

Space News ROUNDUP!

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Neutral Buoyancy Lab wins engineers' award

JSC's new Sonny Carter Training Facility Neutral Buoyancy Laboratory, used by astronauts to train for space walks, has won the American Society of Civil Engineers' 1997 Texas Outstanding Civil Engineering Award.

In presenting the award, the American Society of Civil Engineers cited the complexity of constructing the facility and noted that the pool was built inside of an already-existing building not originally designed

for such use. The excavation for the pool removed almost 28,000 cubic yards of dirt; the hole was 28.5 feet deep, 112 feet wide and 212 feet long.

The pool floor is concrete 6 feet thick; the floor and walls include more than 1,300 tons of reinforcing steel, including 319 miles of steel tie wire; and almost 7,000 tons of concrete was used in construction. The pool extends 20 feet below ground and 20 feet above, and a 28,000

square-foot pool deck was built to house training offices, control rooms and mechanical equipment.

Construction of the facility was a project of the structural engineering firm Haynes Whaley Associates Inc. and began in 1995.

"The ability to successfully revamp an existing building for another, drastically different use is a substantial accomplishment that reflects well on the engineering profession," the ASCE said. "The complex engi-

neering plan required to make this challenging feat a reality serves as an important reference for any engineers faced with comparably difficult projects."

David Schnurbusch, ASCE president, presented the award.

Training began in the 202-foot long, 102-foot wide and 40-foot deep pool in 1997. The facility is used in training for the space walks that will assemble and maintain the International Space Station.



NASA photo by Mark Sowa

Astronaut Andy Thomas, left, explains to reporters that his 4½ months aboard Mir have yielded valuable lessons, both in terms of how personally to deal with long-duration space flight and what lessons Mir offers for the International Space Station. James Van Laak, deputy manager of the Phase 1 Program, said the contract with Russian space agency was worth the money. Please see details, Page 2

JSC awards USA shuttle projects

New contract modification worth \$900 million-plus

JSC has modified its contract with United Space Alliance of Houston to include more than \$900 million in work on the space shuttle's solid rocket booster and other shuttle elements. USA is the prime contractor for the space shuttle fleet operations.

This \$919.5 million cost-plus-award-fee/incentive-fee contract modification includes work previously performed under three separate NASA contracts: work on the boosters performed by USBI at Kennedy Space Center in Florida; design and production of primary shuttle avionics software by Lockheed Martin in Houston; and processing of flight crew equip-

ment, including space suits, personal equipment and tools, performed by Boeing Aerospace Operations in Houston.

The new work comes under Phase 2 of NASA's Space Flight Operations Contract with USA. Under Phase 1 of the contract, NASA consolidated operations of 12 separate contracts under USA.

Phase 2 will consolidate an additional 16 contracts as part of a continuing NASA effort to transfer day-to-day shuttle operations from government employees to private companies.

The performance period under Phase 2 runs through Sept. 30, 2002.

Awards ceremony honors JSC individuals, teams

Individual JSC employees and teams Tuesday received NASA's highest honorary awards in Teague Auditorium.

Recipients of the NASA Honor and Presidential Rank Awards were nominated by JSC management and selected by the Incentive Awards Board at NASA Headquarters. Also to be recognized were recipients of the Senior Executive Service Rank Awards.

Each honoree also received a framed certificate signed by NASA Administrator Daniel S. Goldin. Individuals selected to receive Group Achievement Awards on their teams' behalf get a framed certificate. Certificates for individual participants of teams will be forwarded to the nominating organizations.

NASA Deputy Administrator John

R. Dailey assisted JSC Director George Abbey in presenting the awards. Winners included:

SES Distinguished Executive: Tommy W. Holloway, Leonard S. Nicholson.

SES Meritorious Executive: Jack C. Boykin, Randolph H. Brinkley, Brock R. Stone.

NASA Distinguished Service Medal: Michael A. Baker, John E. Blaha, Kenneth D. Bowersox, Curtis L. Brown, Jr.; C. Michael Foale, Ph.D.; James D. Halsell, Jr.; Gregory J. Harbaugh, Steven A. Hawley, Ph.D.; Marsha S. Ivins, Mark C. Lee, Donald A. Thomas, Ph.D.; Janice Voss, Ph.D., and James D. Wetherbee.

NASA Outstanding Leadership Medal: Frank J. Benz, Robert D. Cabana, N. Jan Davis, Ph.D.; Walter

M. Guy, James D. Halsell, Jr.; James R. Jaax, Kevin R. Kregel, John E. Petersen, Jr.; Charles J. Precourt, Richard N. Richards, John C. Stencil, Janice Voss, Ph.D., and James B. Waddell.

NASA Exceptional Engineering Achievement Medal: Ying-Ming Kuo, Ph.D.

NASA Exceptional Service Medal: Thomas A. Baugh, Chester E. Bennett, William C. Boyd, Frank T. Buzzard, Jean-Francois Clervoy, Eileen M. Collins, Henry L. Davis, Carroll T. Dawson, Gregory J. Della Longa, Diane D. DeTroye, Thomas C. Duncavage, Marybeth A. Edeen, Philip L. Engelauf, Mark D. Erminger, Anna L. Fisher, M.D.; Michael L. Gernhardt, Ph.D. (2 awards); Estella Hernandez Gillette, John M. Grunsfeld, Ph.D.; Linda J. Ham, Scott

J. Horowitz, Ph.D.; George A. Jarrell, Brent W. Jett, Jr.; Wendy B. Lawrence, Jerry M. Linenger, M.D., Ph.D.; Allen L. Manson; Thomas M. McPherson, Melanie J. Miller, Richard W. Nygren, Scott E. Parazynski, M.D.; Keith A. Reiley, Daniel R. Remington, Kent V. Rominger, Clarence F. Sams, Ph.D.; William C. Schneider, Ph.D.; Winston E. Scott, Steven L. Smith, Susan L. Still, Michael T. Suffredini, Joseph R. Tanner, Donald A. Thomas, Ph.D.; Clifford D. Thompson, Vladimir G. Titov, Rodney O. Wallace, Kellye B. Welch, and Peter J. K. Wisoff, Ph.D.

NASA Exceptional Achievement Medal: Donna J. Bartoe, Timothy J. Briscoe, Jeffery A. Cardenas, Quinn L. Carelock, J. Russell Carpenter, Ph.D.; Joseph T. Chang, Elizabeth A.

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Thomas says Phase 1 lessons broad, valuable

By John Ira Petty

Mir was never too cold, never too humid and was too hot only for about a day, Andy Thomas said of his 141 days aboard the Russian space station. But he'd like to see some brighter colors inside the International Space Station.

That is only one of a myriad of lessons, personal and programmatic, Thomas brought back to Earth at the end of Phase 1. Not the least of the benefits was the cooperation established between Russia and the United States in space exploration.

His mission, he said, also represented "truly a deep personal accomplishment for me." He said it was "perhaps the hardest thing I've ever attempted in my personal career. It takes a lot of determination and a lot of soul-searching to complete a mission like that. The personal reward for me was that I was able to do that, complete the mission, and that I can come and talk to you today."

About Russian Space Agency-NASA cooperation, he said: "It's ironic to think that 40 years ago, the space program got its start born out of competition with the eastern block countries. Now, 40 years later, we've advanced to the point where in stead we have a program of cooperation born from that original competition."

It's important, he said, to judge the cooperative program objectively, on its own merits unclouded by cold war prejudices.

"I think we can do that — when we look at this program that we've established with the Russian space agency; you can see that it is indeed the right thing to do. It has set us on a direction of cooperation with the Russians which will lead us to the International Space Station.

"I think history will record the great success of really bringing the two agencies together and starting a spirit of cooperation to explore space."

Thomas told the July 8 press conference that physically he was feeling good. "One of the interesting things about a flight like this is the reacclimatization process." Space is an unnatural environment, but the absence of gravity becomes the norm. "When you come back, what was originally the natural environment feels very unnatural."

Thomas said that while the initial sensations of ordinary acts like standing are very strange. Just after landing, "I felt remarkably good." A few hours later there was a delayed response, with balance problems and nausea for about 12 hours.

The first week involved a lot of aches and pains, as muscles learned to work again in Earth's gravity. "I'd get up in the morning and I'd feel like I'd run a marathon without training for it." He said his neck and shoulders were still sore; and that the soles of his feet were

tender, making it difficult to stand in one place for a long time.

Views of the Earth were a highlight of the flight, Thomas said. He recalled a spectacular night view of the aurora australis, a green curtain moving across the sky for hundreds of miles. Another extreme were the extensive fires Central America, disturbing with their huge pall of smoke.

Day-to-day interactions with Russian crew members went well. Two Mir crews were aboard when Thomas arrived—he brought the total to six people. When the Mir 24 crew left, things became less congested and rapport started to build.

He said he never felt any sense of claustrophobia, although there was a sense of confinement—there weren't many places to go.

"I think probably about a month into the flight you start to develop a daily routine you live and work by. You need to do that, but the downside is that you start to notice ... the options available to you are very limited." Still, once developed, the routine makes the crew member more productive and time passes more quickly.

Practical lessons were learned from Phase 1, Thomas said. "We've learned the mechanics of how you operate a space station. We've also learned—and it shouldn't be underesti-

mated—how to work with the Russians."

There were personal lessons too, about how to live and work for a long time in space, things like the best way to package food to minimize waste, what to wear, what kind of exercise to do, how a space station should be laid out and even what color should the interior be painted.

James Van Laak, deputy manager of the Phase 1 Program, noted that Phase 1 turned intellectual concepts into practical applications. One lesson was how to support long-duration crew members.

"We made some serious mistakes in the beginning. We've learned from that," Van Laak said. "I hope that Andy felt ... we did the best we could to support him."

Thomas said he had experienced a "great level" of support.

Maintenance was another lesson, Van Laak said. The shuttle gets about a million hands-on hours of work before each flight of a few days. When things break on ISS during its 15 years in orbit, the crew will have to fix them. Maintenance was a major part of Mir crew activity, he noted.

Phase 1 was a contract with the Russians, while subsequent phases will be a cooperative relationship. Phase 1 was worth the money. "Basically we're happy with the deliverables," Van Laak said. And, more immediately "We appreciate the fine work that Andy did."



Fifteen JSC workers earn Silver Snoopy

Fifteen JSC workers are now the proud owners of Silver Snoopy Awards presented by astronauts.

The awards, administered by the Space Flight Awareness Program, are the astronauts' personal recognition of individual excellence contributing to human space flight missions.

Civil service employees receiving the awards were Margie Keller, Flight Crew Operations Directorate; Debbie Denton-Misfeldt, Human Resources Office; Nathan Moore, Space and Life Sciences Directorate; Joseph Aquino, Susan Beisert, Matthew Bordelon, Peter Cerna, David Graham and Kimberly Kirby, Mission Operations Directorate.

Contractor employees receiving the awards are Paul Diggins and Charles Ritrivi, Boeing Space Operations; Debe Armstrong, Defense Contracts Management Command-Sacramento; Ronald Smith, Dynacs Engineering Co.; Barbara Corn, ISS Advisory Committee, and Linda Doran Science Applications International Corp.

Silver Snoopy Awards, received by less than 1 percent of NASA and contractor workers, are much coveted. Additional astronaut presentations of Silver Snoopy Awards are planned later this year.



NASA Photo S98-07972

BELAYING BROWN—STS-95 Commander Curt Brown mission simulates an emergency egress procedure in the JSC's systems integration facility, as crew trainer Sharon Jones spots for him. STS-95, tentatively set to launch Oct. 29, will involve a variety of science experiments carried in the pressurized Spacehab module, deployment and retrieval of the Spartan free-flyer payload, and operations with the HST Orbiting Systems Test and the International Extreme Ultraviolet Hitchhiker.

Mars water, rock findings offer surprising scientific conclusions

A year after the landing of Mars Pathfinder, mission scientists say that data from the spacecraft paint two strikingly different pictures of the role of water on the red planet, and yield surprising conclusions about the composition of rocks at the landing site.

"Many of the things that we said last summer during the excitement after the landing have held up well," said Dr. Matthew Golombek, Pathfinder project scientist at NASA's Jet Propulsion Laboratory, Pasadena, Calif. "But we have now had more time to study the data and are coming up with some new conclusions."

Similar to ongoing science results from NASA's Mars Global Surveyor spacecraft currently in orbit around Mars, Pathfinder data suggest that the planet may have been awash in water 3 billion to 4.5 billion years ago. The immediate vicinity of the Pathfinder land-

ing site, however, appears to have been dry and unchanged for the past 2 billion years.

Several clues from Pathfinder data point to a wet and warm early history on Mars, according to Golombek. Magnetized dust particles and the possible presence of rocks that are conglomerates of smaller rocks, pebbles and soil suggest copious water in the distant past. In addition, the bulk of the landing site appears to have been deposited by large volumes of water, and the hills on the horizon known as Twin Peaks appear to be streamlined islands shaped by water.

But Pathfinder images also suggest that the landing site is essentially unchanged since catastrophic flooding sent rocks tumbling across the plain 2 billion years ago. "Since then this locale has been dry and static," he said.

While the area appears to have been untouched by water for eons,

wind appears to have been steadily eroding rocks at the landing site. Analysis of Pathfinder images shows that about one to two inches (three to five centimeters) of material has been stripped away from the surface by wind, Golombek noted.

Chemical analysis of a number of rocks by the alpha proton X-ray spectrometer instrument on Pathfinder's mobile Sojourner rover, meanwhile, reveals an unexpected composition that scientists are still trying to explain.

The current assessment of data from this instrument suggests that all of the rocks studied by the rover resemble a type of volcanic rock with a high silicon content known on Earth as andesite, covered with a fine layer of dust. All of the rocks appear to be chemically far different from meteorites discovered on Earth that are believed to have come from Mars.

"The APXS tells us that all of



NASA Photo PIA01121

This image of Pathfinder Lander on Mars was taken from the Sojourner Rover. The lander's IMP, on the lattice mast, is looking back at the rover.

these rocks are the same thing with different amounts of dust on them," said Golombek. "But images suggest that there are different types of rocks. We don't yet know how to reconcile this."

In other recent Pathfinder science findings, Dr. Steven Metzger of the University of Nevada found direct evidence of gusting winds called

"dust devils" in images from Pathfinder's lander. Such dust devils had been seen in some Viking orbiter images and inferred from measurements of atmospheric pressure and winds by other instruments on the Pathfinder lander, but were not spotted in actual surface images until Metzger's discovery.

Hubble reveals Neptune moon, Titan, warmer

Observations by NASA's Hubble Space Telescope and ground-based instruments reveal that Neptune's largest moon, Triton, seems to have heated up significantly since the Voyager spacecraft visited it in 1989.

"Since 1989, at least, Triton has been undergoing a period of global warming—percentage-wise, it's a very large increase," said James Elliot, an astronomer at the Massachusetts Institute of Technology. The warming trend is causing part of Triton's frozen nitrogen surface to turn into gas, thus making its thin atmosphere denser. Elliot and his colleagues from MIT, Lowell Observatory, and Williams College published their findings in the June 25 issue of the journal *Nature*.

Even with the warming, no one is likely to plan a summer vacation on Triton, which is a bit smaller than Earth's moon. The 5 percent increase means that Triton's temperature has risen from about 37 degrees on the absolute (Kelvin) temperature scale (-392 degrees Fahrenheit) to about 39 degrees Kelvin (-389 degrees Fahrenheit). If Earth experienced a similar change in global temperature over a comparable period, it could lead to significant climatic changes.

Triton, however, is a very different and simpler world than Earth, with a much thinner atmosphere, no oceans and a surface of frozen nitrogen. But the two share some contributing factors to global warming, such as changes to the Sun's heat output, how much sunlight is absorbed and reflected by their surfaces, and the amount of methane and carbon monoxide (greenhouse gases) in the atmosphere.

By studying these changes on Triton, the scientists hope to gain new insight into Earth's more complicated environment.

Community News

White Sands teddy bear spreads space to school with flight on STS-90

By John Ira Petty

Some New Mexico school children were absolutely bearish, in the most positive sense, about the STS-90 flight on *Columbia*. Their reason: One of their own was aboard.

The pilot, commander, three mission specialists and two payload specialists were joined by a quiet, undemanding yet still contributing crew member—ursine specialist Axon. The small teddy bear from JSC's White Sands Test Facility, was a companion of Mission Specialist Kay Hire.

"You have to experience it to believe it," Axon said in a recent, exclusive interview with the Space News Roundup. "I had no idea space flight, and fame, could be so exciting."

Axon and her two backup siblings, Chuck and Yuri, spent months training with Hire and other astronauts at JSC and Kennedy Space Center.

All three are based at JSC's White Sands Test Facility and all are ambassadors for the Science Advisor (SCIAD) program. Since 1990, SCIAD has paired volunteer science professionals from the community with local elementary and middle school teachers in a partnership to improve math, science, and technology education.

Hire offered to support SCIAD by flying one of the bears on her mission. STS-90 was a 16-day flight of NeuroLab, dedicated to the study of nervous system development and function in the absence of gravity.

The adventures of all three bears were documented on their own website, <http://www.wstf.nasa.gov/bear> by Allied-Signal/WSTF employees David Huskey and Tom Richie, with text and photographs provided by Hire and White Sands' Michelle Rucker.

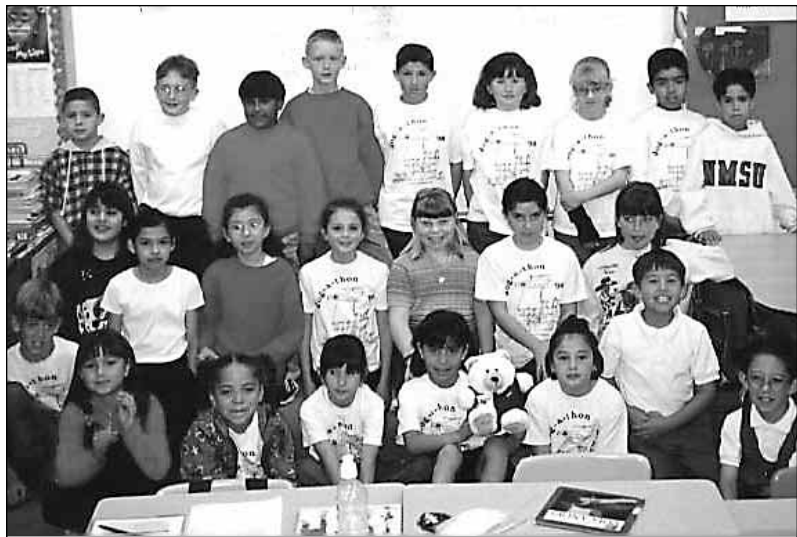
Hundreds of Las Cruces school children monitored the bears' entertaining pre-flight activities, which included launch acceleration and microgravity flight simulations, NeuroLab science experiments, and even using the famous "space potty."

For the actual mission, space aboard *Columbia* was at a premium, so Axon had to lose some weight. Her stuffing was removed, and she flew in a form-fitting space attire - some more skeptical individuals might call it a plastic vacuum bag.

Axon owes her identity to the Las Cruces children. They were asked to name two of the three bears. (NASA already had named Chuck for test pilot Chuck Yeager.)

The winning entry was submitted by Julie Thomas' class at Mesilla Elementary. Axon is the part of a nerve cell that carries impulses away from the body of the cell.

Backup Yuri was named by Valerie Rodriguez's first grade class at Jornada Elementary, for Yuri Gagarin, the Soviet cosmonaut. The prize for the two winning classes was an invitation to visit White Sands to meet Hire during her post-flight tour.



Las Cruces Elementary students submitted the winning entry for Axon's name, and that of her backup, Yuri. Axon is in the front row.

JSC Photos

Onsite Insights



JSC Photo by Mark Sowa

Sue Leibert takes stock in the Bay Area Turning Point food pantry. She recently received the Houston Federal Business Association's Professional/Scientific Public Service Award, in part for her work there.

A chance to give back

JSC's Sue Leibert helps many in community navigate turning point

By John Ira Petty

The criteria were job competence, impact, community service and special efforts. Sue Leibert of Human Resources ranked right up there in all four.

She was named winner of the Professional/Scientific Public Service Award sponsored by the Houston Federal Business Association. Three other JSC employees also won awards, designed to recognize military and civilian government employees in the Houston-Galveston area.

One big reason Leibert won, in addition to being good at her job, was her work to help abused spouses and their children put their lives back together.

At JSC, Leibert, a 15-year human resources veteran, works as senior executive services coordinator and human resources representative for employees in the Space Shuttle Program, the Phase 1 Program and the EVA Project Office.

She's also president-elect and a member of the board of Bay Area Turning Point, an organization founded in 1961 to help victims of family violence. It's geared toward women

and children, although men are abuse victims, too.

The organization opened its shelter June 1, 1996, about the time Leibert joined. The first surprise, she said, was the amount of abuse that goes on in the relatively affluent Clear Lake area.

"The shelter can serve 50 women and children and it is typically full," she said. Those who use its services are from all economic levels. On average each woman resident brings two children. The organization finds shelter for male abuse victims elsewhere.

Abuse can be emotional or monetary as well as physical, she said. Many victims keep trying to change the abuser's controlling, demeaning, isolating behavior to preserve the relationship.

Leibert became involved in the organization when Jennifer Mason-Korecki who works in the International Partners Office was president-elect two years ago. "She needed someone with a human resources background to be on the board, which numbers 16 to 18. "By the time she left my office I was the HR committee chair and on the board," Leibert said.

Bay Area Turning Point's 20 professional staff members also provide non-residential services, work with high

school students and support and counsel sexual assault victims.

Leibert has found a cause, for a number of reasons.

"I've been incredibly blessed in my life," she said. "This is a chance to give back to the community. Certainly I've gotten a lot more from my involvement than I've been able to give to the organization."

A huge reward is "to see some of the women grow; to know that some of the people you've worked with are going to be able to make it."

Leibert graduated from the Southern Illinois University in Edwardsville and holds an MBA from Texas A&M. She teaches English as a second language two nights a week, is an avid baseball fan, enjoys Houston's cultural offerings and is an enthusiastic traveler.

Other JSC award winners were Keith Day, Technical/Assistance Aid; Jack Anthamatten, Crafts, and John Young, Length of Service,

Leibert finds human resources work rewarding too. "It's neat to work in a place where people want to come to work," she said. "The people are great and it's exciting to be here." □

Cub Scouts explore frontiers at Gilruth

When this year's theme for the annual Cub Scouts of America's Bay Area Council Twilight Camp turned out to be "Exploring the Final Frontiers," the use of JSC's Gilruth Center was a natural choice.

The camp, which featured five-hour evening sessions June 8-12 and a final overnight camp-out, allowed more than 300 elementary-aged Cub Scouts to have fun, work together and earn coveted honors that counted toward higher ranks.

It was the first time JSC had hosted the Cub Scouts, said Camp Director Elaine Stephens, a den leader with Pack 609 when not working as a control room design engineer in Engineering's Crew and Thermal Systems Division. The lure of NASA drew 30 percent more scouts than in any previous year.

"The kids really enjoyed it," Stephens said. "They asked to come back here next year. Like with every Cub Scout camp, this time of year it was hot. But the Gilruth was nice because we tried to do things under the trees."

Stephens and fellow Den Leader Phil Restivo, a Mission Control facility software integration manager for United Space Alliance who was camp sports event coordinator, were among about 20 NASA and contractor employees who participated in the event. More attended as parents.

Restivo said the scouts managed to cover at least 15 different achievements toward their next ranks. Examples included playing in different team sports, running fitness challenges such as the 50-yard dash, demonstrating accuracy with a bow and arrow or pellet gun, identifying different leaves and the trees they came from, launching seltzer rockets and running a "Mission to Io" obstacle course.

"There was a lot of support throughout NASA. We had a lot of paperwork and things to clear and it took six months, but JSC Center Director George Abbey was very supportive," Stephens said. "Safety worked with me and security and made it possible to conduct BB gun and archery target practice."



NASA Photo by Steve Candler

Astronaut Kevin Kregel talks to Cub Scouts at JSC's Gilruth Center during last week's Twilight Camp. The camp is a yearly camp for Cub Scout-aged children who participated in physical fitness, archery, pellet gun practice, engineering and science demonstrations during the late afternoon and early evening. JSC workers provided demonstrations on space suits, Mars exploration and space meteorology, and astronauts Kregel and Gerhard Thiele delivered talks and signed autographs.



STS091-703-031



STS091-375-011

Be proud of Phase 1, STS-91 commander tells JSC

By John Ira Petty

Andy Thomas, the astronaut who closed out America's presence on Mir, described the spirit of cooperation in the Phase 1 program as one of the great historical events of the 20th Century when he made his return to Houston.

The STS-91 crew, launched aboard *Discovery* on June 2, returned to Ellington Field some 11 days later, not quite a day ahead of Thomas, who remained in Florida an extra day to regain his land legs.

Commander Charlie Precourt told the welcoming crowd that "We couldn't be happier with the way things have ended for Phase 1." He said it should be a joyful moment for the crew and for all who joined them in putting the program together. "You have a lot to be proud of," he said.

In fact, he said, the end of the flight marks the beginning of Phase 2. Phase 1 was a step-

ping stone, and its success bodes well for the future of cooperation with the Russians and other international partners.

Dom Gorie, STS-91 pilot, said many expectations were exceeded during his first space flight. One reason was the backing he received, beginning with support from his fellow crew members, he said.

Franklin Chang-Diaz, making a record-tying sixth space flight, said he thought that perhaps this mission would be "old hat." It wasn't—docking with another spacecraft and getting to see the inside of Mir were new highlights. The mission specialist and payload commander called Mir "a remarkable piece of engineering and achievement."

Chang-Diaz, like several other members of the crew, expressed special thanks to the training team that had prepared them for their flight. "I really appreciate all of you and what you did for us," he said.

Mission Specialist Wendy Lawrence said

there are too many people to list who have made Phase 1 what it is. She did single out Phase 1 Program Manager Frank Culbertson. She said she believes history will show that Culbertson has been the foundation of the Phase 1 program and that he has made it the success it has been.

Janet Kavandi recalled several scenes from the mission. One was when the Mir first came into sight as a distant, tiny speck. "You realized there are actually human beings on that station, 200 miles above the Earth" with only voice contact with other humans."

Valery Ryumin, director of the Russian portion of the shuttle-Mir program and a veteran of 362 days in space on three previous flights, spoke briefly in English to the welcoming crowd. Then, in Russian, he thanked NASA leadership for the opportunity to fly on the shuttle. He also thanked Culbertson, his NASA counterpart, for his tremendous contribution to this program.

Ryumin had been commander of mission control in Russia when the first Mir module was launched, but never thought he would visit the space station. He suggested that JSC Director George Abbey and Culbertson visit the International Space Station in five years.

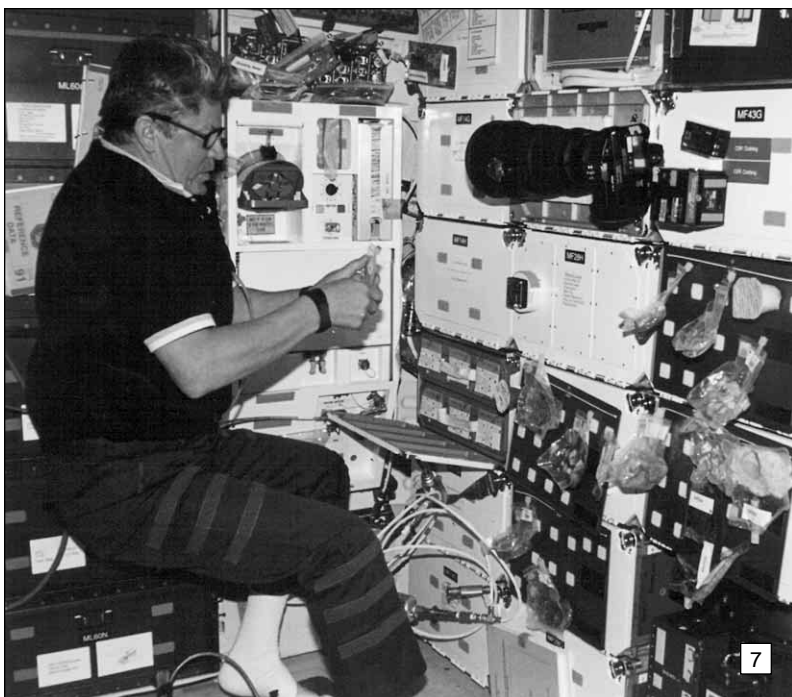
"I always thought Valery had some great ideas," said Abbey.

Culbertson said Phase 1 had been demanding, and that Phase 2 also would be a real challenge. "But we'll get there," he said.

When Thomas returned the following day, he echoed his crewmates remarks..

He thanked the STS-91 crew "for the great ride home," and the STS-89 crew for taking him to Mir.

Thomas said the space age began in competition. "I think one of the great historical events of the 20th Century is that that spirit of competition has evolved into a spirit of cooperation, peacefully." The Phase 1 program is a great symbol of that cooperation. □



STS091-378-001



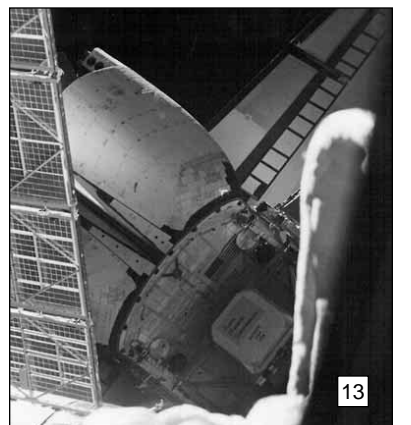
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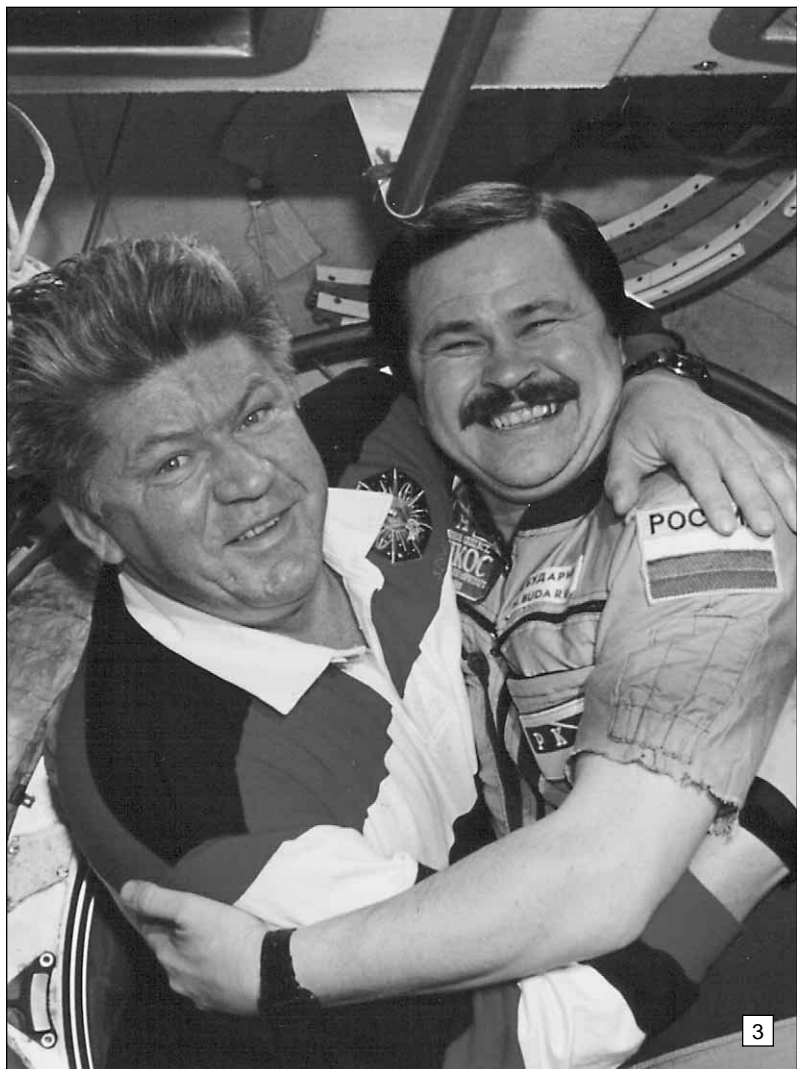
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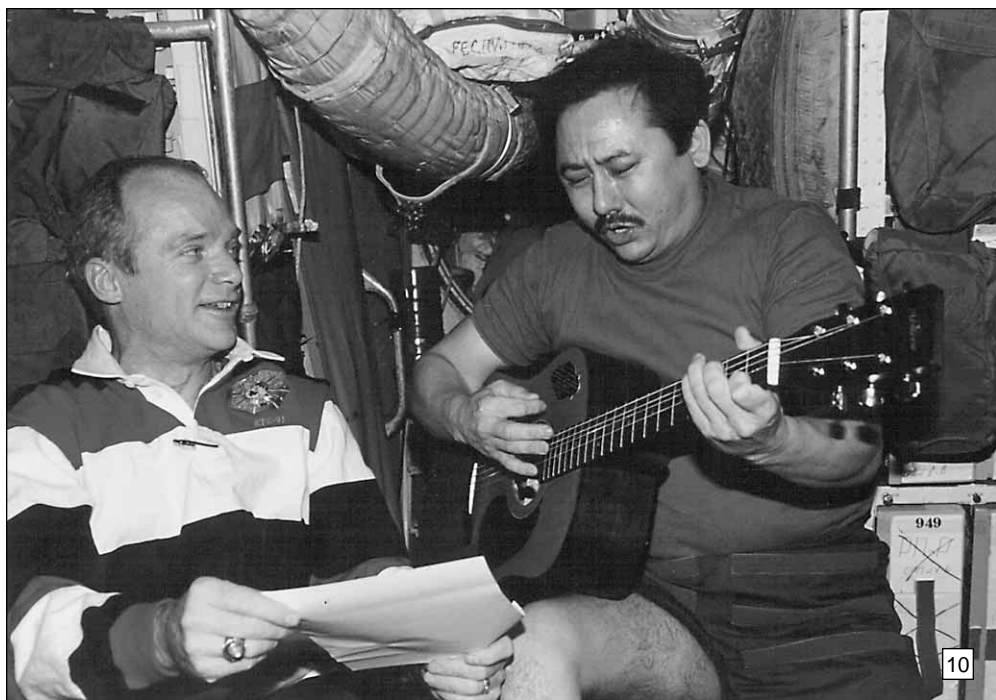
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S98-08360



S98-08357



STS091-373-005



11



STS091-360-010



15

- 1 The STS-91 crew and the Mir 25 crew gather in the Mir core module for a portrait.
- 2 Astronaut Andy Thomas works out on a Mir treadmill before joining the STS-91 crew.
- 3 Valery Ryumin, Russian director of the shuttle-Mir program and STS-91 mission specialist, embraces cosmonaut Nikolai Budarin just after hatch opening.
- 4 Mir floats above the Earth as seen from *Discovery* on the final flyaround.
- 5 Thomas signs autographs at welcoming ceremonies.
- 6 Ryumin and Frank Culbertson, Russian and U.S. heads of the shuttle-Mir program, talk after the mission.
- 7 Ryumin takes a turn at galley duty aboard *Discovery*.
- 8 Thomas adds the last signature to a plaque with names of all U.S. visitors to Mir.
- 9 Payload commander Franklin Chang-Díaz works with the Alpha Magnetic Spectrometer experiment aboard *Discovery*.
- 10 Cosmonaut Talgat Musabayev strums a tune from sheet music held by *Discovery* Commander Charles Precourt.
- 11 Mission specialist Wendy Lawrence exercises aboard *Discovery*.
- 12 *Discovery* pilot Dom Gorie prepares a meal.
- 13 The Alpha Magnetic Spectrometer as photographed from Mir.
- 14 Lawrence and Mission Specialist Janet Kavandi work on the flight deck during rendezvous operations.
- 15 *Discovery* crewmembers check the morning mail.

Ripped from the ROUNDUP

Ripped straight from the pages of old Space News Roundups, here's is what happened at JSC on this date:

1963

Manned Spacecraft Center is scheduled to complete its move into its new Clear Lake complex by July 1, 1964. Complete plans for the move have been laid out in a Master Move Plan which has been published.

The tentative plan calls for about 200 personnel to be in place at the Clear Lake site prior to the major move period, about 2,000 to move in during that period, and about 900 to move in following the major move period based on building a availability.

1968

A pulmonary disease about which little is known has forced Lt. Cdr. John S. Bull, 33, to withdraw from the astronaut program, the National Aeronautics and Space Administration announced Tuesday.

MSC medical authorities said the disease is uncommon has been defined in only the past few years. It has no medical name, but is sometimes called "Aspirin Asthma." Its cause is unknown and there is no cure.

1973

The 10 Soviet Cosmonauts and other members of the delegation from the Soviet Union have been hard at work since their arrival at JSC July 9, 1973. The group came to JSC to begin preparation for the joint U.S.-Soviet space mission (ASTP) in 1975.

1978

Flight controllers here were back in the active mode beginning on Monday, July 10, trying to return the space station Skylab to an even keel once again. In the early morning hours on Sunday, July 9, the vehicle's electrical power distribution system and all equipment connected to it autidisconnected due to an energy imbalance. In simple terms, the vehicle's power supply was unable to provide sufficient power for the equipment it was operating.

1983

Administrator James M. Beggs said Monday NASA will give the President a proposal for a space station project within a year and hopes to have it operational by 1992. Beggs said the Agency hopes to get start up money from Congress in the Fiscal Year 1985 budget.

1993

NASA and the Texas Medical Center have signed an agreement that will formalize and expand a long-standing working relationship that puts their combined expertise and experience to work on scientific, technical and management issues important to improving the economy and life on Earth, Johnson Space Center Director Aaron Cohen announced Friday.



JSC Photos 98E05256 and S98-08310 by Robert Markowitz

JSC Clinic offers medical value with check-ups

The JSC Clinic is encouraging all NASA employees to ask themselves the following questions when they receive annual notices that it's time for their Total Health physical examinations: Are you healthy? Do you know the signs of cancer? When was your last physical?

"All of these questions and more need to be answered in order to maintain a healthy lifestyle," said Dr. Alfred Rossum, deputy project manager of the JSC Clinic. "NASA has given each civil servant the opportunity to maintain good health by allowing the necessary time for a physical every year."

According to Rossum, the regular health checks provided by NASA and its JSC Clinic contractor, Kelsey Seybold, would cost hundreds of dollars if provided by private practitioners. The most basic physical offered, the Birthday Check, still provides a Blood Lipid Panel that would cost \$50-\$60 if performed by a private physician. The comprehensive JSC Clinic physical that NASA provides for employees includes more than \$800 worth of examinations.

For women, mammograms received through the JSC Clinic for those over 40 would cost \$100 or more if done outside the JSC system, and yearly PAP smears would cost about \$50.

For men, the yearly PSA blood

test for prostate cancer provided to those over 40 would cost around \$60 if not done at the JSC Clinic.

"It is a widely recognized fact that companies with a good preventative health program have fewer sick days lost and healthier employees who can enjoy a better quality of life," said Dr. James Baker, project manager for the JSC Clinic. "In addition to providing physical exams and other preventative medicine services, the JSC clinic is always available to persons who become ill or experience an injury while onsite."



total health

Another service provided by the JSC Clinic is medical education and safety information through a film library, booklets, and special programs which are presented on a monthly basis at no cost to civil servants and contractors.

In addition, JSC's Total Health Program provides access to the Health-Related Fitness Program, the Nutrition Intervention Program and the Employee Assistance Program.

"Our policy is to provide occupational medicine of the highest possible quality," said Reta Warren, Kelsey Seybold's clinic laboratory manager. "If you want to optimize your quality of life come see us."

Employees may call the JSC Clinic at x34111 visit the Bldg. 8 facility at any time during normal work hours.

Top: JSC Clinic Nurse Sharon Briceno monitors Robert Wren as he undergoes a treadmill stress test. Through the JSC clinic, employees have access to a wide variety of tests during their regular physicals that are worth hundreds of dollars if performed by private physicians. **Left:** Dr. Alfred Rossum, deputy project manager of the JSC Clinic, and a clinic staff member take the blood pressure of Staff Nurse Lisa Marak.

Gilruth Center News

Hours: The Gilruth Center is open from 6:30 a.m.-10 p.m. Monday-Thursday, 6:30 a.m.-9 p.m. Friday, and 9 a.m.-2 p.m. Saturday.

Sign up policy: All classes and athletic activities are on a first come, first served basis. Sign up in person at the Gilruth Center and show a yellow Gilruth or weight room badge. Payment must be made in full, in exact change or by check, at the time of registration. No registration will be taken by telephone. For more information, call x30304.

Gilruth badges: Required for use of the Gilruth Center. Employees, spouses, eligible dependents, NASA retirees and spouses may apply for photo identification badges from 7:30 a.m.-9 p.m. Monday-Friday; and 9 a.m.-2 p.m. Saturdays. Cost is \$10. Dependents must be between 16 and 23 years old.

Nutrition intervention program: Would you like to learn more about the role diet and nutrition play in your health? This six-week program includes lectures, a private consultation with the dietitian and blood analysis to chart your progress. Program is open to all employees, contractors and spouses. For more information call Tammie Shaw at x32980.

Defensive driving: One-day course is offered once a month at the Gilruth Center. Pre-registration required. Cost is \$25. Call for next class.

Stamp club: Meets second and fourth Mondays at 7 p.m. in Rm. 216.

Weight safety: Required course for employees wishing to use the Gilruth weight room. The next classes are scheduled for 8 p.m. June 25 and July 9 (must be on time to receive credit for class). Pre-registration is required. Cost is \$5. Annual weight room use fee is \$90. Additional family members are \$50.

Exercise: Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24 for eight weeks.

Aikido: Introductory martial arts class meets from 5:15-6:15 p.m. Tuesday and Wednesday. New classes begin the first of each month. Instruction is by a fourth-degree black belt. Cost is \$35 per month.

Step/bench aerobics: Low-impact cardiovascular workout. Classes meet from 5:15-6:15 p.m. Monday, Tuesdays and Thursdays. Cost is \$32 for eight weeks. Call Kristen Taragzewski, instructor, at x36891 for more information.

Yoga: Low-impact stretching exercises designed for people of all ages and abilities in a Westernized format. Classes meet from 5-6 p.m. Thursdays. Cost is \$32 for eight weeks.

Ballroom dancing: Classes meet from 7-8:15 p.m. Thursdays for beginner-advanced classes and from 8:15-9:30 p.m. for beginner-intermediate and intermediate students. Cost is \$60 per couple.

Country and western dancing: Beginner class meets 7-8:30 p.m. Monday. Advanced class (must know basic steps to all dances) meets 8:30-10 p.m. Monday. Cost is \$20 per couple.

Fitness program: Health Related Fitness Program includes a medical screening examination and a 12-week individually prescribed exercise program. For more information call Larry Wier at x30301.

Gilruth Home Page: Check out all activities at the Gilruth online at: <http://www4.jsc.nasa.gov/ah/exceaa/Gilruth/Gilruth.htm>

Ticket Window

Bldg. 3 Exchange Store hours are 7 a.m.-4 p.m. Monday-Friday.

Bldg. 11 Exchange Store hours are 9 a.m.-3 p.m. Monday-Friday.

For more information, please call x35350.

The following discount tickets are available at the Exchange Stores:

| | |
|--|---|
| General Cinema Theaters | \$5.50 |
| Sony Loew's Theaters | \$5.00 |
| AMC Theaters | \$4.75 |
| Astroworld One Day Admission | \$24.25 |
| (valid at all Texas Six Flags Theme Parks) | |
| Astroworld Season Pass | \$57.75 |
| (valid at all Texas Six Flags Theme Parks and Water World) | |
| Moody Gardens (2 of 6 events) | \$ 9.75 |
| Sea World | adult \$27.25child (3-11) \$18.25 |
| Schiltterbahn | adult \$20.75child (3-11) \$17.50 |
| Space Center Houstonadult \$10.25child (4-11) \$17.00 | |
| JSC civil service employees free. | |
| Splashtown Water Parkadult \$14.50 child (under 48") \$11.50 | |

Metro Tokens and value cards also are available.

Roundup Deadlines

Beginning in August, the Space News Roundup will be published the first Friday of every month. The change in frequency reflects a recognition of the increasing availability of up-to-the-minute news available through television, electronic mail, the Internet and other advancements in computer networking technology. The Roundup will take on a news magazine format that endeavors to provide more in-depth content that will allow employees more insight into the activities of the agency and the center.

Story ideas should be submitted as far in advance as possible, but no later than two weeks prior to the date of publication.

The new deadline for Dates & Data calendar items is one month prior to the desired date of publication. Stories and ideas should be submitted to Editor Kelly Humphries in Bldg. 2, Rm. 180, or via e-mail to kelly.o.humphries1@jsc.nasa.gov.

Retirees should submit change of address notices to the distribution group at Mail Code BT552 or call Ignacia Ramirez at 281-483-6161.

People on the Move

Human Resources reports the following personnel changes as of July 4, 1998:

Key Management Assignments

Bonnie Dunbar was selected as assistant director for university research and affairs in the Office of the Director.

Ed Campion was selected as chief, Operations and Program Support Branch in the Public Affairs Office.

Additions to the Workforce

Laurie Carrillo joins the Ascent/Descent Dynamics Branch in the Mission Operations Directorate as a flight controller.

Rick LaBrode joins the Flight Director Office in the Mission Operations Directorate as a flight director.

Michael Boggs and Patti Moore join the Operations Division in the Mission Operations Directorate as flight controllers.

Todd Campa joins the Guidance and Propulsion System Branch in the Mission Operations Directorate as a flight controller.

Steve Duran joins the Communications and Data Systems Branch in the Mission Operations Directorate as a flight controller.

Howard Sterling joins the Electrical Systems Branch in the Mission Operations Directorate as a flight controller.

Tara Angstadt joins the Propulsion and Fluids Systems Branch in the Engineering Directorate as an aerospace engineer.

Brandan Robertson joins the Structural Mechanical Design/Analysis Branch in the Engineering Directorate as an Aerospace Engineer.

Julio Acevedo and Jorge Sotomayor join the Logistics and Maintenance Office in the ISS Program Office as logistics and maintenance engineers.

Darrell New joins the Element Integration Office in the ISS Program Office as a vehicle integration engineer.

Promotions

Richard Bennett was selected as a contracting officer in the Business Systems Office in the Business Management Directorate.

Terri Moran was selected as the secretary of the Automation, Robotics, and Simulation Division in the Engineering Directorate.

Sharon Robinson was selected as a secretary in the Space and Life Sciences Directorate.

Oma Cross was selected as the directorate secretary in the Space Operations Management Office.

Oma Cross was selected as a secretary of the Space Operations Office.

Reassignments Between Directorates

Debbie Conder moves from the Office of the Chief Financial Officer to the Business Management Directorate.

Warren Tyree moves from the Safety, Reliability, and Quality Assurance Office to the Engineering Directorate.

Don McCormack moves from the Space Shuttle Program Office to the ISS Program Office.

Doug Sander moves from the Mission Operations Directorate to the ISS Program Office.

Steve Poulos moves from the Engineering Directorate to the EVA Project Office.

Reassignments Between Centers

John Gatto of the Mission Operations Directorate moves to Goddard Space Flight Center

Victor Lucas of the Mission Operations Directorate moves to Langley Research Center.

Carlos Roithmayr of the Engineering Directorate moves to Langley. Susan Minor of the Space and Life Sciences Directorate moves to NASA Headquarters.

Retirements

A. J. Roy of the Flight Crew Operations Directorate.

John Sunkel of the Engineering Directorate.

Connie Alexander and Jeff DeTroye of the Space and Life Sciences Directorate.

Resignations

Sandra Rybarczyk of the Business Management Directorate.

Susan Beisert of the Mission Operations Directorate.

Dirk Johnson of the Engineering Directorate.

Mildred Bryant of the Engineering Directorate.

Bonnie Dunbar named assistant director for University Research and Affairs

Bonnie Dunbar is JSC's new assistant director for University Research and Affairs.

In this position, she will serve as the focal point for JSC's grant programs; educational programs and initiatives; and collaborative efforts with colleges, universities, external

scientific and engineering organizations, and other government agencies.

For a transitional period, Dunbar also will continue to serve as acting deputy director of Flight Crew Operations.

Dunbar has been an astronaut

since 1980 and is a veteran of five space flights.

In addition, she previously served as assistant director, Mission Operations, as assistant associate administrator, Office of Life and Microgravity Sciences and Applications at NASA Headquarters.

Key changes in personnel assignments reported at JSC's Space and Life Sciences Directorate

JSC's Space and Life Sciences Directorate reports a number of recent key personnel assignments.

Richard Nygren has been named associate director. Nygren joined JSC in 1966 as assistant to the director for Russian programs in Space and Life Sciences.

Dr. Sam Pool was named assistant director for space medicine. Pool joined JSC in 1968 and served as an Apollo flight surgeon and medical operations chief during the start of the shuttle program. Since that time he has served as chief, Medical Sciences Division.

Dr. Charles Sawin has been named assistant to the director for biomedical research and countermeasures. Sawin joined JSC in 1971,

supporting Apollo and Skylab biomedical research and most recently was director of the Space Biomedical Research Institute prior to his current assignment.

Dr. Helen Lane was named assistant to the director for advanced program coordination. Lane has been JSC chief nutritionist since 1989 and most recently, within Space and Life Sciences has been assistant to the director for intramural research.

Chief William Stephenson has been named assistant director for flight programs. Stephenson joined JSC in the Flight Operations Directorate in 1964. Stephenson has held various management positions at JSC and NASA Headquarters. Most recently he was the manager of the

Science Payloads Management Office.

Fred Spross has been named manager of the Science Payloads Management Office. Spross joined JSC 1965 as a project engineer in Engineering and most recently was deputy manager of the Biomedical Hardware Development and Engineering Office.

Sean Keptra has been named JSC's occupational health officer and industrial hygiene manager. Keptra joined JSC in 1990 as an industrial hygienist in Space and Life Sciences. From 1995 through 1998, he worked in the Health, Safety and Environmental Compliance Office of the Safety, Reliability and Quality Assurance Directorate.

Dates & Data

July 22

Astronomy seminar: The JSC Astronomy Seminar will meet at noon July 22 in Bldg. 31, Rm. 129. An open discussion meeting is planned. For more information, call Al Jackson at x35037.

Communicators meet: The Clear Lake Communicators will meet at 11:30 a.m. July 22. For information and location, contact Allen Prescott at 335-2081 or Melissa Sommers at 332-0698.

Toastmasters meet: The Space-team Toastmasters will meet at 11:30 a.m. July 22 at United Space Alliance, 600 Gemini. For details, call Patricia Blackwell at 282-4302 or Brian Collins at x35190.

July 23

NCMA meets: The National Contract Management Association will meet at 11:30 a.m. July 23 at the Gilruth Center. Dr. John M. Horack, of Marshall Space Flight Center's Space Sciences Laboratory, will dispeak. Members should register through key contacts; for non-member registration call Julie Sarafolean, 212-6005.

July 30

Radio Club meets: The JSC Amateur Radio Club will meet at 6:30 p.m. July 30 at the Piccadilly, 2465 Bay Area Blvd. For more information, call Larry Dietrich at x39198.

Aug. 6

Warning system test: The site-wide Employee Warning System will perform its monthly audio test at noon Aug. 6. For more information, call Bob Gaffney at x34249.

Aug. 11

Aero club meets: The Bay Area Aero Club will meet at 7 p.m. Aug. 11 at the Houston Gulf Airport clubhouse. For details, call Larry Hendrickson at x32050.

NPMA meets: The National Property Management Association will meet at 5 p.m. Aug. 11 at Robinette and Doyle Caterers, 216 Kirby in Seabrook. Dinner costs \$14. For details, call Sina Hawsey at x36582.

Aug. 12

PSI meets: The Clear Lake/NASA Chapter of Professional Secretaries International will meet at 5:30 p.m. Aug. 12. For more information, call Elaine Kemp at x30556.

Aug. 13

MAES meets: The Society of Mexican American Engineers and Scientists will meet at 5 p.m. Aug. 13 at Mario's Pizza in Webster. For more information, call George Salazar at x30162.

SSQ meets: The Society for Software Quality will meet at 6:45 p.m. Aug. 13 at the Holiday Inn. For reser-

vations, call Earl Lee at 282-4331 or Herb Babineaux at x34263.

Airplane club meets: The MSC Radio Control Airplane Club meets at 7 p.m. Aug. 13 at the Clear Lake Park building. For more information, call Bill Langdoc at x35970

Aug. 14

Space Society meets: The Clear Lake Area chapter of the National Space Society will meet at 6:30 p.m. Aug. 14 at the Radisson Hotel, 9100 Gulf Fwy. in the Deer Park room. For more information, call Murray Clark at 367-2227.

Astronomers meet: The JSC Astronomical Society will meet at 7:30 p.m. Aug. 14 at the Center for Advanced Space Studies, 3600 Bay Area Blvd. For more information, call Chuck Shaw at x35416.

Aug. 19

Scuba club meets: The Lunarfins will meet at 7:30 p.m. Aug. 19 at the Redfish Restaurant under the Kemah/Seabrook bridge, Seabrook side. For more information, call Mike Manering at x32618.

Aug. 29

JSC Open House: JSC will open its gates to the public, showcasing the center's people and projects from 9 a.m.-6 p.m. Aug. 29. Volunteers are still needed; contact Kacy Carraway at x35045.

AWARENESS AWARDS: Thirty-six JSC and contractor employees received NASA's Space Flight Awareness Honoree Awards for commitment to mission quality and safety. Recipients were, seated, from left: Paula Hay, Cynthia Vasek, Alice Pursell, LaDessa Hicks, Nancy Steiss-linger, Mary Anne Plaza, June Huhn, Michelle Munk, Susan Anderson, Debbie Boettger, Blythe Starkey, Kathy Daues, Share Dobson. Second row: Lois Walker, Joe Ebert, Carol Wong, Belinda Chavez, Mary Pazur, Gloria Cybulski, Angela Scott-Graham, Pat McHan, Ginger Gibson, Travis Brice and Sylvia Stottlemeyer. Third row: Dave Williams, Shiva Shivakumar, Jack Barneburg, Elvin Pippert, Neil Dailley, George Nield, Greg Brokmeyer, Patrick Chimes, Keith Combs, Don Prevett, Ken Kaufman, Gil Bonse, Charles Brown and Kevin Lewis. Astronaut Lisa Nowak presented the awards, and recipients watched the STS 91 launch at Kennedy Space Center.



NASA Briefs

Mars instrument launched on Japanese craft

A NASA instrument to measure the gas composition of the upper atmosphere of Mars and hardware to support a radio science experiment was launched July 3 on a Japanese spacecraft known as Planet-B. The Neutral Mass Spectrometer instrument and Ultra Stable Oscillator were launched aboard Planet-B from the Kagoshima Space Center on Kyushu Island, Japan. "The Neutral Mass Spectrometer will enable us to measure the chemical composition of the upper atmosphere of Mars on a global scale, which has never been done before," said Dr. Hasso Niemann, the NMS principal investigator at NASA's Goddard Space Flight Center's Laboratory for Atmospheres.

X-33 thermal systems tests complete

NASA's F-15B Aerodynamic Flight Facility aircraft has successfully completed flight testing of Thermal Protection System materials for the X-33 Advanced Technology Demonstrator at NASA's Dryden Flight Research Center. Six flights were flown to test the durability of the TPS materials at flight velocities above the speed of sound, providing data to the X-33 demonstrator program team. The X-33 is scheduled to begin test flights in July 1999. "This is an excellent example of all the testing the X-33 program is performing on the challenging technologies we need for a reusable launch vehicle," said Dan Dumbacher, NASA's X-33 deputy program manager. The F-15B reached an altitude of 36,000 feet and a top speed of Mach 1.4 during the flight series. No damage or signs of wear from high speed or maneuvering were apparent on any of the TPS materials, providing further confidence to the X-33 team in the ability of the materials to successfully protect the X-33 and follow-on vehicles in the harsh environment in which they will fly.

SOHO recovery efforts continue

Engineers are continuing efforts to re-establish contact with the NASA/European Space Agency Solar and Heliospheric Observatory spacecraft using NASA's Deep Space Network. Contact with SOHO was lost on June 24 during maintenance operations. A team of experts from ESA and Matra Marconi Space, prime contractor for the SOHO spacecraft, gathered at NASA's Goddard Space Flight Center, to assist the NASA Flight Operations Team in assessing the situation and analyzing the spacecraft status should contact be regained. The incident will be the subject of a joint ESA/NASA inquiry board.

Buckey helps passenger on airliner

Commercial airliners can be as stressful as an orbiting neurological laboratory. Just ask Jay Buckey. Buckey was returning to Houston from Indianapolis on a commercial airliner after a post-light appearance at the Indianapolis 500 and talks to local schools and companies. "I was kind of snoozing in one of the front bulkhead seats," said Buckey,

who flew as a payload specialist on the STS-90 Neurolab mission. The pilot asked on the public address system if there were a doctor on the plane when a man traveling with his son had become unresponsive. "It turns out he was a former race car driver who had taken insulin the night before and hadn't eaten," Buckey said. "Fortunately, he had a good heart rate

and blood pressure. Alex Dunlap (alternate STS-90 payload specialist), also a physician, was there." The man didn't need CPR or anything that heroic, Buckey said. "What he needed was some glucose." Unfortunately, he couldn't take any by mouth. Buckey and Dunlap got out the airliner's medical kit and began prepar-

ing a glucose injection. However, Buckey said, the patient by this time was doing better and the plane was on an emergency return approach to Indianapolis. "We handed off to EMTs and they got him off to the hospital," Buckey said. In the end, he said, it was no big deal. "We were just sort of there as moral support."



OVER THE NET — Joel Smith spikes the ball for a point in a mixed doubles match in the inaugural Gilruth Center Sand Volleyball Tournament, held June 26. Smith was part of a team that included players from Raytheon and Hernandez Engineering.

NASA Photo by Steve Chandler

JSC Child Care teachers earn certificates

Teachers at the accredited JSC Child Care Center have completed an eight-week course earning Child Development Associate certificates. The certificates prepare them to earn a CDA Credential. The teachers also earned Continuing Education Units from Texas Southern University. The parent board of directors and JSC Child Care Center Director Kristy Hirling arranged for the teachers to participate in the course. The idea was to improve their performance in ways satisfying for the teachers and beneficial to the children at the child care center. The CDA course included classroom instruction, group activities and self-study assignments. One criterion used to measure the teachers' competency in the CDA curriculum was a Professional Resource File, developed in accordance with specific guidelines. Not only did the course promote quality child care, it encouraged personal growth. The course was taught by Cheryl Greene, of Went-R-Green Early Child Care Educators, a self described NASA "junkie". Dianna Reynolds, one of the teachers from the JSC Child Care Center said: "We learned to match our lesson plans to the age, growth and development level of the children we teach. We can then give them what they need to learn using developmentally appropriate practices." The JSC graduates are: Cindy Babineaux, Julie Becker, El Borinsky, Evelyn Coles, Nancy Coppedge, Yolanda Garza, Amanda Harris, Deana Layne, Sandra Layne, Dianna Reynolds, Shelly Schroeder, Jamie Talesky and Kristy Hirling.

Space Center Houston offers IMAX "best of best" this summer

This summer at Space Center Houston, guests are being treated to a world-class IMAX Film Extravaganza featuring the "best of the best" space films shown daily through Labor Day. Following are the five spectacular IMAX films showing this summer: "Blue Planet": Spectacular scenes from space, filmed aboard several space shuttle missions, are combined with scenes on the Earth's surface, clearly showing the powerful forces that affect the planet. Volcanoes, earthquakes and typhoons are depicted, but it is the signs of pollution, ozone depletion, deforestation

and energy consumption—as seen from space—that reveal the more disturbing human impact. "Destiny in Space": Viewers get an exciting glimpse into the future of space exploration. With amazing images of the space shuttle in orbit around the Earth as well as fly-overs of Mars and Venus, the film focuses on the partnership of humans and robots working in space. "The Dream is Alive": Shot by 14 astronauts, this film gives viewers an unprecedented window aboard the space shuttle. The film includes footage of launches and landings, satellite captures and repairs, space

walks, and an inside look at how the astronauts live in space. "Hail Columbia!": This film follows the first flight of the shuttle craft, highlighting its final preparation, the suspense of pre-launch, the thundering take-off, the flight, and the re-entry and landing. Also featured are revealing glimpses of the commander, veteran astronaut John Young; the pilot, Bob Crippen; and some of the many scientists, engineers and support personnel who made the success possible. "Mission to Mir": Filmed in space by the astronauts, this unprecedented 40-minute tour of Russia's

Space Station Mir gives viewers a unique look inside the weightless home in space that has been occupied by international teams of scientists since 1986. Blending historical footage with a live-action shot, the production illustrates the personal friendship forged by the former Cold War rivals as they begin working together in orbit. JSC civil service employees may visit Space Center Houston for free by displaying their NASA badges. Contractor employees will be charged admission, but will not be required to pay for parking. For more information, call 244-2100.

Station components to be joined for KSC tests

(Continued from Page 1) The multi-element testing plan was a late addition to the International Space Station Program that has capitalized on an opportunity presented by launch delays during the past year. Throughout the delays, due mainly to slowdowns in the construction of Russian contributions, U.S. station components have retained their original construction

schedules and their original delivery dates to Florida. With the new launch schedule, components for the first six launches will now all be at KSC simultaneously for several months, opening a window for the tests. To pull together the plan in time, a tremendous effort was put forth by a team at JSC, KSC and Boeing beginning in 1996, Arceneaux said. At JSC, the team was led by Tony

Gallina and Gerald Esquivel of the Station Vehicle Office and Rick White of Boeing. At KSC, team lead Cheryl McPhillips and Dale Strigberg headed an effort to develop the tests from the Space Station Hardware Integration Office. The success in putting together this first multi-element testing plan has led to a drive to formulate plans to continue such testing throughout the program, Arceneaux said.

"There are a lot of people who think that this is the best thing this program has done recently to strengthen itself," Arceneaux added. "Throughout assembly, we won't use this approach to test all of the interfaces, but we will certainly test the most critical ones. You are going to find every problem with your spacecraft eventually. Our goal is to make sure we find them and fix them on the ground."

JSC employees, teams receive space agency's highest honors

(Continued from Page 1) Fountain, Elena M. Huffstetler, and Bobbie G. Swan. **NASA Public Service Medal:** Constable Bill Bailey, Harris County Constable's Office, Precinct 8; Roy L. Fox, Jr., Aerospace Recovery Services; Donald E. Gardner, Ph.D., Inhalation Toxicology Associates; Annette Marie Mules, International Space School Foundation; Thomas Geoffrey Mules, International Space School Foundation, and Gloria A. Salinas, Lockheed Martin Space Mission Systems & Services. **NASA Group Achievement Award:** AER-

Cam Sprint Development Team, Composite Overwrapped Pressure Vessel Project Team, Early Communications System Team, Globally Interconnected Advanced Networked Telepresence Videoconferencing Development Team, Implementation of Aqueous Cleaning and Verification Processes Team, Lunar Mars Life Support Test Team, NASA Aviation Logistics Command Management Information Systems Implementation Team, Orbiter Upgrade Definition Team, Phase 1 Program Team, Space Shuttle Systems Integration Performance Enhancements Certification Team, and the X-33 Development Team.

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