THE AMES Astrogram
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AMES RESEARCH CENTER, MOFFETT FIELD
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on-line at: http://ccf.arc.nasa.gov/dx/

Ames' 60th birthday bash brings out the crowds

"You're not getting older, you're getting better!" This now-tired bromide may actually have some merit when applied to Ames Research Center.

On June 2, a "youthful" Ames threw itself a 60th birthday celebration. It was a chance to honor the past, while looking to the future. That message certainly wasn't lost on a Center and a workforce proud of its history. But the energy and enthusiasm of this celebration were focused on the missions by which we will define tomorrow's, not yesterday's, accomplishments.

The day's events were highlighted by three separate functions. In the morning, an estimated 1,200 employees gathered on the grassy area in Shenandoah plaza for an historic photograph to visually commemorate Ames' "60 years of excellence." The photo was a re-enactment of the event conducted a decade ago on the Ames flightline.

At noon, the Ames Exchange hosted nearly 3,500 employees and their families for a free lunch and picnic on the grass. The eager hordes consumed more submarine sandwiches, beverages, and sheets of birthday cake that even the most optimistic could have imagined.

Finally, at 1:00 p.m., the Center hosted the San Jose Symphony in a free concert performing Gustav Holst's "The Planets." More than 800 people braved the cold weather to enjoy the event that was kicked off by a program featuring short presentations on Ames history and future.

photo by Tom Trower

Enthusiastic employees, eager to be a part of Ames history, form in the shape of a "60" to commemorate and honor the Center and its people for "Sixty Years of Excellence."

Jack Boyd, executive assistant to Center Director Henry McDonald and long-time Ames employee, gave a brief history of Ames accomplishments. He reminisced about Dec. 20, 1939 when Russell Robinson turned the first shovel full of dirt to mark the groundbreaking for what was to become Ames Research Center. He spoke of R.T. Jones' successful efforts to develop and test the swept-back wing, of Harvey Allen's conception and testing of the "blunt-body concept," and of the Ames Pioneer series of satellites that not only made tremendous voyages of scientific discovery, but established new rules for NASA-managed spacecraft.

He said that, while over six decades Ames people had broken ground all over the Center to build the world's greatest wind tunnels, simulators and research facilities, more importantly, "they broke ground in new disciplines of science and engineering -- in supercomputing, networking, computational fluid dynamics, telepresence, astrobiology, air traffic management, astronomy, Earth science and planetary exploration." He concluded, "using the language of science, Ames people have written the poetry of the planets."

Next, McDonald observed that Ames future is predicated upon the Center's ability to capitalize on the people, events and research of the past -- "to stand on the shoulders of giants," from where, he acknowledged, "the view is magnificent." He spoke proudly of Ames' role in Astrobiology, an endeavor which, he said, "could, and probably will, become the heart and soul of NASA."

He recalled Ames' leading role in the development of supercomputing capability, and spoke of Ames' information technology mandate and the need "to computationally explore the great new challenges in physics, chemistry and engineering that the new millennium will bring."

Finally, he addressed Ames contributions to aeronautics and the role that we will play in developing "the next millennium of flight vehicles." He observed that "work by Ames people will give the future

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Ames revolutionizes Internet technologies by establishing the First Multicast Internet Exchange

Have you ever watched a Shuttle launch from your workstation? The launches are broadcast live from Kennedy Space Center and watched by hundreds of viewers all over the world. The Internet would soon be hopelessly clogged if separate data streams of the launch had to be sent to each person who wanted to see it. To avoid such congestion, NASA multicasts* the live video.

In the past, multicast data streams were sent over the multicast backbone (the MBone) by "tunneling," an interim solution to the point-to-multipoint transmission problem that creates considerable overhead in the routers. In tunneling, multicast data are encapsulated to look like unicast data (the kind of data that traditional Internet protocols has been designed to handle). Encapsulation allows data to tunnel through routers and subnets that do not support Internet protocol (IP) multicast.

One of the objectives of the Next Generation Internet (NGI) is to develop an infrastructure that will support non-tunneled, or "native," IP multicast to allow for more efficient and more easily managed network use. The NASA Research and Education Network (NREN), part of the NGI program, is pioneering the effort to deploy native non-tunneled multicast over wide-area networks.

What is the MIX? NREN and the applied information technology division recently accomplished a "first" in the internetworking world by establishing a Multicast Internet Exchange (MIX) at Ames. The MIX provides a multicast-friendly peering point to handle routing between IP multicast wide-area networks. Ames has traditionally been a major peering point for national networks operated by other organizations. The MIX is housed at the Ames telecommunications gateway facility, managed by the Ames external interface group, that also houses the Ames internet exchange (AIX), the Federal Internet Exchange-West (FIX-W) and the NGI Exchange (NGIX).

"All multicast traffic to and from NASA flows through the MIX for future testing and enhancement of multicast technology," said Hugh LaMaster, NREN project engineer. "NREN was the first to deploy BGP4+ operationally, working closely with Cisco. BGP4+ (Border Gateway Protocol version 4+) is the protocol that provides route exchange among the participants. Since then, the Internet has adopted it rapidly, and it is now used by parts of UUNet, Sprint, other commercial networks (e.g., Verio, Qwest, AboveNet, Exodus), and federal networks such as ESnet (Energy Science network) and the National Science Foundation-funded vBNS, an MCI network."

Why multicast? "Multicast is often the only way to send high-volume, real-time data from a single sender to a large number of recipients," said LaMaster. "NASA has high-bandwidth applications that require speeds in the millions of bits per second (Mb/s). If you had to send out large files or real-time data streams to a million receivers without multicast, you would have to send out a million streams of the same data. That method doesn't scale to large numbers of receivers. "

A look ahead: NREN is pioneering the use of native IP multicast technology to support NASA missions. It is working on applications that produce multicast peak data rates of 50 Mb/s or more—500 times the data rate of early MBone multicast applications and 1000 times the data rate of home modem connections.

"The ability to do native multicast on today's higher speed routers is fairly new," said LaMaster. "In the future, all networks will be multicast-enabled."

*Multicast technology enables efficient point-to-multipoint transmission by replicating a packet only when necessary to reach individual end sites.

BY PAT KASPAR

Ames' 60th birthday bash brings out the crowds

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air transportation system an unparalleled degree of safety and capacity using new concepts."

Deputy Director Bill Berry introduced Rick Serrano and Ron Johnson and honored them for their accomplishments in preparing Ames for the recent, tremendously successful ISO 9001 audit certification process. Between them, they took implements of destruction to the garish pink "Days to ISO Certification" sign and demolished it to enthusiastic crowd applause.

And, finally, it was time for the symphony to play. Despite tremendously and unseasonably cold weather, a large crowd wrapped in winter coats and warm blankets listened to the concert under overcast skies and through periodic threats of rain. Nothing could dampen the spirit of enthusiasm on this festive occasion. But, all too soon, it was over.

Still, don't fret. With the Center's official birthday still over six months away, there will be plenty of occasions left to hoist a toast to Ames, it's people, and our 60 years of commitment to excellence and accomplishment.

BY DAVID MORSE

Astronaut selection application deadline nears

NASA is currently accepting applications for mission specialist and pilot astronaut candidates to join the Agency as it enters the era of the International Space Station and continues the exploration of space. The deadline to submit an application is July 1.

An application package may be obtained by contacting the Astronaut Selection Office at (281) 483-5907, or writing to:

NASA-Johnson Space Center
Astronaut Selection Office,
Mail Code AHX, Houston, TX,
77058-3696.

Additional information on selection criteria and application forms are available electronically through the Astronaut Selection Office website at the following url: http://www.jsc.nasa.gov/ah/jscjobs/aso/ascan.htm

News Briefs

Synthetic vision could help pilots steer clear of fatalities

NASA and industry are developing revolutionary cockpit displays to give airplane crews clear views of their surroundings even in bad weather and darkness, which could help prevent deadly aviation accidents.

NASA has selected six industry teams to create Synthetic Vision, a virtual-reality display system for cockpits, offering pilots an electronic picture of what's outside their windows, no matter the weather or time of day.

Kathie L. Olsen selected as NASA scientist

NASA Administrator Daniel S. Goldin has selected biologist Dr. Kathie L. Olsen of the National Science Foundation to be the Agency's chief scientist, effective May 24.

Olsen will be the Administrator's senior scientific advisor and principal liaison to the national and international scientific communities. Olsen most recently has been a senior staff associate in the National Science Foundation's Office of Integrative Activities. She held numerous other science-related positions within the Foundation since 1984.

NASA HQ recommended for ISO 9001 certification

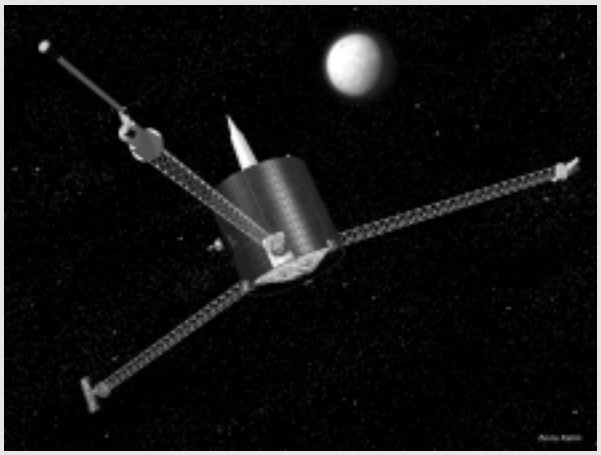
An audit conducted by an internationally recognized registrar reports that NASA Headquarters will be recommended for ISO 9001 certification, becoming the seventh NASA facility to gain ISO certification. ISO 9001 is the internationally accepted technical standard for managing all processes that affect an organization's ability to meet customer requirements for a quality service or product. The drive for NASA to become ISO-certified was sparked by NASA Administrator Daniel S. Goldin.

First global 3-D view of Mars reveals deep basin and pathways for water flow

An impact basin deep enough to swallow Mount Everest and surprising slopes in Valles Marineris highlight a global map of Mars that will influence scientific understanding of the red planet for years. Generated by the Mars Orbiter Laser Altimeter (MOLA), an instrument aboard NASA's Mars Global Surveyor, the high-resolution map represents 27 million elevation measurements gathered in 1998 and 1999. The most curious aspect of the topographic map is the striking difference between the planet's low, smooth Northern Hemisphere and the heavily cratered Southern Hemisphere, which sits, on average, about three miles (five kilometers) higher than the north.

Ames' Lunar Prospector to make science "splash"

The mission of NASA's Lunar Prospector, the little spacecraft that could, will officially end on July 31, 1999, at about 2:30 a.m. PDT. At that time, personnel at the Ames LP Mission Control center will terminate operations by directing the spacecraft to crash into the surface of the Moon in a permanently shadowed crater near the lunar south pole. If all goes well, it will be a spectacular conclusion to a stunningly successful mission.



Lunar Prospector and Moon in background, artist's rendition by Boris Rabin of NASA Ames.

The goal of the controlled-impact scenario is to gain additional science data about the Moon's composition. The idea was proposed by a team of scientists led by Dr. David Goldstein of the University of Texas in Austin. Although the spacecraft will weigh only 354 pounds at mission end, the energy at impact will be substantial, estimated to be the equivalent of crashing a two-ton car at more than 1,100 miles per hour.

Scientists hope that the direct impact into a lunar crater will liberate up to 40 pounds of water vapor that may be detectable from ground- and space-based observatories. A positive detection of water vapor or its byproduct, OH, will provide definitive proof of what mission scientists have long projected -- the presence of water ice in the lunar polar regions.

"While the probability of success for such a bold undertaking is low, the potential science payoff is tremendous," said Dr. Guenter Riegler, Director of the Research Program Management Division in the Office of Space Science at NASA Headquarters. "External peer reviews of this plan are very favorable, and we know that it is both technically and operationally feasible. Since the additional cost is minimal and the mission is scheduled to end anyway, it seems fitting to let Lunar Prospector provide science data right up to the very end of its highly successful mission."

Lunar Prospector was launched on Jan. 6, 1998, with a one-year primary and six-month extended mission to explore the lunar surface remotely. In March 1998, mission scientists announced that science instruments aboard Lunar Prospector had detected sufficiently large quantities of hydrogen at the lunar poles to infer the presence of water ice. In September, scientists estimated that up to six billion metric tons of water ice may be buried in the permanently shadowed craters of the Moon's poles.

The current plan for a controlled impact of the Lunar Prospector spacecraft into a tiny crater located at the southern lunar pole is a bold and daring one. The selected crater is only 31 to 38 miles across, has a rim that is high enough to provide a permanent shadow, and yet is low enough to permit a suitable spacecraft impact trajectory. Data from other observations suggest that the crater may well contain a high concentration of water ice. Equally important, the crater is observable at impact time from Earth-based observatories and orbiting platforms.

"A positive spectral detection of water vapor will provide definite proof of the presence of water ice in the lunar regolith," Goldstein said. However, scientists warn that the failure to observe the desired signal does not mean that water ice is not present. The model could be wrong, the spacecraft may not impact the desired region, or the impact energy may be insufficient to liberate an observable plume of water vapor. Overall, the probability of success is estimated to be 10 percent or less.

Observing time has been granted at the University of Texas McDonald Observatory and on the Hubble Space Telescope. It will also be sought at other sites with a clear view of the Moon at the projected impact time.

Further information about Lunar Prospector can be obtained at the project website at: http://lunar.arc.nasa.gov

Ames manages the $63 million Lunar Prospector, the first of NASA's Discovery class of "faster, better, cheaper" space exploration missions.

BY DAVID MORSE

NASA telemedicine: improving health from a distance

Doctors at five distant sites in the United States demonstrated how to use NASA telemedicine to diagnose patients, practice operations and train, using 3-D medical images carried by a high-performance computer wide-area network.

The NASA telemedicine system, demonstrated on May 4 at Ames has potential for improving health care at the far corners of the Earth by linking remote sites with the best medical minds and facilities.

During the demonstration, physicians used 3-D, scanned images of patients' hearts, skulls and other body parts. On computer screens, doctors at the five sites saw every procedure in stereo 3-D as each physician manipulated images of the virtual patient. The specialists used high-fidelity, NASA-developed 3-D imaging software to analyze and discuss patients.

"We're looking at methods to bring the clinic to the patient, rather than the patient to the clinic," said Dr. Muriel Ross, leader of NASA's effort at Ames to develop care of patients from a distance. "We're supporting remote collaborations of doctors at different locations on Earth. This will prepare us to use the technology for spacecraft crews traveling to the International Space Station, Mars or other planets, where specialists may not be available."

The "Virtual Collaborative Clinic" linked Cleveland Clinic physicians at the NASA Glenn Research Center, Cleveland OH, with other health care specialists at Stanford University Medical Center, Stanford, CA. In addition, doctors from Salinas Valley Memorial Hospital, Salinas, CA, participated from the University of California, Santa Cruz. The Northern Navajo Medical Center, Shiprock, NM; and NASA Ames were also connected by the computer network. The concept and software are under development at Ames' Center for Bioinformatics.

"Cleveland Clinic will discuss a patient treated for an enlarged heart chamber," said Ross. "If you cut a piece out and make the chamber smaller, you improve the way the heart works. During the demonstration, you'll be able to see the before and after conditions in 3-D."

The Cleveland Clinic, Salinas Hospital and the Northern Navajo Medical Center presented their heart research. Salinas showed an infant's defective heart beating. Stanford physician Dr. Michael Stephanides simulated facial reconstructive surgery from Ames.

"This demonstration is being done to support remote collaborations--to plan surgeries and to make diagnoses, and eventually even to operate from a remote site," Ross said. "Specialists could guide a general practitioner, or you could guide a robot operator on a spacecraft from a great distance."

The NASA Bioinformatics team plans to promote the development of systems for scanning patients onboard spacecraft with sonic machines.

Specialists collaborating from different places on Earth could plan a medical procedure, then send it to an astronaut physician to perform.

"You could try the operation in virtual reality a number of times, storing the procedure in computer memory, and then you could use the approach that's best during the actual operation," Ross said.

"We have also talked about projecting a computer image onto the patient," Ross said. "Projected images could guide doctors during operations."

More information about the Center for Bioinformatics is on the Internet at: http://biocomp.arc.nasa.gov/home.html

BY JOHN BLUCK

Michael Morigeau remembered

On May 24, Michael Morigeau, an auditor in the Office of the Inspector General (OIG) based at Ames, passed away after a sudden and massive heart attack. He was still a month removed from his forty-second birthday.

A gentle, kind and thoughtful man, Morigeau was respected and admired by his colleagues. To most, he was more a friend than a co-worker.

Roberta Gross, the NASA Inspector General, said, "there is just a small group among my co-workers who I consider to be my colleagues. Mike Morigeau was a true colleague." She went on to observe that "he treated his fellow workers and the Ames community with respect, dignity and a certain quality of sweetness and grace. He was a patient and persistent digger for the facts, a real team player."

Morigeau worked in the OIG since May, 1995. Prior to that, he was with the Defense Contract Audit Agency for 7years. During the aircraft consolidation audit, Morigeau played a leading role and was based in Washington, DC, for many months. After that, he returned to Ames where he spent the remainder of his tragically short career.

David Gandrud observed, "Mike was my lunch partner, coworker and a good friend. It seems as though everyone liked Mike. He was always going out of his way to help others -- at work, at home with his family, and in the local community." Morigeau took time to visit school kids in Milpitas to talk about

NASA and its missions. On the day he died, he said that, of all the things in his life, he was "most thankful for my three lovely children."

Recently, Morigeau had been on a real health kick, dieting and losing thirty pounds, exercising and working out, and feeling really good about himself. He was developing his interest in computer graphics and was editing the autobiography of his grandfather, Eli William Morigeau, which told of his life as a Flathead Indian, both on and off the reservation.

Diagnosed with Parkinson's disease, Morigeau was open about his affliction and determined to make "the most of the 15 years I have left before this disease disables me." His sudden and youthful death comes as an unwelcome dose of reality and perspective for all of us.

Morigeau was buried in his family's hometown of Polson, Montana on May 29.

photo by Tom Reddy

Michael Morigeau

Arrangements for a local memorial/remembrance are still in the planning stages.

Morigeau is survived by his wife, three children, his Mother and Father, two sisters, a brother and numerous other relatives. Those wishing to honor Morigeau may consider making a donation to a local charity, particularly one doing research on Parkinson's disease or similar disorders.

Computer program assumes spacecraft command

It's one small step in the history of robotic space flight; but it may turn out to be one giant leap for computer-kind. Artificial intelligence software is in primary command of a spacecraft for the first time.

Known as Remote Agent, the software has been operating NASA's Deep Space 1 mission and its futuristic ion engine since 11:00 a.m., May 17. The question: Can a spacecraft function entirely on its own nearly 75 million miles from Earth, without detailed instructions from the ground?

The public was invited to follow this ambitious 48-hour test as it continued to unfold through a detailed web page and e-mail alerts triggered by actual events on Deep Space 1.

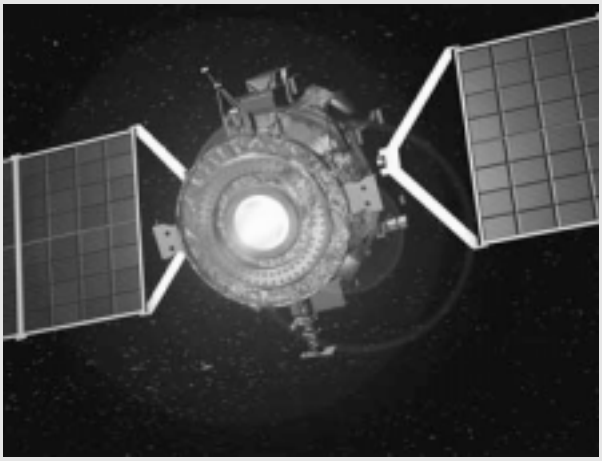
"While we watch over its shoulder electronically, we are giving Remote Agent the responsibility to monitor Deep Space 1's activities and position in space, including any engine firings it needs to keep on course," said Dr. Pandu Nayak, deputy manager of Remote Agent development at Ames. "We are also challenging Remote Agent with some 'unexpected problems' to see how well it reacts, and to determine whether it can get the mission back on track without human intervention."

"Remote Agent can create and carry out its own plans to achieve the mission goals that we give it," said Dr. Doug Bernard, Remote Agent manager at NASA's Jet Propulsion Laboratory (JPL), Pasadena, CA.

"This technology could allow us to pursue solar system exploration missions that only a few years ago would have been considered too elaborate, too costly or excessively dependent on teams of Earth-bound controllers."

The Remote Agent software package features three components: the planner/scheduler, the executive and one called Livingstone.

The planner takes general goals and determines detailed activities needed to achieve the goals. The test includes asking the planner to achieve broad goals such as, "Find your position, and fire your ion engine whenever practical." If a hardware problem develops that prevents execution of the plan, the planner makes a new plan, taking into account degraded capabilities.



Artist's impression of the Deep Space 1 spacecraft created by Boris Rabin, Giovanni Castillo and Michael Morehouse of Code IC.

The executive interprets the plans and adds more detail to them, then issues commands to the flight software, coordinating the three parts of Remote Agent. Some commands turn the spacecraft to point in different directions. Other commands ask the onboard camera to take pictures of asteroids and stars for navigation purposes. Livingstone acts like a doctor, monitoring the spacecraft's health.

If something goes wrong, Livingstone tells the executive there is a problem. The executive consults the "doctor" for simple procedures that may quickly remedy the problem. For example, if the camera does not respond, a quick fix is to turn the camera off and then on again. If this does not work, the executive asks the planner for a new plan that still achieves mission goals. If the problem is too serious, the software gives up and waits for help from Earth.

Specific tests include simulation of hardware problems, such as a malfunctioning spacecraft thruster. This should prompt the software to diagnose the cause of the apparent problem and take corrective action.

Remote Agent is designed to detect and recover from a set of real subsystem failures in the unlikely event that an actual failure should occur on Deep Space 1 during the remainder of the experiment.

Launched on October 24, 1998, Deep Space 1 is validating 12 new technologies, including Remote Agent, so that they can be confidently used on science missions of the 21st century. Its ion propulsion system has now completed more than 73 days of thrusting, most of that time under the control of the spacecraft's autonomous navigation system. The Deep Space 1 team expects that testing of all technologies will be complete by early June, with the exception of navigation system tests scheduled during an encounter with asteroid 1992 KD in late July.

The Remote Agent software was developed in collaboration between NASA Ames and JPL. Deep Space 1, part of the New Millennium Program, is managed for NASA's Office of Space Science, Washington, DC, by JPL, a division of the California Institute of Technology, Pasadena, CA.

BY JOHN BLUCK

Asian-American/ Pacific Islander Heritage luncheon held

To commemorate Asian/Pacific American Heritage Month, the Ames Asian American Pacific Islander Advisory Group (AAAPIAG) held their annual luncheon on May 26 in the Moffett Training and Conference Center Ballroom. This year's theme was "Celebrating our Legacy." Luncheon attendees were honored to have Mr. Fred H. Lau, Chief of Police, San Francisco Police Department as the guest speaker.

Mr. Fred H. Lau, Chief of Police, SFPD

photos by Dominic Hart

Galileo scholarship winners announced

The 1999 Galileo Memorial Scholarship winners were announced at an American Institute of Aeronautics and Astronautics (AIAA) dinner on May 23.

The highly-competitive awards are based on a student's academic performance, standardized test scores, extracurricular activities, teacher recommendations, written essays and interviews.

This year's five winners included Roma Jhaveri, a senior at Carlmont High School, Belmont, who will attend Stanford next fall and major in Computer Systems Engineering; Jeremiah Torres, a senior at Palo Alto High School, Palo Alto, who will attend Stanford with a major in Symbolic Systems and Physics; Guha Jayachandran, a senior at Monta Vista High School, Cupertino, who will attend Stanford and major in Biomedical Engineering; Kenneth Mah, a senior at Monta Vista High School, Cupertino, who will attend U.C. Berkeley with a triple-major in Biomedical Engineering, Electrical Engineering and Computer Science; and Christina Lee, a senior at Monte Vista High School, Danville, who will attend Yale with a pre-med major in Chemistry.

The students' varied extracurricular interests include Jhaveri's plan to raise $2 million for a youth center in San Carlos; Torres' Kiwanis Youth (Key) Club presidency; Jayachandran's athletic achievements as a long and triple jumper in track and field; Mah's Eagle Scout rank and job as a student intern at Stanford Medical Center; and Lee's work as Monte Vista webmaster.

The Galileo Memorial Scholarship was established in 1973 by Ames and the San Francisco Section of the AIAA. It is a memorial to those who perished in the Galileo I aircraft accident on April 12, 1973. The Galileo Scholarship program is supported through donations by the National Defense Industrial Association, an alliance of government contractors, and by donations from individuals.

Each of the 1999 winners received $1,300 to use at their discretion. The Scholarship winners and their parents will be honored at the June dinner meeting of the AIAA San Francisco section.

The AIAA chooses five students each year from eight counties in the San Francisco area. Any high school senior who intends to pursue a career in engineering, mathematics, or physical or natural sciences is eligible to apply, as well as children of Ames civil service employees, retirees, or on-site contract employees.

For more information, contact the AIAA web site at http://www.aiaa-sf.org. or call L. Ray at ext. 4-2654.

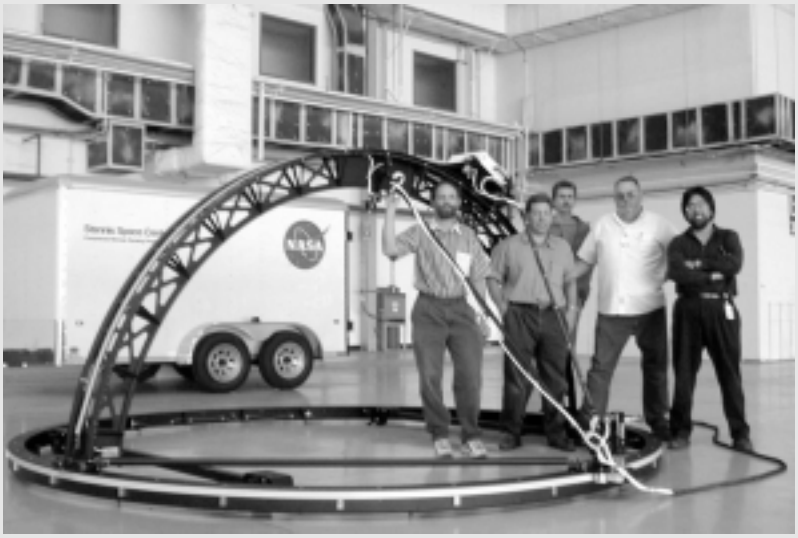
BY KATHLEEN BURTON

Ames Design Team receives International Design Achievement award

A team of design engineers from Ames' Mechanical Systems and Materials Engineering Branch (Code FEE) are the recipients of the First Annual SolidWorks World International Design Achievement award. SolidWorks CEO Jon Hirschtick presented the award to design team members Mark Turner, Glen Sasaki, Paul Staples and David Husmann at the recent International SolidWorks User's Conference held in Palm Springs, CA.

The team won the award for their use of SolidWorks 3-D CAD software to design the Sandmeier Field Goniometer, a project that required rapid design synthesis under extreme budget and schedule constraints.

The Sandmeier Field Goniometer is being developed to support the Commercial Remote Sensing Program at Stennis Space Center. A goniometer is an instrument that measures bi-directional reflectance of a target (such as vegetation) relative to the sun and an imaging system in an aircraft or spacecraft. This instrument will be able to provide a spectral fingerprint of the target in wavelengths from 350nm-2500nm using a hyperspectral imager. Stennis plans to use the goniometer on its five-acre verification target, used for verification and validation of commercial remote sensing data. The Sandmeier Field Goniometer is named after Stefan Sandmeier, the developer of the prototype goniometer upon which the Ames unit is based. This goniometer, when complete, will be the first fully automated field goniometer.



The Goniometer team in front of the Goniometer and its support trailer. The team members from left to right are: senior design enginer, Dave Husmann; project manager, Mark Turner; senior design engineers, Jeff Brown, Paul Staples, and Glenn Sasaki.

Ames' aeronautics and spaceflight hardware development division (Code FM) is currently fabricating the goniometer. During the design phase, Code FM had the opportunity to provide input at the very early stages, which added significant benefit to the final product. Fabrication cost and schedule savings have been realized by having complex part geometries translated directly from the SolidWorks design models to Surfcam and other computer-aided manufacturing (CAM) software. This direct model translation capability optimized Code FM's fabrication processes, including the use of their new water jet cutting tool.

Other advantages of using SolidWorks, as cited by the design team, include a rapid negotiation of the initial learning curve, the ability to develop solid model hardware prototypes (used to communicate the design intent to both the customer and the fabricator), and the ability to work as a team collaborating on a large, complex model. SolidWorks is a valuable addition to Code FE's existing suite of advanced engineering design tools. In association with ProEngineer, SolidWorks permits code FE to maintain a superior 3-D design and modeling capability. These types of tools and efforts represent FE's response to NASA's challenge to produce higher quality products within shorter design and fabrication times.

BY MARK TURNER

Calendar

Jetstream Toastmasters, Mondays, 12 noon to 1 p.m., N-269/Rm. 179. Guests welcome. POC: Jenny Kahn at ext. 4-6987 or Karen Matsuoka at ext. 4-6184.

Ames Bowling League meets at Palo Alto Bowl every Tuesday at 6 p.m. The league is in need of substitute bowlers. POC: Mina Cappuccio at ext. 4-1313.

Ames Ballroom Dance Club. Ames Ballroom Dance Club. Tuesdays: Samba 5/11. Tango 5/18, 5/25, 6/1. 3 levels of classes, from Beg. to Int. 5:15 p.m. to 6:45 p.m. Moffett Training and Conference Center, Bldg. 3/ Showroom. Women dancers are especially encourage to join. POC: Helen Hwang, hwang@dm1.arc.nasa.gov ABDC Website: http://abdc.arc.nasa.gov/

Model HO/HOn3 Railroad Train Club at Moffett Field invites train buffs to visit and join the club in Bldg. 126, across from the south end of Hanger One. The club is in particular need of low voltage electricians and scenery builders & maintainers. Work nights are usually on Friday nights from 7:30 p.m. to 9:30 p.m. Play time is Sunday from 2 p.m. to 4 p.m. For more info, call John Donovan at (408) 735-4954 (work) or (408) 281-2899 (home).

Ames Child Care Center Board of Directors Meeting, Wednesdays, 12 noon to 1 p.m., N-213/Rm. 204,. POC: Debbie Wood at ext. 4-0256.

Southbay FEW Chapter Mtg, Jun 8, 11:30 a.m. to 1 p.m., N-241/Rm B1. POC: Christine Munroe, ext. 4-4695.

Professional Administrative Council (PAC) Meeting, Jun 10, 10:30 a.m. to 11:30 a.m. Location TBD. POC: Janette Rocha, ext. 4-3371.

Ames Sailing Club Meeting, Jun 10, 11:30 a.m. to 1 p.m., N-262/Rm. 100. POC: Greg Sherwood, ext. 4-0429.

Nat'l Association of Retired Federal Employees, S.J. Chapter #50, Meeting, Jun 11, at the Elk's Club, 44 W. Alma Avenue, San Jose. Social hour: 10:30 a.m. Prog. & bus. mtg. follow lunch at 11:30 a.m. POCs: Mr. Rod Peery, Pres., (650) 967-9418 or NARFE 1-800-627-3394.

Ames Multicultural Leadership Council Meeting, Jun 16, 11:30 a.m. to 1 p.m., Galileo Rm/Ames Café. POC: David Morse, ext. 4-4724 or Sheila Johnson, ext. 4-5054.

NFFE Local 997 Union General Meeting, Jun 16, noon to 1 p.m., Bldg. 19/Rm. 2017. Guests welcome. POC: Marianne Mosher at ext. 4-4055.

Ames Asian American Pacific Islander Advisory Group Meeting, Jun 17, 11:30 a.m. to 1 p.m., N-241/ Rm. B2. POC: Daryl Wong at ext. 4-6889 or Brett Vu at ext. 4-0911.

Ames Amateur Radio Club, Jun 17, 12 noon, N-260/ Conf. Rm. POC: Mike Herrick, K6EAA at ext. 4-5477.

Native American Advisory Committee Mtg, Jun 22, 12 noon to 1 p.m., Ames Café. POC: Mike Liu at ext. 4-1132.

Environmental, Health & Safety Monthly Information Forum, Jul 1, 8:30 a.m. to 9:30 a.m., Bldg. 19/Rm 1078. POC: Linda Vrabel at ext. 4-0924.

Hispanic Advisory Committee for Employees, Jul 1, 11:45 a.m. to 12:30 p.m., N-241/Rm 237. POC: Mary R. Valdez, at ext. 4-5819.

Ames African American Advisory Group Meeting, Jul 1, 11:30 a.m. to 12:30 p.m., N-241/Rm 237. POC: Mary Buford Howard at ext. 4-5095.

Ames Contractor Council Meeting, Jul 7, 11 a.m., N-200 Comm. Rm. POC: Greg Marshall at ext. 4-4675.

Ames Classifieds

Ads for the next issue should be sent to *astrogram@mail.arc.nasa.gov* by the Tuesday following publication of the present issue and must be resubmitted for each issue. Ads must involve personal needs or items; no commercial/third-party ads and will run on space-available basis only. First-time ads are given priority. Ads must include home phone numbers; however, Ames extensions 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.

Housing

Furnished room. Share bath/kitchen/garden/ laundry. Easy transport: bus/train + El Camino + H101/ 237/85 + Central Expressway. Rent: $560/mo. Call (650) 969-3932 or email at: solemate@best.com

Available immediately: For commuter and/or intern; a semi-private temporary space in the same location as above. Weekly $100 (+ one month). Call (650) 969-3932 or email at: solemate@best.com

Master bedroom now available in Mountain View. Large, tastefully decorated apartment of professional lady. El Camino & Rengstorff. Gated bldg w/pool; convenient to bus, 20 mins to downtown Palo Alto. Safe $750. Fontella (650) 962-8411.

Looking for a third roommate to share a spacious 3 bedroom apt. in Mtn. View. N/S, professional female preferred. Available July 1. Rent $600 + utilities. No pets. Kari (650) 988-1190.

Female roommate wanted in Mtn. View. Share 2 bedroom apt. Pool. $500. Available July 1. One small child O.K. Call (650) 969-1377.

Condo for rent in Mountain View: 2bd/2ba, washer/dryer, fireplace, yard, garage, solarium, 3 miles from Ames. $2,200 month plus security deposit. Available August 1. Call (650) 962-1518.

Roommate wanted to share a great house in old Mountain View. Looking for someone professional and outdoor oriented, 27-40 yrs old. Available 6/10 for $825/mo. Dave (650) 968-4456.

3bd/2ba Townhouse in Almaden, near H85/87. W/ D, pool, spa, sauna, cable, secure parking, $1,500 mo. Call (408) 445-0460.

English post-doc at Ames needs room to rent, must be near transportation. Dates needed: Sept 6 to Nov 8 (possibly longer). Email; oliver.de_peyer@virgin.net Fax; 01144 118 9316671.

Available immediately: House one mile from Ames. 2bd/1ba attached garage, extra parking and small yard. Completeley redone inside and out. $1,250 a mo. plus Sec. Dep. Call (650) 965-0775.

Visiting researcher needs summer housing from June 24 to late August. Needs to be near public transportation or bike route to Ames. Contact Olivier Aycard at aycard@loria.fr or call Rich Washington (650) 299-0240.

Prof. female, w/cat, seeks same to share townhouse in Moffett/Middlefield area of Mt. View. Must be clean, responsible, N/S. Townhouse offers master bed/bath w/ priv. patio; W/D; space for add'l. furniture; lots of storage. $650 + 1/2 util. Call (650) 969-7009.

Transportation

'81 VW Vanagon, blue/white, manual transmission, 175K mls, rebuilt engine, one owner, runs well, $2,200. Bruce (408) 253-1515.

'85 Dodge Caravan SE, 2.6 Ltr, automatic, AC, white, 114K mls, smogged (May), excellent condition, maintenance/repair records, $2,695. Call (408) 733-7955.

'86 Honda Accord Lxi, 156K mls, hatchback, auto trans, air cond, elec win, elect mirrors, cruise, tilt, gauges, maint records, excellent, $3,750. Bill (408) 744-9132.

'87 Honda Civic, 4dr, automatic, 136K mls, alarm, good condition, $3,300. Call (408) 942-7918

'89 Isuzu Amigo XS, 2WD, 5 speed manual, A/C, AM/FM cassette, big wheels/good tires, low 74K mls., Good cond, $5,200 (blue book $5,900). Mike (650) 712-1690 Eves.

'91 Chevy S10, Tahoe Pkg, shell, AC, PS, tilt and much more. 68K mls, $5,300. Call (650) 965-0775.

'92 Mercury Sable 3-seat wagon w/3.8 L V-6 eng. Beautiful one-owner. California car driven mostly freeway miles by a mature single female professor. If you are looking for a versatile inexpensive car in perfect condition, call for more details. Middle BB cost. $5,900. Call (408) 996-0977 or (408) 252-6489.

Miscellaneous

Rescued kittens. Free. Call (650) 969-1377

One drawer file cabinet; has misc. storage drawer above file drawer; also has pull-out work surface. Ideal for holding PC monitor, keyboard, and mouse with minimal footprint. Heavy duty quality. $50. Call (408) 736-0838.

Baby/toddler items: Large Graco Pak-n-Play, primary colors, very good condition, $60. Other items available. Call (408) 736-0838.

Build your own PC: Pentium MMX 166Mhz w/ new motherboard, $75; SVGA ISA video card, $10; 28.8 Fax/ Modem w/manuals & software, $10; Sound card with software & manuals, $15; Tape backup drive & software w/manual for Windows + (7) backup tapes, $15. Call (408) 295-2160.

Mtn bike: Diamond Back Ascentex, 18 speed, 54cm steel frame. $150. Bruce (650) 969-4118.

Windsurfer: Original one-design includes mast, boom, and sail. 12 ft board is very stable. Great for beginners or free-style. $200. Bruce (650) 969-4118.

6 station sprinkler controller; used one year, excellent condition. $25. Call (408) 736-0838.

Lighted hutch, buffett and matching server, made from walnut and rosewood. Very gd cond. $700. Call (408) 226-0430. Glass top dinette set with 4 chairs. Gd cond. $200. Call (408) 226-0430.

Windsurfer, Mistral Screamer, 3 sails (sizes 4.0, 5.2, 6.0), boom, mast and more. $350 or B/O. Laura (650) 367-7651.

Wanted to buy: Double stroller for two kids, each age less than 2 years. New, used, any model of interest. Call (408) 354-6268

Vacation rental

Lake Tahoe-Squaw Valley Townhse, 3br-2ba, Balcony view, horseback riding, hiking, biking, golf, river rafting, tennis, ice skating, and more. Summer rates. Call (650) 968-4155, DBMcKellar@aol.com

Lost & Found

Lost: 1 pair reading glasses. Small, brown oval frames, made by Calvin Klein. Lost on or near the Parade Grounds during the 60th Anniversary concert celebration. If found, please call Teri at ext. 4-0424.

Moffett Field lost and found may be reached via ext. 4-5416 at any time. Residents and employees at Ames may also use Internet Browser at: http://ccf.arc.nasa.gov/ codejp/pages/lostFound.html to view a list of found property and obtain specific instructions for reporting lost or found property and how to recover found property. Call Moffett Field Security Police Investigations Section at ext.4 1359 or email at: mfine@mail.arc.nasa.gov.

Astrogram deadlines

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.

Deadline	*Publication*
Tues, Jun 8	*Mon, Jun 21*
Tues, Jun 22	*Mon, Jul 5*
Tues, Jul 6	*Mon, Jul 19*
Tues, Jul 20	*Mon, Aug 2*
Tues, Aug 3	*Mon, Aug 16*

Morrison receives prestigious Presidential Rank award

Dr. David Morrison, Director of the Astrobiology and Space Research directorate, joined other senior executive service federal government employees at NASA Headquarters on May 30 to accept the prestigious 1998 Presidential Rank award, in the category of meritorious executive.

photo by Dominic Hart

Dr. David Morrison

The highly-competitive award is given to only one percent of the federal government's SES employees and focuses on "(an) executive's leadership in producing results." Other criteria include an executive's ability to "lead a government that delivers great service, fosters partnerships and community solutions to achieve results, and continuously pushes itself to get the job done more effectively and efficiently."

Morrison was selected for strengthening the links between space science and the academic community, for reducing costs and for showing initiative and innovation in defining the new discipline of astrobiology (the multidisciplinary study of life in the universe) and for helping to form the NASA Astrobiology Institute, a multidisciplinary virtual consortium.

In his leadership role in the Astrobiology and Space Research Directorate, Morrison manages basic and applied research in the space, life and earth sciences. The directorate plays a leadership role within NASA in space research and astrobiology, comprising a workforce of over 250 civil servants and 500 support personnel involved in research and technology development.

"I am proud and pleased to be so honored," Morrison said.

Morrison holds a PhD in astronomy from Harvard University and served for almost 20 years on the faculty of the University of Hawaii.

Among his numerous honors, he is a Fellow of the American Association for the Advancement of Science and a Fellow of the California Academy of Sciences.

BY KATHLEEN BURTON

Flag Day celebration set

On Saturday, June 12 the Exchange will sponsor a day full of fun and excitement. KSFO Radio will broadcast live from Moffett from 10:00 a.m. to 1:00 p.m., inviting all Bay Area patriot's to see the largest American flag in the world. The flag will be on display for just one hour! Over one thousand people will be needed to unfurl and then refold it.

At the same time, the Santa Clara County Law Enforcement Torch Run will be hosting an inaugural "Airplane Pull." Everyone is invited to come and cheer their favorite team. Advance registration is required for teams.

NASA gates will open at 8:00 a.m. This event is free! Bring your family and friends. No visitor badges required. For additional information, please call Deb Renick at ext. 4-0290.

THE AMES Astrogram

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