

Astrogram



NASA Ames leads robotic lunar exploration program

On Nov. 14, the 36th anniversary of Apollo 12, the second manned lunar landing, NASA announced that it had

Apollo missions starting with Apollo 12 in 1969. We will apply all this experience to make RLEP successful," Hubbard noted.

Returning robots, and then astronauts, to the moon provides opportunities to develop and mature technologies needed for long-term survival on other worlds, according to scientists.

"An exploration science program with a sustained human presence on the moon gives us the opportunity to conduct fundamental science in lunar geology, history of the solar system, physics and the biological response to partial (Earth) gravity," said Christopher McKay, lunar exploration program scientist at Ames.

"Establishing research stations on the moon will give us the experience and capabilities to extend to Mars and beyond," robotics deputy program manager Butler Hine of Ames observed.

For high-resolution images of the moon and historic information, visit: <http://www.nasa.gov/centers/ames/news/releases/2004/moon/moon.html>, <http://lunar.arc.nasa.gov>, <http://nssdc.gsfc.nasa.gov/planetary/lunarprosp.html>, and http://science.nasa.gov/newhome/headlines/ast31jul99_1.htm

BY JOHN BLUCK



In this Jan. 31, 1971 photo, Apollo 14 astronaut Alan B. Shepard is shown standing with the American flag on the moon.

assigned management of its Robotic Lunar Exploration Program to NASA Ames.

Returning astronauts to the moon will start with robotic missions between 2008 and 2011 to study, map and learn about the lunar surface. These early missions will help determine lunar landing sites and whether resources, such as oxygen, hydrogen and metals, are available for use in NASA's long-term lunar exploration objectives. The assignment marks a rebirth of robotic space flight work at NASA Ames, which has a history of spearheading unmanned space launches.

"The Robotic Lunar Exploration Program is a critical element of NASA's Vision for Space Exploration," said Exploration Systems Mission Directorate Associate Administrator Dr. Scott Horowitz of NASA Headquarters, Washington, D.C. "Data collected will help determine where we go, and what we find during our first human missions to the lunar surface."

"Ames is delighted to be the home of the new Robotic Lunar Exploration Program," said Ames Center Director G. Scott Hubbard. "Our center has a 40-year history of excellent space flight programs and project management: the Pioneer 6-13 series, the Galileo Probe and Lunar Prospector, as well as a lunar magnetic field instrument for four

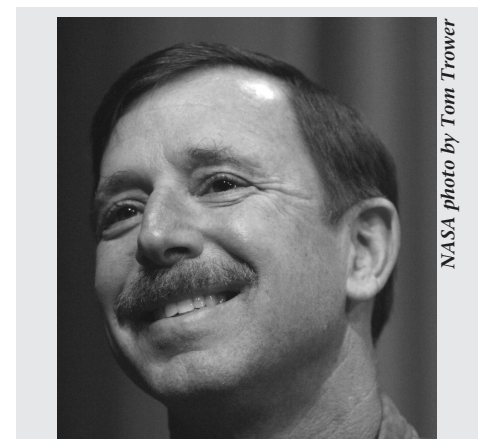
ice exists in shadowed craters near the lunar south and north poles, the first precise gravity map of the entire lunar surface, confirmation of the presence of local magnetic fields that create the two smallest magnetospheres in the solar system and the first global maps of the moon's elemental composition.

Horowitz outlines exploration goals

Scott Horowitz, a former astronaut who has visited Ames numerous times over the past 20 years, returned to the center Nov. 16-17 in a vastly different role as NASA's new associate administrator for the Exploration Systems Mission Directorate.

During his two-day visit to Ames, Horowitz visited several key facilities and received briefings about the research and technology that Ames will bring to the table as NASA implements the Vision for Space Exploration. Horowitz also addressed Ames employees during an all-hands meeting held in the main auditorium and broadcast throughout the center on closed circuit television.

Dressed casually in a blue shirt, no tie and khaki pants, Horowitz said he has been on the job at NASA Headquarters for about 30 days and has been busy implementing a variety of major changes



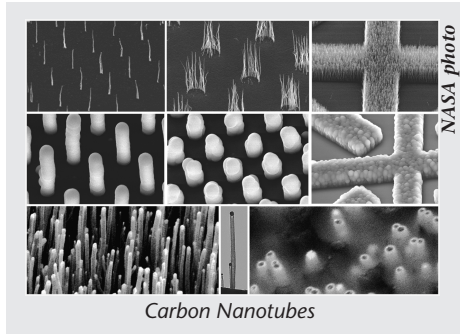
Scott Horowitz, Exploration Systems Mission Directorate associate administrator, responds to audience questions during his recent visit and briefing at Ames.

in the Exploration Systems Directorate, including reorganizing it to increase its

continued on page 9

Ames scientist honored for spaceship biosensor, inventions

A microscopic sensor that can monitor spaceship water quality and also detect biohazards and even diagnose cancer is part of an extensive portfolio of



inventions for which an Ames scientist recently received an award.

Jun Li, a research scientist with the Center for Nanotechnology at NASA Ames, was honored by Nanotech Briefs magazine representatives during a ceremony in Boston. Nanotechnology is the creation of materials, devices and systems through the control of matter on the nanometer scale. A nanometer is one-billionth of a meter.

"We are delighted and proud of this achievement," said Meyya Meyyappan, director of the Center for Nanotechnology.

Li's carbon nanotube biosensor may well be used to monitor water quality on NASA's next planned spaceship, the Crew Exploration Vehicle that the space agency plans to fly to the moon, Mars and beyond. Carbon nanotubes are extremely tiny tubes measured in nanometers. Scientists say nanotechnology someday could lead to changes in almost everything from computers and medicine to automobiles and spacecraft.

Li won his prize in the 'Innovator' category, in Nanotech Briefs magazine's first annual awards. The biosensor is an electronic chip - about the size of a stamp -- that can detect multiple pathogens, which include various bacteria and viruses. This chip also can diagnose diseases in patients. Some of Li's inventions may even enable deaf people to hear and blind people to see, according to the scientist.

Another invention developed by Li and his colleagues to improve the cooling of computer chips resulted in a second award in the contest's technology category. This second award will be presented to Nanoconduction Inc., Sunnyvale, Calif. A licensing arrangement with NASA gave Nanoconduction the right to use the invention, which is a composite material made of carbon nanotubes

and copper.

"When you run your personal computer, its main computer chip gets very hot," Li noted. "Normally, in your computer you have a heat sink, which is a block of copper with fins and a fan to cool the chip. The computer chip is attached to the heat sink, but the contact is very poor," Li explained.

"So we invented a hair-like structure for the intersection of the chip and the heat sink. These tiny, whisker-like hairs made of carbon nanotubes are grown directly on the heat sink surface," Li said. In addition, researchers added copper between the 'whiskers.' The copper fills only the lower portion next to the copper heat sink's surface. The additional copper layer helps anchor the feet of the carbon nanotubes in place and spreads heat laterally, according to Li.

"The carbon whiskers stick out like a brush, and make better contact with the computer chip to improve cooling of the chip," Li explained. The award also recognizes other inventions that he developed with his co-workers at NASA Ames, including a process to 'wire' multiple computer chip layers together using carbon nanotubes instead of copper.

"Using the new process, manufacturers will be able to add more cake-like layers of components to silicon chips to

increase computer capability," Li said. Because copper's resistance to electricity flow increases greatly as the metal's dimensions decrease, there is a limit on how small copper conductors can be, as well as how much current they can carry. In contrast, extremely tiny carbon nanotubes can substitute for copper conductors in smaller computer chips. Carbon nanotubes are much more robust than copper wires and can carry much more current.

In addition, Li's developments include implantable electrical-neural devices for potential uses in deep brain stimulation. Stimuli from these devices could help Parkinson's disease patients as well as those suffering from epilepsy. In the future, such implanted devices possibly will be able to read neural signals and input them into a computer or vice versa, according to Li. Implantable computer chips may help restore patients' impaired functions such as hearing and vision, he ventured.

Li has published more than 50 peer-reviewed technical papers and filed more than eight patents. Further information about the awards and NASA nanotechnology can be found on the World Wide Web at: http://www.nanotechbriefs.com/nano50_winners.html

BY JOHN BLUCK

Meyyappan elected president of Nano Council of IEEE

Meyya Meyyappan has been elected president of the Nanotechnology Council of the Institute of Electrical and Electronics Engineers (IEEE). The IEEE is one of the largest professional societies in the world with 365,000 members from 150 countries. The membership is divided among several divisions along specializations such as electron devices, optoelectronics, magnetics, computers, communications, medical electronics, etc. The Nanotechnology Council is sponsored by 20 such divisions and as an enabling field, it is open to the entire IEEE membership.

Meyyappan's term in the office will be for two years, starting Jan. 1, 2006. Meyyappan also is a Fellow of the IEEE and distinguished lecturer on nanotechnology.

"It is a great honor to be the president of such a large and prestigious organization. It is the role of engi-



Meyya Meyyappan

neers to convert the nanoscience out there into beneficial nanotechnology and that is where the Nanotechnology Council will be a critical player," said Meyyappan.

NASA and SpaceWorld team to inspire, involve and inform

NASA and the SpaceWorld Foundation signed an agreement on Nov. 1 that will dramatically enhance the visi-

In 2002, NASA and the SpaceWorld Foundation, then known as the California Air and Space Education Founda-

tures an SGI immersive theater, the largest on the West Coast; an Apollo 16 moon rock; NASA Ames-developed robotic rover prototypes; and other technology-related displays. The center is open to the public Tuesday through Friday, from 10 a.m. to 4 p.m., PST and Saturday and Sunday from noon to 4 p.m., PST. It is closed on Mondays and federal holidays. Admission is free. The NASA Exploration Center hosted nearly 150,000 visitors during its first full year of operation.



NASA photo Dominic Hart

Steve Zornetzer, Ames deputy director (acting) at the NASA, SpaceWorld agreement signing event held at Ames with Cliff Jernigan (right), chairman of the board of SpaceWorld Foundation.

tor experience at the present Ames-based NASA Exploration Center while paving the way for a future SpaceWorld at Hangar One.

Under terms of the three-year collaborative partnership, the SpaceWorld Foundation will develop space-related themes, content and exhibits for the NASA Exploration Center, while Ames will continue to provide staffing and other in-kind services for the facility. Current plans call for the NASA Exploration Center to remain open, as presently configured, for approximately 18 months. Then, after a short refurbishment period, the facility will re-launch as 'SpaceWorld at NASA' in mid 2007 with its brand new look and format.

"The NASA Ames/SpaceWorld collaboration will dramatically enhance what is already an outstanding venue for Bay Area residents and visitors," said Sally Ride, a member of the SpaceWorld Foundation board and America's first woman in space. "I am confident that it will inspire young girls and boys, in particular, and give them a chance to experience first-hand fascinating, real-world applications in science, technology, engineering and mathematics. This is truly exciting."

"We have been extremely gratified by the public's overwhelming support for our Exploration Center, which was opened to coincide with the Jan. 4, 2004 landing of the Mars rover Spirit. But it is now time to take things to the next level," said NASA Ames Center Director G. Scott Hubbard. "We intend to showcase the Vision for Space Exploration and ensure that everyone has the opportunity to be full participants in the journey to explore our universe," he said.

tion, initiated plans to develop a SpaceWorld-type facility in historic Hangar One on the NASA Ames property. Those plans had to be put on hold pending the Navy's resolution of a variety of environmental issues in the hangar. The Navy is currently evaluating its remediation options and is expected to announce its decision regarding the hangar's future very soon.

"The signing of the NASA Ames/SpaceWorld agreement is a tremendous start toward our future goal of launching 'SpaceWorld at Hangar One,'" said Cliff Jernigan, chairman of the board of the SpaceWorld Foundation. "Developing content for, and then operating, SpaceWorld at NASA will provide a wealth of experience for our foundation and those organizations that we hope will join us, while offering a bold, new destination spot for local residents and visitors alike."

The NASA Exploration Center encompasses approximately 9,300 square feet of exhibit space, and currently fea-

The SpaceWorld Foundation was created with two primary goals in mind: to develop a state-of-the-art, hands-on, interactive learning center for young and old alike, while protecting and effectively re-using the historic Hangar One facility at NASA Ames. In addition to offering an enhanced visitor experience, the foundation plans to develop educational programs in response to academic and professional trends. More and more technical professions demand astute math and science skills, which experience suggests cannot be developed solely in a classroom setting. One of SpaceWorld's key missions is to inspire the youth of today, with an emphasis on programs that resonate with girls and boys, encourage them to engage in math and science study, and help prepare them for the professions of tomorrow.

Additional information about the SpaceWorld Foundation is available on the Internet at: <http://www.spaceworldfoundation.org/>

BY MICHAEL MEWHINNEY

NBO, Technology Partnership expo held

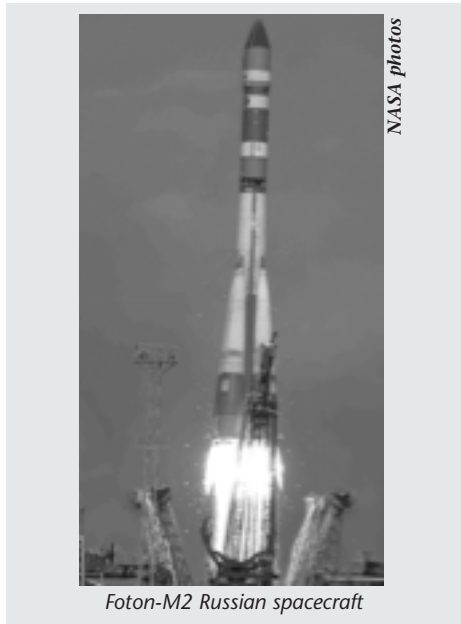


NASA photo by Tom Trower

On Nov. 3, Ames hosted the New Business Office (NBO) and Technology Partnership Division 2005 conference and exposition in the ballroom of Bldg. 3. At the event, attendees learned how the NBO and Technology Partnership Division can help them achieve their business development goals. Presentations began in the morning and covered tips for competitive proposals, benefits of collaborative partnerships and an overview of business development services available at Ames. Table-top displays showcased information on a highlighted software release, proposal writing and budgets, Space Act awards and starting collaborative partnerships.

Ames team completes successful research collaboration on Russian Foton-M2 spaceflight

Following the successful Russian Foton-M2 spaceflight (May 31- June 16, 2005), researchers from NASA Ames



(Drs. Richard Boyle, Eduardo Almeida) and the Montana State University, Bozeman (Dr. Barry Pyle), met with their Russian counterparts in Moscow, Oct. 26 through Oct. 27 to exchange preliminary science results.

The unmanned Russian research spaceflight, carrying bacteria, newts, geckos and snails, launched from Baikonur Cosmodrome and was recovered 16 days later in northern Kazakhstan. In an interesting footnote, this was the 130th launch from the same pad from which Yuri Gagarin launched on April 12, 1961.

The invitation to participate in this ongoing spaceflight research activity was extended by the Institute for Biomedical Problems (IMBP) in Moscow.

The US scientists representing NASA were invited to participate in four Russian experiments that were already reviewed, selected and funded by the Russian Academy of Sciences. The NASA researchers used this opportunity to study genetic structures, genetic stability, molecular-biological mechanisms of cell proliferation, tissue regeneration and the effect of microgravity on the electro-physiology of gravity sensing. The underlying goal for NASA is to use simple, easily maintained species, to determine the biological responses to the rigors of spaceflight and use the information to reduce the risks to hu-

man space travelers.

The legal basis for this bilateral interaction was a detailed barter agreement. Extensive negotiations over several months led to the Foton-M2 Enabling Agreement (EA) with its eight appendices specifying every aspect of scientific, operational and managerial interactions. The EA also detailed the integration of NASA science into the ongoing Russian experiments. The EA was signed by NASA and IMBP on Dec. 28, 2004. IMBP was the primary integrator for these experiments and its Biomedical Ethics Committee carried the responsibility for ensuring that the care and treatment of the animals conformed to appropriate standards.

The substantive preliminary findings from the Russian Foton-M2 spaceflight hold out the promise that significant scientific findings can result from our joint work. This collaboration demonstrates that successful, sound spaceflight research can be achieved in a relatively short timeframe in a very cost-effective manner. The more than 30 years of cooperation between IMBP and NASA Ames strengthens the hope that this successful activity will be a stepping stone to future, more robust, spaceflight collaborations such as Foton-M3 (2007) and BioCosmos-M1 (2010).

The NASA Ames management team included Mike Skidmore, project man-



'Regeneration-F2' investigators Victor I. Mitashov, of the Koltsov Institute of Developmental Biology (IDB), Russian Academy of Sciences, and Eduardo A.C. Almeida of Ames.

ager; Marilyn Vasques, science manager and deputy project manager; Galina Tverskaya, mission support and coordination and Vera Vizir, logistics and science implementation. The NASA Ames science team included: Richard Boyle, science lead and principal investigator; Eduardo Almeida, principal investigator and Barry Pyle, principal investigator, Montana State University, Bozeman.

BY MIKE SKIDMORE

Purpose of the Astrogram

The Ames Astrogram is how the Public Affairs Division strives to keep civil service and contractor employees informed about Ames programs, research and technology development, events (upcoming and recent past) and issues of relevance to personnel.

The Astrogram provides current information, news and feature stories

related to Ames and NASA. The paper is distributed around Ames, is posted on the Ames Web site and also is mailed to former employees, other NASA centers and other space-related institutions. It showcases noteworthy people, projects and events at the center, as well as key Ames and NASA messages, with in-depth feature articles and photographs.

Submitting a story

The Astrogram staff encourages employees to write stories about events and activities in their respective work areas, which provides Astrogram readers with a fresh perspective.

To submit a story to the Astrogram, please send it to astrogram@mail.arc.nasa.gov The

editorial staff will review your story for appropriate placement.

Please note: The editorial staff reserves the right to review and approve all content and determine its placement. The staff also reserves the right to edit all submitted materials for relevance, appropriateness, suitability, grammar, flow and length.

McTMA development team receives TGIR award

On Oct 25, the Multi-center Traffic Management Advisor (McTMA) development team at NASA Ames received the Increase Capacity and Mobility Award at NASA's Turning Goals into Reality awards ceremony. The team was recognized for its dedication in accomplishing NASA's aeronautics goals addressing the expected growth of air travel across the United States.

"McTMA is a significant, technical achievement, toward NASA's goal of increasing capacity, mobility and enabling more people to travel faster and farther, with fewer delays," said Michael Landis, chief of the Airspace Systems Projects Office at NASA Ames.

The McTMA is a decision-support tool designed to enhance Traffic Management Advisor (TMA) currently deployed to eight air route traffic control centers and scheduled for nationwide deployment by the Federal Aviation Administration (FAA) in fiscal year 2007. McTMA is designed to enable time-based metering of traffic in highly congested and complex airspace such as the northeast corridor of the U.S.

TMA, the precursor to McTMA that was also developed by NASA Ames, has demonstrated a 3 percent to 5 percent increase in throughput at FAA sites and has saved airspace users more than \$180M in delay reductions to date. McTMA is expected to provide up to a 5 percent increase in capacity in the northeast corridor along with large delay reductions, and will enable time-based metering to replace miles-in-trail restrictions and ground stops as a delay mechanism.

Over the past two years, the McTMA development team has successfully leveraged the TMA software to demonstrate new, key capabilities. Two significant innovations were developed in McTMA: the new data-sharing architecture and the 'distributed scheduler.'

The architecture enables facilities on the TMA network to share schedule predictions between them, improving the facilities' visibility into their impending traffic flows. The distributed scheduler enhances the original TMA scheduler to enable traffic to be scheduled from several facilities in a coordinated manner, while preserving facility independence to achieve the flow constraints

according to their own traffic demands and priorities.

This scheduler also provides the ability to schedule to any defined point in space, thus expanding the original TMA's capabilities beyond that of only managing arrivals to managing departures and overflights as well.

"This award has brought out a tremendous amount of pride from all involved with the project. The six supporting air traffic control facilities in the northeast, NASA, and our five contractors are very pleased that our hard work and perseverance have translated into an innovative technology that is being incorporated into the next version of TMA to be deployed by the FAA. We look forward to making similar things happen in the future," stated Ames aerospace engineer Ty Hoang.

McTMA was tested in the field over a two-year timeframe, which included 28 separate field activities. Each activity focused on demonstrating additional capability, validating new functional-

ity, and training. The last and most successful of the 28 field activities was a two-day, live operational demonstration conducted in November 2004 in the highly complex Northeast corridor.



NASA photo

From left to right: Dr. Julian Earls, director of Glenn Research Center; Dr. Jaiwon Shin, deputy associate administrator; Ty Hoang (NASA); Brian Stein, Methods Corporation; Tony Chambliss, Mitre-CAASD; Dr. Steven Landry (NASA); Larry Lamaine (CSC); Dr. Lisa Porter, Aeronautics Research associate administrator; and NASA Administrator Dr. Mike Griffen.

McTMA was used by TMCs to meter departure-release times for flights bound for Philadelphia International Airport from points of origin up to 450 nautical miles away.

The demonstration's success prompted the FAA to announce a planned deployment of TMA nationwide and is negotiating with NASA regarding a further transfer of McTMA technologies.

BY JONAS DINO

New guidelines available for developing communication materials

If you are one of the many people who develop communication materials to inform others about various activities or projects you are involved with, you should be aware of and follow the Communications Material Review process (CMR).

The CMR was established earlier this year to implement unifying elements, such as key messages and design standards, in all NASA-funded communications material. The CMR standards and processes apply to all products (with few exceptions) being developed for internal and/or exter-

nal audiences.

When the CMR was first introduced, an interim style guide was published to get the process started.

If you used the interim guide, you may have thought, "Boy, this could be so much better if....". Well, now's your chance. The CMR team has just published a new, more complete style guide - and they are asking for your input on how to make it even better.

To see the new style guide and to find out how to submit your comments for improvement, visit: <http://communications.nasa.gov>

Ames employees honor Hispanic Heritage month

The Ames community recently hosted 12 girls from Pala Middle School, located in San Jose. The primary rationale for this endeavor was to expose Latinas to careers in engineering and science.

The day began with hands-on scientific activities. The girls successfully completed astronaut crew training proce-

dures, relative to the Ames' Biomass Production System (BPS) experiment. The girls simulated the pollination and harvest of brassica in a weightless environment.

dures, relative to the Ames' Biomass Production System (BPS) experiment. The girls simulated the pollination and harvest of brassica in a weightless environment.

dures, relative to the Ames' Biomass Production System (BPS) experiment. The girls simulated the pollination and harvest of brassica in a weightless environment.

dures, relative to the Ames' Biomass Production System (BPS) experiment. The girls simulated the pollination and harvest of brassica in a weightless environment.

dures, relative to the Ames' Biomass Production System (BPS) experiment. The girls simulated the pollination and harvest of brassica in a weightless environment.



Pala Middle school students shown during the greenhouse ecosystem lab tour with Ames' Lee Bebout (center).

dures, relative to the Ames' Biomass Production System (BPS) experiment. The girls simulated the pollination and harvest of brassica in a weightless environment.

BY PATRICIA MONTES GREGORY



Cesar Chavez's sister Rita Medina (far left) is shown here with Pala Middle School students and Ames' Patricia Montes Gregory (front, right).

dures, relative to the Ames' Biomass Production System (BPS) experiment. The girls simulated the pollination and harvest of brassica in a weightless environment.

dures, relative to the Ames' Biomass Production System (BPS) experiment. The girls simulated the pollination and harvest of brassica in a weightless environment.

dures, relative to the Ames' Biomass Production System (BPS) experiment. The girls simulated the pollination and harvest of brassica in a weightless environment.

dures, relative to the Ames' Biomass Production System (BPS) experiment. The girls simulated the pollination and harvest of brassica in a weightless environment.

dures, relative to the Ames' Biomass Production System (BPS) experiment. The girls simulated the pollination and harvest of brassica in a weightless environment.

Robonaut, K10 robots assist astronauts



NASA photo by Dominic Hart

Johnson Space Center's Robonaut (foreground) performs a mock weld while Ames Research Center's K10 robot assists two astronauts shown in background inspecting a previously welded seam. The Peer-to-Peer Human-Robot Interaction (P2P-HRI) project is developing techniques to improve task coordination and collaboration between human and robot partners. The interaction will enable robots to collaborate in a competent, non-disruptive (natural) manner with users who have limited training, experience or knowledge of robots.

NASA Internet software 'zooms' to nearly anywhere on moon

Internet users can now take virtual 3-D trips to nearly any place on the moon, thanks to a NASA program first

magically at any location. That's what World Wind is like," said Mark Leon, chief of Ames' Education Division. "Not only has Hogan's team produced new technology with World Wind, but they have done so as open source computer code, so it is free for all who would download it," Leon added.

"NASA World Wind allows users to explore their (computer) environment at will," Hogan said. "This leads to much

greater engagement with, and by, the users and personalizes it for their own discovery." In contrast, movies are not as engaging, or immersive, in that the user does not control them, Hogan observed.

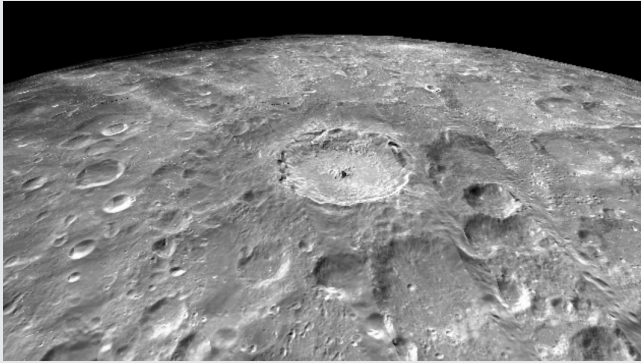
NASA World Wind is delivering terabytes of global NASA satellite data that are a result of years of daily observations of precipitation, temperature, barometric pressure and much more. Recently, hurricane Katrina data have been added to World Wind's collection of images. There are an estimated 10,000 daily users of World Wind.

In addition to improving World Wind by adding images of the moon, NASA programmers recently have increased the resolution of images of Earth from 3,281-foot (one-kilometer) resolution to 1,640-foot (500-meter) resolution in an upgrade called 'Blue Marble, Next Generation Earth.' Also, some World Wind data sets include images of the entire Earth at 49-foot (15-meter) resolution. The United States data in World Wind is at 3.3-foot (one-meter) resolution with some urban areas at one-foot (0.33-meter) resolution.

World Wind has been enabling hundreds of thousands of Internet users to zoom from satellite altitude into any place on Earth to see across the Andes, into the Grand Canyon, over the Alps or along the African Sahara. World Wind accesses public domain United States Geological Survey aerial photography and topographic maps as well as space shuttle radar topography mission and Landsat satellite data.

The personal computer (PC)-compatible World Wind program is available free of charge via Internet 'download.' Computer users from more than 100 nations have acquired the free World Wind program, though most users are from the United States. To download World Wind, visit: <http://worldwind.arc.nasa.gov/>

BY JOHN BLUCK



NASA photo

Moon photo taken by NASA's Clementine spacecraft, accessible as part of a virtual tour on the Whirl Wind Web site.

designed to show aerial views of the Earth.

The newly expanded NASA 'World Wind' computer program can 'transport' Web users to almost any place on the moon, when they zoom in from a global view to closer pictures of our natural satellite taken by the Clementine spacecraft in the 1990s. Computer programmers at NASA originally designed the World Wind program to deliver satellite images and data of Earth to the Internet. Users can see detailed 3-D pictures of the Earth's land surface, including its elevation and climate.

"We have just digested the best of the Clementine images, so we can now deliver the moon at 66 feet (20 meters) of resolution," said Patrick Hogan, manager of the World Wind Project Office at Ames. "This is a first. No one has ever explored our moon in the 3-D interactive environment that World Wind creates," noted Hogan.

Launched in early 1994, Clementine took 1.8 million pictures of the lunar surface during a two-month orbit of the moon. The Ballistic Missile Defense Organization and NASA jointly sponsored the Deep Space Program Science Experiment that included the Clementine spacecraft. Its principal objective was to 'space-qualify' lightweight imaging sensors and component technologies for the next generation of Department of Defense spacecraft.

"Imagine riding a magic carpet through the world and being able to zoom down to any point, or appear

Ames visits Explorer school in Washington



NASA photo by Jonas Dino

Washington Governor Christine Gregoire addresses students in October at the NASA Explorer School, Key Peninsula Middle School, in Lake Bay, Wash.

Ames Contractor Council presents annual safety awards

On Nov. 2, the Ames Contractor Council presented its third annual safety excellence awards. The awards are presented each year to an individual and to



Sergio Castellanos, left, facility manager, NASA Ames Conference Center shown here with Lewis Braxton III, director, Center Operations.

tor Council and Ames center management presented the winners with their awards.

The winner of the 2005 individual award was Sergio Castellanos for his



Linda McCahon, president, Ames Contractor Council; Stephen Kihara, program manager, Sierra Lobo, Inc; Lewis Braxton III, director, Center Operations; and Michael Weiss, chairman, Safety Outreach Committee, Ames Contractor Council.

Sierra Lobo, Inc. won the group contractor award for the second consecutive year. Sierra Lobo provides engineering, operations and maintenance support to the arc jets, sensors lab and ranges for the Thermophysics Facilities Branch. Stephen Kihara, Sierra Lobo's program manager, accepted the award. Sierra Lobo has demonstrated that it has a well-developed safety program that not only protects its workers, but also provides excellent safety support for its civil service co-workers.

a contract team that embody and exhibit the shared NASA goal of safety excellence. A team of volunteers evaluated the nominations and the Ames Contractor

extensive involvement in safety issues at the NASA Ames Conference Center. Castellano is the facility manager for the center, Building 3 and has demonstrated a proactive approach to safety that is results oriented.

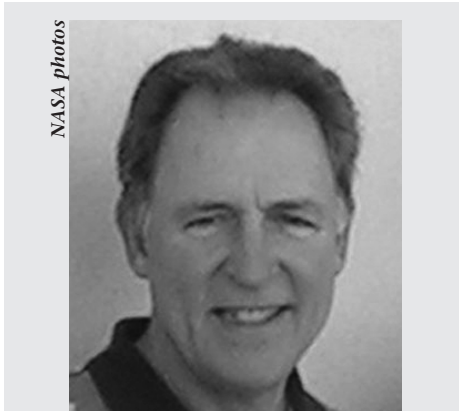
Linda McCahon, Ames Contractor Council president, and Lewis Braxton III, director, Center Operations, who was the acting deputy center director at Ames at the time, presented the awards.

BY MICHAEL WEISS

AAAS honors Ames' Russell and Lee as Fellows

Philip B. Russell and Timothy Lee of NASA Ames recently were named Fellows by the American Association for the Advancement of Science (AAAS).

Russell, a research scientist in the Atmospheric Chemistry and Dynamics Branch, was honored for his pioneering work and scientific leadership in the



Philip Russell

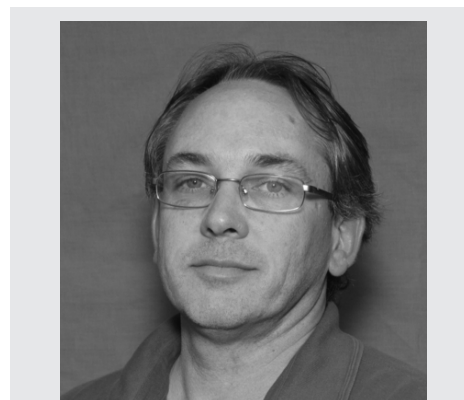
measurement of aerosol properties and the effects of haze on the Earth's energy budget and climate.

"I feel extremely honored to be elected as a fellow of such a prestigious organization as AAAS," Russell said. "Frankly, this is something I didn't expect to achieve in my life. Looking at the list of previous electees from the atmospheric sciences community makes me realize I've been placed in very distinguished company."

Lee, acting branch chief of the Astrophysics Branch, was recognized for his significant research in applying state-of-the-art ab initio theory to help solve important problems in spectroscopy and atmospheric chemistry.

"I feel very pleased to have been given this honor," Lee said. "There are not many AAAS Fellows among NASA scientists, approximately 15 throughout NASA, so it is rather rare."

The AAAS is the world's largest general scientific society and publisher of Science journal. Established in 1848, the goal of this non-profit organization is to "advance science and serve society" through initiatives in science policy, international programs, science education and more.



Timothy Lee

"Awards like this impact the science community by indicating the sub-fields and activities that AAAS considers worthy of special recognition," Russell said. "Hopefully, this inspires others in the field to continue striving for scientific excellence."

Russell and Lee will be honored Feb. 18 at the 2006 AAAS annual meeting in St. Louis, Mo.

BY KELLY GARCIA

Lessons learned in project management, systems engineering

The following is a Lessons Learned (LL) describing how one Ames project used a combination of oversight and insight to ensure its contractor's quality assurance (QA) processes were efficient and effective.

The LL were as follows. First, each vendor needs a tailored degree of oversight versus insight and sometimes the only way to determine this balance is empirically. Second, in-plant inspections can be misleading. Third, a contractor's QA system, even as measured by a standard like ISO, cannot be

blindly trusted. Last, the travel budget constrains the amount of in-plant contractor visibility the project will have.

The recommendations were as follows. First, projects should develop QA plans and processes that can be tailored to variable amounts of insight/oversight commensurate with the risk associated with the activity in question. However, the project must ensure that a contractor's QA system is compatible with this scaling and meets the minimum requirements set forth in the project's plan. Second, projects should consult other

projects that have worked with the same vendor to acquire both a historical and current picture of the vendor's capabilities. Third, projects should plan to conduct pre-award audits and at least one annual unannounced on-site visit to witness vendor QA practices firsthand. Last, when planning its budget, projects must include enough travel to ensure a qualified QA professional will be in place for all high-risk activities.

BY DONALD MENDOZA

Horowitz outlines exploration goals

continued from front page

efficiency.

"It's an exciting time," said Horowitz, who retired from NASA and the Air Force in 2004 and joined ATK Thiokol Inc. As its director of space transportation and exploration, Horowitz led the development of a strategy for the company to support the Vision for Space Exploration.

In support of the Vision for Space Exploration, Horowitz said NASA has developed new strategic goals, including completing the International Space Station and retiring the space shuttle by 2010. As soon as possible after the space shuttle is retired -- perhaps as early as 2010 -- he said the agency plans to develop and fly a new Crew Exploration Vehicle for future missions to the moon and Mars.

Horowitz also said the agency will develop "a balanced overall program of science, exploration and aeronautics consistent with the redirection of the human spaceflight program to focus on exploration." In addition, he said NASA will "encourage the pursuit of appropriate partnerships with the emerging commercial space sector."

Calling the work needed to implement the vision "exciting and challenging," Horowitz also stressed its importance for the nation. He said the agency's new strategic goals can only be accomplished if everyone works together as a team.

"I plan to work very closely with the people here at Ames," Horowitz promised. "I'm a true believer in teamwork. It's a team effort at every level. As a group, we'll make it. If we don't work together, it won't get done."

He said Ames has a major role in implementing the Vision for Space Ex-

ploration, including managing the new Robotic Lunar Exploration Program, helping develop the Crew Exploration Vehicle and the Crew Launch Vehicle and launch/mission systems.

"We need to build beyond our current capability to ferry astronauts and cargo to low-Earth orbit," Horowitz said. "Our steps should be evolutionary, incremental, and cumulative."

A retired U.S. Air Force colonel who

served as an F-15 fighter pilot, Horowitz was selected as an astronaut in 1992 and is a veteran of four space shuttle missions, including servicing the Hubble Space Telescope and two flights to the International Space Station. He has logged more than 1,138 hours in space.

"Our destiny is to explore," Horowitz concluded. "I believe this is the future of our country - and the world."

BY MICHAEL MEWHINNEY

External Awards call for nominations

Utilizing the External Awards Program to recognize exceptional employees and their work is one way of demonstrating employee appreciation. Please take the time to review the current awards that are now accepting nominations. To obtain more information about each award and nomination forms, please visit the following Web site: <http://nasapeople.nasa.gov/awards/documents/ExtAwardsCalendar2.doc>

All nominations require approval of the sponsoring organizational director. Nominations are due to the Ames Incentive Awards Office by the deadline provided below which will then prepare the nomination pack-

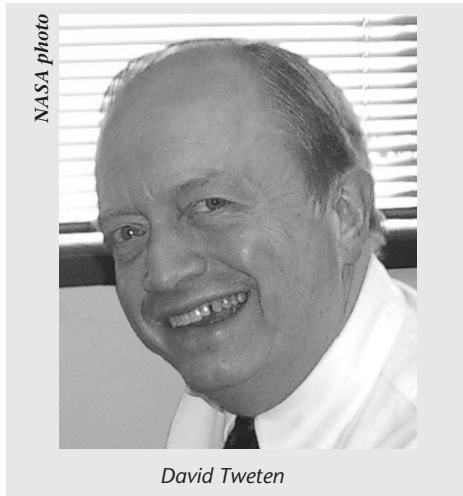
age for signature and submit the complete package to meet the deadline of the award. For more information, contact Lynette Forsman at ext 4-5267.

Award categories are:

- Francois-Xavier Bagnoud Aerospace Prize
Deadline Dec. 16, 2005
- Women In Science and Engineering (WISE) Awards
Deadline Dec. 30, 2005
- White House Closing the Circle Awards
Deadline Dec. 30, 2005

NAS division's chief security officer Dave Tweten remembered

Highly principled. Extremely intelligent. Deeply conscientious. Quick-witted and funny. These are just a few of the qualities ascribed to Ames friend and co-worker David L. Tweten, who passed



David Tweten

away unexpectedly on Oct. 7, 2005. He was 57.

Tweten's tall frame, wide grin and blue eyes made him an unforgettable presence at Ames, especially at the NASA Advanced Supercomputing (NAS) facility, where he was one of the first civil service employees hired. As chief computer security officer for the NAS Division, Tweten logged many extra hours to ensure that the agency's foremost supercomputing center was protected against hackers. When a rare security compromise did occur in May 2004, Tweten guided the effort to keep critical NASA mission-related computational projects running while security patches were completed, for which he was recognized with a NASA Honor Award.

As a security official, Tweten was never heavy-handed in carrying out the stringent regulations he enforced and he never exploited the inherent power in his security role. His strong belief in the U.S. Constitution and civil liberties was truly a cornerstone of his life. When Ames stepped up its random vehicle inspections after the 9-11 terrorist attack, Tweten chose to walk through the guard gates, upholding his belief in a citizen's right to privacy.

These strong beliefs were echoed in his active participation in the Ames Federal Employees Union (AFEU). Tweten firmly believed in the union movement and the importance of its role at the center. He honorably served the union

in many capacities over the years, including as AFEU treasurer, chairman of the constitution committee and union steward. He played a critical role in overseeing AFEU elections. Union associates recall that Tweten was a wise and patient mentor, and unfailingly provided a calm voice of reason in any discussion.

Tweten grew up in Redding, Calif., and received a bachelor's degree in engineering from the University of California, Berkeley. Tweten's parents, Emil and Myrtle Tweten, still reside in Redding, where he made frequent trips to visit. Emil recalls that Tweten fre-

quently said he would rather be in a place where there are more trees than stop signs. To honor that wish, a private service was held in his hometown, and he rests in a spot where there are lots of tree surrounded by mountains.

The family has suggested that donations in Tweten's name be made to Big Brothers Big Sisters of America and Habitat for Humanity. A memorial service and tree-planting ceremony will take place at Ames on Dec. 7, 2005.

For a more complete article on Tweten, please visit: <http://www.nasa.gov/News/2005/11.22.05>.

BY JILL DUNBAR

Former instrumentation division chief passes on

James Aubrey White died at his home in Pioneer on Oct. 8. He was 97 years old. He was a native of Mt. Vernon, Wash.

White graduated from the University of Washington in 1931 as an electrical engineer and was awarded membership in Phi Beta Kappa Honor Society. He supported himself through college by working as a surveyor in a logging camp. In 1931, he was hired by NACA at Langley Field in Virginia and assigned to the full-scale wind tunnel section.

He moved to California in 1940 to help establish the NACA Ames Laboratory at Moffett Field, where he was appointed head of the electrical branch. In 1962, he earned a master's degree at Stanford University. He continued to

work at NASA as chief of the instrumentation division until his retirement in 1968. He retired in Mendocino County and in 1988 relocated with his wife to Pioneer.

White's wife, Dorothy, preceded him in death in 1996. He is survived by two daughters, Janet Schwendig of Pioneer and Shirley Wilkinson of Seattle, Wash.; four grandchildren; and six great grandchildren.

Beloved by his family, he was an inspiration to them, his colleagues at the laboratory and everyone who knew him. Burial was at Amador Memorial Cemetery. Memorial contributions may be made to Hospice of Amador, P.O. Box 595 Jackson, 95642 or TriCounty Wildlife, 16937 Stage Road, Sutter Creek, 95685.

2005 CFC - Striving to meet the goal

The CFC team thanks the Ames community for its generous outpouring of support for the hurricane relief and the Combined Federal Campaign (CFC). An ambitious goal of \$240,000 was set for the regular campaign this year. The CFC campaign - originally scheduled to run from Oct. 12 to Nov. 1 - was extended to Nov. 30.

The progress during the campaign was shown on the goal thermometer by the main Ames gate and on the CFC Web site <http://cfc.arc.nasa.gov/>. A final tally of donations received in 2005 will be given in the next issue of the Astrogram.

BY LARRY LASHER, 2005 CFC CHAIRPERSON

NRP partner IntelligenTek, going for the gold

Julius Lin, founder and CTO of IntelligenTek, dreams big. "Someday, we want to be a leading company in the 'ubi-comp' (which means ubiquitous - 'anywhere anytime anyone') computing industry," he said.

virtual reality interface markets and expects to have a product in the market by 2007.

Their technical breakthrough is a proprietary human-machine 3-D interface that can make a regular keyboard and mouse disappear for a computer user, providing both portability and weightless computing. This is possible since the keyboard and mouse are embedded in a tiny computer, a device potentially useful in future NASA exploration. "The computer mimics a user's real movements and interacts in 3-D, so it seems real," Lin said.

Sony Corp. now has a 2-D computer interface called 'I-Toy' but the 3-D inter-

face market is still wide open, Lin said.

Another niche for IntelligenTek is the keyboard simulator market. IntelligenTek's technology can act as a '3g' or '3c' mouse or keyboard device, allowing ubiquitous 'anywhere, anytime anyone' computing. IntelligenTek's goal in this niche is to turn the chicklet-sized keyboard of a cell phone or BlackBerry into a virtual full-sized keyboard.

IntelligenTek's patented technique works via automatic data collection using vision, hearing and real-time object tracking.

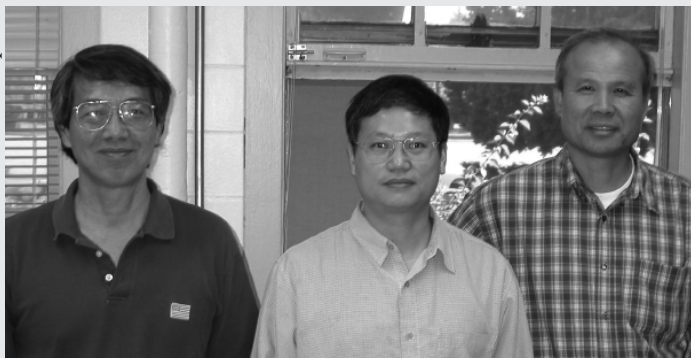
IntelligenTek is currently moving out of the proof-of-concept and prototype design phase and into product development mode. "We've three weeks left in the prototype development stage," Lin asserted.

The firm recently hired business wizard Richard Nedinsky as the new vice president of business development, to look for Series A venture capital funding to develop a prototype chip.

Nedinsky is doing the research and

continued on page 14

NASA photo



Intelligent Tek employees, left to right: Larry Wang, platform specialist; Julius Lin, founder and CTO; and Norman Lee, technical staff member.

The fledgling one-year-old IntelligenTek, an industry partner in Bldg. 19 at NASA Research Park, is targeting the virtual workstation and 3-D

Environmental author discusses Biomimicry at Ames

Biomimicry is the science that studies nature's models, and then imitates or takes inspiration from these designs and processes in order to solve human problems. On Sept. 7, NASA Ames' Environ-

mental Services Office hosted Janine Benyus, author of Biomimicry, who shared numerous examples of ways nature solves design problems with which humans struggle.

Benyus shared the example of KEVLAR® brand fiber, a Dupont product that combines high strength with light weight. Products made with KEVLAR® range from protective apparel and sports equipment to automotive parts and ropes used on the Mars Pathfinder. It is one of the strongest and toughest high-tech materials available today. But how is KEVLAR® manufactured? It is made by pouring petroleum-derived molecules into a pressurized vat of concentrated sulfuric acid, then boiling it at several hundred degrees Fahrenheit and finally subjecting it to high pressures to force the fibers into alignment.

Comparably, nature takes a lower impact approach when creating one of its strongest and toughest materials - a spider web. The Golden Orb spider produces a waterproof silk that is more elastic than KEVLAR® and five times stronger than steel. But the spider manufactures it with water, at room temperature, and without high heat, petroleum, hazardous chemicals or high pressure. Imagine if the fiber industry employed process strategy that used renewable raw materials and negligible energy without creating waste and generated a product superior to the competition! The

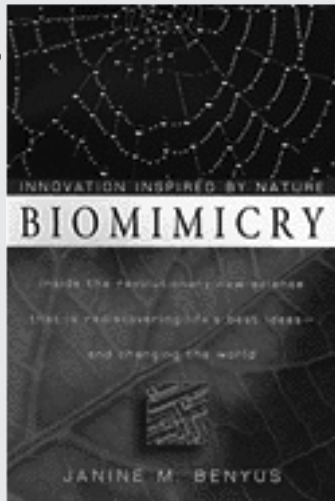
380-million-year-old spider silk production method is one example of the immense opportunity there is to learn from nature.

Benyus suggested other problems with which humans grapple that nature has already solved. What can we learn from the movements of schools of fish, hives of bees, or swarms of locusts that could help air traffic control operations guide aircraft traffic safety? How can the noise of a bullet train when it travels in and out of tunnels be diminished by redesigning the engine's nose based on the beak of a Kingfisher, a bird that travels from air to water with almost no noise? Can humans replicate the snake's ability to shed its skin in the design of plastic packaging that might last only as long as it is needed, not decades after the product is gone?

As Benyus described, organisms have managed to do many things humans want to do, but in a manner that has a lower environmental impact and ensures the well being of generations far into the future. Nature presents the most efficient models available. By learning more about nature's eco-effective designs, humans will be able to move toward a more sustainable society.

BY JUSTINE BURT AND STACY ST. LOUIS

NASA photo



The book 'Biomimicry' written by Janine Benyus

mental Services Office hosted Janine Benyus, author of Biomimicry, who shared numerous examples of ways nature solves design problems with which humans struggle.

Project Columbia wins GCN Agency Award for Innovation

On Oct. 11, the Project Columbia team was awarded a 2005 Government Computer News (GCN) Agency Award for Innovation at the annual GCN awards gala hosted at the Washington Hilton and Towers in Washington, D.C. Project Columbia lead William Thigpen

prised primarily of computer scientists and engineers from the NASA Advanced Supercomputing (NAS) Division, and major NASA industry partners Silicon Graphics Inc., and Intel Corp., built and deployed a 10,240-processor SGI Altix supercomputer in an unprecedented 120

days. This system, named 'Columbia' to honor the late crew of the space shuttle Columbia, simultaneously supports all four NASA mission directorates and the NASA Engineering and Safety Center.

The world-class system was procured, integrated and brought online by the NAS Division

to meet NASA's pressing demands for greater high-end computing capabilities for solving problems unique to the agency: emergency capabilities such as

those needed to investigate the February 2003 space shuttle Columbia accident; returning the space shuttle to service; feasibility studies for making critical in-flight repairs during future space missions; and the president's Vision for Space Exploration to return to the moon and Mars. Upon installation, Columbia increased the agency's computing capacity 10 fold, and almost instantly began meeting science and engineering challenges not previously possible.

From a field of 132 nominations, the Columbia project was one of just 10 selected by PostNewsweek's editorial team to receive this coveted honor. Winners were selected from a pool of nominees from U.S. federal, state and local government organizations based on their excellence in applying information technology, supporting program or policy requirements, and improving service delivery.

In addition to the awards ceremony, which drew approximately 1,000 attendees from both industry and government, NASA was recognized in a special Oct. 10 edition of Government Computer News.

BY HOLLY A. AMUNDSON



Photo courtesy of Intel

Left to right: Bill Thigpen (Ames); David Barkai (Intel); Bart Heisey (Intel); and Anthony Robbins (SGI) at the Government Computer News award gala held on Oct. 11 in Washington, D.C.

was on hand at the prestigious black-tie event to accept the award on behalf of the team.

The Project Columbia team, com-

Ames employees aid Stennis' Katrina victim employees

Hurricane Katrina hit on Monday morning, Aug. 29, coming ashore on the Gulf Coast with a vengeance. Families at our NASA sister center, Stennis Space

this time of need. Through the efforts of Wendy Dolci of the New Business Office and Yvonne Pendleton of the Space Science and Astrobiology Division, connections have been made between families at Ames and families at Stennis, so that needs can be identified and provided for on a case-by-case basis.

Friendships are developing that will be long-term and supportive throughout the months ahead.

The first shipment of large items to Stennis families will leave NASA Ames on Dec. 2.

If you would like to participate in this effort you can do so in a number of ways. 1) Volunteer to adopt a family or to share in the support of the family with one or more of the current Ames volunteers; 2) do-

nate small household items, warm clothing, tools, games for children, books and or gift cards to the general fund; or 3) make a financial contribution to support the cost of shipping.

If you would like to do any of the above, contact Wendy Dolci at e-mail wdolci@mail.arc.nasa.gov, ext. 4-6358 or Yvonne Pendleton at e-mail ypendleton@mail.arc.nasa.gov, ext. 4-4391.

If you would like to read more about this effort or sign up online, please visit the Internet Web site at: <http://spacescience.arc.nasa.gov>. A collection site has been created at the shipping area of bldg 255 to make deliveries convenient.

All employees, whether or not they have signed up to adopt a Stennis family, are invited to make donations. Please place the items in labeled boxes, and bring them to shipping in building 255 by close of business on Dec. 1. Items need not be packaged quite as carefully as if they were being sent separately since they will be placed within a larger container. Items intended for specific people at Stennis, or just for general distribution, are welcome.

BY YVONNE PENDLETON



NASA photo

NASA employees at Stennis Space Center, along with their families, send a heartfelt thank you to NASA's nine other field centers and Headquarters for their help recovering from Hurricane Katrina's devastating effects. The 'thank you' photo was taken during a NASA 'family feast' gathering held Nov. 17 in the Atrium of Stennis' administrative building.

Flight Center, are still putting their lives back together and many have lost everything and had no flood insurance.

A grassroots volunteer effort at NASA Ames is reaching out to help in

Retired NASA employee receives AIAA FE Newbold award

Dr. Richard J. Margason recently received the American Institute of Aeronautics and Astronautics F.E. Newbold V/STOL Award for 2005. This award



Dr. Richard J. Margason with the recent AIAA F.E. Newbold V/STOL award for 2005.

was presented at the 2005 International Powered Lift Conference, held as part of the 2005 SAE AeroTech Conference, on in October in Grapevine, Texas.

The citation for the award reads as follows: "For over 40 years of continuous leadership in the research of pow-

ered-lift V/STOL aircraft aerodynamics, performance and stability and control."

The AIAA F.E. Newbold V/STOL Award is presented to recognize outstanding creative contributions to the advancement and realization of powered lift flight in one or more of the following areas: initiation, definition and/or management of key V/STOL programs; development of enabling technologies including critical methodology; program engineering and design; and/or other relevant related activities or combinations thereof which have advanced the science of powered lift flight.

Margason began his career at Langley and transferred to Ames in 1987 as the branch chief of the Fixed Wing Aerodynamics Branch. He was responsible for the continued testing and analysis of the E-7 Ejector V/STOL fighter concept. In 1989, he went back to being a research engineer and broadened his research activities to include analysis of methods for estimating hot gas ingestion and helping others in the development of computational fluid dynamics (CFD) methods for estimating jet-induced effects.

In 1993, he was published in the AGARD 72nd Fluid Dynamics Conference on Computational Fluid Dynamics Conference on Computational and Ex-

perimental Assessment of Jet in Crossflow with a paper entitled 'Fifty Years of Jet in Crossflow Research.' He is the author or co-author of numerous papers in the area of a jet in crossflow.

Margason was also a key player in the testing and analysis of the Joint Strike Fighter (JSF) Large-Scale Powered Model Program (1993-1996) and as a major player in the the JSF Program Office Air Vehicle Analysis and Integration Integrated Product Team until his retirement in 1996. In this capacity he developed an improved method for non-dimensionalizing jet V/STOL forces and moments for configurations with one or more supercritical jets.

After having been the research advisor for 32 theses at nine universities, he received his Ph.D in 1996 from the Naval Postgraduate School at Monterey. His thesis was titled 'Investigation of the Effect of Two-Dimensional Cavities on Boundary Layers in an Adverse Pressure Gradient.'

In 1996, Margason retired from NASA but continues to play an active in the V/STOL area as a consultant to various industry and government agencies. He is an associate fellow in the AIAA. He currently lives in Williamsburg, Va., with his wife Jennifer.

BY DOUG WARDWELL

Ask the 'Protective Services Wizard'

Preparing for a large-scale disaster

Question:

How can we be prepared for a large-scale disaster?

Answer:

The best way to make you safer is to be prepared.

- Make a plan -- Establish a communications/reunification plan with family and friends that includes an evacuation plan that coordinates with your home, work, school and community activities. Practice this plan.

If you commute to work, plan and practice alternate routes and carry appropriate supplies such as a disaster supplies kit in your car and/or a compact disaster supplies kit for when traveling via public transportation.

- Prepare and build a disaster supplies kit* -- One that includes enough supplies for each family member for three days. Remember to check your kit every six months.

*There are six basic items you should stock for your home in the case of an emergency: Water, food, first aid supplies, clothing and bedding, tools and emergency supplies and special items for medical conditions. Keep all of these items in an easy-to-carry container. See the Red Cross Web site that follows for tips on food and water storage.

- Disasters at work -- If the disaster occurs when you are at work, know what to do. Study your building evacuation plan and know where you are supposed to exit the building and meet up with your colleagues. Be

aware of hazards in and around your office.

Remember that all of these ideas are just mere preparations and that you can never be fully prepared for the unpredictable. Remember to stay calm, don't panic and be prepared for self-supporting your situation in the event that a disaster happens. Keep in mind that relief workers may not be able to respond to you immediately.

More disaster preparedness information can be found on the Internet at: www.redcross.org or at www.fema.gov.

If you have a question for the Protective Services Wizard, then e-mail your question to kw Walsh@mail.arc.nasa.gov.

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 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.

Nat'l Association of Retired Federal Employees (NARFE). Former and current federal employees. Your only contact with Congress. Join to protect your federal retirement. Chptr #50 will then meet on the first Fri. of each month at HomeTown Buffet, 2670 El Camino (at Kiely), S. Clara, 11 a.m. lunch. POC Earl Keener (408) 241-4459 or NARFE 1-800-627-3394.

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.

Environmental Services needs your help

NASA Ames' Environmental Services Directorate is looking for historic information about an area of Ames' property near the wetlands. Specifically, the department is seeking facts about a peninsula of fill soil that exists near building 267, gate 16C, off the North Perimeter Road.

- When was the project done?

- Where did the soil come from?
- Was anything else buried in the fill?

If you have any knowledge of activities related to this site, please contact Don Chuck at ext. 4-0237 or Kran Kilpatrick at ext. 4-0230. Your feedback is greatly appreciated.

NRP partner

continued from page 11

competitive analyses to ascertain which niche the company targets first.

The time frame is ambitious; the company expects to begin manufacturing chips for one of these markets in about one year.

Downstream markets include helping NASA accurately track space shuttle debris and working with the Department of Defense to track missiles, Lin said.

IntelligenTek currently has four full-time employees and two part-time consultants and technical advisors from Stanford University and University of California Berkeley.

Lin has degrees from the National Taiwan University and Cleveland State University and served as senior member of the technical staff at Applied Materials Corp. through 1999.

Projecting where IntelligenTek will be by 2010, Lin said: "I think we could aim for an IPO."

BY KATHY BURTON

For All Your Supply Needs On Installation

NASA Ames Supply Store • Building N255 • DeFrance Ave. (North Side)

Huge In-Store Selection
50,000 Catalog Items
FREE on Installation Delivery



- Office Products
- Paper
- Paper Products
- Janitorial & Cleaning Supplies
- Computer Accessories
- Furniture & Tools

Retail Store
650-604-6801 • Fax 650-604-6802
On-Line
www.aibexpress.com

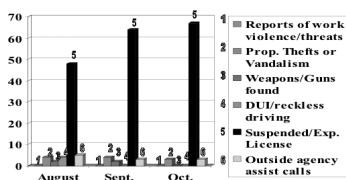
Associated Industries for the IBM, AIB, JWGD and NIB Member

Protective Services monthly activity

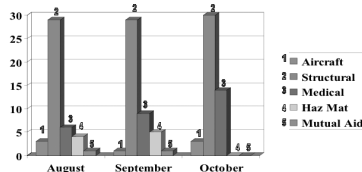
A statistical summary of activities of the Protective Services Division's Security/Law Enforcement

and Fire Protection Services units for the month of Oct. 2005 is shown below.

Security/Law Enforcement Activity



Fire Protection Activity



New KARC posting

As part of the center's continuing effort to keep Ames employees informed about changes at the agency and their implications for Ames, you are invited to tune in to a new edition of KARC, found on-line at <http://karc.arc.nasa.gov>.

KARC is an important venue for the Ames family to hear in-depth discussion on issues that affect us all. This latest broadcast features a discussion of the buy-out and where we stand as a center in terms of our overall work force numbers.

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 utils, for a quiet, neat, stable and conscientious person or couple. E-mail jims@eos.arc.nasa.gov; ham call wb6yoy or call ext. 4-5720.

Room in 4 bd/2 ba home, excellent, quiet Mtn. View area close to Ames. W/D, microwave, wired for cable modem. Tidy person and N/S. Easy access to Ames, H-85, 237 and 101. \$425 and dep. and share utils. Avail. Dec. 1, possibly sooner. Call (650) 964-1900.

Room for rent, separate entrance it is in a nice condition. There is a shopping center close by, the laundry mat is located there to do your laundry. It is located in a convenient location. Rent is \$650 per month, with utils. included. No pets and no smoking. Place is located at San Mateo, Shoreview. Prefer only one person living there. It is furnished. Maria (650) 347-0224.

For rent, spacious 2 story 2 bd/1.5 ba townhome in Fremont. Quick Access to 880 and 84/ Dumbarton Bridge. Nice Ardenwood area plus short drive to nearby shopping, dining and entertainment. Nearby parks, creek side trails. Large master bdrm w/mirrored closets. Laundry room w/ full size W/D. Large dining area with view of enclosed front lawn. New paint and carpeting. 1056 sq. ft. Walk outside front door to an enclosed spacious front patio w/ lawn and sprinkler system. No unnecessary walking needed. Carport and mailbox right in front of patio gate of property. Also has attached storage unit outside. \$1,595 per/ mo - w/ \$1,000 deposit. Email: jaekae@gmail.com or call (510) 209-1311.

Room for rent in an apartment in Sunnyvale. Looking for mid week renter, Monday-Thursday. The nights are negotiable. \$300 a month. Shared kitchen and bathroom. Will be available in February. 4 miles from Ames. Call Phyllis (408) 732-6712.

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.

Pioneer 6-disc CD player with 8 extra changer cartridges. Black finish, works perfectly, \$35. Call (408) 295-2160.

1/2 share in Skylane C182A, \$24,000. New paint and recent annual. Good condition. Basic IFR panel. Can base at LVK, 4Q5, TCY, possibly elsewhere. Key Dismukes. Call (408) 938-0455.

Cambridge Soundworks and Polk Audio PC sound system. Powered subwoofer with volume control and Polk Audio satellites. \$30. Call (408) 295-2160.

Transportation

'86 Nissan Sentra, engine and manual transmission are in great condition. Flavio Viajar (408) 923-5138.

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 \$40 - \$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: tw4lsb@aol.com

Vacation Opportunities

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

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

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 bd/2ba, sleeps 8. Fireplace, TV/VCR/DVD, MW, W/D, jacuzzi, sauna, pool. Walk to Lake, close to ski areas. Visit Web page for pictures: <http://www.ACruiseStore.com>. \$120/night low season, \$155/night high season (holidays higher) plus \$156 cleaning fee and 12% Nevada room tax. Charlie (650) 366-1873.

Disneyland area vacation rental home, 2 bd/1ba. Nearing completion completely remodeled w/new furniture. Sleeps 6 (queen bed, bunk beds, sleeper sofa). Air hockey and football tables. Introductory rate \$600/wk, once completed rate will be \$1000/wk. Security deposit and \$100 cleaning fee required. Call (925) 846-2781.

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 Ile-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).

West Maui vacation at Kahana Falls, across street from beach. Thanksgiving week 19-26 Nov 05, \$630/wk. 1bd/2 ba, w/d, fk. For 2 adults, 0 to 2 kids. Call (650) 962-1314 after Aug 7.

San Francisco, Donatello Hotel, small, deluxe hotel, one block from Union Square, 5 nights available to be scheduled either together or individually, \$125 per night. Call Barry Cunningham (510) 793-4457 or e-mail EZrdrdad@comcast.net

Vacation rental. Ferndale - The Victorian Village. Victorian home on Main Street a short stroll to the Village which has been designated as a state historical landmark. Enjoy the many holiday activities which include a Christmas parade and lighting of America's tallest living Christmas tree. Four bedrooms (sleeps approx. six), two full baths, large kitchen, dining room, parlor w/fireplace, enclosed desk w/hot tub. For info call (707) 983-9514.

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. \$500/wkend, \$200/addl night, 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.

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.

Ames contractors recognized at awards ceremony



The 2005 Ames Contractor Council Excellence Awards were presented on Nov. 17 at Ames to recognize the outstanding contributions that contractors at Ames make to the center. Shown here at left are ceremony attendees at a reception following the presentation of awards.

NASA photo by Tom Trower

Delegation from Mexico tours Ames



In November, a delegation from Mexico visited Ames in association with the opening of a photographic exhibit in the Mexican consulate in San Francisco on Mayan and NASA solar astronomy. The opening was co-hosted by the consulate general of Mexico in San Francisco, the Office of Tourism of the Yucatan and the University of California Berkeley Sun-Earth Connection Education Forum. In the exhibit, NASA images were juxtaposed with solar archeo-astronomy of the Maya. The delegation included an archaeologist from Mayan archaeological sites who has worked with University of California Berkeley in the context of solar traditions through time and cultures, as part of the University of California ancient observatories project. University of California Berkeley requested the tour as an opportunity to thank Mexico for its partnership in this and other NASA and University of California projects.

NASA photo by Dominic Hart



National Aeronautics and Space Administration

Ames Research Center
Moffett Field, CA 94035-1000



FIRST-CLASS
U.S. POSTAGE
PAID
PERMIT NO. 85
MOUNTAIN VIEW, CA



The Ames Astrogram is an official publication of Ames Research Center, National Aeronautics and Space Administration.

Editor-in-Chief..... Laura Lewis
Managing Editor.....Ann Sullivan
Editor, Layout and Design.....Astrid Terlep

You can reach the Astrogram Office at:
astrogram@mail.arc.nasa.gov or by phone at
(650) 604-3347.



PLEASE RECYCLE
Printed on recycled and recyclable paper with vegetable-based ink.