Imagine you worked for an organization that was considered so well positioned in the cutting-edge-technology arena -- both geographically and in research terms -- that it was chosen by an important subcommittee of the U.S. House of Representatives to host a field hearing on the topic of emerging technologies.

If you work at Ames Research Center, you do!

On Monday April 24, just such a hearing was held at Ames in the Moffett Training and Conference Center ballroom. The venue was transformed for the occasion to resemble the courtroom-like settings that we have all come to expect on C-SPAN and similar channels. But this wasn't Washington, it was right in our own back yard. And CNN, KCBS and other news media services were on hand to report the proceedings to a national audience.

Stephen Horn, Chairman of the Subcommittee on Government Management, Information, and Technology in the 106th Congress, called the meeting to order promptly at 11:45 a.m. The subcommittee's objective was to hear testimony from Silicon Valley, Bay Area, and other experts on the topic of "Emerging Technologies: Where is the Federal Government on the High Tech Curve?"

As Congressman Horn expressed it, "we are here today to take a glimpse into the future, to recognize that while the United States remains on the cutting edge of scientific research, other countries are advancing technologically. Still, it remains vital to the nation's economy and social fabric that we retain that lead," he said. Nine witnesses and a period of spirited questioning served to cast considerable light on the issues the subcommittee were investigating.

Sam Venneri, Associate Administrator for Aero-Space Technology and Chief Technologist at NASA Headquarters, was the first to give testimony. Venneri postulated that, in every century since the Renaissance, "great advances in science and technology have brought about dramatic changes in our lives." And so it will be in the 21st century, he argued.

"Three key emerging, interrelated technologies will provide NASA -- and the country -- with a new pathway to revolutionize our missions and the scientific and engineering systems that enable them: biotechnology, nanotechnology and information technology," Venneri said.

"Over the past decade, there have been tremendous scientific breakthroughs in these technologies. And, it is only fitting that we discuss these technologies here since so much of it originated and prospers in California," he observed.

VENNERI went on to provide an overview of how NASA plans to develop and employ these technologies in our missions. The secret, he argued, is not to be found in "chipping away atom by atom," but by proceeding in an entirely new direction that takes its cue from biology and lets us build, "atom by atom," cost-effective and reliable new devices. To build them, in Venneri's words, "conceptually, analytically and physically, from the atomic scale to the..."
Airships land at Ames for maintenance

Recently, Moffett Field hosted a number of non-rigid airships in Hangar II. These lighter-than-air crafts use a proprietary envelope design made of modern synthetic materials and are aerodynamically shaped. These are filled with helium gas, which is a natural fire extinguisher, and held at a very low pressure, about 1/15 psi. Once airborne, airships can remain nearly stationary for extended amounts of time, making them useful for extended missions, including testing and tracking atmospheric conditions.

Per FAA regulations, these airships must receive maintenance every six months along with testing of the integrity of the “envelope” on a regular basis. Because of their size requirements, the use of Hangar II for these activities is ideal, since this is only one of two hangars available on the West coast, the other being in Oregon.

The first airship to arrive here was an A-150 owned and operated by Airship Operations, Inc., and licensed to the Tommy Hilfiger Group. While they remained in Hangar II for two weeks, they changed their logo to represent their new client, Colleges.com. They also did minor maintenance work. The A-150 is the newer and larger of the airships currently in operation, spanning 165 feet in length, 55 feet in height and 46 feet in width. The volume of helium contained in the envelope is approximately 150,000 cubic feet, and ship runs twin variable pitch reversible propellers.

The second and third airships in Hangar II are owned and operated by The Lightship Company, a subsidiary of Virgin Atlantic. The Monster.com airship is an A-60; 132 feet long, 44 feet high and 37 feet wide with a cubic volume of 70,000 feet. “Monster” received a full maintenance along with redecals, a new logo graphic on the envelope and fins. SANYO is an A-150. It received a full maintenance and installation of newly designed rudder fins while here at Moffett Field.

The next airship to undergo maintenance at Hangar II will be the Goodyear “Eagle” airship in May. This ship is approximately 202,240 cubic feet in volume and is currently based in Southern California. Special thanks go out to the folks at Airfield Operations, Code Q and the fire marshal for their tireless activities in making this a successful relationship with a new client.

Acquisition awards presented to SOFA team

On March 16, Deputy Center Director William E. Berry officiated at an Acquisition Improvement awards ceremony. NASA’s Associate Administrator for Procurement (Code H) had recognized the Ames Stratospheric Observatory for Infrared Astronomy (SOFA) mirror coating system procurement team for an “Acquisition Improvement Award.” The team received a certificate and monetary award. This was one of only seven awards that Code H made during this six-month cycle.

The procurement contract was awarded on December 15, 1999 for $829,000. Its purpose was for the design, fabrication, installation, and testing of the mirror coating system for the primary mirror on SOFA. It is significant because the mirror coating system is integral to the operation of SOFA, an airborne observatory consisting of a telescope carried by a specially configured Boeing 747-SP aircraft. SOFA is a multi-national program involving NASA and the DLR, Germany’s Space Agency. The mirror coating system is used to re-coat the telescope’s mirror after removal from the aircraft, an occurrence estimated to happen approximately four times per year for 25 years. The procurement team members are Rachel Khattab, Code JA; Curtis Laughlin, Code SF; Raymond Schuler, Code FEF; Diane Wooden, Code S5T; and Thomas Roeiigli, Code SSA.

The team was recognized for several significant accomplishments. This procurement was the first midrange contract processed using NASA’s innovative electronic procurement (EPRO) process. The team used one of the EPRO tools (Entrust Digital Signature/Security) to allow proposal evaluation to be performed at an off-site location. The team’s clearly defined evaluation value characteristics, coupled with the quality of the electronic proposals, allowed the team to make selection without discussion, to make award based upon the initial evaluation.

They completed the evaluation and selection in 29 days, from proposal receipt to award, no protests filed.
NASA-sponsored local student teams win national robot games

Two San Francisco Bay Area student robot teams joined with a New Jersey team to win the FIRST national robotic games competition held Saturday, April 8 at Walt Disney World’s EPCOT Center, Orlando, FL. The competition involved 268 robots from high schools across the nation.

Student-made robots formed “alliances” to lift large balls and put them into a container. The competition, the first match, losing 7 to 11. Our allies took it to the competition, shutting their scoring down due to incredible engineering by the New Brunswick students. Their robots’ arm guarded or stole balls from our opponents,” Federman reported.

Organizers say the overall goal of the robot games is to allow students to interact with engineers so that youths can see the connection between classroom instruction and the real world. Each year FIRST develops the competition and supplies “a problem” and parts to teams of students. "It all came together with an extreme amount of teamwork from the three teams that formed our alliance,” said science teacher Dave Lockhart, an advisor to the Napa team. "It was a phenomenal experience; good strategy and engineering played a big part,” he said.

"It was incredibly exciting,” said Jeff Ota, a former NASA engineer and a school board member of the East Side Union High School District that encompasses Foot Hill High School. "Youths and their advisors designed and constructed their remote-control robots in six weeks. Advisors are often professional engineers from private industry, government and universities.

"Foothill is a continuation school with limited resources,” Federman said. The school received $5,000 from NASA Ames and additional funding from the school district, he explained. "The dozen kids on the team are mostly Mexican and Asian in heritage. A dedicated team of three engineers, two from FROG Design, Sunnyvale, CA, and one from NASA (Raytheon) were assisted by three super teachers,” Federman noted.

"The robot was assembled totally in a classroom,” said Federman. "The only machine shop tool on campus is a drill press. Some off-site work was done at FROG Design where aluminum plate for wheels and the extruded aluminum members for the chassis were cut to size.”

"This is beyond our wildest dreams,” said Federman. "We were about 192nd in last year's nationals; we were the number ten seed in this year's competition,” he explained.

"This year NASA is proud that we sponsored 108 teams nationwide,” said Leon. "The endeavors in which the students engaged for this competition were truly impressive, and we expect that in the future some of these students will be the engineers and designers of our robotic planetary exploration program,” he stated.

FIRST was started in 1989 by inventor Dean Kamen to persuade American youth that engineering and technology are exciting fields. Tom Dyson, ext. 4-6601 and Joseph Hering, ext. 4-2008, both of Ames, have more information about the robotics games.

Additional information can also be obtained at these Web sites:
http://robotics.nasa.gov/first.html
http://www.usfirst.org and http://robotics.nasa.gov/foothill

by John Bluck
Project ASTRO is currently seeking amateur or professional astronomers to work with science teachers in grades 4 to 9 during the 2000-2001 school year. Project ASTRO is an innovative education program that brings astronomers to 4th through 9th grade science classrooms in the Bay Area.

Jill Anderson, third grade science teacher at Springer School, applied to be a Project ASTRO teacher in 1997. She trained at the Project ASTRO astronomy workshop and was partnered with Ames researcher Dr. Duane Carbon, who has been making visits to her class ever since. She raves: “Duane has been a fantastic resource for me, and a thrill for my students. I have really been able to ‘hook’ my students through this partnership.”

It seems that lots of ‘thrilling’ and ‘hooking’ has been going on in nearby schools, as Duane is just one of the Ames employees visiting schools through Project ASTRO.

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Ames researchers study how fungi affects forest types/regrowth

Tiny fungi that make forests possible are significantly affected by clear-cutting tree stands, perhaps altering forests and plant types that re-grow, according to a recent paper in the Canadian Journal of Botany.

The paper reports on ecological fungi research by NASA at Yellowstone National Park, WY, where scientists used a police technique, “DNA fingerprinting,” to investigate biodiversity and the importance of human changes to ecosystems. An ecosystem is the combination of living things and raw materials, such as water, gases and minerals, that life uses in the environment. Clear-cutting refers to the practice of cutting a stand of trees in its entirety.

“If the fungi in ecosystems change in large areas of the world, then the kind of plant life could also change,” said Dr. Ken Cullings, a scientist at Ames, who co-authored the paper with team member Kristin Byrd. “I’m not sure how changes in the soil may be able to explain why it is more difficult for certain species of trees to re-grow. Our results identified the need for further research to understand how fungi remained after clear-cutting,” Cullings said.

“The fungi we study are related to the big mushrooms you see when walking through the forests,” he said. “If you go to the market, you will also see them; they are chanterelles and king bolete, expensive mushrooms that are also mycorrhizal fungi.”

“Mycorrhizal fungi are important because, without them, trees could not get nutrients such as nitrogen and phosphorus from the soil,” he said. “The fungi get carbon from tree roots in exchange for providing nitrogen and phosphorus to the trees.”

If a tree does not have nitrogen, it cannot survive. Most plants on Earth, including trees in the tropical rainforests, form associations with fungi. “The things we are learning in Yellowstone can apply to ecosystems across the world,” said Cullings. The paper reports that the research team took soil cores at both undisturbed and clear-cut forest sites. Researchers found 48 species of ectomycorrhizal fungi in clear-cut areas, and 70 species in undisturbed Yellowstone forests. The research team also found 9 of the 14 most common “clear-cut” species in the undisturbed sites, but at a much lower abundance.

“We’re using DNA fingerprinting to identify these different kinds of microbes,” he said. “We work with a root hair the size of a pin head.”

“Just like forensic detectives, we amplify the DNA by taking a gene, and we put it in a machine with the chemical building blocks of DNA.”

Scientists use an enzyme, first discovered in a Yellowstone hot springs bacterium in the 1960s, to make several billion copies of each gene under study. Cullings was the first scientist to use this process to categorize Yellowstone microbes.

“We measure biodiversity; and one way to do it is to measure the species that are present in the soil,” Cullings said. “My group is counting microorganisms and what kinds live in Yellowstone’s soil. We’re looking at how clear-cutting, forest fires and other disturbances are affecting the microbe populations.”

“We have found there is a big difference between how clear-cutting a forest affects microbes and how fires affect those populations,” he said. “After a fire, or clearing of timber in a given area, the number of microbe species may be the same, but different kinds survive a fire versus survive clear-cutting.”

Because some types of fungi may help certain tree varieties to survive, but not others, the kind of forest in the area may change after a fire or a clear-cut. The historic cycle of forest recovery may also change. During decades or even hundreds of years, many Yellowstone and Rocky Mountain forests change from lodge pole pines, to firs and spruce. Human-made disturbances, such as acid rain and changes in atmospheric gases (including carbon dioxide levels or damage to Earth’s ozone layer), can also alter the repeating cycle of tree growth, Cullings’ study suggests.


4 — The Ames Astrogram

May 1, 2000
National Employee Health & Fitness Week

Ames celebrates National Employee Health and Fitness week

Safety, Health and Medical Services and the Health Sciences Library are pleased to announce the planned activities for National Employee Health and Fitness week May 15 to 19. Programs include the following:

On Monday, May 15, Stefanie S. Jeffrey, M.D., Chief of Breast Surgery, Stanford University School of Medicine will discuss “Breast Cancer Treatment in the New Millennium” from 2 p.m. to 3 p.m. in the main auditorium, Building N201.

On Tuesday, May 16, the annual “Spring Fun Run and Walk” will take place. The course will cover 2 miles. Walk it, waddle it, roll it, stroll it or run it. Just have fun doing it! The walk/run begins at 12 noon on DeFrance near Warner Road. Ribbons, refreshments and prizes will be handed out at the finish line near the Ames Café. Certificates will be given to winners in both walking and running categories. Registration is $2 and t-shirts may be purchased prior to the run at the Fitness Center. You may pre-register with any of the event coordinators or at the Fitness Center. Registration will also take place at the starting line on race day. No rollerblades please.

Contact Nancy Dunagan at ext. 4-5804 for additional information.

On Wednesday, May 17, at 12 p.m., Ames will kick-off a skin cancer prevention program as one more health facet to reduce employee illnesses and the damaging effects related to skin cancer. A film will be shown featuring NASA Astronaut Captain Jeffrey Ashby. Information from many different resources will be available for all attendees. Representatives from the Ames Health Unit will be available to answer questions and provide literature. Please join us in the main auditorium, Building N201 on Wednesday, May 17 at 12 noon. “Is Your Number Up?” will be featured on Thursday, May 18. Free blood pressure screenings will be given by the Health Unit staff in conjunction with the Health Sciences Library. Drop by the Health Sciences Library from 11 a.m. to 1 p.m. for a free screening and valuable information on blood pressure and keeping your number in range.

On Wednesday, May 17 at 12 noon in the main auditorium, Building N201.

Astronaut Captain Jeffrey Ashby, pictured here, will be featured in a film presentation on skin cancer prevention to be shown on May 17 at 12 noon in the main auditorium, Building N201.

“Breast Cancer Treatment in the New Millennium” from 2 p.m. to 3 p.m. in the main auditorium, Building N201.

On Wednesday, May 17 at 12 noon, Ames will kick-off a skin cancer prevention program as one more health facet to reduce employee illnesses and the damaging effects related to skin cancer. This initiative, begun by NASA Administrator Dan Goldin, was created in response to his concern for employee illnesses and the damaging effects related to skin cancer. This initiative, begun by NASA Administrator Dan Goldin, was created in response to his concern for one in five Americans will develop some form of skin cancer during their lifetimes. Vigilance against skin cancer depends on what dermatologists call the ABCD’s of skin spots: asymmetrical shapes, boundaries that are irregular, colors that vary and a diameter of 6 millimeters or greater. The most important element in skin safety is regular self-examination using the “ABCD” guide described. Because melanoma is fatal if not caught early, even an annual examination by a doctor might not catch a problem in time.

Representatives from the Ames Health Unit will be available to answer questions and provide literature. The film will be shown as part of Ames celebration of “National Employee Health and Fitness Week”. Join us in main auditorium, Building N201 on Wednesday, May 17 at 12 noon for this informational kick-off event and learn how you can protect yourself from this very preventable disease.

Dr. Stefanie Jeffrey, M.D., Chief of Breast Surgery at Stanford University School of Medicine, will speak on breast cancer treatment on May 15, at 2 p.m. in the main auditorium, Building N201.

May 1, 2000

The Ames Astrogram — 5
On-site Events & Classes

Earth Day event is informative

Ames employees turned out for the Earth Day Symposium and Exposition on April 20. The goal of the event was to encourage the use of renewable forms of energy to power our homes, to inform Ames employees of recycled content products that are available through GSA, and to promote use of non-polluting transportation technology.

Many people felt that the morning session “New Energy for a New Era” was very informative. The speakers were knowledgeable and were very excited about energy deregulation. They provided useful information from a consumer standpoint. Several session attendees became convinced to change to a green-energy provider. Attendees found it helpful having the energy providers there who were able to answer questions about the differences in billing structures.

Center personnel who attended “Technologies for a Better World” walked away with the knowledge that pollution prevention does pay. Ames saves approximately $1 million through the innovative technologies in use here.

Many people found the exhibits informative. Most people enjoyed seeing the electric vehicles. Many people even took the opportunity to ride an electric bike. It is surprising how easy they are to operate.

Thirty persons made a connection with the Rides for Bay Area Commuters. Hopefully, their commutes will be more enjoyable in the future.

Two hundred and twenty-three persons participated in the bike giveaway by using some form of alternative transportation the week prior to the event. Jeanette Johnston, Code JIL, won the bike donated by the Ames Exchange. Johnston uses mass transit to get to work.

A pilot project to make electricity from the sun was announced. Steve Frankel, an engineer spearheading the project, flicked on a light switch powered by a photovoltaic cell. The demonstration solar-electric plant at Ames is to be completed by late summer; the plant will be on the roof of Bldg. 245. “This solar-electric system will reduce global warming by reducing greenhouse gas emission in the local area,” Frankel said.

The Ames Environmental Services Office will host brown bag lunches throughout the year as a continuation to this year’s Strive to Sustain - Earth Day 2000 event.

Exchange pool goes to summer schedule

The Ames Exchange swimming pool is scheduling summer recreational swimming, beginning Saturday, May 27. The pool has many programs to offer this year. The NASA Master’s Swim Club meets Monday to Friday from 6 a.m. to 8 a.m. Lap Swimming is from 10 a.m. to 1 p.m. Open recreational swimming is from 1 p.m. to 5:30 p.m., seven days a week.

Swimming passes are sold at the swimming pool, building 109 located on the corner of Wescoat and Bailey Roads. Beginning June 19, the Exchange is offering the following American Red Cross swimming lessons: stroke refinement, stroke development, stroke readiness, primary skills and water exploration. Each class lasts two weeks, running Monday through Thursday, and costs $45.

For more information, call Brandy Bell at ext. 3-8025.

Ames offers theater tickets for sale

The Ames Exchange will be offering tickets for the following shows:

• WIT, Starring Judith Light, Friday, May 19, The Curran Theater, at 8 p.m. Winner of the 1999 Pulitzer prize for drama, this is an intelligent, funny, heart-breaking study of the human spirit. It may well be one of the most gratifying theatrical experiences of a lifetime. Mezzanine seating, $37.50 each

• Disney’s Beauty and the Beast, Thursday, June 8, The Orpheum Theater, at 8 p.m. A prince and his entire household exist under a spell until the true power of love releases them. Disney imagination teams with Broadway special-effects genius in a way that leaves audiences breathless. Mezzanine seating, $42 each.

Tickets are available on a first-come, first-serve basis, at the Tickets and Tours office, Building 19, Rm. 1011, Monday to Friday, 10 a.m. to 2 p.m. Tickets are available only for the date and show time listed. For more information, call Jodi Neal at ext. 4-0818 or Ticket and Tours at ext. 4-6873.
Event Calendar

Model HO/ON3 Railroad Train Club at Moffett Field invites train buffs to visit & join the club in Bldg. 126, across from the southwest end of Hangar One. Work nights are usually on Friday nights from 7:30 p.m. to 9:30 p.m. Play time is Sunday from 2 p.m. to 4 p.m. For more info, call John Donovan at (408) 735-4944 (W) or (408) 281-2899 (M).

Jetstream Toastmasters, Mondays, 12 noon to 1 p.m., N-268/Rm. 179. Guests welcome. POC: Samon Cheung at 4-2875 or Lich Tran at ext. 4-5997.

Ames Ballroom Dance Club, Ames Ballroom Dance Club, Tuesdays, Rooms 4-4, 4/11, 4/18, 5/2, 5/9, Santa 5/16, 5/23, 5/30, 6/6. 4 levels of classes, from Bob, Tues., 5:15-6:15pm. Moffett Training and Conference Center, Bldg. 3/Prowoam. Women dancers are especially encouraged to join. POC: Helen Hawking, Hawking@its.arc.nasa.gov.

Ames Child Care Center Board of Directors Mtg. Every other Thursday at 4pm. Web site for meeting details: 11 noon to 2 p.m., N-268, Rm. 201. POC: David Komer, ext. 4-3114. Web site: http://acc.arc.nasa.gov

Ames Contractor Council Mtg. May 3, 11 a.m., N-200 Comm. Rm. POC: David Lawrence at ext. 6-4634.

Environmental, Health and Safety Monthly Information Forum. May 4, 8:30 a.m. to 9:30 a.m., Bldg. 19/Rm.1078. POC: Linda Vidal at ext. 4-6024.

Hispanic Advisory Committee for Employees. May 4, 12:45 p.m. to 1:30 p.m., N-242/Rm. 217. POC: Mary Ray, at ext. 4-5819.

Ames African American Advisory Group Mtg. May 4, 11:30 a.m. to 12:30 p.m. POC: Robert Finley at ext. 6-3120. Contact Robert for meeting place.

Ames Association of Retired Federal Employees, (NAFES), San Jose Chapter. Mtg. May 5, at Harry Hoffman, 390 Saratoga Av., SJ, Posp. and bus. mtg. follow lunch at 11 a.m. POC: Mr. Rod Perry (940) 967-8448 or NAFFE-1 800-627-3394.

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Lost & Found

Moffett Field Lost and Found may be reached at ext. 4-5428 at any time. Residents and employees at Moffett Field may also use Internet browser at http://ccf.arc.nasa.gov/codes/pages/lostfound.html to view a list of found property and obtain specific instructions for reporting lost or found property and how to recover found property. Call Moffett Field security and fire protection section at ext. 4-1359 or email at: mfnrfe@mail.arc.nasa.gov.

Baseball Fans--mark your calendars!

The Ames Exchange is hosting a day at the ballpark! Come watch the big rivalry game between the Oakland A’s and the San Francisco Giants.

The game is Saturday June 3 at 1:05 p.m. at the Oakland stadium. The Ames Exchange will be sponsoring a tailgate party with hot dogs, chips and sodas before the game, starting at 11:00 a.m.

Tickets for the game and tailgate are only $5 and are available at the Tickets and Tours Office. Building 19, Rm. 1011. For more information, call ext. 4-6873 or Jodi Neal at ext. 4-0818.
**Speakers Bureau needs your expertise!**

The NASA Speakers Bureau Program schedules volunteer employees from Ames to give lectures and presentations at educational institutions, business organizations, service clubs and professional and technical societies. The program has been successful in reaching out to the Silicon Valley community and other states, informing the public of NASA's contributions to research, technology development and science.

As our valley continues to develop, requests are coming in weekly for NASA employees to inform the community of NASA's contributions to the nation.

The Speakers Bureau Program is looking for NASA employees and/or contractors to be a part of the program. If you enjoy speaking to people about your career and would love to share your expertise, call the Speakers Bureau program and volunteer. Contact Sheila Johnson at ext. 4-5054 or contact the author at ext. 4-4034.

*BY VALONNE FINNIE*

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**National Day of Prayer Observance**

On May 4, at 11:30 a.m. to noon, Ames staff are invited to gather at the field east of Building N245, Pioneer Avenue and N. Warehouse Road. Come and pray together for our community, our nation and our world. POC: Don Durston, ext. 4-1515.

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**Exchange offers NASA night with the San José SaberCats**

The Ames Exchange is proud to offer tickets for this May 12, 7:30 p.m. event at the San José Arena. Come watch the San José SaberCats battle the Oklahoma Wranglers in the 50-yard indoor war called Arena League Football.

This exciting game of football is played indoors with lots of fireworks, music, fan participation and half-time shows. Tickets are limited, on a first-come-first-serve. Tickets can be purchased at Tickets & Tours. Call ext. 4-6873 or ext. 4-0818 for more information.

*BY VALONNE FINNIE*

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**Computer museum center unveiling, May 3**

Chronicling the rise of technology, the Computer Museum History Center will unveil its new look and direction on May 3.

With a glance back at the building blocks of computer science and a firm grip on the developing future, this event embraces the history that defines Silicon Valley. You won't want to miss it.

Join us in the collection space, Building 126, at Moffett Field at 6:00 p.m. on Wednesday, May 3.

More details to come soon, but you'll want to be sure to save the date!

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**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, submit your material, along with any questions, in MS Word by e-mail to: astrogram@mail.arc.nasa.gov on or before the deadline.

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**Tickets on sale**

The Ames Exchange is selling tickets for the following amusement parks: Disneyland, Universal Studios, Magic Mountain, Six Flags Marine World, Knott's Berry Farm, Monterey Bay Aquarium and Paramount's Great America. Call Tickets & Tours at ext. 4-6873, or ext. 4-0818 for more information.

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This exciting game of football is played indoors with lots of fireworks, music, fan participation and half-time shows. Tickets are limited, on a first-come-first-serve. Tickets can be purchased at Tickets & Tours. Call ext. 4-6873 or ext. 4-0818 for more information.

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**Tickets on sale**

The Ames Exchange is selling tickets for the following amusement parks: Disneyland, Universal Studios, Magic Mountain, Six Flags Marine World, Knott's Berry Farm, Monterey Bay Aquarium and Paramount's Great America. Call Tickets & Tours at ext. 4-6873, or ext. 4-0818 for more information.

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**National Aeronautics and Space Administration**

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

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