



Space News Roundup

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NASA stalls work on Polar spacecraft

NASA has discontinued work on the Polar spacecraft, one-half of the U.S. contribution to the Global Geospace Science Program, due to schedule and cost problems associated with the program.

Pre-launch activities on the Wind spacecraft will continue. Together, the Wind and Polar spacecraft were a part of the International Solar-Terrestrial Physics Program involving several spacecraft from the U.S., Europe and Japan in a study of the interaction of the solar wind and Earth's magnetic field.

NASA Administrator Daniel Goldin announced on May 12 that the agency will resume work on Polar only after the Wind spacecraft has been successfully operated on-orbit and a re-evaluation of the resources required for the completion of the GGS Program is completed within the context of overall budget constraints.

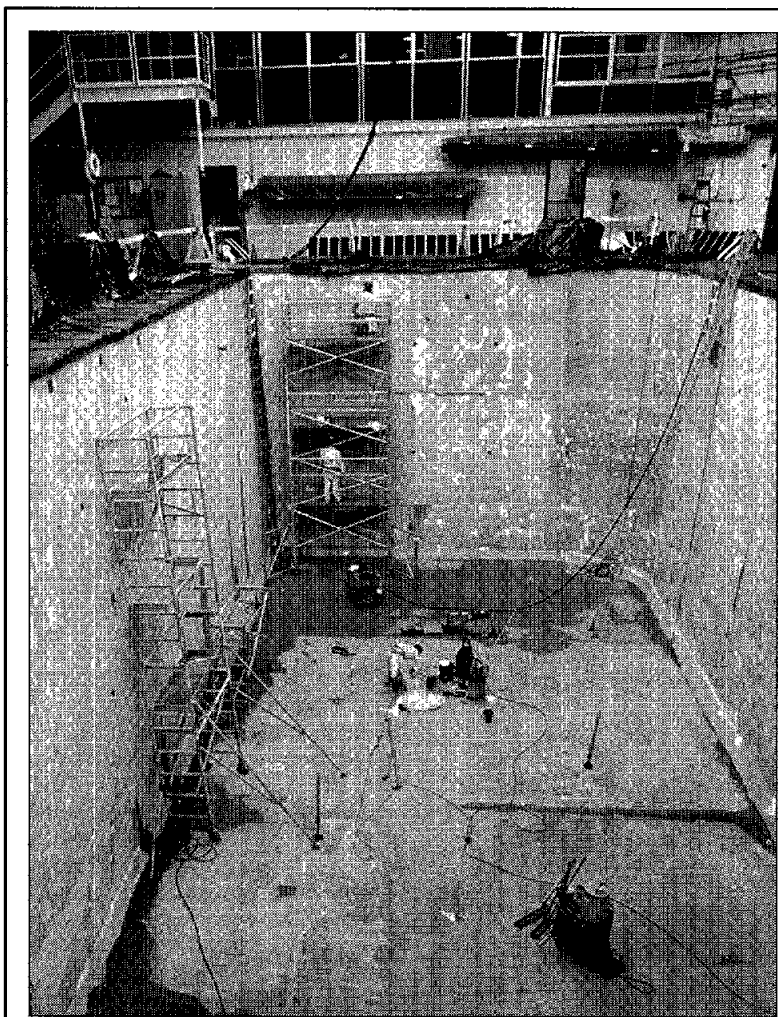
In February, NASA announced the delay of the launches of both missions to examine potentially defective materials and processes used by the contractor to build components on the two spacecraft as well as to review the overall program.

The launch date for the Wind spacecraft has not been firmly established pending completion of retest activities. The launch of the Wind spacecraft is expected to occur prior to the end of this year.

In addition, NASA is developing a set of critical program milestones to be used in monitoring contractor performance through the launch of the Wind spacecraft. The performance of the contractor in meeting these milestones will be closely monitored by NASA.

If contractor performance on the Wind spacecraft is satisfactory and Polar is authorized to proceed, then critical program milestones will be developed to monitor the Polar spacecraft through the completion of its development and launch. Additionally, NASA is in the process of totally restructuring the contractor award fee so that the contractor will receive no fee until on-orbit performance is satisfactory.

The spacecraft contractor is Martin Marietta Astro-Space.



JSC Photo by Andrew Patnesky

Anchor Inc. workers bare the concrete walls of the Weightless Environment Training Facility pool as they prepare to apply a new high-tech solvent free epoxy coating.

They said it couldn't be done

Team drains, resurfaces astronaut training pool

They said it couldn't be done. At least that seemed to be the opinion of many who had been around long enough to remember the huge hole in the old centrifuge rotunda that nearly swallowed up Bldg. 29.

But a team of workers under the direction of JSC's Special Purpose Maintenance and Services Office recently completed draining and refinishing the Weightless Environment Training Facility pool.

There has been discussion regarding the resurfacing of the pool for several years, said Mike Scott, chief of Center Operations' maintenance office, but any serious discussion about draining it seemed to make everyone shudder. Some thought the entire pool would come lurching out of the

ground, some were convinced it would collapse, but a few felt it could be done.

The reason for cynicism involved problems encountered when the WETF was constructed in 1979. Before the concrete could be placed in "the big hole," the supporting piers began to shift, the soil beneath the north area of the rotunda began to slough into the excavation, and the rotunda floor began to "sink." With rapid response and creative re-engineering, the project was saved, but not without a multitude of horror stories about the giant sinkhole.

Underwater painting was an option, but the resurfacing team felt a better job could be done after

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Astronauts, cosmonauts train at JSC

By Kari Fluegel

Two of JSC's own returned this week when astronauts Norm Thagard and Bonnie Dunbar arrived from Russia for three weeks of life sciences training in support of joint U.S.-Russian space flights.

Accompanying Thagard and Dunbar were their cosmonaut crew mates Vladimir Dezhurov, Gennadiy Strekalov, Anatoly Solovyev, Nikolai Budarin, Yury Onufrienko and Alexandr Poleshchuk.

Thagard, Dezhurov and Strekalov will be launched to Russia's Space Station Mir early next year for a three-month stay on orbit, a mission known as Mir 18. Dunbar, Solovyev and Budarin are training as backups for Mir 18.

Solovyev and Budarin will ride the Space Shuttle *Atlantis* to Mir on STS-71 to serve as the Mir 19 crew. Onufrienko and Poleshchuk are training as backups for the Mir 19 cosmonauts.

Thagard and Dunbar have been in Russia training for more than two months. The majority of their training has focused on developing the language skills required for the joint space flights.

"We're not only learning the language to converse, we're learning the technical language needed to do space flights," Dunbar said.

The two astronauts also have completed winter survival training and started studying the Soyuz vehicle systems. They will begin studying the Mir systems in the near future.

"Norm and I have several flights behind us, so we have a certain amount of comfort with the whole concept of going into space and what to expect," Dunbar said. "We expect to learn a great deal, though, about how to function for a long duration period of time in orbit, learning about the dynamics of experimentation and living on board the

Mir. That phase of training will become more intense as we proceed through the summer."

Thagard said the fundamental difference between training for a shuttle mission and training for a long-duration mission is the time spent "rehearsing" the activities prior to flight. A long-duration mission cannot be practiced to the extent of a shorter flight, he said.

Thagard also said the living conditions at Star City are exactly as he expected. Star City is a military base and living there is like living on a U.S. military base, he said. To purchase items such as fresh fruits and vegetables requires an hour long trip to Moscow, but Thagard said he expected that as well.

"In general, I've been satisfied with what I've found," he said. "I have not found that we've had any particular tensions with the Russians. I think we get along quite well. ...We're doing just fine."

Dunbar said anyone going from the U.S. to a foreign country will find cultural differences which is why cross-cultural training is necessary.

"The important point is that where there are differences, we are bringing them to the table, and we are discussing them," she said. "That is the important facet of marching ahead together in a cooperative program."

Such cooperation is something necessary for the future because space flight is expensive, Strekalov said. Sharing the data from experiments and familiarizing each other with the training, space flight equipment and scientific payloads also are an important benefit of cooperation.

"You have to pay for new science and new knowledge," he said. "But it is possible to pay in such a way that each party, each country will pay less than they were going to have to pay."



'I think we get along quite well.'

—Norm Thagard

Columbia crew in Florida to check interfaces for International Microgravity Laboratory-2

By James Hartsfield

Technicians this week began packing experiments aboard the International Microgravity Laboratory-2 in *Columbia's* cargo bay as preparations for an early July launch of STS-65 continued smoothly.

On *Columbia*, in Kennedy Space Center's Bay 2 shuttle processing hangar, other work included leak checks of the crew cabin and Spacelab tunnel adapter; securing of the recently installed three main engines; and corrosion checks of the wing leading edges. The STS-65 crew — Commander Bob Cabana, Pilot Jim Halsell, Mission Specialists Rick Hieb, Carl Walz, Leroy Chiao and Don Thomas, and Japanese Payload Specialist Chiaki Mukai — traveled to KSC this week to inspect *Columbia's* cargo bay for the Crew Equipment Interface Test. *Columbia's* mid-body and aft engine compartment are entering final closeouts prior to the orbiter being moved to the Vehicle Assembly Bldg. to be mated with the STS-65 solid rockets and fuel tank early next month.

Endeavour, which will be next up following *Columbia* on STS-68 in August carrying the Space Radar Laboratory aloft for a second flight, is in KSC's Bay 1 hangar. Work this week included removal of the main

engines, draining of residual propellants, removal of the radiators, and checks of the forward reaction control system steering thrusters.

Discovery, in the Bay 3 hangar, is being readied for a September launch on STS-64 to loft the Lidar in Space Technology Experiment-1, a type of laser radar that will study the atmosphere. Work this week included installation of the auxiliary power units, servicing of the freon coolant loops, main propulsion system testing, drag chute installation and checks and preparations for a temporary move of *Discovery* to the Vehicle Assembly Bldg. to make room for *Atlantis*.

Atlantis is expected to return to KSC from well over a year spent at Rockwell's Palmdale, Calif., shuttle factory undergoing modifications and inspections, late this month.

Atlantis will be moved into the Bay 3 hangar for a short period following its arrival. Its next flight will be STS-66, planned to launch in late October with the Atmospheric Laboratory for Applications and Sciences-3. The modifications to *Atlantis*, in addition to upgrades that already had been performed on the rest of the orbiter fleet, include work that will allow it to perform the first docking of a shuttle with Russia's Mir space station.



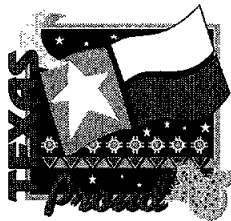
JSC Photo by Benny Benavides

ASIAN AWARENESS — Houston Police Officers M.M. Pak, Sunny La and K. Chu, from left, talk with Kamlesh Lulla, chairman of the Asian Pacific American Program Council during heritage month activities in Teague Auditorium last Friday. The program involved cooperation by the Asian American Heritage Association of Greater Houston, the Space City Professional Association, the Indian Culture Center and the Vietnamese Space Technology Association. Ames Research Center Director Ken Munchika speaks Thursday.



'Texas Proud' draws a crowd

Picnickers enjoy food, fun and most of all, shade, at annual event



JSC employees and their families enjoyed a hot time at the old Gilruth Center during this month's annual JSC Picnic, but the fun transcended the soaring temperatures.

Because of the heat and some mud leftover from a preceding rainstorm, one of the favorite activities of the May 7 picnic was the dunk tank, where JSC managers — and some on-the-spot volunteers — took turns being doused.

Among the other favorites of the 2,400 people who attended were the children's Batman show and entertainment provided by the 4th Wave Rhythm Band and the Stars of Texas children's singers and dancers.

From left to right, top to bottom:

- 1) Uncle Buck the clown prepares an inflatable flower for a young picnicker.
- 2) Astronauts Andy Thomas and Lacy Veach sign

photographs for young admirers. The astronaut autograph booth was a big hit among young and old.

3) Although this young eater went heavy on the chicken and pickles, she appears to be steering clear of the jalapeño peppers. Another favorite of this year's "Texas Proud" celebration was the barbecue dinner.

4) Face painting was the "cat's meow" for some of the attendees.

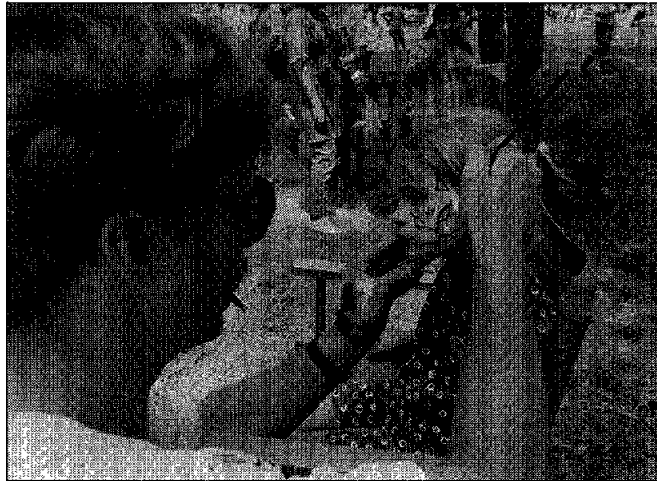
5) Shade was a valuable commodity, especially when it was time to catch a little shuteye.

6) A Peter Pan-themed bean bag toss drew many youngsters looking to win prizes.

7) JSC Deputy Director George Abbey, Mission Operations' Ron Epps and JSC Director Dr. Carolyn Huntoon and Hank Hartsfield, standing from left, were joined by Peggy Epps and Judy Hartsfield.

8) A perennial favorite of the picnic is the children's petting zoo, which included a turkey this year. □

Photos by Dale Martin and Ronnie Montgomery



Astronomers prepare for comet's Jupiter plunge

The latest image of Comet Shoemaker-Levy-9, the "string of pearls comet" that will collide with Jupiter this summer was released Wednesday as scientists involved in the worldwide NASA/National Science Foundation program discussed how they will study the event.

NASA's Jet Propulsion Laboratory also released images depicting how the collision is expected to look from the viewpoints of Earth, and the Galileo and Voyager 2 spacecraft.

The fast-approaching collision of the comet with Jupiter has piqued the interest of professional and amateur astronomers worldwide. Scientists expect a spectacular five-day event from July 16-22 and anticipate some observations.

For the first time in history, astronomers such as Eugene Shoemaker, of the U. S. Geological Survey, and co-discoverer of the comet; Heidi Hammel, of the Massachusetts Institute of Technology; Lucy McFadden, of the University of Maryland, College Park; and Harold Weaver and Melissa McGrath, of the Space Telescope Science Institute, have advance notice of such a collision and the technical capabilities to observe.

Astronomers predict the comet's 20-plus segments will hit Jupiter's dark night side, where they will be hidden from telescopes on Earth. Some observers may be able to view the phenomenon indirectly in light reflected from Jupiter's inner

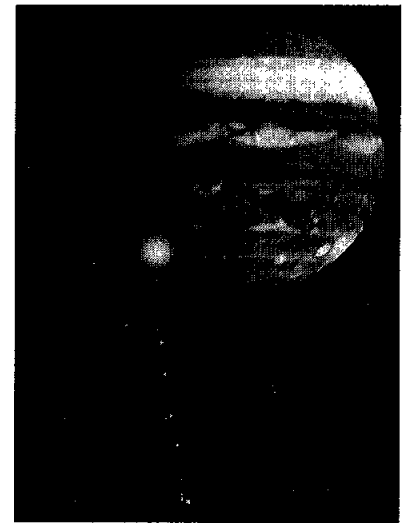
moon or off ring particles. Other observers anticipate viewing the impacts and expected explosions through observations from NASA's Galileo and other spacecraft or by studying the aftereffects on Jupiter's atmosphere.

Thousands of planet watchers are preparing observatories on the ground and in space for what they hope will be a remarkable encounter. The discoveries made about the nature of comets and the makeup of Jupiter's atmosphere and magnetosphere may help scientists explain similar high-energy events on Earth.

The fragmented comet was discovered by Gene and Carolyn Shoemaker and David Levy on

March 24, 1993. They identified the comet through a photograph taken with the 18-inch Schmidt telescope at Mt. Palomar Observatory near Los Angeles.

The comet probably split apart during July 1992, when scientists think it traveled within 113,000 kilometers of Jupiter's center. During this pass, the planet's tidal forces tore it apart. Its fragments vary in size, with about six relatively large pieces, a dozen medium-sized ones, and assorted smaller debris. The average chunk is estimated to be 2 kilometers in diameter, although no one knows for certain. The mass of the fragments will determine the nature of their impact on Jupiter's atmosphere.



This artist's conception of comet Shoemaker-Levy 9 colliding with Jupiter depicts the vantage point of the Galileo spacecraft.

Lunar party a 'splash'

A celebration in honor of the 25th anniversary of the first lunar landing is set for July 21 at the Gilruth Center.

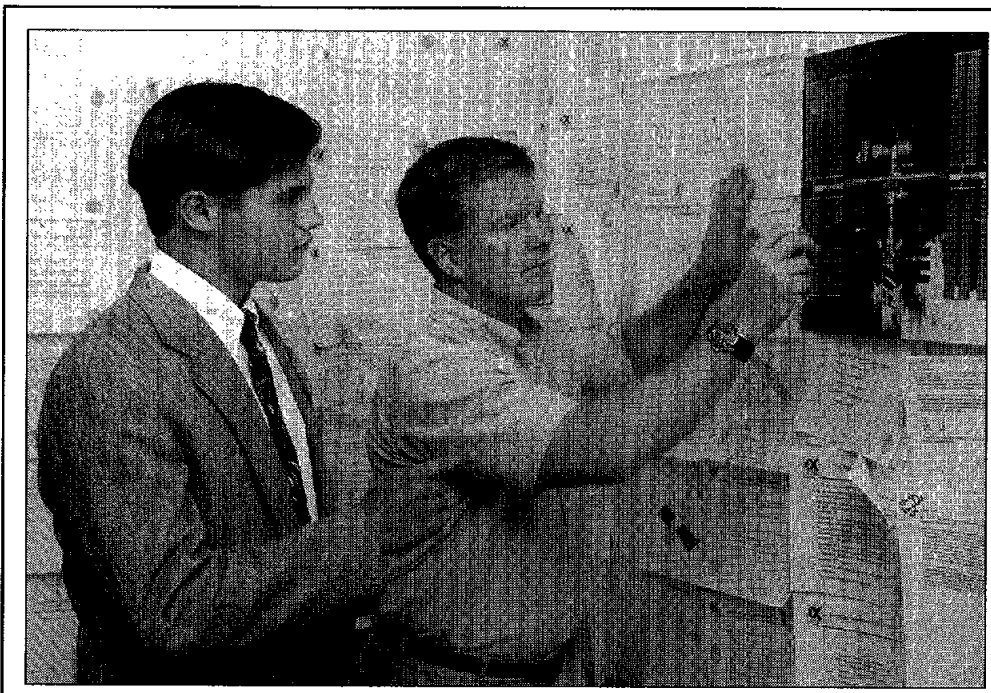
The "splashdown" party, in the tradition of the Apollo era, will run from 4:30-7 p.m. All JSC civil service employees, retirees, and NASA-badged contractors and families are invited to attend the festivities which will not be open to the general public.

Work or family groups may request specially-designated "reunion areas" on the grounds of the party. Requests must be submitted in writing to AP4/Community Affairs or by calling ext. 34322. Maps will be posted at the party site showing the location of the reunion areas.

Tickets will be sold at the Bldg. 11 Exchange Store June 1 through July 15. Cost is \$3 and includes drinks, potato chips and peanuts.

A number of other events also are planned to mark this historic occasion. For information on these other anniversary celebrations, contact Brian Archimbaud at Spaceweek, 333-3627; Diana Dornak with the Lunar Rendezvous Festival, 332-1541; or Mike Flory with the "Legacy Lives On" symposium and exposition benefiting the Challenger Center, at 261-6340.

Anniversary events also will be carried in the Space News Roundup and on the Employee Information Service, x36765.



CAREER DAY — Friendswood High School sophomore Daniel Knight gets a look at the International Space Station Alpha Program's "war room" during the honor student's recent career day visit to JSC. Space Station Program Deputy Manager Bill Shepherd explained the station's configuration and the use of the room to review upcoming presentation materials.

JSC Photo by Jack Jacob

JSC employees earn spot in fall Project IQ program

Eight JSC employees have been selected to participate in the fall 1995 "Project Increased Qualification Program."

Participants for the fall semester are Candace Hunt, Maria Aguilar, Karen Schmidt, Terry Lee-Lamkins, Yaranet Gonzales, Christi Garcia, Marie-France Smith and Venessa Henry. Through the program, employees are permitted

up to eight hours of administrative leave per week to attend college classes in pursuit of undergraduate degrees.

Tuition fees and textbook costs are paid for by the agency. This program helps employees improve their skills and qualifications, helping them become more productive in their present positions.

Pool refinishing team contends with water, snake

(Continued from Page 1)

draining the pool.

Scott said the team had to be "creative" to pump the nearly half-million gallons of water out of the 25 foot deep pool in a relatively short time. Since it is easier to push water than pull it, the team suspended a pump from the overhead crane, ducted its exhaust outside, then lowered it to the surface of the water.

"It was crude, and left onlookers shaking their heads in disbelief, but it sure moved some water," Scott said.

There were a few surprises as Johnson Controls workers tried to keep the ground

water around the building below 25 feet so the pool would not become buoyant. Even though five dewatering wells placed around the WETF when it was built were reconditioned prior to the project, one failed just before the pool was drained. And on Sunday, May 1, a rattlesnake crawled into some electrical switch gear and all power to the dewatering wells was lost while the pool was entirely empty. Plant Engineering Division and Johnson Controls workers had the power restored in just over an hour. Still, the ground water level came up enough to make things a little exciting, Scott said.

Once the pool was drained, Anchor Inc.,

the painting contractor, worked around the clock to control the ground water, blast the old coating from the concrete pool and apply a new high-tech solvent free epoxy coating.

"With some invaluable assistance by people like Charles Lauritzen of the Facilities Development Division and Ron Stone of the Plant Engineering Division's Construction Branch, both of whom were instrumental in the design and construction of the WETF, we managed to pull this thing off," Scott said. "When they say it can't be done, it affords a little extra challenge — and makes such a project's successful completion taste just that much sweeter."

National Performance Review aims at results, not rules

Editor's note: This article is the second in a series of messages prepared by NASA Headquarters for all NASA employees.

By Gary Steinberg and Chris Williams

In March 1993, President Clinton asked Vice President Gore to conduct a six-month study of the federal government.

The purpose of the study, known as the National Performance Review, was to create a new vision for the government that would move us from a government of red tape and bureaucracy to an entrepreneurial government that works better and costs less.

The NPR summary report, From Red Tape to Results, Creating a Government that Works Better and Costs Less, was published in September 1993. The report identified 384 recommendations and 1,222 actions designed to begin this jour-

ney of change. Seventy percent of these recommendations and actions are already being implemented across the federal government.

The goal of the NPR is "not simply to weed the federal garden; it is to create a regime that will keep the garden free of weeds. It's not simply to trim the pieces of government, but to reinvent the way the government does everything." The review, which involved federal employees as well as outside experts, studied examples of successful state and local governments. The NPR report's conclusions are captured in four major themes:

Cut red tape: To create an entrepreneurial government, we will need to shift from a system in which people are accountable for following the rules to one in which they are accountable for achieving results. To this end, the NPR recommended streamlining systems and stripping away layers of unnecessary regula-

tions that stifle innovation. In place of rules and regulations, we need guiding principles and a system that empowers employees to perform their missions and holds them accountable for results.

Put customers first: The NPR report states that "effective entrepreneurial governments insist on customer satisfaction." The NPR focuses on the need to listen to our customers and restructure our operations to meet their needs. The report also recommends using market dynamics to put customers first.

Empower employees to get results: In successful governments, authority is decentralized. They use the strength, ideas, energy and creativity of all employees, not just a select few at the top. To reach this end, front-line employees and supervisors need to be trained and empowered to make decisions and solve problems.

Cut back to basics — produce

better government for less: An entrepreneurial government is constantly reevaluating itself and finding new ways to work better and cost less. To do this, we need to abandon the obsolete, eliminate duplication, embrace new technologies, engage in quality management, cut costs and increase productivity.

In addition to the NPR summary report, there are 38 additional reports that provide background and guidance on the recommendations. The agency-specific reports provide detailed recommendations intended to support the reinvention of federal agencies.

Other reports on cross-cutting systems cover issues that affect every agency, such as personnel and procurement.

Each of us ultimately has the opportunity and responsibility to contribute to the reinvention of NASA. Given our current budget constraints, we must all find new ways

to make the agency work better and cost less. Over the next several months, all NASA employees will receive basic training on quality management principles and how they relate to the government's reinvention efforts. This training has been mandated by the vice president and developed by the Federal Quality Institute to support federal agencies' reinvention initiatives.

Directing NASA's reinvention efforts is the Quality Steering Team chaired by Acting Deputy Administrator John Dailey.

The Office of Continual Improvement (Code T) supports the QST and is responsible for coordinating the implementation of NPR recommendations and tracking the agency's progress.

For additional information on NPR activities, NASA's reinvention, or how you can contribute, contact JSC's Management Analysis Office at x34216.

Employees' children receive scholarships

The children of 29 NASA employees were selected to receive grants from the 1994 NASA College Scholarship Fund Inc.

The 29 recipients were selected from a total of 170 applications for the scholarships. The six students selected from JSC are: Mark Perantie, son of Thomas Perantie, manager of the Space Shuttle Production Assessment Office; Jennifer Chee, daughter of Herbert Chee, Jr. of the Legal Office; Vinaya Valloppillil, daughter of Vincent Valloppillil of the Analysis and Risk Assessment Branch of the Space Station Safety and Mission Assurance Division; Elizabeth Shack, daughter of Paul Shack of the Electromagnetic Systems Branch of the Tracking and Communications Division; Jessica Burgett, daughter of Frank Burgett of the Systems Test Branch of the Crew and Thermal Systems Division; and Sara Blanchard, daughter of Doug Blanchard, Chief of the Solar System Exploration Division.

Scholarship recipients also were selected from the other field centers and NASA Headquarters with two recipients from Ames Research Center; six from Goddard Space Flight Center; one from Headquarters; four from Kennedy Space Center; one from Langley Research Center; seven from Lewis Research Center; and two from Marshall Space Flight Center.

One scholarship was awarded in honor of former NASA administrator James Webb by the JSC Chapter of the NASA Alumni League. Twenty-five were awarded as the result of a contribution by the Freedom Forum on behalf of the STS-61 crew and to commemorate the 25th anniversary of the first lunar landing.

The NASA College Scholarship Fund, Inc. was established in 1982 through an endowment by Pulitzer Prize winning author James Michener. Employees throughout the agency also have contributed significantly to the fund through Combined Federal Campaign donations.

Tickets go on sale June 1 for country western dance

JSC employees can show off their line dancing skills at the country and western dinner dance planned for June 25 at the Gilruth Center.

The evening begins with a social hour at 7:30 p.m. followed by a Texas-style barbecue buffet dinner at 8 p.m. Dancing begins at 9 p.m. with music by Lisa Cole & The Last Chance Band in the old gym.

Partygoers can expect to hear both old and new country and western music through midnight. Tickets for the dinner and dance go on sale at 8 a.m. June 1 in the Bldg. 11 cafeteria. No tickets will be sold after 2 p.m. June 22. JSC employees, retirees and NASA-badged contractors may purchase one table of 8 or 12 seats.

For additional information on the dinner dance, contact Mavis Ikenhans at x49644.