



ASTROGRAM

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October 2006

California Space Authority honors Ames with two awards

The California Space Authority (CSA) has announced that two NASA Ames teams are recipients of the 2006 SpotBeam awards.

The SpotBeam awards recognize "space enterprise community leaders who have made extraordinary contributions to California and U.S. leadership in the international space arena. The SpotBeam awards are CSA's highest honor," according to the CSA Web site.

"I am delighted that CSA has acknowledged Ames' exceptional contributions in thermal protection and space science with these prestigious awards," said NASA Ames Director S. Pete Worden. "Ames has a long history of outstanding achievements in these fields, and these awards add to our proud tradition of cutting-edge science and research."

Ames received the Civil Space Award for the development and associated research on the Phenolic Impregnated Carbon Ablator (PICA)

heat shield used for the Stardust re-entry capsule.

In January 2006, the Stardust capsule re-entered Earth's atmosphere at the highest re-entry speed ever, penetrating Earth's atmosphere much like a meteor. This event provided a unique opportunity to observe and analyze the performance of the heat shield and the chemistry associated with the heat shield as it eroded during re-entry.

NASA Ames leads the agency's thermal protection systems research. The results of the Stardust analysis will be used to design the thermal protection system for the agency's new crew exploration vehicle. The Boeing Company (Huntington Beach, Calif.) was selected in September 2006 to support the design and development of a lunar direct return-capable heat shield for the Orion crew exploration vehicle. Ames will use its thermal (arc jet), structural and environmental facilities to conduct extensive test-

ing and evaluation of Boeing's PICA deliverables, assessing the material

CALIFORNIA



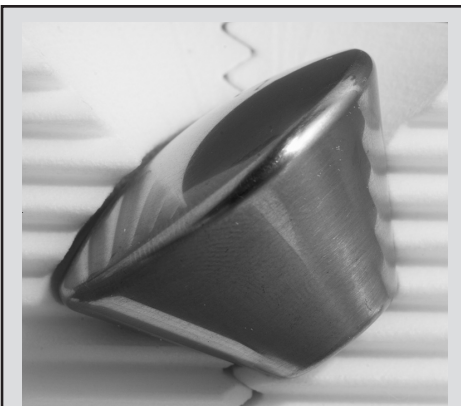
SPACE AUTHORITY

performance and suitability for use as the Orion heat shield.

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NASA Ames tests small spaceship capsule model at high speed

NASA recently conducted high-speed tests of small models of the agency's new Orion crew exploration vehicle to learn about its stability during flight.



The Orion crew exploration vehicle (CEV) M1 model, recently underwent high-speed testing at Ames. The tests were performed to learn about Orion's stability during flight.

News media were invited to view the Hypervelocity Free-Flight Facility at NASA Ames in October.

The hypervelocity test facility uses a gun to shoot Orion models between 0.5 and 1.5 inches (1.25-3.75 centimeters) in diameter. The facility can conduct experiments with speeds up to 19,000 miles per hour (30,400 kilometers per hour).

These tests allow engineers to analyze aerodynamic characteristics of the blunt capsules in flight, and will be used to help design safe, controllable profiles for re-entry through Earth's atmosphere.

The Orion spacecraft will succeed the space shuttle as NASA's vehicle for human space exploration. Orion is designed to carry six astronauts to low-Earth orbit or four astronauts to the moon. Orion's first crewed flight to the International Space Station is planned for no later than 2014. Orion's first flight to the moon is planned for no later than 2020.

For further information about Ames' hypervelocity free-flight tests, please visit: <http://thermo-physics.arc.nasa.gov/range.htm>

For more information about the Orion crew capsule, please visit: http://www.nasa.gov/mission_pages/constellation/orion/

BY JOHN BLUCK

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NASA honors Ames scientist with planetary science fellowship

NASA has selected Jonathan Fortney, a scientist at NASA Ames, for the prestigious new Early Career Fellows in Planetary Science award and research grant, which honors outstanding young scientists for their exceptional achievement in space science research.

Employed at Ames through a cooperative agreement with the SETI Institute in Mountain View, Fortney has been studying the atmosphere, interior and evolution of 'gas giant' planets. The most familiar gas giant planets are Jupiter and Saturn, which are made up mostly of hydrogen and helium.

"We are delighted that Jonathan won this award and recognition for the importance of his ideas. Jonathan represents NASA's future," said Dr. Steven Zornetzer, associate director for institutions and research at NASA Ames. "His research will both inform us and raise new questions that we will need to answer in the future. Ames is proud that Jonathan and SETI are breaking new barriers to understanding the evolution of planetary bodies," Zornetzer added.

"I was given the award to study the evolution and changing temperatures of Jupiter and Saturn," said Fortney, a former National Research Council postdoctoral associate and now a Spitzer Space Telescope Fellow. "Specifically, I will try to understand how 'helium rain' affects the cooling of these planets. Understanding this cooling process will help astronomers detect and understand the temperature of giant planets in other solar systems as well," he added.

According to Fortney, giant planets are very hot when they form, but cool off over time. Deep within the hot interiors of these planets, at one million times the atmospheric pressure that we feel on Earth, hydrogen turns to a liquid metal. After a giant planet has cooled significantly, the helium can no longer mix with the surrounding metallic hydrogen, much as oil and water don't mix. Instead of rising to the surface as oil does in water, the helium atoms merge to form drops that 'rain' into the deeper layers within the planet.

As the helium drops sink within the planet, the friction between the drops and the surrounding metallic hydrogen adds thermal energy to the planet. The result is that these planets continue to cool, but much more slowly. Saturn, and perhaps Jupiter,

is currently warmer than one expects when this effect is not taken into account.

"The hydrogen-helium mixing effect is similar to what happens when



NASA photo by Tom Trower

Jonathan Fortney of Ames recently was honored with the Early Career Fellow in Planetary Science award and research grant. The award honors outstanding young scientists for exceptional achievement in space science research.

you add sugar to your morning coffee – if you add too much sugar, it won't dissolve any more, and it simply sinks to the bottom," said Fortney. "The sinking sugar puts a tiny amount of additional energy into the coffee. It is not enough to raise the temperature of the coffee, but it slightly slows down how fast the coffee cools off. Likewise, but on a much larger scale, the sinking helium imparts energy that slows the cooling of a planet. It is not a perfect analogy because the sugar grains have

only a very tiny effect on the coffee. At Saturn, this process has been a major energy source over the past two billion years, and seems to have started in Jupiter more recently. New Saturn data from NASA's Cassini spacecraft will help shed new light on the cooling of these planets," he added.

"Dr. Fortney's pioneering work on the cooling of Jupiter and Saturn will help us better understand how planets are formed and change over time. This is particularly important, since we now know of over 200 Jupiter-like planets orbiting around other stars," said Mark Marley, Ph.D., a space scientist at Ames.

The award was given as a result of a proposal entitled 'A Consistent Evolutionary History for Jupiter and Saturn' that Fortney submitted to the Outer Planets Research Program in 2005.

He will receive a \$160,000 research grant over three years to study the cooling process of these giant planets, and will have the opportunity to apply for an additional \$120,000 in research grant funding.

Born and raised near St. Paul, Minn., he received his bachelor of science degree in physics from Iowa State University in Ames, Iowa, in 1999, and was awarded a doctorate in planetary sciences from the University of Arizona, Tucson, in 2004.

BY RUTH MARLAIRE

California Space Authority honors Ames

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CSA also presented its Space Science Research Award to planetary astronomer Dr. Mark Showalter of the SETI Institute, Mountain View, and to collaborating scientist Dr. Jack Lissauer of NASA Ames, for the discovery of two new rings, Uranus's 12th and 13th, and two new moons, Mab and Cupid, around the planet.

The discovery was reported in December 2005, following a long-term observing campaign by Showalter and Lissauer. The two scientists captured numerous visible-light images of Uranus between 2003 and 2005 with Hubble's Advanced Camera for Surveys and also found the rings in archival images taken during Voyager 2's flyby of Uranus in 1986. Previously unnoticed because they are extremely

faint and much farther from the planet than expected, the rings were located by a careful analysis of nearly 100 Voyager images.

The awards will be presented at the CSA SpotBeam awards dinner on Nov. 30 at the Westin Hotel, Los Angeles International Airport, as part of the Transforming Space Conference (<http://www.californiaspaceauthority.org/conference2006/index.html>).

Governed by a statewide board of directors, the CSA is a nonprofit corporation representing the commercial, civil and national defense/homeland security interests of California's diverse space enterprise community in industry, government, academia and workforce.

BY ANN SULLIVAN

Globus and Cruikshank selected as Ames Associate Fellows

Dr. Ruth Globus and Dr. Dale Cruikshank have been named as Ames Associate Fellows for 2006. This is one of the highest honors that Ames



Dr. Ruth Globus was selected by the Science and Technology Council as an Ames Associate Fellow. She was awarded this honor for her research contribution and leadership in facilitating and implementing innovative science programs.

bestows on its scientific and engineering staff. The award includes a \$4,000 personal honorarium, a \$2,500 travel grant and a \$40,000 research stipend. Any civil servant with more than five years of service is eligible to win the award. The Science and Technology Council is responsible for making the selections. Globus was selected for her research contributions and leadership in facilitating and implementing innovative science programs. Her investigations into cellular and molecular mechanisms defining how gravitational loading affects skeletal structure

and function have established her as a leader in the field of gravitational biology. She co-directs the Bone and Signaling Laboratory at Ames and serves as a project science expert, developing plans to prevent space flight deconditioning for the NASA artificial gravity and countermeasures projects. She serves as science manager for the Ames suite of centrifuges and scientist sponsor for the Space Settlement Design Contest education and outreach project at Ames. She has been successful in bringing more than \$2 million in research awards in the last five years. Globus has also been an outstanding mentor for more than 40 undergraduate students graduate students, and postdoctoral scholars at Ames.

Cruikshank was elected for his research achievements in planetary science and astrophysics. He has made significant research contributions to the understanding of the surface composition of solar systems objects. He is one of the pre-eminent authorities on organic matter and ices in the solar system. His work on outer planetary systems has contributed heavily to our understanding of how organic matter is connected to primitive bodies and how it may have been delivered to Earth at early times. He also has made major contributions to spacecraft activities and to the organization of planetary science and astronomy. He is internationally recognized for excellence in his research field with more than 320 research articles in major journals. He has delivered numerous invited lectures to both professional scientists and amateur astronomers. Cruikshank is a Fellow of the Califor-

nia Academy of Sciences and of the American Geophysical Union. He was



*NASA photo by Dominic Hart
Dr. Dale Cruikshank was selected by the Science and Technology council as an Ames Associate Fellow for his research achievements in planetary science and astrophysics. Cruikshank also was awarded the 2006 Gerard P. Kuiper Prize.*

recently announced as the winner of the 2006 Gerard P. Kuiper Prize.

The call for nomination for Ames Associate Fellows for 2007 has just been issued via a centerwide announcement. Nominations of eligible staff members may be made by any Ames staff member. Nominations are due no later than Nov. 17, 2006.

Contact Dr. Stephanie Langhoff, chief scientist at NASA Ames, at slanghoff@mail.arc.nasa.gov, for further information.

BY STEPHANIE LANGHOFF

Cruikshank - winner of 2006 Gerard P. Kuiper Prize

The Division for Planetary Sciences of the American Astronomical Society has awarded the 2006 Gerard P. Kuiper Prize for outstanding contributions to the field of planetary science, and especially planetary astronomy, to Dale Cruikshank, research scientist at NASA Ames. Cruikshank pioneered the application of infrared spectroscopy to solar system bodies, developed laboratory techniques that became tools for interpreting the observations, and has been a leader in the design of instruments for remote sensing observations from deep space planetary exploration probes. Cruikshank's key contributions concern the detection and characterization of volatiles and organics of the surfaces of asteroids

and outer solar system bodies. His discoveries, spanning four decades, confirm the early conjecture that common ices are dominant components of outer solar system bodies.

With colleagues, he discovered the five ices known on Triton, three on Pluto, and water ice on satellites of Saturn, Uranus, Neptune and Pluto. With colleagues, he was first to find water ice in the Kuiper Belt, and methanol ice on a Centaur (an asteroid whose orbit is out beyond Jupiter) that links these bodies to comets.

The ices he found on Triton and Pluto are the sources of the atmospheres of these two bodies, especially fitting discoveries as it was G.P. Kuiper who discovered the first satellite

atmosphere, on Titan.

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 prevalent in the outer solar system. His spectroscopic work gave the first firm evidence for complex organic solids on a planetary body (Saturn's satellite Iapetus), and provides the basis for progress on the identification of such materials elsewhere.

A distinguished scientist and a recognized leader in the planetary community, Cruikshank has participated in a number of past and present NASA missions, including Voyager, Cassini, Spitzer and New Horizons.

Ames presents Honor Awards for 2006

During an Oct. 4 ceremony, Ames presented its 2006 Honor Awards. Award recipients included:

Administrative Professional

Joanne A. Comstock
Evelyn T. Perez

Best First Paper at Ames

T. Barbara Nguyen-Vu

Commercialization/Tech Transfer Award

David L. Iverson
FACET

Community Service/Volunteer

Wendy W. Dolci and Yvonne J. Pendleton
Eric R. Mueller

Contractor Employee

Mark R. Anderson,
QSS Group, Inc.
Estela H. Buchmann
Science Applications
International Corporation
Nathan J. Burnside
Aerospace Computing, Inc.
Charles E. Niggley
Computer Sciences Corporation
Daniel T. Pappas, Jr.,
Planners Collaborative
Karin E. Perkins,
Lockheed Martin
Engineering & Sciences Co.
Christopher D. Youngquist,
INFONETIC

EEO

Wendy L. Holforty

Engineer

Stuart E. Rogers
Glen E. Sasaki
Gloria K. Yamauchi



NASA photo by Dominic Hart

NASA Ames Honor Award recipients in the N201 auditorium during the awards ceremony held at Ames in October.

Group/Team

ARC TOPS Proposal Team
Electronic Employee Checkout
Process Development Team
European Modular Cultivation
System (EMCS) Project Team
Global Connection Project

2006 Joint Flight Demonstration Test Team

STS-121 FIT Payload Team
Vertical Motion Simulator JSF
Team

Mentor

Charles R. Friedericks
Raymond T. Gilstrap
Joseph W. Skiles III

Project Manager

Daniel R. Andrews
Mike D. Madson
Julie A. Mikula
Kent C. Shiffer

Safety and Environment

Susan P. Suffel
Arlen R. Lyon

Scientist/Researcher

Ramakrishna R. Nemani
Scott A. Sandford

Secretary/Admin. Assistant Support

Erlinda M. Fox

Student

Christiana E. Woodward

Supervisor/Manager

Sidney Sun
Kimberly M. Wagenbach

Technical Support

Thomas H. Hinke
Hugh La Master

Technician

John G. Amaral

Ames' Jonathan Trent wins nanotechnology award

For his work in using proteins from extremophiles to create nanoscale electronic and medical devices, Ames' Jonathan Trent won a 'Nano 50 award,' that Nanotech Briefs will present to him during a conference in Boston, Nov. 9 -10, 2006.

Extremophiles are forms of life that survive in extreme conditions, including severe heat, cold and acidic conditions, among others. Nanotech Briefs, launched in January 2004, is a digital magazine from the publishers of NASA Tech Briefs.

"Our innovation takes advantage of the innate ability of proteins to form

into ordered structures and for us to use genetic engineering to change nature's plans, transforming these structures into something useful," said Trent, principal investigator of a research project to produce 'nano-electronics' at NASA Ames. A nanometer is roughly 100,000 times smaller than the width of a human hair. "Building structures on the nanoscale is an incredible engineering challenge," he said.

Trent currently is working on two related nanotechnology projects. "We are attempting to get funding from the Department of Energy (DOE) to sup-

port our research on bio-nano technology," he said. "We have one project to transform sawdust into ethanol for the DOE bio-fuel initiative. We're also working on bio-sensors to detect bio threats, or any form of life, which may be interesting to NASA's future Mars missions."

The Nano 50 awards recognize the top 50 technologies, products and innovators that have significantly impacted - or are expected to impact - the state of the art in nanotechnology.

BY JOHN BLUCK

Speakers sought to share the Vision for Space Exploration

Would you like to share the excitement of working for NASA, to inform the public about the agency and the Vision for Space Exploration, to inspire the next generation of explorers and to stimulate their interest in math and science? Do you have an upcoming speaking engagement or need a speaker from NASA to talk at the event? If so, the NASA Ames Speaker's Bureau can help!

The people who talk to community and educational groups about NASA, about Ames and about their jobs play a vital role in 'spreading the word' about the agency. People love to hear about NASA and consider this one of the 'coolest' places to work. Whether you are talking to a classroom of 30 eager students, addressing 3,000 people at a math, science and technology fair, or speaking at a meeting of the local civic club, you are helping to spread the word about NASA and Ames.

The NASA Ames Speakers Bureau, lead by Sheila Johnson of the Public Affairs Division, supports this invaluable service by providing speakers who offer programs and information to the educational community, libraries and museums, as well as to professional, technical,

civic and social organizations. Speakers also may participate in conferences, workshops and lectures, and staff NASA exhibits at local community events.

To carry out this important work, the Speakers Bureau needs YOUR help. We need a listing of potential speakers, their areas of interest and expertise, and their availability. Speakers with a wide range of backgrounds, skills and experiences are needed. We need speakers with expertise in science, aeronautics, space flight, computers and living in space. We especially need bilingual volunteers who can reach out to underserved groups.

In FY06, Speakers Bureau volunteers reached more than 40,000 individuals with information about NASA and its programs, all delivered with a personal point of view. We can do even more, but we need more speakers!

Anyone -- scientists, engineers and administrative staff, both civil servants and contractors -- can help the Speakers Bureau reach out to the Bay Area community, as well as to other states. For those who are interested, and whose supervisors agree, we sometimes have travel opportunities (paid by the requesting organization) to



Jennifer Kremer, Planner's Collaborative, speaks to an elementary classroom as part of the NASA Ames Speakers Bureau Program. She is describing the different functions of a NASA spacesuit to the students.

other states.

You can help share the NASA vision and excitement of working for NASA by volunteering for an event or notifying the Speakers Bureau of an upcoming speech you are presenting. Please contact Sheila Johnson, Speakers Bureau manager at ext. 4-5054.

NASA computer systems help explore ocean depths and beyond

The problems scientists must solve to enable robots to explore Mars and examine Earth's oceans are very similar, according to NASA computer scientists.

One major difficulty for large, collaborative groups of scientists scattered around the globe is for them to

included 13 vessels, fixed and drifting instruments and several dozen robotic vehicles.

"It's a demonstration project," said Kanna Rajan, principal researcher for autonomy at the Monterey Bay Aquarium Research Institute (MBARI), Moss Landing, Calif. MBARI is the institu-

onstrated during MB 06 -- XBoard and ScienceOrganizer -- are in the forefront of NASA's efforts to proficiently plan and conduct science. They and predecessor NASA systems are intended to help scientists avoid excessive paper handling, to improve organization, to increase speed and to help simplify their jobs.

For MB 06, ScienceOrganizer stores scientific proposals, short text summaries, data, plots, graphs and written analyses. All these are interlinked in multiple ways to make it easier for scientists to find and access information they want. In 2003 and 2004, NASA used ScienceOrganizer to help during the investigation of the space shuttle Columbia accident.

The second system, XBoard, includes a central server computer to store hand-written ideas, pictures, diagrams and data. Electronic 'whiteboards' -- about the size of small chalkboards -- can display these items simultaneously at various sites across the world where teams of scientists work.

Scientists at each location can brainstorm, print lists of ideas and sketch on the whiteboards, which are large enough for each group of scientists to study without squinting. These electronic whiteboards - XBoards -- are also touch screens that scientists can touch with their fingers to control each whiteboard's computer programs, just as scientists could control them with computer mice.

"In the XBoard, one of my students has built what's called a situational awareness tool," Rajan noted. "That tells you where each asset is located in the ocean based on a global positioning system (GPS) location, and it (the awareness tool) also connects each of the assets to the data stream so you can look at the data and assess what the ship or the robot is doing," Rajan said.

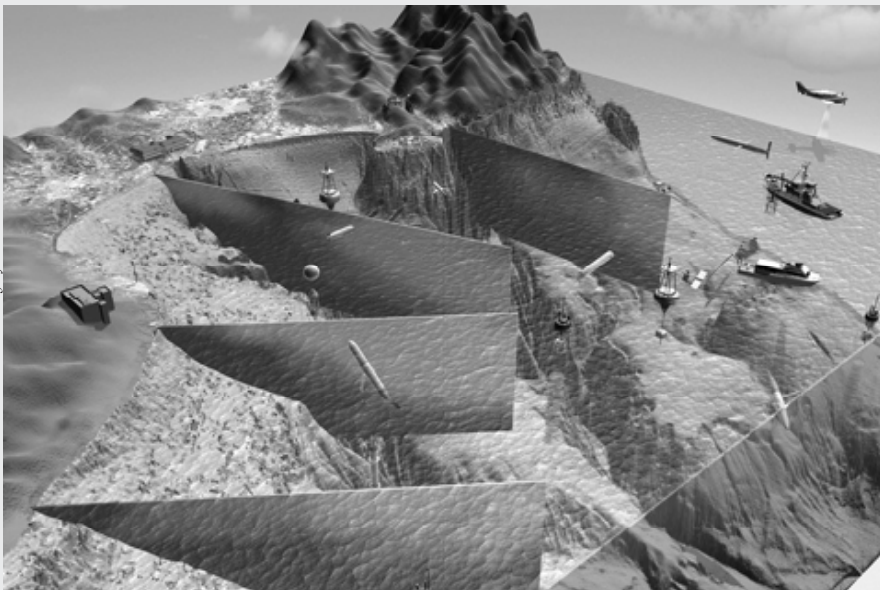
According to Rajan, using XBoard, the MB 06 scientists were able to get together every other day.

For more information about the MBARI undersea experiments, please visit: <http://www.mbari.org/mb2006/default.htm>

For more information about ScienceOrganizer, please visit: <http://sciencedesk.arc.nasa.gov>

BY JOHN BLUCK

Photo courtesy of David Eierstein (c) 2003 MBARI



The Autonomous Ocean Sampling Network (AOSN) Monterey 2003 Field Experiment involved several ships and dozens of floating, diving and flying oceanographic instruments operating simultaneously. The goal was to observe and model water movement, temperature and other upwelling-related processes in Monterey Bay over a 4-week period during August 2003. This is a computer-generated image of the Monterey Bay study area.

cooperatively and efficiently operate instruments and robots investigating distant planets and moons.

To meet these challenges, NASA experts have developed computer 'tools' to keep these scientists on the 'same page' using the power of electronic 'whiteboards,' computers and the Internet's linking ability to connect people, machines and spacecraft.

Two NASA systems that increase speed and efficiency for scientists are XBoard and ScienceOrganizer. To demonstrate how useful they could be, NASA Ames provided them to scientists during a major experiment in the Pacific Ocean off the central coast of California - the largest oceanographic field study ever conducted in the United States.

From July through mid September 2006, oceanographic researchers from more than a dozen institutions carried out four major experiments in a mammoth, multi-pronged effort in Monterey Bay, home of a deep underwater canyon. The overall experiment, called Monterey Bay 2006, or 'MB 06,'

tion that organized the MB 06 effort. "MBARI is a key player because all the data come through the MBARI data portal. It (gathers) in data from underwater assets, ships and underwater robots - everything," Rajan explained.

"This particular engagement with MBARI has to do with enabling scientists to track their reasoning processes as they conduct their field experiments," said Richard Keller, a computer scientist in charge of ScienceOrganizer software development at NASA Ames.

"In terms of using ScienceOrganizer to track the scientific reasoning and planning processes, this is a new way of using our tool," Keller observed. "We haven't had anybody use the system for this purpose during an actual scientific mission, but we did develop a prototype for the Mars Exploration Rovers mission. This (the group of Monterey Bay experiments) is an opportunity for us to test some of these ideas in the field in practice," Keller said.

The two computer systems dem-

NASA helps aircraft glide into a more efficient landing

NASA is saving jet fuel by helping aircraft achieve the ideal glide path as they approach a crowded airport for landing.

NASA Ames and The Boeing Company, Chicago, Ill., in partnership with the Federal Aviation Administration (FAA), Washington; United Airlines, Chicago; and the San Francisco International Airport (SFO), have completed trials to study the effectiveness of the Oceanic Tailored Arrivals (OTA) concept for aircraft landing at SFO.

Currently, the ideal landing approach, an even continuous descent, often is interrupted with course changes and altitude level-offs. These deviations can result in increased fuel use, noise and environmental emissions. The study is investigating the customization of aircraft descent procedures using the latest in communications and aircraft navigation technology and NASA air traffic management algorithms to maintain the ideal approach.

"The goal of the Oceanic Tailored Arrivals initiative is to allow aircraft to descend in a manner that is both fuel efficient and environmentally friendly," said Rich Coppenbarger, lead investigator for the Oceanic Tailored Arrivals Initiative at NASA Ames. "We are prototyping automation tools and procedures to help controllers strategically anticipate and solve arrival problems well in advance, allowing for more ideal descent operations, especially during busy traffic periods where potential benefits are greatest."

During the initial portion of the trials, researchers are working with controllers at the FAA's Oakland Air-Route Traffic Control Center and the Northern California Terminal Radar Approach Control to tailor the approach of a United Airlines Boeing 777 equipped with state-of-the-art avionics, approaching SFO en route from Hawaii.

At approximately 300 miles from the destination airport, a four-dimensional descent profile, customized for each aircraft and airspace conditions, is generated with help from the NASA Ames-developed En Route Descent Advisor (EDA). The ideal descent profile is then transmitted via high-speed data link to the aircraft. Once reviewed by the flight crew, the profile is loaded automatically into the aircraft's flight management system (FMS) where it is used to compute a complete trajectory prediction to the

runway. The FMS uses this prediction to accurately guide and control the aircraft to landing with very few manual inputs required by the flight crew.

Along with fuel savings, OTA approaches have the potential to significantly reduce noise and environmental impact at surrounding airports. Tailored arrivals also may reduce workload by providing pilots and controllers with a common understanding of the intended arrival path and reducing the need for voice communications. Tailored arrivals enable pilots to fly airplanes as they were designed to be flown, which helps reduce crew workload and errors, according to Rob Mead, Boeing Phantom Works lead engineer for advanced air traffic management air/ground communications.

In addition to the SFO trials, Boeing has spearheaded trials in Australia and the Netherlands.

"Early reaction from pilots and controllers to the OTA concept has been very encouraging," said Coppenbarger. "Initial fuel savings for a Boe-

ing 777 have been estimated at 200 to 800 pounds per flight, in comparison with simulated operations representing congested traffic periods where continuous descent approaches are impeded," he added.

Trials are expected to continue later this year after the initial data are compiled and analyzed.

The Oceanic Tailored Arrivals Initiative is funded through the NASA Airspace Systems Program at NASA Headquarters, Washington. The En Route Descent Advisor is a building block of the next-generation air transportation system that scientists at NASA Ames are helping define.

For more information about the NASA/Boeing Oceanic Tailored Arrivals Initiative, visit: http://www.nasa.gov/centers/ames/research/2006/conops_ota.html

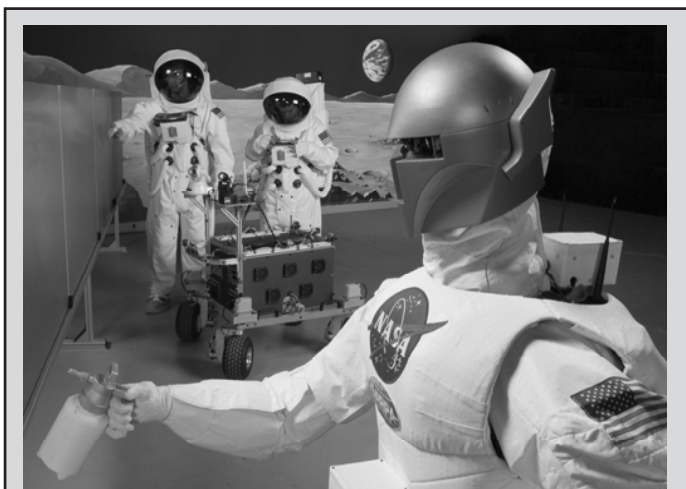
For more information about NASA's Aeronautics Research Mission Directorate, visit: <http://aeronautics.nasa.gov>

BY JONAS DINO
AND DARYL STEPHENSON

Ames and M2Mi Corp. to develop 'Automated M2M Intelligence'

To help enable machines to make choices and efficiently communicate with one another without human intervention, NASA Ames and M2Mi Corp. have agreed to work together to develop automated 'machine-to-machine (M2M) intelligence.'

An agreement between the center and M2Mi Corp. calls for the two organizations to cooperate to evolve 'automated M2M intelligence' for space missions. A satellite that would repair itself in low orbit is an example of how the new, automated M2M intelligence could be used in the very near future. M2Mi is located in NASA Research Park, a dynamic research and education community adjacent to NASA Ames that cultivates collaborative partnerships with academia, industry and non-profits to stimulate innovation and educa-



Johnson Space Center's Robonaut (foreground) performing a mock weld while Ames Research Center's K10 robot (center) assists two EVA crew inspecting a previously welded seam.

tion in science and research disciplines critical to space exploration.

"We are delighted to cooperate with the M2Mi Corp. to develop automated intelligence for computers, spacecraft and robots so they can 'mind-meld,' enabling them to make their own decisions," said S. Pete Worden, director of NASA Ames, who

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Ames and M2Mi Corp. to develop M2M intelligence

continued from page 7

recently signed the agreement. "In turn, M2Mi intends to spin off automated intelligent software to industry to help make business and factories more efficient," Worden said.

Automated M2M intelligence will work with a wide variety of mechanisms including wired or wireless tools, sensors, devices, server computers, robots, spacecraft and grid systems. A grid system is a network of many computers that can work together to complete tasks.

"Our technology interconnects all machines and provides an intelligent way for them to communicate and exchange information much more efficiently than before," said Geoff Brown, CEO and M2Mi Corp. founder.

"It provides a basis for true machine self-dependency. We are honored to partner with NASA to further develop this technology in demanding and unique environments," Brown explained.

"The vast cost of machine management is actually in the machines and complexity of the machines. Devices currently communicate in a very expensive way. For example, if you look at the space shuttle, the cost of having computers communicate is very expensive," Brown noted.

According to computer scientists, automated M2M intelligence uses a recognized standard 'semantic web' communication format so all machines can converse easily. Automated M2M intelligence encodes the information that computers and machines need to exchange into a universal language - the semantic web. Similarly, human beings speak hundreds of languages worldwide, and these people sometimes use a universal language -- such as French or English - to ease communications.

"This removes a lot of cost and complexity (when computers and other machines are) talking to one another," Brown said. "We focus on making it easier for software to communicate with the actual machines. It is similar to making a human brain communicate more easily with the body's muscles," Brown clarified.

"The problem is, if you have a hundred machines, and you roll out new software without automated M2M intelligence, you can't change your components in real time," Brown said, explaining some of today's problems. "It's not flexible enough to

facilitate change," he said.

Automated M2M intelligence will enable machines to be aware of what is going on around them, foresee events and be able to make plans and decisions without human intervention, according to computer scientists.

"The prime market [for intelligent

automation] is commercial enterprise software that will optimize how machines work. For example, this automated M2M intelligence would permit an automated factory to adjust its system to be more efficient," Brown said.

BY JOHN BLUCK

NASA scientists invite news media to workshop about the search for alien life

For the first time, NASA scientists invited journalists to a prestigious workshop in Chicago to discuss the challenges of communicating science

public's demand to remove 'evolution' from public school textbooks.

"I write for people who have an interest in science," said David Perlman,

science editor for the San Francisco Chronicle, when asked who he writes for. "It isn't my job to pick up the role of



Pale Blue Dot III

Searching for Life on Distant Worlds

to the public. The third Pale Blue Dot workshop was held at the Adler Planetarium and Astronomy Museum in September. The 'pale blue dot' refers to Carl Sagan's description of Earth's appearance from space, and is the name of the series of workshops co-convened by Adler and the NASA Astrobiology Institute.

"Our sphere of knowledge is much greater now, and because of this, substantial involvement by the media has become increasingly important," said Dr. David Des Marais, a principal investigator at the NASA Astrobiology Institute at NASA Ames.

Casual table talk between the media and scientists included the public's reaction to Pluto's re-classification to a dwarf planet. "I don't think Pluto cares what we call it," said Dr. Alan Grinspoon, an internationally known planetary scientist and recipient of the American Astronomical Society's 2006 Carl Sagan Award. "There really is great science being done; it's more than just nomenclature."

While some discussed the public's passion over Pluto's demoted status, others were similarly interested in the

a failed education system. The biggest obstacle in my job is the competition for space with other reporters. I'm constantly fighting for space to tell a story," Perlman lamented.

"As a science reporter, my biggest problem is being inundated with information. I receive over 200 e-mails a day requesting that I write someone's story," said Leonard David, a science journalist for Space.com.

Some felt that the public's indifference to science has had an effect on some projects in the past. One example was the shutdown of the Superconducting Super Collider project in 1993 by the U.S. Congress.

A discussion of the social benefits of keeping the public informed of scientific developments raised the issues of helping people make sense of their lives and directing their attention to the needs of future job markets.

The NASA Astrobiology Institute currently represents more than 700 investigators across the United States. It also has partnerships with astrobiology research organizations around the world.

BY RUTH MARLAIRE

University students help NASA with GeneSat mission

Dozens of university students are helping NASA to prepare, monitor and analyze the science from a 'nano' satellite scheduled to launch in December.

NASA's GeneSat-1 satellite is scheduled to ride aboard an Air Force rocket being launched into Earth orbit on Dec. 11, 2006. The small satellite will carry bacteria that researchers will analyze to determine the effects of space flight on microscopic living things.

Ames provided a media opportunity Oct. 26 for reporters to interview students from Santa Clara University, Santa Clara, who are helping NASA with the GeneSat-1 mission. In addition, Ames' John Hines GeneSat project manager, and Bruce Yost, GeneSat mission manager, were also on hand for interviews with the media.

The 10-pound (4.5-kilogram) satel-

lite will be a 'secondary payload' on an Air Force Minotaur rocket, derived from a Minuteman missile and modified to launch payloads into orbit. The main purpose of the launch from the NASA Wallops Flight Facility in Virginia is to loft an Air Force TacSat 2 satellite into orbit. NASA's separate GeneSat-1 will carry bacteria inside a miniature laboratory to study how the microbes may change genetically during spaceflight.

The micro-laboratory includes sensors and optical systems that can detect proteins and specific genetic activity. The student-operated GeneSat communications system, located in the Stanford foothills, will receive data via radio from the satellite's onboard micro-laboratory after it has completed its observations and tests of the bacteria carried on the spacecraft. This data will be relayed through the Internet to

the GeneSat mission operations center at NASA Ames.

Santa Clara University students will control the spacecraft from the mission operations center at NASA Ames. The students developed software that will send commands to the satellite, analyze spacecraft health and calibrate biological data.

With this program, NASA continues the agency's tradition of investing in the nation's education programs. The program directly ties into the agency's major education goal of strengthening NASA and the nation's future workforce. Through this and the agency's other college and university programs, NASA will identify and develop the critical skills and capabilities needed to achieve the Vision for Space Exploration.

BY JOHN BLUCK

NRP welcomes Advanced Wireless Communications

New NRP partner Advanced Wireless Communications (AWC) Inc. designs and maintains metro-scale (city-wide) wireless networks, and attempts to do what most people see as impossible.

AWC has been awarded jobs throughout the United States and has worked with many California public safety agencies. "We specialize in surveillance systems coupled with wireless technology transport. We want to apply technology in ways never before seen," said AWC Chief Technology Officer Zachary Pereyo.

"Most of our work is now terrestrial based and often focused on emergency communications," said AWC

Director of Operations Brian Trumbull. "Wireless communication systems are extremely effective in overcoming catastrophic events. We can provide an immediate response and deploy communication systems rapidly to prevent communication breakdowns like those that occurred during Hurricane Katrina," he added.

"We are growing astronomically," said Trumbull. "We had three

people in early 2005 and immediately doubled to six in our original 2500 sq. ft. Pacific Grove headquarters. Since arriving at the NASA Research Park this September we have again doubled to 12. We have decided to make NRP our headquarters and are now opening offices in the midwest and on the East Coast."

"Advanced Wireless has been well received by NRP. We find it appealing to be surrounded by brilliant companies and brilliant people in Silicon Valley's technology sector. Surrounding ourselves by the technology industry allows us to give our best", Gold said.

"We are very interested in working with NASA not only to deploy,

but to develop wireless technology to support FEMA and Homeland Security. We are in discussion with NASA Ames to participate in emergency communication testing. We would like to provide equipment and test protocols to support all such organizations."

"We forecast continued growth, expecting to have more than 25 engineers and IT skilled employees by

the beginning of 2007. We are looking for the best and the brightest. We are in search of installers with exceptional mechanical experience, and engineers with wireless and emergency technical skills", Gold said.

AWC Inc. was founded in 2005 in Monterey, Calif., as a spin-off from another high technology networking company.

BY DIANE FARRAR



The latest partner to join the NASA Research Park (NRP) is Advanced Wireless Communication (AWC) Inc. AWC team members are, left to right, Jeff Ottinger, Zachary Pereyo, Brian Trumbull, Tor Amundson, Andrew Gold and Dusty Rhoades. The AWC team designs and maintains metro scale (city-wide) wireless networks.

photo by Diane Farrar

"We are very interested in lunar and interplanetary communications, including all forms of satellite communication," said AWC chairman Andrew Gold. "We formed an R&D department, and our engineers have significant satellite experience. We would like to be able to provide increased data flow capacity between here and the moon, in support of the government and the emerging commercial space industry."

In and around Ames . . .

Ames' Salinas Air Show exhibit attracts huge crowds



NASA Ames staffed a tent exhibit at the 2006 Salinas California International Air Show recently. The NASA exhibit was a collaboration with the Salinas Valley Memorial Healthcare System and featured astronaut Steve Robison signing autographs. The tent contained almost 1,000 square-feet of exhibits, demonstrations and information about research and programs at Ames. An estimated 3,000 visitors came through the exhibit. Highlights of the exhibit included scale models of the Pioneer spacecraft operated by Ames and an interactive display of the Stratospheric Observatory for Infrared Astronomy (SOFIA), an airborne observatory that will study the universe in the infrared spectrum in our galaxy. Also featured in the tent was a space-shuttle heat-shield tile demonstration.



Photos by Astrid Olson

Fourth annual Hispanic Heritage Golf Tournament held



The Hispanic Advisory Committee for Employees (HACE) celebrated Hispanic Heritage Month (Sept.15 - Oct. 15) by hosting the 4th Annual Hispanic Heritage Golf Tournament at the Moffett Golf Course. Many golf enthusiasts participated and many non-golfing enthusiasts came out to enjoy the Mariachi group that performed after the golf tournament. The entire HACE team would like to thank everyone who participated and supported this event. The golf tournament was a great success and we hope to see more familiar faces on the green next time.

Photos by Vivian Torres

Ames holds safety fair, chili cook off and fun run

NASA photo by Dominic Hart



On Oct. 4, NASA Ames held a fun run (top left photo) and on Oct. 5, the annual safety fair (lower right photo) and chili cook off (remaining photos). Awards for the cook off were as follows: Judges' Choice: #18 Hog Wild; Five Alarm: #3 Southern Death Cult Renaissance; Best Presentation: #13 Merlin's Magic; People's Choice: 1st Place, #7 NEAC is Back and 2nd Place, #15 Wizards of Chili

NASA photos (chili, safety) by Tom Trower

Ames celebrates NASA's birthday



NASA photo by Dominic Hart

On Oct. 1, 1958, the National Advisory Committee for Aeronautics (NACA) passed into history at the relatively young age of 43, and the National Aeronautics and Space Administration was born. The new agency boasted three laboratories (now research centers) and a workforce of 8,000 people. Its annual budget was \$100 million. This year, NASA celebrates its 48th birthday. Its civil service workforce has more than doubled and the number of centers has tripled. The budget has grown a bit as well. The Ames Exchange helped celebrate the birthday by inviting Ames employees to enjoy an 'anniversary cake' in celebration of NASA's 48th year during the lunch hour at the Ames Cafeteria on Oct. 2.

In memory of . . .

Ames employee Nolie Johnson

Nolie Johnson passed away on Sept. 13 at Stanford University Medical Center, after years of struggling with a rare lung disease. Johnson worked for many years at NASA Ames until his health forced him to stop working. He was a member of the African-American Advisory Group (AAAG) at Ames, a contributor to the Astrogram and an avid horseman. His children and horses were his first love.

He leaves behind his wife, Lynn Johnson; two sons, Joshua and Caleb, of Texas; his mother,

Sallie Johnson of Dillon, South Carolina, as well as a host of family members and friends in South Carolina, Texas and California. Services were held in Dillon, South Carolina on Sept. 23 and at his home in Merced, Calif., on Oct. 8.



Nolie Johnson (right) worked in Code JIT at NASA Ames.

Ames engineer David Engelbert

David Engelbert passed away on Sept. 22 following a lengthy battle with cancer. Engelbert joined Ames in 1963 with an engineering degree from Colorado State University and retired from Ames in 1996, during which time he made significant contributions as a project manager, engineering branch chief, Engineering and Facilities Division chief and as deputy director for facilities and operations.

During his tenure at Ames, he was recognized as an outstanding manager who had oversight of engineering design of major space projects and the design and construction of a wide range of facilities projects. Working with principal investigator Palmer Dyal, he created the first lunar surface magnetometer, which flew with the Apollo astronauts to the moon. He permanently changed the skyline of Ames by directing the construction of the 80-foot-by-120-foot addition to the 40-foot-by-80-foot wind tunnel subsequently named

the National Full-Scale Aerodynamics Complex.

Engelbert also was project manager for the unique Vertical Motion Simulator, which is used to prepare space shuttle commanders and pilots for their final approach and landing flight maneuvers on return from orbit.

In his 'retirement,' Engelbert held management positions in the private sector, served as San Jose State University's principal investigator for the creation of the Space Technology Center for small spacecraft development, while finding time to travel extensively and enjoy his grandchildren Allie and Nick Chew.

On Sept. 28, 120 of Engelbert's family and friends held a 'celebration of life' service for Engelbert at the Hakone Gardens in Saratoga. Engelbert is survived by his wife Lynne and their four children: Lisa Engelbert, Jennifer (Engelbert) Chew, Shanti Sethi and Sam Kalitta.



David Engelbert

Alfred J. Eggers Jr., manned space flight pioneer

Alfred J. Eggers Jr., a NASA Ames scientist, was famous for his pioneering work on atmospheric re-entry.

Eggers was born June 24, 1922, in Omaha, Neb. As a child, he favored math and was fascinated with airplanes. He did his undergraduate work at University of Omaha, then continued his studies at Stanford University, where he earned a master's degree in science and, in 1956, a doctorate in engineering mechanics.

Eggers was named one of the "Ten Outstanding Young Men of 1957." He was affiliated with a number of prestigious science and aeronautical associations, was a Jerome Hunsaker professor at the Massachusetts Institute of Technology for several years and, when home, enjoyed a round of golf with the Stanford Golf Club.

Eggers' greatest achievement while employed at NASA, was his work on supersonic interference lift, which led to the XB-70 Valkyrie supersonic bomber.

Eggers lived for his work, said his elder son, Alfred "Jock" Eggers. His father joined the National Advisory Committee for Aeronautics, the precursor to NASA, in 1944. He was as-

sistant administrator for policy when he left in 1971 to become the National Space Foundation's first director.

After the six-year stint in Washington, D.C., Eggers returned to the Bay Area and started his own company, Research Applied to National Needs, in Palo Alto. He refused to retire until six months ago, when he learned he had lung cancer.

Eggers died Sept. 22 at his home in Atherton. "Several weeks earlier, I asked him what he was thinking about," Jock Eggers said. The 84-year-old's answer was "thermal dynamics."

It was the "perfect storm" when Eggers was pulled out of the Navy's officer training school to join NACA. There was money after World War II, his son said, and also "a clear and present danger," when the Soviet Union launched Sputnik in 1958.

Eggers was put in charge of NASA's manned satellite team the same year.

He is survived by his wife, Elizabeth Anne Eggers; sons Alfred J. Eggers III of Vallejo and Philip Eggers of Salt Lake City; a brother, Robert Eggers of Kennewick, Wash.; and three grandchildren. Services are scheduled for 2 p.m. Nov. 9 at Stanford



Alfred J. Eggers Jr.

NASA photo by Cesar Acosta

Memorial Church. Contributions in Alfred J. Eggers Jr.'s name can be sent to Pathways Hospice, 585 N. Mary Ave., Sunnyvale, Calif., 94085.

NASA Shared Services Center update PCS / TCS relocation

On Oct. 2, 2006, the NASA Shared Services Center (NSSC) began facilitating and supporting the administrative processes for permanent change of station (PCS) and temporary change of station (TCS) travel for all NASA centers.

By visiting the NSSC customer service Web site (see URL below), employees and centers can access up-to-date information and quick reference guides that explain the services that will be provided by the NSSC. Questions or concerns pertaining to relocation may also be directed to the NSSC customer contact center between 7 a.m. and 7 p.m., CST.

The NSSC contact center Web site address is www.nssc.nasa.gov/customerservice. The telephone number is (877) NSSC-123. The e-mail address

is nssc-contactcenter@nasa.gov

The NSSC is coordinating efforts to make the transition seamless for NASA and its employees. This transition will have no affect on employees

contact. No alterations will occur to employees' current entitlements. Additionally, the NASA Human Resource (HR) Office also experienced minimal change.

All relocation authorizations made on or after Oct. 2 were approved by the NASA center, but coordinated through the NSSC. Each centers' HR office will complete, approve and forward a relocation authorization form to the NSSC for the employee's authorized relocation. Once the relocation form has been received by the NSSC, the relocation process will begin.

More information about the process may be found by accessing the following Web site at <http://www.nssc.nasa.gov/customerservice/fm/cto/changeOfStation/index.htm>



authorized relocation or travel prior to Oct. 2, 2006. Therefore, any employee currently on travel, or who is authorized to travel, will continue to coordinate through the current point of contact. After Oct. 2, 2006, employees should have seen a minimal change and only then to their point of

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, KG6BFB, 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. The meeting location is Building 19, Conference Room 1083 and the meeting time is 12 noon - 1 p.m. Contact Julie Nottage at jnottage@mail.arc.nasa.gov, ext. 4-3711. By-laws of Ames Bicycling Club can be found at <http://zen.arc.nasa.gov>; the link is right under the picture.

Ames Bowling League, Homestead Lanes on Thursday nights at 6:20 p.m. Seeking substitute bowlers. Questions to sign up: Mike Liu at ext. 4-1132.

Ames Child Care Center Board of Directors Mtg, every other Tuesday in N-229/Rm 117 from 12 - 1:30 p.m. POC: Julie Schonfeld, ext. 4-6504.

Ames Contractor Council Mtg, first Wednesday each month, 11 a.m., N-200, Comm. Rm. POC: Doreen Cohen, ext. 4-5203.

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 every other month, 9:00 a.m. to 10:00 a.m., Bldg. 218/2nd floor training room. URL: <http://q/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: Miwa Hayashi at ext. 4-1397, mhayashi@mail.arc.nasa.gov, Web: <http://jetstream.freetoasthost.com>

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.

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The NASA Lodge
 Rooms starting at \$45 a night.

Having a B-I-G family reunion and just run out of bedrooms and inflatable beds? Reserve rooms at the NASA Lodge

Ames employees and contractors can "host" their friends or relatives at the Lodge, and it doesn't have to be government or NASA related.

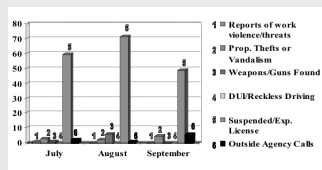
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<http://naccenter.arc.nasa.gov/lodging.html>

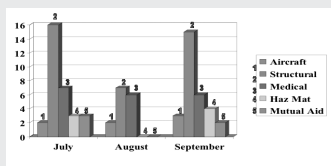
Protective Services monthly activity

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

Security/Law Enforcement Activity



Fire Protection Activity



Safety Data

NASA-Ames Occupational Illness-Injury Data for Calendar Year-to-Date 2006 Jan. 1, 2006 – Sept. 30, 2006

	Civil Servants	Contractors
First aid cases	11	17
Lost Workday cases	0	3
Recordable cases	3	7
Restricted duty days	0	0

Above data are as of 09/30/06. May be subject to slight adjustment in the event of a new case or new information regarding an existing case.

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

House to share for 2 people - 4 bd/2.5 ba, close to Highway 85 - direct route to Ames - in Los Gatos. Large pleasant yard, living room, family room, quiet family neighborhood. \$750 per month per person plus \$250 dep. Contact owner at (559) 338-0066 for more information.

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

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.

Skylane C182A, \$41,500. New paint and recent annual. New fuel bladders. Iridium spark plugs. Good condition. Basic IFR panel. Will also consider 1/2 share partnership to base at LVK, 4Q5, or TCY. Key Dismukes. Call (408) 938-0455.

Ames retiree estate items. Master bedroom furniture, queen size Sera Perfect Sleeper mattress and box springs, tall chest of drawers, full size dresser, exc. condition. All \$500 Call (408) 252-0386 or e-mail billduke777@yahoo.com

New Thermidor six burner, 36", gas cook top and new Dacor 24" Electric Food Warmer - both unused. Original costs \$1729 and \$634 respectively. Asking \$900 and \$350. Call (925) 933-8706.

Automotive

'01 Kawasaki ZX11 Ninja motorcycle. Mint condition w/ 27K miles. Many extras, including after market exhaust (complete w/ re-jetting), Corbin seat, GenMar handle-bar risers, tank bag, tank bra, smoke wind screen and Scott steering damper! It is immaculate; has never been down and is magenta (a deep purple) in color. Asking \$5,100 or B/O. Kevin (408) 209-0768.

Found

Ring at the tennis courts. Call Sophie at ext. 4-2860

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 Gift Shop N-235 in the cafeteria (8 a.m. to 2 p.m.) ext. 4-6873

Don't forget to purchase your baby shower, birthday, holiday gifts at Ames' two gift shops!

Visitor Center Gift Shop N-943 (M-F, 10 a.m. to 4:00 p.m. and Sat 12 p.m. to 4 p.m.) ext. 4-5412

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

Tickets, etc...(N-943 outside the main gate, 8 a.m. to 2 p.m.) ext. 4-5412 and Beyond Galileo (4-6873)

Mega Bites Cafeteria N-235 (6 a.m. to 2 p.m.) ext. 4-5969/Catering ext. 4-2161

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

Moffett Field Golf Club with Tee minus 1' Grill and Sports Bar. Call (650) 603-8026.

RV Lots Available Call to reserve a space at (650) 603-7100/01.

Civilian/Contrators, \$50/mo; military \$25/mo

NASA Lodge (N-19) 603-7100

Where to stay when you're too tired to drive home? What about the lodge?? Two types of rooms: Bldg. 19 (43 rooms), rate: \$55/night (\$5 ea add'l adult); Bldg. 583 (150 rooms), rate: \$45/night (\$5 ea. add'l adult)

Ames Swim Center (N-109) 603-8025

The pool is heated year round! The pool is currently available for lap swim, pool parties and special events. POC -Chana Langley, Pool Manager (650) 603-8025. Memberships: single memberships: \$40/yr. Family memberships: \$60/yr. After purchasing a membership, there is an entrance fee: daily entrance fee - \$3/day or lap pass fee - \$40 for 20 uses. Platinum membership - \$360/yr. (no daily fee). Special events: include military training, swim team events, kayak role practice, etc. The cost for special events is \$50/hr.

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

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 Olson at the aforementioned e-mail address or ext. 4-3347.

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.

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 bdms/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).

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: jdgoehler@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.

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. \$700/wkend, \$2,100/wk including cleaning by the maid service when you depart. Call (408) 252-7260.

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.

Morrison, Honda address AIAA essay contest winners

David Morrison, senior scientist of the Astrobiology Institute at NASA Ames, joined U.S. Representative Mike Honda (CA-15) and former San Jose math teacher in applauding the achievements of six local middle-school students and their teachers at a recent awards banquet at the Shoreline Golf Club in Mountain View. The essay contest and awards banquet are outreach efforts of the San Francisco Section of the American Institute of Aeronautics and Astronautics (AIAA).

Three seventh graders and three eighth graders were selected from more than 300 entrants across nine Bay Area counties responding to the question, "What steps would you take to protect the Earth from a major asteroid impact?"

Morrison spoke to the 60 students, parents, teachers and AIAA members and guests, lauding the students for their research and creativity. He provided an informative and entertaining history of government research on the subject of asteroid impact mitigation, and he pointed out the strengths and weaknesses of the approaches suggested in the students' essays.

In his remarks, Honda extolled the virtues of math and science education and encouraged the students and teachers in the audience to continue their efforts.

"The nation's future is in your hands," he said. Honda personally awarded a Congressional certificate of

achievement to each winning student.

Essays were judged based upon originality and realism of ideas, soundness of logic, quality of composition and clarity of expression.

outreach for the local AIAA section. Ryan is a teacher at San Jose's Toyon Elementary School and a former chairwoman of the local AIAA section.

Any seventh- or eighth-grade student residing in one of the nine Bay Area counties is eligible to enter the essay contest each spring. The essay question changes each year to address a topical issue of the day. Entries are judged by a corps of local AIAA volunteers and teachers. Said this year's committee chair Pallavi Shah, "The kids are so bright and creative. Reading the essays is a treat-it's rewarding, sometimes educational, and always entertaining."

The scholarship program is funded and administered by the AIAA San Francisco Section, which welcomes volunteer support and financial donations. For more information, please refer to the AIAA San Francisco Section Web site at www.aiaa-sf.org or contact Todd Farley at chair@aiaa-sf.org.

At the conclusion of the awards ceremony, Honda was presented with a certificate naming him an AIAA "Honorary Rocket Scientist." For Morrison, who already has an asteroid named in his honor (2410 Morrison), the AIAA renamed San Francisco councilmember (and NASA Ames researcher) Eric Mueller as "Eric 2410 Morrison" in Morrison's honor.

BY TODD FARLEY



U.S. Representative Mike Honda (CA-15) (first from left) and Dr. David Morrison of Ames (rear, second from right) congratulate student and teacher winners of the American Institute of Aeronautics and Astronautics (AIAA) essay contest. The essay subject was "What steps would you take to protect the Earth from a major asteroid impact?"

Savings bonds in amounts ranging from \$100 to \$500 were awarded to the winning students; their teachers were awarded certificates of achievement.

Now in its 18th year, the essay contest has awarded thousands of dollars to young people with promising futures in science and engineering. Established and wholly supported by the San Francisco Section of the AIAA and its volunteers and donors, the essay contest was renamed this year to the Juanita Ryan Awards for Scientific Composition to honor the founder and longtime director of pre-college

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