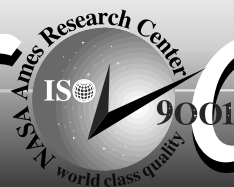


THE AMES

# Astragram



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

AMES RESEARCH CENTER, MOFFETT FIELD

November 8, 1999

on-line at: <http://ccf.arc.nasa.gov/dx/>

## Ames researcher finds younger, faster universe

Dr. Eyal Maoz of Ames and astrophysicists from a variety of U.S. and Canadian institutions have found evidence suggesting that the universe may be younger than scientists had previously thought. They also believe that it is expanding faster than expected. Their findings were reported in a recent issue of Nature magazine.

Previous estimates put the age of the universe at about 15 billion years. Maoz' research indicates the universe may be as young as 12 billion years, nearly the same age as its oldest stars. This implied relatively low age of the universe revives an old paradox in the field of astrophysics that the universe seems to be younger than some of the stars in it. Maoz' finding suggests that a revision of the cosmological model may be in order.

Maoz and his team used the Hubble Space Telescope to observe the pulsing of

giant stars called 'Cepheid variables' in the galaxy NGC4258. Researchers used a standard "Cepheid measurement" technique that allowed them to measure the distance from Earth to the galaxy. However, this measurement was different from another independent, highly accurate distance determination to that galaxy made using masers (the microwave equivalent of lasers).

A revision of the standard Cepheid measurement method would mean that estimates for the age of the universe would have to be revised downward by 10-15 percent, experts say.

Measuring galactic distances using Cepheid variables has been a standard since 1929. They are useful because their rate of pulsation is closely linked to their brightness. This means that a galaxy's apparent brightness can be used to gauge its dis-

ance from Earth.

Maoz and his colleagues used the Cepheid method to estimate the distance from Earth to the benchmark NGC4258 galaxy as 8.1 megaparsecs (Mpc), significantly farther than the geometric estimates derived by recent estimates. (One Mpc is equivalent to approximately three million light years.)

"We discovered a considerable discrepancy between the maser-based and Cepheid-based distance," Maoz said. "The bottom line is that it seems that galaxy distances may have been consistently overestimated by about 12 percent. This would imply that the universe is expanding faster than expected, and the age of the universe is lower by a similar factor."

BY KATHLEEN BURTON

## Ames' mission-critical systems deemed Y2K compliant

Government, industry, and state offices are working diligently to ensure that their critical systems will operate correctly after the turn of the century. At Ames, all mission critical and high-risk systems have been certified as Y2K compliant.

For the past two years, the Y2K project office and the Center's Y2K directorate Coordinators have been steadily working with organizations to ensure that all critical

compliant and have established suitable contingency plans should system failures occur.

Even though they have been certified as compliant, critical systems will be monitored very closely during the December 31, 1999 to January 1, 2000 transition. The Agency has taken the Year 2000 threat very seriously, and plans for system monitoring, status reporting, and contingency activation during the January 1, 2000 rollover weekend are currently being refined at each center. On November 9, a NASA-wide Y2K drill is scheduled to test communication and status-reporting processes across the Agency by simulating possible problem scenarios. The Y2K Project Office and the Emergency Services Office are working together to prepare for this drill. The Y2K project office is coordinating monitoring and reporting response plans for Y2K-related information technology system problems. The emergency services office is preparing to respond to any Y2K-related core infrastructure problems or emergencies that could possibly occur. As a precaution, the Y2K project office, the Emergency Operations Center (EOC), and the Emergency Communications Center (ECC) will be staffed with a minimal number of employees during the January 1, 2000 rollover weekend. Certain systems will also have a minimal level of on-site coverage during the rollover weekend. Other key personnel will be on call just in

case an escalated response is necessary.

For more information on Ames' Year 2000 status, desktop computer readiness, and links to other useful Y2K web sites, visit the Y2K homepage at: <http://george.arc.nasa.gov/year2000>. You can also contact the Y2K project office at ext. 4-6875. The Year 2000 project office reports to the Center's Chief Information Officer in the Center Operations Directorate (Code J).

BY CYNDI CARBON



systems and facilities will function normally on and after January 1, 2000.

"Thanks to the efforts of the Y2K directorate coordinators, programmers, technical personnel, and system administrators," said Ray O'Brien, the Center's Y2K project manager. In general, organizations have completed all assessments, repairs, and tests necessary to certify their systems as Y2K

The Y2K project office is planning to inform employees about Y2K preparedness within their homes and communities. A Y2K community meeting has been tentatively scheduled on November 22, at 10 a.m. in the main auditorium. Representatives from PG&E, Santa Clara County, the Red Cross, and other organizations will share their Y2K preparedness information with Ames staff and be available to answer any questions. An overview of the Center's Year 2000 status and rollover weekend plans will also be given. Civil servants and contractors should attend this informative event to receive useful information about Center readiness and tips to help prepare for the new millennium at home.

## Awards & Events

# Acquisition Division recognizes COTRs of the year

The Acquisition Division officially recognized the Contracting Officer Technical Representatives (COTR) of the Year for fiscal year 1999 in a ceremony held at the Center on October 19. Each of the acquisition branches recognizes an individual with whom it works closely and whose diligence in performing the COTR function makes a significant contribution to the successful acquisition of goods and services in support of the Center's mission.

The Acquisition Branch for Center Operations and Space recognized Martha (Marti) V. Klug, Code SF, for her technical management of the Science Engineering Technical Support (SETS) contract; and Catherine Schulbach, Code D, for her outstanding support to the Grants Office, especially in handling the proposal evaluation packages. The acquisition branch for information systems recognized Ann Patterson-Hine, Code IC, for her outstanding support provided in the area of simplified acquisition procedures and SBIR contracts; and Michael R. Lowry, Code IC, for his outstanding support to the Defense Advanced Research Projects Agency (DARPA) program. The acquisition branch for aeronautics recognized Gary French, Code FEF, for his outstanding support to the NFAC compos-



photo by Tom Reddy

COTR of the Year Award recipients from left to right: Ann Patterson-Hine, Catherine Schulbach, Gary French and Martha Klug share a light moment with Acquisition Division deputy chief Connie Cunningham (center) following the recent ceremony.

ite fan blade assemblies project.

Connie Cunningham, deputy chief, ac-

quisition division, presented the awards to the five recipients.

## Get ready for the holiday dance party!

The Ames Ballroom Dance Club, sponsored by the Ames Exchange, is hosting its second annual holiday dance party on December 4. Highlighting this year's party will

American Rhythm, International Latin, American Smooth and International standard. At the holiday party, they will be teaching a beginning and intermediate level class.

All resident staff, their families, and friends are invited to the party. Besides the dance lesson and exhibition by Hans and Renee, there will be door prizes, hors d'oeuvres, music, and best of all, lots of dancing and socializing.

It's not too early to plan for the holidays, especially this year, the millennium year. Mark your calendars--December 4,

ABDC millennium holiday party, at the Moffett Training and Conference Center, Building 3, from 7:00 p.m. to midnight.

Ticket prices and other details will be available soon. Watch for the posters.

For more information, contact Rosalyn Jung, at email [rjung@mail.arc.nasa.gov](mailto:rjung@mail.arc.nasa.gov), or



Hans and Renee Schmitt have fun during a recent dancing exhibition.

be a dance demonstration by the 1999 San Francisco open rhythm champions, Hans and Renee Schmitt. In addition to being champion level dancers, Hans and Renee are co-owners of San Jose Dance Sport Center, aka "The Floor" in San Jose. They are also professional instructors specializing in



Ames employees dancing the cha cha at last year's party.

call her at ext. 4-5609; or contact Helen Hwang, at email [hwang@dm1.arc.nasa.gov](mailto:hwang@dm1.arc.nasa.gov), or call her at ext. 4-1368.

## Space Act award ceremony to be held at Ames Café

The Ames Commercial Technology Office will host a Space Act Award Ceremony on Thursday, November 18, at 3 p.m. in the Ames Café. Dr. McDonald and office chief Carolina Blake will present awards to the project teams selected.

### Winner, 1999 NASA Software of the Year Award

*Remote Agent: Autonomous Reasoning and Control for Spacecraft and Other Complex Systems*

Remote Agent is a reusable artificial intelligence (AI) software system designed to allow spacecraft, life support systems, chemical plants or other complex systems to operate robustly with minimal human supervision, even in the face of hardware failures or unexpected events.

#### NASA/Ames Recipients:

Gregory Allen Dorais  
Charles Richard Fry  
Bob Kanefsky  
Ronald Keesing  
James A. Kurien  
William Millar  
Sunil Mohan  
Paul Morris  
Nicola Muscettola  
P. Pandurang Nayak  
Barney Darryl Pell  
Christian John Plaunt  
Kanna Rajan  
Scott Sawyer  
Reid Simmons  
Gregg Swietek  
William M. Taylor  
Michael Wagner  
Greg Whelan  
Brian Charles Williams

#### NASA/JPL Recipients:

Douglas E. Bernard  
Steve A. Chien  
Scott Davies  
Daniel Dvorak  
Erann Gat  
Guy K. Man  
Greg Rabideau  
Nicholas F. Rouquette  
Benjamin Smith  
Yu-Wen Tung  
David Yan

### Runner up, 1999 NASA Software of the Year Award

*Ross 3D Virtual Clinic*

In a virtual clinic experiment to promote medical consultation and interaction between remote and major clinics, NASA Ames linked with surgeons and physicians at Cleveland Clinic, Stanford Medical Center, Sali-

nas Valley Memorial Hospital, and the Navajo Nation at the Shiprock Service Unit. The software developed at Ames Research Center will permit these interactions with the images from the individual sites as the patient data are discussed.

#### Recipients:

Cynthia Bruyns  
Rei Cheng  
Samuel Linton  
Kevin Montgomery  
Muriel Ross  
Steven Senger  
Xander Twombly

### Space Act Board Award Recipients

*DARWIN Distributed Remote Analysis System*

DARWIN is a distributed NASA-wide meta-data archive and web application for remote access to and analysis of wind-tunnel data. Using DARWIN, aerospace engineers can examine and manipulate the data using tables, 2D and 3D plots and visualization tools. During a wind tunnel test, the data become available in near real time. DARWIN can compare disparate data systems with different measurements from different platforms.

#### Recipients:

Cecilia Aragon  
Mike Barnes  
Louise Chan  
Darrell Evans  
Ed Fresco, Jr.  
Dexter Hermstad  
Brian Johnson  
Dennis J. Koga  
David Korsmeyer  
Robertta Marietta  
Bill Mortimer  
Quit Nguyen  
Tarang Patel  
John Schreiner  
Alex Shaykevich  
Gary Sorlien  
P. Jeff Trosin  
Costandi Wahhab  
Joan D. Walton

*NASA DeBakey VAD Ventricular Assist Device (VAD)*

When cardiovascular surgeons Dr. Michael DeBakey and Dr. George Noon teamed up with scientists from both Johnson Space Center and NASA Ames, the result was a fully implantable, miniaturized cardiac ventricular assist device. Specifically the Ames team applied CFD adapted from their work on Shuttle engine design to bring better understanding of CFD pro-

cesses inside the device under varied operating conditions.

#### Recipients:

Dochan Kwak  
Cetin Kiris

### *Rehydration Beverage*

The Rehydration Beverage works like salt (sodium chloride) and water by replacing sodium chloride in the blood plasma, which helps to restore and maintain plasma fluid. Decreased plasma fluid volume can reduce work capacity, induce fatigue, and contribute to hypertension and fainting, particularly in astronauts during reentry and immediately after landing. This beverage is useful for increasing plasma volume in normally hydrated people; e.g. astronauts in space before reentry and athletes before competition.

#### Recipient:

John Greenleaf

## ERRATA

Budgets may be tight and funding hard to come by, but the situation is not nearly as grim as reported in the Oct. 25 Astrogram. Due to a typographical error, the front page NASA budget story reflected funding numbers in the millions rather than billions. The correct NASA FY2000 budget, of course, is \$13.653 **BILLION**. We apologize for any confusion (or panic!) we may have created.

In the story on the Ames Honor awards (p. 8), the winner in the Technology Development category, Dr. Patricia Cowings, was inadvertently omitted from the listing.

Our apologies for this unintended oversight. A profile on Dr. Cowings award-winning research will be presented in an upcoming Astrogram.

In the photograph accompanying the Combined Federal Campaign story, the speaker was Ames' own James R. Davis of the Electronics Systems Branch, not the CFC national chairperson Terry Morris.

Finally, in a caption to the photo series about William Shatner's visit to Ames, the center photo did, indeed, contain an image of Dr. Robert Mah's lab equipment. The person in the image, however, at right was not Dr. Mah but his associate Richard Papisin.

## Safety Week Events

# Ames Quality and Safety Week events

Center Director Dr. Henry McDonald kicked off Safety and Quality Week, and Bob Navarro, Code QS chief, presented the week's coming highlights. Keynote speaker, William McCabe, director of Aviation at Dupont, related his company's strong commitment to safety and their goal of zero injuries and safety and environmental incidents.

The environmental featured speaker, attorney Jan Schlichtmann, was a terrific orator and story teller. It was very easy to imagine him arguing to a jury. What was most interesting was his combination of professional anecdotes with intensely personal (almost spiritual) confessions. He has been transformed as a person and a professional by his Woburn experience which was portrayed in the book and movie "A Civil Action."

The turnout for the Safety Fair/Quality Chili Cook-Off was spectacular. It is not often that we all get a chance to simply stop doing what we do everyday at Ames, and concentrate on issues that will actually improve safety and quality, and have fun doing it. There were free massages, free chili, and free consultations on a variety of work and home-related safety concerns.

Apollo 13 Commander, Jim Lovell and former defensive back for the Oakland Raiders, George Atkinson, both spoke on safety issues. Conference rooms and classrooms throughout the Center hosted 15 different quality, safety, health, and environmental classes during that week, with attendance of 700. For more information on safety and environmental classes offered, click on Training at the Code Q website (<http://q.arc.nasa.gov/>).

Quality Forum '99 was co-sponsored by Code QS and the American Society for Quality. Participants included Ames personnel and guests from Silicon Valley firms.

Rich Allen, corporate quality director of Solectron Corporation, explained how Solectron improved quality processes, becoming ISO 9001 certified and a two-time winner of the Malcolm Baldrige National Quality Award. Astronaut Col. Mike Mullane gave an inspirational and candid talk about the Challenger disaster and what can be learned. As President of DNV Loss Control Management, Ray Davies described the rapidly evolving field of risk management, touching on its historic role in minimizing property loss and human injury.

Dr. McDonald started the largest Fun Run in Ames history with a bang! Everyone finished the course, with the following runners taking first place in their age and gender categories: Sylvia Chen, Monica Torrez, Leigh Ann Tanner, Lynne Engelbert,

*continued on next page*



*Death by Chili, pictured here with deputy director Bill Berry (left), won several prizes, including the People's Choice, Best Team and Chef's Choice awards.*



*Keynote speaker Jim Lovell, Commander of Apollo 13 ("Houston we have a problem") spoke on "Risk Management in a Crisis Situation."*



*George Atkinson, former defensive back for the Oakland Raiders, spoke on "Success through Safety."*



## Safety Week Events

--a blast for all those who participated!



Mike Mullane, Shuttle astronaut, spoke at the Quality Forum '99 on "Lessons Learned from the Challenger."

Michael McIntyre, Michael Fery, Eric Barszcz, David Offen and Peter Hamlett. First place walkers were Nora Willis, Anne Wright, Luba Petrav, Mary Beth Bischoff, Gordon Lam, Harry Yee, Kevin Werner, Charles DeRochia and Robert Higgins.

Team-building experience was enhanced as each of 23 teams prepared ten gallons of chili for the 2,500 hungry tasters and planned and decorated booths for the Fourth Annual Chili Cook-Off.

There was spirited balloting for the Peoples' Choice award. The grand prize winner was the Death by Chili team. A newcomer, the Highland Haggis Hot Shots, secured the second place spot and the CH4-Providers took the third place trophy home to the machine shop. Other trophy winners were:

Best Team award -

1st Place - Death by Chili

2nd Place - The Pig Tails

Chef's Choice award -

Death by Chili

Five Alarm Chili award -

1st Place - Psychotic Chili

2nd Place - Raytheon Candy Crew

World Class Quality -

Mama Huizar's Chili Team

Best All-Meat -

SMART

Favorite Vegetarian -

Diaper Rash

QASAR Awards

The Quality and Safety Achievement Recognition (QASAR) awards are presentations to individuals who contribute to significant advances in safety and quality programs in a variety of capacities. One nominee from each category is submitted to Headquarters to be considered for Agency awards.

Fred Gregory, the agency Associate Administrator for Safety and Mission Assurance attended the stand-down day festivities to present the Ames winners with plaques and to underscore the importance of these awards. The winners of the Ames nominations for the agency awards were Jana Coleman of Code J, David King of Code QH, David Herda of DCMC at Waco, Texas, and Chris Strong of AverStar Inc., a subcontractor to the IV&V facility. Congratulations to each of these winners.



Bill Berry, deputy director, (center), presented the Quality and Safety Achievement Recognition (QASAR) awards to David King of Code QH; director of Code J Jana Coleman; David Herda of DCMC at Waco, Texas; and Chris Strong of AverStar Inc., a subcontractor to the IV&V facility.

photos by Eric James

# Students quiz NASA scientists about future Mars exploration

How would you build a colony on Mars and cope with 300-mph winds, and how would you get water? These were just two of many questions posed by second through eighth graders who recently participated in a round-table discussion with four NASA scientists in the Ames main auditorium.

"Before the crew would land, you would send a machine to get water out of the atmosphere," said Dr. Christopher McKay, an Ames planetary scientist whose current research focuses on the evolution of the solar system and the origin of life. "That machine would make enough water for a hundred people. But we would still have to recycle that water," McKay said.

McKay and his colleague, Dr. Kelly Snook of Ames as well as two representatives of the Jet Propulsion Laboratory (JPL), Pasadena, fielded questions not only from four classrooms of local Bay Area students, but also from students located across the country who communicated via an Internet chat room. The event was also available worldwide via an Internet "webcast." Snook analyzes Mars data and is working to prepare for a possible mission to Jupiter's moon, Europa.

Students used their computers to type questions into an Internet chat room for the scientists to answer. Scientists and webcast participants answered those questions live during the webcast. The webcast included a live, moving video picture and sound that were distributed via the Internet to student computers.

Queried about how many sandstorms occur on Mars, Snook said, "They happen about every two years or so when Mars is closest to the Sun. So, over billions of years, there are a lot of sandstorms."

An adult asked students if they would like to drink recycled water on Mars. There was no immediate student reply, so McKay said, "We've all been drinking recycled water on Earth that people before us drank. This water was recycled naturally BY the Earth."

One student asked if it would be better to build a Mars colony above or below the planet's surface. JPL's David Seidel, an outreach supervisor and pre-college programs officer, said that when Apollo astronauts examined the Surveyor III spacecraft that had earlier landed on the Moon, they found that that spacecraft had been damaged by the hot and cold extremes of light and shadow. "Burying a Mars base is a good idea because you will be protected from micrometeorite hits," Seidel said.

McKay, on the other hand, said he

would like the base to be on the surface to get sunshine. "But that's an engineering question; we need to do more engineering studies," he added.

"Can you use a telescope on Mars to see people on Earth?" another student asked.

"Our atmosphere acts like a shower curtain, and keeps you from seeing people here," McKay answered.

"We used our cameras during the Mars Pathfinder mission to look at Earth," said JPL's Dr. Robert Anderson, who is the science mission planner for the Mars 2001 mission and also is the Mars Pathfinder outreach coordinator. But there were clouds blocking the view, he added. "If you had the right instruments, you might see lights on Earth," he said.

The scientists also discussed spacesuits. "You have to build a spacesuit for the environment you're going to," Anderson said. McKay added that the suits which astronauts wore on the Moon were heavy on Earth, but the Moon's gravity is 1/6 of the Earth's, and so the astronauts didn't have to bear the heavy weight. "On Mars we'll need a lighter spacesuit because the gravity there is 1/3 that of Earth," he said.

Seidel said building a spacesuit with fingers you can easily bend is a challenge. He said astronauts who work in space often experience fatigue in their hands, and sometimes chafe their fingers.

A student asked, "How many gallons of fuel does it take to fill a rocket ship?" One of the scientists answered, "Actually it's not gasoline... I don't know how many gallons, but for our missions, we use a lot of solid rockets."

Another student asked a general question about what students could do concerning space missions. Anderson answered that one thing students can do right now is go to the Internet and "see pictures we just got from Mars... later you might put on 3-D goggles and imagine you are on Mars with real data. As our computers get better, we will be doing more like that."

"After eight days, we had 88 million hits to our Mars Pathfinder mission website... We gave people the data every 15 seconds... I had over 3,000 emails. We were getting questions from all over the world," said one of the JPL representatives.

The four classes of students who sat in the auditorium with their teachers were from three schools: Monarch Montessori, Sunnyvale; Hayward Project School, Hayward; and Toyon Elementary School, San Jose.

An archive of the webcast is on the

Internet at: <http://quest.arc.nasa.gov/ltc/mars>

The Mars Millennium webcast project is one of many Internet offerings from the NASA's Quest Project based at Ames. The general Quest URL is: <http://quest.arc.nasa.gov>

Quest's on-line, interactive projects connect students with NASA employees and are designed to inspire young people to pursue careers in high technology.

The webcast was also incorporated into the Mars Millennium educational program that is endorsed by the White House, said Sandy Dueck, Mars Millennium Webcast moderator for NASA Quest. Dueck actually works via the Internet from her home in Colorado. "This is an Internet educational activity that educators across the country will use," she said. The Mars Millennium website is at: <http://mars2030.org>

The NASA Quest webcast crew, Kate Weisberg, Linda Conrad and Arlene Dondoyano, produced the event. The auditorium crew, including John Schultz and Eric James, operated video cameras and audio equipment to help enable the webcast. NASA Quest encoded the event for the Internet.

BY JOHN BLUCK



## Join Weight Watchers at work

Get in shape for the holidays and the new millennium. Learn about improving your eating habits, and the benefits of exercise. Join us for an informational meeting on continuing the Weight Watchers at Work program on Monday, November 1 at 11:30 a.m. in the Galileo Room, in the Ames Café. Seating is somewhat limited and will be on a first-come, first-served basis.

We will need a minimum of 18 people and a maximum of 30 people to sign up for the 10-week program, which will meet on Mondays at the same time and location.

The cost for the 10 weeks will be \$89.50, and there will be an option to renew at the end of that time if enough people wish to continue.

Call Janice Stanford at ext. 4-3809 if you have any questions.

## Center Briefs

### **NASA selects missions to search for planetary systems and observe cosmic explosions**

Spacecraft that will search for planetary systems around 40 million stars and observe the largest explosions in the universe have been chosen as the next two missions in NASA's medium-class Explorer (MIDEX) program. The first mission, to be launched in 2003, is the Swift Gamma Ray Burst Explorer, a three-telescope space observatory for studying gamma ray bursts.

### **NASA selects 290 innovative small business projects**

As part of its mission to encourage the development of new and advanced technologies, NASA has selected 290 research proposals for negotiation of Phase I contract awards for its 1999 small business innovative research program. The total value of the awards is expected to be more than \$20 million. Research will be conducted by 220 firms in 34 states.

In addition to stimulating innovation, the SBIR program aims to increase the number of small businesses, including women-owned and disadvantaged firms, conducting federal research and commercializing the results of federally funded research.

### **NASA watches Antarctic icebox defrost**

For 18 days during the southern hemisphere spring of 1997, a NASA-launched Canadian satellite called RADARSAT collected pieces of a puzzle that will help scientists study the most remote and inaccessible part of the Earth--Antarctica. Scientists now have the puzzle pieces put together, forming the first high-resolution radar map of the mysterious frozen continent.

With detail to the point of picking out a research bungalow on an iceberg, the new map has both answered scientists' questions about the icy continent, and left them scratching their heads about what to make of strange and fascinating features never before seen.

### **Mars meteorite or Mars rock?**

A new study of the carbonite minerals found in a meteorite from Mars shows they were formed about 3.9 billion years ago.

Scientists believe the planet had flowing surface water and warmer temperatures then, making it more Earth-like. The carbonates themselves are tiny deposits--reddish globules, some with purplish centers and many surrounded by white borders. Researchers at NASA's Johnson Space Center in Houston, TX, and the University of Texas at Austin conducted the study using different techniques.

## Team NASA volunteer builds new exhibit for Aerospace Encounter

The Ames Aerospace Encounter (AAE) has just unveiled their newest child-friendly, hands-on exhibit--this one demonstrating the four forces of flight. As part of a 3-hour field trip to the Encounter, students gather

large enough to support the upgrade of existing and development of additional exhibits to enhance the experience of the over 10,000 students, teachers, and parents who attend a field trip during the year.



*Team NASA volunteer Peter Moseley explaining the four forces of flight to a visiting class at the Ames Aerospace Encounter.*

*photo by Lori Burkart*

around the new display and learn about lift, thrust, weight and drag by pulling different cords which move the 3-foot, red and white model airplane in response to the students efforts.

Peter Moseley, Team NASA volunteer and president of the non-profit organization Friends of the Ames Aerospace Encounter, responded to the need expressed by Edith Barr, operations manager of the Ames Aerospace Encounter. He created the design and spent a couple of weeks this summer building the 7 by 7-foot exhibit. He enlisted the help of his friend Kevin Visconti to build the model airplane.

"Our old model for demonstrating this was small and fragile, so we wanted the kids to get to do it themselves without us worrying about something breaking," Moseley said.

The Friends of the Ames Aerospace Encounter has been in existence since 1997. Late last year, they obtained a donation

Volunteers and staff are ecstatic with this much-improved method of demonstrating the basics of flight.

"Hands-on learning is what the Ames Aerospace Encounter is all about. We are really pleased with what Peter, has created, and that the Friends of the Encounter funded this project," Barr said.

"This is the best field trip ever!" is what is regularly heard from students and teachers alike. Dedication shown by volunteers like Peter Moseley and the AAE staff, Edith Barr, Mary Beth Bischoff, and Pati Gagaza has made this happen for the close to 60,000 students who have been fortunate enough to have experienced everything from a simulated space station experience to designing their own airplanes in the seven years of existence of the AAE.

For more information about the AAE, visit their Web site at URL <http://encounter.arc.nasa.gov/>

*BY LORI BURKART*

## Visit by Astronaut Eugene Cernan

One of America's greatest heroes, Astronaut Capt. Eugene Cernan, visited Space Camp on October 7. Cernan was here for a book signing. Capt. Cernan's career spanned the entire Gemini and Apollo programs, from the moment he became the first person to spacewalk all the way around the Earth to the moment when he left the last human footprints on the Moon as commander of Apollo 17. The event was open to the public.



*photo by Dominic Hart*

*Astronaut Eugene Cernan signing an autograph for BJ Navarro's (code SLO) son Manuel.*

### Astrobiology lecture series held

Launching the Astrobiology Lecture Series, Dr. Scott Sandford and John Hines of Ames and Dr. Seth Shostak of the SETI Institute spoke about "Life's Trajectory: From Cosmic Dust to Cosmopolitan" before an East Bay audience at Merritt College in Oakland on September 16. Dr. Dale Cruikshank also took part in the lecture and audience Q&A.

On September 26, the second lecture in the series was held at San Jose City College. Dr. Shostak moderated, and Dr. Emily Holton, Dr. Chris McKay and Dr. David Koch of Ames entertained a South Bay audience with their lecture: "Astrobiology: Looking for Life In All the Right Places."

The final lecture in the series will take place on March 8 at Evergreen Community College in San Jose.



photo by Kathleen Burton

From left to right: Dr. Scott Sandford, John Hines and Dr. Seth Shostak discuss astrobiology at Merritt College in Oakland.

### T-NASA Team wins award

NASA's Taxiway Navigation and Situation Awareness (T-NASA) team recently received the Wright Brothers Medal for their research project.

The award was one of several presented by the Society of Automotive Engineers Inc., (SAE) during a luncheon held October 21 at the World Aviation Congress and Exposition in the Grand Peninsula Ballroom of the Hyatt Regency San Francisco Airport hotel. S. Michael Hudson, a member of the SAE Board of Directors, member of the Society of Automotive Engineers Inc., (SAE) Board of Directors, presented the award to Robert S. McCann of Ames, who accepted it on behalf of the entire team. In addition to McCann, the T-NASA team includes Becky Hooley, Anthony D. Andre, David C. Foyle, Barbara G. Kanki and Bonny Parke.

The award is presented to the authors of the best research paper relating to the invention, development, de-

sign, construction, or operation of an aircraft and/or spacecraft presented at a meeting of the SAE or any of its sections. The team's award-winning research paper is entitled "An Evaluation of the Taxiway Navigation and Situation Awareness (T-NASA) team during a luncheon held Oct. 21 at the World Aviation Congress and Exposition.



Robert S. McCann (left) and David C. Foyle (right) of Ames discuss the Society of Automotive Engineers, Inc., (SAE) Wright Brothers Medal presented to the Taxiway Navigation and Situation Awareness (T-NASA) team during a luncheon held Oct. 21 at the World Aviation Congress and Exposition.



photos courtesy of Bill Doggett

S. Michael Hudson (right) of the Society of Automotive Engineers, Inc., (SAE) presents the Wright Brothers Medal to Robert S. McCann (left). The award ceremony took place at the Hyatt Regency in Burlingame.

gation and Situation Awareness (T-NASA) System in High-Fidelity Simulation," published in October 1998.

"Skip" Fletcher, Director of Aeronautics at Ames and a past president of the American Institute of Aeronautics and Astronautics (AIAA) presented several AIAA awards during the luncheon.

BY MICHAEL MEWHINNEY



# Calendar & Classifieds

## Calendar

**Ames Bowling League** will be starting the 99/00 season at Palo Alto Bowl every Tuesday at 6pm on Sept. 7. The season is 33 weeks long and ends April 25 with a banquet the week after. The league is in need of bowlers to join teams, as well as substitutes. POC: Mina Cappuccio, mcappuccio@mail.arc.nasa.gov, at ext. 4-1313 or Mike Liu, mliu@mail.arc.nasa.gov, at ext. 4-4357.

**Ames Ballroom Dance Club.** Tuesdays: Cha Cha 11/9, Bolero 11/16, 11/23, 11/30. No classes during the month of December. 3 levels of classes, from Beg. to Int., 5:15 - 6:45pm. Moffett Training and Conference Center, Bldg. 3/Showroom. Women dancers are especially encouraged to join. Holiday party will be 12/4, watch for upcoming details! POC: Helen Hwang, hwang@dm1.arc.nasa.gov.

**Model HO/HO3 Railroad Train Club at Moffett Field** invites train buffs to visit and join the club in Bldg. 126, across from the south end of Hangar One. The club is in particular need of low voltage electricians and scenery builders and 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 (W) or (408) 281-2899 (H).

**Jestream Toastmasters,** Mondays, 12 noon to 1 p.m., N-269/Rm. 179. Guests welcome. POC: Samson Cheung 4-2875 or Lich Tran 4-5997.

**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.

**Ames Sailing Club Meeting,** Nov 10, 11:30 a.m. to 1 p.m., N-262/Rm. 100. POC: Stan Phillips, ext. 4-3530.

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

**NFFE Local 997 Union General Meeting,** Nov 17, noon to 1 p.m., Bldg. 19/Rm. 2017. Guests welcome. POC: Marianne Mosher at ext. 4-4055.

**Ames Amateur Radio Club,** Nov 18, 12 noon, N-260/ Conf. Rm. POC: Mike Herrick, K6EAA at ext. 4-5477.

**Ames Asian American Pacific Islander Advisory Group Meeting,** Nov 18, 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.

**Native American Advisory Committee Mtg,** Nov 23, 12 noon to 1 p.m., Ames Cafe. POC: Mike Liu at ext. 4-2345.

**Ames Contractor Council Meeting,** Dec 1, 11 a.m., N-200 Comm. Rm. POC: Jack Stanley at ext. 4-2345.

**Environmental, Health and Safety Monthly Information Forum,** Dec 2, 8:30 a.m. to 9:30 a.m., Bldg. 19/Rm 1078. POC: Linda Vrelab at ext. 4-0924.

**Hispanic Advisory Committee for Employees,** Dec 2, 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,** Dec 2, 11:30 a.m. to 12:30 p.m. POC: Robert Finnie at ext. 4-5230. Contact Robert for meeting place.

**Nat'l Association of Retired Federal Employees, San Jose Chapter #50, Meeting,** Dec 3, 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 NAREF 1-800-627-3394.

## Ames Classifieds

Ads for the next issue should be sent to [astrogram@mail.arc.nasa.gov](mailto:astrogram@mail.arc.nasa.gov) by the Monday 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; Ames extensions and email addresses will be accepted for carpool and lost & 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

Roommate wanted to share 3bd/2ba house in Sunnyvale (near Lawrence Exp. and 101). \$740/mo & utils. Available 10/15. Duc (408) 732-7751.

Room available in a 2 bd/2ba luxury condo at Stevens Creek/Lawrence Exp. The rent is \$575 per month, \$500 dep, plus 1/2 utils. Easy access to major H280, 101, 880, 85. Washer & dryer available for sharing in unit. Kitchen privileges included. Secured access to building. Call (408) 261-2747 For more info.

Roommate wanted (N/S, prof) to share a great, sunny, 2 mstr bd/2 ba end-unit condo (Sunnyvale) with gar, W/D, lrge rooms, storage, central air, low/mod utils, jac/pool, balcony, 3 mi from Ames, \$675 plus 1/2 utils (approx \$25). Steve (408) 737-1924.

N/S, M/F professional to share 2bd/1.5 ba Mt. View townhouse; open garage, patio, quiet area, near 237 and hwy 85, 10 mins from Ames, close to Luckys and El Camino Real. \$650/mo + utils. Available after December 15. Frances (650) 969-6116.

### Transportation

'83 Peugeot 505, A/T, A/C, C/C, P/W, \$1,800. '84 Toyota Mini-Van (7 pass.), A/T, A/C, C/C, \$2,500. Call (831) 751-6247.

'84 BMW 7331, Clean, excellent running condition. Well maintained vehicle. Motor and transmission in excellent running condition. New tires, front brakes 1 year old. Fully loaded, sun roof, newer paint. Needs some electrical work and rear brake overhaul. Asking \$5,000. Lynn or Dale (408) 727-9432 (evenings or weekends only).

'85 Mitsubishi 4WD Pickup, 103K miles, original owner, BacPac shell, Sony pop-out stereo, PS, grill guard, new carburetor & fuel pump, straight body. \$3,500 or B/O. Call (408) 945-3917, or e-mail: nengim@svpal.org

'86 Ford Thunderbird, good condition, runs well. \$2,000. Call (650) 712-8382.

'90 Ford Mustang Conv. 5sp, 2.3L, AC, PW, PS, AM/FM/cas, new white top on burgundy. Runs great! Excell. Paint and cond. 91K mls. Asking \$4,600 or B/O. Call (408) 304-6005.

'93 VW Jetta, 79K mls, white, pwr steer & brakes, pwrlocks, moonroof. \$6,500. Rudi or Mark (650) 400-6044.

'94 Husaberg 600 dual sport, CA licensed, well maintained, many extras, \$3,750 or B/O. Bruce (650) 563-9140.

'95 Chevy Blazer LT 4X4, loaded w/leather interior, A/C, cruise control, tilt wheel, roof rack, ABS, 6-way power driver seat, privacy glass, remote key entry. New tires, shocks, fresh tune-up & more. Asking \$14,500/or B/O. Bob (408) 736-4039.

'95 Camaro Z28, teal, T-top w/ grey interior, Excellent condition, new performance tires, alarm, CD, power locks & windows, just detailed, 67K mls, \$11,500. Call (650) 965-3458.

### Miscellaneous

Face painting by Marsha for on-site events, birthday parties, etc. Call (650) 321-9244.

Separate or together practically new mens' ski boots --Salomon SX92 (350/55), Salomon bindings #857 Salomon K2--5500 Unltd. (195) Reflex poles (52"), nylon carrycase. Mary (650) 961-9629 eves.

Just in time for winter! More challenging than a snowboard or skis, be the first to master a MONOSKI. Go everywhere the skiers go with this unique piece of equipment. Custom made in Switzerland and expertly designed. Boots, poles and bindings included. \$500 or B/O. Janet (650) 565-0016 eves or lv msg.

Woman's hybrid bicycle, 1999 model Trek 7500, excellent condition. Original cost \$550, asking \$300. Karen (408) 369-8509.

Sony cordless phone, white, 10-channel. \$15. Call (408) 295-2160.

Digital answering machine (requires no tapes), black. \$15. Call (408) 295-2160.

Furniture for sale: dresser (6'x 1.5') with matching mirror and nightstand, \$300; child's desk and bookcase, \$50; Nordik Track "WalkFit" treadmill, \$400. Ken (415) 386-6881.

Moving sale: GE side-by-side refrig. w/ice maker & water, \$150; RCA swivel console TV \$85; Matag washer and dryer, \$45 ea.; GE Spacesaver microwave (w/ mounting brackets), \$75; Den/Library system, versatile, 6 pieces, drk. cherry, \$675; desk/hutch, solid oak, \$125; 70's Cost Plus Mexican furniture, several pieces, (call); patio table/4 chairs, 2 sets, \$100 ea., one umbrella and stand, \$45. Call (650) 941-2784.

Computer system. 225 mhz (604e) PowerTower Pro, 2GB HD, internal zip, Mac OS 8.0 and misc. SW, 17" monitor, 56k external modem, Epson 600 color printer; \$1,250. Call (650) 941-2784 eves.

Leather furniture. Three pieces. Light grey color. Very good condition. 8' foot couch, love seat, and swivel/rocker recliner. \$3,300. Shirley (408) 777-8048.

Exercise equipment. Trimax. Originally \$1,000 sell \$300 or B/O. Used little. Also, step/climb machine \$35. Shirley (408) 777-8048.

Wanted to buy, used American Mah Jongg set. Marti (408) 252-8379.

Loft bed, child's (<150lbs) black tubular metal frame loft bed with study-desk & shelves. \$250. Call (650) 856-7985.

Couch/love seat (6ft) white, clean, new, folds out to floor mattress. \$85; microwave, small, good for office, \$30. Call (831) 427-2788.

Frigidare side-by-side 25 cu.ft white refrigerator/ freezer. Excellent condition. New was \$1,200--will sell for \$500. Used moving boxes in good condition (all sizes) half orig price. Dining room set, distressed medium oak w/4 armed chairs, excellent condition, \$300. Many other household items. Call if looking for something specific. Call (650) 712-8382.

Pool table (full size), green felt, all wood venir with slate table. Great shape, includes 7 cue sticks, chalk, rack, balls, wall mountable cue stick rack, and brush \$550 or B/O. Ken (408) 446-0208 after 6 p.m.

Bedroom set includes: 2-night stands, dresser w/ large mirror & large drawers & storage cabinets on the side, armoire, & headboard. Color: black, gold, & green. \$1,000 or B/O. Very good condition. Almost new. Call (510) 490-1349.

5 year old box turtle and cage for sale. Makes a great pet and easy to take care of. Josh (650) 962-0963.

Combination pull-up bar/dip bar/push-up bar exercise station. \$25. Call (408) 945-3917 or nengim@svpal.org

Large black side-by-side fridge, with all the top features. Used only 1 year. \$1,300 new. \$800 or B/O. Jeff (650) 964-0496.

### Vacation rental

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

## 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](mailto:astrogram@mail.arc.nasa.gov) on or before the deadline.

DEADLINE	PUBLICATION
TUES, NOV 9	MON, NOV 22
TUES, NOV 23	MON, DEC 6
TUES, DEC 7	MON, DEC 20

## Events & Miscellaneous

### Computational workshop set

The fifth High-Performance Computing and Communications/Computational Aerosciences workshop will be held February 15-17, 2000, at Ames. The workshop will focus on the elements that comprise the computational methods and applications associated with aerospace, Earth and space science. Team NASA volunteer Peter Moseley will explain the four forces of flight to a visiting class at the Ames Aerospace Encounter as well as other areas of interest to NASA.

For more information on the workshop registration form, visit the web at <http://cas.arc.nasa.gov/CAS2000.html>

### Learn to scuba dive today!

The NASA pool facility is host to a full spectrum of scuba training. Training includes bubble makers (for young divers), discover scuba, open water diver, OW refresher training, advanced diver and rescue diver. Have you planned your vacation? With home study, the accelerated program will have you certified in less than two weeks. Private and semi-private classes with PADI and/or NAUI certifications are offered. Avoid the commuter traffic and enjoy the NASA pool after working hours. Call Douglas Denhan at (408) 353-1826 for pricing and discount information.

### Doctors without Borders wins Nobel Peace Prize

Doctors without Borders, a Combined Federal Campaign charity, won this year's Nobel Peace Prize. This is a group of medical volunteers who respond to war, famine and disease throughout the world and work in primitive or dangerous conditions. Rachel King, 34, of Mill Valley, is a public health professional who has put in six years in Uganda and Burma working for Doctors without Borders. Awaiting the birth of her first child, who is due in a couple of weeks, King plans to go on another mission in January, this time with the baby!

At the CFC thank-you/awards ceremony, Ames CFC will recognize Rachel's work in utilizing contributions from CFC and other donors in making a dramatic difference in the world--curing the sick and saving lives. They will also be recognizing the donors and the keyworkers contributing to CFC during this event that will take place on November 30 at 2 p.m. in the main auditorium in Building N201.

### Annual health fair

The Federal Employees Health Benefit (FEHB) annual health fair will be held on Tuesday, November 9, in the atrium of the Ames Café from 9:00 a.m. to 3:00 p.m. All federal employees are invited to attend. Health plan representatives for the FEHB plans will be available to answer questions and provide information on the coverage offered for next year. For more information, contact Lita Que at email [lque@mail.arc.nasa.gov](mailto:lque@mail.arc.nasa.gov) or ext. 4-1019.

### Ames Exchange swimming pool winter hours

The Ames Exchange swimming pool is open year round for lap swimming. The pool is also available for group activities and parties. It is heated and ready for you to enjoy!

Hours are as follows:

Mon-Fri 10:00 a.m. to 1:00 p.m.  
3:30 p.m. to 6:00 p.m.

### Thanksgiving at the Ames Café

On Thursday, November 18, the Ames Café is offering a Thanksgiving holiday meal with all the trimmings including pumpkin pie for dessert. Come share the spirit of the holiday. The Thanksgiving meal will be served from 11:00 a.m. to 1:30 p.m. and will cost only \$4.75.

### THE AMES *Astrogram*

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

**Managing Editor.....David Morse**  
**Editor.....Astrid Terlep**

We can be reached via email at:  
[astrogram@mail.arc.nasa.gov](mailto:astrogram@mail.arc.nasa.gov) or by phone  
(650) 604-3347

## THE AMES *Astrogram*

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