

## Earth Day '99 exposition to be held at Ames

Beginning in 1970, under the auspices of former senator Gaylord Nelson, Earth Day was created to draw people's attention to the global environmental crisis. Utilizing the concept of teach-ins from the anti-war movement in the 70s, Nelson proposed an environmental teach-in across college campuses. In a speech given in September of 1969, he announced a national environmental teach-in would take place in the spring 1970. The message spread like wildfire, and people flooded his office with phone calls, letters and telegrams. The first Earth Day rallied 20 million Americans and has grown into an international affair. Since its formation, Earth Day has been a successful platform for educating people worldwide about environmental problems and solutions.

Since its inception, Earth Day has been celebrated in many ways around the globe. In France, hundreds of people formed a 500-mile human chain along the Loire river to honor one of Europe's last clean rivers. A

group of Chinese, Russian and American mountain climbers cleaned up Mount Everest. They collected more than two tons of trash that had been left by pre-

*"The clearest way into the universe is through a forest wilderness" --John Muir*

vious expeditions. In Tokyo Bay, 35,000 Japanese environmentalists congregated on Dream Island, a storage place for garbage, to start a recycling center. In the United States, we have celebrated Earth Day by conducting clean-ups, restoration projects, parades, fairs, conferences and concerts.

On April 22, the Ames Environmental Services Office will be hosting the exposition "Transportation for the New Millennium" to promote a cleaner environment and to educate people about environmen-

tal issues. We invite you to come to see and ride the latest electric vehicles and bikes, learn about alternative fuels, find out about mass transit and carpooling opportunities and learn how you can preserve the Earth. Join us in Hangar 1 from 10 a.m. until 3 p.m. As the noted anthropologist Margaret Mead once said, "Never doubt that a small group of committed people can change the world. Indeed, it's the only thing that ever has."



Indeed, it's the only thing that ever has."

BY MICHELLE PERRY

## Engineer volunteers needed

Ames is celebrating National Engineers Week (NEW) through April 16. To date, we have more than 70 requests from schools (representing more than 3000 students) who are eager to hear from NASA. The number of requests is still growing--we need more volunteers!

There is a competition among all one letter codes at the center to see which organization steps forward to provide the most support for this educational outreach program. In order for your presentation to count towards your code's total, your talk must be booked by April 16.

Contact Brenda Collins at ext. 4-3540 to schedule your participation with a local school, or to learn more about this fantastic program. For a list of schools requesting speakers, and for more information and updates, please visit our website at: <http://eweek.arc.nasa.gov/>

Participation in NEW represents a very minor commitment that yields a huge return on time invested to our children, educators in the local community and Ames volunteers alike. Please help reach local communities, schools and children, while simultaneously showing pride in your own Ames organization.

## Shirley Temple Black inspires female youth

On March 27, Shirley Temple Black visited Ames Research Center to participate in NASA Quest's Female Frontiers project. Female Frontiers is an Internet-based project serving the educational community by encouraging young people to pursue various careers. The project features online chats with prominent women who are firsts in their fields, including Pat Cowings, first female scientist trained to be an astronaut; Kate Mulgrew, first female starship captain in the history of prime-time television; Libby Riddles, first female to win the Iditerod race; and Mae Jemison, first African-American woman to fly in Space.

Shirley Temple Black was the first female U.S. Chief Protocol and first child actress to win an Academy Award. She conducted a lively one-hour chat with students worldwide and discussed her time as Chief Protocol, U.S. Delegate to the United Nations, member of the U.S. Citizens' Space Task Force, U.S. Ambassador to the republic of Ghana and U.S. Ambassador to Czechoslovakia. When asked if she ever

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photo by Dominic Hart

Ron Gerdes, Syre employee at Ames, shows Shirley Temple Black (right) around the vertical motion simulator during her visit at Ames.



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Ames ISO Web-site address:  
<http://dqa.arc.nasa.gov/iso9000>

## Where do we go from here?

Today Ames stands on the verge of the ISO 9001 certification assessment. All audits have been completed, and shortly all the Corrective Action Requests (CARs) will have been issued.

Two more weeks remain, and how do we use the remaining time productively? With this remaining time you need to:

a) Know the Ames quality policy and how it is supported in your activities. It's not enough to be able to repeat this policy; you must be able to state how the policy impacts your work-related activities. The ISO standard requires that the policy is understood, implemented and maintained at all levels of the organization. The auditor will ask questions about the policy in order to measure executive management leadership and commitment.

b) Be able to demonstrate your process to an auditor. ISO is founded on the principle that a process accomplishes all work. The auditors, Del Norte Veritas (DNV), will evaluate these processes to determine that:

- processes are defined, and procedures are appropriately documented,
- processes are fully deployed and implemented as documented,
- processes are effective in providing the expected results, and
- records provide evidence that documented processes are being followed and will be followed once the assessment is complete.

c) Know how to use the web. If your procedures are on the web, be prepared to demonstrate web usage. If your procedures are not on the web, be able to show that your documents are current by the use of your master list.

b) Know our documentation. All Ames employees should know their documentation and be able to reference sections of it. They should be able to show and demonstrate the sections of documents that apply to their jobs. Documentation should be on hand and readily retrievable as would any other job-related document. All employees should take the time to close their doors and actually spend an hour or so reading pertinent documentation. Use a yellow highlighter to mark all the "shalls" in the documentation. Determine the appropriate answers to questions posed by these "shalls." Know if these documents generate any quality records and if so where they are located.

Remember, ISO documentation is a living, breathing thing and, as organizations grow and change, so should their documentation. ISO documentation demands attention just as any organizational documentation requires documentation. Also, remember that about every five years the standards undergo revising. These revisions will need to be addressed in each

organization's ISO quality management system if it is to remain current. Most organizations have monthly group meetings. They could be an ideal forum to review ISO documents.

External documents abound in most of organizations at Ames. Some groups have dealt with the issue effectively, such as division FE, while others are still wrestling with this issue. The standard requires the supplier to establish and maintain documented procedures to control documents of external origin, such as standards and customer drawings. Control of external documents is limited because we cannot control the revision of these documents. Ames can however, control the use and amendment of external documents. Organizations can control use by specifying which versions of external documents are to be used and can remove invalid or obsolete external documents from use, or identify them so users know that they are invalid or obsolete.

Know how documents are modified. If documents exist that are at a revision other than the initial release, you may be asked questions about the process of amending documents. Take the time to know the document release and control procedure.

d) Records are the acid proof of an activity being conducted. An auditor will, at best, have an hour with each auditee. Auditors will look to see if records of activities are readily retrievable, under organized control, readable, filled, assessable, organized in some system that makes sense to the auditee, retained for some defined length of time, etc. The secret to understanding the importance of records is that, without them, there is no objective evidence that an activity is being done in the long term. Remember, the certification is a compliance audit, and the auditee has the responsibility to demonstrate compliance. The auditor should not have to search for it.

Recently, the Automotive Industry Action Group published its results of a quality survey of 208 companies that implemented the automotive standard QS-9000. Results of this survey listed the following as the most difficult sections of the standard to implement.

• Document Control	55.4%
• Process Control	33.2%
• Design Control	24.6%
• Management Responsibility	23.5%
• Corrective & Preventative Action	19.8%

Taking into account that QS-9000 has a few more requirements than ISO 9000, the difficulties listed are common to both standards and give us some idea of the problems documented in certification assessments. This study shows most certification problems stem from documentation and

process issues.

During the April certification assessment, DNV will be paying close attention to management reviews, corrective and preventative actions, internal audits and training. These engines drive ISO compliance with effective education of all concerned parties as the fuel that drives these essential factors. If these issues are addressed and functioning properly, Ames should pass the certification assessment.

Lastly, be confident. It is your system. The purpose of the audit is to collect objective evidence about the effectiveness of the quality systems. Systems can be as complex or as simple as they need to be. Each organization determines the nature of the system; third parties do not determine the nature of Ames' system. As long as the system is defined, documented, implemented and effective, certification will be granted.

BY RICK SERRANO AND DAVE ZIMMER



## SDB forum held

Ames hosted its annual Small Disadvantaged Business (SDB) forum on March 25, the twenty-first in a series held at the four NASA research centers. The purpose of the forum is to allow highly qualified high-tech, small, disadvantaged businesses to present their capabilities, and answer questions from a technically-oriented audience.

These SDBs participated in the forum: (1) Intelligent Light, Lakehurst, NJ, whose expertise includes visualization and analysis software and computational fluid dynamics (CFD) post-processing; (2) Paragon Research Associates, Hampton, VA, whose capabilities include aerospace research and development, CFD, graphical user interface and wind tunnel testing; (3) Analytical Services and Materials, Inc., Hampton, VA, whose specialties include aeronautical engineering, atmospheric sciences, CFD, structures, and materials; (4) User Technology Associates, Inc., Arlington, VA, whose focus emphasizes high performance computing advanced information technology; and (5) Pal Consultants, Inc., San Jose, CA, which has special expertise in system engineering, human factors, life sciences, energy, and environment.

William Berry, Deputy Center Director, made welcoming remarks and introduced Elizabeth Edwards, the NASA Headquarters representative from the Office of Aero-Space Technology. Guests included personnel from large prime contractors, women-owned businesses and SDBs.

## Center Briefs

### Space-age technology peeks at American history

A team of NASA scientists working at the request of the National Archives has proved that the containers preserving several pages of the U.S. Constitution are still safely sealed.

Scientists from NASA's Langley Research Center, Hampton, VA, adapted a laser system from an atmospheric research program to peer into the encasements protecting three of the five pages of the Constitution. In the early 1950s, the Constitution was sealed in specially prepared containers, that were filled with humidified helium to protect the documents. By analyzing how water vapor in the containers absorbed the laser beam, the scientists determined that the atmosphere had not changed.

### Huge spring storms rouse Uranus from Winter hibernation

If springtime on Earth were anything like it will be on Uranus, we would be experiencing waves of massive storms, each one covering the country from Kansas to New York, with temperatures of 300 degrees below zero. A dramatic new time-lapse movie made from NASA Hubble Space Telescope images shows for the first time seasonal changes on the planet. No one has ever seen this view in the modern era of astronomy because of the long year of Uranus—more than 84 Earth years. Uranus is now revealed as a dynamic world with the brightest clouds in the outer Solar System and a fragile ring system that wobbles like an unbalanced wagon wheel.

### NASA announces field center name change

NASA Administrator Daniel S. Goldin on March 1 officially changed the name of the Lewis Research Center, Cleveland, OH, to the John H. Glenn Research Center at Lewis Field.

"I cannot think of a better way to pay tribute to two of Ohio's famous names—one an aeronautic researcher and the other an astronaut legend and lawmaker—than by naming a NASA research center after them," said Goldin.

### NASA experiment lays groundwork for 'Living off the Land' on Mars

NASA engineers have laid the groundwork for 'living off the land' on Mars by extracting oxygen from a simulated Martian atmosphere. Producing oxygen using materials readily available on Mars could reduce the amount of materials that would need to accompany a human mission to the Red Planet.

The synthesized oxygen could be used for breathing air or as propellant to send samples and astronauts back to Earth. This week, NASA conducted experiments as an initial test of technology that will be aboard the Mars Surveyor 2001 Lander, scheduled to launch April 10, 2001.

## Dr. Helen Caldicott to speak at Ames on Earth Day

Dr. Helen Caldicott, an articulate and passionate advocate of citizen action to remedy nuclear and environmental crises, will speak at Ames on Earth Day, Thursday, April 22. The event, "A Woman Physician Looks to the 21<sup>st</sup> Century," will take place in the main auditorium, building N201 at 1:30 p.m. It is co-sponsored by the Multicultural Leadership Council, advisory groups, and Ames Federal Employees Union.

Dr. Caldicott has devoted the last 25 years to an international campaign to educate the public about the medical hazards of the nuclear age, and the changes in human behavior necessary to stop environmental destruction. While living in the United States from 1977 to 1986, she founded Physicians for Social Responsibility, an organization of 23,000 doctors committed to educating their colleagues about the dangers of nuclear power, nuclear weapons and nuclear war. On trips abroad, she helped start similar medical organizations in many other countries. The international umbrella group (International Physicians for the Prevention of Nuclear War) won the Nobel Peace Prize in 1985. She also founded Women's Action for Nuclear Disarmament (WAND) in the

U.S. in 1980. Returning to Australia in 1987, Dr. Caldicott ran for Federal Parliament as an independent but lost the election by 600 votes out of 70,000 cast. She has received many prizes and awards for her work, including 17 honorary degrees, and was personally nominated for the Nobel Peace Prize by Linus Pauling—himself a Nobel Laureate. She has written for numerous publications and has authored four books including "A Desperate Passion: An Autobiography" in 1996. She also has been the subject of several films, including "Eight Minutes to Midnight," nominated for an Academy Award in 1982, and "If You Love This



Dr. Caldicott as pictured on her book, *A Desperate Passion*.

Planet," which won the Academy Award for best documentary in 1983. Dr. Caldicott was an instructor in pediatrics at Harvard Medical School, specializing in cystic fibrosis, and on the staff of the Children's Hospital Medical Center, Boston, MA, until 1980 when she resigned to work full time on the prevention of nuclear war. She founded the Cystic Fibrosis Clinic at the Adelaide Children's Hospital in 1975. She returned to the practice of pediatrics in 1997.

## Chi running clinics scheduled

The Chi Running Clinics, presented by Daniel Dreyer, will introduce a new running style designed to take the load off those joints and increase running efficiency. These are being sponsored by the NASA Fitness Center and will be held April 15 from 11:30 a.m. to 1:00 p.m. and also on April 22 from 4:30 p.m. to 6 p.m.

Several Ames runners have taken the Chi Running Clinic and have found the new running technique to be very helpful. Tom Trower of Ames said that "When I first tried the technique on my home course, I found that the run seemed easier on my muscles and required less breathing to do the same work. It felt a little like cheating because I wasn't working hard enough."

To sign up, contact Nancy Dunagan at ext. 4-5804 or send an email to: ndunagan@mail.arc.nasa.gov. Meet outside the Fitness Center dressed to run for the clinic. Class size is limited, so don't put off registering for this free clinic.

## Deja Vu?



photo by Scott Eddleton

Cross streets recently renamed at the John H. Glenn Research Center at Lewis Field suggest a definite "Amesian" heritage. It is not clear if Glenn employees are actually required to STOP at the intersection of Ames and Moffett though, no doubt, they might like to do so.

## Life in Moscow

*Editors Note: This is part II of our colleague Ann Hutchison's messages sent "home" from her temporary NASA assignment in Moscow, Russian Federation.*

Recently, I made my initial trip of this visit to Izmailovo, the large arts and crafts market in the northwest part of Moscow where both Russians and visitors alike shop. First, I visited the grounds of the ancient former summer residence on Izmailovo island. This is where I encountered a mother dog and 8 newborn puppies on my last visit. Of course, no trace of them or their shelter remained, but I walked around for a while. A wet snow was falling, but it wasn't too cold. Two dogs came running when they saw me, a small black one that looked like a very young dog, and a larger, tan and white dog. I offered them some dog food, which they eagerly accepted. The black dog was rather skittish, but the larger one was very friendly and gently ate food from my hand. After they had their fill, I walked back to the shopping area and paid the 2-ruble (less than ten cents) admission fee.

The marketplace is larger than it used to be. I managed to buy a set of four small brass bells painted with various Russian scenes and a thimble. I also bought a small "Faberge" egg pendant, and a tablecloth and six matching napkins. Most of the vendors are located in new, wooden, open-front shops, but a few wander the aisles selling items.

Taking care of the necessities of daily life in Moscow is quite time-consuming. One can buy at the market only what you are willing and able to carry. This means trips to the store several times a week. Going anywhere on the Metro takes at least 30 minutes and requires several changes of trains. So, life in Moscow requires planning and consolidation of trips.

I am struck by the lack of color in this city — gray buildings, gray sky, white snow. I stopped at a red light and noticed a sea of people in black, dark blue and dark brown coats crossing the street. Once in a while a colorful bus, usually adorned with a brightly painted advertisement, breaks up the monotony. Maybe this lack of color, combined with the grayness of the winters here, is the reason why houses in the country are often painted in a variety of bright colors — bright blue, turquoise, lime green, bright green or even orange. Even the lights are dim here. Apartment lights barely illuminate the room, and vehicle headlights are likewise dim.

I ate lunch in the cafeteria again today

— a beet and vinaigrette salad, hot tea and zharkoe, a hot stew in a ceramic pot. For dessert I tried a Russian ice cream cone. Russians really love ice cream; there are stands all over Moscow and I see Russians walking down the street eating ice cream all the time. The total cost for my meal was 31.25 rubes, about \$1.30. I tried to pay with a 50-ruble coin, but the cashier refused to take it. Apparently, the 50-ruble coin is no longer in circulation. 50-ruble notes are fine, but not the coins, which are nothing more than souvenirs now.

With the bad weather, I find myself pacing around the apartment in the evenings. It is too nasty to be outside, and there's nothing on television worth watching. I really miss getting the local news and reading the daily paper, as well as my daily run. I did manage to climb the 9 flights of stairs between my apartment and the ground floor twice this evening. I guess that will be my exercise from now on. Not exciting, but better than none.

I'm amazed when I look at the stores that nearly all of them have no specific names. A store sign will say simply "Groceries" or "House of Shoes" or "Furniture." This appears to be a holdover from the Soviet era when private businesses were largely forbidden. Entrepreneurship is alive and well, however, in the many kiosks selling flowers, food, drinks and other commodities. There is an entire "underground" economy in the tunnels leading to the city's many Metro stations.

Moscow is a very large (nearly 10 million residents), old (founded 852 years ago), and rather ugly city with the occasional bright spot — primarily its old cathedrals and other ancient buildings. Most are in a severe state of disrepair and neglect. The Kremlin cathedrals are well maintained, and the Russians are working on renovating some churches, as money becomes available. It's a pity to see such treasures in such deplorable condition. Stalin even had many cathedrals blown up during his reign.

Although the city has a bad air pollution problem, people try to keep things clean. Sidewalks in front of hotels and stores are shoveled or swept clear with brooms. This morning as I was walking up the stairs in the hotel I passed a maid mopping the stairs. I have seen women scrubbing the front of buildings to remove the ever-present slush that results from the periodic thawing of the snow that becomes very dirty from all the traffic.

Learning to work with the Russians is challenging. Americans want information or an answer right now. Russians don't get excited about things until closer to the

actual deadline. When we ask for information, the usual response is "It can't be provided" or "It will take some time to do that." Nothing is done in a hurry. Personal relationships are critical to success in doing anything over here.

Today, I stopped by a small store to buy a chocolate cake (small, single-layer) for 27 rubles (\$1.05). I've bought cakes from Russian shops before, and they have always been very good. They are different from American cakes; they are more pudding-like or creamy and must be refrigerated. The label says it will keep for "36," but it doesn't say 36 what (days? hours?).

I was surprised recently to see an entire room in a store devoted to personal and household items: toothpaste, soap, furniture polish, etc., even toilet paper, which for years was impossible to buy here. I guess that's progress. This little shop has several small rooms: one for alcoholic drinks, one for meat, one for fruits and vegetables, another for pasta, rice and soups, etc. Many western brands are now available. Coke and Pepsi are everywhere, and Japanese electronics and American items are not hard to find. I hope the Russians don't lose their national identity due to the invasion of foreign products. The world is becoming so homogeneous!

I went to Energia today to discuss plans for the unveiling of the Service Module that they are building. I got a tour of the test and integration area where the SM is being manufactured, although I didn't get to go inside the module itself. Also, I saw the next Progress resupply ship being assembled, as well as a mock-up of the Mir used for crew training. I checked out the room where the SM will be moved prior to being transported by rail to Baikonur.

I got a private tour of the Energia museum, which is full of photographs and artifacts of the Soviet and Russian space programs. The first room was filled with awards and gifts from the Soviet and other governments, as well as photographs of the cosmonauts who later worked for Energia. Next came a balcony-type area that contained mock-ups of early Soviet spacecraft, including Sputnik, the world's first artificial satellite, and a capsule like the one that flew the first living animal into space. That first animal was a dog named Laika, who died just a day into her flight. Other satellites were used for geophysical studies and lunar and venusian research.

Actual Vostok and Voskhod space capsules were found in the main exhibit hall. The pride of the museum is the actual capsule in which Yuri Gagarin became the

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photo by Tom Trower

NASA Ames employees were invited to see the full-scale replica of the historic 1903 Wright Flyer in the 40-foot by 80-foot test section of the National Full-Scale Aerodynamics Complex (NFAC) wind tunnel on March 18

## Wright Flyer on display



photo by Dominic Hart

The 1999 Astronaut Candidate Class pose with the Wright Flyer during a recent visit to Ames. Each year, the newly nominated group tours all of the Agency's Field installations to develop a deeper understanding of their roles within the overall NASA mission.

## It's electric!

"Sorry, I'll be a little late for work this morning. I forgot to plug in my car last night." Sound far-fetched? Not really. Electric cars are the latest in environmentally friendly transportation.

What is an electric car? An electric car or vehicle (EV) is powered by an electric motor rather than a combustion engine. EVs offer comparable acceleration, speed, comfort and safety to conventional cars. Most EVs can go as fast as 60 to 80 miles per hour. EVs use electricity for power, storing it in batteries, instead of using gasoline and other non-renewable resources. Using from 12 to 24 batteries, each 6 to 12 volts, EVs are usually charged overnight and can power the average commuter's car for a day. With battery technology improving, charging times are decreasing. Some EVs can be plugged directly into a regular electrical wall outlet, while others need a larger outlet like one for a stove or clothes dryer.

There are many advantages to driving an electric car. For example, EVs do not require the same maintenance as conventional cars. There are no tune-ups, oil or

muffler changes normally needed which, for a conventional car, work that cost about \$300 to \$500 per year. Annual maintenance for an EV is close to nil. EV motors only require a periodic change of brushes, costing about \$100. Plus, an electric motor has an almost infinite life span. However, EV batteries do need to be changed about every 20,000 miles.

Most importantly, EVs are good for the environment. EVs have zero emissions and do not require coolant, oil or gas. Further, an electric motor provides energy more efficiently than a combustion engine, because no energy is wasted when the car is sitting in traffic. The motor essentially stops. For comparison, EVs conserve 100% of their energy, and about 72 million gallons of gasoline are consumed annually by commuters sitting in traffic in Los Angeles alone.

To commemorate Earth Day, check out the latest technology in electric vehicles on April 22 in Hangar 1. Find out why electric vehicles are a viable alternative to today's American "gas guzzlers." See some of the newest models from the big auto manufac-

turers such as the GM EV1, Ford Ranger EV, Sparrow, Nissan Altra, Toyota RAV-4 and the Solectria. Oh, one more thing. The advent of EVs means no more waiting in line at the DMV for that smog check!

BY MICHELLE PERRY 

## Used children's clothing and toys needed

Used children's clothing and toys are needed for destitute children found afloat in the Caribbean. Bob Whitten of Ames is gathering used children's clothing and toys for use by the U.S. Coast Guard when they pick up refugees adrift on small unseaworthy crafts in Caribbean and Gulf of Mexico waters.

Whitten is collecting things for children as part of a Navy League of the United States project, a tax-deductible 501(c)(3) organization.

Whitten, ext. 4-0856, will pay shipping charges and will provide receipts on Navy League stationery for tax purposes.

## Ames Tiltrotor

Ames' Tilt Rotor Aeroacoustic Model (TRAM) team has been selected as the winner of the American Helicopter Society (AHS) International Society's 1998 Grover E. Bell Award. It is given to the person or persons making an outstanding contribution to the rotary wing development field during the past year.

The Bell Award recognizes the accomplishments of the Ames team in the preparation, conduct and reporting of the 1998 1/4-scale, V-22 Osprey isolated rotor test. The program was conducted in the Duits-Nederlandse Windtunnel (DNW) in the Netherlands. Larry Young of the Aeromechanics Branch (Code ARA) of the Army/NASA Rotorcraft division is the program director.

The Tilt Rotor Aeroacoustic Model (TRAM) Team, under the leadership of Dr. Gloria Yamauchi, successfully conducted the first pressure-instrumented tilt rotor model experiment in the world this past year. This was the first research test with the TRAM model designed and built by Microcraft/Boeing. The DNW team included active participation from NASA Ames and Langley staff, the U.S. Army Aeroflightdynamics Directorate, and Boeing Helicopters. The U.S. Army provided the majority of the tunnel test time at no cost to the project.

The TRAM team successfully executed the first experimental investigation of the

fundamental aerodynamics and acoustics of a tilt rotor. This new type of aircraft holds great promise for improving the capacity of the national airspace system. With the ability to take-off and land like a helicopter, yet fly at turboprop cruise speeds, the tilt rotor may someday carry the majority of short-haul inter-city air traffic. However, to take advantage of such potential, tilt rotor aircraft must be designed to be safe, aerodynamically efficient and quiet.

Prior to this program, researchers, rotorcraft designers and airframe manufacturers had no rotor aerodynamic airloading data to validate current methodologies or to begin to understand the details of tilt rotor noise generation and radiation. While many studies have been made on helicopter wake system generation and evolution, no tilt rotor wake measurements had ever been made prior to this program in the critical descent operating mode. That is the time when rotor noise is the highest and, therefore, community annoyance the greatest.

This program is a key part of the NASA aviation system capacity program led by Ames' Dr. J. Victor Lebacqz. It is conducted in close coordination with the U.S. rotorcraft industry through the short haul (civil tiltrotor) portion of the capacity program under Frank Aguilera (also at Ames.) By understanding rotor noise mechanisms for tilt rotors, significant noise reductions will

be enabled for future generation tilt rotor aircraft.

The program involved the development of a unique 1/4-scale model of an isolated V-22 Osprey rotor set. The experimental effort was completed in spring 1998. The results from the program are already being heavily used by U.S. industry (Boeing, Bell, and Sikorsky) and government engineers to improve design tools for future, quiet tilt rotor aircraft. Team membership included Ames and Langley, U.S. Army, Boeing, Raytheon and other contractor personnel. The complete success of this program directly feeds into the full-span TRAM V-22 test program in the Ames National Full-Scale Aerodynamics Complex in 1999. This program will provide the first aeroacoustic evaluation of a complete tilt rotor aircraft in the world's premier large-scale anechoic wind tunnel.

The annual Bell award was first given in 1957 and will be presented at the May 1999 AHS International 55<sup>th</sup> Annual Forum in Montreal, Canada. Previous winners of the Grover E. Bell Award at Ames include the Army/NASA/Bell XV-15 Project Team (1981), Dr. Wayne Johnson (1982), the National Full-Scale Aerodynamics Complex (1993 and 1994), and the Army/NASA UH-60A Airloads Program (1995).

BY MICHAEL MEWHINNEY

## Life in Moscow

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first person to orbit the Earth, on April 12, 1961. I walked inside a mock-up of the Salyut-6 space station, and I had my picture taken inside a Soyuz spacecraft. Also on display were mock-ups of the Apollo-Soyuz Test Project from the 1970s, a Progress resupply ship, a Soyuz spacecraft (all 3 sections), and a variety of space food, tools and other memorabilia. A small room nearby showcased the evolution of Soviet and Russian launch rockets.

The end of the tour featured a room devoted to Sergei Korolov, father of the Russian space program. The room featured photographs and writings, awards and articles about him (he died in 1966). Prominently displayed was his writing desk, telephone with direct line to the Kremlin, books and other artifacts. Korolev worked at Energia for 20 years, until his death of cancer at the age of 59. The city of Kaliningrad, where Mission Control-Moscow is located, was renamed after him followed the fall of the Soviet Union.

This is a wonderful, fascinating museum. Photography is allowed, and there is no charge for admission. Unfortunately, few people ever see it, as it is far from downtown

Moscow and special arrangements have to be made to get inside Energia. Security is very tight.

A recent article in the Moscow Tribune reports the average wage in Russia the last 3 months of 1998 was less than \$20/month — small wonder some Russians are longing for "the good old days" of Communism.

BY ANN HUTCHISON

## Special Librarians Day

The Research Information Resources Branch librarians will celebrate International Special Librarians Day on Thursday April 15, at the Ames Cafeteria. This year's theme is "Exercise Your Resources."

Stop by the display to receive informational handouts and discuss new library products and services, including the inauguration of the "New Book Shuttle." Also, sign-up for a free subscription to Aviation Week & Space Technology!

## Logo contest underway

To commemorate Ames' 60th anniversary, the NASA Exchange is sponsoring a logo contest. The theme is "Celebrating 60 Years of Excellence." A \$500 prize will be awarded to the person or group submitting the selected winning entry.

Entrants can incorporate the theme within their logo design or not. Furthermore, while Ames is celebrating its history, judges will place some emphasis on how well the proposed logo reflects the center's new missions and contributions to the future.

The selected logo will be used throughout the year as a visible representation of Ames' 60 years of contributions to the nation's aerospace programs.

All entries must be submitted to Deborah Renick, mail stop 19-1, by April 20. The original deadline has been extended. All entries become the property of the Ames Exchange. The judging decision of the Exchange is final.

## 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: Merengue 3/30, Niteclub 2-Step 4/6, 4/13, 4/20. 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. POC: Helen Hwang, hhwang@dm1.arc.nasa.gov. ABCD Website: <http://arcapps.arc.nasa.gov/Info/>

**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.

**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).

**Southbay FEW Chapter Mtg**, Apr 13, 11:30 a.m. to 1 p.m., N-241/Rm B1. POC: Christine Munroe, ext. 4-4695.

**Ames Sailing Club Meeting**, Apr 18, 11:30 a.m. to 1 p.m., N-262/Rm. 100. POC: Greg Sherwood, ext. 4-0429.

**5K Run/2Mile Walk**, April 20, The Fitness Center is sponsoring it's monthly 5K run and 2 mile run/walk. Meet outside the Fitness Center before the 12:00 noon start. No cost. Bring a friend, enjoy the beautiful outdoors, and munch on the goodies at the finish line. POC: Nancy Dunagan at ext. 4-5804.

**Secretary/Administrative Assistant Workshop**, Apr 21, 8 a.m. to 12 noon, Moffett Training Center, Bldg 3's Ballroom- register from 7:30 a.m. - 8:00 a.m. Open to all secretaries/admin. support personnel (contractor secretaries admitted on space available basis). All attendees must fill out a Training Application (ARC 301) no later than April 9. No cost workshop. POC: Gail James at ext. 4-5472.

**Ames Multicultural Leadership Council Meeting**, Apr 21, 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**, Apr 21, 11:30 a.m. to 12:30 p.m., Bldg. 19/Rm. 2017. Guests welcome. POC: Marianne Mosher at ext. 4-4055.

**Ames Asian American Pacific Islander Advisory Group Meeting**, Apr 22, 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**, Apr 22, 12 noon, N-260/Conf. Rm. POC: Mike Herrick, K6EAA at ext. 4-5477.

**Native American Advisory Committee Mtg**, Apr 27, 12 noon to 1 p.m., Ames Café. POC: Mike Liu at ext. 4-1132.

**Ames Java User Group**, Apr 28, 2:00 p.m. to 3:30 p.m. (N258/127). Topic: Java Servlet Programming by author Jason Hunter (<http://www.servlets.com/jsp/about.html>). Q&A session will also include James Davidson, head of Sun's Servlet API. JUG URL: <http://jug.arc.nasa.gov/meetings.html>. POC: Sharon Marcacci (smarcacci@mail.arc.nasa.gov)

**Ames Contractor Council Meeting**, May 5, 11 a.m., N-200 Comm. Rm. POC: Greg Marshall at ext. 4-4675.

**Hispanic Advisory Committee for Employees**, May 6, 11:45 a.m. to 12:30 p.m., N-239/Rm. 177. POC: Carlos Torrez at ext. 4-5797.

**Environmental Health & Safety Monthly Information Forum**, May 6, 8:30 a.m. to 9:30 a.m., Bldg. 19/Rm. 1078. POC: Linda Vrabel at ext. 4-0924.

**Ames African American Advisory Group Meeting**, May 6, 11:30 a.m. to 12:30 p.m., N-241/Rm. 237. POC: Mary Buford Howard at ext. 4-5095.

**Professional Administrative Council (PAC) Meeting**, May 13, 10:30 a.m. to 11:30 a.m., Location TBD. POC: Janette Rocha, ext. 4-3371.

**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 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; 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

Room for rent, available now. Walking distance from Castro. Share bath/kitchen/garden/laundry facilities. Near Hwy 101/237/85/Cent. Exp. Rent: \$550 mo. Call (650) 969-3932 or email at: [solemate@best.com](mailto:solemate@best.com)

Temp. or part-time use. Ideal for commuter or intern. Semi-private. Share bath/kitchen/phone/laundry. Near Hwy 101 /237/85. Weekly: \$100 (+ one mo). Call (650) 969-3932 or email at: [solemate@best.com](mailto:solemate@best.com)

Part-time or full-time roommate needed to share expenses. 2bd/1ba apt. in S'vale off Mary Ave. near El Camino. Rent negotiable for part-time rentee. Available April 1. Call Barrie Anne (408) 736-8961.

Grad student/Ames intern needs furnished summer housing from June to mid-Aug. Must be near public transportation. Email Linda Hays at [hays@hanover.edu](mailto:hays@hanover.edu) or call Dr. April Ronca (650) 364-2664.

### Transportation

'84 Mustang Coupe, 5 spd, new engine & transmission, 16" wheels & tires, racing suspension, needs some work. \$1,500 or B/O. Call (408) 920-3303.

'86 Porsche 944 2D Coupe. pwr windows, 5 spd, cruise control, floor mats covered, 64,500K mls. Very gd cond, garaged, silver grey. Bonnie (408) 736-6947.

'87 Chevrolet PU truck, 1/2 ton, AT, AC, CD, AM/FM, engine 25K mls, rblt transmsn (2/99), large toolbox/ladder rack included. \$6,500. Brian (650) 366-5409.

'89 VW Jetta GL 4dr, 5-speed manual, DK grey, 98K mls., A/C, CD w/150W stereo, new tires. Complete maintenance records, runs great, very clean. \$2,400. Call (408) 295-2160.

'90 Toyota Corolla GT-S, \$4400, 2 dr, 5 spd, black, 107K mls, 50K on engine, A/C, AM/FM cassette, sunroof, sporty, orig owner, runs great, pictures at "<http://www.allover.com/~jamarmie/toyota.html>". Email at: [jamarmie@allover.com](mailto:jamarmie@allover.com) or call (408) 782-9929.

'90 AMC Eagle Talon, Sony CD system, Clifford alarm system, fog lights, factory tinted rear windows, automatic seat belts. \$5,100 or B/O. Ray (408) 280-0122 (eves).

'94 Escort LX Wagon, automatic, A+ condition, loaded, \$5,650. Call (831) 425-7705.

750 Honda Nighthawk motorcycle, '92, 5K mls, meticulously-maintained, good cond. \$3K includes accessories and replacement parts. Denice (650) 967-7203.

### Miscellaneous

Friends for Youth matches adults with at-risk youth in a one-to-one mentoring relationship and are looking for people who enjoy helping others. Visit their website - Space-Age Technology Peeks at American History, [www.friendsforyouth.org](http://www.friendsforyouth.org) or call (650) 482-2865.

Chesapeake lab mix, 6-year-old spayed female dog, loves people and other animals; has all vaccinations. Owner moved and couldn't take her with them. Call (831) 461-9223.

Exercise equipment, aerobic HealthRider, excellent condition (rarely used), \$80. Call (650) 938-6546.

Baby furniture: Simmons crib (natural wood) w/ classic Pooh bedding, Pooh lamp, Pooh wall-hangings, changing pad, and area rug, \$350. Call (408) 730-1835.

EvenFlow stroller; 2 yrs old, very clean, dark blue/white, \$45. Call (408) 295-2160.

Dolby ProLogic surround sound processor w/ powered rear channels. \$40. Call (408) 295-2160.

Queen size oak water bed frame with bookcase headboard. \$100 or B/O. Mike (408) 295-9265.

Sleep sofa in gd cond. w/cream and taupe stripes, includes a queen size fold-out mattress for \$75 or B/O. Call (650) 965-2927.

Crib with mattress; full-size, Child-Craft, perfect condition. Call (408) 395-8326.

Alley Cat child's (up to 70 lbs.) bike. Attaches to seat post of parent's bike. \$100. Margie (408) 230-4212.

Whirlpool refrigerator/freezer, works great, yellow. \$75 or B/O. Mike (408) 295-9265.

Mirror dingy, approx 11 ft long, 100 lbs, car-toppable, fltn tanks, 3 sails, 2 hp motor, many other accessories. \$1,000. Earl (408) 243-5382.

Oak Hall tree, \$175; small solid maple desk, \$125; bookcase, \$60; full sz solid maple bdrrm set, \$350; ladies (new) shoes/sandals (famous brand) size 6 1/2; lots of various furniture & misc stuff-ask. Call (408) 378-5434.

Half-price sale; new items: Bedroom suite, brand-new, will sell together or in separate pieces: Queen bed (never used) mattress, box spring (Basset DreamMaker), headboard, & frame, two nightstands with reading lamps, \$400. Call (650) 637 8902.

101/2 Ft Cab-over Camper Aristocrate \$300 or B/O. Call (408) 734-8545.

### Car Pool

Looking for riders, from Sacramento-Fairfield area to Ames. Leaving 4:30 a.m. Work hours: 6:30 a.m to 3:00 p.m. Jim (707) 421-0995 lv msg.

### Vacation rental

Lake Tahoe-Squaw Valley townhse, 3bd/2ba, View of slopes, close to lifts. Wkend \$400, midwk \$150 nite. Includes linens, firewd, cleaning service. Call (650) 968-4155 or email at: [DBMcKellar@aol.com](mailto:DBMcKellar@aol.com)

Vacation rental: 1 week at Embassy vacation resort, Poipu Beach, Kauai, Hawaii, on ocean 2bd/2ba, full kitchen, laundry, free breakfast and afternoon social hour. You pick week, check-in Thurs.- Mon. \$1,400. Ron (925) 606-0515.

5 Star Cliffs Resort, Princeville, Kauai, Hawaii, overlooking ocean, sleeps 6 w/loft, full kitchen, dining, laundry, free activities/orientation, tennis, golf and swimming. You choose week, Fri-Sat. Check-in. \$695. Gary (408) 629-4839.

## Shirley Temple Black inspires female youth

*continued from front page*

dreamed as a child about a career outside of movies, Ambassador Black responded, "I had a wonderful teacher as a child and she taught me about many countries of the world. Every time a foreign visitor would come to my studio to visit me, she would give me a one week assignment about the visitor. This generated my great interest in the world and the people."

The project honors U.S.A.F. Lt. Col. Eileen Marie Collins, who will become the First Woman Shuttle Commander on Shuttle mission STS-93, scheduled for a July launch. In addition, Female Frontiers features other prominent women who were first in their various fields.

## Basic back exercise classes

New classes targeting the back will be offered at the Fitness Center, Bldg 221, starting April 12. The basic back classes are only 20 minutes and were designed for people looking for a mild but effective exercise routine to strengthen and stretch their backs. These classes incorporate Swiss ball exercises that enhance flexibility, while improving back stability, posture, balance and coordination. The basic back classes are so much fun that they may seem silly, but don't let the fun fool you. Your back can achieve real benefits.

Back classes will be offered at 7:40 a.m., Mon-Fri; 4:30 p.m. on Mon/Weds/Fri and also 5:00 p.m. on Tuesdays and Thursdays. Do not put anything sharp in your pockets. To participate in these classes you need to have a medical clearance form available at the Fitness Center and Health Unit. The Fitness Center will also be offering classes in step, muscle toning, circuit training, aikido, Tai Chi, fitness and step/kick-boxing starting April . For more information, you may contact Nancy Dunagan at ext. 4-5804 or check out the Fitness Center web page at <http://fitnesscenter.arc.nasa.gov>



photo by Tom Trower

Basic back class at the Fitness Center

## Take Your Daughters to Work Day

Take Your Daughter to Work Day was created by the Ms. Foundation for Women. This year's Ames event is sponsored by the South Bay (FEW) Chapter of Federal Employed Women and the Advisory Committee for Women. This is a day dedicated to girls' ideas, spirit and dreams. This year's theme is "The Future Is Me." The purpose of the day is to direct attention to the needs and concerns of girls and to help them during adolescence to stay focused on their future. Girls include the next generation of women leaders who will work in the world—and change it. We can invest in all our daughters, and our sons, on April 22.

At Ames, the following activities are scheduled for April 22. Parental supervision is mandatory for all activities:

1. Opening session, 9:30 a.m., Bldg. 3, Ballroom.
2. Various Ames tours starting at 10:00 a.m. - 3:00 p.m.
3. On-line chat with featured females, 8:00 a.m. - 3:00 p.m., Bldg. 241, Rm. 149. Pre-registration is required for web-chats.

The fourth annual "Virtual Take Your Daughters to Work Day," sponsored by the Women of NASA project, will focus on select female NASA leaders from a wide spectrum of professions who will meet on-line with thousands of students and parents. In schools worldwide, they will discuss and celebrate opportunities as well as gain insight into the professional and personal aspects of their lives. All chats are moderated, for those unfamiliar with interactive on-line events. There is a link to a "how to page" explaining registration and complete chat and forum instructions.

During each hour of the day from 8:00 a.m. to 3:00 p.m., one selected woman will converse via a live web chat. Also planned is a panel of six NASA women who will

participate in a day-long forum during which each participant can post a question and check throughout the day for an answer. These women have been selected based on their diverse professions, background and experiences; their education and training; their interesting career paths; and the positive impact their dialogue will have on young people.

To find out more about the event and to register to chat, please go to: <http://quest.arc.nasa.gov/women>. For more information contact: Karen Traicoff at ext. 4-4066 or Tish Krieg at (650) 367-8043.

4. Ames Space Encounter - drop-in basis, 1:00 - 3:00 p.m., bldg. 226

5. Closing session, 3:00 p.m., bldg. 3 ballroom.

Please note that all of these activities are open to sons as well as daughters, ages 8-17 years. The schedule will be distributed through centerwide email.

RSVP via email to Patricia Williams at [pwilliams@mail.arc.nasa.gov](mailto:pwilliams@mail.arc.nasa.gov), or Christine Munroe at : [cmunroe@mail.arc.nasa.gov](mailto:cmunroe@mail.arc.nasa.gov) no later than April 16, to ensure handouts for the day.

### THE AMES *Astrogram*

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

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### THE AMES *Astrogram*

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