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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

AMES RESEARCH CENTER, MOFFETT FIELD

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Goldin reveals vision for NASA aeronautics

--Administrator challenges industry to "Dare to Dream"

Remember the days when daydreaming got you nothing more than a trip to the principal's office and after-school detention? Well, times have changed, at least according to NASA Administrator Daniel S. Goldin.

In a major address to the World Aviation Congress and Exposition in San Francisco on October 17, Goldin challenged leaders of the aero industry to join their NASA counterparts -- to dare to dream, to step up to the immense challenges posed by today's overburdened air transportation system, and to recognize that revolutionary solutions are necessary.

"Unprecedented years of economic prosperity" have "fueled our rush to the nation's airports," Goldin observed. But this has taken a terrible toll in terms of clutter, inefficiency and cost. "America's hub and spoke system carried 680 million passengers in 1999. A number that will exceed 1 billion early next decade and reach 1.5 billion by 2020."

"We are crowding our airways, our airports and our world," Goldin said. "We want to travel any place, at any time, from any where. But we demand it be done safely, conveniently and economically without adversely affecting the environment or our own neighborhoods."

"For a doorstep to destination [airplane] trip under 500 miles, the average speed is just 80 miles an hour -- not much faster that the highway system on those rare occasions that it operates at peak speed," Goldin observed. This is totally unacceptable, he said, and must be fixed. But, "the necessary technologies are simply not on the shelf right now."

Furthermore, Goldin pointed out, the airline industry is not without significant competition. "As we enter the next millennium, we will be able to 'be' anywhere we want without having to PHYSICALLY be there," he said. "We are on the verge of ultra-high-speed communication and widespread networks that will link us through 'virtual presence.' First, it will be wall-sized, high-resolution displays with lifelike two-dimensional imagery. But, soon to follow are fully three-dimensional immersive environments."

photo by David Morse

Dr. David E. Crow, Senior Vice President of Engineering for Pratt and Whitney, (left) introduced NASA Administrator Daniel S. Goldin (right) during the World Aviation Congress and Exposition in San Francisco.

"When all the senses say you are there, the geographic reality may not be relevant," he said. "And it IS coming!"

So, what is to be done to rescue our faltering air transportation system? According to Goldin, it is essential to pursue both evolutionary and revolutionary technologies.

"Right now, about 85% of all fatal accidents fit into one of four categories," he said. "Limited visibility, weather, loss of control, and on board system failure." NASA is working with the Federal Aviation Administration, Goldin said, to respond to each of these areas of concern.

Goldin addressed NASA's work in artificial vision -- "the development of advanced sensors, digital terrain databases, accurate geo-positioning, and digital processing to provide a perfectly clear, three-dimensional picture of terrain, obstacles, runway and traffic." He spoke of agency research in modeling turbulence hazard and, in particular, of recent efforts to use lidar to detect clear-air turbulence.

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NASA budget set

Conferees in the House and Senate agreed and the President has signed NASA's FY2000 budget at $13.653 million. This is considerably more than the original House recommendation of $12.654 million which caused great concern on Capitol Hill and at NASA Headquarters and field centers. It is also $75 million above both the Senate recommendation and the original White House budget request.

However, it falls short of NASA's FY99 appropriation of $13.665 million. Complete details of NASA's budget can be found (by looking under bill H.R. 2684 and/or conference report 106-379) at the Library of Congress website at: http://rs9.loc.gov/

NASA rotorcraft visionaries look to the future

Imagine it's the year 2025. In the sky above are dozens of miniature robotic helicopters measuring only two to three inches in size darting about as you stroll to your one-person "roto-mobile" to begin your daily commute to your downtown office.

Sound farfetched? Believe it or not, these are some of the potential changes we may see during the new millennium, according to a group of visionary scientists and engineers at Ames. The group met recently to forecast the future of rotorcraft and other vehicles with a vertical flight capability.

"During this brainstorming session, it became apparent that there will be significant market potential for two very different classes of vertical flight vehicles: ultra-small-scale vehicles operating autonomously and larger-scale, 'user-friendly' vehicles capable of carrying a significant payload," explained Ed Aiken, chief of the Army/NASA rotorcraft division at Ames.

According to NASA rotorcraft engineers, there is enormous potential for developing miniature robotic rotorcraft. Potential uses include atmospheric sensing, such as wind shear detection and meteorological measurements; stealthy urban warfare surveillance; and operating in contaminated environments unsuitable for humans and planetary exploration as "astronaut agents." Other possible uses include immigration, drug enforcement and public safety.

"Rotorcraft are a particularly appealing class of vehicle for these miniature robots because they exhibit significant aerodynamic advantages at these small scales over their fixed-wing aircraft counterparts," Aiken said. "As NASA's lead center for information technology and rotorcraft, Ames is well-positioned for its role in the development of this high-payoff technology."

NASA visionaries also see the potential for "roto-mobiles" to serve as personal transportation systems of the future. These vehicles could be built for one or multiple passengers with the ability to take off and land vertically and to be operated either autonomously or manually with "car-like" controls. The military could use these vehicles to bypass obstacles such as land mines, blocked roads, impassable bridges or large areas of water, and for search and rescue operations.

Michael Moshier, founder and CEO of Millennium Jet, Inc., Santa Clara, CA, demonstrates the Solo Trek Exo-Skeletor Flying Vehicle, a one-person air scooter, developed by Millennium Jet Inc. NASA Ames signed a Non-Reimbursable Space Act Agreement with Millennium Jet to develop the air scooter.

Other potential uses for "roto-mobiles" include employing them to provide "instant-response" medical attention, to add a third, vertical dimension for sport utility vehicles, to deliver packages rapidly, and to provide transportation to and from airports. They could also be used to help construct and maintain power lines, bridges and multi-story buildings.

Larger roto-mobiles might be used for such agricultural tasks as planting, spraying and harvesting; to detect and extract land mines; conduct search and rescue operations in adverse weather conditions and participate in major chemical and biological cleanups.

"With its expertise in rotorcraft aeromechanics and control, human factors and air traffic management, Ames is particularly well-qualified to participate in the advanced technology development required for a successful roto-mobile," Aiken said.

Consistent with this vision, Ames recently signed a non-reimbursable space act agreement with Millennium Jet, Inc., Santa Clara, to cooperate in the development of the SoloTrek Exo-Skeletor Flying Vehicle, a one-person air scooter.

"We are interested in further developing vertical flight technologies from large transports to personal transportation systems," said William Warmbrodt, chief of the Rotorcraft division's aeromechanics branch at Ames. "NASA will support the company's efforts in engineering, technology and testing, giving advice when asked," he said.

"We have all been dreaming of such a vehicle for many years, and now the dream has the potential to become a reality," said Michael Moshier, founder and CEO of Millennium Jet, Inc. He said the company is now ground testing a prototype and that flight tests could occur later this year or early next year. Details about the air scooter are available on the web at: http://www.solotrek.com

Aiken cautioned that several obstacles must be overcome before the visionaries' ideas become reality. "The whole concept of miniature flying vehicles is in its infancy and achieving autonomous, hummingbird-bird-like flight presents significant aerodynamic and flight control challenges," Aiken said. "In addition, the concept of the mini-robo-rotorcraft can only become reality once these miniature vehicles are accepted by the public as being of significant value in improving the quality of life, safe and environmentally friendly.

BY MICHAEL MEWHINNEY

News media flock to collapsed structure simulation

A large contingent of national and local television and print news media turned out for a chance to crawl through a tunnel, rescue a victim or portray a victim of a major earthquake during a collapsed structure simulation held recently at Ames.

Held in observance of Earthquake Preparedness Month, the activity drew reporters from NBC Nightly News, Fox News, CNN, KPIX-TV (CBS) Channel 5, KRON-TV (NBC) Channel 4, KNTV-TV (ABC) Channel 11, KTVU-TV (Fox) Channel 2, KCAL–TV (Ind) Channel 9 from Los Angeles, the San Jose Mercury News, the Mountain View Voice and New Scientist Magazine. The story aired that evening on NBC network news and again the following morning on the NBC Today show, on CNN and on all the local Bay Area network affiliates in attendance. The story also was published in the San Jose Mercury News the next morning with a large color photo of the newspaper's reporter portraying a victim being rescued.

The earthquake simulation was held Sept. 29 from 8 a.m. to 4 p.m. at Ames' collapsed structure training facility, Bldg. N-267, the primary training site for the center's Disaster Assistance & Rescue Team (DART). During a realistic training exercise, reporters were able to either rescue a victim, portray a victim being rescued, or operate the concrete-breaking tools needed to reach a victim trapped in a collapsed building. During the drill, reporters wore safety equipment and coveralls, boots and hard hats to protect them as they crawled through underground tunnels, basements or rooms with collapsed ceilings.

Local television news crews interviewed the DART team members during the collapsed structure simulation.

photo by Victoria Kushnir

"This was an opportunity to make the public aware of what it is like to be in a collapsed structure caused by a disaster, such as a major earthquake," said Robert J. Dolci, Director of Emergency Services at Ames. Santa Clara County disaster officials conducted an earthquake exercise on Oct. 13, four days before the 10th anniversary of the Loma Prieta earthquake.

"People need to be aware that it takes a large team many, many hours to find and remove a victim," Dolci said. "It can take as many as 70 highly-trained specialists 24 hours or more to remove one person from a collapsed structure."

BY MICHAEL MEWHINNEY

CHEMIN--winner of R&D award

R&D Magazine has named CHEMIN the winner of a 1999 R&D 100 award for being one of the year's best innovations. This instrument was developed by a team of scientists from Ames, Los Alamos National Laboratory and the Jet Propulsion Laboratory. Team member David F. Blake of Code SSX says CHEMIN was named for its ability to unambiguously identify both the CHEmistry and MINeralogy in powders and fine-grained samples.

CHEMIN is the first instrument optimized to simultaneously collect both an X-ray diffraction pattern and an X-ray fluorescence spectrum of a sample. This powerful instrument gathers data from less than a milligram of sample material onto a detector the size of a postage stamp, performs its analyses in a matter of minutes, and is small enough to hold in your hands.

CHEMIN was conceived and developed to send to Mars since identifying minerals on Mars could provide a wealth of information about the history of the planet, and mineralogy can be an important tool in the search for evidence of life. Knowing which minerals are present in a sample can help illuminate its history as to how the elements first came together to form minerals and whether those minerals were subsequently altered through sedimentation, metamorphism or weathering.

The flight-ready version of CHEMIN, still under development, will be the size of a soda can, consume about 2 watts of power and weigh less than 1 kilogram. Although CHEMIN must be further miniaturized before it can be sent on a space probe. The existing prototype has wide-ranging usefulness on Earth.

For more information on CHEMIN, contact the author at ext. 4-4816 or email him at dblake@mail.arc.nasa.gov).

BY DAVID BLAKE

College signs agreement to partner with Ames

A memorandum of understanding between the Foothill-De Anza Community College District and NASA Ames was recently signed by the Center's director, Dr. Henry McDonald, and the College District's chancellor, Dr. Leo Chavez.

The MOU outlines the intention of the Foothill-De Anza College District and NASA Ames to work together to plan future research, development and educational partnerships located at, and using the resources of the Ames/Moffett Complex.

photo by Tom Trower

Nancy Bingham (front row, center) poses with members of the Foothill-DeAnza Community College District and Ames staffers following the recent MOU signing event.

Representatives of Ames and the District met on September 22 to begin preliminary discussions regarding future partnership ideas. Such joint planning will initially focus on distance education programs, information technology education programs, appropriate undergraduate and career preparation classes and programs and collaborative education and outreach programs for K-18 students and teachers.

BY MARY CONWAY

Kathie Olsen, NASA's chief scientist, visits Ames

The agency's new chief scientist, Dr. Kathie Olsen, visited Ames on September 13 to meet the Center's personnel and learn about ongoing research.

Dr. Olsen, who now represents NASA's scientific objectives, greatly emphasizes the importance of biological sciences, particularly biomedical, neuroscience and life science. Because of her interest in the development of these fields, Dr. Olsen toured some of the life sciences facilities at Ames accompanied by Kenneth Souza, Dr. Emily Holten, Dr. Malcolm Cohen and Dr.Jeff Smith.

The Agency's chief scientist was first taken to the biocomputation center directed by Dr. Muriel Ross. Dr. Jeff Smith, one of the researchers working with Dr. Ross, demonstrated a three-dimensional software tool, which may make virtual hospitals possible. He discussed how this highly innovative technology could be applied to medical imaging to help surgeons and radiologists collaborate over long distances and develop new treatment methods. "It's cool!" exclaimed the chief, looking at the beating heart through the stereo glasses. Dr.Smith also showed how the collaborative environment can be used in astrobiological research and science in general. One of the applications that was brought to Dr. Olsen's attention was the one depicting a planet's surface.

"This can be used to choose the landing position," suggested Smith emphasizing again the multiple purpose of three-dimensional technology.

Following an introduction of the life science research conducted at the Center, Dr. Olsen visited Ames's human research facility, where Dr.Emily Holton explained what types of research were being conducted there. After Dr.Holton described how a person would feel after lying with their head tilted towards the ground for at least a day, the chief scientist proved to herself again that she made a right decision by not becoming an astronaut. "The more I learn, the more I understand - no way! I would not be able to do that!" However, it is not clear what is more encouraging or risky--to participate in such an experiment and feel a little nauseous afterward, or try to convince the world of the scientific value of such an experiment.

Finally, Dr.Olsen was taken to the Center's acceleration facilities where Dr. Cohen showed several centrifuges that are used for experiments with various organisms--from cell cultures to people.

Dr. Kathie Olsen received her Ph.D. in psychobiology/neuroscience at the University of California at Irvine. After spending eleven years as a postdoctoral fellow at Children's Hospital of Harvard Medical School, she was a researcher at the State University of New York. Since 1984, she has held different science-related positions in the National Science Foundation, and recently became a senior staff associate in the Office of Integrative Activities. Now Dr. Olsen is looking forward to working with NASA's scientific personal to ensure that NASA programs are universally recognized.

photo by Victoria Kushnir

NASA Chief Scientist Kathie Olsen (left) chats with Kenneth Souza (right) during her visit to Ames.

BY VICTORIA KUSHNIR

Center Briefs

Mars Climate Orbiter investigation board update

The NASA review board investigating the loss of Mars Climate Orbiter has completed its first round of meetings, and has begun preparing a report on its initial findings. The failure review board will brief officials at NASA Headquarters on its initial findings on Oct. 29. The board will then deliver an initial written report to NASA by Nov. 5. A second report due by Feb. 1, 2000, will address lessons learned and recommendations to improve NASA processes to reduce the probability of similar incidents in the future.

Brain cancer surgeries successful using space-age probes

Surgeons have used a special lighting technology, developed by a Wisconsin company to conduct plant research in space, in two successful operations to treat brain cancer on Earth.

For the treatment technique, a surgeon uses tiny pinhead-size light emitting diodes (LEDs)--a source releasing long light waves--to activate light-sensitive, tumor-treating drugs.

Annual depletion of antarctic ozone results are in: 'ozone hole' smaller than last year

A NASA satellite has shown that the area of ozone depletion over the Antarctic--the well-known "ozone hole"--is a bit less in 1999 than it was last year. This year's study found that an ozone "low" had formed between New Zealand and Antarctica on Sept. 17.

This sort of ozone low, commonly referred to as a "mini-hole," is a result of the redistribution of ozone by a large weather system. The slightly decreased size of the "ozone hole" from last year is not an indication of the recovery of Antarctic ozone levels. The current year-to-year variations of size and depth of the ozone "hole" depend primarily on the variations in meteorological conditions. These measurements were obtained between mid-August and early October using the Total Ozone Mapping Spectrometer (TOMS) instrument aboard NASA's Earth Probe (TOMS-EP) satellite.

NASA instruments have been measuring Antarctic ozone levels since the early 1970s. Since the discovery of the ozone "hole' in 1985, TOMS has been a key instrument for monitoring ozone levels over the Earth.

Ames employee is making a difference in the Silicon Valley

Young people struggling to find work. Word of local police abusing citizens. Mothers raising families alone. These are some of the challenges Ames employee Sheila Johnson tackles in her free time. Now she's doing more than ever as the newly installed president of the South Bay chapter of the National Coalition of 100 Black Women, Inc. (NCBW).

photo by Astrid Terlep

Sheila Johnson

"I'm delighted to be elected," says Johnson, who was installed in the office on October 4.

Johnson is one of the founding members of the 6-year-old South Bay chapter. She says her work with NCBW has been particularly rewarding, because she's been able to help people in need and to make real changes in the community.

"My involvement has just been an extension of my life," Johnson says. "It's been a fantastic opportunity to give back to the community."

Her chapter is involved in many projects. Recently the group organized a free health clinic for black women in San Jose and held a career development forum for African-American students on the east side.

Johnson is a community relations specialist in Ames' Office of Development and Communication. She has been an Ames employee for 14 years.

She says she plans to use her public relations background "to move the group to the next level and make the community more aware of what the chapter is doing."

The South Bay chapter of NCBW is made up of 35 black women. Right now the group is putting together an advocacy conference, to which they have invited the mayor of San Jose and other local black organizations. In the future , they plan to work with young children in need and stay with them through the years and into college.

BY SONIA JONES-SHIN

SCUBA Club sponsors diving class

The Ames SCUBA club recently sponsored a "SCUBA diving introduction and refamiliarization" class at the Moffett swimming pool. Pictured is here is Rosa Hippler (right) about to take her first-ever plunge into SCUBA diving, under the supervision of Ames scientist and certified SCUBA instructor Dr. Stephen Walch.

If you have any questions or need more info on the club, send an email or call Greg Condon at ext. 4-5567.

From left to right, Dr. Stephen Walch, Giovanni Castillo, certified diver and SCUBA Club member, and Rosa Hippler.

ISO helps life sciences research

The Life Sciences Division (SL) studies the role and influence of gravity on living systems, from cells in culture, to physiological studies in rats and humans, both on the ground, and in space.

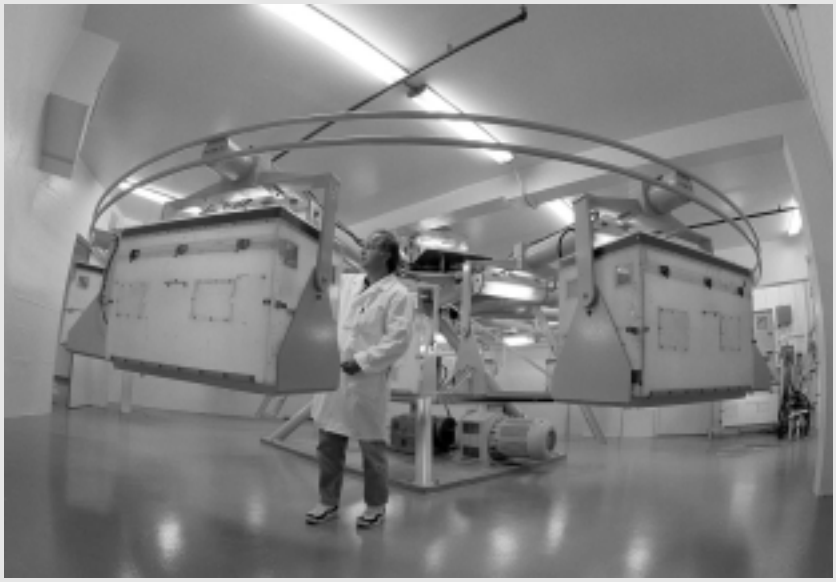

photo by Tom Trower

Dan Gundo prepares for a ground-based rodent test aboard the 24-Foot centrifuge (part of the Acceleration Facilities Suite).

How can ISO 9001, with its roots in manufacturing and the military, help out with studies on living things?

According to Ken Souza, SL division chief: "ISO gives us a systematic way to address customer feedback, and make needed improvements across our organization - a recent example is how our procedures changed based upon lessons learned from last year's Neurolab mission, our biggest and most complex mission ever. ISO provides a standard approach to documenting the new procedures we need, and updating or eliminating those that have become obsolete. Last year involved a tremendous amount of work to adapt to the ISO system and prepare for the DNV audit. I believe in the long term, ISO will help us maintain our leadership role in the Space Life Sciences."

If you check out life sciences procedures on the web, you'll notice the division has 115 documents--more procedures in one division than in any other entire directorate (Code F comes closest with 86 procedures).

Why so many procedures? Tad Savage, Life Sciences quality system manager stated, "The scope of our activities is immense, from animal care, data archiving, and operations support, to gravitational research, facilities operation, and hardware development. Our space flight missions are particularly procedure intensive. We've had procedures for years, because of our mission interaction with MSFC, KSC, and JSC. Our quality system ties them all together, making them easily accessible on the web."

Tying all the details of a Life Sciences mission together is a huge task. As an example of how complex a space flight mission can be, consider last year's Neurolab, a 17-day mission focusing on the effects of spaceflight on the nervous system. Planning for the mission began 6 years earlier, and the 15 experiments from Ames required over 4,000 manufactured parts, 1150 Hardware Verification Reports, 820 project documents, 3,500 support items (gloves, kimwipes, desks, markers, batteries), 300 individual support trips to Kennedy Space Center, 6,500 rodents, 3,000 swordtail fish, 10,000 fresh water snails, and 10,000 crickets.

As we enter the Space Station era, coordination of Life Sciences experiments for the Station will become increasingly complex, and will demand a systematic proceduralized approach that can be communicated clearly and consistently to researchers and partners from around the world - and that's what ISO is all about.

BY DUNCAN ATCHISON

Ames spins new GLOBE

An international environmental science research program known as GLOBE (Global Learning and Observations to Benefit the Environment) was recently launched at Ames. In July, a dozen Bay Area teachers attended a four-day workshop here to learn how to implement the GLOBE program in their schools.

The program involves specific methods of data collection (protocols) to be conducted by students in the areas of atmosphere, hydrology, land cover/biology, seasons and soil. The data is then conveyed via the Internet to researchers worldwide who use the data to study global phenomena. In return for their data, students receive visualizations of the data they submitted, which can be tracked from season to season and year to year.

Ames has a wealth of expertise in both education and earth science to offer the GLOBE trainees. Susanne Ashby, curriculum specialist for Quantum Services, Inc., was the primary lead for the Ames workshop and stated, "Our first workshop was a tremendously successful endeavor. We pulled together some talented trainers who developed a positive rapport with the participants. Ames is also the site of the international GLOBE help desk--another outstanding resource for the local GLOBE effort."

Ames became involved in the GLOBE program by becoming a "franchise." Franchises recruit schools to implement the program, train teachers in the GLOBE protocols and mentor GLOBE students in their area. Ames' franchise coordinator Bonnie Samuelson stated, "Ames is establishing partnerships with other GLOBE franchises in California to collaborate and share resources where possible."

The GLOBE program supports nationwide systemic educational reform initiatives. As one participant noted, "GLOBE is a crucial program to bring science alive to students. These protocols and preparations provide teachers with not only skills and background necessary for teaching, but gives us the confidence and support needed to carry it out."

The GLOBE program at Ames will be a component of the Teacher Institute being developed as part of the California Air & Space Center. For information on Globe, visit their site at: http://www.globe.gov

Ames hosts consortium on future technologies

photo by Tom Trower

Deputy Center Director Bill Berry addresses a meeting on October 7 sponsored by the California Space and Technology Alliance and held at Ames' Moffett Training and Conference Center. Representatives from industry, government and academia got together to discuss the most promising NASA technologies for commercial application and their recommendations for the direction of future NASA research and technology development. A report of the group's findings will be forthcoming in the next few weeks.

Goldin reveals vision for NASA aeronautics

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Goldin described Ames' work in aviation capacity, referencing such projects as the Final Approach Spacing Tool (FAST), as well as T-NASA, CTAS, SMA, Descent Advisor and other tools. He also told of agency work in wake vortex sensing and prediction. Finally, in delineating on-going evolutionary research, he spoke of the agency's efforts to reduce aircraft noise and substantially cut airplane emissions.

However, perhaps the most inspirational part of Goldin's presentation and the one that attracted the greatest interest was his insistence on the need for revolutionary technologies. He spoke of NASA's new program to develop revolutionary aircraft for new applications -- REVCON. And he challenged airframe manufacturers, both large and small, to submit new ideas for consideration. Goldin described the new blended wing craft being developed jointly with industry, and spoke of NASA efforts to produce a substantially improved supersonic engine, like the pulse detonator.

Goldin probably raised most eyebrows when he spoke of efforts, particularly at Ames, to incorporate biology into NASA's science research. "From biology will come concepts for sensors, brain-like computers and distributed nervous systems far beyond even the neural networks we are developing. Biology-based systems can be orders of magnitude more power efficient, compact and sensitive than conventional silicon systems," he said. "This area is the last great bastion of science to be brought into the realm of technology."

Goldin concluded by telling his audience that "we'll begin to have intelligence in our [aeronautics and aerospace] systems." We will move "from data, to information, to knowledge, to intelligence."

This is a very bold vision, he acknowledged. But, "we can get there without question," he said. But it won't happen at the hands of NASA alone or with conventional thinking. "We need to develop even stronger partnerships" within the entire aeronautics community, Goldin declared, and, "as partners, we need to dream." If we do that and go forward together, Goldin said, "we will build an air transportation system that will still be improving the quality of life 100 years from now."

BY DAVID MORSE

1999 Honor Awards presented to Ames employees

The following employees at Ames received the 1999 Ames Honor awards on September 21, in the Main Auditorium (N-201). Nancy Bingham presented each awardee with their awards.

Administrative
Lynda L. Haines
Mark E. Lefler
Theresa M. Nogales-Liang

Best First Paper by a Junior Researcher
Stephen C. Atkins

Contractor Employee
Angela M. Aitken
Durand R. Begault
Max P. Bernstein
Gregory W. Condon
Farid B. Haddad
Philippe A. Stassart

photo by Tom Trower

1999 Ames Honor awardees at the awards ceremony held on September 21.

Equal Employment Opportunity
Janis D. Monk

Engineer
Jeffrey L. Brown
David W. Lozier
Nhan T. Nguyen

Group/Team
Code J ISO Team
The ISO Documentation Tiger Team
Lunar Prospector Science Team
Lunar Prospector Navigation Team

Headquarters Employee
Sue M. Humphrey

Safety and Environment
Kelly J. Kasser

Secretary/Clerical
Donna Z. Lacy
Shirley K. Prosper
Rose M. Van Zytveld
Debbie C. Wilson

Supervisor/Manager
Herbert J. Finger
Clinton G. Herbert, Jr
John E. Humbert

Technical Support
Astrid L. Terlep

Mentor
Jana M. Coleman
Dallas G. Denery
John N. Perry

Scientist
Lawrence P. Giver

Student
Michael J. Landewe

Technician
Richard R. Toner
Robert L. Walker

NASA teams with Swedish firm to study changes in astronauts' spines

Scientists from NASA and DynaMed AB, a Swedish medical technology company, have signed a Space Act agreement for research and development of a space-age compression harness to examine changes in the spines of astronauts before and after space flight and of patients with spinal disease.

Under the terms of the agreement, the research will focus on developing the technology as a diagnostic tool for the spinal canal and other areas, including hips, knees and neck injuries. This collaboration will benefit NASA by enabling accurate magnetic resonance imaging (MRI) spinal investigations preceding and following long-term exposure to the reduced gravity environment of space flight. The device also holds potential as a preventative and therapeutic countermeasure for spinal degeneration and back pain characteristic of long-term space flight.

"The use of this technology will often assist in a more specific and valid diagnosis of spinal disease, which traditionally has been difficult during horizontal imaging," said Alan R. Hargens PhD, senior scientist at Ames and Professor of Orthopaedics at the University of California, San Diego. Hargens is helping direct clinical studies at the Veterans Administration and Stanford University Medical Centers in Palo Alto in cooperation with Sahlgrenska University Hospital in Gothenburg, Sweden.

DynaWell/DynaBack Spine Compression Device with patient positioned in scanner.

The DynaMed compression harness is used in conjunction with computer tomography (CT) and magnetic resonance Imaging (MRI) equipment to provide a more accurate diagnosis of spinal conditions by simulating the weight and load of upright posture. Currently, because virtually all MRI and CT examinations occur when a patient is lying down and free from the effects of gravity, many spinal diseases, injuries and conditions may go undetected or be improperly diagnosed.

"DynaMed's goal is to assist physicians in providing enhanced diagnosis, which will offer opportunities for safer and more accurate treatments benefiting patients to return to a pain free life," said Stan Mikulowski, CEO of DynaMed AB.

"Healthcare providers should also benefit from the technology since better diagnosis has the potential to reduce costs of treatment."

DynaMed AB delivers innovative, premiere, medical diagnostic imaging technology for healthcare providers using CT and MRI technology. The company is privately owned and headquartered in Stockholm, Sweden, with a wholly owned subsidiary, DynaMed, Inc. located in the United States. For more information, call (310) 204-5787 or visit the company's website at: www.dynamedinc.com

BY MICHAEL MEWHINNEY

Hollywood calls them "Space Cowboys"

photo by Jason Miller

Warner Brothers film crew at the 20-G centrifuge facility.

A film crew from Warner Brothers recently came to Ames to work on the creation of a major motion picture called "Space Cowboys". The five-man crew spent the day shooting footage of the 20-G centrifuge--one of several research facilities managed by the Ames life science division. In the movie, the centrifuge serves the purpose of training the "Space Cowboys" for their climactic mission.

Movie buffs can expect to see this flick debut on the big screens next year, around Labor Day weekend. Not only is Clint Eastwood directing and producing the film, he will be playing the lead role. Tommy Lee Jones and Donald Sutherland are two other 'big names' premiering in the movie.

This action adventure film isn't going to be just another "shoot em' up." The all-star cast is faced with saving the world, so you can expect an exciting plot with an original twist. Space travel, enemy satellites and nuclear weapons are a few of the glamorous action spectacles that are sure to grasp your attention.

The film crew paid their last visit to the Ames centrifuge on August 31, before leaving with six rolls of live footage. "This footage is the real stuff. Without it, our audience won't get a good idea of a centrifuge. This way, they can see its impressive size and speed," said Warner Brother's cameraman Leo Napolitano.

The centrifuge was filmed in full spin at a force of 2 G's (15 Rpm's) and slowing to a stop. The crew captured several perspectives of the centrifuge by changing camera lenses, exposures and film speed. In addition to the live footage, a miniature model of the centrifuge and a life-sized set of the machines cargo box will appear in the movie.

Besides working at Ames, one person in particular will have bragging rights over his neighbors in the theater. Daniel Gundo operated the centrifuge during the filming.

"Unfortunately, the people in the theater won't have the chance of experiencing an actual ride in the centrifuge, but on second thought, that could hurt ticket sales," Gundo said.

BY JASON MILLER

Ames launches Combined Federal Campaign

photo by Tom Trower

Terry Morris, National Combined Federal Campaign (CFC) speaker, giving a presentation at the 1999 Ames CFC kickoff in the Main Auditorium.

The Combined Federal Campaign (CFC) Kick-Off meeting was held on October 7 at Ames. The meeting began with opening remarks by Deepak Kulkarni, Ames CFC chairman, who introduced Bob Rosen, associate director for aerospace programs. Rosen spoke on behalf of Bill Berry, Ames Deputy Director, who strongly endorses CFC and its positive outcomes. Dr. Rosen went on to introduce two important guest speakers who were helped by CFC programs.

The first guest speaker was a local Ames employee, James R. Davis, Jr. from code FES, the Electronics System Branch. He spoke of his brother's car accident, family trauma, intensive care treatment and death. This was not an easy subject to discuss, but he did it eloquently. He spoke of an organization supported by CFC, such as the Red Cross, and how they had played a role during his brother's treatment and death. His brother was given blood transfusions at Stanford Medical Center and his organs were donated to needy patients who might have died without receiving them.

The second speaker was Terry Morris, the National CFC spokesperson, who also is an engineer at NASA's Langley Research Center. As a child, Morris was abused, neglected, abandoned and left homeless by his family. Since his terrible or deal, he was supported by a CFC charity, the Alpha House, which gave him the opportunity to change his life. They gave him a place to live, provided love, proper care and a decent education. He is now a NASA engineer working on his PhD.

Janette Rocha, the assistant chairperson to the Ames Combined Federal Campaign, discussed the CFC web site located at http://grail.arc.nasa.gov/cfc

She also mentioned explained the 1999 CFC essay contest. The website contains information about the essay contest and this year's CFC campaign.

Grace Ann Weiler, Ames' CFC co-chairperson, thanked everyone in attendance for coming and supporting the CFC campaign.

To learn more about the Ames Combined Federal Campaign, contact your division or branch CFC representatives. If you need further assistance, call 4-CFC1 to speak with Deepak Kulkarni, Grace Ann Weiler or Janette Rocha.

BY JACQUELINE NELSON

Shatner visits Ames

William Shatner of the former TV series "Star Trek" visited Ames on October 5. He was accompanied by Chip Walter, his co-writer. They are writing a book to compare the science fictional technology portrayed in Star Trek with real technology already developed, being developed or envisioned at NASA.

Shatner (center) observes 3-D interactive medical image workbench at the Center for Bioinformatics. Dr. Muriel Ross (left) explains the system as Shatner and his writer, Chip Walter (right) look on.

William Shatner, "Capt. Kirk" of Star Trek fame (left), uses Robert Mah's (right) neural network computer simulator to "dock" the Shuttle with the International Space Station.

photos by Astrid Terlep

Cedric Walker of Code IC (left) explains the FutureFlight Central simulated control tower to Shatner.

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: Hustle 8/31, 9/7, East Coast Swing 9/14, 9/21, 9/28. 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, hwang@dm1.arc.nasa.gov.

Model HO/HOn3 Railroad Train Club at Moffett Field invites train buffs to visit and join the club in Bldg. 126, across from the south end of 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 (work) or (408) 281-2899 (home).

Jetstream 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.

Native American Advisory Committee Mtg, Oct 26, 12 noon to 1 p.m., Ames Café. POC: Mike Liu at ext. 4-1132.

Java User Group, Oct. 27, 10 am, Bldg. 258, Rm. 127. Topic: Testing Java Programs - Tools and Tips. POC: Sharon Marcacci, ext. 4-1059; http://jug.arc.nasa.gov

Ames Contractor Council Meeting, Nov 3, 11 a.m., N-200 Comm. Rm. POC: Jack Stanley at ext. 4-2345.

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

Hispanic Advisory Committee for Employees, Nov 4, 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, Nov 4, 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, Nov 5, 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.

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

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

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.

Ames Classifieds

Ads for the next issue should be sent to *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

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

Looking for responsible roommate with active lifestyle for full share of 2 bd/1ba apartment in Mtn. View. Spacious room with shared bath. Separate phone line. Snow skier is a plus! No smoking. Tami (408) 653-1925 ext. 247.

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

Room for rent on the beautiful coast side near Half Moon Bay. 5 minute walk to beach. Private bathrm & entrance. Microwave & refrigerator. Car pool with me a possibility or take SamTrans/Caltran to work. Utils included. $600/mo + dep. Susan (650) 728-1121.

Studio apt, one mile from Nasa, $670 incl utilities. One bd apt, one mile from Nasa. $800 incl utilities. No pets. Mo. to mo. lease. Call (650) 965-0775.

Roommate wanted: Los Altos apartment at H280/ 85/Foothill Expwy. Mstr bdrm w/priv. bath available in 2 bd/2 ba unit. Approx 1,100 sq. ft. Modern kitchen, large living room; cable TV own phone line. Very safe and quiet in secured building. No smoking; No drugs; no pets. Complex has pool, Jacuzzi, BBQ, and laundry. Close to shopping and parks. Me: Professional male 30yrs old. Deposit $400; Rent $765 +1/2 utilities. Brian (408) 730-2541; bgold16@yahoo.com

New female, non-smoking NASA employee moving from the east coast looking for a temporary funished room to rent for 1-2 months beginning 11/20/99. Email: mallis@mail.med.upenn.edu

Small horse ranch for sale near Watsonville. Royal oaks, 3 acres w/trees & lots of open space. 3 bd/2ba home/family rm w/fireplace. Front/rear decks w/hot tub rm. 2 car garage w/laundry & storage rms. Barn, tack rm, corrals, workshop/electricity. Property fenced & outside lighting. For sale by owner, $529K. Ron (408) 736-2150 (Lv msg/phn #) or (831) 722-0130.

For rent/sublet, furnished room & shared bath in 2 bdrm 1920's Spanish style home. Biweekly housekeeper, washers/dryers in garage, small storage. Furnished bedroom, living & dining rms, kitchen. $675 mo + $350 dep. Located in Mtn. View. Call (650) 903-3440.

Miscellaneous

30+ finches, $3.00 ea. HELP! My parents need help getting rid of 30+ pigeons! Tried several remedies, but no luck, they keep coming back! Any suggestions? Anyone interested? They're yours! Call (650) 961-2759.

Glass (rectangle) dinette table w/4 black upholstered high back chairs $350 or B/O. Denise (408) 280-5856.

Nordic Track. No-frills model. $125 or B/O. Steve (408) 996-2932.

Cannondale 3.0 Criterium series aluminum frameset. Very light, very stiff. 59cm c-t, original paint, decals. Some minor chips, scratches. Never damaged, rides very true. Includes Campy headset, American Classic seatpost. $250 or B/O. Steve (408) 996-2932.

Tickets for sale to both the Dec 26 (vs Anaheim) and Jan 11 (vs St. Louis) San Jose Sharks hockey games. 4 seats in row 6 in section 206. Tickets are $32 each. Call (408) 735-0524.

Surfboard, hand crafted in Santa Cruz. 7' 7" Beautiful. $625 with new O'Neil boardcover. Shirley (408) 777-8048.

Complete white bedroom set $185. Call (408) 733-1906.

Frigidaire electric dryer. 9 years old. Basic model. Works great. $25 or B/O. Call (408) 945-3917 or nengim@svpal.org

Fridge for sale. 25 cu.ft., black, top of the line, used 1 yr. $1,300 new, will sell for $800. Call (650) 964-0496.

EvenFlow stroller; very clean, dark blue/white, $25 Call (408) 295-2160.

Power lawnmower, runs great, $20. Call (650) 327-0323.

Apple Powerbook 5300cs. 16MB RAM, 750MB HD, Timbuktu modem/LAN card, all accessories and Targus deluxe carrying case included. $700 or B/O. Ray (415) 533-8084 or rayo@ippresents.com for more info.

Transportation

'86 Volvo 240, 4 door, tan, 150K mls, 5 spd, AC, good condition, $3,400. Everett (650) 941-5267.

'89 VW Jetta, 4D, AC, cruise, power everything, 10-CD changer, alloy wheels, perfect, garaged, $2,700 or B/O. Call (650) 327-0323

'91 Chevy S10, 71K mls, 7 ft. bed, shell, new tires, standard, AC, tape player. $4,500. Call (650) 965-0775.

'89 Olds Custom Cruiser 8 passenger wagon. All power, including load leveler,A/C. New tires, battery. White w/ wood (vinyl) sides. VG condition. Repair records. Call (408) 296-6080.

'89 VW Jetta,4D, AC, cruise, power everything, 10-CD changerr, alloy wheels, perfect, garaged, $2,700 or B/O. Call (650) 327-0323.

'90 Toyota Camry DX,4Cyl, 2.0L,140K, AT, PW, PS, PL,CC, A/C, AM/FM cassette. Bronze,4 dr, clean, runs great, $3,000, Scott or Linda (408) 686-1915.

'92 Mazda Protege' DX Sedan, 4dr, 39K mls, AT, AC, AM/FM cassette, teal, Good condition, $5,500. Peter (408) 270-2205 evenings 8-9 p.m.

'95 Chevy Blazer LT, 4x4 , 4dr, fully loaded. New battery, shocks, tires, altenator, tune up & much more. 74K mls, asking $15,300 or B/O. Bob (408) 736-4039.

'96 FORD F-150, white, Eddie Bauer Special, loaded, 5 speed, AM/FM CD changer, power everything, camper shell, trailer hitch. Blue Book is $13K, asking $11K. Call (408) 268-1317.

Carpool

Carpool partners needed to join carpool from San Francisco, Daly City to Ames. Compressed schedule. Call Benny at ext. 4-5432.

Riders needed now for a vanpool from San Francisco to Moffett Field/Mt View area. Work hours are 7 a.m. to 4 p.m. Reduce the stress, cost, and pollution caused by commuting. Ruth at ext. 4-5247 or email: rglobus@mail.arc.nasa.gov.

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

Tahoe Donner near Truckee. Custom 3,000 sq ft, 4-bedroom, 4.5-bathroom house on Pinnacle Loop features king-size beds, fully equipped kitchen, spacious great room, and spectacular panoramic views. Call (800) 805-8199, e-mail tmvrs@telis.org, or get more info at http://www.tmvr.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 materials in MS word by e-mail to astrogram@mail.arc.nasa.gov on or before the deadline.

Deadline	*Publication*
Tues, Oct 26	*Mon, Nov 8*
Tues, Nov 9	*Mon, Nov 22*
Tues, Nov 23	*Mon, Dec 6*

Ames to hold FY 2000 "SDB High-Tech Expo"

Ames employees are invited to attend the FY 2000 "SDB High-Tech Expo" in the Ames Café atrium and Galileo room (Bldg. N-235) on Thursday, October 27. The event will take place from 10:00 a.m. to 2:00 p.m., and feature the latest in computing and communications technology. The expo is free to all interested personnel.

This event, hosted by the Contract Operations Branch, is designed to be an educational forum for both military and civilian personnel to be updated on IT products and services. A variety of exhibitors will be on-hand to demonstrate products as well as to answer questions. To see a list of exhibitors and technologies that will be on display, visit www.fedpage.com/events.

There is no fee to attend, and free food will be served throughout the day. For more information or to pre-register for the event, visit www.fedpage.com/events.

BOO!!

This year's Halloween party at the Ames Café will be held on Friday, October 29. The prizes will be bigger and better! Remember to enter the famous pumpkin carving contest!

For more information, contact Jodi Neal at ext. 3-8025.

Leadership lecture series scheduled

The Human Resources Division is pleased to announce Ames' participation in NASA's leadership/strategy lecture series. The series is composed of four satellite broadcasts featuring four experts in the fields of leadership development and strategy. The speakers are Dr. Gary Hamel, Peter Senge, Michael Porter, and Warren Bennis.

These condensed learning formats will provide managers and leaders with the opportunity to develop new ideas and approaches for handling critical business needs. Each session will run roughly 90 minutes. The sessions are designed to be interactive, with participants' ability to phone/fax questions to the speakers.

The schedule for the series is:

Oct. 26 11:30 to 1:00 - Gary Hamel
Nov. 10 8:00 to 9:30 - Peter Senge
Nov. 17, 12:00 to 1:30 - Michael Porter
Dec. 1, 8:00 to 9:30 - Warren Bennis

In the first session, Leading the Revolution, Hamel outlines a plan of action for leaders who wish to help their organizations become and stay an industry revolutionary. Participants will be able to identify strategies needed to build strategic innovation; describe the relationship between customer service and innovation; recognize how new business concepts can be applied to current projects, and recognize methods for developing innovation, capital, and talent in organizations. The first session will take place in the Main Auditorium (Bldg. N-201).

For more information, contact rsardy@mail.arc.nasa.gov or call Robert Sardy at ext. 4-4653.

Rotorcraft researchers receive awards

The following Army members of the Army/NASA rotorcraft division were recently selected to receive 1999 Army Research, Development, and Acquisition (RD&A) Awards:

Dr. Ken McAlister (ARA)
Mark Fulton (ARA)
Dr. Robert Ormiston (ARA)
Chris Blanken (ARH)

THE AMES Astrogram

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Editor.....Astrid Terlep

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