



ASTROGRAM

Newsletter of NASA Ames Research Center, Moffett Field, California

June 2006

Worden foresees significant role for Ames in space exploration

Ames Research Center Director S. Pete Worden brought some "very good news" to Ames employees this month, predicting there won't be a workforce reduction and that Ames will play a significant role in NASA's future space exploration activities.

Following on the heels of the June 5 announcement from NASA Headquarters outlining new work assignments for Ames to support the Constellation program, Worden addressed several areas of interest to Ames employees. During a June 8 all hands meeting with Ames employees, his second such meeting since being named center director in April, Worden continued his upbeat assessment of the center's future.

"This is the coolest place at NASA and I'm really pumped to be here," Worden declared.

While he couldn't provide specifics on budget or workforce impacts for the various programs, saying those details would be forthcoming in the next several weeks, Worden expressed cautious optimism about the center's overall future.

"I don't anticipate the necessity of a RIF (reduction in force)" Worden asserted. He said he believes that with the new work assigned to Ames and additional future projects he hopes to bring to the center, there won't be a need to lay off employees. Worden said he believes that NASA leadership prefers not to have a RIF and is working to avoid having to implement a workforce reduction. He promised to keep Ames employees informed about the current status of the workforce.

"The name of the game for me is to communicate as much as possible with you," Worden said. Regarding communicating with employees, Worden noted that his new blog has gotten quite a bit of attention from people outside NASA. He said he has learned a lot from the experience.

"I've been here all of a month, and I feel like I've been at NASA for 10 years now, so I'm an expert," Worden joked.

Concerning the Constellation pro-

gram, Worden said Ames was given two key areas of responsibility: thermal

the program, both of which he hailed as "very good news" for the center.

"I'm proud to say we're going to play a major role," Worden declared.

Although Ames no longer will be managing the Robotic Lander Exploration Program (RLEP), Worden said Ames will continue to lead the development of the Lunar Crater Observation and Sensing Satellite (LCROSS), scheduled to launch in 2008.

"That's quite a challenge and it's up to us to make sure that mission succeeds," Worden asserted. He called on everyone at the center to work together to ensure the center's success in that and in other future exploration projects. Worden said he has set up a new projects office in the basement of Bldg. N-200 to work on small, fast-paced missions that cost less than \$100 million, an area where he believes Ames will do very well, based on

continued on page 6



NASA photo by Tom Trower

Ames Research Center Director S. Pete Worden during the recent upbeat all hands meeting held in June. During the meeting, Worden expressed cautious optimism about the center's overall future.

protection systems and the overall integration of information technology for

NASA reveals new tasks for Ames

NASA officials announced in June that NASA Ames will support exploration in several key areas, including software, mission operations and thermal protection for the development of NASA's new spaceship.

NASA Ames will be the lead for development of thermal protection systems and information technology for NASA's exploration effort. This responsibility includes developing the heat shield and aeroshell for the new spaceship called the Crew Exploration Vehicle (CEV). Responsibilities for information technology and computing include a focus on collaborative environments for exploration, as well as the development of cost-effective software that will play a role in operations for exploration.

"I am delighted that Ames is managing development of the CEV's heat shield and aeroshell for the new spacecraft and will lead the effort to develop the essential information technology for

the exploration effort that will take us back to the moon," said NASA Ames Director S. Pete Worden. "Our history of innovation and our prime location in Silicon Valley will enhance our ability to deliver the cutting-edge technology NASA needs to implement the Vision for Space Exploration," Worden added.

continued on page 6

On the Inside . . .

Page 2 - Dale Cruikshank receives Kuiper Prize

Page 3 - NASA sends flies into space

Page 4 - American Red Cross Honors NASA Ames

Page 5 - Ames Presidential Rank and Honor Awards

Page 7 - Ames' HACE represents Ames at NHU career fair

Ames' Dale Cruikshank receives Kuiper Prize in Planetary Science

Dale Cruikshank has been selected as the 2006 recipient of the Gerard P. Kuiper Prize in Planetary Science. This prestigious award was established by



NASA photo by Dominic Hart

Dale Cruikshank, selected recently as the recipient of the Gerard P. Kuiper Prize in Planetary Science. The award recognizes and honors outstanding contributors to planetary science.

lent in the outer solar system. His spectroscopic observations and models gave the first firm evidence for complex organic solids on a planetary body (Saturn's satellite Iapetus) and provided the basis for work in progress on the identification of such materials on trans-Neptunian bodies and related bodies in the outer solar system. Cruikshank's infrared spectroscopic work was the first to identify specific near-Earth asteroids as sources of basaltic meteorites, and specific main-belt asteroids as sources of other classes of differentiated meteorites.

Back on Earth, in 1972 he and Ames' David Morrison discovered hydrogen combustion in burning volcanic gases at Hawaii's Kilauea Volcano by spectroscopy, solving a century-old puzzle of what kind of gasses were burning.

Cruikshank received his doctorate at the University of Arizona in 1968. He was an astronomer and faculty member at the University of Hawaii from 1970 through 1987 and has been at NASA since that time. He participated in the

Voyager missions to the outer solar system and is an interdisciplinary scientist on the Spitzer Space Telescope and a science team member on both the Cassini mission at Saturn and the New Horizons mission en route to Pluto. He has more than 300 professional publications in his full bibliography.

"Ames is extremely pleased with Dale's achievements and special recognition with the Kuiper Prize," said Steve Zornetzer. "This prestigious award to one of our own is further evidence of the rich scientific heritage and deep expertise in research that Ames and the agency should be very proud of."

Michael Bicay also expressed his admiration for Cruikshank. "By granting its most prestigious award to Dr. Cruikshank, the AAS/DPS has recognized what we at Ames and his peers throughout the science community have long appreciated. The rare trifecta of being a science team member on three current NASA missions (Cassini, New Horizons and Spitzer) is a testament to Dr. Cruikshank's accomplishments."

the Division for Planetary Sciences of the American Astronomical Society to recognize and honor outstanding contributors to planetary science. It is to be awarded to scientists whose achievements have most advanced our understanding of the planetary system.

Cruikshank is receiving the award "in recognition of his pioneering work in the application of infrared spectroscopy to solar system bodies, his development of laboratory techniques that have become tools for interpreting observations and his leadership in the design of instruments for remote sensing observations from deep space planetary exploration probes." In the award's 22 year history, Cruikshank is only the third NASA person to win this award. This award is especially notable, since Cruikshank was Gerard Kuiper's last graduate student.

Cruikshank's contributions are numerous. He has pioneered the application of infrared spectroscopy to small bodies in the outer solar system. Cruikshank co-discovered the various ices of the outer solar system, including those on satellites of the giant planets, as well as comets and bodies in the region beyond Neptune - including Pluto and its moons.

He co-discovered bands in Io's spectrum, later identified as volcanic sulfur dioxide, the source of that object's variable atmosphere. Cruikshank pioneered thermal infrared determinations of the albedos of small bodies beyond the asteroid main belt, leading to the recognition that low-albedo material is preva-

Ames joins in BTWD events

May was National Bike Month, an annual recognition of bicycling as a convenient, fun form of transportation. May 18, 2006 was the 18th anniversary of National Bike to Work Day (BTWD),

Ames Protective Services documented 116 bicyclists entered the gates and 45 stopped by the Ames energizer station; six were first-time riders. Local news reported that throughout the Bay



NASA photo by Tom Trower

Bicyclists at the Ames Bicycling Club energizer station take a brief rest from their morning commute on May 18, National Bike to Work Day. Visitors were treated to refreshments and given bicycle gear during their visit. Literature for commuting through local neighborhoods was also available.

created to inspire first-time and casual riders to experience the benefits of bicycling to work, to school, for running errands or just for play. Cyclists chose to commute that day, pocketing their gas money, improving personal health (a bicycle commute burns 700 calories/hour) and reducing air pollution associated with driving a car.

Ames' Bicycling Club organized one of over 170 'Energizer stations' in nine Bay area counties. Volunteers handed out donated tote bags (courtesy of the Silicon Valley Bicycle Coalition), coffee cake (courtesy of Hobbee's restaurant), water (courtesy of Ames Environmental Services Division) and inner tubes (courtesy of Performance Bikes).

Area 100,000 people participated in the one-day event.

511.org organized a team bicycle challenge as part of the effort to encourage bicycling as an alternative to automobiles. Five teams represented Ames, second only to Stanford's six teams. Each team of five included two new or leisure cyclists and could accumulate bonuses if a 'big wheeler' (elected official, CEO, journalist, etc.) was included. Team members registered and tracked every day they made a trip by bike. Ames teams, of 34 within Santa Clara County, were credited with 488 trips; 16/day. All Santa Clara County teams logged 3,413 total trips; about 110/day.

BY TED ROUSH

NASA sends flies into space to test changes in immune system

Thousands of tiny fruit flies soon will journey into space to help NASA scientists better understand changes in the human immune system caused by space flight.

Despite differences in size and complexity, the *Drosophila melanogaster*, or common fruit fly, may help scientists from NASA Ames unlock the secrets of why astronauts often develop changes in their immune system during space flight. The experiment will be part of the STS-121 space shuttle mission tentatively scheduled for launch on July 1.

"Understanding the immune system using fruit flies will be similar to the process we used to understand and build complex machines," explained Sharmila Bhattacharya, the experiment's principal investigator at NASA Ames. "We start small and simple, and progress to more complicated and advanced concepts, thus extending our understanding in the future to helping optimize human performance in space." Bhattacharya is leading the NASA Fungal Pathogenesis, Tumorigenesis and Effects of Host Immunity in Space (FIT) experiment that will compare fruit flies grown in space with a genetically identical control sample grown in a NASA Kennedy Space Center laboratory.

Past experiments with organisms indicate that biological changes occur in microgravity, or the near-weightlessness of orbital space flight. The immune system may become suppressed and some bacteria may become more virulent when exposed to weightlessness. A suppressed immune system and more virulent bacteria create a hazardous situation and is reason for further investigation.

Scientists agree that the immune system has the ability to recognize potential pathogens or disease-causing organisms in the body. Although there are two types of immune responses, this experiment focuses on the innate response, because of similarities between human and *Drosophila* innate immune system functions. The innate response produces blood cells, called hemocytes, which can engulf the foreign invaders or produce chemicals to neutralize them.

"When the phagocytes are activated, the body produces a higher blood cell count or increased levels of peptide proteins in the blood," Bhattacharya explained. To test the effects of space flight on the *Drosophila* immune system, scientists will quantify the blood count and

the level of protein peptides after the flight and compare them with a control group maintained on Earth.

The STS-121 mission is scheduled to last 12 days, and each day's progress will provide valuable information to help scientists understand space biology and how various biological systems work. Characteristics that make the fruit fly an ideal specimen are its ability to reproduce quickly; its short life span and resulting accelerated maturity rate; and a minimal resource requirement to support a large number of specimens in space. This allows for thousands of flies to be bred under space conditions.

During pre-flight operations, genetically identical fruit flies will be divided into two groups: a control group kept on Earth and a space flight group. External conditions for both groups will be kept identical in terms of temperature, humidity, food source and living quarters. This will allow a direct comparison of the space-bred flies with the Earth-bred control flies to determine changes induced by prolonged spaceflight.

Over the course of the experiment, these flies will undergo a complete metamorphosis and produce a second generation. The second generation will have matured from embryo to larva to adult

entirely in a microgravity environment. As adults, they will make the descent to Earth, and a crew of scientists will begin



photo by J.A.L. Cooke

A fruit fly, the same type of fly that will be aboard the STS-121 space shuttle mission. The flies will be flown into space to assist NASA scientists in the better understanding of changes that transpire in the human immune system caused by space flight.

a comparative analysis with their cousins.

Immediate post-flight operations are critical, due to the rate of biological changes of these insects. Once in the lab, both sets of flies will be exposed to bacteria to test their immune system responses. Post-flight analyses will include blood cell count, blood level of antimicrobial peptides, phagocytosis, and blood clotting ability.

BY RUTH MARLAIRE

Synthetic brain power may design more than space antennas

Synthetic brainpower working on 80 NASA personal computers designed



NASA photo

An ST5 artificially evolved space antenna, which is slightly larger than a quarter, as shown here. This type of antenna was used in three small ST5 satellites launched into Earth orbit in March, now currently orbiting Earth.

antennas for use on three small ST5 satellites that were launched into Earth

orbit in March of this year.

In the future, computers equipped with artificial intelligence, according to NASA scientists, also may design cell phone and other antennas. Meanwhile, the ST5 satellites' 'artificially evolved' antennas continue to work superbly as they orbit Earth.

"This is the first time an artificially evolved object (has) flown in space," observed Jason Lohn, who led the project to design the antennas at Ames. Engineers also note that the computer-designed antennas are operating in space better than original plans specified.

Well before the ST5 launch, in preparation for the satellites' mission, 80 personal computers, using artificial intelligence, had combined their silicon brains to quickly design a tiny, advanced ST5 space antenna, which looks like a bent

continued on page 4

Synthetic brain power may design more than space antennas

continued from page 3

paperclip, yet is highly efficient.

To design the ST5 space antenna, the computers started with random antenna designs, and through the evolutionary process, refined them. The computer system took about 10 hours to complete the initial antenna design process.

"The artificial intelligence software examined millions of potential antenna designs before settling on a final one," said Lohn. The software did this much faster than any human being could do so under the same circumstances, according to Lohn. "Through a process patterned after Darwin's 'survival of the fittest,' the strongest designs survive and the less capable do not."

"[The ST5] antennas enable the spacecraft to communicate with ground stations," Lohn said. The ST5 antennas are sending magnetic-field science data related to space weather measurements and satellite health data to Earth.

Each of the three ST5 'microsats' is no bigger than a typical TV and weighs only about 25 kilograms (55 pounds). Slightly bigger than a quarter, each antenna, able to fit into a one-inch space (2.5 by 2.5 centimeters), can receive commands and send data to Earth from the satellites. Together, the spacecraft are helping scientists study magnetic fields in Earth's magnetosphere.

The magnetosphere is a region enveloping the Earth. Charged particles are trapped in the region, which is influenced by Earth's magnetic field.

"Because of the orientation of the spacecraft, the evolved antennas 'talk' to only ground stations in the southern hemisphere (McMurdo in Antarctica, the Deep Space Network (DSN) in Canberra, Australia). Conventionally designed antennas on the spacecraft are communicating with stations in the northern hemisphere," Lohn noted.

Scientists planned the ST5 mission to last 90 days. "We expect the evolved antennas to perform well for the entire time," Lohn said. "We are gathering performance data on both antennnas (the artificially evolved and the conventional antennas), and we will produce a study," he added.

"Longer term, we expect to see more evolved antennas used in demanding space applications," Lohn predicted.

"The underlying technology also is applicable to many other types of antennas for use on Earth, from cell phones to radio frequency identification devices (RFIDs). RFIDs are little tags that may well be attached - like bar codes - to products for sale in stores.

"The NASA Ames team is currently evolving antenna designs that could be used in a future lunar mission as well as a global positioning system application," Lohn said, commenting about how artificial intelligence used by the group of NASA PC computers is continuing to design more devices.

"We also are doing micro-electro-mechanical systems (MEMS) design using the cluster of PCs," said Lohn. "MEMS are little chips that do mechanical things," Lohn explained.

"The airbag in your car has a MEMS chip that detects acceleration changes. It knows when to deploy the airbag when there is a collision," he said. A micron is one-millionth of a meter. A meter is about 3.3 feet.

"What we're shooting for in five years is an improved MEMS space gyroscope," Lohn said. "There already are MEMS gyroscopes, but they are not precise enough for space flight use," he noted.

In addition, the NASA Ames team is working to develop backup omnidirectional spacecraft antennas, which send out signals in all directions at once. "In case a spacecraft goes out of control, you can still maintain contact," Lohn explained.

"The software also may invent designs that no human designer would ever think of," Lohn asserted. The software can plan devices that are smaller, lighter, consume less power, are stronger and more robust, among many other things - characteristics that spaceflight requires, according to Lohn.

The Exploration Systems Mission Directorate and the Science Mission Directorate at NASA Headquarters, Washington, funded development of NASA evolutionary software. Detailed information is on the Internet at: <http://ti.arc.nasa.gov/projects/esg> Space Technology 5 satellite details are on the Internet at: <http://nmp.jpl.nasa.gov/st5> Publication-size images and an on-line video are available on the World Wide Web at: <http://amesnews.arc.nasa.gov/releases/2004/antenna/antenna.html>

BY JOHN BLUCK

American Red Cross honors Ames

The Palo Alto chapter of the American Red Cross has awarded its Health and Safety Partnership Award to NASA Ames.

The award was presented to Tami Williams, Lynn Bala, Mark Washington and Robert Clark at the chapter's annual meeting and volunteer awards evening on June 1 at the Mountain View City Hall.

Ames was recognized for being a Red Cross-authorized provider of safety and health training since 1996 and for training 267 people so far this fiscal year in first aid, CPR and automatic external defibrillator (AED) use.

The Ames team trained 494 people last fiscal year, and doubled its instructor pool to four instructors in order to train even more employees in these life-saving skills.

Williams (PAI Corporation) is training administrator; Clark (PAI) and Bala (NASA) are instructors; and Washington (NASA) is occupational safety and health training program manager in Code Q.

To sign up for Red Cross training at Ames, go to: <http://q.arc.nasa.gov/gh/training/> and click on 'training'.

BY ANN SULLIVAN

2006 Presidential Rank and NASA Honor Awards ceremony held

The 2006 Presidential Rank and NASA Honor Awards Ceremony for NASA Ames was held in May at Ames. Presidential Rank and NASA Honor Awards were presented to the 25 employees who had been selected for individual awards and to the managers of the 12 groups which had been selected for the NASA Group Achievement Award.

In addition, the One NASA Peer Award was presented in the category of 'Center Best.' The One NASA Peer Award Program was created to encourage One-NASA-like behaviors across the agency.



Ames Chief Counsel Sally Mauldin is seen here at the 2006 Presidential Rank and NASA Honor Awards Ceremony held in May standing with Ames Deputy Center Director Marv Christensen (left) and Ames senior advisor to the center director Jack Boyd (right). Mauldin is holding the 'Presidential Rank of Meritorious Executive' award that she was presented with at the awards event.

Presidential Rank of Distinguished Senior Professional
Heinz Erzberger

Presidential Rank of Meritorious Executive
Sally O. Mauldin
Stan C. Newberry

Exceptional Bravery Medal
Mark L. Tangney

Outstanding Leadership Medal
Michael W. George

Exceptional Achievement Medal
Steven D. Beard
Rupak Biswas
Karen E. Bunn
Michael T. Gaunce
Christopher E. Henze
Gary C. Jahns
Ronald J. Liang
Bernadette Luna
Daniel J. Rasky
James J. Reuther
Serdar Uckun

Exceptional Engineering Achievement Medal
Russell A. Paielli

Exceptional Public Service Medal
Bob Bishop
Paul Otellini
Leigh Ann Tanner
Galina J. Tverskaya

Exceptional Service Medal
George M. Alger
Thomas J. Davis
Kevin L. Jones
Paul A. Pinaula

One NASA Peer Award - Center Best Award
C-17 Noise Mitigation Flight Research Team

Group Achievement Award
Ames Integrated Asset Management Team
C-17 Noise Mitigation Flight Research Team
Collaborative Decision Systems (CDS) Team
Exploration Systems Architecture Study (ESAS)
Aero/Aerothermal Team
Foton M-2 Payload Team
Mars Analog Research and Technology Experiment (MARTE) Team
NASA FutureFlight
Central COURSE Project
ST-5 Evolved Antenna Development Team
STS-114 Aerothermal Support Team
System Level Integrated Concept (SLIC) Development Team
Tropical Cloud Systems and Processes Project Team
Unitary 11-Foot Wind Tunnel
STS-114 Test Team

Worden foresees significant role for Ames in space exploration

continued from front page



NASA photo by Tom Trower

Ames employees enjoyed the free lunch, consisting of hot dogs, chips, soda and water, provided by the Ames Exchange Office following the all hands meeting on June 8.

its employees' expertise and the potential for partnering with the private sector.

Worden said he wants Ames to become involved in new partnerships with private industry, such as the existing agreement with Google, Inc., to collaborate on future projects. He said discussions are currently underway with offi-

cial at Loral regarding the development of a small satellite integration facility. He noted that Silicon Valley companies present good opportunities for collaboration.

"These companies recognize that NASA has the coolest missions," Worden observed. "NASA folks here are damn good and our NASA facilities are world class."

Turning to the status of the Stratospheric Observatory for Infrared Astronomy (SOFIA), Worden ventured that he was "hopeful and optimistic that the program will continue." He said some "critical decisions" regarding the future of the SOFIA program will be made during an upcoming meeting at NASA Kennedy Space Center. However, Worden said that if the program is allowed to continue, NASA Dryden Flight Center will

probably play a key role during the aircraft's flight tests.

Regarding the Kepler mission, Worden said although there were some potential cost overruns, Ames is on the right track towards solving the problem. He said he was very impressed with members of both the SOFIA and Kepler project teams and vowed to press to complete their missions.

Concerning the airfield and NASA Research Park, Worden pointed out that although the area has a "considerable environmental liability that could cost up to a couple hundred million to mitigate," he said the continued operation of the Ames Moffett complex is "essential to our future."

Worden said he was excited about the future potential for astrobiology and that he hoped agency leaders would restore funding to the program. He also was hopeful that the Astrobiology Academy could be restarted to bring young people into the program.

Worden also noted he was impressed with the role that nanotechnology could play in future space exploration if funding is allocated, and also the capabilities of the Columbia supercomputer for future projects.

BY MICHAEL MEWHINNEY

NASA reveals new tasks for Ames

continued from front page

In addition to its lead role in thermal protection systems and information technology, NASA Ames will support exploration and the Lunar Precursor and

across the nation will play during development of the CEV, and its supporting spacecraft and facilities for the Constellation Program, NASA's effort to imple-

ment the nation's Vision for Space Exploration to return humans to the moon and later travel to Mars.

Extending the human presence beyond low-Earth orbit is an exciting and challenging task, which requires a balanced workforce skill mix and productive NASA field centers, according to NASA officials. NASA is distributing work assignments to

of fault-detection software; and computational fluid dynamics analysis for risk assessment and abort scenarios.

In the mission operations area, NASA Ames will provide computer tools for flight controllers and develop new software applications for the Constellation training program. Ames will design, develop, test and evaluate multi-center command and control software systems. Ames also will develop collaborative environment software to support project planning, management and documentation systems.

Other work assigned to Ames includes development of problem reporting, corrective action and safety and mission assurance information systems for the program. Ames will provide program support in system engineering and integration of human factors and human rating systems; flight performance; thermal and environmental control and life support; command, control, communications and information; extravehicular activity (spacewalk) systems; and ground/mission operations systems integration groups.

BY MICHAEL MEWHINNEY



NASA photo by Tom Trower

Ames Center Director S. Pete Worden (left) meeting on June 5 with representatives from Bay Area news media during a recent media roundtable discussion of the Constellation Program and Ames' role.

Robotic Program. In this role, Ames will establish a new lunar projects office to develop small robotic spacecraft for exploration. The center also will continue to lead the development of the Lunar Crater Observation and Sensing Satellite.

During a NASA television broadcast from Washington on June 5, NASA revealed the roles each of its centers

its centers to ensure that the agency can meet the challenges of exploration.

Additional computer-related work assigned to NASA Ames includes several components of the Crew Launch Vehicle (CLV), which will be used to launch the CEV into space. Included in the work is development of integrated systems health monitoring and analysis for the CLV; validation and verification

Ames' HACE represents Ames at NHU career fair

On May 4, the Hispanic Advisory Committee for Employees (HACE) was given the opportunity to attend a career fair at the National Hispanic University

will continue on through the staff and students of the NHU.

On May 5, HACE hosted an event during the lunch-time hour at the Mega Bytes Café at Ames. HACE invited the Ballet Folklorico Infantil de South San Francisco to come out to Ames and perform various dances from the Hispanic culture. In return, the group received a tour of one of the wind tunnels and visited the Exploration Center just outside the gate.

The event was a great success and HACE would like to thank everyone who helped with the event.

to enjoy the performances. HACE would also like to thank the Mega Bytes Café, Beyond Galileo and the wind tunnel and Exploration Center tour guides along with everyone who helped with the event.

BY ERIC KRISTICH



Photo by Elizabeth Ipong

President of the National Hispanic University (NHU) Dr. David Lopez (left) and HACE co-chair Eric Kristich of Ames during the recent career fair held at NHU.



Photo by Vivian Torres

Pictured are the dancers ranging from ages 5 to 13 dressed in various costumes and accessories and dancing to the sounds from different cultural regions of Mexico.

(NHU) in San Jose. HACE members Eric Kristich (co-chair) and Elizabeth Ipong (secretary) attended the career fair to represent NASA Ames as well as the Hispanic Advisory Committee.

The career fair turned out to be a great experience and a chance to converse with students and other companies/organizations on recruitment endeavors.

NHU is well known for providing accessible and affordable educational opportunities for Hispanics and other undeserved students.

Established only 24 years ago and starting out with just two classrooms and 64 students, NHU has grown to be 18 classrooms, two computer labs and has the capacity for 1,200 students. The vision to help the Hispanic community that started 24 years ago is growing and

SATERN'S 'go-live' date arrives

NASA's new learning management system is now operational. System for Administration, Training and Educational Resources for NASA (SATERN) went live in May and can be accessed online at <https://satern.nasa.gov>

The new SATERN system is designed to support the development of the NASA workforce through a simplified and one-stop access to high quality training products and processes to support learning and development. An e-Training initiative, SATERN supports the President's Management Agenda by providing effective management of training and career development activities. It increases efficiencies and reduces costs through standardized processes, consolidation and replacement of three NASA legacy systems.

With SATERN, the NASA workforce has Web-based access to training and career development resources. Supervisors can work with their direct reports to assign and track required training and develop and manage individual learning plans. In future phases, NASA will build upon this functionality and enable employees and supervisors to use SATERN as a tool for career planning, competency management and individual development planning.

As NASA begins to use this new

learning management system, we encourage all employees to access the SATERN informational Web site at <https://saterninfo.nasa.gov> to get information about how to log onto SATERN and to take the Web-based tutorial to learn about SATERN's many features.

SATERN is available for use by both civil service and contractor employees. SATERN provides you with one-stop access to a robust learning and development environment where you can view course catalogs (check often for new courses), self-register for courses, view your individual learning history and launch online courses from your desktop.

For those who have not yet completed their IT security training, it may be completed through SATERN.

For up-to-date Ames SATERN project information, visit the Internet at <http://iemp.arc.nasa.gov/satern.html> At this site, you will find information on the new NF 1735 training request form, FAQ's, the SATERN log on link, a Web form for submitting your questions and feedback and more.

If you have any questions or concerns, you may contact Susan Kalb at ext. 4-5624 or send an e-mail satern@mail.arc.nasa.gov.

NRP Industry Partner 'Apprion, Inc.' expands

Apprion, Inc., signed their first lease with the NASA Research Park in November 2004 with three employees in three offices in building 19, with office space totalling 885 square feet in size. Since then, in just 18 months, Apprion's office size has expanded to 6,010 square feet with approximately 20 employees.

Apprion is developing integrated wireless infrastructure elements for the secure management of critical systems. The biophotonics and photonic-based sensor activities that Apprion has underway with Ames are focused on systems and components that are dual-use in the sense of potential deployment in space as well as more pedestrian uses including nuclear, biological and chemical detection with wireless connectivity.

Past joint efforts have involved the development of sensors that are suitable for measuring structural deformation of air- and spaceframes.

Current activities include an increased emphasis on biophotonic systems using temporally-modulated, mul-

tiwavelength structured light illumination systems. Near-term demonstrations of this work involve micron-fea-

cilities Engineering Branch.

In parallel with these efforts are the integrated wireless infrastructure activities with the goal of having the communication delivery mechanisms in place for the secure transmission of information that may be generated by sensors such as those just mentioned. This wireless expertise is also being applied to other industrial mission critical systems.

"We have found the NASA Ames Research Park environment to be perfectly suited for our research and development efforts. The campus-like setting coupled with the un-

matched access to world class technology and facilities has certainly helped us as our company expands," said Dr. Peter Fuhr, Apprion, Inc., chief technology officer.

For more information contact via e-mail at apprioninfo@apprion.com, visit the Web at <http://www.apprion.com>, or call (650) 964-4321.

BY BOB LOPEZ



Photo courtesy of Apprion, Inc.

Apprion, Inc. employees outside their offices in Building 19, NASA Research Park. Apprion develops integrated wireless infrastructure elements for the secure management of critical systems. Since November 2004, the company has expanded from three employees with 885 square feet of office space in Building 19 to a total of 20 employees with 6,010 square feet of office space.

ture sizes with a goal of integration with tapered optical fibers. Such work is exemplified by joint NASA-Apprion patents and technical presentations.

"Apprion's presence at NASA Research Park has contributed to new technology innovations. We hope this type of collaboration will continue to further the exploration goals of NASA," said Stevan Spremo, of the Payloads and Fa-

NASA Research Park welcomes new tenants!

California Space Grant Foundation (CSGF)

Building 555 - June 1, 2006

CSGF works to advance the commercial development of low Earth-orbit environment for all users (scientific, technological and commercial).

Inovamar

Building 19 - April 1, 2006

Inovamar LLC works with NASA to develop and market astrobiology life support systems.

Telebrowse, Inc.

Building 19 - June 15, 2006

TeleBrowse, Inc., a software product developer, has developed a social networking product, Telebrowse, that allows people to co-browse the Internet by adding a toolbar to their browser.

United Negro College Fund Special Programs

Corporation (UNCFSP)

Building 19 - June 1, 2006

UNCFSP delivers programs to federal agencies that address education and research infrastructure that include science, technology, engineering and mathematics competencies.

Zenpire Corporaton

Building 19 - July 1, 2006

Zenpire provides yield enhancement and automation software and systems for semiconductor and flat panel manufacturing industries.

NASA Research Park - June partner of the month -- 'Honeybee Robotics, Inc.'

Manhattan-based Honeybee Robotics has been collaborating with NASA since 1993. Best known as the creator of the Rock Abrasion Tool on the Mars Exploration Rovers, Honeybee is an innovator in the design, development and production of robotic mechanisms, flight

are committed to supporting robotic exploration of our solar system, Zacny said."

With proximity to Ames, Honeybee hopes to strengthen and continue its long-standing partnership with NASA. Honeybee's experience in sub-surface

access for planetary exploration is a natural match for NASA Ames.

The principal investigators on two of Honeybee's Mars drilling projects, Carol Stoker with MARTE and Brian Glass with DAME, are Ames' scientists. Honeybee also is participating in the recently formed Ames-based In-

"Honeybee is a medium-sized, nimble and innovative company and a valued partner on current lunar and Mars drilling prototypes and proposals. Given their flight experience base with the MER RAT drilling tool and others, it's great to have them so close by," said Brian Glass of the Intelligent Systems Division. I can just pop over with ideas or questions, and still see what new twists... so to speak... they have in their NASA Research Park Lab, Glass said."

In its first few months in NRP, Honeybee has planted more seeds for possible collaboration with Ames' researchers. Honeybee has partnered with a group, led by P.I. Chris McKay, proposing a 2011 Mars Scout Mission called the Mars polar drill. Honeybee is also pursuing a joint project with the Intelligent Robotics Group to provide hardware that would be tested on their K-10 rover.

"Having Honeybee located here at Ames makes it easier for us to work together and merge the science and technology needed for future missions," said Chris McKay of the Planetary Systems Branch.

Honeybee Robotics joined the NASA Research Park on June 15, 2005. For more information, contact Kris Zacny or David Glaser at (650) 938-8884 or visit their Web site at <http://www.honeybeerobotics.com>

BY BOB LOPEZ AND DIANE FARRAR



photo by Bob Lopez

Honeybee Robotics, Inc., senior scientist Kris Zacny (left) with design engineer David Glaser. Honeybee is best known as the creator of the Rock Abrasion Tool on the Mars Exploration Rovers. Mechanisms from Honeybee will also fly on the 2007 Phoenix Scout and 2009 Mars Science Laboratory missions.

subsystems and automated drills for both terrestrial and extraterrestrial applications.

"Honeybee mechanisms will fly on the 2007 Phoenix Scout and 2009 Mars Science Laboratory missions," said Kris Zacny, senior scientist of Honeybee. "We

stitute for Subsurface Exploration.

"I expect that having Honeybee Robotics on site at Ames will create synergy leading to important robotic systems development and exciting new mission opportunities," said Stoker of the Planetary Systems Branch.

Thousands visit Ames exhibit at Sunnyvale Festival

Thousands of Bay Area residents took the opportunity to learn more about the exciting programs at NASA Ames

stration, and information on a variety of Ames programs



An interactive demonstration teaches young visitors about Kepler, NASA's first mission to find Earth-sized planets in our galaxy.

by visiting the Ames exhibit at the Sunnyvale Art and Wine Festival on June 3 to 4. The 800 square foot tent featured a moon rock, a heat-shield tile demon-

and projects, including an interactive Kepler display.



photos by Larry Lasher

The NASA Ames exhibit tent was visited by several thousand Bay Area residents at the recent festival held in Sunnyvale.

In Memory of . . .

Arthur Cordisco

Arthur J. Cordisco, a former employee at Ames for many years who retired in 1979, passed away in February 2006. His funeral was held Feb. 27 at the Oakmont Memorial Cemetery in Lafayette. He was 83 years old and passed away peacefully in the South Shore Convalescent Hospital in Alameda where he spent several years after a devastating fall in 1998, which left him paralyzed.

Cordisco is survived by his wife of 58 years, Ann, six children, 13 grandchildren and one great granddaughter.



NASA photo

Arthur Cordisco

Frank Gibson

Former Ames employee Frank L. Gibson of San Carlos died at Kaiser Hospital in Redwood City on April 11 at the age of 86.

Gibson was an engineer at Ames for 35 years before retiring in January of 1979.

He is survived by his wife, three children and two grandchildren."

Vernon Rogallo

Vernon Lewellyn Rogallo died of prostate cancer on Dec. 14, 2005, in the

Hillside Assisted Living Center in McMinnville. He was 87.

Rogallo was born on March 28, 1918 in Sanger, Calif. He graduated from Fresno State University and the University of California at Berkeley. He married Evelyn June Taylor on March 1, 1939 in Reno.

Rogallo was a mechanical engineer and was recruited out of college by Howard Hughes to work on the Spruce Goose at Hughes Aircraft in Culver City, Calif. He worked from 1942 to 1945 for Hughes as an aeronautical engineer, handling many of the instrumentation and range studies for the Goose.

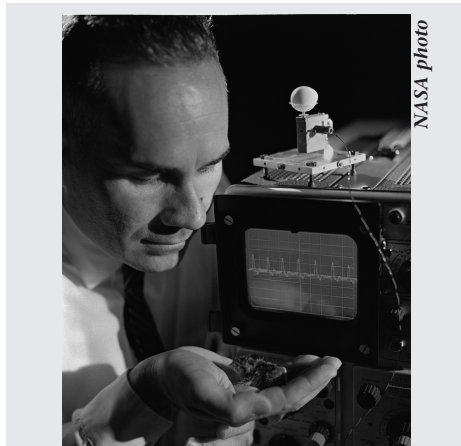
After working at Northrop for several years, he joined NACA (later NASA) at Ames. He continued with the federal astrophysics lab until his retirement. While working with NASA research teams, Rogallo earned many patents that are still being used today in the aviation,

space and medical arenas.

He lived with his wife in Scotts Valley near Santa Cruz for 30 years. They moved to a cottage at the Hillside Retirement Center in McMinnville two years ago to be near their eldest daughter.

Relatives said Rogallo was a wonderful father, husband, talented oil painter and woodcarver. A tenor, he loved to sing with his wife as she accompanied him on the piano or organ and he also sang in church choirs and other vocal groups. He also loved to fish, travel and work with his hands, building canoes, toys, car replicas and other items.

In addition to his wife, he is survived by three daughters, Phoebe Jean Flynn of McMinnville, Mary Jo Corwin of O'Brien and Diana Mae Clemer of Yorba Linda, Calif.; a brother, Francis Rogallo; eight grandchildren and 10 great grandchildren.



NASA photo

Vernon Rogallo is seen here in 1963 at Ames holding a bob-white quail taking the measurement of a chick's heartbeat.

Raymond Sargis

Raymond Sargis passed away at the age of 77 on April 24 at Memorial Medical Center in Modesto.

He was born May 12, 1928 in Chicago, Ill., and lived in San Jose from 1950 to 1984 and then lived in

Modesto from 1984 until his passing.

Sargis was in the U.S. Navy from 1946 to 1948 and later worked at NASA Ames from 1952 to 1983, first in the print shop and later as a contract monitor.

He is survived by his wife, June Sargis of Modesto, son Paul Raymond Sargis of San Jose, daughter Beth McCaffrey of Jackson, sister Nellie Stoddard of Del Rey Beach, Fla., and 6 grandchildren.

Charles Harper, leader of NACA/NASA Aeronautics Research, dies

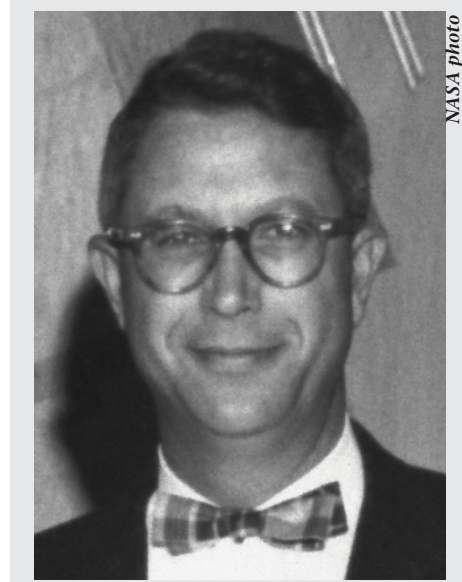
Charles William (Bill) Harper was born Sept. 1913 in Winnipeg, Manitoba, Canada. At a young age, his family moved to Calgary, later moving on to Vancouver. They emigrated to the United States when Harper was in his preteens, first to Seattle and eventually to Berkeley when he was in junior high school. He attended Berkeley High, graduating in 1931.

Harper developed an interest in aviation watching airplanes fly from Oakland airport. He recalled seeing Charles Lindbergh land there in the early 1930s. This interest led him to enter the Boeing School of Aeronautics at Oakland airport in 1936. There he was exposed to early airline operations, aircraft maintenance and to his first taste of aerodynamics. A technical report of the National Advisory Committee for Aeronautics (NACA) was the principal text for the course and it planted a seed in Harper's mind that would influence his career. After a year at Boeing, he was encouraged by its faculty to apply to the University of California at Berkeley in 1937 as a special student in mechanical engineering. He found his niche at Cal and concentrated his studies on the aeronautics option in the department, graduating in June 1941.

Harper had aspirations to work at the newly formed NACA Ames Aeronautical Laboratory in Mountain View. He was interviewed at Berkeley by Russ Robinson, who was involved in the development of the Ames Laboratory and who went on to lead the aeronautics program there. A position at Ames was contingent on his receiving citizenship, which was granted that year in the months leading to World War II. Harper embarked on his career at Ames immediately after becoming a naturalized citizen.

Harper began working in the 7-foot-by-10-foot low-speed wind tunnel, under the leadership of Harry Goett. He vividly remembered Goett giving him blunt counsel as a mentor to use his common sense in interpreting data from tests in the tunnel. His first project was a powered model test of the Douglas XSB2D-1 fighter prototype, with the objective of understanding the effects of power on directional stability. He progressed in his assignments and moved on with Goett to the new large-scale facility, the 40-foot-by-80-foot low-speed tunnel. When Goett was selected to be

division chief over low speed aerodynamics and flight research in 1948, he chose Harper as his replacement as branch chief of the 40-foot-by-80-foot wind tunnel. In this position, he championed new research in boundary layer



Charles William (Bill) Harper

control, powered-lift STOL and V/STOL aircraft, and began to instigate a partnership with Army aviation. It was at this time that he encouraged two talented Ames aerodynamicists, Dean Chapman and Harvey Lomax to pursue analytical prediction of aerodynamic characteristics observed on the models tested in the 40-foot-by-80-foot wind tunnel.

In 1959, Harry Goett was chosen to be director of the newly formed Goddard Space Flight Center, and once again, Harper followed in Goett's footsteps to become division chief. During his time in this position, he expanded the V/STOL research program in the 40-foot-by-80-foot wind tunnel and in flight. On the day Harper took over the division, he was directed by NASA Headquarters to move all Ames flight research to NASA's Flight Research Facility at Edwards Air Force Base. His prompt action to establish the necessity of flight research closely linked to the theoretical and experimental research in the 40-foot-by-80-foot wind tunnel preserved a role in flight at Ames. He also was an early proponent of flight simulation and solidified and expanded that capability, most importantly with the development

of the new six-degree-of-freedom simulator.

By the mid-1960s, NASA was focused on space and the Apollo program, with little attention paid to research in aeronautics. In 1964, Harper was temporarily assigned to NASA Headquarters to bring a new sense of urgency to aeronautics and to organize a program for advocacy Congress. His position was deputy associate administrator for research and technology for aeronautics. Initially intended to last only 18 months, this assignment stretched to six years. In this time, he was able to help form research organizations for aeronautics and space technology. He won approval for the NASA/Army agreement for collocation of Army research staff at the NASA aeronautics centers and a collaborative research effort in rotary-wing aircraft aeromechanics, propulsion, and structures that would benefit Army and civil aviation. He also initiated advocacy for a similar agreement with the FAA, resulting in a program to develop certification criteria for new classes of aircraft, such as supersonic transports and short takeoff and landing aircraft, that would begin after his departure from headquarters. While at headquarters, Harper was honored by the AIAA to present the Wright Brothers Lecture in 1968. In it, he anticipated the coming developments in computational fluid dynamics and flight simulation and the way they would complement research in the wind tunnels and in flight.

In 1970, Harper returned to Ames and retired from NASA in 1971. He continued to consult for the FAA for several years after leaving NASA. In recent times, he lamented once again the drift in NASA's attention away from aeronautics.

In addition to a stellar career in NACA/NASA aeronautics, Harper was married to Eleanor Vickers for 47 years. Vickie was an Ames mathematician, well known in her own right, and a great companion. They were both enthusiasts of car racing, sailing, wine and food, and jazz music.

BY JAMES FRANKLIN

Ames Ongoing Monthly Events 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. Beginning classes meet at 5:15 p.m. Higher-level class meets at 5:50 p.m. Held in Bldg. 944, the Rec. Center. POC: Helen Hwang at helen.hwang@nasa.gov, ext. 4-1368.

Ames Bicycling Club Every 3rd Wednesday of the month 11:00 a.m. to 12:00 p.m. in Building 245 auditorium. POC: Julie Nottage at jnottage@mail.arc.nasa.gov or ext. 4-3711. By-laws of Ames Bicycling Club can be found at: <http://zen.arc.nasa.gov>, the link is under the picture.

Ames Bowling League, Palo Alto Bowl on Tuesday nights. Seeking full-time bowlers and substitutes. 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://acc.arc.nasa.gov>), 12 noon to 1:30 p.m., N-210, Rm. 205. POC: Cheryl Quinn, ext 4-5793.

Ames Contractor Council Mtg, first Wednesday each month, 11 a.m., N-200, Comm. Rm. POC: Linda McCahon, ext. 4-1891.

Ames Diabetics (AAD), 1st & 3rd Weds, 12 noon to 1 p.m., at Ames Mega Bites, Sun room. Support group discusses news affecting diabetics. POC: Bob Mohlenhoff, ext. 4-2523/e-mail 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. 221, Rm 104. Guests welcome. Info at: <http://www.afeu.org>. POC: Marianne Mosher, ext. 4-4055.

Ames Mac Support Group Mtg, third Tuesday of ea. month, 11:30 a.m. to 1 p.m., Bldg. N262, Rm 180. POC: Tony ext. 4-0340.

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, second Thursday of ea. month (Feb through Nov), from 12:00 p.m. -1:00 p.m. in Bldg. N-262, Rm 100. URL: <http://sail.arc.nasa.gov/>. POC: Becky Hooey, ext. 4-2399.

Environmental Forum, first Thursday of each month, 8:30 a.m. to 9:30 a.m., Bldg. 221/Rm 155. URL: <http://q.arc.nasa.gov/qe/events/EHSseries/> POC: Stacy St. Louis at ext. 4-6810.

The Hispanic Advisory Committee for Excellence (HACE) Mtg, first Thurs of 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 p.m., N-269/Rm.179. POC: Bob Hilton at ext. 4-2909, bhilton@mail.arc.nasa.gov.

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

Free NRP lecture 'Revolutionizing space for all humanity'

On June 27, from 7 to 9 p.m., the NASA Research Park Exploration Lecture Series will present a lecture featuring Jim Benson, founder, chairman and CTO of SpaceDev Inc. The event will take place in Bldg. 943, the Eagle Room, at NASA Ames.

Benson will discuss opening the space frontier using small, low-cost missions to Earth orbit and beyond.

For more information, call ext. 4-2677 or visit the Internet at <http://researchpark.arc.nasa.gov>

MISSION ADVISORS AND SPACE ADVERSARIES
 NASA Research Park Exploration Lecture Series
Revolutionizing Space For ALL Humanity

Jim Benson Founder, Chairman and CTO of SpaceDev Inc. will talk about opening the space frontier using small, low-cost missions to Earth orbit and beyond.
 Tuesday, June 27, 2006 7 p.m.
 Bldg. 943 Eagle Room
FREE Open to the public

Moffett Fire Department holds pancake fundraiser breakfast



The Moffett Field Fire Department recently held a fundraiser pancake breakfast, which included bacon, sausage, mixed fruit, apple sauce and beverages, for the Alissa Ann Ruch Burn Foundation. The event raised \$820 for the foundation. The foundation derived its name and inspiration from an eight-year-old child, Alisa Ann, who was fatally burned in a common backyard barbecue accident. Founded in 1971, The foundation works in partnership with firefighters, educators and burn care professionals to develop innovative programs and services.

NASA photo by Tom Trower

Ames Classifieds

Ads for the next issue should be sent to astrogram@mail.arc.nasa.gov 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

Room available for rent in house in mid town Palo Alto, with kitchen, laundry, and pool, \$500 plus \$50 toward utls, for a quiet, neat, stable and conscientious person or couple. E-mail jims@eos.arc.nasa.gov; ham call wb6yoy.

Unfurnished room in house in San Jose, close to light rail and Caltrain. \$525 incl utls. and WiFi. Available to quiet, mature, non-smoking female student or professional. E-mail: mbualat@stanfordalumni.org; Call (408) 578-9580.

House, 3bd/ 2ba, pool, large rec area for rent, 2,000 per mo. /2,000 dep. 12.5 miles from Moffett N. San Jose. Paul (808) 264-8848.

Completely remodeled 2 bd/1 ba upstairs apartment (duplex). Unit includes new cabinets, new tile counter tops, new stove, new refrigerator, microwave, storage area. Great location near downtown Sunnyvale, \$1,250. Call (650) 279-4432.

Miscellaneous

The Ames Cat Network needs help finding homes for cats trapped at Moffett. They range from feral to abandoned/lost pets. Tested, altered and inoculated. Call Iris at ext. 4-5824 if you or someone you know are interested in fostering or adopting a cat.

Looking for treadmill at reasonable price. E-mail: falcon7777_2000@yahoo.com

Amana washer and dryer set, with energy saver features, both work fine. \$375 for both. E-mail: development23@hotmail.com

HP8250 photo printer. New, package never opened. \$100. Cahit (831)461-1403, after 6 p.m.

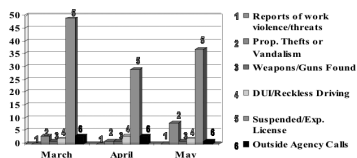
Wine glasses, set of 12 Apollo Flights, 3D see through in full color. Free delivery to Ames. Call Fred Truck, Graham, Washington (253) 846-3236.

Exercise equipment: AB Lounge by Fitness Quest, Inc., like new, incl. video, program guide, eating plan. \$60 or B/O. Call (650) 625-1196 eves or e-mail nasasal@yahoo.com

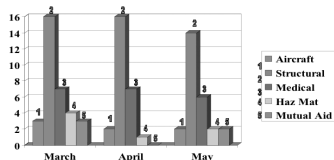
Protective Services monthly activity

A statistical summary of activities of the Protective Services Division's Security/Law Enforcement and Fire Protection Services units for the month of May 2006 is shown below.

Security/Law Enforcement Activity



Fire Protection Activity



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.

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-943 (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 \$45 - \$50.

Ames Swim Center (N-109) 603-8025

Ames Swim Center, 25 meter swimming pool open and heated year round. (80-82 degrees) Lap swim: Mon, Weds, Fri, 10 a.m. to 1 p.m. and 3-6 Tues to Thurs 10 a.m. to 1 p.m. and 4 p.m. to 7 p.m. Seasonal recreation swim; swim lessons. Locker rooms w/sauna and shower facility. Open to all civil servants and contractors. Location: Bldg. 109 across the street from the tennis courts. Fees vary depending on activity. POC: Tana Windhorst, ext. 3-8025; e-mail: tw41sb@aol.com

Vacation Opportunities

Lake Tahoe Squaw Valley townhouse, 3bd/2ba-equipped, balcony view, horseback riding, hiking, biking, golf, river rafting, tennis, ice skating and more. Summer rates \$100 per night, 2 night minimum. Call (650) 968-4155, e-mail DBMcKellar@aol.com

South Lake Tahoe cottage w/wood fireplace, hot tub. Rates \$50 to \$130 per night. Call (650) 967-7659.

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

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

Pine Mountain Lake vacation home. Access to golf, tennis, lake, swimming, horseback riding, walk to beach. Three bedrooms/sleeps 10. \$100/night. Call (408) 799-4052 or (831) 623-4054.

Incline Village, Forest Pines, Lake Tahoe condo, 3 bdrms/2 ba, sleeps 8, fireplace, TVs/VCR/DVD, stereo w/ CD player, microwv, W/D, jacuzzi, sauna, outdoor pool. Walk to lake. Close to ski areas. Visit web site for pictures: <http://www.ACruiseStore.com> \$135/night spring and fall, \$173/night summer and winter (holidays higher) plus \$125 cleaning fee and 12 percent Nevada room tax. Charlie (650) 743-8990.

New York, 5th Ave. One fully furnished bedroom in 24 hour security bldg. overlooking Washington Square Park, \$1,000/wk or \$3,000/mo. negotiable. Call (650) 349-0238.

Paris/France: Fully furnished studio, 5th Arr, Latin Quarter, Notre Dame and Lie-St. Louis., \$1,400/wk. negotiable. Call (650) 349-0238.

Santa Cruz townhouse, 2 bedrooms plus study, 2 baths, decks, totally furnished, 3 blocks from beach, available July, August, September; \$1,600 per month. Call (831) 423-5777 (H) or (831) 277-8476 (C).

Monterey Bay vacation rental at Pajaro Dunes, 20 miles south of Santa Cruz, 3bd/2ba beach house with distinctive architecture. Beautiful ocean and valley views, only 150 ft from the beach, first-class tennis courts. \$600/wkend, \$2,100/wk, including cleaning by the maid service when you depart. Call (408) 252-7260.

Lake Tahoe cabin rental in Agate Bay, North Shore. 4bd/3ba tri-level, AEK, cable TVs, fireplace, BBQ, deck, sleeps 10. Closest skiing is Northstar, Alpine and Squaw. Rates are \$375 a weekend, \$1,000 a week. Call (408) 867-4656.

Florida west coast vacation in St. Petersburg, beautiful 2bd/2ba condo, fully equipped kitchen and furnished, sunset views, 1/4 mile from St. Pete Beach, monthly or 2 week minimum rentals only. Call (703) 299-8889 or e-mail: jdgohler@aol.com

Maui luxury oceanfront resort one-bedroom condo available one week. Rents for \$345/night now, \$495/night in the summer. We will rent to an Ames family for \$1,750 for the week. See the condo at <http://www.starwoodvo.com/resorts/villafeatures.jsp?resortID=12> Call (650) 572-8877 for availability and questions.

Astrogram deadlines

Please submit articles, calendar and classified advertisements to astrogram@mail.arc.nasa.gov no later than the 10th of each month. If this falls on the weekend or holiday, then the following business day becomes the deadline.

For Astrogram questions, contact Astrid Terlep at the aforementioned e-mail address or ext. 4-3347.

Ames emergency announcements

To hear the centerwide status recording, call (650) 604-9999 for information announcements and emergency instructions for Ames employees. You can also listen to 1700 KHz AM radio for the same information.

Shostak reviews SETI strategies for finding ET



Seth Shostak reviewed SETI's 'Strategies for Finding Extraterrestrial Life' during a lecture at Ames in May. Shostak is the senior astronomer at the SETI Institute, science editor of 'The Explorer' and host of the SETI Institute's weekly radio program 'Are we alone?' He has written hundreds of articles for newspapers, magazines and the SPACE.com Web site as well as three books.

NASA photo by Tom Trower

Shorebirds nest in Ames parking lot



NASA photos by Tom Trower



A 'Killdeer' bird with her chick at NASA Ames. Killdeer birds, the most widespread of California shore birds, have been recently nesting outside of Ames' building N-201 in the parking lot of N-200 at Ames. Center photo - a Killdeer egg at the same site at Ames hatches.



National Aeronautics and Space Administration

**Ames Research Center
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