

Astrogram

Ames faces great challenges . . . and great opportunities

As NASA undergoes a major transformation and field center budgets get tighter, Ames faces both "a great chal-

To assist this, Ames has established a New Business Office headed by Wendy Dolci. Hubbard said the New Business

Office will manage all potential new business as though it were a corporate sales portfolio, and will regularly track and report on potential new business opportunities. In addition, he said that managers will be required to visit key customers at least once a month, and that project principal investigators, branch chiefs or "whoever has accountability for a

are astrobiology (the study of the origin, evolution and distribution of life in the universe), integrated next generation computing systems; intelligent/adaptive systems; entry, descent and landing systems (with the Jet Propulsion Laboratory and NASA Langley Research Center); and air traffic management systems. Four of the five core competencies are exclusive to Ames.

Hubbard said that the approval of Ames' core competencies places the center "in the critical path" for implementing the agency's priorities, particularly The Vision for Space Exploration. Emphasizing the importance of maintaining a strong, viable work environment, Hubbard said Ames will conduct a "health assessment" of its core competencies by the end of March.

To deal with a substantially reduced "core" center budget, Hubbard announced a "belt-tightening" action plan for Ames to prevent the loss of as many as 400 civil servants and 400 contractor jobs in a worst-case scenario. He said the center's contractor workforce has already been reduced significantly and warned that contractor tasks will be "descoped" where there are acute budget problems. "However, we will not 'balance the books' using only our contractor workforce," Hubbard emphasized. In a positive vein, Hubbard observed that fully one half of Ames' potentially "uncovered capacity" for FY06 in the civil service workforce is fully aligned with The Vision for Space Exploration and the center's core competencies, making them excellent candidates to propose for new work.

Hubbard said all overhead, support and operations will be cut immediately by 20 percent, the center's overhead costs will be reduced through implementation of a "leaner management structure," and that the center's operating costs will be reduced by vacating and closing buildings and trailers immediately. He said Bldg. 19 would be vacated and 110 employees in codes P and J will be relocated. Later, all remaining Ames em-

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NASA photo by Tom Trower

Ames Center Director G. Scott Hubbard

lenge and a great opportunity" as it changes the way it conducts business to meet the goals of The Vision for Space Exploration.

"The transformed Ames will be focused, responsive, and entrepreneurial in order to be competitive and successful," Hubbard told a capacity audience in the main auditorium during an all-hands update for center employees on Feb. 7 to discuss the implications for Ames of the president's FY 2006 budget request for NASA. "We have to change and be more responsive to the people who pay the bills," Hubbard concluded.

Hubbard said the agency's approach to funding NASA centers has changed from large annual allocations to the field centers to multiple competitions among the centers and non-government organizations for smaller individual project and program awards. As a result, Ames must aggressively pursue new business -- not only from within NASA, but also from such external sources as other agencies and the private sector -- Hubbard called upon all employees to support and pursue such new opportunities.

given product" will also be responsible for sales and the marketing of their work.

Hubbard said the agency's new emphasis on "competitive sourcing" represents a culture change for a significant portion of Ames. While Ames has traditionally done well in the past when competing for project and program funding, the new competitive process is different. "The clear trend is for more and more funding being open to competition. We have a lot that we can go for, but we also face a lot of challenges," Hubbard observed.

On a positive note, Hubbard said that Ames did very well during an agency-wide evaluation of core competencies at each of its 10 field centers. "There were only 24 agency core competencies approved, and Ames won approval for five of the eight that it proposed," Hubbard said. He stated that he was very proud of the center's ability to make its case with NASA headquarters and of the recognition of Ames' capabilities that was acknowledged by the agency.

Ames' approved core competencies

-- NASA searches for answers to questions as old as humanity, and asks new ones

Ames hosts thousands of students for annual JASON event

Pull on a pair of galoshes and be transported on an exciting adventure exploring the mysteries and marvels of Louisiana's disappearing wetlands.

From Jan. 31 through Feb. 4, the main auditorium at NASA Ames was

moved to JASON City, situated in NASA Ames' Hangar 211, where the students participated in more than 16 enrichment activities ranging from art, live dem-

onstrations and animal exhibits to hands-on science experiments custom-designed to enhance the broadcast content and classroom curriculum.

ers have been studying the south bay salt pond restoration project to learn about local ecosystems.

Now in its 16th year, the JASON project is a multi-disciplinary education program designed to spark the imagination of students and enhance the classroom experience. Previous JASON expeditions have highlighted the Earth's

polar regions, active volcanoes, ocean depths and dense tropical rain forests.

NASA is a major partner of the JASON project. NASA scientists who work in the areas of Earth science and remote sensing routinely participate in live JASON broadcasts.

For this expedition, Marco Giardino, from NASA Stennis Space Center, located near Bay St. Louis,

Miss., discussed the wealth of information about the health of the Louisiana wetlands and coastline, which is available from satellite imagery.

NASA Ames has hosted the JASON broadcasts and JASON city for the past 11 years.

For more information about the 2005 JASON Expedition: Disappearing Wetlands, visit the Web at <http://www.jasonproject.org/> and <http://quest.arc.nasa.gov/projects/jason/>

BY JOHN BLUCK

After the broadcast, the students

help filter and purify fresh water. Many of the local JASON students and teach-

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NASA photos by Dominic Hart

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'transformed' into the Mississippi River Delta and Louisiana's Cajun country hosting 5,200 Bay Area students and teachers who participated in the 2005 JASON Expedition: Disappearing Wetlands. The students interacted with Robert Ballard, a team of scientists and student and teacher 'argonauts' via 20 live, interactive broadcasts.

"The JASON project is a rare and exciting experience for the students," said Wendy Holforty, JASON project manager at NASA Ames. "They have the opportunity to interact with scientists in the field via the live broadcast and run experiments of their own in JASON City."

After the broadcast, the students



"While we realize that most of the learning happens in the classroom, a visit to Ames during the JASON project is inspiring and fun for our students," said Will Shaw, JASON project coordinator for NASA Ames.

Wetlands are critical, life-supporting ecosystems that provide a habitat for an incredible diversity of plants and animals. These ecosystems are 'nurseries' for countless species of fish and shellfish. Wetlands also protect the vulnerable coastlines from storm surges and

NASA software tool helps prevent air traffic bottlenecks

No one is happy with long lines and delays at our nation's airports. In response to the growing need to improve the national airspace system, NASA is

developing tools to ensure future air travel will be safe and efficient.



NASA photo by Dominic hart

developing tools to ensure future air travel will be safe and efficient.

NASA, the Federal Aviation Administration (FAA) and the MITRE Corp., McLean, Va., have successfully conducted tests of the Multi-center Traffic Management Advisor (McTMA) at air traffic facilities responsible for the northeastern United States. Initial results indicate the software's scheduling capabilities helped air traffic managers prevent bottlenecks.

At the heart of McTMA is a powerful 'trajectory synthesis' engine capable of converting radar data, flight plans and weather information into accurate forecasts of air traffic congestion. McTMA uses these forecasts and input from air traffic personnel to generate a specific advisory, typically a small delay, for each aircraft predicted to encounter congestion.

"McTMA is an advanced air traffic management system that makes possible a fundamental shift in air traffic control from distance-based to time-based metering of aircraft," said Tom Edwards, deputy director of the Aeronautics Directorate at Ames. "Time-based metering can reduce airborne delays and improve coordination and planning between adjacent air traffic control facilities," he added.

Tests were conducted with managers at the air route traffic control centers in New York, Washington, Boston and Cleveland; the Philadelphia Terminal Radar Approach Control and the National Air Traffic Control System Command Center in Herndon, Va.,

The successful tests validated the McTMA "distributed scheduling archi-

ture," and helped air traffic managers prevent bottlenecks at the Philadelphia International Airport. "The evaluation successfully demonstrated the advantages of the McTMA departure metering capability over current techniques," said Tom Davis, the principal investigator for McTMA, and chief of the Terminal Area Air Traffic Management Research Branch at Ames. "During several periods at Philadelphia, when airborne holding is routinely encountered, no such holding was observed when McTMA was in use," Davis added.

Frequently, adjustments of just a few minutes at the point of origin can alleviate airborne traffic jams at the destination. The result is safer and more efficient operations for airlines and the flying public as the system produces a

steady but manageable flow of air traffic.

"Future tests will seek to gradually expand the McTMA operational envelope to demonstrate multi-center, time-based metering of departures, arrivals and en route flows to multiple destinations," Davis said.

Earlier versions of the system are used to schedule arriving aircraft at Dallas-Ft. Worth, Minneapolis, Los Angeles, Denver, Houston, Miami and Atlanta airports. As testing progresses, McTMA's time-based metering may be applied to departures, arrivals and en route aircraft across broader airspace regions and air traffic corridors.

Testing of the newer McTMA system is scheduled to resume this month at the same facilities. If fully successful, NASA and the FAA will work together to bring the technology into future operations to benefit air travelers.

The program is managed by the Airspace Systems Division of NASA's Aeronautics Research Mission Directorate. The software was developed at Ames.

For information about the McTMA system and other air traffic management decision support tools, visit http://www.ctas.arc.nasa.gov/project_description/mctma.html

BY JONAS DINO

Museum visitors journey through space

'Space Journey,' an exciting, new exhibit showcasing NASA's numerous contributions to aeronautics and space flight, both past and present, is now featured at the Museum of Idaho in Idaho Falls and will continue through Sept. 10, 2005. 'Space Journey' commemorates the centennial of powered, controlled flight that began on Dec. 17, 1903, with the historic flight by the Wright Brothers. It also highlights NASA's current and future space missions.

Anchored by a variety of displays provided by all of NASA's 10 field centers, the 9,000-square-foot exhibit is NASA's first major exhibition to be shown in the western region states of Idaho, Montana and Utah.

Among the highlights of the exhibition are a full-scale replica of the Apollo Command Module that was used in Universal Studio's 'Apollo 13' movie; a full-scale replica of the Mercury spacecraft; and an actual first-stage rocket engine similar to those that launched America's first orbital astronauts.

NASA's Marshall Space Flight Center, Huntsville, Ala., and the U.S. Space

and Rocket Center's Space Laboratories provided 'Science in Orbit,' full-scale, walk-through mock-ups of the International Space Station and Russian Mir laboratories. It focuses on the science, engineering, physical and cultural challenges of conducting research in space.

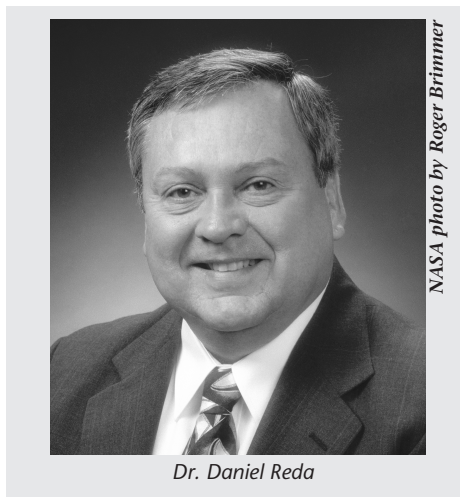
NASA Ames contributed an authentic moon rock from the Apollo era, and a model of the Lunar Prospector spacecraft that was launched in 1998 and discovered water ice at both of the moon's polar regions.

NASA Headquarters contributed a major exhibit entitled 'Aerospace Design: The Art of Engineering' from NASA's Aeronautical Research, which features more than 70 artifacts, some of which date back to NASA's predecessor, the National Advisory Committee for Aeronautics. In addition to the historic displays, the exhibit features some of the latest research being conducted by NASA to make future air travel safer and more efficient, including advanced aircraft designed with 'morphing' wings, self-healing 'skins' and biologically in-

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Ames scientist Daniel Reda receives distinguished AIAA award

Daniel Reda, senior staff scientist at Ames, was recently selected to receive the American Institute of Aero-



Dr. Daniel Reda

nautics and Astronautics (AIAA) Thermophysics Award for 2005. This award is presented for an outstanding singular or sustained technical or scientific contribution by an individual in thermophysics, specifically as related to the study and application of the properties and mechanisms involved in thermal energy transfer and the study of environmental effects on such properties and mechanisms. The award citation reads "For pioneering research on boundary layer transition for hypersonic flows over ablative thermal-protection-system materials and the advancement of ballistic ranges." The award consists of an engraved bronze medal, a certificate of citation and a rosette pin and will be presented to Reda at an awards luncheon at the AIAA thermophysics conference in Toronto, Canada, this June.

Throughout his distinguished and productive career, spanning over 35 years of combined service in government and private industry, Reda has made notable and valuable contributions toward advancing the state of the art in aerothermodynamics, fluid mechanics and aerodynamic measurement technologies. He is a nationally and internationally recognized authority in the field of boundary layer transition to turbulence and he pioneered the use of hypersonic ballistic ranges for the study of transition and related aerothermodynamic phenomena on ablating reentry materials in real-gas envi-

ronments. His recent review article for the AIAA Journal of Spacecraft and Rockets summarizes the state of the art concerning roughness-dominated transition in reentry applications. He also is the world's leading authority on the use of shear-sensitive liquid crystal coatings for the visualization and measurement of global surface shear stress vector distributions, holding patents on both methodologies.

Reda is widely published in the scientific literature. He has been invited to lecture at the von Karman Institute for Fluid Dynamics, Stanford University, University of California-Berkeley, and Columbia University-Geologic Observatory, among many others. He has given international presentations at ICAS, ICIASF and AGARD conferences. He has received many honors and awards for his pioneering research, among them a prestigious NASA Space Act Award and selection as a top 10 finalist in the NASA Inventor-of-the-

Year Competition.

In 2003, scientific peers on the Ames Basic Research Council elected him as an Ames Associate Fellow for sustained innovative and creative contributions to transition research. Only two such awards are given at the Center each year; in addition to the scientific recognition, these awards are accompanied by personal, travel and research honoraria totaling nearly \$25,000.

Reda is a Fellow of AIAA and ASME and has been cited in both Who's Who in Science and Engineering and Who's Who in Engineering. He served as associate technical editor of the ASME Journal of Fluids Engineering and as co-editor of the ASME Proceedings 'Boundary Layer Stability and Transition to Turbulence.' Throughout his career, he has been actively involved in the technical aspects of both societies and has served on five technical committees, including the AIAA Thermophysics TC.

Great challenges and opportunities

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employees in the building will be moved out, both to reduce costs and to enhance revenue opportunities.

In addition, Hubbard said preparations are underway for another possible buyout at Ames, and that some transition employees will be assigned other tasks that save money or pursue new business. He said the center also is exploring possible reassignments of employees to other field centers, possible furloughs of employees and -- as a last resort -- a reduction in force (RIF).

Although only 34 employees took the buyout offer, Hubbard said he was "guardedly optimistic" that Ames could get through FY 2005 with minimal disruption, but warned that FY 2006 promises to offer even greater challenges.

Hubbard said that the FY 06 budget guidelines differ from previous years in that large amounts of funding are now being held at NASA Headquarters pending competition. He said that over the next five years, Ames and the other NASA field centers, along with industry and academia, will have an opportunity to compete for more than \$10 billion in new projects in exploration systems,

science, space operations, and aeronautics.

Science projects include Discovery, Explorer, New Frontiers, Mars Scouts, Lunar Robotic, Earth Science Pathfinders, New Millennium and Living with a Star. Exploration systems projects to be competed are the Crew Exploration Vehicle, Crew Launch Vehicle, Project Prometheus, and exploration research and technology. Space operations projects include launch services to the International Space Station and other users, and new breakthrough flight demonstration projects in aeronautics.

Hubbard concluded his presentation by recalling the famous "To be or not to be" soliloquy from William Shakespeare's 'Hamlet,' in which Hamlet asks, "whether 'tis nobler in the mind to suffer the slings and arrows of outrageous fortune" or to "take arms against a sea of troubles and, by opposing, end them."

"Well, in my mind, for this center there is no debate," Hubbard said. "We will take arms against a sea of troubles" and, together, we will overcome them and succeed.

BY MICHAEL MEWHINNEY

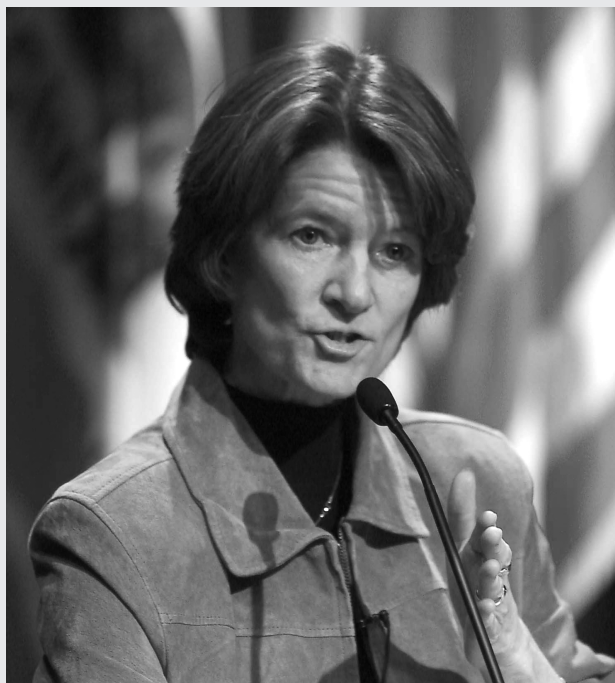
Ames pioneer's wife presents Ames with commemorative shovel



Helen Robinson (above photo), wife of Russell Robinson (right photo, in right hand corner) who had built the 8-foot wind tunnel at Langley after graduating from Stanford in 1930. He was a National Advisory Committee for Aeronautics (NACA) staffer on the Lindbergh committee and the man who turned the first shovel at Ames in 1939. Helen Robinson is seen here at the 65th anniversary celebration held at Ames Dec. 20, presenting Ames Center Director G. Scott Hubbard with a commemorative shovel.



Astronaut Sally ride visits Ames



NASA photo by Dominic Hart

On Jan. 20, astronaut Sally Ride presented a director's colloquium entitled 'Encouraging Girls and Women in Science and Engineering.'

Ride was the first woman in space and founded the 'Sally Ride Science' at <http://www.sallyridescience.com/>, which provides support for girls who are, or may become, interested in science, math and technology.

The organization's mission is to increase the number of girls who are technically literate and who have the foundation they need to go on in science, math or engineering.

Navy to conduct tests on Hangar One

In late March, the Department of the Navy will begin a series of air quality and material tests on Hangar One as part of the Navy's Remedial Investigation and Feasibility Study. The goal of this study is to provide additional data necessary to determine the extent of PCB contamination of the hangar.

Air samples will be taken both upwind and downwind from Hangar One and material samples will be extracted from different locations on the hangar. A crane will be used to assist in gathering some of the hangar material samples. During the approximately 8-10 weeks of sampling, no road closures will be necessary.

For these tests, the Navy has selected to partner with SulTech, a joint venture between California-based companies Sullivan Consulting Group and Tetra Tech, Inc. For further information, please contact Dan Winningham of the Code QE Environmental Office at Dan.M.Winningham@nasa.gov or call ext. 4-0927.

NASA shares exploration vision with Hawaii explorer schools

NASA's Chief Education Officer Dr. Adena Williams Loston recently went to Hawaii to share NASA's excitement and plans for the Vision for Space Exploration with Hawaii's two NASA Explorer Schools (NES).



Hawaii Governor Linda Lingle's Kauai liason, Laurie Yoshida, reads a proclamation in support for the Vision for Space Exploration from Hawaii.

plorer Schools (NES).

On Jan. 31, Loston and Expedition 9 astronaut Michael Fincke visited Waimea Middle School in Kamuela.

On Feb 1, astronaut Richard Linnehan, a veteran of three shuttle missions, joined Loston at Chiefess

part in making the vision a reality.

"This is an exciting time for our nation's students with the impending return of the space shuttle to flight and the vision to explore the moon, Mars and beyond," said Loston. "NASA is committed to working with the educational community to engage and inspire students through the NASA Explorer Schools Program and other NASA educational initiatives."

Waimea Middle School and Chiefess Kamakahahei Middle School were among the first 50 NASA Explorer Schools selected in 2003. During their first year as Explorer schools, students and school staff have participated in numerous NASA-inspired enrichment activities, including a downlink from the International Space Station (ISS), visits from NASA aerospace education specialists, teacher workshops and NES student design challenges. The three-year partnership is designed to give students the foundation and inspiration to pursue careers in science, mathematics and technology using NASA's unique capabilities.

"The students and staff of Waimea Middle School are excited to have Dr. Loston and Michael Fincke visit our school," said Jade Bowman, Waimea NES team lead. "It will be an experience that will serve to motivate and inspire well into the future, while helping us further our school vision: a place of infinite possibilities."

"The NES team had a successful first year opening the NASA window for our

students and staff," said Melissa Speetsjen, Kamakahahei NES team lead. "We are honored and privileged to have Dr. Loston and astronaut Richard Linnehan visit our school and look forward to strengthening a partnership with NASA that will extend past the program's three years."

Loston is a veteran educator with more than

30 years of experience in higher education, holding a master and a doctorate degree in philosophy and has served in various educational positions, including president of San Jacinto College

South in Houston and dean of professional programs and dean of vocational



Tom Gates, aerospace education specialist, gives a student a chance to see what it's like to be an astronaut.

education. In 2002, Loston assumed her duties as NASA's top educator and oversees NASA's efforts to organize and enhance the agency's education programs. Loston's service has been recognized with numerous NASA and educational awards.

Fincke recently completed 187 days in orbit onboard the International Space Station (ISS) as part of the Expedition 9 crew. Fincke participated in four spacewalks logging more than 15 hours



Expedition 9 astronaut Michael Fincke speaks at the Astronaut Ellison S. Onizuka Space Center.

of extravehicular activity (EVA) time.

Linnehan has flown three times as a mission specialist on STS-78 in 1996, as the payload commander on STS-90 in 1998 and as a member of the four-man EVA crew on STS-109, in 1992. He has

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Richard Linnehan, a veteran of three shuttle missions, visits a classroom at Chiefess Kamakahahei Middle School in Lihue, Hawaii.

Kamakahahei Middle School in Lihue. With the theme of 'There is a place for me at NASA,' Loston and the astronauts discussed the Vision for Space Exploration and how the students play a large

NASA shares exploration vision with Hawaii explorer schools

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Mother and son participate in an aeronautics workshop at the 2005 Astronaut Ellison Onizuka Science Day held at the University of Hawaii, Hilo.



NASA's chief education officer, Dr. Adena Williams Loston, makes a presentation to Patricia Rice, principal of Waimea Middle School in Waimea, Hawaii.

logged over 43 days in space, including more than 21 hours of EVA time.

For more information about the NASA Explorer schools program, visit

<http://explorerschools.nasa.gov/portal/site/nes/>

BY JONAS DINO

NASA Shared Services Center to consolidate activities

The NASA Shared Services Center (NSSC) is being established to consolidate select transactional and administrative activities that are currently being performed at NASA centers at one location. The NSSC will be a separate organization from NASA centers, reporting to NASA Headquarters and working collaboratively with centers to meet their service needs. Potential sites for the NSSC include Brook Park, Ohio; Huntsville, Ala.; and NASA's Stennis Space Center, Miss. The final location of the NSSC will be determined by the outcome of the competitive process later this year.

Functional areas with activities being consolidated are financial management, procurement, human resources and information technology. The transition of activities will take place over a three-year period beginning in October 2005. The Ames NSSC transition team has been working closely with the agency transition team and the functional subteams to develop the transition strategy and approach, as well as impacts to the Center.

The NASA Shared Services Center agency transition team began visiting each of the NASA centers last September. The overall objectives of the center visits are to raise the level of awareness of NSSC, to provide current status and next steps and to understand the issues, concerns and requirements of each center. The team will come to Ames to meet with several groups of personnel, including the executive council and senior

staff, the Ames center transition team, supervisors and employees in impacted functional areas, the Ames Federal Employee Union leadership and future NSSC customers.

For more information regarding the NSSC, visit the Web site at [http://](http://nssc.nasa.gov/)

nssc.nasa.gov/. The Web site contains background information on the NSSC, various presentations, the status of the A-76 competitive process, agency and center team members and points of contact and other information.

BY RANDY RODRIGUES

Girl scouts invest in themselves



Recently, Girl Scout troop 142 from Mountain View held its investiture ceremony at Ames. Girl Scouts hold this event yearly to renew their belief in the Girl Scout promise and law and to reflect upon the meaning of girl scouting in their lives.



NASA photos by Astrid Terlep

Ames scientist Dale Cruikshank elected as AGU fellow

Ames' Dale Cruikshank, a planetary scientist, recently was elected as a life-long fellow of the American Geophysical Union (AGU).



NASA photo by Dominic Hart

Dale Cruikshank

Cruikshank specializes in the detection, identification and study of ices, minerals and organic solids found on the solar system's small bodies. He is only one of three Fellows that the AGU selected for planetary science fellowship this year. His honor was awarded in the planetary science category. Cruikshank works in Ames' Astrophysics Branch, in Code SSA.

"No mere one-hit wonder, Dale's scientific contributions have time and again over the years set the pace in the field of planetary science, today making him an internationally recognized and respected leader in the field," said Douglas M. Hudgins, Astrophysics Branch chief, describing Cruikshank's work. "His election as a Fellow of the American Geophysical Union is a richly deserved external acknowledgement of this legacy of groundbreaking contributions -- a legacy, which continues today with his involvement in the exciting Cassini mission to the Saturnian system."

"One of the few honors that AGU confers, fellowship is awarded to scientists who have attained acknowledged eminence in one or more branches of geophysics," said AGU President John A. Orcutt. "The number of fellows elected each year is limited to no more than 0.1 percent of the total membership of AGU," Orcutt added.

Using large telescopes and infrared spectroscopic techniques, Cruikshank has found and identified ices of Pluto, Triton, the large moons of Uranus and ices of numerous other bodies in the

outer regions of the solar system.

Scientists use spectroscopic instruments that often include prisms to split light samples into spectra-colored, rainbow-like displays in order to study them. Researchers examine the patterns, or 'signatures,' of the colored light in spectra to determine the chemical makeup of substances from which the light under study was reflected.

Cruikshank also has used spectroscopy to link certain kinds of meteorites with specific asteroid types. He currently is exploring the spectroscopic signatures of numerous small bodies (asteroids, centaurs and Kuiper Belt objects) to search for the presence and identity of complex organic solids that appear to give the surfaces of these bodies their very low reflectivity and distinctive color properties.

Centaurs are celestial objects that are much larger than comets, but like comets, include clouds of dust and gas.

The Kuiper Belt is a belt of objects beyond Neptune that astronomer Gerard Kuiper predicted early in the 1950s.

Cruikshank is a scientist on the Spitzer Space Telescope mission. This telescope - originally called the Space Infrared Telescope - was launched into space on Aug. 25, 2003. The telescope detects infrared energy, or heat, that objects in space radiate. Much infrared radiation is blocked by Earth's atmosphere, but Spitzer is above Earth's air and so can collect much more infrared data than can Earth-bound telescopes.

In addition, Cruikshank is a science team member on the Cassini mission to the Saturn system and co-investigator on the New Horizons mission to the Kuiper Belt and the Pluto-Charon system. He also teaches an introductory astronomy course, 'The Solar System,' at Santa Clara University.

BY JOHN BLUCK

Museum visitors journey through space

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spired sensors to protect the environment.

Additional exhibits include a multi-axis trainer that simulates a space shuttle landing, a lunar rover model, a Skylab



A full-scale replica of the Apollo command module that was used in Universal Studio's 'Apollo 13' movie is featured at the Museum of Idaho's 'Space Journey' exhibit.

gyroscope, a nose cone, a space shuttle tile and a \$100 million Iridium satellite, one of only two on public display.

Also featured will be displays from NASA's Jet Propulsion Laboratory, Pasa-

dena, Calif., including NASA's Project Prometheus, a project to develop the first nuclear reactor-powered spacecraft for deep-space missions; a half-scale replica of the Mars Odyssey spacecraft that entered martian orbit on Jan. 11, 2003; and a model of the Sojourner rover that landed on Mars on July 4, 1997, following a seven-month cruise through space. The exhibit also includes space suits and space food, a model of the Wright Flyer, a meteor display and a display demonstrating how plants are grown in space.

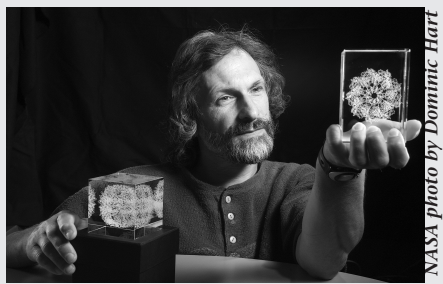
In addition to NASA, exhibitors include Utah State University and the Space Dynamics Laboratory, both in Logan, Utah; the U.S. Space & Rocket Center, Huntsville, Ala.; the Space Museum, Titusville, Fla.; the Cosmosphere & Space Center, Hutchinson, Kan.; the Hill Aerospace Museum at Hill Air Force Base, Utah; and the Battelle Energy Alliance, Idaho Falls, Idaho.

The Museum of Idaho is located at 200 North Eastern Ave., at the corner of Broadway and Yellowstone Highway, in Idaho Falls. Additional information about the exhibit, including exhibit hours and ticket prices, is available at the Museum of Idaho Web site at <http://www.museumofidaho.org>

BY MICHAEL MEWHINNEY

Hot-spring organism proteins are also in blood

Scientists have discovered heat-resistant proteins in the layers surrounding cells and determined that these pro-



Ames scientist Jonathan Trent examining a 3-D glass model of a chaperonin protein complex.

teins protect cells from leaks, according to a NASA study.

Living cells make the special, heat-resistant proteins when organisms are exposed to high temperatures, scientists revealed. These proteins form microscopic double rings called 'chaperonins' that look like two donuts, one on top of the other, according to scientific papers recently published in the Proceedings of the National Academy of Sciences and the Journal of Biological Chemistry.

"We got into this study because we were looking for the upper temperature at which life can exist, and now we have stumbled on a potential tool that may be important for medical uses such as learning how healthy blood is before it's transfused," said NASA Ames scientist Jonathan Trent, principal author of the National Academy of Sciences paper.

"There is a microbe that lives in near-boiling sulfuric acid. This microbe produces a protective protein that we recently discovered is also in human blood," Trent explained. "It was a big surprise to find that a protein from such a weird organism is also in human blood," he added.

Previously, scientists believed that these double-ring proteins play a role in the cell's manufacturing of other proteins – the building blocks of all living things.

"We have now learned that these double-ring proteins are not involved in manufacture of other proteins, but are essential in protecting cell membranes from leaks," said Trent. "We've discovered that if a person gets a fever, these proteins move to the membranes of human red blood cells. So now we're study-

ing what exact functions these double-ring proteins play in blood cells," Trent explained.

That organisms living in near-boiling sulfuric acid have a protein, which is also present in human beings, suggests this protein is doing something fundamentally important in cells, said Chris Wagner, of LifeCell Corp. Branchburg, N.J., the lead author of the Journal of Biological Chemistry article. In addition to Wagner, Trent's co-investigators include Chad Paavola, Andrew McMillan and Hiromi Kagawa, who work at NASA Ames.

As part of NASA's astrobiology program, scientists are looking for the most extreme environments in which life can exist on Earth. This knowledge gives NASA clues about where to look for life on other planets.

"For NASA, the double-ring protein also may prove useful for monitoring astronaut health during space travel," Trent added.

Detailed information can be found on the Internet at: <http://bionanex.arc.nasa.gov>

BY JOHN BLUCK

NASA awards contract for Kepler mission photometer

NASA Ames has awarded a new contract to Ball Aerospace and Technologies Corp. (BATC) of Boulder, Colo., to design, fabricate, assemble and test a photometer for the Kepler mission.

The not-to-exceed value of this letter contract is \$13.4 million; the estimated value of the total contract is \$75.1 million, which is part of a five-phased acquisition. A cost-plus-incentive-fee contract is anticipated, with a three-year period of performance that does not include any contract options.

Under the terms of the contract, Ball Aerospace is responsible for designing, fabricating, integrating, testing and commissioning the scientific instrument called the photometer. Under a separate contract, the corporation also is responsible for the three-axis stabilized spacecraft designed to operate in deep space.

The Kepler mission is the first space mission specifically designed to detect Earth-size planets orbiting solar-like stars in their habitable zone. The habitable zone is that distance from a star where liquid water could exist on the surface of the planet.

Scheduled to launch in October 2007 on a Boeing Delta II expendable launch vehicle, Kepler is the 10th mission in NASA's Discovery program series. Project scientists will survey our extended solar neighborhood to detect and characterize hundreds of terrestrial and larger planets to provide a greater un-

derstanding of planetary systems.

The photometer will be used to measure the very small changes in a star's brightness caused by the repeated, periodic 'transit' of a planet in front of its star, as viewed from our solar system, similar to the transit of Venus in front of the sun in June 2004. The focal plane of the photometer will be made up of light-sensing charge coupled devices (CCDs) similar to those in a digital camera, but much larger, with a total of 100 megapixels.

The photometer will survey a single, large patch of sky for the entire four-year mission, an area equivalent in size to two open hands held together at arms' length. The location in the sky is in the Cygnus-Lyra regions, between the very bright stars Vega and Deneb. The photometer will produce light curves, not images, for at least 100,000 stars simultaneously. It is the equivalent of a 100,000-channel light meter, hence the term photometer.

By searching for a sequence of 'transits' in the light curves from each star, scientists will determine the planet's orbital period. From the depth of the 'transit' and knowing the size, mass and temperature of the star, the team can calculate the planet's size and the planet's characteristic temperature. Using Kepler's Third Law, which can be paraphrased as "For circular orbits, the distance of a planet from its star is pro-

portional to the 2/3 root of the planet's orbital period," the scientists will be able to calculate the planet's orbit. The scientists then will be able to determine if the planet is located in the habitable zone, where liquid water can exist on the surface of the planet.

Led by the project's principle investigator William Borucki and the project's deputy principal investigator David Koch, both of NASA Ames, the science team is comprised of 27 scientists from 15 institutions in the United States, Canada and Denmark.

NASA Ames will manage the photometer contract, while NASA's Jet Propulsion Laboratory (JPL), Pasadena, Calif., will manage the spacecraft contract. JPL is responsible for the project's overall mission development through launch and commissioning. NASA Ames will manage the mission's operations phase and lead the scientific analysis and interpretation of data. Ball Aerospace will operate the spacecraft throughout the mission for NASA.

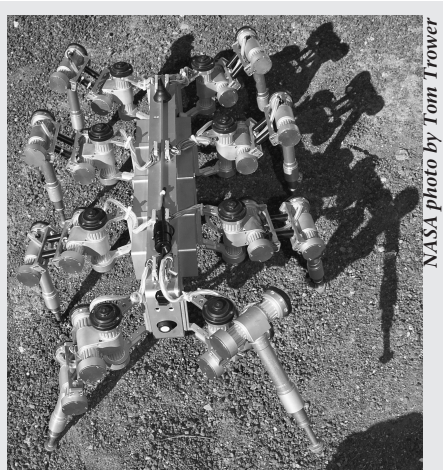
Scientists expect this mission will detect numerous Earth-size planets around solar-like stars and hundreds to thousands of planets of various sizes, in various orbits around a wide variety of stars.

Further details about the Kepler mission can be found at: <http://Kepler.nasa.gov>

BY MICHAEL MEWHINNEY

NASA evaluates eight-legged Scorpion robot for future exploration

An eight-legged Scorpion robot prototype is now under evaluation at Ames, where scientists are analyzing how similar robots someday may explore planets.



Eight-legged Scorpion robot.

Scientists say descendants of the dog-sized scorpion robot, able to climb over boulders and rappel on cables down cliffs, may help explore Mars. Scorpion's inventor, Professor Frank Kirchner, is developing a second prototype at the University of Bremen in Germany.

"The most interesting scientific sites on Mars are not on very easy terrains," said Silvano Colombano, an Ames scientist and the NASA collaborator on the Scorpion robot project. "Very often, the sites that are interesting are on the sides of a cliff, for instance, or very rocky areas. So we need the kind of robot that can go into these areas, look at the geology and pick up samples that are difficult or impossible for a rover, which is about the size of a small car, to go into," Colombano explained.

"If you want to go over rocks, you need large wheels, and you can't go in small spots," said Colombano. "With small wheels, you get stuck in sand. With legs, you can climb over things and negotiate a wide variety of terrains."

Robots with legs are just at the beginning of their development, according to scientists. Engineers who are developing legged robots are turning to biology for inspiration. The Scorpion robot uses a walking pattern inspired by the movement of scorpions coupled with reflexes that will help the robot to free a stuck leg, among other things.

"People at Ames will put a model of the inner ear in the robot to see if it helps the robot maintain its balance," said

Colombano. A human inner ear has a cluster of hollow areas that interconnect like a system of tiny caves and helps a person to maintain stability and hear. Colombano said that Richard Boyle, a scientist at Ames, is developing the unique inner ear for the robot. Scorpion also has a TV camera and uses ultrasound, like a bat uses echoes, to sense distances to objects.

If scientists command the Scorpion to go straight ahead, its sonar will help the robot sense when to stop before hitting an obstacle. "The robot's feet also can act as sensors, just like we can feel our terrain below us," Colombano added.

"At this point, the only mind that it has is about the size of that of a cockroach," Colombano said. "It has a set of patterns for moving, and a set of reflexes that allows it to go over small rocks. But it doesn't reason about what to do. It doesn't have any higher planning abilities. Those can be put in a different computer, or they can be programmed on board, and these abilities will be included in the next stage of development for the system," he explained.

"If you see it move now, it looks like it's ready to go, but in addition to higher cognitive levels, we also still have to make sure that the particular martian environment can be coped with in terms of dust and temperature and all of the things that haven't really been taken into account yet," Colombano said.

One of the important problems that engineers need to overcome to improve the Scorpion is to provide it with enough power to complete complex planetary missions. "It needs to be connected to a larger robot that can provide it with power, or recharge it," explained Colombano. Computer 'brains' for the Scorpion could be both inside it and inside another robot or spacecraft, de-

pending upon conditions on the planet and the problems scientists wish to solve, according to Colombano.

"We would like to make it a lot smarter," Colombano said. "And the ability to learn would be nice to include in the system." Scientists believe a later version of the Scorpion robot could act as a scout for a larger rover, and explore areas where a rover should not venture.

More advanced robotic exploration possibilities include teams of robots capable of supporting each other, Colombano said. Robots could even repair each other, by trading parts and finding other ways to continue working, he added.

A Scorpion robot could help people on Earth, according to scientists. For instance, researchers have proposed that the robot might explore a largely inaccessible mine where extremophile life forms exist. Extremophiles are forms of life that live in extreme conditions, such as in very high or low temperatures or in very acidic environments. "Maybe this robot could also go into rubble in small areas and find survivors of an earthquake," Colombano said.

"Legged robotics is very much at the beginning. Eventually, there will be a convergence of robotics with the skills of biological systems. The robots are always going to be the pioneers, but they'll never be able to completely take the place of humans," Colombano said. "We have to think in terms of developing an exploration strategy that will include robots and people, and this collaboration ultimately will be the way we explore the universe."

For audio file interview segments related to this story, please click on this URL: <http://amesnews.arc.nasa.gov/audio/scorpion/scorp.html>

BY JOHN BLUCK

Ask the 'export expert'

Question:

I'm going on foreign travel for NASA. Can I take my laptop with me?

Answer:

Yes, you can, provided the equipment is within the export control limitations and the appropriate paperwork is completed and filed.

For a more complete description of the process, visit the Web at <http://jp.arc.nasa.gov/EC/travel.html#hand>.

Do you have a question for the export expert? If so, send it to kwall@mail.arc.nasa.gov. And, visit the Web at <http://jp.arc.nasa.gov/EC/EC.html>.

Lessons learned in project management, systems engineering

The Ames Systems Management Office (SMO) was established by the center director to improve the effectiveness and efficiency of the Center's projects. Since this time, the SMO has interacted with many projects and has documented numerous lessons learned (LL) to share with the rest of the Center.

The following is a summary of a lesson learned that can be seen in its entirety on the SMO's Web site <http://smo.arc.nasa.gov/>. Look to future Astrograms for additional lessons learned from the SMO's archives.

The challenges and pitfalls of adapting a previously successful system for an application different than its original design:

The agency needed a launch vehicle for research payloads and decided to use an existing Air Force vehicle by adapting it to the payload's launch requirements. The first two launches were successful, so an accelerated schedule, despite minor differences in the launch environment, of one-third less time (as determined by management without consulting key launch team members) was used for

the next launch. In an effort to meet this new compressed schedule, an engineer, who did not understand the purpose of one of the vehicle components, substituted a different type of rocket motor stage interlock during vehicle assembly. The launch was a failure, with the vehicle coming apart shortly after launch.

The lessons learned from this were:

1. Success in one environment or configuration does not guarantee success in another. Furthermore, a nearly optimized system/process, as indicated by its success, should not be altered without implementing a thorough re-optimization effort.

a. Successes that are low in number (statistically insignificant) can lead to a false sense of security.

2. Decisions to alter systems and processes, especially those already working, need to be reviewed by all appropriate domain experts.

The recommended actions to consider include:

1. Each time a system is adapted to a new environment or application, a full analysis should be accomplished to ensure all its systems and modes of

operation are still within design limits.

a. When changes to a system's baseline are made, ensure they are documented and supported with appropriate analysis, testing and training.

b. Under these conditions, it is important to maintain the integrity of the quality control and configuration management processes such that changes made to the system are traceable and understood.

c. A system's track record of previous successes should not be used as the sole basis to streamline an activity, especially those having a low number of occurrences, since the statistical significance of these samples is very low.

2. Project managers should get buy-in from project personnel (including system engineers, flight testers, designers, researchers and manufacturing) prior to adopting a new budget, schedule or technical approach.

a. The risks of adopting the new schedule/budget/scope should be assessed and used to determine if the new risk is acceptable.

Dedicated Ames runners recognized

Congratulations to the 13 dedicated runners who completed all 14 of the fitness-center sponsored races in 2004.

Award winners were there through rain or shine. If they were out of town, got caught in a meeting, or had a baby, they would run or walk the race on their own and turn in their time.

In 2005, the fitness center plans to have a 5K run or 2 mile walk/run the third Tuesday of each month; a 2-mile fun walk; a run in the spring and fall; as well as a 10K race in the spring and fall.

Check out the fitness center Web page located at: <http://fitnesscenter.arc.nasa.gov/> for more race information. All are welcome.

The names of those with perfect

attendance for all 14 fitness center races in 2004 are:

Dennis Jespersen (not in photo)
 Doug Smith
 Harold Reimer
 Ron Johnson
 Michael Rogers
 Bob Kufeld
 Rudy Jaklitsch
 Mick McIlmoil
 Janice Shook
 Susan White
 Douglas Hudgins
 Charles DeRoshia
 Sonia Maiello
 Nancy Dunagan, the fitness center coordinator, (front right corner).



NASA photo by Tom Trower

Moving tribute concludes the AATT Project at Ames

The centerpiece of NASA Ames' aeronautical research, the Advanced Air Transportation Technologies (AATT) project, recently celebrated the conclusion of nine years of highly successful research, development and technology transfer to the FAA and aviation indus-

active application of basic research conducted at Ames during the 1970s and 1980s. At that time, NASA researchers had developed the algorithms that eventually became the foundation for current aircraft flight management systems.



Over 70 members of the AATT project team attended the recognition event and received certificates for their accomplishments during the 9-year project.

try. On Jan. 3, Victor Lebacqz, associate administrator of the Aeronautics Research Mission Directorate, attended a ceremony at NASA Ames acknowledging the project's completion and presented certificates of appreciation to some of the nearly 600 individuals who, over the years, have worked on this pioneering project. AATT was supported by staff from Ames; Glenn Research Center in Cleveland, Ohio; Langley Research Center in Hampton, Va.; and the IV&V Facility at Fairmont, W.Va.

"NASA drew upon its aeronautics roots and engineering expertise to venture into a different aspect of aeronautics research," said Lebacqz. "AATT has established NASA as a technology development leader for the modernization of the National Airspace System," he added.

AATT was established in fiscal year 1996 as a focused technology development project within the Advanced Subsonic Technology Program. In May of 1997, it was moved to what is now the Airspace Systems Program. The major focus of the AATT project was to improve the capacity of civil transport aircraft operations at and between major airports in the national airspace system. This was accomplished by developing decision-support tools to help air traffic controllers, airline dispatchers and pilots improve the air traffic management and control process gate-to-gate.

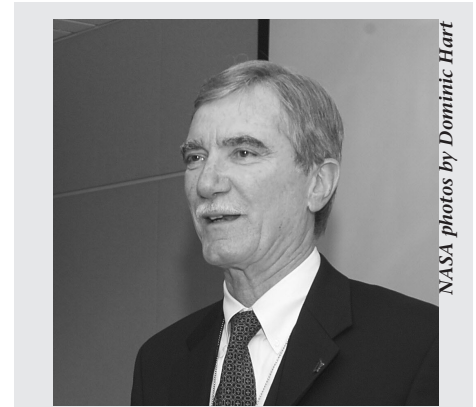
In many respects, AATT is a tribute to the original NASA basic research concept. The project was born from the cre-

These same researchers began work on adapting these algorithms into a ground-based system that would provide air traffic controllers with better information to support their air traffic management decisions.

With the introduction of high-speed computer workstations and advanced graphics displays, NASA was able to package these ideas into what became known as the Center TRACON Automation System (CTAS), which became the foundation for a suite of decision-support tools for enroute and terminal controllers as well as traffic management coordinators.

During its nine-year history, the Ames-led project has had numerous success stories, starting with the delivery to the Federal Aviation Administration (FAA) of Traffic Management Advisor (TMA). TMA has been applauded by pilots and controllers alike. Marion Blakey, FAA administrator, has been quoted in speeches and in senate hearings as saying, "TMA is one of the most successful technologies to be transferred to the FAA." She went on to say, "At each location where TMA is now in use, we get a e percent to 5 percent increase in capacity."

TMA is currently in eight FAA air route traffic control centers, with scheduled deployments planned for four additional Centers. Airspace Systems Program manager Robert Jacobsen commented, "FAA officials have told us repeatedly that TMA was the single largest successful software modification to



NASA photos by Dominic Hart

Associate Administrator for the Aeronautics Research Mission Directorate at NASA Headquarters Dr. Vic Lebacqz was at Ames in January for an event to recognize the members of the AATT Project. He presented them with certificates in appreciation for their continuous accomplishments on the project.

the National Airspace System."

There are many other AATT achievements, including the Collaborative Arrival Planner (CAP), Surface Movement Advisor (SMA) and System Wide Evaluation Tool (SWEPT) that are in daily operational use by the FAA and at airline operations centers. The Surface Management System (SMS) Build 1, scheduled for transfer to the FAA's terminal business unit, is already providing benefits to Federal Express at Memphis International Airport and United Parcel Service at Louisville International Airport.

The project also explored some out-of-the-box concepts for increasing capacity that include giving pilots more control over route changes and maintaining separation from other aircraft. The Distributed Air/Ground Traffic Management research investigated the ramifications of eliminating the restrictions imposed by the current model of air traffic management. This work culminated in a successful, groundbreaking, multi-facility simulation that involved networking pilots and controllers in NASA laboratories on different sides of the country.

"The success of the AATT project is a direct result of the highly motivated and skilled air traffic management and human factors researchers and programmatic staff dedicated to the project's objective of safely improving the efficiency of the air transportation system," said Michael Landis, AATT project manager.

Funded at \$400 million, with work spanning four NASA research facilities, the AATT project has garnered at least

continued on next page

Ames supports National Lt. Governors Association reception

In February, members of the Exploration Technology Directorate's outreach team and Ames Public Affairs Division demonstrated the Personal Exploration Rover (PER) to attendees at the National Lieutenant Governors Association reception at NASA Headquarters. PER, a



NASA photo by Brett Casadonte

Nick Veronico of the Ames Public Affairs Division gives an overview of the PER rover at the National Lieutenant Governors Association reception at NASA Headquarters.



NASA photo by Nick Veronico

Brett Casadonte of Ames' Exploration Technology Directorate outreach walks Lieutenant Governor Catherine Baker Knoll through a PER rover demonstration.

collaboration between NASA Ames and Carnegie Mellon University, was developed as an educational tool to demonstrate the principles of autonomy for K-12 students.

Among the guests taking part in the PER demonstration were the lieutenant governor of the Commonwealth of Pennsylvania (home of Carnegie Mellon University), the lieutenant governors and/or their staff members from California, Kentucky, Louisiana, North Dakota, American Samoa, U.S. Virgin Islands and the Territory of Guam.

AATT project

continued from previous page

five Turning Goals Into Reality awards for technologies developed during its years of operation. At the peak of the project's execution phase (2001 to 2003), the direct workforce of NASA and on-site contractor personnel numbered well over 200 men and women annually.

The project leaves a legacy of world-class air traffic management research labs and simulation facilities. One of the most important legacies resulting from AATT's success is that Ames has been positioned as a leading developer of software decision support tools for air traffic management and NASA is now viewed as the primary innovator for technologies for national airspace system modernization.

BY LESLYE MOGFORD



Safety Committee Spotlight



Ames Safety Committee

Employee Driven

Created in July of 2004, the new Ames Safety Committee was the inspiration of former Ames Center Deputy Director Allen Flynt.

Flynt recognized the need to get employees more actively involved in applying safety directly to their work. He believed that while recognizing and correcting safety issues is always an individual responsibility, we must also pursue safety at the Center level. He also believed that by working in safety committees, we could focus on larger safety concerns that affect the wider Ames' community. Flynt's desire was that the Ames Safety Committee be "a driving force for the implementation and improvement of various safety challenges at our Center."

The work of the Ames Safety Committee has only just begun. Fred Jones is serving as chair and John Livacich is the co-chair. Meetings are held the

Making a Difference

third Thursday of every month from 10 a.m. to 11 a.m. in Building 218, Room 210. All civil servants and on-site contractor employees are invited to attend. Meeting minutes are posted on the Code Q, Safety Committee Web site, which can be accessed at <http://q.arc.nasa.gov>.

The Ames Safety Committee sees its role as advocates for organizations. The committee provides a forum in which to recommend and implement improvements in Ames' safety and health programs.

If you would like to become a part of the Ames Safety Committee and participate in safety programs and task forces that will make the Center a safer place for everyone, contact Jones at fjones@mail.arc.nasa.gov or contact Livacich at jlivacich@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 McCahan, 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: Julie ext. 4-4694 or 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 11.30 a.m. -1 p.m. in the special events room in the Ames Visitor Center in N-223. All are welcome. POC: Jeff Smith, ext. 4-2586.

Environmental, Health and Safety Information 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: Becky Brondos at ext. 4-1959, bbrondos@mail.arc.nasa.gov or Bob Hilton at ext. 4-1500, 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.

Ames staff, public invited to NRP exploration lecture

Ames staff and the public are invited to a NASA Research Park (NRP) evening lecture on March 15 at NASA Ames entitled 'Extreme Exploration/The Moon, Mars and Beyond: The Science of Risk.'

The free event, part of the NRP Exploration Lecture Series, will be held from 7 p.m. to 9 p.m. in Bldg. 943, in the Eagle Room.

Author and explorer John F. Ross will discuss NASA's upcoming missions

to the moon and Mars and the challenges that lie ahead from space radiation, micro-meteorites and other environmental hazards.

For more information, visit the Web at <http://researchpark.arc.nasa.gov>.

NASA

**NASA Research Park
Exploration Lecture Series**
presents

Extreme Exploration

The Moon, Mars and Beyond: The Science of Risk

March 15, 2005 • 7:00 pm

**NASA Ames
Research Center**
Moffett Field Exit off Hwy. 101

Building 943 • Eagle Room

Open to the Public • Free Admission

NASA Gift Shop open 6:00-7:00 pm
Author available to sign books afterwards
Arrive early as seating is limited

Featuring: Author and Explorer
John F. Ross

Author of Living Dangerously: Navigating the Risks of Everyday Life and former editor for Smithsonian Magazine. Ross resides in Bethesda, MD. On past assignments for Smithsonian, Ross has lived with reindeer herders in Siberia, dog sledged with the Polar Inuits in Greenland, chased scorpions in Baja and dived 3,000 feet in the Galapagos.

Human Resources Presents

Personal Wealth Preservation Strategies

Discover the simple secrets of protecting your home, assets, and family.....

- Learn about probate and how to avoid it!
- Find out why married couples can lose a \$1.5 million tax gift!
- Why your joint tenancy home can cost you thousands!
- Learn what a will does *to* you instead of *for* you!



On Thursday, March 24th, find out the basic secrets of estate planning: How to "pocket" much of what would have gone to the government in taxes! How your home and other assets can be a hidden tax shelter. What are the basics about wills and trusts. Plus, if time, a special strategy to prevent the needless loss of up to 50% of your insurance dollars! There's so much to learn and you'll be glad you didn't miss out. This fast-paced, entertaining hour can save you and your family hundreds of thousands of dollars. All employees, spouses, contractors, and temps are invited. Walk-ins welcome, but RSVP is best!



When: Thursday, March 24th
Time: 12:00 to 1:00 pm
Where: Bldg. 245 Space Auditorium
Speaker: Attorney Hollis L. Logue, III
Contact: Barbara.A.Chenier:
barbara.a.chenier@nasa.gov or 650.604.6986



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

Looking for 3 bdrm house to rent in April. Must have fenced yard and garage, in a safe area for two children. \$1,700 per month. E-mail facon7777_2000@yahoo.com

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.

Beautiful, sleeveless wedding dress, satin, lace, pearls, size 8, \$75. Call (408) 234-0025.

Starter PC: 333MHz CPU, 164MRAM, 15GB HD, 52x CD-ROM, Windows2000, USB, keyboard, mouse and speakers (no monitor). Perfect for child's first computer. \$95. Call (408) 295-2160.

Heathkit HM-102 RF power meter, \$45. Hewlett-Packard HP-200AB signal generator, \$45. The pair for \$60. Call (650) 851-5290.

1914 Vintage pocket watch. Waltham, 15 jewels, engraved 14K gold filled case, running and keeps good time. \$145. Call (650) 851-5290.

Three hand-carved, hand-painted mahogany airplanes, each with a removable desk stand: Blue Angles F/A-18, SR-71 Blackbird, Navy P-3 Orion. \$110 each. E-mail accullivan@comcast.net

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.

Vacation Opportunities

Lake Tahoe-Squaw Valley Townhse, 3bd/2ba, View of slopes, close to lifts. Per night: \$250, two night minimum. Includes linens, cleaning, propane fireplace, fully equipped. Call (650) 968-4155, 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.

Ski Park City Utah, NASA Ski Week XIV, Feb 5 - 12, 2005. Space limited. E-mail Steve at e-mail exnasa@sbcglobal.net or call (408) 432-0135.

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.

Astrogram deadlines

<i>Deadline:</i>	<i>Publication:</i>
Mar. 7	Mar. 2005
Apr 5	Apr. 2005

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

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.

Safety Data

NASA-Ames Occupational Illness-Injury Data for Calendar Year 2005 Jan. 1, 2005 – Jan. 31, 2005

	Civil Servants	Contractors
Not recordable, first aid cases	2	1
Recordable no lost-time cases	0	3
Recordable LOST-TIME cases	0	0
Lost workdays	0	0
Restricted duty days	0	3

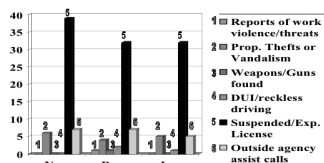
Data above is as of 2/10/05. May be subject to slight adjustment in the event of a new case or new information regarding an existing case.

Protective Services monthly activity

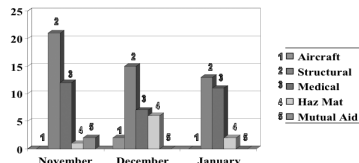
A statistical summary of activities of the Protective Services Division's Security/Law Enforcement

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

Security/Law Enforcement Activity



Fire Protection Activity



National Disability Employment Awareness Month observed

To increase the public's awareness of the contributions of American workers with disabilities, NASA Ames commemorated National Disability Employment Awareness Month. On Feb. 23, the Ames Office of Equal Opportunity Programs invited seven Bay Area residents



NASA photos by Dominic Hart

program initiatives to demonstrate leadership and commitment to diversity programs."

Participants toured the NASA Exploration Center and met with Ames Equal Opportunity Programs Director Adriana Cardenas and Robert Zier, manager for TransAccess' School-To-Career program. They also met with Ames scientists to discuss their research and career opportunities for people with disabilities.

BY VICTORIA STEINER

with disabilities to get a glimpse of the center's 'everyday science'.

The event was organized in collaboration with TransAccess, a San Jose-based nonprofit organization that provides training and competitive employment for people with disabilities.

"This event promotes career development for college students and individuals with disabilities through career exploration and job shadowing participation," said coordinator of the event, Barbara Miller of Ames. "The activity supports Ames' and NASA Headquarters' diversity and equal opportunity

Explore space at NASA Research Park

The NASA Research Park Division is hosting an open house on March 22, 3 p.m. to 7 p.m. in the lobby of Bldg. 19 to show available lease space to potential university and industry R & D partners with research goals that align with NASA's new exploration mission. Refreshments will be served.



or universities to align with NASA's mission

For more information, call (650) 604-2NRP or visit <http://researchpark.arc.nasa.gov>.

- * 200 to 5,000 sq. ft. lease space available
- * Historic District Shenandoah Plaza - Bldg. 19
- * seeking R & D companies



National Aeronautics and Space Administration

Ames Research Center
Moffett Field, CA 94035-1000

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