NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
ASTROGRAM
Newsletter of NASA Ames Research Center, Moffett Field, California

Fall 2011 - A Quarterly Publication

Thousands turn out to tour airborne observatory at Ames

The Stratospheric Observatory for Infrared Astronomy (SOFIA) visited NASA Ames and provided a rare opportunity to tour the airborne observatory in October. News media and Ames employees were invited to tour on Friday, Oct. 14 and the public on Saturday, Oct. 15. On Friday, an estimated 2,500 people, including representatives from CNET, Fox News, KQED (PBS), New Scientist, Space.com, Mountain View Patch and the San Mateo Daily Journal attended the event. On Saturday, an estimated 5,500 people visited Ames to tour SOFIA. See page 6 for a feature about the SOFIA visit.

NASA photo by Doiminic Hart

President lands at Moffett Field during Silicon Valley visit

BY HUONG NGUYEN AND JESSICA CULLER

President Barack Obama's arrival onboard Air Force One on Sunday, Sept. 25, 2011, at Moffett Federal Airfield marked his first landing at NASA Ames. Center Director Pete Worden met President Barack Obama upon his arrival.

"I had the honor to meet President Obama when he arrived at Moffett Federal Airfield," said Worden, who along with San Jose Mayor Chuck Reed and Mountain View Mayor Jac Siegel, greeted the president. "It was fitting that the president came to Silicon Valley to talk about his job creation plan, given how critical Silicon Valley is to the future of the U.S. economy," Worden said.

NASA Ames is an integral component of the world-renowned innovation economy and actively participates in the valley's technological and scientific evolution. The center plays a key role in the success of the local economy, specifically by investing in research and development,

continued on page 11

Photo credit: Official White House Photo by Pete Souza

NASA Ames Research Center Director Pete Worden greets President Barack Obama during the president's visit in late September.

NASA scientist unveils new chemical detection technology

BY CATHY WESELBY

NASA scientists are creating technology that can detect hazardous chemical compounds in the air with a smart phone.

Jing Li, a physical scientist at NASA Ames, demonstrated this innovative technology called Cell-All in a training exercise on Sept. 28, 2011, at the Los Angeles Fire Department.

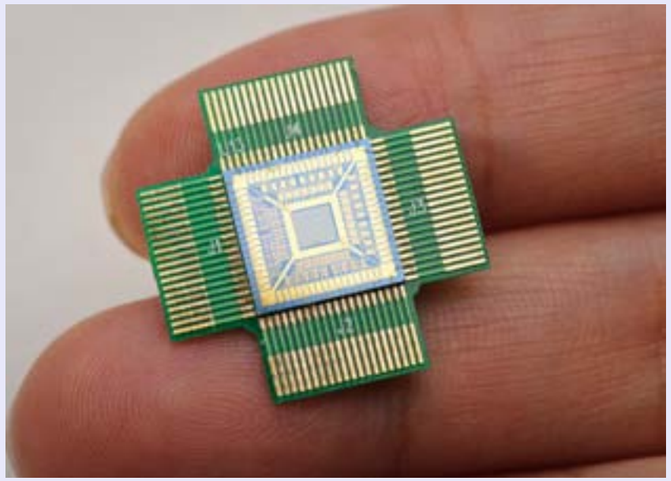
The technology was used to detect carbon monoxide in a response and rescue training exercise for Los Angeles fire and police departments. The U.S. Department of Homeland Security's Science and Technology (S&T) Directorate, in partnership with the Los Angeles Fire Department, Los Angeles Police Department and the California Environmental Protection Agency, sponsored the training exercise.

"This new technology can enhance both personal and public safety by utilizing a common device, such as a cell phone, to detect hazardous chemicals," said Stephen Dennis, technical director of S&T's Homeland Security Advanced Research Projects Agency. "Our goal is to create a lightweight, cost-effective, power-efficient resource for widespread public use."

The Cell-All technology, consisting of an energy-efficient sensor and cell phone application, detects toxic chemicals and alerts individuals and public safety authorities. Users have the option of using the sensor in a personal mode, which provides personal alerts, or opting-in to a network service, providing anonymous reports of the environmental condition to local responder networks.

Two different prototypes of Cell-All were demonstrated: one developed by NASA's Center for Nanotechnology at Ames and a prototype developed in partnership between Qualcomm Inc., San Diego, Calif., and Synkera Technologies Inc., Longmont, Colo.

To see images of the cell phone sensors, visit: http://www.nasa.gov/centers/ames/news/features/2009/cell_phone_sensors.html



NASA photo by Dominic Hart

The latest-generation of the multiple-channel silicon-based sensing chip, which consists of 64 nanosensors, and measures less than one square centimeter. Each side has 16 nanosensors – all that is needed for cell phone use.

National Science Conference focuses on diversity

BY RUTH DASSO MARLAIRE

NASA Ames is supporting the efforts of the Society for Advancement of Chicanos and Native Americans in Science (SACNAS) to bring together a national network of talented students and science professionals committed to increasing diverse individuals' participation in science.

The 2011 SACNAS National Conference, titled "Empowering Innovation and Synergy through Diversity," was held at the San Jose McEnery Convention Center Oct. 27 - 30, 2011. SACNAS is a national nonprofit organization of individuals and organizations dedicated to science, technology, engineering, and mathematics (STEM) and research, teaching and leadership. SACNAS fosters the success of Hispanic/Chicano and Native American scientists—from college students to professionals—to attain advanced degrees, careers, and positions of leadership in science.

The conference included workshops, scientific symposia, networking and mentoring events, keynote speakers, and professional development and leadership sessions. Also available were exhibits and field trips to NASA Ames and local universities.

On Saturday, Oct. 29, SACNAS hosted its local Community Day, designed to serve 500 local high school students. NASA astronaut and Navy Commander John Herrington, a member of the Chickasaw tribe, delivered a keynote address to the Community Day audience.

ASTROBIOLOGY • NEXT GENERATION COMPUTING • INTELLIGENT/ADAPTIVE SYSTEMS • ENTRY SYSTEMS • NANOTECHNOLOGY • AIR TRAFFIC MANAGEMENT

NASA's Kepler Discovery confirms first planet orbiting two stars

BY MICHELE JOHNSON

The existence of a world with a double sunset, as portrayed in the film Star Wars more than 30 years ago, is now scientific fact. NASA's Kepler mission made the first unambiguous detection of a circumbinary planet -- a planet orbiting two stars -- 200 light-years from Earth.

Unlike Star Wars' Tatooine, the planet is cold, gaseous and not thought to harbor life, but its discovery demonstrates the diversity of planets in our galaxy. Previous research has hinted at the existence of circumbinary planets, but clear confirmation proved elusive. Kepler detected such a planet, known as Kepler-16b, by observing transits, where the brightness of a parent star dims from the planet crossing in front of it.

"This discovery confirms a new class of planetary systems that could harbor life," Kepler principal investigator William Borucki said. "Given that most stars in our galaxy are part of a binary system, this means the opportunities for life are much broader than if planets form only around single stars. This milestone discovery confirms a theory that scientists have had for decades but could not prove until now."

A research team led by Laurance Doyle of the SETI Institute in Mountain View, Calif., used data from the Kepler space telescope, which measures dips in the brightness of more than 150,000 stars, to search for transiting planets. Kepler is the first NASA mission capable of finding Earth-size planets in or near the "habitable zone," the region in a planetary system where liquid water can exist on the surface of the orbiting planet.

Scientists detected the new planet in the Kepler-16 system, a pair of orbiting stars that eclipse each other from our vantage point on Earth. When the smaller star partially blocks the larger star, a primary eclipse occurs, and a secondary eclipse occurs when the smaller star is occulted, or completely blocked, by the larger star.

Astronomers further observed that the brightness of the system dipped even when the stars were not eclipsing one another, hinting at a third body. The additional dimming in brightness events, called the tertiary and quaternary eclipses, reappeared at irregular intervals of time, indicating the stars were in different positions in their orbit each time the third body passed. This showed the third body was circling, not just one, but both stars, in a wide circumbinary orbit.

The gravitational tug on the stars, measured by changes in their eclipse times, was a good indicator of the mass of the third body. Only a very slight gravitational pull was detected, one that only could be caused by a small mass. The findings are described in a new study published Friday, Sept. 16, in the journal Science.

"Most of what we know about the sizes of stars comes from such eclipsing binary systems, and most of what we know about the size of planets comes from transits," said Doyle, who also is the lead author and a Kepler participating scientist. "Kepler-16 combines the best of both worlds, with stellar eclipses and planetary transits in one system."

This discovery confirms that Kepler-16b is an inhospitable, cold world about the size of Saturn and thought to be made up of about half rock and half gas. The parent stars are smaller than our sun. One is 69 percent the mass of the sun and the other only 20 percent. Kepler-16b orbits around both stars every 229 days, similar to Venus' 225-day orbit, but lies outside the system's habitable zone, where liquid water could exist on the surface, because the stars are cooler than our sun.

"Working in film, we often are tasked with creating something never before seen," said visual effects supervisor John Knoll of Industrial Light & Magic, a division of Lucasfilm Ltd., in San Francisco.

"However, more often than not, scientific discoveries prove to be more spectacular than anything we dare imagine. There is no doubt these discoveries influence and inspire storytellers. Their very existence serves as cause to dream bigger and open our minds to new possibilities beyond what we think we 'know.'"

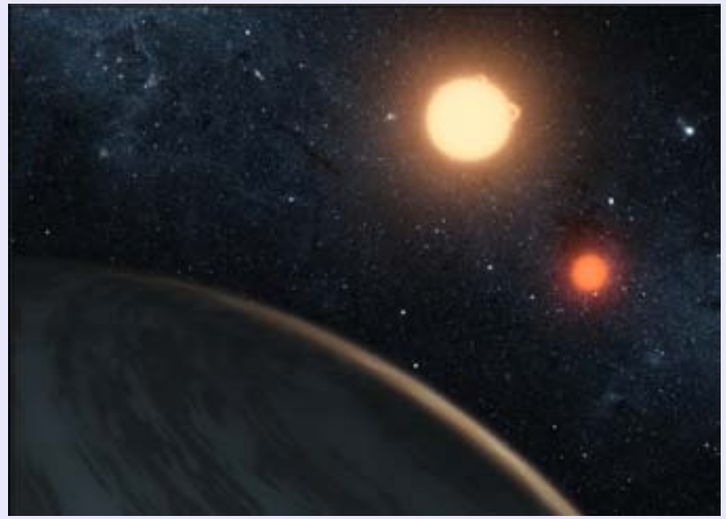


Image credit: NASA/JPL-Caltech/T. Pyle

This artist's concept illustrates Kepler-16b, the first planet known to definitively orbit two stars -- what's called a circumbinary planet. The planet, which can be seen in the foreground, was discovered by NASA's Kepler mission. The two orbiting stars regularly eclipse each other, as seen from our point of view on Earth. The planet also eclipses, or transits, each star, and Kepler data from these planetary transits allowed the size, density and mass of the planet to be extremely well determined. The fact that the orbits of the stars and the planet align within a degree of each other indicate that the planet formed within the same circumbinary disk that the stars formed within, rather than being captured later by the two stars.

NASA awards largest prize in aviation history

BY KAREN JENVEY

NASA has awarded the largest prize in aviation history, created to inspire the development of more fuel-efficient aircraft and spark the start of a new electric airplane industry. The technologies demonstrated by the CAFE Green Flight Challenge, sponsored by Google, competitors may end up in general aviation aircraft, spawning new jobs and new industries for the 21st century.

The first place prize of $1.35 million was awarded to team Pipistrel-USA.com of State College, Pa. The second place prize of $120,000 went to team eGenius, of Ramona, Calif.

Fourteen teams originally registered for the competition. Three teams successfully met all requirements and competed in the skies over the Charles M. Schulz Sonoma County Airport in Santa Rosa, Calif. The competition was managed by the Comparative Aircraft Flight Efficiency (CAFE) Foundation under an agreement with NASA.

"NASA congratulates Pipistrel-USA.com for proving that ultra-efficient aviation is within our grasp," said Joe Parrish, NASA's acting chief technologist at NASA Headquarters in Washington. "Today we've shown that electric aircraft have moved beyond science fiction and are now in the realm of practice."

NASA photo by Bill Ingalls

Team lead Jack Langelaan poses for a photograph next to the Pipistrel-USA, Taurus G4, aircraft prior to winning the 2011 Green Flight Challenge, sponsored by Google, on Monday, Oct. 3, 2011 at NASA Ames. The all electric Taurus G4 aircraft achieved the equivalency of more than 400 miles per gallon. NASA and CAFE held the challenge to advance technologies in fuel efficiency and reduced emissions with cleaner renewable fuels and electric aircraft.

The winning aircraft had to fly 200 miles in less than two hours and use less than one gallon of fuel per occupant, or the equivalent in electricity. The first and second place teams, which were both electric-powered, achieved twice the fuel efficiency requirement of the competition, meaning they flew 200 miles using just over a half-gallon of fuel equivalent per passenger.

"Two years ago the thought of flying 200 miles at 100 mph in an electric aircraft was pure science fiction," said Jack W. Langelaan, team leader of Team Pipistrel-USA.com. "Now, we are all looking forward to the future of electric aviation."

The competition marks the culmination of more than two years of aircraft design, development and testing for the teams. It represents the dawn of a new era in efficient flight and is the first time that full-scale electric aircraft have performed in competition.

NASA uses prize competitions to increase the number and diversity of the individuals, organizations and teams that are addressing a particular problem or challenge. Prize competitions stimulate private sector investment that is many times greater than the cash value of the prize and further NASA's mission by attracting interest and attention to a defined technical objective.

This prize competition is part of the NASA Centennial Challenges program, part of the Space Technology Program, managed by the NASA Office of the Chief Technologist.

For more information, visit: http://www.cafefoundation.org

Unique NASA sounds available

BY KAREN JENVEY

Historic and interesting sounds and sound bites from NASA space missions are available for download as ringtones or on your computer for events, errors, alarms and notifications.

The public now can hear the roar of a space shuttle launch or Neil Armstrong's, "One small step for (a) man, one giant leap for mankind," every time they get a phone call. A new NASA web page now has a collection of more than 35 different sounds, each approximately 20 seconds. Examples include:

- Apollo 13's John "Jack" Swigert commenting "Houston, we've had a problem"
- Crackle of the historic last launch of the space shuttle, STS-135
- Segments from President John F. Kennedy's historic moon speech
- Sound wave conversions of the light curve waves created by stars discovered by NASA's Kepler mission and other sounds of planets and stars

"NASA has been making historic sounds for over 50 years," said Jerry Colen, NASA App project manager at NASA Ames Research Center. "Now we're making some of these memorable sounds easy to find and use."

Historic and interesting sounds and sound bites from NASA space missions are available for download as ringtones or on your computer for events, errors, alarms and notifications thanks to an Ames-developed website.

The NASA sounds are available in both MP3 and M4R (iPhone) files. NASA will update the collection as new sounds become available. To listen to and download the sounds, visit: http://www.nasa.gov/connect/sounds

The NASA App for Android allows users to easily preview and set the sounds as ringtones. To download the most recent version of the NASA App for Android, visit: https://market.android.com/details?id=gov.nasa

STS-135 astronauts discuss last space shuttle mission

BY RACHEL HOOVER

NASA's space shuttle Atlantis astronauts visited Ames Research Center on Aug. 22, 2011, for interviews and discussed their mission to the International Space Station -- the flight that brought the illustrious space shuttle program to a close. Chris Ferguson commanded the STS-135 mission and was joined by fellow veteran astronauts Pilot Doug Hurley and Mission Specialists Sandra Magnus and Rex Walheim.

The STS-135 mission launched July 8, 2011, and landed July 21, 2011. It was the 33rd and final flight for Atlantis, which spent 307 days in space, orbited Earth 4,848 times and traveled 125,935,769 miles. In addition to carrying supplies to the space station, space shuttle Atlantis flew a system to study robotic spacecraft refueling and returned a failed ammonia pump module to help NASA improve pump designs for future systems.

This was Ferguson, Magnus and Walheim's third spaceflight and Hurley's second. Ferguson has logged more than 28 days in space; Magnus has logged more than four months in space and Walheim has logged more than 24 days in space including five spacewalks; Hurley has logged more than 4,000 hours in 25 different aircraft.

NASA photo by Dominic Hart

The STS-135 crew during their recent visit to Ames, left to right, NASA astronauts Chris Ferguson, commander; Doug Hurley, pilot; and mission specialists Sandy Magnus and Rex Walheim.

For more information about the STS-135 crew members and their mission, visit: http://go.usa.gov/KMk

Ames celebrates International Observe the Moon Night

BY CATHY WESELBY

NASA's Ames hosted a free event celebrating the moon from noon to 11 p.m. on Saturday, Oct. 8, 2011, to celebrate the 2011 International Observe the Moon Night.

More than 450 people from the local community visited Ames for a series of day and night-time activities focused on the moon. Students guided the Exploration Uplink rover over the eight-ton Ames lunar simulant test bed, Ames scientists spoke to the public about science returns from the LCROSS and LRO missions, the newly launched GRAIL mission, and the future NASA LADEE mission.

Local astronomy clubs brought dozens of telescopes and families lined up to see the wonders of our moon. A guided tour of the moon was given by Ames' Brian Day as his telescope view was fed to a giant screen visible to all the spectators. The NASA Lunar Science Institute supports the International Observe the Moon Night in association with several NASA centers and public astronomy groups, and this year more than 500 events were scheduled in 30 countries.

NASA photo by Dominic Hart

Amateur astronomers of all ages attended NASA Ames' Observe the Moon Night on Oct. 8, 2011. Pictured here: Adrian Brown shows daughter Alexis what the moon looks like up close.

NASA's Airborne Observatory reaches new heights teaching science

by Ruth Dasso Marlaire

NASA recently invited high school students and the general public to Ames to tour NASA's next generation airborne observatory, called the Stratospheric Observatory for Infrared Astronomy (SOFIA), and talk with its science team.

SOFIA is a highly modified Boeing 747SP aircraft that carries a telescope with a 100-inch (2.5 meter)-diameter reflecting mirror that conducts astronomy research not possible for even the largest and highest of ground-based telescopes. It uses an infrared telescope to detect the invisible energy of many astronomical objects that cannot be seen with the human eye, or ordinary telescopes.

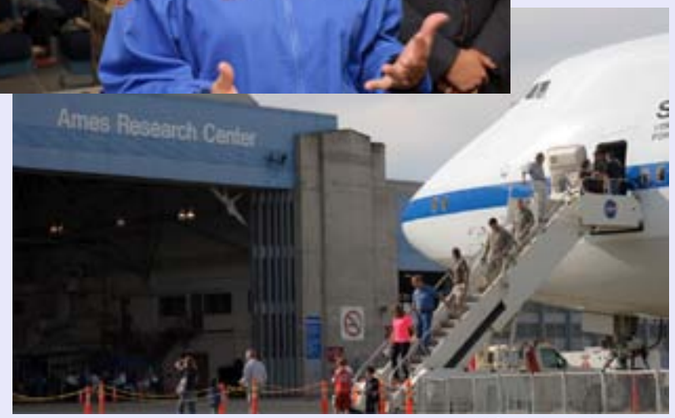
SOFIA began science flights in December 2010. In May 2011, NASA announced the selection of six teachers from across the U.S. to share flight experiences with astronomers. Marita Beard, a science teacher from Branham High School, San Jose, Calif., participated in a flight during the night of June 3-4 that lasted 10 hours and flew at altitudes up to 43,000 feet above Earth. As part of the astronomy experience, Beard's high school students recently were given an opportunity to tour the airborne facility that they had heard so much about from their teacher.

"It was a wonderful experience for me as a teacher. I now have real, personal experience to help teach science. I can better explain the science and have seen how science experiments are done," said Beard.

In addition to making a contribution to science, NASA is helping young scientists and teachers learn infrared astronomy. Teachers, like Beard, are being given a unique opportunity to partner with SOFIA's science team. "I had pre-conceived ideas about the experience. I thought I'd be looking over the scientists' shoulders. But they actually took time to explain things to me," Beard said.

SOFIA will be used to study many different kinds of astronomical objects and phenomena, but some of the most interesting are: the birth and death of stars, the formation of new solar systems, identification of complex molecules in space, evolution of gas and dust in the interstellar medium (or, ecosystems of galaxies), composition of planets, comets and asteroids in our solar system, and supermassive black holes at the center of galaxies.

San Jose teacher Marita Beard, who flew on SOFIA explains the airborne observatory's mission to her students. At right is Eddie Zavala, SOFIA deputy program manager.



NASA photos by Dominic Hart

Ames employees, students and news media toured the huge airborne observatory on Oct. 14, 2011.

"The most exciting thing I saw was the center of the galaxy," said Beard. "Dr. Terry Herter, Cornell University's principal investigator for the Faint Object InfraRed Camera for the SOFIA Telescope (FORCAST), showed me the highest resolution and clearest picture of the center of the Milky Way ever seen."

As a science teacher, Beard was given hands-on experience and shown how the astronomy research process works. "I learned what 'chopping' is. It's how scientists get rid of background radiation in an image, so they look at only the infrared light coming from the galaxy," explained Beard.

The learning experience wasn't just about science though; career development also was part it. There were videographers, pilots, safety and avionics officers, flight engineers and planners, and others on board; each playing a role in the science experiment process.

"I was surprised by the number of people on board. You don't have to be a scientist to be a member of the NASA SOFIA team," she said.

Once the students arrived at Ames, they visited SOFIA exhibits, saw demonstrations and heard talks by SOPHIA experts.

"This is an infrared camera, and you are seeing yourselves on this screen. The darker colors are the cooler temperatures, and the lighter colors are the warmer temperatures. Your hair is darker than your skin because it's cooler," said Dana Backman, SOFIA's education and public outreach manager, who demonstrated to students the temperature variations of infrared images.

continued on page 10

Kepler Mission-themed corn maze attracts more than a thousand visitors

by Michele Johnson and Huong Nguyen

More than a thousand visitors turned out for the Kepler Mission-themed corn maze on Oct. 1, 2011, hosted by NASA and the Dell'Osso Family Farm of Lathrop, Calif.

The public explored and got "lost in space" inside the 20-acre corn maze which grew to approximately 10-feet tall. The maze was intricately cropped to display discoveries and images from the Kepler mission.

Kepler is the first NASA mission capable of finding Earth-size planets in or near the "habitable zone," the region in a planetary system where liquid water can exist on the surface of the orbiting planet. The Kepler mission is managed by NASA's Ames.

"It is important for NASA to participate in nontraditional outreach efforts that closely interact and engage the public with NASA's missions," said Deborah Feng, acting deputy center director of NASA Ames. "Through this special outreach effort, NASA was able to highlight a new era of post-shuttle spaceflight by showcasing current and future programs, such as the Kepler mission, and reach geographically dispersed communities."

Opening day featured a special guest appearance by NASA Astronaut Yvonne Cagle, who signed autographs for ecstatic space fans. Shortly after opening remarks from NASA Ames' acting deputy center director, visitors to the agritourism farm were treated to interactive presentations by NASA Ames' scientists. Other engaging activities included an aerial ropes course, zip lines, train rides, pony rides, a giant pumpkin patch and a scary haunted house.

John Hogan, an environmental scientist in the Bioengineering Branch at NASA Ames, kicked-off the NASA presentations with a rousing discussion about sustainable life support systems in space.

In order to leave Earth and explore space, we need to bring life support systems that perform functions similar to what Earth normally provides for us. Hogan introduced attendees to the concept of 'Spaceship Earth.' This is the idea that we live on the largest known spacecraft, flying around the sun in the vastness of space.

The planet-finding mission also was a topic of the NASA talks. Steve Howell and Steve Bryson, Kepler scientists at NASA Ames, led interactive skits engaging space fans of all ages. Audience participation helped demonstrate how the spacecraft detects planets more than 1,000-light years away by measuring the change in brightness of distant stars.

continued on page 10

NASA photo by Eric James

Maze-goers of all ages wound their way through the Kepler mission-themed corn maze.

Overhead view of the Kepler Mission maze.

NASA and Palo Alto Humane Society Partner for Animal Protection

BY RUTH DASSO MARLAIRE

Since 1990, NASA Ames has been implementing a predator control program in concert with the U.S. Fish and Wildlife Service Don Edwards National Wildlife Refuge to protect the threatened and endangered species on the center and in the refuge property. As part of that program, Ames recently signed a new agreement with the Palo Alto Humane Society (PAHS) to help find homes for feral cats.

Many of us are aware that threatened and endangered species, including birds and the salt marsh harvest mouse, live in the outfields of NASA Ames. Almost 20 years ago, Ames was notified by the U.S. Fish and Wildlife Service, a part of the U.S. Department of the Interior (DOI), that it was at risk of violating the Federal Endangered Species Act if it did not implement a predator control program to protect the endangered species.

To start the process, Ames contracted with DOI biologists who identified feral cats as a major predator at Ames. Over the years, Ames and the Don Edwards San Francisco Bay National Wildlife Refuge have contracted with the U.S. Department of Agriculture Wildlife Services Program to humanely catch feral and abandoned cats.

Although the number of captured cats has fluctuated from year to year, in 2010, 50 cats were caught and transported to a local veterinarian, where they were spayed or neutered and made available for fostering. Ames can no longer afford the cost of spaying and neutering, which was approximately $100 per cat. Because of the number of cats and the risk of violating state law prohibiting abandoning animals at a veterinarian, Ames has formalized an agreement with the PAHS. The society now will take custody of the cats, after they have been transported to the veterinarian.

"Ames will be working with the Palo Alto Humane Society, where the cats will be given a second chance through fostering and adoption, rather than being released back at Ames," said Ann Clarke, chief of the Environmental Division at Ames.

To reduce the number of abandoned cats, Ames also has a feral cat management policy, which includes: no artificial feeding of feral or abandoned cats and wildlife, dumpsters and garbage cans must be covered at all times, and no pets are allowed on the Ames campus, except registered guide animals.

Threatened and endangered species, including birds and the salt marsh harvest mouse, live in the outfields of NASA Ames.

The Ames Cat Network has been active in discouraging personnel from abandoning cats at the center, and has been recognized for its work with the military, encouraging military personnel transferring from Ames to obtain information from the services about pet relocation options.

"The agreement will help abandoned cats, protect and preserve wild animals living at Ames, and it will lift the financial burden for animal control off the taxpayer," said Carole Hyde, executive director at PAHS. "Charitable organizations play a crucial role to such vital work."

NASA supercomputer enables largest cosmological simulations

BY KAREN JENVEY

Scientists have generated the largest and most realistic cosmological simulations of the evolving universe to-date, thanks to NASA's powerful Pleiades supercomputer. Using the "Bolshoi" simulation code, researchers hope to explain how galaxies and other very large structures in the universe changed since the Big Bang.

To complete the enormous Bolshoi simulation, which traces how the largest galaxies and galaxy structures in the universe were formed billions of years ago, astrophysicists at New Mexico State University Las Cruces, New Mexico, and the University of California High-Performance Astrocomputing Center (UC-HIPACC), Santa Cruz, Calif., ran their code on Pleiades for 18 days, consumed millions of hours of computer time and generating enormous amounts of data. Pleiades is the seventh most powerful supercomputer in the world.

"NASA installs systems like Pleiades, which are able to run single jobs that span tens of thousands of processors, to facilitate scientific discovery," said William Thigpen, systems and engineering branch chief in the NASA Advanced Supercomputing (NAS) Division at NASA Ames.

"The Bolshoi simulation is an excellent example of work done in support of NASA's science goal to understand how stars, galaxies and planets are formed in order to get a picture of how the universe has changed over billions of years," Thigpen added.

The Bolshoi simulation models the distribution of dark matter across a span of one billion light years to better understand how structures like galaxies formed in the early universe. Dark matter -- a mysterious substance with immense gravity that does not interact with normal matter and cannot be directly observed – makes up roughly 25 percent of the universe.

Ames employees savor chili during annual cook-off

Hundreds of hungry Ames employees recently sampled 20 participating team's chili recipes. To complement the chili tasting, hot dogs, turkey legs, Dippin Dots and cookies were served for dessert.

NASA photos by Dominic Hart

Contractor Council hosts 8th Annual Golf Tournament

by Kathleen Starmer

The Ames Contractor Council (ACC) hosted its eighth annual fundraising golf tournament on Aug. 12, 2011, at the Moffett Field Golf Course.

The ACC is a 501(c)(4) nonprofit organization, and proceeds from this annual event support both the Ames community and various educational outreach programs. This year's Golf Tournament Planning Committee was chaired by Steve Perry and co-chaired by Chris Buchanan. Staffing was provided by numerous volunteers from the Ames contractor community.

Eighty-eight players participated in the tournament. The winning foursome was a team sponsored by the International Association of Machinists and included players Thomas Brandon, Arthur Gonzalez, Pedro Mendez and Robert Skellen.

In addition to the best-ball tournament, the event featured putting and pitching contests, raffles for exciting prizes and a BBQ dinner hosted by Tee Minus One.

NASA photo by Dominic Hart

ACC treasurer and Golf Committee chair Steve Perry displays some of the raffle prizes at the 2011 ACC Golf Tournament.

This event raised more than $6,000 for the ACC's upcoming philanthropic activities. ACC President Terry Reichert deemed the 2011 golf tournament the Council's most successful fundraising effort to-date and said the council looks forward to supporting the Ames community and local educational efforts with the proceeds.

Airborne Observatory

continued from page 6

"An infrared camera has terrestrial uses also. For instance, it can be used for "search and rescue" campaigns, since a person's warmth could be detected at night in the wilderness," Backman said.

The Airborne Astronomy Ambassadors program is an outstanding opportunity for NASA to reach out to both new and veteran teachers of science, technology, engineering and math to bring the excitement of real science research into the classroom and the community at large.

For more information about applying for the Airborne Astronomy Ambassadors Cycle 1 (2012-2103) team, visit: http://www.seti.org/epo/SOFIA

For more information about NASA SOFIA program, visit: http://www.nasa.gov/mission_pages/SOFIA

For more information about NASA SOFIA education program, visit: hyyp://sofia.usra.edu

Kepler Mission-themed corn maze attracts more than a thousand visitors

continued from page 7

Seven "Space Farms" around the country were chosen to honor NASA and the 50th anniversary of human spaceflight with their 2011 corn maze designs. With a unique Kepler theme to highlight space exploration, the Dell'Osso Family Farm corn maze is one of the nation's top seven agritourism farms selected for the Space Farm 7 outreach program.

The Space Farm 7 maze project enables generations to enjoy NASA's numerous contributions to space exploration in a distinct setting, combining the thrill of space with a search for a way out of the maze. With cross-agency participation from six NASA field centers, an estimated one million people are expected to visit the corn mazes.

"We are truly honored to work with NASA and participate in the Space Farm 7 outreach program," said Susan Dell'Osso, co-owner of the Dell'Osso Family Farm. "Space exploration is a critical part of our American history and we hope to educate thousands of children about the importance of space to our future. The entire population of Lathrop is proud to have been part of this venture."

The Kepler corn maze remained open to the public daily throughout the month of October.

NASA releases new interactive space communications game

by Jessica Culler

NASA has released an interactive, educational video game called NetworKing that depicts how the Space Communication and Navigation (SCaN) network operates. The release of the video game coincided with the close of World Space Week, Oct. 4-10, 2011.

Developed by the Information Technology Office at NASA Ames Research Center, NetworKing gives players an insider's perspective into how astronauts, mission controllers and scientists communicate during space missions.

"For any young person who ever dreamed of one day contributing to space missions, NetworKing lets players develop a kingdom of multiple space communication networks working together to support space missions," said Barbara Adde, policy and strategic communications director for SCaN at NASA Headquarters in Washington.

To successfully construct fast and efficient communication networks, players must first establish command stations around the world and accept clients conducting space missions, such as satellites and space telescopes. Resources are earned throughout the game as players continue to acquire more clients. Players can strategically use accumulated resources to enhance and increase their networks' capabilities.

Players with the most integrated communications networks will have the ability to acquire more complex clients, such as the International Space Station, Hubble Space Telescope and the Kepler mission.

"As a simple and fun introduction to the complex world of space communications, NetworKing gives players the opportunity to enjoy a challenging game while absorbing the basic concepts of space communication," said Daniel Laughlin, games researcher at NASA's Goddard Space Flight Center in Greenbelt, Md.

"It's an engaging way to increase interest in science, technology, engineering and mathematics areas of study and open minds to potential careers in those fields, Laughlin added"

NetworKing is available to the public for play on the NASA 3D Resources website. Players can access the game using an Internet browser. It can be downloaded and run on both a PC and Macintosh operating system. To play the NetworKing game, visit: http://www.nasa.gov/multimedia/3d_resources/scan.html

In conjunction with NetworKing, the 3D Resources website also links visitors to the Station Spacewalk Interactive Game and the SCaN Interactive Demo that demonstrate the interaction between SCaN's ground-and-space facilities and NASA spacecraft.

Declared by the United Nations General Assembly, World Space Week is an annual international celebration of science and technology commemorating the launch Sputnik 1, the first human-made Earth satellite, and the signing of the Outer Space Treaty. The theme for World Space Week 2011 is "50 Years of Human Spaceflight."

President lands at Moffett Field during Silicon Valley visit

continued from front page

promoting innovation, and advancing research in green and clean technologies.

NASA Ames also supports science, technology, engineering and math (STEM) education and workforce development. In addition, NASA Ames' efforts include developing partnerships with the private sector and facilitating commercialization of space.

On the second day of his overnight visit, Monday, Sept. 26, 2011, President Obama visited the Computer History Museum in Mountain View, Calif., to participate in a discussion about putting America back to work. LinkedIn, the world's largest professional network with more than 120 million users worldwide, hosted the town hall meeting.

The core topics of the President's trip to Silicon Valley focused on job creation and the economy. In remarks at the town hall meeting, President Obama referred to Silicon Valley as the part of the country that represents the essence of America, "because what you see here is entrepreneurship and dynamism, a forward-orientation and optimism."

According to an economic benefits study prepared for Ames in March 2010, Ames generated $1.3 billion in annual economic output and supported more than 8,400 jobs nationally, with 70 percent of these jobs located in California. Regionally, more than 5,300 jobs and $877 million in annual economic output were reported in the San Francisco Bay Area. NASA Research Park (NRP), a collaborative community sponsored by NASA Ames, now has 80 on-site partners, including Bloom Energy, Apprion, Tibion, Nanostellar and Benetech.

"As Ames explores space and our planet, it stimulates economic growth by employing scientists and engineering professionals, promoting technology innovation, and preparing the workforce in the future – all to enhance the health, growth, and long-term competitiveness of the Bay Area and the nation," said Worden.

After 70 years of innovation, Ames continues to pursue new breakthrough technologies and strengthen partnerships with local Silicon Valley organizations, companies, and academic institutions through the NRP.

Ames supports the local and regional economy, not only through its direct jobs and purchases, also by maintaining its specialized research facilities for use by external organizations actively-seeking commercial partnerships. Ames also continues to operate Moffett Federal Airfield and sponsor forums, public events and seminars.

Although President Obama's schedule did not permit a longer visit, Worden invited the president to return to NASA Ames for an extended visit.

"We look forward to the possibility of a future visit, so that we can show him first-hand some of the technologies that we are developing that both serve NASA missions and benefit the quality of life on Earth for all Americans," said Worden.

NASA Ames hosts 2011 Honor Awards Ceremony

NASA Ames hosted its 2011 Honor Awards at a ceremony on Nov. 2, 2011 in the Syvertson Auditorium, N-201. Thanks to every employee who submitted a nomination this year, and congratulations to these deserving employees. A list of those honored follows:

2011 AMES HONOR AWARDEES

Administrative Assistant Support/ Secretary
Deborah C. Nagy
Kay L. Twitchell

Administrative Professional
Dennis R. Cauterucio
Kevin F. Kouba
Beverly M. Norris

Commercialization/Technology Transfer Award
David F. Blake

Diversity and Opportunity
William G. Warmbrodt

Contractor Employee
Dennis W. Acosta, Jacobs Technology Inc.
Christopher R. Boshuizen, Stinger Ghaffarian Technologies Inc.
Robert W. Craun, Stinger Ghaffarian Technologies Inc.
Paula M. Dumars, Lockheed Martin Space OPNS
William E. Eshagh, PEROT Systems
Edward A. Figueira, Tessada
Lynette I. Forsman, Delta-Critique
Chok Fung Lai, University Affiliated Research Center
Ronald D. Lehmer, SAIC
Michael W. Leonard, SAIC
Juan A. Magana, Ames Exchange
Walter E. Miller, Lockheed Martin Space OPNS
Kevin Y. Sato, Lockheed Martin Space OPNS

Education and Outreach
Larry A. Young

Engineer
Nathan J. Burnside
Miles T. Cote
Shon R. Grabbe

Environmental and Sustainability
Rose A. Grymes

Group/Team
ACFS Simulation Model Upgrade Team
Ames' Inaugural Diversity and Inclusion Day Team
Ames Railroad Valley (RRV) Experiment 2011 Team
Ames Shuttle Orbiter Aerothermal Analysis Team
ARCLAN Engineering & Operations Team
Commercial Biomedical Test Module-3 (CBTM-3) Payload Team
Fusion Imaging Team
Kepler Anomaly Resolution Team
MI2 Team
NASA ARC International Visits Coordination (IVC) Team
Operational Based Vision Assessment Team
SOFIA Outreach Group
STL2 Team
Ultrasound 2 Project Team

Mentor
James E. Kennon
David R. Morse

Special Appreciation
David F. Downing, Kennedy Space Center
Stephen C. Jensen, Dryden Flight Research Center

Project Management
Deborah S. Ballinger
Gelsomina Cappuccio
David L. Pletcher

Scientist or Researcher
William J. Borucki
Jessica Koehne

Student
Cherise L. Cunha
Lynnette C. Jacome
Lubna M. Shirazi

Supervisor/Manager
Rabindra D. Mehta

Technical Support/Professional
Susan P. Suffel

Technician
Shawn A. Meszaros
Robert L. Walker

In memorium

Maurice D. White, 94, of Palo Alto, Calif., died peacefully Sept. 30, 2011. Maurie was born in Lawrence, Ma., in 1916. He graduated with a B.S. degree in aeronautical engineering from MIT in 1938 and began what would become a distinguished 37 year career at NACA and NASA at Langley Research Center.

Maurie had spent the war years learning the ropes of flight research and airplane flying qualities technology. A highlight of this early phase of his career was the coauthorship with Gilruth of NACA Report No. 711, an analysis and prediction of the longitudinal stability of airplanes. This report was important in the design of all World War II aircraft.

After transferring to Ames after WWII, Maurie embarked on a three-decade period of increasingly productive and noteworthy research in aeronautics in the Flight Research Branch. An important contribution in the mid-50s came with the effort to determine airplane stability and control characteristics that influenced the choice of minimum acceptable approach speed for landing on an aircraft carrier.

His experience gained with a rudimentary simulator led to his lead roll in setting the requirements for several Ames flight simulators: the Height Control Apparatus, Five Degree Centrifuge, Flight Simulator for Advanced Aircraft, and the Vertical Motion Simulator.

Starting in 1970, as chief of the Flight Dynamics and Controls Branch, he managed technical specialists working on the latest developments in aircraft dynamics and control techologies for aircraft ranging from commercial transports to an array of fixed wing and rotary wing vertical flight concepts.

After his retirement from NASA, he and George Cooper, old friends and colleagues, consulted with Ames on a program to improve coordination among aircraft crew members in the cockpit. They were the principals who organized the first international conference on Cockpit Resource Management that launched this important program for NASA.

Maurice's legacy stands with other Ames alumni whose work continues to influence current events in U.S. aviation. He is survived by Miriam L. White, his loving wife of 35 years, two children from his first marriage to Evelyn M. White, four step-children,13 grandchildren and one great grandchild.

For anyone wishing to make a donation in Maurie's memory, the family requests that you donate to a charity of your choice.

Ames Ongoing Monthly Events Calendar

African American Advisory Group (AAAG) Mtg., every last Tuesday of each month, 12 - 1 p.m., Bldg. N241, Rm 237. POC: Chair - Jim Busby, ext. 4-2792.

Ames Amateur Radio Club, third Thurs., of ea. month, 12 noon, N-T28 (across from N-255). POC: Michael Wright, KG6BFK, at ext. 4-6262.

Ames Ballroom Dance Club, Classes on Tuesdays. Beginning classes meet at 5:15 p.m. Higher-level class meets at 5:50 p.m. Held in Bldg. 944, the Rec. Center. POC: Helen Hwang at helen.hwang@nasa.gov, ext. 4-1368.

Ames Bicycling Club, every third Wednesday of each month, 12 noon - 1 p.m., Bldg. N-245 Auditorium. For information on the club go to the website https://ames.clubexpress.com. POC: Julie Nottage at jnottage@mail.arc.nasa.gov, ext. 4-3711.

Ames Bowling League, Homestead Lanes Thursdays at 6:20 p.m. Need substitute bowlers. Sign up questions: Steve Howard at ext. 4-4884.

Ames Child Care Center Board of Directors Mtg., every other Monday, 1 - 2:30 p.m., Bldg. N-262/Rm 180. POC: Sally Miller, ext. 4-5411.

Ames Contractor Council Mtg., first Weds. of ea. month, 11 a.m., Bldg. N-200, Committee Room. POC: Elisa Taube (408) 541-2838.

Ames Federal Employees Union (AFEU) Mtg, third Wednesday ea. month, noon. Bldg. N-247, Rm. 109.. Guests welcome. Info at: http://www.afeu.org. POC: Paul K. Davis, ext. 4-5916.

The Hispanic Advisory Committee for Excellence (HACE) Mtg., first Thursday of each month, 11:45 a.m. - 12:45 p.m., Bldg. N-255, Rm. 101C. POC: Eric Kristich, ext. 4-5137 and Mark Leon, ext. 4-6498.
Jetstream Toastmasters, Mondays, 12 p.m. - 1 p.m., Bldg. N-269/Rm.179. POC: Tim Steiger, ext. 4-0195, tim.steiger@nasa.gov. Web: http://jetstream.freetoasthost.com

Ames Mac Support Group Mtg., third Tuesday of each month, 11:30 a.m.to 1 p.m., Bldg. N-262, Rm 180. POC: Tony ext. 4-0340.

Ames Model Aircraft Club, flying radio-controlled aircraft at the north end of Parsons Ave. on weekend mornings. POC: Mark Sumich, ext. 4-6193.

Moffett Aikido Club, Monday and Wednesday evenings, 6:30 p.m., Bldg. 944, across from former McDonalds. Aikido is a non-competitive, defensive martial art known as the "Way of Harmony." POC: Diane Pereda (650) 575-9070 or Robert Dean (650) 787-1007, email: mfaikido@aol.com

Native American Advisory Committee Mtg., fourth Tuesday each month, 12 noon - 1 p.m., Bldg. 19, Rm 1096. POC: Mike Liu, ext. 4-1132.

Ames Nimble Knitters Club, every Tuesday at 11:30 a.m., Bldg. N210/Rm 141. POC: Rosalyn Jung, knitfan2@yahoo.com or Diane Alexander at ext. 4-3140. URL: http://knit.arc.nasa.gov

Ames Green Team (formerly the Green Ames Working Group) meetings are held the first Thursday of each month in N237, Room 101, from 1:30-2:30 p.m. For information, call Roger Ashbaugh, Ames Environmental Management Division, ext. 4-5602. http://environmentalmanagement.arc.nasa.gov/reports/eo-13514.html

Ames Sailing Club Mtg., second Thursday of each month (March through November), from 12 p.m. - 1 p.m., Bldg. N-260, Rm. 113. URL: http://sail.arc.nasa.gov/. POC: Clif Horne, ext. 4-4571.

Ames Safety Committee, third Thursday of each month, 10 a.m. - 11 a.m., Bldg. N-237, Rm. 201. POC: John Livacich, jlivacich@mail.arc.nasa.gov, ext. 4-3243 or Terry Reichert, treichert@mail.arc.nasa.gov, ext.-4-0375.

Ames emergency announcements

To hear the centerwide status recording, call (650) 604-9999 for information announcements and emergency instructions for Ames employees. You can also listen to 1700 KHz AM radio for the same information.

Exchange Information

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

Beyond Galileo Gift Shop N-235 in the cafeteria , 8 a.m. to 2 p.m., ext. 4-6873

Visitor Center Gift Shop (White Tent N-943-A, Tues-Fri, 10 a.m. to 4 p.m., Sat. - Sun, 12 - 4 p.m., ext. 4--5412
Remember to purchase your baby shower, birthday, holiday gifts at Ames' two gift shops!

Mega Bites Cafeteria N-235, 6 a.m. to 2 p.m., ext. 4-5969/Catering ext. 4-2161

Barcelona Café Bldg. 3, 6:30 a.m. to 2 p.m., ext. 4-4948/Catering ext. 4-4948

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

Moffett Field Golf Club with 'Tee minus 1' Grill and Sports Bar. Catering available. Call (650) 603-8026. Extended Happy Hour Thursdays, $5 and $6 pitchers of beer starting at 4 p.m. to 8:30 p.m.

RV Lots Available Call to reserve a space at (650) 603-7100/01.
Civilian/Contractors, $50/mo; military $25/mo

NASA Lodge (N-19) 603-7100

Where to stay when you're too tired to drive home? What about the lodge?! Two types of rooms: Bldg. 19 (43 rooms), rate: $55/night ($5 ea add'l adult); Bldg. 583 (150 rooms), rate: $45/night ($5 ea. add'l adult)

Ames Swim Center (N-109) 603-8025

Closed for repairs, for updates visit http://amesexchange.arc.nasa.gov/swim/index.html
The pool is heated year round! The pool is currently available for lap swim, pool parties and special events. POC: Ryan Storms, Pool Manager (650) 603-8025. Memberships: single memberships: $60/yr. Family memberships: $80/yr. After purchasing a membership, there is an entrance fee: daily entrance fee - $3/day or lap pass fee - $50 for 20 uses. Platinum membership - $380/yr. (no daily fee). Special events: include military training, swim team events, kayak role practice, etc. The cost for special events is $75/hr, or $50/hr for military.

Reservations for Chase Park call ext. 4-4948
Reservations for ARC Park call ext. 4-5969

Ames Cat Network

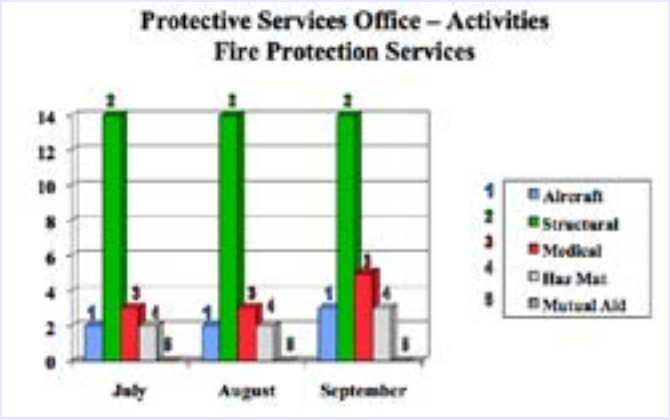
The Ames Cat Network needs help finding homes for cats trapped at Moffett. They range from feral to abandoned/lost pets. Tested, altered and inoculated. Call Iris at ext. 4-5824 if you or someone you know are interested in fostering or adopting a cat.

Protective Services monthly activity

A statistical summary of activities of the Protective Services Division's Security/Law Enforcement and Fire Protection Services units for the month of September 2011 is shown below.

Security/Law Enforcement Activity

Fire Protection Activity



One World, One Ames

Poem by Rose King

Rose King was the first place winner for the Ames Diversity and Inclusion Event Poetry Contest. Here is her poem:

Black, white, red, brown, & yellow
- A Kaleidoscope of dazzling colors.
Crystal clear multicultural hues of brilliant ideas
- boundless, infinite, forever.

Cerebral threads woven from humanity's landscape
- soaring through time and space.
Transcending vertical boundaries of complacency
- a world of possibilities.

Each unique yet familiar voice
Seeking a path less traveled,
An unknown place to journey.
As footprints leave, memory whispers
- Isa world, Isa Ames - Hitotsu world, Hitotsu Ames - Uno world, Uno Ames, Yī world, Yī Ames
- Nitokska world, Nitokska Ames

ASTROGRAM

National Aeronautics and Space Administration

Ames Research Center
Moffett Field, CA 94035-1000

FIRST-CLASS
U.S. POSTAGE
PAID
PERMIT NO. 85
MOUNTAIN VIEW, CA

Astrogram NP-2011-10-01-ARC

ASTROGRAM

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

Managing Editor.....Michael Mewhinney
Editor, Layout and Design.....Astrid Olson

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