

Goldin invites high tech Silicon Valley companies to partner with Ames

Noting that NASA's long-term, high-risk research leads to long-term benefits and high-payoff products, Administrator Daniel Goldin has invited leading Silicon Valley companies to partner with Ames to develop revolutionary aerospace and information technology tools for the future.

During a June 26 luncheon address before the Silicon Valley Forum of the Commonwealth Club of California, Goldin urged those in attendance to locate their companies at the sprawling Ames Moffett Complex.

"If you are willing to work on the revolutionary technology leaps that are both critical to our missions and profitable to your companies, we'll provide the land to do that here at Ames," Goldin told his audience gathered in the Moffett Training and Conference Center. "Discussions are already underway with the cities of Sunnyvale and Mountain View, companies like IBM, Xerox and Silicon Graphics, and universities such as Stanford and Santa Clara, to start these Information Technology Research Institutes."

According to Goldin, only by working together can the exciting new technologies — "the ones that are going to be propelling us to the furthest reaches of the solar system and beyond"

— be developed. "I am here today to say that NASA and Ames are committed to that," he said. "We are committed to

what we all use today, hard, numerical computing."

Goldin cited the new Astrobiology Institute at Ames as an example of the kind of research collaboration he envisions for future planetary exploration. "We need a fundamental understanding— an intellectual underpinning— of biology, so we know what kind of life to look for," he said. "We need to take this intellectual underpinning of biology and apply it not just to our science, but to our engineering. When biology is our model, when we can fully mimic the amazing processes of the human brain— logic and thought— my bet is that this new capacity will lead to technologies we can't even imagine today."

"These technologies are going to be launched right here," Goldin said. "Not by NASA alone; not by Silicon Valley industry alone; and not by our world-class universities alone. But by all of us working together, and making the most of the special attributes that each of us brings to the table."

Goldin said that the International Space Station will improve industrial processes on the ground, develop new medical procedures and treatments and gain the knowledge needed to rewrite chemistry, biology and physics textbooks. Ultimately, the Space Station will be used as a scientific and

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photo by Tom Trower

NASA Administrator Goldin addressing the Ames audience in N-201 Auditorium on June 26.

using all our resources— including our land—to make that happen." The Administrator said that he looked forward to returning to Ames when the agreements are finalized. "I gave Harry McDonald a one-year deadline and he said Ames is going to meet it," he said.

Goldin said that Ames is uniquely qualified to develop these exciting, new technologies. "The tools of the future we envision will fully exploit the potential of moving and sharing ideas through increased network capability and total immersion virtual presence," he said. "The tools of the future we envision will allow geographically distributed teams to work collaboratively in these virtual environments. The power, potential and promise of this could lead to a development process that will follow the sun, cutting cycle time and cost. And perhaps most important, the tools of the future we envision won't depend on

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• **Ames Multicultural (MLC)**

• **Street Fair on Wednesday,**

• **July 15.....**

• ...11:00 a.m.

• to 1:30 p.m.

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see related story on page 8

Ames ISO Web-site address: <http://dqa.arc.nasa.gov/iso9000>

Arctic crater expedition to seek Mars science insights

NASA scientists soon will explore a barren Arctic meteorite impact crater to attempt to learn more about Mars and its early history, while testing technologies useful for future robotic and human exploration of the planet.

From June 22 to July 26, a 20-member science team from NASA and several other research organizations will explore the Haughton Impact Crater and its surroundings on Devon Island in the Arctic Circle.

Scientists consider the site a potential Mars analog because many of its geologic features, such as the crater's ice-rich terrains, its ancient lake sediments and nearby networks of small valleys, resemble those reported at the surface of Mars. The site may shed light in particular on the early history of Mars, when the planet's climate may have been wetter and warmer.

"The cold, relatively dry, windy and unvegetated environment at the Haughton site is milder and wetter than present-day Mars, but it may give us an idea of what early Mars was like and how some of its surface features were formed," said Principal Investigator Dr. Pascal Lee of Ames.

During the expedition, Dr. Omead Amidi and other engineers from Carnegie Mellon University's Robotics Institute, Pittsburgh, PA, will conduct field tests of an experimental, robotic helicopter. "The mission provides a great opportunity to demonstrate the feasibility and the value of robotic aircraft for mapping and surveying applications," Amidi said.

Carnegie Mellon's small, 160-pound autonomous helicopter has vision-based stability and position control, as well as an onboard navigation computer, laser rangefinder and video system for site mapping. More information about the unpiloted helicopter may be found at the following website: <http://www.ri.cmu.edu/project/chopper>

In addition to the tests with the autonomous helicopter, scientists also will conduct experiments with a ground-penetrating radar system, a field spectrometer, drilling equipment and a stereo camera.

The radar system will be deployed in an attempt to map ground-ice and other subsurface conditions within and outside the crater's 12-mile (20-kilometer) diameter. "The ability to find underground ice, both for human consumption and geologic studies, will be critical in the exploration of Mars," said Dr. Aaron Zent of Ames, Dr. Lee's

post-doctoral research advisor.

Scientists will use a field spectrometer to determine the site's reflective qualities and better understand the crater's compositional evolution. In another experiment, scientists will use a portable drill to obtain core samples from ten feet deep in the frozen ground. Core samples of sediments from a lake that once occupied the crater will provide information about local climate evolution. Since the use of liquid drilling lubricants might be precluded on Mars, none will be used in this test.

A portable stereo camera system previously used by Carnegie Mellon's Nomad rover during its unprecedented 133-mile wheeled trek through Chile's Atacama Desert last summer will provide high-resolution images of the site, and produce images for a 360-degree photo-realistic virtual reality project being developed by Ames' Intelligent Mechanisms Group.

Using laptop computer systems and "mobile workstations" developed by Ames' Intelligent Mobile Technologies Team, scientists will communicate with other field team members and send live images via a wireless link. Team members will operate from a base camp on a terrace of the Haughton River within the crater's perimeter and explore the site with All-Terrain Vehicles. Supplies will be brought in by Twin Otter airplane, while a helicopter will aid exploration of remote sites.

As part of the expedition's educational outreach program, the following website will be updated regularly with new data and images as available: <http://www.arctic-mars.org>

The total cost of the project is \$80,000. NASA is partially funding the project through a National Research Council grant. Additional support is provided by Ames; NASA's Johnson Space Center, Houston, TX; the Geological Survey of Canada; the Polar Continental Shelf Project of Canada; the Nunavut Research Institute, Canada; the Robotics Institute of Carnegie Mellon University; NovAtel Communications, Calgary, Alberta, Canada; and the National Geographic Society.

BY MICHAEL MEWHINNEY



Resident partner agreement signed

Ames has signed an agreement with Arkenstone, Inc., establishing the Sunnyvale nonprofit corporation as its first industry resident partner at the sprawling Ames Moffett Complex.

Arkenstone is a leading provider of technology for people with visual or reading disabilities. Ames Research Center Director Dr. Henry McDonald and Roberta Brosnahan, Arkenstone's chief operating officer, signed a Reimbursable Space Act Agreement that provides the framework for partnership between the two organizations. Under the terms of the agreement, Arkenstone will locate its offices in Building 23 at the Ames Moffett Complex in July.

"Arkenstone is the first industry partner to locate at the Ames Moffett Complex," McDonald said. "We hope it will be the first of many new tenants that move here to partner with our research and development activities. We are pursuing industry partners to help develop the Ames Moffett Complex into a world-renowned, federally owned research and development complex."

"We are delighted to be NASA's first industry resident partner at the Ames Moffett Complex," said Arkenstone President and CEO James Fruchterman. "Arkenstone will benefit by tapping into a source for technology solutions and NASA expertise to serve our clients. In addition, we may also benefit through NASA's broader network of industry, academic and other external partners which may provide future resources for our clients," Fruchterman said.

The agreement also supports NASA's mission to utilize the agency's unique competence in science and engineering systems to assist bioengineering research, development and demonstration programs designed to alleviate and minimize the effects of disability. Additionally, the agreement promotes NASA's Agenda for Change by disseminating Ames technology and expertise to the community through external partnerships for humanitarian and possible economic purposes.

Arkenstone is a nonprofit organization dedicated to developing and distributing adaptive technology to people with visual and reading impairments. Arkenstone products are distributed in the U.S. and abroad by a network of more than 100 dealers. The company also provides information and technical support directly to people with disabilities through its phone number (800) 444-4443, which supports all of the U.S. and Canada. Further information about Arkenstone, Inc., is available on the Internet: info@arkenstone.org and on its Website: <http://www.arkenstone.org>.

BY MICHAEL MEWHINNEY



Roberta Achtenberg speaks at Ames GALA event

Roberta Achtenberg, a vice-president at the San Francisco Chamber of Commerce, spoke at a lunchtime gathering on June 26, at 11:30 a.m. in Bldg. 258 Auditorium. Sponsored by GALA (Gays and Lesbians at Ames), an employee group supported by the Equal Opportunity Programs Office, this event commemorated Gay Pride Month, which is recognized worldwide every June.

Ms. Achtenberg spoke about her experiences as an openly gay woman and issues of sexual orientation in the workplace. Throughout her career as a civil rights attorney, a law school dean, an elected San Francisco Supervisor, an Assistant Secretary at HUD, a candidate for mayor of San Francisco, and now as a representative for the Public Policy Department of the San Francisco Chamber of Commerce, Roberta Achtenberg has helped those in need through public service. Her presentation afforded the Ames community the opportunity to gain awareness and knowledge of gays and lesbians in the workplace.

Gay Pride Month has been recognized since 1970 and events occur around the world. Like celebrations for other cultural groups, this is an opportunity to recognize people's backgrounds, history, and contributions to society.

On May 28, President Clinton signed an Executive Order entitled Further Amendment to Executive Order 11478, Equal Employment Opportunity in the Federal Government. The Order provides a uniform policy for the Federal Government to prohibit discrimination based on sexual orientation in the federal civilian workforce and states that policy for the first time in an Executive Order of the President. The Federal Government added sexual orientation to the list of categories for which discrimination is prohibited in Executive Order 11478 (i.e. race, color, religion, sex, national origin, disability, or age).



photo by Tom Trower
Roberta Achtenberg speaking at the GALA lunch time gathering at Ames on June 26.

Spanner loses battle with cancer

Mike Spanner, a senior research scientist and project manager with Johnson Controls World Services who worked with Ames' Ecosystems Science and Technology Branch (Code SGE) since March 1982, died on June 30, 1998 at his home in Sunnyvale. He was 45. Spanner succumbed to lymphoma, a virulent form of cancer, after a brave, 10-year battle with the deadly disease.

Spanner came to Ames after receiving his master's degree in geography, with a specialization in remote sensing, from the University of California at Santa Barbara. His undergraduate work was conducted at Sonoma State University. Spanner's early research centered on the use of remote sensing data for the analysis of forest structure and function, with particular attention to data collected in the conifer forests of the western U.S. The projects ran in central Idaho, Oregon, Alaska, and the central Sierra Nevada



Michael Spanner

ecosystem. Spanner and his colleagues' remote sensing work provided the most complete and detailed forest inventories that western resource managers had ever had to work with.

Professionally, Spanner was one who saw great value in publishing in peer-reviewed journals and he did so frequently, establishing a standard for rigorous research and documentation that is the envy of his peers.

In recent years, his research focused on measuring optical

properties for the atmospheric correction of remotely sensed data. He was an integral member of numerous experiment teams, as well as the science lead for a number of key center projects. His interest in instrument calibration and information processing led him to work with the sun photometer during a recent

earth science mission to Kauai. Sadly, it was during that early March trip that Spanner's fight against cancer took a negative turn and he was forced to return to California to undergo chemotherapy treatments at Stanford Medical Center. On June 29, Spanner went home to his family for the final time. He passed away the following evening.

When Spanner first came to Ames, his colleagues on the recently organized branch softball team, the Banana Sluggers, affectionately nicknamed him 'Hoover' for his propensity to 'vacuum-up' any ground balls hit in his vicinity. That moniker stuck with him for all these years, with many of his more recent colleagues and friends knowing him only by that name. Spanner will be remembered as one who sought balance in his life; he was equally popular with his research colleagues and sports buddies alike.

Spanner is survived by his wife Deborah and their 4-year-old twins, Aaron and Rachel. 'Hoover' will be missed by his many colleagues at Ames, especially those within the branch that he served for 16 years. A memorial service for Spanner is being planned for early August; arrangements will be announced at a later date.

Briefs

Neptune's largest moon is warming up

Observations obtained by NASA's Hubble Space Telescope and ground-based instruments reveal that Neptune's largest moon, Triton, seems to have heated up significantly since the Voyager spacecraft visited it in 1989.

The scientists are basing a rise in Triton's surface temperature on the Hubble telescope's detection of an increase in the moon's atmospheric pressure, which has at least doubled in bulk since the time of the Voyager encounter. Any nitrogen ice on Triton that warms up a little results in a considerable leap in atmospheric pressure as the vaporized nitrogen gas joins the atmosphere. Because of the unusually strong link between Triton's surface ice temperature and its atmospheric pressure, scientists can infer a temperature rise of three degrees Fahrenheit over nine years.

New satellite data shows retreat of El Nino, Pacific ocean in transition

New sea surface height measurements taken by the ocean-observing TOPEX/Poseidon satellite show the equatorial Pacific in a state of flux with the warm, high sea level El Nino-spawned waters in retreat and areas of colder, low sea level waters on the increase.

"Sea level is a measure of the heat stored in the ocean. In the last month or so, the tropical Pacific has been switching from warm to cold. Lower sea level indicates less heat, hence a colder ocean," said Dr. Lee-Lueng Fu, the project scientist for the U.S.-French TOPEX/Poseidon mission at NASA's Jet Propulsion Laboratory (JPL), Pasadena, CA.

"It appears now the central equatorial Pacific Ocean will stay colder than normal for some time to come because sea level is about seven inches below normal, creating a deficit in the heat supply to the surface waters. It is not clear yet, however, if this current cooling trend will eventually evolve into a long-lasting La Nina situation."

NASA technology leads to innovative vehicle tracking system

A NASA technology developed to help astronomers probe the depths of the universe is at work today helping municipalities and private businesses track the movements of vehicles in large fleet operations.

Researchers at NASA's Marshall Space Flight Center, AL, first developed the technology to handle the flow of enormous amounts of information. The challenge was posed by data generation of experiments conducted in orbit on Space Shuttle Spacelab missions.

The technology was later modified to help Marshall test NASA's Advanced X-ray Astrophysics Facility (AXAF), the world's most powerful X-ray observatory, planned for launch later this year.

Students get real-time Moon via Internet

For the first time, students and the general public are viewing continuous, real-time science data and spacecraft telemetry on the Internet as it is sent back from a mission orbiting another planetary body, courtesy of NASA's Lunar Prospector website.

To date, Internet visitors have visited the website more than 75,000,000 times. The website is located at <http://lunar.arc.nasa.gov>

The website audience is viewing actual data coming from the Moon-orbiting spacecraft. The Internet audience can also view NASA documentaries, short video clips and hundreds of thousands of archived Moon pictures from all previous lunar missions. In addition, the website audience is able to monitor the health of the Lunar Prospector spacecraft while it orbits our closest neighbor in space.

"For most past missions, data belonged to the principal investigator for up to a year or two before being released," said Deputy Lunar Prospector Mission Manager Sylvia Cox of Ames. "Now, with Prospector and many other new missions, we are releasing data at the same time the scientists see it."

"We have received thousands of e-mails from students, teachers, professors, and scientists around the world about the website and the instant release of mission information and Moon data," said Lunar Prospector outreach specialist Lisa Chuthielbar of Ames. "We have made an immense educational impact because students can experience the thrill of space and discovery first-hand."

"We are using technologies in ways they have never been used before," said Roger Smith, Lunar Prospector webmaster at Ames. "Real-time science data graphs from an orbiting spacecraft are being distributed world-wide via the Internet."

Lunar Prospector is orbiting 63 miles above the lunar surface on a year-long mission that began last January. The compact spacecraft is mapping the surface composition, internal structure and volatile activity of the Moon, as well as its magnetic and gravity fields.

To view data, a user should select the "DATAVIZ" button on the website and then click on "Science Data." After following directions, users can see spacecraft data in computer "windows" that remain visible even while other windows are open. By clicking on the

"Location/Position" link, users can see archived pictures that represent the Moon's surface immediately below the space vehicle.

Although the website can be viewed with a variety of Internet browser software programs and most kinds of computers, the site works best with Netscape 4.0 software using connections with 28.8 Kbps-modem to T1 speeds.

"Because the spacecraft has no camera, we have synchronized high-resolution Moon images from previous missions with the orbiter's real-time location. By watching data and location windows, the user can relate science data directly to locations on the Moon," said Kenneth Bollinger, Lunar Prospector website project manager. "We expect to have millions of images on-line in a month or so," he said.

"We are uploading complete electronic books into our archives that include all of NASA's Special Publications related to the Moon that are in print," Bollinger added. The Internet audience can also see graphical satellite instrument readings indicating spacecraft health, including antenna, battery, thruster, solar panel and fuel tank readouts.

The website is capable of handling more than 100 million computer "hits" daily. Ames partnered with NASA's Goddard Space Flight Center (<http://lunar.nsi.nasa.gov>), NASA Kennedy Space Center (<http://lunar.ksc.nasa.gov>), the NASA Software Independent Verification & Validation Facility (<http://lunar.ivv.nasa.gov/>) and Lucent Technologies (<http://lunar.lucent.com>) to provide mirror websites that enable greater public access.

Key website elements include a unique design and an Ames-written browser software engine. Live event coverage and a well-designed computer network structure are other features. "The integrated design of the computer hardware, software and networking make this website possible. It is unique because it employs a lot of new technology not previously used on a public Internet site," Smith said.

"The browser software engine is a computer program that quickly takes a snapshot of data from vast stores of information. We've eliminated the need to 'talk to' a data base, to get the information we need faster," Smith said.

BY JOHN BLUCK 

Doing our part for clean air

The Environmental Protection Agency and the Department of Transportation began a campaign in San Francisco, Milwaukee, and Dover in May to reduce the levels of vehicle emissions. Over 25% of air pollution, nationwide, comes from cars and trucks. Since cars and trucks are a major source of air pollution in most areas, upgrading your driving and vehicle maintenance habits will make a substantial contribution to a better environment.

According to Federal Highway Administrator, Kenneth R. Wykle, "A few adjustments to our daily routines can contribute to better air quality and reduce traffic congestion." Ames Environmental Office recommends that Center employees implement at least one adjustment over the summer to lower air pollution in the Bay Area.

Properly maintain your vehicle's emission control system by routinely performing tune-ups. Keep your tires properly inflated to improve your vehicle's fuel consumption efficiency.

Don't top off at the gas station in order to minimize the release of ozone-forming compounds.

Combine many of the day's short trips into one, well-planned, long trip to reduce the release of hazardous vehicle emissions. Be aware, restarting a car after it's been sitting for an hour results in up to five times more pollution than restarting a vehicle that is already warm. Turn the engine off if it's been left idling for more than 30 seconds.

Avoid driving at times of stop-and-go traffic by using public transit.

Make one less car trip each day by walking or biking for short errands and leisure activities.

People may not realize how heavily the routine decisions they make every day affect the quality of air. The Federal Highway Administration will be conducting a survey to test the effectiveness of the campaign. If we all do a little, we can do a lot.

BY ALI FINLEY

Website updated

The Environmental Services office's website at <http://dq.arc.nasa.gov> has recently been updated to include copies of Environmental Management Handbook chapters. This instruction prescribes the roles and responsibilities for the prevention, control, and abatement of environmental pollution, and for the protection of natural and cultural resources at facilities under the jurisdiction of Ames. Cultural resources include historical buildings and archaeological sites.

In order to access the site, go to the DQ home page, as indicated above, and click on the 'Environmental' link. From there, scroll down to the bulleted item labeled 'Environmental Management Handbook' and click on it. This Handbook is meant to be used as a resource for Center personnel to refer to with questions regarding proper procedural protocol when dealing with environmental management issues. Topics such as proper disposal of hazardous waste, storage of hazardous materials or simply proper record-keeping of chemical use and inventory are thoroughly addressed.

Each chapter begins with a clear description of the applicability, purpose, policy, and authority upon which the chapter is based. The applicability segment simply explains to which employees the document applies. Policy states the ARC's official stance on a given topic or procedure. Purpose tells what specific information you can expect to get out of the document. The definitions section helps to clarify technical terms and acronyms frequently used throughout the article. Other sources of information are also included in each chapter.

The site includes information ranging from pollution prevention program requirements to toxic gas management procedures. Since the site is still being updated, most of the chapters in the handbook are still in draft form awaiting final editing from documentation; however, they may be considered final for policy guidance and implementation purposes. A few chapters such as Hazardous Waste and Environmental Training are under revision which means that they cannot yet be accessed over the Internet. One could obtain a copy of those inaccessible chapters by contacting DQE Branch Chief Sandy Olliges at ext. 4-3355. Soon, all twenty-three chapters will be accessible over the Net thus reducing the volume of paper printed by ARC and moving ARC closer toward accomplishing its mission.

BY ALI FINLEY

Goldin invites high-tech Silicon Valley companies to partner with Ames

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technological testbed for further space exploration so that an astronaut can leave Earth orbit, visit Mars or work in a research station on a near-Earth asteroid. "This is not science fiction, or even a preview of the X-Files movie; it's the NASA vision," Goldin said.

Because "there is nothing more important than education," Goldin said Hangar One will be converted to the California Air and Space Center, "a place where teachers and students can tap into NASA's space hardware and information technology."

Following the luncheon, attendees took a tour of Ames while Goldin addressed center employees during a standing-room-only "All Hands" meeting in the Main Auditorium. He praised Ames for last year's highly successful Open House and for changing the center's primary mission from aeronautics to information technology.

Goldin said he came out to Ames last year for the Open House and was impressed by the huge turnout. "You people do things in a big way," he said. "It was really wonderful. The amount of intellectual curiosity in this area is just unbelievable."

Goldin reminded employees that

Ames used to be primarily an aeronautics research center and that he had asked the center to change its mission. "What I see now is incredible; you're much more now than aeronautics." He cited Ames' research in information technologies and human factors as the key towards achieving this goal. "I want to tell you you're the greatest."

The Administrator also said more changes in the way NASA does business were on the way. "We going to change the name of the Code R (Aeronautics) enterprise to "Aerospace Technology because we want to integrate aeronautics and space. People say the second A in NASA is Aeronautics; the second A in NASA is Aerospace."

Sporting a pair of shiny black cowboy boots during his visit, Goldin explained that he first began wearing boots while working on his ranch in the Santa Monica mountains as protection from snakes. He continued wearing them when he became the NASA Administrator. "I wear the boots to physically protect my feet in California," Goldin said with a smile. "I wear them to figuratively protect my feet in Washington."

BY MICHAEL MEWHINNEY

Ames Events

Space colony contest held at Ames

On June 15, over 140 space colonists descended on Ames.

These invaders were many of the student winners of the 1998 Ames Space Settlement Contest along with their families and teachers. This year's contest attracted 147 entries by 678 students; 23 teachers and 18 schools participated. Entries came from Austria, Canada, Finland, Holland, Israel, Pakistan and the U.S. The magazine Final Frontier co-sponsored the contest.

Tour participants saw the historical aircraft in Hangar One, the vertical motion simulator, a space station mockup, the Lunar Prospector control center, Aerospace Encounters, the twenty foot centrifuge, the twelve foot wind tunnel, the Mars Map project, and the NAS visualization laboratory and computer room. One student came from Pakistan and another from Austria, at their own expense! The rest came from around the U.S., including the grand prize winners from Connecticut, a group from Arizona, several groups from the Bay Area, and a large contingent from Chico. A grand time was had by all; special thanks to the many Ames personnel who assisted with the tour. For details on the

1998 contest see: <http://science.nasa.gov/Services/Education/SpaceSettlement/Contest/Results/98/>.

This annual contest, now entering its sixth year, is for 6-12th graders (11-18 years old) from anywhere in the world. Individuals, teams of up to five, and whole classrooms (usually 20-30 students) may enter. Grades 6-9 and 10-12 are judged separately, except for the grand prize. Students develop space settlement designs and related materials. These are sent to Ames for judgement. Several teachers use this contest as part of their curriculum. For details on the contest see: <http://science.nasa.gov/Services/Education/SpaceSettlement/Contest/>.

Space colonies are permanent communities in orbit, as opposed to living on the Moon or other planets. The work of Princeton physicist Dr. O'Neill and others have shown that such colonies are technically feasible, although expensive. Settlers of this high frontier are expected to live inside large air-tight rotating structures holding hundreds, thousands, or even millions of people along with the animals, plants, and single

celled organisms vital to comfort and survival. There are many advantages to living in orbit: zero-g recreation, environmental independence, plentiful solar energy, and terrific views to name a few. There is plenty of room for everyone who wants to go; the materials from a single asteroid can build space colonies with living space equal to about 500 times the surface area of the Earth.

For details, see the online version of an Ames/Stanford summer study at http://science.nasa.gov/Services/Education/SpaceSettlement/75SummerStudy/Table_of_Contents1.html

Entries for next year's contest are due on March 31, 1999. Please encourage your children and their teachers to participate. Materials to support space settlement design activities may be found at: <http://science.nasa.gov/Services/Education/SpaceSettlement/>. The contest and related web page are funded and operated by Code IN (NAS).

BY AL GLOBUS



Composite classes scheduled

In the Advanced Composite and Metals Development Branch (FMD Bldg. 212) there is a new opportunity for some of Ames staff to gain experience and knowledge in Composites. A new class, Composites 1, is being offered. During the class students learn to understand composites and how to work with them. It's a great opportunity to experience composites firsthand.

The course includes five lectures and five labs. Dr. Clem Hiel of Goldsworthy & Associates delivers the lectures. Dr. Hiel brings with him many years of industry experience. As part of the lecture, students are shown some of the basic properties of composite use in designing parts, fibers, matrixes, cores, proper bonding methods, and the proper use of fasteners. Dr. Hiel also brings many photos of industry success stories as examples of how composites are being used in industry.

Susan Suffel and Greg Paulson of the Advanced Composite and Metals Development Branch (FMD) teach the labs. The labs have been designed to enhance the lectures and give students

the unique opportunity to fully experience working with composites. Through the labs, students will learn the entire



From left to right: Adel Belous, Susan Suffel, Dan Kalcic, and Hana Skoda performing a lab exercise.

process of fabrication of composite parts. Students begin with the basic fiberglass resin and fiber lay-up. This is followed with instruction in and performance of the following: unidirectional and weave carbon prepreg, bonding, and destructive

testing of some samples in the test lab.

During this class, students had two opportunities to tour composite related companies. The first was Glasforms in San Jose. Glasforms is a company that specializes in pultruded composite parts. The class was able to view the process of pultrusion and examples of parts Glasforms has made for industry. The second tour was with YLA Inc., a company that specializes in the assembling of prepreg fabrics and resins. The class was shown the precise control of the merging of resin and fabrics. YLA Inc. is the company that supplied the carbon prepreg for the 40 x 80 x 120 blade repair project.

To date, Composites 1 is the only class being offered. After completion of this class by the majority of interested personnel, a second, more in-depth class may be offered. Anyone interested in taking Composites 1 should contact the author at gpaulson@mail.arc.nasa.gov.

BY GREG PAULSON



Ames Activities

Volunteer opportunities available

DARTCOM, the communications component of the Center's Disaster Assistance and Rescue Team (DART), has opportunities for several highly motivated, dedicated, and reliable candidates who are willing to train and become proficient as Communications Specialists in supporting the voluntary emergency communications needs of the Center and, when approved by the Center Director, to deploy off-site to assist other city, state, and federal activities.

Primary requirements for this opportunity, beyond commitment, interest, and aptitude, are that the candidates must be willing to initially train up to a maximum of four hours per week until fully proficient and then continue training up to a maximum of two hours per week to maintain proficiency and currency with the equipment and protocols. Additionally, the candidates must be willing to be available on-call to provide support when activated

and be able to rapidly deploy off-site along with other components of DART that may have to leave the Center to assist other city, state, and federal activities.

While some background or experience with communications systems, radio, and communications protocols would be highly desirable, it is not a pre-requisite to participation and success in the position.

DARTCOM was established in 1991 with a mission to install and operate emergency communications systems in support of the DART mission at Ames, and with Center Director approval, beyond the Center, encompassing an exciting and comprehensive array of communication technologies, protocols, and resources including radio, computer, telephone, satellite, and television utilized in support of the DART and Center missions.

The choice to participate in

DARTCOM can be a personally rewarding growth opportunity to serve the Center and the community as well as to learn, expand, and exercise new or existing communications interests, experiences, and skills that might also be of use and value in other personal and professional activities.

The application cutoff date is July 24. Please contact one of the following individuals for further information or to apply for this exciting communications opportunity: Mark Allard at email: mallard@mail.arc.nasa.gov or phone at ext. 4-6145; Bill Notley at email: bnotley@mail.arc.nasa.gov or phone at ext. 4-1415 and John Peterson at email: jepeterson@mail.arc.nasa.gov or phone at ext. 4-0988.

BY MARK ALLARD 

NFFE Local 997 celebrates golden anniversary at Ames



Left: (From left to right) NFFE #997 members: Robert Trent; Joe Hanzel; Dr. Marianne Mosher, Vice President performing the cake cutting part of the Golden Anniversary celebration and LeRoy Lewis of Sverdrup Technology, viewing benefits materials.

On Tuesday, June 23, the National Federation of Federal Employees Local 997 celebrated 50 years of representing Ames employees. Local #997 represents over 1,100 NASA civil servants on the Center.



photos by Dora Herrera, NFFE member

Above: (From left to right) Deborah Renick, Exchange Operations Manager, stopped by to view the NFFE exhibit, while members Robert Trent and Joe Hanzel are on hand to answer questions.

Preparation for DNV audit

As the Center prepares for the DNV pre-assessment audit, information on what to expect in the audit might be useful. The DNV auditors will follow a similar format as when they audited the wind tunnels and flight simulators, the former AO division. Having some knowledge of this completed audit can help others prepare and possibly allay some fears.

The wind tunnel and simulation divisions prepared for the audit by pre-audit training on procedures and audit do's and don'ts. In addition, "cheat" sheets were prepared to explain the ISO questions and suggest answers for different functional areas. The quality policy was displayed on badges worn by the employees and on posters found throughout the buildings.

To begin the audit on the first day, the auditors briefed management on what to expect during the 2 1/2 days of the audit at an Opening Meeting. During the rest of that morning, the auditors, on their own, reviewed the documents in preparation for their audits. For the most part the auditors reviewed the Divisions' Quality System Manual and a few implementing documents such as Configuration Management Procedures. For the center audit, DNV will probably focus on the SLP's. Thus during the audit they will be looking for objective evidence that the SLP's are implemented.

During the first afternoon the auditors interviewed only civil service management on the elements 4.1, Management Responsibility; 4.2, Quality Systems; and 4.3, Contract Review. Managers and supervisors were asked to show objective evidence, such as organization charts, signed customer agreements, and resource planning (budgets and schedules) to demonstrate that procedures for these elements were implemented. The Management Representative was asked to show evidence of his appointment and minutes from Management Reviews. The Management Review minutes needed to reflect analysis of the divisions' corrective and preventive actions and the internal audits. The day ended with the DNV auditors meeting with their escorts to review their findings. At that time misunderstandings, if any existed, could be cleared up.

The second day began with a meeting of management and the DNV auditors. The auditors reviewed the findings from the previous day and gave the schedule for the second day. On the second day, the focus of the audit was 4.4, Design Control; 4.6, Purchasing; and 4.5, Document and Data Control. Throughout the audits, the auditors asked about appropriate training and quality

records. For Design Control, quality records of design reviews and verification needed to be shown. In addition the auditors asked for the design plan which must include the organizational and technical interfaces for the design team. In the audit of 4.6, the DNV auditors agreed that off-the-shelf purchases did not require a list of approved vendors, however, for purchases that require a SOW the list needed to be shown. During the pre-assessment audit, little time was given to 4.9, Process Control, in auditing lower level procedures and documents. The focus of the review was mostly on the implementation of procedures as stated in the Divisions' Quality System Manual.

During the third morning, the auditors focused on 4.14, Corrective and Preventive Action, and 4.17, Internal Quality Audits. Again, objective evidence of corrective action and internal audit systems functioning as described in the procedures needed to be shown. To be noted is that whenever written procedures state approval is needed (such as of the internal audit schedule), the auditors expect to see the signature of an authorized person as objective evidence that approval was obtained. The auditors reviewed the findings in a Closing Meeting. The findings were either Category 1, which would prevent certification in a certification audit, or Category 2 which must be corrected but would not stop a certification.

Out of an organization of approximately 450 employees, 34 were audited. However, everyone needed to be prepared because DNV samples the quality system, and no one can predict who will be picked as an auditee. Some employees who had prepared so hard were disappointed not to be audited!

During the pre-assessment audit the organization learned the style of each auditor. One auditor turned out to be "big-picture" oriented and the other asked very detailed questions. Since the same auditors returned for the certification audit, knowing the individual auditor's style helped the organization to prepare and anticipate pitfalls.

In general, the pre-assessment was extremely useful to the divisions. The auditors helped the organization better understand the scope and requirements of many of the ISO elements and fine tune processes. Most importantly the DNV pre-assessment audit confirmed that the quality system was in place and the organization could prepare with confidence for the certification audit three months later.

BY SALLY BREW



ISO 9001 Certification

What will it mean to me, personally?

One doesn't have to work at Ames very long before discovering there really is a NASA attitude about the work we do here. It exists at every level and throughout the Center. That attitude is one of wanting to do the best possible job at what we are doing. Take a moment to hear what your co-workers are saying, what questions are asked by those to whom you go for a task. The message that comes through is, "I want to give you exactly what you want, and I want to do your job right the first time". You may not hear these phrases spoken. Instead, listen for people asking questions like, "What's the procedure for. . . ." or, "Where is the rule for doing" and, "This is a Class A job, right?" No one wants to invest their time and skills doing a job, thinking they have done it just right, only to find the requester has something different in mind.

Want to hear a couple of problem examples that occurred at Ames?

Heavy Metal Fab followed the welding designation symbols shown on the drawing for a complex wind tunnel model, making exactly the right welds in just the right locations, only to find that the weld symbols that had been specified were incorrect. The part was scrapped. The customer wasn't happy and neither was the Heavy Metal Fab crew.

Not knowing there was an Ames fastener policy (does everyone know now?), a new buyer purchased several thousand dollars of high-strength bolts from a supplier who wasn't on the designated list. When attempting to add the supplier to the list as a method for correction, it was learned the company had no quality system whatsoever and could not comply with Ames needs. However, as the requirement was not specified on the original purchase order, the supplier refused to accept a return and would not authorize a refund. The poor Buyer was "stuck". This one eventually worked out, months later, when the supplier relented.

Neither of these situations would have or could have happened under an ISO 9001 system.

ISO 9001 Certification will require that each of us document our

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The little telescope with lofty goals

Nestled in the trees and clouds at the top of Mt. Hamilton, in the company of huge, historic and modern telescopes, sits another small, unobtrusive, relatively tiny telescope that holds huge expectations for a team of Ames astronomers.

The lofty goal of the team, and this "Vulcan" camera, is to search for planets around other stars! The Vulcan camera is a four-inch aperture telescope which is

telescope uses lenses to focus light. The telescope itself is housed in a huge dome visible from Ames on a clear day, so it is quite large. It is still used and viewers actually use their own eyes to look at the skies, but it requires an extensive support facility where the entire floor must move to situate the observer under the eyepiece of the massive telescope.

Next we saw another large, more modern 120-inch "Shane" Reflector telescope, also housed under a huge dome often visible from Ames. A reflector uses mirrors to focus the light. The

Vulcan and the discovery of extrasolar planets

In the spring of 1995, two Swiss astronomers, Michel Mayor and Didier Queloz announced the discovery of the first bona fide planet around a normal star like our Sun, 51 Pegasi. What was not normal was that the planet was very close to its parent star, much closer in fact than the planet Mercury is to our own Sun. So close, in fact, that the surface temperature of this roughly Jupiter mass planet was predicted to be 1900 degrees Fahrenheit! Since then two more of these "hot Jupiters" or "Vulcans" have been found by the San Francisco State University team.

It is precisely this apparent abundance of these large, close-in and therefore rapidly orbiting "Vulcans" that makes their detection with a small telescope, like the "Vulcan" at Lick Observatory, from the Earth's surface feasible. The Kepler mission, a space-based mission, will strive to detect the roughly 100-times smaller signal from Earth-sized planets that are farther out and slower orbiting, but therefore cooler and perhaps habitable.

Why Vulcan? Vulcan was the Roman god of fire and metalworking craftsmanship, and labored at a fiery hearth (fitting since our Vulcan camera was the late summer product of the craftsmen in the un-air-conditioned Space Sciences shops). In the mid 1800's, an unseen planet interior to the orbit of Mercury was hypothesized to explain the unpredictability of Mercury's orbit. Alleged sightings of this planet, appropriately dubbed Vulcan, caused a popular sensation. In the early 20th century the rise of Einstein's Theory of General Relativity eliminated the need for a planet Vulcan to explain Mercury's orbit, and miraculously the sightings ceased! All this before the popular "Star Trek" television series adopted Vulcan as the name for Mr. Spock's scorching, but eminently logical home world.

BY TIM CASTELLANO



photo by Betsy Carter

The dome where the Vulcan telescope is housed.

demonstrating the photometric (or light measuring) technique by searching for big Jupiter-sized planets around other stars. It is a scientific feasibility demonstration for the Kepler project, a proposed space mission to search for habitable planets around other stars. Additional technical demonstrations have been performed in the Space Sciences laboratories at Ames and these will soon be extended and moved to Mt. Hamilton as well. The amazing thing about this project is that with such a lofty goal, bigger isn't necessarily better, as a casual observer will quickly see.

Team-member and astronomer-in-training Tim Castellano of Code SSA generously volunteered his time to provide an exclusive tour to some of his fellow NASA co-workers from Ames External Affairs. After a most impressive commute up Mt. Hamilton to the University of California's Lick Observatory, our tour began at Lick's original telescope, built in 1889. The 36-inch (which refers to the size of the lens) is the world's second largest Refractor telescopes. A refractor



David Scimeca is pictured above; he is the technician that constructed the telescope, which was designed by Principal Investigator Bill Borucki.

Shane, like most modern telescopes, has no eyepiece for a human eye, but uses electronic light detectors and is computerized for efficient observations.

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X-33 - system tests completed

NASA's F-15B Aerodynamic Flight Facility aircraft has successfully completed flight testing of Thermal Protection System (TPS) materials for the X-33 Advanced Technology Demonstrator at NASA's Dryden Flight Research Center, Edwards, CA.

Six flights were flown to test the durability of the TPS materials at flight velocities above the speed of sound, providing data to the X-33 demonstrator program team. The X-33 is scheduled to begin test flights in July 1999.

Thermal protection systems are used on spacecraft to protect them during flight, primarily as a "heat shield" during reentry into Earth's atmosphere. Though the X-33 is a sub-orbital technology demonstrator for an eventual commercially developed and operated single-stage-to-orbit launch system, the X-33 will encounter an extreme heating environment similar to what such a vehicle will encounter during orbital spaceflight and atmospheric reentry.

The F-15B reached an altitude of 36,000 feet and a top speed of Mach 1.4 during the flight series. No damage or signs of wear from high speed or maneuvering were apparent on any of the TPS materials, providing further confidence to the X-33 team in the ability of the materials to successfully protect the X-33 and follow-on vehicles in the harsh environment in which they will fly.

"With the F-15B we were able to accomplish the X-33 TPS durability flights in a timely and cost-effective manner," said Roy Bryant, Dryden's F-15B project manager. "The X-33 TPS team is very happy with the data obtained during these tests. A satisfied customer indicates a job well done by the F-15 project team."

The TPS material samples include metallic Inconel tiles, soft Advanced Flexible Reusable Surface Insulation tiles and sealing materials. They were flown attached to the forward-left side position of the F-15B's Flight Test Fixture II, a device attached underneath the aircraft to carry experiments. In-flight video from the aircraft's onboard video system and chase aircraft photo and video cameras documented the condition of the TPS materials during flights.

"I appreciated the expeditious manner in which this flight project was accomplished," said Gary Trippensee, Dryden's X-33 project manager. "The combined B.F. Goodrich Co., Richfield, OH; NASA's Ames Research Center, Moffett Field, CA; and Dryden test team provided valuable X-33 TPS flight qualification data efficiently and timely," Trippensee said.

The little telescope with lofty goals

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The Shane is used for imaging (taking pictures) and spectroscopy (breaking light into its component colors to identify chemical components). The Shane was used by Geoff Marcy and Paul Butler of San Francisco State University and the University of California at Berkeley to discover six of the nine known extrasolar planets.

Next stop was our main destination, the Vulcan camera. Over the last nine months, under the direction of Principal Investigator Bill Borucki, the team has built an appropriate 4-inch telescope with spare, loaned and donated parts supported by three desk-top computers (one Mac, two PCs). It is housed under a small dome that most visitors to Lick overlook. In fact, the ten of us on the tour could barely squeeze in the dome at once to hear and see Natalie Martimbeau of Sterling Software, the designated observing astronomer for the weekend.

Natalie and Tim explained that huge telescopes looked at very small pieces of the sky, but in great detail. And as impressive (and expensive) as the huge telescopes were, they are not appropriate for utilizing the *photometric technique* in the search for planets. In other words, "huge" and "expensive" are not necessary. And to be honest, compared to the intimidating monster telescopes, the Vulcan was darn right *adorable*. It was so much less intimidating and actually easy to understand.

Tim explained that in photometry, the periodic dimming of the star is measured. This brightness change is caused by the potential planet orbiting the star and blocking a small fraction of the star light.

Natalie explained that the Vulcan sees a 7-degree portion of the sky — about the size of the "dipper" in the Big Dipper. (The big, impressive 36-inch and 120-inch less than 1/10,000 as much of the sky). It takes 3-minute exposure pictures of a designated piece of the sky all night long for about 30 nights, measuring the light output of several thousand faint stars simultaneously. Measurement of many stars is necessary because the probability is small that a planet's orbit will have just the right orientation to periodically pass in front of the star and cause a dimming of the starlight as seen from the Earth.

The astronomers will be looking at the 30 nights of exposures looking for slight light variations that may appear

which may indicate a planet is orbiting that particular star, blocking some of its light. Having consistent night-after-night measurements is critical since the light-variation may literally occur in as little as a few hours of the entire month. Needless to say, the El Nino weather this year has posed a huge challenge!

So stay tuned for the potential future announcements of new planetary discoveries by the Vulcan camera, and keep your fingers crossed for the Kepler team as their "search for habitable planets" proposal works its way through the Discovery Mission proposal cycle.

To find out more about the Kepler Project, see the Website at: <http://www.kepler.arc.nasa.gov/>

BY BETSY CARTER AND TIM CASTELLANO

ISO 9001 Certification

What will it mean to me, personally?

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processes and procedures and follow them. Although many will be able to document and follow their original procedure, no doubt many others will take the opportunity to revise procedures that have become outdated. Expect revisions from time to time; that's why there's a Rev. block at the top of each document. Having a reviewed and approved written plan to fall back on will allow each of us to do our daily job with that good feeling of following what we are supposed to do, and finishing by knowing that we've done it right. Others, users of our services, need only check the procedure to know what to expect from us. By checking each procedure impacting their job, they will have a map to follow during the course of events.

So, what will ISO 9001 Certification mean to us personally? It will mean that you and all of your co-workers at Ames will have an added assurance of knowing just how a job should progress through its lifecycle. You have agreed, in writing, to complete your portion in accordance with the published procedures and will have a record of this satisfactory completion filed away. Also, you can trust that everyone else will be doing the same. No more questions like, "Hey Joe, what do we do for this kind of job"?

ISO 9001 will be a personal enhancement to the NASA "Do it Right" attitude.

BY JIM BRICKEN

Events & Classifieds

Calendar

Jetstream Toastmasters, Mondays, 12 noon to 1 p.m., N-269/Rm. 179. Guests welcome. POC: Jenny Kahn at ext. 4-6987 or Pam Walatka at ext. 4-4461.

Ames Child Care Center Board of Directors Meeting, Tuesdays, 12 noon to 1 p.m., N-213/Rm. 220. POC: Lisa Reid at ext. 4-2260.

Ames Multicultural Leadership Council Meeting, July 15, 11:30 a.m. to 1 p.m., Galileo Rm./Ames Café. POC: David Morse at ext. 4-4724 or Sheila Johnson at ext. 4-5054.

NFFE local 997 Union General Meeting, July 15, 11:30 a.m. to 12:30 p.m., Bldg. 19/Rm. 1040. POC: Marianne Mosher at ext. 4-4055.

Ames Amateur Radio Club, July 16, 12 noon, N-260/conf. rm. POC: Walt Miller, AJ6T at ext. 4-4558.

Ames Asian American Pacific Islander Advisory Group Meeting, July 16, 11:30 a.m. to 1 p.m., N-213/Rm. 261. POC: Daryl Wong at ext. 4-6889 or Brett Vu at ext. 4-0911.

JUG Meeting, July 16, 2 p.m., N-258 Auditorium. POC: S. Marcacci at ext. 4-1059

Native American Advisory Committee Meeting, July 28, 12 noon to 1 p.m., Ames Café. POC: Mike Liu at ext. 4-1132.

Ames Contractor Council Meeting, Aug 5, 11 a.m., N-200/Comm. Rm. POC: Greg Marshall at ext. 4-4673.

Hispanic Advisory Committee for Employees, Aug 6, 11:45 a.m. to 12:30 p.m., N-239/Rm. 177. POC: Carlos Torrez at ext. 4-5797.

Environmental, Health & Safety Monthly Information Forum, Aug 6, 8:30 a.m. to 9:30 a.m., Bldg. 19/Rm. 1078. POC: Linda Vrabel at ext. 4-0924.

Ames African American Advisory Group Meeting, Aug 6, 11:30 a.m. to 12:30 p.m., N-241/Rm. 237. POC: Antoinette Price at ext. 4-4270 and Mary Buford Howard at ext. 4-5095.

Nat'l Association of Retired Federal Employees, S.J. Chapter #50 Meeting, Aug 7, at the Elk's Club, 44 W. Alma Avenue, San Jose. Social hour: 10:30 a.m. Program & business mtg. follow lunch at 11:30 a.m. POCs: Mrs. Leona Peery, President, (650) 967-9418 or Earl Keener, Public Relations, (408) 241-4459.

Professional Administrative Council (PAC) Meeting, Aug 13, 10:30 a.m. to 11:30 a.m., N-244/Rm. 103. POC: Janette Rocha, ext. 4-3371.

Ames Sailing Club Meeting, Aug 13, 11:30 a.m. to 1 p.m., N-262/Rm. 100. POC: Greg Sherwood at ext. 4-0429.

Ames Classifieds

Ads for the next issue should be sent to astrogram@mail.arc.nasa.gov by the Monday following publication of the present issue and must be resubmitted for each issue.

Ads must involve personal needs or items; no commercial/third-party ads and will run on space-available basis only. First-time ads are given priority. Ads must include home phone numbers; however, Ames extensions will be accepted for carpool and lost and found ads only.

Housing

For rent: master bedroom in Sunnyvale home, one block from El Camino, 5 blocks from H85. \$550/mo + applied utils., and first and last month's rent. Priv. bath, full use of kitchen and pots and pans. Big garden. Touran (408) 773-1927.

For rent: Sunnyvale (Homestead/Hollenbeck) - One bedroom apartment in 4-Plex, Avail. 8/1 (poss. early move-in); new carpet, paint, appliances; 1-block to shopping, 15 min. from Ames, \$910 mo. + deposit, (408) 738-1447.

Transportation

'84 Ford Bronco XLT. Auto, air, power windows/locks. Runs and looks good. Very clean. All XLT options and accessories plus alarm and cover. \$5,000. Call (408) 342-9055 and lv. msg.

'87 Nissan Sentra, white, 4-dr, 130K mi., auto/AC/AM-FM, \$2,200. Call (510) 278-2601.

'88 Honda CIVIC DX, 4-dr, 4-cyl/dr, automatic, 92K mi., AC, AM/FM, cassette, CD, exc. cond., orig. owner, \$4,250. Call (408) 741-0524.

'88 Cadillac Eldorado Biarritz, Gold Series. Fully loaded, 125K mi., asking \$5,300 or B/O. Bob (408) 736-4039.

'89 Toyota 4-Runner SR5, V6, 5 speed, 93K mi., loaded, \$9,800. Call (408) 738-0524.

'92 Honda VFR 750 motorcycle, 21K mi., black with silver wheels, clean, serviced, 2-helmets and full cover \$4,850 or B/O. Larry (408) 738-1447.

'94 Mercury Sable LS, exc. cond., 3.8L, Low mileage, \$8,495 or B/O. Call (408) 946-2440.

Miscellaneous

Mogul exercise machine, U.S. Olympic ski team "Skier's Edge", \$50; professional rowing machine, Avita 950-SL w/AccuTimer, \$50; Solid oak desk, 32"x68" w/4 regular drawers and 2 file drawers, \$250. Patrick (408) 296-8182.

'94 Travelark electric cart with basket, battery charger, cane holder, and swivel seat with tilt arms. Good cond. Orig. price: \$2,100; selling price \$750. Jeanette (408) 378-1447.

Original windsurfer, 12 ft board, mast, boom, one sail. Exc. beginner package, \$200 or B/O. Bruce (650) 969-4118.

Large solid oak desk, \$40; convertible sofa, \$55. Call (408) 971-6624.

For sale or trade: membership in Thousand Trails/NACO with home campground in Morgan Hill. Good for all TTN campgrounds in US. Will consider all offers. Hank (408) 923-2231.

Dogloo, paid \$165 for it, will sell for \$90; Nikon EM manual 35mm camera w/52mm lens, very gd. cond., \$150; Rosignol sport skis w/o bindings, 190's, \$55; Scott ski poles, 122cm, Scott grip, good cond., \$35; small dog travel cage, \$25; tennis racquet, Wilson Pro 6.5si, Hi Beam series, 96 sq. in, new strings, \$65. Shari (408) 259-7465.

70 feet of 5 ft. high wrought iron fencing, including 3 gates. Used 2 years for pool fencing. Orig. cost \$1,000, make offer. Call (408) 323-0327.

Maple coffee table, exc. cond., \$85. Call (650) 961-7581.

A message to Ames retirees and others

Every Friday morning at 10 a.m., a group of retirees meet for coffee, tea, etc., at Le Boulanger at the Pruneyard in Campbell on Bascom Avenue about three blocks south of Hamilton.

All those interested in coming and joining us are welcome. It's a nice way to catch up on "what's going on," and it's fun meeting with former co-workers.

Beretta 92F, Italian made, mint, used twice. Transfer through licensed dealer only, \$400; jointer for woodworking, older Sears Craftsman model, 6" with separate newer motor, \$100; small Compressor/tank, great for home use and hobbies, inflating tires, run tools, painting, etc. \$100. John (510) 490-6671.

Two white, 'Audio Source' surround-sound speakers. \$35/pr; one black, 'Boston Acoustics' center channel surround speaker- two mids and a tweeter, with video shielding, \$50. Call (408) 295-2160.

Free wine bottles. Call (408) 257-0583.

O'Brian Slalom water ski, 220-XL. \$60. John (408) 737-8209.

Antique oak ice chest, full size. You haul. \$475. Laura (408) 736-9089.

Two white tree frogs free to good home. Heated terrarium and cricket house included. Sandy (408) 249-0920.

Twinn-sized bunkbeds, walnut finish in gd. cond., \$200 or B/O. Call (408) 251-0436 eves.

Apple Power PC 8500/150; 5Gig HD, 80Meg RAM; color printer, 33kbs modem; lots of prof. graphics software; \$1,000. Sherry (650) 968-4040.

14k gold diamond ring, certificate of appraisal \$3,195, make an offer. 18k gold earrings, 14k gold earrings, 14k gold band w/diamond cross, two 14k gold bracelets. Becky (408) 226-5932.

Vacation rental

Houseboat for rent on Claire Engle Lake ("Trinity" Lake) in N. CA. Sleeps 8, kitchen, bathroom w/shower. Unbelievable stargazing. See www.wildhorses.com/houseboat.html. \$1,200 week. Call (650) 941-3396.

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

Carpool

Looking for someone to carpool with from Campbell to Ames. If interested, please email at: jfung2@mail.arc.nasa.gov or Janice, at ext. 4-5825.

Lost & Found

Found in N-233: small, expensive bracelet. Call to identify. Naz Haghbin at ext. 41494.

Astrogram deadlines

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, please check the publication deadline and submit your material, along with any questions, in MS word by e-mail to astrogram@mail.arc.nasa.gov on or before the deadline.

DEADLINE	PUBLICATION
MON, JUL 13	FRI, JUL 24
MON, JUL 27	FRI, AUG 7
MON, AUG 10	FRI, AUG 21

Ames Events

What's cookin'?!

Want to have an office BBQ but you don't have time to plan it? Can't spend much money? And what about the driving? Would like to plan something for your employees? Call the Ames Café! No event is too big or too small. Ames has beautiful open spaces including Chase Park and Alumni Park across from Bldg. 200. Don't spend time in traffic - take time to enjoy our Center! The best of life is free!

The Ames Café will bring you the BBQs, charcoal, food tables/tents, and with a little assistance you'll be on your way to a memorable picnic. You pick the place and you do the cooking! The Ames Café will set up (i.e., start the BBQ) and tear down!

BBQ A - The Ames Café will cater the main course (hamburgers, hot dogs and chicken breasts) and you bring your own side dishes, paper products, condiments, and drinks. Price includes BBQs, charcoal, and setting up food tables. \$3.00 per person.

BBQ B - The Ames Café caters the main course (hamburgers, hot dogs/ sausages and chicken breasts) and you bring your own side dishes and salads. Price includes one canned soda, chips and paper products. \$5.00 per person.

BBQ C - The Ames Café caters the main course (hamburgers, hot dogs, sausages, and chicken breast) and will provide a choice of side salads. Price includes one canned soda, chips, dessert and paper products. \$6.00 per person.

As always, the Ames Café offers catering to all your events at any site. Box lunches and deli platters are also popular. From a continental breakfast or an office meeting to an elegant dinner, we welcome the opportunity to serve

you. Call and make your reservation today - Anthony or Sherry at ext. 4-5969. Sponsored by the NASA Exchange.

BY DEB RENICK

Blood drive information

The Alameda-Contra Costa County Red Cross would like to extend a hearty thank you to all employees, contractors and students for taking the time to donate at the June 22 Blood Drive. Due to your efforts, 120 units of blood were collected - versus 98 units that were collected at the previous Blood Drive. The increased donor base was largely due to unscheduled donors.

While the increase in unanticipated donors did cause some delays for others, I assure you, we are looking for any and all solutions to make the donation process less time intensive. Every unit of blood donated has the potential to save a life. Consequently, we strongly encourage appointments whenever possible and in times where a large number of walk-ins converge, it is morally difficult for us to turn donors away.

For this reason, if something does not go quite as expected, please keep in mind that an increase in donor base is part of our goal. We ask that you bear with us while we look at ways to make the process, including the on-line registration more responsive and efficient. Making appointments to donate is a great way for you to help us in this effort.

Those of you who donated are a real special group of people. We hope you will continue to make blood donation a regular part of your life. Thank you once again.

BY CHAZ CZAPLICKI

Award nominations sought

Nominations are now being accepted for the 1998 Ames Honor Awards program. Civil servants are encouraged to submit nominations for their peers. All nominees must be onsite civil servants except where the guidelines state otherwise. There may be more than one winner in each category.

This center-sponsored program is a peer nomination process and is considered one of the center's most prestigious honors. Those receiving an award will be presented with a certificate and cash honorarium. Contractor employees will receive a memento in lieu of the cash honorarium.

Nomination forms are available at <http://huminfo.arc.nasa.gov/Awards/1998honor.doc>. Late nominations and self-nominations will not be accepted. When the honorees have been selected, an announcement will be made by a staff memo. For more information and for a list of nomination categories, contact Gail James at ext. 4-5472.

THE AMES *Astrogram*

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

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Editor.....Astrid Terlep

THE AMES *Astrogram*

National Aeronautics and
Space Administration

Ames Research Center
Moffett Field, California 94035-1000

Official Business
Penalty for Private Use, \$300



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