

# The business of risk

O'Keefe contrasts government and private industry roles, responsibilities

By Jay Levine  
 X-Press Editor

The successful Sept. 29 launch of Burt Rutan's SpaceShipOne marked a potential beginning for a new era of civilian space tourism. NASA Administrator Sean O'Keefe attended the flight, and afterward congratulated Rutan and pilot Mike Melville on the groundbreaking achievement.

O'Keefe said the flight marked what the end result of NASA research should be: the transfer of knowledge to the private sector, where federally funded research can be exploited and made available to the public. His remarks were made to Dryden employees during a talk at the Center, hours after the first of SpaceShipOne's two flights aimed at capturing the \$10 million Ansari X Prize.

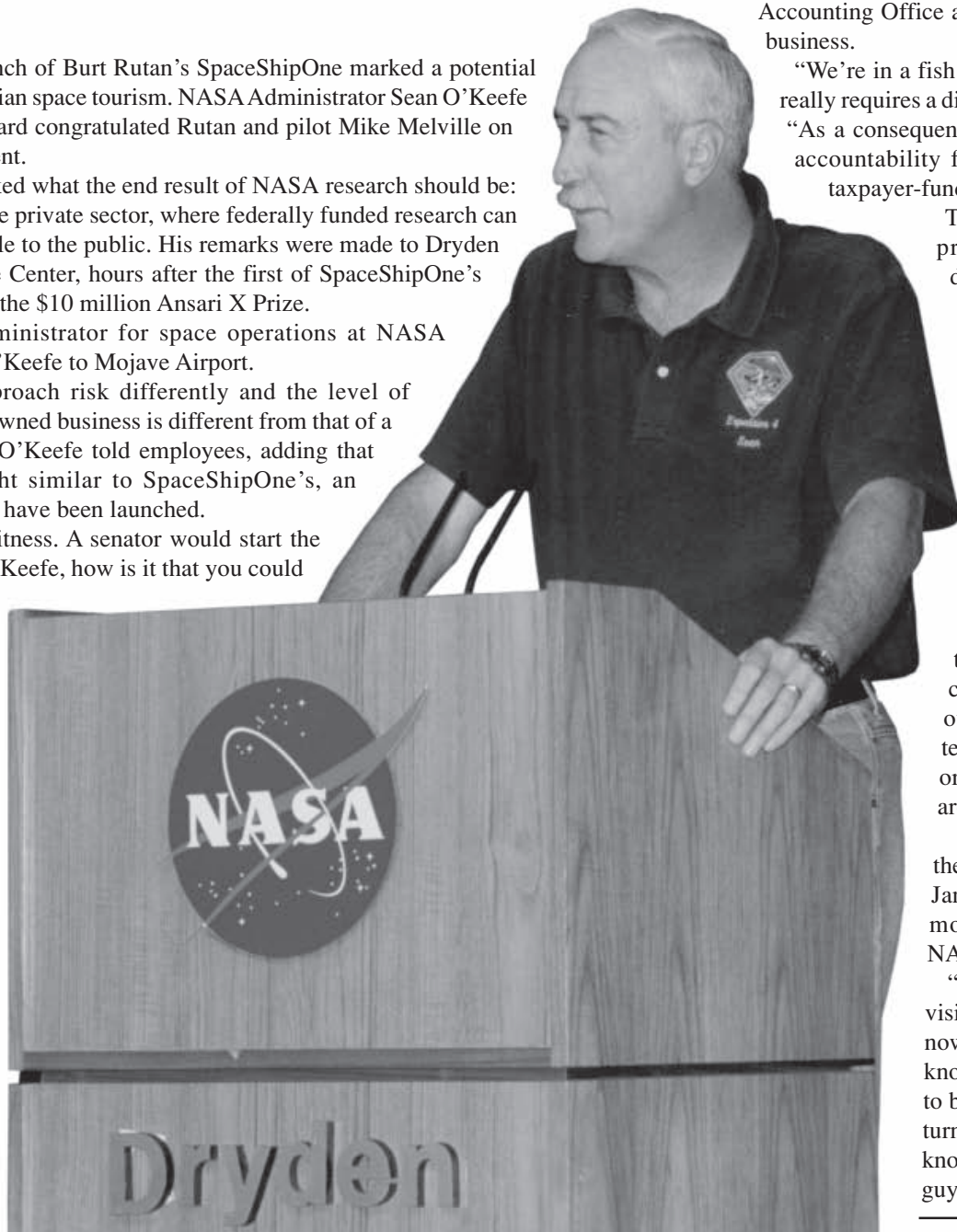
Bill Readdy, associate administrator for space operations at NASA Headquarters, accompanied O'Keefe to Mojave Airport.

Different communities approach risk differently and the level of accountability for a privately owned business is different from that of a government research agency, O'Keefe told employees, adding that had NASA sponsored a flight similar to SpaceShipOne's, an investigation would inevitably have been launched.

"I'd be called as the first witness. A senator would start the questioning by saying, 'Mr. O'Keefe, how is it that you could possibly put a guy without a (pressurized) flight suit into a plastic airplane fueled by laughing gas. How do you account for yourself?'" O'Keefe quipped.

SpaceShipOne is built of composite materials and fueled by liquid nitrous oxide and rubber.

By contrast, in the case of Rutan's SpaceShipOne project Rutan's financial backer, billionaire Paul Allen, functions as SpaceShipOne's entire board of directors and could choose to fund any concept. NASA, on the other hand, has 535 members on its board of directors, O'Keefe said, referring to Congress, and has various other entities such as the General



EC04 0292-01

NASA Photo by Tom Tschida

Accounting Office assigned to watch how NASA conducts its business.

"We're in a fish tank and we do these things in a way that really requires a different standard of accountability," he said. "As a consequence, it costs for that. It's part of the public accountability framework for what it takes (to conduct taxpayer-funded research)."

The SpaceShipOne flight illustrated how private industry can take what NASA discovers and use it to "reach for the stars," he said.

NASA created databases full of foundational information through research flights like those of one of the most successful research flight programs in history, the X-15. The three vehicles built for the 1960s-era program logged 199 flights and provided invaluable data that helped researchers begin answering many critical questions about aerospace and space travel.

"What we do is always concentrate on that which nobody else does, or has the capacity to do, and that means to actually go out there and break down some of those technology barriers that prohibit us, currently, or limit us today from exploring in ways that are even more extensive," O'Keefe said.

That view reflects current Agency policy in the wake of a presidential directive, issued in January, that calls for renewed attention to moon and Mars exploration missions by NASA.

"That's an awful lot like what the president's vision for space exploration is doing for us right now. It's focusing attention on that which we know how to do really, really well – and that is to break down technology barriers and then in turn, once accomplished, find those folks who know how to exploit (the technology) like these guys are doing in Mojave right now, today, to

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## X-43A captive flight succeeds, air launch next



ED04 0261-02

NASA Photo by Tom Tschida

By Alan Brown  
 Dryden News Chief

NASA aeronautics researchers are looking forward to flying the X-43A research aircraft at speeds up to 10 times the speed of sound this fall, following a successful "captive-carry" dress rehearsal flight from Dryden Sept. 27.

According to X-43A lead operations engineer David McAllister, test director for the mission, the captive-carry flight duplicated all operational functions of the planned 7,000-mph – or Mach 10 – flight and served as a staff training exercise, replicating all aspects of the mission flight except that the X-43A and its

modified Pegasus booster were not released from NASA's B-52B launch aircraft and their engines were not ignited.

"We have two primary purposes for doing a captive-carry flight," said McAllister. "The first is to make sure that the X-43 and its booster rocket – two highly complex systems – are ready for flight. The second is to make sure we're well trained. It's a very big operation (and) we want to make sure that all those people and all those systems are ready to go."

The X-43A is powered by a revolutionary air-breathing supersonic-

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# Center Director's column

## Dryden's transformation continues

NASA and the world around us are changing and we are embracing the new situation with a new organization and new ways of doing business.

At the beginning of August, NASA Headquarters transformed its organizational structure to include four mission directorates and six mission support offices to better position the Agency to implement the vision for space exploration (journeying back to the moon and eventually to Mars and beyond). This is the first step in an ongoing transformation process. It aligns Dryden under the Aeronautics research directorate, where our flight research mission will continue, but Dryden also is in the process of transforming itself to work closely with the Exploration Systems mission directorate as well.

To align Dryden with the new Headquarters organization and with the vision for space exploration, we have submitted a new organizational structure to Headquarters in which five mission directorates (Program Planning, Flight Projects, Flight Operations, Engineering, and Test Systems) report to Associate Director for Programs Bob Meyer and Associate Director for Operations Larry Schilling, who join Associate Director for Management Gwen Young in the new structure. Bob will have responsibility for Program Planning and Flight Projects, while Larry will oversee Flight Operations, Engineering, and Test



Kevin L. Petersen

Systems. Gwen will retain responsibility for the mission support offices.

Some of you may view this as adding an organizational layer, but its intent is to add some staffing at the Center level to handle many of the Agency demands and program advocacy efforts while focusing the mission directorates on day-to-day project execution. This pushes much of the daily decision-making down one layer in the organization, in line with the High Performance Organization concepts we have been implementing, and will free Steve Schmidt and me to spend more time communicating with Center personnel and working new program opportunities. We have added a position for David McBride as Executive Officer to help improve the efficiency of the Center Director's office so that the associate directors will have more time to manage their functions.

We are in the process of changing our key processes so they, like the new organization, will align with the Agency's exploration vision. This is a work still in progress because Exploration Systems at Headquarters is still getting organized and we need to learn how to interact with it effectively. Pat Stoliker is going to be working with the Crew Exploration Vehicle office at Headquarters as part of his Senior Executive Service Career Development Program assignments, and

Steve Jensen is currently helping with the development of the CEV request-for-proposals efforts. Vicki Regenie is spending part of her SES CDP assignment supporting the Agency's new strategic planning efforts. There are other positive signs that we will be able to play a role in carrying out the exploration vision, but further transformation will be necessary. This is an opportunity for everyone at Dryden to help us figure out how we can help the Agency by making the tools of flight research relevant to space exploration. At the same time, we need to continue helping the Shuttle safely return to flight while carrying on our work in aeronautics (with a focus on vehicle systems).

In all of this, we need to learn to operate more efficiently, to focus on helping our customers do what they want and need to do, and to assist them in understanding what their needs are in the area of flight research. The Business Planning Office under Vince Chacon will help us transform the way we do business so that tools employing full-cost management are fully utilized and exploited. Vince's office will assist all employees in understanding the significance of their roles and helping the Center get its job done more efficiently.

As we transform, we must improve our advocacy process so we can create roles for the Center in situations where the needs of exploration intersect with flight-research capabilities. With your help, we can make the transformation a positive process that will provide us exciting and meaningful work supporting NASA's vision for the future.

## News at NASA

### Exploration, history come together on NASA Web portal

Forty-six years ago, on Oct. 1, 1958, NASA began its unprecedented journey of exploration and discovery. To commemorate the anniversary, a series of essays titled "Why We Explore" offering historical perspectives on fulfilling the vision for space exploration is being offered online.

As plans are being made for journeys to the moon, Mars and beyond, NASA Chief Historian Steven J. Dick examines humanity's age-old need to seek out new worlds. In the first essay, Dick argues that "the question 'should we explore?' must be seen in deep historical context, not in the context of present-day politics or whims."

"Why We Explore" and coming essays by Dick as well as other news and multimedia features about the vision for space exploration are available on the Web at <http://www.nasa.gov/newvision>.

A multimedia feature about NASA's history, produced in 2003 to honor the Agency's 45th anniversary, is available at <http://www.nasa.gov/externalflash/NASA45th>. For more about NASA's history, visit the History Office at <http://history.nasa.gov/>.

### NASA considers impact of hurricanes on return-to-flight

NASA is working to determine how four hurricanes that affected several of its centers this year will impact efforts to return the Space Shuttle to flight. The Agency had been working toward a launch-planning window that opens in March 2005.

Top officials in the human space flight program recently determined, however, that a mission in the March-April window is no longer achievable. Meeting in executive session at Johnson Space Center, Houston, the Space Flight Leadership Council directed Space Shuttle program representatives to assess how return to flight might be feasible in the next available launch window, which opens May 14, 2005. Shuttle program officials will present their analysis at a late October leadership council meeting.

[http://www.nasa.gov/home/hqnews/2004/oct/HQ\\_04328\\_RTF\\_hurricanes.html](http://www.nasa.gov/home/hqnews/2004/oct/HQ_04328_RTF_hurricanes.html).

### Contractor selected for first Prometheus mission to Jupiter

NASA's Jet Propulsion Laboratory, Pasadena, Calif., recently selected Northrop Grumman Space Technology, Redondo Beach, Calif., to be the contractor for co-design of the proposed Prometheus Jupiter Icy Moons Orbiter spacecraft. The contract award is for approximately \$400 million, covering work through mid-2008.

The Prometheus JIMO mission is an ambitious effort focused on orbiting and exploration of three planet-sized moons, Callisto, Ganymede and Europa, of Jupiter.

[http://www.nasa.gov/home/hqnews/2004/sep/HQ\\_c04x\\_jimo.html](http://www.nasa.gov/home/hqnews/2004/sep/HQ_c04x_jimo.html).

# Gordon Cooper Jr. dies at 77

Gordon Cooper Jr., the astronaut who piloted the sixth and last flight of the Mercury program and later commanded Gemini 5, died Oct. 4 at his home in Ventura, Calif. He was 77 years old. A memorial service was planned for Oct. 15 at Johnson Space Center in Houston, Tex.

"Gordon Cooper was a pioneer of human space exploration," said President George W. Bush. "He was one of the original seven Mercury astronauts, logging more than 225 hours in space throughout his distinguished career. He also served his country in the United States Air Force and received numerous awards including the Distinguished Flying Cross. Laura joins me in sending our condolences to the entire Cooper family."

"As one of the original seven Mercury astronauts, Gordon Cooper was one of the faces of America's fledgling space program," said NASA Administrator Sean O'Keefe. "He truly portrayed 'the right stuff,' and he helped gain the backing and enthusiasm of the American public, so critical for the spirit of exploration. My thoughts and prayers are with Gordon's family during this difficult time."

"Cooper's efforts and those of his fellow Mercury astronauts, Alan Shepard, Gus Grissom, John Glenn, Scott Carpenter, Wally Schirra and Deke Slayton, serve as reminders of what drives us to explore. They also remind us that to succeed any vision for exploration needs the support of the American people," O'Keefe added.

"Gordo was one of the most straightforward people I have ever known. What you saw was what you got," said fellow Mercury astronaut and former U.S. Senator John Glenn, in a statement released by the Astronaut Scholarship Foundation.

The youngest of the original seven astronauts, Cooper's flight in his Faith 7 capsule stretched the capabilities of the Mercury spacecraft to the limits. The mission, May 15-16, 1963, lasted more than 34 hours and 22 orbits. That was more than three times the longest U.S. human space flight to that time, far exceeding the capsule's initial design capability. During his flight, Cooper also became the first astronaut to sleep in space.

Cooper and Charles "Pete" Conrad Jr. flew the troubled and suspenseful third flight of the Gemini program in August 1965.



Gordon Cooper Jr.

The goal of the mission was to prove astronauts could survive in space long enough to perform a lunar mission, which takes eight days.

During their mission, they experienced several problems with power systems, thruster fuel – venting gas that caused the spacecraft to roll – and more, in a seemingly unending series of complications. But they stayed in orbit for almost 191 hours, making 122 orbits in nearly eight days, and got themselves and their spacecraft back intact. In orbit, they accomplished a "shadow rendezvous" with an imaginary spacecraft, an exercise demonstrating

such a maneuver was possible.

The Gemini 5 mission established a new space endurance record at the time, traveling 3,312,993 miles in 190 hours and 56 minutes. Cooper also became the first man to make a second orbital flight and thus won for the U.S. the lead in man-hours in space by accumulating a total of 225 hours and 15 minutes.

#### A life of service

Leroy Gordon Cooper Jr. was born March 6, 1927, in Shawnee, Okla. He served in the Marine Corps in 1945 and 1946 then attended the University of Hawaii, where he was commissioned a second lieutenant in the U.S. Army.

In 1949 he was called to active duty and completed pilot training in the U.S. Air Force. From 1950 to 1954 he was a fighter pilot in Germany.

Cooper earned a bachelor's degree at the Air Force Institute of Technology in 1956, then completed test pilot school at Edwards Air Force Base, Calif. He served as a test pilot there until he was selected as a Mercury astronaut.

In addition to his two flights, Cooper was backup command pilot of Gemini 12, launched in November 1965. He also served as backup command pilot for Apollo 10, which flew in May 1969. He left NASA and retired from the Air Force as a colonel on July 31, 1970.

He founded Gordon Cooper and Associates that year, serving as president of a consulting firm specializing in activities ranging

See Cooper, page 11

# Hey, where'd my identity go?

## ■ Reclaiming identity after a theft is tough

By Jay Levine  
X-Press Editor

We've all seen the commercials. A guy in a t-shirt, with a scruffy beard and beverage in hand, has a Valley girl's voice emanating from his mouth making smug remarks about clothes purchased with someone else's money. One of my other favorites is a couple on *your* dream vacation.

Pretty funny stuff. But identity theft is no laughing matter, especially not when it happens to you. You go to the mailbox one day to learn that your mortgage payment bounced when there should have been more than enough money in your account to cover it, and the not-so-funny stuff begins.

That's what happened to me when I checked the mail one day only to find the awful notice from my bank. Numbness gripped me. How could this be? My wife Carla and I had both been paid just a few days earlier. That day, Aug. 9, marked the beginning of our five-week trip into a financial purgatory bound by loose ends that won't be wrapped up until at least November.

A phone call to my financial institution's automated system revealed the first of about a dozen breaches of the account, explaining why our mortgage payment had been returned: Someone had gained access to our family's account, by means of which we still are uncertain and ultimately may never know, and started making charges – buying computer equipment, Internet access and other goods and services.

My first step was to go to the bank and freeze the account to try and limit further damage. Apparently we were too late, as the funds had been drained from the account shortly after payday. In fact, the woman who helped us at the bank said we were not even the first people to come in that day with an identity-theft problem. Then, a crumb of good news. We were assured that we would recover all of our money. Let's hear it for federally insured bank accounts.

Paying attention at my employer's monthly safety meetings and reading Dryden Public Affairs Specialist Leslie Williams' article in *The Gazette* had paid off; I already had an idea of what to do in the case of an identity theft. Those steps included contacting the bank to freeze the account, which I had already done, filing



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NASA Illustration by Tom Tschida

## Some key numbers

In the event of an identity theft here are some contacts that should be made right away: those of the credit reporting agencies and the Social Security Administration.

EQUIFAX  
1-800-525-6285

Esperian (formerly TRW)  
1-888-397-3742

Trans Union  
1-800-680-7289

Social Security Administration  
1-800-269-0271  
(fraud line)

a police report and calling credit-reporting agencies to put a fraud alert on our credit records.

And by the way – reading this, if you find yourself thinking that you're being adequately cautious, "safe" because you don't do any electronic bill paying, think again. A hard-copy check written to any

local merchant, utility, or other debt contains your bank account number, address, phone number and, oh yes, your signature – all invaluable and, with the number of paper checks in circulation every day, all-too-easily obtainable tidbits for identity thieves.

In fact, Ray Maytorena, U.S. Secret Service Special Agent in Charge of the agency's San Diego office (see related story), summed up identity theft this way: "It's not *if* you're going to be a victim, but *when*."

You don't have to take his word for it. If you or someone you know (other than me) hasn't been a victim of identity theft, it's probably only a matter of time: More than 7 million cases of identity theft were reported nationally in 2003, with California coming in second behind Washington, D.C., in total number of reported cases, according to the Identity Theft Resource Center, a non-profit organization based in San Diego. Los Angeles leads the list of cities in California with the most reported cases of identity theft.

My financial institution's representative said I was lucky the charges dinged against my account were made electronically rather than by check, because it's harder and takes longer to clear up thefts with the latter. In fact, one-

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# Identity theft: it can happen to you

By Jay Levine  
X-Press Editor

It used to be that the bad guys wore black ski masks, carried guns and – usually in bad penmanship that would make their third grade teacher cringe – wrote notes that read something like, "Stick 'em up and give me all the dough."

But the bad guys rarely hold up banks anymore. That's so yesterday. Why go all the way to a bank, depend on unreliable cohorts and risk prison time when the job can be done from the comfort of home? And if you're a bad guy, here's the best part – as long as you heed a few rules, the penalties aren't even all that stiff.

If this seems like the premise for some cheesy Hollywood comedy, it might be. But the reality is that more and more criminals are opting to trade in ski masks, loot sacks and the packing of heat for a computer, a keyboard and a mouse, in

pursuit of the increasingly sophisticated plunder that can be had through crimes like credit card fraud and identity theft. Aside from reducing some of the bigger risks – shoot-outs, double-dealing, long prison sentences – criminals are finding that it's not hard to make a good living these days without ever having to leave home.

That's what U.S. Secret Service agents were running into seven or eight years ago, when computer crime ramped up in earnest following its first blips on the radar screen in the 1980s, according to Ray Maytorena, Special Agent in Charge for the agency's San Diego field office. But it's been during the past three or four years that the number of identity theft cases has exploded across the nation.

"They don't have to rob a bank, or traffic drugs. This is more lucrative," he said.

Until a year ago, the Secret Service was

an arm of the Treasury Department and when agents weren't protecting the president and other leaders, they were responsible for investigating bank fraud and identity theft. A year ago, the Secret Service became an arm of the Department of Homeland Security.

If that seems like an unusual move, consider this: there were 7 million cases of identity theft in 2003 (with California, incidentally, holding the dubious distinction of being in the top two or three states heading the list of victims). Not all of the purloined funds are moved by criminals seeking to better their career chances domestically; some of the money has moved to the Middle East, Maytorena said.

Fortunately, the Secret Service is working to track identity theft and where

See Crime, page 11

## CFC fundraising is in full swing

The annual Combined Federal Campaign fundraising season has opened at Dryden, with this year's theme of "Help a Friend, a Family, a Nation, through CFC."

All civil service and contractor employees are invited to participate in the event, which last year raised \$3.8 million nationally. The drive will conclude Nov. 12. This year's campaign coordinator is Chris Naftel.

"CFC contributions are a powerful way to improve the lives of others," said Center Director Kevin Petersen in a letter to employees. "CFC-funded charities provide services and programs that keep our communities healthy and violence-free, that get people back into the workforce and provide children with the help they will need to be productive citizens."

The CFC is a program of the federal Office of Personnel Management, the agency that oversees the U.S. government workforce. Through the campaign, employees are given the opportunity to contribute to selected charities through payroll deductions. Among charities that receive proceeds from the CFC drive are the American Red Cross, the United Way and hundreds of smaller health and human welfare agencies around the nation.

The program's roots are decades old, with organized efforts to coordinate federal employee giving dating to the 1940s. President Dwight D. Eisenhower, in 1957, signed one executive order directing the Civil Service Commission to coordinate and administer a thrice-yearly drive and establish rules for the funds' disbursement. Another executive order, signed by President John F. Kennedy in 1961, cemented the program's future by further clarifying the legalities of fundraising in the federal workplace.

## Cafeteria set to close by Oct. 25

The weather isn't the only thing changing at Dryden; so is the menu.

Rehabilitation and modification of building 4825, which houses the former gift shop, cafeteria, auditorium and security office, requires that the cafeteria discontinue service beginning Monday, Oct. 25.

Officials acknowledge it will be inconvenient for awhile, but say the changes are essential and the wait will be worth it. When the facility reopens this spring, Dryden employees will have three choices for quenching their thirst or quelling hunger pangs: the American Eatery, Robin Hood and Anthony's Pizza.

During construction, temporary cafeteria seating will be available at T-75 (formerly the News Center trailer next to Building 4825). Breakfast and lunch will be available on a Meals-on-Wheels truck with enhanced selections. Security offices and the visitor control area will remain open during construction.

Some building 4825 work includes:

- Fire sprinkler system installation
- New ceilings, lighting, and air ducts for the auditorium, cafeteria and gift shop
- New plumbing, power, ceiling, lighting, vent/exhaust system, slabs, walls, office and rest rooms for the kitchen and concession areas

- New vinyl floor and grills in the cafeteria; new carpeting in the gift shop

For further information, contact Ron Sun at ext. 3374.

# Employees honor some of their own

At Dryden's annual Peer Awards ceremony, some of the Center's best employees were recognized for 2004.

Center Director Kevin Petersen presented the Milton O. Thompson Lifetime Achievement Award to Ed Saltzman.

Petersen also presented the Minority Contractor of the Year to Arcata Associates Inc., and the Woman-Owned Business Contractor of the Year to Analytical Services & Materials Inc.

The 2004 Pride in NASA Award recipients included LaVonne Bour, Adrienne Ford, Jimmie Lewis and Michael Gorn.

The full list of winners follows.

**Administrative**

Josh Green

**Administrative Support**

Carmen Arevalo

**Best 2003 NASA Series Report**

*"Engine Damage to a NASA DC-8-72 Airplane from a High-Altitude Encounter with a Diffuse Volcanic Ash Cloud,"*

Tom Grindle and Bill Burcham, authors

**DynCorp**

**Outstanding Performance Award**

Jori Cheney, Dawn daCruz, Richard Souza, Tom Jameson, Rod Nida and Jeff Greulich

**Continual Improvement**

Stephen Jensen

**Contractor Administrative**

Sue Brewer-Lewis

**Contractor Engineer**

C.J. Bixby

**AS&M**

**Special Achievement Awards**

Daumants Belt, Cindy Parks, Diana Penhaven, Sherry Schmitz, Trent Theriault and Keith Williams

**Education/Outreach/  
Opportunity**

Steve Jacobson

See Awards, page 12



EC04 0264-13

NASA Photo by Tom Tschida



EC04 0264-7

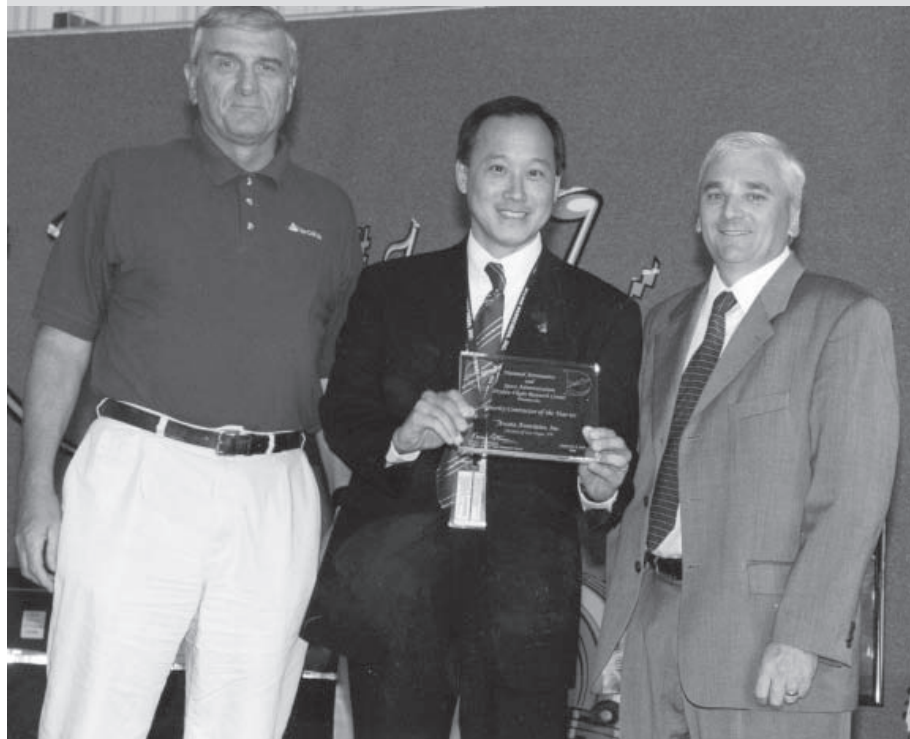
NASA Photo by Tom Tschida

Above, Dryden Pride in NASA award winners included, from left, Adrienne Ford, LaVonne Bour, Michael Gorn and Jimmie Lewis.

At left, Ed Saltzman receives the Milton O. Thompson Lifetime Achievement Award from Center Director Kevin L. Petersen. Saltzman, a veteran of six decades of research at Dryden, worked on projects involving everything from X planes to the aerodynamics of big rigs.

Bottom left, Minority Contractor of the Year was awarded to Arcata Associates Inc. From left are Jim Tilley, Arcata site manager; Tim Wong, Arcata president and chief financial officer and Center Director Kevin Petersen.

Bottom right, Analytical Services & Materials Inc. received the Woman-Owned Business Contractor of the Year Award. Accepting the award from Center Director Kevin Petersen is Laguduva Kubendran, right, AS&M site manager.



EC04 0264-9

NASA Photo by Tom Tschida



EC04 0264-12

NASA Photo by Tom Tschida



EC04 0249-06

Graphic Illustration by David Faust/NASA Photo by Tom Tschida

By Jay Levine

X-Press Editor

**G**rowing up in Boron, Gregory Peters knew all about dust devils. Over the years, he frequently noticed clouds of dust coming off the Edwards Air Force Base lakebeds when he traveled around the Antelope Valley.

So it was only natural for Peters, now a Jet Propulsion Laboratory operations lead for the Extraterrestrial Materials Simulation Laboratory, to recall his roots when talk of dust devil studies began. In fact, he still has roots in the Antelope Valley and his mother, Linda Peters, is Dryden's Video Systems supervisor.

Peters provides test engineering and mechanical support for the EMSL, which is tasked with simulating Mars-like properties or conditions for researching new tools that one day could be used to explore the Martian surface. Talk of dust devil studies emerged when he worked with senior chemical engineer Steve Fuerstenau of JPL's *In Situ* Science Group on calibrating Fuerstenau's particle charge spectrometer, a piece of hardware that measures electrical charge carried by dust.

Fuerstenau, principal investigator for the dust devil studies, explained that JPL researchers, in conjunction with Goddard Space Flight Center scientists and independent researcher Steve Metzger, came to the Rosamond dry lakebed recently for a week of chasing dust devils. The idea was to take readings on the particles in the dust devil and readings of the winds, from a few inches off the ground to 16 feet, to measure energy, examine what the swirling air contains and define what kind of energy is being created in the dust devil phenomenon.

To capture these measurements, the researchers brought two specially instrumented vehicles. The JPL vehicle was outfitted with a cooler chest to shield the particle charge spectrometer from the heat and a second device with a 16.5-foot-long pole supporting a round sensor head, to record electric fields. Fuerstenau and



EC04 0249-13

NASA Photo by Tom Tschida



EC04 0249-10

NASA Photo by Tom Tschida

Top, a research vehicle outfitted with special instrumentation prepares to detect the electrical fields of individual dust particles in a dust devil. The truck at left belongs to researcher Steve Metzger, who has developed a rig that can detect wind speed from heights of just inches off the ground to 16 feet in the air and can carry an array of sensors.

Above, from left, researcher Steve Metzger gets assistance setting up gear from JPL's Steve Fuerstenau (kneeling), principle investigator; Bill Farrell (partially hidden), co-investigator from Goddard Space Flight Center; and Gregory Peters, JPL lead for the Extraterrestrial Materials Simulation Laboratory project.

At left, Goddard co-operative education student Telana Jackson and Farrell work to prepare some of Jackson's electrometers, which measure electrical charge.

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EC04-0290-26 NASA Photo by Tom Tschida

ER-2 technician Larry Esperanza tags parts for the high-altitude aircraft.



EC04-0290-23

Above, Joe Niquette works in the engine compartment of an ER-2. Bottom of page at left, Art Cope and Randy Wagner assist with the takeoff of King Air 801.



EC04-0290-17 NASA Photo by Tom Tschida

Brent Bieber works with a component of the ER-2.



EC04-0290-11 NASA Photo by Tom Tschida

Paul Everhart, at left, and Walt Chase work on F-15 No. 837.

■ Frank, Sammy and Dino may not be around, but these guys can really make Dryden's airplanes hum

By Sarah Merlin  
X-Press Assistant Editor

**T**hey're affectionately (if unofficially) known as the hangar rats. They've been fixtures on the Dryden landscape for decades. And their mandate is simple, but far from easy: keep the planes running – safely.

F-15s, F-16s and F/A-18s, manned and unmanned experimental aircraft, research testbeds and a wide assortment of other flying machines winged, instrumented and otherwise – these are the planes that made Dryden famous. The hangar rats are the guys who make sure the pilots who fly those planes take to the skies safely. Every time. So those same pilots can also, in turn, bring the plane back down to the runway safely, and live to do it all over again.

And nobody appreciates that work quite like the people with their hand on the stick.

"They've sure saved my life. Oh yes. Many times," said retired research pilot Bill Dana.

"The ground support technicians are the backbone of Dryden flight

# Dryden 'Rat Pa



EC04-0290-1

NASA Photo by Tom Tschida



EC04-0290-2



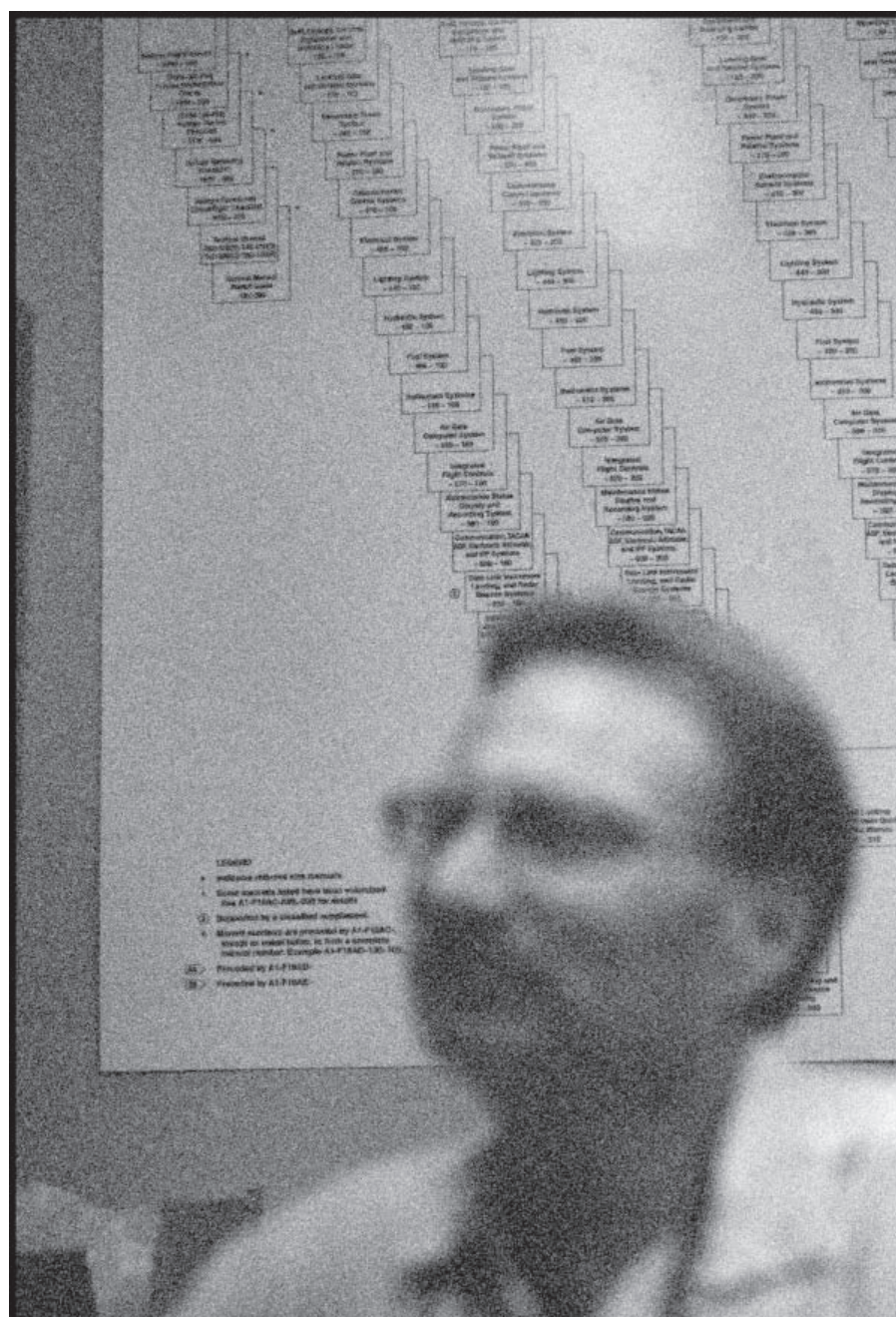
NASA Photo by Tom Tschida



EC04-0290-2

NASA Photo by Tom Tschida

Kevin Mount works in the cockpit of an F/A-18.



EC04-0290-15

NASA Photo by Tom Tschida

Rick Cordes is pictured, but the focus is on the daunting F/A-18 maintenance schedule behind him.

# en's ack'

operations. They receive the aircraft when it comes to Dryden. They put it in condition to fly. Then, when flight day comes, they assist the pilot from the time he arrives at the airplane until he taxis for takeoff. Then they meet the aircraft when it parks, and the whole cycle begins again."

The technicians who staff Dryden hangars share some elements of a common background. Most have military training and work experience, and all have Airframe and Powerplant, or A&P, licenses earned through certified training programs. Many are auto or motorcycle enthusiasts outside of work. To a man, virtually all profess to *really* love airplanes.

But while the education and experiences they bring with them to Dryden are important, they also learn the care and feeding of their charges through long hours of on-the-job training.

"You get to know the airplanes over time, sure," said De Garcia, one of 13 DynCorp employees responsible for maintaining Dryden's fleet of support aircraft used primarily for chase and photography/video support. Garcia has been a Dryden hangar technician for seven years.

"You come to the job with what you know, and then you just keep adding to it."



NASA Photo by Tom Tschida



EC04-0290-3

NASA Photo by Tom Tschida

Paul Tremlin and Kevin Mount work carefully to tow an F/A-18.

See Rat Pack, page 8

# Rat Pack

... from page 7

A day in the life of a hangar tech may mean kicking tires, checking hydraulic lines, testing cockpit avionics and instrument displays, cleaning landing gear, going over life-support equipment or eyeballing control surfaces for signs of de-lamination, among other things. Like cars, aircraft require scheduled maintenance and phase inspections, some cyclical and some timed with the number of operational miles or types of use. The techs' daily routine involves prepping a plane for flight and then giving it another going-over when it's back on the ground. Most days, they run through the whole routine at least a couple times.

There's often another aspect of the work, too, which they all seem to take in stride.

Sometimes, "we're professional 'waiters,'" said Dale Hogg, a nine-year veteran of the hangars. "We wait on parts, we wait on fuel, we wait on pilots. It's just part of the job."

Those stretches offer a chance to keep the reference library of maintenance manuals up to date. Most Dryden hangars – there are five – have shelves full of manufacturer spec sheets, scheduled maintenance records and tech bulletins specific to the different types of aircraft, and technicians keep the barrage of paperwork in order.

Safety directives also are cataloged. No one underestimates the critical importance of the procedures these directives spell out.

"The safety issues – a lot of those are written in blood. Literally," said avionics tech Delman Ellis. "You don't forget the kind of lessons that somebody had to learn the hard way."

Specialties exist among the technicians, with some, like Ellis and Dan Batchko, dedicated to the aircrafts' computer and electrical functions – avionics. Others, like Garcia, are responsible for a process known as Non-Destructive Inspection, or NDI. Using such tools as black light and dye, NDI inspections call for aircraft parts to be disassembled and tested to detect cracks or other evidence of wear.

But specialties aside, all are qualified to do general maintenance. Which means all generally share the job's aggravations and rewards.

The worst thing about their work?

"Weather," said Garcia. "When it's cold and windy, it's bad. When it's hot and windy, it's bad. Weather is the one thing that I don't always like about the job."

Eighteen-year veteran Paul Tremlin III, an F-18 crew chief, echoed Garcia's sentiments.

"Nobody likes having to do things like scoop sand out of intakes," he said.

But if lakebed weather conditions are at one end of the job satisfaction scale, at the other is the sense of accomplishment inherent in seeing Dryden missions go off well thanks to their efforts.

"When you tear down a plane for a phase inspection, then rebuild it, and then the pilot flies it, you know you've done your job well," said Tremlin.

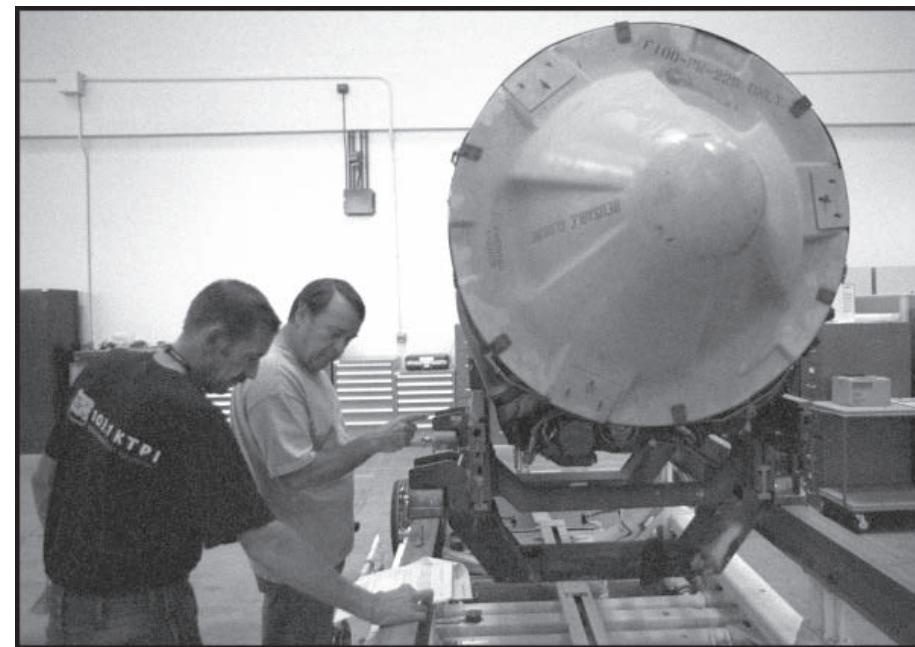
"It's a real sense of accomplishment," echoed Ellis. "You get to see the results of what you do, right then and there."

Throughout Dryden's history, the hangar techs have been a constant in the work of the Center and have played a critical role in Dryden's many accomplishments – usually, with no shortage of wisecracking *esprit de corps*



EC04-0290-21

NASA Photo by Tom Tschida



EC04-0290-12

NASA Photo by Tom Tschida

Above, Dave Proto looks over blueprints of the ER-2 aircraft.

At left, Walt Chase and Paul Everhart examine an F-15 engine.

in their ranks. Anyone familiar with the hangar work environment, for example, probably wouldn't bother asking why a petrified bat – just one in a never-ending stream of winged creatures (of the warm-blooded kind) that periodically take up residence in hangar rafters – was observed recently "roosting" atop a computer screen.

But there are no jokes when it comes to the way hangar techs approach their work, and the techs have a special relationship with the pilots whose airplanes they service. A key aspect of the techs' work is responding to comments pilots routinely record on "squawk sheets" after each flight – notes taken about a plane's performance or

about potential maintenance issues that need investigating.

Though most techs are not pilots themselves, "you kind of have to be able to talk to a pilot in a particular way, to quiz him, and really understand a lot about actually flying the plane," said Ellis.

**See Rat Pack, page 9**



# Artist sees beauty of aviation marvels

By Sarah Merlin

X-Press Assistant Editor

**W**orking on an airplane or sketching one, the appeal is the same for Paul Tremlin III: "I'm into detail."

Tremlin, crew chief on NASA F-18 No. 843, sweats the small stuff on either project. He's been in the hangar with Dryden's aircraft for 18 years and has been drawing the planes he works on – and others – for eight. It's safe to say that, along with his wife Kelly and their two boys, Paul IV, age 15, and Steven, 12, airplanes are a big slice of this guy's life.

Tremlin's career as an artist started at age 6. He took a variety of art classes before graduating from high school in Anchor Bay, Mich., and the fruits of his labors have since become as much small business as hobby. His specialty is pencil sketches – *detailed* sketches – of military aircraft, although he's also dabbled with people, motorcycles, pets and landscapes.

Working from a photo, Tremlin painstakingly reproduces his aircraft subjects in lead pencil, sometimes using up to six different types of pencils for a single sketch. Each one takes from 20 to 40 hours of close-in and, generally, unforgiving work.

"You want it to look just like the photo," he emphasizes. "I start by getting the exact dimensions right between the plane and the sketch."

The hardest part comes in trying to capture the nuances of sun shading under a radome, or rendering a pilot's silhouette in the cockpit. "You have to be able to tell that's a pilot in there," he said, without being able to fill in too many specifics.

Even a perfunctory glance at one of his finished pieces reveals that his is definitely an acquired skill.

Tremlin dedicates a room in their home as his studio, and works on his sketches often, if not in any particular routine.

"All of a sudden, I'll get the urge," he said. "I start with an outline, which is kind of blurry at first, but then it really gets going."

He credits a friend's son, a B-1 pilot, for inspiring him in his artistic pursuits, and cites the work of internationally recognized aviation artist Dru Blair as a personal favorite.

To date, Tremlin has sketched 13 different types of aircraft, from F-15s and F-16s to the SR-71 Blackbird and the F-117 Stealth bomber. In recent months, he completed a sketch that featured tandem B-1s, airborne, coming out of a bombing run. His favorite – and, he says, the most difficult – was the B-2.

"There are lots of angles on that plane that you have to get just right," he said.

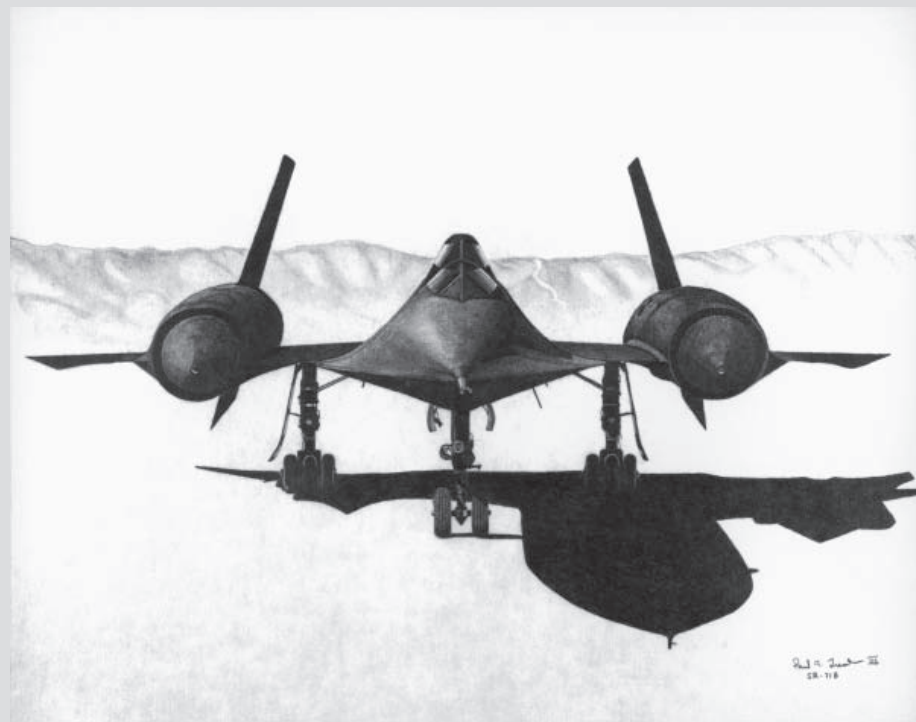
The sketches have proven popular at the various air shows where Tremlin sets up a booth, and he sometimes sells as many as 150 pieces at a single show.

"What sells at the shows usually kind of depends on what types of aircraft are on display," he said, though the F-15, B-2 and Stealth pieces are pretty consistently in demand. "I really like dealing with the public – there are a lot of people out there who like airplanes just as much as I do."

All told, he's sold more than 2,500 sketches in eight years of marketing them, a number that's certain to increase now that his Web site, <http://www.aviationart-drawings.com>, is up and running.

Future subjects Tremlin said he intends to tackle include an F-4 Phantom, for which he's had many requests. And as always, the devil will be in the details.

"It's the same as when I'm working on the airplanes," he reflected. "Only you can see to it that everything's done exactly right."



Above, one of aviation artist and Dryden hangar tech Paul Tremlin III's pencil sketches captures the legendary SR-71 Blackbird parked on the lakebed. Tremlin signs his work, below, for a customer at the 2003 Edwards Air Show.



EC03 0278-11

NASA Photo by Tony Landis

## Rat Pack ... from page 8

The relationship between pilot and ground crew is a critical one. "They put a lot of trust in us," said Tremlin. "It helps that so many of us have been here for so long."

While techs of bygone eras serviced rocket planes, UAVs are emerging as the type of aircraft likely to populate Dryden hangars of today and in the future. Today's technicians are sanguine about the latest species of bird appearing in the test bays.

"Somebody's still going to have to take care of them," said Garcia. "UAVs have tires and hydraulics and engines, just like all the rest of the planes we've worked on."

What they won't have is canopies, ejection seats and life-support gear for the techs to oversee – nor "any knuckleheads in the cockpit," noted technician Kevin Mount, with a glint of hangar-rat humor.

With live cargo or without, though, hangar techs will still have the final word on the health of the aircraft and will continue playing the all-important role they always have in the success and safety of Dryden missions.

"The ground support technicians are the final custodians of the airplane," said Dana. "They're the ones who have the final say on when the airplane is safe to fly."

"Dryden's flight safety record is testimony to the skill and diligence of our ground support technicians."



EC04-0289-1

NASA Photo by Tom Tschida

Ken Wilson, right, and Pat Lloyd inspect the NB-52B's tires to make sure the aircraft will be ready to roll when it's time for a mission.

# Helios Prototype report released

By Michael Braukas

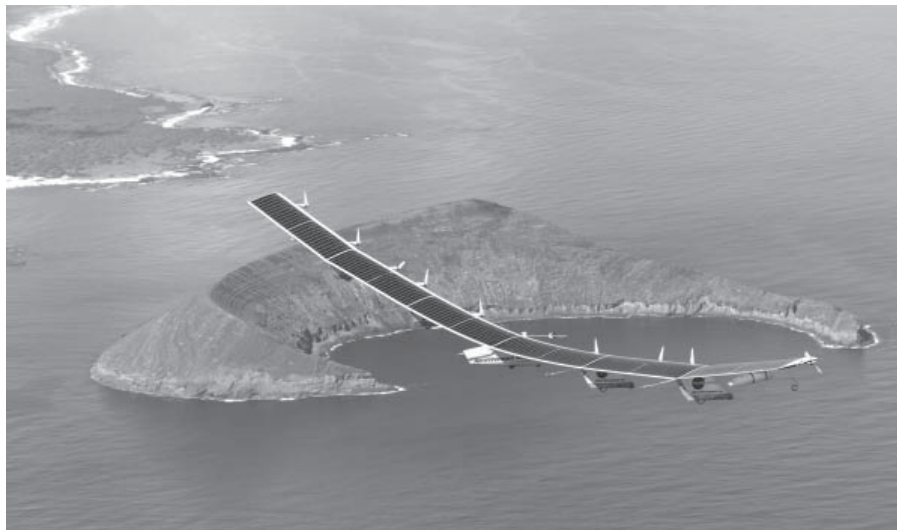
NASA Headquarters

The board that investigated the loss of the remotely operated Helios Prototype aircraft during a test flight last summer has released its final report.

The board determined that the mishap resulted from the inability to predict, using available analysis methods, the aircraft's increased sensitivity to atmospheric disturbances such as turbulence following vehicle configuration changes required for the long-duration flight demonstration.

The Helios Prototype aircraft involved in the mishap was a proof-of-concept solar electric-powered flying wing designed to operate at high altitudes for long-duration flight. The failure occurred June 26, 2003, during a flight from the U.S. Navy's Pacific Missile Range Facility on the Hawaiian island of Kauai.

The propeller-driven aircraft had been flying under guidance of ground-based controllers from AeroVironment Inc. of Monrovia, Calif., the plane's builder and operator, with assistance from Dryden personnel. The aircraft was destroyed when it sustained structural failure and



ED03 0152-60

NASA Photo by Carla Thomas

fell into the Pacific Ocean. No other property damage or any injuries occurred as a result of the mishap.

The lightweight, highly flexible flying wing took off at 10:06 a.m. local time. According to the report, at 10:22 and 10:24 a.m., the aircraft encountered atmospheric turbulence typical of conditions expected by the test crew, causing abnormally high wing dihedral (upward bowing of both wingtips). Unobserved mild pitch oscillations

began, but quickly diminished, according to post-test data analysis.

At about 10:36 a.m., the aircraft again experienced normal turbulence and transitioned into an unexpected, persistent high wing dihedral configuration. As a result, the aircraft became unstable, exhibiting growing pitch oscillations. Airspeed deviated from normal flight speed, with the deviations rapidly increasing with every cycle of the oscillation. The aircraft's design speed

was subsequently exceeded. The resulting high dynamic pressures caused the wing leading-edge secondary structure on the outer wing panels to fail and the solar cells and skin on the upper surface to rip off. The prototype came down within the confines of the Pacific Ocean test range, northwest of the PMRF.

"The mishap underscores our need to assess carefully our assumptions as we push the boundaries of our knowledge," said Victor Lebacqz, NASA associate administrator for aeronautics. "It should not, however, diminish the significant progress AeroVironment and NASA have made over the past 10 years in advancing the capabilities of this unique class of aircraft on many successful flights, including Helios' record setting flight to just under 97,000 feet altitude in August 2001. It's important that we learn from this experience, and apply the board's findings and recommendations to help ensure the payoffs of such vehicles are fully realized."

The report is available on the Web at [http://www.nasa.gov/pdf/64317main\\_helios.pdf](http://www.nasa.gov/pdf/64317main_helios.pdf).

## Dust Devils ... from page 5

JPL contractor K2 Technical Services' Ken Manatt operated the instruments, which measure the electrical charge of individual dust grains.

An apparatus attached to the front of Metzger's truck contained sensors and a series of propellers at different heights. His truck sports 35 different instruments and sensors to measure wind speed and direction, temperature, ultraviolet light and humidity as well as equipment that captures video and stills of the research. Metzger's vehicle, now in its fifth configuration, also contains five sensors developed by Goddard researchers. He calls the vehicle Dust Devil 1 and the attached apparatus DASHER – for Dynamic Atmospheric Surface Hardpan Environmental Rig. Also of interest is the fact that he has some of the same sensors on his hardware as those aboard the British Beagle II, which disappeared Dec. 19 on its way to a Mars mission.

The research team was unable to drive through many dust devils because of weather conditions, but did succeed in capturing some readings and observations. Fuerstenau explained that the DC electrical field that exists at ground level, normally 100 volts per meter in fair weather, could climb as high as 10,000 volts per meter below lightning storms. Driving near dust devils and expecting weak electric fields, the JPL team measured 14,000 volts per meter with their instruments – a strong field capable of making a person's hair stand up.

"It tells us that dust devils are highly electrified. I was rather surprised by it," Fuerstenau said, noting his spectrometer readings confirmed that the dust devils carried many negatively charged particles.

Future experiments will look for differences in the electrical charge detected and attempt to clarify whether there are positive or negative charges in particles at the top and bottom of the funnel-shaped dust devils. JPL researchers might return to Edwards next season for further research, he added.

"Our guess is negatively charged particles bounce against each other, or the dirt, and are tribocharged – that's the same type of electrical charge produced when

you rub a balloon on your hair and stick it to the wall," he said. Fuerstenau speculates further that winds carries these negative particles up in the dust devil cloud, leaving the ground beneath positively charged.

Goddard's Bill Farrell, a co-investigator and planetary scientist, also had some observations.

"Early in the week we had a radio and electrometer on the car and we went through a dust devil six times. The electrometer picked up an electric field change and the radio picked up emission from 1-20 kilohertz," he said.

"We were able to detect a clear-signature of *in situ* grain electrification – results that are publication worthy."

Winds on Mars behave much the same as those on Earth. Therefore, if research at Edwards shows that dust devils can disrupt communication, the same probably would be true on Mars and should be considered in planning future Mars missions. Antennae sent to Mars, for example, could be insulated to mitigate electrical disturbance created by dust devils. In addition, dust devils on Mars can be as big as tornadoes are on Earth and far more common, he said.

Also participating in the studies was Telana Jackson, a Goddard co-operative education student working in the second year of her master's degree in electrophysics at Morgan State University, Baltimore, Md. She developed an electrometer – a device to measure electric potential – that can sense dust-created electric fields.

"My (research) paper says the dust cloud should have a positive charge at the bottom and a negative charge on top. I want to verify that by obtaining real measurements," Jackson said before the experiment.

Following the experiment, Jackson said, "The trip to the desert was a great opportunity to gather real data for the dust devil research. With the electrometers, we were able to see the presence of an electrical field due to the dust devils as well as dust kicked up by the trucks. Right now we're in the process of analyzing the data and, ultimately, creating a model to describe

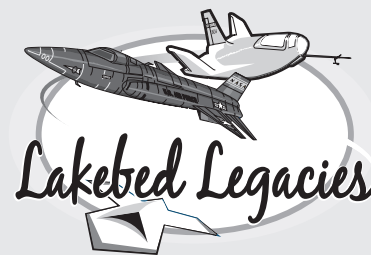
what actually went on with the dust devils in relation to the electric field."

Metzger, a geologist, together with a colleague, announced in 1998 that dust devils could be associated with images sent back from the Mars Pathfinder mission, supporting the pair's investigation of geological similarities between the Earth and Mars, according to the Planet Storm Web site (<http://www.channel4.com/science/microsites/P/planetstorm>). In light of those findings, dust could create trouble for scientists not only in communications, but also as potential hazards in the form of sparks or dust sticking to instruments. And through his dust devil studies in Nevada, Metzger has verified that as much as two tons of dirt can be moved in 20 minutes in one dust devil.

"We're looking for information on what's happening from the ground up – from an inch above the ground to five meters. It's technologically challenging," he said.

Hot air rising in a slight wind is ideal for creation of a dust devil and "is like water going down the drain, except the dust is going up," explained Metzger, who began researching dust devils in 1996. "There are implications for researchers planning to explore Mars, because Mars is 20 times dustier than a terrestrial desert. It's a really thin atmosphere and dust hides on grains of sand."

By continuing to study the flowfields and electricity associated with these hot-air vortices, NASA researchers hope to be better prepared for the enormous whirlwinds future missions will encounter on Mars.



**Sept. 7, 1947** – The NACA Muroc Flight Test Unit was designated as a permanent facility reporting to NACA Langley, Va.

**Sept. 11, 1952** – The Douglas X-3 arrived at Edwards Air Force Base.

**Sept. 19, 1956** – A static test stand engine run was conducted with the Bell X-2 for the purpose of familiarizing NACA research pilot Joseph A. Walker with the controls and engine operation in preparation for a checkout flight.

**Sept. 27, 1956** – Capt. Milburn G. "Mel" Apt became the first human to fly faster than three times the speed of sound in the X-2. NACA's female "computer" personnel calculated the speed to have been Mach 3.196 (2,094 mph). Unfortunately, Apt lost control of the aircraft while turning back toward Edwards and perished.

**Sept. 9, 1959** – Bill Dana transferred into the Flight Operations branch at what was then known as the NASA High Speed Flight Station.

**Sept. 27, 1959** – NASA HSFS was renamed the NASA Flight Research Center.

**N**ASA and AeroVironment Inc. are jointly conducting a new series of research flights at Dryden this fall with the solar-electric Pathfinder-Plus flying wing. The lightweight solar craft is instrumented with a sophisticated atmospheric turbulence measurement system on seven long booms mounted across the leading edge of the wing. Several low-altitude flights over the edge of Rogers Dry Lake are intended to gather data to help engineers characterize and model the effects of turbulence on the aerodynamics of lightweight, flexible-structure aircraft.



EC04 0277-11 NASA Photo by Tom Tschida

## Sexual harassment and Alternative Dispute Resolution policies set

NASA's Office of Diversity and Equal Opportunity has issued policy guidelines for the Agency regarding two important issues affecting managers, supervisors and employees – sexual harassment in the NASA workplace, and management participation in the Alternative Dispute Resolution process.

With a recently issued Policy Statement on Sexual Harassment, NASA provided important information on the rights and responsibilities of managers, supervisors and employees. The statement reaffirms NASA's long-standing commitment to preventing sexual or any other form of discriminatory harassment in the NASA workplace. The assistant administrator for diversity and equal opportunity, Dr. Dorothy Hayden-Watkins, has issued guidelines to all NASA centers for implementation of this policy in NPD 3713.2H, which may be accessed at [http://nodis3.gsfc.nasa.gov/displayDir.cfm?InternalID=N\\_PD\\_3713\\_002H&page\\_name=main](http://nodis3.gsfc.nasa.gov/displayDir.cfm?InternalID=N_PD_3713_002H&page_name=main).

NASA also has taken a strong leadership position on the use of Alternative Dispute Resolution in a policy memorandum issued by Watkins. ADR is a mediation program in which managers, supervisors and employees have the opportunity to resolve disputes efficiently and expeditiously. The new policy makes management participation in ADR mandatory in Equal Opportunity disputes, when the employee elects ADR. The assistant administrator for diversity and equal opportunity also has issued guidelines on this policy in NPD 3713.6N, available online in the NODIS library at [http://nodis3.gsfc.nasa.gov/displayDir.cfm?InternalID=N\\_PD\\_3713\\_006N&page\\_name=main](http://nodis3.gsfc.nasa.gov/displayDir.cfm?InternalID=N_PD_3713_006N&page_name=main).

For more information on these issues, contact Dryden EO representative Anna Morales, ext. 3033.

## X-43A ... from page 1

combustion ramjet – or “scramjet” – engine. Scramjet engines could enable future hypersonic aircraft or space-access vehicles either to carry a greater payload or be built smaller and lighter since they would not be required to carry large oxidizer tanks, as present-day launch rockets do. If successful, the Mach 10 flight will break all speed records for an aircraft powered by an air-breathing engine.

After a review of captive-carry flight data, project engineers are expected to set

a tentative November date for the final X-43A flight.

The X-43A project is part of the Hyper-X hypersonic research program led by NASA's aeronautics research mission directorate and operated jointly by Langley Research Center, Hampton, Va., and Dryden. The program aims to demonstrate air-breathing engine technologies that promise to increase payload capacity – or reduce vehicle size for the same payload – for future hypersonic aircraft and reusable space launch vehicles.

## Cooper ... from page 2

from aerospace to hotel and land development projects. Cooper was a director of several other organizations, most specializing in energy, advanced electronics systems, efficient homes, boats and marine systems and equipment.

In 1975, he became vice president for research and development for Walter E. Disney Enterprises Inc. of Glendale, Calif., research and development subsidiary of Walt Disney Productions.

Throughout his life, Cooper pursued a wide range of activities, both professionally and as hobbies. A NASA biography lists his hobbies as treasure hunting, archaeology, racing, flying,

skiing, boating, hunting and fishing. Among his numerous awards were the Air Force Legion of Merit, the Distinguished Flying Cross with cluster, NASA's Exceptional Service Medal, the NASA Distinguished Service Medal, the Collier Trophy and the Harmon Trophy.

He was the first member of the active-duty military to address joint sessions of Congress twice.

Cooper continued to design and test new aircraft in Southern California, never giving up his passion for pushing the envelope. At age 71, Cooper told a reporter “I get cranky if I don't fly at least three times a month.”

## ID theft ... from page 3

third of what had been extracted from my account bounced right back in almost immediately, because whoever used the account to purchase services tried to do so from places that no longer were in business. Finally, a lucky break.

For most people, the good news in my identity theft experience is that the way I temporarily lost the biggest chunk of my money can't happen to you – anymore.

Money had been wired by the thief from my account to Milan, Italy, using an online funds-transfer service. This much, I learned on completing my own investigation into my identity theft. Knowing how busy police are with bigger crimes, and with plenty of experience in digging up information after 17 years in the news business, I decided to do whatever I could do in the way of gathering information before we made our report to local law enforcement officials.

A half dozen phone calls later, representatives of the wire transfer service explained to me that a thief with my address and account number could easily have completed a funds transfer online but for the fact that, because of the high incidence of fraud, the company had stopped offering that type of service altogether just a week after my bank account had been zapped.

A bogus account also had been set up at an Internet provider, I learned, using my name but a phone number other than mine. I left that phone call for the police to make in case the bad guys answered and might threaten my family. It was a very real fear since the criminal(s) obviously had our address and home phone number. I found the bad guys' number by calling the Internet provider to tell them the fraudulent account wasn't mine. And as an aside – inexplicably, the person I called to cancel the account suggested I keep the account even though some crook who'd stolen my identity had set it up. I said no thanks.

I figured I'd done all my homework, so Carla called the police to make the report. We had frozen our bank account, opened a new one, called the credit reporting agencies and gone as far as I could to offer the police some leads. The

officer who came to take the report said that he too had been a victim of identity theft at the same bank, though in a different town. He then took our information and called the number the thief used to set up the Internet access only to find that it had been disconnected. Another in a long line of dead ends.

So, while someone was partying with our money in Italy (went to the Olympics, maybe?) we were stuck back in Brokeville trying to reconstitute our financial lives. Creditors were sympathetic, and arrangements were made as I placed a stop payment on outstanding checks and began figuring out how to better protect the family from another such attack.

It's clear to me now that in the era we live in, there's unfortunately no way to protect yourself 100 percent against this type of crime. But one thing is paramount: the more ways you can limit the information people have about you, the better off you'll be. Although that approach can have a downside, too. One of the first things I asked Carla in the wake of the disaster was, “How paranoid are we going to allow ourselves to become?”

It appears sanity has regained whatever toehold it had before the experience, thankfully, but the whole nightmare really prompted us to start looking at all the places personal information can be found and how easy it could be for someone out to get you to succeed. Carrying cash for the small things is one good habit to consider, in order to keep information – checks, credit card receipts, etc. – out of the hands of people who don't need to have it. It's a little less convenient, admittedly, given that there aren't many ATM machines on my way to work down 50<sup>th</sup> Street East, so plan ahead.

Here are some tips the Los Angeles Police Department includes on their Web site for how to protect your identity – credit cards and bank account – from the clever crooks of the digital era.

- Minimize the amount of information that can be stolen from you by carrying a single credit card and bank card and do not carry personal information such as birth certificates, Social Security cards or passports unless it's necessary.

- Keep a list of all credit card numbers, expiration dates and phone numbers of the companies you deal with handy (including a photocopy of the front and back of each card). Similar information about your bank account should be kept in a safe place.
- Never give account numbers or personal information to anyone over the phone or Internet unless there is an established history of safekeeping of your information with the company or individual, and unless you have initiated the call.
- Order credit reports once a year to check for inaccuracies or fraudulent use of your accounts.

- Watch the mail closely when you're expecting a new or reissued credit card.
- Create passwords that can't be easily decoded by random guessing.
- Carefully review credit card and account statements.
- Shred receipts containing account information, pre-approved credit card offers, and other sensitive information that someone can use to steal your identity.
- Store cancelled checks in a safe place and never permit a credit card number to be written on a check – it's a violation of California Law (California Civil Code 1725).

## Crime ... from page 3

the misappropriated money goes. However, the agency faces difficulties enforcing some laws governing such criminal activity because many times, identity thefts are considered “victimless crimes.” Sure, the U.S. taxpayer gets stuck with the bill, but the bank is insured and the victim eventually recoups the loss.

Here's how the enforcement problems present themselves, as Maytorena explained it: If a victim is reimbursed, then the loss is zero. If the loss is zero, it's hard for strapped law enforcement agencies to justify spending precious resources (except in cases involving big sums of money, or that have common links with other criminal activities) to bring the evildoer to justice. For local law enforcement, the problem is even more complicated. In many cases, someone robs a victim in another state, blurring jurisdictional issues. This in turn makes prosecution that much more difficult and unlikely.

So, victims of a crime like identity theft are on their own with cleanup jobs like repairing the damage done to their credit, which can take weeks, months or even years – assuming they even know what's happened to them. Some people can be ripped off for years and not know it until they apply for credit. That's one reason Maytorena suggests checking credit

reports annually to make sure everything on them are correct.

In some instances, those entrusted with peoples' information are the very ones committing the crime, he added. Employees at banks, mortgage companies or other financial institutions sometimes use or sell information for money.

Another way criminals can obtain victims' personal information is through a practice called Dumpster-diving. Crooks routinely go through someone's garbage, dirty diapers and all, looking for information they can use to make money. For that reason, Maytorena said, it's critical to shred pre-approved credit card offers, cancelled bank checks and receipts containing credit card numbers, limiting information available to the Dumpster diver. Such personal information can be used to apply for credit cards and fake identification cards.

Concerning online purchases, he recommended dealing only with reputable companies and to beware of “deals” on electronics, jewelry or other items that may have been stolen and are being sold online. If it seems too good to be true, it probably is.

And it's not just average citizens who are victims – judges, attorneys and members of Congress have been victims of identity theft, Maytorena said, concluding bleakly that “it's not *if* you are going to be a victim, it's *when*.”

## O'Keefe ... from page 1

make it available freely for all the rest of us," he said.

When NASA produces technology breakthroughs for use by the private sector, "Then, we've really accomplished the objectives of what this is all about," O'Keefe said.

### Lending a hand

In addition to developing technology, O'Keefe said NASA will enthusiastically assist the private sector. That was the case when Dryden and Air Force representatives provided assistance to the SpaceShipOne mission.

For the Sept. 29 flight and the follow-up flight that captured the X Prize for Rutan, Dryden's Western Aeronautical Test Range provided radar-based time-space positioning information to the Air Force Flight Test Center's test range, which was contracted to Rutan's Mojave Aerospace Ventures to provide tracking services for SpaceShipOne flights. Radar data provided by Dryden was used as a backup source of data, to be used in the event SpaceShipOne's onboard systems failed. The data allowed SpaceShipOne flight and ground crews to confirm the experimental craft's rate of climb, altitude and other critical flight data.

In addition, Dryden tracked SpaceShipOne's flight with its long-range optical tracker. Dryden provided Rutan's project with a full printout of all flight data as well as video from the long-range optical tracker, via the Air Force Flight Test Center test range, following the flights.

### A question of risk

As another barrier fell in Mojave with SpaceShipOne's success, O'Keefe replied to an assertion by some that NASA doesn't take enough risks.

"We deal with things all the time that incorporate an enormous amount of risk," he said. "The real question we have to deal with – and it's the difference sometimes between our failures and our successes – is, have we demonstrated, have we really gone through all the effort we can to mitigate that risk as much as is reasonable to do? We have a different standard for that risk mitigation than most do because of the nature of the things we do, which are typically riskier."

The innovative approach to space flight developed by Rutan at his Mojave-

based company, Scaled Composites, made use of new materials and a different approach to reaching space than those used by others who have conquered it. The flight also had different goals than those of the flights made by the U.S. and the Soviet Union in the 1960s. Rutan's flight was intended to demonstrate that the prototype he developed could lead to reusable spacecraft that will take those who can afford the cost into space, O'Keefe explained.

A new venture by British entrepreneur Richard Branson reportedly will reap benefits from the SpaceShipOne flights in the form of \$190,000-per-person trips to space in vehicles built with Rutan's technology. Estimated by promoters to be available in three to four years, the trips include the promise of experiencing a weightless environment for about four minutes.

"Space is open now and it's a much bigger club," O'Keefe said. "It's the same way commercial aviation began," he added, recalling early commercial air travel in which passengers were expected to dress in business attire because of the elevated social status attached to flying in an airplane.

"We applaud and enthusiastically support (private sector efforts) and we'll get out there and help (them) along. We do the hard stuff, to break down the technical barriers, and we'll watch as other people – since we're here to serve the public – respond to new market demand. Someday, (traveling into space on privately owned vehicles) will be like getting on a commercial airplane is today."

### A future that includes manned aircraft

In a question-and-answer period following O'Keefe's remarks, one Dryden employee asked the administrator if his vision of the future contained vehicles with human pilots in the cockpit, as uninhabited air vehicles occupy increasingly important roles in aerospace.

"The notion that we're gravitating toward autonomous and we're getting out of (piloted) flight stuff – I don't think so. I wouldn't bank on that," O'Keefe responded.

"It's one of the most linear debates (robots versus humans) I've ever witnessed. There's an assumption that it's either-or and you must choose; and it must be absolute.

"There's an interaction between both and a necessity for both. Certainly, robotic orientation work is a precursor prior to human involvement. However, there's absolutely no way we're ever going to get to the stage in our lifetime in which robotic capacity will ever substitute for the speed by which human cognitive skills could be employed – and therefore accomplish the same mission in a very small fraction of the time it would take a robot," he said.

O'Keefe cited the example of robotic vehicles being part of the effort to gather information and prepare for the day humans will explore Mars.

In a recent discussion with astronaut Neil Armstrong, he said, Armstrong had remarked that he was impressed that through robotic missions, NASA has gained much more knowledge about Mars and what it will be like to send a manned mission there than had been known about the moon's physical properties the day Armstrong left a footprint on its surface.

For the same reasons, O'Keefe said, UAVs will continue to play an integral role in future manned missions.

### A brand to believe in

The Agency's early successes with the Mercury, Gemini and Apollo missions, continuing through successes with the Space Shuttle and the Mars Exploration Rovers missions have reinforced a NASA "brand" that is recognized almost everywhere. The general public, however, doesn't always understand what NASA has developed and transferred to the private sector, O'Keefe added.

"We can't advertise (ourselves) like a commercial enterprise would," he explained. "NASA does it through such programs as education, NASA Explorer Schools, public outreach, and by asking teachers how we can make (classroom) materials available in ways they can use to inspire students in math and science," he said.

In addition, recent work aimed at making the NASA Web site easier to access and more interesting to read has been successful in raising the Agency profile, he said. While the volume of information on the site is the same, "the presentation is fresh."

"This year has seen a five-fold increase in use of the Web site, which we attribute to successful NASA missions, such as the Mars Rover and X-43A missions," O'Keefe said. "We're demonstrating to the American people what we do."

He concluded with a few remarks about Dryden.

"This Center is a great testimonial to the tremendous evolution of the ability to fly and to engage in exploration. Engagement in aerospace technology applications is on display all the time and you can see how it has changed dramatically just in the last few decades – to the point where part of what we're seeing is almost a variation of 'Back to the Future.' It's fantastic to see. It's exactly the way it ought to work. Part of the challenge we have as colleagues, and as an Agency that has this spectacular portfolio, is to go out and explore, discover and do neat things.

"How do we take this capacity we have and apply it to those goals and objectives – the mission? Continue to do the things you do extraordinarily well."

## Awards

... from page 4

**Kay & Associates  
Employee of the Year**  
Jerry Reedy

**Contractor Technical Support**  
Bob Doran

**Group Award**  
Hyper-X Project Team

**GRD Inc.  
Outstanding Performance**  
Steve Sterk

**Henry Arnaiz Mentor Award**  
Trong Bui and Jennifer Hansen

**Contractor Technician**  
Brian Castner

**Projects/Facilities**  
Laurie Marshall

**ITI/SCSC Employee of the Year**  
Aubrie Henspetter

**Research Engineer/Scientist**  
Trong Bui

**James Ferguson Safety Award**  
Susan Ligon

**Steven B. Davis Co-op**  
Jason Clark

**Outstanding Student**  
Diane Santos

**Supervisor/Manager/Leader**  
Mike Bondy

**Technical Support**  
Keith Day

**SCSC Logistics  
Employee of the Year**  
Wilbert Brewer

**Mechanical Technician**  
Don Whitfield

**Douglas C. Taylor  
Electronics Technician**  
Randy Wagner

**Committee's Choice  
Above and Beyond Award**  
Art Cope

**Peer Award  
Committee members**  
**Chair:** Adrienne Ford  
**Consultants:** Debbie Ackeret and Yvonne Kellogg

**Members:** Lea Ames, Ronnie Boghosian, Tillie Boston, Stephanie Castner, Casey Donohue, Pat Harrington, Greg Poteat, Ron Ray, Roberta Ross and Jimmy Trippiedi



The X-Press is published for civil servants, contractors, retirees and people with interest in the work of the Dryden Flight Research Center.

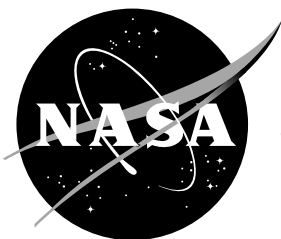
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