeth Freeman, director, VA Palo Alto Health Care System. "With this commitment from NASA Ames, a lot of pressure and worry will be lifted from the families and our staff. I am so grateful," she added.

"We are thrilled that NASA Ames

Research Center can reach out to our injured veterans and their families in their time of need," said Lewis Braxton, director of center operations at NASA Ames. "It is a wonderful example of two federal agencies working together in these turbulent times."

"I was first alerted to the issue of family members not being able to find affordable lodging in the Bay Area to be with their recovering service members by Jerry O'Connell (of Ames' Plant Engineering Branch)," said Gus Gold, assistant director of center operations at Ames. "He gave me a call, asking if there was anything NASA could do for these families. Shortly thereafter, the Ames Exchange Council took up the challenge and created a very low-cost lodging package for family members referred to the Ames Lodge by the VA Hospital," Gold explained.

The Ames Exchange has reserved five rooms for use by the veterans' families, according to Gold. The Exchange equipped the rooms with combination television, digital video and videotape players, as well as refrigerators and microwave ovens. "Also, we have added new washers and dryers to our guest laundry facilities, so family members staying long enough to wash clothes can do so right here at the Center," Gold added.

The NASA Exchange Lodge is within walking distance of a military commissary and exchange stores at Moffett Field, noted Lynda Haines, chair of the NASA Ames Exchange. "The families have easy access to food and other services at those facilities," she said. "We're trying to do everything we can to give the families a safe and comfortable place while they are visiting injured family members," Haines added.

Family members in need of low-cost lodging will be referred by the VA Hospital social worker's office. The lodge will be notified of the authorization via fax from the social worker's office directly to the reservation desk.

According to Robyn Medcalf, a supervisory VA Hospital social worker, funds are available to pay the room charges for families who can't afford the rate.

"We have been accommodating families on site at the VA Hospital, but we often run into an overflow situation," Medcalf said.

"We are collaborating with Onizuka Air Force Station, Calif., which has volunteered drivers to take family members who don't have transportation back and forth from the Lodge to the Palo Alto VA Hospital," Gold said.

BY JOHN BLUCK

Craig Steidle visits Ames



Admiral Craig Steidle (far left) made a recent familiarization visit to NASA Ames with senior managers from his NASA Headquarters Exploration Systems Mission Directorate team to tour the center and become better acquainted with Ames researchers and our R&D and technology capabilities.

NASA photo by Dominic Hart

Moffett Museum reopens

On March 16, the Moffett Field Historical Society held a preview of the museum. The grand opening of the museum will be on April 13, after a three-year closure.



NASA photos by Dominic Hart

The museum includes memorabilia from the beginnings of Moffett Field in 1933 to its realignment in the 1990's. The grand opening will coincide with the commissioning of NAS Sunnyvale on April 12.

Beatrice Morales is NASA Grants Specialist of the Year

When Beatrice Morales graduated from Samuel Ayer High School in Milpitas, her father insisted that she take the civil service exam at the local post office in order to be eligible to apply for a civil servant position at NASA Ames. Morales fulfilled her father's wish by doing just that. Now, years later and owning up to her dedication and pride as a NASA civil servant, Morales received the NASA Procurement Award as Grants Specialist of the Year.

Morales was selected for this honor from a cadre of nominations at headquarters. She was nominated because of her dedication, enthusiasm, professionalism and commitment to excellence, which contribute greatly to the overall success of the Ames grants/cooperative agreements actions.

For the past nine years, Morales has been the lead grants officer and is responsible for overseeing the administration of approximately 800 grants and cooperative agreements. During FY 2004, the grants team completed approximately 900 actions, totaling \$137M, indicative of the magnitude of the workload in the Grants Office. In addition to overseeing this workload, Morales also maintains a workload of her own that includes liaison duties with the Science Directorate and Exploration Technology Directorate. The workload also includes support for various Ames program offices such as the NASA Astrobiology Institute (NAI), Intelligent Systems and Engineering for Complex Systems. Morales is responsible for awarding and administering the coop-



NASA photo by Dominic Hart

Ames Center Director G. Scott Hubbard presents Beatrice Morales with the 'NASA Grants Specialist of the Year' award.

African-American history display



NASA photo by Dominic Hart

Philip Fluegemann and Christine Johnson observe the special National African-American History Month display in the lobby of N-203.

National African-American History Month was celebrated with a special display in the lobby of N-203. This year's theme was 'The Niagara Movement 100th Anniversary' in honor of the first African-American meeting held to end racial discrimination. Displayed were photographs of the founding fathers and the history of the Niagara Movement. Also Life magazine notables 'People of Color' and a tribute to NASA's African/American astronauts.

Special mention was given to three heroes who inspired a whole new generation to dare to dream of some day flying in space. Robert H. Lawrence Jr., NASA's first African-American

astronaut who lost his life in service to the nation and the space program on Dec. 8, 1967, at 32 years of age. Ronald McNair, the second African-American to fly in space. McNair and six crew members died in an explosion aboard the space shuttle on the morning of Jan. 28, 1986. Michael P. Anderson lost his life in 2003 onboard the space shuttle Columbia along with six other crew members.

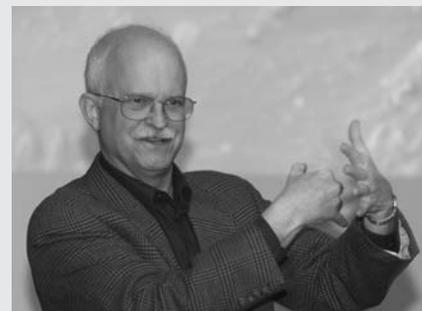
Also pictured were Frederick D. Gregory, the first African-American space shuttle commander; the first African-American deputy administrator and the first African-American administrator (acting). Earnestine Parker created the impressive display.

erative agreements, grants and other funding instruments for the NAI, whose primary mission is to solicit, review, select and fund astrobiological research of the highest caliber.

The NAI has developed a reputation for providing service to the science community in an efficient and effective manner, and much of the credit goes to Morales as always being attentive and responsive to the science community.

Morales was presented with this prestigious award on March 10. Morales accepted the award, but without acknowledging her team members for their hard work and dedication. Numerous colleagues, managers and staff members attended to show their support and offer congratulations to Morales.

Des Marais presents



NASA photo by Dominic Hart

In February, Ames research scientist David Des Marais presented a colloquium at Ames entitled 'The Mars Exploration Rovers (MER): Following the Water.' Des Marais summarized the science highlights from the first year of MER operations and looked ahead to how these findings will impact planning for future NASA missions.

NASA artificial intelligence could help astronauts

In the vast blackness of space, where Earth appears to be just a small dot, artificial intelligence someday will help astronauts and robots make swift decisions and plan quickly, without much assistance from home, thereby helping them work more efficiently in space.

Even at the speed of light, about 186,000 miles per second, radio messages take at least 11 minutes to reach Mars (depending on its varying distance from Earth.) Because of time delays like this, human and robotic crews exploring deep space must depend less on help radioed from colleagues on Earth. Far away in space, astronauts will not only have to craft complex plans in 10 minutes or less, but they may need to make difficult, split-second decisions on their own.

According to NASA scientists, this vision of the future also includes potential cost reductions, since there would be less need for large teams on Earth to make detailed daily plans for deep space missions.

NASA is developing ever more potent artificial intelligence planning software to make distant missions more practical. In the near term, NASA scientists are creating software to reduce Mars teams' daily planning time and costs for missions that are about to begin. For example, in comparison with the Mars Exploration Rover (MER) missions, scientists hope to reduce planning time by a factor of 10 for missions in the near future. Increasingly streamlined, resource-saving approaches like this will play an important role as early as the Phoenix mission to the red planet's North Pole region, scheduled for launch in 2007.

Phoenix's 2008 landing zone is located in an ice-rich region. The lander's robotic arm will dig into the arctic terrain in search of clues to the geologic history of water on Mars. The spacecraft also will look for evidence of zones that could support microbial life.

Meanwhile, more than a year after landing on the red planet in January 2004, two Mars Exploration Rovers continued to look for clues that water may have existed in large amounts on the planet. Mars science teams made detailed plans to orchestrate the rovers' moves.

"The Mars Exploration Rover activity planning has taken the human team on Earth about one-and-a-half hours every day for each of the two rovers," said Alonso Vera, who leads a group developing artificial intelligence software at NASA Ames. "Our goal is to reduce planning time to about 10 minutes for a typical Mars surface mission, and we are a good part of the way there now," he ventured.

A team of a half dozen scientists at Ames also is improving planning software, which has been used by the Mars rover teams. This software is called the

Mixed-initiative Activity Plan Generator (MAPGEN). More than a year after the spacecraft landed on the red planet, scientists continued to use this automated planning and scheduling software to help build and edit science activity plans for the Mars Exploration Rovers based on a 'wish list' of observations and the rovers' available resources.

"MAPGEN is based on 'Europa,' an artificial intelligence planning tool that supported the Deep Space 1 mission before being used on the Mars Exploration Rover (mission)," explained Vera.

NASA launched the 945-pound Deep Space 1 probe on Oct. 24, 1998, to test 12 advanced technologies, including Remote Agent, an artificial intelligence program, intended to lower the cost and risk to future science-driven missions. Remote Agent's basic goal was to demonstrate that spacecraft could operate and be controlled with minimal human help.

NASA's continuing efforts to evolve artificial intelligence for use in future space mission operations are pushing the development envelope, according to Vera. Currently, new software is under development for daily team use during upcoming Mars surface missions. This software is called the 'Science Planning Interface for Engineering' (SPIFe), pronounced 'spiffy.' Scientists hope it will "dramatically" reduce the number of people needed to achieve mission goals, according to Vera.

"The heritage we're looking at with SPIFe is the Constraint Editor software and the MAPGEN software, used for the two Mars Exploration Rovers," said Mike McCurdy, a member of the SPIFe software development team at NASA Ames.

Constraint Editor has allowed Mars Exploration Rover mission scientists to make direct, single changes in their daily rover activity plans. The software also adjusts entire plans to take into account individual changes that scientists make. Meanwhile, MAPGEN software has made some mission choices, and scientists have made the rest of the mission decisions, according to McCurdy.

With artificial intelligence software like MAPGEN - 'mixed initiative' systems -- "the human and the computer

are equal partners in a dialog that happens around the generation of a plan," Vera asserted. "Each brings different skills to the table. The human can focus on what humans are good at (high-level decisions, for example), while the computer can focus on what computers are good at -- making thousands of smaller decisions -- or automatically enforcing rules and constraints," he explained.

"Before, people have been sitting down and deciding step-by-step what is



This artist conception of the New Millennium Deep Space 1 mission illustrates the new technologies that will be validated for future missions. Spectrum Astro Inc., Gilbert, Ariz., is JPL's primary industrial partner in Deep Space 1 spacecraft development.

going to happen during a mission," McCurdy noted.

"Generally, what we are looking at is what kind of information people need when they are planning the rover's work," McCurdy said. "We're looking at how we can make that information readily available."

"A scientist may say, 'Go look at that rock,' and the computer could say, 'in order to look at the rock, you must consider x-y-z.' There is a dialogue between the human beings and the software," McCurdy explained.

"We're still in a prototyping phase at this point," McCurdy said. "Because of our Mars Exploration Rover involvement, we can use that experience as a baseline. We can take some of the Mars Exploration Rover data and software and use that to prototype SPIFe."

"This is a team effort," said McCurdy. "The whole collaboration is called Ensemble, which is shared between the NASA Jet Propulsion Laboratory, Pasadena, Calif., (JPL) and NASA Ames. The JPL component is based on the Mars Exploration Rover Science Activity Planner, now called Maestro," McCurdy explained.

SPIFe software also is vital, because

continued on next page

NASA study suggests giant space clouds iced Earth

Eons ago, giant clouds in space may have led to global extinctions, according to two recent technical papers supported by NASA's Astrobiology Institute, which has offices at NASA Ames.

One paper outlines a rare scenario in which Earth iced over during snowball glaciations, after the solar system passed through dense space clouds. In a more likely scenario, less dense giant molecular clouds may have enabled charged particles to enter Earth's atmosphere, leading to destruction of much of the planet's protective ozone layer. This resulted in global extinctions, according to the second paper. Both recently appeared in the *Geophysical Research Letters*.

"Computer models show dramatic climate change can be caused by interstellar dust accumulating in Earth's atmosphere during the solar system's immersion into a dense space cloud," said Alex Pavlov, principal author of the two papers. He is a scientist at the University of Colorado, Boulder. The resulting dust layer hovering over the Earth would absorb and scatter solar radiation, yet allow heat to escape from the planet into space, causing runaway ice buildup and snowball glaciations.

"There are indications from 600 to 800 million years ago that at least two of four glaciations were snowball glaciations. The big mystery revolves around how they are triggered," Pavlov said. He concluded the snowball glaciations covered the entire Earth. His work is supported by the NASA Astrobiology Institute.

Pavlov said this hypothesis has to be tested by geologists. They would look at Earth's rocks to find layers that relate to the snowball glaciations to assess whether uranium 235 is present in higher amounts. It cannot be produced naturally on Earth or in the solar system, but it is constantly produced in space clouds by exploding stars called supernovae.

Sudden, small changes in the uranium 235/238-ratio in rock layers would be proof interstellar material is present that originated from supernovae. Collisions of the solar system with dense space clouds are rare, but according to Pavlov's research, more frequent solar system collisions, with moderately dense space clouds, can be devastating. He outlined a complex series of events that would result in loss of much of Earth's protective ozone layer, if the solar system collided with a moderately dense space cloud.

The research outlined a scenario that begins as Earth passes through a moderately dense space cloud that cannot compress the outer edge of the sun's heliosphere into a region within the

Earth's orbit. The heliosphere is the expanse that begins at the sun's surface and usually reaches far past the orbits of the planets. Because it remains beyond Earth's orbit, the heliosphere continues to deflect dust particles away from the planet.

However, because of the large flow of hydrogen from space clouds into the sun's heliosphere, the sun greatly increases its production of electrically charged cosmic rays from the hydrogen particles. This also increases the flow of cosmic rays towards Earth. Normally, Earth's magnetic field and ozone layer protect life from cosmic rays and the sun's dangerous ultraviolet radiation.

Moderately dense space clouds are huge, and the solar system could take as

NASA artificial intelligence

continued from previous page

it may well be the forerunner of future software that could help astronauts work independently far from Earth. An important part of the Vision for Space Exploration is to enable crews in space-ships or on the moon to be more self-sufficient. Crews using advanced planning software would not have to depend on people on Earth for plans, according to Vera. Human-robot teams could inspect their vehicles or habitats and make repairs unassisted, Vera ventured.

"A lot of space station time is spent doing repairs," said Vera. "If you are going to provide tools that allow an astronaut to plan a complex sequence of activities for a human-robot team, that astronaut has to be able to plan very quickly in order to adapt to the specific conditions. An hour-and-a-half to plan

long as 500,000 years to cross one of them. Once in such a cloud, the Earth would be expected to undergo at least one magnetic reversal. During a reversal, electrically charged cosmic rays can enter Earth's atmosphere instead of being deflected by the planet's magnetic field.

Cosmic rays can fly into the atmosphere and break up nitrogen molecules to form nitrogen oxides. Nitrogen oxide catalysts would set off the destruction of as much as 40 percent of the protective ozone in the planet's upper atmosphere across the globe and destruction of about 80 percent of the ozone over the polar regions according to Pavlov.

BY JOHN BLUCK

is excessive," Vera added. "You've got to be able to do it in 10 minutes or less."

One of the capabilities added to SPIFe is multiple timelines for scientists to use instead of the one timeline that MAPGEN provides, according to Vera. Also, SPIFe enables users to view information in many different ways so scientists can better see and grasp problems and processes, said Vera.

"You can view plans in a timeline, or a waterfall-like time link," Vera said. "An activity plan has hundreds of parts. One change can affect all the other activities," he explained.

"We built in a lot of feedback about how a change affects everything else," Vera said. "But in the end, it's the human who is responsible for the plan."

BY JOHN BLUCK

Robotic expedition yields findings

continued from page 3

entific measurements," said David Wettergreen, an associate research professor at Carnegie Mellon University's Robotics Institute. "To encounter more potential habitats, our research effort has been on long-duration autonomy and long-distance surface navigation," he added. Exploration strategies are aimed at facilitating the detection of likely isolated and sheltered colonies of microbial life and could be used on Mars in future astrobiological missions.

"The Life in the Atacama Project opens the path to a new generation of rover missions that will transition from the current study of habitability by the Mars Exploration Rovers, to the upcoming search for, and study of, POTENTIAL habitats and life on Mars," Cabrol said.

"Nobody can tell yet that life ap-

peared on Mars, but what we have demonstrated is that we now have a rover that is capable of taking a science team to the right spot with a lot more confidence," Cabrol said. "We're making good progress."

Funded by a \$3 million, three-year grant from NASA to Carnegie Mellon University's Robotics Institute, the Life in the Atacama Project is part of NASA's Astrobiology Science and Technology Program for Exploring Planets (ASTEP). Cabrol is the Life in the Atacama project science lead. Wettergreen leads the rover development and field investigation for the project. Alan Waggoner, professor of biology at Carnegie Mellon, led the development of fluorescence imaging and dye probes and the integration of these technologies with the rover.

BY MICHAEL MEWHINNEY

Space Act Award program encourages future innovations

The Space Act Award program, which is coordinated through the Ames Technology Partnerships Division (Code



Ames Deputy Center Director Stan Newberry with Michael McGreevy, Perilog innovator.

EP), is designed to provide official recognition of those inventions and other scientific and technical contributions that have helped to achieve NASA's aeronautical, commercialization and space goals, and to encourage the creation and reporting of future innovations. The Inventions and Contributions Board (ICB) funded by NASA Headquarters is authorized to recommend the granting of these monetary awards to civil servants, contractors and other partners.

To obtain more information about the Space Act Award program, visit the ICB Web site at <http://icb.nasa.gov> or you may contact the Ames Space Act Award Liaison officer Betsy Robinson of Code EP at e-mail Elizabeth.T.Robinson@nasa.gov. All Space Act Awards should be coordinated through the Technology Partnerships Division.

Recently three groups of Ames researchers were honored at director's recognition ceremonies for Space Act Awards. There were:

Future ATM (Air Traffic Management) Concepts Evaluation Tool (FACET)

FACET is a flexible software-based simulation environment for exploration, development and evaluation of advanced Air Traffic Management (ATM) concepts. Examples of concepts studied using FACET are: aircraft self-separation for free flight; modeling and prediction of air traffic controller workload; a decision support tool for direct routing; integration of space launch vehicle operations into the U.S. National Airspace



From left to right, the FACET team: Estelle Condon, Dallas Dennery, Gano Chatterji, Tom Edwards, Karl Bilimoria, Ames Deputy Center Director Stan Newberry, Kapil Sheth, Shon Grabbe, Daniel Mullfingher, Skip Fletcher and Banaver Sridhar.

System; and advanced traffic flow management techniques using rerouting, metering and ground delay. FACET models system-wide airspace operations over the contiguous United States.

Perilog

Perilog, developed by Michael McGreevy, is a group of text-mining methods and software that exploit latent linguistic structure in seemingly unstructured text. The currently distributed version of Perilog software includes keyword-in-context search, flexible phrase search, search by example, phrase generation and phrase extraction. End users, such as managers, pilots, human factors researchers, and database operators, can access an integrated suite of Perilog's tools via a user-friendly Perilog software package that has a browser-

based graphical user interface (GUI).

ADIS: Aviation Data Integration System

To improve the airlines' data analysis capabilities, the Aviation Data Integration Project team has developed a unique system that integrates flight data with auxiliary sources of relevant contextual data, including weather data, airport operating conditions, radar data, runway visual range data, and navigational charts, without disclosing information that might re-identify the flight to the analyst. This system, the Aviation Data Integration System (ADIS), consists of a data repository and associated integration middleware that provides rapid and secure on-demand integration of these diverse data sources with airline-owned flight data.



From left to right, the ADIS team: Richard Keller, Ames Center Director G. Scott Hubbard, Deepak Kulkarni, Naveen Ashish, Robert Lawrence, May Windrem, Yao Wang, Hemil Patel and Robert Lynch.

Window art leaves lasting tribute to STS-107 crew

Back in late 2003 with the one year anniversary of STS-107 approaching, people who had spent years working on projects that flew on STS-107 wanted to do something that honored the crew

and had a great reception attended by many people who worked on the Ames hardware and experiments, and many people who felt their own personal connection. Also in attendance



Pictured are members of Ames STS-107 Flight Project Team, also in the picture are Astronaut Dan Bursch and his son, the designer Chad Demeters (kneeling) and the stain glass artist Pam Rissmann (sixth from the right).

and our work on it at Ames.

I had always thought that there is not enough art in our work environment that speaks to and expresses the personal side of what we do and how important it is to many of the people who work here. So in November 2003, I came up with an idea to have a STS-107 memorial made, a stained glass window. It seemed to me to be a medium with unique characteristics. Like our work, it is long lasting but also delicate; it catches the sun beautifully and it draws the gaze upward and could inspire people the way the STS-107 crew did. Senior management were very supportive of the idea, in particular Bonnie Dalton, Bev Girten and Lockheed Martin's site manager Chris Christensen, who provided significant funds to enable us to commission the piece.

Over the next several months, the response was tremendous and Lockheed Martin's, Victoria Callor became our 'window' project manager and did a great job. We had groups of people meeting to suggest colors, themes, and ideas and worked with a great young designer, Chad Demeters. By February of 2004, Demeters had created a great design and we were ready to meet another new local stained glass artist, Pam Rissmann, who was equally excited about the project. Over the next year, Rissmann worked on our window, with an eye toward the best design, Rissmann made valuable suggestions. Although they were compensated, Rissman and Demeters generously donated many extra hours of their time.

On Feb 1, 2005, the two-year anniversary of the loss of Columbia and her crew, we had the panel ready for dedi-

cation and had a great reception attended by many people who worked on the Ames hardware and experiments, and many people who felt their own personal connection. Also in attendance were our artists Demeters and Rissman. As project manager for the Ames experiments, I made a few introductory remarks. Then, Marilyn Vasques, the STS-107 project scientist, spoke about the Ames team and all the work that had gone into preparing for the mission. As our special guest speaker, astronaut Dan Bursch shared

some personal stories of the crew with those assembled and helped in the unveiling.

He eloquently spoke of how the stained glass window was a great trib-

ute because it has a great illuminating quality, just like the STS-107 crew.

Right now the 'window' is at a shop where it will be framed and should be back in the N-240A lobby by mid April. If you are in the area, stop by and take a minute to reflect, honor the crew and carry their inspiration with you.

Thank you to all who contributed their ideas, time, best wishes and financial support to make this possible and really something that belongs to the Ames community.

BY RUDY AQUILINA

Pancake breakfast

The Moffett Field Fire Department invites you to a pancake breakfast at the Moffett Fire House.

Bring your appetite to Building 580 on Tuesday, April 5 and Weds., April 6 between 7 a.m. and 10:30 a.m. and have breakfast cooked by the firefighters.

Cost is \$3.00 for children 4 - 12. \$5 over 12, paid at the door.

Astronomy Lecture Series presents

Astronomer Frank Drake will give a non-technical, illustrated talk on: 'Estimating the chances of life out there' on April 20, at 7 p.m., in the Smithwick Theater, at Foothill College on El Monte Road and Freeway 280, in Los Altos Hills.

In 1960, Dr. Frank Drake performed the first experiment searching for radio signals from possible civilizations around other stars. In 1961, he proposed an intriguing method of estimating the number of intelligent life-forms in space that we might communicate with.

In the intervening years, Drake's ideas have become cornerstones of a full-fledged branch of astronomy, commonly called SETI -- the Search for Extra-Terrestrial Intelligence. Drake also helped found the SETI Institute, the main organization involved in the search.

In the talk on April 20, Drake will provide a modern update on estimates for the existence of 'E.T.' He will draw on new ideas and new observations (including the discovery of surprising planets around other stars), which have helped astronomers refine both the targets where they search for life and the methods they use.

No background in science is required for this talk, which will interest both fans of astronomy and science fiction.

Drake is the director of the Center for the Study of Life in the Universe at the SETI Institute. He served as professor of astronomy and dean of natural sciences at the University of California, Santa Cruz. He also served as director of the Arecibo Observatory (which has the largest radio dish in the world.) Among his many awards, he was the winner of the prestigious education prize of the American Astronomical Society for his many contributions to the public understanding of astronomy. He is the co-author, with Dave Sobel, of 'Is Anyone Out There,' published by Delacorte Press.

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

The event is free and open to the public. Parking on campus costs \$2. For more information, call the series hot-line at (650) 949-7888.

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 5:15 p.m. Higher-level class meets at 5:50 p.m. Held in Bldg. 944, the Rec. Center. POC: Helen Hwang at helen.hwang@nasa.gov, ext. 4-1368.

Ames 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: Linda McCahon, ext. 4-1891.

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. 4-1500, 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 will then meet on 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.

Ask the 'export expert'

Question:

I want to present a paper at a conference overseas. When should I start the NASA Form 1676* process?

Answer:

Start immediately if not sooner. You must have permission—via the NASA Form 1676 process—to submit your abstract to the conference for consideration.

You will also need to complete the process for the completed paper or presentation, which was built off of the submitted abstract.

If you have any questions about the requirements or the process, con-

tact your center export representative (CERs are listed at <http://jp.arc.nasa.gov/EC/CER.html>) or the Export Compliance Office at ext. 4-0871.

*NASA Form 1676: Scientific and Technical Document Availability Authorization (DAA); process also includes Ames Form 1676A: Export Control Public Domain Declaration (PDD).

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

Diaz optimistic

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"The scientists at NASA on average ought to be spending some appreciable portion of their time contributing a portion of their competencies to the development of projects to enable somebody else to do science. People need to search their souls and say if they are here only to do good science, there may be an opportunity that's better suited for them elsewhere," Diaz asserted.

One speaker noted that quick action was needed to find a way to integrate Ames science expertise into missions to support other centers. "We need to do this now, like within the next couple of months; if we wait until the end of the year, or the end of FY 2006, by the time we have an answer to that, Ames science will not exist."

Diaz suggested that like their counterparts at Goddard, Ames scientists utilize the help of university students to help them in their proposal writing and other research-related tasks. "All of the partnering we did at Goddard with universities involved getting students to work with our scientists," Diaz said. "We always had lots of students around."

Responding to his comments, a speaker pointed out that at Ames, students were not free. "We have to give them a desk and a computer and a phone," he said. "I can't afford to pay the overhead that I have to pay for a student, -- there's no funds for that."

Regarding the future of Earth science, Diaz predicted a bright future for NASA and said that Ames would have a major role in future missions.

"I think that Ames has a terrific contribution to make both in the area of Earth science, as well as in the affiliated areas ...related to Earth science," Diaz said. "But it is going to take everybody writing a lot of proposals to get the work that we need to support the capability."

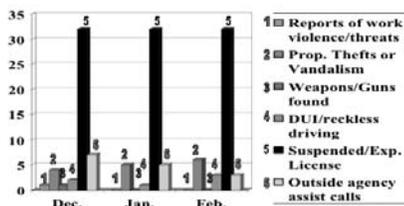
BY MICHAEL MEWHINNEY

Protective Services monthly activity

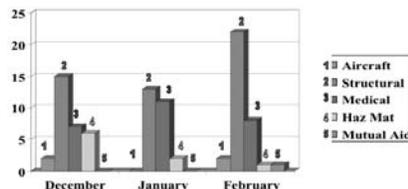
A statistical summary of activities of the Protective Services Division's Security/Law Enforcement

and Fire Protection Services units for the month of February 2005 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

Would like a roommate to share expenses. Nice home, less than 5 miles from Ames. Part time/non-smoker preferred. Lets talk. Donna (408) 309-8475 (cell).

Miscellaneous

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

Two PolkAudio black bookshelf speakers RTI38, one PolkAudio black center speaker CS400i, Sony DSC-F717 w/ many accessories and Hughes Direct TV Tivo (HDVR2) unit w/access card. All perfect condition. B/O. E-mail wusan@hotmail.com for detail or picture. Call (408) 578-0590.

TREK 'jet 20' boy's bike, blue, 2-1/2 years old. Exc. cond. \$140 new. \$75 or B/O. Call (408) 246-8432.

Rossignol 4M downhill skis, 190cm, Marker bindings, ski bag, Salomon SX-50 boots Size 10 (men's) bag. \$100 or B/O. Call (408) 863-0835 or e-mail msarjeant@comcast.net

Bicycle, 1997 Vision Recumbent, Model VR42, 21 speed, rear rack, wheel size 20 front and 26 rear, \$650 or B/O. Call (408) 863-0835 or e-mail msarjeant@comcast.net

Refrigerator, gd working cond. Free, you haul. Tom or Sandy at (831) 338-7532.

Starter PC: Windows2000, 333MHz, 164MRAM, 15GB HD, 52x CD-ROM, USB, keyboard, mouse and speakers (no monitor). Perfect for first computer. \$95. Call (408) 295-2160.

Very beginner tennis player would like a partner for lunch-time (11:30 a.m.) play on the Moffett courts. If interested, contact Leticha (408) 209-5324.

Field camp cook needed. Under SJSU faculty supervision, prepare and plan meals for a six-week geology field camp involving 14 to 20 participants. Manage camp facilities, prepare and manage a food budget and drive to town to secure supplies. The camp will be held in eastern Nevada and in the eastern Sierras from June 3 to July 14. Salary is \$2,250, food and lodging (camp) included. Bob Miller at rmiller@geosun.sjsu.edu or call (408) 924-5025.

Looking for children's items. Hooked on phonics (or the equivalent of). Children's books, blocks, toddler puzzles, play food, baby dolls and accessories. Boys pants size 6. Call (408) 526-9661.

Pool table. Solid maple. Dark blue cloth. Exc. cond. 4x8 Custom. \$1,400. Call (408) 269-2063.

Transportation

'93 Mercury Villager van for sale. \$3,000 or B/O. Bought another car. Must sell this one asap. Runs great. Has 211K mls. E-mail Luka Sussman at lsussman@mail.arc.nasa.gov or after hours cell (510) 364-0915.

'99 Toyota Camry, 75K mls, 33mpg, air bags, ac, ps, tilt, p/windows, p/mirrors, Exc. cond., needs no work, very clean, Pioneer Audio CD, \$7,500. Call (831) 630-0716, ext.4-1070. Pics avail at: <http://webpages.charter.net/inert/Camry>

'00 Mitsubishi Eclipse GS. Silver/black cloth, 5-spd manual, 63K mls. Immaculate cond. One owner, all records. Equipped w/Lojack. Exc. Bridgestone Potenza tires. Owner must sell! \$8,900 or B/O. Deb (650) 269-8150.

'00 Gorgeous Monaco La Palma , 29-foot Class A luxury motorhome Ford V-10 super duty F series chassis. 4-spd overdrive, 30K mls, oak cabinets, 5.5 KW generator,

Exchange Information

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

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

Ask about NASA customized gifts for special occasions.

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

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

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

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

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

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

NASA Lodge (N-19) 603-7100

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

Vacation Opportunities

Lake Tahoe-Squaw Valley Townhse, 3bd/2ba, View of slopes, close to lifts. Per night: \$250, two night minimum. Includes linens, cleaning, propane fireplace, fully equipped. 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. 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.

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) 366-1873.

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.

Ski Park City Utah, NASA Ski Week XIV, Feb 5 - 12, 2005. Space limited. E-mail Steve at e-mail exnasa@sbcglobal.net or call (408) 432-0135.

New York, 5th Ave. One fully furnished bedroom in 24 hour security bldg. overlooking Washington Square Park, \$1,000/wk or \$3,600/mo. negotiable. Call (650) 349-0238.

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

A/C, pwrd vent, Norcold elect./gas refrig., elect./gas hot wtr htr, 20 inch TV, VCR, CD/AM/FM, 4 spkrs, sat. dish prep, rear vision camera, A&E awning, elect. brake trailer hookup, 5000 lb hitch receiver, hydraulic leveling jacks, 1500 watt Trace inverter, stainless wheel covers, convection microwv, rear queen bed, heated mirrors, pwr driver's seat, deluxe mint cond. interior and exterior, all neutral colors, 75 gallon gas/water tanks, plenty of storage space, 2 yrs left on ext'd warranty. \$44,500. Tim (831) 623-4302 or e-mail tpcastellano@direcway.com

Safety Data

NASA-Ames Occupational Illness-Injury Data for Calendar Year-to-Date 2005 Jan. 1, 2005 - Mar. 31, 2005

	Civil Servants	Contractors
Not recordable, first aid cases	8	3
Recordable no lost-time cases	1	2
Recordable LOST-TIME cases	0	0
Lost workdays	0	0
Restricted duty days	0	8

Data above is as of 3/30/05. May be subject to slight adjustment in the event of a new case or new information regarding an existing case.

Astrogram deadlines

Deadline: Apr 13
Publication: Apr. 2005

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.

LDP participants volunteer to teach hands-on science

As if Bryan Biegel did not have enough to do during his 2004-2005 Leadership Development Program (LDP)

eight-week, hands-on science class for disadvantaged children of the South East Whitehouse Community Center in one

and the agency's long-term goals. The vision of the LDP is to develop effective leaders who align with NASA's mission and vision of the future and who are dedicated to creating measurable results that matter to the American people. Biegel and his classmates have done just that.



An LDP participant from Ames, Bryan Biegel, fourth from right, last row, wearing a tie, has been recognized for activities related to work in the LDP.

year with developmental assignments as assistant manager for CCEI Element Program in the Exploration Systems Mission Directorate and special assistant for high-end computing in the Office of the CIO; participating in leadership training, workshops and benchmarking executives across the country; and serving as the first lead for the class study and project "to determine and communicate how NASA can best implement a collaboration-competition business model to optimize mission performance." Biegel and his classmates took on a voluntary project to conduct an

of Washington, D.C.'s poorest communities. The community center serves an area of the city with limited social services and opportunities for children. For the past four years, the LDP has benchmarked with the two visionary leaders who created this center that is changing the lives of hundreds of children and their families. After this benchmarking session, Biegel and his classmates, led by Natalie Saiz, JSC, and Carmel Conaty, GSFC, took the lead in getting the class organized to take action to support both the children's needs

Job fair held



NASA photo by Dominic Hart

The Human Resources Division hosted a NASA job fair in March to assist Ames civil servants in finding lateral reassignment opportunities at other NASA field centers that are hiring. The recruiting centers were Johnson Space Center, Kennedy Space Center, Goddard Space Flight Center, Headquarters and the NASA Shared Services Center (inherently governmental positions). These opportunities are open to current career or career-conditional employees.



National Aeronautics and Space Administration

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