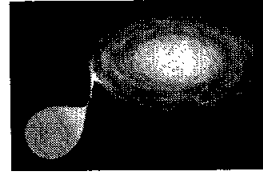




The 1995 mission specialist astronaut candidates recently tried their hand at land, water survival. Story on Page 3.



NASA's Hubble Space Telescope peers in the heart of double star systems. Story on Page 4.

# Space News Roundup

Vol. 34 May 26, 1995 No. 21

## Review team proposes changes at NASA

Goldin says leaner agency must maintain space, aeronautics leadership

NASA Administrator Daniel S. Goldin outlined for employees last week a series of sweeping management and organizational changes designed to cut spending an additional \$5 billion by the end of the decade.

Goldin briefed both the news media and agency employees Friday via NASA Television on the results of the zero-base review. JSC Director Dr. Carolyn L. Huntoon followed his employee address with a question and answer session in Teague Auditorium.

"I'm pleased with what I've seen so far," Goldin said. "We've found ways to streamline operations, reduce overlap and significantly cut costs without cutting our world-class space and aeronautics programs. We have much hard

work before us, but I believe a stronger and more efficient NASA will emerge."

The internal review does not propose closing any of the agency's 10 major field centers, or shutting down any major programs. Goldin said he is determined to cut infrastructure at the agency by reducing jobs, facilities, and administrative overhead, rather than terminating core science, aeronautics, and exploration programs. However, Goldin warned that further deep budget cuts now under consideration in Congress would threaten the survival of some NASA centers and major agency programs.

"Reaching the levels in the administration budget was an incredibly difficult task," Goldin said. "The deeper cuts Congress is contemplat-

ing simply go too far, and I am committed to fighting them."

"NASA was already in the process of taking a \$35 billion (31 percent of the 1994 congressional budget baseline) cut over five years when the President asked us to cut an additional \$5 billion. This is an agency (once) designed to operate with a \$22 billion budget annually (by the end of the decade), and we'll be at \$13 billion by the end of the decade under the administration budget," Goldin said.

"The American public wants a leaner, more efficient NASA, and we're prepared to meet that challenge. But they also want and deserve a NASA that maintains our nation's leadership in space exploration, aeronautics, science, and

technology," he said.

The internal review proposes streamlining functions at the NASA centers, so each installation becomes a "center of excellence," concentrating on specific aspects of NASA's mission. At the same time, the proposed changes would reduce overlap and consolidate administrative and program functions across the agency.

Under the review team's findings, NASA's total civil service ceiling would be reduced to approximately 17,500 by the year 2000, a reduction of 4,000 in five years. In addition, the recommendations would eliminate an estimated 25,000 contractor jobs. The actual number and distribution would be determined by future busi-

Please see **PROPOSALS**, Page 4

## JSC retains human space flight focus

While the zero-base review reflects downsizing and definite roles for each center, JSC's focus remains on human space flight and life sciences, JSC Director Dr. Carolyn L. Huntoon assured employees Friday.

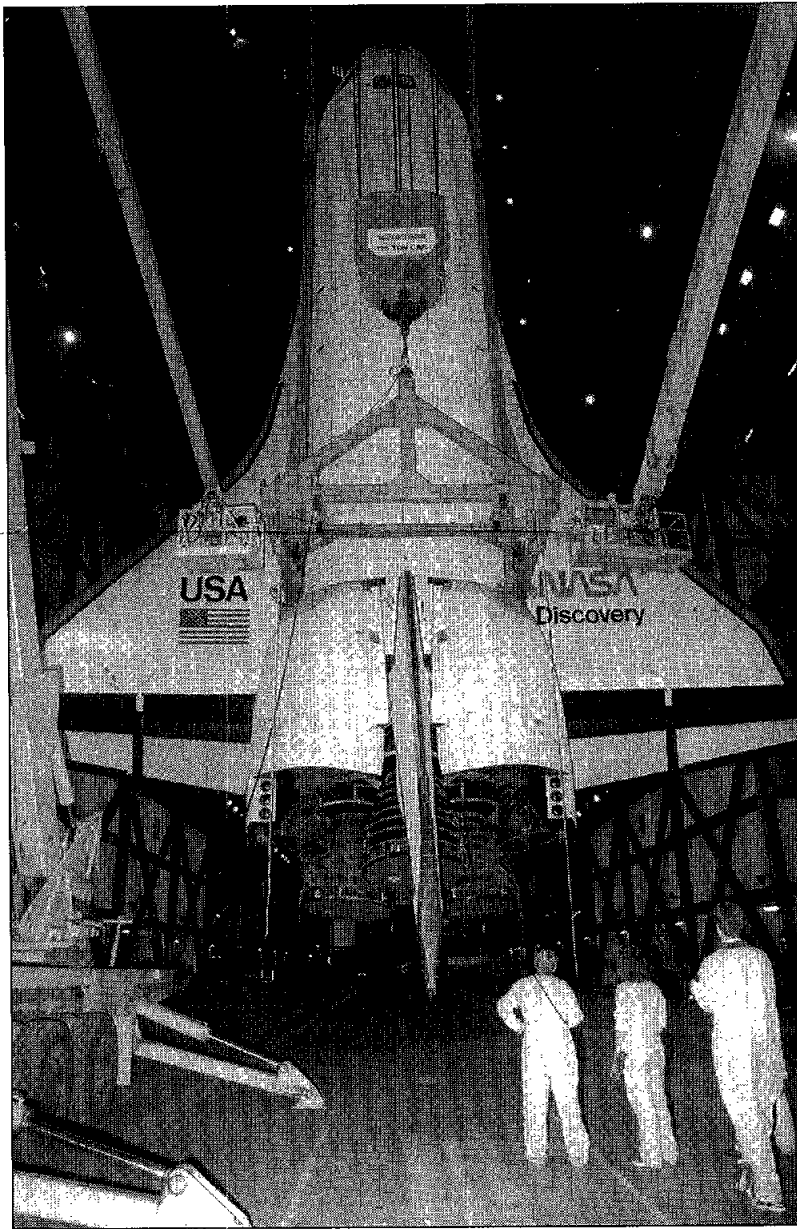
"I feel confident that we can rise to the occasion," she said during a question and answer session that followed NASA Administrator Daniel S. Goldin's address to employees. "I believe you all know the American people have spoken and we have to cut out our overlaps and redundancies."

Under the proposals in the zero-base review, JSC will sharpen its focus on human operations in space, assuming management responsibility for the agency's communications infrastructure; establishing institutes for biomedical and planetary sciences; and streamlining engineering and facilities.

"We have perhaps, the best job in the world. I don't think any of us want to give up that job. By working together to do it as effectively as we can and as efficiently as we can, watching everything we do... I think we will continue to fulfill JSC's role," Huntoon said.

Space Shuttle Program Operations Director Brewster Shaw said the shuttle program is prepared with a strategy to operate safely through the end of the decade with reductions of around \$2 billion. But he emphasized that JSC and the agency must maintain their focus

Please see **DETAILS**, Page 4



Inside the Vehicle Assembly Bldg. at Kennedy Space Center, workers carry out the meticulous process of lifting *Discovery* for mating to its external tank and solid rocket boosters prior to the STS-70 shuttle's rollout to the launch pad earlier this month.

## Five Americans, two Russians run through rehearsal

Five NASA astronauts and two Russian cosmonauts climbed aboard the Space Shuttle *Atlantis* at Kennedy Space Center's Launch Pad 39A Thursday and ran through a simulated countdown that will lead to their launch on STS-71, the first flight in which a shuttle will dock to the Russian Space Station Mir.

Commander "Hoot" Gibson, Pilot Charlie Precourt, Mission Specialists

Ellen Baker, Greg Harbaugh and Bonnie Dunbar, and the Mir 19 crew, Commander Anatoly Solovyev and Flight Engineer Nikolai Budarin, spent three days at KSC, scheduled to launch June 22. The exact launch date will be set at a flight readiness review by NASA managers on June 2, and will be dependent on the progress of the work being conducted on Mir by cosmonauts Vladimir Dezhurov, Gennadiy Strekalov and U.S. astronaut Norm Thagard to reconfigure the space station in advance of *Atlantis*' arrival.

Solovyev and Budarin will replace Dezhurov, Strekalov and Thagard aboard Mir after *Atlantis*' docking. The three current cosmonauts aboard the station will return home aboard *Atlantis*, leaving Solovyev and Budarin to continue their flight, which is expected to last until late August. Solovyev and Budarin

returned to JSC on May 15 for the final weeks of shuttle training leading up to launch. The training has concentrated on launch and landing procedures and specific roles they will play during the final phase of *Atlantis*' approach to the Mir.

Technicians at KSC removed and replaced a high-pressure fuel turbopump from one of *Atlantis*' three main engines this week as a precautionary measure to ensure that possible cracked welds would not hamper its performance. The work was accomplished on the launch pad with no impact to *Atlantis*' launch date.

Meanwhile, the five astronauts who will be launched June 8 on the 100th U.S. human space light aboard *Discovery* continue preparations for the start of the STS-70 mission.

Commander Tom Henricks, Pilot Kevin Kregel and Mission Specialists Don Thomas, Nancy Currie and Mary Ellen Weber will fly to KSC on June 5, as their countdown begins for liftoff at 8:26 a.m. CDT June 8 on an eight-day mission to deploy the sixth Tracking and Data Relay Satellite for NASA's global communications network and to conduct a variety of secondary experiments. If it launches June 8, *Discovery* would return to KSC for a landing on June 16 at about 6:30 a.m. CDT.



## Spektr launches on time; crew ready for new science module

Three space walks are done and two remain to ready the Russian Space Station Mir for the arrival of a new science module, and the shuttle *Atlantis*.

Working more efficiently than on the two previous excursions outside the orbital laboratory, cosmonauts Vladimir Dezhurov and Gennadiy Strekalov completed reinstallation of one solar array and partially retracted another in a 5 hour, 15 minute space walk with assistance from their fellow crew member astronaut Norman Thagard working inside the station.

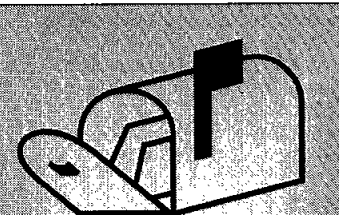
The space walk began on schedule Sunday and ended shortly after midnight Monday. The unscheduled space walk was inserted in the crew's timeline to complete work not finished on previous space walks.

Throughout all space walks, Thagard's role is to relay information to his crewmates from the ground and provide them with instructions while out of radio contact.

The first task for the crew was to install a solar array on the Kvant module that had been moved from the Kristall module during a space walk. With time running short, the crew secured the array near its new location and waited until the third space walk to install it, attach the proper cables and await Thagard's computer commands to deploy the electricity-generating solar panel at its new location. Once deployment was initiated, Dezhurov and Strekalov moved back to the Kristall module to assist with the retraction of its other solar array.

The partial retraction will allow additional power generation while ensuring proper clearances next week when, using a small mechanical arm, the Kristall module is moved to its new location to await the arrival of the Spektr science module. A Progress resupply vessel was undocked

Please see **SPEKTR**, Page 4



Procedures for using X.500 depend on the starting point, whether the E-mail receiver is at JSC or another NASA center, and whether the sender is using a personal computer, Macintosh, or UNIX workstation.

Accessing the World Wide Web address of the directory on the JSC Internal Home Page—<http://www/jsc.nasa.gov/jsc/internal/x500.html>—will allow employees to search personnel by typing in a fellow employee's name.

## New directory lists every E-mail user

Need to E-mail someone at Marshall or another NASA center? Now employees have access to E-mail addresses for all NASA centers.

Responding to NASA Administrator Daniel S. Goldin's request to be able to send electronic mail to any NASA employee by knowing just the employee's name and NASA center, all NASA centers have implemented an on-line electronic mail directory called the X.500 directory.

Like an electronic phone book, X.500 provides a way to find electronic-mail addresses for NASA employees. X.500 can also prevent lost mail when an employee's E-mail system or post office changes. Anyone at JSC with E-mail can use the X.500 directory. JSC's directory

Please see **X.500**, Page 4





# Ascans Survive

## 1995 astronaut training class learn land, water survival techniques



**T**here's more to astronaut training than learning space shuttle systems and procedures, as the mission specialists in the 1995 astronaut candidate class learned recently in its parachute landing and survival techniques classes.

The 13 candidates took a break from the classroom to learn water and land survival techniques at Pensacola Naval Air Station in Florida and parachute landing techniques at Vance Air Force Base in Oklahoma.

Lessons ranged from how to make a tent out of a parachute and prepare beef jerky in the wild to how to keep from breaking an ankle during a parachute landing and how to right yourself when being dragged across the ground by a parachute on a windy day.

The Ascans were joined by flight surgeons who must stay certified in survival training and by student naval aviators to round out the classes.

Top to bottom left to right:

1) From left, Kay Hire, Jim Reilly, Carlos Noriega, Janet Kavandi and a student naval aviator learn how to turn a parachute into a tent at Pensacola Naval Air Station in Florida.

2) Hire learns to construct a fishing net with parachute line.

3) Dave Williams of the Canadian Space Agency tries his hand at water survival spending more than an hour in the water learning to remove the parachute, inflate a raft and signal rescue aircraft.

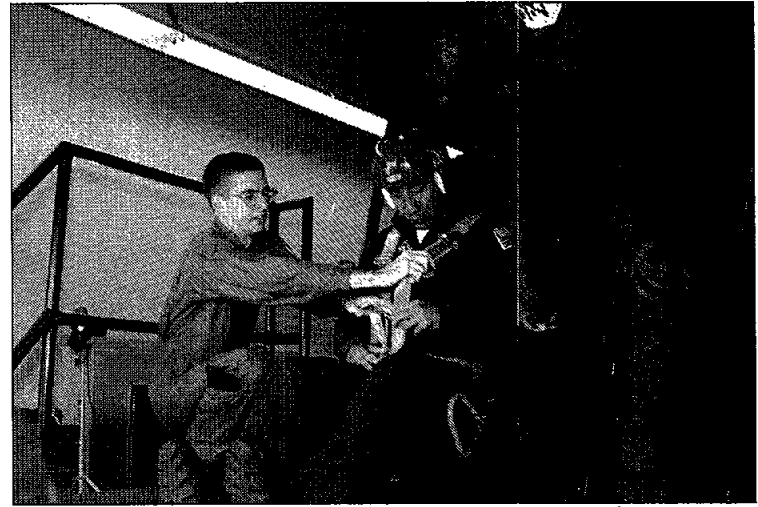
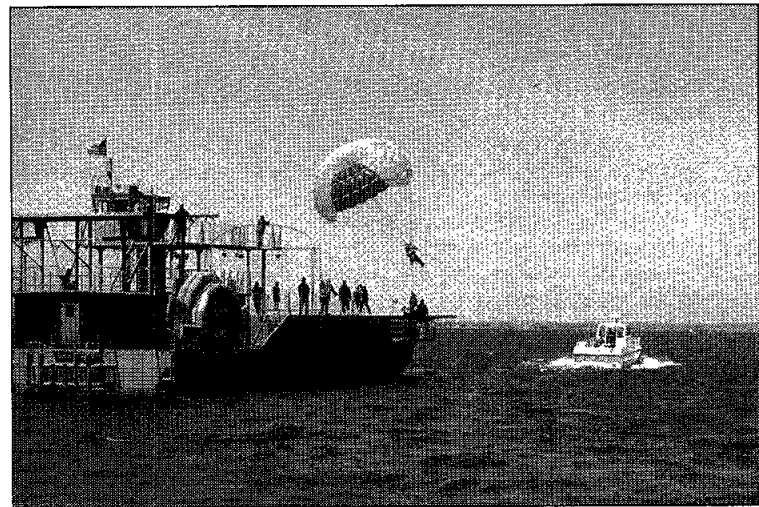
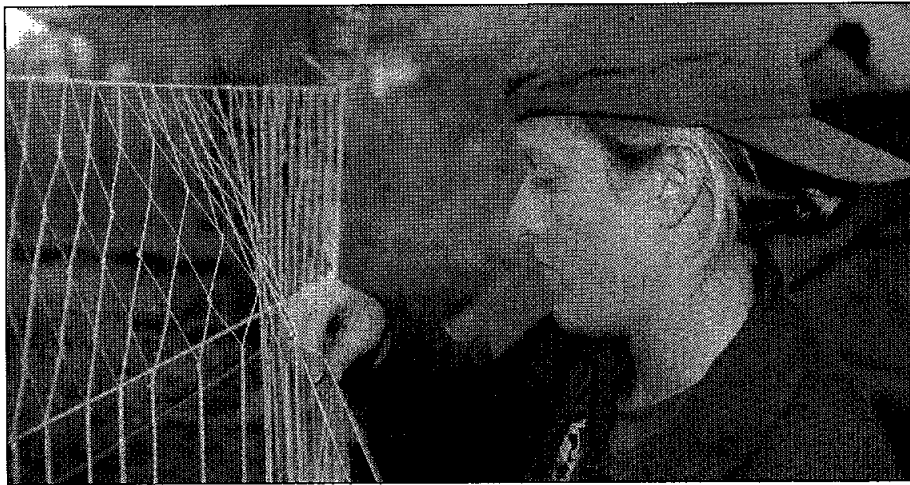
4) Williams, Ed Lu and Takao Doi of the National Space Development Agency of Japan learn the fundamentals of survival eating in the wilderness.

5) The candidates are taken offshore and dropped more than 300 feet to learn how to survive should they have to bail out of an aircraft or spacecraft over the water.

6) Ed Lu gets buckled into the ejection seat trainer at Vance Air Force Base in Oklahoma.

7) Learning how to roll in order to release the parachute in high winds.

8) Doi, a student naval aviator, Flight Surgeon Joe Ortega, Noriega, Williams, Lu, Reilly, Hire, Flight Surgeon Tom Marshburn, Steve Robinson, Chretien, Kalpana Chawla, Michel Tognini of the French Space Agency and a student naval aviator gather materials to burn in order to signal rescue aircraft. □



JSC Photos by Jack Jacob



# Hubble probes double stars

Peering into the heart of two recently exploded double-star systems, NASA's Hubble Space Telescope has surprised researchers by finding that the white dwarf stars at the heart of the fireworks are cooler and spin more slowly than expected.

"This calls for revision of theory," said Prof. Edward Sion of Villanova University. "Though these extremely faint explosive white dwarfs have been known about for 30 years, Hubble allows astronomers to observe them directly for the first time and provide observational evidence to test theories."

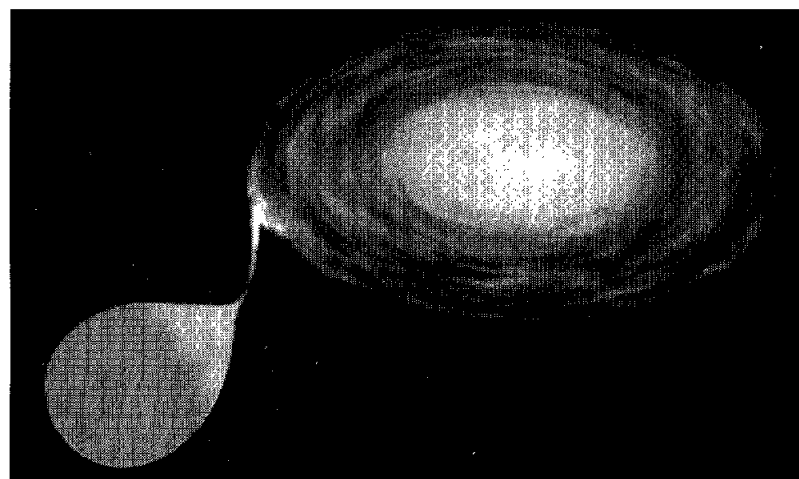
Each dwarf—incredibly dense, burned-out stars that have collapsed to the size of Earth—is in a compact

binary system, called a cataclysmic variable, where its companion is a normal star similar to but smaller than the Sun. The stars orbit each other in less than three hours and are so close together the entire binary system would fit inside Earth's Sun. This allows gas to flow from the normal star onto the dwarf where it swirls into a pancake-shaped disk.

Sion and co-investigators studied the two best known cataclysmic variables, VW Hydri, and U Geminorum. Hubble was used to make spectroscopic observations of the dwarf novae just days after their eruption, before another gas disk formed and obscured direct observation of the white dwarf. The biggest surprise is

that the spin rates of the white dwarf stars, as measured by Hubble (slightly less than four minutes for U Geminorum, and once a minute for VW Hydri) are so slow there should be violent collisions where the gas disk crashes onto the slower moving white dwarf surface.

Since the predicted x-rays from the hot (several hundred thousand to a million degrees Celsius, or greater) colliding gas has never been observed, astronomers thought that the white dwarf was spinning as fast as the disk, so that contact between the disk and surface was less violent. However, the Hubble results contradict this conclusion.



This illustration is of a double star called a cataclysmic variable. The system consists of a white dwarf star—a dense, burned-out star that has collapsed and a companion that is a normal star, similar to but smaller than the Sun. The stars are so close together gas flows from the normal star onto the dwarf where it swirls into a pancake-shaped disk.

## Gulf Coast civil servants honor JSC workers

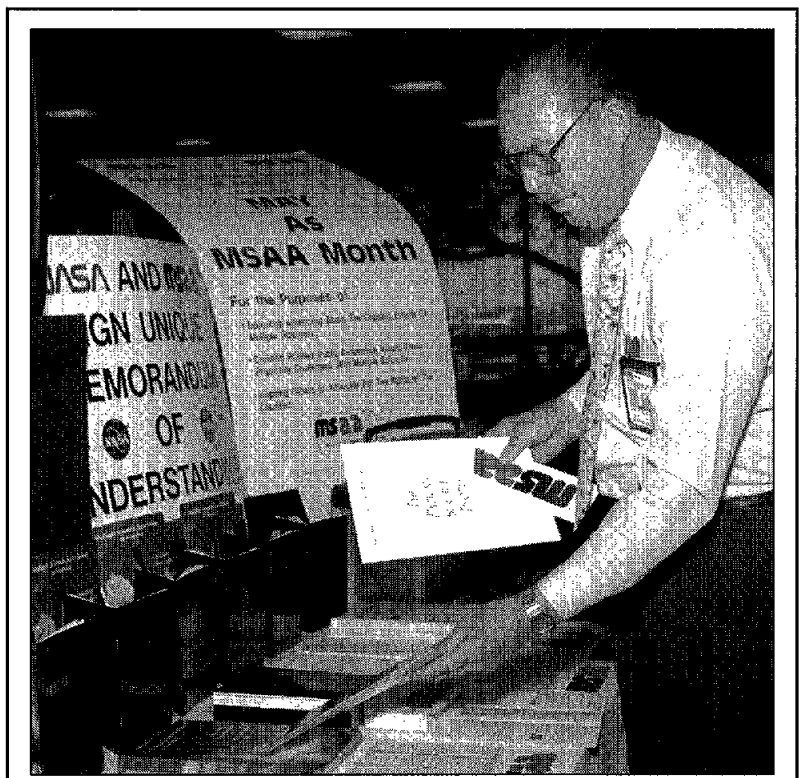
Six JSC employees were recognized by the Federal Executive Board and the Federal Business Association during a banquet recently held at the Gilruth Center.

The employees were recognized for their accomplishments and performance at work and in the community through volunteer activities.

Employees from many local federal agencies were nominated and all received a certificate of appreciation.

The six employees nominated for the FBA awards were Joseph Atkinson of the Office of Public Affairs for the length of service category; Paula Fyffe of the Procurement Management Office for the administration category; Santiago Cruz of the Manufacturing, Materials and Process Technology Division for the crafts category; Sharyl Butler of the Avionic Systems Division for the professional/scientific category; Tommy Holloway of the Space Shuttle Program Integration Office for the supervisory category and Cynthia Koch of the Information Services Division was nominated for two categories including clerical/service and outstanding employee.

Koch was chosen over all other gulf coast federal agencies as the winner of the clerical/service award.



JSC Photo by Benny Benavides  
**COOL SUIT**—Coy Martin of the Product and Test Operations Assurance Branch checks out information on display last week in the Bldg. 11 cafeteria on how the Multiple Sclerosis Association of America is using NASA-developed cool suits to help MS patients.

## FEGLI open season to offer living benefit

The Federal Employees' Group Life Insurance Program is offering a "living benefit" program to employees not previously enrolled during a limited open season that began Monday and runs through July 21.

"The "living benefit" is a FEGLI policy provision that allows payment of the basic insurance amount to a terminally ill employee or retiree prior to death," said Harvey Hartman, director of Human Resources. "The benefit allows for payment of part or all of the basic insurance amount before death if life expectancy is 9 months or less. The living benefit can be a financial lifeline for employees and their families who incur

medical or personal care expenses that might diminish their life savings."

Although this benefit will be available to all FEGLI enrollees, this open season is limited to current employees who are not enrolled in FEGLI. Employees may elect basic insurance only—not optional insurance. A physical exam is not required.

To enroll, employees must submit a Form 2817, Life Insurance Election, and return it to Employee Services by the end of the open season. Coverage will be effective on the first day of the pay period after receipt of the form. Forms are available in Bldg. 45 Rm. 140. For details call x32681.

## TSP open season under way

Open season for enrolling in the Thrift Savings Plan is now under way and continues through July 31.

During open season, eligible employees may begin contributing to the plan, change the level of contributions, allocate contributions among different investment funds, terminate participation in the program or waive enrollment.

The effective date for joining the program or making a change depends upon when the election form is received by Employee Services.

FERS employees not making contributions, may still elect to invest all

or any portion of their agency automatic contributions in any of the investment funds.

Current investors do not have to wait for open season to move funds between the different fund types. Funds may be moved up to four times per year. To move funds mail a TSP-30 form to the Thrift Board or call the TSP Inquiry Line directly at 504-255-8787. To make a change, callers will need their personal identification number listed on their TSP account statement.

For more information, visit Employee Services in Bldg. 45, Rm. 140, or call x32681.

## Proposals get summer review

(Continued from page 1)  
ness decisions made by contractors.

"I am committing to you today, we will do everything we can to avoid a RIF (reduction in force)," Goldin told employees. "But you can help us. You may get an offer to move to another center. I encourage you to embrace it. Be receptive, your support will be a tremendous help to all the NASA employees."

The review team proposals will be assessed through the summer months and then become part of the agency's fiscal year 1997 budget, due to be submitted to the Office of Management and Budget later this year. Goldin began the review last September following guidelines issued by the National Performance Review, a government-wide effort headed by Vice President Al Gore to streamline executive agencies. The NASA study intensified in January in order to meet the President's reduction targets.

The guidelines recommended are:  
• Each field center will have a primary mission to reflect its role in a

strategic enterprise as defined in NASA's strategic plan;

• Full program costs, including overhead, will be identified and managed more effectively;

• Only civil servants, Jet Propulsion Laboratory employees, and employees of the new institutes will perform in-house science, research and engineering;

• Aerospace operations, including the space shuttle, will be performed by NASA contractors;

• Outsourcing and commercial services will be maximized; and

• Agency activities and operations will be standardized as much as possible and commercially available products will be used as appropriate.

"The zero-base review is something you can be very proud of," Goldin said. "Change is unsettling. It is not easy for anybody, but we have got to refocus ourselves now. We have got to focus on the job at hand. We need to work together to do NASA's extraordinary mission. To expand the frontiers of knowledge in air and space."

## Hurricane video to air next week

The Emergency Preparedness Office is sponsoring a hurricane preparedness workshop and will broadcast videos in conjunction with the opening of hurricane season which begins Thursday.

A hurricane workshop is scheduled from 10 a.m.-noon next Friday in Teague Auditorium. The program will include guest speakers from the broadcast media and the National Weather Service, information on JSC's program and on personal disaster survival plans.

All next week, a hurricane preparedness videotape will be broadcast at 9 a.m. on Channel 12 on the JSC Television Distribution System.

For more information on these events or other emergency preparedness plans, call Bob Gaffney at x34249.

## Spektr to dock Saturday

(Continued from page 1)

and discarded Monday evening to make room for the Kristall.

Spektr was launched last Friday at 10:32 p.m. CDT from the Baikonur Cosmodrome in Kazakhstan. Two orbital correction burns occurred as scheduled Saturday evening to fine tune the module's orbit as it spends 10 days slowly phasing toward Mir. Docking at 8:04 p.m. Wednesday will air live on NASA Television.

Spektr is the newest science module built for the Mir complex. Weighing 19.5 metric tons, it is designed to study the Earth's natural resources, the upper layers of the atmosphere and the space surrounding Mir.

It will be used for biomedical experimentation throughout the Mir/shuttle program and beyond. Spektr

also will provide fuel, consumables and additional electrical power to the station with four solar panels.

Communications between the Mission Control Center in Kaliningrad and the Mir-18 crew will now focus on procedures and timelines for the remaining two space walks. Each is to last less than an hour as the cosmonauts move a passive docking target for the various module movements prior to and just after Spektr arrival. Kristall, Kvant-2 and Spektr will be temporarily shut down so the docking module on that end can be used as an airlock.

The crew will spend the next few days disconnecting cables from the core module into the docking chamber to allow the hatch to be closed for the fourth and fifth space walks.

## Space News Roundup

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Editor ..... Kelly Humphries  
Associate Editor ..... Karen Schmidt

## Details in June budget marks

(Continued from page 1)

on the work before them and on paying close attention to detail.

According to the zero-base review, by the year 2000 JSC will be operating with about 500 fewer civil service workers and about 2,750 fewer contractors.

"I am hopeful that we will be able to handle the downsizing in the civil service through attrition. While no one can predict when someone will retire, it is possible to reach these numbers through this process," Huntoon said.

Huntoon said she expects the reductions to show up for the first time in the June budget marks from Headquarters.

"We have to wait and see ... how Headquarters has balanced the

agency's budgets for the next five years. Then we will know more and I can talk with you more on how we will spread these cuts," Huntoon said.

The establishment of a life sciences institute is not intended to immediately reduce costs, but will join NASA, industry and academia in a partnership that takes advantages of the unique facilities and resources each has to offer.

"Our role at JSC has not changed," Huntoon said. "I will hold this workforce up against any in the world. We have to make sure we keep the best and the brightest here at JSC. I want to keep the excitement of the space program alive and keep the best coming to JSC."