National Aeronautics and Space Administration, Ames Research Center, Moffett Field, CA
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Astrogram
Communication for the Information Technology Age

Hubbard inspires educators with NASA vision, mission

Inspire a student and you motivate just one. Inspire a teacher and you have the potential to reach thousands. And with NASA Administrator Sean O'Keefe ushering in a renewed emphasis on education throughout the agency, it is clear that teachers are a logical and important ally in NASA efforts "to inspire the next generation of explorers."

On Oct. 27 in San Francisco's historic Ramada Plaza hotel, Ames Center Director Scott Hubbard delivered that message loud and clear, speaking of NASA's commitment in an uplifting keynote address to members of the California Science Teachers Association. Judging by their feedback and reaction, Hubbard's speech struck a responsive chord in the minds and hearts of attendees at the California Science Education Conference.

photo by Dominic Hart

Ames Center Director Scott Hubbard responds to questions from the audience at the recent CSTA conference held in San Francisco.

Beginning his presentation with an examination of NASA's new vision and mission and the impact the agency has on the everyday lives of Americans, Hubbard motivated and then challenged teachers to work as full partners with NASA. He urged them to carry the NASA message forward into their classrooms to excite and inspire their students.

"Inspiring the next generation of explorers -- that is what YOU, the teachers, do," Hubbard said. "We need you. We need to work together to carry out our joint goals, to make it possible, indeed to make it a priority, for many more students to go into science, technology engineering and mathematics," he stated.

Success in achieving this objective has two very important aspects, according to Hubbard. First, enhanced and expanded science and math education will deliver the very people who are going to help NASA explore and answer the wonderful questions that are at the root of our vision and mission statements. Second, the economic engine that drives this country -- new technologies and high value-added work and jobs -- is fueled by the presence of a talented pool of scientists, technologists, engineers and mathematicians in the United States, he said.

Hubbard turned next to an elaboration of what NASA and Ames Research Center are doing to achieve and fulfill the agency's mission imperatives. Starting with aviation and aerospace, Hubbard explained that NASA is researching methods to improve the travel experience of airline passengers using NASA's long background and expertise in information technology. Decision-support tools and new environmentally friendly aircraft technologies are helping to increase capacity, and improve the efficiency and safety of the national airspace system while minimizing the impact on the environment.

Ames' advances in computational sciences also are helping in another area related to understanding and protecting our home planet. The development of techniques to make 1024 processors work in parallel has increased NASA's ability to model complex climate patterns and other atmospheric processes. Using this computing power, research scientists at NASA Goddard Space Flight Center and their colleagues at Ames can now process world climate data models in days, rather than months, helping experts in various atmospheric disciplines develop long-term action plans,

To accomplish NASA's education mission, Hubbard detailed some of NASA's educational initiatives. Current center educational endeavors include the hands-on experience of the Ames Aerospace Encounter and the annual hosting of about 12,000 students for the JASON Project. Of particular interest to educators were the teacher training courses at the Educator Resource Center and the coming Teacher Institute where new and veteran teachers are and will be trained using the latest in educational technology and techniques. Further down the road, NASA Research Park will provide an integrated campus bringing together academic and industry partners to collaborate with NASA on mutually beneficial projects, activities and missions.

Affectionately nicknamed the 'Mars czar' for his prior stewardship in re-evaluating and replanning NASA's Mars exploration strategy and program following the twin losses of Mars Polar Lander and Mars Climate Orbiter, Hubbard saved his final comments for the topic 'to explore the universe and search for life.'

Hubbard began the astrobiology portion of his talk by presenting two projects that, he admitted, he "was eagerly awaiting," SOFIA and Kepler. SOFIA is the newest of NASA's 'origins' missions and will be the largest,

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F2M Town Hall meeting set

NASA's Freedom to Manage (F2M) team will visit Ames on Thursday, Nov. 14 for a town meeting to communicate the progress they have made in cutting through obstacles and barriers in the performance of NASA's business processes. Leading the F2M team are Courtney Stadd, NASA's chief of staff, and Greg Reck, the deputy chief technologist for NASA. Accompanying them will be representatives from the Headquarters Offices of Management Systems, the chief financial officer, procurement and public affairs.

The accomplishments generated through this successful initiative originated from more than 400 suggestions submitted by the NASA workforce. Some of the changes that have occurred through F2M include: implementation of the One-NASA

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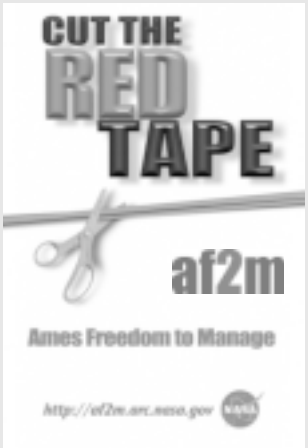

Jean 'the arc jet queen' Brian retires

Jean Brian, affectionately known as 'the arc jet queen,' retired from government service on Nov. 3 after nearly 24 years of dedicated service to the Arc Jet Complex. Brian began her career at Ames in 1976 as an intern in the Foothill-DeAnza work experience program. She was hired as an arc jet mechanic in 1977.

Jean Brian (center) and Fred Bear, retired from Ames (left) and Carlton McMahon, retired from Ames (right). Fred and 'Mac/ were mentors to Jean.

Brian has been an operator and mechanic for most of the facilities that have comprised the Arc Jet Complex over the years. Among the facilities she has operated and maintained are the gasdynamic laser facility, the 2x9 turbulent flow duct facility, the aerodynamic heating facility, the panel test facility, the interaction heating facility, the direct connect arc jet facility, the combined heating facility, and the transitional flow facility.

Brian is well respected among her peers because of her vast experience. Co-worker Larry Hemstreet remembers his first encounter with Brian. "She was telling everybody what to do and everyone followed her directions reverently. She was so in charge of the situation that he thought she must be somebody very important in the organization, maybe even an astronaut. She may not be an astronaut, but she is certainly someone very important," Hemstreet stated.

Brian has been one of the principal driving forces of the team cohesion in the arc jet complex, often taking the lead in team-building activities. She also has been a mentor to all of the current facility operators. Her love for and devotion to her job earned her everyone's respect and fond regard. Brian was not simply content to do her job--she sought to make things better. A prime example of that is her persistence in reintroducing an electrode configuration that has since significantly extended the life of the upstream electrodes.

Brian is the last of the 'old-timers' (no age implication) in the arc jet complex. Her retirement leaves a big hole in the organization, as well as in the hearts of her coworkers.

Brian will be retiring to Bakersfield, where she has bought a house, to be near her family.

BY THE ARC JET CREW

Professor speaks of dark matters at asronomy talk

The Milky Way galaxy was formed primarily through the accumulation of an invisible substance called dark matter and the stars and gas dragged along with it, according to a prominent UC Berkeley professor who spoke in Los Altos Hills recently.

Astronomy professor Leo Blitz spoke about the origins of the universe to close to 700 students, professionals and amateur astronomy hobbyists. His talk, 'The Making of the Milky Way: Survival of the Fittest,' was the first presentation in the Silicon Valley Astronomy Lecture Series, which is being held at Foothill College.

Blitz, also director of the radio astronomy lab at UC Berkeley, maintains that the Milky Way arose from the merging of numerous small galaxies.

How these small galaxies moved toward one another is a subject of some debate. Movement of any sort requires gravity and gravity exists only in the presence of matter. While galaxies undisputedly contain matter in the form of stars, clusters of stars and gases, some scientists such as Blitz contend that the visible matter within these small galaxies does not have sufficient mass to facilitate the merging.

"The Great Nebula in Andromeda and the Milky Way are the largest galaxies in our local group of galaxies, making up 95 percent of the matter in that local group," Blitz said. By implication, the remaining stars and galaxies contain negligible mass.

Proponents of dark matter believe that there is an additional source of matter surrounding the small galaxies like a halo. It is called dark matter because it isn't luminous and has therefore never been seen with telescopes; its components are wholly unknown.

"If the theory of the accumulation of small galaxies to form the Milky Way is proven, it will discredit the earlier idea that the Milky Way formed from the collapse of a single, large cloud of gas," wrote Blitz in electronic correspondence after his talk.

The Silicon Valley Astronomy Lecture Series is jointly sponsored by NASA Ames; Foothill College's division of physical science, mathematics and engineering; the Astronomical Society of the Pacific; and the SETI Institute. This is the series' third year. It is aimed at sharing "the excitement of modern astronomy with teachers, with students, and with the public at large," said Andrew Fraknoi, who chairs the department of astronomy at Foothill College.

November's talk will be given by Dr. Arno Penzias, recipient of the 1978 Nobel Prize in physics. He will give a nontechnical, illustrated talk called, 'A Personal View of the Big Bang.' The presentation is scheduled for 7 p.m., Nov. 13. For more information, call the series hotline at (650) 949-7888.

BY CYNTHIA MARSHALL SCHUMAN
LOS ALTOS TOWN CRIER

Hubbard inspires educators

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most sophisticated airborne flying laboratory and infrared telescope. It will begin operations in 2004. Kepler is a cooperative mission between Ames and NASA's Jet Propulsion Laboratory. It will search the universe for Earth-like planets around distant stars similar to our Earth's sun.

Getting more specifically into the Mars portion of his address, Hubbard explained that to find life you have "to follow the water." On Earth, all forms of life have the presence of liquid water as a common element. Was liquid water present on Mars? Preliminary evidence from past and current Mars probes strongly suggests that the answer is yes, according to Hubbard. What is the most prudent course of action to confirm the physical presence of water and then look for the most likely areas where life may have started? The adopted Mars exploration approach, Hubbard explained, is captured in the phrase'Seek, In-situ and Sample.'

"Taking the strategy of following the water, first we seek -- we do orbital reconnaissance. Then we go to the surface, roam around robotically, and collect ground truth. Eventually, we must bring back a sample -- a piece of Mars," he said. We already have 13 samples from Mars on Earth, Hubbard said, but we don't know from where, at what depth or what age. "What we really need to help us understand the rest of this information is a well-selected sample from Mars," Hubbard explained.

In concluding his comments, Hubbard re-emphasized the importance of NASA's educational effort and the teachers' role in accomplishing the goals of both NASA and educational organizations like the CSTA. "Every time I give a talk at a student function, I find that kids are still interested in dinosaurs and space. There is where we can work with you to provide materials, to bring speakers, astronauts and people who know about the science that we do," he said. This can be the powerful 'hook' that we can jointly use to inspire youth and get them interested in pursuing careers in science, technology, mathematics and engineering, Hubbard suggested.

BY JONAS DIÑO

Panontin earns ASME recognition

The American Society of Mechanical Engineers (ASME) recently recognized NASA Ames' Chief Engineer Dr. Tina Panontin by awarding her with the grade of ASME Fellow.

photo by Luis Mederos

Dr. Henry McDonald with Ames' Chief Engineer Dr. Tina Panontin, holding the ASME Fellow award that she recently received.

Panontin is one of only 23 women out of about 2,400 people to receive such a distinction. She is an inspiration to the next generation of explorers, especially young women.

The Fellow grade is the highest elected grade of membership within ASME, the attainment of which recognizes exceptional engineering achievements and contributions to the engineering profession. Panontin was recognized for her nearly 19 years at Ames in the areas of failure analysis, structural integrity and material performance.

To achieve such a distinction, a candidate must complete a rigorous 11-step process that includes a long-standing ASME membership, development of a nomination package by a primary sponsor, sponsorship by additional ASME fellows, extensive review of the candidate's engineering accomplishments and a vote by a committee of past ASME presidents.

Panontin's work has helped solve numerous complex and mission-critical problems by correctly and efficiently identifying their root causes and developing appropriate, practical solutions. She also is an authority on the micro mechanisms of fracture and the experimental verification of analytical tools for failure prediction and diagnosis.

Former Center Director Dr. Henry McDonald nominated Panontin and presented her with her Fellow certificate on Oct. 1.

BY JONAS DIÑO

'Change Tomorrow Today' -- CFC 2002

'Change Tomorrow Today' is the theme of this year's Combined Federal Campaign (CFC). The 2002 NASA Ames CFC campaign will kick off Nov. 12 and wrap up on Nov. 27.

The CFC supports and promotes philanthropy through an employee-focused, cost-efficient and effective program by providing all federal employees the opportunity to improve the quality of life for all. It was established in 1961 by President John F. Kennedy to consolidate numerous charitable campaigns, allowing for a single annual campaign in all federal, postal and military agencies. Donations to the CFC support more than 2,000 local, national and international charities.

Last year, the federal employees and retirees at Ames contributed more than $263,000 to CFC, exceeding the Ames campaign goal by nearly $40,000.

The kick-off event for the 2002 campaign will be held Nov. 12 at 9 a.m. in the N-201 main auditorium. More details about how you can help 'Change Tomorrow Today' through CFC will be forthcoming.

For further information about CFC 2002, contact campaign chairperson Daryl Wong at ext. 4-6889 or by e-mail at dswong@mail.arc.nasa.gov, or you can contact the deputy chairperson Ann Hutchison at ext. 4-3039 or by e-mail at ahutchison@mail.arc.nasa.gov

F2M Town Hall meeting set

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badge; simplification of the program commitment agreement; 100 percent funds allocation after Congress agrees with NASA's operating plan; elimination of the contract management status report and many others. It is anticipated that when NASA's FY03 appropriation bill is signed, constraints will be lifted to allow R&D funding to contribute to travel needs, which will solve major travel funding problems for scientists and engineers.

The F2M team is visiting Ames to have a direct interaction with our employees and to hear first-hand the obstacles that we face. They are interested in having active discussions with people from all organizations and from all levels. Everyone is invited to bring their concerns and issues to the F2M team's attention. The Freedom to Manage town hall meeting will be held in the main auditorium, N201, from 9:00 a.m. to 10:30 a.m.

In addition to the town hall meeting, break-out sessions will be held with the representatives of the various headquarters offices for more specific discussions in their areas of expertise. Everyone is invited to attend these sessions. Look for centerwide e-mails announcing times and locations for these meetings.

If you would like to learn more about the NASA Freedom to Manage initiative, visit the Web at: http://f2m.nasa.gov

The Ames Freedom to Manage (AF2M) initiative was derived from the agency's F2M lead. AF2M is chartered to identify, evaluate and eliminate barriers found in Ames internal policies and procedures. All Ames employees, including students, contractors and civil servants, are encouraged to visit the AF2M Web site at: http://af2m.arc.nasa.gov to make suggestions for the overall improvement of NASA and Ames.

Center Briefs

NASA researchers developing tools to track and predict West Nile virus

Public health officials may one day be able to better track and predict the spread of the West Nile virus thanks to NASA researchers who are currently conducting Earth science research. NASA's goal is to provide people on the front lines of public health with innovative technologies, data and a unique vantage point from space through satellites, all tailored into useful tools and databases for streamlining efforts to combat the disease.

NASA's public health applications program focuses the results of research occurring at different NASA centers. The program is designed to eventually supply public health agencies with access to NASA's cutting-edge capabilities in formats they can use to better understand how and where West Nile virus spreads, focus resources and stave off the disease more efficiently.

Hubble spots icy world beyond Pluto

NASA's Hubble Space Telescope has measured the largest object in the solar system seen since the discovery of Pluto 72 years ago.

Approximately half the size of Pluto, the icy world 2002 LM60, dubbed 'Quaoar' (pronounced kwa-whar) by its discoverers, is the farthest object in the solar system ever to be resolved by a telescope. It was initially detected by a ground-based telescope as simply a dot of light, until astronomers aimed Hubble's powerful telescope at it.

Quaoar is about 4 billion miles away from Earth, well over a billion miles farther away than Pluto. Unlike Pluto, its orbit around the sun is circular, even more so than most of the planetary-class bodies in the solar system.

NASA to develop biohazard 'smoke' detector

Researchers at NASA's Jet Propulsion Laboratory in Pasadena, Calif., have demonstrated a prototype device that automatically and continuously monitors the air for the presence of bacterial spores. The result is a novel alarm capability reminiscent of smoke detectors.

Current methods for detecting bacterial spores, such as anthrax, require a trained operator. The large number of trained monitors required, and associated costs, limits widespread implementation of these methods.

"Having a technician continuously monitor the air for spores is like having the fire department live at your house to ensure there is no fire," said Dr. Adrian Ponce, a chemist and senior member of the technical staff at JPL. "What you want is a smoke detector, a device that continuously monitors the air for smoke, or in our case, bacterial spores," he said.

Partnership develops new curriculum

The SETI Institute, together with NASA Ames, San Francisco State University and California Academy of Sciences, is nearing completion of Voyages Through Time (VTT), a year-long integrated science curriculum for 9th and 10th grade students based on the unifying theme of evolutionary change.

Voyages Through Time permits student participation via inquiry-based learning.

VTT provides inquiry approaches to the study of astronomy, Earth sciences, biology, anthropology and technology in a cross-disciplinary framework that is the essence of astrobiology. The six modules that comprise the curriculum use the constructivist approach of 'engage, explore, explain, elaborate and evaluate' as an instructional framework. This facilitates active construction of knowledge by engaging the student's interest through appealing 'hands-on' activities, inspiring active experimentation with phenomena of the physical world and fostering cooperation among students. The curriculum is presented on CD-ROM, allowing students rich and varied sources of images, videos, databases and activities.

A pilot version and a national field test version of the curriculum have been tested in over 80 classrooms around the country. The VTT team is completing revisions this year, readying the curriculum for launch in summer 2003. Aligned with the National Science Education Standards, the VTT curriculum will assist NASA in carrying out its education mission "to inspire the next generation of explorers" by providing compelling learning experiences.

Ames has played a key role in the development of this curriculum, with the consulting expertise of many NASA scientists and with support of the NASA Astrobiology Institute and the fundamental biology program. Yvonne Pendleton, an astrophysicist in the Space Science Division, has volunteered as co-investigator and science lead at Ames since 1998. Many NASA employees have also made a significant contribution to this project by checking SETI Institute on their Combined Federated Campaign pledge form. If you are interested in more information about the Voyages through Time curriculum visit: http://www.seti.org/education/vtt-overview.html, or contact Yvonne Pendleton at: ypendleton@mail.arc.nasa.gov.

Safety Data

	Civil Servants	Contractors
Not recordable first aid cases	9	12
Recordable no lost time cases	2	3
Restricted workday cases	1	1
Lost workday cases	0	1

Data above is for August - October 2002.

Riegler named to lead Code S

Dr. Guenter Riegler, a senior executive from the Office of Space Science at NASA Headquarters, has been named NASA Ames' director of astrobiology and space research.

Riegler will assume his new duties at Ames in January. He succeeds Estelle Condon, who served as the acting director of astrobiology and space research at Ames and recently was named an associate director.

Guenter Riegler

"I am delighted that Guenter Riegler will be joining us as our new director of astrobiology and space research," said NASA Ames Director G. Scott Hubbard in announcing the appointment. "I have known Guenter for years and have the highest regard for his excellent leadership skills and his extensive experience with the agency's space science missions. He is an incredible talent and we're fortunate to have him join us. I look forward to working with him."

In his new position, Riegler will direct Ames' extensive research in the field of astrobiology and lead the center's major research activities in space, Earth and life sciences. Riegler has a lengthy NASA history, having worked previously at the Jet Propulsion Laboratory and Goddard Space Flight Center.

BY MICHAEL MEWHINNEY

James Arnold retires after 40 years of NASA service

On Oct. 10, a retirement party was held at the Moffett Training and Conference Center to celebrate the career of James Arnold, retiring chief of the Space Technology Division. Over 140 of his friends and coworkers gathered to wish him well on his retirement. Among the speakers were Ames Center Director Scott Hubbard; former center director Clarence Syvertson; Vic Peterson, Arnold's predecessor as Space Technology Divison chief; Executive Assistant to the Center Director Jack Boyd; and David Cooper, retired from Ames, now at Lawrence Livermore Lab. Cooper worked with Arnold in the early years of his career.

photo by Dominic Hart

Jim Arnold (left) receiving a plaque, recognizing him for his 40 years of federal service, from Center Director Scott Hubbard (right).

Jim Arnold in one of his T-Bird automobiles

The speakers described an enthusiastic young scientist, who arrived at Ames in 1962 ready to contribute to the newly formed NASA's space exploration mission. In his early years at Ames, Arnold grew from a midwestern farm boy with a passion for cars to a seasoned scientist holding a masters degree from Stanford (1967) and a PhD from York University (1972) with a career goal of helping NASA explore the solar system, particularly Mars. During this period he also acquired two beautiful T-Birds, a 1955 and 57, to continue his youthful passion .

During his 40 years of dedicated service to NASA, Arnold was a researcher, branch chief and division chief at Ames and spent a year as the aerothermodynamics program manager at NASA Headquarters. He has led the Space Technology Divison for the past17 years where the agency leads in thermal protection systems, arc jet testing, computational chemistry and nanotechnology research.

His early career as a researcher was spent in the then new discipline of aerothermodynamics, to which he made significant contributions and published extensively.

Arnold played a key role in establishing computational chemistry as a discipline in NASA and served as branch chief of the Ames Computational Chemistry Branch from 1978 until 1985 when he became division chief. Computational chemistry research by this group has significantly improved the technology for calculating the properties of gases required for complex aerothermodynamic analyses of hypersonic flight in planetary atmospheres.

During his tenure Ames extended its world leadership in atmospheric entry technology and thermal protection systems. Among the many contributions the division made were to develop heat shield and aerothermodynamic technology enabling the Galileo probe that succesfully entered the Jupiter atmosphere and the Mars Pathfinder mission that landed on Mars and substantial upgrades to the space shuttle orbiter thermal protection system.

A new discipline, nanotechnolgy was established within NASA by the establishment of the Ames Center for Nanotechnolgy in the division in the late 1990s. This new technology area has grown to international prominence in just a few short years.

Other speakers at the retirement party were the deputy division chief, Carol Carroll, current and former branch chiefs in the Space Technology Division, namely, Paul Wercinski, Dean Kontinos, Joe Hartman, Sylvia Johnson and Meyya Meyyappan, director of Ames' Center for Nanotechnolgy, who each spoke about Arnold's active and innovative leadership of the division and his contributions to their technology areas.

The master of ceremonies was Pat Jones, Arnold's long-time co-worker and friend. Arnold spoke last and thanked the Ames community for the support he received throughout his career and described how proud he was to have worked with and nurtured the careers of so many young scientists and engineers who have accomplished so much and risen to leadership throughout the NASA community. An extraordinary ending to the event was a group photo taken of more than 50 people Arnold had mentored at Ames.

Arnold has been recognized by NASA and the aerospace community for his many contributions. Among his awards have been the NASA medal for Outstanding Leadership in 1986 and the NASA medal for Exceptional Scientific Achievement in 1997. He was the recipient of the Senior Executive Service (SES) Meritorious Executive Award in 1991 and SES Distinquished Executive Award in 1998. He also is a Fellow of the American Institute of Aeronautics and Astronauatics. He has served on numerous NASA and USAF working groups and on the NATO-sponsored Advisory Group of Aerospace Research and Development from 1991 to 1998.

Friends and colleaques at Ames will remember Arnold as an extraordinarily hard working, dedicated manager and mentor who made major contributions to the success of the space technology enterprise and all of its component parts. He helped those who worked with him to perform their jobs in an exemplary fashion and to rise to greater successes themselves because of his help and encouragement.

New travel system coming!

Travel Manager, the new travel system coming to Ames, is what NASA will use to conduct travel-related business. Once rolled out, travel documents will be completed and approved using the Travel Manager system.

The Travel Manager project team is in full force testing the application to ensure it meets the policy and process requirements at Ames. In addition to the team and travel office members, many of those who currently prepare travel documents have been recruited to help with testing. Functional testing concluded Nov. 1 and integration testing (with SAP, the new financial accounting system) commenced Nov. 4.

On Dec. 4, Ames will be hosting an integrated financial management program (IFMP) expo. The Travel Manager team will be available to answer questions and provide Travel Manager demonstrations. More information regarding the expo will be provided at a later date.

Currently, the training for Travel Manager will begin in February 2003. Stay tuned for additional training information including roll-out dates and registration.

Scientist wins award for simulated sub-microscopic parts

Deepak Srivastava, a senior scientist in Code IN, recently won the prestigious scientific Eric Reissner medal. He earned the medal for his years of work in the latest simulation effort on 'growing' atomic-scale 3-D computer circuits that may lead to human-like sensory systems. Srivastava used a computer to simulate molecular carbon 'nanotubes,' so small they cannot be seen with a conventional microscope.

Carbon nanotubes are only a few atoms wide, but these extremely strong tiny carbon pipes someday could be the major pieces from which scientists make future artificial brains as well as tiny machines that may help with tasks as diverse as planetary exploration and the curing of disease.

"We have proposed a system of three-dimensional carbon nanotube networks that could function similarly to a biological nerve system," said Srivastava. "The biologically inspired computer structure will have sensing and learning capabilities similar to a human sensory system."

The International Conference on Computational Engineering and Sciences recently presented the medal to Srivastava during a meeting in Reno, Nev., for his distinguished contributions to nanoscience, "with particular relevance to carbon nanotubes."

"I am pleased NASA Ames' contributions in computational nanotechnology have been recognized through this award," said Meyya Meyyappan, the director of the Center for Nanotechnology at Ames. "Computational nanotechnology has been the trail blazer, uncovering the properties and potential of nanomaterials."

"We are simulating nanotubes for use in three general areas: the next generation of molecular computers, synthetic composite materials and molecular machines," Srivastava said. The carbon nanotube is a new form of carbon. Using several laboratory techniques, scientists grow the tiny carbon pipes that are just a few nanometers in diameter and a few microns long. A micron is one-millionth of a meter. The tubes are stiff and as strong as a diamond.

Scientists want to use carbon nanotubes to build tiny electronic circuits in 3-D arrays, unlike the two-dimensional circuits that are the standard of today's microelectronics industry.

"We recently showed that three nanotubes connected at one place can serve as switches and can process information," he said. "These properties inspired us to consider the concept of a system architecture similar to the biological neural system, but made of synthetic material such as nanotubes or nanowires."

An artificial brain or computing system, if fully developed, could be used to power robotic probes on spacecraft, planets and moons. The computing power of these nanocarbon circuits could be many, many times as great as today's most powerful supercomputer, but housed in a package the size of a small teakettle, according to Srivastava.

Five years ago, Srivastava and his collaborator, Madhu Menon of the University of Kentucky, first proposed and simulated a simple, biological-like, carbon-nanotube branched structure. Srivastava used a powerful NASA computer to simulate and 'see' what the architecture of the nanotube structure would look like. As recently as August, university scientists at Rensselaer Polytechnic Institute (RPI), Troy, N.Y., created the branched nanotube structure that Srivastava had predicted.

"That scientists can make these simple, branched 3-D nanotube structures is a really exciting development," he said. "Using our NASA supercomputers, we now are starting to simulate complex, tree-like carbon-nanotube networks and how these networks can be used for sensing and computing."

"In addition to making computer parts with nanotubes, we envision simulating new materials out of a combination of tiny amounts of carbon nanotubes and traditionally manufactured materials. These composite materials are expected to be much stronger and lighter weight than today's best-known materials used to build airplanes, cars and even spacecraft," he said. "If these materials can be made in large quantities, they could be used to make spacecraft that could be much less massive with the same or better capabilities of today's aerospace systems."

Srivastava is working with a team including scientists from NASA; Stanford University; the University of Kentucky; University of Crete, Greece; and St. Petersburg University, Russia. The NASA Computing, Information and Communications Technology (CICT) Program funds Srivastava's work.

One of the major reasons Srivastava received the award for his work is that he accurately predicted the stiffness, the strength and breaking point properties of carbon-nanotubes and composite materials that contain carbon nanotubes.

"Previously, it was predicted that carbon nanotubes could be stretched as much as 30 percent to 40 percent before they would break, but we recently simulated the more realistic breaking point value to be about 10 percent. This agrees very well with recent experimental observations," he said.

Additional technical information about Srivastava's carbon-nano-tube work is on the Internet at: http://www.ipt.arc.nasa.gov/srivastava.html

BY JOHN BLUCK

Hispanic participation in Ames EAP significant

Since the launch of the Ames Education Associates Program in 1998, over 300 university students have participated in the program. Hispanic students have represented 35 of these positions, a significant contribution to the center. The students have worked in nearly every code at Ames with Code S and Code A sponsoring the largest shares. Also interesting to note is that the Hispanic associates were evenly split between women and men. About half the students came from three universities; namely, San José State, nine students; UC Davis, five students; and UC Santa Cruz, four students. The remainder came from a variety of colleges and universities across the nation including Harvard, MIT, Texas and Turabo University in Puerto Rico. The majority of the interns were undergraduates, while five were graduate students and three were post-doctoral students. Their declared majors are heavily concentrated in science and engineering.

Some selected quotes from our Hispanic students:

• "Working with Jay Nuez, Jim Arnold and Howard Goldstein has brought me to a new level in my education. This summer I worked on calculation ballistic coefficients for the Mars Penetrator using a program written by Gary Allen of Code ASA called 'traj.' This experience went far beyond my expectations. The people at Ames are great. They are fun, energetic and highly intelligent. I never thought I could learn so much in one summer," said Orlando Diaz, from the University of Texas.

• "I was able to assist in different assignments, all touching on various aspects of mechanical engineering. I gained valuable experience in mechanical design, controls and instrumentation, fluid dynamics, machining and tooling and project management. Further, I also gained an important appreciation for skills in communication and teamwork," said José Navarrete of San José State University.

• "I knew that this was going to be an awesome experience and it was all that and more. I only hope to find work this much fun in the future," said Anna Strachan of Harvard University.

Positions at Ames by organization code were: 14 (S), 8 (A), 5 (J), 4 (D), 3 (I) and 1 (T).

For more information about the Education Associates Program, visit the Web at: http://edassoc.arc.nasa.gov

Condon named Associate Director for Astrobiology and Space

Effective Nov. 3, Estelle Condon was appointed to serve as Ames' associate director for astrobiology and space programs.

Condon has been serving as the acting director of the Astrobiology and Space Research Directorate since March 2002. Prior to that, she was chief of the Earth Science Division (Code SG).

photo by Tom Trower

Estelle Condon

With over 20 years serving NASA Ames, Condon's experience in the areas of space and Earth sciences will ensure the continuing missions of the Astrobiology and Space Research Directorate.

"I am looking forward to working with Scott (Hubbard) and the rest of the management team to implement existing programs and create new strategic opportunities for the center," said Condon.

Condon began her Ames career in 1980 as a research scientist in the Space Science Division of the Astronautics Directorate. She worked on a variety of stratospheric and tropospheric airborne experiments and was the first woman to fly an experiment on a NASA platform aircraft.

In 1986, she became the deputy project manager for the stratospheric tropospheric exchange project, which studied the tropical tropopause from Darwin, Australia. In 1987, she became project manager for the Airborne Antarctic Ozone Experiment, the first airborne experiment to study the chemistry and dynamics of the Antarctic Ozone Hole. This experiment determined unequivocally that man-made chemicals were involved in the destruction of ozone over the Antarctic and provided the scientific basis for the amendments to the Montreal Protocol, which banned the manufacture of chlorofluorocarbons. She also managed two other major airborne experiments, the Airborne Arctic Stratospheric Expedition from Stavanger, Norway, and the Airborne Arctic Stratospheric Expedition II from Bangor, Maine.

In 1989, Condon became the deputy chief of the newly formed Earth Science Division and, in 1994, assumed the duties of the chief of the Earth Science Division, an organization with significant and diverse scientific and project management responsibilities for research and projects of national importance and visibility. She has been a member of the NASA Headquarters and inter-center planning teams for the Earth Science Enterprise (ESE) and participated on teams that developed the strategic plan for the entire $1.4 billion program for the ESE and the strategic plan for the education outreach program that ESE supports.

Condon received a bachelor's degree in chemistry from Russell Sage College in upstate New York. She did graduate work at Boston University and Old Dominion University in Norfolk, Va. and graduated from the Stanford Sloan Program in 1998 with a master of science in management. In addition, Condon successfully completed the NASA Senior Executive Service Candidate Development Program (SESCDP) in 1994.

BY KATHLEEN BURTON

Fraknoi earns Sagan award

photo courtesy Foothill College

Popular Foothill College astronomy instructor Andrew Fraknoi has been named recipient of the 2002 Carl Sagan Prize for Science Popularization by Wonderfest, the Bay Area Festival of Science. Foothill College's astronomy department, along with NASA, SETI and the Astronomical Society of the Pacific, co-sponsors the successful Astronomy/Astrobiology Lecture Series--now in its fourth year.

Farley recognized by AIAA

To the general public, Oakland International Airport is the least known of the three major bay area airports, but that is not the case for aviation historians. On Aug. 29, the 75th anniversary of the airport, the American Institute for Aeronautics and Astronautics (AIAA) recognized its place in aviation history.

photo by Emily Springer

Todd Farley was recently recognized with a special service citation by the AIAA.

The designation of Oakland's North Field as a historic aerospace site was made possible by the hard work of the San Francisco Section of the AIAA and Todd Farley of Cole AFA for his dedication to implementing the AIAA grassroots program and having the Oakland Airport dedicated as an AIAA historic site. For his efforts, Farley was recognized with a special service citation.

The historical significance of Oakland started with Charles Lindbergh's historic flight across the Atlantic. Oakland Airport's new runways and facilities were the logical choice as the staging ground for trans-Pacific flights. Amelia Earhart, the 'first lady of aviation,' frequently used Oakland as her point of departure and referred to Oakland as her favorite airport.

The three-day dedication began with a dinner meeting at which an aviation historian detailed the history of Oakland's North Field and concluded with an air show with many of the historic planes that graced Oakland's runways.

BY TOM CLAUSEN

Seminars highlight Commercial Technology Office services

Three different topics concerning technology transfer and commercialization were presented in one-hour seminars to the Ames research community on Sept. 24-26. The goal of the seminar series was to equip Ames employees with the information they need to use the resources and services facilitated through the Commercial Technology Office including applying for awards and recognition.

David Lackner, technology commercialization manager, addresses participants on finding a business partner at the second technology transfer and commercialization seminar sessions.

photos by Lisa Williams

Panelists (left to right) Phil Herlth of Code DK; Rob Padilla of Code DL; and Robin Orans of Code DK present a case study in technology transfer and discuss intellectual property protection and release of software.

The first topic, 'inventors forum, easy steps to protect and promote your discoveries' focused on the invention disclosure and software release process. Protecting the intellectual capital at Ames and assisting with software dissemination was an area that attracted many attendees who were particularly concerned about these issues. The presenters in this session were the Ames patent counsel, Rob Padilla; the software release authority, Robin Orans; and the lead technology commercialization manager, Phil Herlth. This session closed with an invitation for researchers and engineers to call the Commercial Technology Office to discuss any potential new inventions or software.

Many of the services for facilitating disclosure and dissemination of technology were covered including Web release, conferences, journals and using affiliate networks.

The second seminar topic, 'how to find a supporting partner--the role and resources of the Commercial Technology Office' was presented by David Lackner of the Commercial Technology Office and Rick Ballard of the Girvan Institute. The presentations compared and contrasted their organization's strengths for providing resources to Ames researchers. David Lackner, the presenter from the Commercial Technology Office, covered six examples of successful partnerships that have happened within the last few years.

The final seminar, 'the NASA Space Act Award program--how to qualify and apply for awards,' was a special overview of the Space Act award program by Walter Hussey staff director of the Inventions and Contributions Board from NASA Headquarters. In fact, Hussey was at Ames most of the week and met with several individuals and teams at Ames, encouraging them to submit significant research projects for a Space Act award. The Inventions and Contributions Board meets periodically to review submissions and rates them on achievements in research excellence, cost savings to NASA, improvements in efficiency and significance to the space program. This presentation was encouraging and motivated the attendees to pursue participation in the awards and recognition opportunities. For more information about applying for an award, see the NASA form 1329 for the criteria. The main point of contact at Ames for the Space Act award program is Betsy Robinson, who can be contacted at ext. 4-3360 and by email at: brobinson@mail.arc.nasa.gov.

A total of 46 civil servants and contractors attended the technology in partnership seminar series from Codes A, D, F, I, J and S. Most participants came to two or more of the three sessions. In addition, 90 separate handout packets were distributed and the sessions were videotaped.

Based on feedback from the attendees, Ames Commercial Technology Office will continue to offer these and other seminars in 2003.

Anyone who missed the seminar series and would like to view the video tape or request handout materials can contact Charissa Kolar at ext. 4-0894 or email at: ckolar@mail.arc.nasa.gov.

BY CHARISSA KOLAR

Code JT services

The Eudora e-mail system has been upgraded to version 5.0 for MAC and version 5.1 for PCs. Both versions can be downloaded from the new email Web site at: http://amesemail.arc.nasa.gov. Older versions will not be supported after Dec. 1, 2002.

Further, the CorporateTime calendar also has been upgraded to version 5.2.3 for the MAC and version 6.03 for PCs. Both versions are available for download at: http://amescalendar.arc.nasa.gov. All users must upgrade to the newer version to comply with the maintenance agreement. As with Eudora, older versions will not be supported after Dec. 1, 2002.

As part of the agency approach to 'One NASA,' we are unifying the e-mail addressing scheme for all civil servants. The Johnson Space Center (JSC) is responsible for implementing this on behalf of NASA. JSC's go-live date was Oct. 21. Ames' go-live date is scheduled for December 2002. Contractors will not be affected.

NAI Nobel Laureate named

Dr. Sydney Brenner, who previously advised the director of NASA Ames in the early stages of developing the NASA Astrobiology Institute, has been awarded the 2002 Nobel Prize in physiology or medicine. Brenner shares the award with H. Robert Horvitz and John E. Sulston.

Their work on C. elegans, a small (1 mm) worm, proved it to be a novel experimental model organism. "The Laureates have identified key genes regulating organ development and programmed cell death and have shown that corresponding genes exist in higher species, including man. The discoveries are important for medical research and have shed new light on the pathogenesis of many diseases," said the Nobel Assembly at Karolinska Institutet.

Brenner has served as a member of the distinguished NAI Director's Science Council from the time of its establishment by Director Baruch Blumberg.

Web page emphasizes coordinating nondiscrimination efforts

Cari Dominguez, chair of the Equal Employment Opportunity Commission, recently announced a new Web page describing the agency's role in coordinating the federal government's efforts to eradicate discrimination in the American workplace. The Web page, which may be accessed through www.eeoc.gov, highlights the EEOC's leadership in ensuring that federal agencies work together in opposition to workplace discrimination.

The new Web page, entitled "EEOC Coordination of Federal Government Equal Employment Opportunity in the Workplace," contains links to legal materials that can help federal agencies coordinate their efforts, including:

• Executive Order 12067, through which EEOC is required to review federal government regulations and other policy documents that may affect the enforcement of federal EEO laws and the rights and duties of workers and employers;

• 29 C.F.R. Part 1690, 'Procedures on Interagency Coordination of Equal Employment Opportunity Issuances,' which contains procedures for coordination between EEOC and other federal agencies having responsibility for enforcement of federal statutes, executive orders, regulations and policies that require equal employment opportunity;

• 29 C.F.R. Part 1691, 'Procedures for Complaints of Employment Discrimination Filed Against Recipients of Federal Financial Assistance,' which creates the rules for coordinating enforcement of Title VII and other federal statutes; and

• Section 107(b) of the Americans with Disabilities Act of 1990, 42 U.S.C. §12117(b), which requires coordination of disability discrimination charges that may be filed under either the ADA or the Rehabilitation Act, in order to avoid duplication of effort and prevent imposition of inconsistent or conflicting standards.

The Web page also provides links to memoranda of understanding between the EEOC and other federal agencies which may share overlapping jurisdiction. The MOUs are designed to ensure that the claims of individuals seeking the protection of federal nondiscrimination law will be addressed even if they are not filed with the proper agency. The MOUs also can protect employers from having to defend claims before multiple departments or agencies. Finally, the Web page provides links to Web sites of other federal agencies that play a role in the federal government's effort to combat workplace discrimination, such as the Department of Labor's Office of Federal Contract Compliance Programs and the Department of Justice's Civil Rights Division/Coordination and Review Section.

For assistance with Ames-related EEO matters, visit the Equal Opportunity Programs Office in Bldg. 19 or call ext. 4-6507 to request an appointment with an equal opportunity specialist.

Ames' annual chili cook-off - a good time had by all!

photos by Tom Trower

New Goddard research method presented at Ames

The Commercial Technology Office coordinated a week of activities in September to introduce a new research method developed by Dr. Norden Huang of NASA Goddard Space Flight Center to the Ames research community.

photo courtesy of Goddard Space Flight Center

Norden Huang (left) receiving a 2001 R&D 100 award from Al Diaz, Director of Goddard Space Flight Center.

Huang presented his innovative method for non-linear and non-stationary data analysis known as the 'Hilbert-Huang Transform (HHT) Technology.' This methodology is useful for analyzing vibration in bridges, buildings and machinery, as well as for analyzing acoustic and other non-linear signals.

The new methods were presented to senior researchers and managers in a briefing session in September. Twenty Ames researchers participated in a three-day training course held in the Moffett Training and Conference Center. The first part of each day was lecture style instruction and the afternoons were hands-on computer lab time. Huang was available for individualized questions and problem solving. The comments received from the participants were largely positive. Some quotes from the course surveys noted students found the material "very stimulating" and "the individual one-on-one lab in the afternoon was very helpful."

As a follow up to the course, the Commercial Technology Office is facilitating a government transfer agreement to obtain copies of the source code for Ames. As a result of the training, many of the Ames scientists and engineers want to apply the HHT method to their own applications. It is also a possibility that Huang may pursue some joint research opportunities with Ames scientists. Because of the unique applications for HHT at Ames, many interesting ideas for collaboration were discovered during his visit.

In addition, on the last day of Huang's visit the Girvan Institute of Technology introduced some local company representatives to Huang. They met to discuss potential ideas for commercial adaptations of his technology. The HHT technology is comprised of four patents and is available for commercial license.

Huang is a senior fellow and the chief scientist for oceanography at NASA Goddard Space Flight Center. He holds a doctoral degree in fluid mechanics and mathematics from the Johns Hopkins University.

If you would like information about the HHT technology, contact the author in the Commercial Technology Office at: ext. 4-0894 or by email at: ckolar@mail.arc.nasa.gov.

Computer History Museum presents

Date: Thursday, Dec. 5
Event: Bridging the Gap
Speaker: Alan Cooper, CEO, Cooper Software, Inc.
This is an SDForum series lecture on the future of software development
Co-hosted by the Computer History Museum
Web site event URL:
http://www.sdforum.org/p/l1.asp?pid=546&sid=3

Date: Tuesday, Dec. 10
Event: An Evening with Steve Wozniak
Speaker: Steve Wozniak, co-founder Apple Computer
Time: 6:00 p.m. member and VIP reception
-- Computer History Museum, Bldg. 126
7:00 p.m. Lecture
-- Moffett Training and Conference Center, Bldg. 3, Moffett Field
Web site event URL:
http://www.computerhistory.org/events/lectures/wozniak_12102002/

AAS conference to focus on technologies/partnerships

'Technologies and Partnerships: Innovations for Space Exploration' is the theme of the 2002 National Conference and Annual Meeting of the American Astronautical Society (AAS).

The conference will be held Nov. 19-21 at the Four Points Sheraton Hotel located at 1250 Lakeside Drive in Sunnyvale. The conference will provide a forum for engineers, scientists and policy makers from industry, government and academia to discuss the impact on space exploration missions from breakthrough technologies. New approaches to partnering with NASA and other government agencies also will be discussed.

Among the scheduled speakers are James Crocker, vice president, Space Exploration Systems, Lockheed Martin Space Systems Co., who will discuss 'NASA's Nuclear Systems Initiative: An Industry Perspective,' at the conference's opening day luncheon on Nov. 19. Also featured on the first day of the conference will be the presentation of the 2002 Carl Sagan Memorial Award to the California and Carnegie Planet Search Team. Distinguished physicist Dr. Paul Davies is scheduled to address the conference at the awards banquet. Topics to be discussed during the conference include information technology, biotechnology, new technologies and innovative partnering.

Ames Center Director Scott Hubbard is the honorary chairman of the conference, which is being held in cooperation with the SETI Institute. NASA Ames civil servants do not need to pre-register, but will need to bring their NASA employee badge in order to attend the conference. Ames employees are invited to attend the opening day reception and technical sessions without charge.

Established in 1954, the AAS is a professional, non-profit organization dedicated to the knowledge of, support for and interest in space activities through technical journals and publications, symposia, national conferences and education initiatives.

For additional conference information see: http://www.astronautical.org

BY MICHAEL MEWHINNEY

Halloween costume contest draws in the spooks

Above: Oct. 31 Ames Exchange Halloween costume contest winners, from left to right: 'Robot Man' by Randy Baldovino, received 2nd place; 'Boba Fet' by Jason Maiser received 3rd place; 'Big Hands and Big Mouth Monster' by Joey Kearin won 4th place; and 'the Old Lady' by Carla Kearin was the 1st place winner.

photos by Dominic Hart

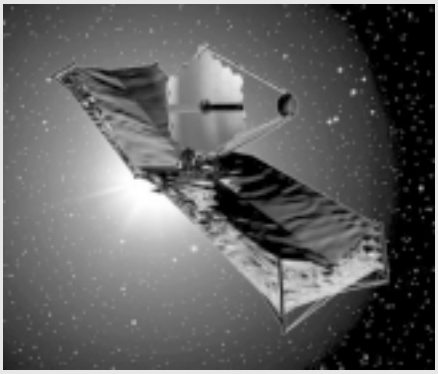
NASA Ames plays key roles in space telescope project

NASA Ames is making important contributions to a major agency space science project, which recently selected its prime contractor, and received a new name from Administrator Sean O'Keefe. On Sept. 9, a team lead by TRW was selected to build the James Webb Space Telescope (JWST), formerly known as the Next Generation Space Telescope. The JWST project will develop and launch in 2010 a telescope with over 6-meter aperture to be stationed at the L2 libration point, 1.5 million kilometers from Earth. JWST will be the successor to the Hubble Space Telescope, and is developed in a partnership between NASA, the European Space Agency and the Canadian Space Agency.

Bernie Seery of Goddard Space Flight Center (left) presents Craig McCreight (right) the JWST Project's Technical Excellence plaque at the SPIE Astronomical Telescopes and Instrumentation conference in August.

JWST will study fundamental astrophysical questions of the early universe, including the nature of the first galaxies, which were formed within a few hundred million years of the 'Big Bang.' JWST also will probe the formation of planets in disks around young stars, the formation of stars and brown dwarfs and study supermassive black holes in other galaxies. Ames' expertise in infrared astrophysics and technology development is being tapped as the mission moves forward beyond the initial conceptual stage.

Two Ames scientists with extensive project science responsibilities on the Stratospheric Observatory for Infrared Astronomy (SOFIA) and Space Infrared Telescope Facility (SIRTF) projects will be involved as science team members and co-investigators for the JWST instruments. Both Tom Greene and Tom Roellig of the Astrophysics Branch are members of the recently selected near-infrared camera (NIRCam) science team, for which Dr. Marcia Rieke of the University of Arizona is the principal investigator. Greene will support development of the instrument, especially its detectors, and will undertake research on star formation and protostars. Roellig's role on the NIRCam instrument team will include science studies of the formation of galaxies and high-redshift quasi-stellar objects as well as assisting in the development of the instrument electronics and software. Greene also has been selected as a key member of the international science team for another JWST instrument, the mid-infrared instrument (MIRI). This instrument will provide both imaging and spectroscopic capabilities in the mid-IR. The principal scientist is Dr. George Rieke, also of the University of Arizona.



Artist's concept of 6-meter, passively cooled James Webb Space Telescope in the design submitted by the newly-selected prime contractor.

Since 1996, Craig McCreight (Sensors and Instrumentation Branch) has been Ames' representative on the JWST core project team and has been responsible for managing the development of the advanced infrared (IR) detector technology needed for the mission. JWST instruments will fly mosaics of very large, low-noise IR detector arrays, with formats up to 2048 x 2048 pixels and unprecedented sensitivity. Prototype devices of this scale that meet the mission's sensitivity requirements are now under evaluation in a network of laboratories, including the one at Ames. Detailed laboratory and cyclotron tests of both competing technologies for NIRCam application (indium antimonide and mercury cadmium telluride arrays) are being conducted at Ames by a team that includes Mark McKelvey, Bob McMurray, Kim Ennico, Roy Johnson, Bill Ogilvie (of TechnoScience), John Estrada and Nick Scott (Caelum).

At a JWST team meeting in August, McCreight was presented the JWST project's technical excellence plaque by the project manager, Bernie Seery of Goddard Space Flight Center. McCreight was cited "in recognition of the achievement of ultra low noise detectors for NASA and NGST." This plaque has been awarded only three times in the past, to recognize enduring contributions to the project. Previous recipients include Dr. Pierre Bély of the Space Telescope Science Institute, Dr. David Redding of JPL and Dr. Matt Greenhouse of GSFC.

Activities in science definition, instrument development and flight focal plane development will accelerate, in support of future JWST milestones, including IR detector vendor selection in the summer of 2003, the start of the implementation phase (Phase C/D) in 2004, the delivery of the instruments at the end of 2007 and the launch at the end of the decade.

IFMP Expo set

Date: Dec. 4
Time: 10 a.m. to 2 p.m.
Place: Moffett Training and Conference Center Ballroom

Explore exciting new business tools. There will be hands-on demonstrations of IFMP software; a panel discussion with a Q&A session; and a change management workshop. There also will be a raffle, food and give-a-ways.

For more information, visit: http://www.ifmp.arc.nasa.gov

VPP STAR Tip

When asked, employees at all levels can explain the priority of safety and health in relation to production and quality.

....Margaret Richardson, in Preparing for the Voluntary Protection Programs, Copyright @ 1999 by John Wiley & Sons

Safety is mission one!

Do you have any guess as to how many machine tools are here at Ames? If you speak to Deborah Wood, Khoa Nguyen, Scott Nikodym, Paul Grams, Carlos Brown, Deborah Hunter, Dave Scimeca or Jon Lautenschlager, your guess is liable to be far more accurate. As part of the machine shop safety task force, they have evaluated the extensive machine tool inventories for their respective organizations. In fact, spread out among 34 separate shops are approximately 1,000 drill presses, lathes, band saws and mills.

The task force was formed in response to an OSHA visit that identified the lack of proper machine guarding as a major issue. The task force members began by identifying underutilized equipment for excess and coordinating equipment or property clean-up. They studied OSHA standards and researched options on how to best protect workers on each machine. The task force then coordinated the evaluation and selection of cost effective machine guarding, implementing the installation of all guards within their organization. Ultimately the task force determined that:

1) All organizations that own machine shops are responsible for identifying and installing appropriate guards for their machines;

2) Guarding can either be permanent (affixed to the machine tool) or just used during work operations being performed on the machine tool;

3) Machines too large to guard will be safeguarded by limiting access into those areas by the Ames public and/or requiring personal protective equipment (PPE) to be worn when entering that area;

4) All directorates are responsible for the maintenance and the on-going requirement of guarding machine tools in their organizations.

The machine shop safety task force is an excellent example of VPP principals. A problem was identified. Task force members were selected from employees throughout the directorates. The employees studied and researched the problem. In the end, implementation was effective because the task force was comprised of line organization representatives and a dynamic leader.

If you would like to be involved in making Ames a safer place to work, call your VPP directorate leader to volunteer for a safety committee or the Health and Safety Office at ext. 4-5602.

Dalton named Astrobiology and Space Research Deputy Director

After completing her master's thesis and oral presentations, her advisor took her down for a cocktail and asked what she was going to do in the future. "Well, I'd like to work for the government eventually," she said. "Well," the advisor replied, "I don't think you really want to do that, because you'll probably not go any further than a GS-11."

Little did that teacher know, that his student would become an SES. In fact, she is now Ames' own new deputy director for the Astrobiology and Space Research Directorate.

Dalton, who started her career at NASA as a bacteriologist at Ames in 1963, has contributed to the life sciences program in several capacities: as payload manager for Spacelab missions; branch chief for the Science Payload Operations Branch; and deputy division chief and division chief (acting) for the Life Sciences Division.

She has played a key role in the development of requirements and budgets for Ames' participation in the International Space Station. In addition, she has focused the division's research on molecular biology and the use of both hypergravity and artificial microgravity to understand the elemental forces controlling the protein structures and subsequent biological systems, along with expanding the division's bio and nanotechnology capabilities and applications.

Bonnie Dalton

Dalton's first operational experience was during the Viking project. "One of my best memories is the early operations when we were first trying to figure out how to do it," she says. "Since school age, my primary interest was always in science, but later, it evolved into management."

As a deputy director of the Astrobiology and Space Research, Dalton is responsible for the entire Code S, which includes space projects, Earth science, life science and space science.

"The biggest challenge of my new role is to become familiar with all the areas of Code S," she said. "Now, I need to know so much more about SOFIA, Kepler and other projects. But what I would also like to do is to build strong collaborations between researchers, not only within the Astrobiology and Space Research Directorate, but also with other organizations here at Ames."

By encouraging the Ames community to take advantage of new technologies and spin off of each other's work, she hopes to help Ames' research community to conduct the best science possible.

Dalton also hopes to make life sciences more visible. "This research effects the external world, but people might not understand how relevant these things are," she said. "This is going to a journey," she added smiling.

Dalton has a master's degree in microbiology from Montana State University, and an MBA in management and finance from Golden Gate University.

BY VICTORIA STEINER

Event Calendar

Ames Amateur Radio Club, third Thursday of each month, 12 noon, N-T28 (across from N-255). POC: Michael Wright, KG6BFK, at ext. 4-6262.

Ames Ballroom Dance Club. Classes on Tuesdays. Begin classes at 6:15 p.m. Higher-level class meets at 5:15 p.m. Held in Bldg. 944, the Rec. Center. Holiday Ball set for Dec. 14. POC: Helen Hwang, hwang@dm1.arc.nasa.gov.

Ames Bowling League, Palo Alto Bowl on Tuesday 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 Child Care Center Board of Directors Mtg, every other Thursday (check Web site for meeting dates: http://accc.arc.nasa.gov), 12 noon to 1:30 p.m., N-215, Rm. 212. POC: Tom Maier, ext 4-3643.

Ames Contractor Council Mtg, first Weds ea. mon, 11 a.m., N-200, Comm. Rm. POC: Bob Javinsky, ext. 4-5301.

Ames Diabetics (AAD), 1st & 3rd Weds, 12 noon 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 Federal Employees Union (AFEU) Mtg, third Wednesday of ea. month, 12 p.m. to 1 p.m., Bldg. 19, Rm 1042. Info: http://www.afeu.org. POC: Marianne, ext. 4-4055.

Ames Model Aircraft Club, flying radio-controlled aircraft at the north end of Parsons Ave. on weekend mornings. POC: Mark Sumich, ext. 4-6193.

Ames Sailing Club Mtg, 2nd Thurs of month, 11.30 a.m. -1 p.m. POC: Diane Purcell ext.4-3232. Check Web site for calender of events, http://sail.arc.nasa.gov

Environmental, Health and Safety Information Forum, first Thursday of each month, 8:30 a.m. to 9:30 a.m., Bldg. 19/ Rm 1040. URL: http://q.arc.nasa.gov/qe/events/EHSseries/ POC: Julie Quanz at ext. 4-6810.

The Hispanic Advisory Committee for Excellence HACE Mtg, first Thursday of the month in N255 room 101C from 11:45 a.m. to 12:45 p.m. POC: Eric Kristich at ext. 4-5137 and Mark Leon at ext. 4-6498.

Jetstream Toastmasters, Mondays, 12 p.m. to 1, N-269/Rm. 179. POC: Cathy Payne at ext. 4-0003.

Model HO/HOn3 Railroad Train Club, Bldg. 126, across from south end of Hangar One. Work nights: usually Fridays, 7:30 p.m. to 9:30 p.m. Play time: Sundays, 2 p.m. - 4 p.m. John (408) 735-4954 (W) or (408) 281-2899 (H).

Nat'l Association of Retired Federal Employees, (NARFE), 1st Fri. of ea. month. Join to protect your fed. retirement. S. J. Chptr #50. Dec. 6, Christmas Program, Harry's Hofbrau, 390 Saratoga Avenue, Santa Clara. POC: Earl Keener (408) 241-4459 or NARFE 1-800-627-3394.

Native American Advisory Committee Mtg, 4th Tues each month**,** 12 noon to 1 p.m., Bldg. 19, Rm 1096. POC: Mike Liu at ext. 4-1132.

Join the carolers!

Each year, a group of Ames employees spends part of one day walking around the center bringing holiday cheer by singing holiday carols to the Ames employees as they work. This has been well received throughout the years and it would be nice to keep the tradition going.

Practices are held during at least one lunch hour during the week (day to be determined) and will be held in B226, Rm 218.

If you are interested in participating this year, contact Astrid Terlep at: aterlep@mail.arc.nasa.gov

Let Mega Bites do the cooking!

The holidays are coming upon us quick. That means a lot of shopping to do and a lot of last-minute planning. Let the Mega Bites Cafe cater your holiday meal. Whether it is a pot luck lunch or your holiday dinner, we can do it all, from turkey with all the trimmings to your holiday pies. We will be taking orders for your holiday meals starting Nov. 1 thru Dec. 20. Please give at least a 72-hour notice.

Turkey dinner includes the following for $26.95 per person. Ham dinner $27.95 per person

Whole turkey or sliced ham
Cranberry sauce
Mashed potatoes, stuffing and gravy
Buttered corn or green beans
Dinner rolls
Assorted sodas
Coffee
Pie (apple,pumpkin,pecanor cherry)

For more information, contact Karen McIntyre ext. 4-5969 or e-mail her at kmcintyre@mail.arc.nasa.gov

Fifth annual holiday ball set

Come to the Ames Ballroom Dance Club's 5th annual holiday ball. This year, the club is proud to present a spectacular dance showcase by Anton Domansky and Erica Ridgeway, 2001 and 2002 U.S. amateur youth champions in the international standard and 2001 U.S. amateur youth champions in 10-dance competition.

Other highlights of the evening will include dance lessons, hors d'oeuvres, door prizes and, of course, lots of fun dancing with your friends and co-workers.

Reserve the date: Saturday, Dec. 14. Buy your tickets early. Watch for more information in e-mails and flyers. For more information, contact Adam Sweet at ext. 4-2979.

Dance champions Anton and Erica displaying their artistry.

Holiday food and toy drive set

This year's holiday food and toy drive will support the Sacred Heart Community Services. The drive will be held Dec. 2 through Dec.13.

All non-perishable food items and toys may be dropped off in the Ames Cafeteria.

Your support is sincerely appreciated.

For more information, contact Angela Ortega at ext. 4-1733.

Recycles Day at Ames

Commemorate 'America Recycles Day' by joining Codes JFS and QE at the Ames Mega Bites Café on Wednesday, Nov. 13.

Representatives from the Logistics Recycling and Environmental Services Office will be on hand from 11 a.m. to 1 p.m. to answer questions about recycling at the center and buying products that contain recycled material.

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. Caveat emptor!

Housing

Furnished room in 3bd/2ba MV twnhs, close to dwntwn., 1.5 mls. to Ames. $600 rent. Share w/prof'l female and cat. Priv. bthrm. Complex has tennis crts, pool and hot tub. Female preferred. N/S. Call (650) 254-1121.

For rent: Berryessa townhouse, 3bd/1 ba, 2-car garage. $1,700/mo. Flora (408) 592-7101.

Looking for roommate to share lrg 3bd/2 ba in San José. Private room, bath and garage. $650/mo. plus half utilities. Call (408) 644-2699 or (408) 526-4581.

Nice 2bd/1ba house for rent in S'vale, avail. Dec. 1. Hardwd floors, gas stove, D/W, W/D, two-car garage, fruit trees. Jacuzzi, hot tub and bistro area in yard w/safety/priv. fence. Quiet nghbrhd. Nr dwntwn, 10 mins to Ames. $1,800/mo. plus utils. Call (408) 733-0304.

For sale: Executive twnhs in Los Gatos, very priv. end unit, next to the Rinconada Golf Club, remodeled kitchen, priv. spa, fireplace, wet-bar, cent'l vac & A/C, priv. ofc, skylight. 109 Oakland Pl, Los Gatos. Willing to rent. Easy commute to Ames. Call (256) 508-0437.

For rent, beautiful 2-story, 3-bd/2.5-ba twnhs w/priv. yard in MV. Fireplace. All elect. kitch. W/D, sgl car garage, storage. Wired for 2 phn lines and cable/off-air TV. New wood floors. Nr 101, 85, 237, Cent'l Expy & light rail. Prefer no pets. $2,195/mo. Gary (650) 430-0374.

For rent: 1bd/1ba cottage on Rdwood City/Atherton border,10 mls to Ames; full kitchen, bath, bdrm and liv. rm. Cottage on owner property in gated yard, fruit trees. $950/mo.; gas/elect/wtr/garb incl; first/last/$250 sec. dep; month-to-month lease, no pets; N/S. Call (650) 369-0993.

Large furnished room (bed, TV, desk) in 2 bdrm apartment, 5 minutes to Ames, in Mt. View. $710/month plus utilities. Call (650) 964-5414.

Room for rent for N/S adult-own bathrm, priv. phn line/cable, laundry, yard, pet other than cat/dog may be ok, $540/mo plus 1/2 utils. N. Fremont, near 880/Dumbarton Bridge. Carpooling may be possible. Call (510) 797-7442 or (510) 226-2428.

Miscellaneous

Two 'Million Dollar Baby' med. oak cribs. Great condition. New $250 ea; Selling both for $175 or $90 ea. Includes Simmons mattresses. E-mail for photo at: sbcon12@pacbell.net or Connie (408) 246-5295.

Solid oak desk for sale. 6ft long and 3ft wide. Very well made with dovetailed drawers and ball bearing sliders. Two drawers on each side with a center drawer. Photo at: http://home.netcom.com/~wpturtle/P9170098.JPG. $225 or B/O. Call (650) 949-0793.

Dining table set, ratten wood. Glass oval table top (65 x 42 3/8" thick) and 4 comfortable cushioned swivel chairs with arms. B/O. Shirley (408) 777-0277.

Portable hand-carved bar with marble inlay. Paid $1,200, asking $500 or B/O. Solid wood and glass coffee table w/end tables, paid over $1,000, asking $550 or B/O. Fernando/Jan at (209) 836-4290 after 6 p.m.

Woman's 21 spd bicycle. Huffy. Excellent cond. $30 or B/O. Rolling machine, Mint. Cond. $10 or B/O. Felix (408) 253-5458.

Fluorescent light box, 3ft. x 2ft. window, heavy duty with legs and lamps. Perfect for drafting, sorting slides, transparencies, etc. $25 or B/O Call (925) 447-2937.

Hang glider for intermediate to advanced rated pilots. Wills Wing Sport AT 167, very good condition, $1,000 or B/O. Bob (408) 732-4471.

Great Books of the Western World - beautiful bindings, 1960's edition, $300 or B/O. Call (408) 293-2140.

White desk w/two draws, comes w/chair and a small book shelf, desk is in exc. condition and big enough to place a computer on. $100 or less. Maria (650) 345-2069.

Palm V w/many extras incl. kybrd, 2 cradles, etc., (8mb RAM), $115; HP calculator 32 SII programmable w/manual, $45; Sharp electronic organizer (pocket size), 128kb, $20; Iomega Zip drive, 100mb cap., external w/case, for Mac, $45; Yamaha steel string guitar, F-310 w/softcase, brand new, $120; Seiko gold watch quartz movement, $70. Kevin (408) 723-2115.

HealthMax treadmill w/digital monitor/pulse ear clip, Used little. $220. Pick-up at office or shipping addl. $50. Exercycle Excel/Ergo, exc, little use, solid. Flywheel tensor, handlebar and seat adjustments, Speed, revolution & watt consumption indicator, timer. $135. Details, photo, email mlackner@horizoncable.com or call David (415) 382-1930.

House-sitting services available for Moffett/South Bay area. $20/day. Pets, plants, mail, etc. included. Reliable, experienced, 29 year-old female. Call (650) 248-5755.

Credenza/hutch, 20in x 30in x 46in, beautiful honey-laquer finish, exc. condition, $350. Call (650) 473-0604.

Line 6 Amplifier, model 112. Excellent condition, one year old. Asking $290. Jon (408) 448-6118.

NASA souvenir (12) decorated glasses (hi-ball,16 oz+) commemorating early Apollo space shots. Outstanding collectible set, mint cond. $65. Call (530) 823-0260.

Depression glass dinnerware, 57 pieces, topaz (yellow), perf. cond. Sacrifice $125. Call (530) 823-0260.

Line 6 amplifier, model 112. Excellent condition, one year old. Asking $290. Jon (408) 448-6118.

15' Larson Powerboat, 1990 All American 150, trolling motor, fish finder, bimini top, '91 Pacific Trailer. $3,800 or B/O. Call (408) 274-3348.

Pairs of San José Sharks tickets in section 209 available for games on Dec. 12, Jan. 6, Jan. 30, Feb. 24 and four tickets for Feb. 5. Call (408) 735-0524.

Bike carrier for car holds up to 3 bikes. Pre-assembled bike carrier only rests on bumper surfaces, not on trunk or window of vehicle and allows rear wiper operation. $90 or B/O. Jim Sr. (415) 333-1656.

Floral pattern couch transforms into a queen-sized bed. Circular, wooden dinette set w/4 white, cushioned chairs, great cond. In Union City near H880/Whipple. B/O takes! Call (510) 489-8037 or mcfarland@abac.com.

14' Starcraft bass boat. 25 hp motor, auto ignition and hand crank, low hours. Two deep cycle batteries. Auto pilot trolling motor and fish finder. $5,000 or B/O. Call (408) 265-8316.

Free hot tub. Electric 220V 40A, seats 4. Good condition. Call (650) 390-9668.

Transportation

'88 Ford Mustang LX, V8, 5.0, convertible, runs good, 200K mls, automatic. Blue body/black top. AM/FM Cass. radio. $2,000 or B/O. Reutzel@aol.com or (408) 732-6712.

'86 Toyota MR-2, black, 5 speed. A/C,190K highway mls, AM/FM cass. Fun, economical 2 seater with sunroof. $1,800. Ed (650) 948-8035 leave msg.

'90 Ford Ranger truck, long bed, automatic, V-6, camper shell and carpet kit included. Good condition. $2,000 or B/O. Robert (408) 371-6739.

'92 Chrysler Twn & Cntry minivan, 7 pass, Champagne w/woodgrain appliques, 131K mls, V-6, Quad seating, leather, A/C, PS, PB, PW, PDL, tilt, cruise, AM/FM stereo, cass., runs good, very clean interior, no dents, good paint and tires, one owner, $3,500. John (408) 731-1391.

'95 Ford Taurus GL Sedan, 4dr, AT, AC, AM/FM cass. power locks/windows, $3,550 or B/O. Call (408) 264-4627.

'97 Yamaha Virago XV 1100 Special, black, chrome, 5,300 mls, windshield & saddlebags, tank and 'T' bag storage, service records, $5,200. Call (408) 846-1016.

'98 Toyota Corolla. Runs like new. Clean inside and out. Always dealer serviced. 4-cyl Auto, A/C, AM/FM radio and CD, 35K mls. $9,500 or B/O. David (415) 382-1930.

'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) 385-1678 cell or (415) 371-1371 home.

'98 Ford Explorer Sport, PS, PW, AC, 5 speed, 2WD, extended warranty, awesome stereo w/box two 12 inch subs, 2K investment, low miles 58K. $11,300 or B/O. (408) 945-1152 or email doboyyy@hotmail.com.

'98 Ford Taurus SE station wagon, white, 3rd seat, new transmission, 90K freeway miles, excellent condition; $6,000. Call (408) 271-9676 or (707) 745-5149 eves.

'00 Chevy Impala, fully loaded, AM/FM, CD, A/C, pwl, pww, tilt, pw seats front, 3 computers, ABS, plus much more. Assume lease or buy. Bob (408) 736-4039 or (408) 348-4039 cell/day number.

'00 Honda motorcycle, Sabre VT1100C2,5000 mls, has DG hard krome kickers, jet kit and Dyno tuned. Bob (408) 736-4039 or (408) 348-4039 cell/day number.

'00 Land Rover Discovery II dark blue, fully loaded with seating 7 Sports addition with active suspension 18" rims, 35,800 mls, $29,995 or B/O. Tim (408) 505-9777.

Car Pool

Wanted, car poolers from Marin County (Highway 101 x Highway 1). If you are currently car pooling from this area, or are interested in setting one up, call Al Kile (925) 461-5048 residence or ext 4-1221.

Lost and Found

Lost: White gold diamond bangle braclet. Kathy ext. 4-2752

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.

NASA Lodge (N-19) 603-7100

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

Vacation Opportunities

Lake Tahoe-Squaw Valley Townhse, 3bd/2ba, Balcony view, horseback riding, hiking, biking, golf, river rafting, tennis, ice skating, and more. Equipped. Summer rates. 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, frplc, BBQ, priv. boat dock. Sleeps 8. $1,050/wk. Call (559) 642-3600 or (650) 390-9668.

Big Sur vacation rental, secluded 4bd/2ba house in 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.

Tahoe Donner vacation home, 2 bd/2ba. trees, deck, sun, fun. Access to pools, spa, golf, horseback riding, $280 wkend, $650 week. Call (408) 739-9134.

Send my name to Mars!

Nov. 15 is the last day to add your child's name online to a CD that NASA will send on the next Mars mission, the Mars 03 Lander.

Visit: http://spacekids.hq.nasa.gov/2003/home.htm. It's free, quick and easy. Print out for display the full-color official NASA Certificate of Participation recognizing your child's support on this NASA mission.

Ames Retirements

Name	Code	Date
Barbara L. DiPaula	*CFR*	*9-03-02*
Nancy G. Daunton	*SLR*	*9-03-02*
James (Jim) O. Arnold	*AS*	*10-03-02*
Marti Klug	*SF*	*10-31-02*

ACCC fundraiser

Entertainment coupon books are currently for sale to help support the Ames Childcare Center. Hundreds of 2 for1 and 50 percent-off coupons for local restaurants, events and merchandise are in the books. They are available for Santa Clara, San Mateo/San Francisco and Santa Cruz/Monterey counties and cost $20. Greater East Bay books cost $30. For more information, call Sally (650) 224-9268.

Nobel laureate to speak at Foothill

On Wednesday, Nov. 13 at 7 p.m., the Silicon Valley Astronomy Lecture Series presents Dr. Arno Penzias, recipient of the 1978 Nobel Prize in physics. He will give a non-technical illustrated talk on: A Personal View of the 'Big Bang.' The event will be held in the Smithwick Theater located at Foothill College, on El Monte Road and Freeway 280, in Los Altos Hills. The event is free and open to the public. For more information, call the series hotline at (650) 949-7888.

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

In this rare public appearance discussing the work that earned him the Nobel Prize, Penzias will describe how he and Robert Wilson used a sensitive radio telescope at Bell Laboratories in the 1960s to detect the "radiation echo" of the Big Bang--showing that the universe did indeed begin in an unimaginably hot, dense and explosive state.

Annual health fair

The Health Benefits annual health fair will be held on Wednesday, Nov. 20 in the ballroom of Bldg. 3 (MTCC), from 9:00 a.m. to 2:00 p.m. POC: Lita Que at ext. 4-4019.

Ames Public Radio & Phone

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.

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:*
Oct. 30	*Nov, 2002*
Nov. 27	*Dec, 2002*

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