

THE AMES

Astrogram



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

AMES RESEARCH CENTER, MOFFETT FIELD

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on-line at: <http://amesnews.arc.nasa.gov/pages/astrogram.html>

Ames tunnel serves as hands-on educational venue --at-risk students learn about aerodynamics first hand

Alternative high school students from San Jose tested a modern soap box derby racecar in an Ames wind tunnel on Sept. 20 and 21 to learn about aerodynamics.

Later, the students, from Foothill High School, San Jose, raced the car in the fourth annual Sand Hill Challenge in Menlo Park.

"Because we are an alternative high school, our overall mission is to teach science in alternative ways," said Foothill teacher and robotics team leader Vito Chiala. He and teacher Jeneva Westendorf instruct more than 80 sophomores, juniors and seniors about robots. "Students in our school have traditionally not learned well from books, so what we do is a lot of hands-on science and a lot of mentoring with professional engineers and workers. This method really piques student interest," Chiala said.

"NASA's role in this project was to assess the aerodynamics (drag and flow characteristics) of the car and offer simple solutions on possible changes to the vehicle's shape," said Ames engineer Dale Satran. He advised the students about the wind tunnel tests that took place in the Ames 7-

ft. by 10-ft. wind tunnel. The racer is about 2 ft. by 2 ft. and 13 feet long.

The 7-ft. by 10-ft. wind tunnel is operated by the U.S. Army Aeroflightdynamics Directorate, and the Army provided the operational staff and technical support for the student wind tunnel tests.

"We wanted to introduce this year's class to scientific methods early on in the school year. We decided to participate in the Sand Hill Challenge as a way to begin the process," Chiala said. Although 80 students were involved in the project, only 20 went to the wind tunnel tests. "We videotaped the tests, and a NASA engineer will come to our school to help teach the other students about aero-



photo by Dominic Hart

Foothill High School students working with Ames Engineers Dale Satran and Rabi Mehta attach tufts (black yarn) to the body of their Sandhill Challenge racer in order to better visualize the airflow over the body of the vehicle.

dynamics," Chiala added.

"During the wind tunnel tests, a belly
continued on next page

Reno air races draw huge crowds

Over 200,000 enthusiastic fans braved unseasonably high temperatures and dry, dusty conditions to flock to Reno's Stead airport Sept. 14-17 to view this year's version of the National Championship air races. Many of them also dropped by the NASA tent to see numerous exhibits from Ames, view videos, pick up literature and try their hand at a range of computer simulations.

The first two days of the show featured educational field trips by children from schools as far away as Sacramento. Hundreds of kids from dozens of local classes posed questions, scooped up NASA stickers and posters, and absorbed as much of the NASA experience as they could soak in. Many elementary classes, aware of Ames' annual pilgrimage to the air races, came through the NASA tent with questionnaires specifically designed to address the Agency's technologies and accomplishments as exhibited in the tent. A scout troop reported that they



photo by Jonas Dino

Visitors collect NASA literature inside the Ames Exhibit tent at the 2000 Reno National Championship Air Races.

were given a similar assignment.

Many visitors commented that the NASA exhibit was the best non-race activity at the air show. The race concession staff also rated the exhibit as a major attraction and one of the stars of the annual show.

This year, the distinctive 30 x 60 foot, blue-roofed NASA tent (affectionately and

appropriately dubbed 'the solarium') also housed a team of representatives from the Federal Aviation Administration. Unable to secure their own space, they shared facilities with the NASA team to provide information about FAA programs and aircraft safety.

Reno is one of the premiere outreach events conducted each year by members of the Development and Communication Office (Code DXC) to spread the word about Ames' programs, facilities and accomplishments. At Reno, as at the recent Oshkosh air show, the emphasis is on aeronautics, aviation systems, safety and capacity. Other exhibits featuring information technologies, astrobiology and Ames history completed the display materials.

This year, Ron Strong from the Ames Wind Tunnel Operations Division (Code FO) and the soon-to-be-retired Sunny Wagstaff from Ames' Facilities, Logistics

continued on next page

Outreach & Events

Ames tunnel serves as hands-on educational venue

continued from front page

pan was evaluated along with other options of sealing the interior of the vehicle from the outside airflow," said Kevin James, NASA engineer in charge of the tests. "The lift and drag of the vehicle was measured by the tunnel scale system." The tunnel scale is an external balance that uses weight scales to measure forces and torque.

"Flow visualization using tufts (small strings taped to the car) and smoke were used to identify areas where the airflow separates from the vehicle. Presentations were done to make the students aware of the basic physics involved in the aerodynamics of the race car," Satran added.

The addition of the belly pan and other changes resulted in a 13 to 14 percent improvement in the vehicle's aerodynamics, according to James.

"This was a tremendous learning experi-

ence for the students, and it is possible that we could make changes to the vehicle for



photo by Dominic Hart

Foothill High School students and faculty observe the tuft patterns on their Sandhill Challenge racer in the NASA/U.S. Army 7x10 Wind Tunnel.

next year's race," Chiala said. "Our real hope

overall is that these wind tunnel tests will also help the students learn about aerodynamics for their other robotics projects. Our students have been successful in learning from these methods. We won first place in the U.S. First Robotics national contest in April," Chiala explained.

Peter Johnson, a model maker, a designer and a machinist from Redwood City, CA, built the car. "The car ran in the first two Sand Hill Challenges," said Johnson. "I retired, and I built a new car for another outfit. The car the students are now using had been semi-retired, even though it is still a competitive car."

The competition is a modern soap box derby race open to all high schools, national and international firms involved in entrepreneurial business, including venture capitalists, law firms and startup companies, according to the event's official web site, <http://www.sandhill.org/>

BY JOHN BLUCK

Reno air races draw huge crowds

continued from front page

and Airfield Management Division (Code JF) lent their support to the four-day event. Transportation of exhibits was coordinated through Ed Figueira and Greg Bennett (Code JFS).

Those wishing to display exhibits or assist with Ames' upcoming outreach events are invited to contact the Visitor Center, exhibits and outreach manager, Jeff Cross, at ext. 4-6571 or email him at: jlcross@mail.arc.nasa.gov

BY DAVID MORSE



photo by Ron Strong

The "Heritage Flyby" displaying the old and the new in aircraft design and technology.



photo by Ron Strong

The Blue Angels demonstrate their expert precision with their flying maneuvers during the air show.



photo by Sunny Wagstaff

The Heritage aircraft on display with the stands and control tower in the background. The collection on static display included a Corsair, Mustang, two B-25's, a DC-3 and Boeing aircraft. 237.

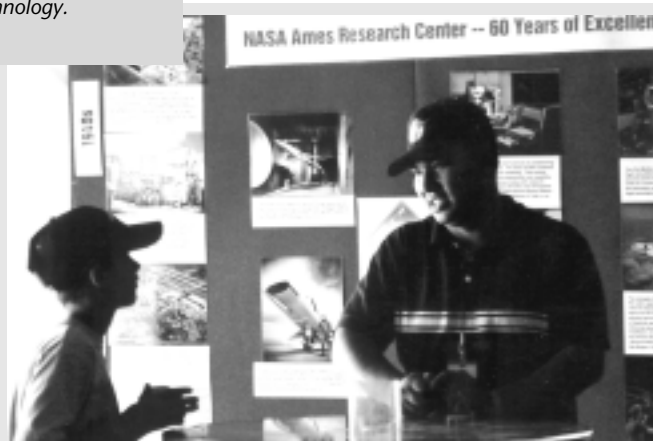


photo by Victoria Kushmir

Jonas Diño, Communication Office web developer, Code DXC, chats with an enthusiastic young supporter during a break in the air show races.

Ames to host October quality conference

What is "quality" and how do you achieve it — in business, in health care, in education, in government or non-profit organizations? On October 17 and 18, Ames will host a conference aimed at providing practical answers to that question.

Called "Quality Forum 2000," the conference will offer a range of outstanding speakers, breakout sessions and hands-on workshops aimed at giving participating a competitive edge in their fields and in their communities.

Along with NASA, sponsors include the American Society for Quality; the California Center for Quality, Education and Development; the Industry Education Council of California; Solectron Corporation and Chevron.

Attendees will comprise executives, managers and professionals who lead or facilitate quality improvement programs in their organizations. They will be on hand to be introduced to a model for continuous improvement and performance excellence based on the quality award assessment process — exemplified by the prestigious Malcolm Baldrige National Quality Award and California Quality Awards.

Robert Navarro, conference organizer and deputy director of the Safety, Environmental and Mission Assurance Office at Ames, sums up the goal of the conference as "to provide innovative and tailored skills that participants can take back to their organizations to improve performance."

The sponsoring organizations have been meeting regularly at Ames for months to build a framework for the conference, select and invite speakers, and develop outreach to potential attendees.

Among keynote speakers at Quality Fo-

rum 2000 will be Dr. Koichi Nishimura, the chairman, president and CEO of Solectron corporation, which twice has been winner of the Baldrige National Quality Award; Ms. Mónica Lozano, president of the California State Board of Education, who also is President and CEO of La Opinión, the larg-



est Spanish-language daily newspaper in the United States; and Dr. G. Thomas Houlihan, a former North Carolina "Superintendent of the Year" who now serves as president/CEO of the North Carolina Partnership for Excellence, a group which brings together educators and business leaders to improve public education.

Following a general session at which attendees will come together to hear discussions of the Baldrige principles and their application to various fields of interest, the participants will split up into breakout sessions specific to business, education, healthcare, government agencies and non-profit organizations.

The second day of the conference will be devoted to intensive hands-on workshops at which participants can create documented plans specifically tailored to enhance the in-house quality program of their own organization. To maximize the

learning experience, each workshop will be limited to no more than fifteen participants.

One unique feature of Quality Forum 2000 will be a simulated classroom presentation of the Koalaty Kid educational program, featuring a teacher and students from Greenbrook School, who will demonstrate a program designed to encourage students' enthusiasm for learning, responsible behavior, pride in their achievements and striving to meet high standards.

Koalaty Kids began in the 1980s in Corning, New York, and became a pilot program of the American Society for Quality in 1988; it became the ASQ Koalaty Kid Alliance in 1994 and has spread to schools across North America.

A brochure has been distributed to prospective attendees, and information is available at the Forum's Web site at www.qualityforum.net or by calling 1-800-914-9480, ext. 36786.

For outside participants, registration for the two day conference is \$350, with an early-bird rate of \$250 for those who register by September 22. However, a special rate is available for NASA employees; contact your training officer for further information.

All registrations must be submitted no later than October 7.

The conference will be held at NASA Ames, Moffett Training and Conference Center. The point of contact is Leo McElroy at (916) 447-7415.

BY BOB STROUB

Safety and Quality Week set for October

This year's Safety and Quality Week celebration is set for October 16 through 20. The week's events integrate Ames' Safety Week celebration with National Quality Month events. The result is an action-packed week recognizing Ames' commitment to assuring mission success through safety, quality and environmental responsibility.

The week-long celebration kick-off begins at 9 a.m. Monday, October 16 in the main auditorium, Building N-201. Warren Hall, Chief of Code Q, which is sponsoring the event, will make the introductory remarks, followed by Dr. Henry McDonald, Ames Center Director, who will introduce the event's guest speaker, Colonel Mike Mullane, a former NASA Astronaut. Colonel Mullane's presentation promises to captivate the audience's interest and will be an excellent jump start to the week's events.

Monday also offers employees the first opportunity to attend the first Safety, Health

and Environmental (SH&E) training, which will be conducted throughout the week in CPR/1st Aid, fire extinguisher training, office ergonomics, stress management and back injury prevention. Also scheduled throughout the week are security service presentations in areas such as personal safety and crime prevention.

Tuesday and Wednesday's events feature the Ames Quality Forum. The forum will be held in Building 3 from 8:30 a.m. to 5 p.m. It offers two days of interesting exhibits and presentations from government, business and industry leaders. Also on Tuesday, the Ames Fun Run will be held from 12 noon to 1 p.m. The starting line for the Fun Run will be by the Fitness Center on DeFrance Avenue.

Thursday is Safety Stand Down Day. All Center employees are encouraged to take time off from their regular duties and attend the day's activities. Training includes

SH&E training, the Voluntary Protection Program (VPP) roll out, which begins in the auditorium, Bldg N-201, and extends to other center locations throughout the day. Also featured are health and safety related booths and vendors, free chair massage, tai-chi demonstrations, music and a DJ, safety cake, a special speaker at the event, and the traditional Chili Cook-off and trophy award for the best chili recipe for year 2000.

The week will wrap up on Friday with the running of a safety film, security training, as well as VPP training. It promises to be an interesting and enjoyable time for all.

The point of contact for this event is Chaz Czapllicki at ext 4-6942 or via email at cczapllicki@mail.arc.nasa.gov.

Announcing the Design for Safety 2000 Workshop

This October 10, people involved directly with how safety is designed into products and processes will be descending on the Moffett Training and Conference Center (MTCC) at Ames for a three-day workshop. The Design for Safety 2000 Workshop is sponsored by the Design for Safety (DFS) Program Development Office led by program director, Matthew Blake. DFS is NASA's new approach to achieving ultra-high levels of safety and mission suc-

cess. DFS will fundamentally advance NASA's system life-cycle approach through the infusion of advanced information technologies.

This event has been organized to provide a forum for those interested in exploring how advanced concepts and technologies, especially those for intelligent systems and information technology methods, can be utilized to ensure that complex systems and missions are designed and operated



SAFETY SNAPSHOTS



This feature is one in a series intended to inform the Ames community about facets of Ames' Safety and Environmental programs.

Indoor Air Quality Program

PROFILE

Clean, healthy breathing air -- we take it for granted until pollution mandates a "Spare the Air" day. Pollution prevention is a high priority at Ames, but it's impossible to eliminate all contaminants released or to control naturally occurring pollutants. Ames' Plant Engineering Branch (JFP) maintains your facility's heating, ventilation and air conditioning system (HVAC) to provide building air that is as clean as possible. When occupants report a problem with building air quality, the indoor air quality team is called into action to rectify the situation.

CLOSEUP

Debasis Malakar, industrial hygienist and a specialist in indoor air quality, says that signs of "sick building syndrome" are infrequent, given the size of Ames. This is because most buildings are well ventilated and all mechanical systems receive regular maintenance. However, indoor air problems DO occur.

Increases in building population can result in inadequate outside air supply for the number of people inside. This requires changes to the ventilation system or moving people out of the problem area. New carpet or furniture may off-gas irritating vapors; however, this has not generally been a problem at Ames. Flooding has caused microbial growth inside buildings. When this occurs, industrial hygienists work with Plant Engineering to evaluate the health hazard and remediate the problem. Sometimes, pollutants from construction activity or chemical use can contaminate a building's air supply. Eliminating the contaminant source and airing out the building solves these problems. Malakar reminds employees that they can help by observing signs and avoiding idling vehicle engines near marked building air intakes.

When outdoor air is "dirty," you may sense that your indoor environment is much cleaner. Generally, 80% or more of outdoor pollen and mold is removed by your building's air filters. Other pollutants may be reduced by condensation when outdoor air is chilled as it enters your building.

To report an indoor air quality problem, call the Trouble Desk, at ext. 4-5212, or call ext 4-5602 to speak with an industrial hygienist. If you experience any health effects related to indoor air, report to the Ames Health Unit.

safely.

Topics of discussion will include systems and technologies for continuous, quantified, risk-advised systems engineering; continuous life-cycle knowledge capture, evaluation and utilization; and highly adaptive, resilient systems providing intelligent response to both known and unanticipated hazards.

DFS2000 will be the first opportunity for representatives from NASA, other government agencies, private industry and academia to convene for a series of high-level discussions and presentations that will help define and shape this new agency-wide effort. It will begin to define how Design for Safety technologies will make system safety and risk assessment an integral property of all NASA missions, and how these technologies can be developed and matured in partnership with the academic and private sectors.

Imagine the year is 2025 and a regularly scheduled personnel shuttle is reaching the new Space Station complex just as an autonomous material re-supply transport is leaving and a deep-space science exploration probe is about to be launched. The safety and mission success record of all these systems has reached unheard of levels. Why?

When the programs that developed these systems were in their infancy, they employed a design methodology based on the fundamental concept of model-based reasoning about the entire life-cycle of the system to perform "what ifs" to determine all possible risks. This intelligent risk management involves system-level modeling and reasoning starting in the design phase and continuing throughout the full mission and the entire life cycle. DFS will develop methods to model human and organizational processes and software systems and

continued on back page

Safety facts--smoking fluorescent light ballasts

Chances are that over your head is a fluorescent light fixture with a ballast. Light ballasts are the primary electric components of light fixtures and include a transformer, a capacitor, and possibly a thermal cut-off switch and/or a safety fuse. A tar-like petroleum-based potting fluid that muffles the sound produced by the operation of the light fixture surrounds these components. When a ballast unit fails, electrical shorting between windings on the transformer can generate excessive heat. The heat generated, in turn, can melt or burn the tar material, creating a characteristic foul odor and visible smoke. Additionally, the capacitor within the light ballast may also rupture, depending on the nature of the ballast failure. The smoking light ballast odor is produced by vapor containing the ballast fluid and/or capacitor fluid, along with thermal-breakdown products produced by the heating and/or burning process. Smoking light ballasts are not as common as leaking ballasts, and smoking light ballasts are often concurrently leaking.

Until 1979, polychlorinated biphenols (PCBs) were a widely used capacitor fluid. Although PCB's are of low acute toxicity, they have been shown to cause chronic toxic effects. PCB oils also contain impuri-

ties of polychlorinated dibenzofuran, a poisonous substance. Between 1,100 and 1,200 degrees Fahrenheit, polychlorinated dibenzo-para-dioxins and dibenzofurans can be produced from PCBs. However, the capacitors only contain about a thimble full of PCB liquid. Additionally, it is extremely unlikely that a ballast could reach anywhere near the 1,100 degree temperature, since a fuse or bimetallic protector first trips out and shuts off the current flow at far lower temperatures. Nevertheless, heating the potting tar can produce a wide variety of other chemical species.

Between 1978 and 1991, manufacturers used a di-2-ethylhexylphthalate (DEHP), a capacitor fluid which has a low to moderate acute toxicity, but which is a probable human carcinogen.

Consequently, when you see smoke and smell foul odor from a failed smoking light ballast, or when you see fluid leaking from light ballasts, you should take immediate action to avoid inhalation of ballast and/or potting fluid vapor and various thermal breakdown products. Though a brief exposure probably will not cause harm, it is best to minimize your exposure time to ensure safety and to promptly mitigate potential hazards. You should take the

following steps in the event of either a smoking or leaking light ballast:

- Do not handle the fixture or any leaking fluid
- Turn off the switch operating the light fixture.
- Leave the room, closing the door as you exit.
- Call 911 from any NASA phone to report the ballast failure.

Calling 911 will connect you to Dispatch. Dispatch will contact the Moffett Field Fire Department if there is smoke. The Fire Department, in turn, will go to the scene and provide ventilation to control the spread of the smoke. Also they will contact Codes JFP/JCI to turn off the power and disassemble and replace the light fixture. If the ballast is just leaking, Dispatch will contact JFP/JCI directly.

If you are interested in learning more about PCBs, sign up for the NASA class "PCB Awareness." To enroll, go to the Web site <http://q.arc.nasa.gov>. Click on the "Training" link, and then the "Training Registration" link. Click to select the class and date, enter your name and last four digits of your social security number, and then click on the "Enroll" button.

BY JOHN ROSEN 

Embry-Riddle Aeronautical University hosts classes at Ames

Winter 2000

Term dates: October 9 to December 7

Course Titles:

BA 201 Principles of Management

BA 408 Airport Management

MA 106 Basic Algebra & Trig

BA 314 Human Resource Management

Day of the week:

Monday

Tuesday

Wednesday

Thursday

Tuition Cost: \$145 per semester credit

Classrooms: All classes meet in Bldg. N-241, Moffett Field

Time: 5:30 p.m. to 10:15 p.m.

Call to register: (408) 298-7380

or email: south_bay_center@cts.db.erau.edu

Weight Watchers at Work

Since 1963, Weight Watchers has helped over 25 million people worldwide lose unwanted pounds. Trying to lose weight? Come learn about the 10% difference on the 1-2-3 Success program.

Join us for an open house with the Weight Watchers at Work program on Monday, September 25, at 11:45 a.m. in Building 239, Room B39. We will need a minimum of 18 people and a maximum of

30 people to sign up for the 10-week program, which will begin on Monday, October 2.

The group meets every Monday at the same time and location. The cost for the 10 weeks will be \$99.50, and there will be an option to renew at the end of that time if enough people wish to continue.

Call Dana Davidson at ext.4-0584 if you have any questions.

A note of thanks

On Labor Day there was a fire in the military housing outside our gates. Two children were severely burned and their father injured as well; their mother was at work at the time. The Disaster Assistance & Rescue Team sent out a call to members of the Emergency Services family for donations to assist the Knopf family with the medical expenses they are facing and for household goods to help them get started again. The response was overwhelming. We collected over \$11,000 for this family and multitudes of household goods.

We would like to thank everyone who donated for their generosity. The family's home is fully furnished and equipped now. The children face a long, painful and expensive recovery. Monetary donations will continue to be accepted. Checks should now be made out to the: 129th Rescue Member Foundation and sent to:

Attn. Maj. Sabrina

129th RQW

129th Rescue Member Foundation

Box 103 MS-28

Moffett FAF, CA 94035

ODIN on display

The NASA Chief Information Officer (CIO) is sponsoring the agency-wide Outsourcing Desktop Initiative for NASA, known as ODIN. Through ODIN, NASA hopes to gain service efficiencies and price competitive advantages, while allowing the NASA workforce to focus its efforts on the Agency's core capabilities. In early July 2000, the Office of Aero-Space Technology (OAT), Code R research centers (Ames, Dryden, Glenn, and Langley) completed their individual center ODIN proposal evaluations. On July 18, 2000, NASA announced that Affiliated Computer Services, or ACS, was selected as the winner of the ODIN competition at all four centers, with the result being that a single contractor will provide ODIN services for the entire Code R enterprise. Because of the enterprise-wide selection, centers were able to capitalize on enterprise-level discount prices for ODIN services. ACS is a leading provider of technology-based outsourcing solutions to government and commercial clients worldwide. ACS is partnered with Science Applications International Corp. (SAIC) and began phase-in of ODIN services at Ames on October 1, 2000, with full operations beginning December 1, 2000.

The Ames ODIN implementation team, led by Dennis Korbelt of the Applied Information Technology Division, invites the Ames community to "ODIN on Display" on October 23, 24, 25, from 10:00 a.m. - 2:00 p.m., in the ball room of Building 3. "ODIN on Display" is an opportunity to meet the ODIN implementation team and ACS staff in-person, ask questions about the services that ODIN will provide, and see the variety of desktop/laptop Macs and PCs that will be offered as ODIN "seats."

You may be wondering, "What is an ODIN seat?" ODIN does not provide just a desktop computer and its associated soft-

ware, it also includes a baseline or "standard" set of services. This bundled set of hardware, software, and services is called a "seat" and is provided at a fixed price. For example, a standard ODIN seat provides: a hardware platform, operating system, Microsoft Office, Eudora, Netscape, a new hardware platform every 3 years, periodic software version/release updates, application maintenance, hardware maintenance, helpdesk, weekly back-ups, laptop loaner pool, etc. The standard services and platforms can be upgraded through selection of enhanced options. For example, a user may select back-ups on a daily, instead of a weekly basis; or purchase additional peripherals or memory from the ODIN catalog. These priced enhancements are intended to allow users with specialized needs to tailor their ODIN seat to best meet their requirements.

Additional ODIN information can be found at the following web site <http://odin.arc.nasa.gov/>. Questions can be e-mailed to ODIN@mail.arc.nasa.gov.

For the initial ODIN delivery order period, which covers fiscal years 2001-2003, Ames is electing services for most civil servants and contractors with Government Furnished Equipment (GFE) in administrative, management, or technical support roles. Researchers, scientists, and engineers who use Unix and Unix-like workstations are not required to participate in ODIN during the initial 3 year period, although they may find it advantageous to acquire ODIN seats and services for their Macs and PCs (if they have not already been designated as ODIN seats by their organization.)

The Ames ODIN implementation team includes the ACS site manager, Robert

Beane, and the ACS transition team lead, Teresa Willyard. The ARC ODIN implementation team has developed the contract delivery order in preparation for the official phase-in period, which began on October 1, 2000. The ODIN Points-of-Contact (POCs) from each organization assisted the Ames implementation team with this effort. They worked with their management to identify and validate the 1830 ODIN seats that Ames will place under the ODIN contract. Full ODIN services (i.e., help desk, on-site support, and catalog) for the identified customer seats will begin on December 1, 2000. ACS plans to replace 80% of the 1,830 ODIN seats with brand new hardware and software platforms during the first year of the delivery order. The ODIN catalog will be available to everyone at the Center, both ODIN and non-ODIN users.

ODIN will bring many significant benefits to Ames. The first is that it will provide Ames customers with 14 standard-seat services at one fixed-seat price. Second, it will allow NASA to transfer ownership and property-management of desktop computing assets to the ODIN contractor, off-loading civil servants from time-consuming property tracking tasks. Third, the Center will enjoy other benefits, such as the ability to reserve a laptop computer from the ODIN laptop loaner pool and receive technical support when at any ACS-serviced NASA center and Headquarters; and fourth, the option to participate in incentive offerings, such as volume discounts on catalog purchases.

Come join us on October 23, 24 and 25 in the ball room and have your questions answered by ODIN team members. Find out how you can benefit and take advantage of this exciting new service being offered at Ames.

BY THE AMES ODIN
IMPLEMENTATION TEAM



Robert Hoffman, Mt. Everest expedition leader to come to Ames

On Monday, October 16, Robert Hoffman is scheduled to come to Ames. Hoffman will present a safety and environmentally focused presentation titled: "Everest Environmental Expedition 2000: Mission Success with Extreme Risk." The Office of the Director of Safety, Environmental and Mission Assurance (Code Q) has partnered with Code D to provide this Director's Colloquium as part of the Center's Safety and Quality Week activities. The presentation will be held in the Auditorium, N-201, from 2:00 p.m. to 3:30 p.m., as part of

the week-long schedule of safety, health, environmental and quality focused events.

The central theme of this exciting presentation will be to relay the perils and successes of Hoffman's recent expedition to the summit of Mount Everest to collect and recycle items left behind by other climbers. At the core of this 29,035 foot peak expedition was the commitment to assure the safe return of all climbers, while successfully completing the group mission. The journey was a real-time exercise in dynamic risk management, and promises to both enter-

tain and raise the awareness of colloquium attendees to the importance of safety in achieving goals.

Expedition members will relay the importance of realistically balancing and assessing risks and benefits on a moment-to-moment basis.

For more information on this and other Safety and Quality Week events, log on to the links provided on the Code Q URL <http://www.q.arc.nasa.gov>.

Center Briefs

NASA index uses plants to shed light on droughts

NASA has a new tool designed to keep a close watch over our plants. What we see in the reflection of the vegetation may help researchers do a better job of monitoring and, one day, predicting periods of drought.

A new multi-spectral drought index measures the impacts of too little water or too much rainfall on vegetation. The index will also be used to verify other existing drought-monitoring products.

"What makes this data set unique is its unprecedented detail, which provides a resolution four times that of current drought prediction maps, and it is based on a 20-year data record," said Compton Tucker, the research scientist leading the project at NASA's Goddard Space Flight Center, Greenbelt, MD.

Computer simulation reveals ups and downs of Jupiter's winds

Waves of up-and-down winds that span great ranges in air pressure may explain the surprisingly clear, dry areas near Jupiter's equator, new research based on data from NASA's Galileo entry probe indicates.

Scientists have been trying to understand the stability of these clear "hot spots" ever since the probe plunged into one of them nearly five years ago. An explanation of how these deep holes in Jupiter's clouds could persist was reported recently in the journal *Science* by Dr. Adam Showman, of Ames and Dr. Timothy Dowling, director of the University of Louisville's Comparative Planetology Laboratory in Kentucky.

Largest-ever ozone hole observed over Antarctica

A NASA spectrometer has detected an Antarctic ozone "hole" (what scientists call an "ozone depletion area") that is three times larger than the entire land mass of the United States - the largest such area ever observed.

The "hole" expanded to a record size of approximately 11 million square miles (28.3 million square kilometers) on Sept. 3, 2000.

The previous record was approximately 10.5 million square miles (27.2 million square km) on Sept. 19, 1998.

Hubble movies show the changing faces of young stars

Extraordinary time-lapse movies taken by NASA's Hubble Space Telescope show that spectacular outbursts from young stars can change dramatically over a period of just weeks or months.

Before Hubble's sharp view, most scientists viewed the universe as timeless; things changed so slowly outside our own solar system researchers rarely considered the possibility of movies. Now with Hubble, pictures taken of the universe this month won't necessarily look the same as those snapped a few months from now.

5th annual Chili Cook-Off -- Do you have the stomach for it?

Whip out those antacids! The 5th Annual Chili Cook-Off is coming! On October 19, 11:30 a.m. to 1:00 p.m., Durand road, in front of the Ames Café, will again be lined with hot chili and wacky booths for your delight. Stroll around and mingle with over 1,500 people as you walk around tasting chili at each booth. When you find that special booth that just tickles your fancy and brings you to chili heaven, cast your vote for the highly-coveted grand prize -- the People's Choice Award!

Do you have a competitive edge? How about a secret chili recipe hidden away? Then form a team with like-minded friends and enter! You'll have more fun and bond with your fellow co-workers. The contest

won't even burn a hole in your pocket. The Ames Exchange has agreed to subsidize the first 25 teams with \$50. That's a whole lot of chili! Enter your team by contacting: Nicole Levy, ext. 4-6764 or email nlevy@mail.arc.nasa.gov

Who will be this year's People's Choice Award winner? You can make a difference with your vote -- especially if you bring along your whole organization to support your cook-off teams! Come to the 5th Annual Chili Cook-Off during Safety and Quality Week, learn from the intermingled safety faire, and have fun!

For more information on the Chili Cook-Off and Safety and Quality Week, go to the Code Q Web site at <http://q.arc.nasa.gov>.

Foothill astrobiology event set

SILICON VALLEY ASTRONOMY LECTURE SERIES
With a Special Focus on Astrobiology

Sponsored by:
NASA Ames Research Center
Foothill College
The Astronomical Society of the Pacific
The SETI Institute

What Killed
the Dinosaurs:
The Asteroid Threat
and What We Can Do About It

Oct. 11, 2000
7:00pm - 8:30pm


A non-technical illustrated talk on the threat of cosmic impacts in the past and in the future

Speaker:
Dr. David Morrison
Director of Astrobiology and Space
NASA Ames Research Center

Smithwick Theater
Foothill College
Los Altos Hills, CA

Admission is free
and open to the public
Please bring \$2 with you
for the parking meters

Call 650-949-7888
for more information



Ames' Dr. David Morrison will deliver the first lecture in the six-part Astrobiology series at Smithwick Auditorium at Foothill College on October 11 at 7:00 p.m. Morrison's talk is titled "What Killed the Dinosaurs: The Asteroid Threat and what We can Do About It." Admission is free and open to the public. Dr. Sandra Faber, University of California at Santa Cruz, will deliver the second lecture on November 15 at 7:00 p.m. on "Images from the Hubble Space Telescope: How They Are Changing Our Perspective."

McCroskey's Mustang and a story of Ames' modelers

What are the odds of three people independently choosing the same career, attending the same graduate school, joining the same research lab, pursuing the same

the control-line, flying-scale event at the National Model Airplane Championships three years in a row, McCroskey became nationally known. His model was a perfect small-scale replica of the North American Aviation F-51H Mustang, the version of the legendary WWII fighter plane flown by the Texas Air National Guard. The model was so impressive that a model airplane manufacturer developed a kit based on McCroskey's design. "McCroskey's Fabulous Mustang" went on to become one of the most popular scale-model airplane kits ever produced.

Far removed from Texas, two other young modelers shared a similar love of aviation, model building, and the Mustang. Schmitz and this author were well aware of McCroskey's exploits and when his kit was released,

they each had to purchase one for themselves. Schmitz completed his model but chose not to risk flying it. My Mustang was only partially completed, but it remains prized to this day among the few favorites from his boyhood days.

Meanwhile, McCroskey went on to study aeronautical engineering at the University of Texas and then specialized in hypersonic gas dynamics for his Ph.D. at Princeton University. Independently following a similar path, I, and then a year later, Schmitz, enrolled in Rensselaer Polytechnic Institute to study aeronautical engineering. Again, each chose a similar path to Princeton, specializing in flight mechanics for their Ph.D. degrees. More coincidences would follow.

The Ames connection began when the US Army established a laboratory in the mid-60s to pursue rotorcraft research under a Joint Agreement with NASA Ames. Paul Yaggy was building a research group for the new Army Aeronautical Research Laboratory with an eclectic mix of colorful Ames and Hiller veterans along with a number of inexperienced new hires. After completing graduate work at Princeton, McCroskey joined the fledgling group to fulfill his Army ROTC commitment and, forsaking his hypersonic training, embarked on a career in subsonic research. He soon earned a reputation as a world-class researcher and became a distinguished leader

in the field of rotary wing aerodynamics. He also served as an important mentor for new researchers who joined AARL in succeeding years. After completing graduate study and applying for employment at NASA Ames, the author learned of Yaggy's Army group and joined AARL a couple of years later. Thus, by an amazing coincidence, he came to know an icon of his boyhood modeling days and got the wonderful chance to admire the original McCroskey Mustang - some 15 years later! Schmitz followed a somewhat different path after Princeton, working a couple of years at Boeing Vertol under W. Z. Stepniewski, a notable VTOL pioneer and good friend of Yaggy. Then, he too decided to join the growing cadre of Army rotorcraft researchers at Ames. Although Schmitz and I both knew of McCroskey's past exploits, neither knew the other had been a "McCroskey Mustang" enthusiast. Only when McCroskey retired earlier this year did all three become aware of the full story.

In the course of reminiscing about these remarkable connections, they decided it would be fitting to bring all three Mustangs together to create a group photo as a souvenir of their long association in research and to share their story with friends in the Ames aeronautics community. During the photo session, Ames photographer Tom Trower recounted his uncle's experiences as a Mustang pilot during WWII.

This story illustrates that behind many professional careers, particularly in aerospace, there often lies a deep-seated childhood passion that sometimes surpasses traditional education, advanced degrees, and professional training to motivate and energize career achievement. The story tells how one individual felt that passion, made his mark as a champion hobbyist and then went on to a distinguished career of outstanding accomplishment. It is probably safe to say that Jim's professional skills and high standards of excellence, hallmarks of his research career, were first developed and honed during his model building days.

McCroskey retired in January as head of the AFDD CFD group. The author served as AFDD Dynamics Division Chief and is currently Chief Scientist of the Aeromechanics Branch in the Army/NASA Rotorcraft Division. After serving as AFDD Fluid Dynamics Division Chief, Schmitz joined NASA and retired as Director of Aeronautics at Ames. He is currently Professor of Aerospace Engineering at the University of Maryland.

BY BOB ORMISTON



photo by Tom Trower

Ames modelers and their Mustangs, left to right: Bob Ormiston, Fred Schmitz, and Jim McCroskey. Also shown are the McCroskey Mustang kit and Jim's construction article in the May 1955 issue of Model Airplane News.

research specialty, and then discovering that these coincidences could be traced to yet another common link, far back in their boyhood - and one that would provide a foundation for events to follow?

Well, consider the case of Jim McCroskey, Bob Ormiston, and Fred Schmitz. Closely associated in rotorcraft research at the US Army Aeroflightdynamics Directorate since the late 1960s, this Ames trio recently discovered the link that stretched 45-years into the past. The remarkable saga only came fully to light on the occasion of McCroskey's retirement from AFDD. The story has its roots in the pervasive air-mindedness that took hold in America in the early part of the 20th century, following the Wright brothers, Lindbergh, and the rapid advances in aviation during and after WWII. Back in the 1950s, before Sputnik triggered the space race, enthusiasm for aviation was widespread. Among teenagers, this air-mindedness found expression in building and flying model airplanes. Moreover the hobby served as a natural career path for aeronautics - many model airplane builders, inspired by the love of aviation, grew up to become aeronautical engineers.

The story begins with McCroskey. As an aviation-minded teenager living in Texas back in the mid-fifties, he was an avid modeler and competed successfully in many model airplane contests. And after winning

Event Calendar

Model HO/HOn3 Railroad Train Club at Moffett Field invites train buffs to visit & join the club in Bldg. 126, across from the south 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) 735-4954 (W) or (408) 281-2899 (H).

Jetstream Toastmasters, Mondays, 12 noon to 1 p.m., N-269/Rm. 179. Guests welcome. POC: Samson Cheung at ext. 4-2875 or Lich Tran at ext. 4-5997.

Ames Ballroom Dance Club, Tuesdays: Nightclub 2-step 10/3, 10/10, 10/17, 10/24, 10/31, 11/7, Hustle 11/14, 11/21, 11/28. 3 levels of classes, from Beg. to Int., 5:15 - 6:45pm. Classes in Building 944, the Recreation Center. Women dancers are especially encouraged to join. POC: Helen Hwang, hwang@dm1.arc.nasa.gov.

Ames Bowling League, Tuesdays, at 6 pm at Palo Alto Bowl. Bowlers needed. POC: Mina Cappuccio at ext. 4-1313 or Carmen Park at ext. 4-1215.

Ames Child Care Center Board of Directors Mtg, Every other Thursday (check website for meeting dates: <http://accrc.arc.nasa.gov>), 12:00 noon to 2:00 PM, N269, rm. 201. POC: Katharine Lee, x4-5051.

Ames Contractor Council Mtg, Oct 4, 11 a.m., N-200 Comm. Rm. POC: David Lawrence at ext. 4-6434.

Environmental, Health and Safety Monthly Information Forum, Oct 5, 8:30 a.m. to 9:30 a.m., Bldg. 19/Rm 1078. POC: Linda Vrabel at ext. 4-0924.

Hispanic Advisory Committee for Employees, Oct 5, 11:45 a.m. to 12:30 p.m., N-241/Rm 237. POC: Mary R. Valdez, at ext. 4-5819.

Ames African American Advisory Group Mtg, Oct 5, 11:30 a.m. to 12:30 p.m. POC: Robert Finnie at ext. 4-5230. Contact Robert for meeting place.

Nat'l Association of Retired Federal Employees, (NARFE), San Jose Chapter #50, Mtg, Oct 6, at Hometown Buffett, Westgate Mall, 4735 Hamilton Ave, San Jose. Prog. & bus. mtg. at 9 a.m., followed by lunch, \$6.27, in a reserved area. Program starts at 9:30 a.m. followed by lunch. POC: Mr. Rod Perry (650) 967-9418 or NARFE 1-800-627-3394.

International Music Night sponsored by the Baha'is of San Jose at the San Jose Baha'i Center, Oct. 7 at 7:30 p.m., 945 Willow St. in San Jose. October is East Indian music month. Next month music from a different cultural background will be featured. The event is free. For more information, call (408) 282-9033.

Professional Administrative Council (PAC) Mtg, Oct 12, 10:30-11:30 a.m., Bldg 241, Rm. 147. POC: Leslie Jacob, ext. 4-5059.

Ames Sailing Club Mtg, Oct 12, 11:30 a.m. to 1 p.m., N-262/Rm. 100. POC: Stan Phillips, ext. 4-3530.

NFFE Local 997 Union General Mtg, Oct 18, noon to 1 p.m., Bldg. 19/Rm. 2017. Guests welcome. POC: Marianne Mosher at ext. 4-4055.

Ames Multicultural Leadership Council Mtg, Oct 18, 11:30 a.m. to 1 p.m., Galileo Rm/Ames Café. POC: Sheila Johnson, ext. 4-5054 or David Morse, ext. 4-4724.

Safety and Quality Week scheduled for October 16 through 20. Stand Down day on Thursday Oct 19. Quality Forum on Tuesday Oct 17 and Wednesday Oct 18. Voluntary Protection Program roll out on Oct 19. Chillii Cook-off, Health and Safety Awareness vendors, speakers, Astronaut Mike Mullane and special guest. POC: Chaz Czaplicki@mail.arc.nasa.gov, ext. 4-6942.

Native American Advisory Committee Mtg, Oct 24, 12 noon to 1 p.m., Ames Café. POC: Mike Liu at ext. 4-1132.

Ames Asian American Pacific Islander Advisory Group Mtg, Oct 26, 11:30 a.m. to 1 p.m., N-237/Rm. 101. POC: Daryl Wong, ext. 4-6889 or Margaret Salas, ext. 4-6755.

Ames Amateur Radio Club, Oct 26, 12 noon, T28-N (across from N-225). POC: Michael Wright, KG6BFK, at ext. 4-6262. URL: <http://hamradio.arc.nasa.gov>

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; Ames extensions and email addresses will be accepted for carpool and lost & found ads only. Due to the volume of material received, we are unable to verify the accuracy of the statements made in the ads.

Housing

Roommate wanted: Male, N/S, to share a clean, quiet Sunnyvale apartment near Bernardo and El Camino. Available November 1. Two phone lines installed in the room. Full kitchen usage. \$800/mo plus 1/2 utilities. Rob (650) 691-9961.

Roommate wanted to share large 2bd/2ba upstairs apartment in west S/Campbell near 280/87 w/female prof'l & 2 cats. 1,000 sq.ft., vaulted ceiling, balcony, cable TV, on-site laundry/pool, separate phone line. Walk to shopping, hiking/bike trail. No smoking, no add'l pets. \$700/mo, incl. utils. Lori (408) 292-3952.

2bd/2ba, 1000 sq feet, located in Mountain View. Looking for a N/S to share, female preferred. \$800/month plus utilities. No pets. Convenient to rail station (10 minute walk to Castro St/Ames shuttle), bus lines, and expressways. Across street from shopping. Call Kimberly Ennico (650) 625-1265 (eves).

Room for rent in Sunnyvale. Available 11/1/00. 2 bdrm/1bath apt. near El Camino off Mary. Shared expenses. Barrie (408) 736-8961.

Visiting Yale Professor at Stanford Univ. seeks Palo Alto/Mtn View area short-term rental, house-sit or home trade (w/ rural New Haven home) opportunity for period 11/6/00 thru 1/7/01. Dates flexible / negotiable. Desire to bring well-behaved & quiet golden retriever, but can arrange other hsg for dog if this presents a problem. Contact Stefan & Julaine Rosner (650) 320-0074, email: stefan_rosner@yahoo.com

Transportation

'77 Mercedes 450sl,V8,AT,PW,PL, new AC compressor,includes removable hard top, custom wheels, AM/FM, 12CD changer, new tires, clean upholstery, 98.5K mls, regular maintenance, sporty prestige vehicle for blue plate special price! asking \$8,500 or B/O. Call (408) 924-0294.

'86 Pontiac Bonneville, silver. PL, PW, power driver seat, AT, tilted wheel. Engine in great driving condition. New tires. Tow package. One owner, well maintained. \$1,950 or B/O, way below blue book retail price. Call (415) 608-6418.

'86 Toyota MR2; 5 SP, A/C, SNRF, am/fm, cass., runs, nds engine work, 123K mls., \$1,500 or B/O. Call (831) 442-0895.

'91 Nissan Sentra, 92,000 mls, \$1,700. Call (650) 210-8088.

'92 Mazda Miata, white, looks great, runs great. Must sell, leaving Bay Area. \$5,000 or B/O. Stephan (408) 739-5849.

'94 Jeep Grand Cherokee Laredo 4dr., 6 cylinder, 2 wheel drive, Tow pack, ABS, power everything, CC, white. 63K mls, Orig. Conservative driver. Exc cond, no accidents. One of the nicest Cherokees you'll find. \$12,500 or B/O. Fritz (530) 400-7180.

'95 Honda Del Sol, 40K mls, AT, CD, PW, warranty, alarm, New tires, exc. cond. \$9,950. Call (650)965-9168.

'98 Ford Windstar, white minivan, automatic transition, anti-lock brakes, power windows, power locks, premium sound, airbags, rear and front air conditioning and sound with headphone, privacy glass, remote entry with alarm, excellent condition, one owner. Call (415) 608-6418 -- cell phone.

Miscellaneous

Looking for a clean, second hand refrigerator in good working order, not to exceed 30.25"W x 28.5"D x 66"H, preferably white. Side-by-side or freezer top and fridge bottom. Call (650) 969-2370.

Jack Russell Terriers, Friendly, active & bundles of joy. Male "Packers" \$145; 4 years, excellent demeanor. Female "Castle" \$175; 4 years old. Female "Princess" \$175; 2 years old. Prefer to place all three together for \$450, but may consider first selling one female, but not male alone. Outdoor dogs & are capable of having at least one litter within the next year (if you want) which may pay for more than your cost if that's a concern. Farrah (925) 829-1744 .

Remodel sale: GE trash compactor, \$50. Two bin all porcelain sink with very nice American Standard fixtures , \$125. Four burner Modernmaid gas range, \$75. Call Barry (408) 296-8721.

A pair of tickets for the San Jose Sharks hockey games on Nov 30, Jan 9, and Mar 29 are for sale. Call (408) 735-0524.

San Francisco Opera House -- Experience a night at the opera for \$25 per ticket. Two upper balcony seats, 10/11/00 Wednesday 8 p.m. Beautiful 20th Century scores, "The Ballad of Baby Doe", 3 hours, sung in English. Juliet (650) 321-9008 or e-mail: LiuHsinMei@aol.com

Vacation rental

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

Ames Retirements

Name	Code	Date
John M. Brilla	APT	10-03-00
Linda M. Brown	I	10-06-00

Lost & Found

Moffett Field Lost and Found may be reached at ext. 4-5416 at any time. Residents and employees at Ames may also use Internet browser at: <http://ccf.arc.nasa.gov/codejp/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 police investigations section at ext. 4-1359 or email at: mfine@mail.arc.nasa.gov.

Ames public radio

1700 KHz AM radio -- information announcements and emergency instructions, when appropriate, for Ames employees.

Carpool

Space is available in a VPSI van which commutes from Marin to Moffett Field daily for a 7 AM to 4 PM work schedule. The van picks up passengers in Sausalito and along Geary Blvd. Call 4-6561 or email sarnaud@mail.arc.nasa.gov.

Carpool wanted, from Berkeley to Ames. Hours/days flexible. I do not have a car but am willing to pay to ride along. Contact Christopher at extension 4-3446, or cpawlowski@mail.arc.nasa.gov

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.

Deadline	Publication
Fri, Sept 22	Mon, Oct 2
Fri, Oct 6	Mon, Oct 16
Fri, Oct 20	Mon, Oct 30
Fri, Nov 3	Mon, Nov 13

Announcing the Design for Safety 2000 Workshop

continued from page 4

incorporate these with complex physical system models to provide the framework for understanding system-level interactions and accurately identifying specific problems, such as common cause failures.

Throughout the life of these future space missions, knowledge-engineering methods will be applied to enable communication between massive numbers of distributed non-heterogeneous databases and to fuse the data on these systems into a useful base of knowledge, a knowledge-base. Knowledge engineering includes the ability to acquire and utilize expert knowledge and extract knowledge from raw-data sources.

The final component of these future missions is the mitigation of risk by improving the resilience of our systems to respond to unforeseen events. DFS will develop better methods to autonomously under-

stand on-board status, to re-plan missions and maintenance schedules, and to re-configure and adapt to the situation. DFS will drive the development of systems smart enough to adapt to changes and self-heal from damage, to provide a final barrier against any system degradation and rare unforeseen hazards.

No matter how well we design, build, and operate these systems, we cannot avoid all risk, but the Design for Safety program will lead the development of a new approach to provide ultra high levels of safety and mission success.

Visit the Web site <http://www.sverdrup.com/dfs2000> or <http://www.dfs.nasa.gov> to register for the workshop to be held at the MTTC October 10 to 12.

BY LINDA LEE 

Enrollment opens for Safety Week classes

Employees can now enroll in special safety classes planned for Safety and Quality Week, October 16 to 20. Scheduled classes include the always popular Fire Extinguisher First Aid/CPR, and Stress Management. Chair exercise, back injury prevention, and office ergonomics classes are offered for employees who want to maintain ergonomic health. Five sessions of the ergonomics class are planned to allow all employees who still need this training, to attend. New classes this year include supplier risk management and several security-related classes. Hearing conservation is also scheduled to provide employees in the Hearing Conservation Program an opportunity to meet their training requirement. All interested employees are also invited to attend.

Visit the Safety Training Web site at <http://q.arc.nasa.gov/qh/training/> to select the most convenient sessions of classes you want to take during this special opportunity.

Fall Fun Walk and Run set for Oct. 17

If a bit of exercise along with good fellowship and the great outdoors is something you would like then come to the 2-mile, fall Fun Walk and Run sponsored by Safety, Health & Medical Services.

Starting at 12 noon, on DeFrance/Warner, the route will meander around Ames' beautiful marshlands and eventually end up on King Road behind the Café. Ribbons, refreshments and prizes will be handed out at the finish line. Certificates will be given to winners in both walking and

running categories. Registration is \$2. Shirts may be purchased for \$12 prior to the run at the Fitness Center. The registration fee will be waved with the purchase of a shirt.

You may pre-register at the Fitness Center or at the starting line, 11:15 a.m. to 11:50 a.m., on race day. No roller-blades permitted. Contact Nancy Dunagan ext. 4-5804 for additional information.



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