National Aeronautics and Space Administration, Ames Research Center, Moffett Field, CA
March 2004
Astrogram
Communication for the Information Technology Age

Ames transformation tailored to space exploration vision goals

Over the past 10 years, NASA Ames has undergone a complete makeover, transforming what had been a center primarily engaged in aeronautics research, to a world-class research and development center specializing in information sciences and technology.

NASA photo by Roger Brimmer

Ames Center Director G. Scott Hubbard makes a point at the Feb. 25 Ames all-hands meeting.

As a result, NASA Ames is well suited to meet the goals outlined by President Bush during his historic address at NASA Headquarters on Jan. 14, 2004. That was the thrust of a presentation by NASA Ames Center Director G. Scott Hubbard at an all-hands meeting for employees held on Feb. 25 in the main auditorium and broadcast over closed circuit television.

"We are the R&D contributor that the exploration vision is going to lean on," Hubbard observed. "We have taken the hard steps to transform this center into the 21st century." According to Hubbard, those "hard steps" have culminated in a new mission for Ames, one that now contributes 80 percent of its research and development directly to the president's space exploration program. "We have a well-balanced portfolio of research and development," Hubbard said.

Ten years ago, Ames' organization differed considerably from what it is today. In 1994, for example, four of Ames' key directorates were devoted specifically to aeronautics. In addition to conducting extensive flight research and wind tunnel tests, Ames was also responsible for managing its sister center, the Dryden Flight Research Facility.

Today, while Ames still plays a critical role in aeronautics driven by its ongoing research in air traffic management and air traffic control, the center's new mission reflects an increased emphasis on information science and technology – key planks in the president's platform of space exploration.

"Back then, the word astrobiology didn't exist -- today, it is a $25 million business," Hubbard said. Besides astrobiology, Ames also is heavily involved in nanotechnology, information sciences and technology, high-end computing and research, thermal protection systems and solar system exploration. And with the Kepler mission, Ames is building on its legacy of the legendary Pioneer spacecraft to explore the solar system. In addition, noted Hubbard, Ames' prime location in Silicon Valley serves as "the portal to the best high-technology center in the world."

All of this has contributed to a new image of Ames as a vibrant R&D center

continued on page 3

Hubbard shares vision, inspires students

NASA Ames Center Director G. Scott Hubbard visited Jim Bridger Middle School in North Las Vegas in February to tell students at the NASA Explorer school first-hand about their opportunity to participate in the president's bold vision for exploring the solar system. Hubbard addressed plans to return to the moon and explore Mars. He shared his insights on the current Mars rover missions and NASA's new direction for human and robotic exploration. His speech was geared to inspire the students to pursue careers in science, mathematics and technology so that they can become the nation's space explorers and forward thinkers of tomorrow.

NASA photo by Eric James

Ames Director G. Scott Hubbard (center) presents a model of the Mars Exploration Rover to Marsha Irwin, region superintendent of Nevada's Clark County School District (CCSD), while Mary Stanley-Larsen, CCSD Communications Office; Gerri Schroder, Office of Congresswoman Shelley Berkley; Mary Mason, Office of Senator John Ensign; Richard Vineyard, Nevada Department of Education; and Janna Austin, Office of Congressman Jon Porter look on. Not shown are Maureen Brower, Office of Nevada Governor Kenny Guinn, Milana Winter, principal, and Carol Erbach, assistant principal (Jim Bridger Middle School).

"As NASA moves forward to carry out the president's new vision for space exploration, it is essential that we excite our youth about the thrilling opportunities that are opening up for them," said Hubbard. "NASA is committed to working in partnership with our schools, to create exciting new learning environments. America has always been a nation of explorers, but we can't possibly turn this vision into reality without the enthusiastic involvement of our young people."

Hubbard is well suited to address this topic, having served as NASA's first Mars Exploration Program director and as a key architect of NASA's Mars exploration road map. Recently, Hubbard was the sole NASA representative on the Columbia Accident Investigation Board

continued on page 3

NASA Ames opens new 3-D reality theater in Mars Center

NASA unveiled an exciting new visualization theater that produces stunning 3-D images that will enable visitors to take a virtual walk on Mars.

NASA photo by Tom Trower

The new Mars 3-D reality theater in the NASA Ames Mars Center.

Developed by Silicon Graphics (SGI), the new SGI® Reality Center® facility opened to the public on March 9 in the Mars Center at Ames.

Powered by supercomputers, the new reality center facility is capable of immersing audiences in interactive 3-D visualizations, multimedia presentations and panoramic images that can be navigated in real time. Featuring a curved display measuring 14 feet tall and 36 feet wide, the new reality center is the largest of its kind on the West Coast.

"We are delighted to be able to showcase NASA's numerous achievements in the new SGI Reality Center," said Ames Center Director G. Scott Hubbard. "This will be an invaluable information and educational tool for our Mars Center."

NASA's new reality center provides a seamless image across three projectors that are used to create the sense of being on the surface of Mars. The seamless image enables current NASA Mars Center staff to interact with these enormous 3-D models based on the latest images from NASA's Jet Propulsion Laboratory (JPL), Pasadena, Calif., by quickly panning and zooming with simple mouse movements.

To celebrate the opening of the new theater, the Mars Center will feature a multimedia program produced by JPL, tracing the earliest observations of the red planet through NASA's various Mars exploration missions.

In coming weeks, Mars Center visitors will be able to view the latest high-resolution images from Mars that are downloaded daily from JPL. Mission control engineers at JPL receive 168 images taken by the Mars Exploration Rovers every day and NASA engineers then use the images to create 360-degree panoramas of the red planet.

Designed to spotlight NASA's contributions to space exploration, Earth sciences, and the Silicon Valley technology community, the new Mars Center has quickly become a popular Bay Area attraction since the recent landings of the Spirit and Opportunity Mars Exploration Rovers. Over the past several weeks, more than 50,000 students, teachers and area residents have witnessed NASA's history-making achievements up close.

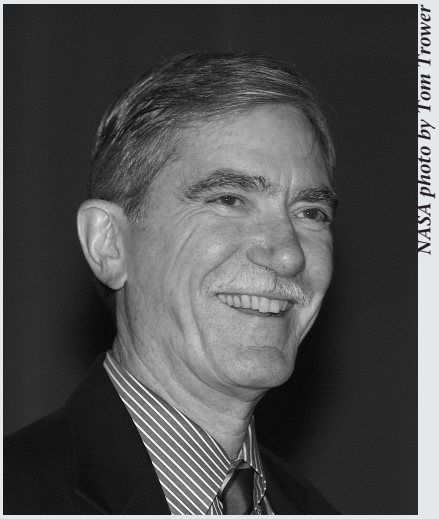
"The NASA Mars Center is a resounding success, allowing anyone to virtually stand on the red planet and take in its alien landscape," said Hubbard. "As we work on future NASA exploration and research missions, including human spaceflight, we look forward to continued collaborations with SGI," he added.

"SGI has worked closely with NASA to fuel the kind of innovation and discovery that has defined both organizations throughout their 20-year collaboration," said Bob Bishop, chairman and CEO, SGI. "SGI is committed to serving customers whose mission-critical applications demand real-time big-data machines. We are delighted to be a part of yet another thrilling NASA mission, and we eagerly anticipate the discoveries that await us in the years to come."

BY MICHAEL MEWHINNEY

Lebasqz affirms NASA's renewed commitment to aeronautics research

Members of the Ames community packed the main auditorium to await the latest news about how the strategic enterprise re-alignments at NASA Headquarters will affect research programs at Ames. Delivering the news was one of Ames' own Dr. J. Victor Lebacqz, the newly appointed associate administrator for the Office of Aeronautics.



NASA photo by Tom Trower

Victor Lebacqz received a warm welcome 'home' for his recent speech at NASA Ames.

Sitting atop a stool, Lebacqz first laid out his personal values of honesty, integrity, fairness and respect, and how he applies that to his relationship within the agency. He talked about Ames and the rest of the agency as a family that, at times, is dysfunctional but is tied together for a common good. We mourn together, as in the case of the Columbia tragedy, but we also celebrate and dream together as seen in the recent successes of the Mars Exploration Rovers.

As he moved to the subject of aeronautics, Lebacqz's casual but frank speaking style served to calm some concerns. He used humor to deliver a mixed bag of news for different programs at Ames, but held out hope that he and other forward thinkers at the agency were looking out for promising technologies that have been displaced as a result of the reorganization.

continued on page 5

Ames transformation tailored to space exploration vision goals

continued from front page

that is world renowned for its cutting-edge research that is tightly coupled to the new vision for NASA. "We provide discovery, innovation and solutions," Hubbard declared, adding that Ames will be a major player in the development of the new technologies needed to implement the president's vision for future space exploration.

Key elements of the new exploration vision are:

- to implement a sustained and affordable human / robotic program to explore the solar system and beyond;
- to extend human presence across the solar system, starting with a human return to the moon by the year 2020, in preparation for human exploration of Mars and other destinations;
- to develop the innovative technologies, knowledge and infrastructures both to explore and to support decisions about the destinations for human exploration; and
- to promote international and commercial participation in exploration to further U.S. scientific, security and economic interests.

Hubbard pointed out that Ames also fits well with NASA's new Office of Exploration Systems Enterprise that is charged with implementing the president's vision on a national level. At the local level, Hubbard has formed a new Ames Exploration Office under the leadership of Dan Clancy to focus the center's research and development efforts on the new vision.

To pay for the ambitious space exploration program, the president has called for NASA to receive an additional $12 billion in funding through fiscal year 2009. Additional funds are budgeted to develop a Crew Exploration Vehicle for Mars and lunar exploration, to develop human and robotic technologies to address health risks and life support systems, to return the space shuttle to flight and to provide cargo and crew services to the International Space Station.

Unlike in previous budgetary cycles, Hubbard said key policy decisions about the new fiscal year's budget weren't ironed out until mid-December of last year. Consequently, he said specific details about the proposed budget for individual field centers are still being worked out in Washington, and may not be available until this spring or possibly even as late as this coming summer. Despite the delay, Hubbard expressed confidence that Ames would fare well in FY '05.

"You can expect some turbulence and some time of uncertainty as we figure out the level of detail that matters to each one of you, but the message is, don't panic," Hubbard cautioned. "Just go with the flow and stay calm, as they work through the mass of details," advised Hubbard. "I believe that Ames, by virtue of the effort we have put in over the last 10 years to reshape this center, is in an extraordinarily good position to match the president's vision. I really do honestly feel optimistic about where we are," Hubbard said.

BY MICHAEL MEWHINNEY

Hubbard shares vision, inspires students

continued from front page

that cited the need for a new national space exploration vision.

"We were extremely excited to have Scott Hubbard visit our school to share what NASA's vision for the future of space exploration holds for our students," said Carol Erbach, assistant principal at Jim Bridger Middle School. "The visit gave us the opportunity to show how we have incorporated the NASA program into our curriculum and how we have used current events to excite students at our Mars yard."

Attendees at the recent presentation given by NASA Ames Center Director G. Scott Hubbard at the Jim Bridger Middle School.

NASA photos by Eric James

NASA Ames Center Director G. Scott Hubbard visits the student Marscape during his recent visit to the Jim Bridger Middle School in Las Vegas.

The Jim Bridger Middle School is a part of NASA's Explorer Schools program, a three-year partnership of scientific and engineering adventures to engage students using unique NASA resources and capabilities. The program is designed to give students the foundation and inspiration to pursue careers in science, mathematics and technology.

"I wouldn't be surprised if one of these students becomes the first astronaut to explore Mars," said Donald James, education director at NASA Ames. "Many of NASA's employees, including the agency's astronauts, can trace their desire to work at NASA to a classroom visit by a NASA employee or a field trip to a NASA center or exhibit," said James.

For information about the NASA Explorer Schools program, visit: http://explorerschools.nasa.gov

For more information about the president's new vision for space exploration visit: http://www.nasa.gov/missions/solarsystem/bush_vision.html

BY JONAS DINO

Ames kicks off diversity program around civil rights celebration

NASA photo by Tom Trower

Professor Margaret Russell, lecturer at Santa Clara University School of Law, speaks at the recent diversity program kick-off presentation at Ames on Feb. 24. This year's program is themed around celebrating the 40th anniversary of the Civil Rights Act of 1964.

The Equal Opportunity Programs Office launched the center's diversity program for 2004 in February.

This year marks the 40th anniversary of the passage of the Civil Rights Act of 1964 and will be the theme for this year's diversity program. In celebration of Black History Month, the program was presented with a viewing of a short video of the signing of the Civil Rights Act by President Lyndon B. Johnson, which was followed by a lecture and discussion by Professor Margaret Russell, a law professor from Santa Clara University School of Law.

Russell lectures at Santa Clara University School of Law and specializes in constitutional law and contemporary legal theory. She is an author and a founding member of the East Palo Alto Community Law Project where she also served as chair of the board of directors. Russell is also chair of the board of directors for the American Civil Liberties Union of Northern California and vice-president for the national American Civil Liberties Union. She received a bachelor degree from Princeton University and completed her law degree at Stanford Law School.

The following day, Ames showed episode one of 'Awakenings (1954-56),' the first of a six-part PBS film series titled 'Eyes on the Prize,' which documents the civil rights movement. 'Awakenings' focuses on catalytic events of 1954-1956, which include the Mississippi lynching of Emmett Till, Rosa Parks refusing to give up her bus seat and the political recognition of the disparities between blacks and whites. One segment of this series will be shown monthly.

All Ames employees are invited and encouraged to attend the showings of the episodes.

Activities in commemoration of the passage of the Civil Rights Act will continue throughout the year. E-mail announcements will go out monthly.

If you have any questions about the activities, contact Orlando Sepulveda at ext. 4-1064.

DDF poster session held at Ames

NASA photo by Tom Trower

The Director's Discretionary Fund (DDF) poster session was held at Ames in February. The event provided an opportunity to view some of the most innovative research being carried out at the center. The annual event has proven to be an excellent forum for scientific interchange and an excellent opportunity to look for collaborative research ideas.

Byron Wood, former Ames scientist, passes on

Byron L. Wood, a former senior research scientist with Ames' Ecosystem Science and Technology Branch (Code SGE), passed away on Feb. 6 at his parents' home in Folsom, Calif. He was 57.

Wood came to Ames in 1982 as a contractor, became a civil servant in 1997, and remained with Code SGE until he left Ames in 2003.

He began his career in remote sensing at U.C. Berkeley in 1979, where he was an assistant specialist with the remote sensing research program. While there, he worked on NASA's AgRISTARS program, focusing on crop identification and field estimates using satellite data. This work took him to Argentina and other South American countries, where he fell in love with travel.

In 1982, Wood came to work at NASA Ames as a contractor with Technicolor Government Services (later Johnson Controls) where he put his agricultural remote-sensing experience to use on the irrigated lands project.

In 1985, Wood found his true calling at NASA when he began work on the Global Monitoring and Human Health (GMHH) program. This program, a collaboration between NASA Ames, U.C. Davis, the Mexican Ministry of Health and others, focused on using NASA science and technologies to model mosquito habitat distribution for use in models of malaria transmission risk. Following the successful demonstration in California rice fields of this 'high tech' approach to disease mapping, the team then launched a large field campaign in Chiapas, Mexico, where malaria transmission is a health concern.

In 1995, Wood extended the techniques and expertise developed in the GMHH program to form the Center for Health Applications of Aerospace Related Technologies (CHAART) at Ames. CHAART's purpose was to expand disease modeling to other vector-borne diseases, such as Lyme disease, leishmaniasis, filariasis and schistosomiasis. His love of travel, begun in Argentina, was an important asset in his new role as CHAART director, as his duties took him to various 'disease hotspots' around the world, including Mali, Bangladesh, China, Peru, Australia and Brazil.

Wood initiated a memorandum of understanding between Ames and the National Institutes of Health, as well as collaborations with the World Bank, NOAA's Office of Global Programs, and the Centers for Disease Control and Prevention. These joint projects enabled NASA to demonstrate how remote sensing and geographic information system technologies could be integrated with case data, vector data, landscape variables, and other epidemiologic factors to answer research questions, aid with disease surveillance and focus control activities.

A high point of Wood's career was when he organized the Global Health Issues seminar for the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), which took place in Vienna, Austria, in 1999. Another milestone was his work with Rita Colwell that demonstrated the utility of remotely sensed data for predicting cholera outbreaks in Bangladesh. This important work was subsequently published in the Proceedings of the National Academy of Science.

Wood served on several panels, including the National Science and Technology Council, Committee on International Science, Engineering, and Technology Working Group on Emerging and Re-Emerging Infectious Diseases; the NOAA Working Group on Health Consequences of El Nino Southern Oscillation, Climate and Health; and the National Center for Ecological Analysis and Synthesis Working Group on Ecology of Infectious Disease.

Wood succeeded in elevating public health research and applications within NASA and initiating important and productive interdisciplinary collaborations with major national and international scientists through his personal devotion and acumen. In addition to his many publications in prestigious journals, his impact continues to grow, as others are now following the path he blazed -- a true measure of one's impact on his field.

Outside of work, Wood's major passion was following the ups and (often) downs of Cal football. A season ticket

Byron Wood

holder for nearly 30 years, he often planned his travel around their football schedule, particularly the 'big game' with Stanford. He had many friends from his years at Berkeley, where he received his M.A. in geography in 1977, and was subsequently advanced to Ph.D. candidacy. Wood also taught remote-sensing courses at Berkeley, as well as at colleges throughout the Bay Area.

Wood is survived by his parents, Dorothy and Clifford Wood of Folsom, and his wife, Herlinda, and son Nathaniel, of San José. He will also be deeply missed by his many friends and colleagues at Ames, and by those with whom he worked around the world. A memorial service for Wood is planned for April or May with arrangements to be announced as they become available.

BY LOUISA BECK

Lebasqz affirms NASA's renewed commitment to aeronautics research

continued from page 2

Lebacqz assured the audience that the reorganization demonstrates NASA's renewed commitment to the first 'A' in NASA. He reiterated the agency's commitment to current aeronautics programs: airspace systems, aviation safety and security, and vehicle systems that include the growing area of research in uncrewed aerial vehicles. Leveraging the expertise at the 'aero' centers, he also expressed his desire to invigorate research in hyper- and supersonics.

Lebacqz ended his presentation with a small inspirational animation that began with the Wright Flyer being followed and overtaken by the Mars airplane over the sands of North Carolina which quickly become the sand of Mars. The last slide stated 'The Wright Brothers took humankind to our sky, let us fully utilize and protect our sky and take humankind to other skies,' a dream Lebacqz wants to realize.

BY JONAS DINO

McDonough to share acclaimed design philosophy at Ames

William McDonough, an internationally renowned environmental designer and design chemist, will present

William McDonough

'A Whole New World, Right Here on Earth,' on April 9, at 10 a.m. in the N-201 auditorium at Ames. This is a rare opportunity to hear, at no charge, a noted international authority on green building, design chemistry and sustainable development. McDonough, an insightful, dynamic and poignant speaker, will share his internationally acclaimed design philosophy. Please RSVP to the address provided here, as seating is limited and community members will be invited.

McDonough has been a leading designer in the sustainable development movement since 1977. He is one of the primary proponents and shapers of what he and his partners call 'The Next Industrial Revolution.' Time magazine recognized him in 1999 as a 'Hero for the Planet', stating that "his utopianism is grounded in a unified philosophy that -- in demonstrable and practical ways -- is changing the design of the world." His ideas and efforts were also honored when, in 1996, he received the 'Presidential Award for Sustainable Development,' the nation's highest environmental honor in a White House ceremony.

McDonough is cofounder and principal, with German chemist Michael Braungart, of McDonough Braungart Design Chemistry (MBDC), a product and systems development firm assisting prominent client companies in designing profitable and environmentally intelligent solutions. He is also the founding principal of William McDonough and Partners, Architecture and Community Design, an internationally recognized design firm practicing ecologically, socially and economically intelligent architecture and planning in the United States and abroad.

He also chairman of Second Nature, a Boston-based nonprofit organization promoting the teaching of sustainability in higher education. He also serves as U.S. chairman and member of the board of councilors of the China-U.S. Center for Sustainable Development and recently joined the board of the H. John Heinz Center for Science, Economics and the Environment. He is an alumni research professor at the University of Virginia's Darden Graduate School of Business Administration and A.D. White professor-at-large at Cornell University. McDonough stepped down as the dean of the School of Architecture at the University of Virginia in 1999, where he was also the Edward E. Elson professor of architecture.

McDonough's visit is the first of Code Q's planned events to celebrate Earth Day on April 22. The presentation will be one hour, followed by a question-and-answer session. His February 2003 Stanford Graduate School of Business talk is available as Real Time Player video on the Web at http://wesley.stanford.edu/Multimedia/lectures/mcdonough.ram. There is also a written summary of the speech at http://www.gsb.stanford.edu/news/headlines/2003_vongugelberg.shtml

For more information, and to RSVP for the April 9 presentation, visit http://q.arc.nasa.gov/newworld/ by April 5 and/or contact Stacy St. Louis at sstlouis@mail.arc.nasa.gov or ext. 4-6810 with any questions.

BY STACY ST. LOUIS AND DIANE FARRAR

Astrobiology science conference set

NASA Ames will host the third Astrobiology Science Conference March 28 – April 1. The Conference is expected to be the biggest, best, most exciting and thought-provoking event yet. The conference will feature over 400 abstracts from around the world in the categories such as astrobiology missions, biogeochemistry, detection and characterization of extrasolar planets, Earth history, extreme environments, global change, humans in an astrobiological context, Mars, origin of life/prebiotic chemistry and many others.

The Conference will open with a public session 'Astrobiology and Humanity' on March 28, during which the participants will enjoy the welcome reception, educator's sessions, memorial lecture, hands-on educational activities and accessible lectures about astrobiology. The topics during Monday through Thursday sessions discussed by pre-eminent researchers and scientists from around the world will include cosmology and life; organics in space: molecular clouds and comets; constraining scenarios for the origin of life; interpreting the molecular tree of life; the origin of adaptability and human beings; creating life in the lab; possibility for extraterrestrial life; the meaning of life and many others. A special science fiction lecture will be presented on Tuesday evening. The third Astrobiology Science Conference will also feature student poster presentations for graduate and undergraduate students.

"This year's meeting is structured around the three big astrobiology questions: Where do we come from? Are we alone? Where are we going - on Earth and beyond?" said conference organizer Lynn Rothschild of Ames. According to Rothschild, each question will be carefully examined through invited plenary lectures and contributed papers and enriched by special sessions on topics such as the ethics of exploration, the place of humans in astrobiology and the astrobiology drilling program.

The mission of the Astrobiology Science Conference is to report on the latest findings in astrobiology and, at the same time, push the boundaries of the field and bring in new workers. From missions to experimental science, from modeling the past, present and future to the interrelationship of astrobiology and other fields of human endeavor, you will find it here.

Ames civil servants can attend by registering on the Web at http://abscicon.arc.nasa.gov/ and paying the $115 fee, which will include all food, receptions and meeting handouts. If a civil servant wishes to attend just a few sessions, he or she may register each day to receive a daily badge. Contractors and all others attached to Ames must pay the full fee.

The first two Astrobiology Science Conferences at Ames held in 2000 and 2002 attracted scientists from all over the world with many excellent posters, exciting thematic sessions and great enthusiasm.

For more information about the third Astrobiology Science Conference, visit http://abscicon.arc.nasa.gov/ Information about NASA's astrobiology programs may be obtained at http://astrobiology.arc.nasa.gov and http://nai.arc.nasa.gov/

BY VERONIKA SOUKHOVITSKAYA

NASA scientists win grants for new research

NASA has selected two scientists from NASA Ames to receive grants to conduct research in advanced human support technologies.

In accordance with the president's new space exploration program, NASA's Office of Biological and Physical Research chose Michael Flynn and Dr. Stephen Ellis to develop technologies that will advance humans' ability to conduct long-duration space flight missions safely. Flynn and Ellis are two of 22 researchers selected from across the nation.

"We are delighted that two prominent NASA Ames researchers, Michael Flynn and Stephen Ellis, have been selected to receive a grant from NASA's Office of Biological and Physical Research," said NASA Ames Research Center Director G. Scott Hubbard. "We are very proud of this early contribution to the president's vision for space exploration."

Ellis's project on virtual environment interfaces for remote operation involves studying simulation and user interface issues for small free-flying vehicles that may be used to inspect a spacecraft for damage while in orbit.

"People have been using virtual environments for remote operations for many years, yet there are few operational examples of such interfaces," said Ellis. "This project will help NASA advance the system and improve virtual environment user interfaces by establishing performance criteria and providing high graphics."

NASA researchers use virtual environments (VE) because of their lower-mass, lower-power requirements and reduced volume. Equipped with sufficient dynamic and visual accuracy, VE also can be a great training tool. Using VE, astronauts can rehearse extra-vehicular activities (space walks) during repair missions and practice experiments requiring maximum precision while working in very restricted time frames.

Flynn's proposal addresses the development of a water recycling system called the Direct Osmotic Concentration System (DOC). DOC separates salt and water from wastewater and purifies human liquid wastes, such as urine and non-potable water, into water that is safe to drink.

NASA's goal is to develop a low-weight, -power and -volume resupply system that will have a significant impact on the ability of humans to conduct long-duration spaceflight missions safely.

"Water composes 87 percent of all chemical and physical requirements to keep an astronaut alive in space," said Flynn. "Providing the capability to recycle water with no resupply requirements may potentially reduce the costs of the missions by reducing launch mass and will reduce their risk by providing self-sufficiency."

Scientists believe versions of NASA's DOC system will benefit not only astronauts in space, but also people on Earth. This technology has already been used to remove water from food products and to purify highly contaminated liquid wastes by removing salts and other chemicals.

NASA received 122 proposals in response to its March 2003 NASA Research Announcement. The proposals were peer reviewed by scientific and technical experts from academia, government and industry before selections were made. In addition to technical and scientific merit, selection criteria also included cost, relevance to NASA programs and feasibility of utilization by NASA.

For more information, visit http://spaceresearch.nasa.gov/

BY VICTORIA STEINER

E-waste forum set for April 8

Electronics waste -- What is it? Why is it a concern? And how does Ames deal with it? E-waste, primarily old computers, has become a huge disposal issue in recent years for industry, government and private citizens alike. A forum discussing this matter will be held on April 8, from 8:30 a.m. to 9:30 a.m. in Bldg. N221, in room 155. The speaker of this event will be Mark Lacy, a senior environmental protection specialist from Code QE. At this forum you will learn:

- Why e-waste has become a national environmental concern
- How e-waste is regulated in California
- What happens to e-waste at Ames
- What you can do with your old home computers

Lacy is responsible for implementing the pollution prevention (P2) programs at NASA Ames.

Prior to re-joining Code QE in the summer of 2003, Lacy was responsible for groundwater remediation, hazardous waste, and P2 programs for Advanced Micro Devices, a global semiconductor manufacturer, from 1998 to 2003. Between 1991 and 1998, Lacy supported environmental compliance, including P2 efforts, for NASA Ames under contract to the environmental services office.

He was part of much of the early NASA policy development and reporting pertaining to pollution prevention as required by federal law and the first executive orders mandating federal agencies to implement affirmative procurement and P2 requirements.

Lacy also developed several of the chapters of the Ames environmental procedures and guidelines established in the mid-1990s including P2/affirmative procurement, hazardous waste management, medical waste management and industrial wastewater management.

Prior to 1991, Lacy performed environmental site assessments for private lending institutions while employed by E2C, Inc., a local engineering and environmental consulting company. Lacy's formal education includes an MS in environmental management from USF, 1997 and a BS in environmental Toxicology from UCD, 1989.

Ames opens new on-site office supply store

The Logistics Management Branch (in building N255) recently enhanced its stores stock and just-in-time supply service with a new self-service store.

The new store carries a full line of office products, paper products, computer accessories, janitorial and cleaning supplies, tool and repair items and many other types of supplies to meet the daily needs of Ames employees. It also has an extensive special order program for all common, non-stock supplies, which can usually be delivered within two days.

The store also accepts phone orders at ext. 4-6801, fax orders at ext. 4-6802 and also e-mail orders at nasaames@aibshop.com

NASA photo by Eric James

Deputy Center Director Allen Flynt speaks at the recent ribbon-cutting ceremony for the new Ames supply store in Building 255.

President George Bush visits Bay Area

NASA photos by Tom Trower

Above: President George Bush waves to the crowd as he steps off Air Force One after touching down at Moffett Field recently.

Below: NASA Ames Deputy Center Director Allen Flynt (left) greets President George Bush as he arrives at Moffett Field during a recent visit to the Bay Area.

Vision of future human, robotic space efforts revealed

The priorities for human and robotic exploration beyond Earth and the organization to carry out those space voyages were subjects of an overview recently broadcast across NASA via satellite.

Besides setting clear space exploration goals and objectives, the agency also has to make tough choices – some programs will end, and others will begin, according to Admiral Craig Steidle, associate administrator for the Office of Exploration Systems, Code T, who spoke to employees from NASA Headquarters in Washington. He shared the podium with members of his management team. They outlined how the agency would achieve the nation's new vision for space exploration and what the new enterprise has already done.

"This is a tremendous opportunity," Steidle said. "We're going to do business differently," he later added. To conduct human missions to the moon and Mars will call for a sustained effort and innovative technologies not only from NASA, but also from industry and academia, he explained.

"We're very excited to work with Code T," said Jan Aikins, deputy director of Ames' Information Science and Technology Directorate. "Not only will this effort lead to the revitalization of NASA's space program, but it will enable Ames to make a significant contribution in information technology, space science and other areas," Aikins added.

President Bush on Jan. 14 revealed a new vision for 21st century space exploration that calls for human and robotic missions to the moon, Mars and beyond. This vision includes clear goals. At the same time, the vision takes account of budgetary 'boundaries.'

"This is a multi-billion-dollar business," Steidle said. "We need to do it right." Advances in human and robotic technology will play key roles as enablers of the new vision, according to Steidle.

The bottom line is to accomplish safe and efficient missions, and so, "we've developed technology priorities," said Douglas Cooke, Steidle's deputy. "We have an understanding of the big drivers in exploration – things like propulsion, power, advanced life support, extravehicular activity (EVA) suits and many others that contribute toward safe and efficient missions." An example of research needed is "understanding the radiation effects on human beings," he added.

In order to develop requirements to complete space missions, "we'll be drawing on folks from across the centers, developing independent product teams," according to Michael Lembeck, director of the Code T Requirements Division. "We're not starting from scratch," he said. "There's been a lot of work done over the last 15 to 20 years to develop a set of architectures."

The new enterprise will use the "spiral development approach," Lembeck said. "We'll build a little – fly a little," he said. NASA will learn from its mistakes, he explained.

"The space missions in this plan require advanced systems and capabilities that will accelerate the development of many critical technologies, including power, computing, nanotechnology, biotechnology, communications, networking, robotics and materials," according to one of Steidle's presentation slides. Steidle also mentioned 18 elements that make up the nation's space exploration mission.

Key objectives of the vision include implementing a sustained and affordable human and robotic program; extending human presence across the solar system and beyond; developing innovative technologies, knowledge and infrastructures; and promoting international and commercial participation in exploration.

Major milestones include 2008 – the initial flight test of the Crew Exploration Vehicle (CEV) and launch of a lunar robotic orbiter. Project Constellation is the CEV and the systems that go with it. By 2011, the CEV would make its first unmanned flight, and by 2014 the first crew would fly the CEV. The Jupiter Icy Moon Orbiter (JIMO) / Prometheus mission is slated for 2015. Project Prometheus includes nuclear systems technology and demonstrations. A human mission to the moon is forecast to take place in the 2015-2020 time frame.

To help accomplish these and other missions, Code T planners are developing requirements and a technology roadmap. The roadmap will tell agency officials how to integrate technologies into the programs that will take people and robots into space.

Speaking about the CEV requirements development, Lembeck said, "We're not going to do this alone. Again, we're going to turn to industry for some help." NASA will find those technologies that "other folks" have been working on, he explained. "And finally, in the fall we would hope to actually get on the path to cutting hardware," Lembeck stated. "We'll let out the first requests for proposals (RFPs) for the crew exploration vehicle."

There are three items needed to develop technology and hardware, according to Jim Nehman, director of the Code T Development Division. These are: fully defined requirements, a realistic schedule, and cost estimates based on the requirements and schedule.

People in the Development Division will also participate in the requirements process, Nehman said. In addition, many people in the requirements

contined on page 10

Managing stress seminar scheduled

On May 6, from 8:30 a.m. to 9:30 a.m., in Bldg. N221, Room 155, Barbara Correia, MFT (a contracted counseling company) will discuss 'The Road to Balance.'

During this seminar, you will learn to recognize the stressors that physically impact people when trying to combine a career and family life. In addition, Correia will help you understand the attitudes, beliefs and myths that help and hinder you in your daily activities.

Specifically, the seminar will address:

- Today's lifestyles
- Areas of stress and strain
- Strategies for dealing with work / personal stress

About the company:

CONCERN is a national Knox-Keene licensed employee assistance program. The program is dedicated to the promotion of a productive workforce, while helping employees maintain a healthy balance in their personal and professional lives.

For more information, visit the company Web site at http://www.concern-eap.com.

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 6:15 p.m. Higher-level class meets at 5:15 p.m. Held in Bldg. 944, the Rec. Center. POC: Helen Hwang, hwang@dm1.arc.nasa.gov, 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://accc.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: Anita Fogtman, ext. 4-4432.

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. 4-1783, 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 meets 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.

Vision of future human, robotic space efforts revealed

continued from page 9

organization eventually will transfer to the development team, according to Nehman.

"We are doing a thorough review of all the human and robotic technology programs that are out there," said Nehman. He added that projects must be relevant to the "new vision." There are about 140 programs being evaluated. "Some programs will survive," he said. "Others may have to be re-vectored a little," he continued. Still others may "drop off the table, but that's okay. They will be replaced by other technologies," Nehman explained.

Where technology gaps appear, managers will identify new technologies to fill the gaps, according to Nehman.

"I've got a lot of positions yet to fill," said Nehman. "We're going to take our time—do it slowly and pick the right people."

Brant Sponberg of Code T introduced the concept of 'centennial challenges,' NASA-sponsored contests that will award monetary prizes to "stimulate innovation and competition in technical areas of interest to space exploration and ongoing NASA priorities." The challenges will emphasize explorations to "improve life here, extend life to there and find life beyond."

An initial list of 130 challenges was reduced to 15, according to Sponberg.

The first challenge purses will not exceed $250,000 in fiscal year 2004. But for 2005 and beyond, the purses may be larger due to provisions in the 2005 NASA authorization bill. There will be workshops to ask for external ideas related to the challenges. Some current challenge ideas include revolutionary advances in fundamental technologies, breakthrough robotic capabilities and very low cost space missions.

Following the Code T presentations, employees from across the agency asked questions. One employee asked how is knowledge from the past 40 years of human spaceflight (including Russian experience) being captured? Steidle said that Code T has been checking with people who participated in the Apollo program, among other areas, to obtain information.

Another question was what role would centers play in the new exploration effort? Steidle said that Code T had been coordinating with five centers, and has been making visits to centers."The engineering and technical work will be done at the centers," Steidle stated.

Asked if the "political climate" changes, how would the new exploration program be impacted, Steidle said, "If you establish sound requirements up front, that goes a long way."

One of the last questions was, "How do we define our tempo?"

"We have some milestones," Steidle said. "You have to have a sense of urgency," he continued. "It's going to be a fast-paced ball game, but that's the fun of it."

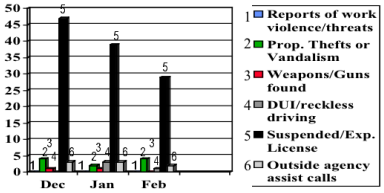
Code T presentation slides are linked from this Internet page: http://www.nasa.gov/missions/solarsystem/explore_main.html

BY JOHN BLUCK

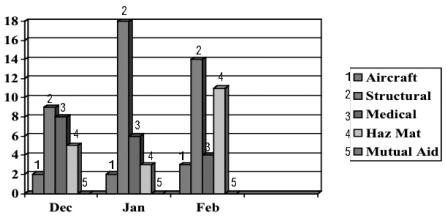
Protective Services monthly activity

A statistical summary of activities of the Protective Services Division's Security/Law Enforcement and Fire Protection Services units for the month of February 2004 is shown below.

Security/Law Enforcement Activity



Fire Protection Activity



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

For rent: 3bd/2ba, 2-car garage house in Newark. Fenced yard, quite neighborhood, close to schools and shopping, easy access to Dumbarton Bridge. Pets maybe. $1,950 mo plus security deposit. Call (510) 792-2701.

Large room in 4 bd/2 ba home, excellent, quiet Mtn View area close to Ames. W/D, microwave, wired for cable modem. Tidy person and nonsmoker. Easy access to Ames, 85, 237, & 101. $475 and dep and share utilities. Avail. April 1. Call (650) 964-1900.

For rent: 2 bd/2.5 ba townhouse, 2 stories, S. San Jose (near Hwy 85/87 and Oakridge Mall), new carpet and blinds, 2 car garage, small patio area. $1,500 per month plus one month's security deposit. Available immediately. Call (408) 281-7011.

Transportation

'90 Jeep Wrangler Sahara, 6 cyl, 5 speed, 4x4, 80K mls, new top and windows, with Trekmaster trailer, matching fenders and wheels. Good condition, $5,995, Ken (408) 249-3030.

'91 BMW 325i convertible, 96K mls, leather interior, 6 CD changer, auto windows, heated seats, brand new convertible top, A/C, excellent condition. $8,600. Tim (408) 406-8242.

'97 Chevolet Ventura minivan, V6, 78K mls, automatic, dark green exterior, dual front air bags, ABS brakes, very good condition. $3,900 or B/O. Danny (408) 934-0311 after 7 p.m.

'99 Tacoma Pre-Runner OFF-RD pkg. w/camper shell, only 52K mls. Orig. owner, V-6 automatic. Xtra cab, fully loaded, all service records, $11,500. Call (510) 471-2570.

'00 Volvo S40, 4 dr sdn, 42 k mi., Red, AT, AC, PS, PW, PL (rmt), AM/FM w/ CD, MNRF, LTHR, $12,000. Hank (408) 262-4974.

Miscellaneous

1.05 carat 18K yellow gold, engagement ring good color quality at a low price of $8,000, original price $10,000. Hardly been worn. If interested, call Jomarie at (408) 286-7443 and leave message.

Baby crib, maple construction, solid, excellent condition, $75. Tom (408) 255-3525.

Looking for freezer chest and back yard patio table with chairs. Email: falcon7777_2000@yahoo.com

Car Pool

Carpool/vanpool: Interested in ridesharing 3 times per week from Davis/Sacramento area to Moffett. Flexible work hours. Avnish at ext. 4-4652.

Ask the Export Expert

Question: Just what is an 'export' anyway?

Answer: The simplified definition of an export is the transfer of anything to a foreign person by any means, anywhere, anytime; or transferring to a U.S. person with the knowledge that what you are transferring will be further transferred to a foreign person.

Do you have a question for the 'Export Expert'? Then e-mail kwall@mail.arc.nasa.gov. And, you can visit the Web at http://jp.arc.nasa.gov/EC/EC.html.

Earth Day street fair set at Ames

Celebrate Earth Day at Ames' annual street fair where you will find music, food and local environmentally-conscious organizations.

Date: April 22
Time: 11:00 a.m. to 2:00 p.m.
Place: Durand Road

Visit the Web to learn more about the event at the Code QE Earth Day page at http://q.arc.nasa.gov/qe/events/ED/ED2004/

Safety Data

	Civil Servants	Contractors
Not recordable first aid cases	1	0
Recordable no lost time cases	1	1
Lost time cases*	0	3
Restricted duty days	0	0
Lost work days	0	23

Data above correct as of 2/26/04
*(Under new OSHA rules, lost time is defined as lost work days, restricted duty of work transfer.)

Astrogram deadlines

Deadline:	*Publication:*
Mar 29	*Apr. 2004*
Apr 26	*May 2004*
May 25	*June 2004*
June 25	*July 2004*

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.

Exchange Information

Information about products, services and opportunities provided to the employee and contractor community by the Ames Exchange Council. Visit the web site at: http://exchange.arc.nasa.gov

Beyond Galileo N-235 (8 a.m. to 2 p.m.) ext. 4-6873

Ask about NASA customized gifts for special occasions. Make your reservations for Chase Park

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

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

Visitor Center Gift Shop N-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.

Incline Village: Forest pines, Lake Tahoe condo, 3 bd/2 ba, sleeps 8. Fireplc, TV/VCR, MW, W/D, jacuzzi, sauna, pool. $120/night low season; $155/night high season. $90 cleaning fee and 12% Nevada room tax. Charlie (650) 366-1873.

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

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.

Spacious 2 bdrm Maui suite available (can accommodate up to 6 people) for 1 week. Cooking facilities, color TV, swimming pools, access to beach and much more. Located nearby shopping centers, golf courses, and all water activities. $1,200 a week or B/O. Call (408) 446-4416 for more information.

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.

Pye, investigator on CAIB, visits Ames

NASA photo by Tom Trower

David Pye (left) is shown sharing a light moment with Ames Center Director G. Scott Hubbard (right) during a recent visit. Hubbard, Pye and their team helped to determine a definitive physical cause for the loss of the shuttle Columbia.

David Pye, a retired engineer from the nuclear navy program who was instrumental in bringing rigor and independence to the foam impact test program led by Ames Center Director and lone NASA CAIB member G. Scott Hubbard, visited Ames Research Center recently.

"Dave is one of the best engineers I have ever known -- he's a true natural," said Hubbard.

Pye, on his recent visit to the center, toured the Ames arc jet facility, met with the nanotechnology group and visited numerous Ames labs with the possibility of future collaboration in mind. "I had no idea you did all this!" said Pye. "I thought you had wind tunnels."

Pye is currently a consultant on NASA's and JPL's Jupiter Icy Moons Orbiter (JIMO) mission.

Ames Ombuds Web site online

The newly established Ames Ombuds Office has established a Web site for the Ames work force. Visit the Web site at http://arcweb.arc.nasa.gov/ombudsoffice to obtain information about the functions of the office.

This Ames Ombuds Web site includes information about how the office can help you, the ethics and standards of the office, the Hazard Reporting and the NASA Safety Reporting Systems, and frequently asked questions (FAQs).

John (Jack) W. Boyd serves as the Ames Ombuds. The Ombuds office is located in Building 207, Room 107, Mail Stop 207-1. The office telephone number is ext. 4-6688 and the fax number is ext. 4-6673.

Dennis Cunningham, the Director of Human Capital, will serve as the alternate Ames Ombuds. His telephone number is ext. 4-5613.

Astrogram

National Aeronautics and Space Administration

Ames Research Center
Moffett Field, CA 94035-1000

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Astrogram

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

Editor-in-Chief.....David Morse
Managing Editor.....Ann Sullivan
Editor, Layout and Design.....Astrid Terlep

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

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