

The Ames Astrogram

Communication for the Information Technology Age

February 25, 2002

NASA and NHU come together to inspire students



photo by Dominic Hart

NASA Administrator Sean O'Keefe (left) with Ames Center Director Henry McDonald (center) and President, National Hispanic University, Roberto Cruz, following the signing ceremony.

Motivating Hispanic youth to pursue science and engineering careers is one of the primary thrusts of a joint agreement signed Feb. 1 at Ames Research Center by NASA and the National Hispanic University (NHU), San José.

Providing resources and career development for science and mathematics teachers, field trips to NASA Ames, and researching 'distance learning' by use of internet and other information technologies are several other objectives of the memorandum of understanding (MOU) signed by representatives of NHU and NASA Ames.

"The NASA Ames and NHU partnership has been longstanding and demonstrates how education and government can work closely to address the pressing needs of our society," said NHU Provost and Vice President, Monte E. Perez. "We are proud to continue this important collaboration."

"We are delighted to work with the National Hispanic University," said Ames Center Director Henry McDonald. "We look forward to sharing elements of our world-class facilities, people and educational and technical resources with NHU. For NASA Ames, it is an important priority to ensure that we reach out to all of our citizens and inspire our youth to pursue careers in science, mathematics and technology."

"The NASA Ames partnership affords the NHU with the expertise, talent and support of NASA Ames people," Perez said. "It is a people-to-people commitment. That is what makes it work. Educational excellence is everybody's business. This will greatly benefit our academic programs. Student suc-

cess will increase because of this partnership," Perez said.

"We will perform joint research and educational outreach with the National Hispanic University to develop information technology in support of students of Hispanic background," said Adriana Cardenas, Ames' chief of the Equal Opportunity Programs Office, who is the NASA Ames main point of contact for the agreement.

"I am thrilled that this MOU will further strengthen the initiatives between NASA and NHU," said NHU Vice Provost for Academic Affairs Josephine Hawkins, who is the point of contact for NHU in the performance of the MOU.

"The National Hispanic University is currently strengthening its science curriculum by increasing its science course offerings, designing an engineering program and garnering internship opportunities with industries," Hawkins said. "NASA has always been extremely helpful by providing us with wonderful resources and an 'executive-on-loan,' Phil Luna, to teach science courses at NHU."

"The partnership with NASA and the signing of the MOU will be a 'shot in the arm' to our science initiatives, and will continue to help us prepare the pipeline of Hispanic and other minority students for the workforce gap, particularly in science and technology," Hawkins added.

According to the agreement, the parties recognize that their collaboration may lead to significant scholastic advancement for Hispanic students as well as technical, scientific and economic benefits.

High-resolution images related to this release and for use in news publications will be available in the near future on the world wide web at:

http://amesnews.arc.nasa.gov/releases/2002/02images/national_univeristy/hispanic_university.html

More information about NHU can be found on the world wide web at: <http://www.NHU.EDU/>

BY JOHN BLUCK ▲

JASON XIII sparks student interest



photo by Eric James

Over 11,000 students observed scientific discoveries from the JASON XIII expedition sites in Alaska during a series of live telecasts in the NASA Ames auditorium. Students and educators also participated in experiments in historic Hangar One.

Ames interface enables recording of 'chunks of time'

A new computer tool, like a precursor of the fictional 'holodeck' of Star Trek fame, but much smaller, can record 'chunks of time.'

The new device, under development at Ames, allows engineers to play 'what-if' games with computerized spacecraft and other objects. Using personal computers networked to much larger machines, researchers can repeatedly play back chunks of

design, computer-aided machining (CAD-CAM) program that can link to databases of statistics, 3-D models of machines and numerous other computer programs that add fine detail to the 'time chunk' and the objects within it.

"The power of the new tool derives from its ability to pull data and actions from many other pieces of software to produce these

chunks of time that are more complete than a mere video or sound recording," said Mah. "This virtual iron bird system promises to grow in capability as the connected computers and programs become stronger over the years."

"There are a number of advantages to the virtual iron bird tool," said Richard Papasin, a computer scientist working on the project at NASA Ames. "You can have engineering teams all over the country and the world. Without traveling, team members can use the internet to see

how potential changes could affect the object. A second advantage is that developing a virtual model in computer memory costs much less than a real model. A real mock-up can cost as much as one tenth of the cost of developing a new airplane or spacecraft," Papasin explained.

"The virtual iron bird would minimize risk," Mah said. "Finding and solving a dangerous problem before construction of a new vehicle could save lives. Also, the virtual iron bird would make the development and operation of complex systems much more efficient."

In addition, scientists can use the new tool to record many details of an experiment in a chunk of time, and then replay the experiment repeatedly to analyze it. Scientists envision that the virtual iron bird will be used to record life science, materials processing and other types of experiments as they occur inside of spacecraft. A rich recording of the details of those important chunks of time would be extremely valuable, Mah said.

"The virtual iron bird could even be used to monitor the operation of real systems in real time," Mah said. "This would also provide monitoring capabilities at remote sites such as universities and other interested government agencies," he said.

"We are developing a natural language speech interface that will allow users to ask the computer questions, and manipulate chunk-of-time recordings of real or simu-

lated events. We also are developing smart diagnostic tools that scientists and engineers can use to pinpoint problems within complex machines or systems," he added. "We are adding 'haptic feedback' that will let you feel resistance, when you use a computer mouse or joystick. Haptic feedback will make the new tool useful as a training aid for astronauts. They will be able to practice with time chunk recordings of real or simulated spacecraft."

"We are starting an effort to develop a virtual iron bird of the entire International Space Station complex, starting with Node 2 that connects the modules being built by the international partners," Mah said.

"We are developing a generic capability that runs on a desktop PC or a laptop computer connected to a larger computer," Mah said. "All you have to do is input CAD-CAM, database, sensor information and as many other details as you can about a spacecraft to start doing 'what-if' scenarios."

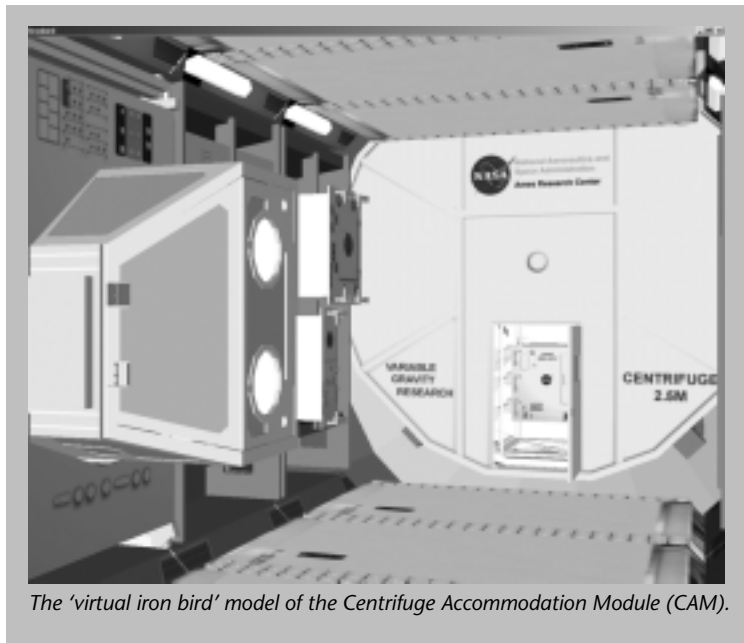
"Just about any engineering or scientific project you can think of could use a capability like this," Papasin said.

"This new tool even could provide an archive of the huge amount of information that long programs, sometimes 20 years in length, accumulate," Papasin said. "Researchers later could examine the evolution of projects using the virtual iron bird."

Ames computer engineers are now testing the preliminary version of the virtual iron bird tool with a centrifuge design that is under development for the Space Station. The centrifuge will create artificial gravity in compartments that scientists can use to test life forms in less than one-gravity conditions.

There is more information on the world wide web about the iron bird project at: <http://ssrl.arc.nasa.gov/>

BY JOHN BLUCK ▲



The 'virtual iron bird' model of the Centrifuge Accommodation Module (CAM).

time and study them on a computer monitor, examining details such as views of spacecraft from various angles, temperatures, vibrations, sounds and data from sensors that computers have recorded.

"If something is broken on a spacecraft like the International Space Station, you can troubleshoot the problem 'virtually,' using new information technologies to do it quicker and more accurately," said project leader Robert Mah of Ames. "You can wander through data-enriched 3-D models on the computer screen to see how you can fix the spacecraft. This ability may help astronauts step through important, time-critical repairs more easily in a how-to format," he explained.

"We call our new tool the 'virtual iron bird,'" he said. An iron bird is an engineering term for a physical model of an aircraft used in part to verify an airplane's systems. In contrast, the new computer tool creates a non-physical iron bird model within a computer's memory that engineers can use equally well to analyze past events or test machines before they are ever built.

The computer interface enables recording of pictures, sounds and statistics, such as temperatures, vibrations and other measurements that could come from a host of sensors or computer programs. These many elements produce a rich record of a section of time or a simulated future time. The tool works like a 'souped-up' computer-aided

Dryden Director visits Ames



photo by Cesar Acosta

Kevin Petersen, Dryden Center Director, visited Ames on Feb. 8 to discuss future collaborative research programs between the two centers.

Center Briefs

Former astronaut and NAC member carried Olympic dream to Utah

An honored member of the NASA Advisory Council (NAC) made his Olympic debut on the morning of Feb. 6 as he carried the torch into the Salt Lake Valley, at the entrance of Emigration Canyon.

Jake Garn, former United States Senator and payload specialist aboard space shuttle flight STS 51-D, ran the last leg that brought the torch into the Salt Lake Valley, at the entrance of Emigration Canyon.

Garn is a member of the NAC, which provides the NASA Administrator with counsel and advice on agency programs and issues.

Helping to bring the Olympic torch to Salt Lake had been a long-standing goal for Garn, who is 69. As mayor of Salt Lake City 30 years ago, Garn laid the groundwork for the city's eventually successful bid for a winter Olympic games.

NASA develops blueprint to address aviation issues

NASA's Office of Aerospace Technology on Feb. 5 released an integrated strategy, or blueprint, that addresses solutions to critical issues in aeronautics by developing new technology leading to a bold new era of aviation.

"The aeronautics blueprint identifies a new and revolutionary technology vision," said NASA Administrator Sean O'Keefe.

"Working in partnership with the Federal Aviation Administration, the Department of Defense and industry, this blueprint will transform NASA and create the excitement necessary to inspire and develop an engineering workforce that will enable a new era in flight."

NASA develops child carseat safety device

Every year, infants and small children die needlessly because they have been left in vehicles, according to 'Kids 'n Cars,' a national nonprofit safety organization. As a result, NASA has developed a safety device that will alert parents who inadvertently leave their children strapped in car seats.

The NASA device, inspired by aircraft flight-test technology, uses precision materials and electronics to sense when a child is seated in a car infant or booster seat after the driver has left the vehicle.

Called a Child Presence Sensor, the device was developed at NASA's Langley Research Center, Hampton, Va. The research center is looking for a commercial partner to further develop and market a product based on the technology.

Astrobiology lecture set for March 6

On Wednesday evening, March 6, at 7:00 p.m., Dr. Debra Fischer of the University of California, Berkeley, will give a public talk on 'Planets Beyond: The Search for Other Solar Systems.' The event, part of the Silicon Valley Astronomy Lecture Series, will take place in the Smithwick Theater at Foothill College in Los Altos Hills.

The series is co-sponsored by Ames, the Astronomical Society of the Pacific, the SETI Institute and Foothill's Division of Physical Science, Mathematics and Engineering. Admission to the event is free.

Fischer is part of the team of astronomers (led by Drs. Geoff Marcy and Paul Butler) who have discovered most of the planets found around stars other than the sun. Over 80 such planets are now known. Fischer was instrumental in the discovery of the first system of planets outside our own--around the star Upsilon Andromedae. This was the first time scientists found more than one planet around the same star and established the existence of other planetary systems--not just single planets--in the cosmos.

Fischer will preview new instruments and techniques for finding small Earth-sized planets, not just 'gas giants' like Jupiter.

Over 800 people have attended recent lectures in the popular series, including the Jan. 23 lecture delivered by G. Scott Hubbard on the topic: 'Follow the Water.' Hubbard outlined NASA's Mars exploration strategy to an enthusiastic audience.

Information for Line 51 riders

The VTA is proposing to discontinue weekday evening service on Line 51 due to low ridership. As proposed, the northbound trips leaving El Camino Hospital at 8:37 p.m. and 9:37 p.m. and the southbound trips leaving Moffett/Ames at 8:00 p.m., 8:58 p.m. and 9:35 p.m. will be discontinued. Service to and from Vallco Park will not be affected. The changes are planned to take effect on April 1, 2002.

If you would like to comment on this proposal, contact Kermit Cuff by calling (408) 321-7062 or by email: kermit,cuff@vta.org

Ames hosts licensing event

On Jan. 29, the Commercial Technology Office sponsored a licensing event for software companies. The companies were specifically targeted for their potential interest in a newly patented NASA search technology. They attended a briefing at the Ames Visitor Center and were presented with technical information as well as licensing processes, and an opportunity to speak directly with the inventor and the commercialization manager. The software is called Perilog and was developed by Michael McGreevy of Code IH. Originally, the technology was intended for the Aviation Safety Reporting System, where it can mine data that help prevent airplane accidents. Licensees are considering it for use in applications that range from finance to genetics.

Twenty-three companies were represented by 36 individuals at the event. Three license applications were submitted. More are expected as due diligence continues. By a 12:1 margin, the attendees felt that the presentation described the technology adequately and that they had sufficient access to the inventor.

Nine respondents saw a match between their needs and the technology.

All of the attendees were interested in additional NASA briefings like this one.



Dr. Michael McGreevy, innovator of the Perilog technology software, originally designed to help prevent airplane accidents.

A valuable list of technology needs was collected, demonstrating that Ames has many of the solutions that industry seeks.

For more information, contact David Lackner at ext. 4-5761, email him at: dlackner@mail.arc.nasa.gov or visit the Perilog information website at: <http://etc.usc.edu/ames/perilog>

JASON XIII sparks student interest

continued from front page



photo by Tom Trower



photos by Eric James

AMC general visits Moffett

General Paul J. Kern, the newly appointed commander of the U.S. Army Materiel Command (AMC), recently visited Ames' Aeroflightdynamics Directorate. Kern received his fourth star and assumed the duties

laboratories of the Flight Control and Cockpit Integration and Aeromechanics Branches of the NASA Army Rotorcraft Division. Researchers from the Army and NASA presented overviews of their work in the fields of

flight controls, human systems integration, advanced aerodynamics and autonomous rotorcraft.

The general and his entourage took advantage of the location of Moffett Field to visit the campus of Stanford University and several small, high-tech firms providing information technology of potential benefit to the Army Materiel Command.

The general showed great enthusiasm for the work being performed at Ames, at times interjecting suggestions for areas of cooperative work and frequently asking cog-

ent questions about limitations in current technology. He discussed plans for his new Science and Technology (S&T) Command and displayed interest in applying more techniques from biological sciences in aviation work.

The Army Materiel Command is responsible for the procurement and logistical support of vehicles, clothing, weapons and expendables for the Army. The Aeroflightdynamics Directorate is a research and development laboratory of the AMC subordinate Aviation and Missile Command (AMCOM) headquartered at Redstone Arsenal in Huntsville, Ala.

BY ARTHUR RAGOSTA ▲

'Ames News' site serves Spanish audiences

The NASA Ames Research Center newsroom recently began a service to provide Spanish-language translations of selected Ames news releases and other information on a new web site located at: http://amesnews.arc.nasa.gov/index_span.html

When fully constructed, the site will provide access to news releases, document and image archives, fact sheets, point-of-contact information and related items. Spanish-speaking reporters, the public and educators are encouraged to check the 'Amesnoticias' web site for rapid access to Ames news items.

"NASA and Ames are determined to break down barriers that prevent universal access to, and participation in, the nation's space and aeronautics programs by all of our citizens," said David Morse, public affairs director at Ames.

"To that end, we are making it a priority to reach out and engage minority and non-traditional audiences and the news media outlets that serve those populations. This is one very small step forward in that process."

"I think this web site effort is a gesture of good will by NASA to reach out to the people who speak other languages and who also are extremely interested in NASA work," said Elena Kozak, who authored the 'Amesnoticias' web page. "I am thrilled to be a participant in this important activity."

Ames also recently started a Spanish-language e-mail subscription service, 'Amesnoticias,' which distributes Ames news releases in Spanish to subscribers. People may subscribe or remove their e-mail addresses from the system through their own independent actions.

To receive Ames news releases in Spanish via e-mail, send an electronic mail message with the word 'subscribe' (without quotations) in the subject line to: ames-noticias-request@lists.arc.nasa.gov. To unsubscribe, send an e-mail to the same address with 'unsubscribe' in the subject line.

NASA Ames is the agency's Center of Excellence for Information Technology (IT). IT is a key, enabling technology with respect to nearly all current and future NASA missions. Ames also conducts research in a large number of areas, including astrobiology; life, Earth and space sciences; and aviation systems, safety and capacity.

BY JOHN BLUCK ▲



photo by Arthur Ragosta

General and Mrs. Kern arrive at Moffett Federal Airfield and are greeted by Major Dave Arterburn of the Army Flight Projects Office and Andrew W. Kerr, Director of the Aeroflightdynamics Directorate.

of Commanding General, U.S. Army Materiel Command on Oct. 30, 2001. Prior to this assignment, he served as the military deputy to the Assistant Secretary of the Army for Acquisition, Logistics and Technology and was the senior military advisor to the Army acquisition executive and the Army chief of staff on all research, development and acquisition programs and related issues.

During his visit, the general was briefed on the unique facilities and personnel at Moffett Field, including the cooperative working relationship between Ames and army personnel. The general and his wife were treated to tours and project briefings at the

VPP STAR Tip:

Employees, when asked, can describe in their own words the safety and health program objectives that relate to their work and safety and health duties under the program.

...Margaret Richardson, in *Preparing for the Voluntary Protection Programs*, Copyright © 1999 by John Wiley & Sons, Inc. Reprinted by permission.

Berenji of NASA Ames elected IEEE Fellow

Dr. Hamid Berenji of Ames' Computational Sciences Division (Code IC) has been elected as a Fellow of the Institute of Electrical and Electronics Engineers, Inc., (IEEE) for his contributions to the development of fuzzy reinforcement learning theory.

As a member of the 2002 class of IEEE Fellows, Berenji joins a select group of 259 scientists and engineers honored for their contributions to the advancement of engineering science and technology. Berenji, who works for the Intelligent Inference Systems Corp. of Sunnyvale, Calif., originated and extended the theory of fuzzy reinforcement learning.

"Berenji's work in neural nets has been significant," said Dr. Steven Zornetzer, Director, Information Sciences and Technology at Ames. "His sustained contributions to the field are appropriately recognized by the IEEE. We are delighted that Hamid has been selected as an IEEE Fellow."

According to Berenji, reinforcement learning is a powerful methodology for learning from interaction with the environment. "Applied to robotics, for example, a robot can learn to do a new task by experimenting with the discrete possible actions in the environment and learning from the results," he explained. Berenji's theory generalizes reinforcement learning so that it can handle

continuous input and output.

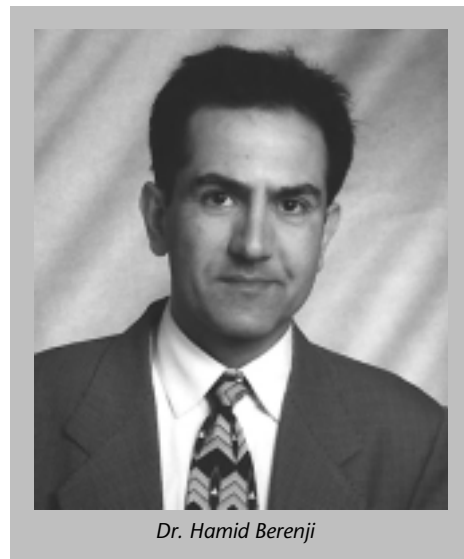
"In brief, using this theory, static and non-learning intelligent systems can become adaptive and hence learn from interaction with the environment," Berenji said.

"Considering the fact that we now use many non-adaptive intelligent systems in our daily lives, this theory can make many of them adaptive and capable of learning."

Berenji is a winner of the 1999 NASA Space Act award and a recipient of the Ames Director's Discretionary Fund. During a joint collaboration between Ames and Johnson Space Center, Berenji and his team developed a new controller for the Shuttle Training Aircraft (STA) that significantly improved its accuracy.

Berenji served as the program co-chairman of the 1993 IEEE Conference on Neural Networks and a program co-chairman of the 1994 IEEE Conference on Fuzzy Systems. He has served as an associate editor for the IEEE Transactions on Neural Networks, the IEEE Transactions on Fuzzy Systems, and as an area editor for the Journal of Fuzzy Sets and Systems.

Berenji received his masters and doctorate degrees in systems engineering from the University of Southern California in 1980 and 1986, respectively, and a bachelors degree from the Iran University of Science and Tech-



Dr. Hamid Berenji

nology in Tehran in 1979. During his career, he has published approximately 100 technical publications.

Further information about the IEEE Fellow Program is available at <http://www.ieee.org/fellows>

BY MICHAEL MEWHINNEY ▲

Shimada partners with NASA in safety

Did you ever pause to look around at the grounds here at Ames? Lawns, shrubs, and trees are trimmed, watered, fertilized, and

Schimada Landscape is a subcontractor to South Bay Maintenance and responsible for much of the landscaping throughout the center.

Shimada employees are safety conscious, a task that extends way beyond their own personal safety. They must constantly be aware of other employees in the vicinity.

The company employs between 16 and 22 people to care for the center's greenery. They are responsible for mowing, edging sidewalks, pruning, and caring for the welfare of our trees and shrubbery. They also note potential hazards at bus stops, sidewalks, walking paths and back to the center.

ing the aesthetic improvements they make to your work environment.

The landscape crew provides excellent examples of a good safety program by wearing their personal protective equipment (PPE). Goggles and ear plugs/muffs are important for their own protection, but since most center employees are not similarly attired, Shimada's landscapers will always power down mowers or blowers when other center personnel are nearby. It is not uncommon for foreign objects to fly out from beneath the equipment. So please beware while also appreciating their courteous and safe power-down. Signs are always posted when pesticides are in use, even though these tasks are usually done when most employees are off-site.

Shimada Landscaping believes they are full partners with NASA in safety. Their training program and attention to detail have paid financially rewarding dividends -- there has been no recordable lost work time since March of 1999. We wish to recognize Jon Talbot and Jesse Valcazare and their crack crew for creating an environment where 'mission success starts with safety.'

If you are a contractor and believe you are performing at this level, contact the author at ext. 4-0716.

BY SHELLEEN LOMAS ▲



photo by Shelleen Lomas

Partners with NASA in safety--Shimada employees who keep Ames' landscaping maintained.

otherwise maintained beautifully to help make Ames a more pleasant place to work.

If you see them, be careful when approaching their activity while also appreciat-

Ames symposium to probe life in the cosmos

Scientists will gather at Ames on March 1 at the 'Contact Ames Symposium 2002' to discuss tantalizing astrobiology questions: Is biology a mere accident, confined to our watery planet? Or could life be as common as McDonalds, a regular occurrence on a multiplicity of worlds?

Scientists no longer consider such questions to be only in the realm of science fiction. They are actively seeking answers to these and other questions about life on other worlds.

The 'Contact Ames Symposium 2002' is a one-day astrobiology research seminar that will be held in the Moffett Training and Conference Center (Bldg. 3) between 9:00 a.m. and 4:30 p.m. Ames staff are invited and no pre-registration is required. At the symposium, researchers will present the latest news from the frontiers of space exploration, astrobiology and SETI (The Search for Extraterrestrial Intelligence) Institute.

Co-sponsored by Ames and SETI, the 'Contact Ames Symposium 2002' is part of the 3-day 'Contact 2002 Conference,' that will be held at the Marriott Hotel in Santa Clara on March 1 to 3. The one-day Ames

session focuses specifically on the question: 'Is the Cosmos Rife with Life?' while the 3-day event is broader in scope.

The 'Contact Ames 2002' keynote address, 'What Is Life?' will be delivered at 9:00 a.m. by Dr. Baruch Blumberg, director of NASA's Astrobiology Institute (NAI) and a Nobel laureate in medicine.

"The Contact Ames Symposium 2002 is the kind of interdisciplinary astrobiology event that can reap rich research rewards, as scientists from varied disciplines in the space and social sciences meet to exchange ideas," said Blumberg.

Symposium highlights will include:

- Dr. Penelope Boston, University of New Mexico, discussing 'Earth, Mars and Beyond' (speaking at 10:00 a.m.);
- Dr. Chris Chyba, SETI Institute, discussing 'Life Around Giant Planets' (speaking at 10:45 a.m.);
- Dr. Bill Borucki, NASA Ames, discussing the Kepler Mission (speaking at 1:00 p.m.);
- Dr. Robert Zubrin, the Mars Society, discussing 'Panspermia: Transferring Life Between Worlds' (speaking at 2:30 p.m.);
- Dr. Al Harrison, University of California,

Davis, and Dr. Jim Funaro, Cabrillo College, discussing the societal implications of finding intelligent life elsewhere (speaking at 3:15 p.m.).

On March 1, Ames will also host, as part of the conference, an art show, featuring Roger Arno's space art in the Bldg. 3 Macon Room. The show will include a collection of Arno's pieces throughout his years at Ames, including color renditions of the Apollo-Soyuz recovery, 3-D renditions of the Space Station Centrifuge Facility and animations of Mars airplanes and the Kepler observatory. It will also include pieces with a space fantasy theme.

A 'Contact Ames 2002 Symposium' agenda is available on the web located at: <http://www.spaceref.com/calendar/calendar.html?pid=1309>

The 3-day event requires pre-registration. To register, go to the web at: <http://www.cabrillo.cc.ca.us/contact>

Information about NASA's astrobiology programs may be obtained at: <http://astrobiology.arc.nasa.gov>

By KATHLEEN BURTON ▲

Ames child care center to host golf tournament

The Ames Child Care Center (ACCC) will be hosting its 6th Annual Charity Golf Tournament on April 19 at the Moffett Field Golf Course. The golf tournament, originally scheduled for Sept. 21, 2001, had to be rescheduled due to the heightened security measures in effect at the time. The proceeds from this tournament will be used to support

quality day care to children of civil servant and on-site contractor personnel. The tuition paid by the parents covers salaries and operational costs only. All other costs are covered by fund raising activities such as the ACCC Charity Golf Tournament.

It has been a tumultuous year for the ACCC. In June of 2001, the center had to

relocate to a new site. For its first 17 years of operation, the ACCC was housed in portable classroom units located within the gates of Ames. It was always understood that the portable classrooms had a limited lifespan and that permanent accommodations would

need to be arranged. After many years of working to obtain construction funds and find a suitable location, plans for a permanent facility were being finalized.

Unfortunately, in late June 2001, an inspection of the old portable classrooms revealed that they were in poor condition and the ACCC was forced to evacuate the buildings immediately. Thanks to tremendous effort and expense on the part of Ames management and staff, the ACCC was quickly relocated to a new temporary home on the site of the former Onizuka Child Development Center. The site is being used for a limited time through special arrangements with the Army.

Plans are still under way for a new, permanent facility to be located adjacent to Bush circle. The new ACCC is expected to be

completed sometime in the next 2 to 3 years. Part of the income from the April tournament will go toward a fund that will furnish the new facility and buy equipment for the new classrooms. Help get the permanent facility fund off to a good start by signing up for the tournament.

Registration forms will be available for download from the ACCC web site located at: <http://accrc.arc.nasa.gov> (note: due to new firewall implementation, the site is currently not accessible from off-site). Registration forms can also be requested by contacting the ACCC at Mail Stop T20-D or by e-mail at: childcare@mail.arc.nasa.gov.



the Tuition Assistance Council, fund the music and science programs and purchase classroom equipment.

The cost of registration will be \$65 per person; teams of four are \$260. The registration fee includes the round of golf, a box lunch, one mulligan and one raffle ticket per player. The format for the tournament will be a four-person scramble (best shot from your team used for each stroke). Prizes will be awarded to the teams with the lowest three net scores and the lowest gross score. There will be prizes at select holes for the 'longest drive' and 'closest to the pin.' The shotgun start is at 12:30 p.m. and there will be a drawing for raffle prizes immediately following the tournament.

The ACCC is a non-profit child care center located at Ames. ACCC provides full-time

Golden Bay Credit Union to hold members-only car sale

The Golden Bay Credit Union is offering a special, one-day, members-only used car sale. Bring this issue of the Astrogram and receive an additional 0.25% off the price. The sale will be held on Mar. 16 at the Palo Alto Elks Lodge, 4249 El Camino Real, Palo Alto, from 9 a.m. to 2 p.m. For more information, call (800) CAR-SALES.

Ames' Space research director Ken Souza to retire

On March 1, Kenneth A. Souza, acting director of the Astrobiology and Space Research Directorate at NASA Ames, will retire after more than 35 years of government service.

During his NASA career, Souza managed many of the nation's most important space and gravitational biology flight research programs. He led teams of scientists and engineers who developed and flew more than 400 life sciences experiments in space. He also pioneered successful collaborations with scientists in the former Soviet Union at the height of the Cold War. It was under Souza's direction that the research for many high-profile NASA experiments in gravitational and space biology was initiated and undertaken. Much of what scientists now know about the effects of space flight on living systems was learned in experiments that were conducted under his tutelage.

"Ken Souza has been an amazing asset to NASA and Ames Research Center, both as a scientific researcher and as a leader and manager in his field," said Ames Director Henry McDonald. "His scientific credentials, management skills and leadership are exemplary. His contributions to the fields of space and gravitational biology have been immense. His retirement leaves big shoes to fill; he will be greatly missed."

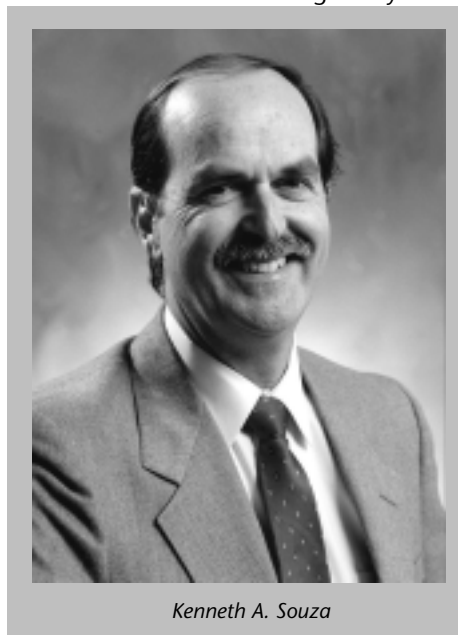
Souza began his career at Ames in 1966 as a research scientist after graduating with a bachelor's degree in bacteriology from the University of California, Berkeley. His first job was the search for life in extreme environments, part of the field now known as astrobiology. After only a few months, Dr. Richard Young, then chief of the Exobiology Division, invited the young scientist to help with an experiment examining the effects of gravity on amphibian embryos. Young already was studying sea urchin eggs, and he wanted to fly frog eggs, which are much larger, as well as the small sea urchin eggs to see how the embryos developed in microgravity. Souza then became the principal investigator's representative on the frog egg team.

After returning to Ames from a payload test in Philadelphia, Souza recalls being "bitten by the flight bug" and made the extreme environment of space the focus of the rest of his career. In November 1996, frog embryos were flown on Gemini 11, followed a month later by the launch of Biosatellite I with an extensive biological payload, including frog embryos. In 1967, the payload flew again on Biosatellite II. These Ames-managed satellites proved that fundamental biological processes, cell division, metabolism, growth and development, and radiation damage would occur with minimal changes during several days of orbital space flight. The experience left Souza firmly embedded in the fabric of space research, and NASA.

Immediately following these early spaceflight activities, Souza shifted his research

focus from space and gravity back to exobiology and the investigation of the environmental limits for living systems and the special mechanisms and structures they evolved to live at life's extremes. He also obtained a master's degree in microbiology from San Jose State University.

In 1975, Souza spent a year at NASA headquarters, where he served as technical assistant to the chief of the planetary biology and planetary quarantine programs. Upon his return to Ames, he was faced with a career choice: either continue to do research, or accept a project management position in the Biosystems Division, which was just beginning to work with the Soviets on the Cosmos series of biosatellites. Feeling ready for a



Kenneth A. Souza

return to spaceflight projects, he accepted the opportunity to manage the NASA/Russian activities. During the next few years, Souza made about 30 trips to the Soviet Union.

Souza speaks with pride about Ames' mutually beneficial collaboration with the Soviets. "We got great science return and it was a wonderful cultural experience," he recalled. At the time, the Soviet government made it extremely difficult for its scientists to interact with scientists from non-Soviet Bloc countries, or to get access to western scientific literature. "Our scientists were able to provide them with information about what was happening in a particular science discipline and show them some new techniques – all of which were readily available outside the Iron Curtain," he explained. "In return, we not only benefited from their spaceflight experience, but we got access to flight opportunities and specimens that would have cost us tens of millions of dollars." The collaboration was so successful that it was one

of only a very few US/Russian collaborations that was allowed to continue throughout the 1980s.

"It's incredible to think how many collaborative US/USSR experiments we flew with a NASA team of no more than four or five people," he said. These missions provided the foundation for subsequent experiments on several international space shuttle Spacelab missions.

In 1981, he was offered the position of deputy chief in the Biomedical Research Division. This position provided a "tremendous education" for him in learning about human physiology and the value of animal research as models for understanding the biomedical problems humans face in adapting to, and returning from, space flight.

Souza served as chief of Ames' Space Life Sciences Payloads Office from 1986 to 1994, where he led the development of nearly all of NASA's biological spaceflight experiments and the equipment to support them during a quick succession of Spacelab missions. Souza characterized this series of flights as having "remarkable excitement" and "high, high productivity."

Souza then returned to the lab as the principal investigator for the Frog Embryology Experiment that flew on the Spacelab J space shuttle mission in 1992.

The frog experiment, which was proposed by Souza and colleagues in 1978, picked up where the early biosatellite experiments had ended. This time the frog eggs were fertilized in space, thereby exposing the process of fertilization and the gravity-sensitive period of early development to weightlessness. The experiment demonstrated for the first time that a vertebrate species could reproduce in the absence of gravity. Souza describes the successful flight of this experiment, which exceeded everyone's expectations, as "a dream come true." Although there were no major surprises, "We did see lots of interesting subtle differences that did indicate adaptations to weightlessness were happening," he said.

Souza was Ames' associate director for life sciences from 1994 to 1996, then he began a 3-year assignment as chief of the center's Life Sciences Division, where he provided leadership in the advancement of flight and ground-based life sciences research and technology. In support of NASA's Human Exploration and Development of Space Enterprise, he led his division in the development and flight of mid-deck and Spacelab experiments on the space shuttle, including the completion of the Neurolab mission (STS-90), the most complex Spacelab mission ever flown. Working with Dr. Muriel Ross of Ames, he helped expand the Ames Center for Bioinformatics into a joint Ames/Stanford National Center for Biocomputation, which has provided ground-breaking technologies in telemedicine and virtual surgery.

continued on next page

Ames' Space research director Ken Souza to retire

continued from previous page

Souza was appointed acting director of Ames' Astrobiology and Space Research Directorate in 2001 after two years as deputy director. He provided oversight for all hardware projects in the directorate, including the Space Station Biological Research Project, the Stratospheric Observatory for Infrared Astronomy (SOFIA), life science payloads for the space shuttle, Mir and the International Space Station, and the recently approved Kepler project.

He has published more than 40 scientific articles and received a variety of scientific and management awards, including NASA's Outstanding Leadership Medals in 1991 and 1998 and an Exceptional Achievement Medal in 1980. In 1991, he received a scientific achievement award from the Institute of Biomedical Problems, Ministry of Health of the USSR.

Souza says he won't retire completely, but he wants to do something to continue the expansion of the field of space biology. He is interested in mentoring and in using his experience to support international space programs. Before then, however, he is look-

ing forward to taking some time off, going skiing and fishing, and traveling with his wife, Mary.

Although he says the frog egg experiment was the highlight of his science career, what he is most proud of are the contributions Ames has made to space and gravitational biology. "It's the thrill of knowing that I helped put together a team that put Ames and NASA on the map for doing science in space," he said quietly. "For most of the past 20 years I could say that the vast majority of the non-human science we've done in space -- whether it's plant, animal, cell or tissue, whether it's science or hardware -- came from Ames."

Souza sees the years ahead as challenging for both Ames and NASA, but also with great potential. "We are just now on the threshold of opening up biology because of the new tools and capabilities we have. It will be very exciting to apply the new tools to the same questions we've been struggling to answer for decades." He also hopes Ames is able to complete the suite of ISS hardware "that is absolutely required to address scien-

tific questions in biology, both human and non-human." If NASA isn't able to complete this task, he sees the U.S. as becoming a "second-class citizen," having to rely on other nations to provide the hardware to fly biological experiments in space. "If we're serious about doing science in space, we have to have on orbit the acceleration capability provided by the 2.5-meter diameter ISS centrifuge," he said. Ames' Space Station Biological Research Project manages the development of this centrifuge, as well as much of the other biological flight hardware for the International Space Station.

"Ames has been a great place to work. I can't imagine having a better career anywhere else," Souza said when asked about his thoughts as his retirement draws near. "There's always been an esprit de corps, interesting people, interesting science, and a real can-do attitude."

Ken Souza may be retiring from NASA, but he still has much to contribute to the field of space and gravitational biology and America's space program.

BY ANN HUTCHISON ▲

Annual call for 'Software of the Year' nominations

The NASA Software of the Year Award competition nominations are due on Thursday, April 11. The awards are designed to recognize outstanding software developed by NASA. NASA's Chief Information Officer, Lee B. Holcomb, and NASA's Chief Engineer, W. Brian Keegan, are co-sponsors. This very prestigious award includes a monetary Space Act Award of up to \$100,000 and a certificate of recognition.

Ames Research Center has won or placed in the NASA Software of the Year several years including the following software packages. Approximately \$200,000 in total was distributed to the members of these five teams, which were:

2000

- Surface Movement Advisor (second place)

1999

- Remote Agent (winner)
- Ross 3D Virtual Clinic (runner-up)

1998

- Center TRACON Automation System Software (winner)
- Overset Tools for CFD Analysis (runner-up)

The eligibility criteria for this software award include: NASA has an intellectual property interest; the software has been supported, adopted, sponsored or used by NASA; the software is significant to the NASA mission; all experimental phases have been successfully completed to the satisfaction of the customer; the software has been tested and documented per the requirements of NPD 2820 section 1(e). This is interpreted to mean that the software has a current Tech-

nology Readiness Level (TRL) of 7 or higher; and the software must have been released in accordance with NPD/NPG 2210.

An Ames evaluation panel will be formed to review and determine the Ames final nomination. The Ames nomination will be forwarded in May to the NASA Software Advisory Panel comprised of software development experts from all NASA centers and JPL. After review, this panel will submit the selected NASA Software of the Year to the NASA Inventions and Contributions Board (ICB) for final processing.

All software submitted to the Ames competition that is not forwarded for the NASA Software of the Year Award will be sent to the ICB to be considered for a Space Act Award. In the past several years, Ames software packages not selected for the Ames nomination have received significant Space Act Awards amounting in some cases to over \$20,000 per team.

Documentation required for submitting a nomination:

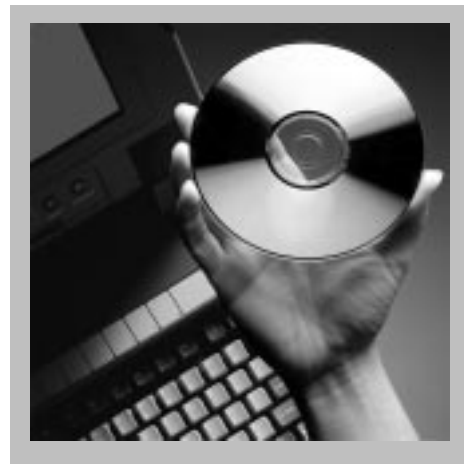
1) NASA Form 1329 (ICB Space

Act Award application) in its current and standard format. This form can be obtained at <http://icb.nasa.gov/> This form must be submitted electronically with the exception of Part II of NASA Form 1329, which must be submitted in hard copy.

2) Summary evaluation document (six pages maximum) specifically focusing on the SOY advisory panel's evaluation criteria. This summary evaluation document is also available at the web site mentioned above.

3) Letters of endorsement from the software users. In addition, the following forms

must be on file in the Ames Commercial Technology Office, the NF 1679 (invention disclosure) form and the CTO-6 (software release request) form. Contact Ames software release authority, Robin Orans



at email: rorans@mail.arc.nasa.gov for guidance.

Entries and supporting materials should be submitted electronically to Betsy Robinson at email address: brobinson@mail.arc.nasa.gov in the Ames Commercial Technology Office, by Thursday, April 11.

For forms and specific award criteria information, please contact Betsy at ext. 4-3360.

Ames' Peter Kittel honored as CSA fellow

On Dec. 19, 2001, Dr. Peter Kittel was honored as Fellow of the Cryogenic Society of America. Several of Kittel's colleagues from NASA were present at the ceremony. The award was presented by Society President-elect Louis J. Salerno, an associate of Kittel's for over 21 years at NASA and chair of the society's northern California chapter and fellow grade committee.

Kittel was nominated by Lou Salerno, and supported by letters from Dr. Peter Mason of CalTech; Dr. Ted Nast of Lockheed Martin, Palo Alto; and Dr. Ray Radebaugh of NIST Boulder. The nomination was unanimously approved by the society's fellow grade committee and board of directors.

"Dr. Kittel has contributed in four significant areas: in the development of fundamental technology for space cryogenics; in execution of space missions using space cryogenics; as an active member and contributor to the cryogenics community; and finally as a technical and administrative leader of an active and highly productive group at Ames," wrote Mason.

"His technical achievements are the highest, as evidenced by the awards of the NASA Superior Accomplishment Award; the NASA Exceptional Engineering Achievement Medal; two Space Act Awards; seven NASA certificates of recognition; two NASA Group Achievement Awards; and a National Research Council Fellowship. He pioneered many developments in cryogenics for operation in space, including pulse tubes, magnetic refrigerators and dilution refrigerators. He was principal investigator of several space experiments, including pulse tube investigations on the space shuttle, and the NASA Ames phase of the superfluid on-orbit transfer experiment. He played a major role in many advanced NASA missions, including the pioneering infrared astronomy satellite and the Space Infrared Astronomy Facility, a great observatory mission. He also served on many advisory boards for such major NASA missions as the Gravity Probe B relativity experiment, the spectroscopy of the atmosphere using far infrared emissions mission, and the Cryogenic Fluid Management Facility," wrote Mason.

From Dr. Nast: "Please accept my strong endorsement of Dr. Peter Kittel as a candidate for a fellow of the Cryogenic Society of America. I have known and worked with Dr. Kittel for over 30 years and have observed very substantial contributions to cryogenics in both technical areas and conferences and societies. His work has been original and innovative in the cryogenic area. He has served on numerous editorial boards and

committees and is always anxious to contribute his time and expertise in providing guidance and support to his associates and conferences. Dr. Kittel and I worked together as co-chairs for the 10th International Cryocooler Conference. His integrity is beyond reproach and he is always a pleasure to work with. I believe he would be a fine addition to the society fellows."

Dr. Radebaugh wrote: "I am writing this letter to support the nomination for Peter Kittel to the fellowship status in the Cryogenic Society of America. Peter has actively pursued and promoted cryogenics for at least 20 years. His foresight in funding pulse tube refrigeration in the early 1980s has certainly paid off in a big way. Without his efforts, pulse tube refrigeration would not be where it is today in terms of advancement. Peter was instrumental in having NASA consider pulse tube refrigeration for space missions before pulse tubes really became popular. Peter has directed a wide range of cryogenic activities at NASA-Ames, including thermal boundary conductance, adiabatic demagnetization, dilution refrigeration, liquid helium flow phenomena and



photo by Pat Roach

NASA Ames' Peter Kittel (left) receives Cryogenic Society of America fellowship award from Lou Salerno, President Elect of the Cryogenic Society of America and Acting Assistant Chief, Thermal Protection Materials and Systems Branch at Ames.

general cryocooler studies."

A part of Salerno's letter of nomination read: "As a person, Dr. Kittel is a man of few words, but much action. In addition, when his colleagues require his assistance, he is always willing to drop whatever he is doing to offer his highly valued opinions or insights. He is a sincere and concerned mentor, and has helped both students and professional colleagues advance in their field. Speaking personally, it has been an honor and privilege for me to have known and worked with him since 1980, and I look forward to continuing my working relationship with him."

Ames occupational illness/injury data for January

	Civil Servants	Contractors
Not recordable first aid cases	1	2
Recordable no lost time cases	1	0
Restricted workday cases	0	0
Lost workday cases	0	0

Data above are as of 1/10/02. May be subject to slight adjustment due to late reporting or new information in reclassification.

Event Calendar

Model HO/HOn3 Railroad Train Club at Moffett Field in Bldg. 126, across from the south end of Hangar One. Work nights are usually Friday nights, 7:30 p.m. to 9:30 p.m. Play time is Sundays, 2 p.m. to 4 p.m. Call John Donovan (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: Cathy Payne at ext. 4-0003.

Ames Ballroom Dance Club. Classes meet Tuesdays. Begin. classes start 6:15 p.m. Schedule: Feb., East Coast swing; Mar., waltz. Higher-level class meets at 5:15 p.m., Schedule: Feb. 5, 12, East Coast swing; Feb. 19, 26, Mar. 5, West Coast swing; Mar. 12, 19 and 26, waltz. Classes held in Bldg. 944, the Recreation Center. POC: Helen Hwang, hwang@dm1.arc.nasa.gov.

Ames Bowling League, Palo Alto Bowl on Tues nights. Seeking full-time bowlers and substitutes. Pre-league meeting at Palo Alto Bowl on Tues, August 28 at 6 p.m. Questions to sign up: Mike Liu at ext. 4-1132.

Ames Diabetics (AAD), 1st & 3rd Weds, 12 to 1 p.m., at Ames Mega Bites, Sun rm. Support group discusses news affecting diabetics. POC: Bob Mohlenhoff, ext. 4-2523/email at: bmohlenhoff@mail.arc.nasa.gov.

Ames Child Care Center Board of Directors Mtg, Every other Thursday (check web site for meeting dates: <http://acc.arc.nasa.gov>), 12 noon to 2 p.m., N-269, Rm. 201. POC: Joan Walton, ext 4-2005.

Native American Advisory Committee Mtg, Feb. 26, 12 noon to 1 p.m., Building 19, Rm 1096. POC: Mike Liu at ext. 4-1132.

Nat'l Association of Retired Federal Employees, (NARFE), Mar. 1, S. J. Chptr #50 mtg, 9:30 a.m., Hometown Buffet, Westgate Mall, 4735 Hamilton Avenue., San José.

Program at 10 a.m. Gardening specialist. Lunch at 11 a.m. \$6.27 pp. POC: Earl Keener (408) 241-4459 or NARFE 1-800-627-3394.

Ames Contractor Council Mtg, Mar. 6, 11 a.m., N-200, Comm. Rm. POC: Paul Chaplin at ext. 4-3262.

Environmental, Health and Safety Information Forum, Mar. 7, 8:30 a.m. to 9:30 a.m., Bldg. 19/Rm 1040. URL: <http://q.arc.nasa.gov/qe/events/EHSeries/> POC: Julie Quanz at ext. 4-6810.

Ames Federal Employees Union (AFEU) Mtg, Mar. 20, 12 p.m. to 1 p.m., Bldg. 19, Rm 1042. Info at: <http://www.afeu.org>. POC: Marianne Mosher at ext. 4-4055.

Ames Amateur Radio Club, Mar. 21, 12 noon, N-228 (across from N-255). POC: Michael Wright, KG6BFB, 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 first Friday 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 a space-available basis only. First-time ads are given priority. Ads must include home phone numbers; Ames extensions and email addresses will be accepted for carpool and lost and found ads only. Due to the volume of material received, we are unable to verify the accuracy of the statements made in the ads.

Housing

3 bd/1ba San Francisco house in a residential neighborhood with parking, sun deck, yard, views. Close to Hwy 101/280, BART, Caltrain, MUNI, SAMTRAMS, shops, etc. \$2,100 plus utils. Call (415) 468-8890.

Room in 3bd/2ba Mtn. Vw twnhouse, close to downtown. \$800 rent (incl. utils). Share w/prof'l female (and cat). Priv. bthrm. Complex has tennis crts, pool and hot tub. Female preferred. NS/NP. Call (650) 254-1121.

Miscellaneous

Microwave oven, Toshiba, good condition, \$ 45. Call (650) 369-0578.

Woman's long black dress coat ("Bryant Park" made in USA) Never Worn \$250 new, Sell \$100. Size 16. Connie (408) 246-5295.

Celestron 8" Schmidt Cassegrain telescope w/standard accessories (wedgedpod, diagonal, 25 mm eyepiece) + DEC motor. \$600 or B/O. Call (408) 725-8761.

Almost new G4 Mac. 400 MHz Proc. 128 MB RAM, 17 in Flat CRT monitor, 20 GB harddrive, DVD-ROM drive, extended keybd, optical mouse, 100 MB zip drive, SCSI card, modem and NIC, air port ready and OS9. \$500 for the whole thing. Call (408) 896-1023.

5 family yard sale: Mar. 2, 1993 Harrison St. Santa Clara. Lots of kids stuff, cribs, strollers, clothes, toys. (2 families with twins), twin size bedroom set with dressers and night stands, VCR, TV, plus lots lots more!

Credenza/hutch, 20in X 30in X 46in, beautiful honey-laquer finish, mint condition, only a year old, \$400. Call (650) 473-0604.

New igloo dog/cat house. 18" hi, 26" diam. At PetCo cost \$75, yours for \$25. Union City or pickup near Ames. Call (510) 489-8037 or email: mcfarland@abac.com.

Transportation

'65 Mustang sedan, 6 cylinder, automatic, extra motor, cherry inside. \$3,500. Call (510) 657-4247, eves.

'70 VW convertible classic--like to restore VW's? Take me home. Original owner, no smog needed, transmission ok, needs work on top & possibly engine. Only \$1,200. Esther or Art (650) 961-2732.

'79 Toyota Cressida. Great for vintage parts. Not running. New transmission installed. Excellent Radio, upholstery, body and parts. \$500 or B/O. Call (707) 664-0106.

Ames Retirements

Name	Code	Date
Charles M. Winget	SLO	2-01-02
Jerri A. Jones	AR	3-01-02
Victor W. Katvala	ASM	3-01-02
Angela M. Clark	SS	3-01-02
Anne-Marie Thornton	FOI	3-01-02

'86 Bronco II Eddie Bauer Edition, 70k on V6 engine, 5 spd, blue/tan color, new tires, new battery, runs great. \$2,500 or B/O. Call (510) 317-1809 lv msg.

'87 Ford Escort Pony, automatic, 2 door, hatchback, clean, good tires, runs great. \$1,200 or B/O. Call (650) 625-1325 (H).

'88 Merkur Scorpio, 4 dr, black, sunroof, p.s., p.b., auto, rebuilt transmission, reliable transportation, \$1,250. Call (650) 323-4800.

'88 Chevy Cavalier sedan, 80K, automatic, \$2,300. Call (510) 657-4247, eves.

'91 Ford Explorer XLT 4X4, 6-passenger, very good condition, white exterior, roof rack, tow pkg, 4.0L V6, AT, PW, PL, CD, front bench, new brakes & tires, recent engine work, 110K mls. \$5,550. Tom (408) 255-2325.

'92 Honda Accord, 4dr, auto, excellent condition, smogged, \$4,500 or B/O. Call (408) 253-9453.

'93 BMW 325is, 2 door, green, 115K mls, 6 cyl, 6 disc CD changer, sunroof, power locks/ windows/ seats, split fold down back seat. Sports suspension/alloy wheels. Major inspection recently completed -no problems. New Tires. Runs great. \$9,500. Elisa (408) 573-8332.

'94 Lincoln Mark 8, white with gray leather interior, CD, good condition, 77K mls. \$8,400. Jerry (408) 738-0524.

'95 Geo Metro, only 8,364 miles and not driven for a couple years. White, clean, new battery. Closest match: a dealer ad "98 Geo Metro for \$5,993" (no mileage listed). \$5450, arrange for view. Jim (408) 988-0750.

'96 Honda Accord LX, original owner, all service records. white ext., beige int., 4-dr, AT, AC, pwr, cruise; excellent condition. 100K mls (highway miles). Asking \$8,300 or B/O. Kevin (408) 723-2115. Lv. msg.

'99 Dodge Intrepid excellent condition, green exterior, cloth seats, cassette, PW, PL, V6, AT, tinted windows, plenty of leg room, enormous trunk space, 41K mls. \$12,600. Tom (408) 255-2325.

Ames Public Radio

1700 KHz AM radio -- information announcements and emergency instructions, when appropriate, for Ames employees. The emergency information phone number for Ames is (650) 604-9999.

Exchange Information

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

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

Ask about NASA customized gifts for special occasions. Make your reservations for Chase Park.

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

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

Visitor Center Gift Shop N-223 (10 a.m. to 4:00 p.m.) ext. 4-5412

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

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

Check web site for discounts to local attractions, <http://exchange.arc.nasa.gov> and click on tickets. March, Best Little Whorehouse in Texas, Golden Gate Theatre Mar. 9, 7:30 p.m. San José Sharks vs. Vancouver, Compaq Area, San José. Mar. 23, 8 p.m., Joseph & The Dream Coat, San José Center for the Performing Arts

NASA Lodge (N-19) 603-7100

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

Vacation Opportunities

Lake Tahoe-Squaw Valley townhs, 3 bd/2ba, view of slopes, close to lifts. Wkend \$500, midwk \$190 nite. Included lines, cleaning, propane fireplace, fully furnished. Call (650) 968-4155. DBMcKellar@aol.com

South Lake Tahoe Cottage w/wood fireplace and hot tub. Rates from \$50 to \$130 per night. Call (650) 967-7659 or (650) 704-7732.

Vacation rental, Bass Lake CA 14 mls south of Yosemite. 3bd/1.5 ba, TV, VCR, MW, frpic, BBQ, priv. boat dock. Sleeps 8. \$1,050/wk. Call (559) 642-3600 or (650) 390-9668.

Big Sur vacation rental, secluded 4bd/2ba house in lovely canyon setting. Fully eqpd kitchen. Access to priv. beach. Tub in patio gdn. Halfway between Carmel & Big Sur. \$175/night for 2; \$225 for 4 and \$250 for more, plus \$150 cleaning dep. Call (650) 328-4427.

Incline Village: Forest Pines, Lake Tahoe condo, 3 bd/2 ba, sleeps 8. Fireplc, TV/VCR, MW, W/D, jacuzzi, sauna, pool. \$120/night low season; \$155/night high season. \$90 cleaning fee and 12% Nevada room tax. Charlie (650) 366-1873.

NASA Ames celebrates Black History month

Ames is celebrating Black History month and the contributions of African-American scientists to the space program with special media events this month.

As one aspect of the celebration, Ames

guished African-American scientists and managers.

Media representatives had the opportunity to speak with Ames researchers and administrators who shared their experiences of working at NASA and discussed contributions made by the African-American community to space science research and technology development.

During the discussions, participants addressed issues related to education and career opportunities for African-American youth.

This event was designed specifically to reach out to diverse minority news media groups that represent and serve a large percentage of the San Francisco Bay area population. NASA and Ames are determined to ensure that America's national space program involves, represents and is accessible to all citizens. To that end, the agency and its

field centers are committed to breaking down the traditional barriers--socioeconomic, language and cultural, among others -- that can impede universal access and participation.

"An important thrust of our present campaign is to reach out to minority media organizations, so we can better serve and reach audiences whose members may not have received our information on as wide a basis as we would like," said Ames' Public Affairs Director David Morse. "We intend to ensure that all of our citizens and media organizations enjoy equal access to information about NASA missions, programs, people and accomplishments."

BY VICTORIA KUSHNIR ▲



photo by Victoria Kushnir

Ames research scientist George Cooper (left) showing 'space dirt' to Oakland Tribune reporter William Brand (center) and talking about his studies of meteors and meteorites during the Ames Black History month Minority Media Outreach Event on Feb. 12.

welcomed media representatives to the center to learn about the latest NASA innovations and cutting-edge technologies under development. Reporters were also able to meet some of Ames' distin-

cisco Bay area population. NASA and Ames are determined to ensure that America's national space program involves, represents and is accessible to all citizens. To that end, the agency and its

Astrogram deadlines

All Ames employees are invited to submit articles relating to Ames projects and activities for publication. When submitting stories or ads for , submit your material, along with any questions, in MS word by e-mail to: astrogram@mail.arc.nasa.gov on or before the deadline.

<i>Deadline:</i>	<i>Publication:</i>
Fri, Mar. 1	Mon, Mar. 11
Fri, Mar. 15	Mon, Mar. 25
Fri, Mar. 29	Mon, Apr. 8
Fri, Apr. 12	Mon, Apr. 22
Fri, Apr. 26	Mon, May 6



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Managing Editor.....David Morse
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